

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8110-01-72	WISC 2024047	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CONNORSVILLE - BLOOMER

CTH O TO NORTH JCT CTH W

STH 64

DUNN COUNTY

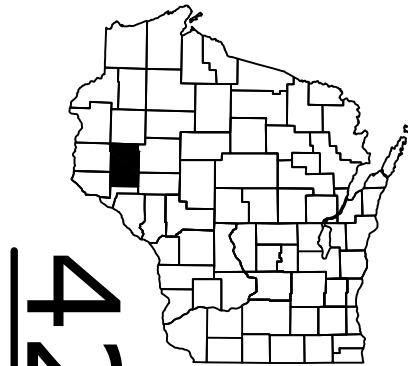
STATE PROJECT NUMBER
8110-01-72

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 = 244

PROJECT ID: 8110-01-72



42

DESIGN DESIGNATION

A.A.D.T.	2025	=	4,000
A.A.D.T.	2045	=	4,510
D.H.V.		=	N/A
D.D.		=	61/39
T.		=	22.4%
DESIGN SPEED		=	55 MPH
ESALS		=	2,110,000

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	

NET EXCEPTION TO CL LENGTH
STA 510+34.88 - STA 510+80.44
STRUCTURE B-17-157

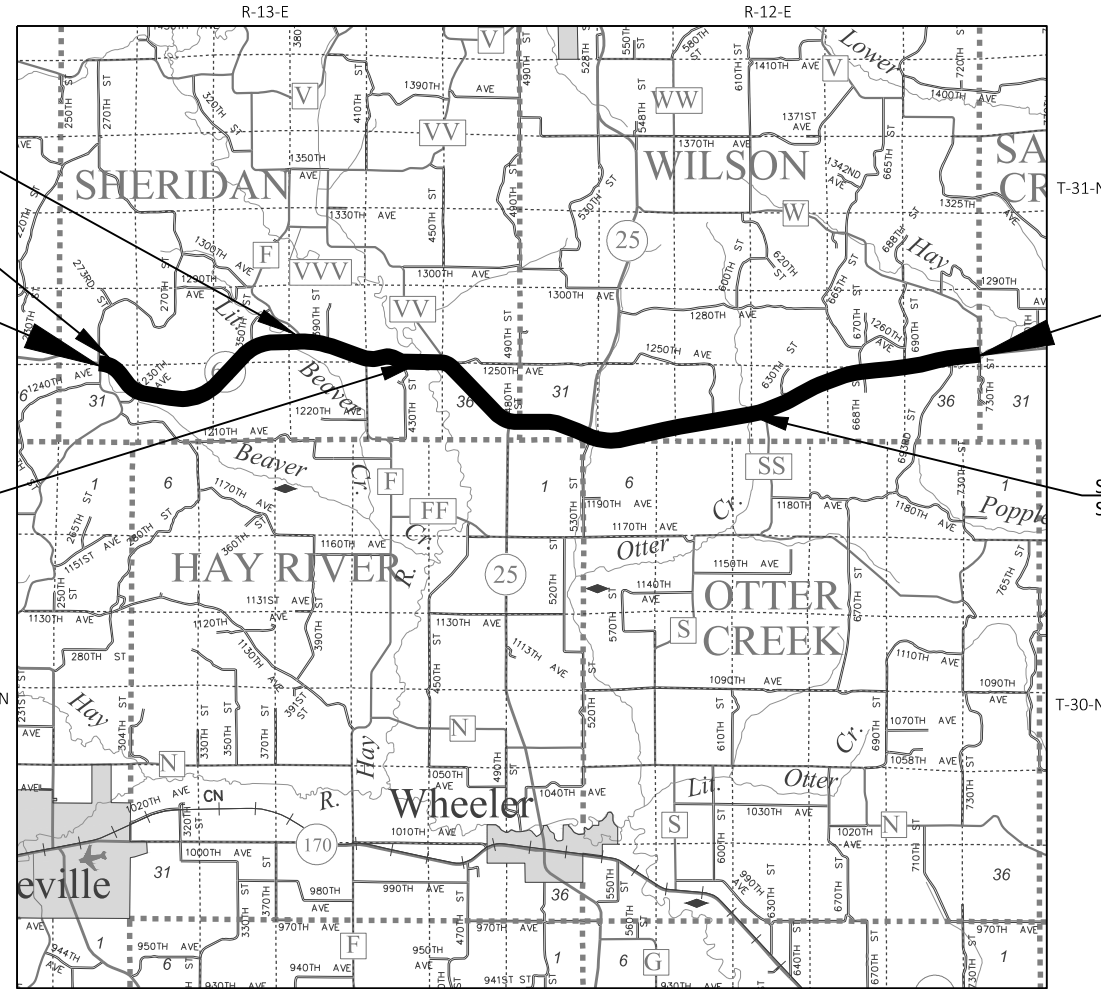
NET EXCEPTION TO CL LENGTH
STA 360+05.87 - STA 360+52.02
STRUCTURE B-17-156

BEGIN PROJECT
STA 350+05.60
Y=265366.132
X=136095.160

STRUCTURE B-17-169
STA 602+62.75

STRUCTURE C-17-50
STA 848+06.50

END PROJECT
STA 1010+73.00
Y=265890.437
X=197027.085



LAYOUT
SCALE 0 2.5 MI
TOTAL NET LENGTH OF CENTERLINE = 12.495 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DUNN 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.

ORIGINAL PLANS PREPARED BY

jt ENGINEERING, INC
Consultant Services

DATE: 7/31/2023

Matthew J. Solin
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	Surveyor	_____	JT ENGINEERING, INC
Designer	_____	JT ENGINEERING, INC	
Project Manager	_____	JESSICA DOUD	
Regional Examiner	_____	TOU YANG	
Regional Supervisor	_____	TYLER RONGSTAD	

APPROVED FOR THE DEPARTMENT

DATE: _____

Tyler Rongstad

Digitally signed by Tyler Rongstad
DN: cn=US, e=tyler.rongstad@dot.wisconsin.gov, ou=DOT, ou=Region, ou=POB Unit 5, cn=Tyler Rongstad
Date: 2023.07.31 12:45:45-0500

(Signature)

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RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 255.548 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 9.576 ACRES

GENERAL NOTES

IF THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGER'S HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.

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

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

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

WHEN THE QUANTITY OF BASE AGGREGATE IS MEASURED 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.

ASPHALTIC SURFACE SHALL BE CONSTRUCTURED OF HMA PAVEMENT 4 MT 58-34S OR GREATER AND SHALL BE PLACED IN NUMBER OF LIFTS SHOWN IN THE TYPICAL SECTIONS. APPLY TACK COAT AT A RATE OF 0.05 GAL/SY BETWEEN LIFTS OF ASPHALTIC SURFACE.

ASPHALTIC SURFACE WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

PRIOR TO THE PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED, AND COMPACTED UNLESS SHOWN OTHERWISE.

THE EXISTING RIGHT OF WAY SHOWN IS APPROXIMATE BASED OFF DUNN COUNTY GIS AND AS-BUILT PLANS.

SUPERELEVATION INFORMATION PROVIDED IN THE PLAN IS FROM PREVIOUS AS-BUILT PROJECT PLANS AND HAS BEEN PROVIDED FOR INFORMATIONAL PURPOSES ONLY. EXISTING SUPERELEVATIONS ARE TO BE MAINTAINED WITH CONSTRUCTION OPERATIONS.

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

UTILITY CONTACTS

KYLE SCHLAMPP
 CENTURYLINK - COMMUNICATION LINE
 20 S WILSON AVE
 RICE LAKE, WI 54868
 (715) 475-2029
 KYLE.SCHLAMPP@LUMEN.COM

LOREN LUZINSKI
 DUNN ENERGY COOPERATIVE - ELECTRICITY
 P.O. BOX 220
 MENOMONIE, WI 54751-0220
 (715) 232-6240
 LOREN@DUNNENERGY.COM

JACE SINCLAIR
 MOSAIC TELECOM - COMMUNICATION LINE
 401 S 1ST ST
 CAMERON, WI 54822
 (715) 458-5352
 JSINCLAIR@EXPERIENCEMOSAIC.COM

STEVEN CHAVERS
 WE ENERGIES - GAS/PETROLEUM
 104 W. SOUTH ST
 RICE LAKE, WI 54868
 (715) 234-9605
 STEVEN.CHAVERS@WE-ENERGIES.COM

MITCHELL DIENGER
 XCEL ENERGY - ELECTRICITY-TRANSMISSION
 414 NICOLLET MALL 5TH FLOOR
 MINNEAPOLIS, MN 55401
 (612) 321-3109
 MITCHELL.A.DIENGER@XCELENERGY.COM



Dial **811** or (800)242-8511

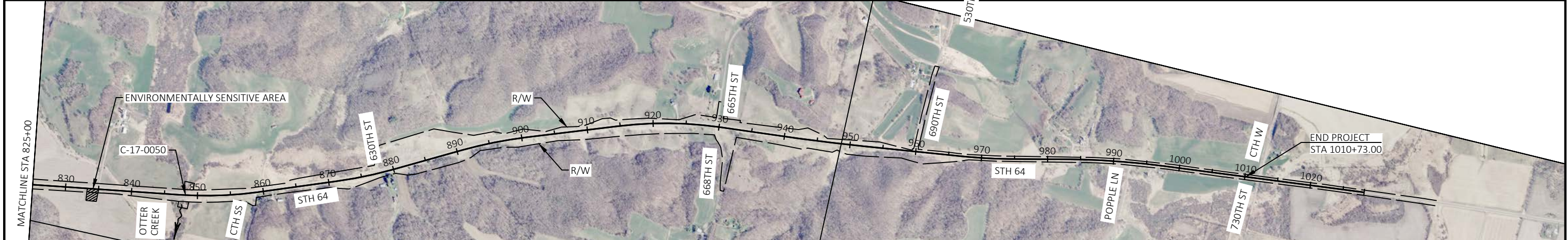
www.DiggersHotline.com

WISCONSIN DNR LIAISON

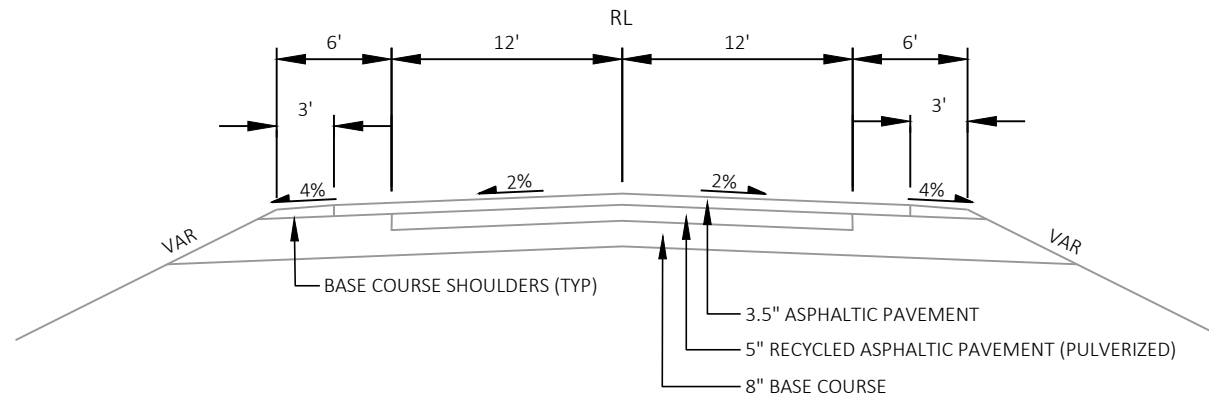
LEAH NICOL
 DNR WEST CENTRAL REGION
 1300 WEST CLAIREMONT AVENUE
 EAU CLAIRE, WI 54701
 (715) 934-9014
 LEAH.NICOL@WISCONSIN.GOV

DESIGN CONTACT

JT ENGINEERING, INC.
 1403 122ND STREET, SUITE C
 CHIPPEWA FALLS, WI 54729
 ATTN:MATT SOLIN
 (715) 382-3140
 MATTS@JT-ENGINEERING.COM

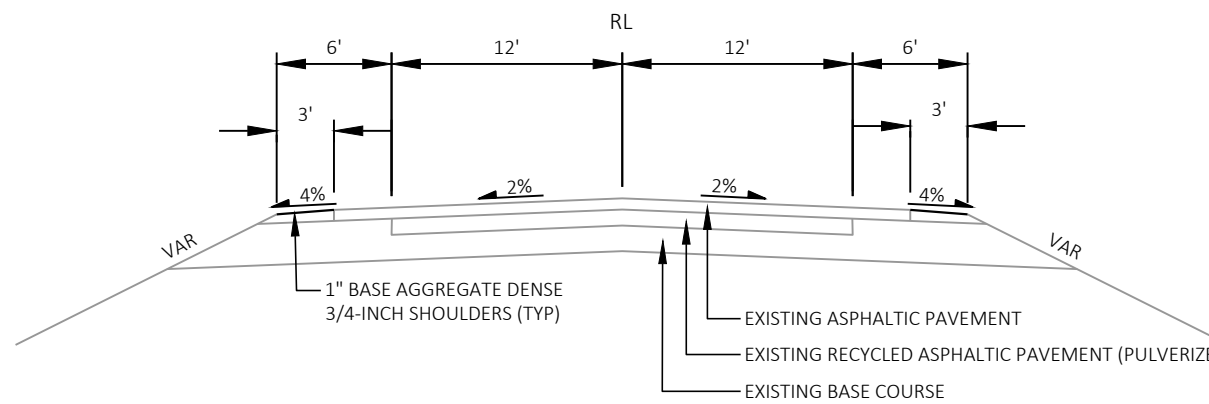


PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PROJECT OVERVIEW	SHEET	E
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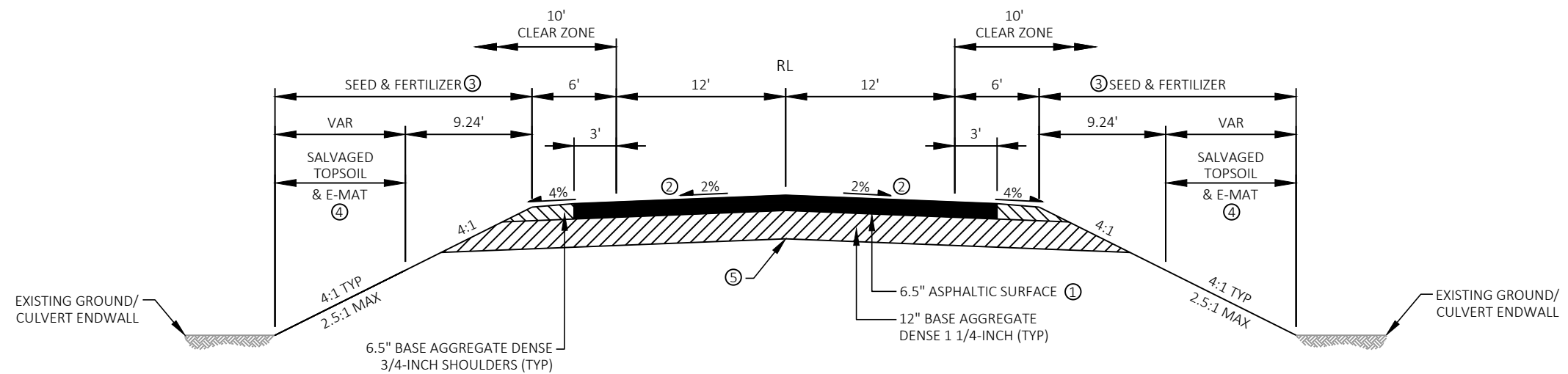
TYPICAL EXISTING SECTION

STH 64
STA 350+05.6 TO 1010+73.0



TYPICAL FINISHED SECTION

STH 64
STA 350+05.6 TO 1010+73.0



TYPICAL FINISHED SECTION

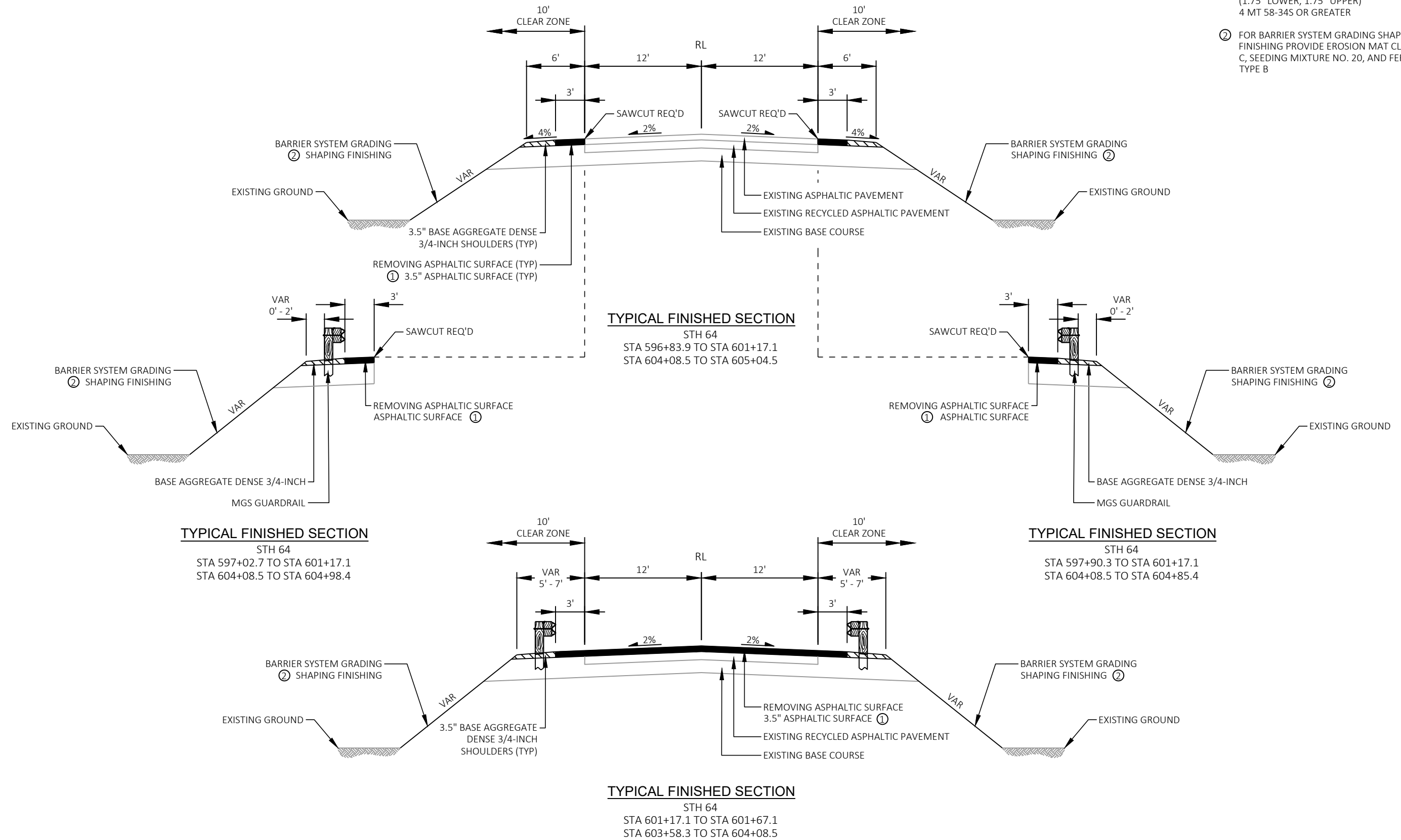
STH 64
STA 364+39.2 STA 440+07.7
STA 373+08.8 STA 444+07.4
STA 403+17.9 STA 453+07.5
STA 403+26.5 STA 477+01.0
STA 415+08.3 STA 811+85.8

NOTES:

- ① 6.5" ASPHALTIC SURFACE (2.5" LOWER, 2" MIDDLE, 2" UPPER) 4 MT 58-34S OR GREATER
- ② PAVEMENT CROSS SLOPE IS TO BE 2% NORMAL OR MATCH EXISTING CROSS SLOPE IN SUPER ELEVATED SECTIONS.
- ③ PROVIDE SEEDING MIXTURE NO. 20 TO BE UTILIZED WITHIN NON-LAWN AREAS AND PROVIDE SEEDING MIXTURE NO. 40 TO BE UTILIZED WITHIN EXISTING LAWN AREAS.
- ④ PROVIDE EROSION MAT URBAN CLASS I TYPE B AT CULVERT LOCATIONS.
- ⑤ POINT REFERRED TO ON CROSS SECTIONS.

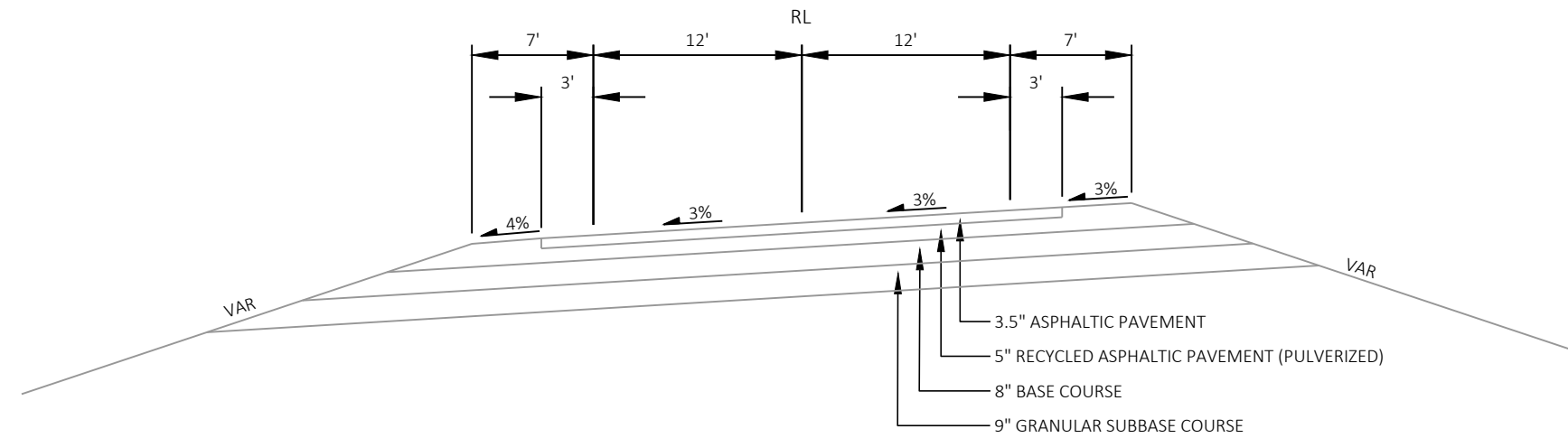
NOTES:

- ① 3.5" ASPHALTIC SURFACE
(1.75" LOWER, 1.75" UPPER)
4 MT 58-34S OR GREATER
- ② FOR BARRIER SYSTEM GRADING SHAPING FINISHING PROVIDE EROSION MAT CLASS II TYPE C, SEEDING MIXTURE NO. 20, AND FERTILIZER TYPE B



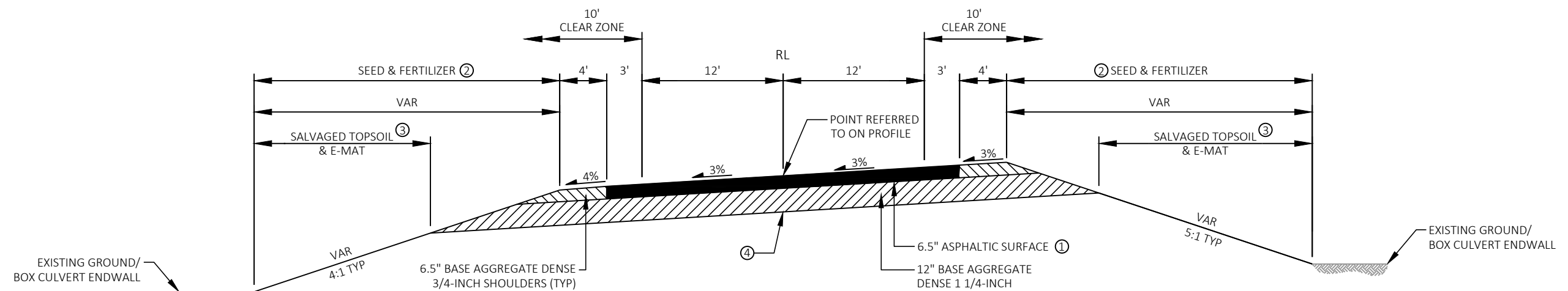
NOTES:

- ① 6.5" ASPHALTIC SURFACE
(2.5" LOWER, 2" MIDDLE, 2" UPPER)
4 MT 58-34S OR GREATER
- ② PROVIDE SEEDING MIXTURE NO. 20
- ③ PROVIDE EROSION MAT URBAN CLASS I TYPE B
- ④ POINT REFERRED TO ON CROSS SECTIONS



TYPICAL EXISTING SECTION

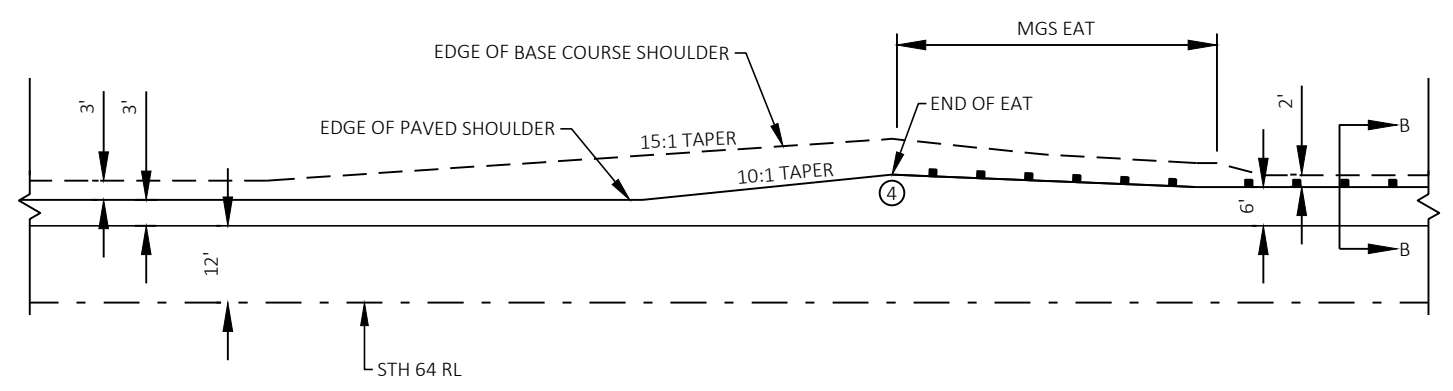
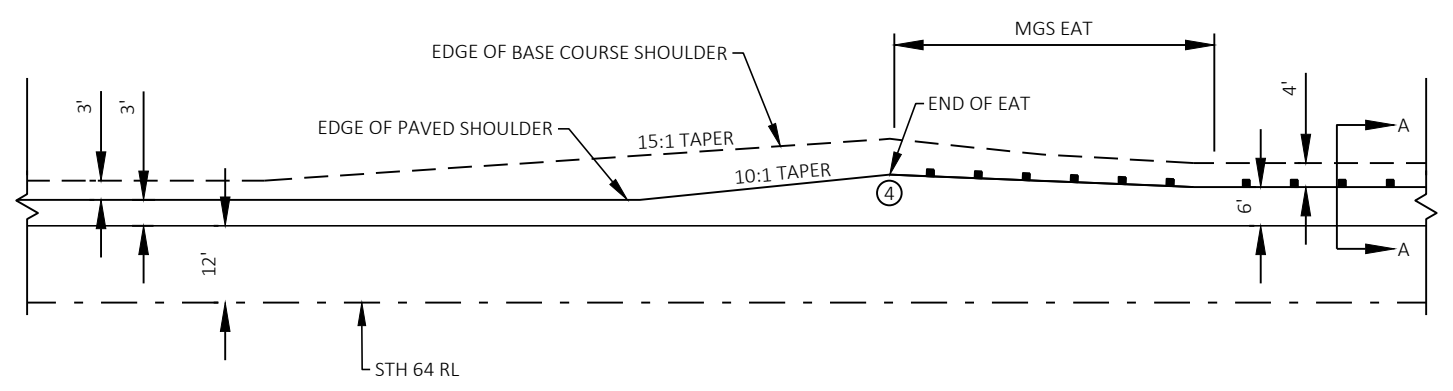
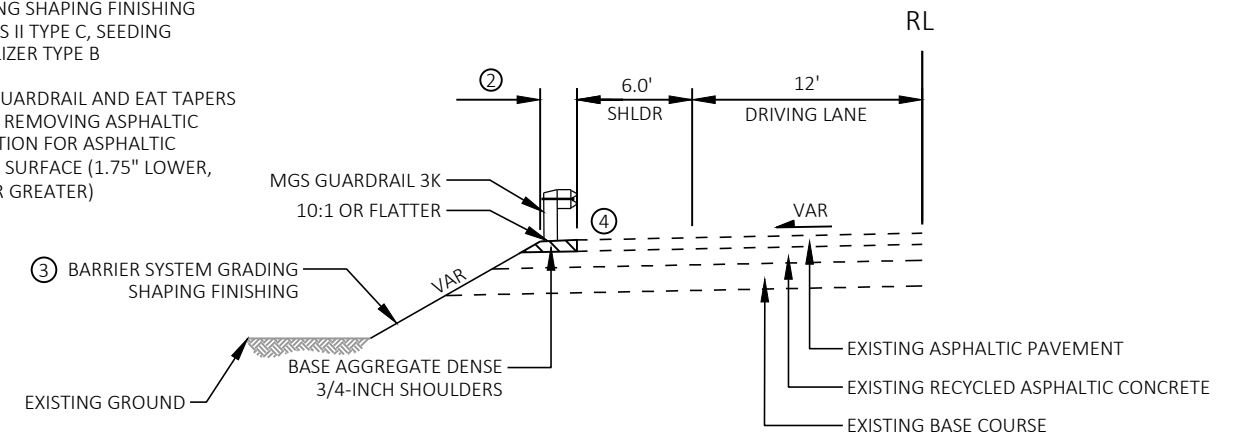
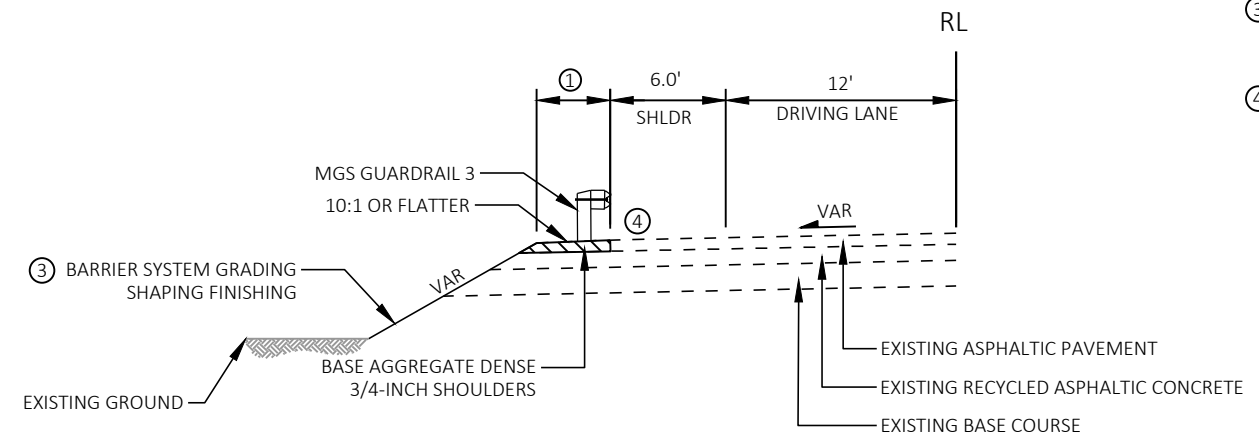
STH 64
STA 847+50.0 TO STA 849+00.0



TYPICAL FINISHED SECTION

STH 64
STA 847+50.0 TO STA 849+00.0

- NOTES:
- ① VARIES IN MGS GUARDRAIL TERMINAL EAT AREAS 4' IN NON-EAT AREAS
 - ② VARIES IN MGS GUARDRAIL TERMINAL EAT AREAS 2' IN NON-EAT AREAS
 - ③ FOR BARRIER SYSTEM GRADING SHAPING FINISHING PROVIDE EROSION MAT CLASS II TYPE C, SEEDING MIXTURE NO. 20, AND FERTILIZER TYPE B
 - ④ SHOULDER PAVING ALONG GUARDRAIL AND EAT TAPERS REQUIRES SAWING ASPHALT, REMOVING ASPHALTIC SHOULDERS, AND ASPHALTIC SURFACE (1.75" LOWER, 1.75" UPPER, 4 MT 58-34S OR GREATER)



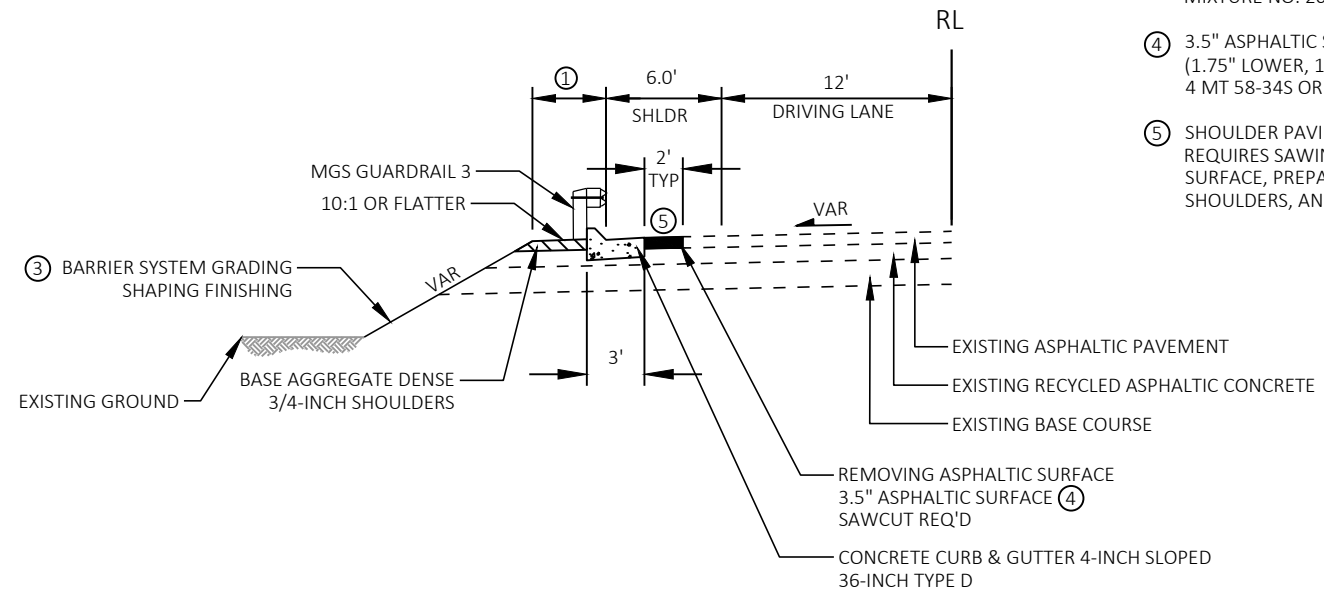
ASPHALTIC SHOULDERS AT GUARDRAIL W/ STANDARD GRADING (FLARED EAT)

- STA 358+38.0 RT TO STA 360+17.8 RT
- STA 358+44.2 LT TO STA 359+95.6 LT
- STA 360+38.9 LT TO STA 362+27.6 LT
- STA 360+62.0 RT TO STA 362+16.6 RT
- STA 494+66.5 LT TO STA 501+96.0 LT
- STA 508+64.1 RT TO STA 510+31.5 RT
- STA 508+86.7 LT TO STA 510+41.7 LT
- STA 510+73.2 RT TO STA 512+03.2 RT
- STA 510+83.5 LT TO STA 512+51.0 LT
- STA 603+55.9 LT TO STA 604+98.4 LT
- STA 603+55.4 RT TO STA 604+85.4 RT

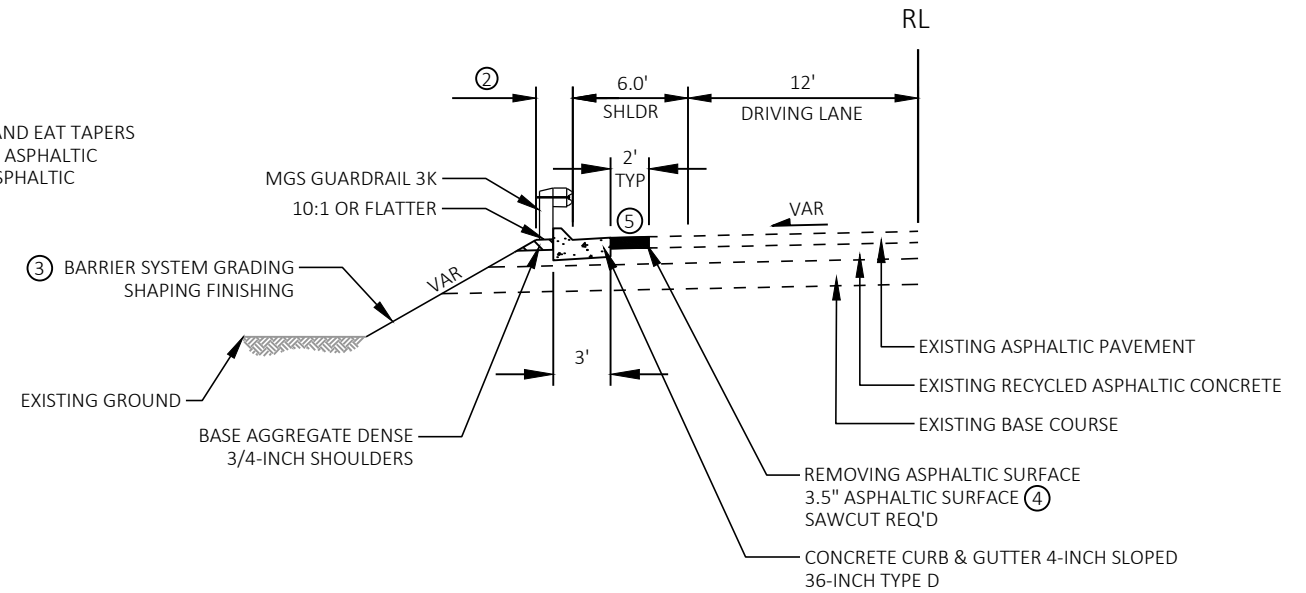
ASPHALTIC SHOULDERS AT GUARDRAIL W/ STANDARD GRADING (FLARED EAT)

- STA 483+97.2 LT TO STA 490+22.4 LT
- STA 586+37.2 RT TO STA 590+09.6 RT
- STA 597+03.7 LT TO STA 601+70.1 LT
- STA 597+90.3 RT TO STA 601+70.3 RT

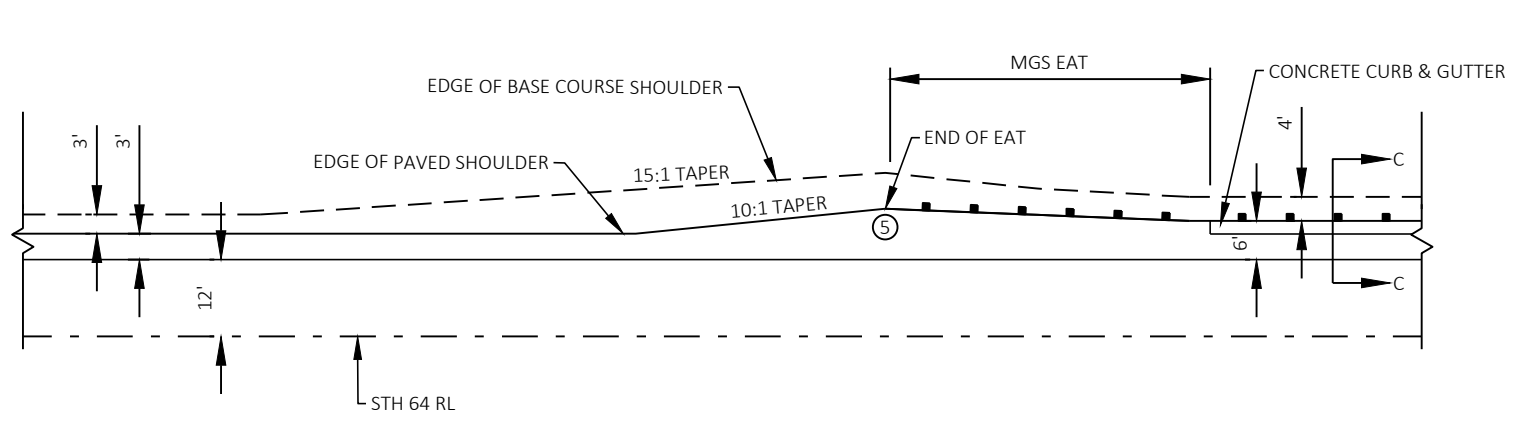
- NOTES:
- ① VARIES IN MGS GUARDRAIL TERMINAL EAT AREAS
4' IN NON-EAT AREAS
 - ② VARIES IN MGS GUARDRAIL TERMINAL EAT AREAS
2' IN NON-EAT AREAS
 - ③ FOR BARRIER SYSTEM GRADING SHAPING FINISHING
PROVIDE EROSION MAT CLASS II TYPE C, SEEDING
MIXTURE NO. 20, AND FERTILIZER TYPE B
 - ④ 3.5" ASPHALTIC SURFACE
(1.75" LOWER, 1.75" UPPER)
4 MT 58-34S OR GREATER
 - ⑤ SHOULDER PAVING ALONG GUARDRAIL AND EAT TAPERS
REQUIRES SAWING ASPHALT, REMOVING ASPHALTIC
SURFACE, PREPARE FOUNDATION FOR ASPHALTIC
SHOULDERS, AND ASPHALTIC SURFACE



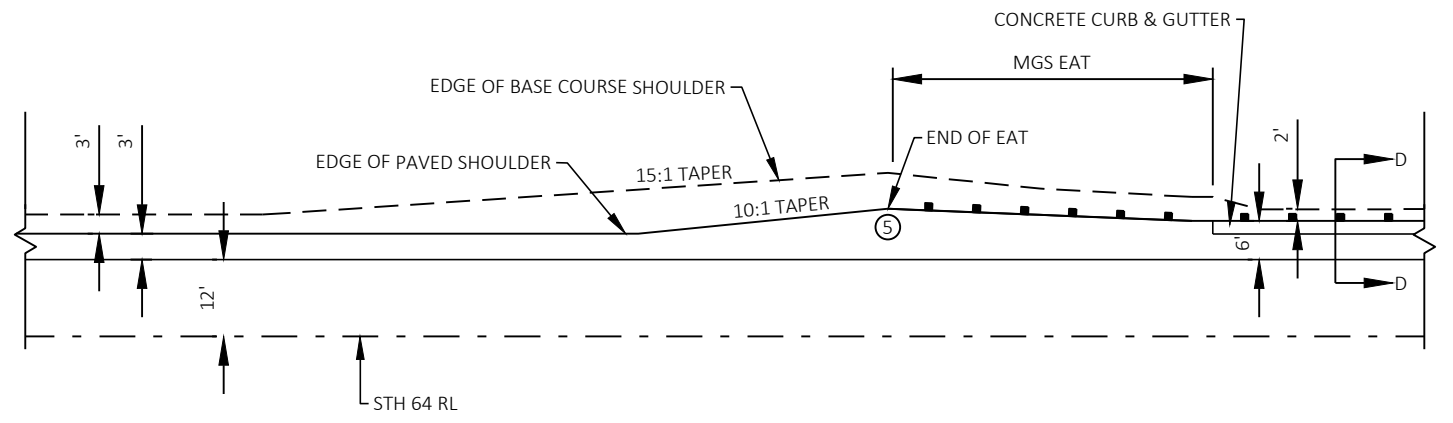
SECTION C-C



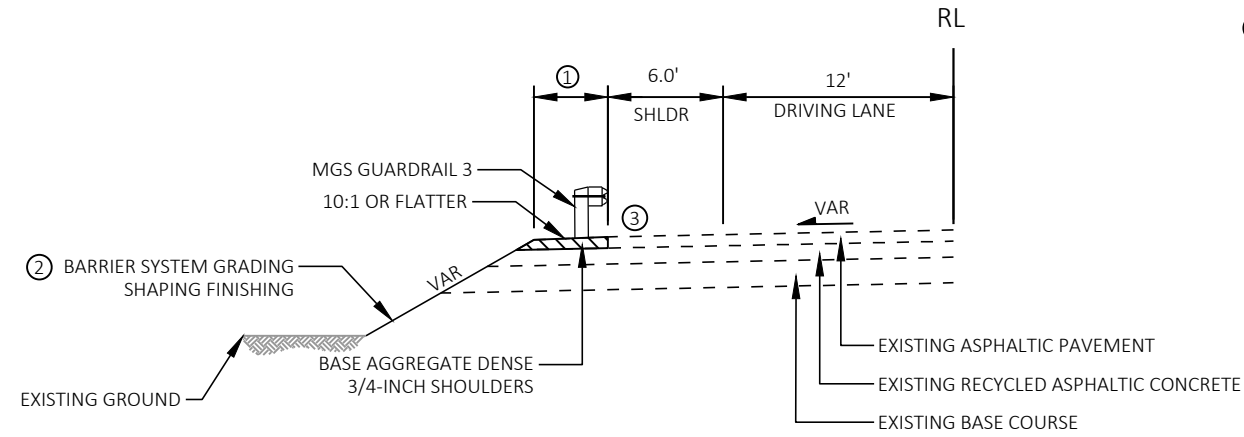
SECTION D-D



ASPHALTIC SHOULDERS AND CONCRETE CURB & GUTTER AT GUARDRAIL W/
STANDARD GRADING (FLARED EAT)
STA 549+09.7 LT TO STA 555+15.8 LT

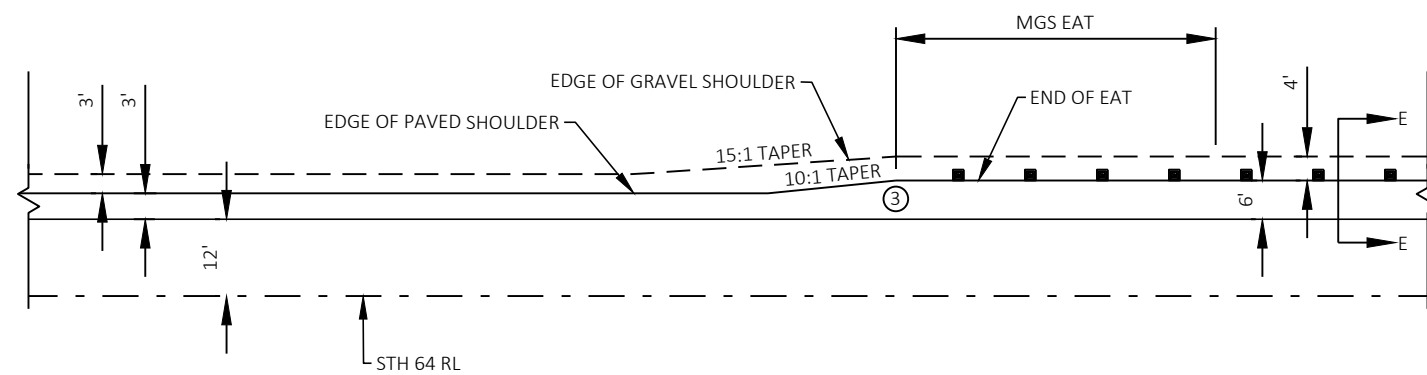


ASPHALTIC SHOULDERS AND CONCRETE CURB & GUTTER AT GUARDRAIL W/
STANDARD GRADING (FLARED EAT)
STA 476+23.4 RT TO STA 489+12.6 RT
STA 494+45.5 RT TO STA 501+03.2 RT
STA 547+63.1 RT TO STA 552+94.3 RT









SECTION A-A

- NOTES:
- ① VARIES IN MGS GUARDRAIL TERMINAL EAT AREAS
4' IN NON-EAT AREAS
 - ② FOR BARRIER SYSTEM GRADING SHAPING FINISHING
PROVIDE EROSION MAT CLASS II TYPE C, SEEDING
MIXTURE NO. 20, AND FERTILIZER TYPE B
 - ③ SHOULDER PAVING ALONG GUARDRAIL AND EAT TAPERS
REQUIRES SAWING ASPHALT, REMOVING ASPHALTIC
SURFACE, PREPARE FOUNDATION FOR ASPHALTIC
SHOULDERS, AND ASPHALTIC SURFACE (1.75" LOWER,
1.75" UPPER, 4 MT 58-34S OR GREATER)



ASPHALTIC SHOULDERS AT GUARDRAIL W/ ALTERNATIVE GRADING (NO EAT FLARE)
 STA 564+00.1 RT TO STA 566+04.4 RT

LEGEND

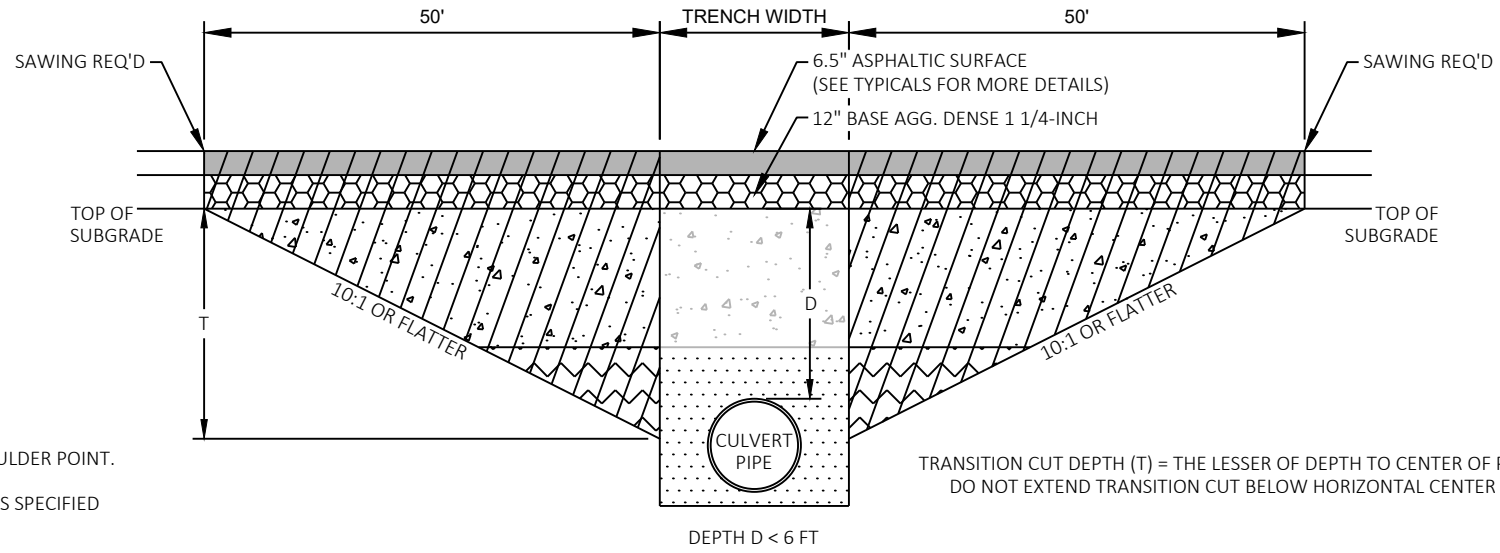
-  PROPOSED SURFACE
-  PROPOSED BASE
-  TRENCH BACKFILL
-  TRENCH OR FOUNDATION BACKFILL
-  FOUNDATION BACKFILL
-  TRANSITION CUT

NOTES:

TRANSITION CUT IS PAID AS EXCAVATION COMMON.

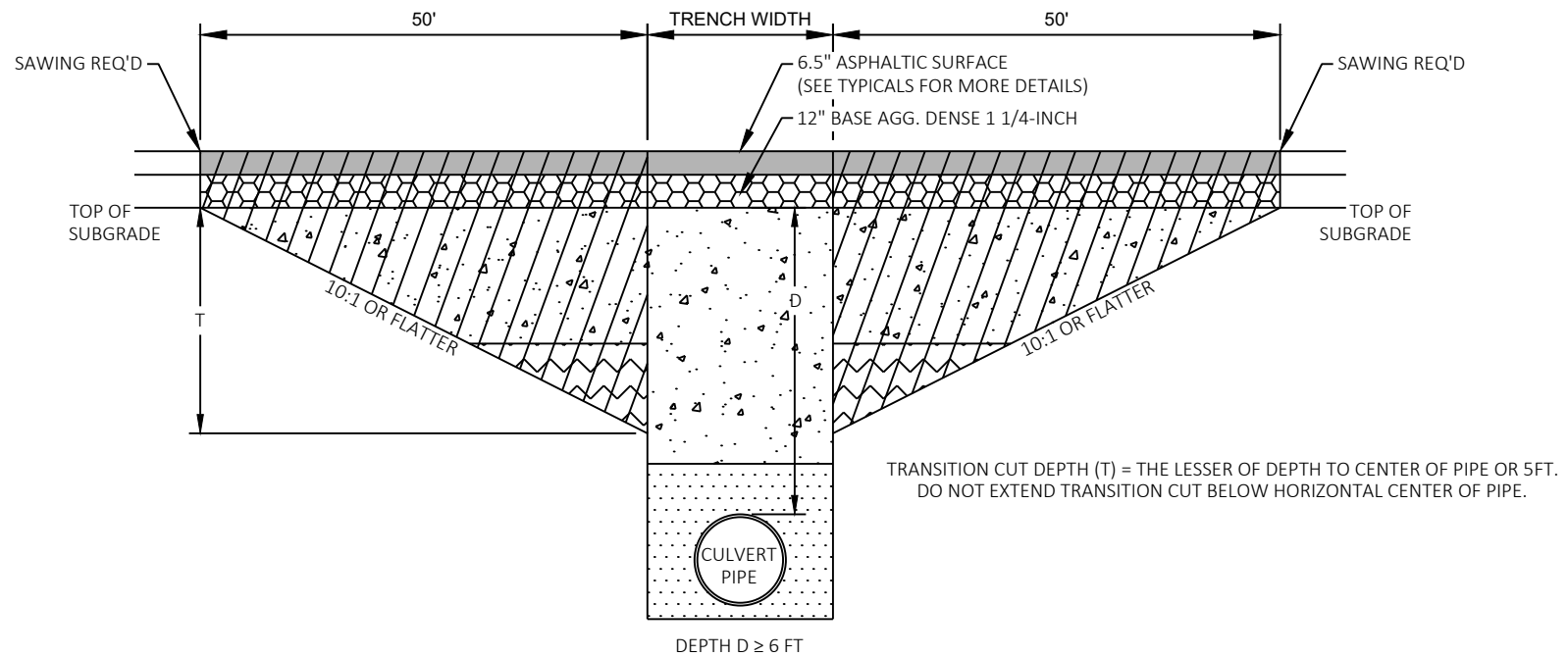
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.

BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.



CROSS DRAIN INSTALLATION DETAIL

ROUTE	STA (C/L)	DEPTH D (FT) AT C/L	PIPE DIA (IN)	REMARKS
STH 64	364+39	3.1	36	N/A
STH 64	373+09	1.1	30	N/A
STH 64	403+17/26	4.3	60	TWIN CULVERTS
STH 64	415+08	4.9	30	N/A
STH 64	477+01	4.7	30	N/A
STH 64	669+48	5.7	30	N/A
STH 64	811+78/86	2	30	TWIN CULVERTS

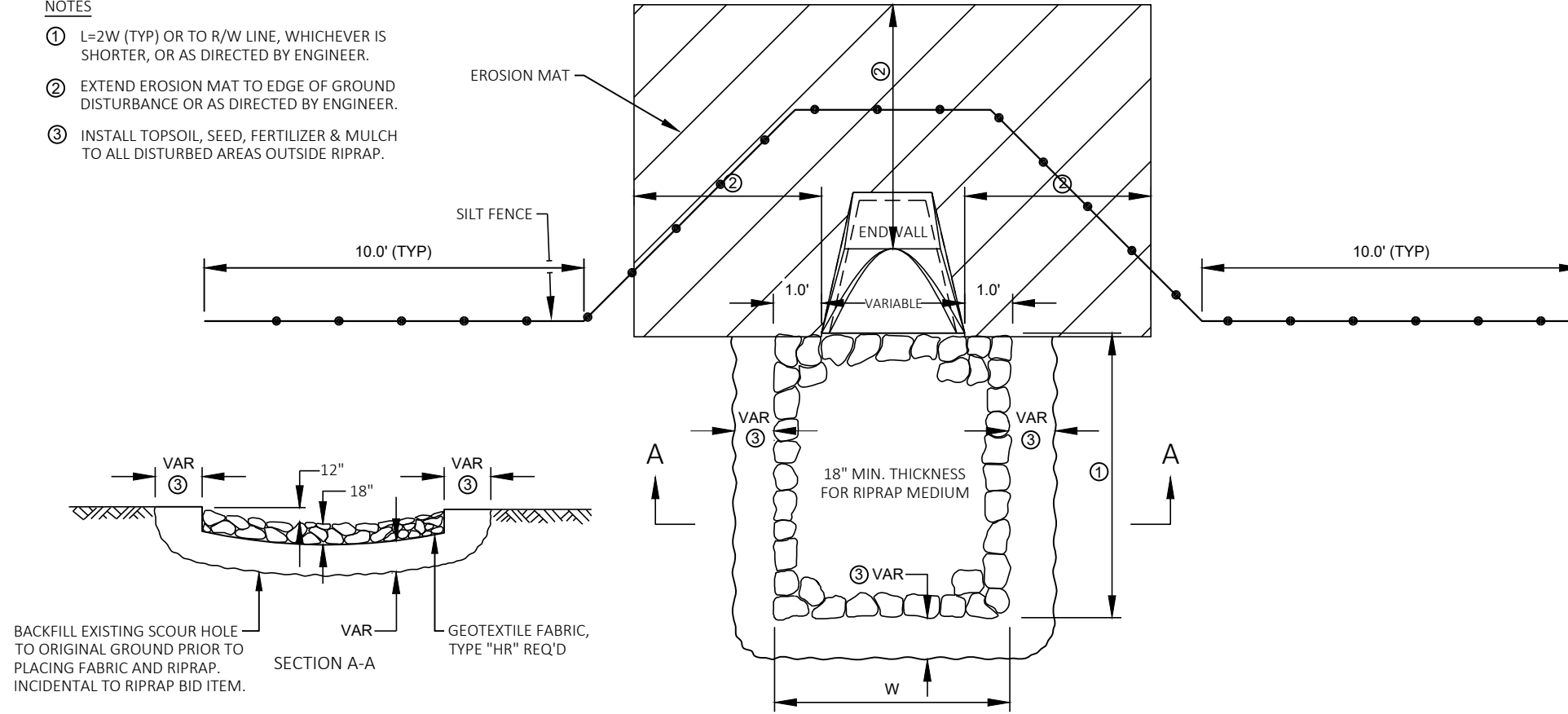


CROSS DRAIN INSTALLATION DETAIL

ROUTE	STA (C/L)	DEPTH D (FT) AT C/L	PIPE DIA (IN)	REMARKS
STH 64	440+08	6.9	36	N/A
STH 64	444+07	6.6	30	N/A
STH 64	453+07	7.7	60	N/A

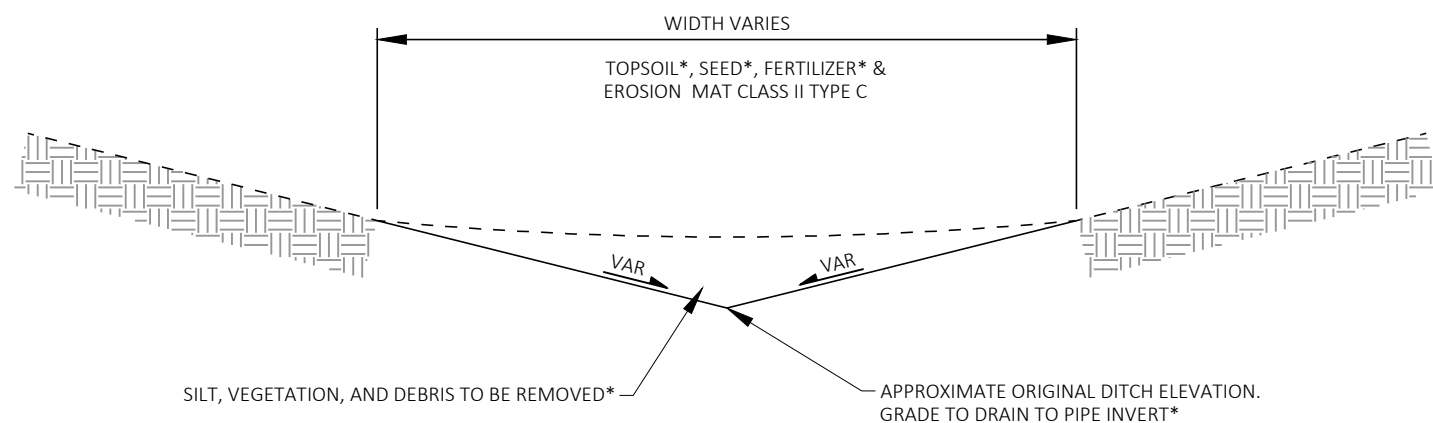
NOTES

- ① L=2W (TYP) OR TO R/W LINE, WHICHEVER IS SHORTER, OR AS DIRECTED BY ENGINEER.
- ② EXTEND EROSION MAT TO EDGE OF GROUND DISTURBANCE OR AS DIRECTED BY ENGINEER.
- ③ INSTALL TOPSOIL, SEED, FERTILIZER & MULCH TO ALL DISTURBED AREAS OUTSIDE RIPRAP.



RIPRAP AND EROSION MAT TREATMENT AT CULVERT ENDWALLS

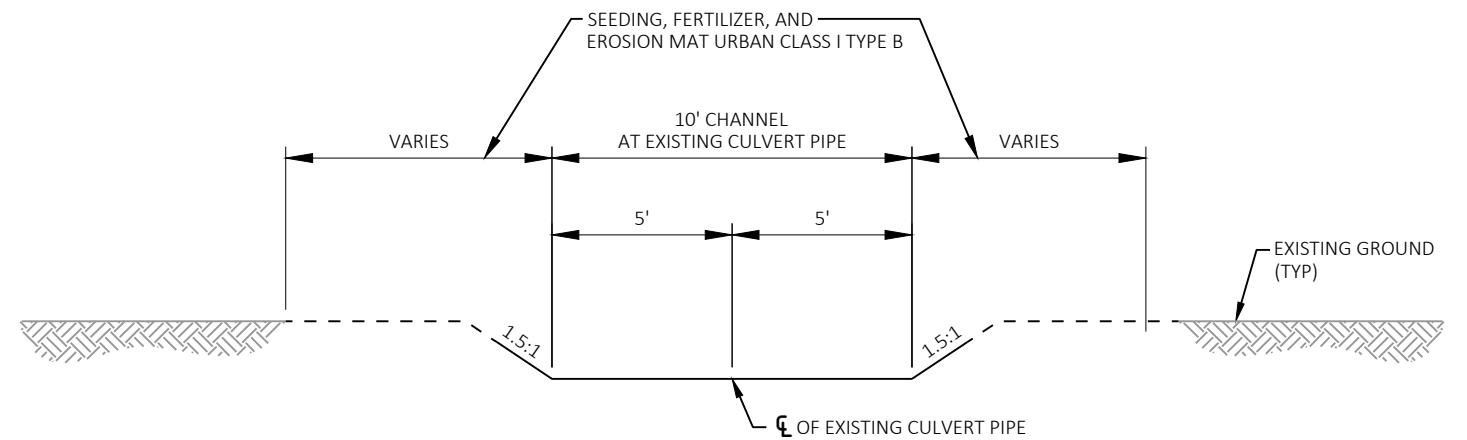
SEE PLAN VIEW SHEETS FOR LOCATIONS



DITCH CLEANING

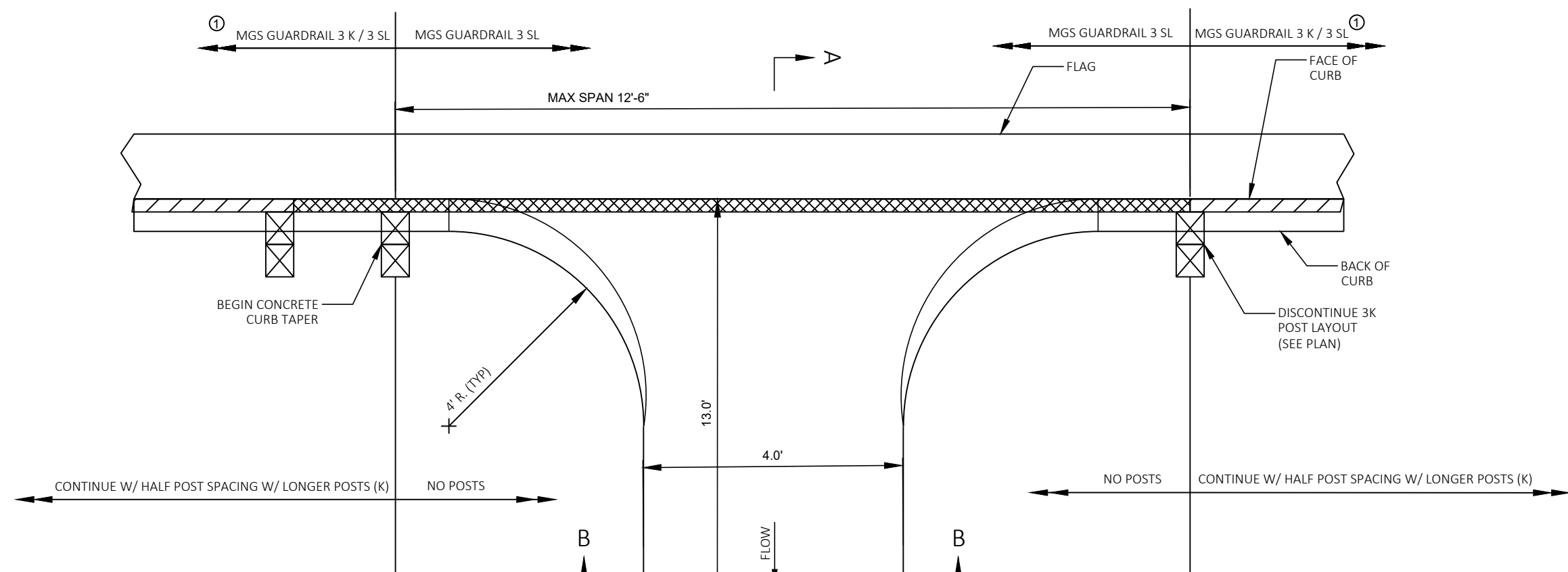
SEE PLAN VIEW SHEETS FOR LOCATIONS

* ITEMS ARE INCIDENTAL TO DITCH CLEANING ITEM

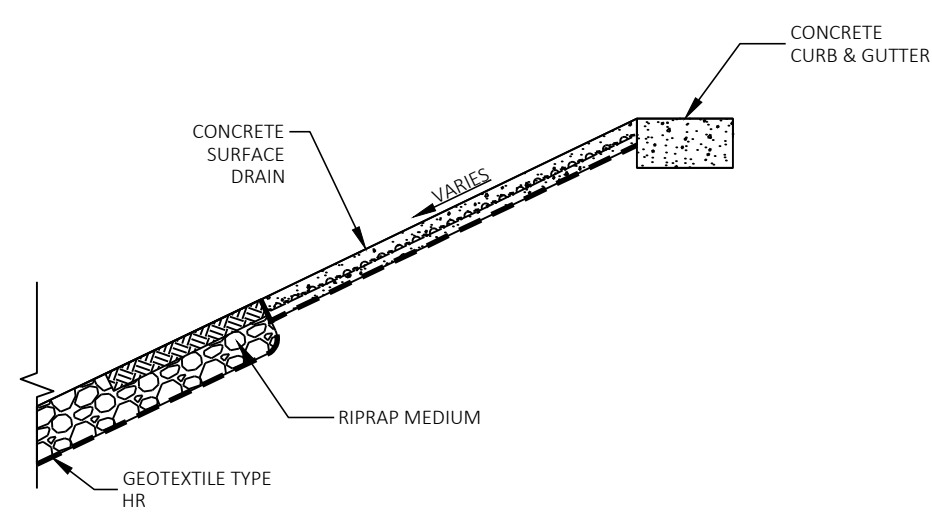


TEMPORARY STREAM DIVERSION CHANNEL SECTION

OTTER CREEK FLOWS THROUGH THE EXISTING WESTERN CULVERT AND WILL NEED TO BE TEMPORARILY DIVERTED THROUGH THE EASTERN CULVERT FOR CONSTRUCTION OF THE NEW BOX CULVERT. AFTER THE BOX CULVERT IS CONSTRUCTED DIVERSION WILL BE REMOVED AND FLOW SHALL BE ESTABLISHED TO THE ORIGINAL FLOW THROUGH THE NEW BOX CULVERT. SEE SPV.0060.02 FOR DETAILS



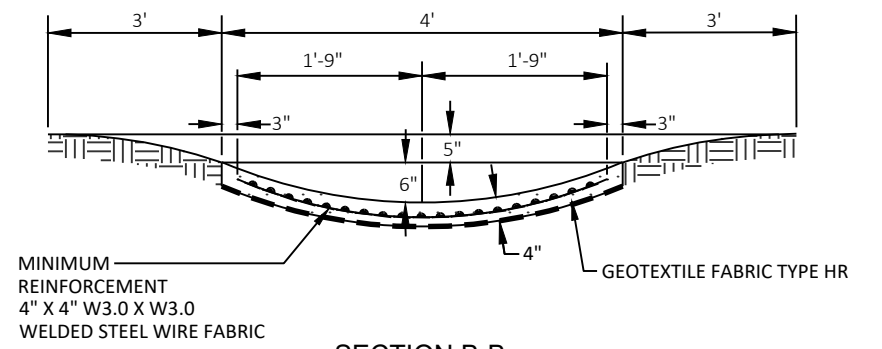
NOTES
 ① SEE SDD MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL, MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) FOR LENGTH OF GUARDRAIL 3 K AND 3 SL. DO NOT NEST GUARDRAIL WITHIN MGS EAT.



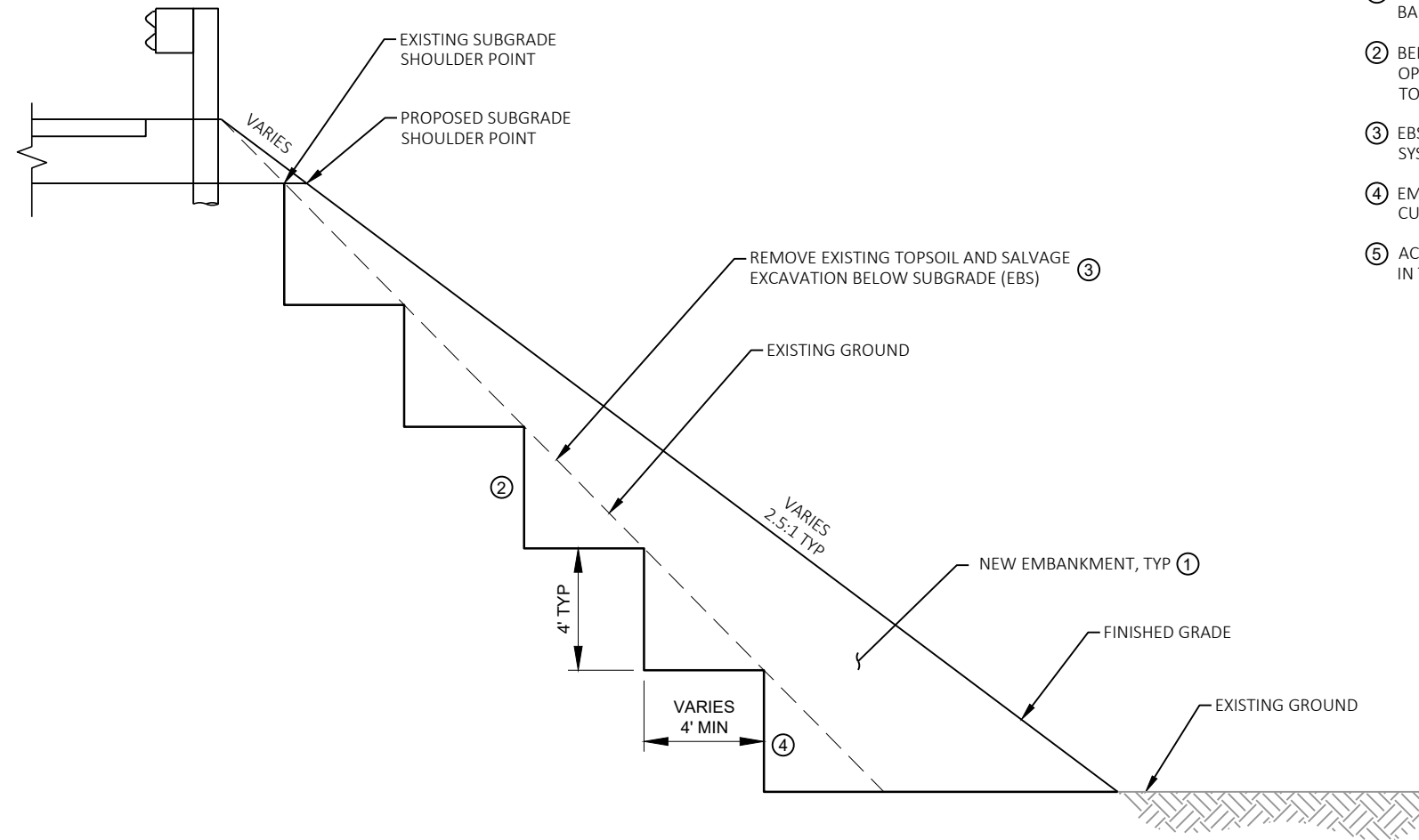
SECTION A-A

CONCRETE SURFACE DRAIN AT GUARDRAIL 3K

- STA 480+99 RT
- STA 486+26 RT
- STA 498+00 RT
- STA 500+38 RT
- STA 548+29 RT
- STA 549+75 LT
- STA 550+42 RT
- STA 551+50 LT
- STA 588+57 LT
- STA 590+10 LT
- STA 591+87 LT



SECTION B-B

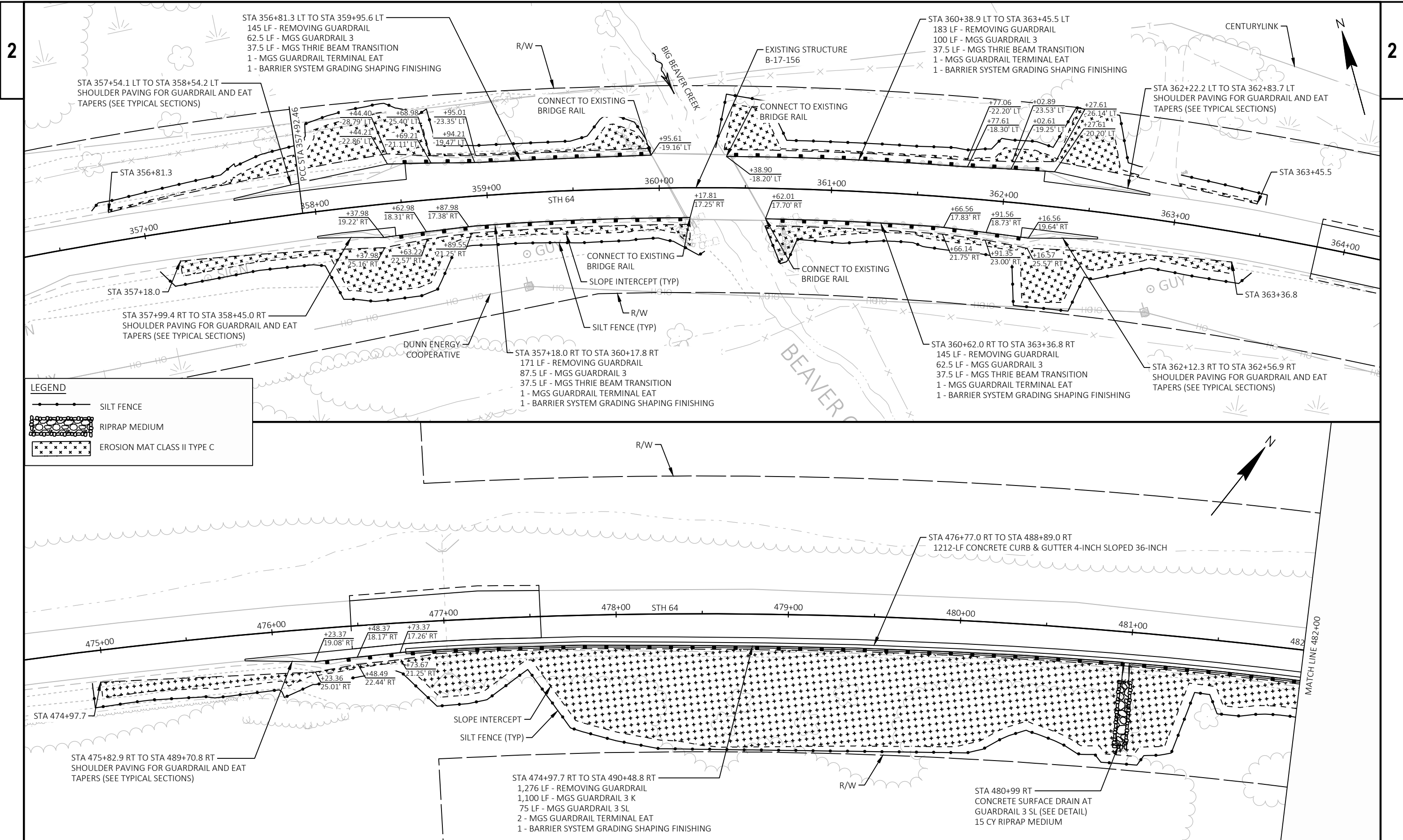


NOTES

- ① EMBANKMENT PLACED IN LAYERS AND COMPACTED PER BARRIER SYSTEM GRADING SHAPING FINISHING.
- ② BENCH AS REQUIRED TO FACILITATE CONSTRUCTION FILLING OPERATIONS (4' TYP BENCH DEPTH), BENCHING IS INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.
- ③ EBS AS DIRECTED BY THE ENGINEER INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.
- ④ EMBANKMENT PLACED IN LOWER BENCHED AREA BEFORE CUTTING BENCH FOR NEXT AREA UPSLOPE.
- ⑤ ACTUAL AREA OF STEPPED EMBANKMENT TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

STEPPED EMBANKMENT DETAIL FOR GUARDRAIL

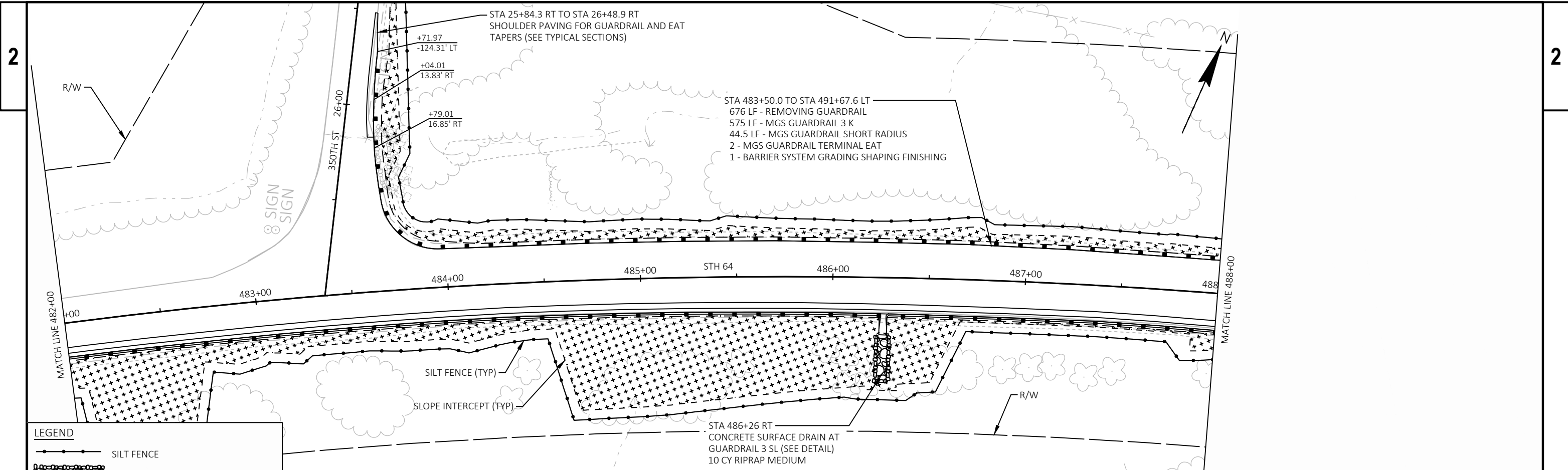
- STA 360+40 TO STA 360+60 - LT
- STA 476+90 TO STA 481+30 - RT
- STA 482+10 TO STA 482+65 - RT
- STA 484+65 TO STA 460+60 - RT
- STA 488+30 TO STA 488+80 - RT
- STA 494+80 TO STA 495+30 - RT
- STA 496+75 TO STA 498+25 - RT
- STA 548+80 TO STA 552+60 - RT
- STA 564+15 TO STA 565+45 - RT
- STA 587+15 TO STA 587+75 - RT
- STA 588+25 TO STA 588+75 - LT
- STA 588+25 TO STA 590+25 - RT
- STA 589+98 TO STA 590+75 - LT
- STA 601+25 TO STA 601+75 - LT



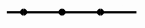

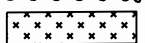
LEGEND

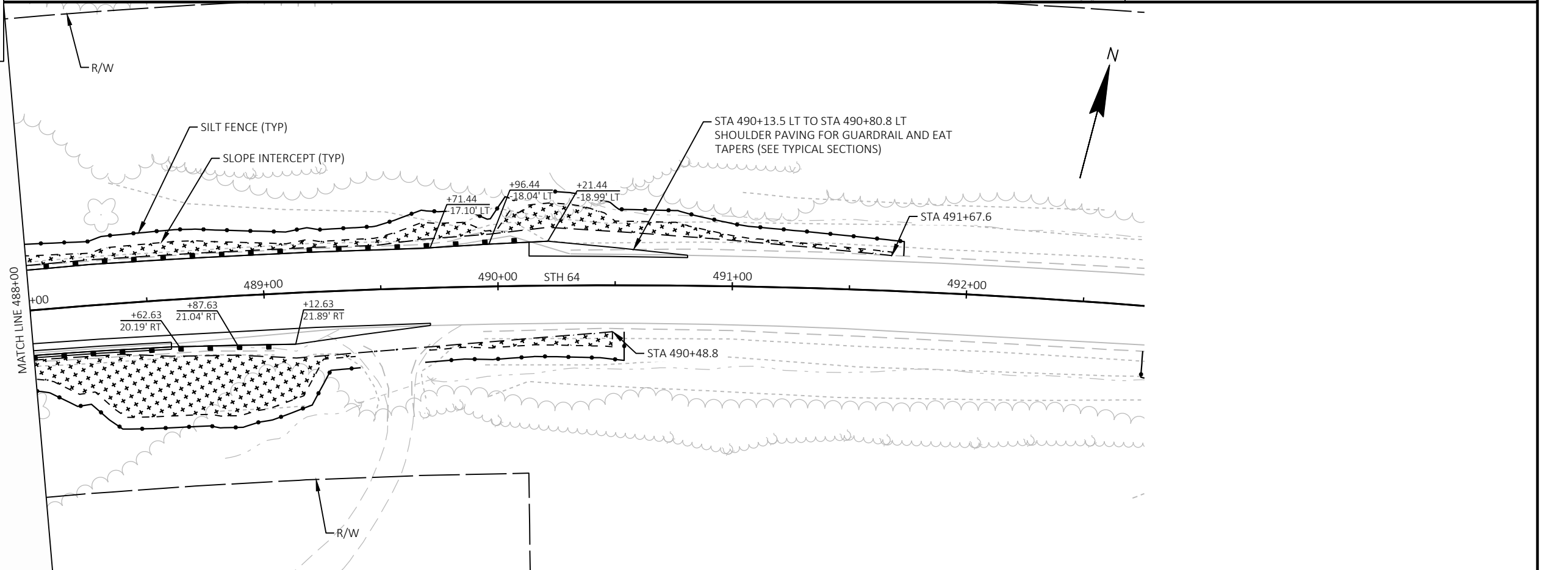
- SILT FENCE
- RIPRAP MEDIUM
- EROSION MAT CLASS II TYPE C

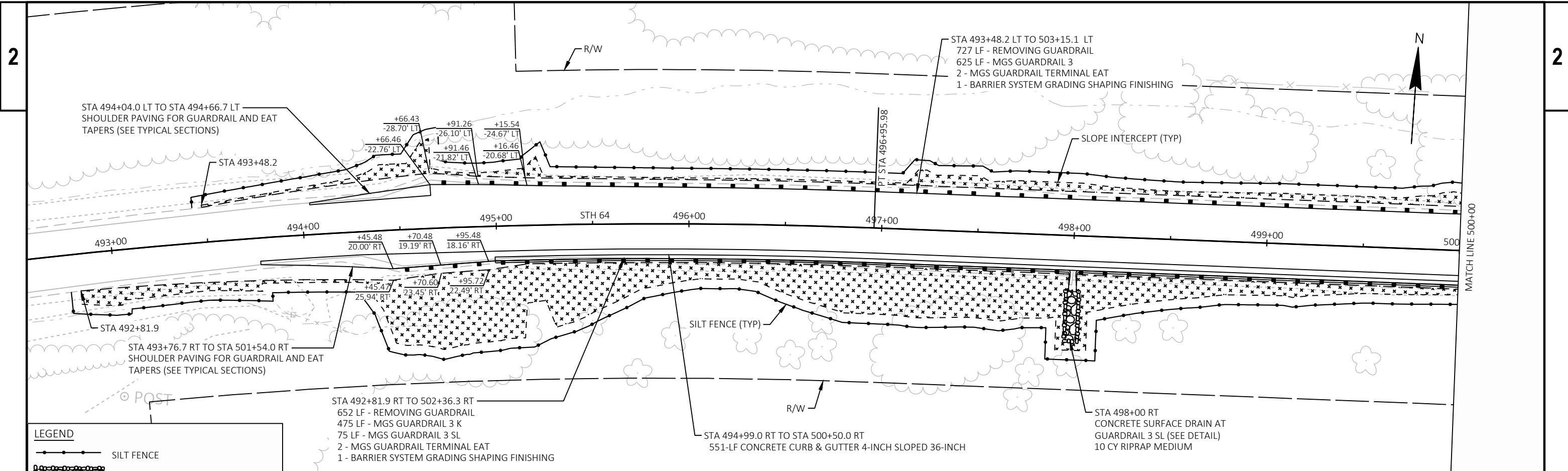
PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN DETAILS - GUARDRAIL	SHEET	E
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LEGEND

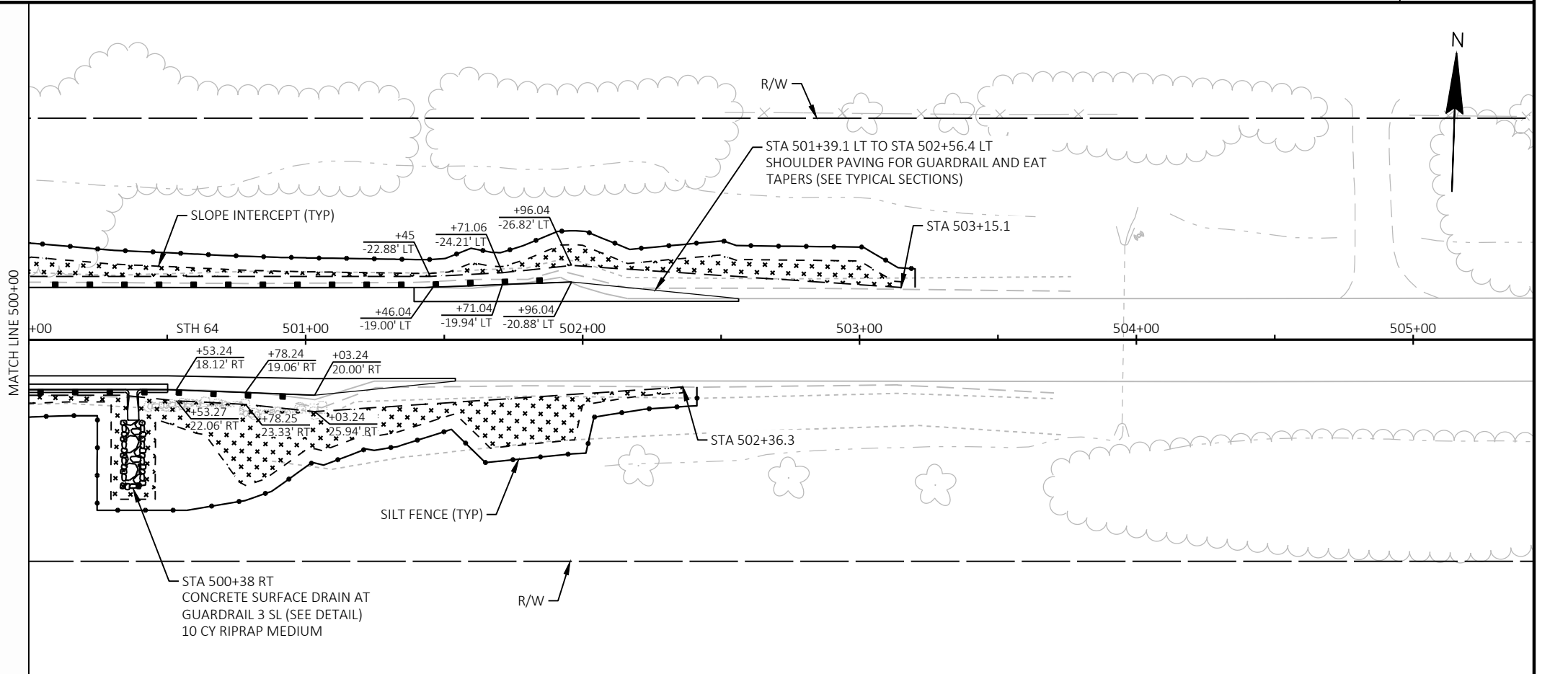
-  SILT FENCE
-  RIPRAP MEDIUM
-  EROSION MAT CLASS II TYPE C

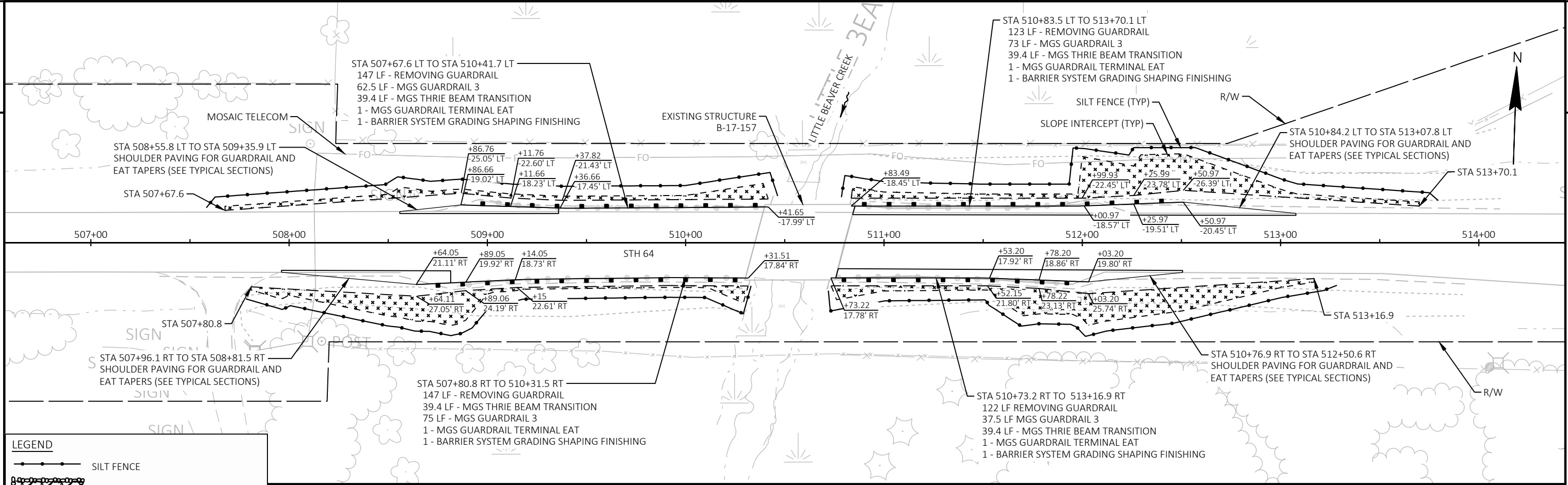




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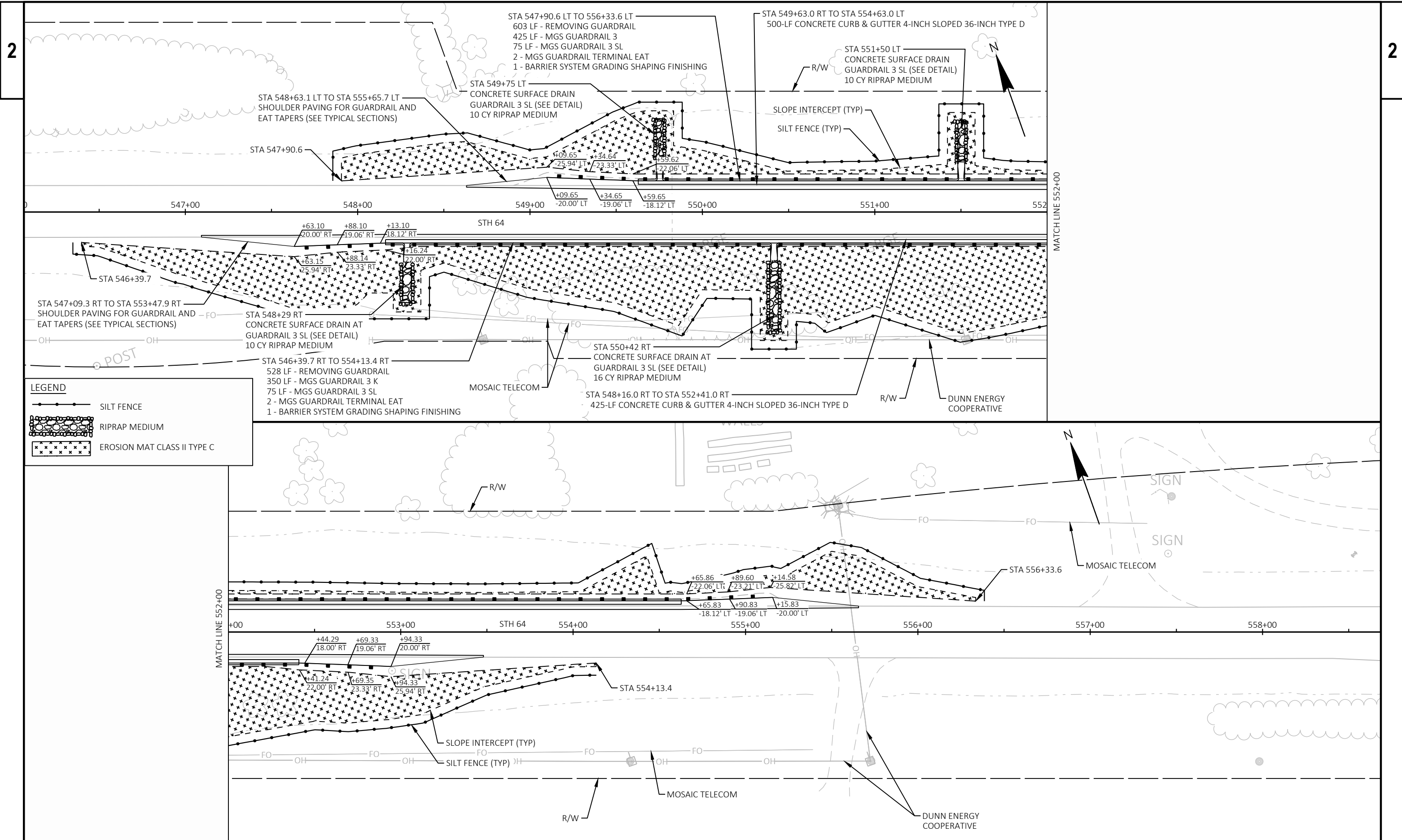
- SILT FENCE
- RIPRAP MEDIUM
- EROSION MAT CLASS II TYPE C





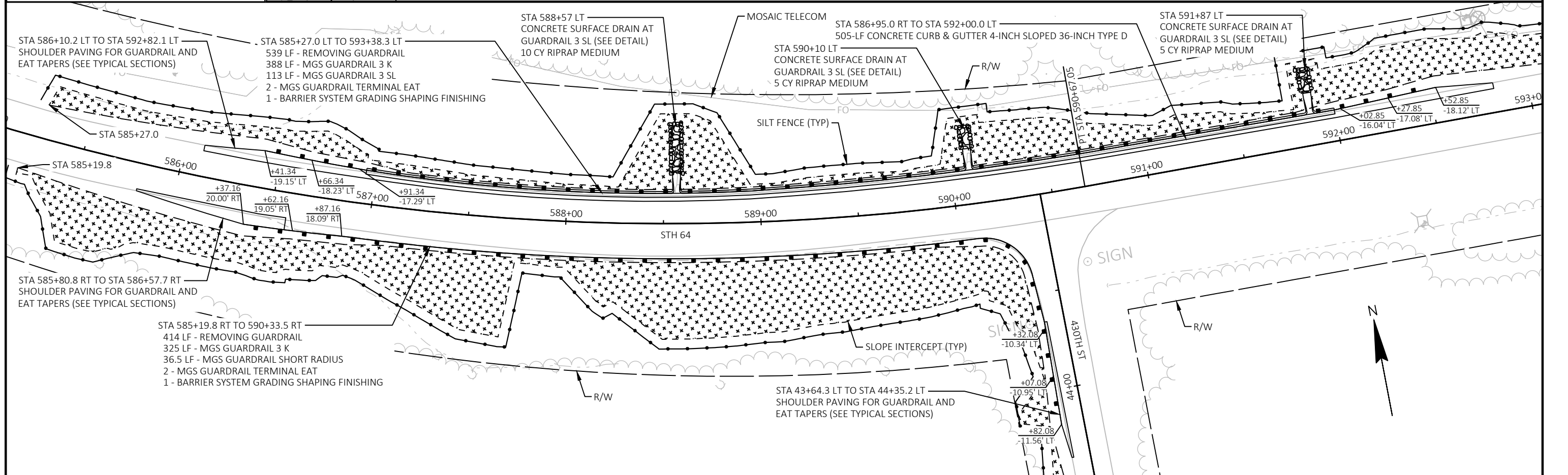
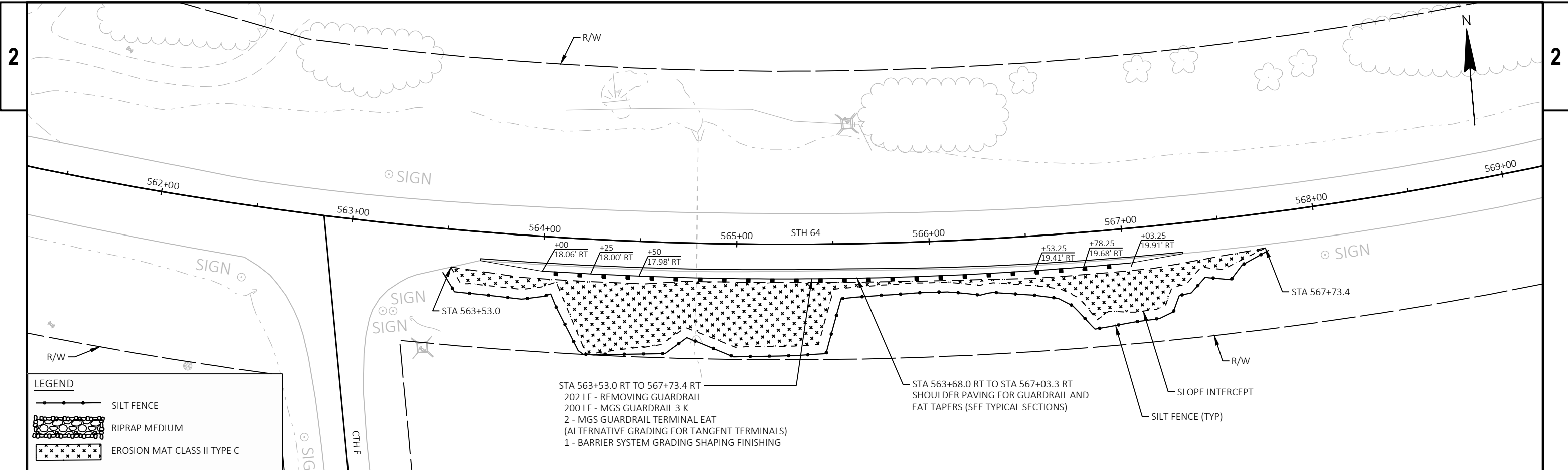
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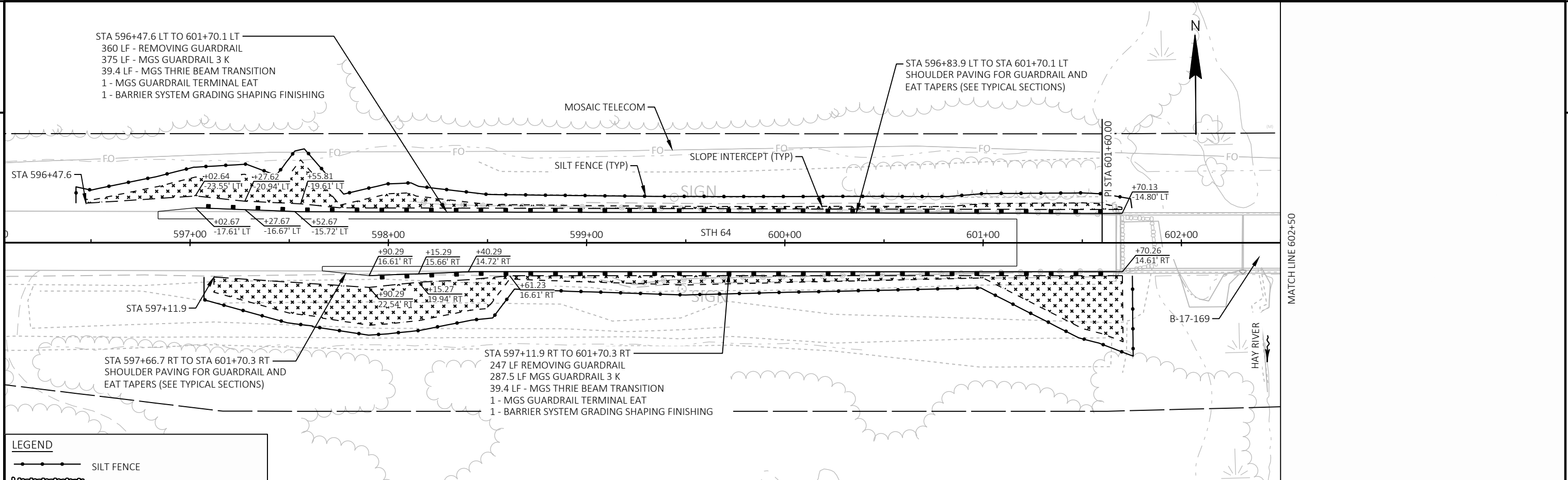
- SILT FENCE
- RIPRAP MEDIUM
- EROSION MAT CLASS II TYPE C



LEGEND

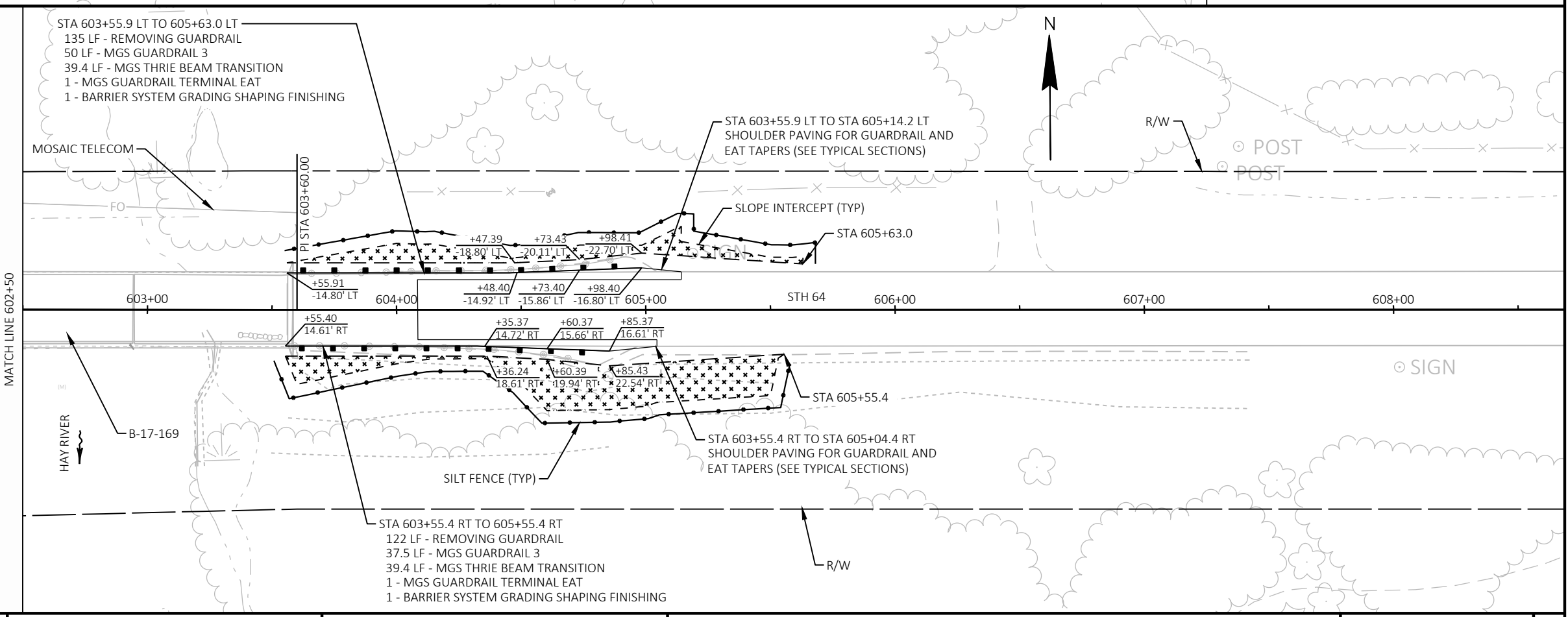
-  SILT FENCE
-  RIPRAP MEDIUM
-  EROSION MAT CLASS II TYPE C





LEGEND

- SILT FENCE
- RIPRAP MEDIUM
- EROSION MAT CLASS II TYPE C



PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN DETAILS - GUARDRAIL
SHEET			E

SIGN SIZES FOR USE ON ALL OTHER HIGHWAYS & RAMPS

SIGN SIZES FOR USE ON USH 53

TRAFFIC CONTROL GENERAL NOTES

① M4-8 24" X 12" DETOUR EAST 64
M3-2 24" X 12"
M1-6 24" X 24"

② M4-8 24" X 12" DETOUR WEST 64
M3-4 24" X 12"
M1-6 24" X 24"

③ M3-2 24" X 12" EAST 64
M1-6 24" X 24"

④ M3-4 24" X 12" WEST 64
M1-6 24" X 24"

⑤ M4-8A 24" X 18" END DETOUR EAST 64
M3-2 24" X 12"
M1-6 24" X 24"

⑥ M4-8 24" X 12" DETOUR 64
M1-6 24" X 24"

⑦ M3-4 36" X 18" WEST 64
M1-6 36" X 36"

⑧ M4-8 36" X 18" DETOUR EAST 64
M3-2 36" X 18"
M1-6 36" X 36"

⑨ M4-8 36" X 18" DETOUR WEST 64
M3-4 36" X 18"
M1-6 36" X 36"

A M05-1R 21" X 21"
B M05-1L 21" X 21"
C M06-1 21" X 21"
D M06-1 21" X 21"
E M06-1 21" X 21"

F M05-1R 30" X 30"
G M05-1L 30" X 30"
H M06-1 30" X 30"
I M06-1 30" X 30"
J M06-1 30" X 30"
K M06-2 30" X 30"
L M05-2R 30" X 30"

DRAWING IS NOT TO SCALE.

ALL TRAFFIC CONTROL SIGNS AND DEVICES AND THEIR LOCATIONS SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD), THE PLANS, STANDARD SPECIFICATIONS AND APPLICABLE STANDARD DETAIL DRAWINGS.

ALL SIDEROADS WITHIN STAGING LIMITS SHALL BE BARRICADED AND SIGNING IN ACCORDANCE WITH DETAIL 4 OF THE SDD15C3.

ALL SIGNS INAPPROPRIATE TO THE WORK ZONE, INCLUDING PRE-EXISTING SIGNS, SHALL BE COVERED, REMOVED, OR ALTERED AS SPECIFIED IN THE PLANS AND/OR SPECIALS PROVISIONS OR AS DIRECTED BY THE ENGINEER.

COVER DIRECTIONAL ARROWS ON DESTINATION SIGNS IN PLANS PER SIGN PLATE A4-12.

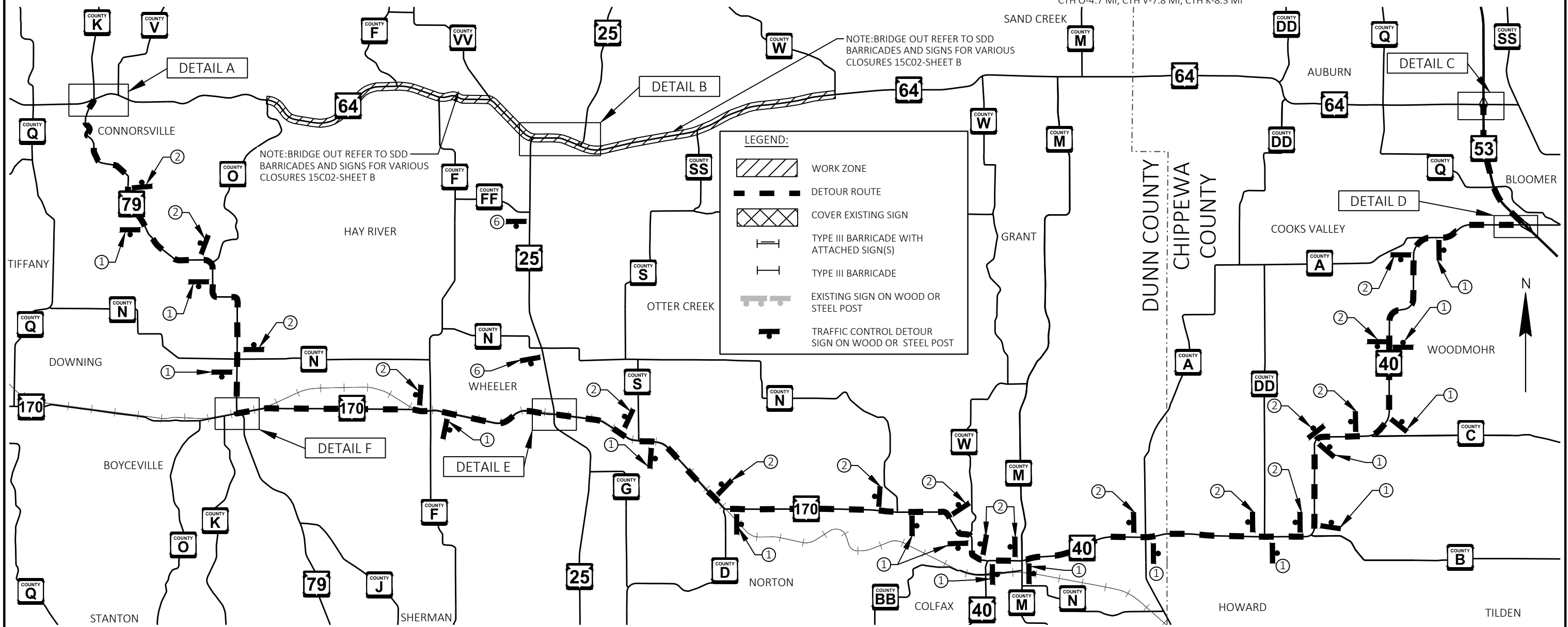
THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

ALL W20 SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

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

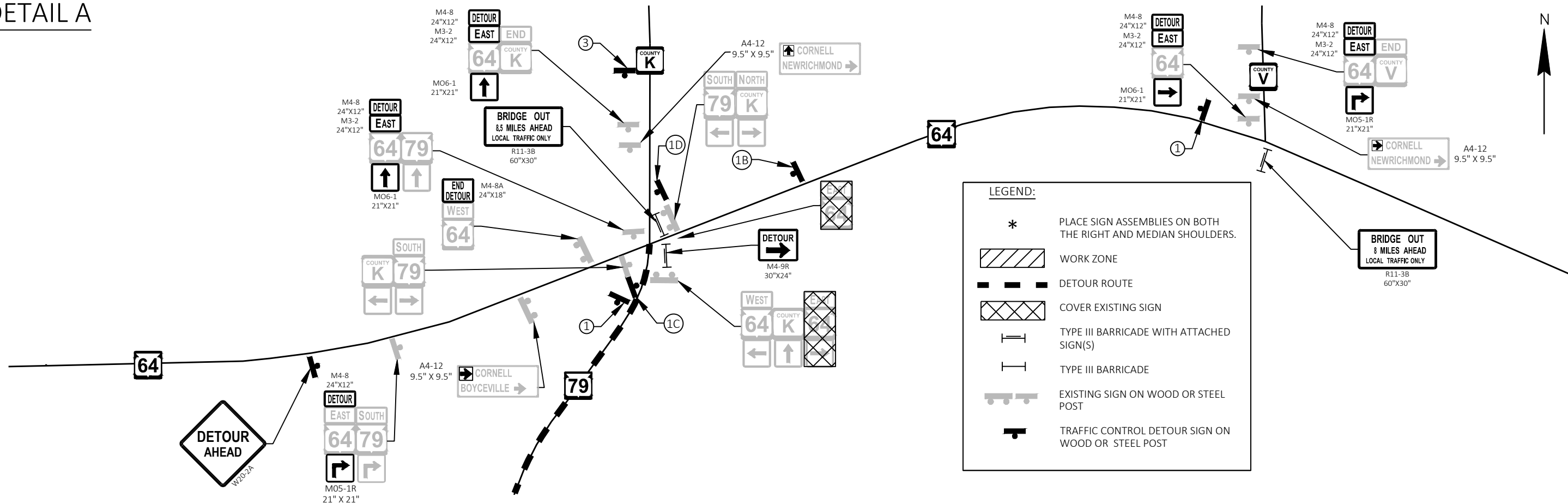
INSTALL BRIDGE OUT XX MILES ATTACHED TO TYPE III BARRICADE AT THE FOLLOWING SIDE ROADS: CTH Q-14.5 MI, CTH DD (EAST-12.5 MI & WEST-12.1 MI), CTH M-7.7 MI, CTH W (EAST-6.1 MI & WEST-3.1 MI), CTH SS-0.2 MI, WIS 25 NORTH (EAST-2.2 MI), WIS 25 SOUTH (WEST-1.4 MI), CTH VV-0.3 MI, CTH F (EAST-0.8 MI & WEST-1.6 MI), CTH O-4.7 MI, CTH V-7.8 MI, CTH K-8.3 MI



DETAIL A

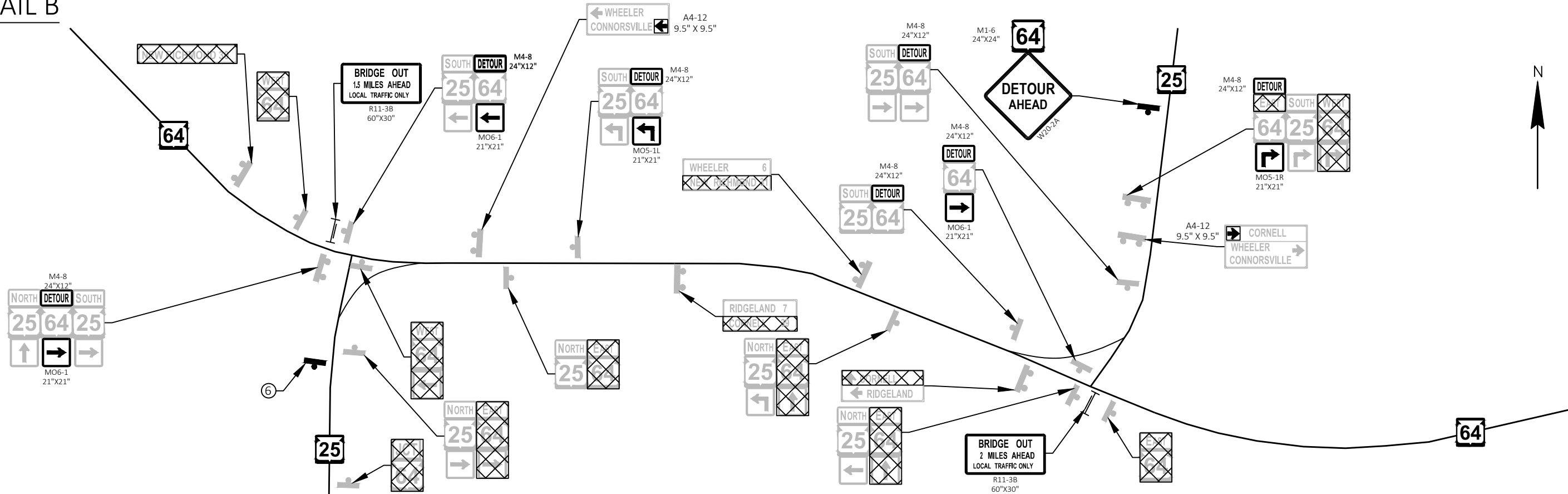
2

2



DETAIL B

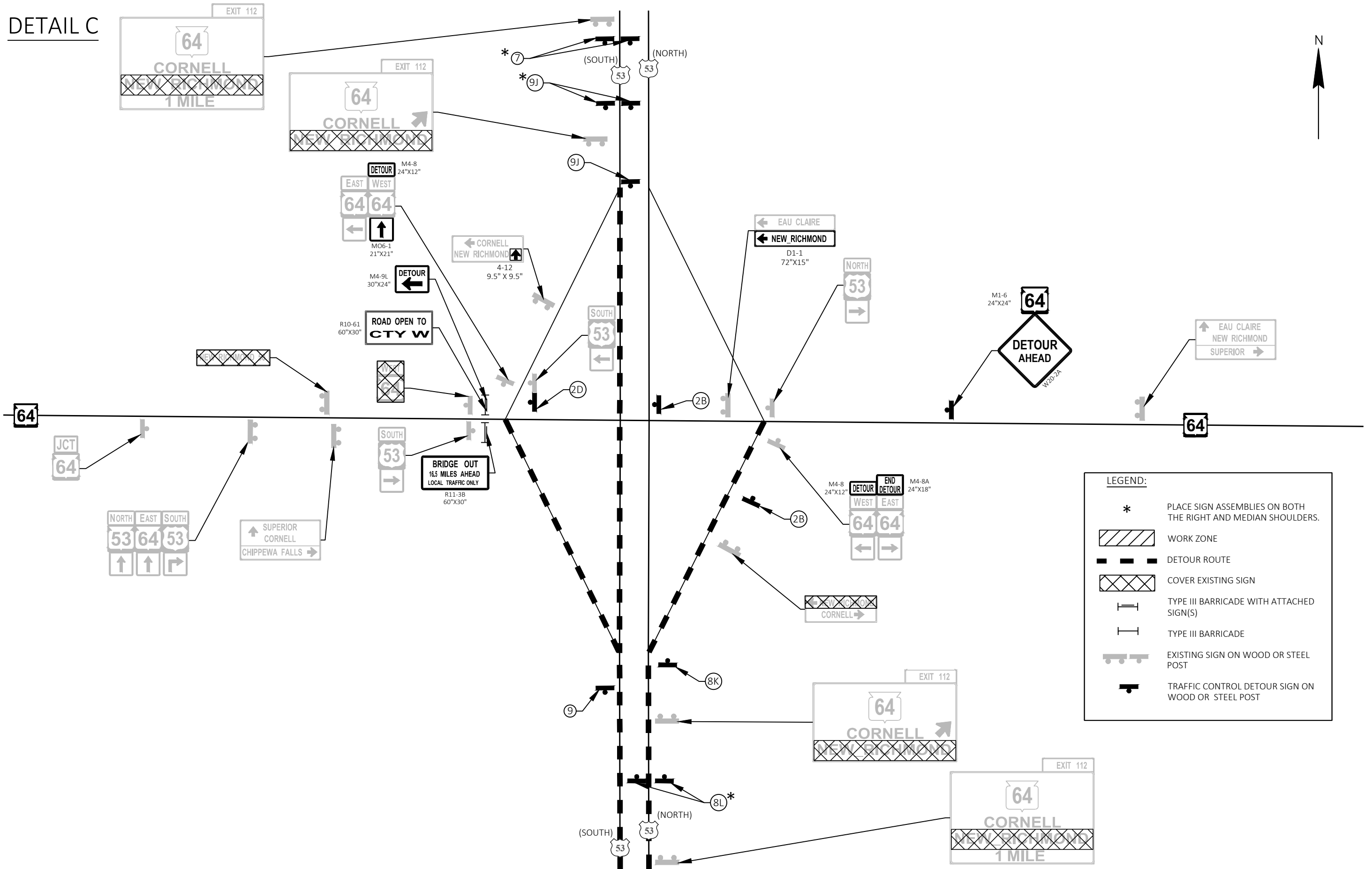
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DETAIL C

2

2



LEGEND:

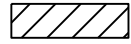






- * PLACE SIGN ASSEMBLIES ON BOTH THE RIGHT AND MEDIAN SHOULDERS.
- WORK ZONE
- DETOUR ROUTE
- COVER EXISTING SIGN
- TYPE III BARRICADE WITH ATTACHED SIGN(S)
- TYPE III BARRICADE
- EXISTING SIGN ON WOOD OR STEEL POST
- TRAFFIC CONTROL DETOUR SIGN ON WOOD OR STEEL POST

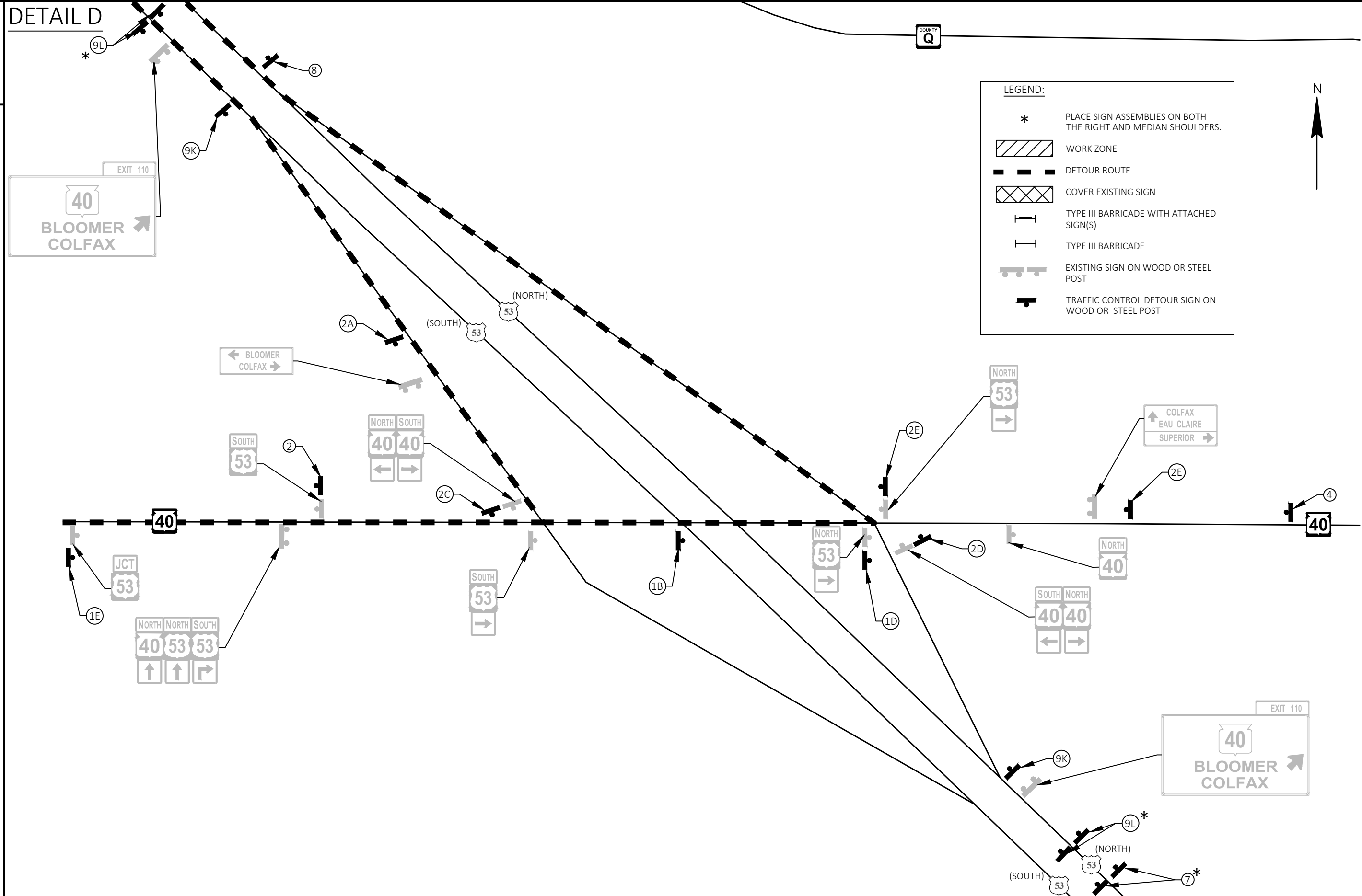
DETAIL D

2

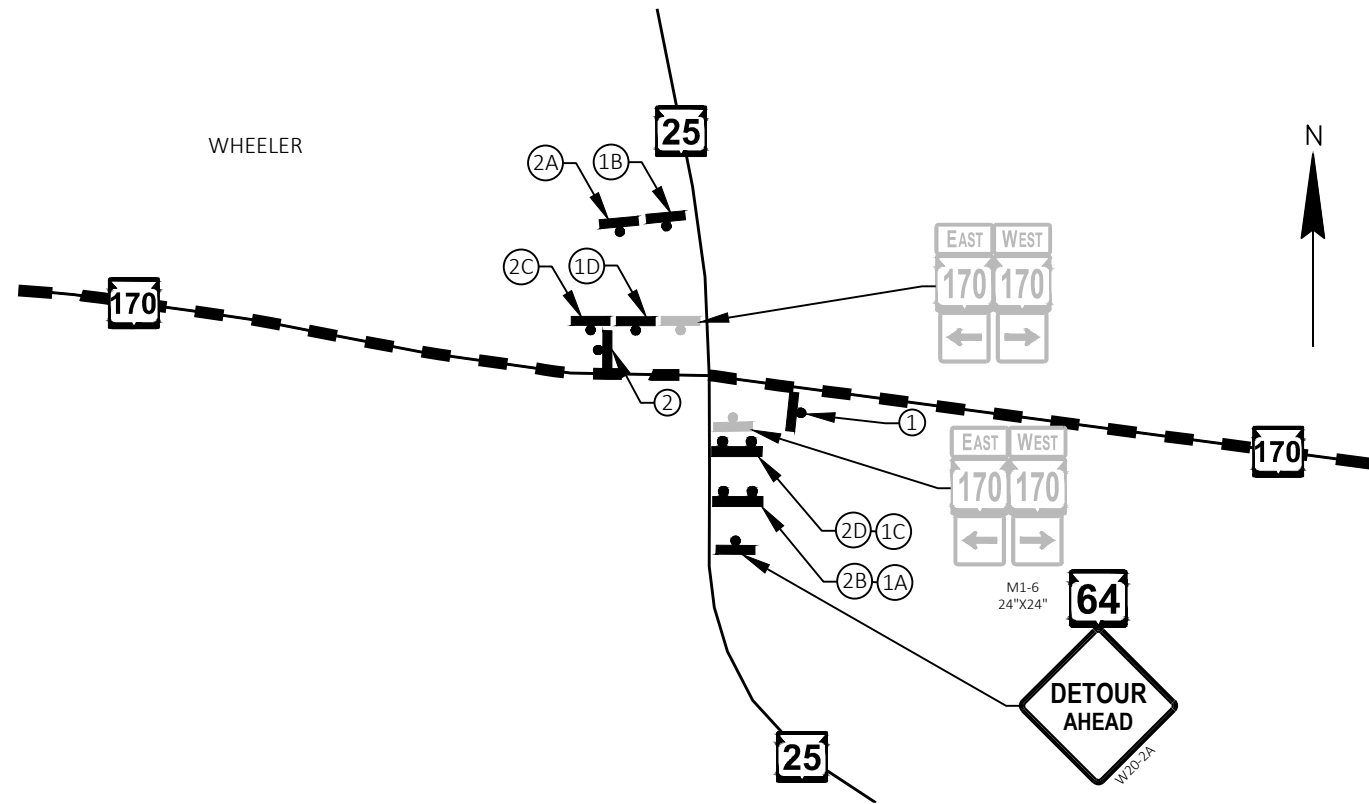
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LEGEND:

- * PLACE SIGN ASSEMBLIES ON BOTH THE RIGHT AND MEDIAN SHOULDERS.
-  WORK ZONE
-  DETOUR ROUTE
-  COVER EXISTING SIGN
-  TYPE III BARRICADE WITH ATTACHED SIGN(S)
-  TYPE III BARRICADE
-  EXISTING SIGN ON WOOD OR STEEL POST
-  TRAFFIC CONTROL DETOUR SIGN ON WOOD OR STEEL POST



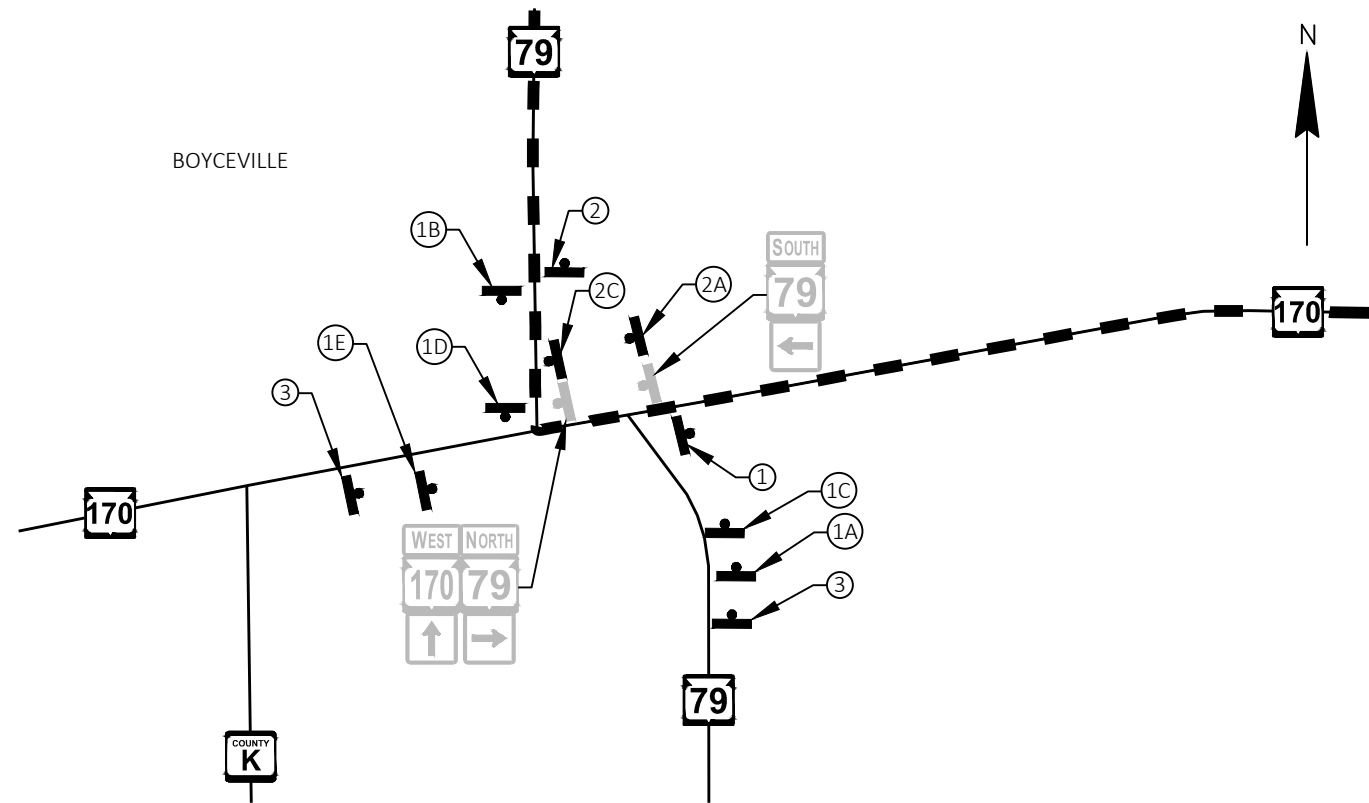
DETAIL E



LEGEND:

- * PLACE SIGN ASSEMBLIES ON BOTH THE RIGHT AND MEDIAN SHOULDERS.
- WORK ZONE
- DETOUR ROUTE
- COVER EXISTING SIGN
- TYPE III BARRICADE WITH ATTACHED SIGN(S)
- TYPE III BARRICADE
- EXISTING SIGN ON WOOD OR STEEL POST
- TRAFFIC CONTROL DETOUR SIGN ON WOOD OR STEEL POST

DETAIL F



Estimate Of Quantities

8110-01-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	10.000	10.000
0004	201.0205	Grubbing	STA	10.000	10.000
0006	203.0100	Removing Small Pipe Culverts	EACH	11.000	11.000
0008	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. B-17-169	EACH	1.000	1.000
0010	203.0220	Removing Structure (structure) 01. B-17-80	EACH	1.000	1.000
0012	203.0220	Removing Structure (structure) 01. STA 364+39	EACH	1.000	1.000
0014	203.0220	Removing Structure (structure) 02. STA 457+30	EACH	1.000	1.000
0016	203.0220	Removing Structure (structure) 03. STA 477+01	EACH	1.000	1.000
0018	203.0335	Debris Containment Over Waterway (structure) 01. B-17-169	EACH	2.000	2.000
0020	204.0110	Removing Asphaltic Surface	SY	4,140.000	4,140.000
0022	204.0165	Removing Guardrail	LF	7,493.000	7,493.000
0024	205.0100	Excavation Common	CY	9,970.000	9,970.000
0026	206.2001	Excavation for Structures Culverts (structure) 01. C-17-50	EACH	1.000	1.000
0028	209.2500	Backfill Granular Grade 2	TON	9,910.000	9,910.000
0030	210.2500	Backfill Structure Type B	TON	1,875.000	1,875.000
0032	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 8110-01-72	EACH	1.000	1.000
0034	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	81.000	81.000
0036	211.0500	Prepare Foundation for Base Aggregate	STA	24.000	24.000
0038	213.0100	Finishing Roadway (project) 01. 8110-01-72	EACH	1.000	1.000
0040	305.0110	Base Aggregate Dense 3/4-Inch	TON	5,260.000	5,260.000
0042	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	4,770.000	4,770.000
0044	305.0500	Shaping Shoulders	STA	1,322.000	1,322.000
0046	311.0110	Breaker Run	TON	255.000	255.000
0048	455.0605	Tack Coat	GAL	560.000	560.000
0050	465.0105	Asphaltic Surface	TON	2,270.000	2,270.000
0052	502.3101	Expansion Device	LF	115.000	115.000
0054	502.3200	Protective Surface Treatment	SY	602.000	602.000
0056	502.3205	Pigmented Surface Sealer Reseal	SY	133.000	133.000
0058	502.3210	Pigmented Surface Sealer	SY	23.000	23.000
0060	502.4205	Adhesive Anchors No. 5 Bar	EACH	66.000	66.000
0062	504.0100	Concrete Masonry Culverts	CY	261.000	261.000
0064	505.0400	Bar Steel Reinforcement HS Structures	LB	30,450.000	30,450.000
0066	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	8,180.000	8,180.000
0068	506.0105	Structural Steel Carbon	LB	280.000	280.000
0070	509.0301	Preparation Decks Type 1	SY	86.000	86.000
0072	509.0302	Preparation Decks Type 2	SY	34.000	34.000
0074	509.0500	Cleaning Decks	SY	596.000	596.000
0076	509.1000	Joint Repair	SY	93.000	93.000
0078	509.1500	Concrete Surface Repair	SF	52.000	52.000
0080	509.2000	Full-Depth Deck Repair	SY	9.000	9.000
0082	509.2500	Concrete Masonry Overlay Decks	CY	90.000	90.000
0084	516.0500	Rubberized Membrane Waterproofing	SY	35.000	35.000
0086	520.1030	Apron Endwalls for Culvert Pipe 30-Inch	EACH	2.000	2.000
0088	520.3430	Culvert Pipe Class III-A Non-metal 30-Inch	LF	104.000	104.000
0090	520.8700	Cleaning Culvert Pipes	EACH	4.000	4.000
0092	520.9700.S	Culvert Pipe Liners (size) 01. 36-Inch	LF	102.000	102.000
0094	520.9750.S	Cleaning Culvert Pipes for Liner Verification	EACH	1.000	1.000
0096	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	2.000	2.000
0098	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	5.000	5.000

Estimate Of Quantities

8110-01-72

Line	Item	Item Description	Unit	Total	Qty
0100	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	400.000	400.000
0102	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	178.000	178.000
0104	522.0160	Culvert Pipe Reinforced Concrete Class III 60-Inch	LF	192.000	192.000
0106	522.0430	Culvert Pipe Reinforced Concrete Class IV 30-Inch	LF	236.000	236.000
0108	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	15.000	15.000
0110	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	4.000	4.000
0112	522.1060	Apron Endwalls for Culvert Pipe Reinforced Concrete 60-Inch	EACH	4.000	4.000
0114	524.0124	Culvert Pipe Salvaged 24-Inch	LF	20.000	20.000
0116	524.0136	Culvert Pipe Salvaged 36-Inch	LF	18.000	18.000
0118	524.0624	Apron Endwalls for Culvert Pipe Salvaged 24-Inch	EACH	2.000	2.000
0120	524.0636	Apron Endwalls for Culvert Pipe Salvaged 36-Inch	EACH	2.000	2.000
0122	601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF	3,193.000	3,193.000
0124	602.3010	Concrete Surface Drains	CY	11.000	11.000
0126	606.0200	Riprap Medium	CY	135.000	135.000
0128	606.0300	Riprap Heavy	CY	115.000	115.000
0130	614.0010	Barrier System Grading Shaping Finishing	EACH	21.000	21.000
0132	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0134	614.2300	MGS Guardrail 3	LF	1,701.000	1,701.000
0136	614.2330	MGS Guardrail 3 K	LF	4,076.000	4,076.000
0138	614.2345	MGS Guardrail 3 SL	LF	413.000	413.000
0140	614.2350	MGS Guardrail Short Radius	LF	82.000	82.000
0142	614.2500	MGS Thrie Beam Transition	LF	425.000	425.000
0144	614.2610	MGS Guardrail Terminal EAT	EACH	30.000	30.000
0146	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8110-01-72	EACH	1.000	1.000
0148	619.1000	Mobilization	EACH	1.000	1.000
0150	624.0100	Water	MGAL	210.000	210.000
0152	625.0500	Salvaged Topsoil	SY	24,100.000	24,100.000
0154	628.1504	Silt Fence	LF	24,325.000	24,325.000
0156	628.1520	Silt Fence Maintenance	LF	24,325.000	24,325.000
0158	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0160	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0162	628.2008	Erosion Mat Urban Class I Type B	SY	24,100.000	24,100.000
0164	628.7555	Culvert Pipe Checks	EACH	48.000	48.000
0166	629.0210	Fertilizer Type B	CWT	16.000	16.000
0168	630.0120	Seeding Mixture No. 20	LB	440.000	440.000
0170	630.0140	Seeding Mixture No. 40	LB	3.000	3.000
0172	630.0500	Seed Water	MGAL	550.000	550.000
0174	633.5200	Markers Culvert End	EACH	43.000	43.000
0176	638.2102	Moving Signs Type II	EACH	17.000	17.000
0178	638.4000	Moving Small Sign Supports	EACH	18.000	18.000
0180	642.5001	Field Office Type B	EACH	1.000	1.000
0182	643.0420	Traffic Control Barricades Type III	DAY	3,726.000	3,726.000
0184	643.0705	Traffic Control Warning Lights Type A	DAY	7,452.000	7,452.000
0186	643.0900	Traffic Control Signs	DAY	51,612.000	51,612.000
0188	643.0910	Traffic Control Covering Signs Type I	EACH	4.000	4.000
0190	643.0920	Traffic Control Covering Signs Type II	EACH	20.000	20.000
0192	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0194	643.5000	Traffic Control	EACH	1.000	1.000
0196	645.0105	Geotextile Type C	SY	475.000	475.000

Estimate Of Quantities

8110-01-72

Line	Item	Item Description	Unit	Total	Qty
0198	645.0120	Geotextile Type HR	SY	412.000	412.000
0200	646.1020	Marking Line Epoxy 4-Inch	LF	21,560.000	21,560.000
0202	650.4500	Construction Staking Subgrade	LF	1,391.000	1,391.000
0204	650.5000	Construction Staking Base	LF	1,391.000	1,391.000
0206	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	3,193.000	3,193.000
0208	650.6000	Construction Staking Pipe Culverts	EACH	14.000	14.000
0210	650.6501	Construction Staking Structure Layout (structure) 01. C-17-50	EACH	1.000	1.000
0212	650.9911	Construction Staking Supplemental Control (project) 01. 8110-01-72	EACH	1.000	1.000
0214	650.9920	Construction Staking Slope Stakes	LF	1,391.000	1,391.000
0216	690.0150	Sawing Asphalt	LF	7,300.000	7,300.000
0218	715.0502	Incentive Strength Concrete Structures	DOL	2,190.000	2,190.000
0220	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	800.000	800.000
0222	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0224	SPV.0060	Special 01. Cleaning End Treatment	EACH	4.000	4.000
0226	SPV.0060	Special 02. Temporary Stream Diversion Culvert C-17-50	EACH	1.000	1.000
0228	SPV.0090	Special 01. Ditch Cleaning	LF	225.000	225.000

3

CLEARING AND GRUBBING ITEMS

Table with columns: STATION, TO, STATION, LOCATION, 201.0105 CLEARING STA, 201.0205 GRUBBING STA. Rows include station ranges like 359+00 to 360+00 and 551+50 to 552+50.

MISCELLANEOUS PROJECT ITEMS

Table with columns: STATION, TO, STATION, LOCATION, 213.0100 FINISHING ROADWAY, 618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS. Includes item 350+06 to 1010+73.

REMOVING GUARDRAIL

Table with columns: STATION, TO, STATION, LOCATION, 204.0165 REMOVING GUARDRAIL LF. Lists various station ranges and corresponding linear feet.

REMOVING SMALL PIPE CULVERTS & STRUCTURES

Table with columns: STATION, LOCATION, 203.0100 SMALL PIPE CULVERTS, 203.0220 REMOVING STRUCTURE. Includes items like 364+39 and 477+01.

*REMOVAL OF MASONRY ENDWALLS IS INCIDENTAL TO REMOVING STRUCTURE ITEM

REMOVING ASPHALTIC SURFACE

Table with columns: STATION, TO, STATION, LOCATION, 204.0110 REMOVING ASPHALTIC SURFACE SY. Lists station ranges and corresponding square yards.

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

Table with columns: STATION, TO, STATION, LOCATION, 211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA, REMARKS. Lists station ranges and remarks like 'STH 64'.

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EXCAVATION COMMON AND BACKFILL

STATION	TO	STATION	LOCATION	205.0100 EXCAVATION COMMON CY	209.2500 BACKFILL GRANULAR GRADE 2 TON	REMARKS
363+84	-	364+94	CROSSING	723	1,020	CULVERT
372+54	-	373+64	CROSSING	525	535	CULVERT
402+60	-	403+85	CROSSING	875	1,085	CULVERTS
414+53	-	415+63	CROSSING	717	944	CULVERT
439+53	-	440+63	CROSSING	715	941	CULVERT
443+53	-	444+63	CROSSING	687	900	CULVERT
452+52	-	453+62	CROSSING	693	904	CULVERT
456+75	-	457+85	CROSSING	700	910	REMOVE STRUCTURE
476+46	-	477+56	CROSSING	704	919	CULVERT
668+85	-	670+13	CROSSING	730	963	CULVERT
811+23	-	812+41	CROSSING	691	789	CULVERTS
847+50	-	849+00	CROSSING	2,210	-	BOX CULVERT C-17-0050
ITEM TOTAL				9,970	9,910	

PREPARE FOUNDATION

STATION	TO	STATION	LOCATION	211.0101 PREPARE FOUNDATION FOR ASPHALTIC PAVING (8110-01-72) EACH	211.0500 PREPARE FOUNDATION FOR BASE AGGREGATE STA	REMARKS
363+84	-	364+94	STH 64	-	2	CULVERT
372+54	-	373+64	STH 64	-	2	CULVERT
402+60	-	403+85	STH 64	-	2	CULVERTS
414+53	-	415+63	STH 64	-	2	CULVERT
439+53	-	440+63	STH 64	-	2	CULVERT
443+53	-	444+63	STH 64	-	2	CULVERT
452+52	-	453+62	STH 64	-	2	CULVERT
456+75	-	457+85	STH 64	-	2	REMOVE STRUCTURE
476+46	-	477+56	STH 64	-	2	CULVERT
668+85	-	670+13	STH 64	-	2	CULVERT
811+23	-	812+41	STH 64	-	2	CULVERTS
847+50	-	849+00	STH 64	-	2	C-17-0050
PROJECT				1	-	
ITEM TOTAL				1	24	

AGGREGATE ITEMS

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	305.0500 SHAPING SHOULDERS STA	624.0100 WATER MGAL
350+05	-	401+00	STH 64	503	715	102	25
401+00	-	454+00	STH 64	477	1,825	106	47
454+00	-	507+00	STH 64	705	730	106	29
507+00	-	560+00	STH 64	547	-	106	15
560+00	-	613+00	STH 64	536	-	106	15
613+00	-	666+00	STH 64	283	-	106	6
666+00	-	719+00	STH 64	326	412	106	15
719+00	-	772+00	STH 64	283	-	106	6
772+00	-	825+00	STH 64	324	388	106	15
825+00	-	878+00	STH 64	346	485	106	7
878+00	-	931+00	STH 64	283	-	106	6
931+00	-	984+00	STH 64	283	-	106	6
984+00	-	1010+73	STH 64	114	-	54	4
UNDISTRIBUTED				250	215	-	14
ITEM TOTAL				5,260	4,770	1,322	210

CONCRETE SURFACE DRAINS

STATION	LOCATION	602.3010 CONCRETE SURFACE DRAINS CY
480+99	RT	1
486+26	RT	1
498+00	RT	1
500+38	RT	1
548+29	RT	1
549+75	LT	1
550+42	RT	1
551+50	LT	1
558+57	LT	1
590+10	LT	1
591+87	LT	1
ITEM TOTAL		11

ASPHALTIC ITEMS

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
350+05	-	401+00	STH 64	60	288
401+00	-	454+00	STH 64	132	682
454+00	-	507+00	STH 64	139	445
507+00	-	560+00	STH 64	57	157
560+00	-	613+00	STH 64	79	220
613+00	-	666+00	STH 64	-	-
666+00	-	719+00	STH 64	30	154
719+00	-	772+00	STH 64	-	-
772+00	-	825+00	STH 64	28	142
825+00	-	878+00	STH 64	35	182
878+00	-	931+00	STH 64	-	-
931+00	-	984+00	STH 64	-	-
984+00	-	1010+73	STH 64	-	-
ITEM TOTAL				560	2,270

CULVERT ITEMS

STATION	LOCATION	520.1030 APRON ENDWALLS FOR CULVERT PIPE 30- INCH EACH	520.3430 CULVERT PIPE CLASS III-A NON-METAL 30-INCH LF	520.8700 CLEANING CULVERT PIPES EACH	520.9700.S.01 CULVERT PIPE LINERS (36- INCH) LF	520.9750.S CLEANING CULVERT PIPES FOR LINER VERIFICATION EACH	521.1024 APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH EACH	521.3124 CULVERT PIPE CORRUGATE D STEEL 24- INCH LF	522.0130 CULVERT PIPE REINFORCED CONCRETE CLASS III 30- INCH LF	522.0136 CULVERT PIPE REINFORCED CONCRETE CLASS III 36- INCH LF	522.0160 CULVERT PIPE REINFORCED CONCRETE CLASS III 60- INCH LF	522.0430 CULVERT PIPE REINFORCED CONCRETE CLASS IV 30- INCH LF	522.1030 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30- INCH EACH	522.1036 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36- INCH EACH	522.1060 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 60- INCH EACH
364+39	LT & RT	-	-	-	-	-	-	-	80	-	-	-	-	2	-
373+09	LT & RT	-	-	-	-	-	-	-	-	-	64	2	-	-	-
387+76	LT	-	-	1	-	-	-	-	-	-	-	-	-	-	-
400+08	LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
403+17	LT & RT	-	-	-	-	-	-	-	-	96	-	-	-	-	2
403+26	LT & RT	-	-	-	-	-	-	-	-	96	-	-	-	-	2
415+08	LT & RT	-	-	-	-	-	-	90	-	-	-	2	-	-	-
431+06	RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
440+08	LT & RT	-	-	-	-	-	-	108	-	-	-	2	-	-	-
444+07	LT & RT	-	-	-	-	-	-	108	-	-	-	2	-	-	-
453+07	LT & RT	-	-	-	-	-	-	-	98	-	-	-	2	-	-
477+01	LT & RT	-	-	-	-	-	-	82	-	-	-	2	-	-	-
485+01	LT & RT	-	-	1	-	-	-	-	-	-	-	-	-	-	-
531+95	RT	-	-	-	-	-	-	12	-	-	-	1	-	-	-
537+67	LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
564+79	LT & RT	-	-	-	102	1	-	-	-	-	-	-	-	-	-
609+90	LT & RT	-	-	-	-	-	2	5	-	-	-	-	-	-	-
669+48	LT & RT	2	104	-	-	-	-	-	-	-	-	-	-	-	-
686+25	LT & RT	-	-	1	-	-	-	-	-	-	-	-	-	-	-
686+32	LT & RT	-	-	1	-	-	-	-	-	-	-	-	-	-	-
811+86	LT & RT	-	-	-	-	-	-	-	-	-	172	4	-	-	-
979+11	LT & RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
979+26	LT & RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ITEM TOTAL		2	104	4	102	1	2	5	400	178	192	236	15	4	4

CULVERT ITEMS (continued)

		524.0124	524.0136	524.0624	524.0636	628.7555	633.5200	SPV.0060.01	
		CULVERT PIPE SALVAGED 24-INCH LF	CULVERT PIPE SALVAGED 36-INCH LF	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 24-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 36-INCH EACH	CULVERT PIPE CHECKS EACH	*MARKERS CULVERT END EACH	CLEANING END TREATMENT EACH	REMARKS
STATION	LOCATION								
364+39	LT & RT	-	-	-	-	-	2	-	
373+09	LT & RT	-	-	-	-	3	2	-	
387+76	LT	-	-	1	-	3	1	-	25 LF DITCH CLEANING & TIE JOINT
400+08	LT	20	-	1	-	3	1	-	
403+17	LT & RT	-	-	-	-	-	2	-	TIE ALL JOINTS & ENDWALLS SKEW 7 DEGREES RHF
403+26	LT & RT	-	-	-	-	-	2	-	TIE ALL JOINTS & ENDWALLS SKEW 7 DEGREES RHF
415+08	LT & RT	-	-	-	-	3	2	-	
431+06	RT	-	12	-	1	-	1	-	
440+08	LT & RT	-	-	-	-	3	2	-	
444+07	LT & RT	-	-	-	-	3	2	-	
453+07	LT & RT	-	-	-	-	-	2	-	
477+01	LT & RT	-	-	-	-	3	2	-	
485+01	LT & RT	-	-	-	-	3	2	-	INCLUDES BRUSHING
531+95	RT	-	-	-	-	3	1	-	
537+67	LT	-	6	-	1	3	1	-	TIE JOINTS
564+79	LT & RT	-	-	-	-	3	2	-	102 LF CULVERT PIPE LINERS 24-INCH
609+90	LT & RT	-	-	-	-	3	2	-	40 LF DITCH CLEANING
669+48	LT & RT	-	-	-	-	3	2	-	
686+25	LT & RT	-	-	-	-	3	2	-	
686+32	LT & RT	-	-	-	-	3	2	-	
811+86	LT & RT	-	-	-	-	3	4	-	
979+11	LT & RT	-	-	-	-	-	2	2	
979+26	LT & RT	-	-	-	-	-	2	2	
ITEM TOTAL		20	18	2	2	48	43	4	

*REMOVAL OF EXISTING WOOD POSTS IS INCIDENTAL TO MARKERS CULVERT END

GUARDRAIL ITEMS

STATION	TO	STATION	LOCATION	614.2300	614.2330	614.2345	614.2350	614.2500	614.2610	REMARKS
				MGS GUARDRAIL 3	MGS GUARDRAIL 3 K	MGS GUARDRAIL 3 SL	MGS GUARDRAIL SHORT RADIUS	MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT	
LF	LF	LF	LF	LF	LF	LF	LF	LF	EACH	
357+18.0	-	360+17.8	RT	88	-	-	-	38	1	
356+81.3	-	359+95.6	LT	63	-	-	-	38	1	
360+38.9	-	363+45.5	LT	100	-	-	-	38	1	
360+62.0	-	363+36.8	RT	63	-	-	-	38	1	
474+97.7	-	490+48.8	RT	-	1,100	75	-	-	2	
483+50.0	-	491+67.6	RT 350TH TO LT STH 64	-	575	-	45	-	2	
491+81.9	-	502+36.3	RT	-	475	75	-	-	2	
493+48.2	-	503+15.1	LT	625	-	-	-	-	2	
507+67.6	-	510+41.7	LT	63	-	-	-	-	1	
507+80.8	-	510+31.5	RT	75	-	-	-	39	1	
510+73.2	-	513+16.9	RT	38	-	-	-	39	1	
510+83.5	-	513+70.1	LT	73	-	-	-	39	1	
546+39.7	-	554+13.4	RT	-	350	75	-	-	2	
547+90.6	-	556+33.6	LT	425	-	75	-	-	2	
563+53.0	-	567+73.4	RT	-	200	-	-	-	2	ALTERNATIVE GRADING FOR TANGENT TERMINALS
585+19.8	-	590+33.5	RT STH 64 TO LT 430TH ST	-	325	-	37	-	2	
585+27.0	-	593+38.3	LT	-	388	113	-	-	2	
596+47.6	-	601+70.1	LT	-	375	-	-	39	1	
597+11.9	-	601+70.3	RT	-	288	-	-	39	1	
603+55.4	-	603+55.4	RT	38	-	-	-	39	1	
603+55.9	-	605+63.0	LT	50	-	-	-	39	1	
ITEM TOTAL				1,701	4,076	413	82	425	30	

BARRIER SYSTEM GRADING SHAPING FINISHING

STATION	TO	STATION	LOCATION	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING										
				EACH	SALVAGED TOPSOIL* SY	EROSION MAT CLASS II TYPE C* SY	FERTILIZER TYPE B* CWT	SEEDING MIXTURE NO. 20* LB	SEED WATER* MGAL	CONSTRUCTION STAKING* LF	BORROW* CY	COMMON* CY		
357+18.0	-	360+17.8	RT	1	450	450	0.29	9	10	300	18.4	36.8		
356+81.3	-	359+95.6	LT	1	528	528	0.34	10	12	314	61.4	29.0		
360+38.9	-	363+45.5	LT	1	406	406	0.26	8	9	307	45.9	50.6		
360+62.0	-	363+36.8	RT	1	412	412	0.26	8	9	275	27.3	29.2		
474+97.7	-	490+48.8	RT	1	5,223	5,223	3.30	95	117	1551	240.8	990.7		
483+50.0	-	491+67.6	RT 350TH TO LT STH 64	1	867	867	0.55	16	19	818	43.4	61.3		
491+81.9	-	502+36.3	RT	1	2,262	2,262	1.43	41	51	1054	139.7	284.0		
493+48.2	-	503+15.1	LT	1	1,484	1,484	0.94	27	33	967	73.4	124.6		
507+67.6	-	510+41.7	LT	1	262	262	0.17	5	6	274	33.1	0.8		
507+80.8	-	510+31.5	RT	1	334	334	0.22	7	8	251	25.8	27.0		
510+73.2	-	513+16.9	RT	1	467	467	0.30	9	10	244	26.2	28.2		
510+83.5	-	513+70.1	LT	1	495	495	0.32	9	11	287	54.5	9.7		
546+39.7	-	554+13.4	RT	1	2,823	2,823	1.78	51	63	774	111.5	561.0		
547+90.6	-	556+33.6	LT	1	1,317	1,317	0.83	24	30	843	127.6	65.9		
563+53.0	-	567+73.4	RT	1	995	995	0.63	18	22	420	24.2	204.5		
585+19.8	-	590+33.5	RT STH 64 TO LT 430TH ST	1	1,817	1,817	1.15	33	41	514	125.2	304.7		
585+27.0	-	593+38.3	LT	1	1,534	1,534	0.97	28	34	811	84.9	84.9		
596+47.6	-	601+70.1	LT	1	406	406	0.26	8	9	523	38.3	37.1		
597+11.9	-	601+70.3	RT	1	662	662	0.42	12	15	458	27.9	144.2		
603+55.4	-	603+55.4	RT	1	350	350	0.23	7	8	0	27.6	25.2		
603+55.9	-	605+63.0	LT	1	245	245	0.16	5	6	207	24.5	6.5		
ITEM TOTAL				21										

* ITEMS SHOWN FOR REFERENCE ONLY. ITEMS INCIDENTAL TO THE ITEM BARRIER SYSTEM GRADING SHAPING FINISHING.

CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D

STATION	TO	STATION	LOCATION	601.0553 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D LF
476+77	-	488+89	RT	1,212
494+99	-	500+50	RT	551
548+16	-	552+41	RT	425
549+63	-	554+63	LT	500
586+95	-	592+00	LT	505
ITEM TOTAL				3,193

RIP RAP

STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY	REMARKS
480+99	RT	15	32	
486+26	RT	10	9	
498+00	RT	10	10	
500+44	RT	10	9	
548+22	RT	10	9	
549+69	LT	10	9	
550+42	RT	16	14	
551+50	LT	10	9	
588+57	LT	10	10	
590+10	LT	5	6	
591+93	LT	5	6	
811+86	LT	24	49	
ITEM TOTAL		135	172	

EROSION CONTROL ITEMS

STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0140 SEEDING MIXTURE NO. 40 LB	630.0500 SEED WATER MGAL	REMARKS
350+05	-	401+00	STH 64	980	2,125	2,125	980	0.70	20	-	23	CULVERT LOCATIONS
401+00	-	454+00	STH 64	5,160	3,170	3,170	5,160	3.35	93	-	117	
454+00	-	507+00	STH 64	1,460	5,325	5,325	1,460	1.00	27	-	34	CULVERT LOCATIONS
507+00	-	560+00	STH 64	300	3,250	3,250	300	0.30	6	3	7	CULVERT LOCATIONS
560+00	-	613+00	STH 64	-	3,775	3,775	-	-	-	-	-	CULVERT LOCATIONS
613+00	-	666+00	STH 64	-	-	-	-	-	-	-	-	
666+00	-	719+00	STH 64	12,500	720	720	12,500	8.00	225	-	284	CULVERT LOCATIONS
719+00	-	772+00	STH 64	-	-	-	-	-	-	-	-	
772+00	-	825+00	STH 64	1,280	670	670	1,280	1.00	25	-	30	CULVERT LOCATIONS
825+00	-	878+00	STH 64	2,420	550	550	2,420	1.65	44	-	55	CULVERT LOCATIONS & TEMPORARY DIVERSION
878+00	-	931+00	STH 64	-	-	-	-	-	-	-	-	
931+00	-	984+00	STH 64	-	-	-	-	-	-	-	-	
984+00	-	1010+73	STH 64	-	-	-	-	-	-	-	-	
UNDISTRIBUTED				-	4,740	4,740	-	-	-	-	-	
ITEM TOTAL				24,100	24,325	24,325	24,100	16.00	440	3	550	

3

EROSION CONTROL MOBILIZATION

STATION	TO	STATION	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
350+06	-	1010+73	STH 64	5	3
ITEM TOTAL				5	3

MOVING SIGNS

STATION	TO	STATION	LOCATION	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
350+05	-	401+00	STH 64	4	4	B-17-156
401+00	-	454+00	STH 64	-	-	
454+00	-	507+00	STH 64	-	-	
507+00	-	560+00	STH 64	6	7	B-17-157 & CTH F (SOUTH LEG)
560+00	-	613+00	STH 64	6	6	430TH ST & B-17-169
613+00	-	666+00	STH 64	-	-	
666+00	-	719+00	STH 64	-	-	
719+00	-	772+00	STH 64	-	-	
772+00	-	825+00	STH 64	1	1	STA 811+96 CULVERT REPLACEMENT
825+00	-	878+00	STH 64	-	-	
878+00	-	931+00	STH 64	-	-	
931+00	-	984+00	STH 64	-	-	
984+00	-	1010+73	STH 64	-	-	
ITEM TOTAL				17	18	

3

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.9911 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (8110-01-72) LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
350+05	-	401+00	STH 64	220	220	-	2	-	220
401+00	-	454+00	STH 64	555	555	-	6	-	555
454+00	-	507+00	STH 64	110	110	1,763	1	-	110
507+00	-	560+00	STH 64	110	110	925	1	-	110
560+00	-	613+00	STH 64	-	-	505	1	-	-
613+00	-	666+00	STH 64	128	128	-	-	-	128
666+00	-	719+00	STH 64	-	-	-	1	-	-
719+00	-	772+00	STH 64	-	-	-	-	-	-
772+00	-	825+00	STH 64	118	118	-	2	-	118
825+00	-	878+00	STH 64	150	150	-	-	-	150
878+00	-	931+00	STH 64	-	-	-	-	-	-
931+00	-	984+00	STH 64	-	-	-	-	-	-
984+00	-	1010+73	STH 64	-	-	-	-	-	-
PROJECT				-	-	-	-	1	-
ITEM TOTAL				1,391	1,391	3,193	14	1	1,391

MARKING LINE

STATION	TO	STATION	LOCATION	646.1020 EPOXY 4-INCH (YELLOW) LF		EPOXY 4-INCH (WHITE) LF	
350+05	-	401+00	STH 64	840	2265		
401+00	-	454+00	STH 64	1580	2130		
454+00	-	507+00	STH 64	420	4848		
507+00	-	560+00	STH 64	-	3205		
560+00	-	613+00	STH 64	-	4010		
613+00	-	666+00	STH 64	-	0		
666+00	-	719+00	STH 64	285	456		
719+00	-	772+00	STH 64	-	-		
772+00	-	825+00	STH 64	273	436		
825+00	-	878+00	STH 64	313	500		
878+00	-	931+00	STH 64	-	-		
931+00	-	984+00	STH 64	-	-		
984+00	-	1010+73	STH 64	-	-		
ITEM TOTAL				3,710	17,850		

TRAFFIC CONTROL ITEMS

STATION TO	STATION	LOCATION	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0910 * TRAFFIC CONTROL COVERING SIGNS TYPE I EACH	643.0920 * TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	643.105 TRAFFIC CONTROL SIGNS PCMS DAYS	REMARKS
350+06 -	1010+73	STH 64	3,726	7,452	51,612	4	20	28	
ITEM TOTAL			3,726	7,452	51,612	4	20	28	

*NUMBER OF CYCLES = 1

TRAFFIC CONTROL

STATION TO	STATION	LOCATION	643.5000 TRAFFIC CONTROL EACH
350+06 -	1010+73	STH 64	1
ITEM TOTAL			1

SAWING ASPHALT

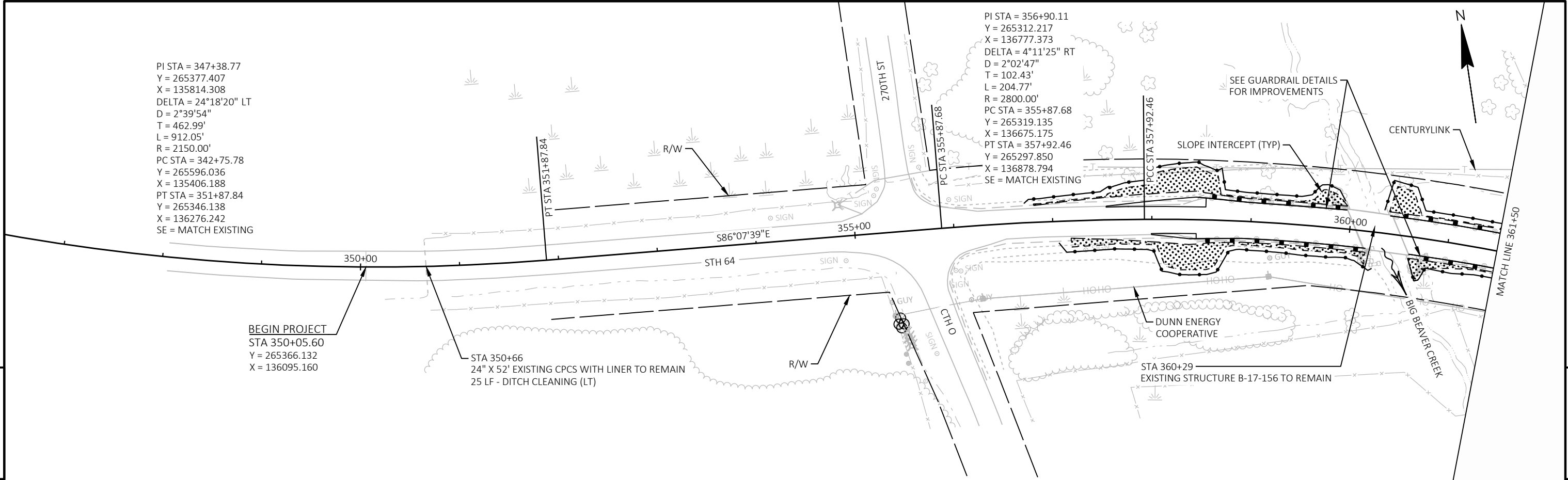
STATION TO	STATION	LOCATION	690.0150 SAWING ASPHALT LF
350+05 -	401+00	STH 64	403
401+00 -	454+00	STH 64	300
454+00 -	507+00	STH 64	2,592
507+00 -	560+00	STH 64	1,931
560+00 -	613+00	STH 64	1,954
613+00 -	666+00	STH 64	-
666+00 -	719+00	STH 64	60
719+00 -	772+00	STH 64	-
772+00 -	825+00	STH 64	-
825+00 -	878+00	STH 64	60
878+00 -	931+00	STH 64	-
931+00 -	984+00	STH 64	-
984+00 -	1010+73	STH 64	-
ITEM TOTAL			7,300

DITCH CLEANING

STATION	LOCATION	SPV.0090.01 LF	REMARKS
350+66	LT	25	
387+76	LT	25	
549+82	LT	25	INCLUDES BRUSHING
609+90	RT	40	
634+50	RT	35	INCLUDES CLEANING END TREATMENT
657+94	LT	25	INCLUDES CLEANING END TREATMENT
719+81	LT	50	INCLUDES CLEANING END TREATMENT
719+92	RT	50	INCLUDES CLEANING END TREATMENT
759+87	LT	25	INCLUDES CLEANING END TREATMENT
792+86	LT & RT	50	INCLUDES CLEANING END TREATMENT
793+16	LT & RT	50	INCLUDES CLEANING END TREATMENT
822+53	LT	25	INCLUDES CLEANING END TREATMENT
998+08	LT	75	INCLUDES CLEANING END TREATMENT
ITEM TOTAL		225	

TEMPORARY STREAM DIVERSION CULVERT C-17-50

CATEGORY	LOCATION	SPV.0060.02 EACH
0010	STH 64	1
ITEM TOTAL		1



PI STA = 347+38.77
 Y = 265377.407
 X = 135814.308
 DELTA = 24°18'20" LT
 D = 2°39'54"
 T = 462.99'
 L = 912.05'
 R = 2150.00'
 PC STA = 342+75.78
 Y = 265596.036
 X = 135406.188
 PT STA = 351+87.84
 Y = 265346.138
 X = 136276.242
 SE = MATCH EXISTING

PI STA = 356+90.11
 Y = 265312.217
 X = 136777.373
 DELTA = 4°11'25" RT
 D = 2°02'47"
 T = 102.43'
 L = 204.77'
 R = 2800.00'
 PC STA = 355+87.68
 Y = 265319.135
 X = 136675.175
 PT STA = 357+92.46
 Y = 265297.850
 X = 136878.794
 SE = MATCH EXISTING

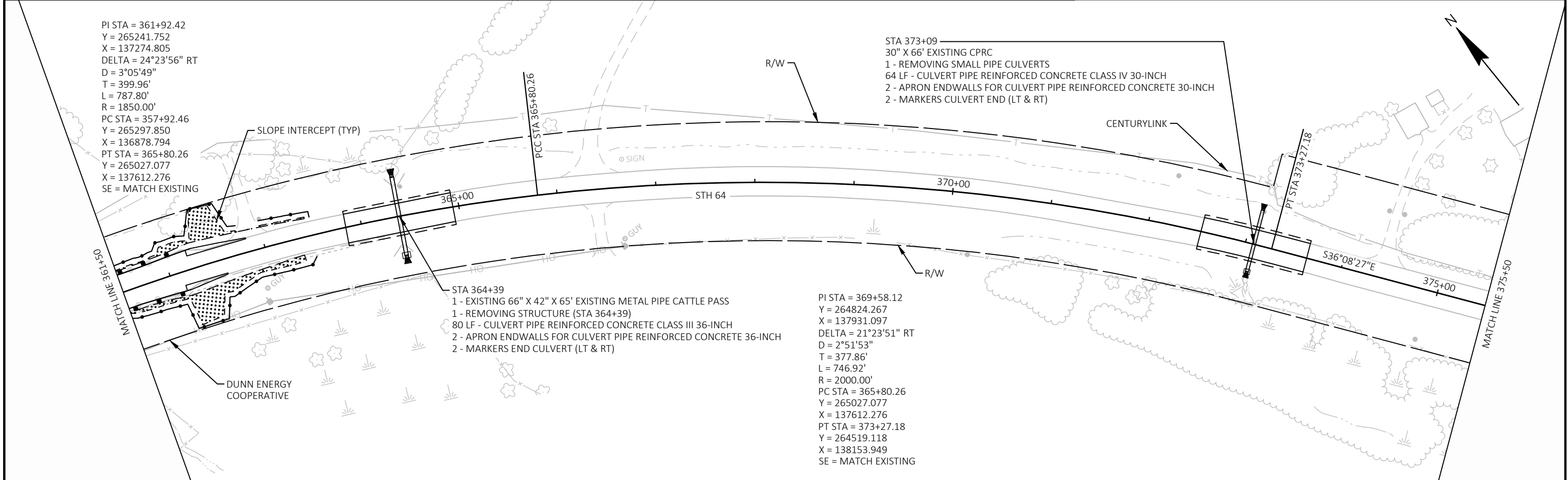
BEGIN PROJECT
 STA 350+05.60
 Y = 265366.132
 X = 136095.160

STA 350+66
 24" X 52' EXISTING CPCS WITH LINER TO REMAIN
 25 LF - DITCH CLEANING (LT)

STA 360+29
 EXISTING STRUCTURE B-17-156 TO REMAIN

5

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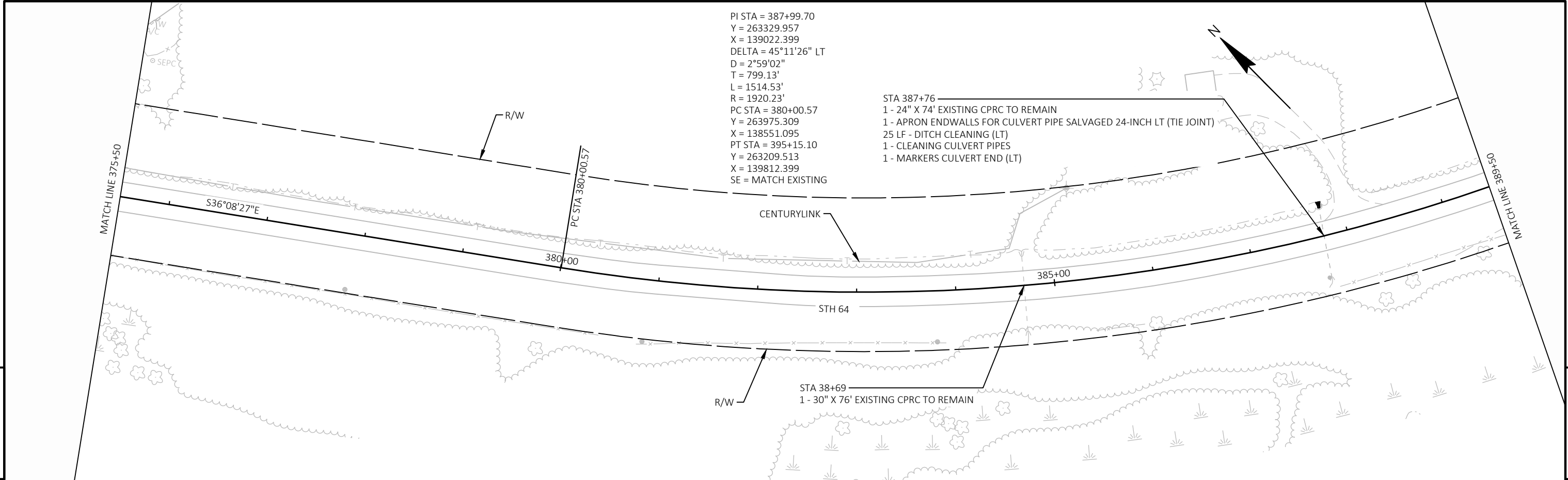
PI STA = 361+92.42
 Y = 265241.752
 X = 137274.805
 DELTA = 24°23'56" RT
 D = 3°05'49"
 T = 399.96'
 L = 787.80'
 R = 1850.00'
 PC STA = 357+92.46
 Y = 265297.850
 X = 136878.794
 PT STA = 365+80.26
 Y = 265027.077
 X = 137612.276
 SE = MATCH EXISTING

STA 373+09
 30" X 66' EXISTING CPCR
 1 - REMOVING SMALL PIPE CULVERTS
 64 LF - CULVERT PIPE REINFORCED CONCRETE CLASS IV 30-INCH
 2 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH
 2 - MARKERS CULVERT END (LT & RT)

STA 364+39
 1 - EXISTING 66" X 42" X 65' EXISTING METAL PIPE CATTLE PASS
 1 - REMOVING STRUCTURE (STA 364+39)
 80 LF - CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH
 2 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH
 2 - MARKERS END CULVERT (LT & RT)

PI STA = 369+58.12
 Y = 264824.267
 X = 137931.097
 DELTA = 21°23'51" RT
 D = 2°51'53"
 T = 377.86'
 L = 746.92'
 R = 2000.00'
 PC STA = 365+80.26
 Y = 265027.077
 X = 137612.276
 PT STA = 373+27.18
 Y = 264519.118
 X = 138153.949
 SE = MATCH EXISTING

PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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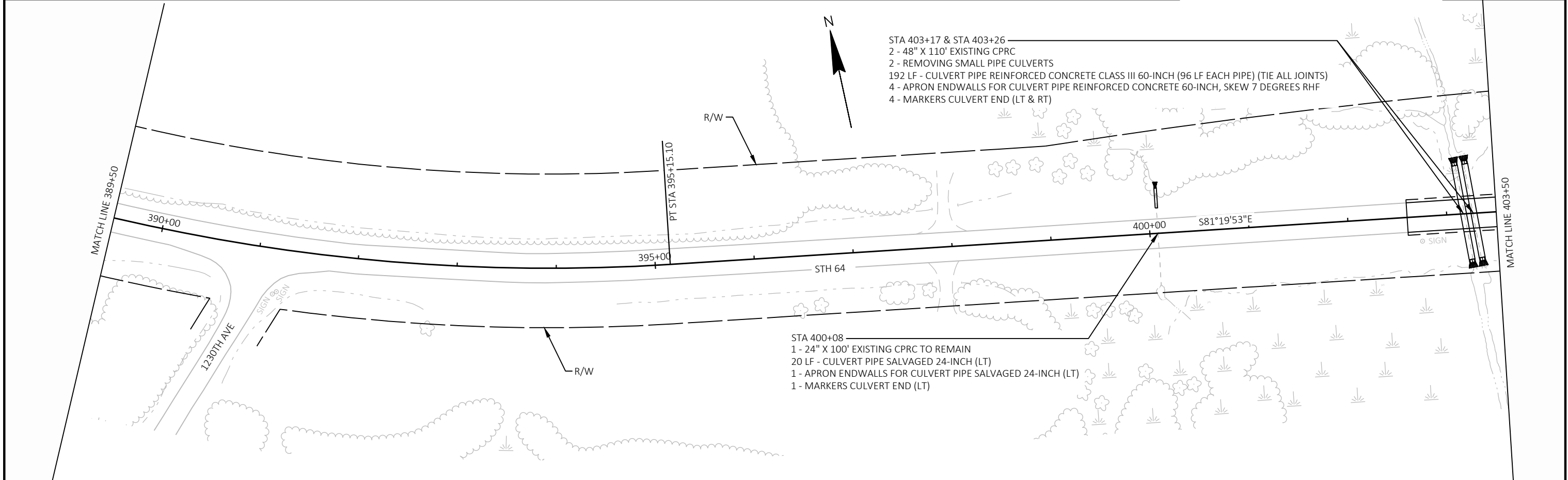
PI STA = 387+99.70
 Y = 263329.957
 X = 139022.399
 DELTA = 45°11'26" LT
 D = 2°59'02"
 T = 799.13'
 L = 1514.53'
 R = 1920.23'
 PC STA = 380+00.57
 Y = 263975.309
 X = 138551.095
 PT STA = 395+15.10
 Y = 263209.513
 X = 139812.399
 SE = MATCH EXISTING

STA 387+76
 1 - 24" X 74' EXISTING CPRC TO REMAIN
 1 - APRON ENDWALLS FOR CULVERT PIPE SALVAGED 24-INCH LT (TIE JOINT)
 25 LF - DITCH CLEANING (LT)
 1 - CLEANING CULVERT PIPES
 1 - MARKERS CULVERT END (LT)

STA 38+69
 1 - 30" X 76' EXISTING CPRC TO REMAIN

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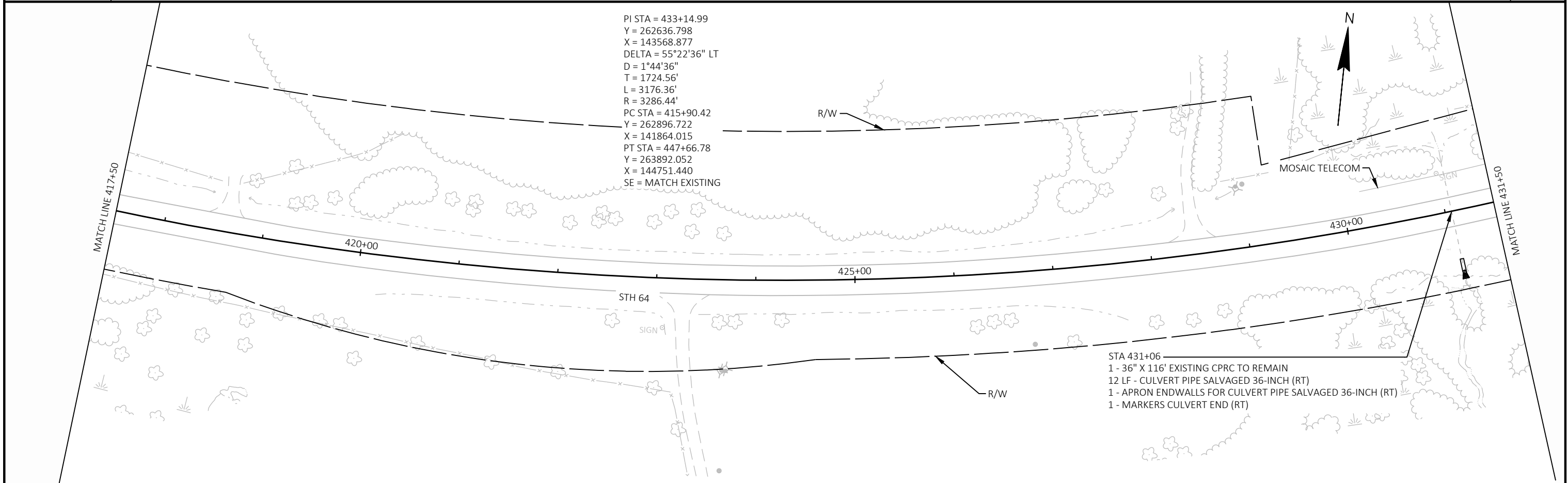
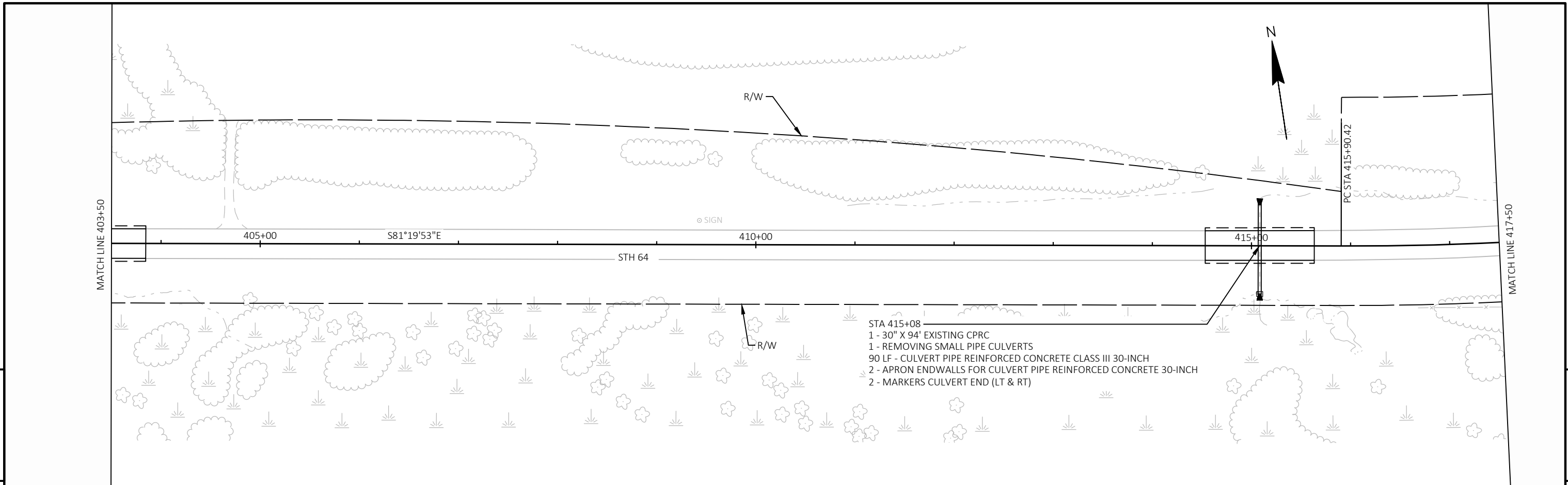
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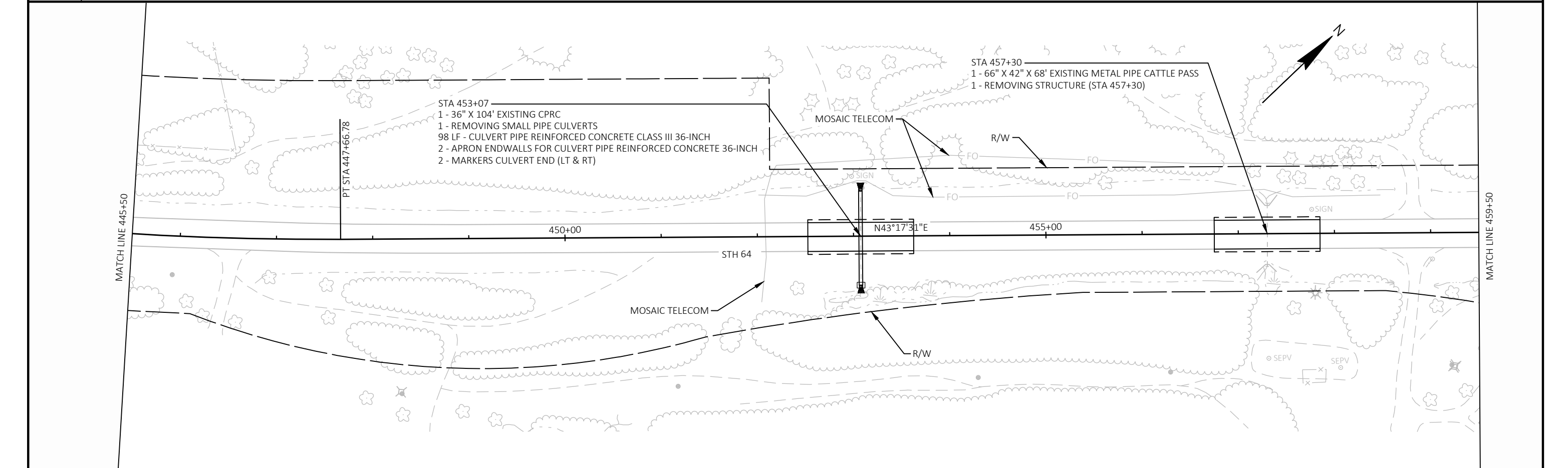
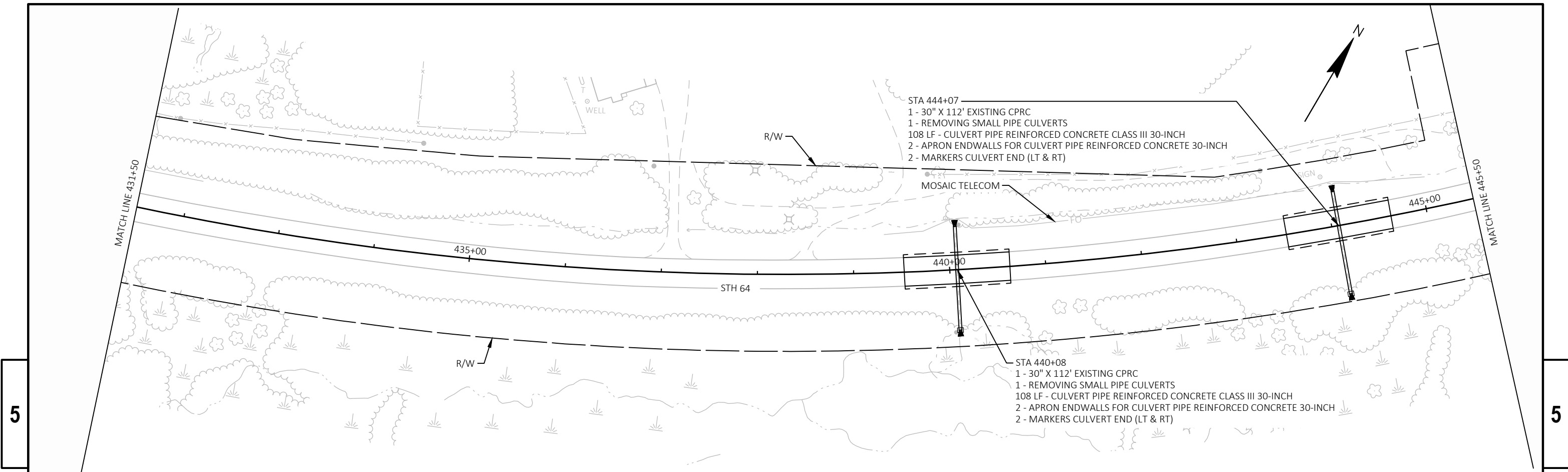


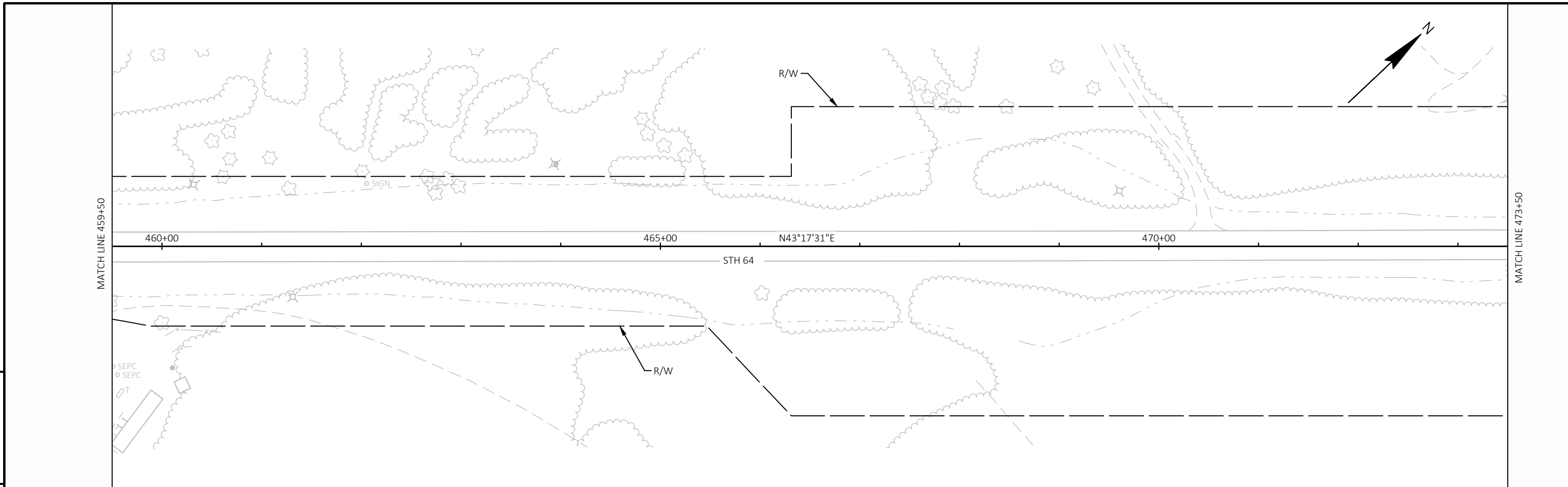
STA 403+17 & STA 403+26
 2 - 48" X 110' EXISTING CPRC
 2 - REMOVING SMALL PIPE CULVERTS
 192 LF - CULVERT PIPE REINFORCED CONCRETE CLASS III 60-INCH (96 LF EACH PIPE) (TIE ALL JOINTS)
 4 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 60-INCH, SKEW 7 DEGREES RHF
 4 - MARKERS CULVERT END (LT & RT)

STA 400+08
 1 - 24" X 100' EXISTING CPRC TO REMAIN
 20 LF - CULVERT PIPE SALVAGED 24-INCH (LT)
 1 - APRON ENDWALLS FOR CULVERT PIPE SALVAGED 24-INCH (LT)
 1 - MARKERS CULVERT END (LT)

PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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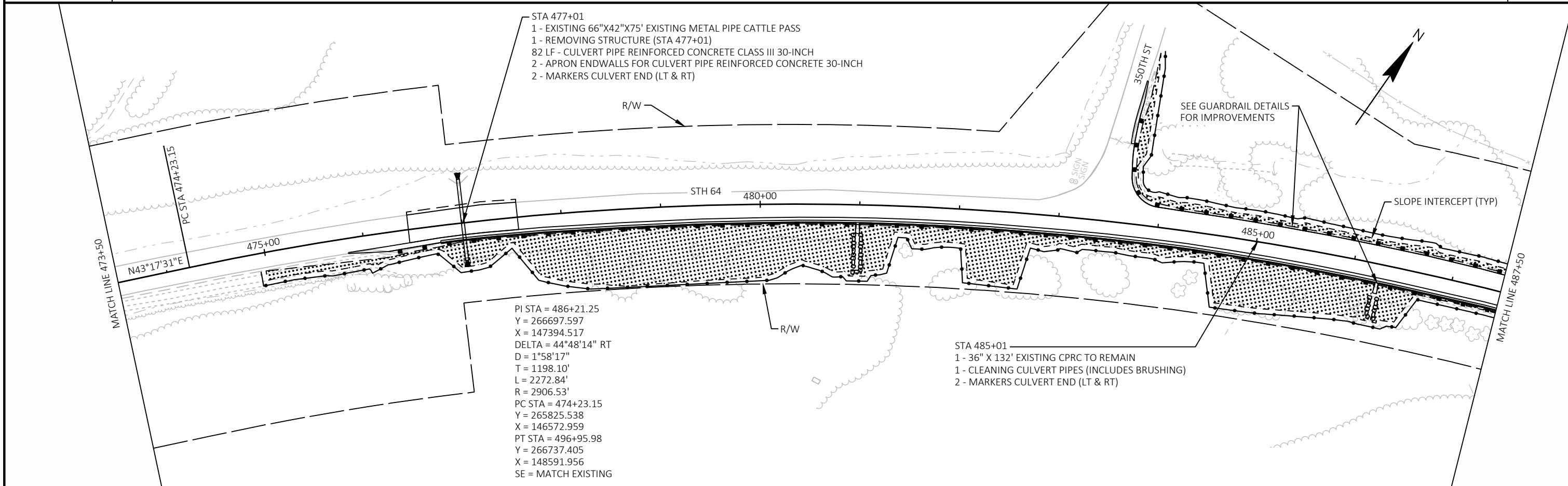






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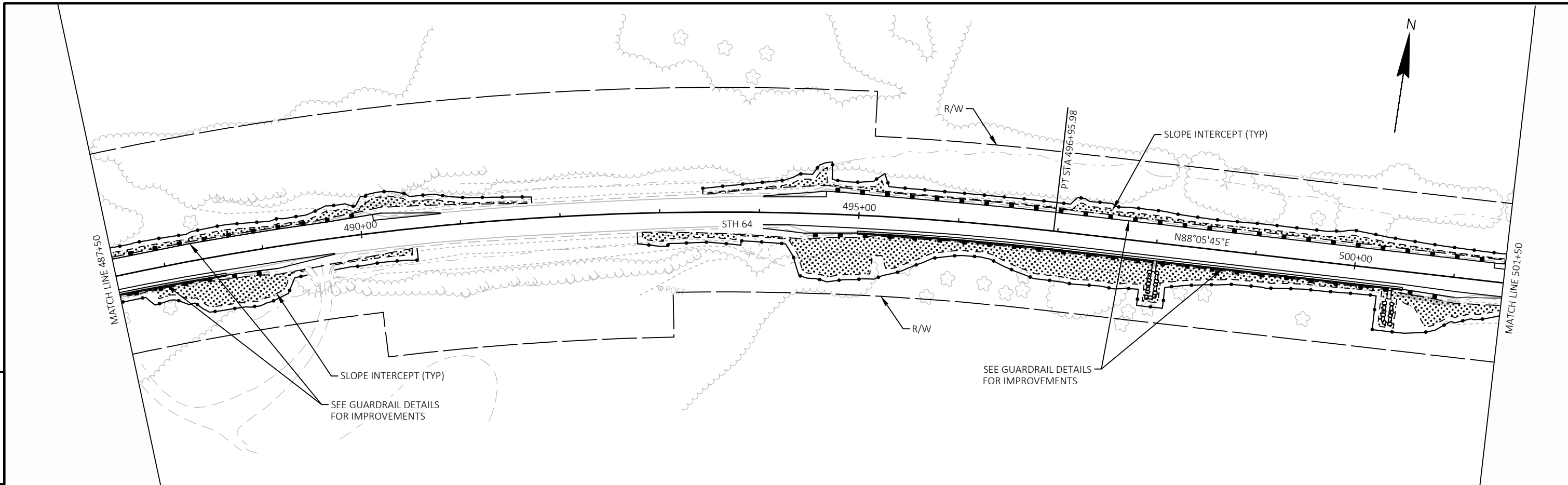
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STA 477+01
 1 - EXISTING 66"X42"X75' EXISTING METAL PIPE CATTLE PASS
 1 - REMOVING STRUCTURE (STA 477+01)
 82 LF - CULVERT PIPE REINFORCED CONCRETE CLASS III 30-INCH
 2 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH
 2 - MARKERS CULVERT END (LT & RT)

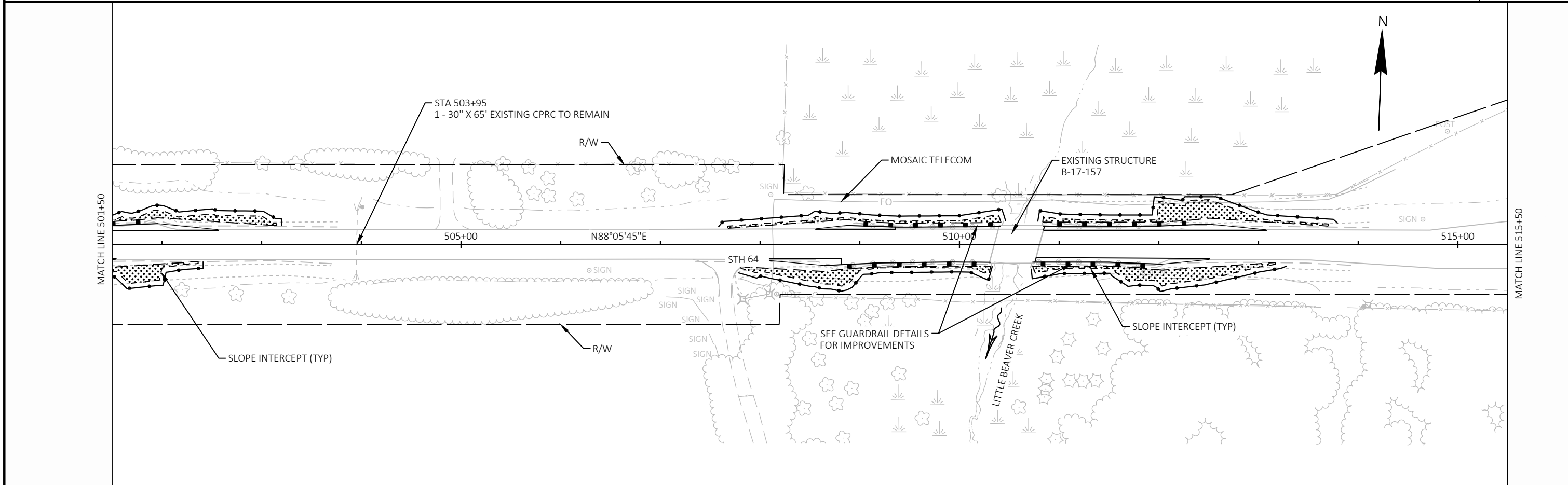
PI STA = 486+21.25
 Y = 266697.597
 X = 147394.517
 DELTA = 44°48'14" RT
 D = 1°58'17"
 T = 1198.10'
 L = 2272.84'
 R = 2906.53'
 PC STA = 474+23.15
 Y = 265825.538
 X = 146572.959
 PT STA = 496+95.98
 Y = 266737.405
 X = 148591.956
 SE = MATCH EXISTING

STA 485+01
 1 - 36" X 132' EXISTING CPCR TO REMAIN
 1 - CLEANING CULVERT PIPES (INCLUDES BRUSHING)
 2 - MARKERS CULVERT END (LT & RT)



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8110-01-72

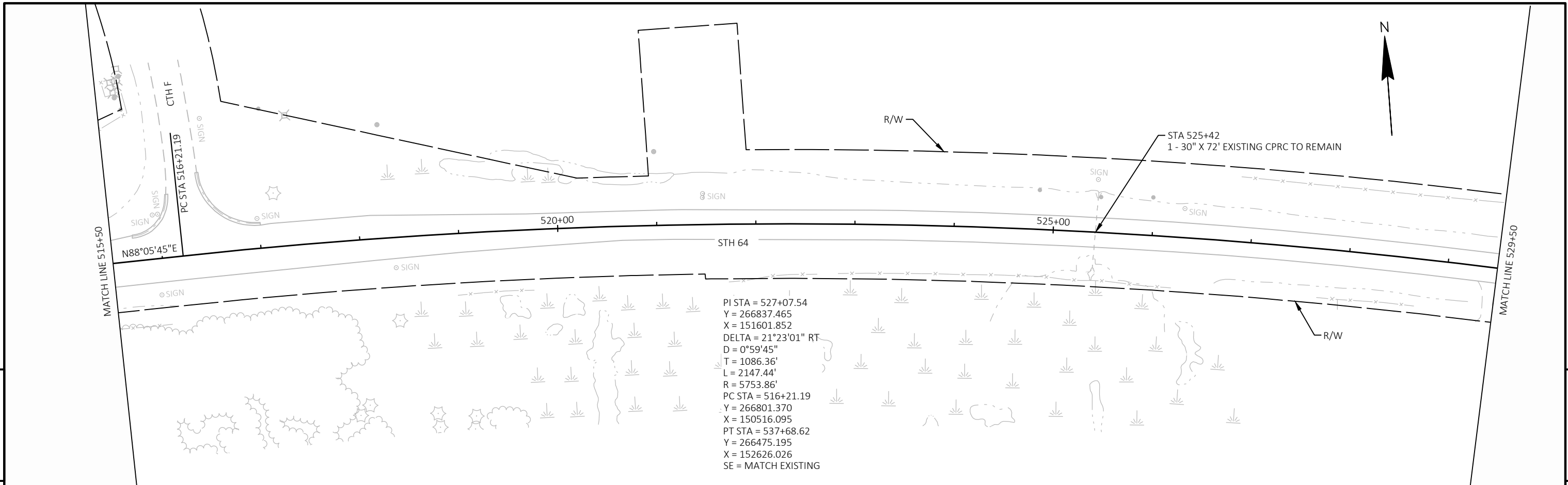
HWY: STH 64

COUNTY: DUNN

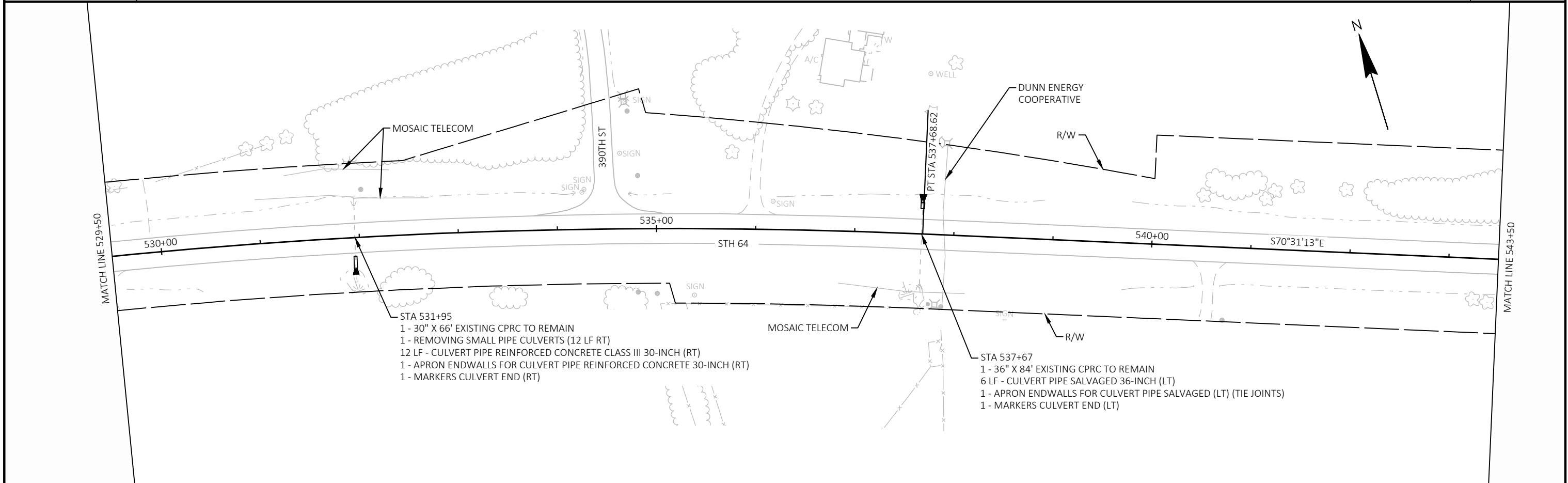
PLAN

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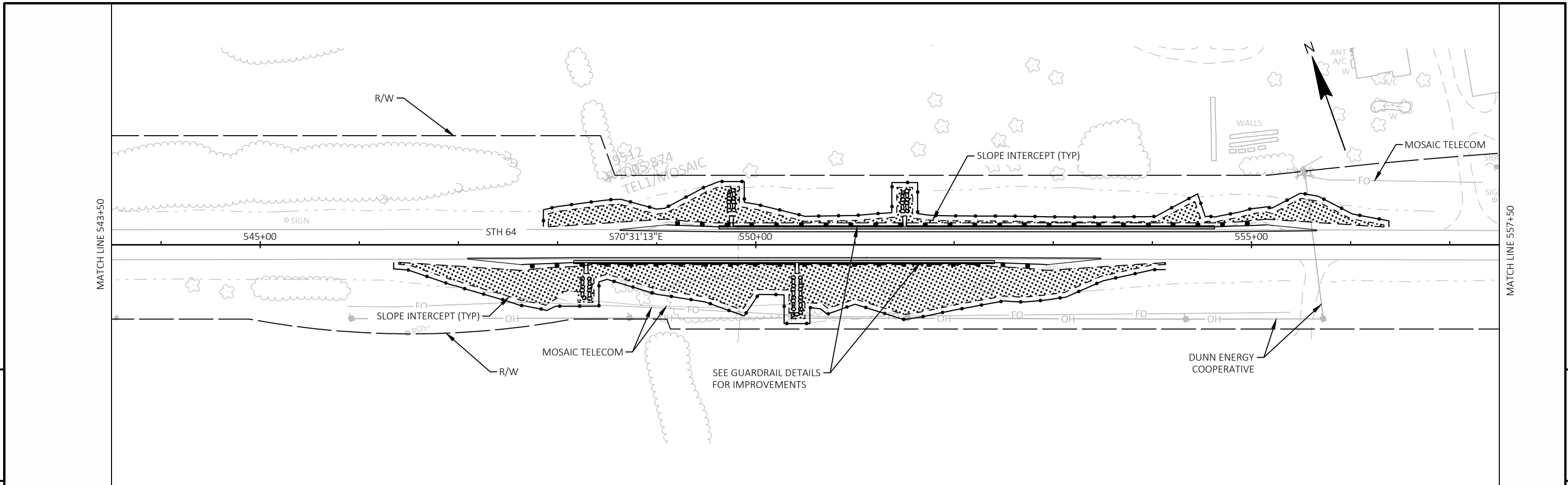


PI STA = 527+07.54
 Y = 266837.465
 X = 151601.852
 DELTA = 21°23'01" RT
 D = 0°59'45"
 T = 1086.36'
 L = 2147.44'
 R = 5753.86'
 PC STA = 516+21.19
 Y = 266801.370
 X = 150516.095
 PT STA = 537+68.62
 Y = 266475.195
 X = 152626.026
 SE = MATCH EXISTING



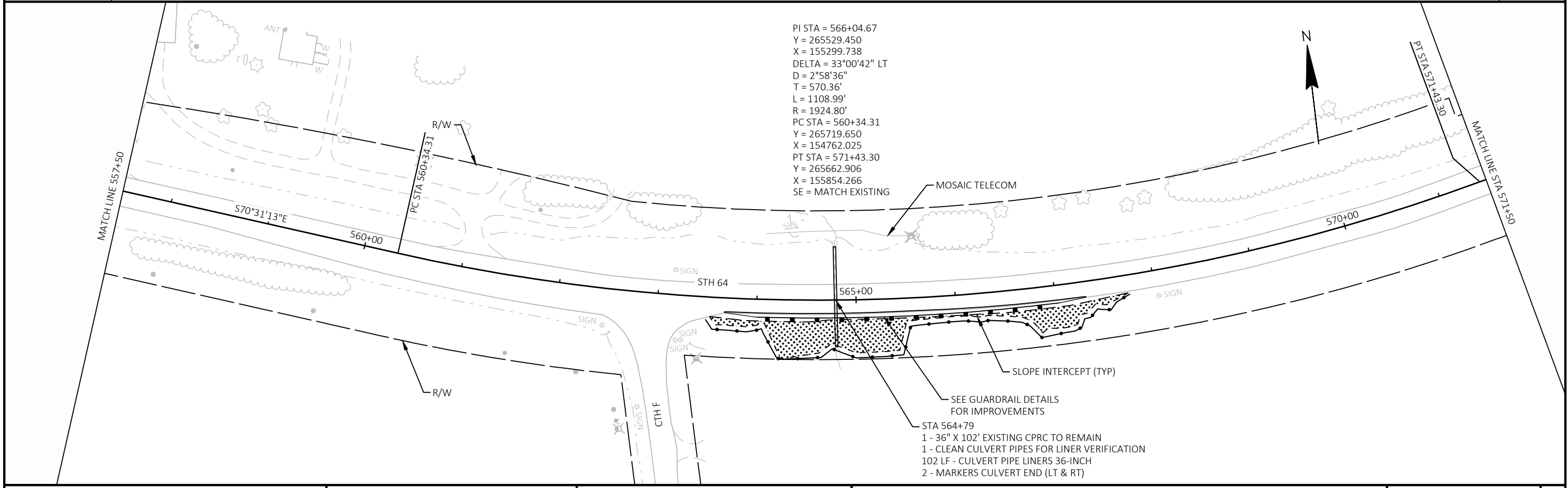
STA 531+95
 1 - 30" X 66' EXISTING CPRC TO REMAIN
 1 - REMOVING SMALL PIPE CULVERTS (12 LF RT)
 12 LF - CULVERT PIPE REINFORCED CONCRETE CLASS III 30-INCH (RT)
 1 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH (RT)
 1 - MARKERS CULVERT END (RT)

STA 537+67
 1 - 36" X 84' EXISTING CPRC TO REMAIN
 6 LF - CULVERT PIPE SALVAGED 36-INCH (LT)
 1 - APRON ENDWALLS FOR CULVERT PIPE SALVAGED (LT) (TIE JOINTS)
 1 - MARKERS CULVERT END (LT)



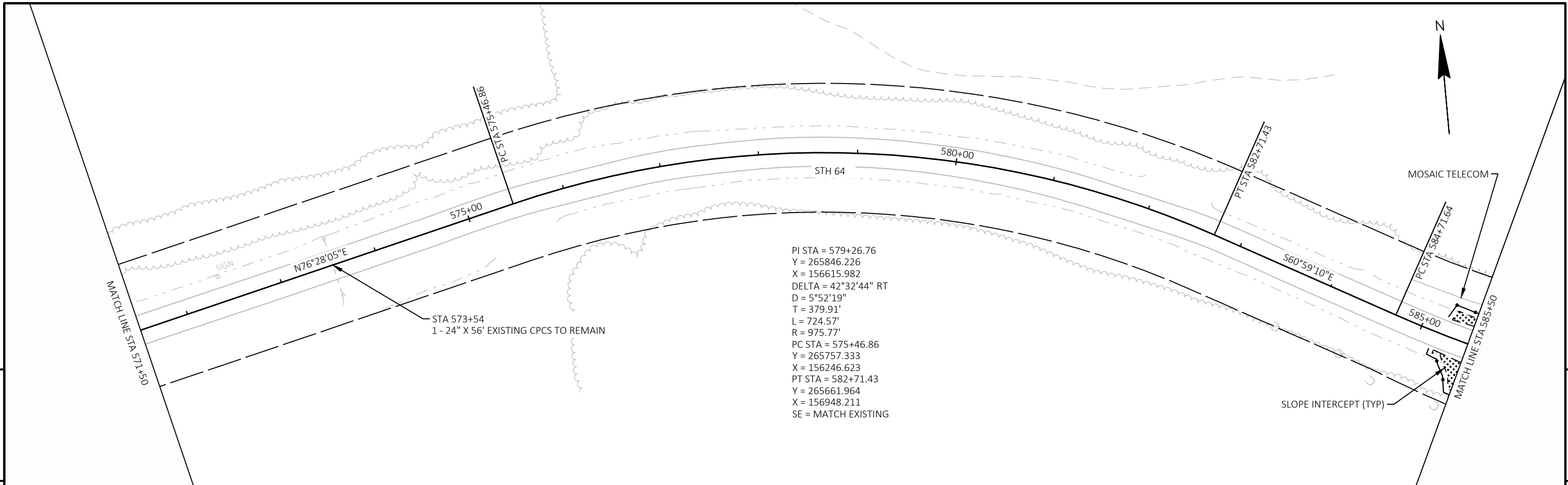
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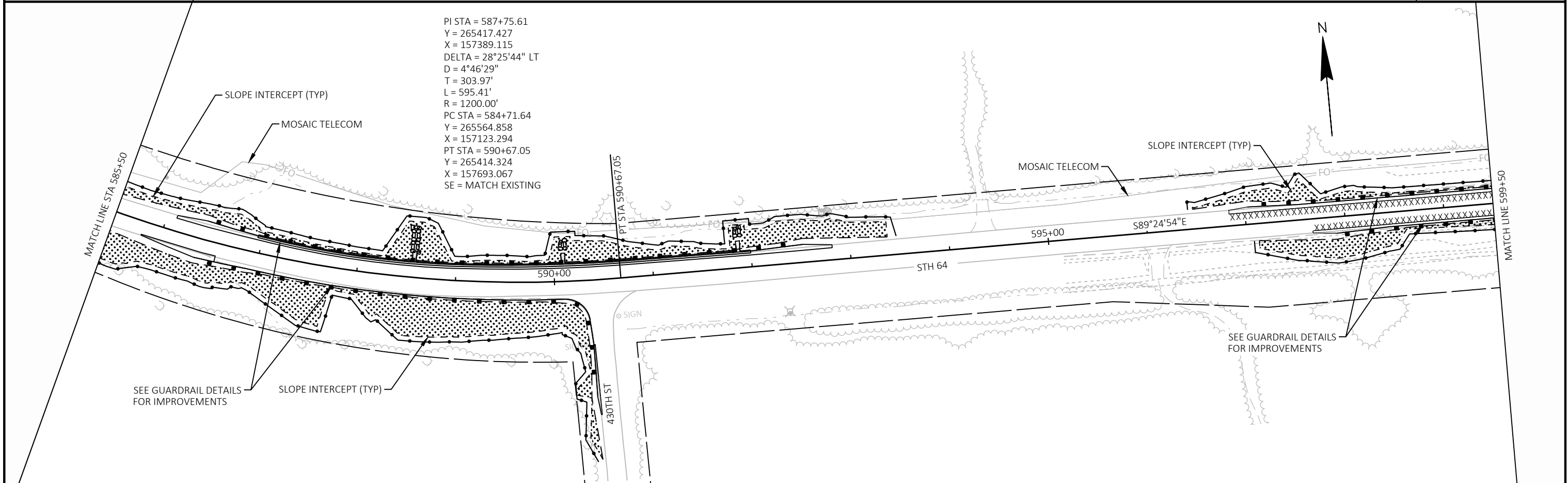
PI STA = 566+04.67
 Y = 265529.450
 X = 155299.738
 DELTA = 33°00'42" LT
 D = 2°58'36"
 T = 570.36'
 L = 1108.99'
 R = 1924.80'
 PC STA = 560+34.31
 Y = 265719.650
 X = 154762.025
 PT STA = 571+43.30
 Y = 265662.906
 X = 155854.266
 SE = MATCH EXISTING

STA 564+79
 1 - 36" X 102' EXISTING CPRC TO REMAIN
 1 - CLEAN CULVERT PIPES FOR LINER VERIFICATION
 102 LF - CULVERT PIPE LINERS 36-INCH
 2 - MARKERS CULVERT END (LT & RT)



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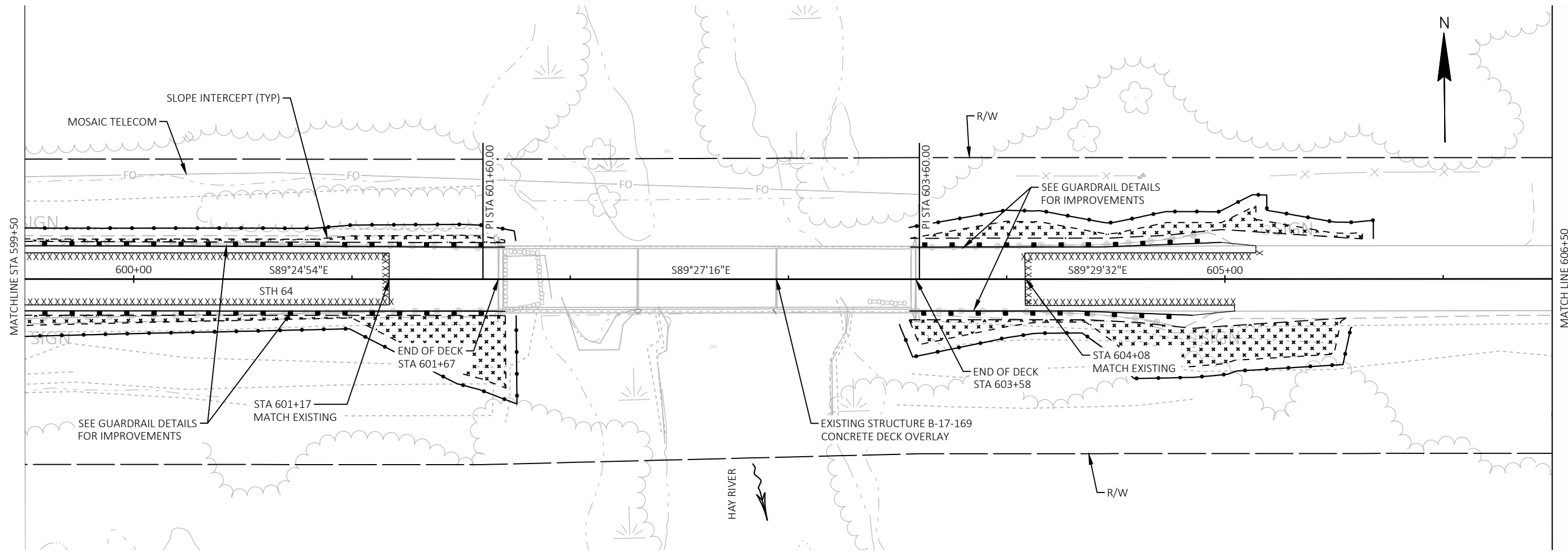
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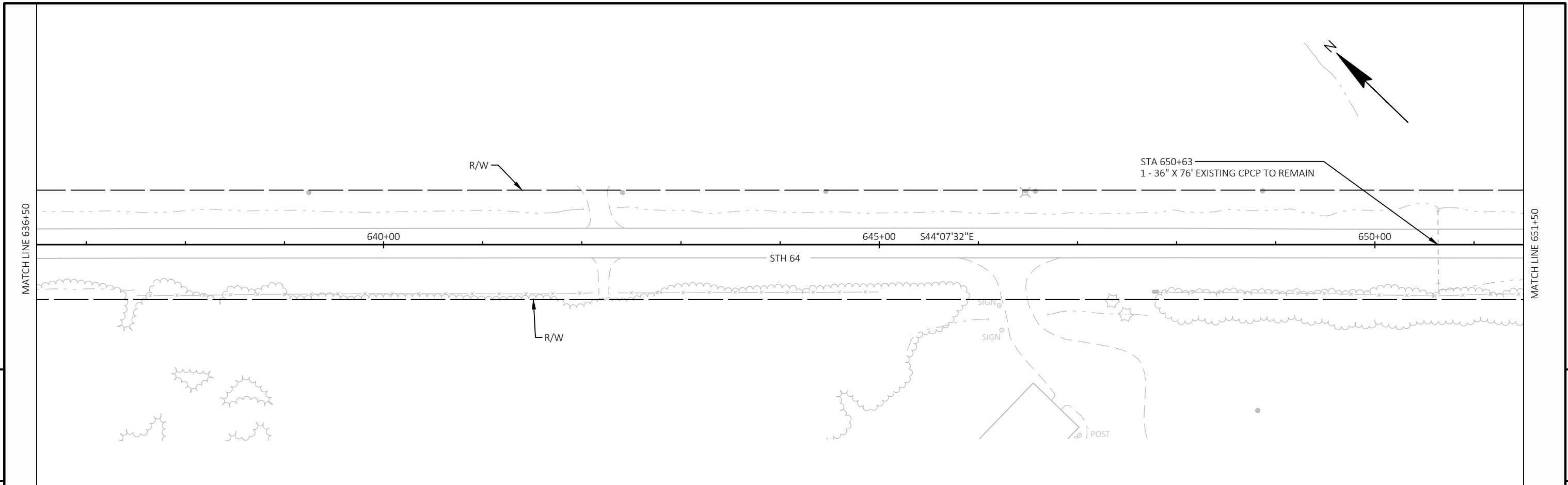
8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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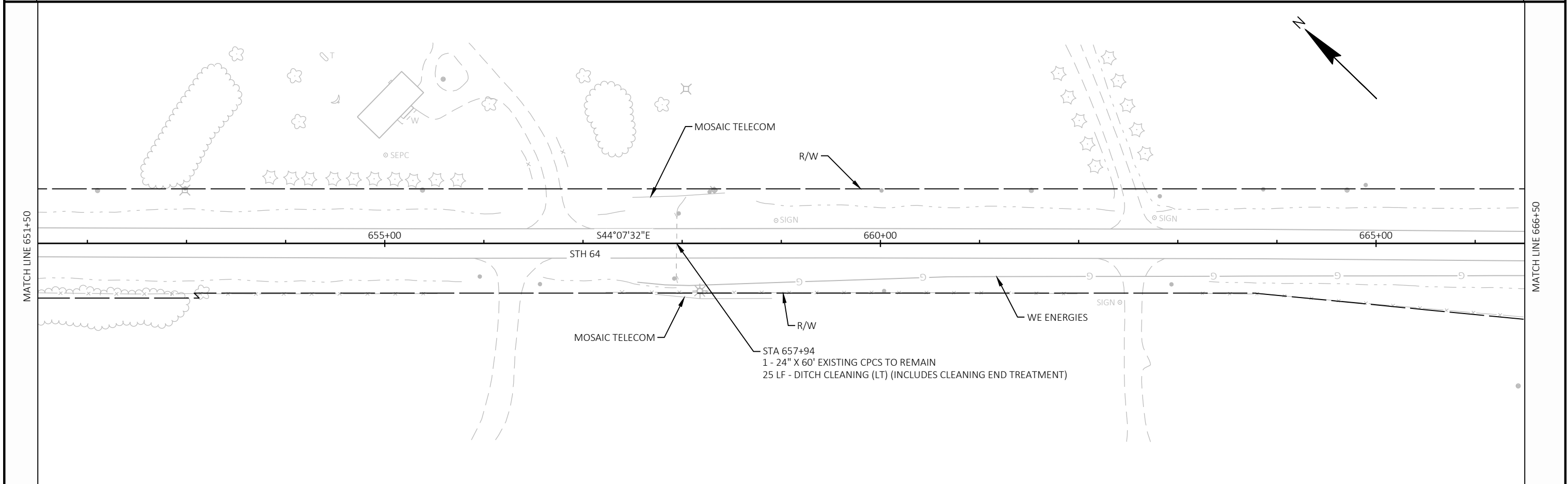


PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN AND PROFILE: STH 64	SHEET	E
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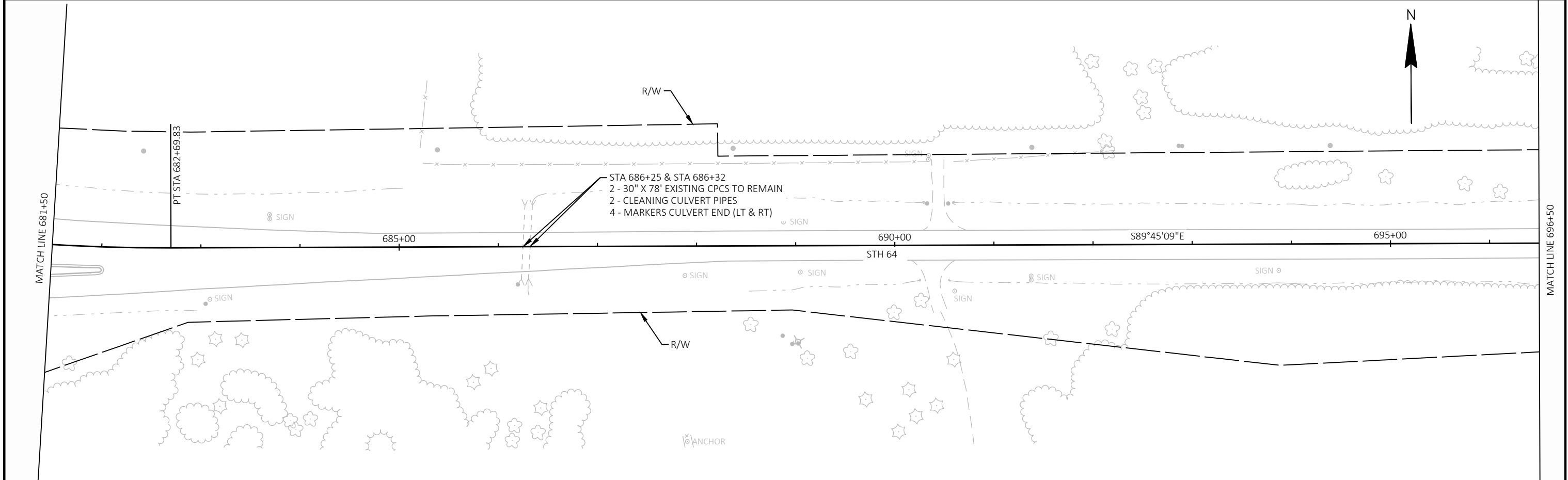
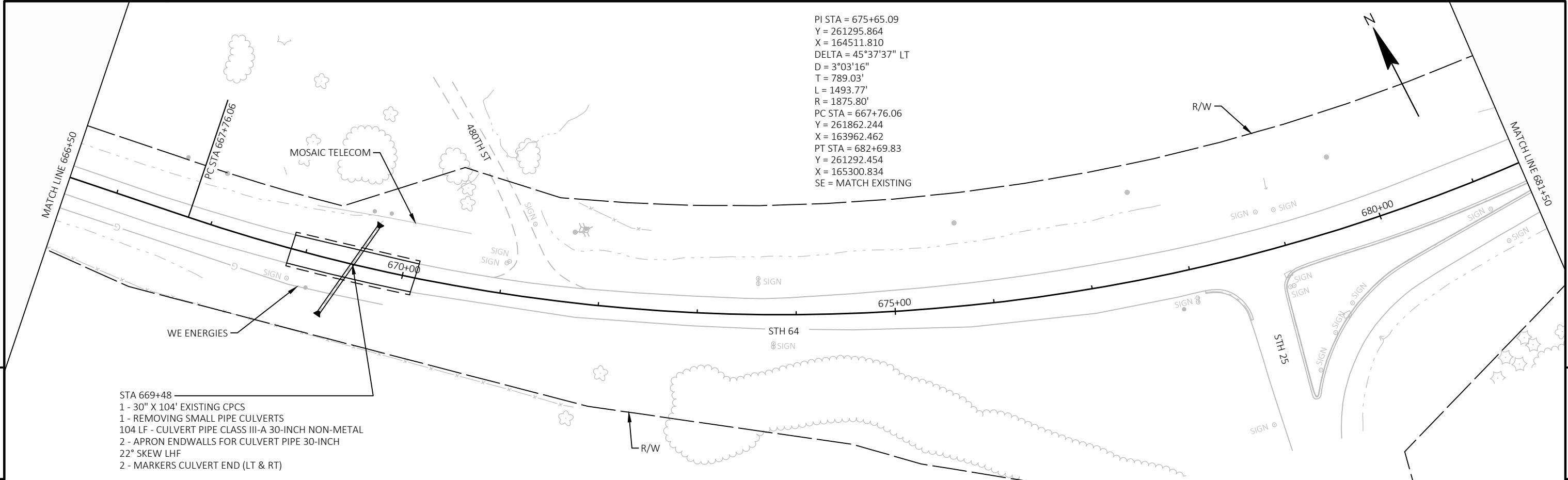


8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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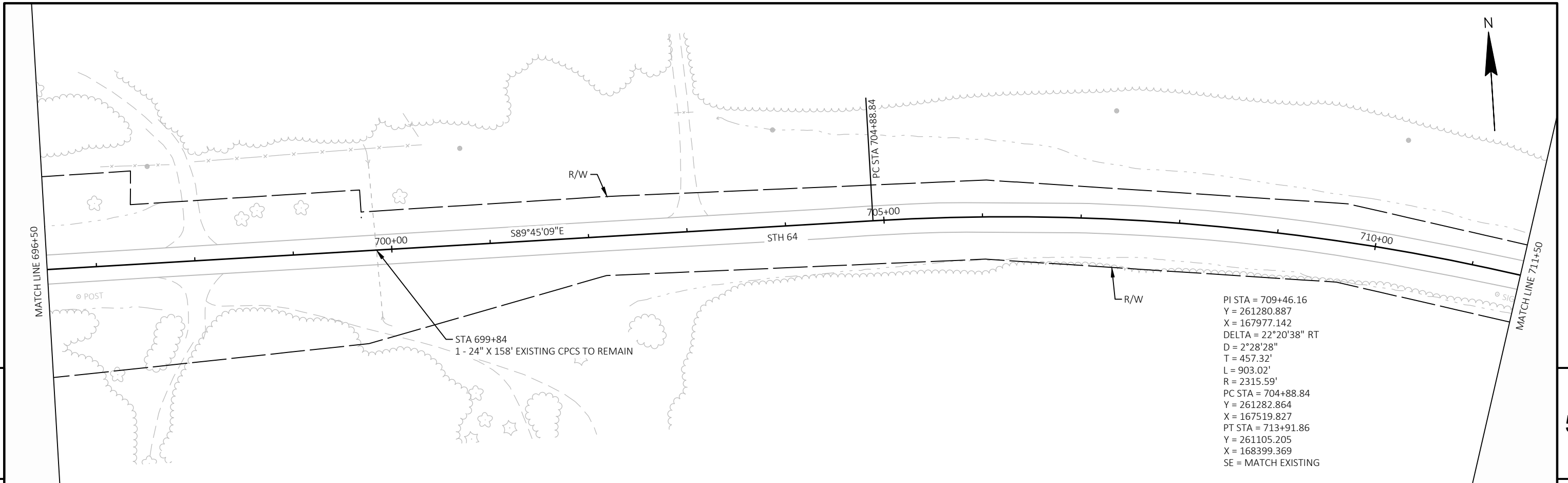
PISTA = 675+65.09
 Y = 261295.864
 X = 164511.810
 DELTA = 45°37'37" LT
 D = 3°03'16"
 T = 789.03'
 L = 1493.77'
 R = 1875.80'
 PC STA = 667+76.06
 Y = 261862.244
 X = 163962.462
 PT STA = 682+69.83
 Y = 261292.454
 X = 165300.834
 SE = MATCH EXISTING

STA 669+48
 1 - 30" X 104' EXISTING CPCS
 1 - REMOVING SMALL PIPE CULVERTS
 104 LF - CULVERT PIPE CLASS III-A 30-INCH NON-METAL
 2 - APRON ENDWALLS FOR CULVERT PIPE 30-INCH
 22° SKEW LHF
 2 - MARKERS CULVERT END (LT & RT)

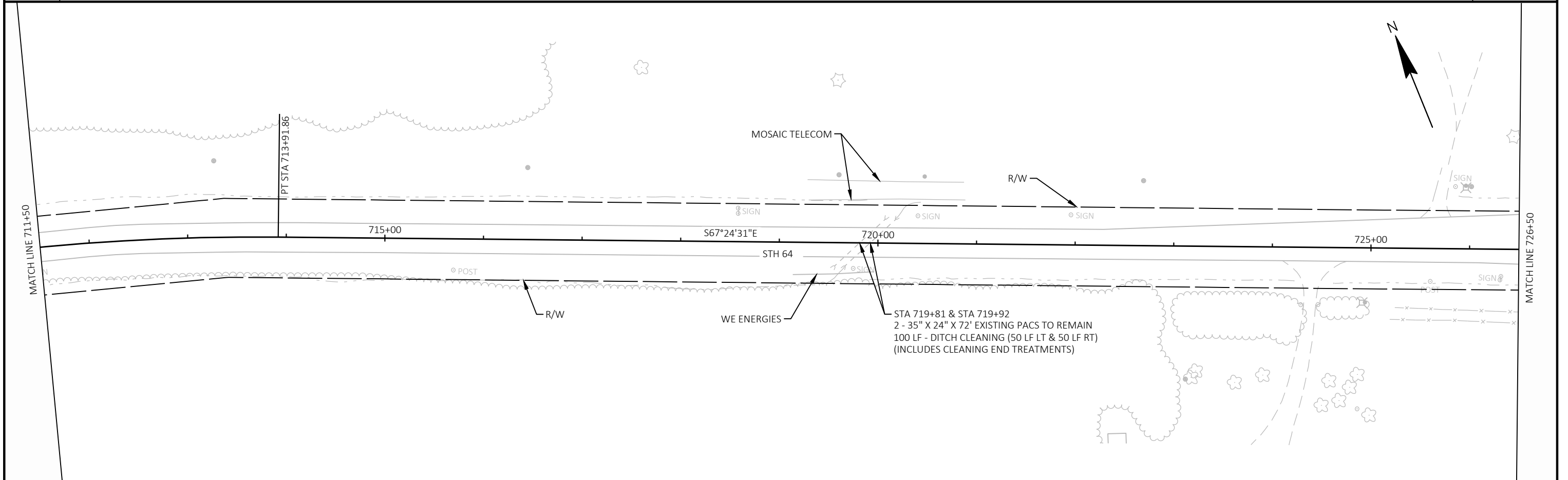
STA 686+25 & STA 686+32
 2 - 30" X 78' EXISTING CPCS TO REMAIN
 2 - CLEANING CULVERT PIPES
 4 - MARKERS CULVERT END (LT & RT)



8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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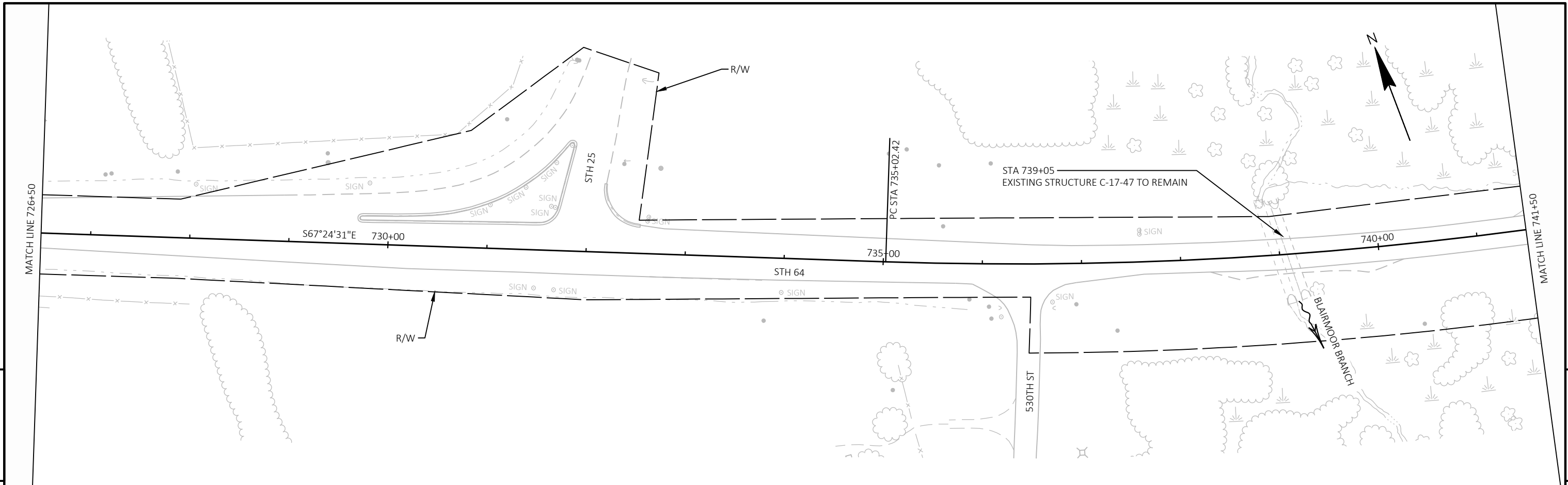


PI STA = 709+46.16
 Y = 261280.887
 X = 167977.142
 DELTA = 22°20'38" RT
 D = 2°28'28"
 T = 457.32'
 L = 903.02'
 R = 2315.59'
 PC STA = 704+88.84
 Y = 261282.864
 X = 167519.827
 PT STA = 713+91.86
 Y = 261105.205
 X = 168399.369
 SE = MATCH EXISTING



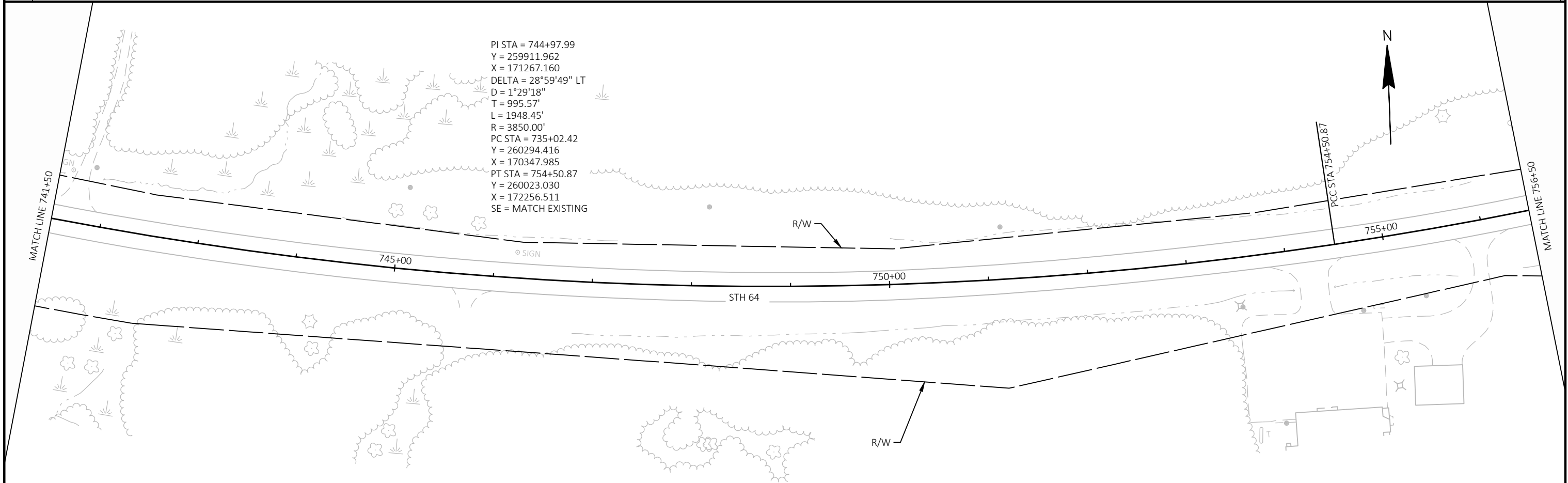
STA 719+81 & STA 719+92
 2 - 35" X 24" X 72' EXISTING PACS TO REMAIN
 100 LF - DITCH CLEANING (50 LF LT & 50 LF RT)
 (INCLUDES CLEANING END TREATMENTS)

8110-01-72	HWY: STH 64	COUNTY:	PLAN	SHEET	E
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PI STA = 744+97.99
 Y = 259911.962
 X = 171267.160
 DELTA = 28°59'49" LT
 D = 1°29'18"
 T = 995.57'
 L = 1948.45'
 R = 3850.00'
 PC STA = 735+02.42
 Y = 260294.416
 X = 170347.985
 PT STA = 754+50.87
 Y = 260023.030
 X = 172256.511
 SE = MATCH EXISTING

8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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PI STA = 756+98.72
 Y = 260050.681
 X = 172502.812
 DELTA = 7°05'29" LT
 D = 1°25'57"
 T = 247.85'
 L = 495.06'
 R = 4000.00'
 PC STA = 754+50.87
 Y = 260023.030
 X = 172256.511
 PT STA = 759+45.94
 Y = 260108.526
 X = 172743.815
 SE = MATCH EXISTING

STA 769+88
 1 - 42" X 77' EXISTING CPCS TO REMAIN

STA 769+78
 1 - 42" X 77' EXISTING CPCS TO REMAIN

STA 759+87
 1 - 30" X 86' EXISTING CPCS TO REMAIN
 25 LF - DITCH CLEANING (LT) (INCLUDES CLEANING END TREATMENT)

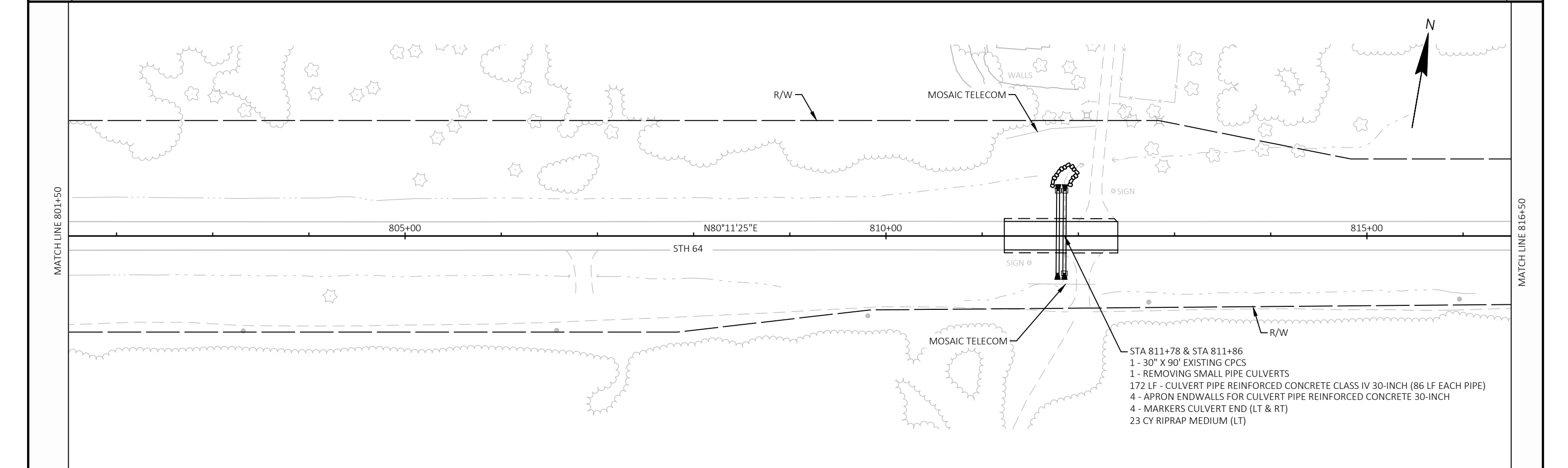
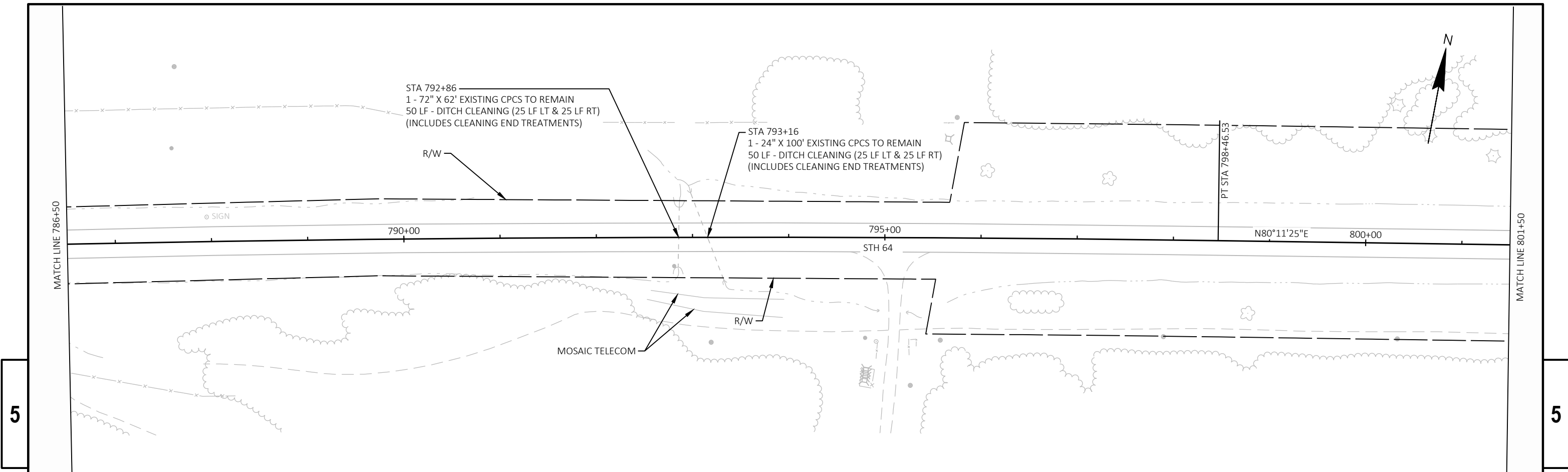
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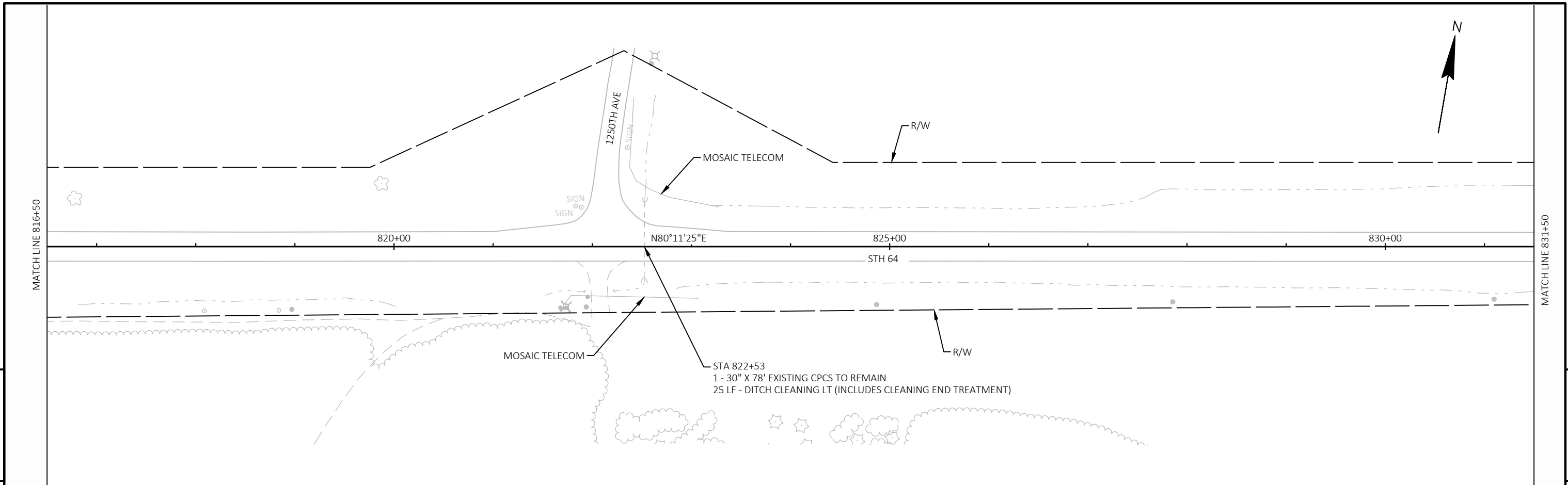
PI STA = 787+40.86
 Y = 260760.831
 X = 175461.547
 DELTA = 3°41'14" RT
 D = 0°10'00"
 T = 1106.44'
 L = 2212.11'
 R = 34375.00'
 PC STA = 776+34.42
 Y = 260502.600
 X = 174385.664
 PT STA = 798+46.53
 Y = 260949.340
 X = 176551.808
 SE = MATCH EXISTING



8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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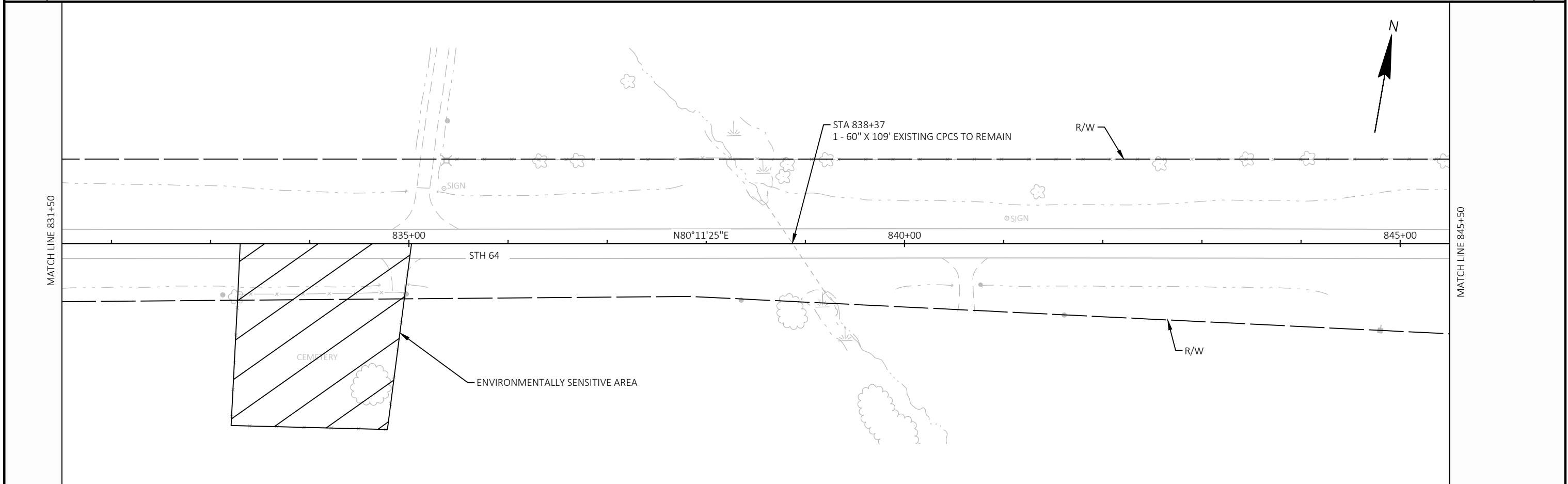
FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\050201-PN.DWG PLOT DATE : 8/22/2023 10:40 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:100 FT

LAYOUT NAME - 17

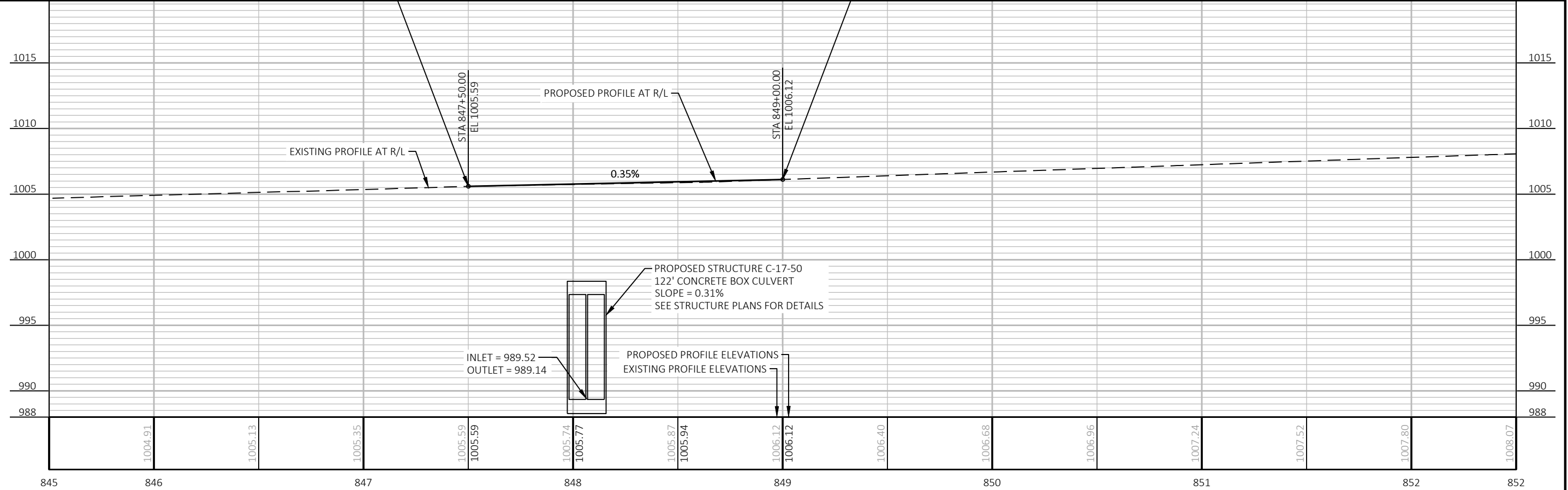
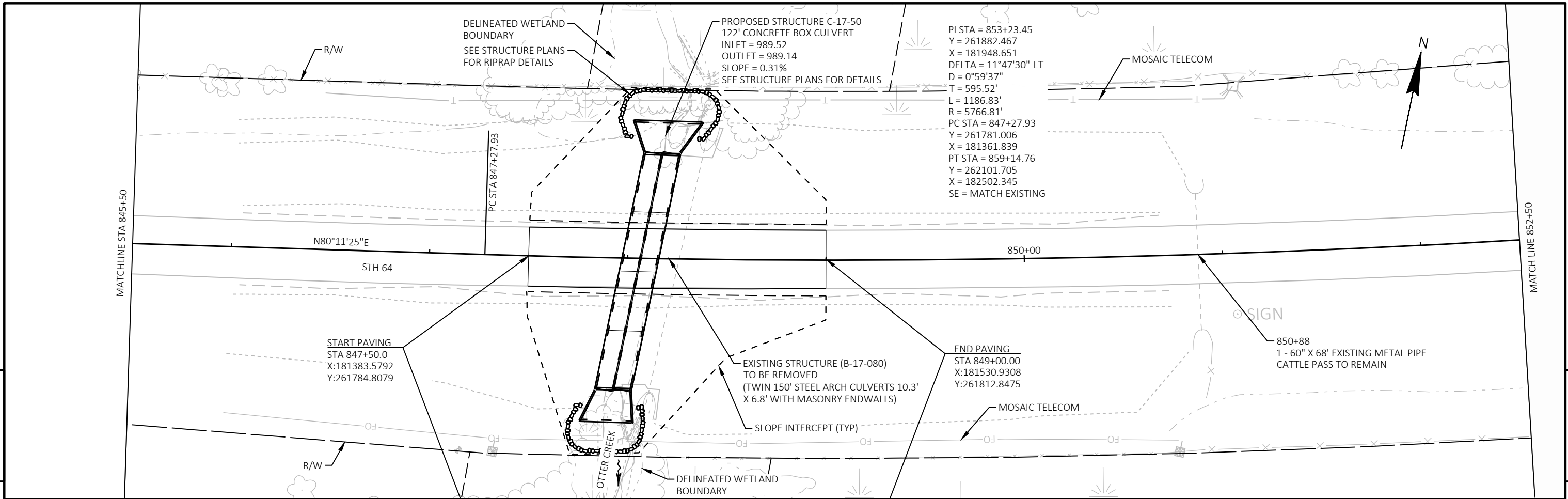


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8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET E
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN AND PROFILE: STH 64	SHEET	E
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PI STA = 853+23.45
 Y = 261882.467
 X = 181948.651
 DELTA = 11°47'30" LT
 D = 0°59'37"
 T = 595.52'
 L = 1186.83'
 R = 5766.81'
 PC STA = 847+27.93
 Y = 261781.006
 X = 181361.839
 PT STA = 859+14.76
 Y = 262101.705
 X = 182502.345
 SE = MATCH EXISTING

STA 862+37
 1 - 24" X 77' EXISTING CPCS TO REMAIN

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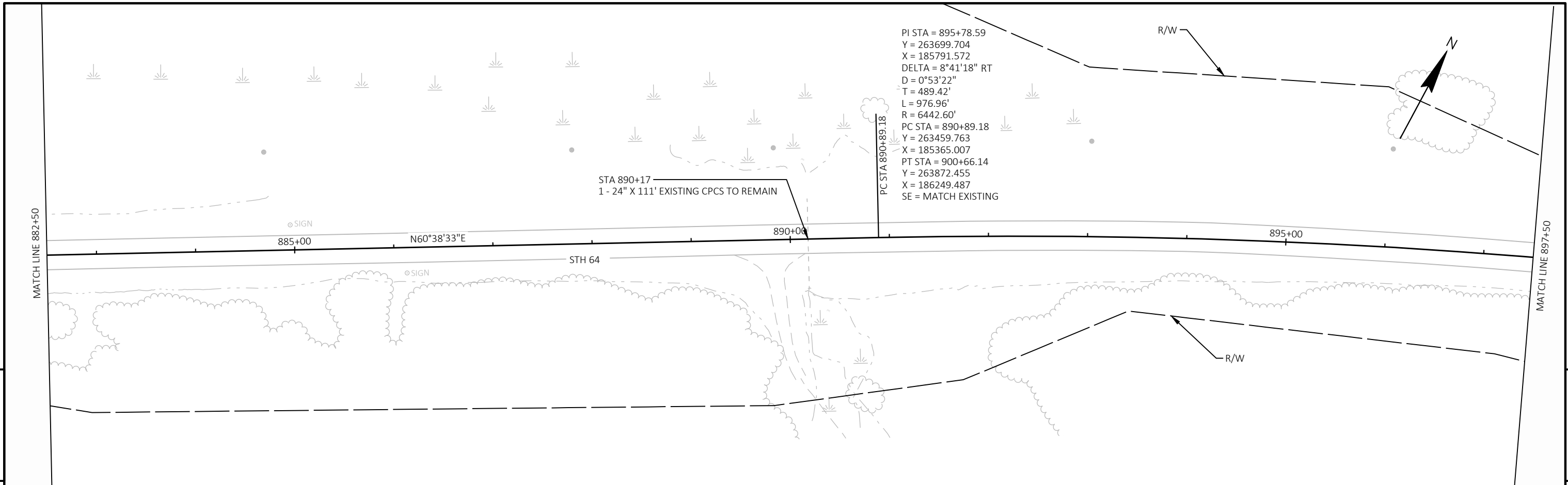
STA 867+87
 1 - 24" X 58' EXISTING CPCS TO REMAIN

STA 872+88
 36" X 79' EXISTING CPCS

STH 64
 PI STA = 875+43.34
 Y = 262701.260
 X = 184016.551
 DELTA = 7°45'23" LT
 D = 0°54'15"
 T = 429.57'
 L = 857.83'
 R = 6336.73'
 PC STA = 871+13.77
 Y = 262543.116
 X = 183617.150
 PT STA = 879+71.60
 Y = 262911.861
 X = 184390.954
 SE = MATCH EXISTING

STA 879+15
 1 - 24" X 64' EXISTING CPCS TO REMAIN

STA 879+21
 1 - 24" X 64' EXISTING CPCS TO REMAIN

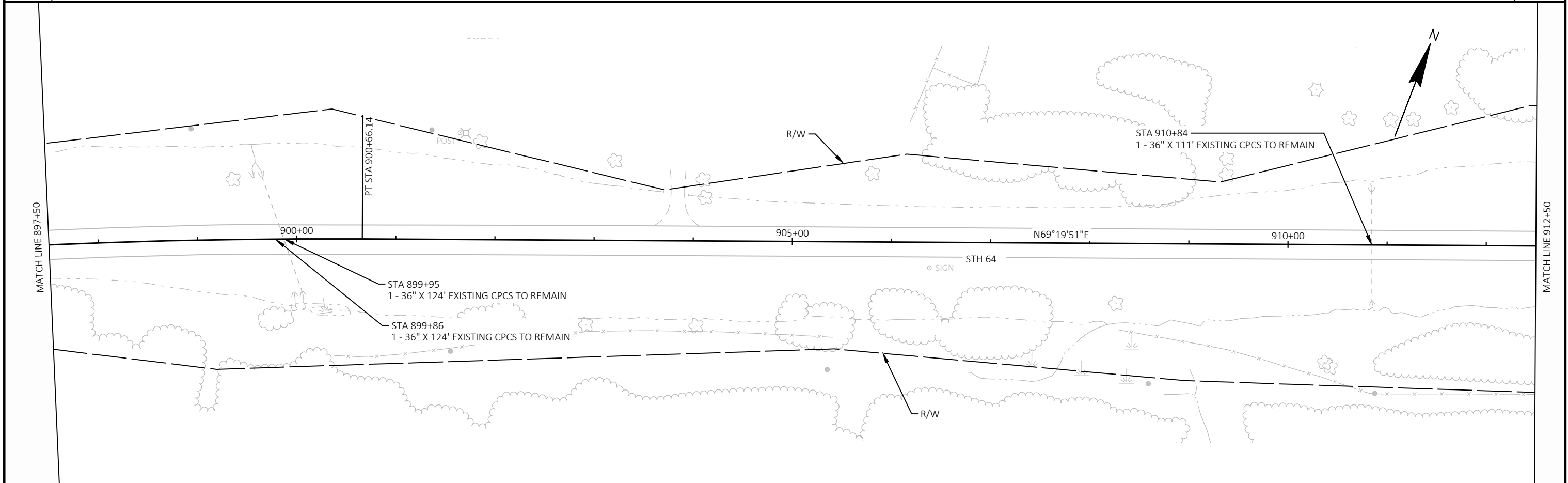


PI STA = 895+78.59
 Y = 263699.704
 X = 185791.572
 DELTA = 8°41'18" RT
 D = 0°53'22"
 T = 489.42'
 L = 976.96'
 R = 6442.60'
 PC STA = 890+89.18
 Y = 263459.763
 X = 185365.007
 PT STA = 900+66.14
 Y = 263872.455
 X = 186249.487
 SE = MATCH EXISTING

STA 890+17
 1 - 24" X 111' EXISTING CPCs TO REMAIN

5

5



STA 910+84
 1 - 36" X 111' EXISTING CPCs TO REMAIN

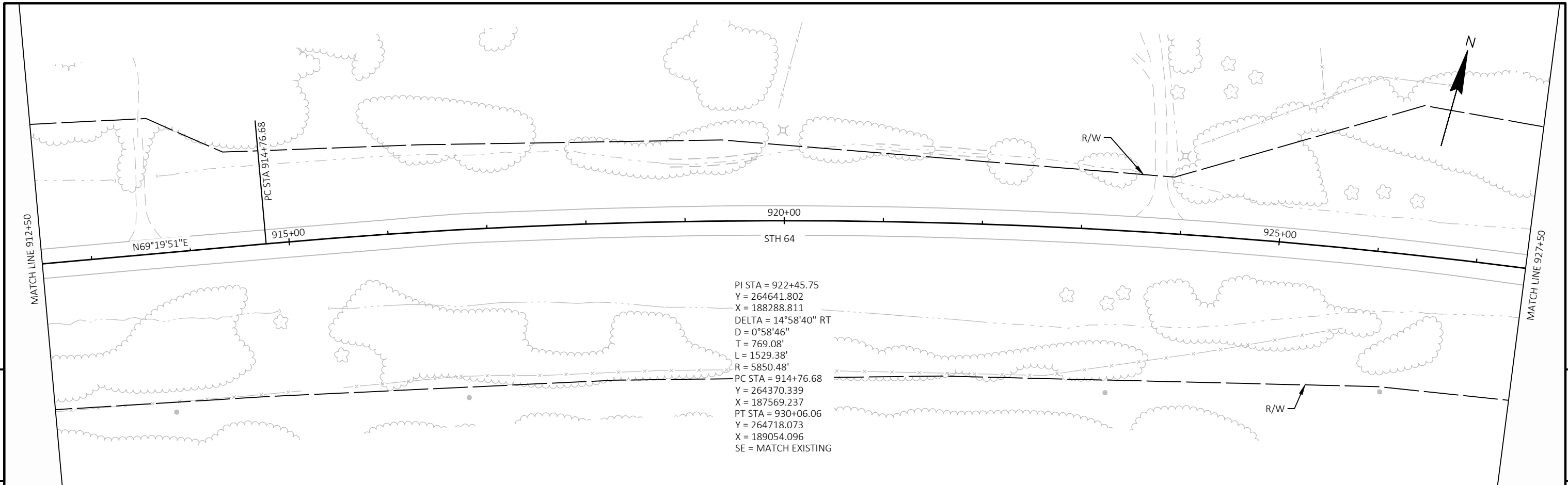
STA 899+95
 1 - 36" X 124' EXISTING CPCs TO REMAIN

STA 899+86
 1 - 36" X 124' EXISTING CPCs TO REMAIN

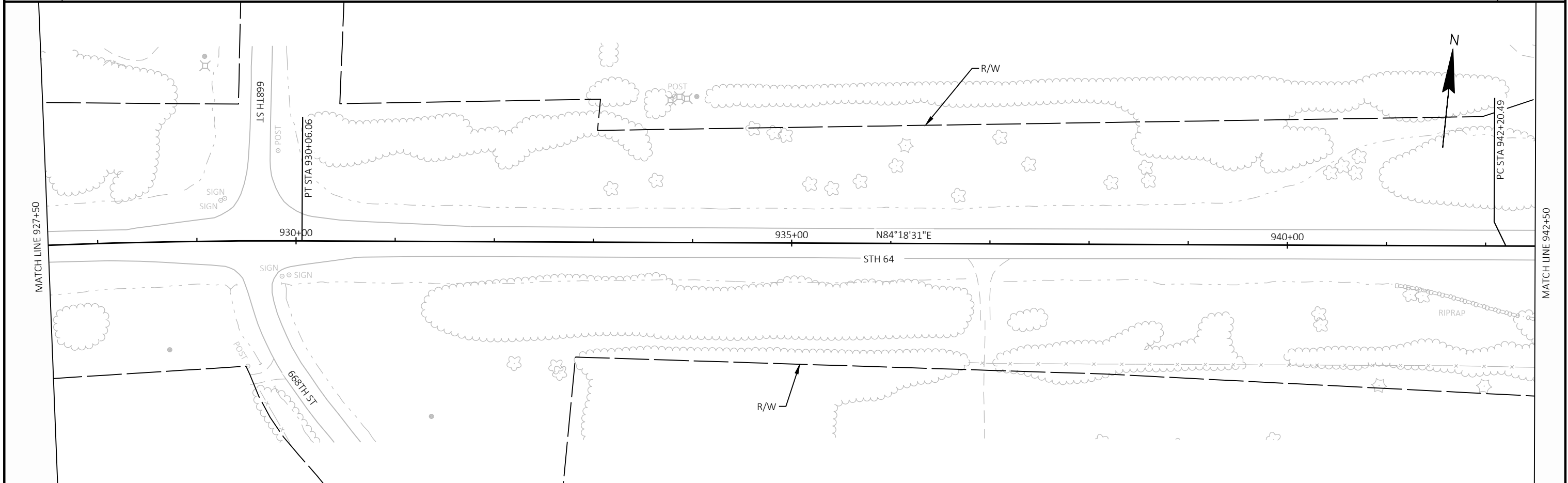
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5

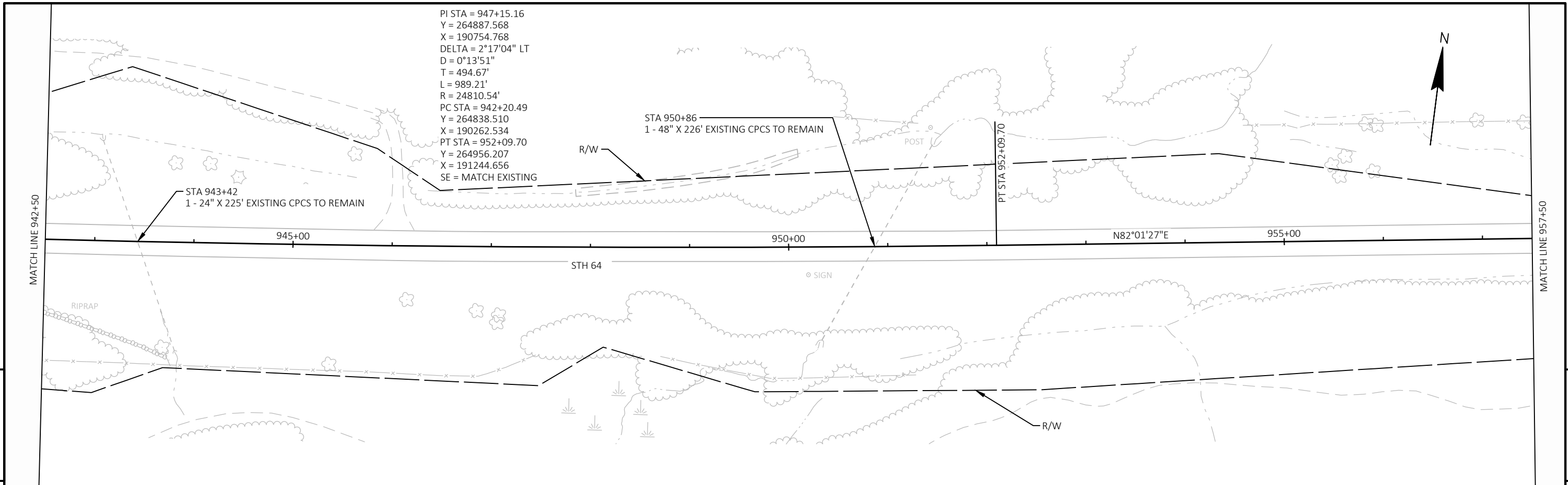
8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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PI STA = 922+45.75
 Y = 264641.802
 X = 188288.811
 DELTA = 14°58'40" RT
 D = 0°58'46"
 T = 769.08'
 L = 1529.38'
 R = 5850.48'
 PC STA = 914+76.68
 Y = 264370.339
 X = 187569.237
 PT STA = 930+06.06
 Y = 264718.073
 X = 189054.096
 SE = MATCH EXISTING

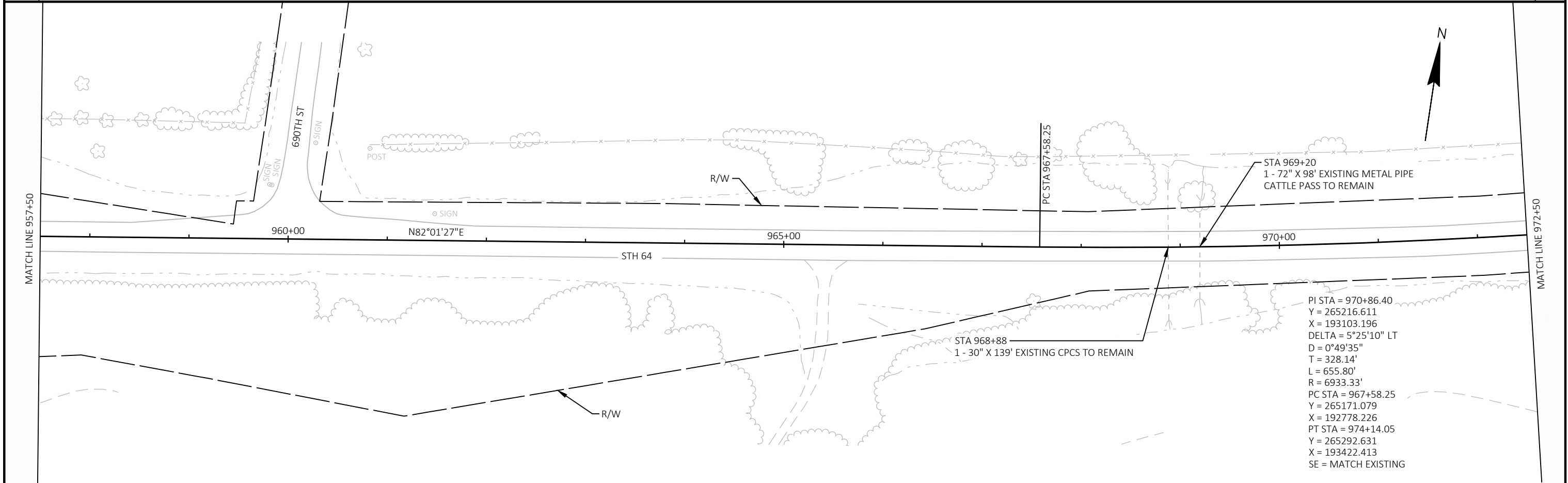


8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET E
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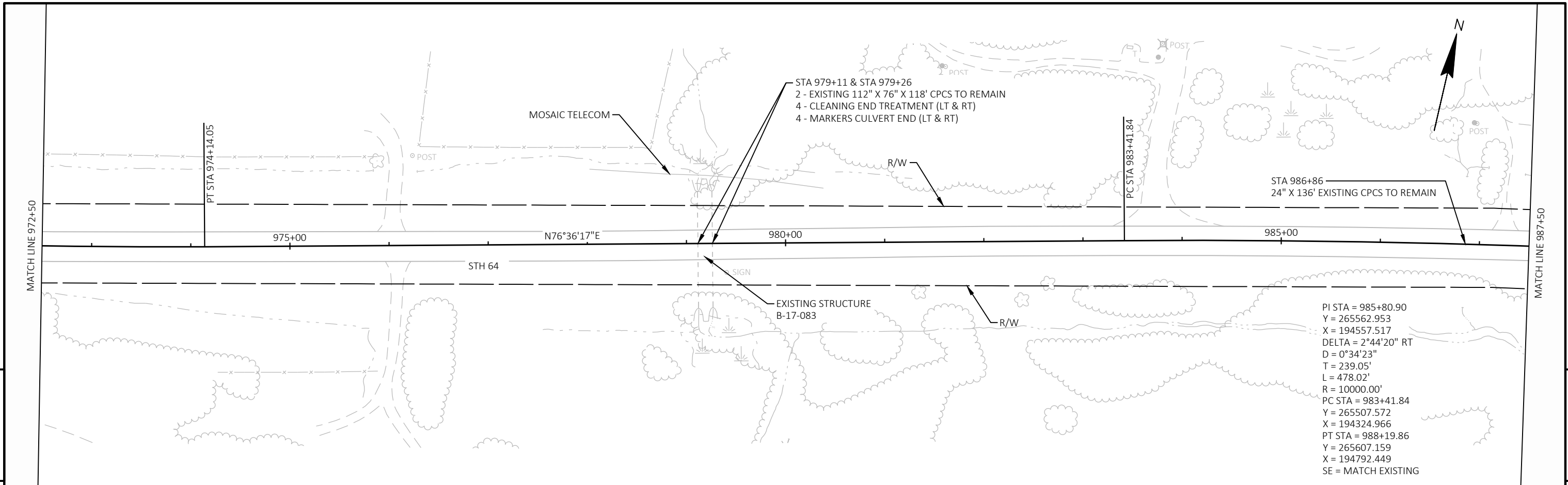


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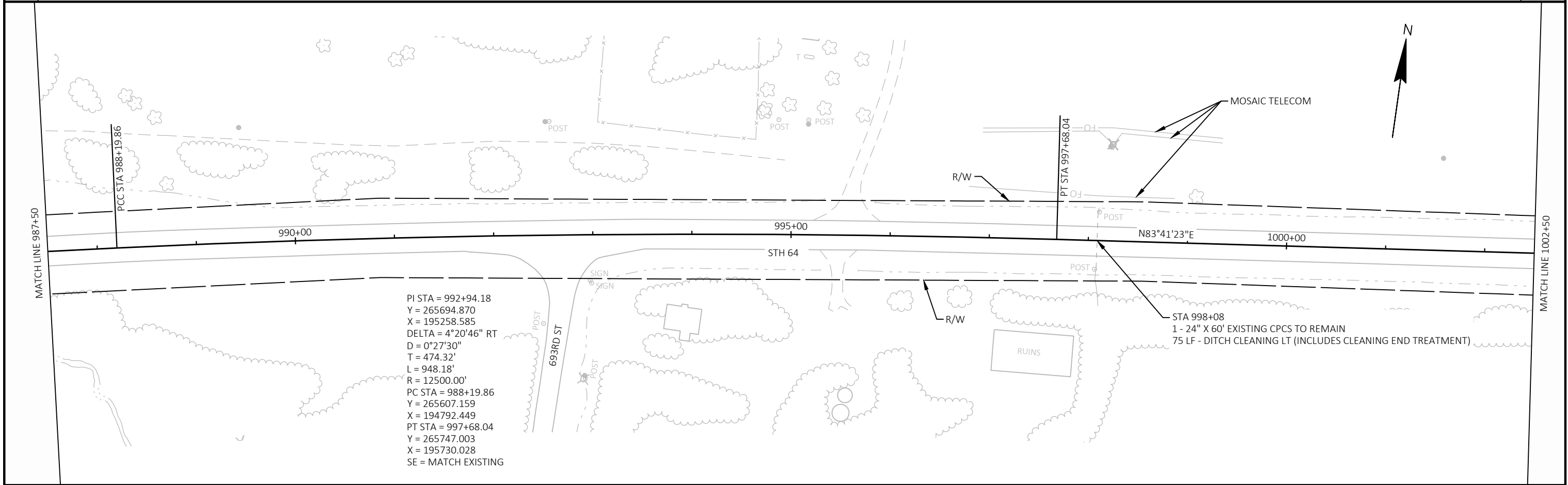
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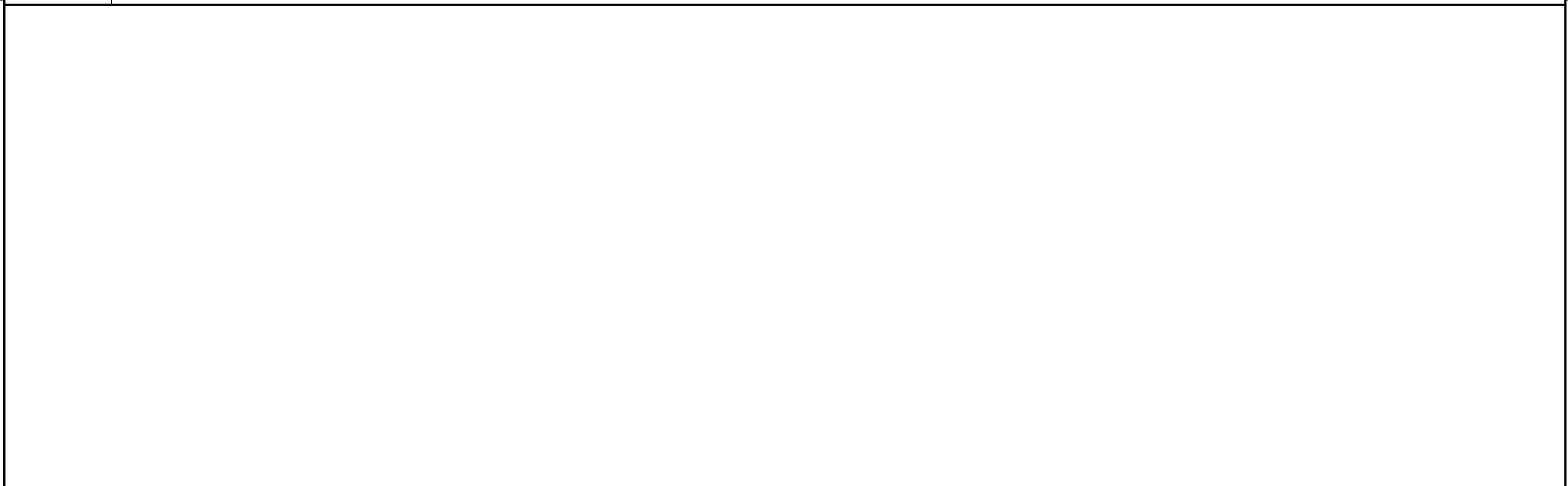
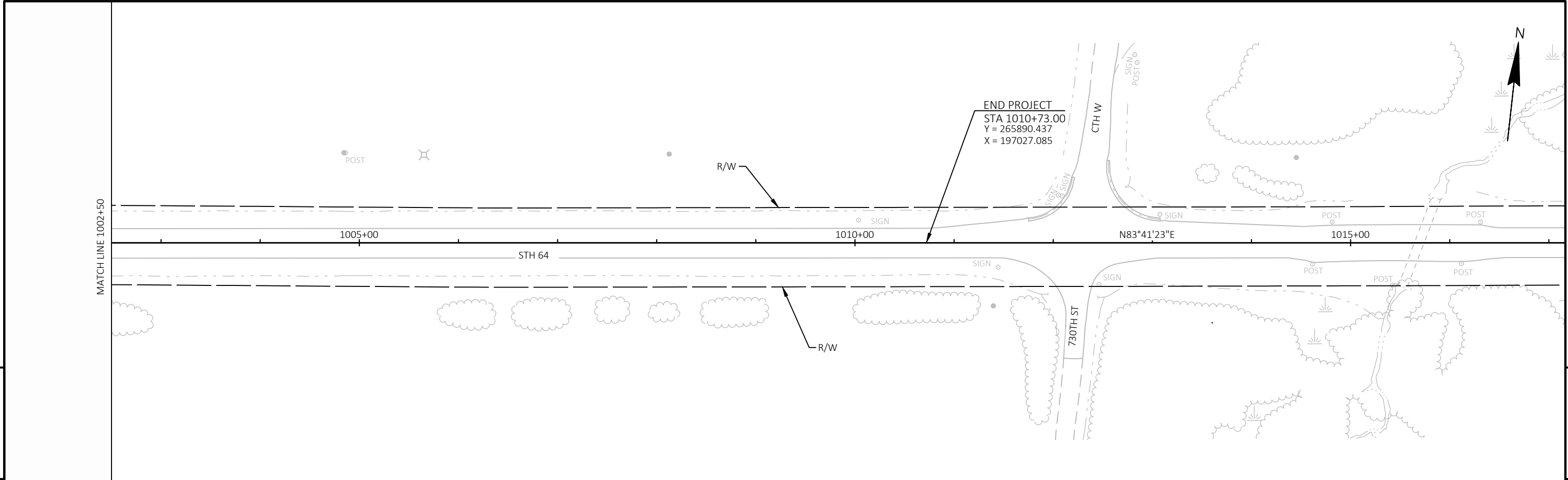
8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET E
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PI STA = 985+80.90
 Y = 265562.953
 X = 194557.517
 DELTA = 2°44'20" RT
 D = 0°34'23"
 T = 239.05'
 L = 478.02'
 R = 10000.00'
 PC STA = 983+41.84
 Y = 265507.572
 X = 194324.966
 PT STA = 988+19.86
 Y = 265607.159
 X = 194792.449
 SE = MATCH EXISTING



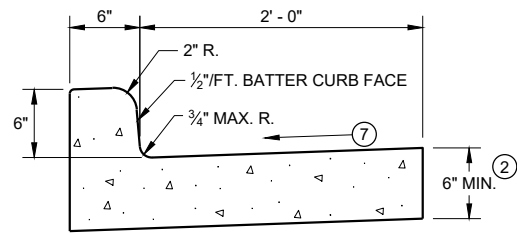
PI STA = 992+94.18
 Y = 265694.870
 X = 195258.585
 DELTA = 4°20'46" RT
 D = 0°27'30"
 T = 474.32'
 L = 948.18'
 R = 12500.00'
 PC STA = 988+19.86
 Y = 265607.159
 X = 194792.449
 PT STA = 997+68.04
 Y = 265747.003
 X = 195730.028
 SE = MATCH EXISTING



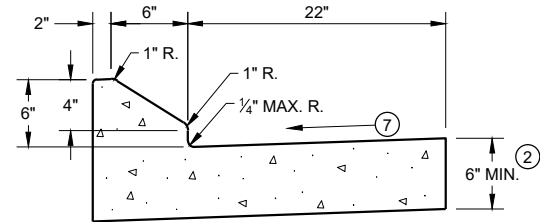
8110-01-72	HWY: STH 64	COUNTY: DUNN	PLAN	SHEET	E
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Standard Detail Drawing List

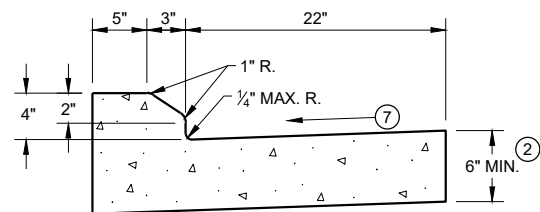
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F08-02	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS
12A03-10	NAME PLATE (STRUCTURES)
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 THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
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
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-08A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)



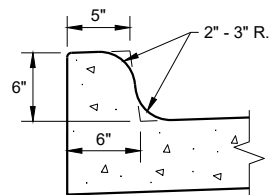
TYPES A^① & D



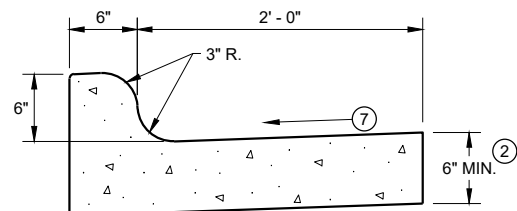
6" SLOPED CURB TYPES G^① & J



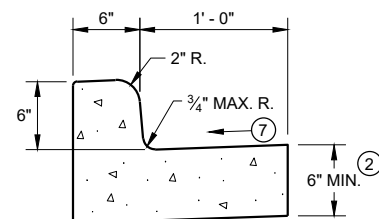
4" SLOPED CURB TYPES G^① & J



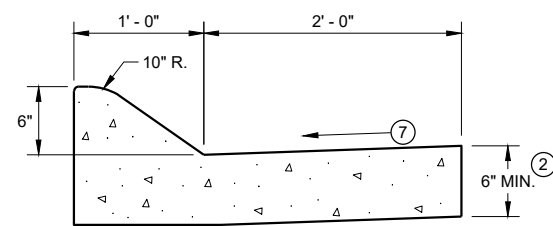
TYPES K^① & L
(OPTIONAL CURB SHAPE)



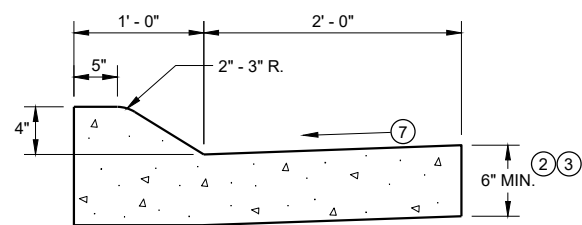
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



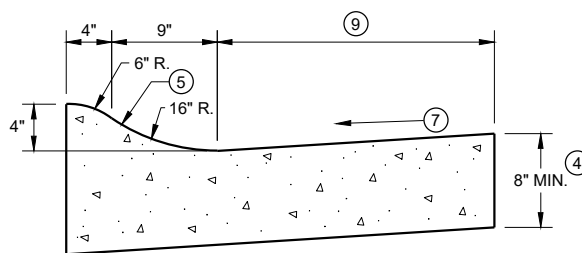
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

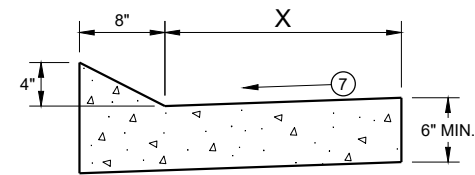


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

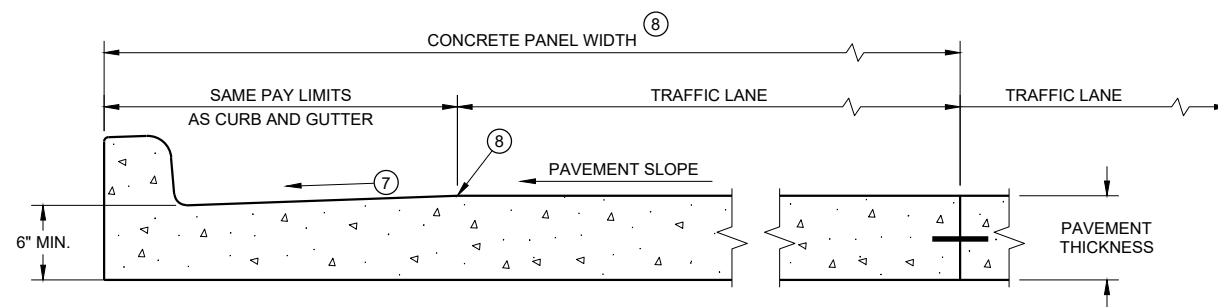
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

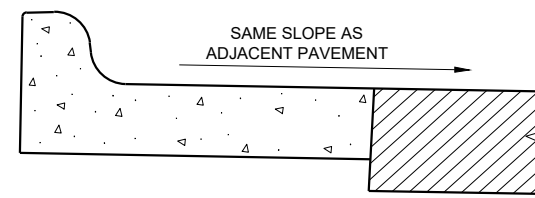
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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

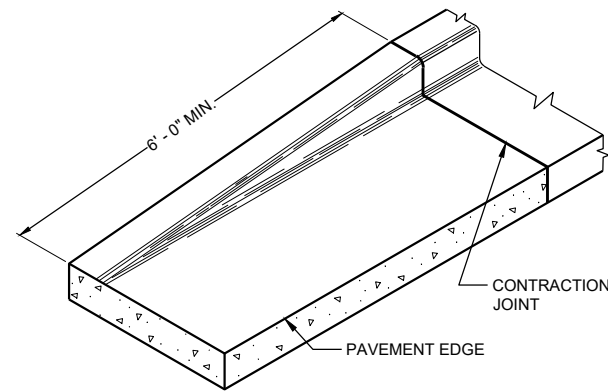
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

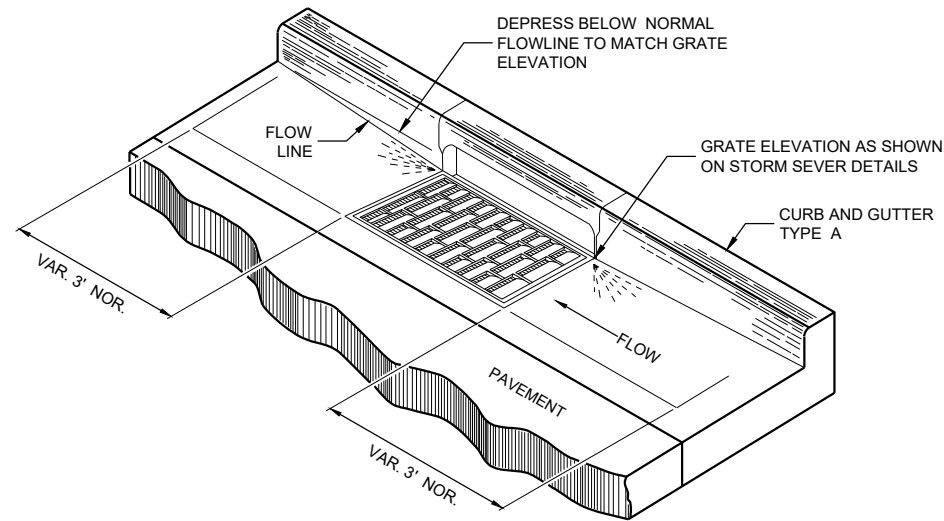
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS

(TYPICAL H INLET COVER SHOWN)

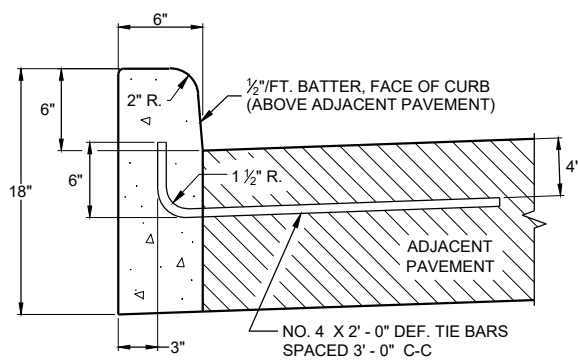
GENERAL NOTES

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

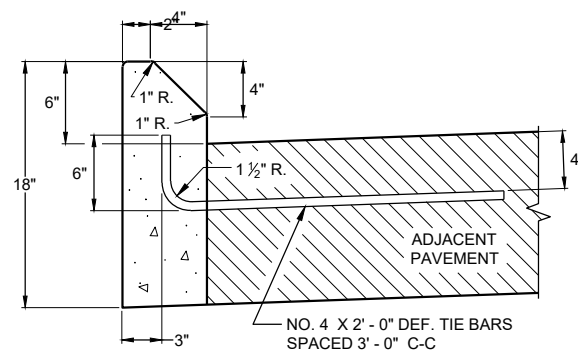
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

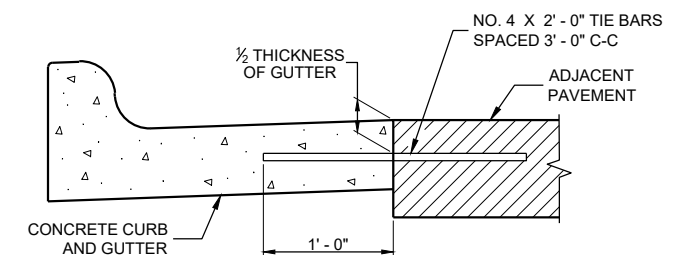
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL 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.



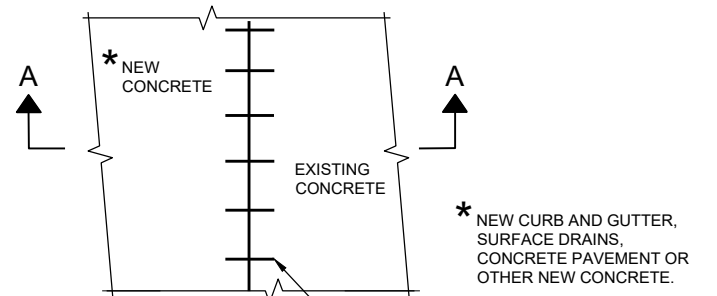
TYPES A^① & D



**TYPES G^① & J
CONCRETE CURB**

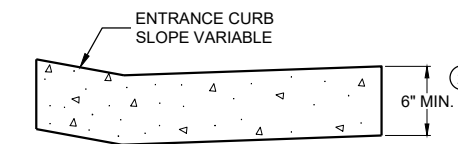


TYPICAL TIE BAR LOCATION^①

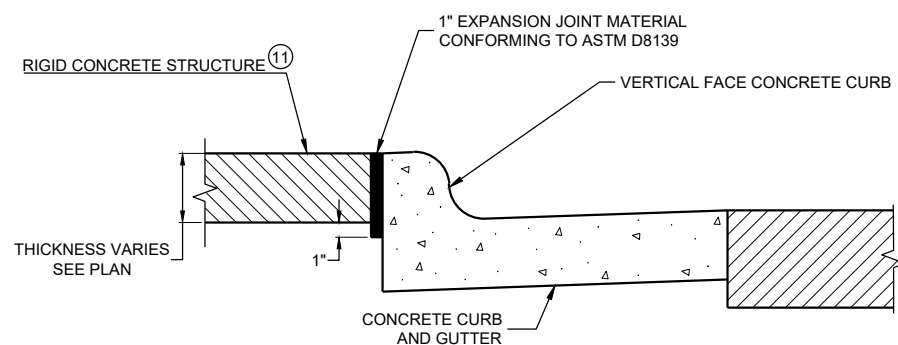


PLAN VIEW

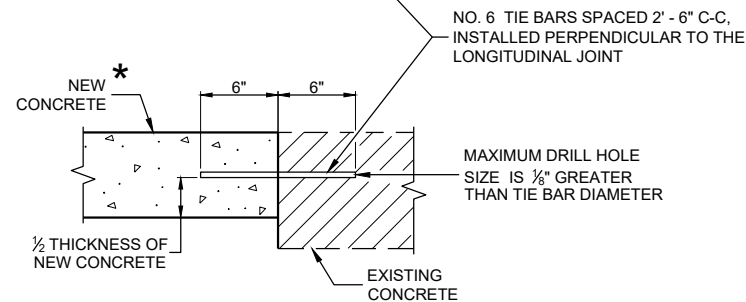
* NEW CURB AND GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.



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



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



**SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT**

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

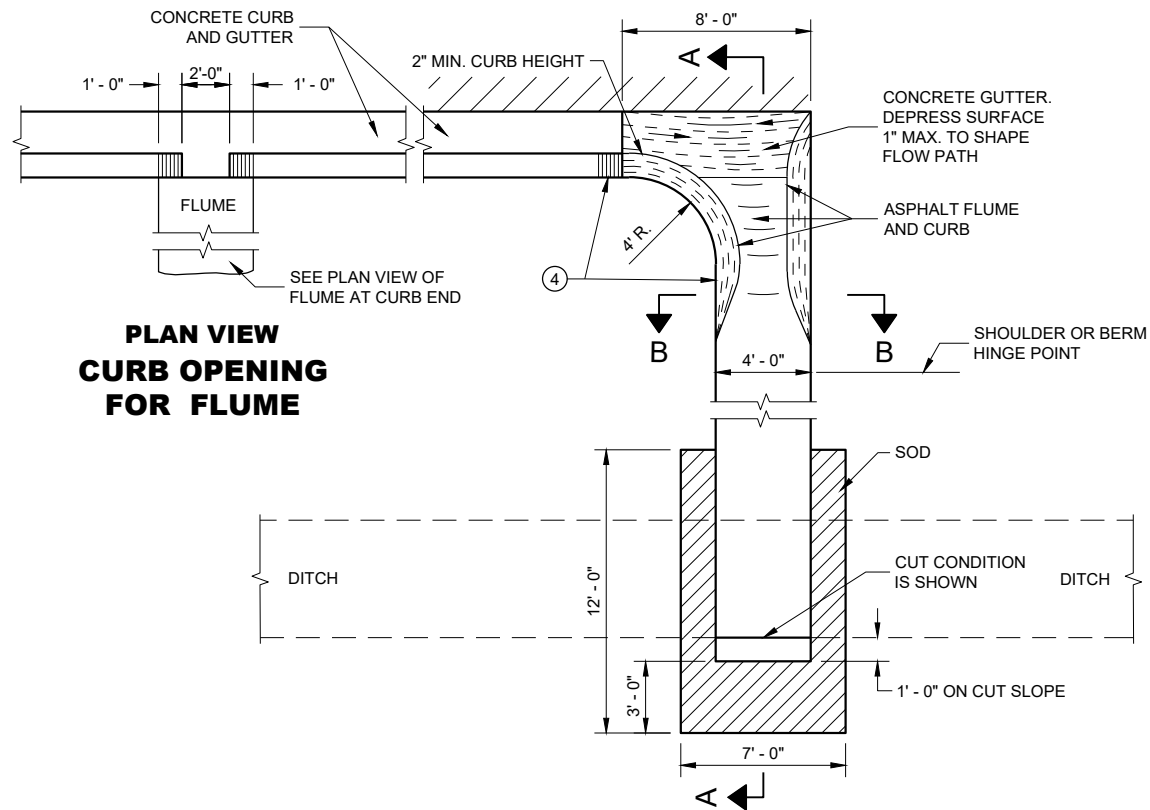
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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

ASPHALTIC FLUME



**PLAN VIEW
CURB OPENING
FOR FLUME**

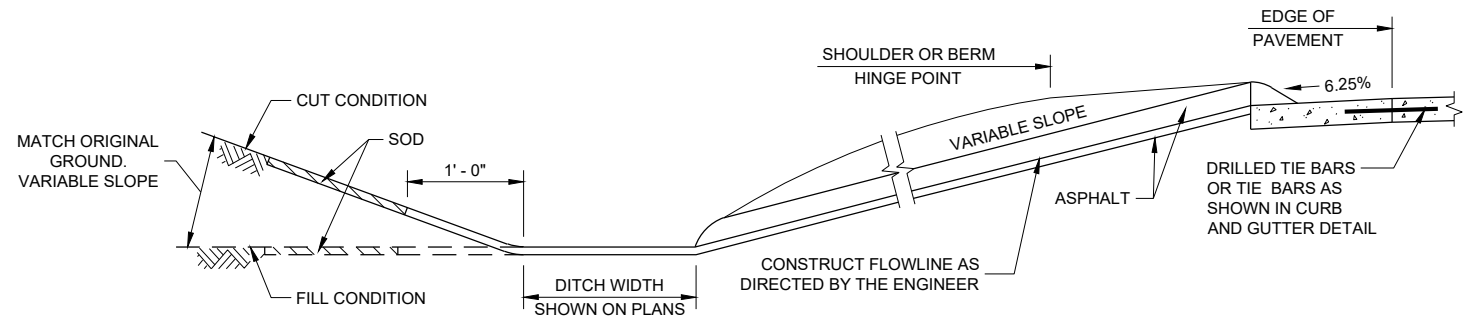
**PLAN VIEW
FLUME AT CURB END**

GENERAL NOTES

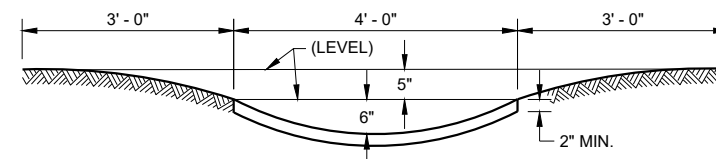
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

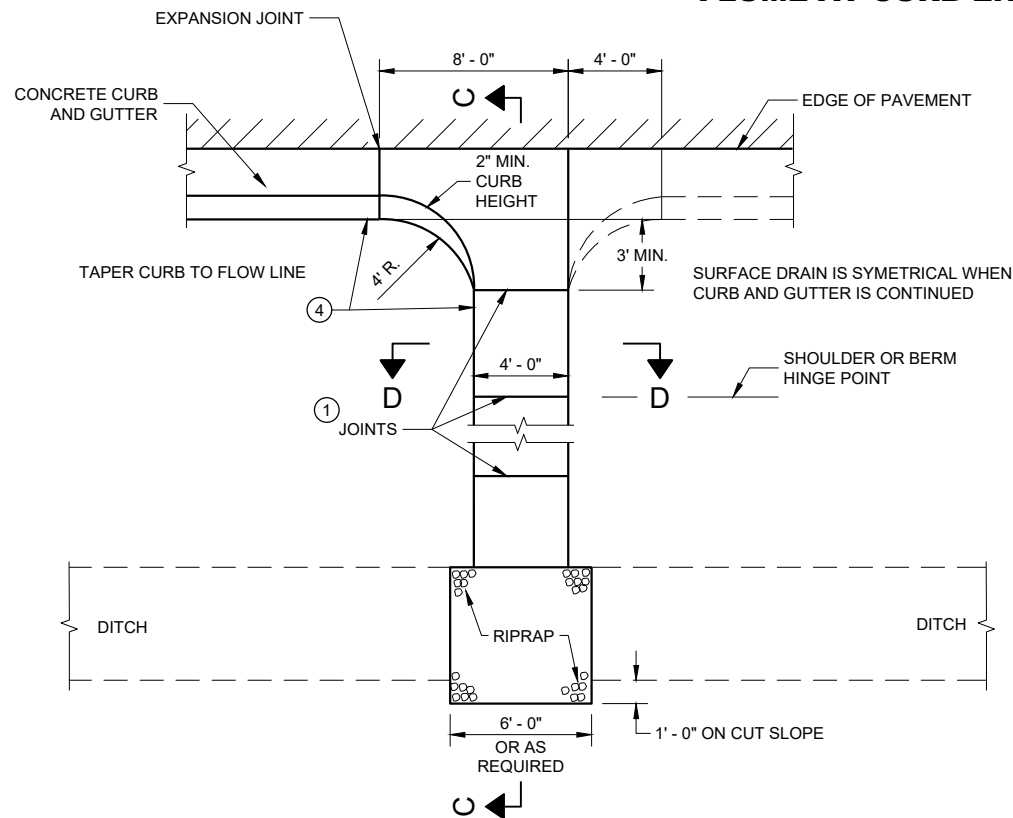
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



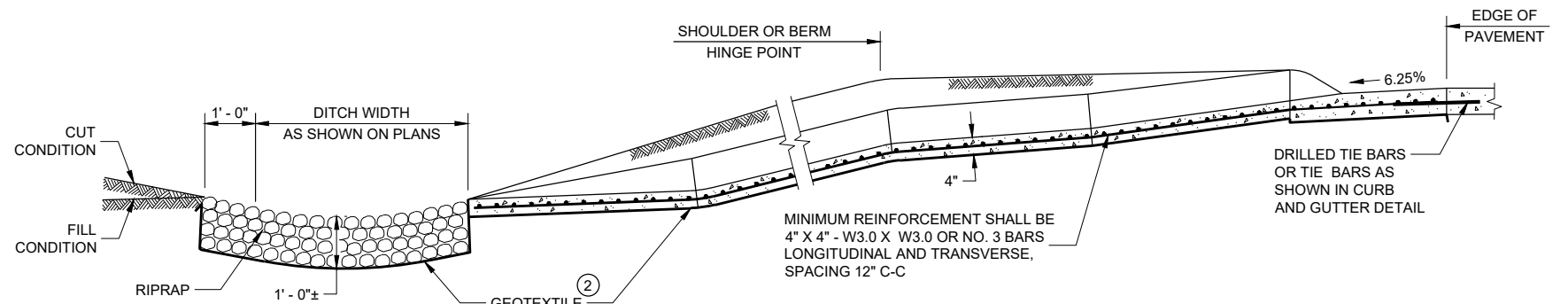
SECTION A - A



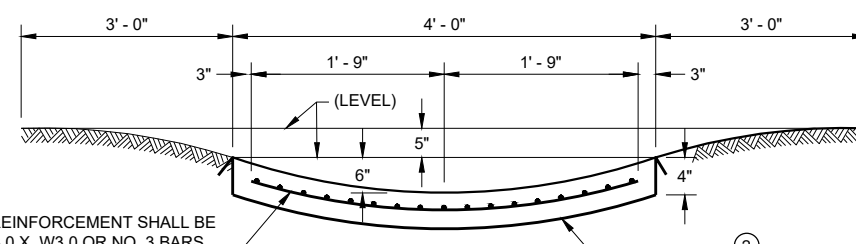
SECTION B - B



**PLAN VIEW
CONCRETE SURFACE DRAIN**



SECTION C - C



SECTION D - D

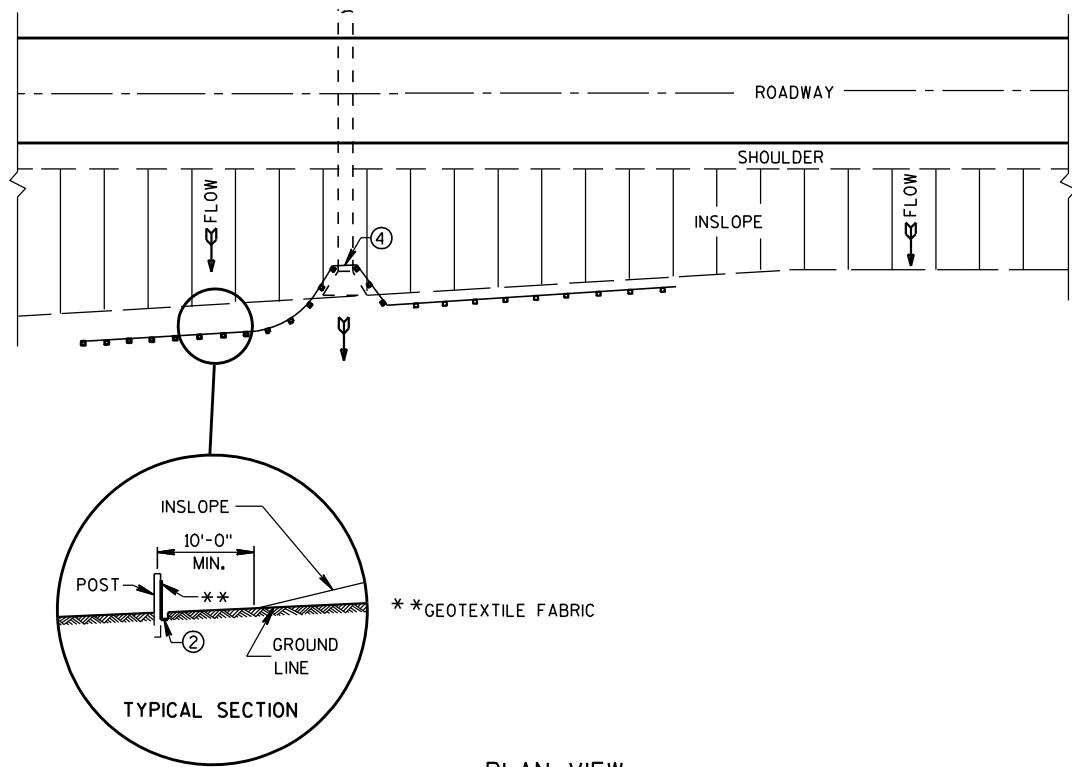
MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

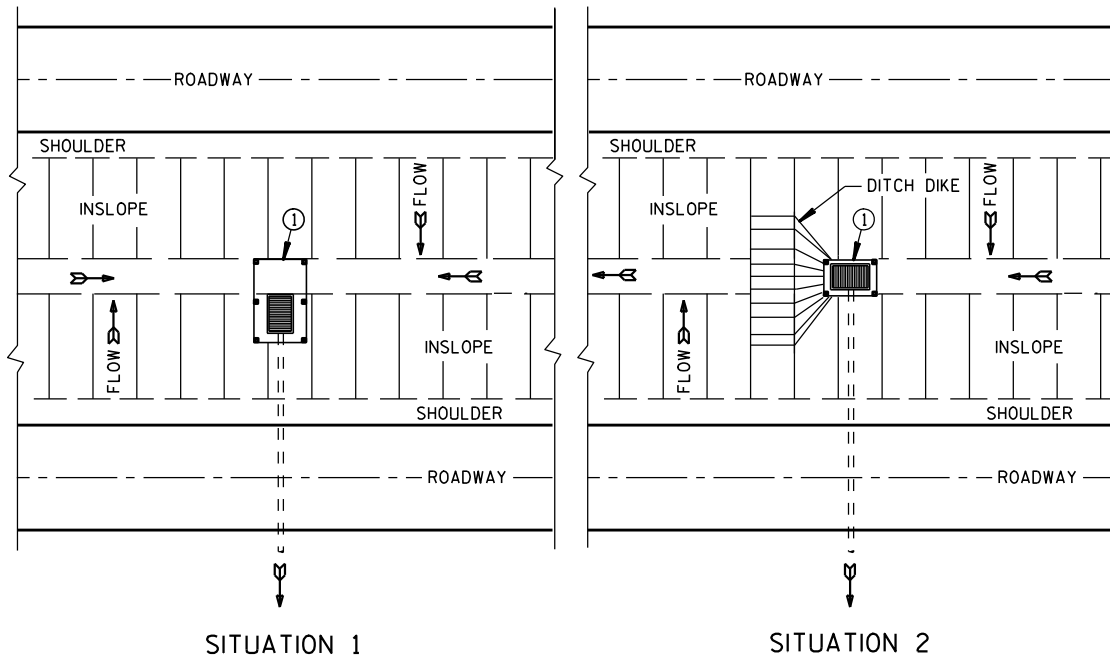
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

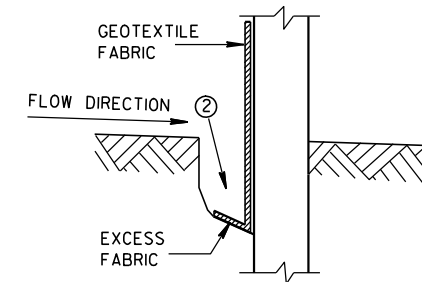


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

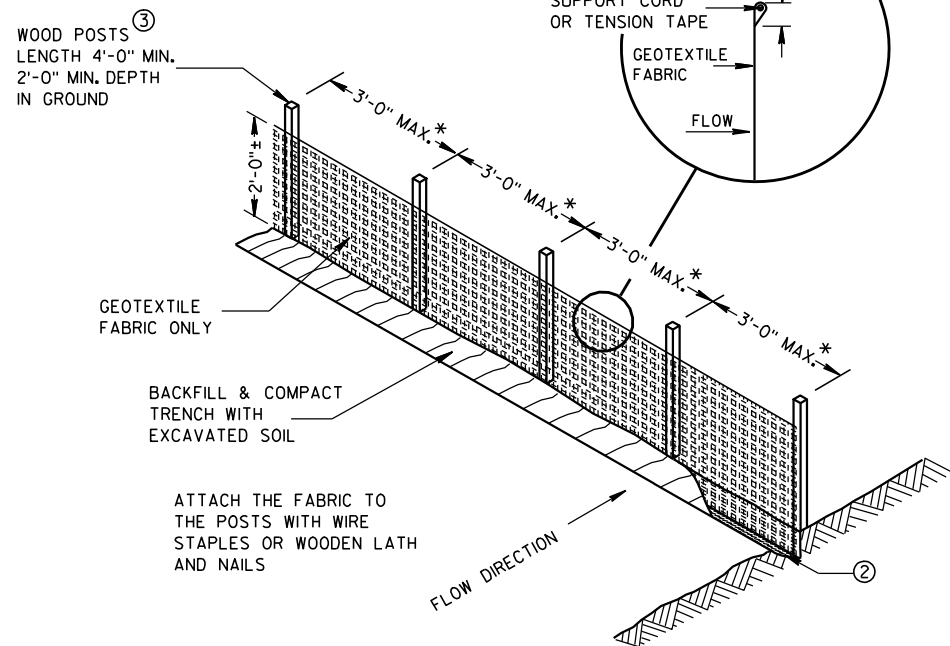
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



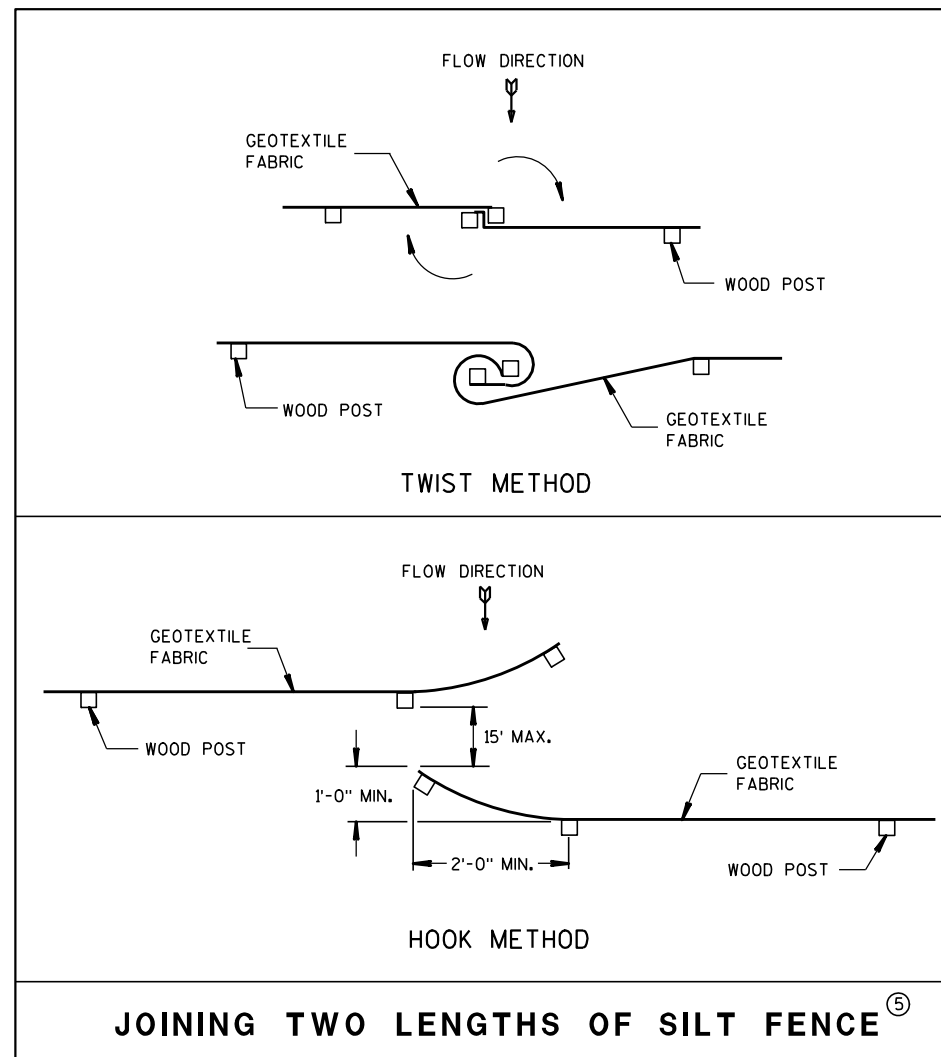
TRENCH DETAIL

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

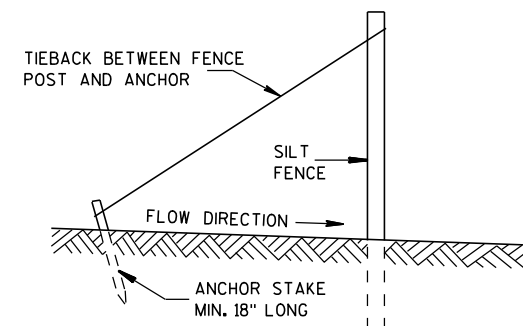


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

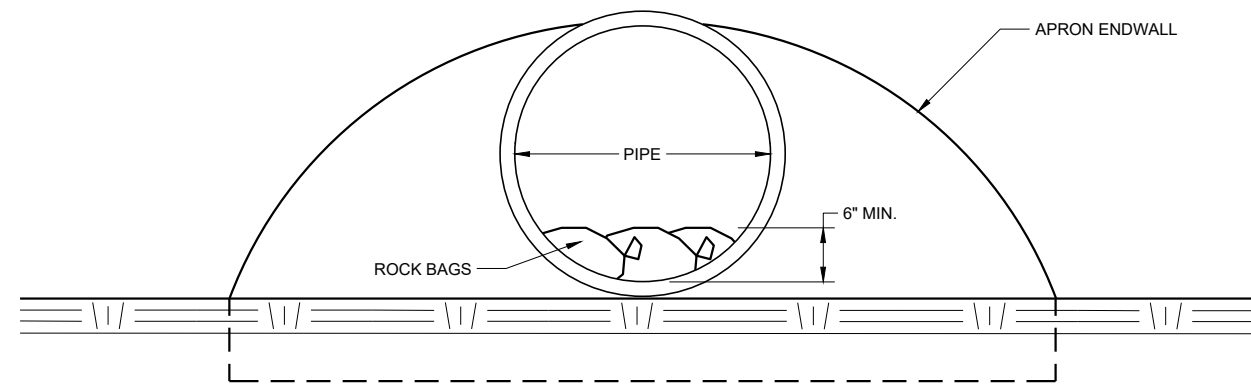
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

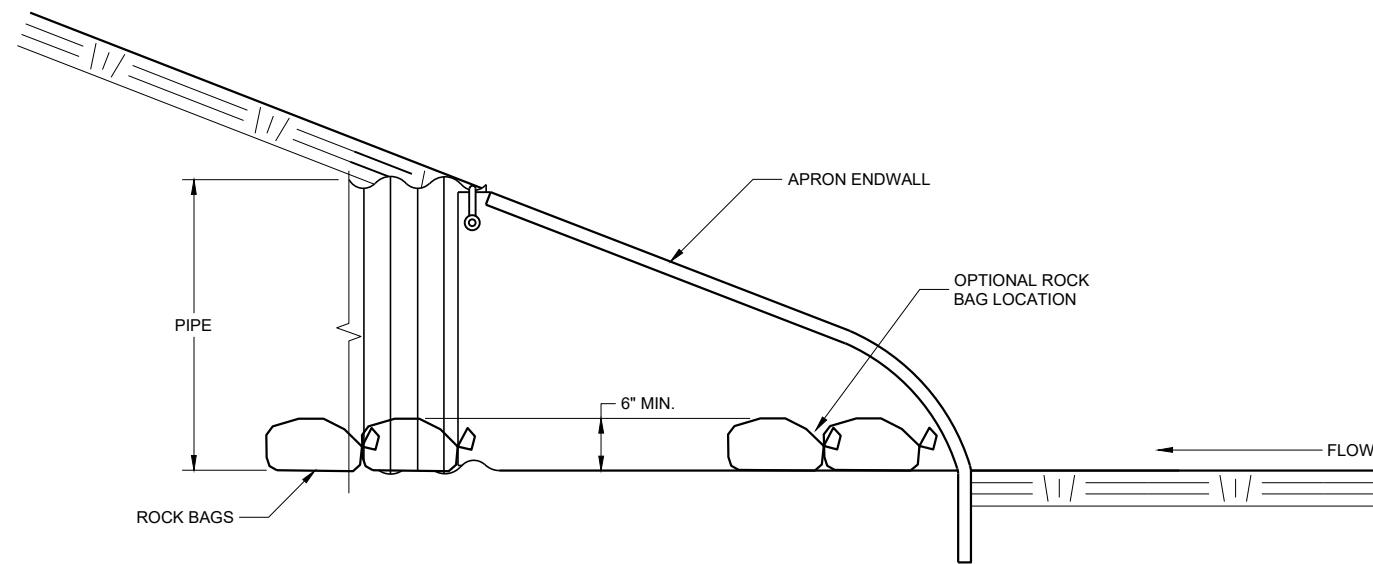
4-29-05
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

6

6

SDD 08E15 - 01

SDD 08E15 - 01

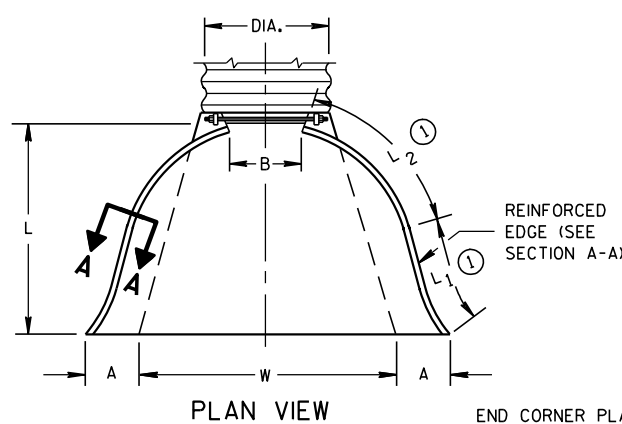
CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
<small>FHWA</small>	

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

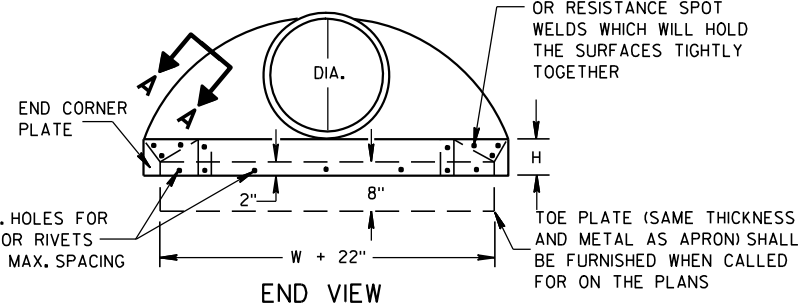
* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

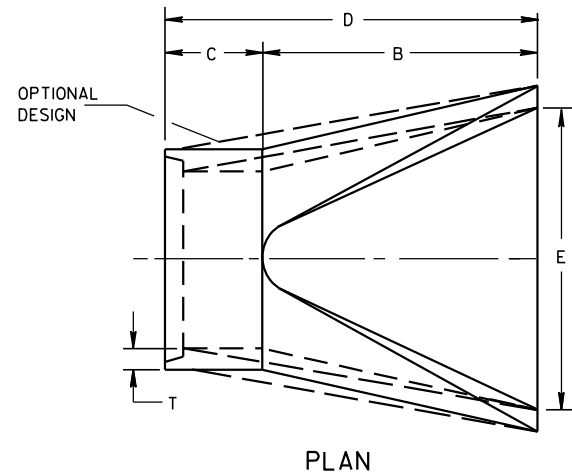
* MINIMUM
** MAXIMUM



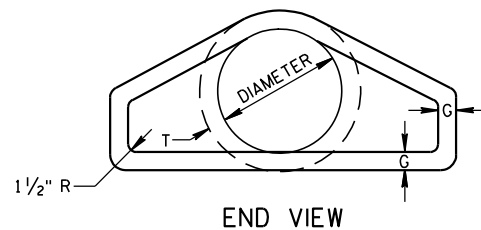
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



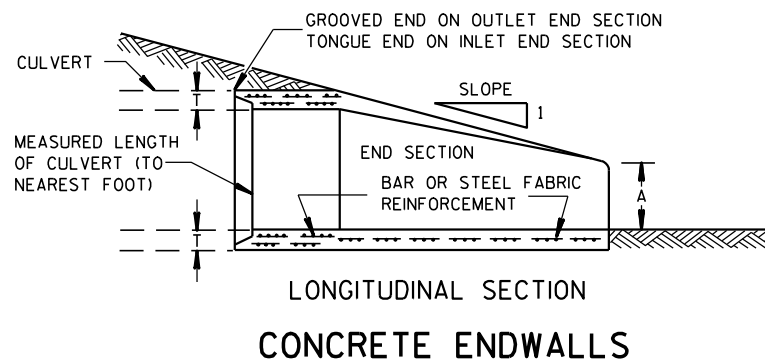
SIDE ELEVATION
METAL ENDWALLS



PLAN

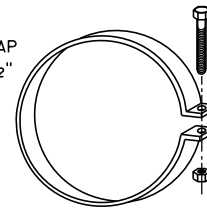


END VIEW

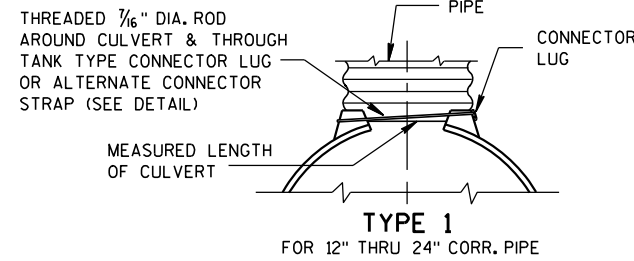


LONGITUDINAL SECTION
CONCRETE ENDWALLS

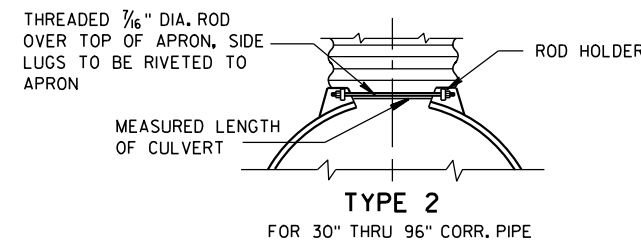
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



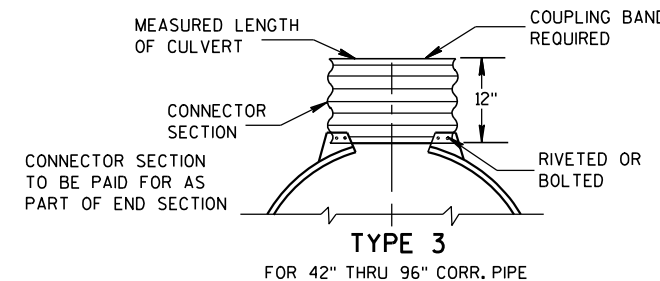
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



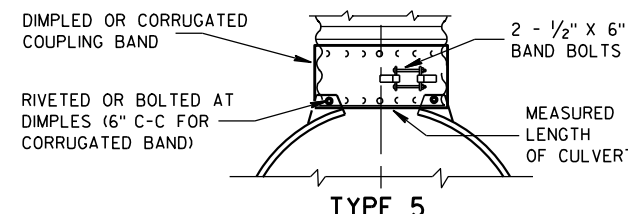
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

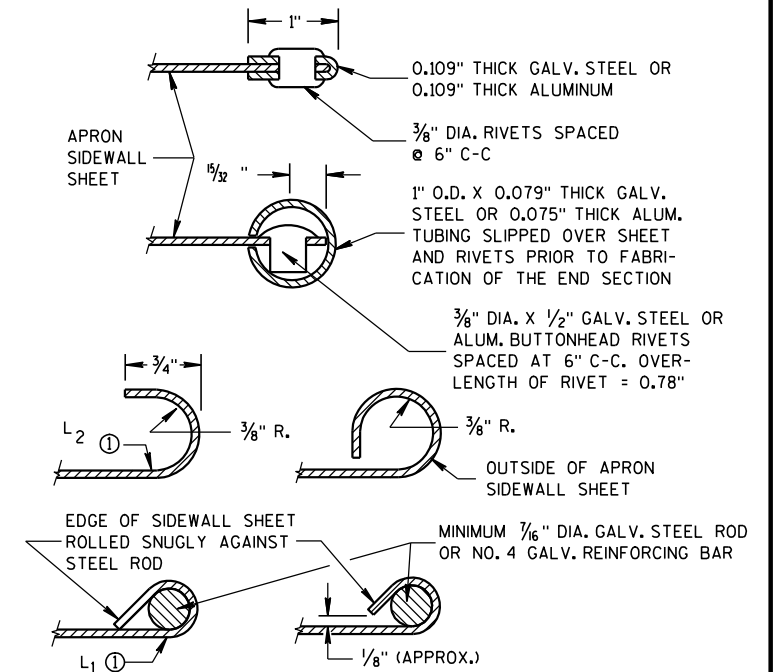
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

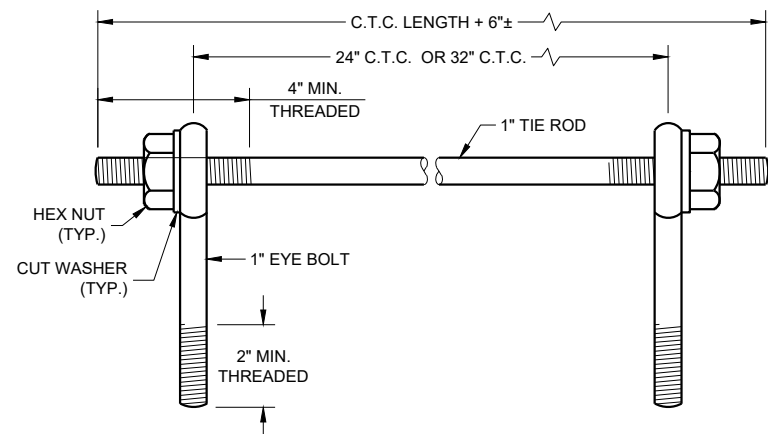
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

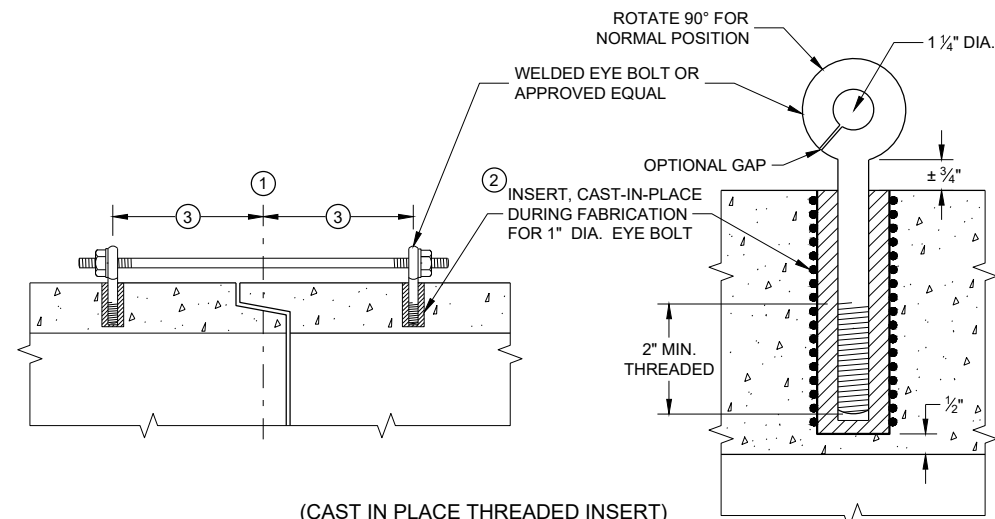
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

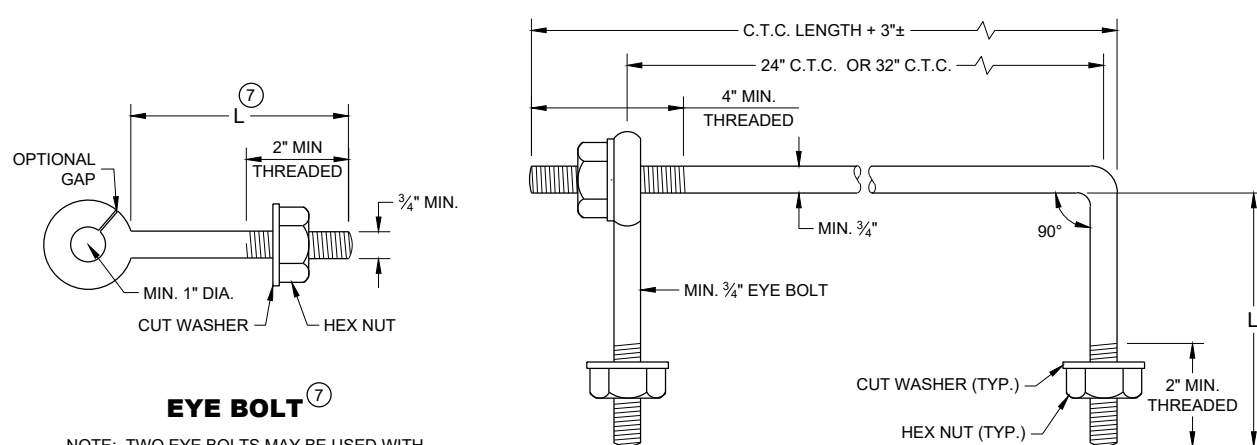
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

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

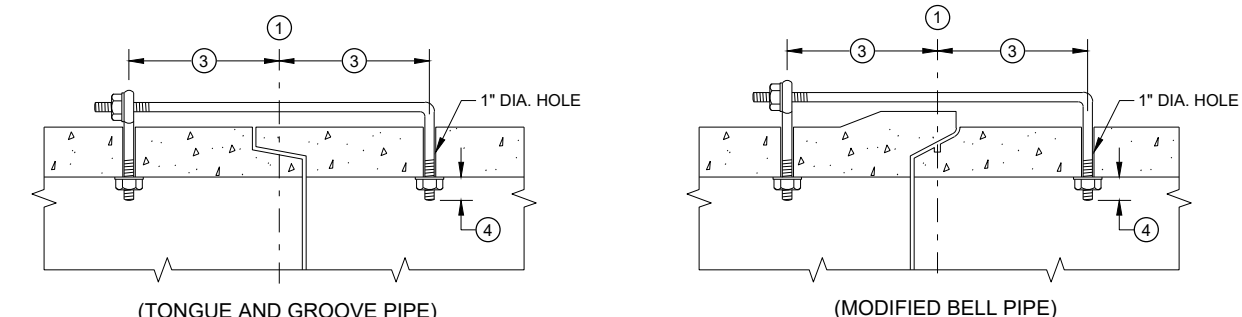
- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION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



EYE BOLT ⑦

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30\"/>

EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

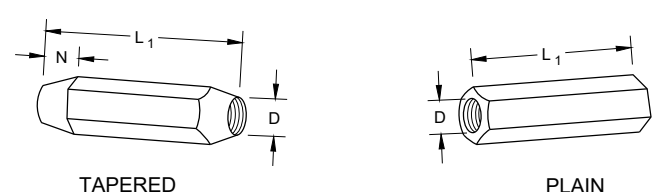
(JOINT TIES FOR 18\"/>

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

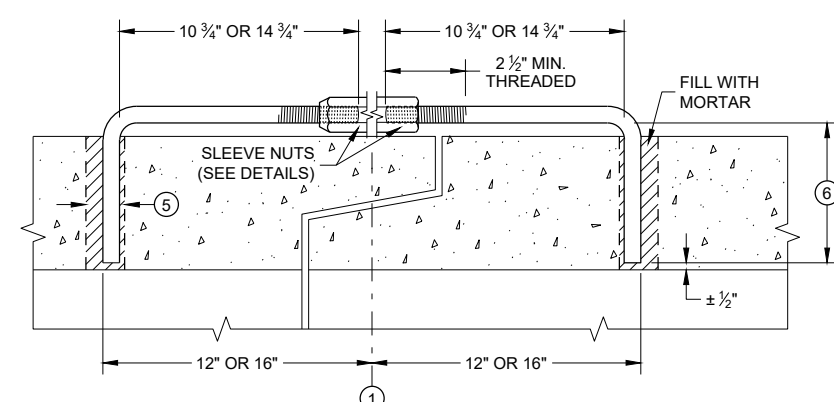
ADJUSTABLE TIE ROD TABLE

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 7/16

DIMENSIONS SHOWN ARE IN INCHES

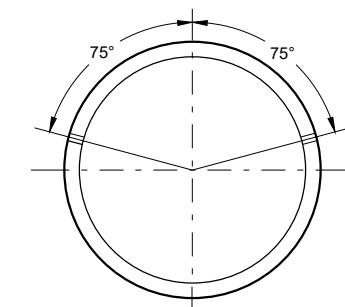


RIGHT AND LEFT THREADS SLEEVE NUTS



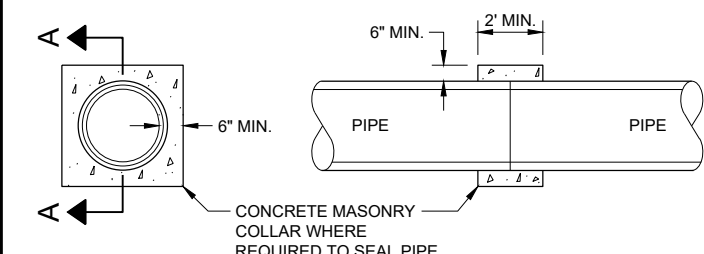
LONGITUDINAL SECTION

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

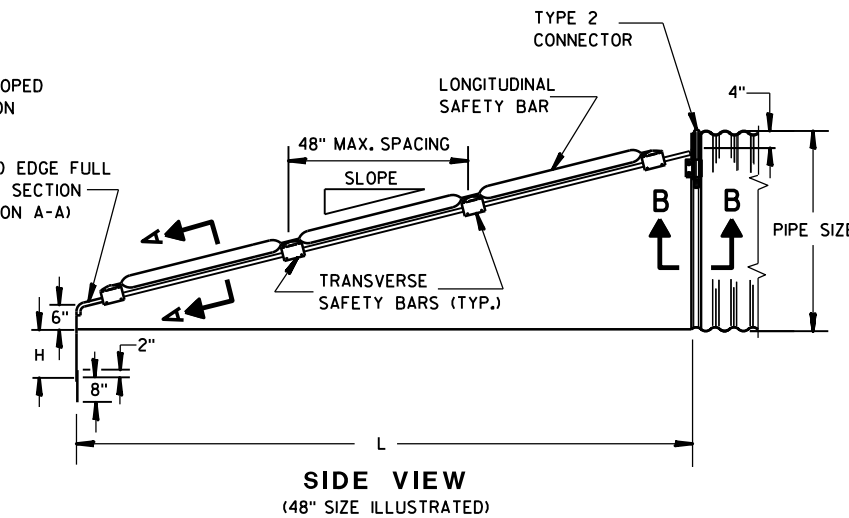
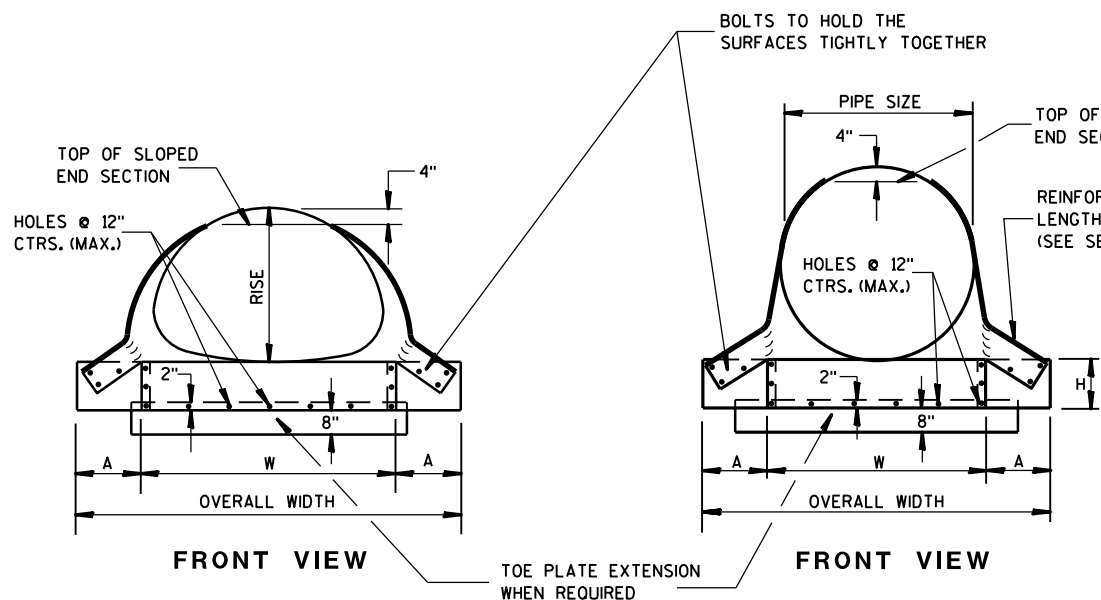


**SECTION A - A
CONCRETE COLLAR DETAIL**

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



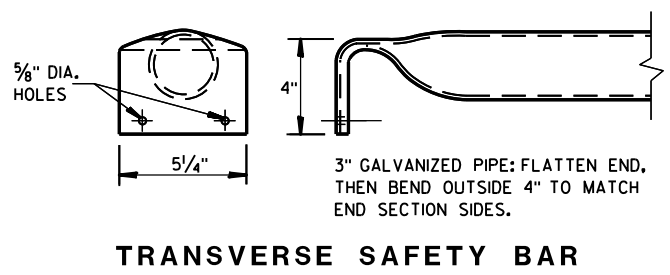
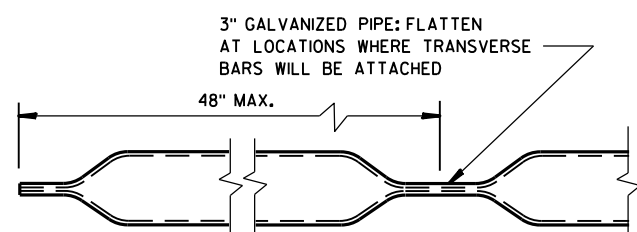
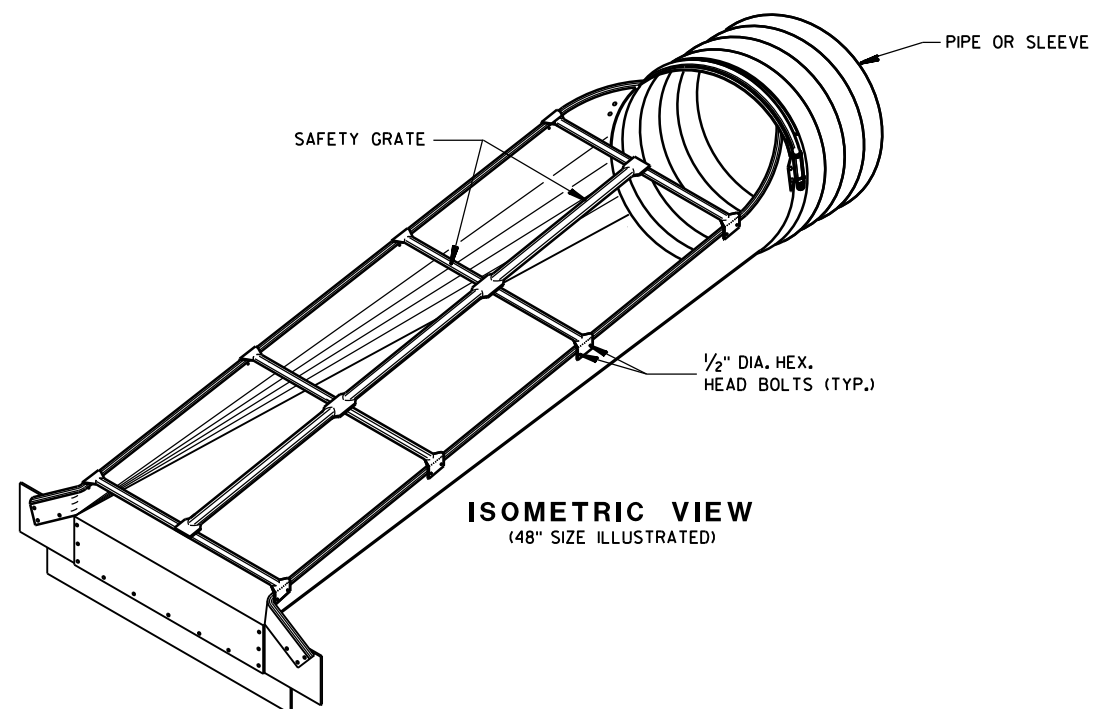
GENERAL NOTES

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.

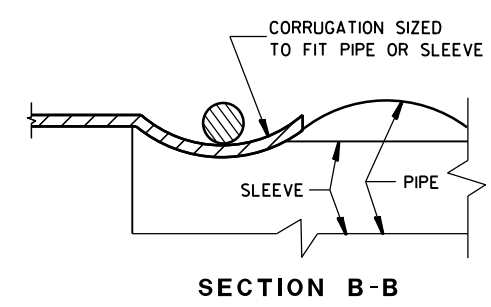
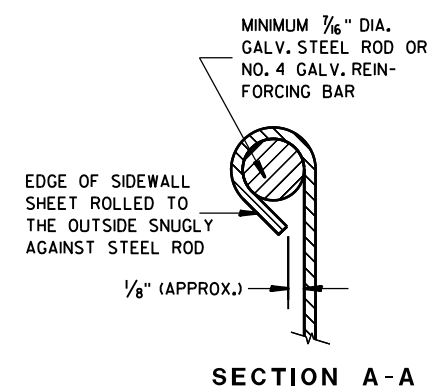
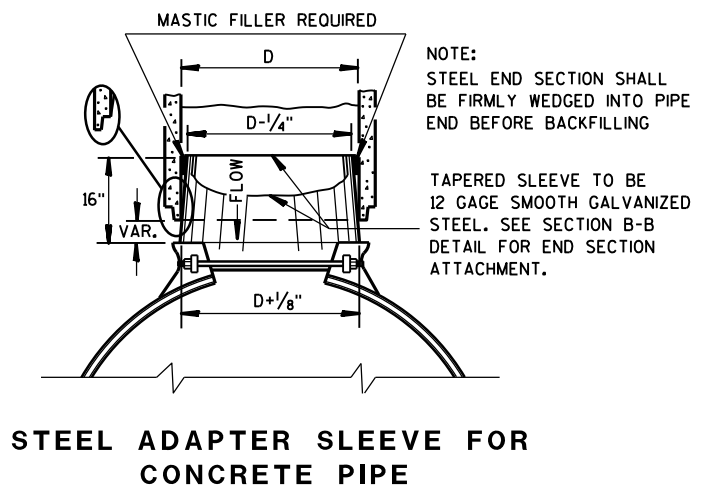
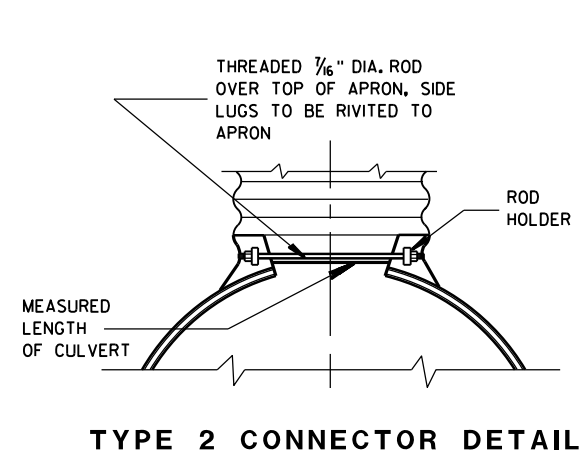
SAFETY GRATES SHALL BE FABRICATED FROM 3-INCH DIAMETER GALVANIZED PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL. THE LONGITUDINAL BAR SHALL BE WELDED TO THE TRANSVERSE BARS WHERE THE BARS CROSS. THE NUMBER OF TRANSVERSE BARS REQUIRED WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

SLOPED STEEL ENDWALLS LOCATED AT THE ENDS OF CONCRETE CULVERT PIPE SHALL BE FURNISHED WITH STEEL ADAPTER SLEEVES.

STEEL APRON ENDWALLS FOR CULVERT PIPE CROSS DRAINS										
PIPE DIA. (IN.)	MIN. THICK. IN.	GAGE	DIMENSIONS (inches)				L DIMENSIONS			
			A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
36	.109	12	12	9	42	66	4:1	104	6:1	156
42	.109	12	16	12	48	80	4:1	128	6:1	192
48	.109	12	16	12	54	86	4:1	152	6:1	228
54	.109	12	16	12	60	92	4:1	176	6:1	264
60	.109	12	16	12	66	98	4:1	200	6:1	300



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED CROSS DRAINS												
EQUIV. DIA. (IN.)	INCHES		MIN. THICK. IN.	GAGE	DIMENSIONS (inches)				L DIMENSIONS			
	SPAN	RISE			A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222



STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS

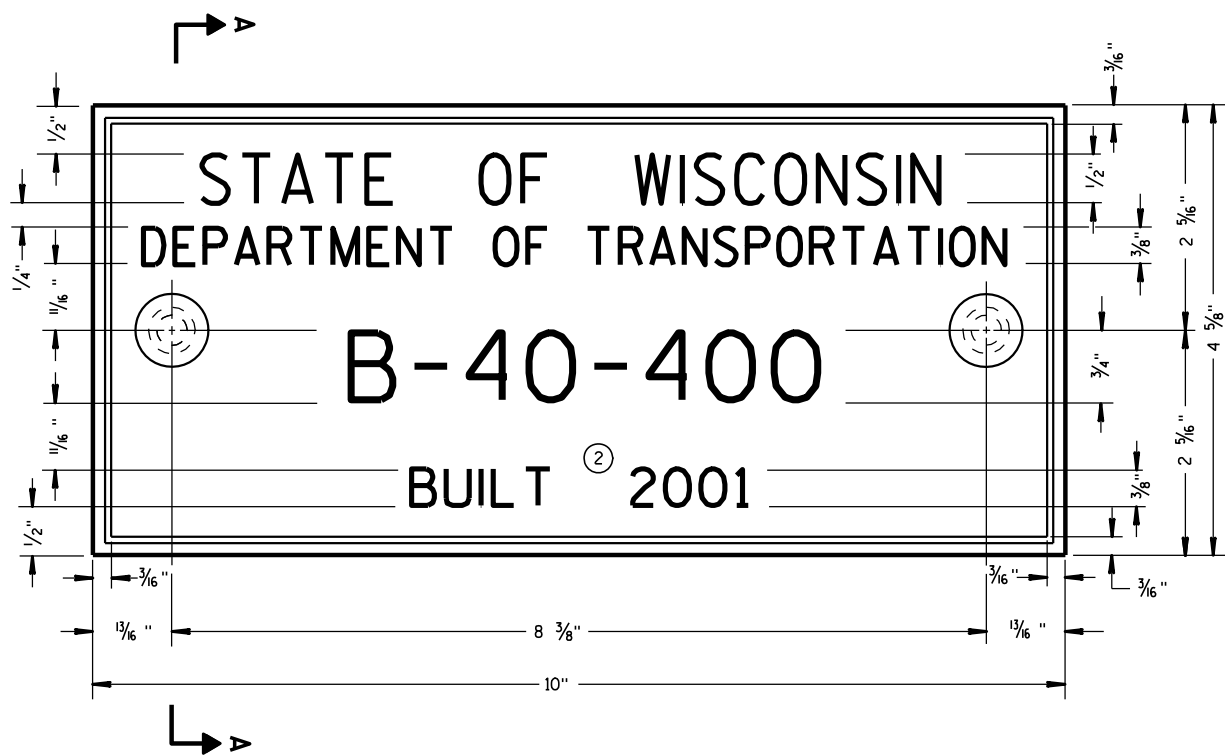
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

6



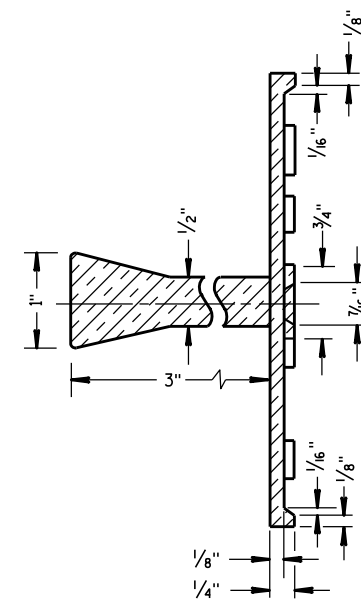
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

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.

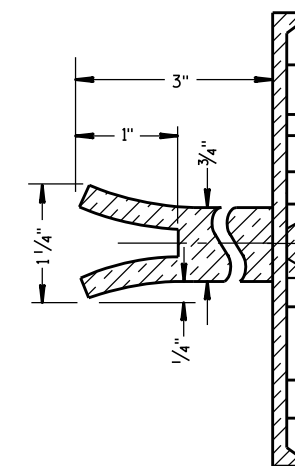
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- 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.

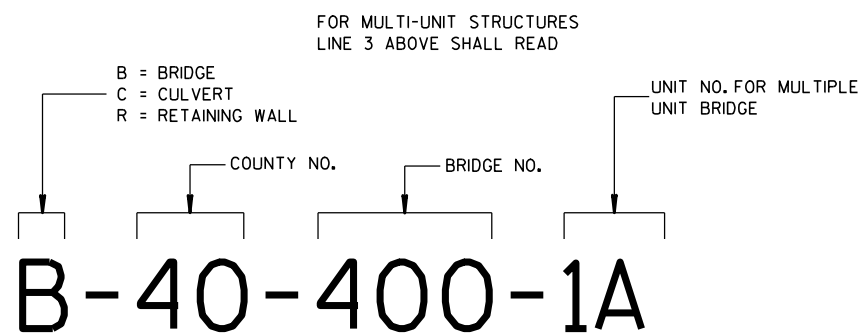


SECTION A-A

SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

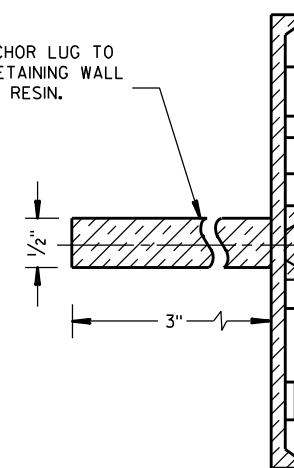


ALTERNATE LUG



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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



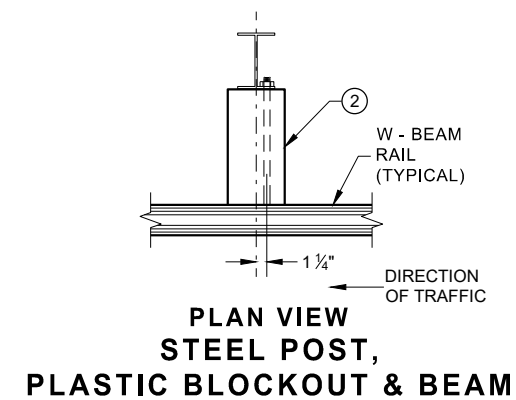
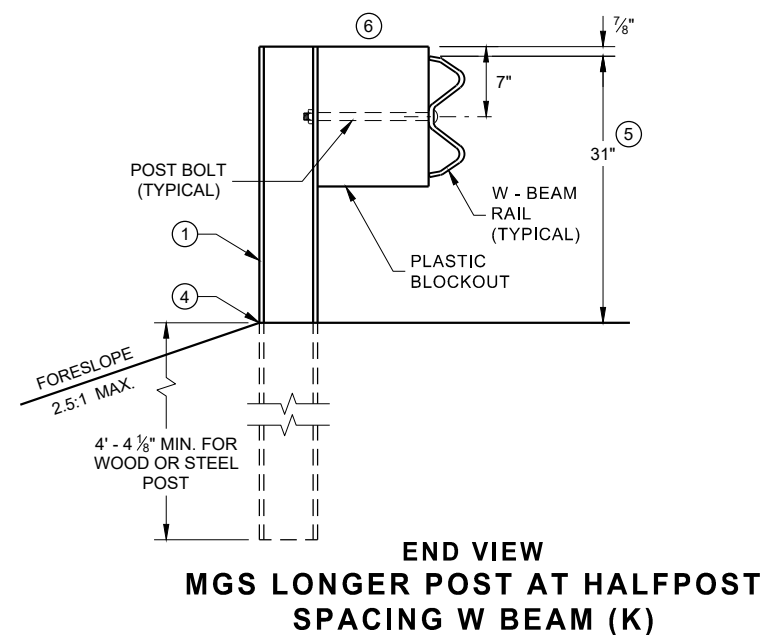
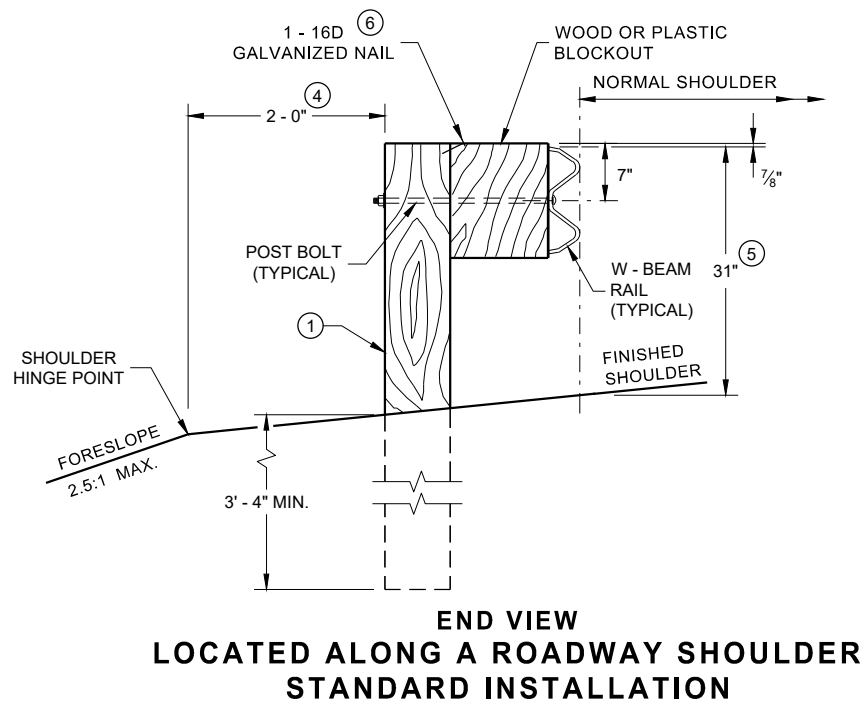
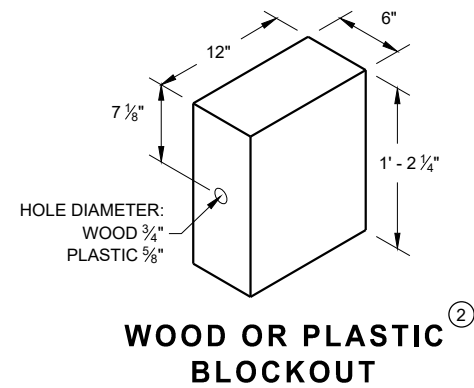
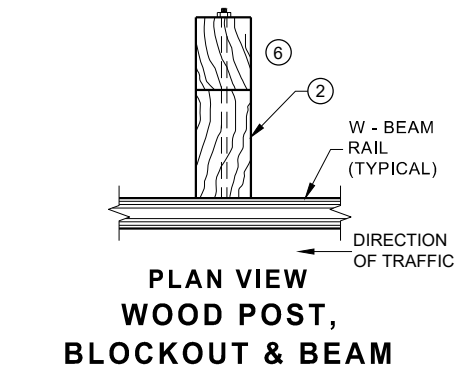
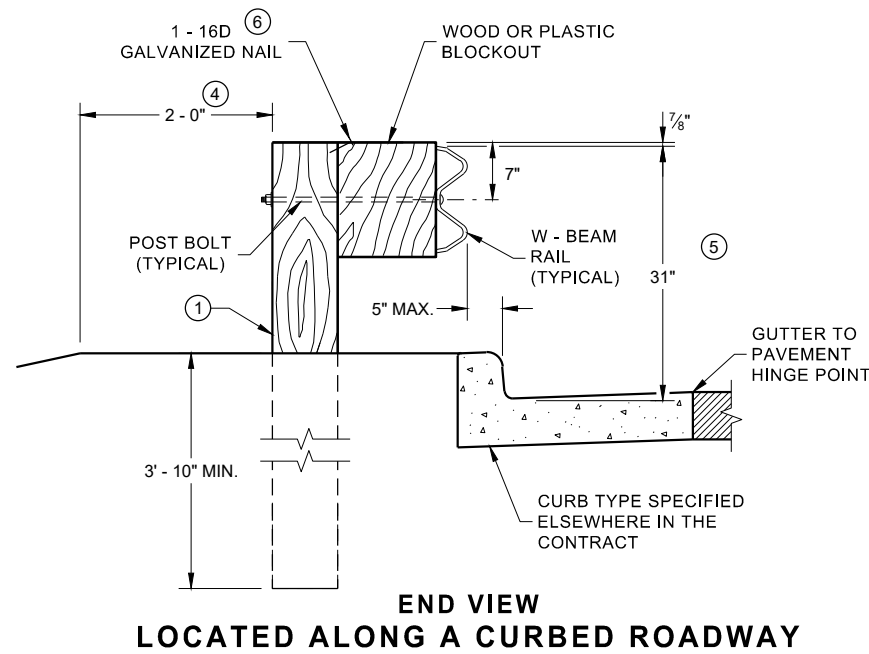
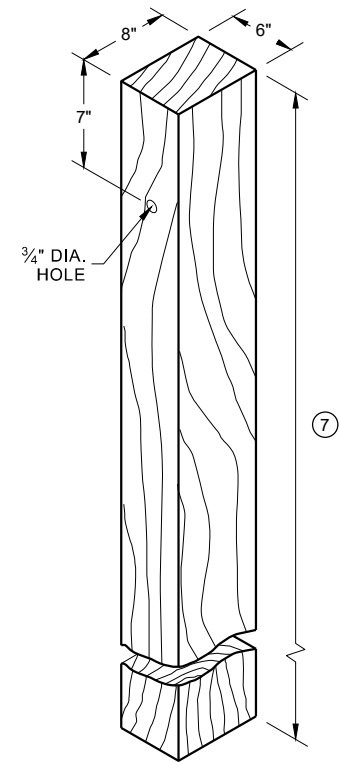
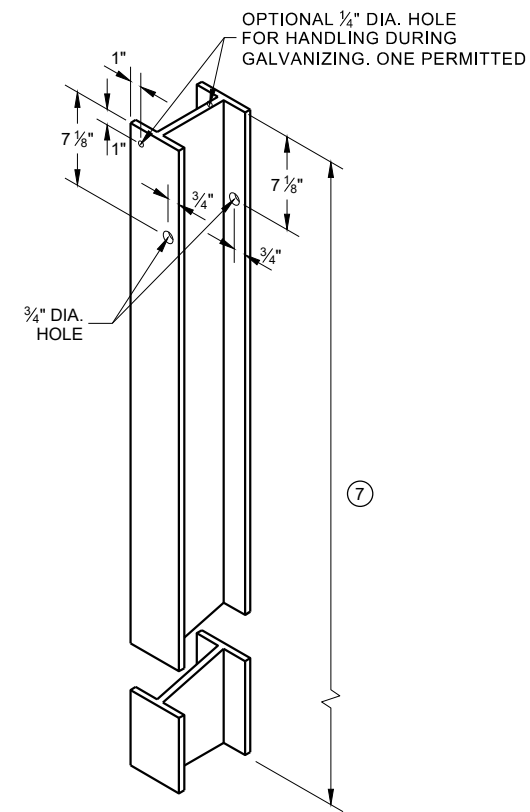
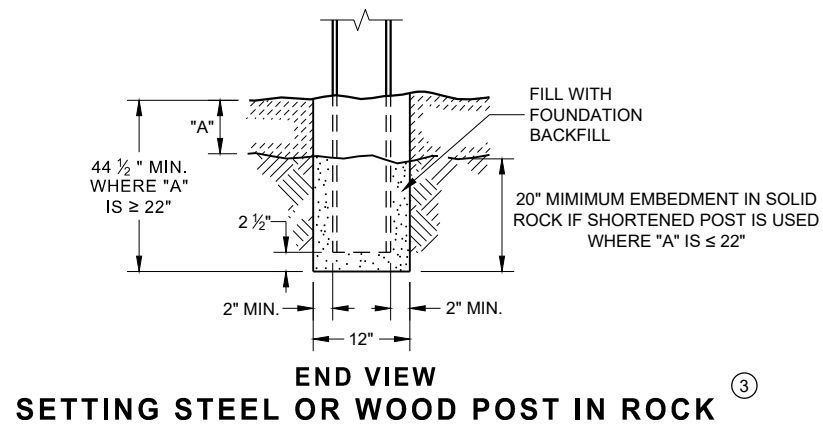
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

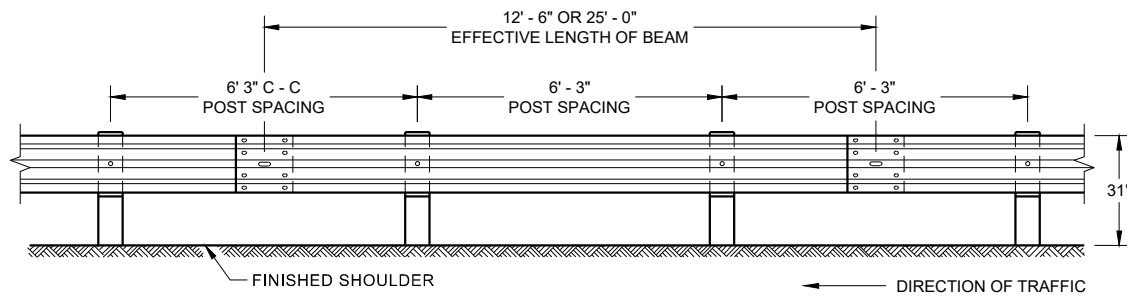
APPROVED
DATE 3/26/10 /S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

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

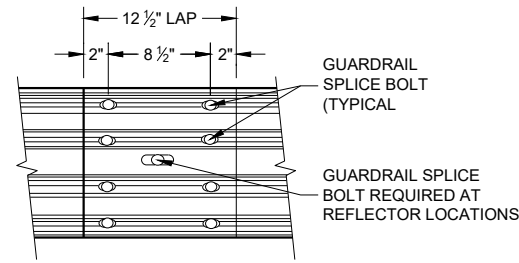


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



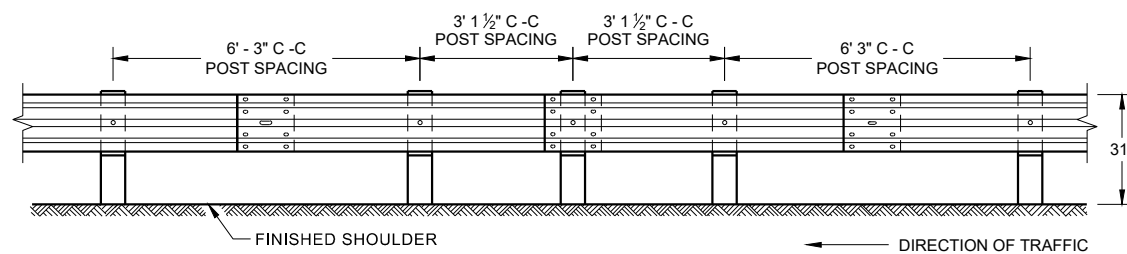
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



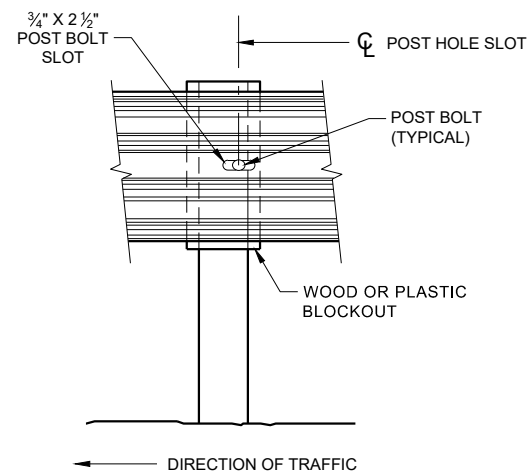
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

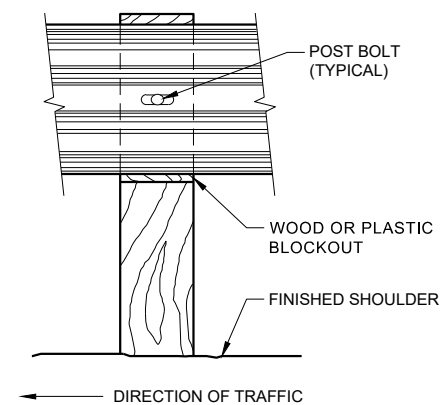
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



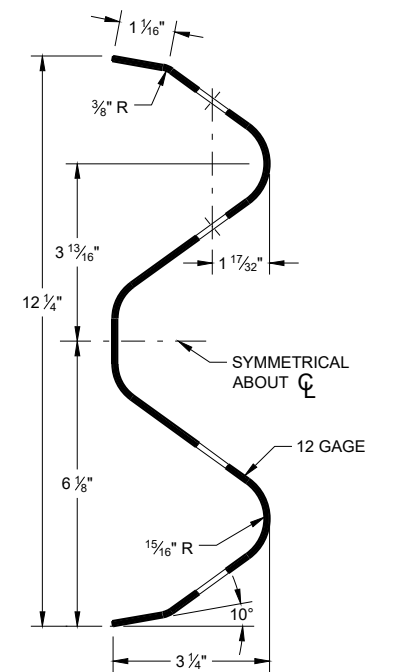
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



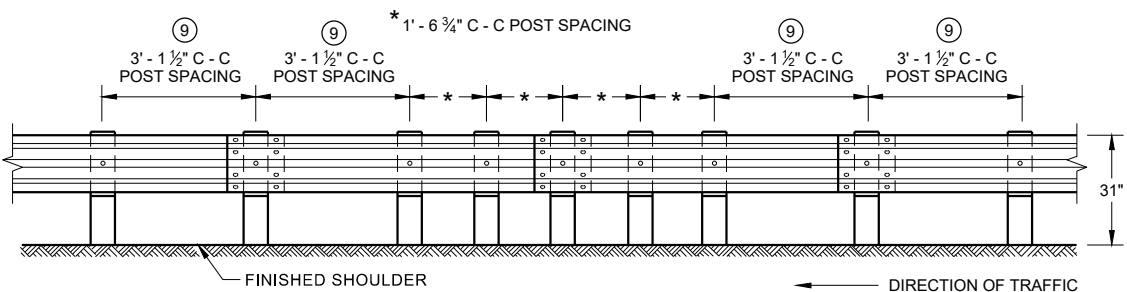
FRONT VIEW AT STEEL POST



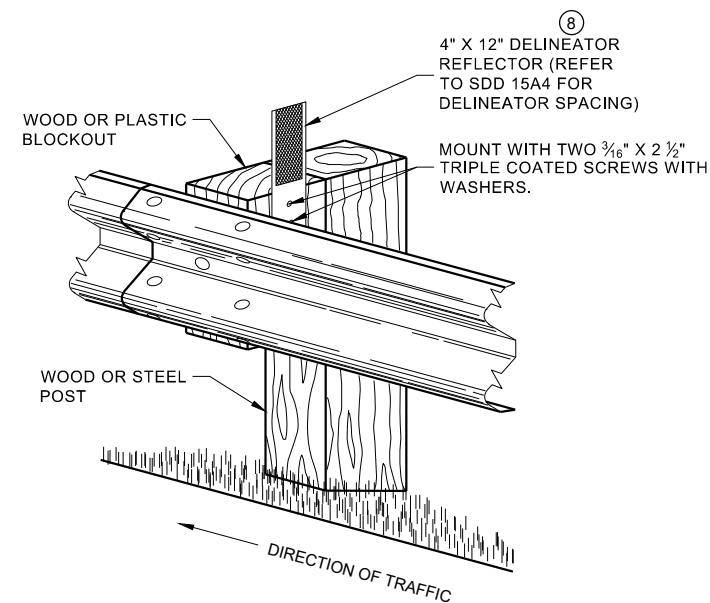
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

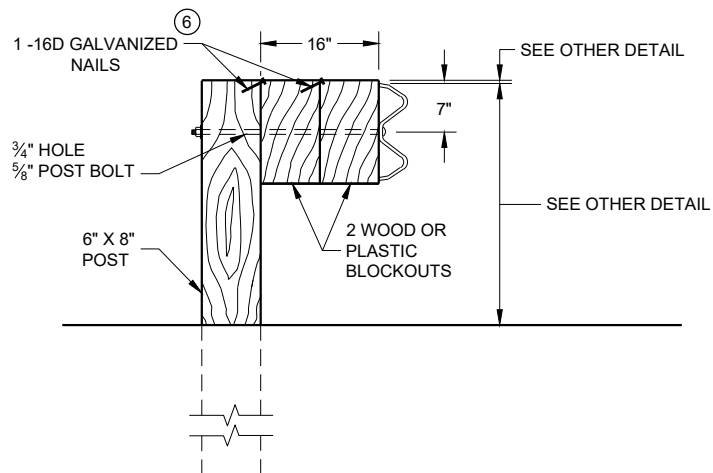
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

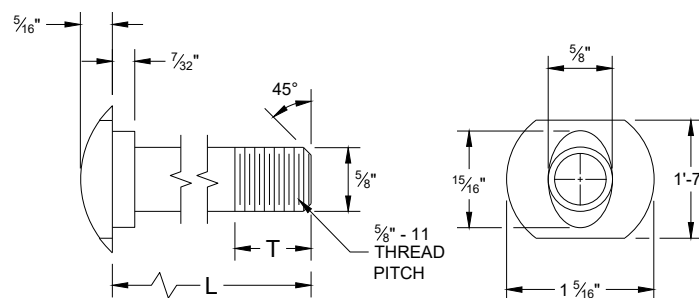


DETAIL FOR 16" BLOCKOUT DEPTH

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

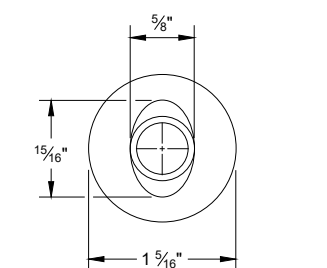
NOTE:

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

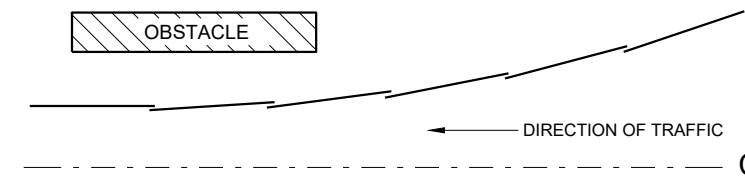


POST BOLT TABLE

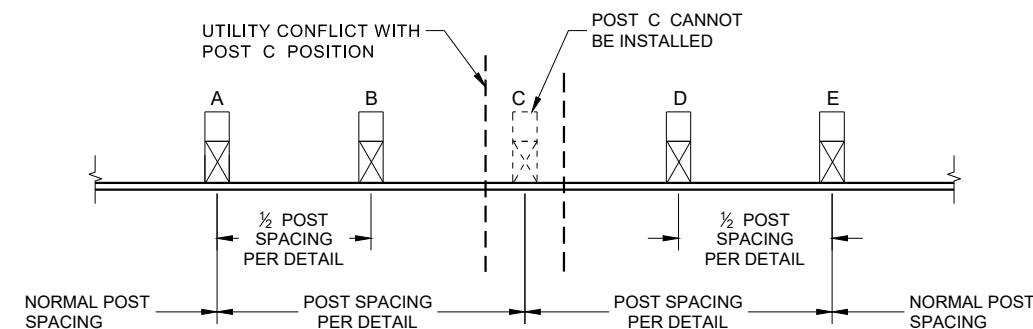
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



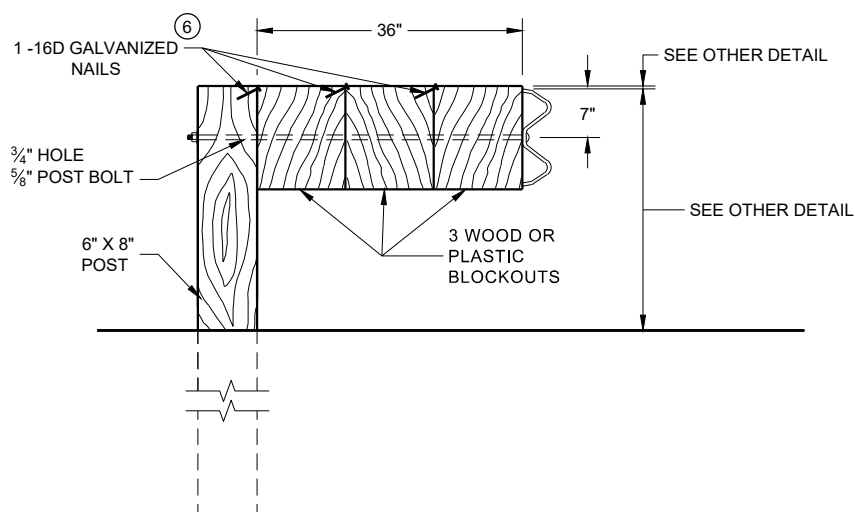
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

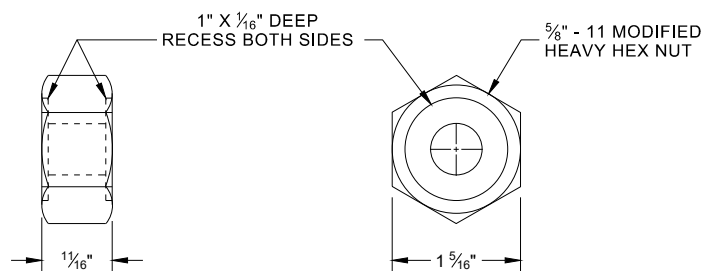


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

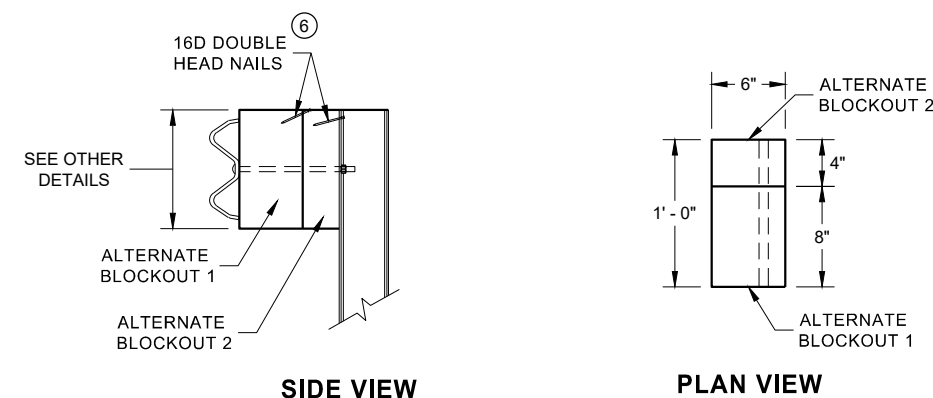


DETAIL FOR 36" BLOCKOUT DEPTH

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



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

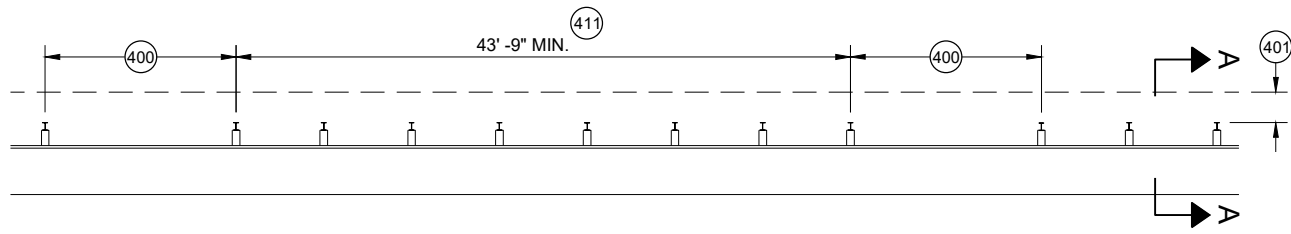


**ALTERNATE WOOD
BLOCKOUT DETAIL**

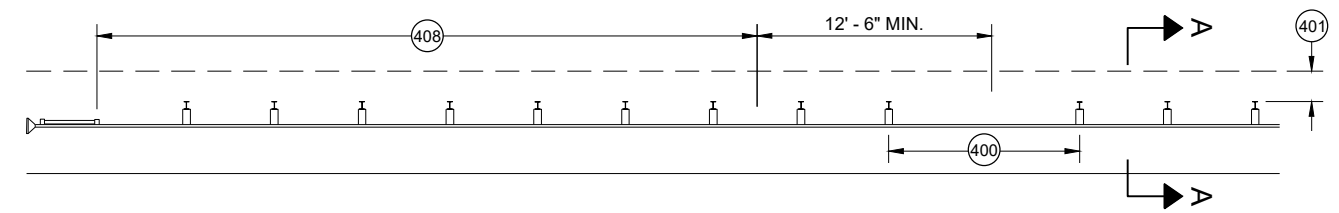
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

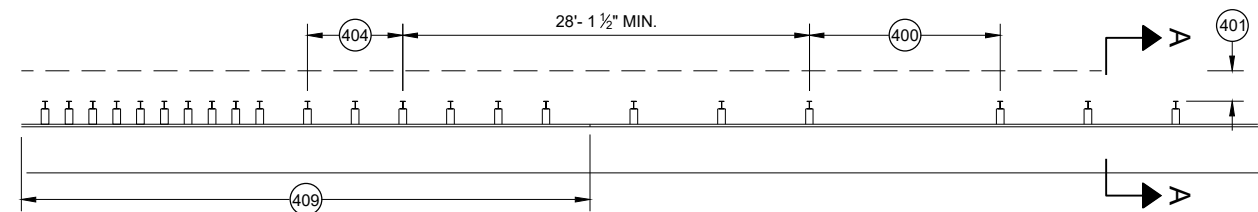
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



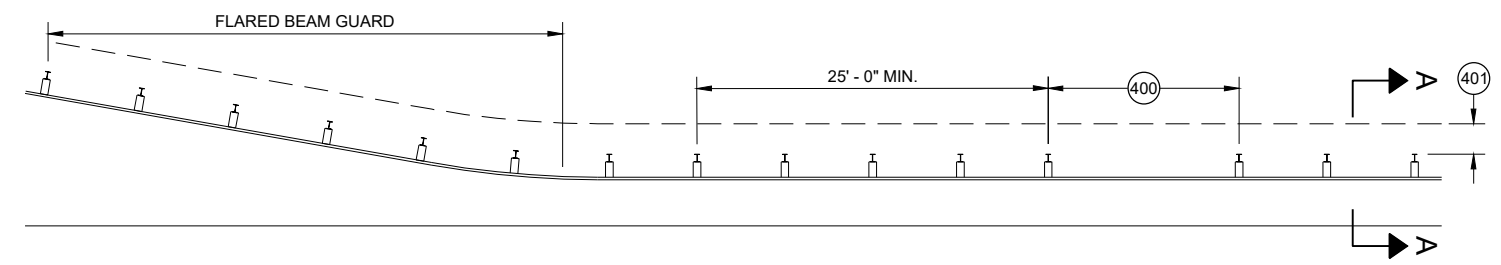
MISSING POST IN MGS GUARDRAIL



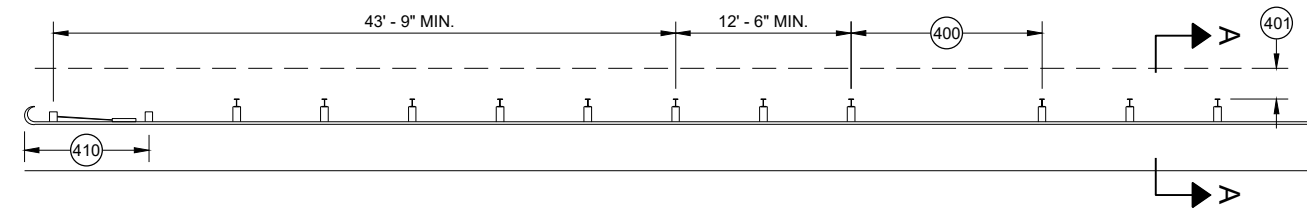
MISSING POST IN MGS GUARDRAIL NEAR EAT



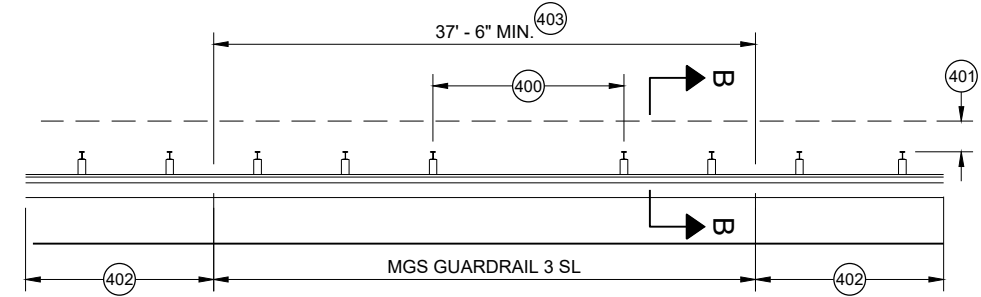
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

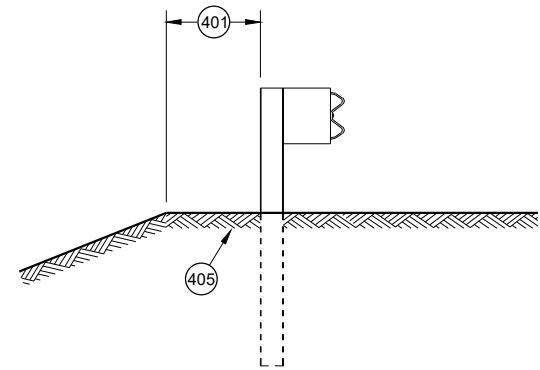


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

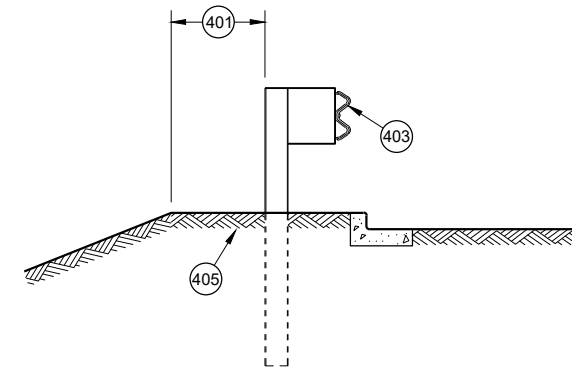


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

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

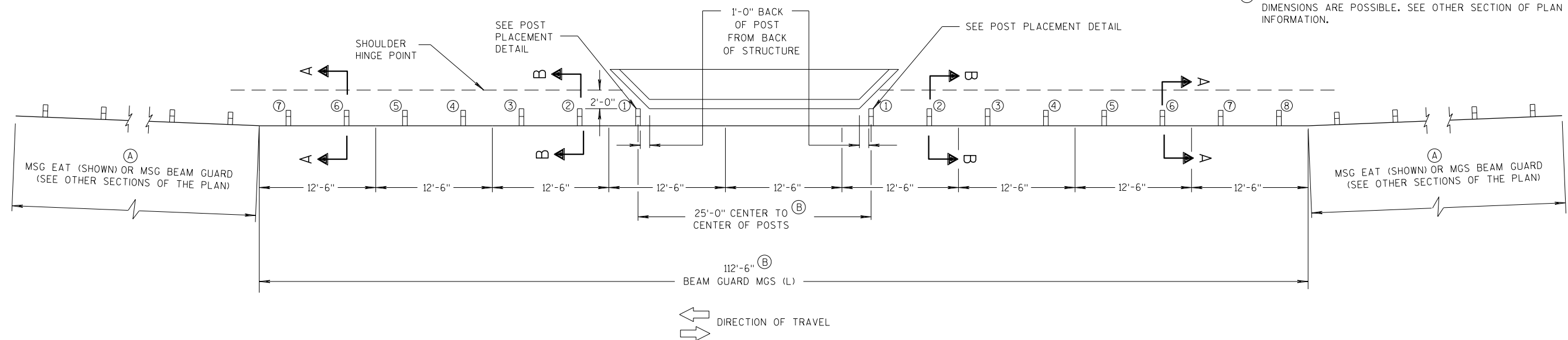
GENERAL NOTES

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

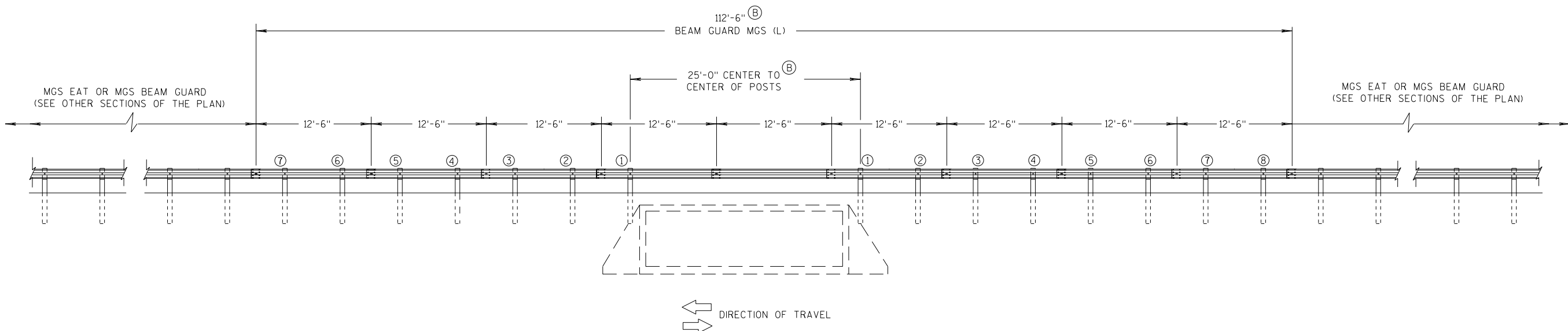
SEE SDD 14 B 42 FOR MORE DETAILS.

(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

<p>MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>

6

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S.D.D. 14 B 43-4a

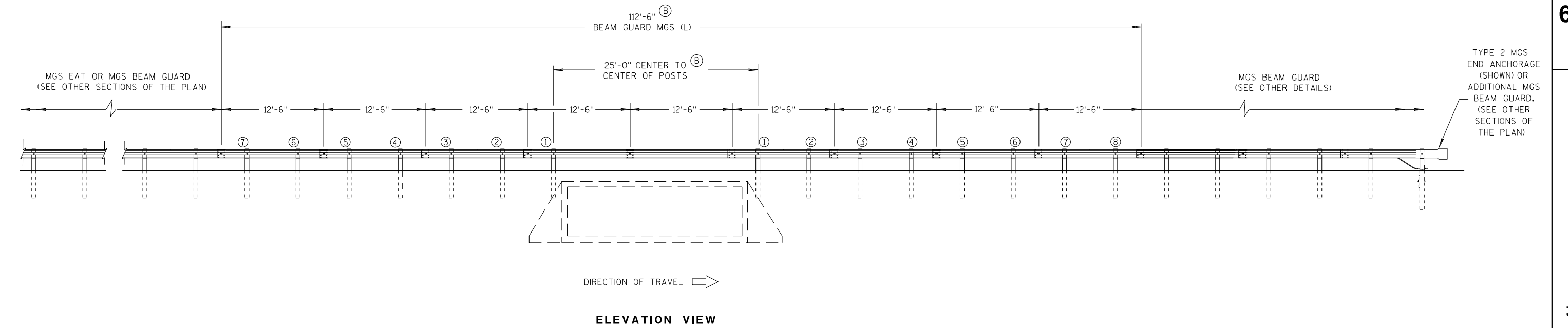
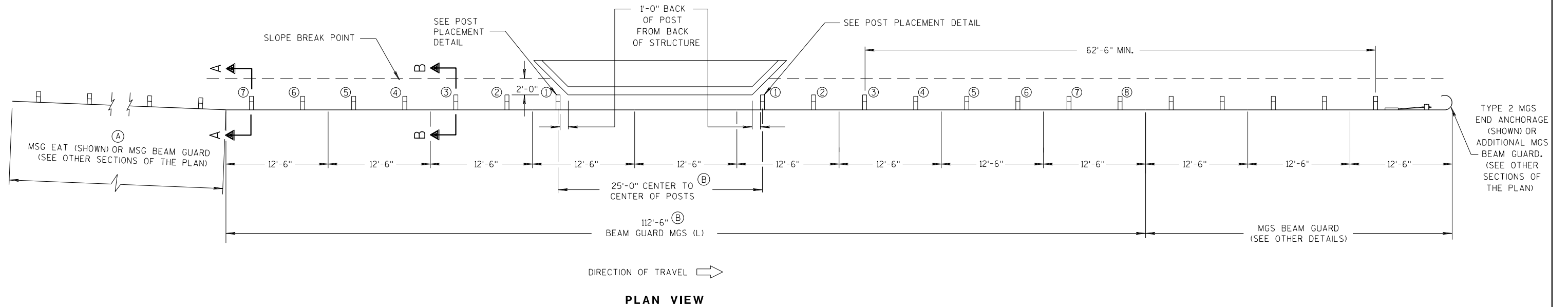
S.D.D. 14 B 43-4a

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.

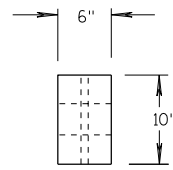
- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



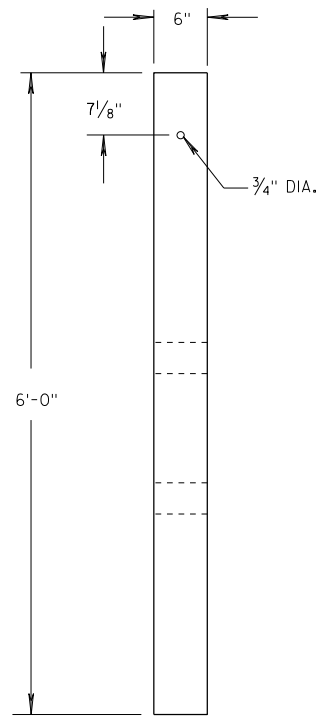
MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

**MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)**

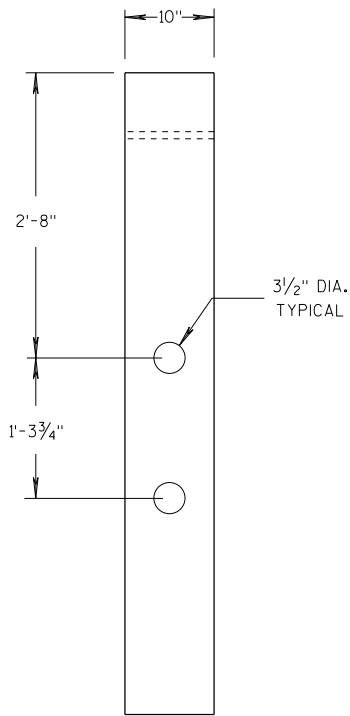
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

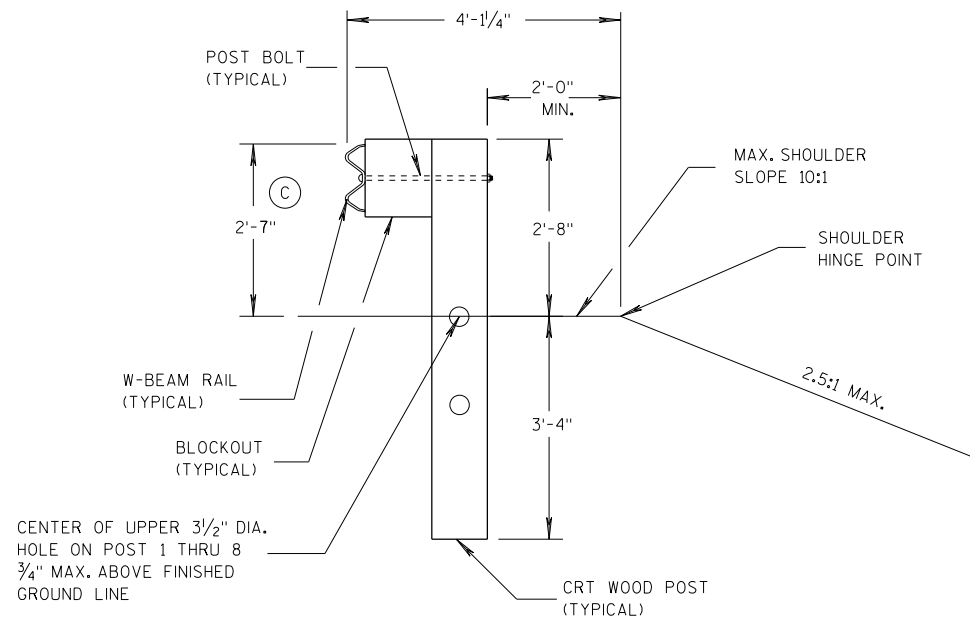


FRONT VIEW

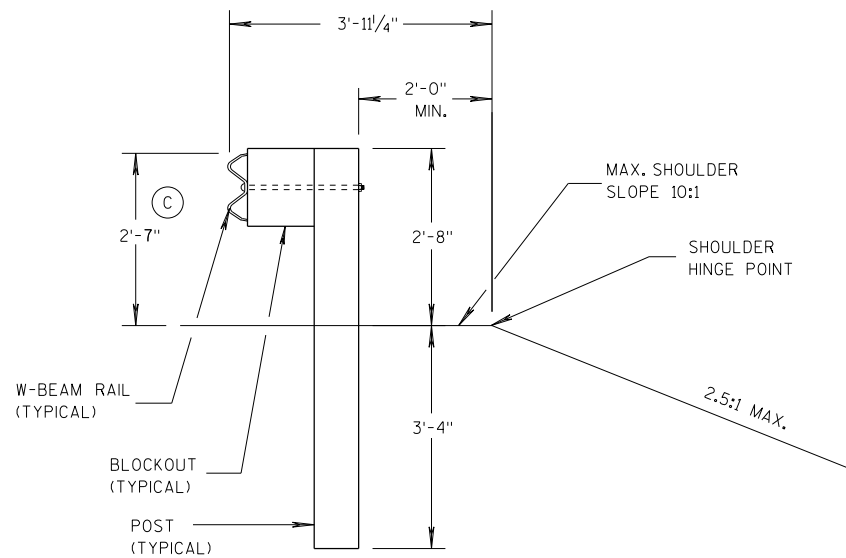


SIDE VIEW

CRT WOOD POST



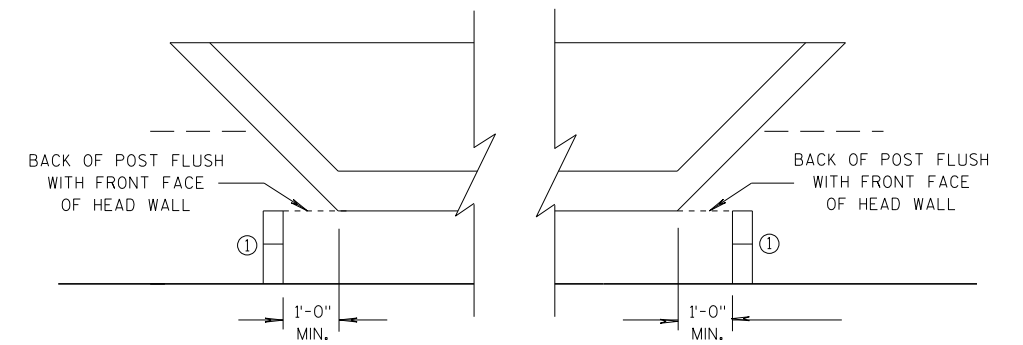
SECTION B-B
POSTS NO. 1-3
SEE OTHER DETAILS



SECTION A-A
POSTS NO. 4-8
SEE OTHER DETAILS

GENERAL NOTES

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



POST PLACEMENT DETAIL

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/s/ Rodney Taylor
DATE	07/2018
FHWA	ROADWAY STANDARDS DEVELOPMENT ENGINEER

GENERAL NOTES

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

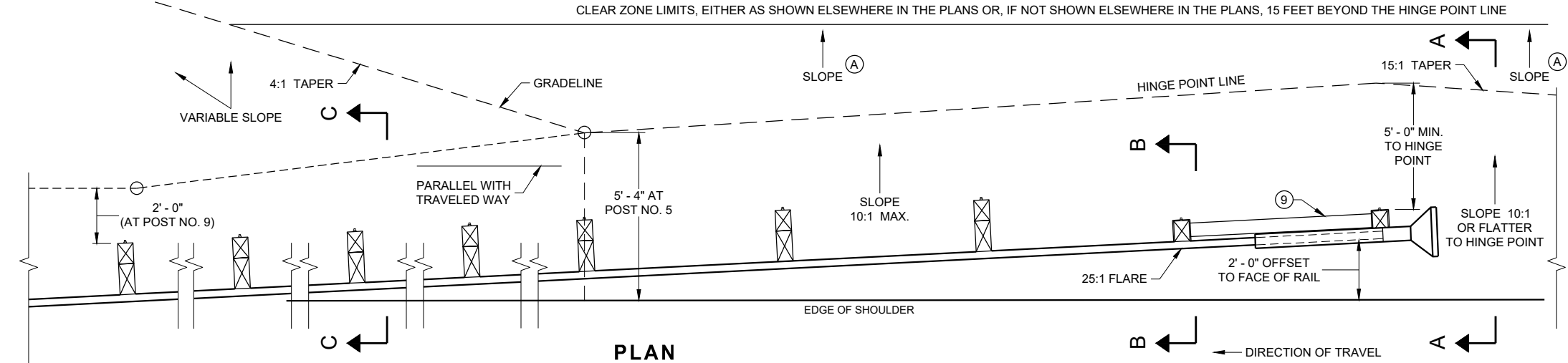
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

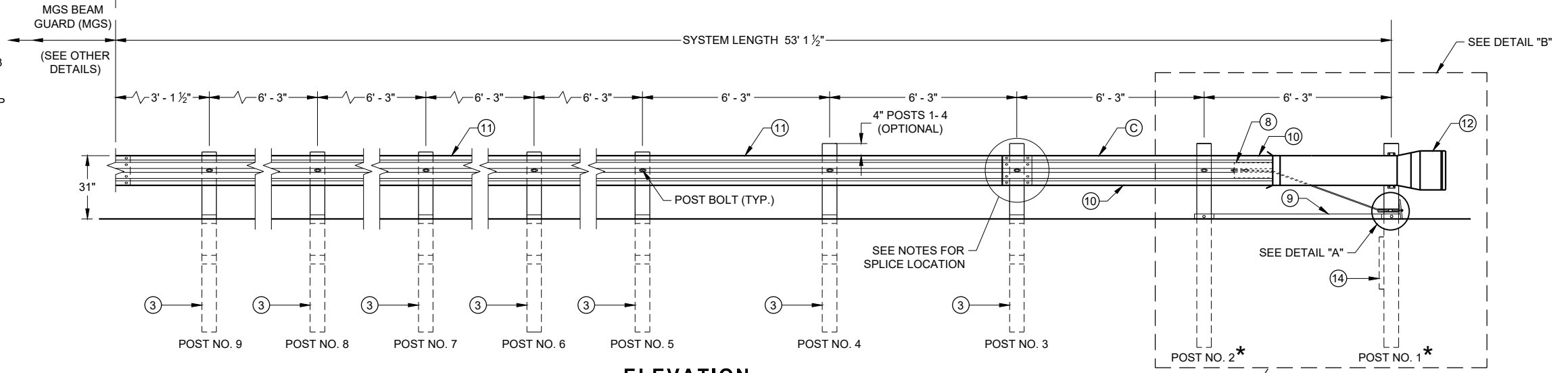
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

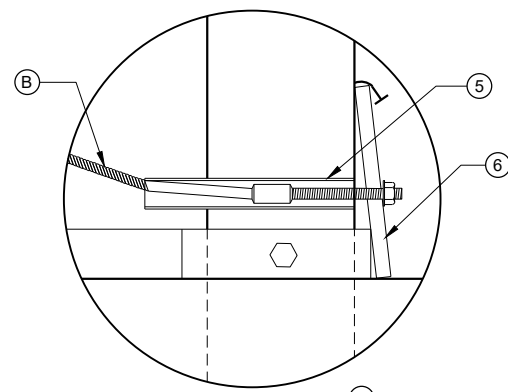
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



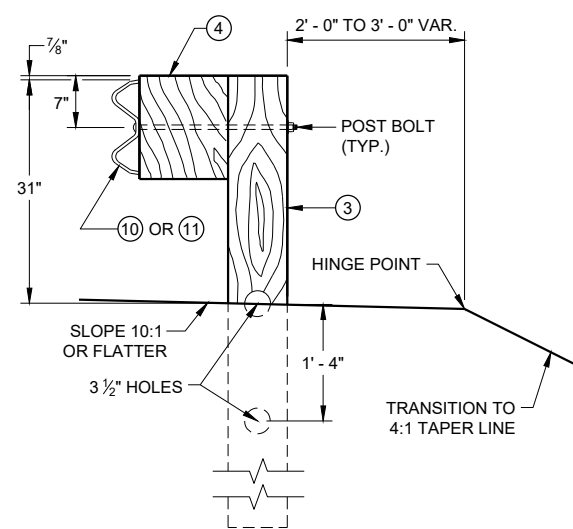
PLAN



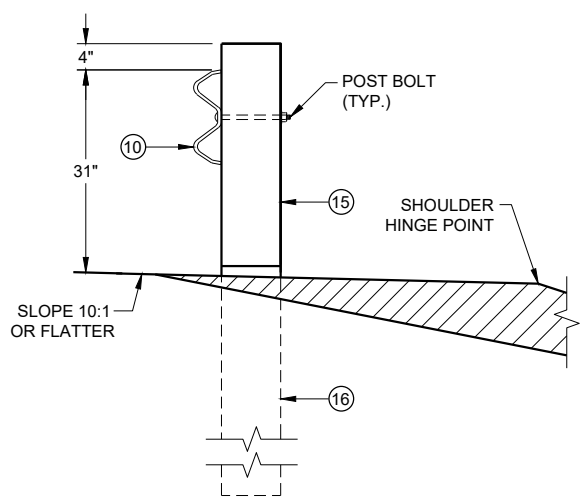
ELEVATION



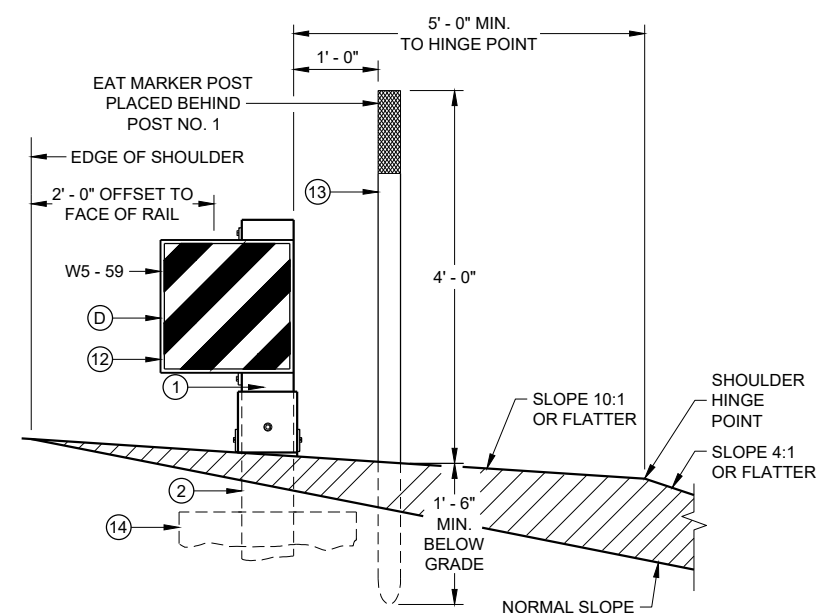
DETAIL "A"



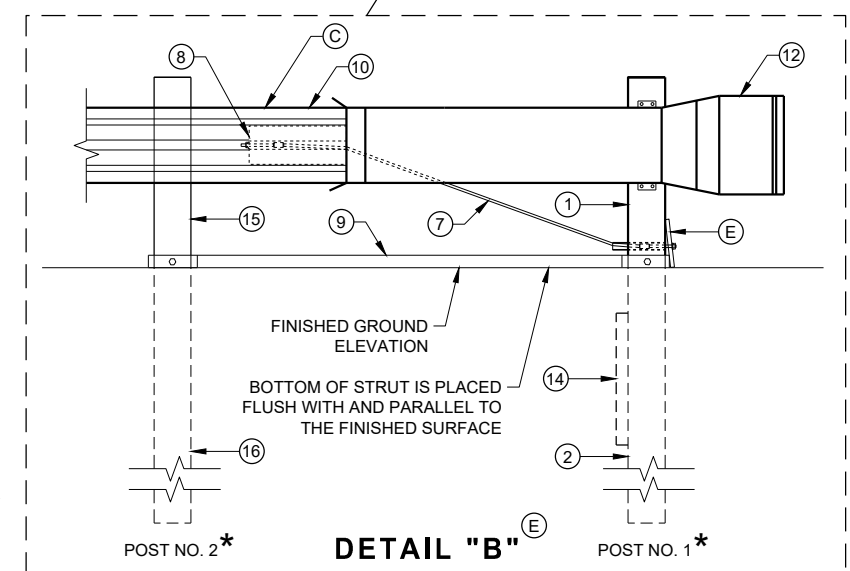
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B
TYPICAL AT POST NO. 2***



**SECTION A - A
TYPICAL AT POST NO. 1***



DETAIL "B"

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

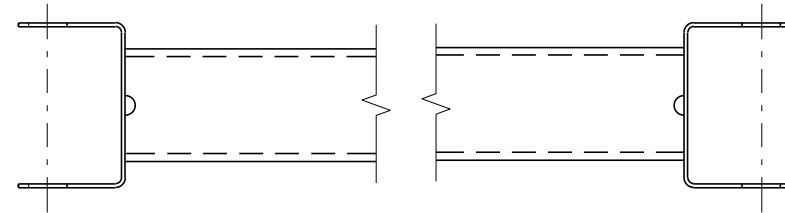
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

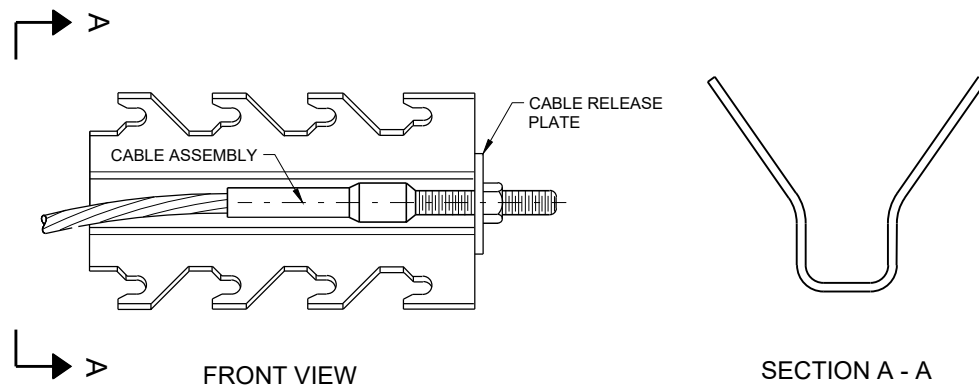
SDD 14B44 - 04a

BILL OF MATERIALS

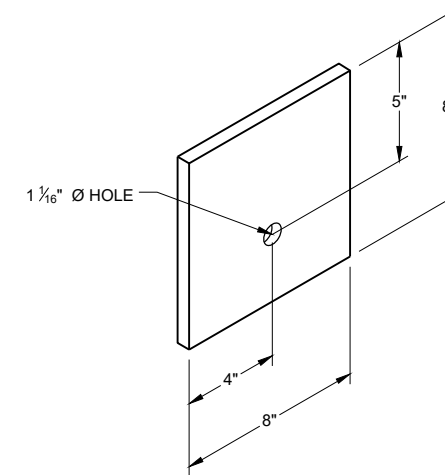
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



GENERIC GROUND STRUT ⑨ ⑤



GENERIC ANCHOR CABLE BOX ⑨ ⑤



BEARING PLATE ⑥ ⑤

6

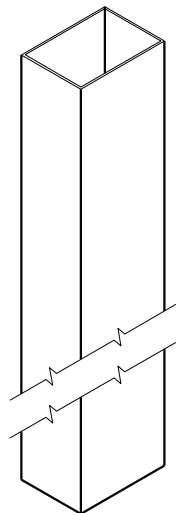
6

SDD 14B44 - 04b

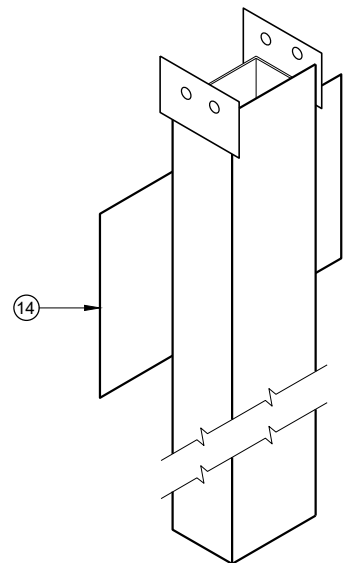
SDD 14B44 - 04b

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

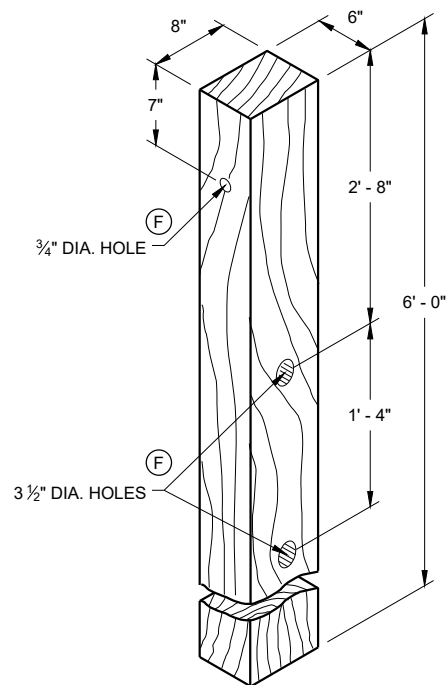
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



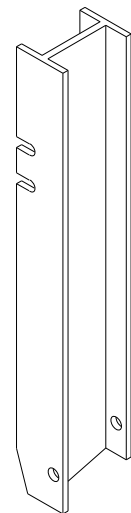
UPPER POST NO. 1 ⁽¹⁾ (E)



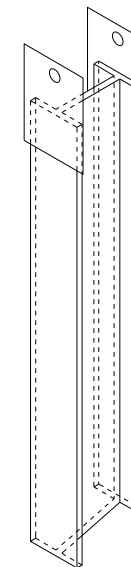
LOWER POST NO. 1 ⁽²⁾ (E)



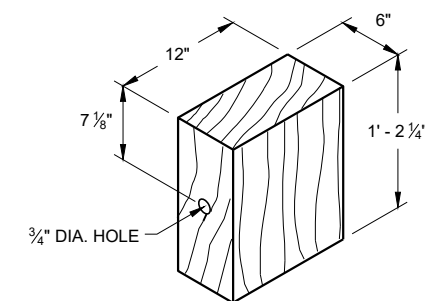
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

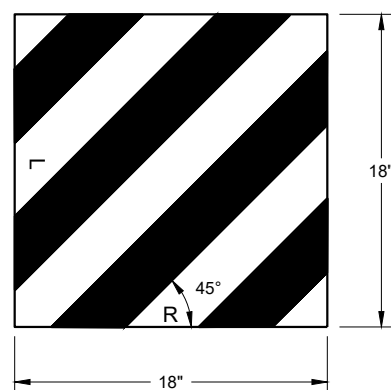


LOWER POST NO. 2 ⁽¹⁶⁾ (E)

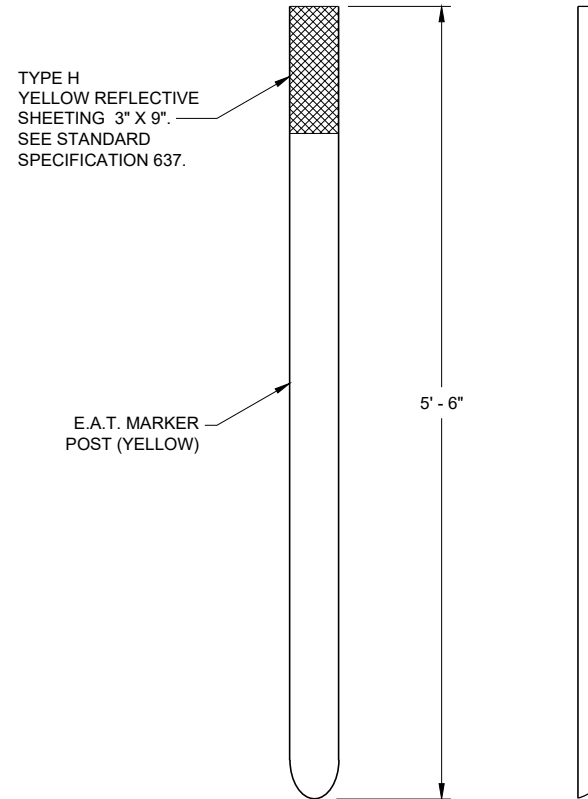


WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

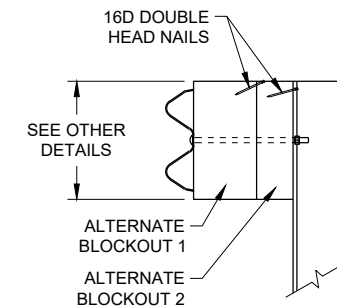
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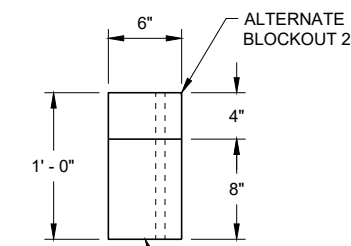
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

6

SDD 14B44 - 04c

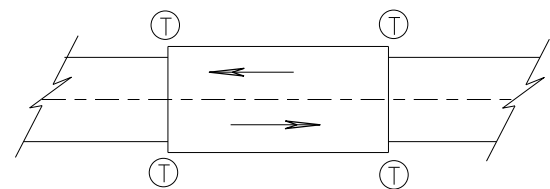
SDD 14B44 - 04c

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

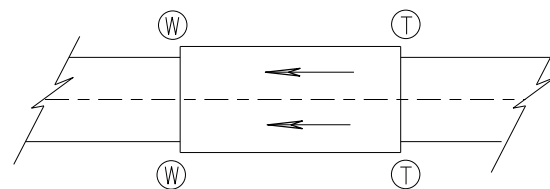
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

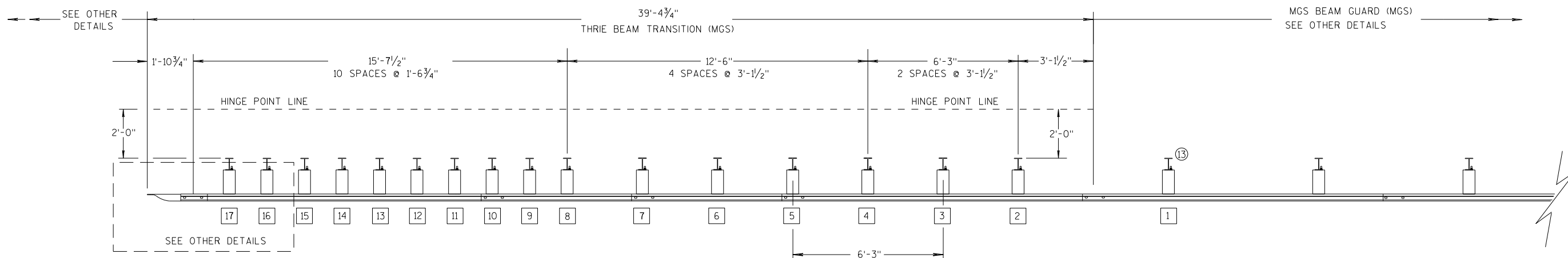
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

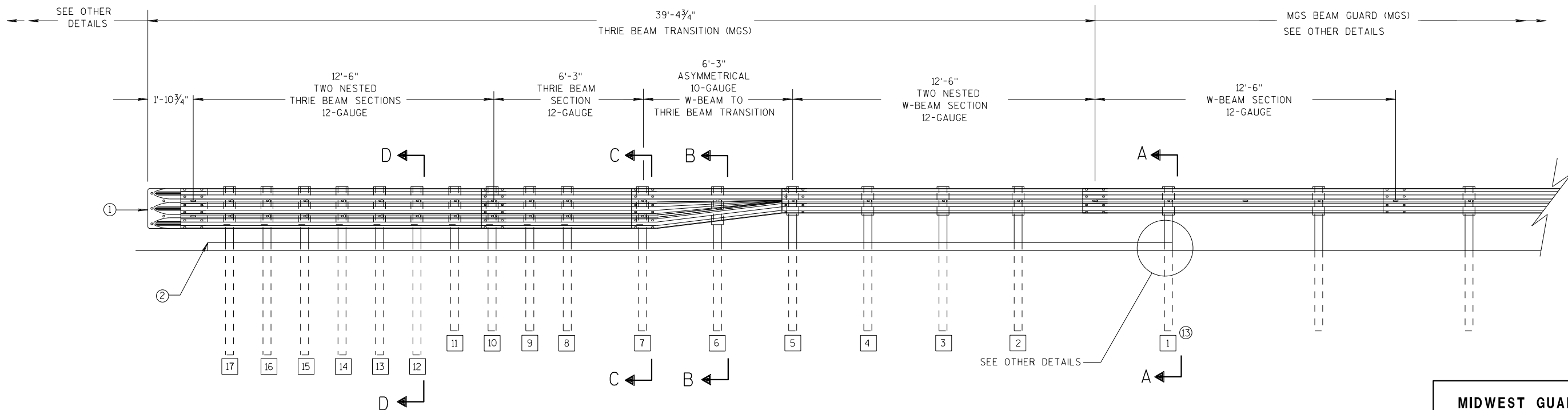
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

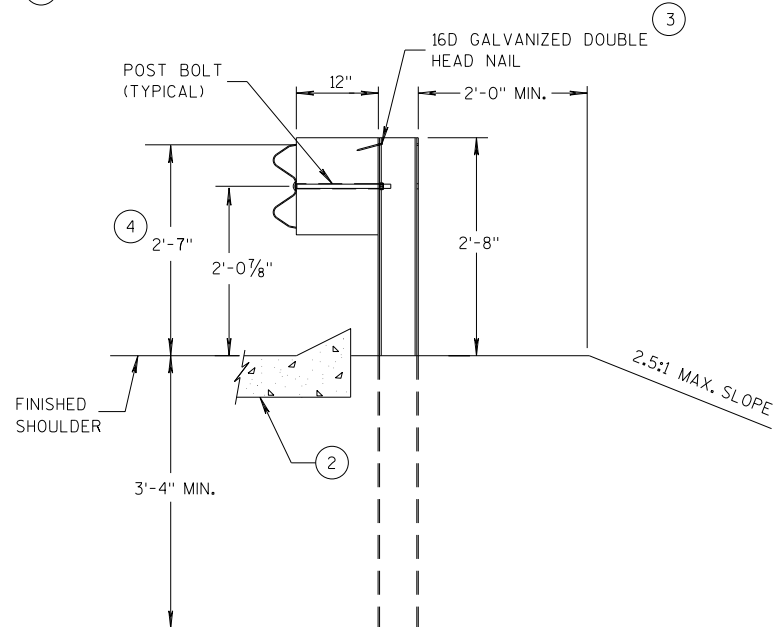
6

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

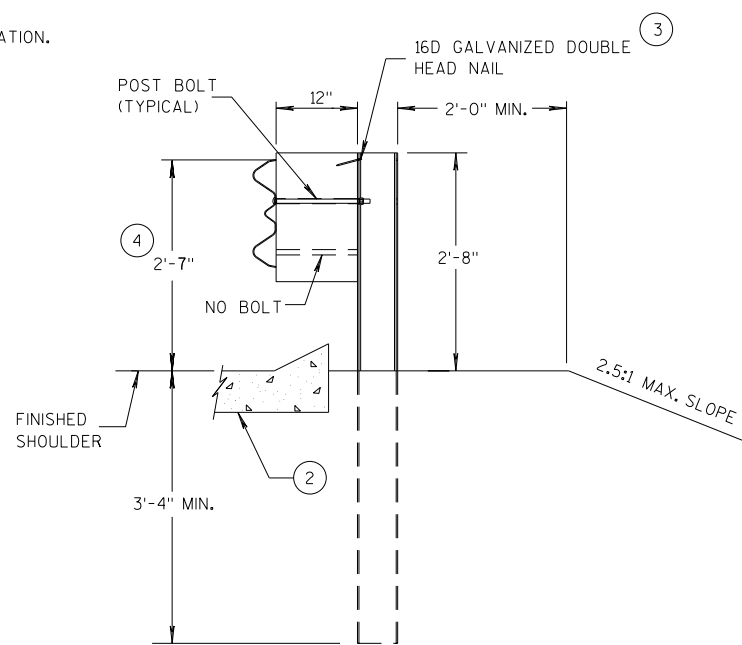
S.D.D. 14 B 45-5a

GENERAL NOTES

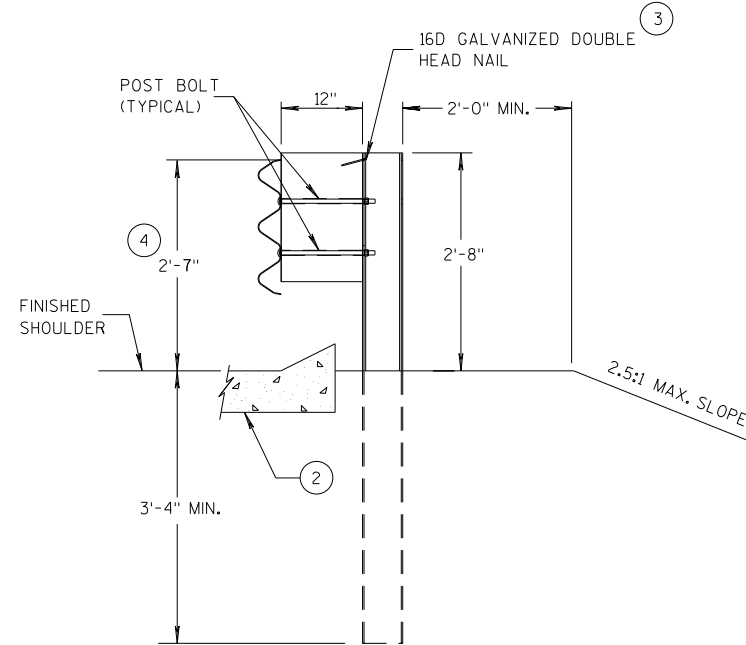
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



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



**SECTION B-B
POST 6**



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

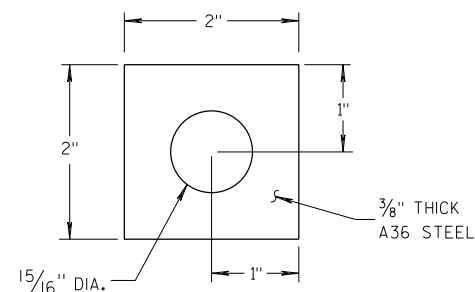
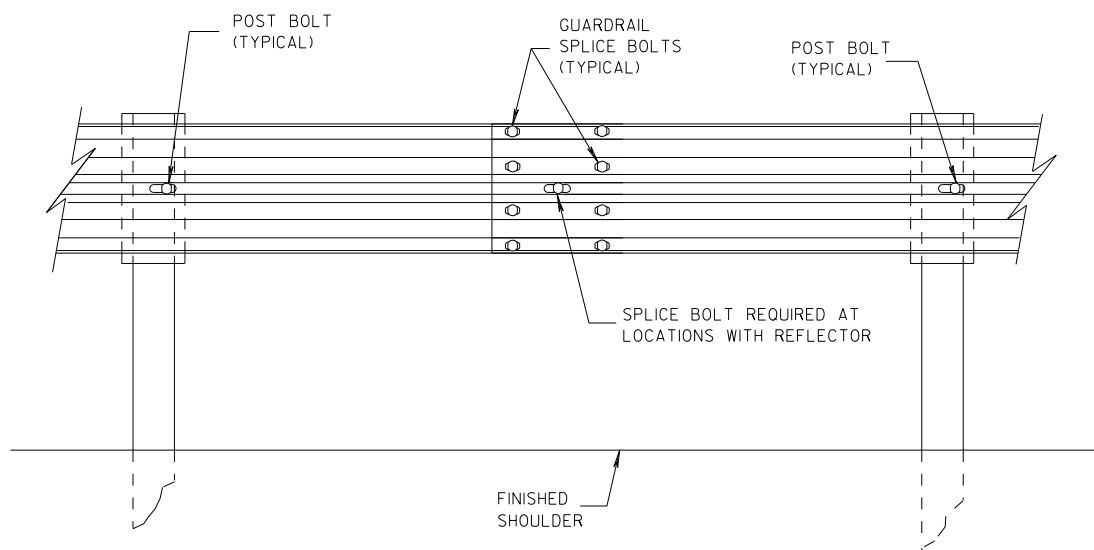
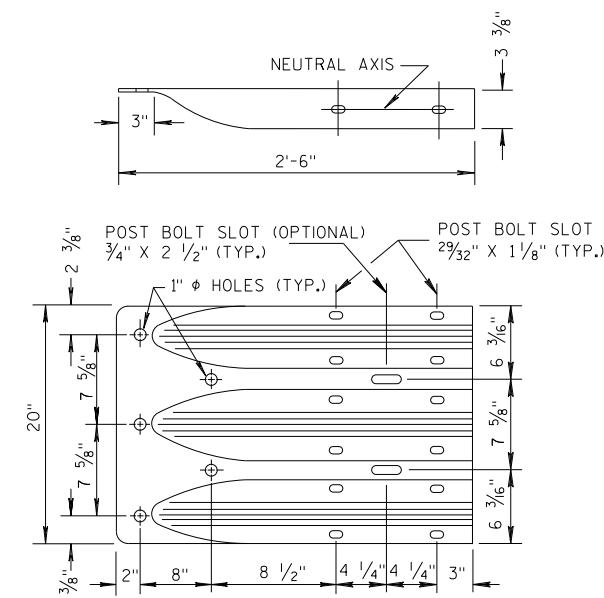


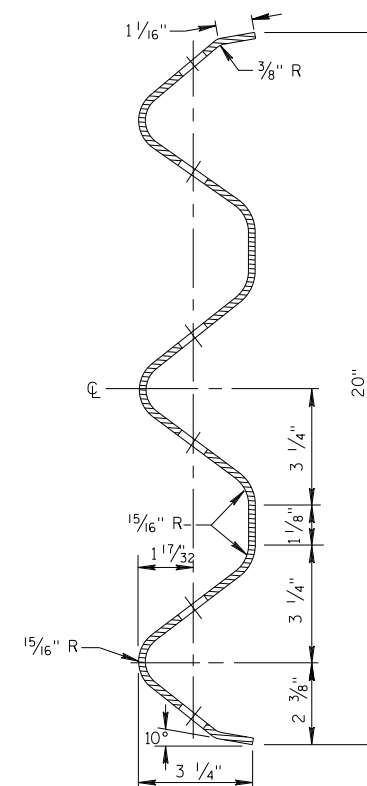
PLATE WASHER DETAIL



SPlice DETAIL



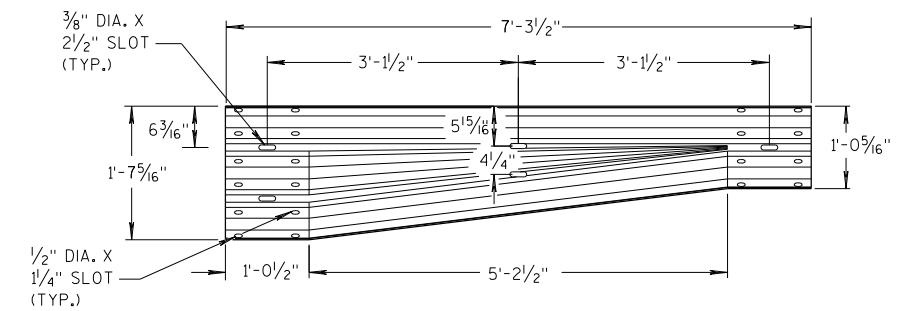
**THRIE BEAM
TERMINAL CONNECTOR**



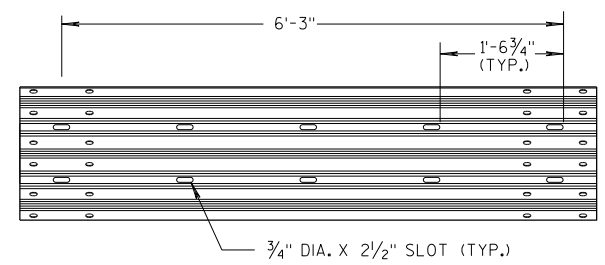
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

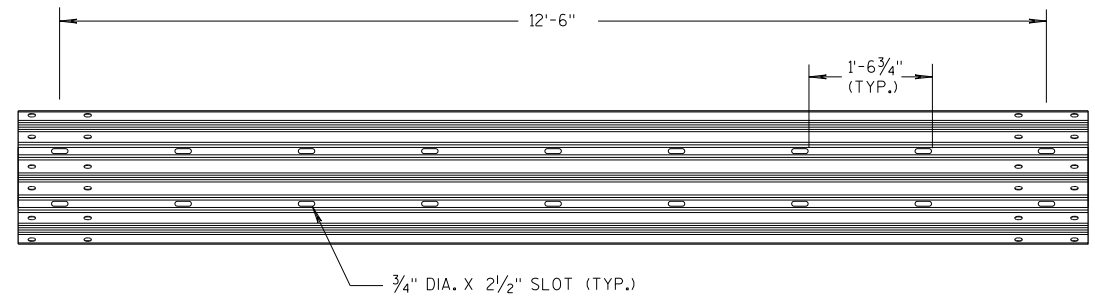
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



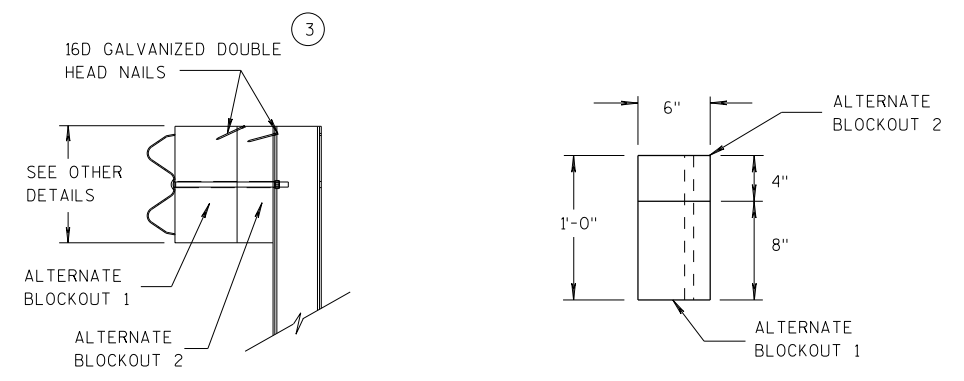
W-BEAM TO THRIE BEAM TRANSITION SECTION



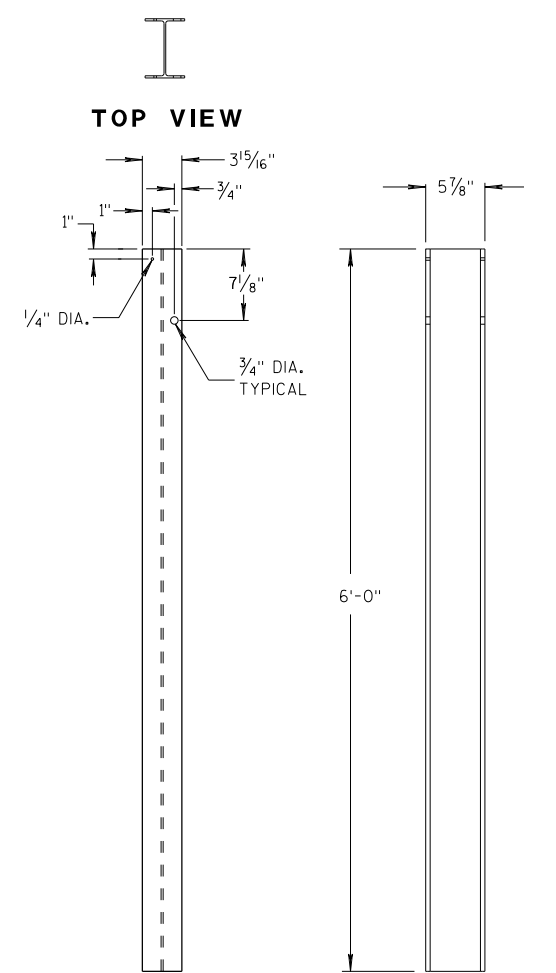
6'-3\"/>



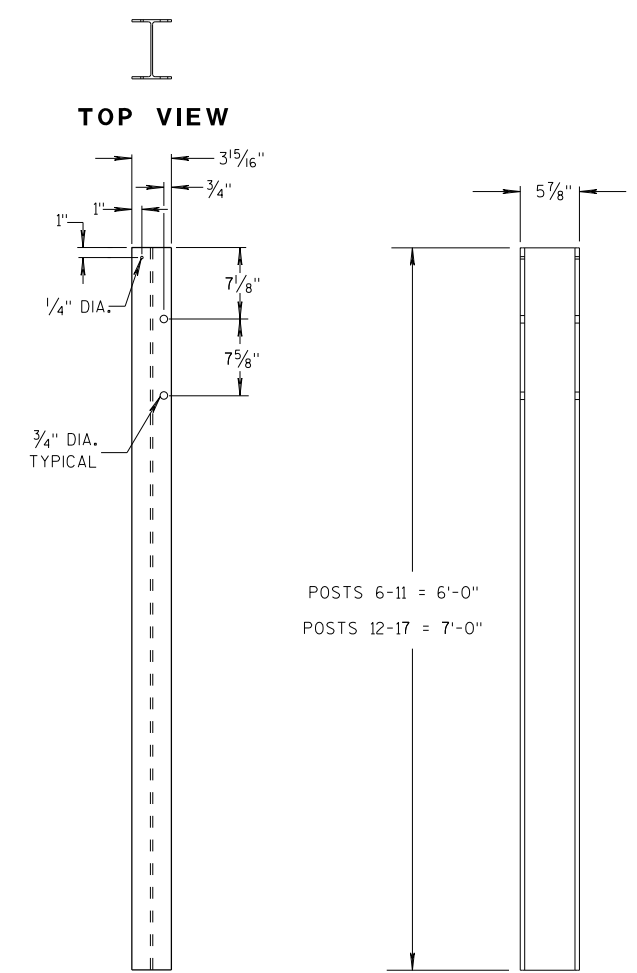
12'-6\"/>



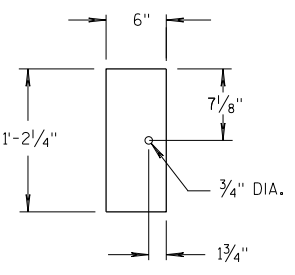
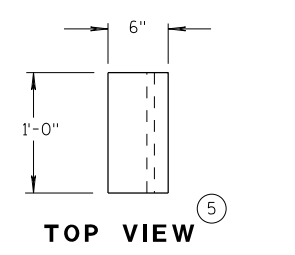
ALTERNATE WOOD BLOCKOUT DETAIL



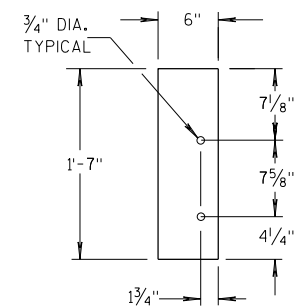
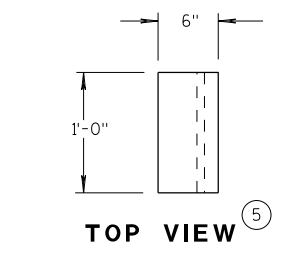
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

GENERAL NOTES

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

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

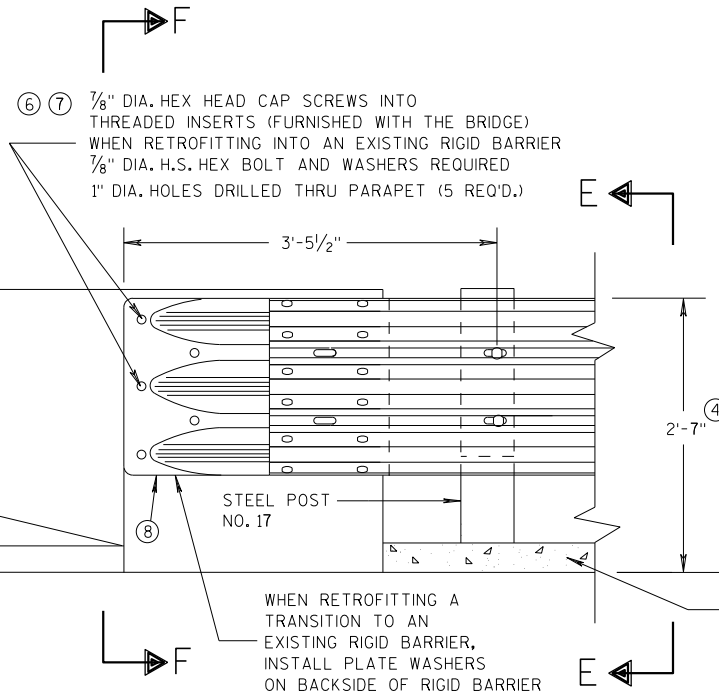
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

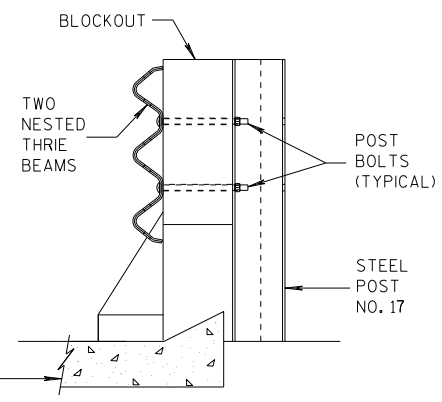
S.D.D. 14 B 45-5c

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



FRONT VIEW

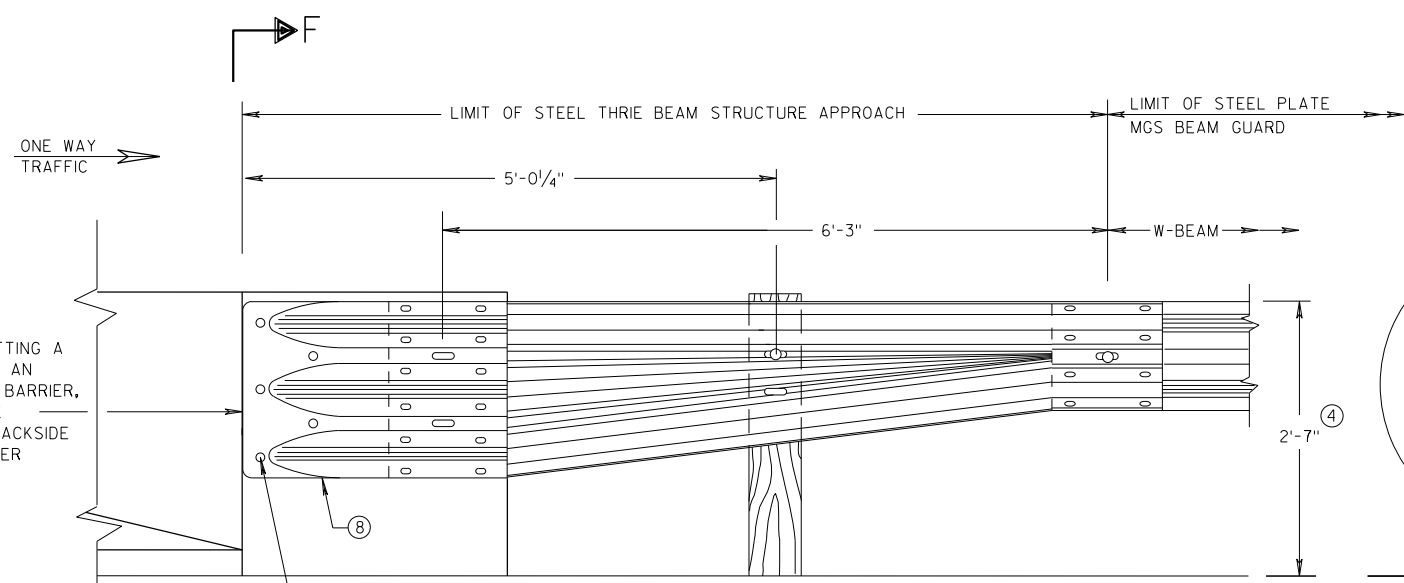
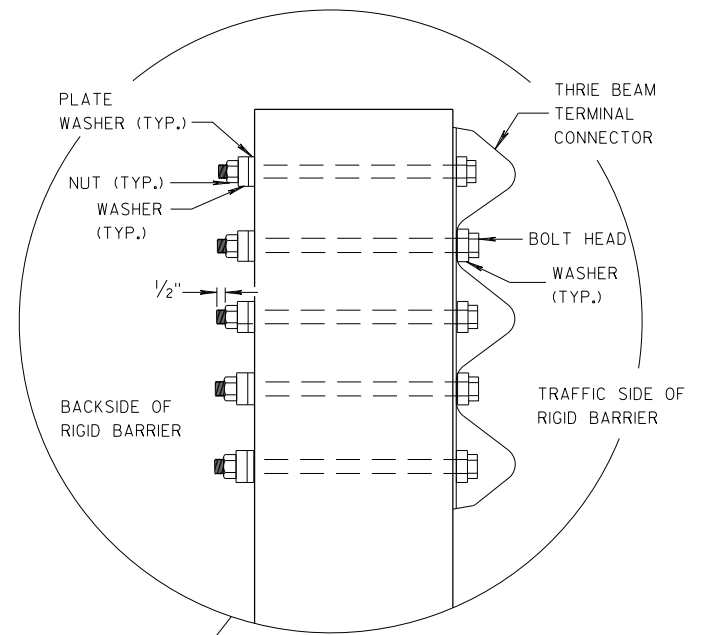
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



SECTION E-E

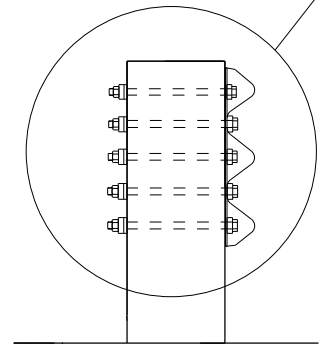
GENERAL NOTES

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

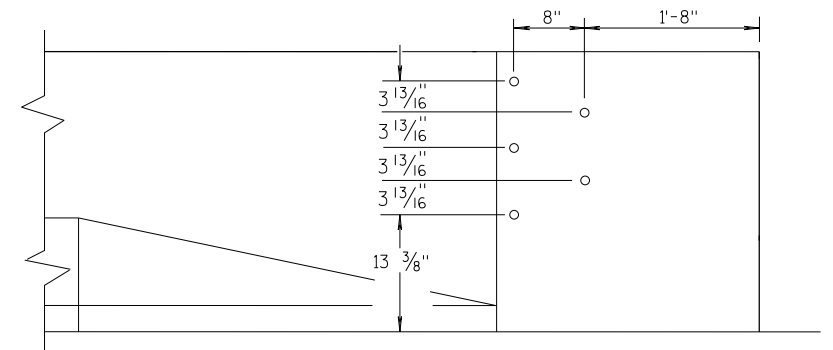


FRONT VIEW

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



SECTION F-F



DRILL HOLE LOCATION

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

6

6

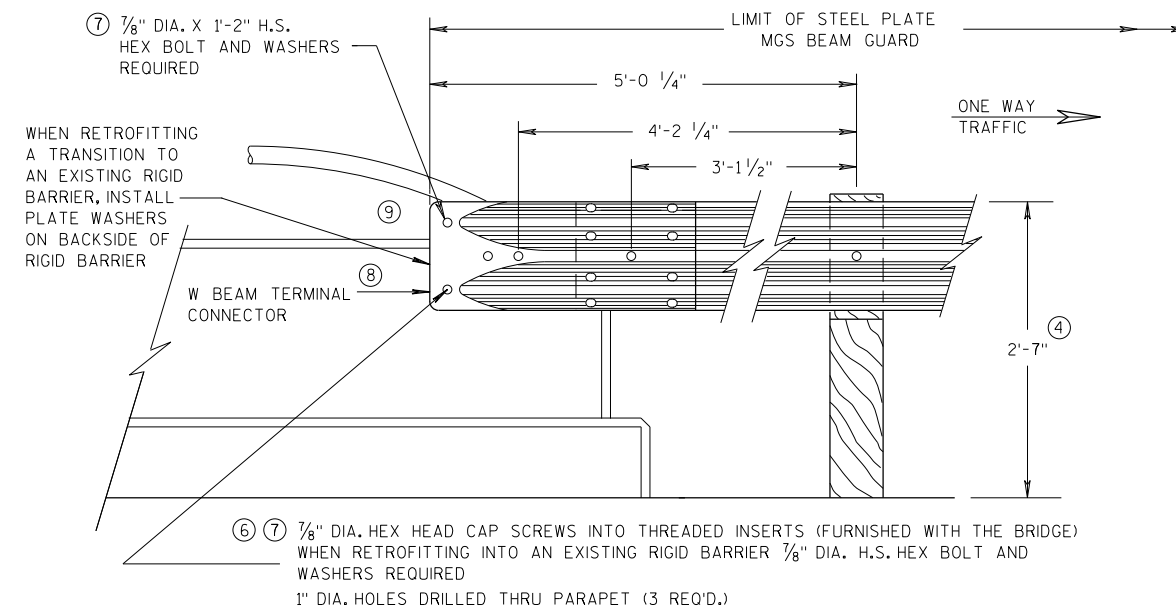
S.D.D. 14 B 45-5d

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

GENERAL NOTES

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

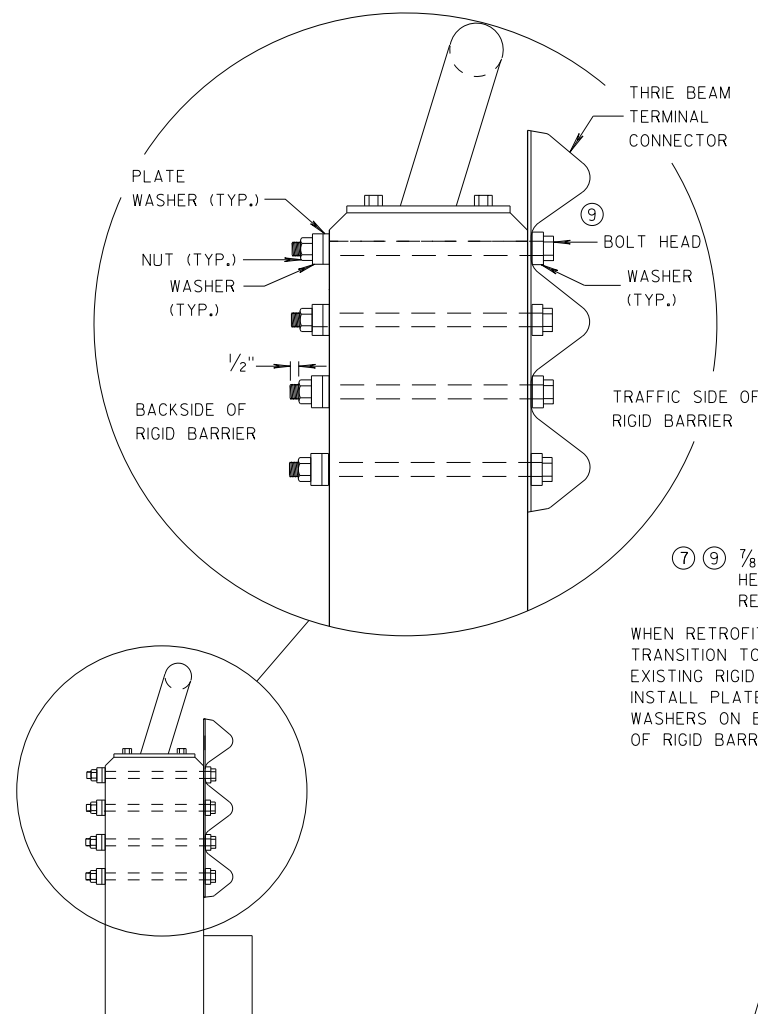
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



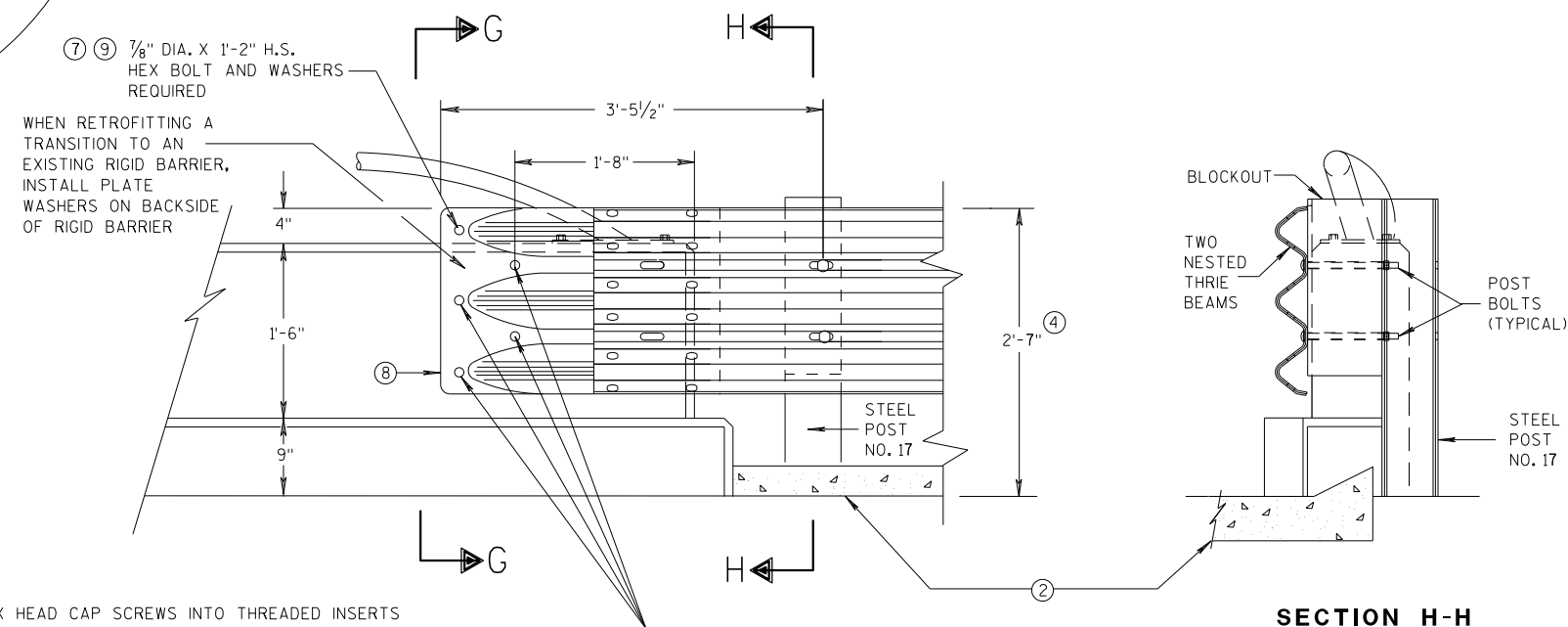
FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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



SECTION G-G



FRONT VIEW

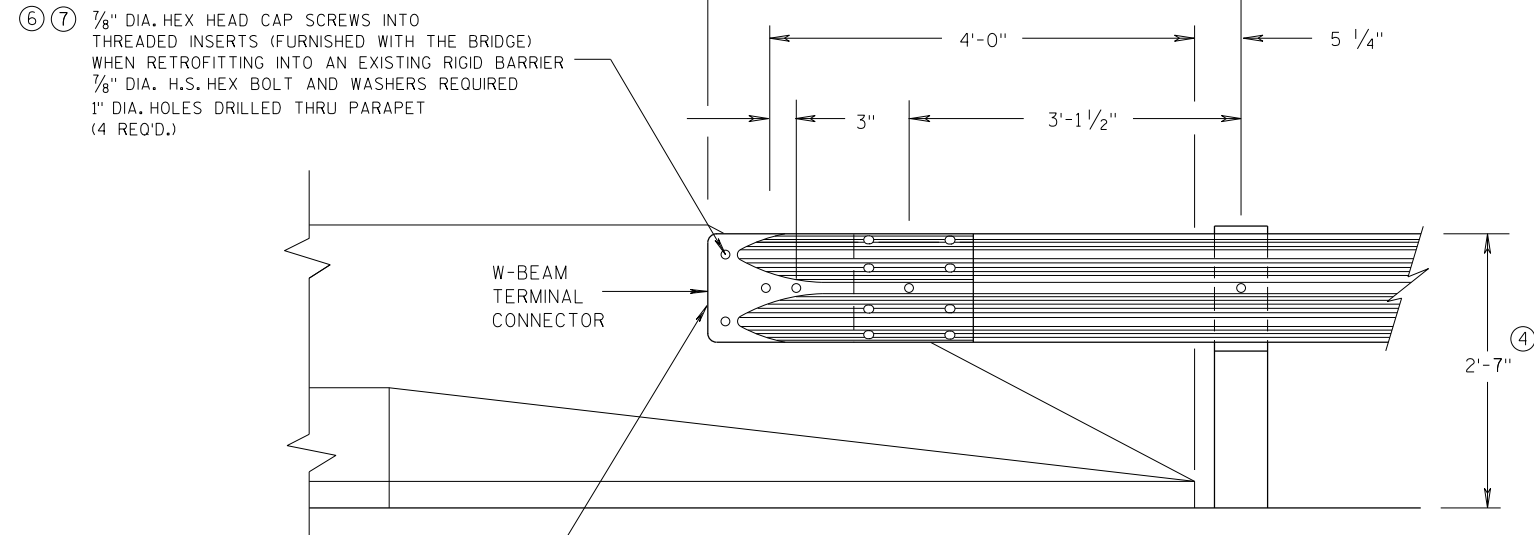
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

ONE WAY
TRAFFIC



FRONT VIEW

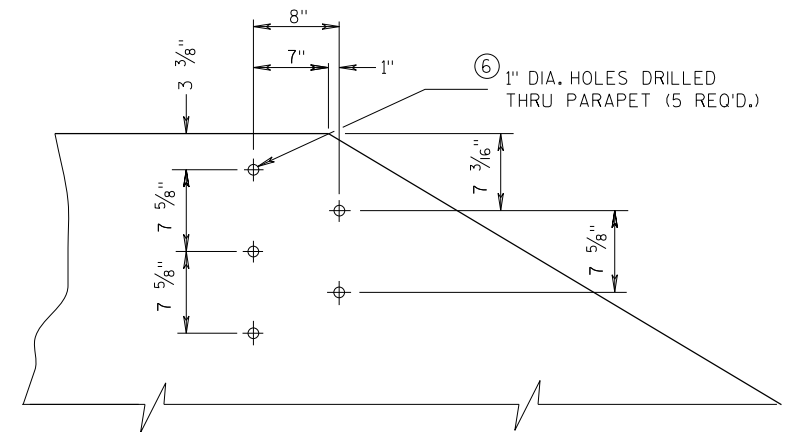
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

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

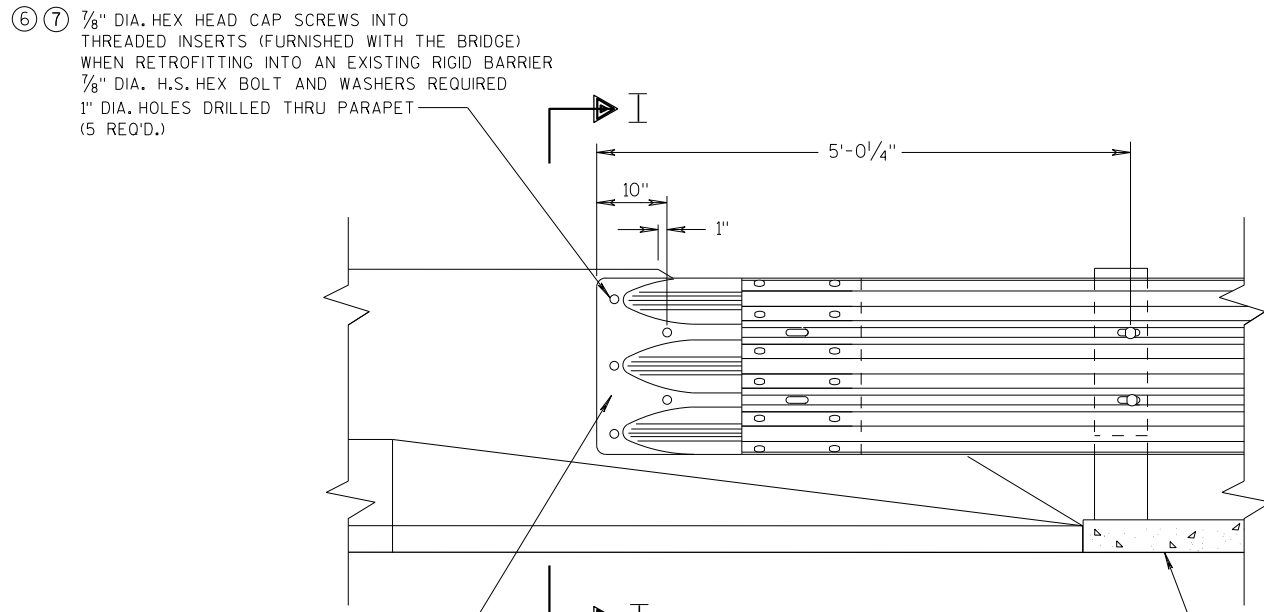
WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

GENERAL NOTES

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



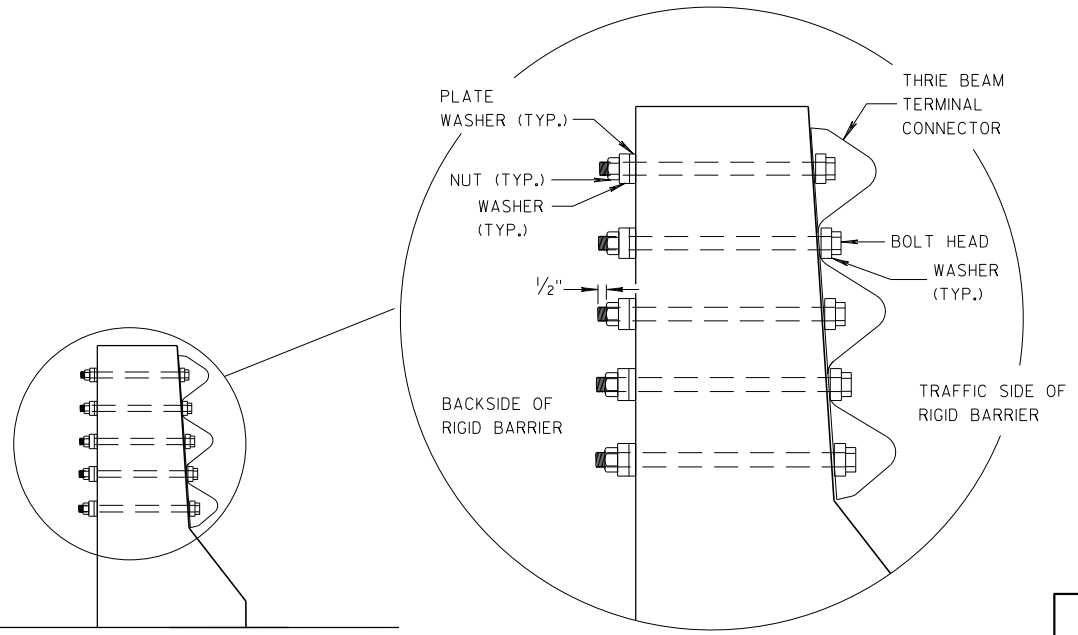
**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**



FRONT VIEW

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

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

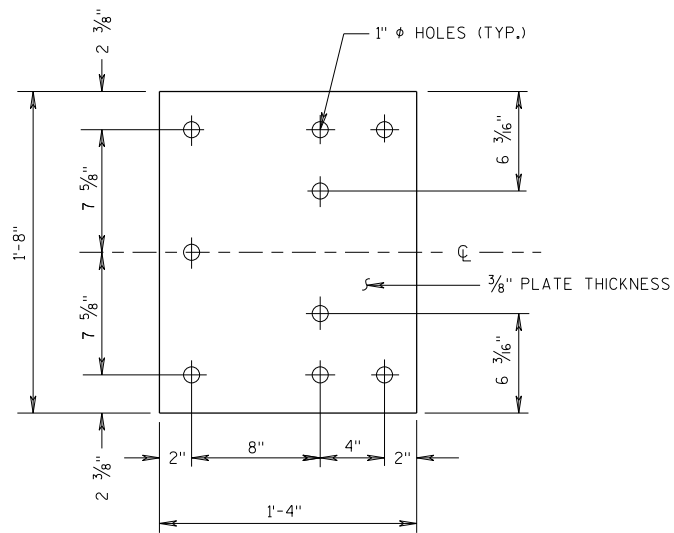


SECTION I-I

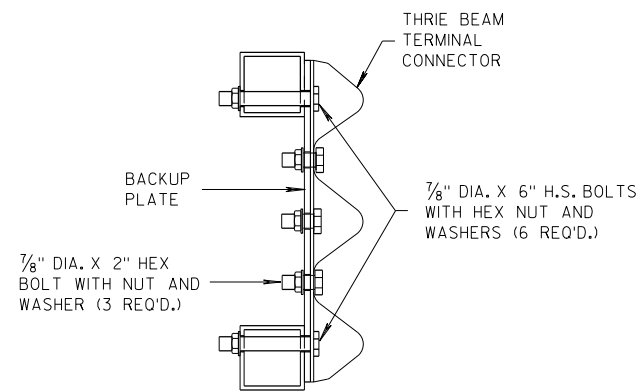
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

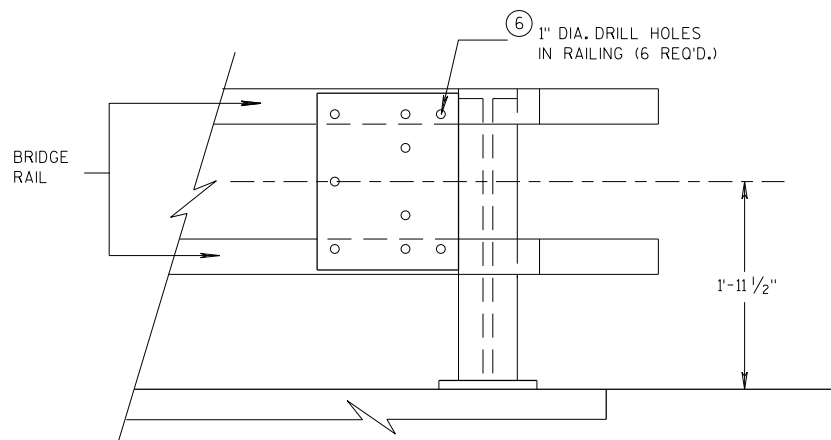
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



BACK-UP PLATE DETAIL



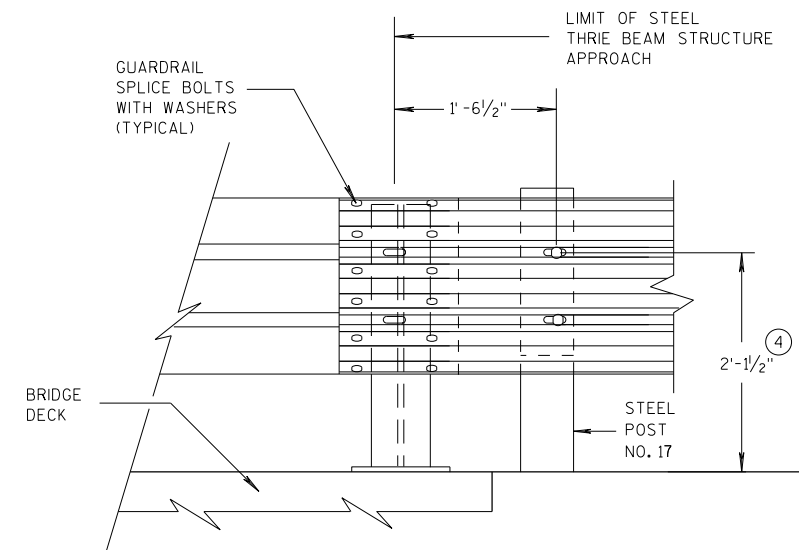
SECTION J-J



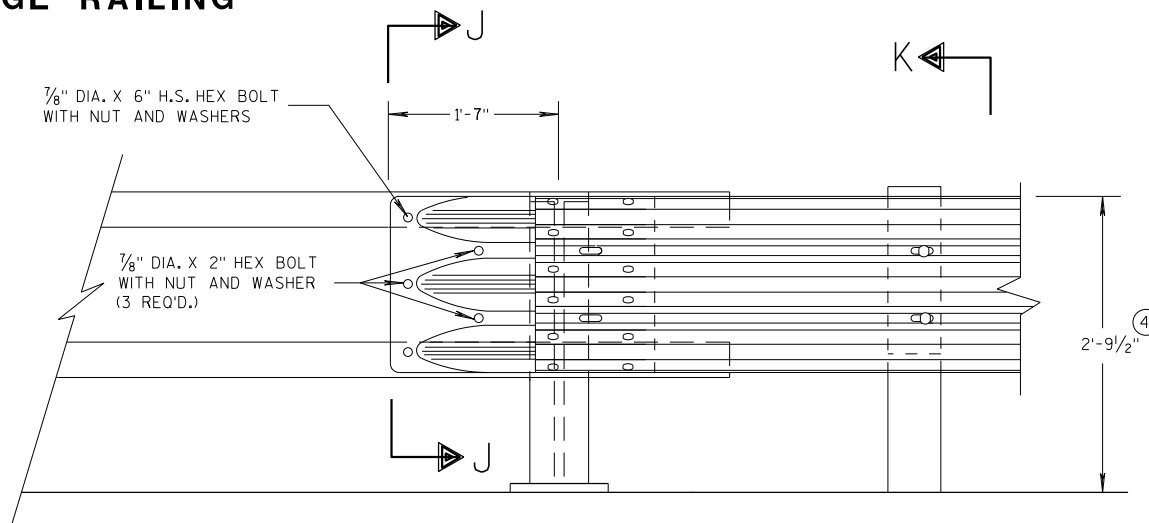
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

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

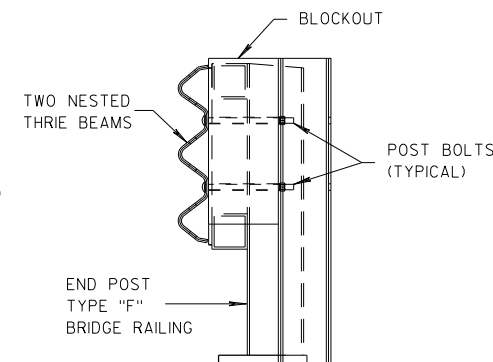


FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

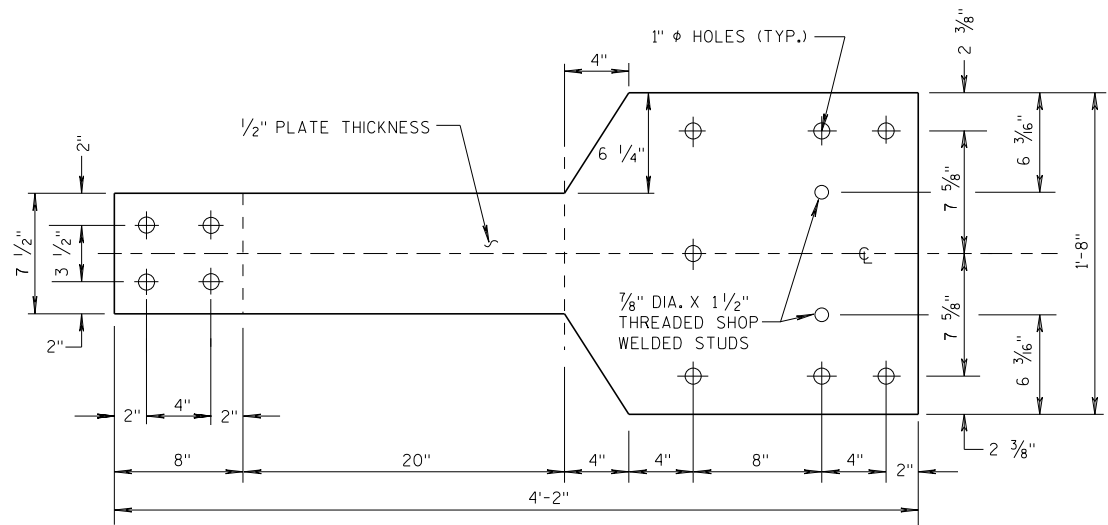
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

6

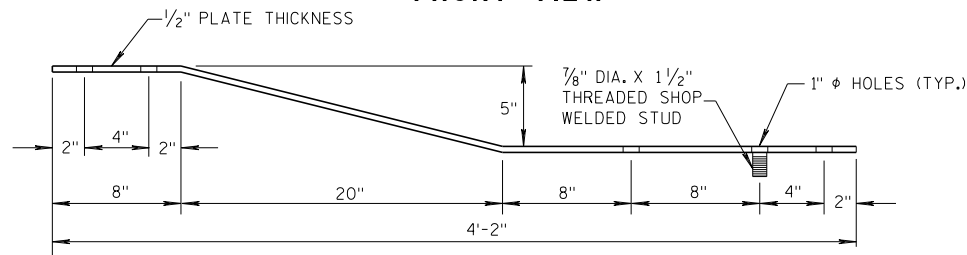
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GENERAL NOTES

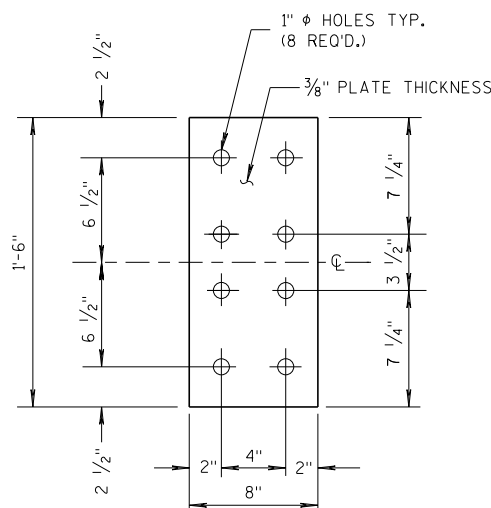
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

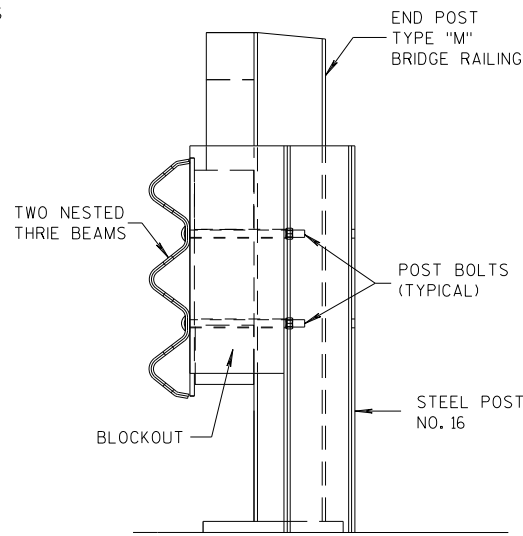


**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**

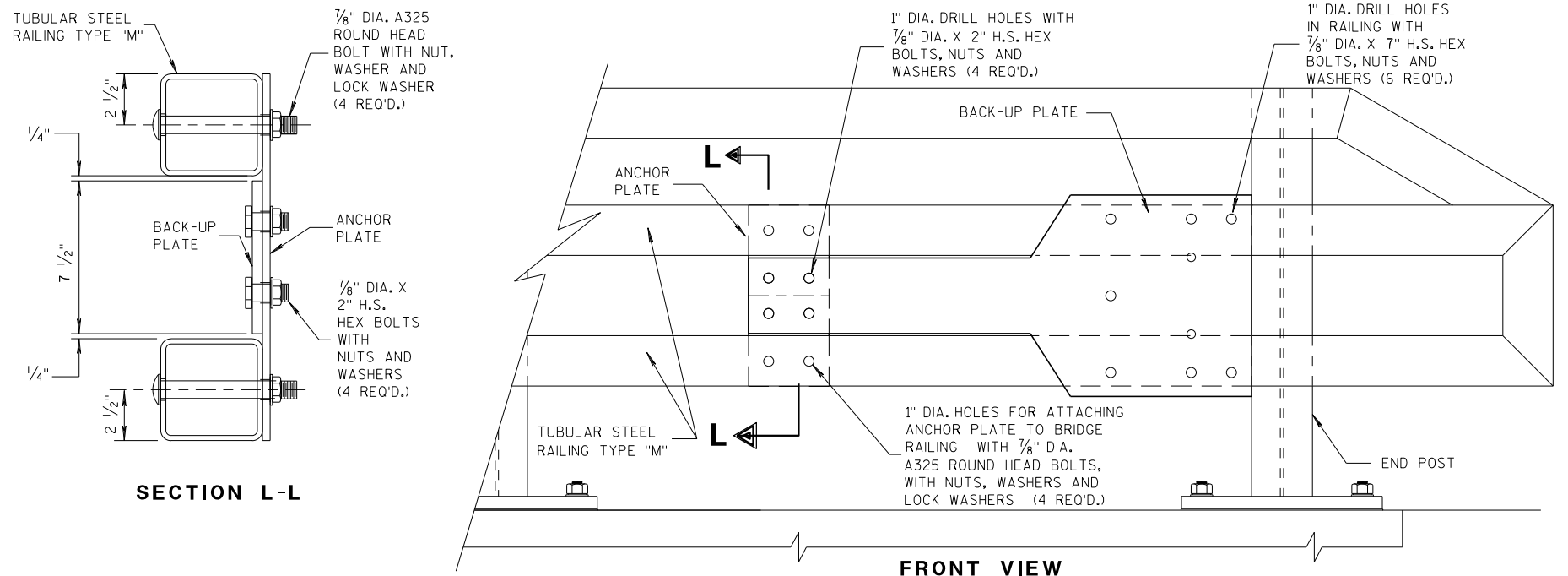


FRONT VIEW

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



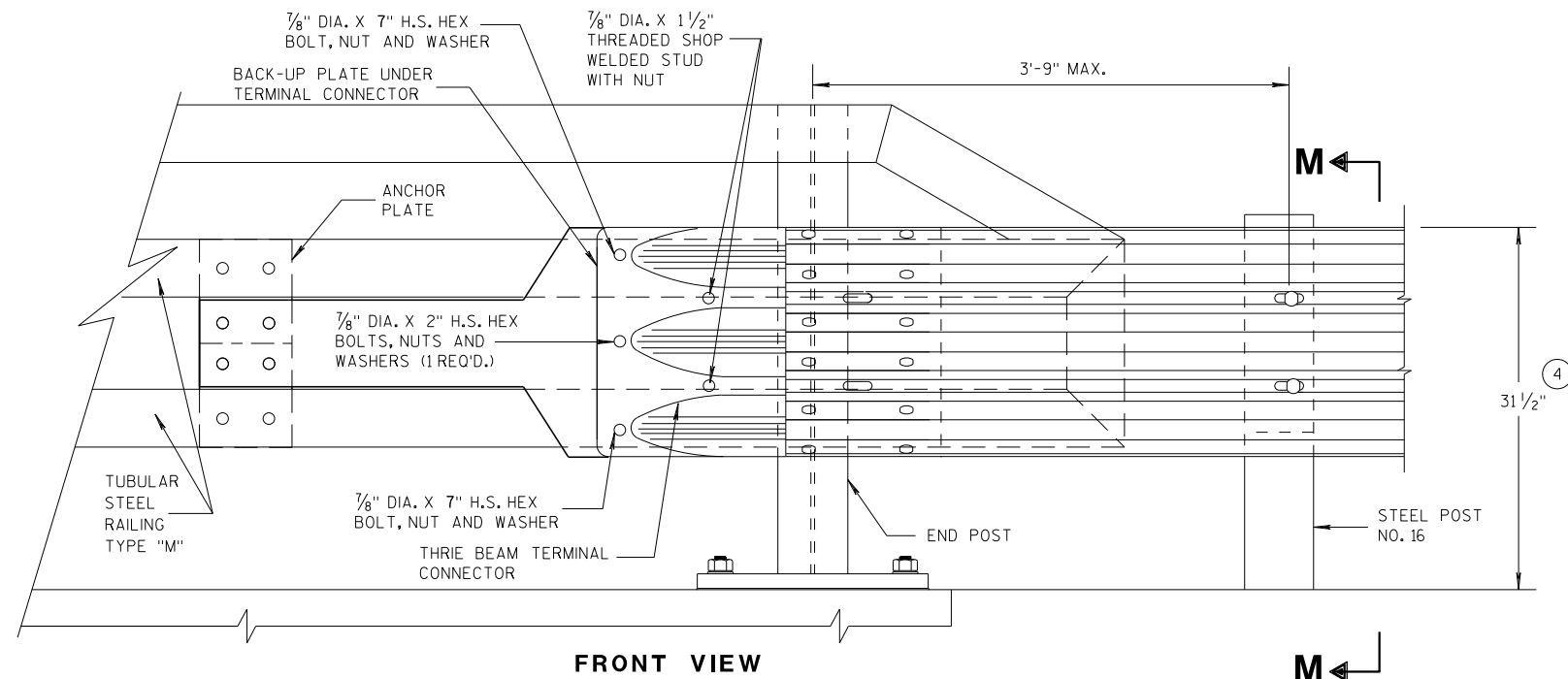
SECTION M-M



SECTION L-L

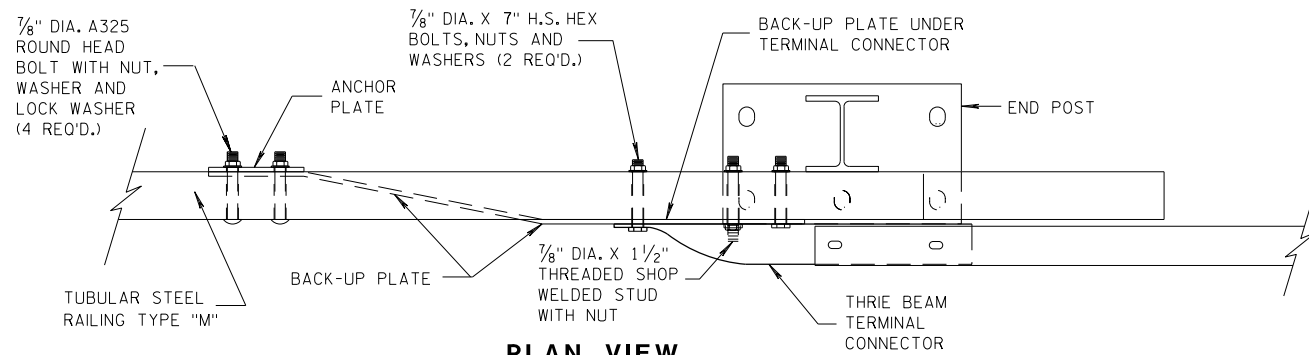
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

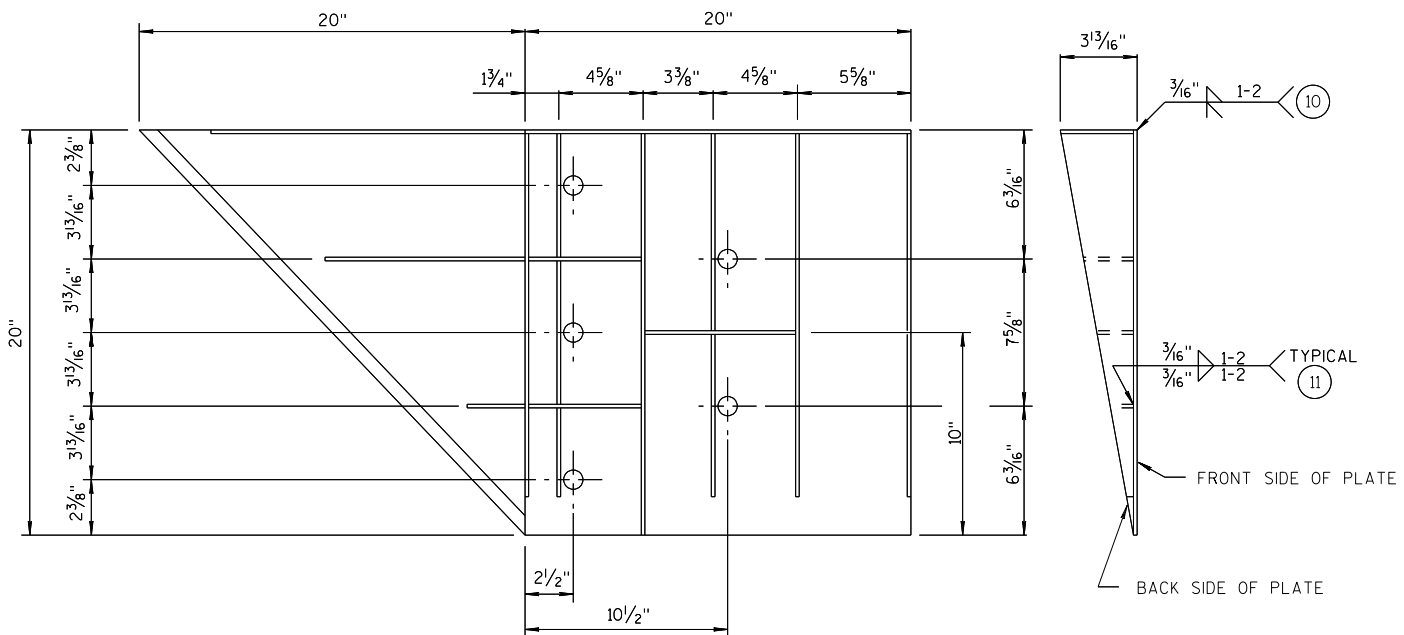
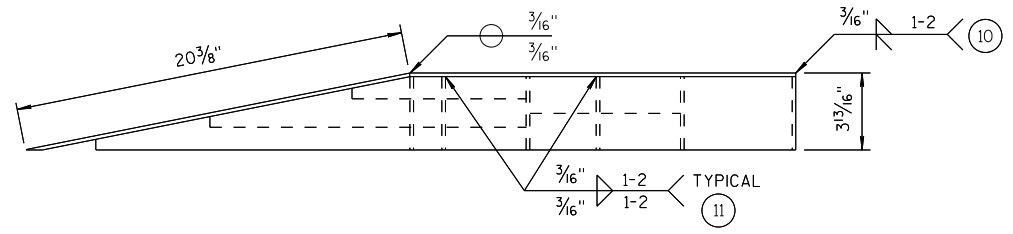
APPROVED
07/2018
DATE
FHWA

/s/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

GENERAL NOTES

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

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



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

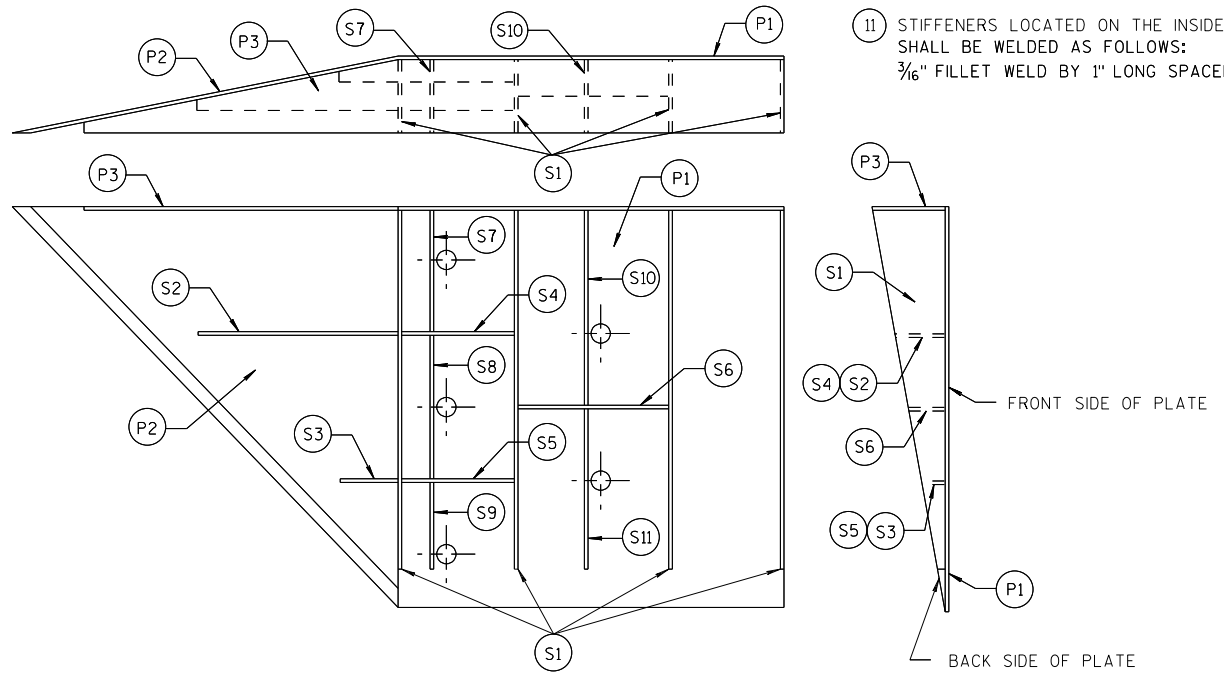


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

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

SINGLE SLOPE CONNECTION PLATE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

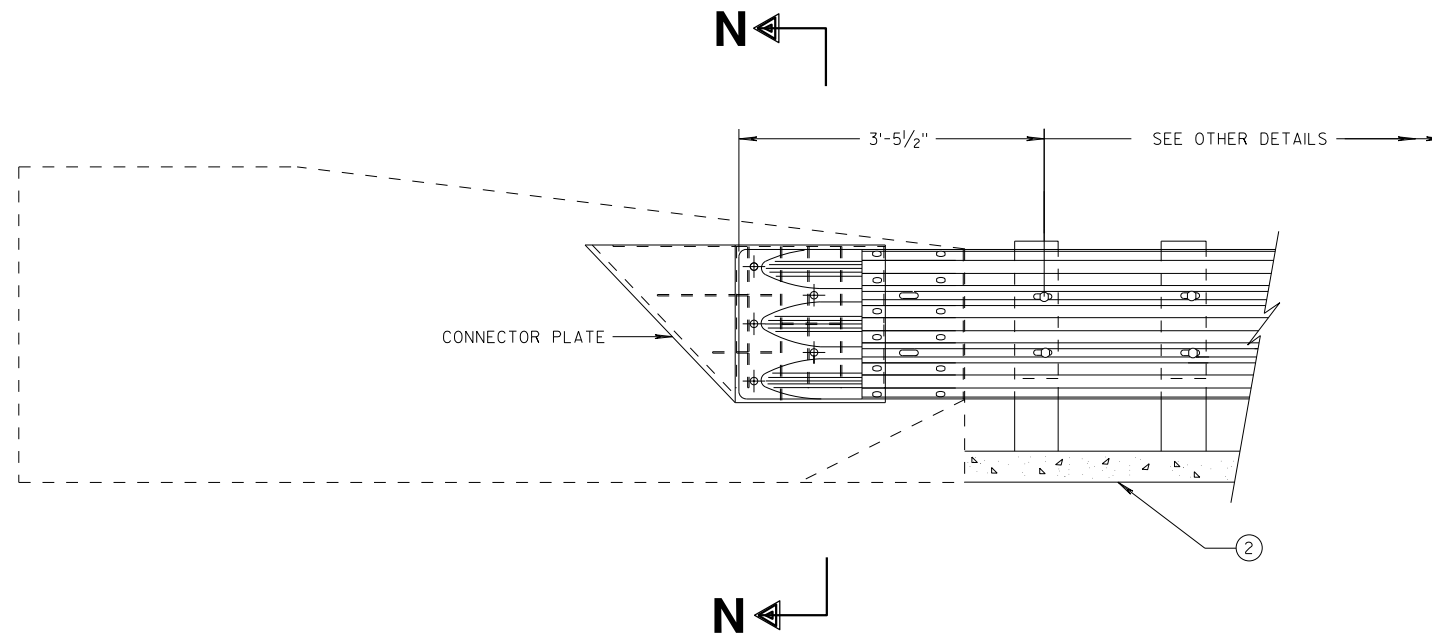
APPROVED: _____ /S/ Rodney Taylor
DATE: 7/2018 ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

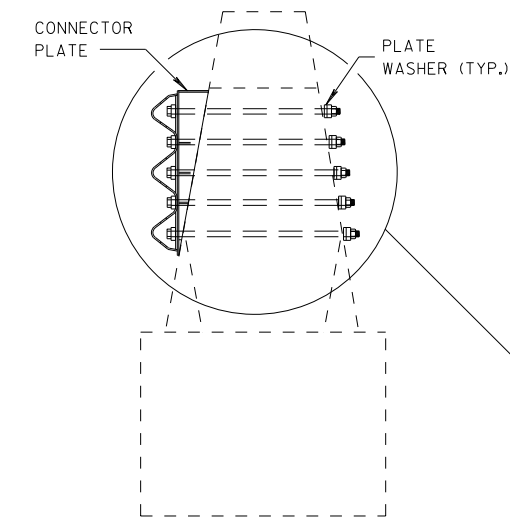
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

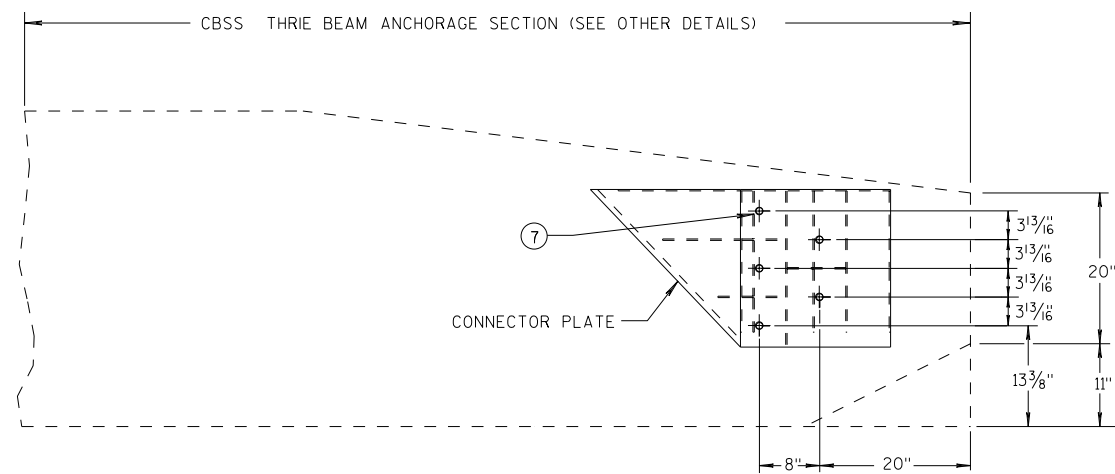
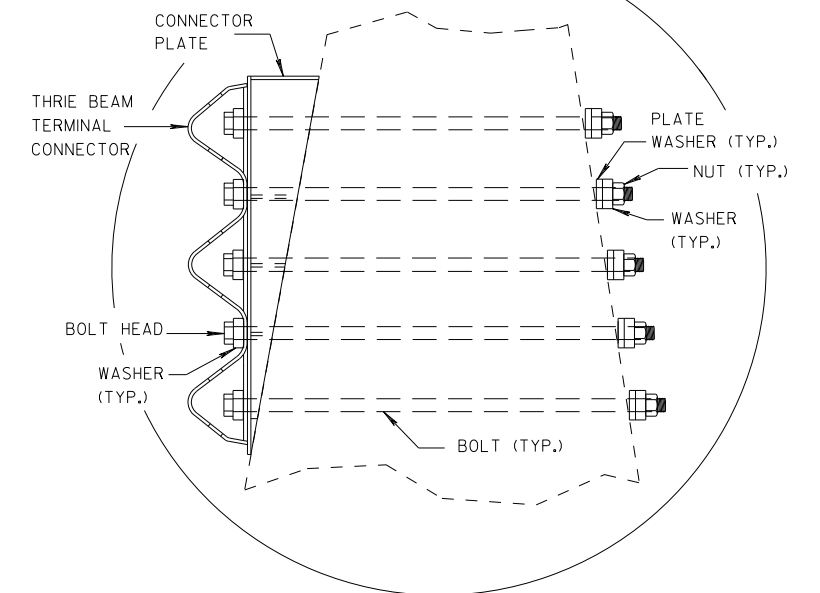
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. 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.



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

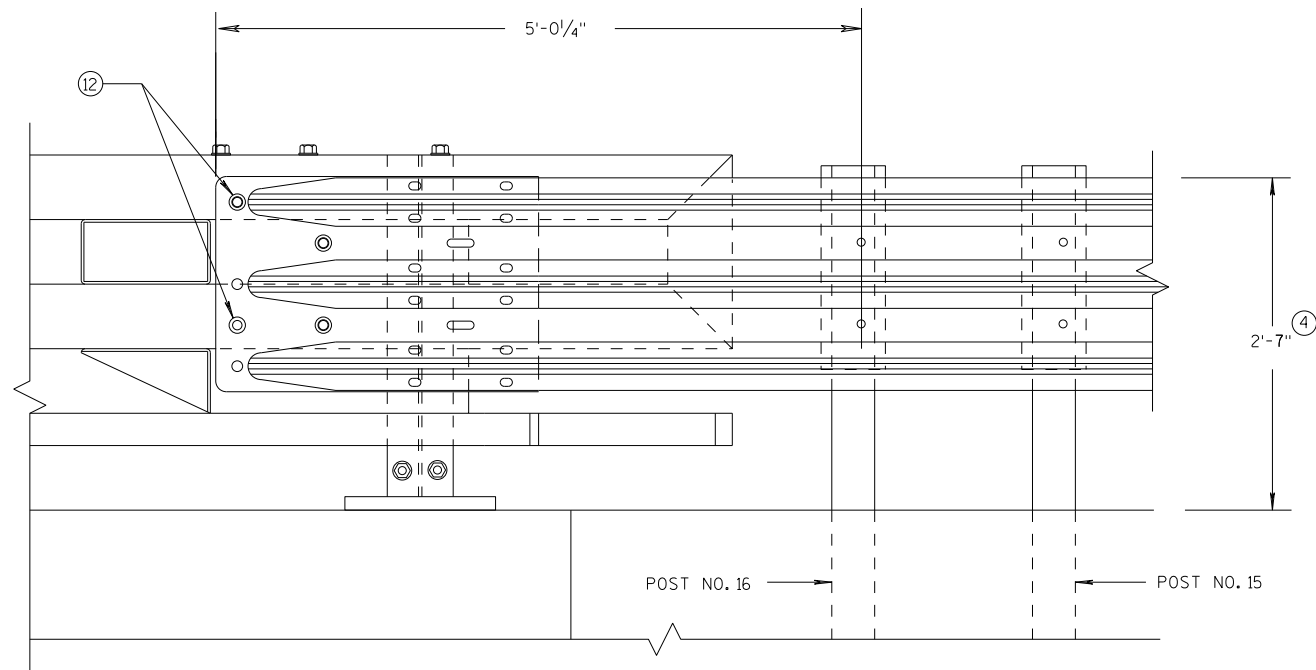


SINGLE SLOPE CONNECTION PLATE PLACEMENT

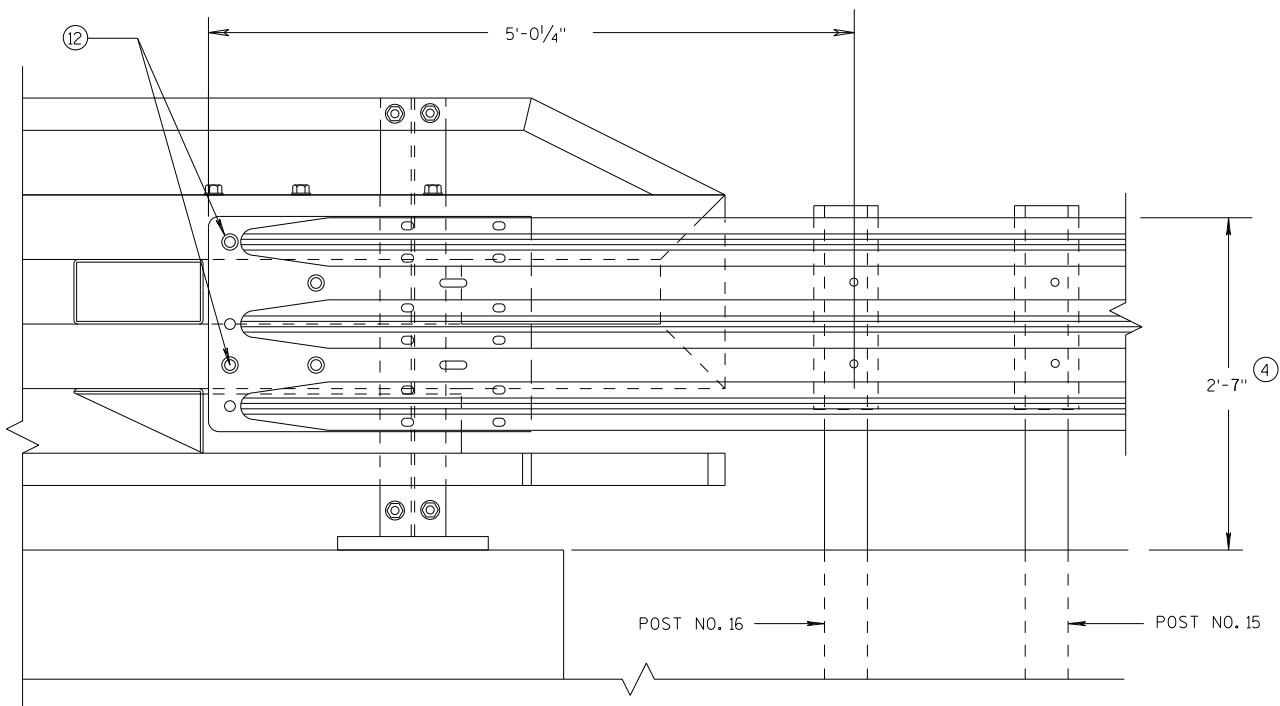
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



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

GENERAL NOTES

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

6

6

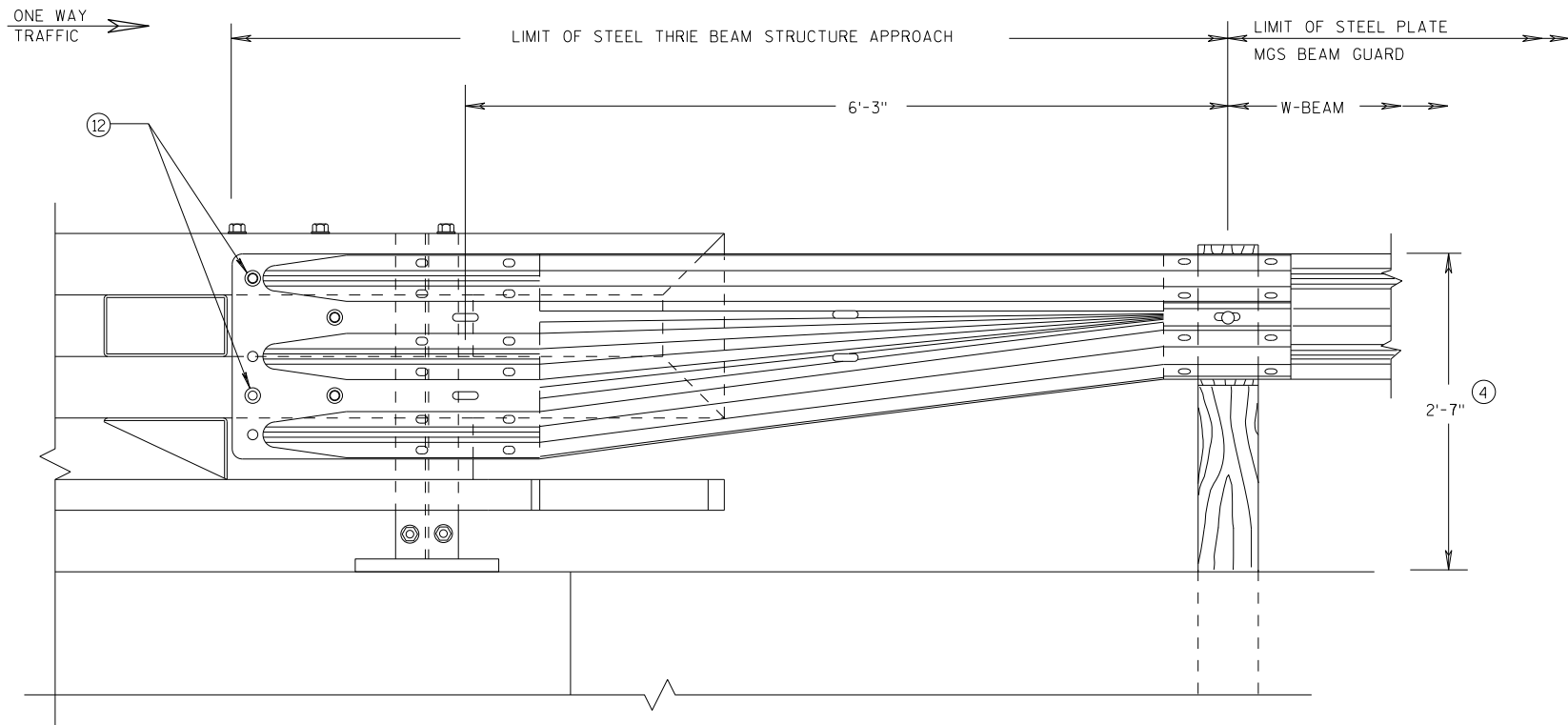
S.D.D. 14 B 45-5k

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

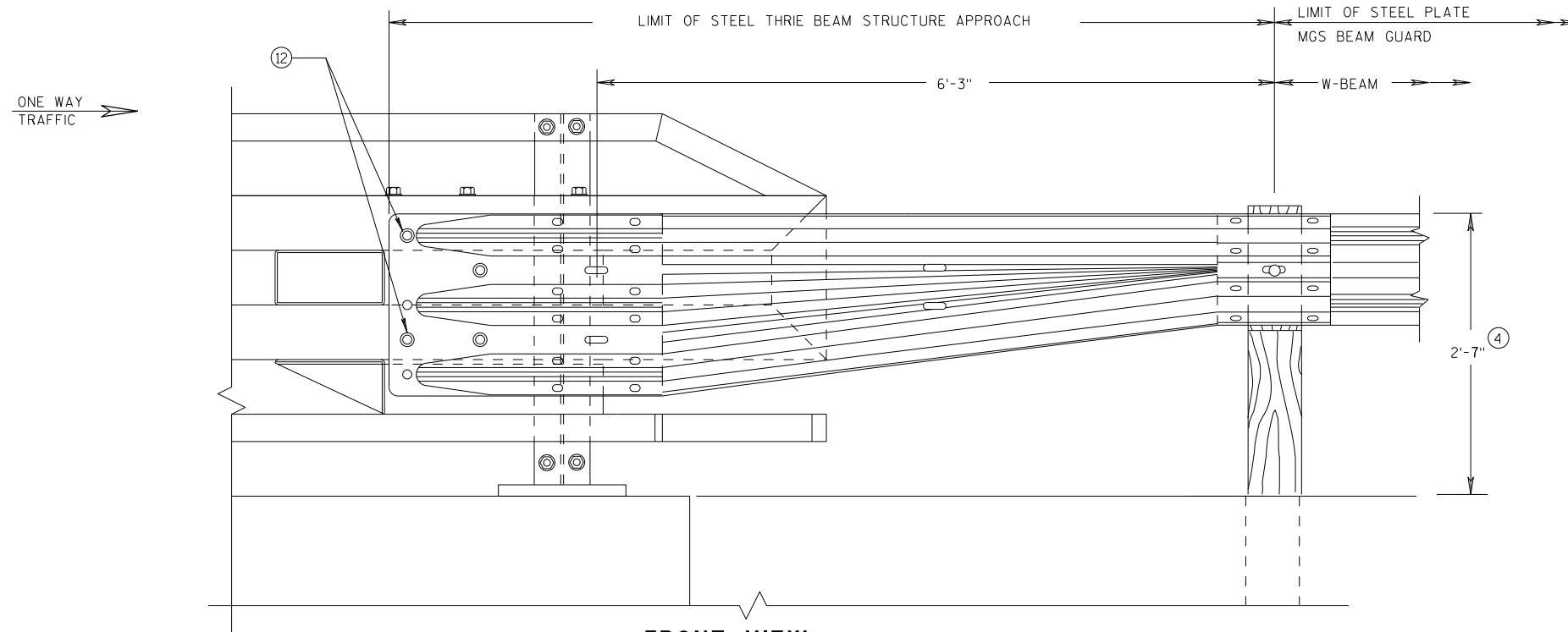
APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



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

GENERAL NOTES

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



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

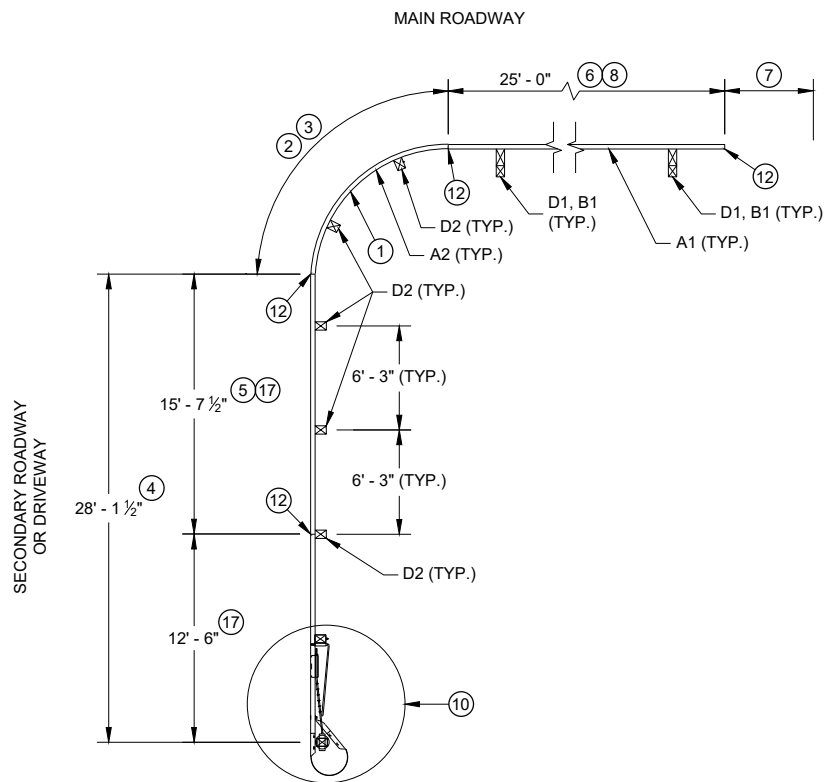
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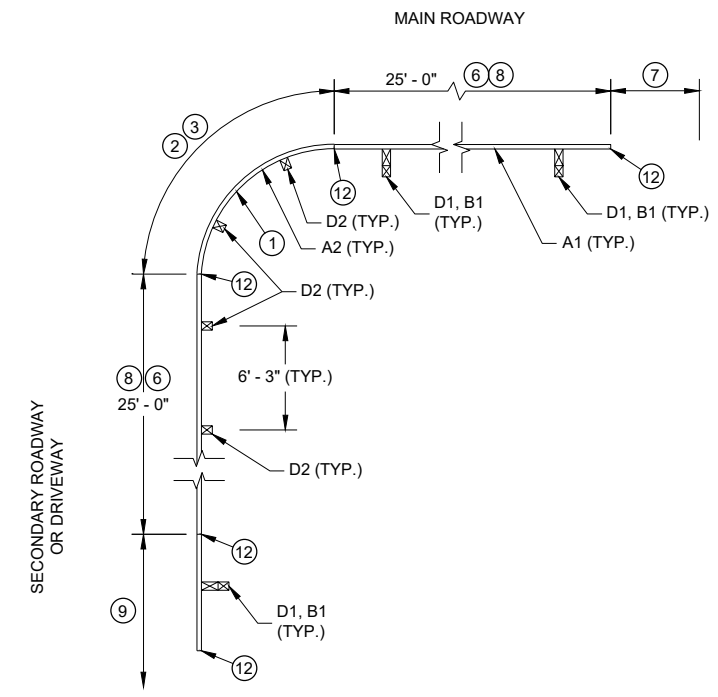
S.D.D. 14 B 45-5L

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

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



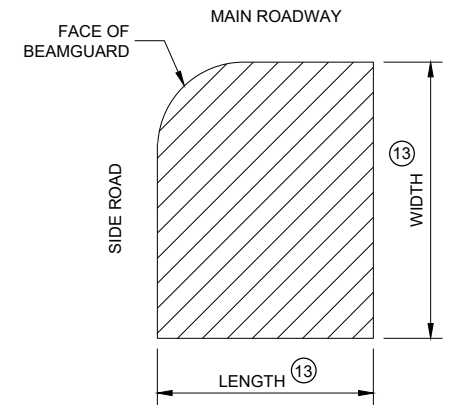
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



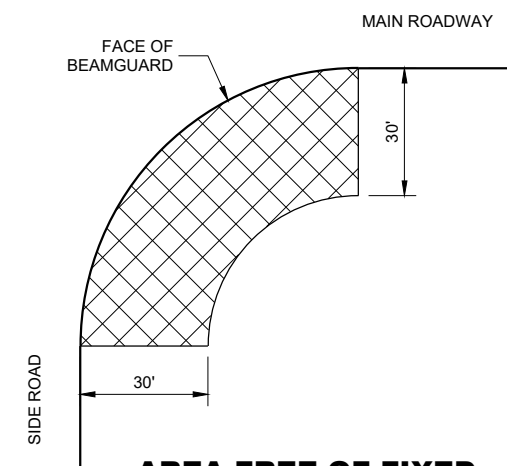
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY

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

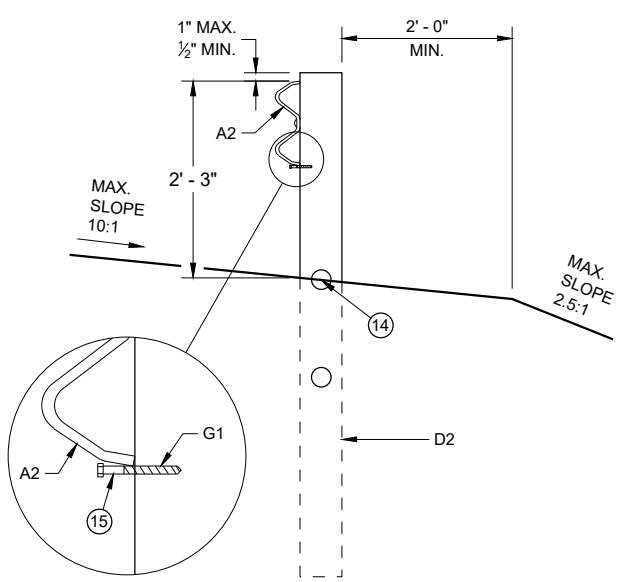


AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'

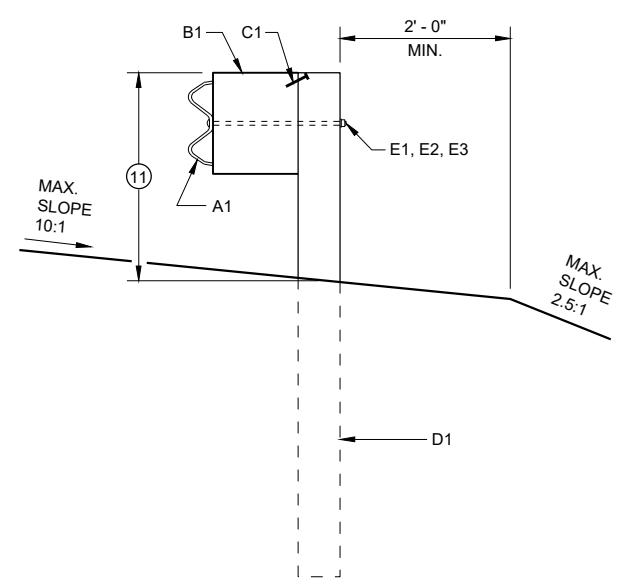
GENERAL NOTES

- 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.

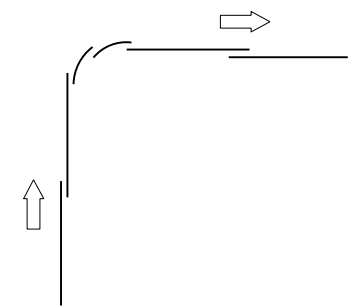
- ① RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- ② CONTROLLED RELEASE TERMINAL (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 5/8" 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).



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



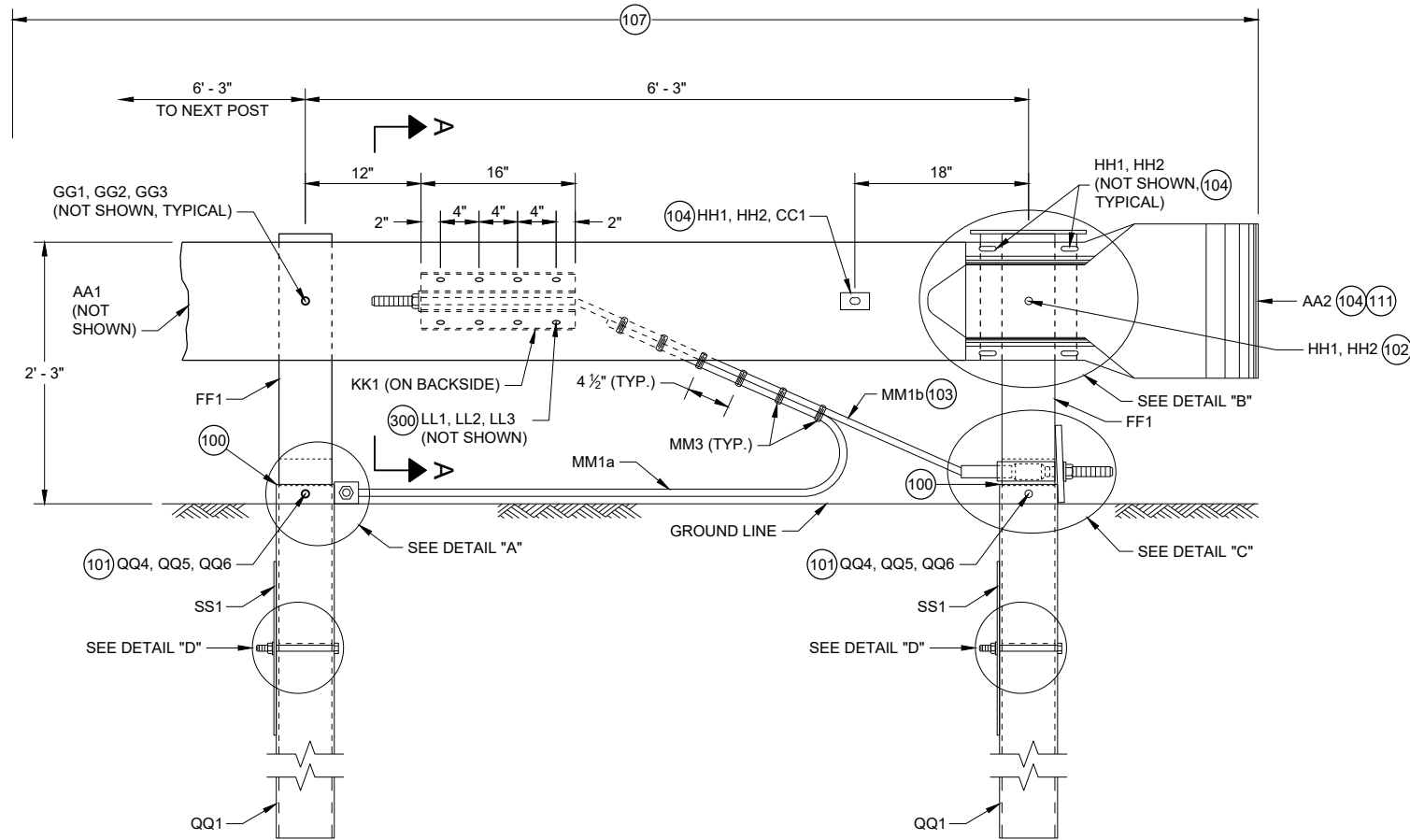
BEAM GUARD POSTS
IN HEIGHT TRANSITION



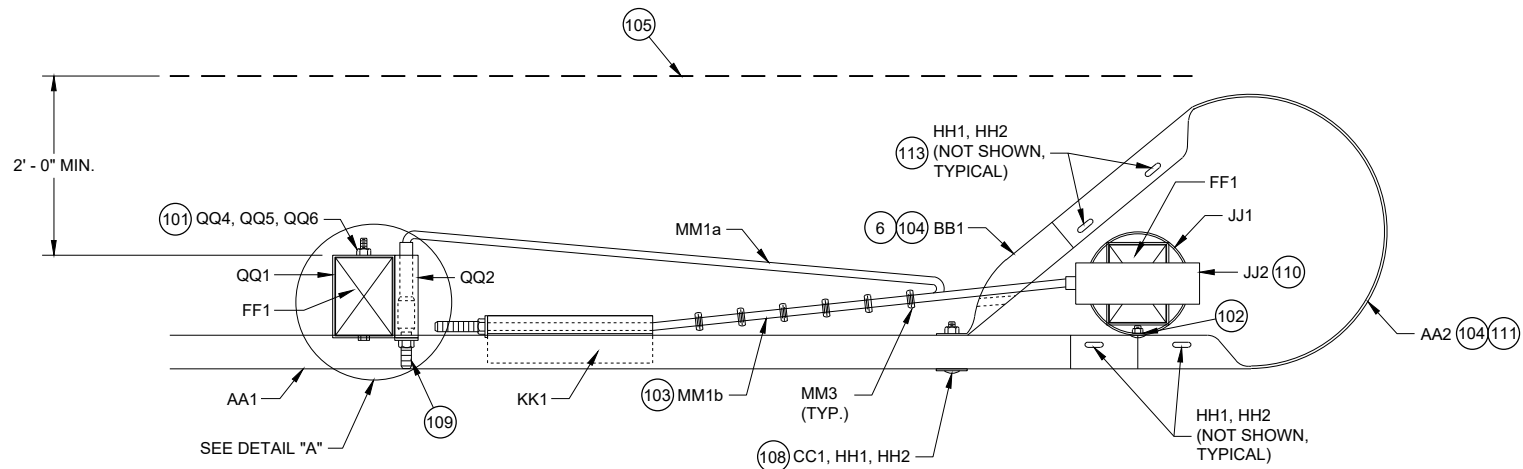
LAP SPLICE DETAIL

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

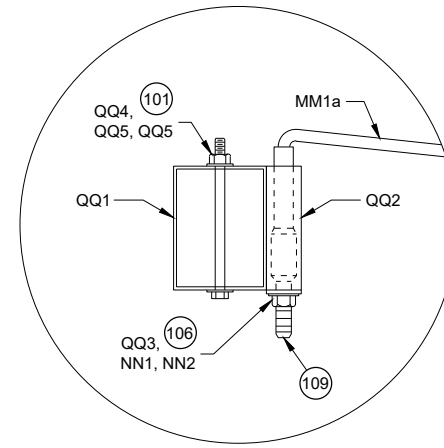
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



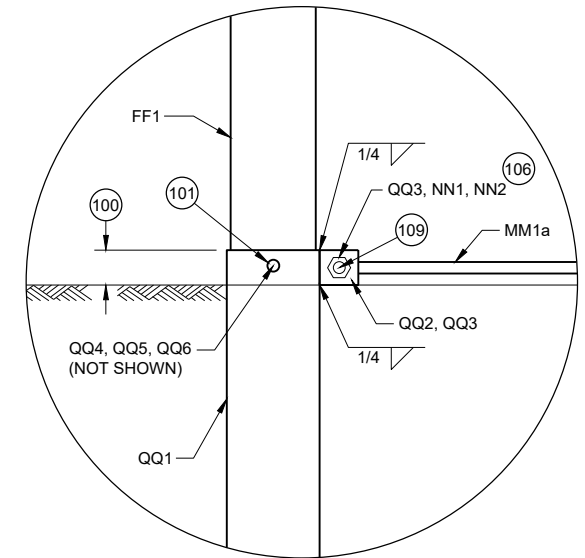
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



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



**PROFILE VIEW
DETAIL "A"**

GENERAL NOTES

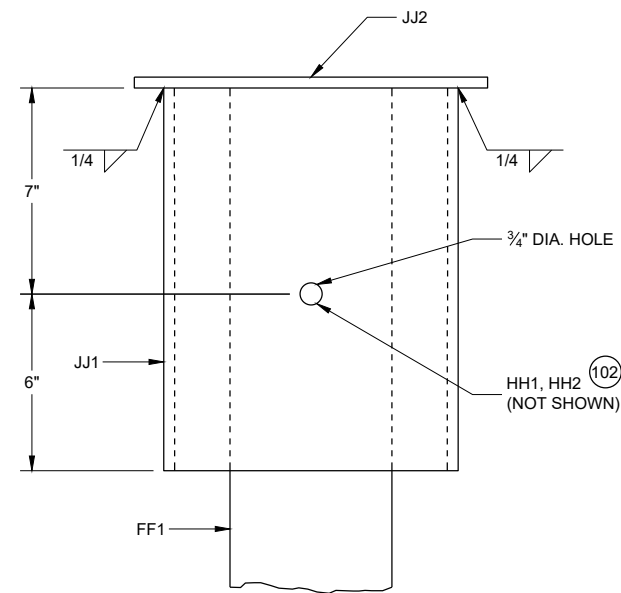
- 100 TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- 101 WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 102 SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- 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.

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

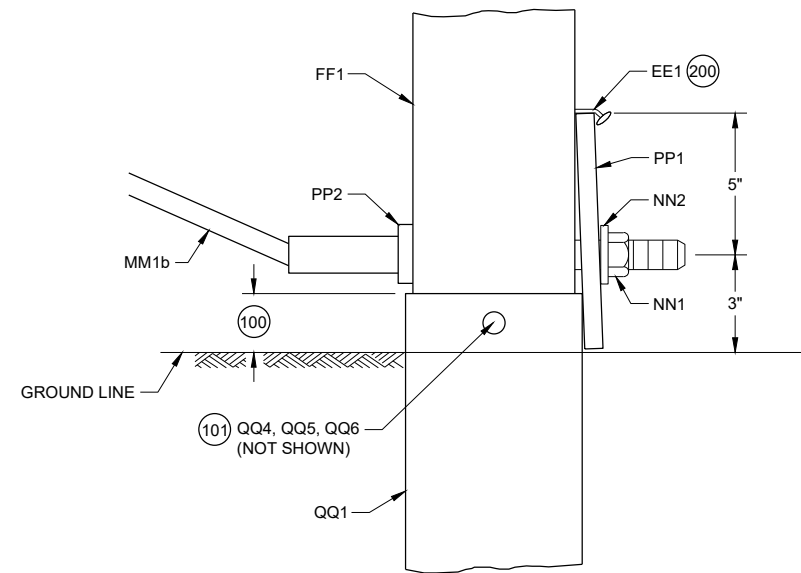
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

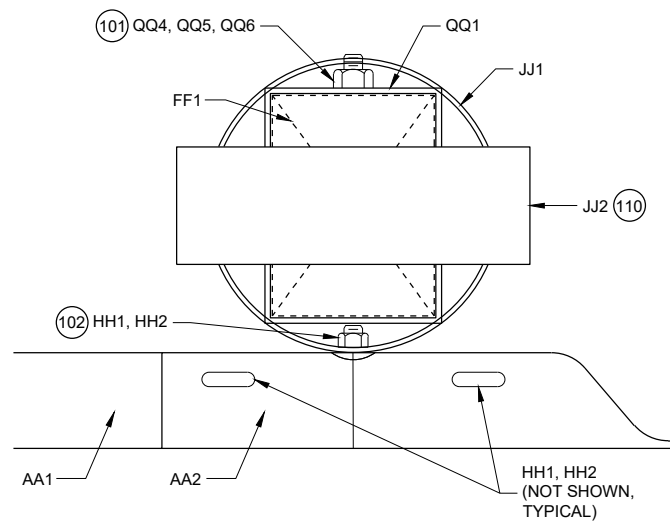
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



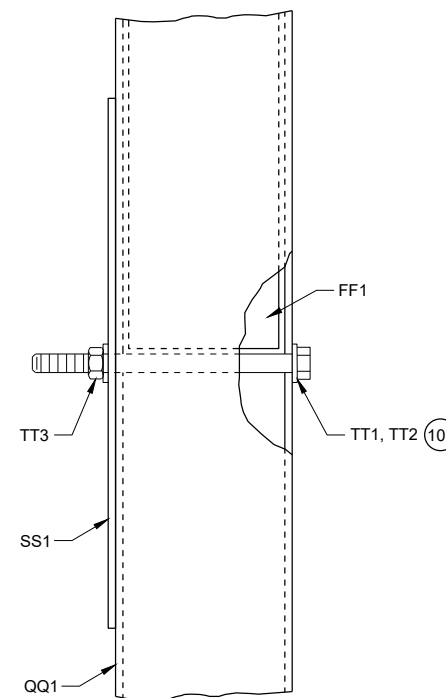
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



**PROFILE VIEW
DETAIL "C"**



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



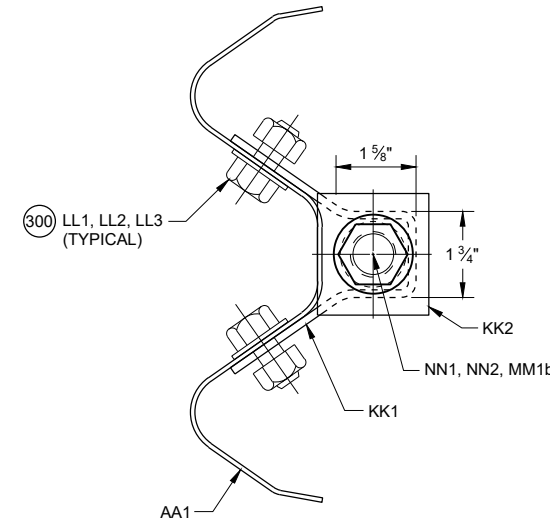
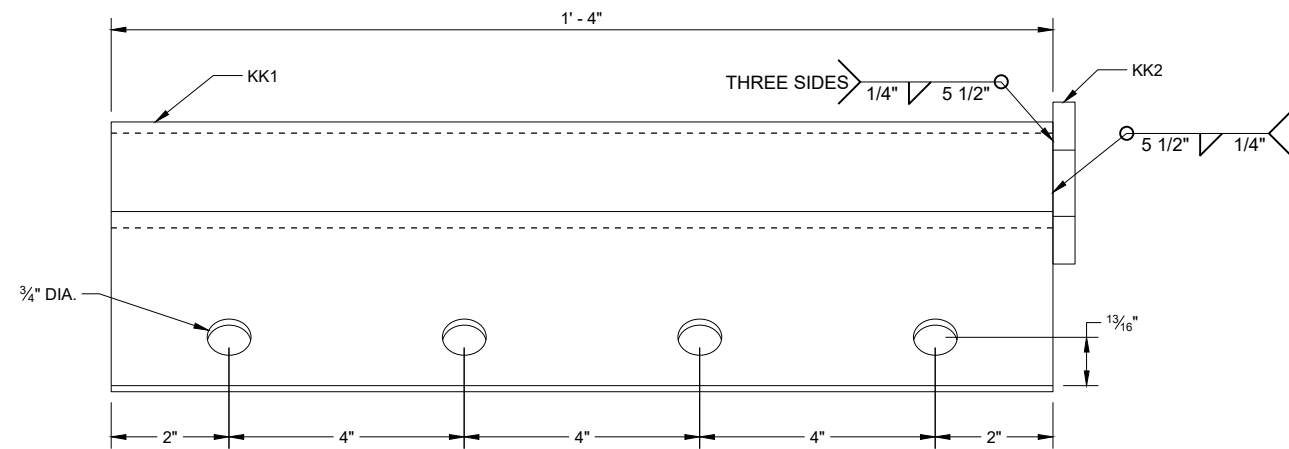
**PROFILE VIEW
DETAIL "D"**

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

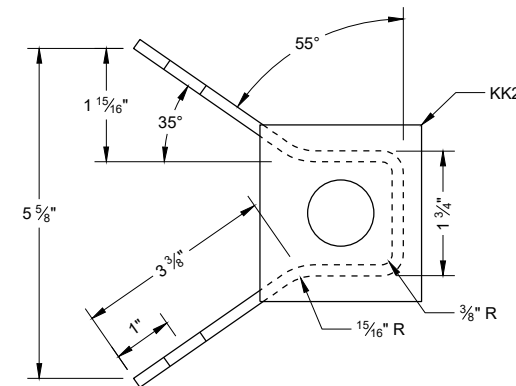
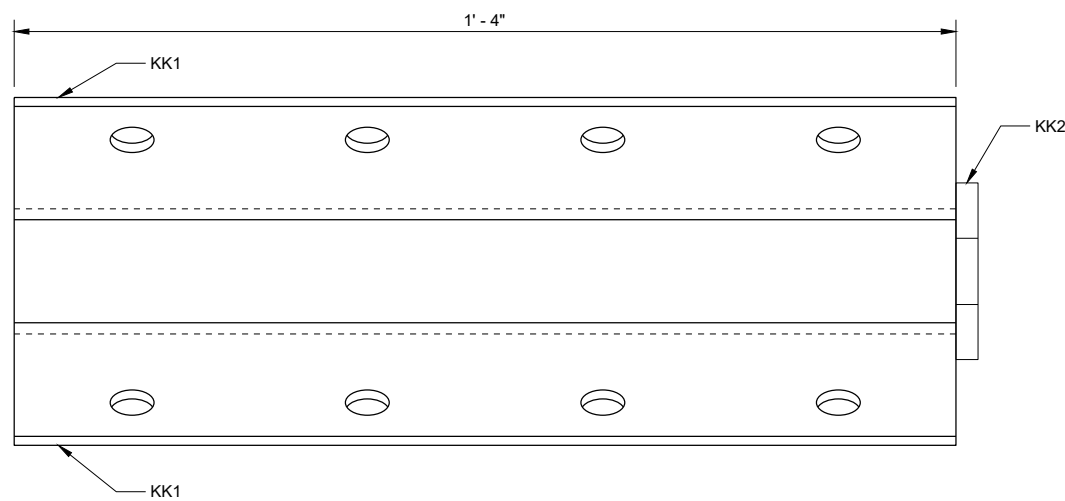
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

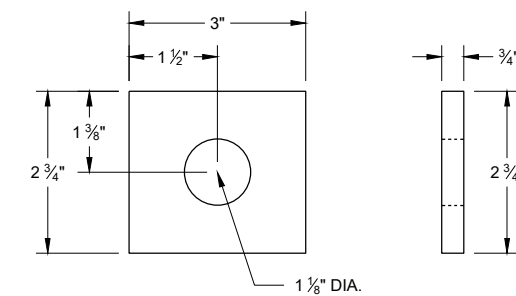
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



SECTION A - A



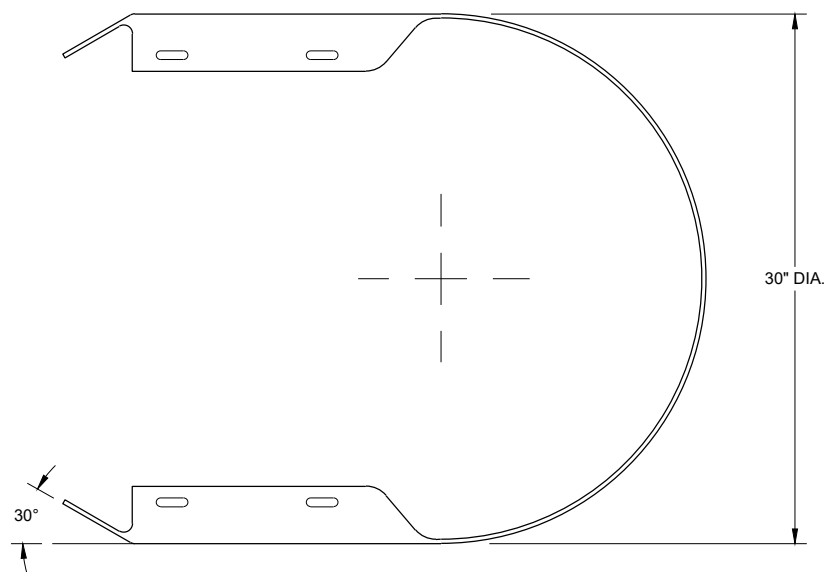
ANCHOR BRACKET BEARING PLATE (KK2)



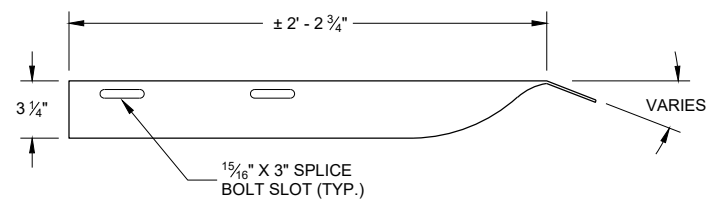
ANCHOR BRACKET (KK1, KK2)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



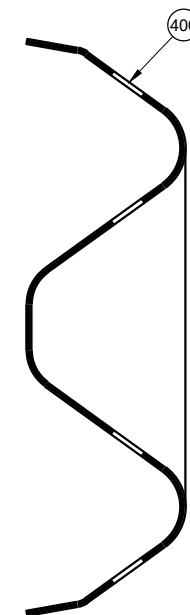
TOP VIEW



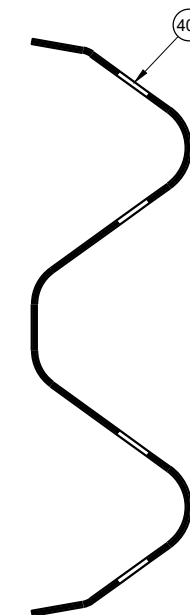
TOP VIEW

GENERAL NOTES

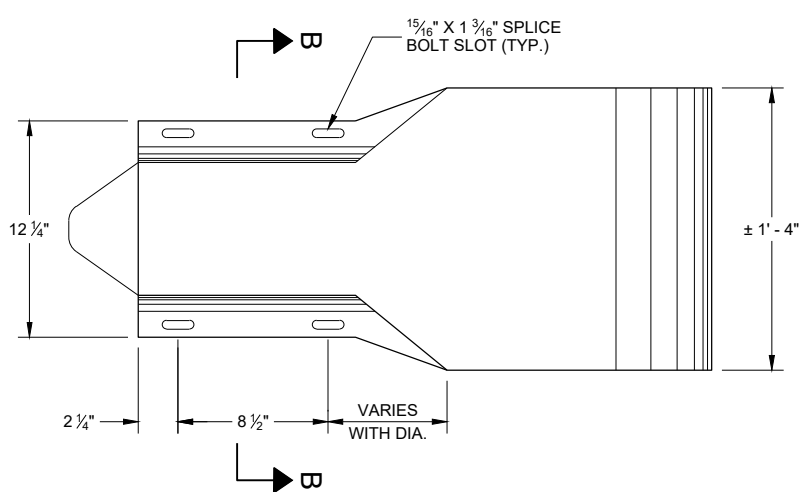
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



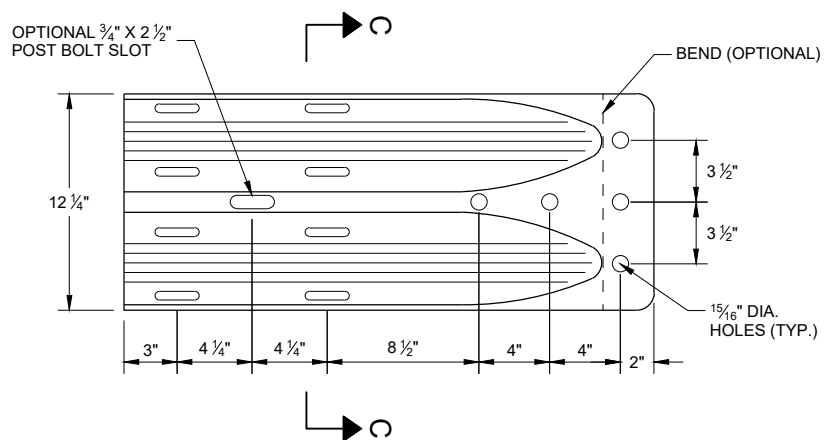
SECTION B - B



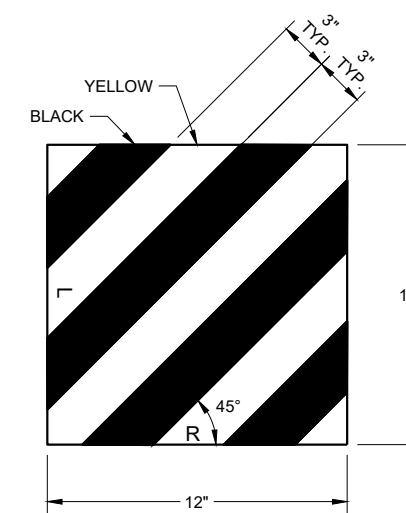
SECTION C - C



**PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)**



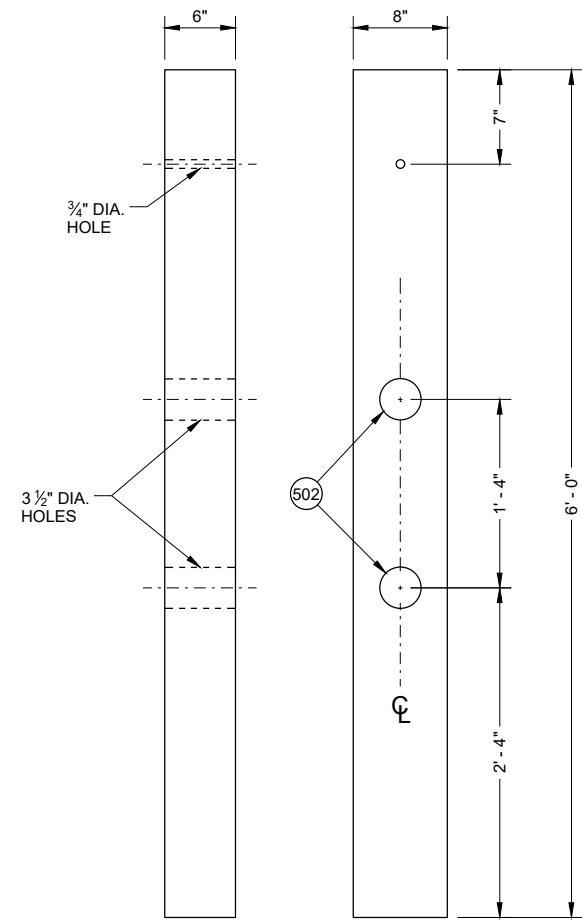
**PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)**



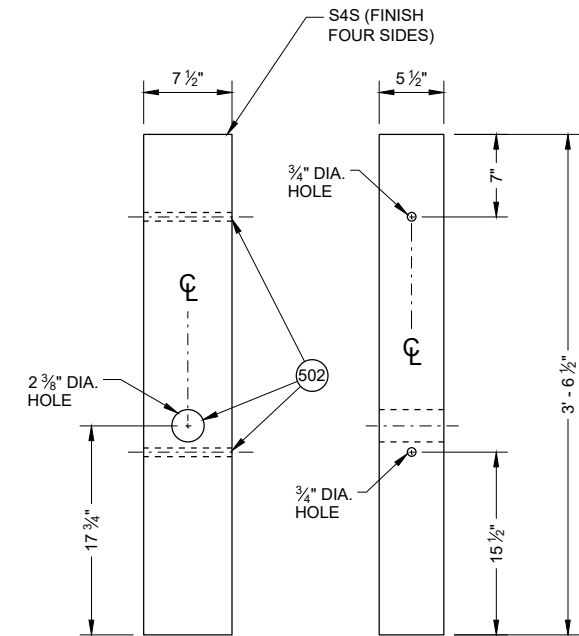
REFLECTIVE SHEETING (UU1, UU2)

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

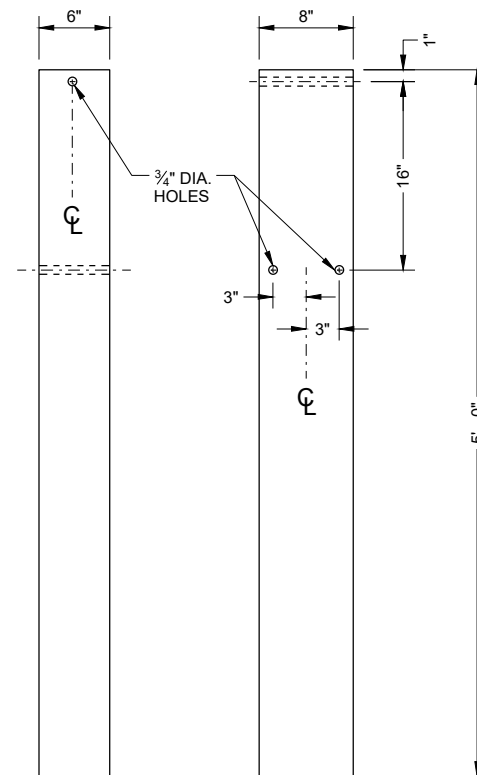
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



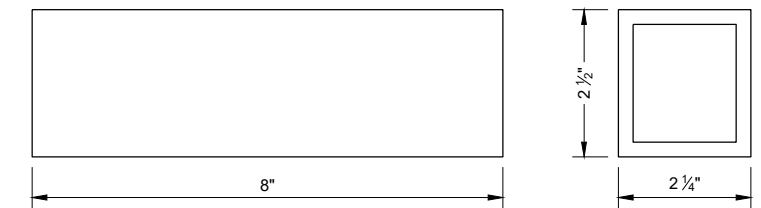
**FRONT VIEW SIDE VIEW
CONTROLLED RELEASE
POST (CRT) (DD2)**



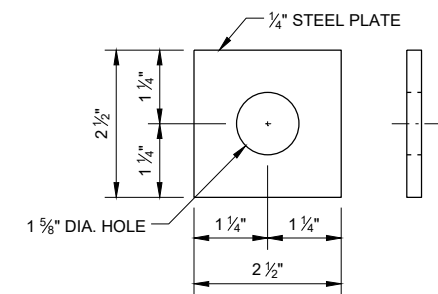
**FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)**



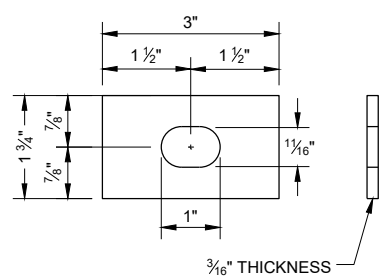
**FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1)** (500)



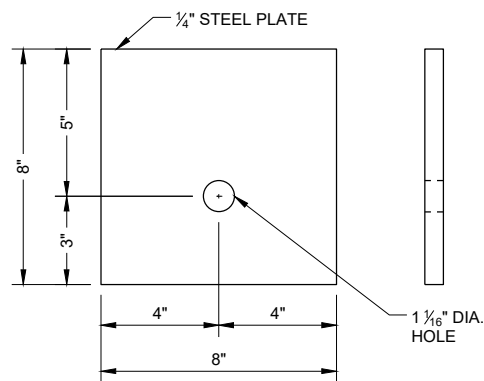
**FOUNDATION TUBE -
ANCHOR CABLE TUBE (QQ2)**



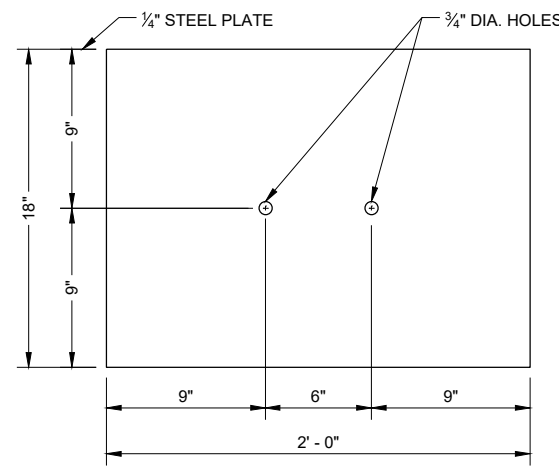
**ANCHOR CABLE TUBE
END PLATE (QQ3)**



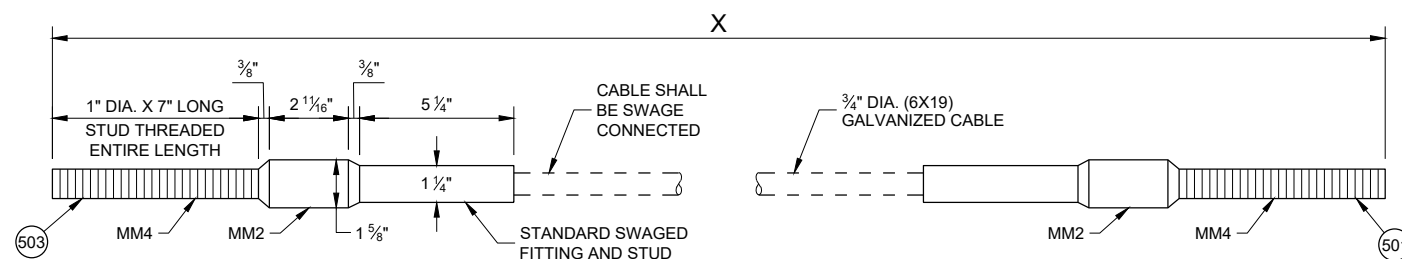
**RECTANGULAR PLATE
WASHER (CC1)**



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).

**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
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	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	
GG2	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	

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SDD 14B53 - 02g

SDD 14B53 - 02g

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
GG3	POST BOLT - NUT	ASTM A563 GRADE A	$\frac{3}{8}$ " 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	$\frac{3}{8}$ " 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	$\frac{3}{8}$ " 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 $\frac{3}{8}$ " 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	$\frac{3}{8}$ " 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)	$\frac{3}{8}$ " 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	$\frac{3}{8}$ " 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	$\frac{3}{4}$ "
		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	

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SDD 14B53 - 02h

SDD 14B53 - 02h

**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 3/8"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 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 1/2" X 2 1/2" X 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	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)	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	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	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)	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	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	

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SDD 14B53 - 02i

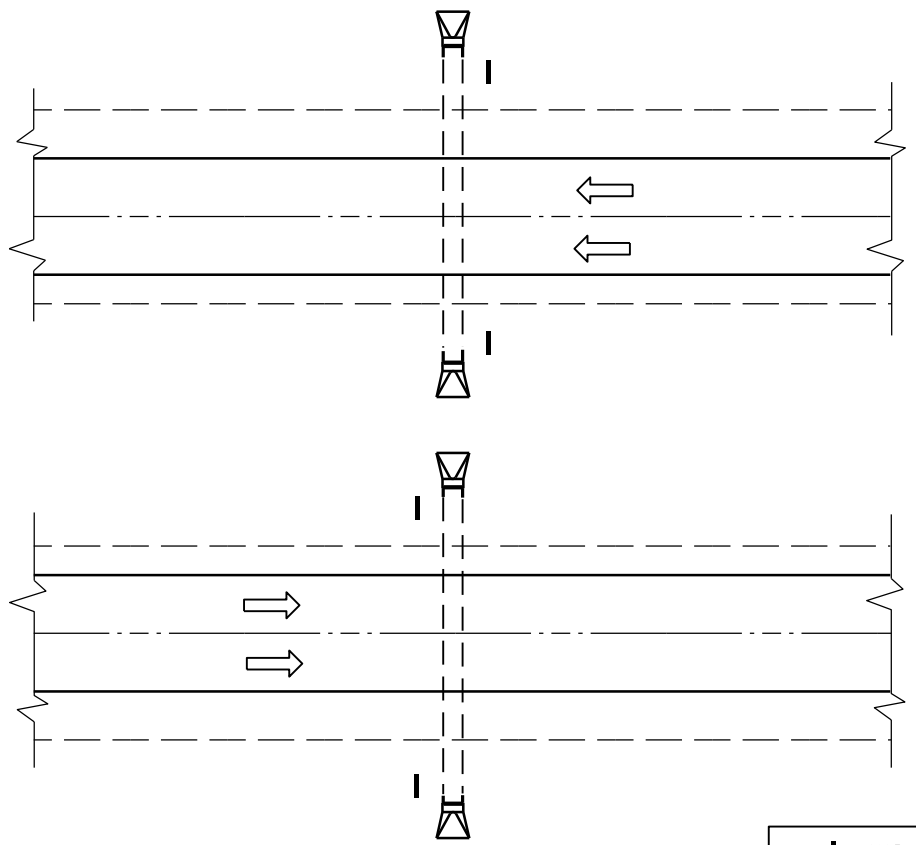
SDD 14B53 - 02i

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

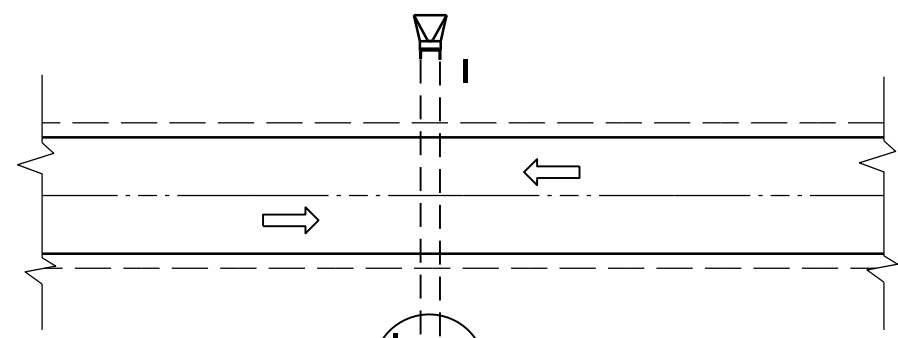
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

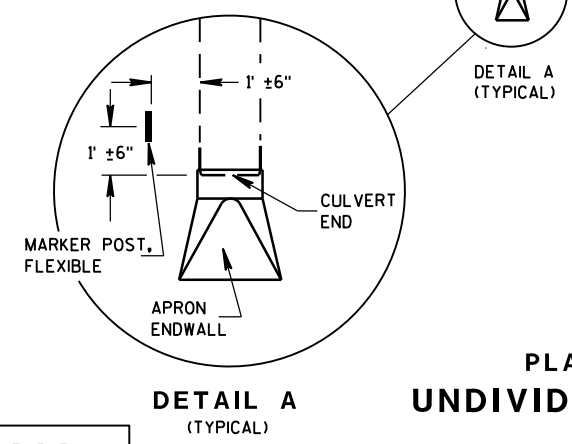
FHWA



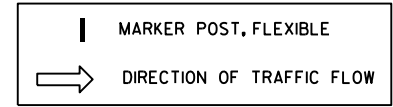
PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY



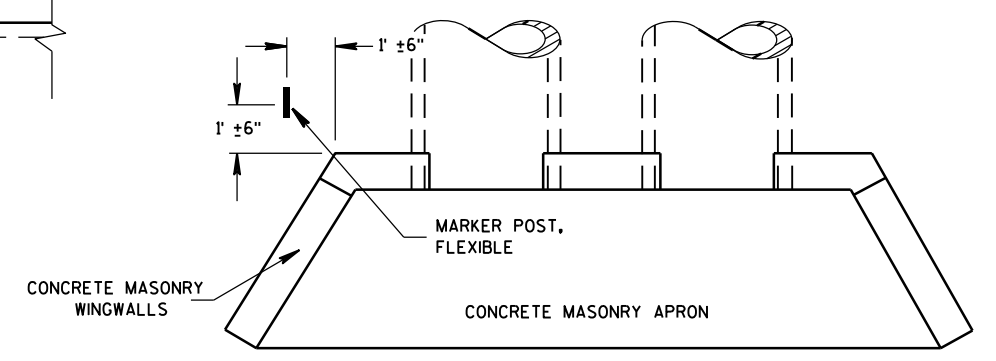
DETAIL A
(TYPICAL)



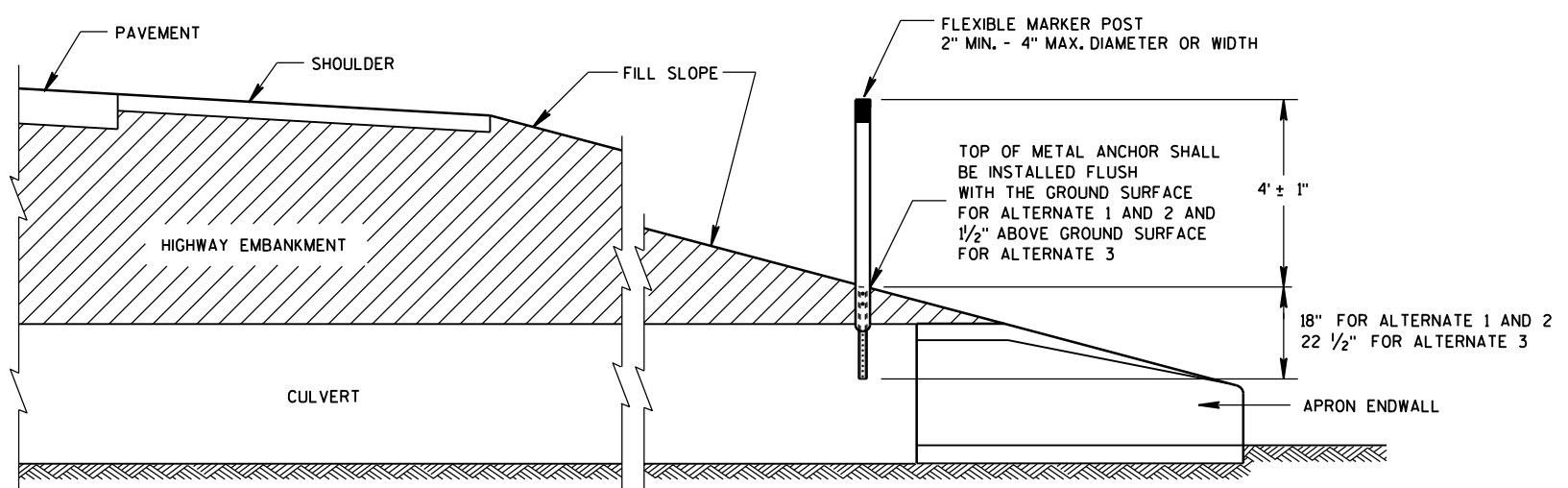
FLEXIBLE MARKER POST LOCATION

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.



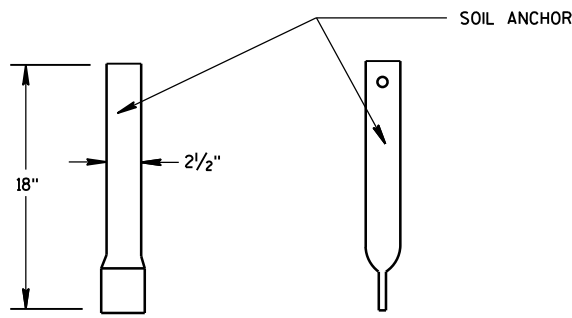
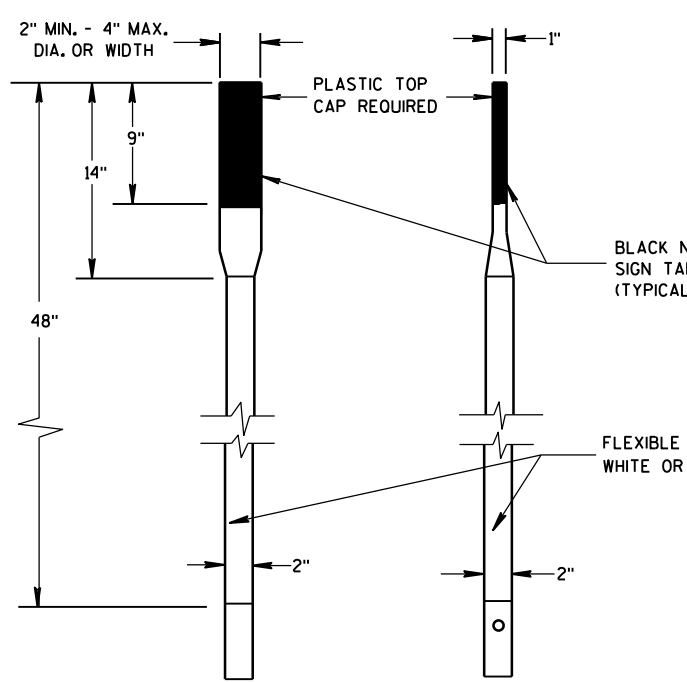
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



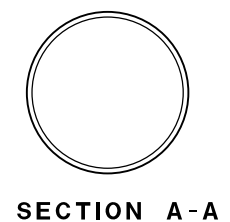
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

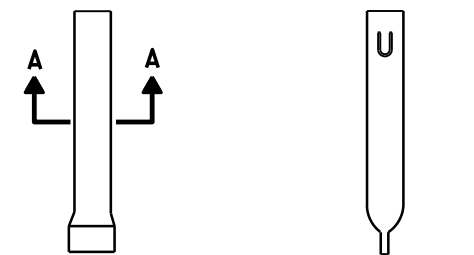
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



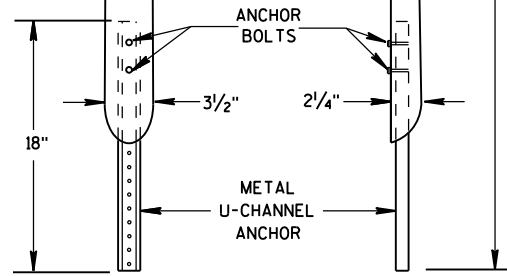
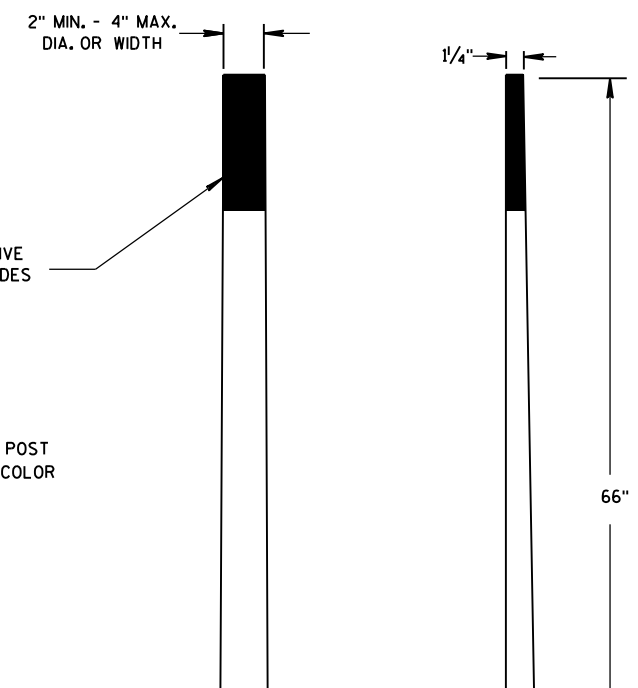
FRONT VIEW SIDE VIEW
ALTERNATE 1



SECTION A-A

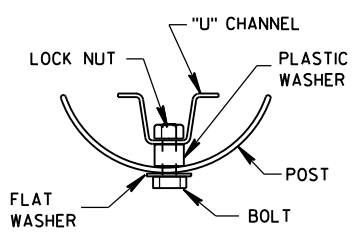


FRONT VIEW SIDE VIEW
ALTERNATE 1

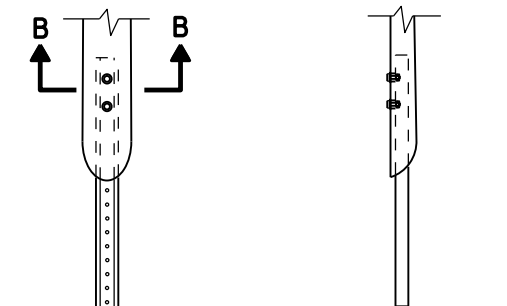


FRONT VIEW SIDE VIEW
ALTERNATE 2

FLEXIBLE MARKER POSTS

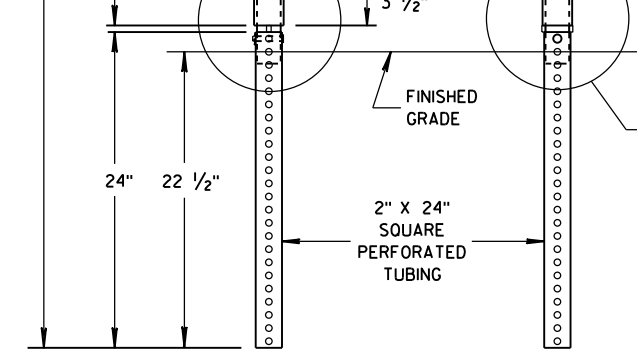
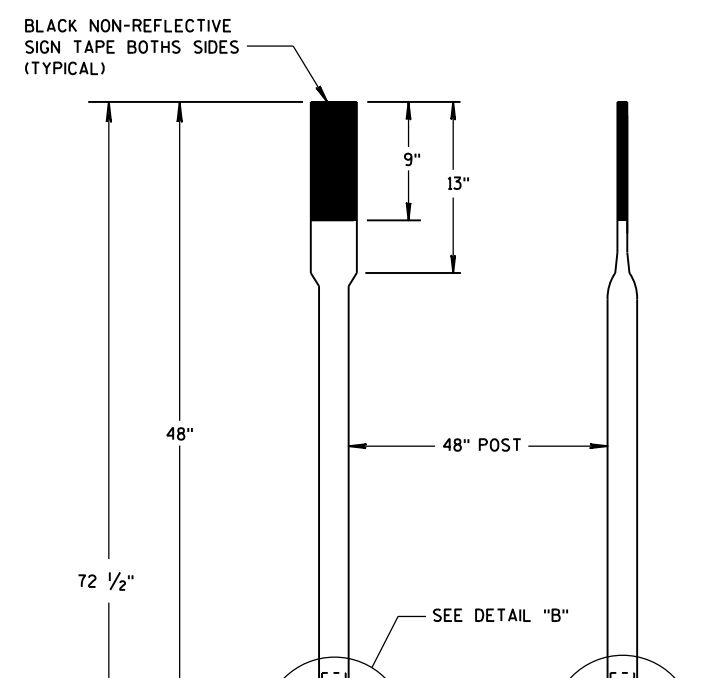


SECTION B-B

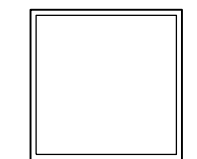


FRONT VIEW SIDE VIEW
ALTERNATE 2

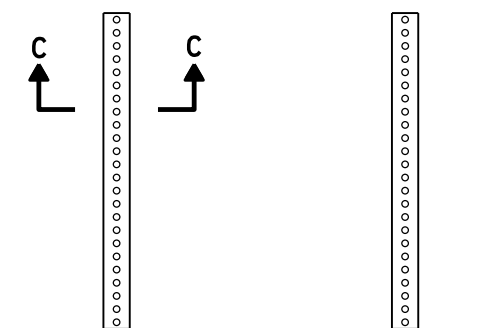
FLEXIBLE MARKER POST ANCHORS



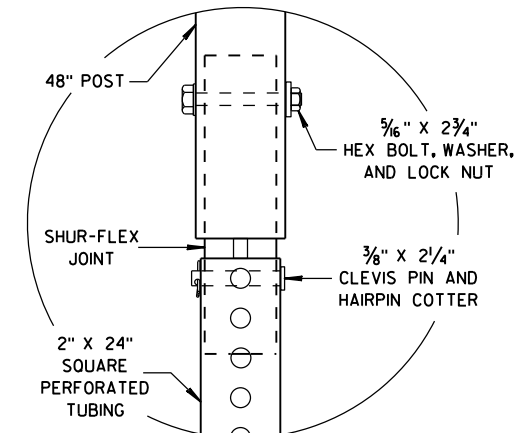
FRONT VIEW SIDE VIEW
ALTERNATE 3



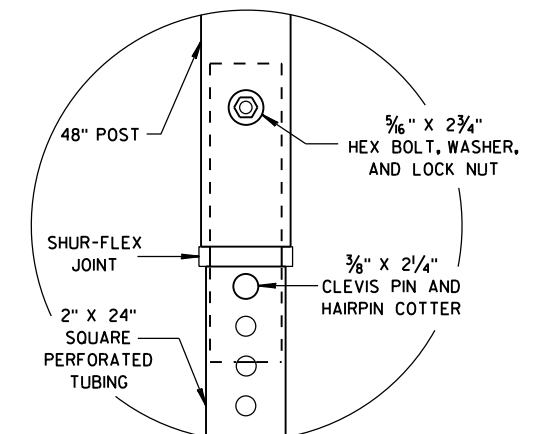
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B

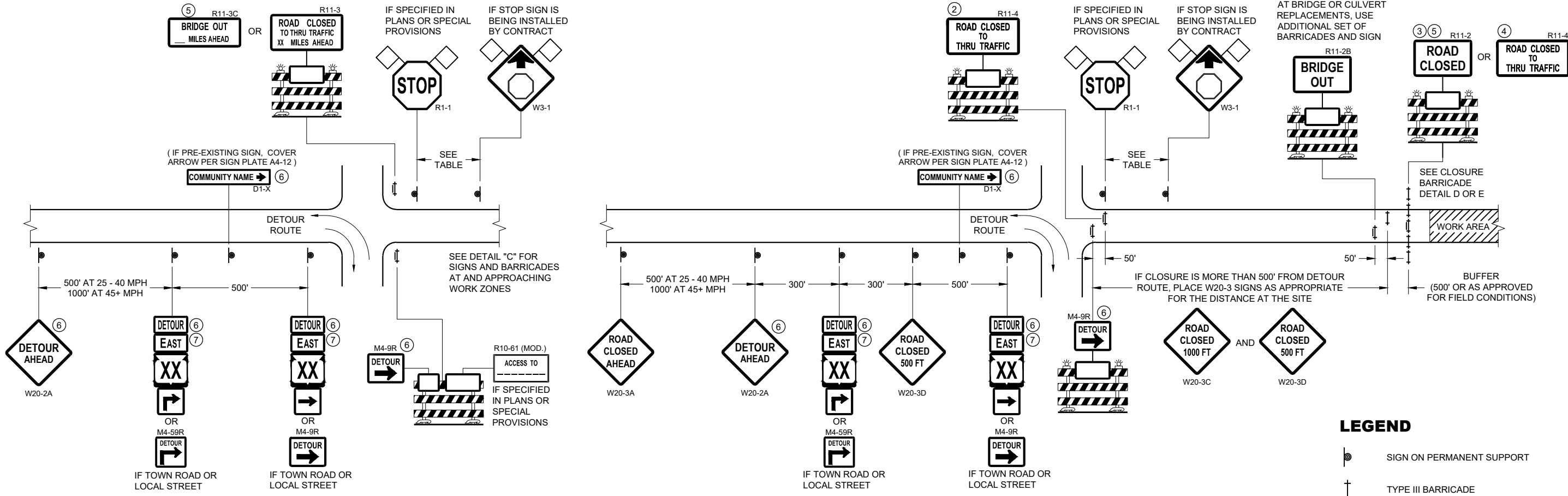


DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 DATE /S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN
FHWA



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

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

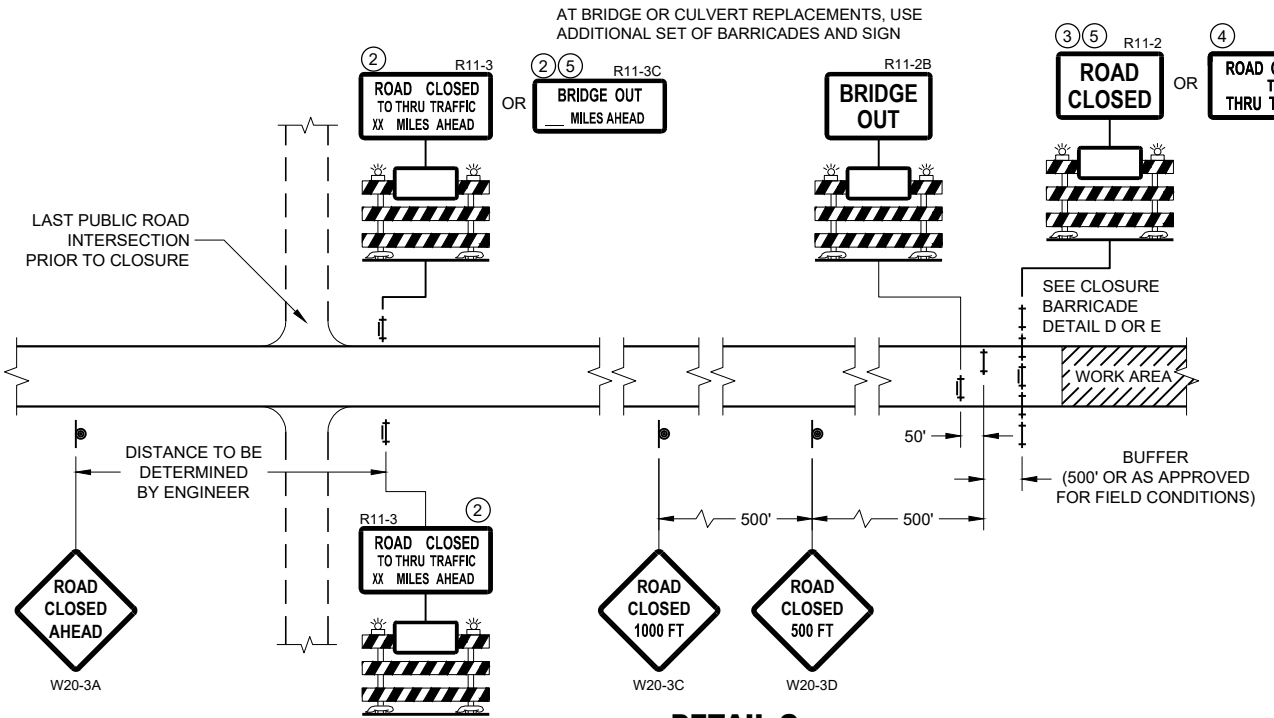
**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

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

- LEGEND**
- SIGN ON PERMANENT SUPPORT
 - TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TYPE "A" WARNING LIGHT (FLASHING)
 - WORK AREA
 - FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



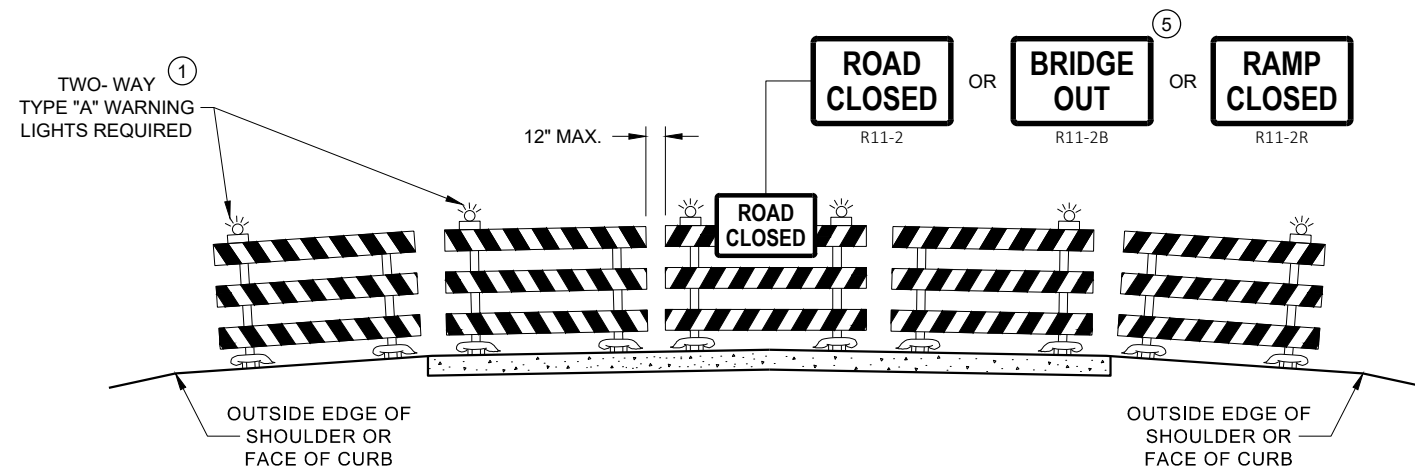
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

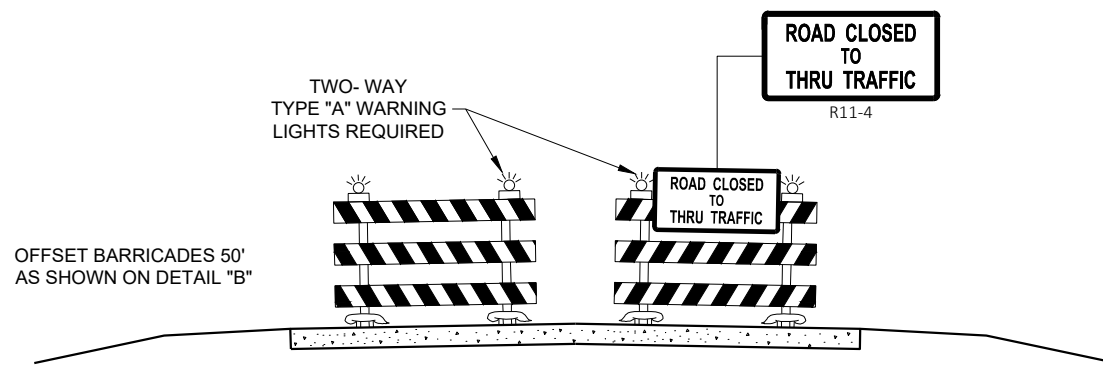
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

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

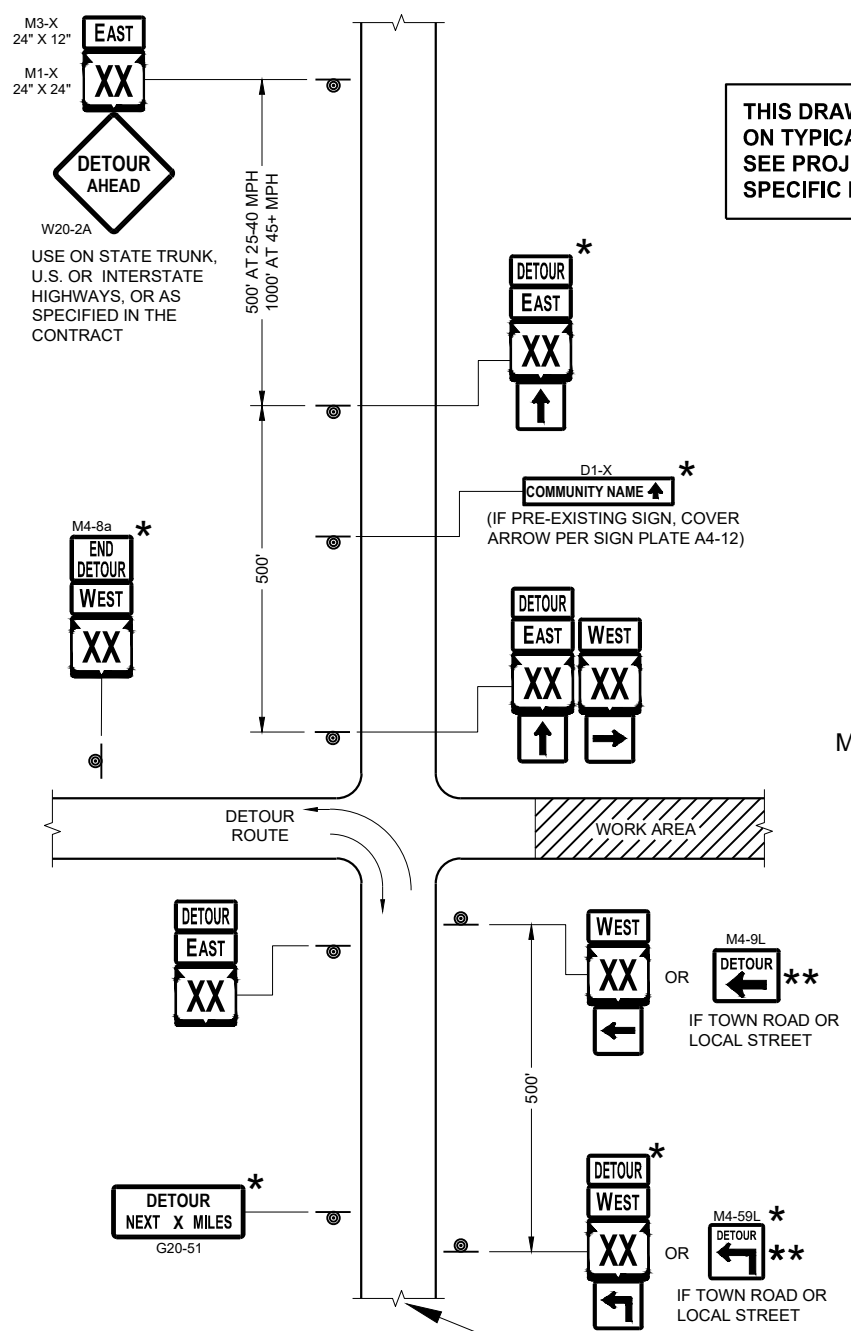
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

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.

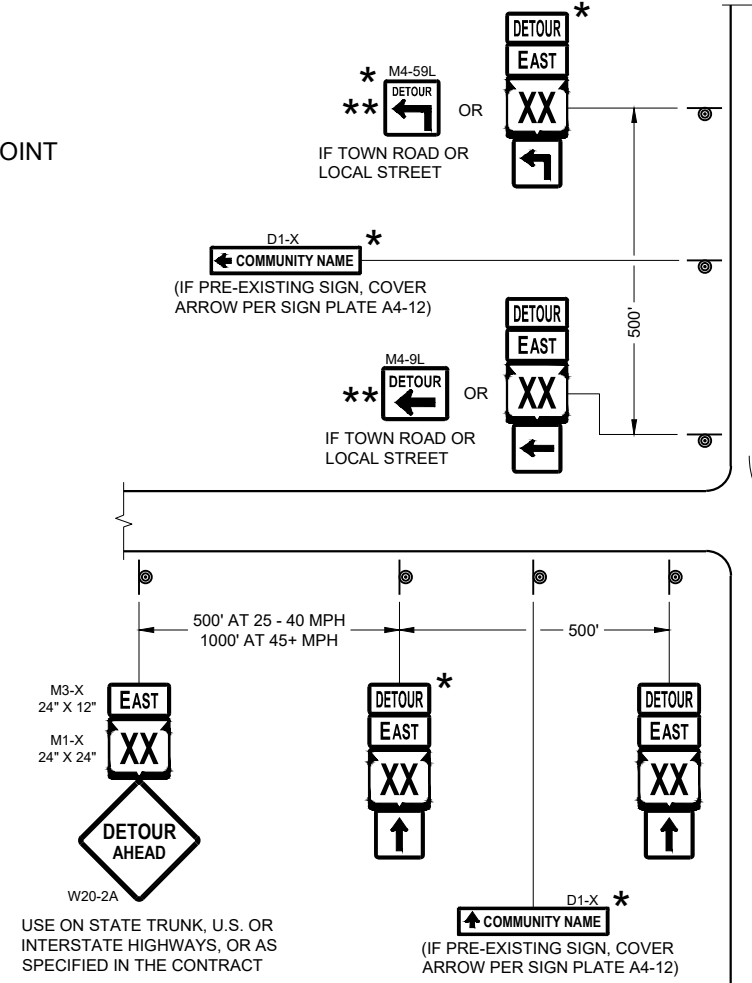
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

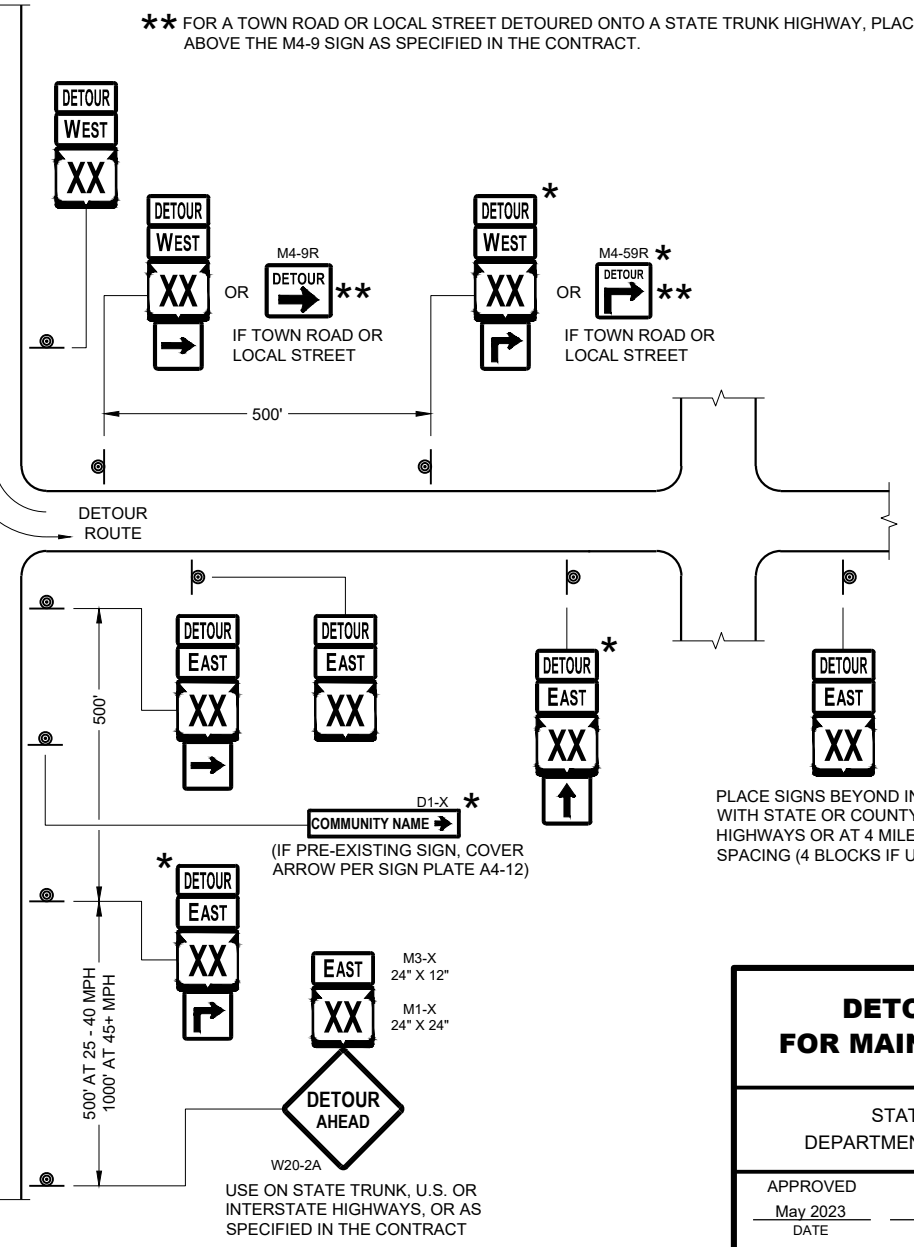
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING 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.

MATCH POINT



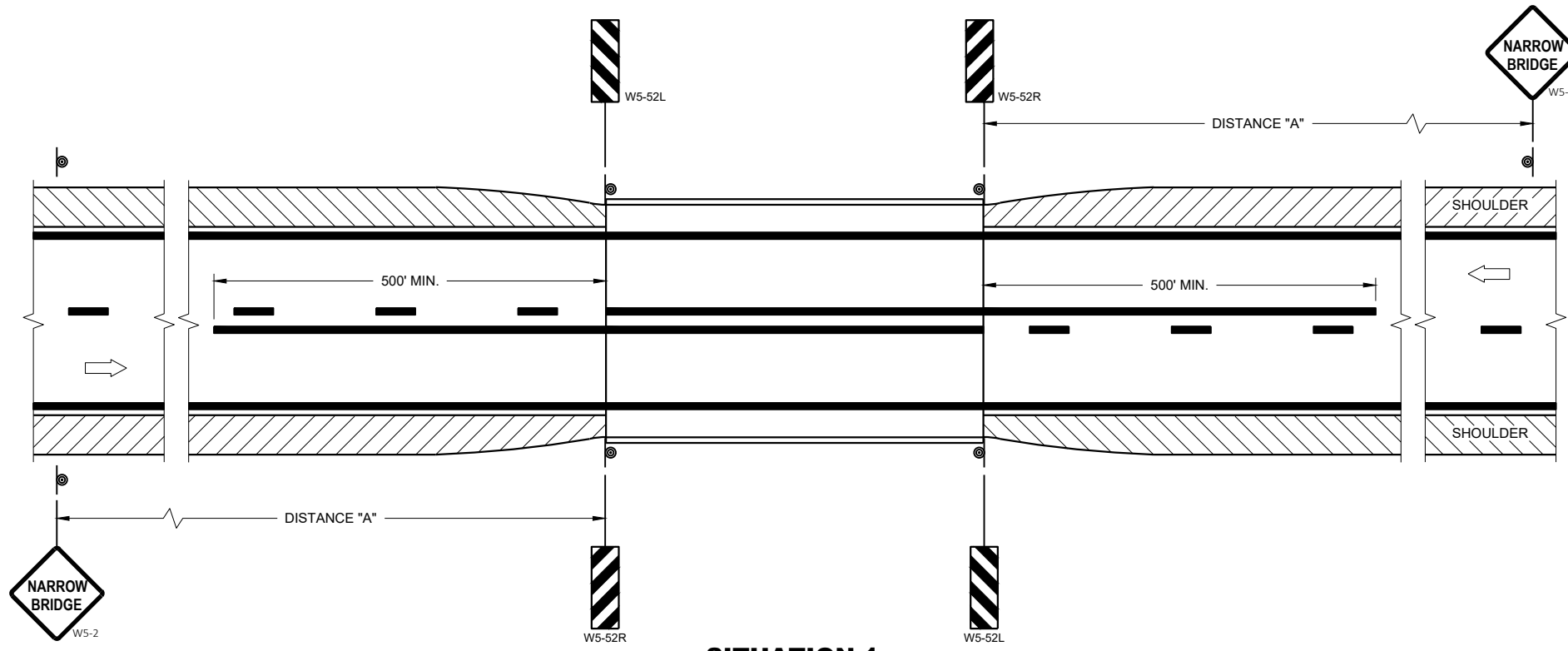
**DETAIL F
DETOUR SIGNING**



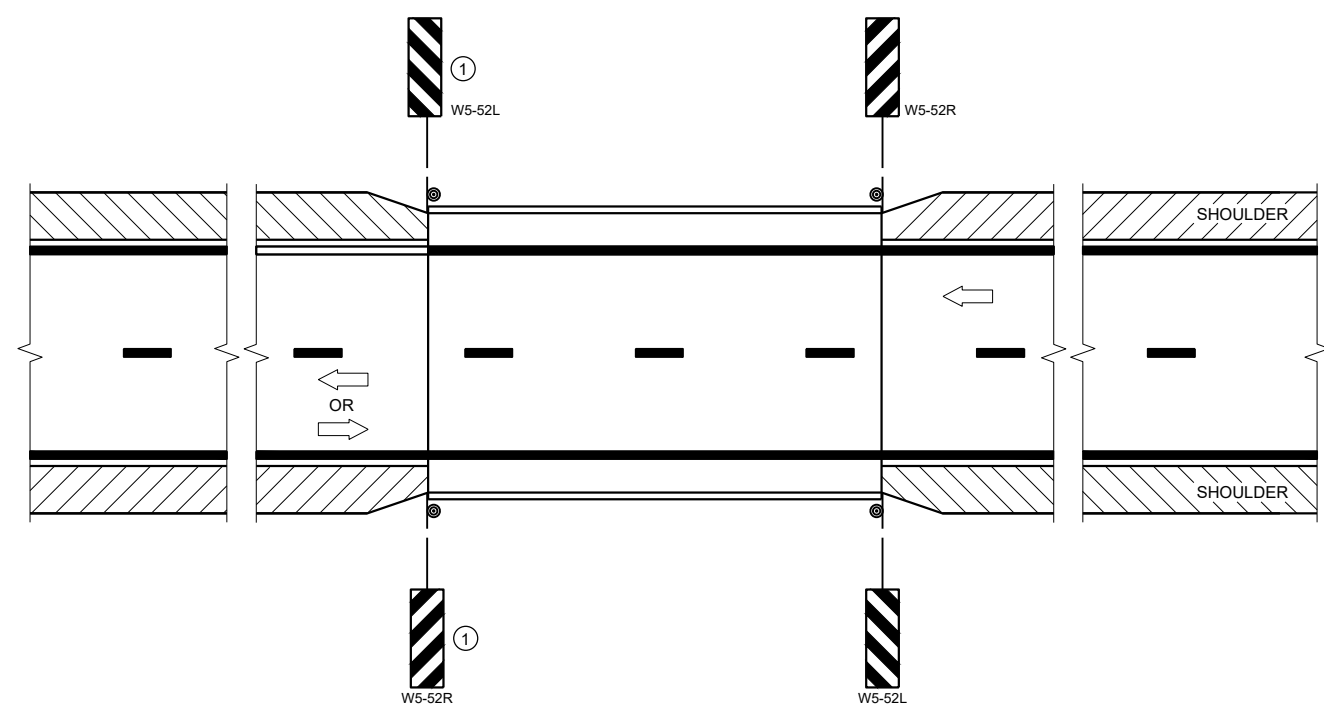
PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA)

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

DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
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'

6

6

SDD 15C06-12

SDD 15C06-12

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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




FHWA

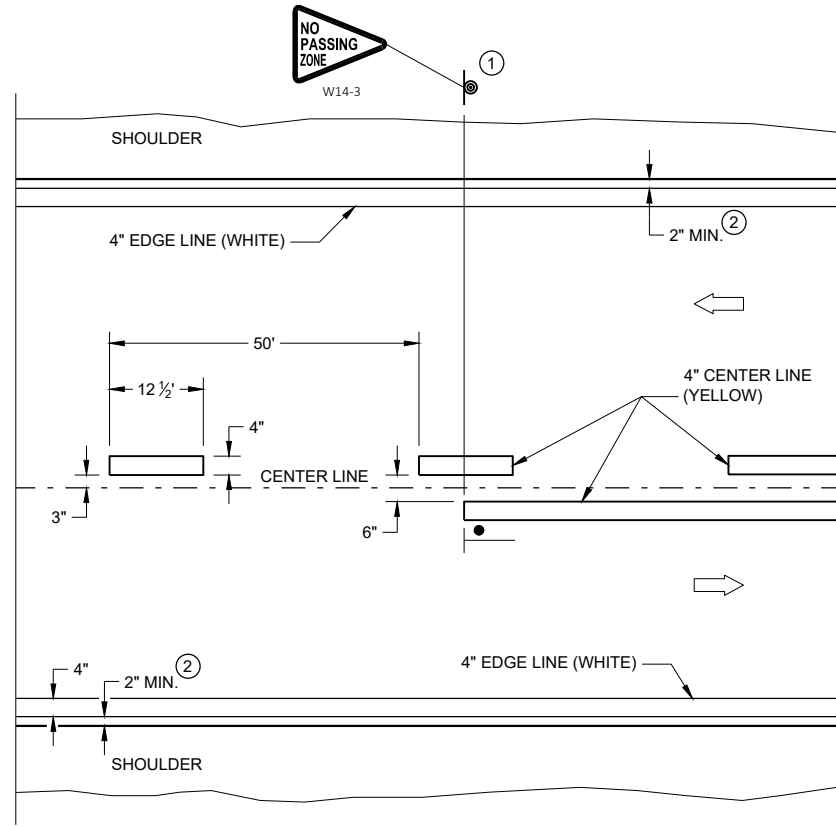
GENERAL NOTES

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

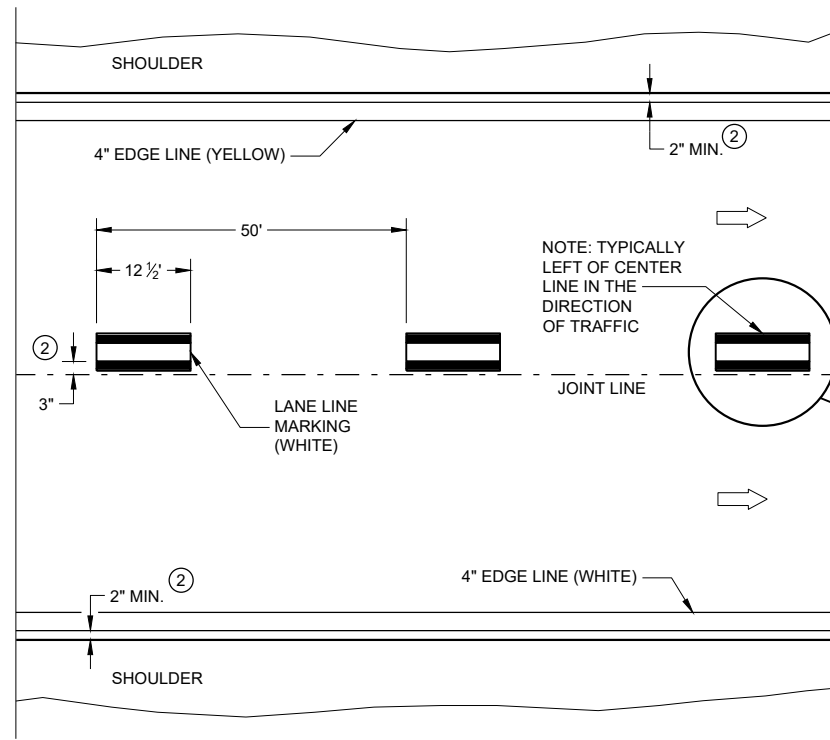
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

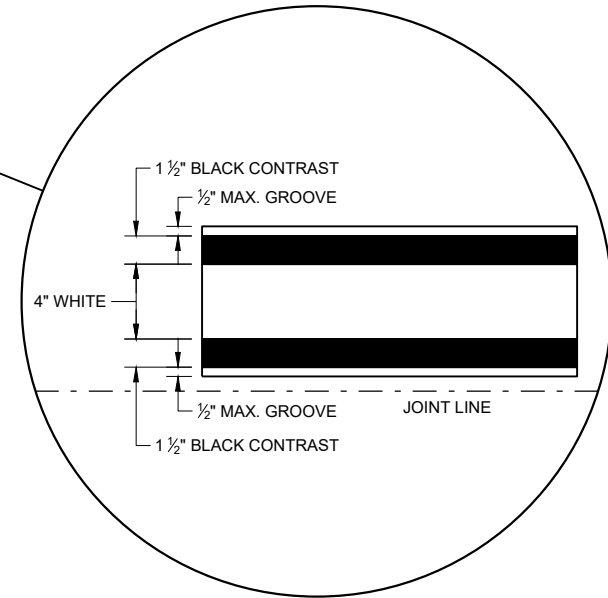


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



6

6

SDD 15C08 - 22a

SDD 15C08 - 22a

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER




FHWA

GENERAL NOTES

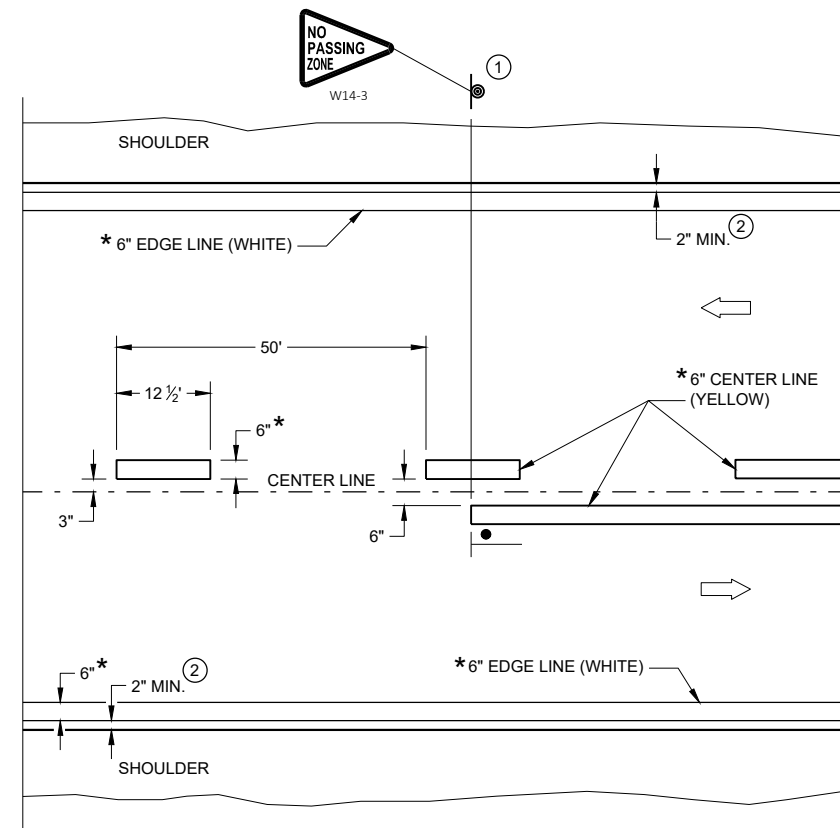
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

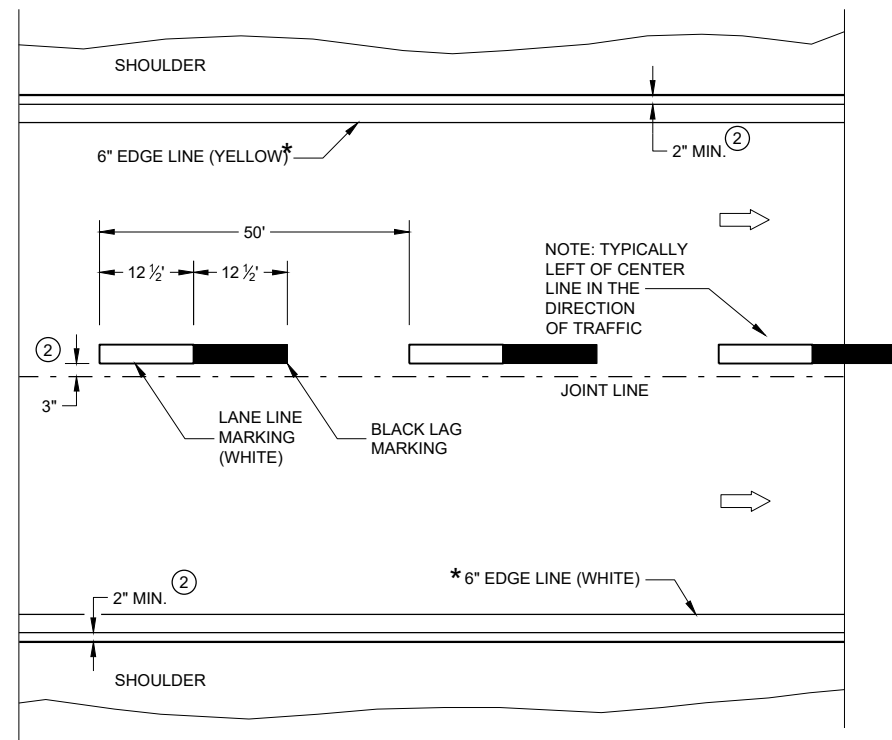
LEGEND

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

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

6

6

SDD 15C08-23a

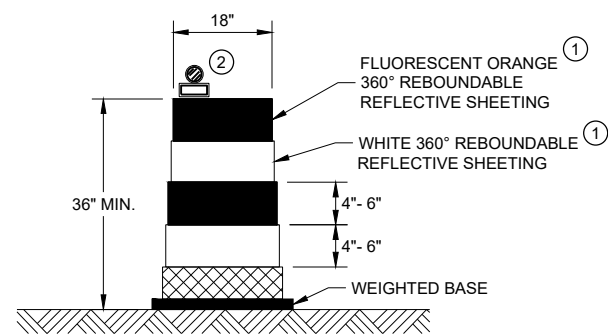
SDD 15C08-23a

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

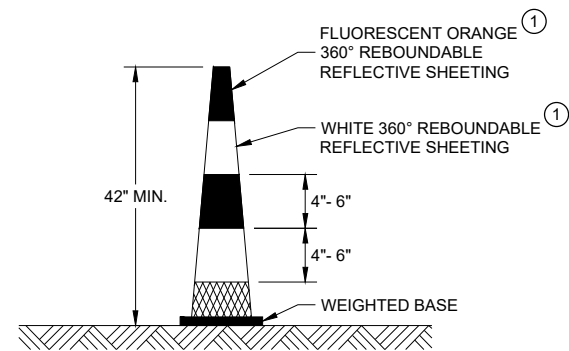
APPROVED
May 2023 /S/ Jeannie Silver
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



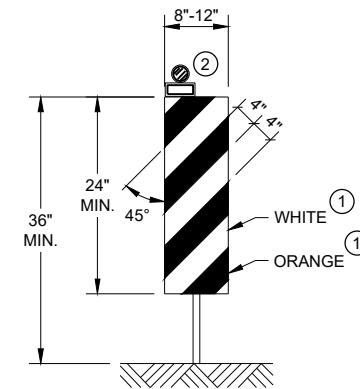
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

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

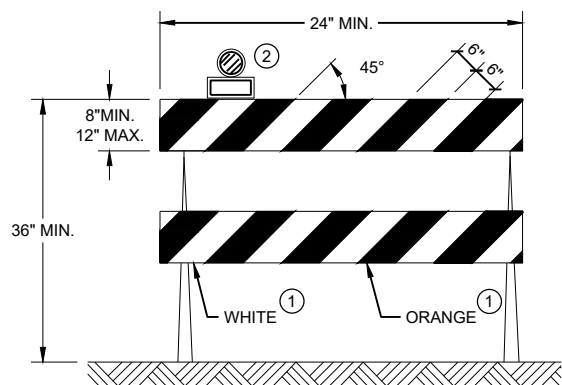


VERTICAL PANEL

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

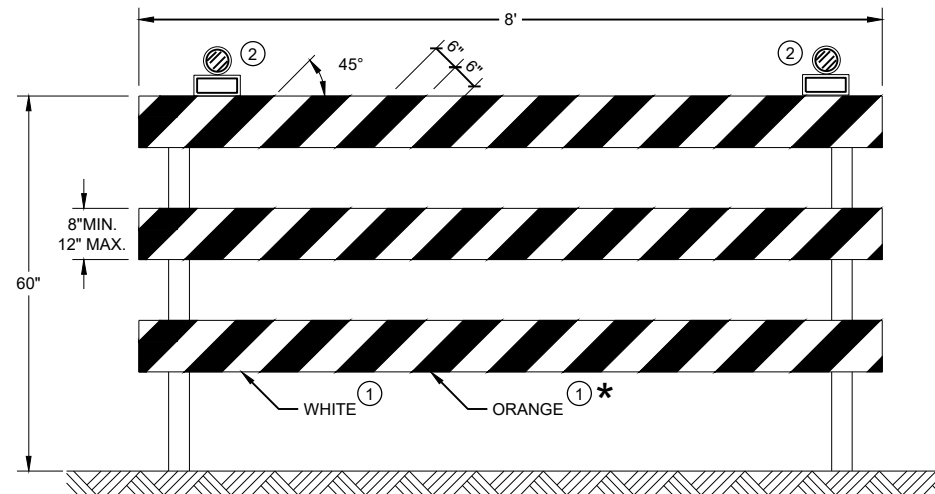
GENERAL NOTES

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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






* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

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

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

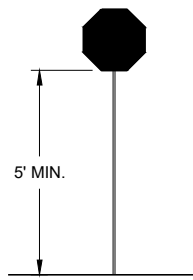
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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



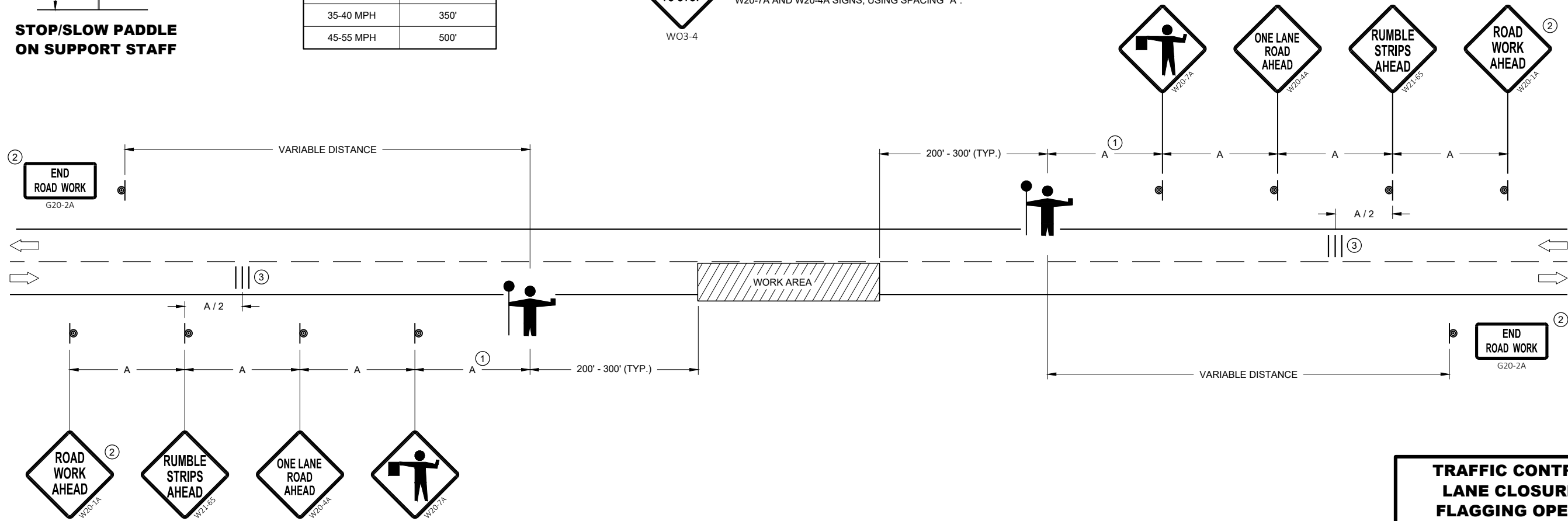
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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







TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

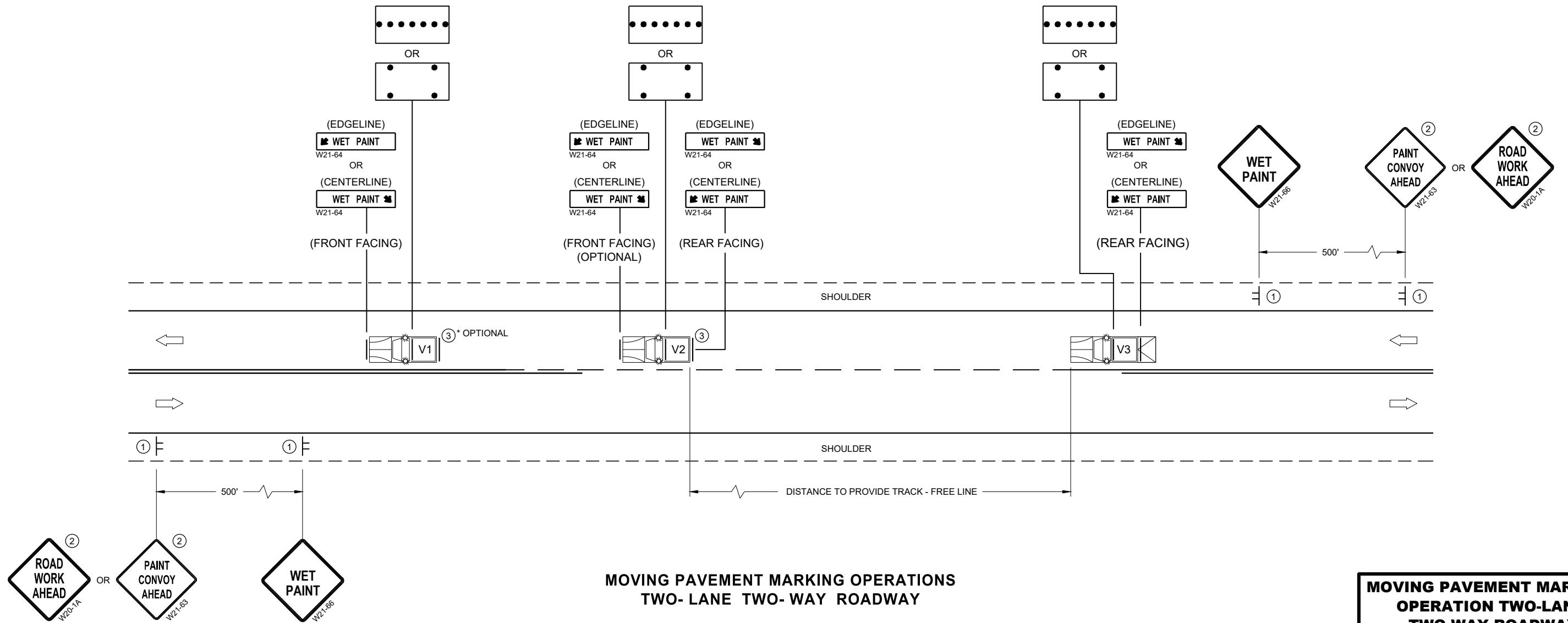
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

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

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

6

6

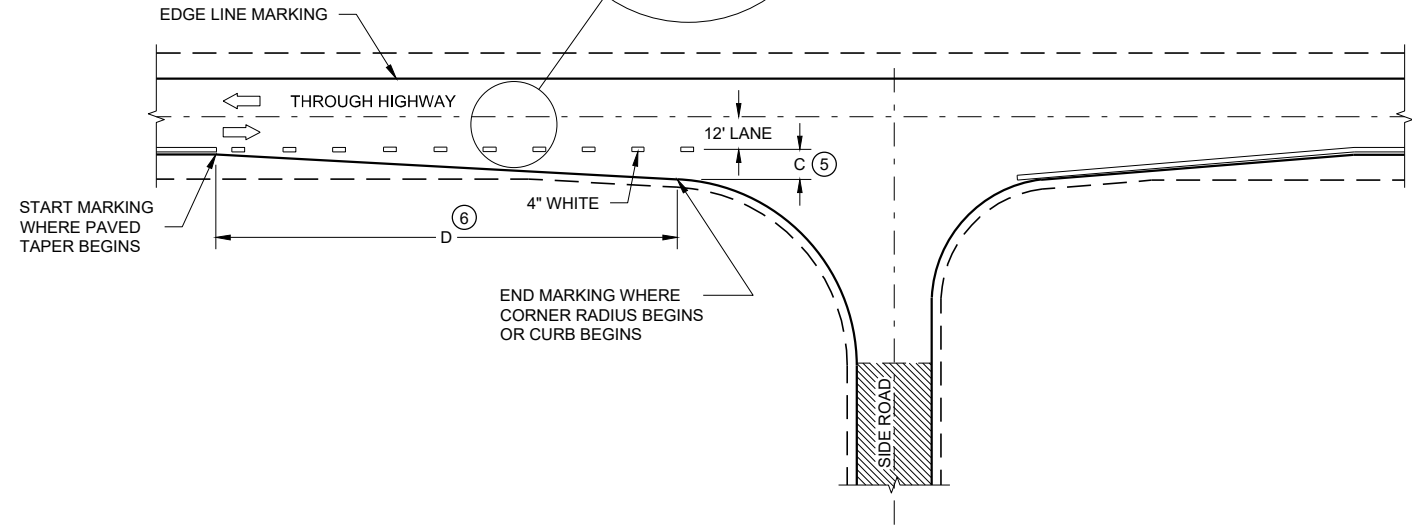
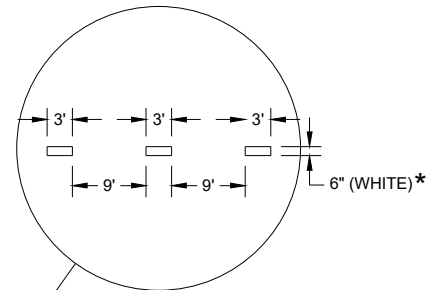


**MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY**

SDD 15C19-08a

SDD 15C19-08a

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



MINOR INTERSECTION

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

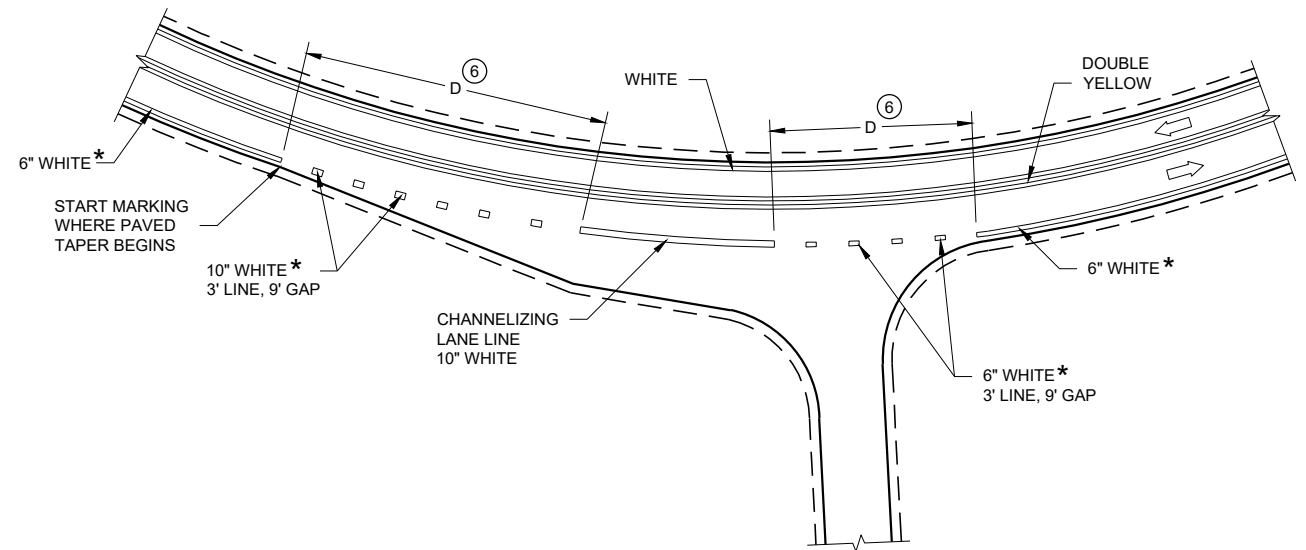
GENERAL NOTES

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

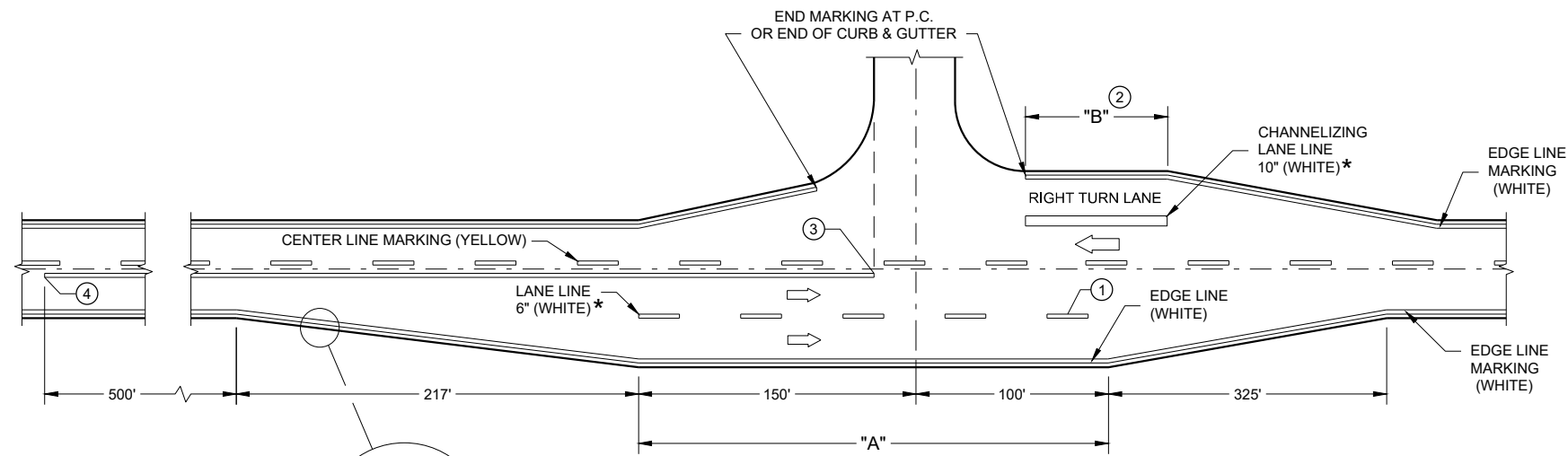
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4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

LEGEND

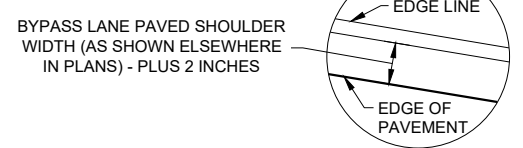
➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE



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

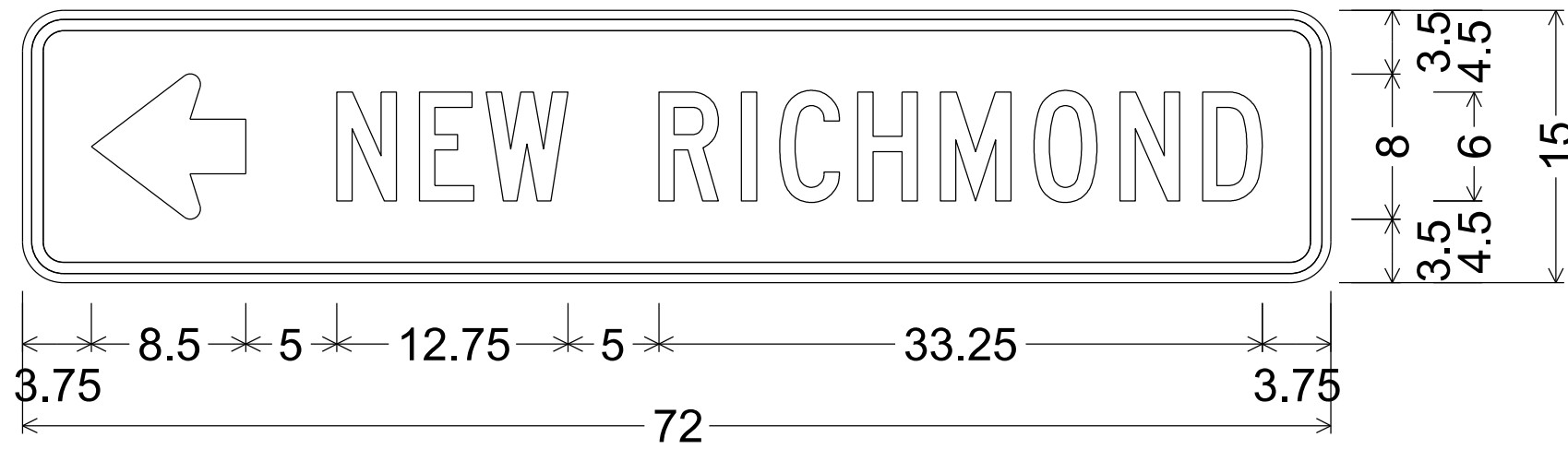


**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTES

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



2.250" Radius, 0.625" Border, 0.500" Indent

7

7

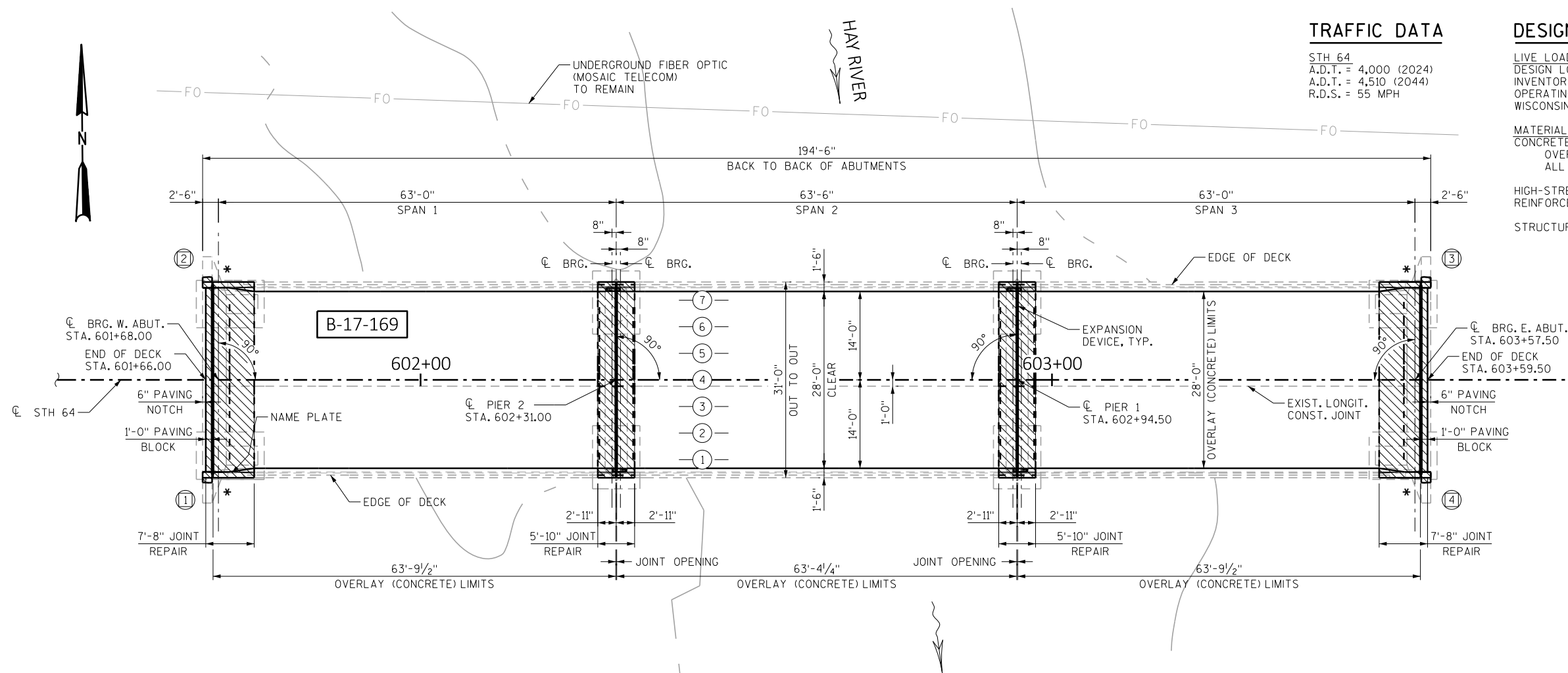
TRAFFIC DATA

STH 64
A.D.T. = 4,000 (2024)
A.D.T. = 4,510 (2044)
R.D.S. = 55 MPH

DESIGN DATA

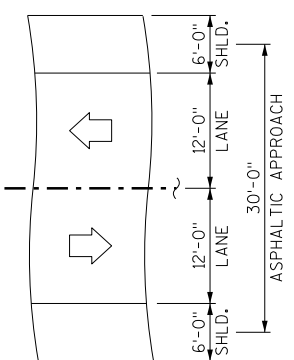
LIVE LOAD:
DESIGN LOAD: HS-20
INVENTORY RATING = HS-13
OPERATING RATING = HS-22
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 220 KIPS

MATERIAL PROPERTIES:
CONCRETE MASONRY:
OVERLAY DECKS.....f'c = 4,000 PSI
ALL OTHER.....f'c = 3,500 PSI
HIGH-STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60.....fy = 60,000 PSI
STRUCTURAL CARBON STEEL.....fy = 36,000 PSI

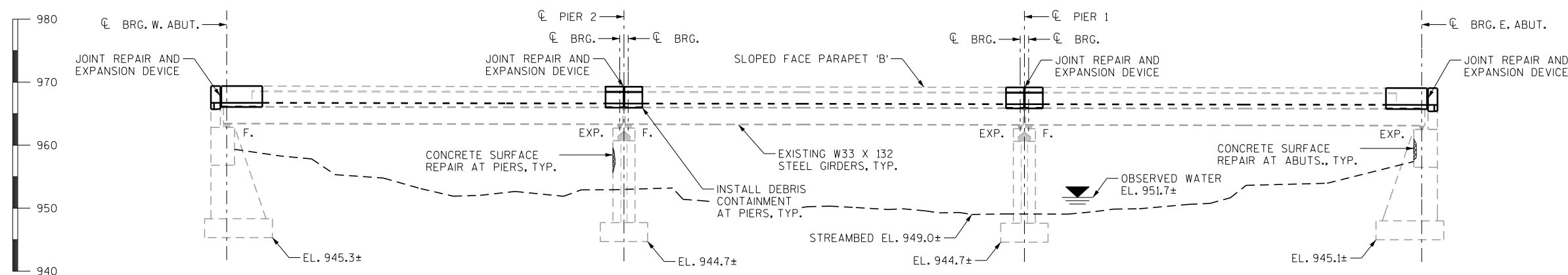


PLAN

CONCRETE OVERLAY - THREE SPAN STEEL DECK GIRDER
SUBSTRUCTURE IDENTIFICATION IS PER THE ORIGINAL CONSTRUCTION PLANS



STRUCTURES DESIGN CONTACTS
BRIDGE OFFICE:
AARON BONK (608) 261-0261
CONSULTANT:
VINCENT DIFRANCES, P.E. (920) 468-4771



ELEVATION

LOOKING NORTH

LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. CROSS SECTION AND QUANTITIES
3. JOINT REPAIR SECTIONS
4. ABUTMENT JOINT REPAIR (1 OF 4)
5. ABUTMENT JOINT REPAIR (2 OF 4)
6. ABUTMENT JOINT REPAIR (3 OF 4)
7. ABUTMENT JOINT REPAIR (4 OF 4)
8. PIER JOINT REPAIR (1 OF 3)
9. PIER JOINT REPAIR (2 OF 3)
10. PIER JOINT REPAIR (3 OF 3)
11. BILL OF BARS
12. DECK PREPARATION AREAS

LEGEND

- LIMITS OF JOINT REPAIR.
- INDICATES WING WALL NUMBER.
- INDICATES GIRDER NUMBER.
- F. FIXED BEARING.
- EXP. EXPANSION BEARING (ELASTOMERIC).
- * ANCHOR ASSEMBLY FOR STEEL PLATE BEAM GUARD REQUIRED.

BENCH MARK

NO.	STATION	DESCRIPTION	ELEVATION
1	601+34.93, 9.34' LT.	CONTROL POINT/WISDOT CAP	965.48

ENGINEERING, INC
Consultant Services

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED SDR **08/11/23**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-17-169

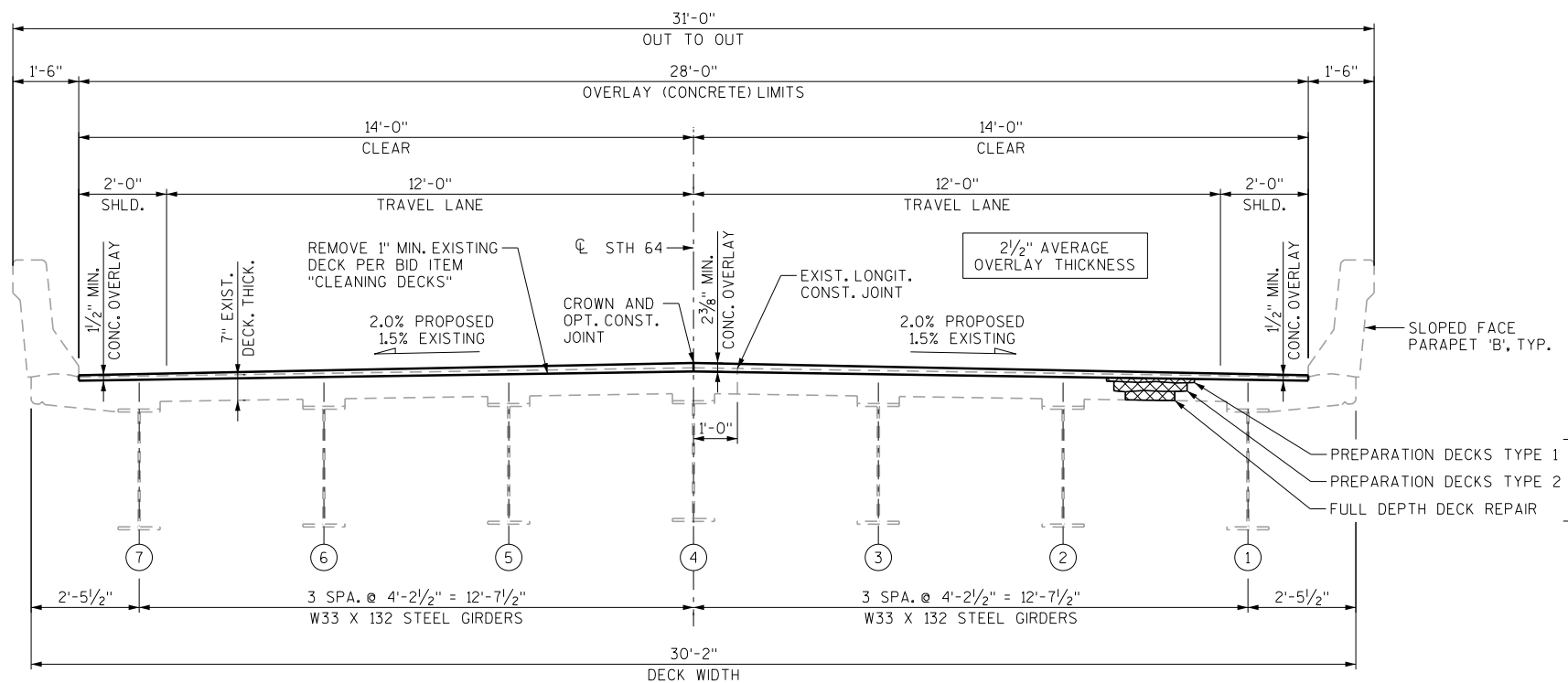
STH 64 OVER HAY RIVER

COUNTY DUNN TOWN SHERIDAN

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY VJD DESIGN CK'D. KBM DRAWN BY VJD PLANS CK'D. KBM

GENERAL PLAN AND ELEVATION SHEET 1 OF 12



CROSS SECTION THRU BRIDGE

LOOKING EAST
GIRDER IDENTIFICATION IS PER THE ORIGINAL CONSTRUCTION PLANS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NAVD 88 (2012). HORIZONTAL POSITIONS ARE WISCONSIN COUNTY COORDINATES, DUNN COUNTY, NAD 83 (2011).

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DEBRIS CONTAINMENT IS TO BE USED FOR REPAIRS OVER THE WATERWAY ONLY. USE OF DEBRIS CONTAINMENT AT OTHER LOCATIONS WILL NOT BE ALLOWED NOR PAID FOR.

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

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

THE AVERAGE OVERLAY THICKNESS IS BASED ON THE MINIMUM OVERLAY THICKNESS PLUS 1/2-INCH TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE.

CONCRETE SURFACE REPAIR SHALL BE USED FOR NEEDED REPAIRS ALONG THE ABUTMENT FRONT FACES AND PIER FACES. LOCATIONS AND LIMITS OF REPAIRS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIR AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

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

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

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

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

"PROTECTIVE SURFACE TREATMENT" IS TO BE APPLIED TO THE ENTIRE TOP SURFACE OF THE CONCRETE OVERLAY.

"PIGMENTED SURFACE SEALER" SHALL BE APPLIED TO THE ROADWAY FACE AND THE TOP OF THE NEW CONCRETE PARAPETS WITHIN THE JOINT REPAIR LIMIT. "PIGMENTED SURFACE SEALER RESEAL" SHALL BE APPLIED TO THE ROADWAY FACE AND THE TOP OF EXISTING PARAPETS.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

ALL PREVIOUS PATCHES WILL BE REMOVED UNDER PREPARATION DECK BID ITEMS.

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

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

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR OF 1936.

THE COST FOR PARAPET REMOVAL WITHIN THE LIMITS OF JOINT REPAIR, AND FOR REMOVAL OF EXISTING STEEL ANGLES SUPPORTING DIAPHRAGMS AT ABUTMENTS SHALL BE INCLUDED IN THE SQUARE YARD BID ITEM "JOINT REPAIR".

THE COST FOR PARAPET REPLACEMENT WITHIN THE LIMITS OF JOINT REPAIR SHALL BE INCLUDED IN THE CUBIC YARD BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

THE COST FOR NEW STEEL ANGLE BRACKETS, DRILLING HOLES IN EXISTING GIRDERS, AND ALL HARDWARE AT THE ABUTMENT DIAPHRAGMS SHALL BE INCLUDED IN THE BID ITEM "STRUCTURAL STEEL CARBON".

TOTAL ESTIMATED QUANTITIES

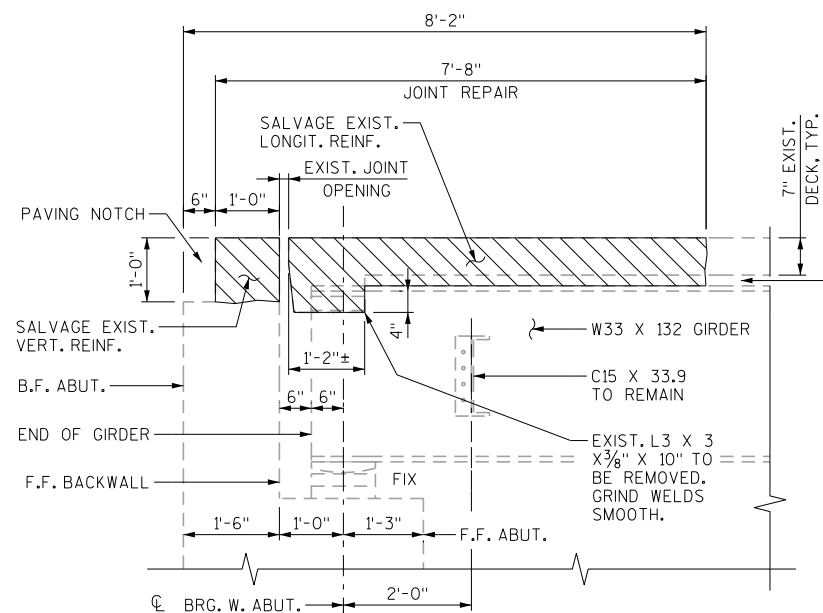
BID ITEM NO.	BID ITEM	UNIT	W. ABUT.	PIER 2	PIER 1	E. ABUT.	SUPER	TOTAL
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-17-169	EACH	-	-	-	-	-	1
203.0335	DEBRIS CONTAINMENT OVER WATERWAY B-17-169	EACH	-	1	1	-	-	2
502.3101	EXPANSION DEVICE B-17-169	LF	-	-	-	-	115	115
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	-	-	602	602
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	-	-	-	-	133	133
502.3210	PIGMENTED SURFACE SEALER	SY	-	-	-	-	23	23
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	33	-	-	33	-	66
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	360	-	-	360	5,380	6,100
506.0105	STRUCTURAL STEEL CARBON	LB	-	-	-	-	280	280
509.0301	PREPARATION DECKS TYPE 1	SY	-	-	-	-	86	86
509.0302	PREPARATION DECKS TYPE 2	SY	-	-	-	-	34	34
509.0500	CLEANING DECKS	SY	-	-	-	-	596	596
509.1000	JOINT REPAIR	SY	-	-	-	-	93	93
509.1500	CONCRETE SURFACE REPAIR	SF	2	10	10	30	-	52
509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	-	-	9	9
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	2	-	-	2	86	90
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	-	-	4	4
NON-BID ITEMS								
	NAME PLATE	EACH						1

ALL B-17-169 BID ITEMS ARE CATEGORY 0020

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY: VJD		PLANS CK'D: KBM	
CROSS SECTION AND QUANTITIES			SHEET 2 OF 12

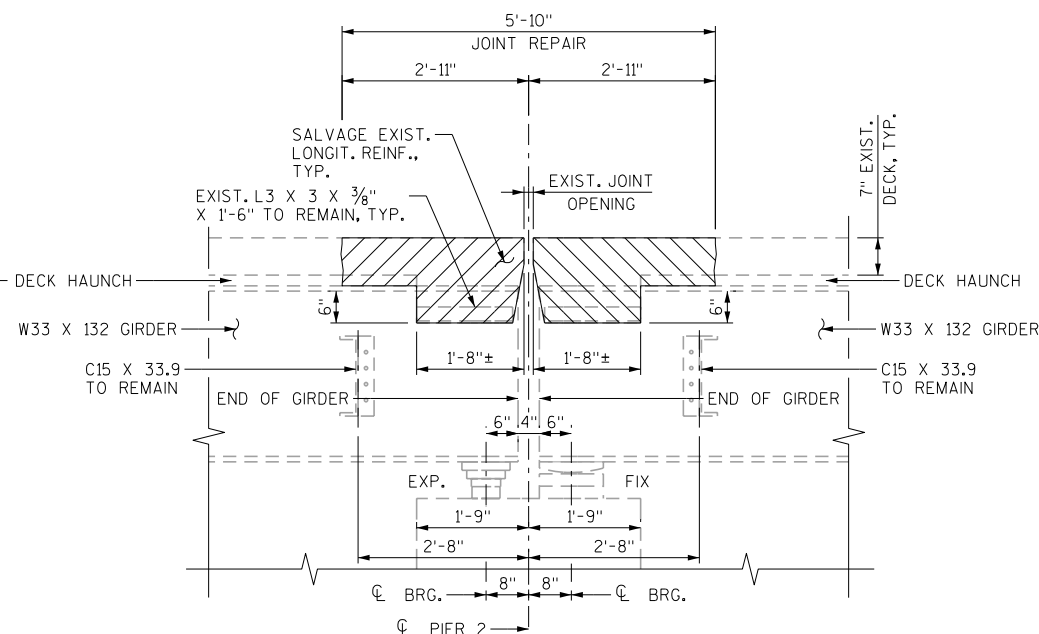
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8



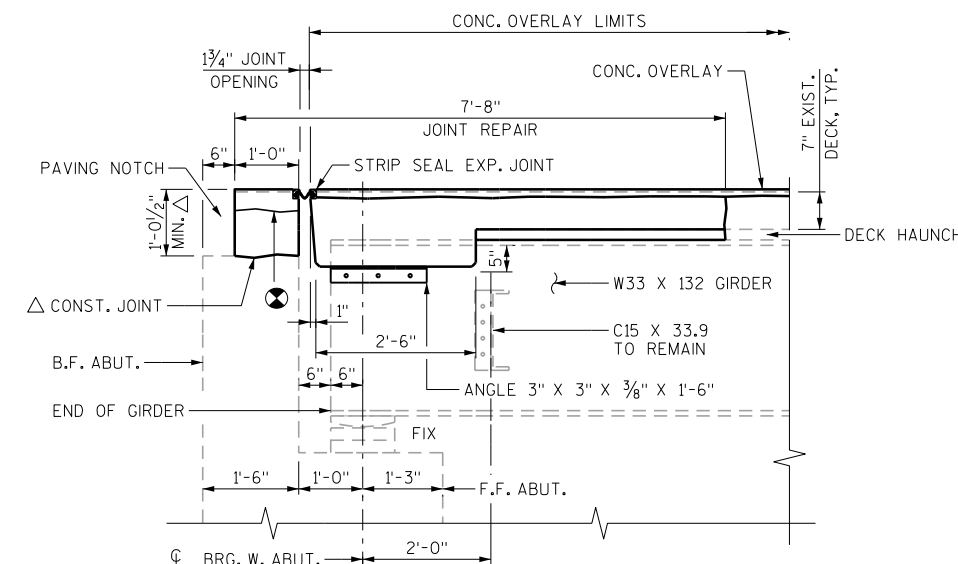
SECTION THRU JOINT REPAIR

LOOKING NORTH
SHOWING REMOVALS AT W. ABUT.
E. ABUT. SIMILAR



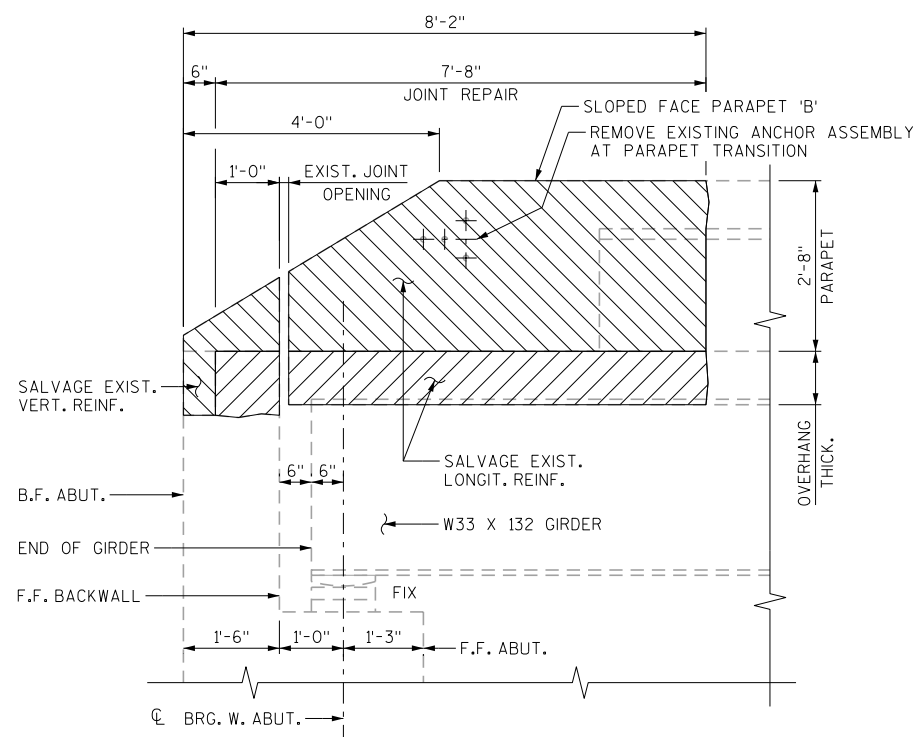
SECTION THRU JOINT REPAIR

LOOKING NORTH
SHOWING REMOVALS AT PIER 2
PIER 1 SIMILAR



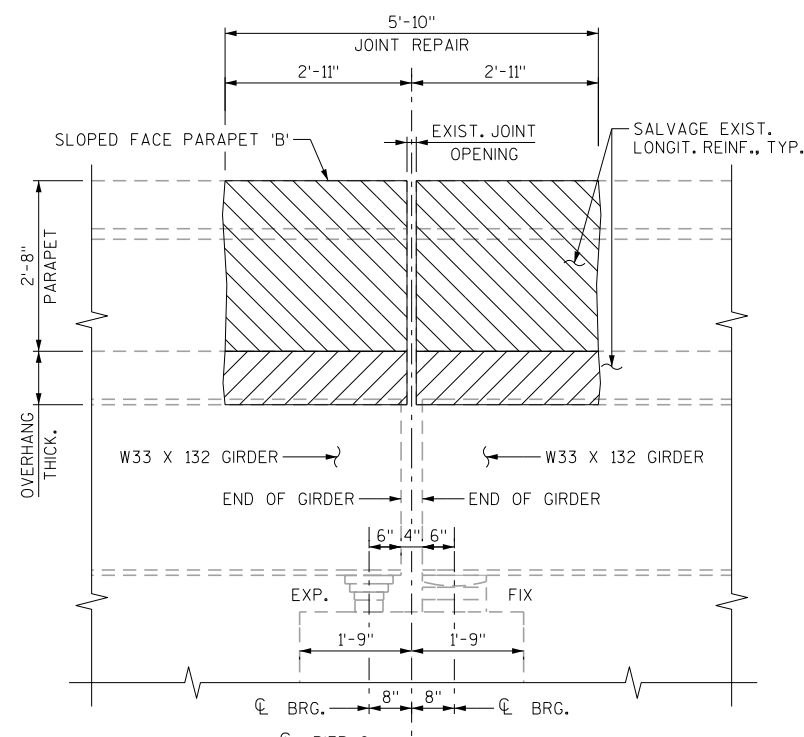
SECTION THRU JOINT REPAIR

LOOKING NORTH
SHOWING PROPOSED WORK AT W. ABUT.
E. ABUT. SIMILAR



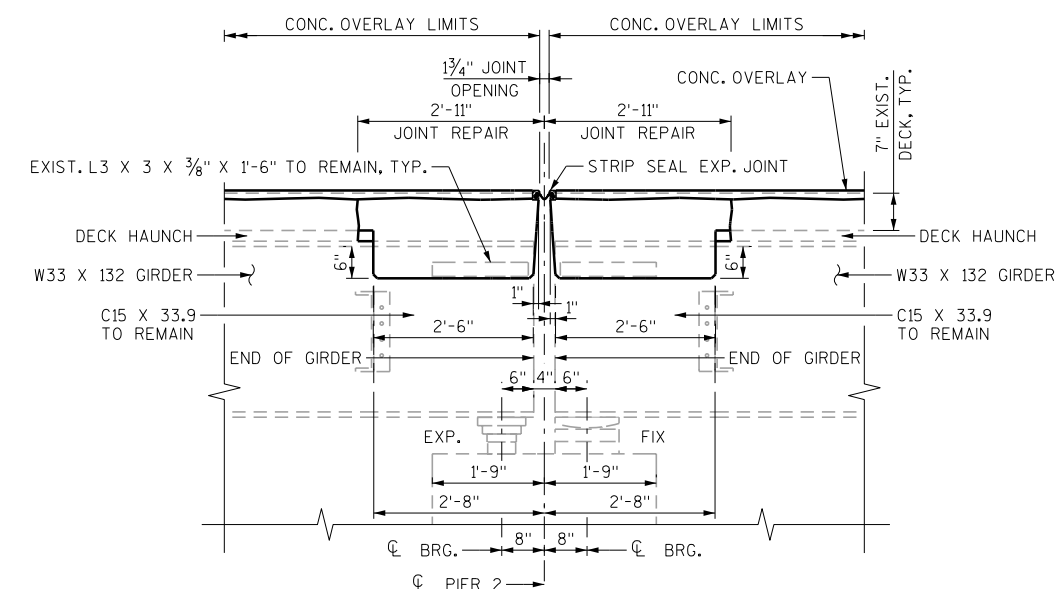
SECTION THRU JOINT REPAIR

LOOKING NORTH AT FASCIA
SHOWING EDGE OF DECK REMOVALS AT W. ABUT.
E. ABUT. SIMILAR



SECTION THRU JOINT REPAIR

LOOKING NORTH AT FASCIA
SHOWING EDGE OF DECK REMOVALS AT PIER 2
PIER 1 SIMILAR



SECTION THRU JOINT REPAIR

LOOKING NORTH
SHOWING PROPOSED WORK PIER 2
PIER 1 SIMILAR

8

8

NOTE

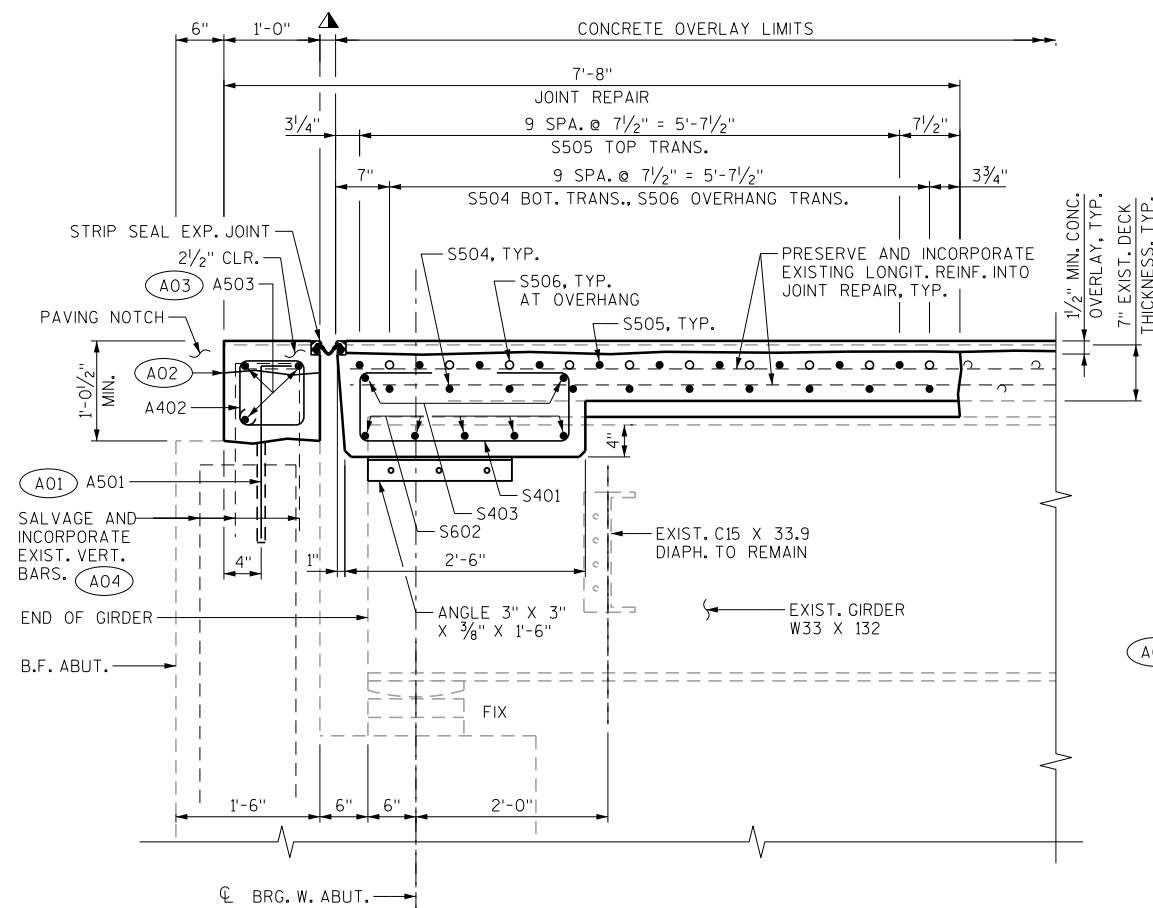
SEE SHEETS 4 THRU 7 FOR REINFORCEMENT AND EXPANSION DEVICE DETAILS AT ABUTMENT JOINT REPAIR AND ABUTMENT PARAPETS.

SEE SHEETS 8 THRU 10 FOR REINFORCEMENT AND EXPANSION DEVICE DETAILS AT PIER JOINT REPAIR AND PIER PARAPETS.

LEGEND

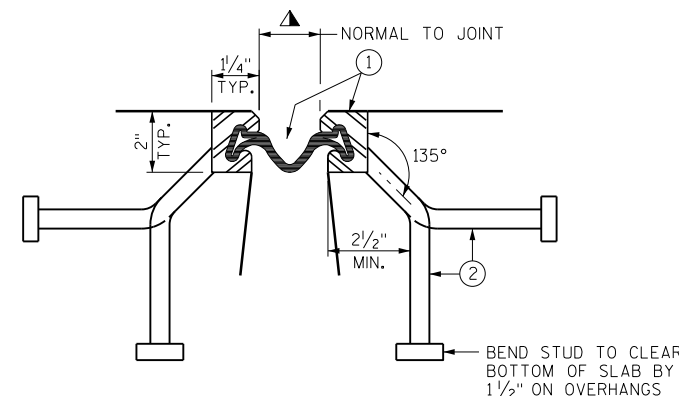
- LIMITS OF JOINT REPAIR AND REMOVAL AREA.
- POUR CONCRETE ABOVE THE CONSTRUCTION JOINT AFTER OVERLAY PLACEMENT AND MATCH ELEVATION. STRIKE OFF AND LEAVE ROUGH.
- OPTIONAL CONSTRUCTION JOINT. 1" MINIMUM BELOW EXISTING REINFORCEMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY: VJD		PLANS CKD: KBM	
JOINT REPAIR SECTIONS			SHEET 3 OF 12



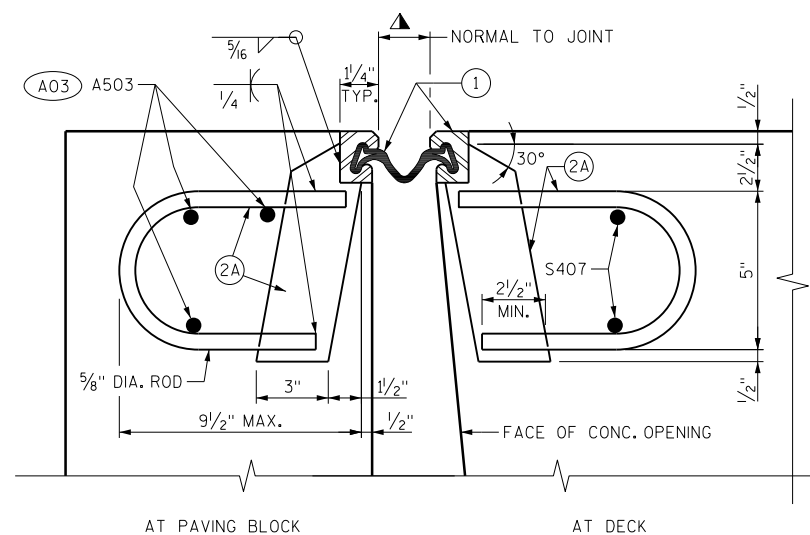
SECTION THRU ABUTMENT JOINT REPAIR

SHOWING REINFORCEMENT, NORMAL TO ϕ PIER
W. ABUT. SHOWN, E. ABUT. SIMILAR



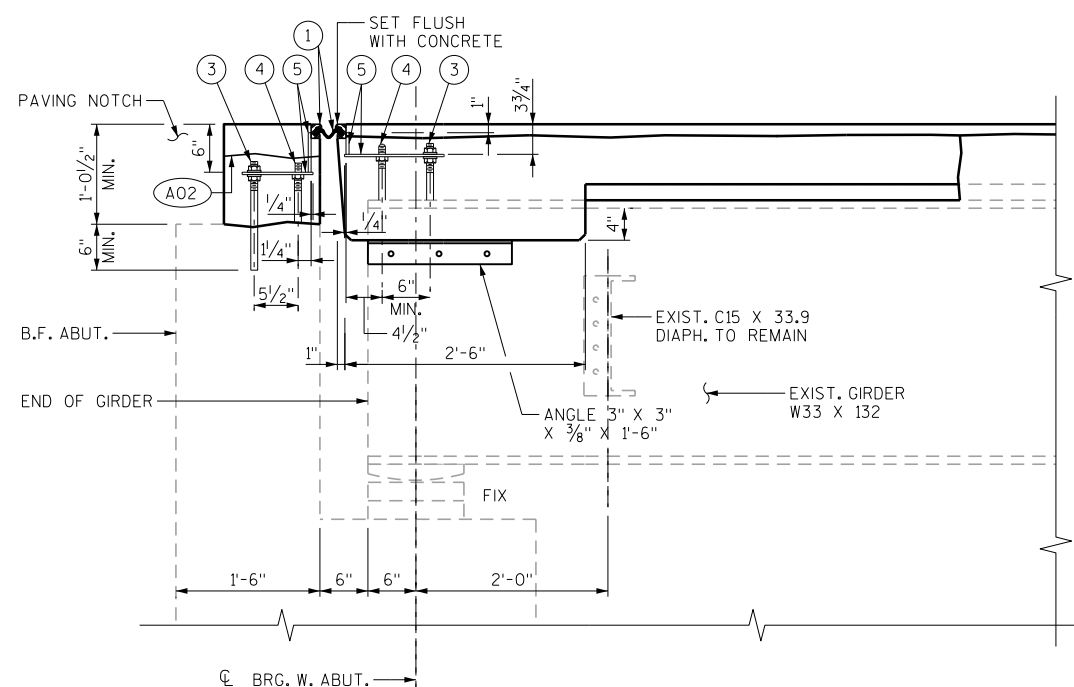
SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND PARAPETS



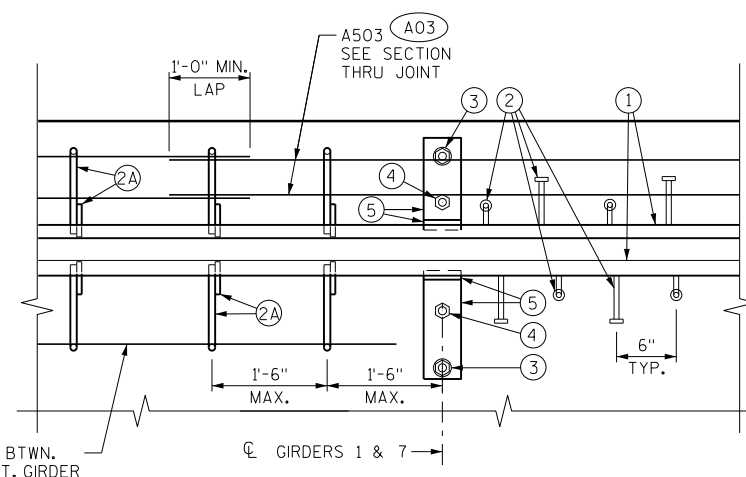
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



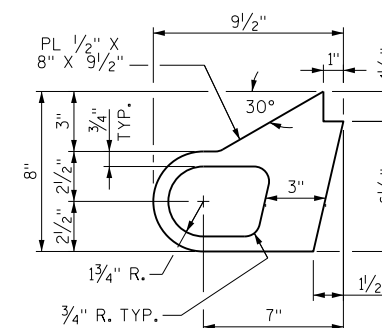
SECTION THRU ABUTMENT JOINT REPAIR

SHOWING EXPANSION DEVICE COMPONENTS
NORMAL TO ϕ BRG. W. ABUT.
W. ABUT. SHOWN, E. ABUT. SIMILAR



PART PLAN

SIMILAR AT GIRDERS 1 & 7



ALTERNATE STRIP SEAL ANCHOR

LEGEND

- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.

- ▲ SET JOINT OPENING AT 1 3/4".
- A01 ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.
- A02 OPTIONAL CONSTRUCTION JOINT. 1" MIN BELOW EXIST. REINF.
- A03 HORIZONTAL PAVING BLOCK REINFORCEMENT. 8'-0" LONG. 1'-0" MIN. LAP.
- A04 EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. SALVAGE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH ADHESIVE ANCHORS NO. 5 BAR EMBEDDED 1'-0" INTO CONCRETE.

EXPANSION JOINT NOTES

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

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

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

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

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-17-169", LF.

NOTES

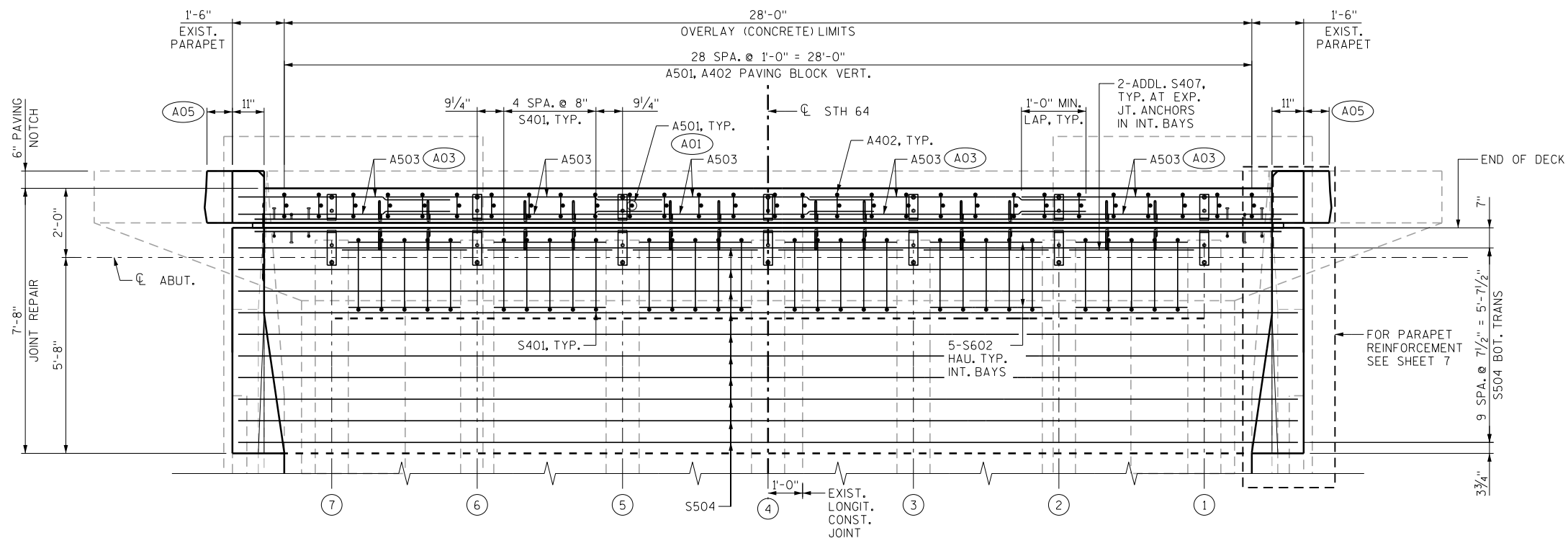
REFER TO "JOINT REPAIR SECTIONS" FOR REMOVAL DETAILS, "ABUTMENT JOINT REPAIR (2 OF 3)", AND "ABUTMENT JOINT REPAIR (3 OF 3)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.

DIAPHRAGM SUPPORT ANGLES SHALL BE ASTM A709 GRADE 36. BOLTS ARE 3/4" DIA. ALL BOLTS, NUTS, AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL SUPPORT ANGLES SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

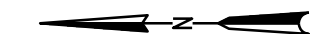
ALL DIAPHRAGM SUPPORTS AND HARDWARE SHALL BE INCLUDED IN PAYMENT FOR "STRUCTURAL STEEL CARBON".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
		DRAWN BY: VJD	PLANS CK'D: KBM
ABUTMENT JOINT REPAIR			SHEET 4 OF 12
(1 OF 4)			



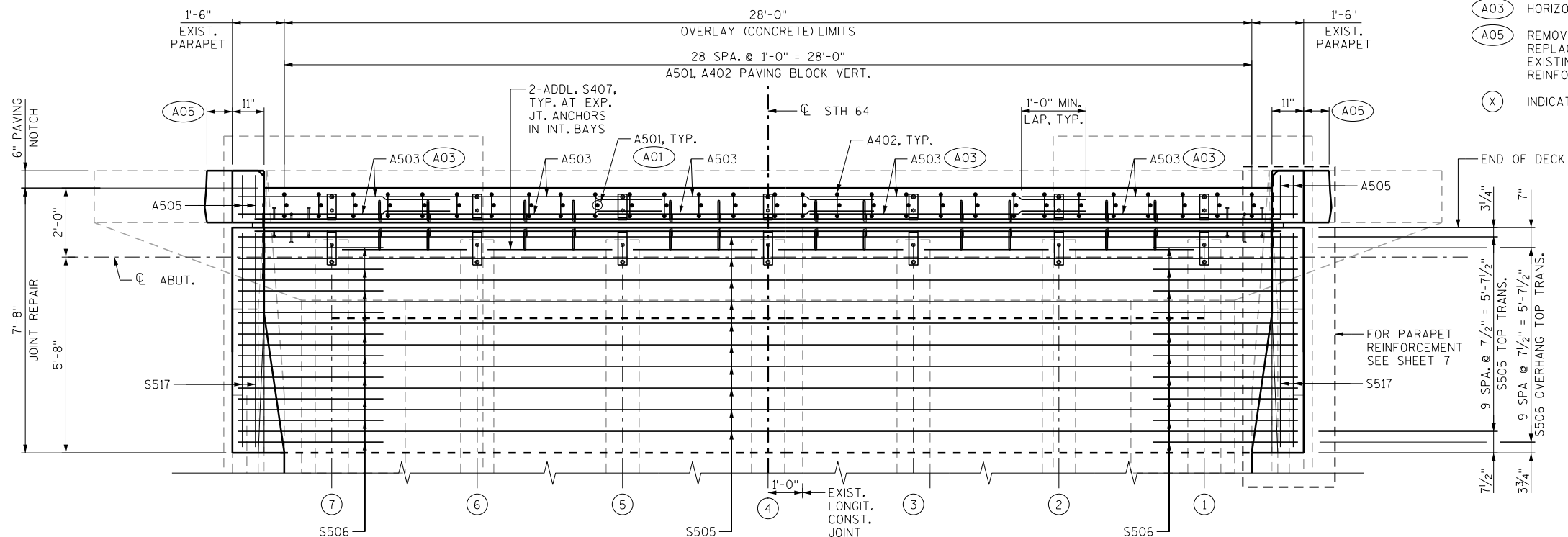
ABUTMENT EXPANSION JOINT REPAIR PLAN

SHOWING HAUNCH AND BOTTOM SLAB REINFORCEMENT
EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY
EACH ABUTMENT SIMILAR



LEGEND

- (A01) ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.
- (A03) HORIZONTAL PAVING BLOCK REINFORCEMENT. 8'-0" LONG. 1'-0" MIN. LAP.
- (A05) REMOVAL LIMITS SHALL MATCH THE LIMITS OF THE PREVIOUSLY REPLACED PAVING BLOCK, BACKWALL, AND TOP OF WING. MATCH EXISTING TOP OF WING ELEVATIONS. TAKE CARE TO AVOID DAMAGING REINFORCEMENT.
- (X) INDICATES GIRDER NUMBER.



ABUTMENT EXPANSION JOINT REPAIR PLAN

SHOWING TOP SLAB AND REINFORCEMENT
EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY
EACH ABUTMENT SIMILAR

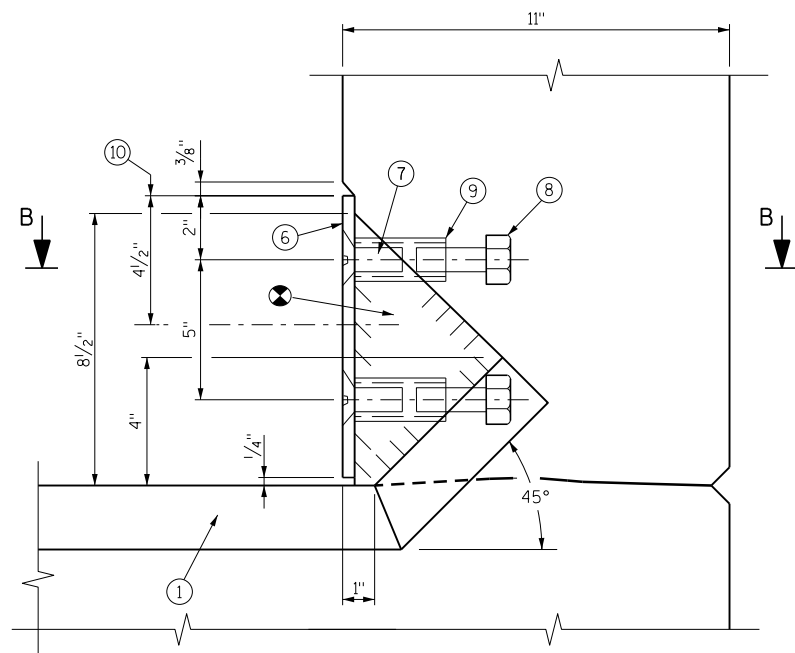
NOTES

- REFER TO "JOINT REPAIR SECTIONS" FOR REMOVAL DETAILS, "ABUTMENT JOINT REPAIR (1 OF 4)", "ABUTMENT DETAILS (3 OF 4)", AND "ABUTMENT JOINT REPAIR (4 OF 4)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.
- FOR COVER PLATE DETAILS, SEE SHEET 6.
- FOR SECTIONS THRU PARAPET SEE SHEETS 6 AND 7.
- FOR BILL OF BARS, SEE SHEET 11.

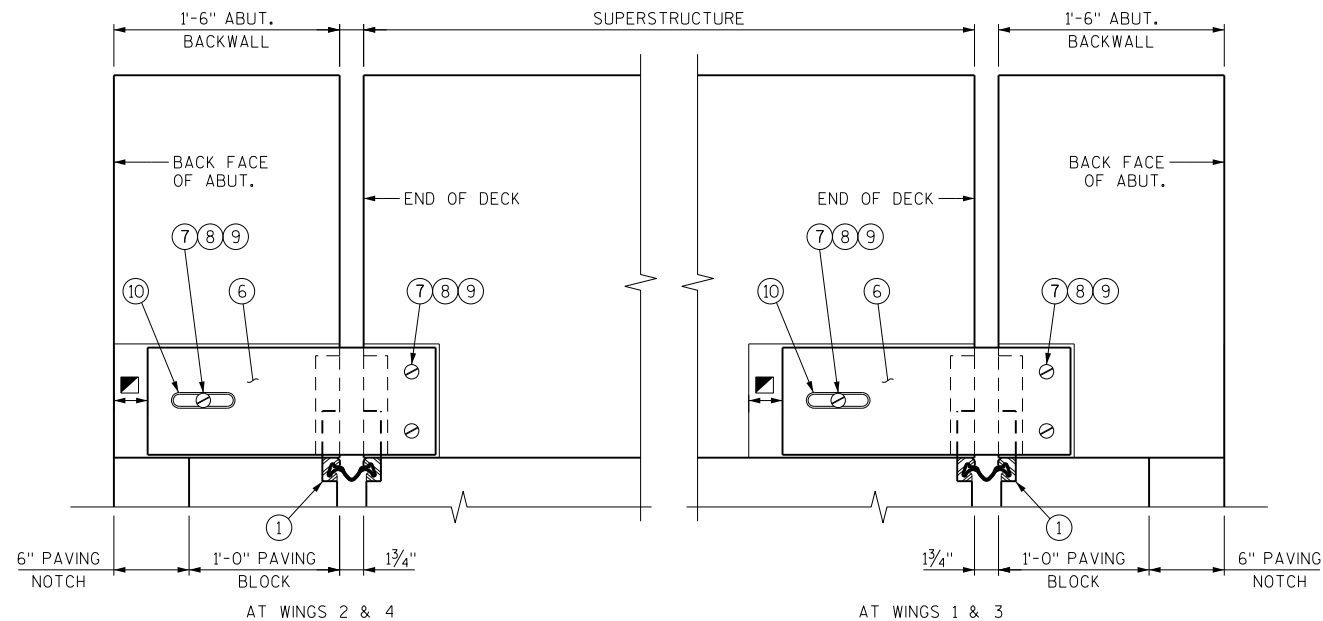
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8

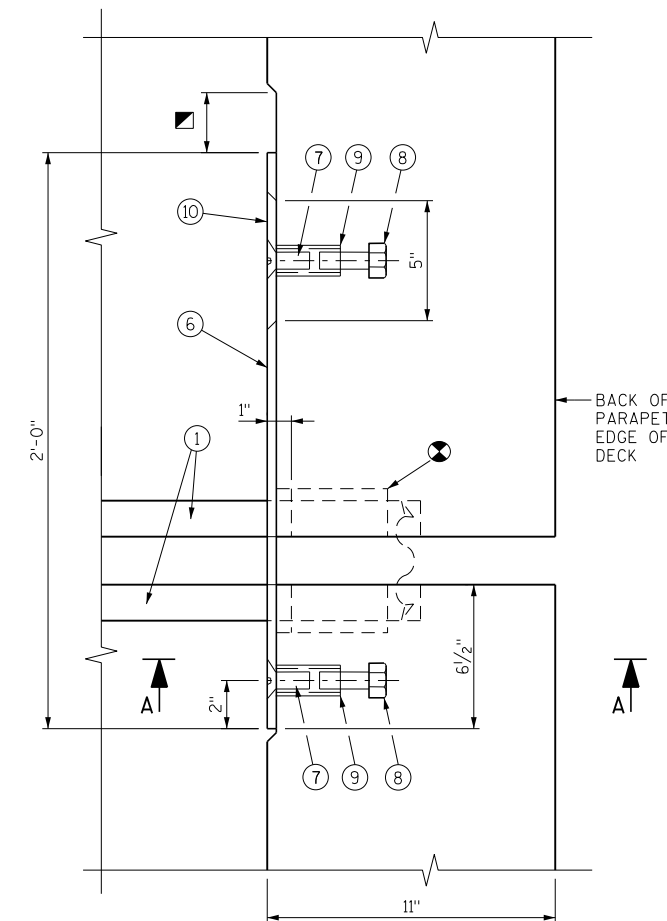
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CK'D. KBM	
ABUTMENT JOINT REPAIR (2 OF 4)			SHEET 5 OF 12



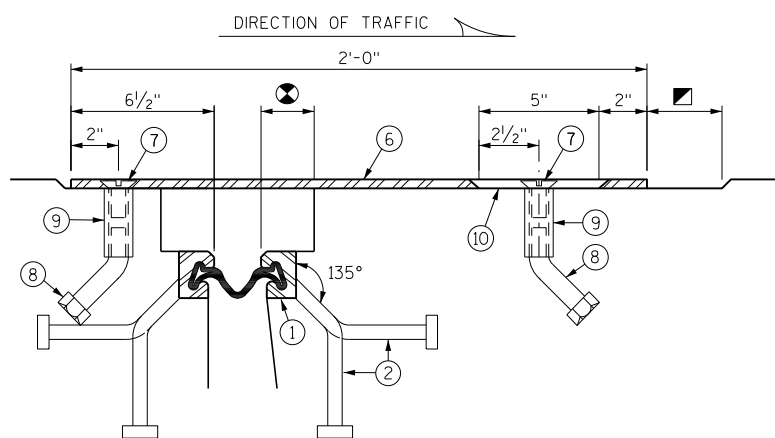
SECTION A-A



VIEW OF PARAPET PLATE FROM ROADWAY



PLAN



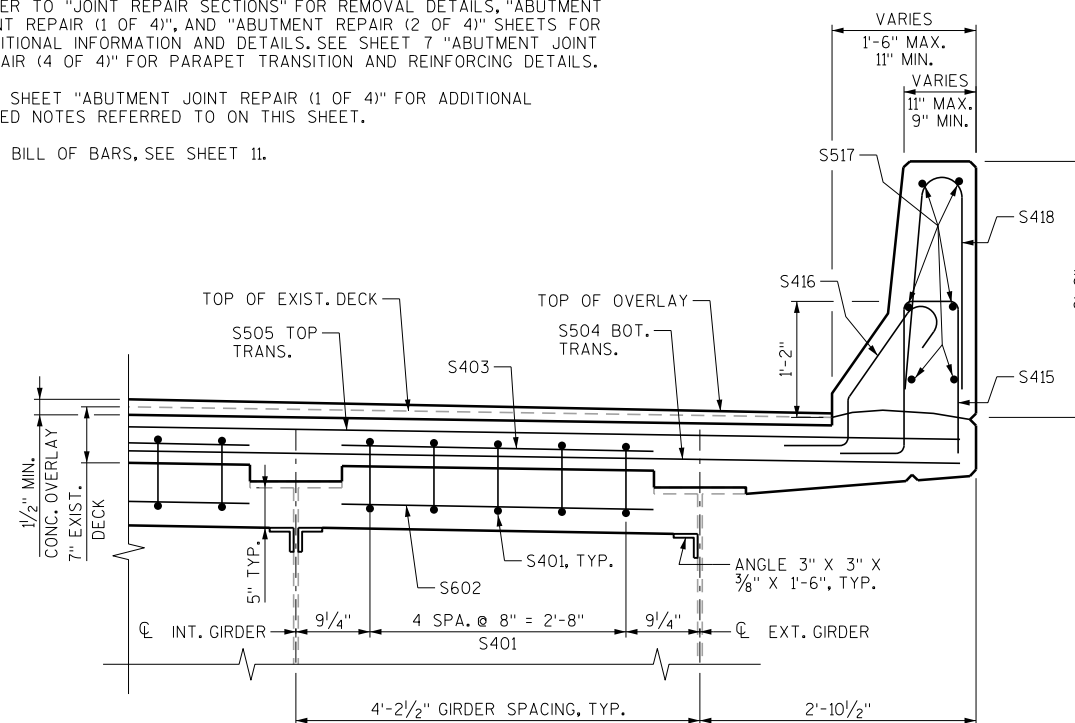
SECTION B-B

NOTES

REFER TO "JOINT REPAIR SECTIONS" FOR REMOVAL DETAILS, "ABUTMENT JOINT REPAIR (1 OF 4)", AND "ABUTMENT REPAIR (2 OF 4)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS. SEE SHEET 7 "ABUTMENT JOINT REPAIR (4 OF 4)" FOR PARAPET TRANSITION AND REINFORCING DETAILS.

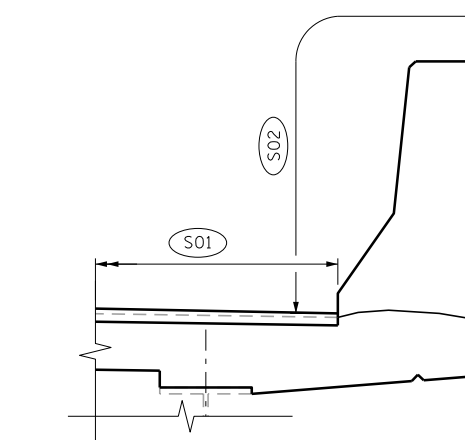
SEE SHEET "ABUTMENT JOINT REPAIR (1 OF 4)" FOR ADDITIONAL KEYED NOTES REFERRED TO ON THIS SHEET.

FOR BILL OF BARS, SEE SHEET 11.



PART TRANSVERSE SECTION AT DIAPHRAGM

ALL INTERIOR BAYS SIMILAR

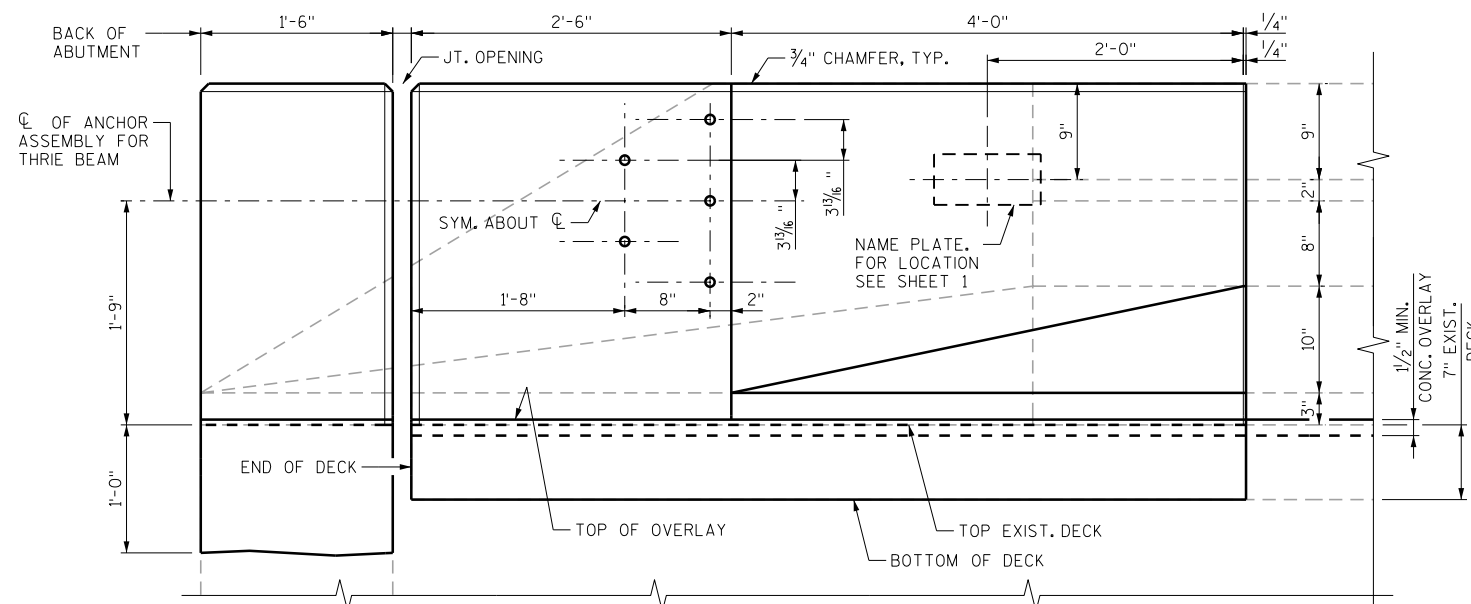


PART SECTION AT PARAPET
SHOWING LIMITS OF SURFACE TREATMENT

LEGEND

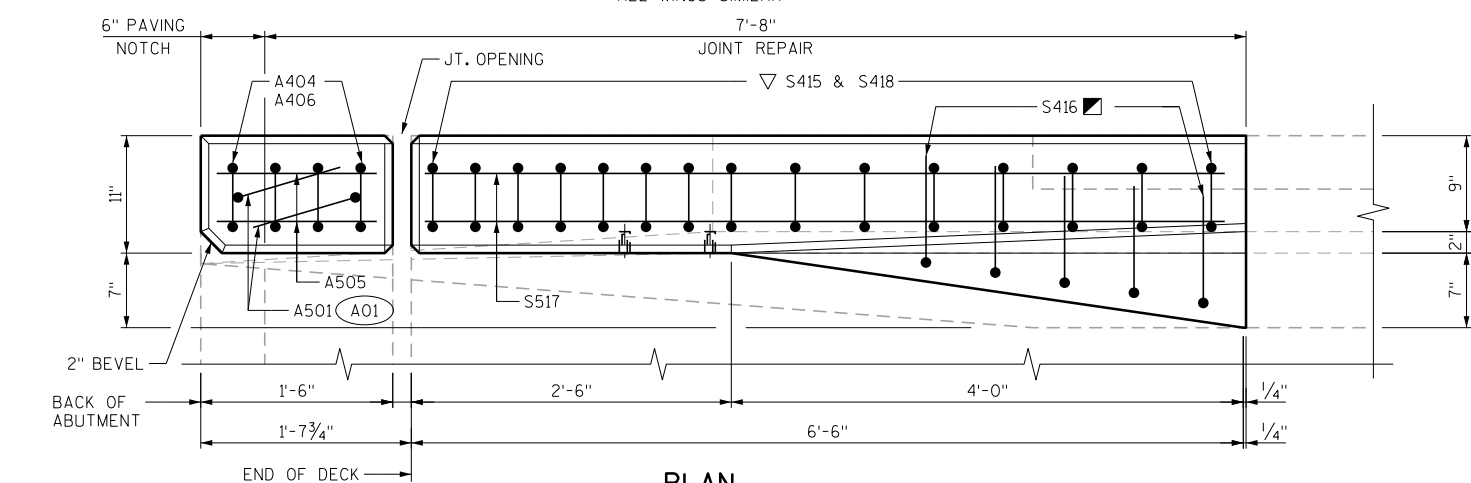
- 6 GALVANIZED PLATE 3/8" X 10" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- 7 3/4" DIA. X 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 8 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 9 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- 10 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION PLUS 1/2".
- S01 PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE CONCRETE OVERLAY.
- S02 "PIGMENTED SURFACE SEALER" SHALL BE APPLIED TO THE ROADWAY FACE AND THE TOP OF NEW CONCRETE PARAPETS. "PIGMENTED SURFACE SEALER RESEAL" SHALL BE APPLIED TO THE ROADWAY FACE AND TOP OF EXISTING PARAPETS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CK'D. KBM	
ABUTMENT JOINT REPAIR (3 OF 4)			SHEET 6 OF 12



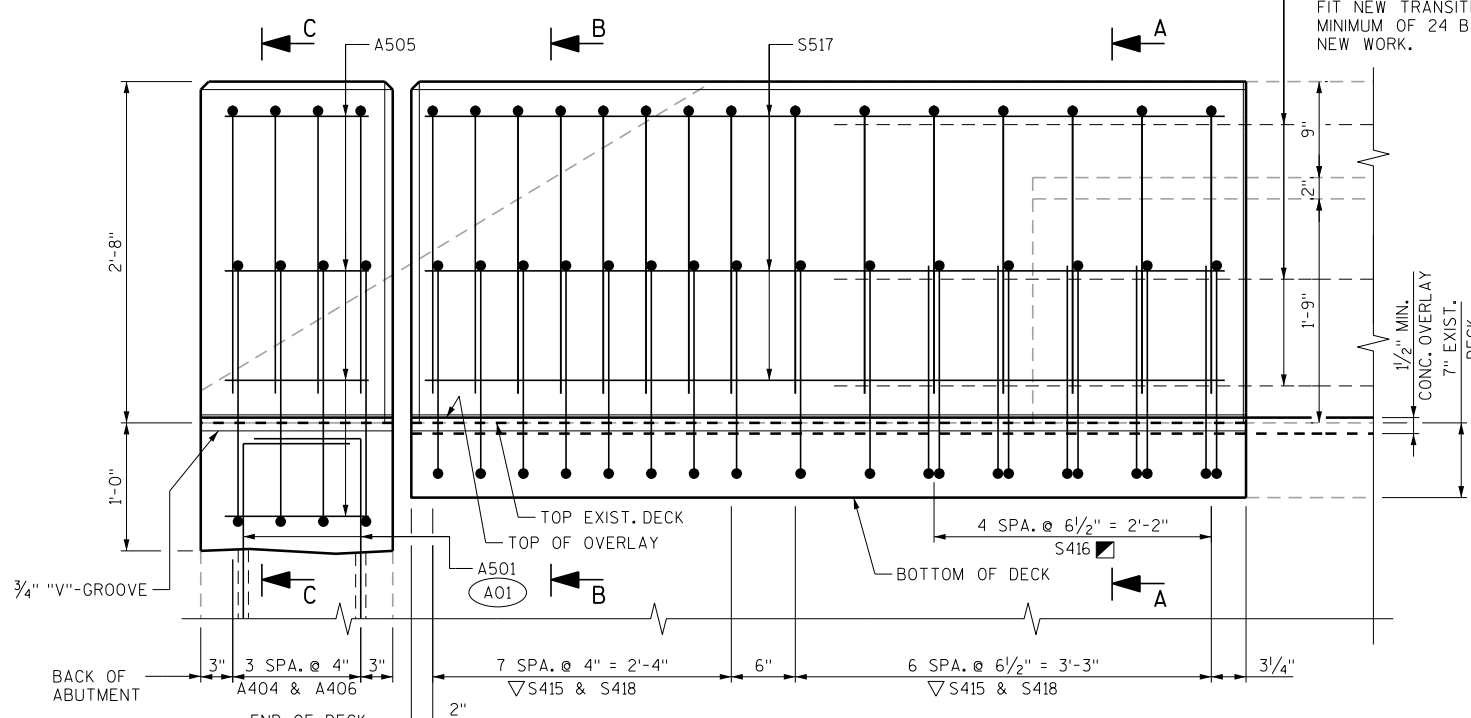
INSIDE ELEVATION

ALL WINGS SIMILAR



PLAN

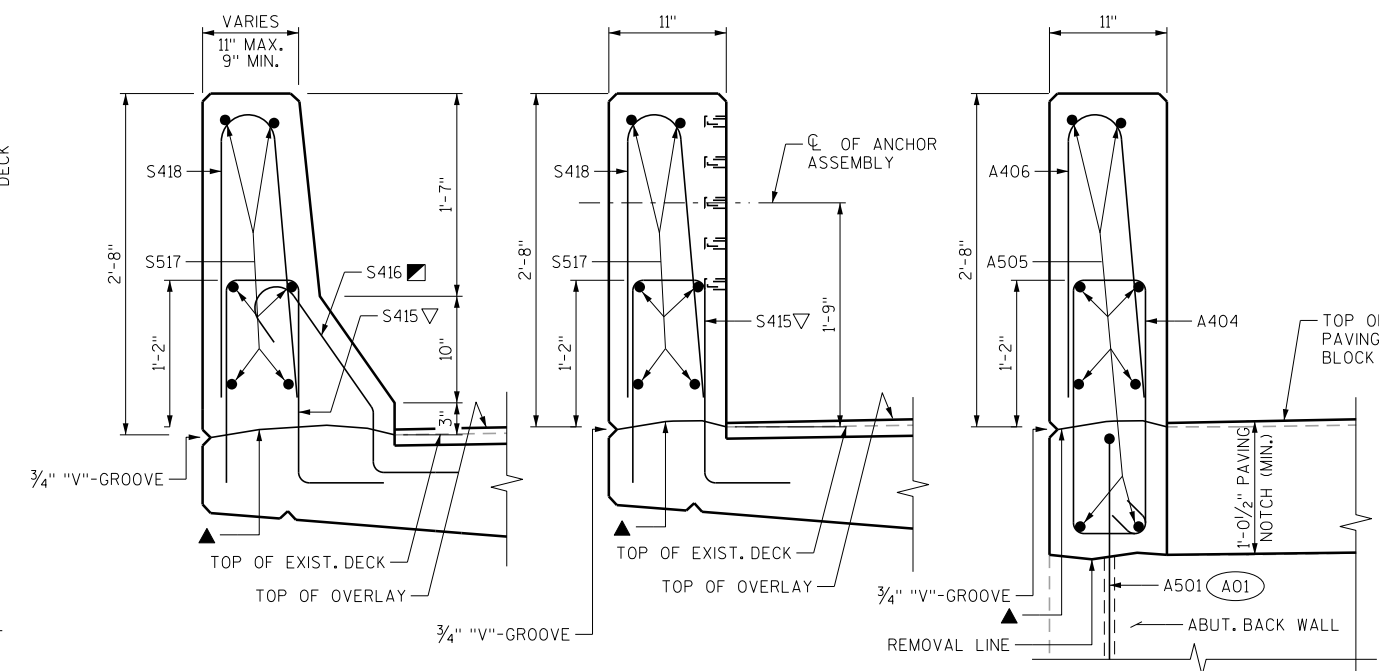
ALL WINGS SIMILAR



OUTSIDE ELEVATION

ALL WINGS SIMILAR
SHOWING REINFORCEMENT

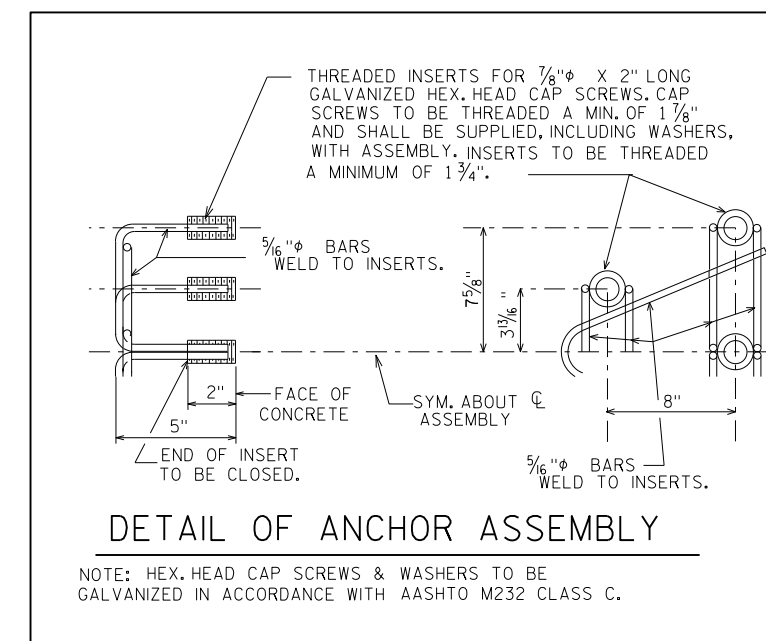
PRESERVE AND INCORPORATE EXISTING LONGIT. REINFORCEMENT. BEND BARS TO FIT NEW TRANSITION. EXTEND BARS A MINIMUM OF 24 BAR DIAMETERS INTO NEW WORK.



SECTION A-A

SECTION B-B

SECTION C-C



DETAIL OF ANCHOR ASSEMBLY

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

LEGEND

- (A01) ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. PLACE AS SHOWN. TURN 10" LEG AS NECESSARY TO FIT.
- ▲ CONST. JOINT - STRIKE OFF AS SHOWN.
- S416 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. TAKE CARE TO PLACE S416 BARS CORRECTLY ALONG THE PARAPET TRANSITION.
- ▽ S415 BARS TO BE TIED TO DECK REINFORCEMENT BEFORE THE DECK IS POURED WITHIN THE JOINT REPLACEMENT AREAS.

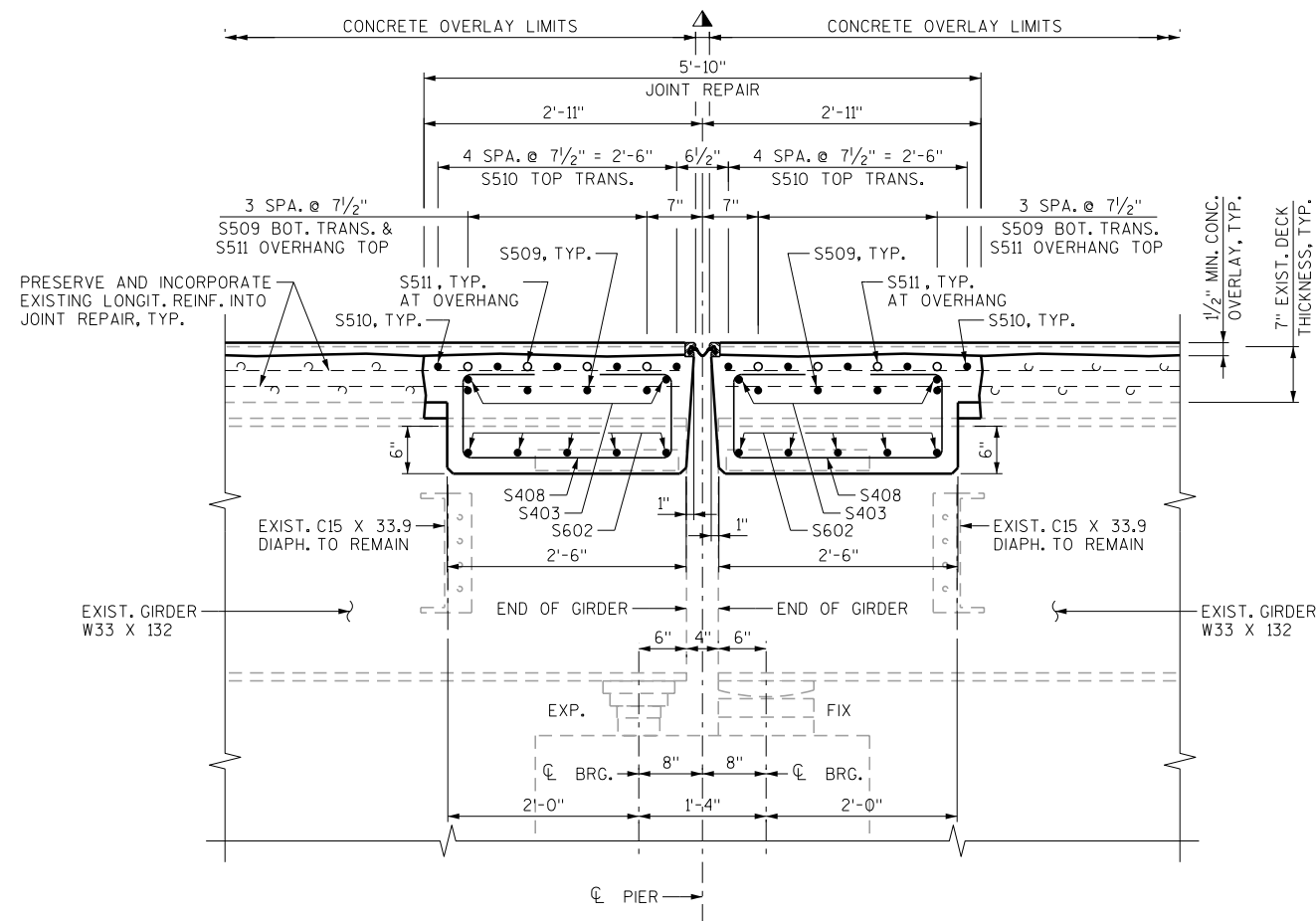
NOTE

FOR BILL OF BARS AND BEND DIAGRAMS, SEE SHEET 11.

8

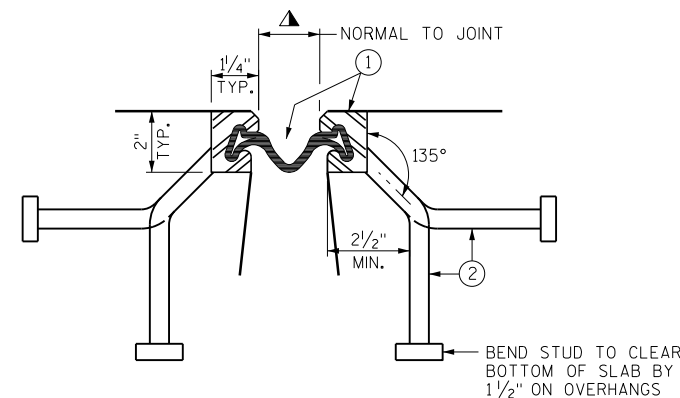
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CKD. KBM	
ABUTMENT JOINT REPAIR (4 OF 4)			SHEET 7 OF 12



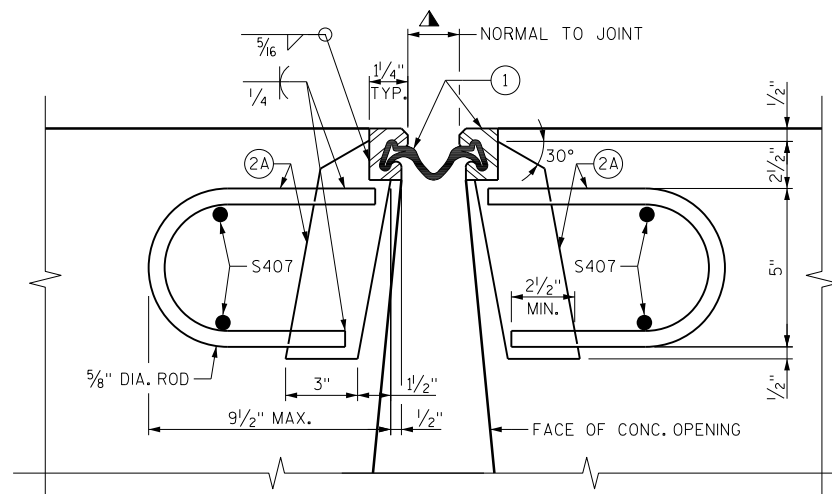
SECTION THRU PIER JOINT REPAIR

SHOWING REINFORCEMENT, NORMAL TO PIER
PIER 2 SHOWN, PIER 1 SIMILAR



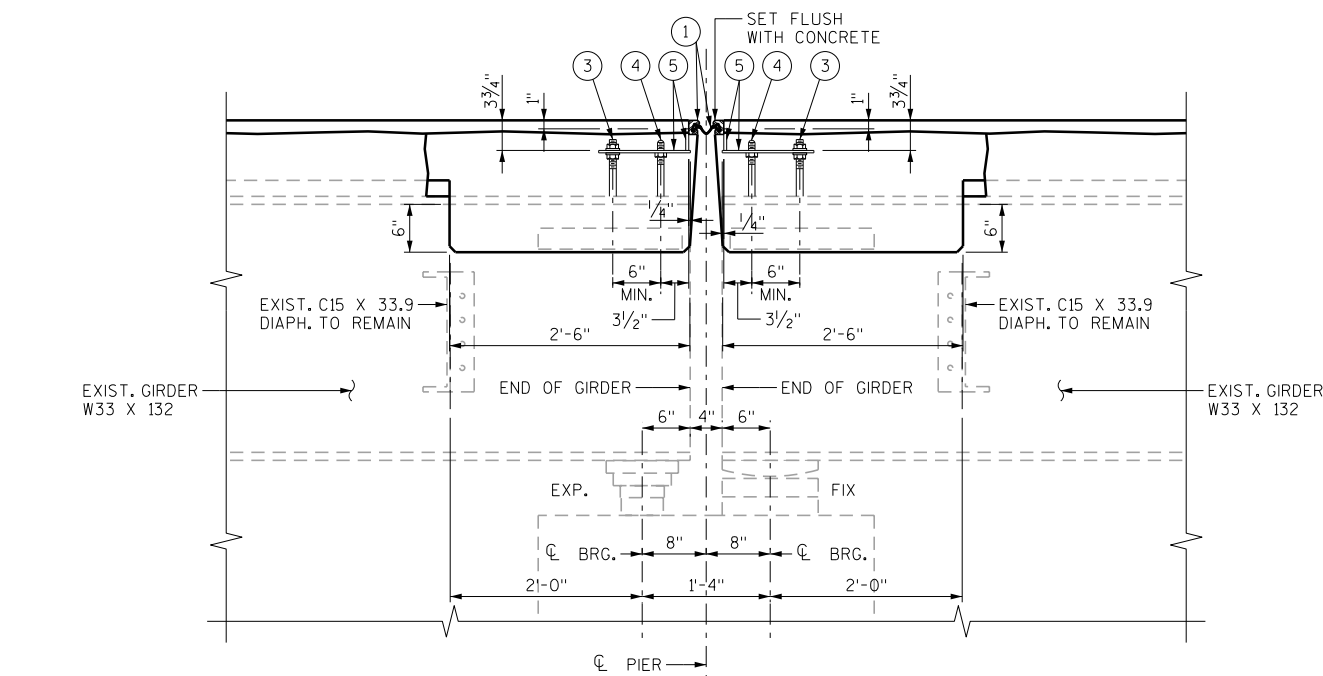
SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND PARAPETS



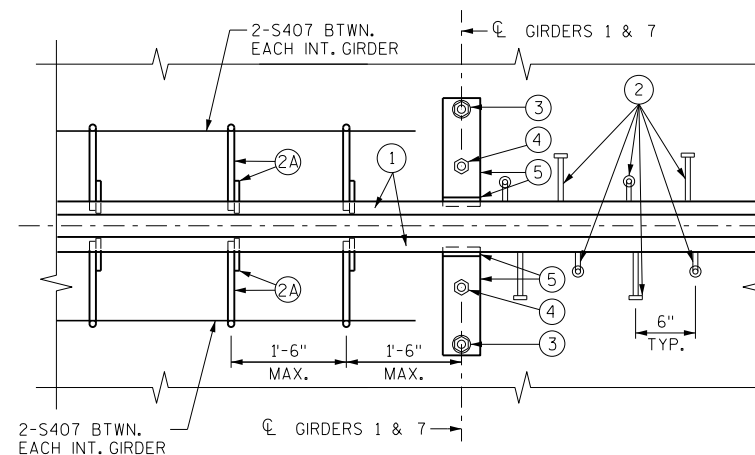
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU PIER JOINT REPAIR

SHOWING EXPANSION DEVICE COMPONENTS
NORMAL TO PIER
PIER 2 SHOWN, PIER 1 SIMILAR



PART PLAN

SIMILAR AT GIRDERS 1 AND 7

LEGEND

- ① NEOPRENE STRIP SEAL (4-INCH) AND STEEL EXTRUSIONS.
 - ② STUDS 5/8" DIA. X 6 3/4" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
 - ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
 - ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
 - ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
 - ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ▲ SET JOINT OPENING AT 1 3/4".

EXPANSION JOINT NOTES

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

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

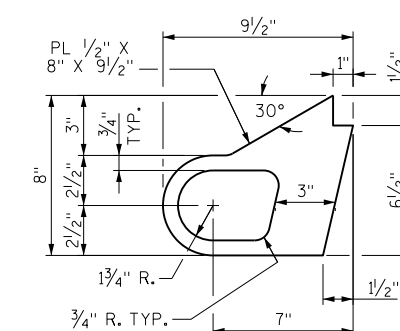
FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

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

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-17-169", LF.

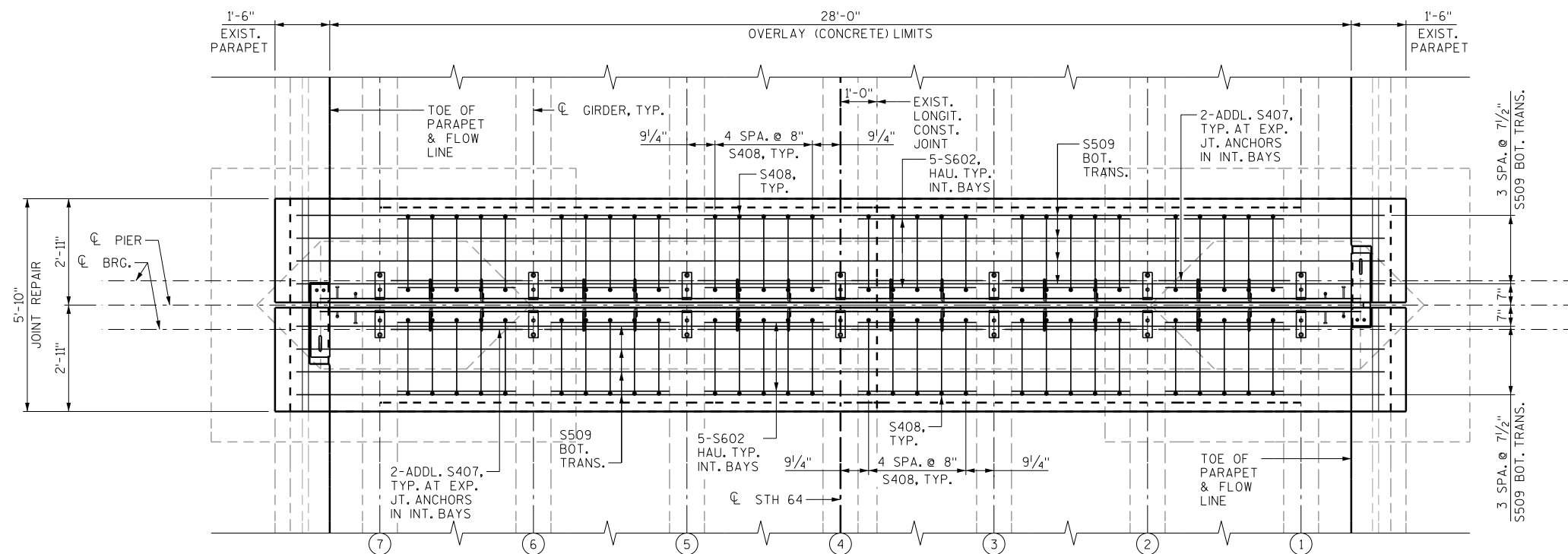
NOTES

REFER TO "JOINT REPAIR SECTIONS" FOR REMOVAL DETAILS, "PIER JOINT REPAIR (2 OF 3)", AND "PIER JOINT REPAIR (3 OF 3)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.



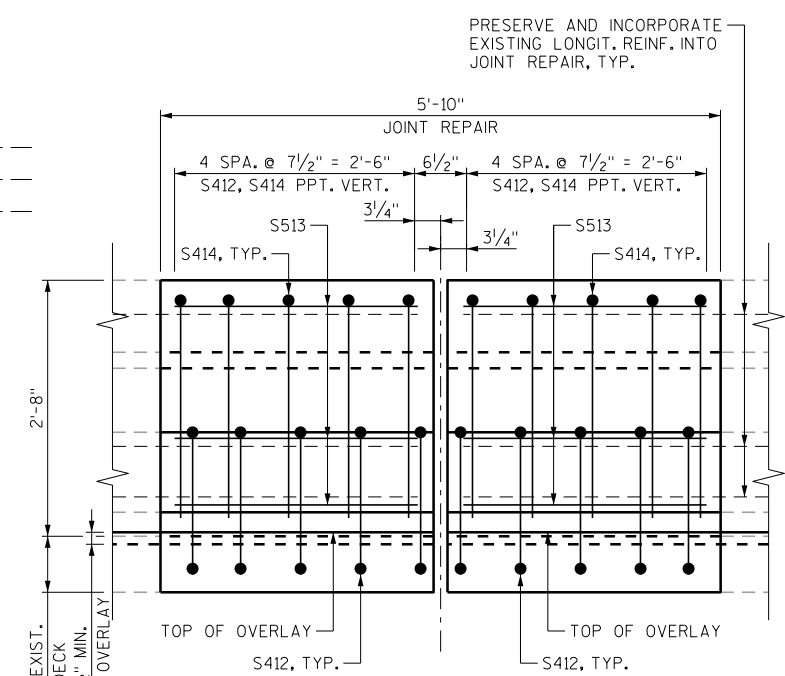
ALTERNATE STRIP SEAL ANCHOR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD			PLANS CK'D. KBM
PIER JOINT REPAIR (1 OF 3)			SHEET 8 OF 12



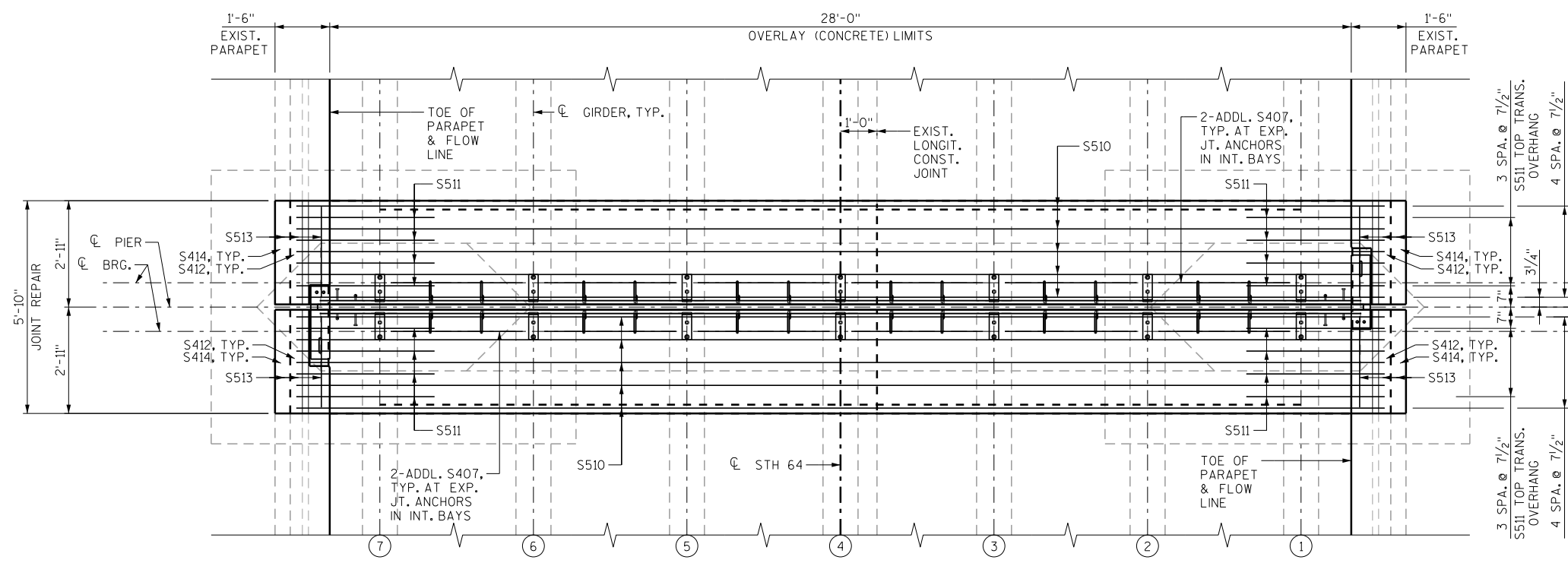
PIER EXPANSION JOINT REPAIR PLAN

SHOWING HAUNCH AND BOTTOM SLAB REINFORCEMENT
EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY
EACH PIER SIMILAR



PARAPET ELEVATION

LOOKING AT ROADWAY FACE
NORTH AND SOUTH PARAPETS SIMILAR
DECK REINFORCEMENT NOT SHOWN FOR CLARITY



PIER EXPANSION JOINT REPAIR PLAN

SHOWING TOP SLAB AND PARAPET REINFORCEMENT
EXISTING REINFORCEMENT NOT SHOWN FOR CLARITY
EACH PIER SIMILAR

LEGEND

(X) INDICATES GIRDER NUMBER.

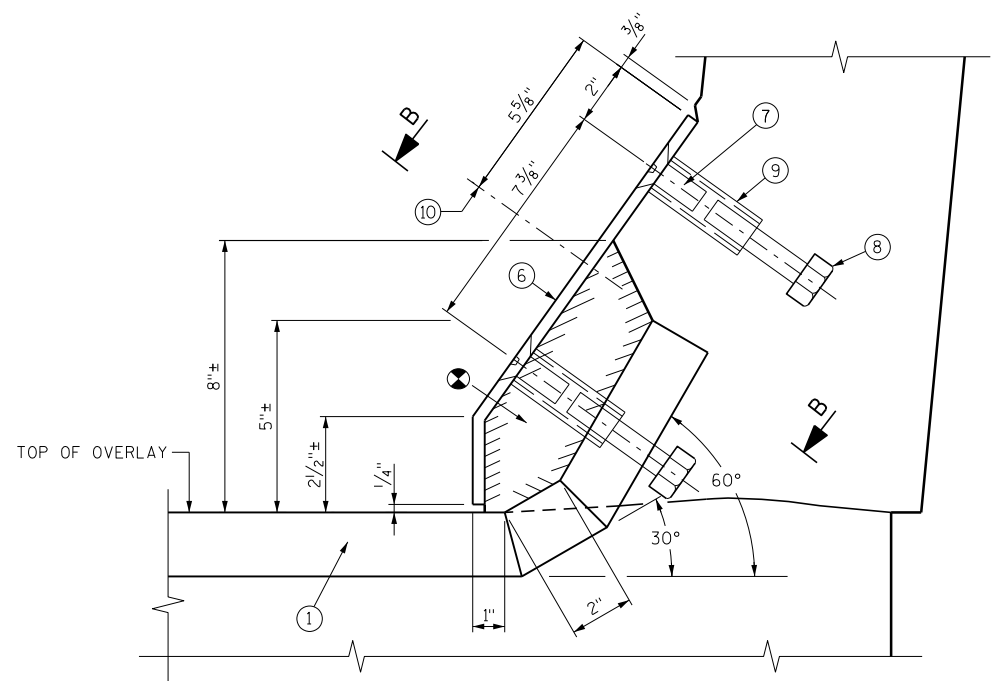
NOTES

- REFER TO "JOINT REPAIR SECTIONS" FOR REMOVAL DETAILS, "PIER JOINT REPAIR (1 OF 3)", AND "PIER DETAILS (2 OF 3)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.
- FOR COVER PLATE DETAILS, SEE SHEET 10.
- FOR SECTION THRU PARAPET, SEE SHEET 10.
- FOR BILL OF BARS, SEE SHEET 11.

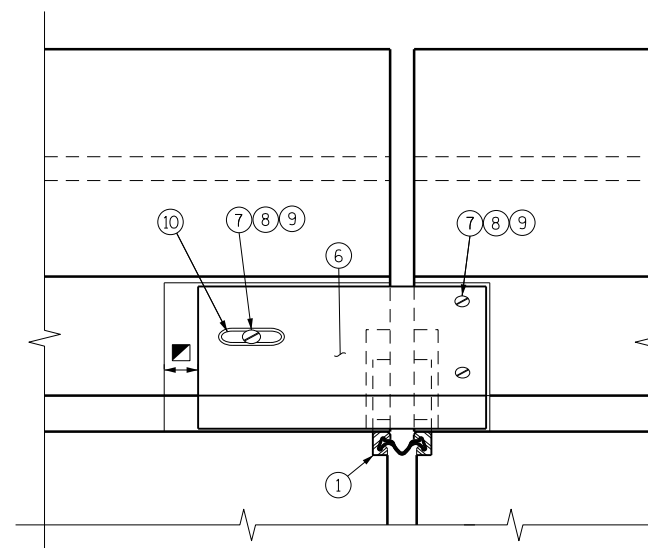
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY: VJD		PLANS CK'D: KBM	
PIER JOINT REPAIR (2 OF 3)			SHEET 9 OF 12

8

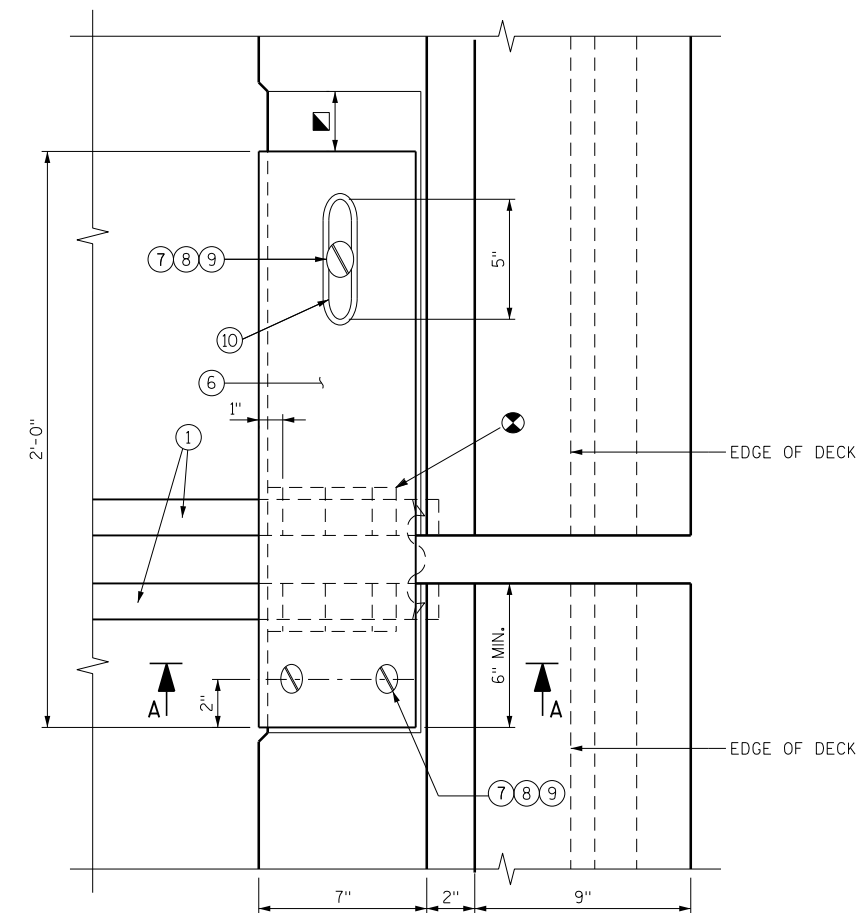
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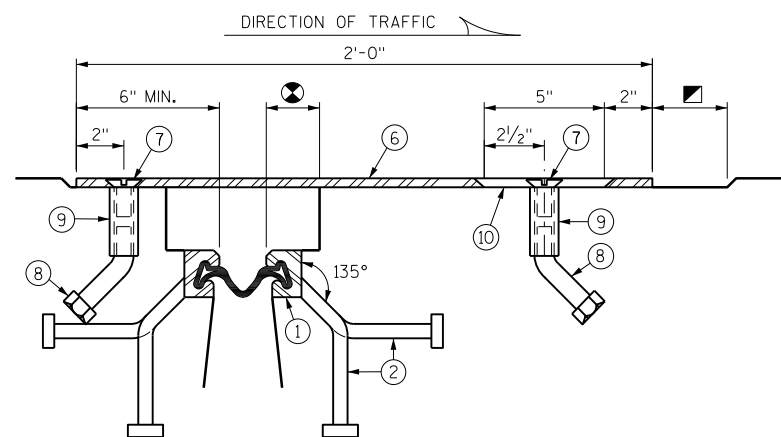
SECTION A-A



VIEW OF PARAPET PLATE FROM ROADWAY



PLAN



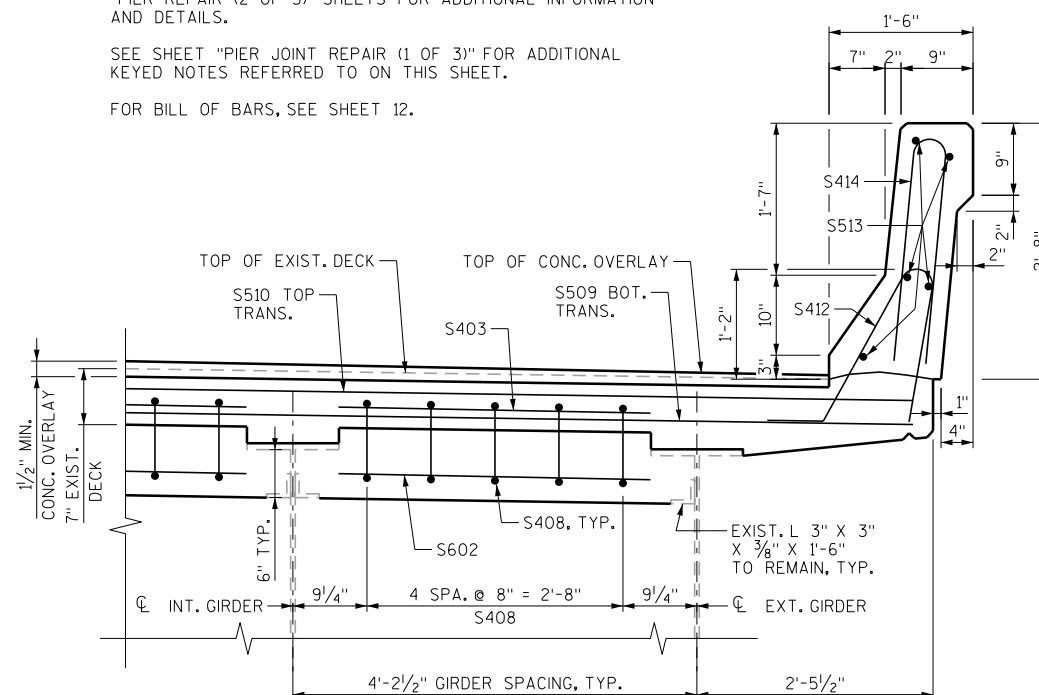
SECTION B-B

NOTES

REFER TO "REMOVAL DETAILS, "PIER JOINT REPAIR (1 OF 3)", AND "PIER REPAIR (2 OF 3)" SHEETS FOR ADDITIONAL INFORMATION AND DETAILS.

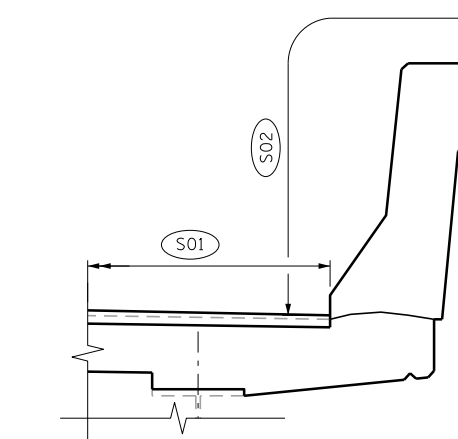
SEE SHEET "PIER JOINT REPAIR (1 OF 3)" FOR ADDITIONAL KEYED NOTES REFERRED TO ON THIS SHEET.

FOR BILL OF BARS, SEE SHEET 12.



PART TRANSVERSE SECTION AT DIAPHRAGM

ALL INTERIOR BAYS SIMILAR



PART SECTION AT PARAPET

SHOWING LIMITS OF SURFACE TREATMENT

LEGEND

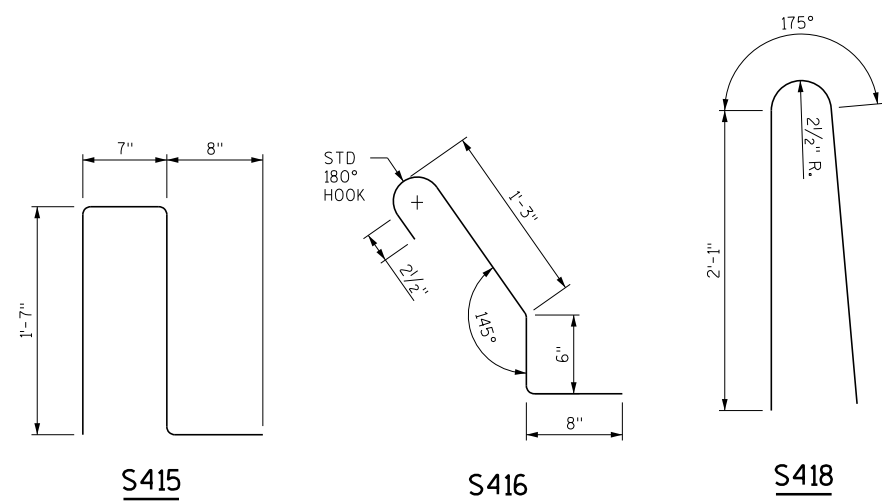
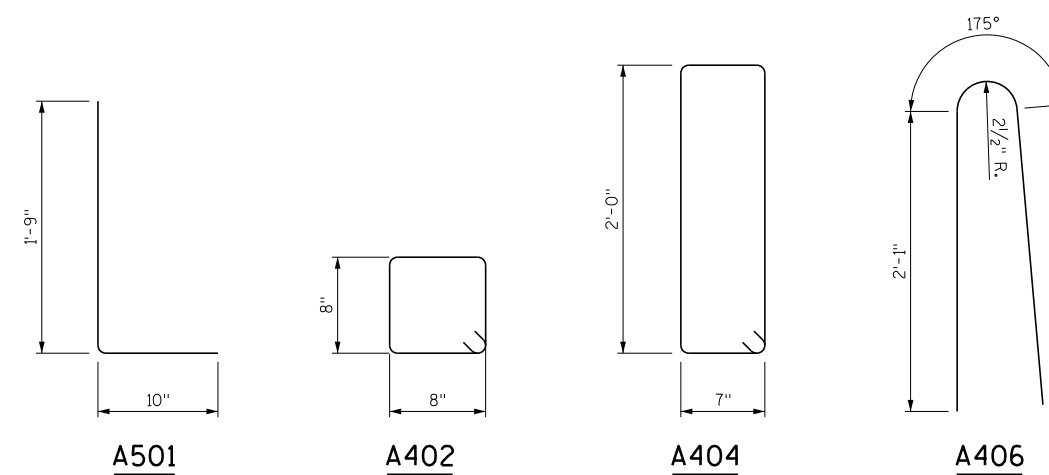
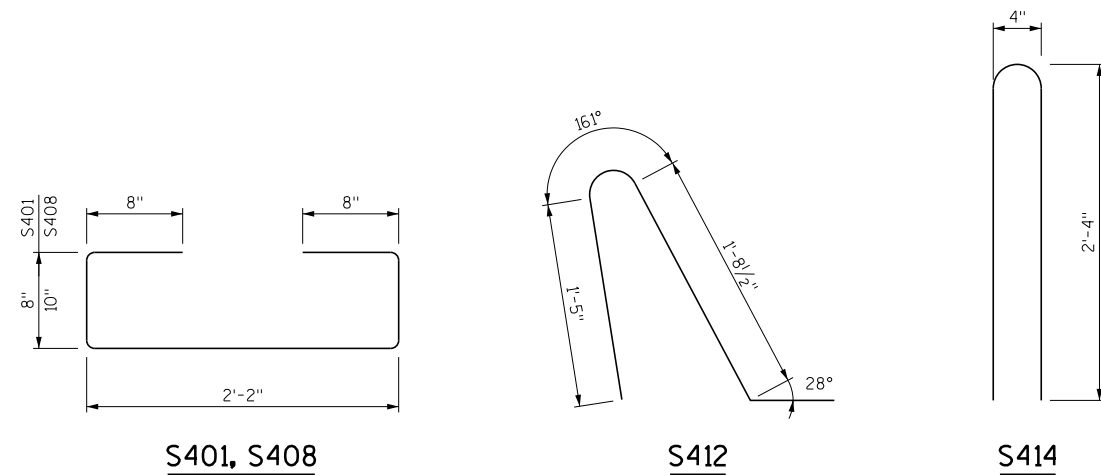
- 6 GALVANIZED PLATE 3/8" X 1'-2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- 7 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- 8 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- 9 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- 10 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION PLUS 1/2".
- S01 "PROTECTIVE SURFACE TREATMENT" SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE CONCRETE OVERLAY.
- S02 "PIGMENTED SURFACE SEALER" SHALL BE APPLIED TO THE ROADWAY FACE AND THE TOP OF NEW CONCRETE PARAPETS. "PIGMENTED SURFACE SEALER RESEAL" SHALL BE APPLIED TO THE ROADWAY FACE AND TOP OF EXISTING PARAPETS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CK'D. KBM	
PIER JOINT REPAIR (3 OF 3)			SHEET 10 OF 12

BILL OF BARS - SUPERSTRUCTURE							COATED: 5,380 LBS
							UNCOATED: 0 LBS
BAR MARK	COAT	NO REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
S401	X	60	4'-6"	X		HAUNCH - VERT. - AT ABUTS.	
S602	X	180	3'-3"			HAUNCH - HORIZ. - BOTTOM	
S403	X	72	3'-3"			HAUNCH - HORIZ. - IN DECK SLAB	
S504	X	20	30'-7"			DECK - BOT. TRANS. - AT ABUTS.	
S505	X	20	30'-7"			DECK - TOP TRANS. - AT ABUTS.	
S506	X	40	4'-3"			DECK - TOP TRANS. - OVERHANG AT ABUTS.	
S407	X	72	3'-7"			DECK - TRANS. - ADD BARS AT EXP. DEVICE	
S408	X	120	4'-10"	X		HAUNCH - VERT. - AT PIERS	
S509	X	16	29'-9"			DECK - BOT. TRANS. - AT PIERS	
S510	X	20	29'-9"			DECK - TOP TRANS. - AT PIERS	
S511	X	32	3'-10"			DECK - TOP TRANS. - OVERHANG AT PIERS	
S412	X	40	4'-3"	X		PARAPET - DOWELS - AT PIERS	
S513	X	40	2'-6"			PARAPET - HORIZ. - AT PIERS	
S414	X	40	4'-10"	X		PARAPET - VERT. - AT PIERS	
S415	X	60	4'-2"	X		PARAPET - DOWELS - AT ABUTS.	
S416	X	20	2'-10"	X		PARAPET - DOWELS - TRANSITION	
S517	X	24	6'-2"			PARAPET - HORIZ. - AT ABUTS.	
S418	X	60	4'-9"	X		PARAPET - VERT. - AT ABUTS.	

BILL OF BARS - WEST ABUTMENT							COATED: 360 LBS
							UNCOATED: 0 LBS
BAR MARK	COAT	NO REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
A501	X	33	2'-6"	X		PAVING BLOCK - VERT. - DOWEL	
A402	X	29	3'-3"	X		PAVING BLOCK - VERT.	
A503	X	15	8'-0"			PAVING BLOCK - HORIZ.	
A404	X	8	5'-8"	X		PARAPET - BACKWALL - DOWEL	
A505	X	16	1'-2"			PARAPET - BACKWALL - HORIZ.	
A406	X	8	4'-9"	X		PARAPET - BACKWALL - VERT.	

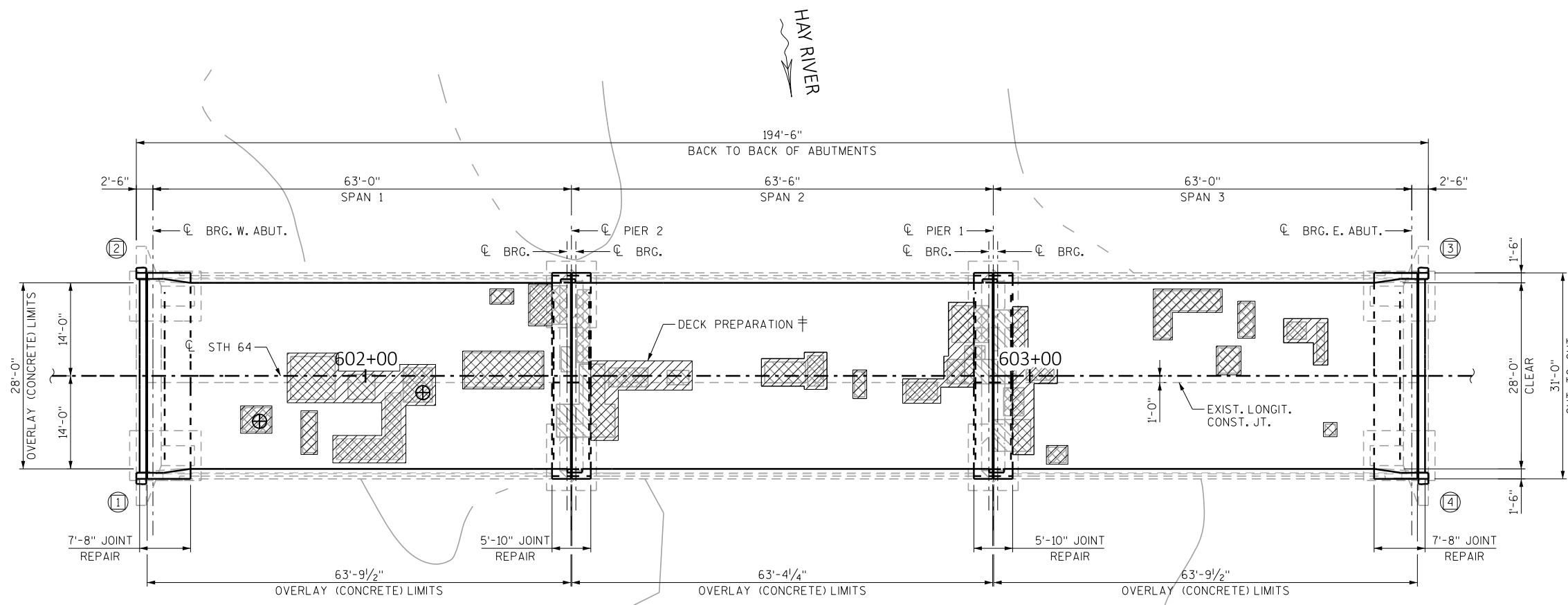
BILL OF BARS - EAST ABUTMENT							COATED: 360 LBS
							UNCOATED: 0 LBS
BAR MARK	COAT	NO REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
A501	X	33	2'-6"	X		PAVING BLOCK - VERT. - DOWEL	
A402	X	29	3'-3"	X		PAVING BLOCK - VERT.	
A503	X	15	8'-0"			PAVING BLOCK - HORIZ.	
A404	X	8	5'-8"	X		PARAPET - BACKWALL - DOWEL	
A505	X	16	1'-2"			PARAPET - BACKWALL - HORIZ.	
A406	X	8	4'-9"	X		PARAPET - BACKWALL - VERT.	



8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CK'D. KBM	
BILL OF BARS			SHEET 11 OF 12



⊕ SURVEY TYPE: INFRARED THERMOGRAPHY & SOUNDING
 SURVEY COMPLETED DATE: 11/30/2021

PLAN
 SHOWING DECK PREPARATION AREAS

NOTE

DECK PREPARATION AREAS DO NOT INCLUDE AREAS WITHIN THE JOINT REPAIR LIMITS. RESULTS OF THE INFRARED THERMOGRAPHIC SCAN WITHIN THE JOINT REPAIR AREAS ARE SHOWN FOR INFORMATION ONLY.

LEGEND

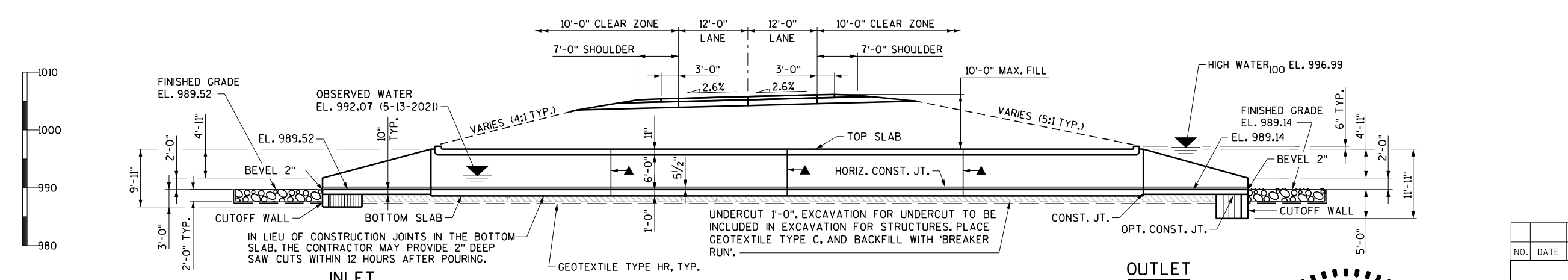
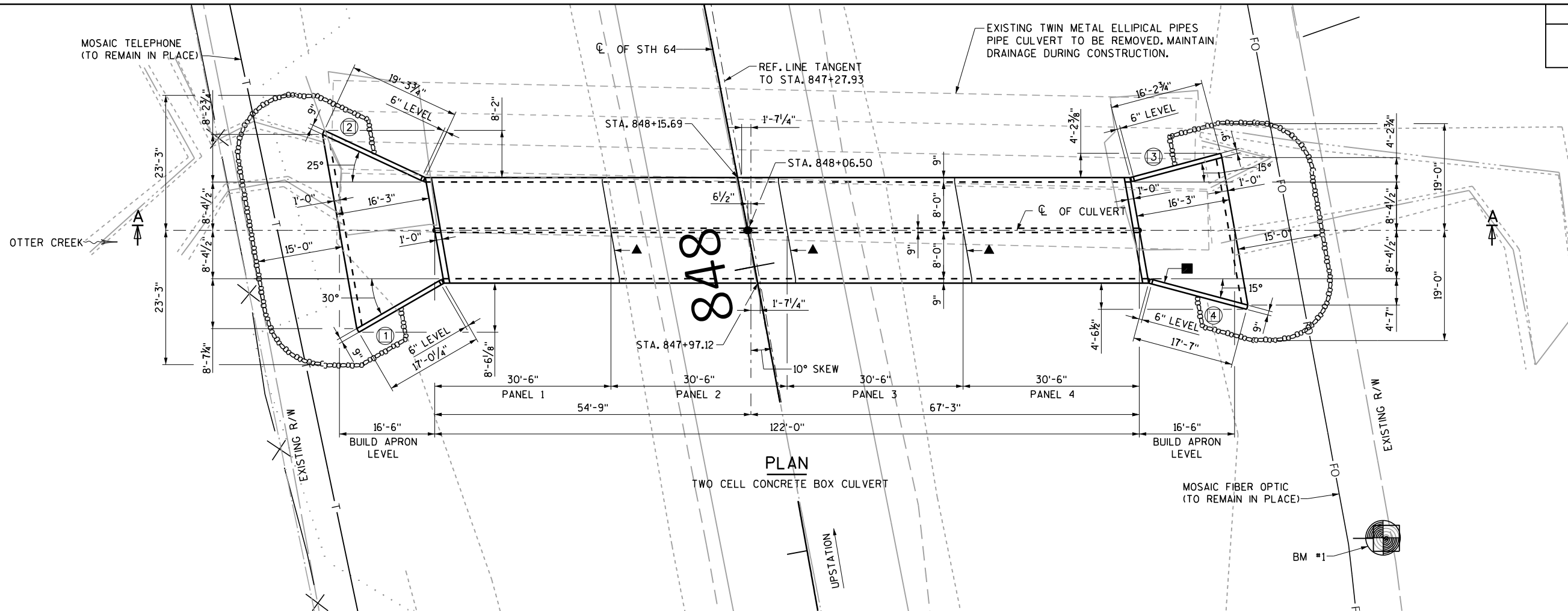
- LIMITS OF DELAMINATION DETECTED BY IR.
- LIMITS OF DECK PATCHING.
- LIMITS OF DECK PREPARATION.
- DELAMINATION CONFIRMED THROUGH SOUNDING.
- INDICATES WING WALL NUMBER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-17-169			
DRAWN BY VJD		PLANS CK'D. KBM	
DECK PREPARATION AREAS			SHEET 12 OF 12

8

8

NOTE: STRUCTURE BACKFILL REQUIRED BEHIND ALL WING WALLS.



'STH 64' CURVE DATA

PI STA. = 853+23.45
 Y = 261882.467
 X = 181948.651
 Δ = 11°47'30"
 D = 0°59'37"
 T = 595.52'
 L = 1186.83'
 R = 5766.81'
 PC STA. = 847+27.93
 PT STA. = 859+14.76

DESIGN DATA

LIVE LOAD:
 DESIGN LOAD: HL-93
 INVENTORY RATING FACTOR = 1.05
 OPERATING RATING FACTOR = 1.35
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 255 KIPS

EARTH LOAD:
 DESIGNED FOR 8.5 TO 10.0 FEET OF FILL.

MATERIAL PROPERTIES:
 CONCRETE MASONRY:.....f'c = 3,500 PSI
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 PSI

BENCH MARK

NO.	STATION	DESCRIPTION	ELEVATION
1	STA. 847+34.77, 98.57' RT.	SPIKE IN POWER POLE	997.06

HYDRAULIC DATA

100 YEAR FREQUENCY
 Q₁₀₀ = 730 C.F.S.
 VEL. = 8.83 F.P.S.
 HW₁₀₀ = EL. 996.99
 WATERWAY AREA = 83 SQ. FT.
 DRAINAGE AREA = 3.54 SQ. MI.
 ROADWAY OVERTOPPING = N/A
 SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q₂ = 170 C.F.S.
 VEL. = 4.00 F.P.S.
 HW₂ = EL. 992.86

TRAFFIC DATA

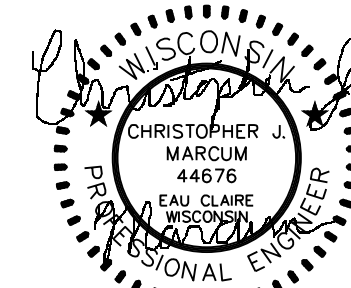
USH 64
 A.D.T. = 4,000 (2024)
 A.D.T. = 4,510 (2044)
 R.D.S. = 55 MPH

LEGEND

- (X) INDICATES WING WALL NUMBER
- ▲ VERTICAL CONSTRUCTION JOINT.
- NAME PLATE LOCATION.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION AND NOTES
3. SUBSURFACE EXPLORATION
4. BARREL REINFORCEMENT
5. BARREL DETAILS
6. INLET APRON AND WINGWALLS
7. OUTLET APRON AND WINGWALLS
8. APRON DETAILS
9. APRON BAR STEEL DETAILS



07/31/2023

STRUCTURES DESIGN CONTACTS

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

CONSULTANT:
 CHRISTOPHER MARCUM, P.E. (715) 861-4823

NO.	DATE	REVISION	BY



STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 ACCEPTED: *[Signature]* SDR 07/31/23
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-17-50

STH 64 OVER OTTER CREEK

COUNTY: DUNN TOWN: WILSON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CJM	KBM	CJM	KBM

GENERAL PLAN SHEET 1 OF 9

TOTAL ESTIMATED QUANTITIES

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.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III, OR A.A.S.H.T.O. DESIGNATION M 213.

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-17-50" SHALL BE THE EXISTING GROUNDLINE.

ALL VOLUME WHICH CANNOT BE PLACED BEFORE CULVERT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LENGTH OF THE CULVERT INCLUDING THE APRON WING WALLS.

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

THE CONCRETE IN THE CUTOFF WALLS MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE ALTERNATE CUT OFF WALL ON DETAIL SHOWN ON SHEET 8 MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUT OFF WALLS. PAYMENT SHALL BE BASED ON CONCRETE CUT OFF WALLS.

THE CONTRACTOR MAY FURNISH A PRECAST BOX CULVERT IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES MAINTENANCE SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL. PAYMENT FOR THE PRECAST CULVERT SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES".

LOCATE NAME PLATE ON WING 4, FACE NAME PLATE UP STATION.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

"REMOVING STRUCTURE B-17-80" INCLUDES REMOVING OUTLET AND INLET WINGS AND APRONS, AND EXISTING CULVERT BARRELS.

PLACE A 18-INCH (MIN.) WIDE SHEET OF "RUBBERIZED MEMBRANE WATERPROOFING" ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO 6-INCHES MIN. BELOW TOP OF BOTTOM SLAB PER STD. DETAILS.

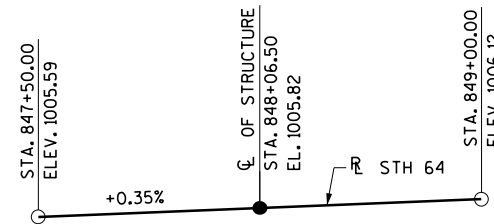
THE EXISTING STRUCTURE, B-17-80, TO BE REMOVED, IS A TWO CELL BEVELED CORRUGATED STEEL PIPE CULVERT, CELLS 10'-3"± X 6'-9"± WITH A BARREL LENGTH OF 122'-0".

SEE ROADWAY PLANS FOR BOX CULVERT STAGE CONSTRUCTION AND DIVERSION CHANNEL DETAILS. STREAM DIVERSION DURING CONSTRUCTION TO BE PAID UNDER ROADWAY BID ITEM "TEMPORARY STREAM DIVERSION CULVERT C-17-50". SEE SPECIAL PROVISIONS AND ROADWAY PLANS FOR DIVERSION DETAILS.

A01

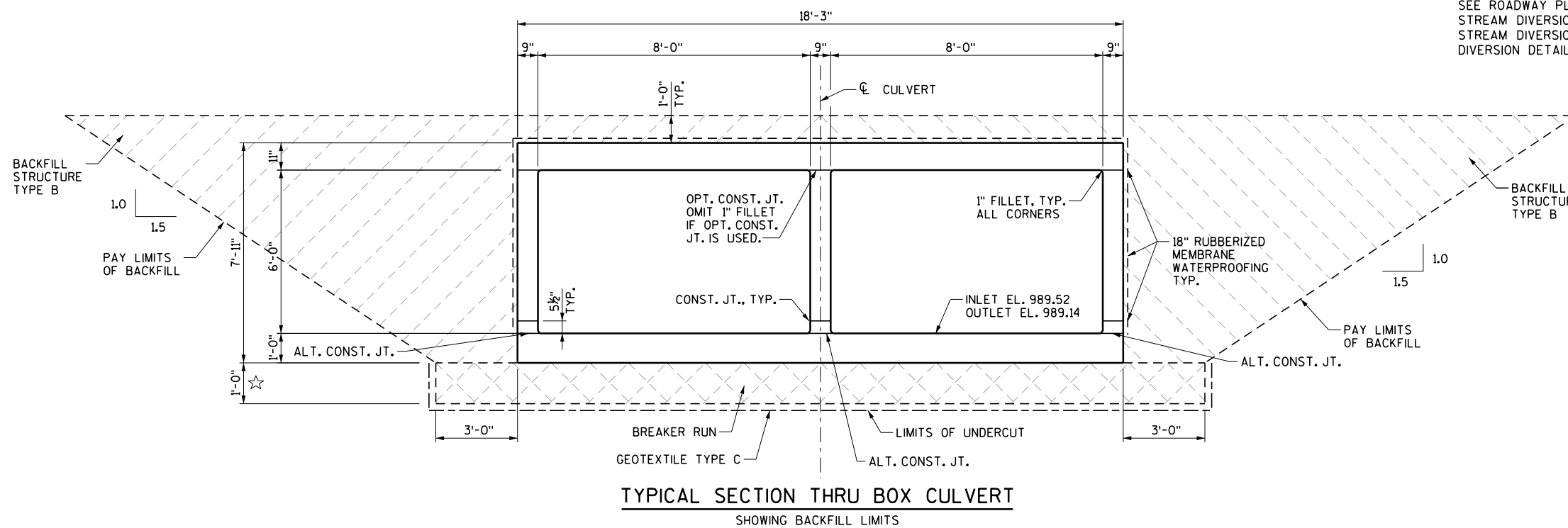
ITEM NO.	BID ITEMS	UNIT	TOTAL
203.0220	REMOVING STRUCTURE B-17-80	EACH	1
206.2001	EXCAVATION FOR STRUCTURES CULVERTS C-17-50	EACH	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	1,875
311.0010	BREAKER RUN	TON	255
504.0100	CONCRETE MASONRY CULVERTS	CY	261
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	30,450
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,080
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	35
606.0300	RIPRAP HEAVY	CY	115
645.0105	GEOTEXTILE TYPE C	SY	475
645.0120	GEOTEXTILE TYPE HR	SY	240
NON-BID ITEMS			
	PREFORMED JOINT FILLER	SIZE	1/2" & 3/4"

A01 SEQUENCE REMOVAL OF EXISTING CULVERT TO MAINTAIN CONTINUOUS DRAINAGE OF OTTER CREEK DURING CONSTRUCTION.



PROFILE GRADE LINE - STH 64

☆ IN LIEU OF USING BREAKER RUN FOR THE BOX CONSTRUCTION PLATFORM, THE CONTRACTOR MAY ELECT TO SUBSTITUTE #1 OR #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL, OR OTHER GRANULAR MATERIAL AS APPROVED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL.



**TYPICAL SECTION THRU BOX CULVERT
SHOWING BACKFILL LIMITS**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY CJM		PLANS CK'D. KBM	
CROSS SECTION AND NOTES			SHEET 2 OF 9

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	05/21/2021	261756.02	181405.33
2	05/21/2021	261832.89	181485.69

BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI)
 REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI)
 ALL COORDINATES REFERENCED TO WCCS NAD 83 (2011) DUNN COUNTY

NOTE:

THE SUBSURFACE INFORMATION PRESENTED HEREIN IS AN ABBREVIATED VERSION OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL ENGINEERING REPORT. REVIEW THE APPROPRIATE GEOTECHNICAL REPORT AND SOIL BORING LOGS FOR ADDITIONAL SUBSURFACE INFORMATION.
 BORING STATIONS AND OFFSETS ARE BASED ON CL STH 64.

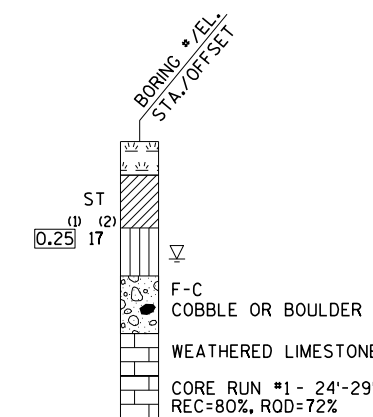
STATE PROJECT NUMBER

8110-01-72

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

-
-
-

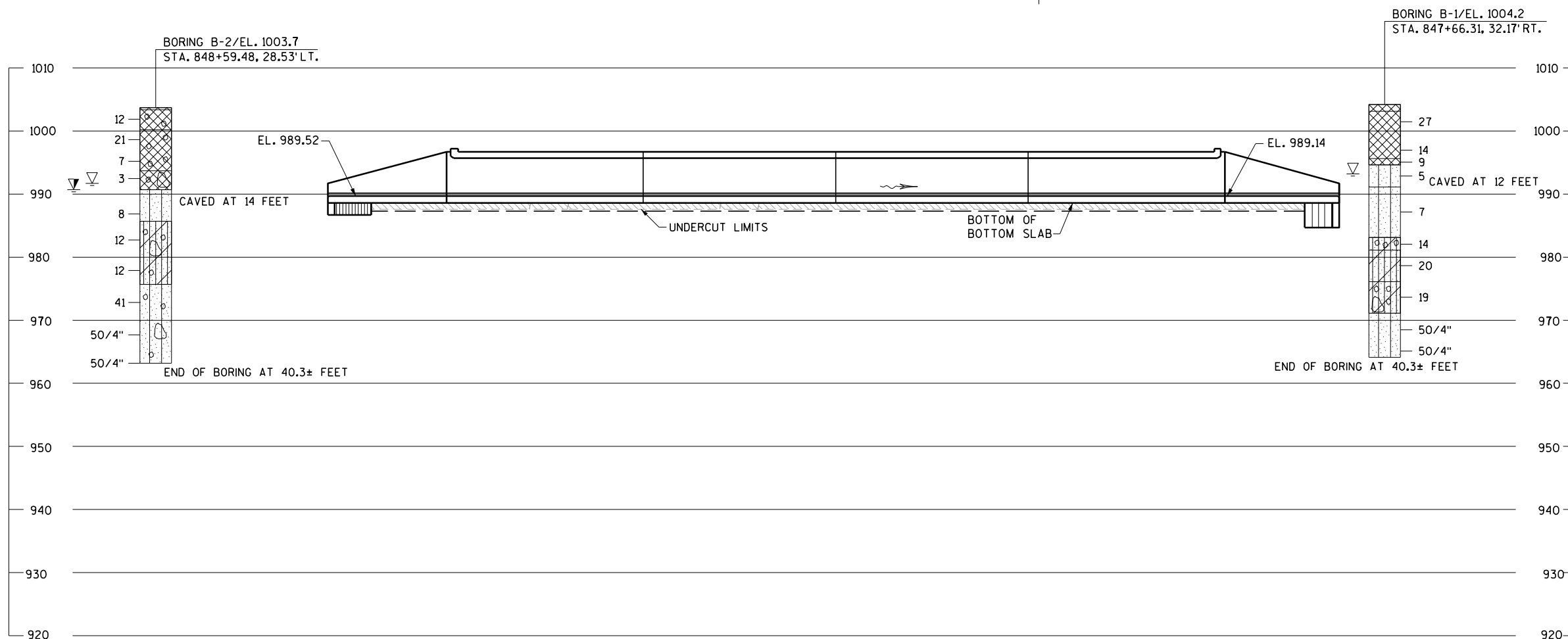
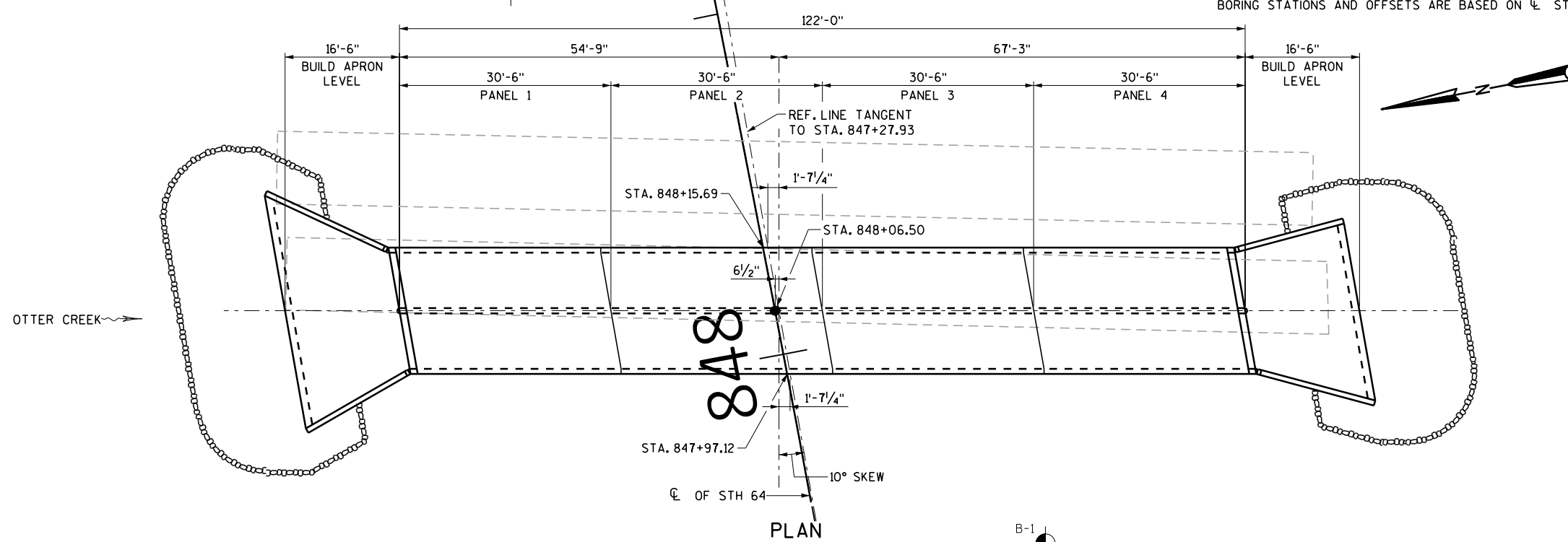
ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

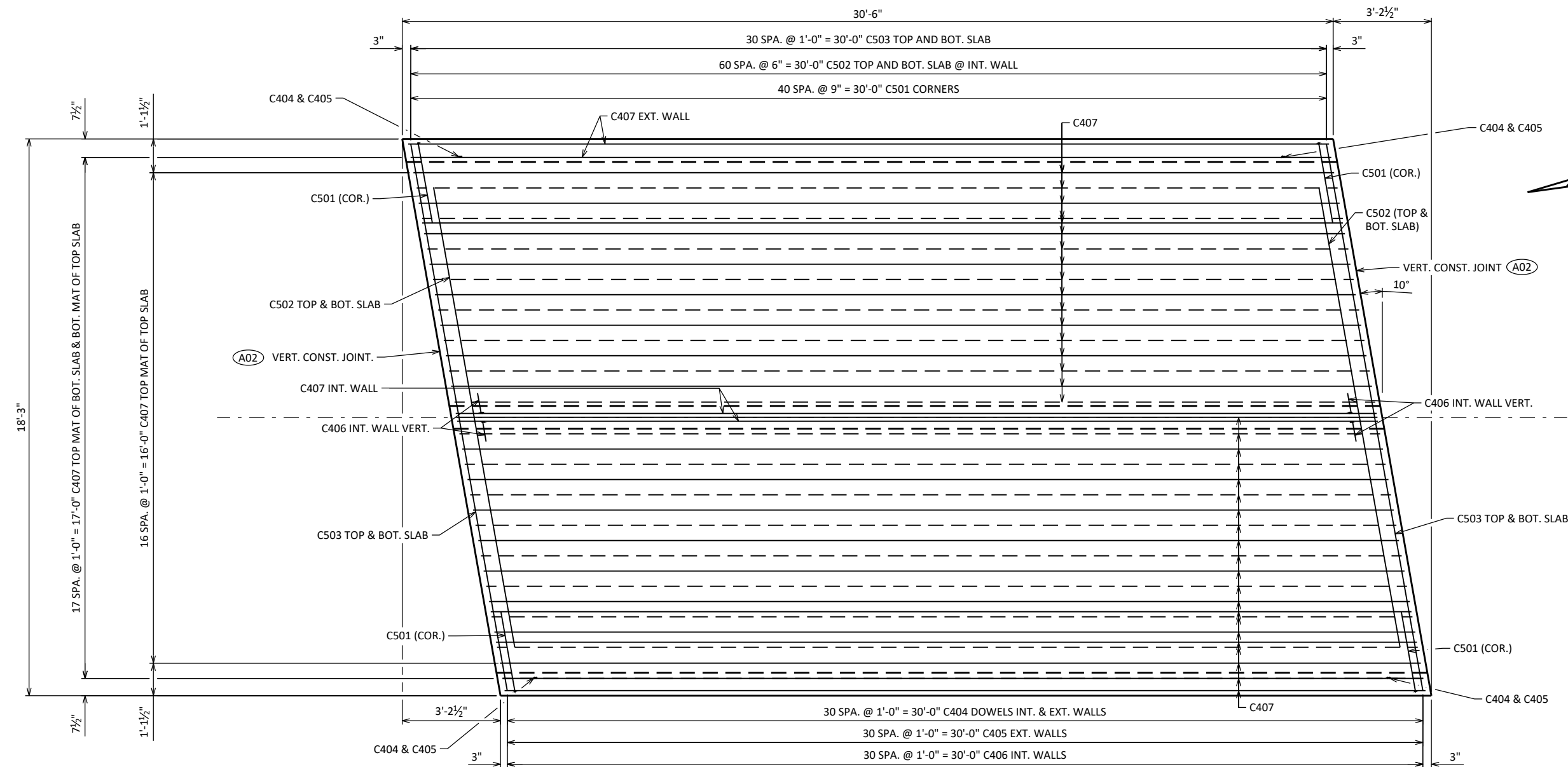
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-17-50			
DRAWN BY CJM		PLANS CKD. KBM	
SUBSURFACE EXPLORATION			SHEET 3 OF 9

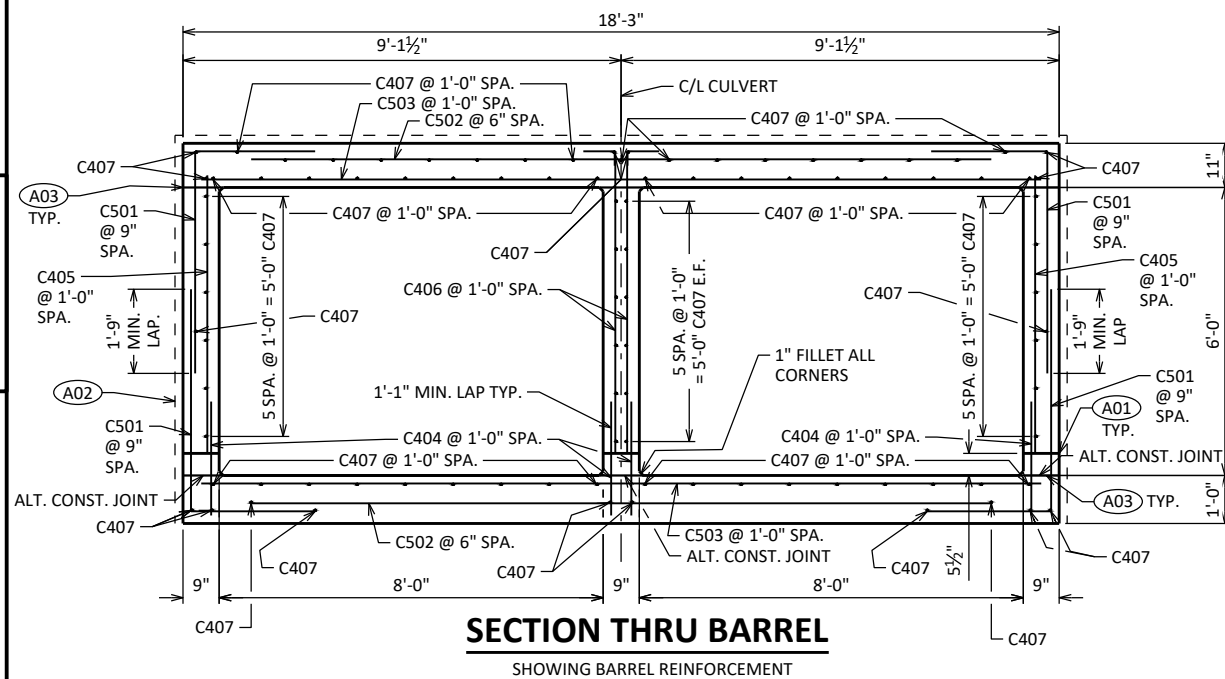


NOTE

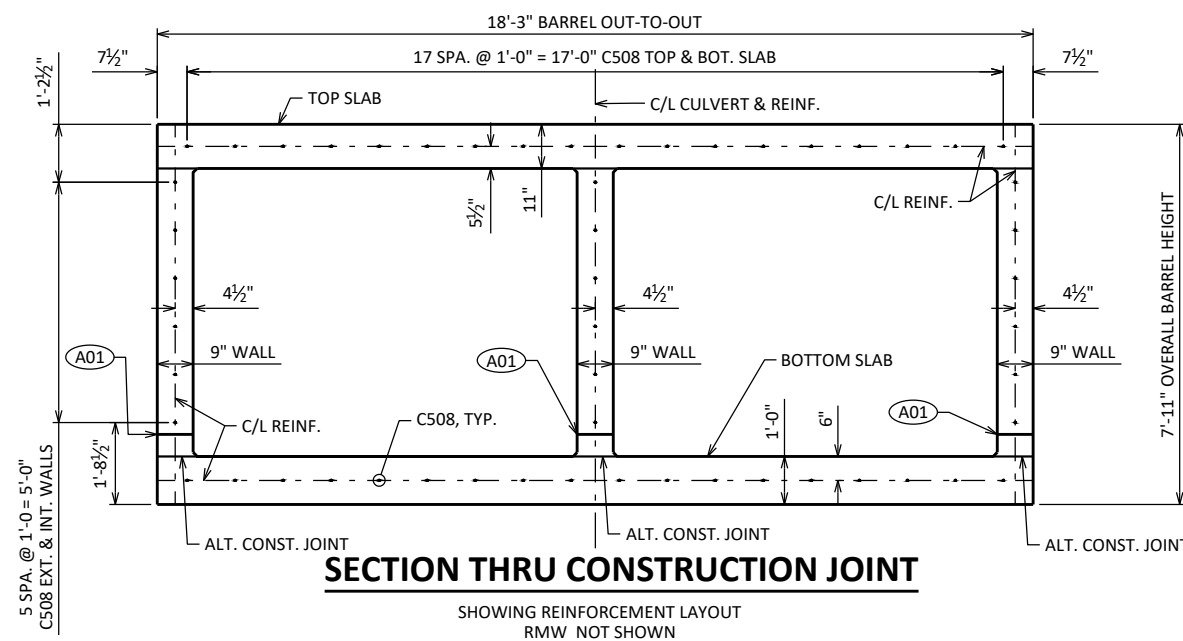
FOR BILL OF BARS SEE SHEET 5.



REINFORCEMENT PLAN PER PANEL



SECTION THRU BARREL
SHOWING BARREL REINFORCEMENT



SECTION THRU CONSTRUCTION JOINT

SHOWING REINFORCEMENT LAYOUT
RMW NOT SHOWN

LEGEND

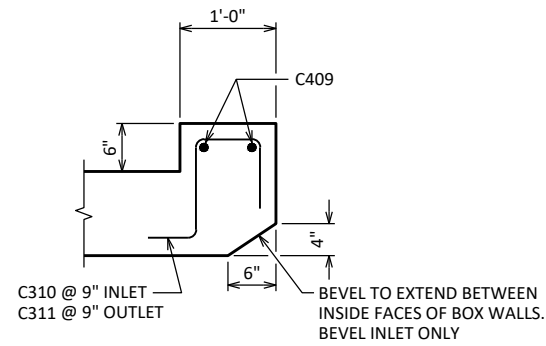
- (A01) HORIZONTAL CONSTRUCTION JOINT.
 - (A02) 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING UP WALLS AND ACROSS TOP SLAB AT VERTICAL CONST. JOINTS. EXTEND 6" MIN BELOW TOP OF BOTTOM SLAB.
 - (A03) OPTIONAL CONSTRUCTION JOINT. OMIT 1" FILLET IF OPTIONAL CONST. JOINT IS USED.
- E.F. = EACH FACE
RMW = RUBBERIZED MEMBRANE WATERPROOFING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
BARREL REINFORCEMENT		SHEET 4 OF 9	

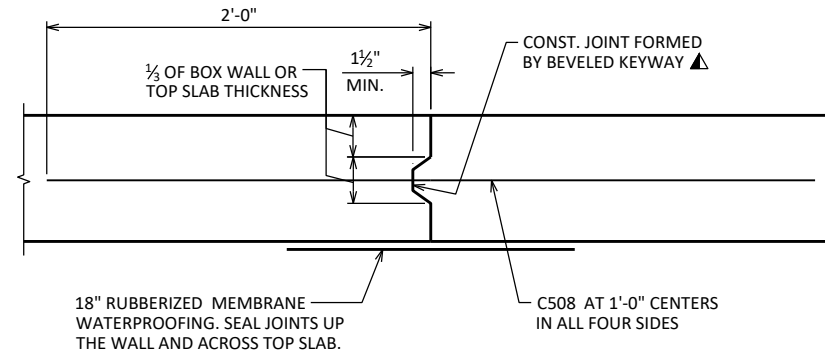
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION	UNCOATED: 29,020 LBS
C501		656	7'-2"	X		ALL BOX CORNERS	
C502		488	15'-4"			TOP & BOT. SLAB TRANS.	
C503		248	17'-10"			TOP & BOT. SLAB TRANS.	
C404		496	2'-4"			BOT. SLAB VERT. DOWELS	
C405		248	6'-0"			EXT. WALL VERT.	
C406		248	8'-0"	X		INT. WALL VERT.	
C407		380	30'-1"			LONGIT. BARS	
C508		198	4'-0"			LONGIT. CONST. JOINT & APRON DOWELS	
C409		4	18'-2"			TOP HEADER - HORIZ.	
C310		25	3'-0"	X		HEADER INLET - VERT.	
C311		25	3'-4"	X		HEADER OUTLET - VERT.	

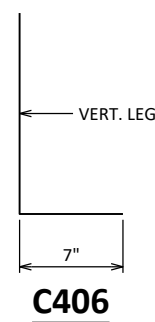
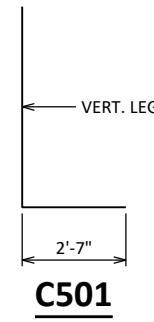
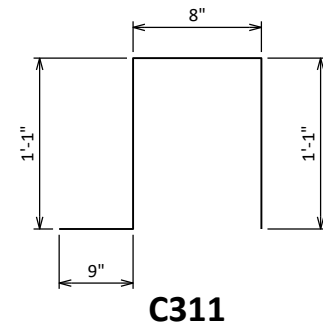
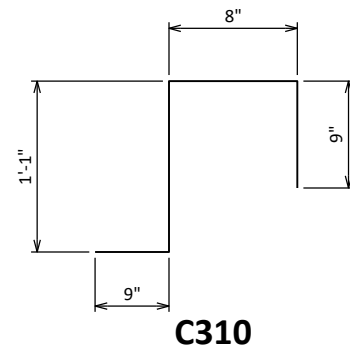


SECTION THRU HEADER



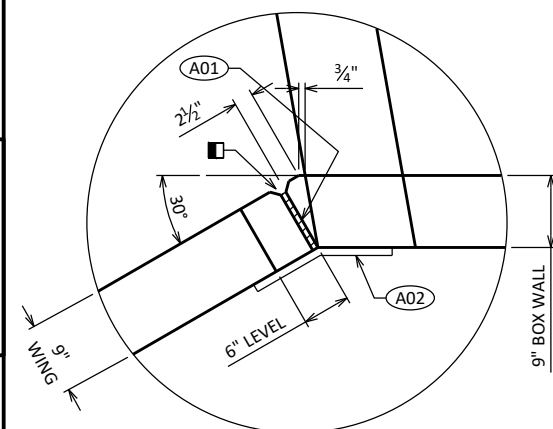
VERTICAL CONSTRUCTION JOINT

▲ IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING. #5 BARS 4'-0" AT 1'-0" CENTERS REQUIRED.

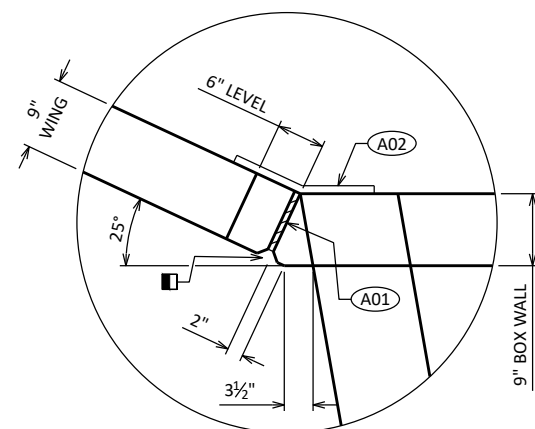


LEGEND

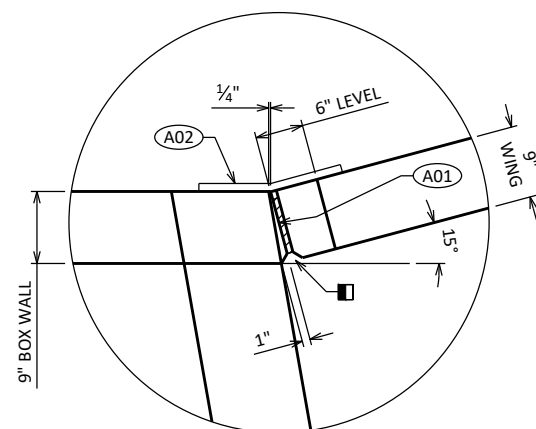
- (A01) 3/4" FILLER TO EXTEND FROM HORIZONTAL CONSTRUCTION JOINT TO TOP OF WING.
- (A02) 18-INCH RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM HORIZ. CONST. JOINT TO TOP OF WALL. (FLUSH WITH FACE OF CONCRETE).
- TYP. 1-INCH BEVEL.



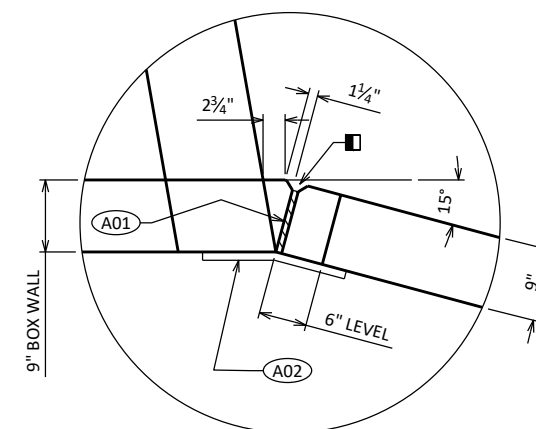
WING 1



WING 2



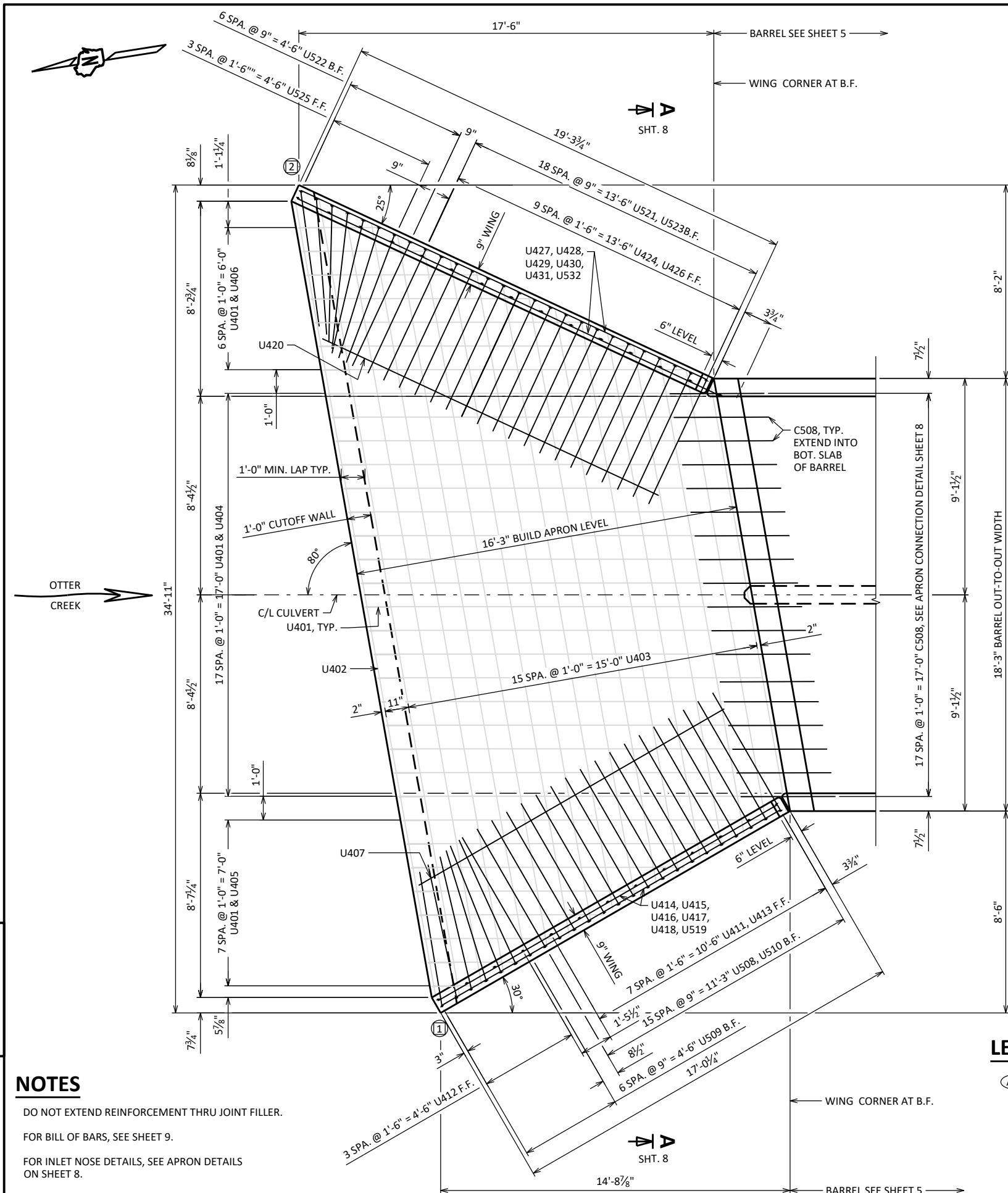
WING 3



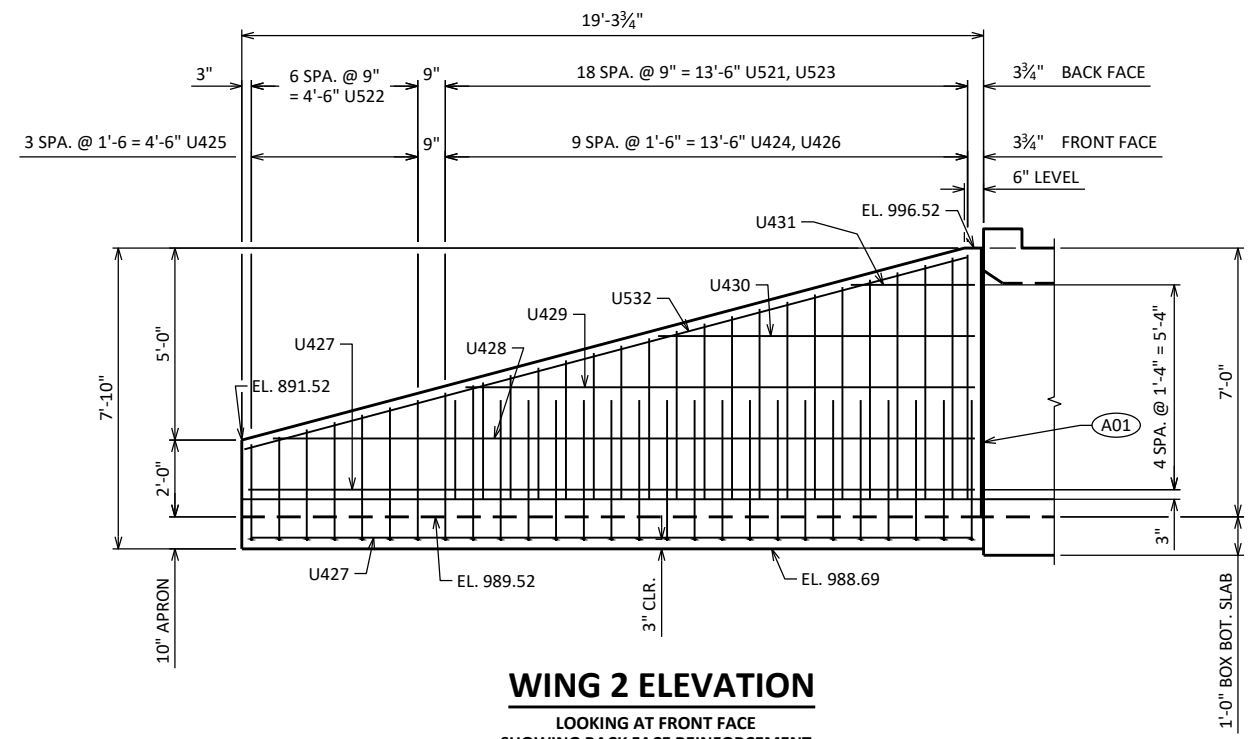
WING 4

CORNER DETAILS

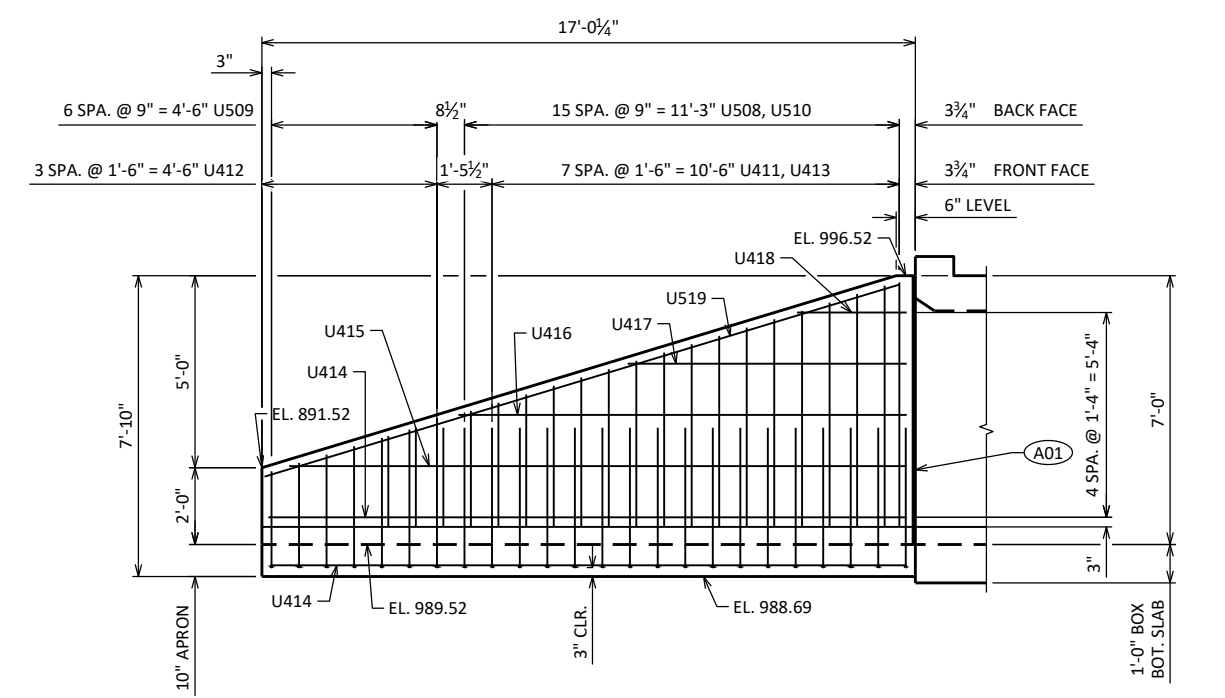
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
BARREL DETAILS			SHEET 5 OF 9



INLET APRON PLAN



WING 2 ELEVATION
LOOKING AT FRONT FACE
SHOWING BACK FACE REINFORCEMENT



WING 1 ELEVATION
LOOKING AT BACK FACE
SHOWING BACK FACE REINFORCEMENT

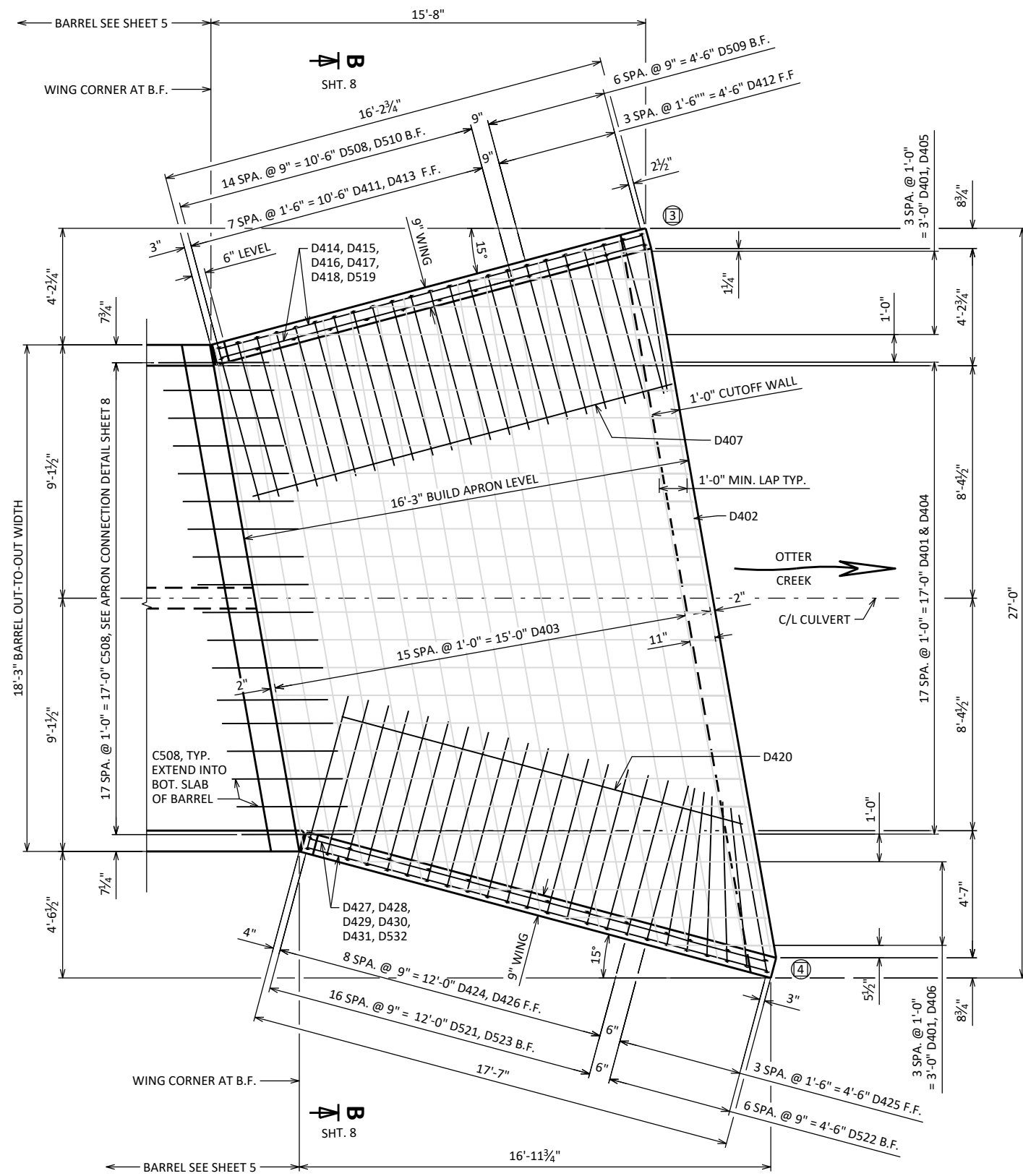
NOTES

- DO NOT EXTEND REINFORCEMENT THRU JOINT FILLER.
- FOR BILL OF BARS, SEE SHEET 9.
- FOR INLET NOSE DETAILS, SEE APRON DETAILS ON SHEET 8.
- FOR SECTION THRU CUTOFF WALLS, SEE APRON DETAILS ON SHEET 8.
- SEE CORNER DETAILS ON SHEET 5.

LEGEND

- A01 3/4" FILLER TO EXTEND FROM HORIZONTAL CONSTRUCTION JOINT TO TOP OF WING. FILLER IS INCLUDED IN WING LENGTH.
- F.F. = FRONT FACE
- B.F. = BACK FACE
- ① WING NUMBER

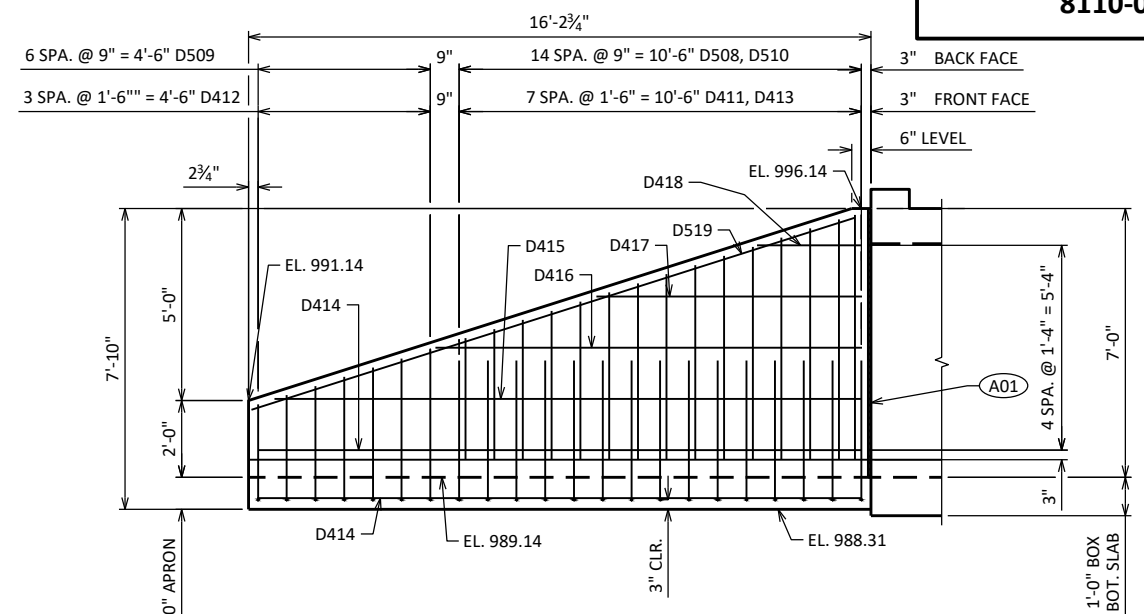
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
INLET APRON AND WINGWALLS			SHEET 6 OF 9



OUTLET APRON PLAN

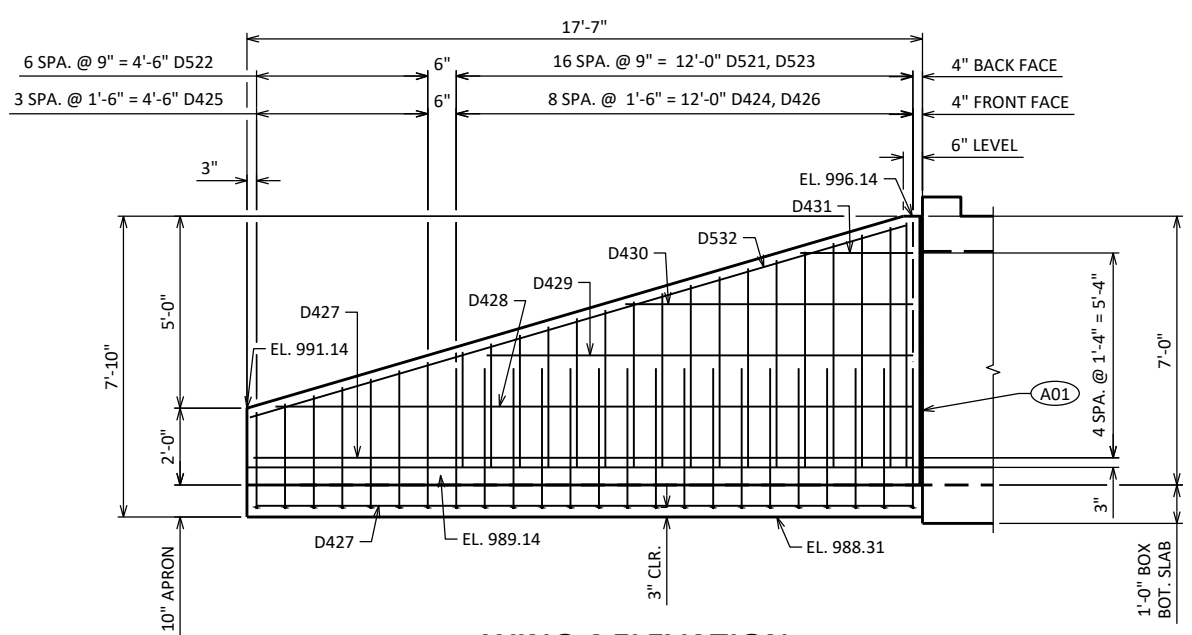
LEGEND

- (A01) 3/4" FILLER TO EXTEND FROM HORIZONTAL CONSTRUCTION JOINT TO TOP OF WING. FILLER IS INCLUDED IN WING LENGTH.
- F.F. = FRONT FACE
- B.F. = BACK FACE
- (1) WING NUMBER



WING 3 ELEVATION

LOOKING AT BACK FACE
SHOWING BACK FACE REINFORCEMENT



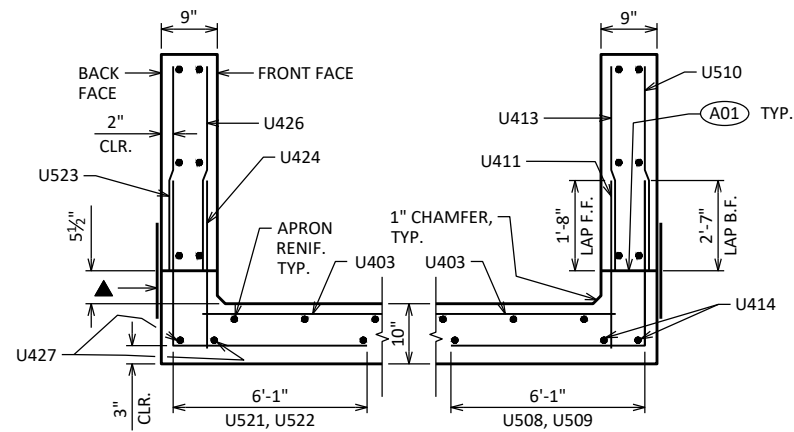
WING 4 ELEVATION

LOOKING AT FRONT FACE
SHOWING BACK FACE REINFORCEMENT

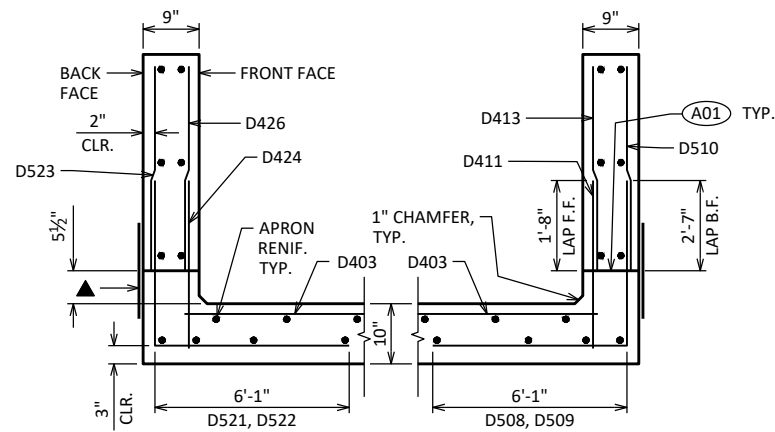
NOTES

- DO NOT EXTEND REINFORCEMENT THRU JOINT FILLER.
- FOR BILL OF BARS, SEE SHEET 9.
- FOR INLET NOSE DETAILS, SEE APRON DETAILS ON SHEET 8.
- FOR SECTION THRU CUTOFF WALLS, SEE APRON DETAILS ON SHEET 8.
- SEE CORNER DETAILS ON SHEET 5.

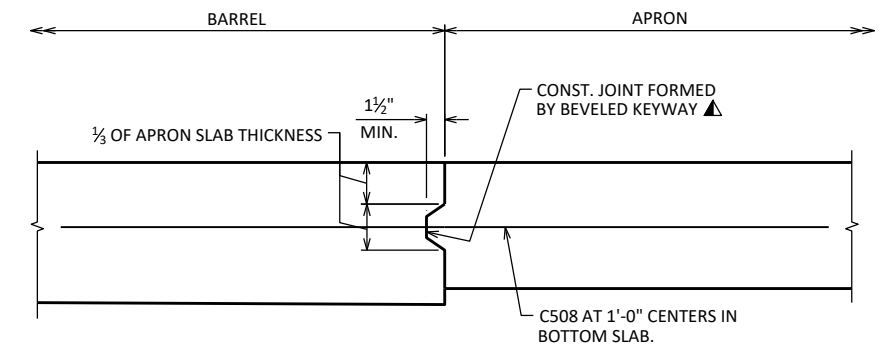
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
OUTLET APRON AND WINGWALLS			SHEET 7 OF 9



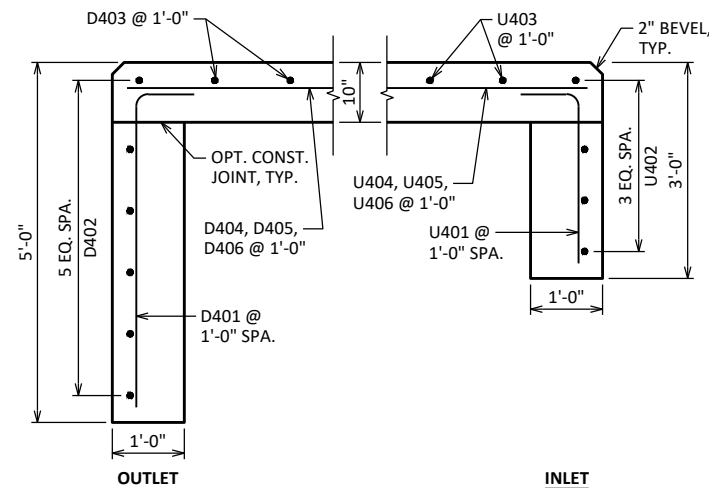
SECTION A - THRU WINGS - INLET



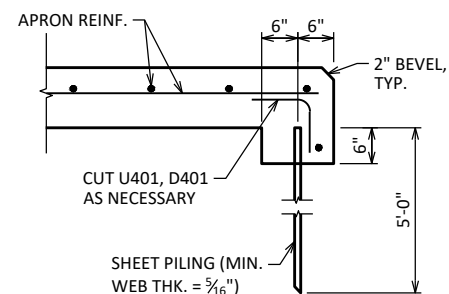
SECTION B - THRU WINGS - OUTLET



APRON CONNECTION DETAIL

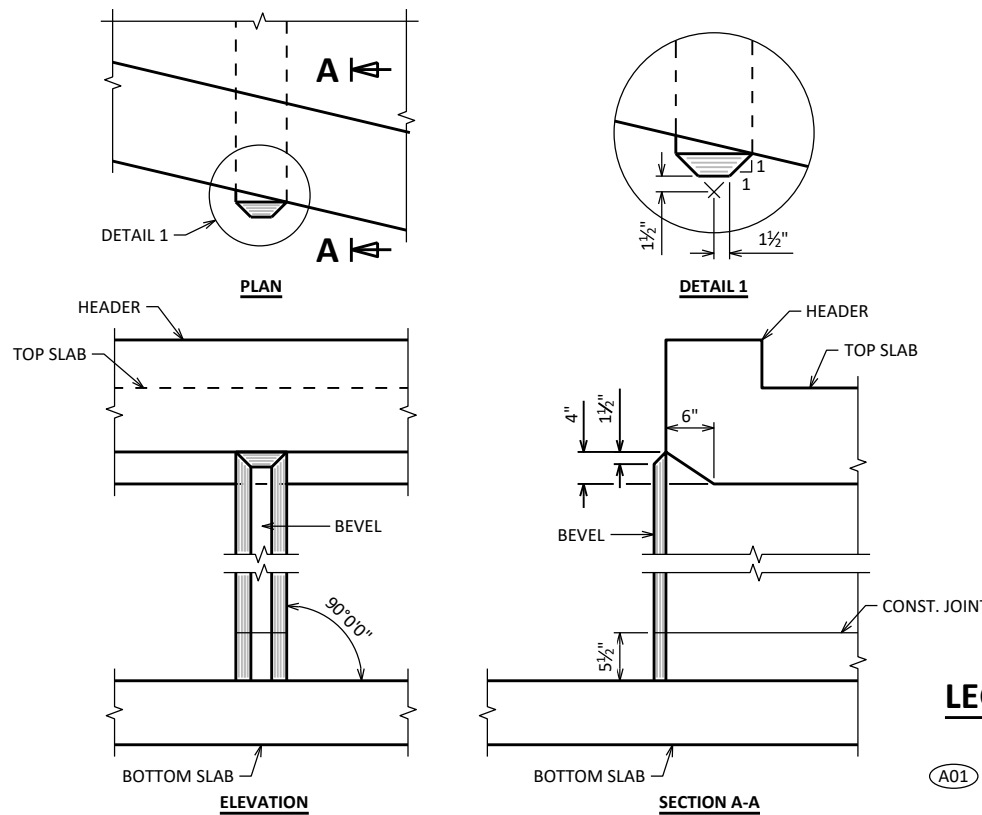


CUT-OFF WALLS

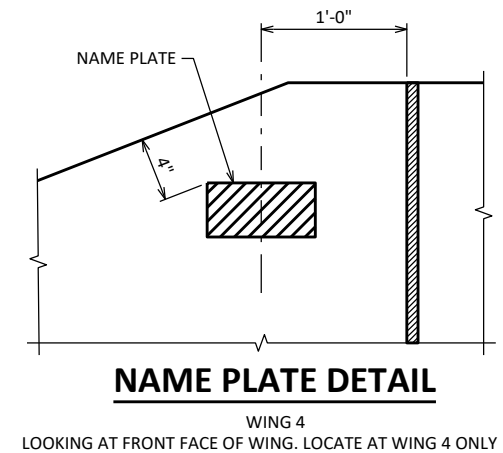


ALTERNATE CUT-OFF WALLS

THE ABOVE ALTERNATIVE MAY BE USED IN LIEU OF CAST-IN-PLACE CONCRETE CUT-OFF WALLS. PAYMENT WILL BE BASED ON THE CONCRETE CUT-OFF WALLS.



INLET NOSE DETAILS



NAME PLATE DETAIL

LEGEND

- (A01) 18" MIN. RUBBERIZED MEMBRANE WATERPROOFING (RMW) FLUSH WITH FACE OF CONCRETE. EXTEND FROM HORIZ. CONST. JOINT TO TOP OF WALL.
 - ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING, PLACE ALONG HORIZ. CONST. JT. FOR ENTIRE LENGTH OF WING, TYP.
 - ▲ IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING. #5 BARS 4'-0" AT 1'-0" CENTERS REQUIRED.
- F.F. = FRONT FACE
B.F. = BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
APRON DETAILS			SHEET 8 OF 9

BILL OF BARS - INLET

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION	COATED: 1,070 LBS UNCOATED: 740 LBS
U401		33	3'-8"	X		VERT. CUTOFF WALL	
U402		4	34'-1"			HORIZ. CUTOFF WALL	
▲ U403		16	26'-2"		X	APRON SLAB TRANS.	
U404		18	16'-1"			APRON SLAB LONGIT.	
▲ U405		8	8'-7"		X	APRON SLAB LONGIT. @ WING 1	
▲ U406		7	9'-2"		X	APRON SLAB LONGIT. @ WING 2	
U407	X	1	13'-10"			APRON SLAB - WING 1 BAR SPACER	
U508	X	16	9'-7"	X		WING 1 B.F. DOWEL	
▲ U509	X	7	8'-11"	X	X	WING 1 B.F. DOWEL	
▲ U510	X	16	4'-7"		X	WING 1 B.F. VERT.	
U411	X	8	2'-9"			WING 1 F.F.DOWEL	
▲ U412	X	4	3'-0"		X	WING 1 F.F. DOWEL	
▲ U413	X	8	4'-9"		X	WING 1 F.F. VERT	
U414	X	4	16'-7"			WING 1 E.F. HORIZ.	
U415	X	2	16'-2"			WING 1 E.F. HORIZ.	
U416	X	2	11'-8"			WING 1 E.F. HORIZ.	
U417	X	2	7'-3"			WING 1 E.F. HORIZ.	
U418	X	2	2'-10"			WING 1 E.F. HORIZ.	
U519	X	2	17'-4"			WING 1 E.F. DIAG.	
U420	X	1	16'-9"			APRON SLAB - WING 2 BAR SPACER	
U521	X	19	9'-8"	X		WING 2 B.F. DOWEL	
▲ U522	X	7	8'-11"	X	X	WING 2 B.F. DOWEL	
▲ U523	X	19	4'-6"		X	WING 2 B.F. VERT.	
U424	X	10	2'-9"			WING 2 F.F.DOWEL	
▲ U425	X	4	2'-11"		X	WING 2 F.F. DOWEL	
▲ U426	X	10	4'-6"		X	WING 2 F.F. VERT	
U427	X	4	18'-11"			WING 2 E.F. HORIZ.	
U428	X	2	18'-3"			WING 2 E.F. HORIZ.	
U429	X	2	13'-3"			WING 2 E.F. HORIZ.	
U430	X	2	8'-3"			WING 2 E.F. HORIZ.	
U431	X	2	3'-3"			WING 2 E.F. HORIZ.	
U532	X	2	19'-7"			WING 2 E.F. DIAG.	

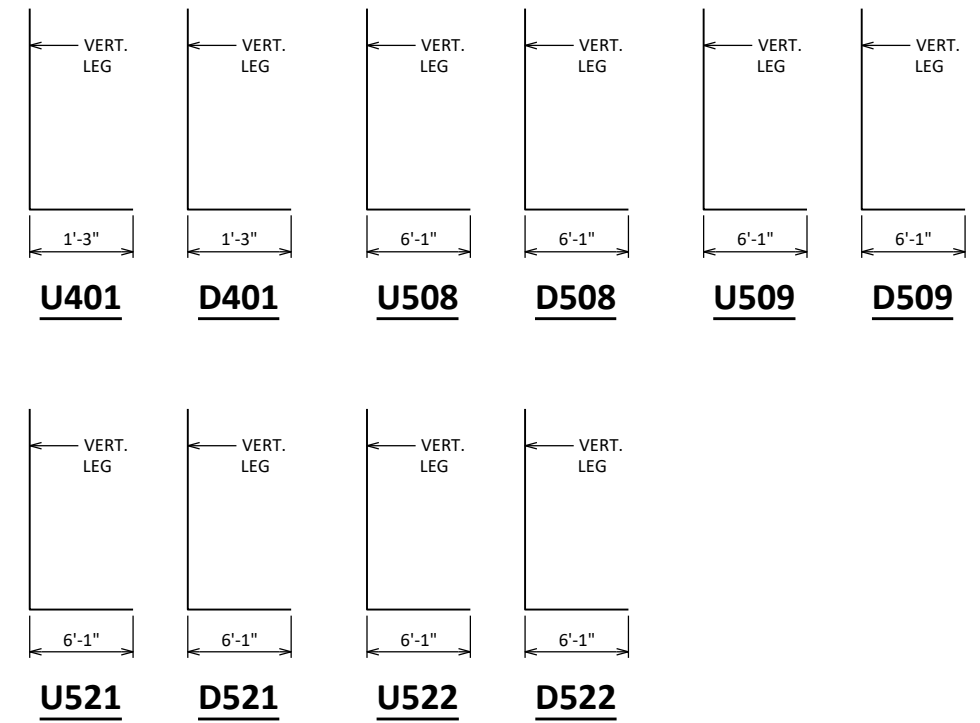
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BILL OF BARS - OUTLET

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION	COATED: 1,010 LBS UNCOATED: 690 LBS
D401		26	5'-8"	X		VERT. CUTOFF WALL	
D402		6	26'-3"			HORIZ. CUTOFF WALL	
▲ D403		16	22'-3"		X	APRON SLAB TRANS.	
D404		18	16'-1"			APRON SLAB LONGIT.	
▲ D405		4	8'-4"		X	APRON SLAB LONGIT. @ WING 1	
▲ D406		4	9'-0"		X	APRON SLAB LONGIT. @ WING 2	
D407	X	1	14'-8"			APRON SLAB - WING 3 BAR SPACER	
D508	X	15	9'-7"	X		WING 3 B.F. DOWEL	
▲ D509	X	7	9'-0"	X	X	WING 3 B.F. DOWEL	
▲ D510	X	15	4'-9"		X	WING 3 B.F. VERT.	
D411	X	8	2'-6"			WING 3 F.F.DOWEL	
▲ D412	X	4	3'-0"		X	WING 3 F.F. DOWEL	
▲ D413	X	8	4'-9"		X	WING 3 F.F. VERT	
D414	X	4	15'-10"			WING 3 E.F. HORIZ.	
D415	X	2	15'-4"			WING 3 E.F. HORIZ.	
D416	X	2	11'-1"			WING 3 E.F. HORIZ.	
D417	X	2	6'-11"			WING 3 E.F. HORIZ.	
D418	X	2	2'-9"			WING 3 E.F. HORIZ.	
D519	X	2	16'-1"			WING 3 E.F. DIAG.	
D420	X	1	16'-0"			APRON SLAB - WING 4 BAR SPACER	
D521	X	17	9'-7"	X		WING 4 B.F. DOWEL	
▲ D522	X	7	8'-11"	X	X	WING 4 B.F. DOWEL	
▲ D523	X	17	4'-7"		X	WING 4 B.F. VERT.	
D424	X	9	2'-9"			WING 4 F.F.DOWEL	
▲ D425	X	4	3'-0"		X	WING 4 F.F. DOWEL	
▲ D426	X	9	5'-1"		X	WING 4 F.F. VERT	
D427	X	4	17'-2"			WING 4 E.F. HORIZ.	
D428	X	2	16'-7"			WING 4 E.F. HORIZ.	
D429	X	2	12'-0"			WING 4 E.F. HORIZ.	
D430	X	2	7'-6"			WING 4 E.F. HORIZ.	
D431	X	2	2'-11"			WING 4 E.F. HORIZ.	
D532	X	2	17'-5"			WING 4 E.F. DIAG.	

▲ 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
U403	1 SERIES OF 16	18'-2" TO 34'-2"
U405	1 SERIES OF 8	1'-11" TO 15'-3"
U406	1 SERIES OF 7	3'-3" TO 15'-1"
U509	1 SERIES OF 7	8'-3" TO 9'-7"
U510	1 SERIES OF 16	2'-11" TO 6'-3"
U412	1 SERIES OF 4	2'-4" TO 3'-8"
U413	1 SERIES OF 8	3'-2" TO 6'-4"
U522	1 SERIES OF 7	8'-4" TO 9'-6"
U523	1 SERIES OF 19	2'-9" TO 6'-3"
U425	1 SERIES OF 4	2'-4" TO 3'-6"
U426	1 SERIES OF 10	2'-9" TO 6'-3"

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

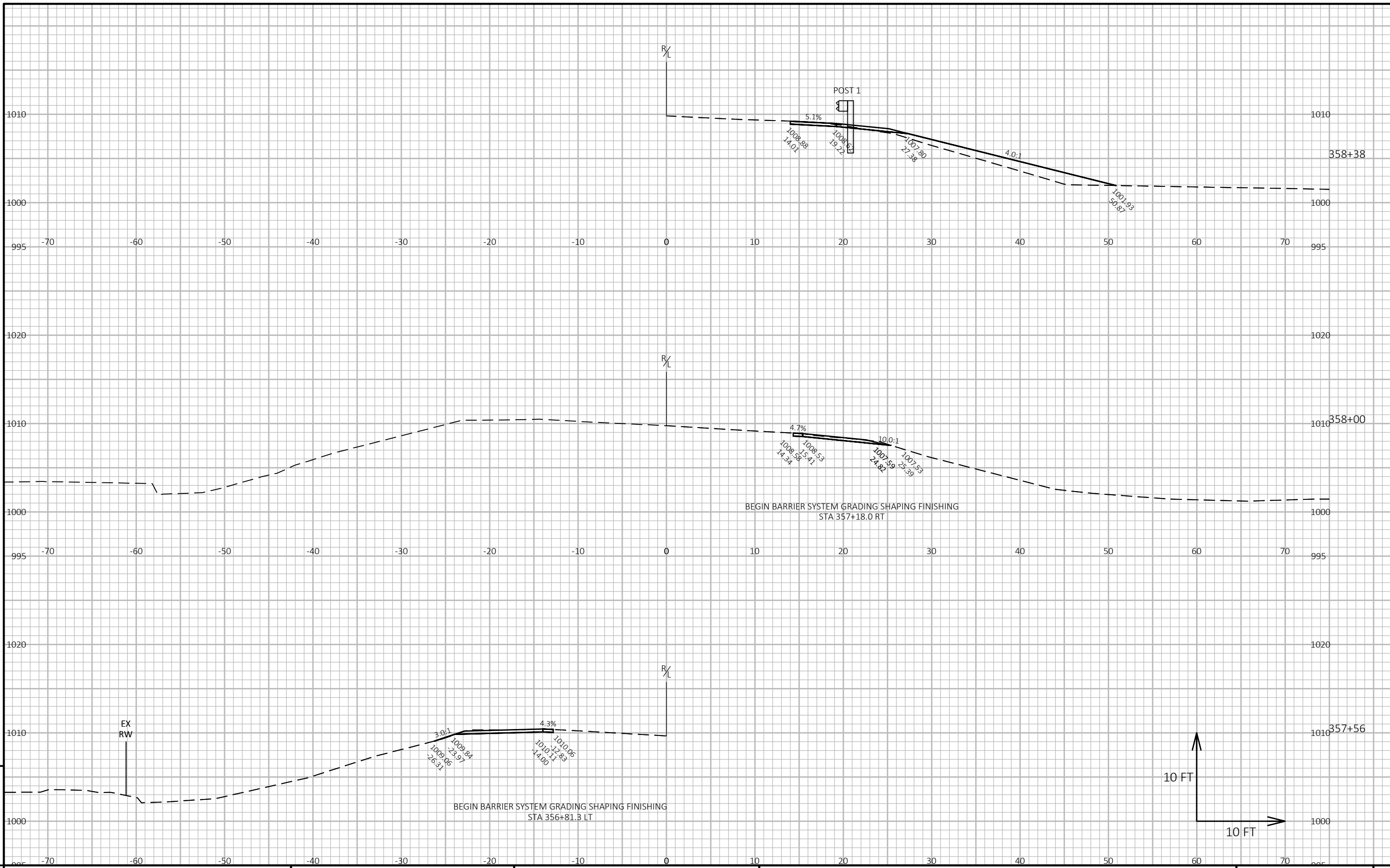
BAR MARK	NO. REQ'D.	LENGTH
D403	1 SERIES OF 16	18'-2" TO 26'-4"
D405	1 SERIES OF 4	2'-5" TO 14'-3"
D406	1 SERIES OF 4	3'-8" TO 14'-4"
D509	1 SERIES OF 7	8'-4" TO 9'-8"
D510	1 SERIES OF 15	3'-1" TO 6'-5"
D412	1 SERIES OF 4	2'-4" TO 3'-8"
D413	1 SERIES OF 8	3'-1" TO 6'-5"
D522	1 SERIES OF 7	8'-4" TO 9'-6"
D523	1 SERIES OF 17	2'-10" TO 6'-4"
D425	1 SERIES OF 4	2'-4" TO 3'-8"
D426	1 SERIES OF 9	3'-4" TO 6'-10"

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-17-50			
DRAWN BY		PLANS CK'D	
CJM		KBM	
APRON BAR STEEL DETAILS			SHEET 9 OF 9

SCALE = 1

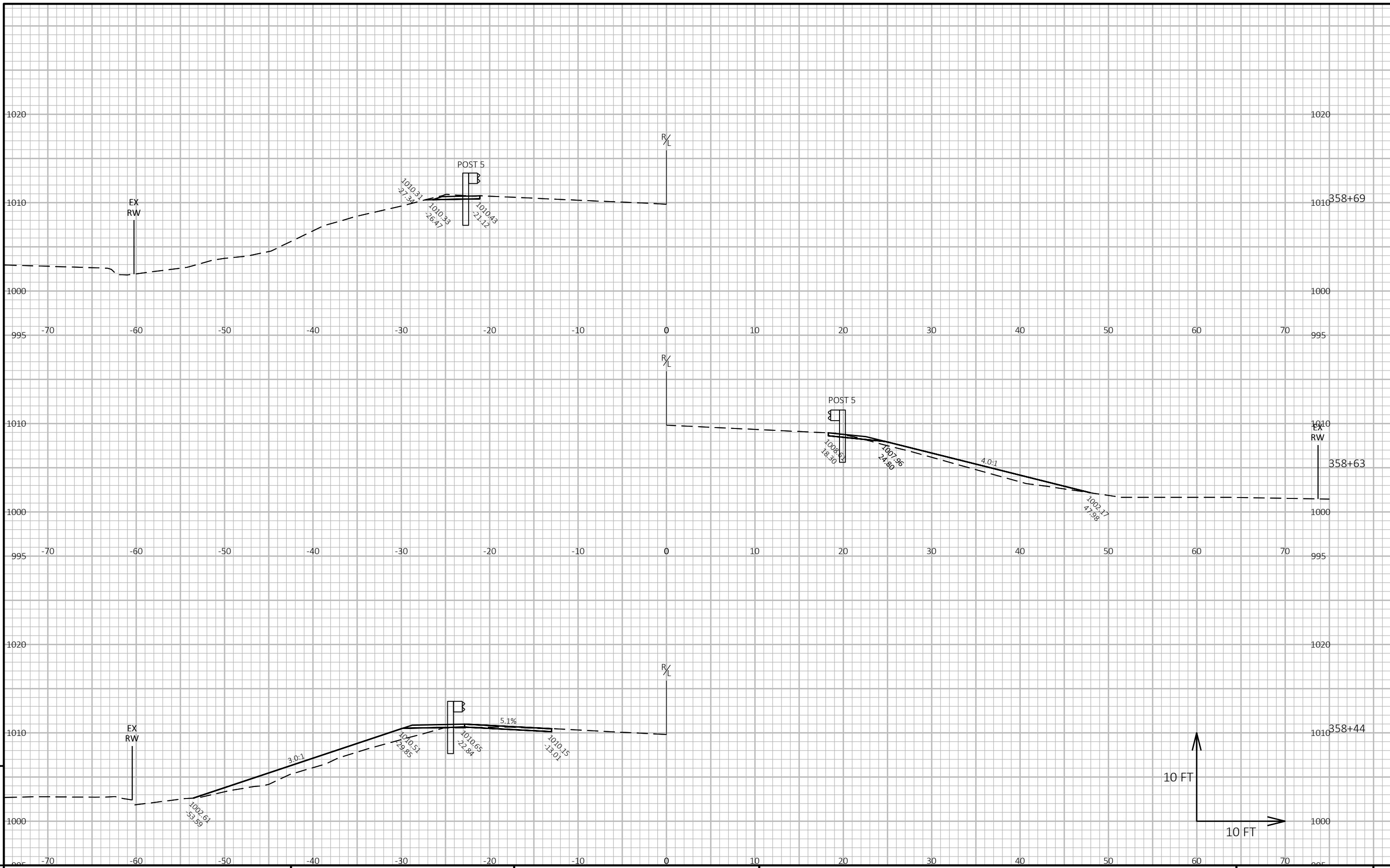


PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:22 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

9

9



PROJECT NO: 8110-01-72

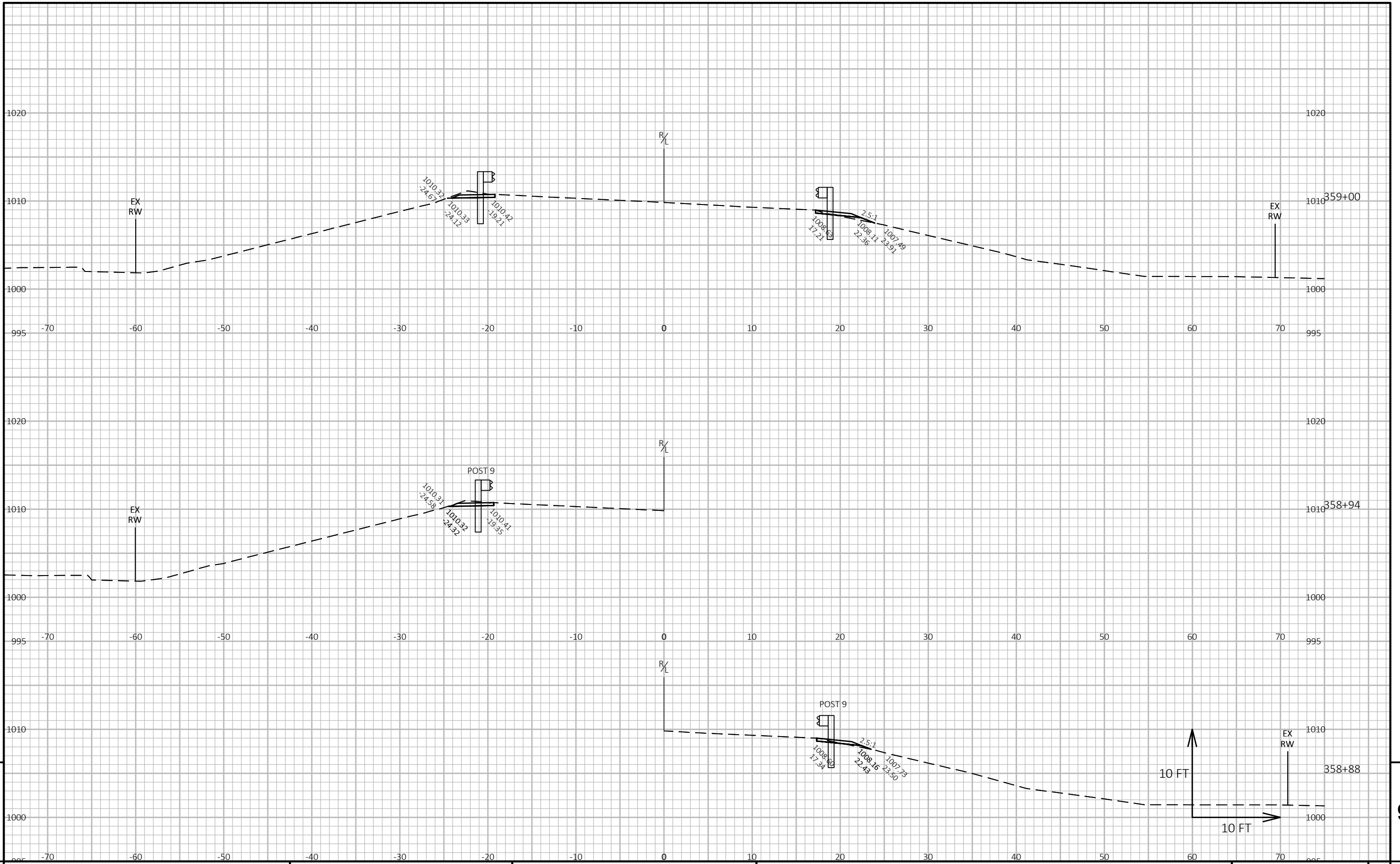
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



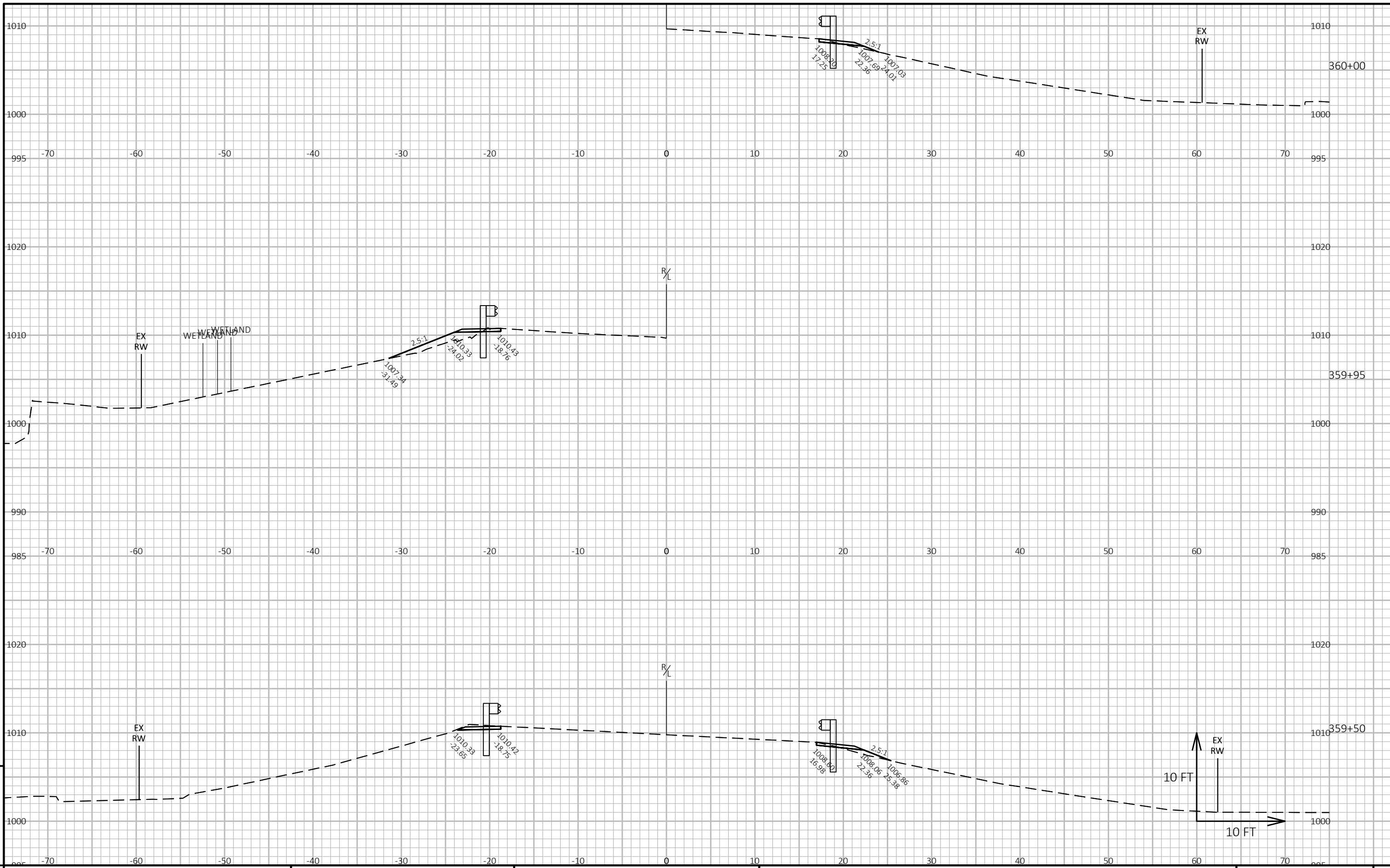
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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LAYOUT NAME - 003



PROJECT NO: 8110-01-72

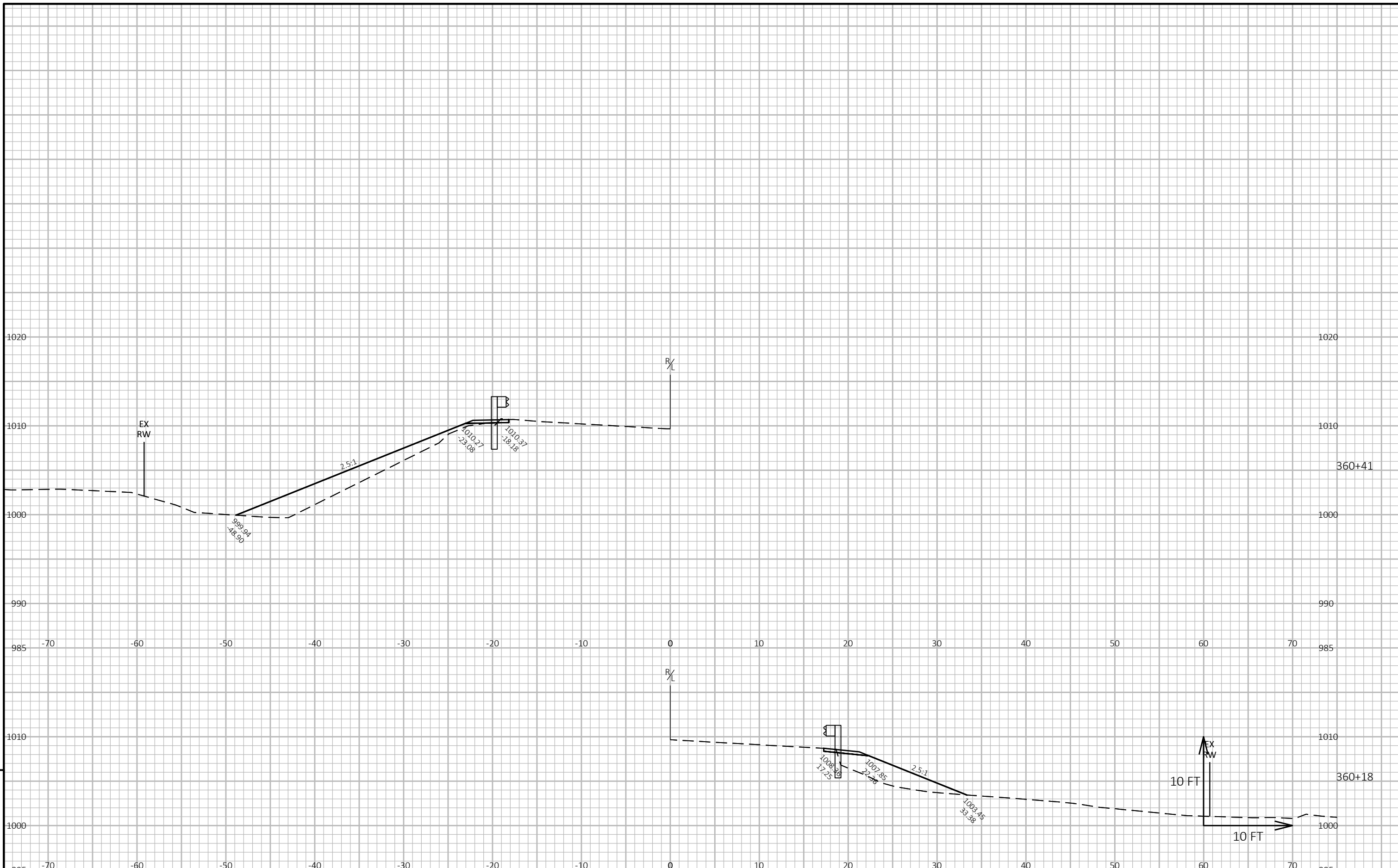
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



9

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PROJECT NO: 8110-01-72

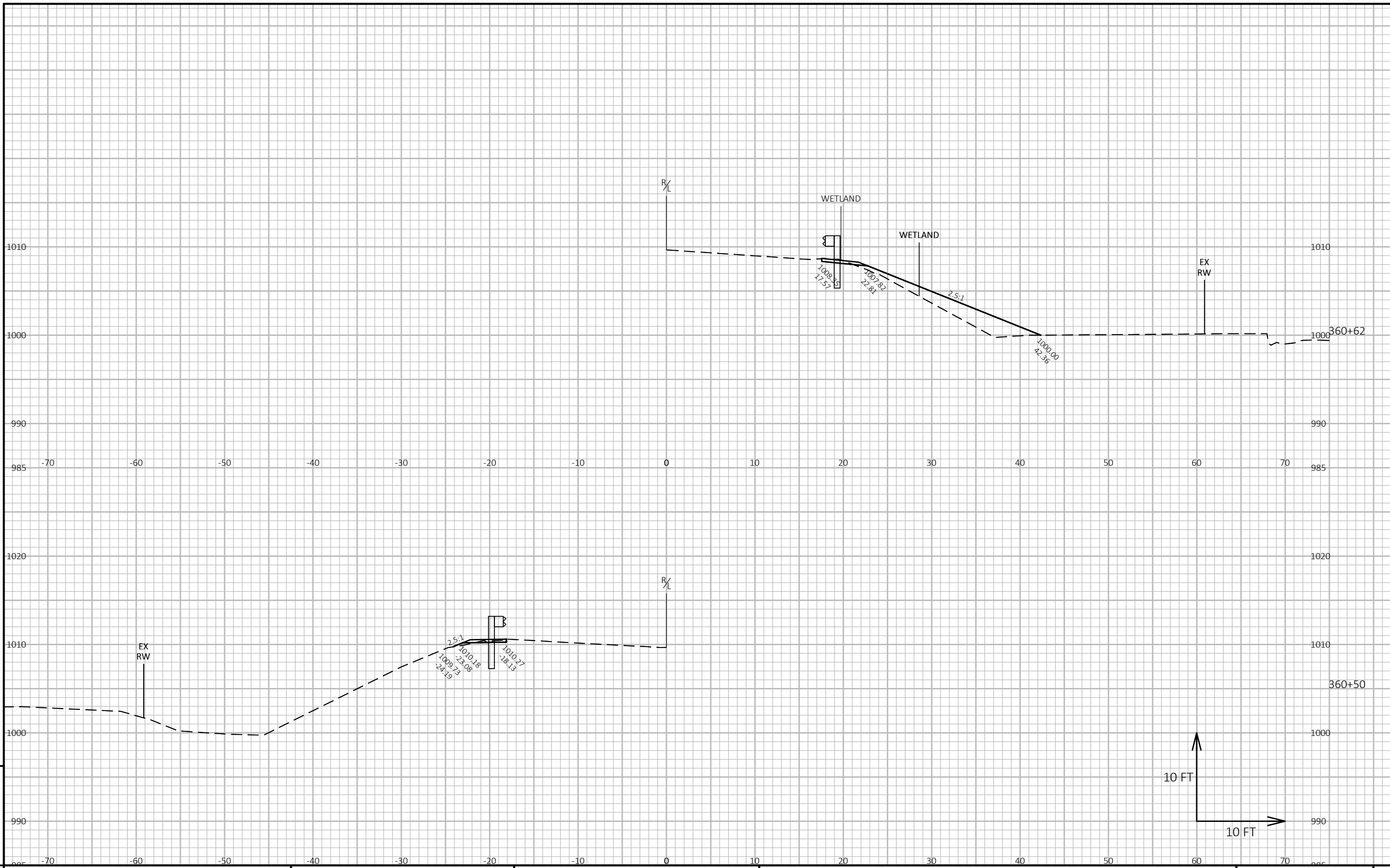
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COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



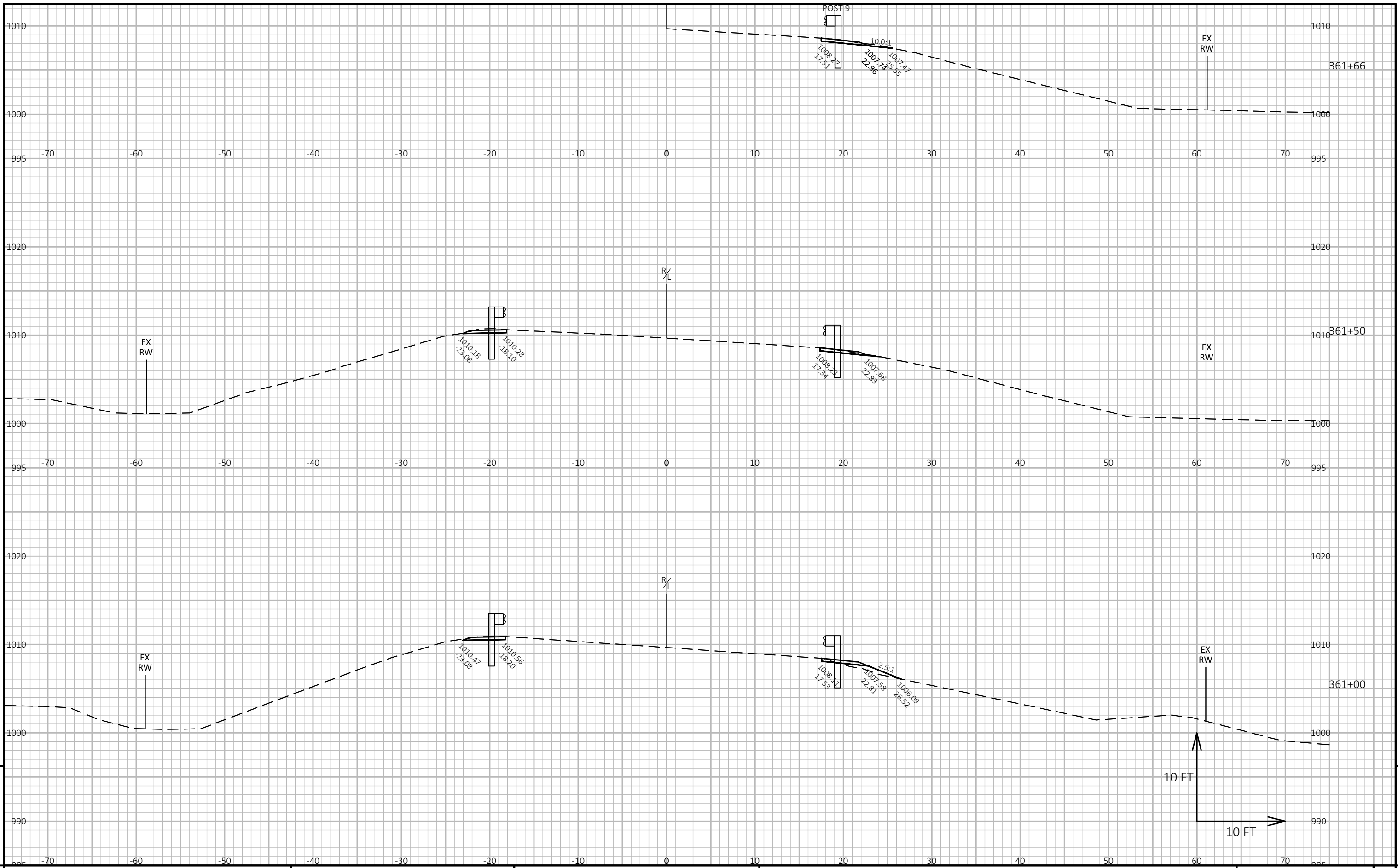
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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LAYOUT NAME - 006



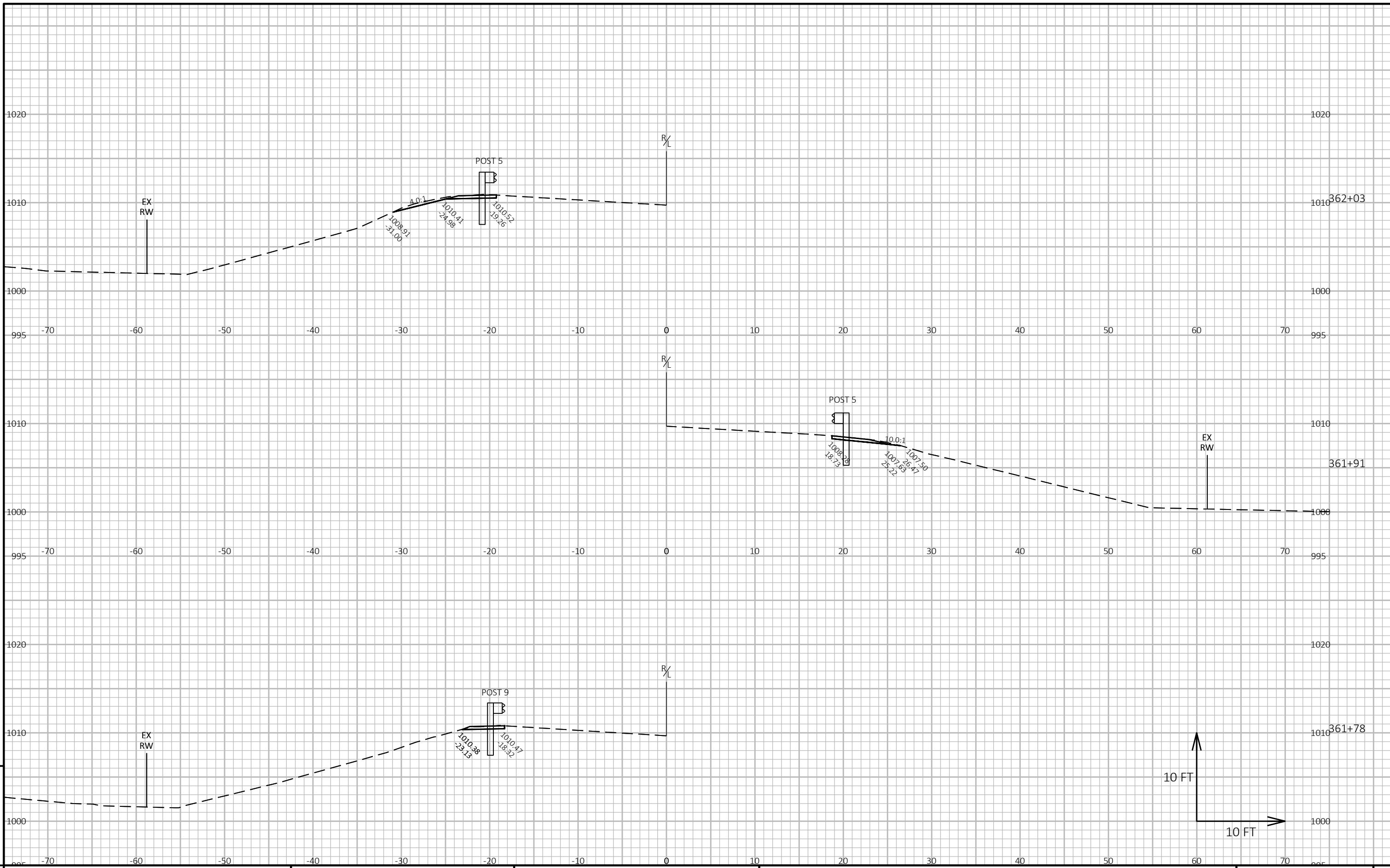
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

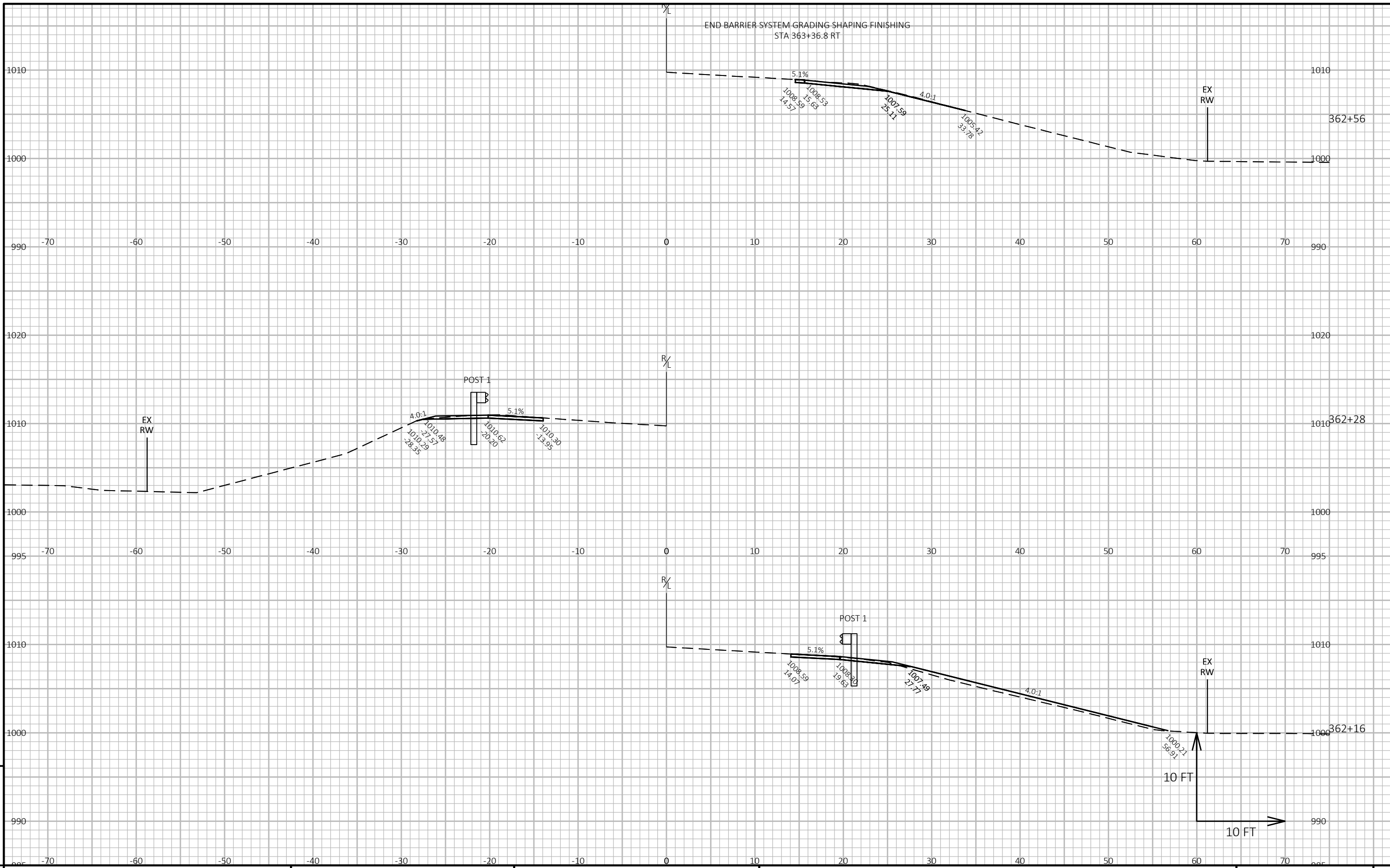
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LAYOUT NAME - 007



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET 9

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:25 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



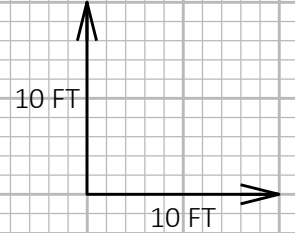
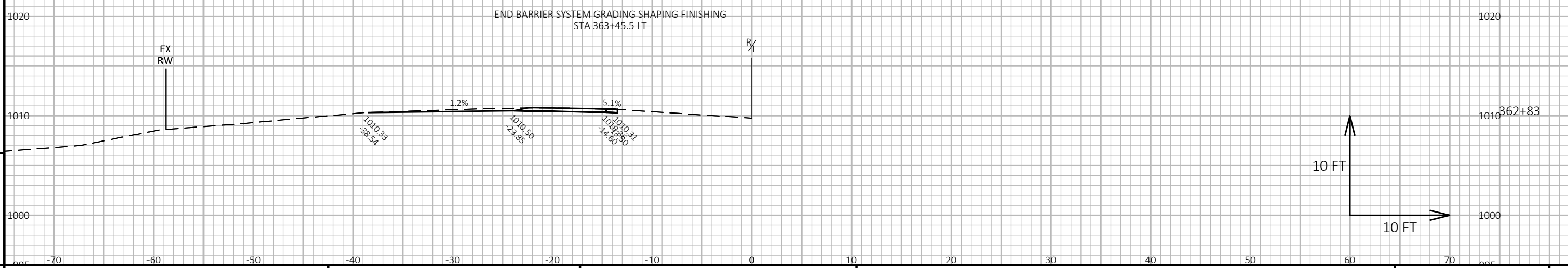
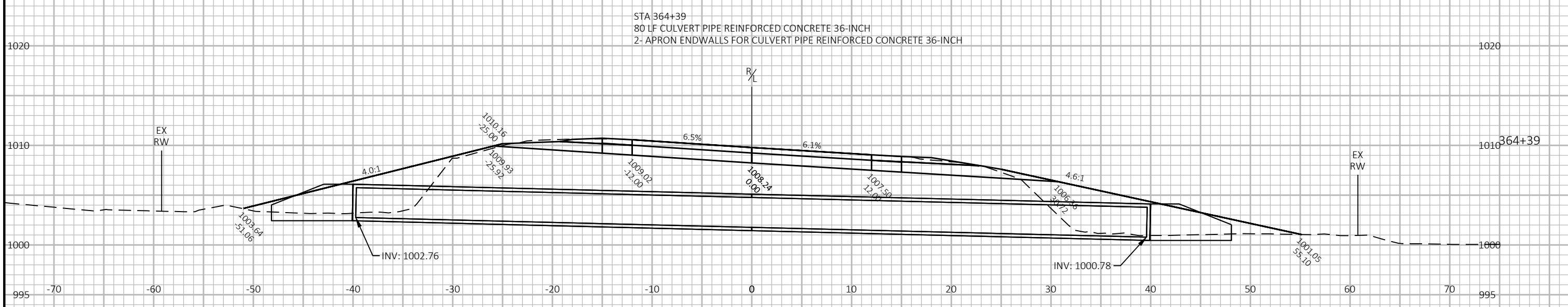
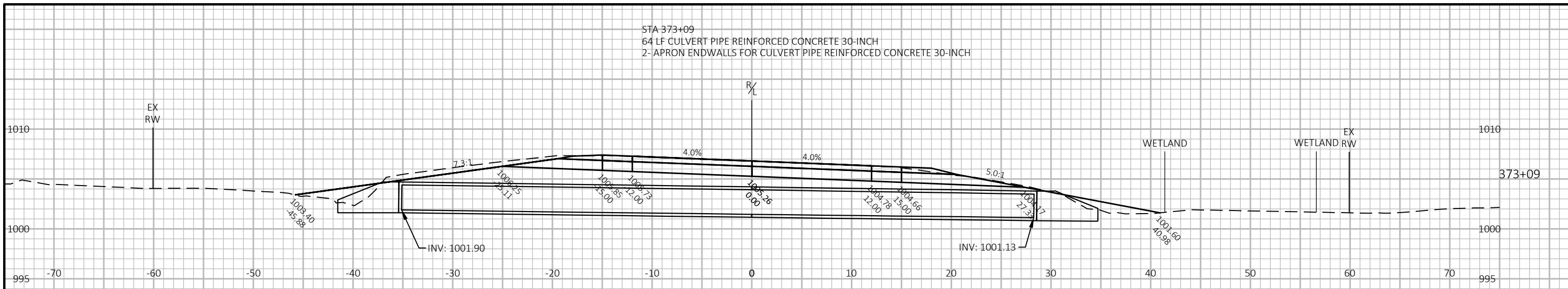
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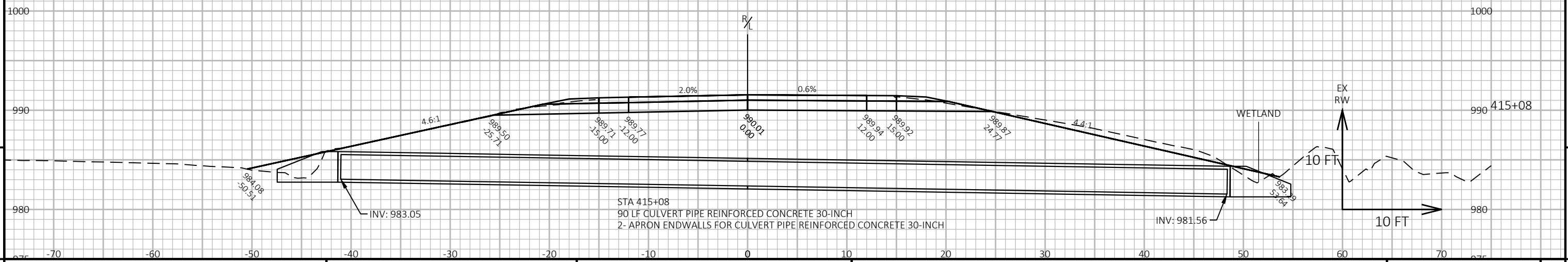
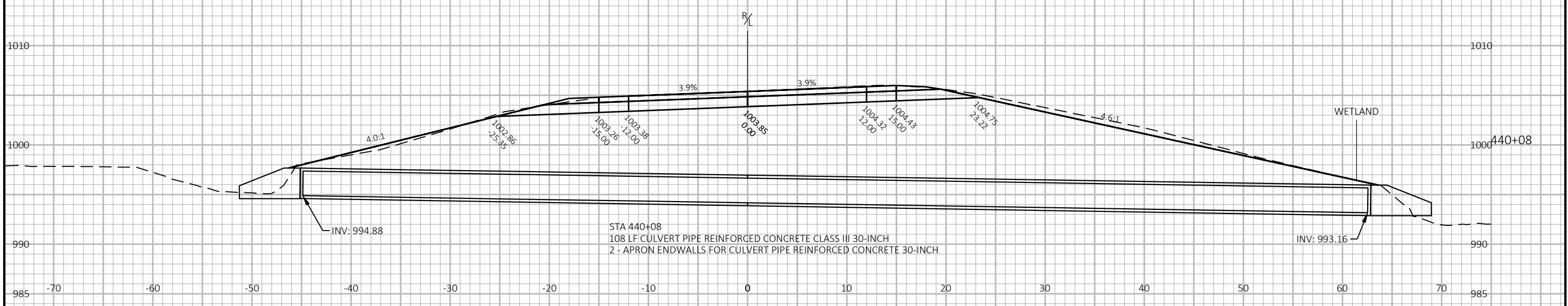
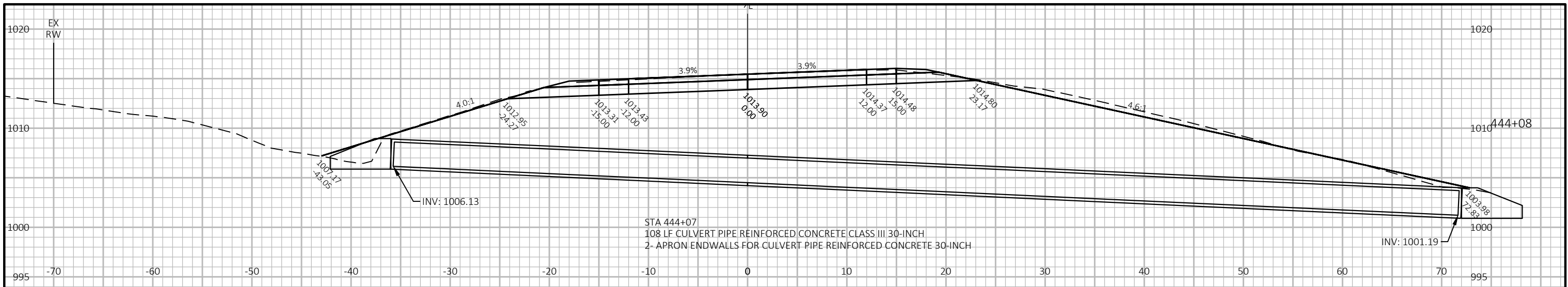
PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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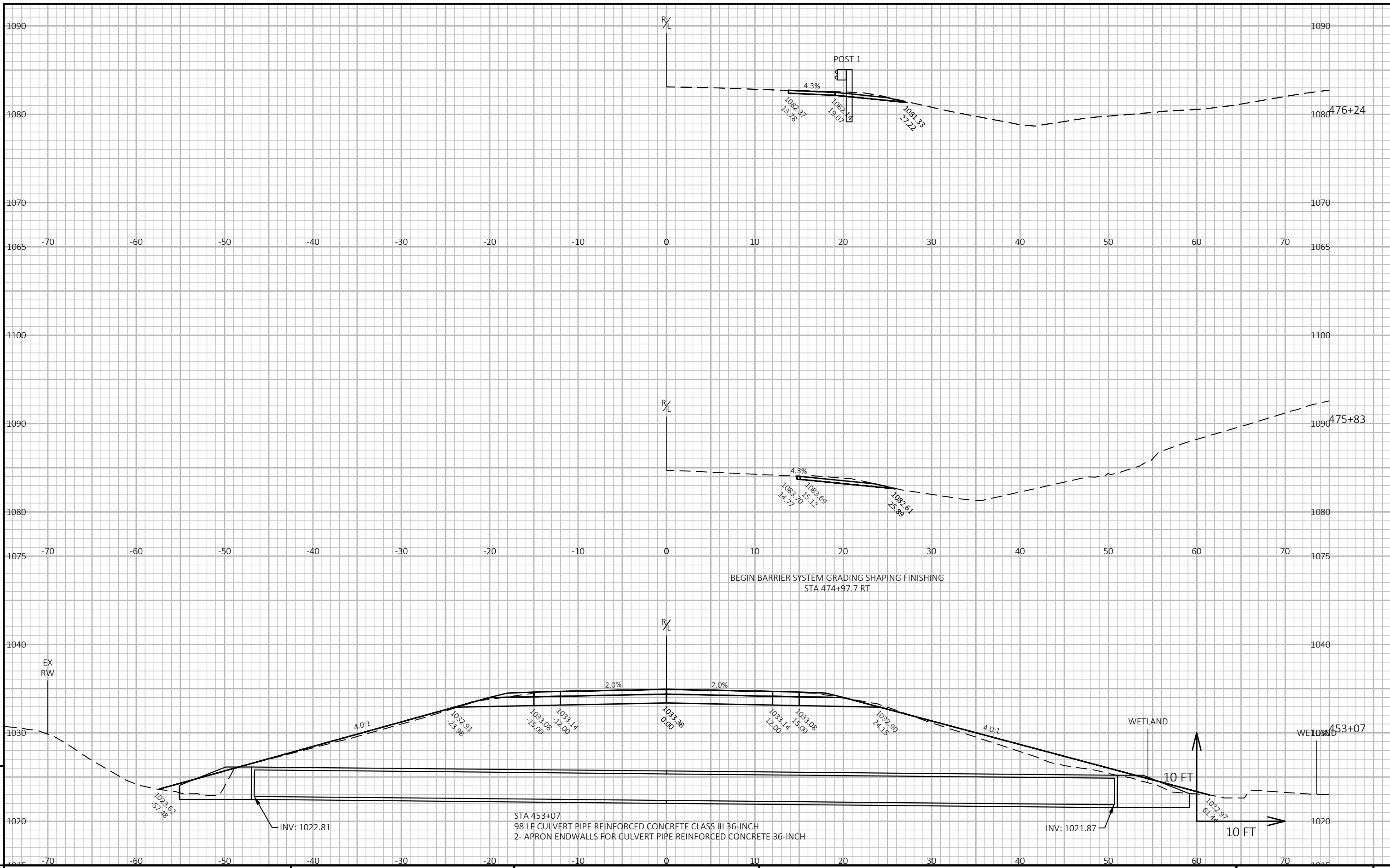
LAYOUT NAME - 009



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



PROJECT NO: 8110-01-72

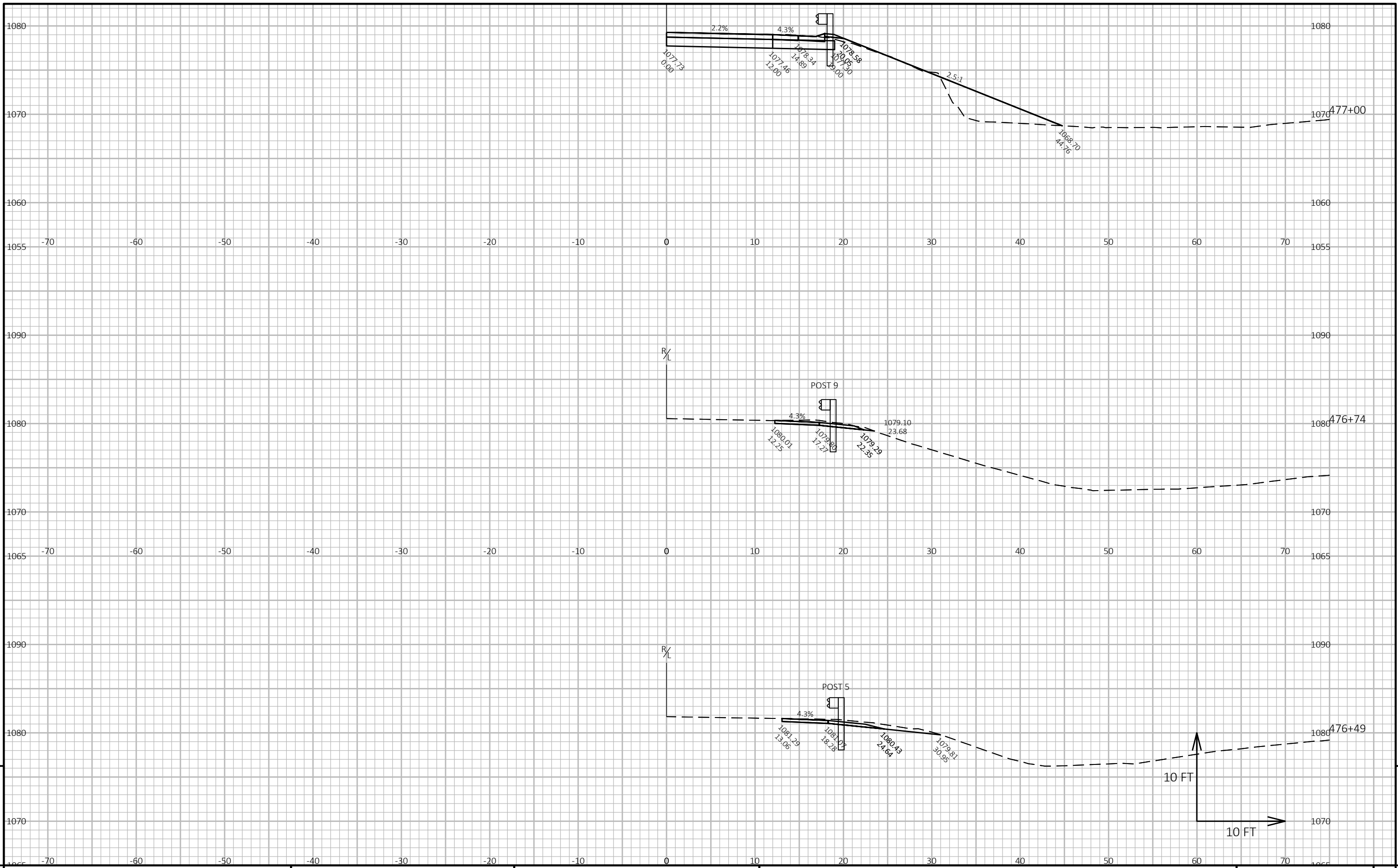
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



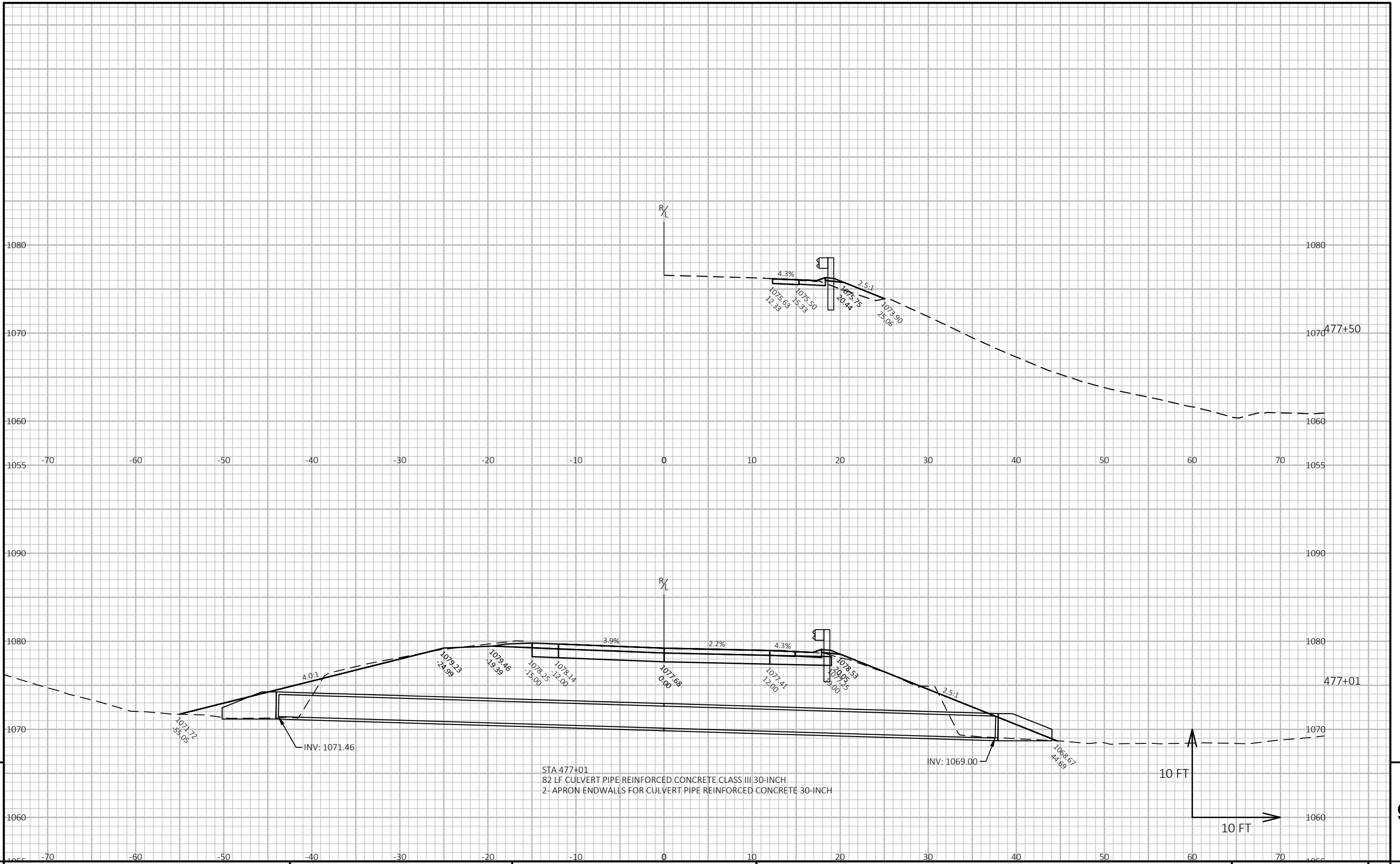
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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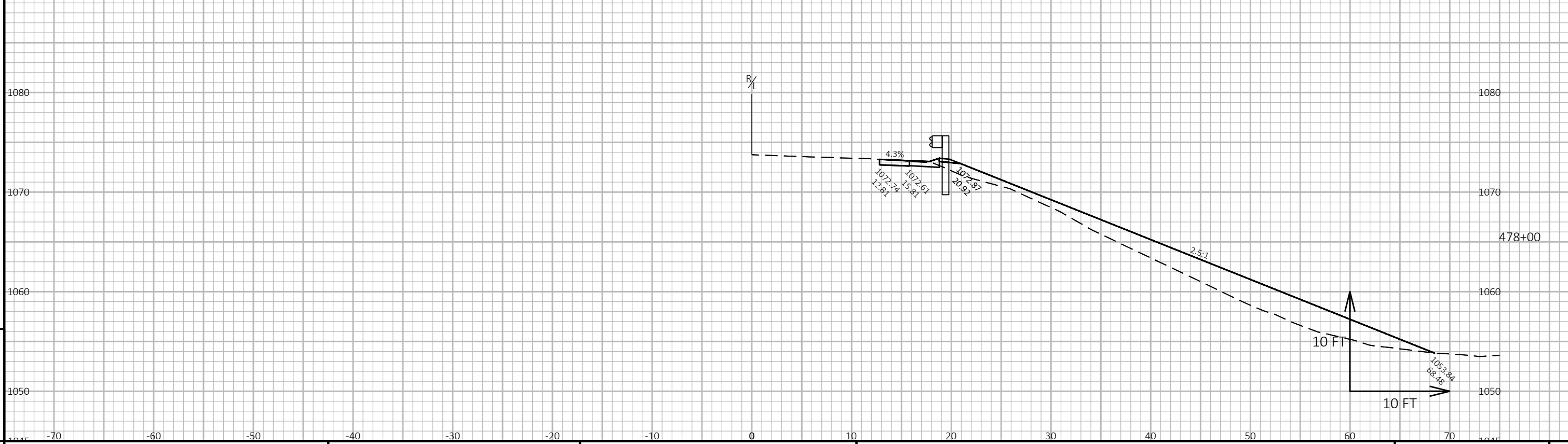
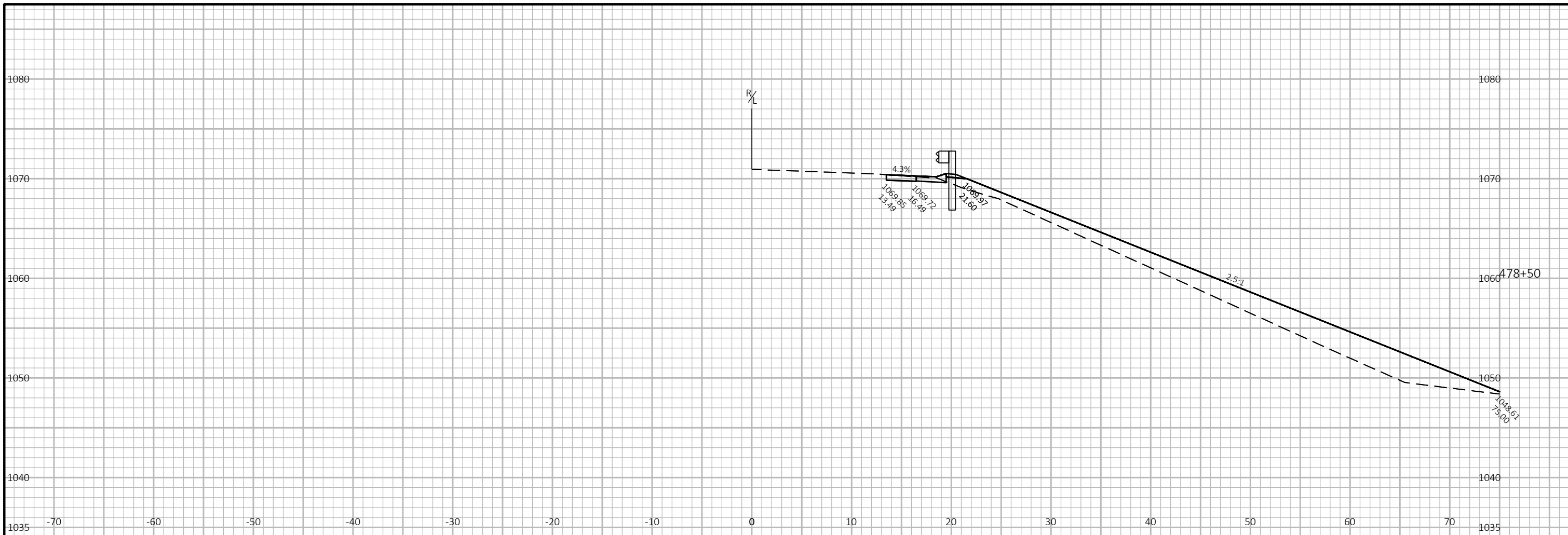
LAYOUT NAME - 014



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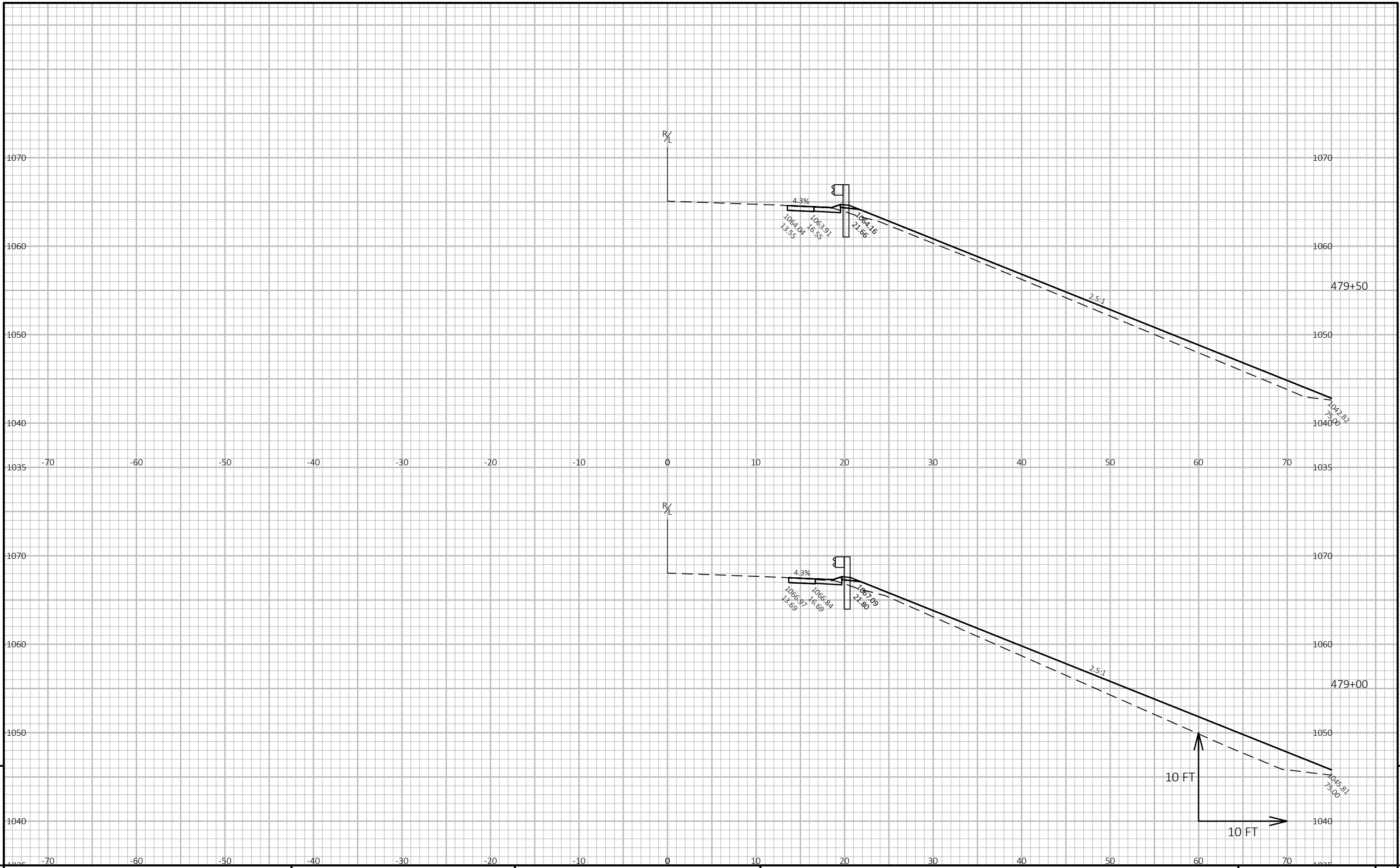
PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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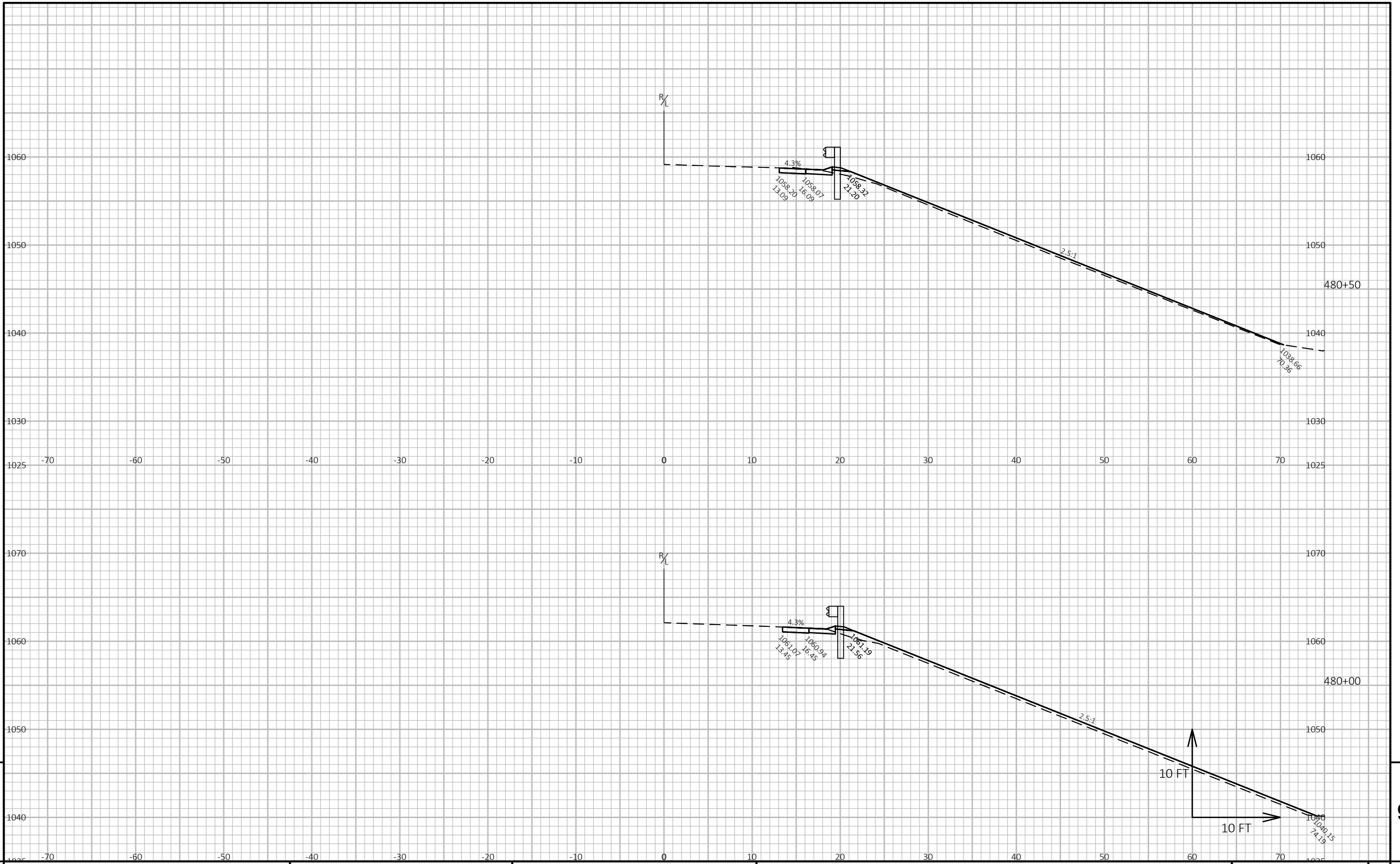
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LAYOUT NAME - 017



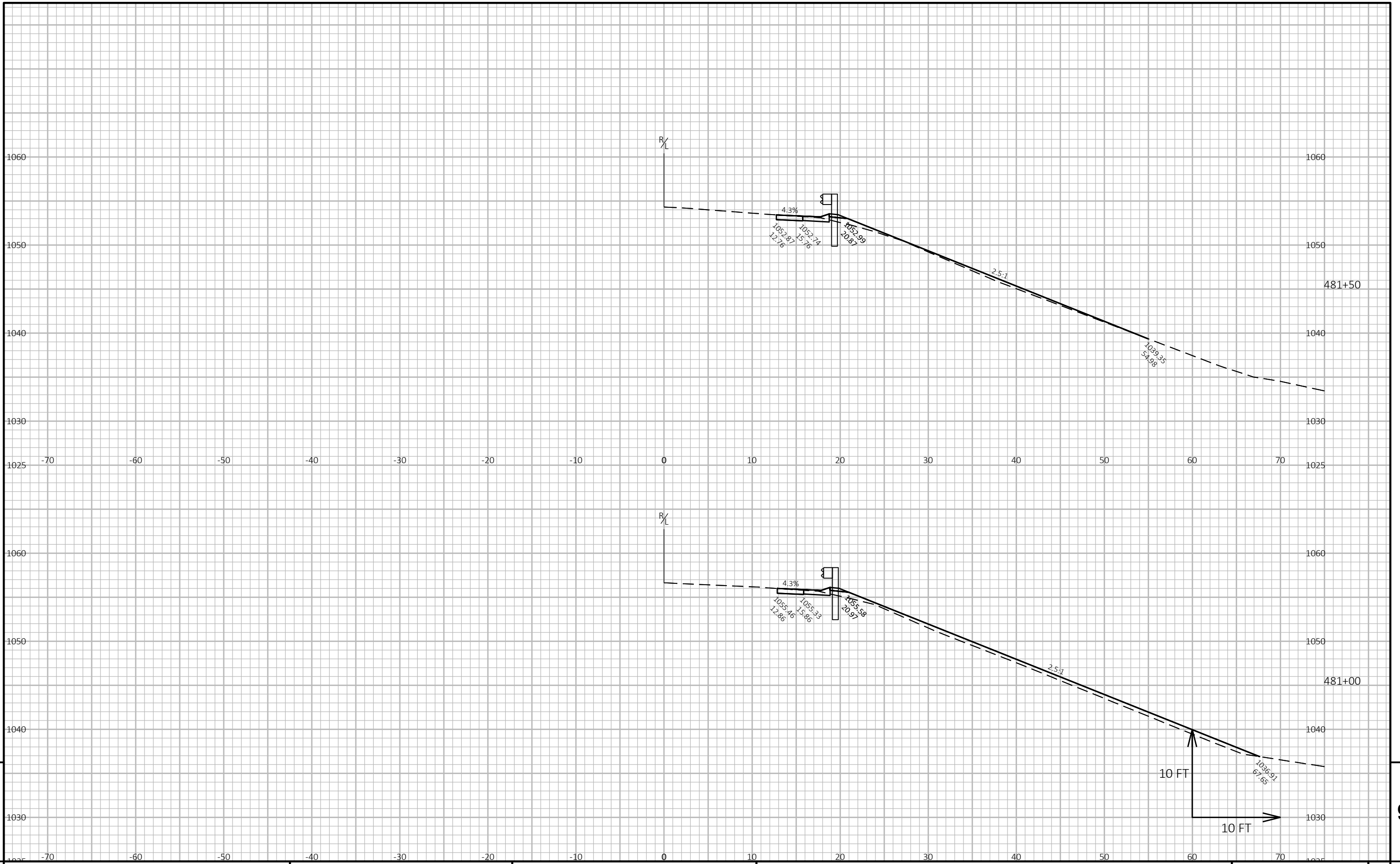
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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LAYOUT NAME - 018

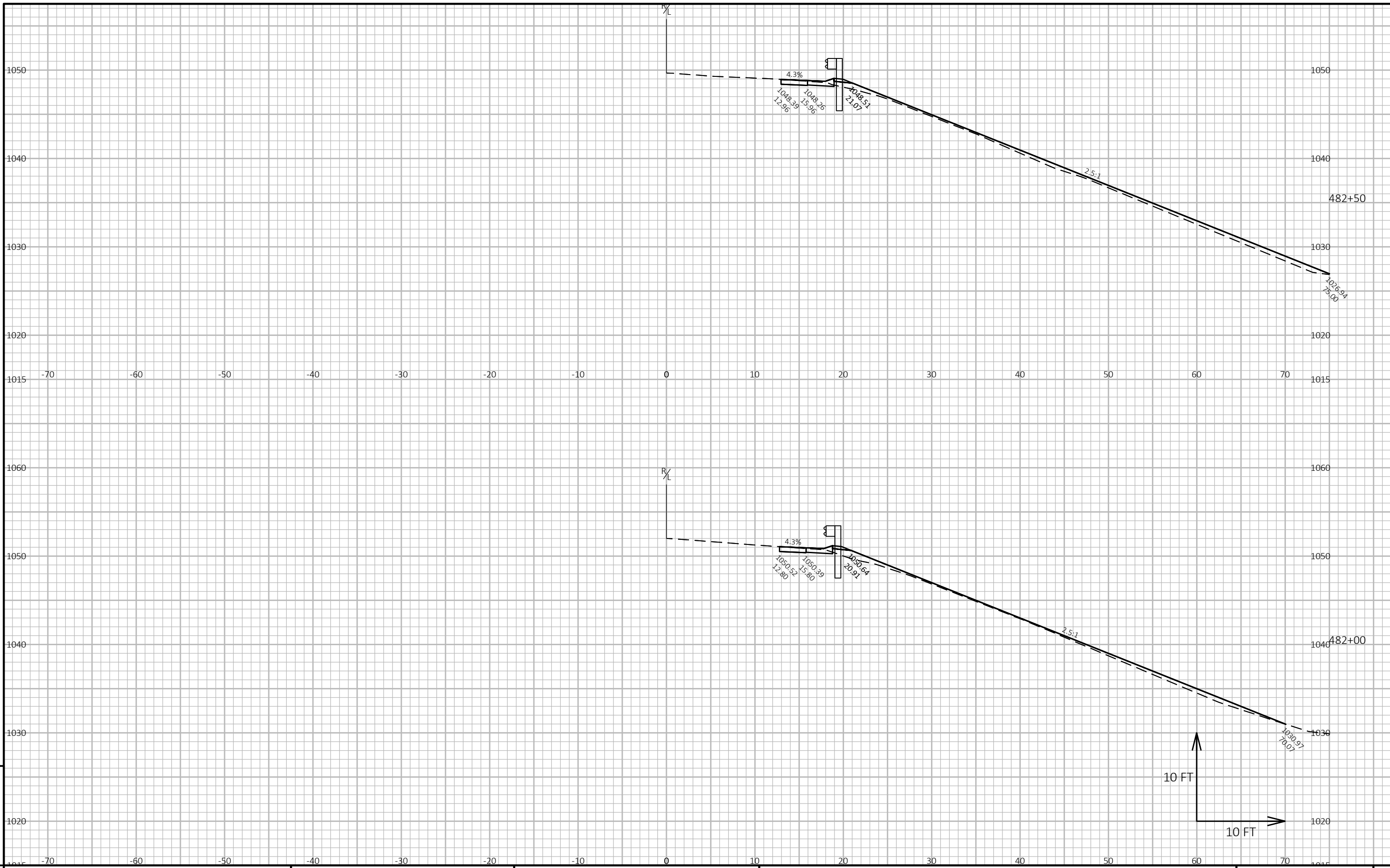


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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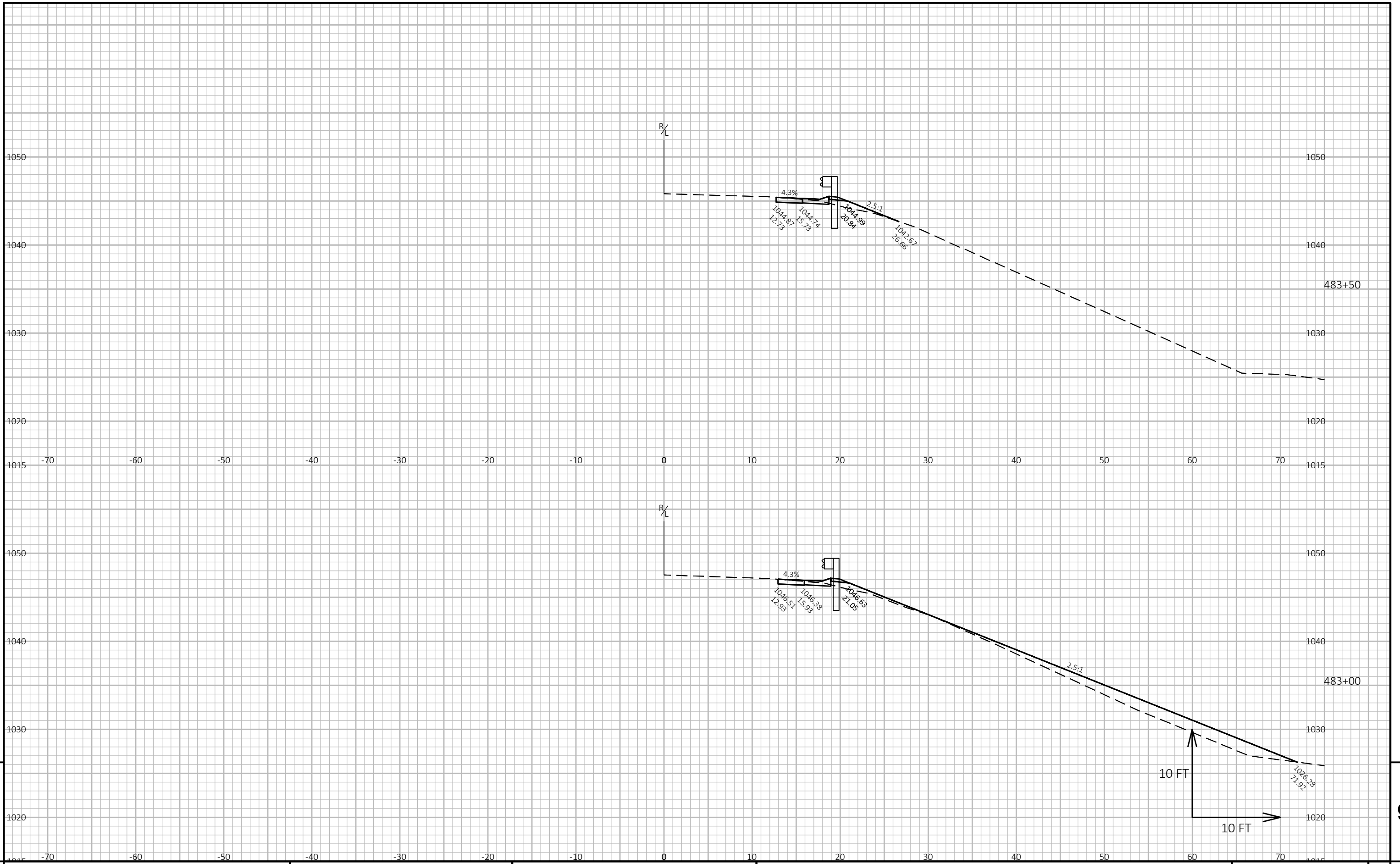
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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LAYOUT NAME - 020



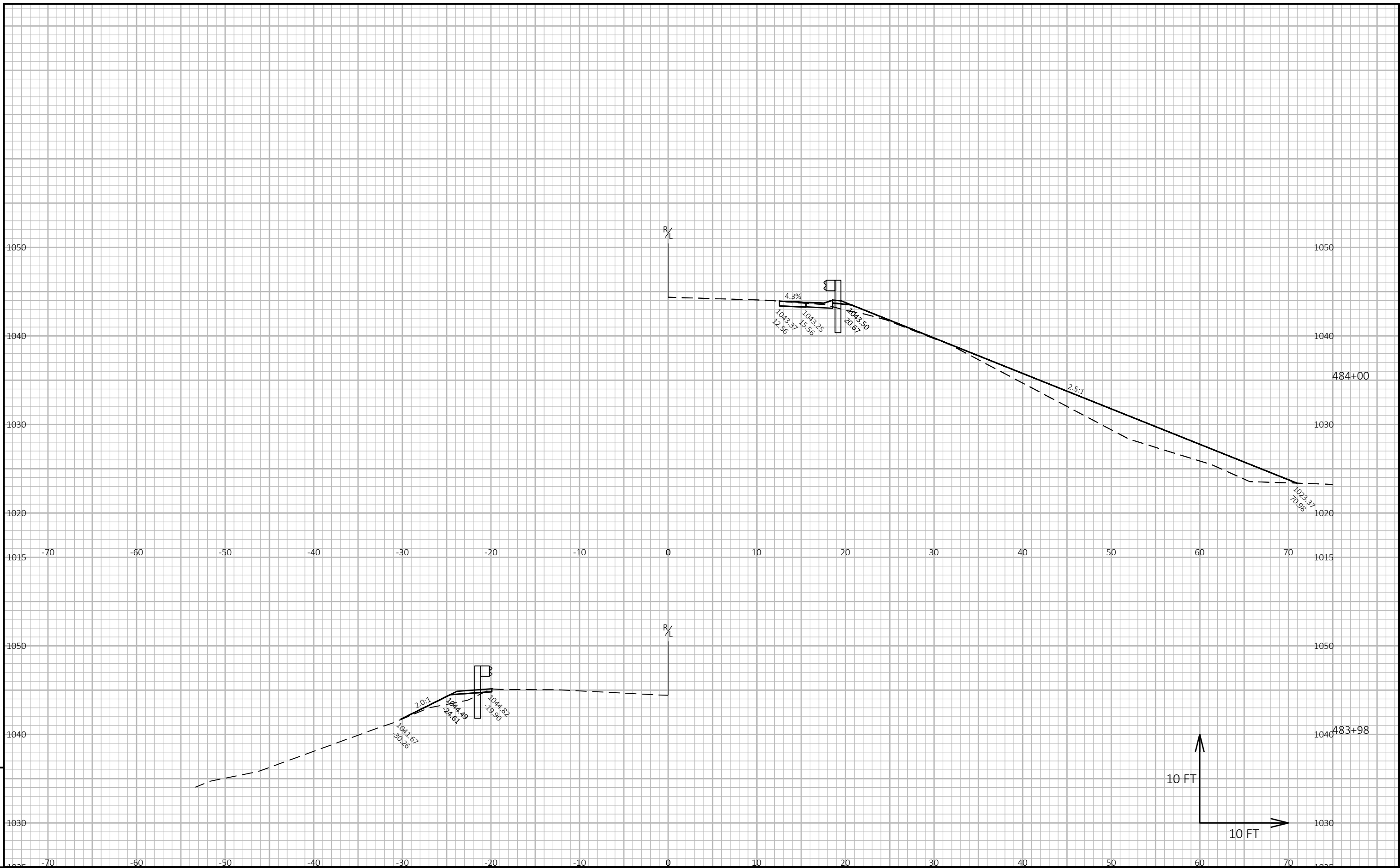
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSP\AN\090201-XS.DWG PLOT DATE: 8/1/2023 6:33 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

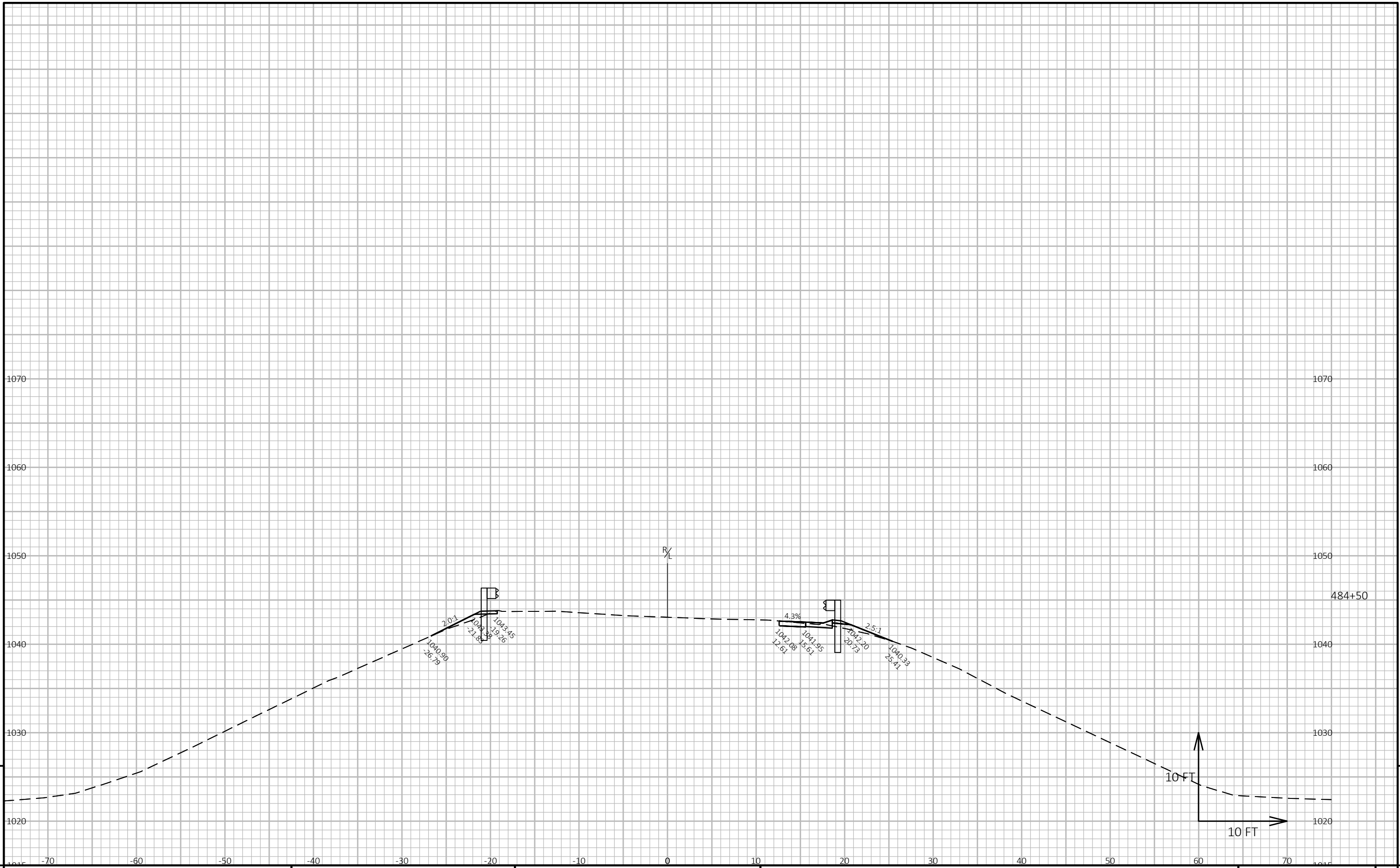
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



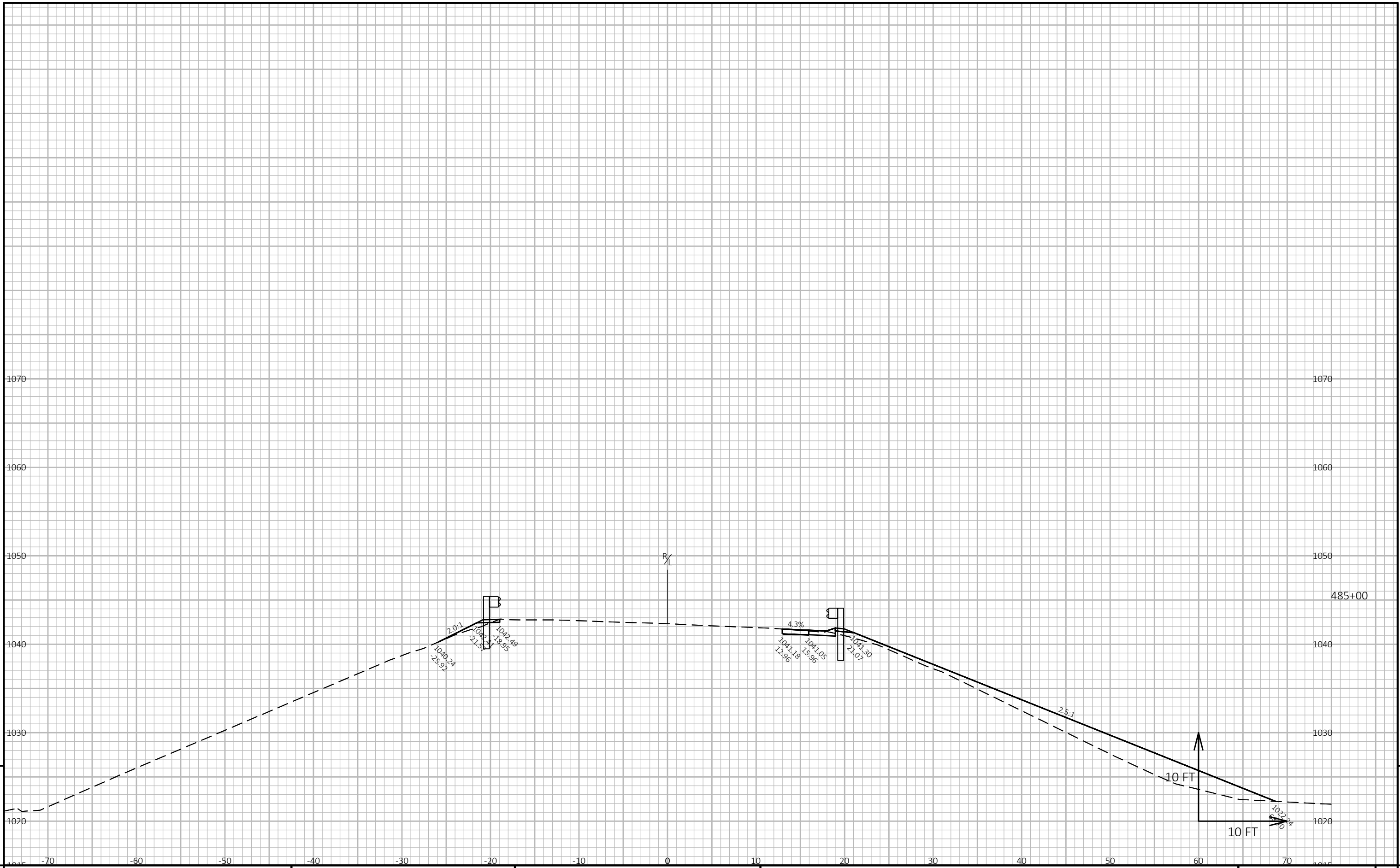
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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LAYOUT NAME - 023



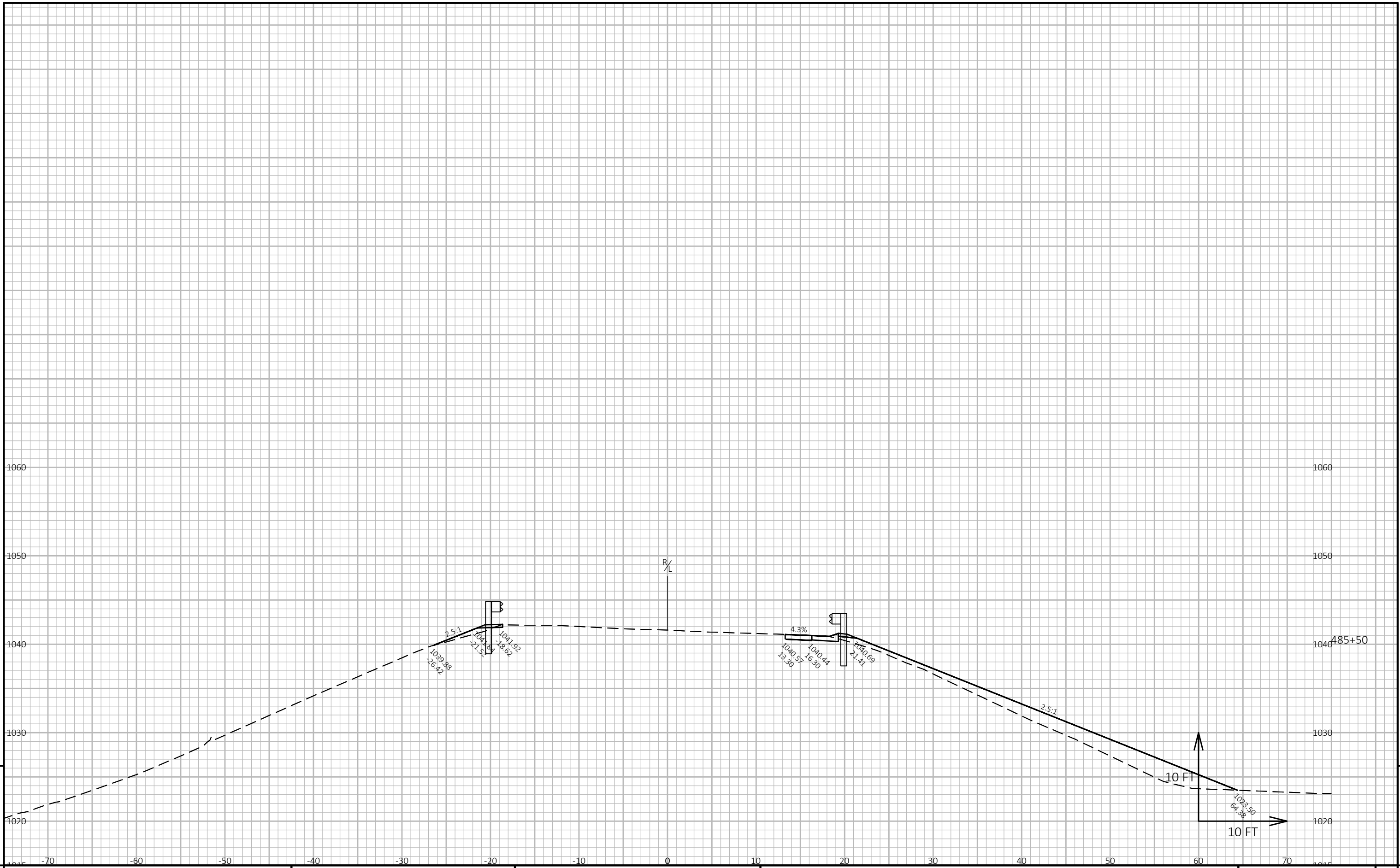
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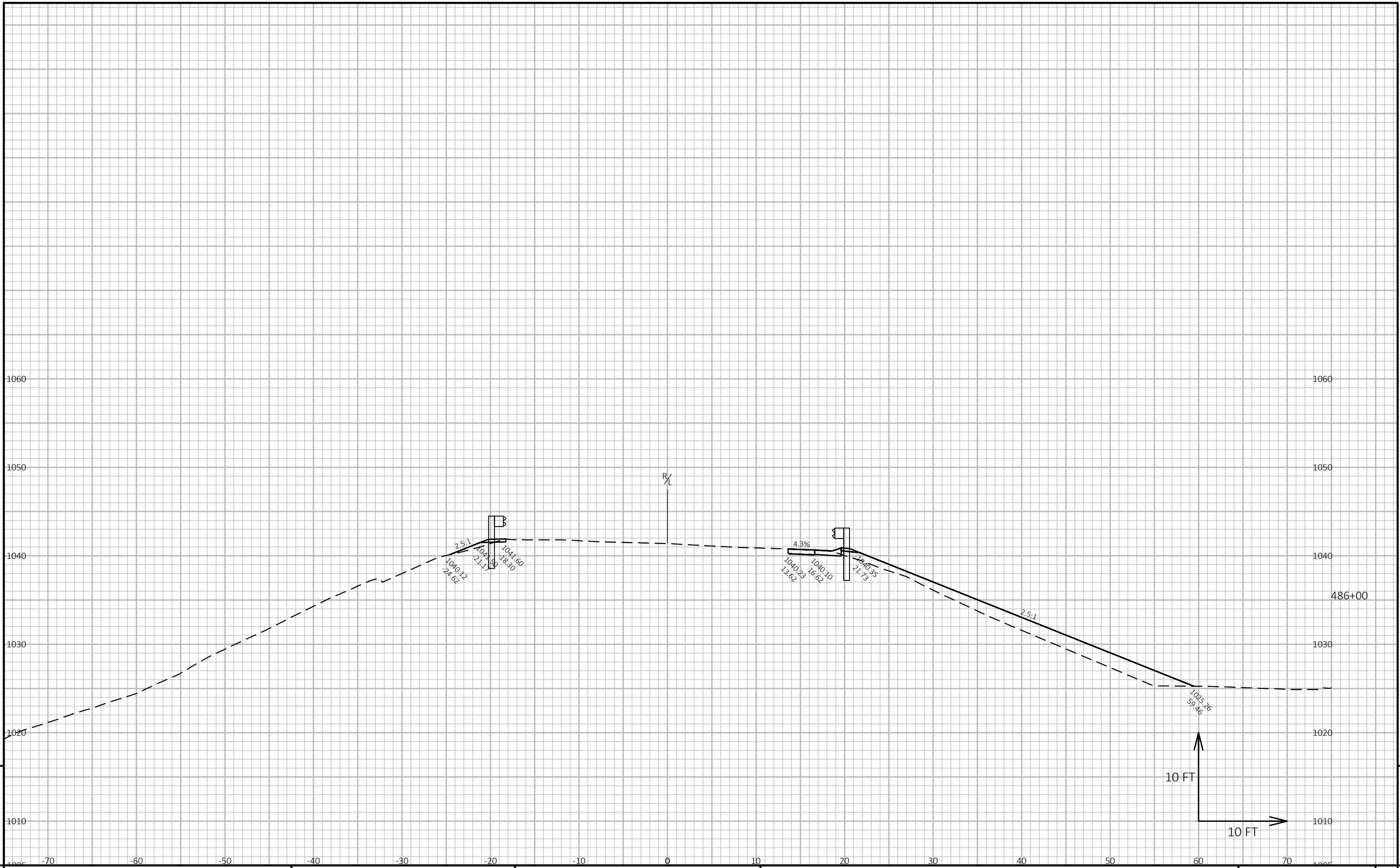
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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LAYOUT NAME - 025



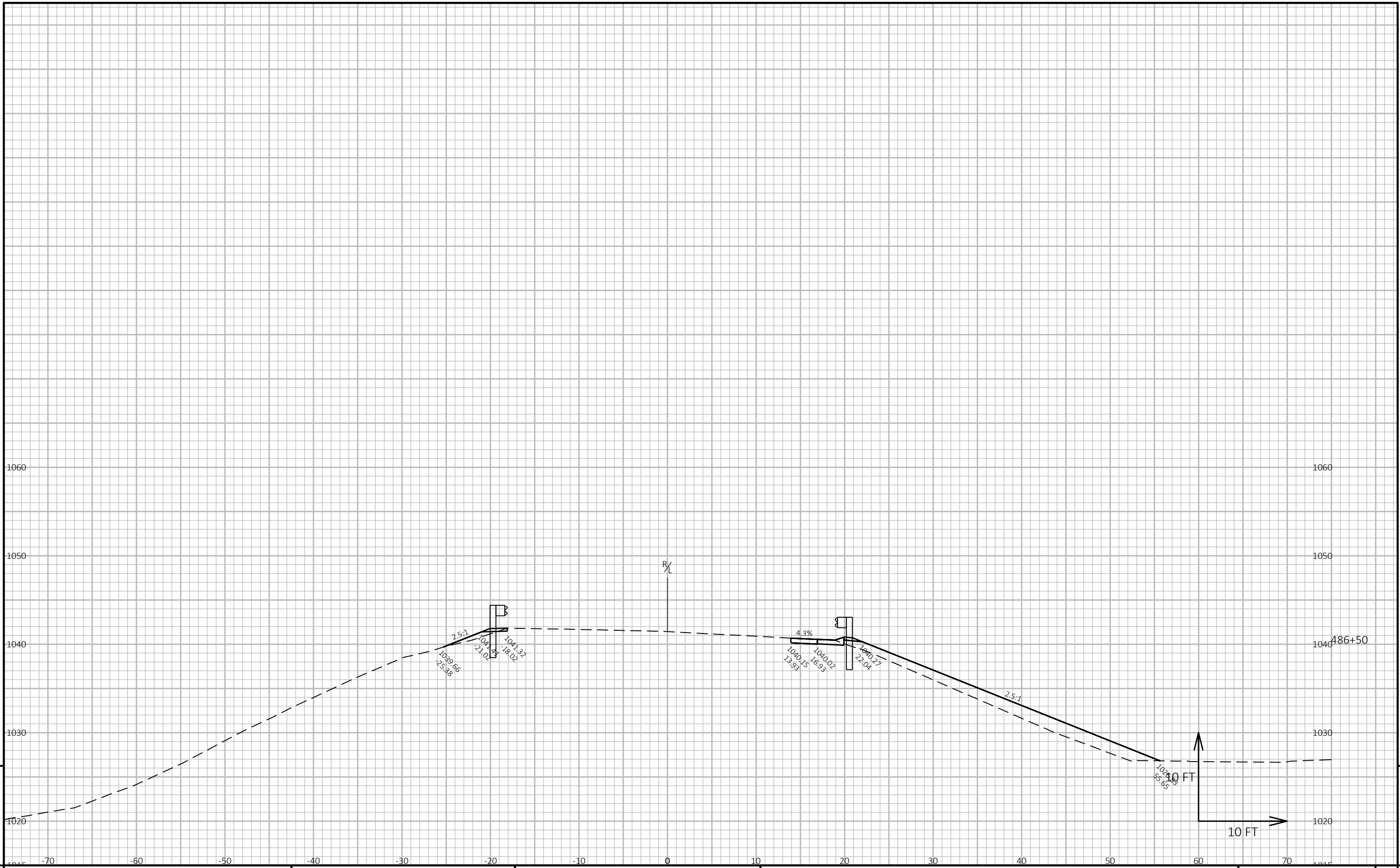
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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LAYOUT NAME - 026

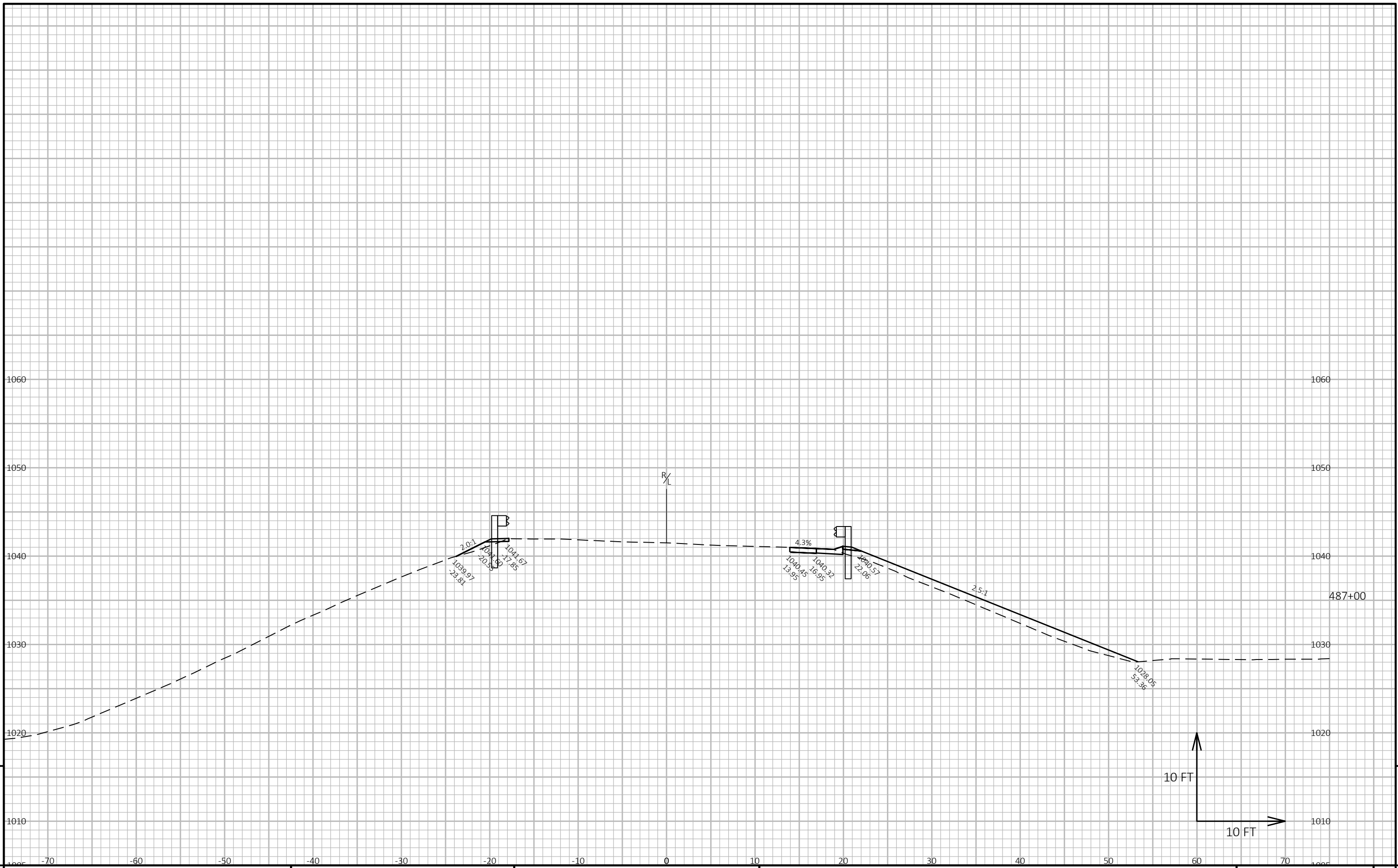


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PROJECT NO: 8110-01-72 | HWY: STH 64 | COUNTY: DUNN | CROSS SECTIONS: STH 64 | SHEET | E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG | PLOT DATE: 8/1/2023 6:35 AM | PLOT BY: STEVE LIPPERT | PLOT NAME: | PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. | WISDOT/CADD SHEET 49



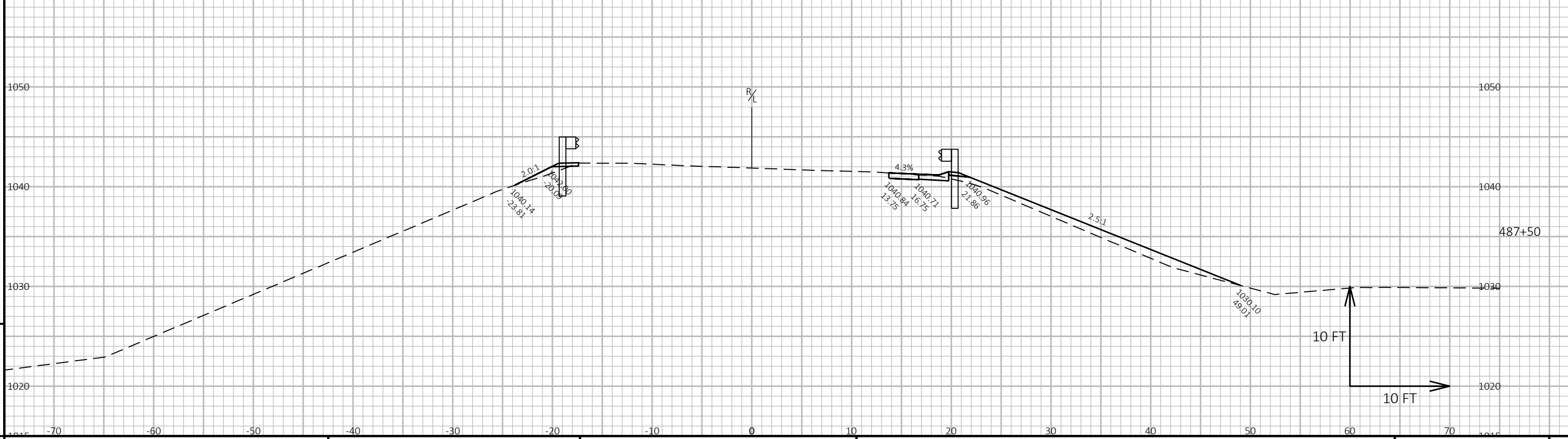
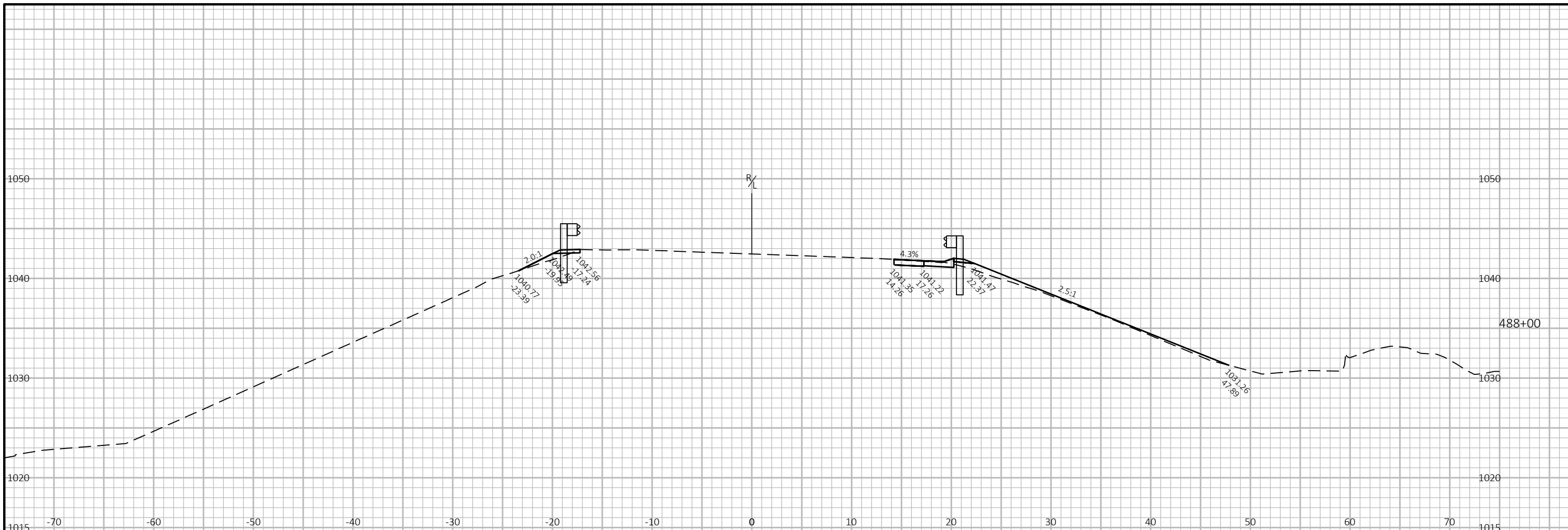
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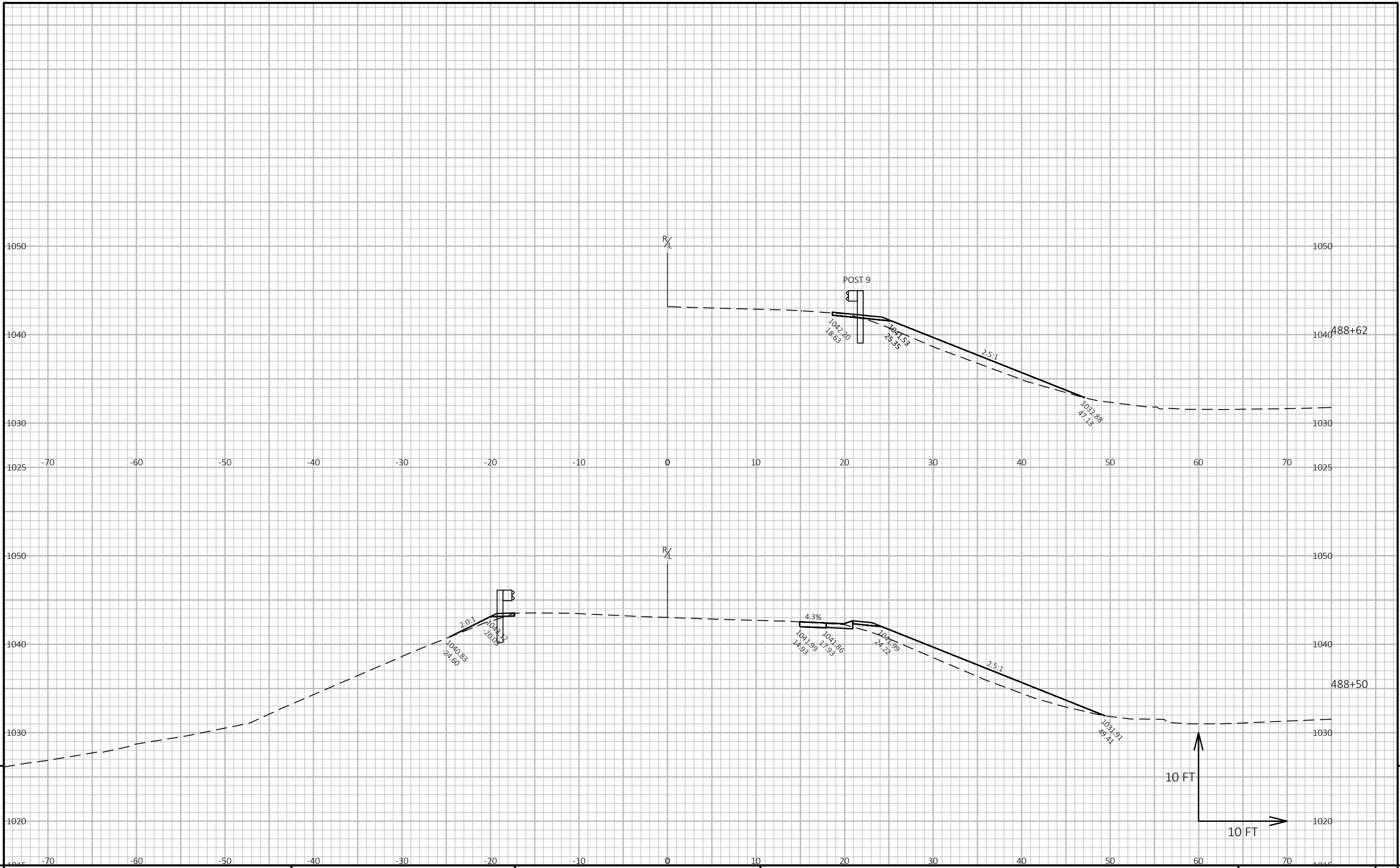
PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:35 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 028



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET 9



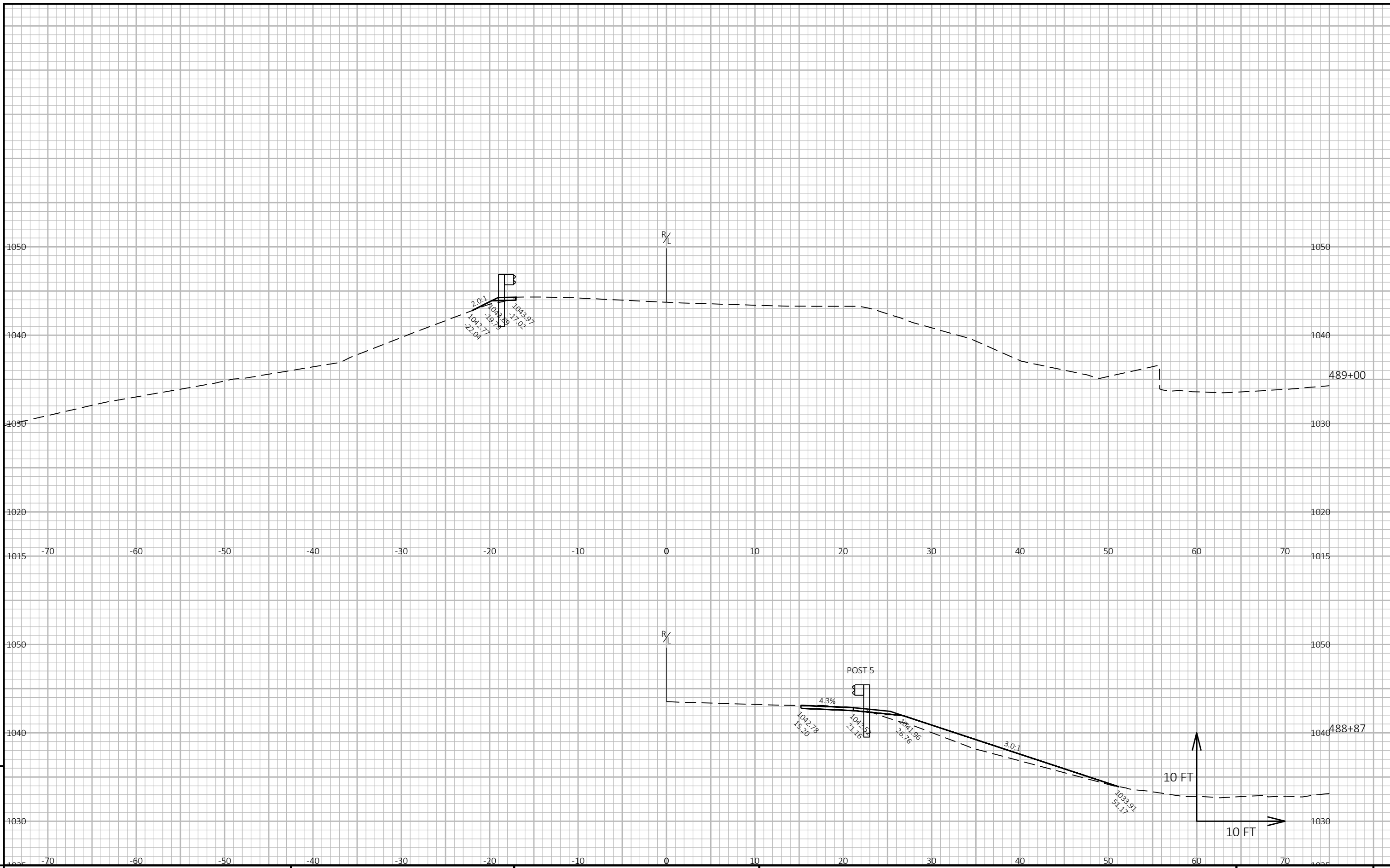
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:36 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 030



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PROJECT NO: 8110-01-72

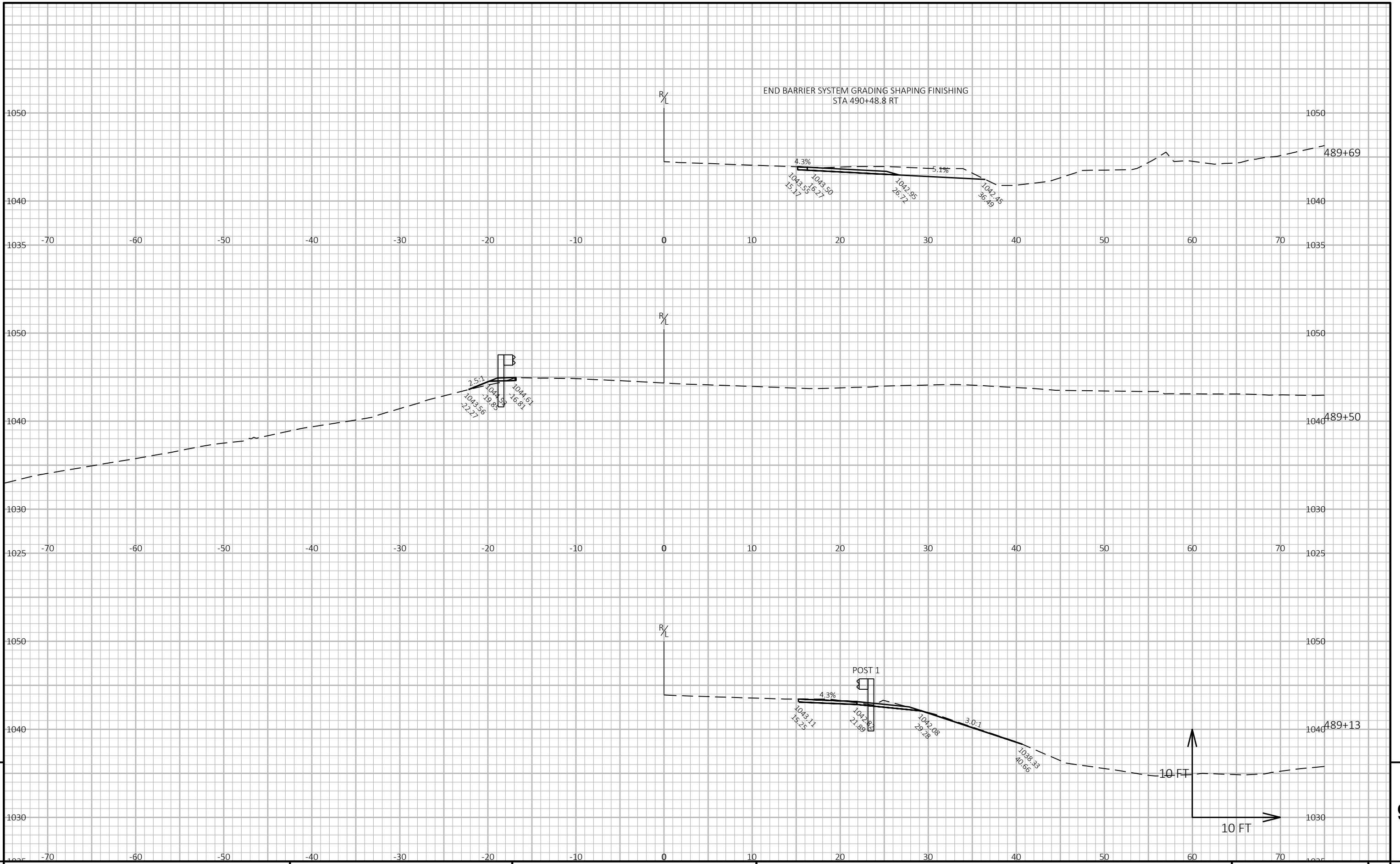
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



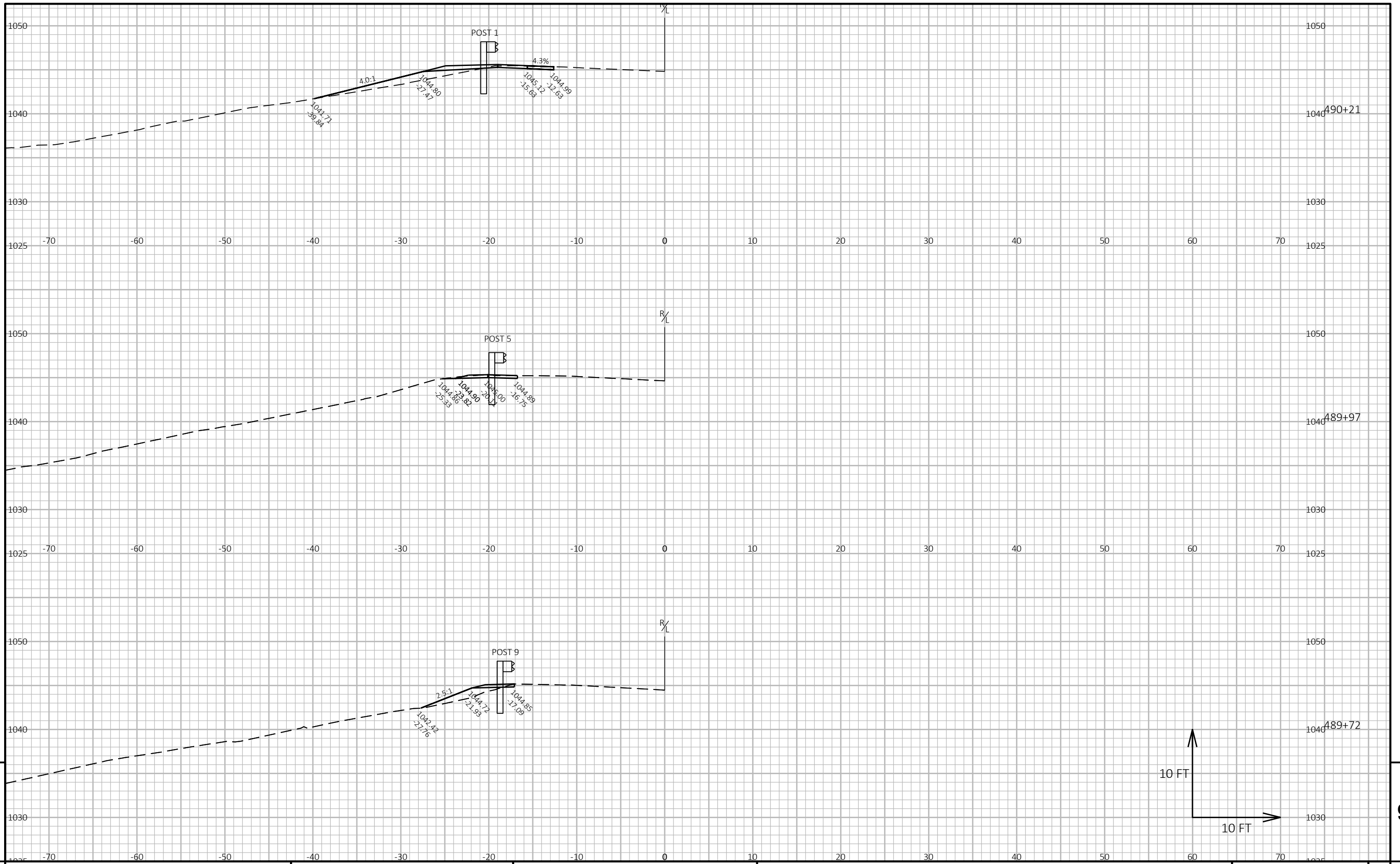
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

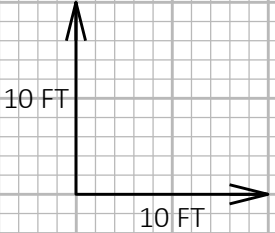
FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:37 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 032

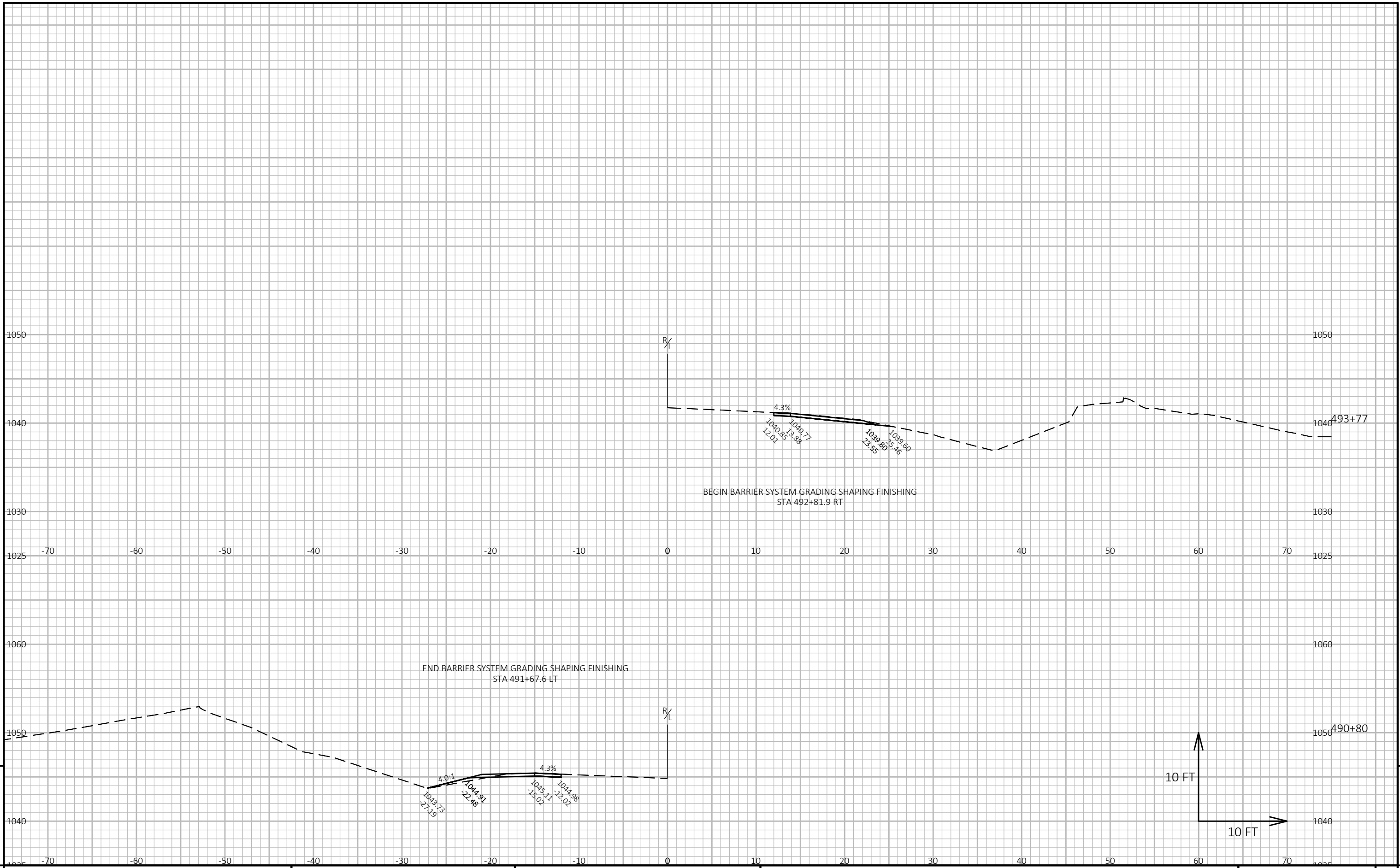


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



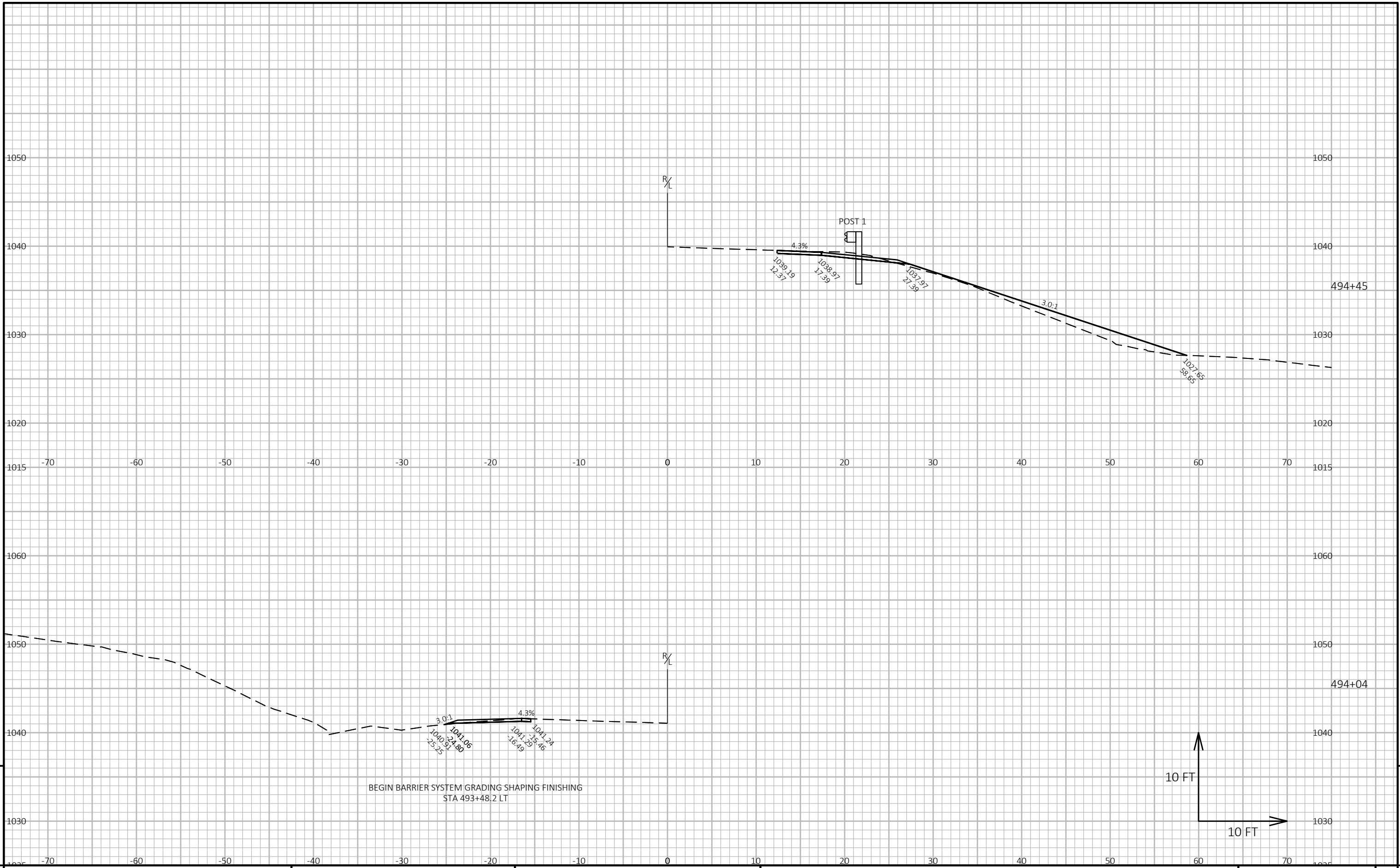
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:38 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 034



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PROJECT NO: 8110-01-72

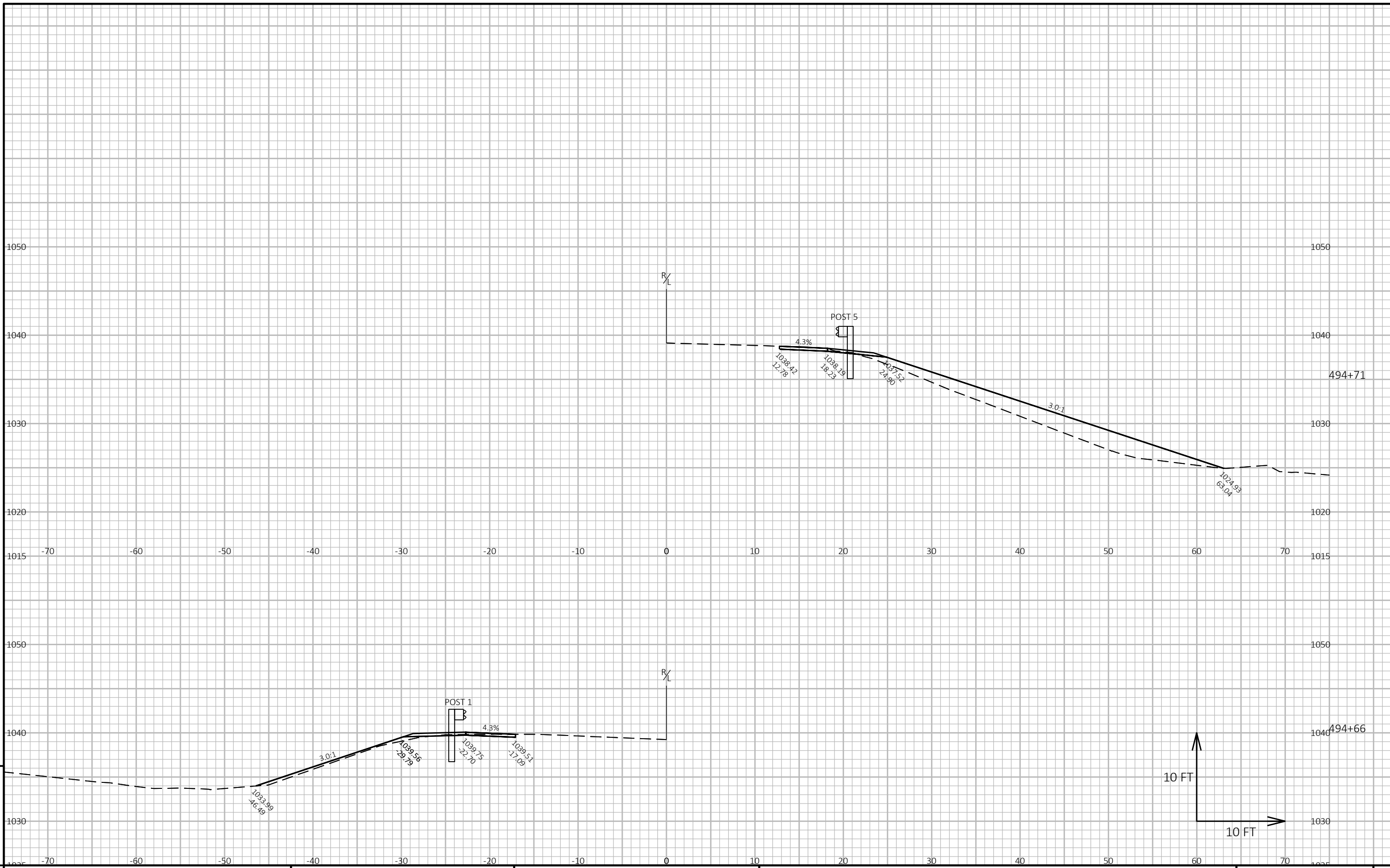
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72

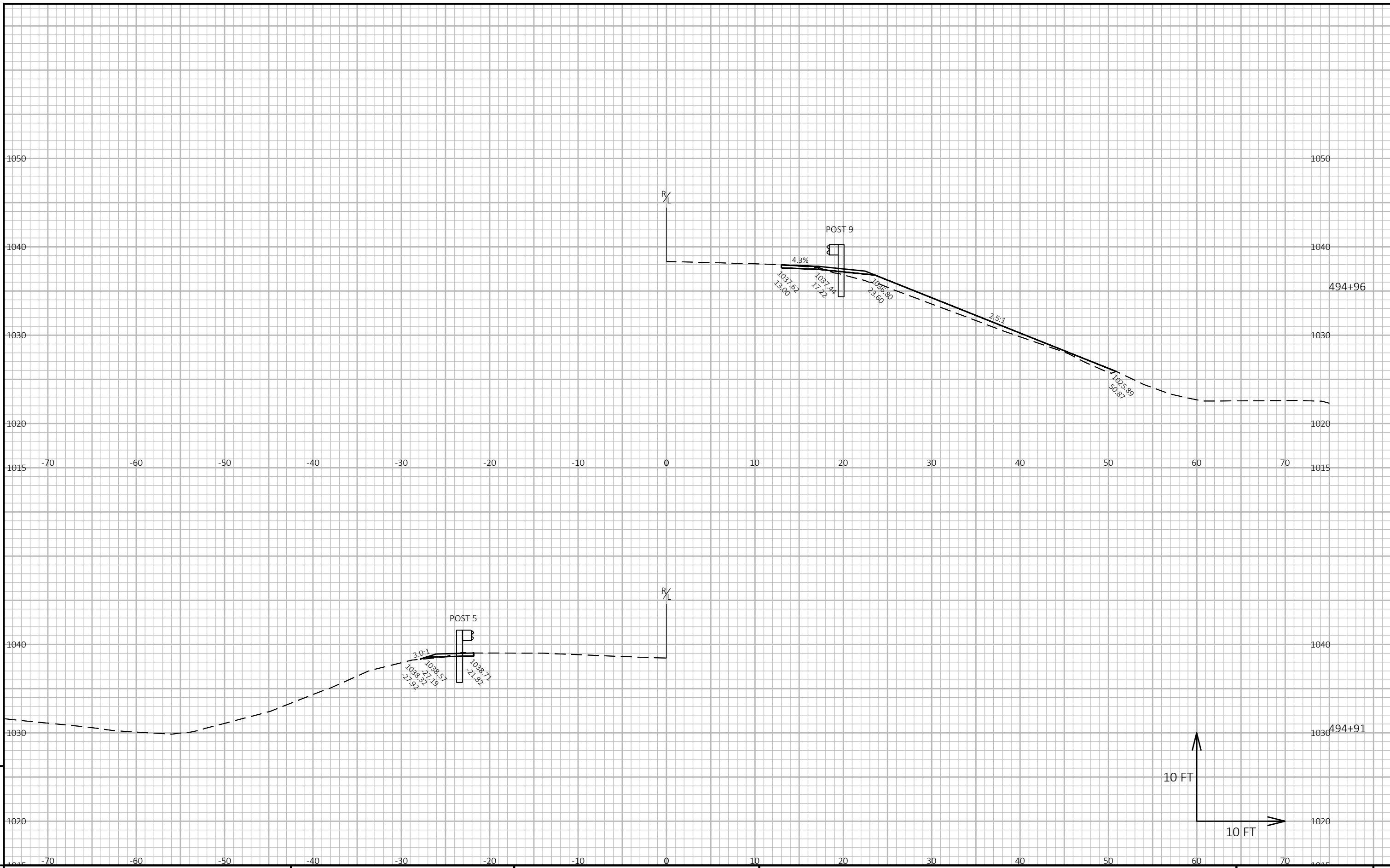
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72

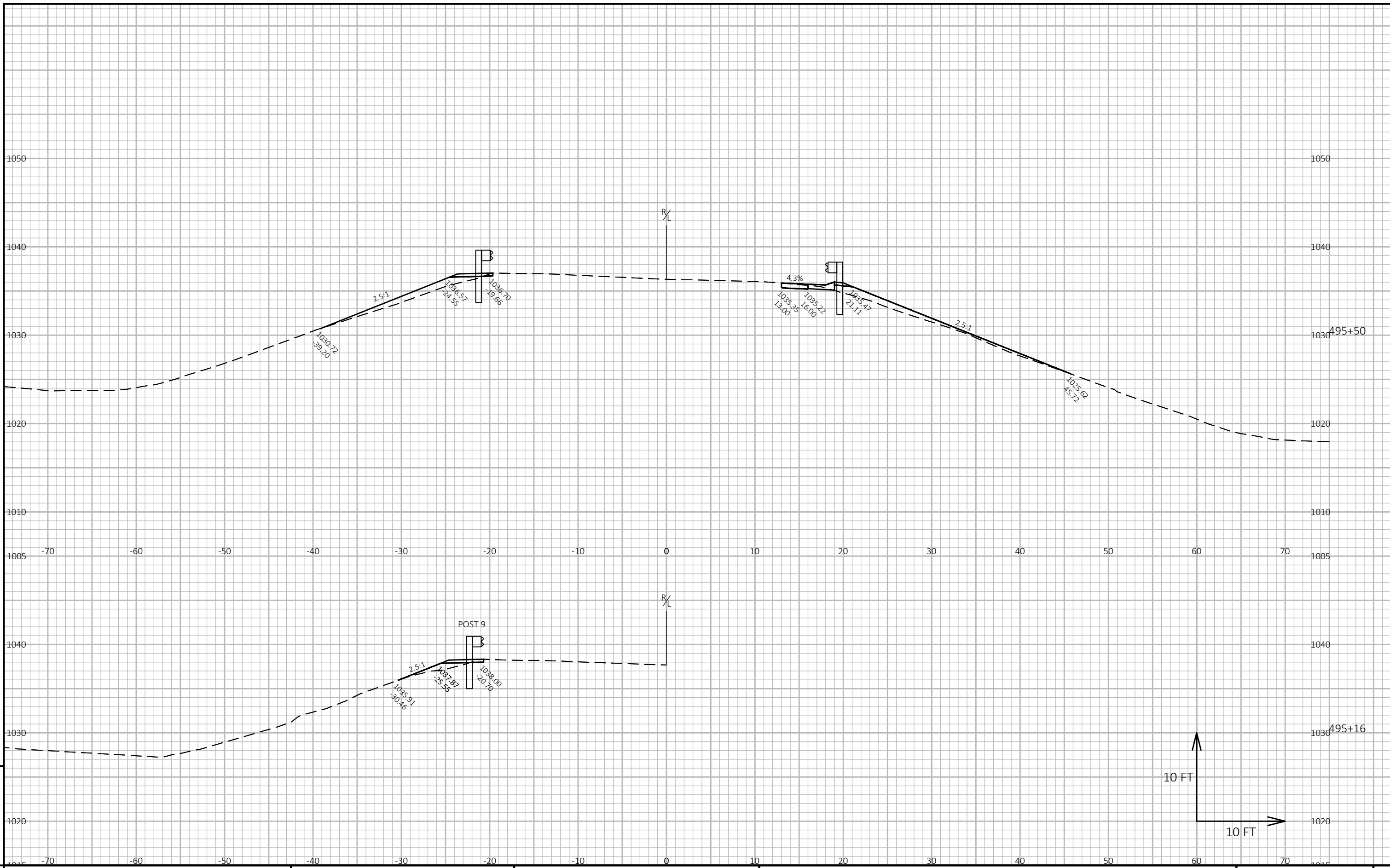
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

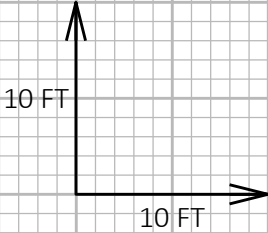
SHEET

E



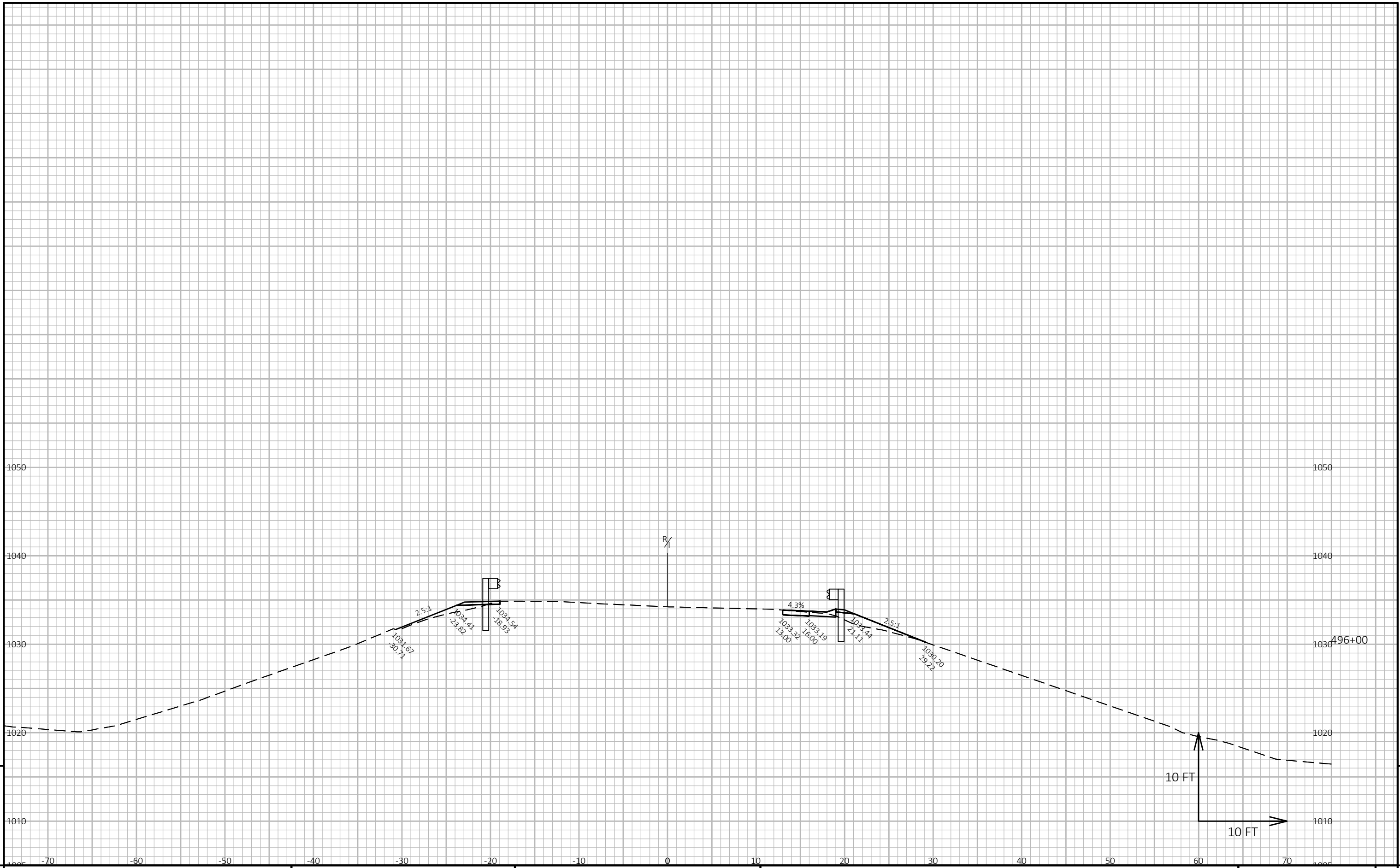
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 PLOT DATE : 8/1/2023 6:39 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



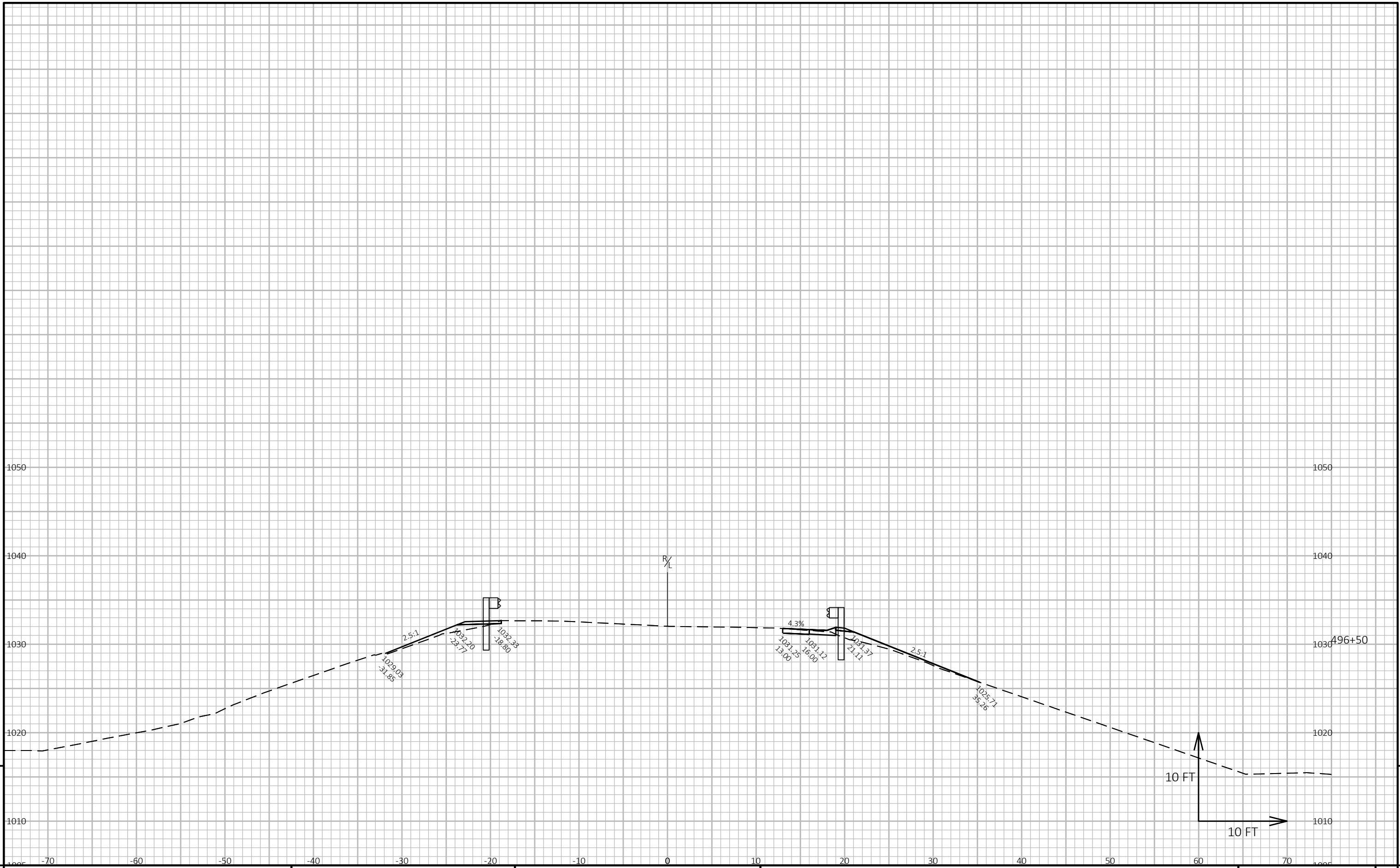
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:39 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 039



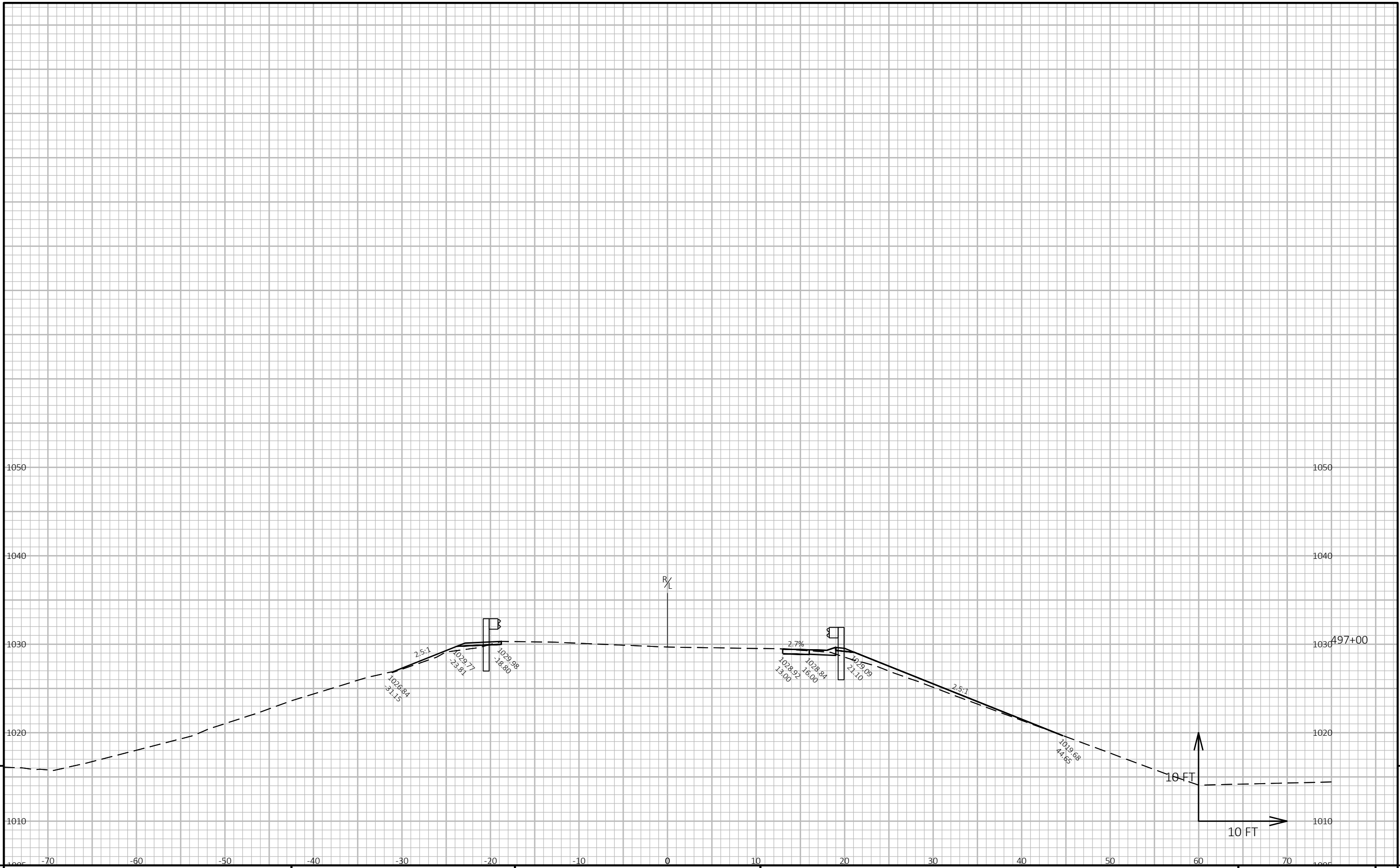
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:40 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 040



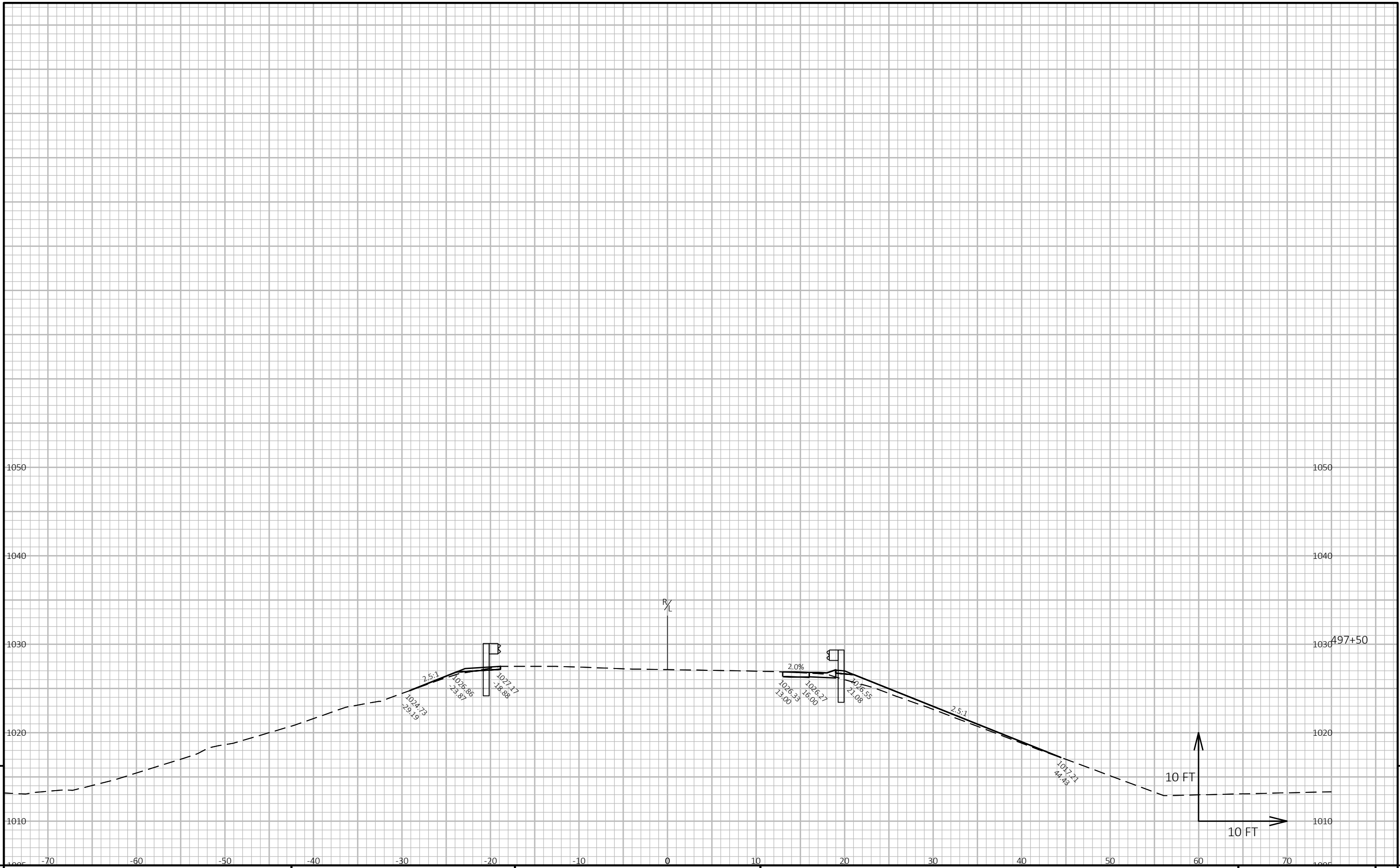
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:40 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 041



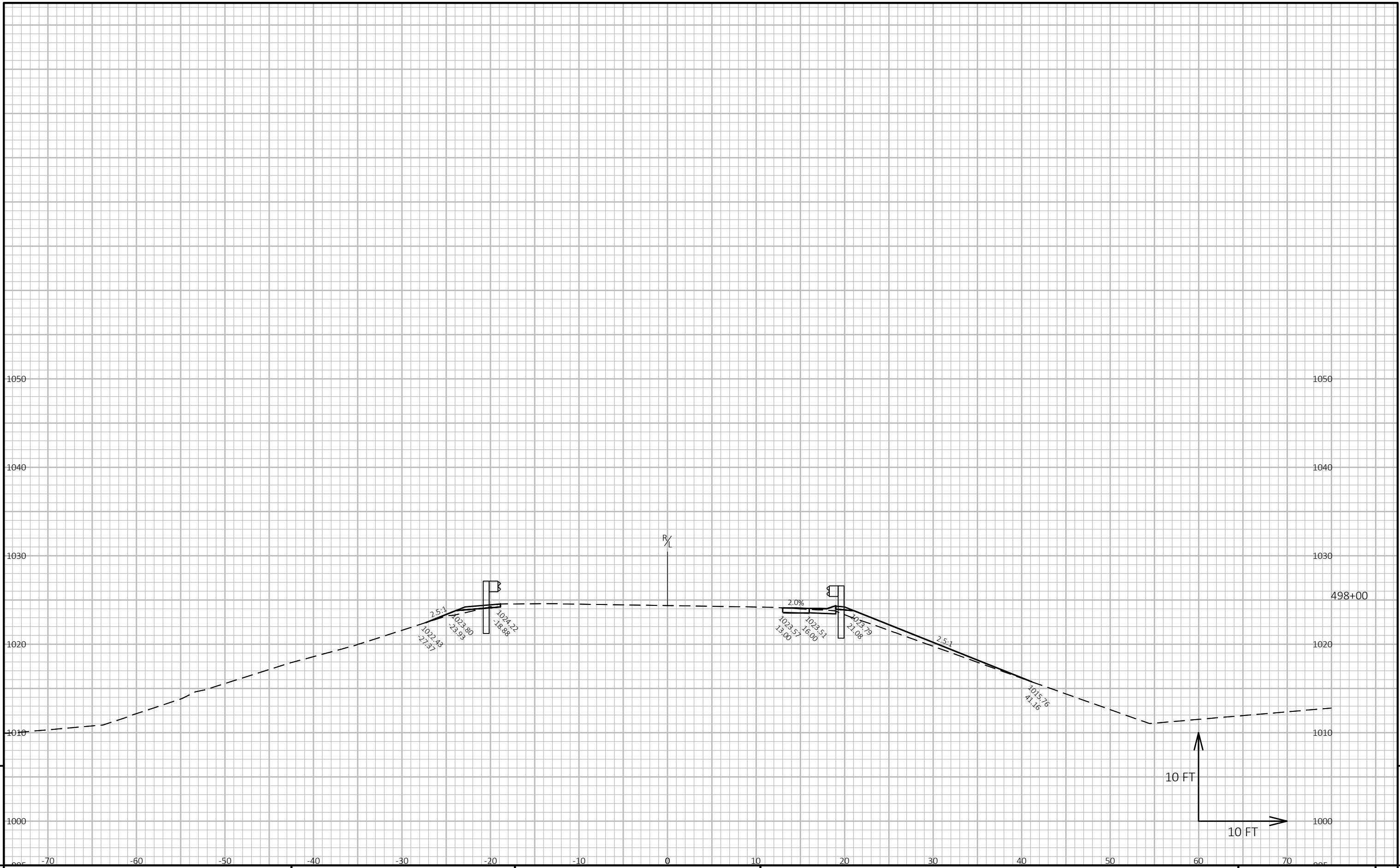
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:40 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 042

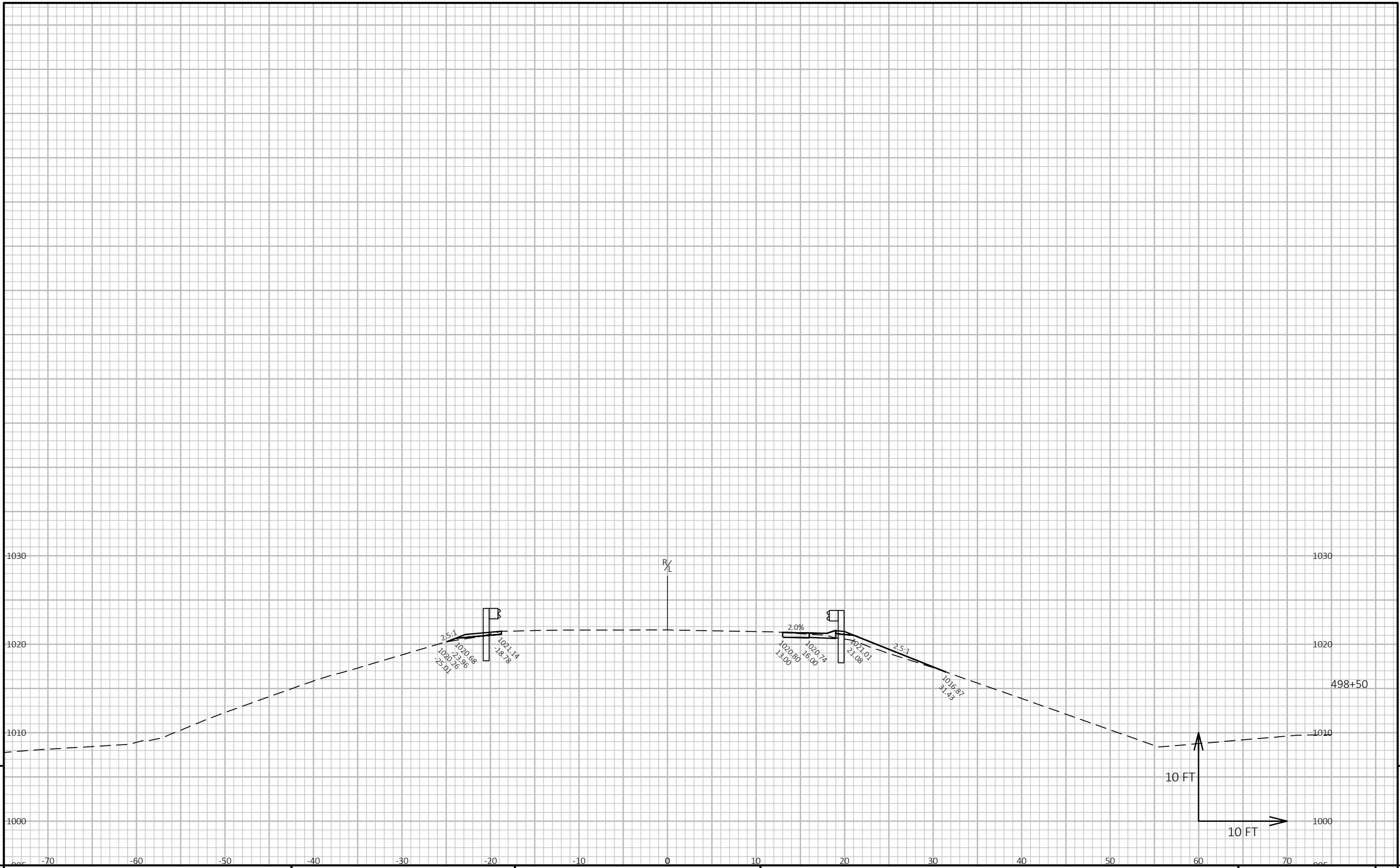


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9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:41 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



9

9

PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 044

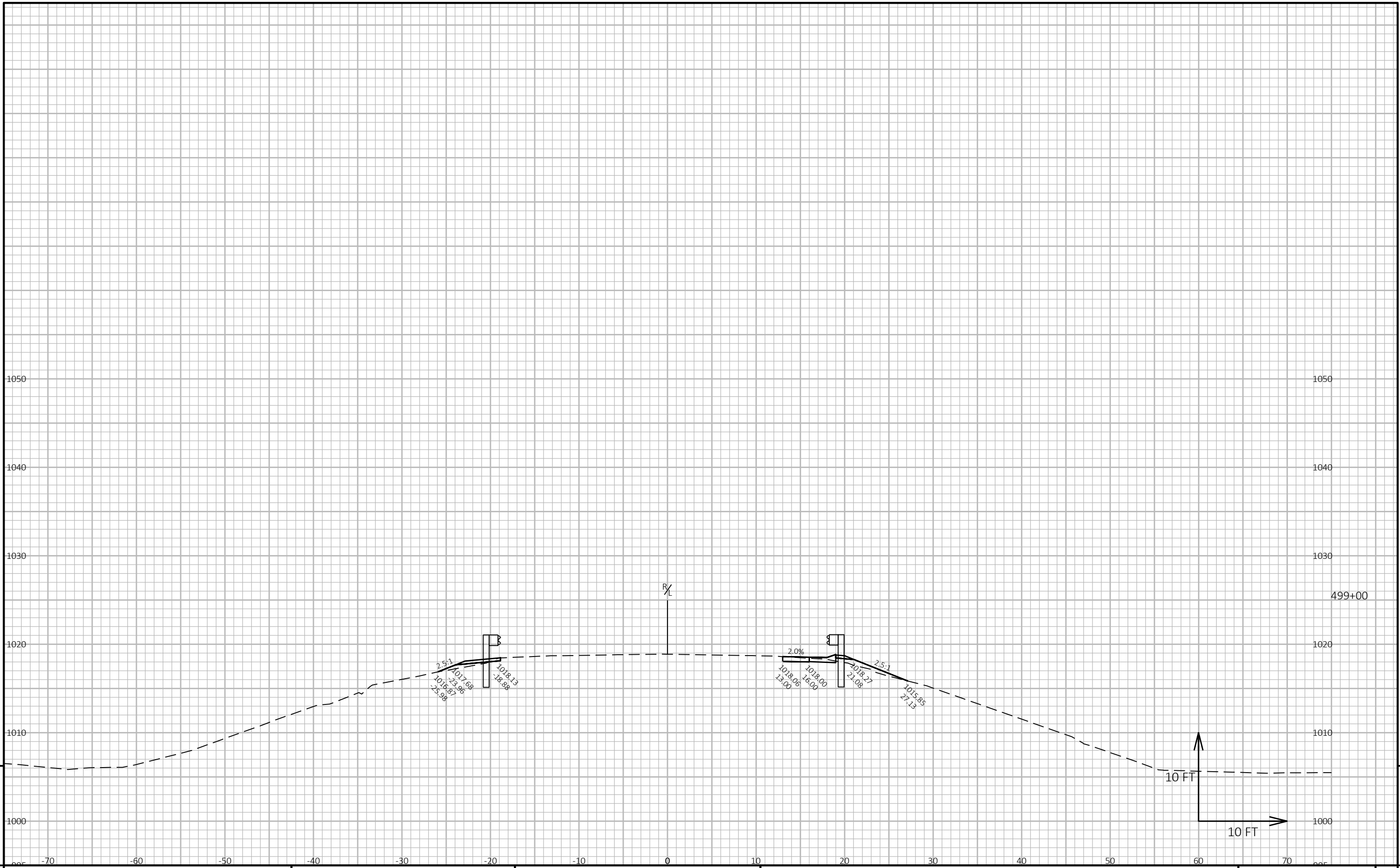
PLOT DATE : 8/1/2023 6:41 AM

PLOT BY : STEVE LIPPETT

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADD SHEET 49



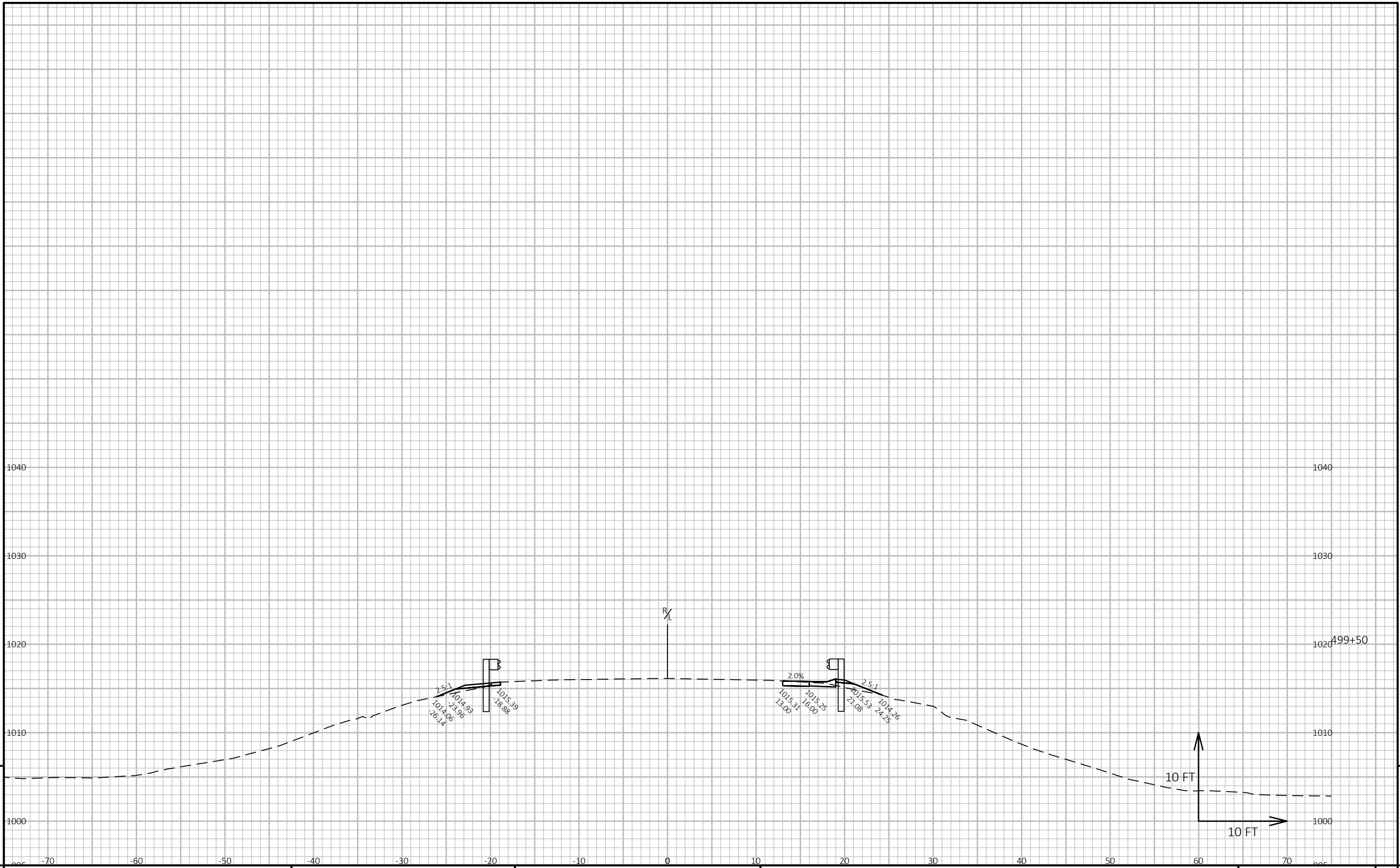
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:42 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 045



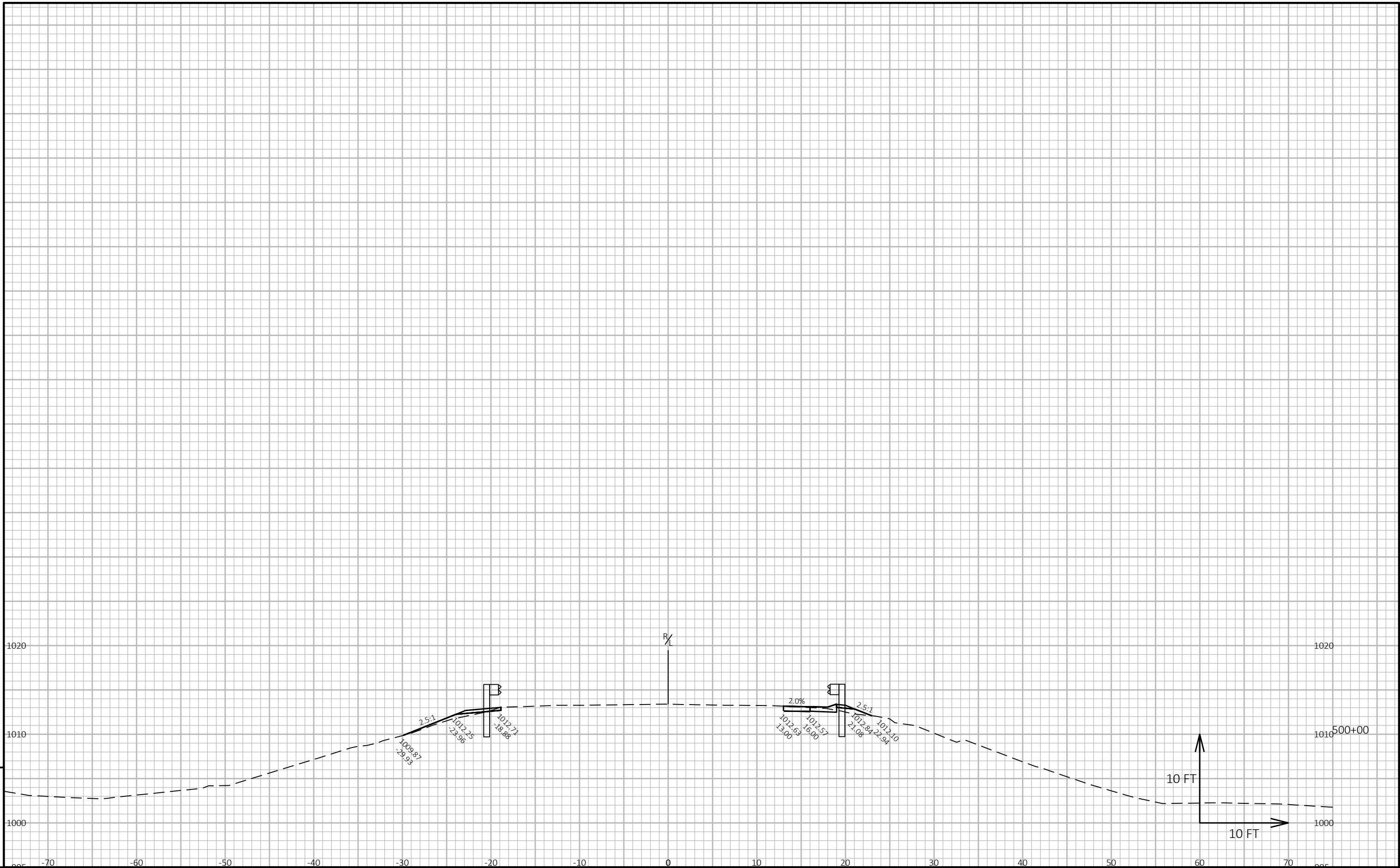
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:42 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 046



PROJECT NO: 8110-01-72

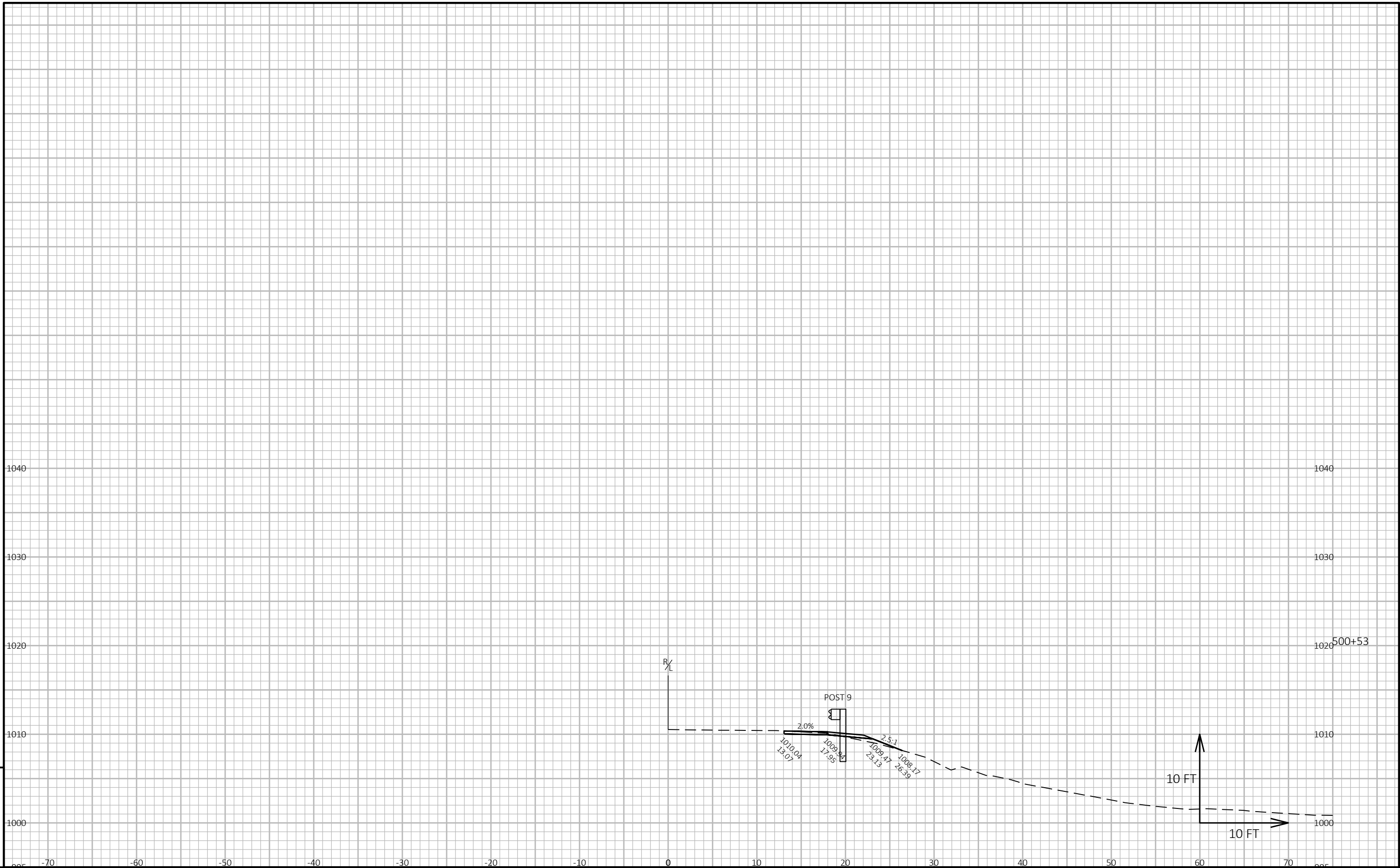
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



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PROJECT NO: 8110-01-72

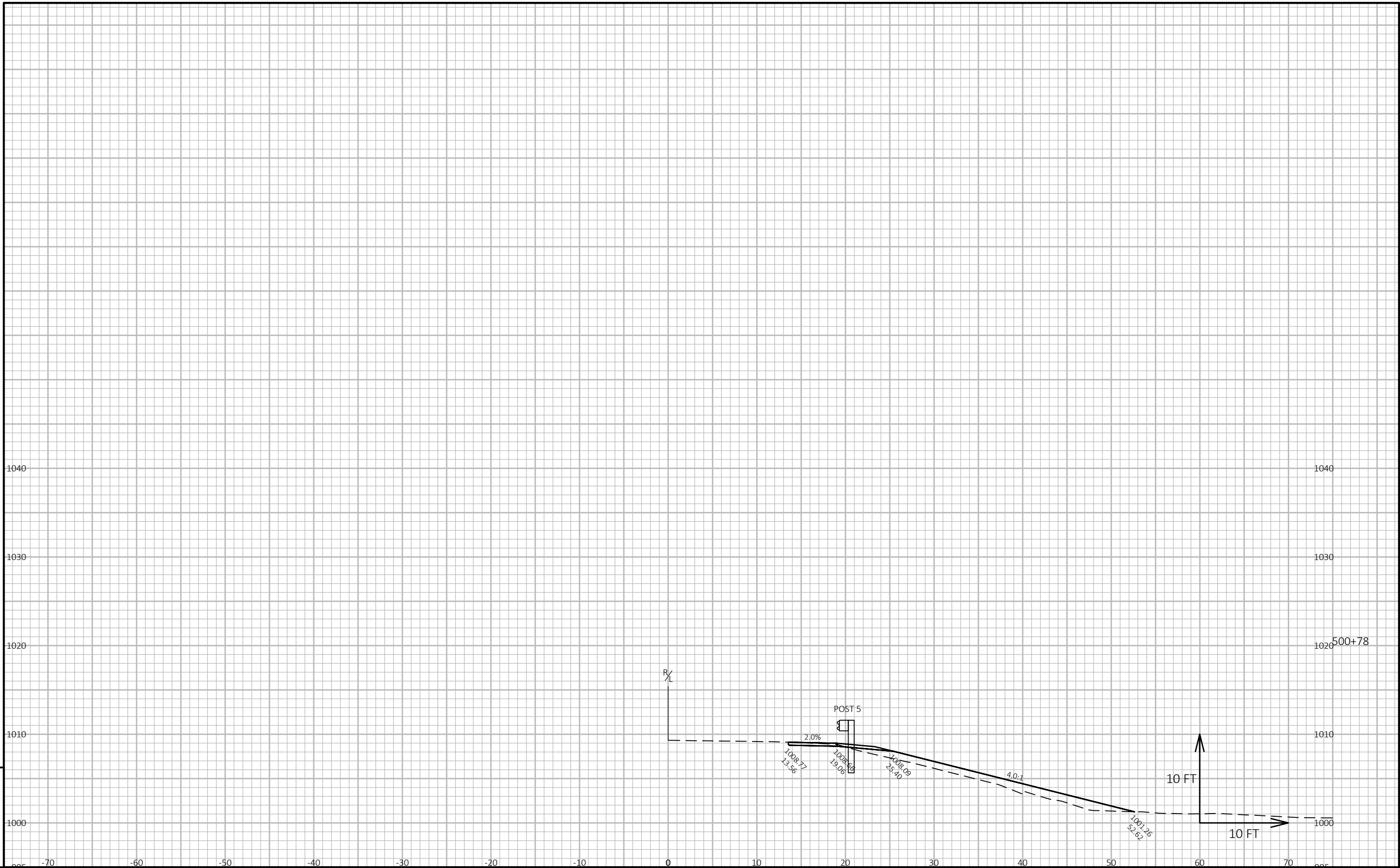
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



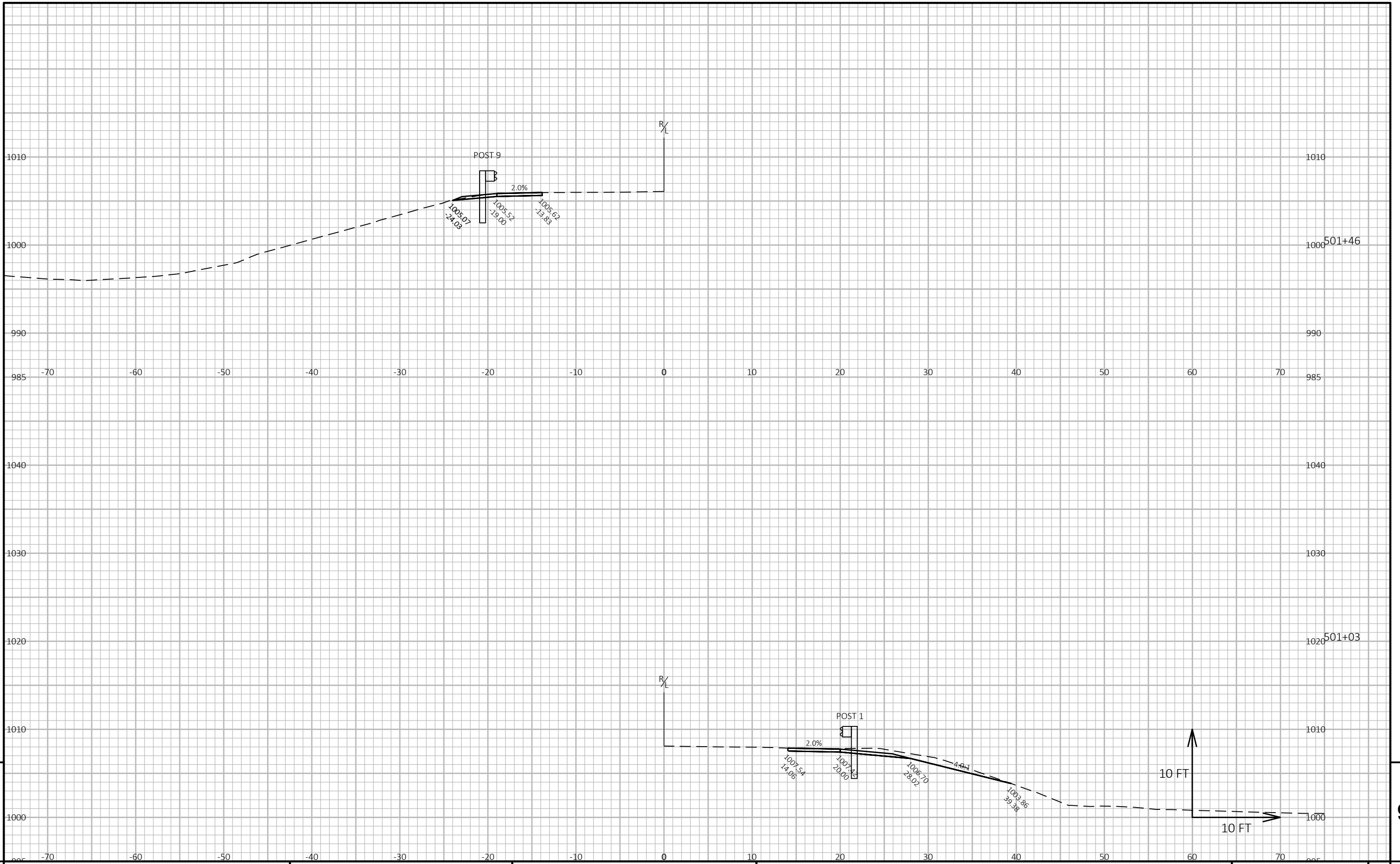
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:43 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 049



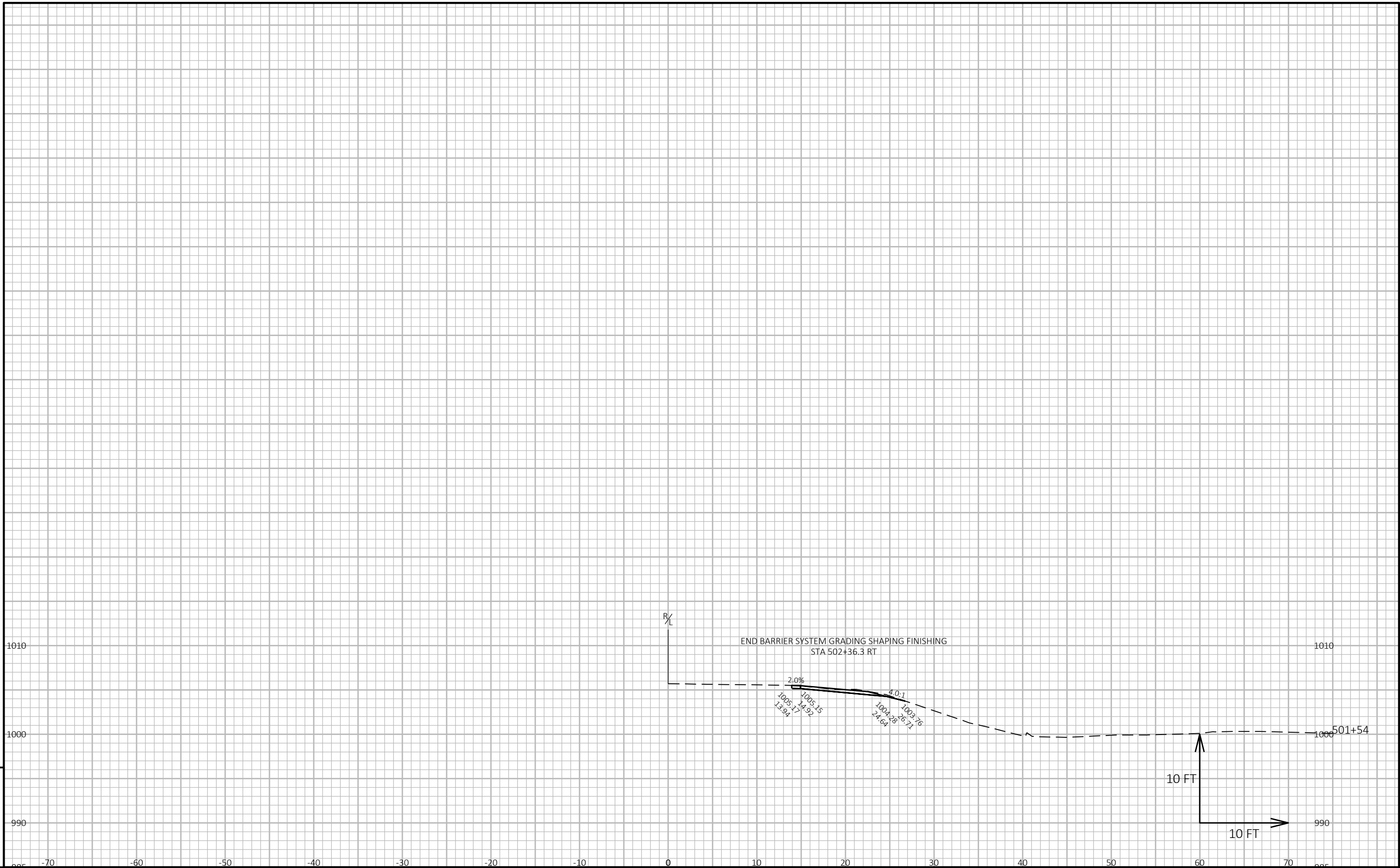
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:43 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 050

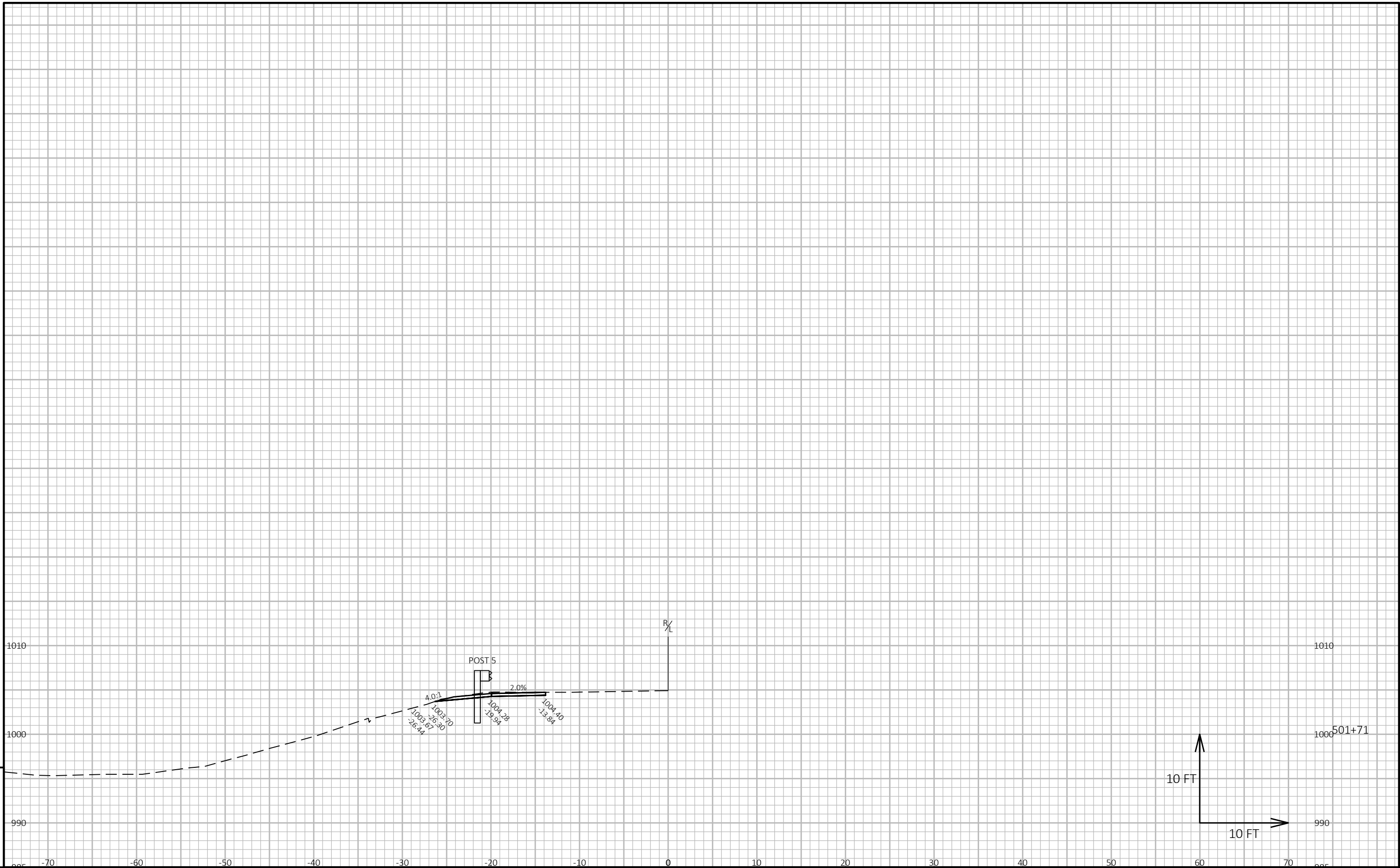


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 PLOT DATE : 8/1/2023 6:50 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



9

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PROJECT NO: 8110-01-72

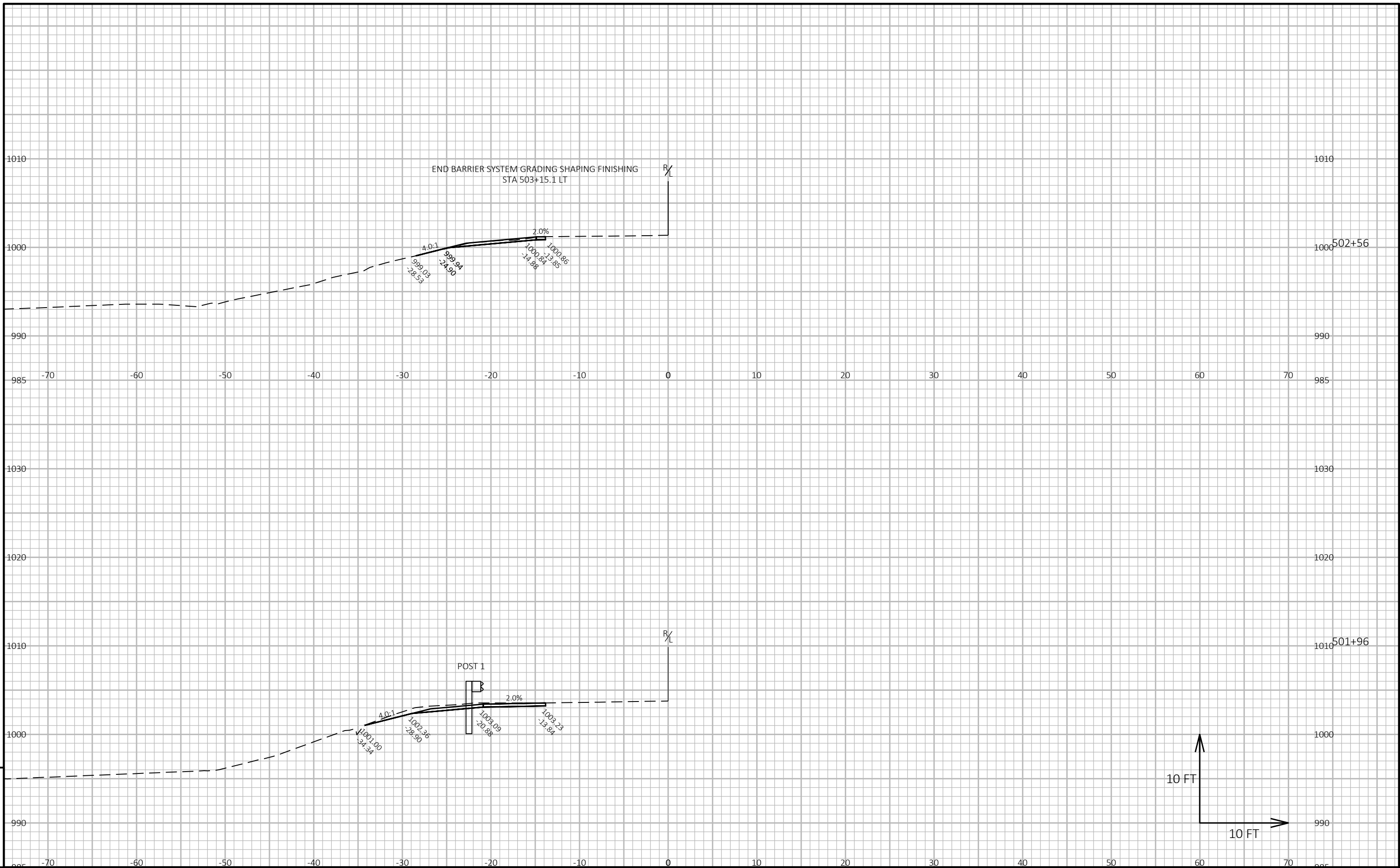
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

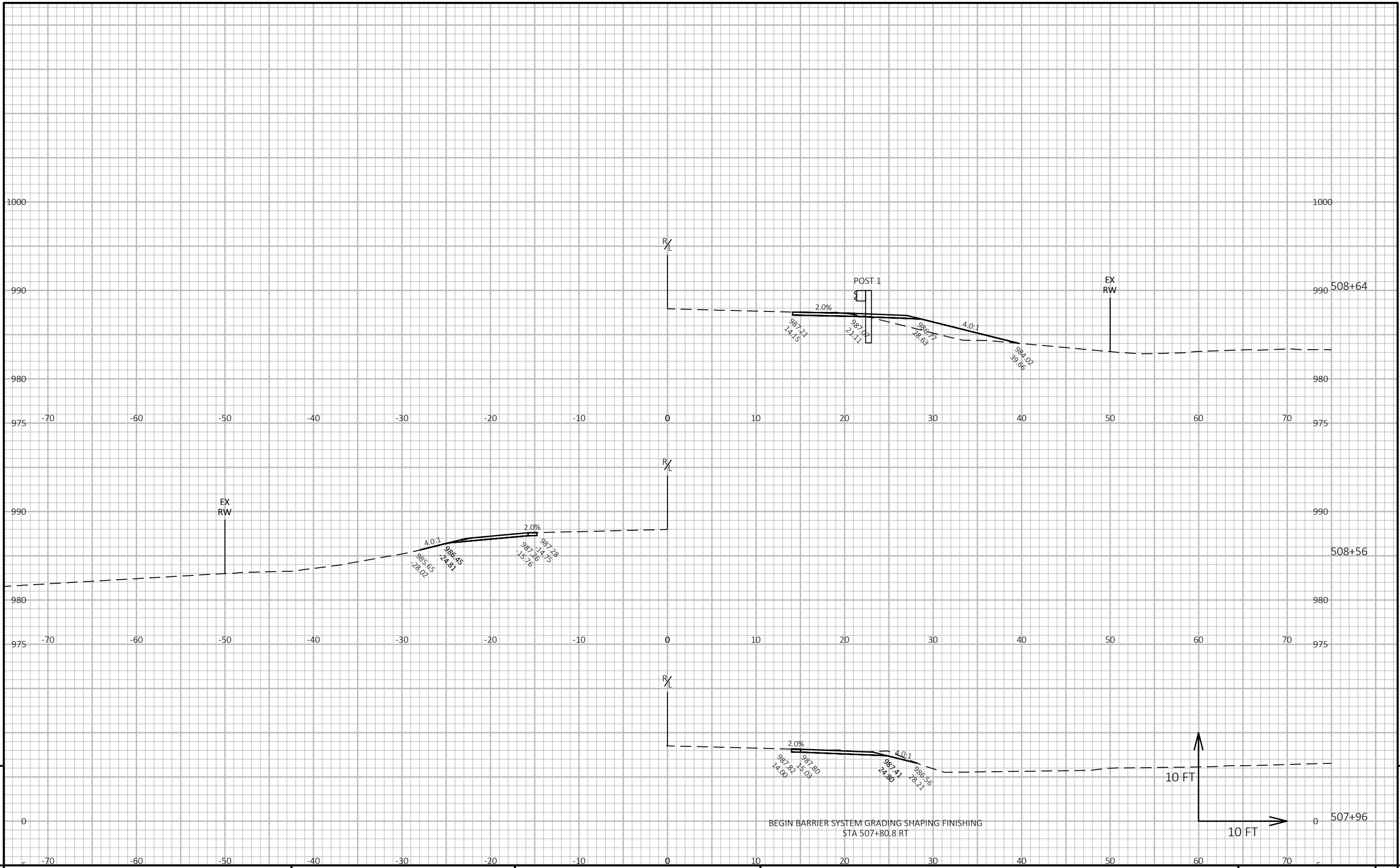
E



9

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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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PROJECT NO: 8110-01-72

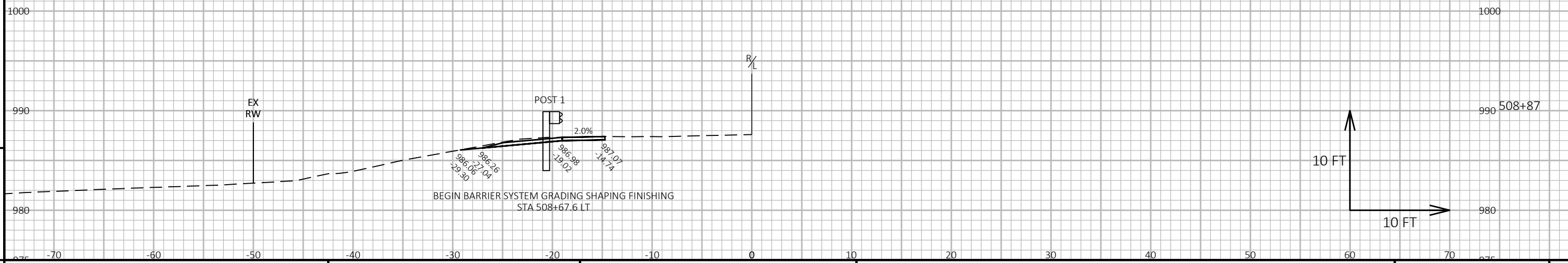
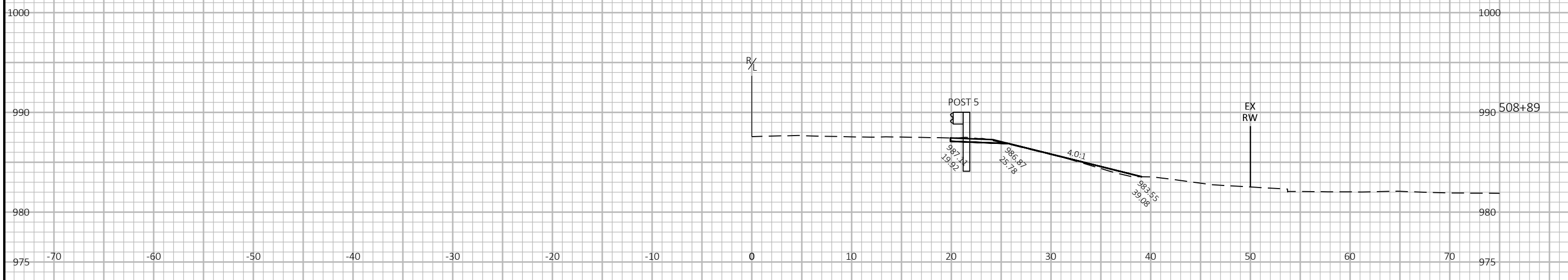
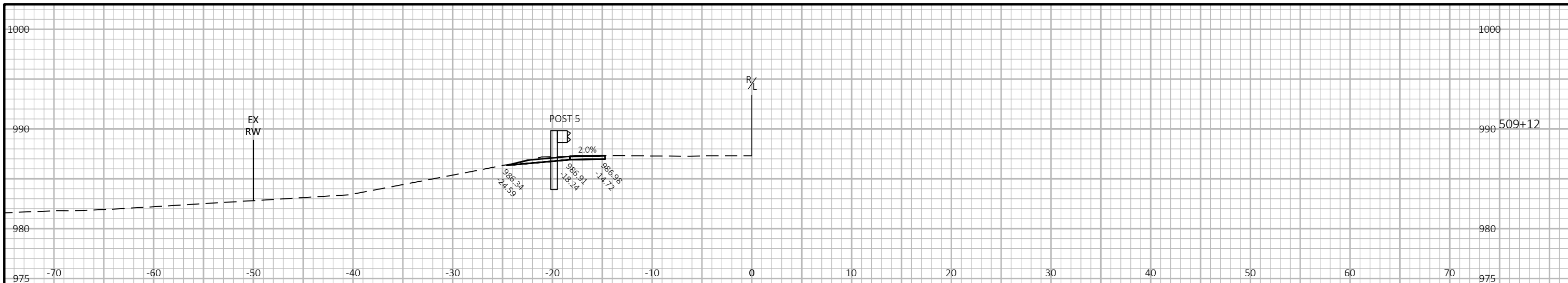
HWY: STH 64

COUNTY: DUNN

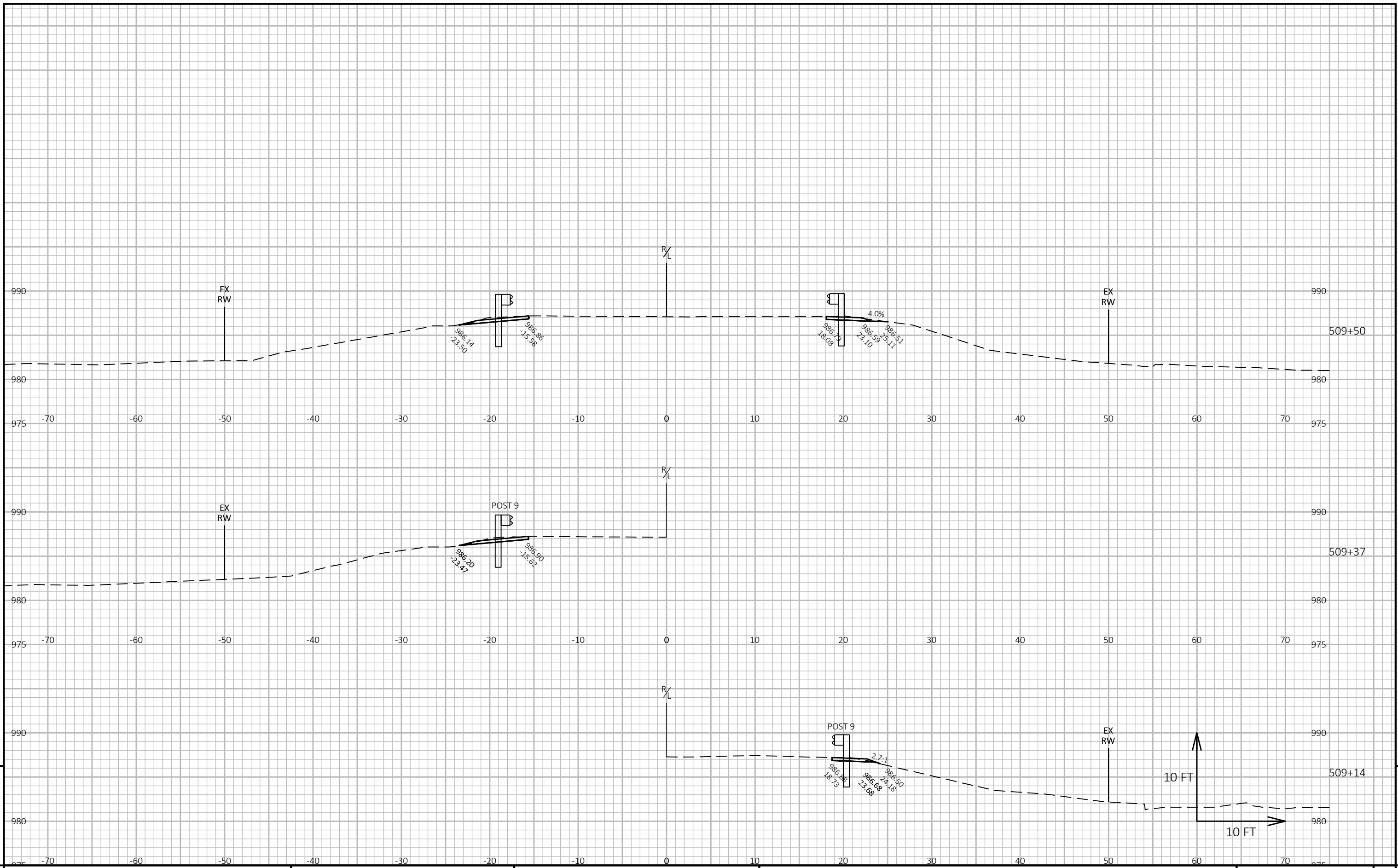
CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET 9



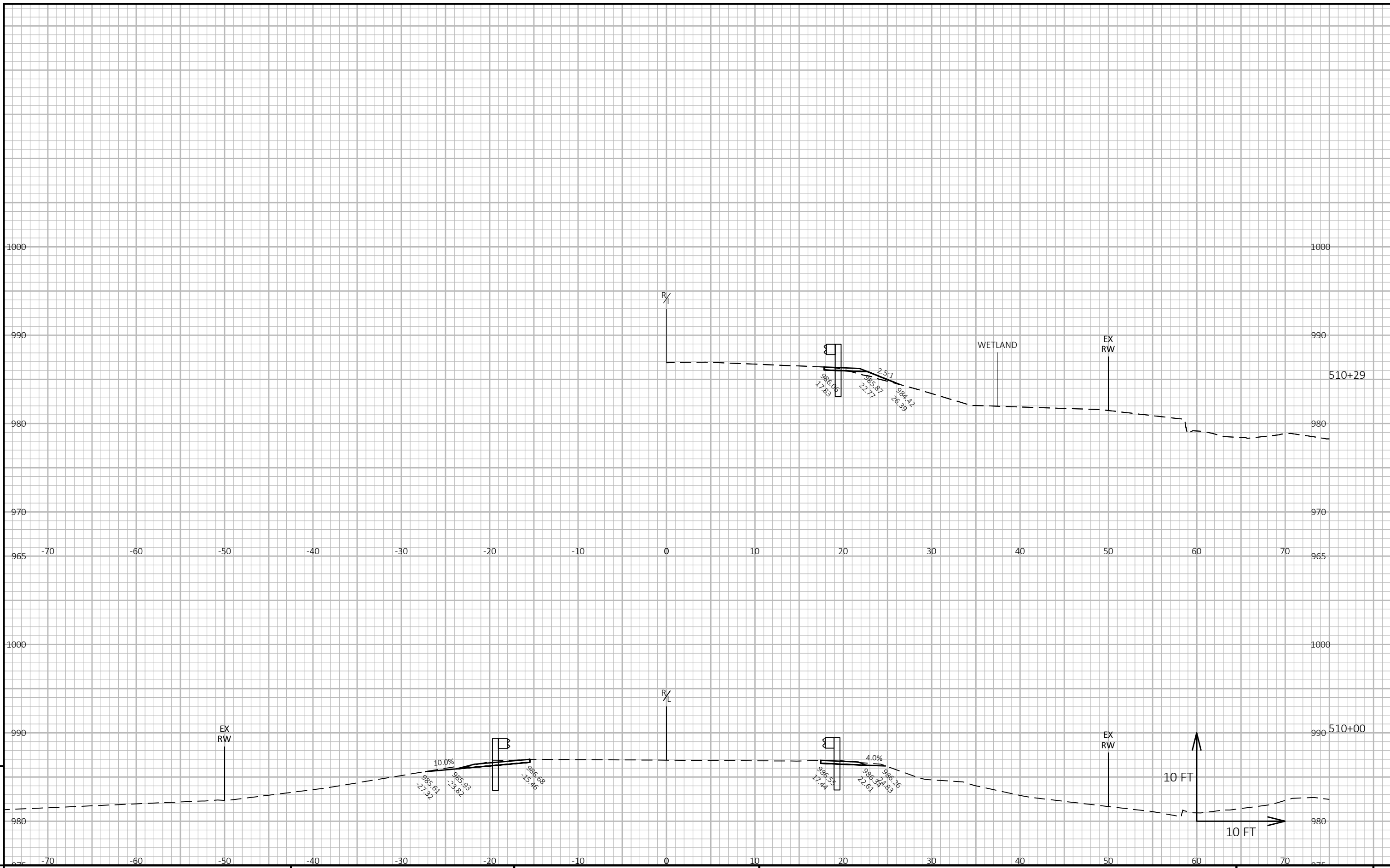
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:52 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 056



PROJECT NO: 8110-01-72

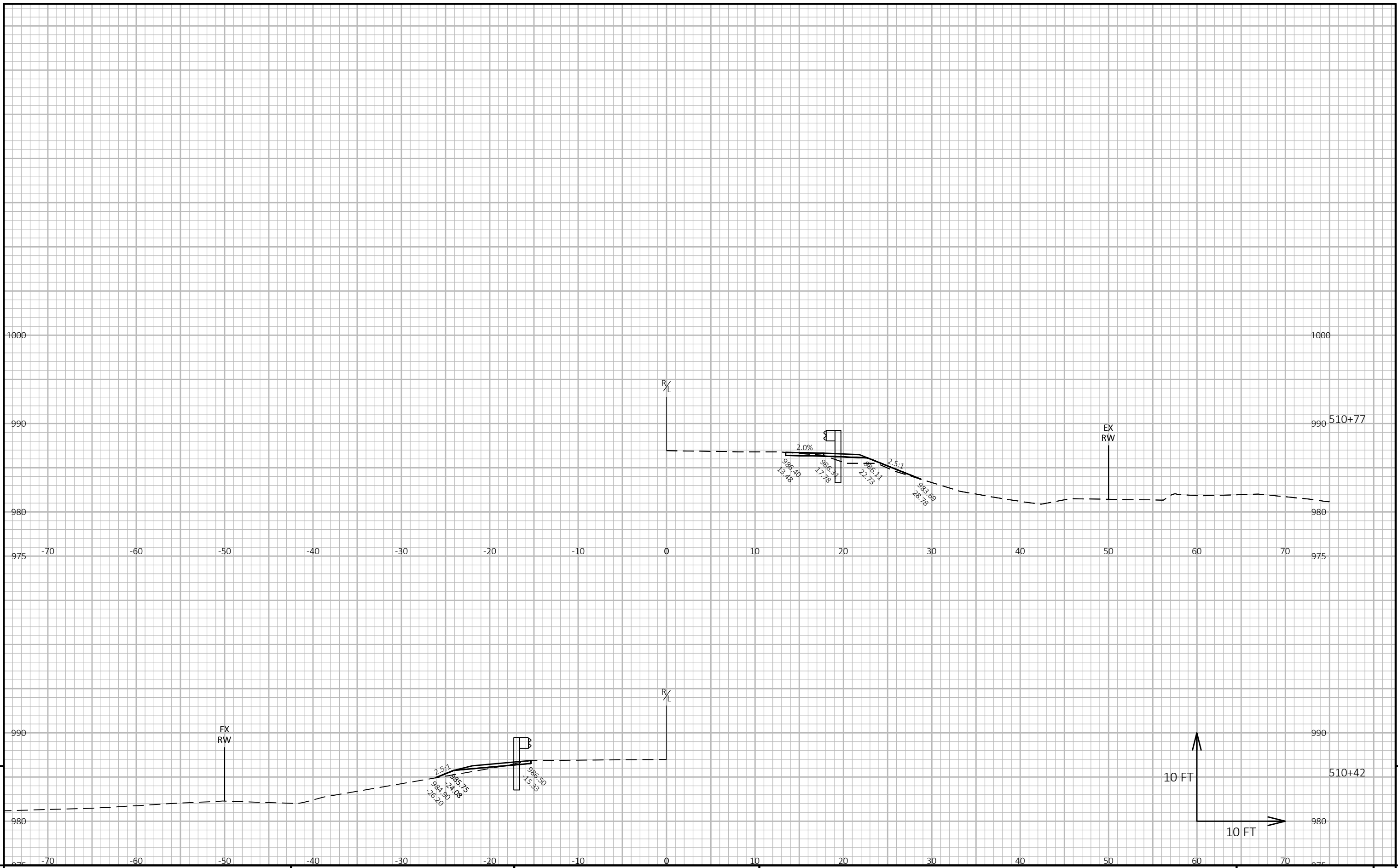
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E

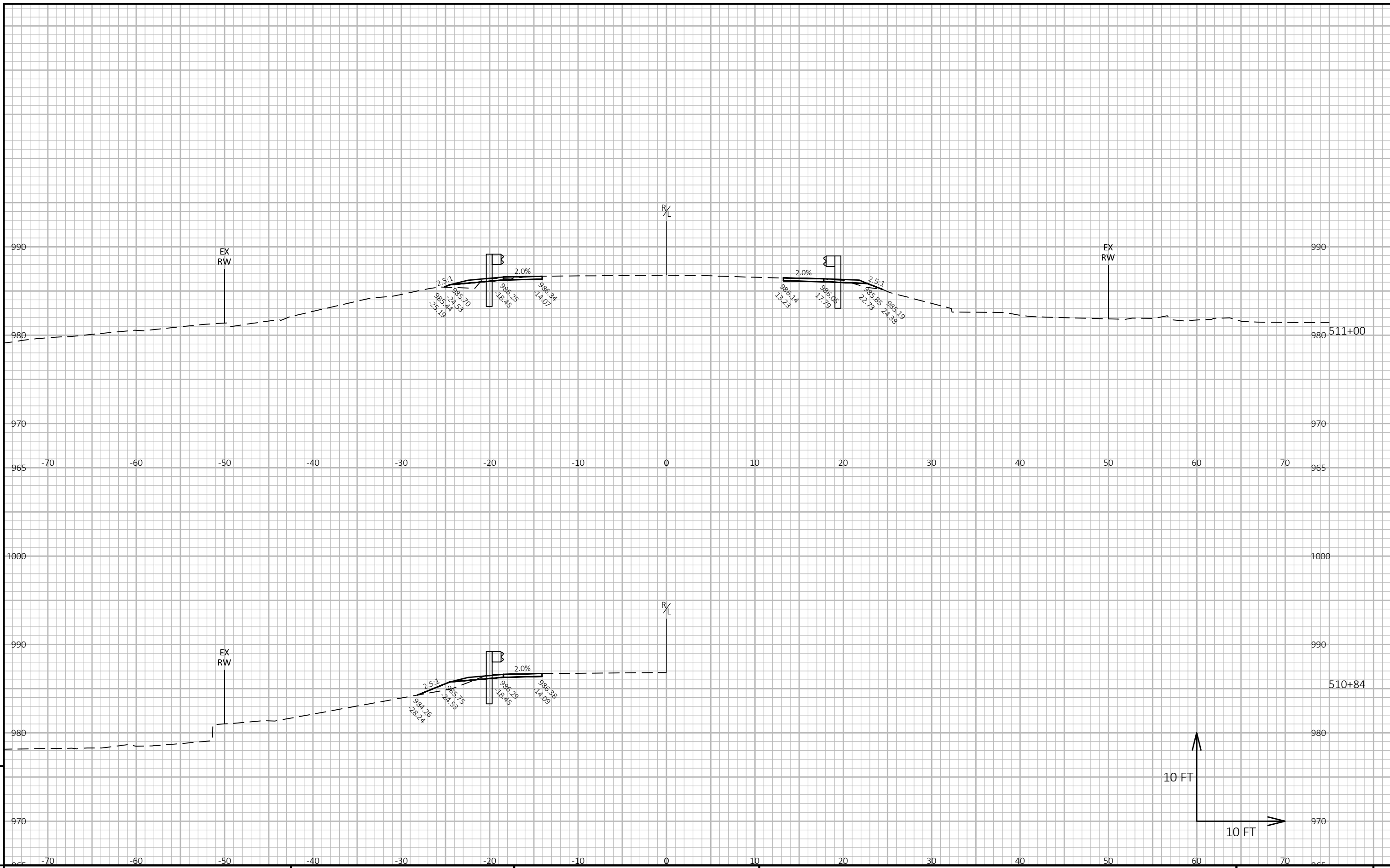


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 PLOT DATE : 8/1/2023 6:53 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



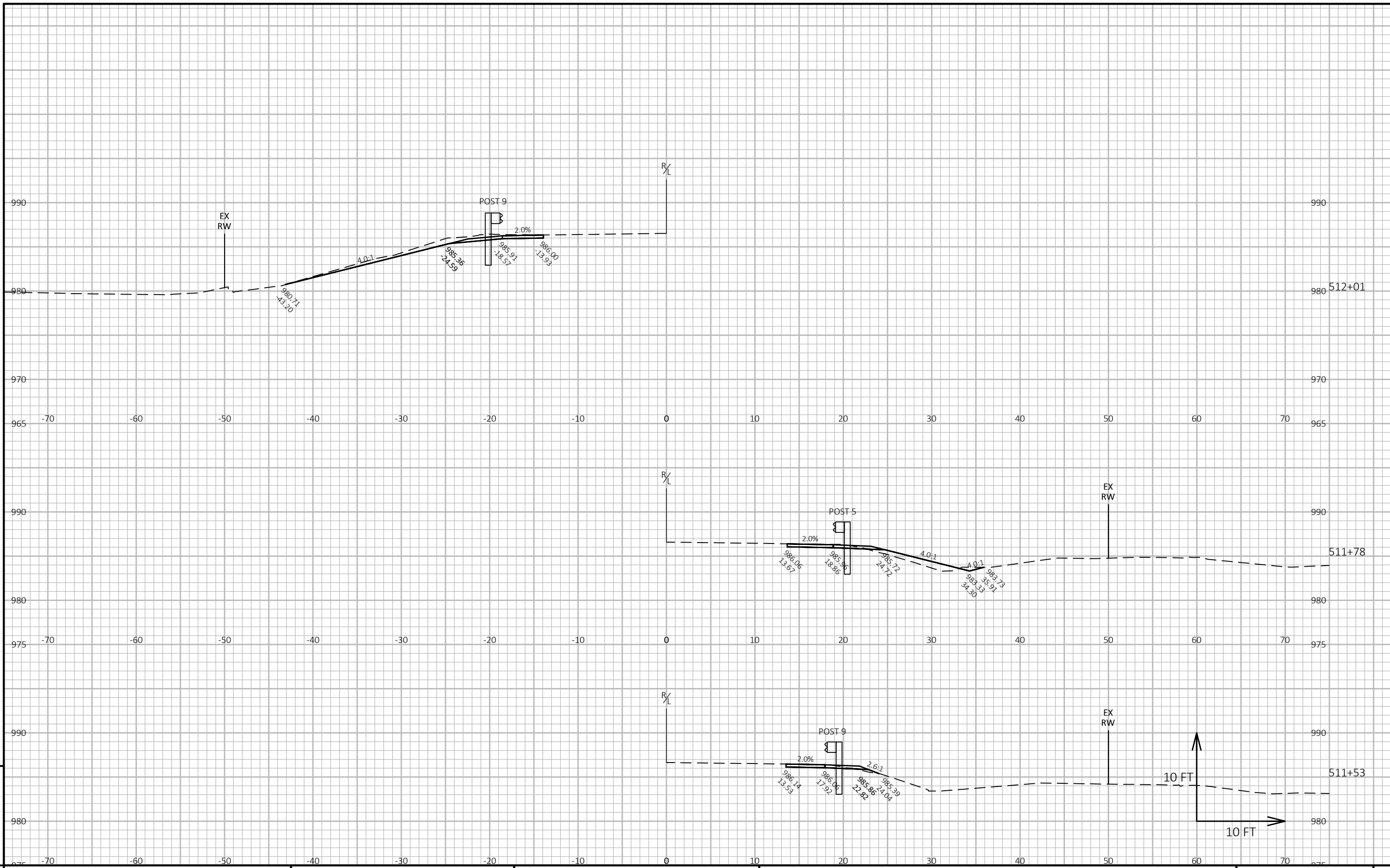
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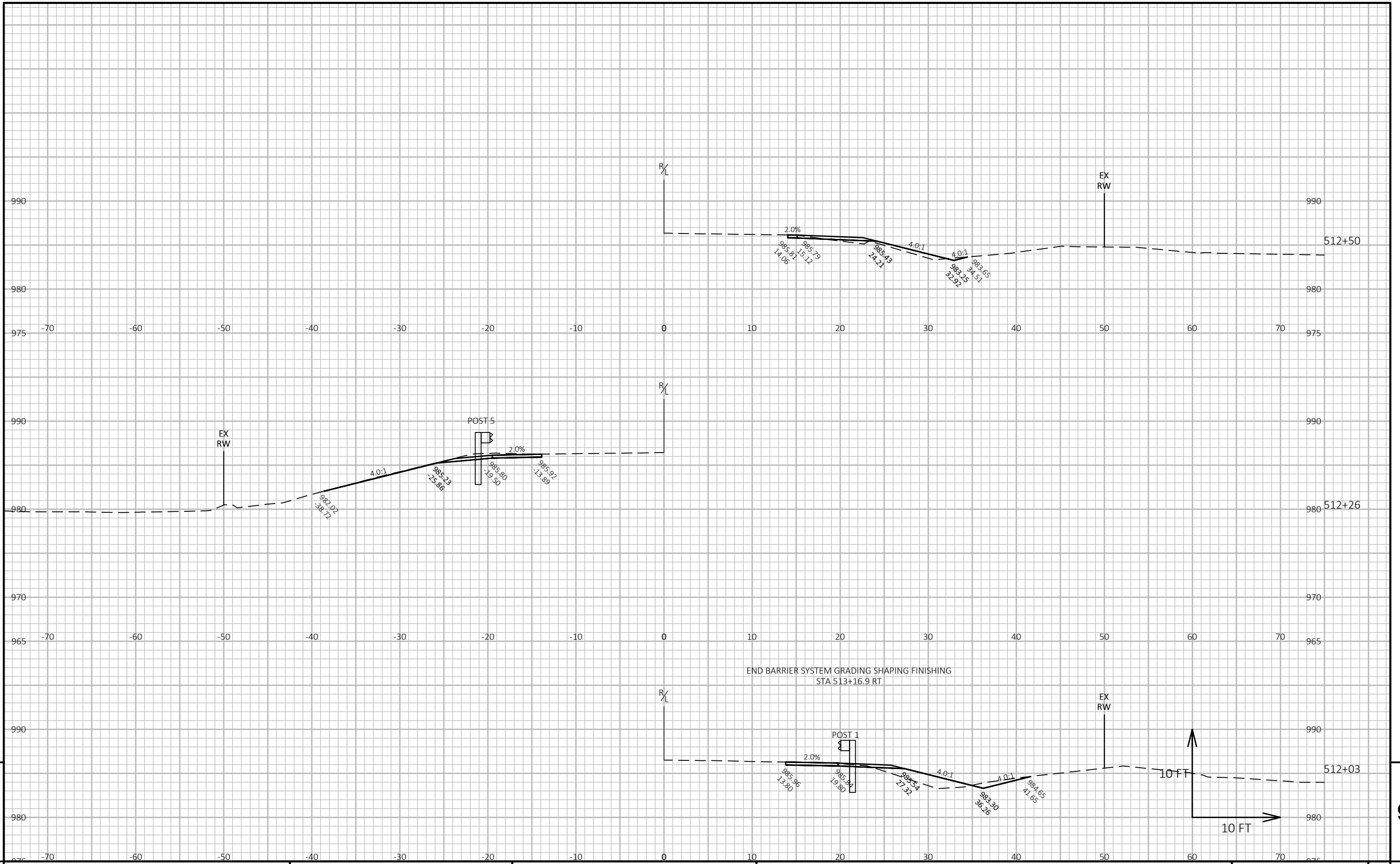
PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:53 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

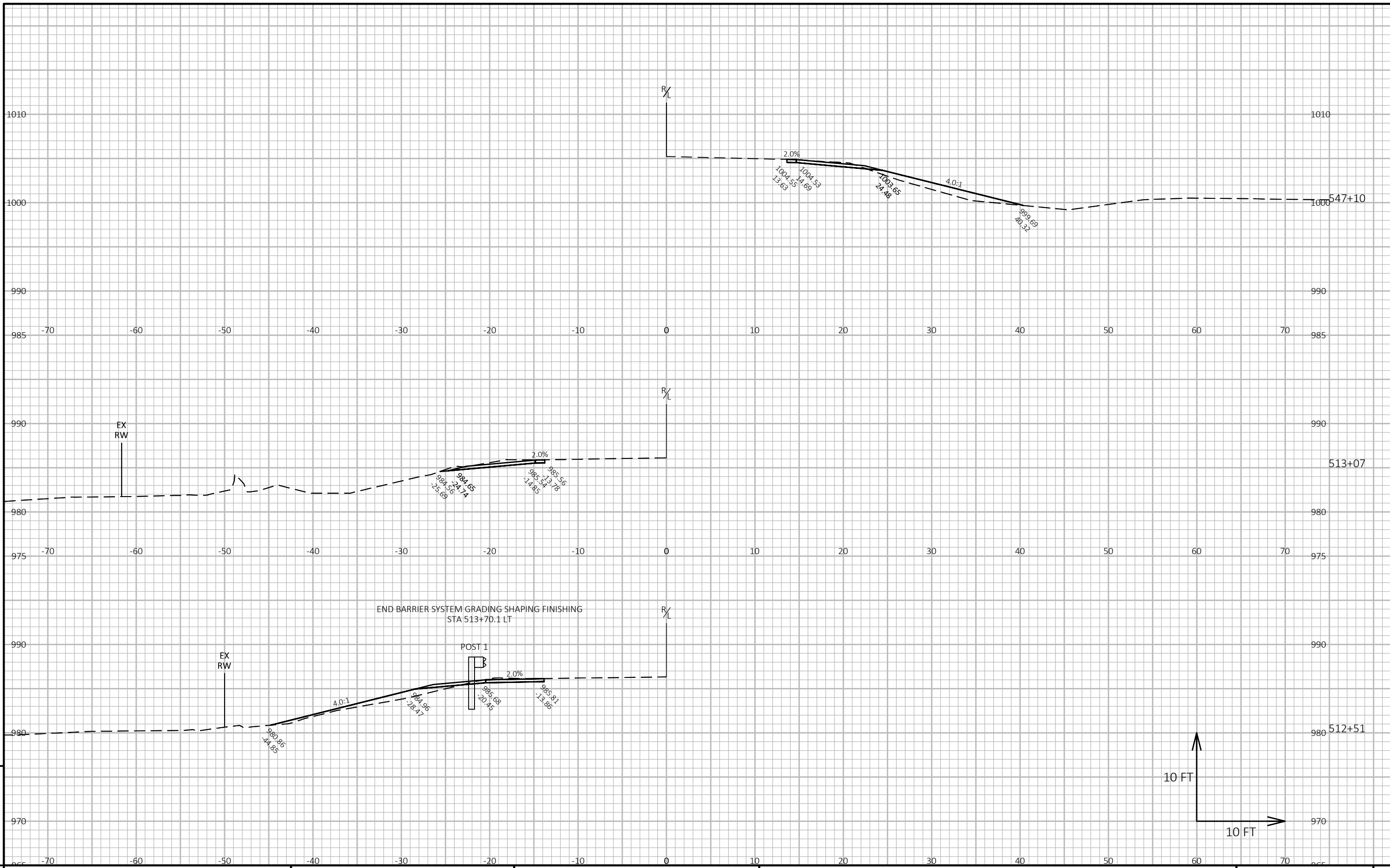
LAYOUT NAME - 059



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET 9



PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET E
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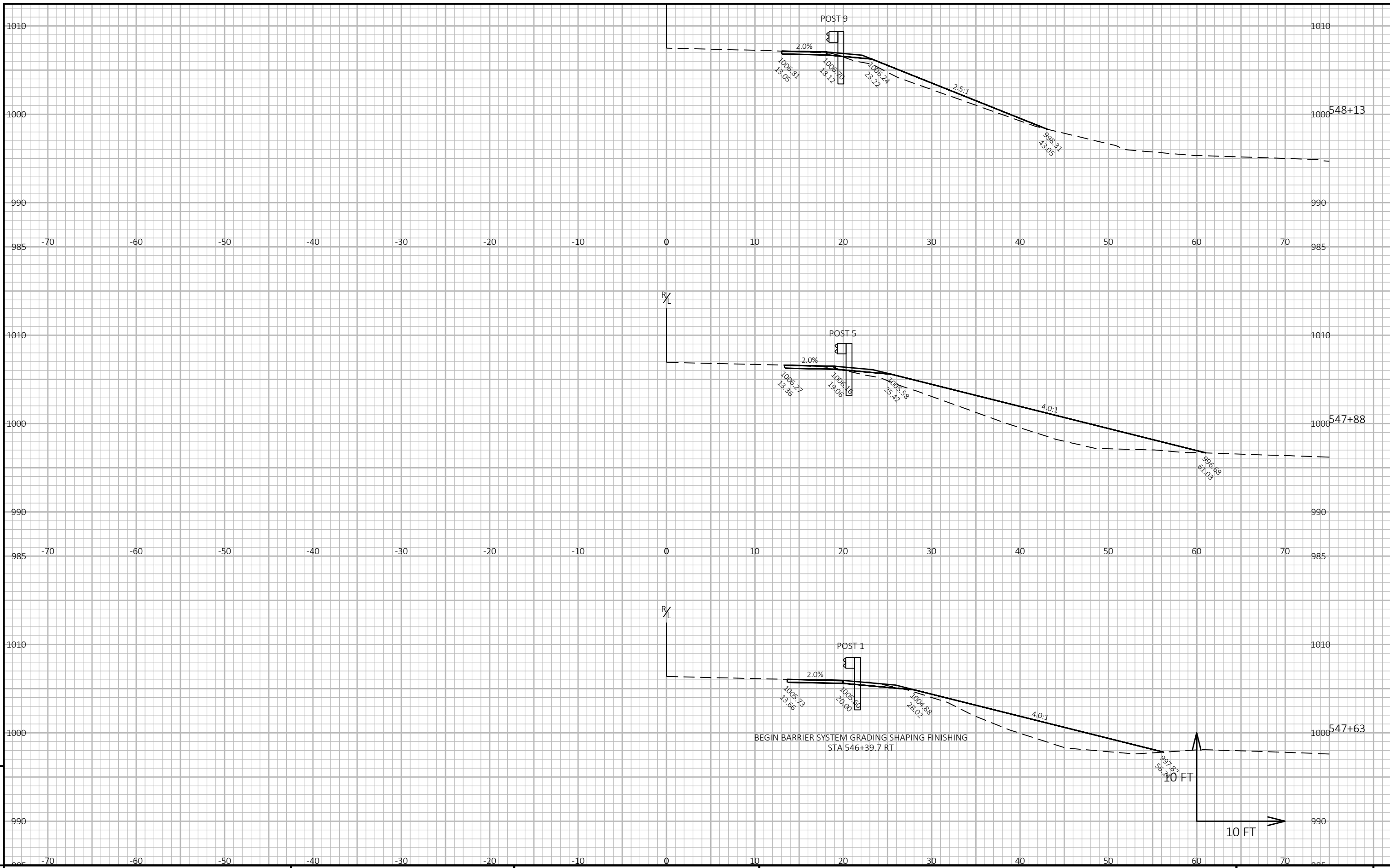
9

9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:54 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 062



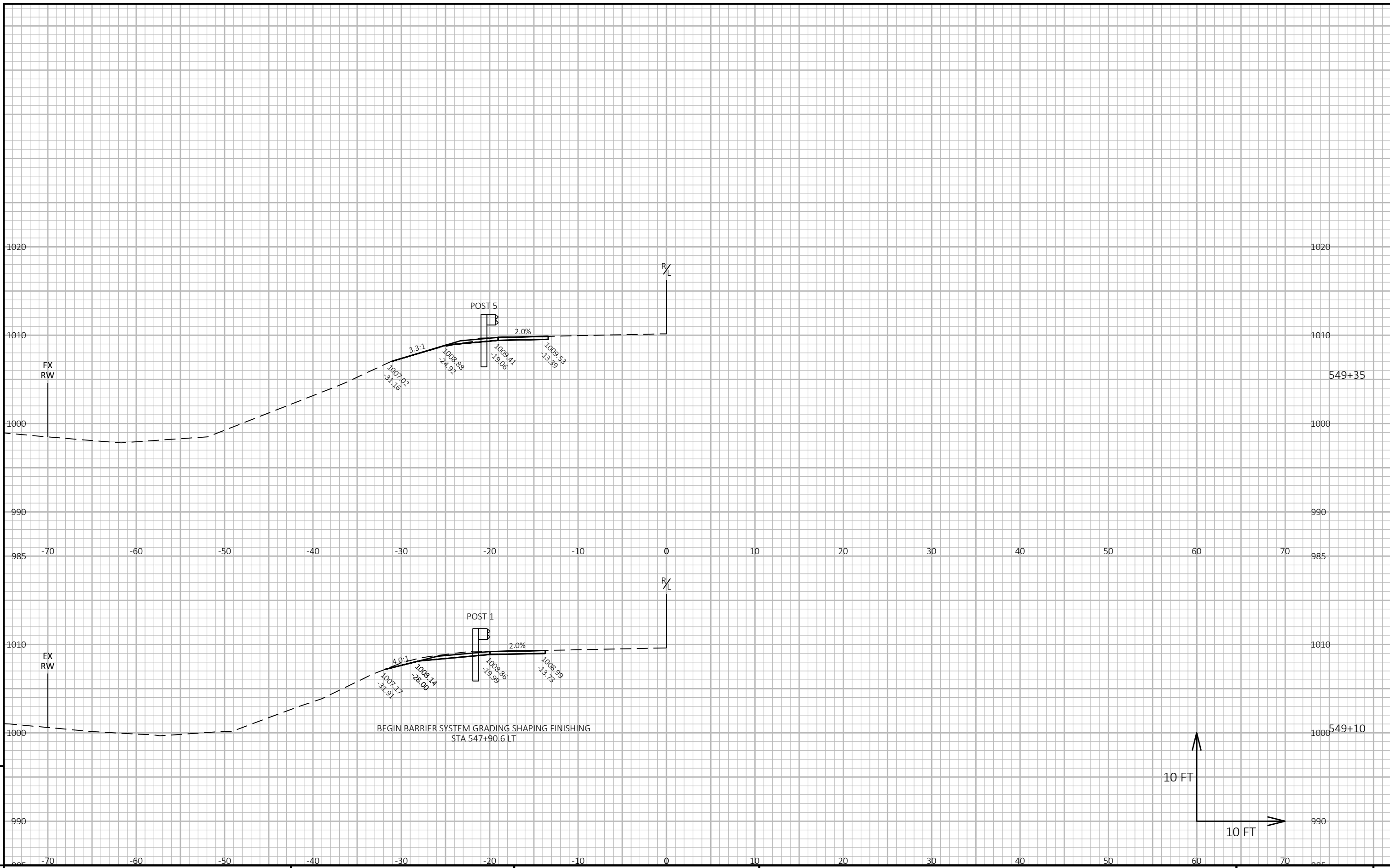
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:54 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 063

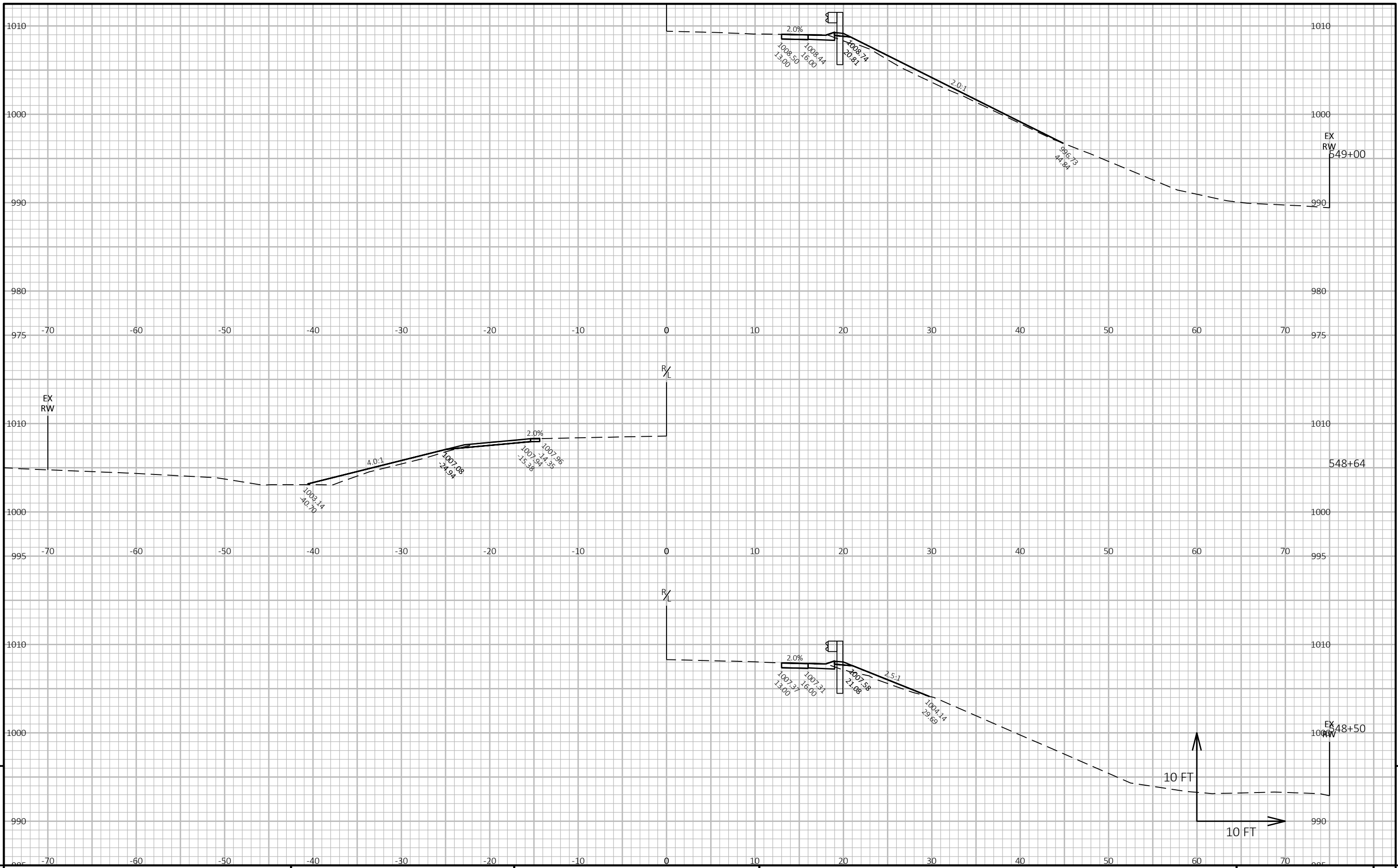


9

9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:55 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



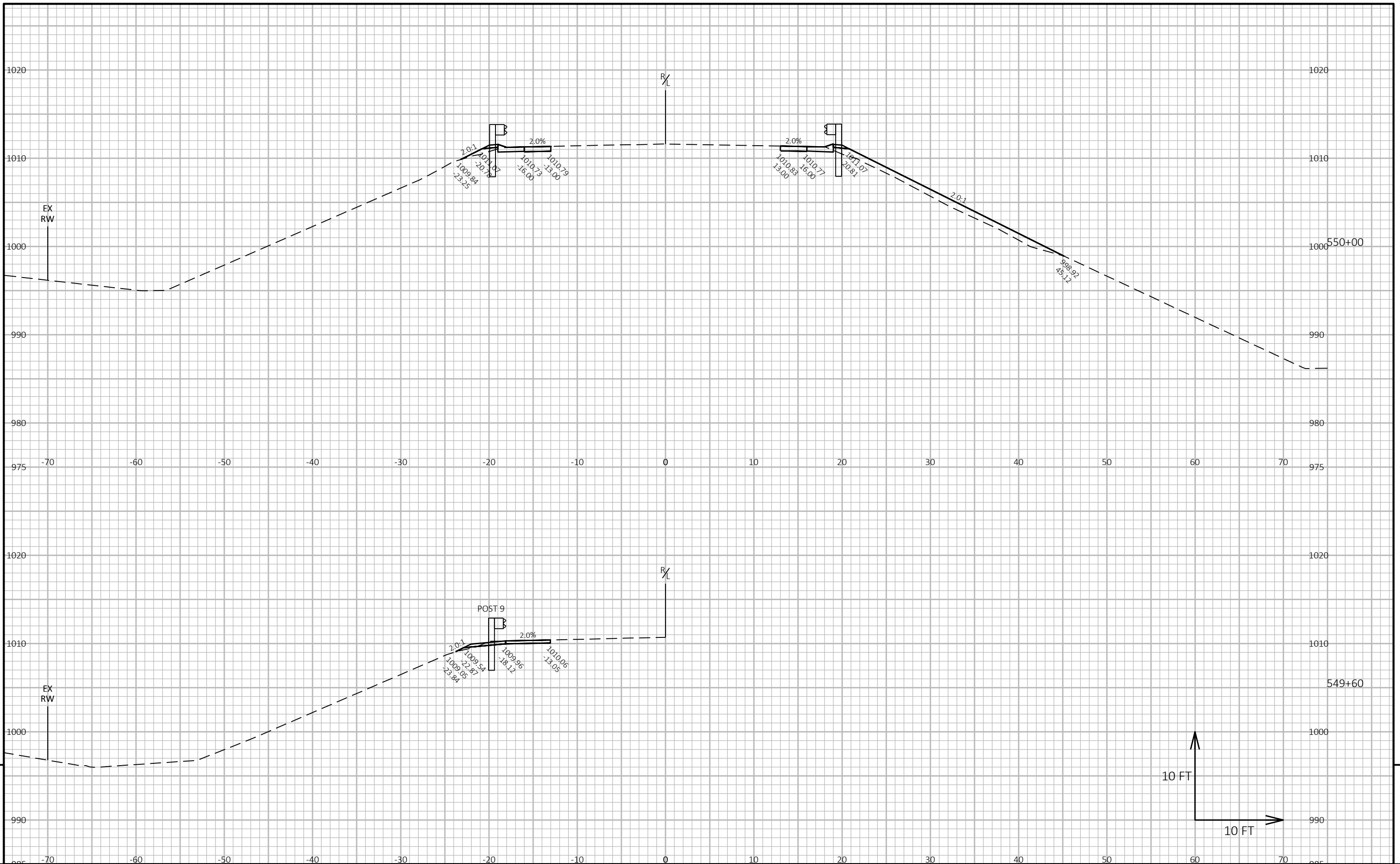
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:55 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 064



PROJECT NO: 8110-01-72

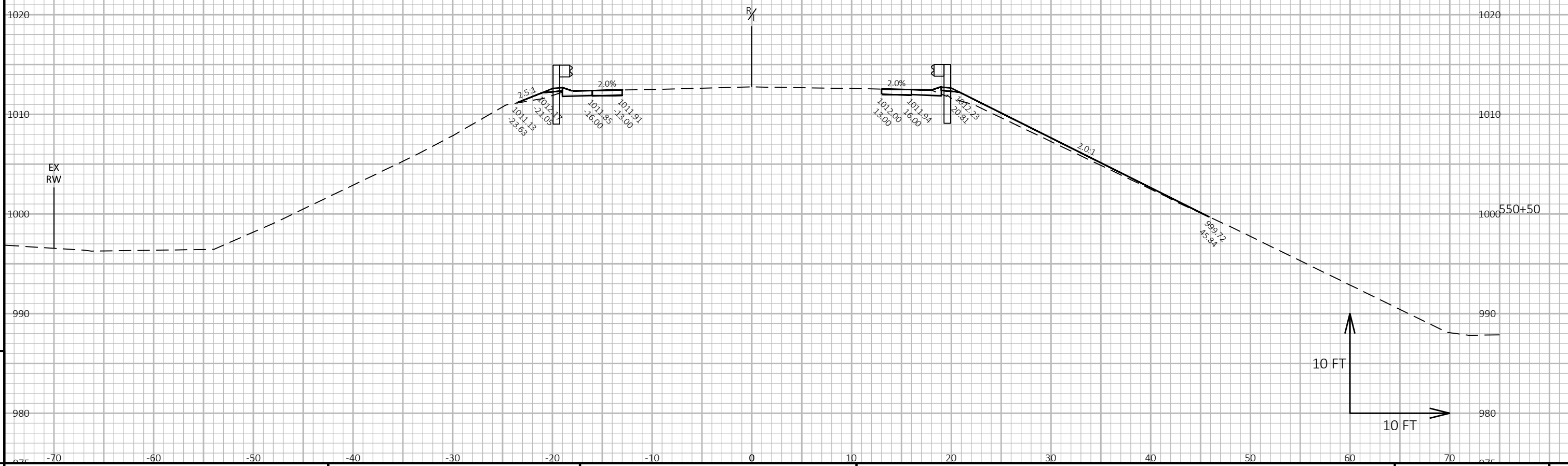
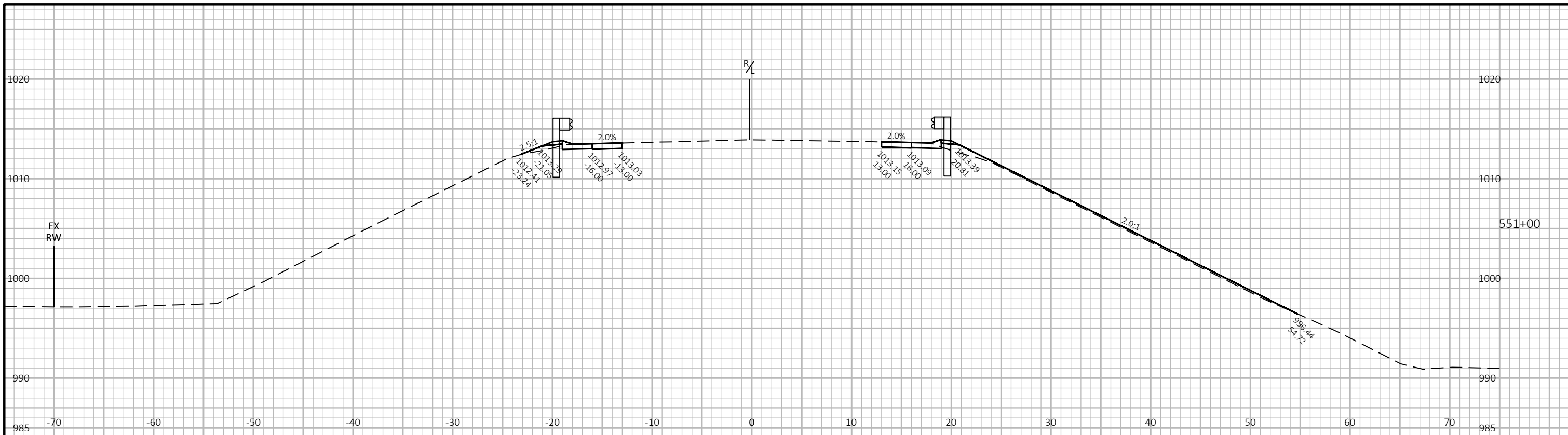
HWY: STH 64

COUNTY: DUNN

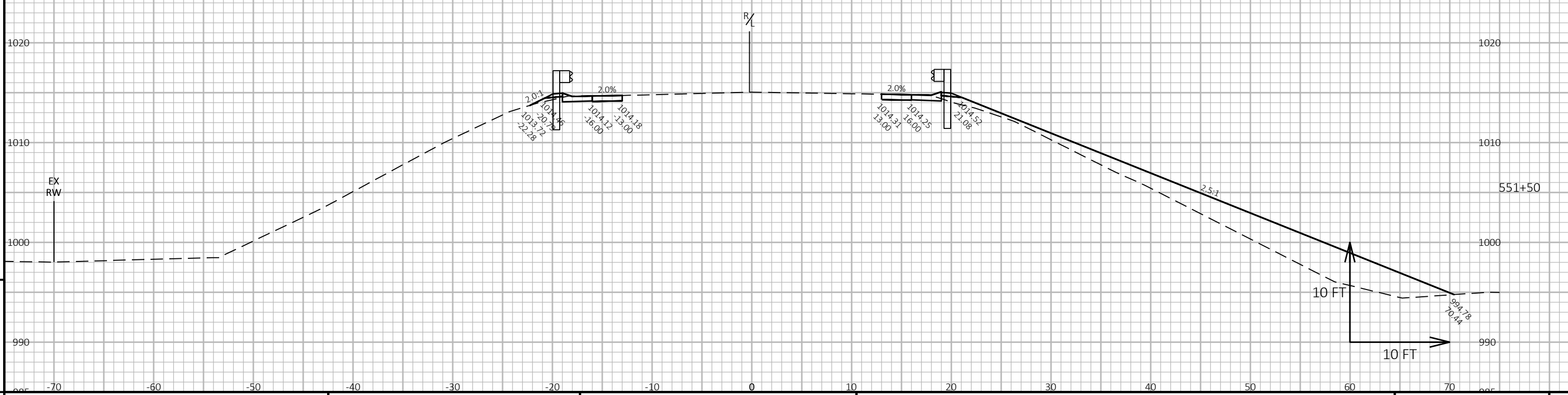
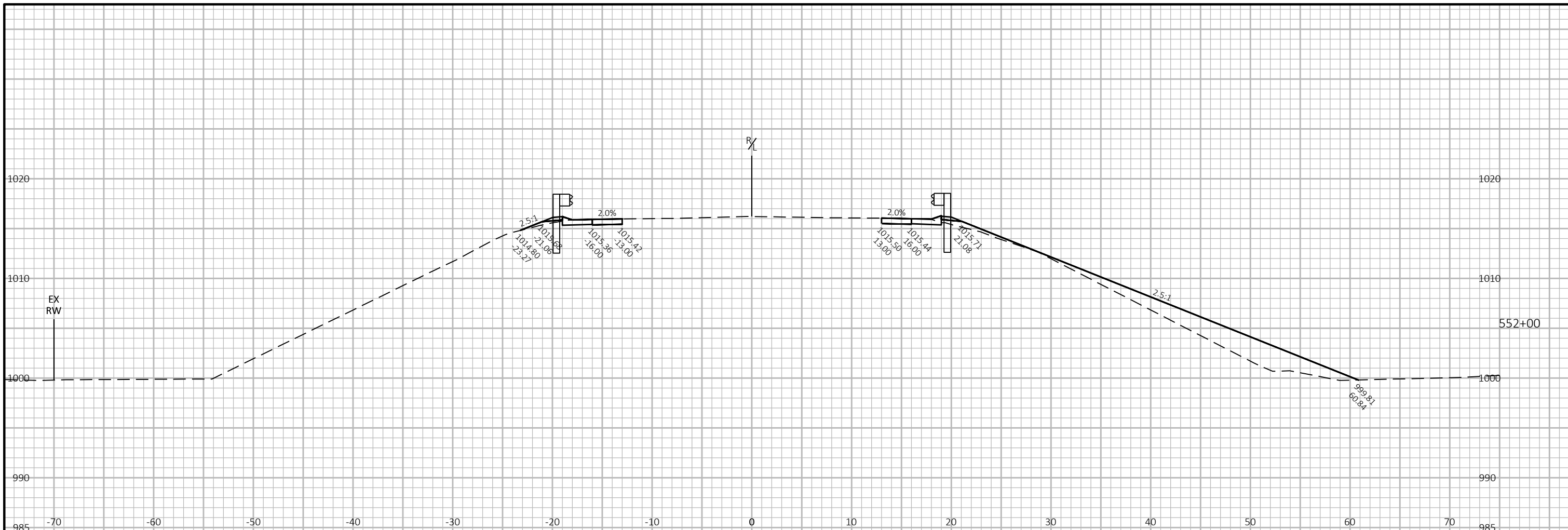
CROSS SECTIONS: STH 64

SHEET

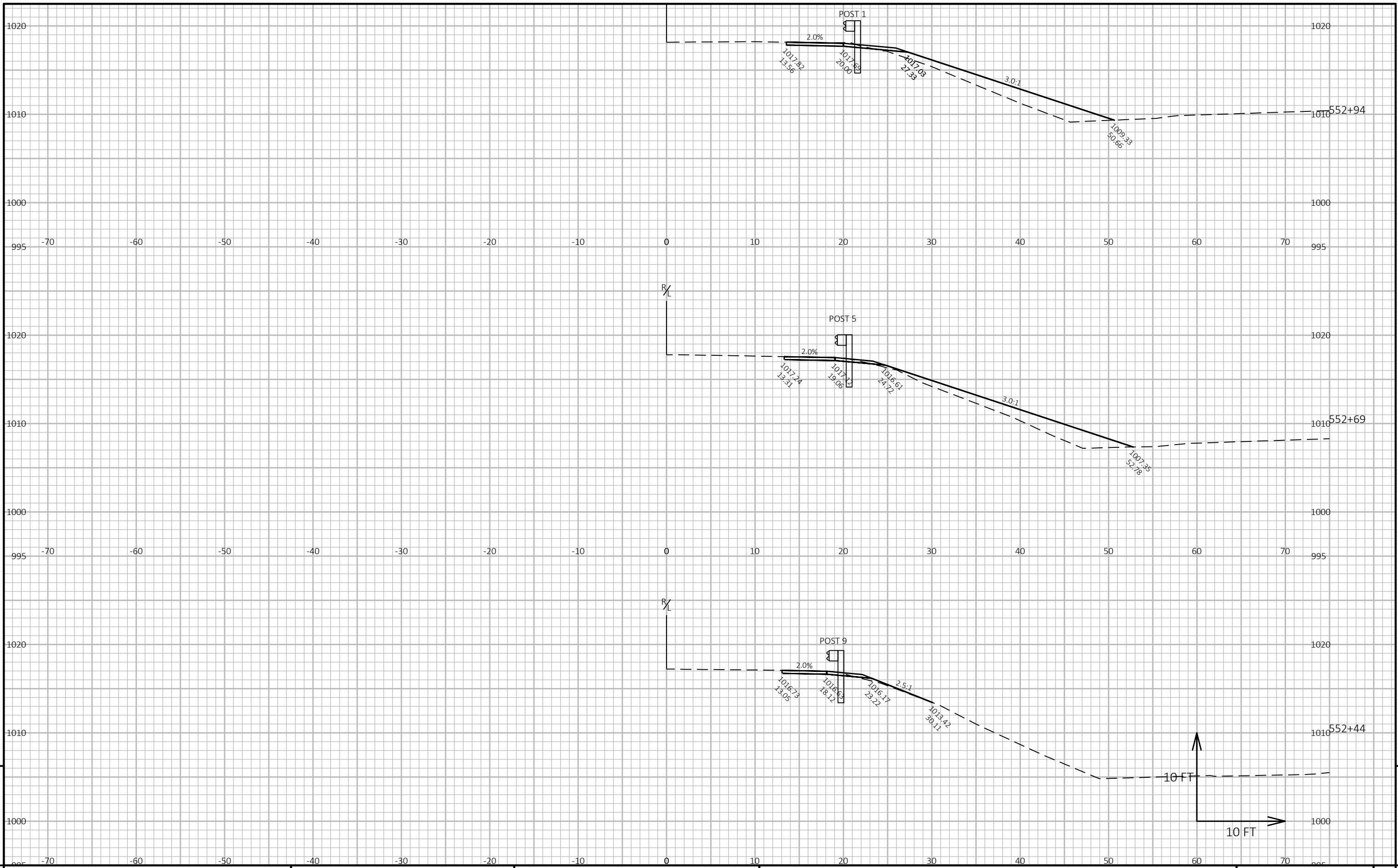
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9	PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	9
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

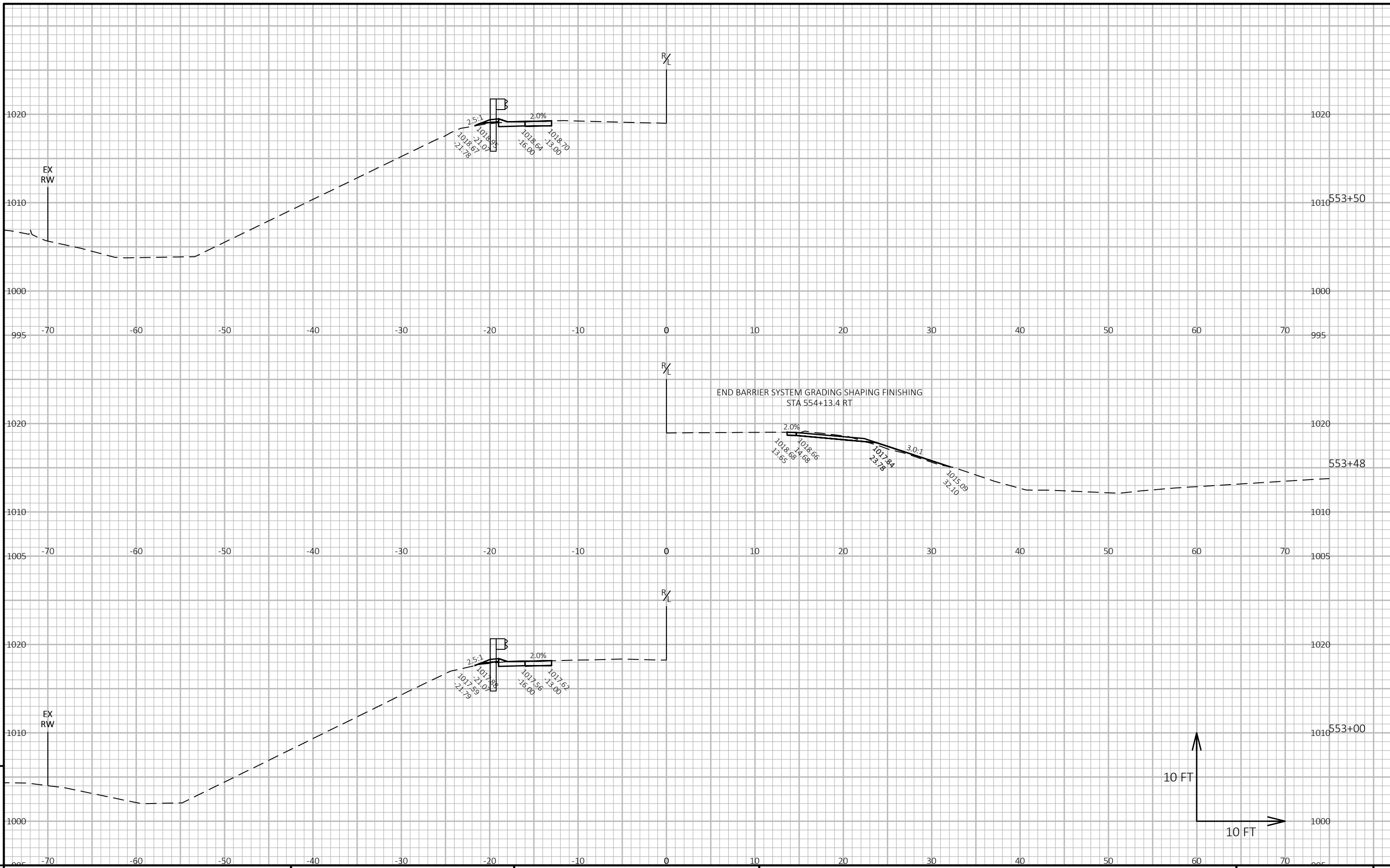


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:57 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

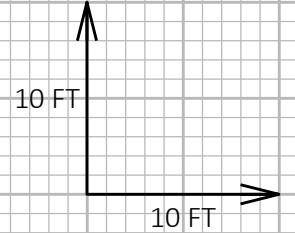


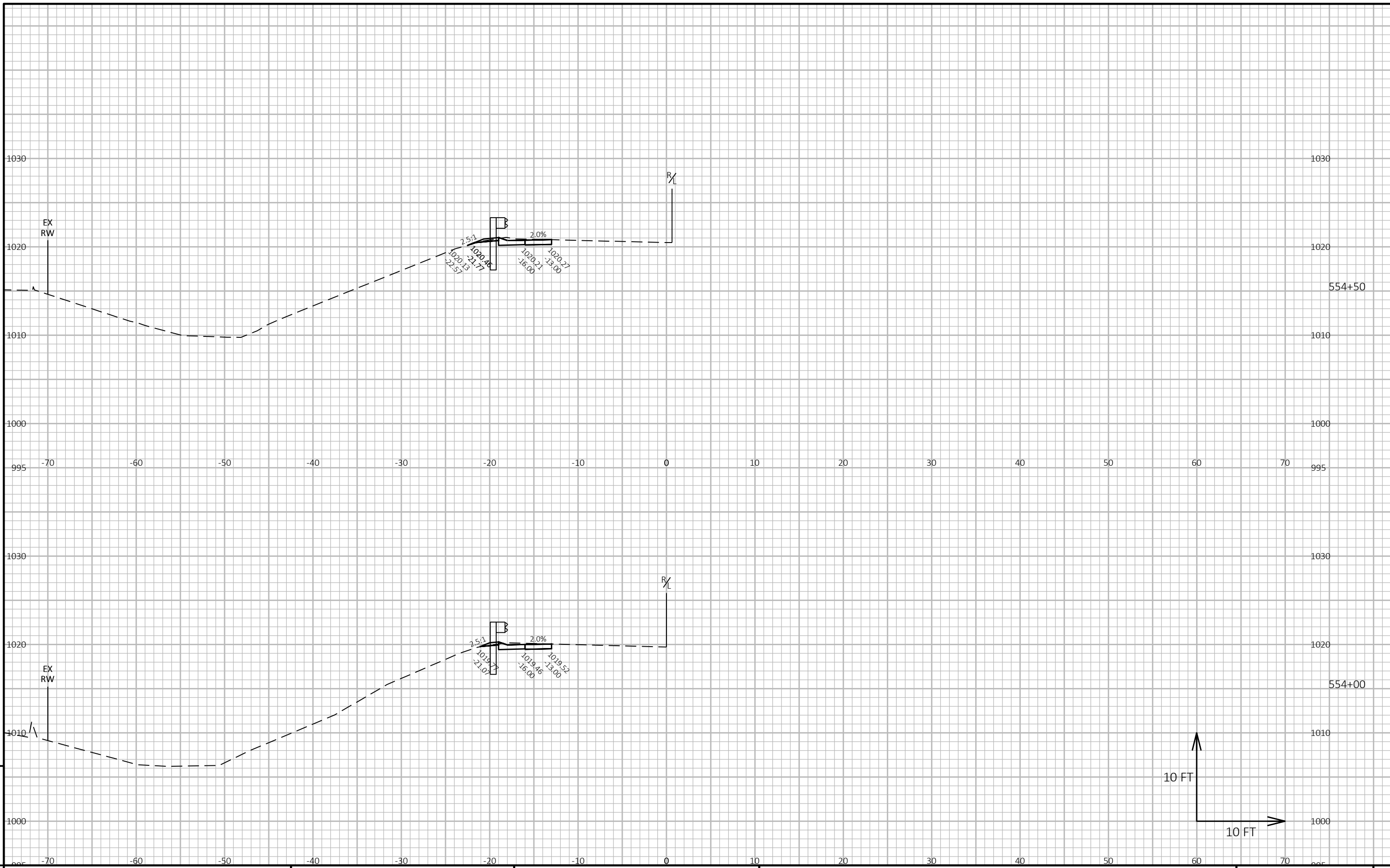
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 6:57 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49





PROJECT NO: 8110-01-72

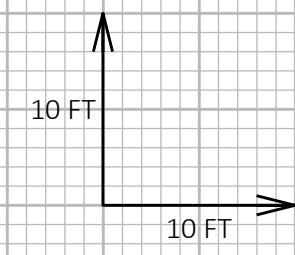
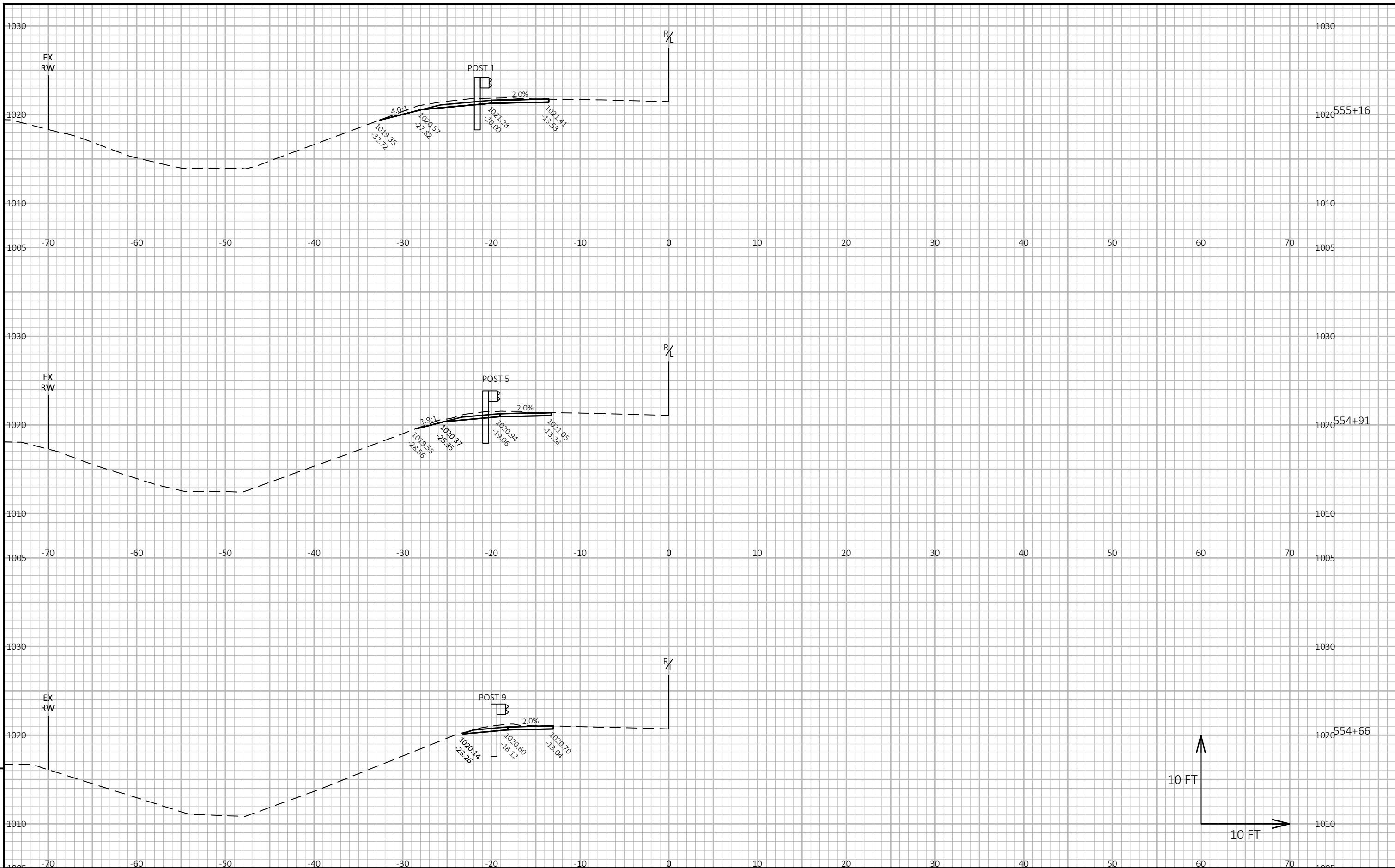
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72

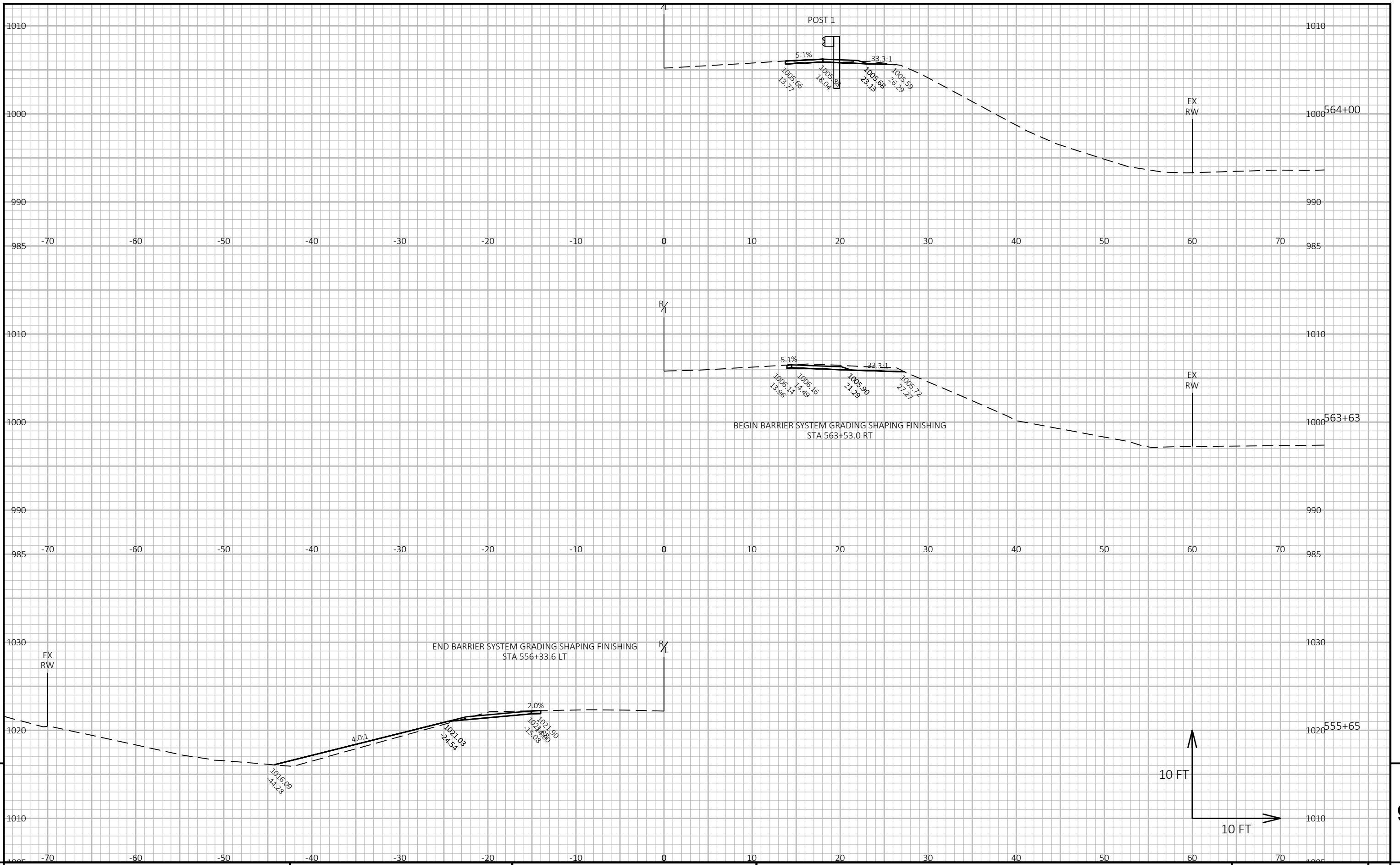
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72

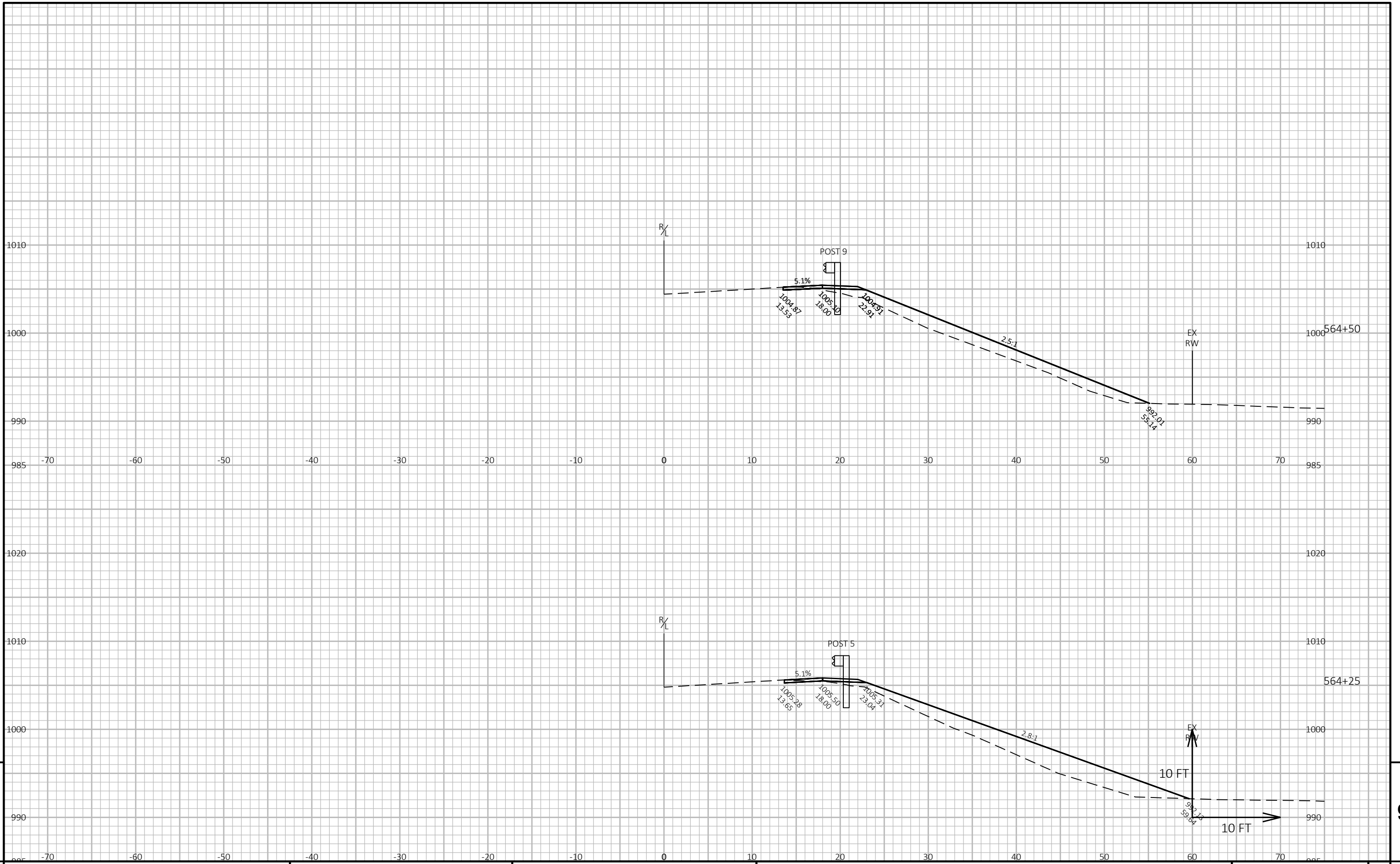
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



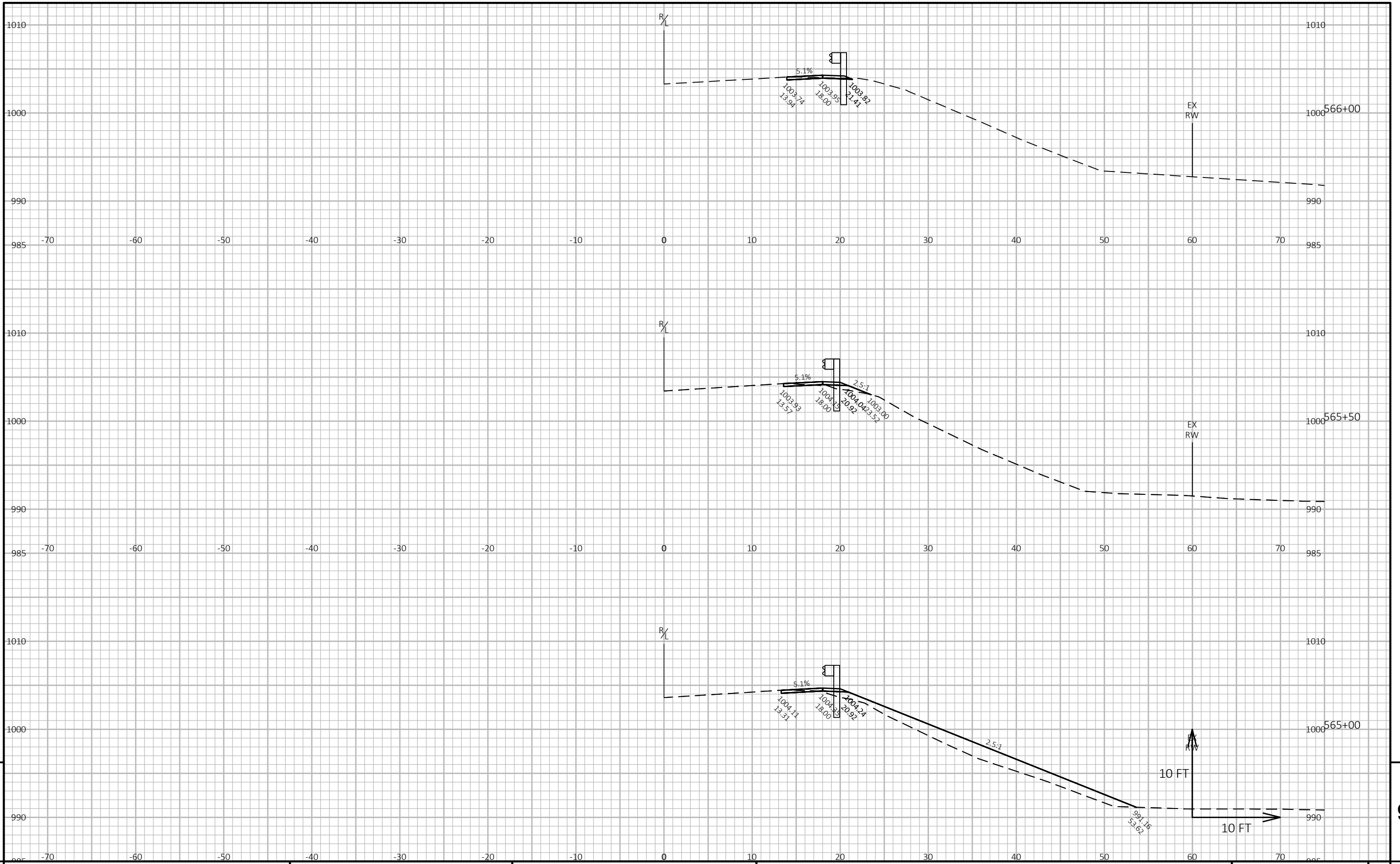
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

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LAYOUT NAME - 074



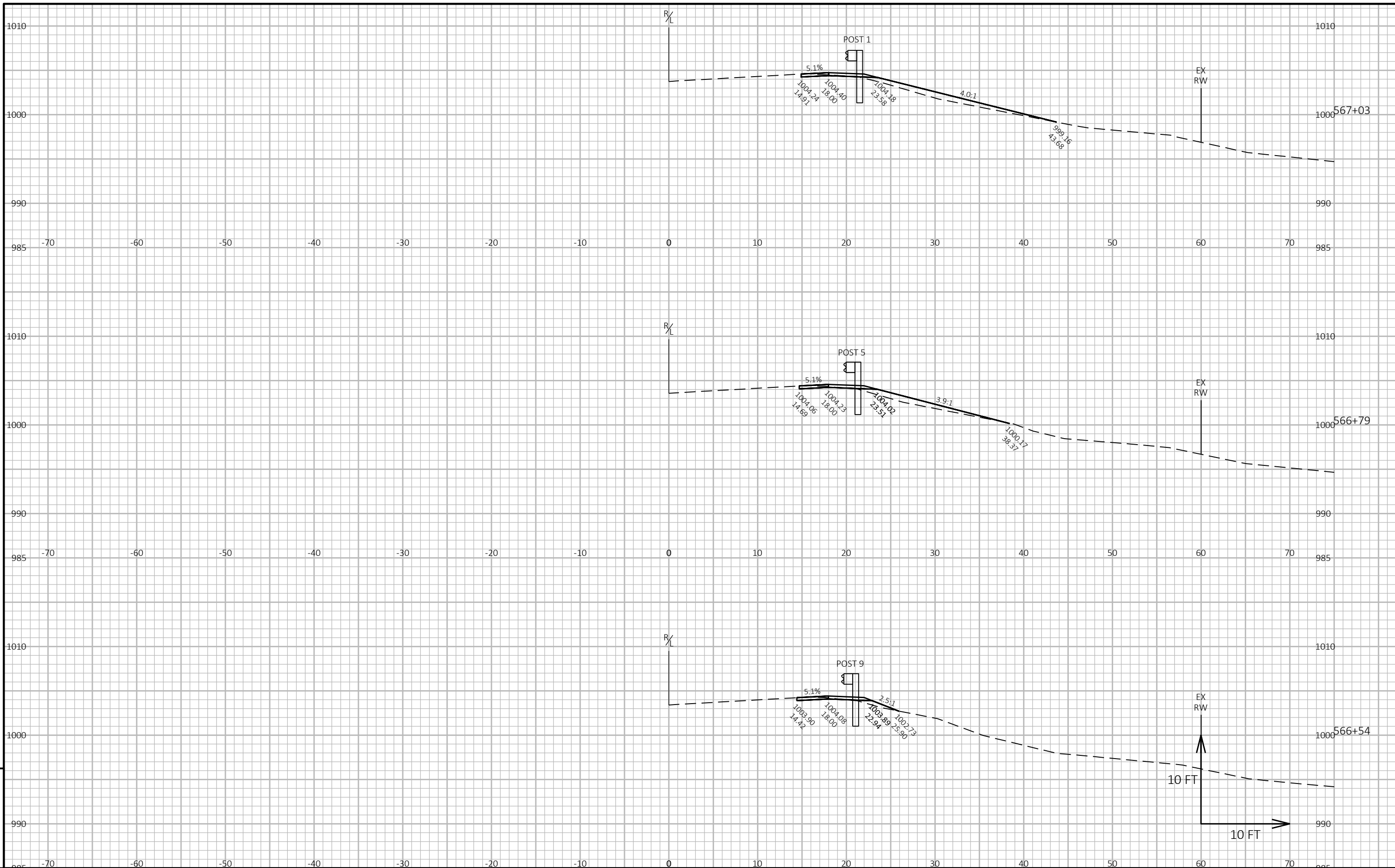
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 6:59 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 075



PROJECT NO: 8110-01-72

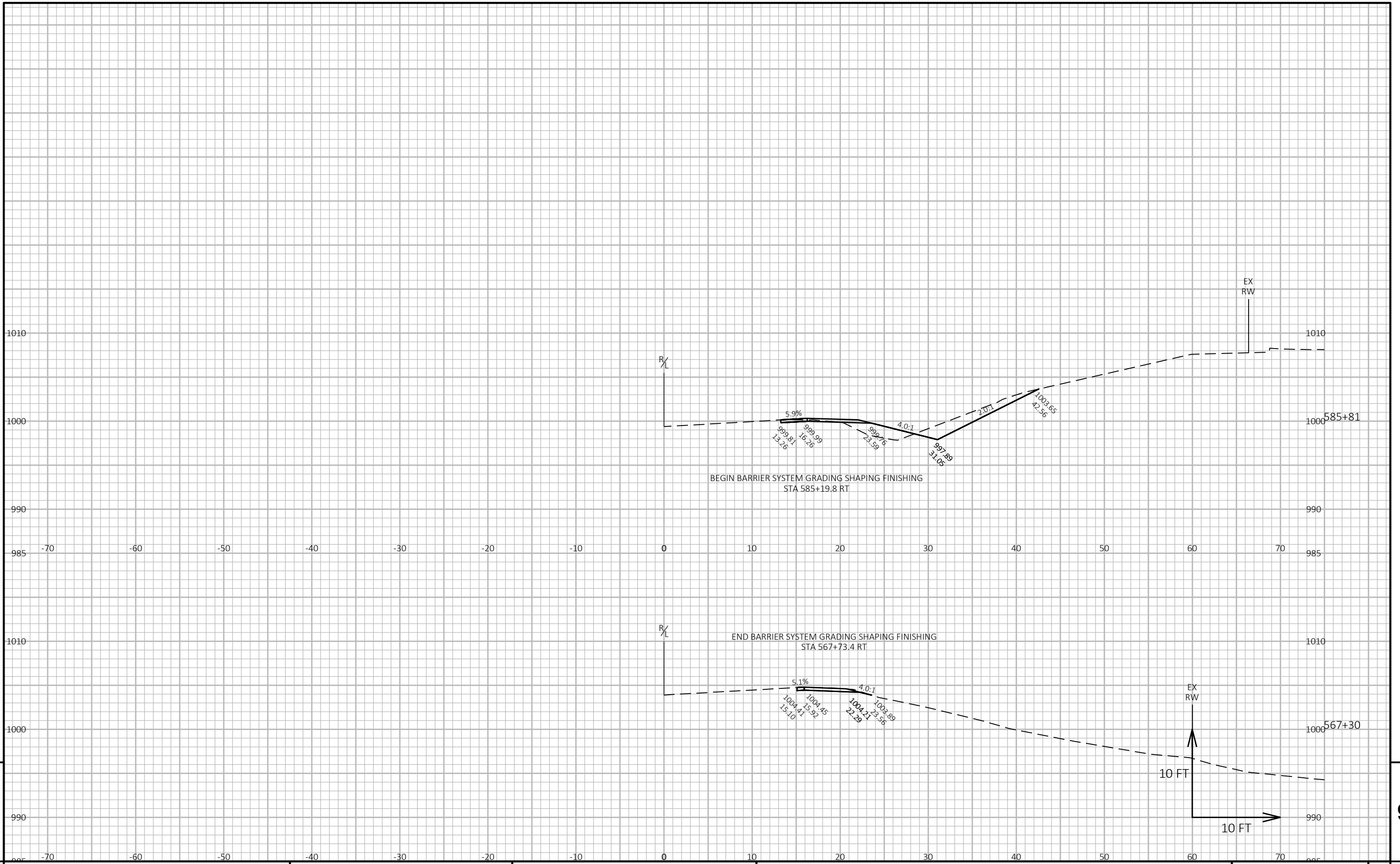
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

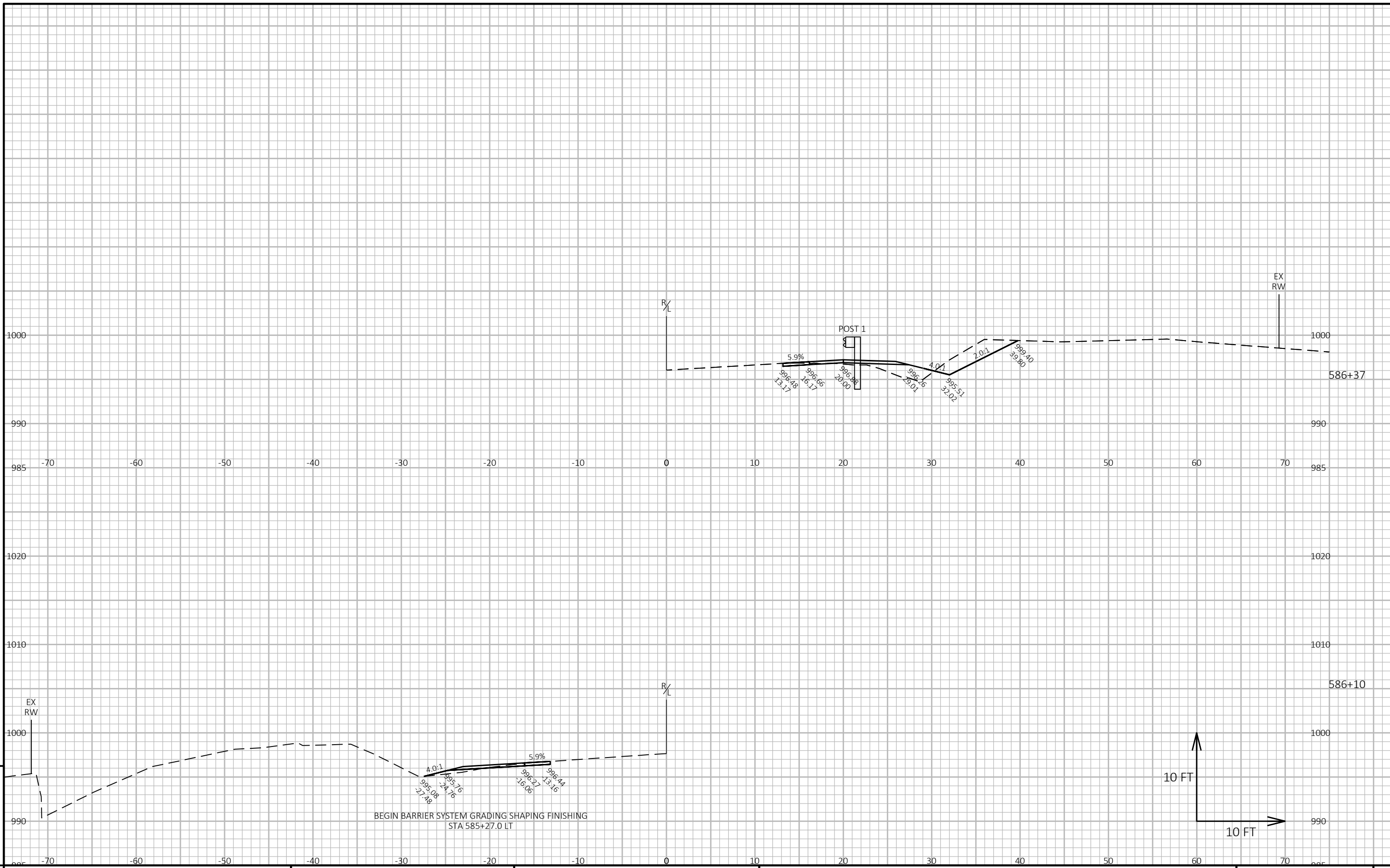
SHEET

E



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PROJECT NO: 8110-01-72

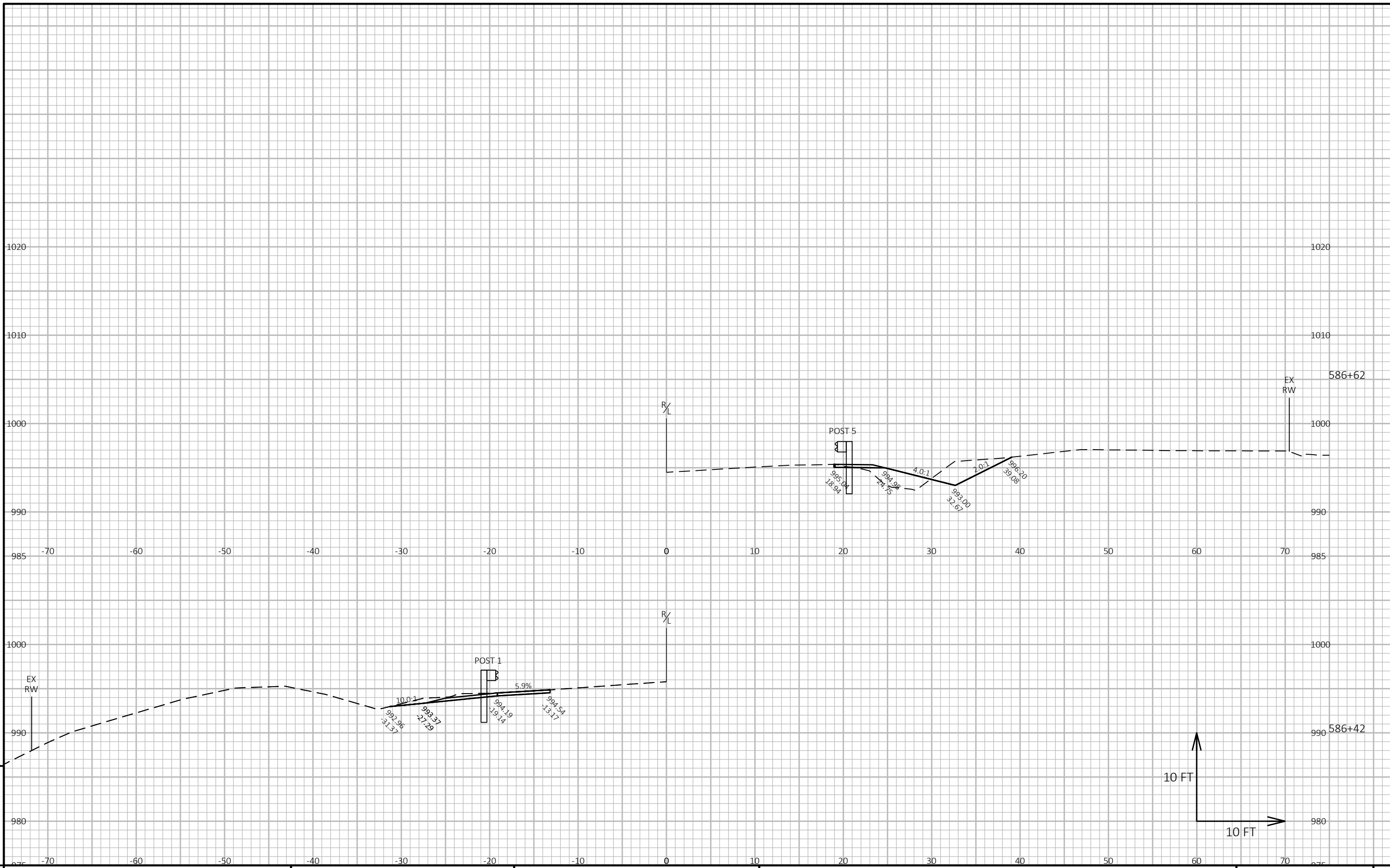
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



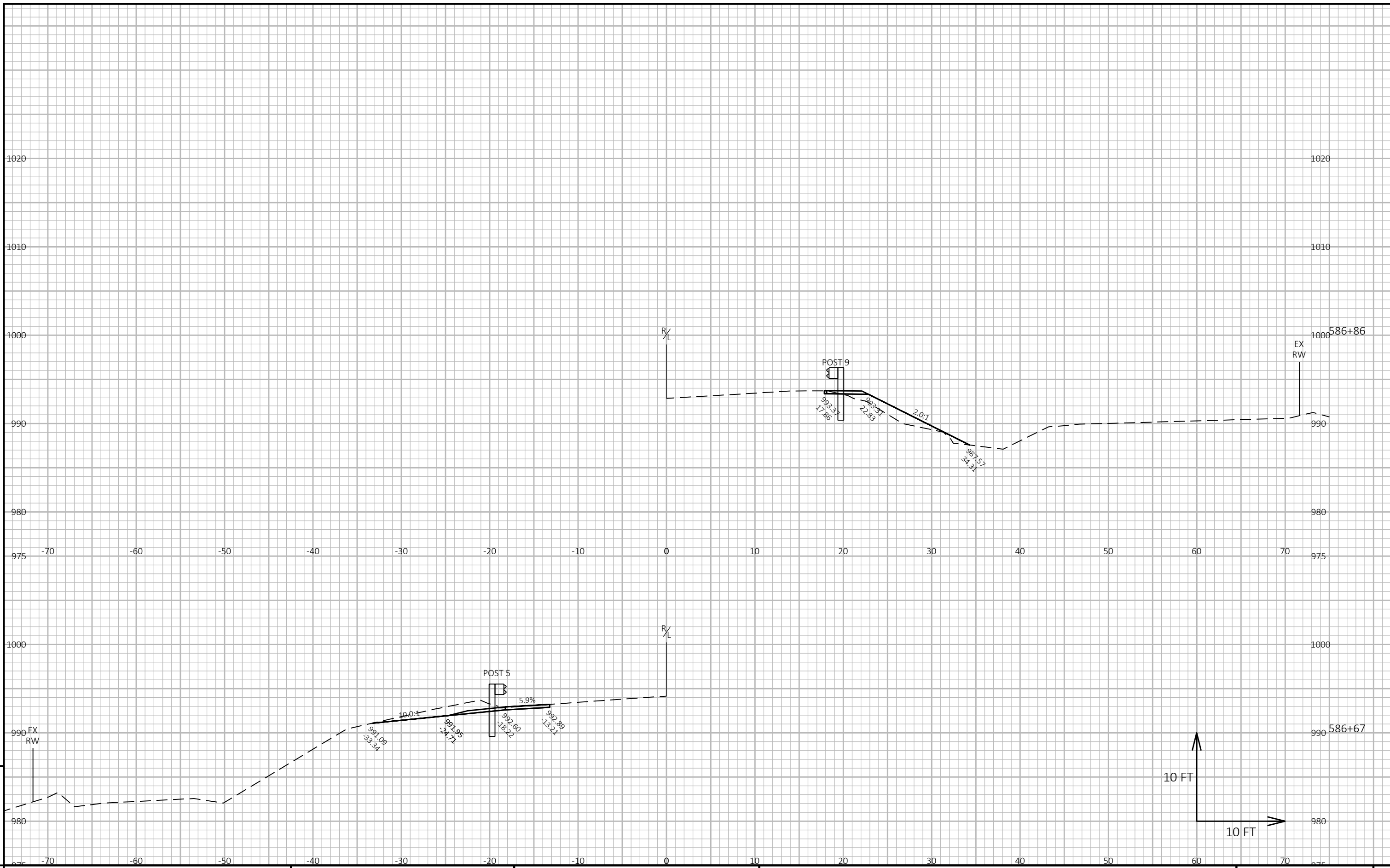
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:00 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 079



PROJECT NO: 8110-01-72

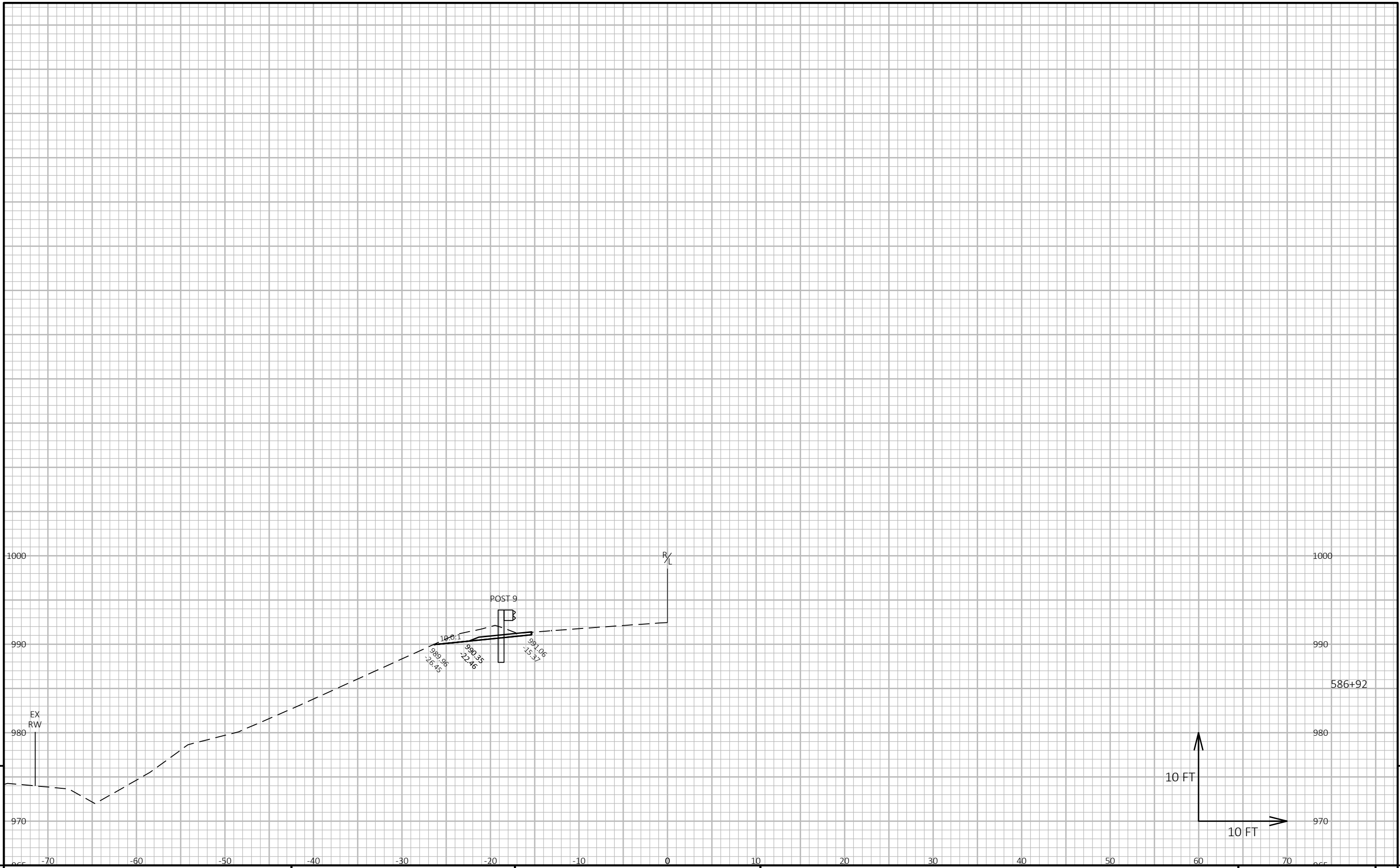
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



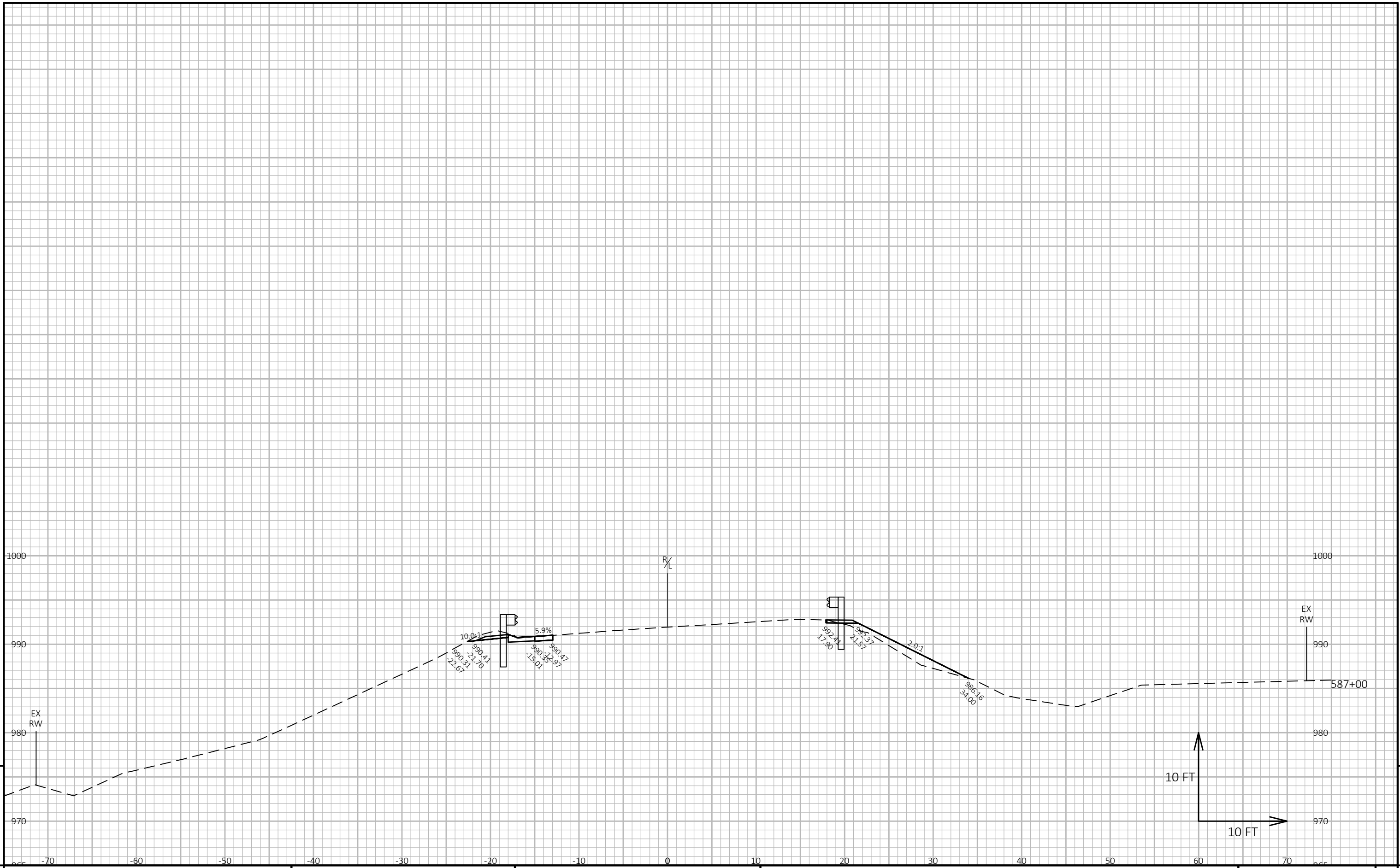
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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:01 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 081



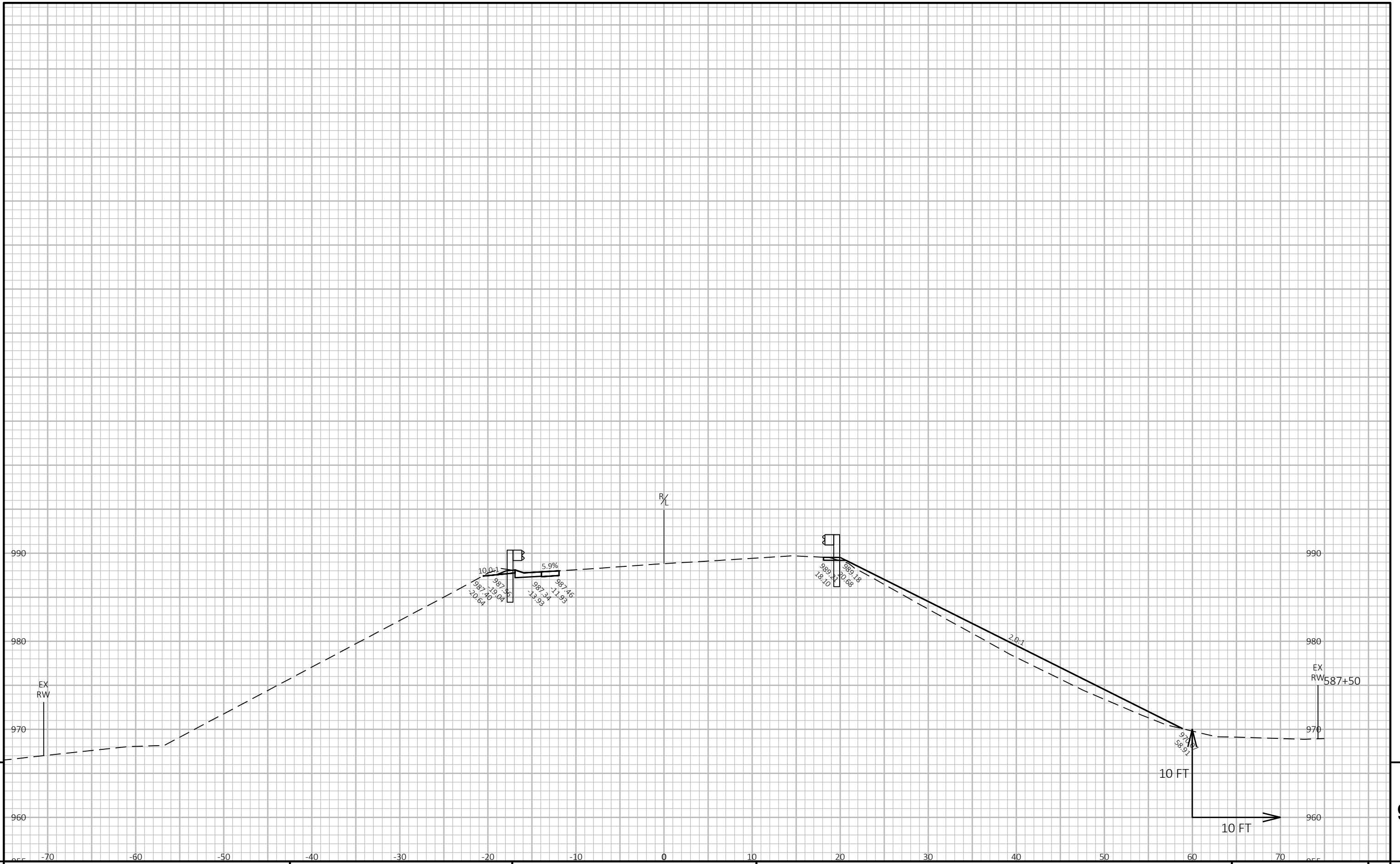
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:01 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 082



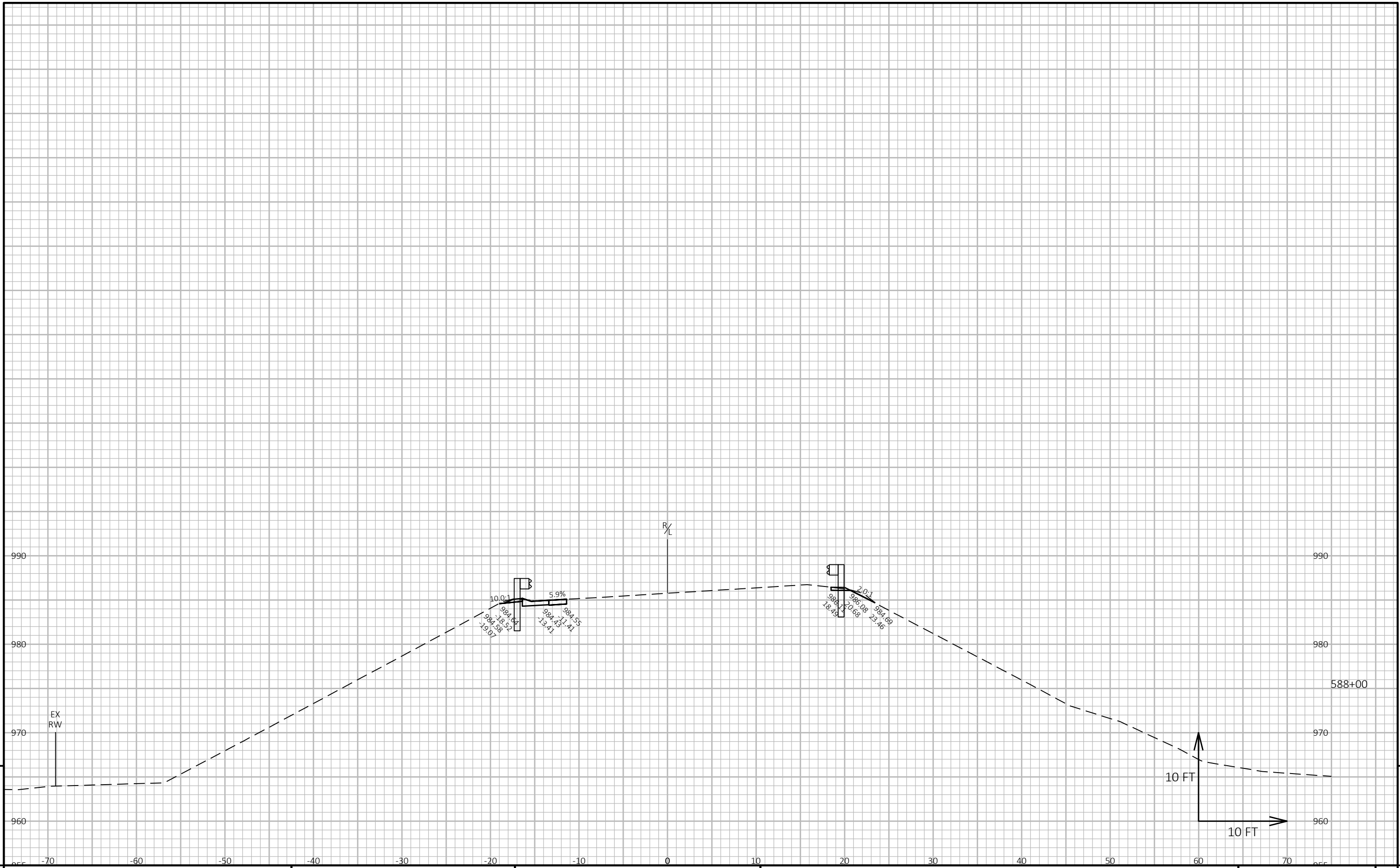
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 7:02 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 083

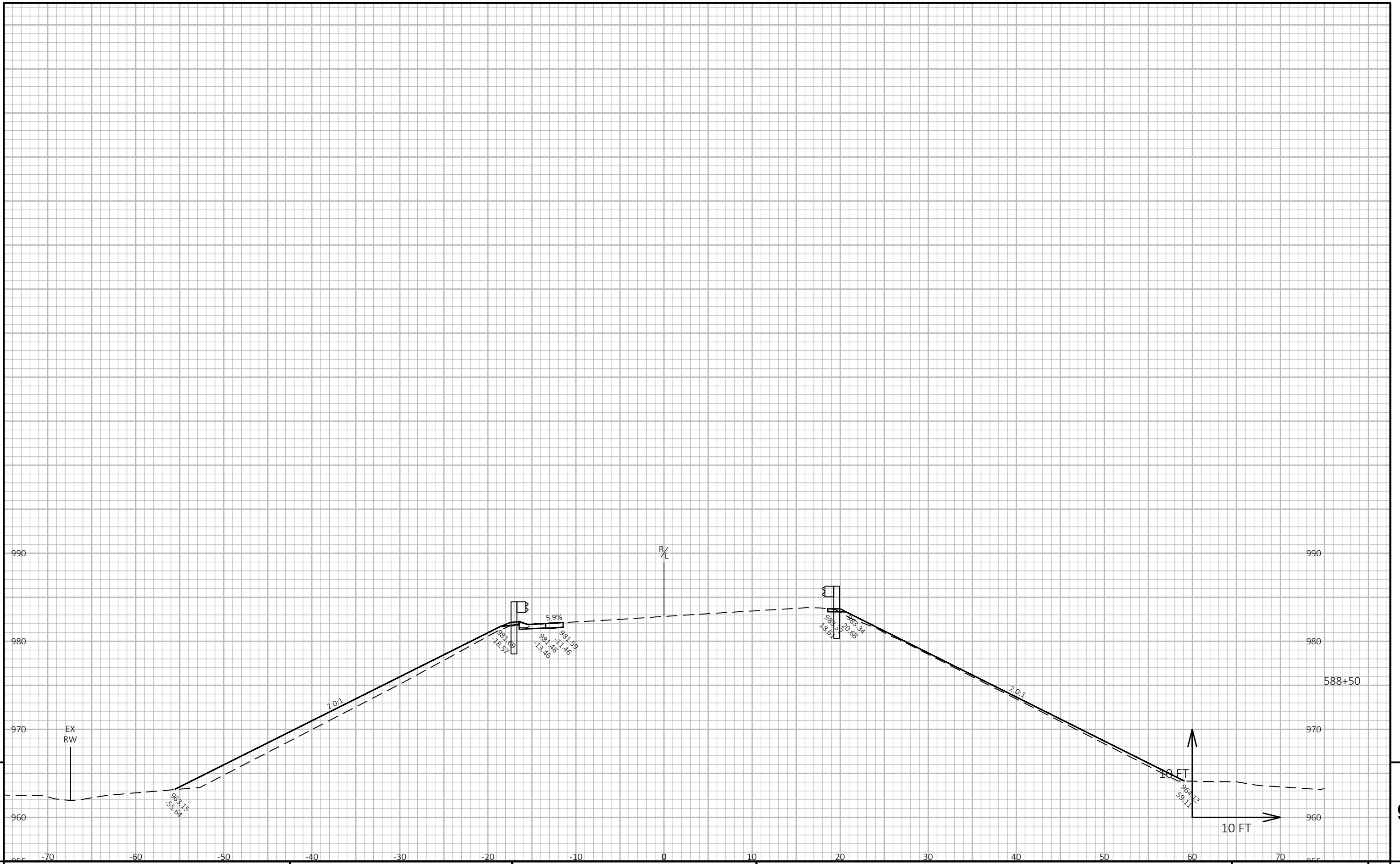


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 084
 PLOT DATE : 8/1/2023 7:02 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 085

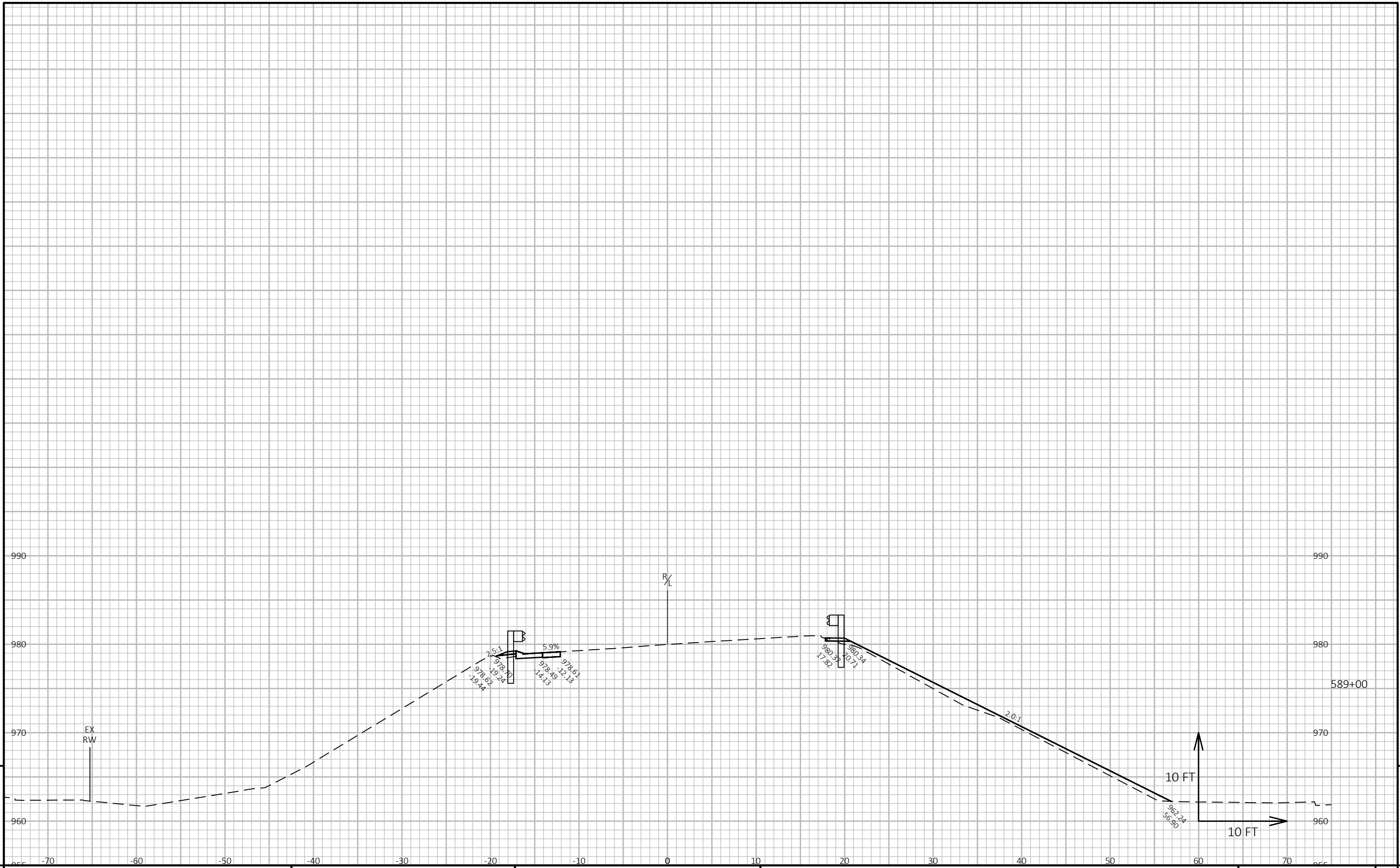
PLOT DATE : 8/1/2023 7:02 AM

PLOT BY : STEVE LIPPERT

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADD SHEET 49

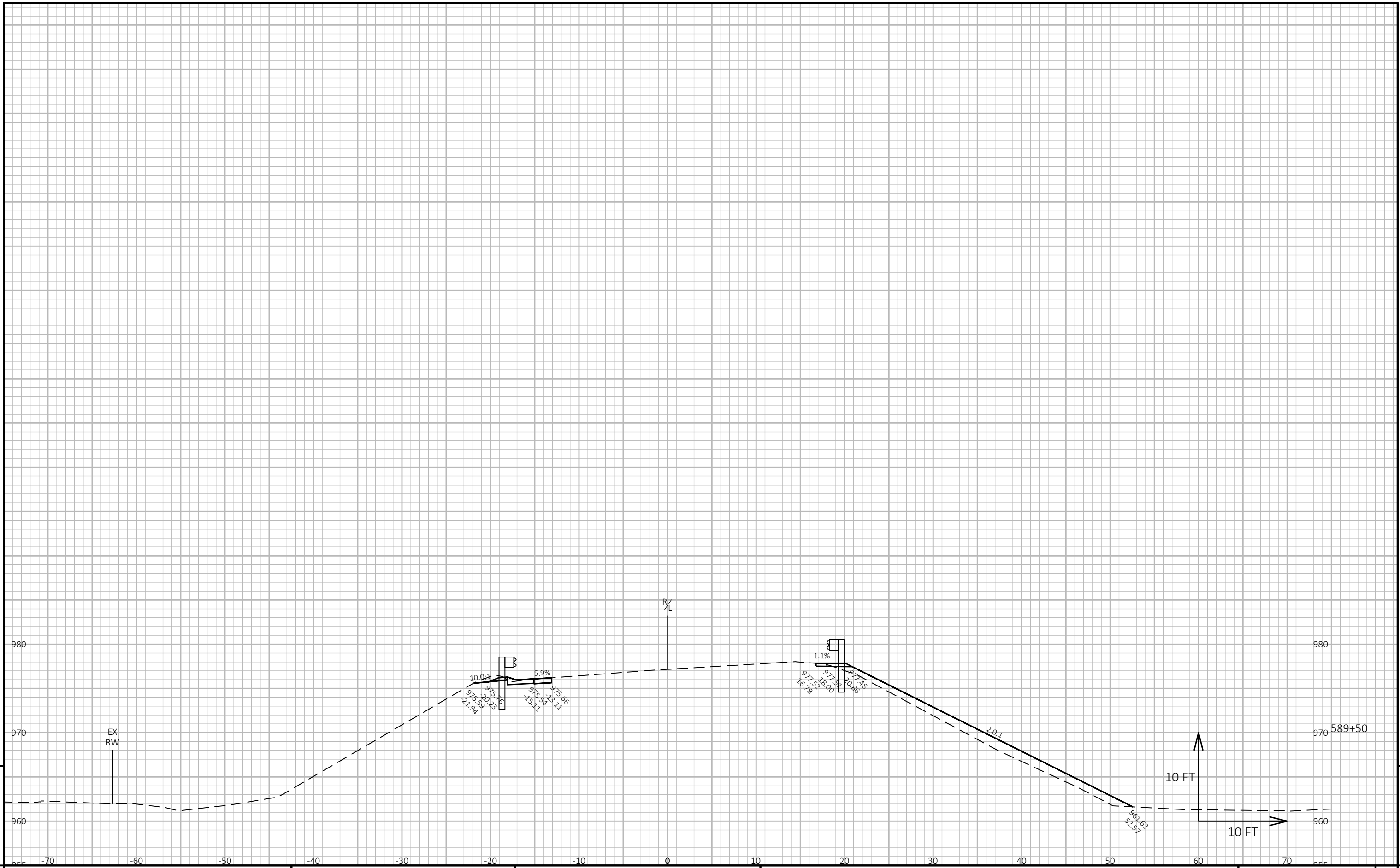


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 086
 PLOT DATE : 8/1/2023 7:03 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49

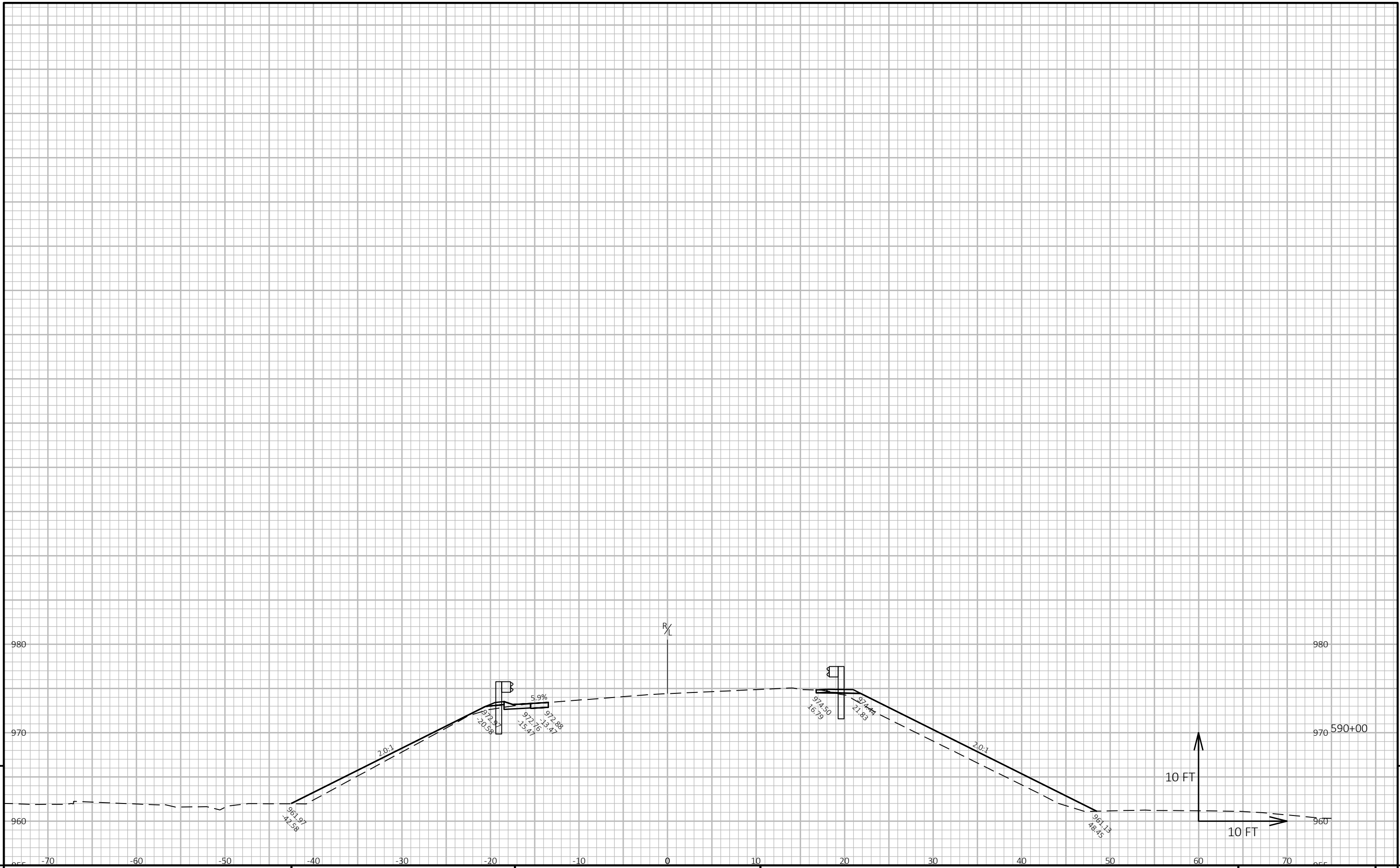


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 087
 PLOT DATE : 8/1/2023 7:03 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49

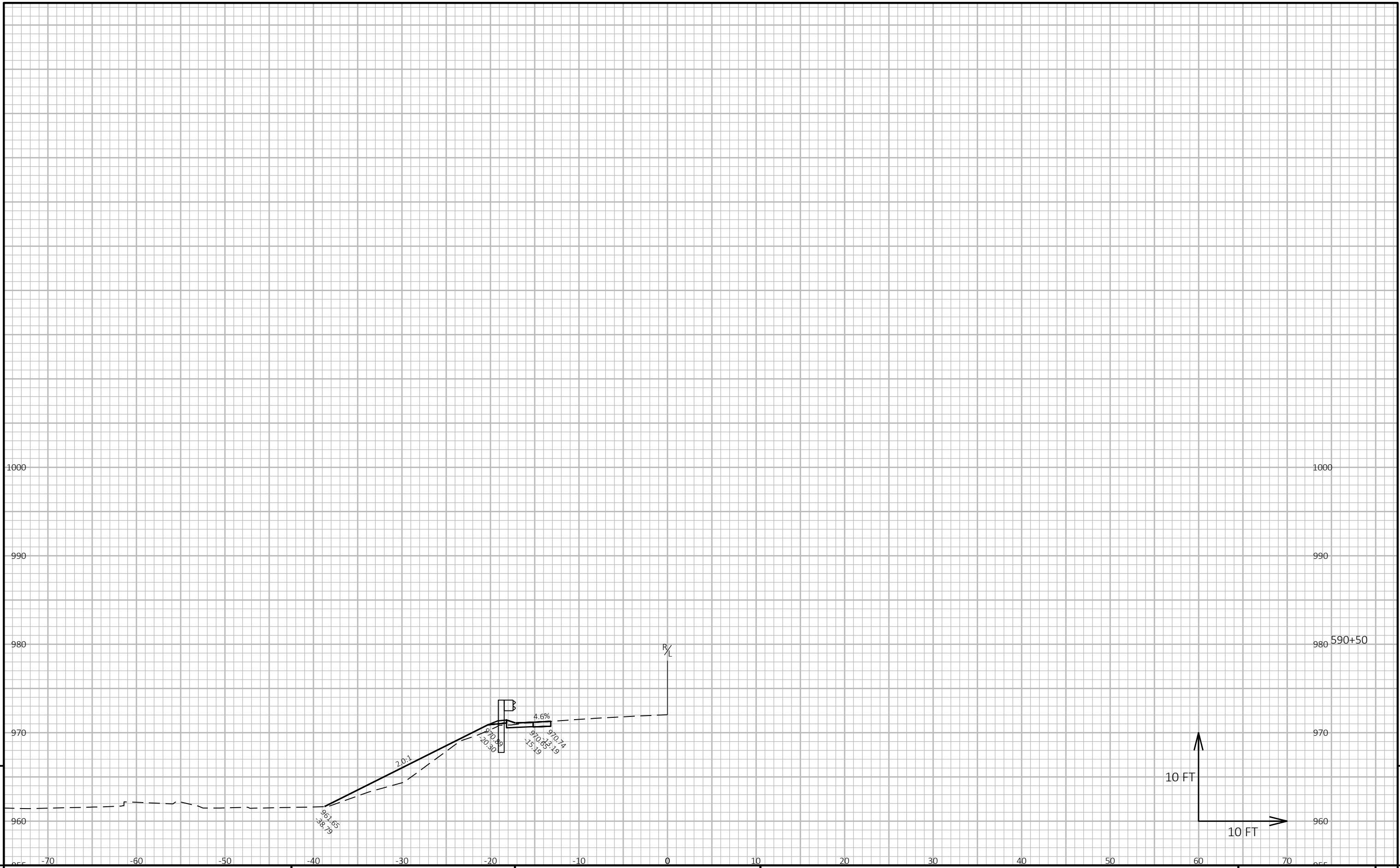


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 7:04 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



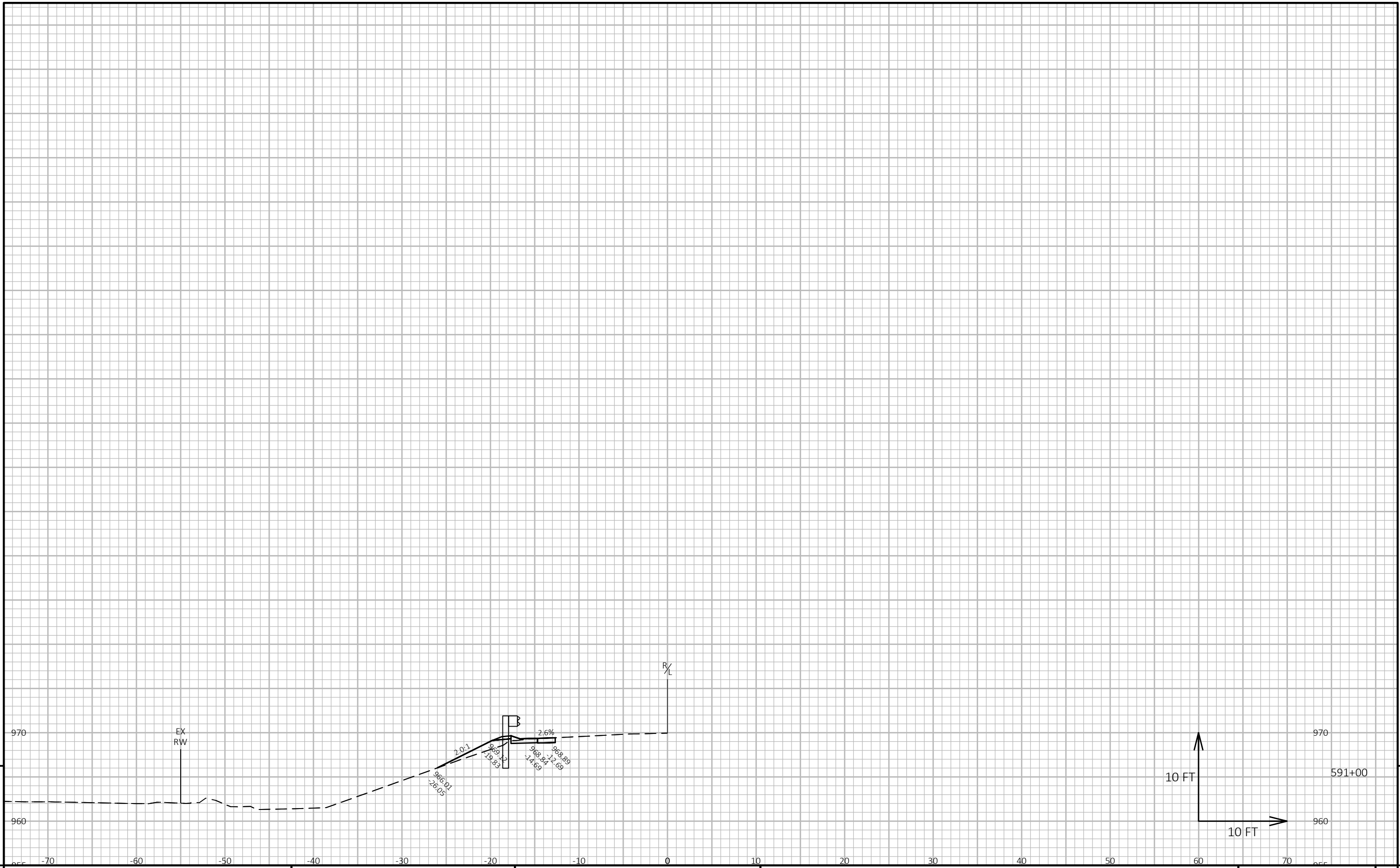
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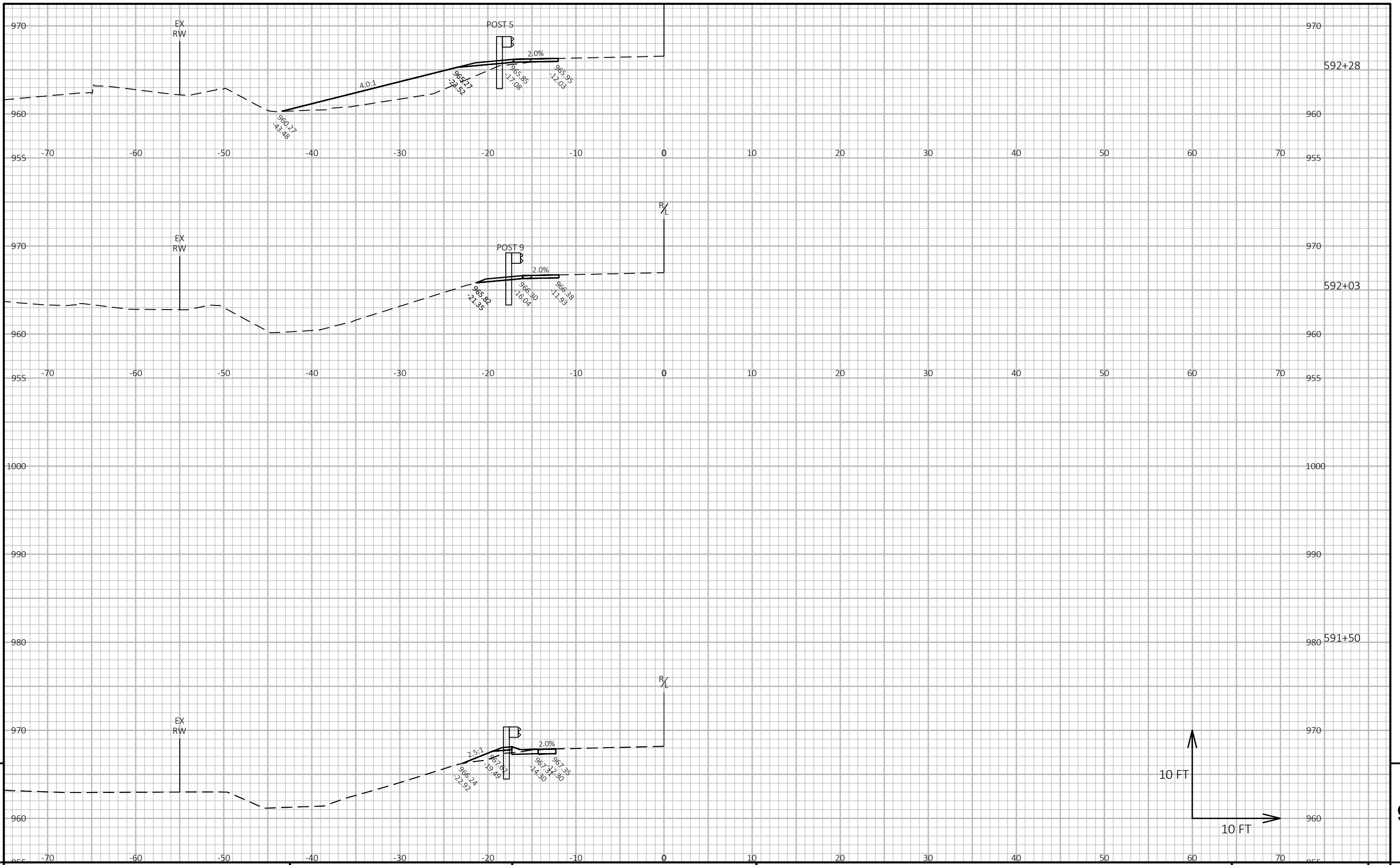
PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:04 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 089



PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



PROJECT NO: 8110-01-72

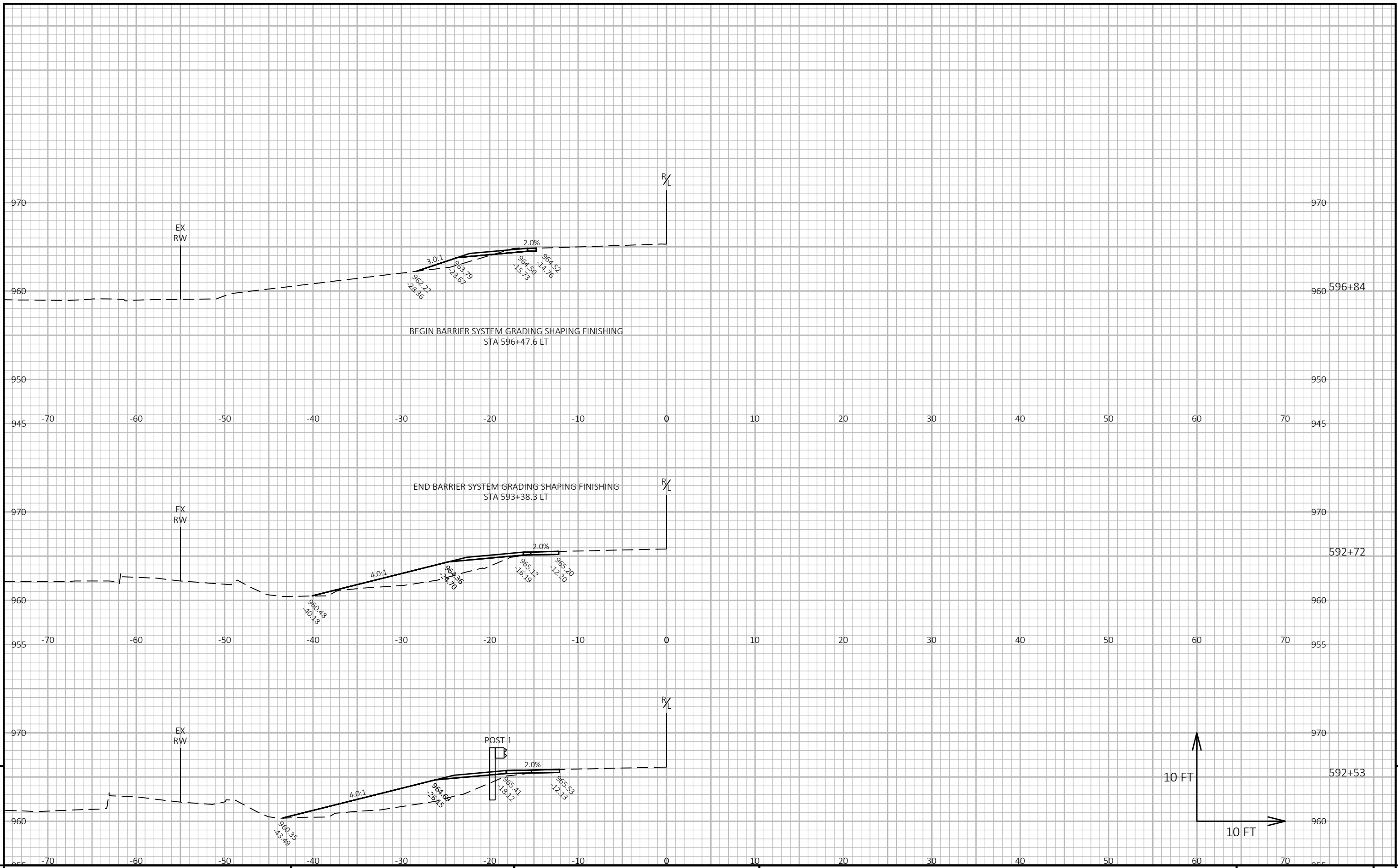
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



PROJECT NO: 8110-01-72

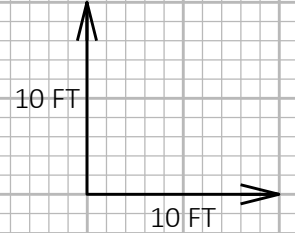
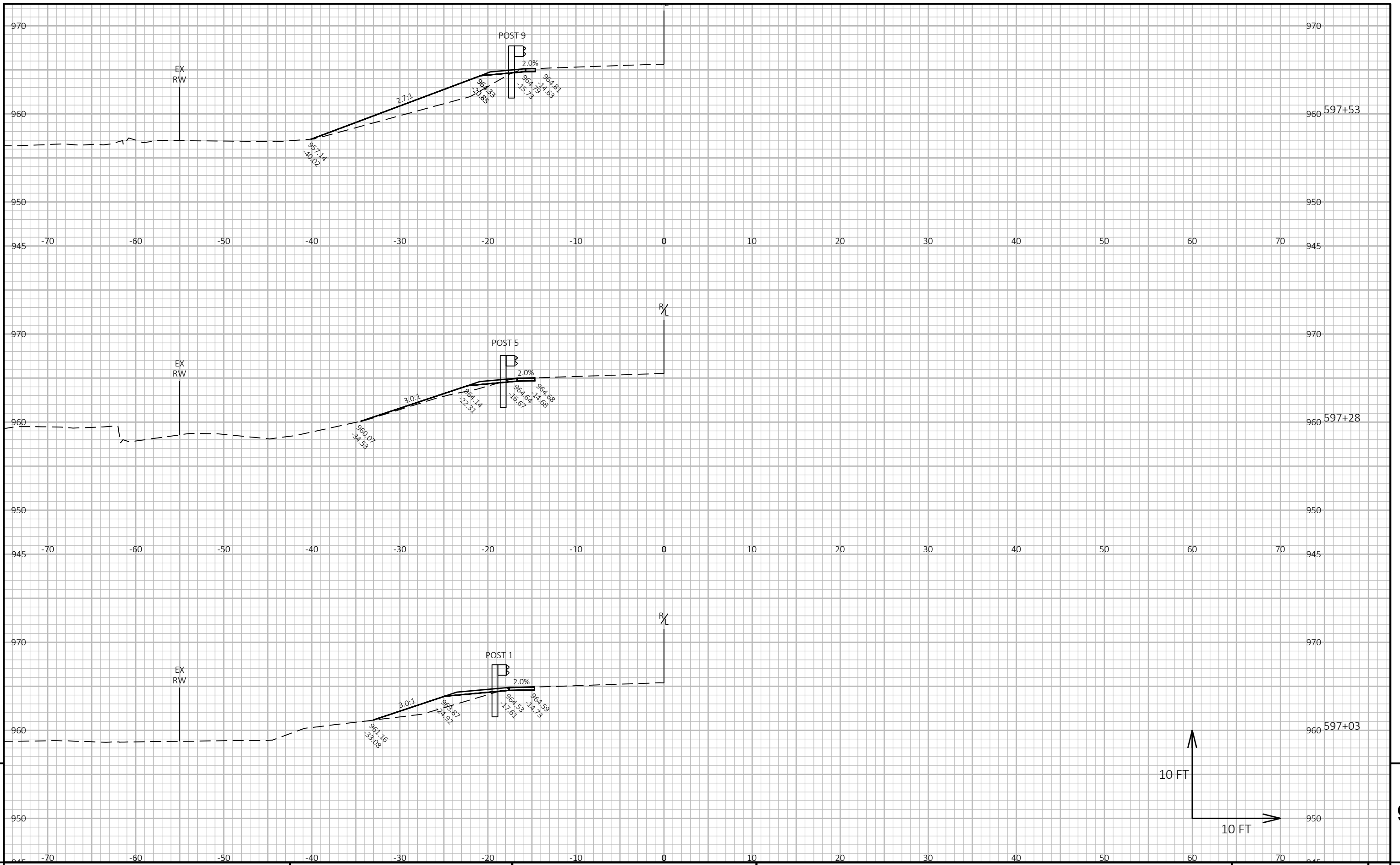
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



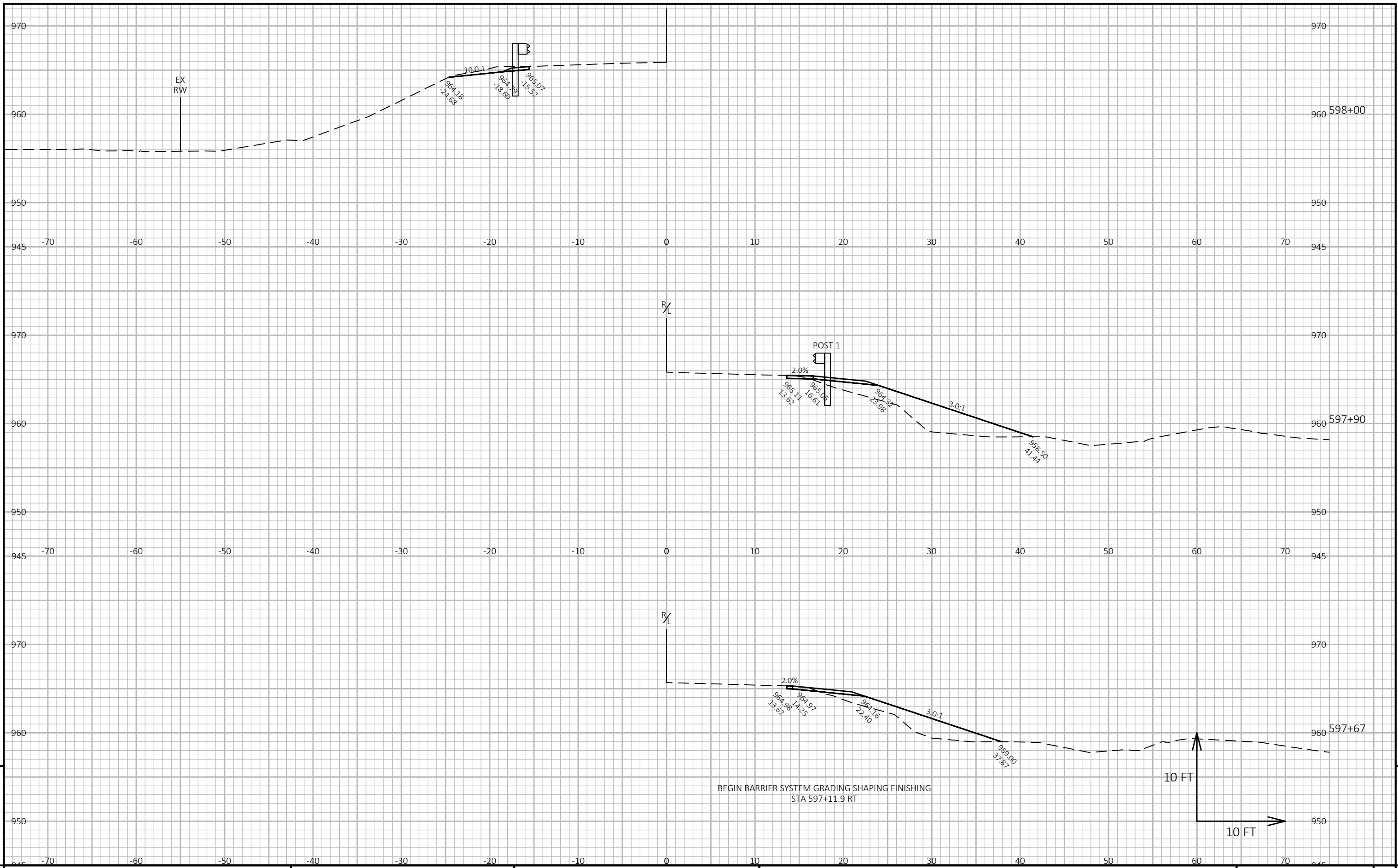
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSP\090201-XS.DWG PLOT DATE : 8/1/2023 7:05 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 093



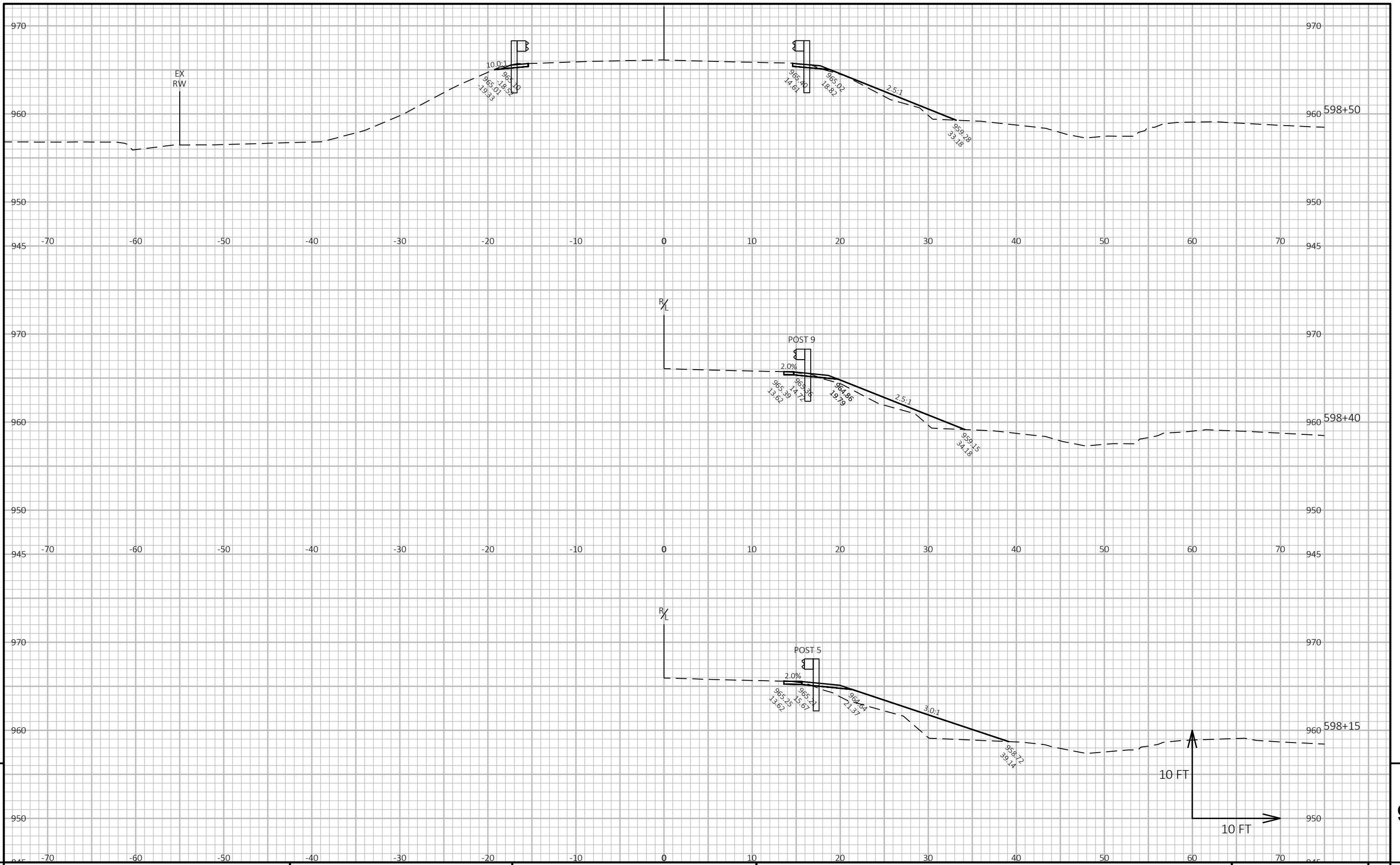
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSP\090201-XS.DWG PLOT DATE: 8/1/2023 7:06 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 094



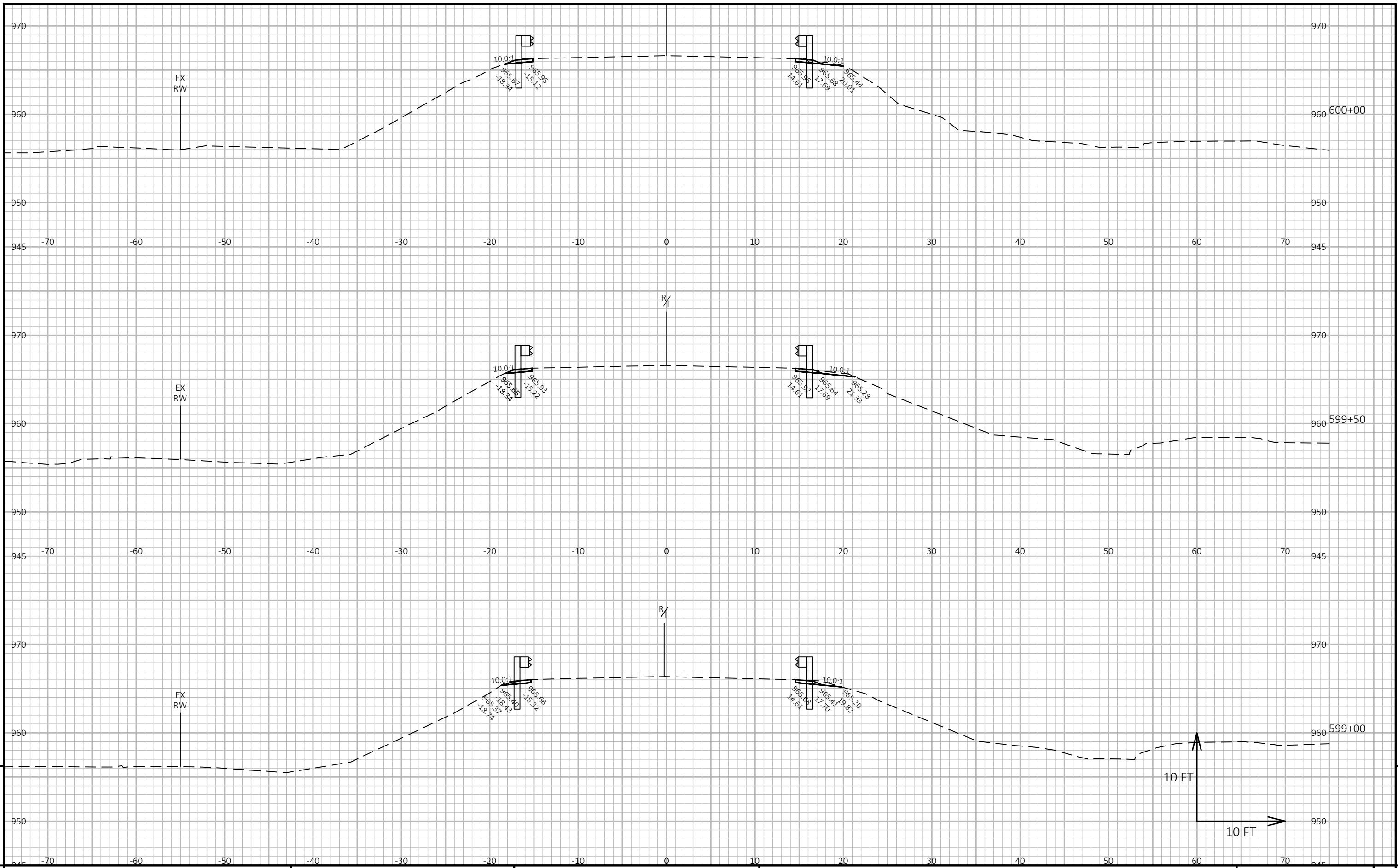
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSP\LAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:06 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 095

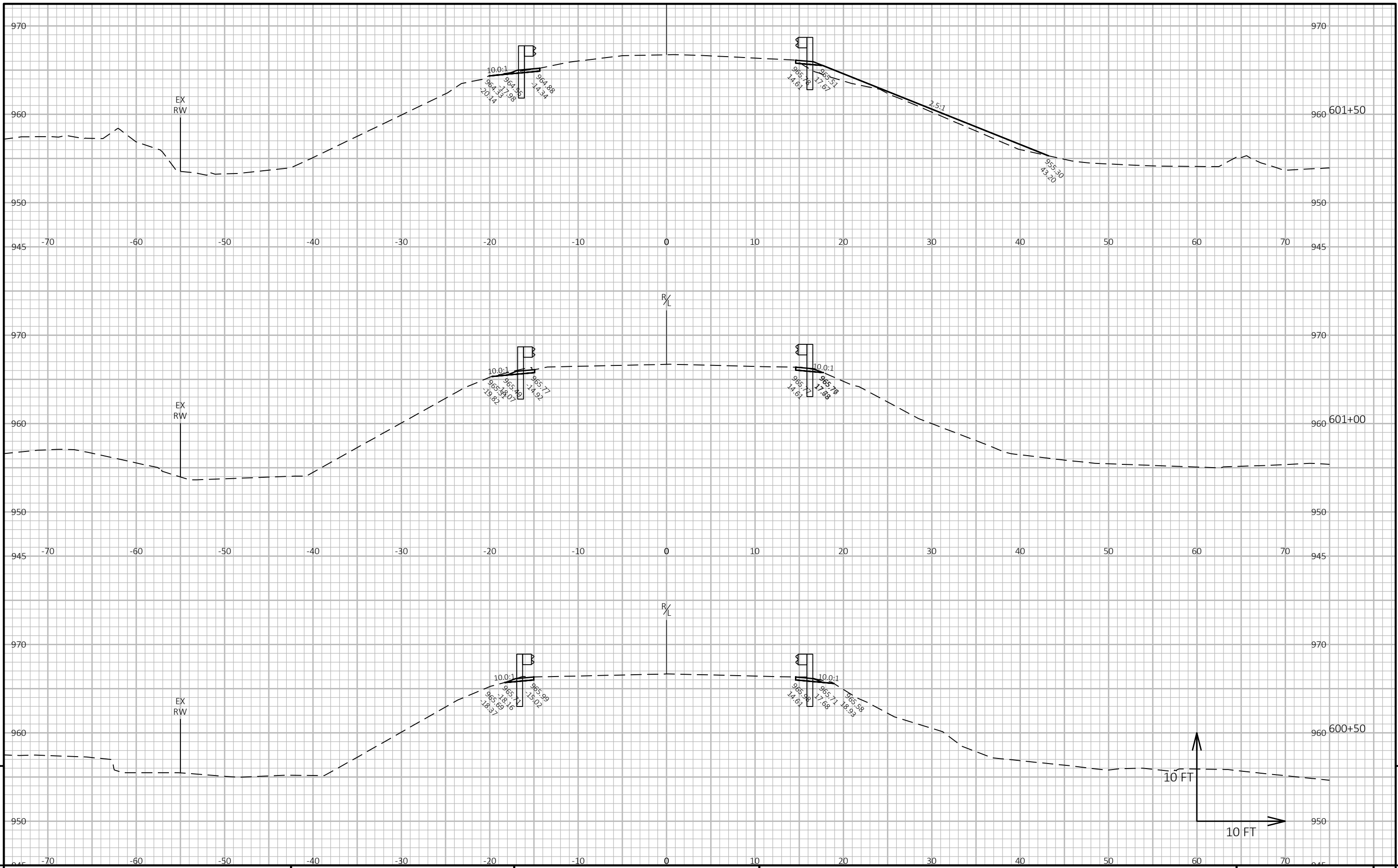


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PROJECT NO: 8110-01-72	HWY: STH 64	COUNTY: DUNN	CROSS SECTIONS: STH 64	SHEET	E
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FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG
 LAYOUT NAME - 096
 PLOT DATE : 8/1/2023 7:07 AM
 PLOT BY : STEVE LIPPERT
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



PROJECT NO: 8110-01-72

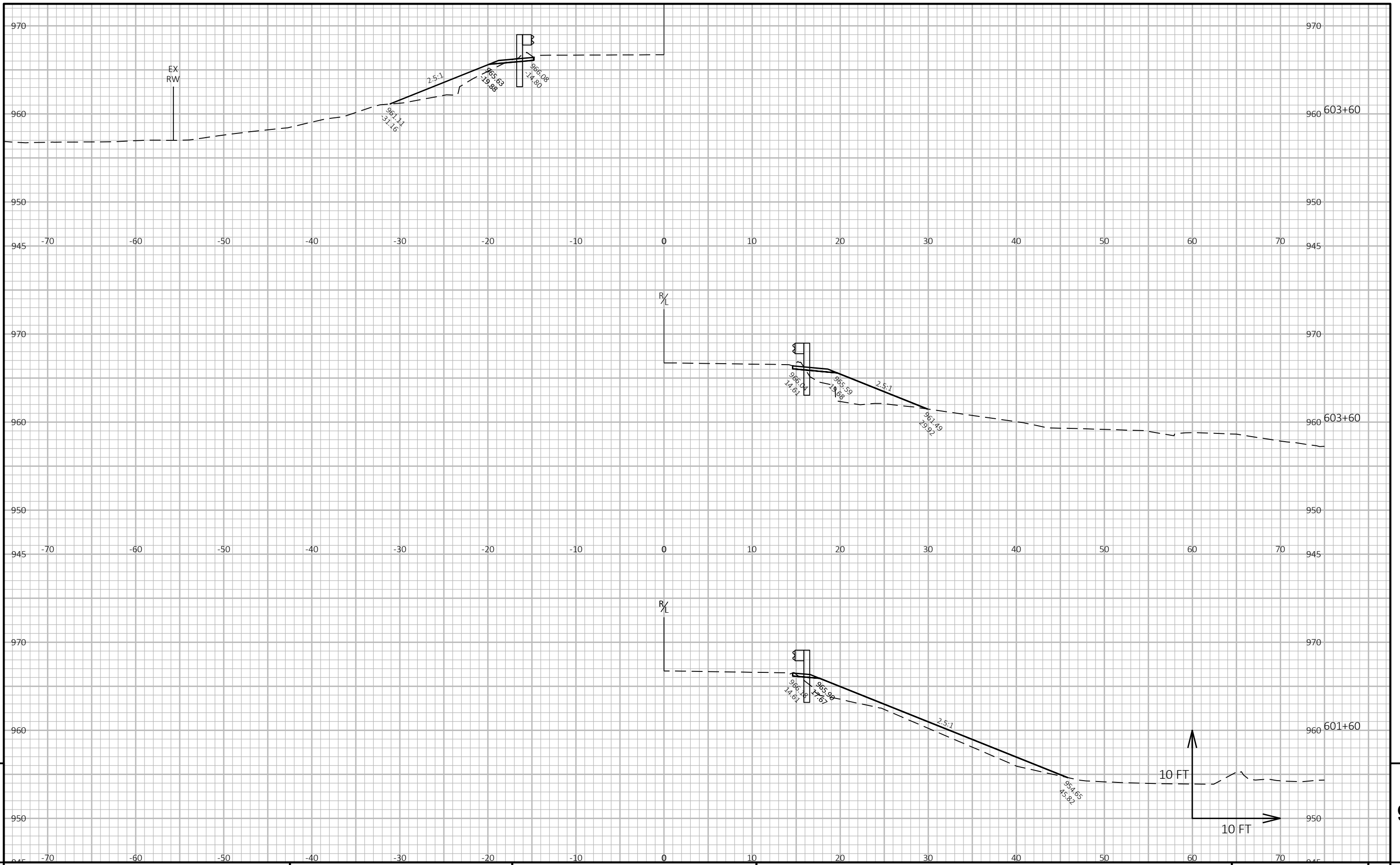
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



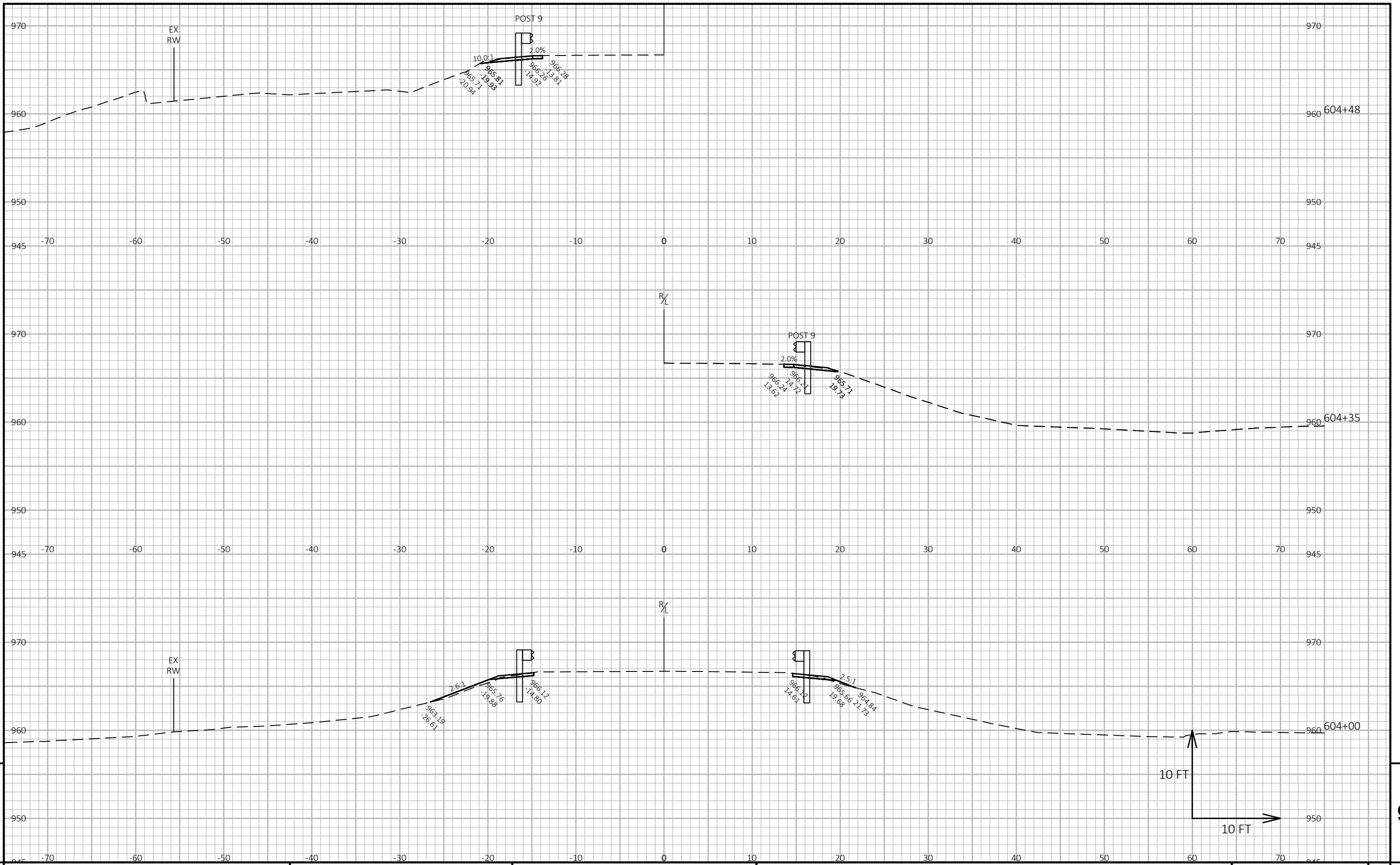
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 7:07 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 098

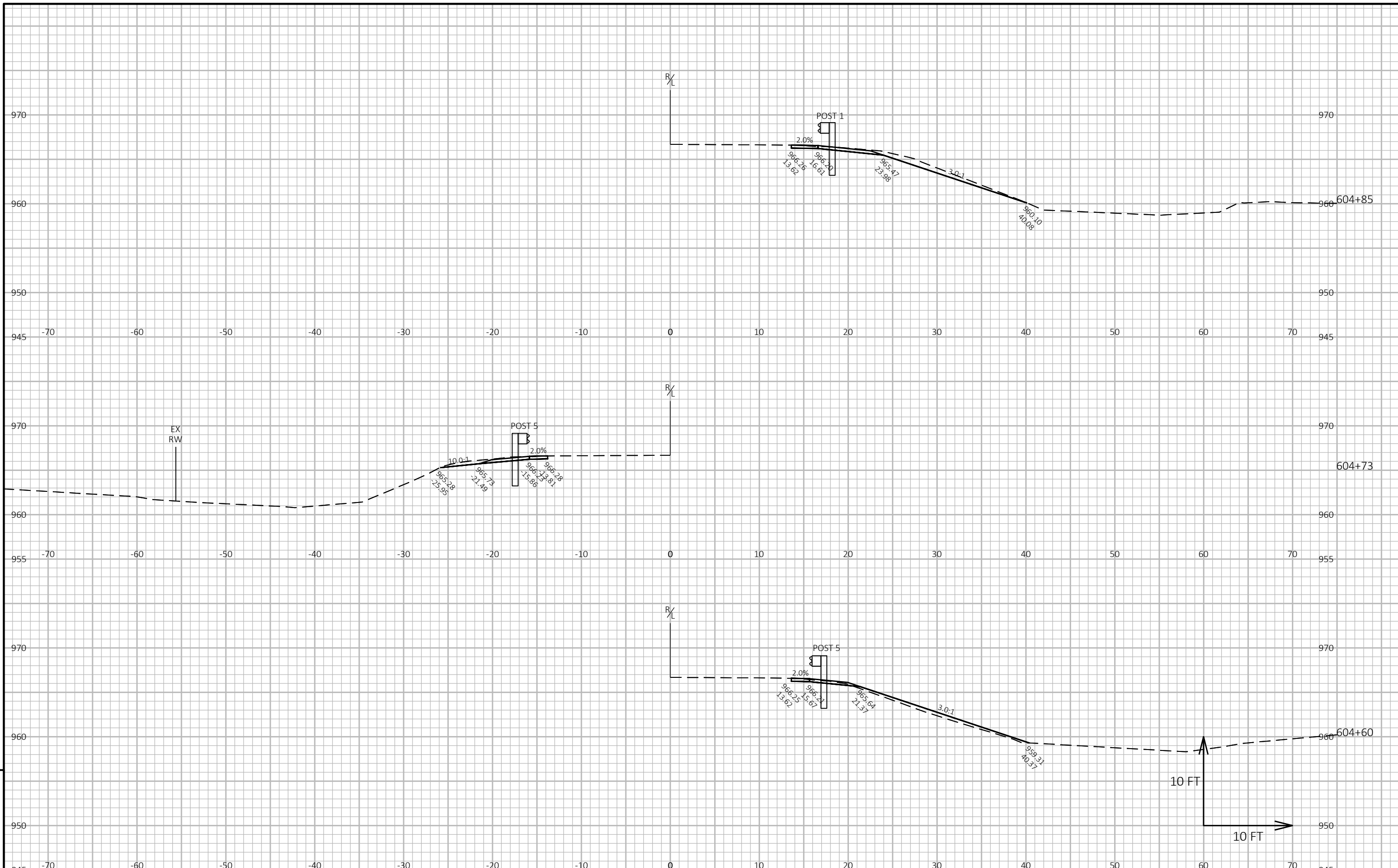


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 7:08 AM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



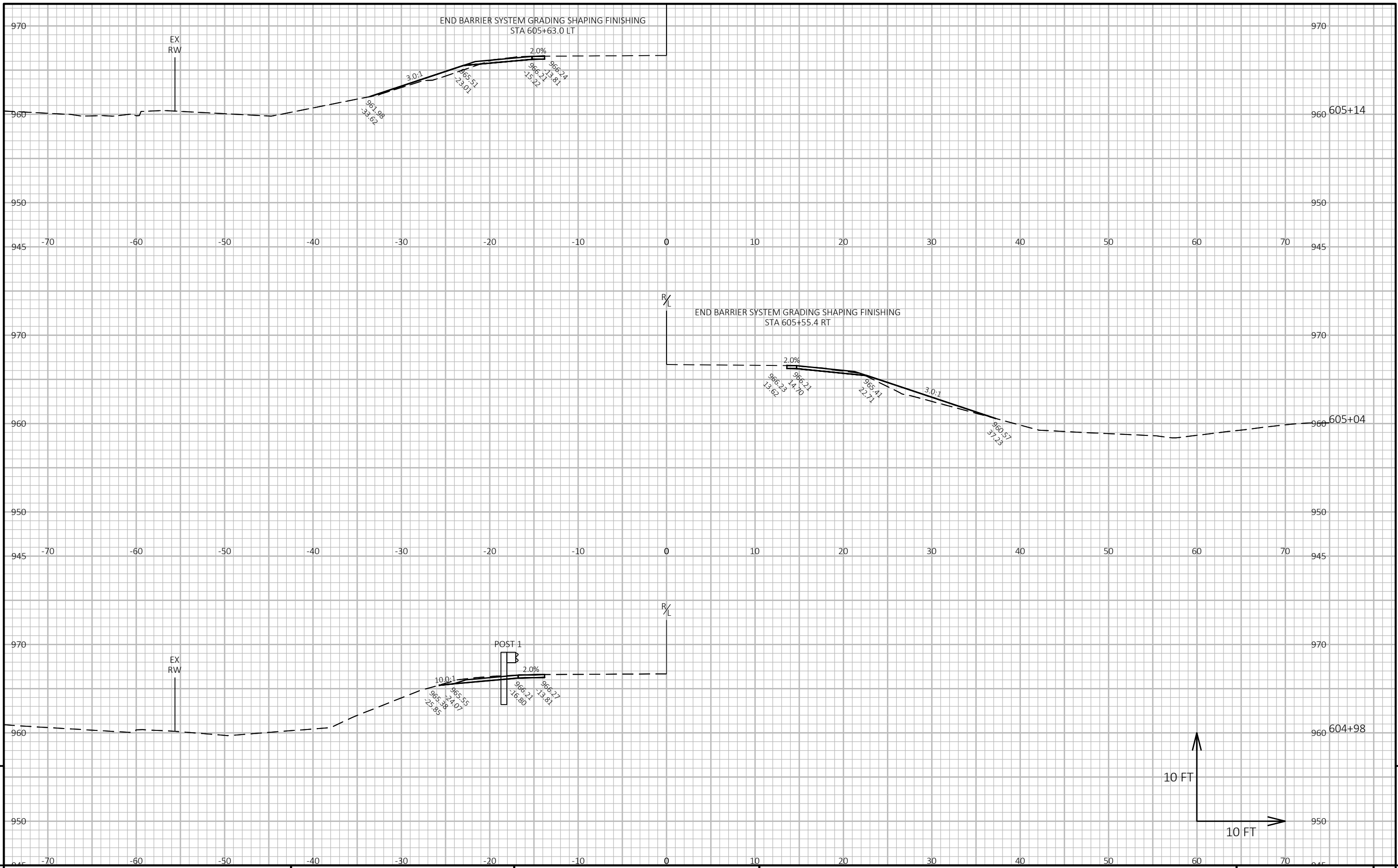
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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

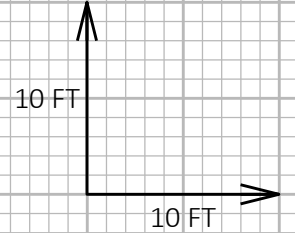
FILE NAME : X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE : 8/1/2023 7:08 AM PLOT BY : STEVE LIPPERT PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 100

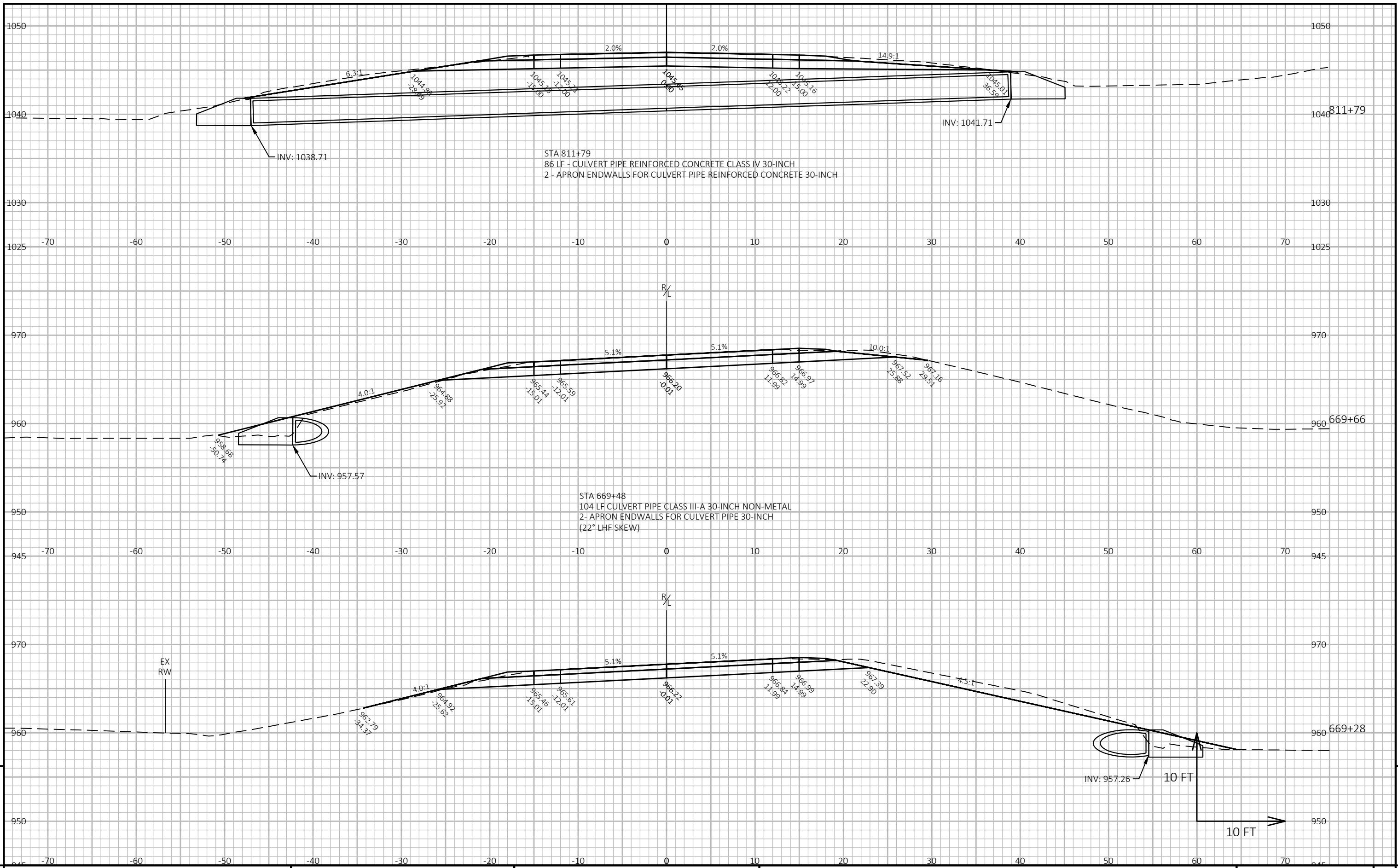


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PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



PROJECT NO: 8110-01-72

HWY: STH 64

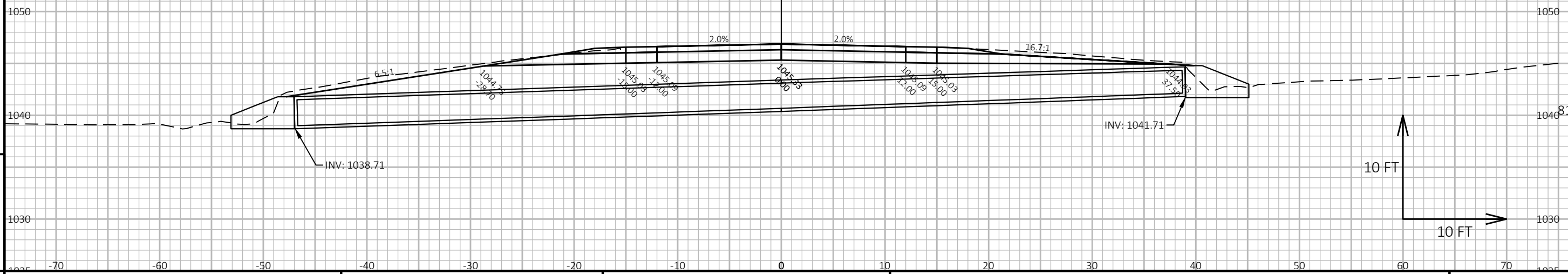
COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E

STA 811+86
 86 LF - CULVERT PIPE REINFORCED CONCRETE CLASS IV 30-INCH
 2 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH



9

9

PROJECT NO: 8110-01-72

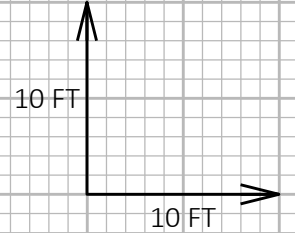
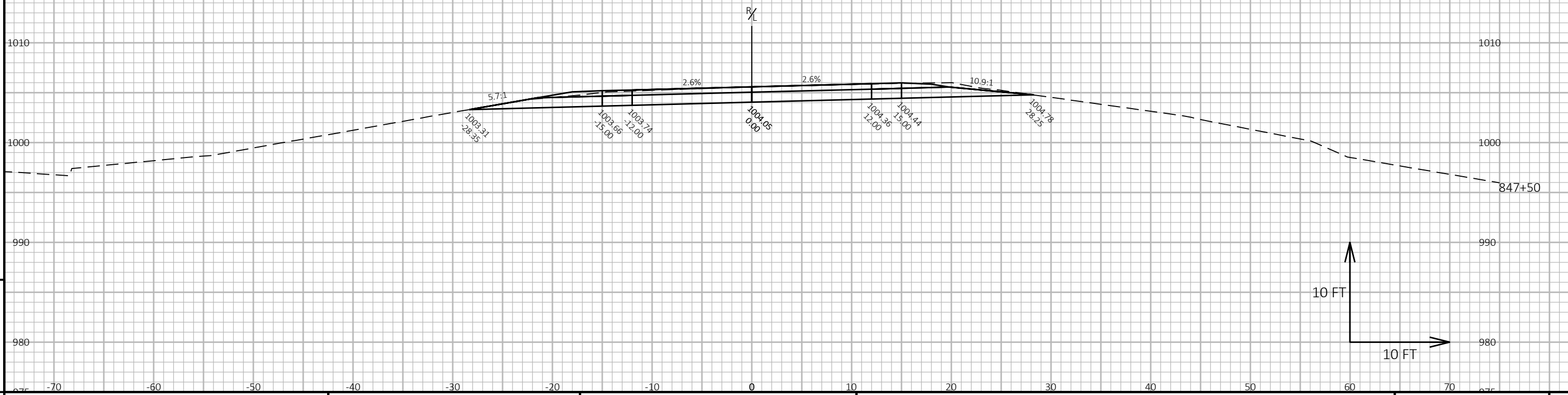
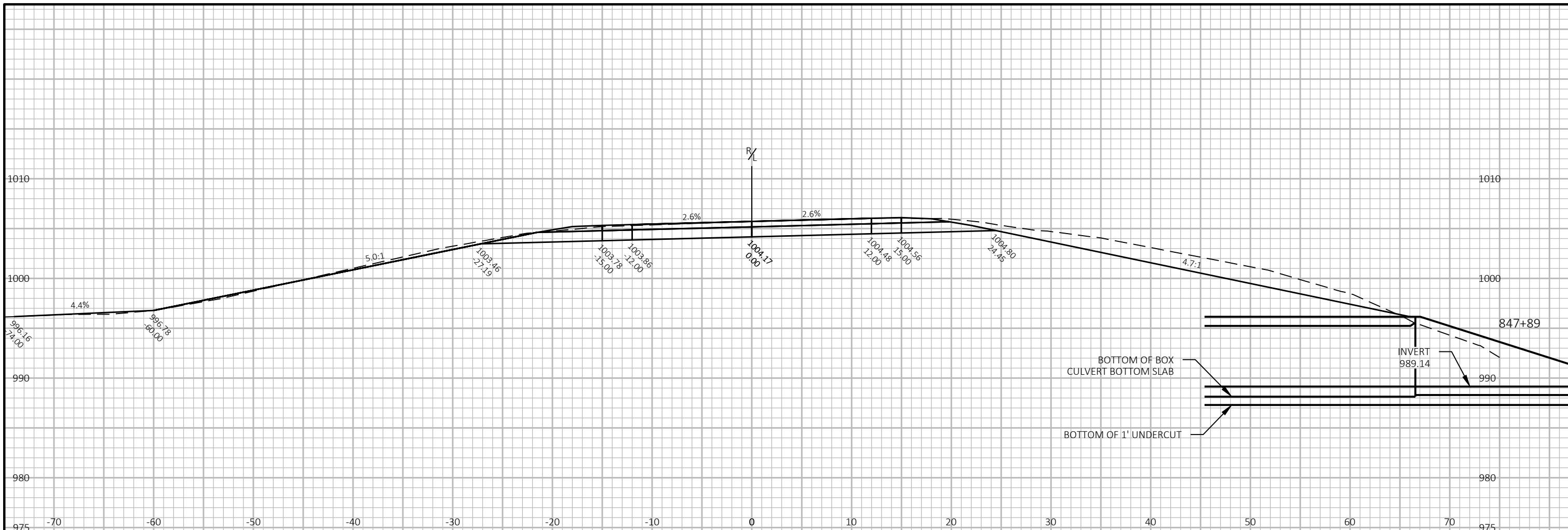
HWY: STH 64

COUNTY: DUNN

CROSS SECTIONS: STH 64

SHEET

E



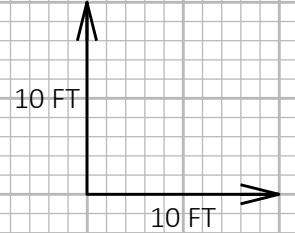
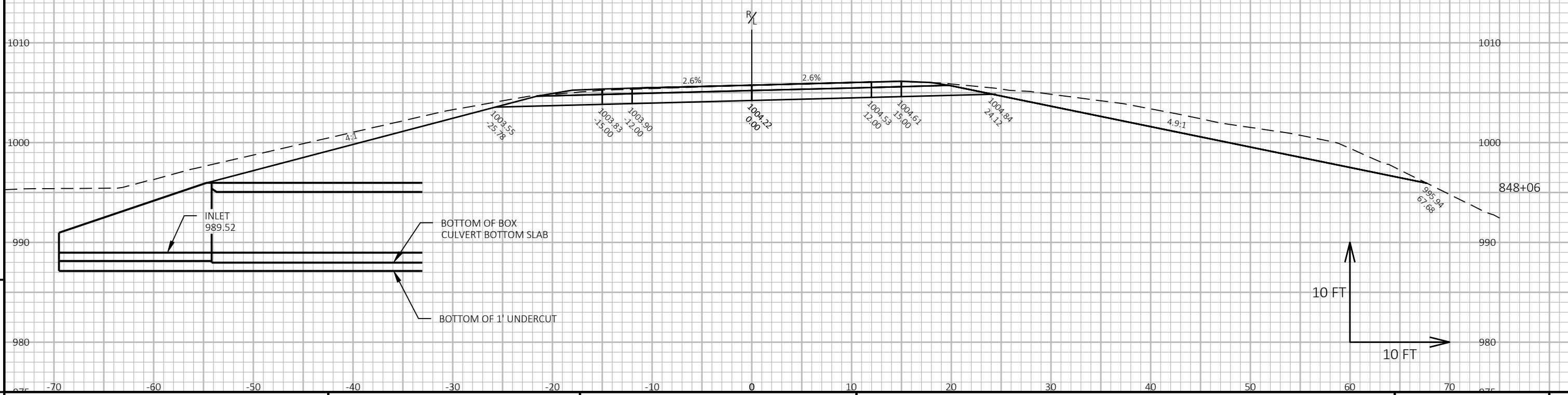
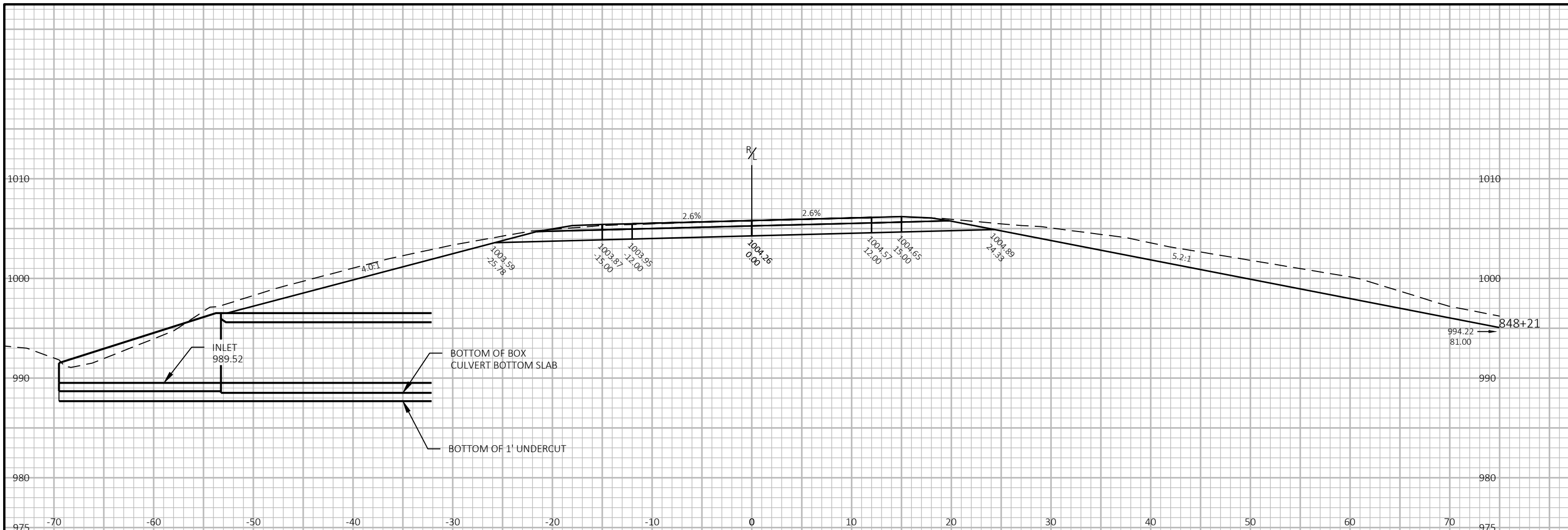
9

9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

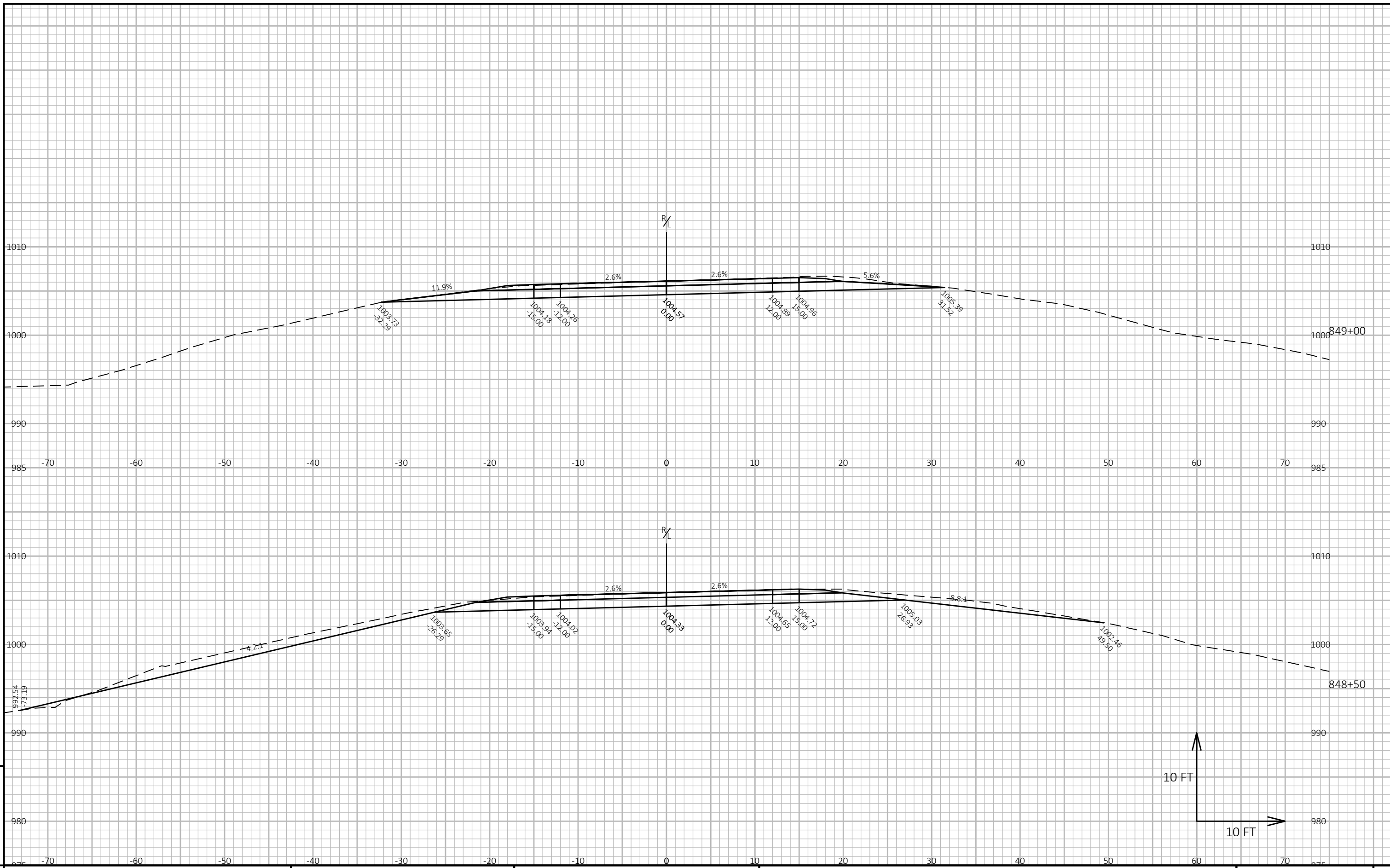
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LAYOUT NAME - 104



9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E



9

9

PROJECT NO: 8110-01-72 HWY: STH 64 COUNTY: DUNN CROSS SECTIONS: STH 64 SHEET E

FILE NAME: X:\PROJECTS\DUNN\210040MW - 8110-01-02 STH 64\DESIGN\C3D\SHEETSPLAN\090201-XS.DWG PLOT DATE: 8/1/2023 2:01 PM PLOT BY: STEVE LIPPERT PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 106

Notes



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