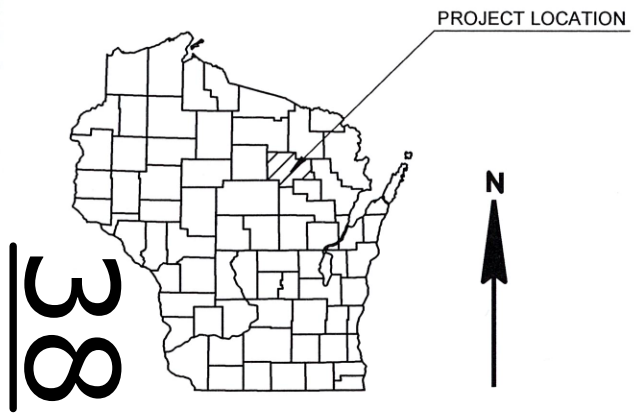


RHI
PROJECT ID: 9360-02-73
WITH:
COUNTY: LANGLEADE

NOVEMBER 2024
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 = 92



DESIGN DESIGNATION		
A.A.D.T.	2025	= 360
A.A.D.T.	2045	= 370
D.H.V.		= -
D.D.		= 50/50
T.		= 5.8%
DESIGN SPEED		= 60 MPH
ESALS		= 37,000

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

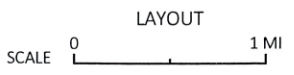
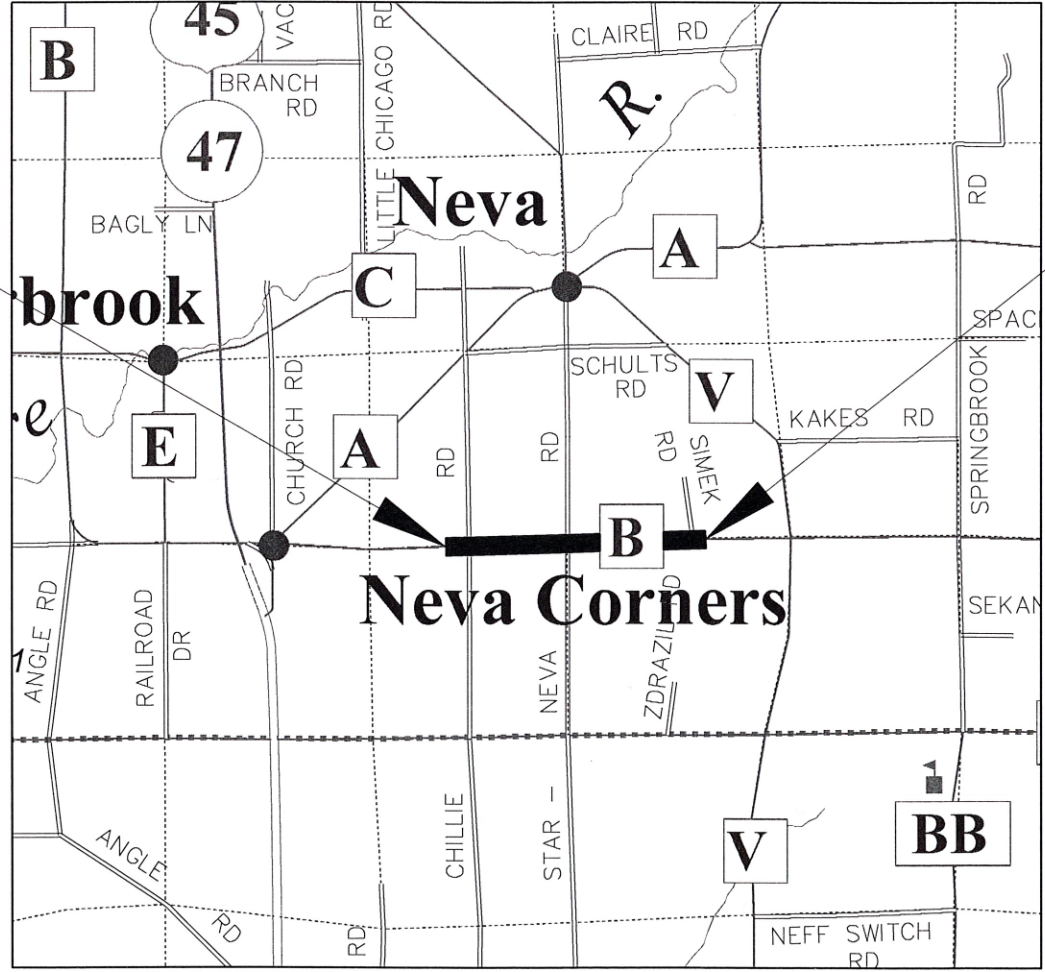
USH 45 - CTH V
CHILLIE ROAD TO SHIMEK LANE
CTH B
LANGLADE

STATE PROJECT NUMBER
9360-02-73

R 11 E

BEGIN PROJECT
STA. 80+81
Y=369167.749
X=627503.783

END PROJECT
STA. 145+56



TOTAL NET LENGTH OF CENTERLINE = 1.226 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), LANGLEADE COUNTY, NAD83 (1986), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (1991). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 09

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9360-02-73	WISC 2025058	1

ACCEPTED FOR
LANGLADE COUNTY
7-23-24
DATE
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY
AYRES
WISCONSIN
PHILLIP J. VERVILLE III
E36336
GREEN BAY, WI
PROFESSIONAL ENGINEER
7/10/24
(Date)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor
Designer
Project Manager
Regional Supervisor
AYRES
AYRES
NATHAN WAITE
DAN ERVA

APPROVED FOR THE DEPARTMENT
DATE: 7/30/2024
(Signature)

E

UTILITIES CONTACTS

FRONTIER COMMUNICATION
COMMUNICATIONS
BIMAL KOHLI
1222 VINE ST, STE 301
PASO ROBLES, CA 93446
PHONE: 763-317-8414
EMAIL: bkohli@pearce-services.com

CITY GAS COMPANY
GAS/PETROLEUM
VINCE FEDERMAN
826 9TH AVENUE
ANTIGO, WI 54409
PHONE: 715-627-4351
EMAIL: vfederman@citygasantigo.com

WISCONSIN PUBLIC SERVICE CORPORATION
ELECTRICITY
DON LUTZOW
P.O. BOX 1166
WAUSAU, WI 54402-1166
PHONE: 715-848-7487
EMAIL: donaldlutzow@wisconsinpublicservice.com

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN OFFSETS
- EROSION CONTROL

WISCONSIN DNR LIAISON

WENDY HENNIGES
NORTH REGION HEADQUARTERS
107 SUTLIFF
RHINELANDER, WI 54501
PHONE: 715-365-8916
EMAIL: wendy.henniges@wisconsin.gov

COUNTY HIGHWAY COMMISSIONER

BRIAN BRAUN
LANGLADE COUNTY
1521 ARCTIC STREET
ANTIGO, WI 54409
PHONE: 715-627-6272
EMAIL: bbraun@co.langlade.wi.us

DESIGN CONTACT

PHIL VERVILLE III, PE
AYRES
700 PILGRIM WAY, SUITE 180
GREEN BAY, WI 54304
PHONE: 920-327-7822
EMAIL: vervillep@ayresassociates.com

GENERAL NOTES

THE LOCATION OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

BEARINGS SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

MAINTAIN DRIVING SURFACE TO ALL PROPERTY OWNERS WITH BASE AGGREGATE DENSE 1 1/4-INCH.

PLACE EROSION CONTROL DEVICES IN SEQUENCE WITH CONSTRUCTION OPERATIONS OR AS DETERMINED BY THE ENGINEER. EROSION CONTROL FEATURES ARE SHOWN AT APPROXIMATE LOCATIONS, WITH EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER

THE EXACT LOCATIONS OF ENTRANCES ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL DRIVEWAYS ARE TO BE REPLACED IN KIND UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS. BASE AGGREGATE DENSE 1 1/4-INCH WILL BE USED UNDER ALL DRIVEWAYS.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE SEEDED AND EROSION MAT AS DIRECTED BY THE ENGINEER.

SOME LOCATIONS OF PIPE SPECIFIED IN THE PLAN REQUIRE PIPE LENGTHS OTHER THAN 8-FOOT SECTIONS.

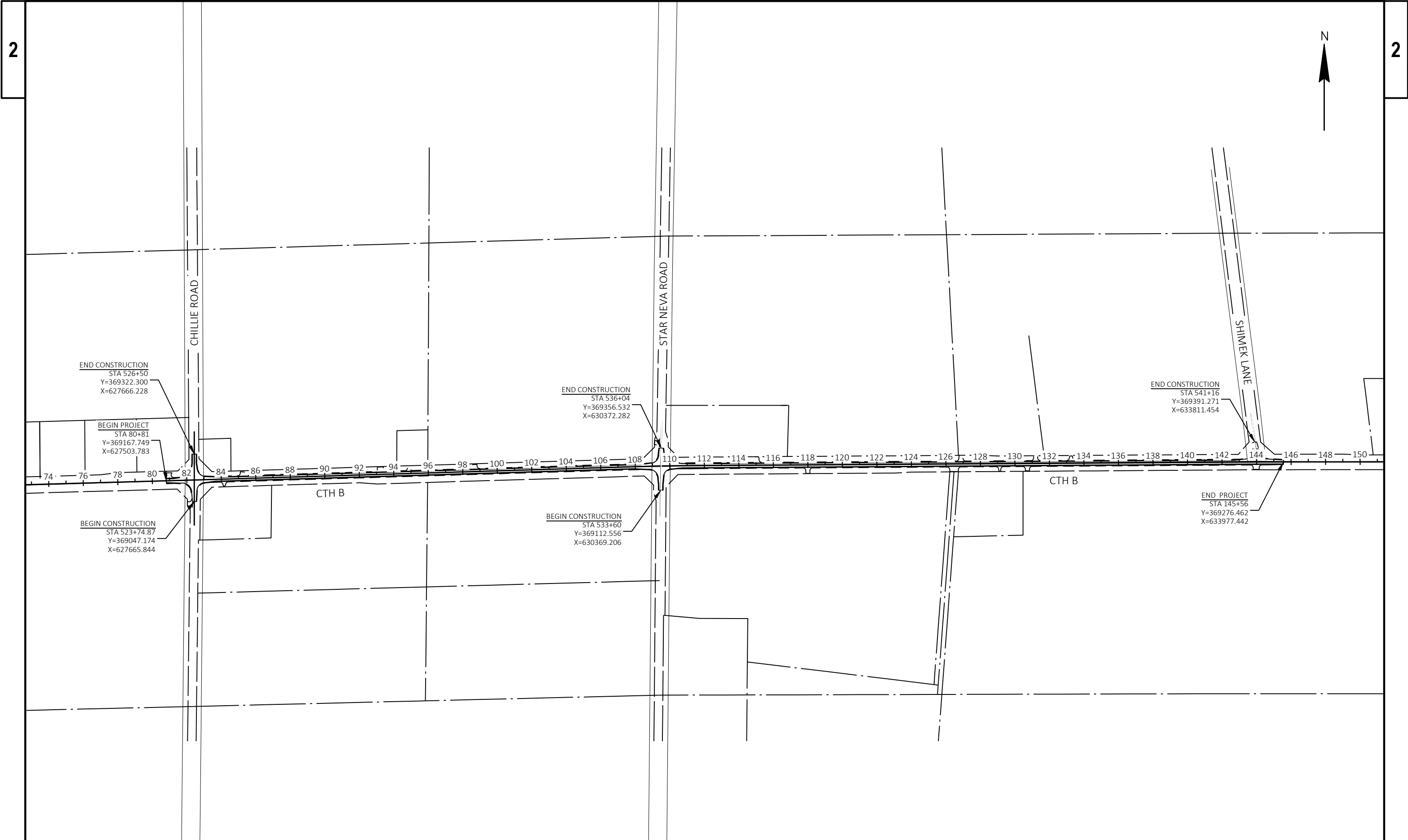
TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

RUNOFF COEFFICIENT TABLE

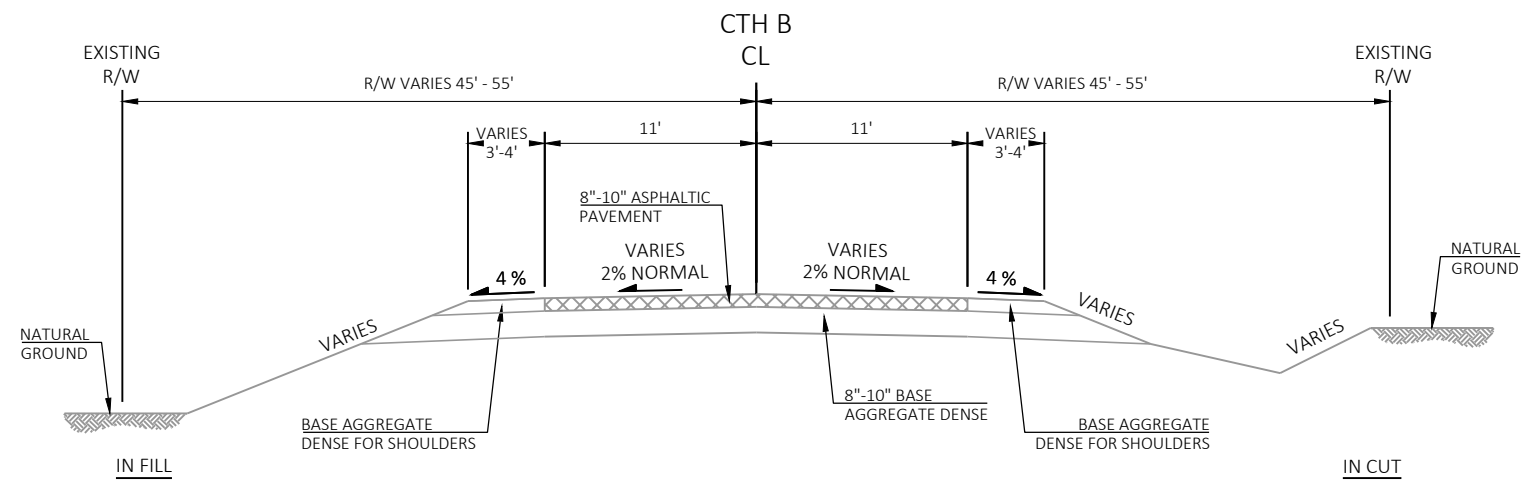
LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26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

TOTAL PROJECT AREA = 16.5 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 12.3 ACRES

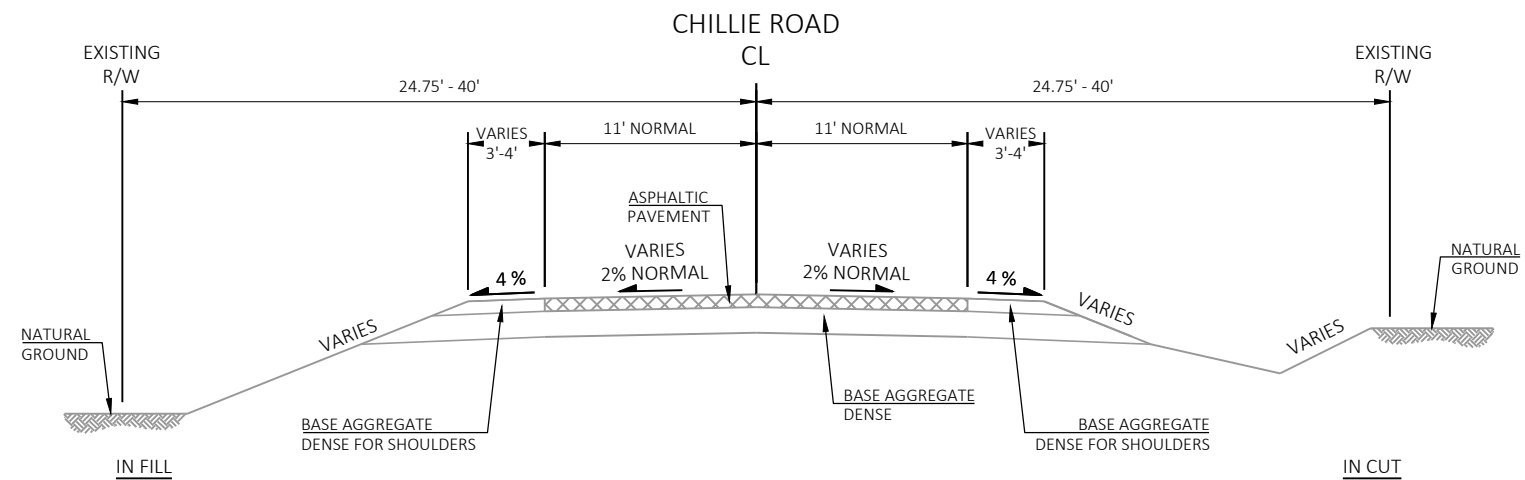




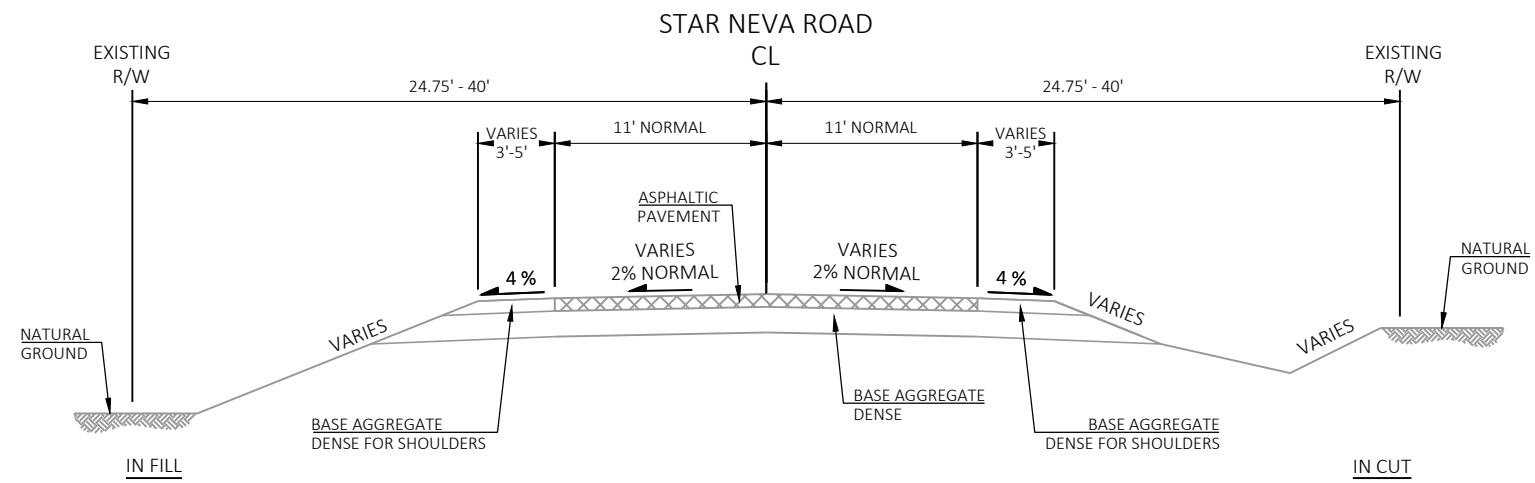
PROJECT NO: 9360-02-73	HWY: CTH B	COUNTY: LANGLADE	PROJECT OVERVIEW	SHEET	E
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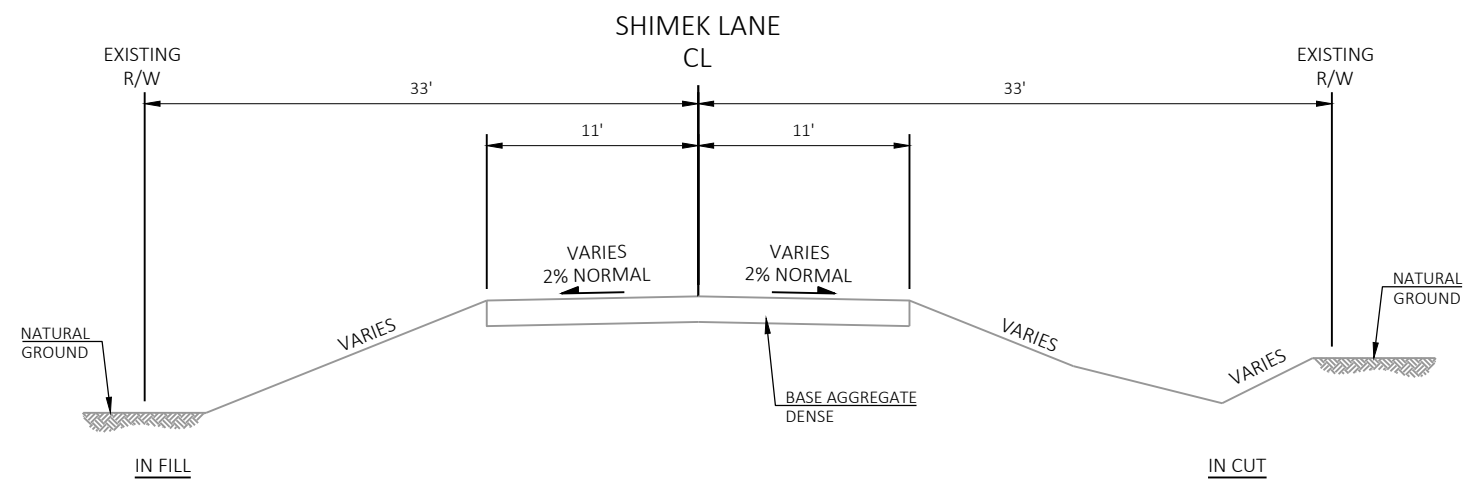
EXISTING TYPICAL SECTION FOR CTH B
STA 80+81 - STA 145+56



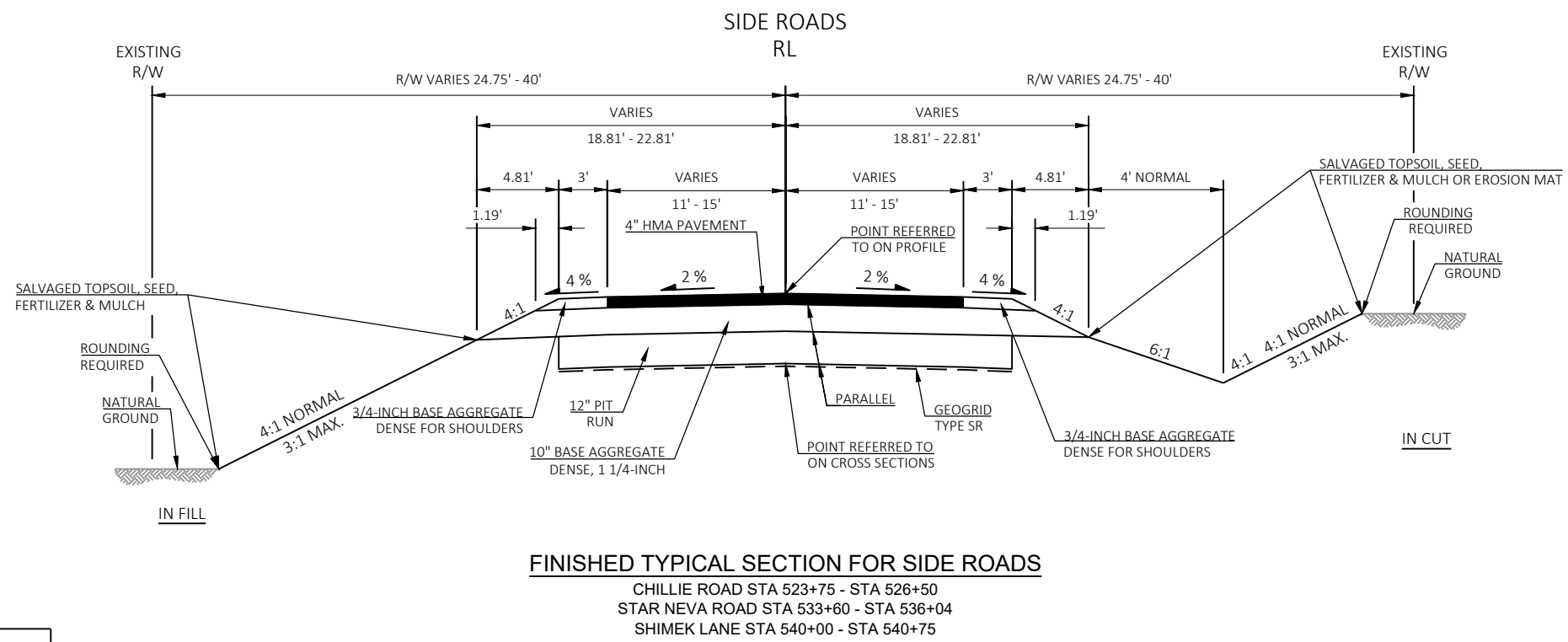
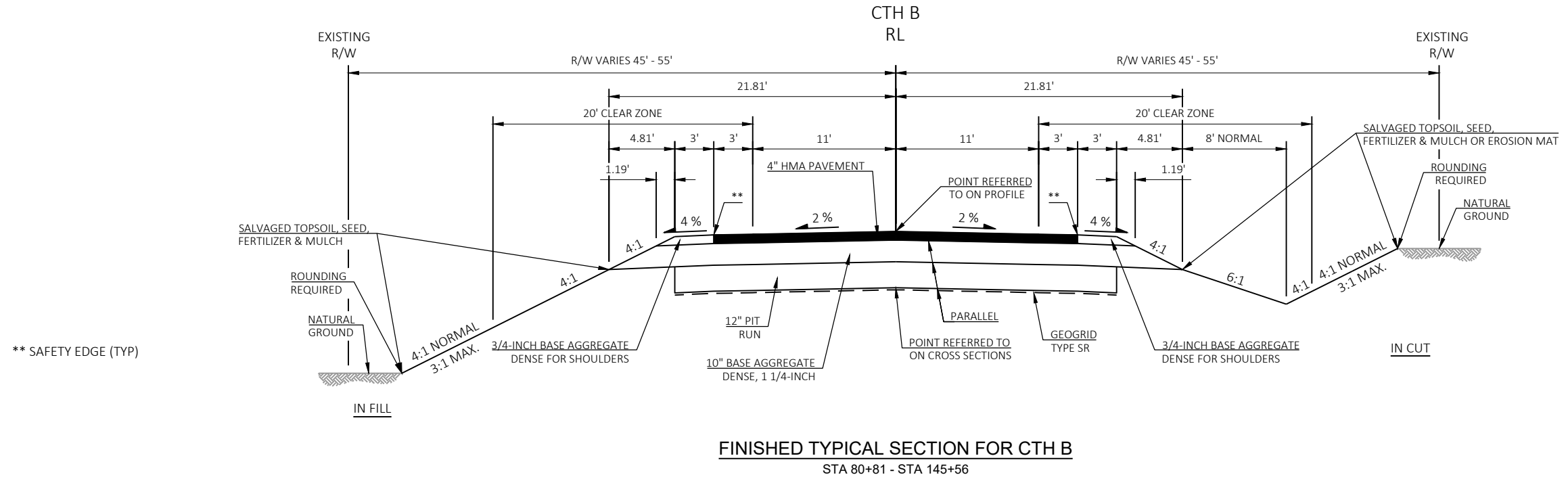
EXISTING TYPICAL SECTION FOR CHILLIE ROAD
STA 523+75 - STA 526+50



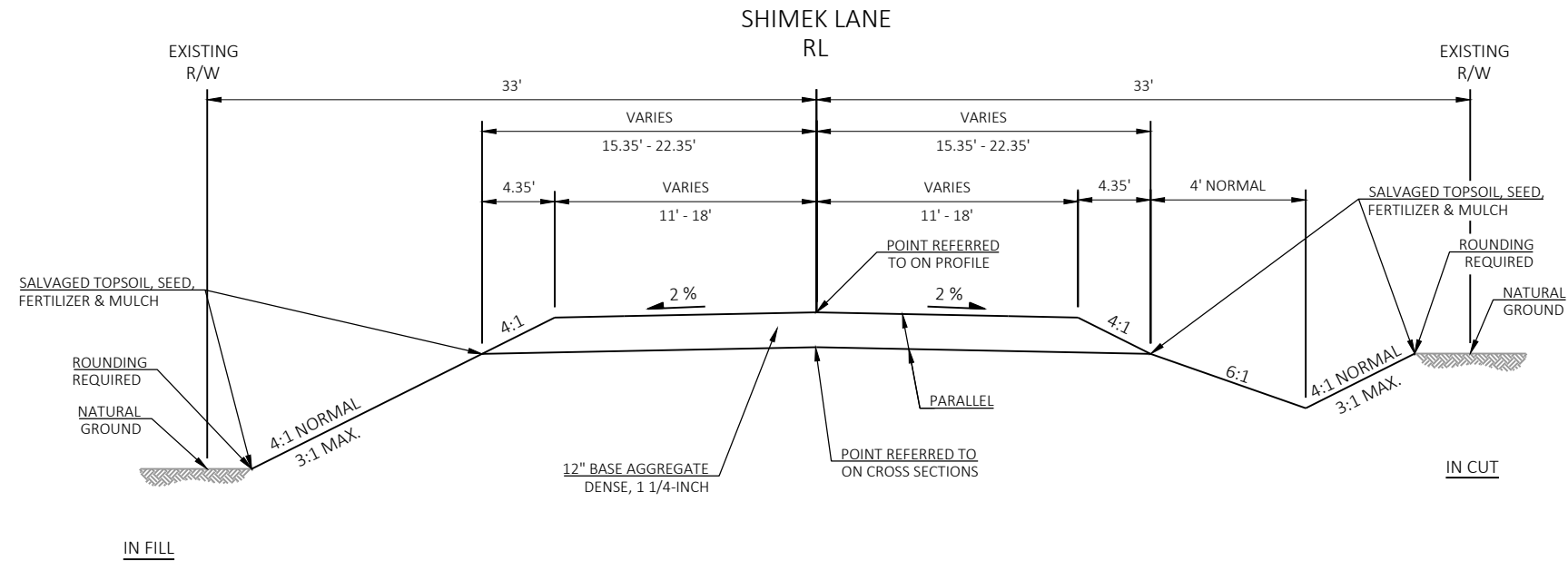
EXISTING TYPICAL SECTION FOR STAR NEVA ROAD
STA 533+60 - STA 536+04



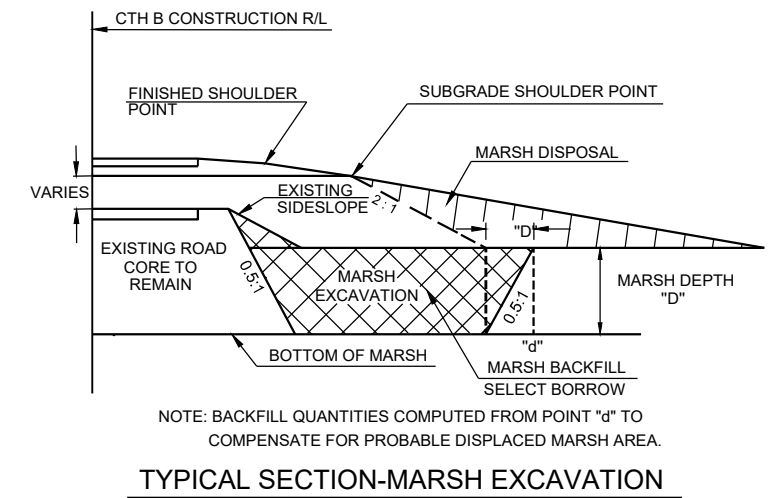
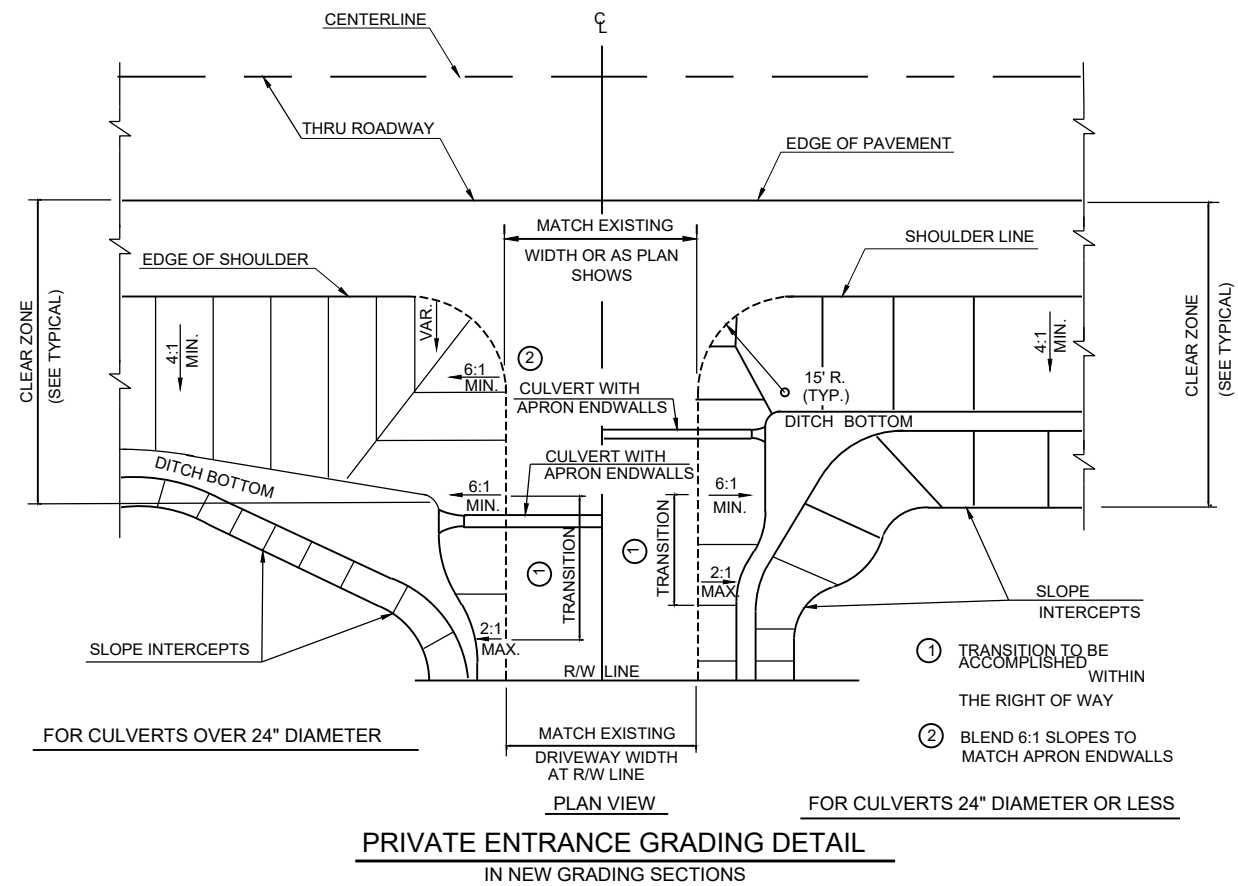
EXISTING TYPICAL SECTION FOR SHIMEK LANE
STA 540+00 - STA 541+16

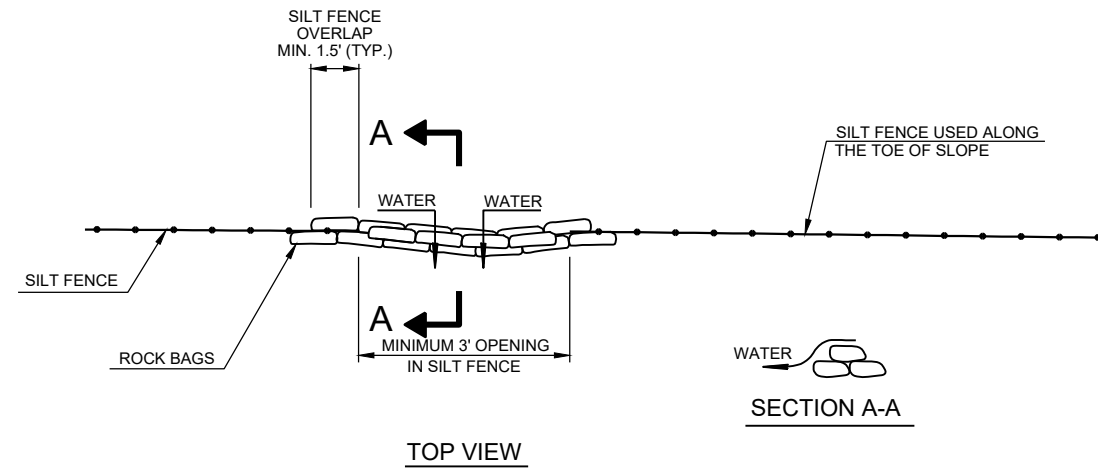


4" HMA PAVEMENT		
LAYER	THICKNESS	TYPE
UPPER	1 3/4-INCHES	4 LT 58-34 S
LOWER	2 1/4-INCHES	3 LT 58-28 S



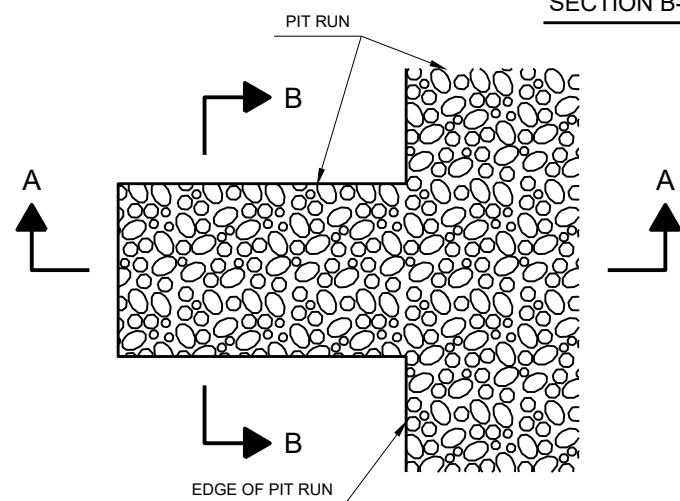
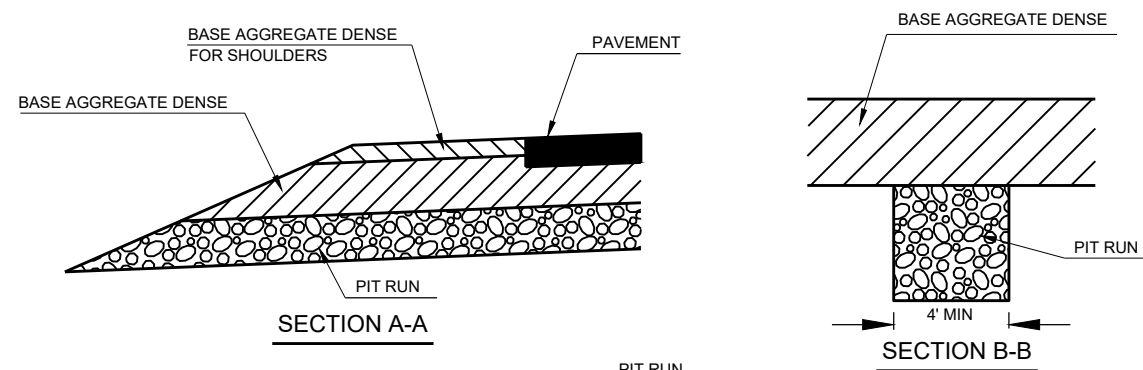
FINISHED TYPICAL SECTION FOR SHIMEK LANE
STA 540+75 - STA 541+16



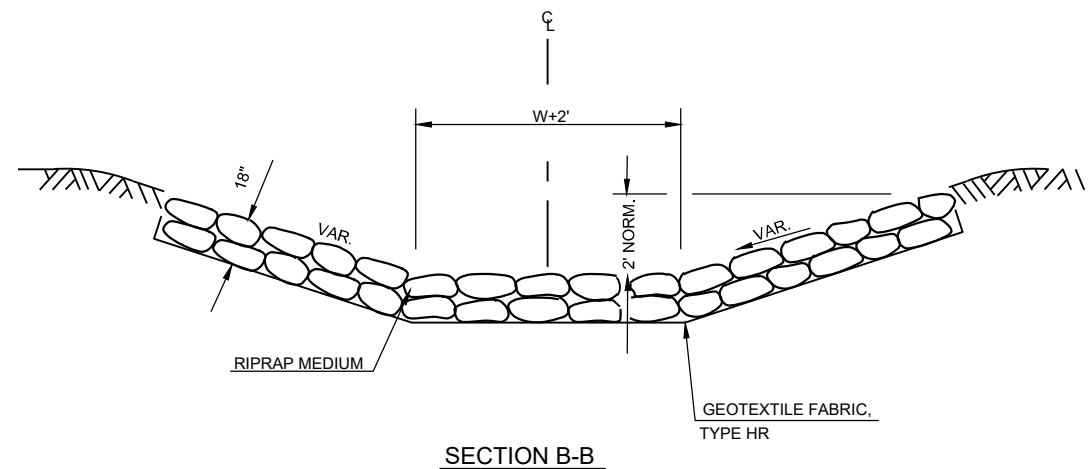
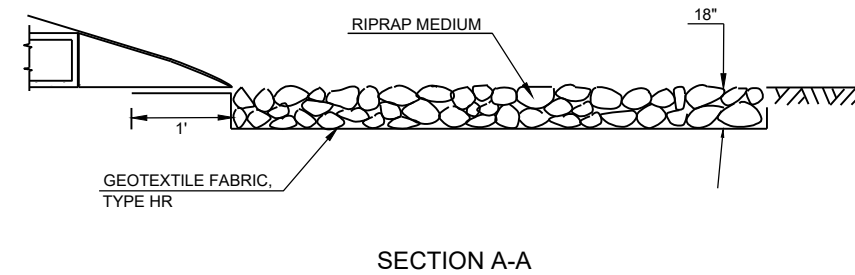
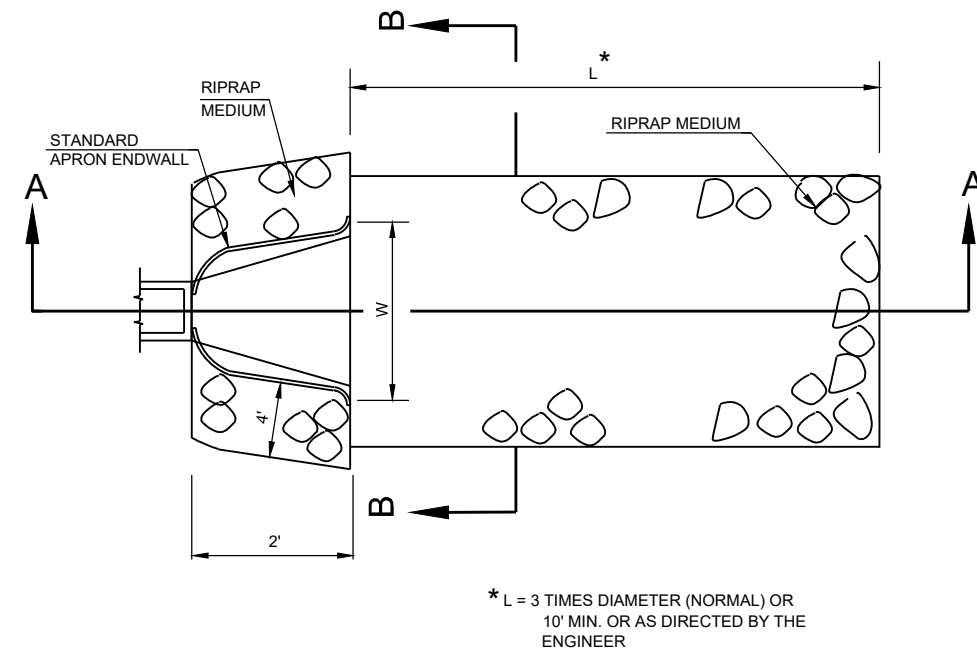


ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

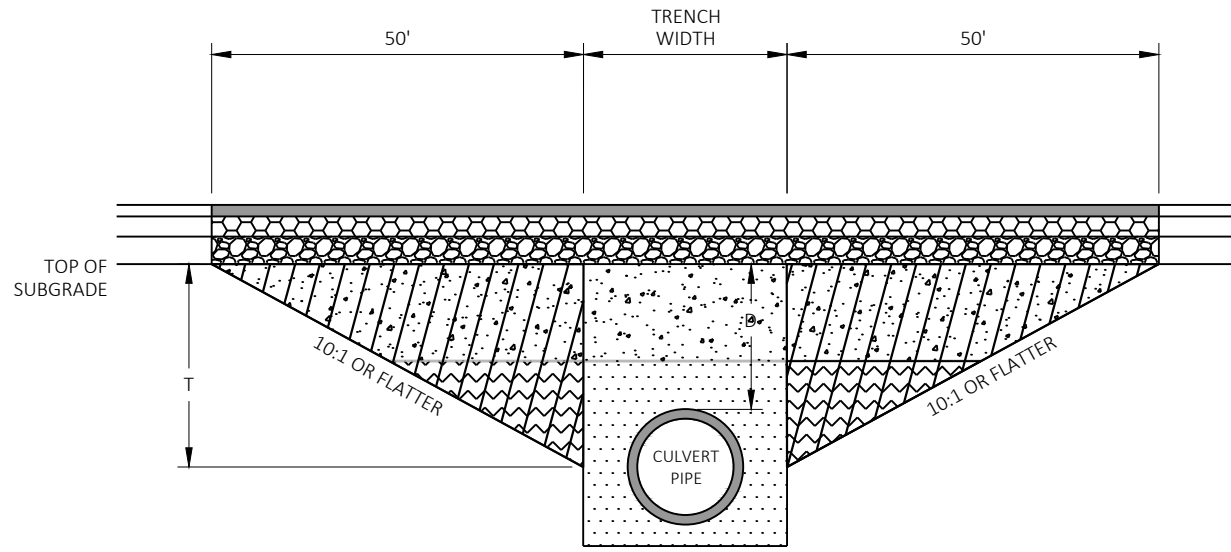


DRAINS ARE TO BE CONSTRUCTED AT LEAST EVERY 250' AND AT EACH SAG VERTICAL CURVE IN THE PROFILE. LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER. EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL BE CONSIDERED INCIDENTAL TO THE ITEM "PIT RUN".



RIPRAP MEDIUM AND GEOTEXTILE FABRIC DETAIL AT APRON ENDWALLS

(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



TRANSITION CUT DEPTH (T) = THE LESSER OF DEPTH TO CENTER OF PIPE OR 5 FT.
DO NOT EXTEND TRANSITION CUT BELOW HORIZONTAL CENTER OF PIPE.

KEY

HMA PAVEMENT

BASE AGGREGATE DENSE

PIT RUN

TRENCH BACKFILL

TRENCH OR FOUNDATION BACKFILL

FOUNDATION BACKFILL

TRANSITION CUT

CULVERT PIPE TRANSITION

ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	REMARKS
CTH B	81+96	0.4	18	CULVERT PIPE
CTH B	91+23	0.1	19X30	CULVERT PIPE
CTH B	100+89	1.0	24	CULVERT PIPE
CTH B	108+50	0.4	24	CULVERT PIPE
CTH B	114+76	0.4	24	CULVERT PIPE
CTH B	144+69	0.0	19X30	CULVERT PIPE
CHILLIE RD	524+40	0.4	18	CULVERT PIPE
STAR NEVA RD	534+40	0.1	18	CULVERT PIPE
STAR NEVA RD	535+96	0.0	19X30	CULVERT PIPE

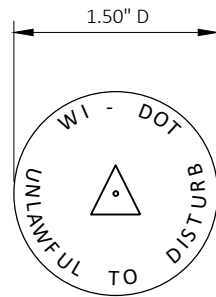
CULVERT PIPE INSTALLATION DETAIL

NOTES

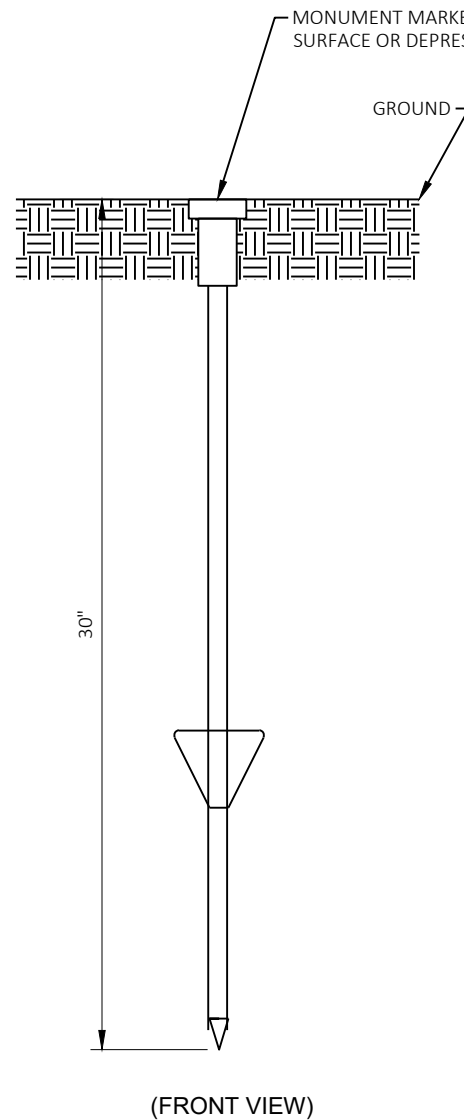
TRANSITION CUT IS PAID AS EXCAVATION COMMON.

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

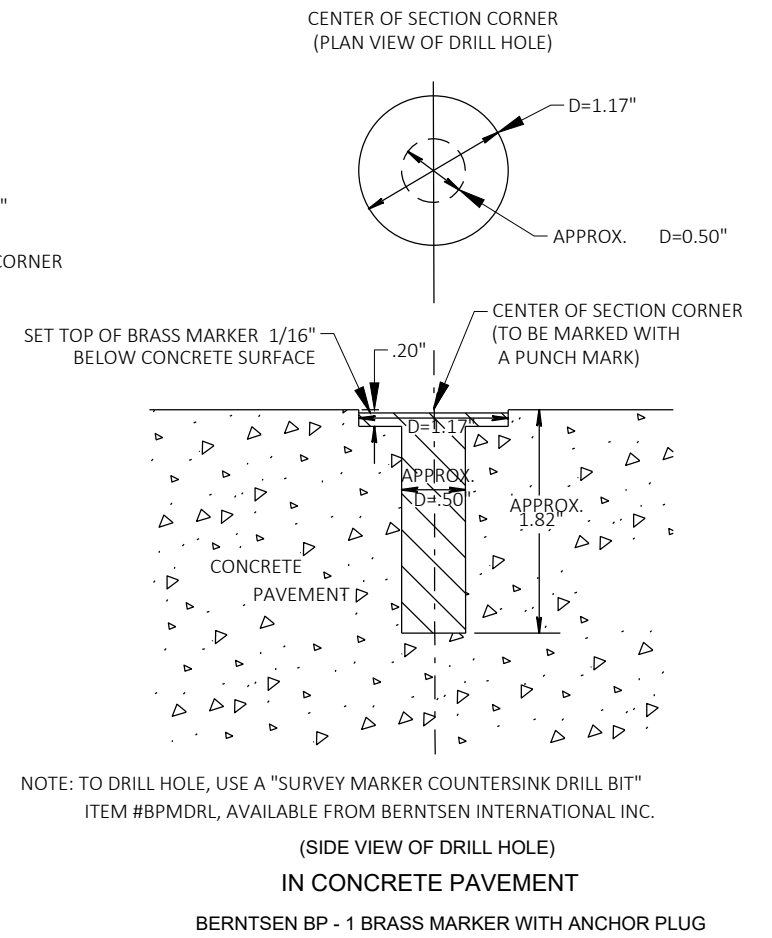
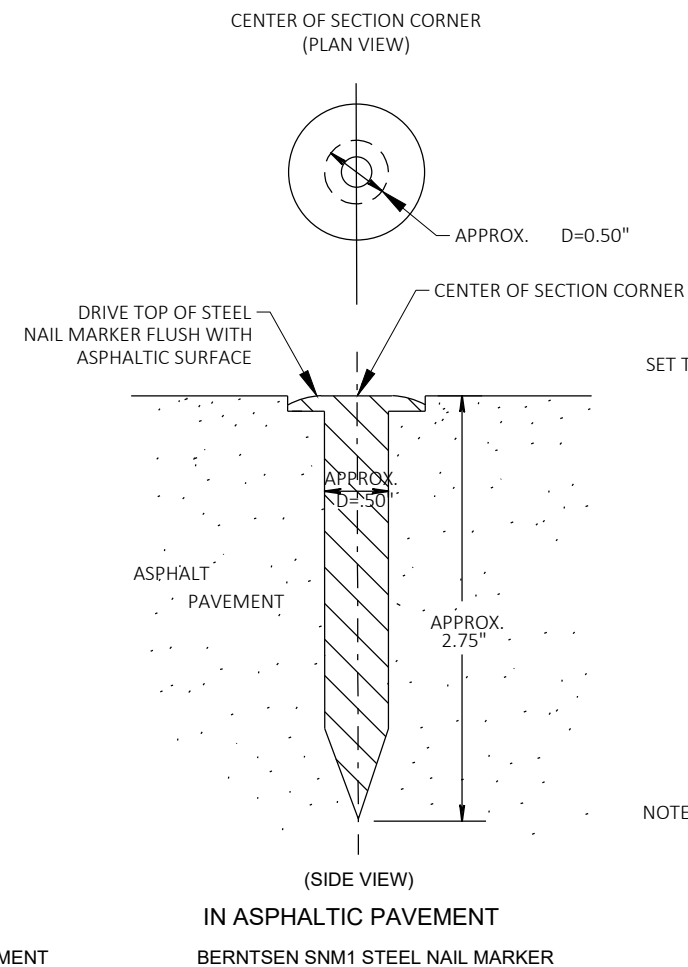
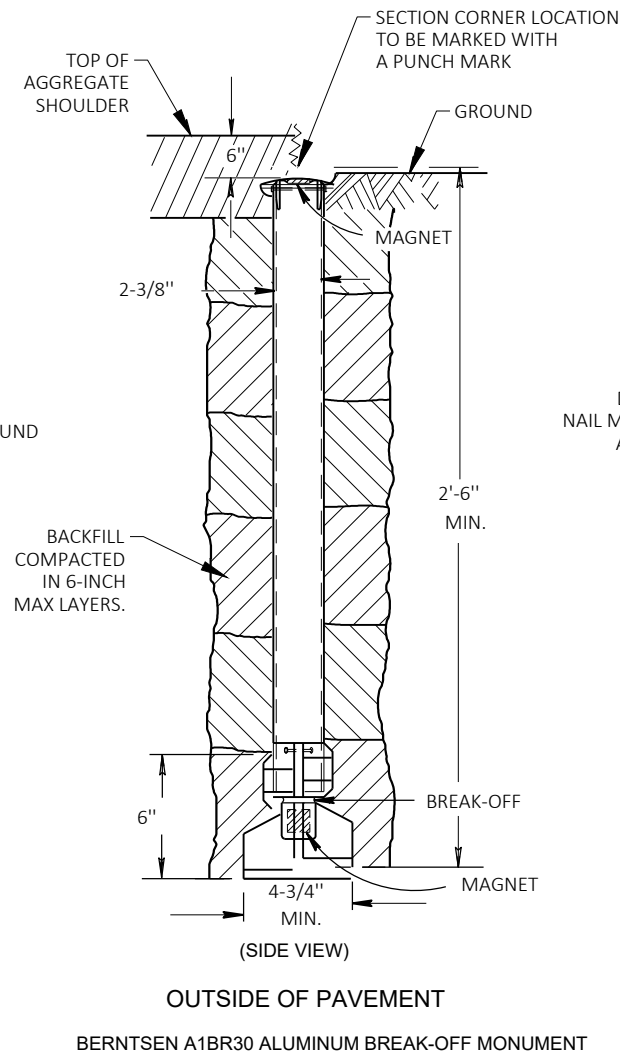
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.



WIS DOT MONUMENT CAP MARKER LOGO (SSDR130)
CONTRACTOR TO ORDER LANDMARK REFERENCE MONUMENTS
WITH THE ABOVE STAMPING



BERNTSEN DRIVABLE MONUMENT SSDR130
LANDMARK REFERENCE MONUMENT (TIES ONLY)



SECTION CORNER MONUMENTS

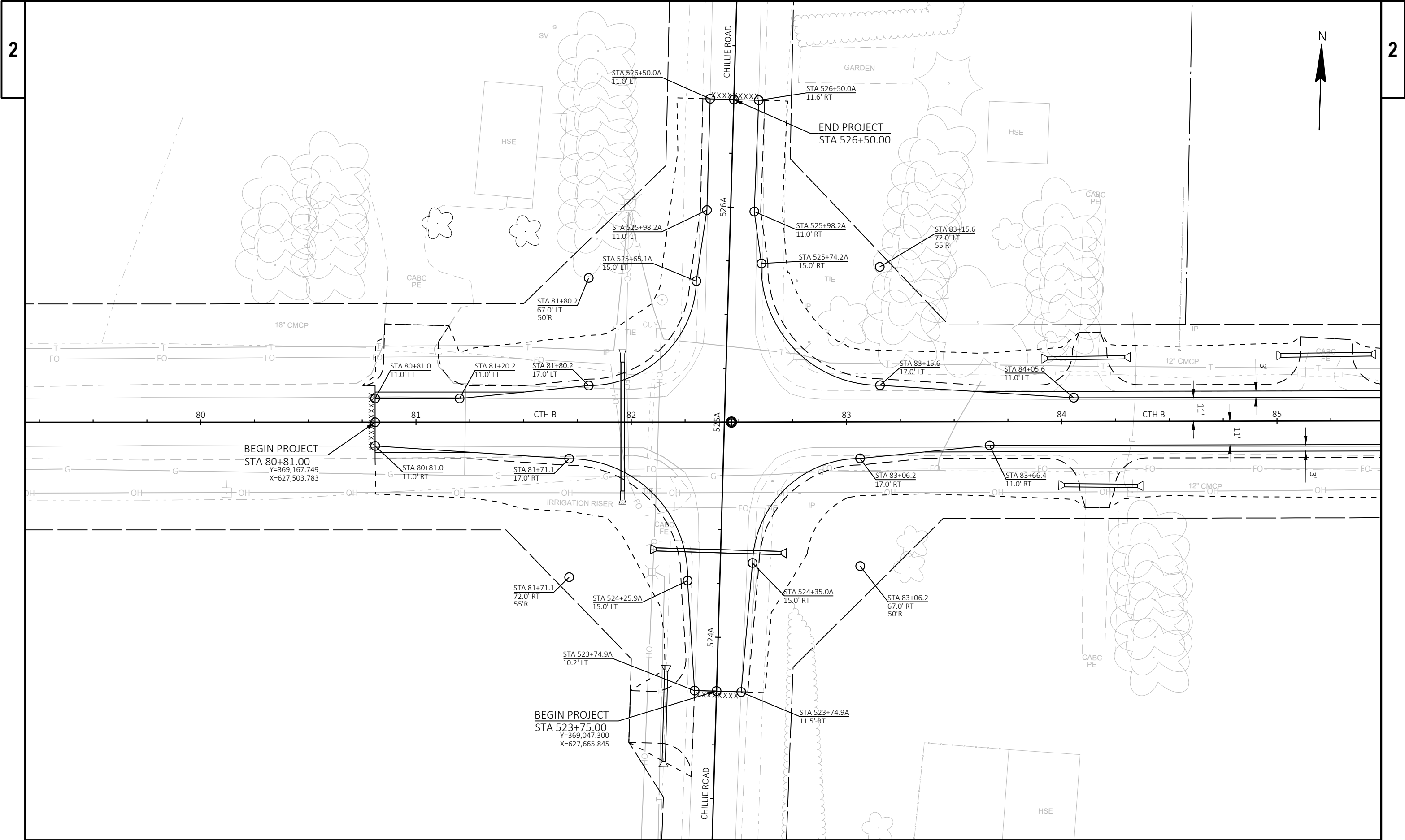
GENERAL NOTES

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.

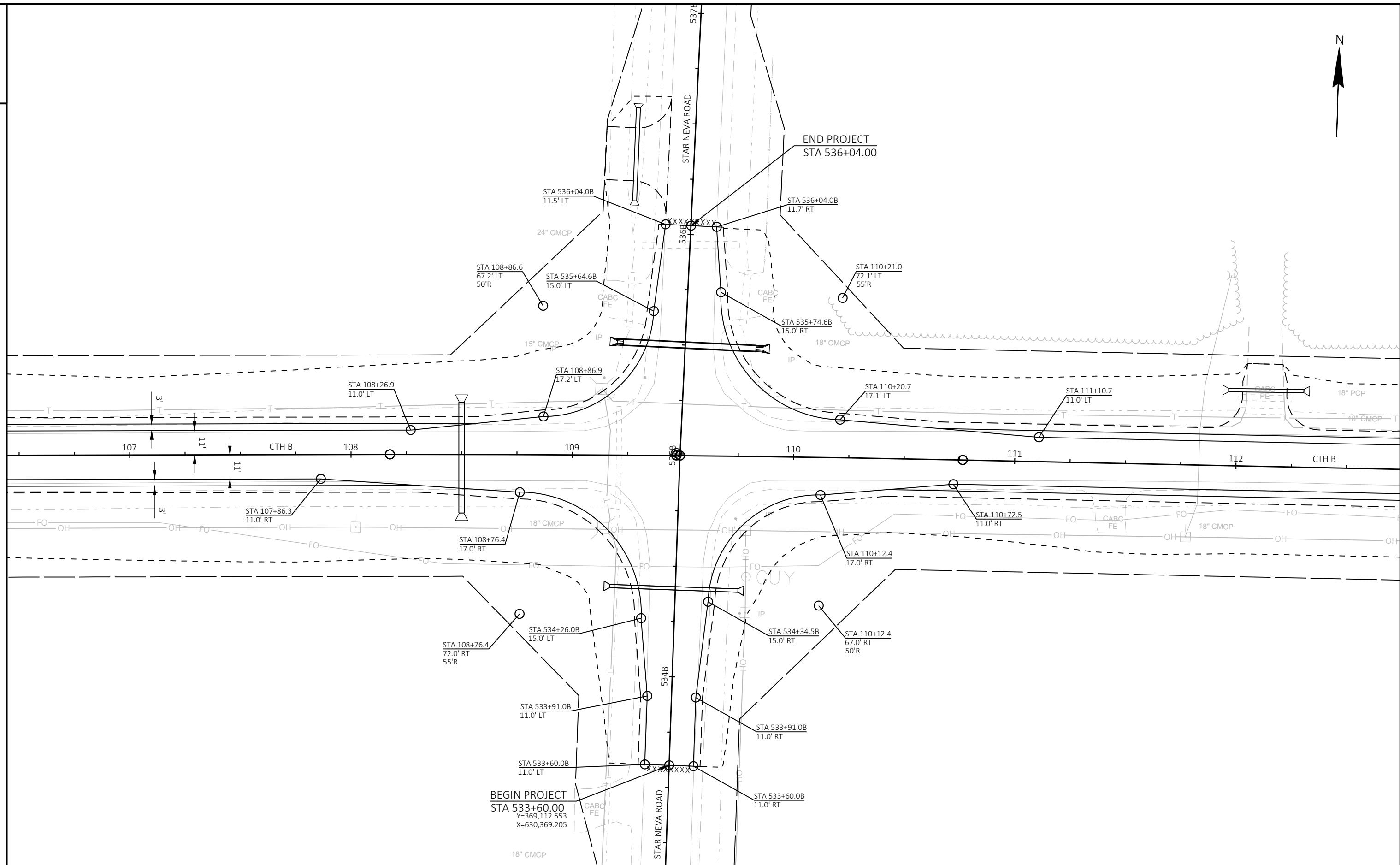
LOCATE LANDMARK REFERENCE MONUMENTS OUTSIDE THE CONSTRUCTION LIMITS AND WITHIN WISDOT RIGHT OF WAY. LOCATION TO BE APPROVED BY THE ENGINEER.

CONTRACTOR WILL SUPPLY ALL REQUIRED SURVEY MONUMENTS.

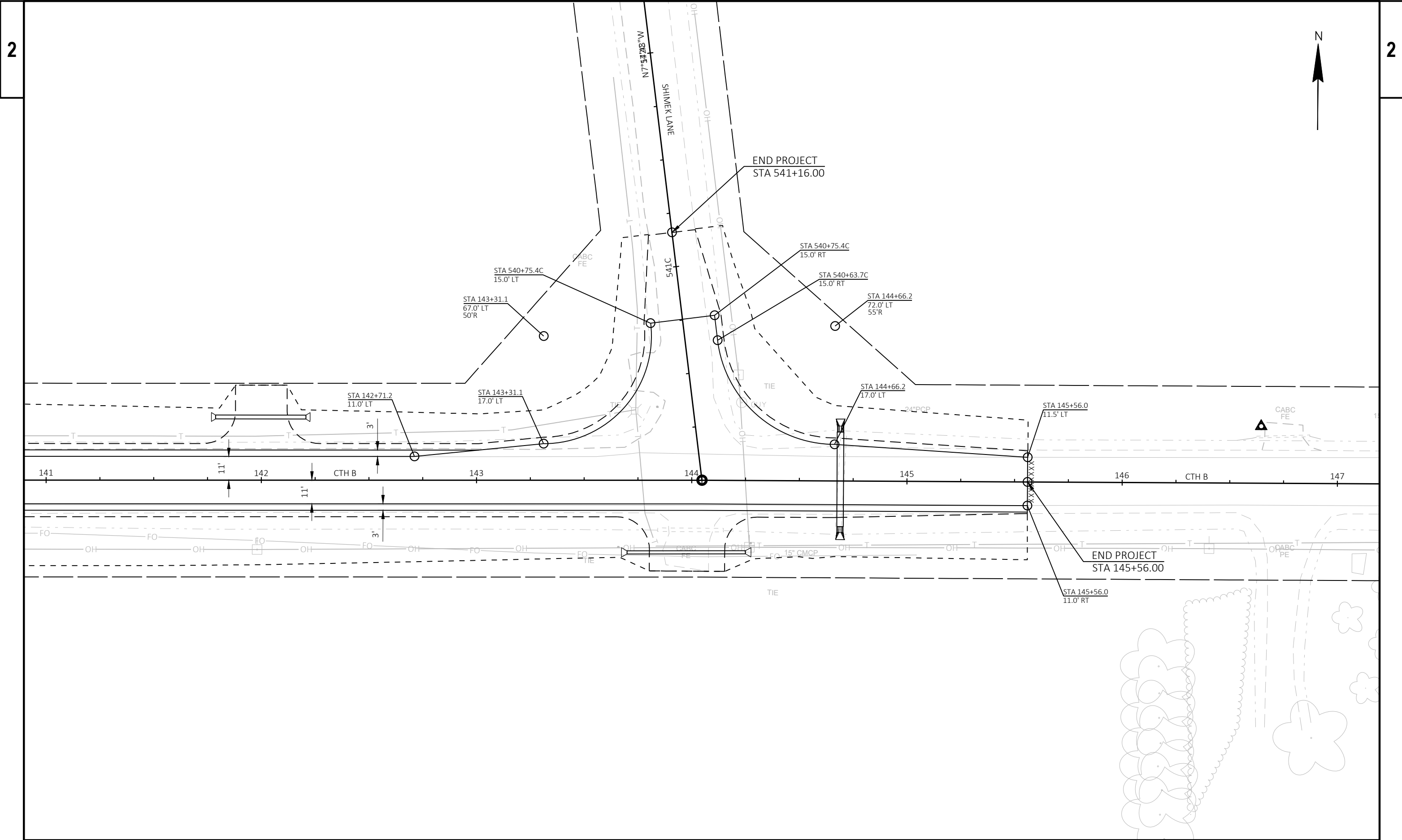
SECTION CORNER MONUMENT AND LANDMARK REFERENCE MONUMENT DETAIL



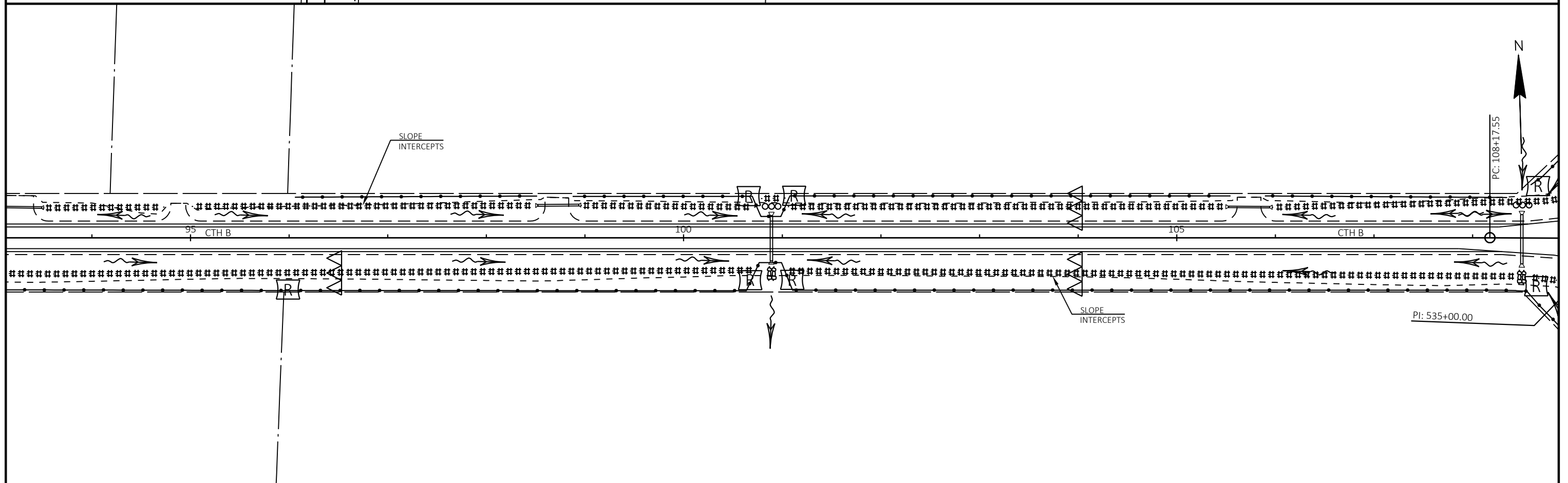
PROJECT NO: 9360-02-73	HWY: CTH B	COUNTY: LANGLADE	PLAN OFFSETS	SHEET	E
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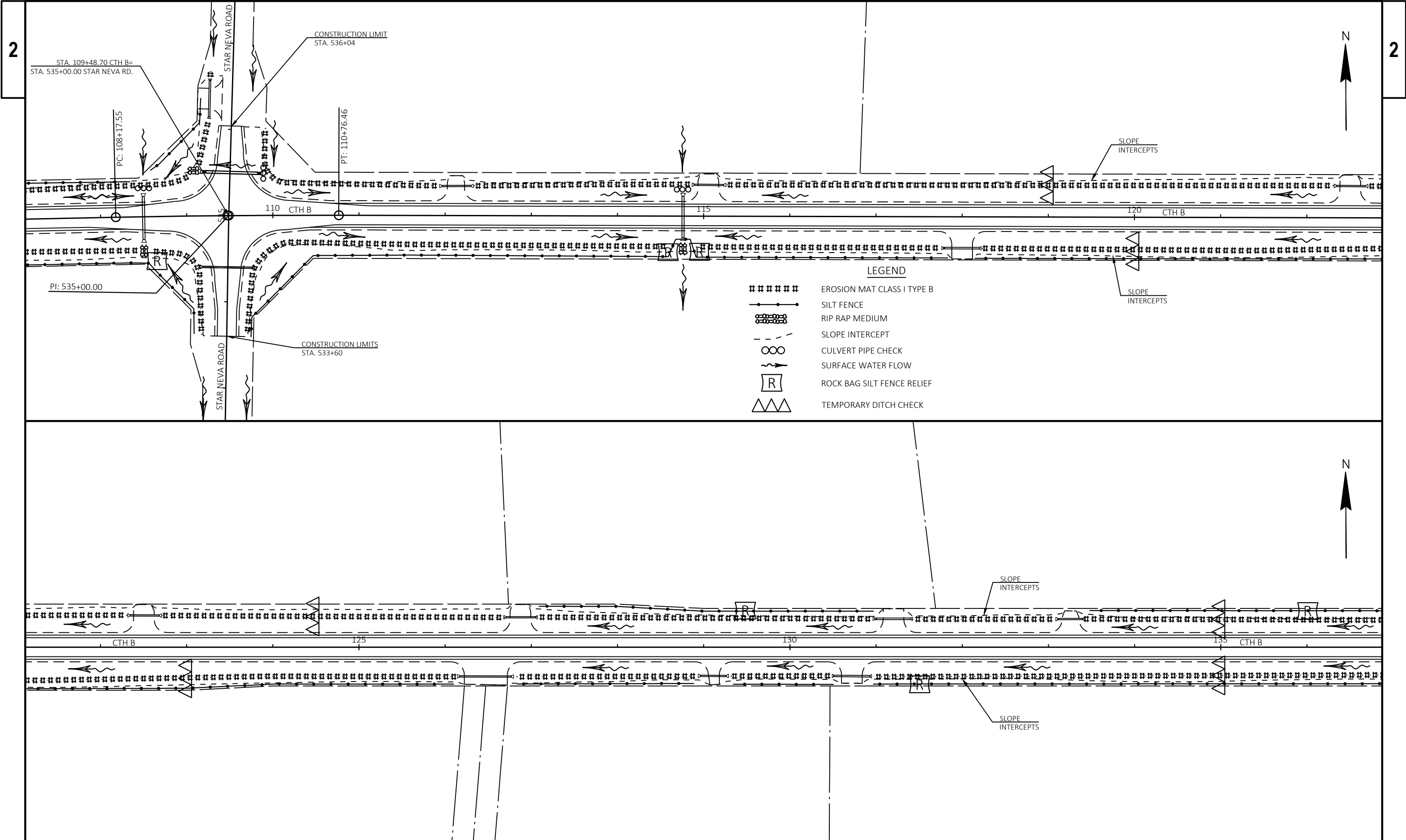


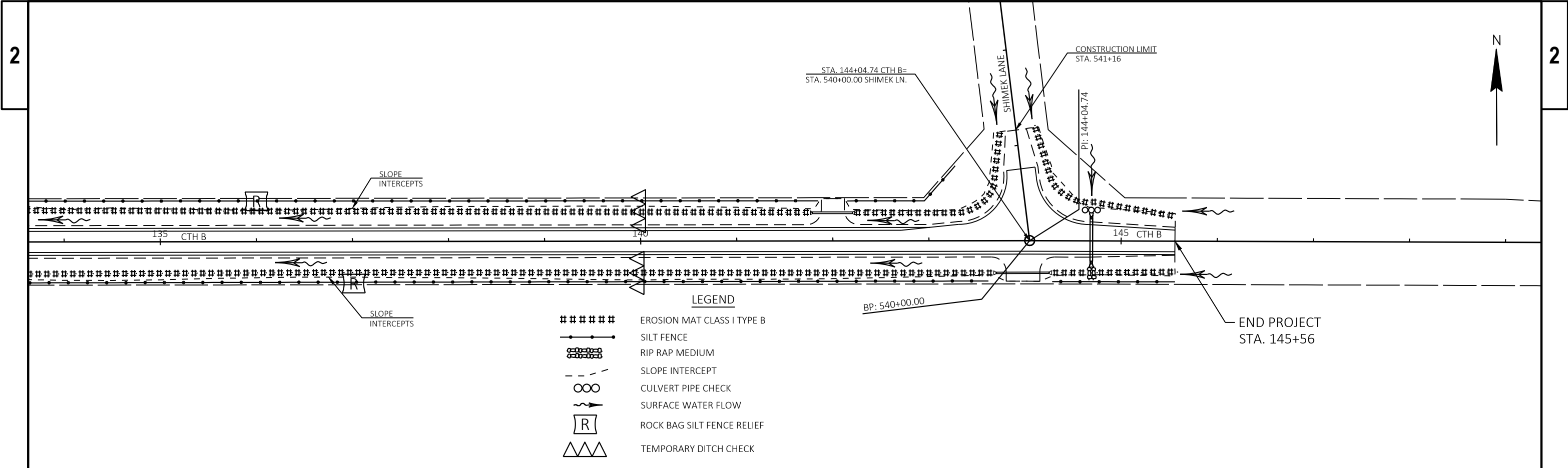
PROJECT NO: 9360-02-73	HWY: CTH B	COUNTY: LANGLADE	PLAN OFFSETS	SHEET	E
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PROJECT NO: 9360-02-73	HWY: CTH B	COUNTY: LANGLADE	PLAN OFFSETS	SHEET	E
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Estimate Of Quantities

9360-02-73

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	8.000	8.000
0004	203.0100	Removing Small Pipe Culverts	EACH	25.000	25.000
0006	204.0170	Removing Fence	LF	1,135.000	1,135.000
0008	205.0100	Excavation Common	CY	22,300.000	22,300.000
0010	205.0400	Excavation Marsh	CY	90.000	90.000
0012	208.1100	Select Borrow	CY	135.000	135.000
0014	213.0100	Finishing Roadway (project) 01. 9360-02-73	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,300.000	1,300.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	18,500.000	18,500.000
0020	313.0110	Pit Run	TON	16,000.000	16,000.000
0022	455.0605	Tack Coat	GAL	1,600.000	1,600.000
0024	460.2000	Incentive Density HMA Pavement	DOL	3,430.000	3,430.000
0026	460.5223	HMA Pavement 3 LT 58-28 S	TON	2,950.000	2,950.000
0028	460.5244	HMA Pavement 4 LT 58-34 S	TON	2,400.000	2,400.000
0030	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	24.000	24.000
0032	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	6.000	6.000
0034	521.1221	Apron Endwalls for Pipe Arch Steel 21x15-Inch	EACH	14.000	14.000
0036	521.1228	Apron Endwalls for Pipe Arch Steel 28x20-Inch	EACH	2.000	2.000
0038	521.3721	Pipe Arch Corrugated Steel 21x15-Inch	LF	264.000	264.000
0040	521.3728	Pipe Arch Corrugated Steel 28x20-Inch	LF	36.000	36.000
0042	521.6118	Culvert Pipe Corrugated Steel Aluminum Coated 18-Inch	LF	176.000	176.000
0044	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	144.000	144.000
0046	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	6.000	6.000
0048	522.2419	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 19x30-Inch	LF	150.000	150.000
0050	522.2619	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	EACH	6.000	6.000
0052	530.0118	Culvert Pipe Corrugated Polyethylene 18-Inch	LF	356.000	356.000
0054	530.0124	Culvert Pipe Corrugated Polyethylene 24-Inch	LF	132.000	132.000
0056	606.0200	Riprap Medium	CY	45.000	45.000
0058	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9360-02-73	EACH	1.000	1.000
0060	619.1000	Mobilization	EACH	1.000	1.000
0062	621.0100	Landmark Reference Monuments	EACH	12.000	12.000
0064	624.0100	Water	MGAL	300.000	300.000
0066	625.0500	Salvaged Topsoil	SY	36,700.000	36,700.000
0068	627.0200	Mulching	SY	34,000.000	34,000.000
0070	628.1504	Silt Fence	LF	10,750.000	10,750.000
0072	628.1520	Silt Fence Maintenance	LF	10,750.000	10,750.000
0074	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0078	628.2004	Erosion Mat Class I Type B	SY	13,800.000	13,800.000
0080	628.7504	Temporary Ditch Checks	LF	245.000	245.000
0082	628.7555	Culvert Pipe Checks	EACH	30.000	30.000
0084	628.7560	Tracking Pads	EACH	4.000	4.000
0086	628.7570	Rock Bags	EACH	200.000	200.000
0088	629.0210	Fertilizer Type B	CWT	31.000	31.000
0090	630.0120	Seeding Mixture No. 20	LB	1,650.000	1,650.000
0092	630.0200	Seeding Temporary	LB	250.000	250.000
0094	630.0300	Seeding Borrow Pit	LB	200.000	200.000
0096	630.0500	Seed Water	MGAL	830.000	830.000
0098	642.5001	Field Office Type B	EACH	1.000	1.000

Estimate Of Quantities

9360-02-73

Line	Item	Item Description	Unit	Total	Qty
0100	643.0300	Traffic Control Drums	DAY	2,375.000	2,375.000
0102	643.0420	Traffic Control Barricades Type III	DAY	1,520.000	1,520.000
0104	643.0705	Traffic Control Warning Lights Type A	DAY	3,040.000	3,040.000
0106	643.0900	Traffic Control Signs	DAY	2,565.000	2,565.000
0108	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0110	643.5000	Traffic Control	EACH	1.000	1.000
0112	645.0120	Geotextile Type HR	SY	90.000	90.000
0114	645.0220	Geogrid Type SR	SY	25,000.000	25,000.000
0116	646.1020	Marking Line Epoxy 4-Inch	LF	13,450.000	13,450.000
0118	650.4500	Construction Staking Subgrade	LF	7,025.000	7,025.000
0120	650.5000	Construction Staking Base	LF	7,025.000	7,025.000
0122	650.6000	Construction Staking Pipe Culverts	EACH	9.000	9.000
0124	650.9911	Construction Staking Supplemental Control (project) 01. 9360-02-73	EACH	1.000	1.000
0126	650.9920	Construction Staking Slope Stakes	LF	7,025.000	7,025.000
0128	690.0150	Sawing Asphalt	LF	135.000	135.000
0130	740.0440	Incentive IRI Ride	DOL	4,900.000	4,900.000
0132	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0134	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0136	SPV.0060	Special 01. Reestablish Section Corner Monuments	EACH	3.000	3.000

EARTHWORK SUMMARY

Category	Division	From/To Station	Location	Excavation Common (1) (item #205.0100)		Marsh Excavation (item #205.0400) (3)	Unexpanded Fill	Expanded Fill (4)	Expanded Marsh Backfill (item #208.1100 Select Borrow) (5)	Mass Ordinate +/- (6)	Waste
				Cut	EBS (2)						
0010	1	80+81 - 145+56	CTH B	20,283	0	90	5,045	6,306	135	13,977	14,067
0010		10+00 - 11+75	CHILLIE ROAD	525	0	-	16	20	-	505	505
0010		31+25 - 34+50	STAR NEVA ROAD	509	0	-	33	41	-	468	468
0010		50+00 - 51+92	SHIMEK LANE	131	0	-	1	2	-	129	129
0010			CULVERT TRANSISTIONS	487	0	-	-	-	-	487	487
0010			UNDISTRIBUTED	0	365	-	-	-	-	365	365
TOTALS				21,935	365	90	5,095	6,369	135	15,931	16,021
EXCAVATION COMMON TOTAL						22,300					

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100.
- 2) EBS Excavation to be backfilled with Pit Run
- 3) Marsh Excavation to be backfilled with Select Borrow material as shown in cross sections. Not included in Mass Ordinate
- 4) Expanded Fill = Unexpanded Fill * Fill Factor
- 5) Marsh Backfill = Select Borrow Material, Item number 208.1100. Not included in Mass Ordinate
- 6) Mass Ordinate + or - quantity calculated for the Category. Plus indicates an excess of material. Minus indicates a shortage of material.
- 7) Factors used to computer anticipated wase and the computed wast volume identified are for general information only.

GRUBBING

201.0205 GRUBBING					
CATEGORY	STATION	TO	STATION	LOCATION	STA
0010	83+00	-	84+00	CTH B	1
0010	127+00	-	133+00	CTH B	6
0010	524+00	-	525+00	CHILLIERD	1
TOTAL 0010					8

REMOVING FENCE

204.0170 REMOVING FENCE					
CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	85+60	-	86+82	CTH B, RT	135
0010	116+65	-	126+75	CTH B, LT	1,000
TOTAL 0010					1,135

REMOVING SMALL PIPE CULVERTS				
203.0100 REMOVING SMALL PIPE CULVERTS				
CATEGORY	STATION	LOCATION	EACH	REMARKS
0010	82+09	CTH B	1	15" X 40', CMCP
0010	91+23	CTH B	1	18" X 46', PCP
0010	100+89	CTH B	1	24" X 46', PCP
0010	109+21	CTH B	1	18" X 44', CMCP
0010	114+76	CTH B	1	24" X 42', PCP
0010	144+69	CTH B	1	15" X 45', CMCP
0010	84+15	CTH B, LT	1	12" X 25', CMCP
0010	84+15	CTH B, RT	1	12" X 18', CMCP
0010	93+24	CTH B, LT	1	15" X 50', CMCP
0010	105+75	CTH B, LT	1	24" X 24', CMCP
0010	111+45	CTH B, RT	1	18" X 19', CMCP
0010	112+12	CTH B, LT	1	18" X 24', PCP
0010	112+12	CTH B, LT	1	18" X 24', PCP
0010	115+00	CTH B, LT	1	18" X 30', PCP
0010	122+50	CTH B, LT	1	24" X 27', CMCP
0010	126+56	CTH B, RT	1	15" X 31', CMCP
0010	126+87	CTH B, LT	1	18" X 40', CMCP
0010	129+13	CTH B, RT	1	15" X 18', CMCP
0010	130+66	CTH B, RT	1	18" X 34', CMCP
0010	131+20	CTH B, LT	1	18" X 28', CMCP
0010	133+26	CTH B, LT	1	26"X15"X22' CMPA
0010	133+57	CTH B, LT	1	15" X 20', CMCP
0010	535+96	STAR NEVA RD	1	24" X 44', CMCP
0010	535+70	STAR NEVA RD, LT	1	15" X 25', CMCP
0010	535+70	STAR NEVA RD, RT	1	18" X 25', CMCP
TOTAL 0010			25	

BASE AGGREGATE AND PIT RUN

					305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	313.0110 PIT RUN	624.0100 WATER	645.0220 GEOGRID
CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	TON	MGAL	TYPE SR SY
0010	80+81	-	109+49	CTH B	518	7,233	6,238	78	11,001
0010	109+49	-	145+56	CTH B	658	9,042	7,770	97	13,729
0010	523+75	-	526+50	CHILLIE ROAD	55	644	621	7	122
0010	533+60	-	536+04	STAR NEVA ROAD	52	574	557	7	110
0010	540+00	-	541+16	SHIMEK LANE	17	307	193	3	38
ENTIRE PROJECT					-	700	-	-	-
UNDISTRUBUTED					-	-	621	-	-
UNDISTRUBUTED					-	-	-	108	-
TOTALS 0010					1,300	18,500	16,000	300	25,000

HMA

					455.0605 TACK COAT GAL	460.5223 HMA PAVEMENT 3 LT 58-28 S TON	460.5244 HMA PAVEMENT 4 LT 58-34 S TON
CATEGORY	STATION	TO	STATION	LOCATION	GAL	TON	TON
0010	80+81	-	109+49	CTH B	637	1,177	967
0010	109+49	-	145+56	CTH B	806	1,484	1,208
0010	523+75	-	526+50	CHILLIE ROAD	70	128	100
0010	533+60	-	536+04	STAR NEVA ROAD	64	118	92
0010	540+00	-	541+16	SHIMEK LANE	23	43	33
TOTALS 0010					1,600	2,950	2,400

CULVERT PIPE AND ENDWALLS																						
			521.1018	521.1024	521.1221	521.1228	521.3721	521.3728	521.6118	522.0424	522.1024	522.2419	522.2619	530.0118	530.0124							
			APRON ENDWALL S FOR CULVERT PIPE STEEL 18-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH EACH	APRON ENDWALLS FOR PIPE ARCH STEEL 21X15- INCH EACH	APRON ENDWALLS FOR PIPE ARCH STEEL 28X20- INCH EACH	PIPE ARCH CORRUGATE D STEEL 21X15-INCH LF	PIPE ARCH CORRUGATE D STEEL 28X20-INCH LF	CULVERT PIPE CORRUGATED STEEL ALUMINUM COATED 18- INCH LF	CULVERT PIPE REINFORCE D CONCRETE CLASS IV 24-INCH LF	ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH EACH	CULVERT PIPE REINFORCED CONCRETE ELLIPTICAL CLASS HE-IV 19X30-INCH LF	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL PIPE EACH	CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH LF	CULVERT PIPE CORRUGATED POLYETHYLENE 24-INCH LF	THICKNESS STEEL INCH	OFFSET LEFT	OFFSET RIGHT	ELEVATION INLET	ELEVATION OUTLET	REMARKS	
0010	81+96	CTH B	2	-	-	-	-	-	60	-	-	-	-	-	-	0.064	28.0	32.0	1554.03	1554.00	FOR IRRIGATION PIPE, NOT DRAINAGE	
0010	91+23	CTH B	-	-	-	-	-	-	-	-	-	46	2	-	-	-	22.4	23.6	1552.60	1552.30		
0010	100+89	CTH B	-	-	-	-	-	-	-	46	2	-	-	-	-	-	22.5	23.5	1551.55	1551.30		
0010	108+50	CTH B	-	-	-	-	-	-	-	50	2	-	-	-	-	-	23.5	26.5	1554.00	1553.60		
0010	114+76	CTH B	-	-	-	-	-	-	-	48	2	-	-	-	-	-	23.0	25.0	1553.50	1553.00		
0010	144+69	CTH B	-	-	-	-	-	-	-	-	-	44	2	-	-	-	22.8	21.2	1560.30	1560.00		
0010	535+50	STAR NEVA ROAD	-	-	-	-	-	-	-	-	-	60	2	-	-	-	28.0	32.0	1554.36	1554.20		
0010	84+15	CTH B, LT	2	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-		
0010	84+15	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-		
0010	85+23	CTH B, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	93+24	CTH B, LT	-	-	2	-	48	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	98+71	CTH B, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	105+75	CTH B, LT	-	-	-	2	-	36	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	112+12	CTH B, LT	2	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-		
0010	115+00	CTH B, LT	-	2	-	-	-	-	-	-	-	-	-	-	44	-	-	-	-	-		
0010	118+00	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-		
0010	122+50	CTH B, LT	-	2	-	-	-	-	-	-	-	-	-	-	44	-	-	-	-	-		
0010	126+56	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	66	-	-	-	-	-	-		
0010	126+87	CTH B, LT	-	2	-	-	-	-	-	-	-	-	-	-	44	-	-	-	-	-		
0010	129+13	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	-	-		
0010	130+66	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	-	-		
0010	131+20	CTH B, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	133+26	CTH B, LT	2	-	-	-	-	-	-	-	-	-	-	32	-	-	-	-	-	-		
0010	142+00	CTH B, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	144+00	CTH B, RT	2	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-		
0010	523+62	CHILLIE ROAD, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
0010	536+35	STAR NEVA ROAD, LT	-	-	2	-	36	-	-	-	-	-	-	-	-	0.064	-	-	-	-		
SUBTOTALS 0010			20	6	14	2	264	36	60	144	6	150	6	356	132							
0020	524+40	CHILLIE ROAD	2	-	-	-	-	-	58	-	-	-	-	-	-	0.064	29.9	28.1	1552.50	1552.50	FOR IRRIGATION PIPE, NOT DRAINAGE	
0020	534+40	STAR NEVA ROAD	2	-	-	-	-	-	58	-	-	-	-	-	-	0.064	29.7	28.3	1554.50	1554.50	FOR IRRIGATION PIPE, NOT DRAINAGE	
SUBTOTAL 0020			4	0	0	0	0	0	116	0	0	0	0	0	0							
TOTALS			24	6	14	2	264	36	176	144	6	150	6	356	132							
NOTE: PIPE OFFSETS MEASURED TO END OF PIPE																						
PROJECT NO: 9360-02-73					HWY: CTH B					COUNTY: LANGLADE					MISCELLANEOUS QUANTITIES					SHEET:		E

EROSION CONTROL DEVICES					
CATEGORY	STATION		628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
0010	87+00	CTH B, LT & RT	26	-	-
0010	90+60	CTH B, RT	-	-	11
0010	91+00	CTH B, LT	-	-	11
0010	91+23	CTH B, LT	-	5	-
0010	91+50	CTH B, LT	-	-	11
0010	96+00	CTH B, RT	-	-	11
0010	96+50	CTH B, RT	13	-	-
0010	100+70	CTH B, LT & RT	-	-	22
0010	100+89	CTH B, LT	-	3	-
0010	101+10	CTH B, LT & RT	-	-	22
0010	104+00	CTH B, LT & RT	26	-	-
0010	108+50	CTH B, LT	-	3	-
0010	108+65	CTH B, LT & RT	-	-	11
0010	114+60	CTH B, RT	-	-	11
0010	114+76	CTH B, LT	-	3	-
0010	114+90	CTH B, RT	-	-	11
0010	119+00	CTH B, LT	13	-	-
0010	120+00	CTH B, RT	13	-	-
0010	123+00	CTH B, RT	13	-	-
0010	124+50	CTH B, LT	13	-	-
0010	129+50	CTH B, LT	-	-	11
0010	131+50	CTH B, RT	-	-	11
0010	135+00	LT & RT	26	-	-
0010	136+00	LT	-	-	11
0010	137+00	CTH B, RT	-	-	11
0010	140+00	LT & RT	13	-	-
0010	144+69	CTH B, LT	-	5	-
0010	523+80	CHILLIE ROAD, LT & RT	13	-	-
0010	526+50	CHILLIE ROAD, LT & RT	26	-	-
0010	535+50	STAR NEVA ROAD, RT	-	5	-
0010	UNDISTRIBUTED		50	6	35
TOTALS 0010			245	30	200

SECTION CORNERS					621.0100 LANDMARK REFERENCE MONUMENTS	SPV.0060.01 REESTABLISH SECTION CORNER MONUMENTS
CATEGORY	MAINLINE STATION	MAINLINE	SIDEROAD STATION	SIDEROAD	EACH	EACH
0010	82+43.30	CTH B	525+00.00	CHILLIE ROAD	4	1
0010	109+48.70	CTH B	535+00.00	STAR NEVA ROAD	4	1
0010	540+00.00	CTH B	540+00.00	SHIMEK LANE	4	1
TOTALS 0010					12	3

RIPRAP				
CATEGORY	STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
0010	91+23	CTH B	7	14
0010	100+89	CTH B	5	10
0010	108+50	CTH B	5	10
0010	114+76	CTH B	5	10
0010	144+69	CTH B	7	14
0010	535+96	STAR NEVA ROAD	7	14
0010		UNDISTRIBUTED	9	18
TOTALS 0010			45	90

SALVAGED TOPSOIL & SEED												
CATEGORY	STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	628.2004 EROSION MAT CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
0010	80+81	-	109+49	CTH B	11,710	7,098	4,612	7.4	527	-	-	263
0010	109+49	-	145+56	CTH B	15,634	9,786	5,848	9.9	704	-	-	351
0010	523+75	-	526+50	CHILLIE ROAD	903	503	400	0.6	41	-	-	21
0010	533+60	-	536+04	STAR NEVA ROAD	775	472	303	0.5	35	-	-	18
0010	540+00	-	541+16	SHIMEK LANE	355	209	146	0.3	16	-	-	8
0010				WASTE AREA	-	11,000	-	7.0	-	100	200	-
0010				UNDISTRIBUTED	7,323	4,932	2,491	5.3	327	150	-	169
TOTALS 0010					36,700	34,000	13,800	31	1,650	250	200	830

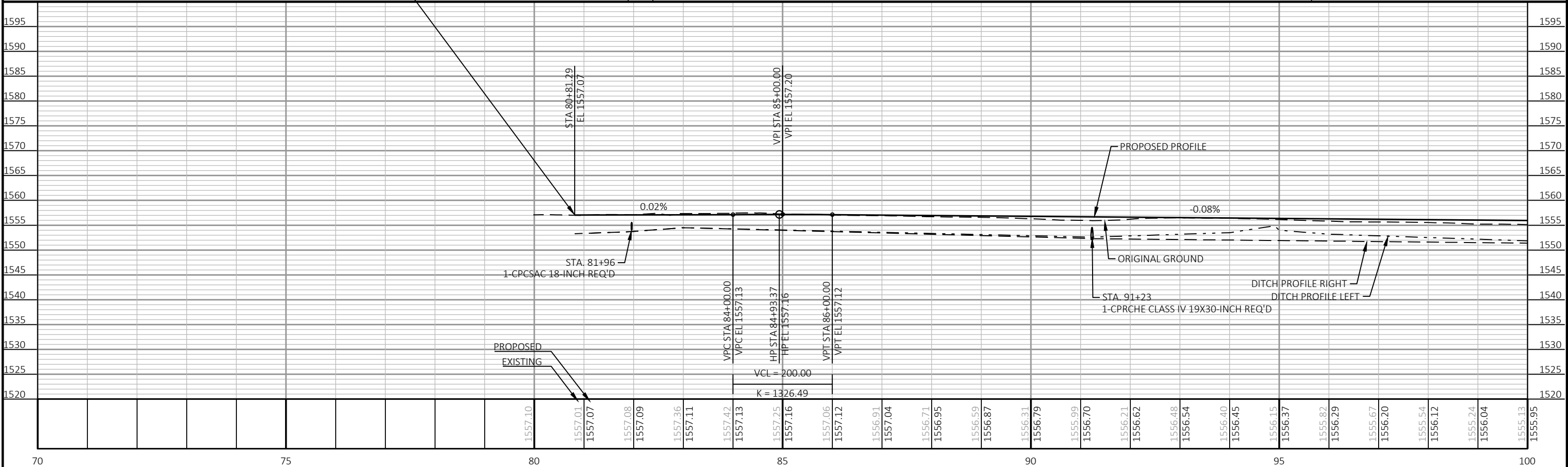
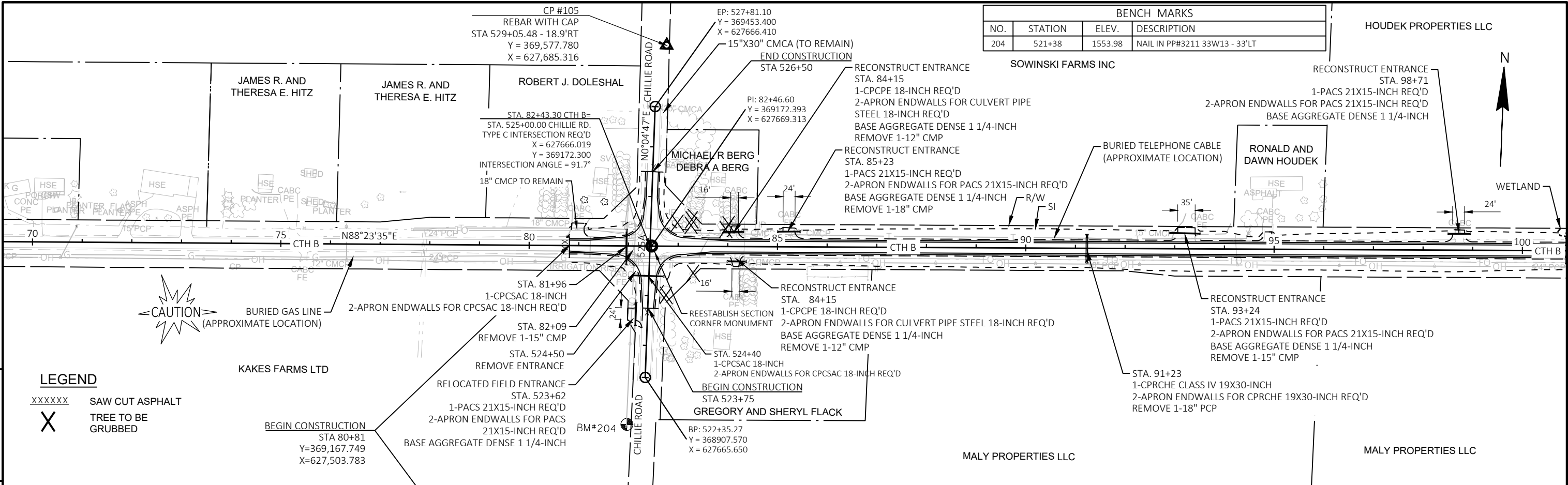
SILT FENCE							MOBILIZATIONS EROSION CONTROL							TRACKING PAD			
					628.1504	628.1520						628.1905	628.1910	628.7560			
					SILT FENCE	SILT FENCE						MOBILIZATIONS	MOBILIZATIONS	TRACKING PADS			
CATEGORY	STATION	TO	STATION	LOCATION	LF	MAINTENANCE						EROSION	EROSION	EACH			
					LF	LF						CONTROL	CONTROL				
												EACH	EACH				
0010	80+81	-	109+49	CTH B	4,692	4,692											
0010	109+49	-	145+56	CTH B	4,707	4,707											
0010	523+75	-	525+00	CHILLIE ROAD	114	114											
0010	533+60	-	536+04	STAR NEVA ROAD	238	238											
					UNDISTRIBUTED	999											

CONSTRUCTION STAKING

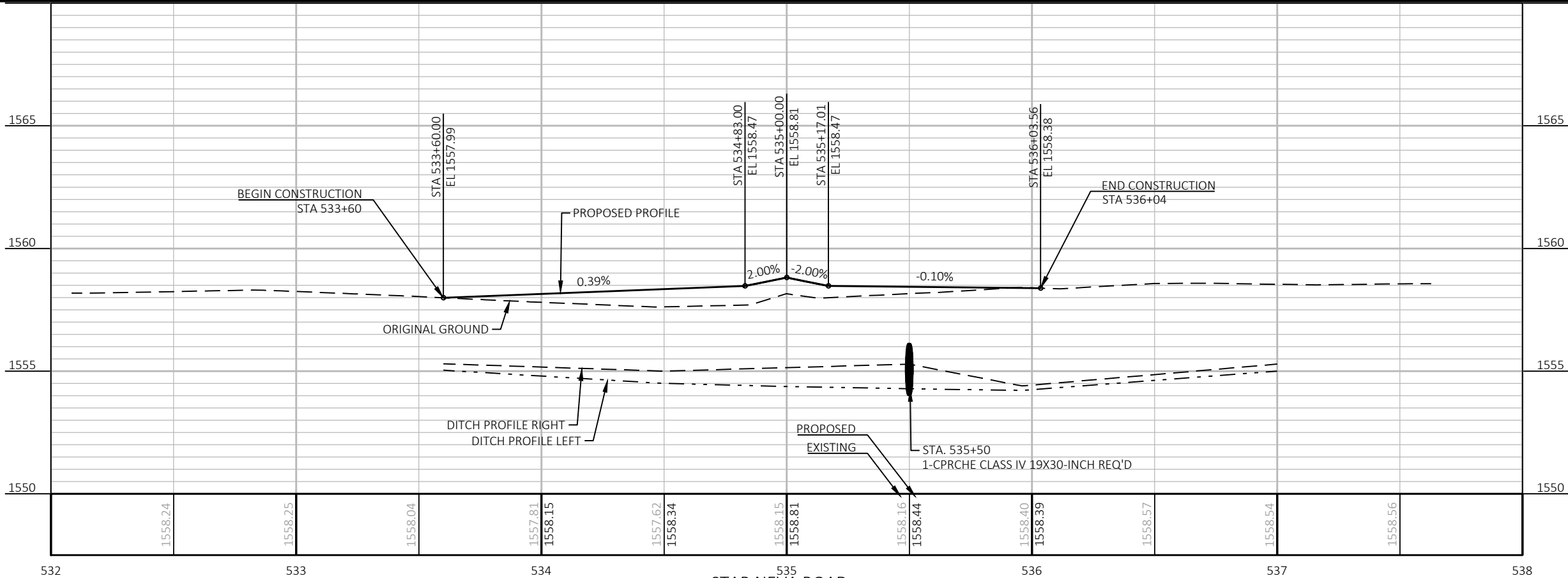
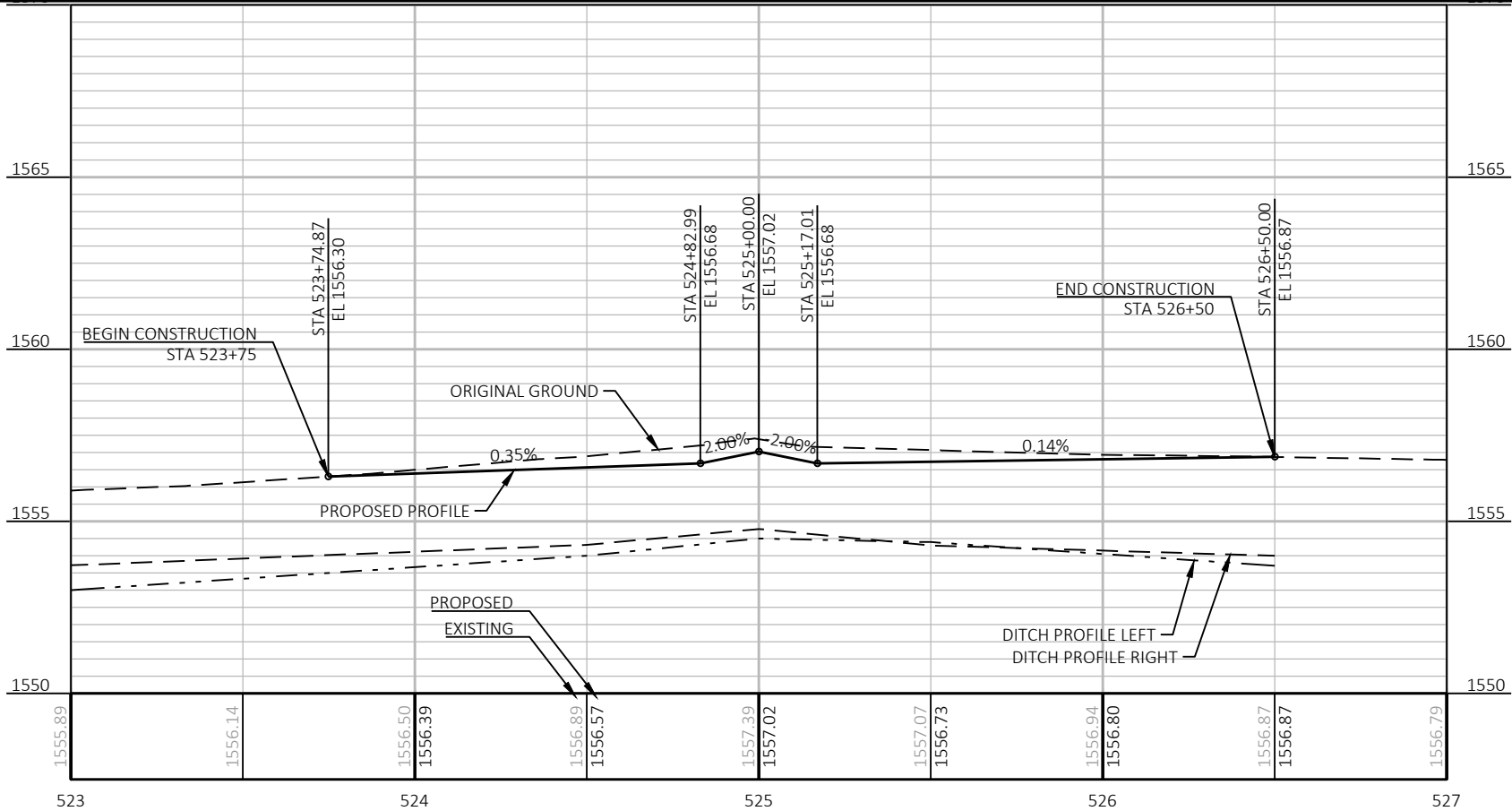
CATEGORY	STATION	TO	STATION	LOCATION	650.4500	650.5000	650.6000	650.9911.01	650.9920
					CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING PIPE CULVERTS EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL EACH	CONSTRUCTION STAKING SLOPE STAKES LF
0010	80+81	-	145+56	CTH B	6,475	6,475	6	1	6,475
0010	523+75	-	524+83	CHILLIE ROAD	108	108	1	-	108
0010	525+17	-	526+50	CHILLIE ROAD	133	133	1	-	133
0010	533+60	-	534+83	STAR NEVA ROAD	123	123	1	-	123
0010	535+17	-	536+04	STAR NEVA ROAD	87	87	-	-	87
0010	540+17	-	541+16	SHIMEK LANE	99	99	-	-	99
TOTALS 0010					7,025	7,025	9	1	7,025

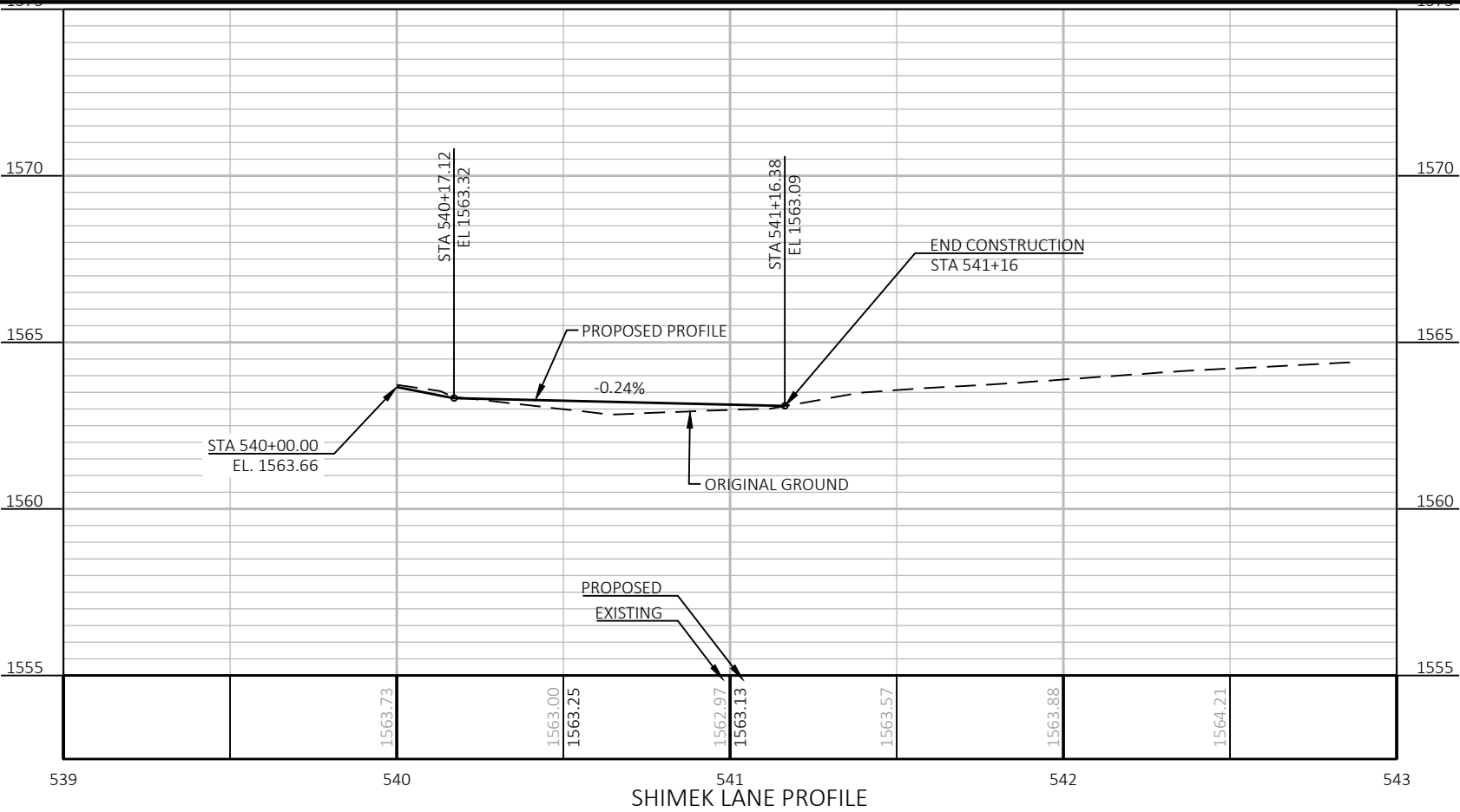
SAWING ASPHALT

CATEGORY	STATION	LOCATION	690.0150
			SAWING ASPHALT LF
0010	80+81	CTH B	23
0010	145+56	CTH B	22
0010	523+75	CHILLIE ROAD	22
0010	526+50	CHILLIE ROAD	23
0010	533+60	STAR NEVA ROAD	22
0010	536+04	STAR NEVA ROAD	23
TOTAL 0010			135



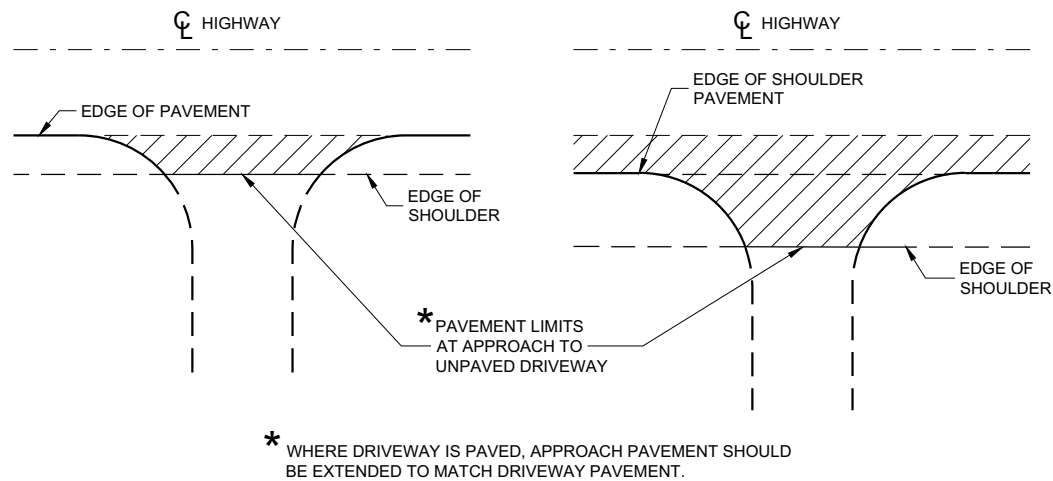
PROJECT NO:	9360-02-73	HWY:	CTH B	COUNTY:	LANGLADE	PLAN AND PROFILE	SHEET	E
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Standard Detail Drawing List

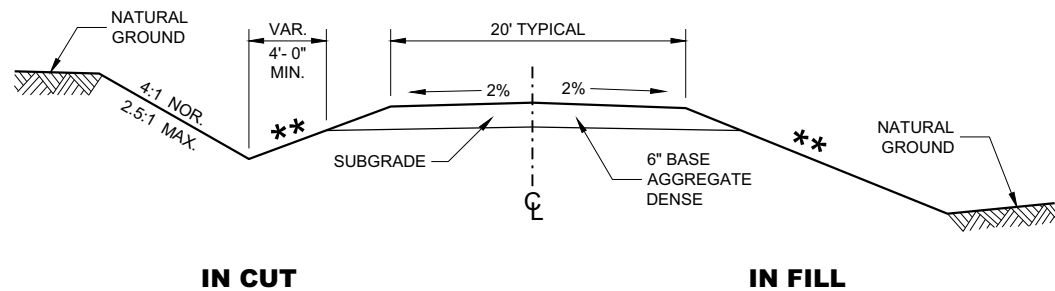
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-14B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

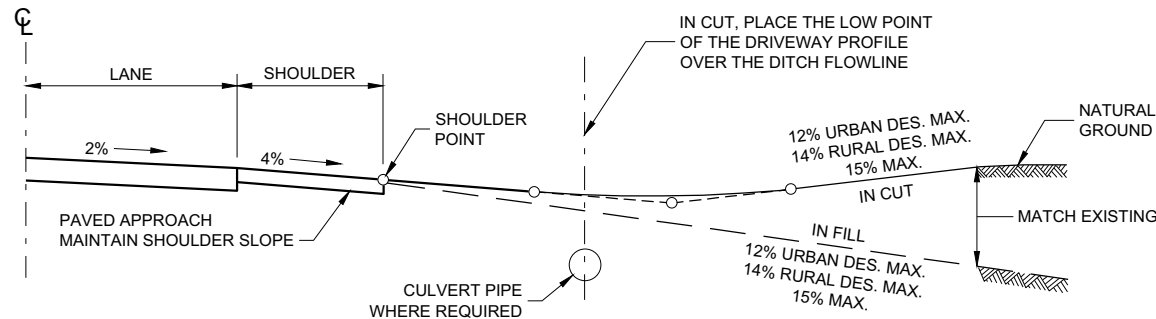
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



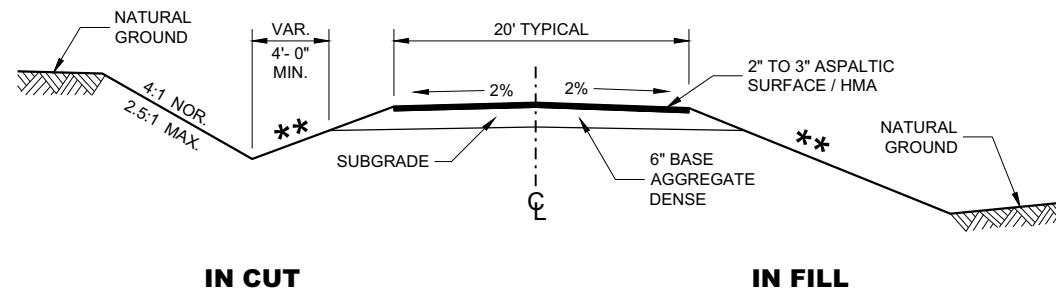
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

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

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



TYPICAL DRIVEWAY PROFILES

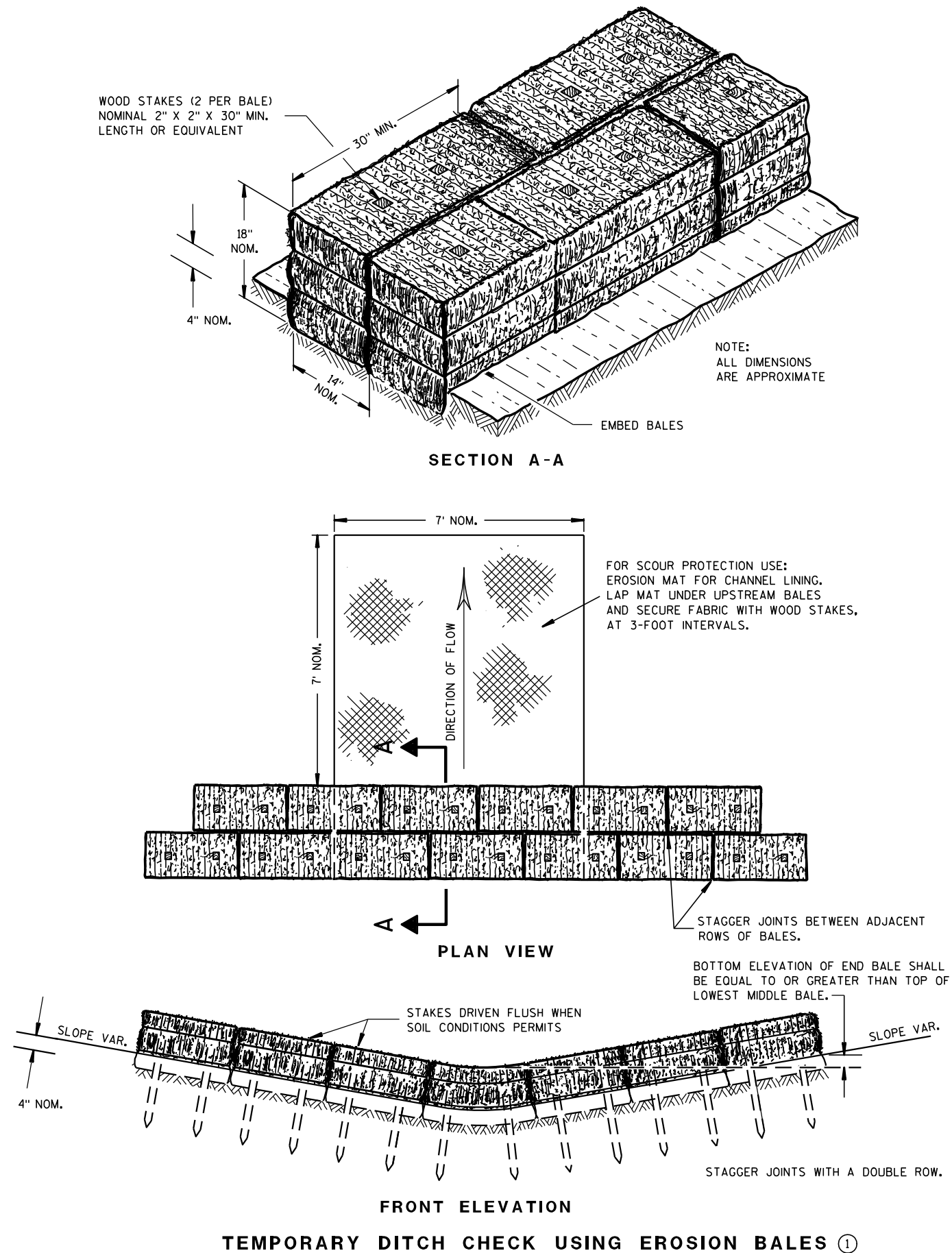


**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

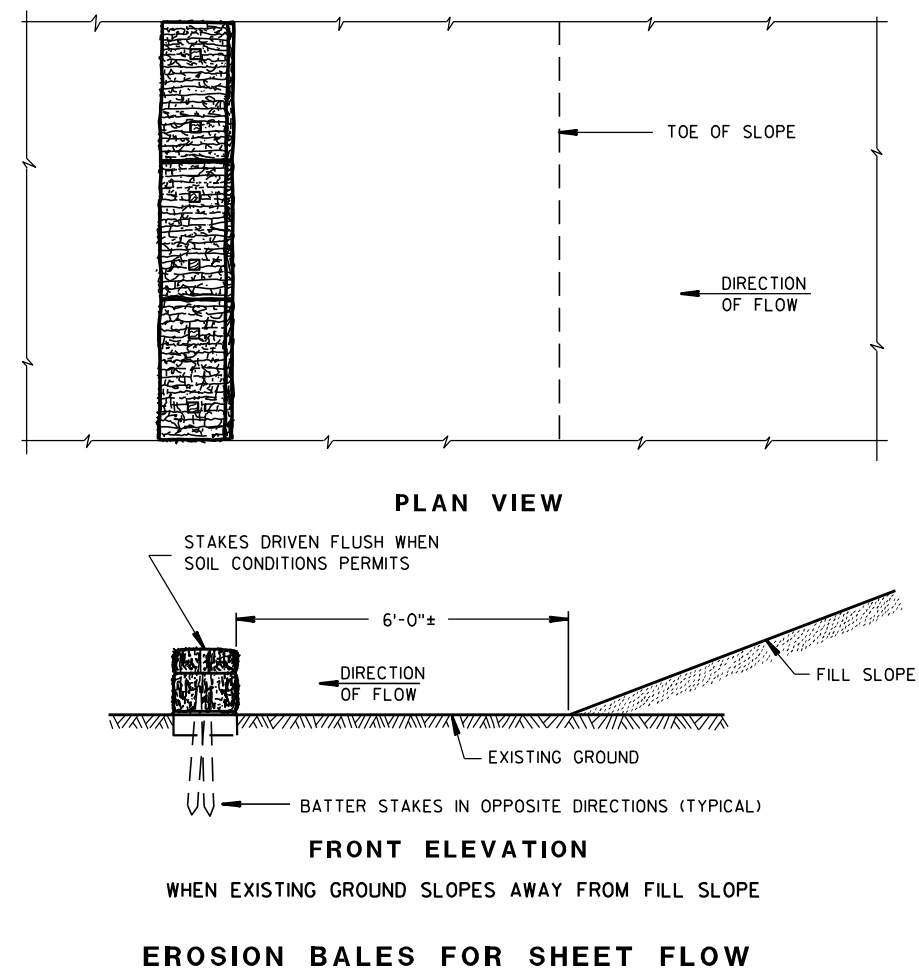
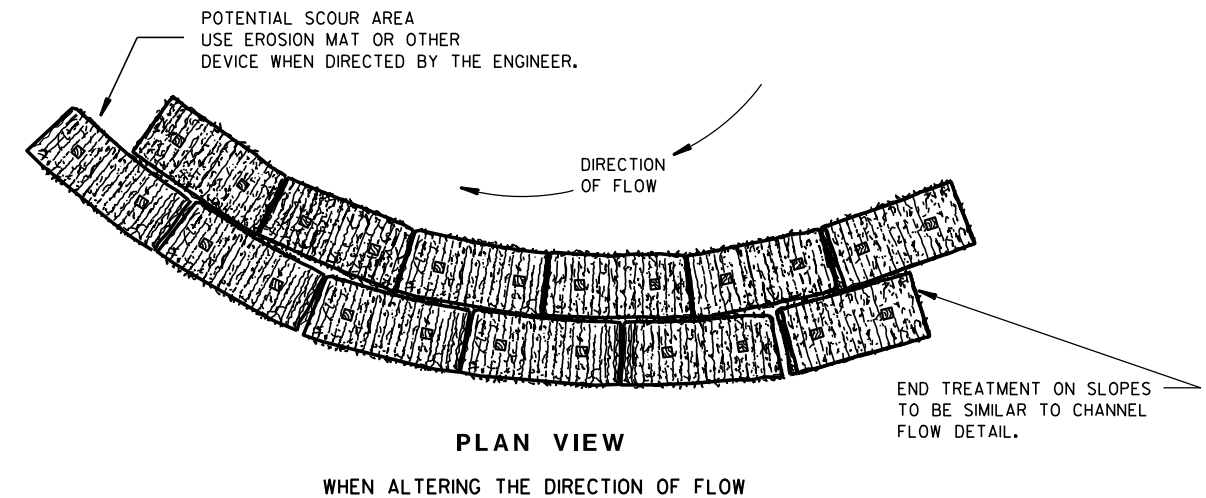
APPROVED
December 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

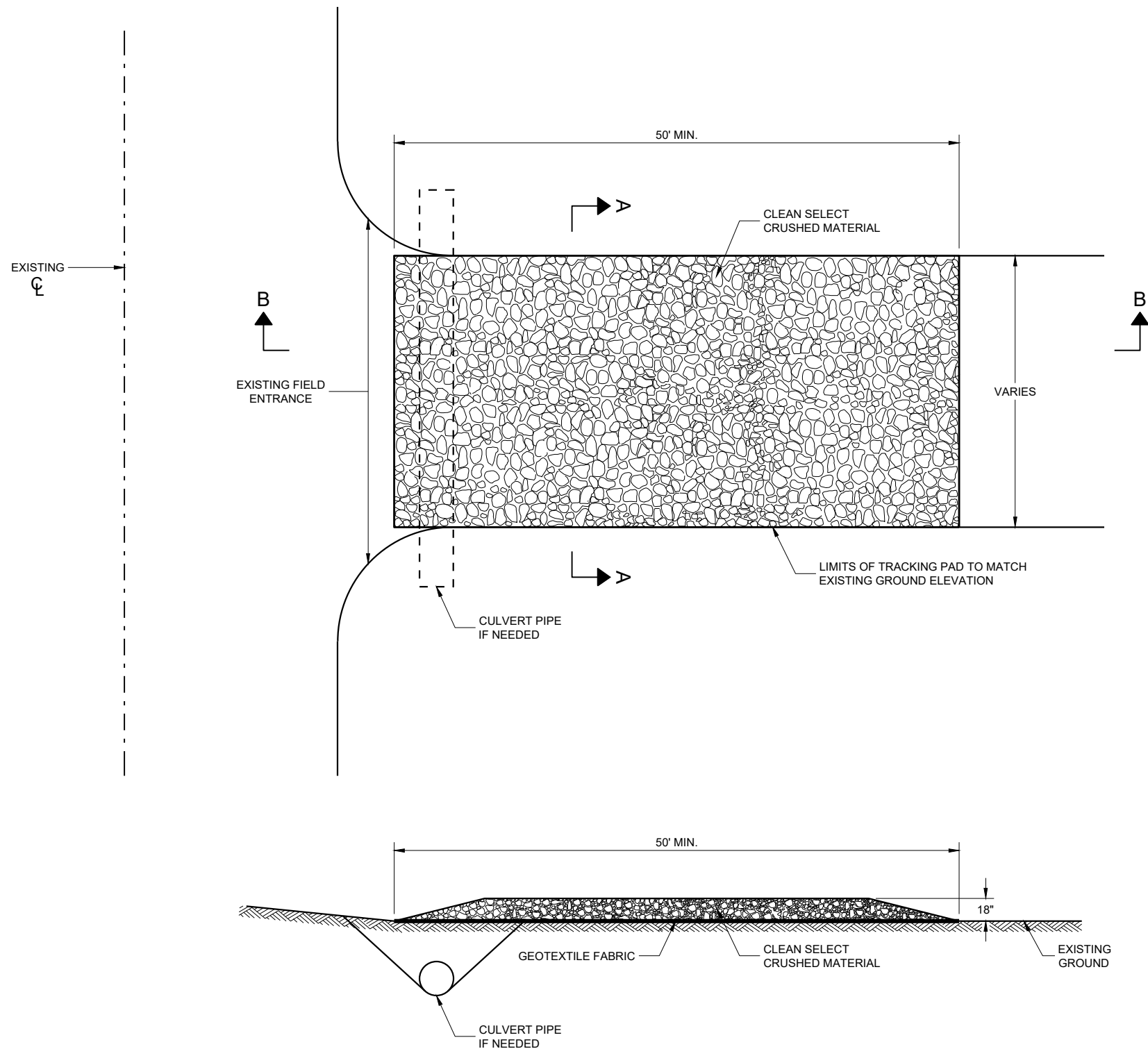
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 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.



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/s/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER



SECTION B - B

GENERAL NOTES

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

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

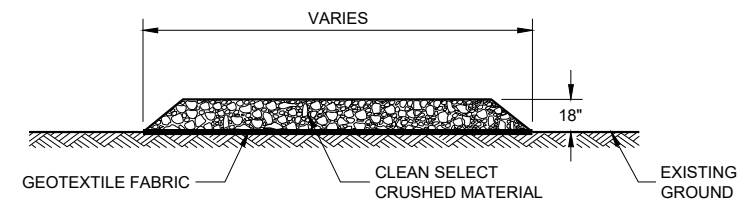
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

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



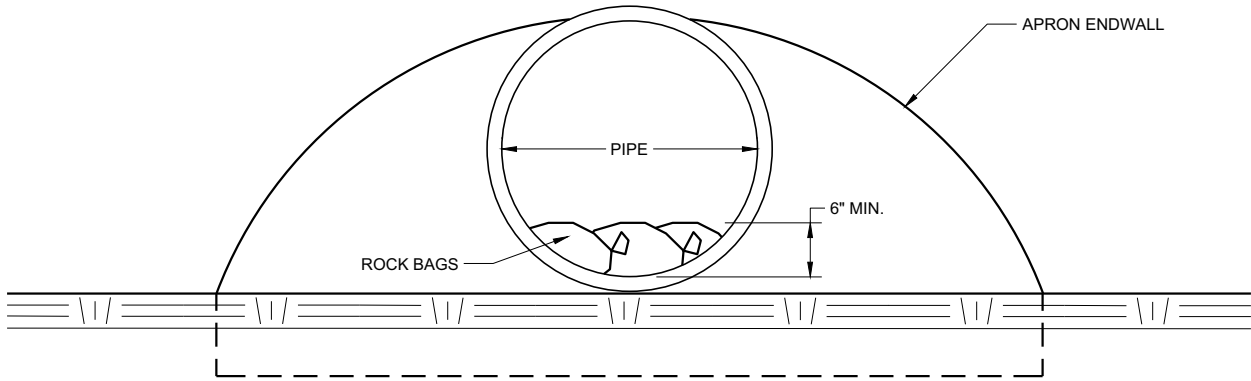
SECTION A - A

TRACKING PAD

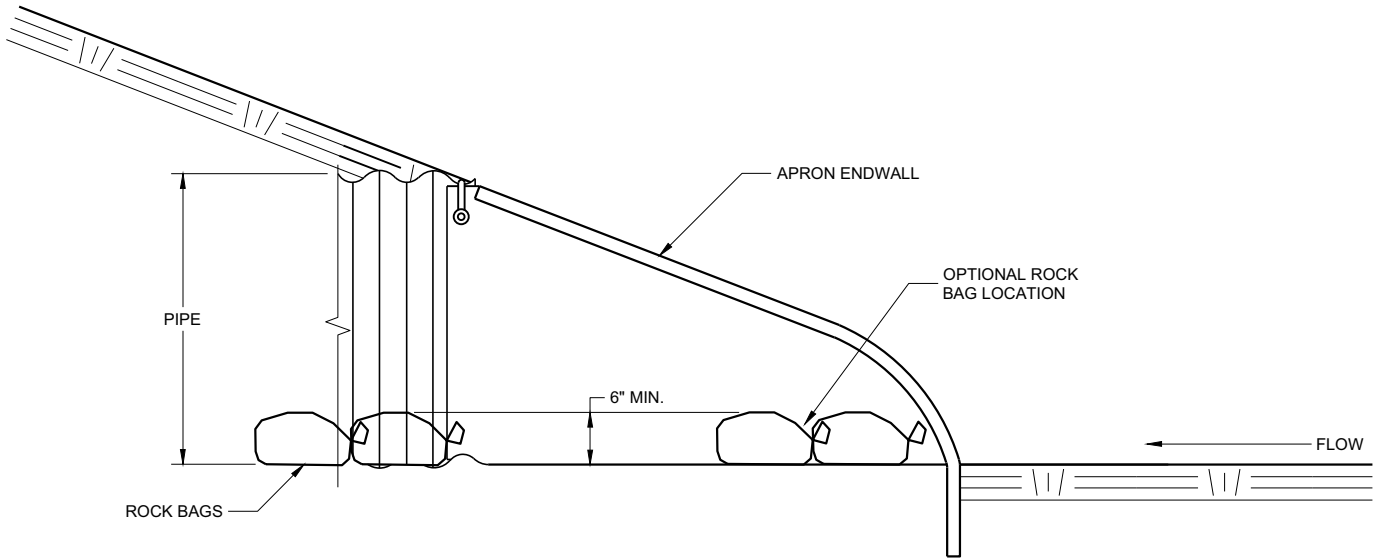
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



END VIEW



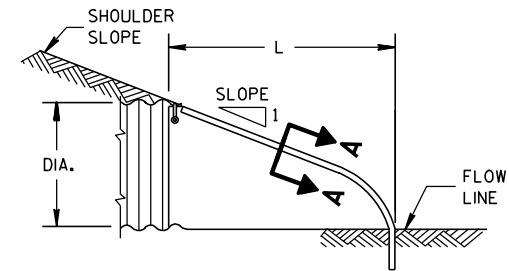
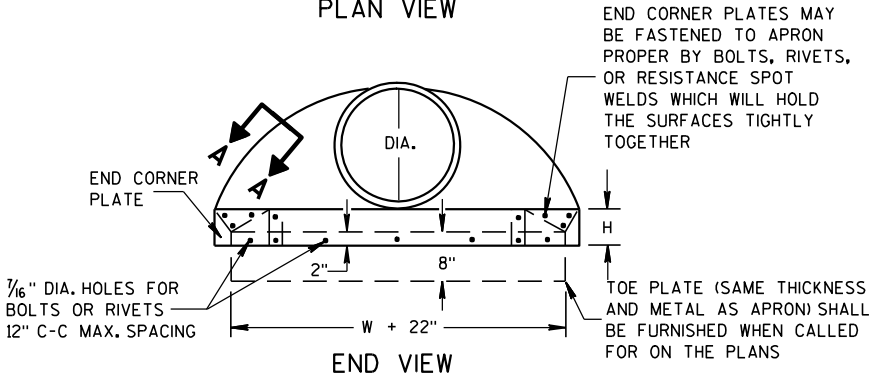
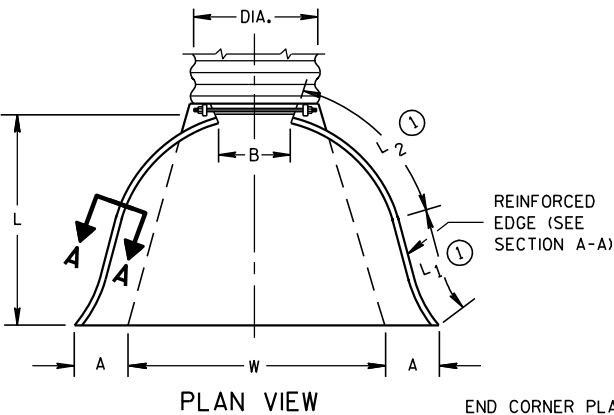
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

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

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

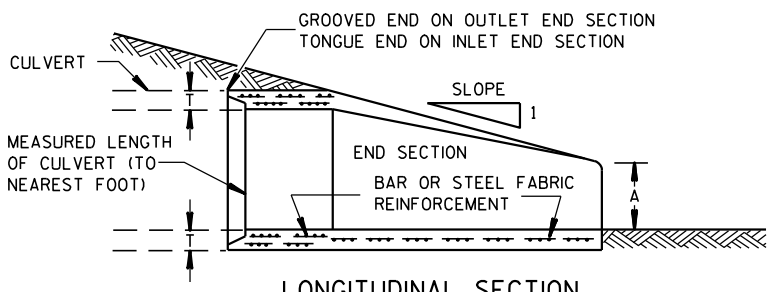
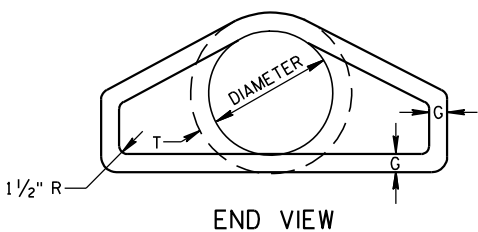
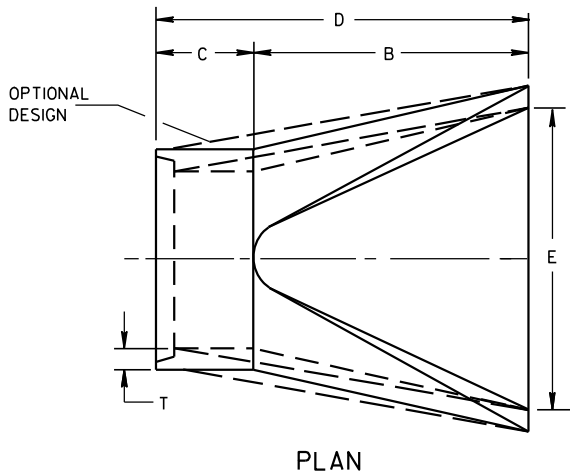
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

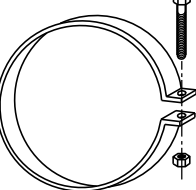
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

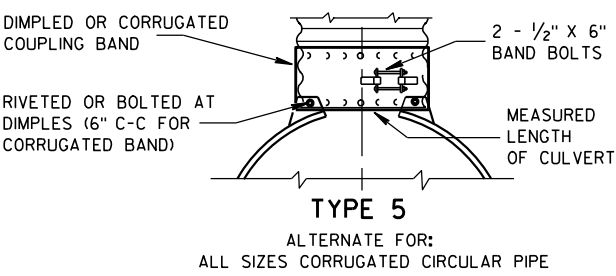
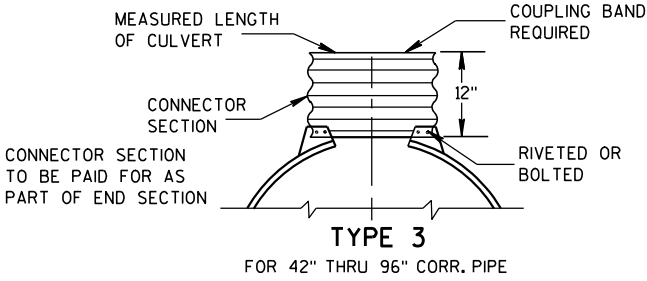
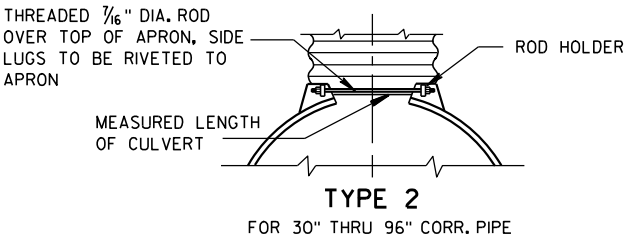
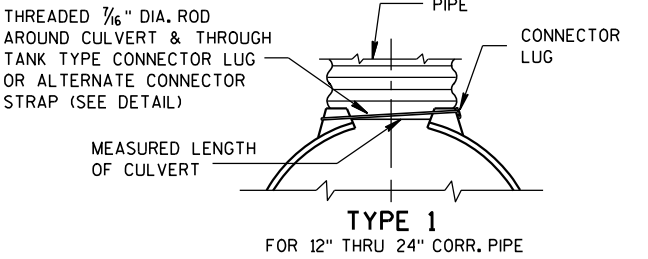


CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



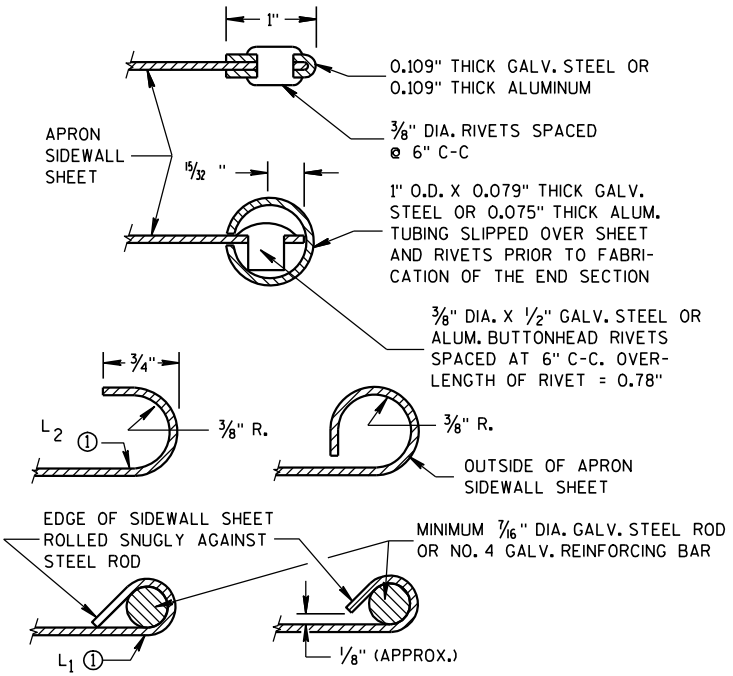
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

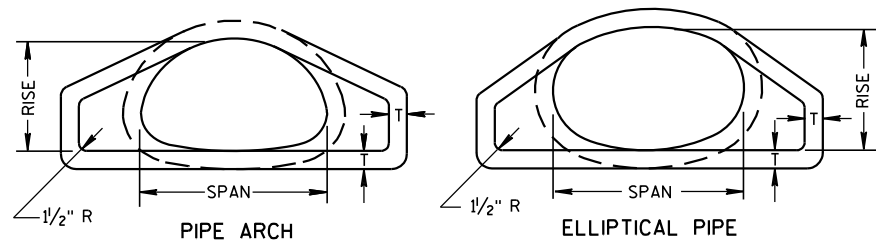
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

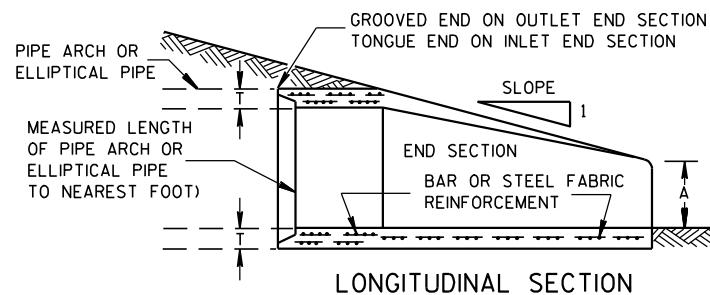
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

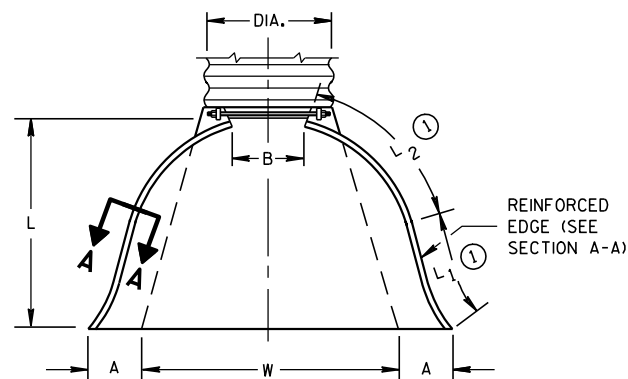


END VIEW



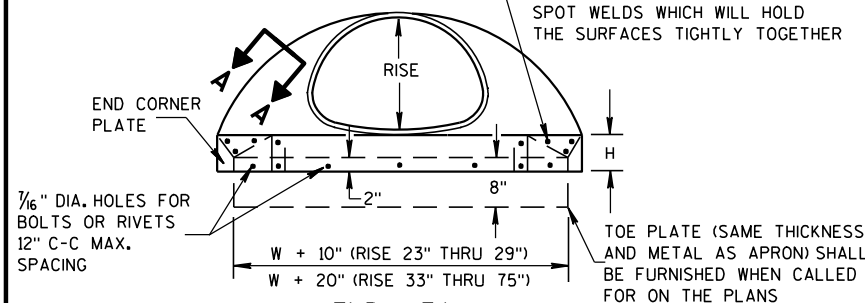
LONGITUDINAL SECTION

CONCRETE ENDWALLS

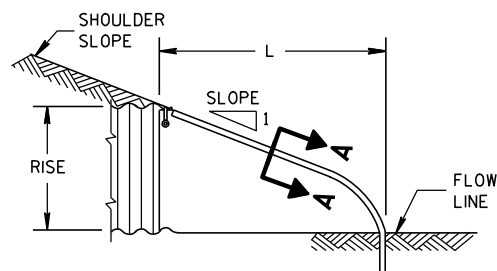
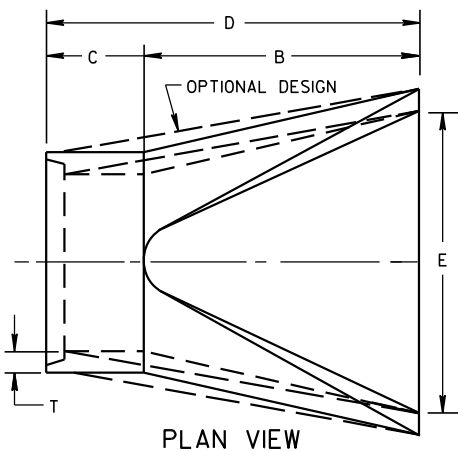


PLAN VIEW

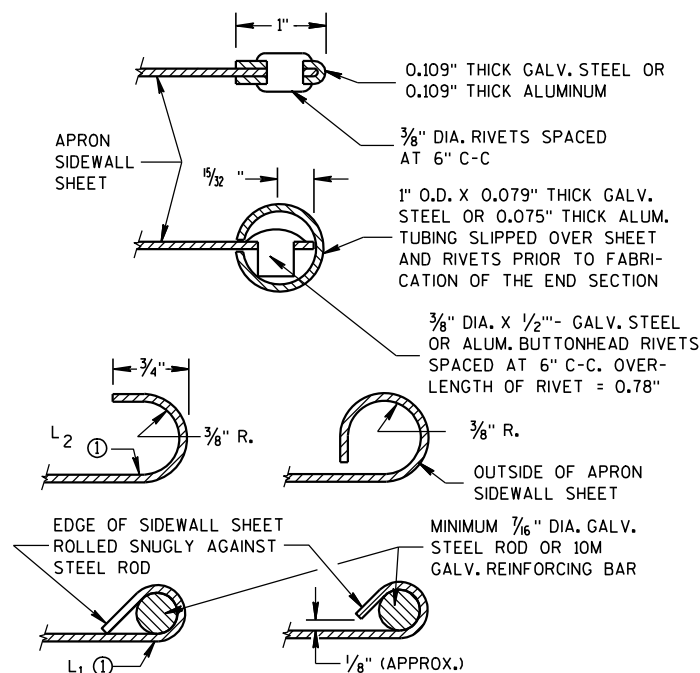
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

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

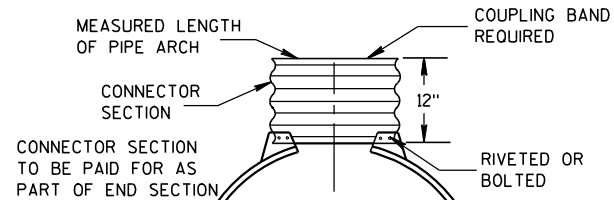
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

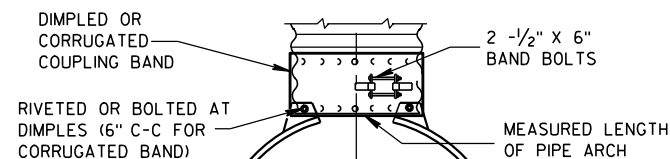
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

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

REINFORCED CONCRETE ELLIPTICAL PIPE

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

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

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

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

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

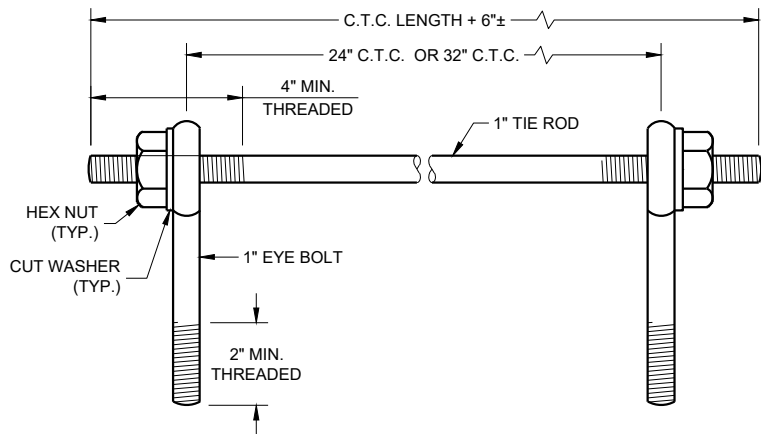
APPROVED

11/30/94

DATE

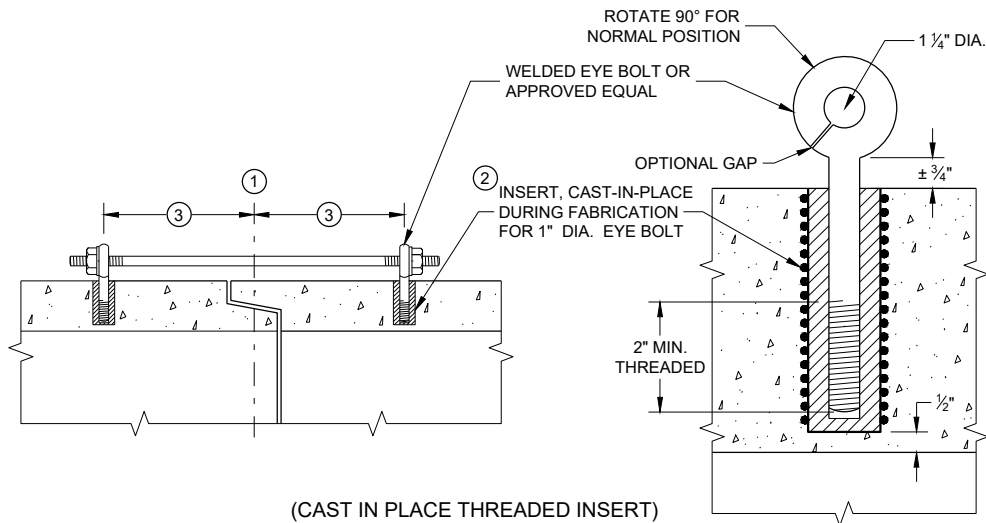
FHWA

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

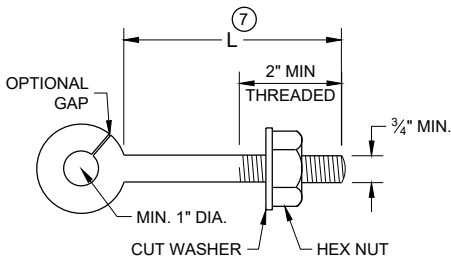
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

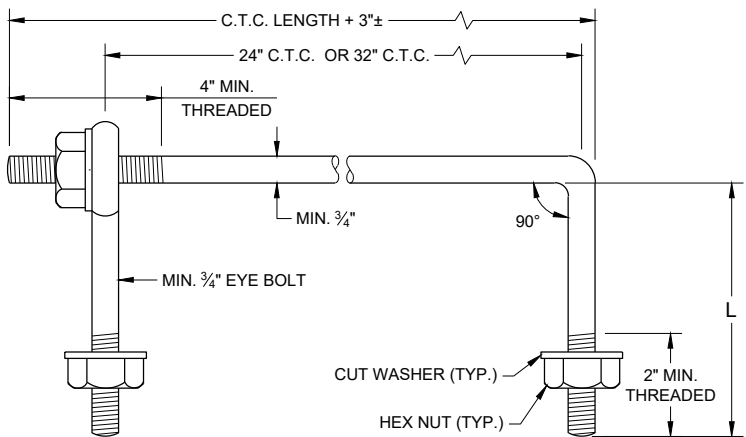
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

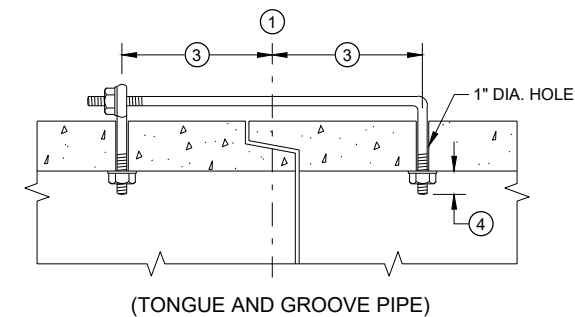


EYE BOLT 7

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



EYE BOLT AND TIE ROD

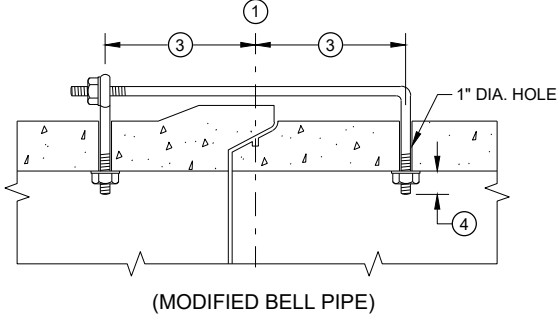


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

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

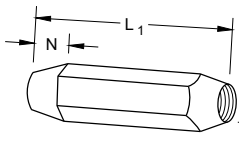


(MODIFIED BELL PIPE)

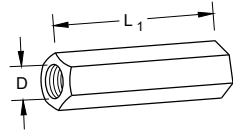
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

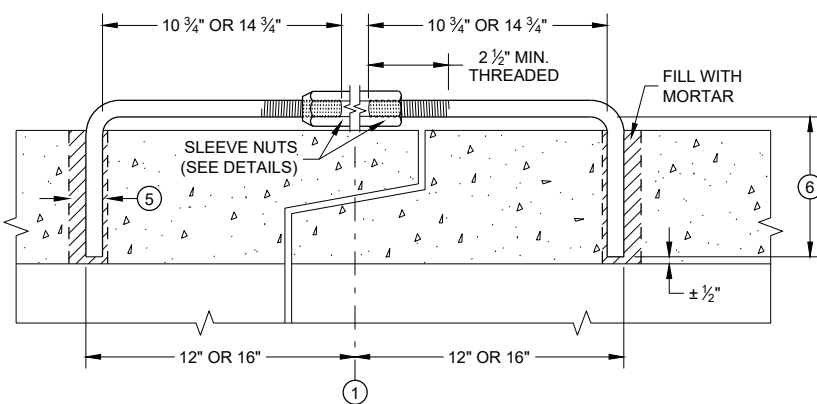


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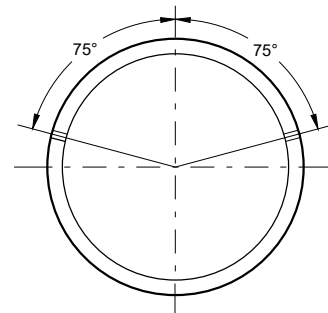
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



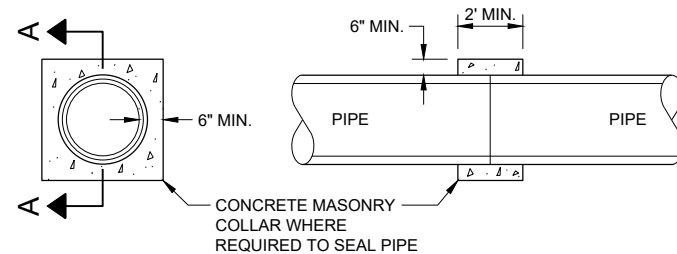
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



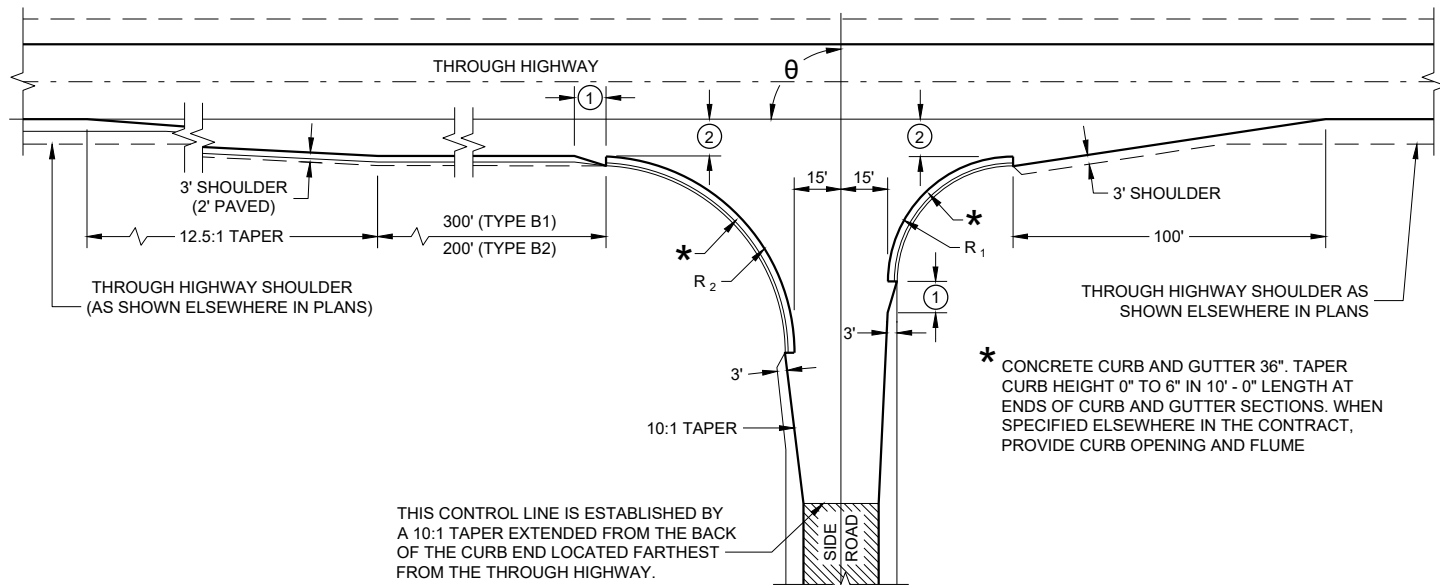
SECTION A - A

CONCRETE COLLAR DETAIL

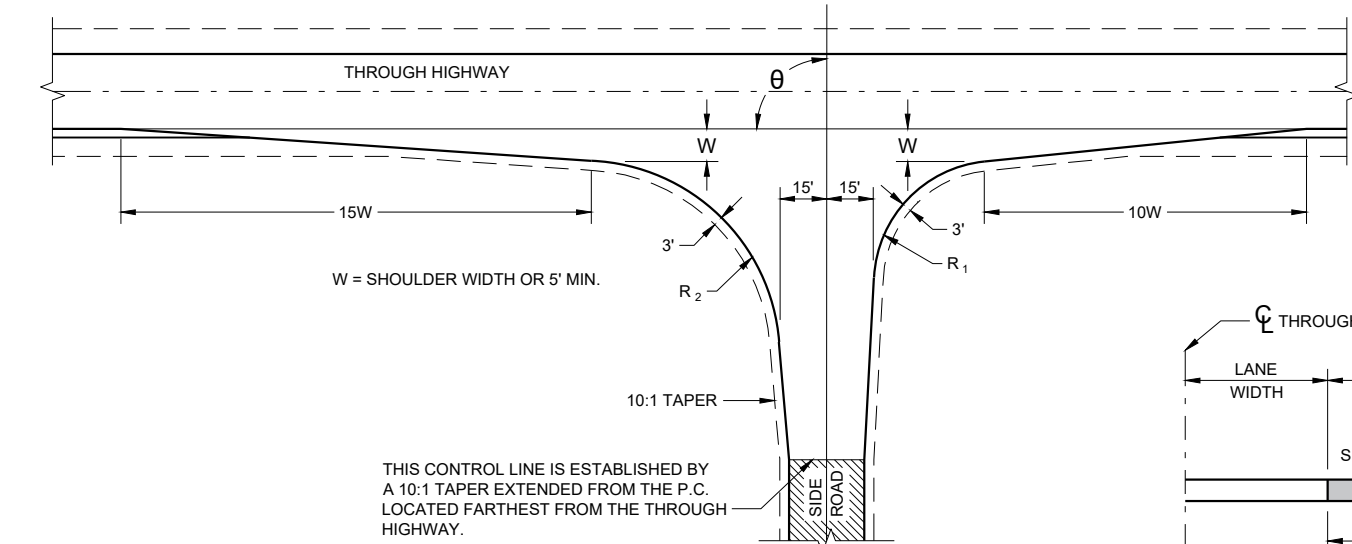
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

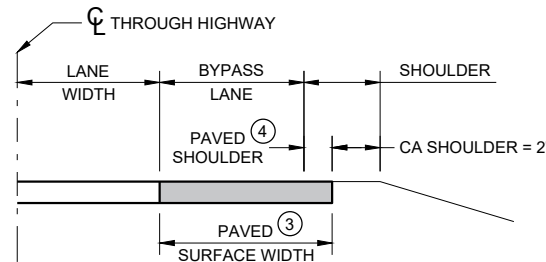
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



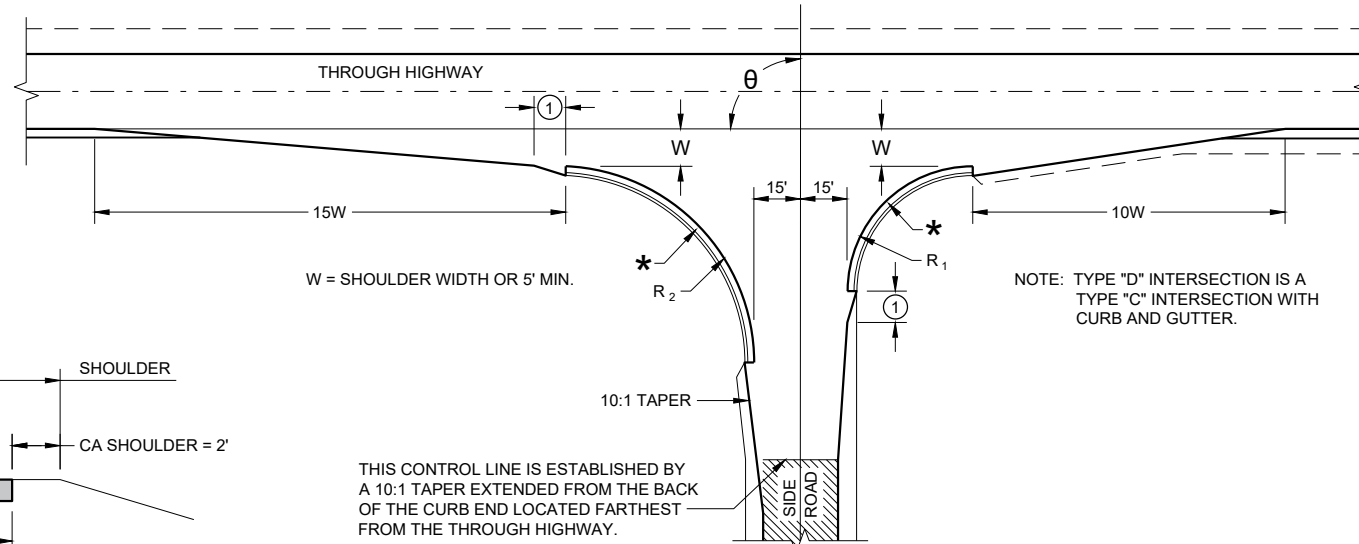
TYPE "B1" AND "B2"



TYPE "C"



SECTION A - A
(SHOWING BYPASS LANE AND SHOULDER)



TYPE "D"

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

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

GENERAL NOTES

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

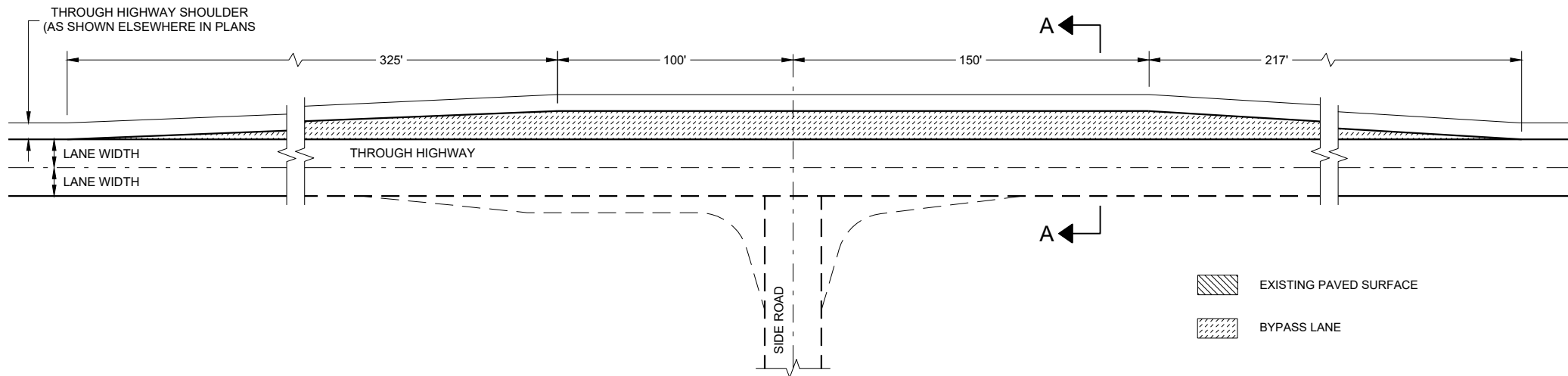
SIDE ROAD SURFACING NOTE

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

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

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

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

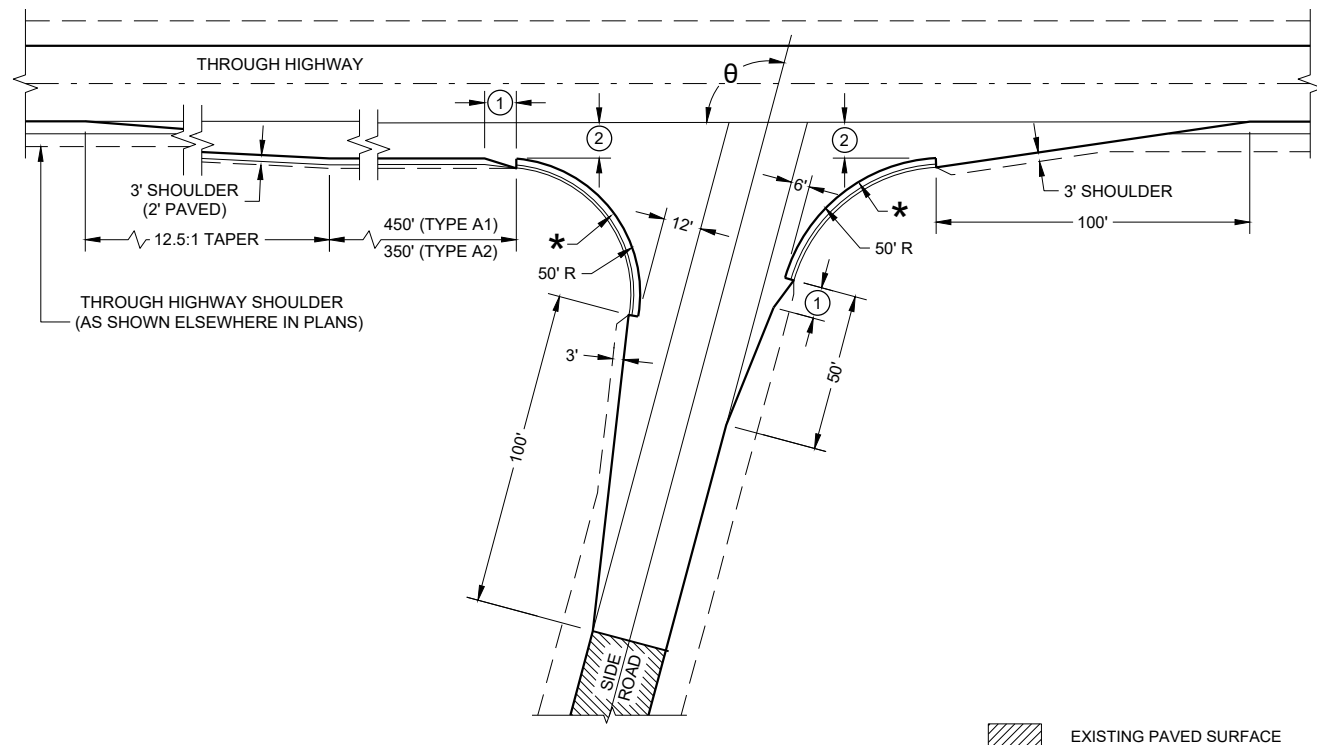


TEE INTERSECTION BYPASS LANE DETAIL

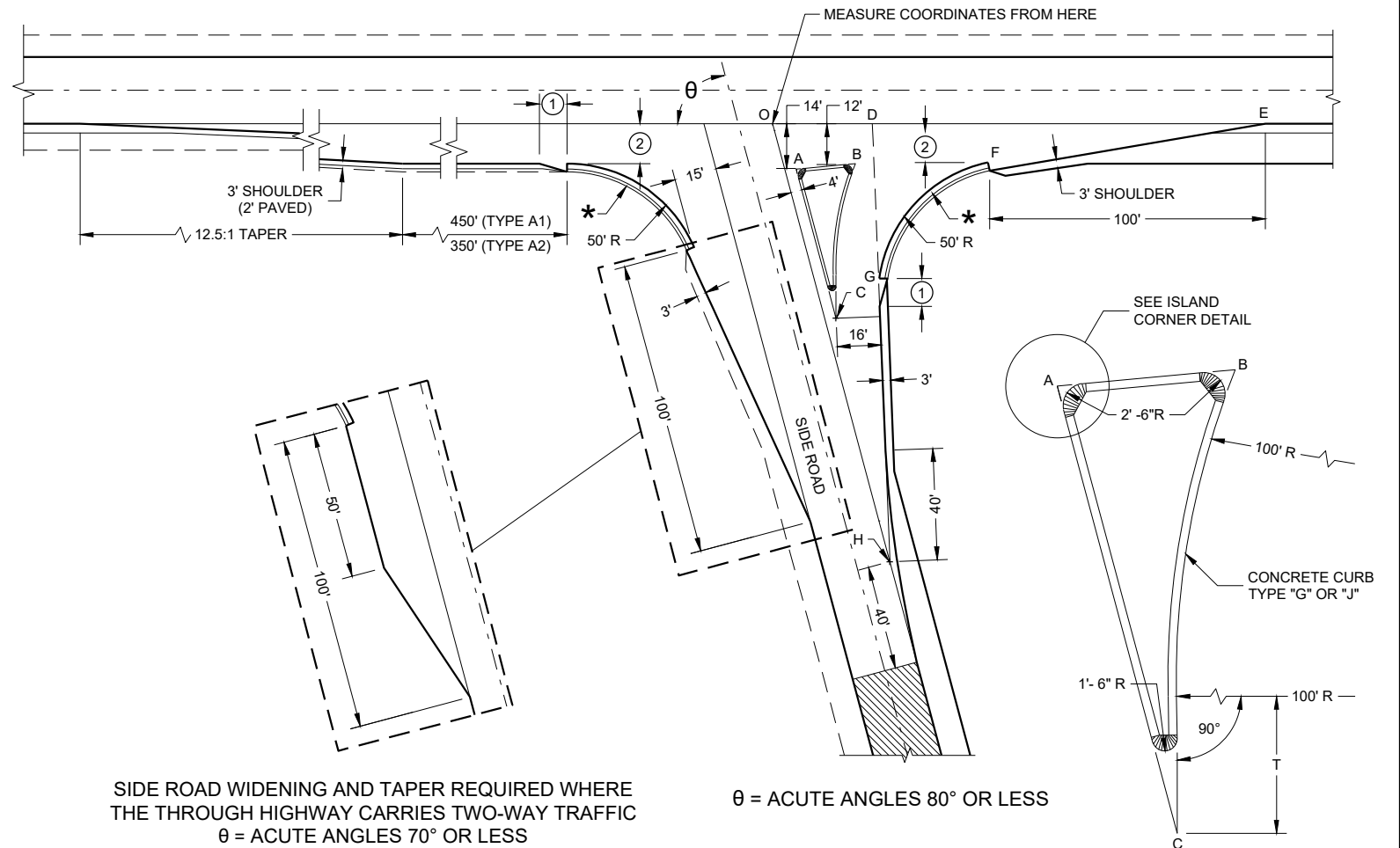
- EXISTING PAVED SURFACE
- BYPASS LANE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

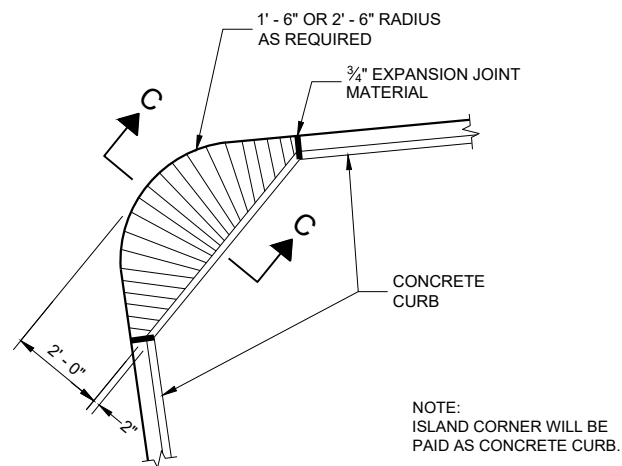


$\theta = \text{MORE THAN } 80^\circ$

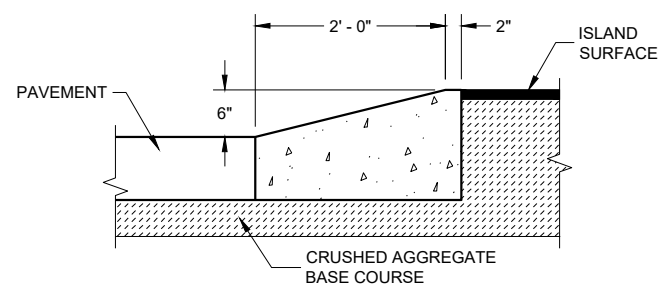


SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 $\theta = \text{ACUTE ANGLES } 70^\circ \text{ OR LESS}$

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



PLAN VIEW



SECTION C - C

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

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

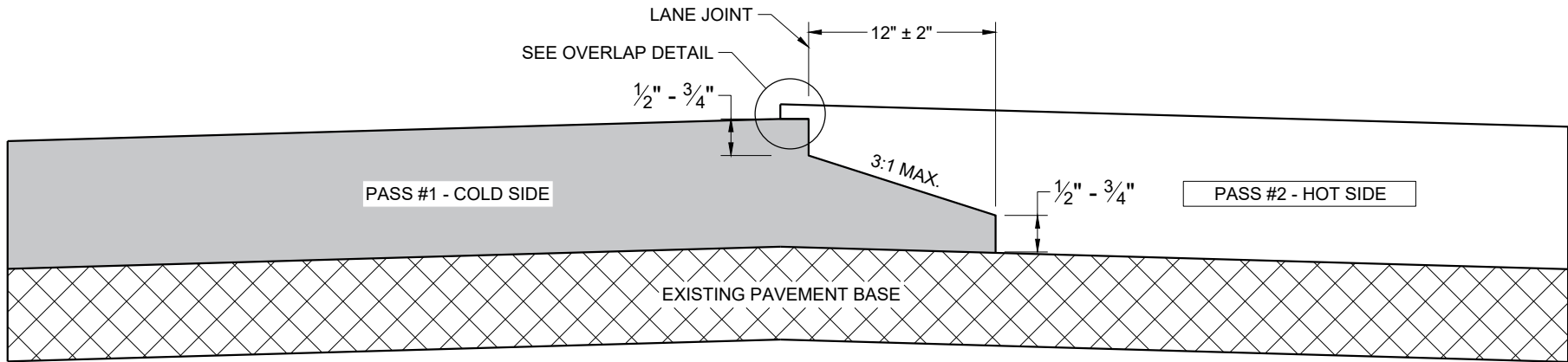
ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT 'O')								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 -14.0	44.9 -12.0	46.4 -72.4	41.9 0.0	205.0 0.0	104.6 -12.0	64.0 -75.5	85.0 -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 -14.0	39.0 -12.0	37.8 -71.6	39.4 0.0	196.1 0.0	95.7 -12.0	54.1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

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

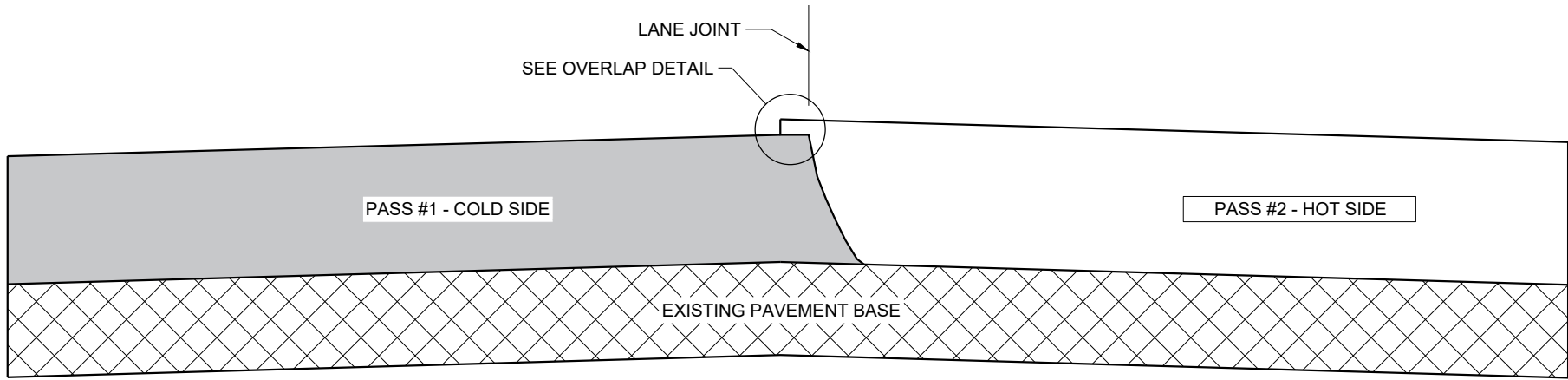
AT GRADE SIDE ROAD
INTERSECTIONS
TYPES "A1" AND "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

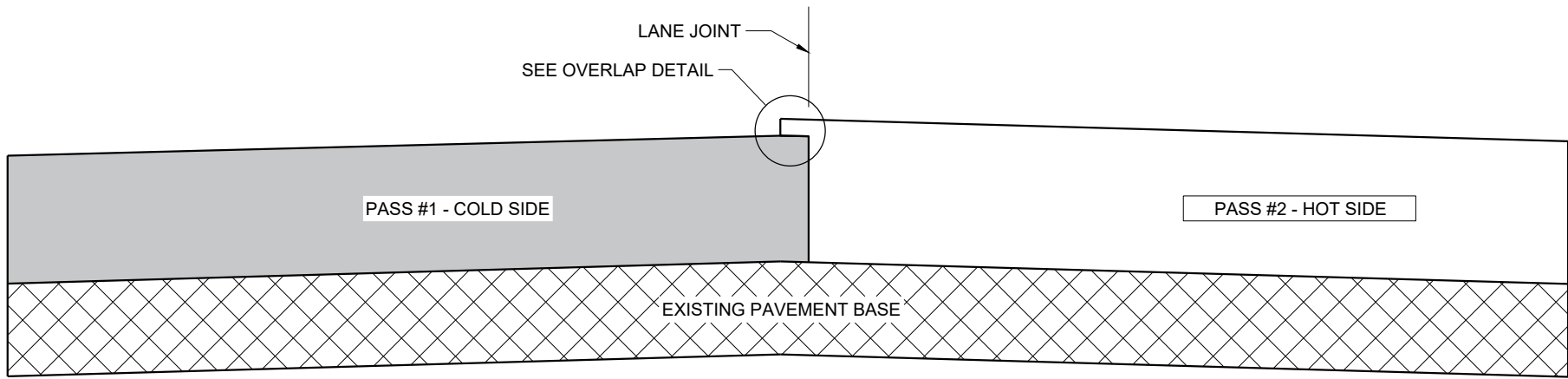
APPROVED
November 2022
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

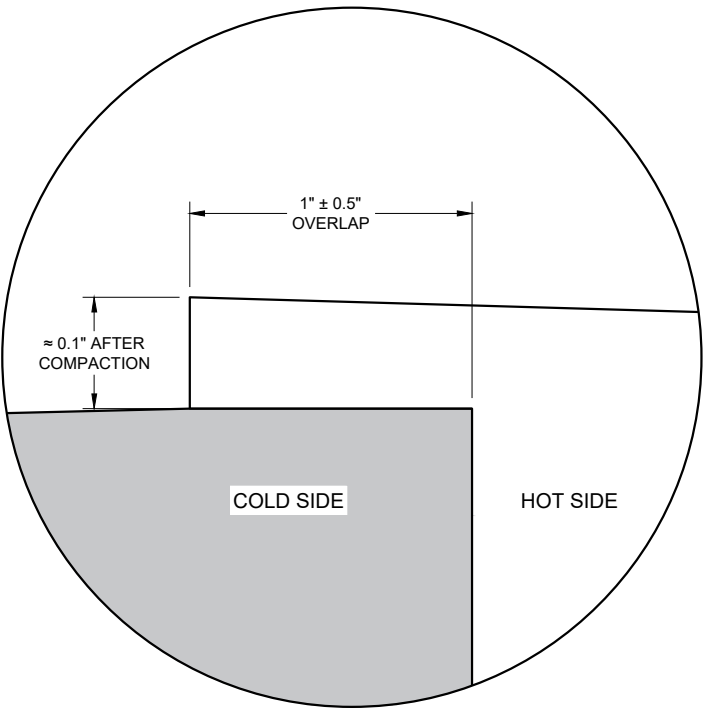
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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

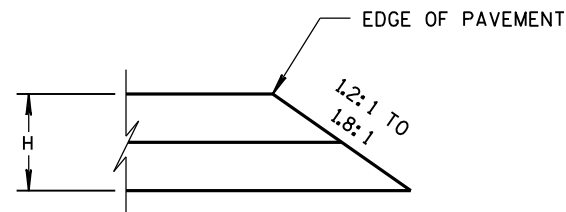


OVERLAP DETAIL (TYPICAL)

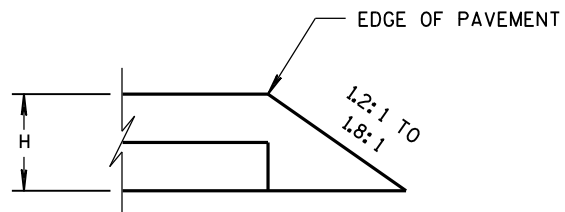
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

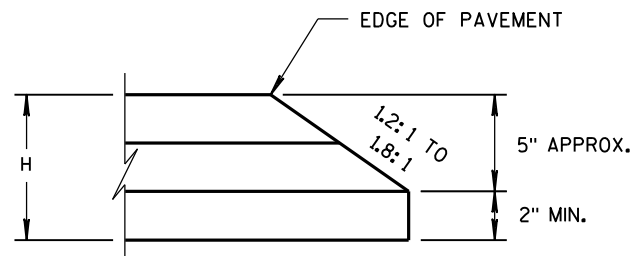
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA



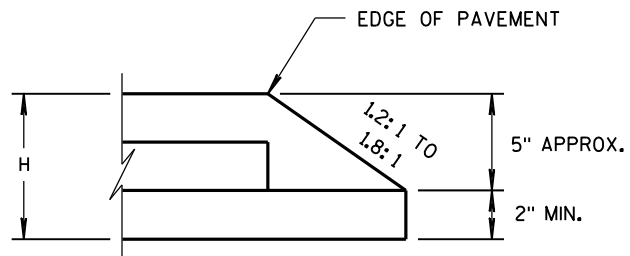
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

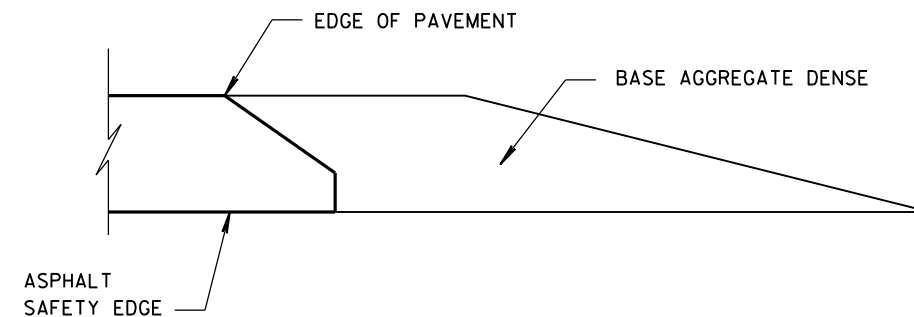


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



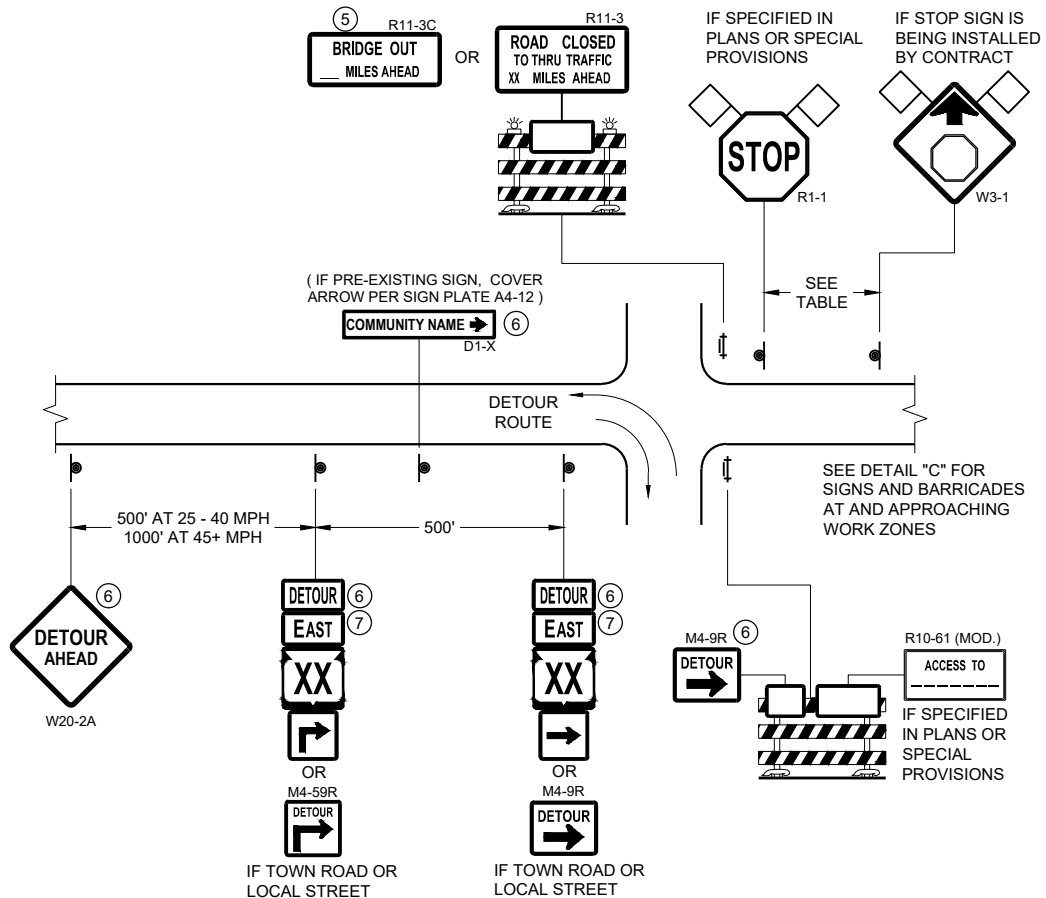
CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS

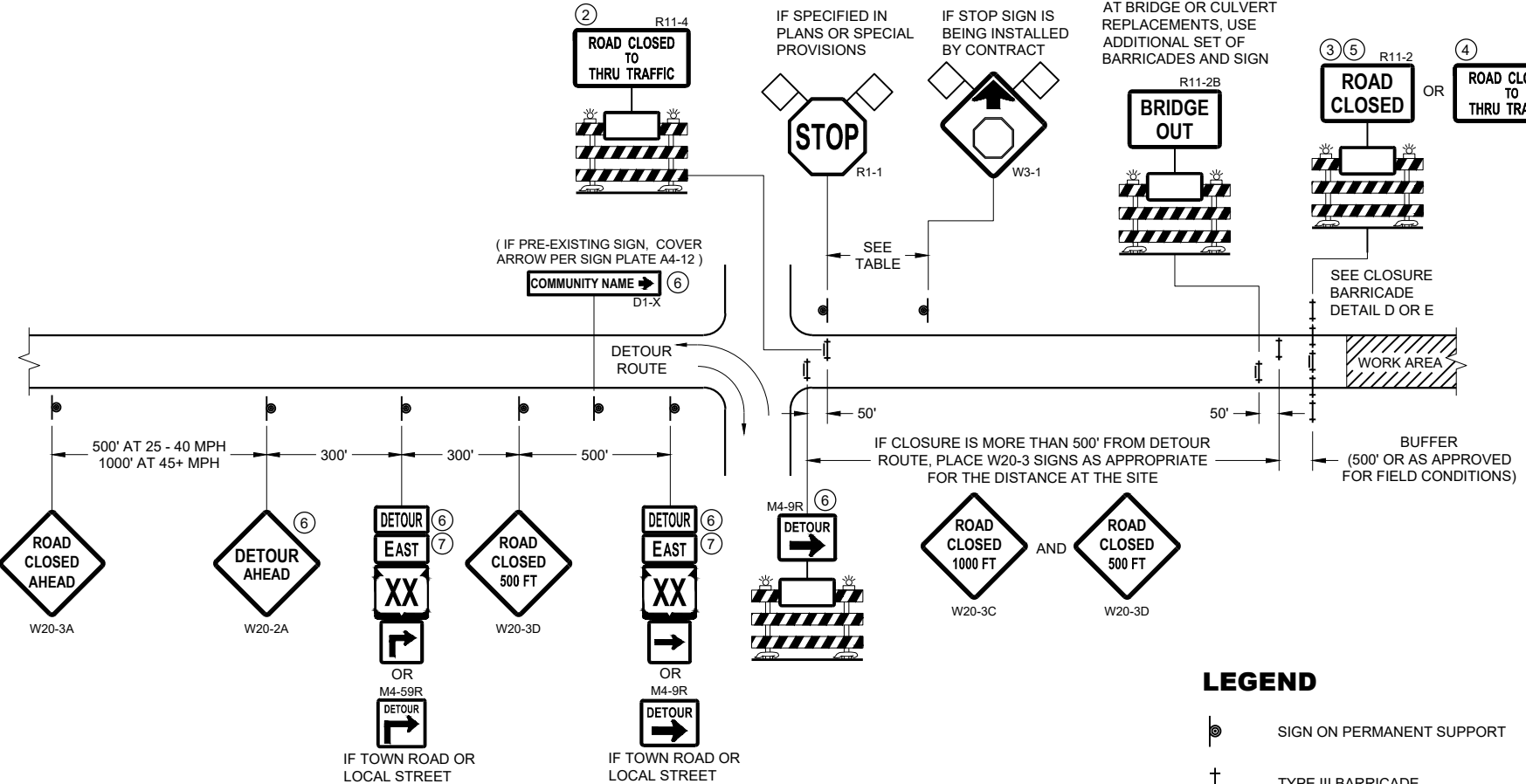


FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE _{SM}	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 11/30/2012	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER FHWA



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



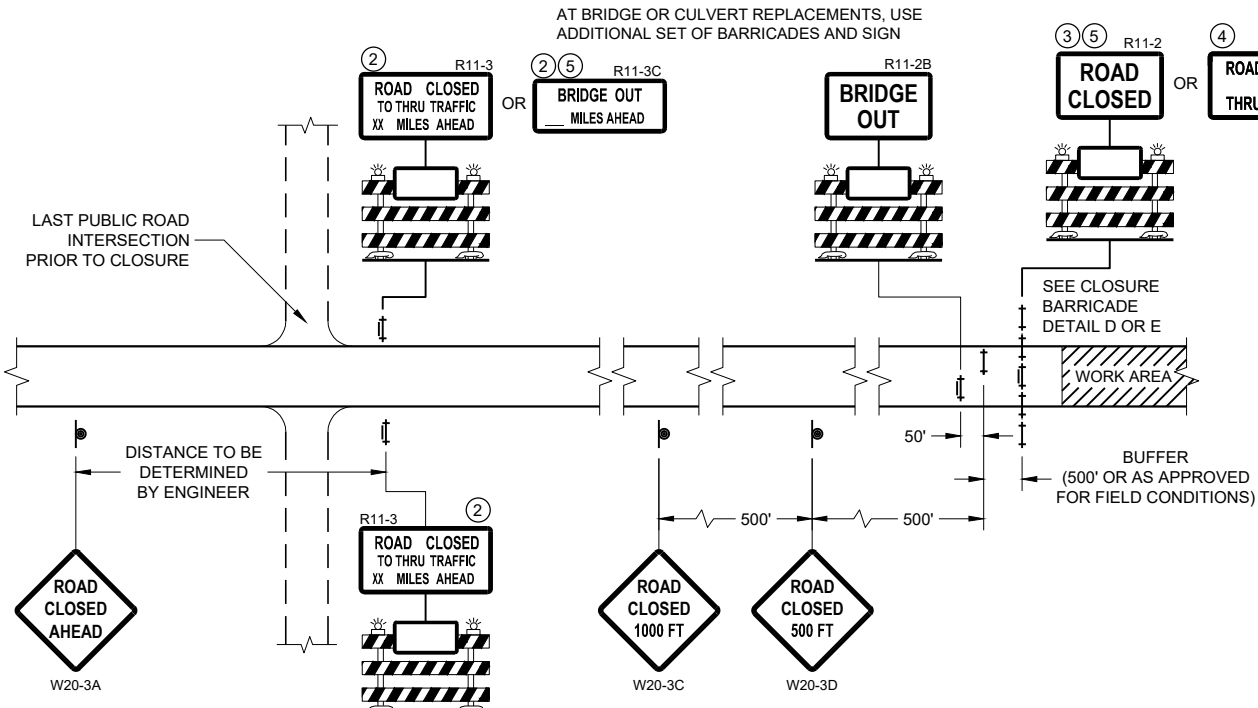
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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

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

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



SEE SDD 15C2 - SHEET "a" FOR LEGEND

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND 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.

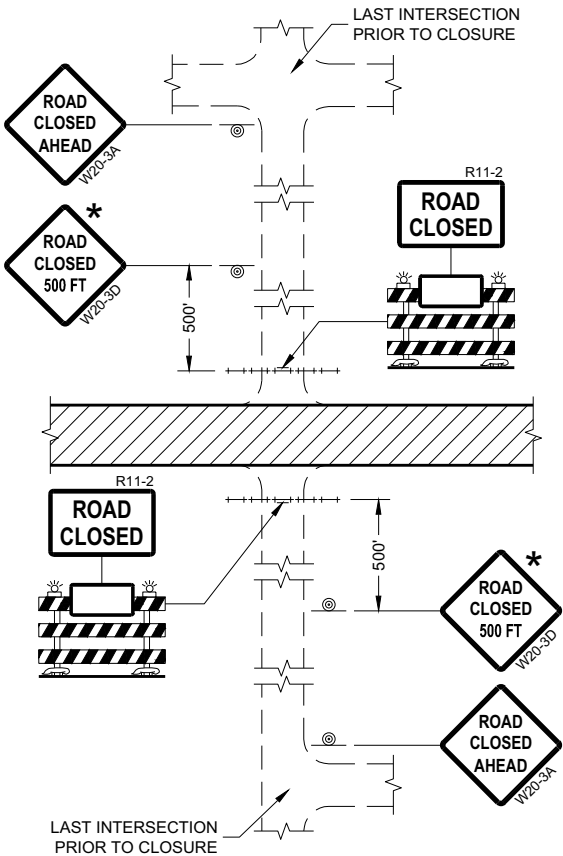
THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

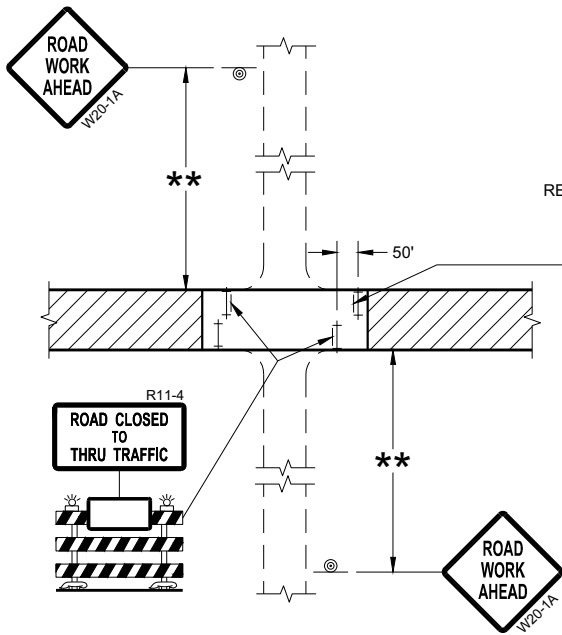
ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

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"

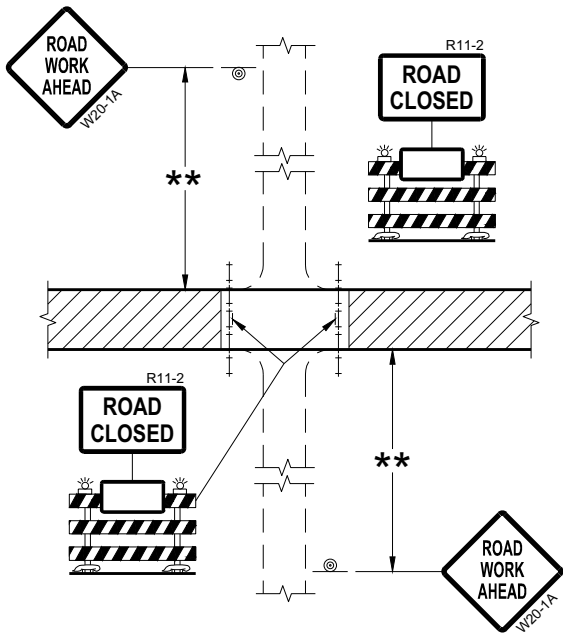
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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



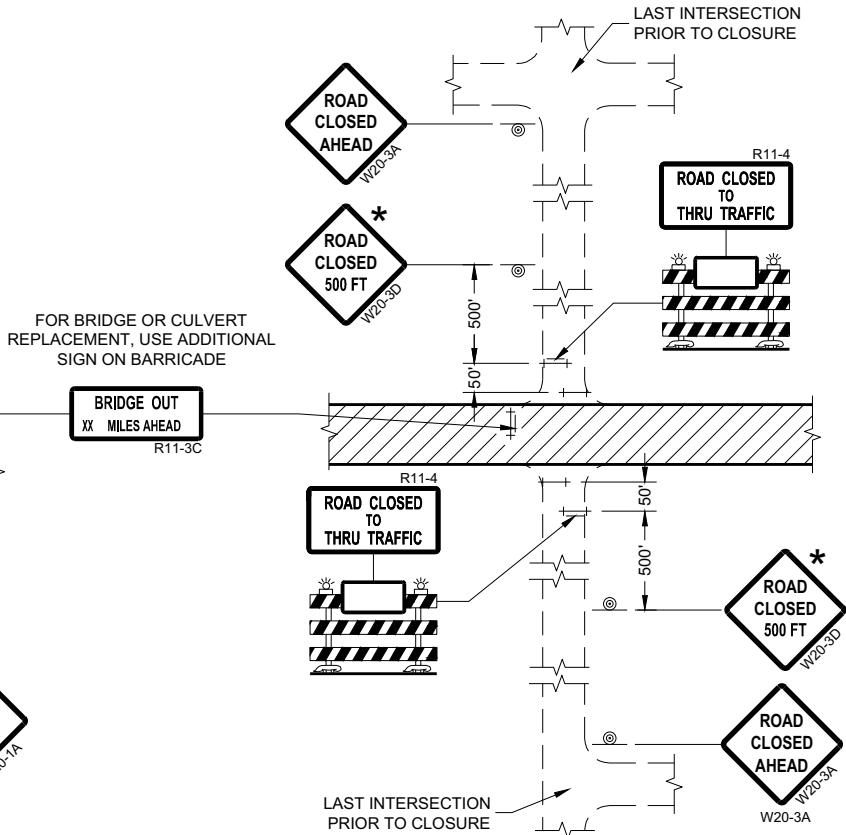
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

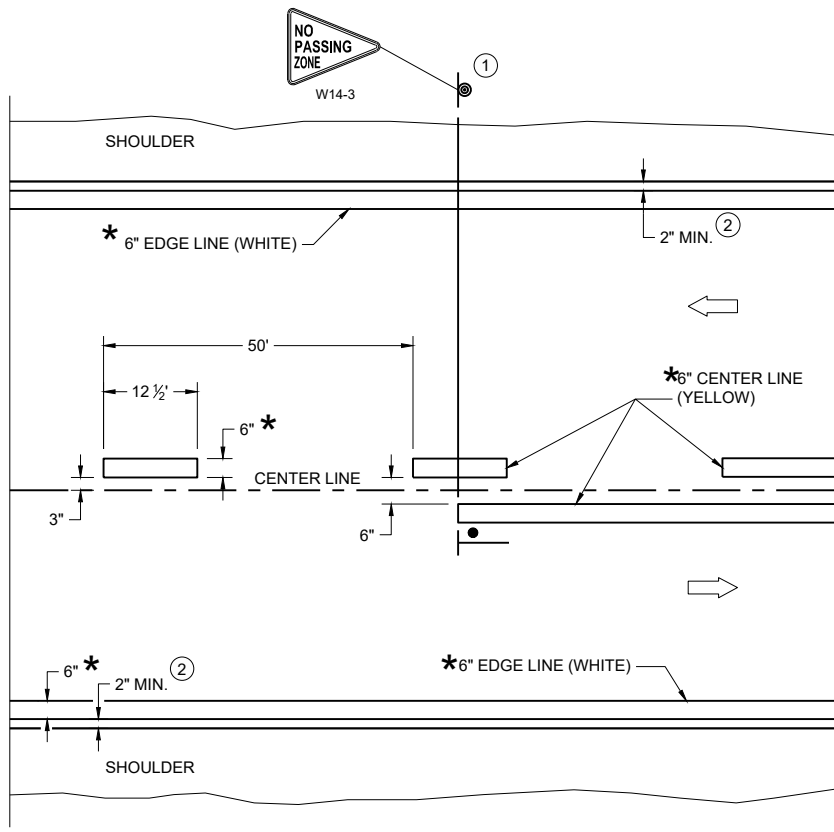
LEGEND

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

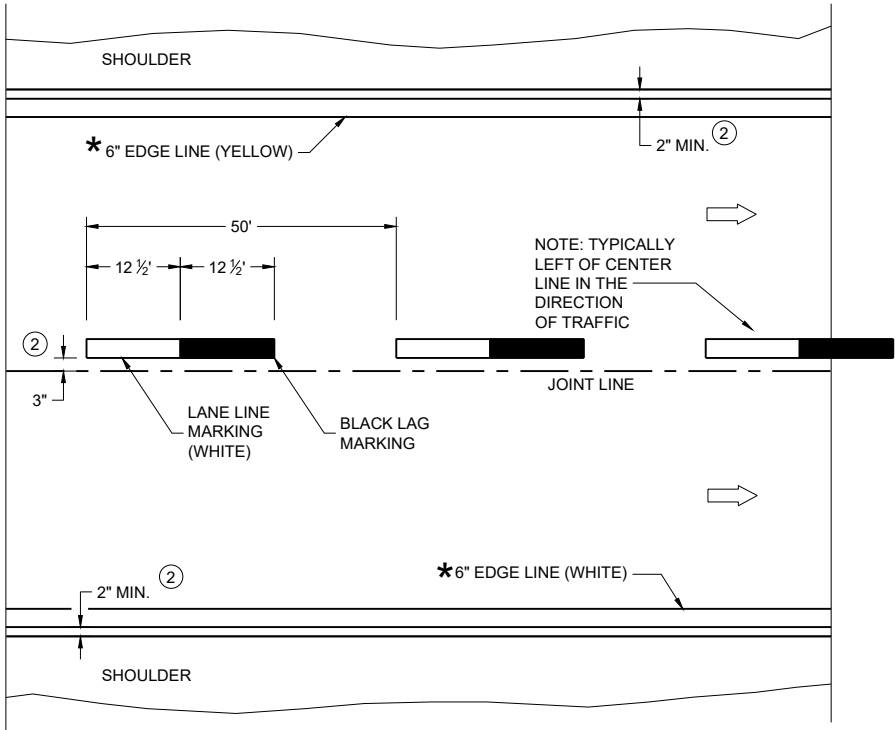
**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

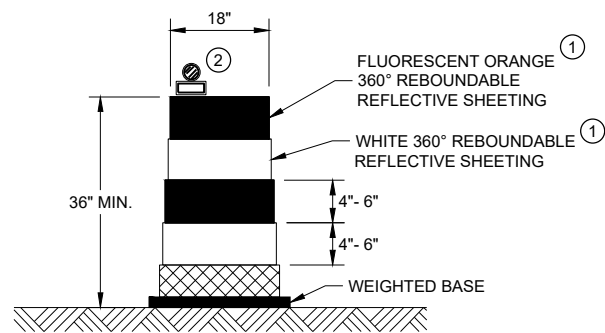
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

LEGEND

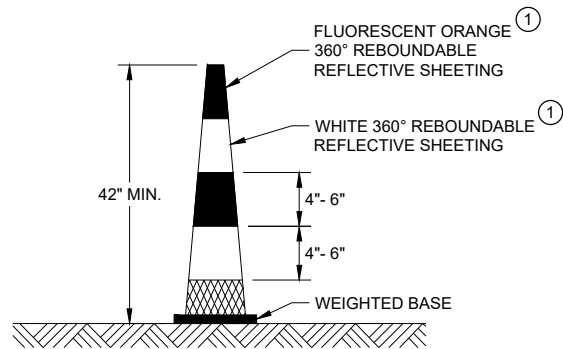
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

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



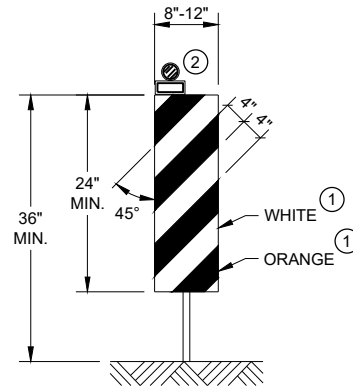
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



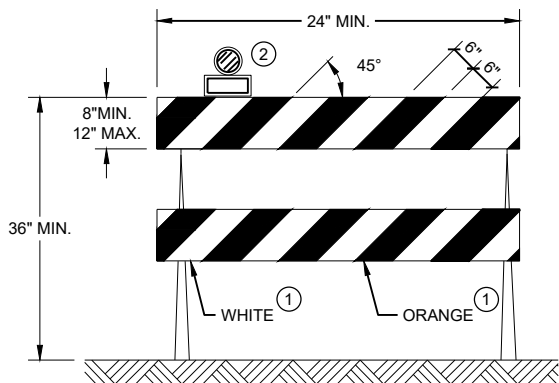
42" CONE

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



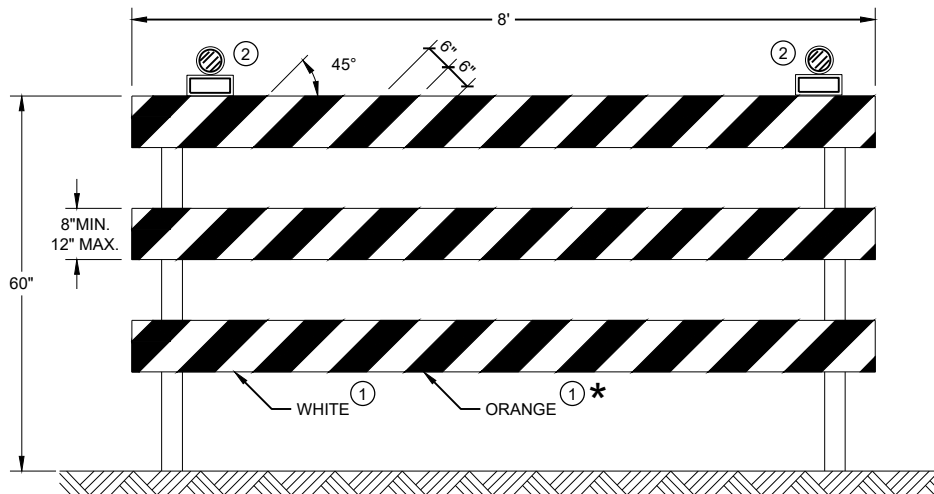
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

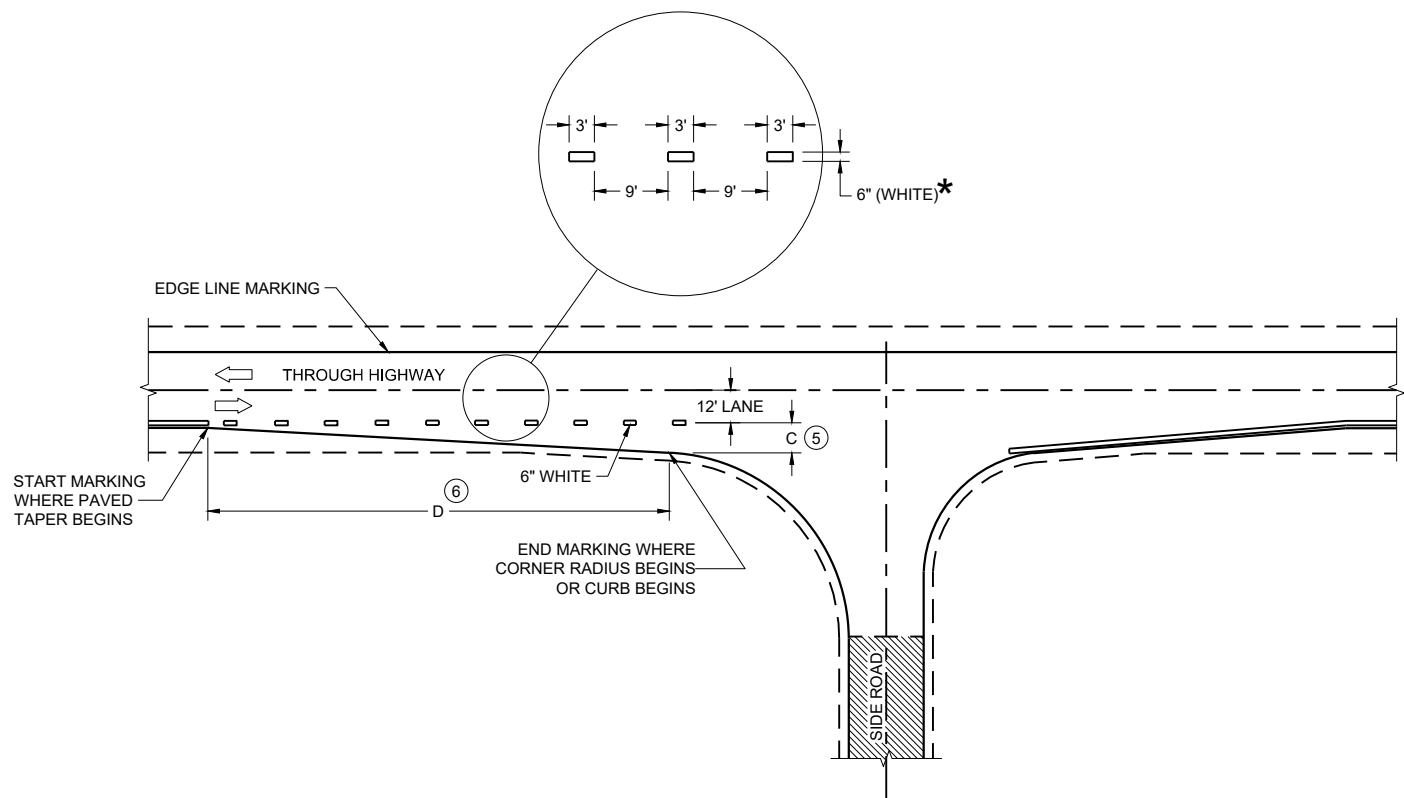
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

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

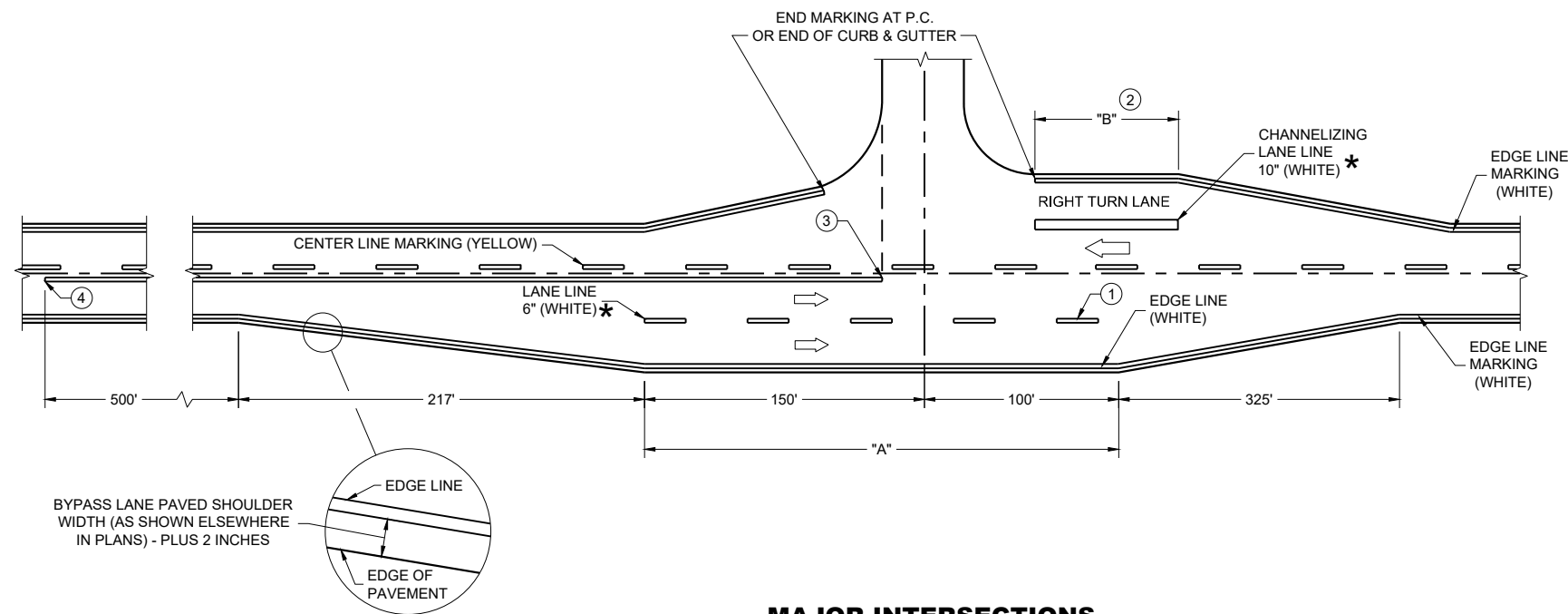
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



MINOR INTERSECTION



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

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

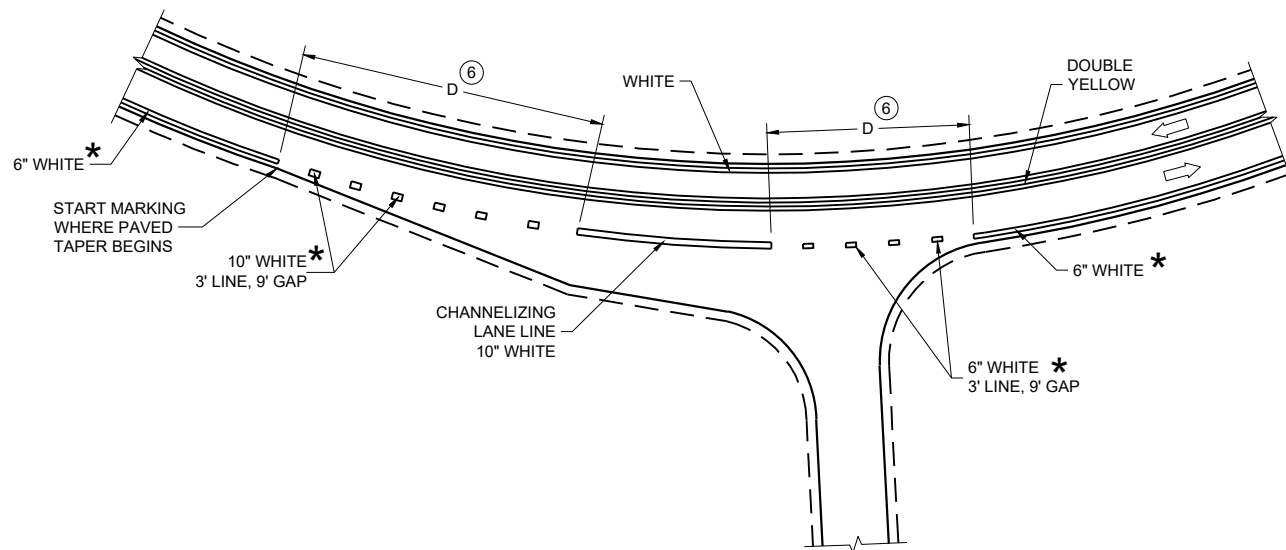
GENERAL NOTES

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

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

LEGEND

➡ DIRECTION OF TRAVEL

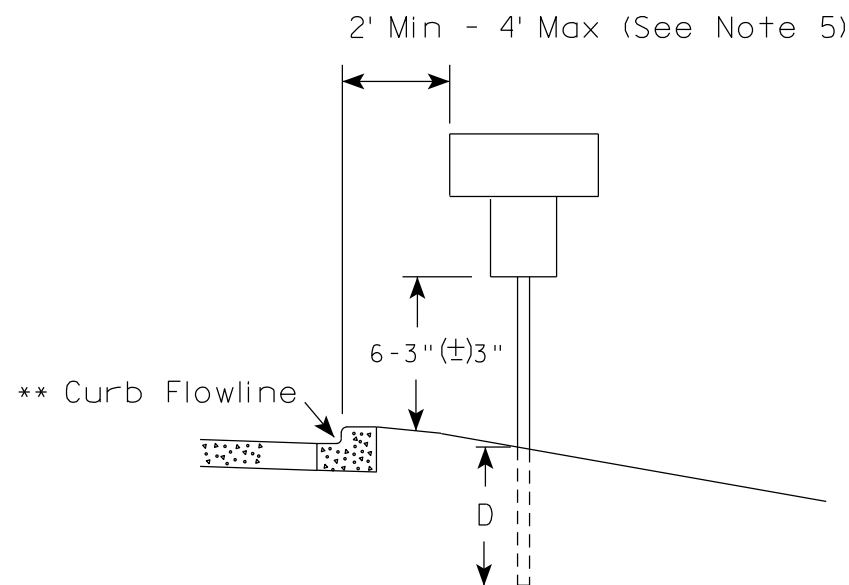
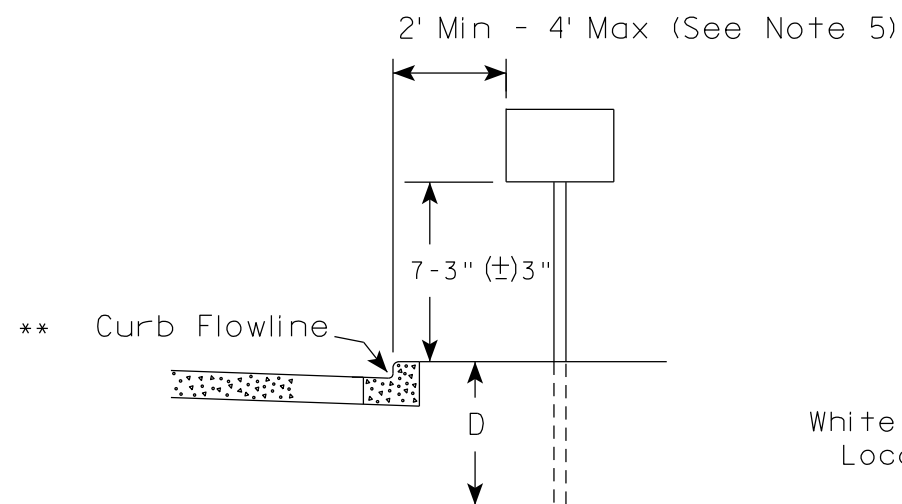


INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

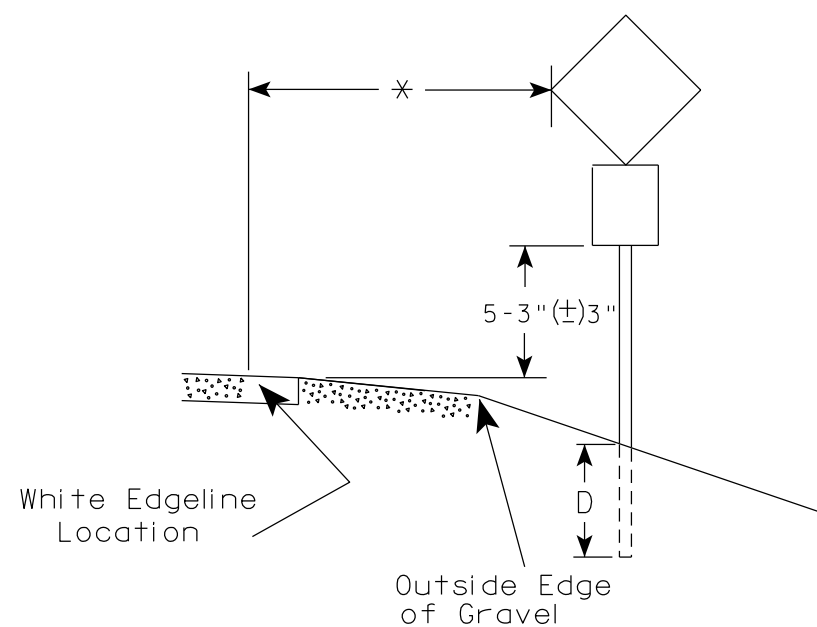
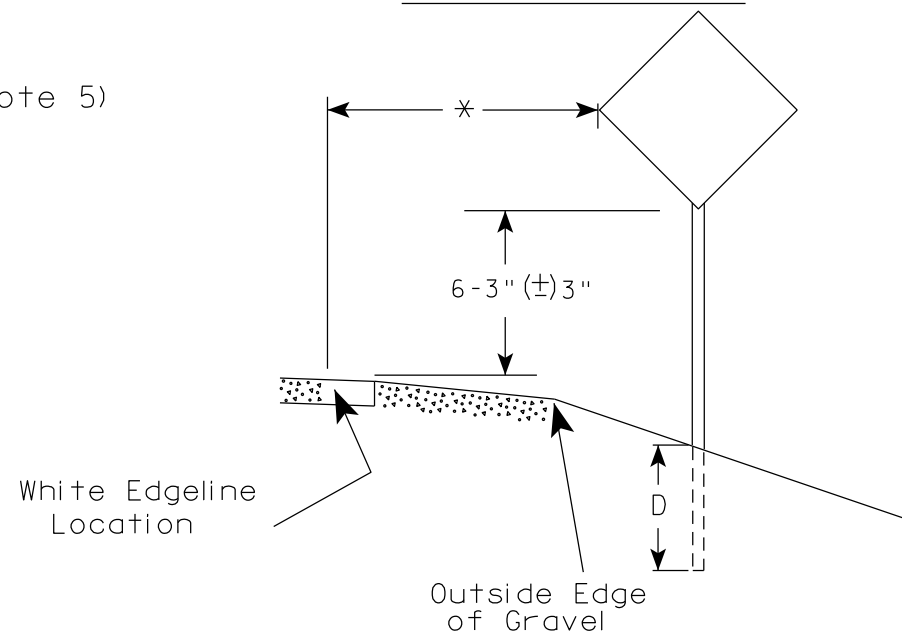
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

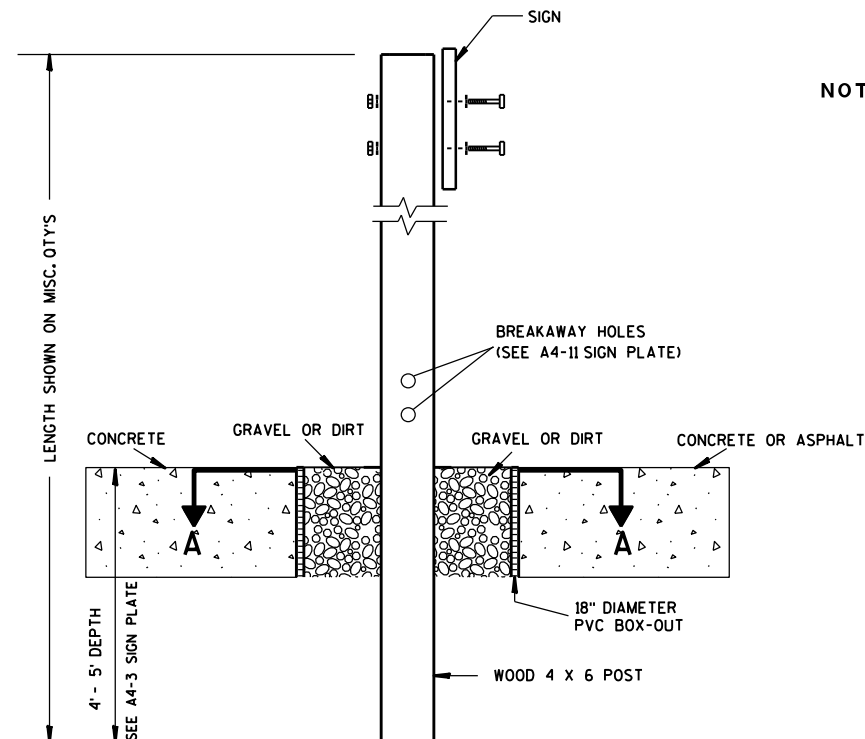
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

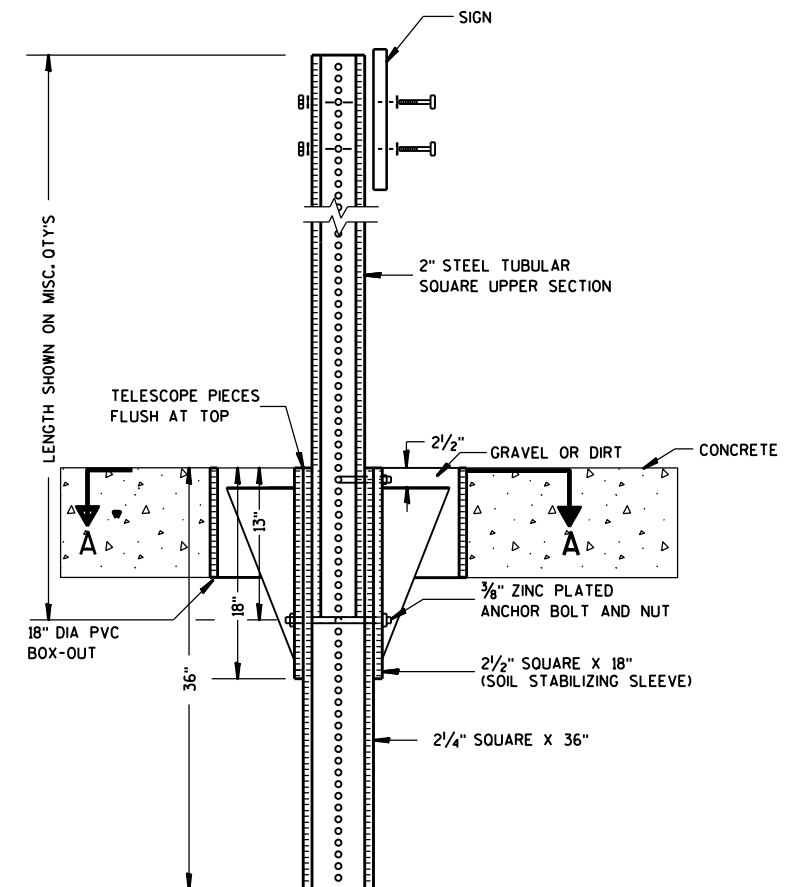
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

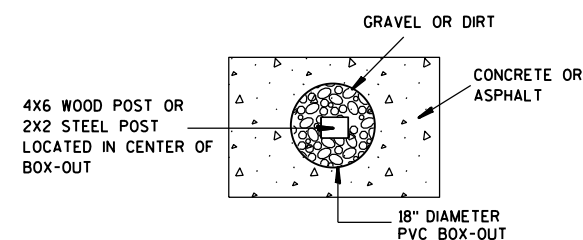
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:

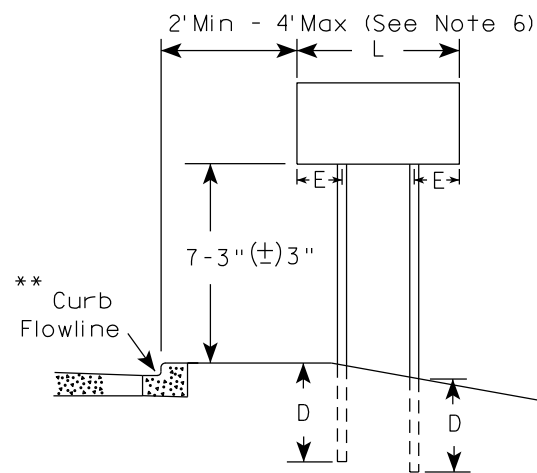
HWY:

COUNTY:

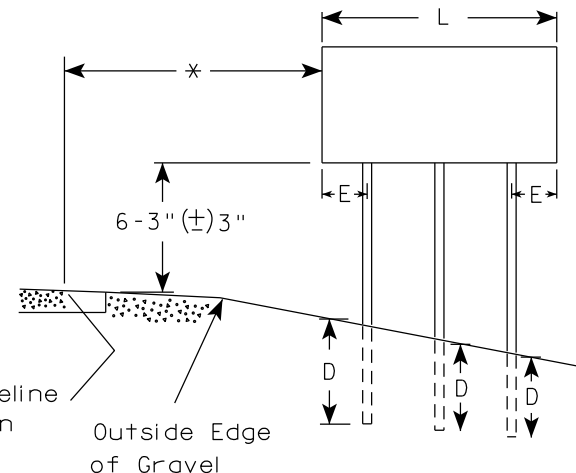
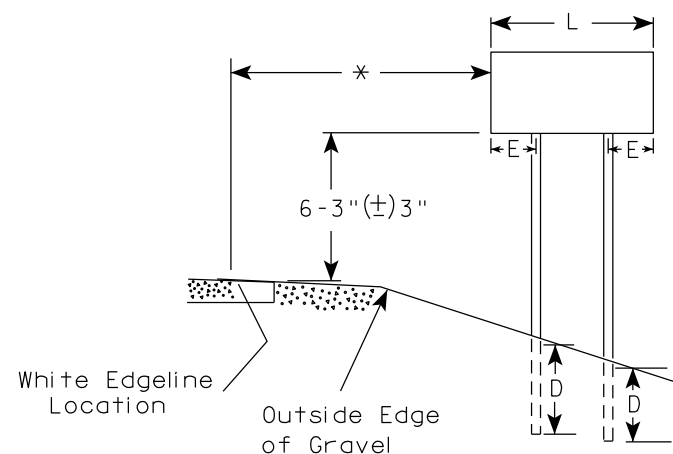
SHEET NO:

E

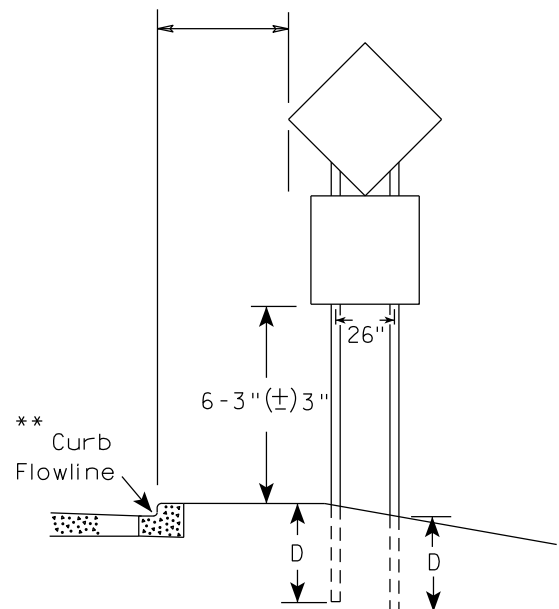
URBAN AREA



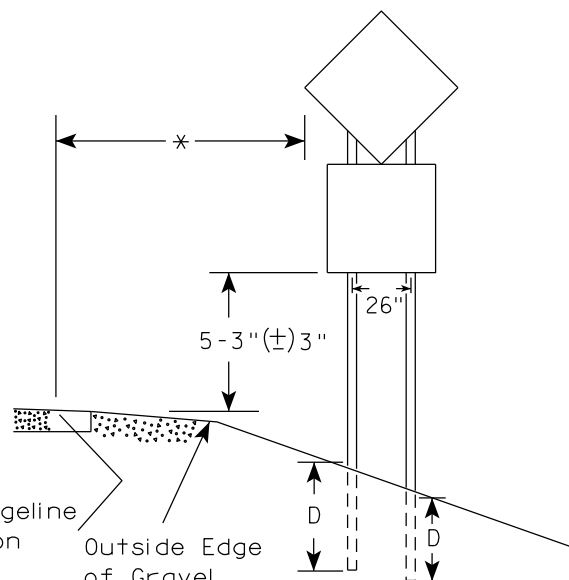
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

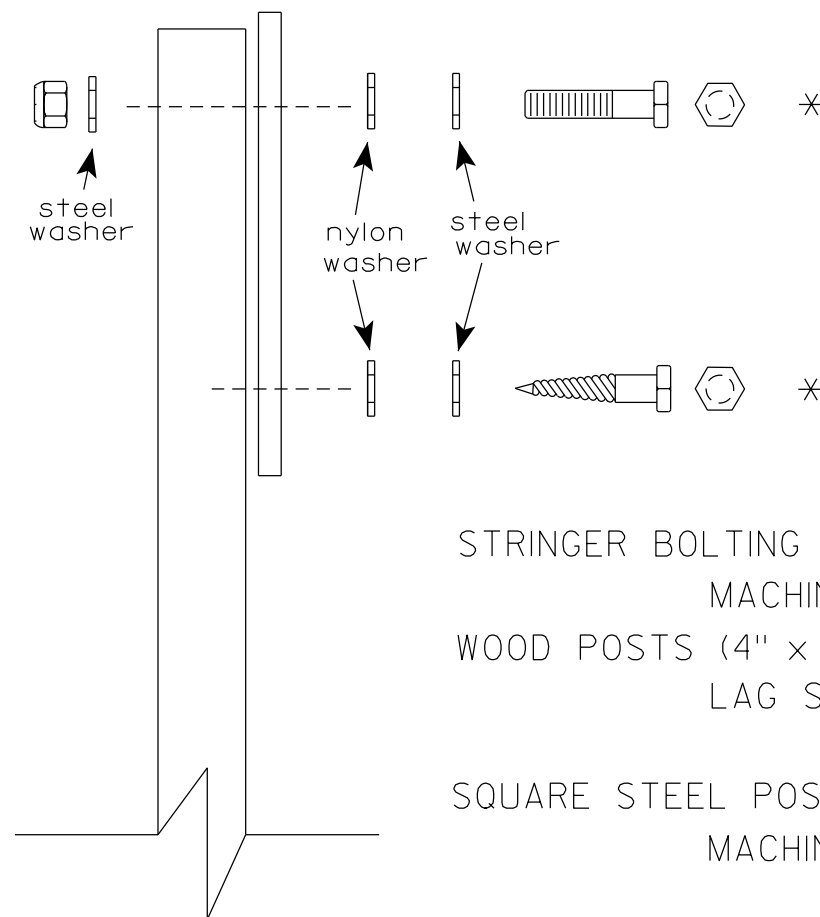
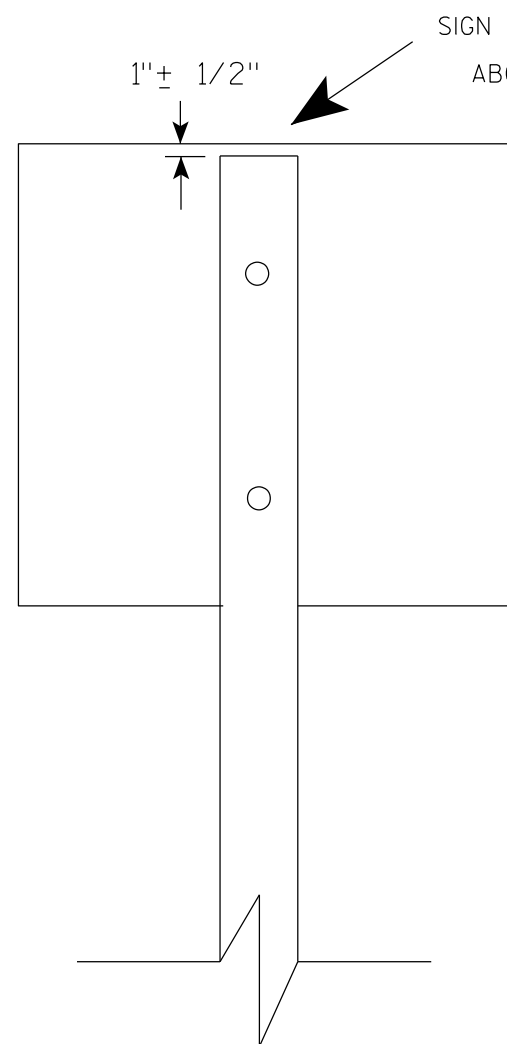
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



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

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

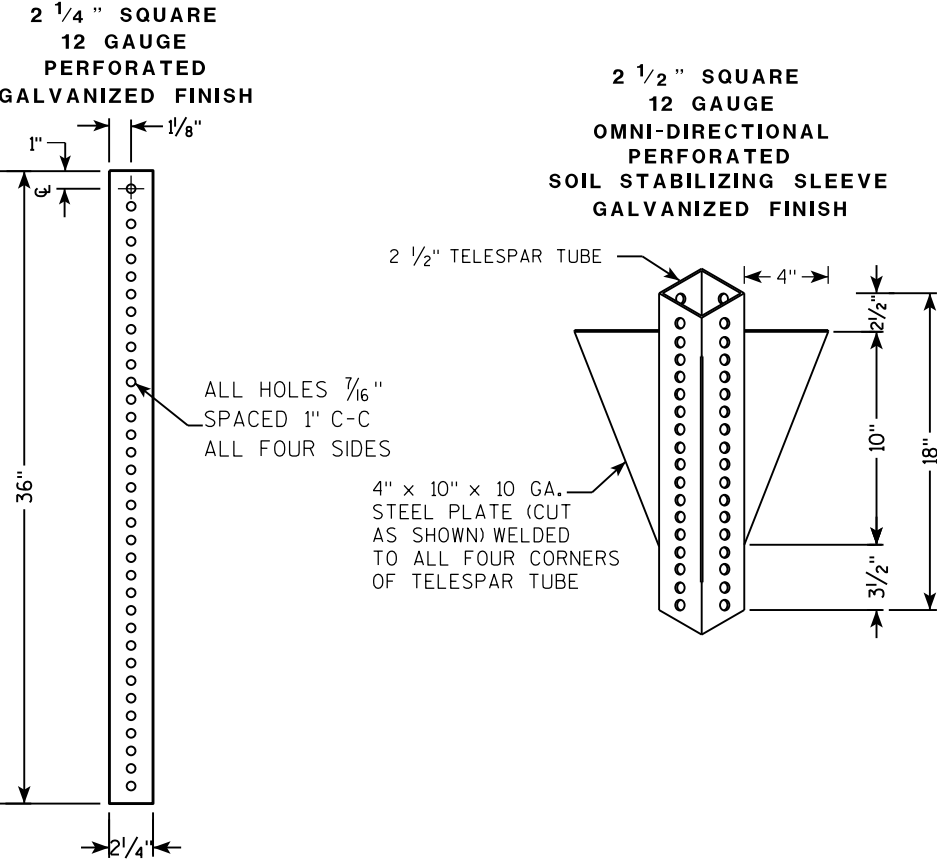
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

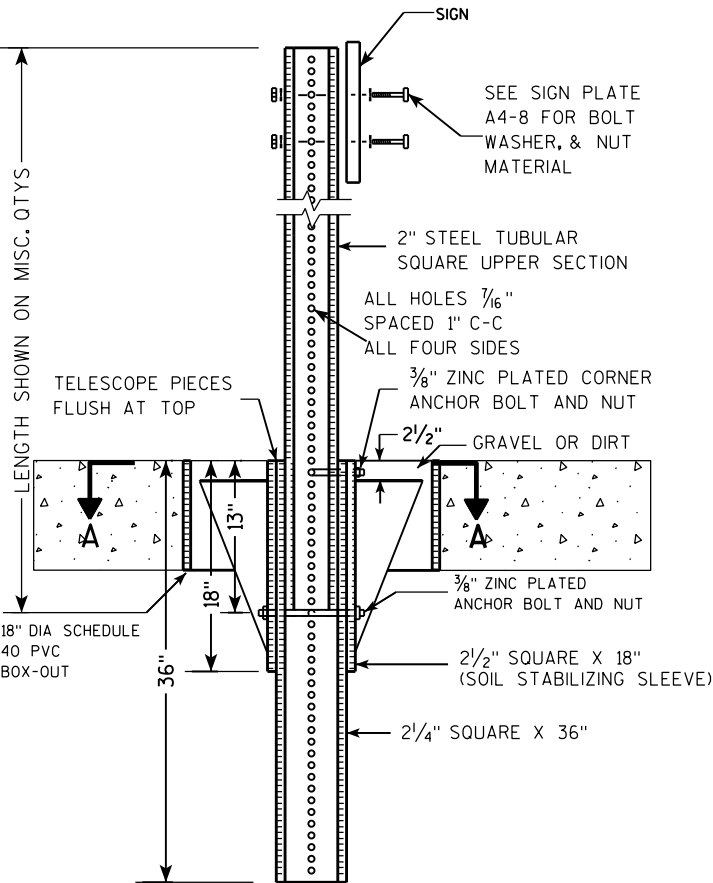
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

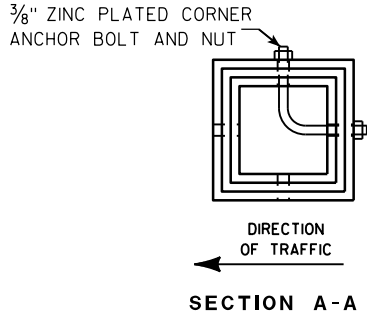
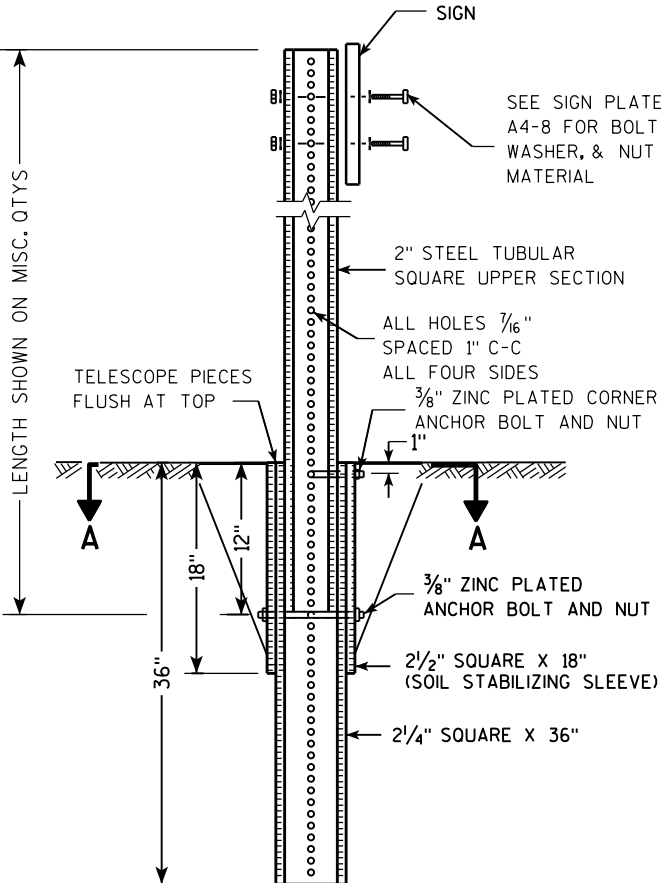
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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



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



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

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

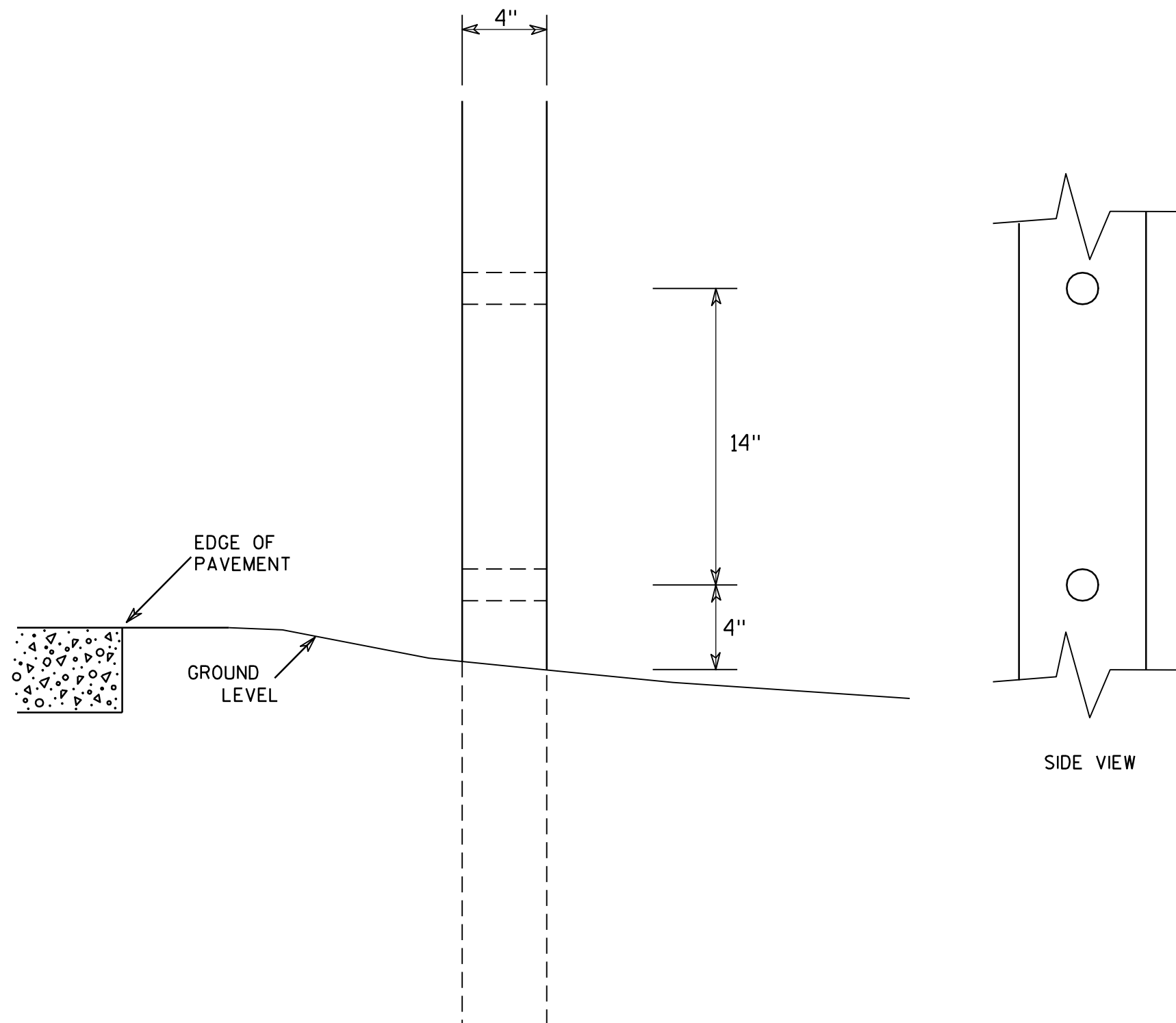
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

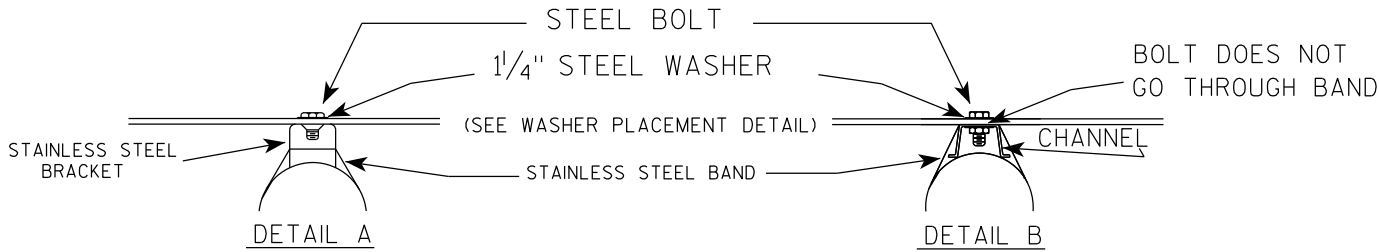
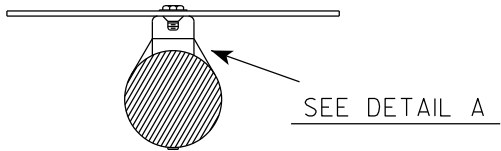
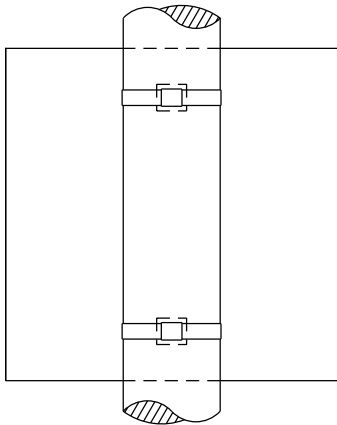
COUNTY:

SHEET NO:

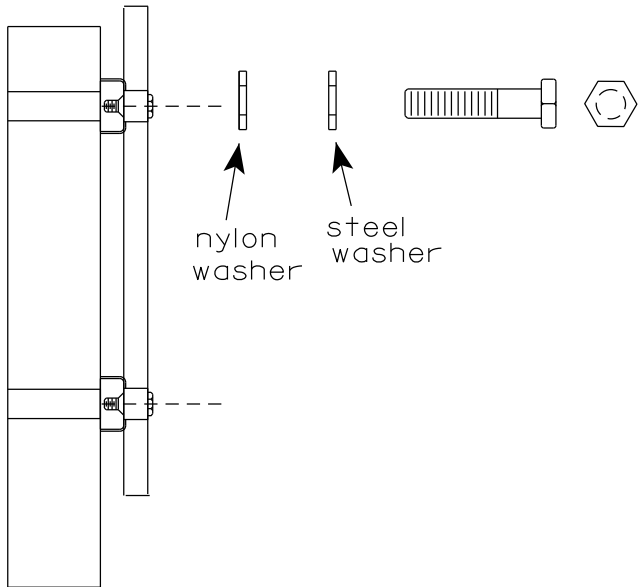
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

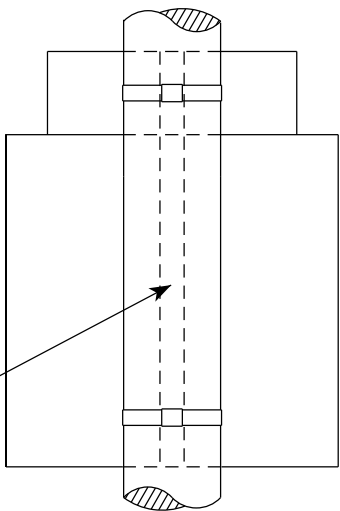


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

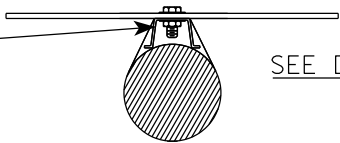
GENERAL NOTES

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

"J" ASSEMBLY



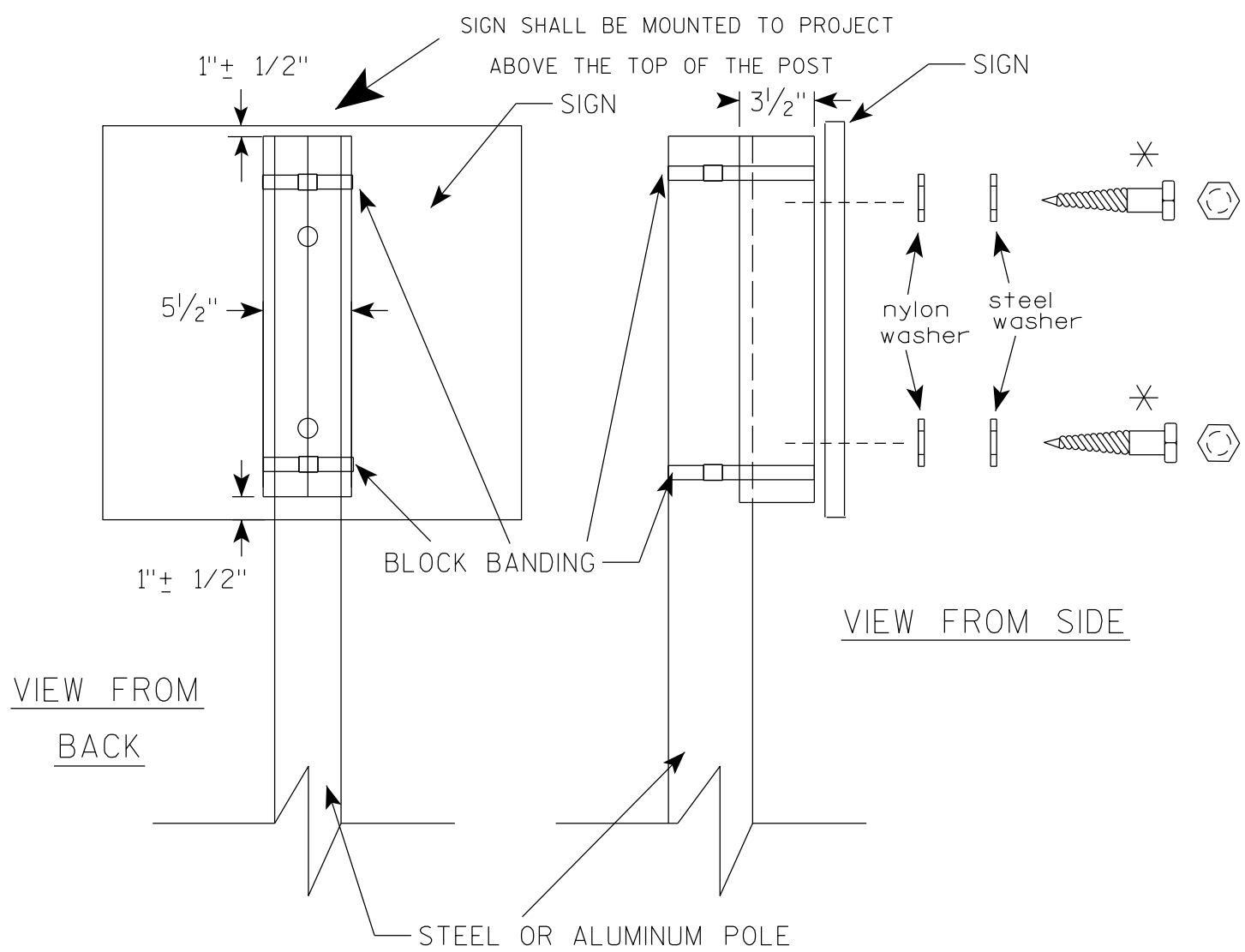
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

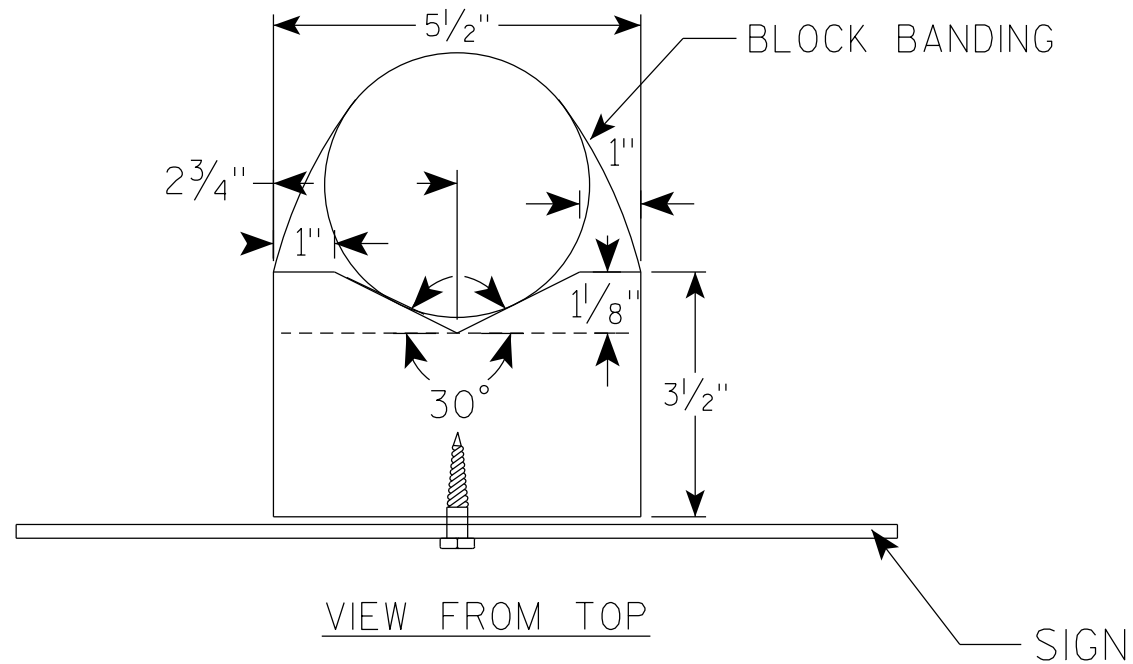
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

SHEET NO:

E

EARTHWORK - CTH B

	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)				
	Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut	Marsh Exc	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
STATION				Note 1	Note 2	Note 3	1.00 Note 1		1.25	1.50 Note 4	Note 5
80+82.00	71.29	0.00									
81+00.00	97.4	0.0	0.0	56	0	0	56	0	0		56
82+00.00	112.2	0.1	0.0	388	0	0	444	0	0	0	444
82+43.30	256.0	0.0	0.0	295	0	0	740	0	0	0	739
83+00.00	96.6	4.0	0.0	370	4	0	1,110	0	6	0	1,104
84+00.00	114.0	7.2	0.0	390	21	0	1,500	0	31	0	1,469
85+00.00	92.1	15.2	0.0	382	41	0	1,881	0	83	0	1,798
86+00.00	81.2	13.9	0.0	321	54	0	2,202	0	151	0	2,052
87+00.00	89.0	12.4	0.0	315	49	0	2,517	0	212	0	2,306
88+00.00	85.3	14.1	0.0	323	49	0	2,840	0	273	0	2,567
89+00.00	82.4	16.3	0.0	311	56	0	3,151	0	343	0	2,807
90+00.00	72.7	19.4	0.0	287	66	0	3,438	0	426	0	3,012
91+00.00	58.6	21.3	0.0	243	75	0	3,681	0	520	0	3,161
92+00.00	80.7	19.2	0.0	299	71	0	3,980	0	609	0	3,371
93+00.00	118.5	14.3	0.0	369	62	0	4,349	0	687	0	3,662
94+00.00	103.6	16.6	0.0	411	57	0	4,760	0	758	0	4,002
95+00.00	79.3	17.7	0.0	339	63	0	5,099	0	838	0	4,261
96+00.00	68.1	29.9	0.0	273	88	0	5,372	0	948	0	4,424
97+00.00	70.5	29.1	0.0	257	109	0	5,629	0	1,085	0	4,544
98+00.00	81.3	27.6	0.0	281	105	0	5,910	0	1,216	0	4,694
99+00.00	69.3	33.2	0.0	279	113	0	6,189	0	1,357	0	4,832
100+00.00	50.7	39.3	0.0	222	134	0	6,411	0	1,525	0	4,886
101+00.00	49.8	40.3	0.0	184	149	0	6,595	0	1,711	0	4,884
102+00.00	47.6	39.9	0.0	180	149	0	6,776	0	1,897	0	4,878
103+00.00	44.0	37.1	0.0	170	143	0	6,945	0	2,075	0	4,870
104+00.00	43.8	33.4	0.0	163	131	0	7,108	0	2,239	0	4,869
105+00.00	64.1	24.9	0.0	200	108	0	7,308	0	2,374	0	4,934
106+00.00	99.1	12.4	0.0	302	69	0	7,610	0	2,460	0	5,150
107+00.00	102.4	13.5	0.0	373	48	0	7,983	0	2,520	0	5,463
108+00.00	97.8	22.8	0.0	371	67	0	8,354	0	2,604	0	5,750
109+00.00	86.3	12.9	0.0	320	66	0	8,673	0	2,686	0	5,987
109+48.70	152.0	0.0	0.0	215	12	0	8,888	0	2,701	0	6,187
110+00.00	60.3	17.9	0.0	202	17	0	9,090	0	2,722	0	6,368
111+00.00	62.4	29.0	0.0	227	87	0	9,317	0	2,831	0	6,486
112+00.00	86.1	16.2	0.0	275	84	0	9,592	0	2,935	0	6,657
113+00.00	58.5	37.9	11.3	268	100	42	9,860	42	3,061	63	6,799
114+00.00	69.9	34.8	11.3	238	135	42	10,098	84	3,229	126	6,868
115+00.00	111.0	24.0	0.0	335	109	6	10,433	90	3,365	135	7,067
116+00.00	65.8	37.9	0.0	327	115	0	10,760	90	3,509	135	7,251
117+00.00	59.4	40.1	0.0	232	145	0	10,992	90	3,689	135	7,302

Notes:	
1 - Cut	Cut includes existing asphalt pavement
2 - Fill	Unexpanded
3 - Marsh Exc	Not included in Mass ordinate
4 - Marsh Excavation Backfill	Select Borrow. Not included in Mass ordinate
5 - Mass Ordinate	Cut - (Fill * Fill Factor)

EARTHWORK - CTH B (CONTINUED)

	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)				
STATION	Cut	Fill	Marsh Exc	Cut Note 1	Fill Note 2	Marsh Exc Note 3	Cut 1.00 Note 1	Marsh Exc	Expanded Fill 1.25	Expanded Marsh Backfill 1.50 Note 4	Mass Ordinate Note 5
118+00.00	66.1	34.8	0.0	232	139	0	11,224	90	3,863	135	7,361
119+00.00	87.7	27.4	0.0	285	115	0	11,509	90	4,007	135	7,502
120+00.00	118.8	19.0	0.0	382	86	0	11,891	90	4,114	135	7,777
121+00.00	143.1	11.5	0.0	485	57	0	12,376	90	4,185	135	8,191
122+00.00	142.1	9.3	0.0	528	39	0	12,905	90	4,233	135	8,671
123+00.00	110.0	13.0	0.0	467	41	0	13,371	90	4,285	135	9,087
124+00.00	96.6	15.8	0.0	383	53	0	13,754	90	4,351	135	9,403
125+00.00	93.3	17.9	0.0	352	62	0	14,106	90	4,429	135	9,677
126+00.00	113.5	10.7	0.0	383	53	0	14,489	90	4,496	135	9,993
127+00.00	155.9	5.7	0.0	499	30	0	14,988	90	4,534	135	10,454
128+00.00	99.0	13.3	0.0	472	35	0	15,460	90	4,578	135	10,882
129+00.00	83.6	13.8	0.0	338	50	0	15,798	90	4,640	135	11,158
130+00.00	61.4	29.4	0.0	269	80	0	16,067	90	4,740	135	11,327
131+00.00	64.3	31.5	0.0	233	113	0	16,300	90	4,881	135	11,418
132+00.00	65.8	29.0	0.0	241	112	0	16,540	90	5,021	135	11,519
133+00.00	78.1	22.1	0.0	267	95	0	16,807	90	5,139	135	11,668
134+00.00	75.1	31.1	0.0	284	98	0	17,091	90	5,262	135	11,828
135+00.00	69.0	27.9	0.0	267	109	0	17,358	90	5,399	135	11,959
136+00.00	61.1	32.1	0.0	241	111	0	17,598	90	5,538	135	12,060
137+00.00	64.1	29.0	0.0	232	113	0	17,830	90	5,679	135	12,151
138+00.00	76.9	21.5	0.0	261	94	0	18,091	90	5,796	135	12,295
139+00.00	89.8	16.9	0.0	309	71	0	18,400	90	5,885	135	12,515
140+00.00	91.3	15.3	0.0	335	60	0	18,735	90	5,960	135	12,776
141+00.00	79.5	18.3	0.0	316	62	0	19,052	90	6,037	135	13,014
142+00.00	79.3	18.4	0.0	294	68	0	19,346	90	6,122	135	13,223
143+00.00	68.5	19.4	0.0	274	70	0	19,619	90	6,210	135	13,410
144+00.00	59.0	0.0	0.0	236	36	0	19,856	90	6,255	135	13,601
145+00.00	82.1	14.2	0.0	261	26	0	20,117	90	6,288	135	13,829
145+56.00	77.4	0.0	0.0	165	15	0	20,282	90	6,306	135	13,977

Notes:	
1 - Cut	Cut includes existing asphalt pavement
2 - Fill	Unexpanded
3 - Marsh Exc	Not included in Mass ordinate
4 - Marsh Excavation Backfill	Select Borrow. Not included in Mass ordinate
5 - Mass Ordinate	Cut - (Fill * Fill Factor)

EARTHWORK - CHILLIE ROAD

	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)				
STATION	Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut	Marsh Exc	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
							1.00		1.25	1.50	
				Note 1	Note 2	Note 3	Note 1			Note 4	Note 5
523+75.00	63.3	0.0									
524+00.00	71.2	4.5	0.0	62	2	0	62	0	0		60
524+50.00	120.4	1.3	0.0	177	5	0	240	0	0	0	230
525+50.00	104.4	3.4	0.0								
526+00.00	70.5	2.9	0.0	162	6	0	401	0	0	0	385
526+50.00	63.1	0.0	0.0	124	3	0	525	0	0	0	505

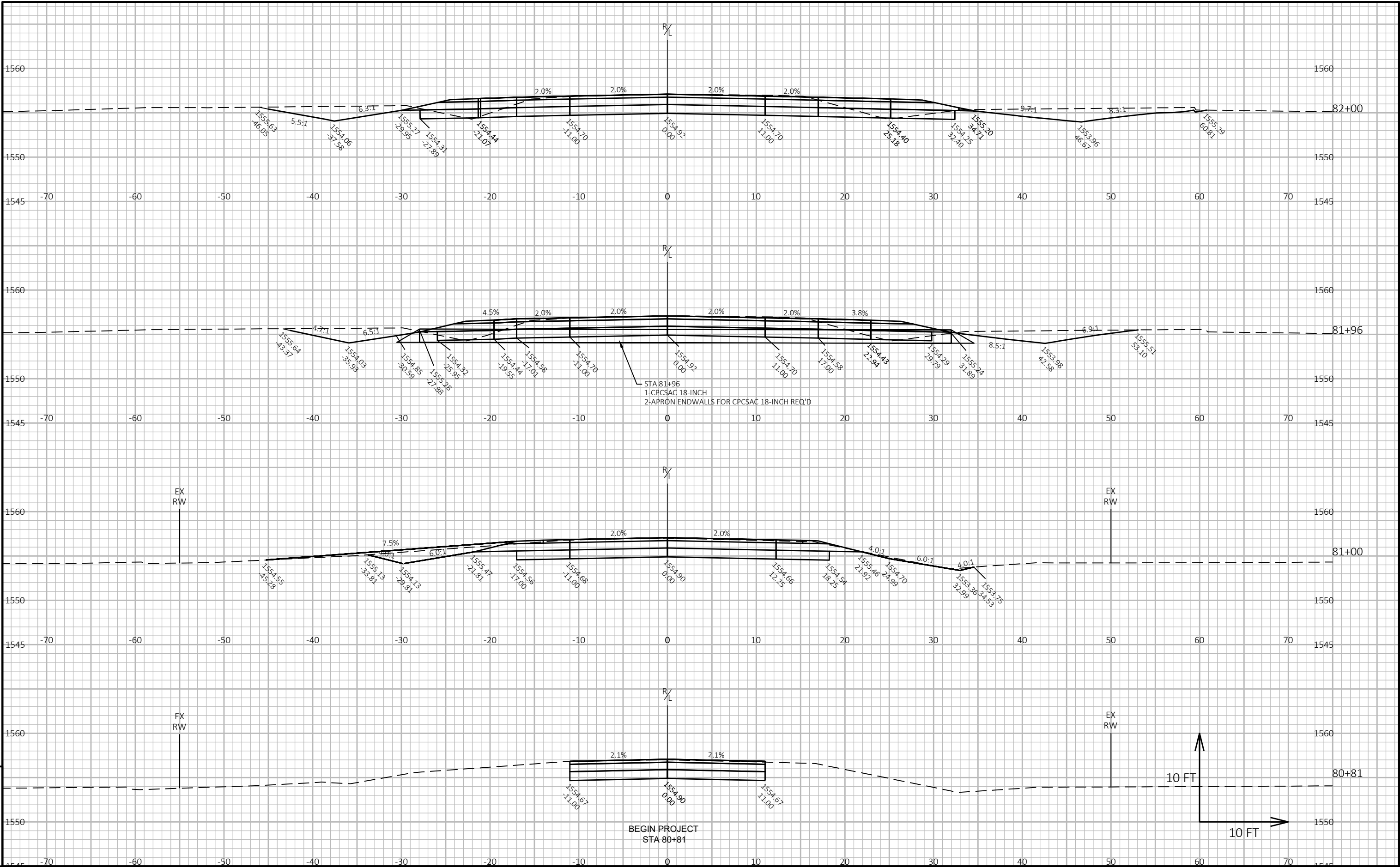
EARTHWORK - STAR NEVA ROAD

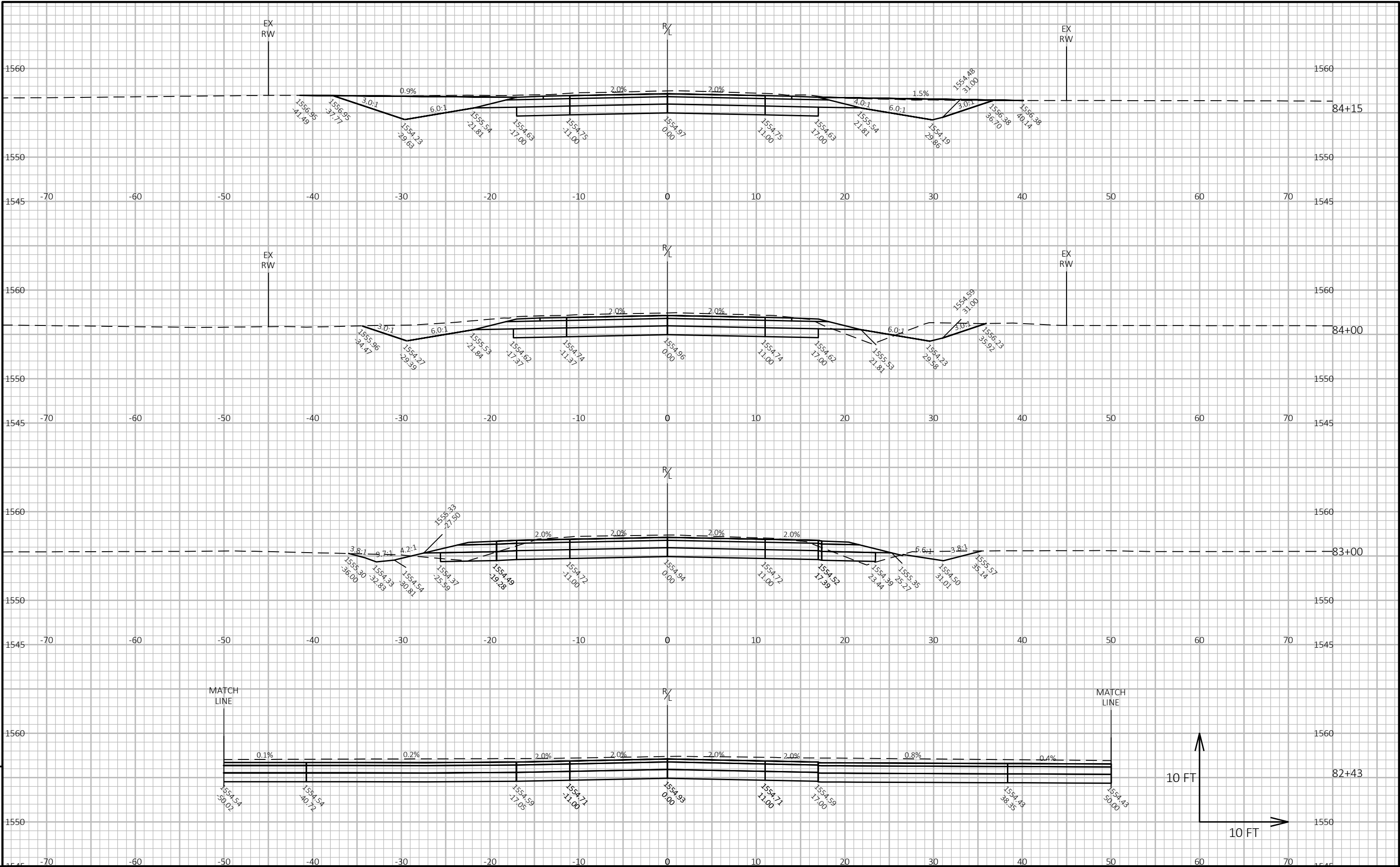
	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)					
STATION	Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut	Marsh Exc	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate	
				1.00			1.00		1.25		1.50	
				Note 1	Note 2	Note 3	Note 1	Note 2	Note 3	Note 4	Note 5	
533+00.00	64.6	0.0										
534+00.00	49.7	3.6	0.0	212	7	0	212	0	0		203	
534+50.00	69.8	13.0	0.0	111	15	0	322	0	0	0	295	
535+50.00	96.7	10.5	0.0									
536+00.00	90.5	1.3	0.0	173	11	0	496	0	0	0	455	
536+04.00	88.4	0.0	0.0	13	0	0	509	0	0	0	468	

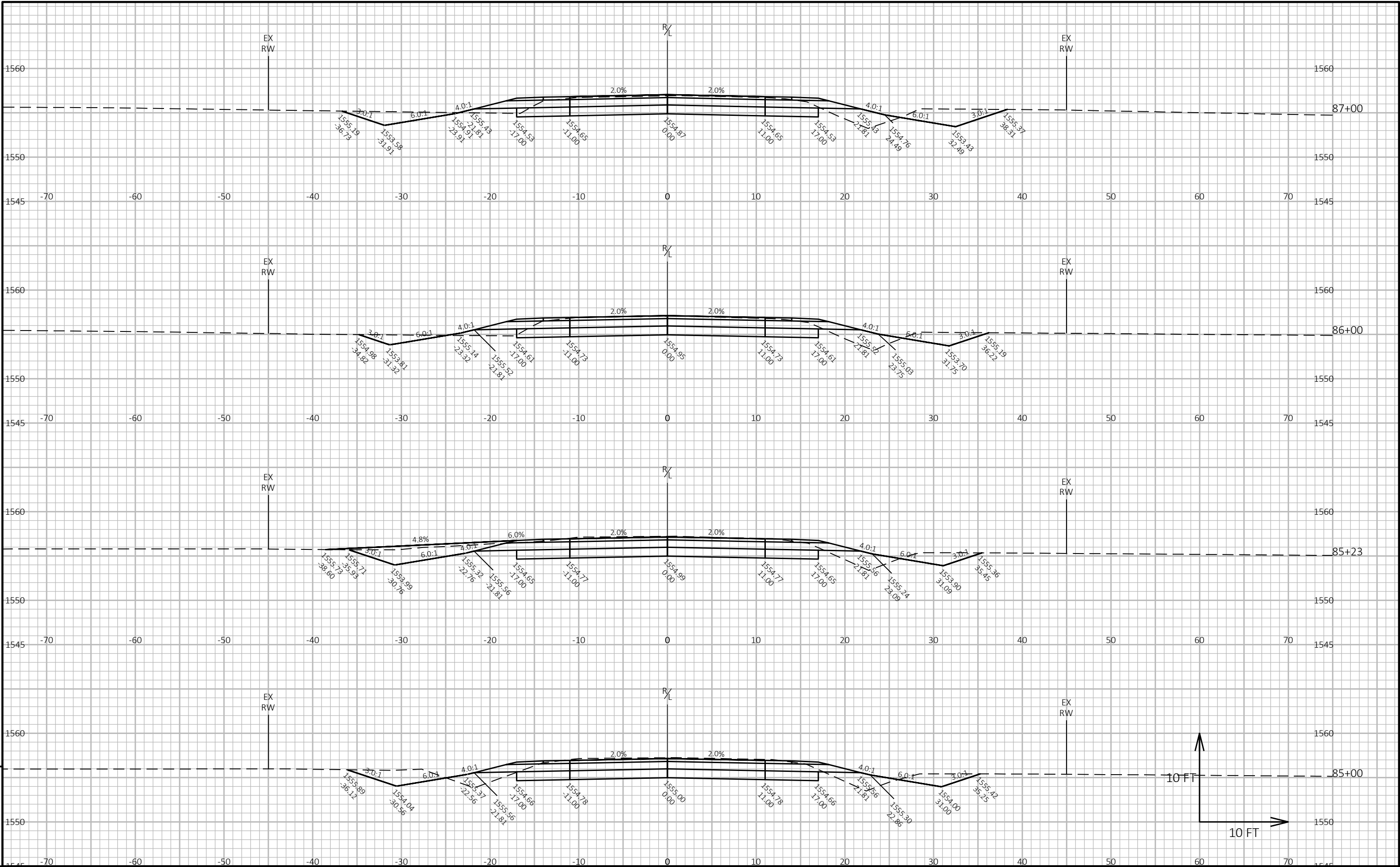
EARTHWORK - SHIMEK LANE

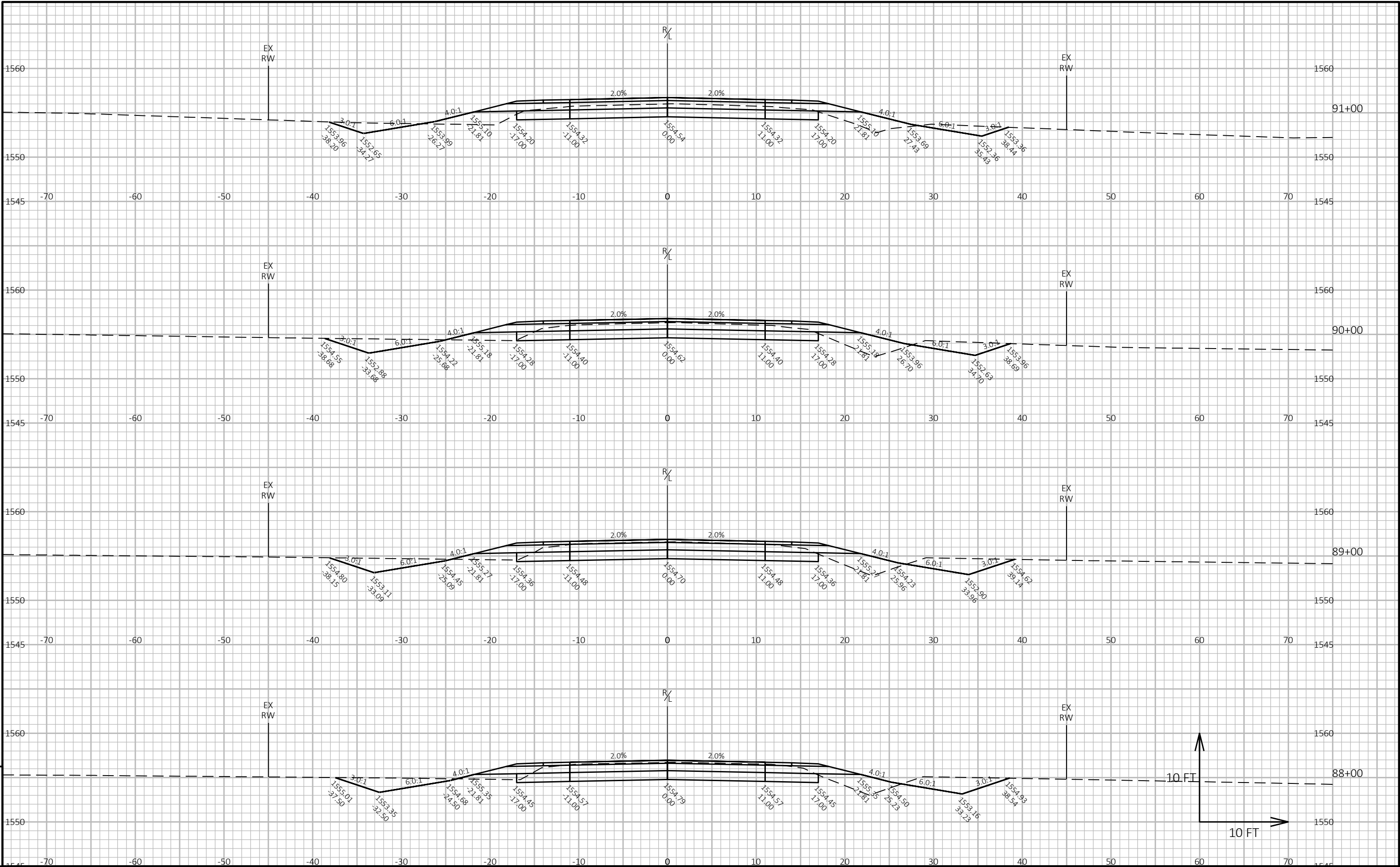
	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)				
STATION	Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut	Marsh Exc	Expanded Fill	Expanded Marsh Backfill	Mass Ordinate
							1.00		1.25	1.50	
				Note 1	Note 2	Note 3	Note 1			Note 4	Note 5
540+50.00	91.9	0.0									
541+00.00	29.7	1.4	0.0	113	1	0	113	0	0		111
541+16.00	32.4	0.0	0.0	18	0	0	130.9985	0	0	0	129

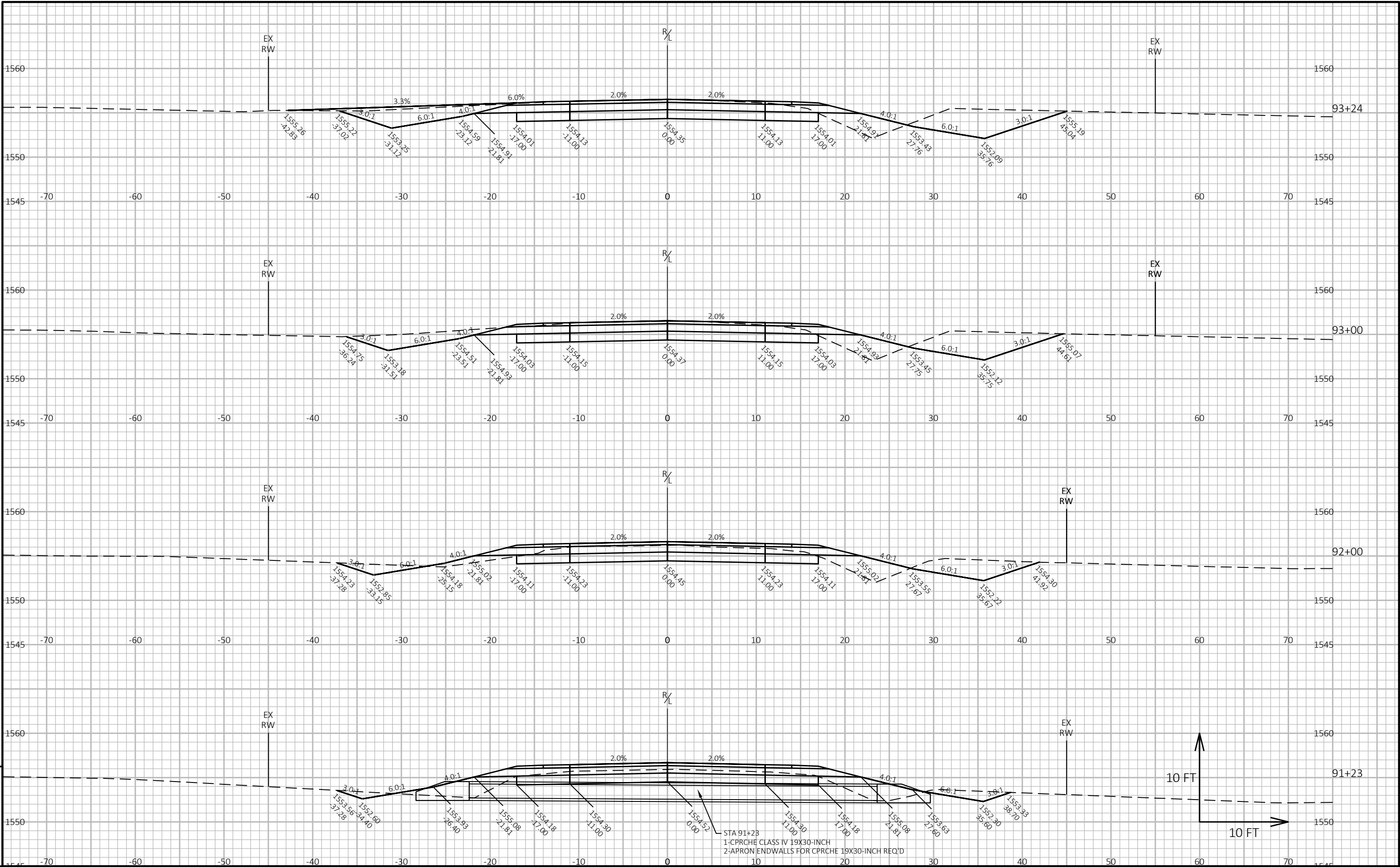
Notes:	
1 - Cut	Cut includes existing asphalt pavement
2 - Fill	Unexpanded
3 - Marsh Exc	Not included in Mass ordinate
4 - Marsh Excavation Backfill	Select Borrow. Not included in Mass ordinate
5 - Mass Ordinate	Cut - (Fill * Fill Factor)

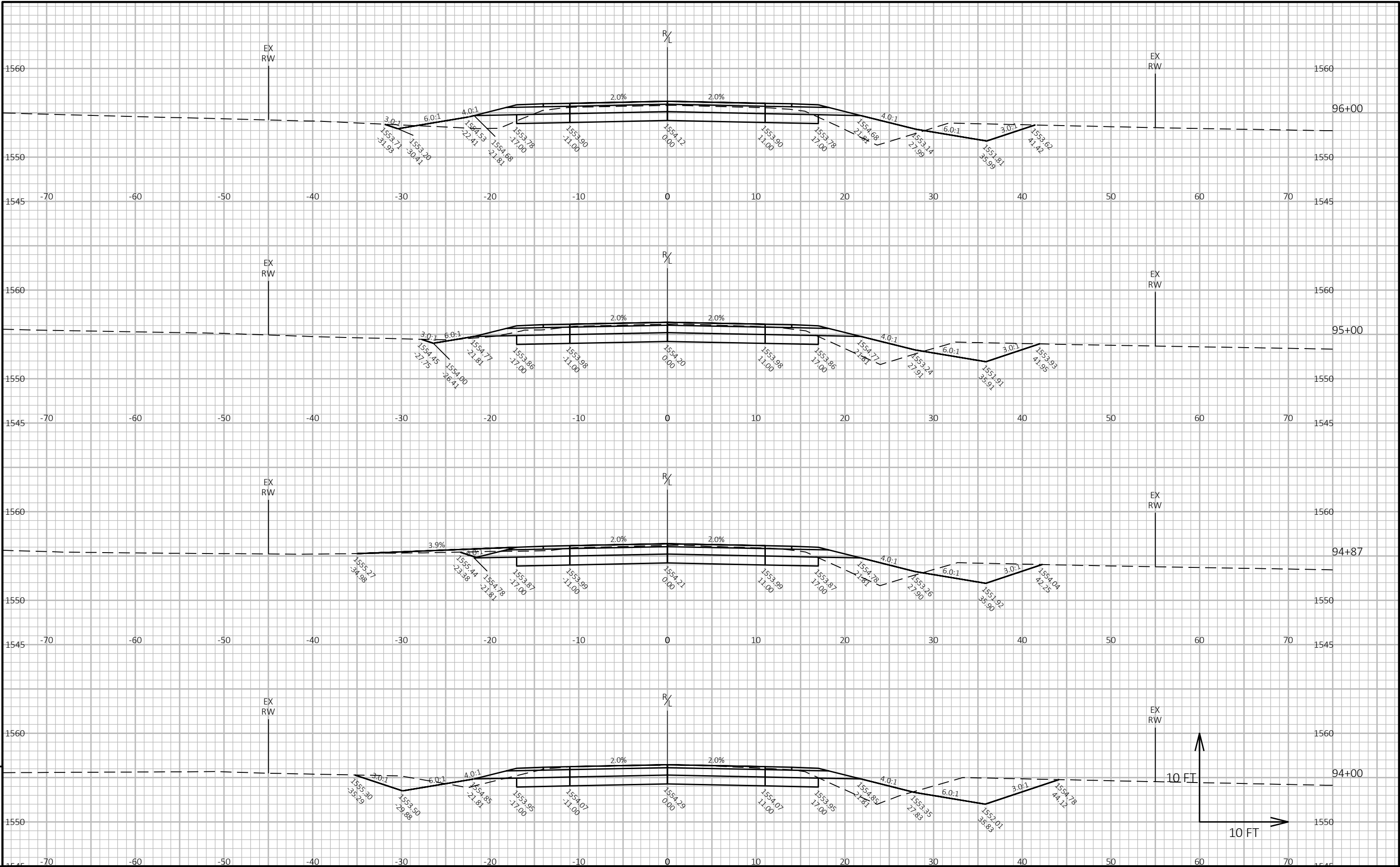


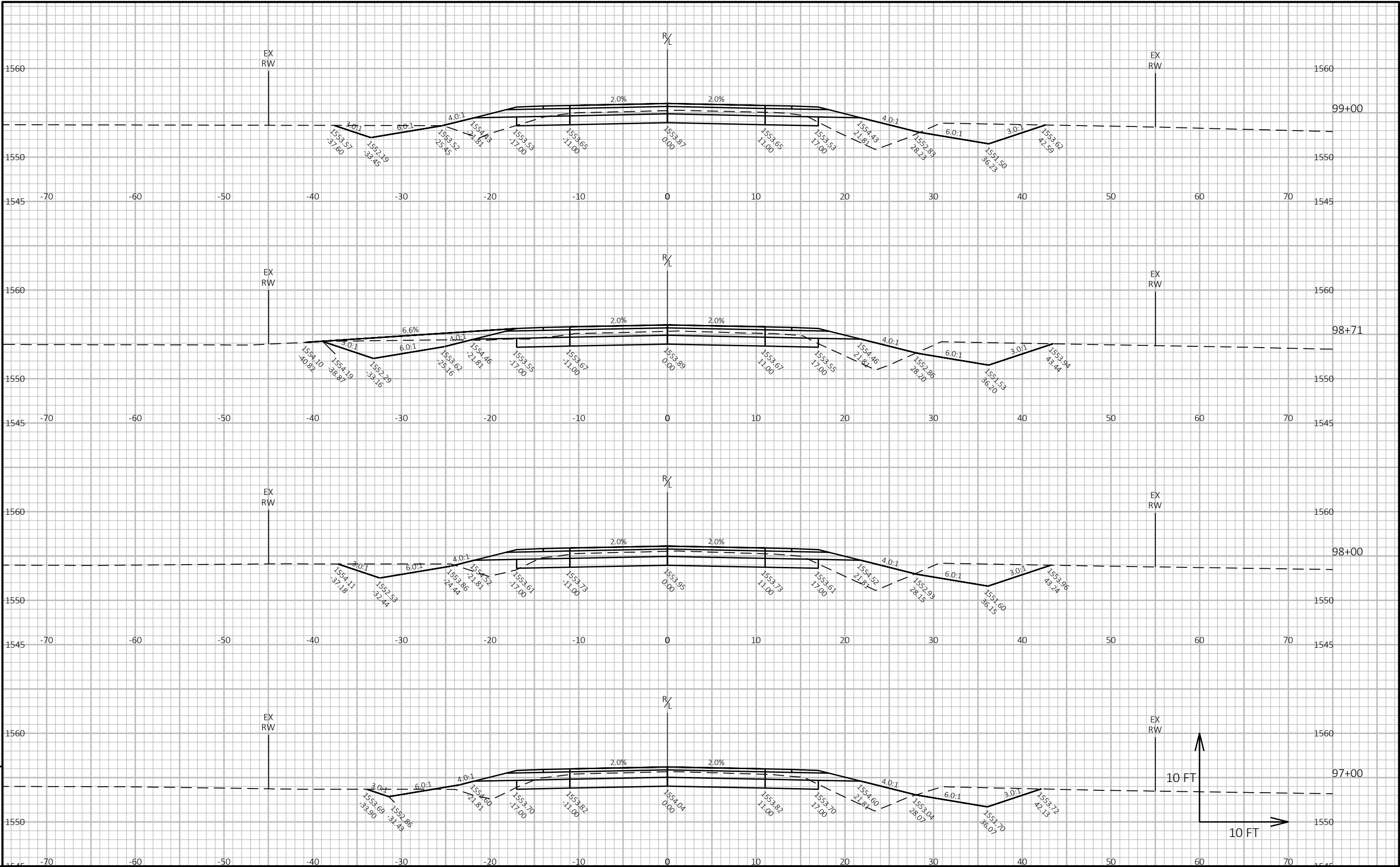












PROJECT NO: 9360-02-73

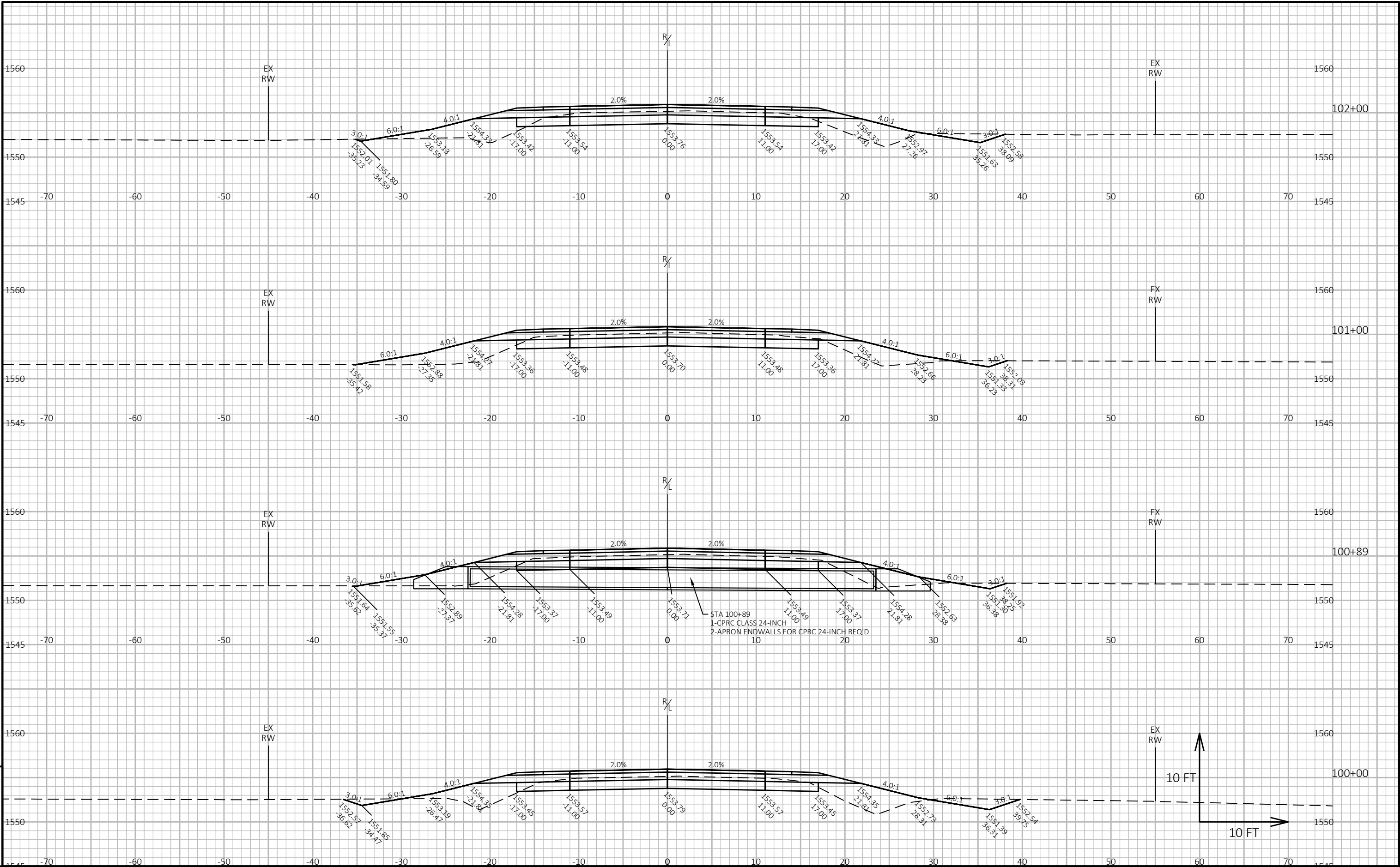
HWY: CTH B

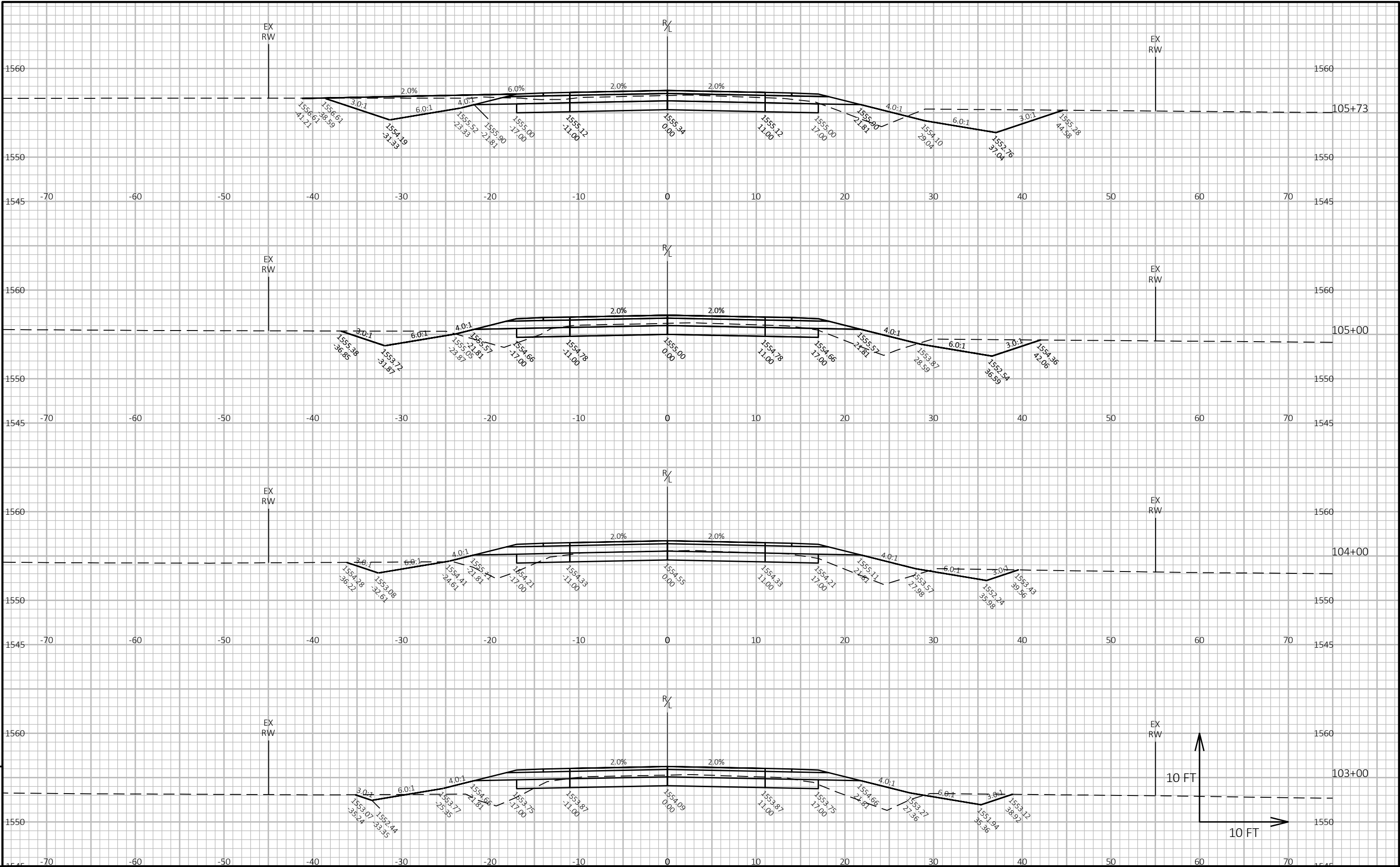
COUNTY: LANGLADE

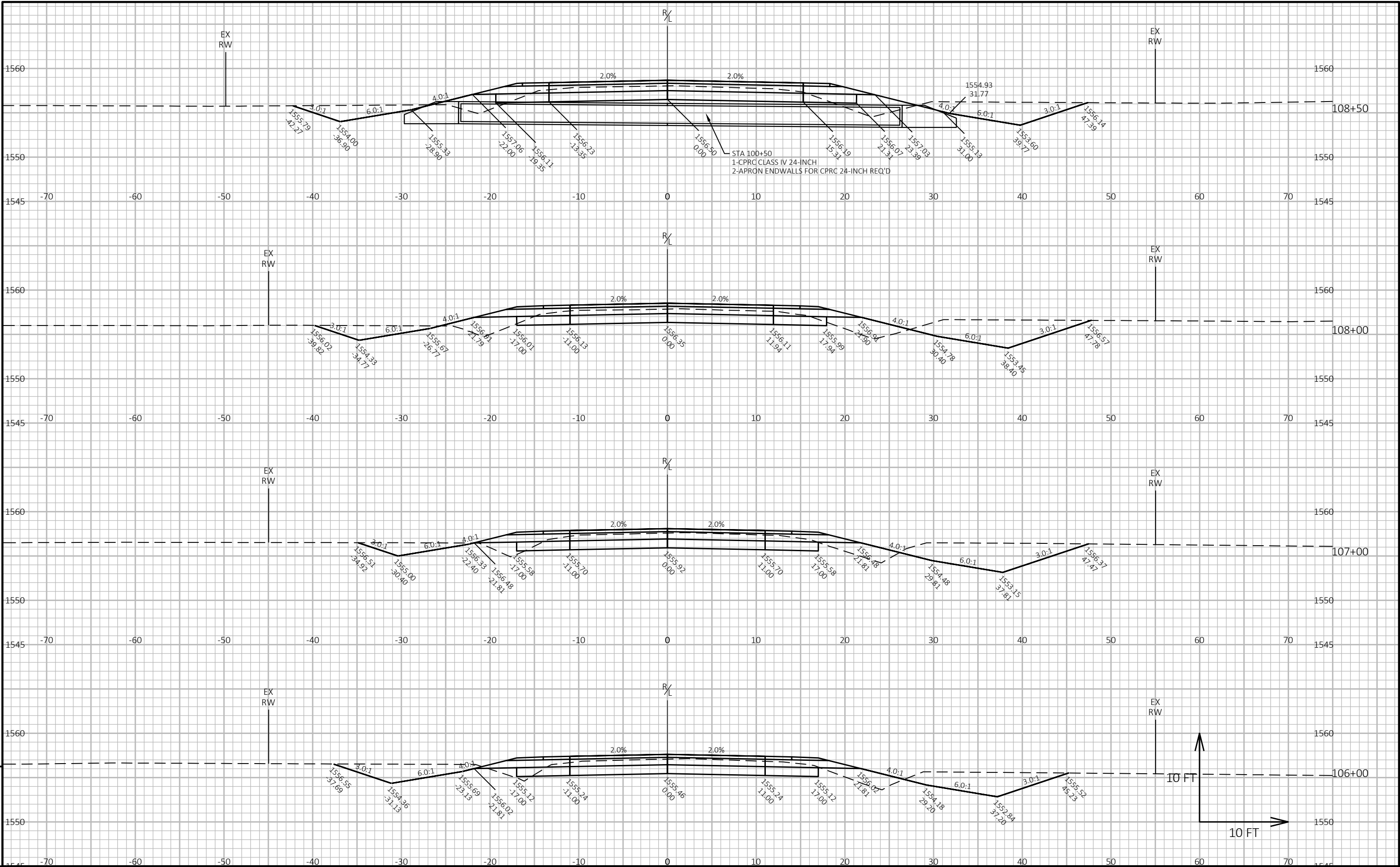
CROSS SECTIONS: CTH B

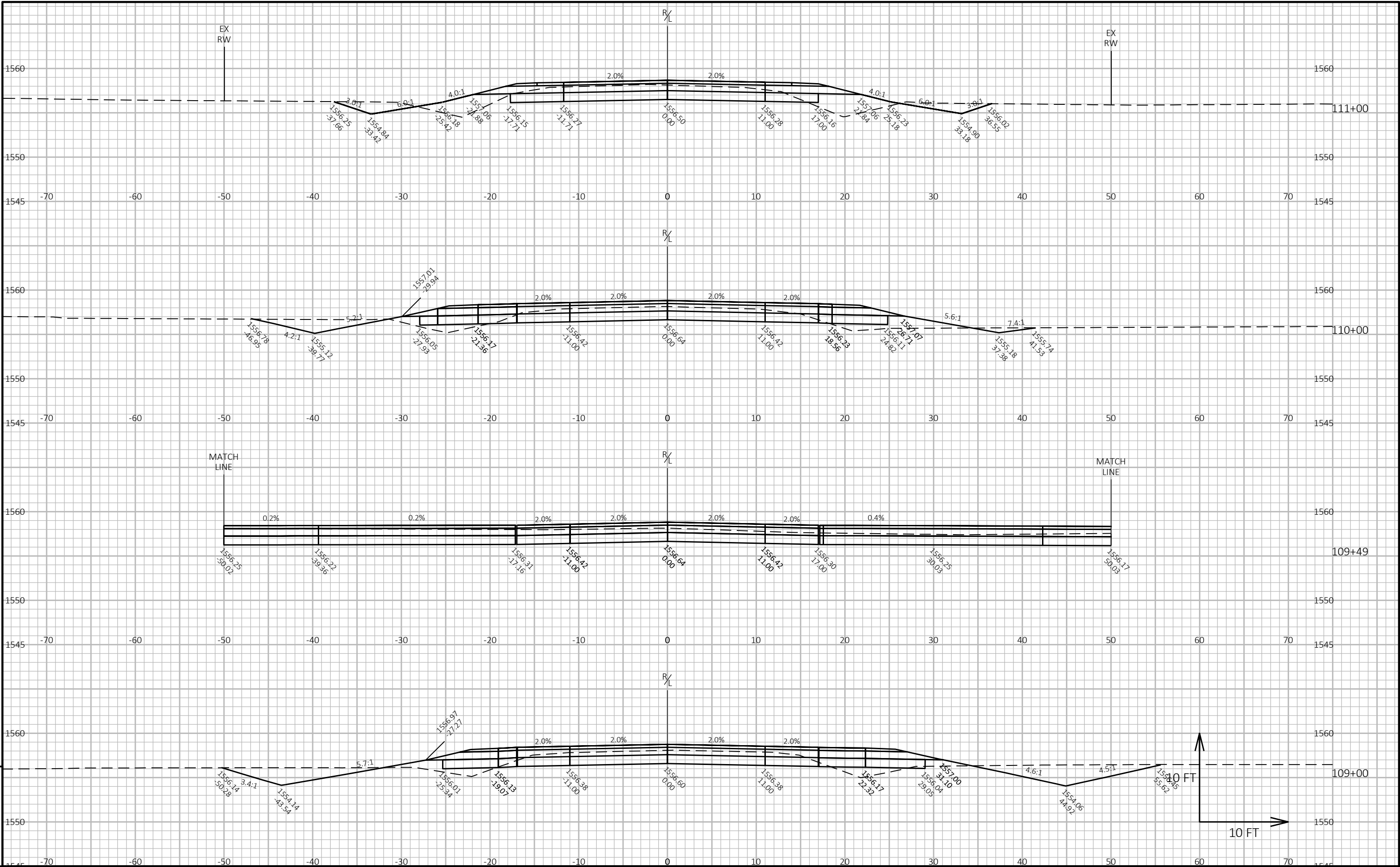
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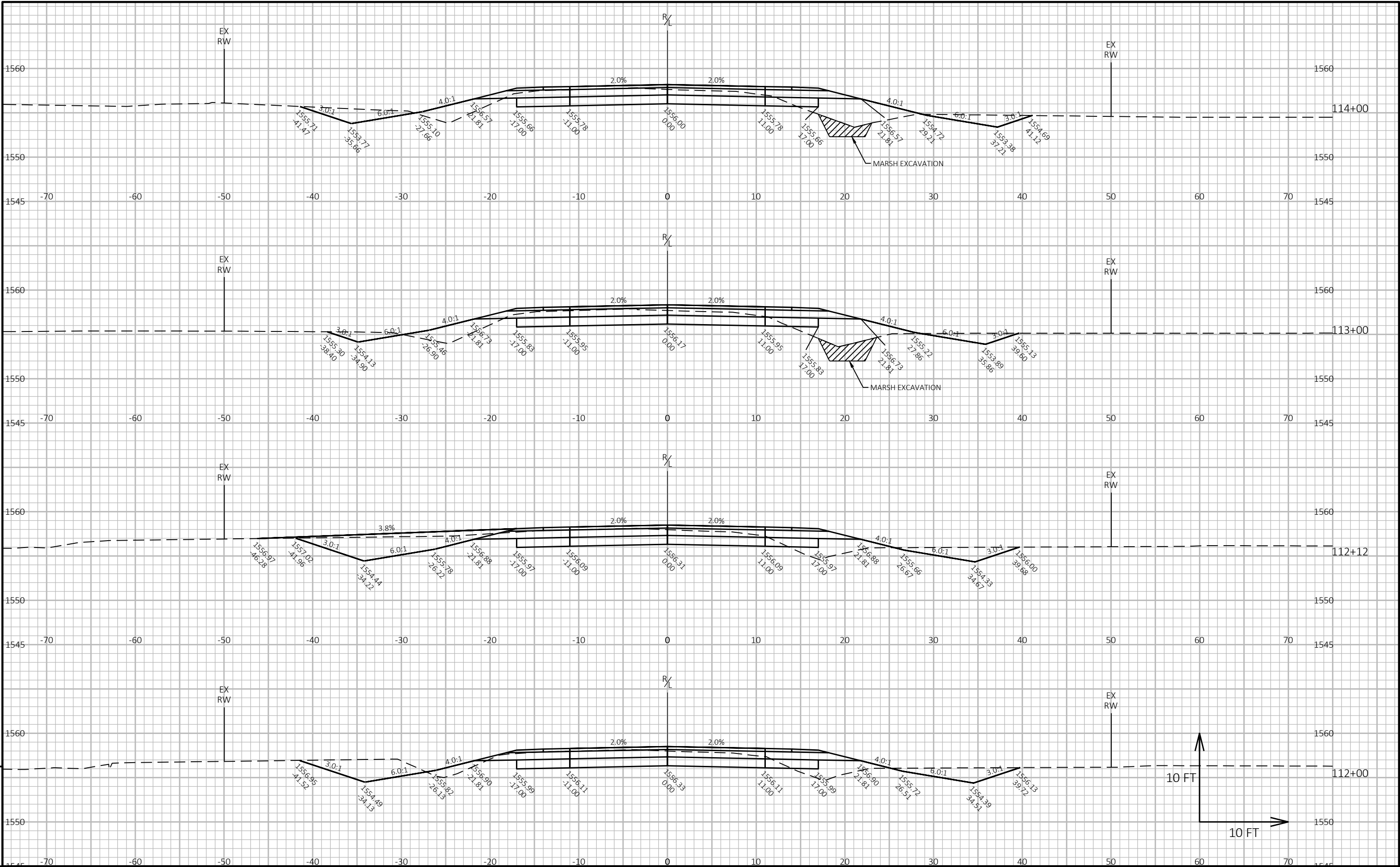
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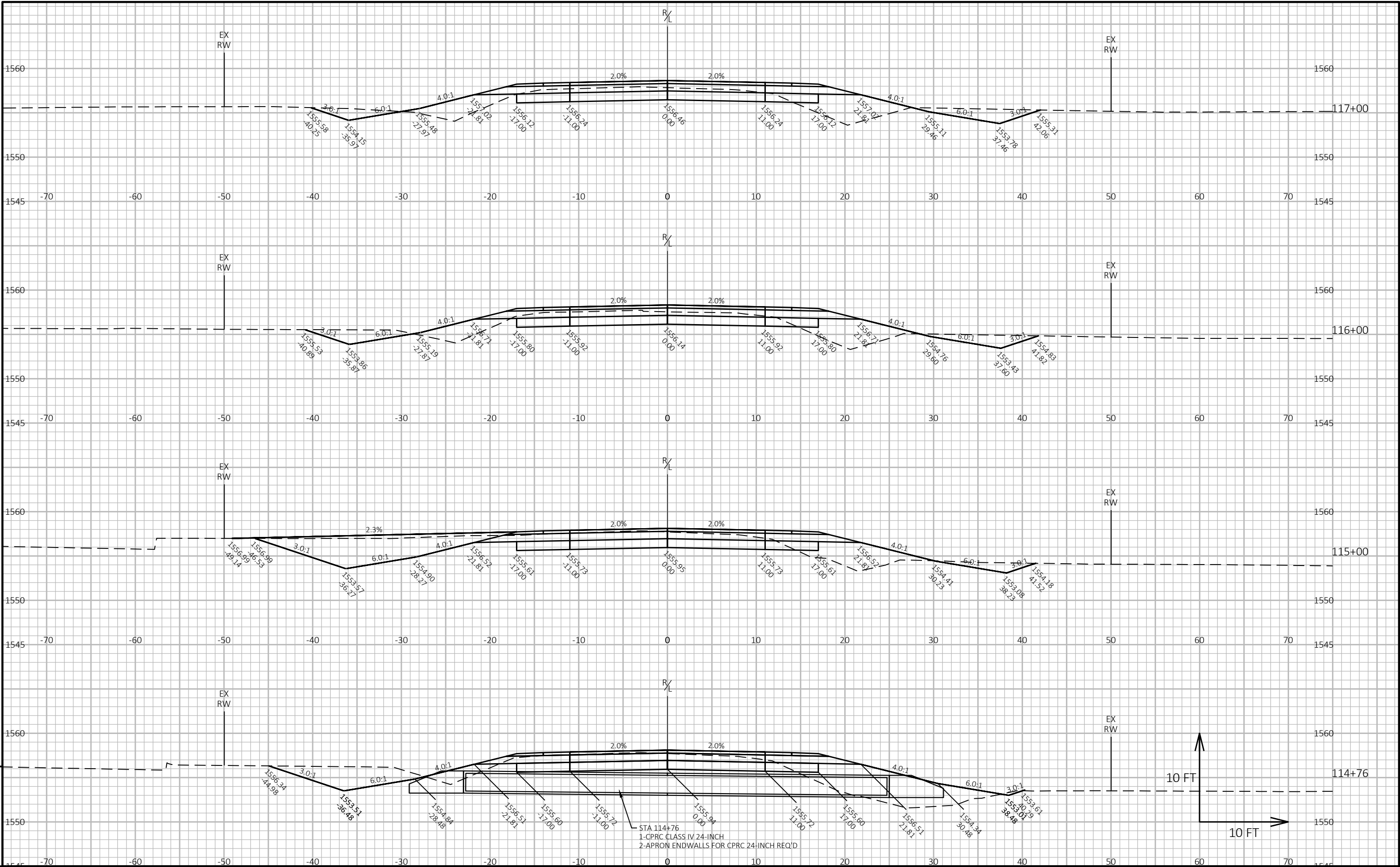


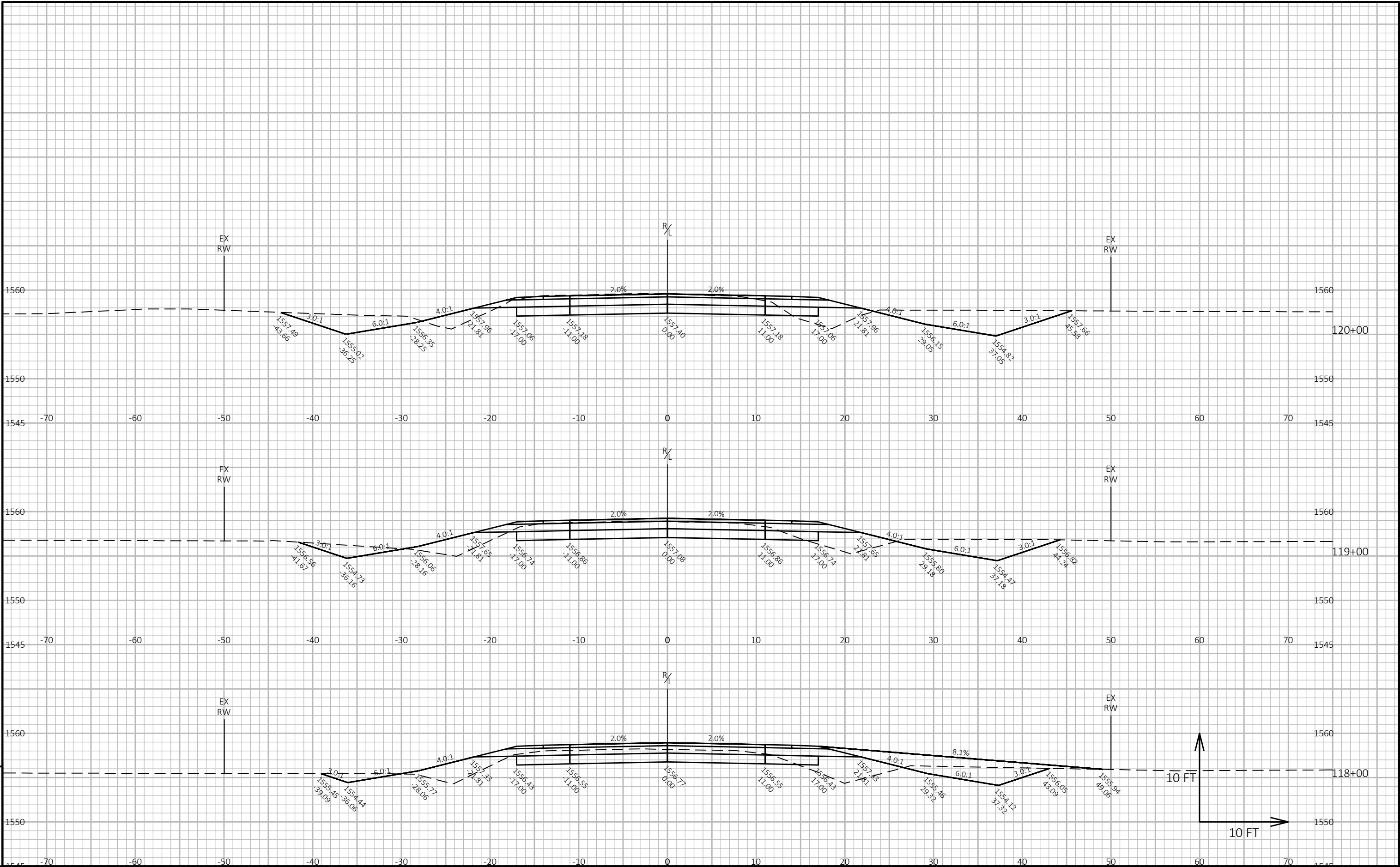


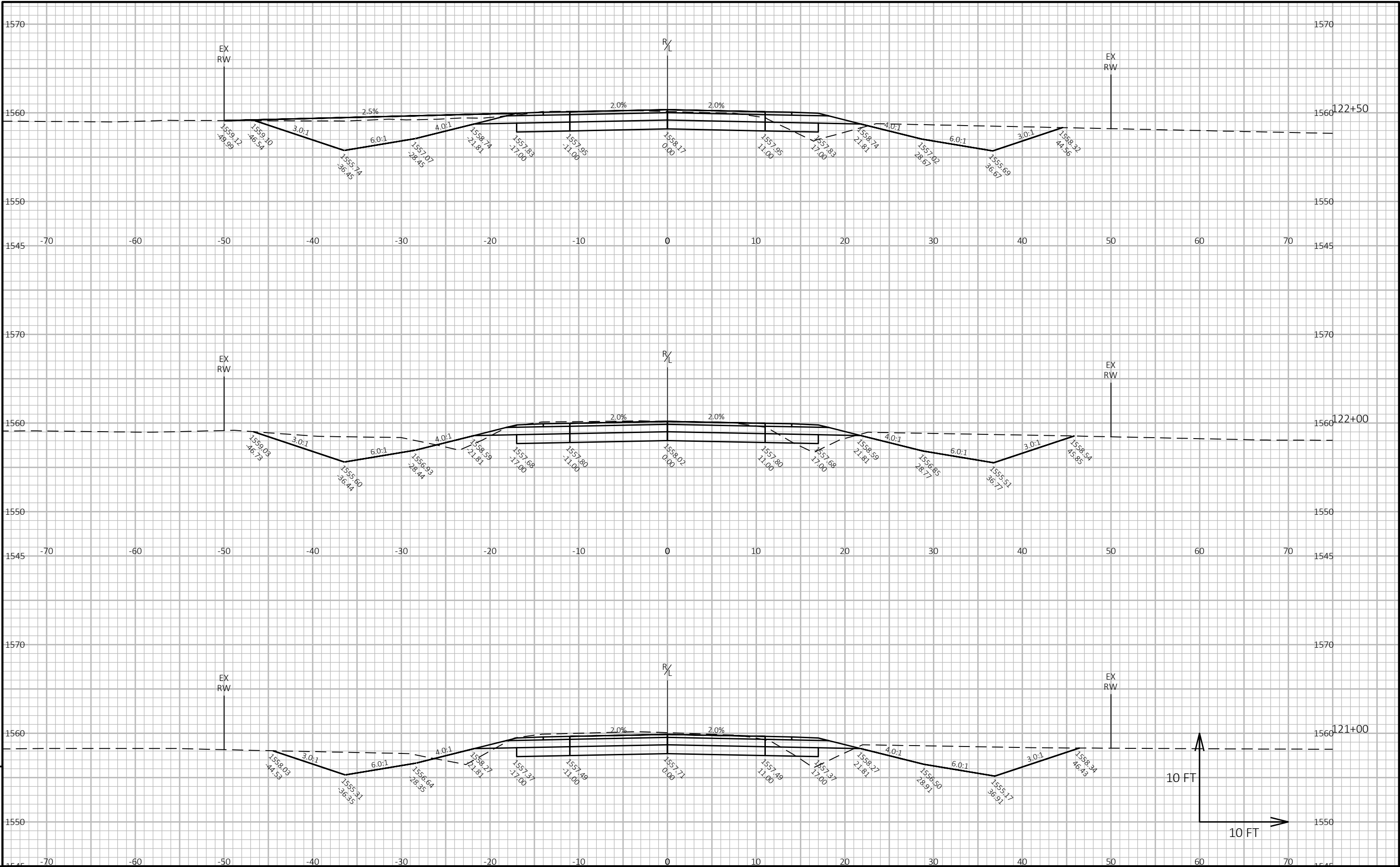






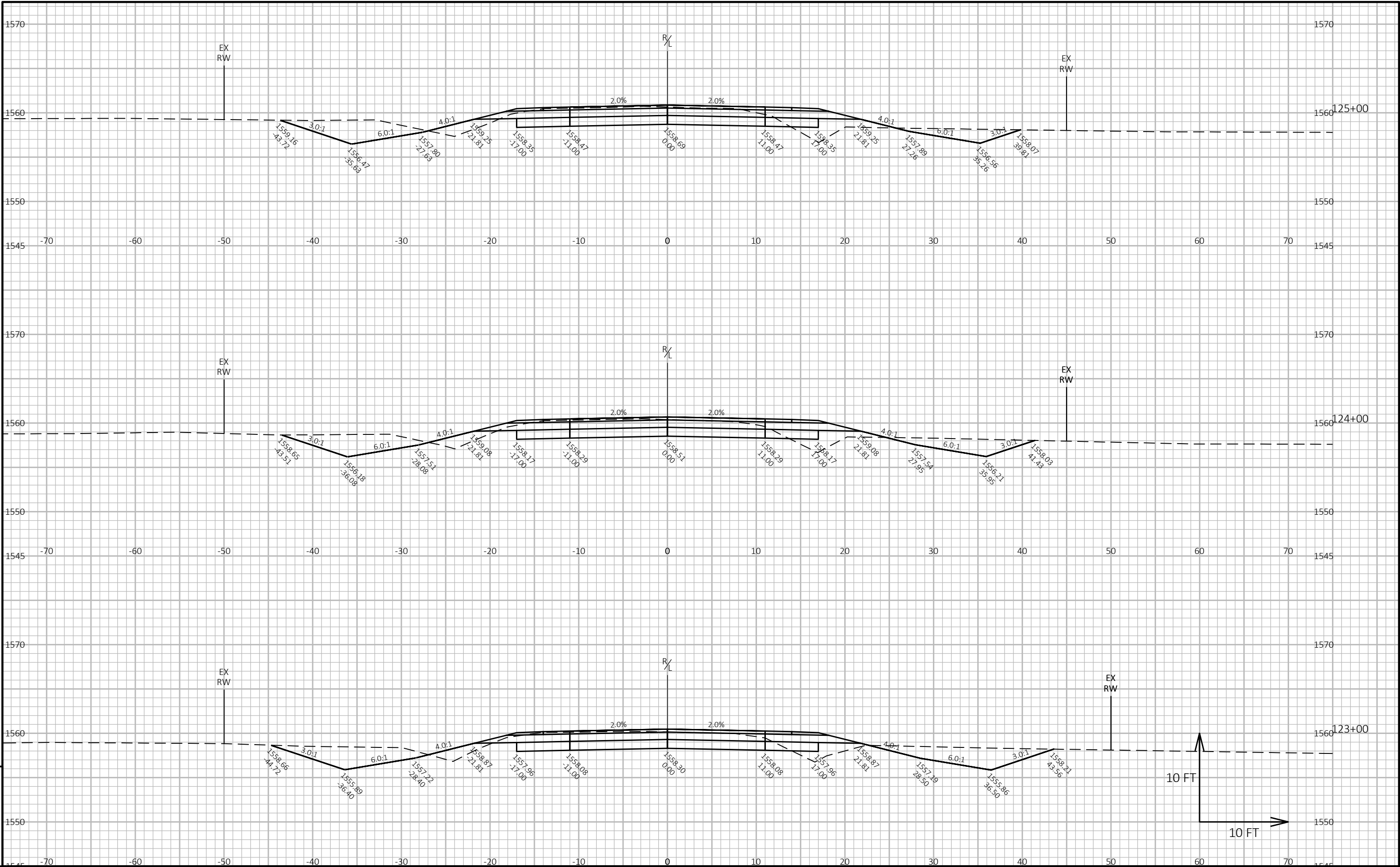


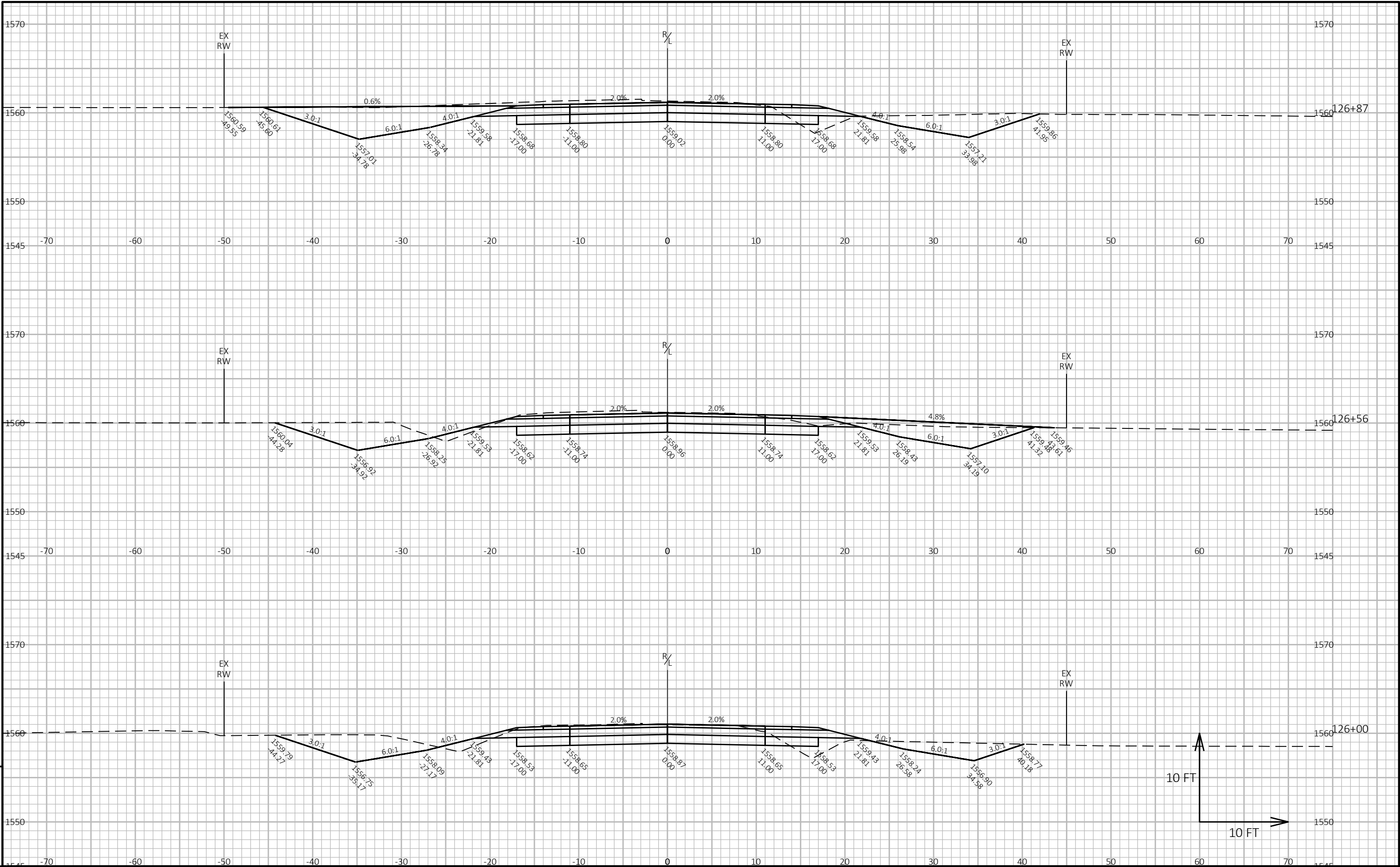




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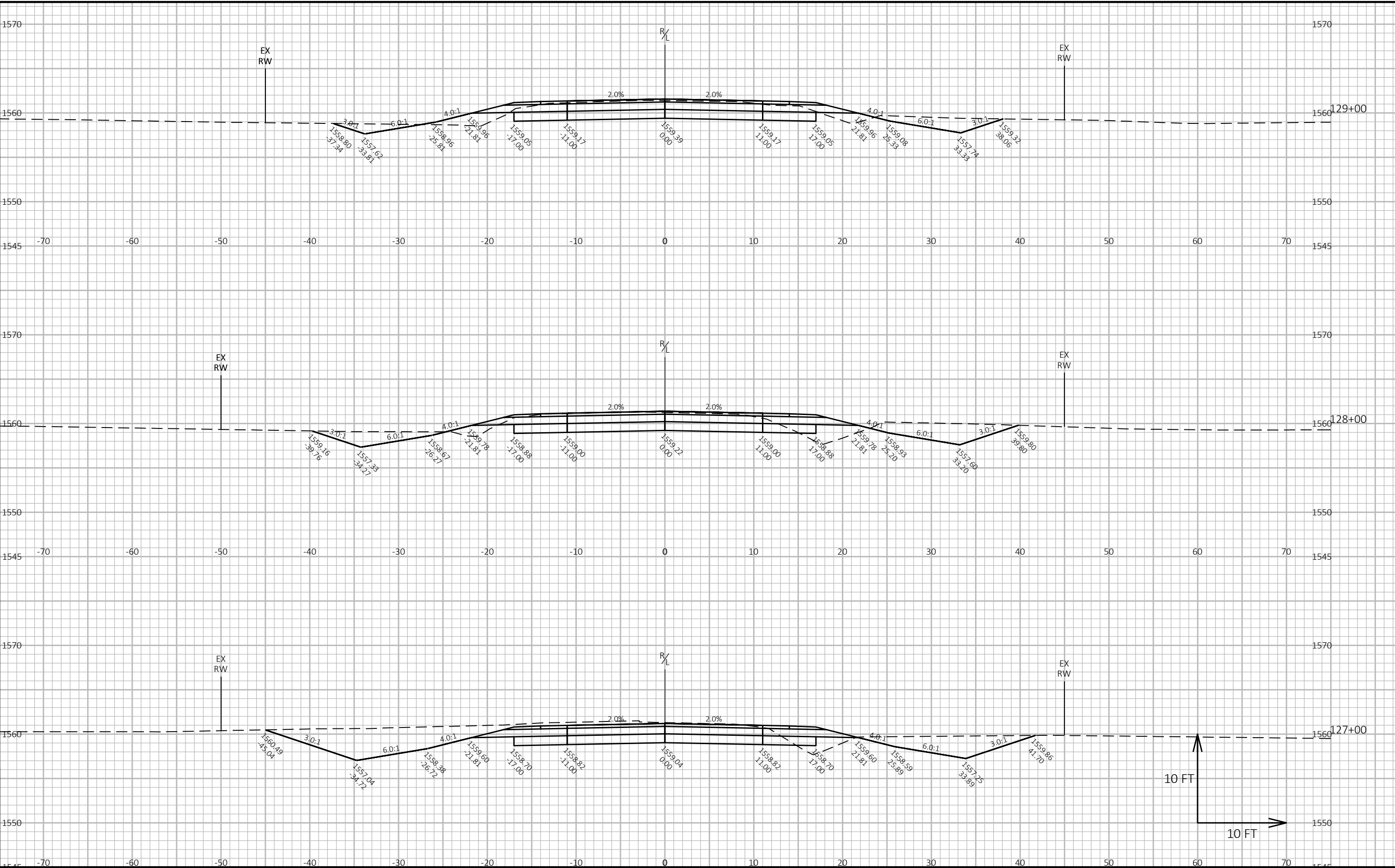
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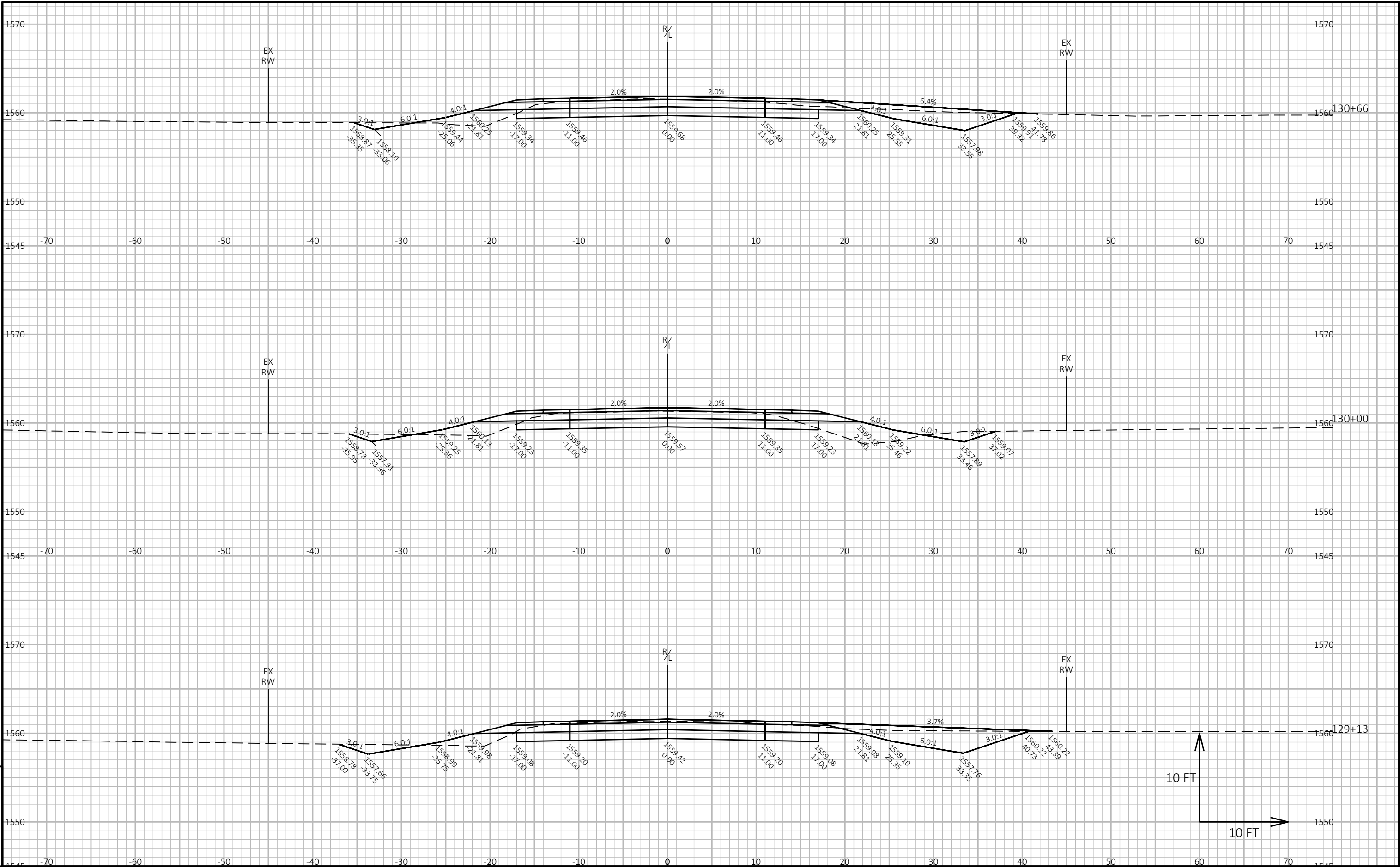
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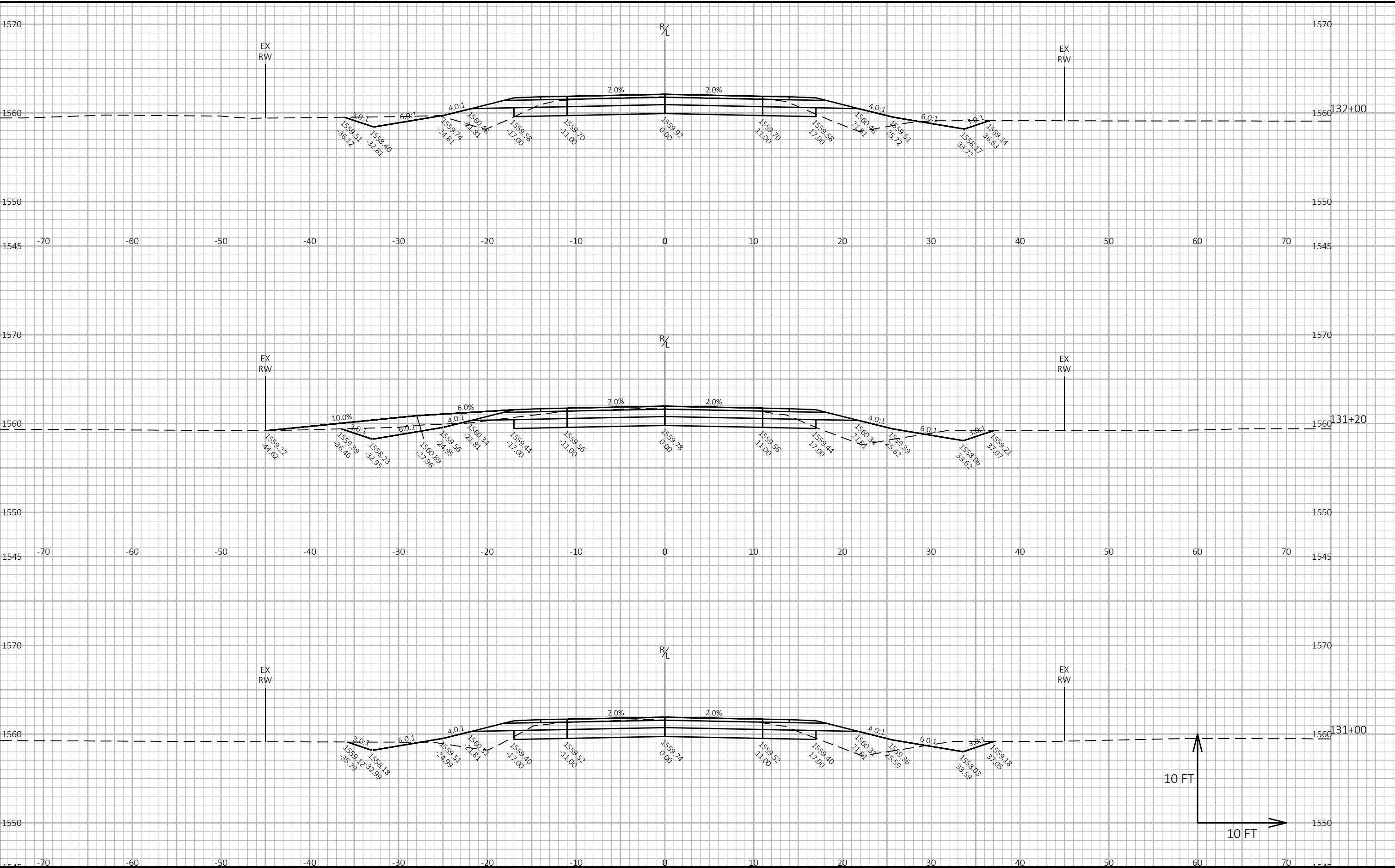
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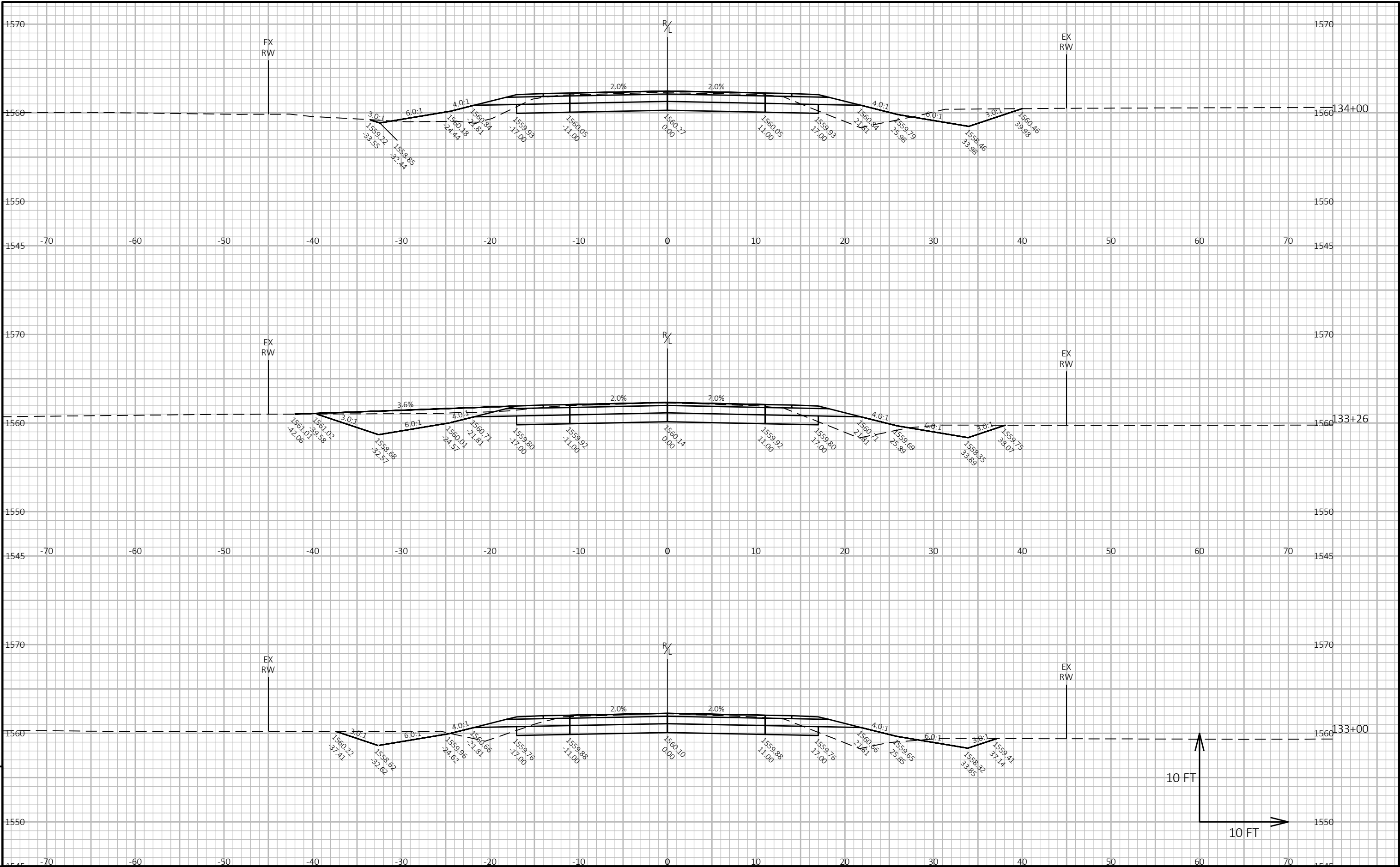


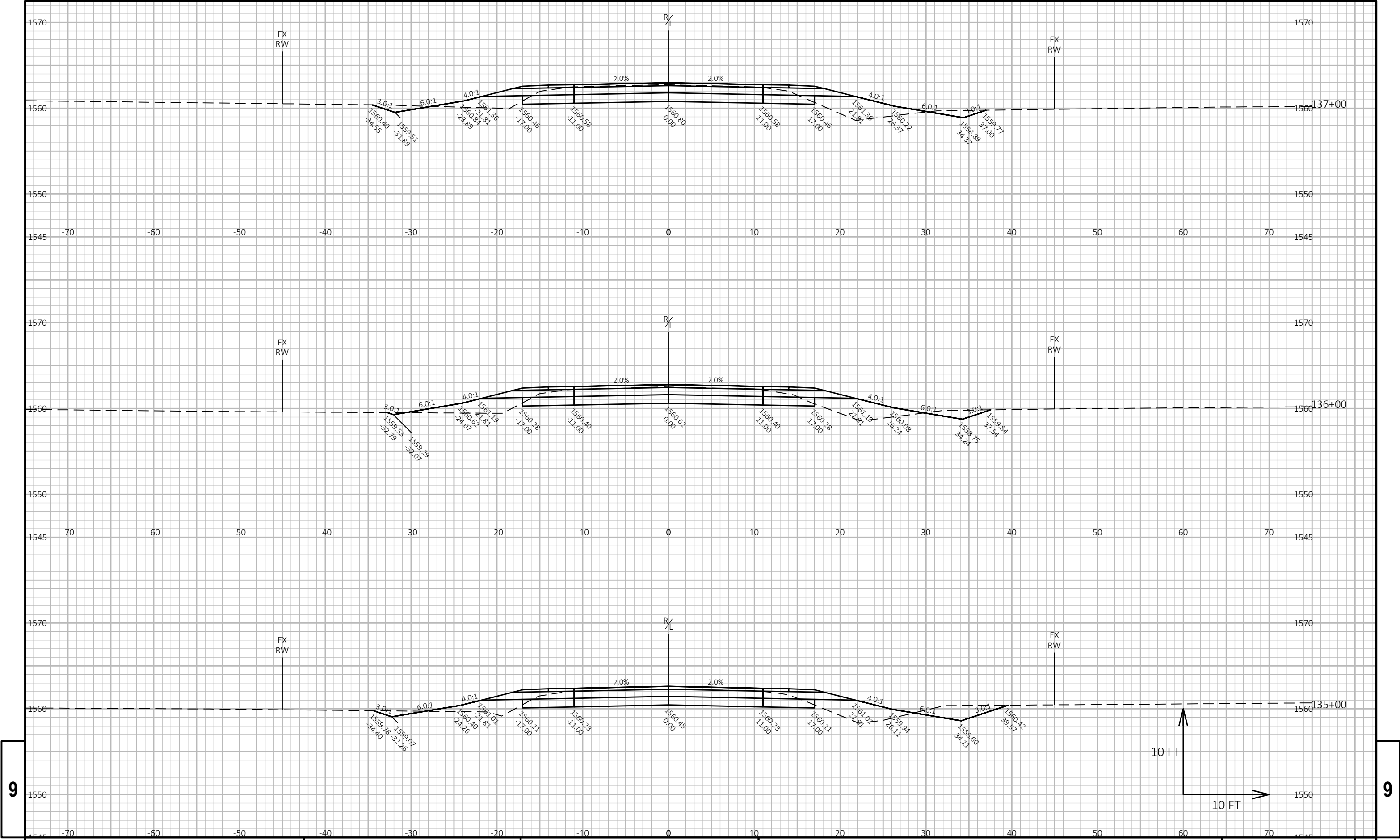
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PROJECT NO: 9360-02-73	HWY: CTH B	COUNTY: LANGLADE	CROSS SECTIONS: CTH B	SHEET E
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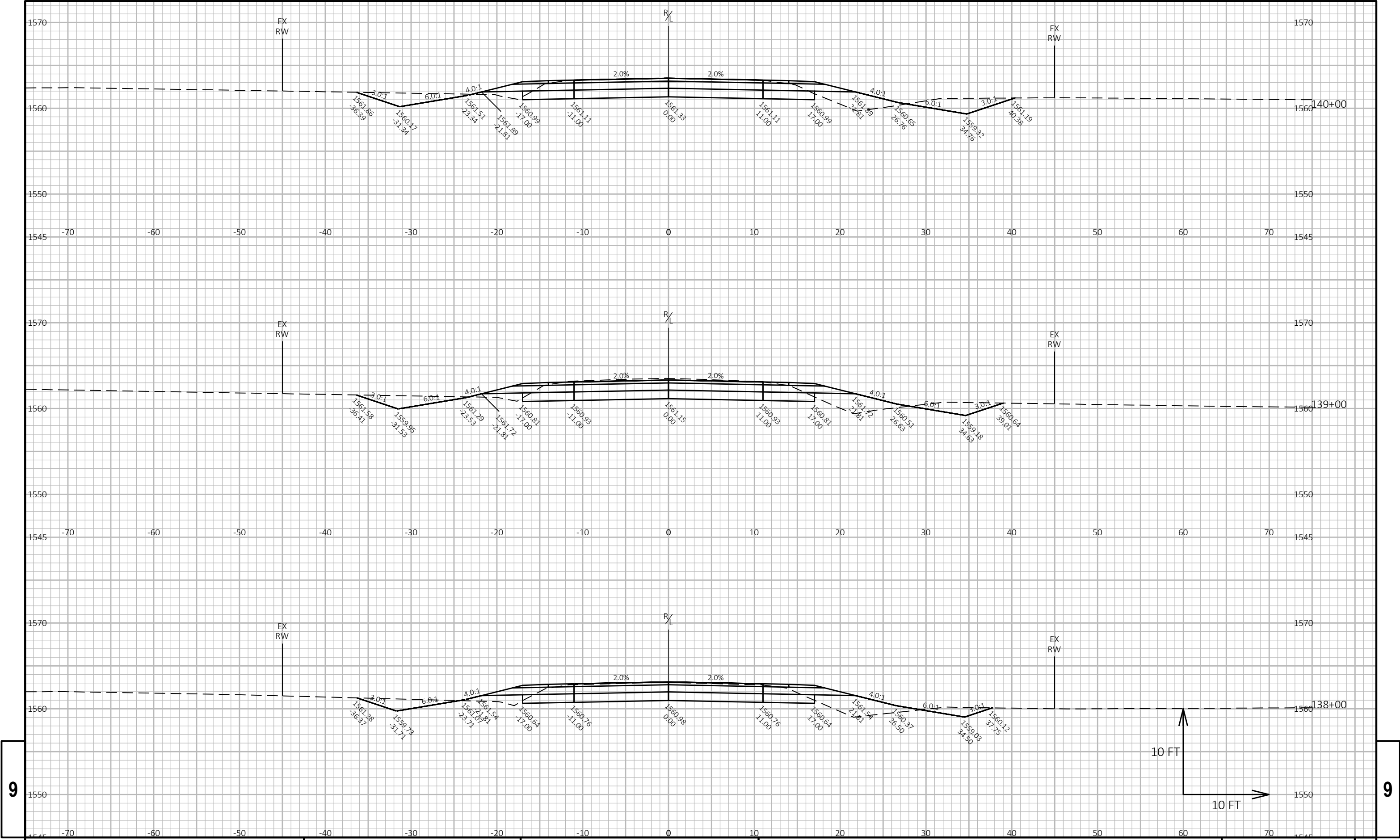






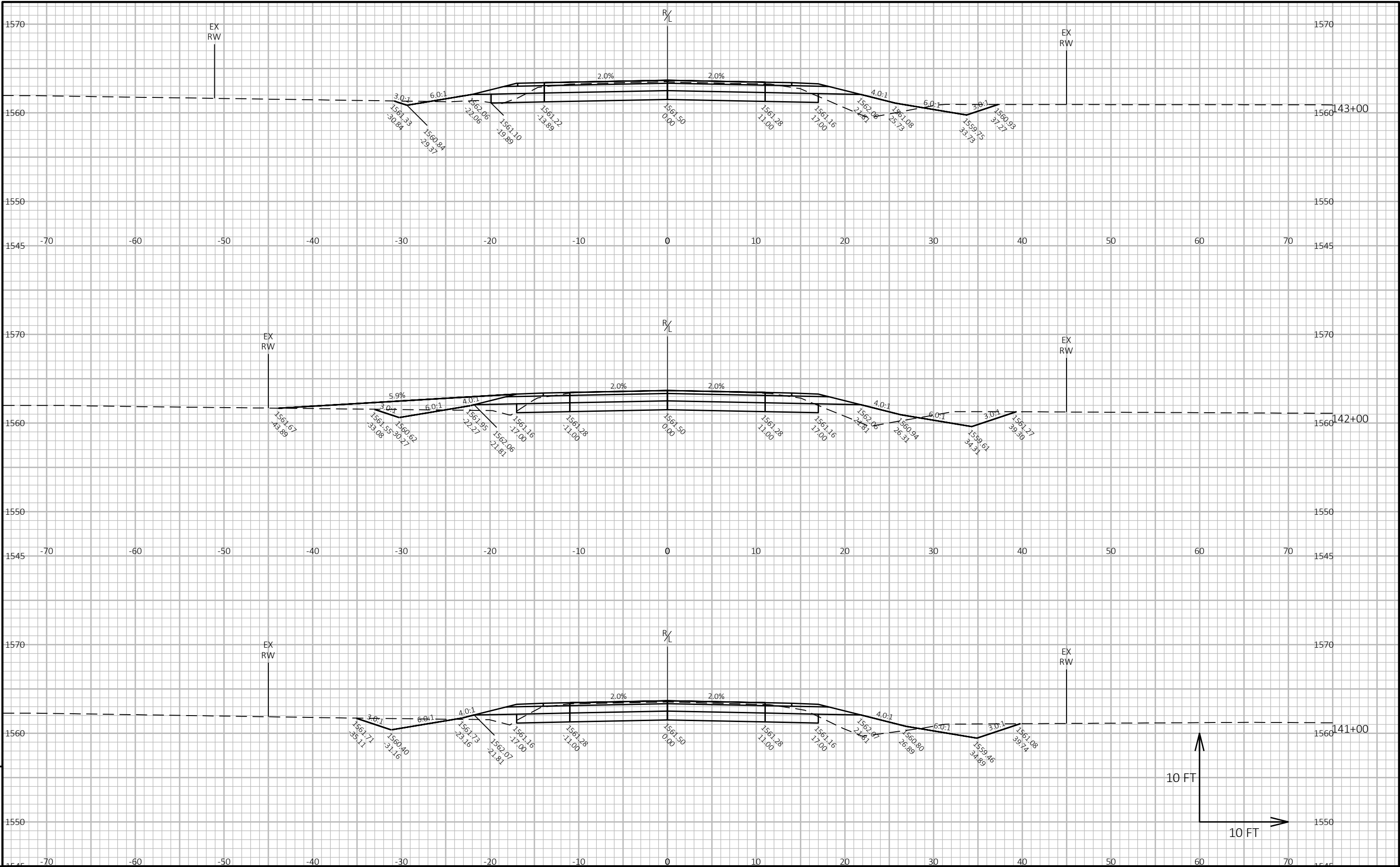
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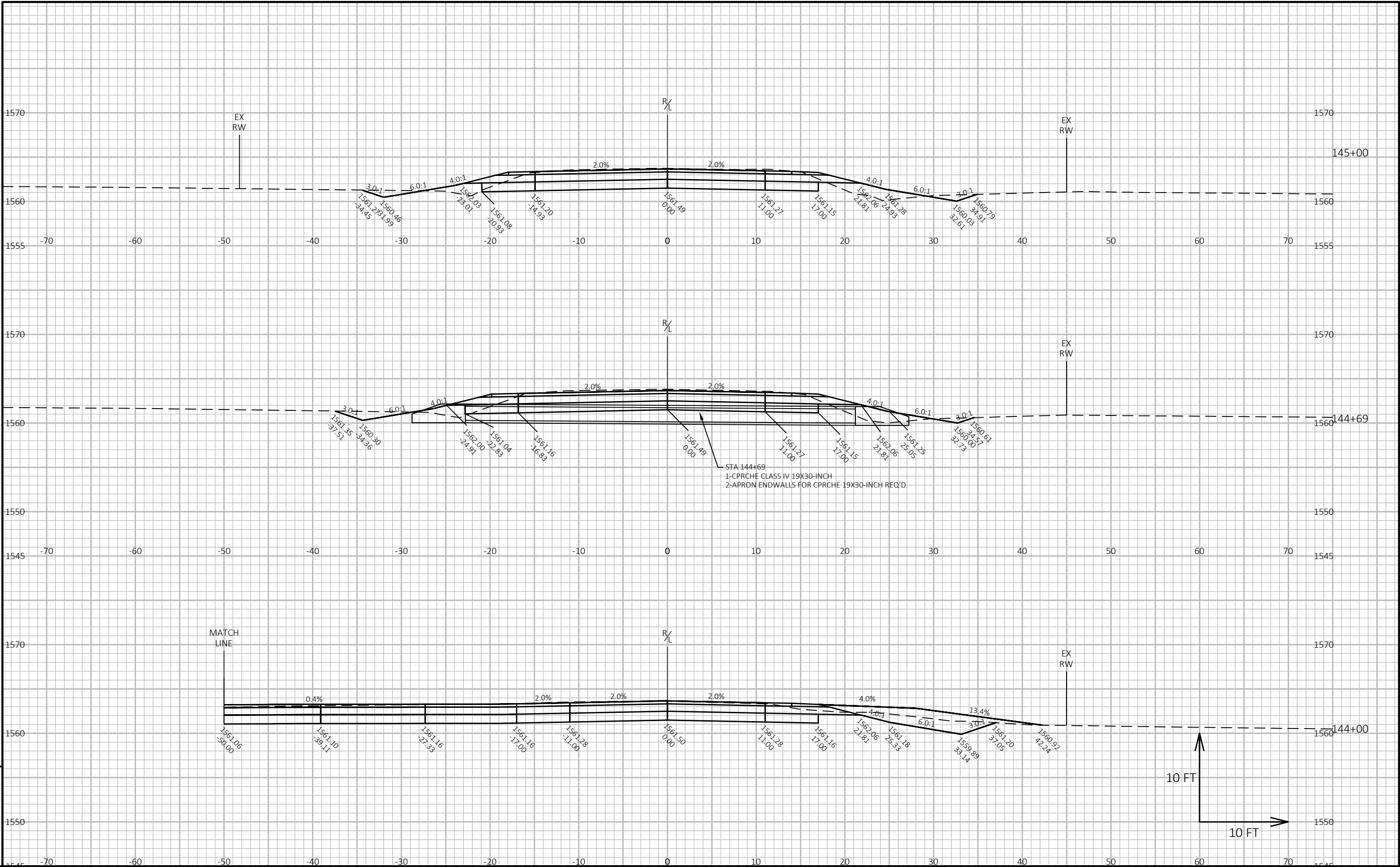
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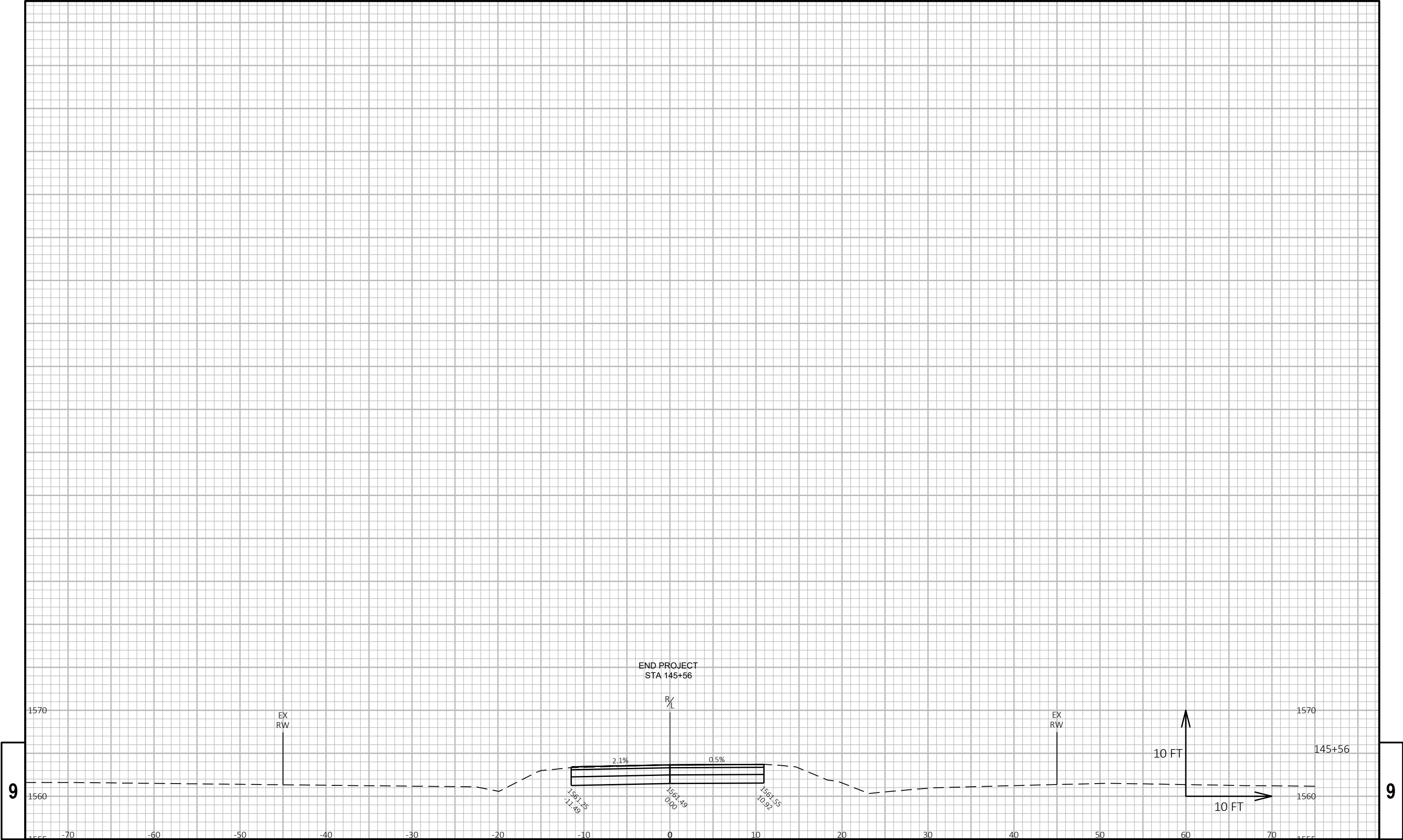
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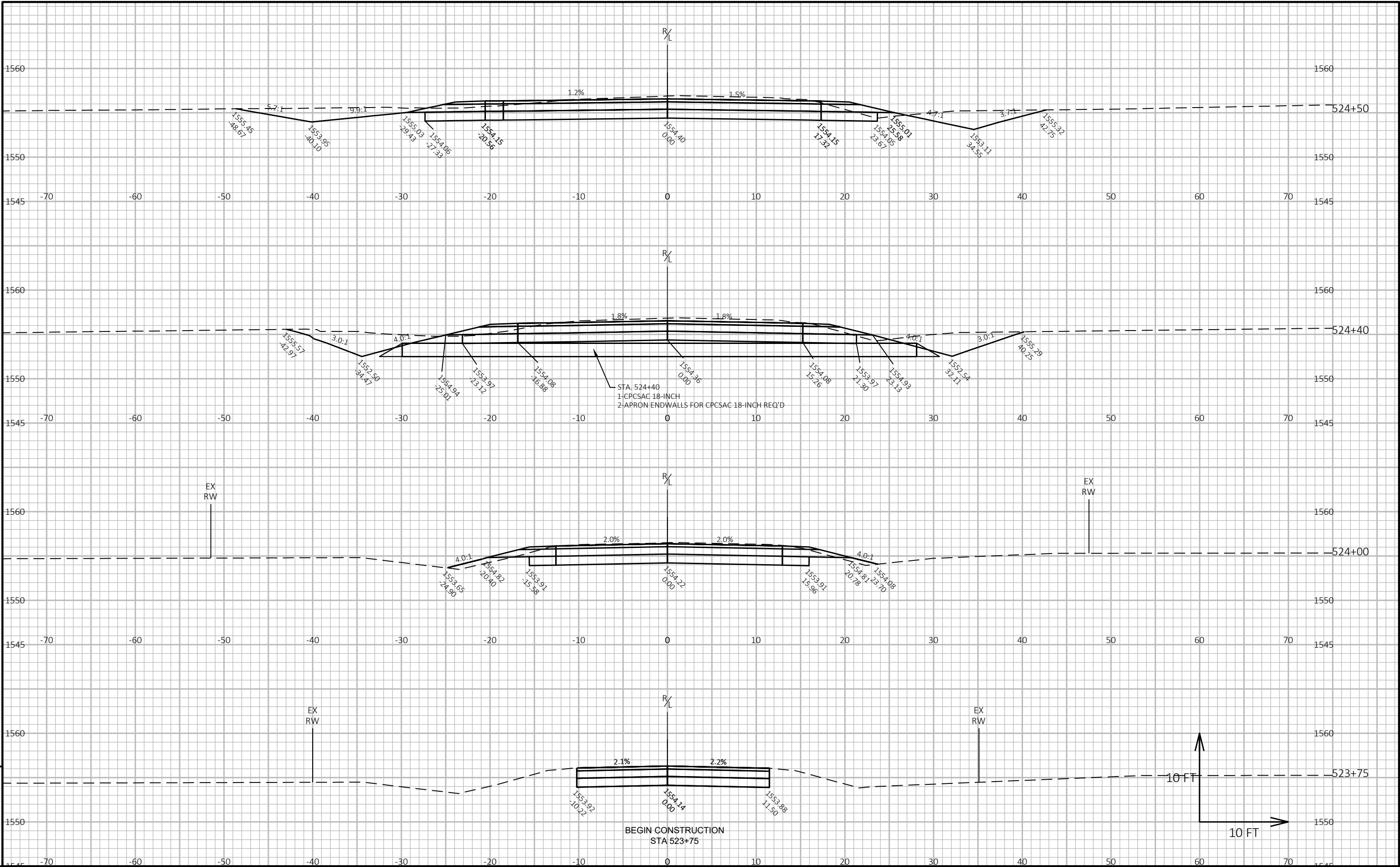


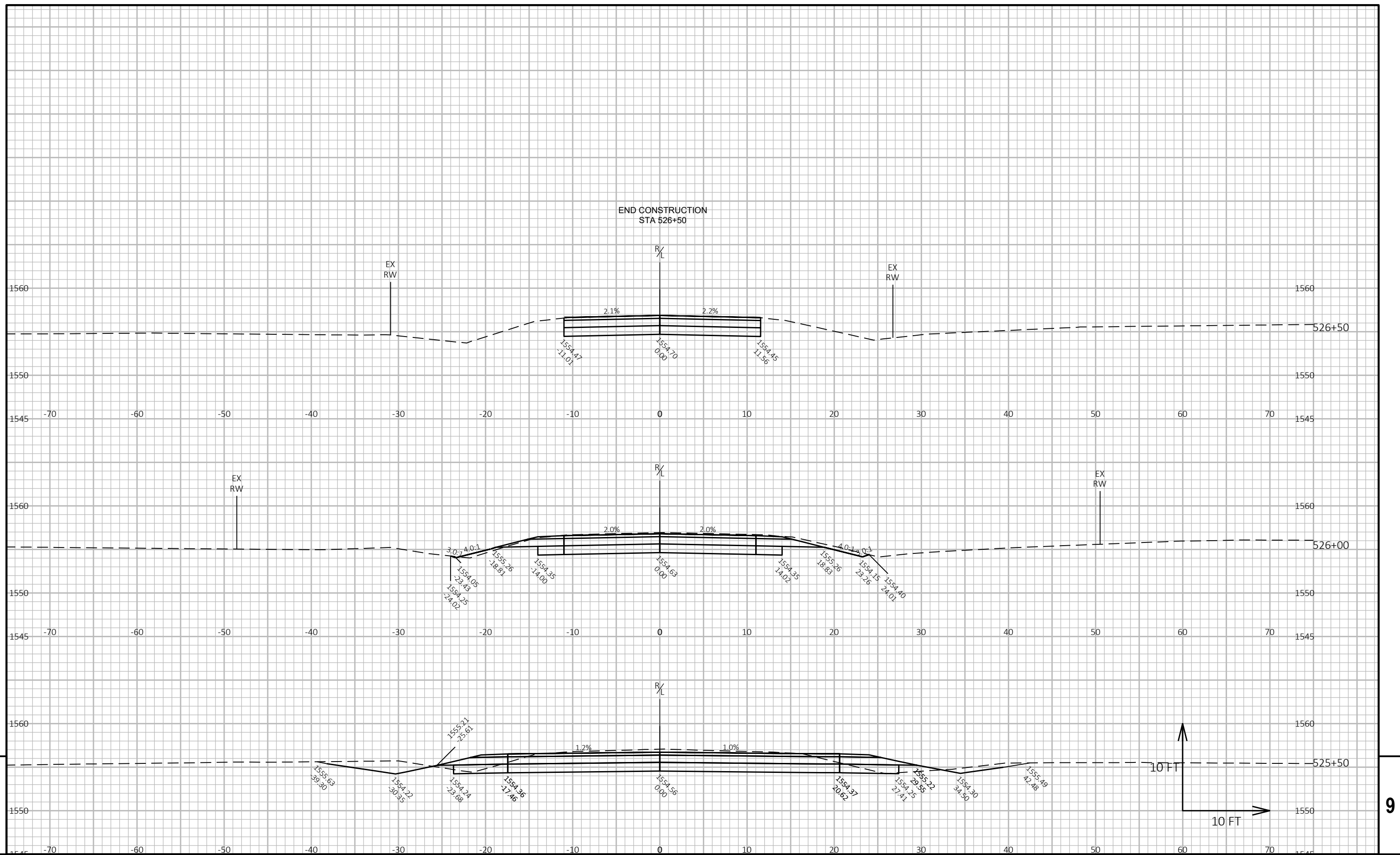
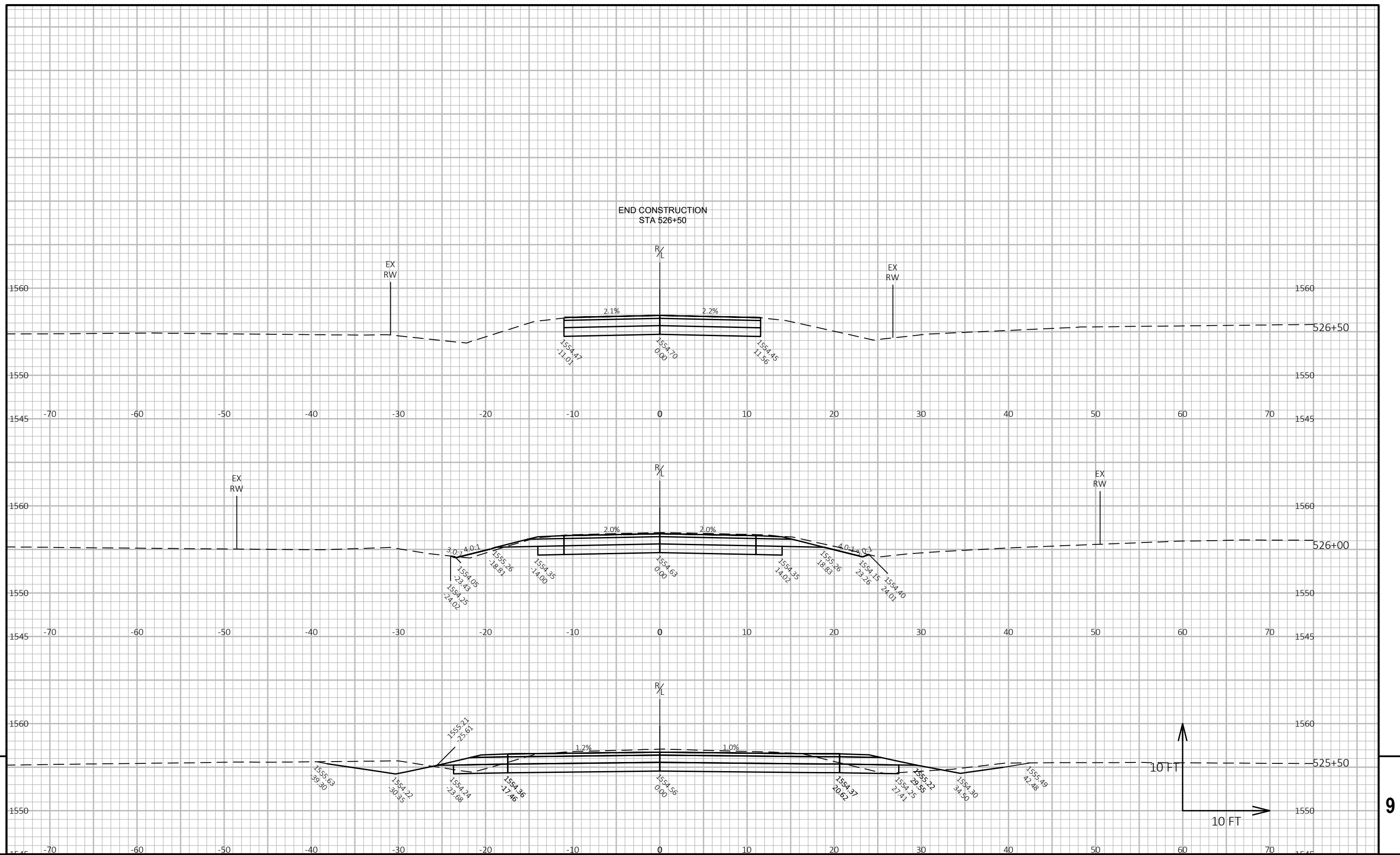
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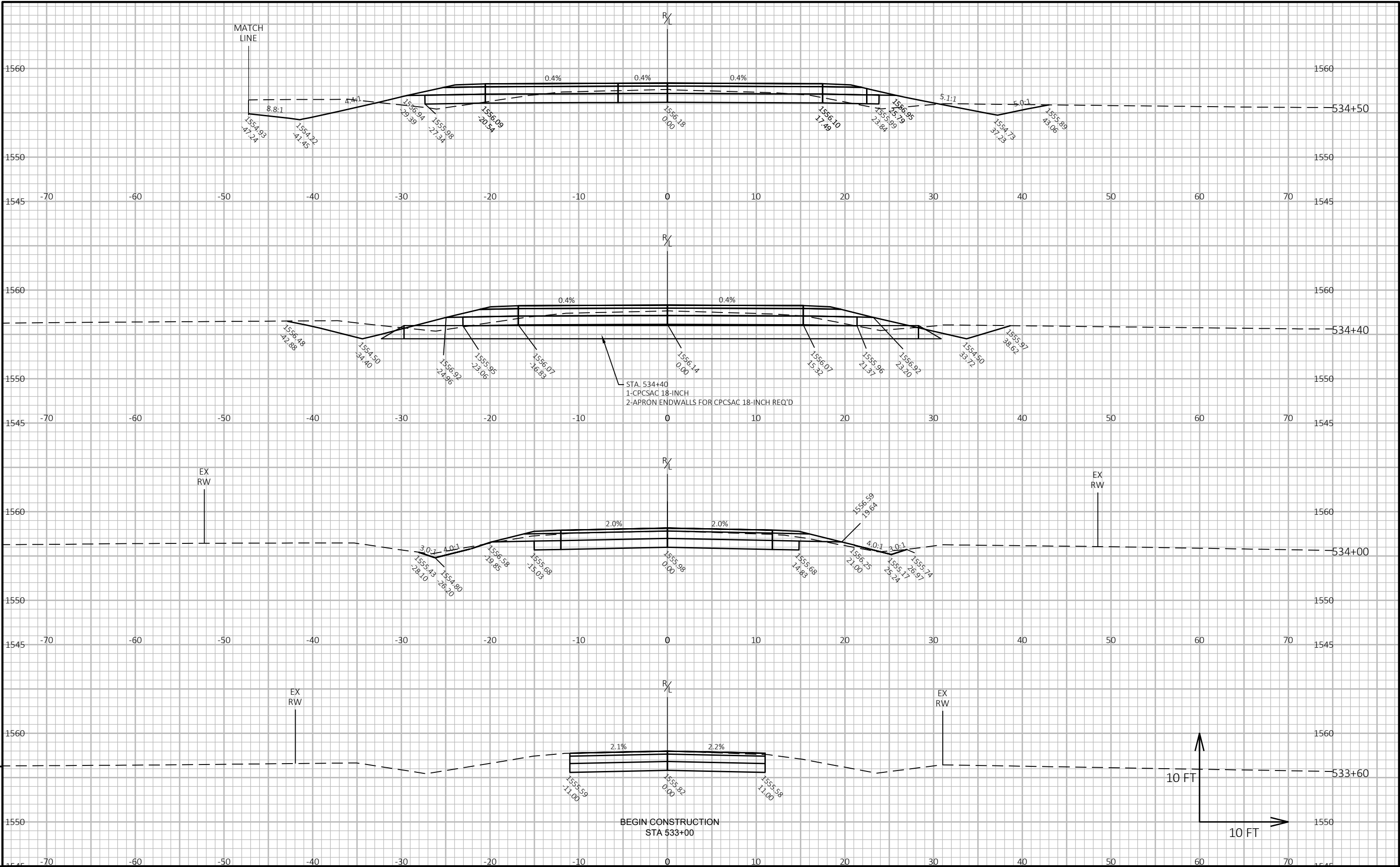
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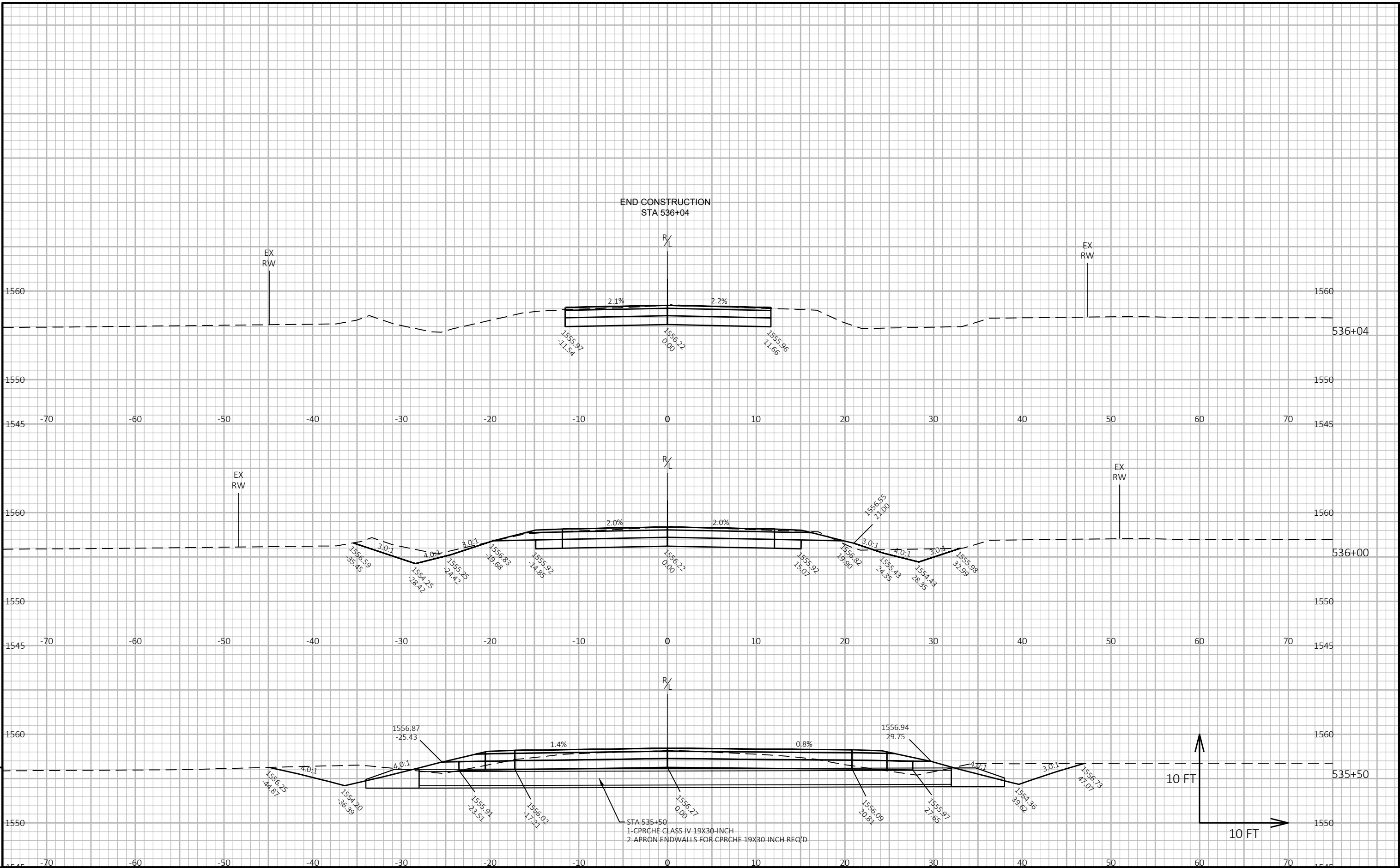


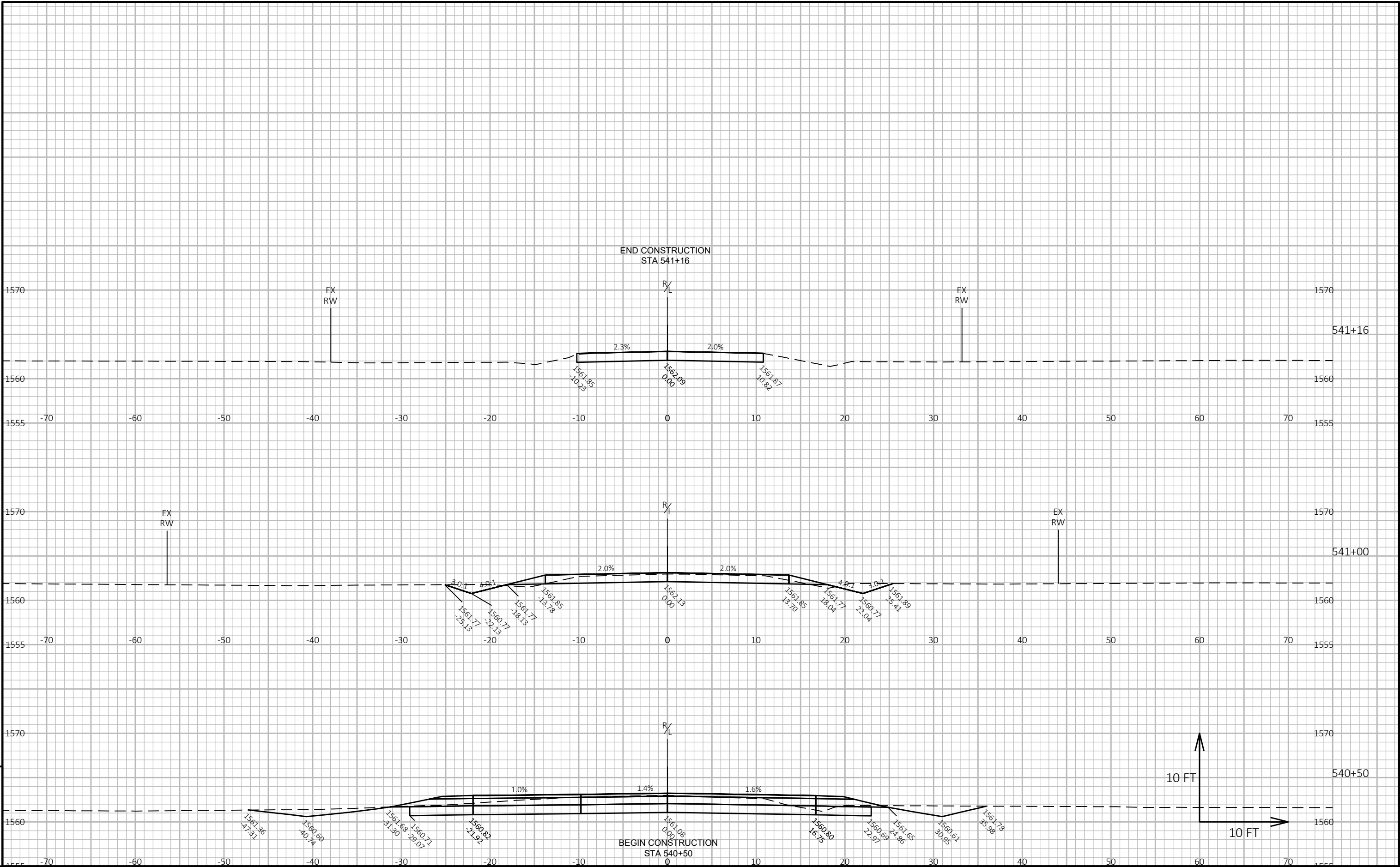
PROJECT NO:	9360-02-73	HWY:	CTH B	COUNTY:	LANGLADE	CROSS SECTIONS:	CTH B	SHEET	E
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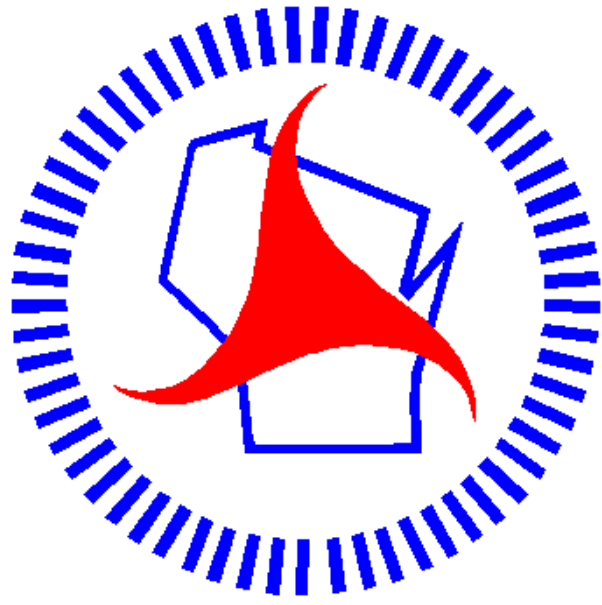












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