

PROJECT ID:
WITH: 9190-23-71

COUNTY:
BROWN

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 =



DESIGN DESIGNATION 9190-23-00

A.A.D.T.	2021	=	8,300
A.A.D.T.	2041	=	11,000
D.H.V.		=	1152
D.D.		=	60/40
T.		=	7.2%
DESIGN SPEED		=	55 M.P.H
ESALS		=	1,200,000

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

GREEN BAY - PULASKI

STH 29 - VILLAGE OF PULASKI

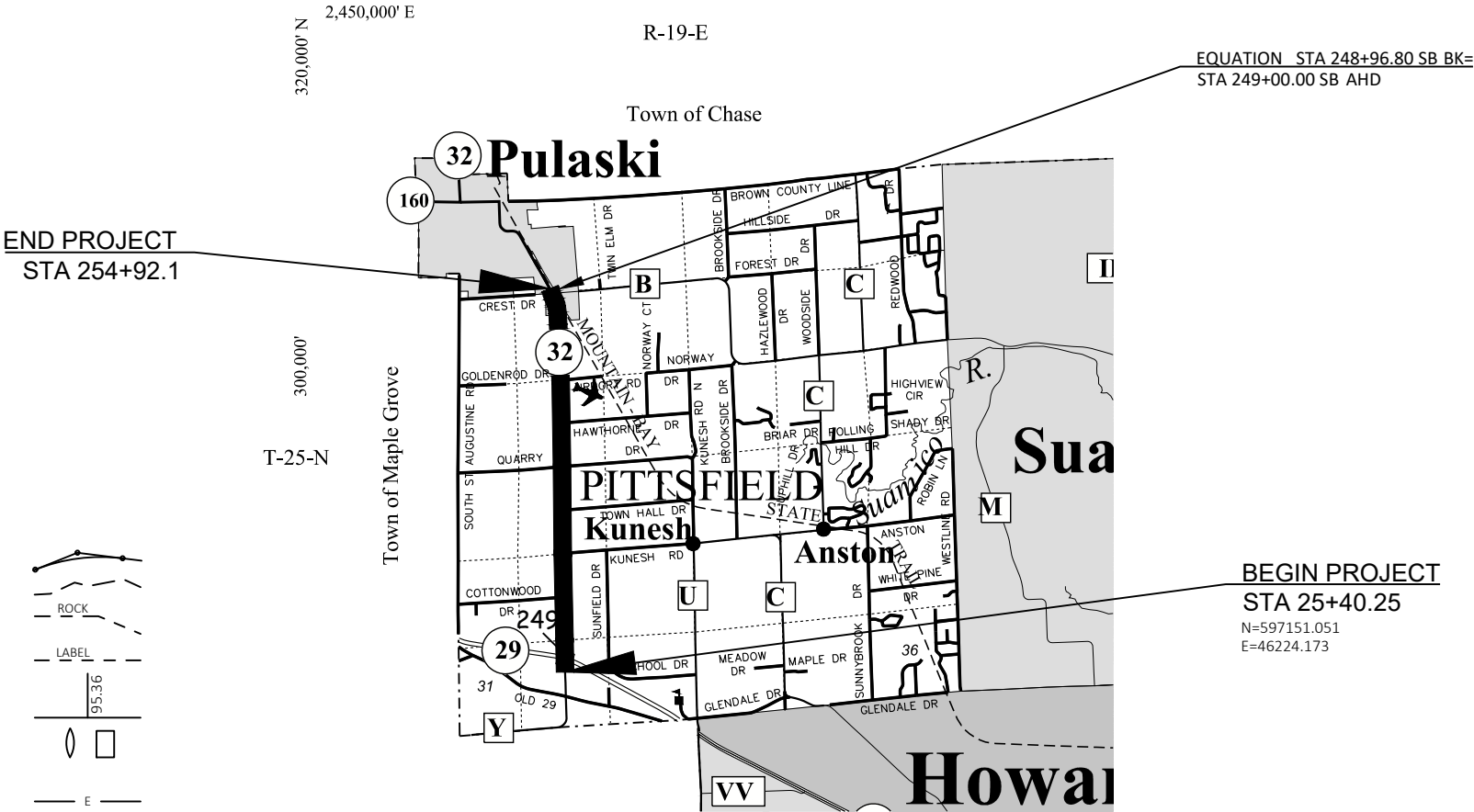
STH 32
BROWN

STATE PROJECT NUMBER
9190-23-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9190-23-71		

TRANS 220
PROJECT PLAN
FOR
DESIGN OF UTILITY FACILITY
ALTERATIONS OR RELOCATIONS

Date: 03/29/2019



LAYOUT
SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 4.35 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN
COORDINATE REFERENCE SYSTEM (WISCRS), BROWN COUNTY,
NAD83 (1991), 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 12A.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT
Designer	KELSEY HOLMES
Project Manager	ANDREW FULCER
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	DANIEL SEGERSTROM

APPROVED FOR THE DEPARTMENT
DATE: _____ (Signature)

E

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER.

EXISTING DRAINAGE DITCHES AND CULVERT PIPES WILL REMAIN FUNCTIONAL DURING EXCAVATION OPERATIONS.

CURB AND GUTTER RADII ARE SHOWN TO THE FRONT FACE OF CURB.

ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREA BETWEEN THE SUBGRADE SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED, AND MULCHED.

UTILITIES

NSIGHT TELSOURCES
CONTACT NAME
ADDRESS
CITY, STATE, ZIP
PHONE:
EMAIL:

VILLAGE OF PULASKI
JOEL VAN LANNEN - DPW
PULASKI, WI, 54162
PHONE: 920-822-5192
PUBDEPT@VILLAGEOFPULASKI.ORG

WE ENERGIES
CONTACT NAME
ADDRESS
CITY, STATE, ZIP
PHONE:
EMAIL:

WISCONSIN PUBLIC SERVICE
CONTACT NAME
ADDRESS
CITY, STATE, ZIP
PHONE:
EMAIL:

DNR AREA LIASON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
JAMES DOPERALSKI
PHONE: 920-412--0165
EMAIL: JAMES.DOPERALSKI@WISCONSIN.GOV





PROJECT NO: 9190-23-71

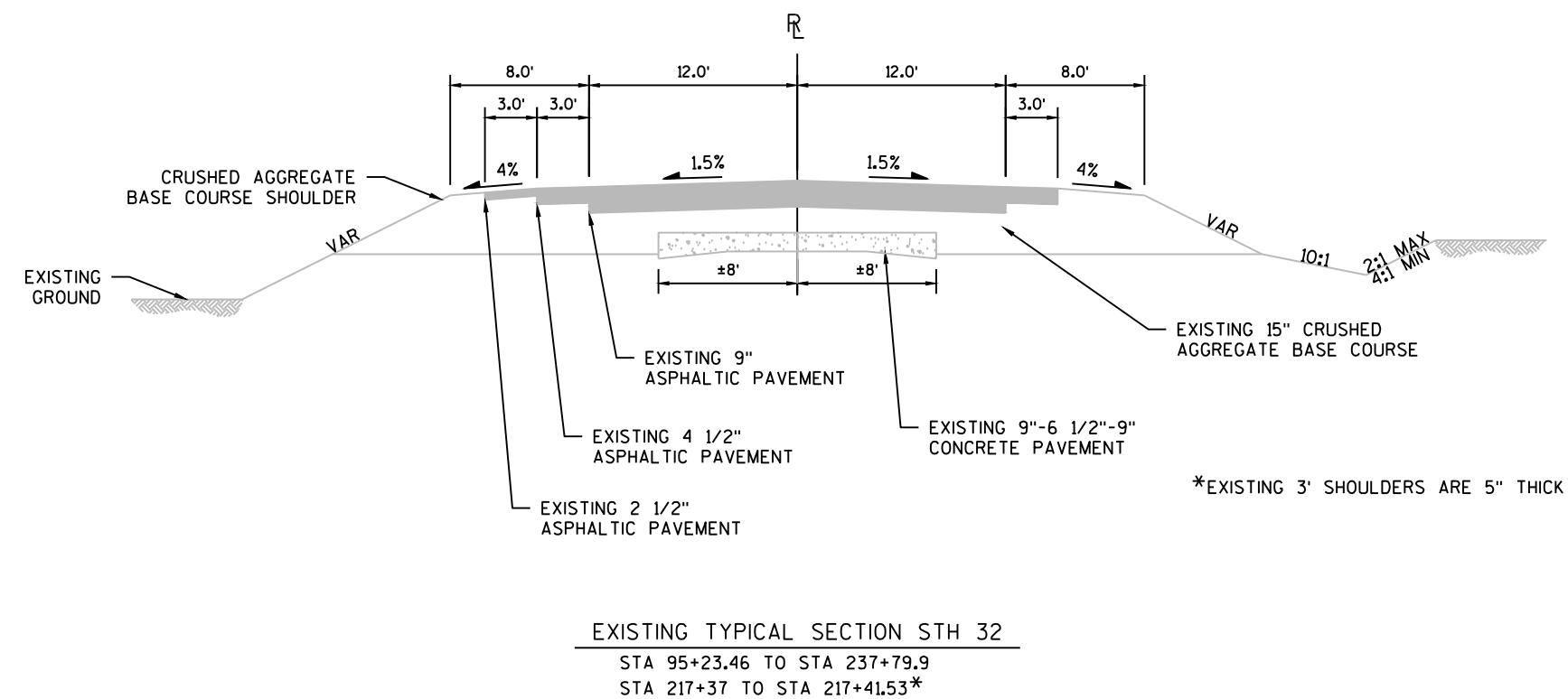
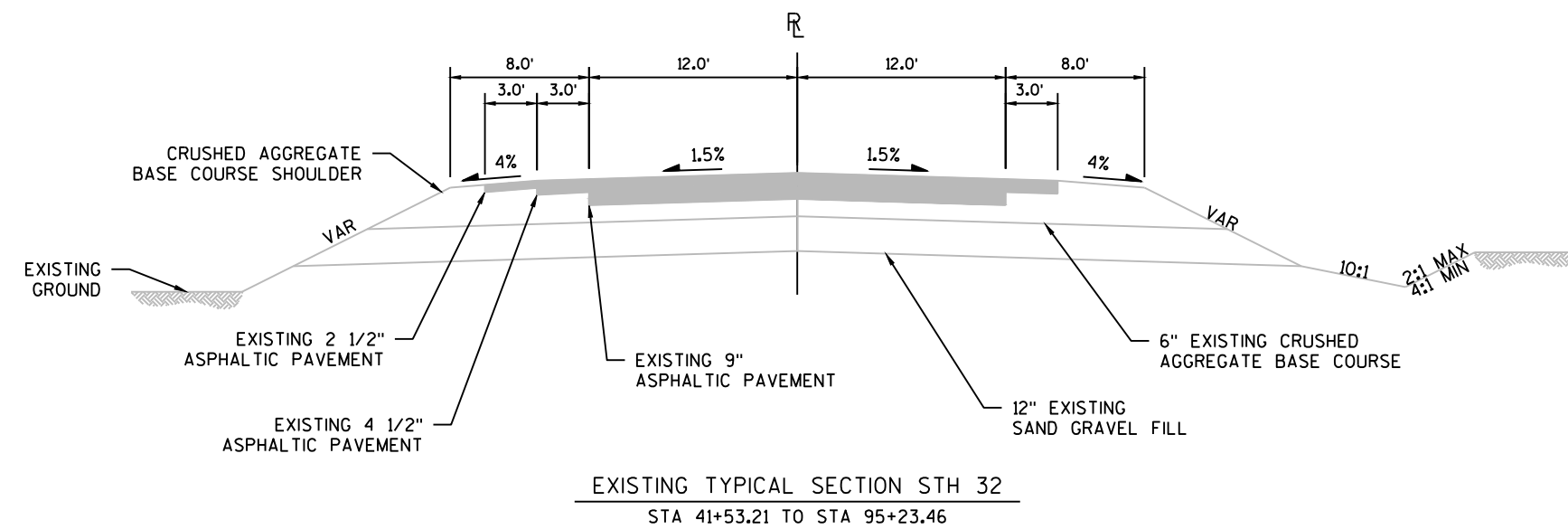
HWY: STH 32

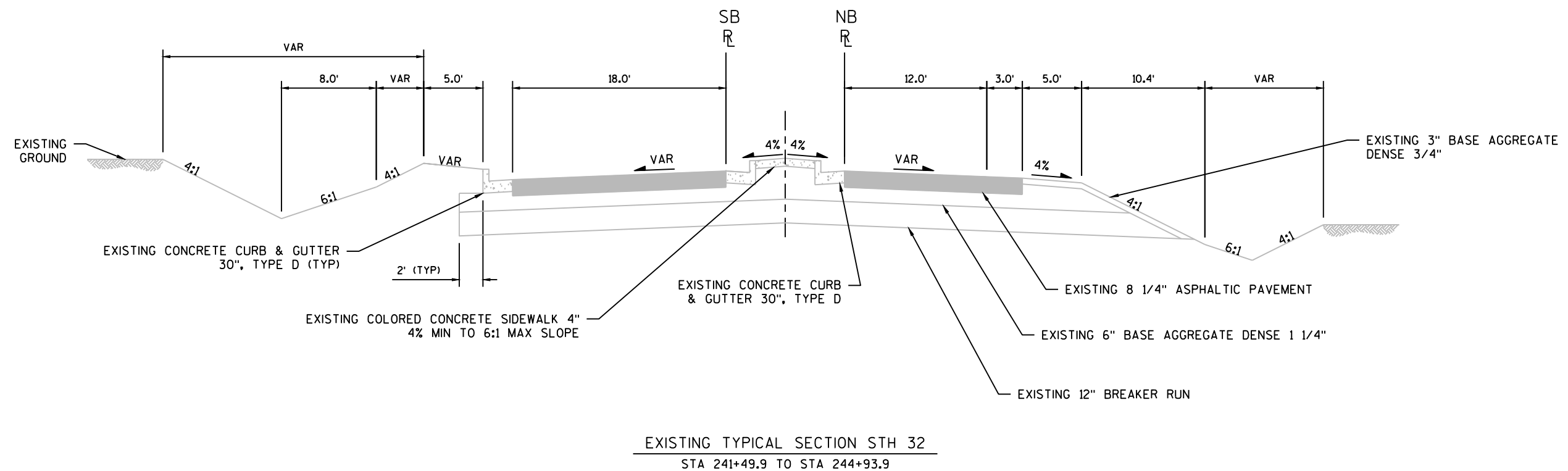
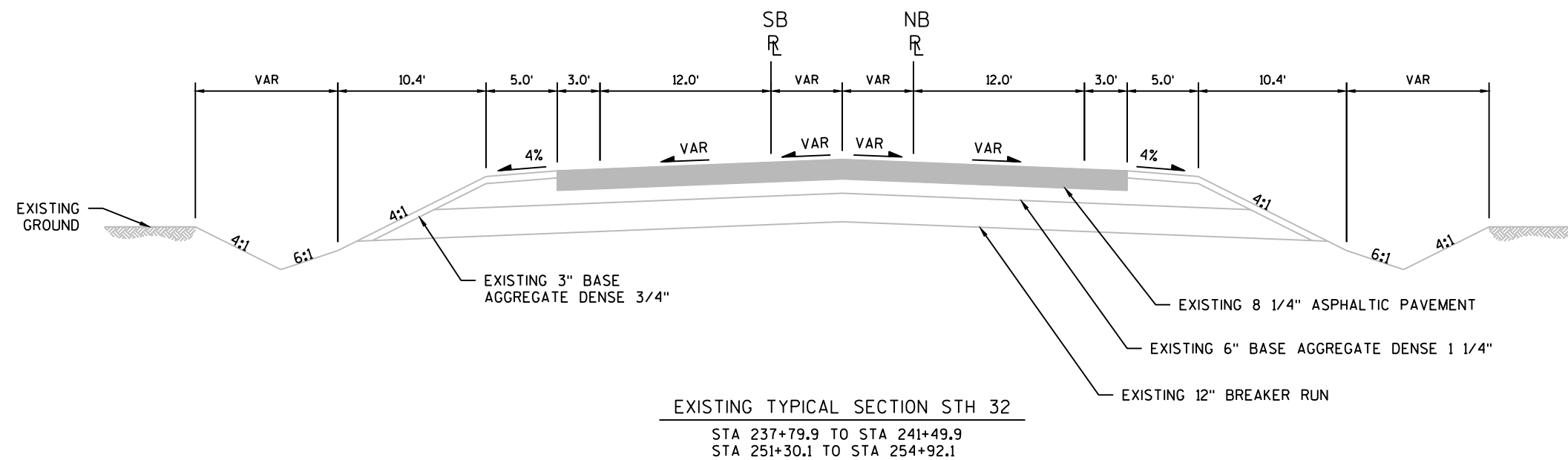
COUNTY: BROWN

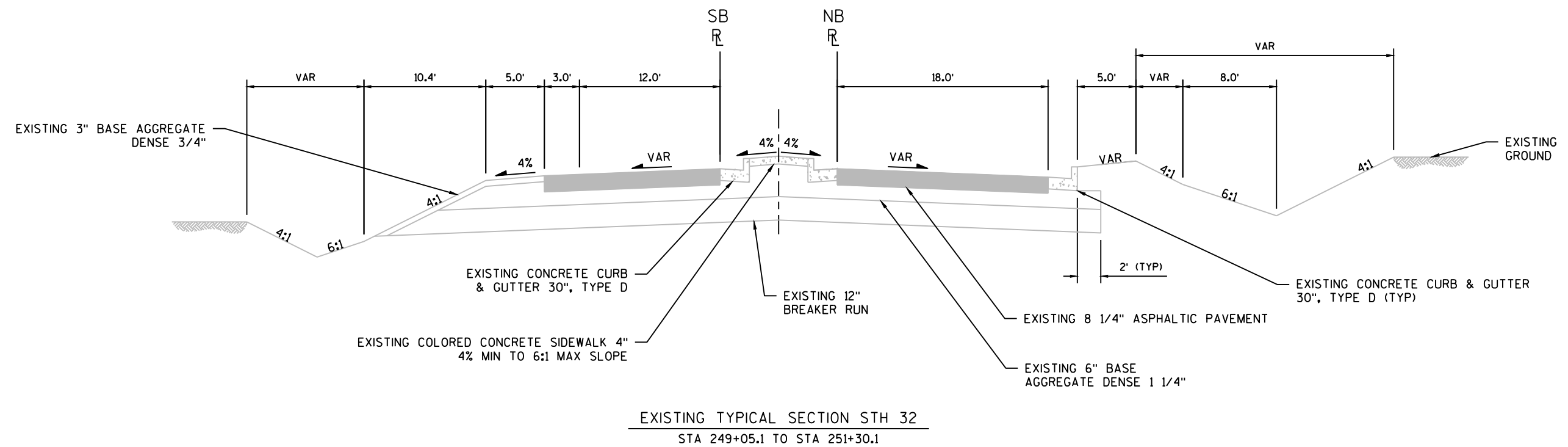
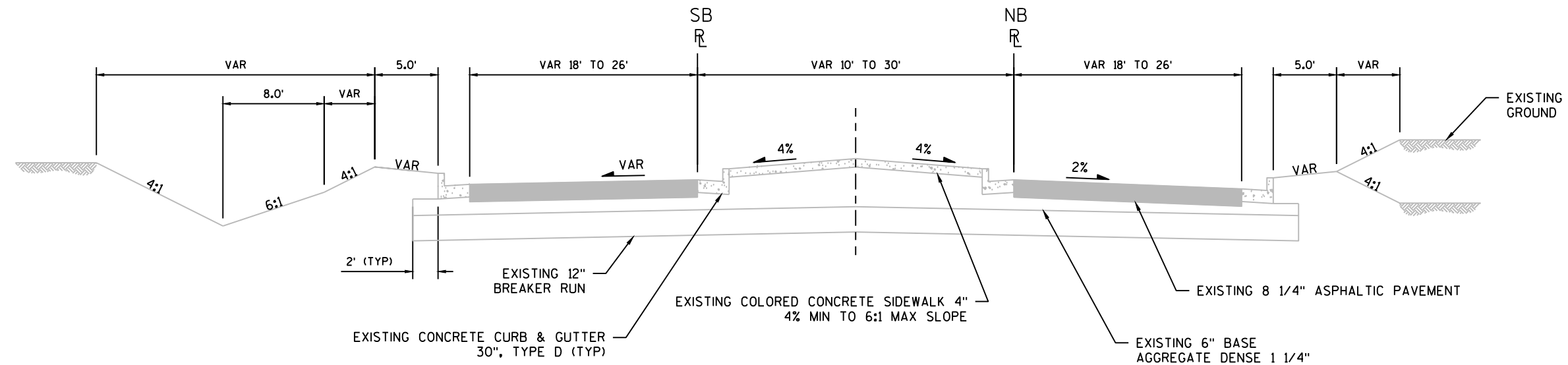
PROJECT OVERVIEW

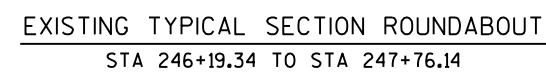
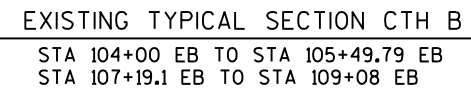
SHEET

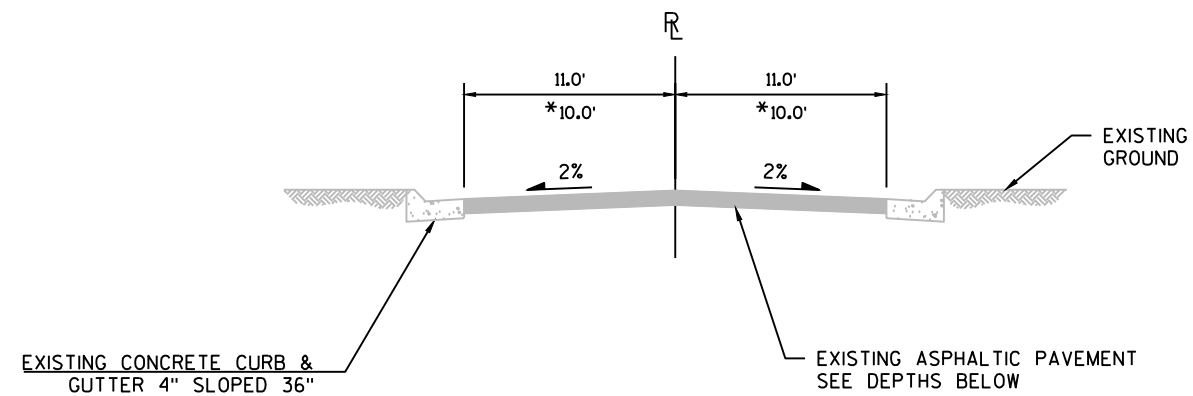
E





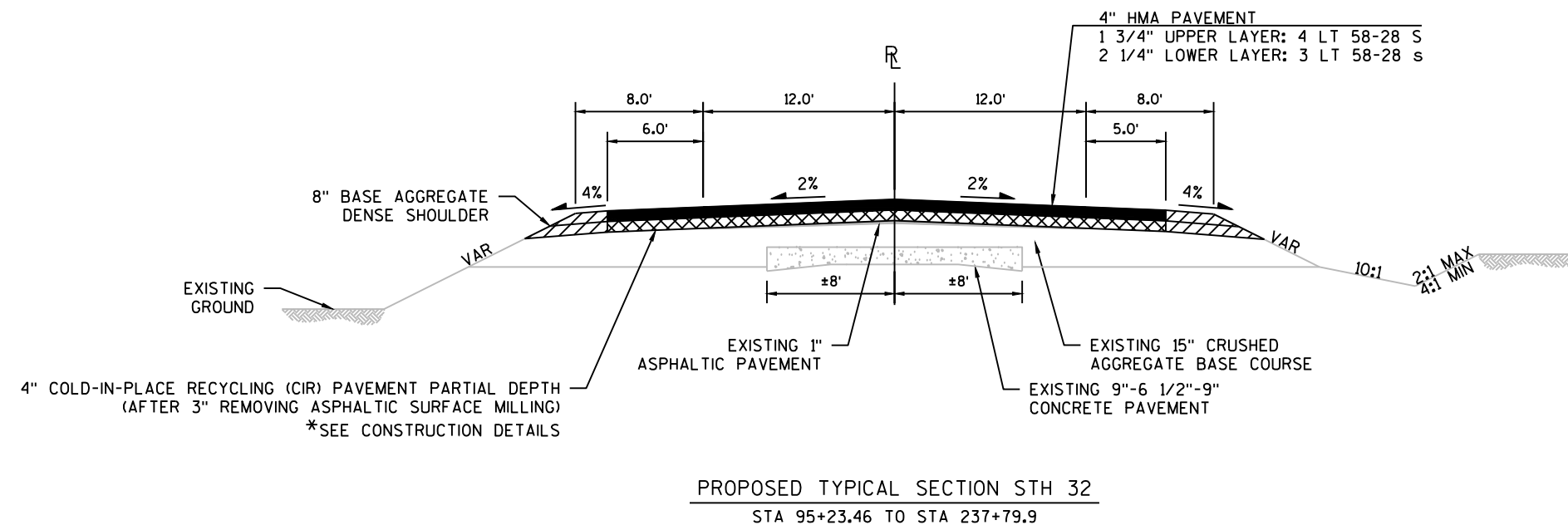
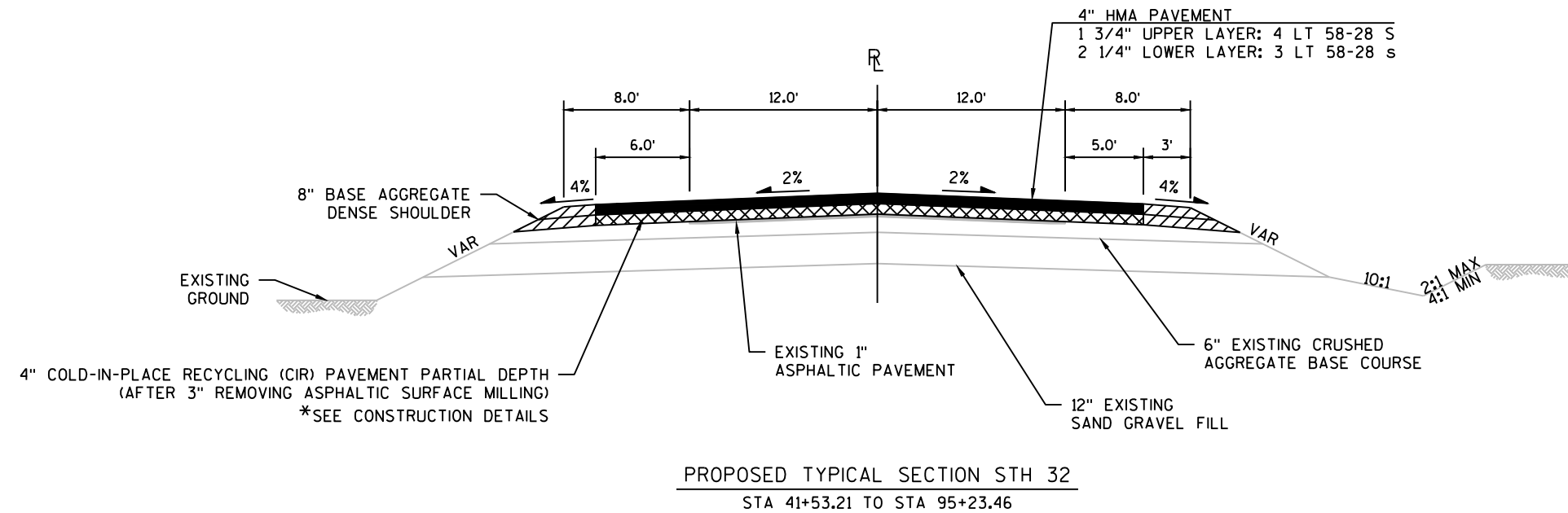


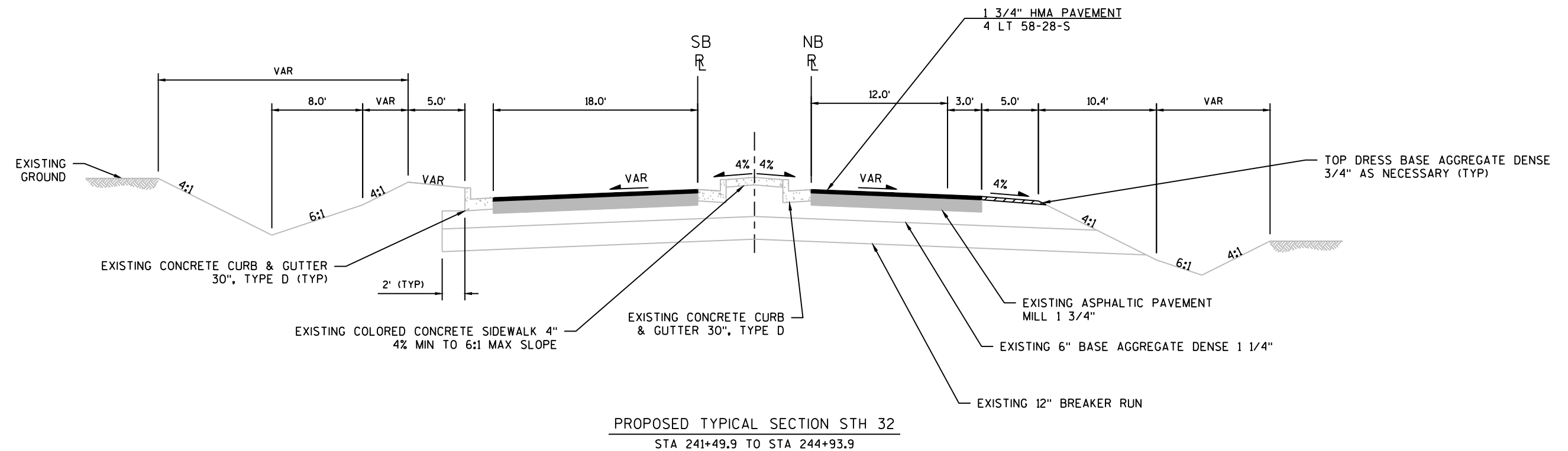
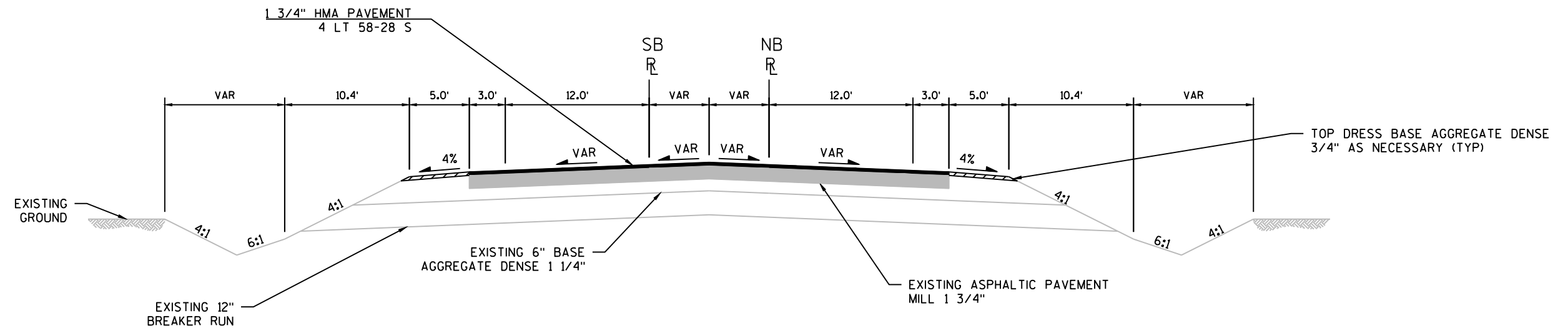


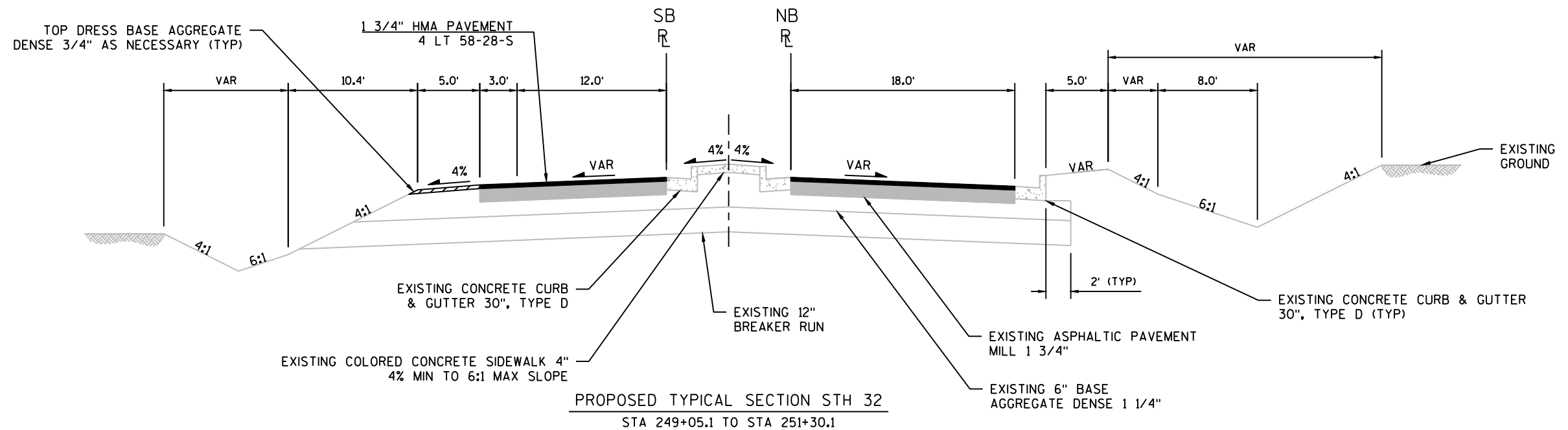
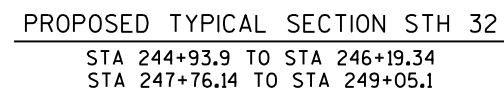


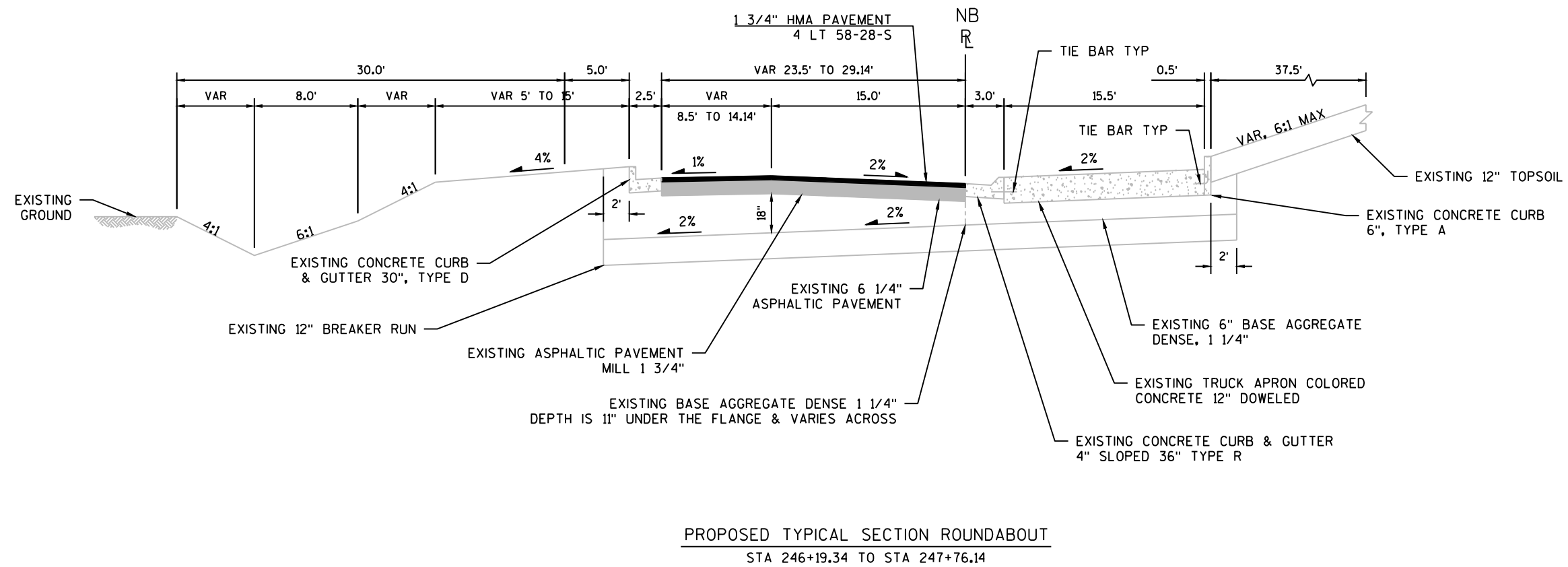
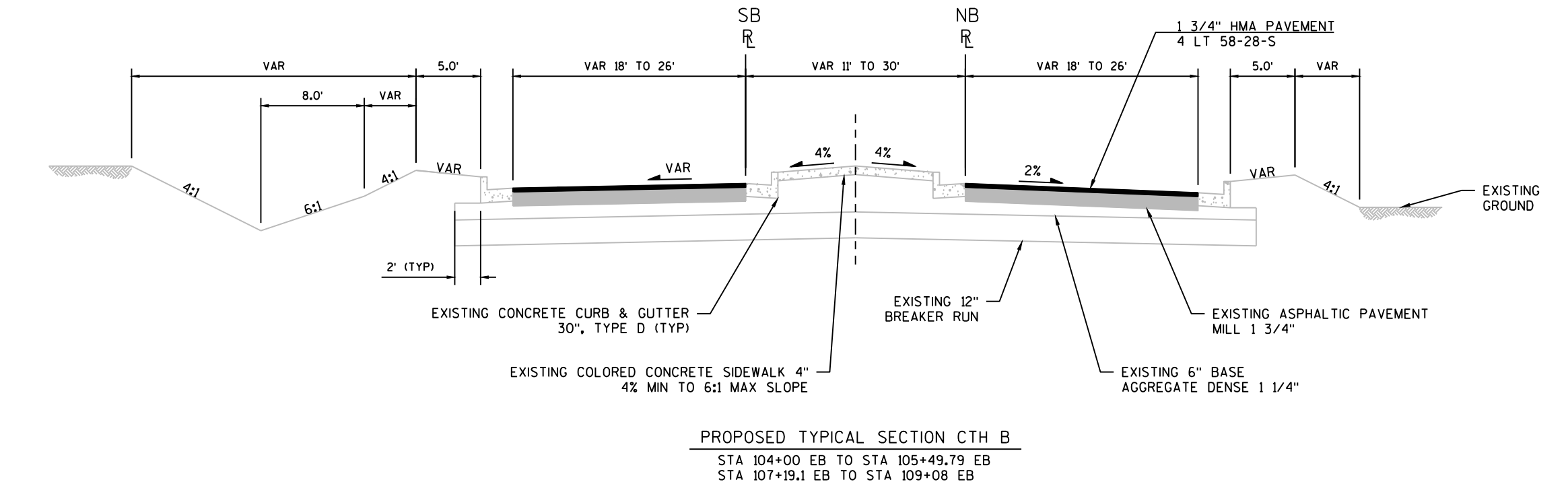
EXISTING TYPICAL SECTION SIDE ROADS

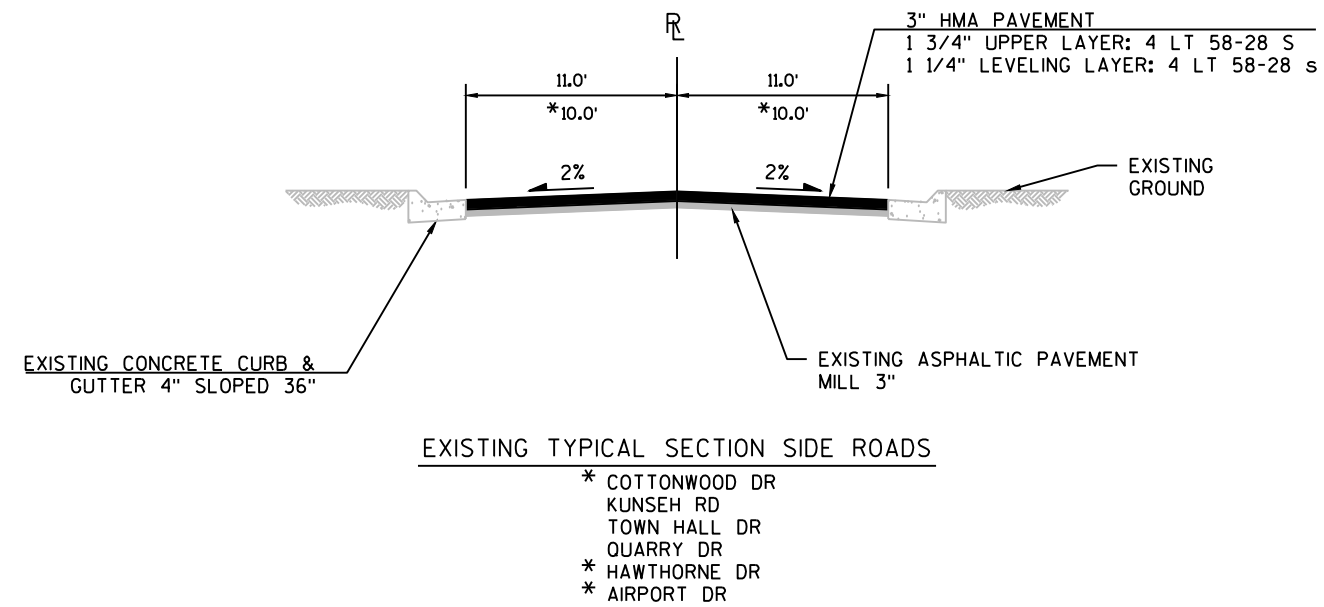
SIDE ROAD	WIDTH	DEPTH (INCHES)
COTTONWOOD DR	*	4.0
KUNESH RD		4.0
TOWN HALL DR		3.5
QUARRY DR		8.0
HAWTHORNE DR	*	4.5
AIRPORT RD	*	5.5

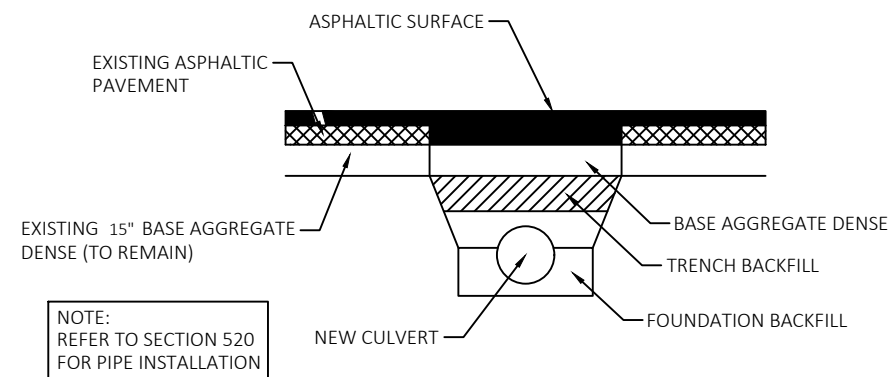




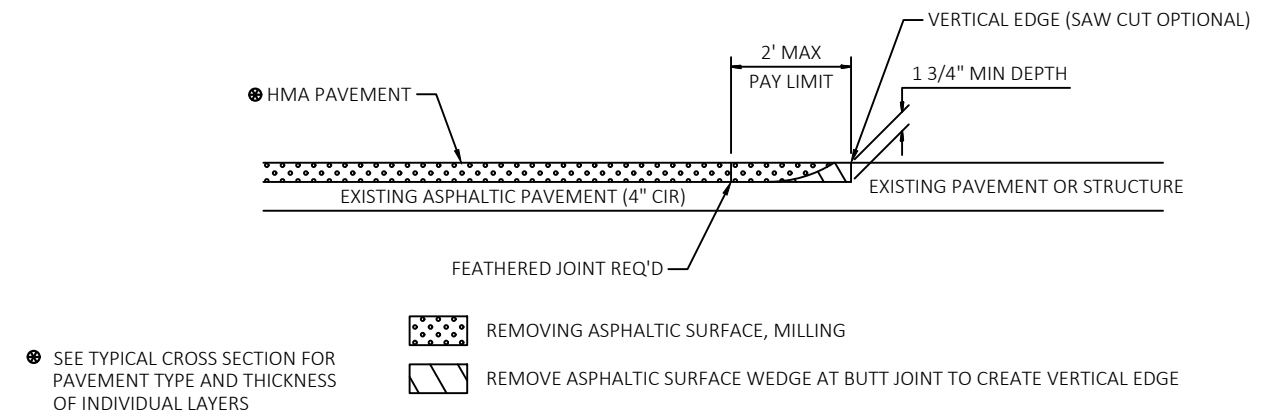




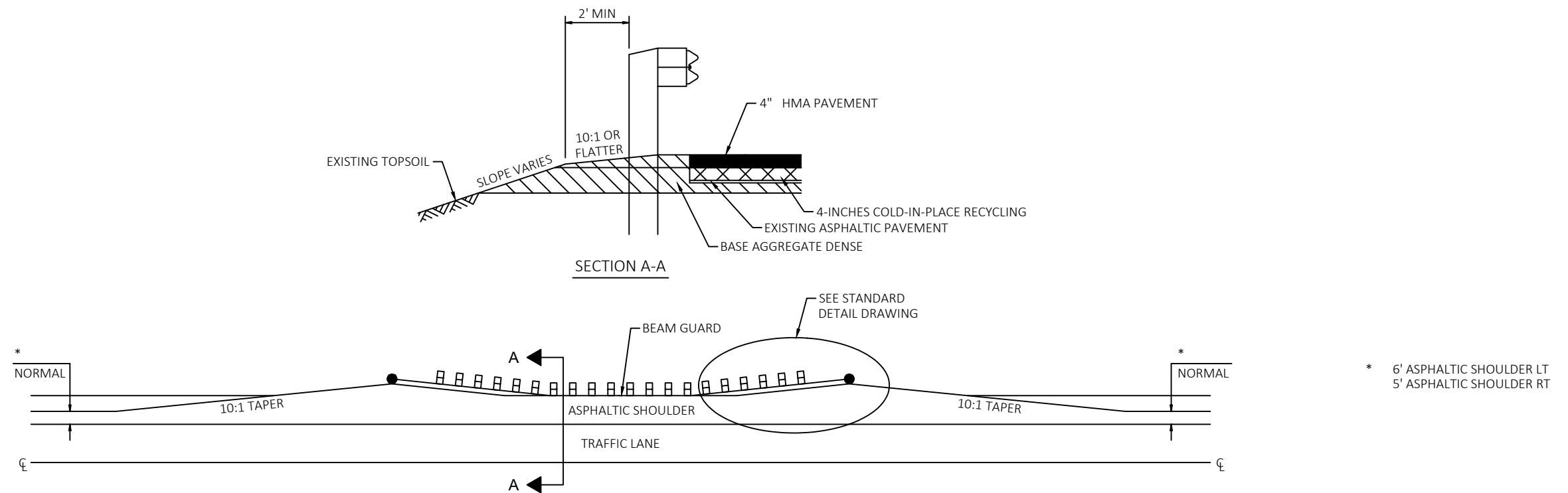




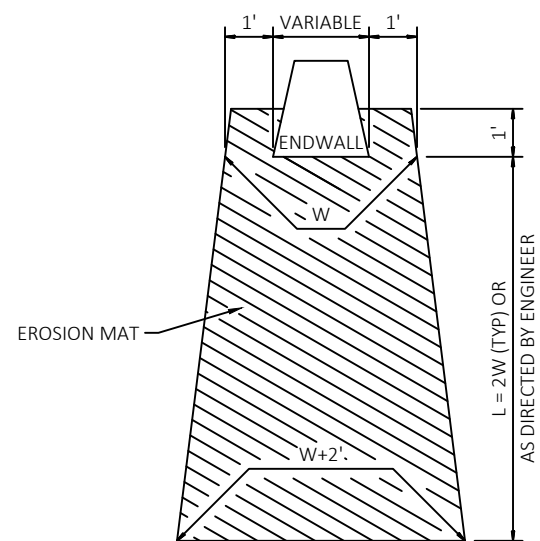
PAVEMENT AT CULVERT REPLACEMENTS



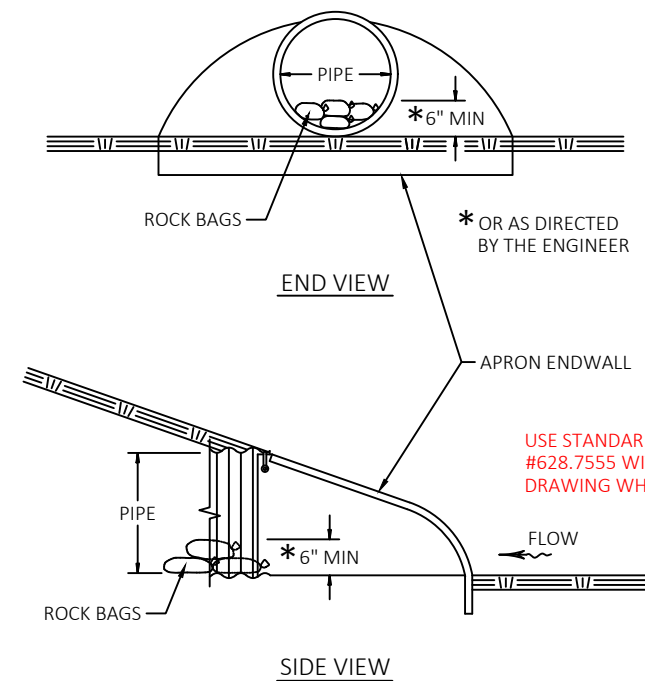
BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



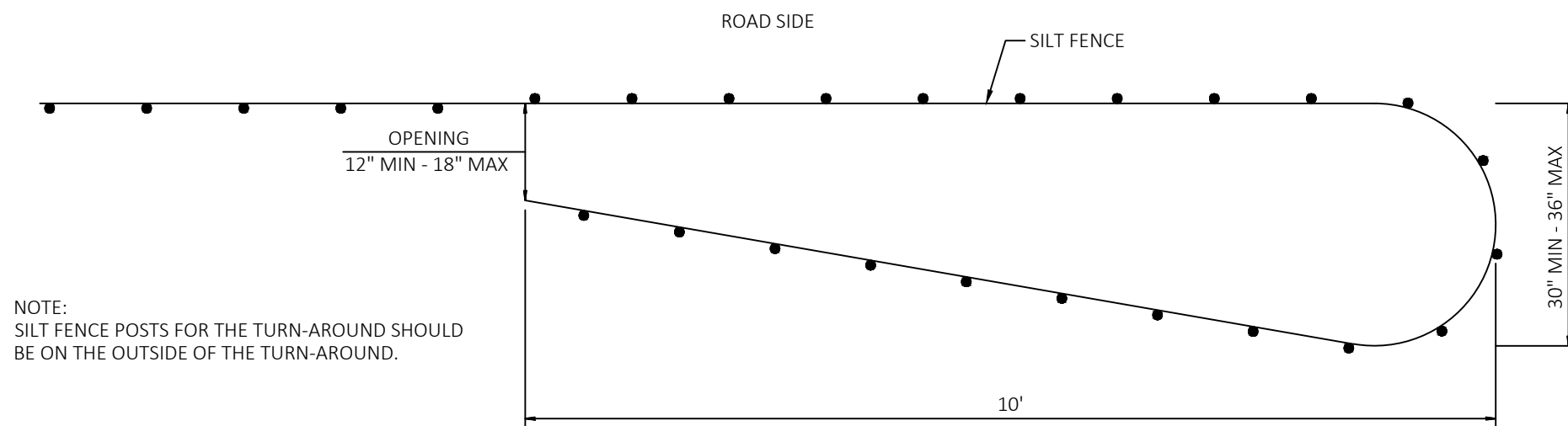
DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



EROSION MAT TREATMENT AT CULVERTS

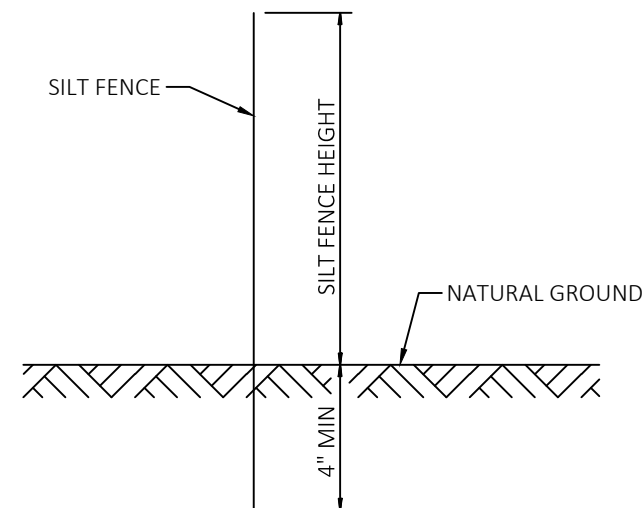


CULVERT PIPE CHECKS



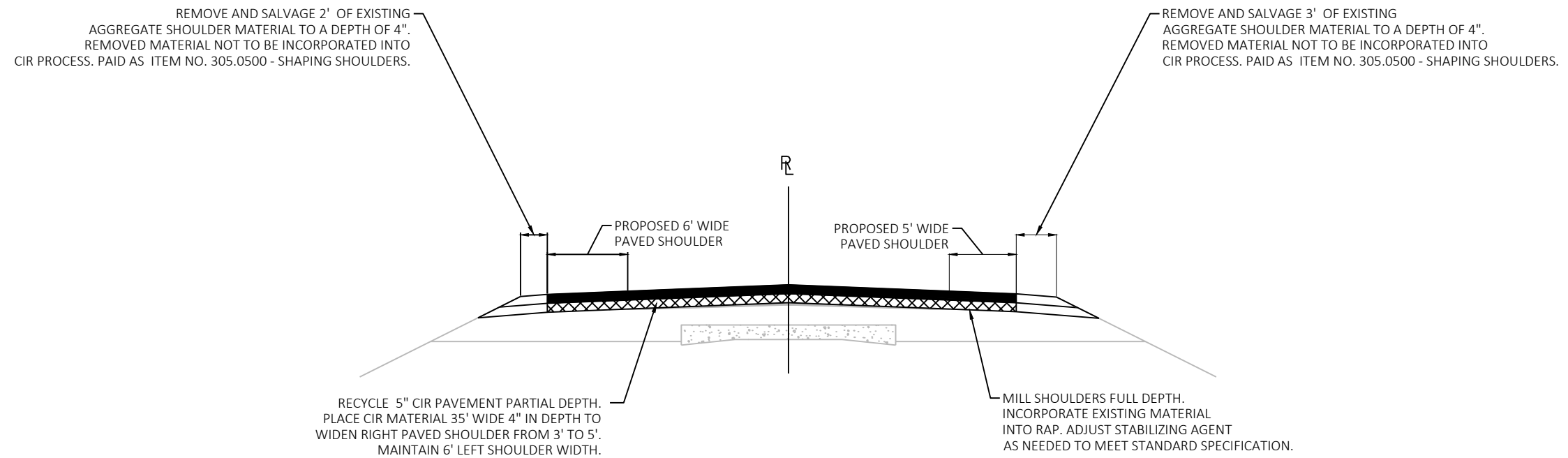
NOTE:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD
BE ON THE OUTSIDE OF THE TURN-AROUND.

PLAN VIEW

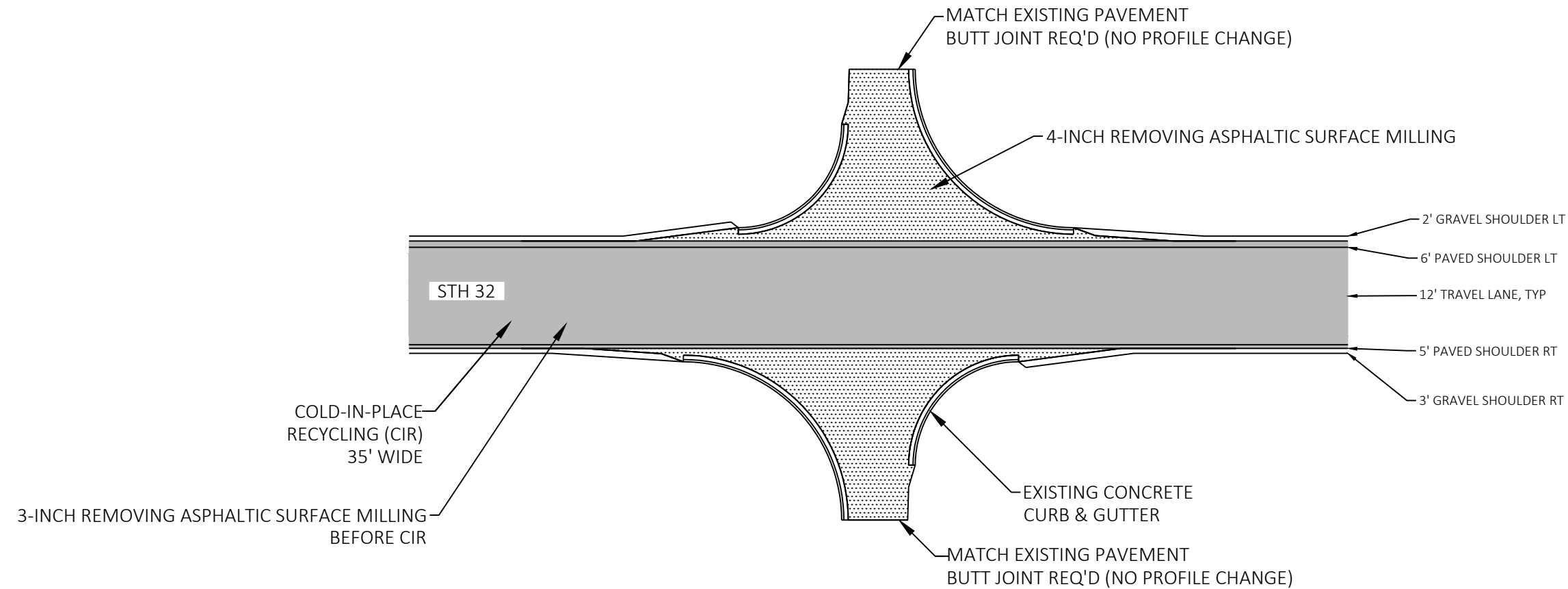


SIDE VIEW

SILT FENCE TURN-AROUND DETAIL

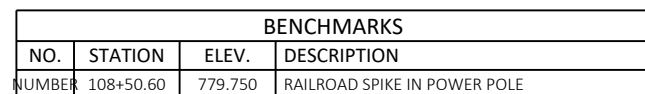


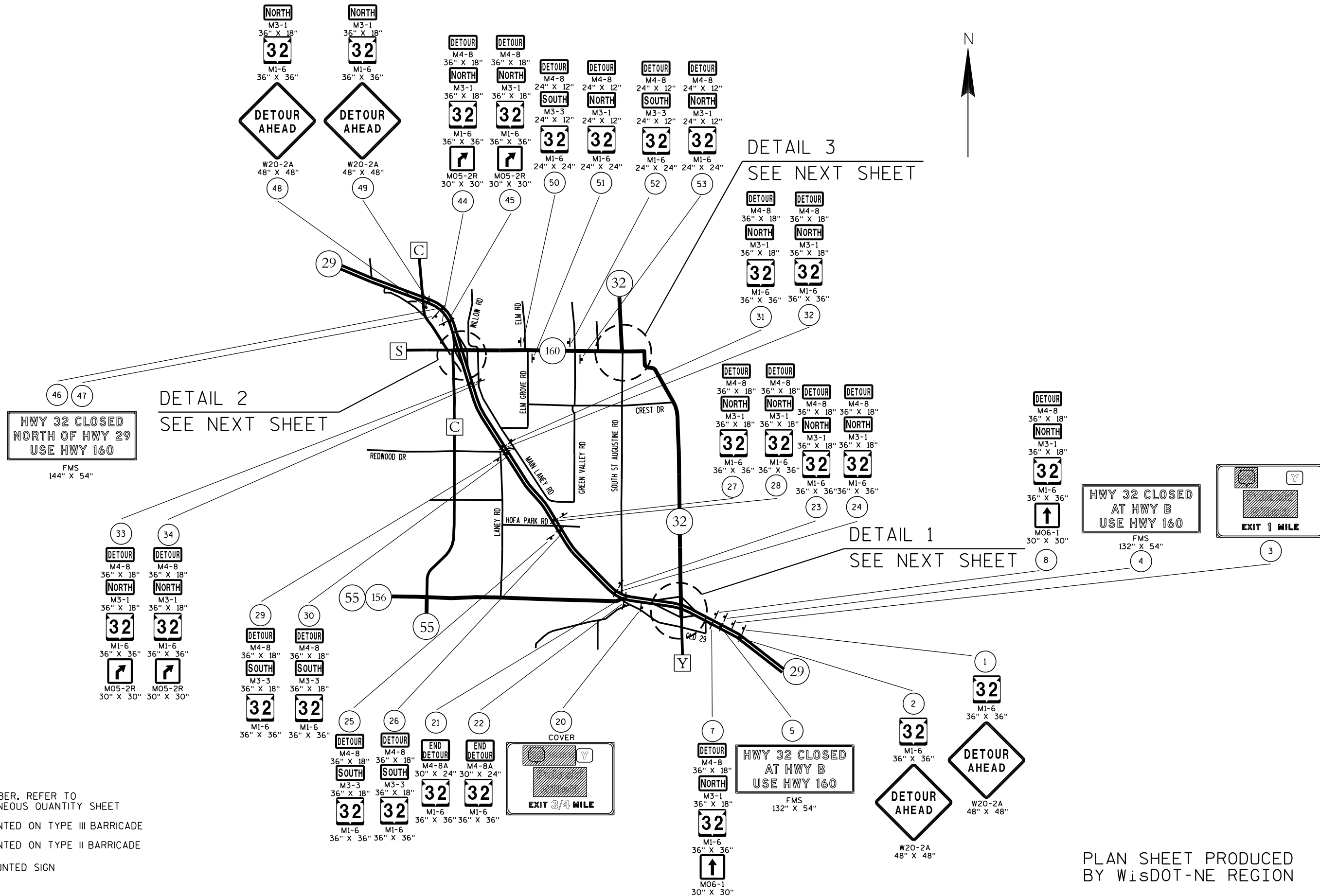
TYPICAL CROSS SECTION FOR STH 32
SHOULDER WIDENING DETAIL



MILLING/CIR LIMITS WITH CURB & GUTTER

COTTONWOOD DR
KUNESH RD
TOWN HALL DR
QUARRY DR
HAWTHORNE DR
AIRPORT DR

 ASPHALTIC SURFACE





DETAIL 1

- | | | DETAIL |
|---|--|--------|
|  | SIGN NUMBER. REFER TO MISCELLANEOUS QUANTITY SHEET | |
|  | SIGN MOUNTED ON TYPE III BARRICADE | |
|  | SIGN MOUNTED ON TYPE II BARRICADE | |
|  | POST MOUNTED SIGN | |



PLAN SHEET PRODUCED
BY WISDOT-NE REGION

CONVENTIONAL ABBREVIATIONS AND SYMBOLS

ACRES	AC	CORPORATE LIMITS	////////////////////
CHORD BEARING	CH BRG	EXISTING R/W	=====
CHORD DISTANCE	CH DIS	SECTION LINE	=====
DEED	DEED	QUARTER LINE	=====
DOCUMENT	DOC	SIXTEENTH LINE	=====
EAST BOUND	EB	PROPOSED OR NEW R/W LINE	=====
GAS VALVE	GV	PROPOSED EASEMENT LINE	=====
INLET	IL	PROPERTY LINE	=====
MANHOLE	MI	COMMUNICATION LINE	=====
MONUMENT	MON	BURIED GAS LINE	=====
NORTH BOUND	NB	OVERHEAD ELECTRIC LINE	=====
PAGE	PG	BURIED ELECTRIC LINE	=====
PRIVATE DRIVEWAY	PD	LOT, TIE AND OTHER	-----
PROPERTY LINE	PL	MINOR DASHED LINES	-----
RADIUS	RAD	ACCESS RESTRICTED	|||||
REFERENCE LINE	RL	(By Acquisition)	|||||
REMAINING	REM	NO ACCESS	.....
RIGHT OF WAY	R/W	(By Statutory Authority)	.....
SECTION	SEC	ACCESS RESTRICTED	.....
SECTION LINE	SL	(By Previous Project/Control)	.....
FOUND IRON PIPE	IP	LIMITED EASEMENT	.....
STATION	STA	(Temporary)	.....
TIE POINT	TIP	LIMITED EASEMENT	.....
VOLUME	VOL	(Permanent)	.....
FEE ACQUISITION	FA	PARCEL NUMBER	.....
ADJOINING LANDS	AL	UTILITY NUMBER	.....
WITH SAME OWNER	WSO	SECTION CORNER	.....
BUILDING TO BE RAZED	BR	SET R/W MONUMENT W/CAP	.....
PROPOSED R/W	PRW	(1" x 24" IRON PIPE, 1/2 LB/FT)	.....
BOUNDARY POINT	BP	SET P.K. NAIL	.....
TEMPORARY LIMITED EASEMENT	TLE		
PERMANENT LIMITED EASEMENT	PLE		
HIGHWAY EASEMENT	HE		

COMPENSABLE		NON-COMPENSABLE	
POWER POLE	⏏	TELEPHONE POLE	⏏
TELEPHONE POLE	⏏	SIGN	⏏
SIGN	⏏	TELEPHONE PEDESTAL	⏏
TELEPHONE PEDESTAL	⏏		

NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, BROWN COUNTY, NAD83 (2007) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 1" X 24" IRON PIPE) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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

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

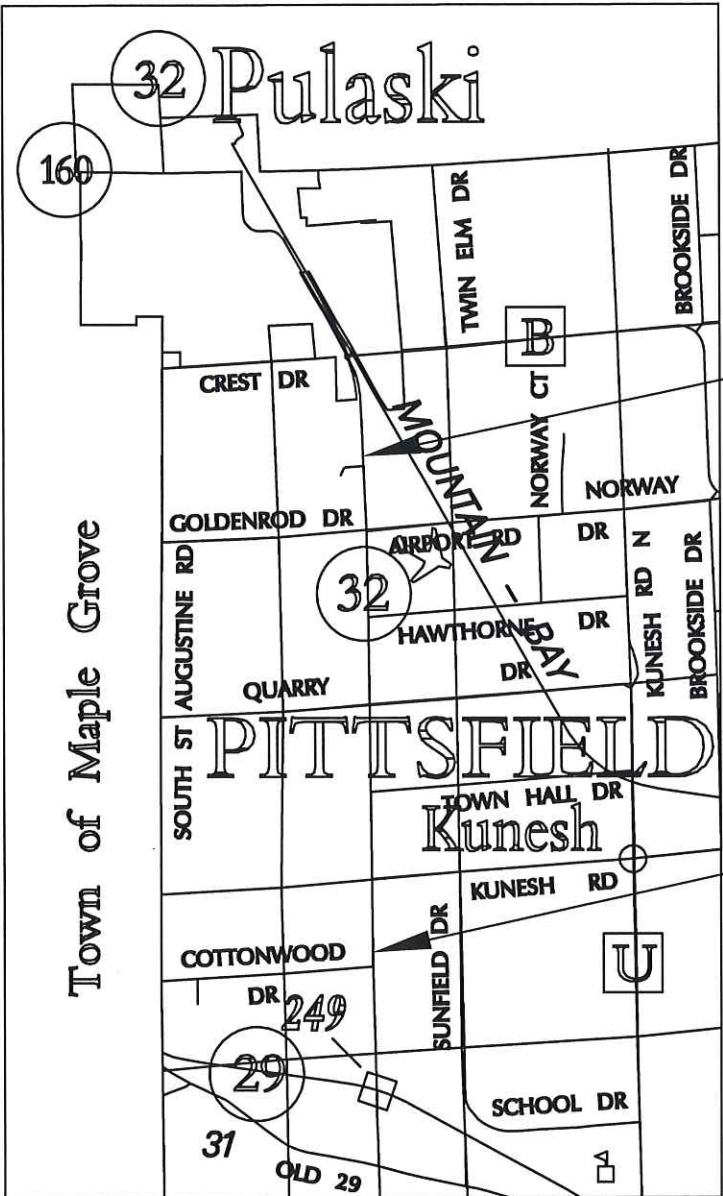
EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:
EXISTING HIGHWAY RIGHT-OF-WAY FOR STH 32 ESTABLISHED UNDER PROJECT T-02644, 9190-06-21.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO NEW REFERENCE LINES. THE REFERENCE LINE SHOWN ON THIS PLAT MAY NOT BE THE SAME AS THE REFERENCE LINE SHOWN ON THE CONSTRUCTION PLAN.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLES EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

TOTAL NET LENGTH OF CENTERLINE = 3.99 MI.

SECTION 8,17,20,29, T25N - R19E
TOWN OF PITTSFIELD



LOCATION SKETCH
(NOT TO SCALE)

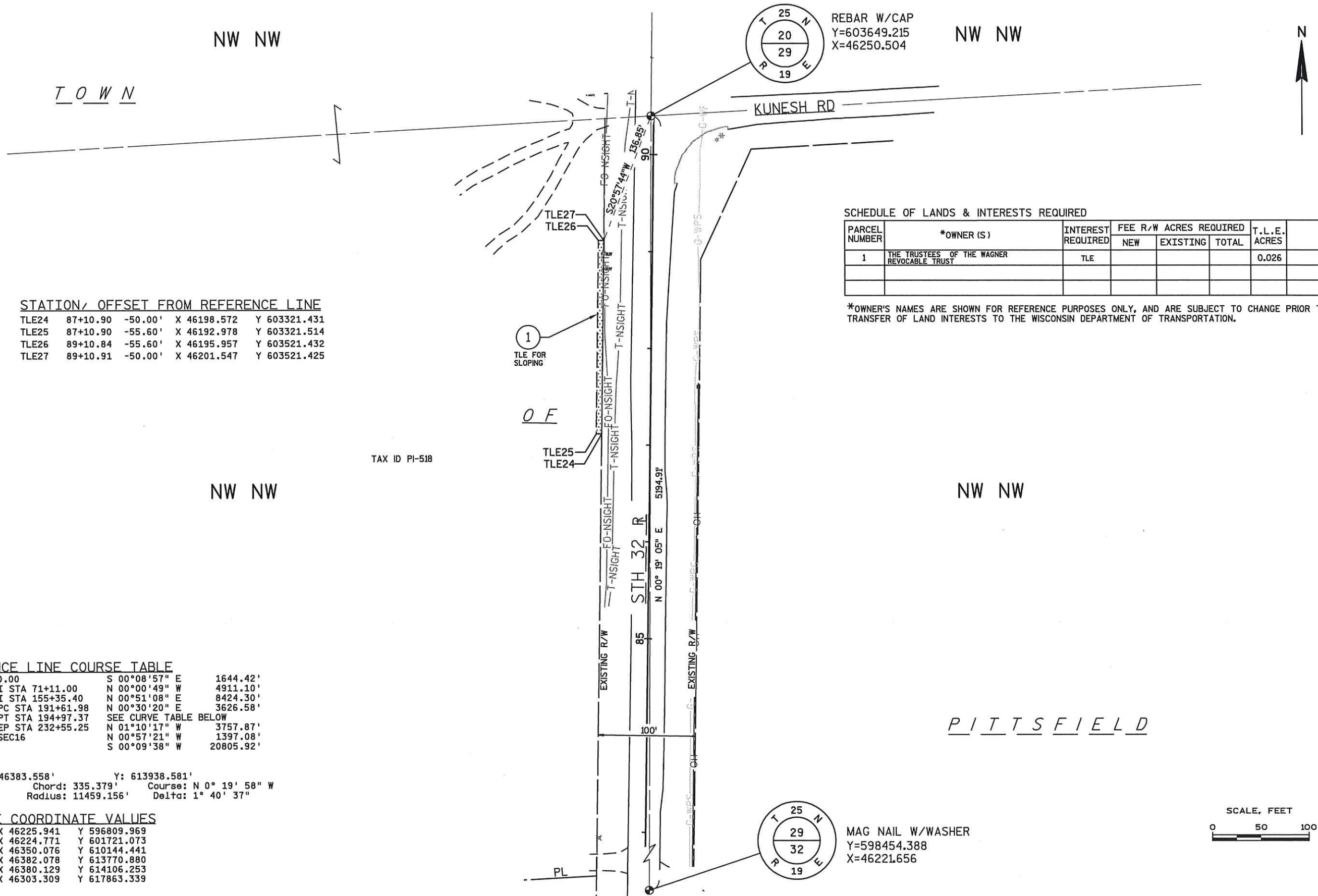
R/W PROJECT NUMBER 9190-23-21	SHEET NUMBER 4.1	TOTAL SHEETS 5
FEDERAL PROJECT NUMBER		
PLAT OF RIGHT-OF-WAY REQUIRED FOR GREEN BAY - PULASKI STH 29 - VILLAGE OF PULASKI		
STH 32		BROWN COUNTY
CONSTRUCTION PROJECT NUMBER		

END RELOCATION ORDER
PROJECT 9190-23-21
STATION 232+55.25

BEGIN RELOCATION ORDER
PROJECT 9190-23-21
STATION 22+00.00

REVISION DATE	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED FOR THE DEPARTMENT	
DATE: 12-19-18	<i>Curt Van Erem</i> (Signature)
CURT VAN EREM	



STATION/ OFFSET FROM REFERENCE LINE

TLE24	87+10.90	-50.00'	X 46198.572	Y 603321.431
TLE25	87+10.90	-55.60'	X 46192.978	Y 603321.514
TLE26	89+10.84	-55.60'	X 46195.957	Y 603521.432
TLE27	89+10.91	-50.00'	X 46201.547	Y 603521.425

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	*OWNER (S)	INTEREST REQUIRED	FEE R/W ACRES REQUIRED			T.L.E. ACRES
			NEW	EXISTING	TOTAL	
1	THE TRUSTEES OF THE WAGNER REVOCABLE TRUST	TLE				0.026

*OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

STH 32 REFERENCE LINE COURSE TABLE

SEC21 TO BP STA 22+00.00	S 00°08'57" E	1644.42'
BP STA 22+00.00 TO PI STA 71+11.00	N 00°00'49" W	4911.10'
PI STA 71+11.00 TO PI STA 155+35.40	N 00°51'08" E	8424.30'
PI STA 155+35.40 TO PC STA 191+61.98	N 00°30'20" E	3626.58'
PC STA 191+61.98 TO PT STA 194+97.37	SEE CURVE TABLE BELOW	
PT STA 194+97.37 TO EP STA 232+55.25	N 01°10'17" W	3757.87'
EP STA 232+55.25 TO SEC16	N 00°57'21" W	1397.08'
SEC16 TO SEC21	S 00°09'38" W	20805.92'

CURVE TABLE

PI	X: 46383.558'	Y: 613938.581'
Tangent:	167.707'	Chord: 335.379'
Arc Length:	335.391'	Radius: 11459.156'
		Delta: 1° 40' 37"

REFERENCE LINE COORDINATE VALUES

BP STA 22+00.00	X 46225.941	Y 596809.969
PI STA 71+11.00	X 46224.771	Y 601721.073
PI STA 155+35.40	X 46350.076	Y 610144.441
PC STA 191+61.98	X 46382.078	Y 613770.880
PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339

REVISION DATE	DATE 12-19-18	SCALE, FEET	HWY: STH 32	STATE R/W PROJECT NUMBER 9190-23-21	PLAT SHEET NO. 4.2
		0 50 100	COUNTY: BROWN	CONSTRUCTION PROJECT NUMBER	PS&E SHEET NO.

T O W N

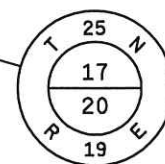
STATION/ OFFSET FROM REFERENCE LINE

TLE28	108+54.64	-40.00'	X 46240.458	Y 605464.785
TLE29	108+53.92	-50.00'	X 46230.448	Y 605464.218
TLE30	109+85.92	-50.00'	X 46232.412	Y 605596.203
TLE31	109+86.64	-39.96'	X 46242.459	Y 605596.772

NE SW

NW SE

O F



MAG NAIL W/WASHER
Y=608850.052
X=46329.879

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	*OWNER (S)	INTEREST REQUIRED	FEE R/W ACRES REQUIRED			T.L.E. ACRES
			NEW	EXISTING	TOTAL	
2	JAW HOLDINGS LLC	TLE				0.030

*OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

SCHEDULE OF UTILITIES & INTERESTS REQUIRED

UTILITY NUMBER	*OWNER	INTEREST REQUIRED
100	NORTHEAST TEL CO. LLC	RELEASE OF RIGHTS

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STH 32 REFERENCE LINE COURSE TABLE

SEC21 TO BP STA 22+00.00	S 00°08'57" E	1644.42'
BP STA 22+00.00 TO PI STA 71+11.00	N 00°00'49" W	4911.10'
PI STA 71+11.00 TO PI STA 155+35.40	N 00°51'08" E	8424.30'
PI STA 155+35.40 TO PC STA 191+61.98	N 00°30'20" E	3626.58'
PC STA 191+61.98 TO PT STA 194+97.37	SEE CURVE TABLE BELOW	
PT STA 194+97.37 TO EP STA 232+55.25	N 01°10'17" W	3757.87'
EP STA 232+55.25 TO SEC16	N 00°57'21" W	1397.08'
SEC16 TO SEC21	S 00°09'38" W	20805.92'

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PC STA 191+61.98	X 46382.078	Y 613770.880
PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339

REVISION DATE

DATE 12-19-18

SCALE, FEET

0 50 100

HWY: STH 32

COUNTY: BROWN

STATE R/W PROJECT NUMBER 9190-23-21

CONSTRUCTION PROJECT NUMBER

PLAT SHEET NO. 4.3

PS&E SHEET NO.

T O W N

SE NW

TAX ID PI-294

SW NE

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	*OWNER (S)	INTEREST REQUIRED	FEE R/W ACRES REQUIRED			T.L.E. ACRES
			NEW	EXISTING	TOTAL	
3	THERESA BIALOZYNSKI	TLE				0.015

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SCHEDULE OF UTILITIES & INTERESTS REQUIRED

UTILITY NUMBER	*OWNER	INTEREST REQUIRED
100	NORTHEAST TEL CO. LLC	RELEASE OF RIGHTS

*OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

STATION/ OFFSET FROM REFERENCE LINE

TLE32	168+47.47	-50.00'	X 46311.656	Y 611456.895
TLE33	168+47.47	-55.00'	X 46306.656	Y 611456.939
TLE34	169+75.44	-55.00'	X 46307.785	Y 611584.902
TLE35	169+75.44	-50.00'	X 46312.785	Y 611584.858

STH 32 REFERENCE LINE COURSE TABLE

SEC21 TO BP STA 22+00.00	S 00°08'57" E	1644.42'
BP STA 22+00.00 TO PI STA 71+11.00	N 00°00'49" W	4911.10'
PI STA 71+11.00 TO PI STA 155+35.40	N 00°51'08" E	8424.30'
PI STA 155+35.40 TO PC STA 191+61.98	N 00°30'20" E	3626.58'
PC STA 191+61.98 TO PT STA 194+97.37	SEE CURVE TABLE BELOW	
PT STA 194+97.37 TO EP STA 232+55.25	N 01°10'17" W	3757.87'
EP STA 232+55.25 TO SEC16	N 00°57'21" W	1397.08'
SEC16 TO SEC21	S 00°09'38" W	20805.92'

CURVE TABLE

PI	X: 46383.558'	Y: 613938.581'
Tangent:	167.707'	Chord: 335.379'
Arc Length:	335.391'	Radius: 11459.156'
		Delta: 1° 40' 37"

REFERENCE LINE COORDINATE VALUES

BP STA 22+00.00	X 46225.941	Y 596809.969
PI STA 71+11.00	X 46224.771	Y 601721.073
PI STA 155+35.40	X 46350.076	Y 610144.441
PC STA 191+61.98	X 46382.078	Y 613770.880
PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339

REVISION DATE

DATE 12-19-18

SCALE, FEET



HWY: STH 32

COUNTY: BROWN

STATE R/W PROJECT NUMBER 9190-23-21

CONSTRUCTION PROJECT NUMBER

PLAT SHEET NO. 4.4

PS&E SHEET NO.

T O W N

STATION/ OFFSET FROM REFERENCE LINE

TLE44	213+23.70	-50.00'	X 46292.805	Y 615931.175
TLE45	213+21.33	-145.00'	X 46197.873	Y 615926.861
TLE46	213+77.41	-144.60'	X 46197.122	Y 615982.940
TLE47	213+78.73	-50.00'	X 46291.680	Y 615986.190
PLE48	213+38.21	-50.00'	X 46292.508	Y 615945.683
PLE49	213+38.21	-85.00'	X 46257.516	Y 615944.968
PLE50	213+58.34	-84.86'	X 46257.248	Y 615965.096
PLE51	213+59.21	-50.00'	X 46292.079	Y 615966.679

COURSE TABLE
PAR 5 PLE

SEC16	TO DB52	S 01°06'43" E	3293.16'
DB52	TO PLE51	S 88°53'17" W	51.84'
PLE51	TO PLE48	S 01°10'17" E	21.00'
PLE48	TO PLE49	S 88°49'43" W	35.00'
PLE49	TO PLE50	N 00°45'45" W	20.13'
PLE50	TO PLE51	N 87°23'53" E	34.87'

NE SW

STH 32 REFERENCE LINE COURSE TABLE

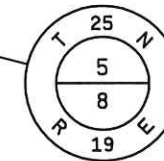
SEC21	TO BP STA 22+00.00	S 00°08'57" E	1644.42'
BP STA 22+00.00	TO PI STA 71+11.00	N 00°00'49" W	4911.10'
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PC STA 191+61.98	TO PT STA 194+97.37	SEE CURVE TABLE BELOW	
PT STA 194+97.37	TO EP STA 232+55.25	N 01°10'17" W	3757.87'
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PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339



MAG NAIL W/WASHER
Y=619260.226
X=46280.004

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	*OWNER (S)	INTEREST REQUIRED	FEE R/W ACRES REQUIRED			T.L.E. ACRES	P.L.E. ACRES
			NEW	EXISTING	TOTAL		
4	MARY WENGZYN	TLE				0.033	
5	RANDALL & KATHRYN MEYER	PLE,TLE				0.104	0.017

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STATION/ OFFSET FROM REFERENCE LINE

TLE40	213+60.00	50.00'	X 46392.042	Y 615969.507
TLE41	213+59.99	55.37'	X 46397.412	Y 615969.614
TLE42	213+91.04	55.39'	X 46396.796	Y 616000.652
TLE43	213+91.04	50.00'	X 46391.407	Y 616000.545

SCHEDULE OF UTILITIES & INTERESTS REQUIRED

UTILITY NUMBER	*OWNER	INTEREST REQUIRED
100	NORTHEAST TEL CO. LLC	RELEASE OF RIGHTS

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STATION/ OFFSET FROM REFERENCE LINE

TLE36	209+50.04	50.00'	X 46400.423	Y 615559.638
TLE37	209+50.04	60.12'	X 46410.545	Y 615559.839
TLE38	210+75.34	60.20'	X 46408.059	Y 615685.115
TLE39	210+75.34	50.00'	X 46397.861	Y 615684.912

SCALE, FEET



REVISION DATE

DATE 12-19-18

SCALE, FEET



HWY: STH 32

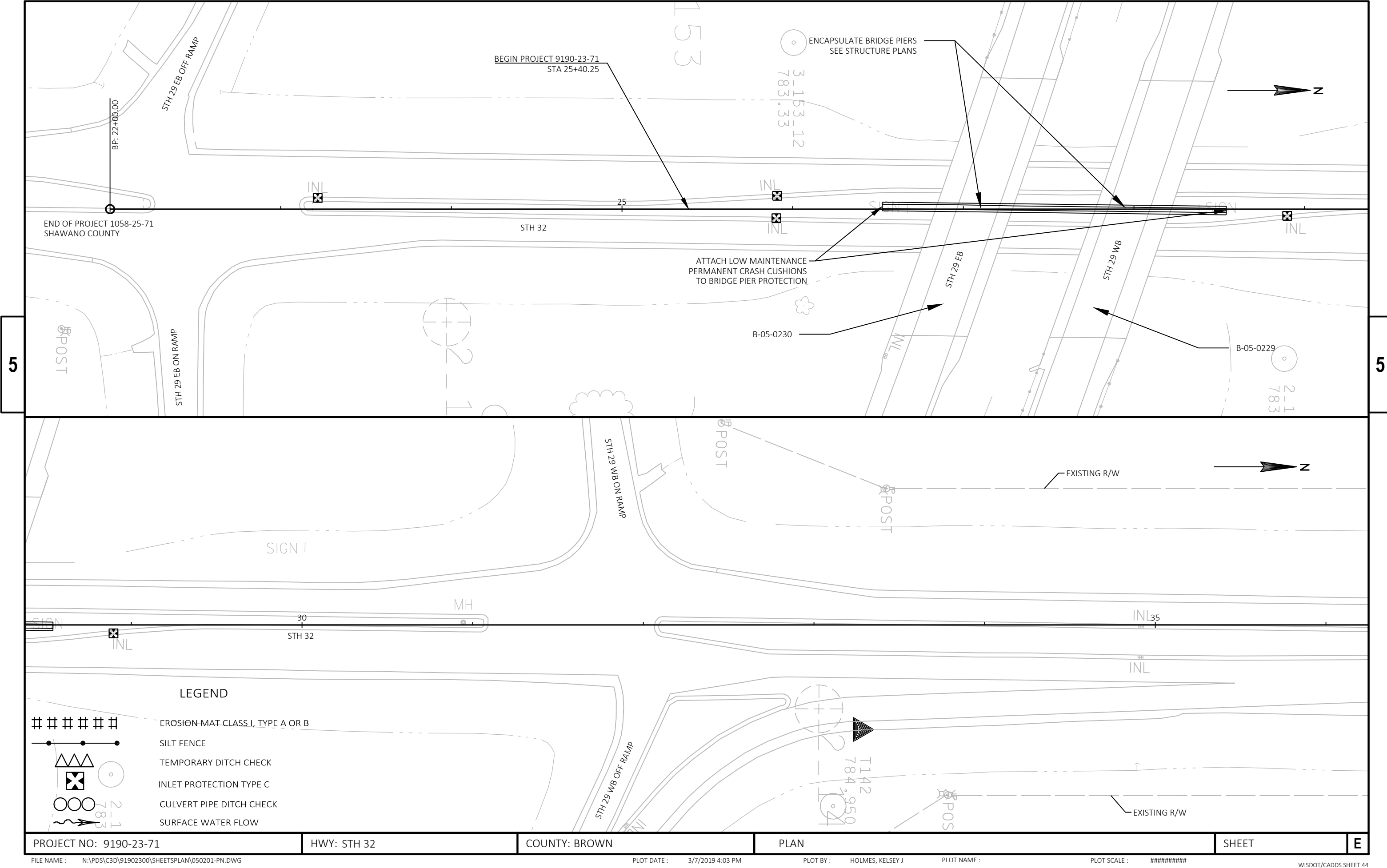
COUNTY: BROWN

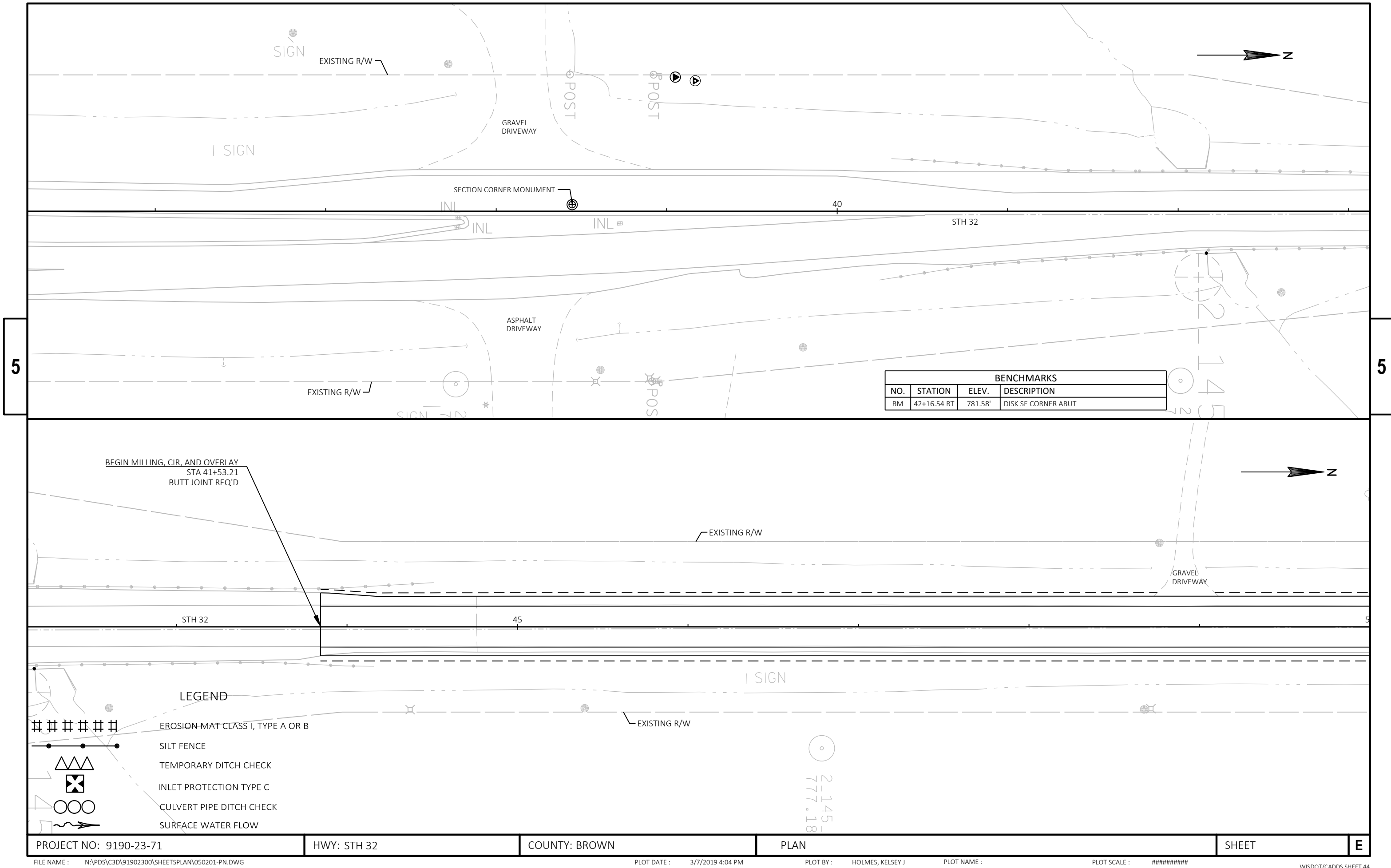
STATE R/W PROJECT NUMBER 9190-23-21

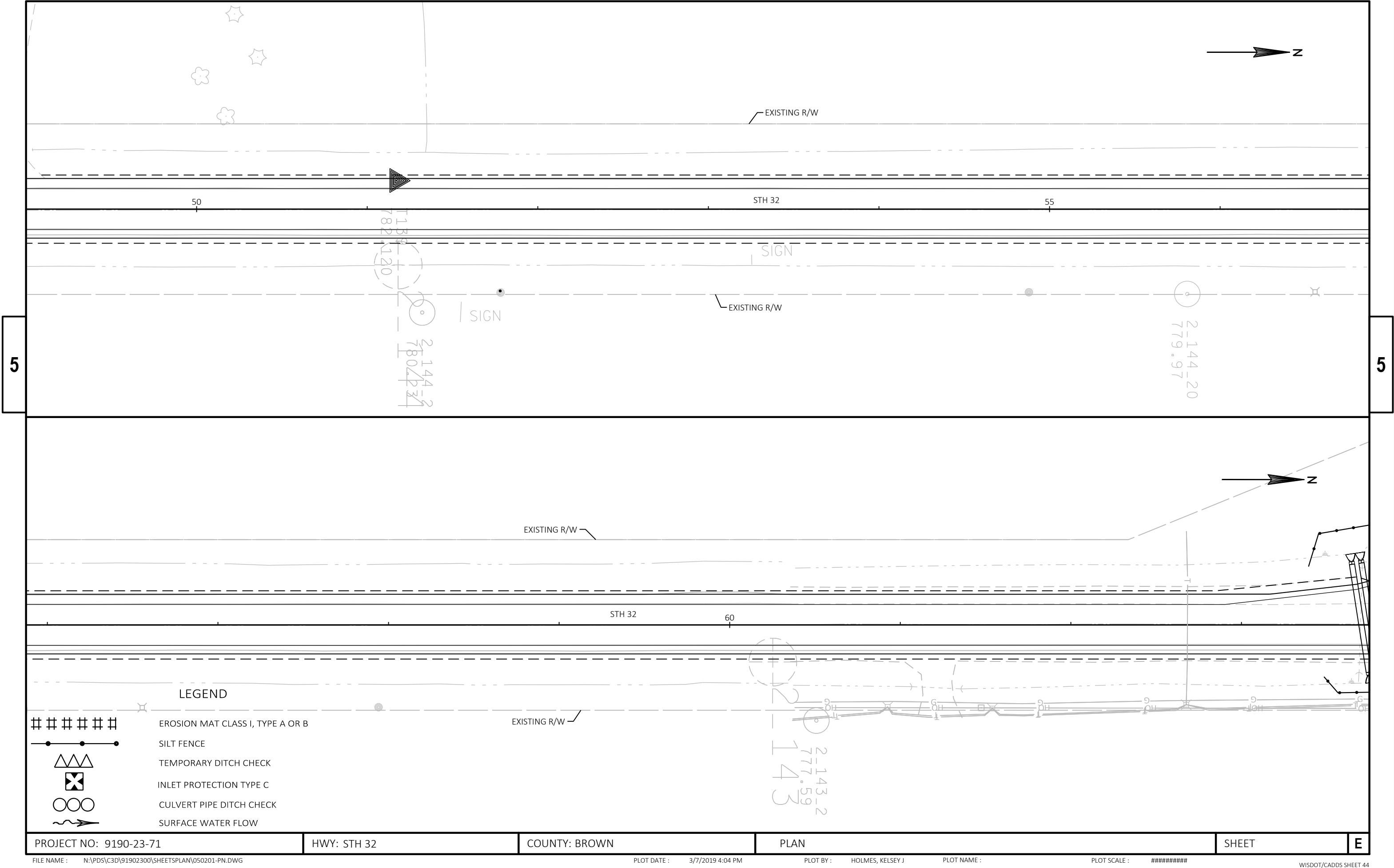
CONSTRUCTION PROJECT NUMBER

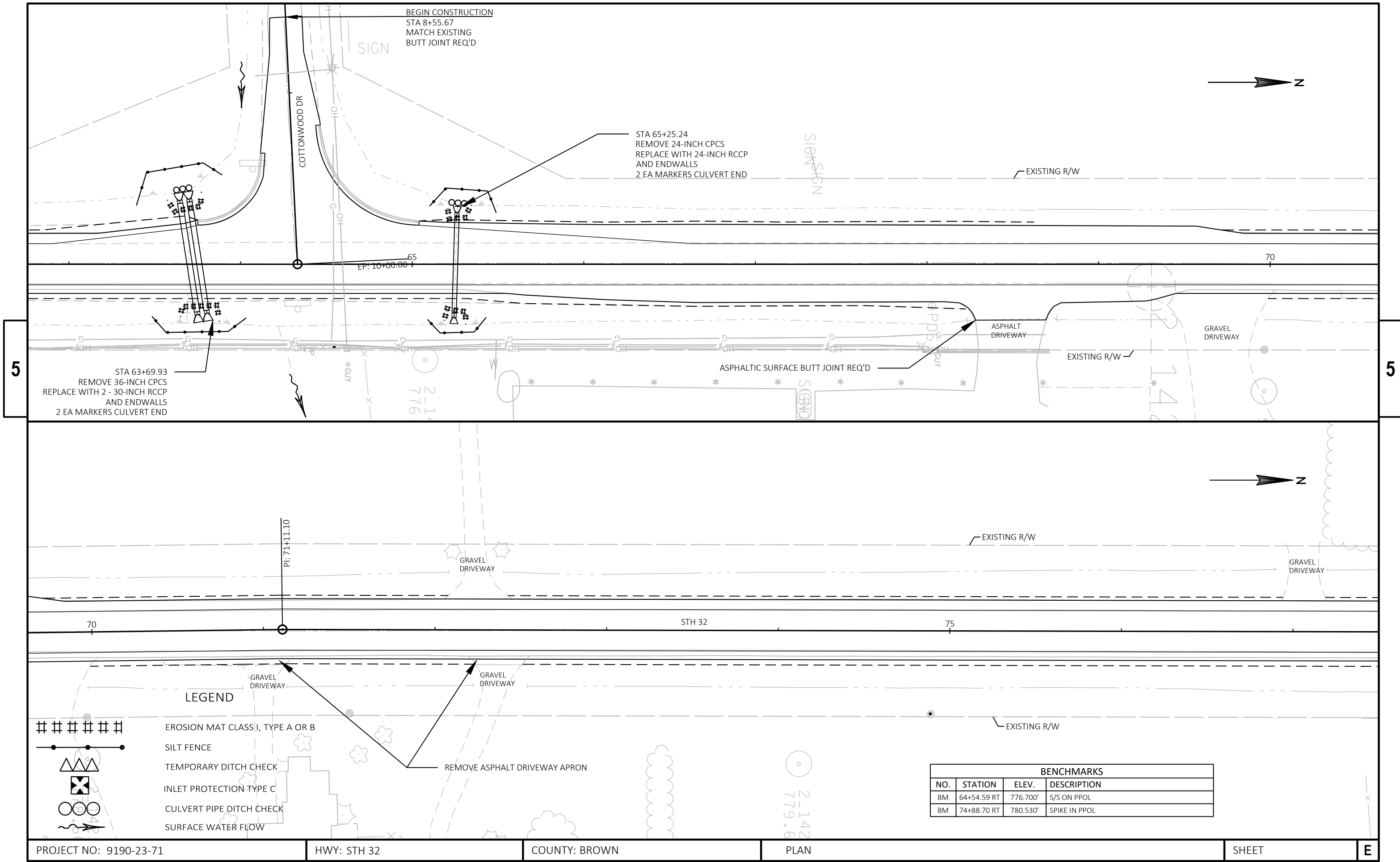
PLAT SHEET NO. 4.5

PS&E SHEET NO.









PROJECT NO: 9190-23-71

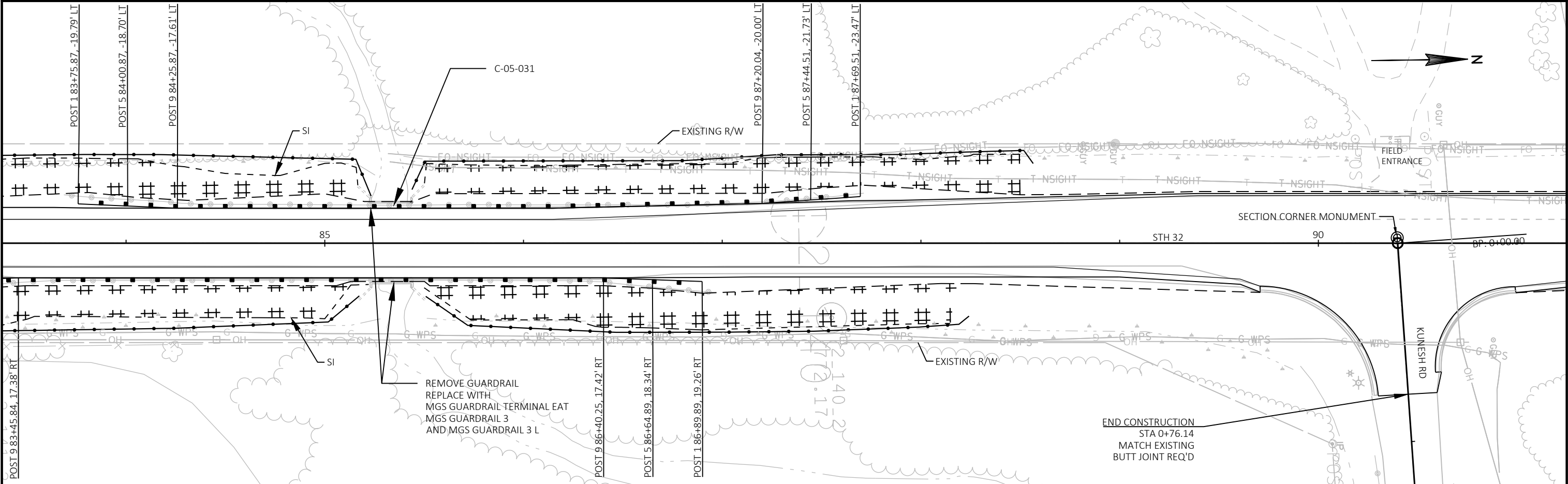
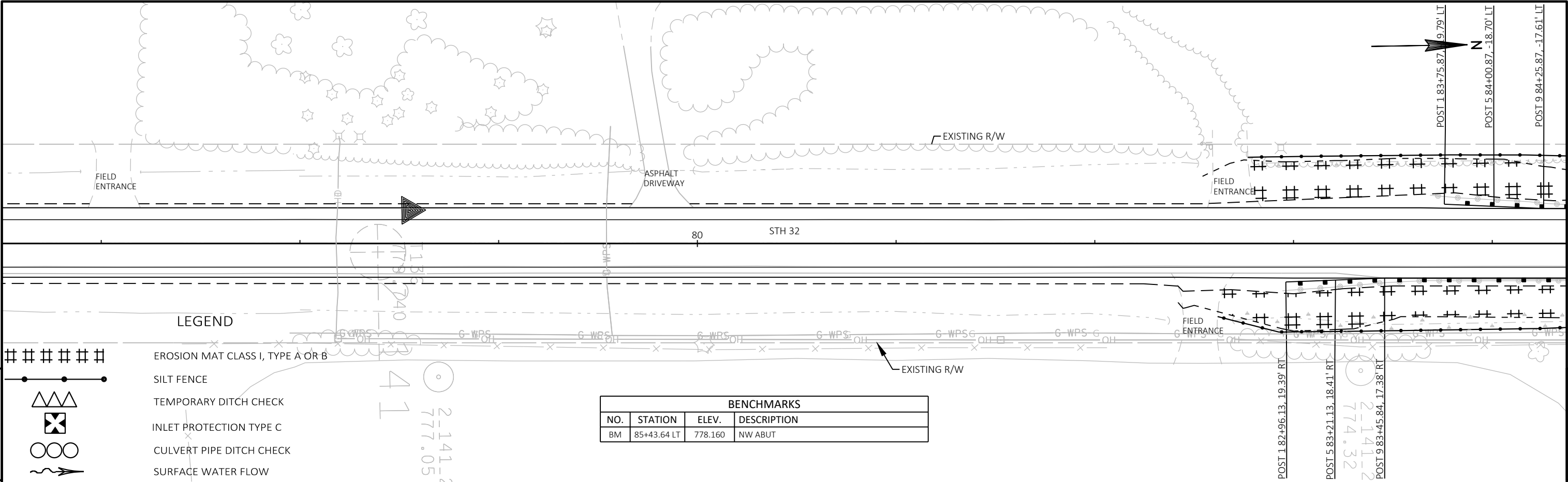
HWY: STH 32

COUNTY: BROWN

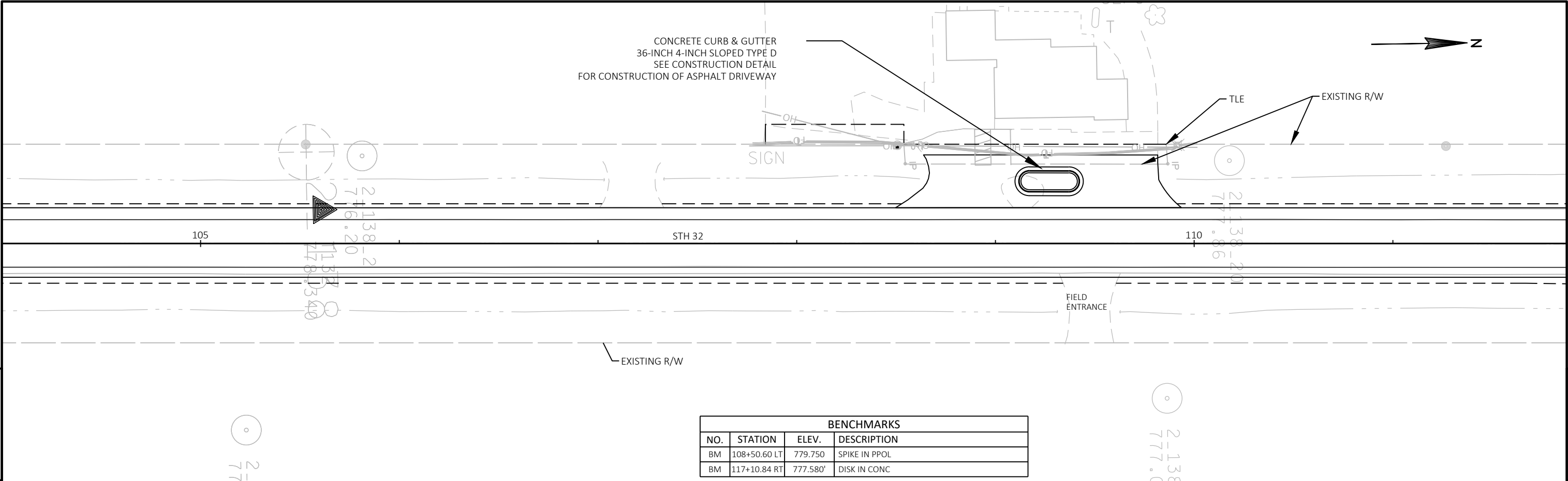
PLAN

SHEET

E

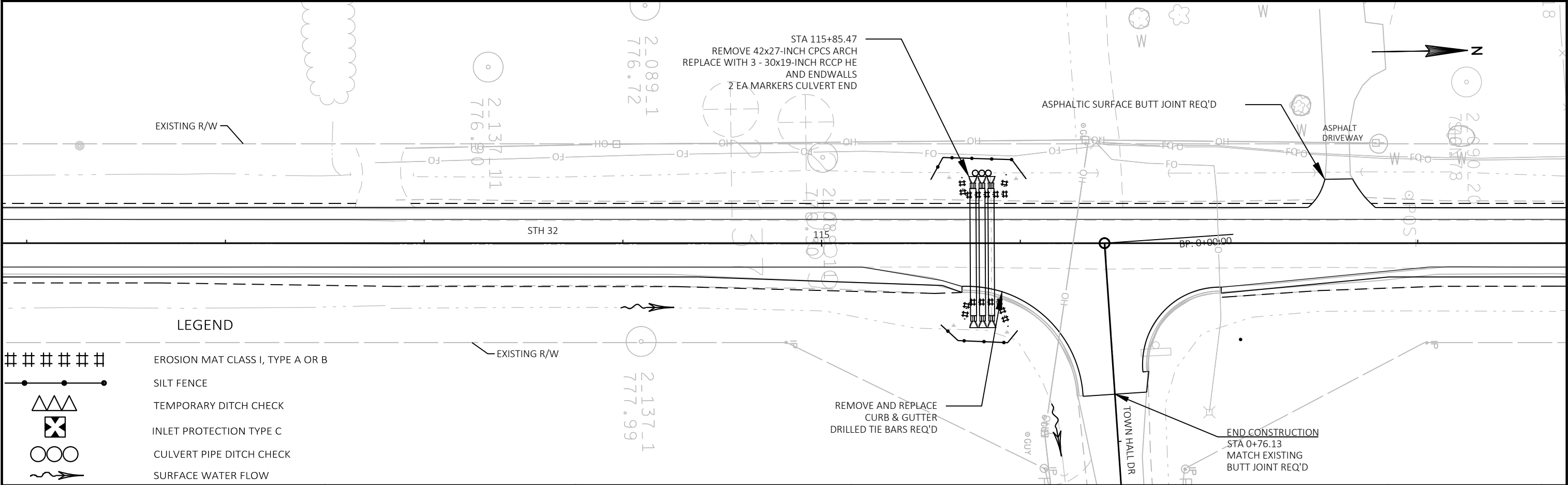


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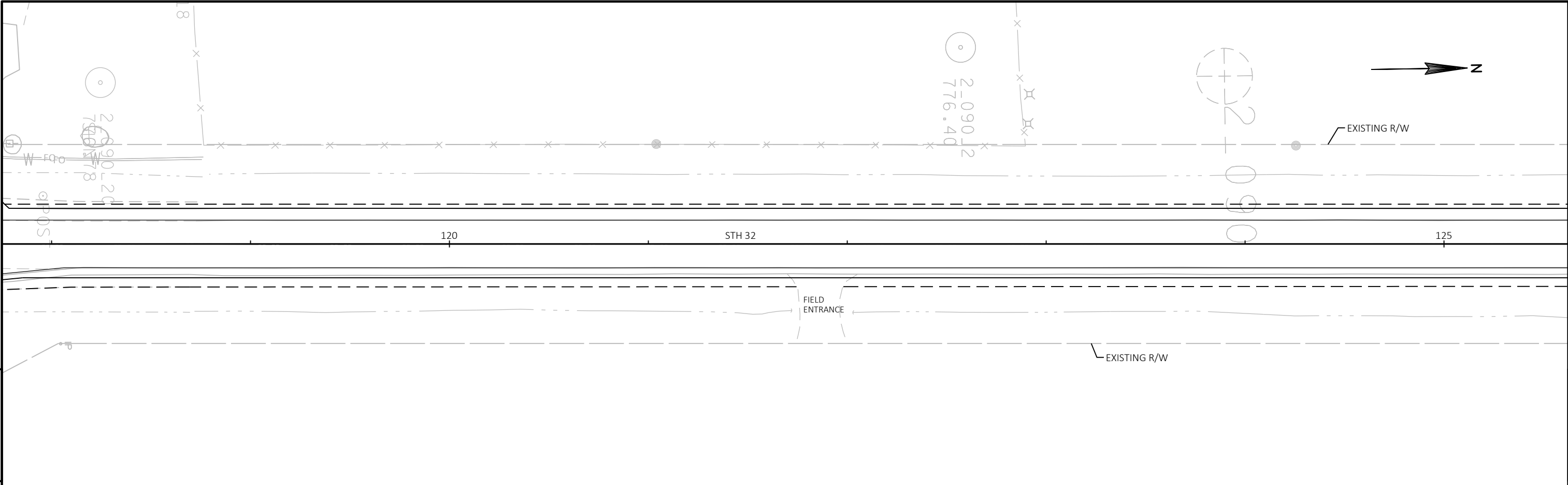
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
BM	108+50.60 LT	779.750	SPIKE IN PPOL
BM	117+10.84 RT	777.580	DISK IN CONC

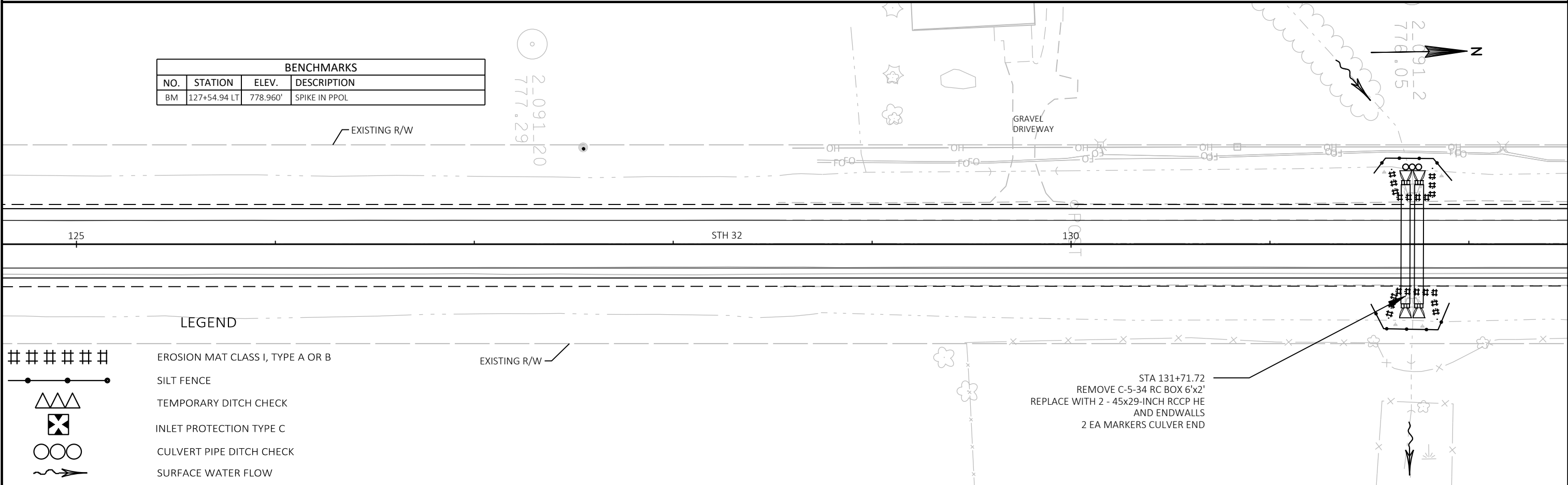


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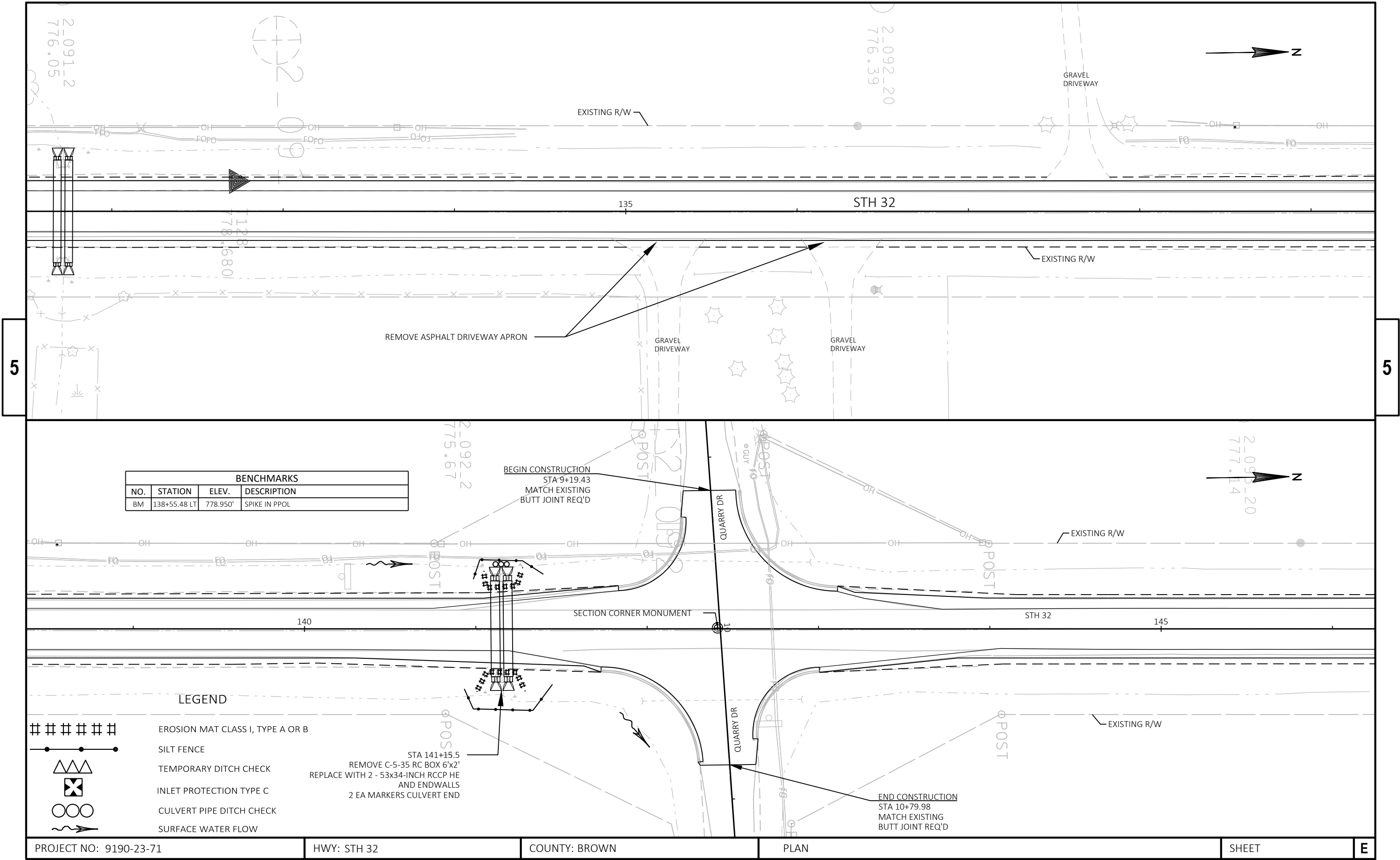
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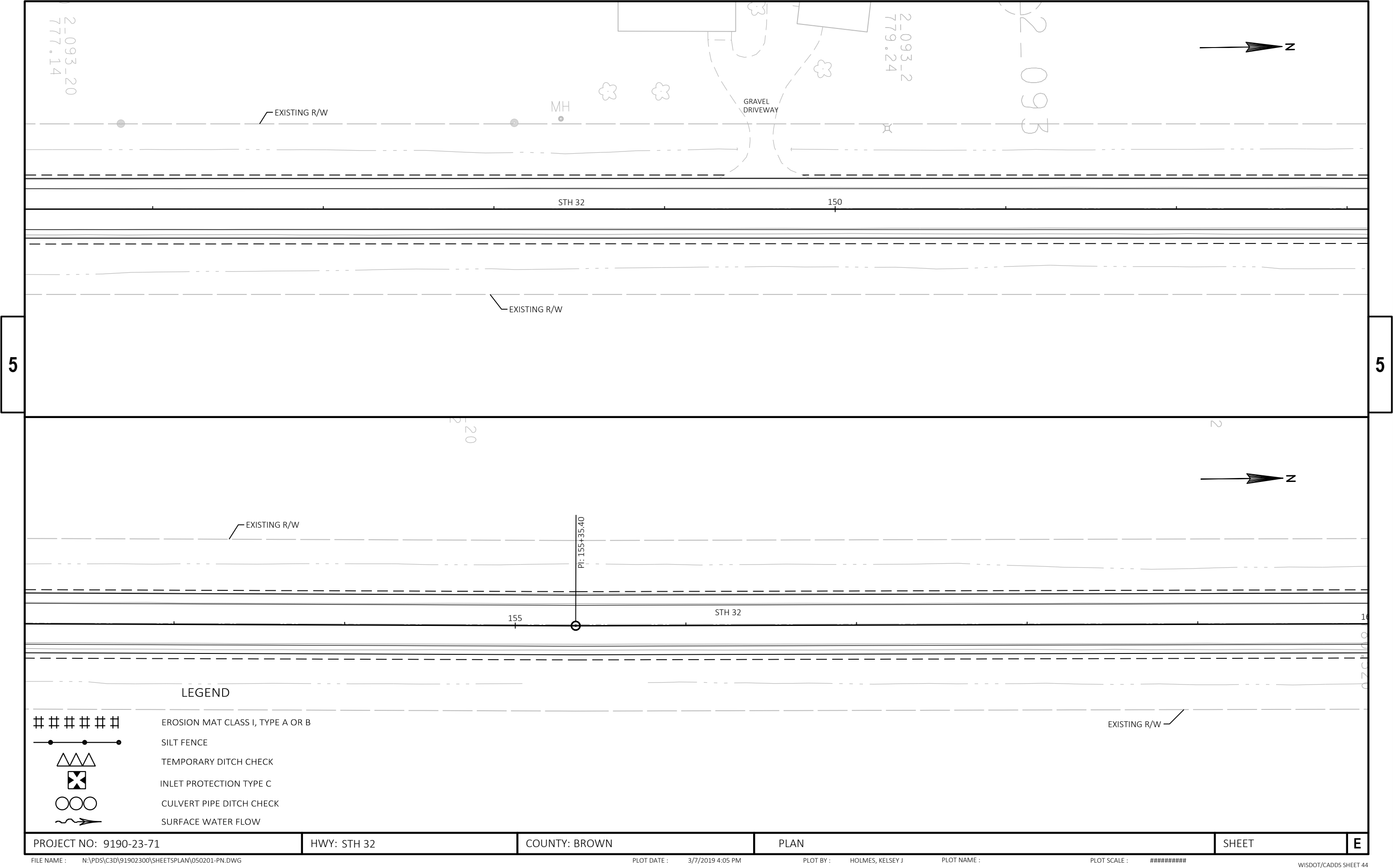


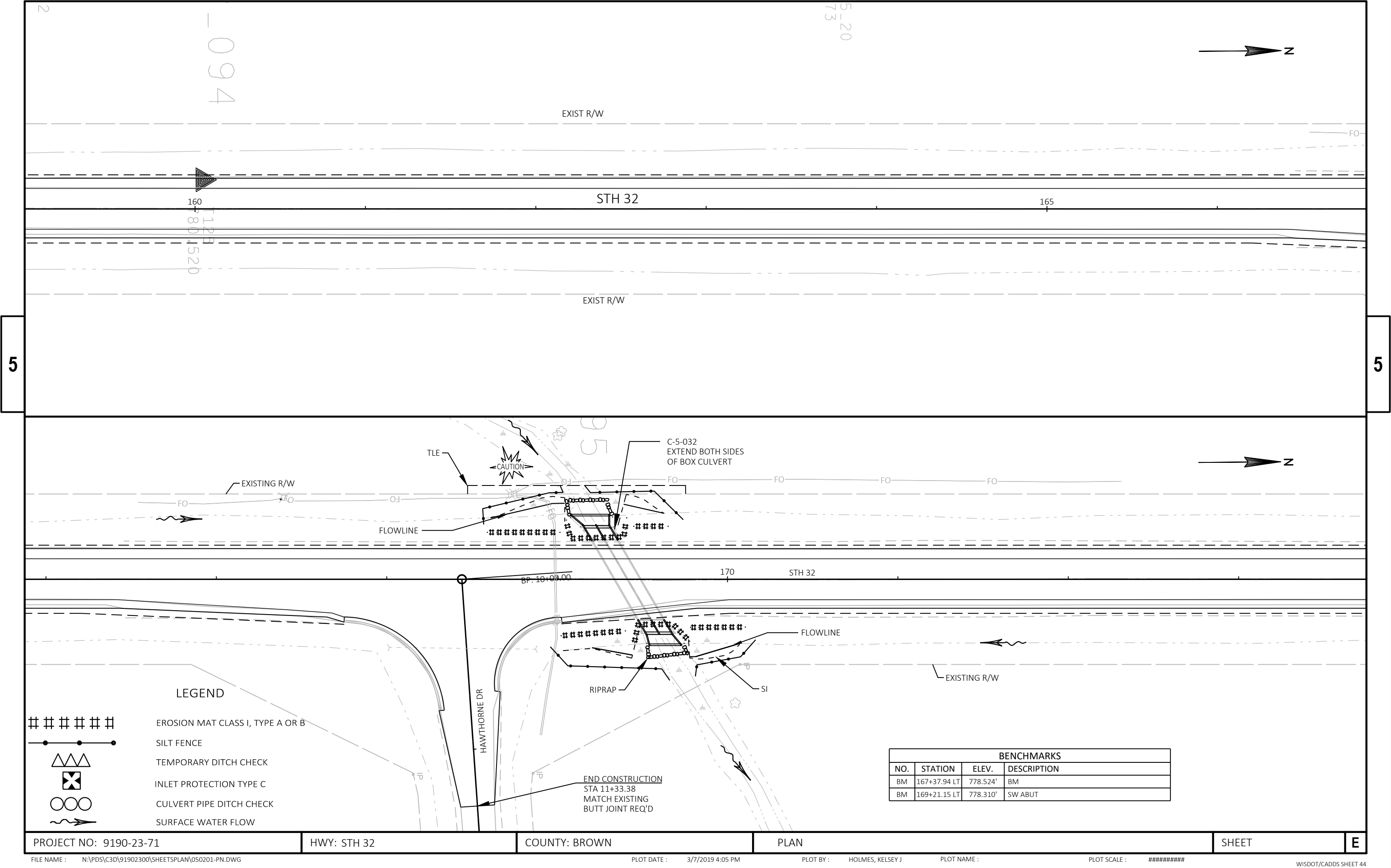
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
BM	127+54.94 LT	778.960'	SPIKE IN PPOL

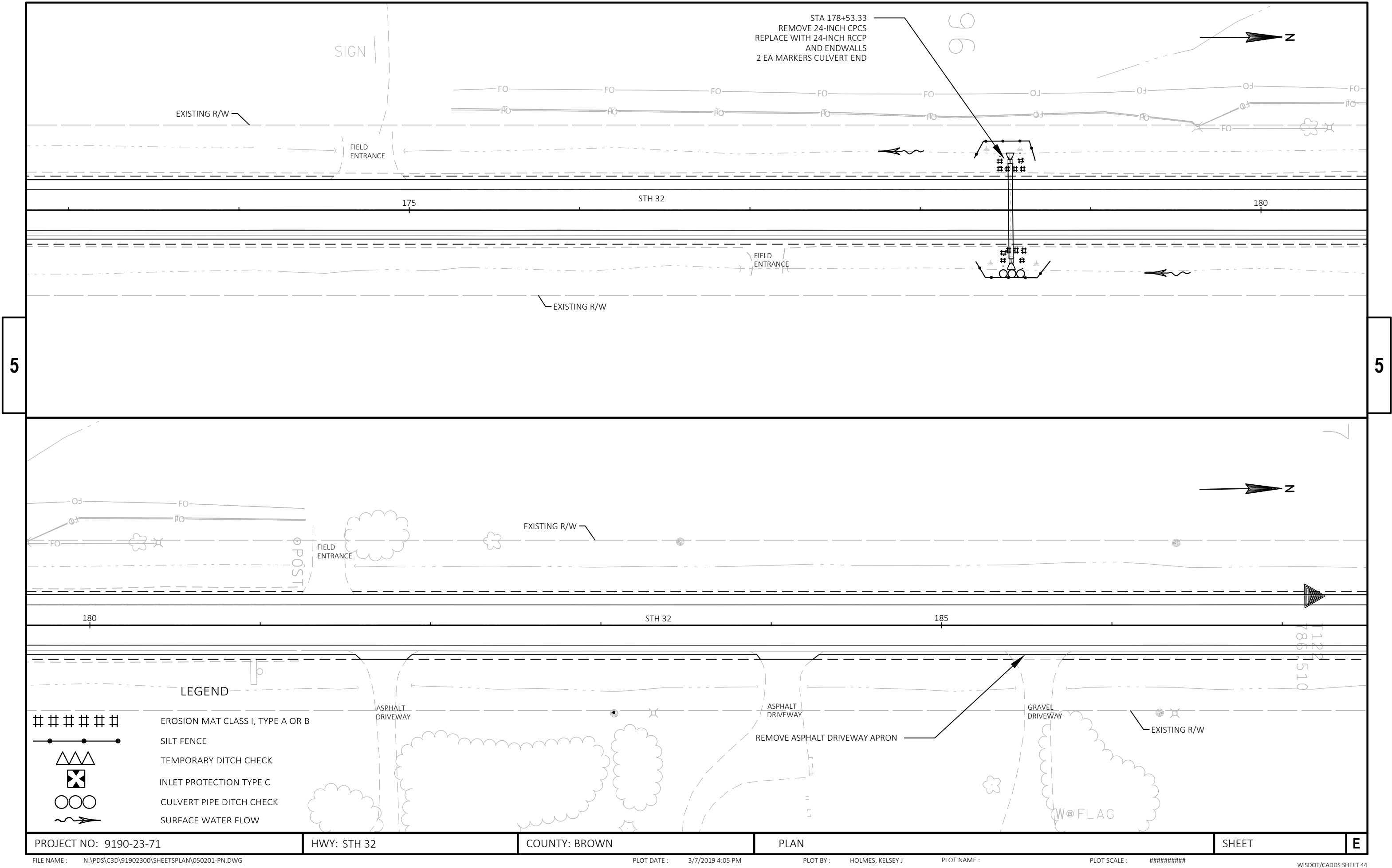


PROJECT NO: 9190-23-71	HWY: STH 32	COUNTY: BROWN	PLAN	SHEET	E
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PROJECT NO: 9190-23-71

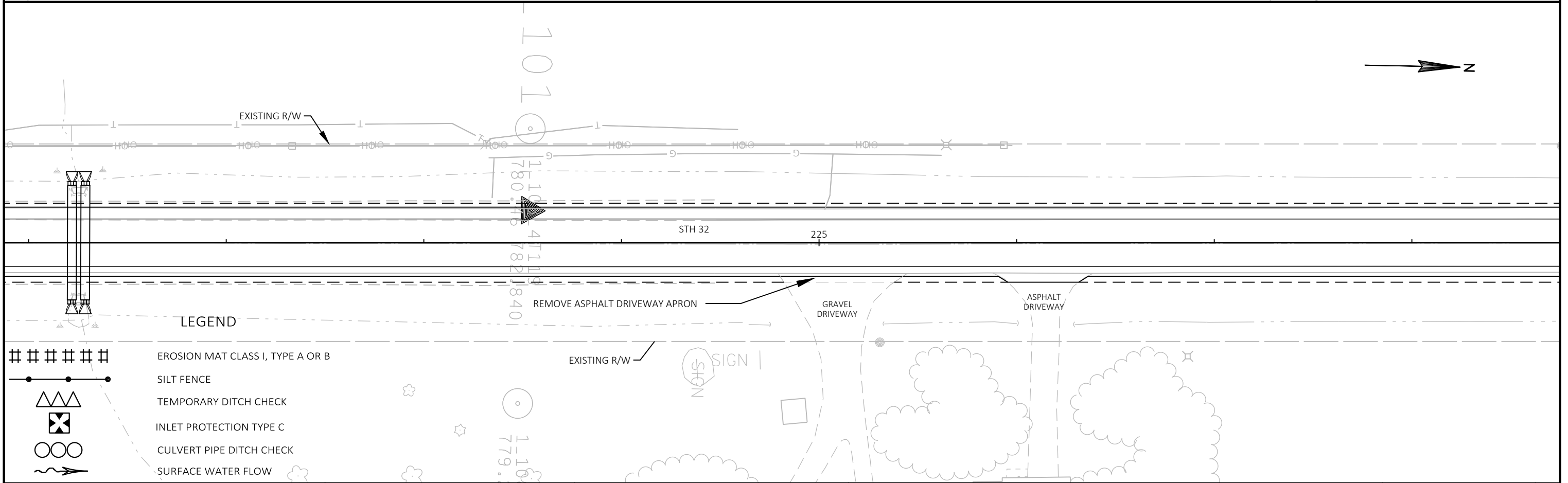
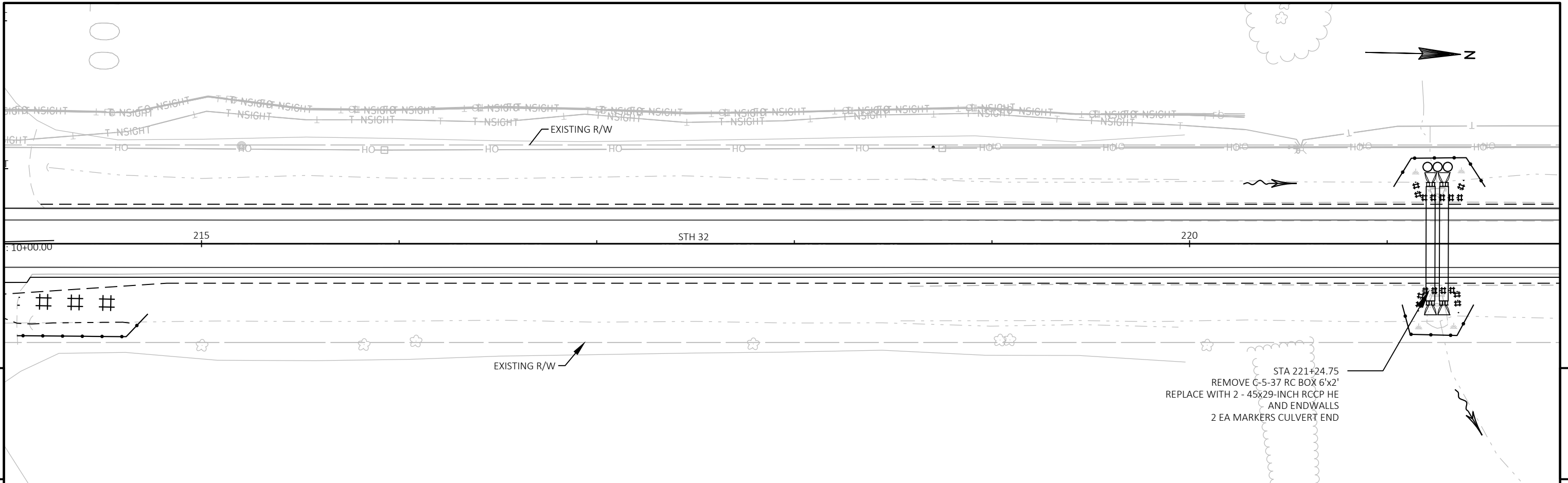
HWY: STH 32

COUNTY: BROWN

PLAN

SHEET

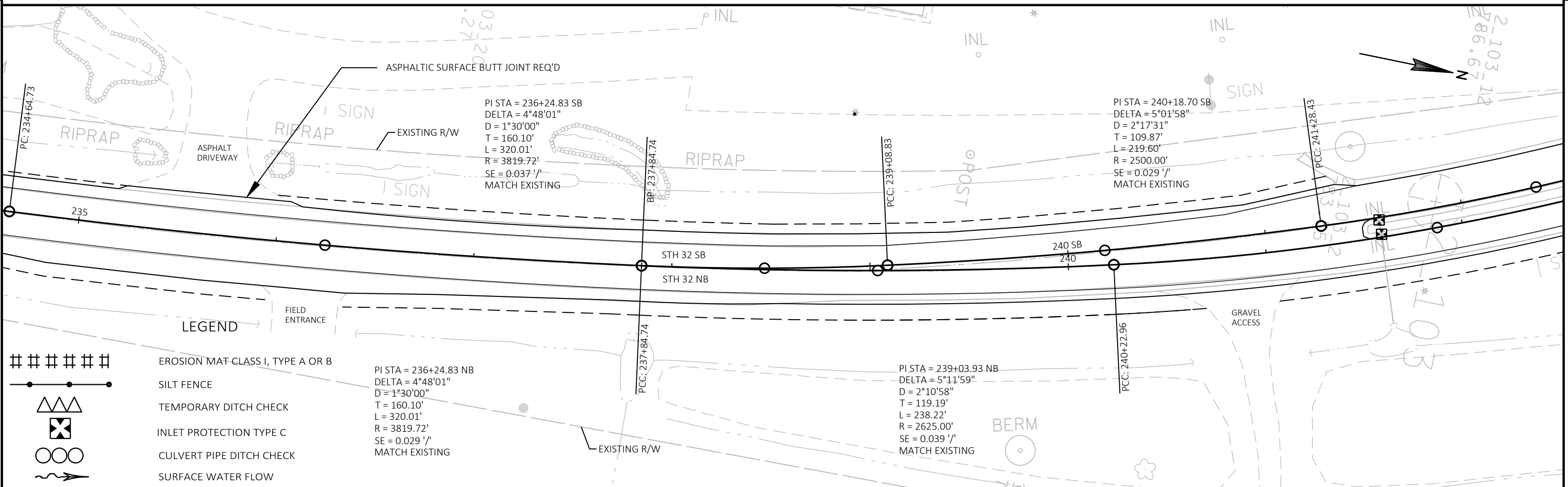
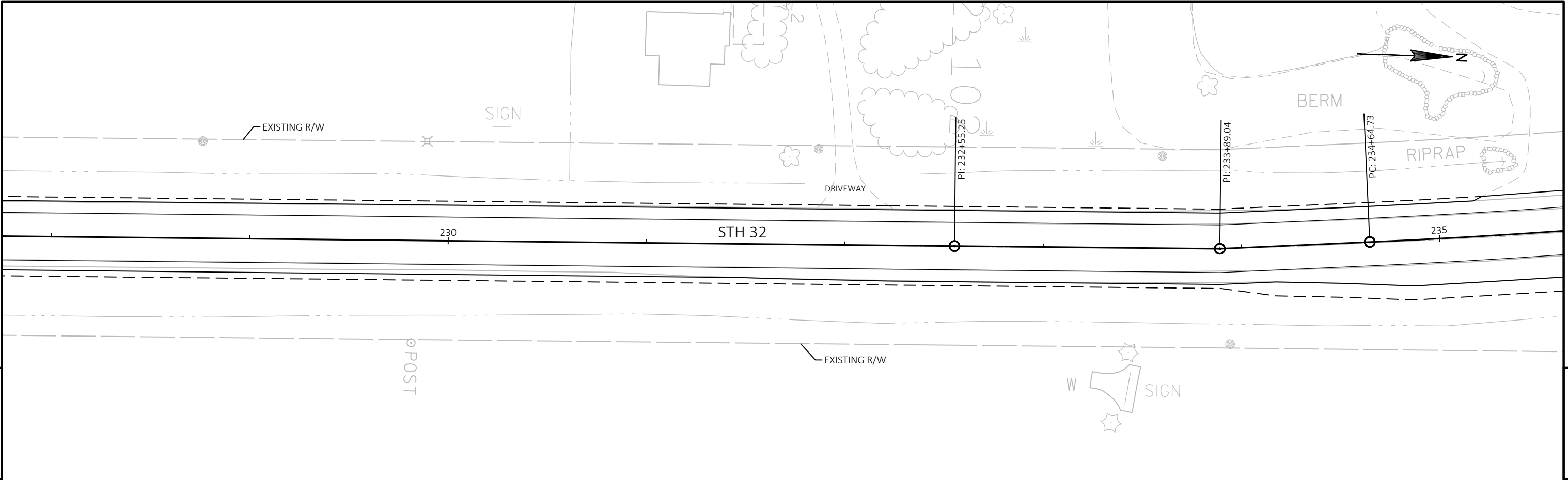
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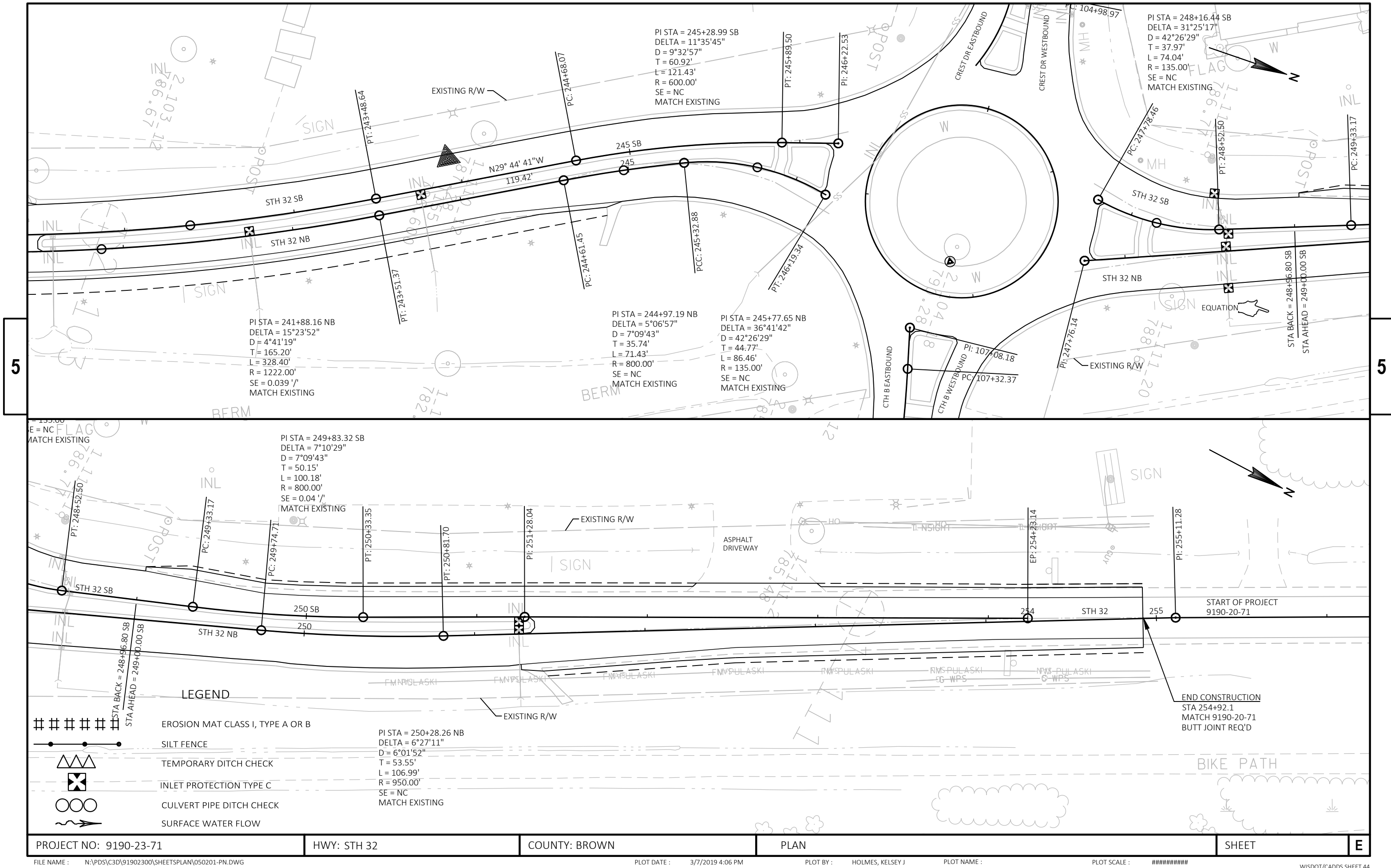
PROJECT NO: 9190-23-71	HWY: STH 32	COUNTY: BROWN	PLAN	SHEET	E
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PROJECT NO: 9190-23-71	HWY: STH 32	COUNTY: BROWN	PLAN	SHEET	E
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PROJECT NO: 9190-23-71

HWY: STH 32

COUNTY: BROWN

PLAN

SHEET

E

FILE NAME : N:\PDS\C3D\91902300\SHEETS\PLAN\050201-PN.DWG

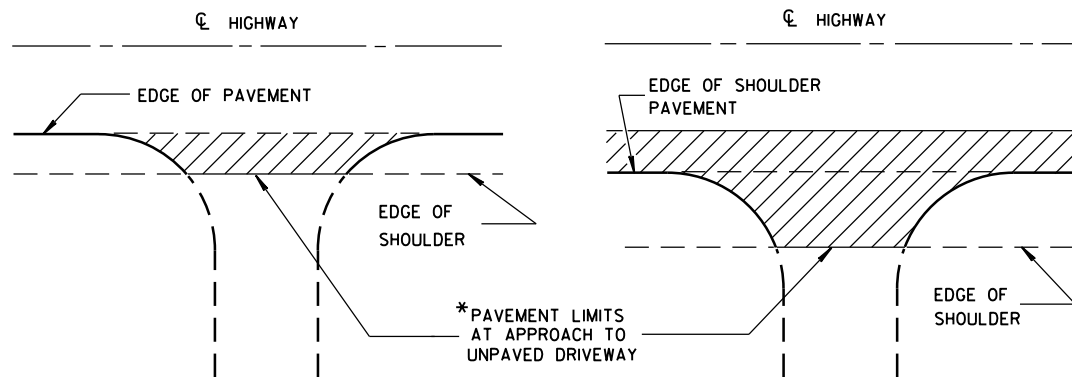
PLOT DATE : 3/7/2019 4:06 PM

PLOT BY : HOLMES, KELSEY J

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADD SHEET 44

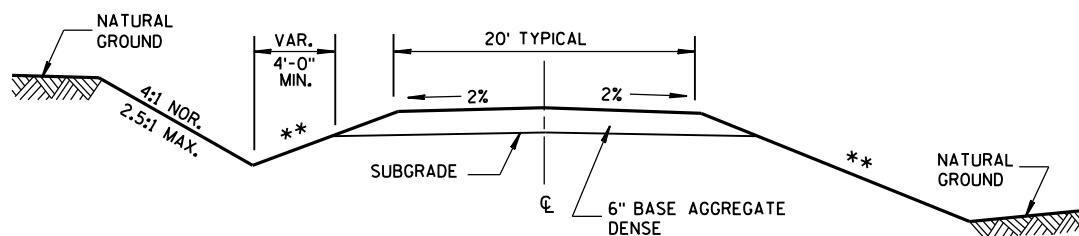


*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

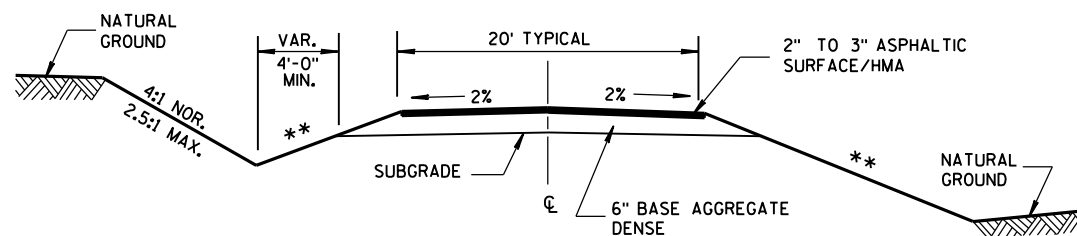
RURAL DRIVEWAY INTERSECTION DETAIL (NO CURB & GUTTER OR SIDEWALK)



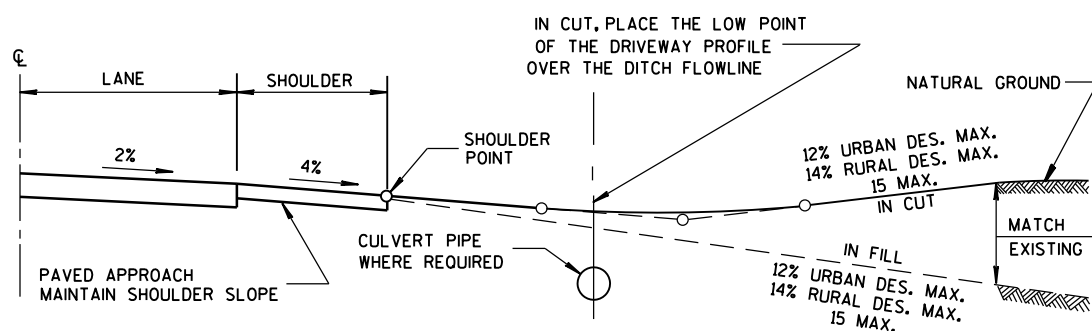
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

** SLOPE CAN VARY WITH SPEED. SEE 11-45-2.6.2.

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



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



TYPICAL DRIVEWAY PROFILES

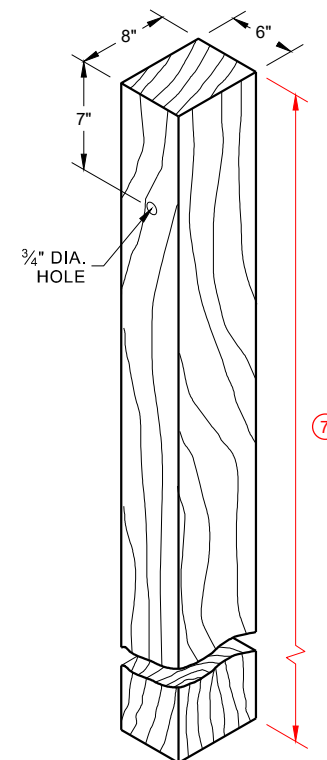
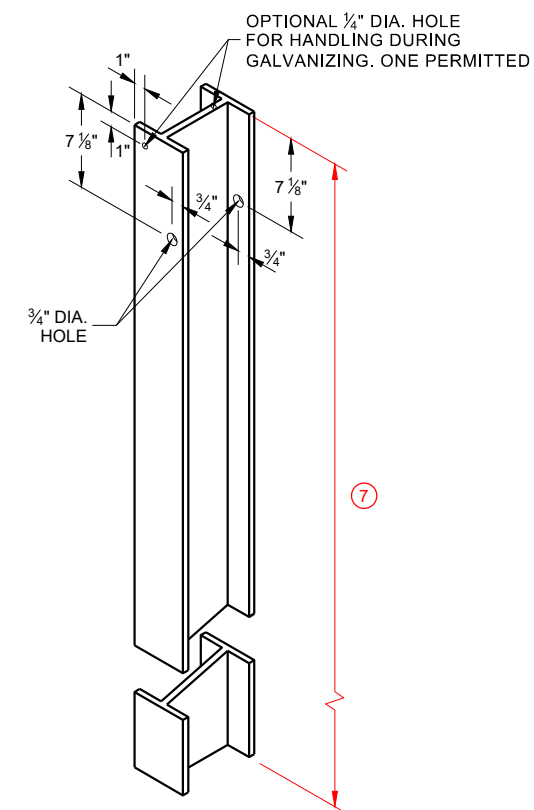
DRIVEWAYS WITHOUT CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

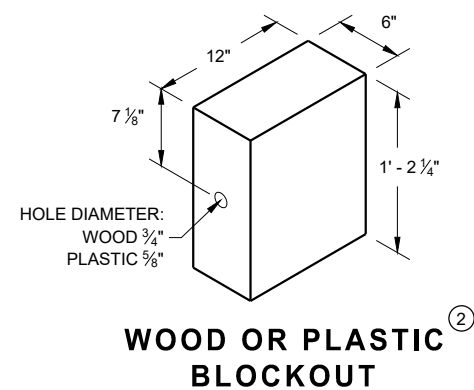
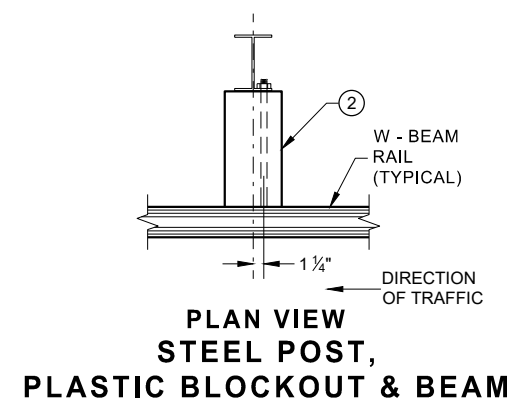
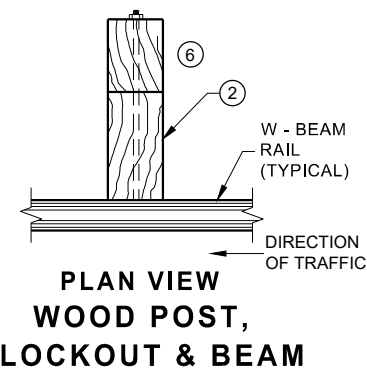
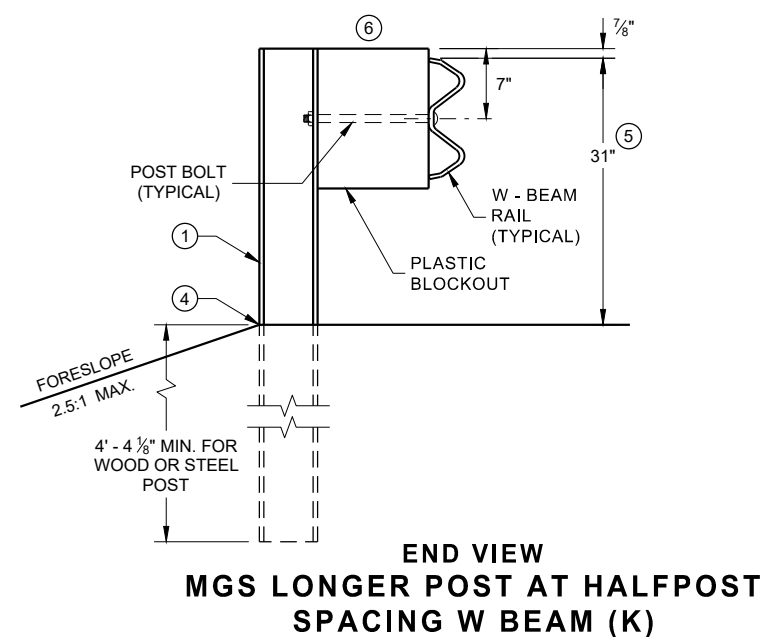
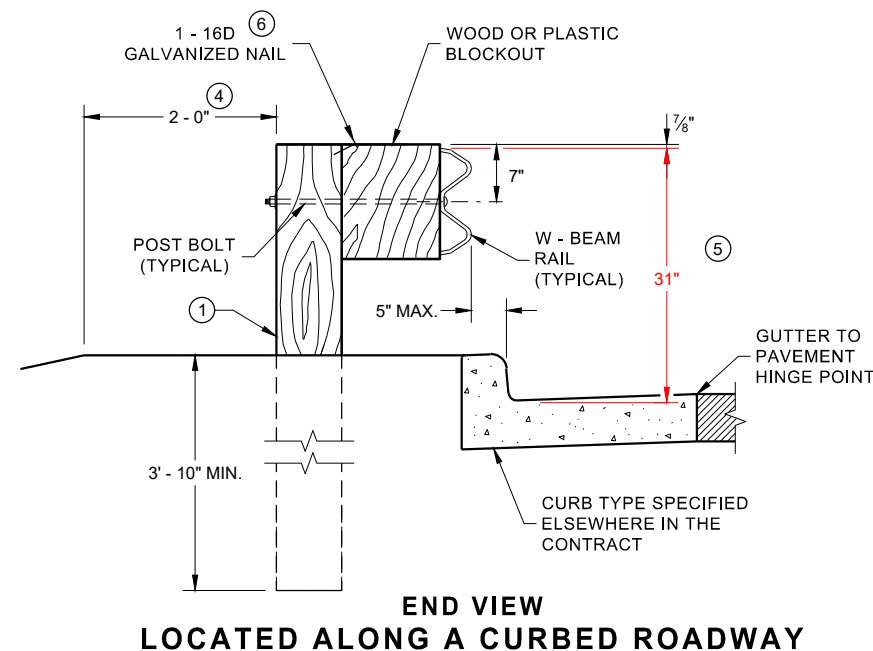
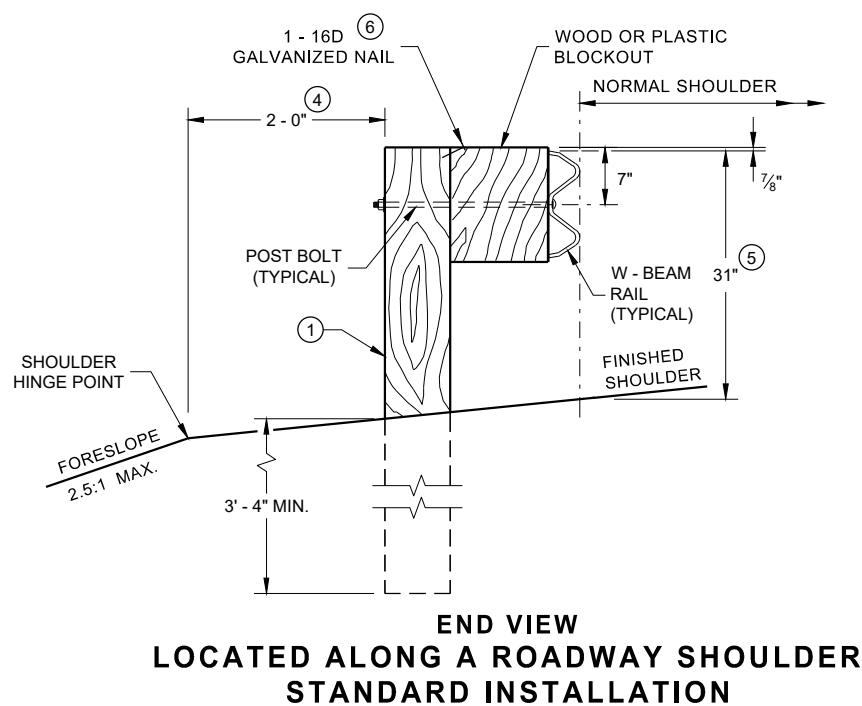


-
- Diagram illustrating the end view of a steel or wood post set in rock. The post is 12" wide and 2" thick. The rock is 44 1/2" MIN. high, where "A" is $\geq 22"$. The post is embedded 20" MINIMUM in solid rock if shortened post is used where "A" is $\leq 22"$. The post is surrounded by foundation backfill. Dimensions include 2 1/2" for the post width, 2" MIN. for the rock thickness, and 2" MIN. for the post thickness.
- END VIEW**
- SETTING STEEL OR WOOD POST IN ROCK**
- ③



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

WOOD POST (6" X 8") NOMINAL ^①

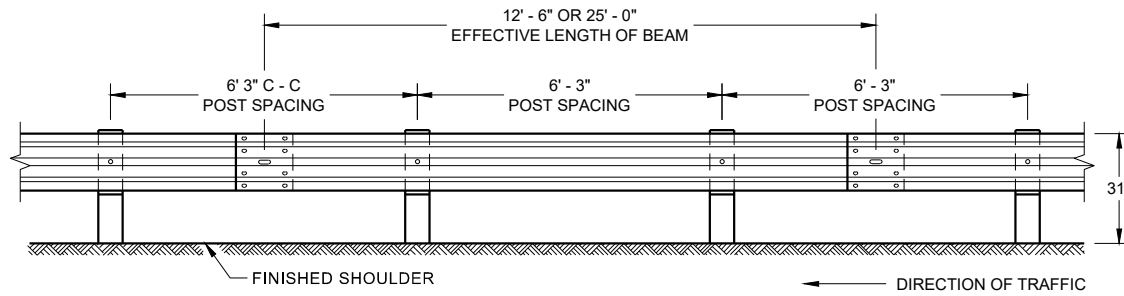


MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

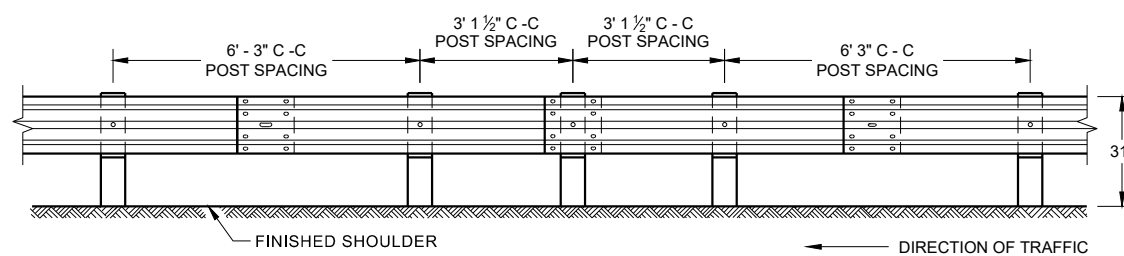
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 06a

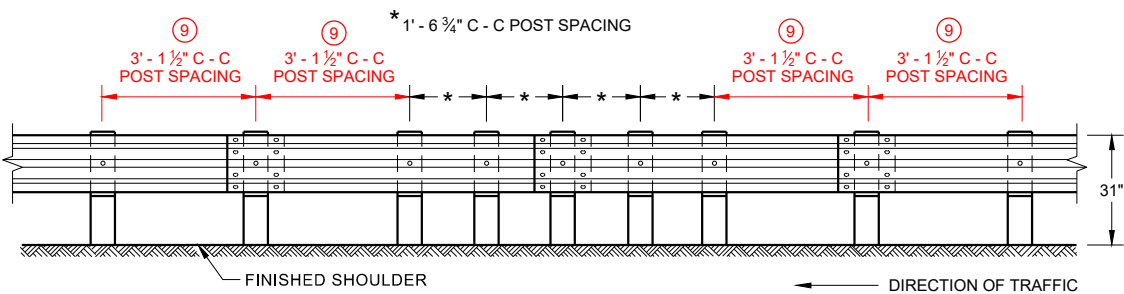
SDD14B42 - 06a



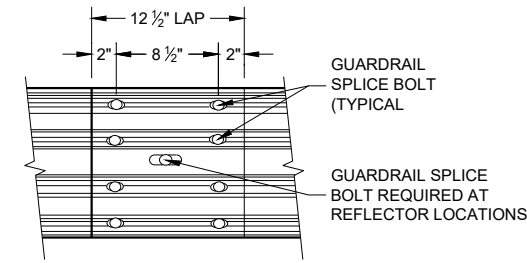
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



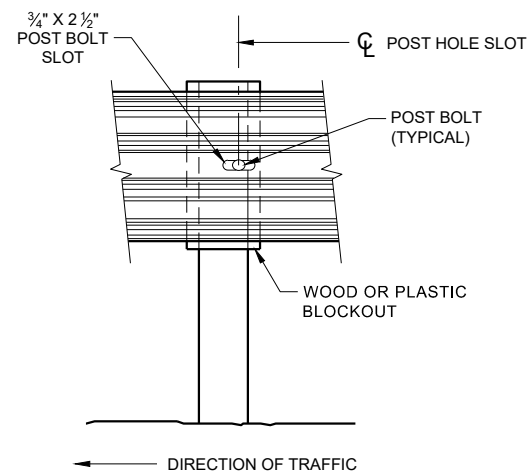
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



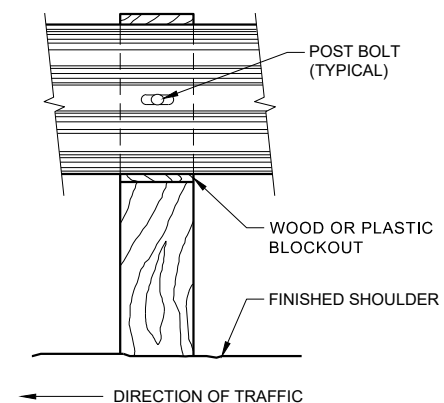
**FRONT VIEW
QUARTER POST SPACING (QS)**



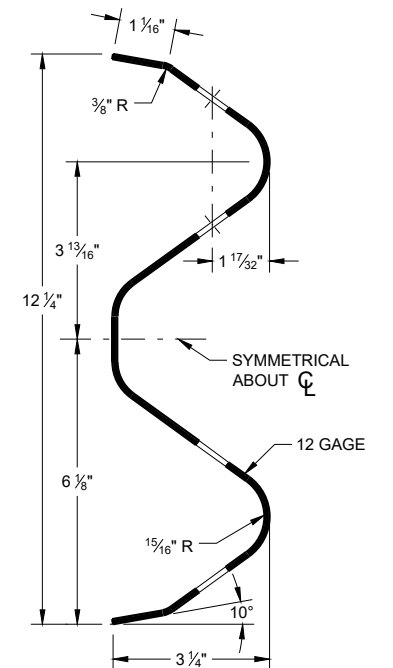
**FRONT VIEW
MID-SPAN BEAM SPLICE**



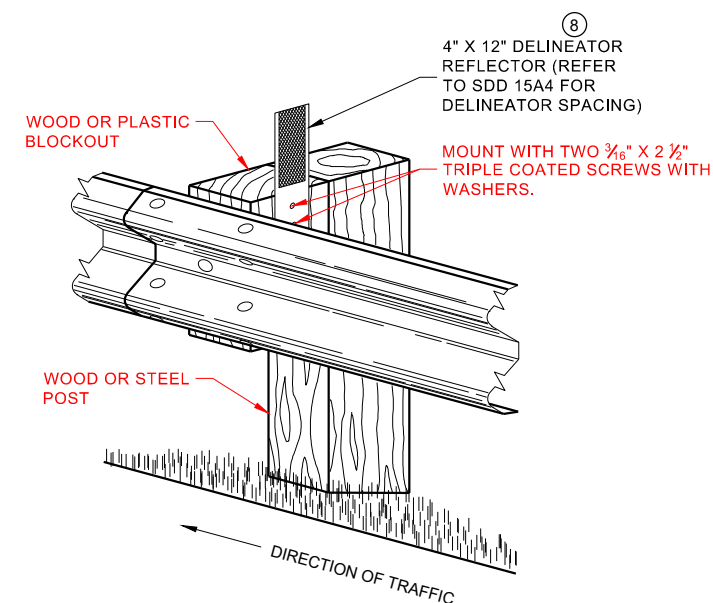
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



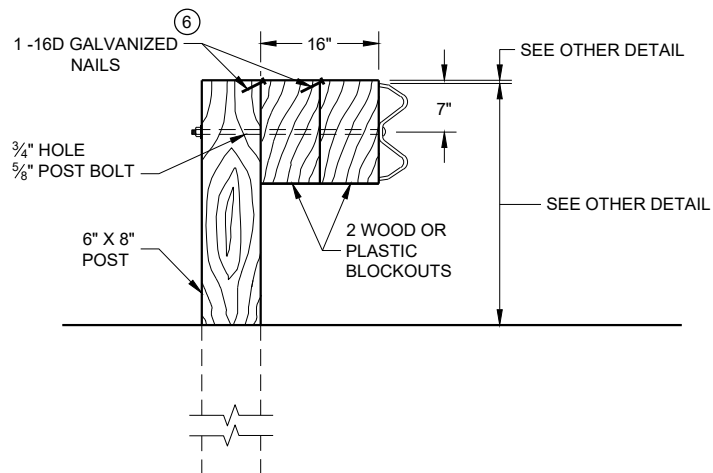
SECTION THRU W-BEAM RAIL



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

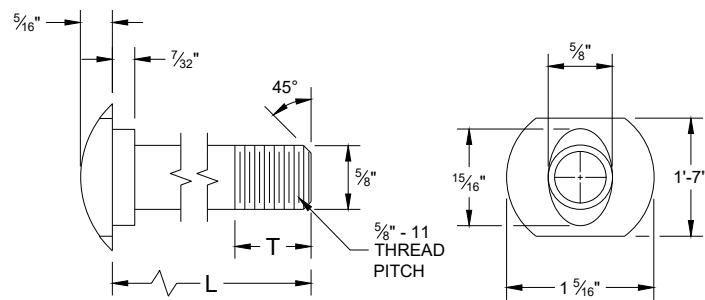
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8"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



DETAIL FOR 16" BLOCKOUT DEPTH

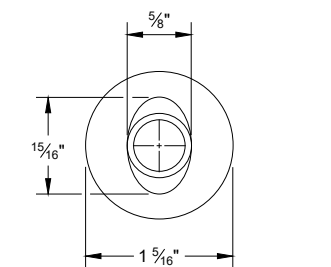
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

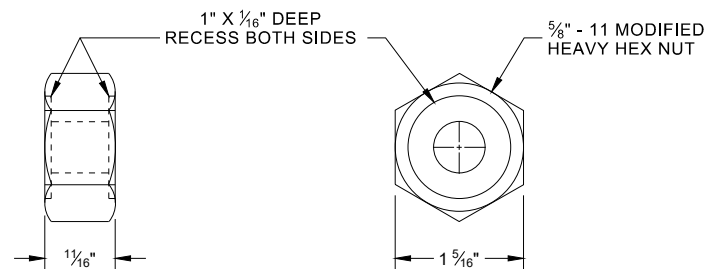


POST BOLT TABLE

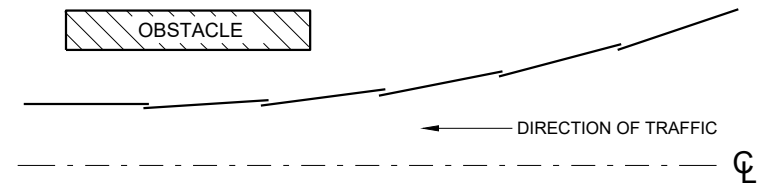
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



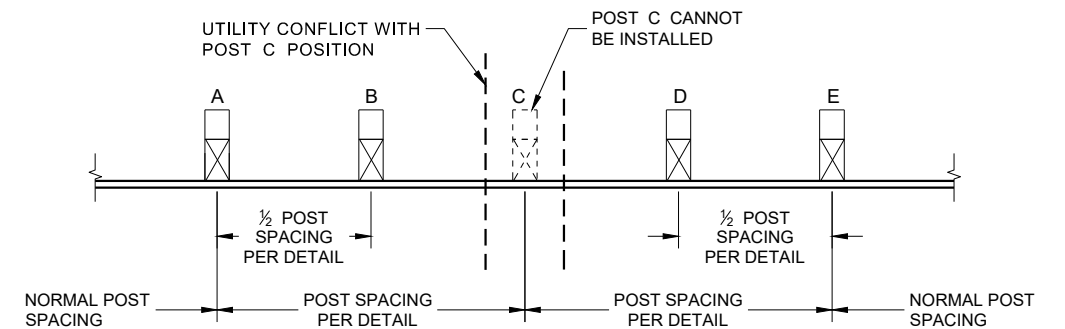
ALTERNATE BOLT HEAD



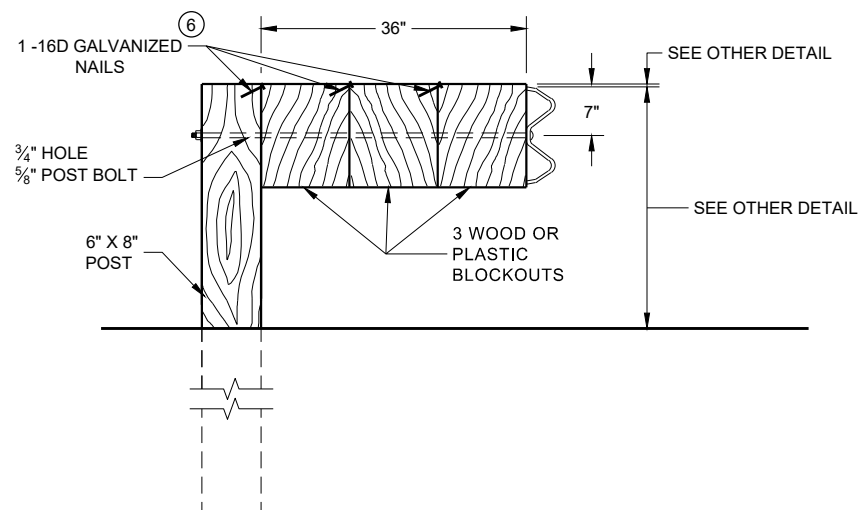
POST BOLT, SPLICE BOLT
AND RECESS NUT



PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION

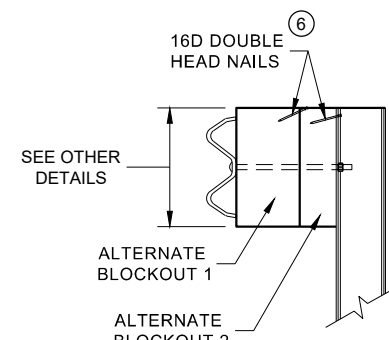


DETAIL FOR 36" BLOCKOUT DEPTH

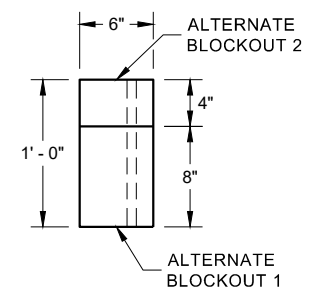
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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

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



SIDE VIEW

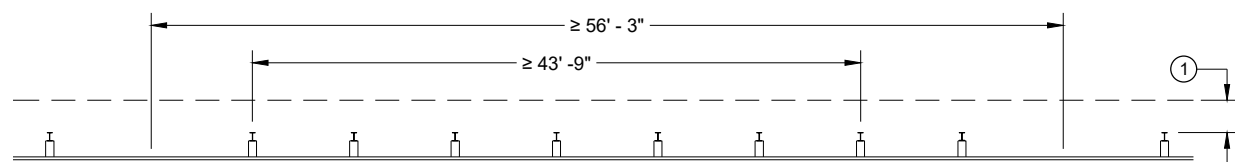


PLAN VIEW

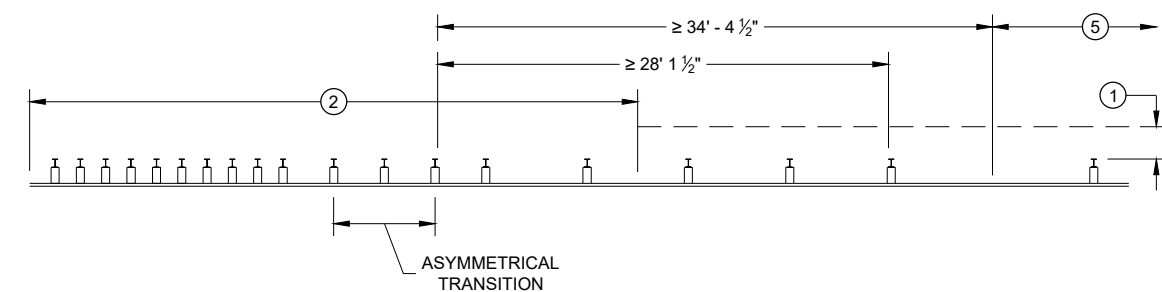
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

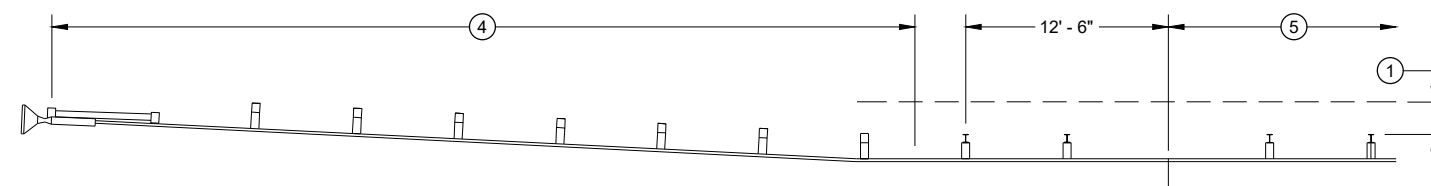
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



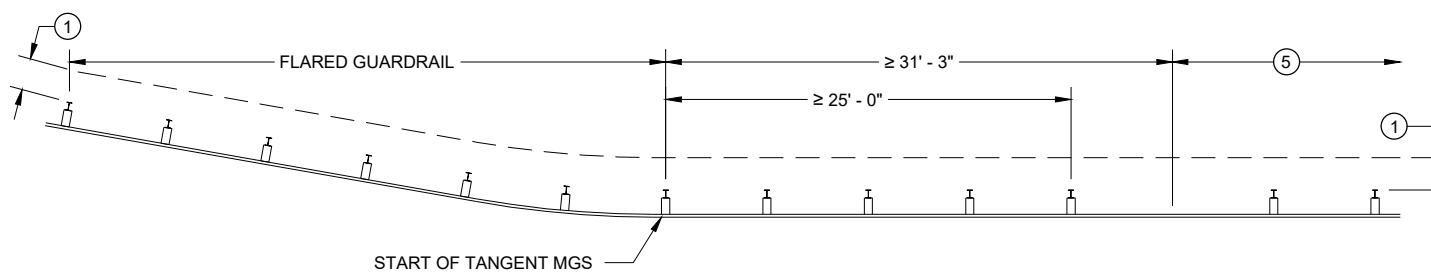
MISSING POST IN NORMAL BEAM GUARD RUN



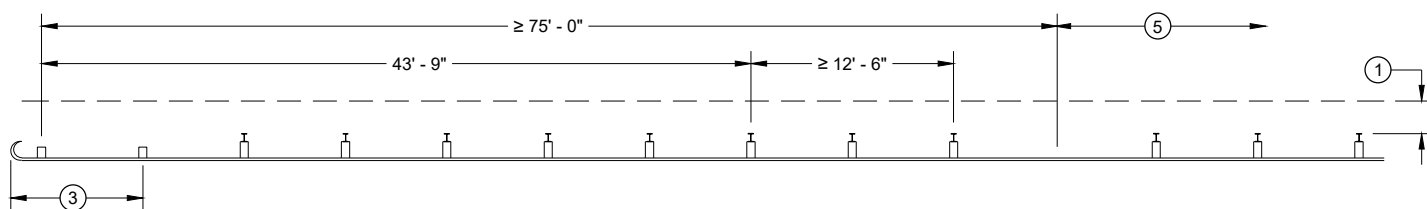
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



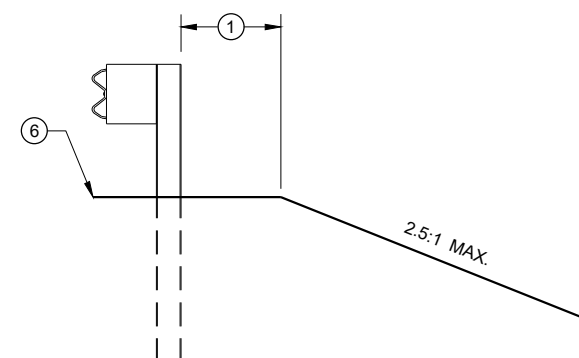
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



- (1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- (2) SEE SDD 14B45 FOR MORE DETAILS.
- (3) SEE SDD 14B47 FOR MORE DETAILS.
- (4) SEE SDD 14B44 FOR MORE DETAILS.
- (5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- (6) SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SDD 14b43-a Midwest Guardrail System Long Span (MGS L) Two-way Road Layout

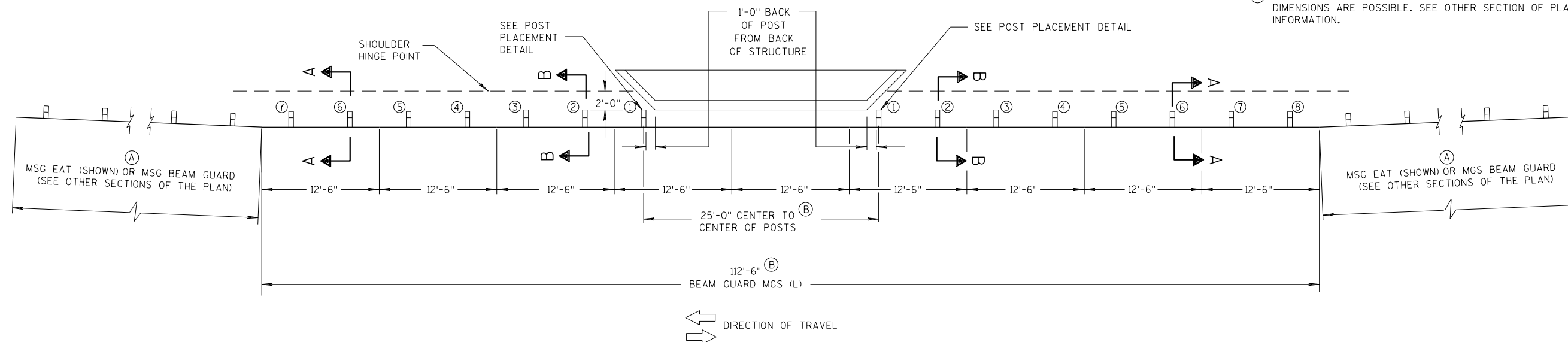
GENERAL NOTES

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

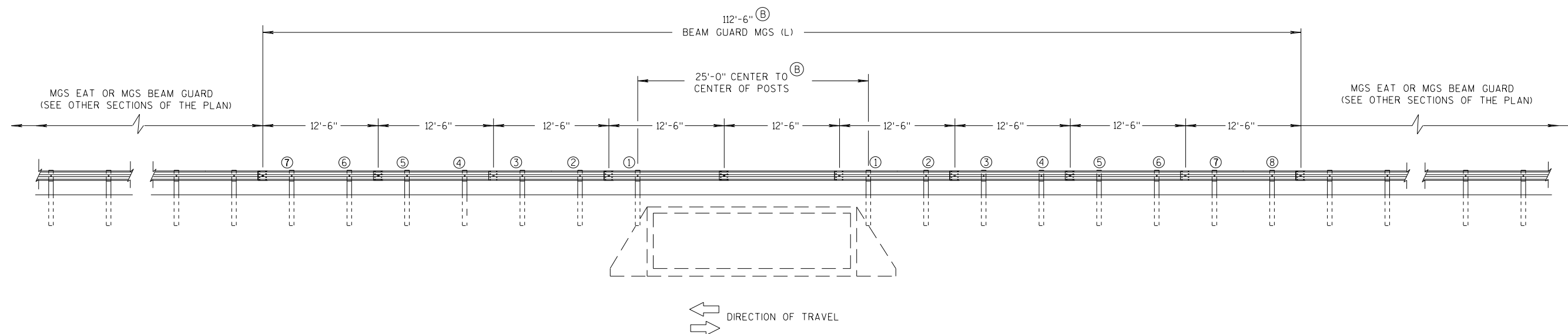
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



PLAN VIEW



ELEVATION VIEW

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

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SDD 14b43-b Midwest Guardrail System Long Span (MGS L) One-way Road Layout

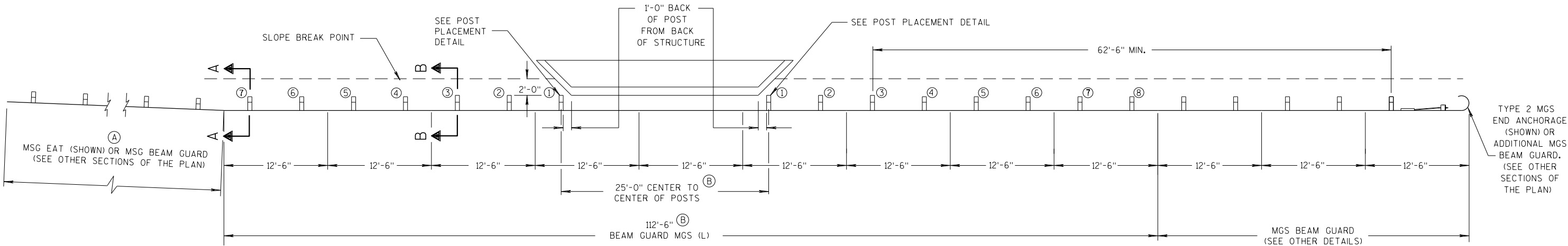
GENERAL NOTES

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

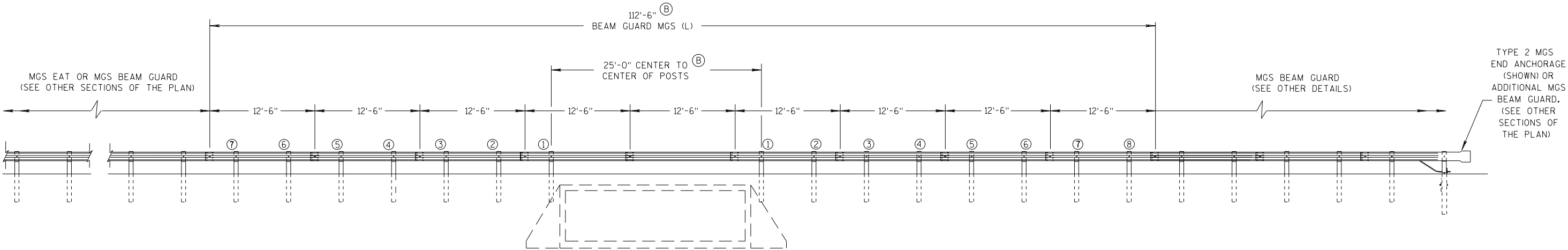
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



PLAN VIEW



ELEVATION VIEW

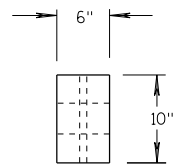
MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

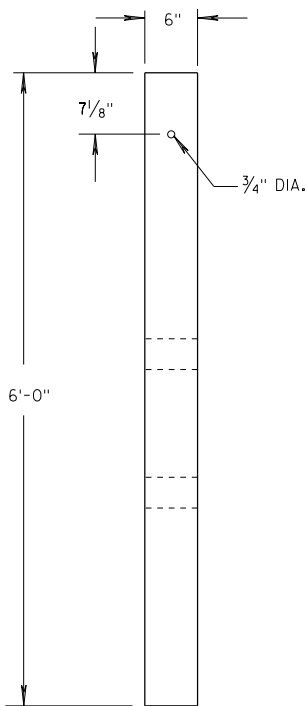
STATE OF WISCONSIN
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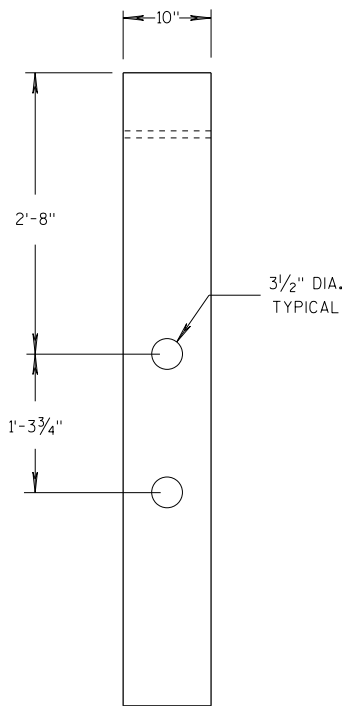
SDD 14b43-c Midwest Guardrail System Long Span (MGS L) Cross Section and CRT Post Details



PLAN VIEW

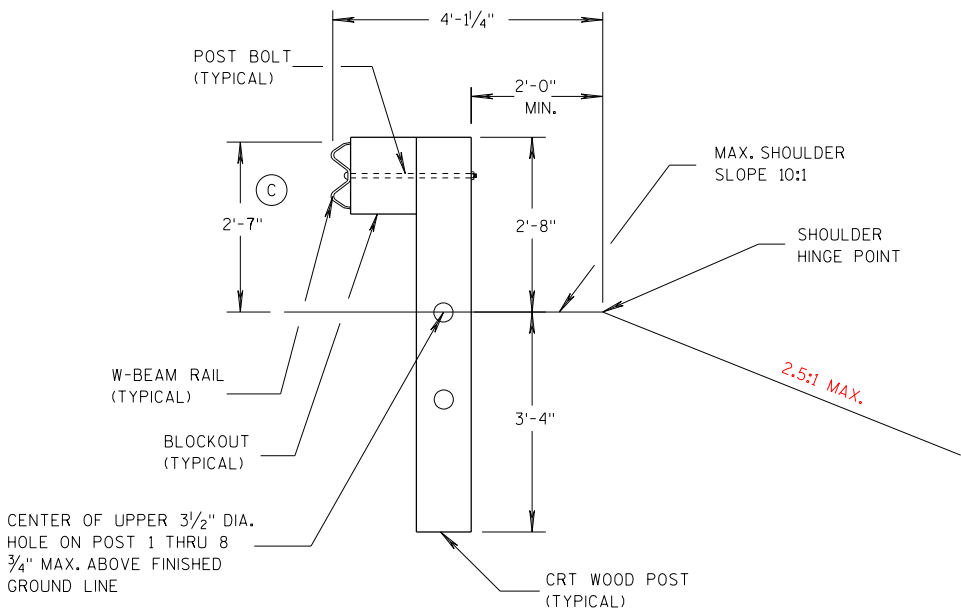


FRONT VIEW

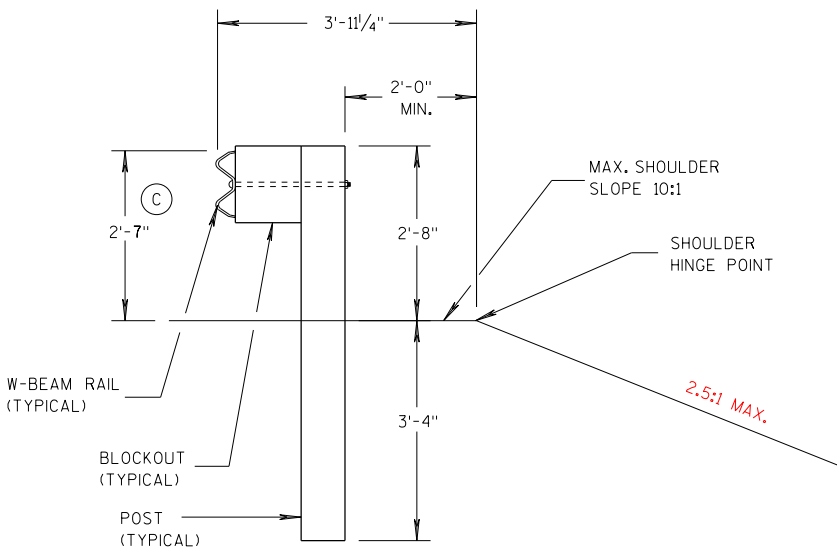


SIDE VIEW

CRT WOOD POST



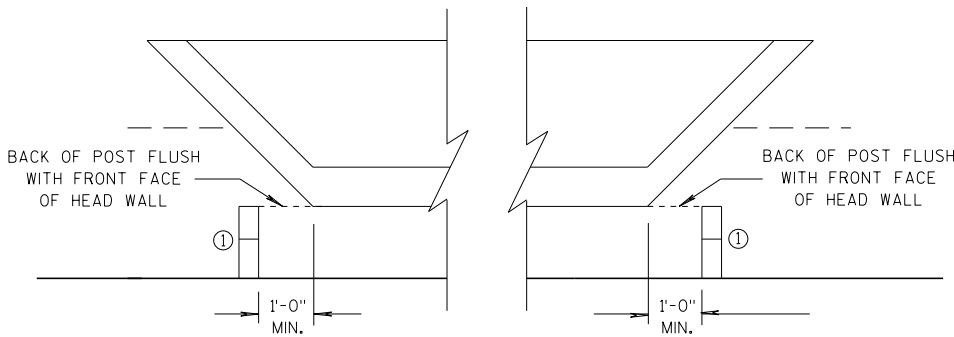
SECTION B-B
POSTS NO. 1-3
SEE OTHER DETAILS



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

GENERAL NOTES

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



POST PLACEMENT DETAIL

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



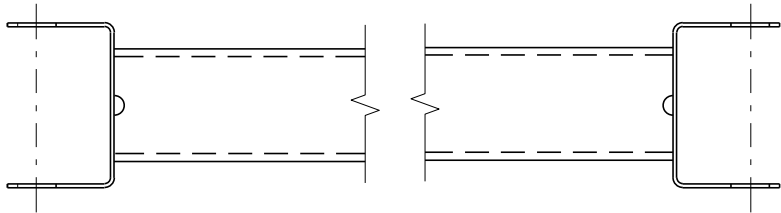
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

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



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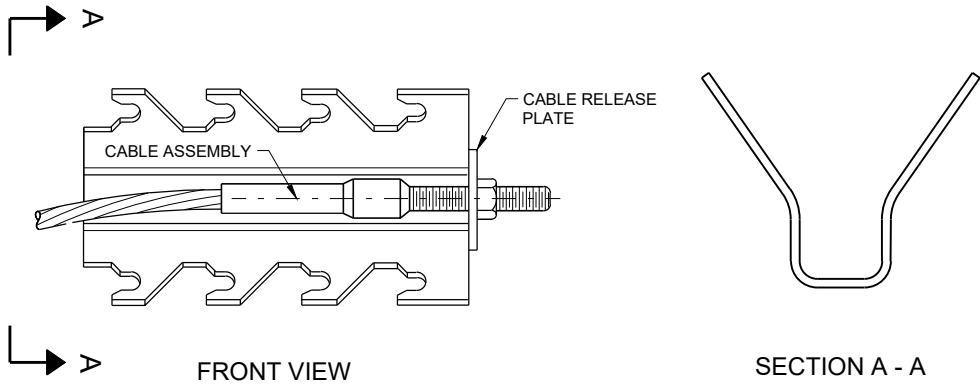
SDD14B44 - 04a



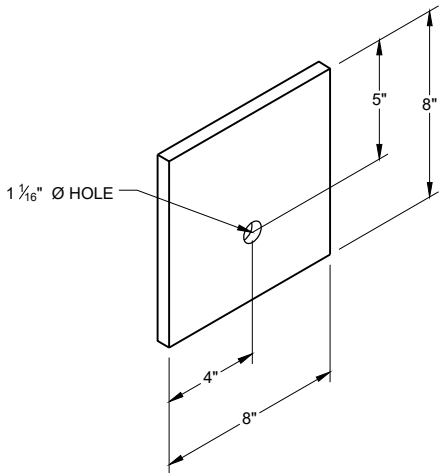
GENERIC GROUND STRUT 9 E

BILL OF MATERIALS

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



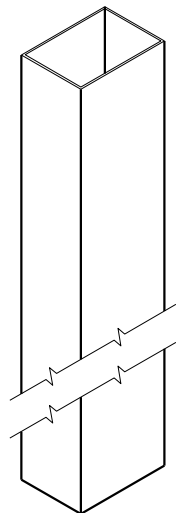
GENERIC ANCHOR CABLE BOX 9 E



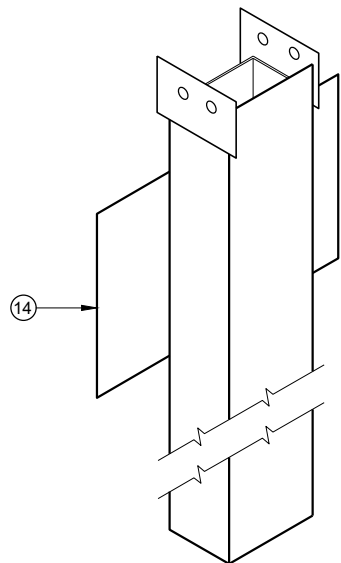
BEARING PLATE 6 E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

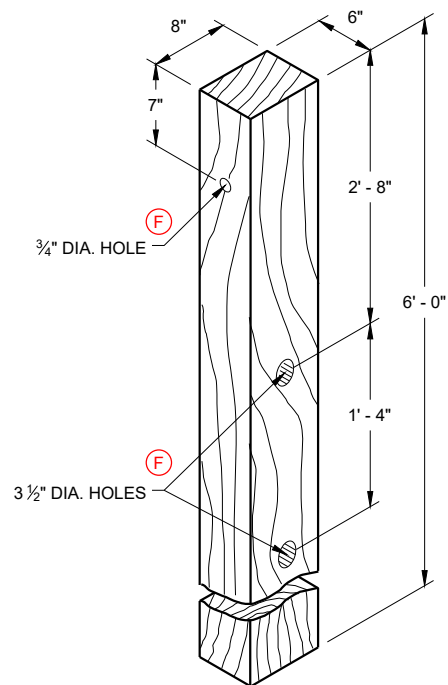
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



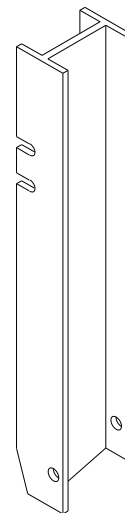
UPPER POST NO. 1^① (E)



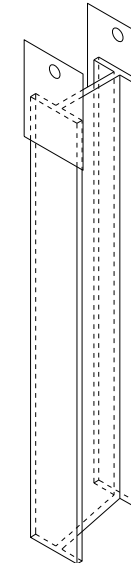
LOWER POST NO. 1^② (E)



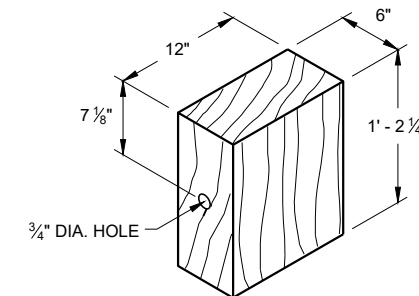
WOOD CRT POST^③ (E)
POSTS NUMBER 3-9



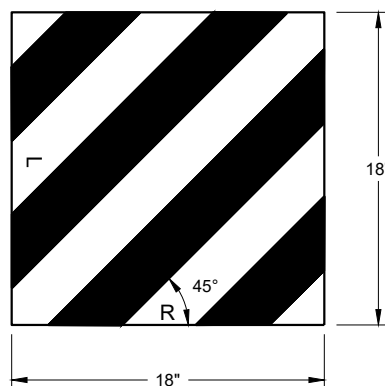
UPPER POST NO. 2^⑮ (E)



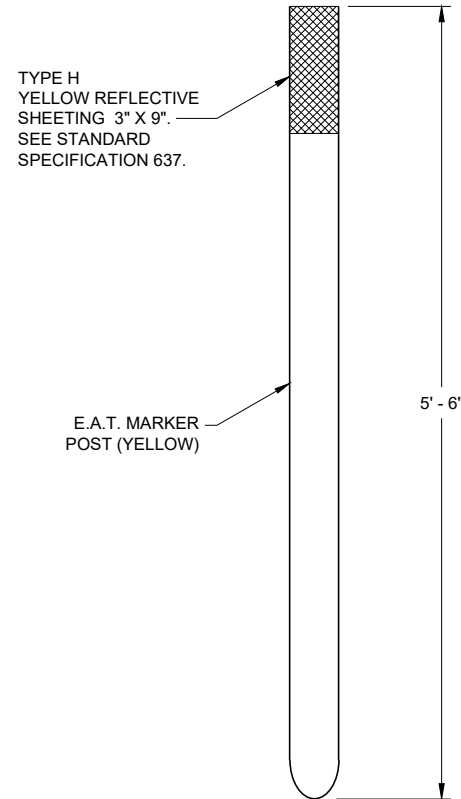
LOWER POST NO. 2^⑯ (E)



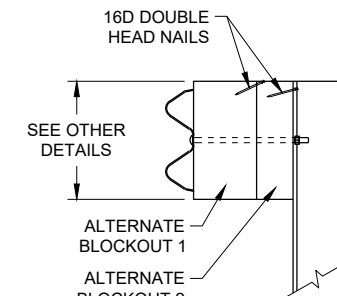
WOOD BLOCKOUT^④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



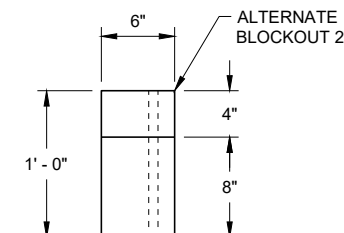
REFLECTIVE SHEETING DETAIL^⑤



E.A.T. MARKER POST^⑬



SIDE VIEW



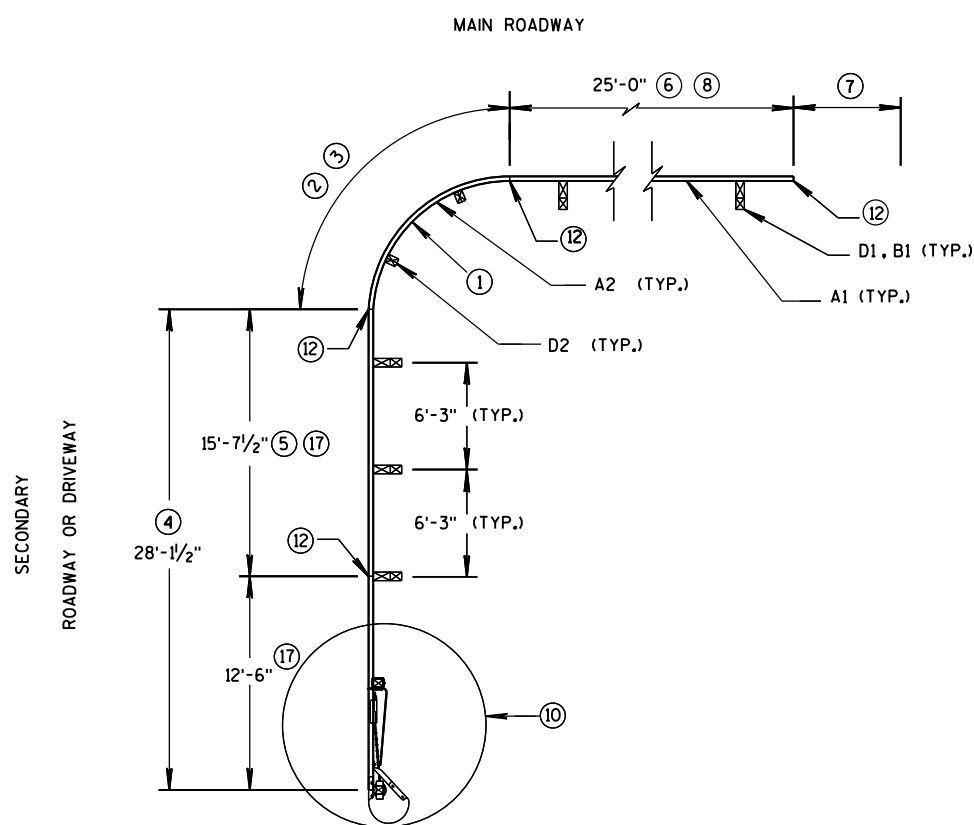
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

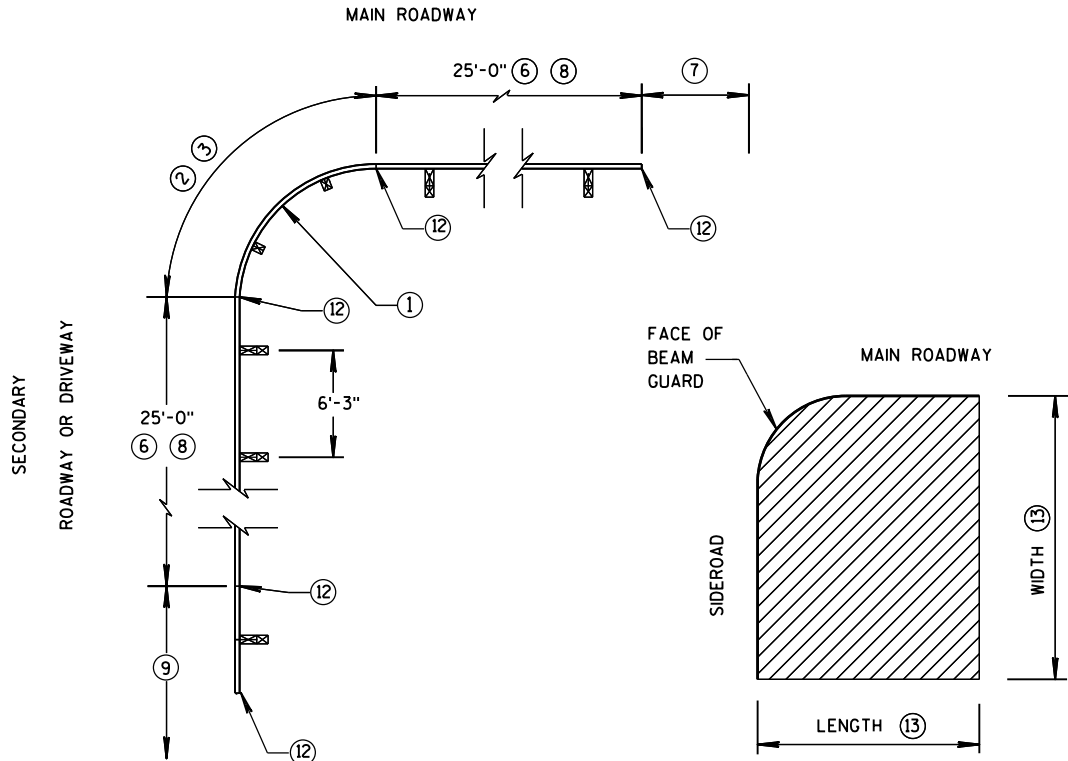
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

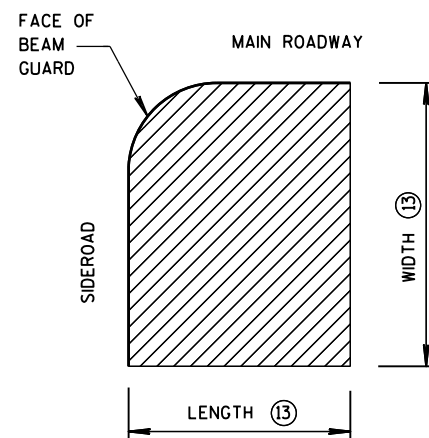
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



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



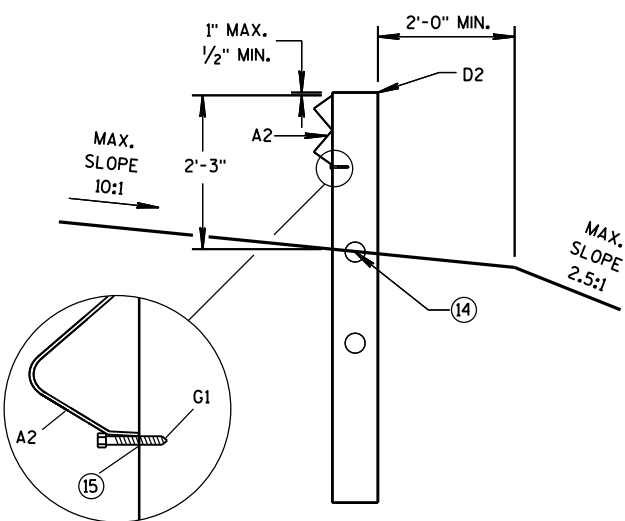
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER
ON SECONDARY ROAD OR
DRIVEWAY
PLAN VIEW



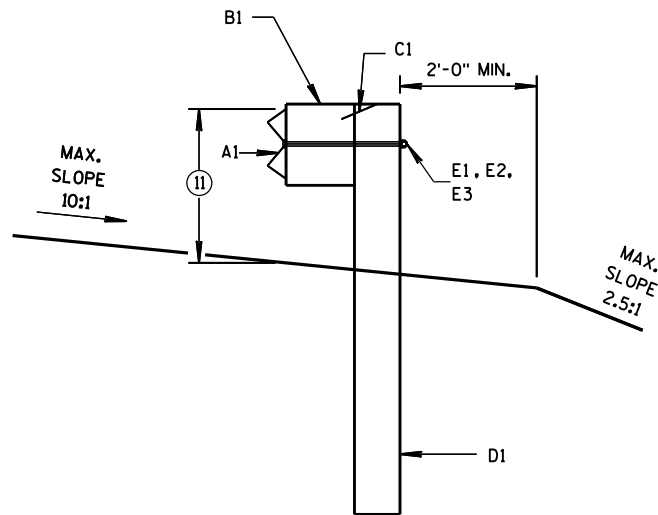
AREA FREE OF
FIXED OBJECTS FOR
RADIUS 32' AND LESS ⁽¹⁶⁾

TABLE FOR RADIUS OF 32' AND LESS

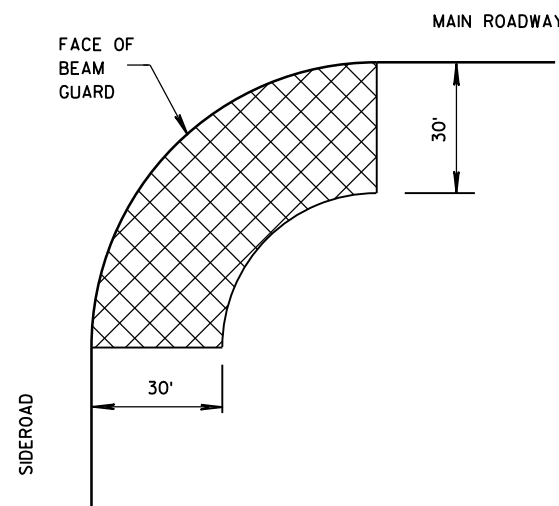
RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30



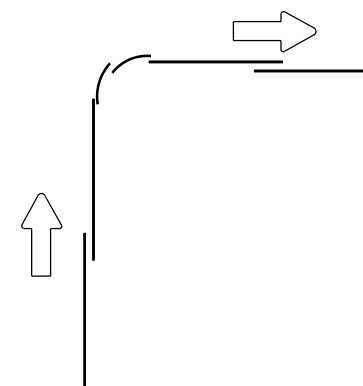
CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS
IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS ⁽¹⁶⁾
RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

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

GALVANIZE PARTS AFTER FABRICATION.

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

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

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

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

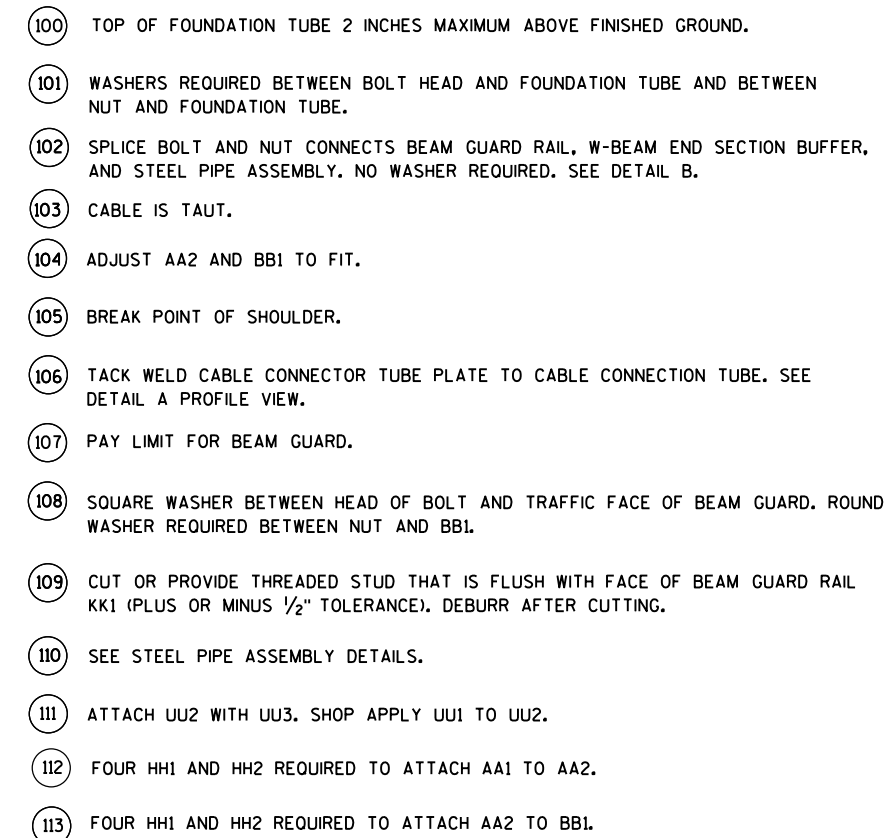
UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

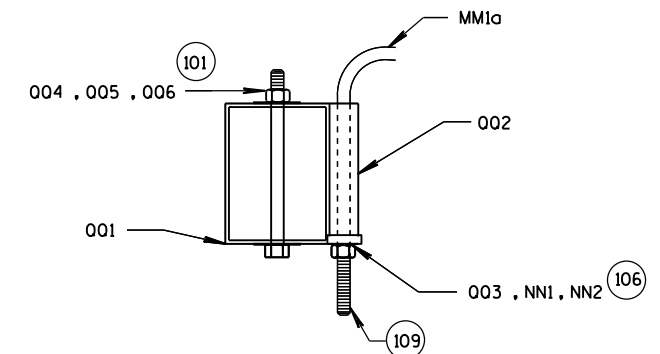
- RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- CONTROLLED RELEASE TERMINAL (CRT)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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



6



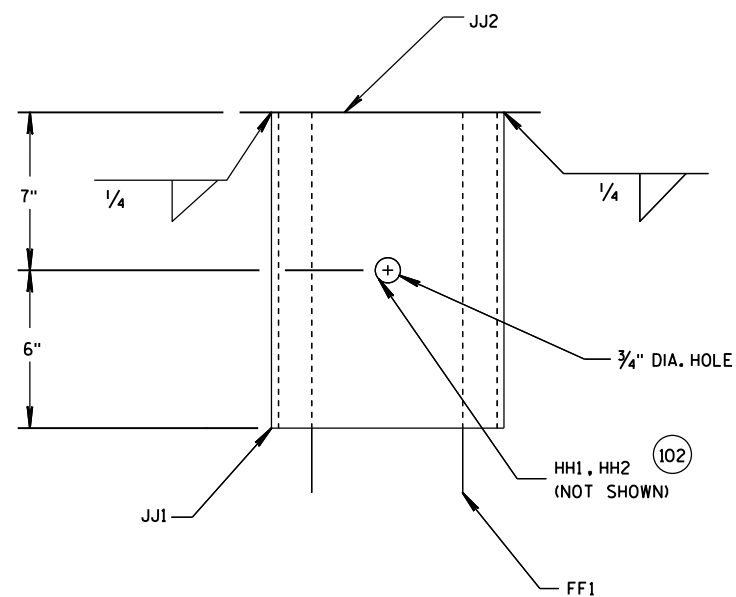
6

[illegible]

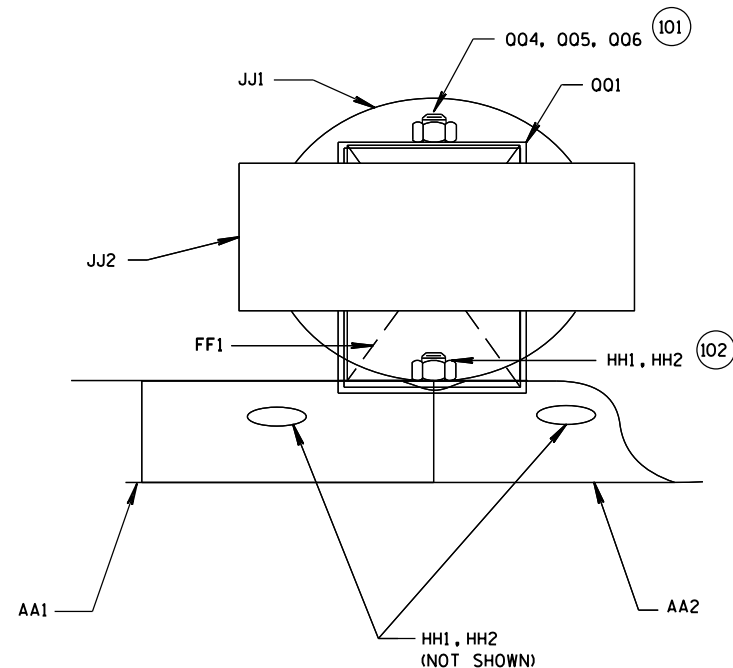
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



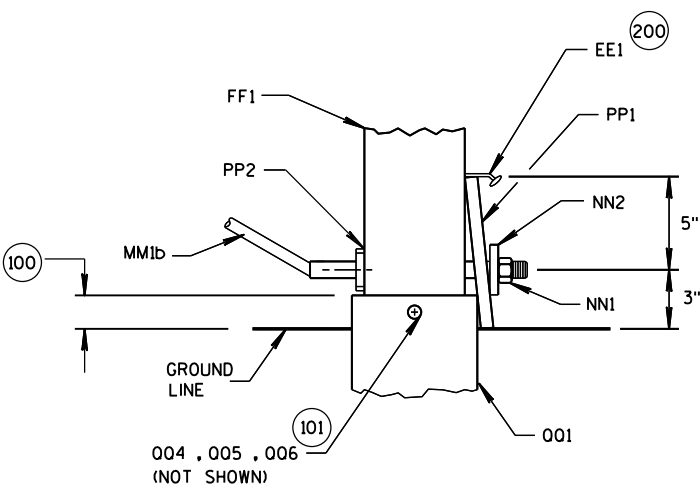
SDD 14b53-c Short Radius Beam Guard and Terminal (MGS) - Terminal Detail B, Detail C and Detail D



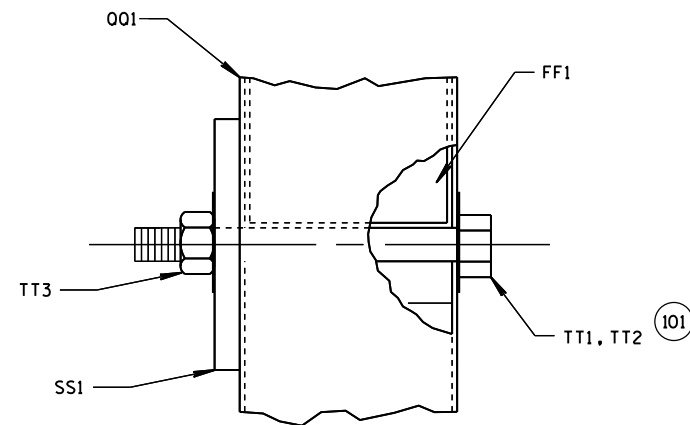
DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
(BEAM GUARD AND W-BEAM
END SECTION NOT SHOWN)



DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY



DETAIL C
PROFILE VIEW



DETAIL D
PROFILE VIEW

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

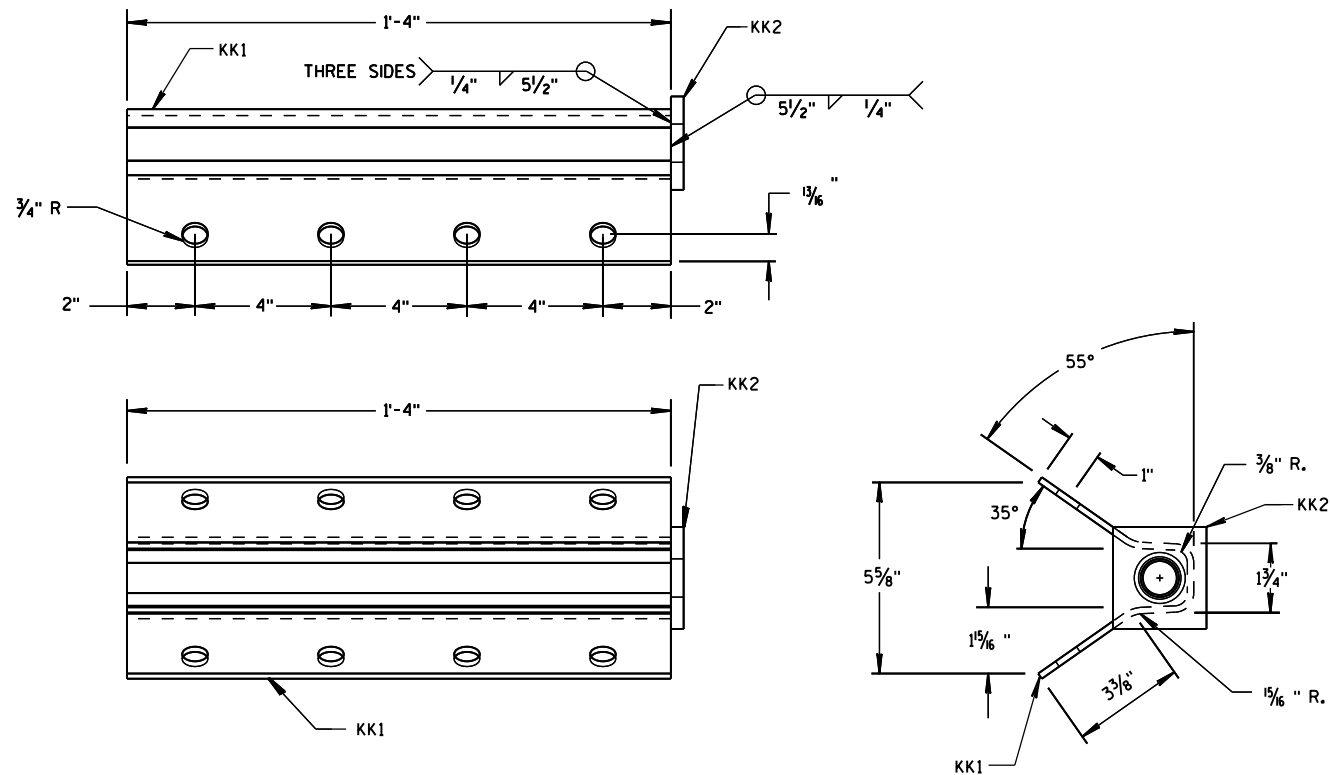
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

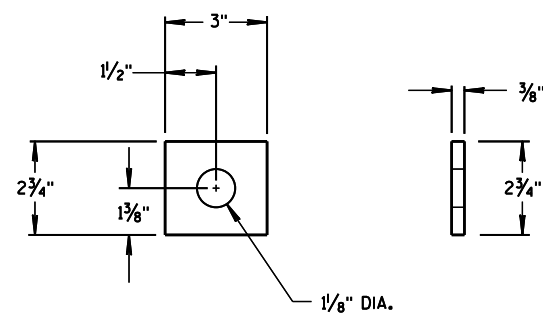


SDD 14b53-d Short Radius Beam Guard and Terminal (MGS) - Terminal Anchor Bracket and Anchor Bracket Bearing Details

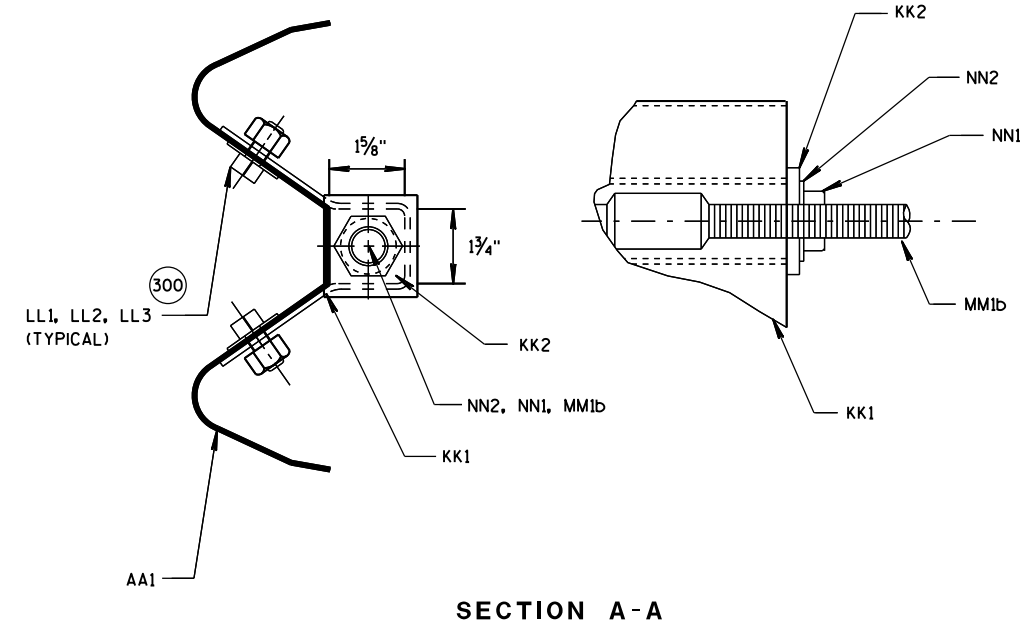
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.



ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)



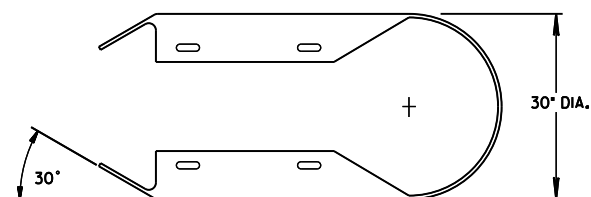
SECTION A-A

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

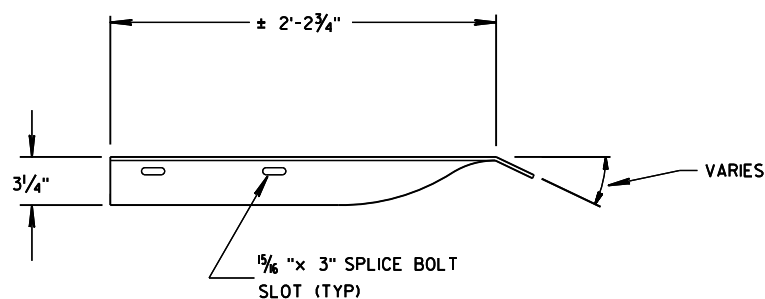
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



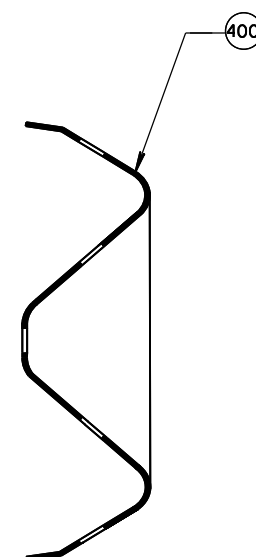
- 400 CROSS SECTION OF PART IS TO FIT OVER AA1.
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1.



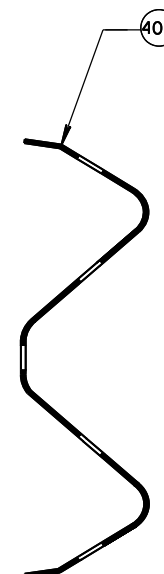
TOP VIEW



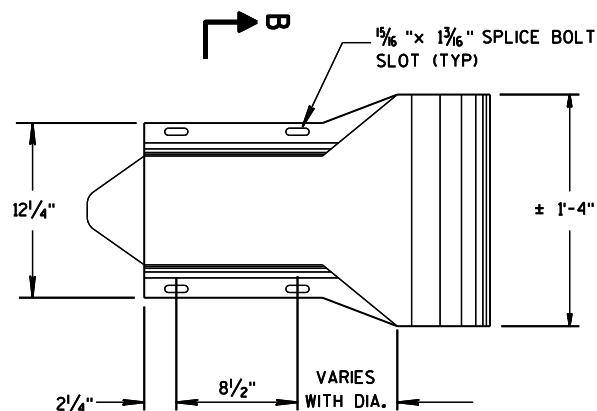
TOP VIEW



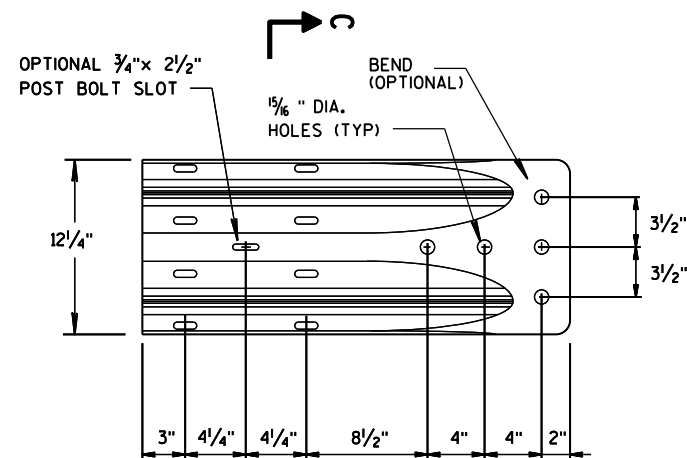
SECTION B-B



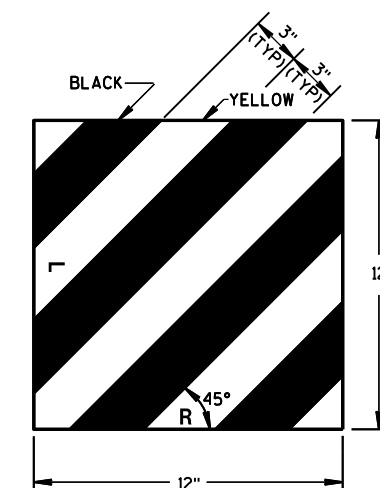
SECTION C-C



W-BEAM
END SECTION BUFFER (AA2)
PROFILE VIEW



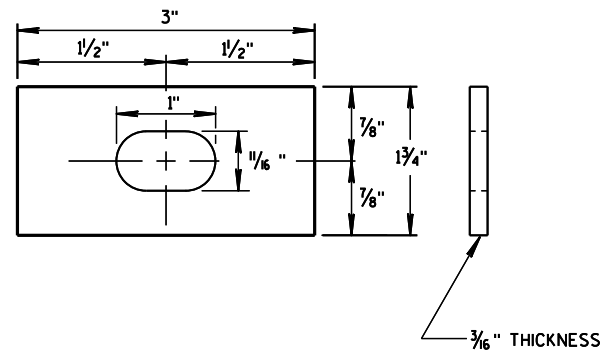
W-BEAM
TERMINAL CONNECTOR (BB1)
PROFILE VIEW



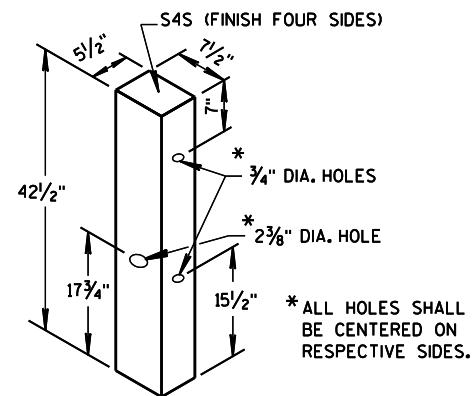
REFLECTIVE SHEETING
(UU1, UU2)

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

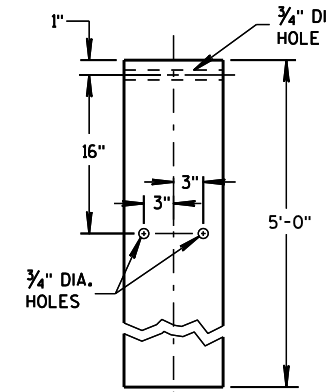
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



RECTANGULAR
PLATE WASHER (CC1)

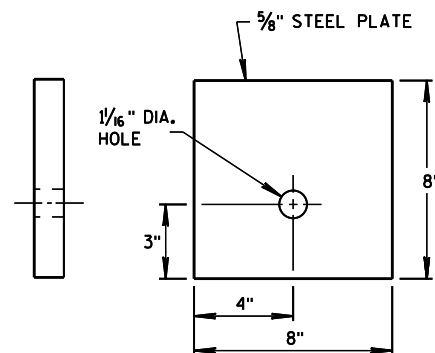


WOOD BREAKAWAY POST
(FF1)

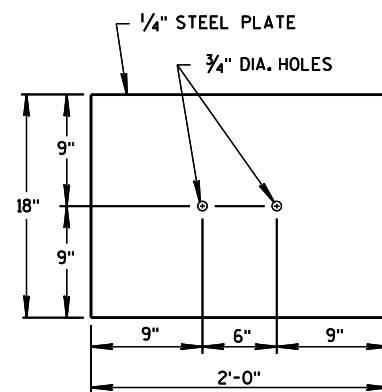


FOUNDATION TUBE (QQ1)

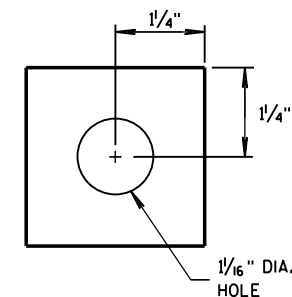
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



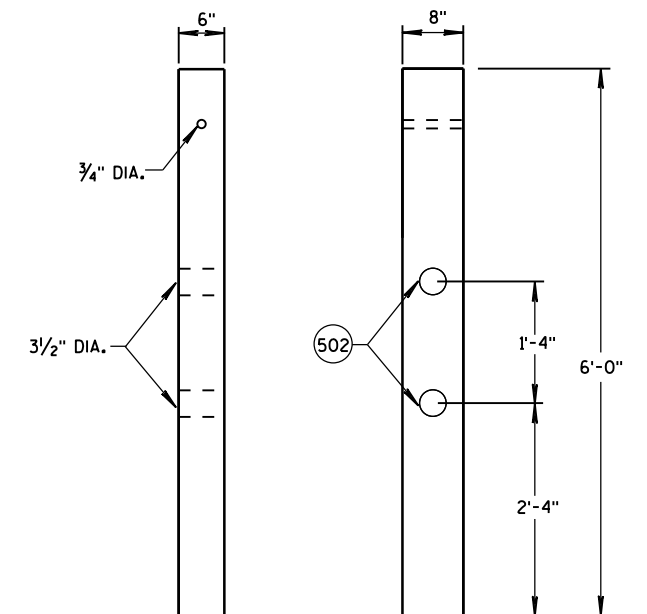
BEARING PLATE (PP1)



SOIL PLATE (SS1)

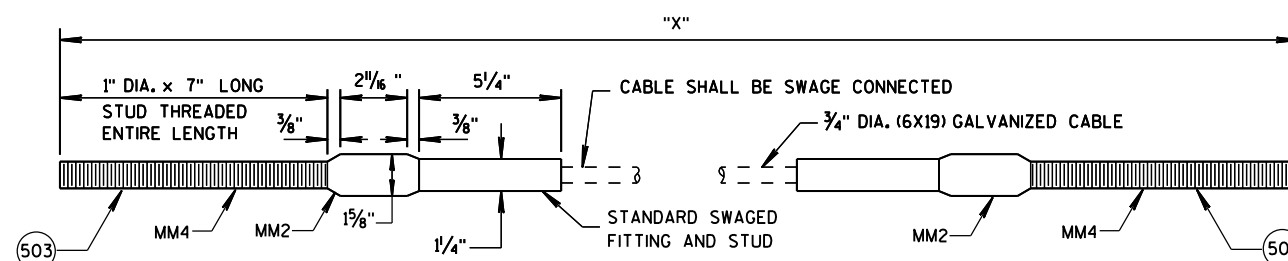


TUBE END PLATE (QQ3)



FRONT VIEW SIDE VIEW

CONTROLLED RELEASE
TERMINAL POST (CRT) (D2)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH	
MM1a	9'-0"
MM1b	6'-8"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

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

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

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

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE 14B42 FOR GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1'-0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
PP1	BEARING PLATE AT POST	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	

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

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 53-i

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)			
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
003	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
004	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
005	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
006	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8" DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
SS1	SOIL PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING SHEETING TYPE FOR MARKER
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

6

S.D.D. 14 B 53-i

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

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017

DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE BOTH FACES AND THE TOP OF THE BARRIER.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL REINFORCEMENT SHALL BE EPOXY-COATED.

BARRIER WITH SPREAD FOOTINGS TO BE SUPPORTED BY UNDERLYING NATIVE SOILS.

CONTRACTOR TO VERIFY ANCHOR ASSEMBLY GEOMETRY WITH SELECTED CRASH CUSHION MANUFACTURE.

DESIGN DATA

MATERIAL PROPERTIES:

CONCRETE MASONRY: _____ f'c = 4,000 P.S.I.

BARRIER & FOOTING

BAR STEEL REINFORCEMENT: _____ fy = 60,000 P.S.I.

GRADE 60

TRAFFIC VOLUME

STH 32

ADT = 11,000 (2041)

R.D.S. = 55 M.P.H.

STRUCTURE DESIGN CONTACTS:

AIHAM ALSKIF (608) 261-6113

AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY
BUREAU OF STRUCTURES ACCEPTED CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-5-229/230			
STH 29 OVER STH 32			
COUNTY	BROWN	TOWN	PITTSFIELD
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	AA	DESIGNED CK'D. JJS	DRAWN BY AA PLANS CK'D. JJS
GENERAL PLAN			SHEET 1 OF 2

LIST OF DRAWINGS

1. GENERAL PLAN
2. PIER BARRIER WALL DETAILS

DRAFT

TANGENT LINE

R W.B.L.
STH 29

B-5-229

BARRIER FOOTING

5'-0"

BARRIER FOOTING WIDTH

CONCRETE BARRIER

TANGENT LINE

R E.B.L.
STH 29

B-5-230

EXISTING COLUMN

EXISTING PIER FOOTING

COLUMN SPACING

16'-4 1/2"

23NS+00

1.F.

23NS+00

36'-9"

33'-3"

TRANSITION LENGTH

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

2'-6"

LANE

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

2'-6"

CURB & GUTTER TYP.

10'-0"

SHLD.

14'-0"

LANE

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CURB & GUTTER TYP.

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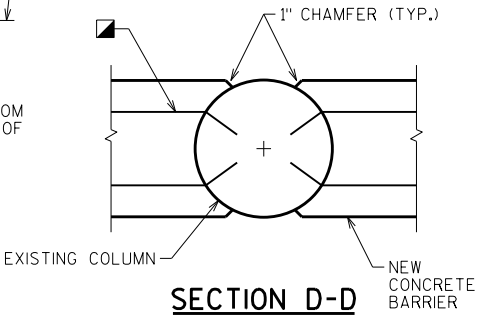
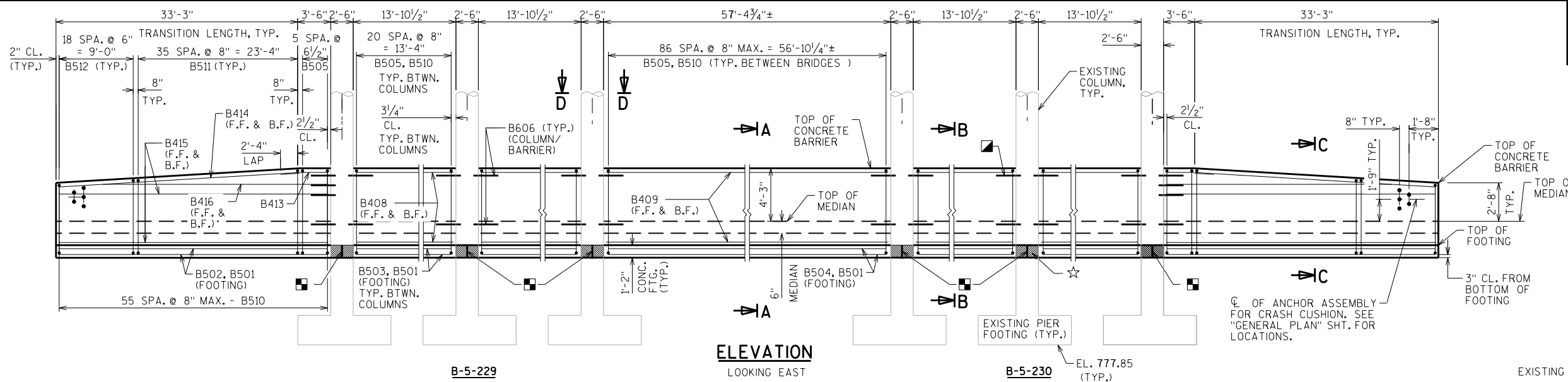
2'-6"

CURB & GUTTER TYP.

10'-0"

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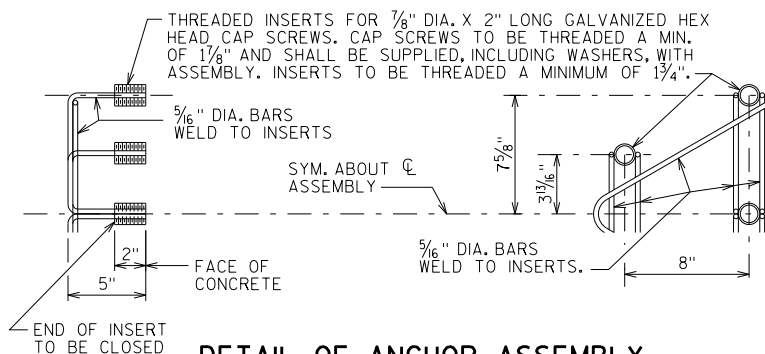
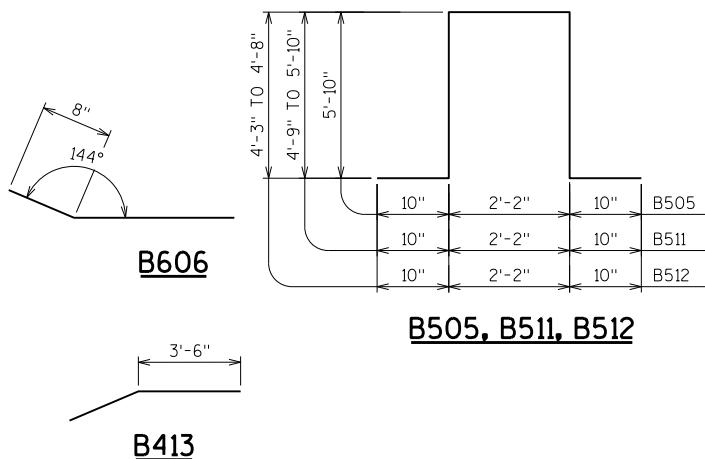


LEGEND

- ADHESIVE ANCHORS TYPE NO. 6 BAR EMBED 8" IN CONCRETE.
- OPTIONAL CONSTRUCTION JOINTS IN FOOTINGS PLACED ALONG C. OF COLUMN. IF USED, LAP LONGITUDINAL REINFORCEMENT 2'-7" IN ADJACENT POUR.
- PLACE 1/2" FILLER BETWEEN COLUMN AND CONCRETE FOOTING (TYP.)
- 12" SELECT CRUSHED MATERIAL MAY BE ELIMINATED IF IT IS DETERMINED BY THE ENGINEER THAT THE EXISTING MATERIAL IS COMPACTED, GRANULAR MATERIAL.
- 2 INCH OF ASPHALTIC LAYER WILL BE PLACED AT THE TOP OF MEDIAN PAID UNDER BID ITEM "ASPHALTIC SURFACE SAFETY ISLANDS"

NOTES

BOTH FACES OF BARRIER ARE FLUSH WITH FACE OF EXISTING COLUMNS



DETAIL OF ANCHOR ASSEMBLY

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

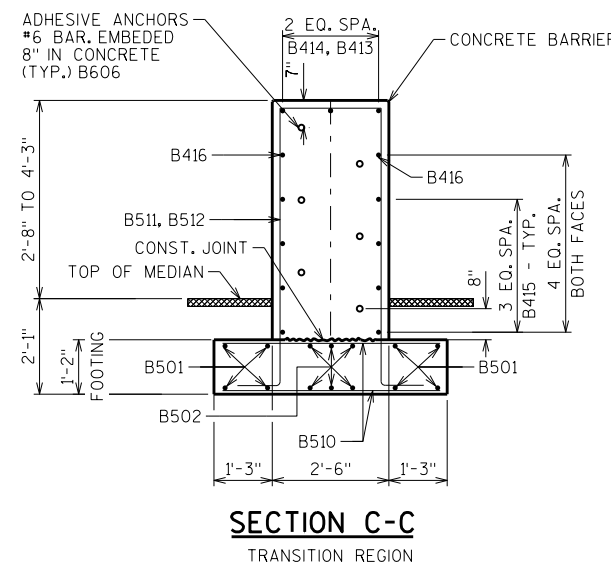
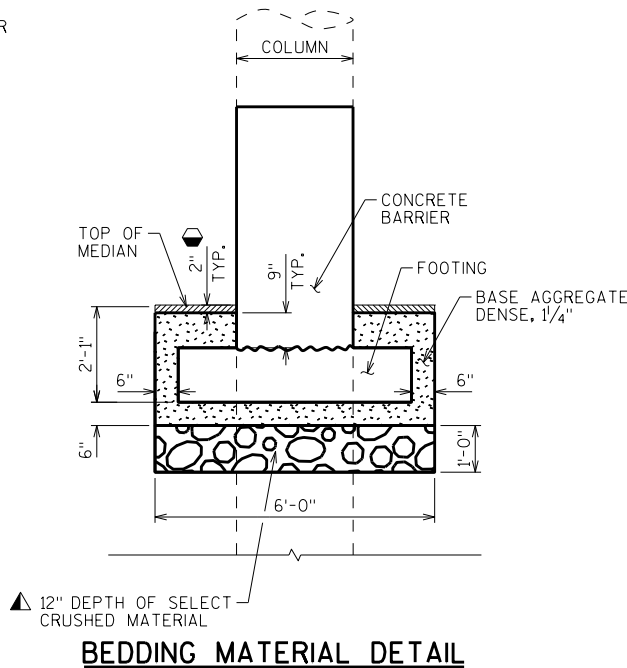
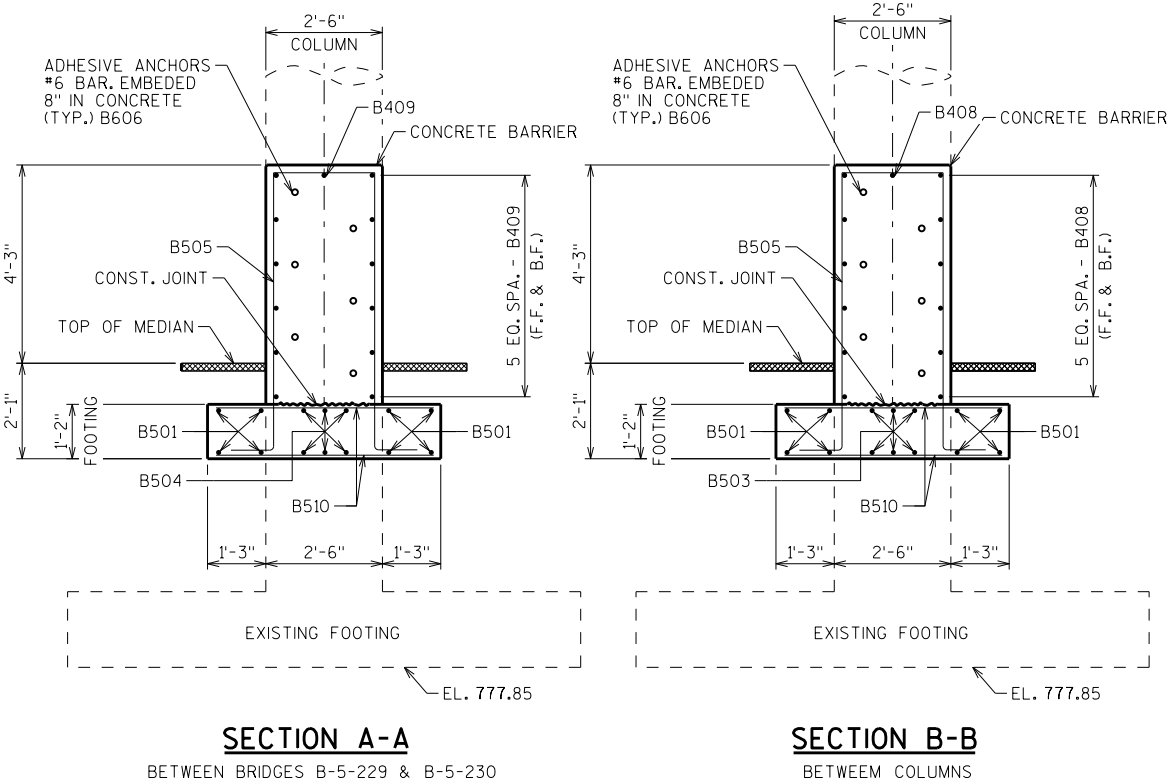
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501	X	32	52'-3"			FOOTING - HORIZ. - LONGIT. BOT. & TOP LAYER
B502	X	12	36'-3"			FOOTING - HORIZ. - LONGIT. BOT. & TOP LAYER
B503	X	24	13'-7"			FOOTING - HORIZ. - LONGIT. BOT. & TOP LAYER
B504	X	6	57'-1"			FOOTING - HORIZ. - LONGIT. BOT. & TOP LAYER
B505	X	183	15'-0"	X		BARRIER VERTICAL
B606	X	72	3'-2"	X		BARRIER/COLUMN HORIZ. - ADHESIVE ANCHORS
B407	X	26	7'-8"			BARRIER HORIZ.
B408	X	52	13'-7"			BARRIER HORIZ.
B409	X	26	30'-0"			BARRIER HORIZ.
B510	X	566	4'-8"			FOOTING - HORIZ. - TRANS. BOT. & TOP LAYER
B511	X	72	13'-11"	X		BARRIER VERTICAL
B512	X	38	12'-3"	X		BARRIER VERTICAL
B413	X	6	6'-0"	X		BARRIER HORIZ.
B414	X	6	33'-2"			BARRIER HORIZ.
B415	X	16	36'-5"			BARRIER HORIZ.
B416	X	4	24'-4"			BARRIER HORIZ.

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



BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
B511	2 SERIES OF 36	12'-10" TO 15'-0"
B512	2 SERIES OF 19	11'-10" TO 12'-8"

BUNDLE AND TAG EACH SERIES SEPARATELY.

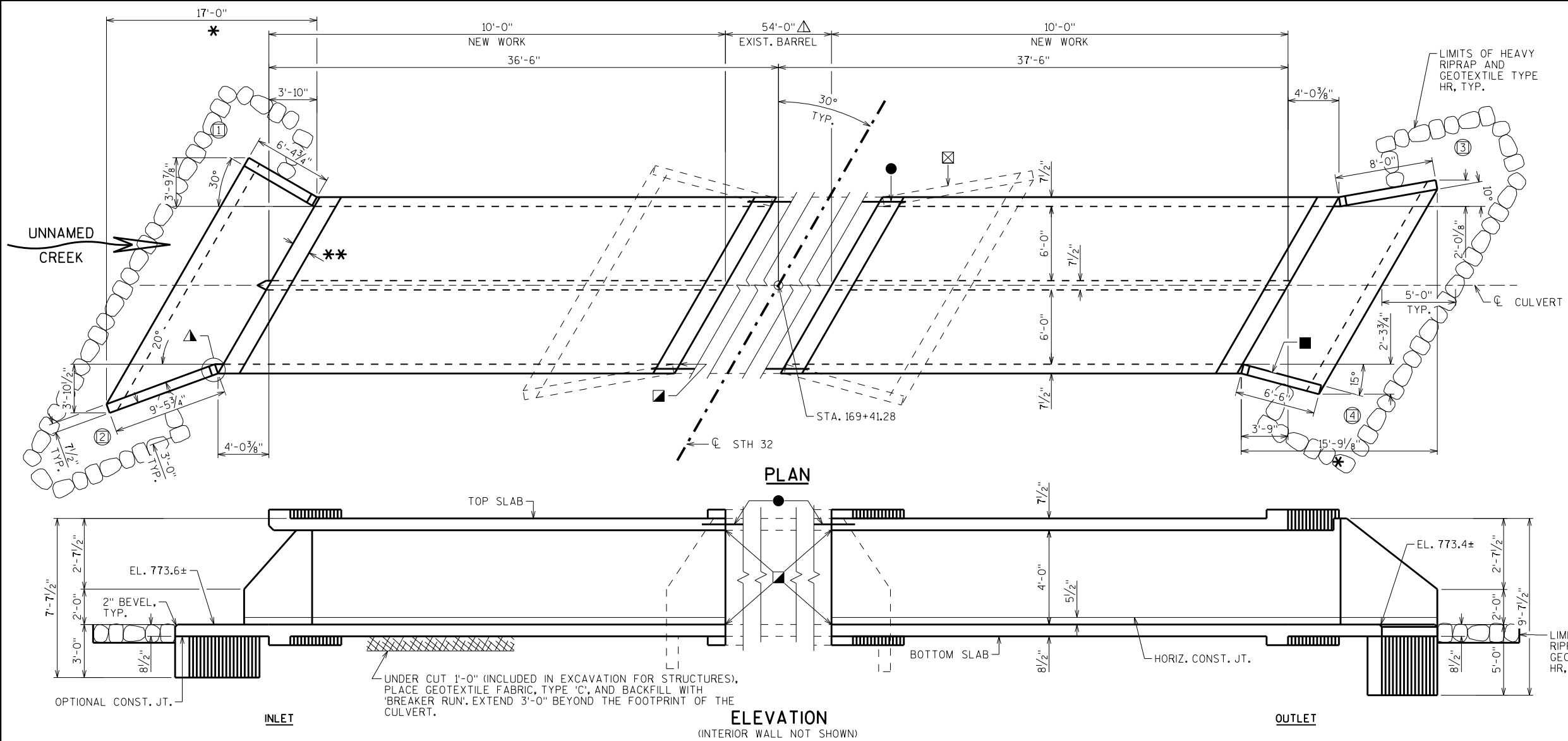
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-229/230			
DRAWN BY		AA	PLANS CK'D. JJS
PIER BARRIER WALL DETAILS		SHEET 2	

- ▲ SEE CORNER DETAILS ON "DETAILS" SHEET
 - NAME PLATE LOCATION (SEE "DETAILS" SHEET)
 - * BUILD APRON AND END OF BOX LEVEL
 - INDICATES WING NUMBER
 - △ EXIST. BARREL TO REMAIN IN PLACE
 - ▣ INSIDE WALLS TO MATCH EXISTING (TYP.)
 - ☒ REMOVE EXISTING APRON AND WINGS. EXTEND BAR STEEL REINFORCEMENT IN BOTTOM SLAB 2'-0" INTO NEW WORK. (TYP. BOTH SIDES)
 - ADHESIVE ANCHORS NO. 5 BARS, EMBED 6" INTO SOUND CONCRETE AND SPACE AT 1'-0" CENTERS. (TYP. IN ALL WALLS AND BOTTOM SLAB)
- NOTE: STRUCTURE BACKFILL REQUIRED BEHIND ALL WING WALLS.

- LIST OF DRAWINGS**
1. LAYOUT
 2. STAGING
 - 3.
 - 4.
 - 5.

STRUCTURE DESIGN CONTACTS:
STEVE DOOCY (608) 261-6063
AARON BONK (608) 261-0261

NO.	DATE	REVISION	BY
 BUREAU OF STRUCTURES			
ACCEPTED _____ CHIEF STRUCTURES DESIGN ENGINEER DATE _____			
STRUCTURE C-5-032			
STH 32 OVER UNNAMED CREEK			
COUNTY	BROWN	TOWN	PITTSFIELD
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	DESIGNED CK'D.	DRAWN BY	PLANS CK'D.
SAD	XYZ	SAD	XYZ
LAYOUT			SHEET 1 OF 2



DESIGN DATA

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

EARTHLOAD:
DESIGNED FOR 0 TO 1.9 FT. OF FILL.

MATERIAL PROPERTIES:
CONCRETE MASONRY: $f'_c = 3,500$ P.S.I.
BAR STEEL REINFORCEMENT: $f_y = 60,000$ P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY
 $Q_{100} = 300$ C.F.S.
 $VEL_{100} = 9.3$ F.P.S.
 $HW_{100} = EL. 778.2$
WATERWAY AREA = 48 SQ. FT.
DRAINAGE AREA = 12.6 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

TRAFFIC VOLUME

STH 32
ADT = 11,000 (2041)
R.D.S. = 60 M.P.H.

2 YEAR FREQUENCY

$Q_2 = 80$ C.F.S.
 $VEL_2 = 3.6$ F.P.S.
 $HW_2 = EL. 775.6$

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0200	REMOVING OLD STRUCTURE STA. 169+21	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS C-5-032	LS	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	
311.0110	BREAKER RUN	TON	
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	
504.0100	CONCRETE MASONRY CULVERTS	CY	
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	
606.0300	RIPRAP HEAVY	CY	
645.0105	GEOTEXTILE TYPE C	SY	
645.0120	GEOTEXTILE TYPE HR	SY	
	NON-BID ITEMS		
	FILLER	EACH	3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-5-032" SHALL BE THE EXISTING GROUNDLINE.

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

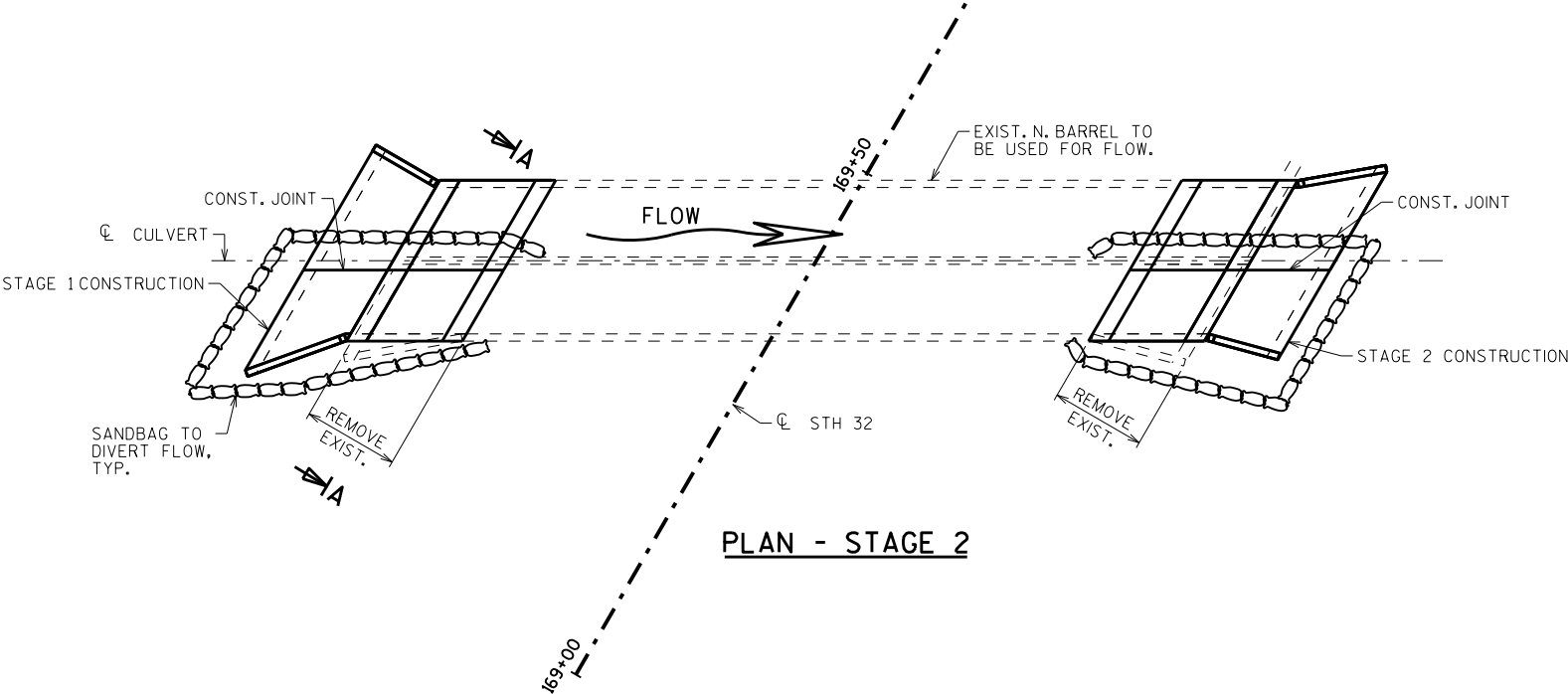
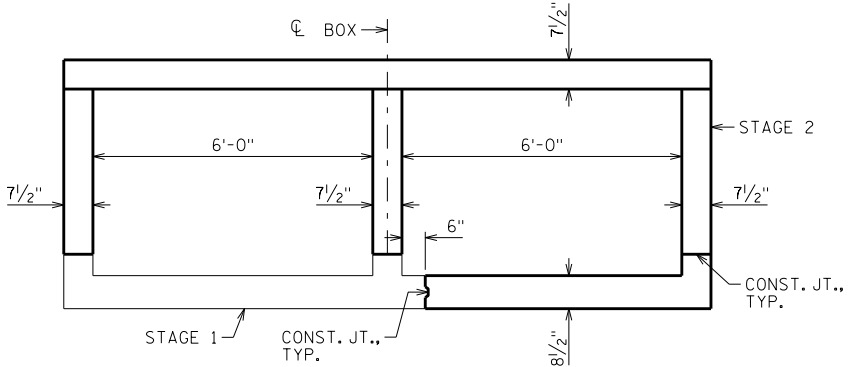
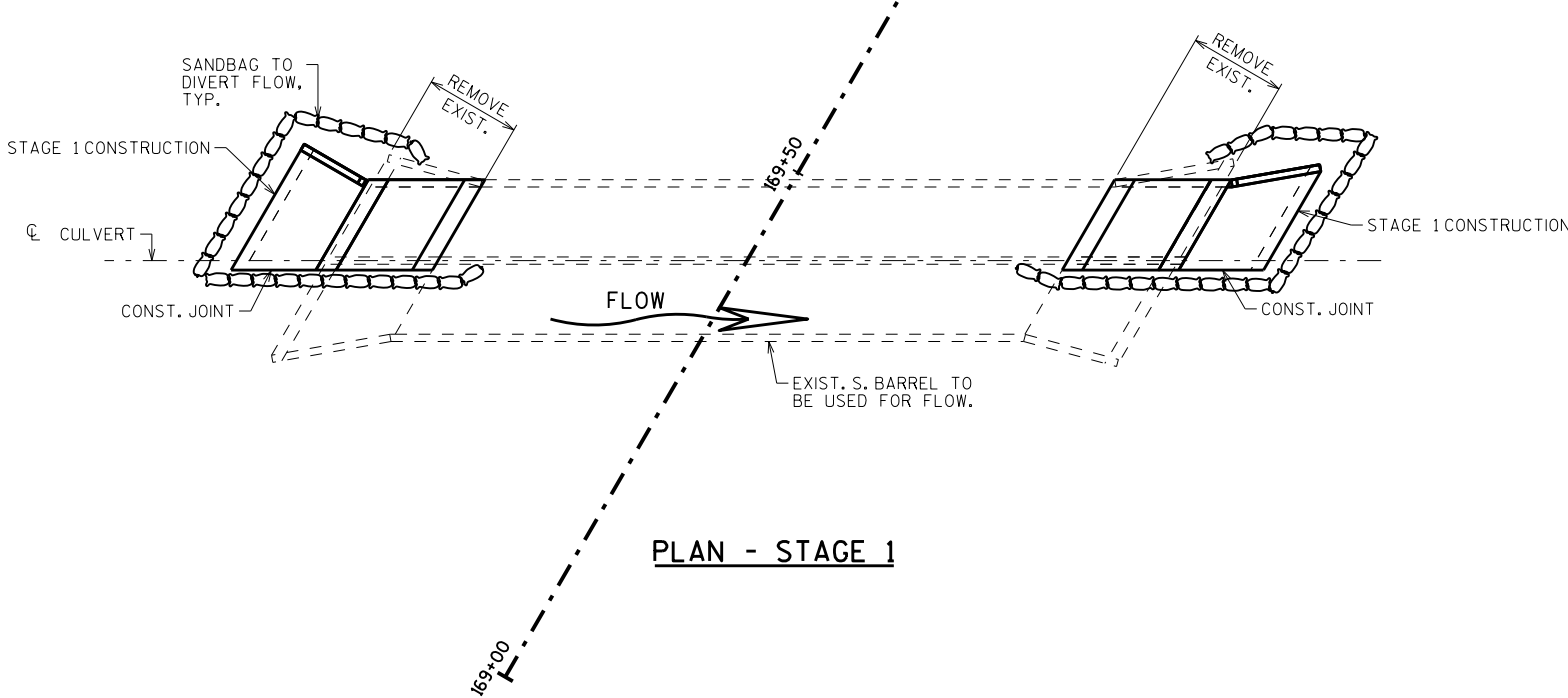
THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

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

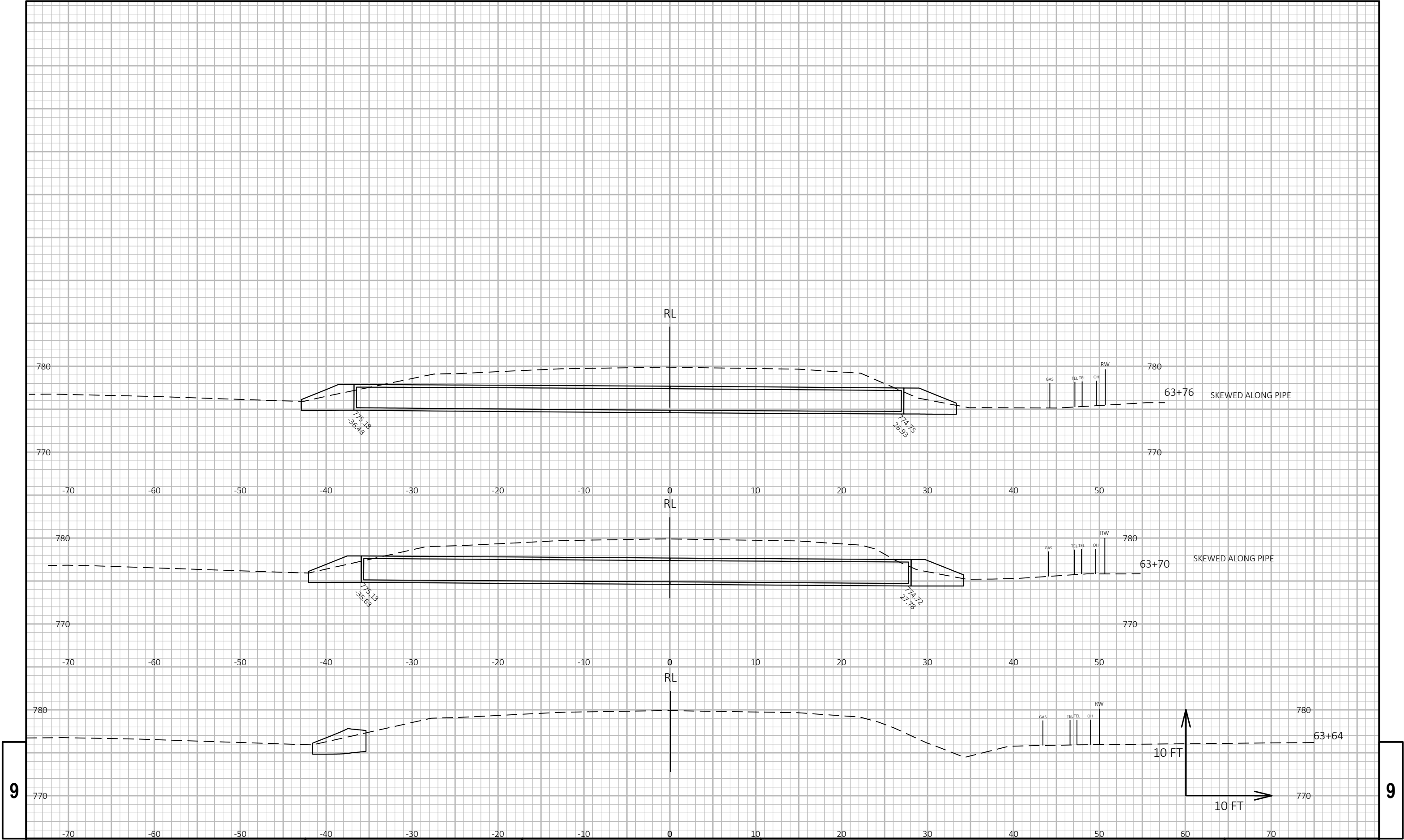
PLACE 18" (MIN.) WIDE SHEET OF "RUBBERIZED MEMBRANE WATERPROOFING" ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO BOTTOM OF OUTSIDE WALLS.

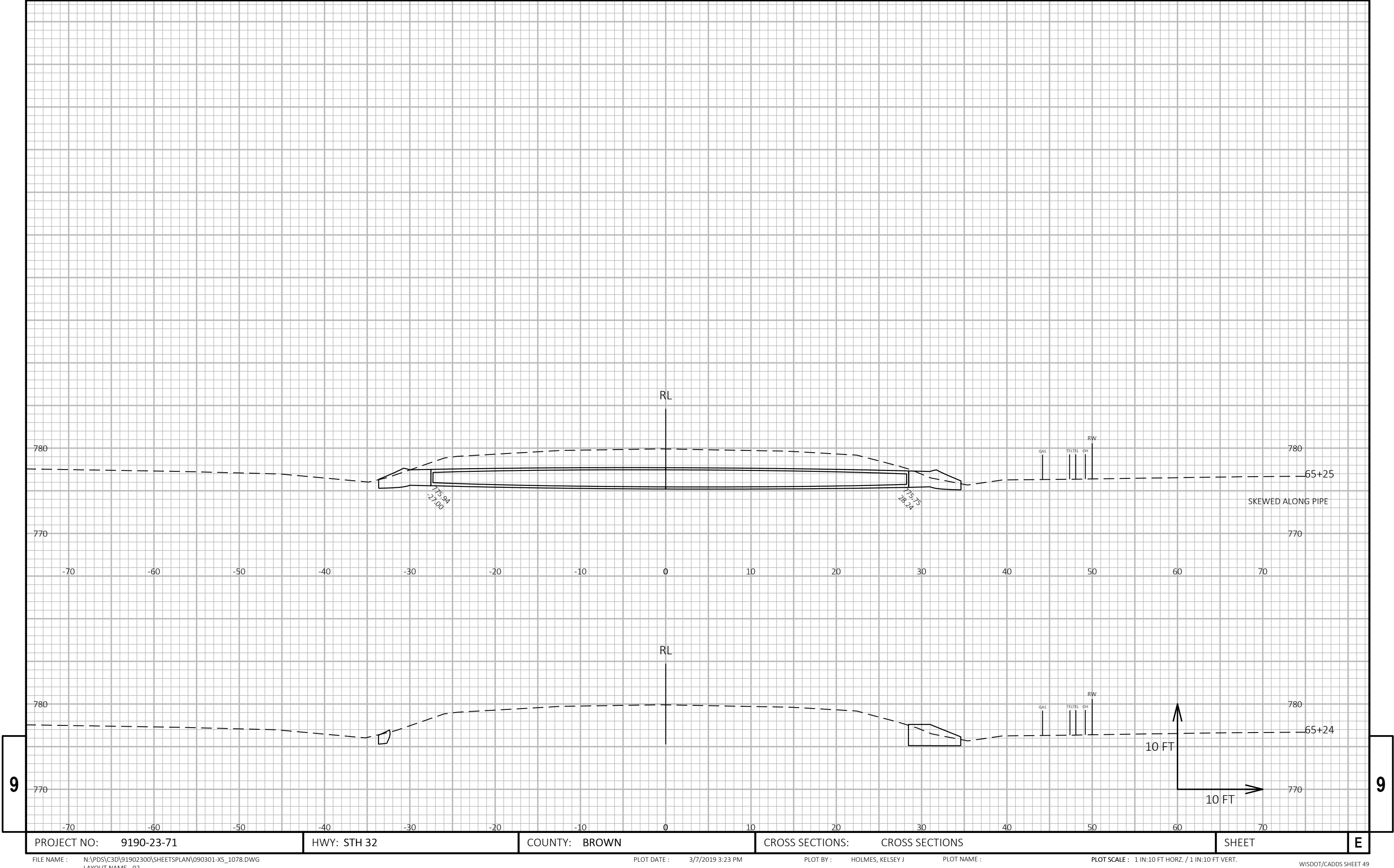
THE CONTRACTOR MAY ELECT TO SUBSTITUTE #10R #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE FIELD ENGINEER, IN LIEU OF THE BREAKER RUN, TO BE UTILIZED AS A CONSTRUCTION PLATFORM FOR THE BOX. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL.

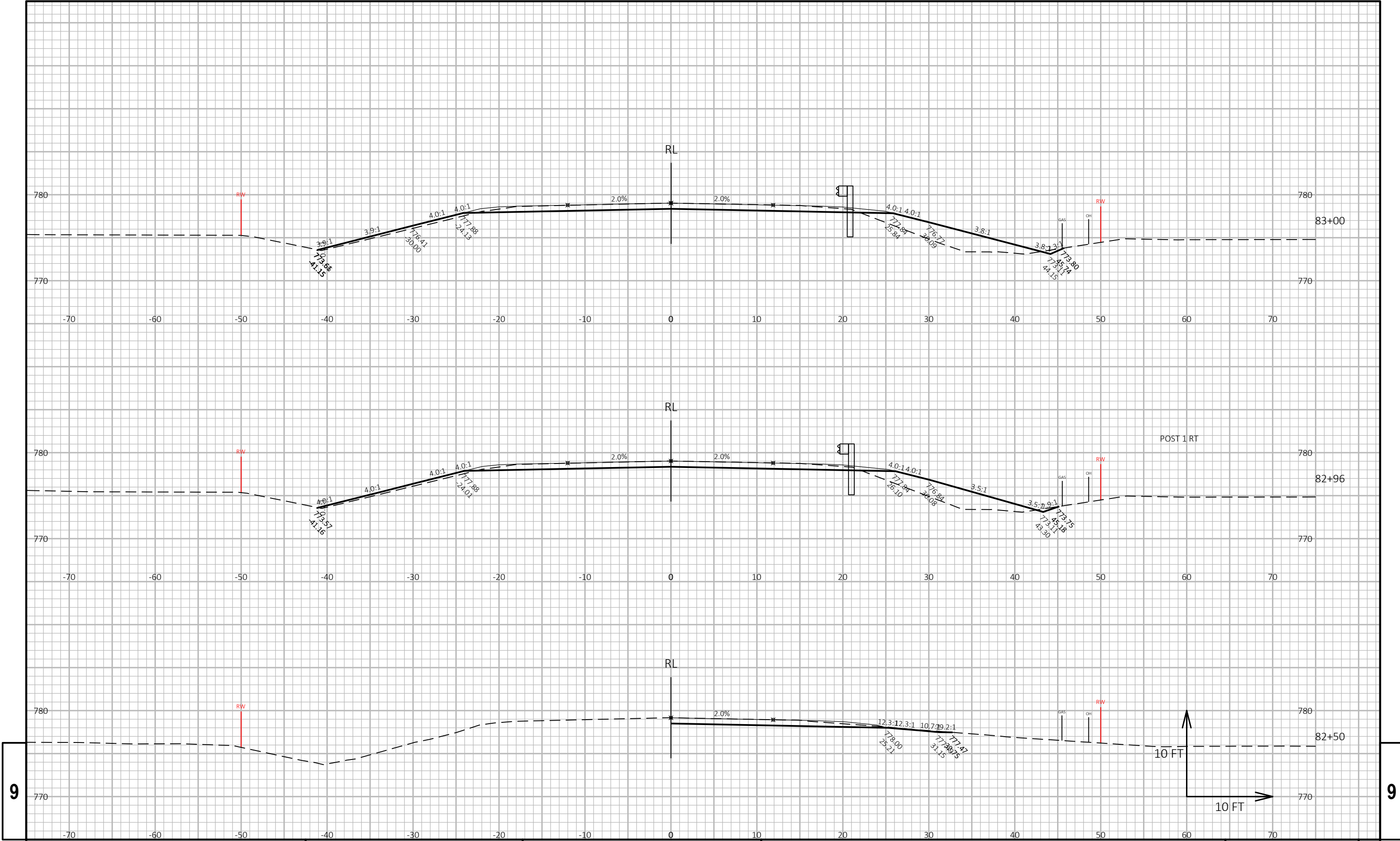
PRELIMINARY PLAN

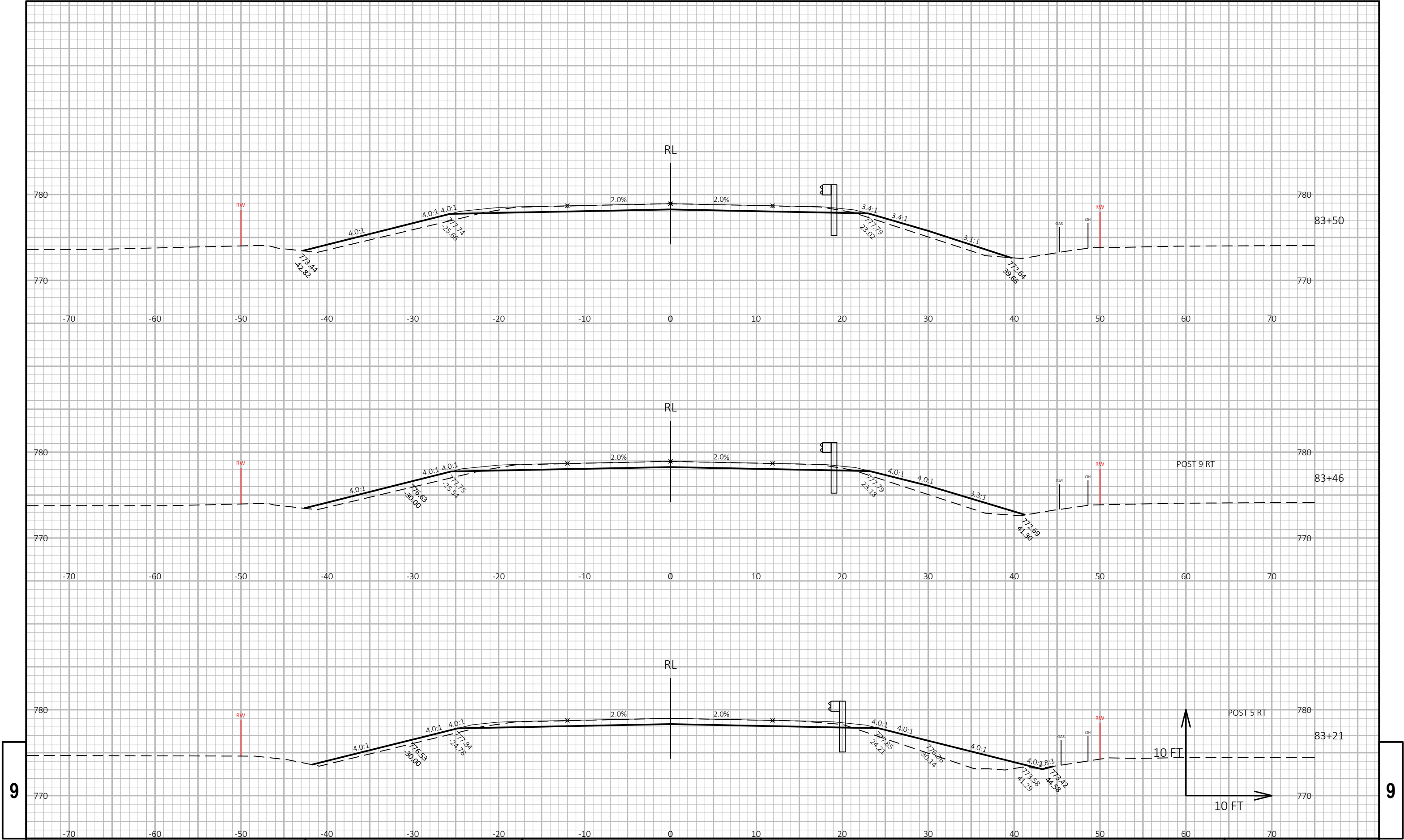


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-5-032			
DRAWN BY		SAD	PLANS CK'D.
STAGING		SHEET 2	



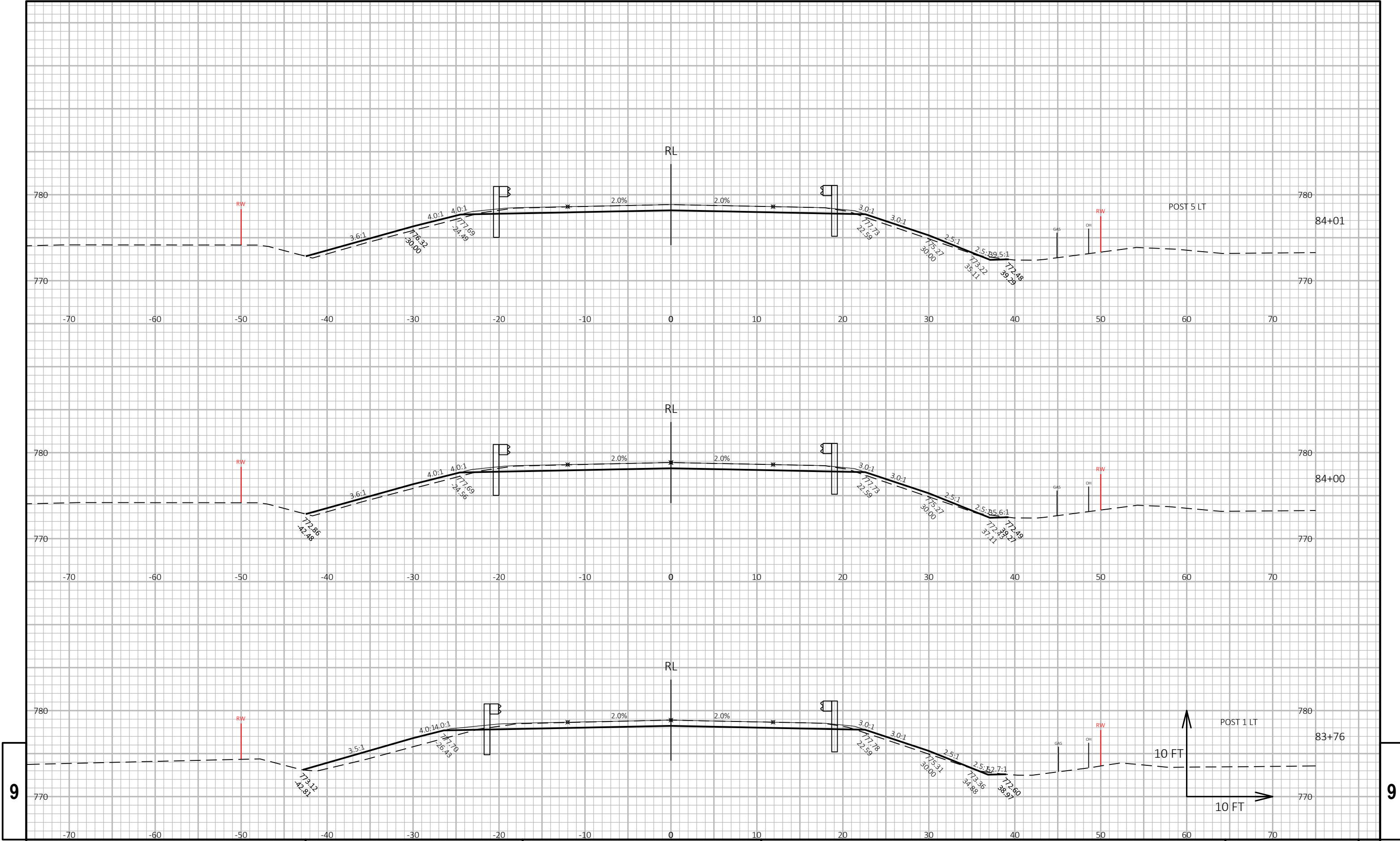






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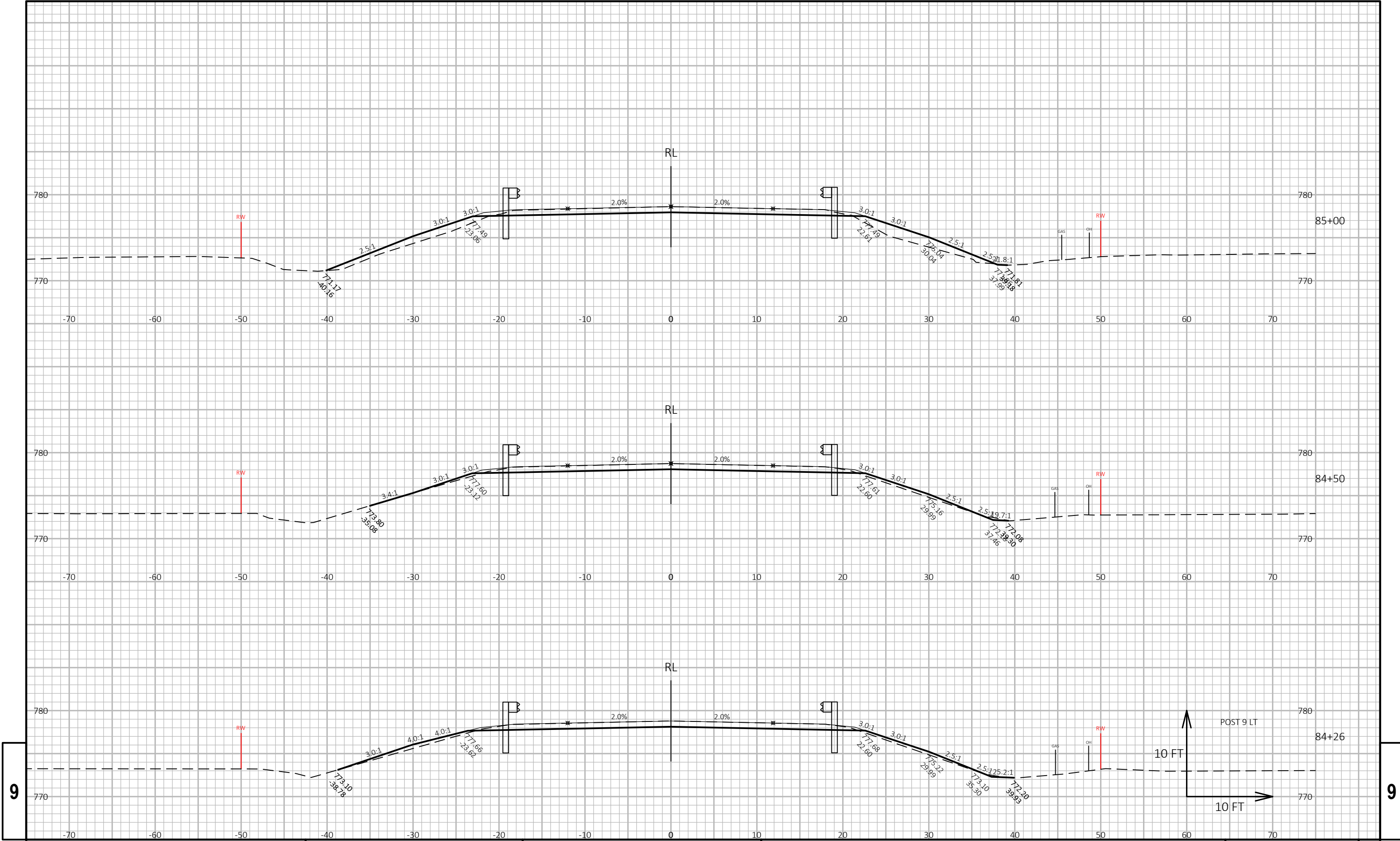
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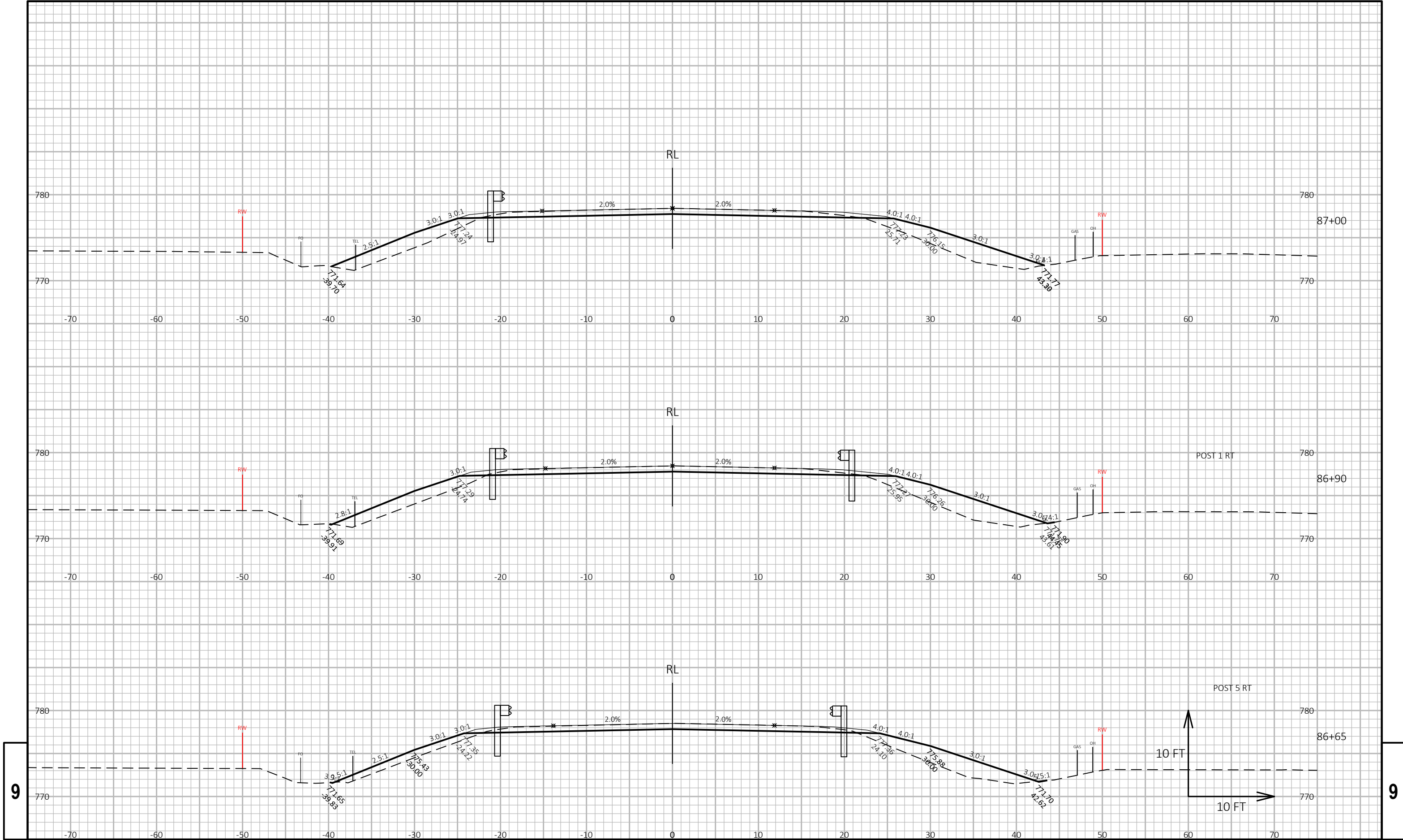
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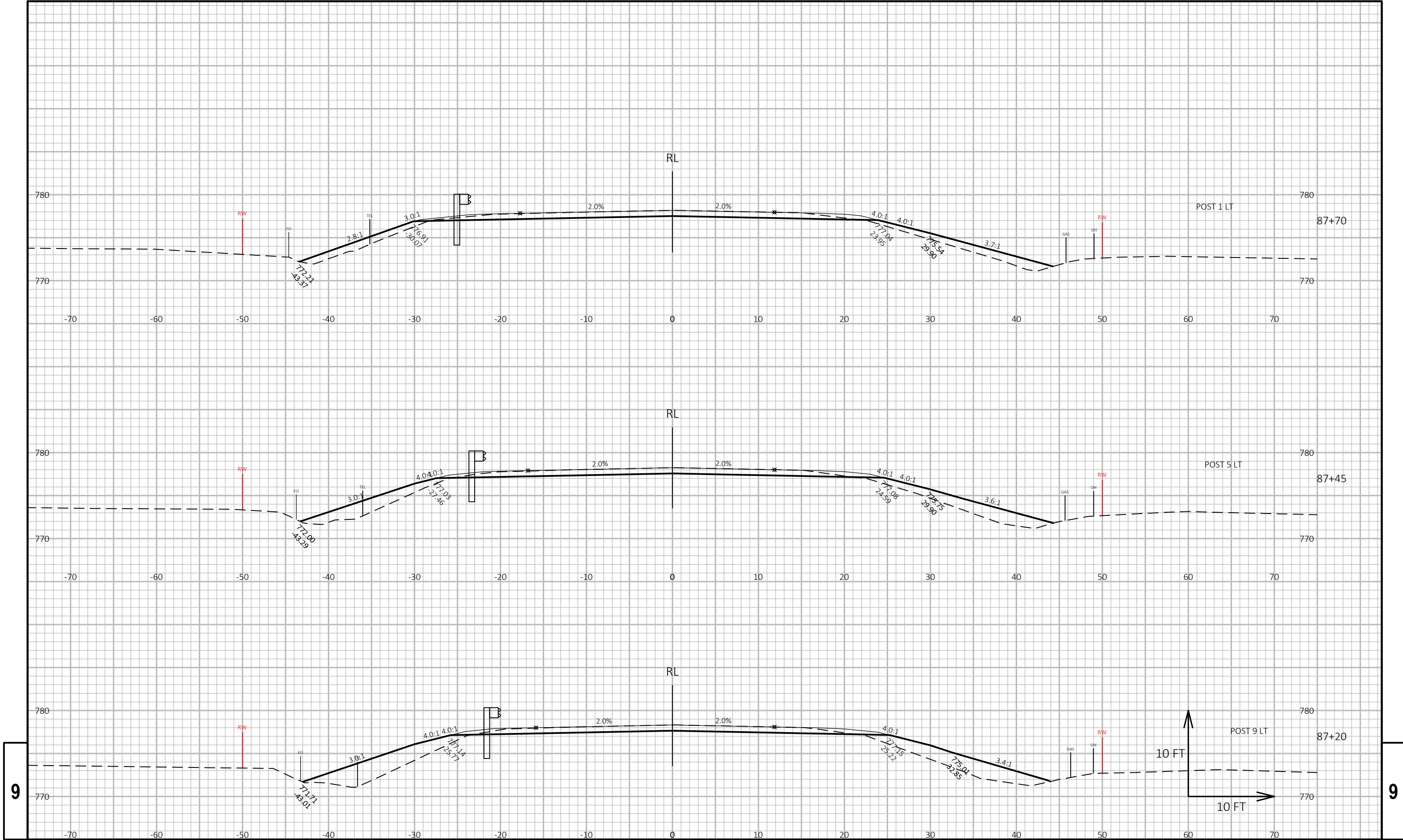
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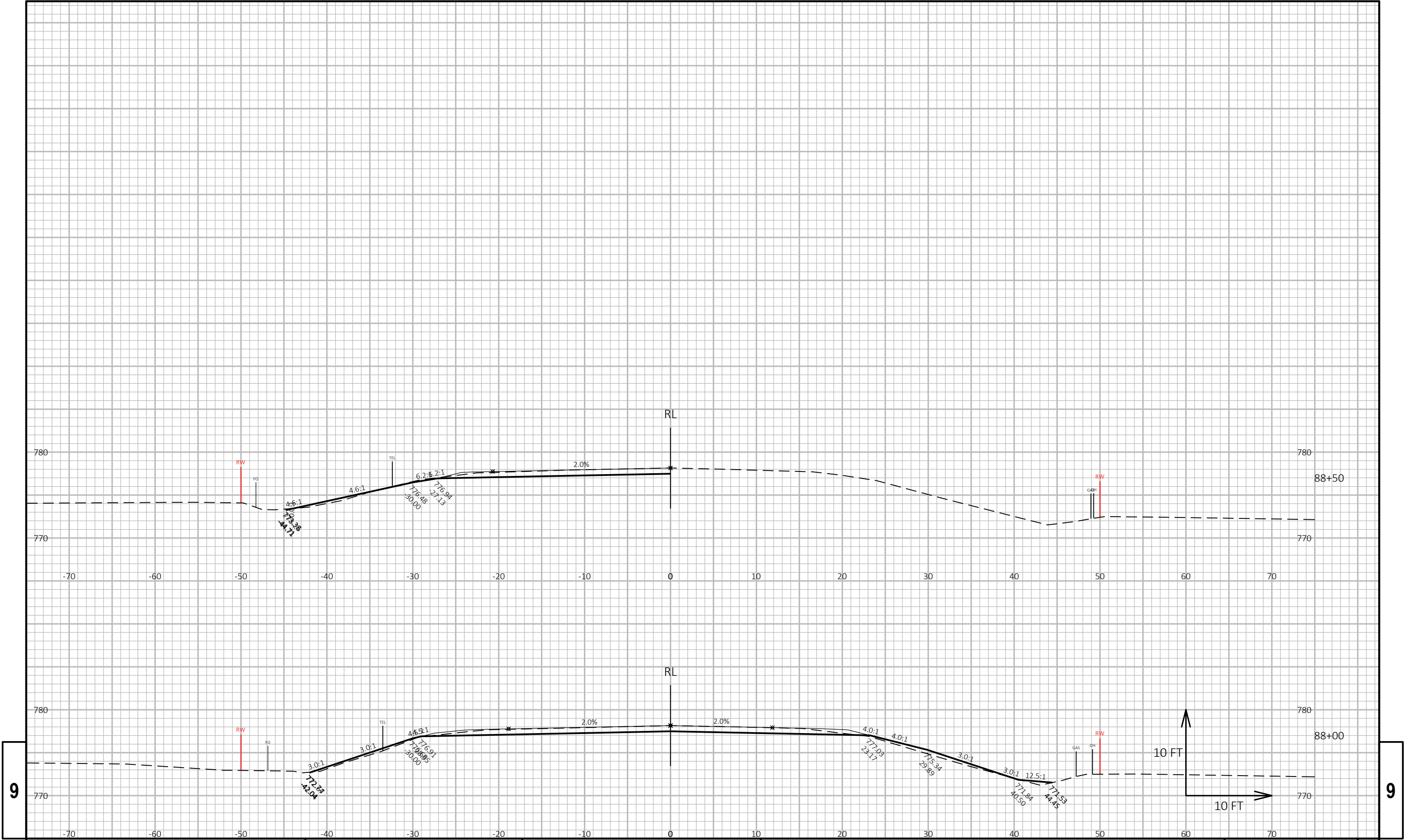


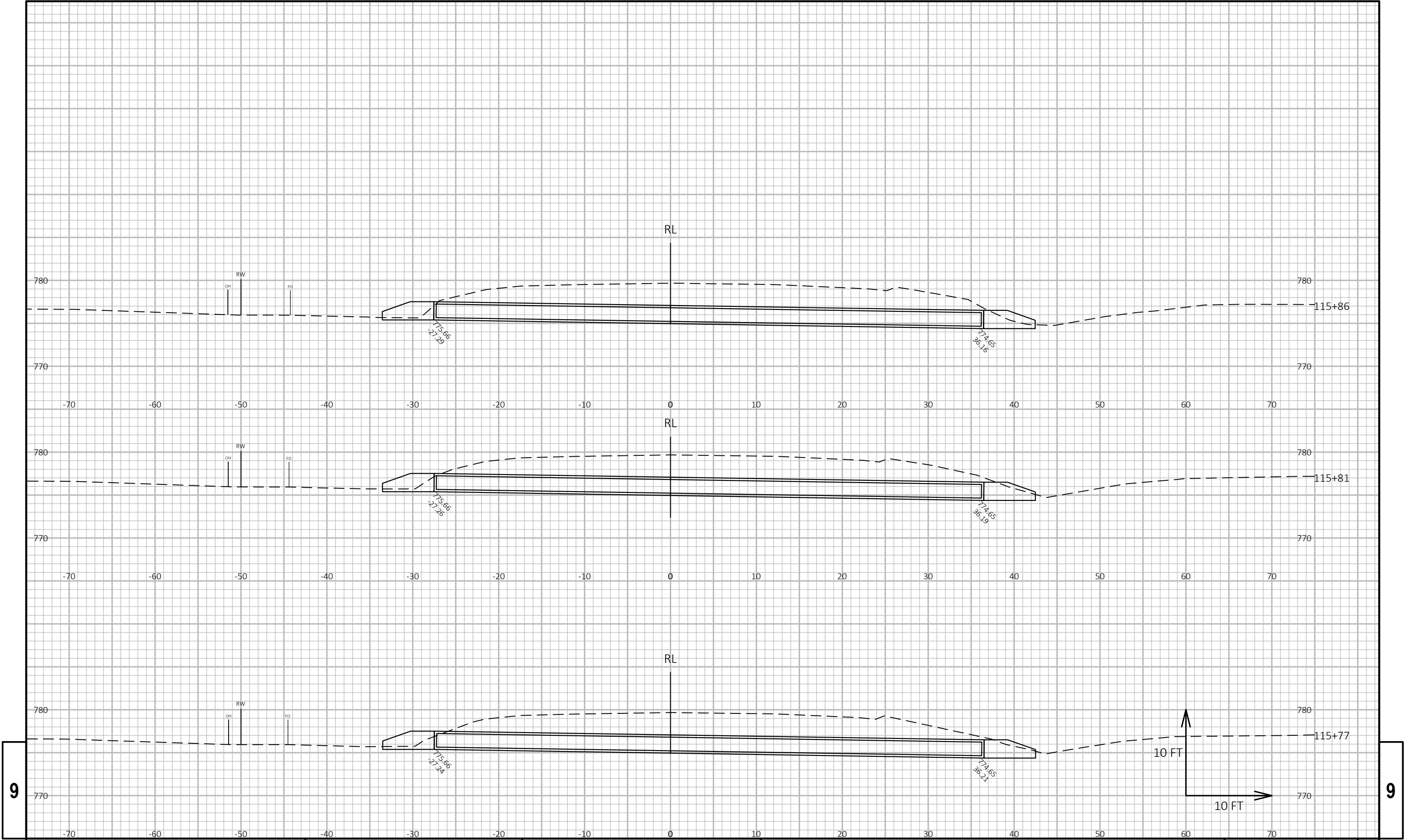
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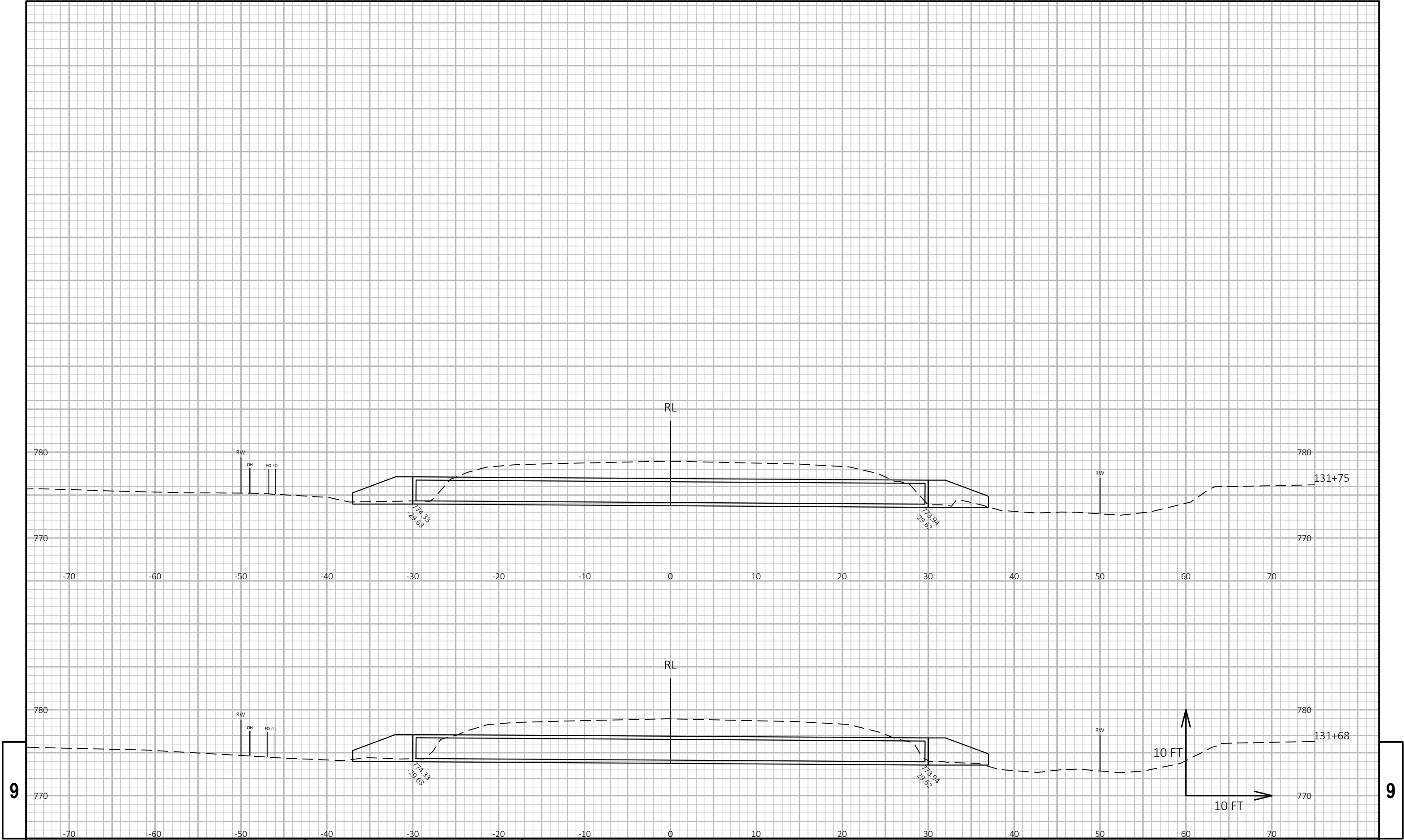


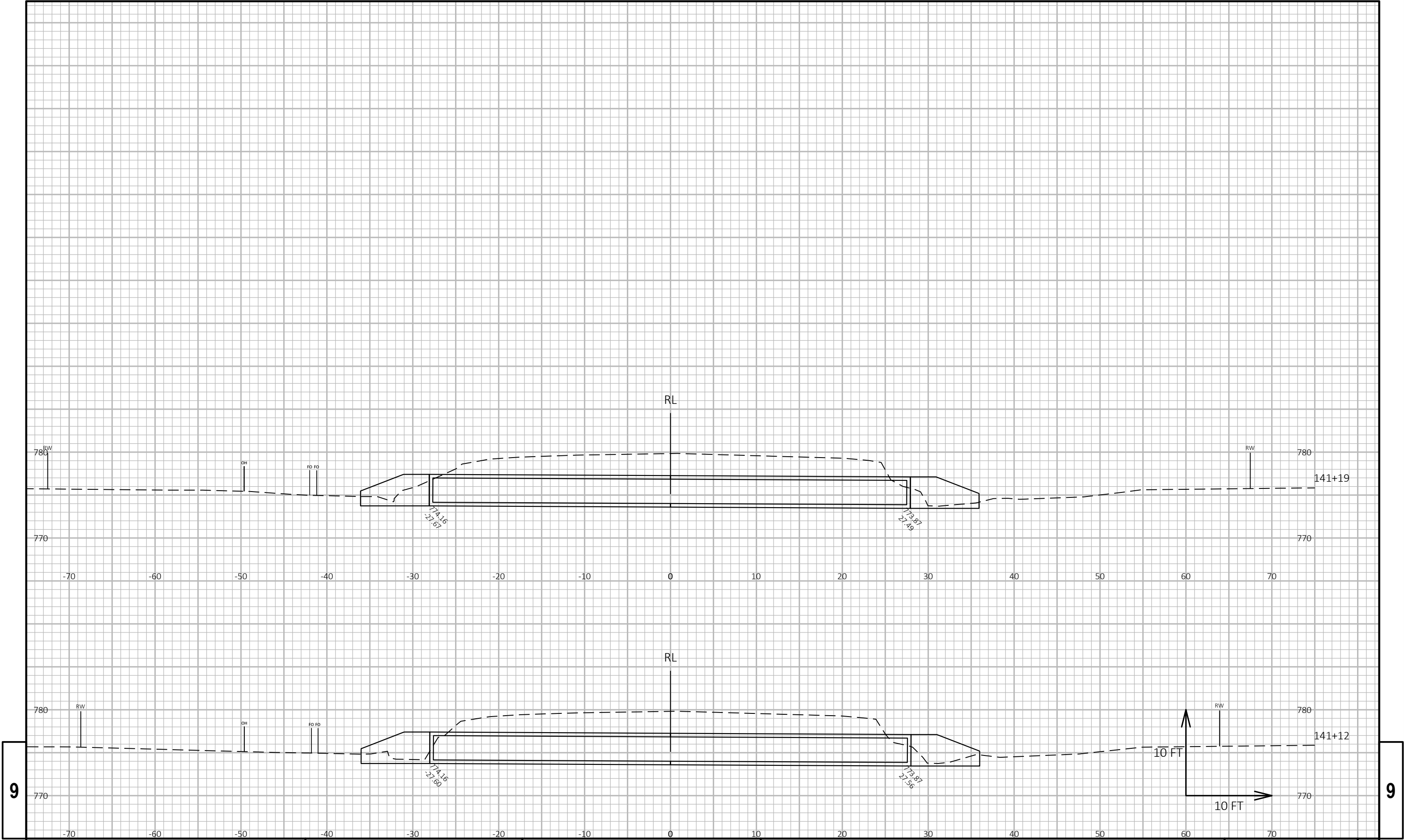




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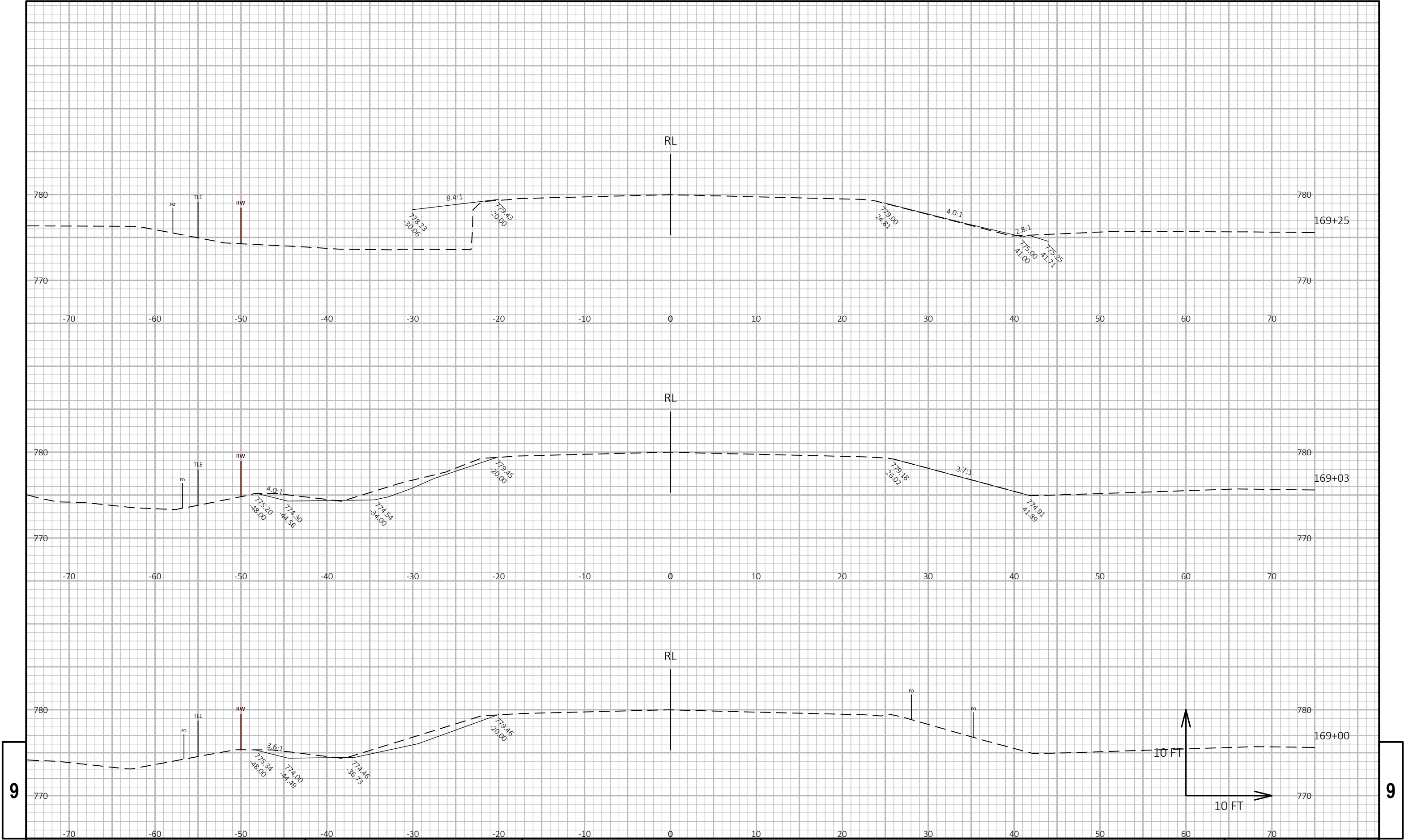




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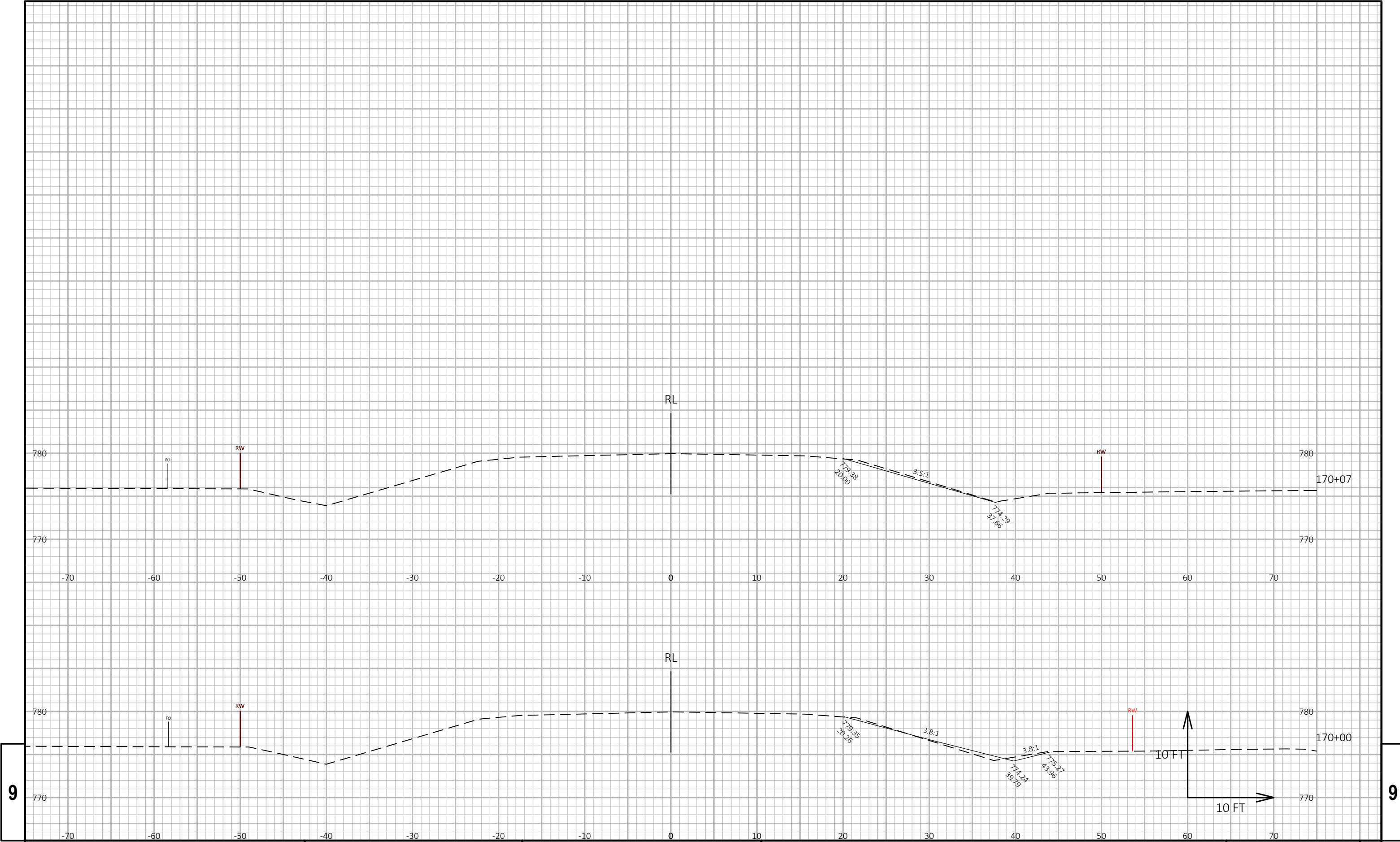
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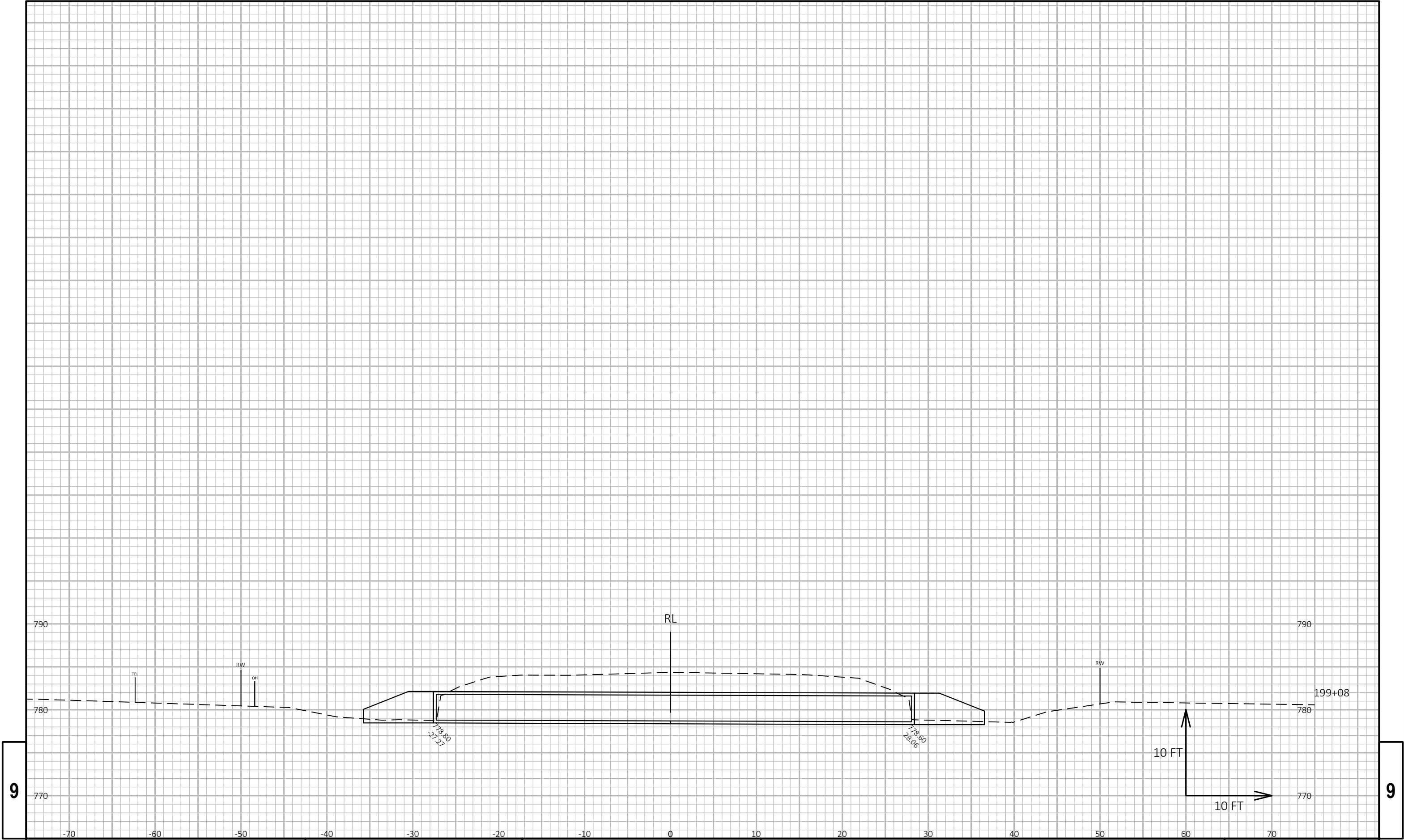
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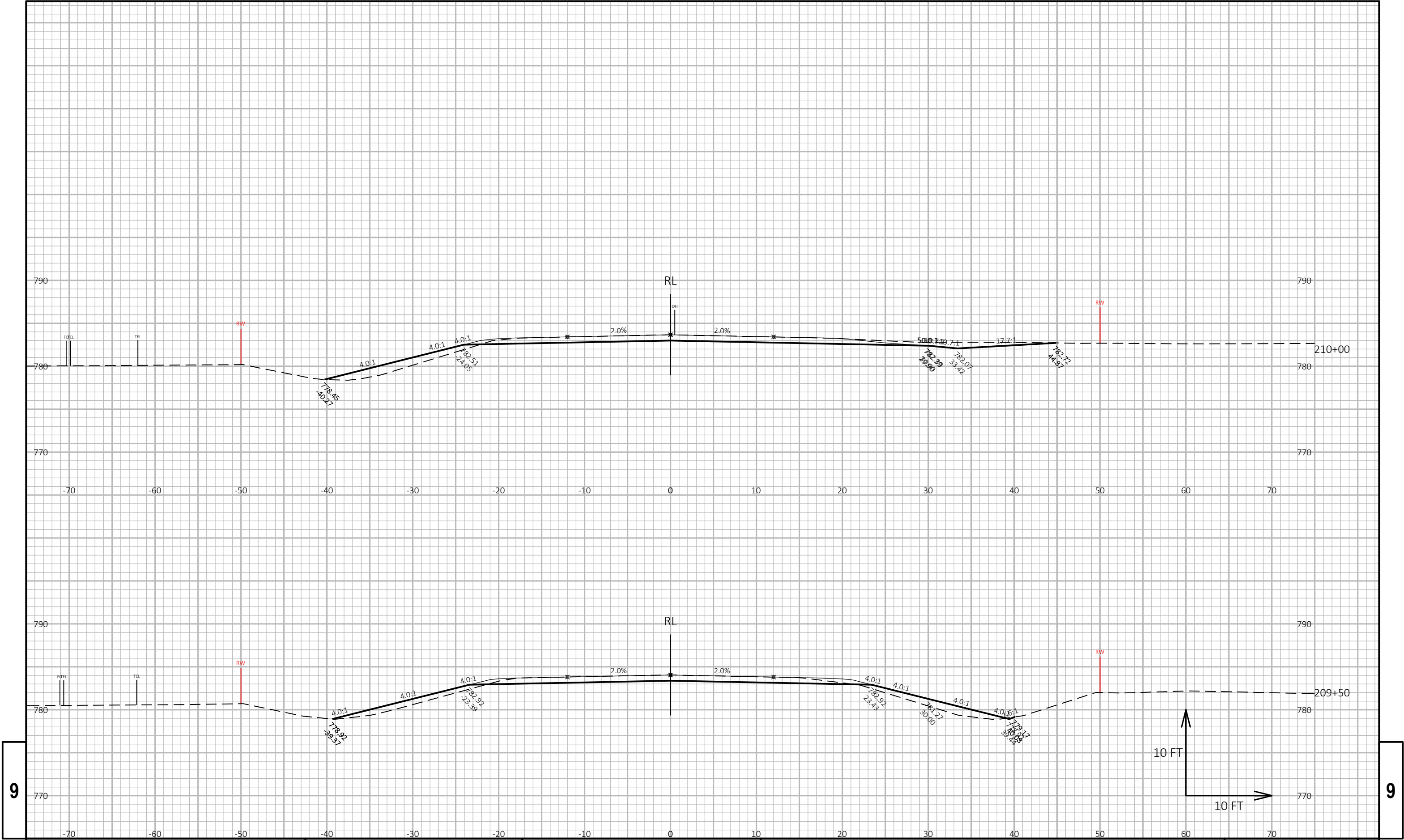


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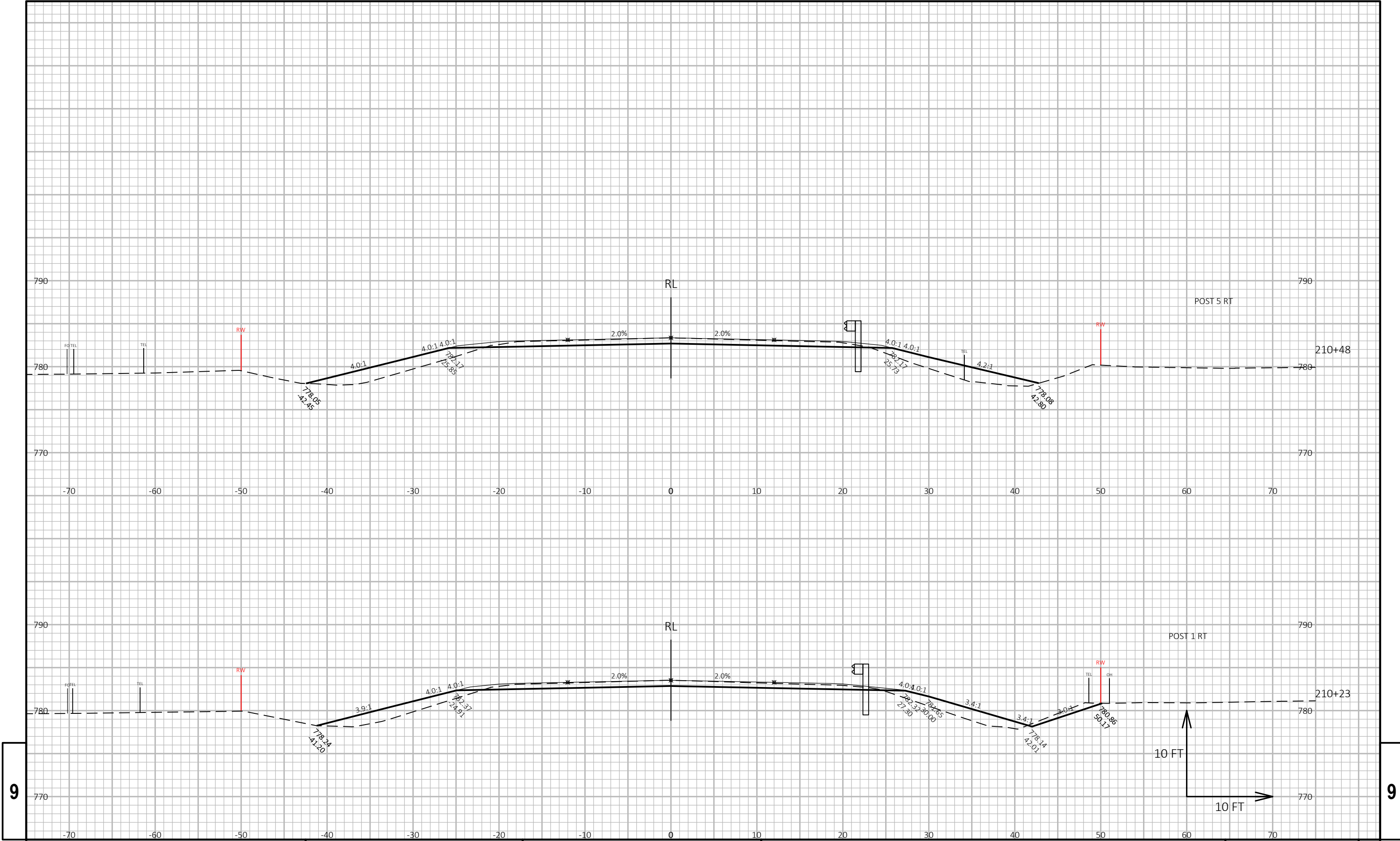






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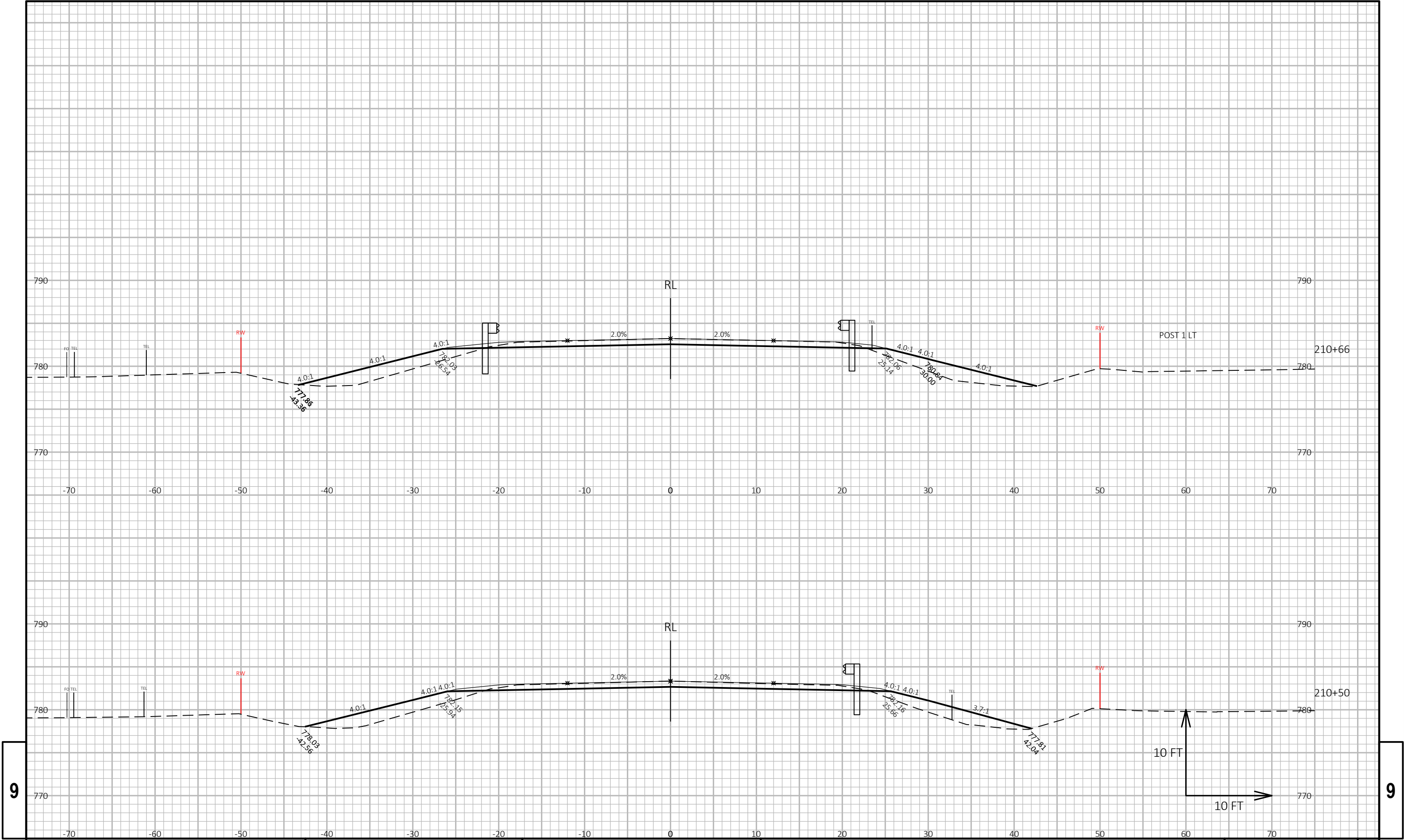
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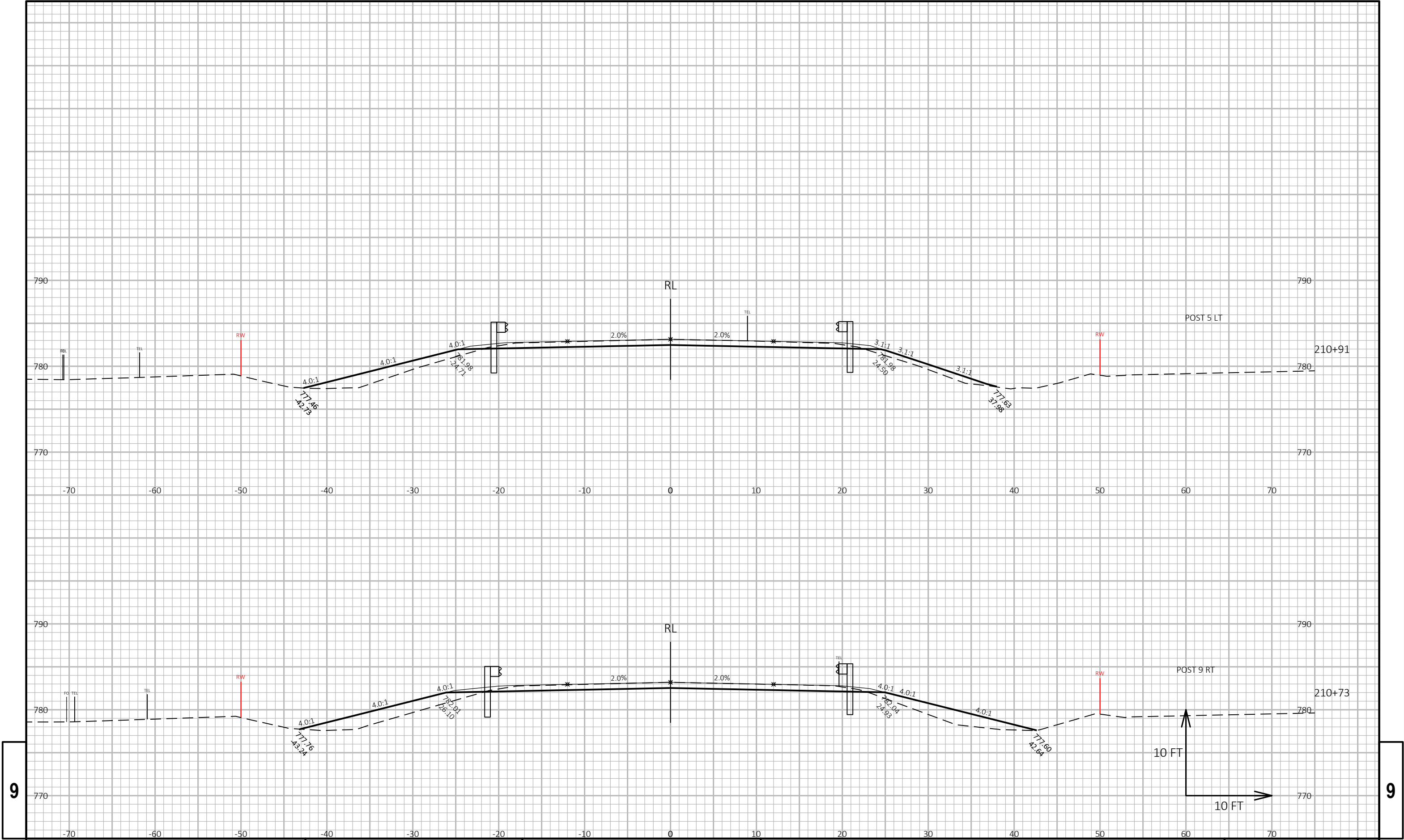
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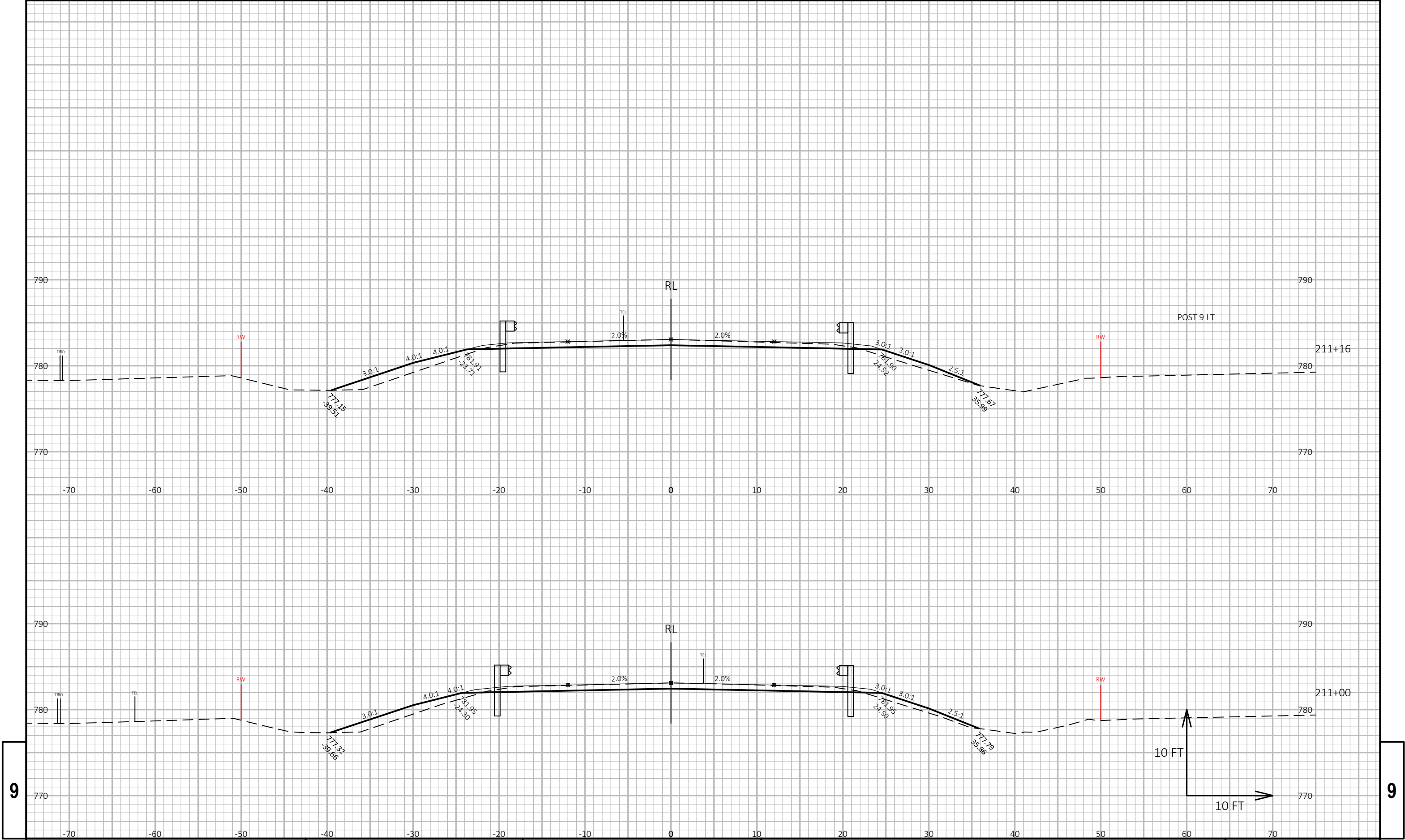
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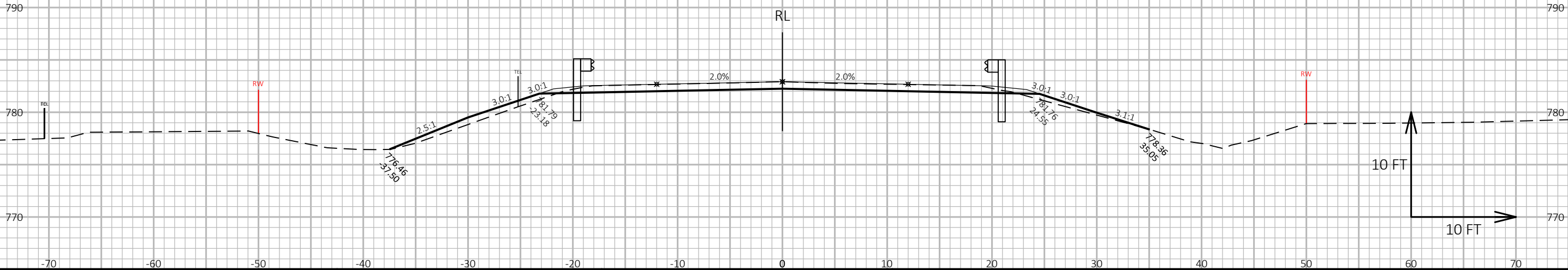
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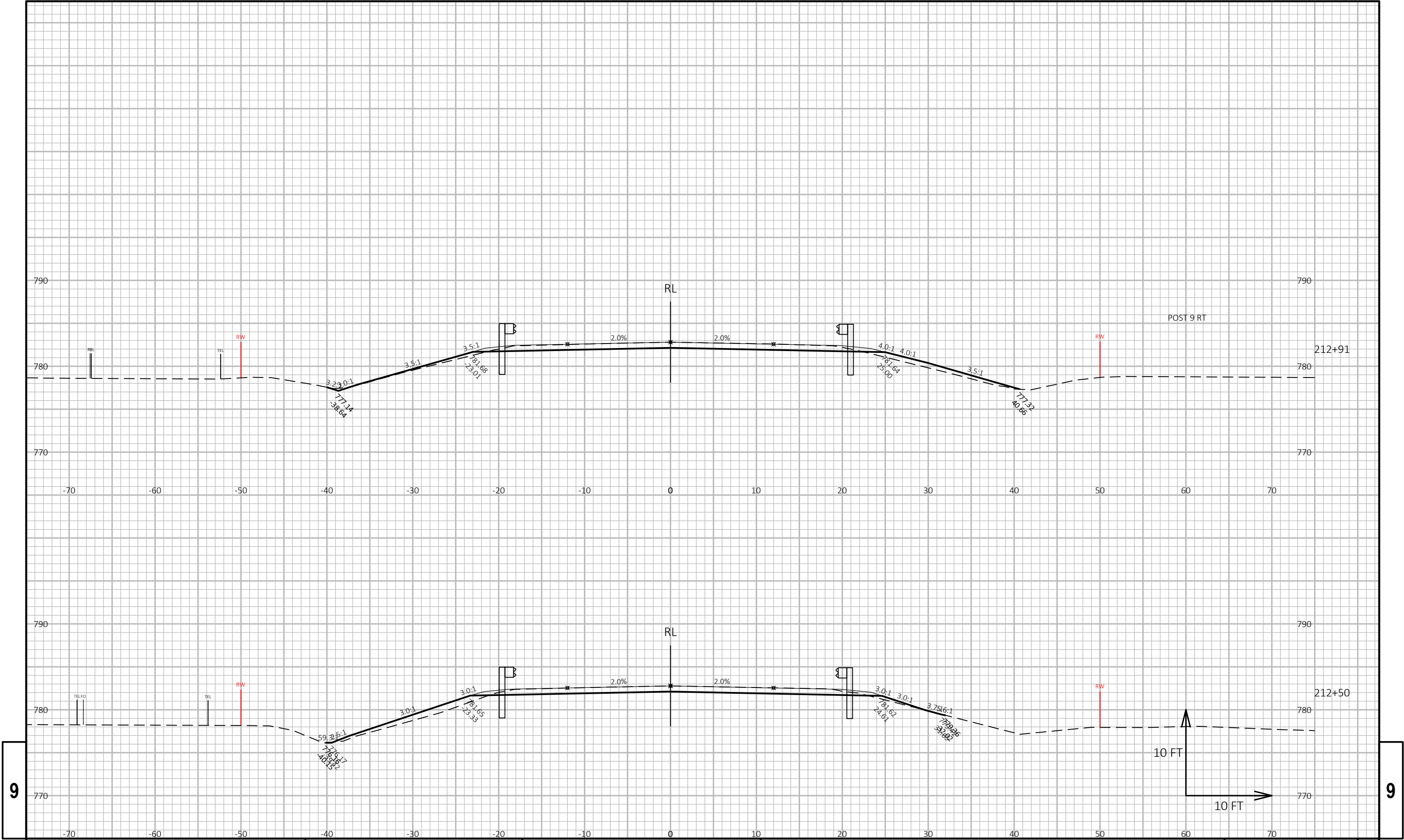
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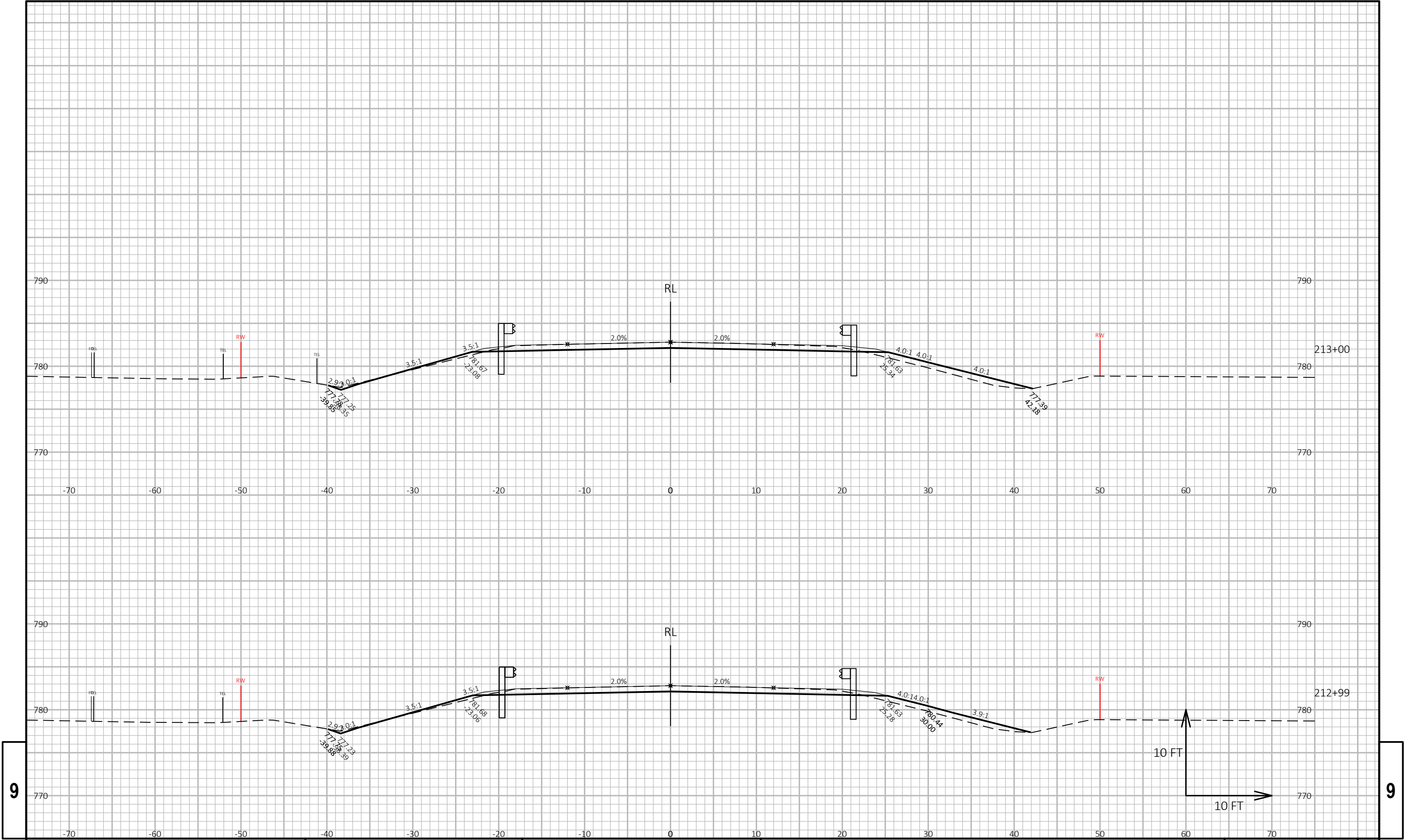


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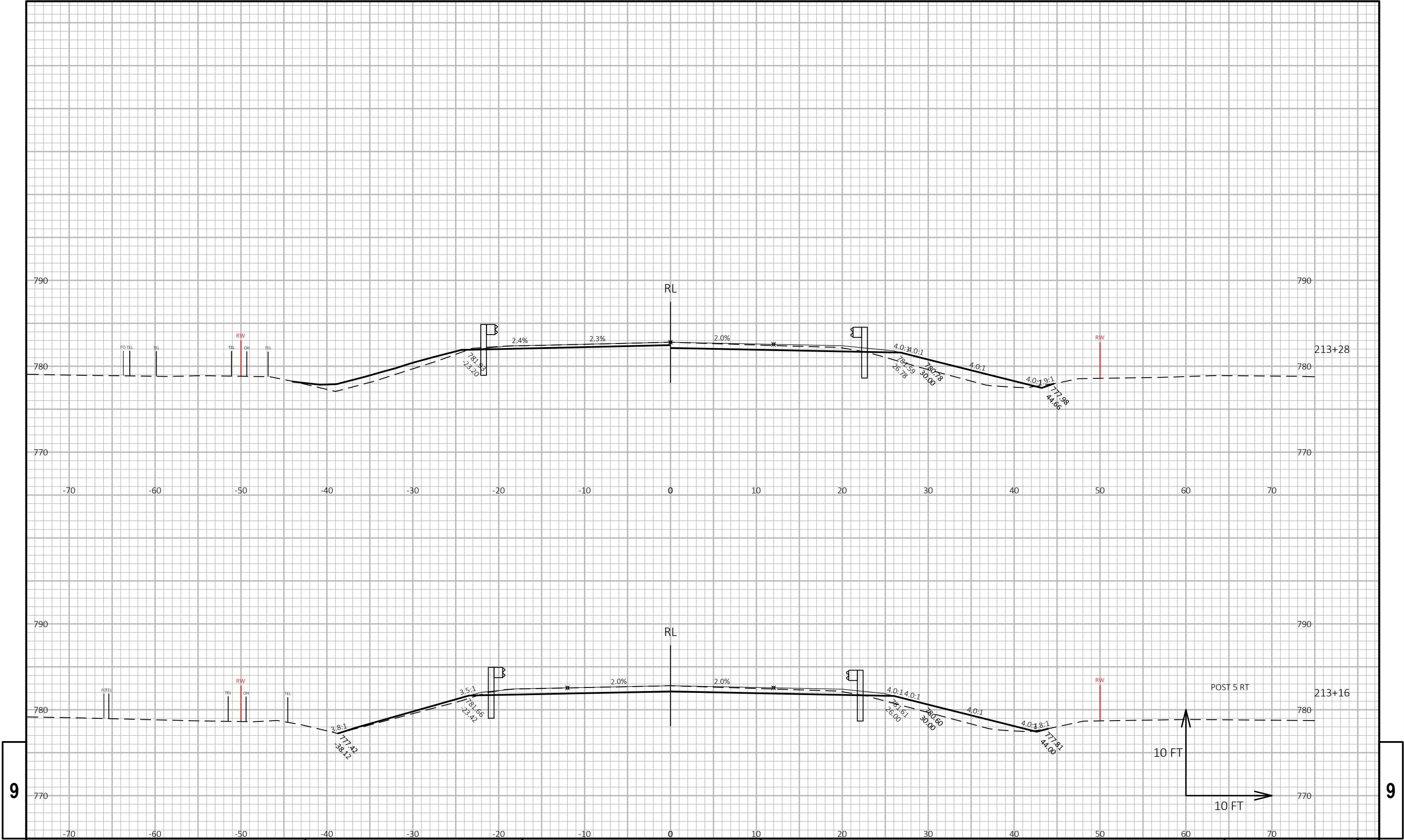
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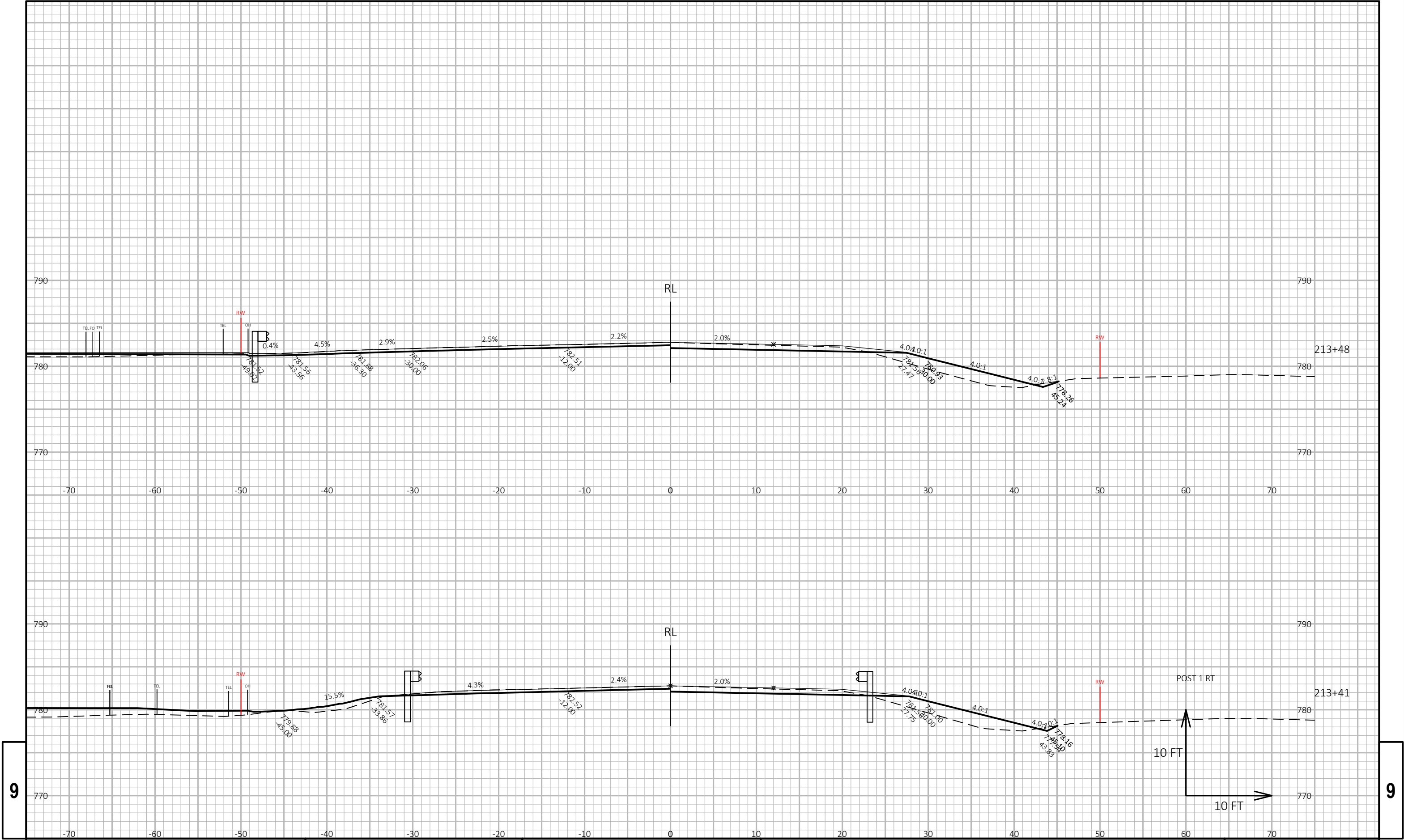
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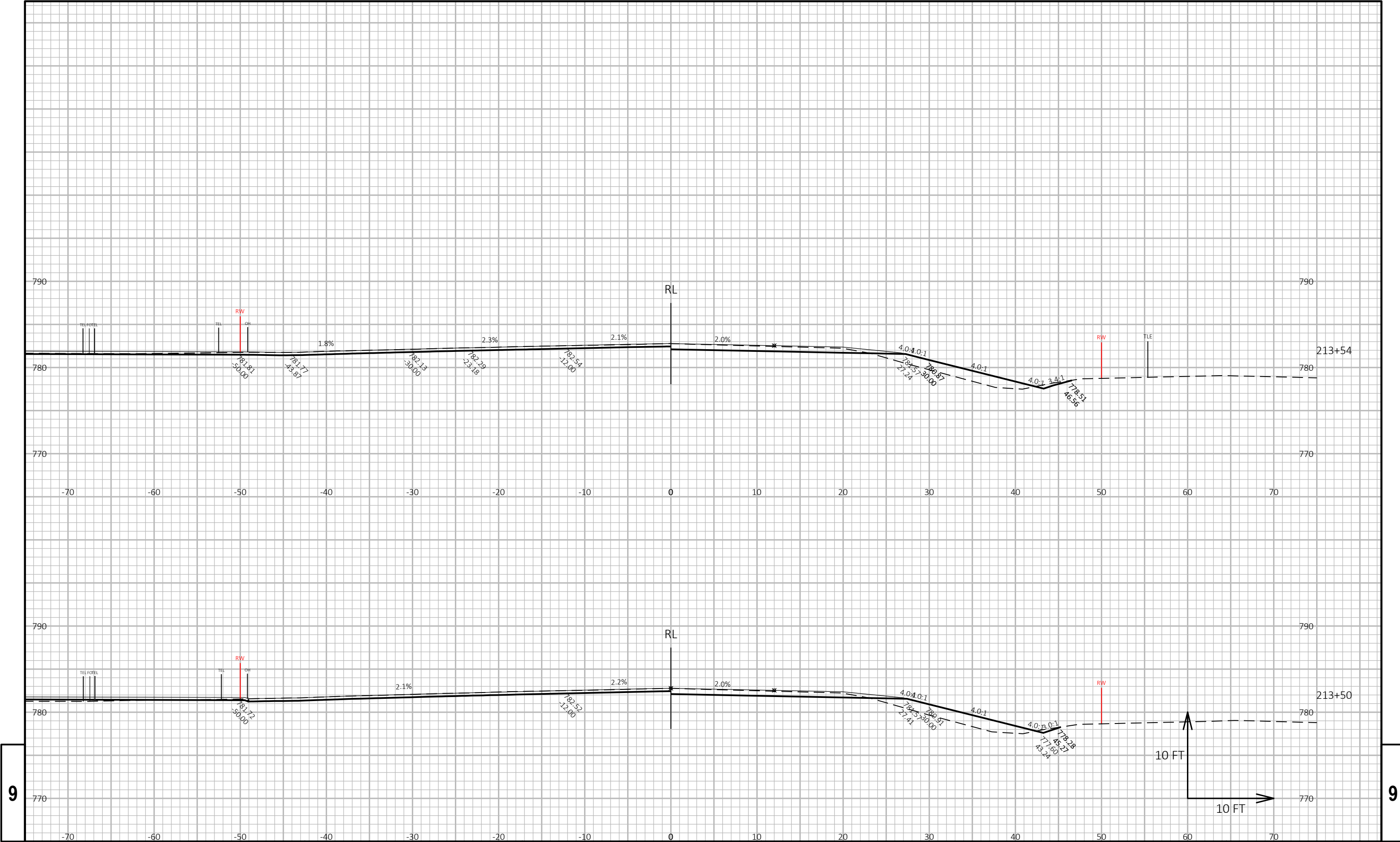
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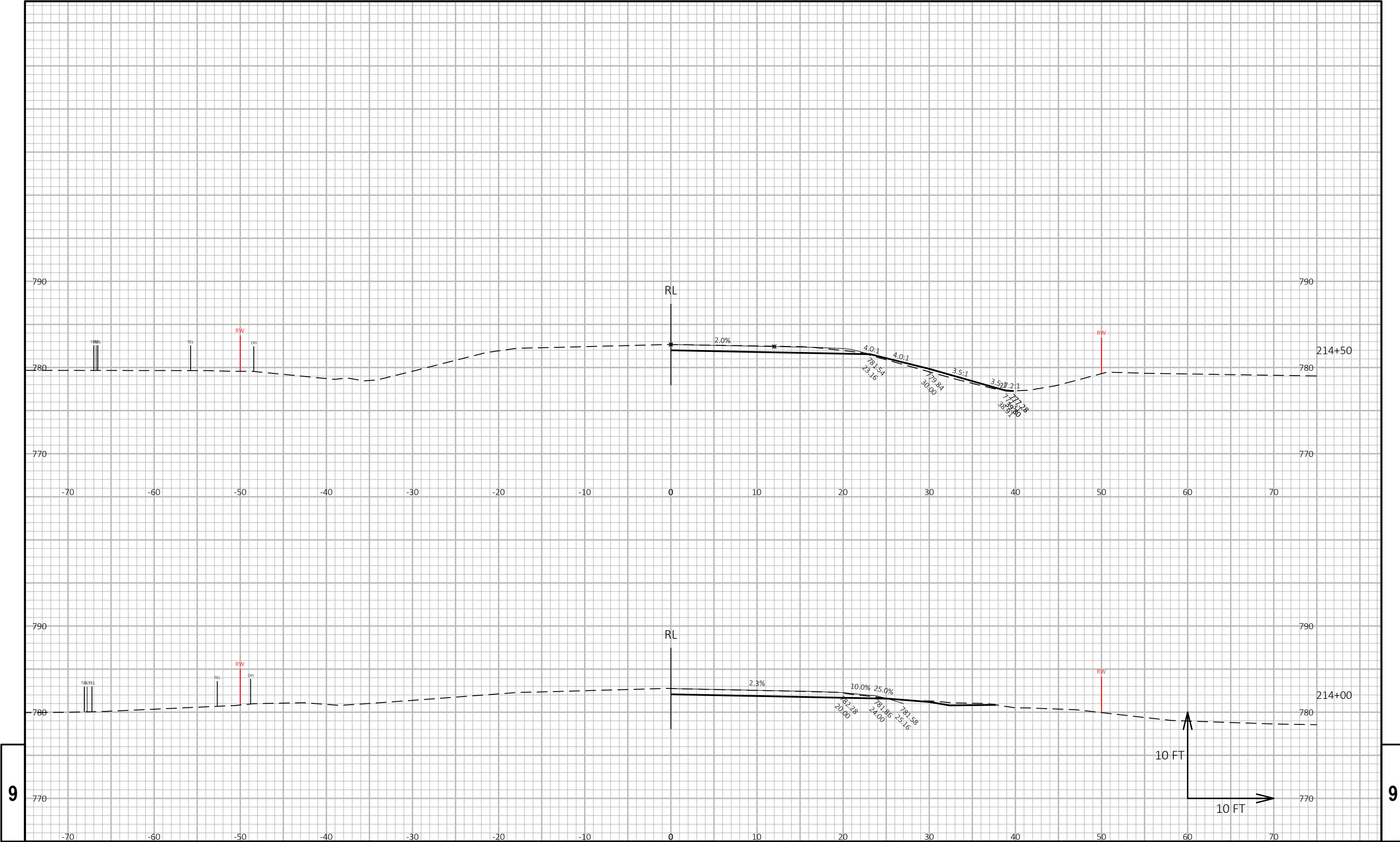


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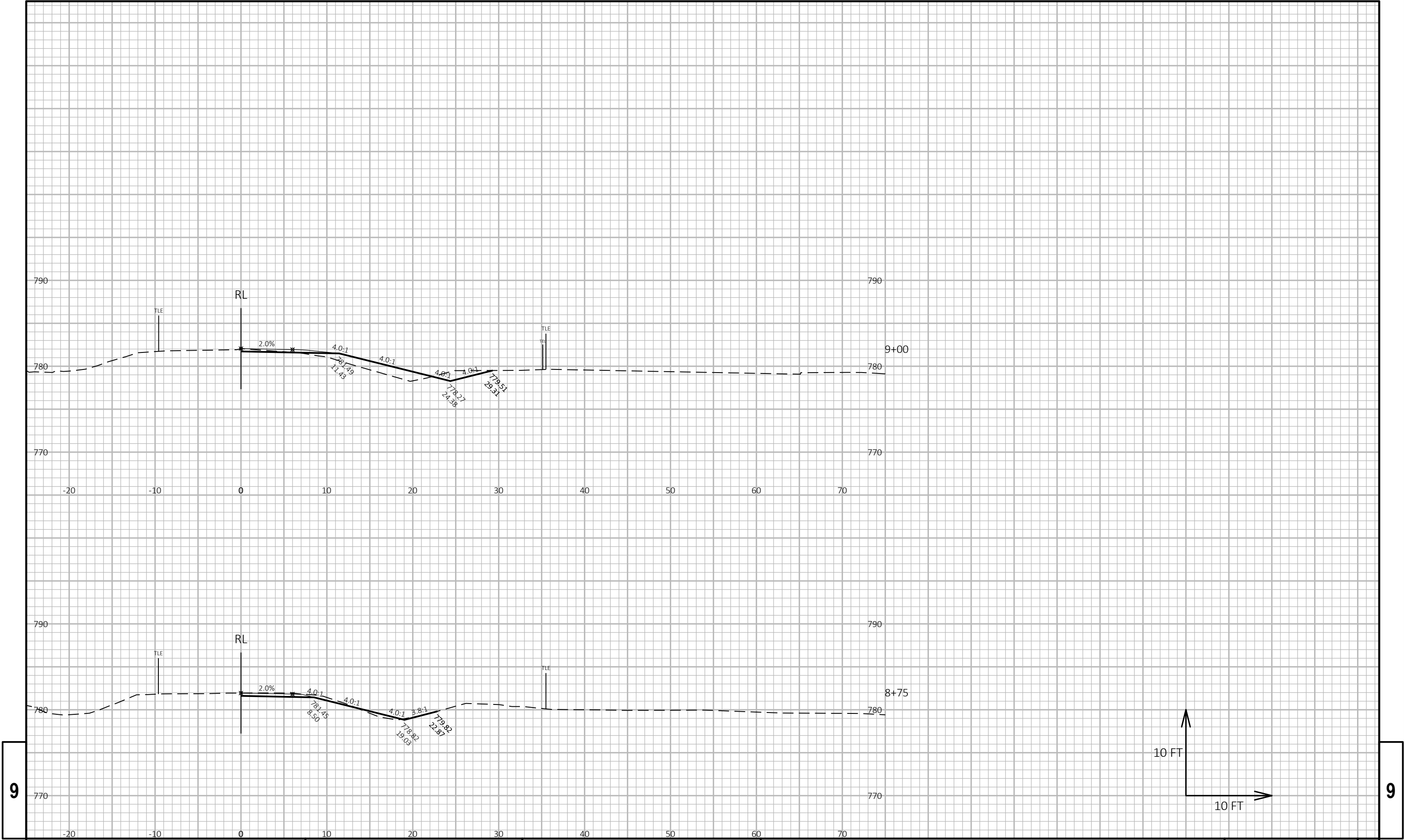






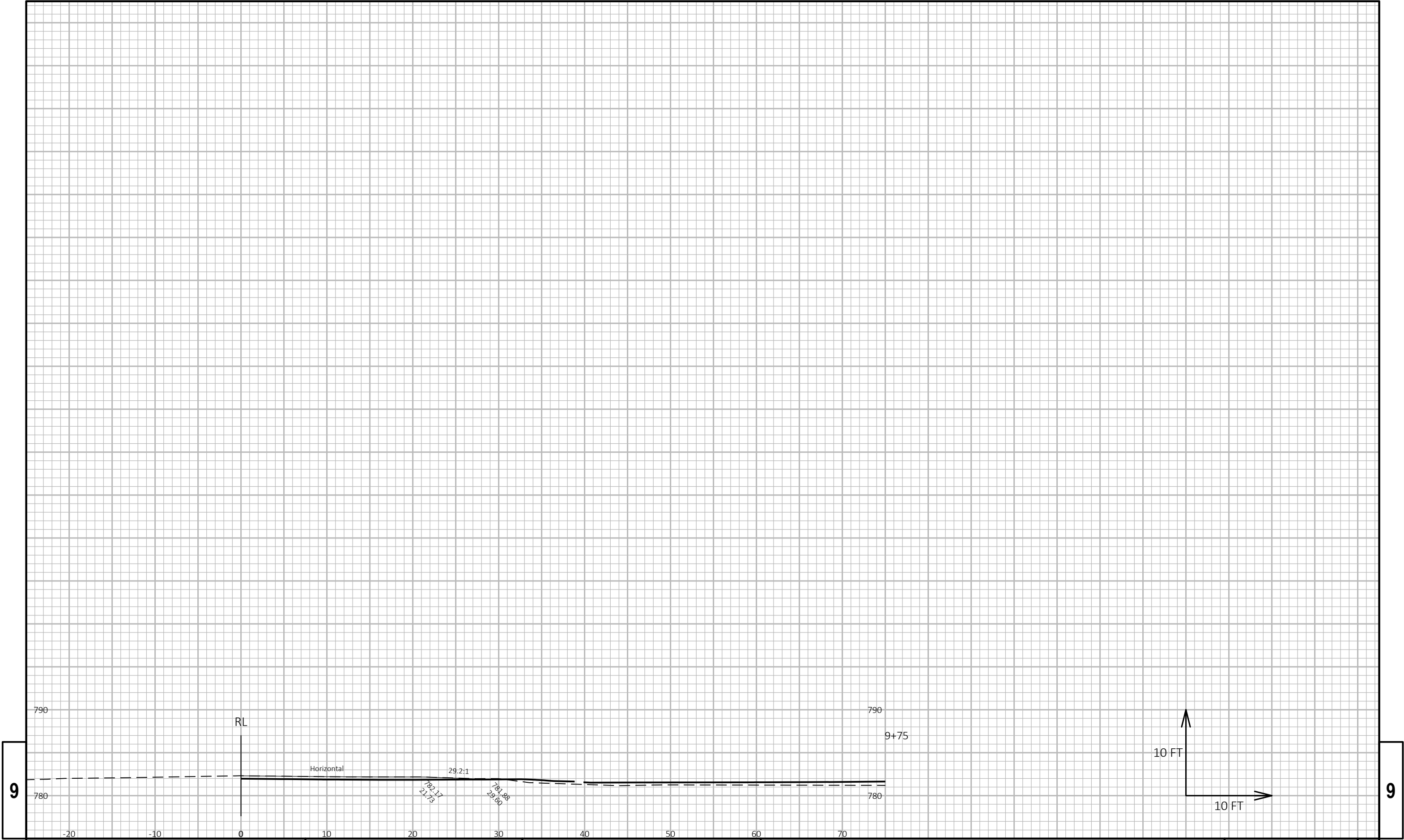
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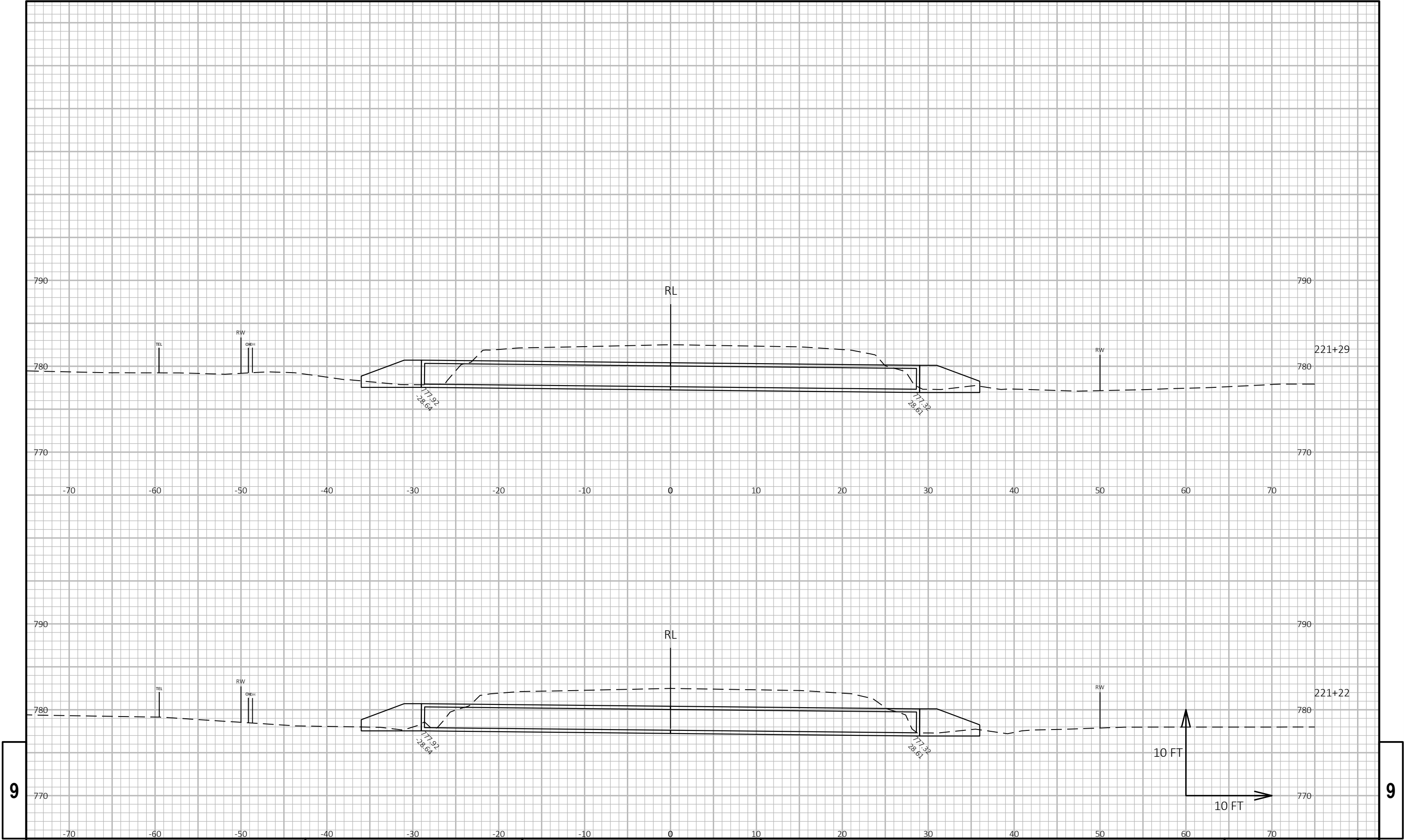


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PROJECT NO: 9190-23-71	HWY: STH 32	COUNTY: BROWN	CROSS SECTIONS: CROSS SECTIONS CREEKSIDE DR	SHEET	E
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PROJECT NO: 9190-23-71	HWY: STH 32	COUNTY: BROWN	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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EPlans Preliminary Sheet Numbering Tool

This sheet: ftp://ftp.dot.state.wi.us/transp/roads/eplans/prelim_sheet_numbers.pdf

Notes

- Acrobat 5 or higher is required to use this tool.
- The Bureau of Highway Construction places sheet numbers in the final plan.
- This sheet is for placing preliminary sheet numbers with a "PRE_" prefix.
- If a plan contains multiple projects, number each plan individually.
- Leave this sheet in the plan.

TO ADD PRELIMINARY SHEET NUMBERS

1. Insert this sheet at the end of the plan

- a. With the plan open in Acrobat, select Document > Insert Pages.
- b. In the Select File to Insert dialog box, select this file (prelim_sheet_numbers.pdf)
- c. In the Insert dialog box, choose After for Location and Last page for Page.
- d. Click OK.

2. Click the Place Preliminary Sheet Numbers button

- a. Go to the last sheet of the plan.
- b. Click the Place Preliminary Sheet Numbers button once.
(The preliminary sheet number appears in the bottom right corner of the sheets.
The number should match the page number in the Acrobat Status bar).

3. Re-Save the PDF

- a. Select File > Save As and save the PDF.

TO REMOVE PRELIMINARY SHEET NUMBERS