

DNR/DOT PROJECT REVIEW

State of Wisconsin – Department of Natural Resources (DNR) and Department of Transportation (WisDOT)
DTNR0002 6/2018

DNR Internet: http://dnr.wi.gov/	WisDOT Internet: http://wisconsindot.gov/
JIM DOPERASKI DNR NORTHEAST REGION 2984 SHAWANO AVE GREEN BAY, WI 54313	Wisconsin Department of Transportation Division of Transportation Systems Development 944 VANDERPERREN WAY GREEN BAY, WI 54304

Inform WisDOT Regional Environmental Coordinator, if more than 45 days is needed.

Design Project ID 9190-23-00	Project Highway STH 32	Review Submittal Date (m/d/yy) 3/26/19
Construction Project ID 9190-23-71	Estimated Project Cost (range) \$2,850,000.00 to \$3,210,000	Construction Year (yyyy) 2021
Project Name Green Bay - Pulaski	Project Limits STH 29 - Village of Pulaski	
County Brown	Project on Tribal Land ☐ Yes ☒ No	
Contact Name Kelsey Holmes	Contact (Area Code) Phone Number 920-492-5625	
Section/Township/Range See Exhibit 2 - Project Location Map	Estimated Area of Ground Disturbance (acres) 1.17	

Type of Review Requested ☐ Initial Review ☒ Final Concurrence ☐ Scope Change ☐ Other:	Document Type ☐ Environmental Assessment (EA) ☐ Environmental Report (ER) ☐ Programmatic Categorical Exclusion (PCE) ☒ Categorical Exclusion Checklist (CEC)
WisDOT Project Classification ☐ Bridge Rehabilitation, FDM 3-5-2 ☐ Bridge Replacement, FDM 3-5-2 ☐ Expansion, FDM 3-5-2 ☐ Pavement Replacement, FDM 3-5-2 ☐ Preventive Maintenance, FDM 3-1-5 ☐ SHRM (State Hwy Rehab/Maint), Maintenance Manual 13.08 ☐ Recondition, FDM 3-5-2 ☐ Reconstruction, FDM 3-5-2 ☒ Resurface, FDM 3-5-2 ☒ Safety (HSIP), PMM 4-1-10 ☐ Other:	Work Involved ☒ Beam Guard Replacement ☐ Borrow and/or Waste Site Required ☐ Channel Change/Stream Relocation ☐ Clearing and Grubbing ☒ Culvert Replacement or Extensions ☐ Dredging ☐ Grading ☐ Fill Outside Toe of Slope ☐ Intersection Improvement ☐ Right of Way Acquisition ☒ Shoulder Work ☐ Storm Sewer ☐ Other:

Storm Water Management (check all that apply)

- ☐ Trans 401 post construction requirements
☐ NPDES MS4/Urbanized Area
☐ TMDL Implementation Area
☒ Transportation Construction General Permit (TCGP)

For more information, please see the back of this form.

Project Description and Reason for Project:

(include project location map with limits and necessary attachments; attach additional sheets if needed)

The proposed project is located on WIS 32 from the STH 29/32 interchange to just North of the CTH B roundabout in the Town of Pittsfield and the Village of Pulaski in Brown County. The purpose of this project is to preserve and extend the structural integrity of the asphaltic pavement to provide a safe and efficient highway system. The asphalt pavement along this section of WIS 32 is showing signs of alligator cracking, transverse cracking, and some block and edge cracking. The pavement structure will be at or near its service life by the time of construction and will be in need of repairs.

The project is a cold-in-place recycling (CIR) and resurfacing project (CIR 4"/pave 4") with beam guard replacement, box culvert extension, new roadway signs, culverts, and pavement markings. The project will also construct barrier wall protection for the piers of bridges B-5-229 and B-5-230 at the STH 29/32 interchange. Wetlands will be affected at the culverts and beam guard replacements as well as the box culvert extension. The loss of wetlands will be mitigated at the Peshtigo Brook Phase 2 site in accordance with the Wisconsin Department of Transportation Wetland Mitigation Banking Technical Guideline. Proper erosion control measures will be utilized during construction to minimize impacts.

**WisDOT Division of Transportation System
Development**
Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

**Governor Tony Evers
Secretary Craig Thompson**
wisconsindot.gov
Telephone: (920)492-5643
FAX: (920)492-5640
Email: ner.dtsd@dot.wi.gov



March 26, 2019

Jim Doperalski
Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313

Subject: Final Concurrence and 401 WQC
Project ID 9190-23-71
STH 32
Green Bay - Pulaski
Brown County

Dear Mr. Doperalski,

The Wisconsin Department of Transportation (WisDOT), Northeast Region, is requesting final concurrence and 401 WQC for Project I.D. 9190-23-71 in Brown County. As the enclosed permit application and supporting documentation indicates, unavoidable wetland filling associated with construction of this project totals 0.29 acres. Please see the Permit Application and attachments for a detailed discussion regarding wetland impacts, including type, location, and amount.

According to the *Wisconsin Department of Transportation Wetland Mitigation Banking Technical Guideline* (1993, Revised 1997 and 2002), compensatory wetland mitigation must be provided and ratios of replacement versus loss are dependent on the wetland type lost and the wetland available for replacement. WisDOT is proposing to debit the impacts to the Peshtigo Brook Phase 2 site in Oconto County. Based on the 0.29 acres of wetland loss, a total of 0.33 acres of compensatory mitigation will be required for the project.

A PS&E (plans, specifications, & estimate) submittal date of November 1, 2019 is scheduled for this project. Please contact me if you have any questions regarding this request or need any further information.

Sincerely,

A handwritten signature in cursive script that reads "Kelsey Holmes".

Kelsey Holmes, P.E.
WisDOT Project Leader

Cc: Mike Helmrick, WisDOT Environmental Coordinator

Attachment Index

STH 32
9190-23-00/9190-23-71
Green Bay - Pulaski
CTH B – E Green Bay St
Brown County

Attachment A: Project Location Map

Attachment B: Project Plan Set

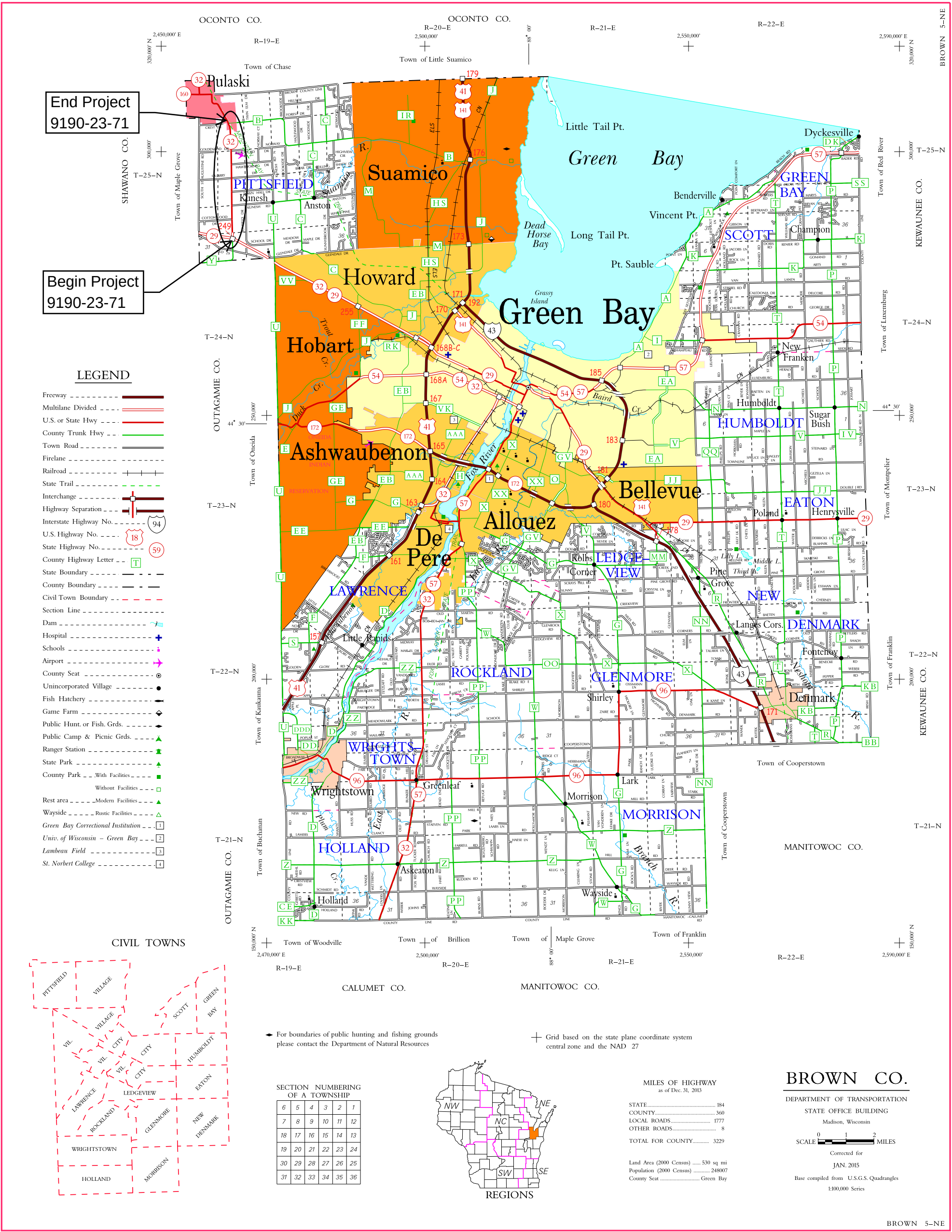
Attachment C: Environmental Special Provisions

Attachment D: Wetland Impact Plan Sheets

Attachment E: Wetland Impact Tracking Form

Attachment A: Project Location Map

Brown County
9190-23-71



Attachment B: Project Plan Set

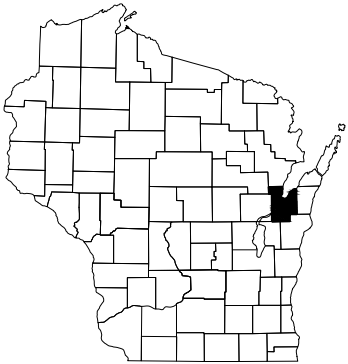
PROJECT ID:
WITH: 9190-23-71

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

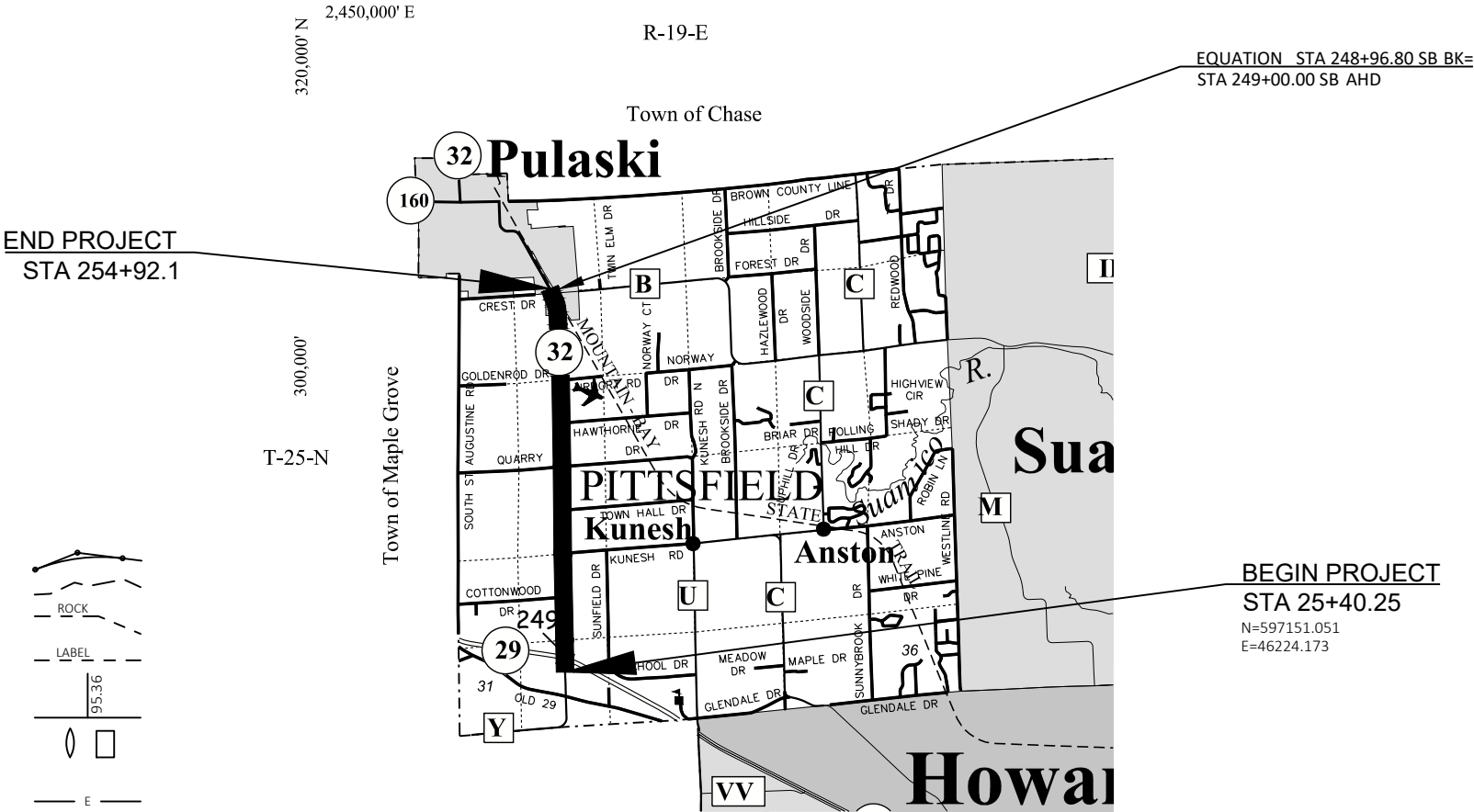
GREEN BAY - PULASKI

STH 29 - VILLAGE OF PULASKI

STH 32

BROWN

STATE PROJECT NUMBER
9190-23-71



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 PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9190-23-71		

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)

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

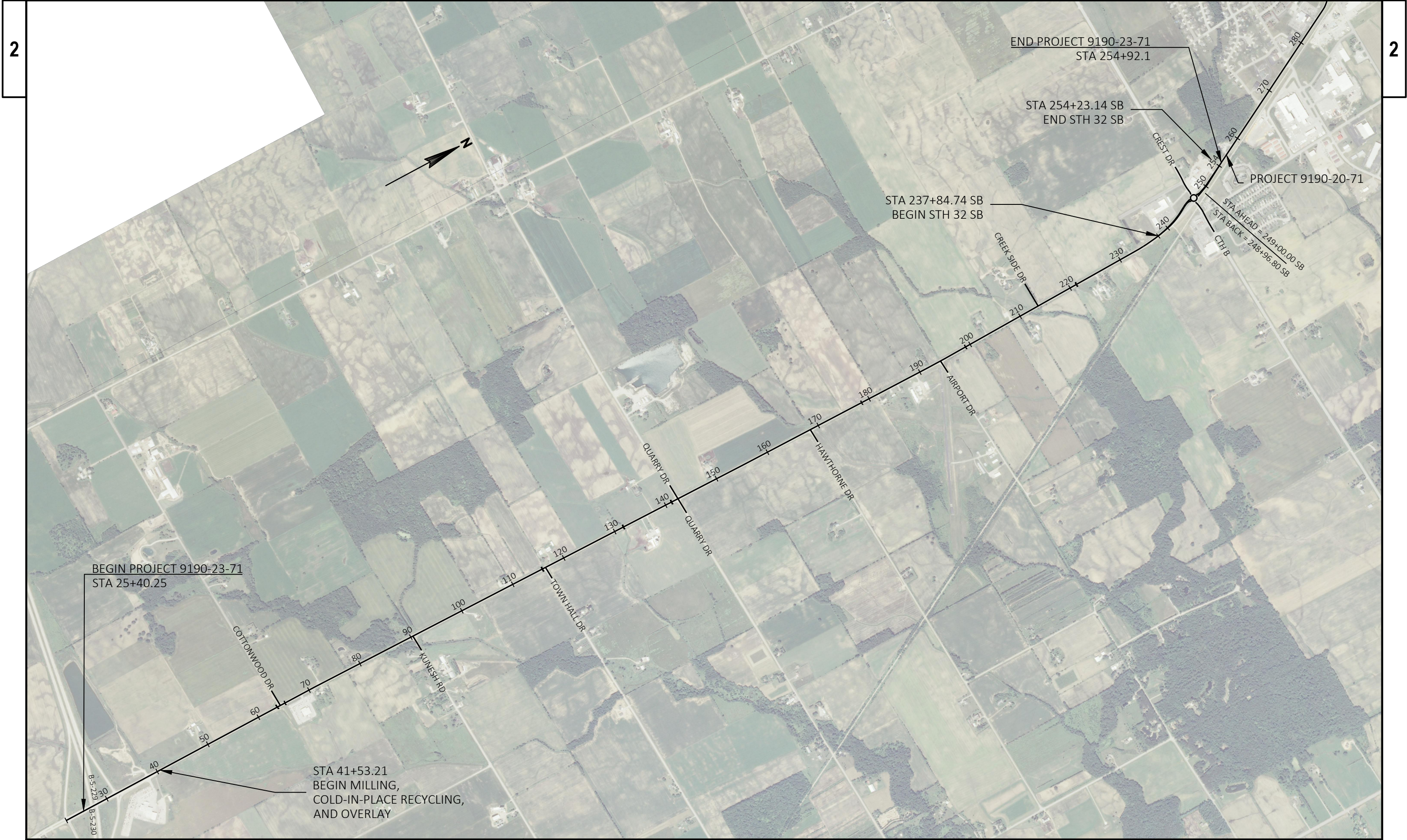
WE ENERGIES
CONTACT NAME
ADDRESS
CITY, STATE, ZIP
PHONE:
EMAIL:

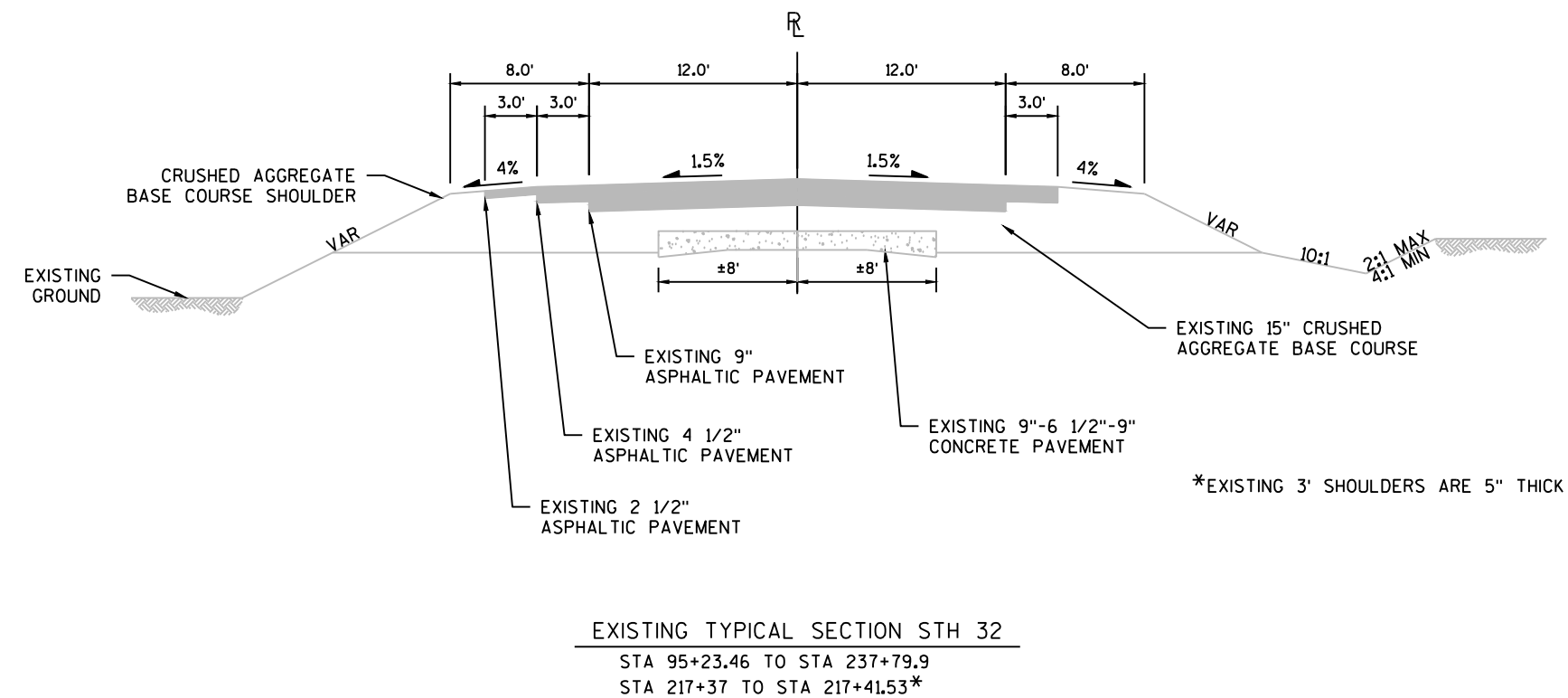
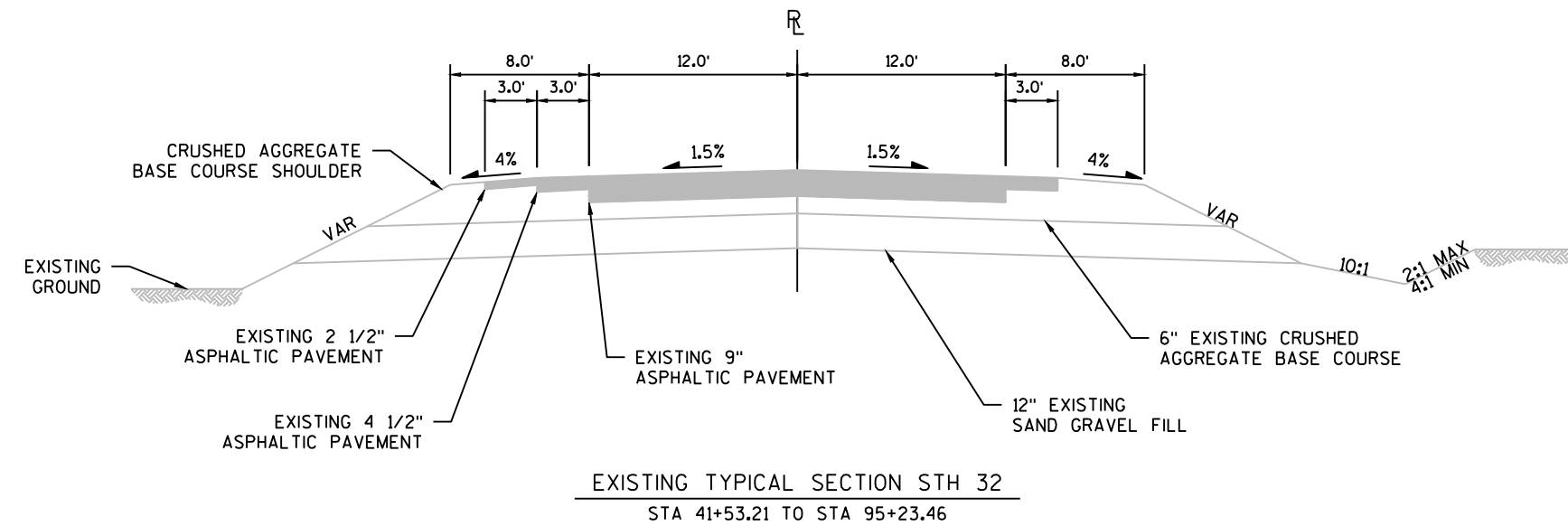
WISCONSIN PUBLIC SERVICE
CONTACT NAME
ADDRESS
CITY, STATE, ZIP
PHONE:
EMAIL:

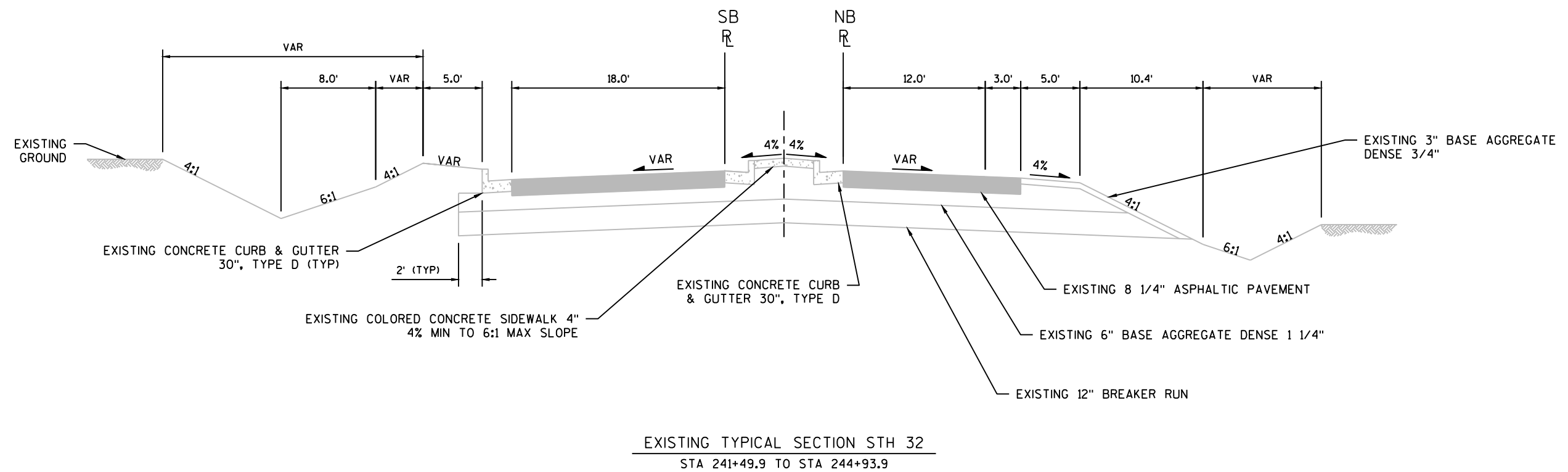
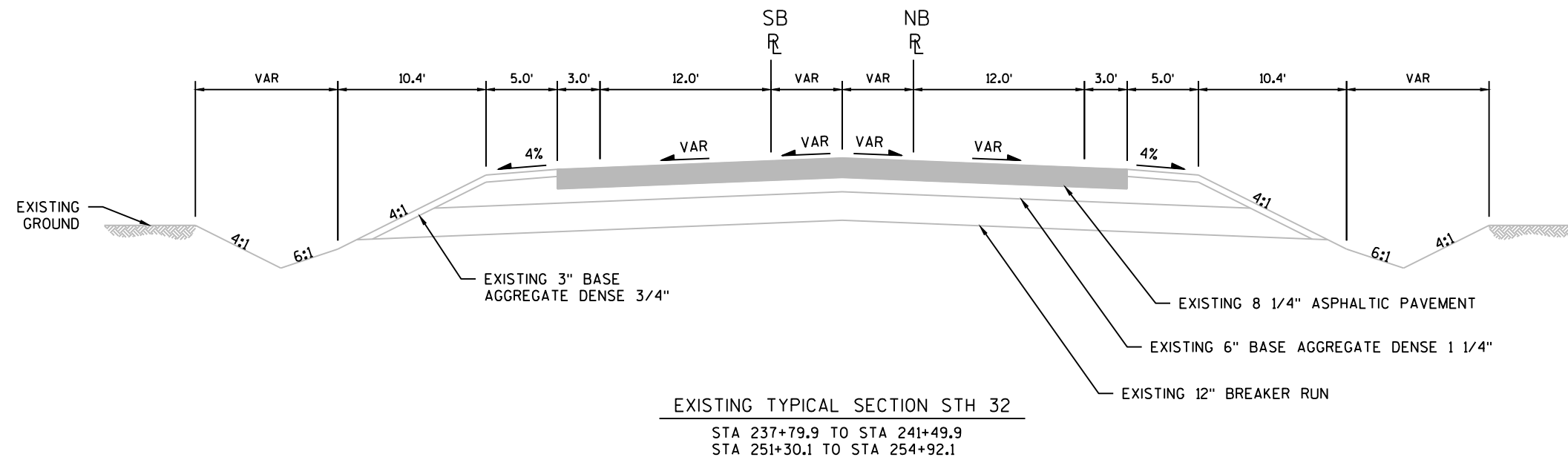
DNR AREA LIASON

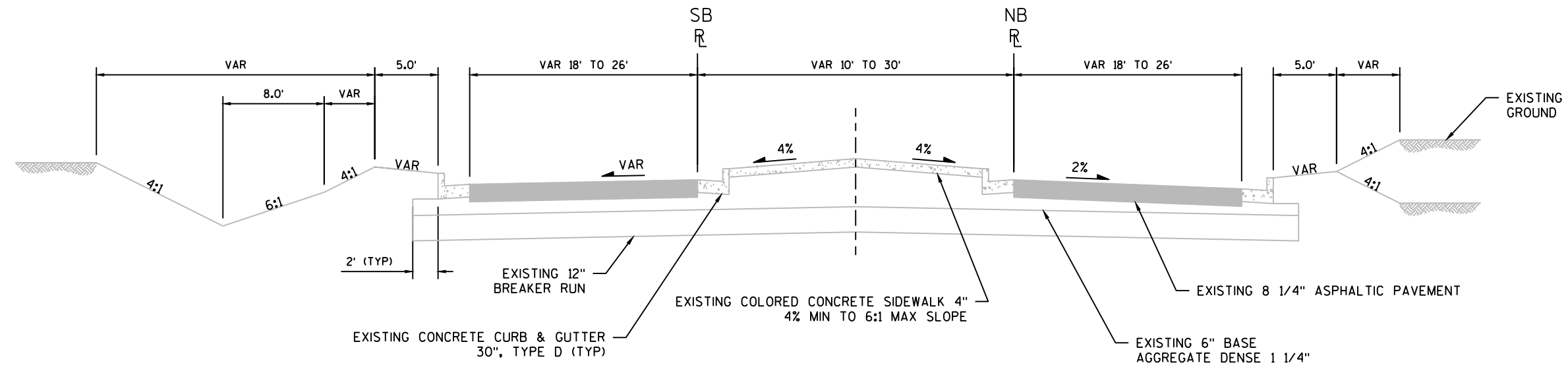
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
JAMES DOPERALSKI
PHONE: 920-412--0165
EMAIL: JAMES.DOPERALSKI@WISCONSIN.GOV





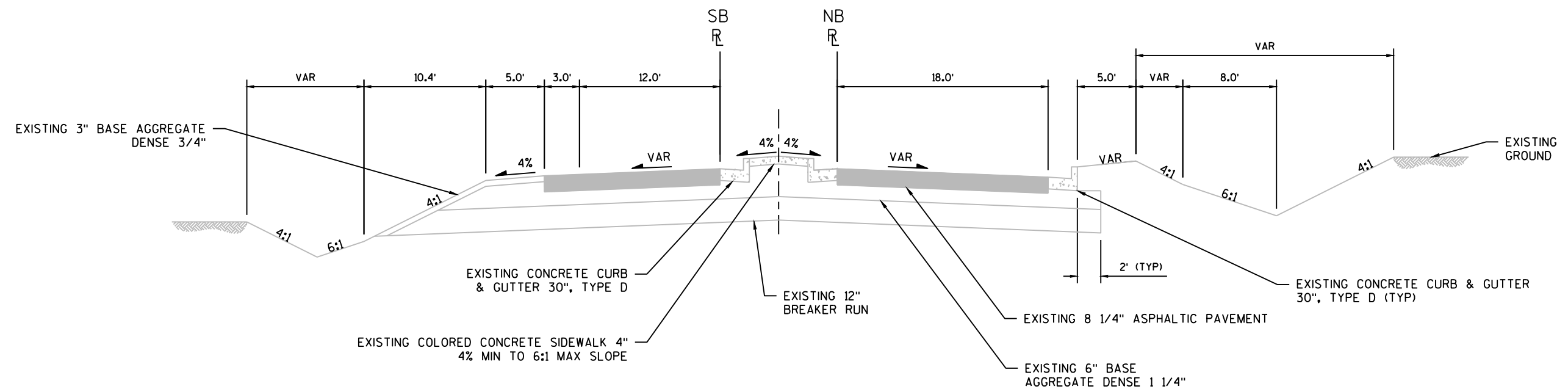






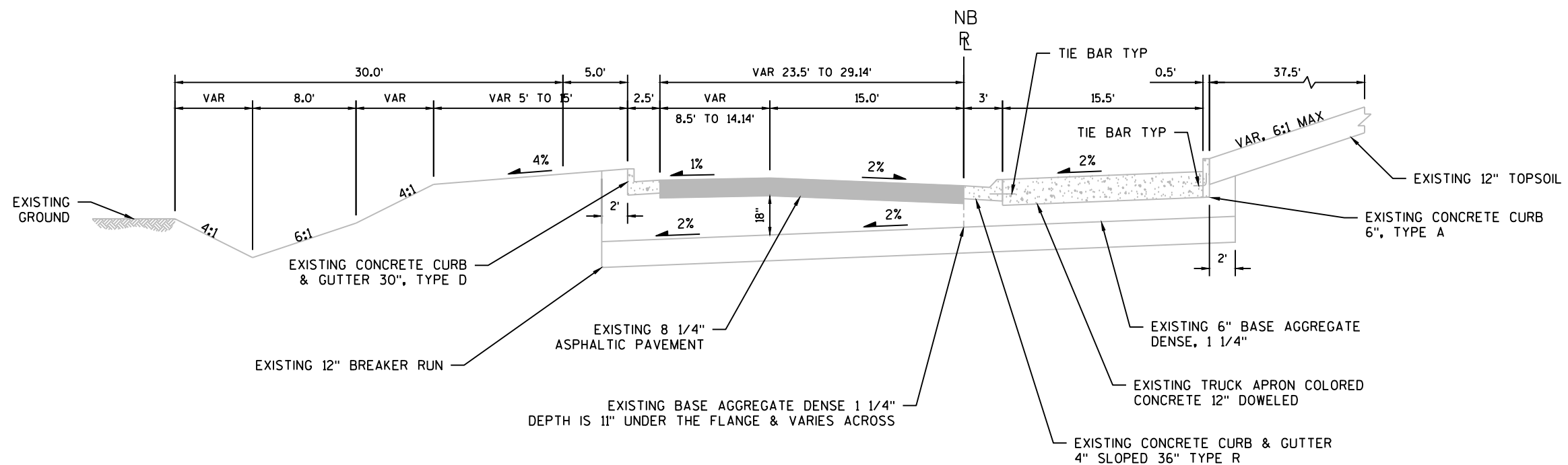
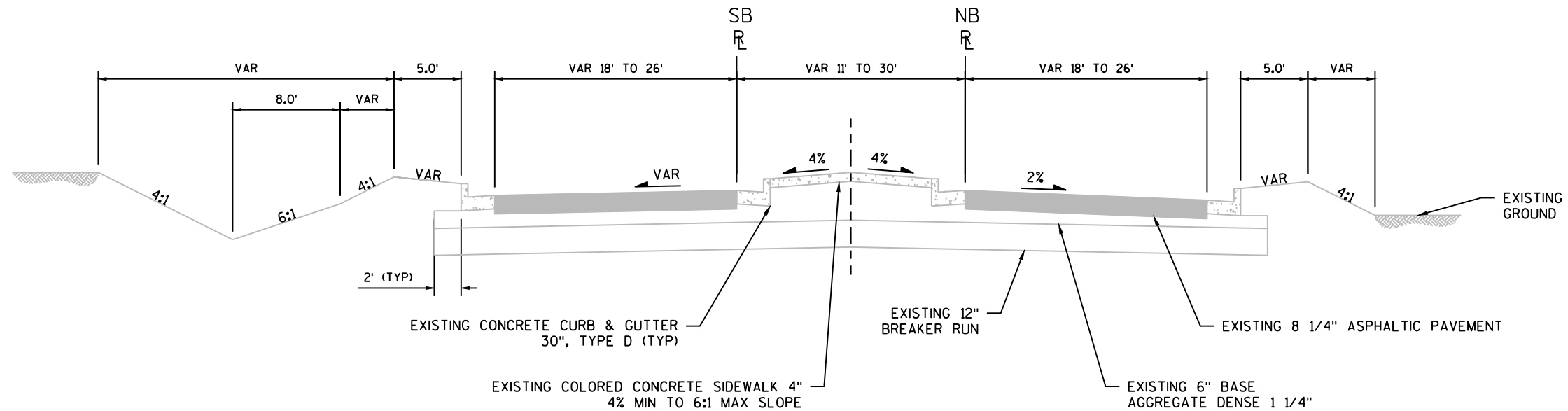
EXISTING TYPICAL SECTION STH 32

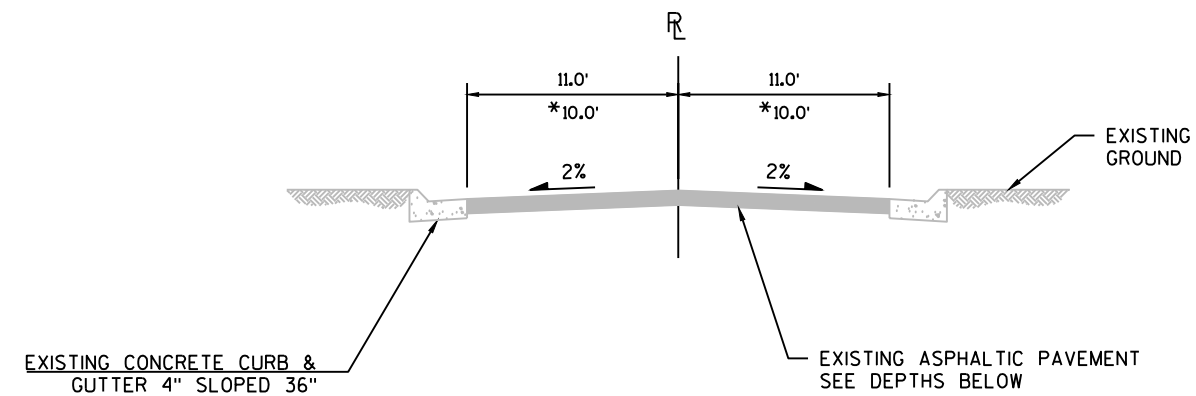
STA 244+93.9 TO STA 246+19.34
STA 247+76.14 TO STA 249+05.1



EXISTING TYPICAL SECTION STH 32

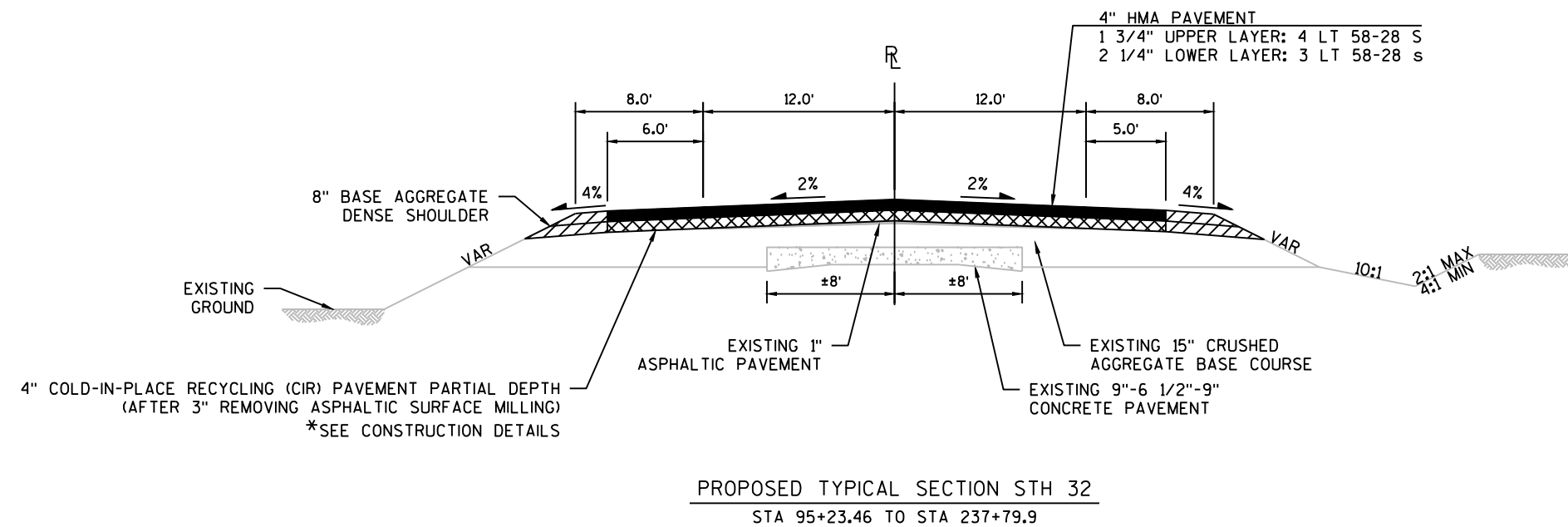
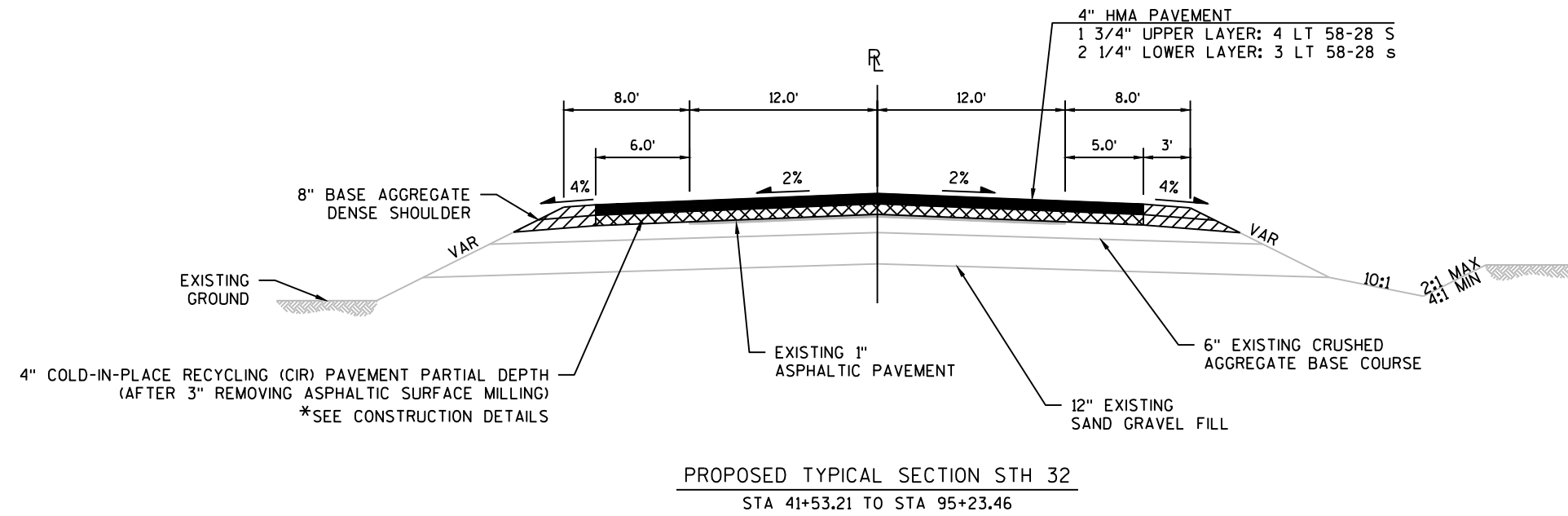
STA 249+05.1 TO STA 251+30.1

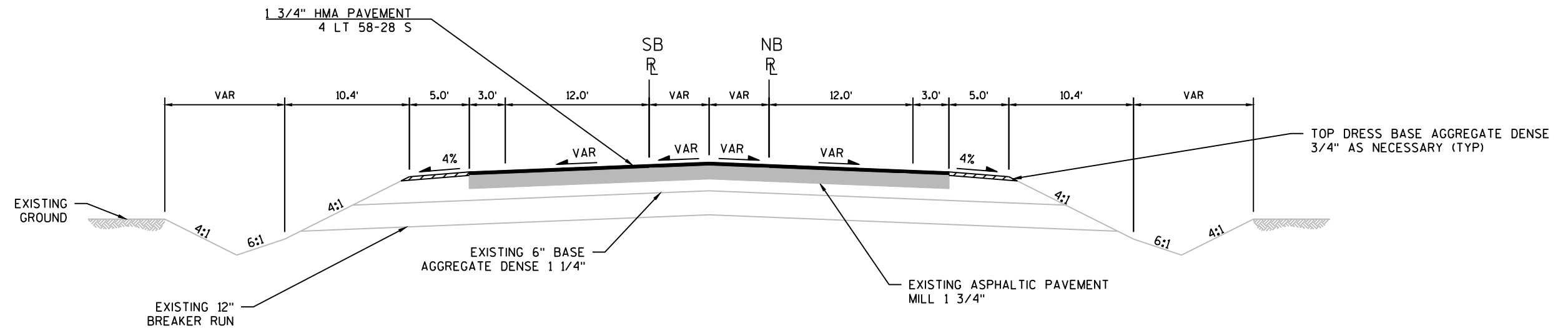




EXISTING TYPICAL SECTION SIDE ROADS

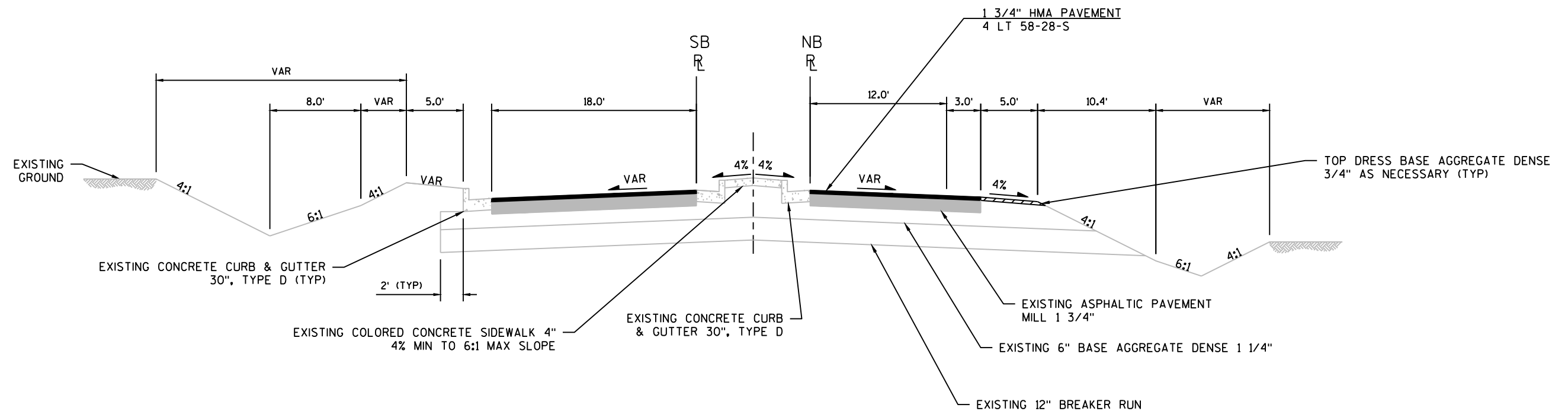
SIDE ROAD	WIDTH	DEPTH (INCHES)
COTTONWOOD DR	*	4.0
KUNESH RD		4.0
TOWN HALL DR		3.5
QUARRY DR		8.0
HAWTHORNE DR	*	4.5
AIRPORT RD	*	5.5





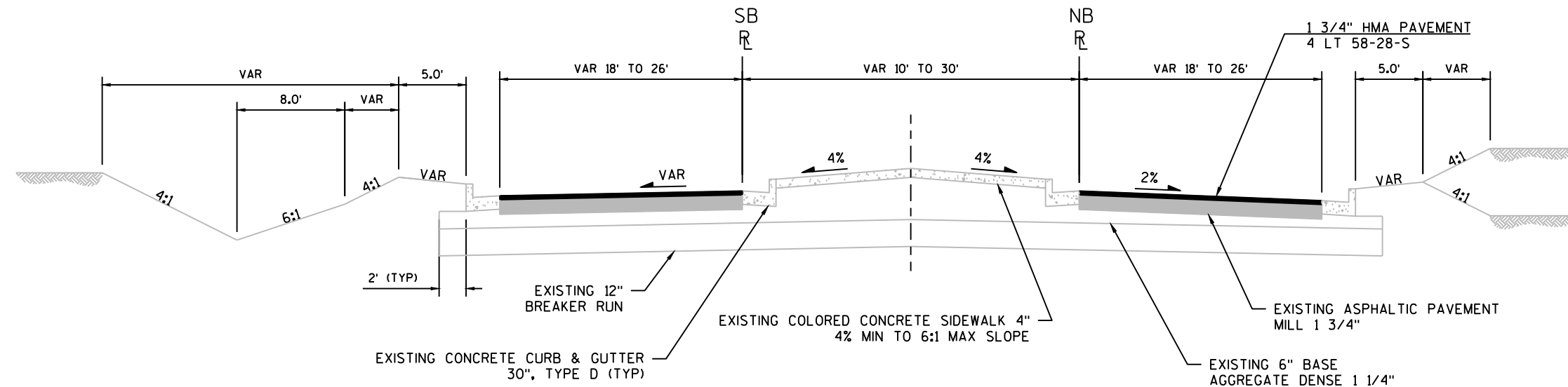
PROPOSED TYPICAL SECTION STH 32

STA 237+79.9 TO STA 241+49.9
STA 251+30.1 TO STA 254+92.1



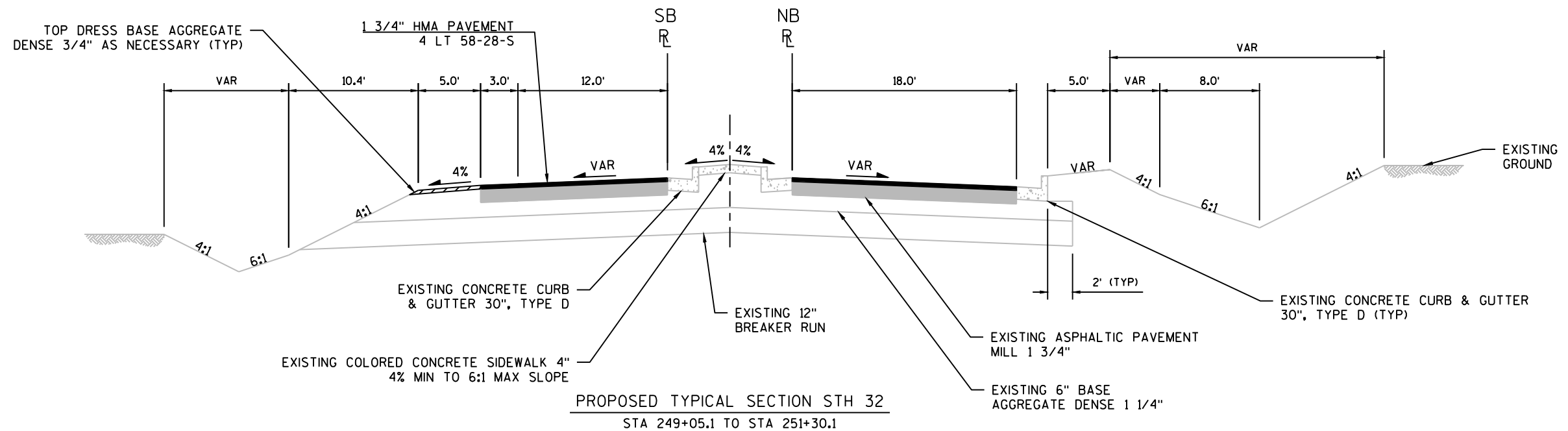
PROPOSED TYPICAL SECTION STH 32

STA 241+49.9 TO STA 244+93.9



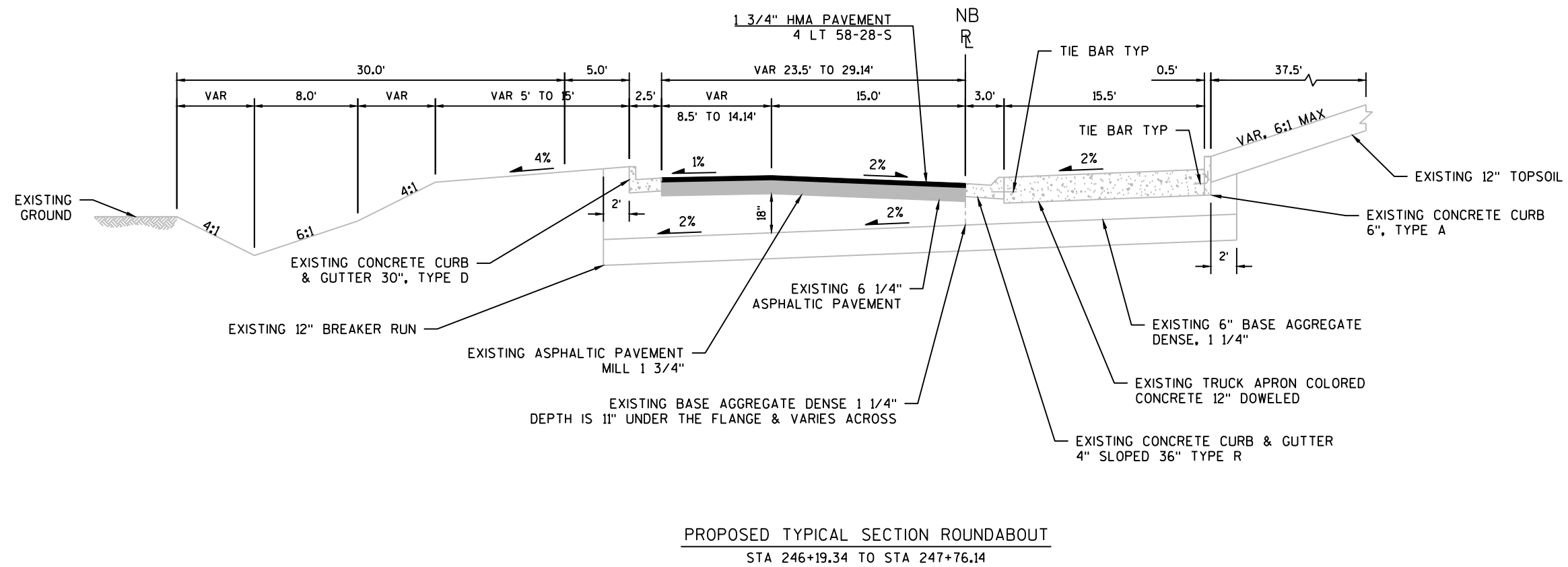
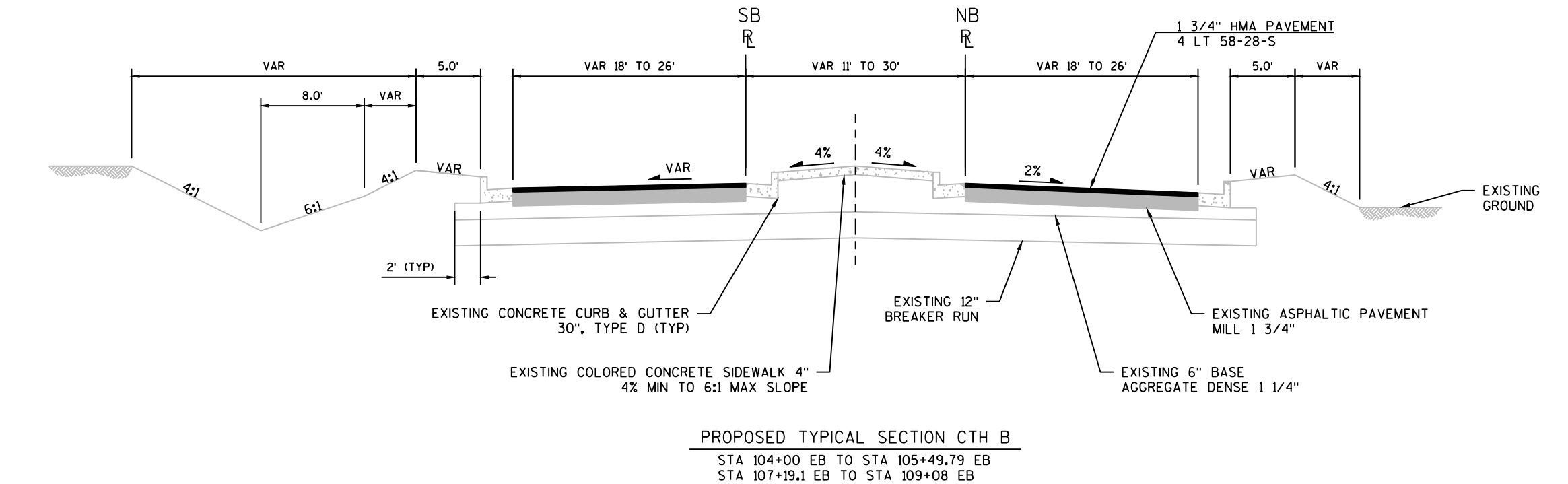
PROPOSED TYPICAL SECTION STH 32

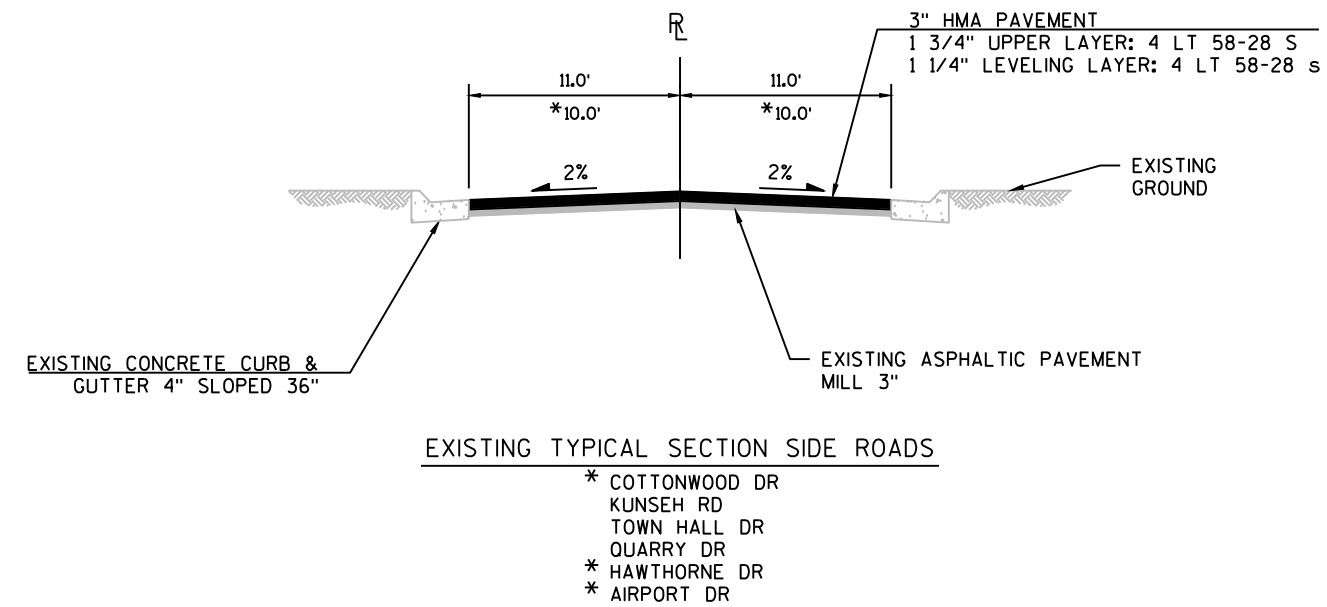
STA 244+93.9 TO STA 246+19.34
STA 247+76.14 TO STA 249+05.1

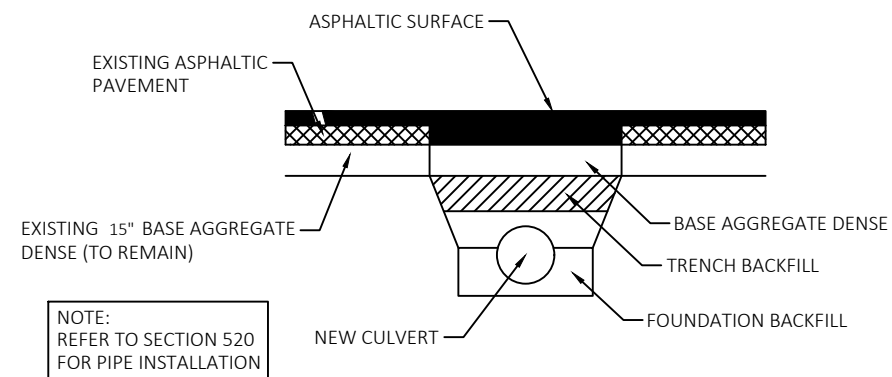


PROPOSED TYPICAL SECTION STH 32

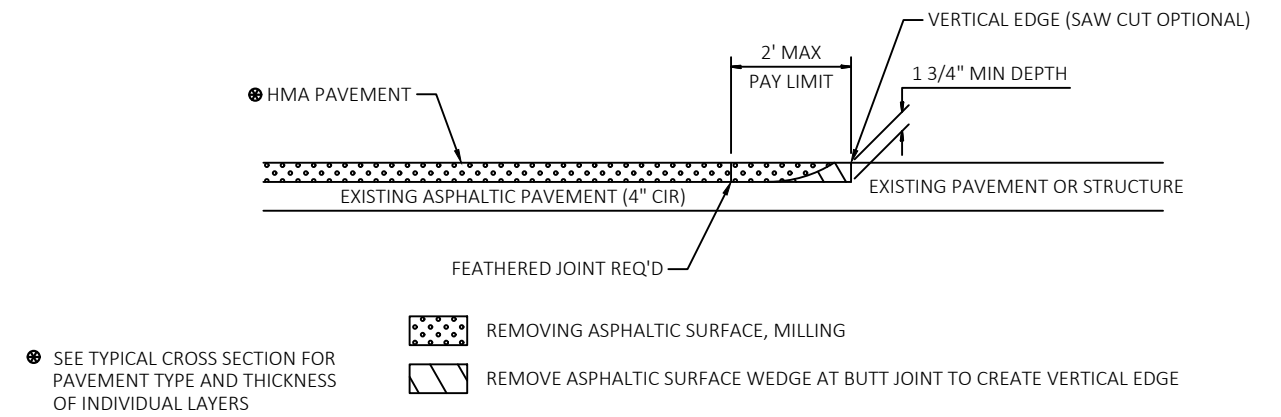
STA 249+05.1 TO STA 251+30.1



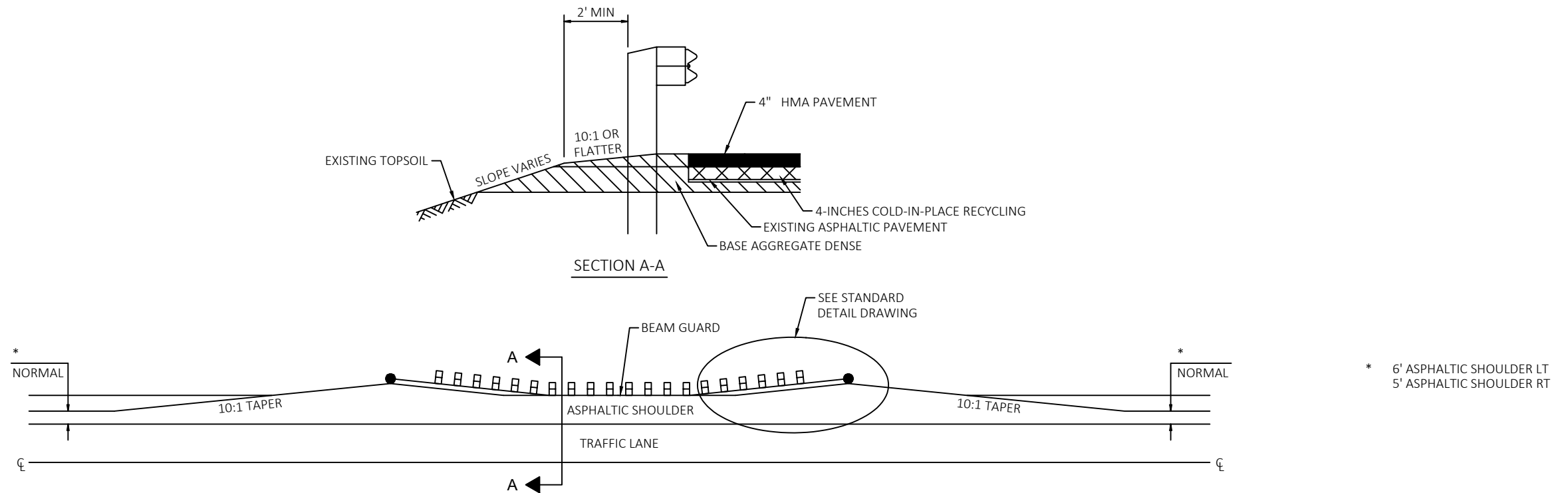




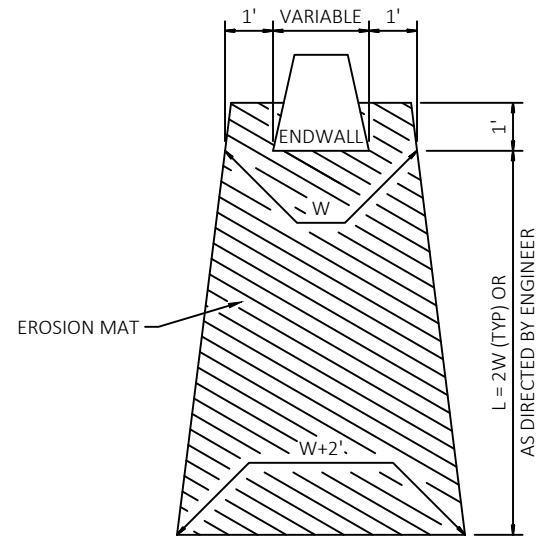
PAVEMENT AT CULVERT REPLACEMENTS



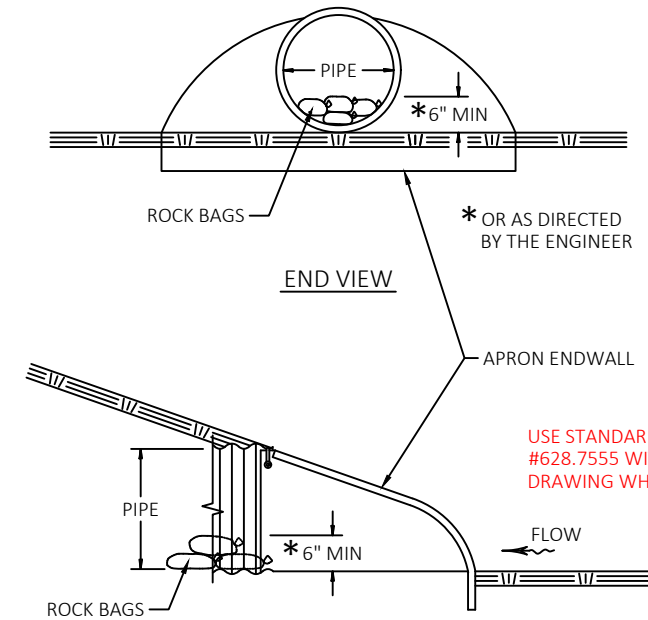
BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



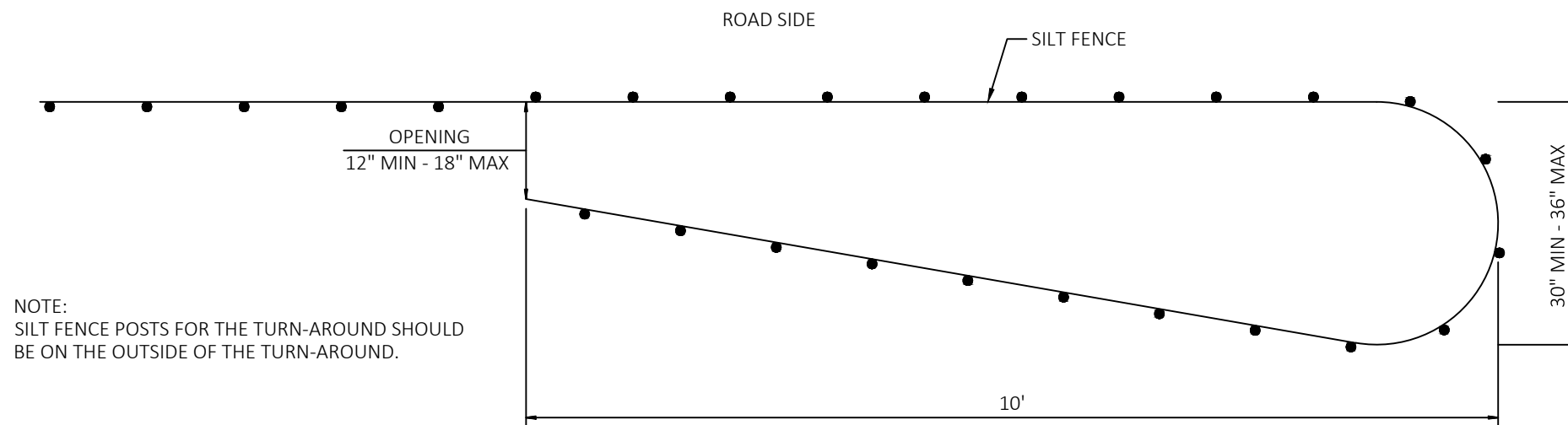
DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



EROSION MAT TREATMENT AT CULVERTS

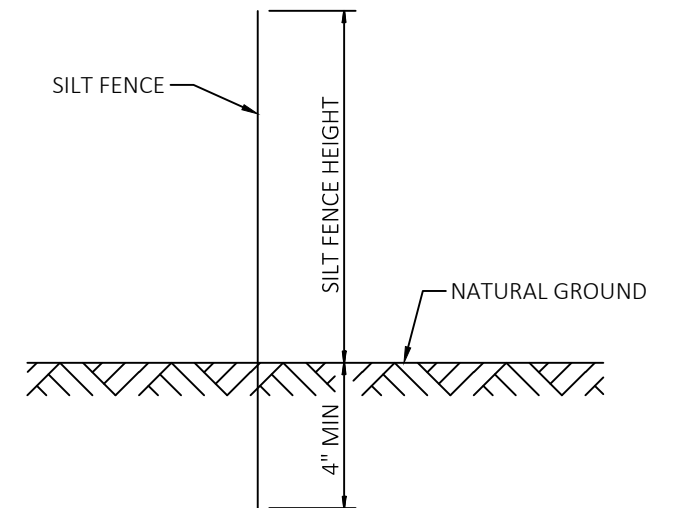


CULVERT PIPE CHECKS



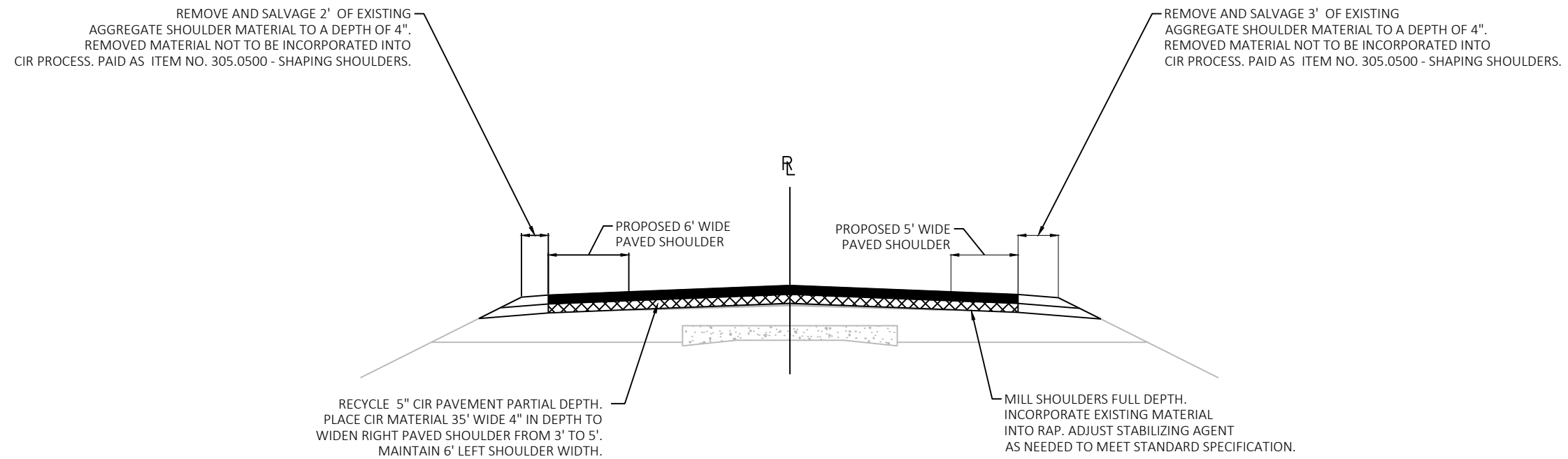
NOTE:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD
BE ON THE OUTSIDE OF THE TURN-AROUND.

PLAN VIEW

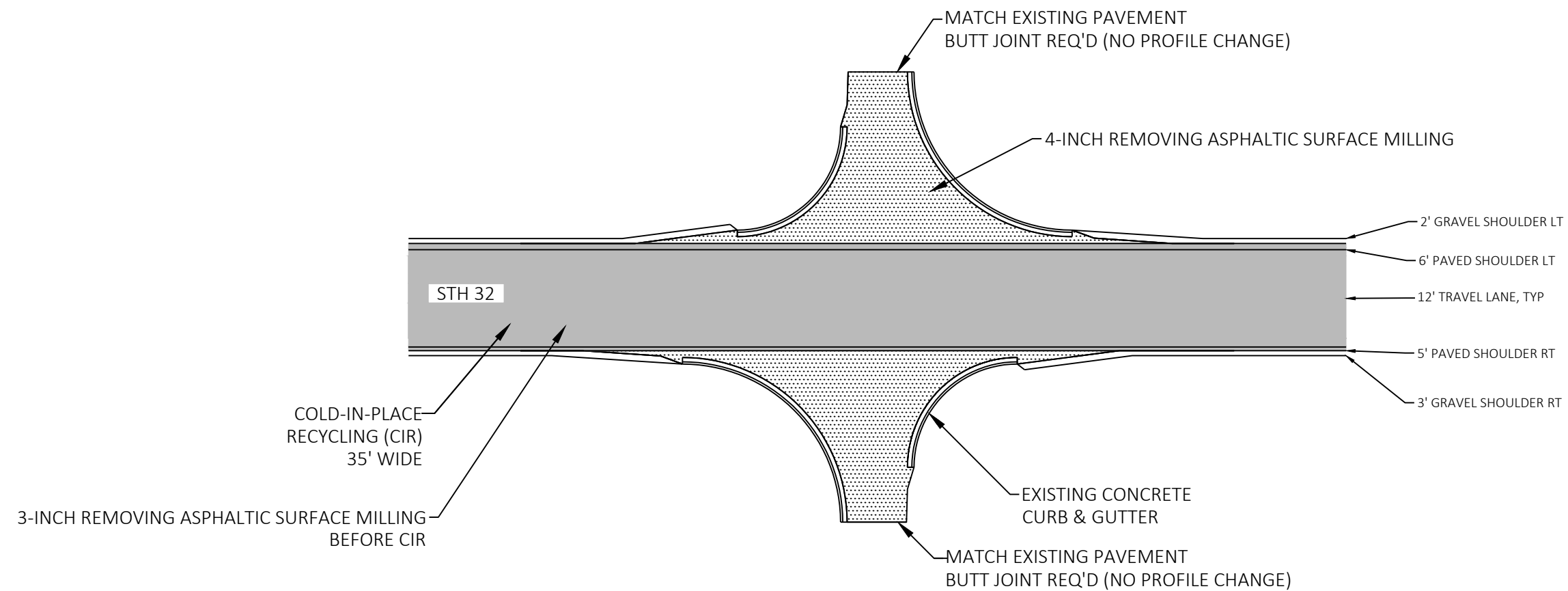


SIDE VIEW

SILT FENCE TURN-AROUND DETAIL

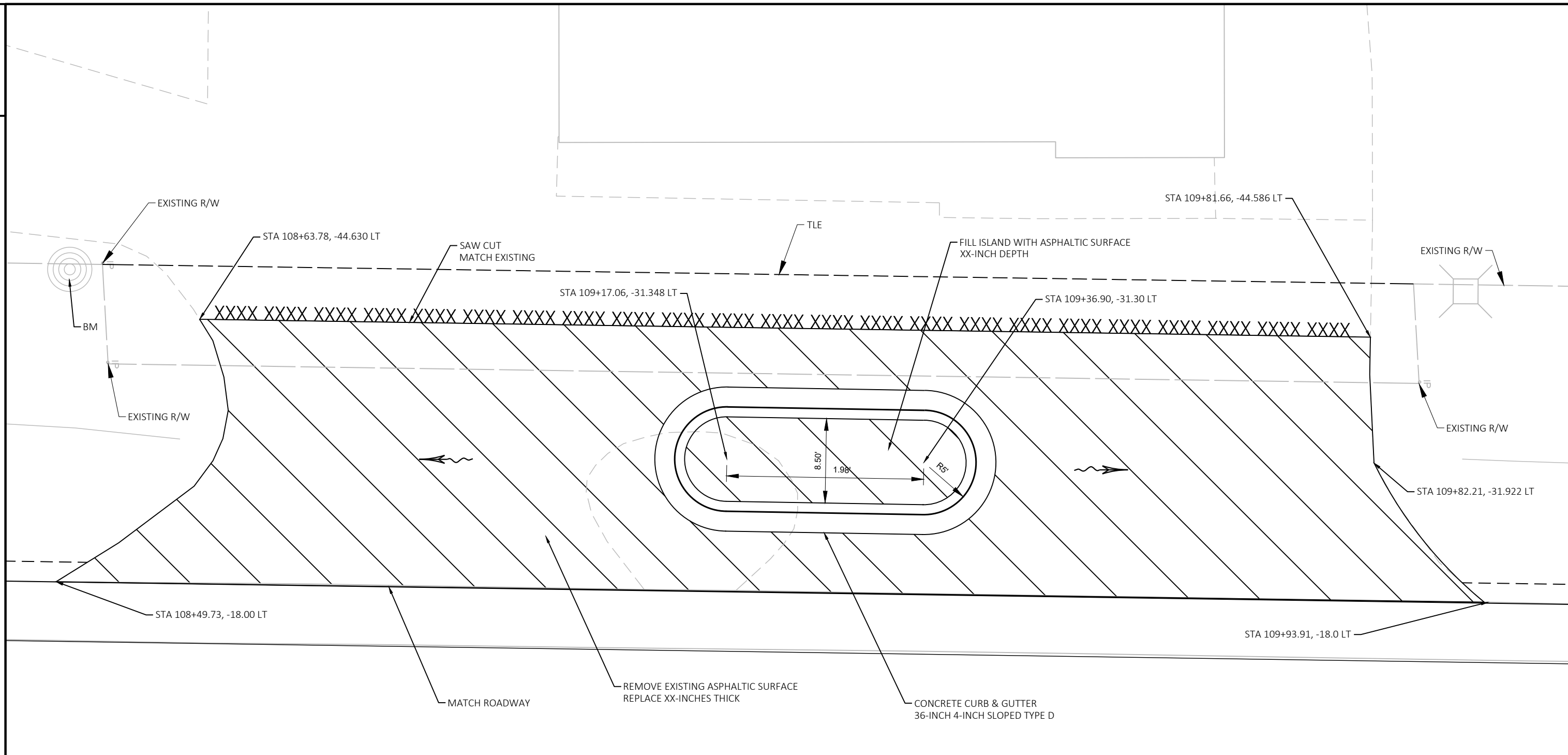


TYPICAL CROSS SECTION FOR STH 32
SHOULDER WIDENING DETAIL



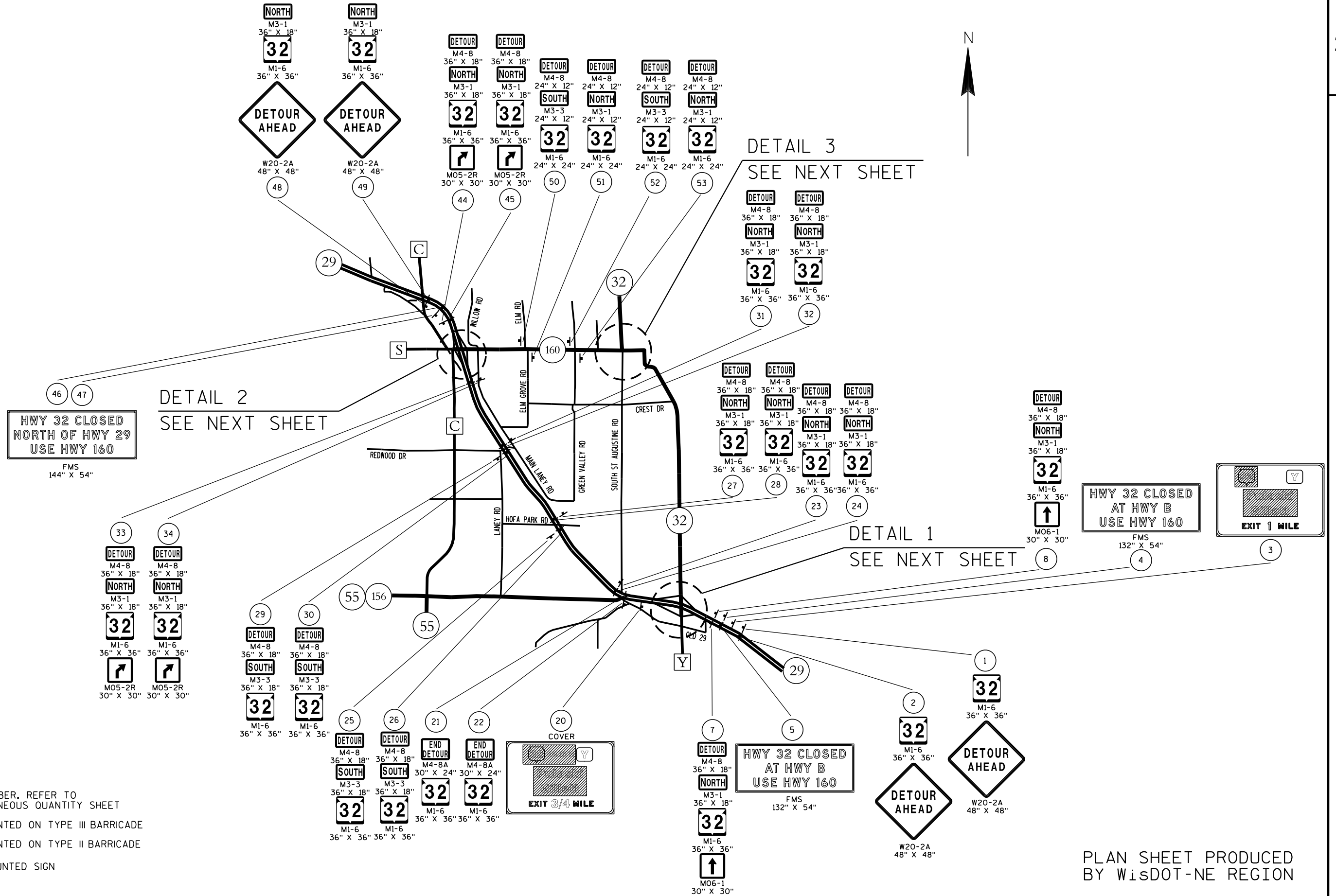
MILLING/CIR LIMITS WITH CURB & GUTTER

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



BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
NUMBER	108+50.60	779.750	RAILROAD SPIKE IN POWER POLE





LEGEND

- (X) 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



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	DBL	LIMITED EASEMENT	.....
VOLUME	VOL	(Permanent)	.....
FEE ACQUISITION	FA	PARCEL NUMBER	.....
ADJOINING LANDS	AL	UTILITY NUMBER	.....
WITH SAME OWNER	WO	SECTION CORNER	.....
BUILDING TO BE RAZED	BR	SET R/W MONUMENT W/CAP	.....
PROPOSED R/W	PRW	(7" 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.

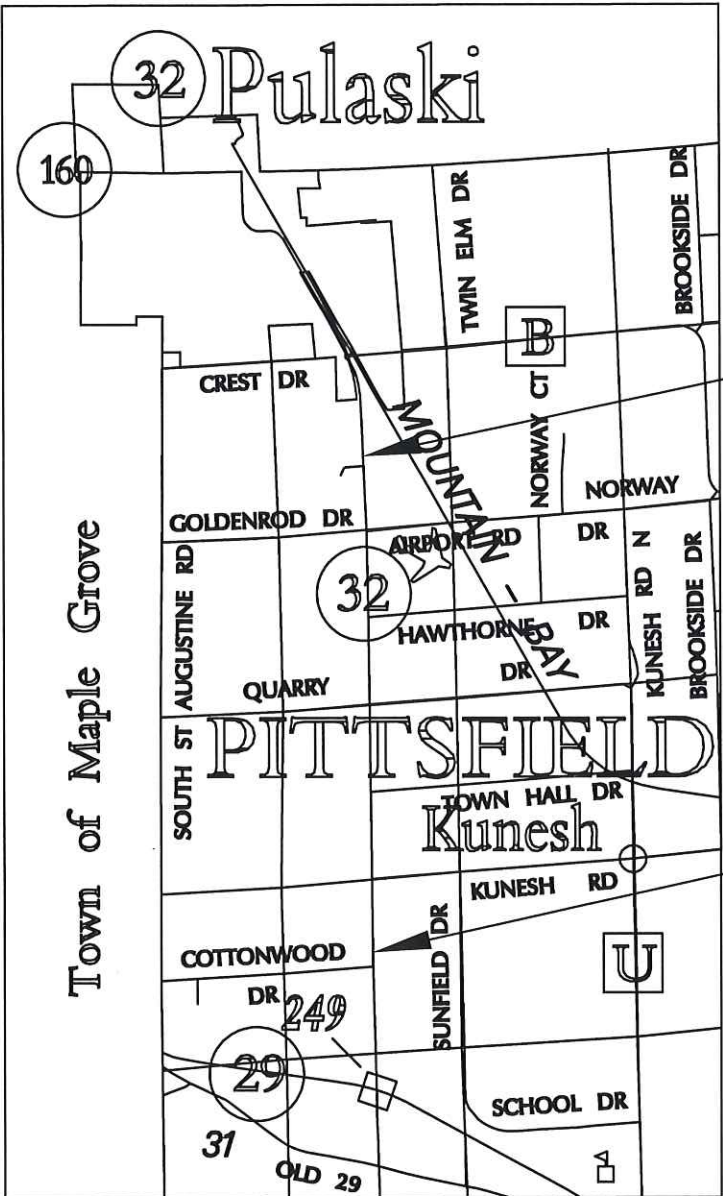
EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:
EXISTING HIGHWAY RIGHT-OF-WAY FOR STH 32 ESTABLISHED UNDER PROJECT T-02644, 9190-06-21.

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)

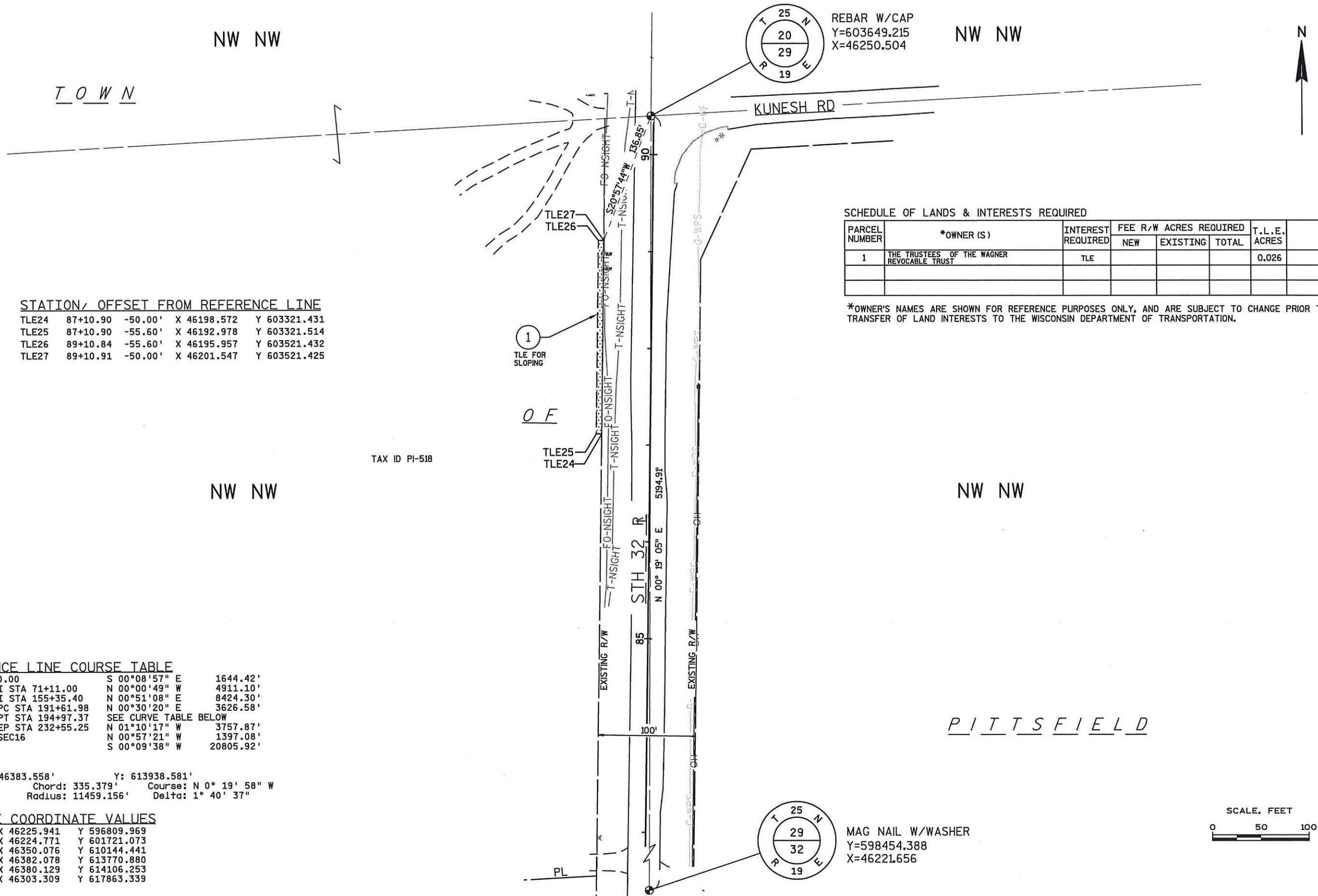
END RELOCATION ORDER
PROJECT 9190-23-21
STATION 232+55.25

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

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

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 N PR

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

STH 32 REFERENCE LINE COURSE TABLE

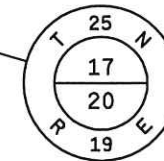
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PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339



MAG NAIL W/WASHER
Y=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

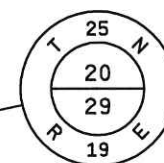
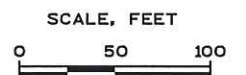
*OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

SCHEDULE OF UTILITIES & INTERESTS REQUIRED

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

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P I T T S F I E L D



REBAR W/CAP
Y=603649.215
X=46250.504

REVISION DATE	DATE 12-19-18	SCALE, FEET	HWY: STH 32	STATE R/W PROJECT NUMBER 9190-23-21	PLAT SHEET NO. 4.3
		0 50 100	COUNTY: BROWN	CONSTRUCTION PROJECT NUMBER	PS&E SHEET N PR

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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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

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PC STA 191+61.98 TO PT STA 194+97.37	SEE CURVE TABLE BELOW	
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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

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 N PR

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

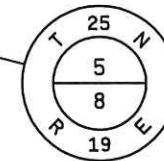
SEC21	TO BP STA 22+00.00	S 00°08'57" E	1644.42'
BP STA 22+00.00	TO PI STA 71+11.00	N 00°00'49" W	4911.10'
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PT STA 194+97.37	X 46380.129	Y 614106.253
EP STA 232+55.25	X 46303.309	Y 617863.339



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

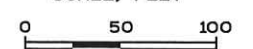
UTILITY NUMBER	*OWNER	INTEREST REQUIRED
100	NORTHEAST TEL CO. LLC	RELEASE OF RIGHTS

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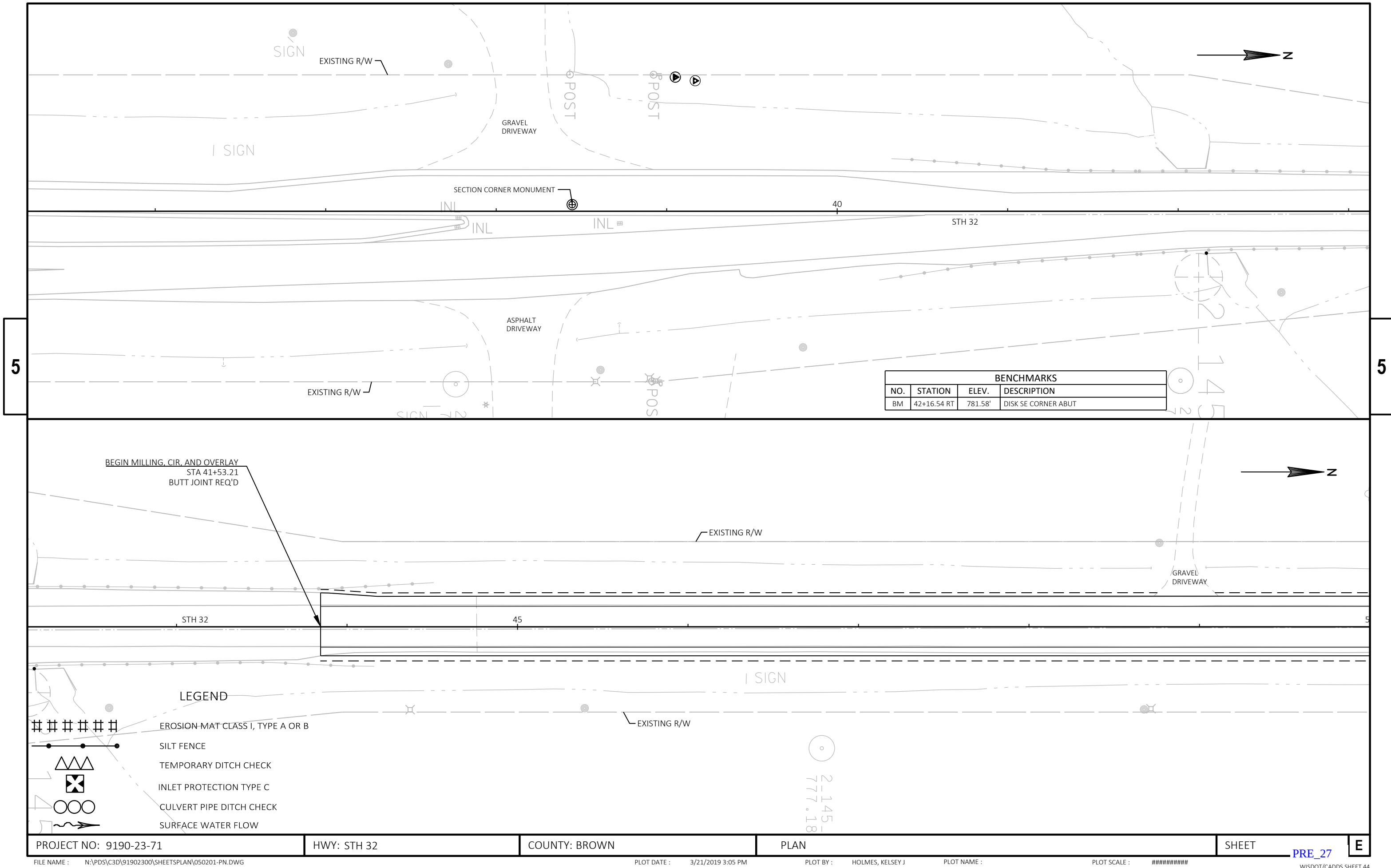
STATION/ OFFSET FROM REFERENCE LINE

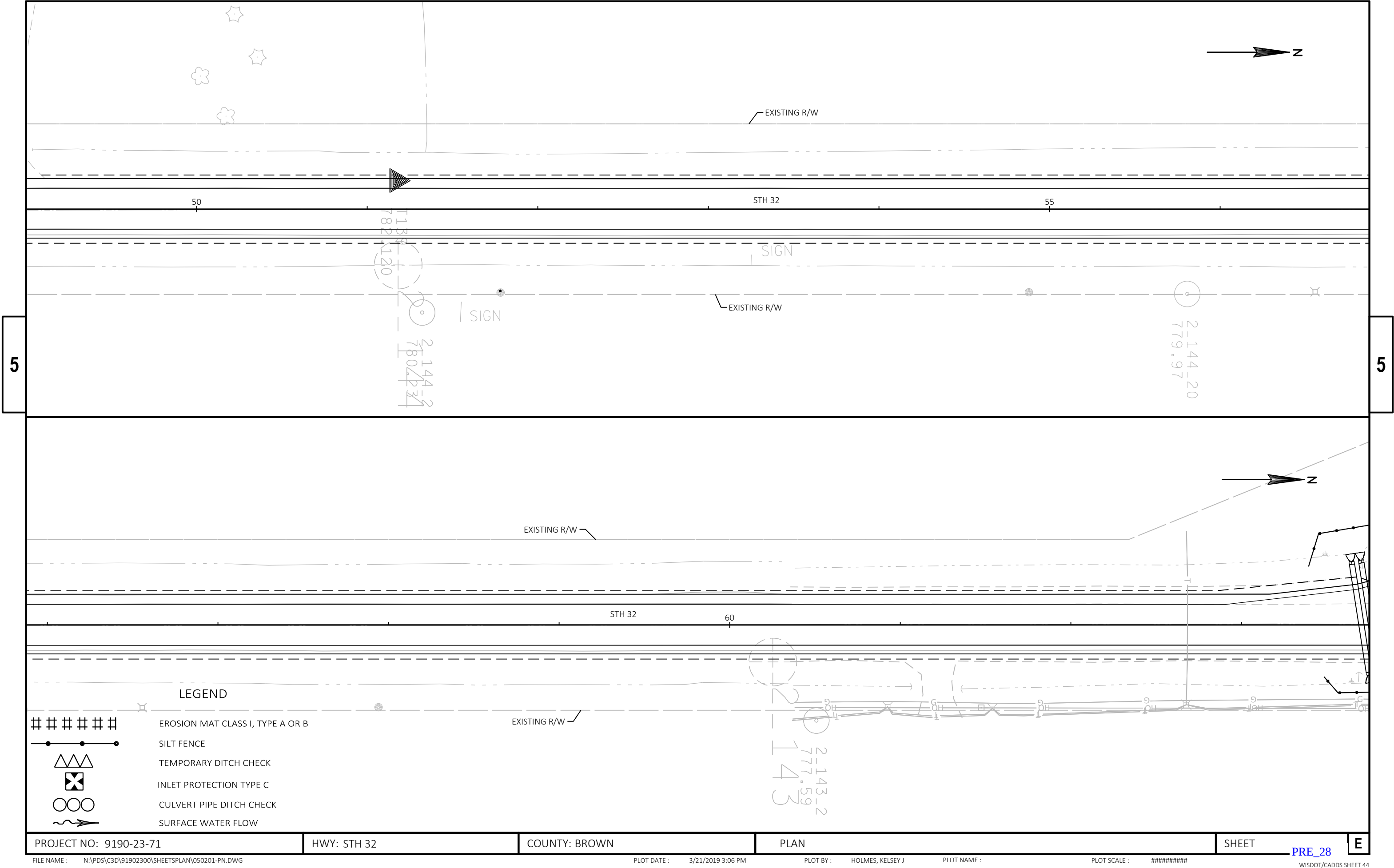
TLE36	209+50.04	50.00'	X 46400.423	Y 615559.638
TLE37	209+50.04	60.12'	X 46410.545	Y 615559.839
TLE38	210+75.34	60.20'	X 46408.059	Y 615685.115
TLE39	210+75.34	50.00'	X 46397.861	Y 615684.912

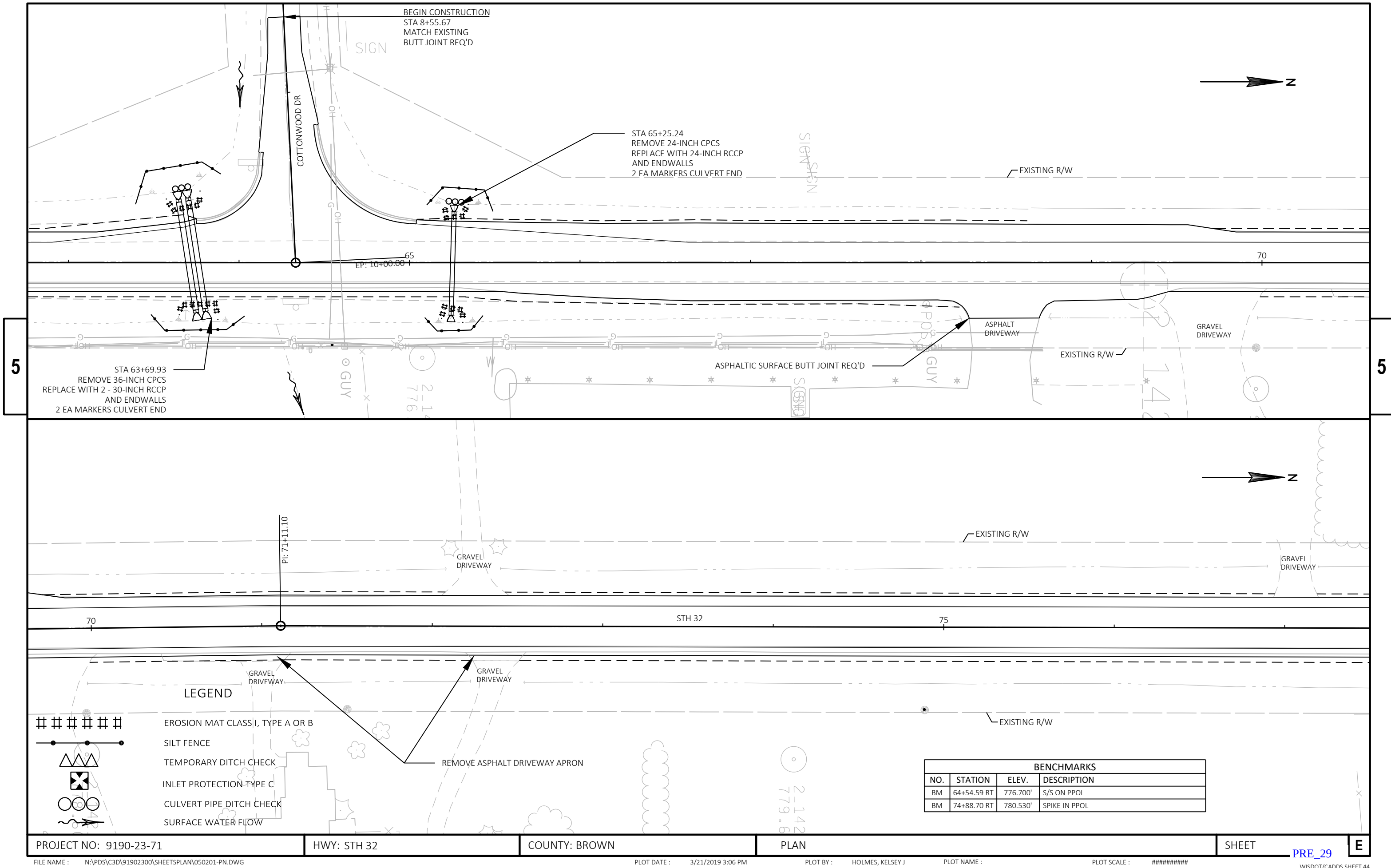
SCALE, FEET



REVISION DATE	DATE 12-19-18	SCALE, FEET	HWY: STH 32	STATE R/W PROJECT NUMBER 9190-23-21	PLAT SHEET NO. 4.5
		0 50 100	COUNTY: BROWN	CONSTRUCTION PROJECT NUMBER	PS&E SHEET I PR







PROJECT NO: 9190-23-71

HWY: STH 32

COUNTY: BROWN

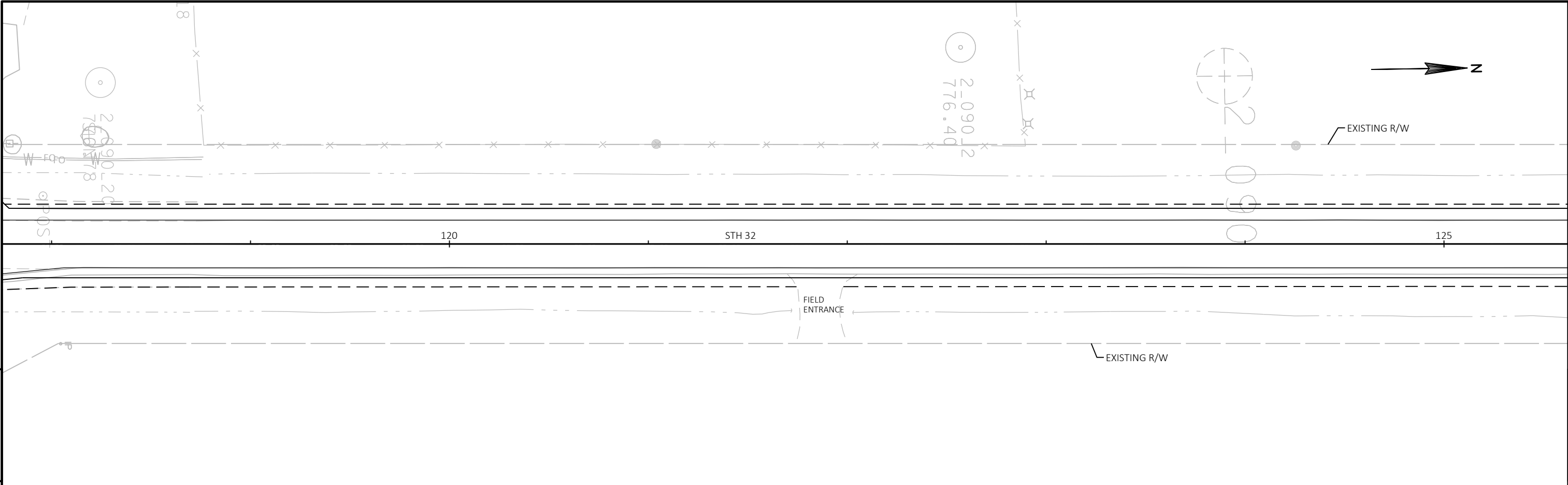
PLAN

SHEET

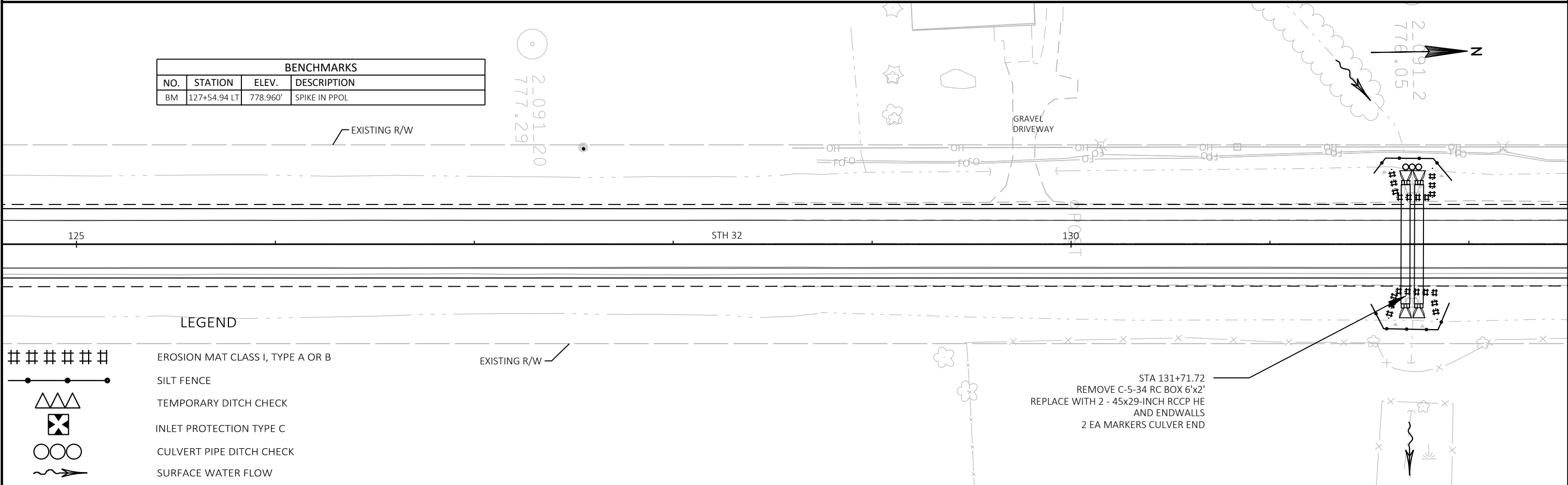
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5

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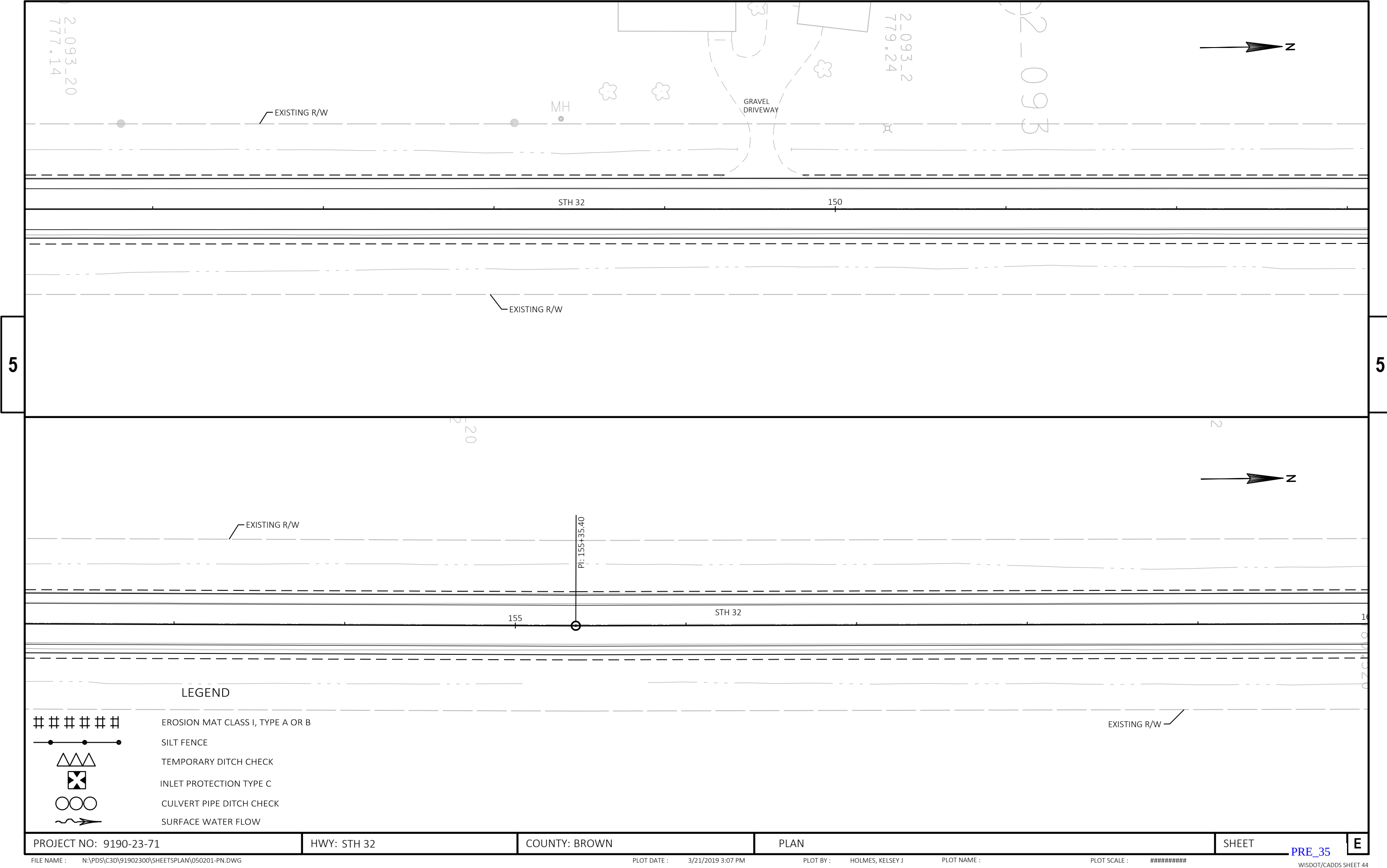


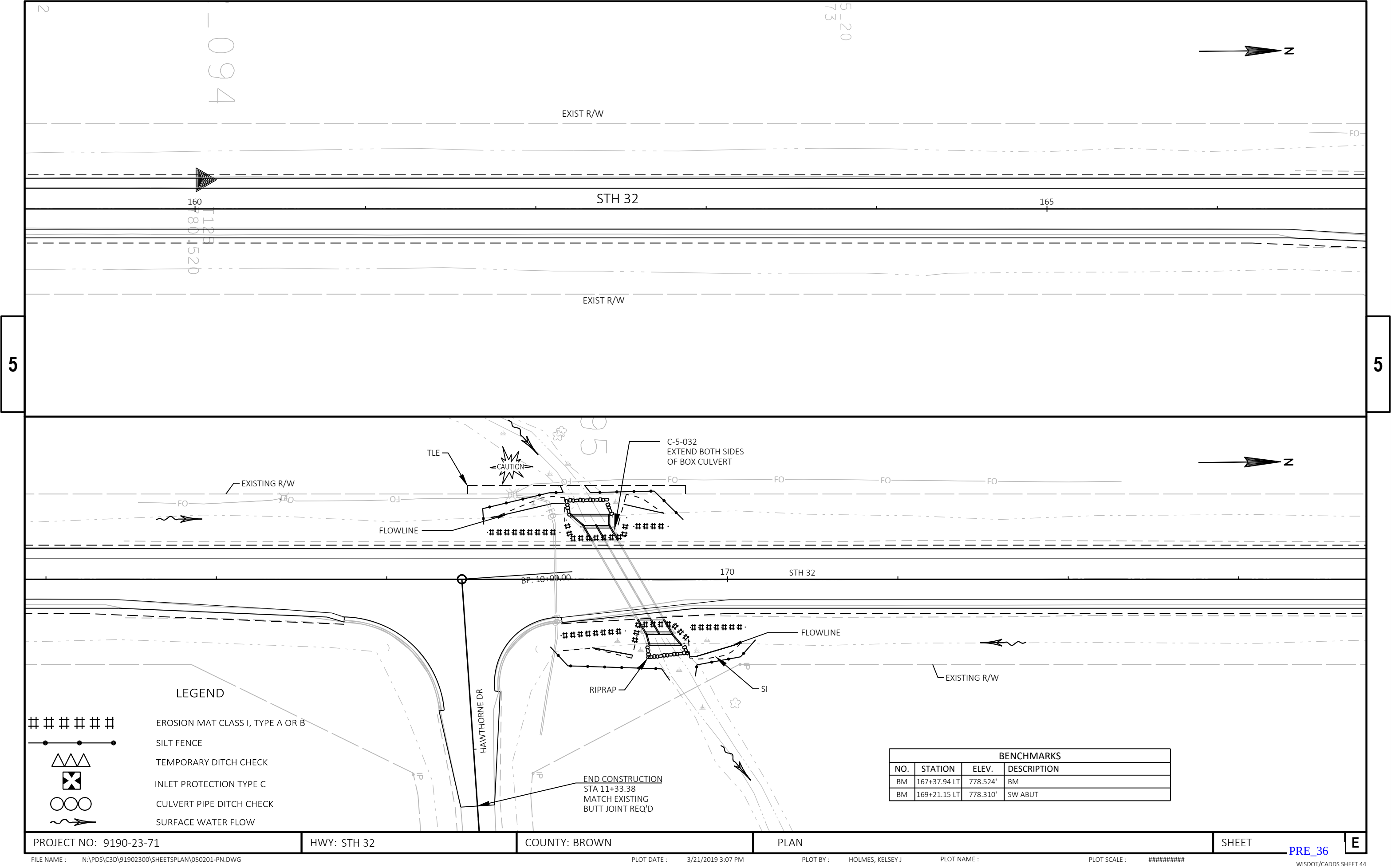
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
BM	127+54.94 LT	778.960'	SPIKE IN PPOL

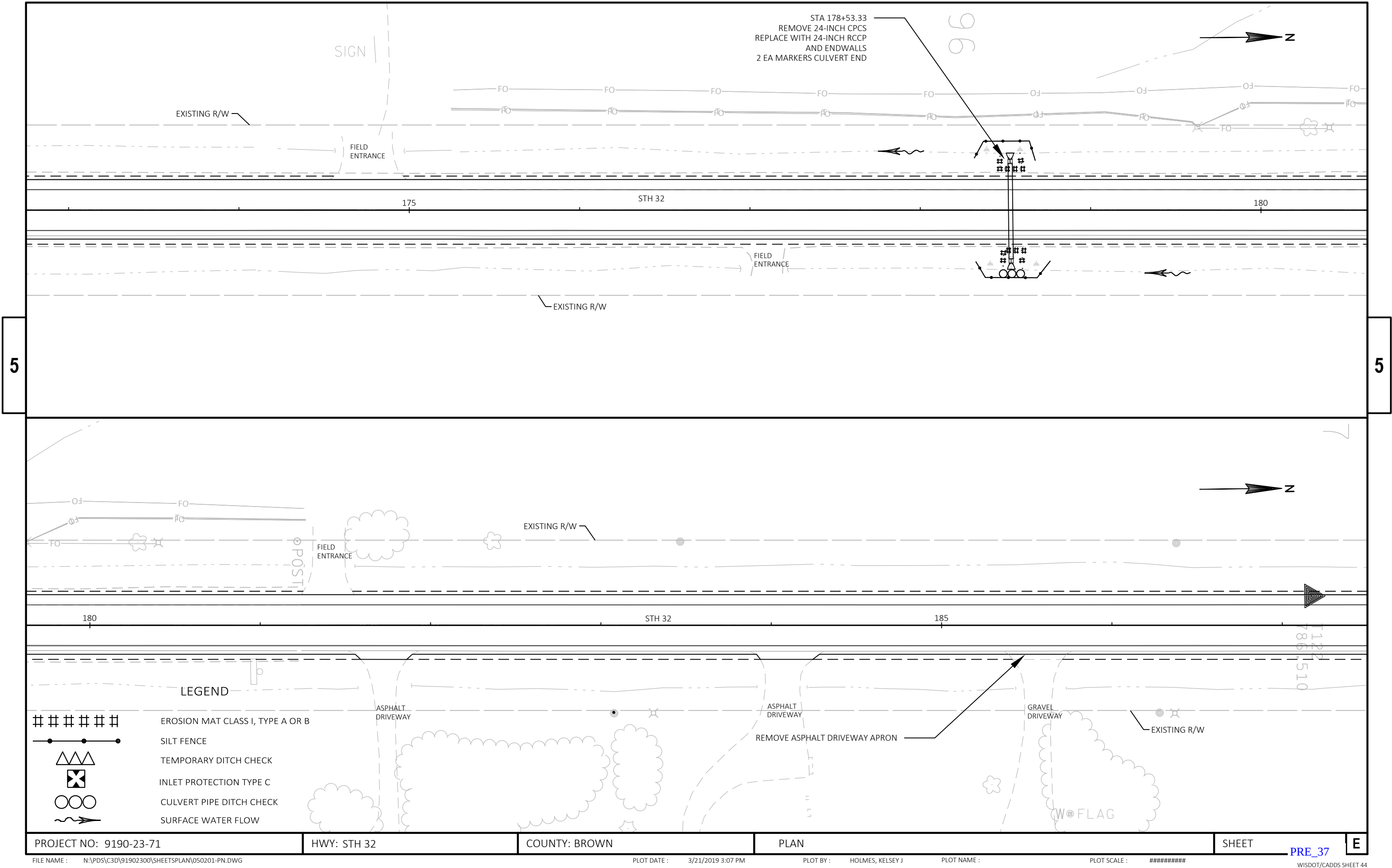


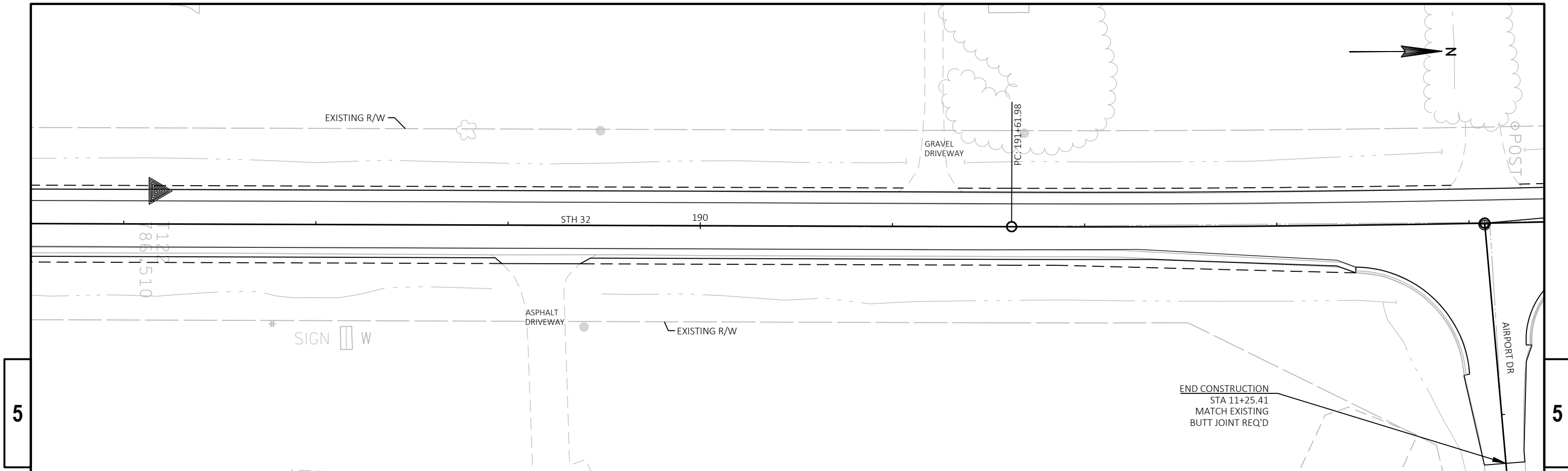
LEGEND

- ##### EROSION MAT CLASS I, TYPE A OR B
- SILT FENCE
- ▲▲▲▲ TEMPORARY DITCH CHECK
- ⊠ INLET PROTECTION TYPE C
- CULVERT PIPE DITCH CHECK
- ~> SURFACE WATER FLOW



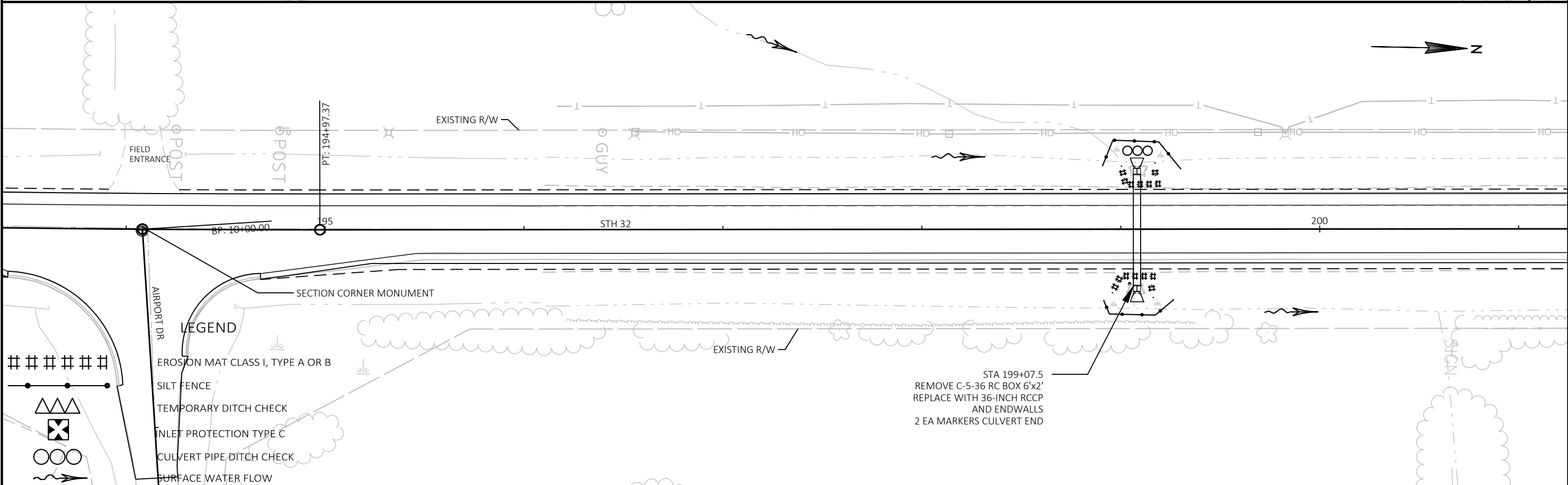




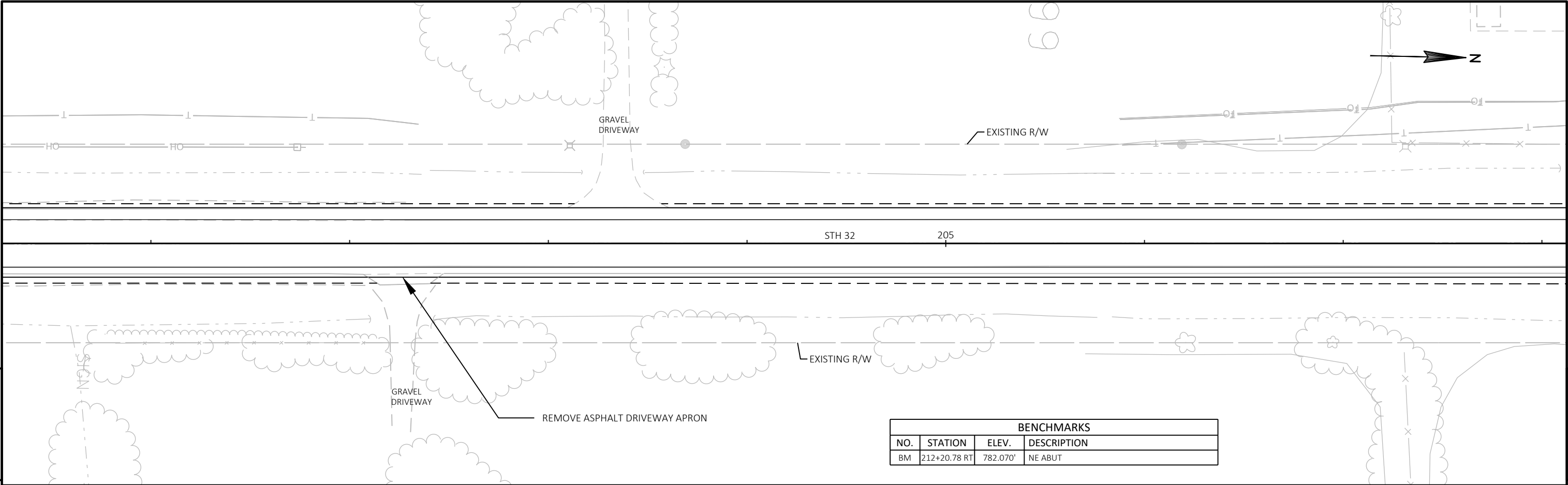


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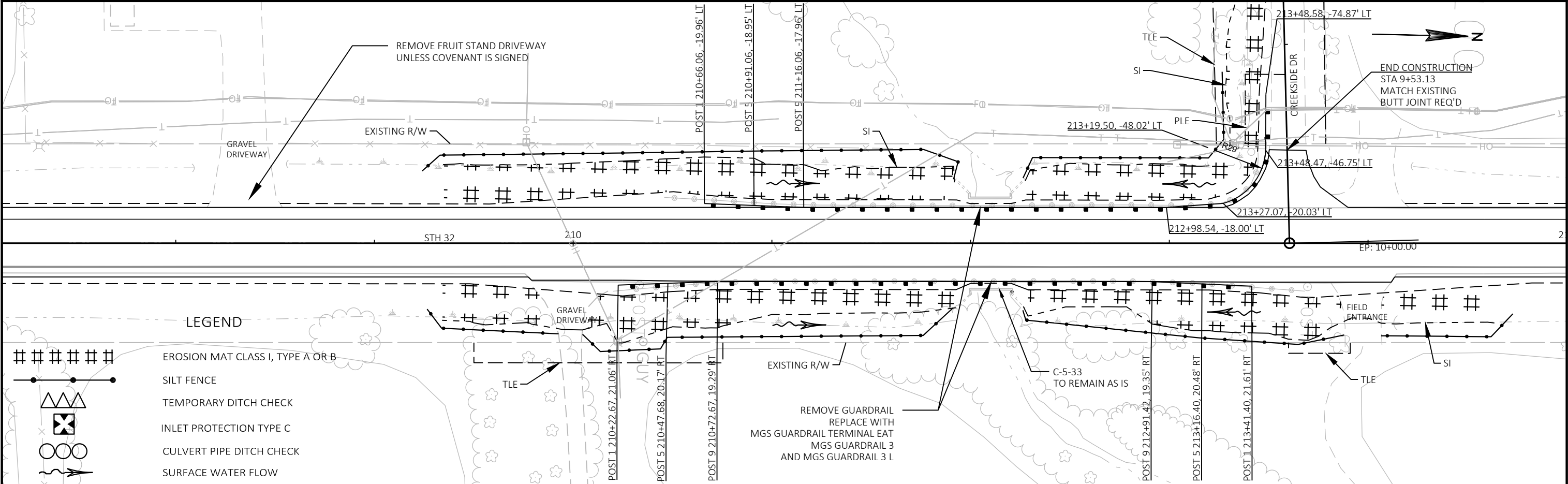
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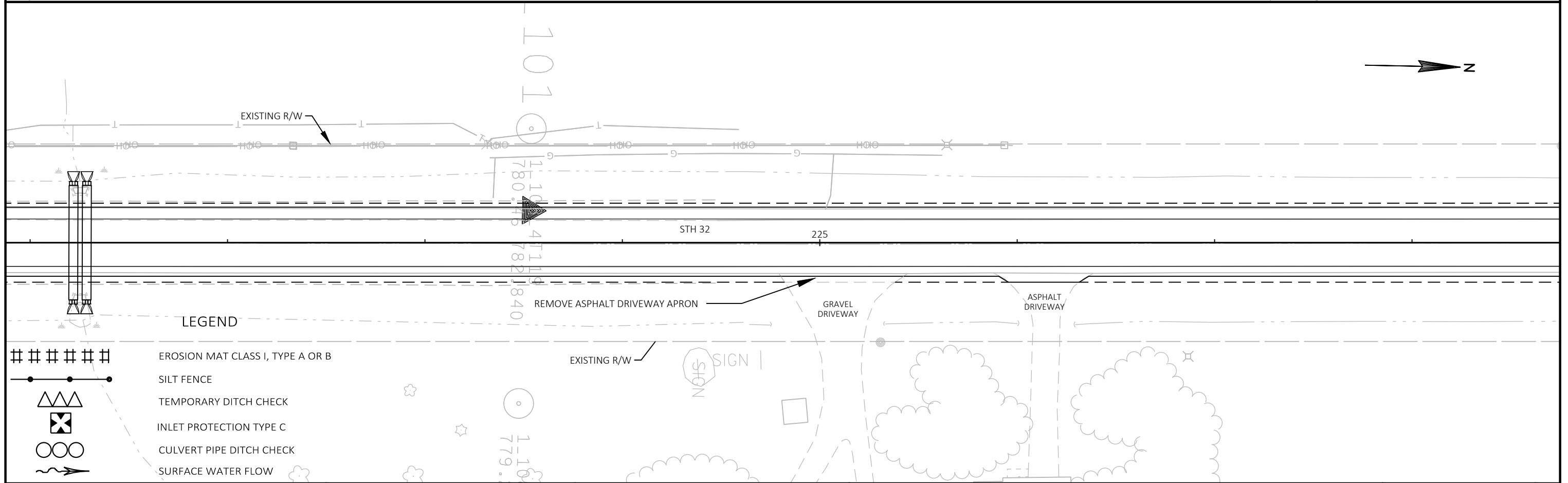
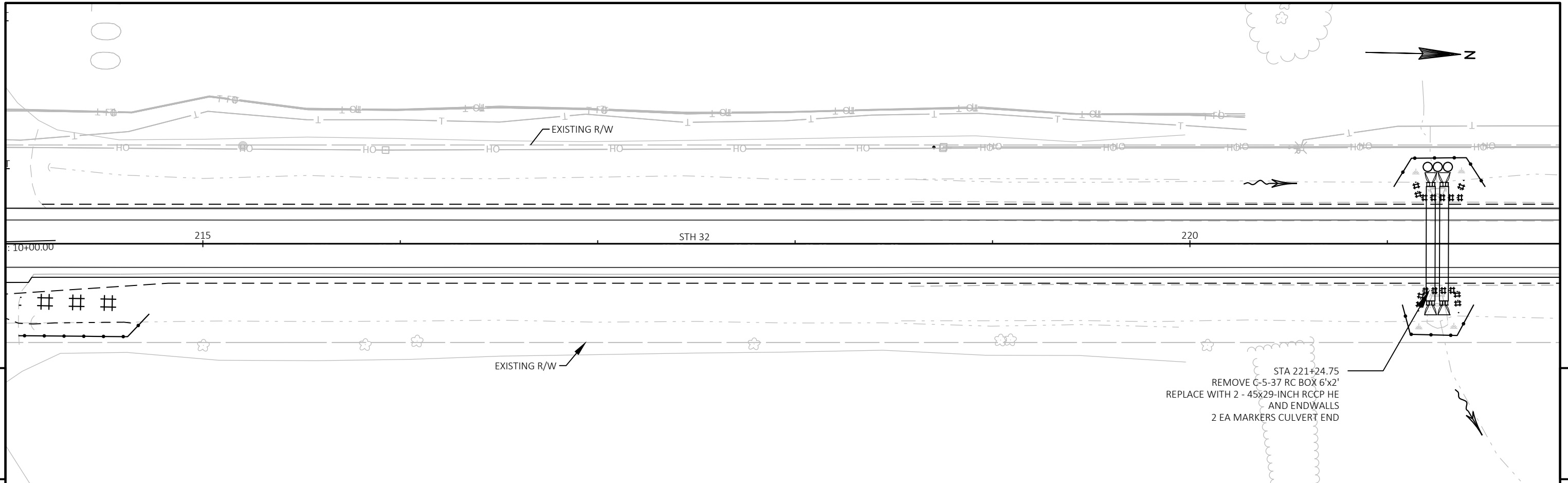


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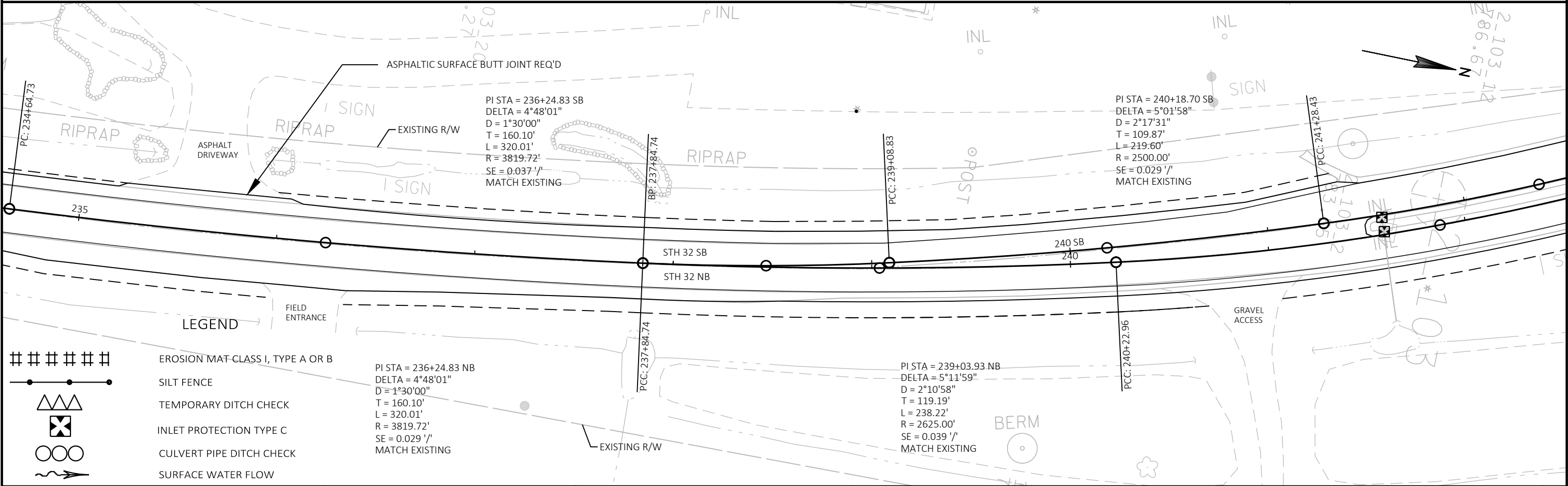
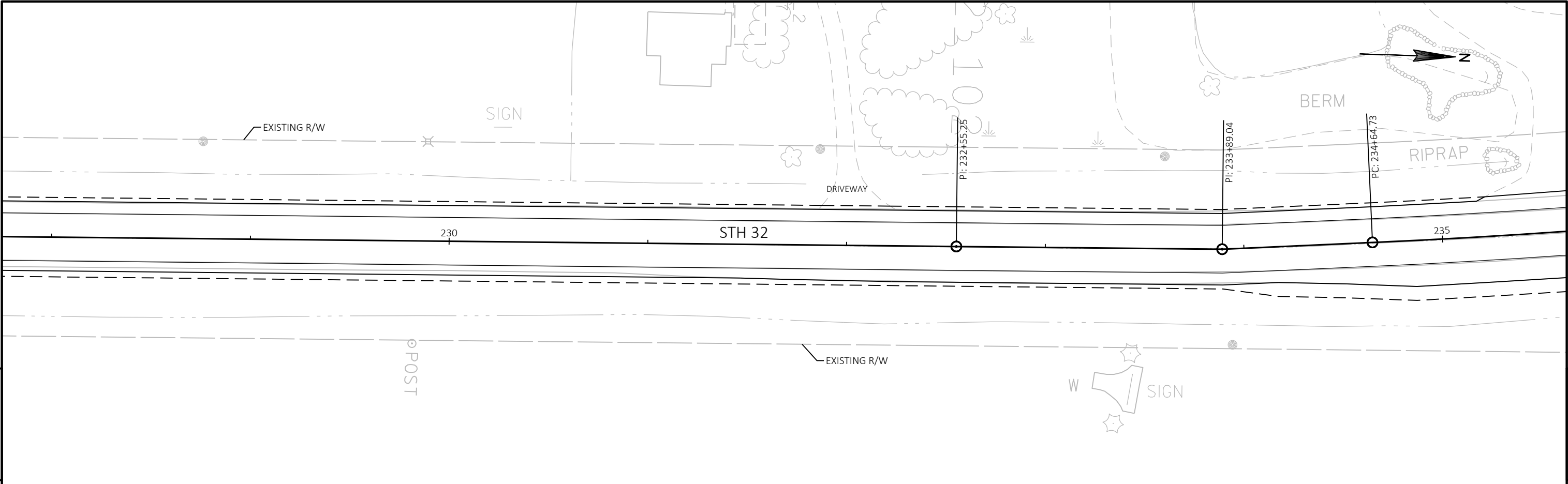
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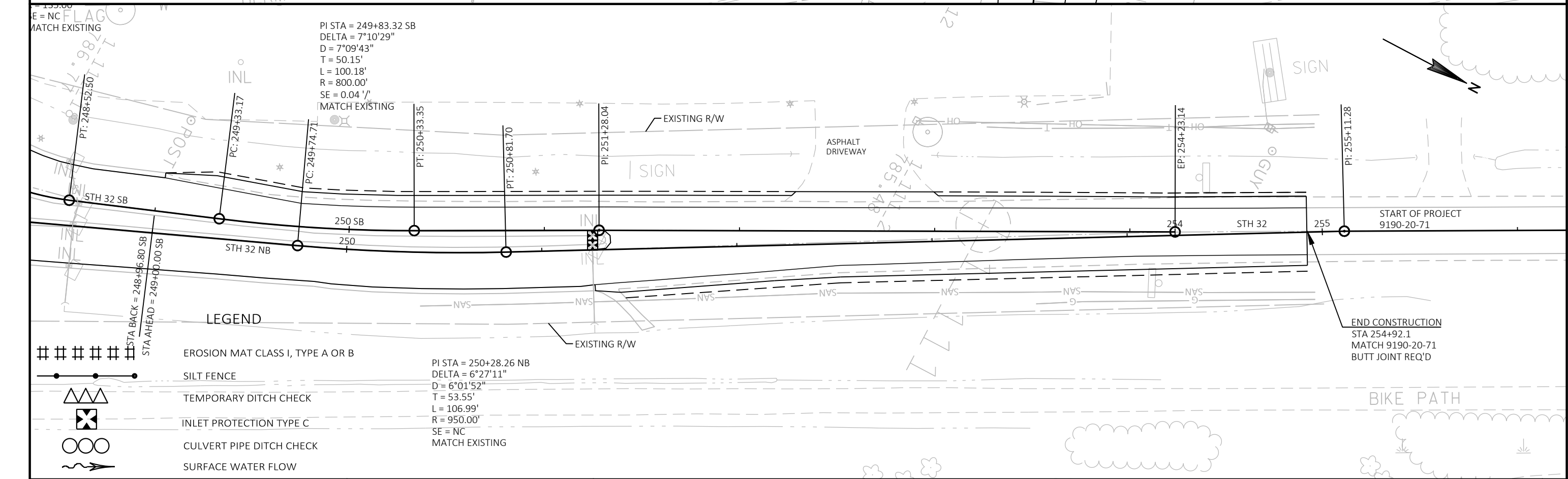
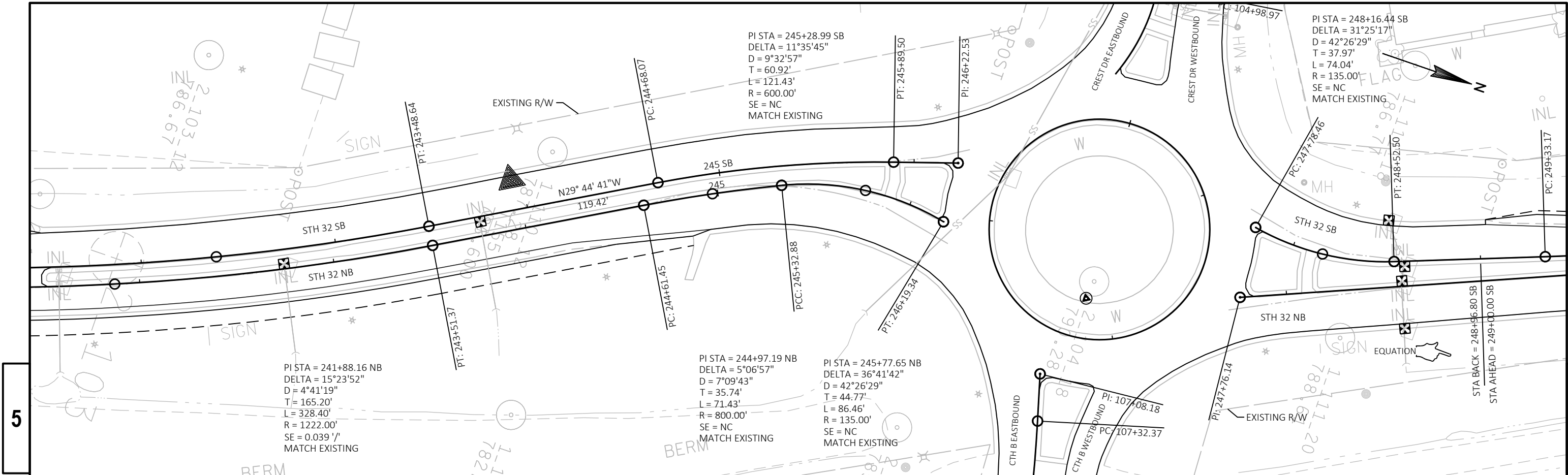


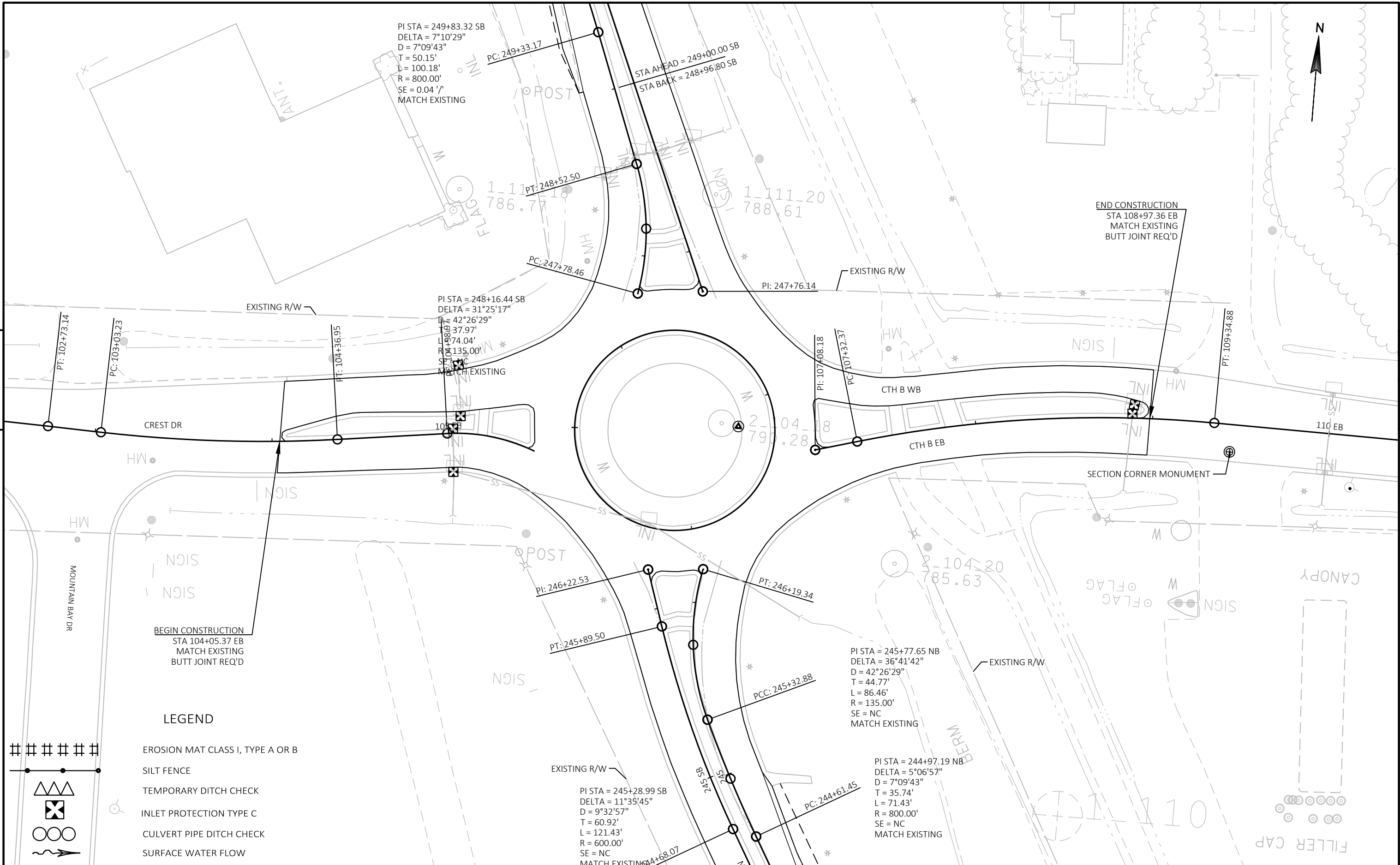


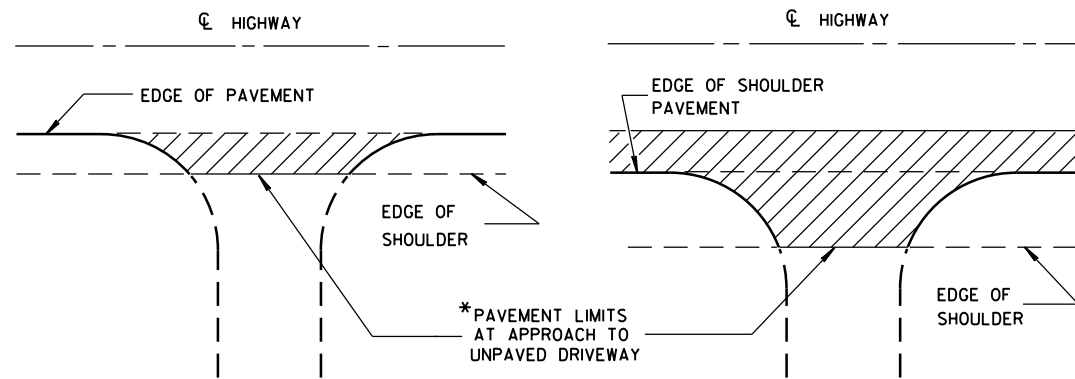
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*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

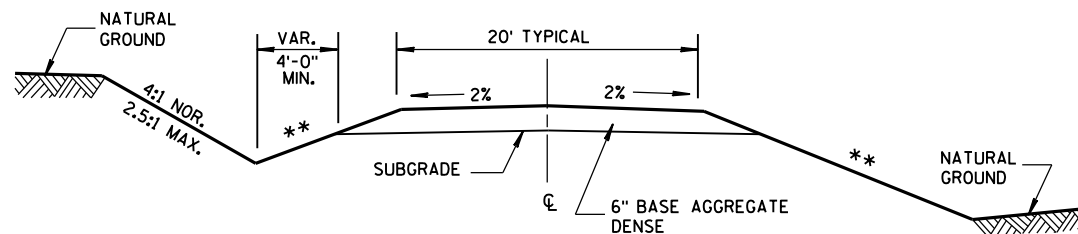
PLAN VIEW

(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW

(PAVED SHOULDER ON HIGHWAY)

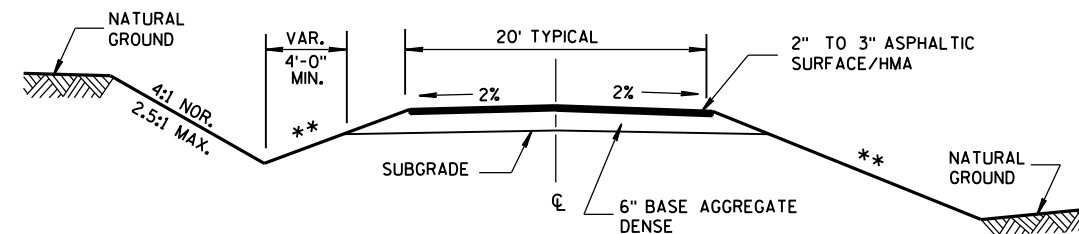
RURAL DRIVEWAY INTERSECTION DETAIL (NO CURB & GUTTER OR SIDEWALK)



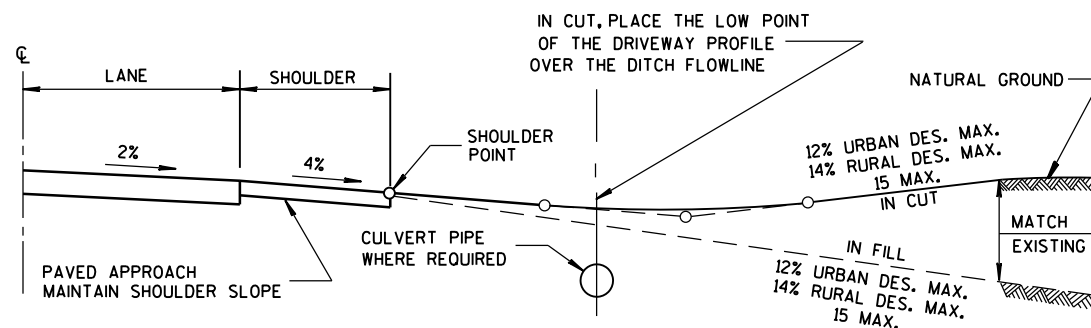
TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE AGGREGATE SURFACE

** 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

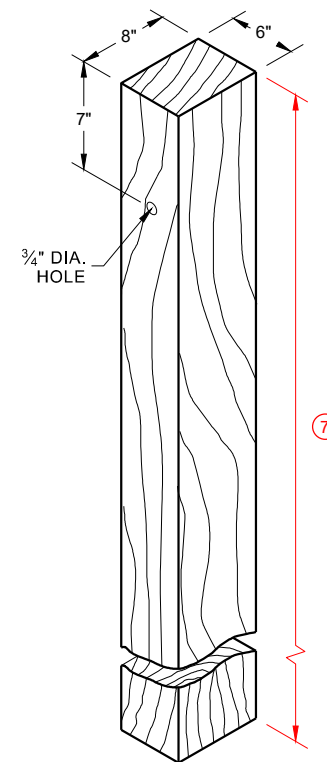
DRIVEWAYS WITHOUT CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STAND/ UNIT SL
FHWA

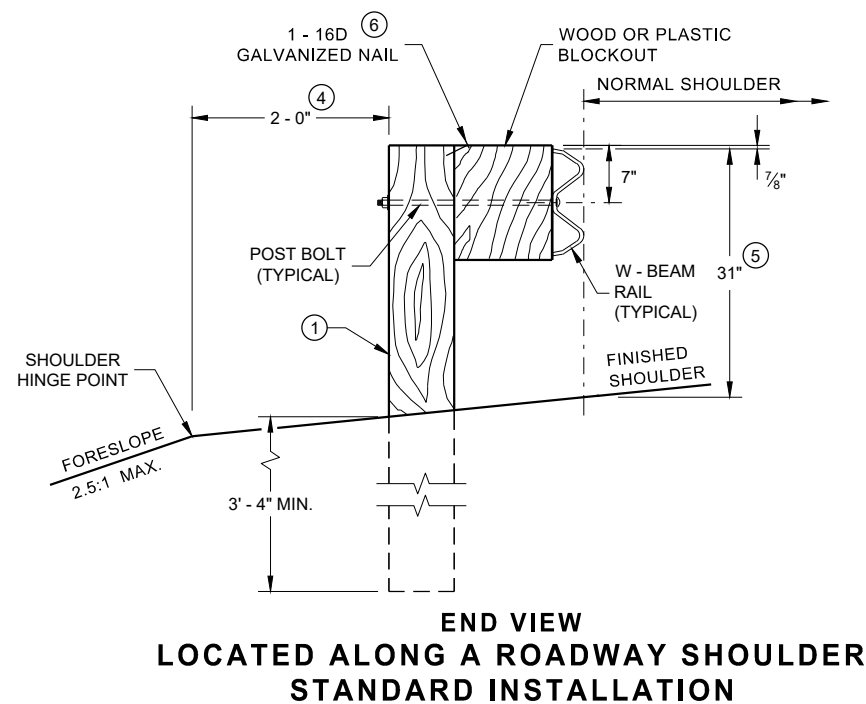


-
- Diagram illustrating the end view of a steel or wood post set in rock. The post is 12" wide and 2" thick. The rock is 44 1/2" wide. The post is embedded in the rock by 20" minimum. The rock is filled with foundation backfill. The diagram includes dimensions for the post, rock, and backfill, and a note about the minimum embedment in solid rock.
- END VIEW**
- SETTING STEEL OR WOOD POST IN ROCK**
- Labels and Dimensions:
- 44 1/2" MIN. WHERE "A" IS $\geq 22"$
 - "A"
 - 2 1/2"
 - 20" MINIMUM EMBEDMENT IN SOLID ROCK IF SHORTENED POST IS USED WHERE "A" IS $\leq 22"$
 - FILL WITH FOUNDATION BACKFILL
 - 2" MIN.
 - 12"
 - 2" MIN.

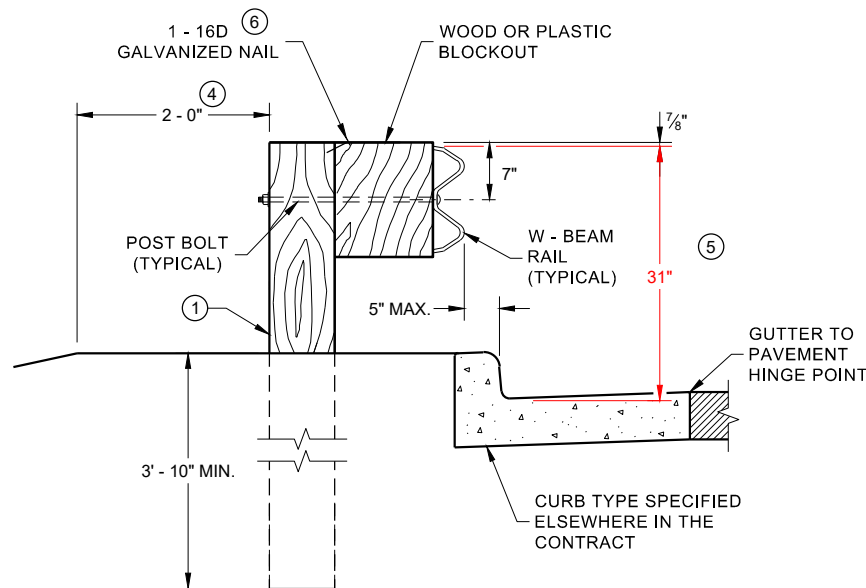


**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

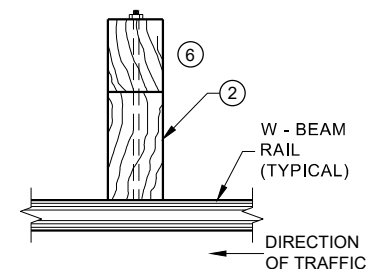
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



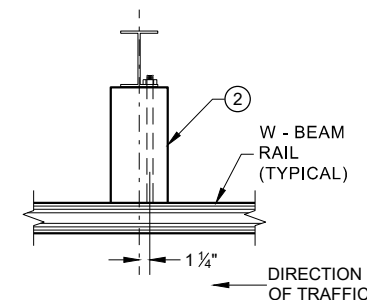
END VIEW
LOCATED ALONG A CURBED ROADWAY



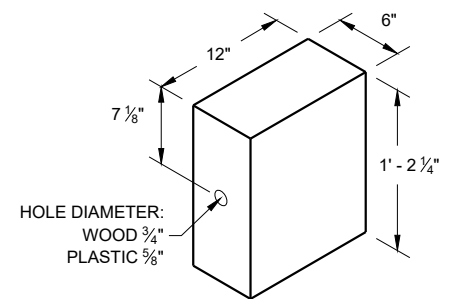
END VIEW
MGS LONGER POST AT HALFPOST
SPACING W BEAM (K)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM



**WOOD OR PLASTIC
BLOCKOUT**

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

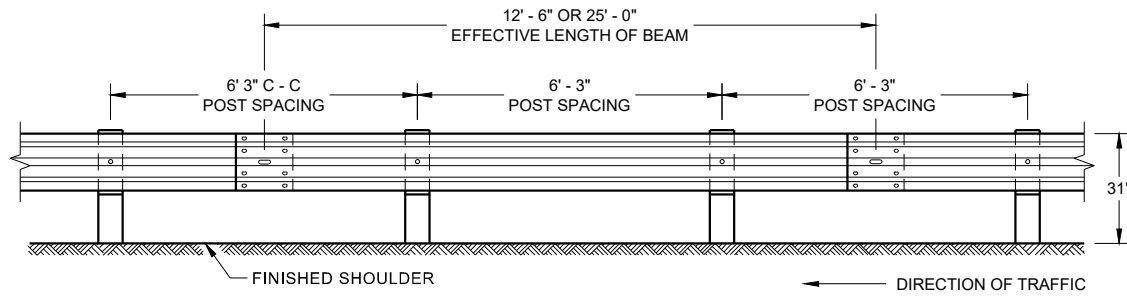
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION PRE_45

6

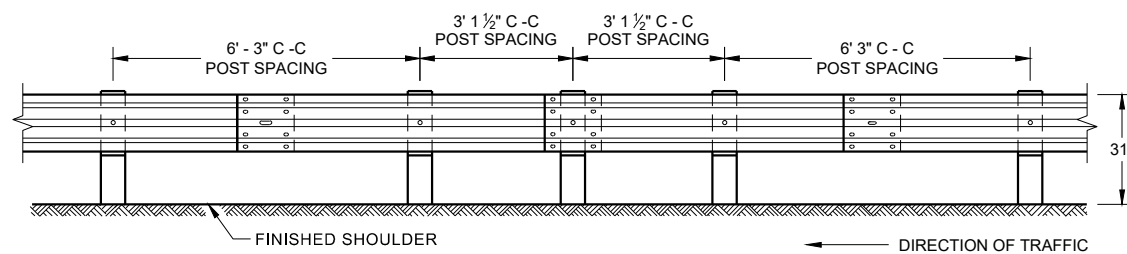
16

SDD 14B42 - 06a

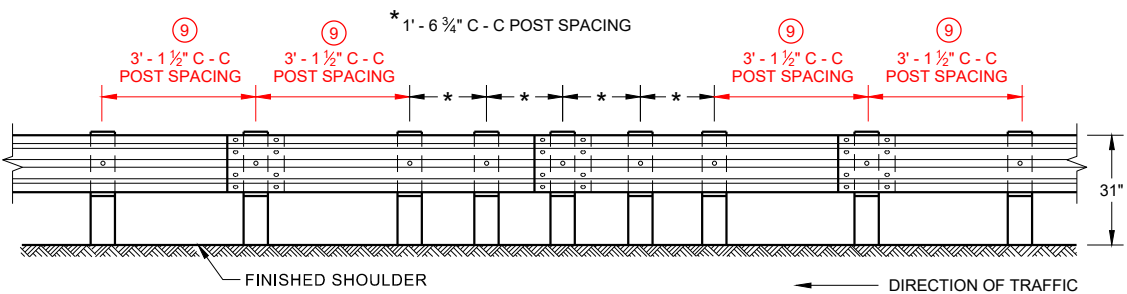
SDD 14B42 - 06a



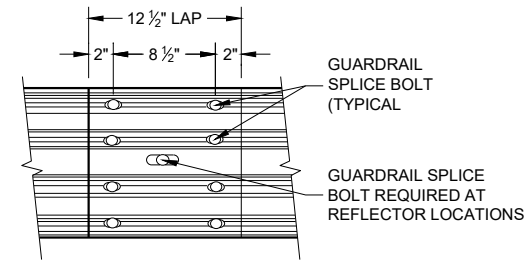
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



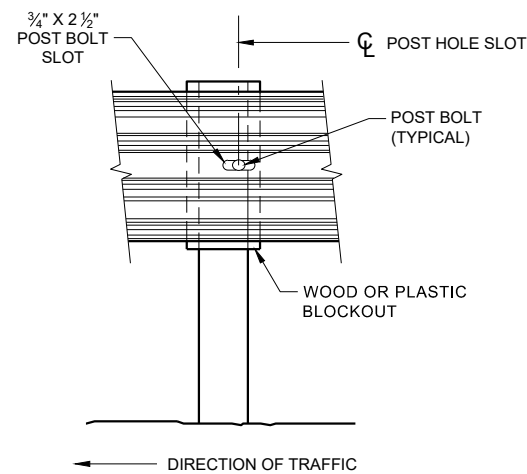
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



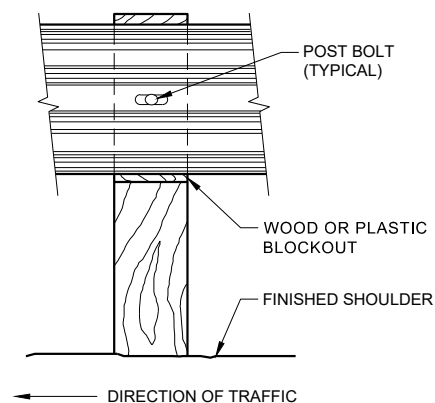
**FRONT VIEW
QUARTER POST SPACING (QS)**



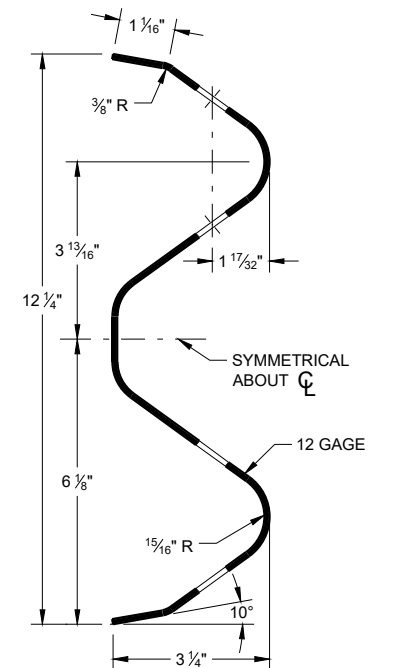
**FRONT VIEW
MID-SPAN BEAM SPLICE**



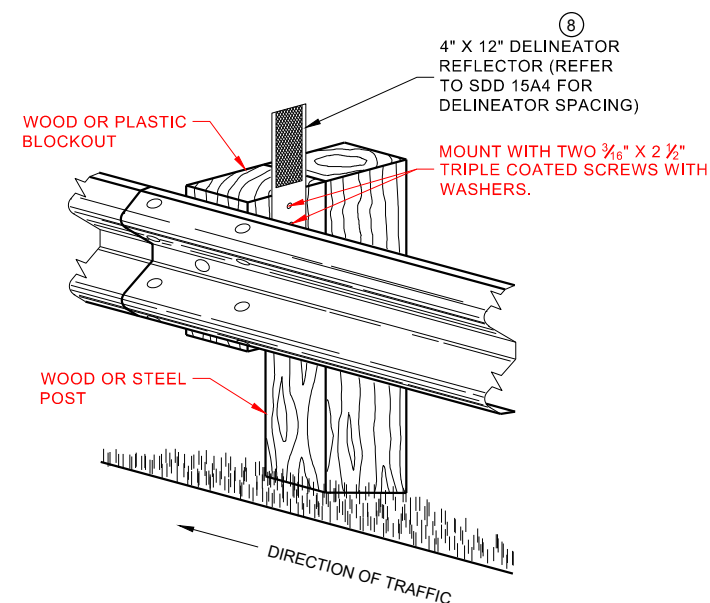
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



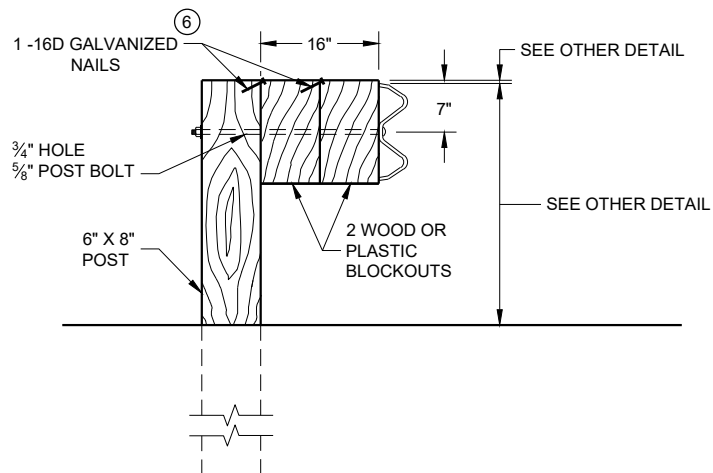
SECTION THRU W-BEAM RAIL



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

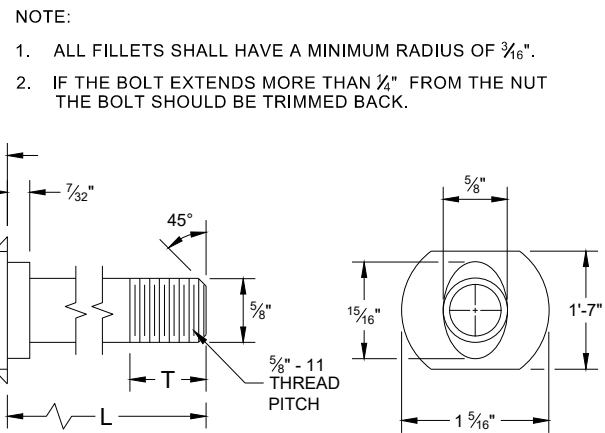
GENERAL NOTES

- 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.



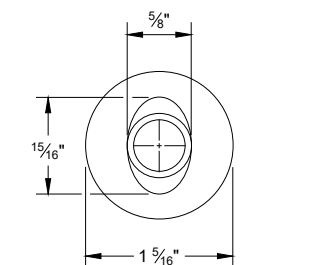
DETAIL FOR 16" BLOCKOUT DEPTH

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.

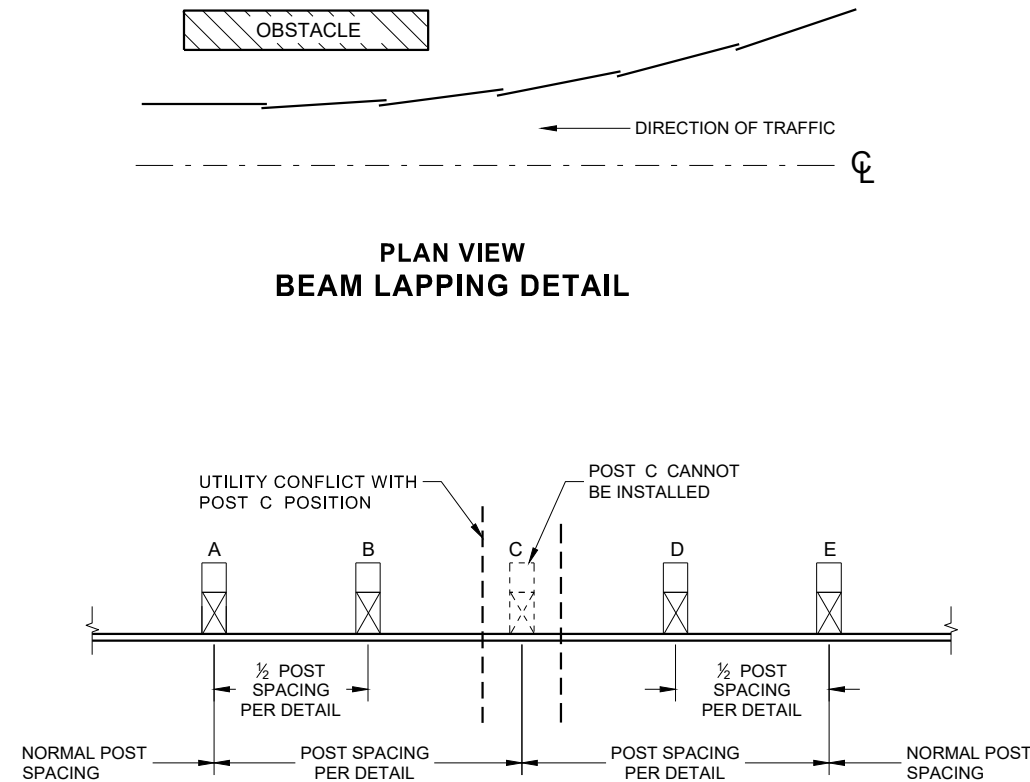


POST BOLT TABLE

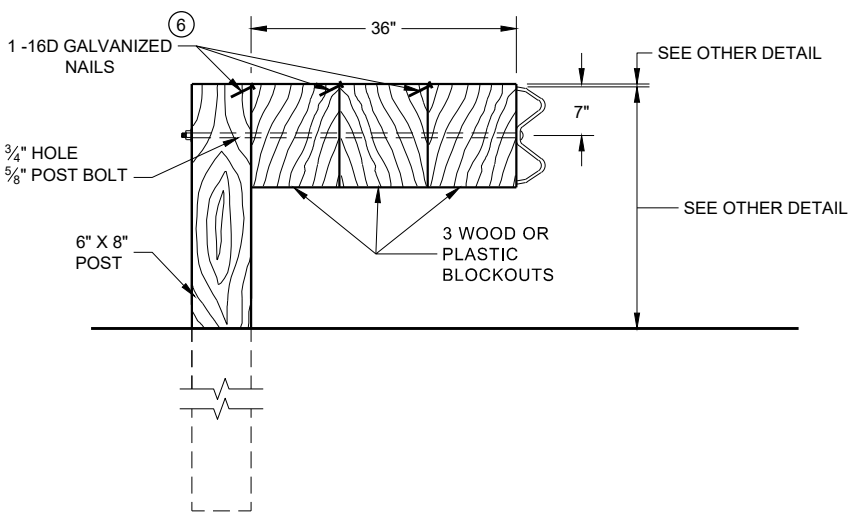
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

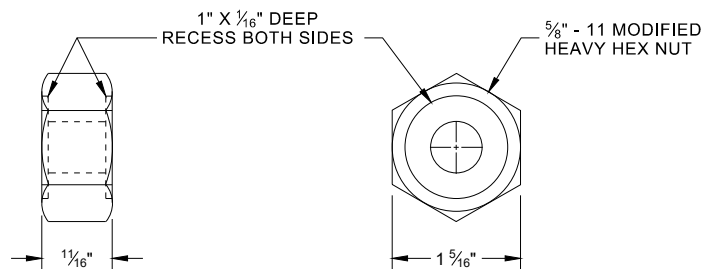


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

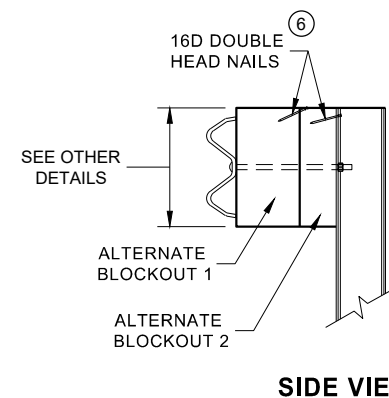


DETAIL FOR 36" BLOCKOUT DEPTH

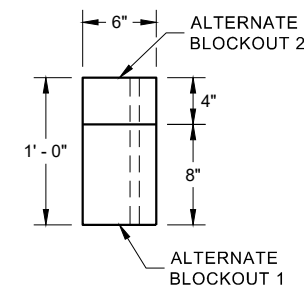
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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



POST BOLT, SPLICE BOLT AND RECESS NUT

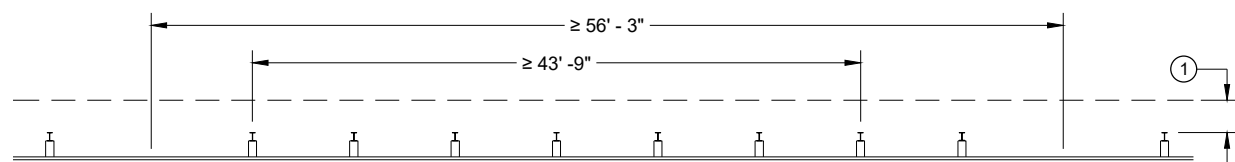


ALTERNATE WOOD BLOCKOUT DETAIL

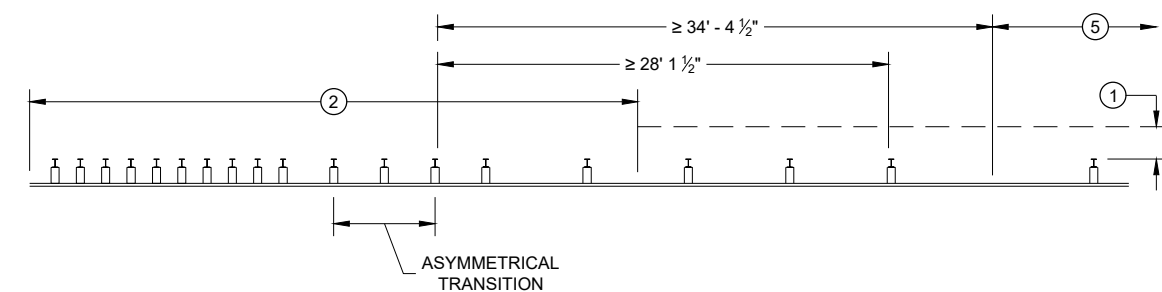


MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

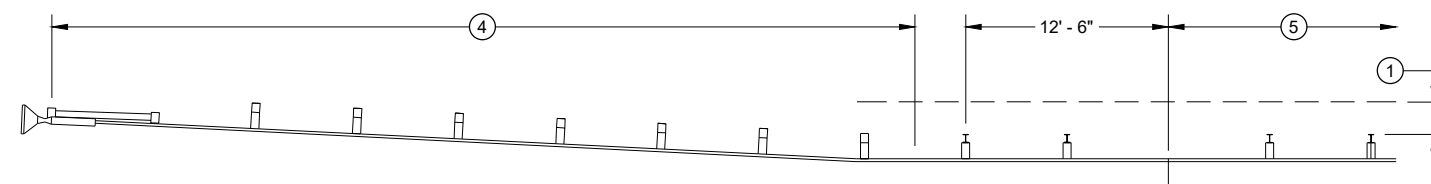
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION PRE_47



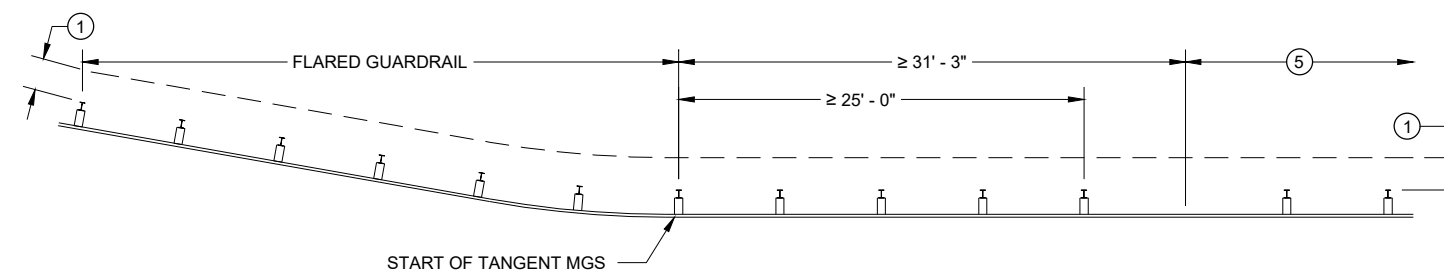
MISSING POST IN NORMAL BEAM GUARD RUN



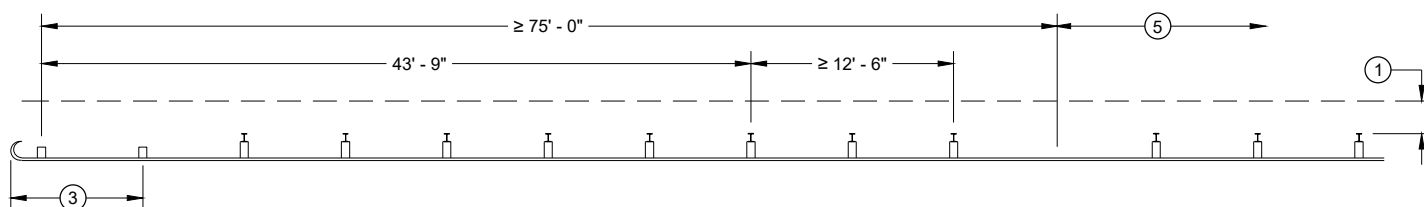
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



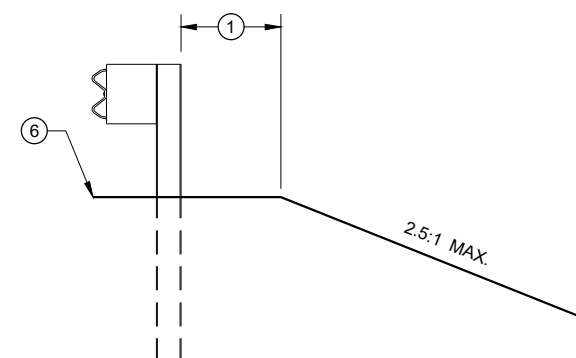
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



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 Tavlör
ROADWAY STANDARDS
UNIT SUPERVISOR
PRE_48
FHWA



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

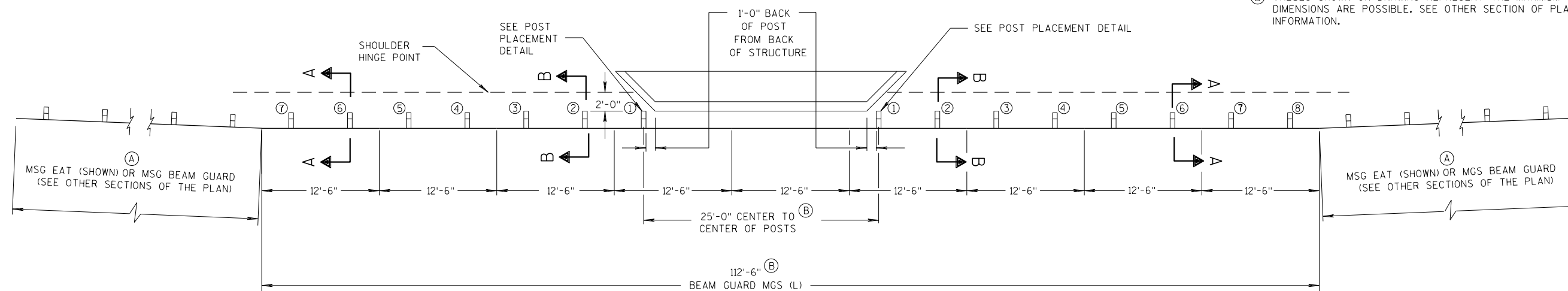
GENERAL NOTES

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

SEE SDD 14 B 42 FOR MORE DETAILS.

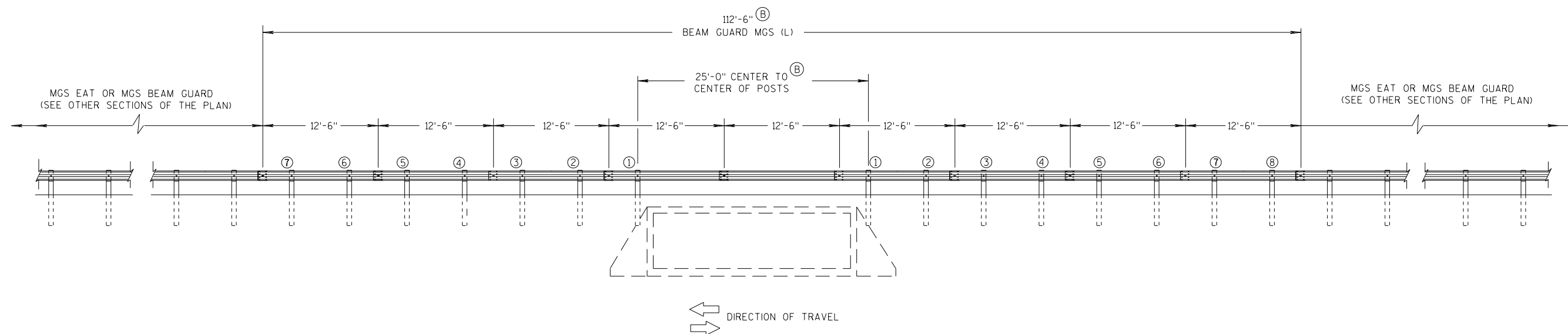
(A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.

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



DIRECTION OF TRAVEL

PLAN VIEW



DIRECTION OF TRAVEL

ELEVATION VIEW

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

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSP

PR



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

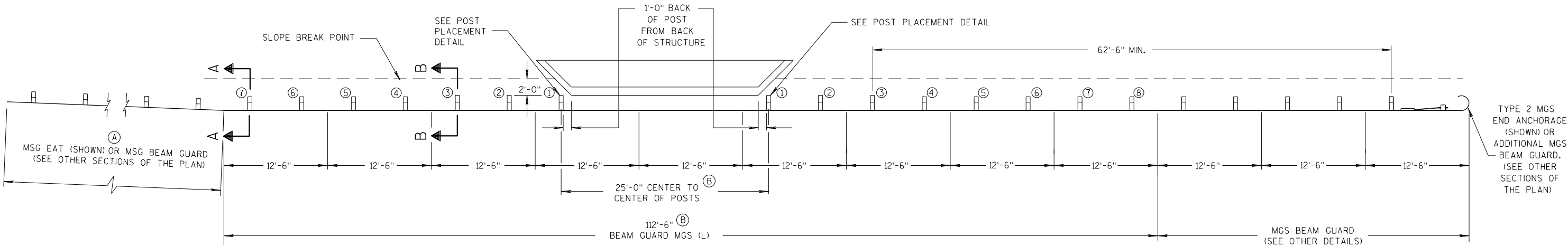
GENERAL NOTES

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

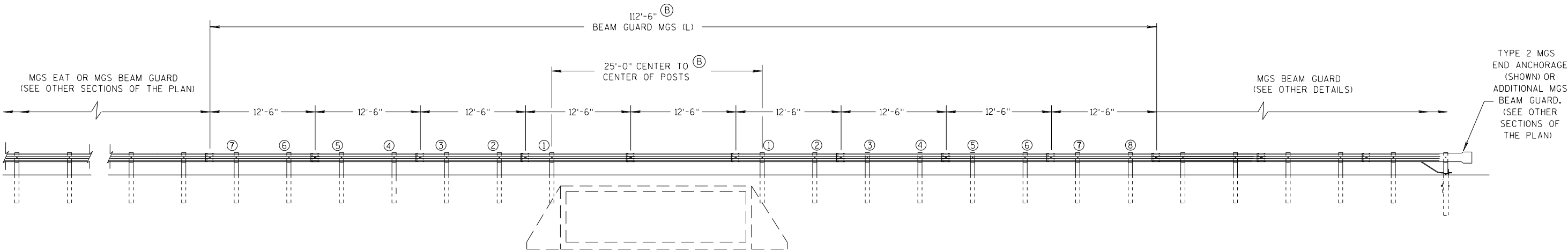
SEE SDD 14 B 42 FOR MORE DETAILS.

(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

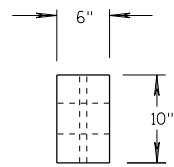
MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSP

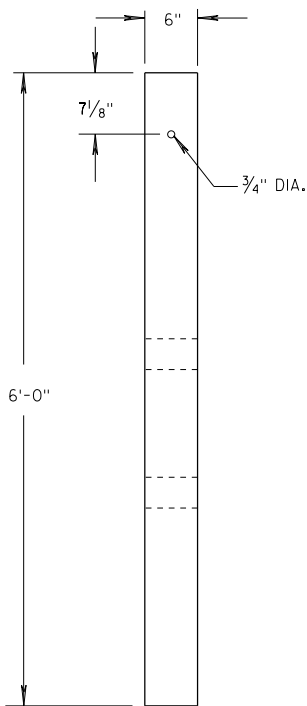
PR



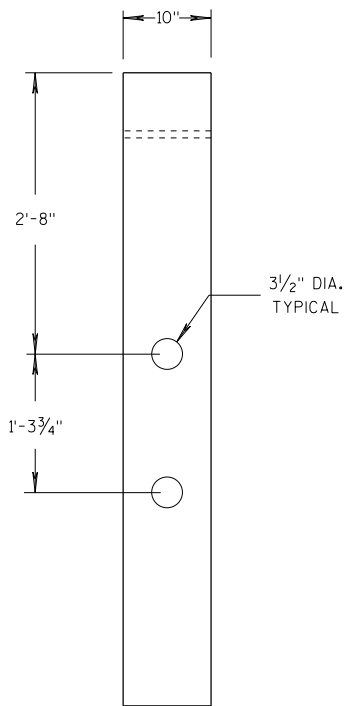
SDD 14b43-c Midwest Guardrail System Long Span (MGS L) Cross Section and CRT Post Details



PLAN VIEW

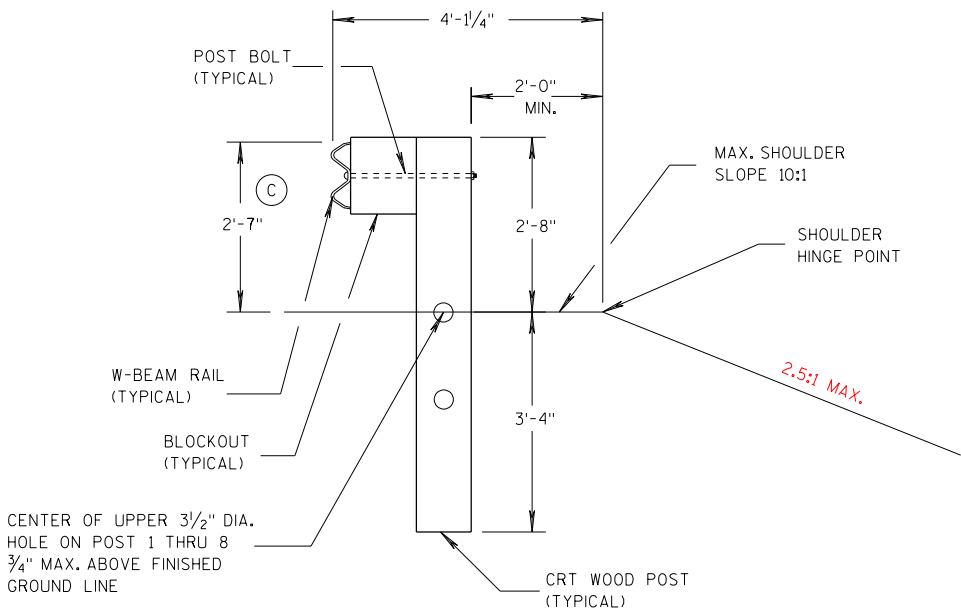


FRONT VIEW



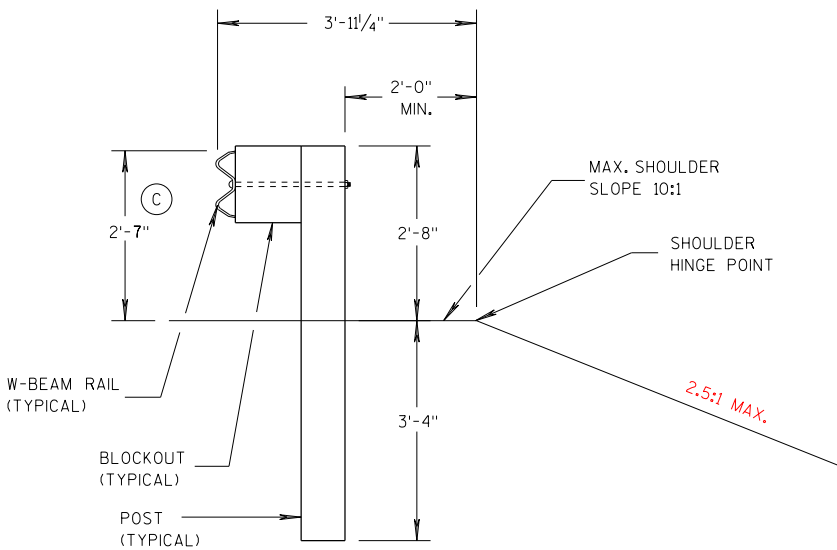
SIDE VIEW

CRT WOOD POST



SECTION B-B
POSTS NO. 1-3

SEE OTHER DETAILS

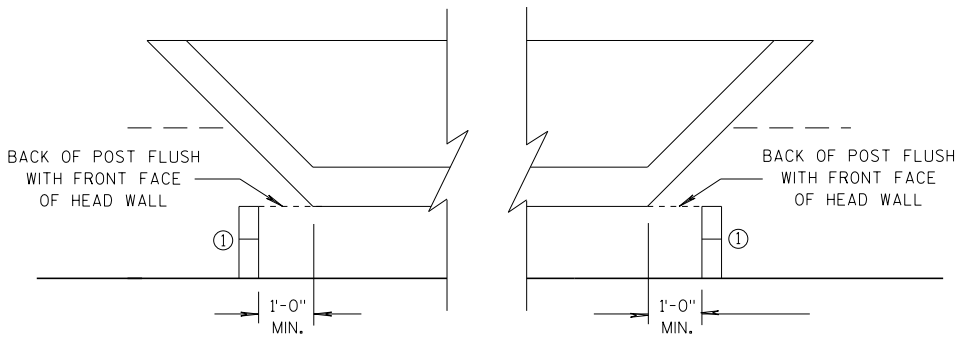


SECTION A-A
POSTS NO. 4-8

SEE OTHER DETAILS

GENERAL NOTES

(C) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



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
ENGINEER
PR
FHWA



SDD 14b44-a Midwest Guardrail System (MGS) Energy Absorbing Terminal (EAT) - Layout

GENERAL NOTES

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

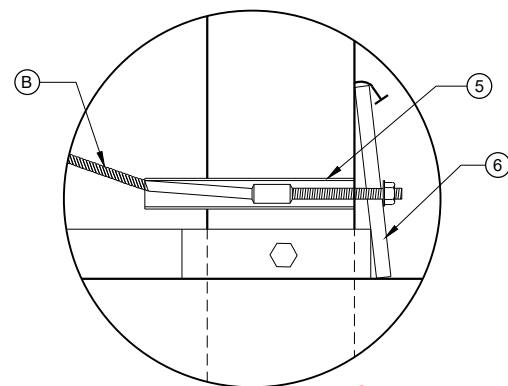
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

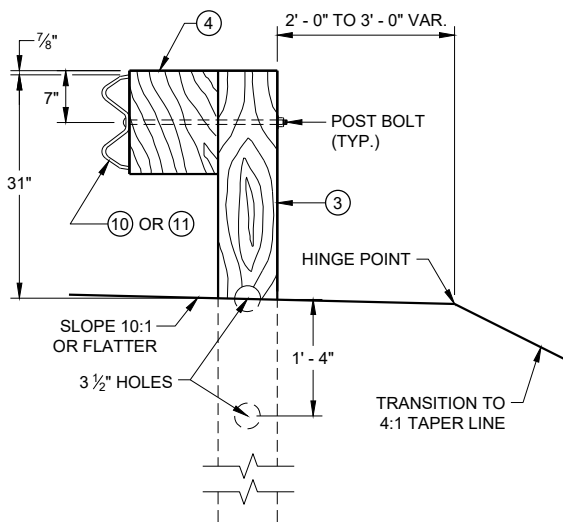
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

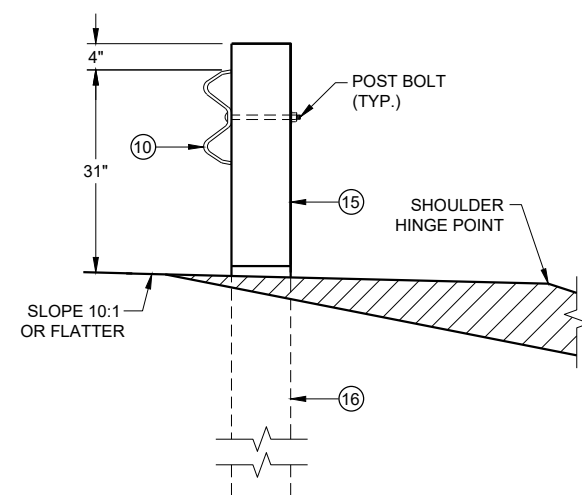
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



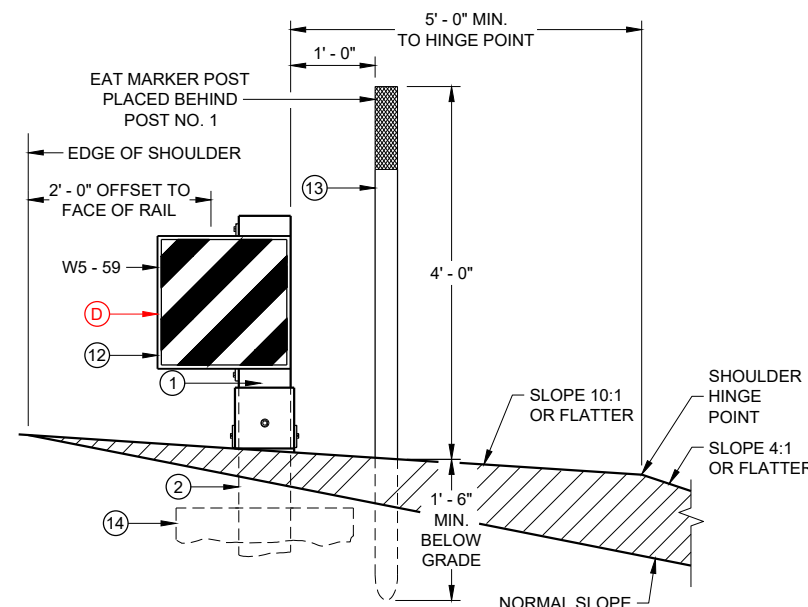
DETAIL "A"



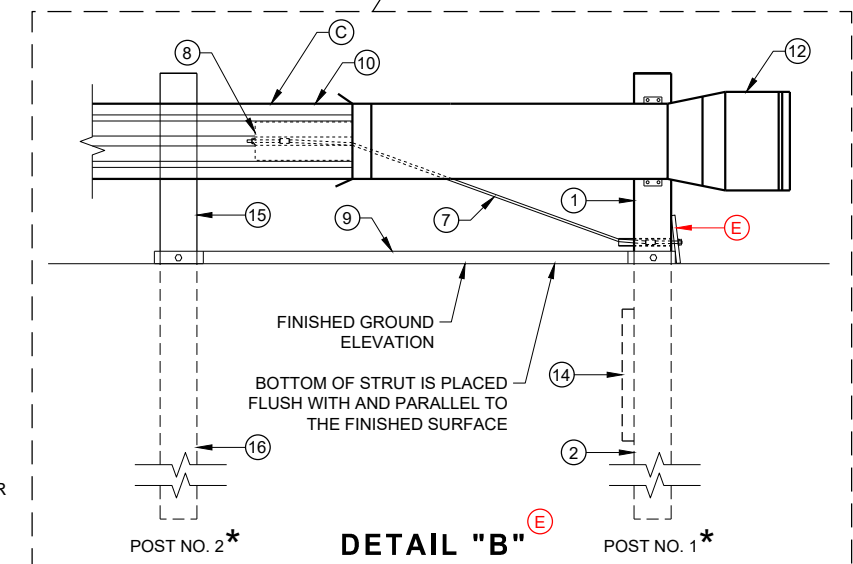
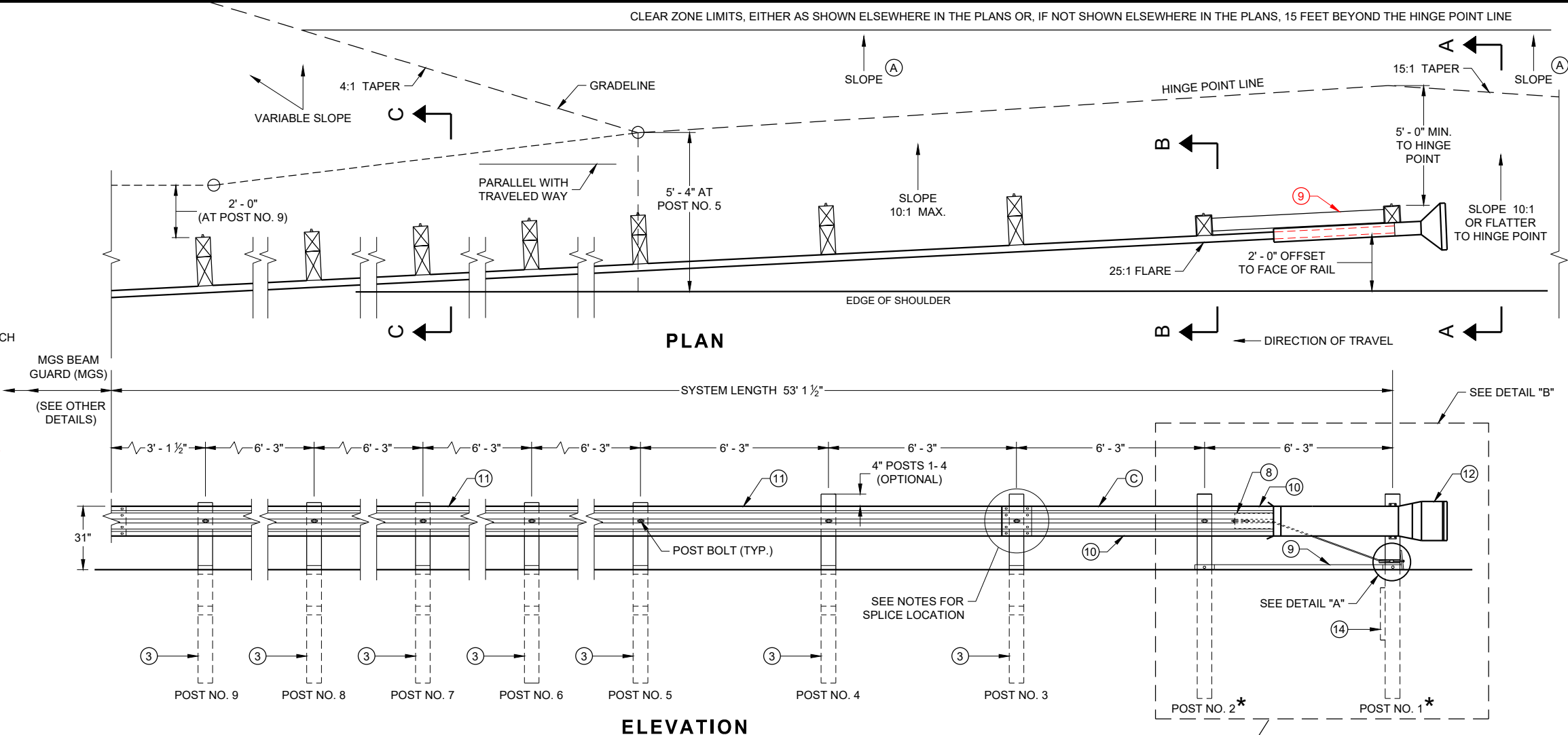
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



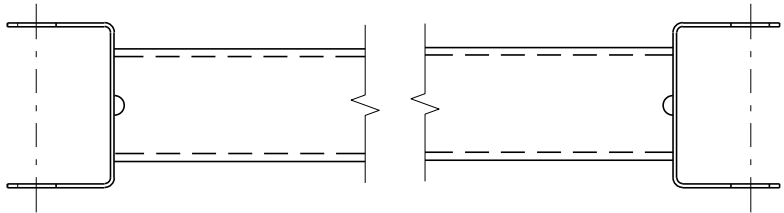
DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION PRE_52

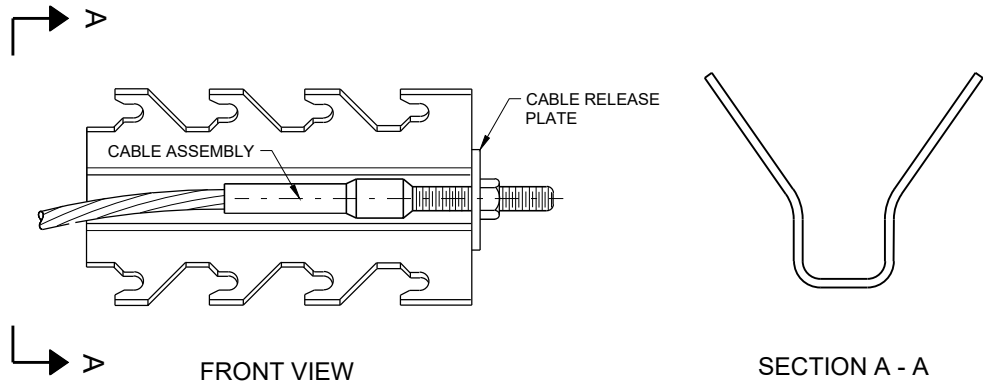
SDD 14B44 - 04a

SDD 14B44 - 04a

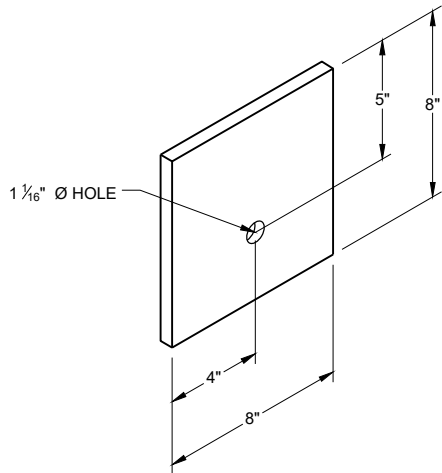


GENERIC GROUND STRUT⁹ ^E

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



GENERIC ANCHOR CABLE BOX⁹ ^E



BEARING PLATE⁶ ^E

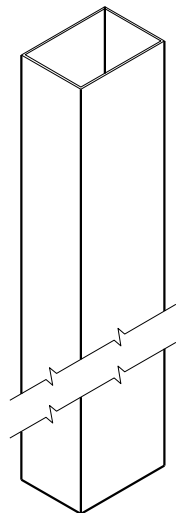
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

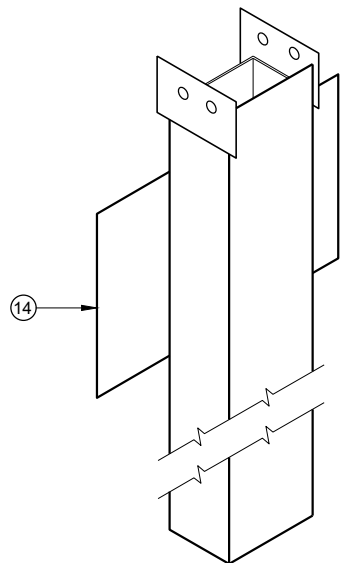
PRE_53



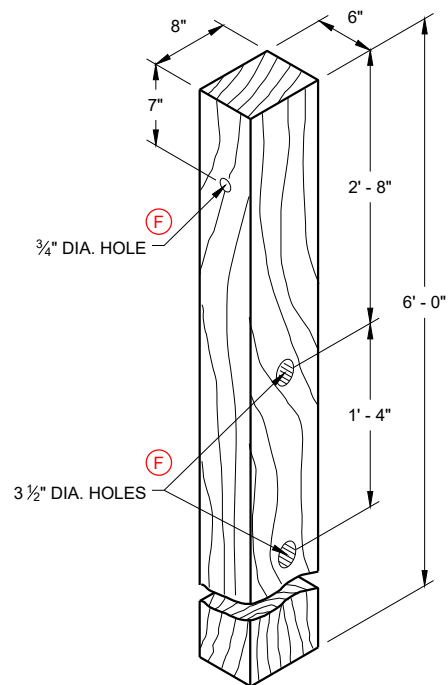
SDD 14b44-c MGS EAT - Post Details, Block Detail, Marker Post Detail, Reflective Sheeting Detail



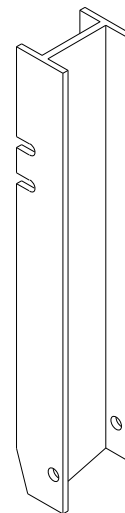
UPPER POST NO. 1 ⁽¹⁾ (E)



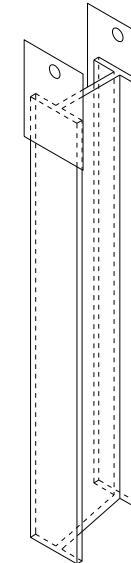
LOWER POST NO. 1 ⁽²⁾ (E)



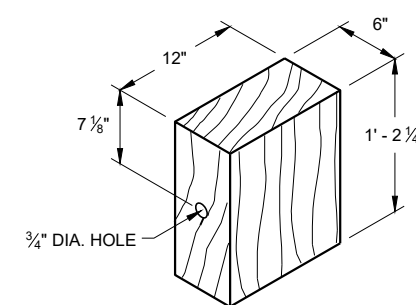
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



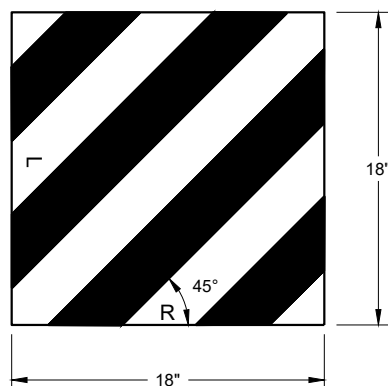
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



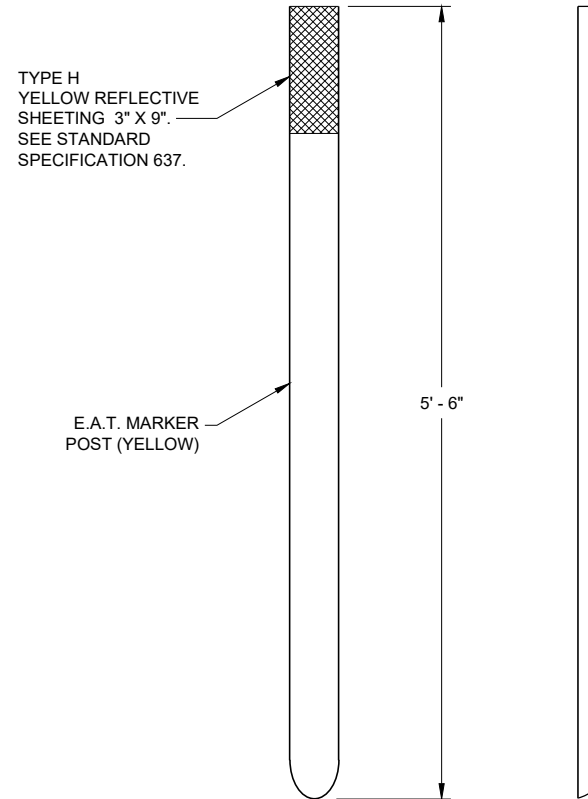
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



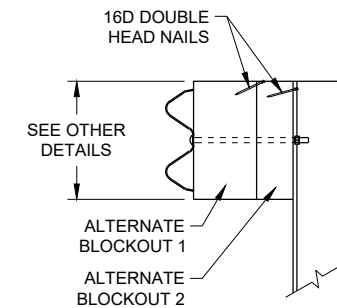
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



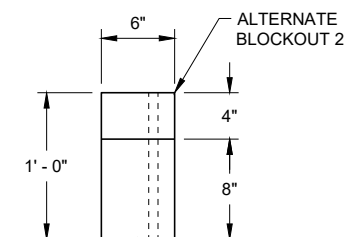
REFLECTIVE SHEETING DETAIL ^(E)



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



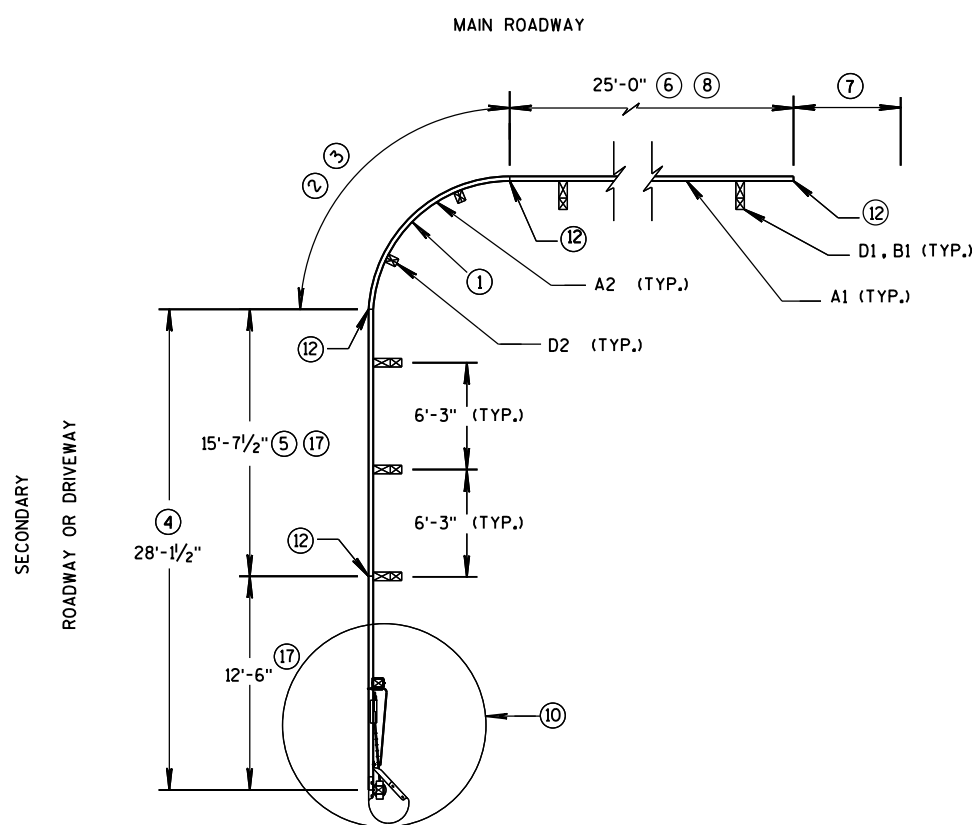
SIDE VIEW



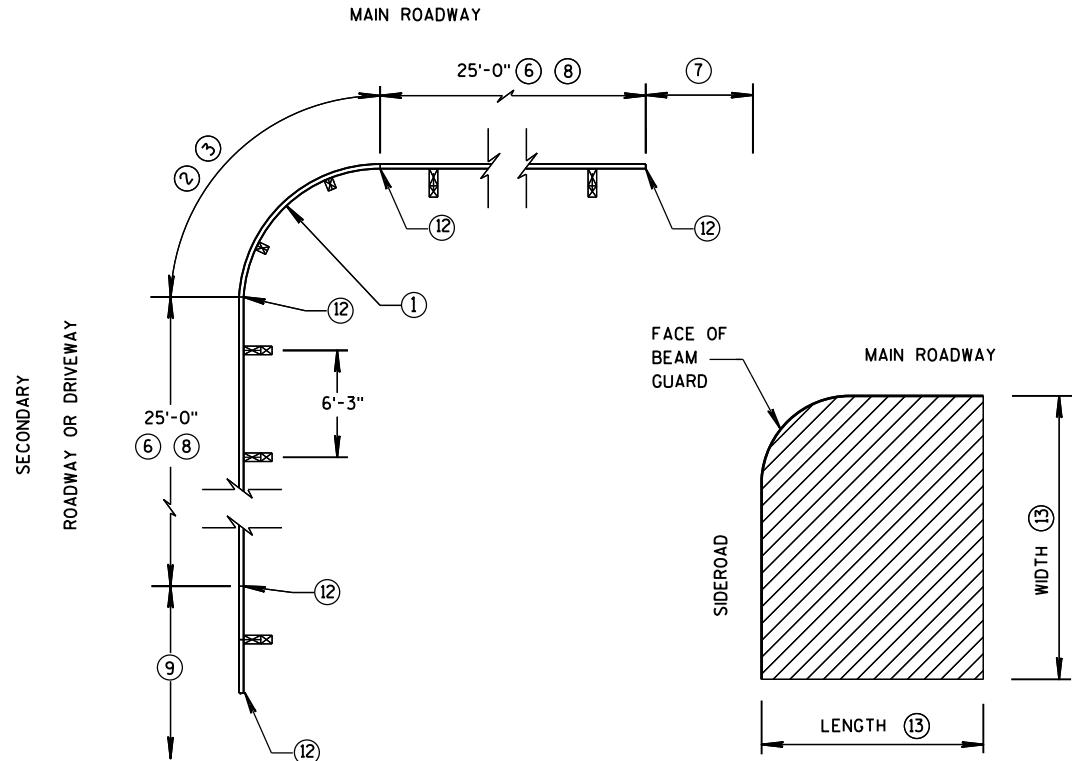
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

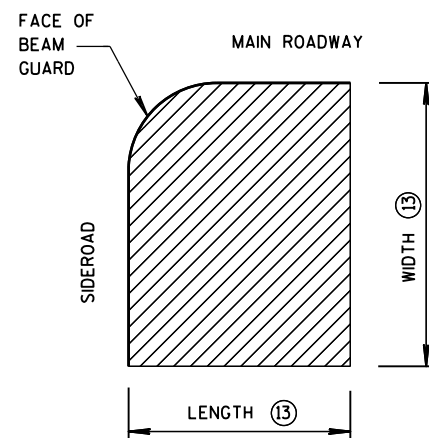
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR PRE_54
FHWA	



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



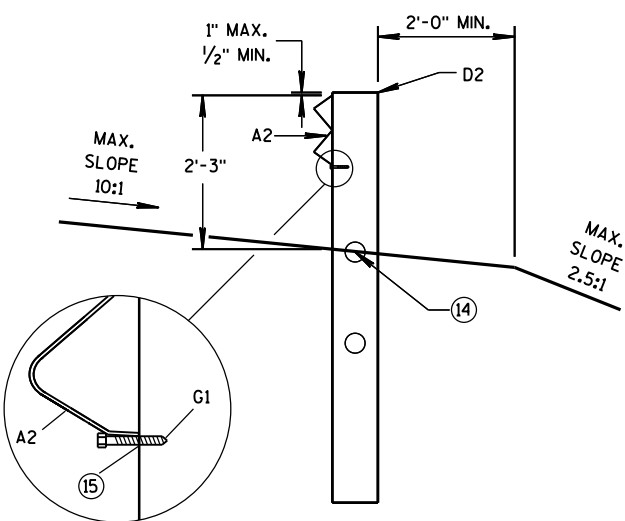
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER
ON SECONDARY ROAD OR
DRIVEWAY
PLAN VIEW



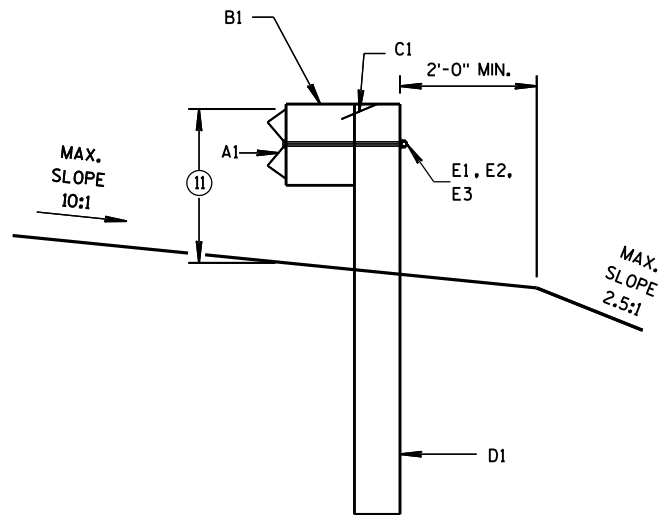
AREA FREE OF
FIXED OBJECTS FOR
RADIUS 32' AND LESS ¹⁶

TABLE FOR RADIUS OF 32' AND LESS

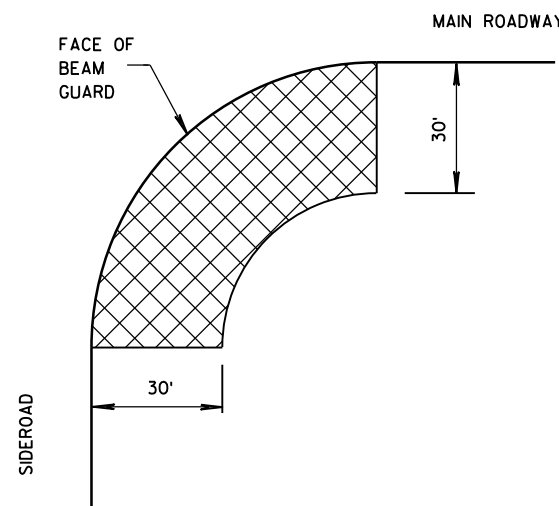
RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30



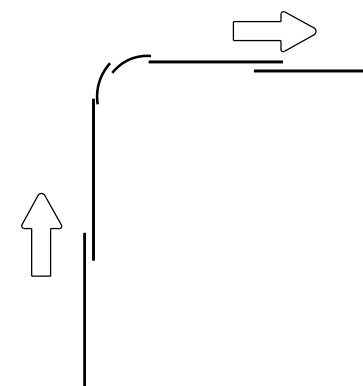
CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



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

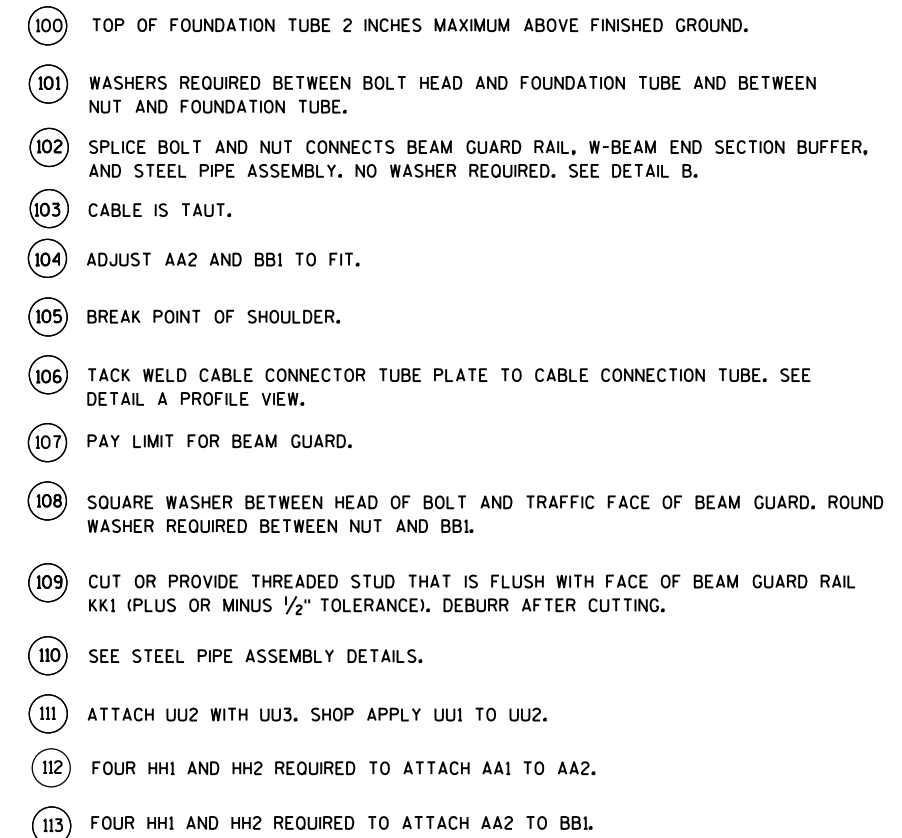
DRAWINGS ARE NOT TO SCALE.

- 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.

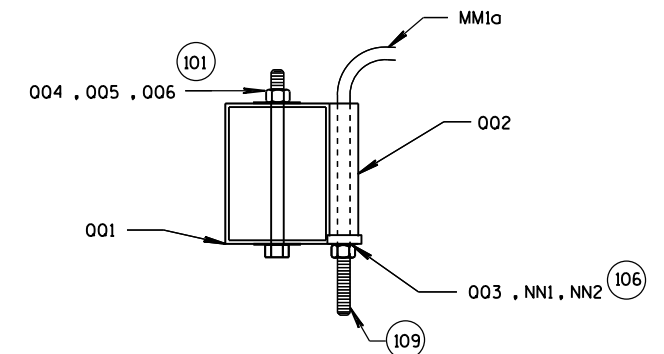
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

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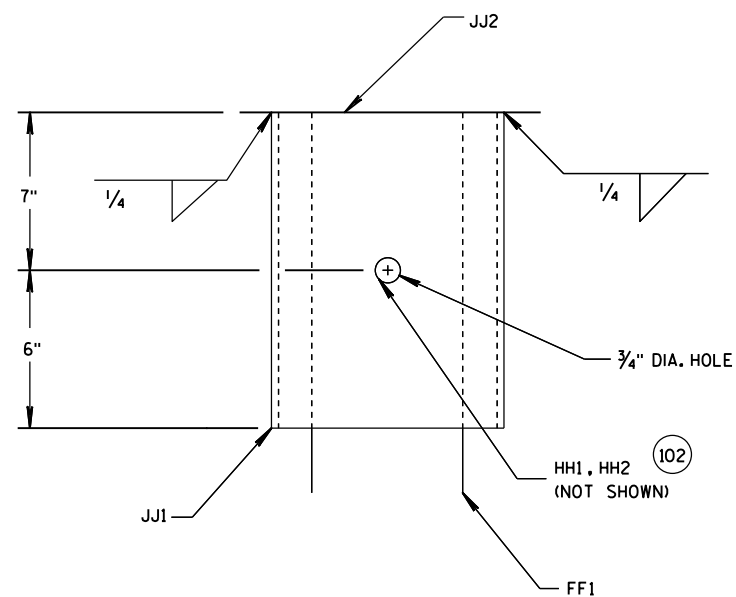
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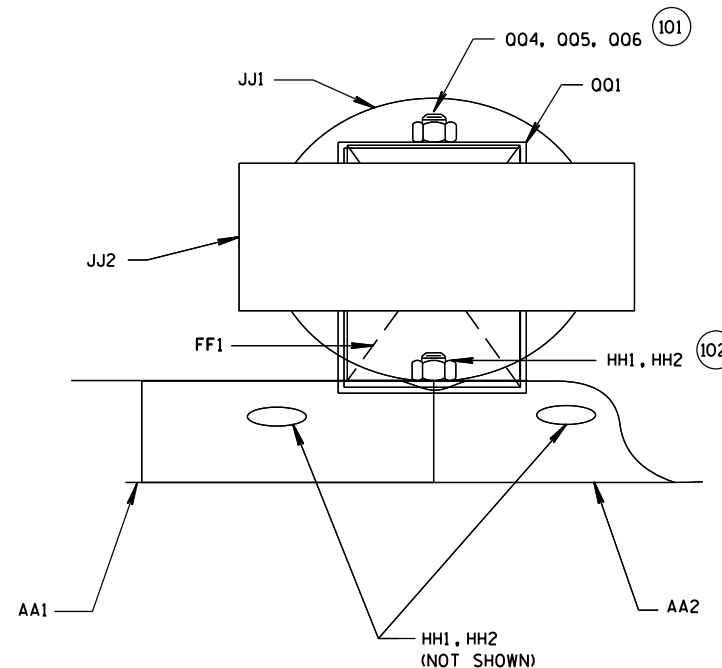
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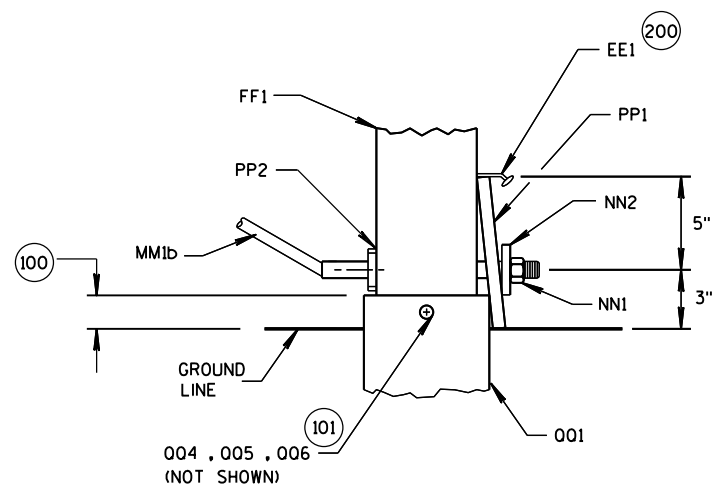
SDD 14b53-c Short Radius Beam Guard and Terminal (MGS) - Terminal Detail B, Detail C and Detail D



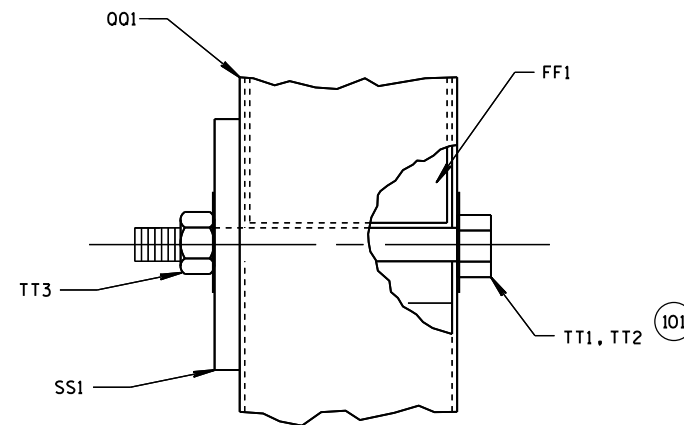
DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
(BEAM GUARD AND W-BEAM
END SECTION NOT SHOWN)



DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY



DETAIL C
PROFILE VIEW



DETAIL D
PROFILE VIEW

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

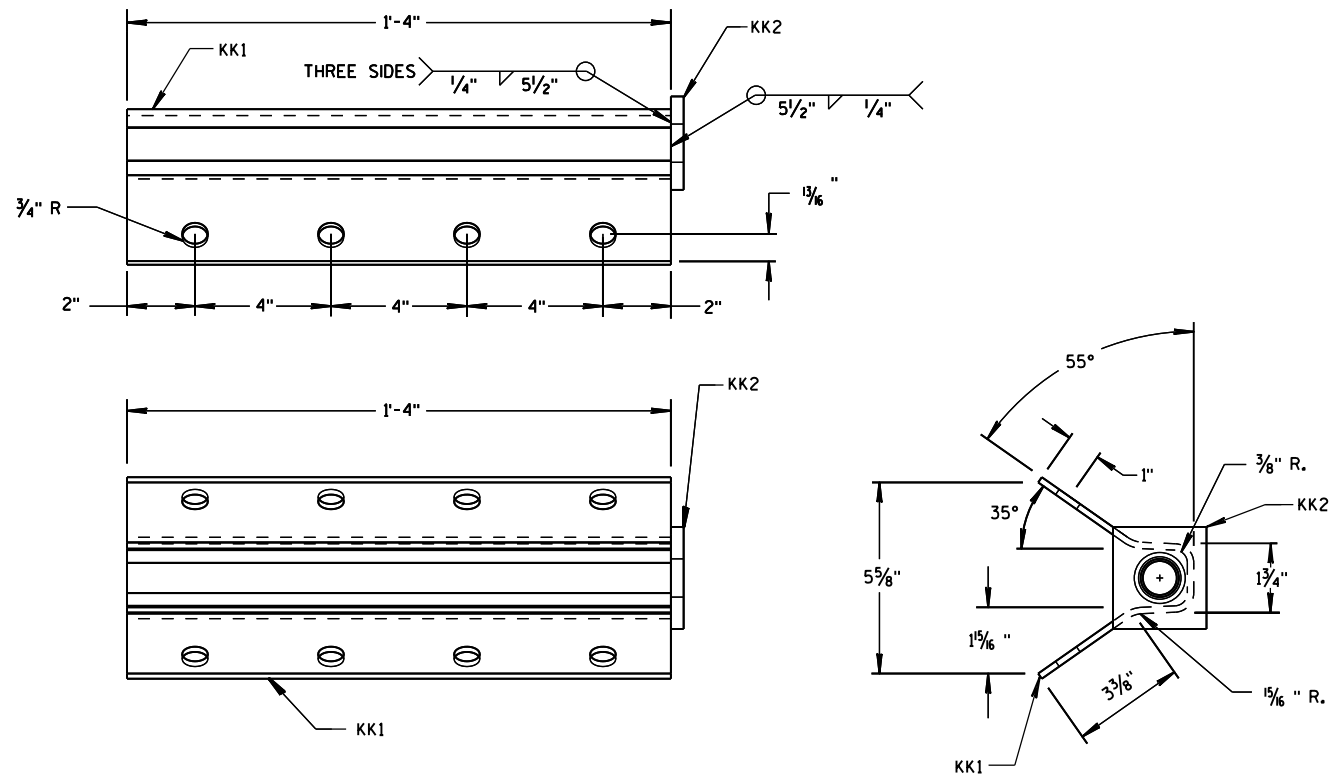
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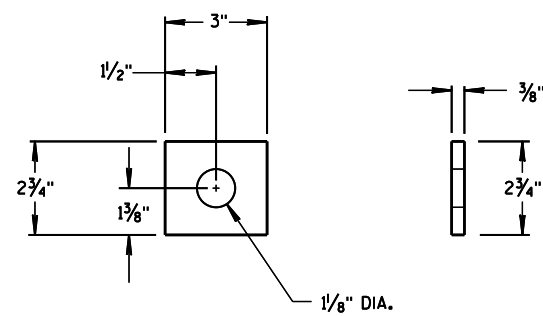


SDD 14b53-d Short Radius Beam Guard and Terminal (MGS) - Terminal Anchor Bracket and Anchor Bracket Bearing Details

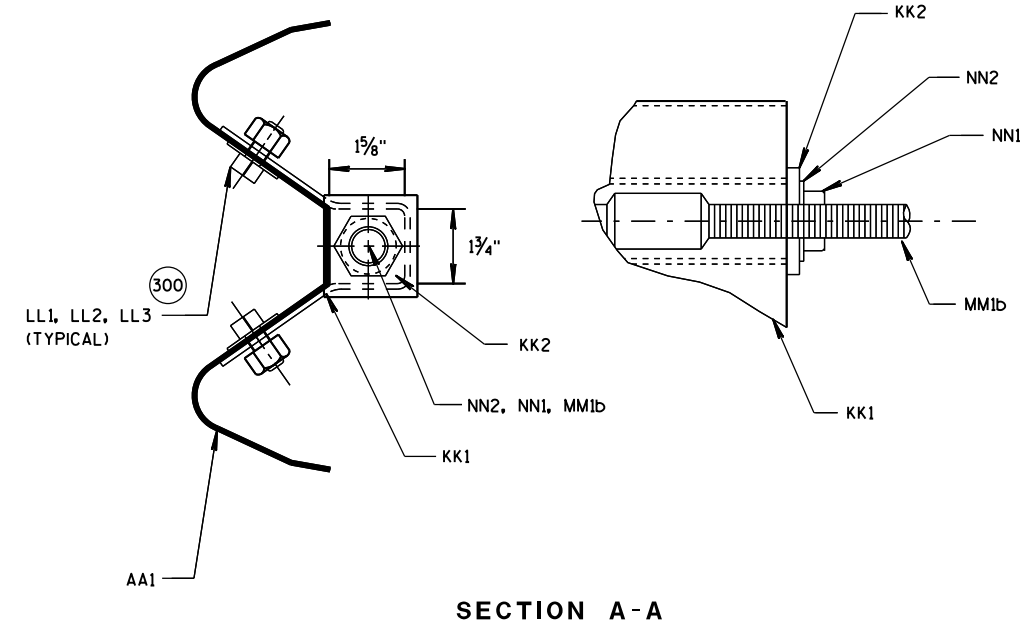
(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.



ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)



SECTION A-A

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

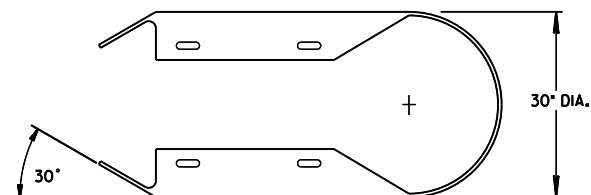
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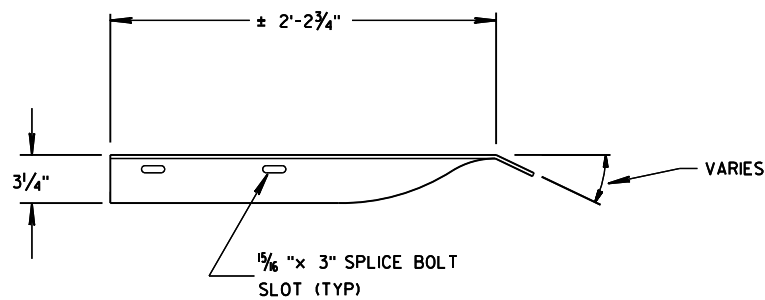


400 CROSS SECTION OF PART IS TO FIT OVER AA1.

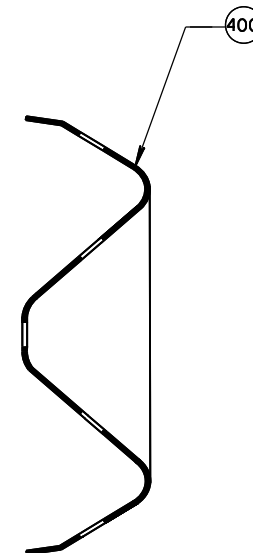
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1.



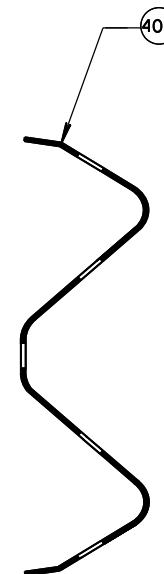
TOP VIEW



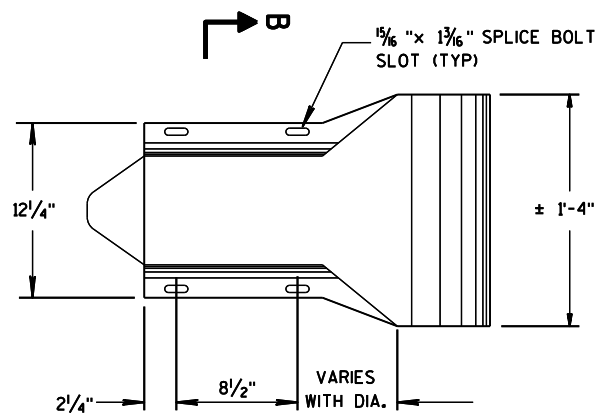
TOP VIEW



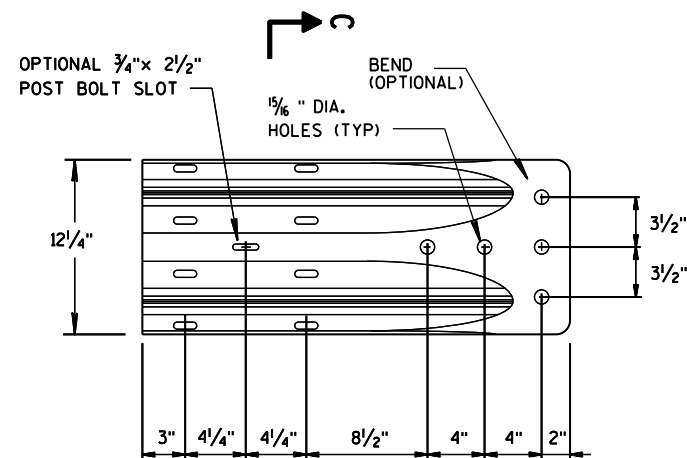
SECTION B-B



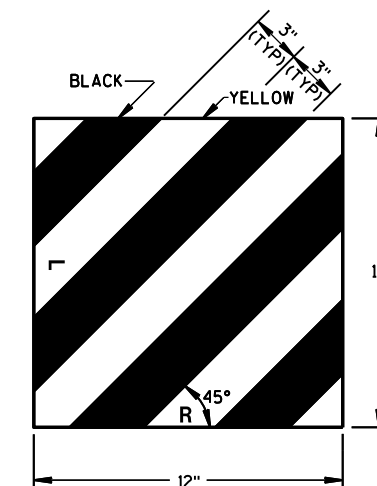
SECTION C-C



W-BEAM
END SECTION BUFFER (AA2)
PROFILE VIEW



W-BEAM
TERMINAL CONNECTOR (BB1)
PROFILE VIEW

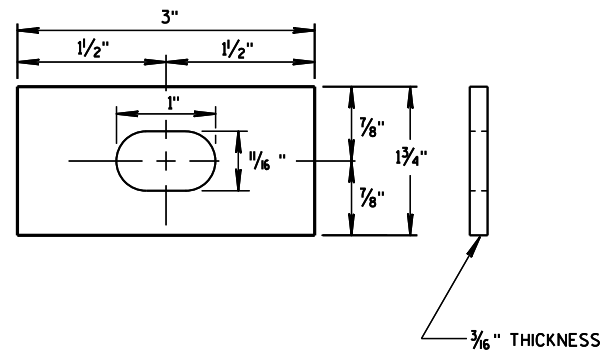


REFLECTIVE SHEETING
(UU1, UU2)

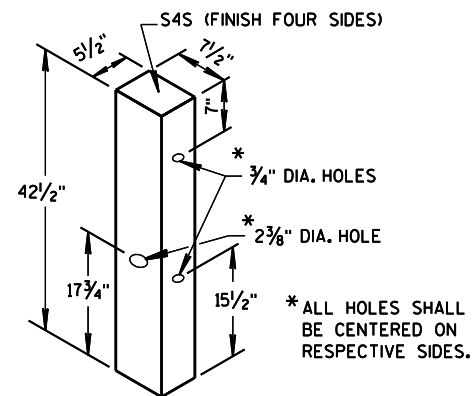
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

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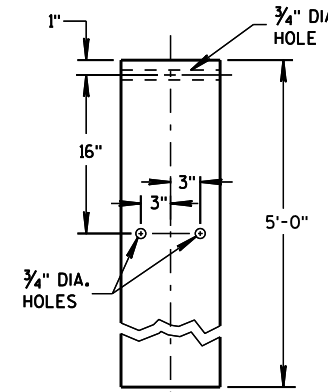
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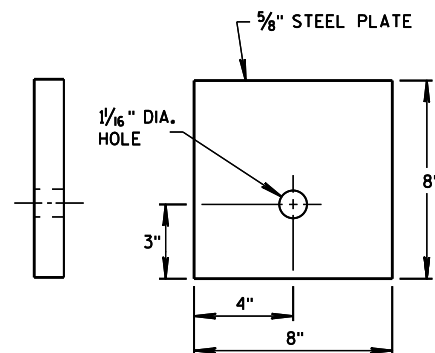
RECTANGULAR
PLATE WASHER (CC1)



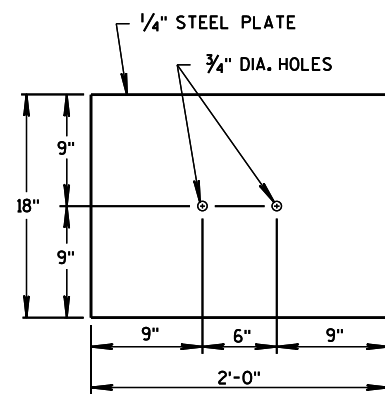
WOOD BREAKAWAY POST
(FF1)



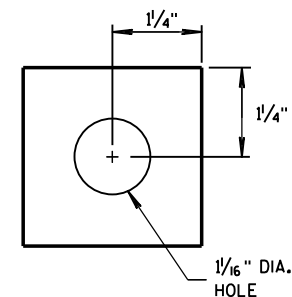
FOUNDATION TUBE (QQ1) (500)



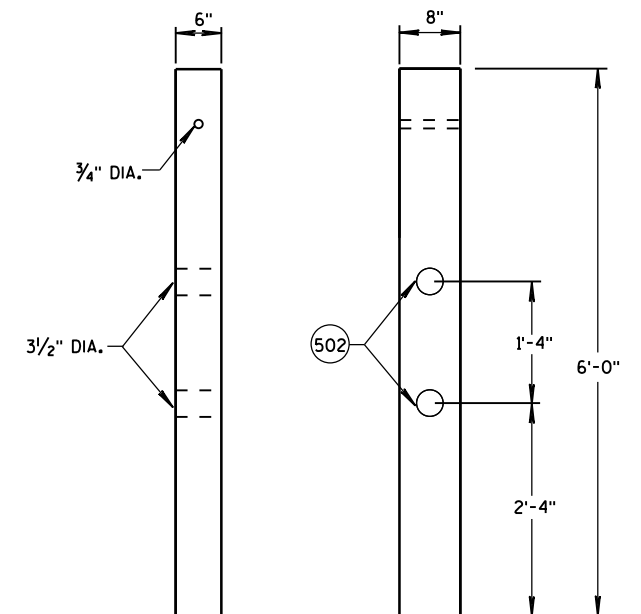
BEARING PLATE (PP1)



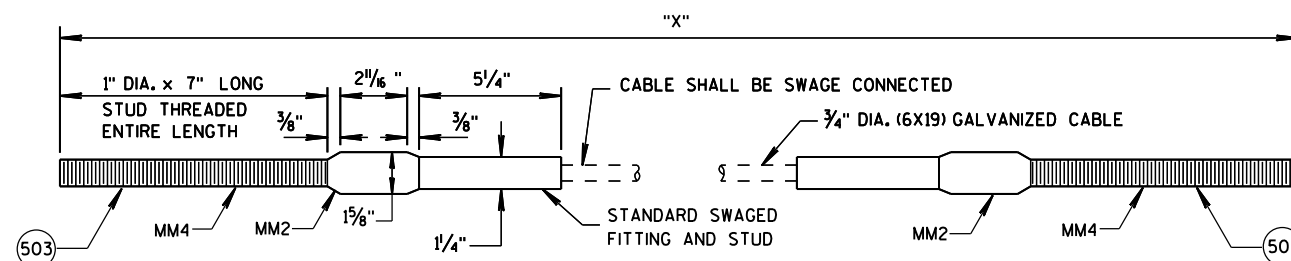
SOIL PLATE (SS1)



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"

- (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).

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)

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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	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.
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
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	OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563
		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	
NN2	ANCHOR CABLE - NUT - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		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)

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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 STANDAI

UNIT SUF

PR

IT

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.

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

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

WISCONSIN

DEPARTMENT OF TRANSPORTATION

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

PRE_64

8

LIST OF DRAWINGS

- 1. GENERAL PLAN
- 2. PIER BARRIER WALL DETAILS

I.D. 9190-23-00E/F DATE: MAR 2019

DRAFT

TANGENT LINE

R W.B.L. STH 29

TANGENT LINE

R E.B.L. STH 29

B-5-230

B-5-229

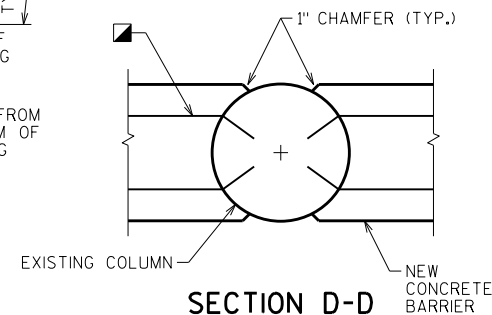
- * PROVIDE FOR CRASH CUSHION ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".
- 2 INCH OF ASPHALTIC LAYER WILL BE PLACED AT THE TOP OF MEDIAN PAID UNDER BID ITEM "ASPHALTIC SURFACE SAFETY ISLANDS"

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-5-229/230	LS	1
305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	101
312.0115	SELECT CRUSHED MATERIAL	CY	45
465.0305	ASPHALTIC SURFACE SAFETY ISLANDS	TON	15
502.0100	CONCRETE MASONRY BRIDGES	CY	126
502.3210	PIGMENTED SURFACE SEALER	SY	235
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	72
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	12125
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4
	NON-BID ITEMS		
	FILLER	SIZE	1/2"

PLAN

SCALE = 11:00



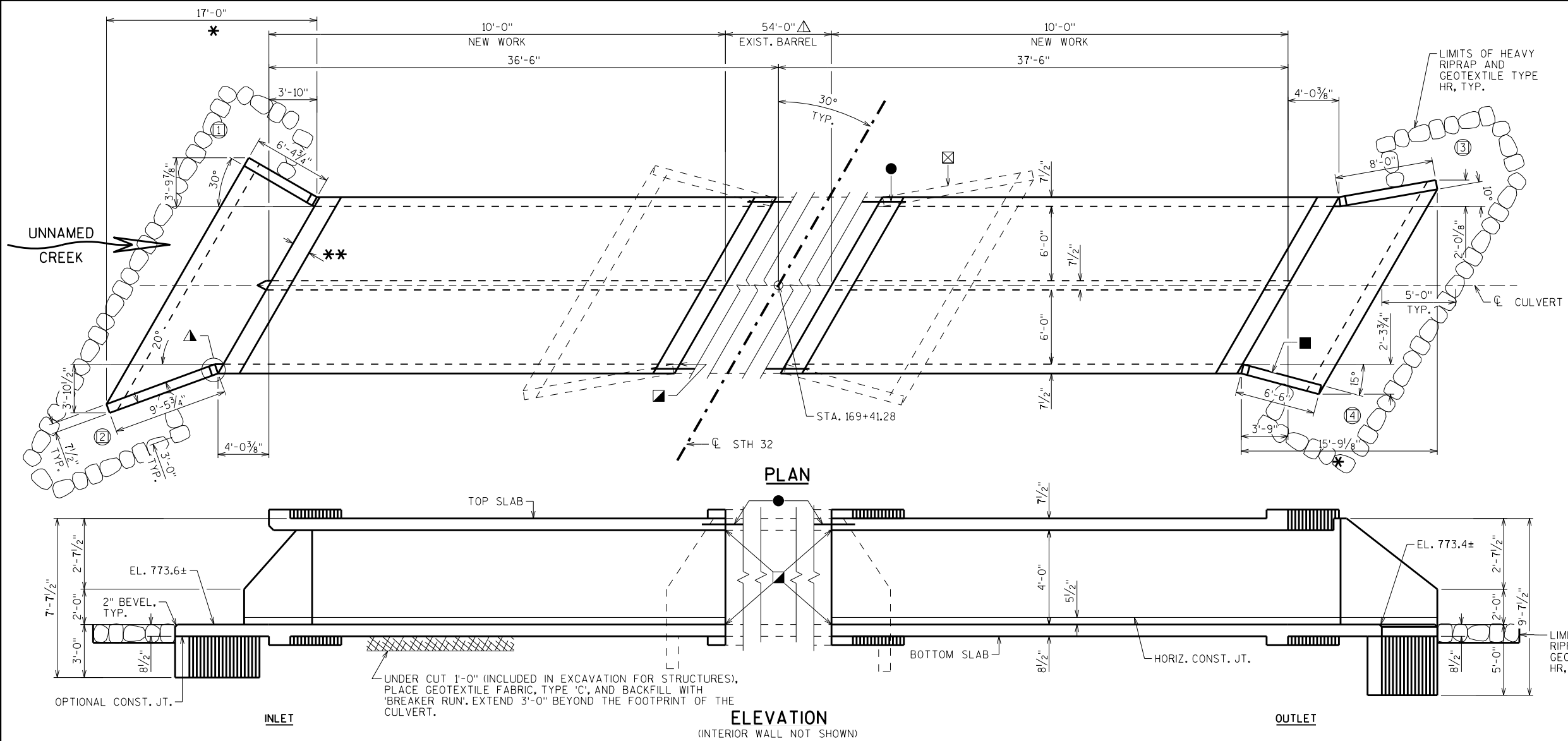
PRE_65

- ▲ 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
PRE_66			



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.

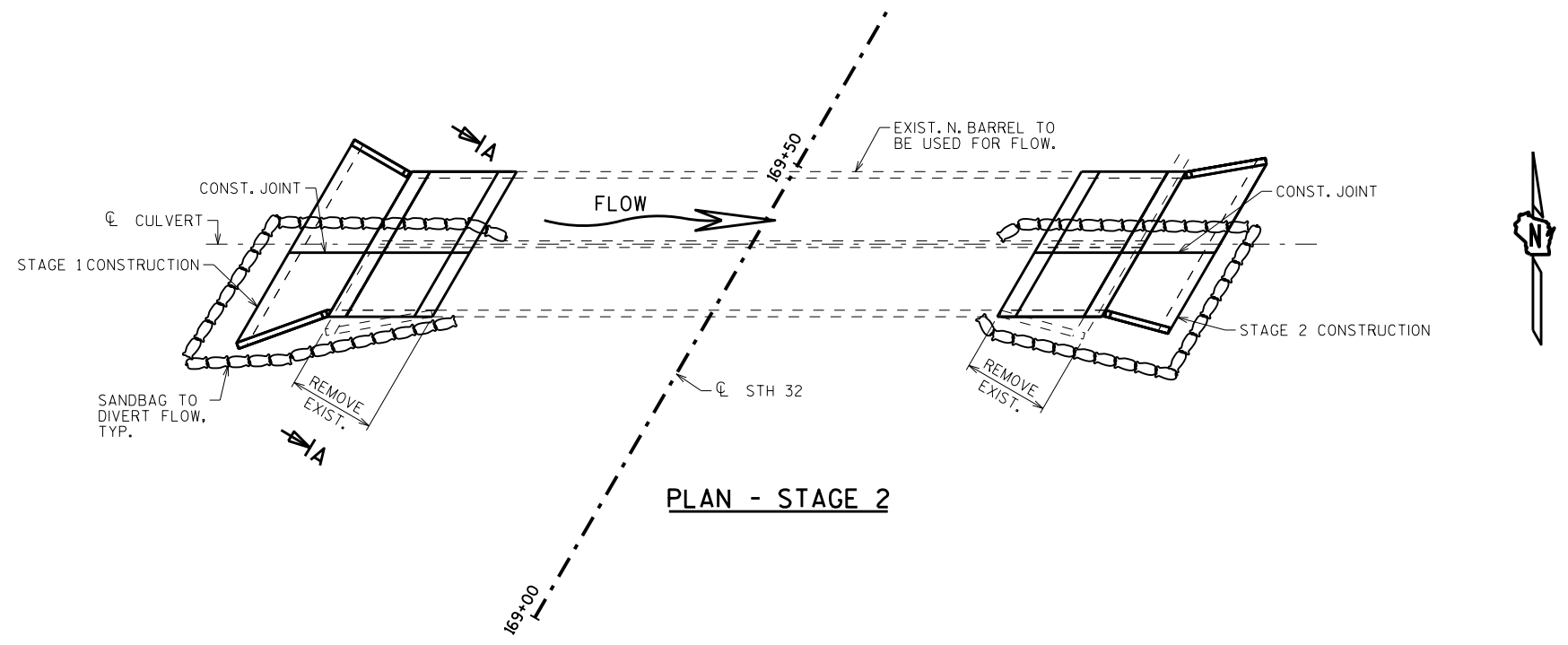
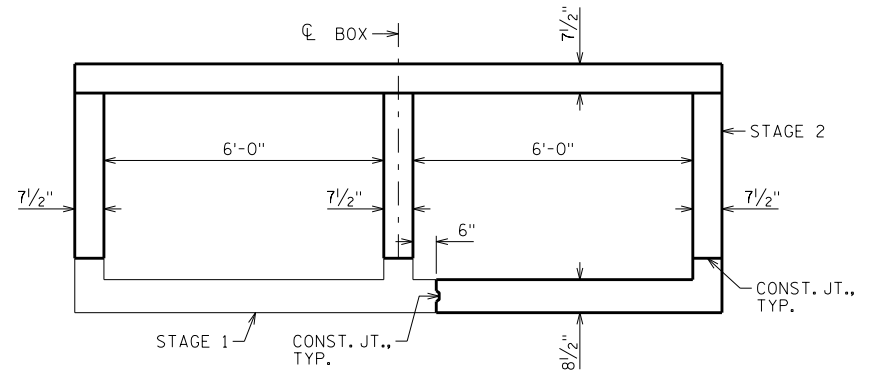
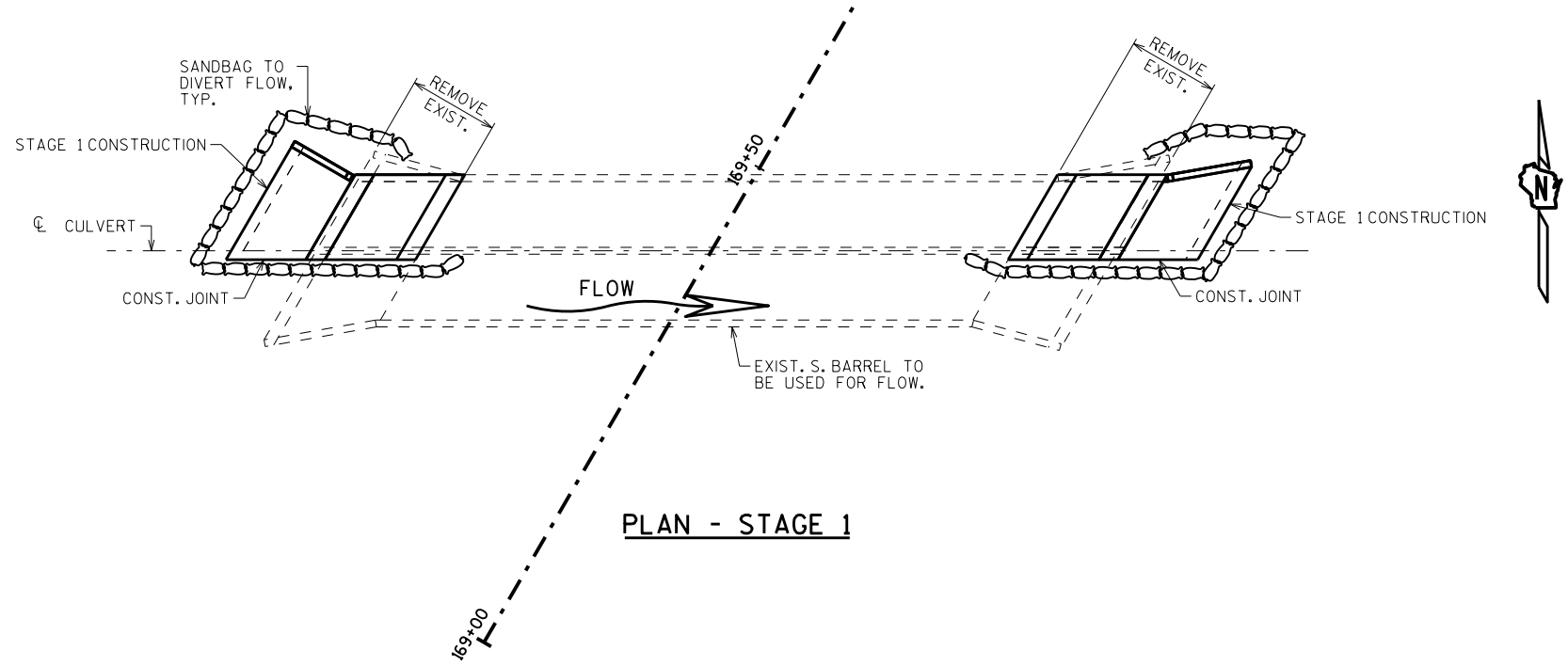
THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

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

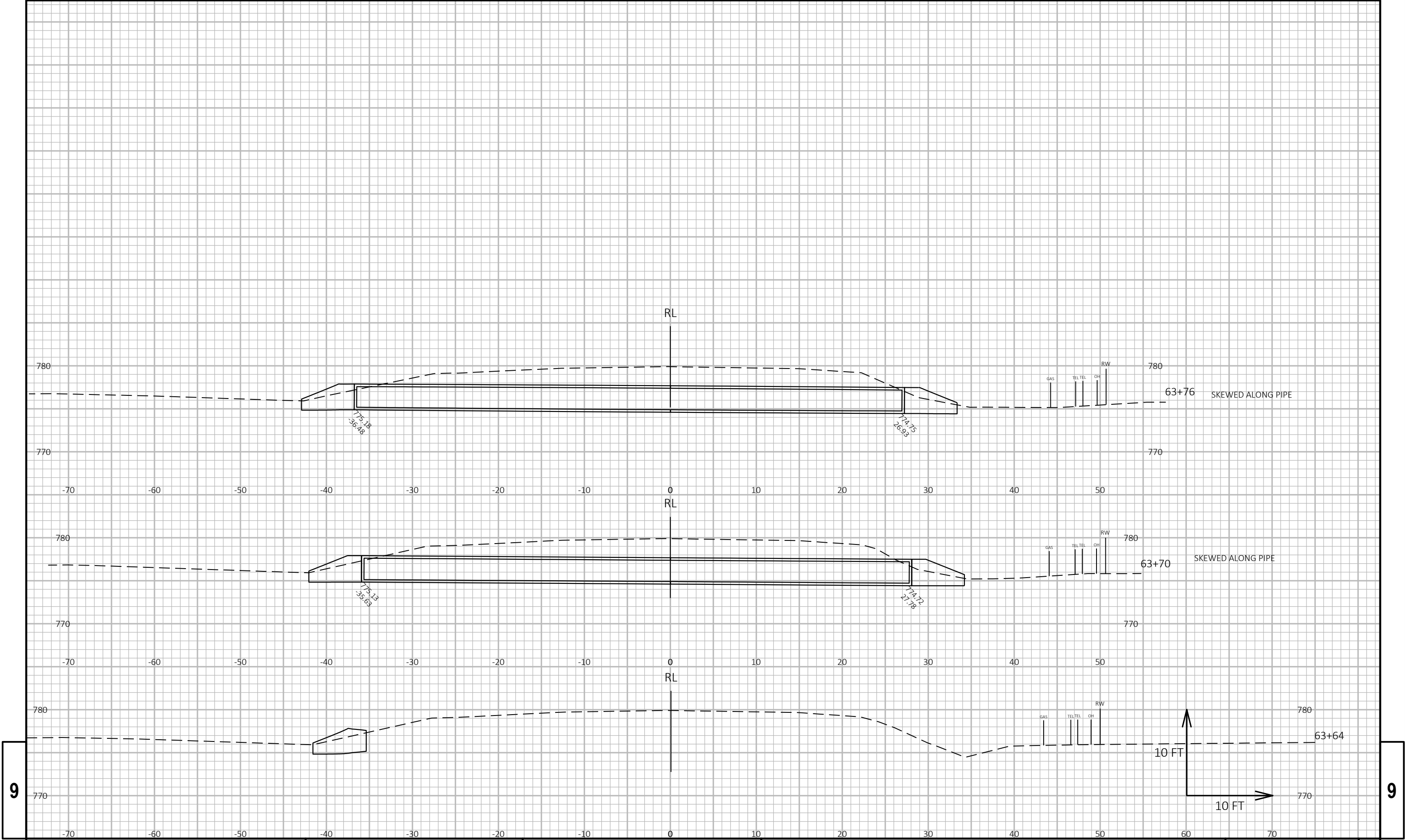
PLACE 18" (MIN.) WIDE SHEET OF "RUBBERIZED MEMBRANE WATERPROOFING" ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO BOTTOM OF OUTSIDE WALLS.

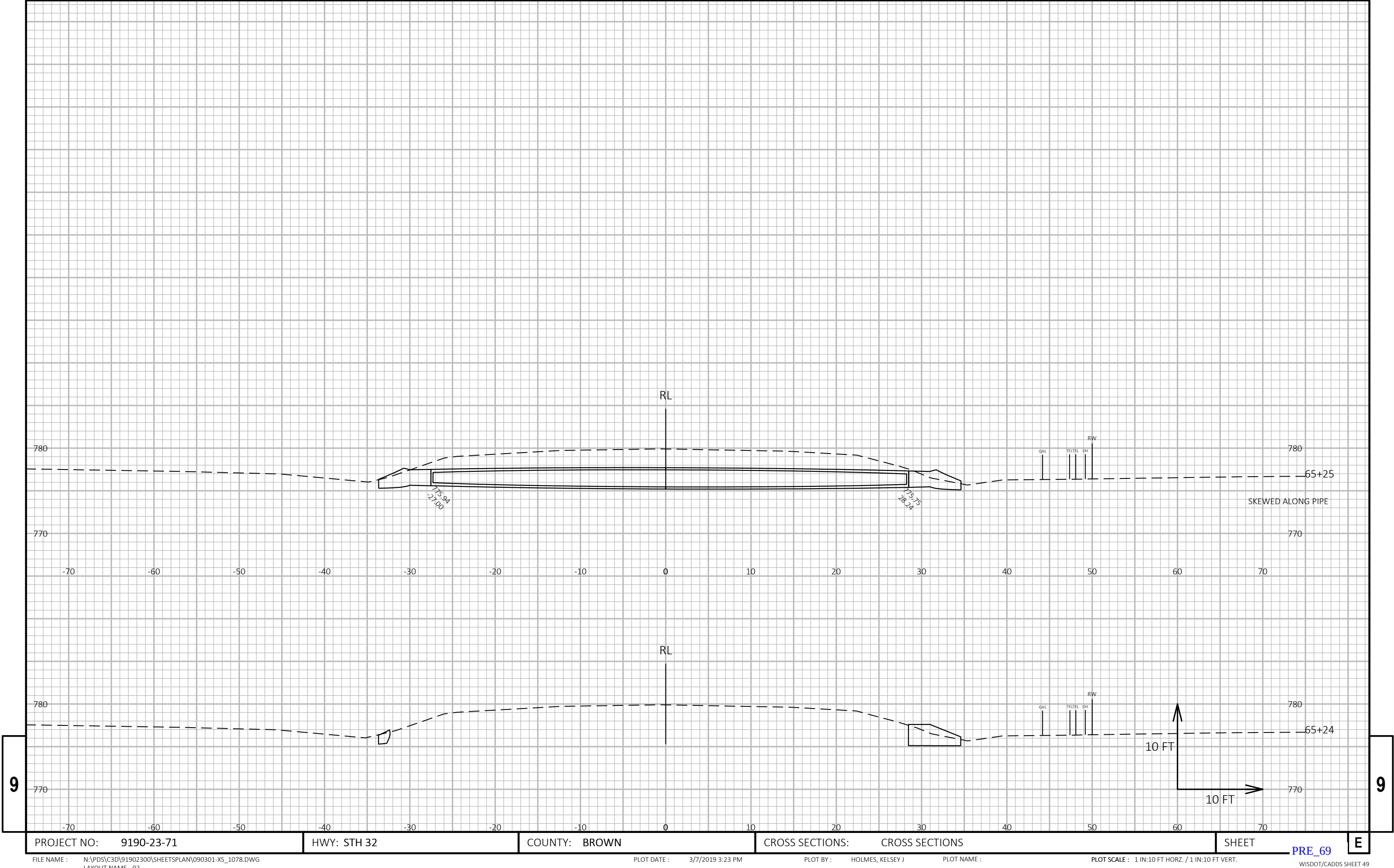
THE CONTRACTOR MAY ELECT TO SUBSTITUTE #10R #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE FIELD ENGINEER, IN LIEU OF THE BREAKER RUN, TO BE UTILIZED AS A CONSTRUCTION PLATFORM FOR THE BOX. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY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

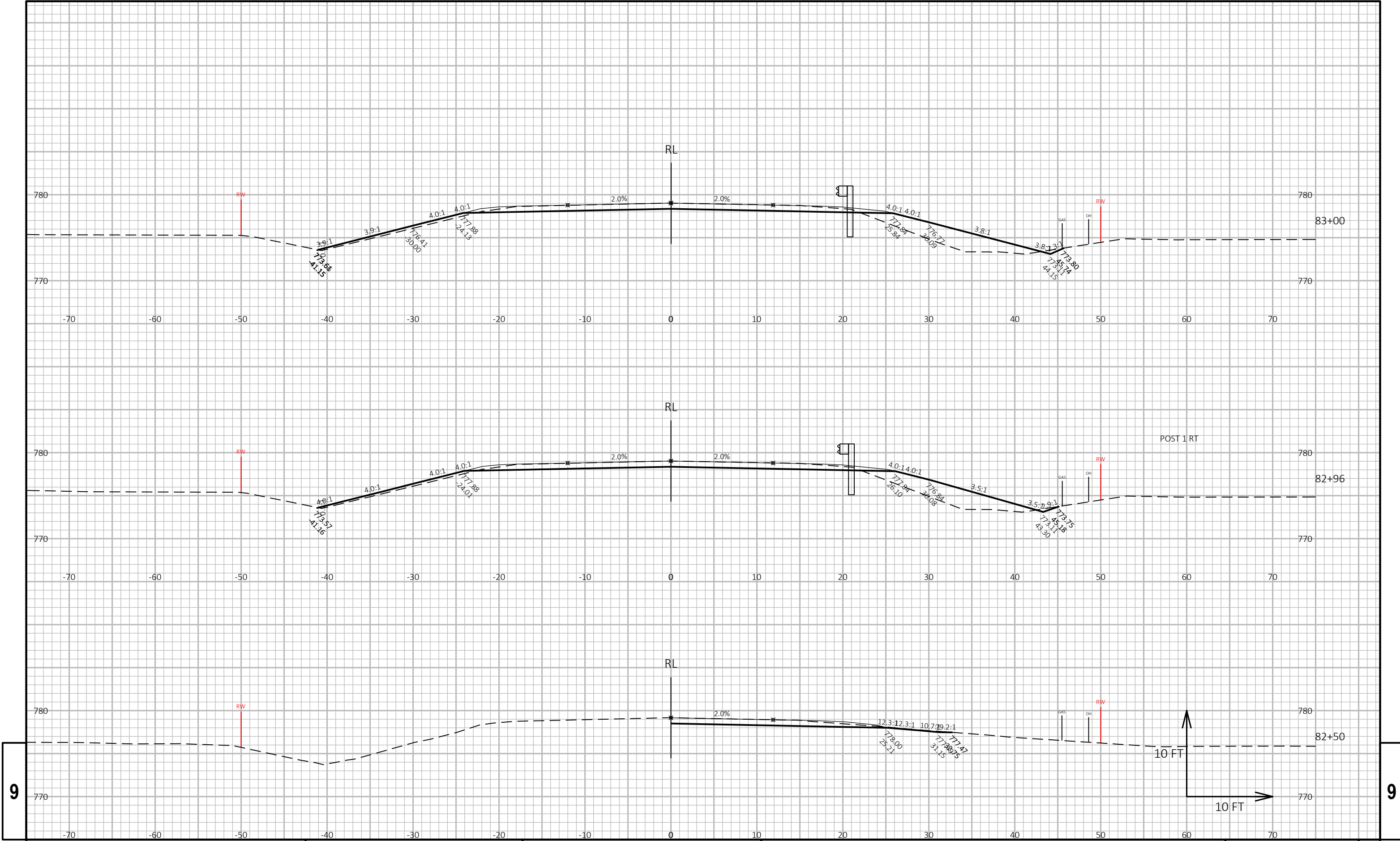
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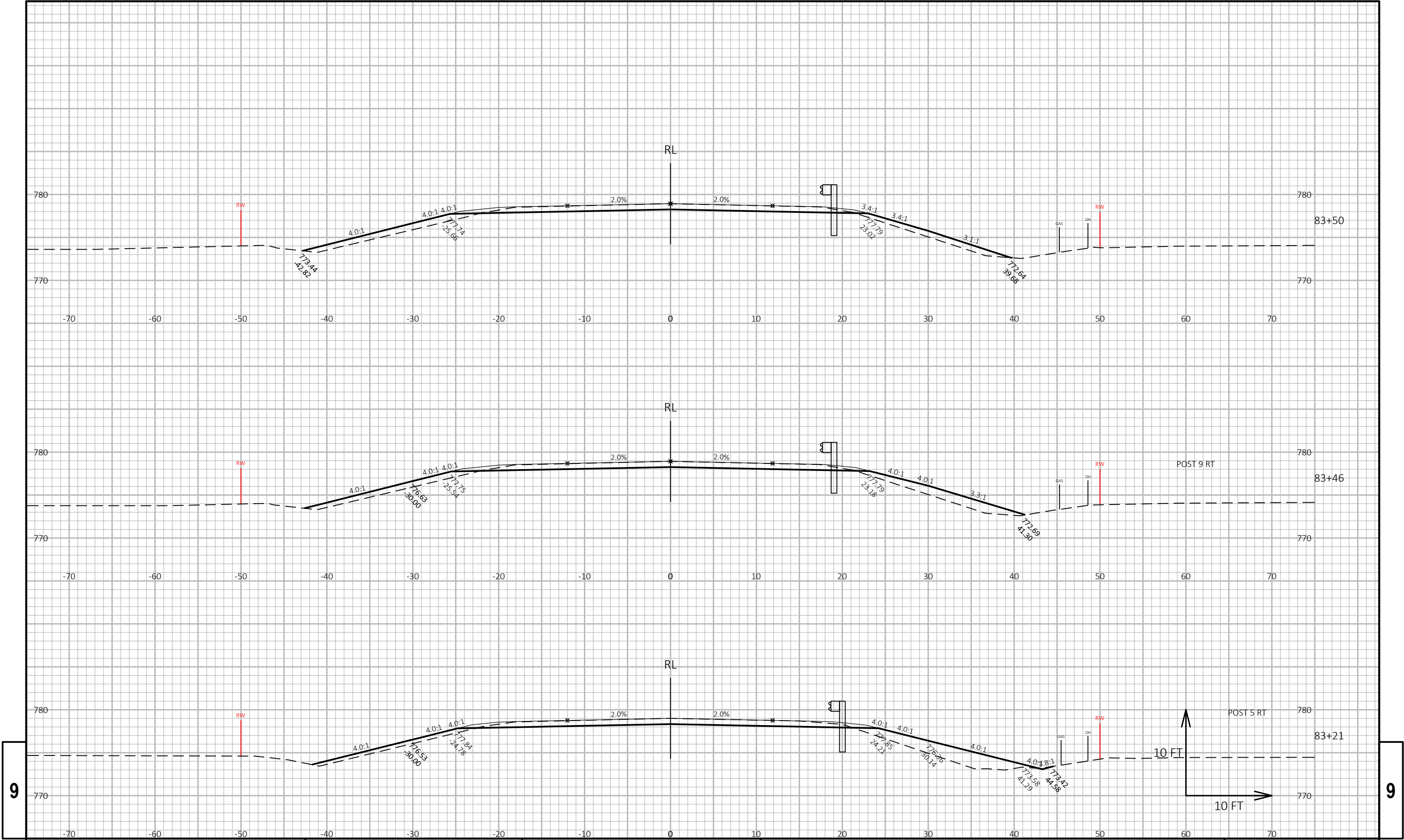


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-5-032			
DRAWN BY	SAD	PLANS CK'D.	
STAGING			SHEET 2
PRE_67			



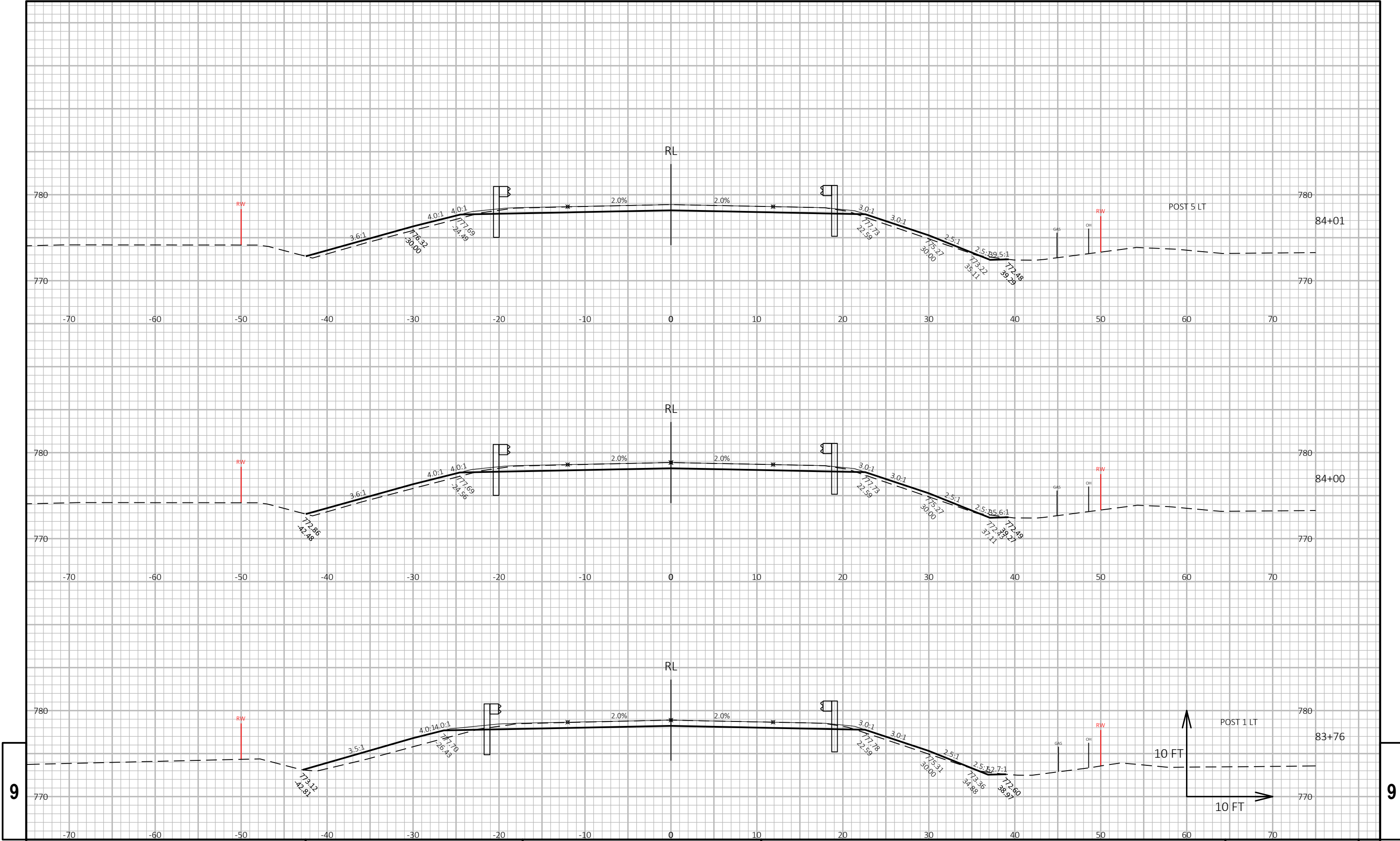






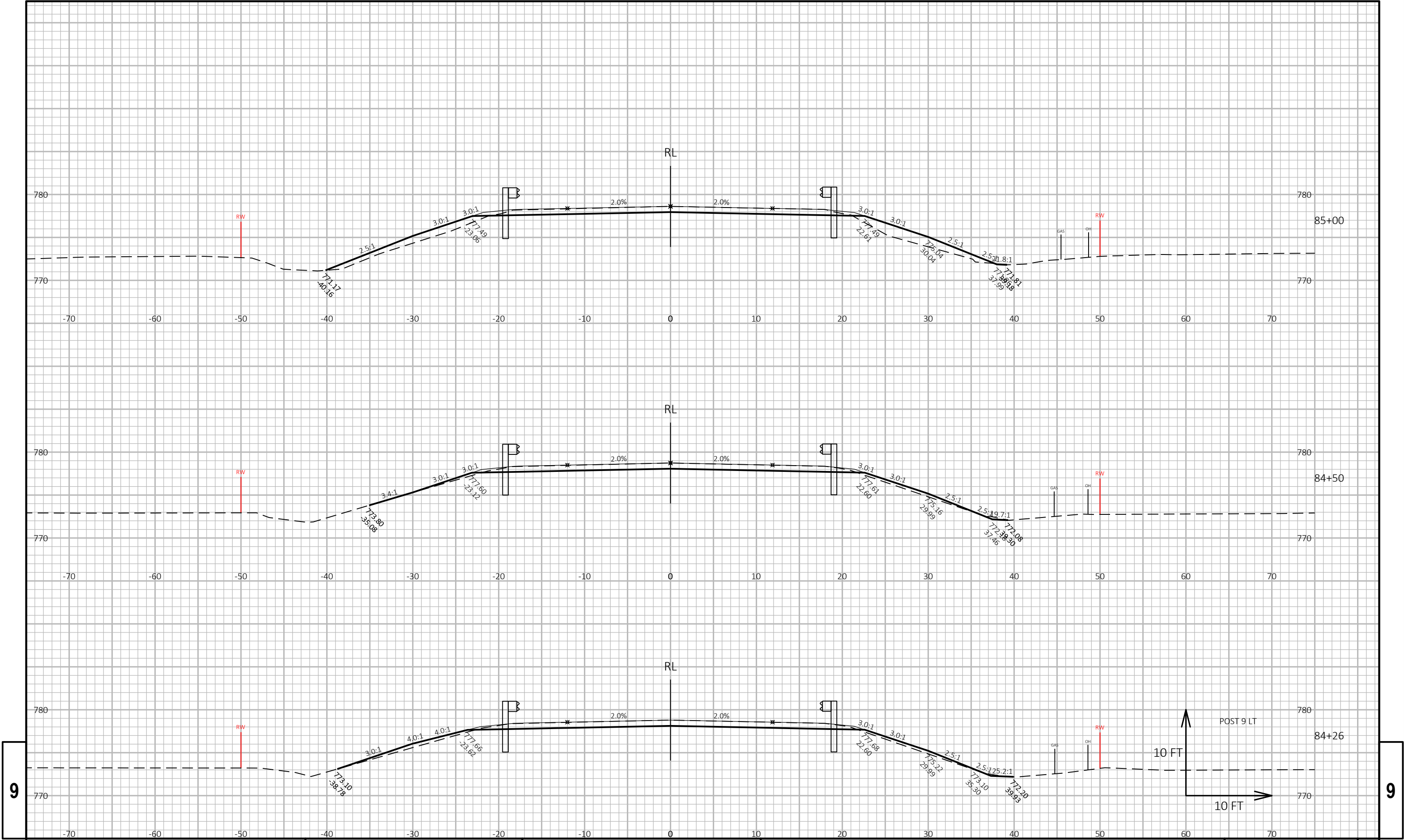
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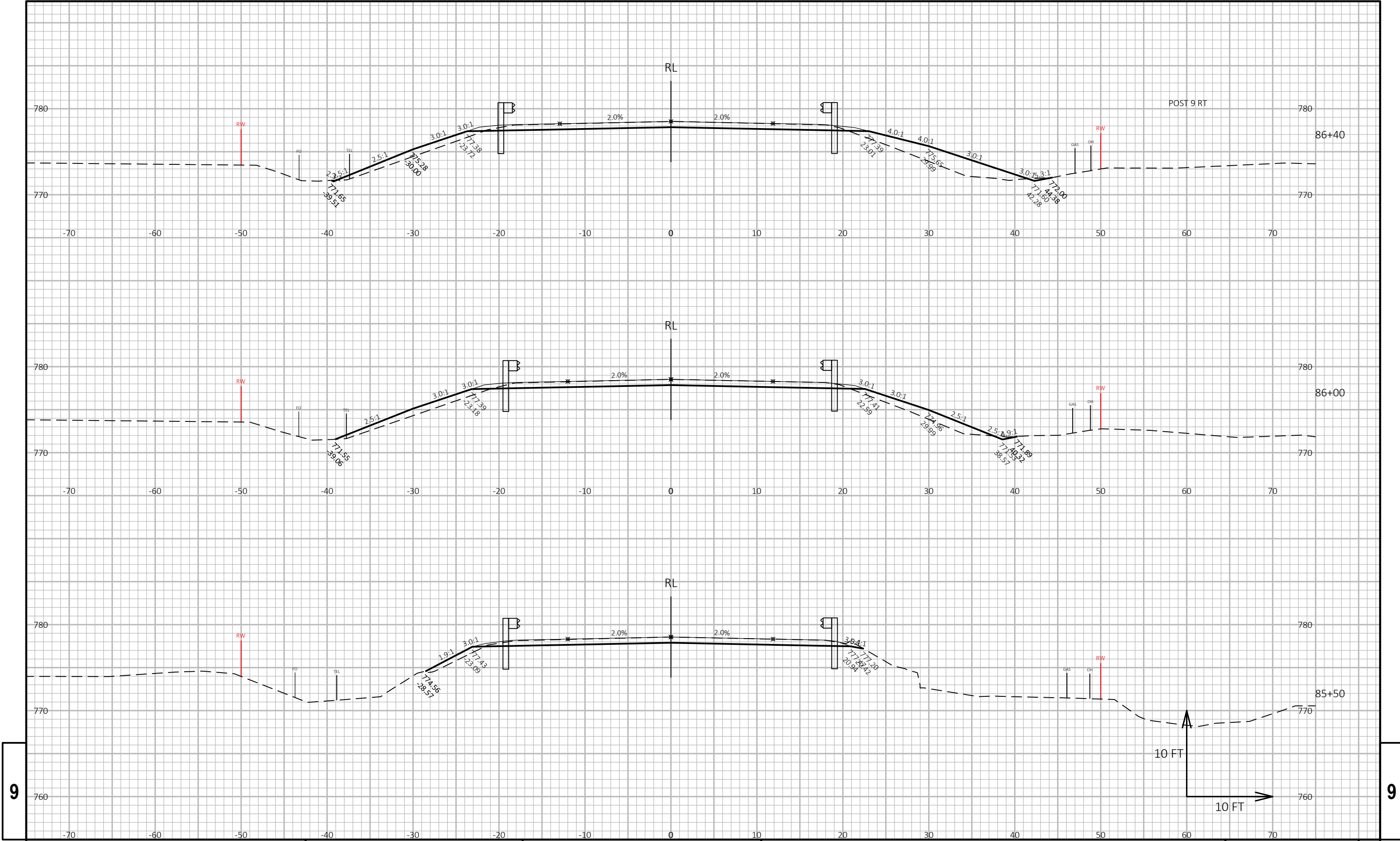
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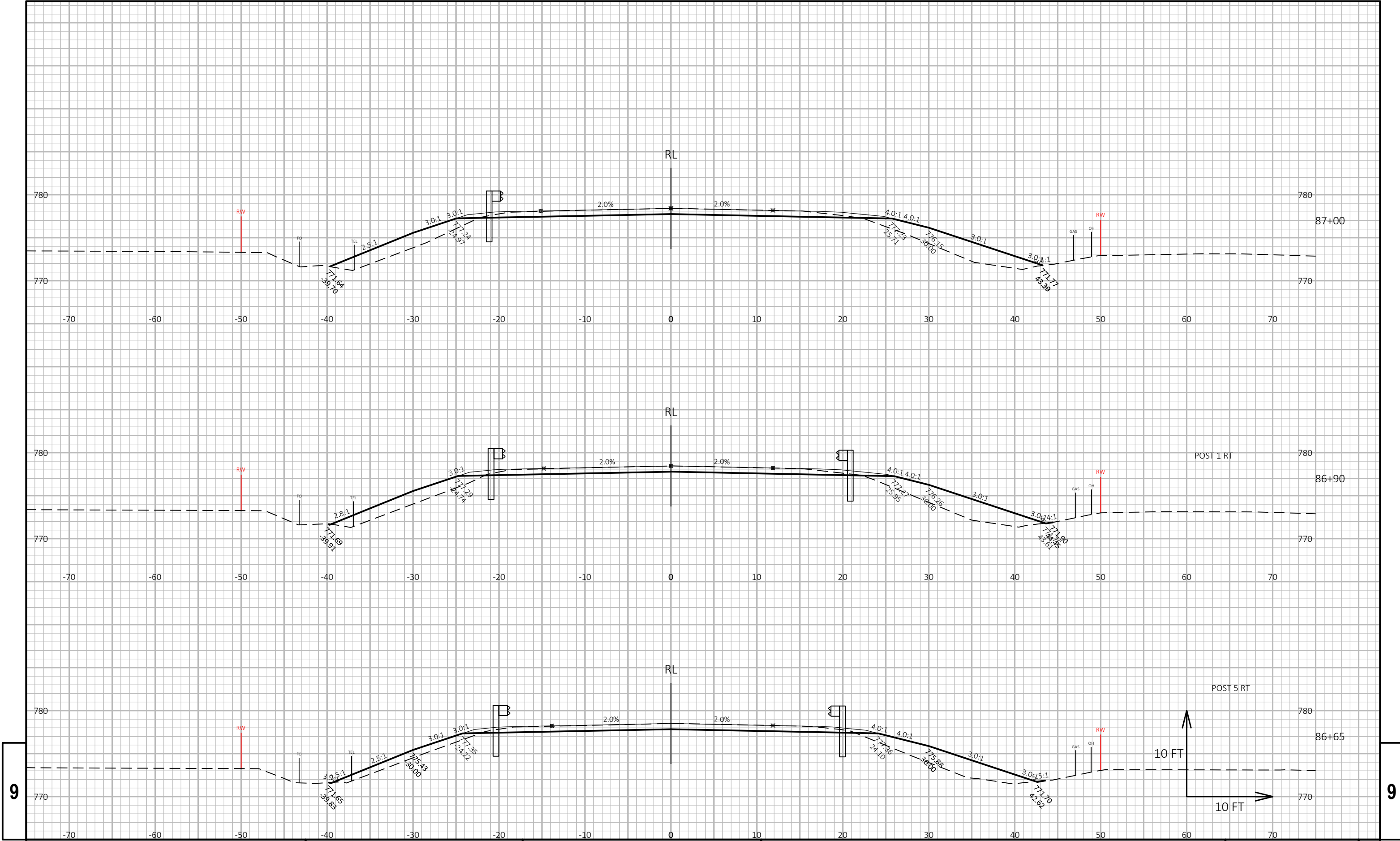
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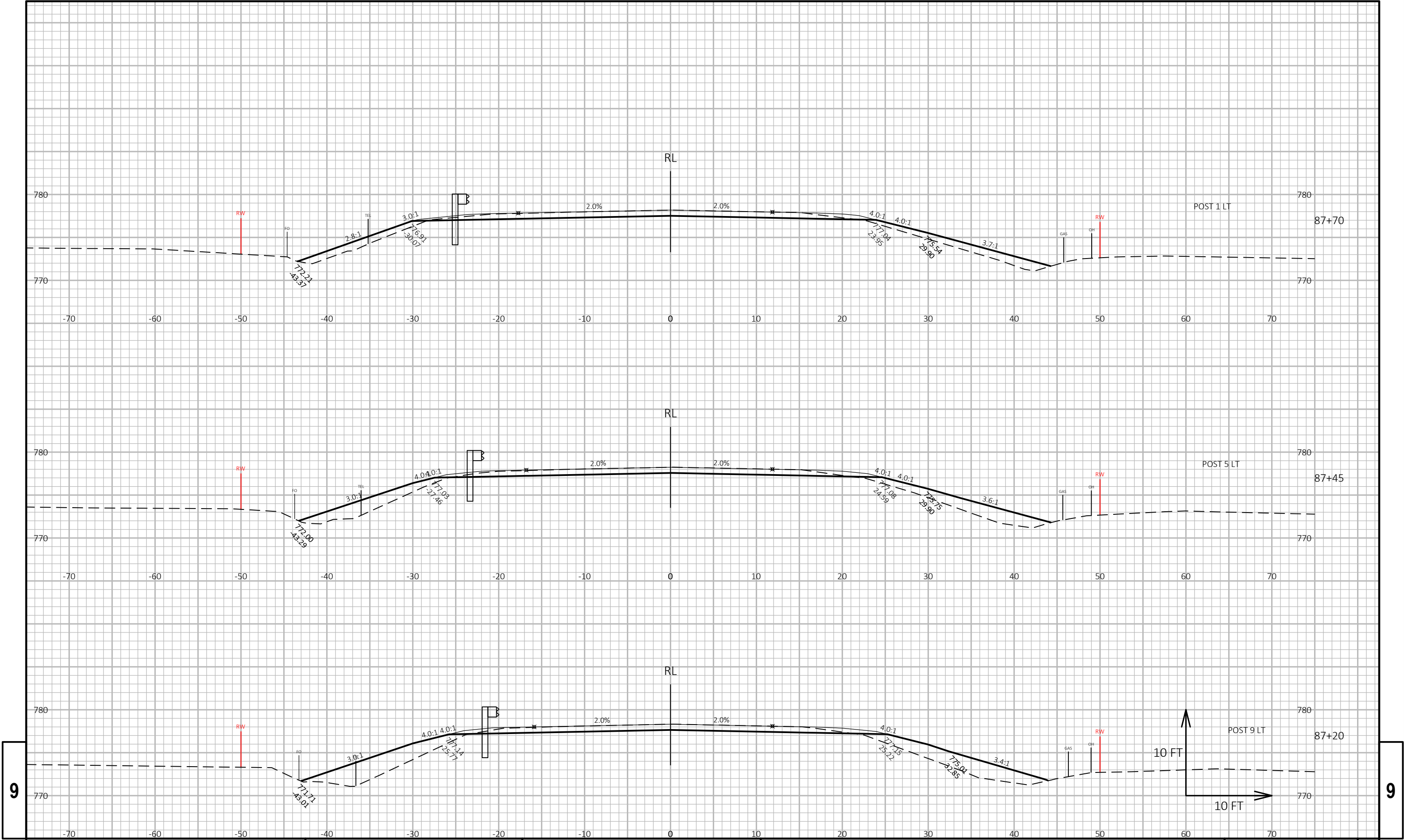
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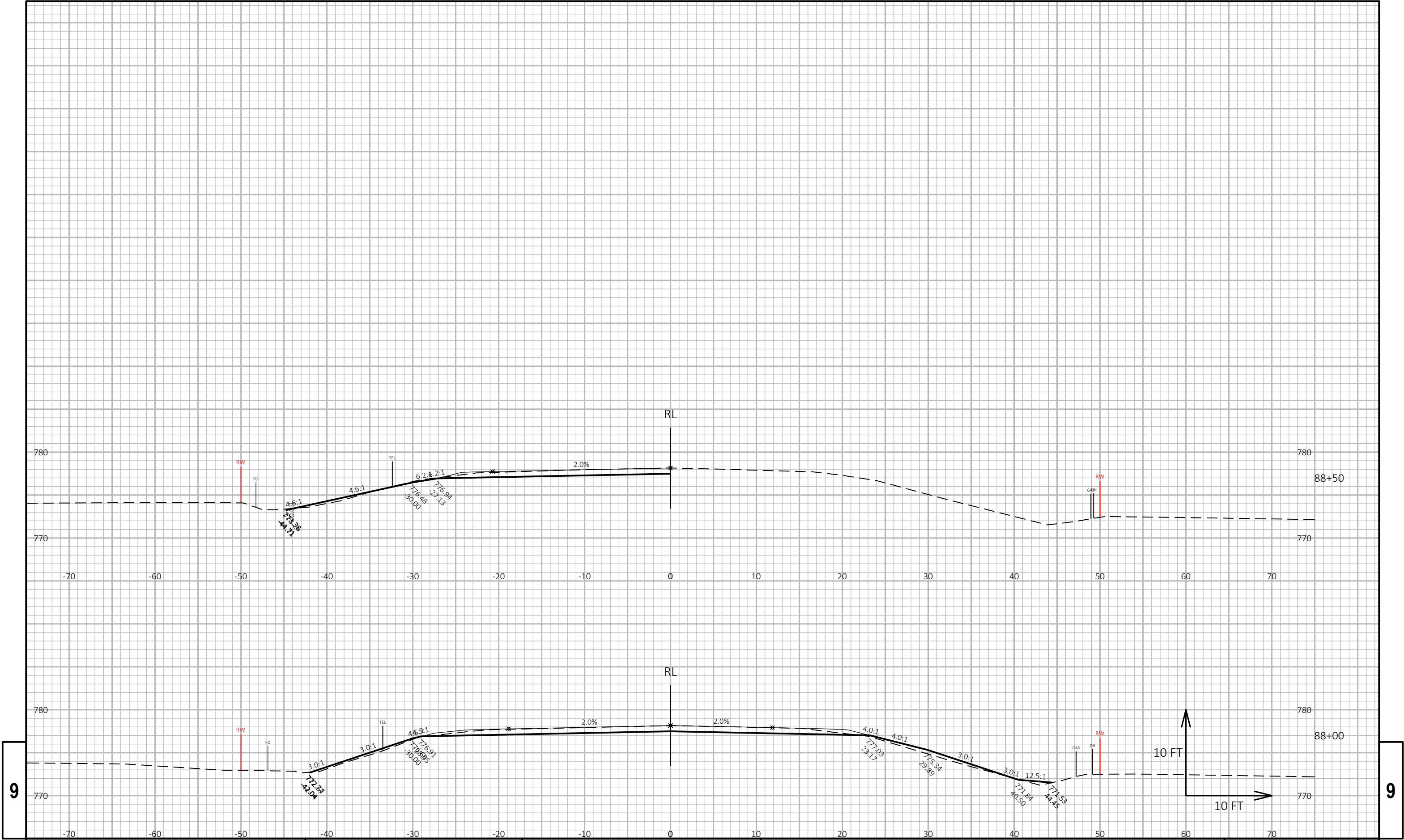
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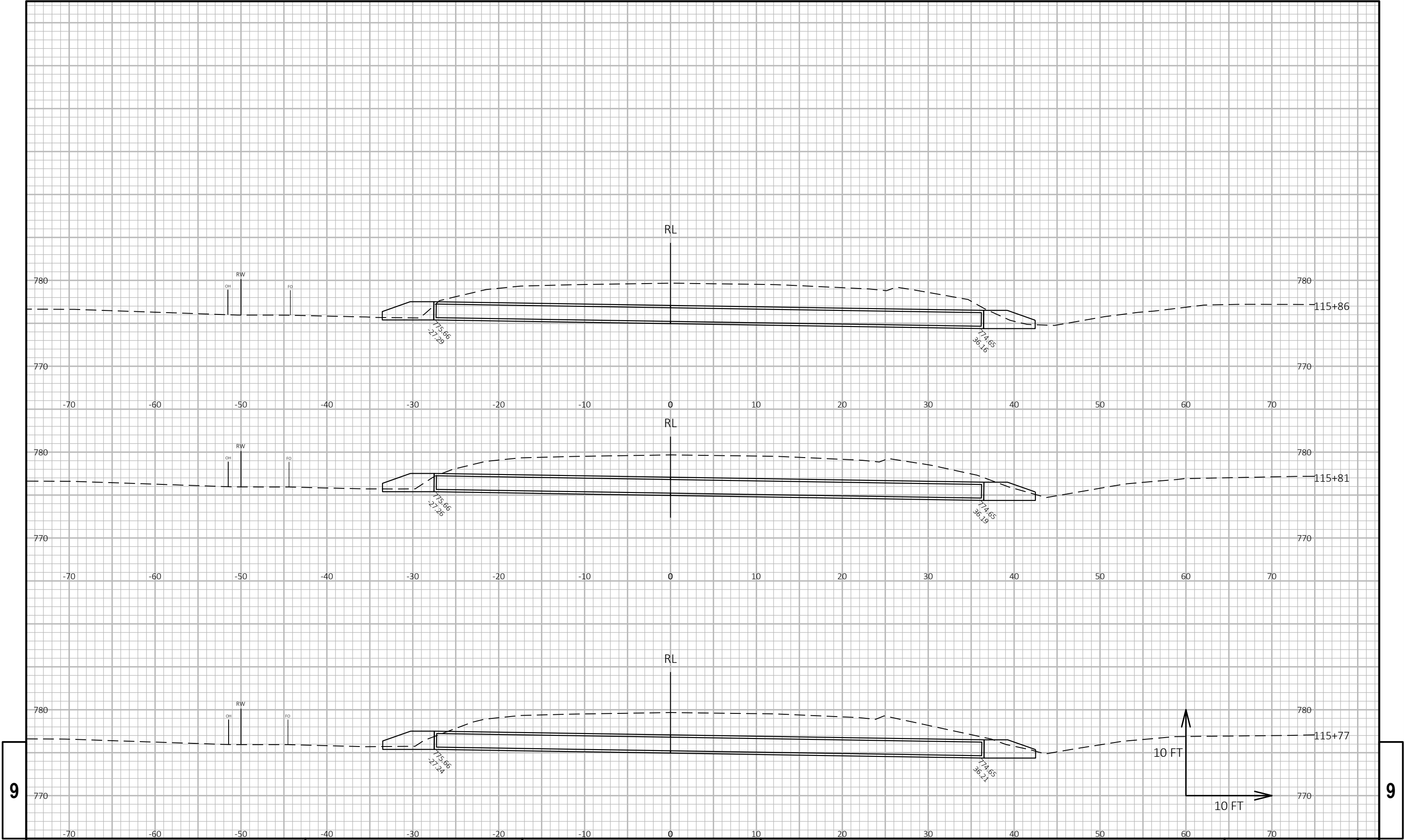
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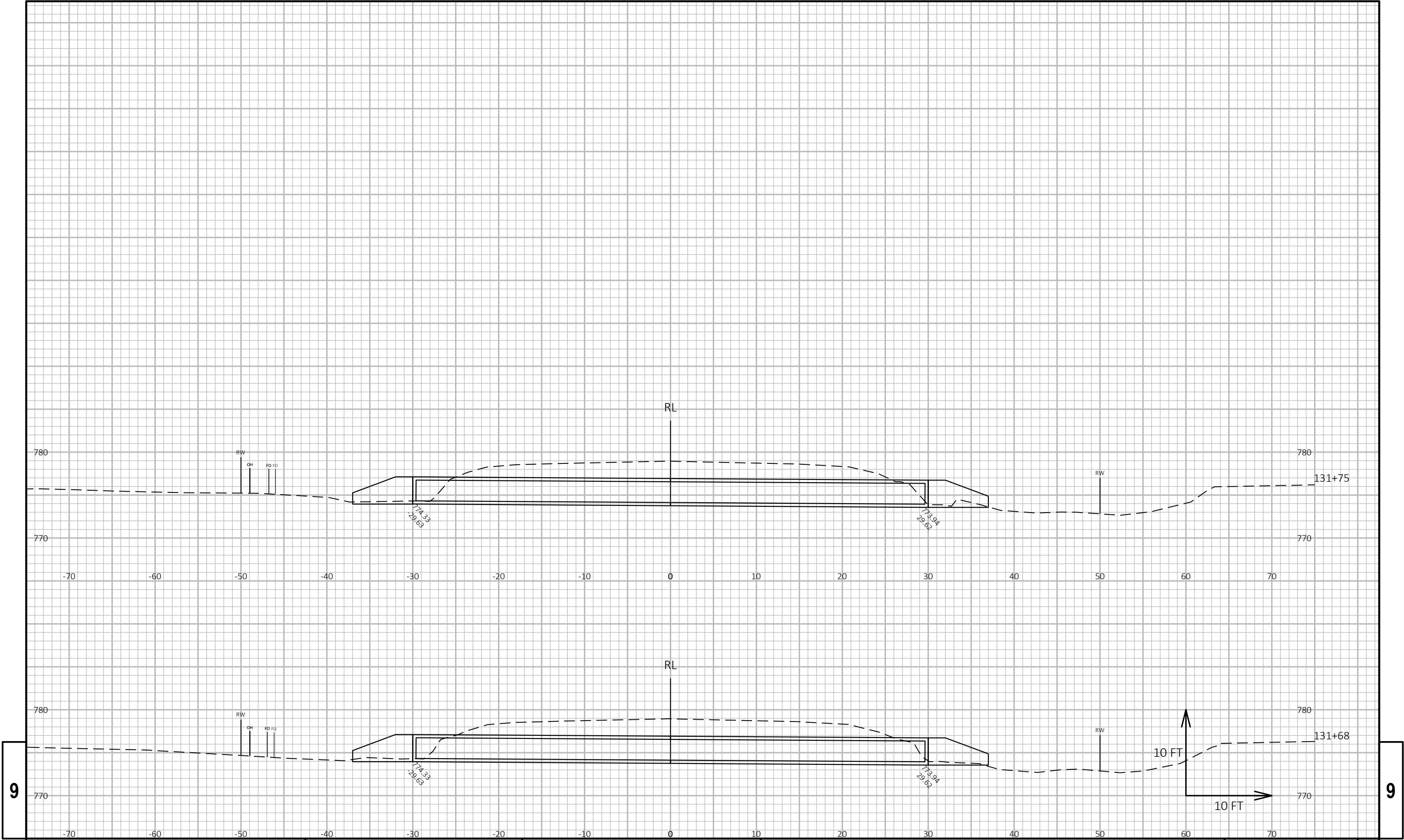
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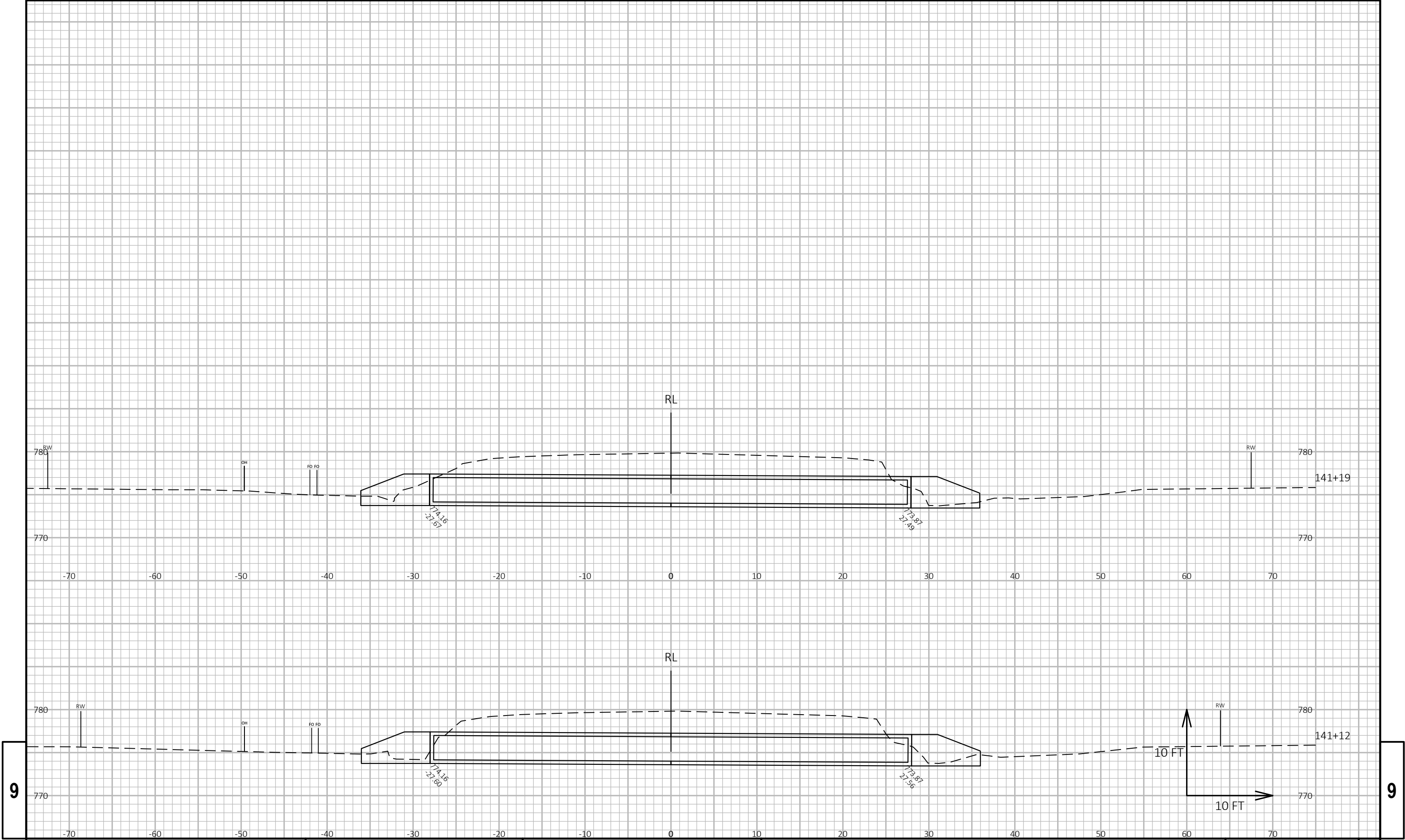
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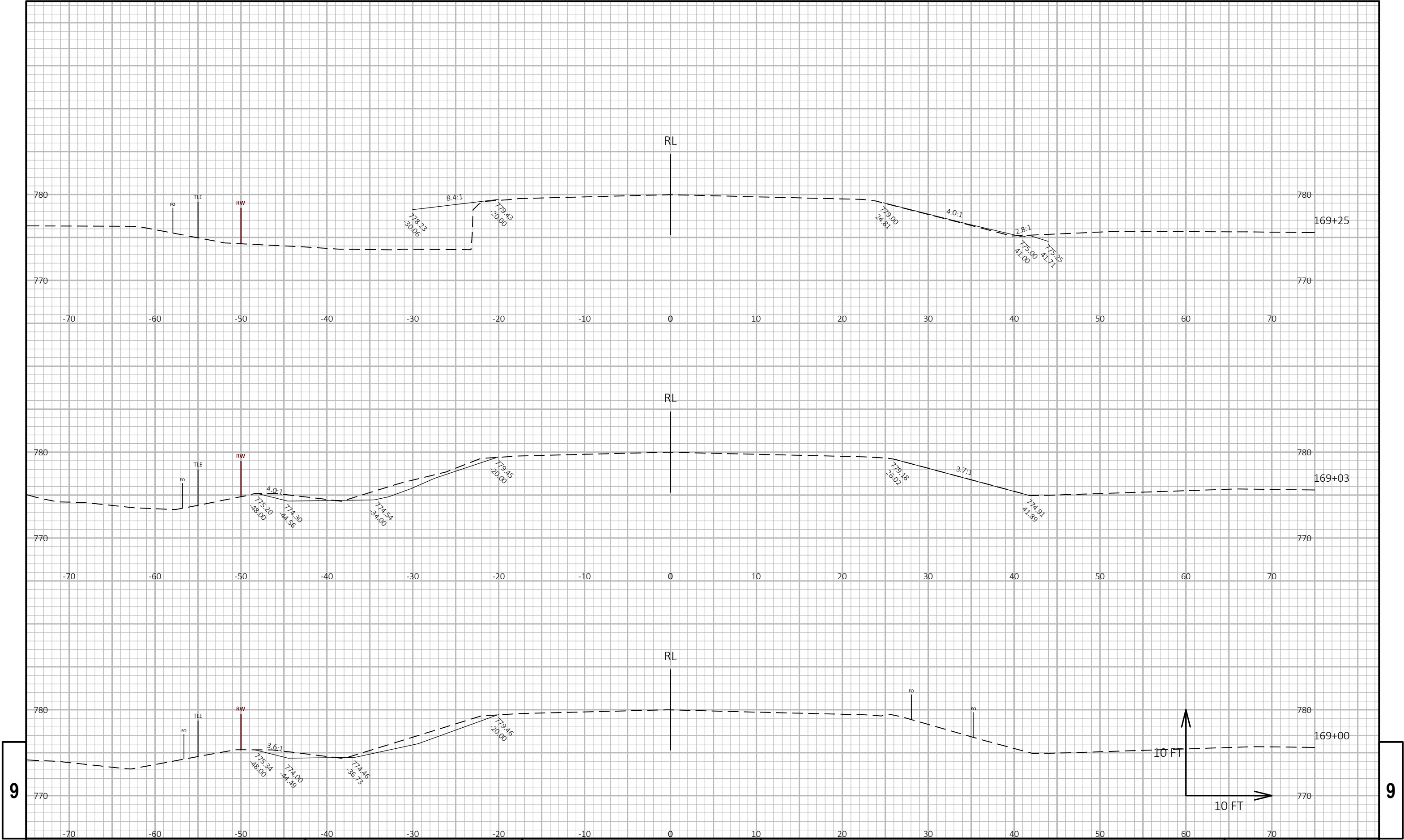
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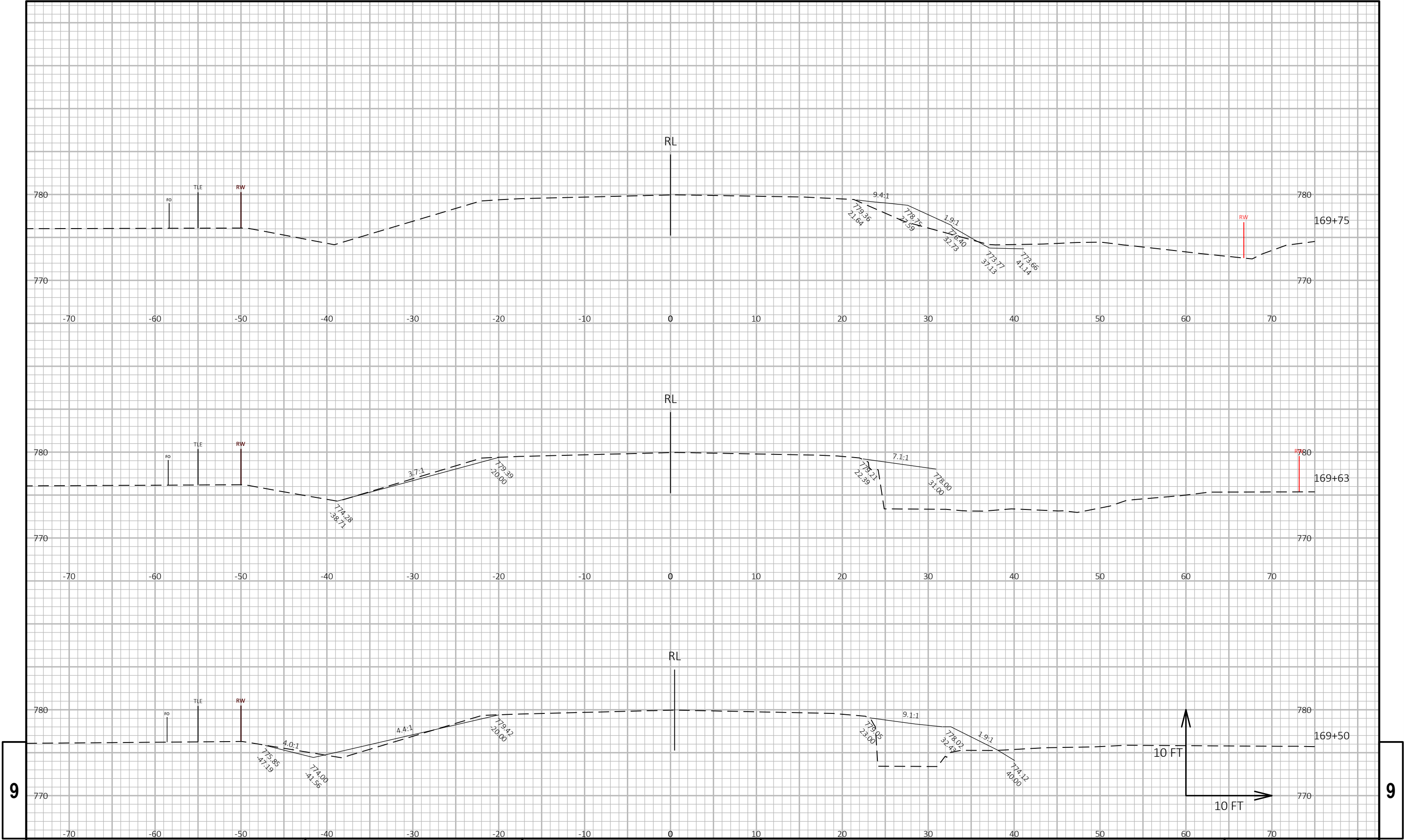
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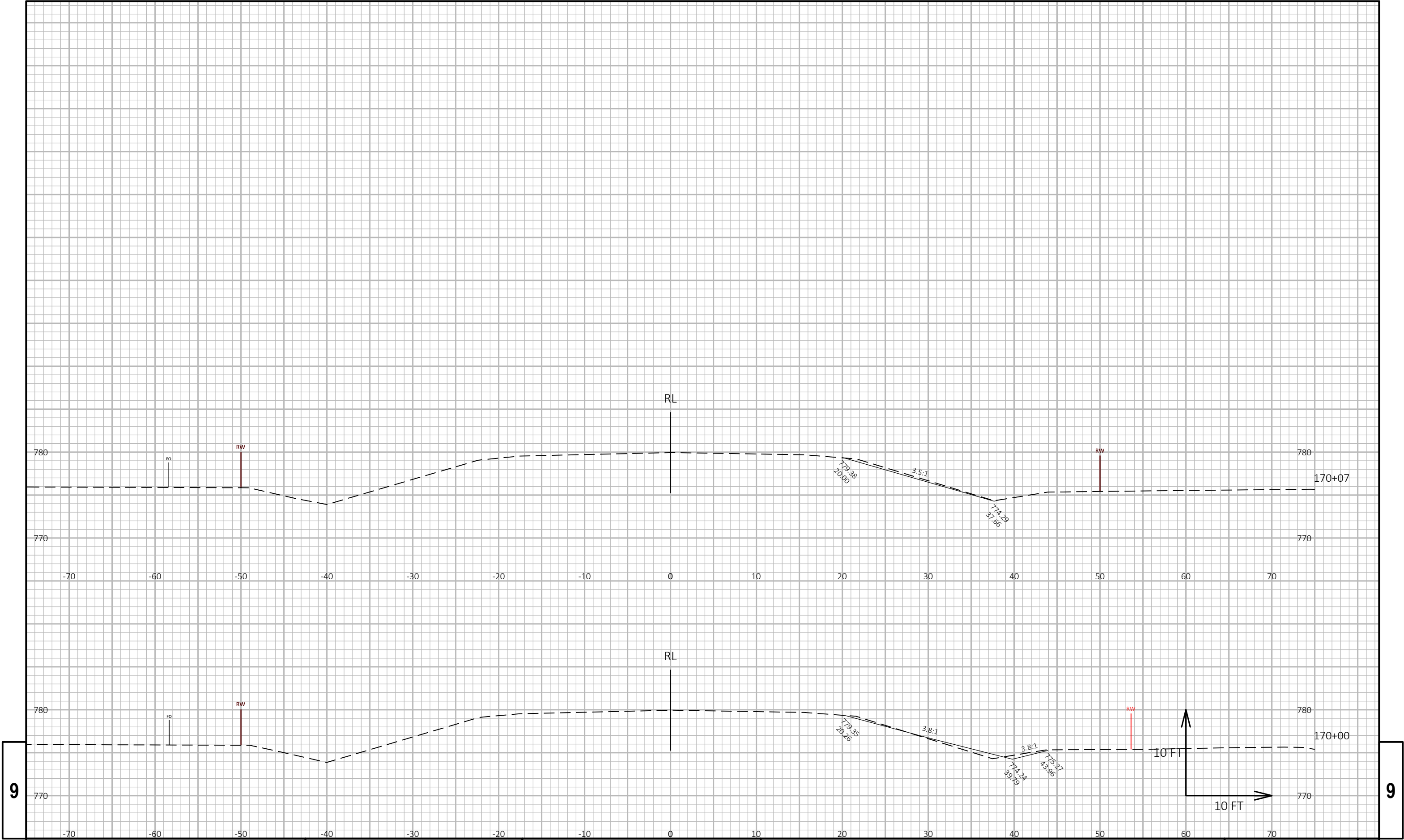
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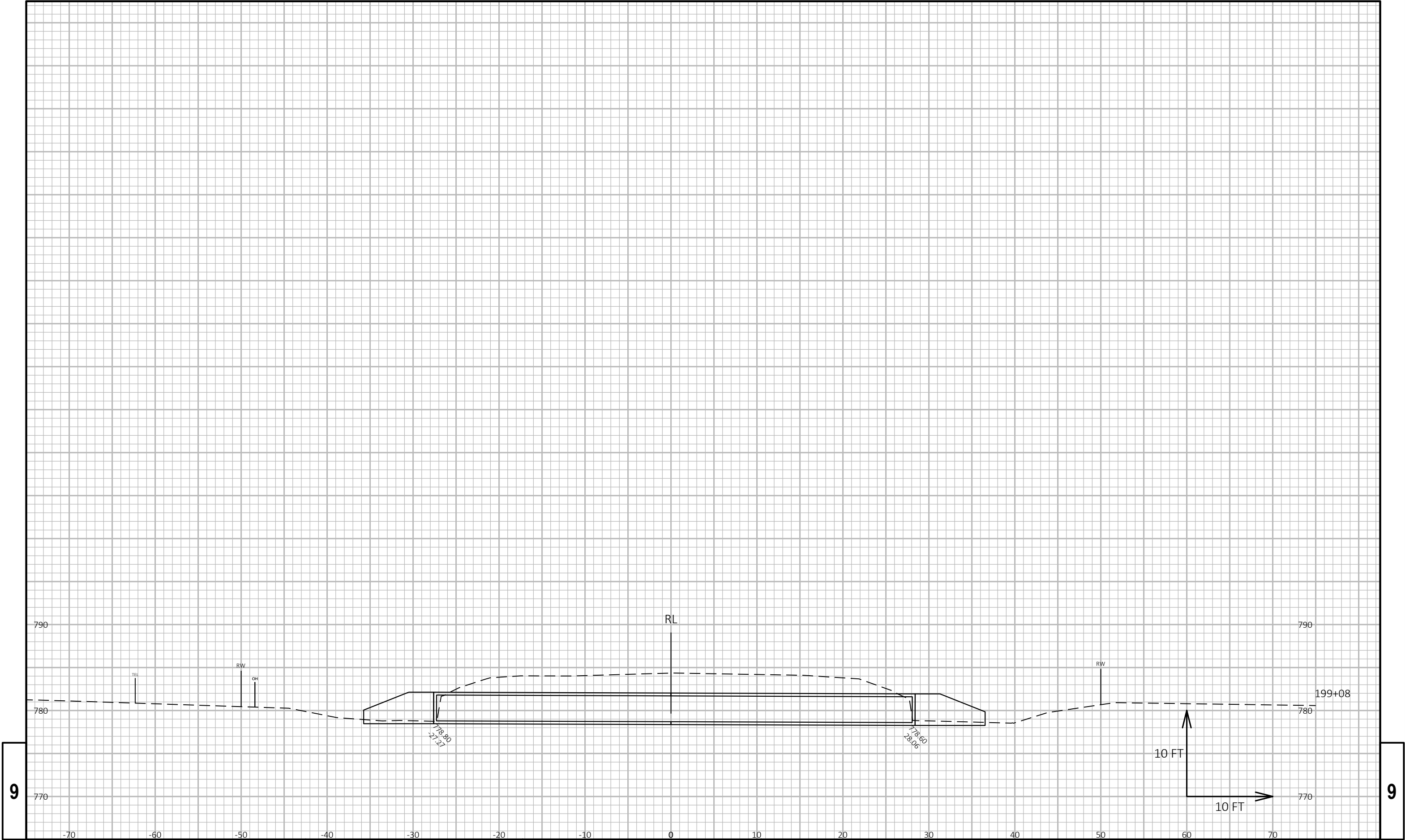


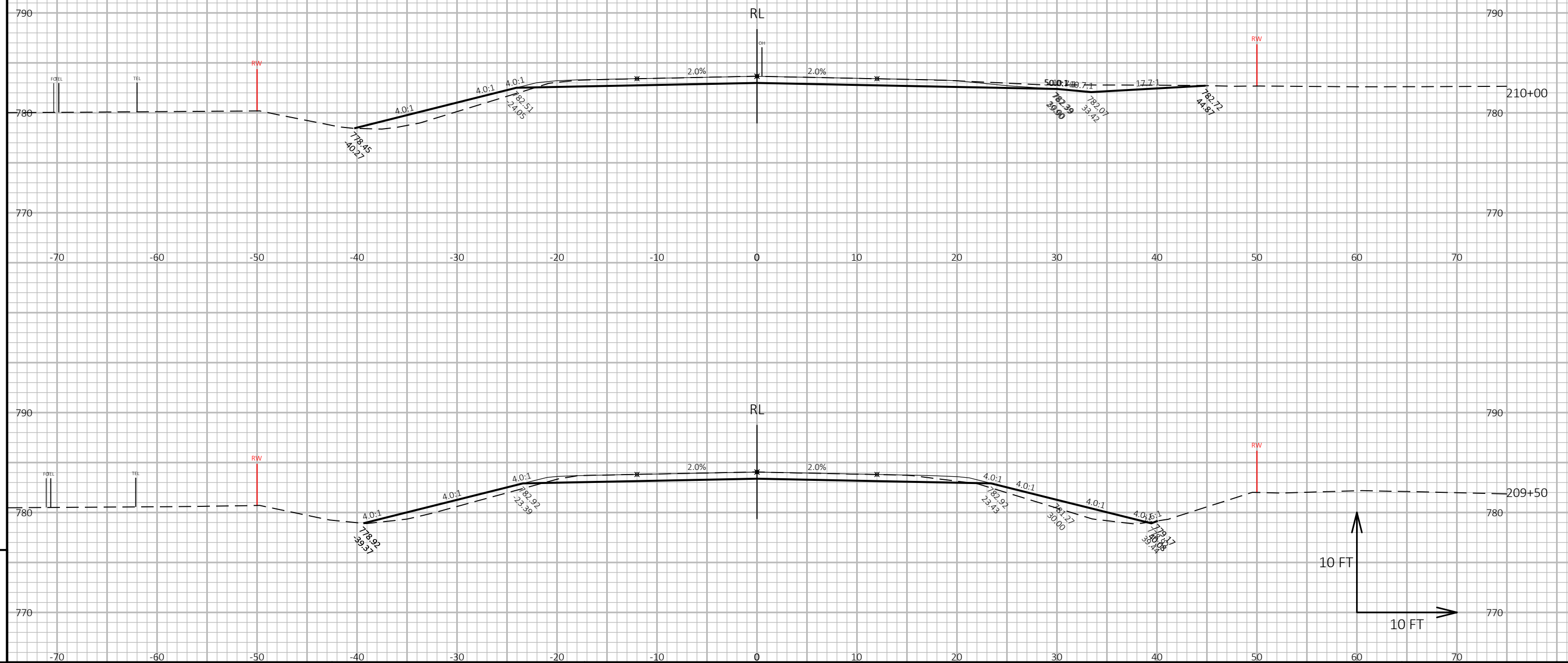
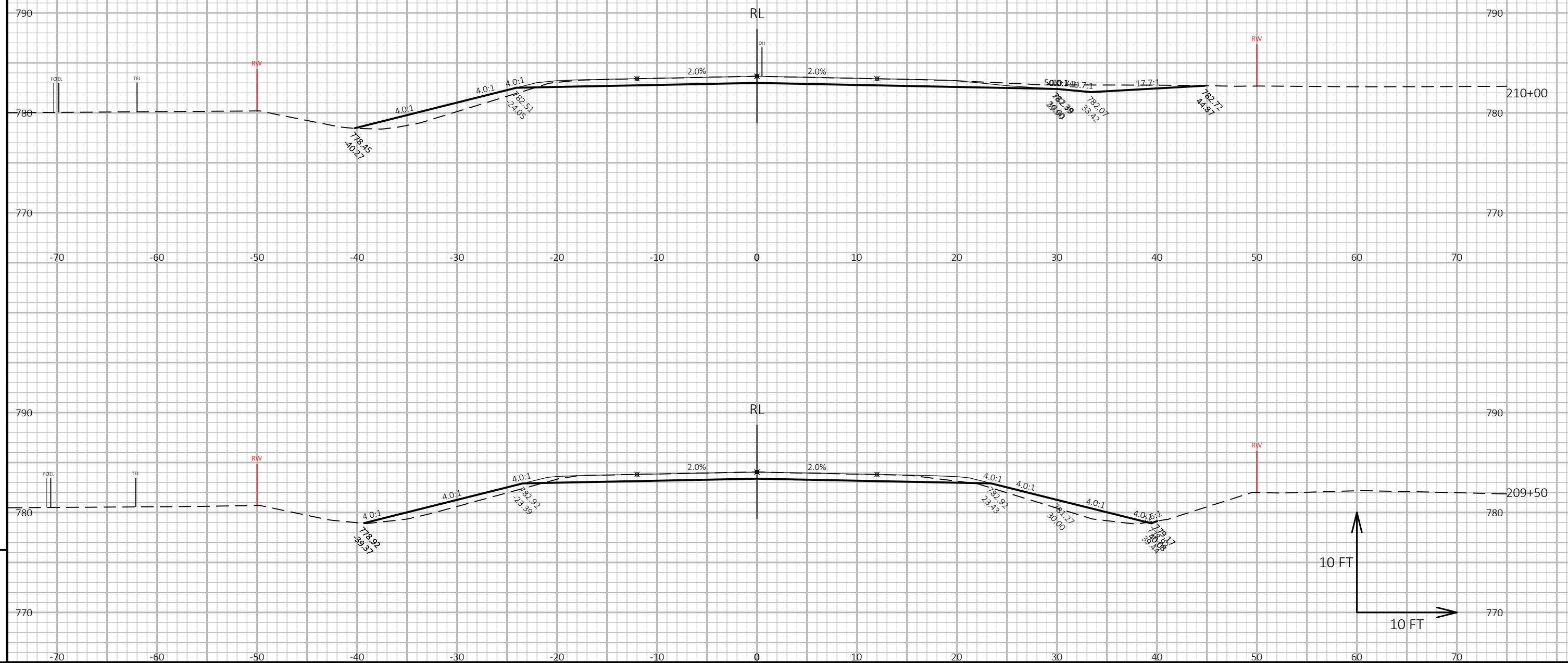
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PROJECT NO:	9190-23-71
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HWY: STH 32

COUNTY: BROWN

CROSS SECTIONS:	CROSS SECTIONS
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SHEET

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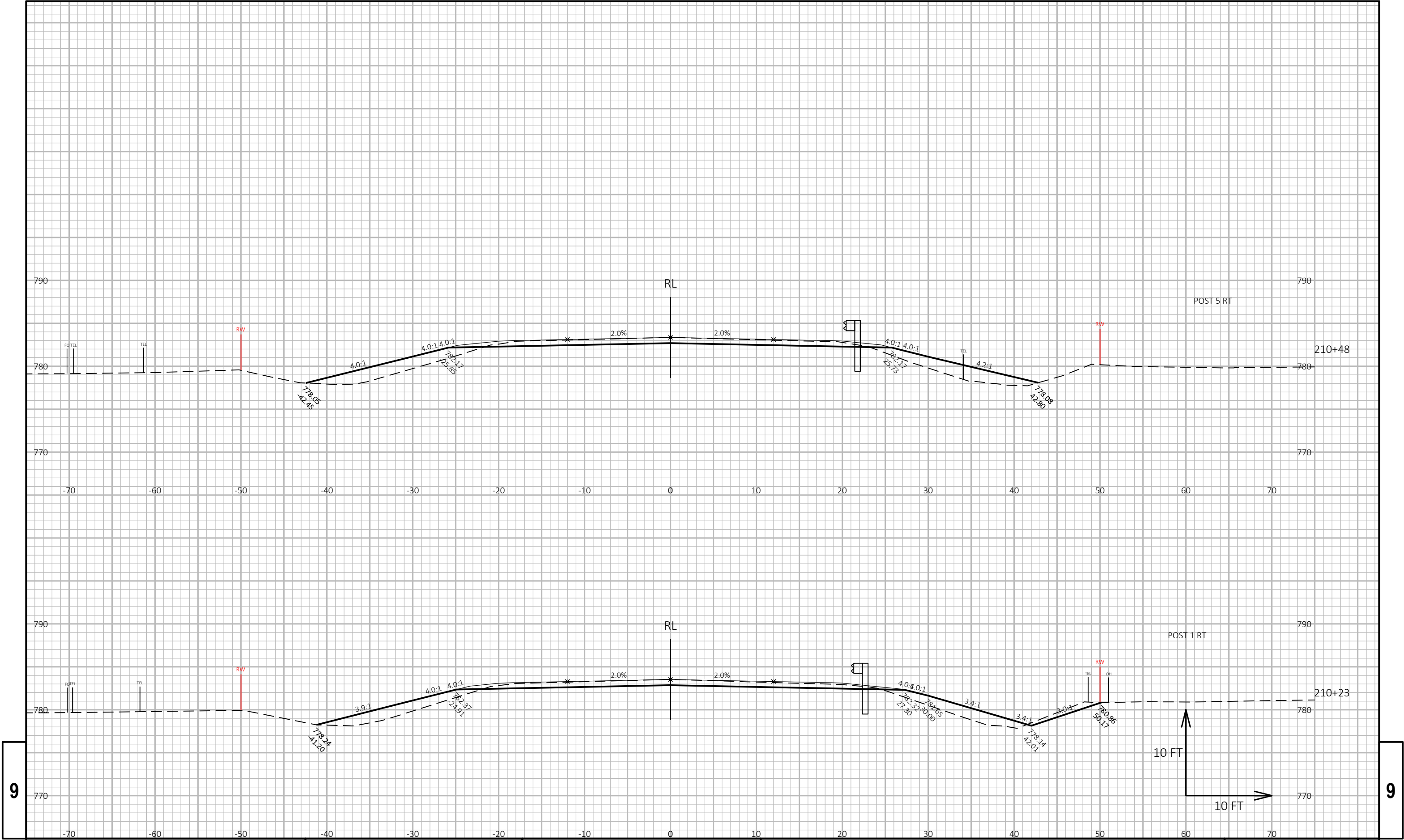
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PLOT NAME :

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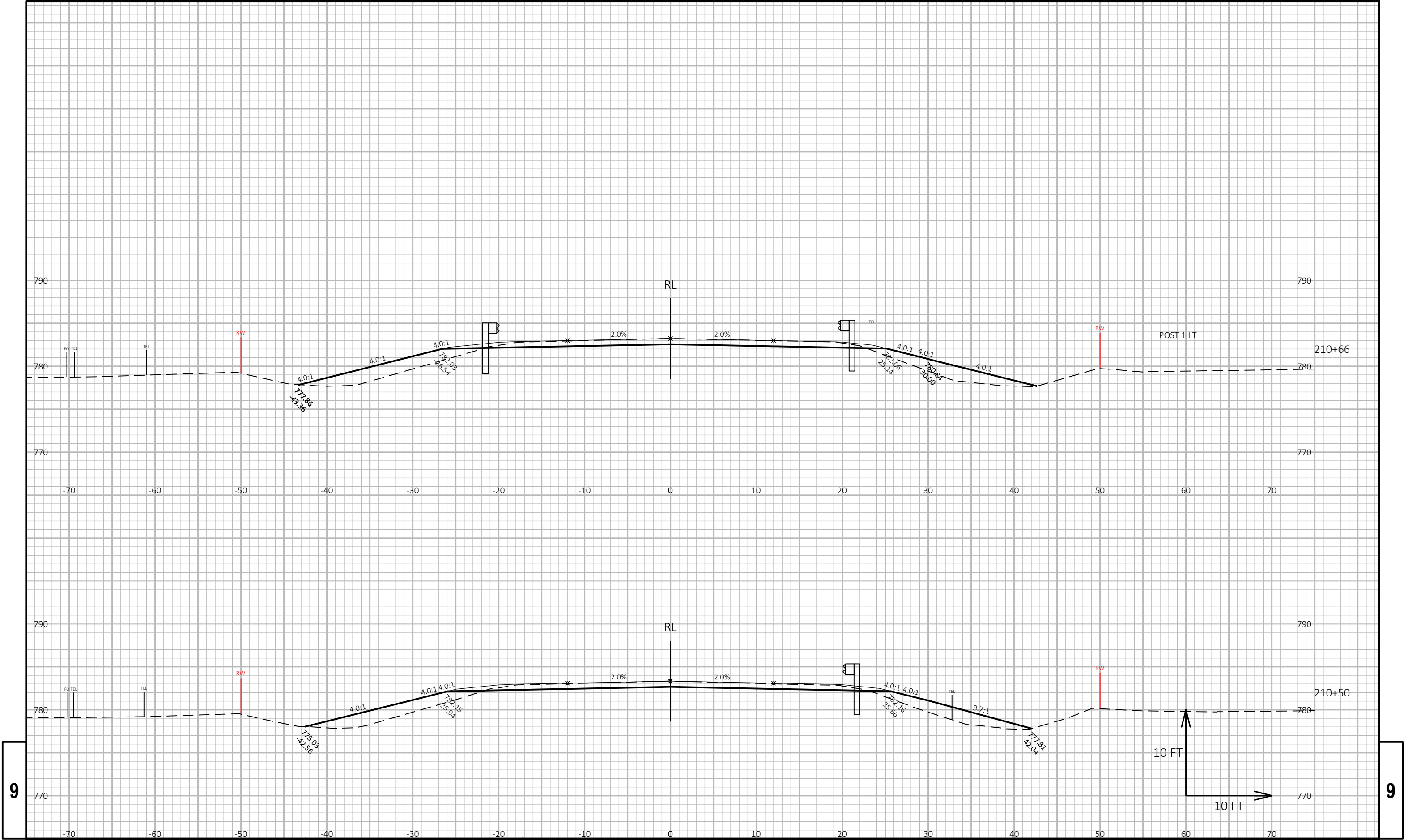
PRE_86 

WISDOT/CADDS SHEET 49



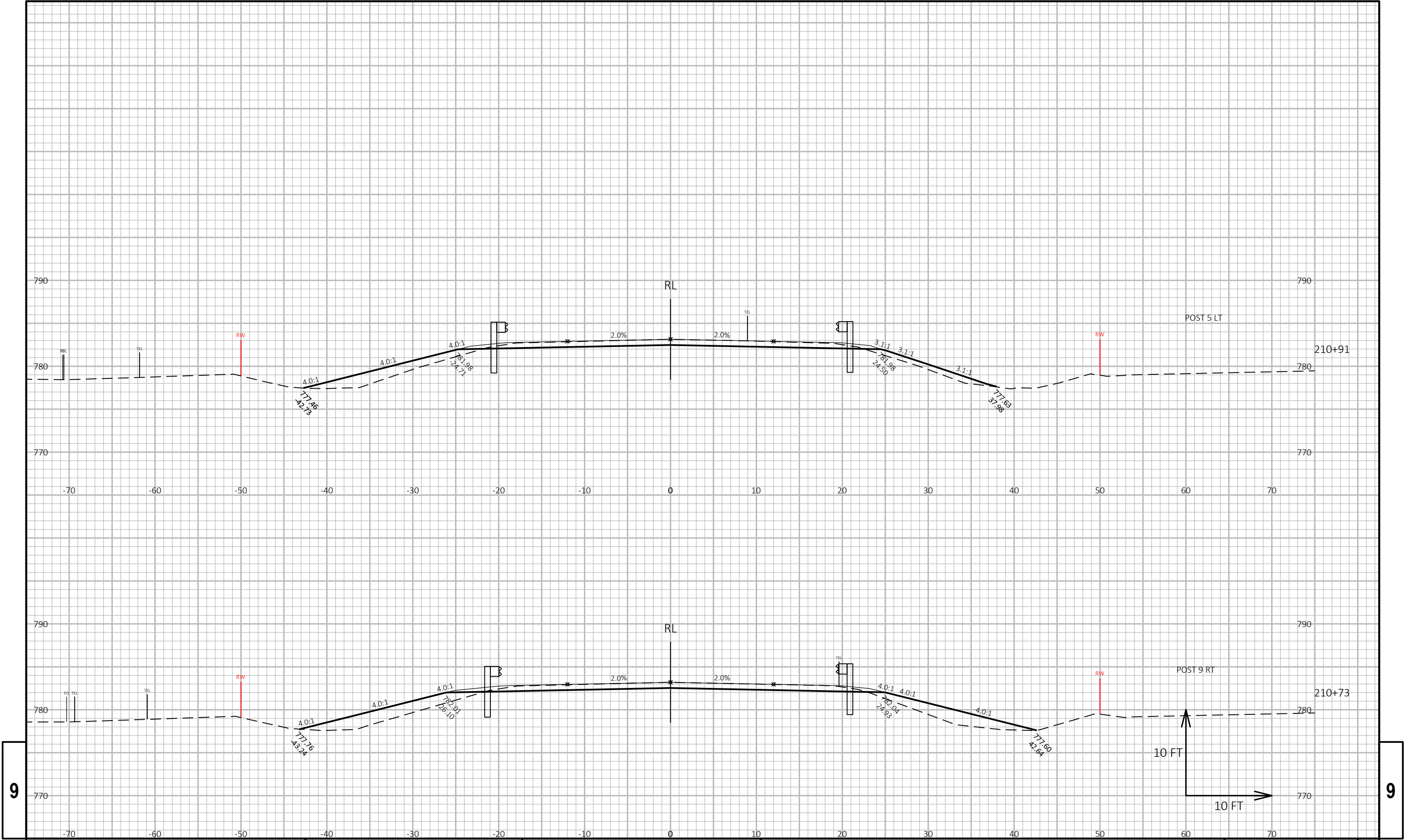
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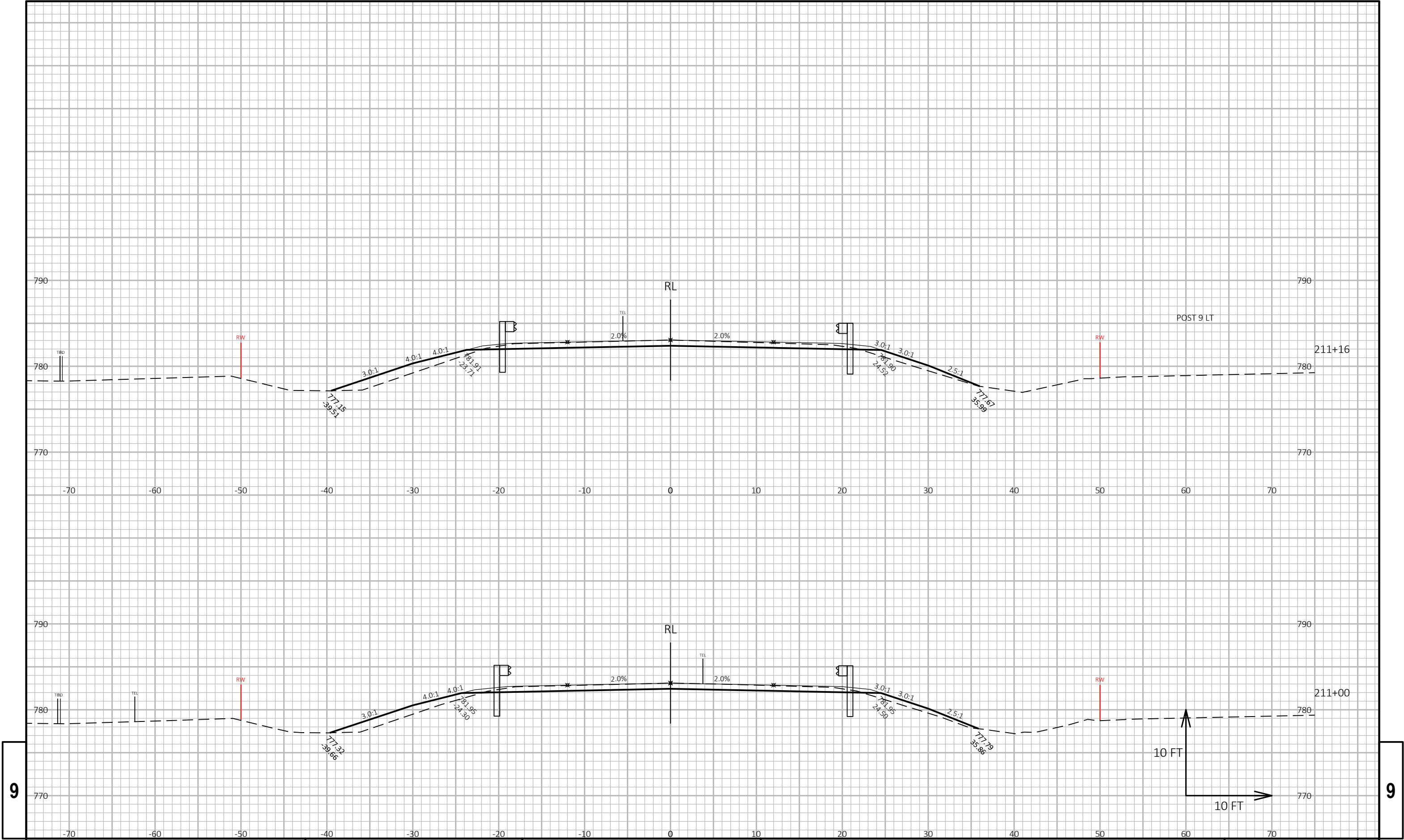
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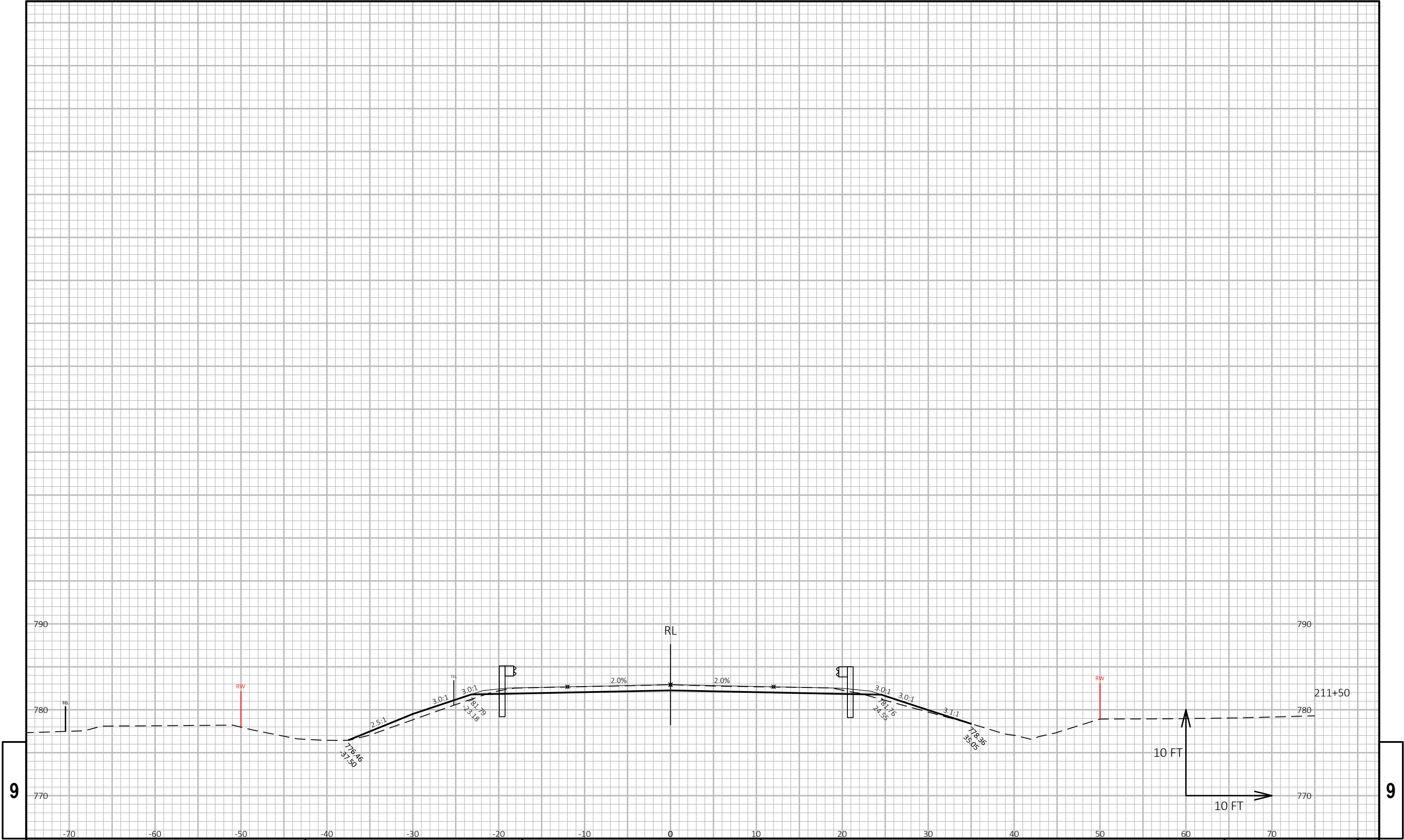
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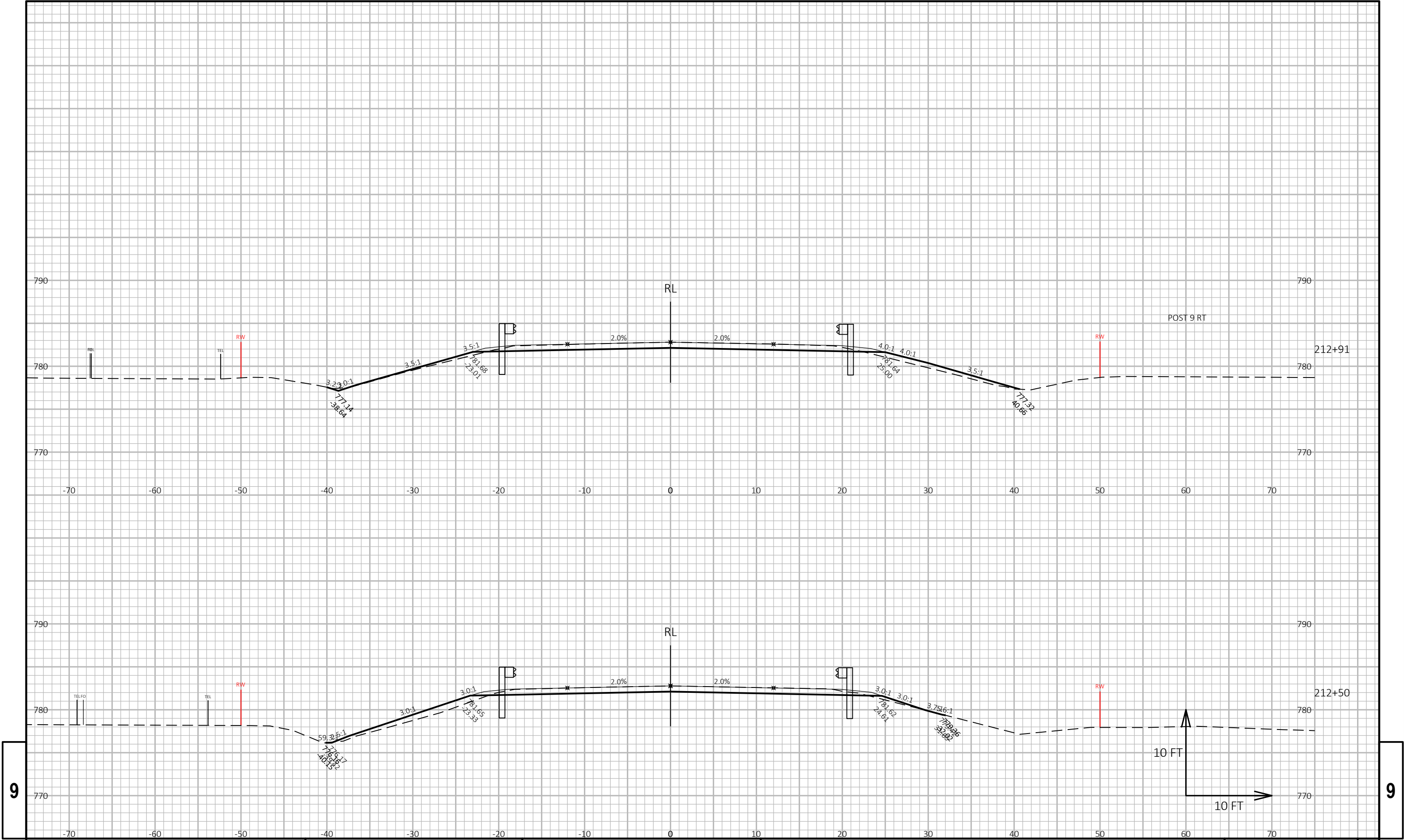
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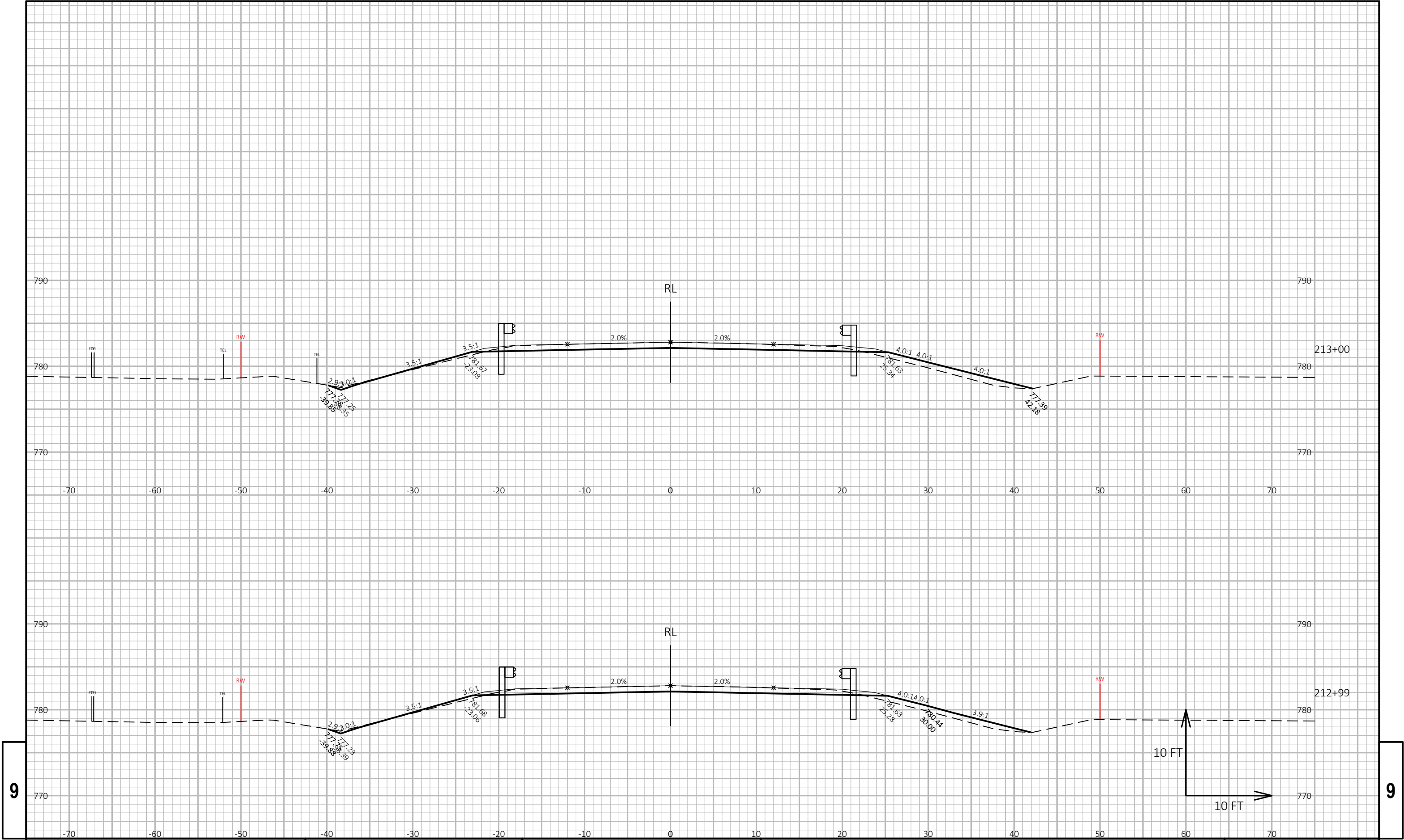
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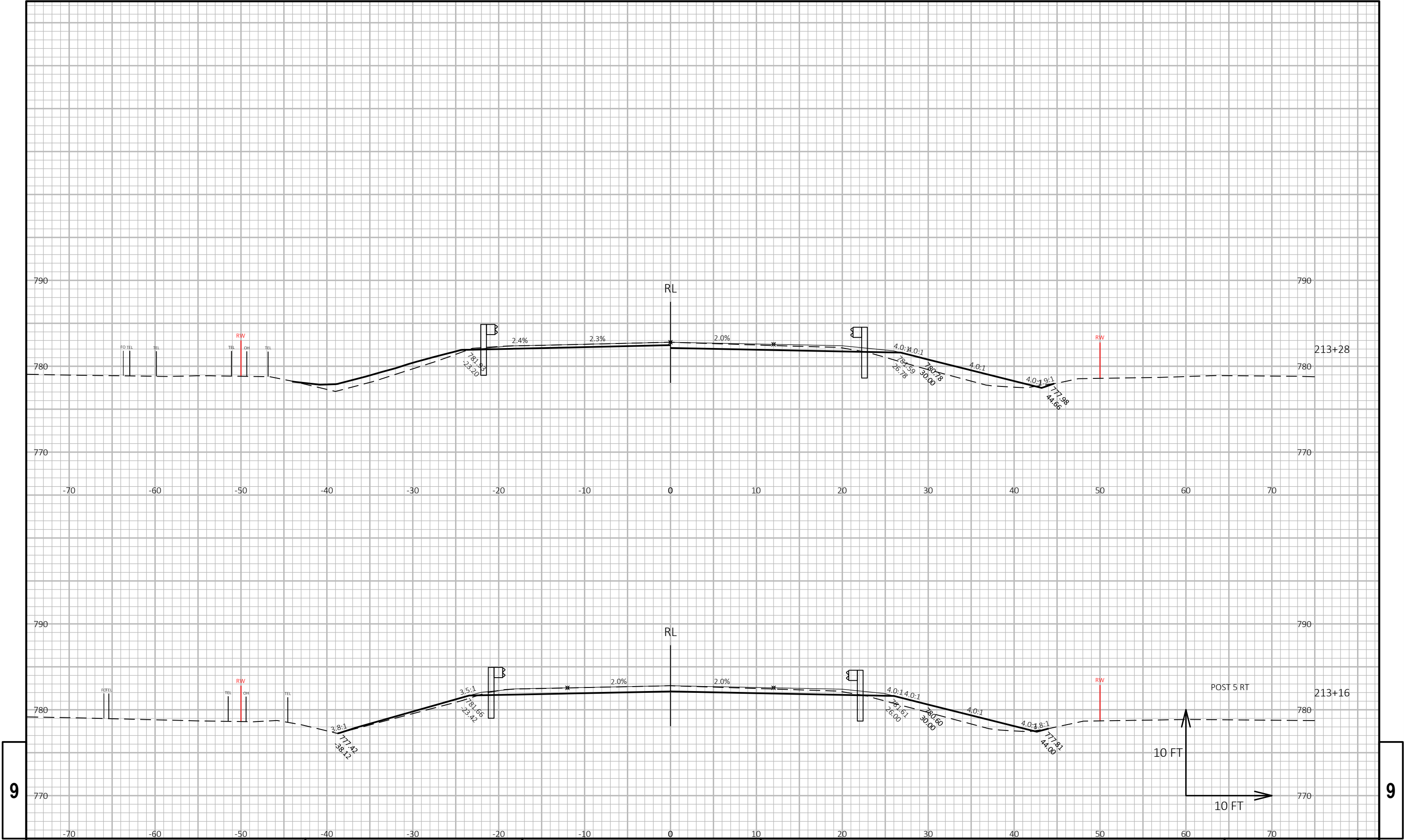


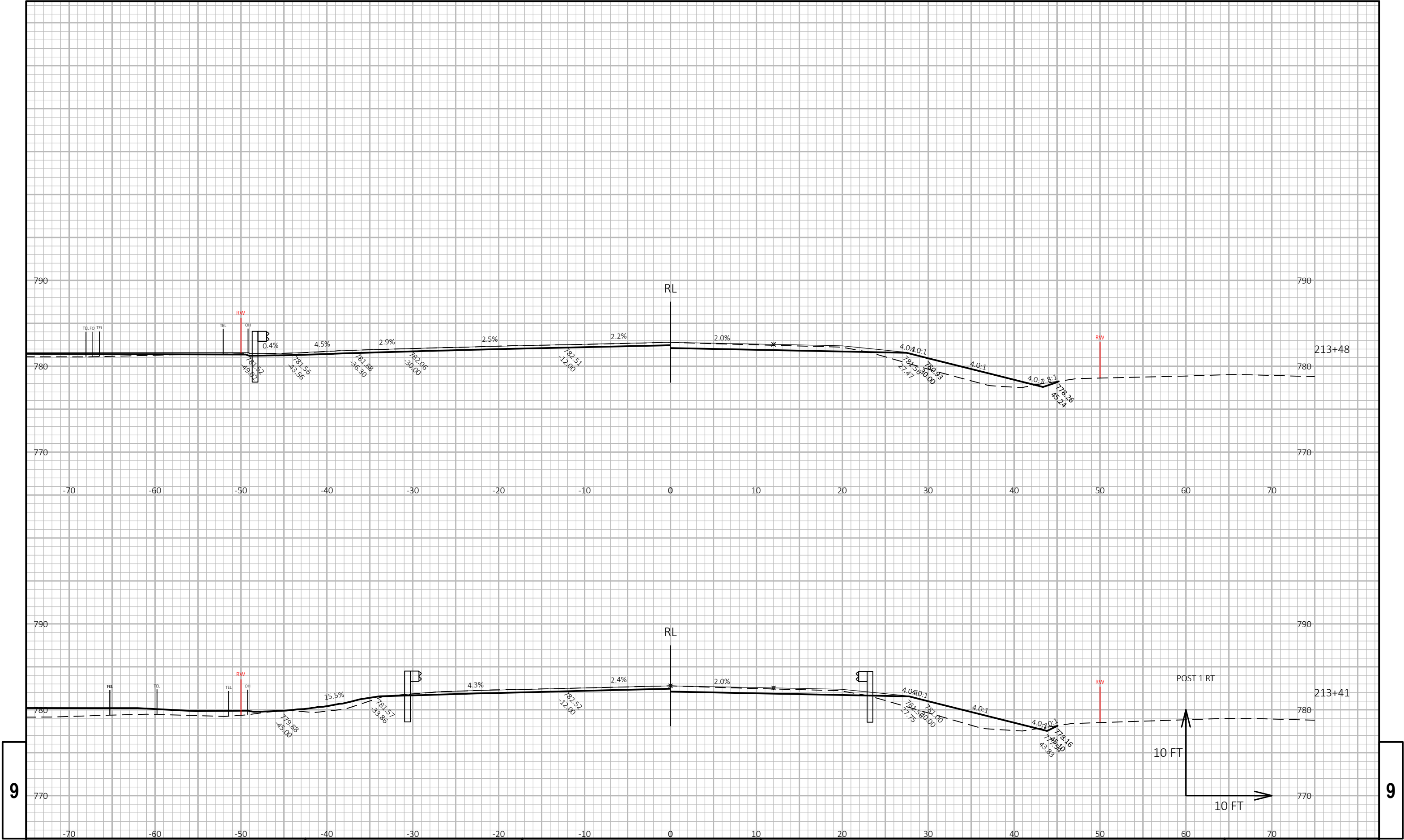
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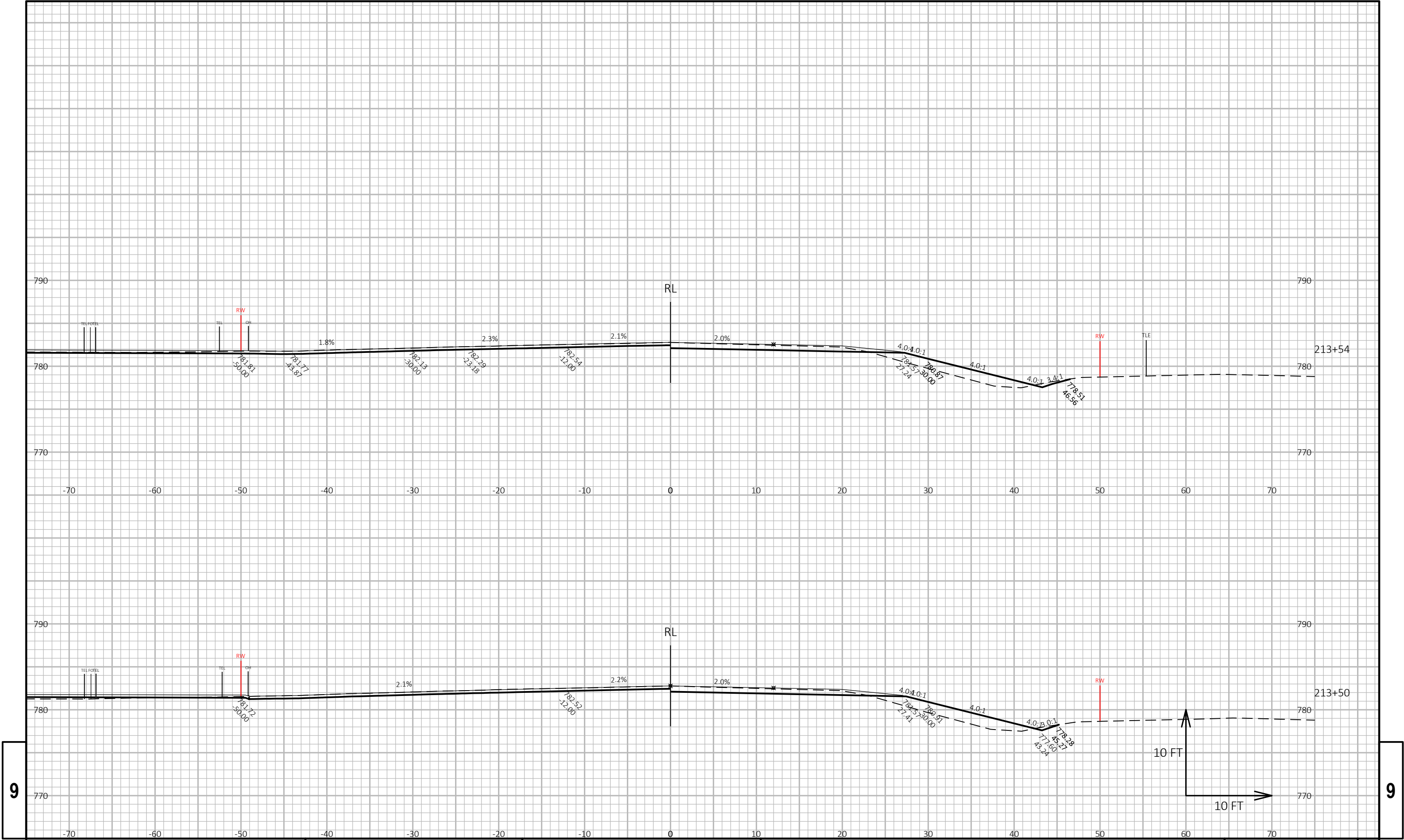






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PROJECT NO: 9190-23-71

HWY: STH 32

COUNTY: BROWN

CROSS SECTIONS: CROSS SECTIONS

SHEET

E

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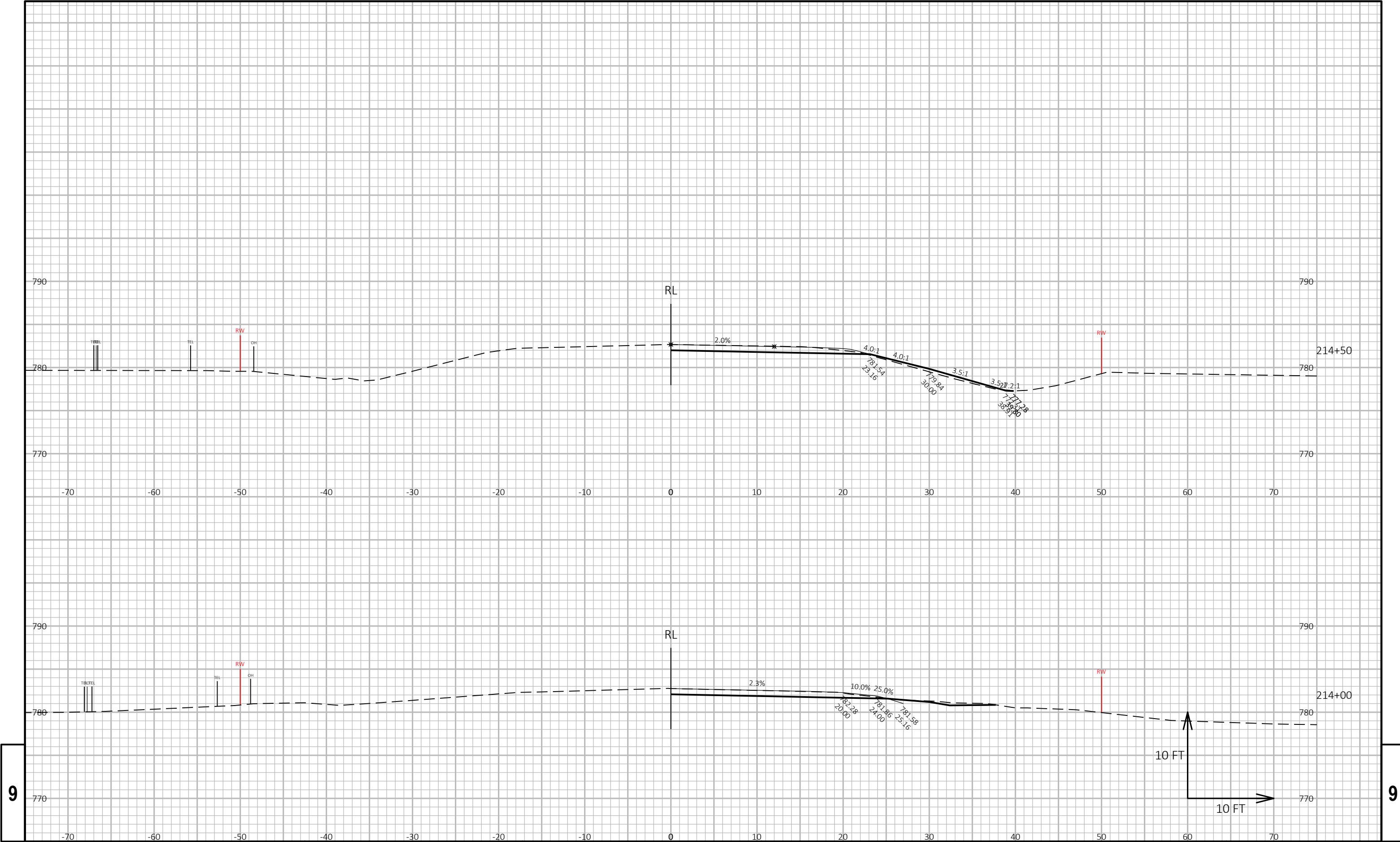
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PLOT NAME :

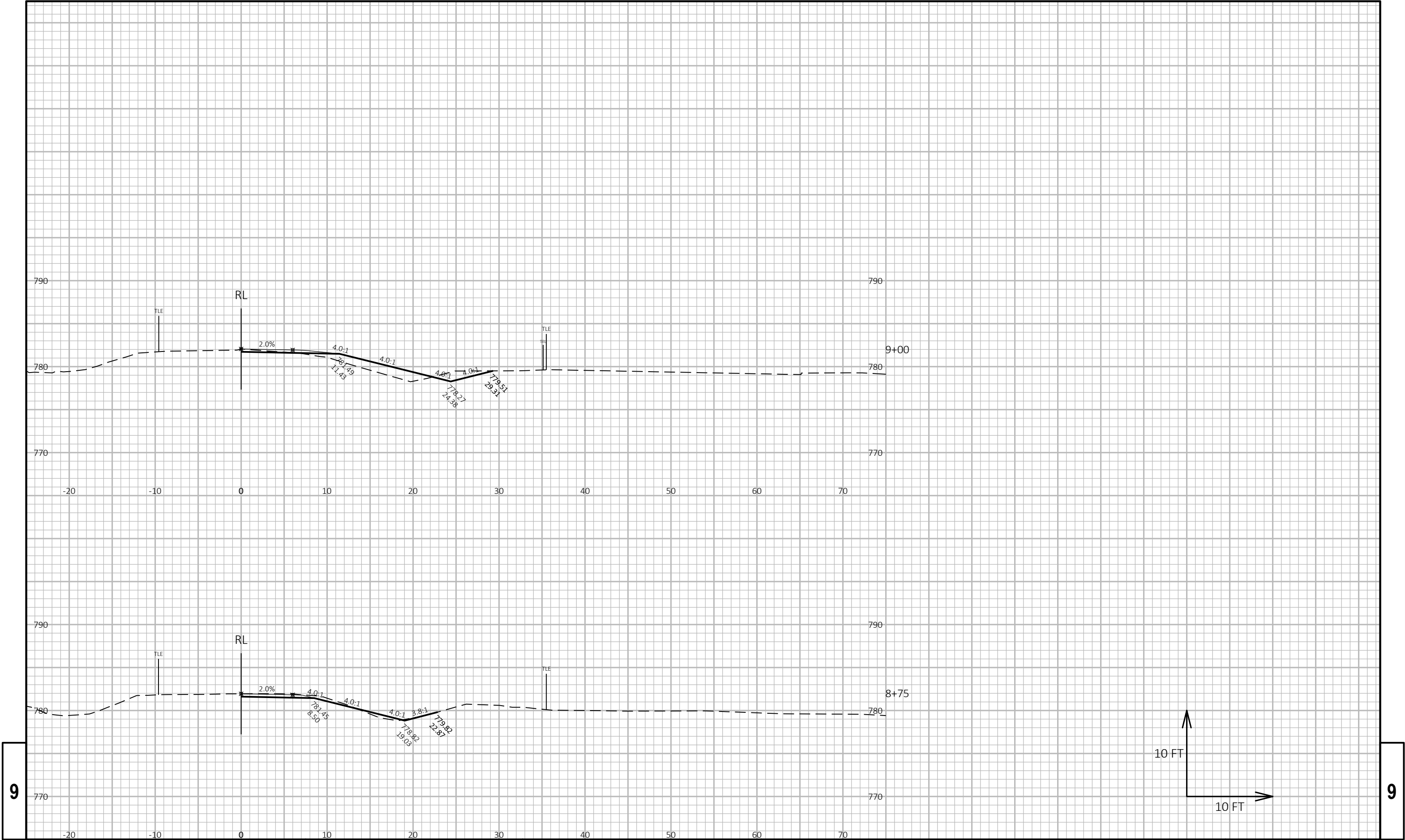
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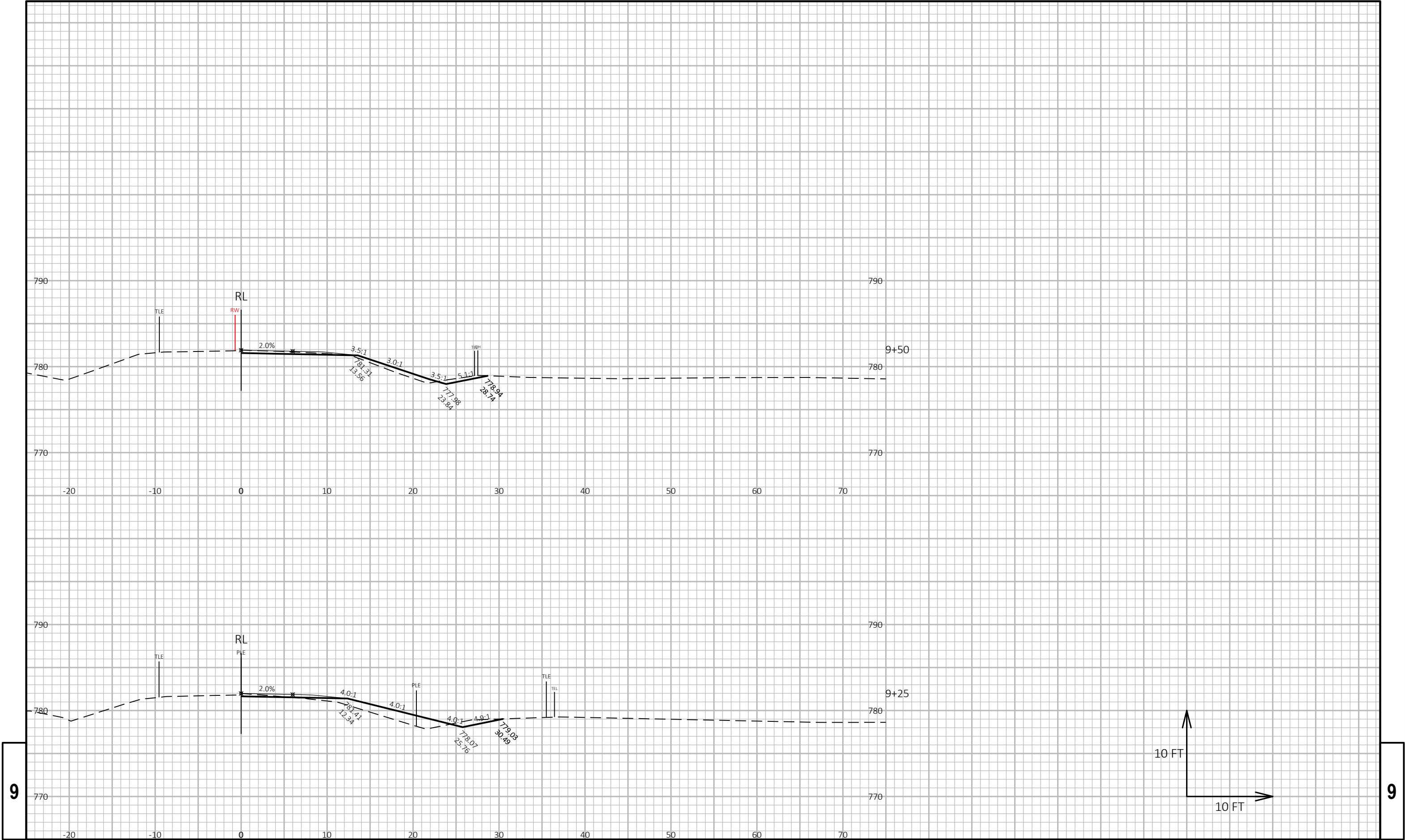
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WISDOT/CADDs SHEET 49

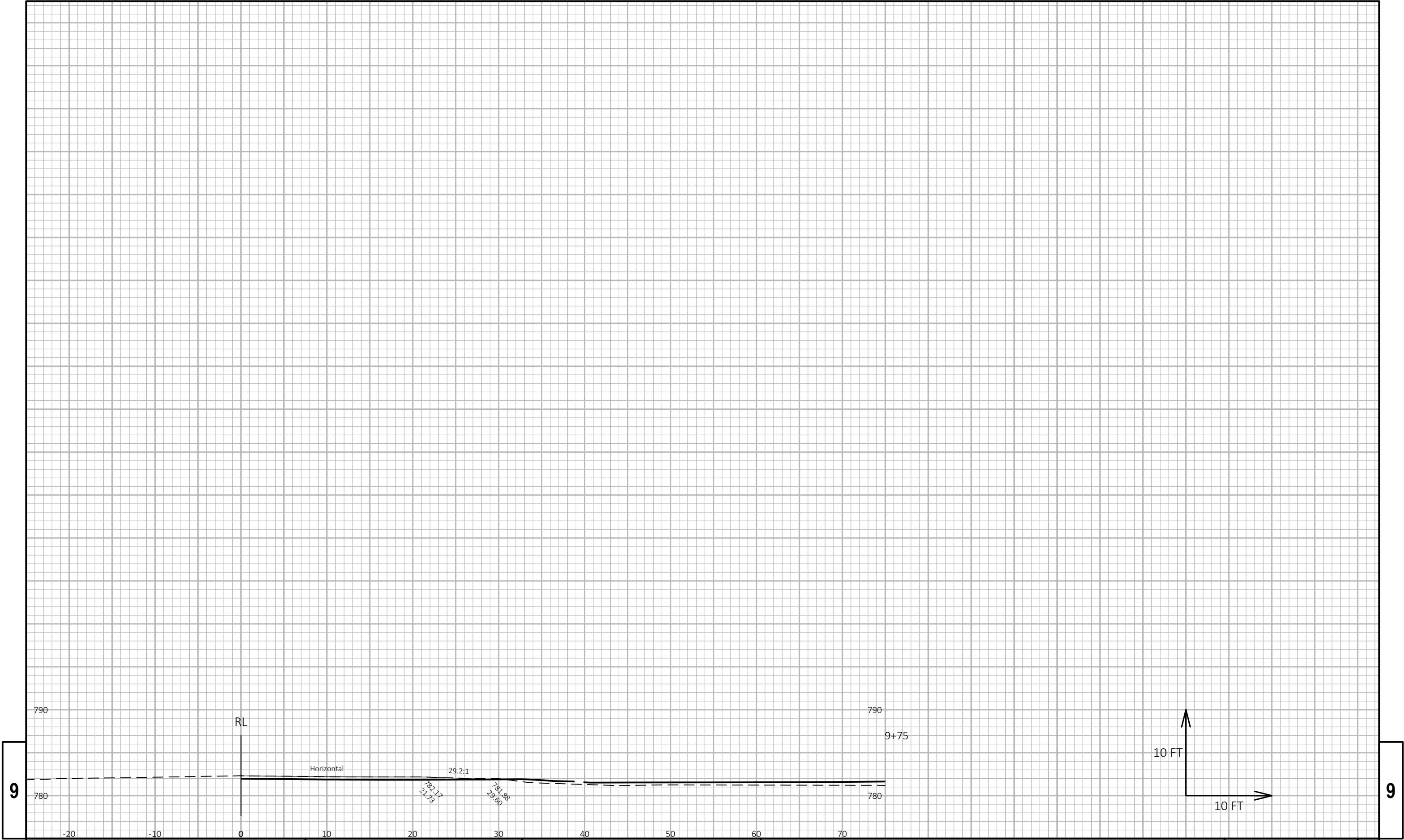


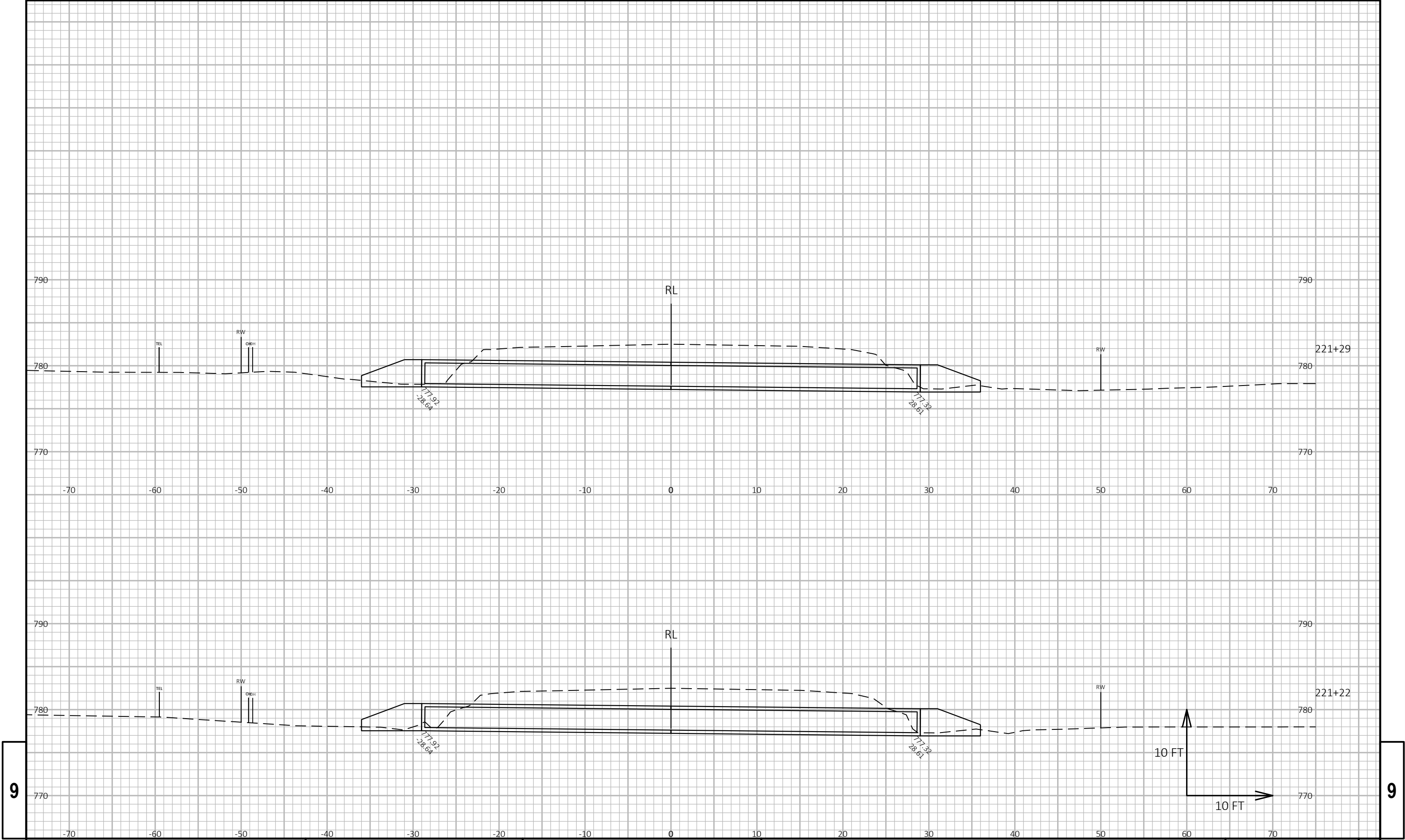
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EPlans Preliminary Sheet Numbering Tool

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 te 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



Attachment C: Environmental Special Provision

Special Provisions

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	Article	Description	Page #
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3.	Prosecution and Progress.....		2
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5.	Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.....		3
6.	Information to Bidders, WPDES General Construction Storm Water Discharge Permit.		3
7.	Environmental Protection, Aquatic Exotic Species Control.		3
8.	Environmental Protection, Blandings Turtle.....		4
9.	Environmental Protection, By-Pass Pumping		4
10.	Environmental Protection, Dewatering.....		4

STSP'S Revised November 19, 2018

SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 9190-20-71, Village of Pulaski, CTH B - E Green Bay St, STH 32, Brown County, Wisconsin and Project 9190-23-71, Green Bay – Pulaski, STH 29 – Village of Pulaski, STH 32, Brown County, Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2019 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.

100-005 (20181119)

2. Scope of Work.

The work under this contract shall consist of Structure B-05-0229, Structure B-05-0230, Structure B-5-0260, Structure C-05-0032, removing asphaltic surface milling, HMA pavement, Cold-In-Place recycling, excavation common, borrow, base aggregate dense, culvert pipe reinforced concrete, concrete curb and gutter, concrete sidewalk, storm sewer pipe reinforced concrete, guardrail, signing, pavement marking, and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

104-005 (20090901)

3. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the start date to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the approved start date.

To revise the start date, submit a written request to the engineer at least two weeks before the intended start date. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department's scheduled resources.

Complete construction operations on WIS 32 to the stage necessary to reopen it to through traffic prior to 12:01 AM July 15, 2021.

Fish Spawning

There shall be no instream disturbance of the following waters as a result of construction activity under or for this contract, prior to June 16, 2021, in order to avoid adverse impacts upon the spawning of Northern Pike.

Project 9190-20-71

- Unnamed Tributary to the Suamico River (B-05-0260)

Project 9190-23-71

- West Branch Suamico River (C-05-0031)
- Unnamed (C-05-0032)
- Potter Creek (C-05-0033)

Any change to this limitation will require submitting a written request by the contractor to the engineer, subsequent review and concurrence by the Department of Natural Resources in the request, and final approval by the engineer. The approval will include all conditions to the request as mutually agreed upon by WisDOT and DNR.

0036 (20090901)

Northern Long-eared Bat (*Myotis septentrionalis*)

Northern Long-eared Bats (NLEB) have the potential to inhabit the project limits because they roost in trees. Roosts may not have been observed on this project, but conditions to support the species exist. The species and all active roosts are protected by the Federal Endangered Species Act. If an individual bat or active roost is encountered during construction operations, stop work and notify the engineer and the WisDOT Regional Environmental Coordinator (REC).

If additional construction activities beyond what was originally specified are required to complete the work, approval from the engineer, following coordination with WisDOT REC, is required prior to initiating these activities.

4. Notice to Contractor, Verification of Asbestos Inspection, No Asbestos Found.

John Roelke, License Number All-119523, inspected Structure B-05-0260 for asbestos on July 17, 2017. No regulated Asbestos Containing Material (RACM) was found on this structure. A copy of the inspection report is available from: Andy Fulcer (920) 362-6126.

stp-107-127 (20120615)

5. Information to Bidders, U.S. Army Corps of Engineers Section 404 Permit.

The department has obtained a U.S. Army Corps of Engineers Section 404 permit. Comply with the requirements of the permit in addition to requirements of the special provisions. A copy of the permit is available from the regional office by contacting Andy Fulcer at (920) 362-6126.

stp-107-054 (20080901)

6. Information to Bidders, WPDES General Construction Storm Water Discharge Permit.

The department has obtained coverage through the Wisconsin Department of Natural Resources to discharge storm water associated with land disturbing construction activities of this contract under the Wisconsin Pollutant Discharge Elimination System General Construction Storm Water Discharge Permit (WPDES Permit No. WI-S066796-1). A certificate of permit coverage is available from the regional office by contacting Andy Fulcer at (920) 362-6126. Post the permit in a conspicuous place at the construction site.

stp-107-056 (20180628)

7. Environmental Protection, Aquatic Exotic Species Control.

Exotic invasive organisms such as VHS, zebra mussels, purple loosestrife, and Eurasian water milfoil are becoming more prolific in Wisconsin and pose adverse effects to waters of the state. Wisconsin State Statutes 30.07, "Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters", details the state law that requires the removal of aquatic plants and zebra mussels each time equipment is put into state waters.

At construction sites that involve navigable water or wetlands, use the follow cleaning procedures to minimize the chance of exotic invasive species infestation. Use these procedures for all equipment that comes in contact with waters of the state and/or infested water or potentially infested water in other states.

Ensure that all equipment that has been in contact with waters of the state, or with infested or potentially infested waters, has been decontaminated for aquatic plant materials and zebra mussels before being used in other waters of the state. Before using equipment on this project, thoroughly disinfect all equipment that has come into contact with potentially infested waters. Guidelines from the Wisconsin Department of Natural Resources for disinfection are available at:

<http://dnr.wi.gov/topic/invasives/disinfection.html>

Use the following inspection and removal procedures:

1. Before leaving the contaminated site, wash machinery and ensure that the machinery is free of all soil and other substances that could possibly contain exotic invasive species;

2. Drain all water from boats, trailers, bilges, live wells, coolers, bait buckets, engine compartments, and any other area where water may be trapped;
3. Inspect boat hulls, propellers, trailers and other surfaces. Scrape off any attached mussels, remove any aquatic plant materials (fragments, stems, leaves, seeds, or roots), and dispose of removed mussels and plant materials in a garbage can before leaving the area or invested waters; and
4. Disinfect your boat, equipment and gear by either:
 - 4.1. Washing with ~212 F water (steam clean), or
 - 4.2. Drying thoroughly for five days after cleaning with soap and water and/or high pressure water, or
 - 4.3. Disinfecting with either 200 ppm (0.5 oz per gallon or 1 Tablespoon per gallon) Chlorine for 10-minute contact time or 1:100 solution (38 grams per gallon) of Virkon Aquatic for 20- to 30-minute contact time. Note: Virkon is not registered to kill zebra mussel veligers nor invertebrates like spiny water flea. Therefore this disinfect should be used in conjunction with a hot water (>104° F) application.

Complete the inspection and removal procedure before equipment is brought to the project site and before the equipment leaves the project site.

stp-107-055 (20130615)

8. Environmental Protection, Blandings Turtle

Blandings turtles, a special concern turtle, are known to inhabit the riparian corridor. It is reasonable to assume that Blandings turtles may be present at or near the project site during construction. If project construction starts in the spring, protect the perimeter of the areas to be disturbed with properly trenched-in silt fence before May 1 (March 15 for project within the riparian corridors) to discourage turtles from entering the work area. If the construction area cannot be silt-fenced by May 1 (March 15 for projects within the riparian corridors), install the silt fence before construction activities. Also, survey the area behind the silt fence and remove all turtles confined within the project area before any site disturbance. Complete the survey and removal of turtles from construction areas periodically throughout the construction period.

ner-107-070 (20171213)

9. Environmental Protection, By-Pass Pumping

Add the following to standard spec 107.18:

If by-pass pumping is required, the means and methods proposed to be used during construction shall be submitted for approval as part of the Erosion Control Implementation Plan for each location it is required. The submittal shall include how the intake will be managed to not cause an increase in the background level turbidity during pumping; equipment pumping rate capabilities; discharge energy dissipation; and erosion controls. For by-pass pumping that will extend beyond one working day, the submittal should also include how the work zone will be managed and protected should the pump fail; be shut down due to unacceptable water quality; or storm water flows exceed the pumping rate of equipment. After setup of the approved by-pass pumping operation, the contractor shall demonstrate that the means and methods will pump the water at an acceptable water quality before starting work that necessitates the by-pass pumping. The cost of all work and materials associated with by-pass pumping is incidental to the bid items the work is associated with. Erosion control devices beyond the discharge energy dissipation point will be paid for at the contract unit prices for the items that are included in the plan.

ner-107-035 (20180212)

10. Environmental Protection, Dewatering

Add the following to standard spec 107.18:

If dewatering is required, treat the water to remove suspended sediments by filtration, settlement or other appropriate best management practice before discharge. The means and methods proposed to be used during construction shall be submitted for approval as part of the Erosion Control Implementation Plan for dewatering at each location it is required. The submittal shall also include the details of how the intake will be managed to not cause an increase in the background level turbidity before treatment and any additional erosion controls necessary to prevent sediments from reaching the project limits or wetlands and waterways. Guidance on dewatering can be found on the Wisconsin Department of Natural

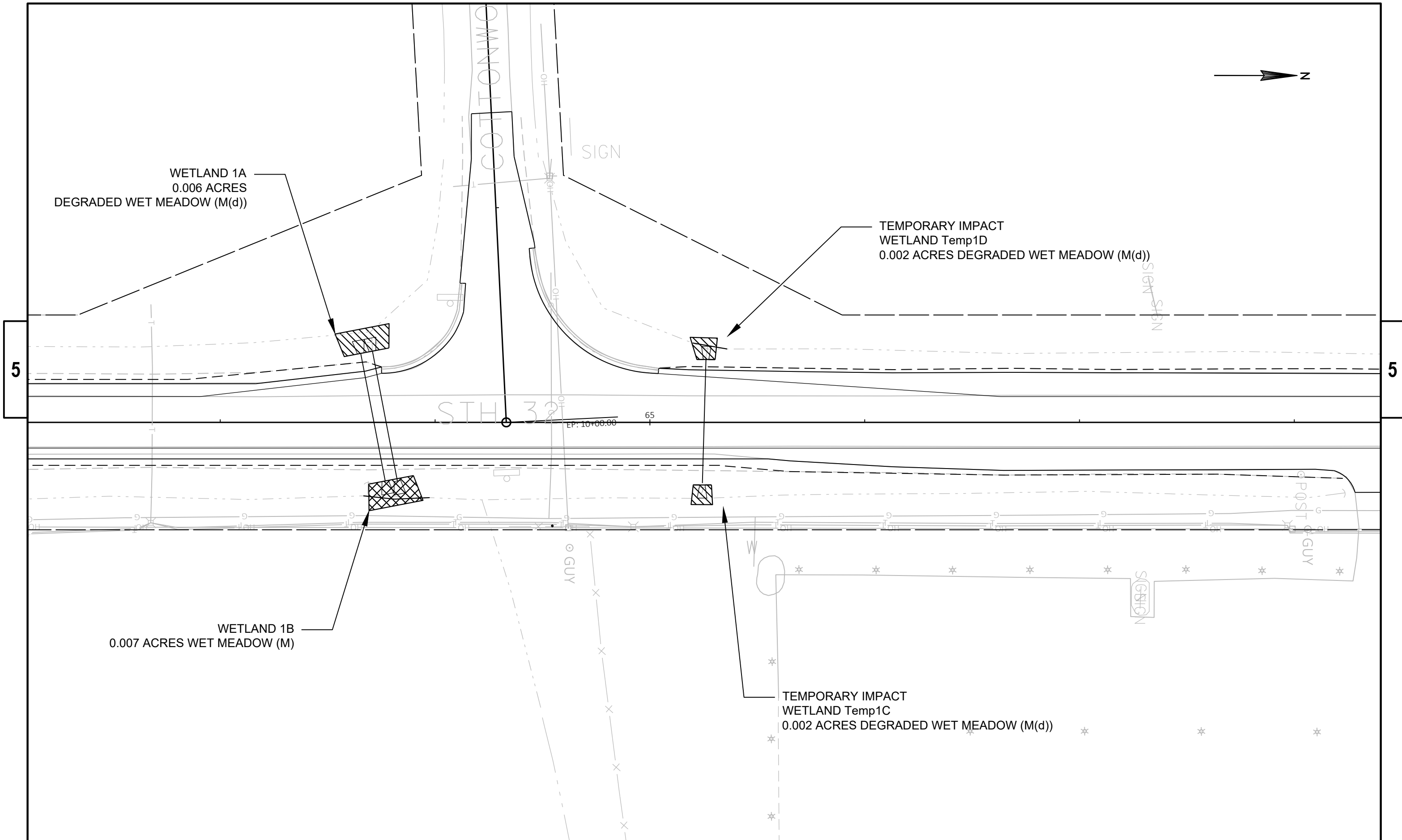
Resources website located in the Storm Water Construction Technical Standards, Dewatering Code #1061, "Dewatering". This document can be found at the WisDNR website:

http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

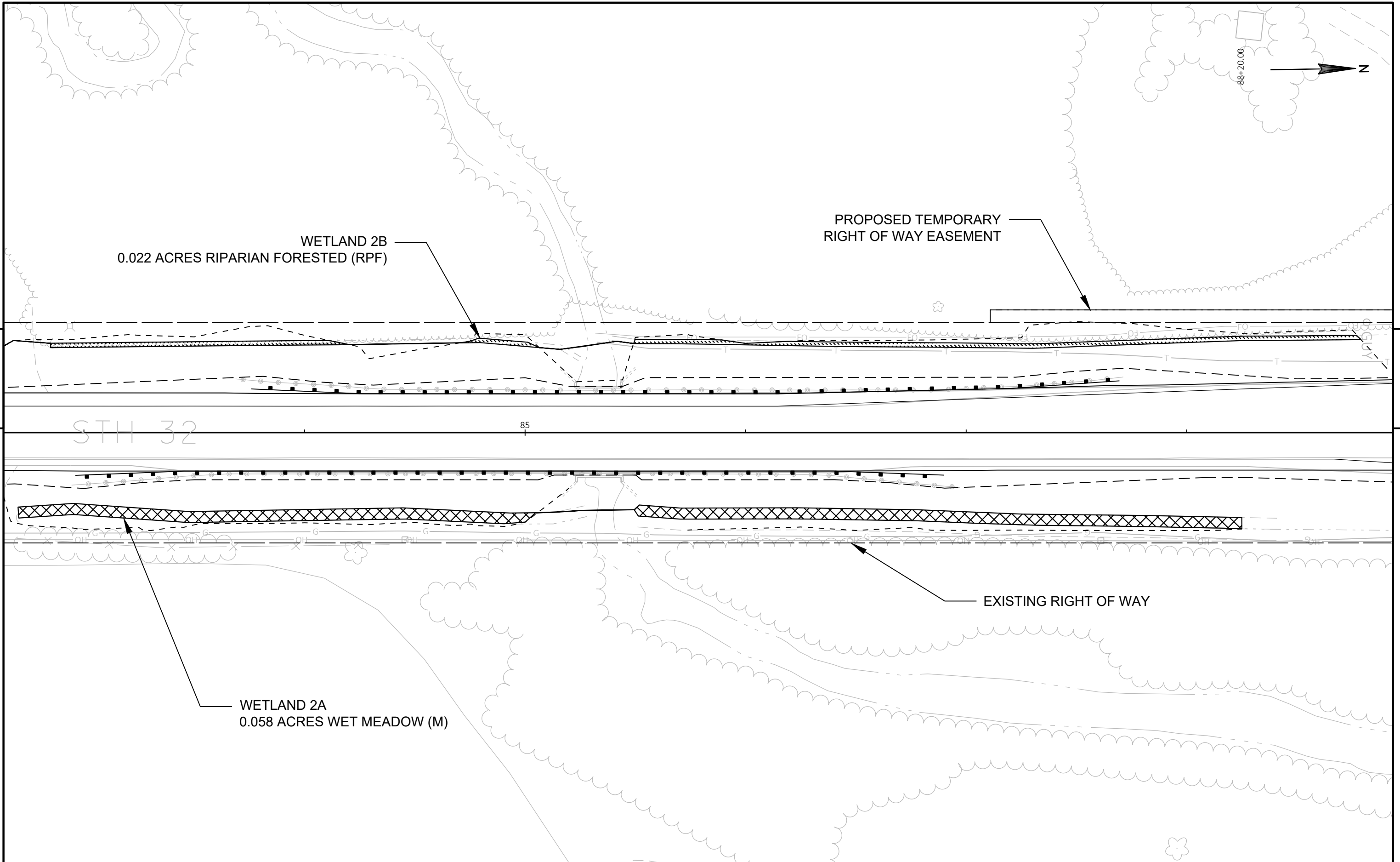
The cost of all work and materials associated with water treatment and/or dewatering is incidental to the bid items the work is associated.

ner-107-040 (20180212)

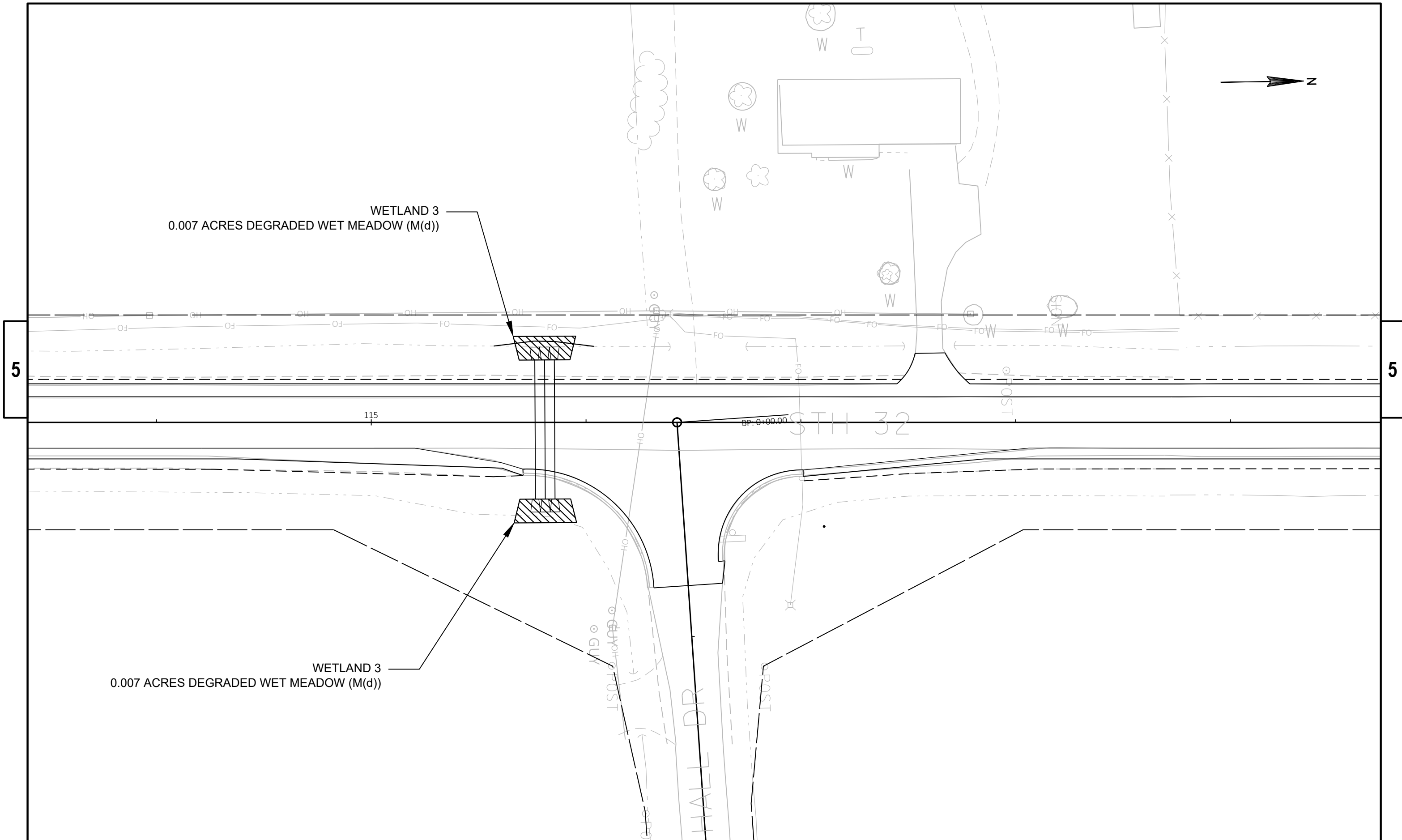
Attachment D: Wetland Impact Plan Sheets



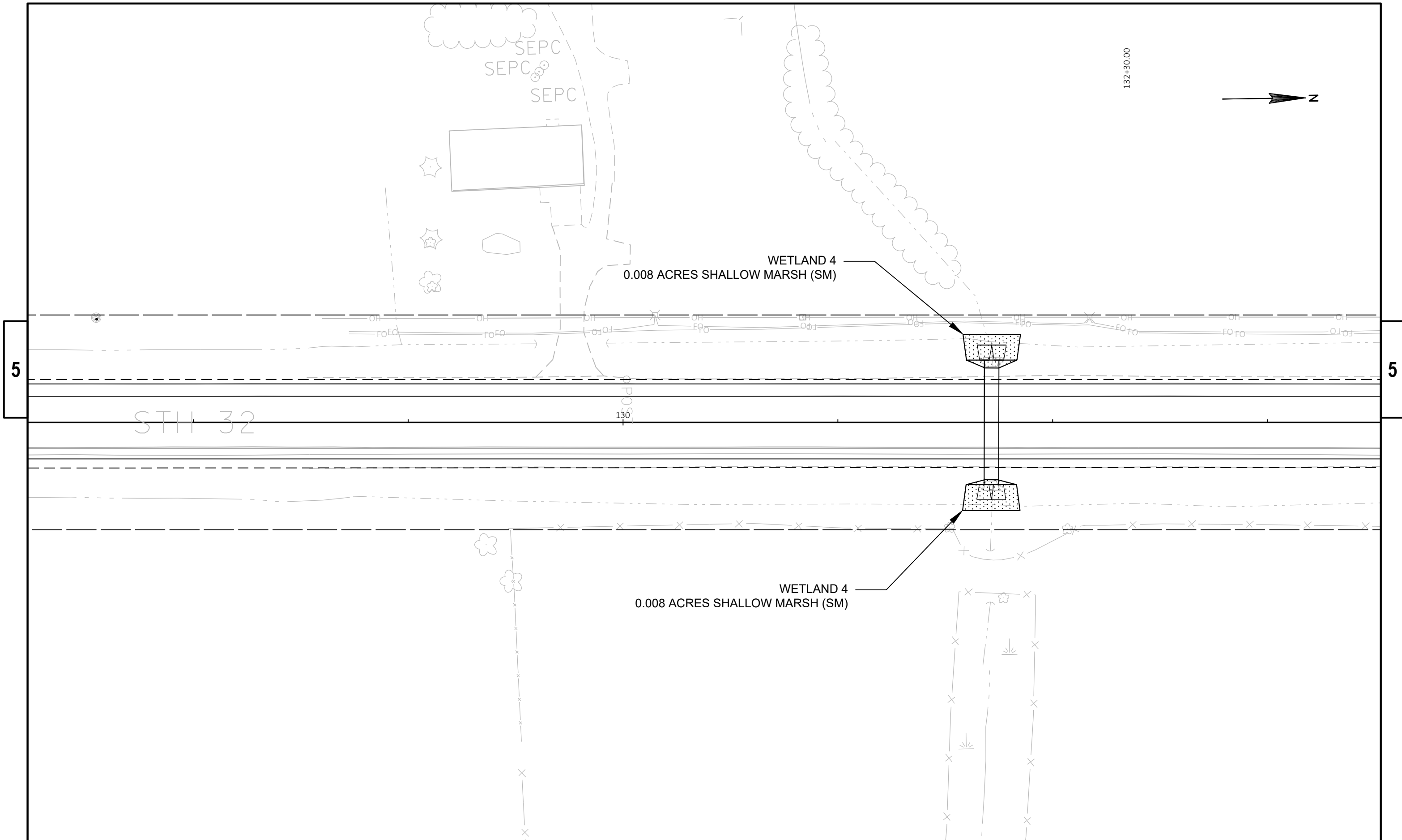
PROJECT NO: 9190-23-00	HWY: STH 32	COUNTY: BROWN	WETLAND IMPACT AREAS	SHEET	E
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PROJECT NO: 9190-23-00	HWY: STH 32	COUNTY: BROWN	WETLAND IMPACT AREAS	SHEET	E
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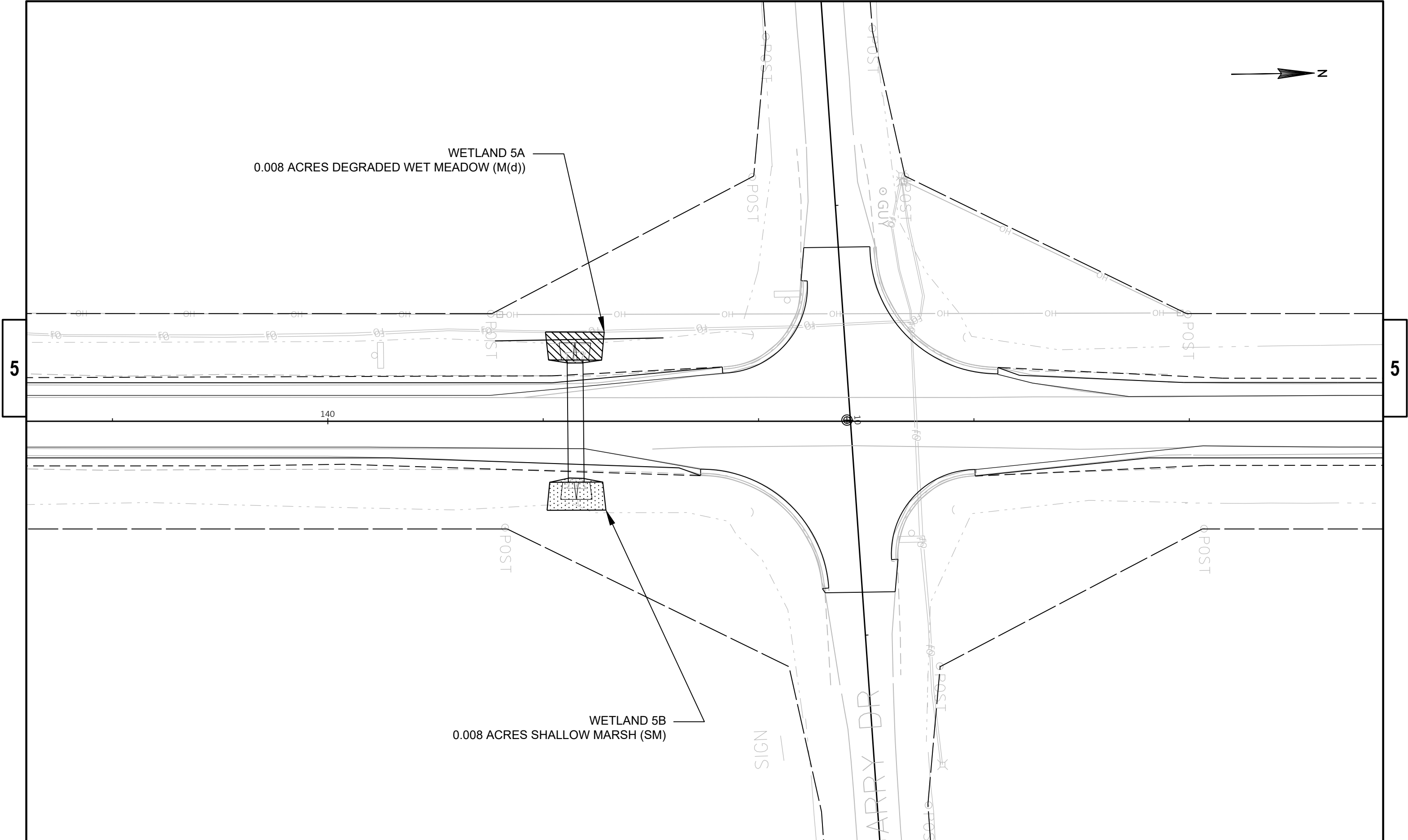
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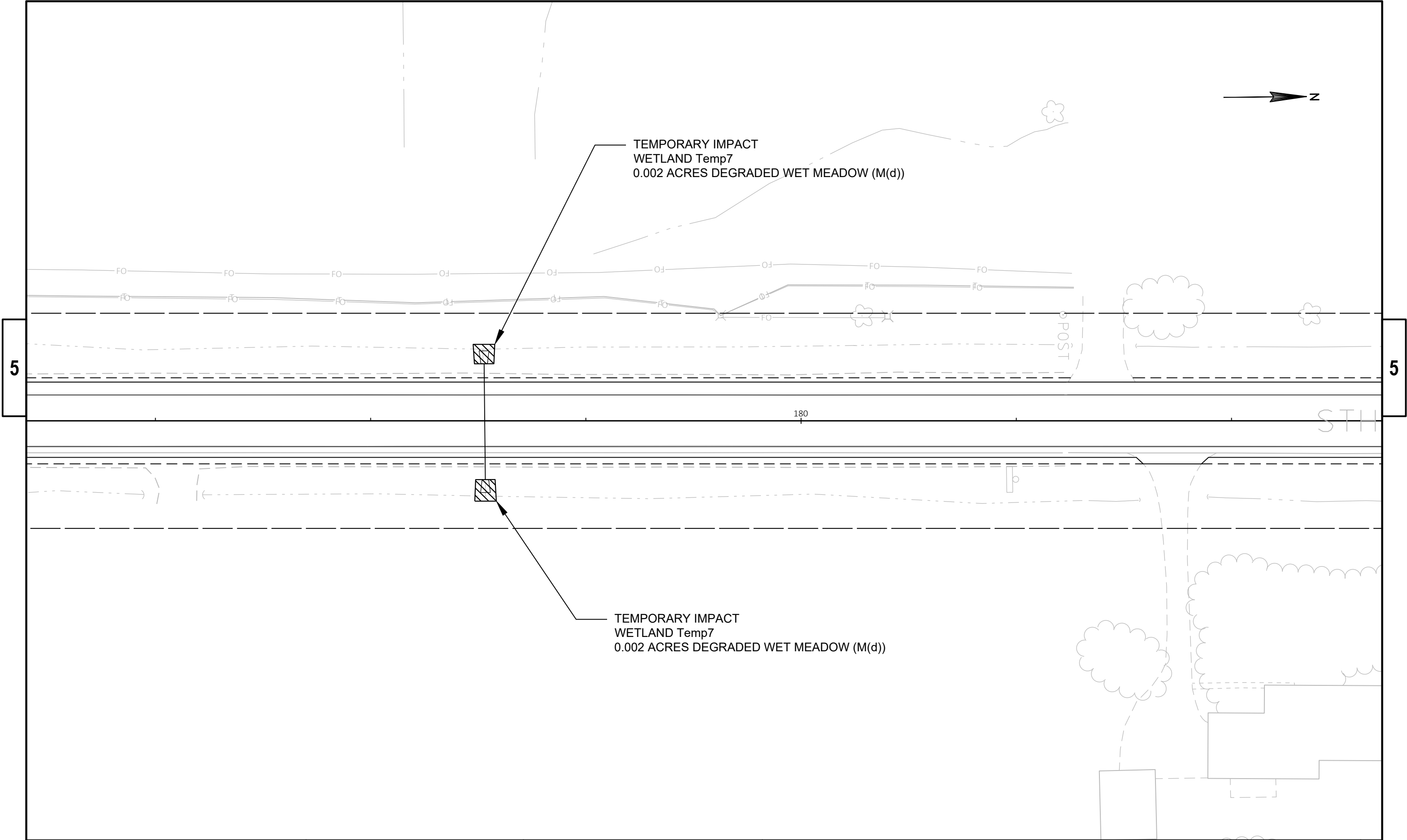
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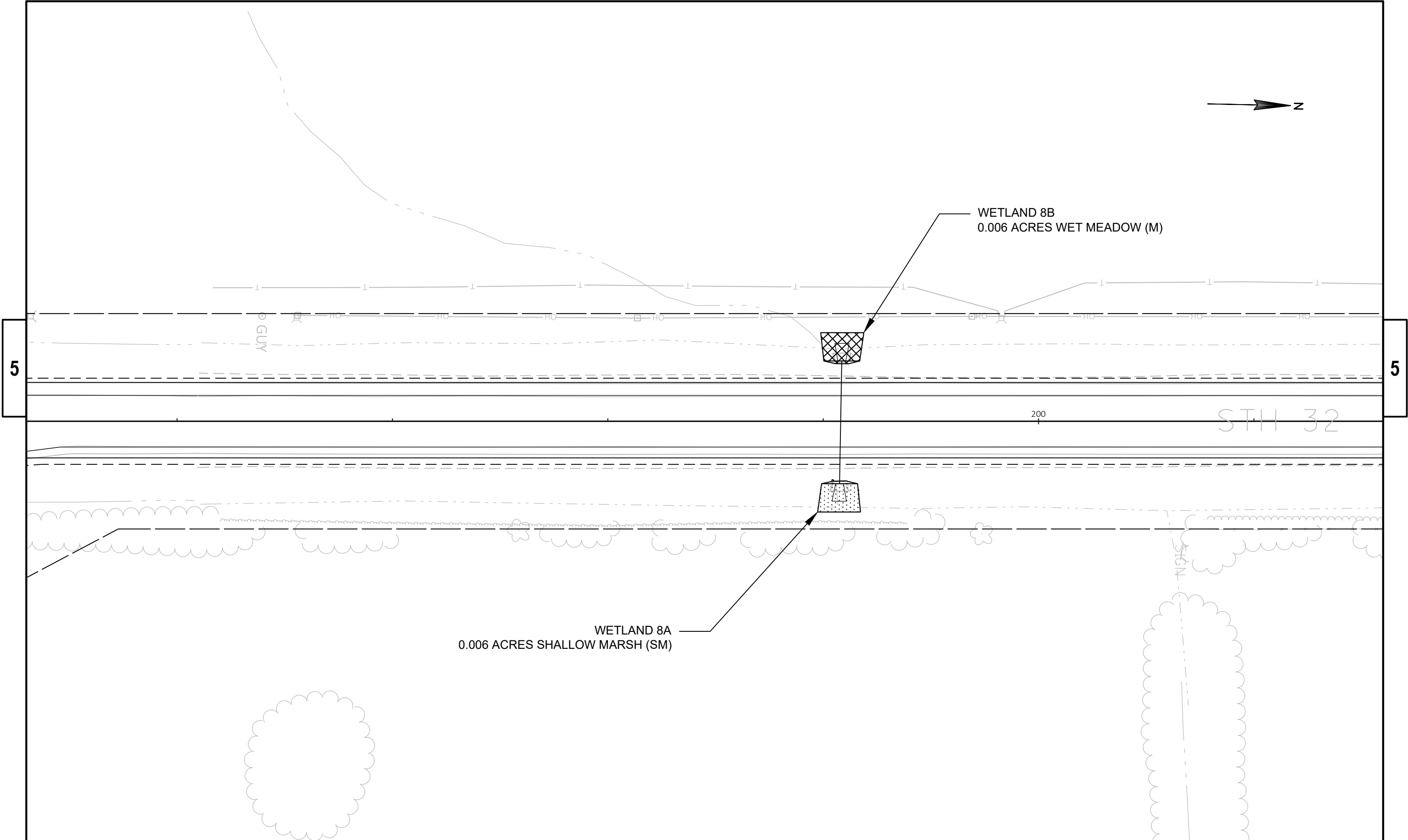
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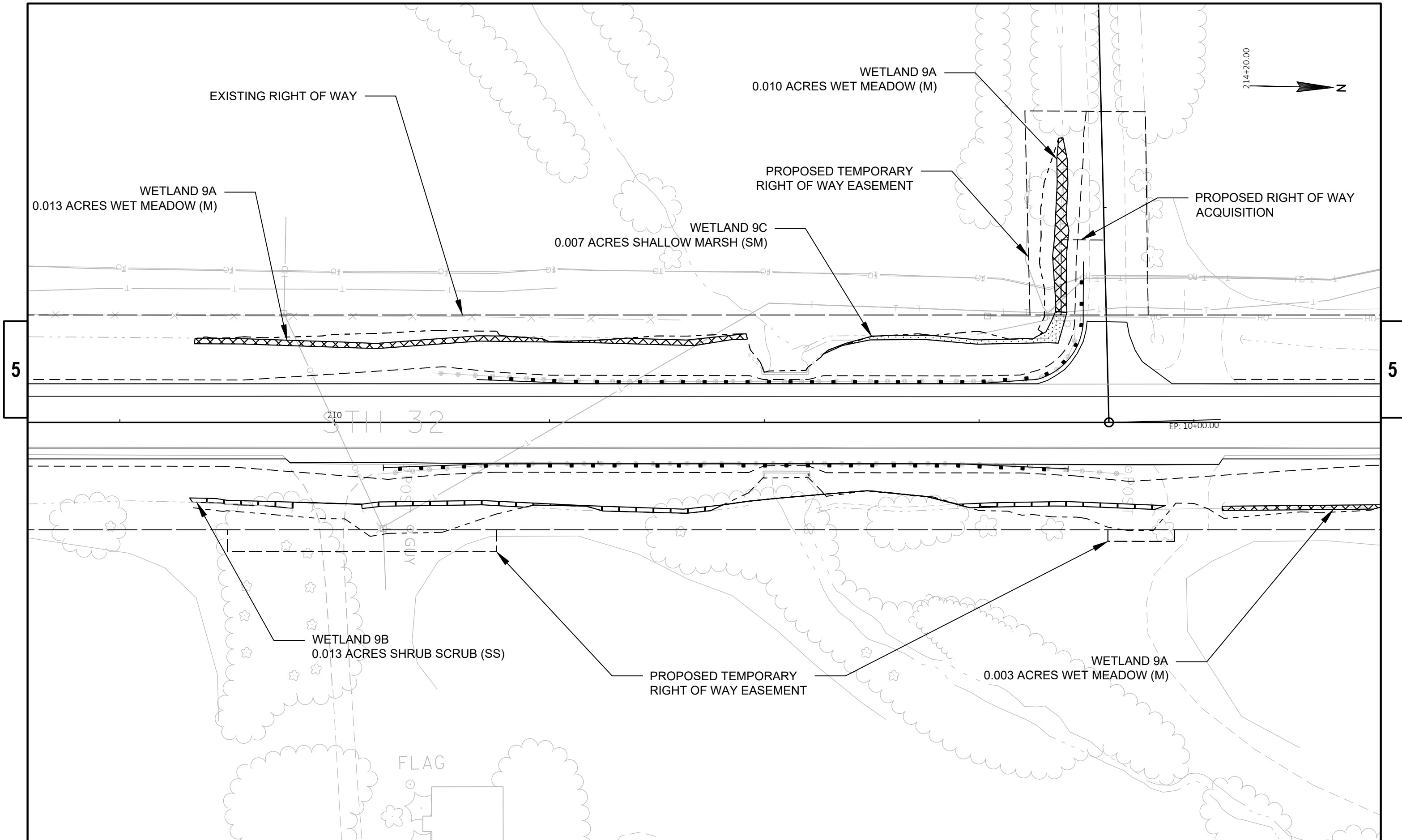
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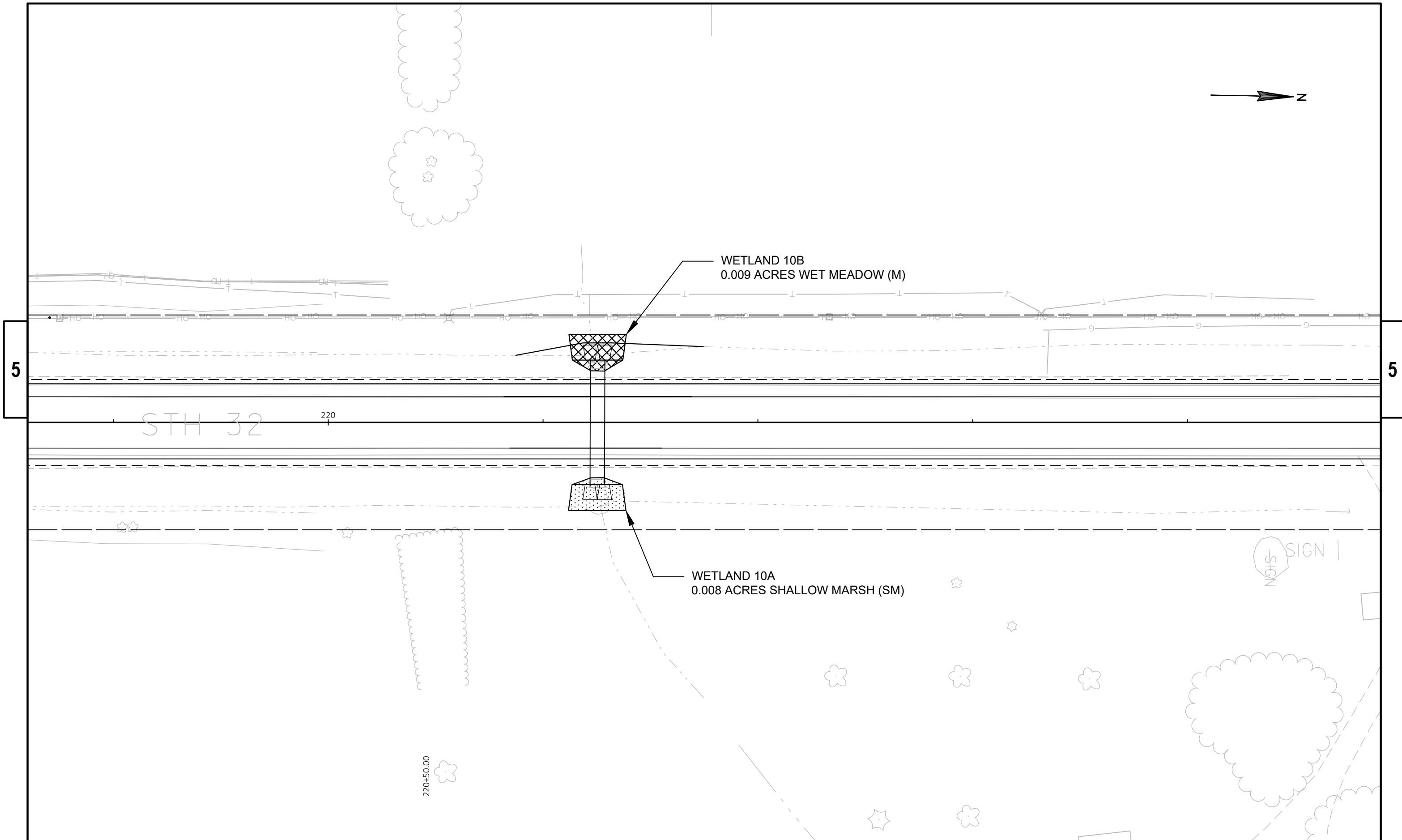
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PROJECT NO: 9190-23-00	HWY: STH 32	COUNTY: BROWN	WETLAND IMPACT AREAS	SHEET	E
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Attachment E: Wetland Impact Tracking Form



Wisconsin Department of Transportation

Division of Transportation System Development
Northeast Region

WETLAND IMPACT TRACKING FORM

****This form must be filled out for all projects.****

Return This Completed Form to:

Jennifer Gibson
Environmental Coordinator
WisDOT - Northeast Region
944 Vanderperren Way
Green Bay, WI 54304
Phone : (920) 492-4160

FAX: (920) 492-0144
Jennifer.Gibson@dot.wi.gov

Please Complete All
Information Highlighted In
Yellow

WisDOT Regional
Environmental Coordinator
(REC) Will Complete Sections
Highlighted In Green

Project Design I.D. #: 9190-23-00

Project Construction I.D. #: 9190-23-71

Hwy/ Project Title : STH 32: Green Bay - Pulaski
STH 29 - Village of Pulaski

County : Brown

Construction Year : Advanceable to 2020 (2021)

Let Date: February/March 2020 (3/9/2021)

Date this form is completed: 2/5/18

Date this form is approved: 3/8/2018

This Form Prepared by: Kelsey Holmes 920-492-5625 kelsey.holmes@dot.wi.gov
NAME PHONE EMAIL

This Form Approved by: Jennifer Gibson 920-492-4160 Jennifer.Gibson@dot.wi.gov
NAME PHONE EMAIL

Is a discharge of dredged or fill material into wetlands anticipated?

NO ☐ ➔ Form complete; no further information is required (RETURN FORM).

YES ☒ ➔ 1. Complete remainder of form:
- Complete yellow portions on both pages of the form and return to REC for finalization and approval.
- Include comment about sending for approval only after final impacts are determined.

2. Include final APPROVED form with DNR 401 and COE 404 permit applications.

Wetland Delineation/
Determination completed by: Mike Helmrick 920-492-7738 michael.helmrick@dot.wi.gov
Jim Doperalski 920-412-0165 James.Doperalski@wisconsin.gov
NAME PHONE EMAIL

WisDOT Environmental Coordinator/ WDNR Transportation Liaison
QUALIFICATIONS

Describe methods used to avoid and minimize impacts to wetlands:

Slopes behind beamguard were steepened as much as possible to decrease the amount of wetland impact and slopes were adjusted outside of the clear zone.

Was professional discretion
used to determine debit
ratio? No ☒ Yes ☐ ➔ Describe discretionary
rationale below:

WETLAND IMPACT / REPLACEMENT SUMMARY

Type Impacted	Area Impacted	Type Mitigated	Area Mitigated
AB	-	AB	-
BOG	-	BOG	-
DM	-	DM	-
M	0.11	M	0.24
RPE	0.07	RPE	-
RPF	0.02	RPF	-
SM	0.05	SM	0.05
SS	0.01	SS	0.04
WS	-	WS	-
AB(D)	-	TOTAL	0.33
DM(D)	-		
M(D)	0.03		
RPE(D)	-		
RPF(D)	-		
SM(D)	-		
SS(D)	-		
WS(D)	-		
TOTAL	0.29		

**WETLAND IMPACT TRACKING FORM - PAGE 2**
DETAILED TABLE OF WETLAND IMPACTS**Directions to complete Page 2:**

- One location may be made up of several different wetland types. List each type of wetland impacted from each location on the project corridor separately in the table below.
- Contact the Environmental Coordinator for appropriate ratio and bank information.
- Use Department of Transportation Wetland Classification System:
<http://roadwaystandards.dot.wi.gov/standards/fdm/24-05-010att.pdf#fd24-5a10.2>
- Individual wetland areas should be reported to the nearest 0.001-acre. Impacts are summed by type and rounded to the nearest 0.01-acre.

Point #	Wetland ID	Impact Location (project station)	Lat/Long	Type Impacted	Area Impacted	DOT REC will provide this information.		
						Debit Ratio	Type Mitigated	Area Mitigated
	1A	STA 63+53 - STA 63+79 LT	Lat: 44.607042 Long: -88.220465	M(D)	0.006	1.000	M	0.006
	1B	STA 63+69 - STA 63+94 RT	Lat: 44.607007 Long: -88.220724	M	0.007	1.000	M	0.007
	2A	STA 81+78 - STA 88+17 RT	Lat: 44.612916 Long: -88.220424	M	0.058	1.000	M	0.058
	2B	STA 82+85 - STA 88+50 LT	Lat: 44.612918 Long: -88.220645	RPF	0.022	1.300	SS	0.029
	3	STA 115+66 - STA 115+95 LT	Lat: 44.621316 Long: -88.220492	M(D)	0.007	1.000	M	0.007
	3	STA 115+67 - STA 115+96 RT	Lat: 44.621310 Long: -88.220234	M(D)	0.007	1.000	M	0.007
	4	STA 131+58 - STA 131+85 RT	Lat: 44.625658 Long: -88.220181	SM	0.008	1.000	SM	0.008
	4	STA 131+58 - STA 131+85 LT	Lat: 44.625662 Long: -88.220430	SM	0.008	1.000	SM	0.008
	5A	STA 141+01 - STA 141+28 LT	Lat: 44.628247 Long: -88.220385	M(D)	0.008	1.000	M	0.008
	5B	STA 141+02 - STA 141+29 RT	Lat: 44.628244 Long: -88.220125	SM	0.008	1.000	SM	0.008
	6	STA 168+52 - STA 169+70 LT	Lat: 44.635908 Long: -88.220327	RPE	0.038	1.300	M	0.050
	6	STA 169+16 - STA 170+17 RT	Lat: 44.636003 Long: -88.220049	RPE	0.034	1.300	M	0.044
	8A	STA 198+97 - STA 199+17 RT	Lat: 44.644133 Long: -88.220040	SM	0.006	1.000	SM	0.006
	8B	STA 198+99 - STA 199+19 LT	Lat: 44.644134 Long: -88.220282	M	0.006	1.000	M	0.006
	9A	STA 209+34 - STA 211+92 LT	Lat: 44.647457 Long: -88.220448	M	0.013	1.000	M	0.013
	9B	STA 209+34 - STA 213+88 RT	Lat: 44.647702 Long: -88.220163	SS	0.013	1.000	SS	0.013
	9C	STA 212+17 - STA 213+41 LT	Lat: 44.647856 Long: -88.220440	SM	0.007	1.000	SM	0.007
	9A	STA 213+18 - STA 213+41 LT	Lat: 44.648053 Long: -88.220613	M	0.010	1.000	M	0.010
	9A	STA 214+10 - STA 214+87 RT	Lat: 44.648302 Long: -88.220144	M	0.003	1.000	M	0.003
	10A	STA 221+12 - STA 221+39 RT	Lat: 44.650212 Long: -88.220246	SM	0.008	1.000	SM	0.008
	10B	STA 221+12 - STA 221+39 LT	Lat: 44.650212 Long: -88.220466	M	0.009	1.000	M	0.009

Is there potential for onsite mitigation? If unknown, check with the REC.

YES

Where is it located? (T/R, station, map)

NO

☒

List bank site to be used. (Determined by REC)

Peshtigo Brook Phase 2

Please attach another sheet if the space provided is not adequate for all impacts or to add any additional comments.