

GRE
WITH: N/A

PROJECT ID:
9150-06-71

COUNTY:
OCONTO

APRIL 2022
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 = 130



DESIGN DESIGNATION

A.A.D.T.	2023	=	3800
A.A.D.T.	2043	=	4600
D.H.V.	2043	=	547
D.D.		=	60/40
T.		=	13.9%
DESIGN SPEED		=	55 MPH
ESALS		=	1,600,000

CONVENTIONAL SYMBOLS

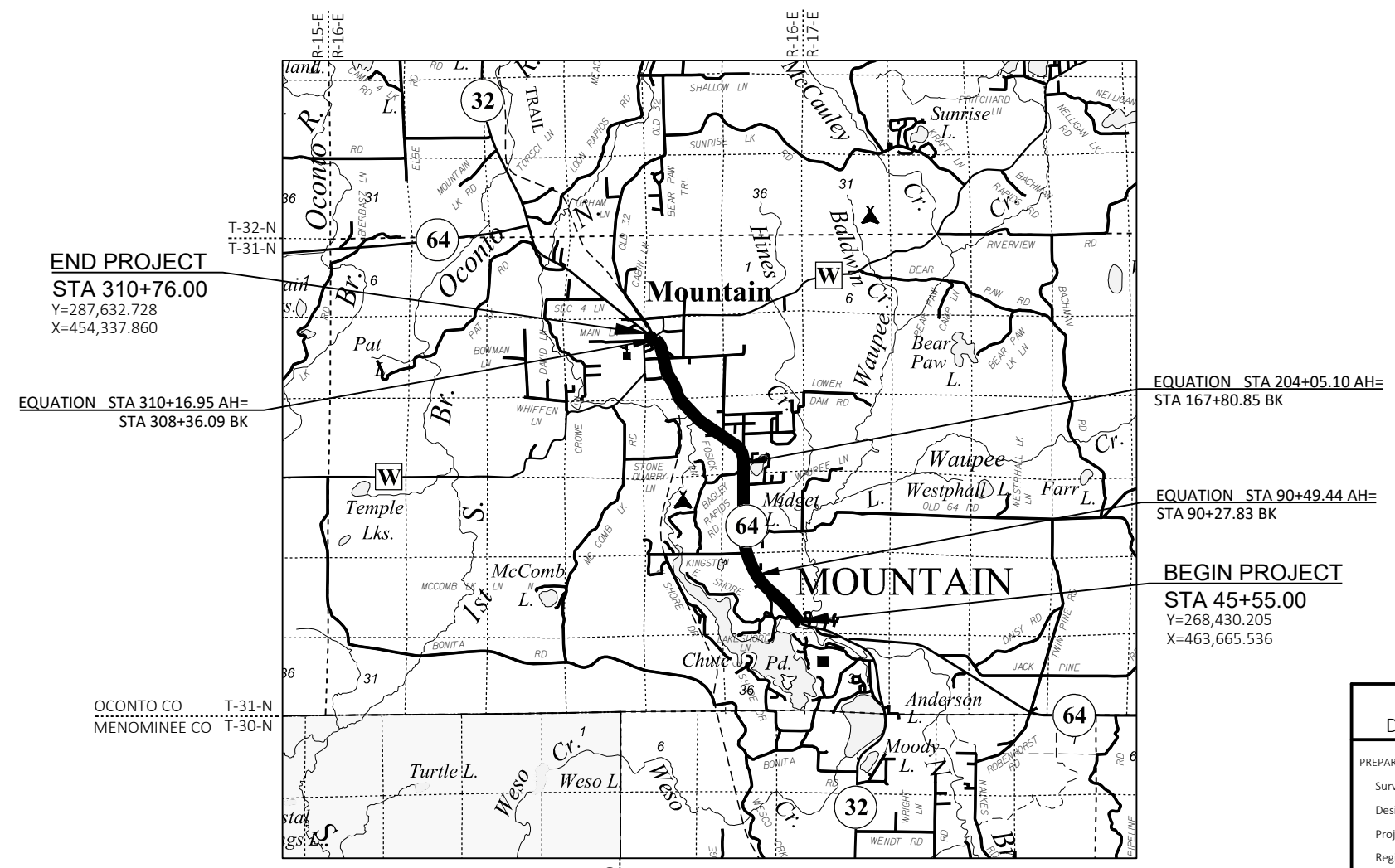
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

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
BREED - TOWNSEND
PARKWAY DRIVE - CTH W
STH 32
OCONTO COUNTY

STATE PROJECT NUMBER
9150-06-71



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 4.290 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), OCONTO COUNTY ZONE, NAD 83(2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. VERTICAL POSITIONS SHOWN ON THIS PLAN ARE NAVD 88(2012) DATUM.


STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9150-06-71	WISC 2022313	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	NE REGION
Designer	K. BAIERL
Project Manager	M. TERNES
Regional Examiner	
Regional Supervisor	D. SEGERSTROM

APPROVED FOR THE DEPARTMENT

DATE: **06/14/2021** 

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.

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND EROSION-MATTED.

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

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

CULVERT PIPE WORK, WHERE COMPLETE REPLACEMENT ISN'T NECESSARY, MAY REQUIRE SAW CUTS AND ASPHALTIC SURFACE REPLACEMENT PARTIALLY INTO THE ROADWAY. ANTICIPATED QUANTITIES ARE LISTED IN THE MISCELLANEOUS QUANTITIES.

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

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS

UTILITY CONTACTS

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 andy.heigl@astreaconnect.com

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 2425 MARY ST
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 M (715)938-1480, O (715) 735-0059
 peter.s.johnson@lumen.com

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 M (920) 676-8068, O (920) 617-5231
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 utilitiesrelocation@wisconsinpublicservice.com

DNR LIAISON

JIM DOPERALSKI
 DEPARTMENT OF NATURAL RESOURCES
 NORTHEAST REGION
 2984 SHAWANO AVE
 GREEN BAY, WI 54313
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 james.doperalski@wisconsin.gov

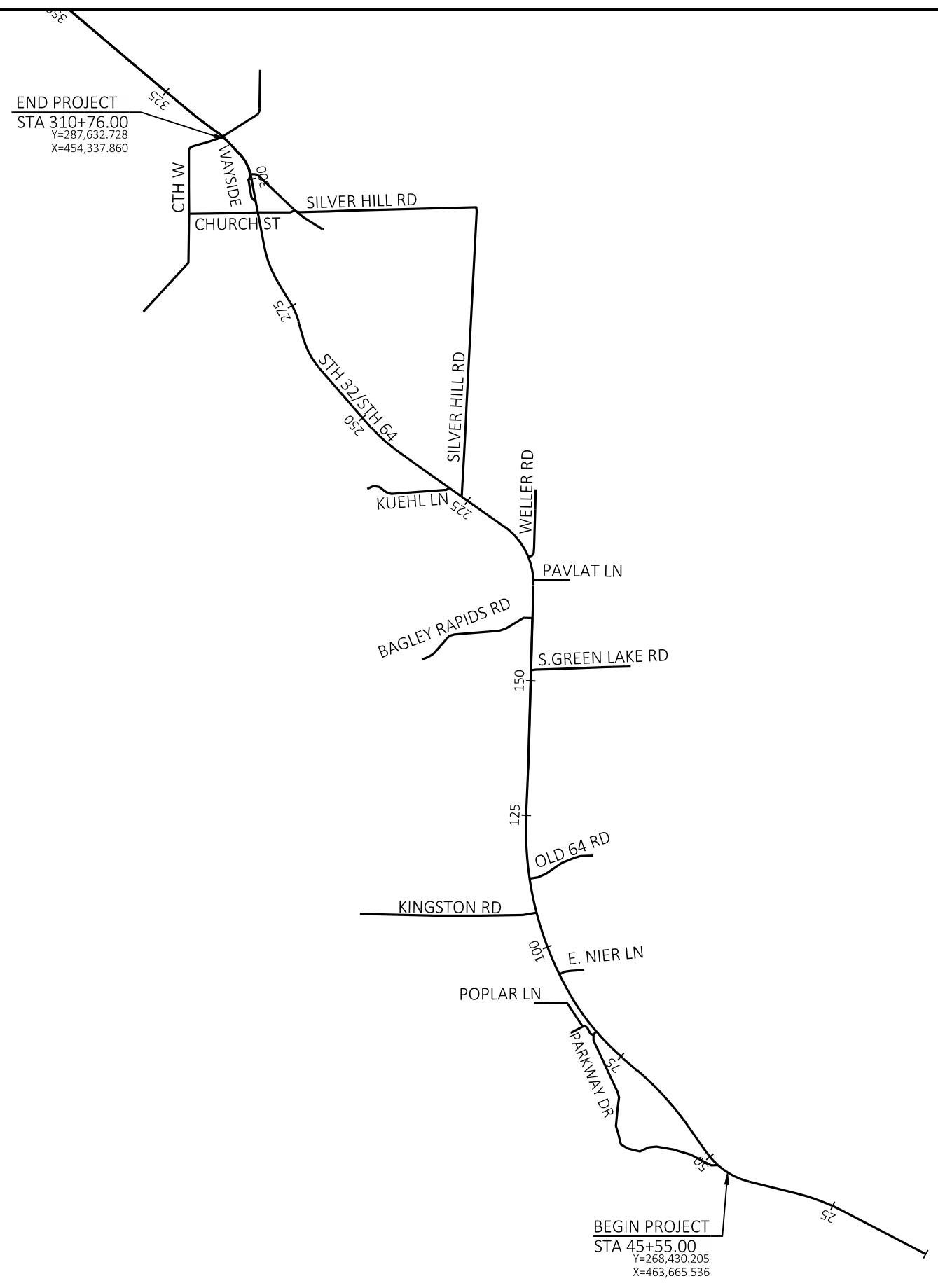
OCONTO COUNTY COMMISSIONER

BRANDON HYTINEN
 HIGHWAY COMMISSIONER
 202 VAN DYKE STREET
 OCONTO, WI 54153
 (920)834-6887
 brandon.hytinen@co.oconto.wi.us

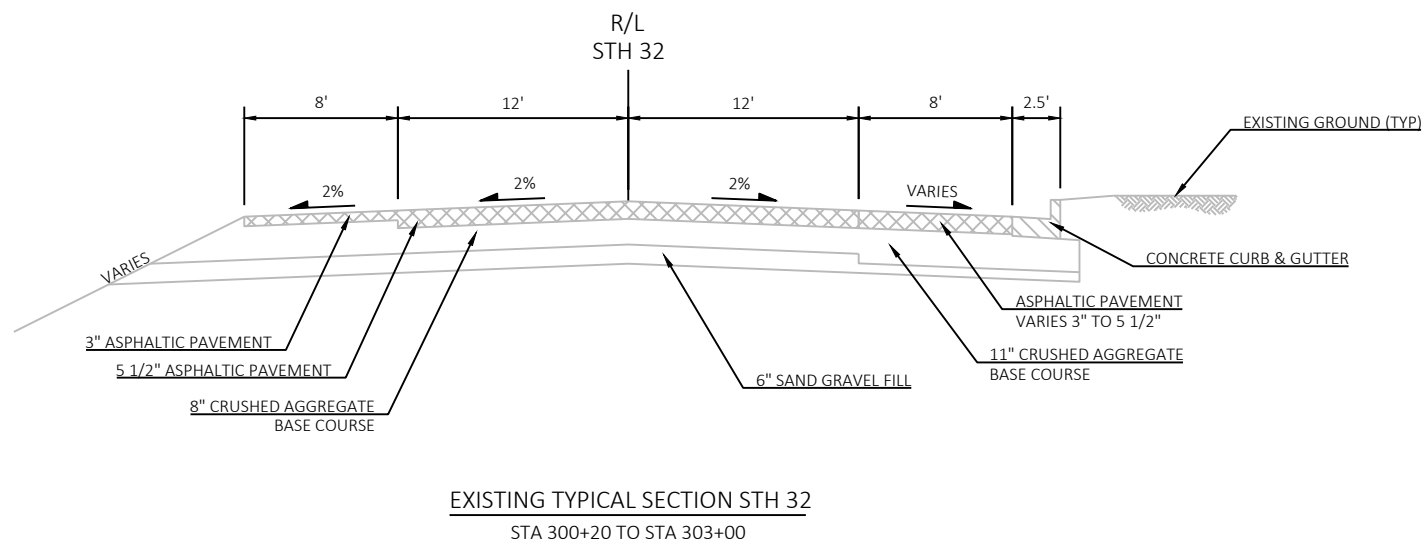
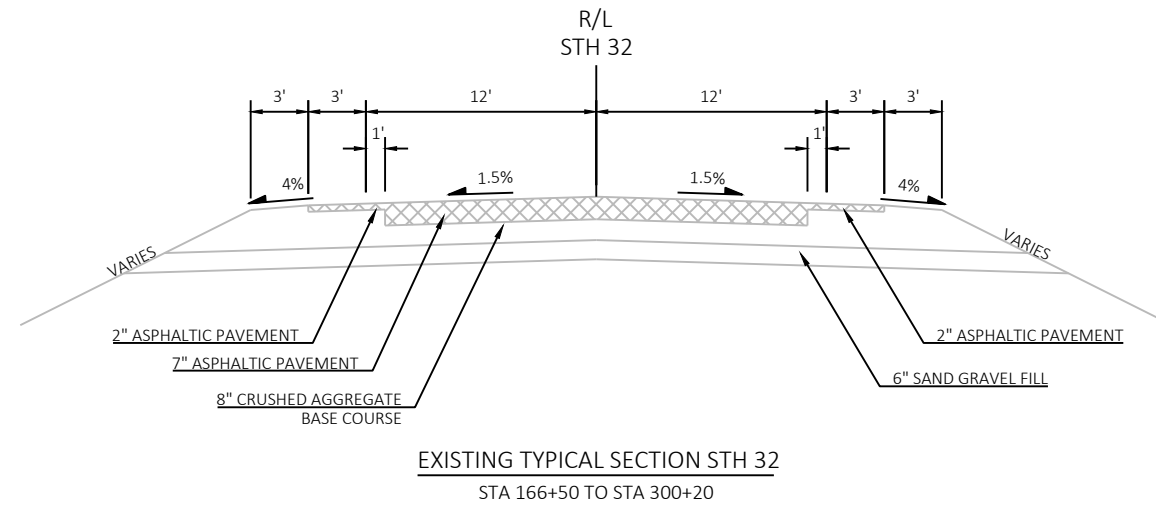
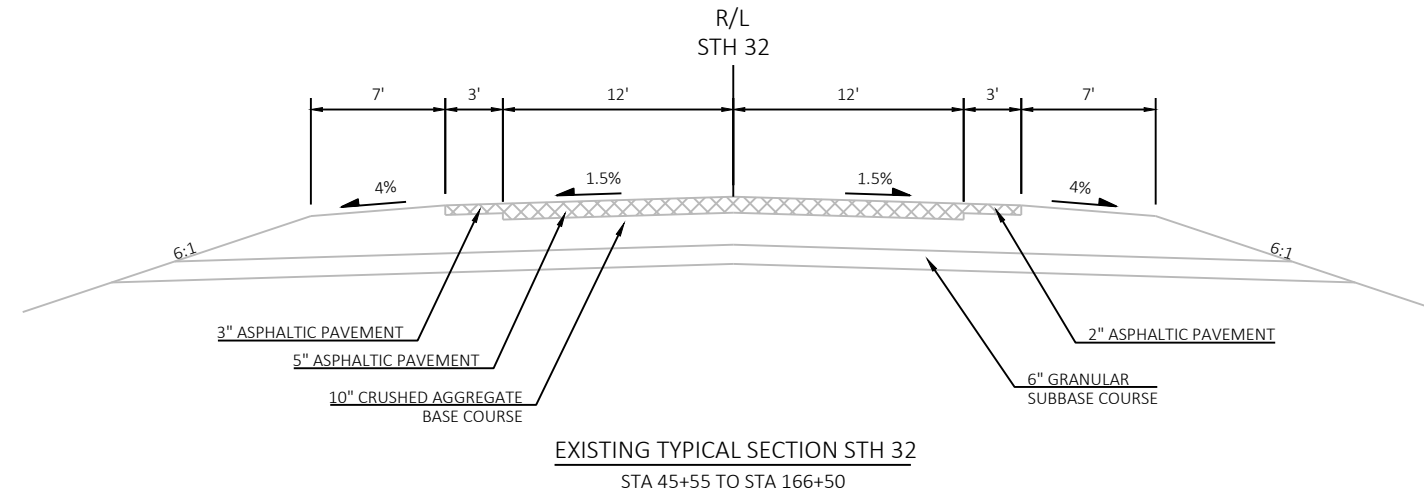
NE REGION SURVEY COORDINATOR

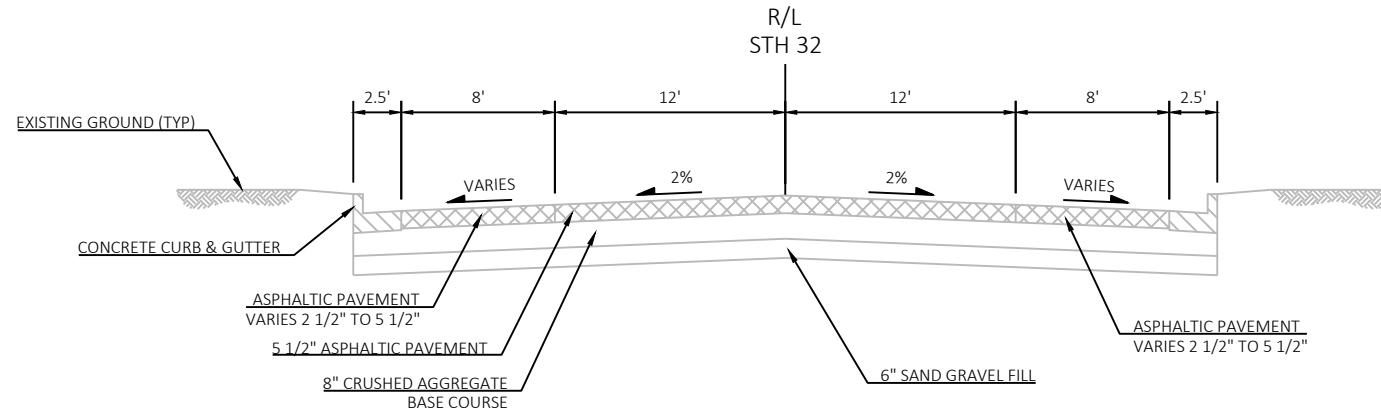
CORMAC MCINNIS, RLS
 944 VANDERPERREN WAY
 GREEN BAY, WI 54304
 (920)492-5638
 cormac.mcinnis@dot.wi.gov



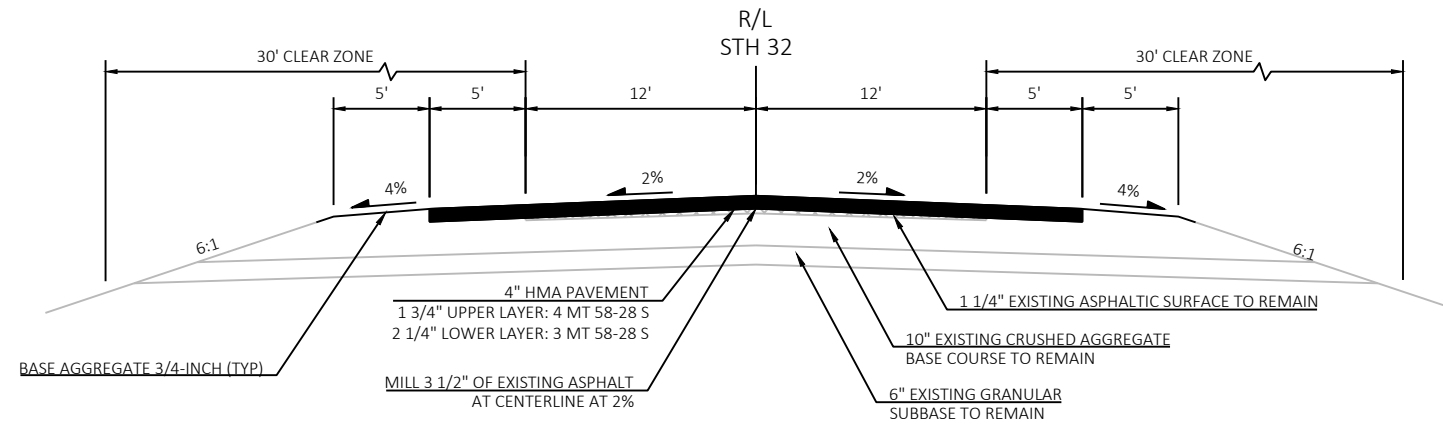


PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	PROJECT OVERVIEW	SHEET	E
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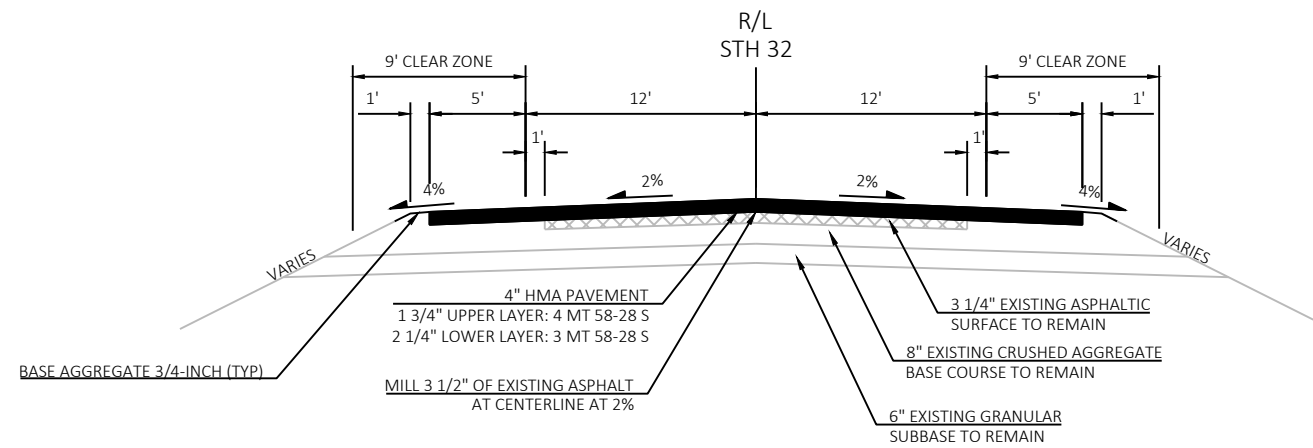




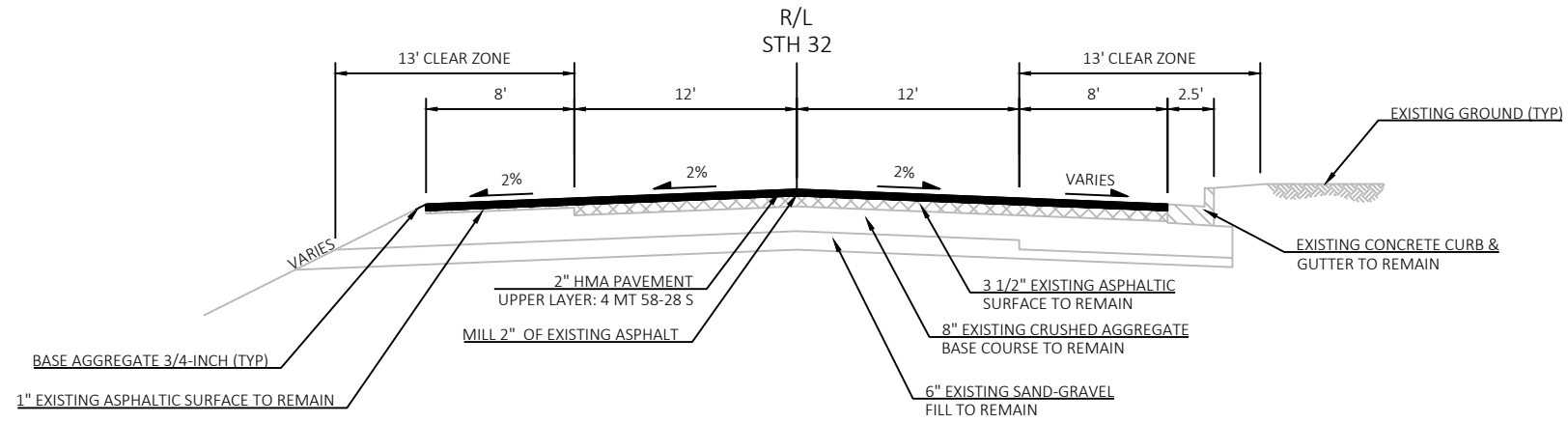
EXISTING TYPICAL SECTION STH 32
STA 303+00 TO STA 310+76



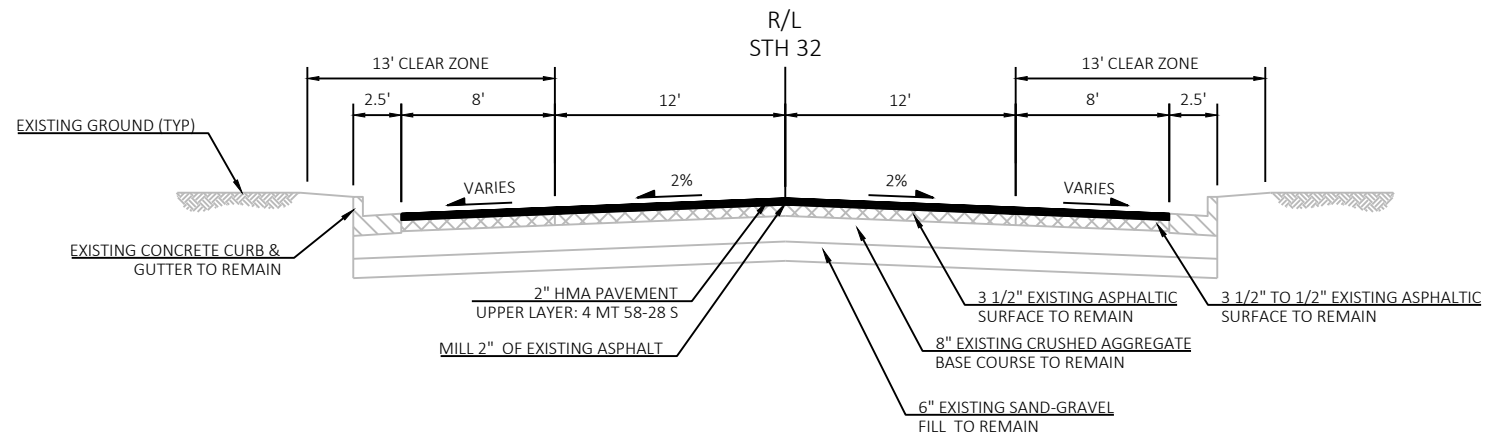
FINISHED TYPICAL SECTION STH 32
STA 45+55 TO STA 166+50



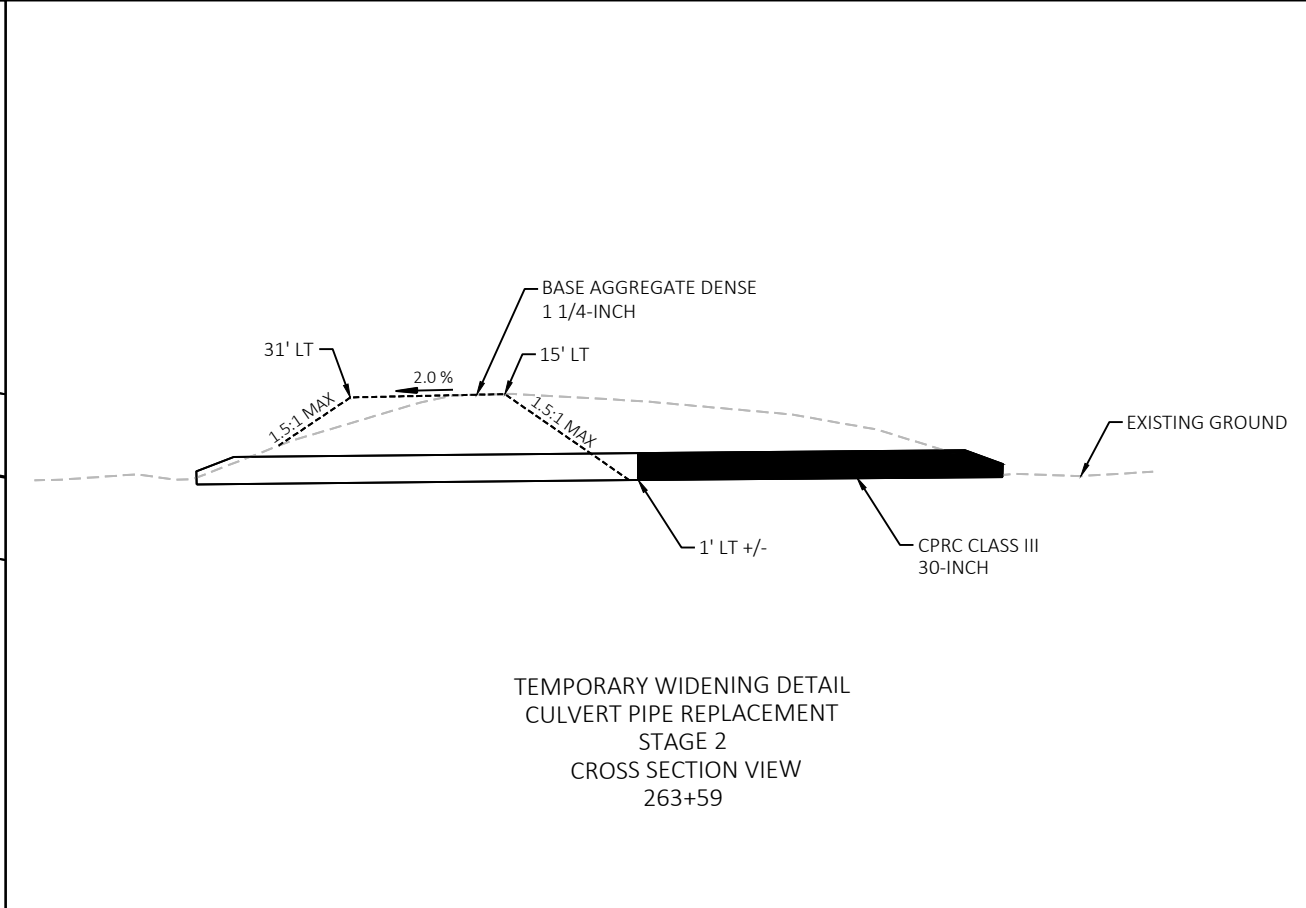
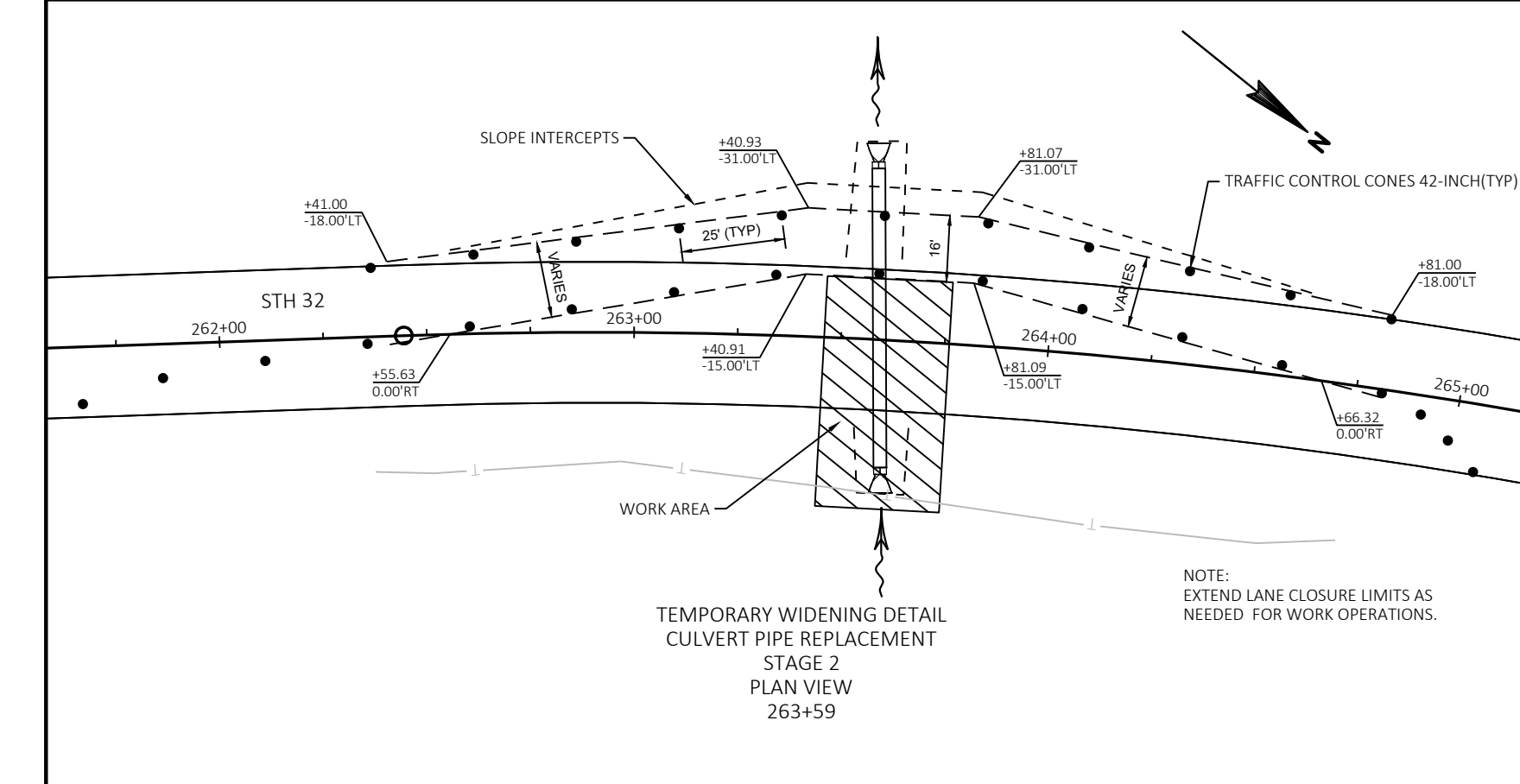
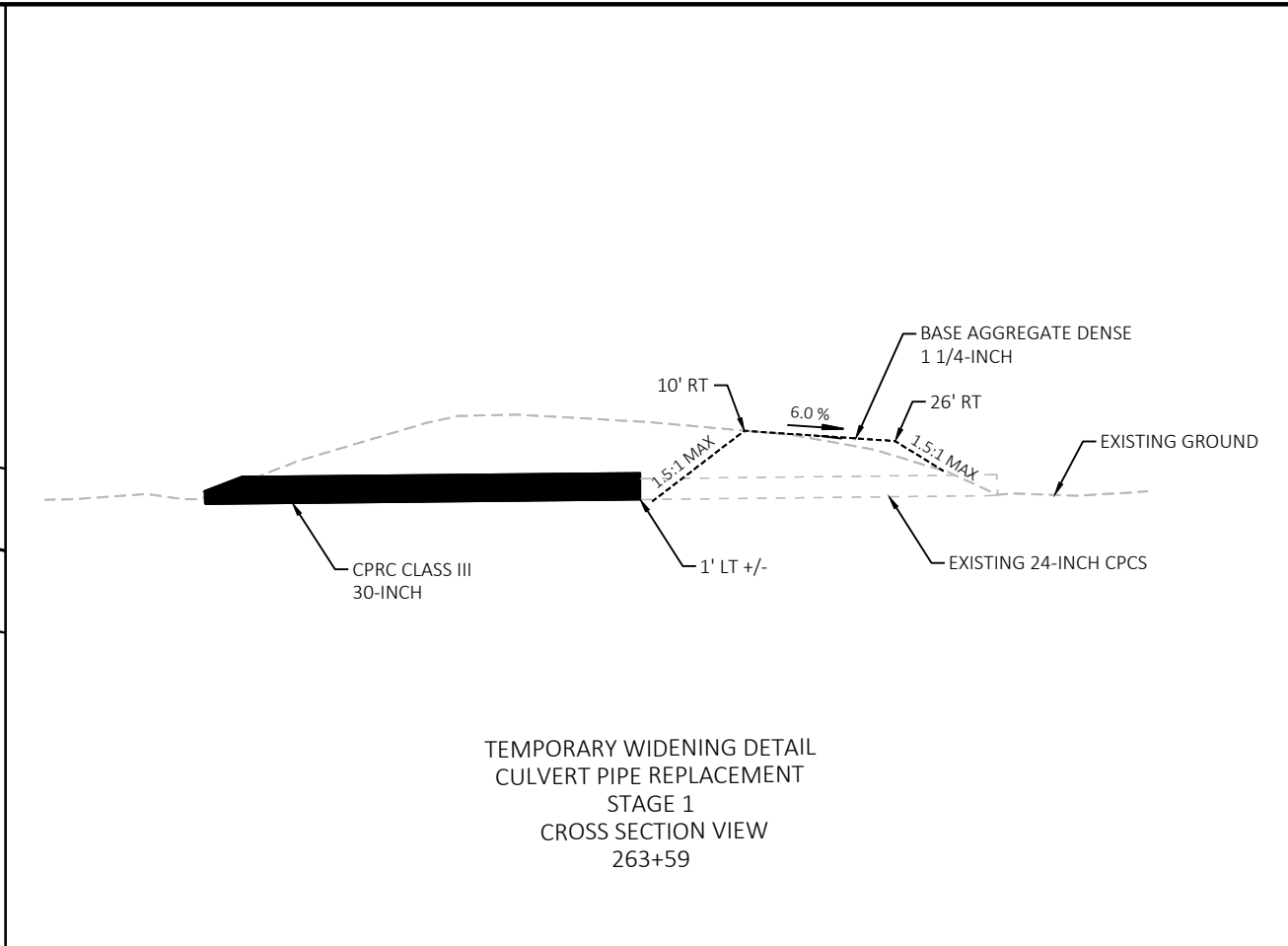
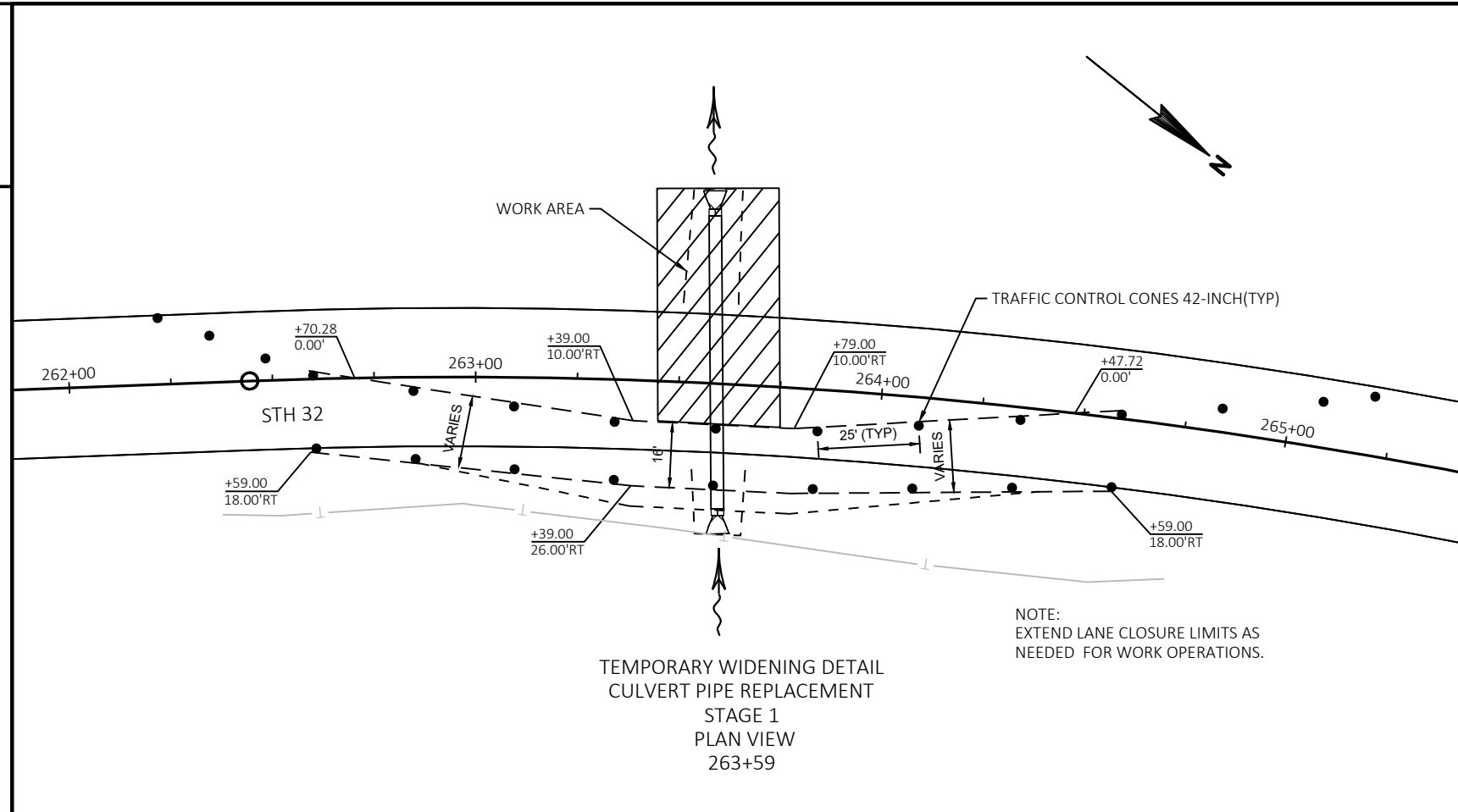
FINISHED TYPICAL SECTION STH 32
STA 166+50 TO STA 300+20

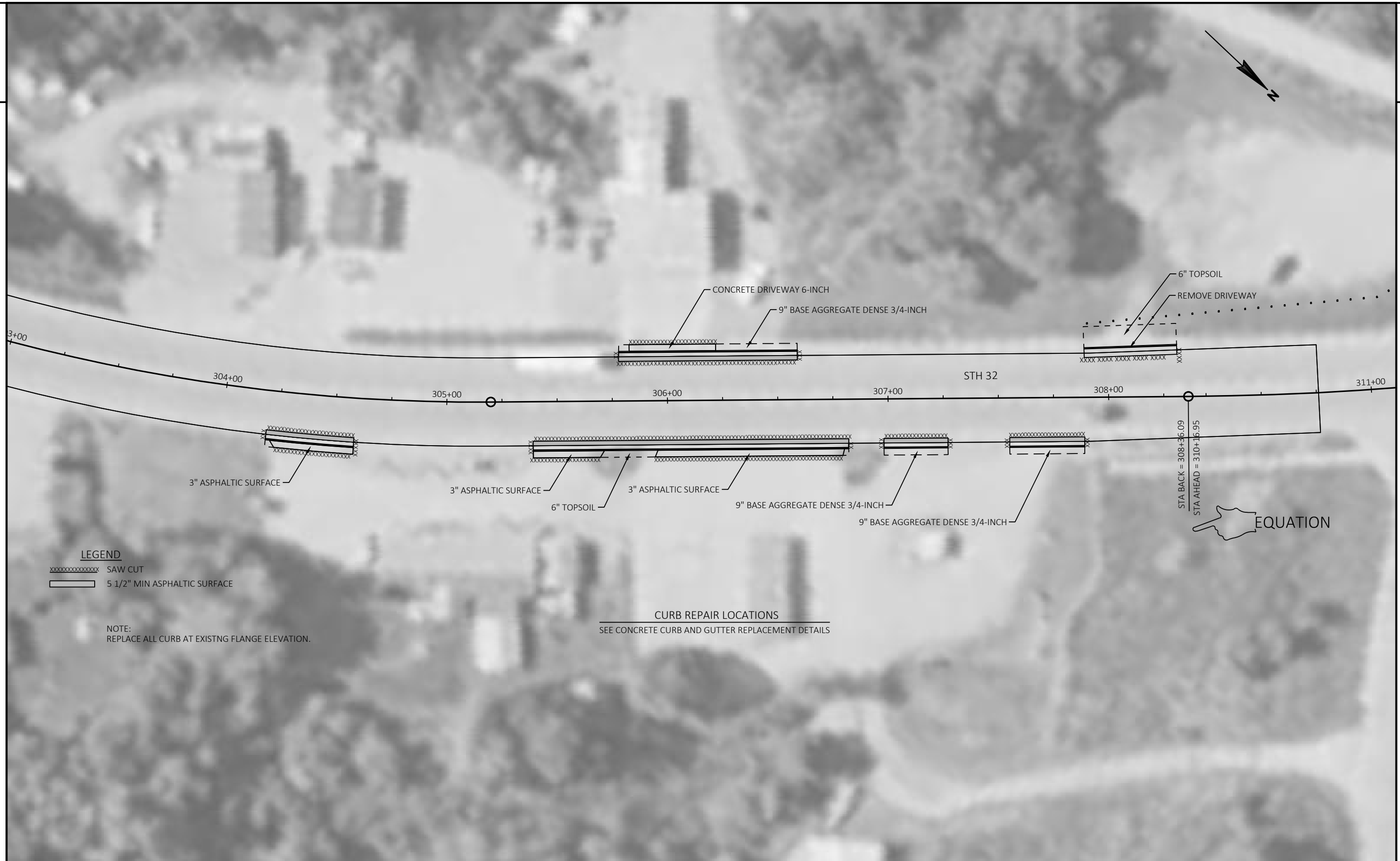
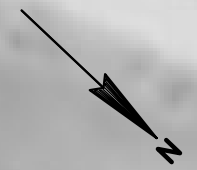


FINISHED TYPICAL SECTION STH 32
 STA 300+20 TO STA 303+00



FINISHED TYPICAL SECTION STH 32
 STA 303+00 TO STA 310+76





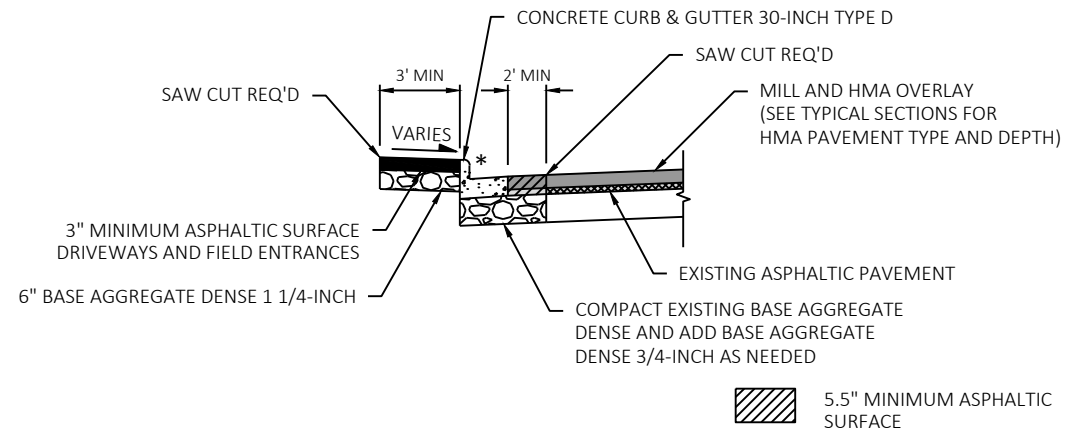
LEGEND

- XXXXXXXXXXXX SAW CUT
- 5 1/2" MIN ASPHALTIC SURFACE

NOTE:
REPLACE ALL CURB AT EXISTNG FLANGE ELEVATION.

CURB REPAIR LOCATIONS
SEE CONCRETE CURB AND GUTTER REPLACEMENT DETAILS

STA BACK = 308+36.09
STA AHEAD = 310+16.95
EQUATION



CONCRETE CURB & GUTTER REPLACEMENT DETAIL - ASPHALTIC CONNECTION

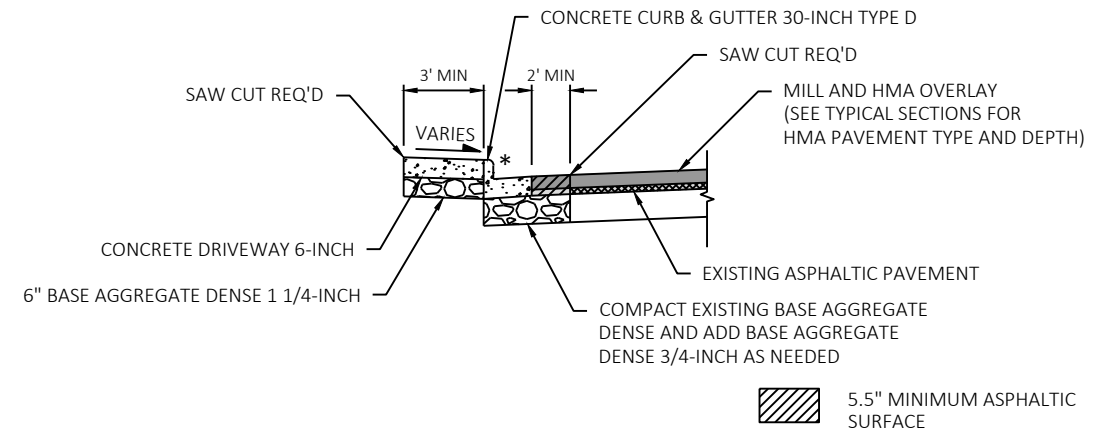
STA 304+20 TO STA 304+59 RT
STA 305+39 TO STA 305+70 RT
STA 305+95 TO STA 306+82 RT

NOTES:

COMPLETE CURB & GUTTER REPLACEMENTS AND ASPHALTIC SURFACE TO MATCH THE EXISTING SURFACE PRIOR TO THE MILL AND OVERLAY OF STH 32.

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES" FOR ADDITIONAL INFORMATION.

* PLACE DRIVEWAY ENTRANCE CURB FROM:
STA 304+23 TO STA 304+55 RT
STA 305+39 TO STA 305+70 RT
STA 305+95 TO STA 306+27 RT
STA 306+47 TO STA 306+79 RT



CONCRETE CURB & GUTTER REPLACEMENT DETAIL - CONCRETE CONNECTION

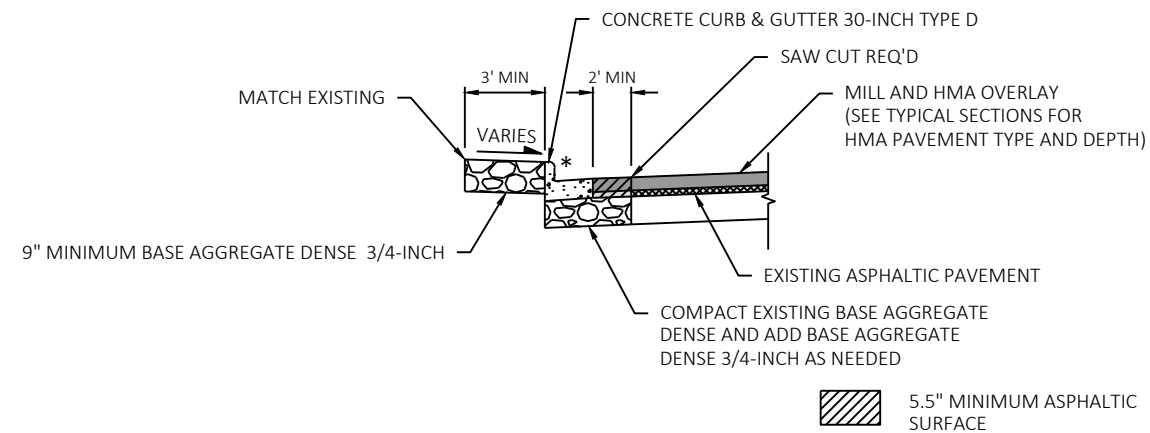
STA 305+78 TO STA 306+22 LT

NOTES:

COMPLETE CURB & GUTTER REPLACEMENTS AND ASPHALTIC SURFACE TO MATCH THE EXISTING SURFACE PRIOR TO THE MILL AND OVERLAY OF STH 32.

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES" FOR ADDITIONAL INFORMATION.

* PLACE DRIVEWAY ENTRANCE CURB FROM:
STA 305+83 TO STA 306+18 LT



CONCRETE CURB & GUTTER REPLACEMENT DETAIL - AGGREGATE CONNECTION

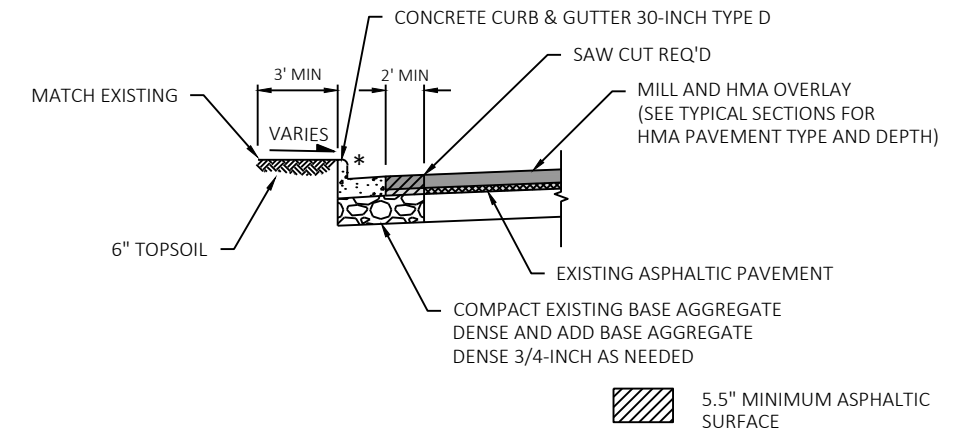
STA 306+22 TO STA 306+59 LT
STA 306+98 TO STA 307+27 RT
STA 307+55 TO STA 307+89 RT

NOTES:

COMPLETE CURB & GUTTER REPLACEMENTS AND ASPHALTIC SURFACE TO MATCH THE EXISTING SURFACE PRIOR TO THE MILL AND OVERLAY OF STH 32.

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES" FOR ADDITIONAL INFORMATION.

* PLACE DRIVEWAY ENTRANCE CURB FROM:
STA 306+29 TO STA 306+58 LT
STA 306+99 TO STA 307+26 RT
STA 307+56 TO STA 307+88 RT



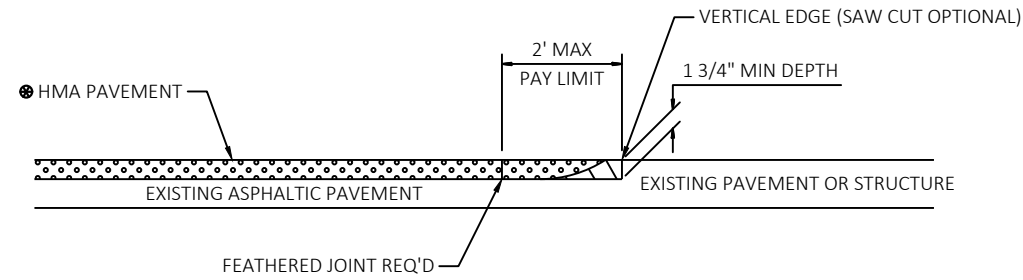
CONCRETE CURB & GUTTER REPLACEMENT DETAIL - TOPSOIL CONNECTION

STA 305+70 TO STA 305+95 RT
STA 307+89 TO STA 308+31 LT

NOTES:

COMPLETE CURB & GUTTER REPLACEMENTS AND ASPHALTIC SURFACE TO MATCH THE EXISTING SURFACE PRIOR TO THE MILL AND OVERLAY OF STH 32.

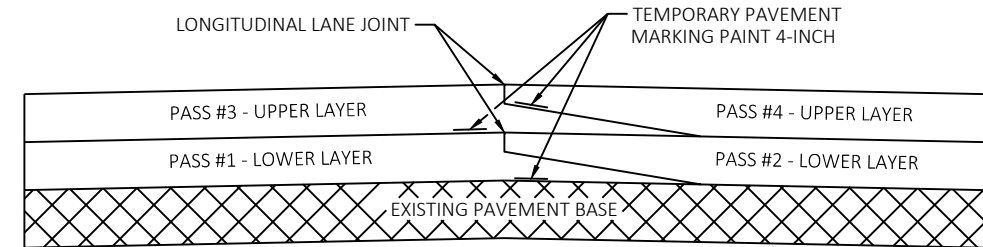
FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES" FOR ADDITIONAL INFORMATION.



SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

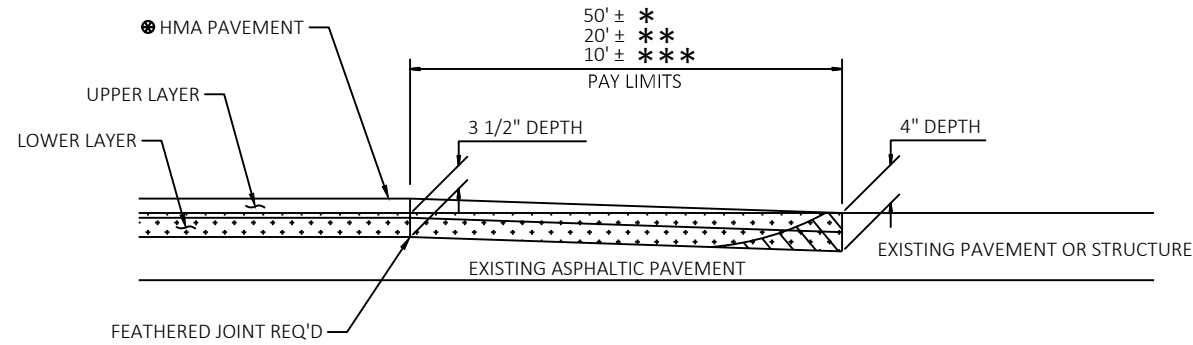
- REMOVING ASPHALTIC SURFACE, MILLING
- REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

STA 45+55 - 300+20

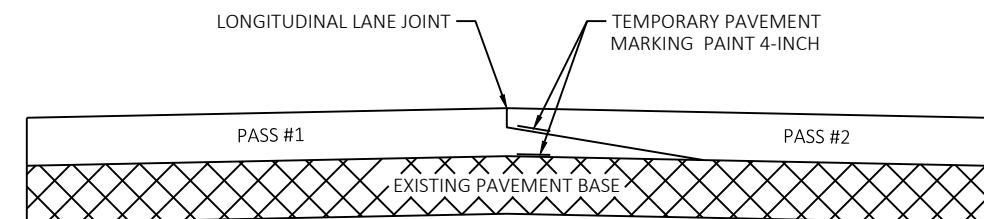


SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

- REMOVING ASPHALTIC SURFACE, MILLING
- REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE

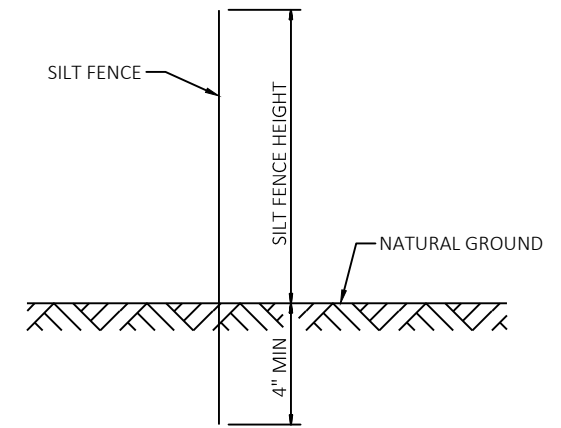
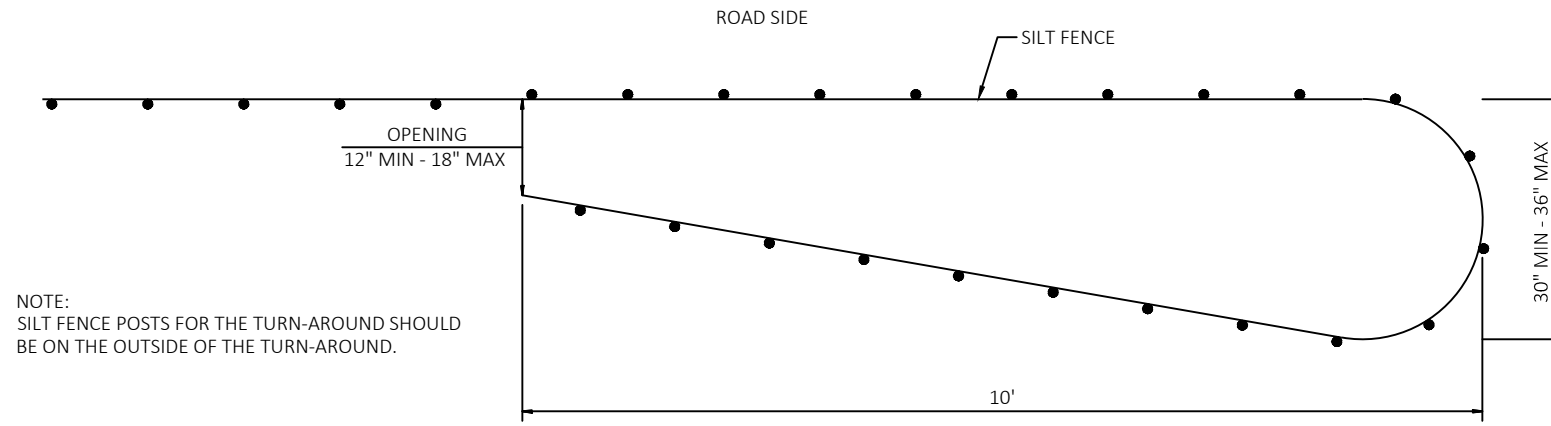
BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)

- * MAINLINE
- ** SIDEROADS
- *** PRIVATE ENTRANCES



PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

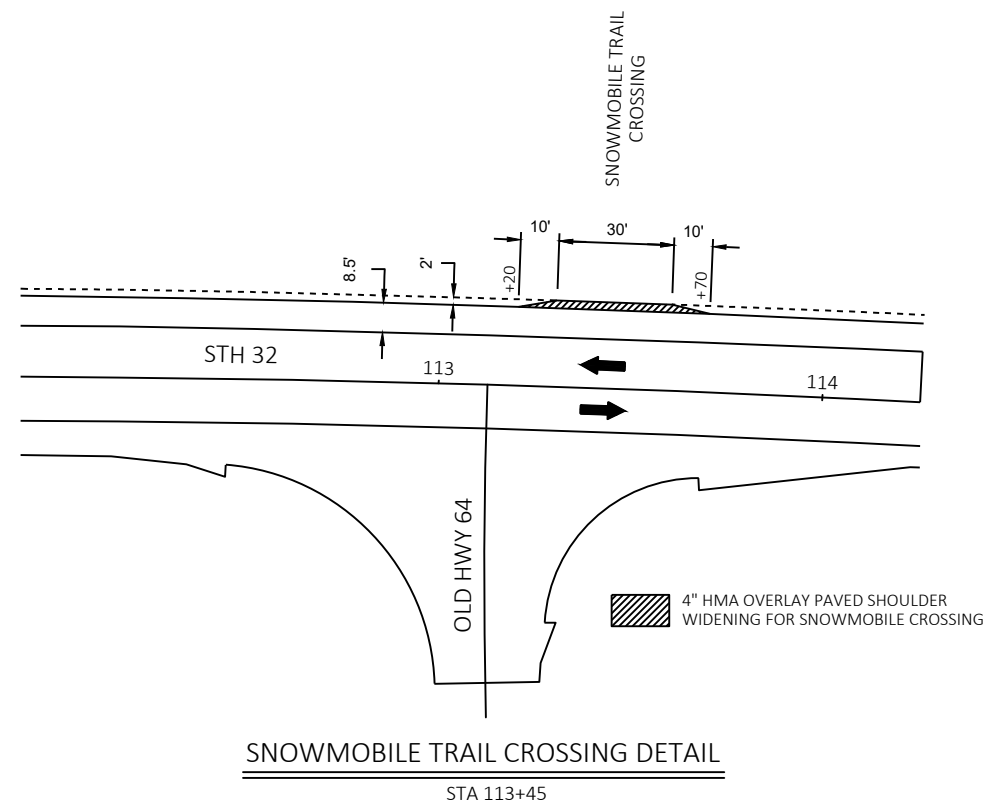
STA 300+20 - 310+76



PLAN VIEW

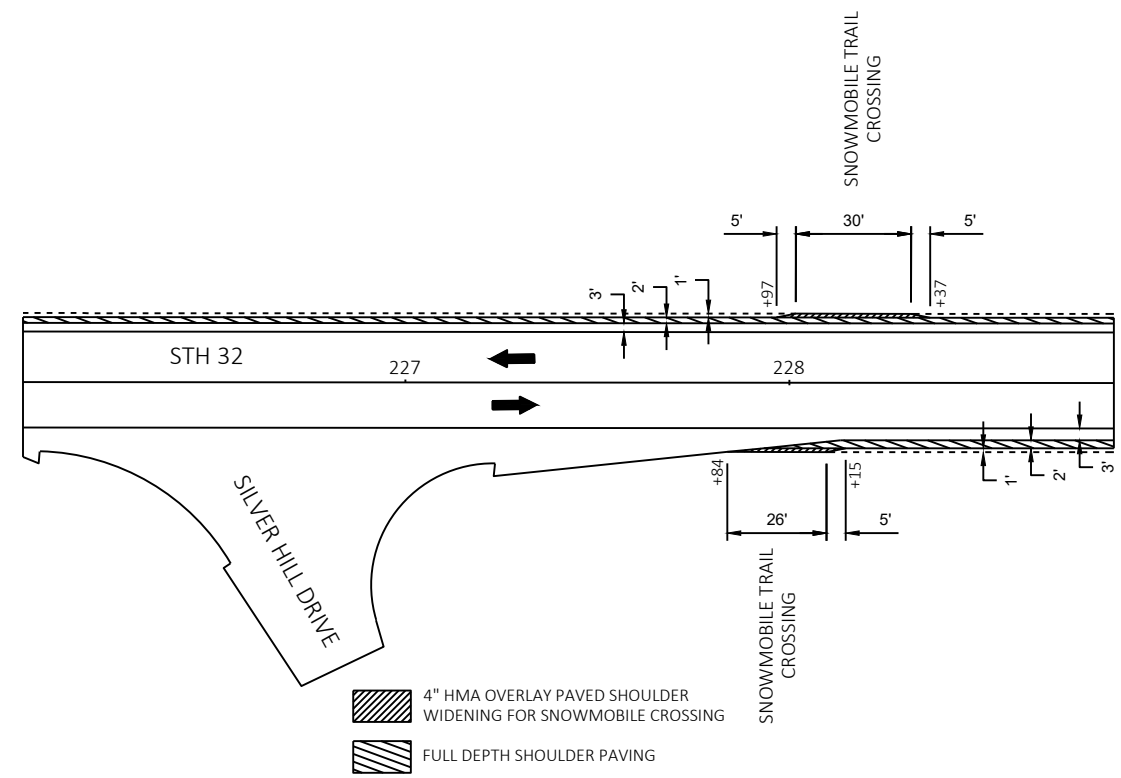
SIDE VIEW

SILT FENCE TURN-AROUND DETAIL



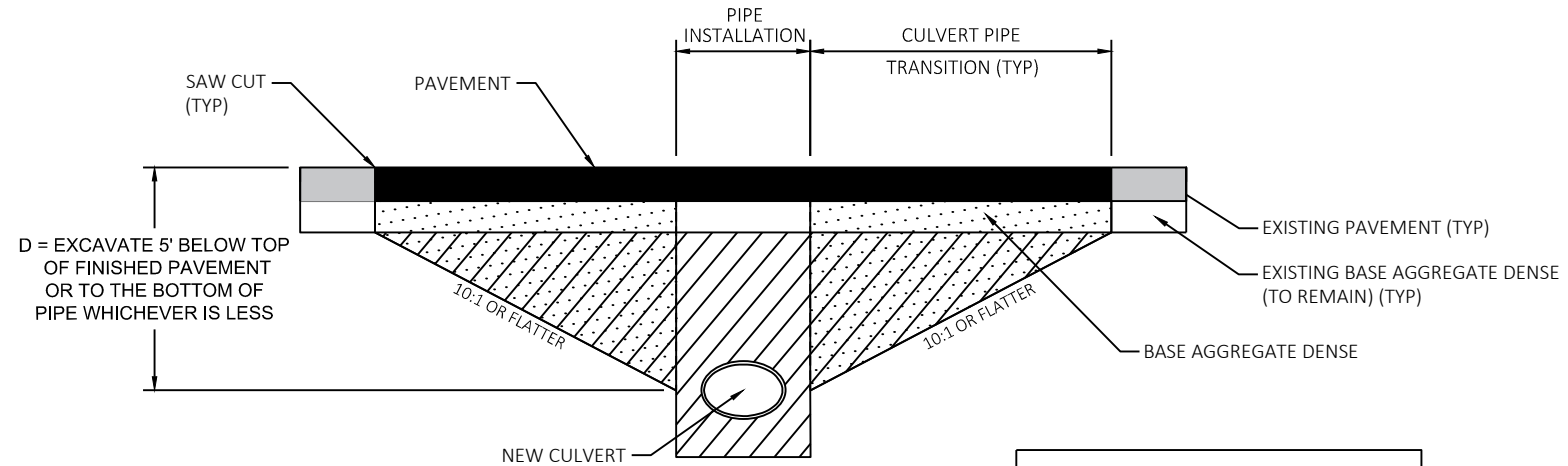
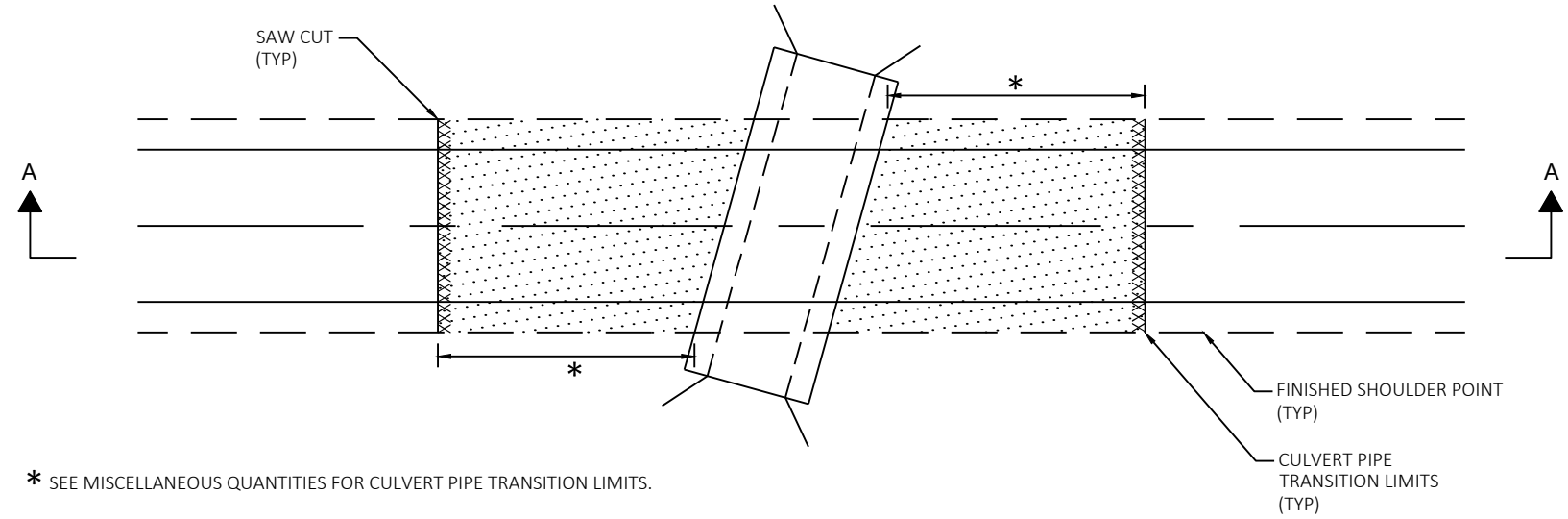
SNOWMOBILE TRAIL CROSSING DETAIL

STA 113+45



SNOWMOBILE TRAIL CROSSING DETAIL

STA 228+10



COMMON EXCAVATION

FOUNDATION BACKFILL

PIPE INSTALLATION AREA WILL FOLLOW SECTION 520 FOR INSTALLATION, WIDTHS AND PAYMENT.

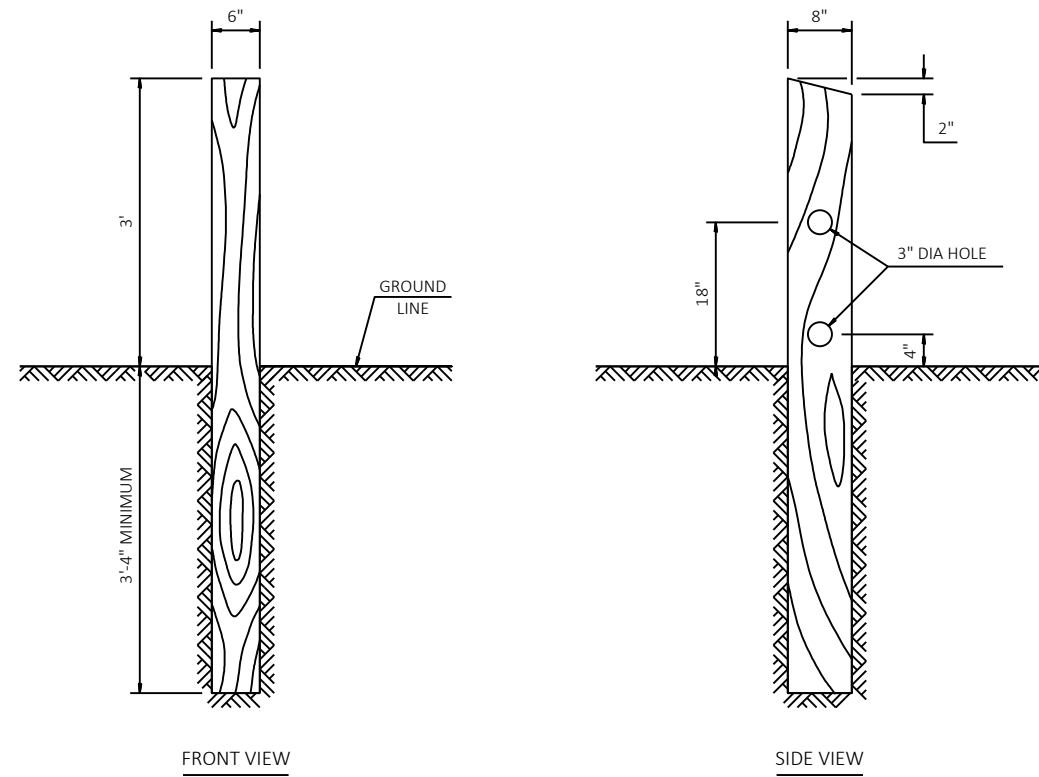
CONSTRUCT TRANSITION PERPENDICULAR TO CULVERT PIPE.

CULVERT PIPE TRANSITION AREAS WILL BE PAID BY COMMON EXCAVATION & SPV FOUNDATION BACKFILL.

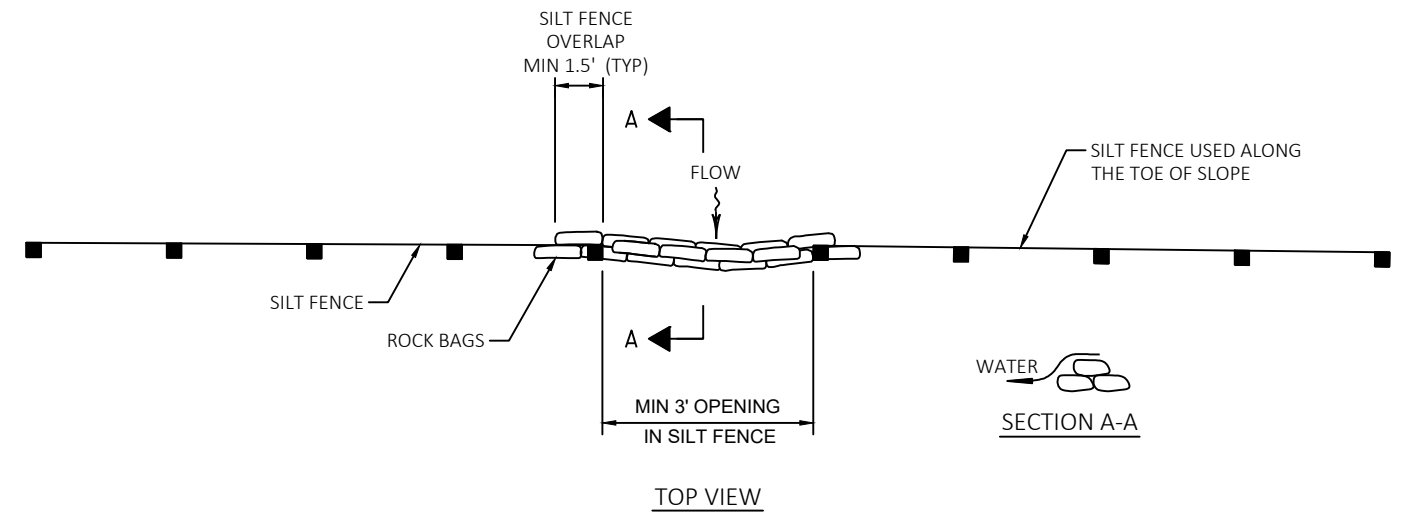
PAVEMENT SAW CUT TO BE PERPENDICULAR TO ROADWAY ALIGNMENT.

NEW CULVERT PIPES WITH TRANSITION

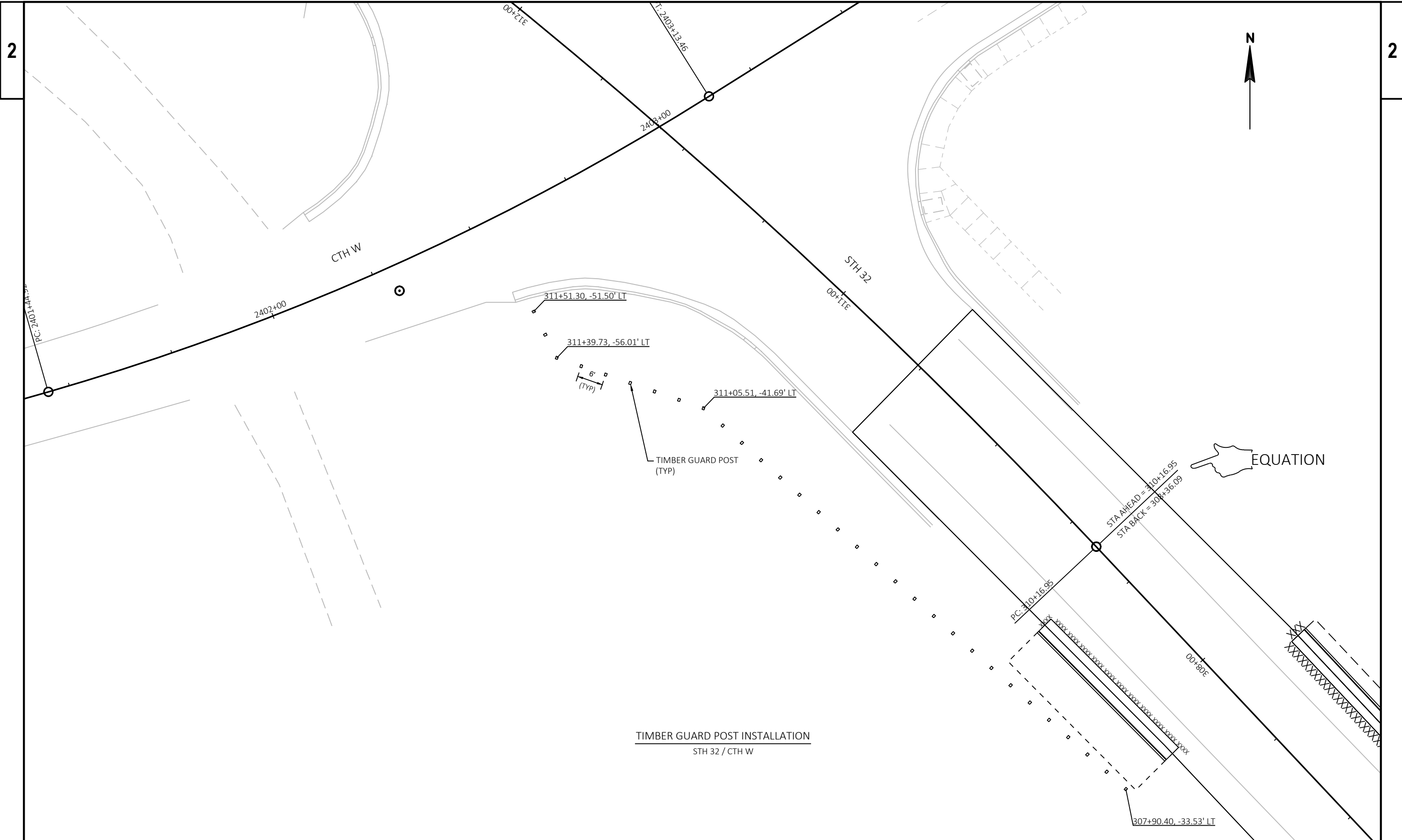
STA 206+31
 STA 247+07
 STA 295+00



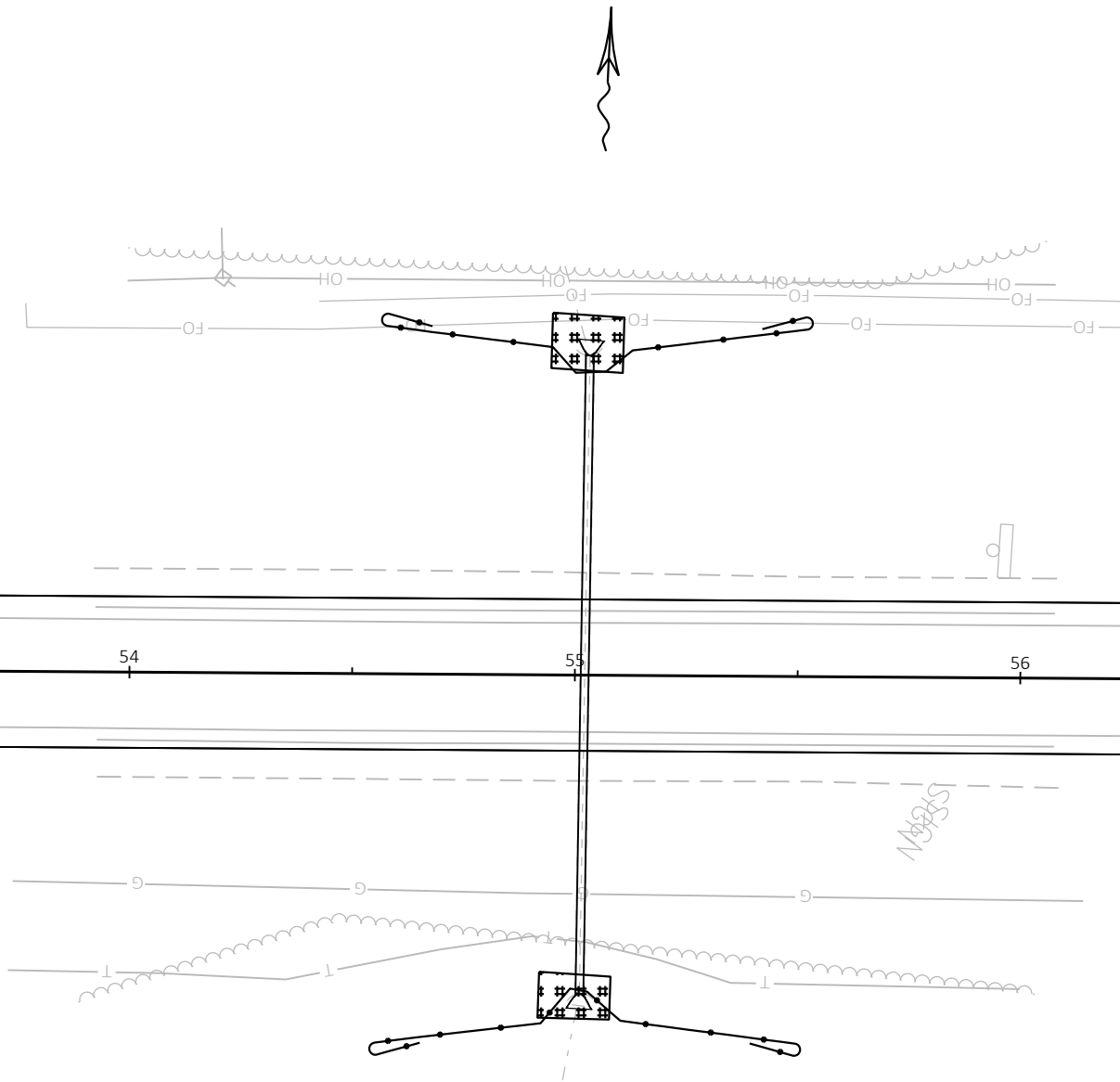
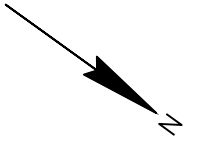
TIMBER GUARD POST



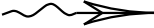
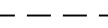
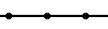




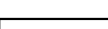
ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL



PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	CONSTRUCTION DETAILS	SHEET	E
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LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
-  INLET PROTECTION TYPE D
-  EROSION MAT CLASS I, TYPE B

PROJECT NO: 9150-06-71

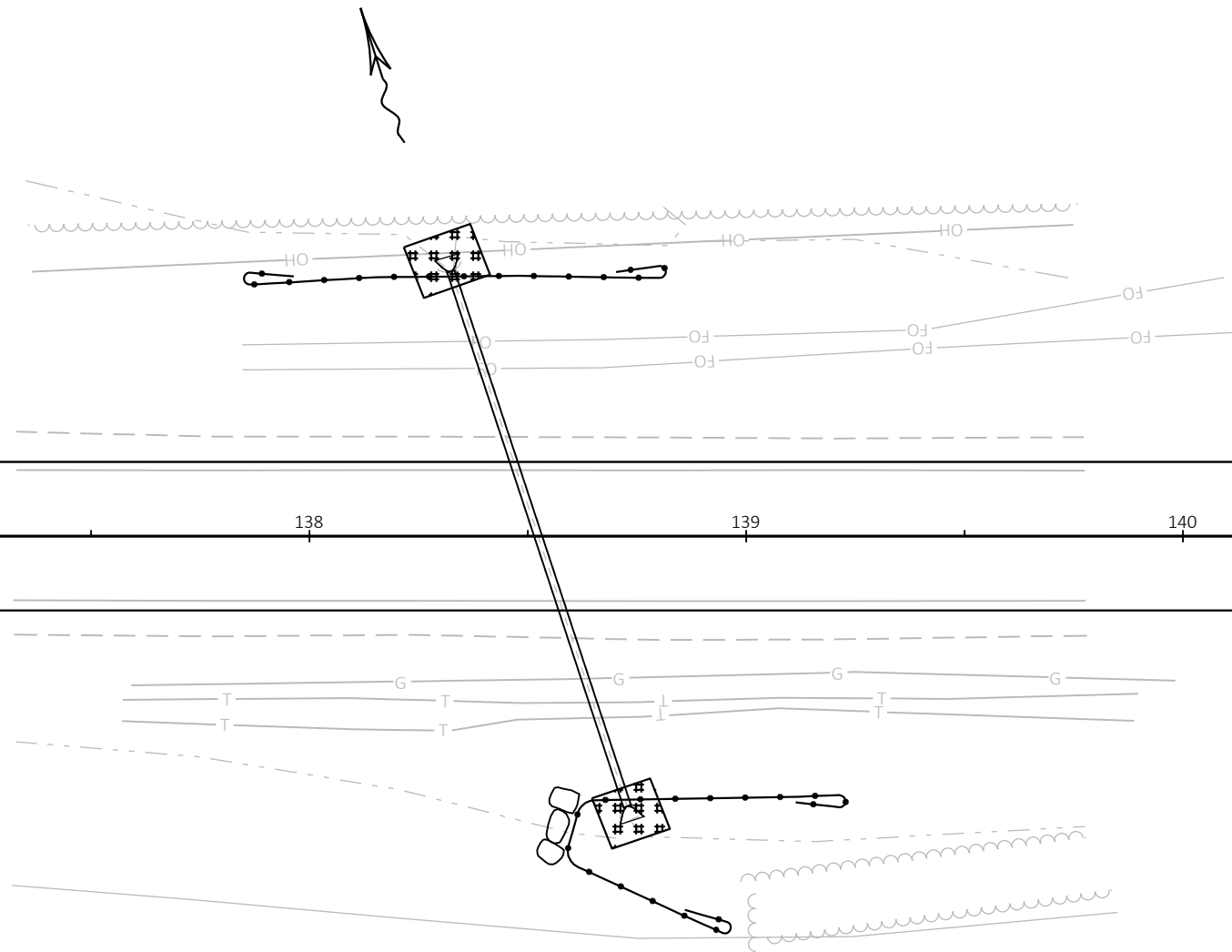
HWY: STH 32

COUNTY: OCONTO

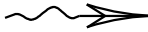
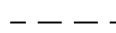






EROSION CONTROL

SHEET

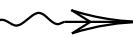
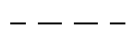
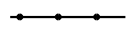





E



LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
-  INLET PROTECTION TYPE D
-  EROSION MAT CLASS I, TYPE B

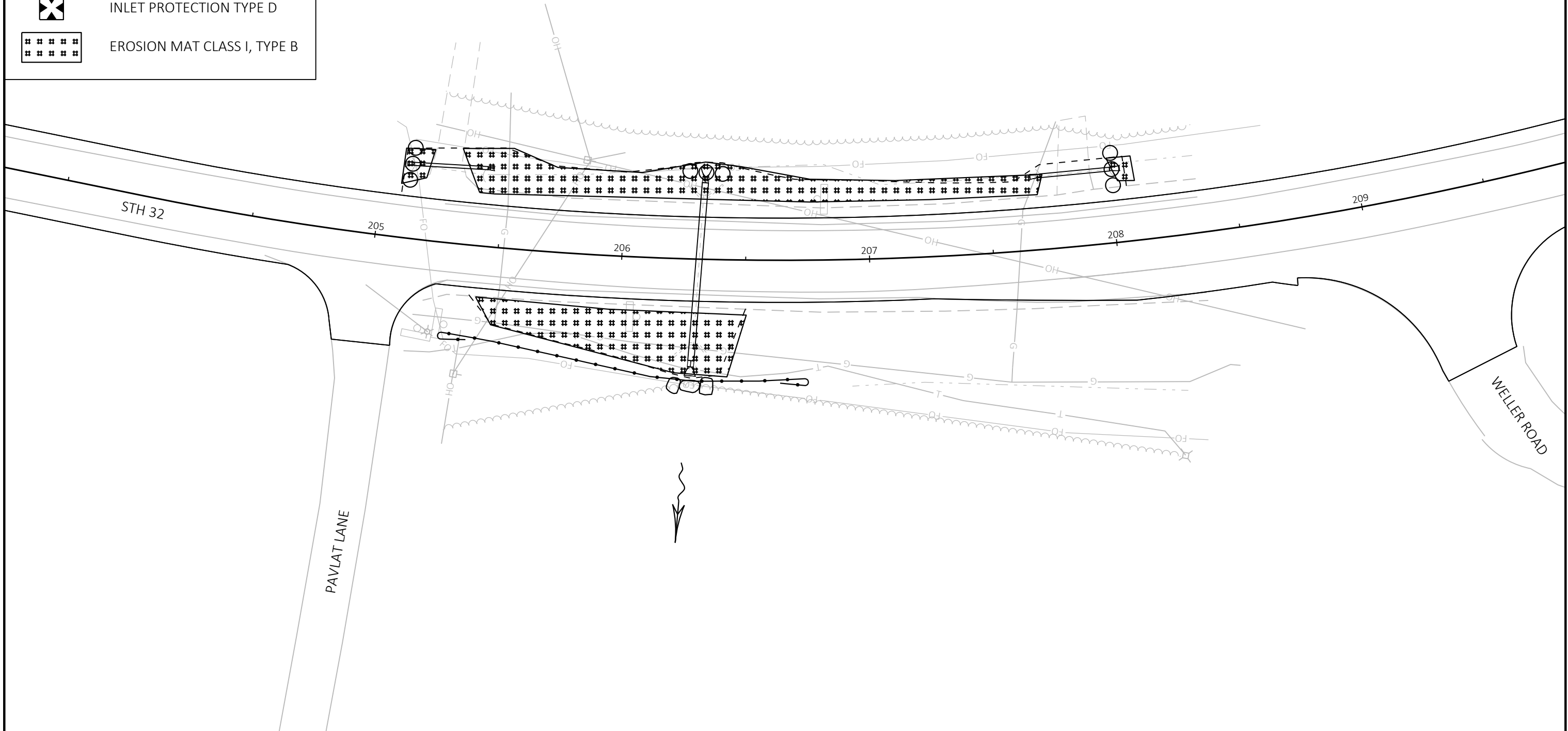
LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
-  INLET PROTECTION TYPE D
-  EROSION MAT CLASS I, TYPE B



2

2



PROJECT NO: 9150-06-71

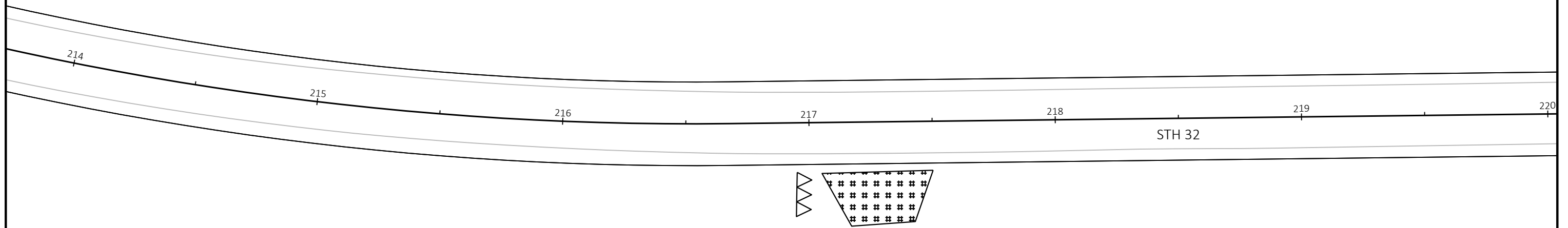
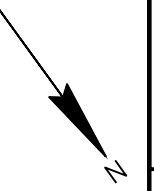
HWY: STH 32

COUNTY: OCONTO

EROSION CONTROL

SHEET

E

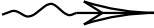
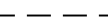
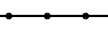




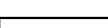


LEGEND	
	SURFACE WATER FLOW
	SLOPE INTERCEPT
	SILT FENCE
	CULVERT PIPE CHECK
	TEMPORARY DITCH CHECK
	SILT FENCE RELIEF ROCK BAGS
	INLET PROTECTION TYPE D
	EROSION MAT CLASS I, TYPE B

KUEHL LANE



LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
-  INLET PROTECTION TYPE D
-  EROSION MAT CLASS I, TYPE B

PROJECT NO: 9150-06-71

HWY: STH 32

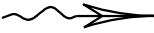
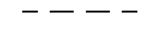
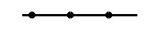





COUNTY: OCONTO

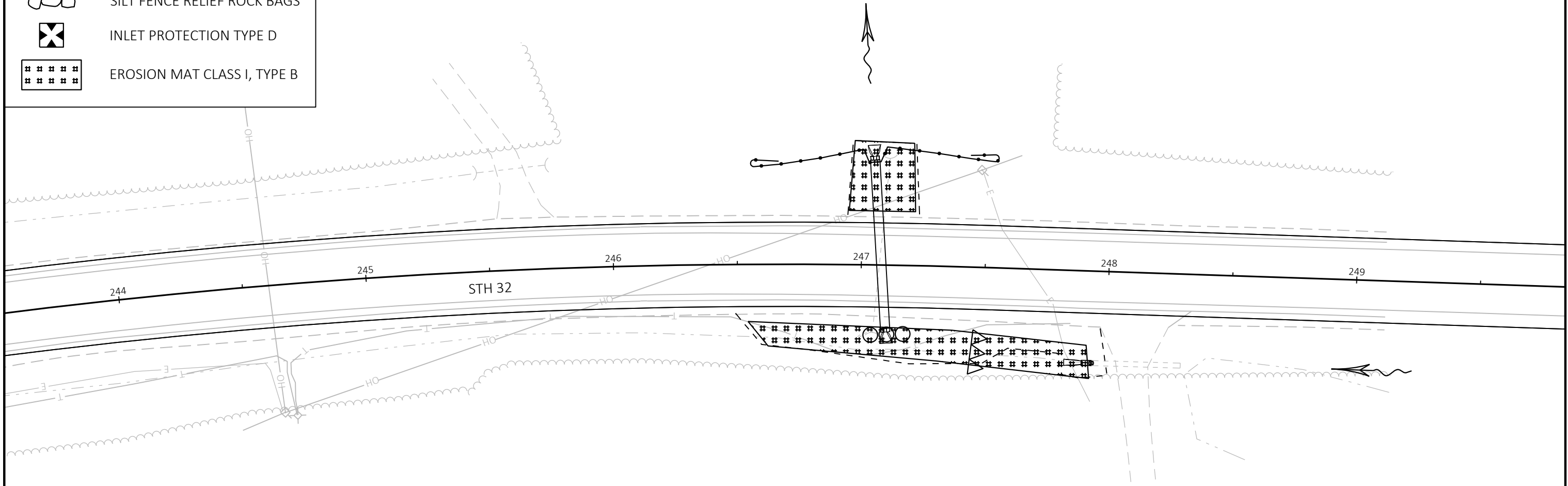
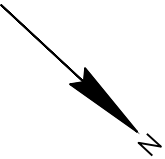
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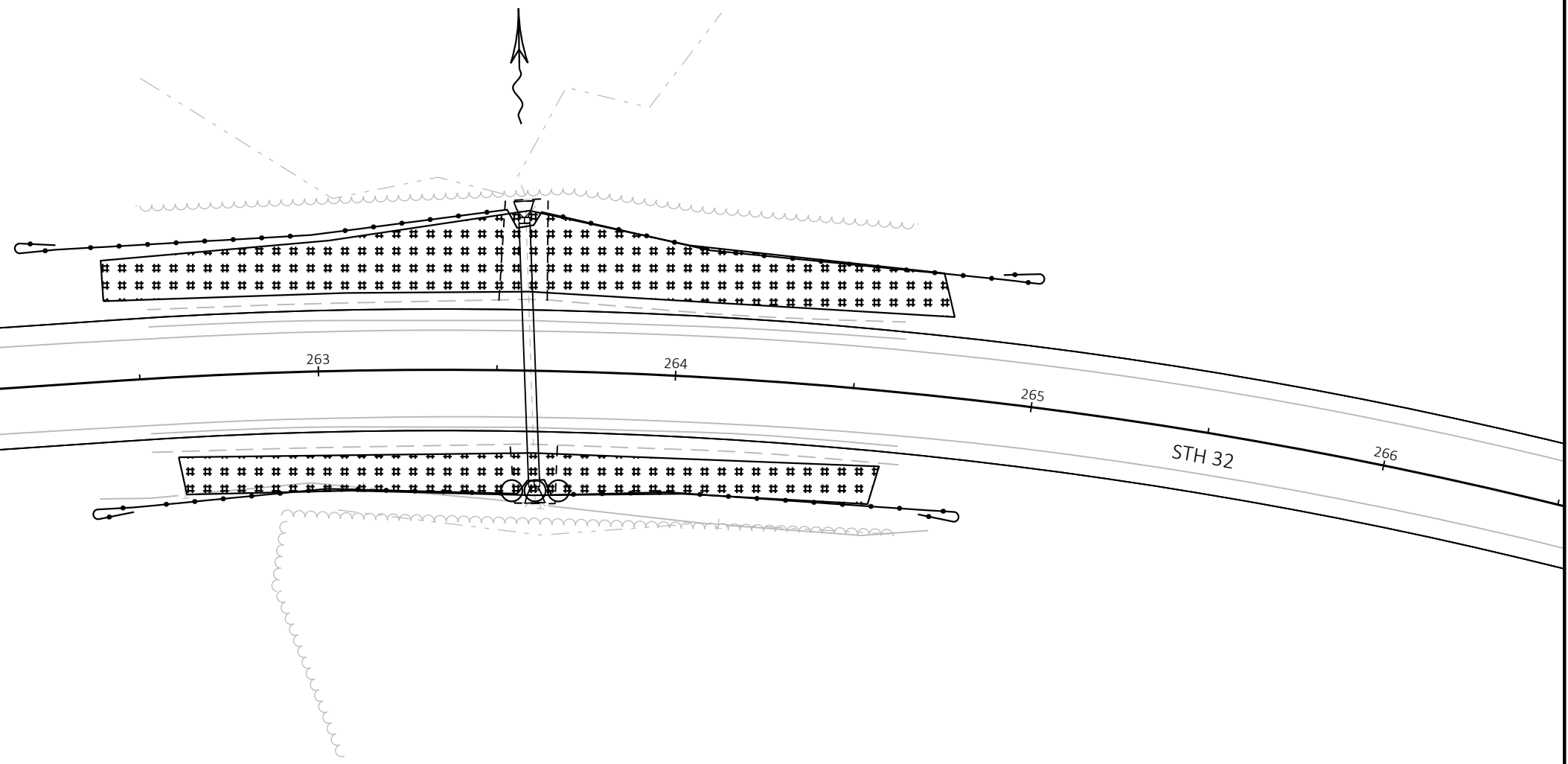
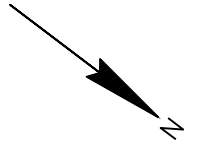
SHEET

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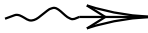
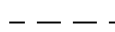
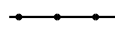





LEGEND

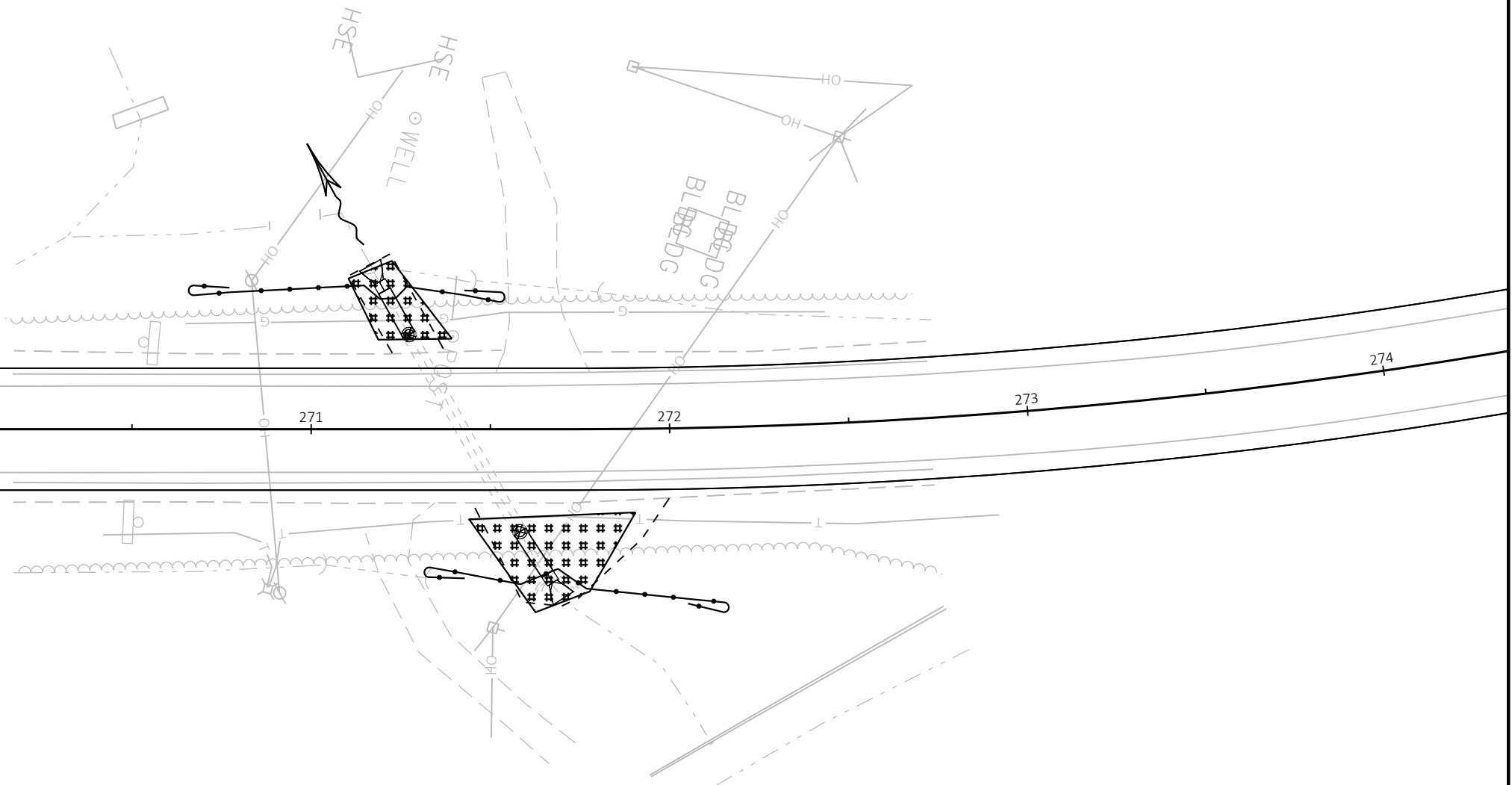
-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
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-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
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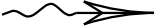
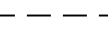
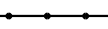




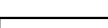


LEGEND

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-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
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LEGEND

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-  SLOPE INTERCEPT
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-  INLET PROTECTION TYPE D
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PROJECT NO: 9150-06-71

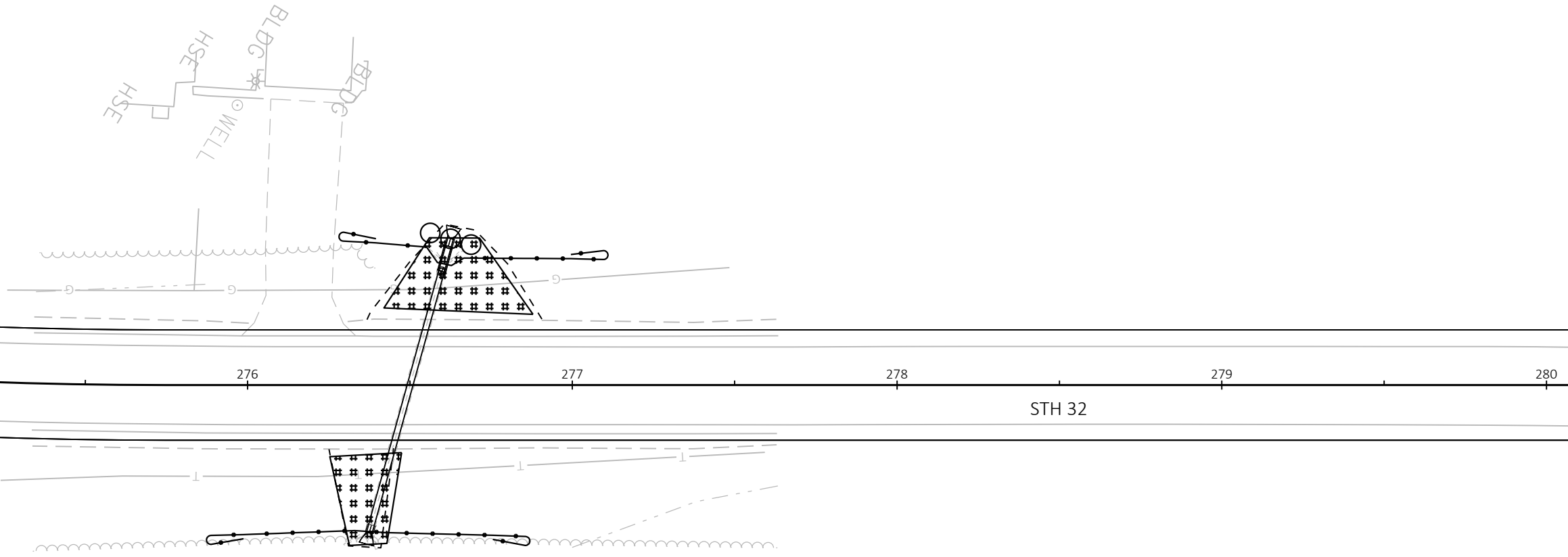
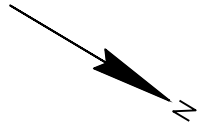
HWY: STH 32

COUNTY: OCONTO

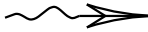
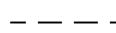





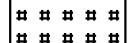
EROSION CONTROL

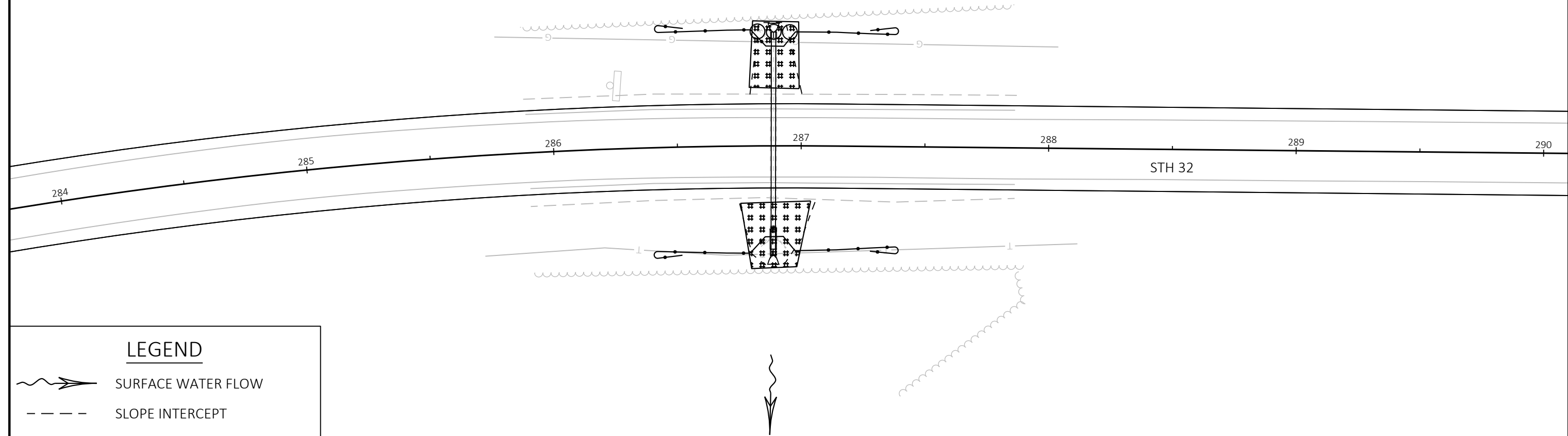
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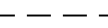
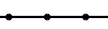




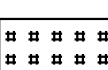


LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  CULVERT PIPE CHECK
-  TEMPORARY DITCH CHECK
-  SILT FENCE RELIEF ROCK BAGS
-  INLET PROTECTION TYPE D
-  EROSION MAT CLASS I, TYPE B



LEGEND

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PROJECT NO: 9150-06-71

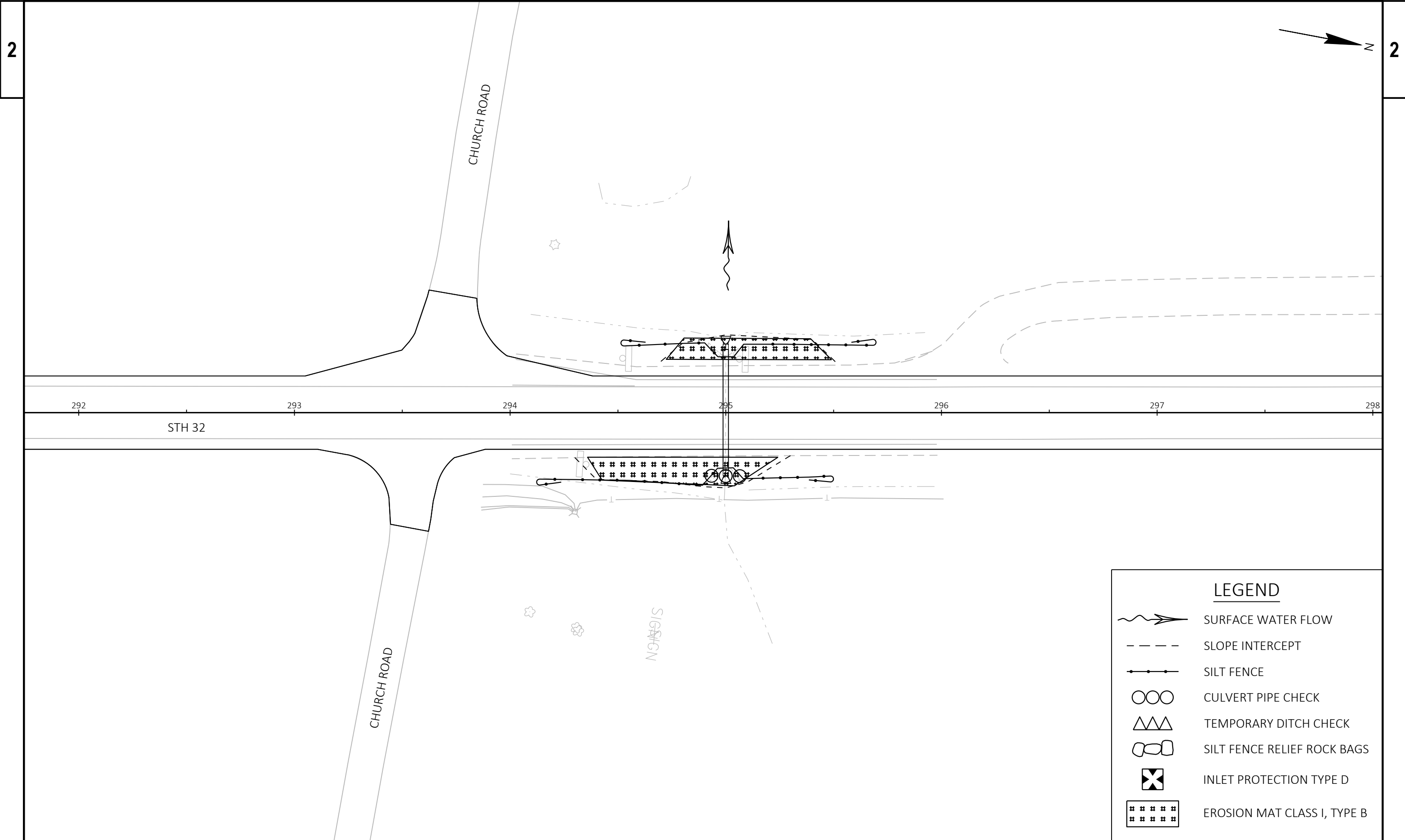
HWY: STH 32

COUNTY: OCONTO

EROSION CONTROL

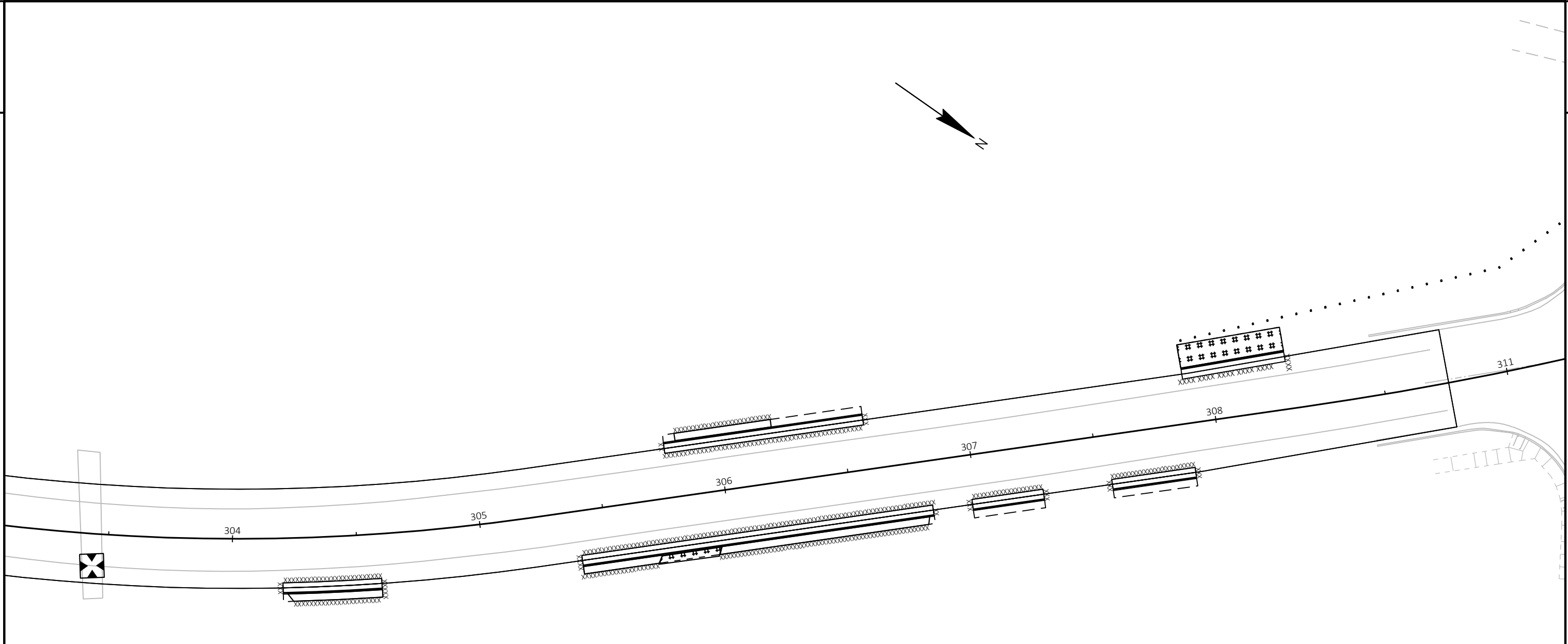
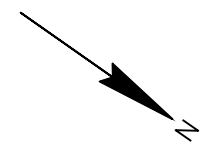
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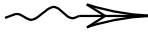
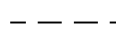





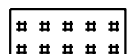


LEGEND	
	SURFACE WATER FLOW
	SLOPE INTERCEPT
	SILT FENCE
	CULVERT PIPE CHECK
	TEMPORARY DITCH CHECK
	SILT FENCE RELIEF ROCK BAGS
	INLET PROTECTION TYPE D
	EROSION MAT CLASS I, TYPE B

PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO EROSION CONTROL SHEET **E**



LEGEND

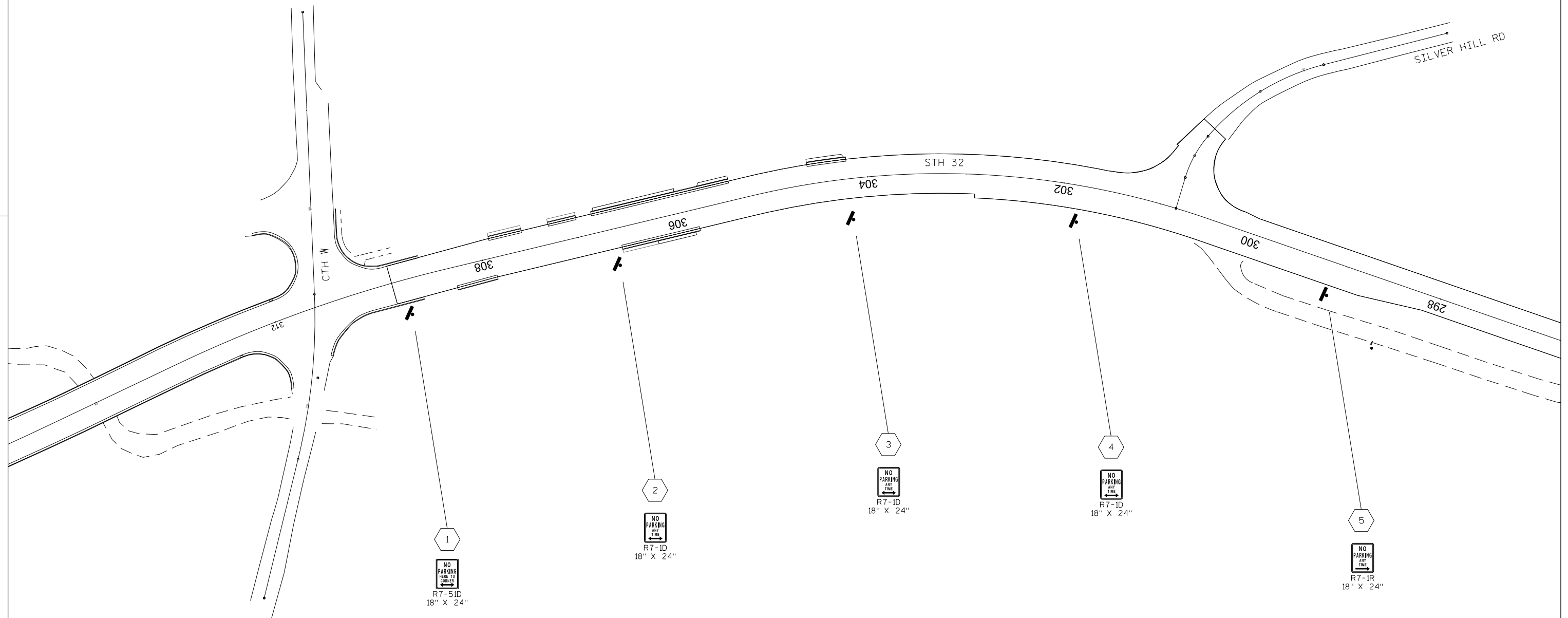
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-  SLOPE INTERCEPT
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-  CULVERT PIPE CHECK
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-  SILT FENCE RELIEF ROCK BAGS
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WHEN AN EXISTING STOP SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

ALL YIELD SIGNS SHALL HAVE A MOUNTING HEIGHT OF 7' -3" TO THE BOTTOM OF THE YIELD SIGN.

MULTIPLE TYPE II SIGNS MOUNTED ON COMMON POSTS WILL BE PAID AS ONE (1) REMOVAL PER STANDARD SPECS.



□ SIGN-REMOVE EXISTING
 ⬡ SIGN-PLACE NEW

Estimate Of Quantities

9150-06-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0120	Clearing	ID	136.000	136.000
0004	201.0220	Grubbing	ID	136.000	136.000
0006	203.0100	Removing Small Pipe Culverts	EACH	13.000	13.000
0008	204.0100	Removing Concrete Pavement	SY	13.000	13.000
0010	204.0110	Removing Asphaltic Surface	SY	137.000	137.000
0012	204.0115	Removing Asphaltic Surface Butt Joints	SY	304.000	304.000
0014	204.0120	Removing Asphaltic Surface Milling	SY	85,602.000	85,602.000
0016	204.0150	Removing Curb & Gutter	LF	368.000	368.000
0018	205.0100	Excavation Common	CY	1,006.000	1,006.000
0020	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 9150-06-71	LS	1.000	1.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	347.000	347.000
0024	213.0100	Finishing Roadway (project) 01. 9150-06-71	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,433.000	2,433.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	604.000	604.000
0030	416.0160	Concrete Driveway 6-Inch	SY	13.000	13.000
0032	455.0605	Tack Coat	GAL	9,194.000	9,194.000
0034	460.2000	Incentive Density HMA Pavement	DOL	13,512.000	13,512.000
0036	460.6223	HMA Pavement 3 MT 58-28 S	TON	12,003.000	12,003.000
0038	460.6224	HMA Pavement 4 MT 58-28 S	TON	9,109.000	9,109.000
0040	465.0105	Asphaltic Surface	TON	473.000	473.000
0042	465.0110	Asphaltic Surface Patching	TON	125.000	125.000
0044	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	206.000	206.000
0046	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	26,753.000	26,753.000
0048	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	13,617.000	13,617.000
0050	520.8000	Concrete Collars for Pipe	EACH	9.000	9.000
0052	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	4.000	4.000
0054	521.1515	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 15-Inch 6 to 1	EACH	2.000	2.000
0056	521.1518	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 6 to 1	EACH	2.000	2.000
0058	521.1524	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 24-Inch 6 to 1	EACH	1.000	1.000
0060	521.3115	Culvert Pipe Corrugated Steel 15-Inch	LF	30.000	30.000
0062	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	16.000	16.000
0064	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	104.000	104.000
0066	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	28.000	28.000
0068	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	160.000	160.000
0070	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	10.000	10.000
0072	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	3.000	3.000
0074	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	2.000	2.000
0076	522.2424	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 24x38-Inch	LF	68.000	68.000
0078	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	2.000	2.000
0080	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	368.000	368.000
0082	615.0300	Guard Posts Timber	EACH	31.000	31.000
0084	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9150-06-71	EACH	1.000	1.000
0086	619.1000	Mobilization	EACH	1.000	1.000
0088	624.0100	Water	MGAL	33.000	33.000
0090	625.0100	Topsoil	SY	165.000	165.000
0092	625.0500	Salvaged Topsoil	SY	3,298.000	3,298.000
0094	628.1504	Silt Fence	LF	3,465.000	3,465.000
0096	628.1520	Silt Fence Maintenance	LF	866.000	866.000
0098	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000

Estimate Of Quantities

9150-06-71

Line	Item	Item Description	Unit	Total	Qty
0100	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0102	628.2004	Erosion Mat Class I Type B	SY	3,463.000	3,463.000
0104	628.7020	Inlet Protection Type D	EACH	1.000	1.000
0106	628.7504	Temporary Ditch Checks	LF	42.000	42.000
0108	628.7555	Culvert Pipe Checks	EACH	64.000	64.000
0110	628.7570	Rock Bags	EACH	40.000	40.000
0112	629.0210	Fertilizer Type B	CWT	2.180	2.180
0114	630.0130	Seeding Mixture No. 30	LB	218.200	218.200
0116	630.0500	Seed Water	MGAL	58.400	58.400
0118	633.5200	Markers Culvert End	EACH	20.000	20.000
0120	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	3.000	3.000
0122	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	6.000	6.000
0124	637.2210	Signs Type II Reflective H	SF	15.000	15.000
0126	638.2102	Moving Signs Type II	EACH	4.000	4.000
0128	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0130	642.5001	Field Office Type B	EACH	1.000	1.000
0132	643.0300	Traffic Control Drums	DAY	2,086.000	2,086.000
0134	643.0715	Traffic Control Warning Lights Type C	DAY	280.000	280.000
0136	643.0900	Traffic Control Signs	DAY	1,869.000	1,869.000
0138	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0140	643.1070	Traffic Control Cones 42-Inch	DAY	150.000	150.000
0142	643.5000	Traffic Control	EACH	1.000	1.000
0144	646.1020	Marking Line Epoxy 4-Inch	LF	24,228.000	24,228.000
0146	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	42,657.000	42,657.000
0148	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	6,670.000	6,670.000
0150	649.0105	Temporary Marking Line Paint 4-Inch	LF	84,571.000	84,571.000
0152	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	24,228.000	24,228.000
0154	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	368.000	368.000
0156	650.6000	Construction Staking Pipe Culverts	EACH	9.000	9.000
0158	650.8000	Construction Staking Resurfacing Reference	LF	22,694.000	22,694.000
0160	650.9910	Construction Staking Supplemental Control (project) 01. 9150-06-71	LS	1.000	1.000
0162	650.9920	Construction Staking Slope Stakes	LF	200.000	200.000
0164	690.0150	Sawing Asphalt	LF	2,240.000	2,240.000
0166	690.0250	Sawing Concrete	LF	70.000	70.000
0168	740.0440	Incentive IRI Ride	DOL	34,385.000	34,385.000
0170	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0172	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0174	SPV.0035	Special 01. Foundation Backfill	CY	673.000	673.000
0176	SPV.0060	Special 01. Joint Tie Retrofit	EACH	6.000	6.000
0178	SPV.0060	Special 02. Special Concrete Collar	EACH	1.000	1.000
0180	SPV.0060	Special 03. Temporary Water Diversion, Tributary to Town Creek (Station 271+42)	EACH	1.000	1.000
0182	SPV.0090	Special 01. Cured in Place Pipe (CIPP) Liner 24-Inch	LF	456.000	456.000
0184	SPV.0195	Special 01. Base Aggregate Dense 1 1/4-Inch (For Temporary Widening)	TON	138.000	138.000

CLEARING & GRUBBING

STATION	LOCATION	201.0120	201.0220	REMARKS
		CLEARING	GRUBBING	
271+12	LT	11	11	TREE JUST SOUTH OF EXISTING CP END
271+55	RT	14	14	TREE JUST SOUTH OF EXISTING HEADWALL
271+64	RT	7	7	TREE AT EXISTING HEADWALL
271+72	RT	8	8	TREE JUST NORTH OF EXISTING HEADWALL
273+50	RT	14	14	37' RT - CLEAR ZONE IMPROVEMENT
276+58	LT	14	14	TREE AT EXISTING HEADWALL
280+10	LT	35	35	37' LT - CLEAR ZONE IMPROVEMENT
280+35	LT	33	33	37' LT - CLEAR ZONE IMPROVEMENT
TOTALS		136	136	

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100		REMARKS
		EACH		
205+26	LT	1		DRIVEWAY CULVERT: 18 IN CPCS X 28 LF
206+31	LT/RT	1		CROSS CULVERT: 24 IN CPRC X 60 LF
230+63	LT	1		CROSS CULVERT: 24 IN CPRC X 16 LF (PARTIAL REMOVAL)
230+63	RT	1		CROSS CULVERT: 24 IN CPRC X 12 LF (PARTIAL REMOVAL)
235+55	LT	1		CROSS CULVERT: 30 IN CPRC X 32 LF (PARTIAL REMOVAL)
247+08	LT/RT	1		CROSS CULVERT: 30 IN CPRC X 70 LF
263+59	LT/RT	1		CROSS CULVERT: 24 IN CPRC WITH 24 INCH CPCS EXTENS. (81 LF TOTAL)
271+42	LT	1		CROSS CULVERT: 36 IN CPRC X 20 LF (PARTIAL REMOVAL)
271+42	RT	1		CROSS CULVERT: 36 IN CPRC X 16 LF (PARTIAL REMOVAL)
276+50	LT	1		CROSS CULVERT: 24 IN CPRC X 4 LF (PARTIAL REMOVAL)
276+50	RT	1		CROSS CULVERT: 24 IN CPRC X 4 LF (PARTIAL REMOVAL)
286+89	RT	1		CROSS CULVERT: 24 IN CPRC X 4 LF (PARTIAL REMOVAL)
295+00	LT/RT	1		CROSS CULVERT: 24 IN CPRC X 52 LF
TOTAL		13		

REMOVAL ITEMS - CURB & GUTTER REPLACEMENT

STATION	TO	STATION	LOCATION	204.0100	204.0110	204.0150	REMARKS
				REMOVING CONCRETE PAVEMENT	REMOVING ASPHALTIC SURFACE	REMOVING CURB & GUTTER	
304+20	-	304+59	RT	---	21.1	39	
305+39	-	306+82	RT	---	70.6	143	TWO DRIVEWAY ENTRANCES
305+78	-	306+59	LT	13	30.9	81	
306+98	-	307+27	RT	---	6.4	29	
307+55	-	307+89	RT	---	7.6	34	
307+89	-	308+31	LT	---	9.3	42	
TOTALS				13	137	368	

REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION	LOCATION	204.0115		REMARKS
		SY		
45+55	STH 32	9		PROJECT LIMITS
77+05	RT	12		WAYSIDE ENTRANCE
81+60	RT	10		WAYSIDE ENTRANCE
88+10	RT	3		P.E.
89+90	RT	8		P.E.
91+80	RT	4		P.E.
108+15	RT	8		C.E.
117+60	RT	6		P.E.
118+60	RT	6		P.E.
126+70	RT	7		P.E.
154+75	RT	8		P.E.
156+85	RT	9		P.E.
158+10	LT	6		P.E.
158+65	RT	7		P.E.
164+40	RT	17		PARK ENTRANCE
166+20	LT	17		C.E.
214+50	LT	3		P.E.
218+40	RT	10		TOWN HALL ENTRANCE
221+55	RT	5		P.E.
224+85	RT	4		P.E.
248+15	RT	3		P.E.
271+65	LT	3		P.E.
274+20	LT	2		P.E.
276+15	LT	4		P.E.
283+55	LT	9		CHURCH ENTRANCE
283+80	RT	8		FIRE DEPT ENTRANCE
284+75	LT	12		CHURCH ENTRANCE
289+80	RT	12		C.E.
291+80	RT	4		P.E.
310+76	STH 32	9		PROJECT LIMITS
1004+03	PARKWAY DR (S)	4		W OF STH 32
1104+25	PARKWAY DR (N)	12		W OF STH 32
1300+70	NIER LN	5		E OF STH 32
1404+17	KINGSTON RD	5		W OF STH 32
1500+78	OLD HIGHWAY 64	6		E OF STH 32
1600+76	GREEN LAKE LN	6		E OF STH 32
1704+20	BAGLEY RAPIDS RD	6		W OF STH 32
1800+44	PAVLAT LN	5		E OF STH 32
1900+72	WELLER RD	7		E OF STH 32
2000+75	SILVER HILL RD (S)	5		E OF STH 32
2104+36	KUEHL LN	3		W OF STH 32
2204+44	CHURCH RD (W)	5		W OF STH 32
2205+54	CHURCH RD (E)	4		E OF STH 32
2300+91	SILVER HILL RD (N)	7		E OF STH 32
TOTAL		304		

REMOVING ASPHALTIC SURFACE MILLING

STATION	TO	STATION	LOCATION	204.0120		REMARKS
				SY		
45+55	-	310+76	STH 32	75,647		MAINLINE LANES & 3' SHOULDERS
45+55	-	47+35	LT	100		EXTRA WIDE SHOULDER
45+55	-	51+45	RT	434		EXTRA WIDE SHOULDER
47+35	-	49+85	LT	570		PARKWAY DR. (S) INTERSECTION
76+65	-	77+35	RT	99		WAYSIDE ENTRANCE
77+95	-	83+95	RT	338		EXTRA WIDE SHOULDER
80+10	-	83+50	LT	589		PARKWAY DR. (N) INTERSECTION
81+35	-	81+95	RT	67		WAYSIDE ENTRANCE
87+95	-	88+25	RT	32		P.E.
89+65	-	90+15	RT	65		P.E.
91+70	-	91+95	RT	33		P.E.
92+85	-	95+90	RT	416		NIER LN. INTERSECTION
103+70	-	112+15	RT	533		EXTRA WIDE SHOULDER
105+50	-	108+15	LT	477		KINGSTON RD. INTERSECTION
107+95	-	108+40	RT	60		C.E.
110+65	-	116+90	LT	318		EXTRA WIDE SHOULDER
112+15	-	114+55	RT	477		OLD 64 RD. INTERSECTION
117+35	-	117+85	RT	57		P.E.
118+35	-	118+85	RT	57		P.E.
126+50	-	126+90	RT	37		P.E.
130+60	-	131+00	RT	35		P.E.
150+40	-	153+40	RT	467		GREEN LAKE LN. INTERSECTION
154+50	-	155+00	RT	46		P.E.
156+55	-	157+10	RT	48		P.E.
157+95	-	158+30	LT	32		P.E.
158+45	-	158+90	RT	46		P.E.
160+20	-	163+30	LT	536		BAGLEY RAPIDS RD. INTERSECTION
164+00	-	164+75	RT	73		PARK ENTRANCE
165+75	-	166+50	LT	78		C.E.
204+60	-	205+30	RT	114		PAVLAT LN. INTERSECTION
207+10	-	210+35	RT	544		WELLER RD. INTERSECTION
214+40	-	214+60	LT	29		P.E.
218+10	-	218+65	RT	57		TOWN HALL ENTRANCE
221+45	-	221+60	RT	25		P.E.
224+75	-	224+90	RT	23		P.E.
225+70	-	227+90	RT	389		SILVER HILL RD. INTERSECTION (S)
228+90	-	229+60	LT	172		KUEHL LN. INTERSECTION
248+00	-	248+25	RT	35		P.E.
271+55	-	271+70	RT	38		P.E.
274+00	-	274+15	LT	29		P.E.
276+05	-	276+25	LT	34		P.E.
283+40	-	283+70	LT	63		CHURCH ENTRANCE
283+65	-	283+90	RT	58		FIRE DEPT ENTRANCE
284+55	-	285+00	LT	79		CHURCH ENTRANCE
289+50	-	289+95	RT	60		C.E.
291+75	-	291+90	RT	27		P.E.
293+05	-	294+40	LT	235		CHURCH RD. INTERSECTION (W)
293+10	-	293+90	RT	136		CHURCH RD. INTERSECTION (E)
298+10	-	302+90	LT	446		EXTRA WIDE SHOULDER
299+35	-	301+55	RT	496		SILVER HILL RD. INTERSECTION (N)
302+90	-	310+76	LT	324		PARKING LANE
301+55	-	310+76	RT	423		PARKING LANE
TOTAL				85,602		

EARTHWORK SUMMARY

DIVISION	STATION	LOCATION	205.0100 COMMON EXCAVATION CY (1)		UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	SPV.0035.01 FOUNDATION BACKFILL CY (15)		COMMENT:
			CUT	CULVERT PIPE TRANSITION EXCAVATION (3)					FACTOR 1.15	FACTOR 1.15	
DIVISION 1											
CP 206+31	205+50 - 207+70	STH 32	4	333	97	111	226	226	230		
CP 230+63	230+50 - 230+75	STH 32	9	0	9	10	-1	0	0		
CP 235+55	235+34 - 235+75	STH 32	2	0	13	15	-13	0	0		
CP 247+08	246+67 - 247+90	STH 32	5	325	22	25	304	304	222		
CP 271+42	271+55 - 271+85	STH 32	4	0	6	7	-3	0	0		
CP 276+50	276+25 - 276+90	STH 32	3	0	33	38	-35	0	0		
CP 286+89	286+75 - 287+10	STH 32	0	0	27	31	-31	0	0		
CP 295+00	294+40 - 295+50	STH 32	4	317	37	42	278	278	220		
DIVISION 1 SUBTOTAL			31	975	244	281	725	809	673		
GRAND TOTAL			31	975	244	281	725	809	673		
TOTAL COMMON EXC				1,006							

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND CULVERT PIPE TRANSITION EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (3) CULVERT PIPE TRANSITION EXCAVATION TO BE BACKFILLED WITH FOUNDATION BACKFILL MATERIAL.
- (12) EXPANDED ROCK FACTOR = X.5X
- (13) EXPANDED FILL FACTOR = 1.15
- (14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (15) THE QUANTITY FOR FOUNDATION BACKFILL IS EQUAL TO THE CULVERT PIPE TRANSITION (CY) MINUS THE PROPOSED PAVEMENT AND BASE AGGREGATE (CY), MULTIPLIED BY AN EXPANDED BACKFILL FACTOR OF 1.15.

PREPARE FOUNDATION FOR ASPHALTIC PAVING

211.0100 (PROJECT 9150-06-71)					
STATION	TO	STATION	LOCATION	LS	REMARKS
45+55	-	310+76	STH 32	1	---
TOTAL				1	

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

211.0400					
STATION	TO	STATION	LOCATION	STA	REMARKS
49+50	-	80+20	LT	32	---
83+30	-	105+75	LT	23	---
108+00	-	111+10	LT	4	---
116+40	-	160+40	LT	45	---
163+10	-	298+20	LT	100	---
50+90	-	78+30	RT	29	---
83+60	-	92+90	RT	10	---
95+50	-	103+60	RT	9	---
114+30	-	150+90	RT	37	---
153+10	-	207+30	RT	19	---
210+20	-	226+00	RT	16	---
277+70	-	299+80	RT	23	---
TOTAL				347	

BASE AGGREGATE DENSE 3/4-INCH

STATION	TO	STATION	LOCATION	<u>305.0110</u>	<u>624.0100</u>	REMARKS
				TON	WATER MGAL	
45+55	-	166+50	STH 32	1,714	17	GRAVEL SHOULDERS LT & RT
166+50	-	303+00	STH 32	433	4	GRAVEL SHOULDERS LT & RT
241+50	-	247+75	STH 32	139	1	GRVL. SHOULDER SUPERELEVATION CORRECTION (LT)
45+55	-	310+76	STH 32	146	1	DRIVEWAYS (37 TOTAL)
TOTALS				2,433	24	

CONCRETE DRIVEWAY

STATION	TO	STATION	LOCATION	<u>416.0160</u>	REMARKS
				CONCRETE DRIVEWAY 6-INCH SY	
305+78	-	306+59	LT	13	TO RESTORE BEHIND CURB & GUTTER REPLACEMENT
TOTAL				13	

BASE AGGREGATE DENSE 1 1/4-INCH

STATION	TO	STATION	LOCATION	<u>305.0120</u>	<u>624.0100</u>	REMARKS
				TON	WATER MGAL	
205+90	-	206+75	STH 32	171	2	CULVERT PIPE REPLACEMENT WITH TRANSITION
230+55	-	230+71	RT	10	1	CULVERT PIPE WORK
235+40	-	235+69	STH 32	16	1	CULVERT PIPE WORK
246+67	-	247+51	STH 32	172	2	CULVERT PIPE REPLACEMENT WITH TRANSITION
263+46	-	263+73	STH 32	44	1	CULVERT PIPE REPLACEMENT
294+60	-	295+40	STH 32	166	2	CULVERT PIPE REPLACEMENT WITH TRANSITION
304+20	-	307+89	STH 32	24	1	CURB & GUTTER REPLACEMENT WORK
TOTAL				604	9	

ASPHALTIC SURFACE

STATION	TO	STATION	LOCATION	<u>465.0105</u>	REMARKS
				TON	
205+90	-	206+75	STH 32	137	CULVERT PIPE REPLACEMENT WITH TRANSITION
230+55	-	230+71	RT	6	CULVERT PIPE WORK
235+40	-	235+69	STH 32	9	CULVERT PIPE WORK
246+67	-	247+51	STH 32	135	CULVERT PIPE REPLACEMENT WITH TRANSITION
263+46	-	263+73	STH 32	30	CULVERT PIPE REPLACEMENT
294+60	-	295+40	STH 32	129	CULVERT PIPE REPLACEMENT WITH TRANSITION
304+20	-	307+89	STH 32	28	CURB & GUTTER REPLACEMENT WORK
TOTAL				473	

BASE AGGREGATE DENSE 1 1/4-INCH (FOR TEMPORARY WIDENING)

STATION	TO	STATION	LOCATION	<u>SPV.0195.01</u>	REMARKS
				TON	
262+40	-	264+80	LT	93	SEE CONSTRUCTION DETAIL
262+60	-	264+60	RT	44	SEE CONSTRUCTION DETAIL
TOTAL				138	

ASPHALTIC SURFACE PATCHING

STATION	TO	STATION	LOCATION	<u>465.0110</u>	REMARKS
				TON	
54+50	-	56+50	STH 32	20	LIKELY TO HIT BASE LAYER DURING SLOPE CORRECTION
72+50	-	74+00	STH 32	15	LIKELY TO HIT BASE LAYER DURING SLOPE CORRECTION
125+25	-	126+00	STH 32	7	LIKELY TO HIT BASE LAYER DURING SLOPE CORRECTION
238+75	-	241+25	STH 32	25	LIKELY TO HIT BASE LAYER DURING SLOPE CORRECTION
259+75	-	261+50	STH 32	17	LIKELY TO HIT BASE LAYER DURING SLOPE CORRECTION
				40	UNDISTRIBUTED
TOTAL				125	

HMA SUMMARY

				460.6223	460.6224		
				455.0605			
				TACK COAT	3 MT	4 MT	
				58-28 S	58-28 S		
STATION	TO	STATION	LOCATION	GAL	TON	TON	REMARKS
45+55	-	300+20	STH 32	6,982	7,913	5,702	THRU LANES ONLY
300+20	-	310+76	STH 32	163	---	252	THRU LANES ONLY
45+55	-	300+20	STH 32	1,212	3,297	2,376	5' PAVED SHOULDERS
300+20	-	310+76	STH 32	109	---	168	8' PARKING LANES
45+55	-	47+35	LT	7	8	6	EXTRA WIDE SHOULDER
45+55	-	50+99	RT	46	52	37	EXTRA WIDE SHOULDER
47+35	-	49+50	LT	62	70	51	PARKWAY DR. (S) INT.
78+23	-	83+70	RT	25	29	21	EXTRA WIDE SHOULDER
80+14	-	83+34	LT	62	70	51	PARKWAY DR. (N) INT.
92+84	-	95+53	RT	42	47	34	NIER LN. INT.
103+48	-	112+15	RT	44	50	36	EXTRA WIDE SHOULDER
105+70	-	108+00	LT	50	57	41	KINGSTON RD. INT.
111+04	-	116+44	LT	24	27	19	EXTRA WIDE SHOULDER
112+15	-	114+40	RT	51	58	42	OLD 64 RD. INT.
150+72	-	153+24	RT	48	55	39	GREEN LAKE LN. INT.
160+35	-	163+12	LT	56	64	46	BAGLEY RAPIDS RD. INT.
204+67	-	205+26	RT	12	13	10	PAVLAT LN. INT.
207+25	-	210+28	RT	57	64	46	WELLER RD. INT.
226+00	-	228+08	RT	41	47	34	SILVER HILL DR. INT. (S)
228+86	-	229+61	LT	18	21	15	KUEHL LN. INT.
293+08	-	294+44	LT	25	28	21	CHURCH RD. INT. (W)
293+14	-	293+84	RT	14	16	11	CHURCH RD. INT. (E)
298+16	-	300+20	LT	16	18	13	EXTRA WIDE SHOULDER
300+31	-	301+52	RT	28	---	39	SILVER HILL DR. INT. (N)
TOTALS				9,194	12,003	9,109	

ASPHALTIC SURFACE DRIVEWAYS & FIELD ENTRANCES

				465.0120		
STATION	LOCATION	TON	REMARKS			
77+05	RT	13	WAYSIDE ENTRANCE			
81+60	RT	11	WAYSIDE ENTRANCE			
88+10	RT	4	P.E.			
89+90	RT	9	P.E.			
91+80	RT	4	P.E.			
108+15	RT	10	C.E.			
117+60	RT	8	P.E.			
118+60	RT	8	P.E.			
126+70	RT	5	P.E.			
130+50	RT	5	P.E.			
154+75	RT	6	P.E.			
156+85	RT	6	P.E.			
158+10	LT	4	P.E.			
158+65	RT	6	P.E.			
164+40	RT	10	PARK ENTRANCE			
166+20	LT	11	C.E.			
214+50	LT	4	P.E.			
218+40	RT	8	TOWN HALL ENTRANCE			
221+55	RT	3	P.E.			
224+85	RT	3	P.E.			
248+15	RT	6	P.E.			
271+65	LT	6	P.E.			
274+05	LT	4	P.E.			
276+15	LT	5	P.E.			
283+55	LT	9	CHURCH ENTRANCE			
283+80	RT	8	FIRE DEPT ENTRANCE			
284+75	LT	12	CHURCH ENTRANCE			
289+80	RT	8	C.E.			
291+80	RT	3	P.E.			
304+38	RT	2	C.E.			
305+54	RT	2	C.E.			
306+33	RT	5	C.E.			
TOTAL		206				

CURB & GUTTER ITEMS

				601.0411	650.5500		
				CONCRETE	CONSTRUCTION STAKING		
				CURB & GUTTER	CURB GUTTER AND		
				30-INCH TYPE D	CURB & GUTTER *		
STATION	TO	STATION	LOCATION	LF	LF	REMARKS	
304+20	-	304+59	RT	39	39	---	
305+39	-	306+82	RT	143	143	TWO DRIVEWAYS	
305+78	-	306+59	LT	81	81	---	
306+98	-	307+27	RT	29	29	---	
307+55	-	307+89	RT	34	34	---	
307+89	-	308+31	LT	42	42	---	
TOTALS				368	368		

* REPLACE AT SAME ELEVATION AND OFFSET AS EXISTING CURB

GUARD POSTS TIMBER

				615.0300		
STATION	TO	STATION	LOCATION	EACH	REMARKS	
307+90	-	311+51	LT	31	PARKING LOT	
TOTAL				31		

ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL

		<u>465.0425</u>				
STATION	TO	STATION	LOCATION	LF	REMARKS	
50+00	-	61+82	LT	1,182	GAP FOR RESIDENTIAL DRIVEWAY	
62+52	-	79+70	LT	1,718	GAP FOR SIDEROAD	
83+80	-	98+98	LT	1,518	GAP FOR COMMERCIAL DRIVEWAY	
100+31	-	103+65	LT	334	GAP FOR SIDEROAD & DRIVEWAY	
108+48	-	110+22	LT	174	GAP FOR BYPASS LANE	
117+00	-	119+29	LT	229	GAP FOR RESIDENTIAL DRIVEWAY	
119+96	-	128+78	LT	882	GAP FOR RESIDENTIAL DRIVEWAY	
129+44	-	131+30	LT	186	GAP FOR COMMERCIAL DRIVEWAYS	
134+25	-	157+77	LT	2,352	GAP FOR RESIDENTIAL DRIVEWAY	
158+48	-	159+60	LT	112	GAP FOR SIDEROAD & DRIVEWAY	
163+34	-	165+28	LT	194	GAP FOR COMMERCIAL & RES. DRIVEWAYS	
204+12	-	204+90	LT	78	GAP FOR RESIDENTIAL DRIVEWAY	
205+61	-	207+50	LT	189	GAP FOR RESIDENTIAL DRIVEWAY	
208+19	-	211+88	LT	369	GAP FOR RESIDENTIAL DRIVEWAY	
212+61	-	214+17	LT	156	GAP FOR RESIDENTIAL DRIVEWAY	
214+84	-	218+92	LT	408	GAP FOR RESIDENTIAL DRIVEWAY	
219+62	-	227+84	LT	822	GAP FOR SIDEROAD & TRAIL X-ING	
230+63	-	245+31	LT	1,468	GAP FOR RESIDENTIAL DRIVEWAY	
245+98	-	255+16	LT	918	GAP FOR RESIDENTIAL DRIVEWAY	
255+91	-	270+50	LT	1,459	BEGIN 45 MPH ZONE	
51+75	-	61+52	RT	977	GAP FOR RESIDENTIAL DRIVEWAY	
62+35	-	75+72	RT	1337	GAP FOR BYPASS LANE & DRIVEWAYS	
84+20	-	86+74	RT	254	GAP FOR RESIDENTIAL DRIVEWAYS	
88+47	-	89+44	RT	97	GAP FOR RESIDENTIAL DRIVEWAY	
90+57	-	91+46	RT	89	GAP FOR SIDEROAD AND DRIVEWAYS	
96+62	-	97+29	RT	67	GAP FOR COMMERCIAL DRIVEWAYS	
100+45	-	103+51	RT	306	GAP FOR BYPASS LANE & SIDEROAD	
114+85	-	117+14	RT	229	GAP FOR RESIDENTIAL DRIVEWAYS	
118+99	-	120+66	RT	167	GAP FOR RESIDENTIAL DRIVEWAY	
121+34	-	126+28	RT	494	GAP FOR RESIDENTIAL DRIVEWAY	
127+07	-	127+94	RT	87	GAP FOR COMMERCIAL DRIVEWAY	
129+64	-	130+40	RT	76	GAP FOR RES. & COMM. DRIVEWAYS	
133+33	-	150+05	RT	1672	GAP FOR SIDEROAD	
153+65	-	154+31	RT	66	GAP FOR RESIDENTIAL DRIVEWAY	
155+15	-	156+37	RT	122	GAP FOR RESIDENTIAL DRIVEWAY	
157+23	-	158+21	RT	98	GAP FOR RESIDENTIAL DRIVEWAY	
159+06	-	163+60	RT	454	GAP FOR PARK ENTRANCE	
165+10	-	165+72	RT	62	GAP FOR RESIDENTIAL DRIVEWAY	
166+40	-	167+20	RT	80	GAP FOR SIDEROAD AND DRIVEWAY	
205+77	-	206+70	RT	93	GAP FOR SIDEROAD	
211+04	-	217+10	RT	606	GAP FOR TOWN HALL ENTRANCE	
219+17	-	221+17	RT	200	GAP FOR RESIDENTIAL DRIVEWAY	
221+88	-	224+47	RT	259	GAP FOR SIDEROAD, DRIVEWAY, & TRAIL X-ING	
228+20	-	247+33	RT	1913	GAP FOR RESIDENTIAL DRIVEWAY	
248+50	-	270+50	RT	2200	BEGIN 45 MPH ZONE	
TOTAL				26,753		

NOTES

ALL LOCATIONS TO BE VERIFIED BY ENGINEER IN THE FIELD.
ALL SHOULDER RUMBLES STRIPS ARE TYPE 1.

ASPHALT CENTERLINE RUMBLE STRIPS 2-LANE RURAL

		<u>465.0475</u>			
STATION	TO	STATION	LOCATION	LF	REMARKS
50+00	-	79+35	STH 32	2,935	GAP FOR SIDEROAD
83+35	-	92+43	STH 32	908	GAP FOR SIDEROAD
96+43	-	97+50	STH 32	107	GAP FOR COMMERCIAL DRIVEWAYS
100+77	-	104+78	STH 32	401	GAP FOR SIDEROAD & COMM. DRIVEWAY
109+27	-	111+14	STH 32	187	GAP FOR SIDEROAD
115+14	-	130+87	STH 32	1,573	GAP FOR COMMERCIAL DRIVEWAYS
133+70	-	150+07	STH 32	1,637	GAP FOR SIDEROAD
154+07	-	159+62	STH 32	555	GAP FOR SIDEROAD
163+62	-	165+12	STH 32	150	GAP FOR COMM. DRIVEWAY & SIDEROADS
211+31	-	217+42	STH 32	611	GAP FOR TOWN HALL DRIVEWAY
219+42	-	224+73	STH 32	531	GAP FOR SIDEROADS
230+28	-	270+50	STH 32	4,022	BEGIN 45 MPH ZONE
TOTAL				13,617	

PERMANENT SIGNING

		<u>634.0614</u>		<u>634.0616</u>		<u>637.2210</u>		<u>638.2102</u>		<u>638.3000</u>		
STATION	TO	STATION	LOCATION	POSTS	POSTS	SIGNS	MOVING	REMOVING				REMARKS
				WOOD	WOOD	TYPE II	SIGNS	SMALL				
				4X6-INCH	4X6-INCH	REFLECTIVE	TYPE	SIGN				
				X 14-FT	X 16-FT	H	II	SUPPORTS				
STATION	TO	STATION	LOCATION	EACH	EACH	SF	EACH	EACH				REMARKS
206+06	-	206+06	RT	---	1	---	1	1				ARROW SIGN
206+80	-	206+80	LT	---	1	---	1	1				"NO PARKING" SIGN
294+34	-	294+34	RT	---	1	---	1	1				CURVE SIGN
295+08	-	295+08	LT	---	1	---	1	1				"32-64" ROUTE SIGN
299+00	-	299+00	LT	---	1	3.0	---	---				SIGN #5 (R7-1R)
301+90	-	301+90	LT	---	1	3.0	---	---				SIGN #4 (R7-1D)
304+15	-	304+15	LT	1	---	3.0	---	---				SIGN #3 (R7-1D)
306+75	-	306+75	LT	1	---	3.0	---	---				SIGN #2 (R7-1D)
310+65	-	310+65	LT	1	---	3.0	---	---				SIGN #1 (R7-51D)
TOTAL				3	6	15.0	4	4				

CROSS CULVERT PIPE SUMMARY

STATION	LOC.	LT ELEV	RT ELEV	SKEW	520.8000 CONCRETE COLLARS FOR PIPE EACH	521.1024 APRON ENDWALLS FOR CULV. PIPE STEEL 24- INCH EACH	CULVERT PIPE REINFORCED CONCRETE					APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE				633.5200 MARKERS CULVERT END EACH	650.6000 CONST. PIPE CULVERTS EACH	SPV.0060.01 JOINT TIE RETROFIT EACH	SPV.0060.02 SPECIAL CONCRETE COLLAR EACH	SPV.0090.01 CURED IN PLACE PIPE (CIPP) LINER 24-INCH LF	REMARKS
							522.0124 CLASS III 24- INCH LF	522.0130 CLASS III 30- INCH LF	522.0136 CLASS III 36- INCH LF	522.0424 CLASS IV 24- INCH LF	522.2424 HORIZONTAL ELLIPTICAL CLASS HE-IV 24X38-INCH LF	522.1024 24-INCH EACH	522.1030 30-INCH EACH	522.1036 36-INCH EACH	522.2624 HORIZONTAL ELLIPTICAL 24X38-INCH EACH						
55+02	STH 32	861.50	862.00	0°34' RHF	---	2	---	---	---	---	---	---	---	---	2	---	---	---	143	REMOVE EXISTING ENDWALLS	
138+52	STH 32	897.10	897.80	18°16' RHF	---	2	---	---	---	---	---	---	---	---	2	---	---	---	129	REMOVE EXISTING ENDWALLS	
206+31	STH 32	934.70	933.60	3°12' LHF	---	---	---	---	72	---	---	---	---	---	2	1	---	---	---	REPLACE CULVERT	
230+63	LT	923.20	924.40*	0°25' RHF	1	---	---	---	16	---	---	---	---	1	1	2	---	---	CROSS CULV. REPAIRS		
230+63	RT	927.60*	928.50	0°25' RHF	1	---	---	---	16	---	---	---	---	1	---	2	---	---	CROSS CULV. REPAIRS		
235+55	LT	917.90	915.00*	0°52' RHF	1	---	---	32	---	---	---	---	---	2	1	---	1	---	CROSS CULV. REPAIRS		
247+08	STH 32	915.70	918.80	4°14' RHF	---	---	---	---	---	---	68	---	---	2	1	---	---	---	REPLACE CULVERT		
263+59	STH 32	924.40	923.90	3°11' RHF	---	---	---	72	---	---	---	---	---	2	1	---	---	---	REPLACE CULVERT		
271+42	LT	934.90	935.23*	29°25' RHF	1	---	---	---	14	---	---	---	---	1	1	1	---	---	CROSS CULV. REPAIRS		
271+42	RT	935.80*	935.90	29°25' RHF	1	---	---	---	14	---	---	---	---	1	---	1	---	---	CROSS CULV. REPAIRS		
276+50	LT	945.64	945.60*	15°12' LHF	1	---	---	---	---	---	---	---	---	1	1	---	---	---	CROSS CULV. REPAIRS		
276+50	RT	---	---	15°12' LHF	1	---	---	---	---	---	---	---	---	1	---	---	---	---	CROSS CULV. REPAIRS		
276+50	STH 32	945.70	945.50	15°12' LHF	---	---	---	---	---	---	---	---	---	---	---	---	---	94	---		
286+89	LT	---	---	0°16' RHF	1	---	---	---	---	---	---	---	---	1	1	---	---	---	CROSS CULV. REPAIRS		
286+89	RT	957.50*	957.48	0°16' RHF	1	---	---	---	---	---	---	---	---	1	---	---	---	---	CROSS CULV. REPAIRS		
286+89	STH 32	957.70	957.60	0°16' RHF	---	---	---	---	---	---	---	---	---	---	---	---	---	90	---		
295+00	STH 32	958.20	957.90	NONE	---	---	---	---	56	---	---	---	---	2	---	---	---	---	REPLACE CULVERT		
TOTALS					9	4	16	104	28	160	68	10	3	2	2	20	9	6	1	456	

* APPROX ELEVATION (INTERPOLATED FROM ENDS), MAY VARY
 NOTE: STAKING FOR "REPAIR" CULVERTS IT TO ESTABLISH ELEVATION ONLY. EXACT PIPE LOCATION TO BE FIELD-FITTED AS APPROVED BY ENGINEER.

DRIVEWAY CULVERT PIPE SUMMARY

STATION	LOC.	LT ELEV	RT ELEV	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL			521.3115 CULVERT PIPE CORRUG. STEEL 15-INCH* LF	REMARKS
				521.1515 15-INCH 6 TO 1 EACH	521.1518 18-INCH 6 TO 1 EACH	521.1524 24-INCH 6 TO 1 EACH		
205+26	LT	935.20	935.10	2	---	---	30	PIPE REPLACEMENT
207+85	LT	---	---	---	2	---	---	PIPE EXTENSION
247+85	RT	---	---	---	---	1	---	PIPE EXTENSION
TOTALS				2	2	1	30	

* MINIMUM WALL THICKNESS FOR CULVERT PIPE CORRUGATED STEEL IS 0.064 INCHES

EROSION CONTROL MOBILIZATIONS

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH		628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH		REMARKS
	EACH	EACH	EACH	EACH	
PROJECT-WIDE	4	2			ASSUMES 1 INITIAL E.C. SETUP AND 3 MOBES FOR LANDSCAPING
TOTALS	4	2			

EROSION CONTROL SUMMARY

STATION	TO	STATION	LOCATION	628.1504	628.1520	628.7020	628.7504	628.7555	628.7570	REMARKS
				SILT FENCE LF	SILT FENCE MAINTENANCE LF	INLET PROTECTION TYPE D EACH	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	ROCK BAGS EACH	
54+55	-	55+55	LT & RT	256	64	---	---	---	---	CULVERT ENDWALL REPLACEMENT
137+85	-	138+80	LT	123	31	---	---	---	---	CULVERT ENDWALL REPLACEMENT
138+55	-	139+20	RT	140	35	---	---	---	15	CULVERT ENDWALL REPLACEMENT
		205+10	LT	---	---	---	---	2	---	DRIVEWAY CULVERT
		206+33	LT	---	---	---	---	6	---	CROSS CULVERT REPLACEMENT
		208+01	LT	---	---	---	---	3	---	DRIVEWAY CULVERT
205+60	-	206+55	RT	178	45	---	---	---	15	CULVERT REPLACEMENT
		216+95	RT	---	---	---	14	---	---	FIELD ENTRANCE REMOVAL
230+15	-	231+15	LT	133	33	---	---	---	---	CROSS CULVERT REPAIRS
		230+64	RT	---	---	---	---	6	---	CROSS CULVERT REPAIRS
235+05	-	236+05	LT	132	33	---	---	---	---	CULVERT REPAIRS
246+55	-	247+55	LT	134	34	---	---	---	---	CULVERT REPLACEMENT
		247+10	RT	---	---	---	---	8	---	CULVERT REPLACEMENT
		247+55	RT	---	---	---	14	---	---	DITCHING AREA
262+15	-	265+00	LT	322	81	---	---	---	---	CULVERT REPLACEMENT
262+35	-	264+85	RT	274	69	---	---	8	---	CULVERT REPLACEMENT
270+65	-	271+50	LT	117	29	---	---	---	---	CULVERT REPAIRS
271+30	-	272+15	RT	145	36	---	---	---	---	CULVERT REPAIRS
276+30	-	277+10	LT	112	28	---	---	6	---	CULVERT REPAIRS
275+90	-	276+90	RT	126	32	---	---	---	---	CULVERT REPAIRS
286+45	-	287+45	LT	130	33	---	---	6	---	CULVERT REPAIRS
286+45	-	287+45	RT	130	33	---	---	---	---	CULVERT REPAIRS
294+10	-	295+50	RT	170	43	---	---	6	---	CULVERT REPLACEMENT
294+50	-	295+70	LT	150	38	---	---	---	---	CULVERT REPLACEMENT
		303+46	RT	---	---	1	---	---	---	CURB & GUTTER REPLACEMENT
45+55	-	310+76	---	693	173	---	14	13	10	UNDISTRIBUTED
TOTALS				3,465	866	1	42	64	40	

LANDSCAPING ITEMS

STATION	TO	STATION	LOCATION	625.0100	625.0500	628.2004	629.0210	630.0130	630.0500	REMARKS
				TOPSOIL SY	SALVAGED TOPSOIL SY	EROSION MAT CLASS I TYPE B SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEED WATER MGAL	
54+90	-	55+10	LT & RT	---	100	100	0.06	6.3	1.7	CULVERT ENDWALL REPLACEMENT & MISC. DISTURBANCE FROM CIPP WORK
138+20	-	138+80	LT & RT	---	100	100	0.06	6.3	1.7	CULVERT ENDWALL REPLACEMENT & MISC. DISTURBANCE FROM CIPP WORK
205+02	-	208+08	LT	---	376	376	0.24	23.7	6.3	CULVERT REPLACEMENT
205+60	-	206+55	RT	---	178	178	0.11	11.2	3.0	CULVERT REPLACEMENT
217+05		217+50	RT	83	---	83	0.05	5.3	1.4	FIELD ENTRANCE REMOVAL
230+48	-	230+78	LT & RT	---	167	167	0.11	10.5	2.8	CULVERT REPAIRS
235+34	-	235+75	LT & RT	---	200	200	0.13	12.6	3.4	CULVERT REPAIRS
246+94	-	247+20	LT	---	78	78	0.05	4.9	1.3	CULVERT REPLACEMENT
246+60	-	247+95	RT	---	178	178	0.11	11.2	3.0	CULVERT REPLACEMENT
262+40	-	264+80	LT & RT	---	667	667	0.42	42.0	11.3	CULVERT REPLACEMENT WITH TEMP WIDENING OF ROADWAY.
271+09	-	271+37	LT	---	43	43	0.03	2.7	0.7	CULVERT REPAIRS
271+47	-	271+95	RT	---	83	83	0.05	5.3	1.4	CULVERT REPAIRS
276+27	-	276+44	RT	---	89	89	0.06	5.6	1.5	CULVERT REPAIRS & MISC. DISTURBANCE FROM CIPP WORK
276+39	-	276+86	LT	---	89	89	0.06	5.6	1.5	CULVERT REPAIRS & MISC. DISTURBANCE FROM CIPP WORK
286+76	-	287+03	LT & RT	---	109	109	0.07	6.8	1.8	CULVERT REPAIRS & MISC. DISTURBANCE FROM CIPP WORK
294+40	-	295+25	RT	---	86	86	0.05	5.4	1.4	CULVERT REPLACEMENT
294+77	-	295+47	LT	---	98	98	0.06	6.2	1.7	CULVERT REPLACEMENT
305+70	-	305+95	RT	11	---	11	0.01	0.7	0.2	CURB & GUTTER REPLACEMENT
307+89	-	308+31	LT	47	---	47	0.03	2.9	0.8	CURB & GUTTER REPLACEMENT
45+55	-	310+76	STH 32	24	660	683	0.43	43	11.5	UNDISTRIBUTED (25%)
TOTALS				165	3,298	3,463	2.18	218.2	58.4	

PAVEMENT MARKING SUMMARY

Table with columns: STATION, TO, STATION, LOCATION, INCH, INCH, 4-INCH, 4-INCH, 4-INCH, DESCRIPTION, REMARKS. Includes sub-sections for 646.1020, 646.1040, 646.4520, 649.0105, 649.0120.

TRAFFIC CONTROL

Table with columns: LOCATION, DURATION, DAYS, DRUMS, NO., DAY, WARNING LIGHTS, SIGNS, SIGNS, CONES, REMARKS. Includes sub-sections for 643.0300, 643.0715, 643.0900, 643.1050, 643.1070.

SAWING CONCRETE

Table with columns: STATION, LOCATION, LF, REMARKS. Includes sub-section for 690.0250.

CONSTRUCTION STAKING

Table with columns: STATION, TO, STATION, LOCATION, LF, LS, LF, REMARKS. Includes sub-sections for 650.8000, 650.9910.01, 650.9920.

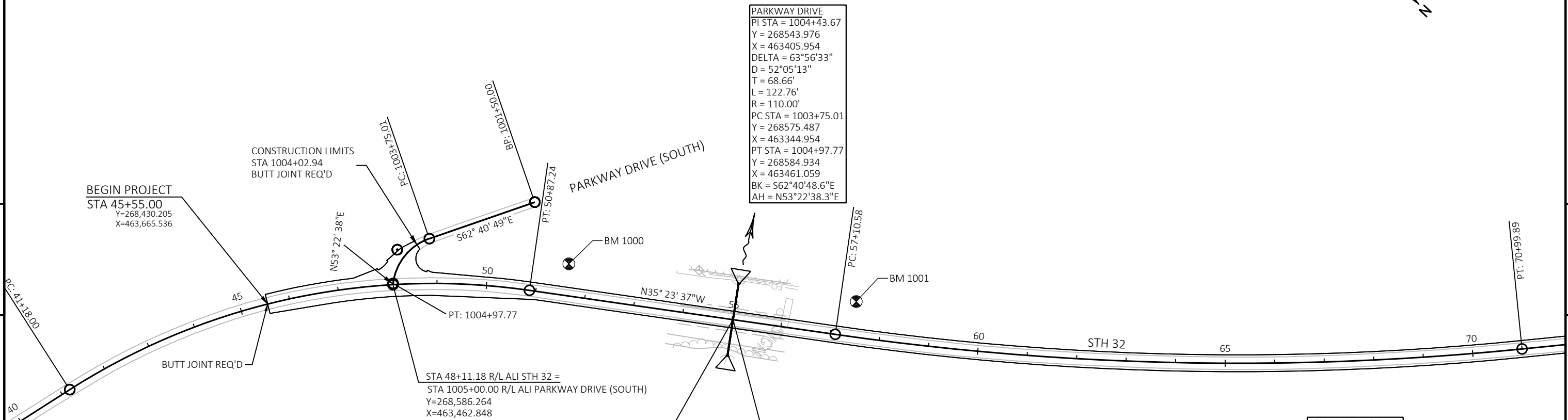
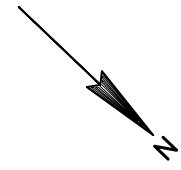
NOTE: ADDITIONAL STAKING ITEMS ARE LOCATED ON THE CURB & GUTTER TABLE AND ON THE CULVERT PIPE TABLE.

SAWING ASPHALT

Table with columns: STATION, LOCATION, LF, REMARKS. Includes sub-section for 690.0150.

TOTAL 2,240

BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1000	51+58.24	64.21 LT	268814.293	463187.842	869.62	RR Spike in Power Pole #3116 25R30, 340' N of Parkway Dr CL
BM 1001	57+43.46	71.40 LT	269286.807	462843.195	877.71	RR Spike in Power Pole #3116 25R16, 455' S of driveway #12605



PARKWAY DRIVE
 PI STA = 1004+43.67
 Y = 268543.976
 X = 463405.954
 DELTA = 63°56'33"
 D = 52°05'13"
 T = 68.66'
 L = 122.76'
 R = 110.00'
 PC STA = 1003+75.01
 Y = 268575.487
 X = 463344.954
 PT STA = 1004+97.77
 Y = 268584.934
 X = 463461.059
 BK = S62°40'48.6"E
 AH = N53°22'38.3"E

STH 32 CURVE 1
 PI STA = 46+24.19
 Y = 268380.959
 X = 463574.493
 DELTA = 40°47'58"
 D = 4°12'34"
 T = 506.19'
 L = 969.24'
 R = 1361.13'
 PC STA = 41+18.00
 Y = 268260.156
 X = 464066.058
 PT STA = 50+87.24
 Y = 268793.603
 X = 463281.313
 BK = N76°11'34.6"W
 AH = N35°23'36.6"W

STA 55+02.3 - LINER
 CIPP LINER 24-INCH
 INVERT RT: 862.00
 INVERT LT: 861.50
 LENGTH: 143 LF
 SLOPE: 0.35%
 SKEW: 0°34' RHF

STA 55+02.3 - EXISTING CP (to be lined)
 CPCS 24-INCH

STH 32 CURVE 2
 PI STA = 64+08.70
 Y = 269870.849
 X = 462515.938
 DELTA = 13°58'14"
 D = 1°00'20"
 T = 698.11'
 L = 1389.31'
 R = 5697.77'
 PC STA = 57+10.58
 Y = 269301.750
 X = 462920.279
 PT STA = 70+99.89
 Y = 270325.496
 X = 461986.164
 BK = N35°23'36.6"W
 AH = N49°21'50.8"W

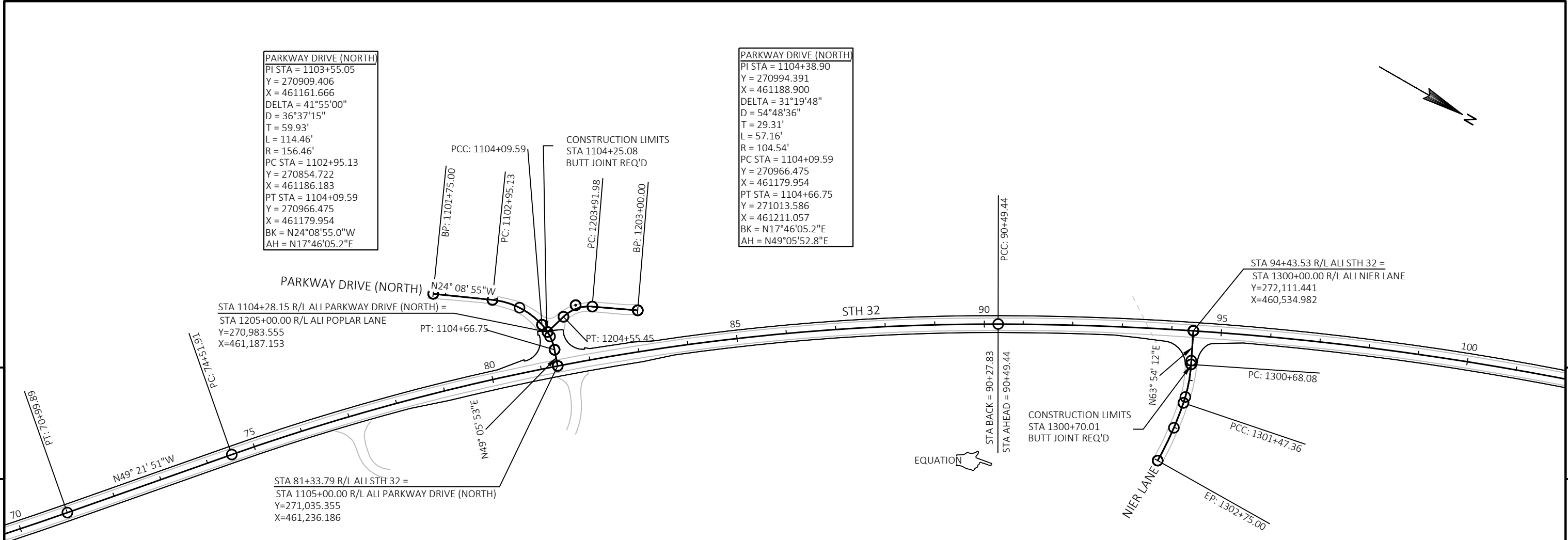
STH 32 CURVE 1			
STA	EVENT	LT	RT
45+55	BEGIN FULL SUPER	5.8%	-5.8%
50+38	END FULL SUPER	5.8%	-5.8%
51+35	REVERSE CROWN	2.0%	-2.0%
51+86	LEVEL CROWN	0.0%	-2.0%
52+37	BEGIN NORMAL CROWN	-2.0%	-2.0%

STH 32 CURVE 2			
STA	EVENT	LT	RT
56+19	END NORMAL CROWN	-2.0%	-2.0%
56+70	LEVEL CROWN	-2.0%	0.0%
57+21	REVERSE CROWN	-2.0%	2.0%
57+31	BEGIN FULL SUPER	-2.4%	2.4%
70+80	END FULL SUPER	-2.4%	2.4%
70+90	REVERSE CROWN	-2.0%	2.0%
71+40	LEVEL CROWN	-2.0%	0.0%
71+91	BEGIN NORMAL CROWN	-2.0%	-2.0%



PARKWAY DRIVE (NORTH)
 PI STA = 1103+55.05
 Y = 270909.406
 X = 461161.666
 DELTA = 41°55'00"
 D = 36°37'15"
 T = 59.93'
 L = 114.46'
 R = 156.46'
 PC STA = 1102+95.13
 Y = 270854.722
 X = 461186.183
 PT STA = 1104+09.59
 Y = 270966.475
 X = 461179.954
 BK = N24°08'55.0"W
 AH = N17°46'05.2"E

PARKWAY DRIVE (NORTH)
 PI STA = 1104+38.90
 Y = 270994.391
 X = 461188.900
 DELTA = 31°19'48"
 D = 54°48'36"
 T = 29.31'
 L = 57.16'
 R = 104.54'
 PC STA = 1104+09.59
 Y = 270966.475
 X = 461179.954
 PT STA = 1104+66.75
 Y = 271013.586
 X = 461211.057
 BK = N17°46'05.2"E
 AH = N49°05'52.8"E



STA 81+33.79 R/L ALI STH 32 =
 STA 1105+00.00 R/L ALI PARKWAY DRIVE (NORTH)
 Y=271,035.355
 X=461,236.186

STA 94+43.53 R/L ALI STH 32 =
 STA 1300+00.00 R/L ALI NIER LANE
 Y=272,111.441
 X=460,534.982

STH 32 CURVE 3
 PI STA = 82+47.61
 Y = 271072.950
 X = 461115.199
 DELTA = 19°33'26"
 D = 1°14'28"
 T = 795.70'
 L = 1575.92'
 R = 4616.92'
 PC STA = 74+51.91
 Y = 270554.751
 X = 461719.027
 PT STA = 90+49.44
 Y = 271763.383
 X = 460719.672
 BK = N49°21'50.8"W
 AH = N29°48'25.3"W

NIER LANE
 PI STA = 1302+11.37
 Y = 272179.117
 X = 460733.810
 DELTA = 10°41'45"
 D = 8°22'46"
 T = 64.01'
 L = 127.65'
 R = 683.77'
 PC STA = 1301+47.36
 Y = 272166.673
 X = 460671.022
 PT STA = 1302+75.00
 Y = 272179.692
 X = 460797.816
 BK = N78°47'22.7"E
 AH = N89°29'07.9"E

NIER LANE
 PI STA = 1301+07.94
 Y = 272158.923
 X = 460631.920
 DELTA = 14°53'10"
 D = 18°46'38"
 T = 39.86'
 L = 79.28'
 R = 305.13'
 PC STA = 1300+68.08
 Y = 272141.388
 X = 460596.120
 PT STA = 1301+47.36
 Y = 272166.673
 X = 460671.022
 BK = N63°54'12.3"E
 AH = N78°47'22.7"E

STH 32 CURVES 3 & 4			
STA	EVENT	LT	RT
73+54	END NORMAL CROWN	-2.0%	-2.0%
74+05	LEVEL CROWN	0.0%	-2.0%
74+55	REVERSE CROWN	2.0%	-2.0%
74+76	BEGIN FULL SUPER	2.8%	-2.8%
124+41	END FULL SUPER	2.8%	-2.8%
124+62	REVERSE CROWN	2.0%	-2.0%
125+13	LEVEL CROWN	0.0%	-2.0%
125+64	BEGIN NORMAL CROWN	-2.0%	-2.0%

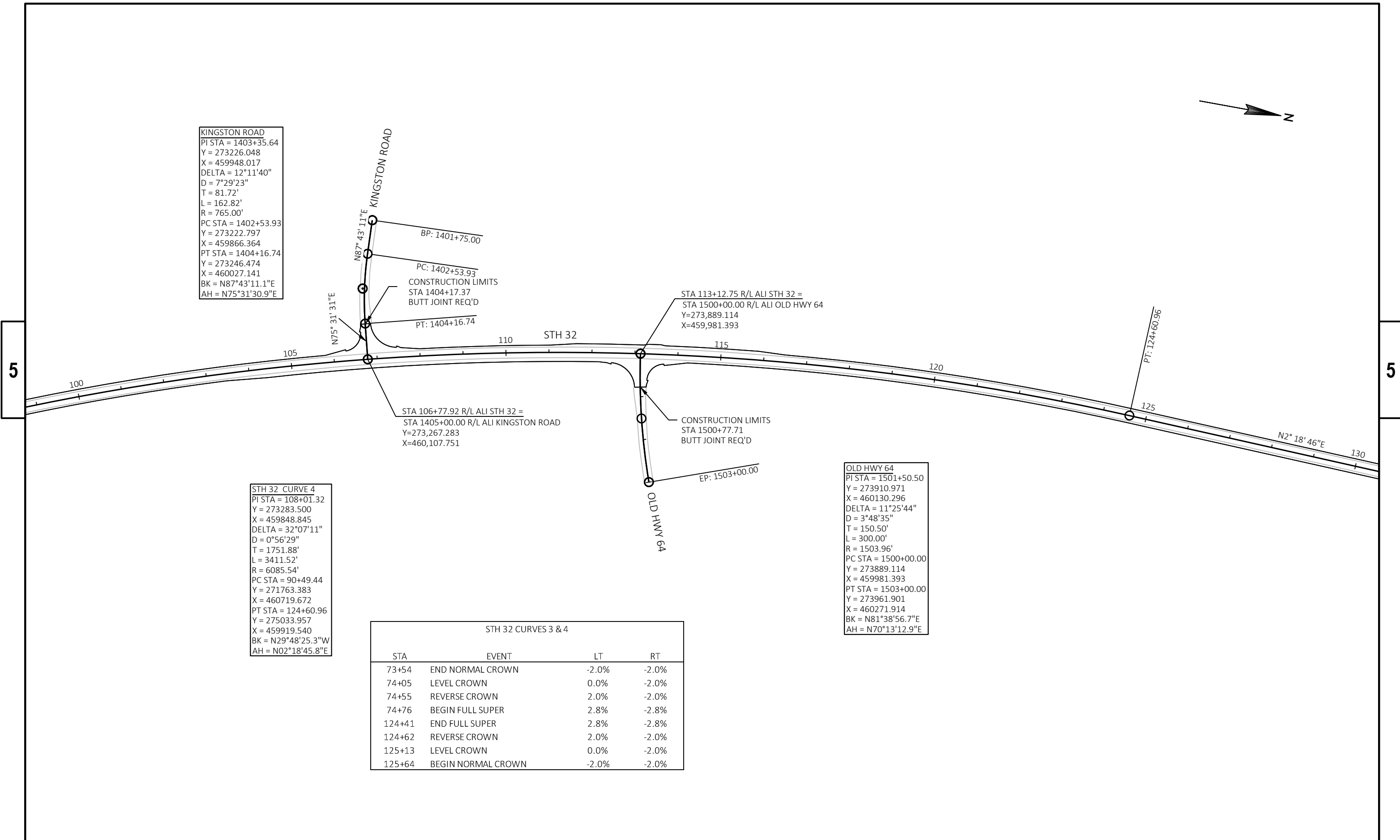


KINGSTON ROAD
 PI STA = 1403+35.64
 Y = 273226.048
 X = 459948.017
 DELTA = 12°11'40"
 D = 7°29'23"
 T = 81.72'
 L = 162.82'
 R = 765.00'
 PC STA = 1402+53.93
 Y = 273222.797
 X = 459866.364
 PT STA = 1404+16.74
 Y = 273246.474
 X = 460027.141
 BK = N87°43'11.1"E
 AH = N75°31'30.9"E

STH 32 CURVE 4
 PI STA = 108+01.32
 Y = 273283.500
 X = 459848.845
 DELTA = 32°07'11"
 D = 0°56'29"
 T = 1751.88'
 L = 3411.52'
 R = 6085.54'
 PC STA = 90+49.44
 Y = 271763.383
 X = 460719.672
 PT STA = 124+60.96
 Y = 275033.957
 X = 459919.540
 BK = N29°48'25.3"W
 AH = N02°18'45.8"E

OLD HWY 64
 PI STA = 1501+50.50
 Y = 273910.971
 X = 460130.296
 DELTA = 11°25'44"
 D = 3°48'35"
 T = 150.50'
 L = 300.00'
 R = 1503.96'
 PC STA = 1500+00.00
 Y = 273889.114
 X = 459981.393
 PT STA = 1503+00.00
 Y = 273961.901
 X = 460271.914
 BK = N81°38'56.7"E
 AH = N70°13'12.9"E

STH 32 CURVES 3 & 4			
STA	EVENT	LT	RT
73+54	END NORMAL CROWN	-2.0%	-2.0%
74+05	LEVEL CROWN	0.0%	-2.0%
74+55	REVERSE CROWN	2.0%	-2.0%
74+76	BEGIN FULL SUPER	2.8%	-2.8%
124+41	END FULL SUPER	2.8%	-2.8%
124+62	REVERSE CROWN	2.0%	-2.0%
125+13	LEVEL CROWN	0.0%	-2.0%
125+64	BEGIN NORMAL CROWN	-2.0%	-2.0%



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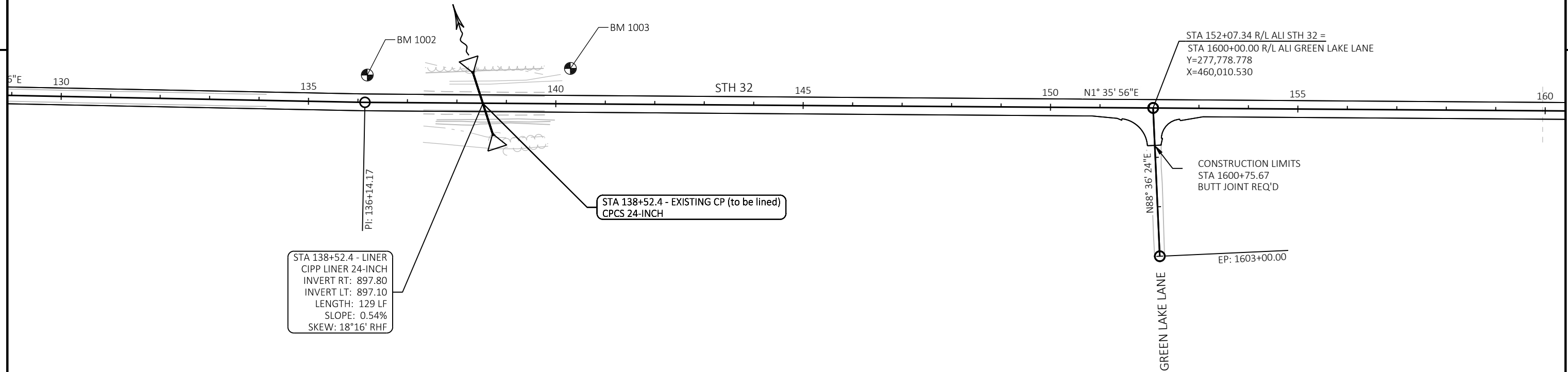
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BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1002	136+18.42	55.25 LT	276192.015	459910.966	904.19	RR Spike in Power Pole #3116 24W9, 260' N of driveway #13083
BM 1003	140+28.92	71.53 LT	276602.810	459906.151	904.15	RR Spike in Power Pole #3116 24W8, 1180' S of Pavlat Ln CL



5

5



PROJECT NO: 9150-06-71

HWY: STH 32

COUNTY: OCONTO

PLAN

SHEET

E

BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1004	167+24.93	54.09 LT	279297.285	459998.809	939.62	RR Spike in Power Pole #3116 13L6, 20' S of driveway #13339
BM 1005	205+84.31	37.13 LT	279526.449	460010.045	936.42	RR Spike in Power Pole #3116 13L5, 65' N of Pavlat Ln CL
BM 1006	209+61.03	60.17 RT	279917.212	460006.410	944.81	RR Spike in Power Pole #3116 13L67, 12' off edge of Weller Rd
BM 1007	227+11.55	69.82 RT	281096.347	458700.840	938.18	RR Spike in Power Pole #3116 14R1, 13' off edge of Silver Hill Rd
NGS 950	220+30.55	46.83 LT	280607.633	459189.237	945.62	NGS Disk in Concrete, 120' N of driveway #13395

KUEHL LANE
 PI STA = 2104+52.18
 Y = 281122.228
 X = 458455.163
 DELTA = 51°44'55"
 D = 119°21'58"
 T = 23.28'
 L = 43.35'
 R = 48.00'
 PC STA = 2104+28.90
 Y = 281121.029
 X = 458431.913
 PT STA = 2104+72.26
 Y = 281141.229
 X = 458468.616
 BK = N87°02'52.0"E
 AH = N35°17'56.8"E

BAGLEY RAPIDS ROAD
 PI STA = 1703+00.29
 Y = 278739.012
 X = 459830.657
 DELTA = 38°30'02"
 D = 22°02'13"
 T = 90.80'
 L = 174.71'
 R = 260.00'
 PC STA = 1702+09.49
 Y = 278684.493
 X = 459758.050
 PT STA = 1703+84.20
 Y = 278736.478
 X = 459921.419
 BK = N53°05'54.4"E
 AH = S88°24'04.0"E

STA 205+00.33 R/L ALI STH 32 =
 STA 1800+00.00 R/L ALI PAVLAT LANE
 Y=279,446.885
 X=460,053.563

STA 205+26 LT
 CPCS 15-INCH
 INVERT LT: 935.20
 INVERT RT: 935.10
 LENGTH: 30 LF
 SLOPE: 0.33%

STA 206+31.2
 CPRC CLASS IV 24-INCH
 INVERT LT: 934.70
 INVERT RT: 933.60
 LENGTH: 72 LF
 SLOPE: 1.53%
 SKEW: 3°12' LHF

STA 207+85 LT
 APRON ENDWALLS FOR CULVERT
 PIPE SLOPED SIDE DRAINS STEEL
 18-INCH 6 TO 1

STA 209+31.53 R/L ALI STH 32 =
 STA 1900+00.00 R/L ALI WELLER ROAD
 Y=279,866.265
 X=459,962.408

STA 226+74.56 R/L ALI STH 32 =
 STA 2000+00.00 R/L ALI SILVER HILL ROAD (SOUTH)
 Y=281,017.990
 X=458,690.686

SILVER HILL RD (SOUTH)
 PI STA = 2000+59.88
 Y = 281066.862
 X = 458725.288
 DELTA = 32°07'41"
 D = 58°32'19"
 T = 28.18'
 L = 54.88'
 R = 97.88'
 PC STA = 2000+31.70
 Y = 281043.859
 X = 458709.002
 PT STA = 2000+86.58
 Y = 281095.003
 X = 458726.847
 BK = N35°17'56.8"E
 AH = N03°10'15.6"E

PAVLAT LANE
 PI STA = 1800+91.80
 Y = 279453.068
 X = 460145.151
 DELTA = 4°19'04"
 D = 11°29'09"
 T = 18.81'
 L = 37.59'
 R = 498.84'
 PC STA = 1800+72.99
 Y = 279451.801
 X = 460126.389
 PT STA = 1801+10.58
 Y = 279452.919
 X = 460163.956
 BK = N86°08'15.1"E
 AH = S89°32'40.9"E

WELLER ROAD
 PI STA = 1900+98.37
 Y = 279902.921
 X = 460053.696
 DELTA = 57°29'00"
 D = 61°46'35"
 T = 50.87'
 L = 93.05'
 R = 92.75'
 PC STA = 1900+47.51
 Y = 279883.967
 X = 460006.494
 PT STA = 1901+40.56
 Y = 279952.912
 X = 460063.087
 BK = N68°07'20.5"E
 AH = N10°38'20.3"E

WELLER ROAD
 PI STA = 1901+70.32
 Y = 279982.160
 X = 460068.581
 DELTA = 8°57'29"
 D = 15°04'53"
 T = 29.76'
 L = 59.40'
 R = 379.91'
 PC STA = 1901+40.56
 Y = 279952.912
 X = 460063.087
 PT STA = 1901+99.96
 Y = 280011.906
 X = 460069.454
 BK = N10°38'20.3"E
 AH = N01°40'51.7"E

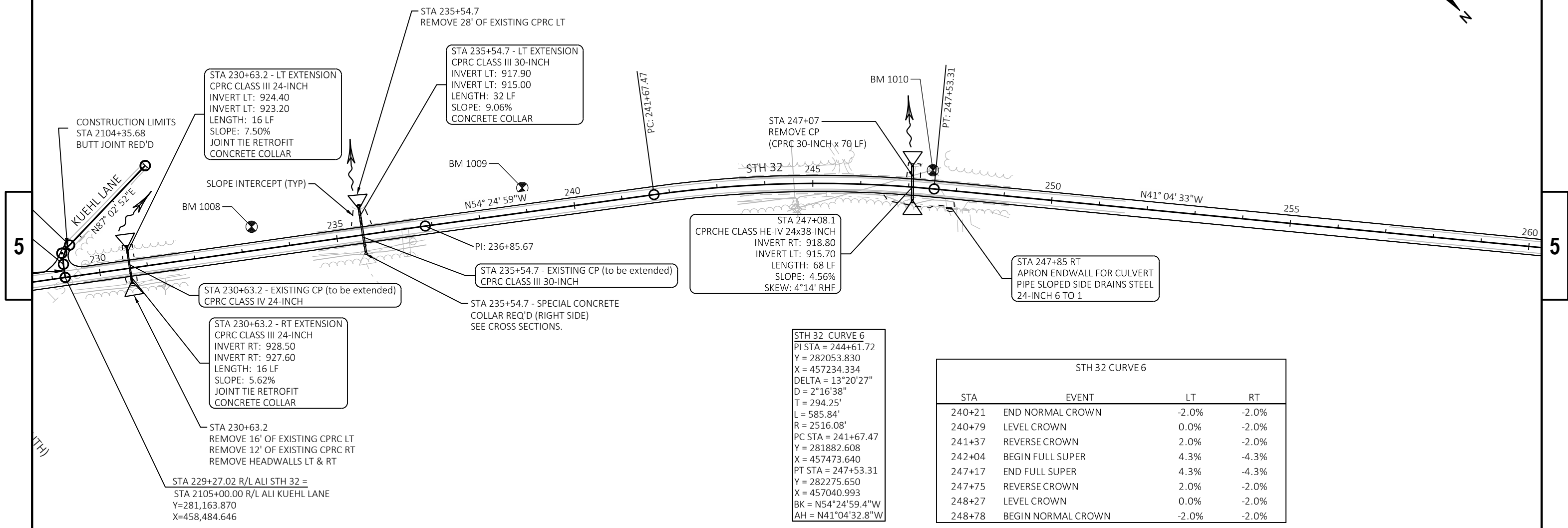
STH 32 CURVE 5
 PI STA = 210+92.55
 Y = 280038.853
 X = 460073.616
 DELTA = 56°17'59"
 D = 4°27'35"
 T = 687.45'
 L = 1262.44'
 R = 1284.78'
 PC STA = 204+05.10
 Y = 279351.676
 X = 460054.435
 PT STA = 216+67.54
 Y = 280436.090
 X = 459512.560
 BK = N01°35'56.0"E
 AH = N54°42'03.2"W

STH 32 CURVE 5			
STA	EVENT	LT	RT
166+29	END NORMAL CROWN	-2.0%	-2.0%
166+80	LEVEL CROWN	-2.0%	0.0%
167+31	REVERSE CROWN	-2.0%	2.0%
204+55	BEGIN FULL SUPER	-5.9%	5.9%
216+17	END FULL SUPER	-5.9%	5.9%
217+17	REVERSE CROWN	-2.0%	2.0%
217+68	LEVEL CROWN	-2.0%	0.0%
218+19	BEGIN NORMAL CROWN	-2.0%	-2.0%

5

5

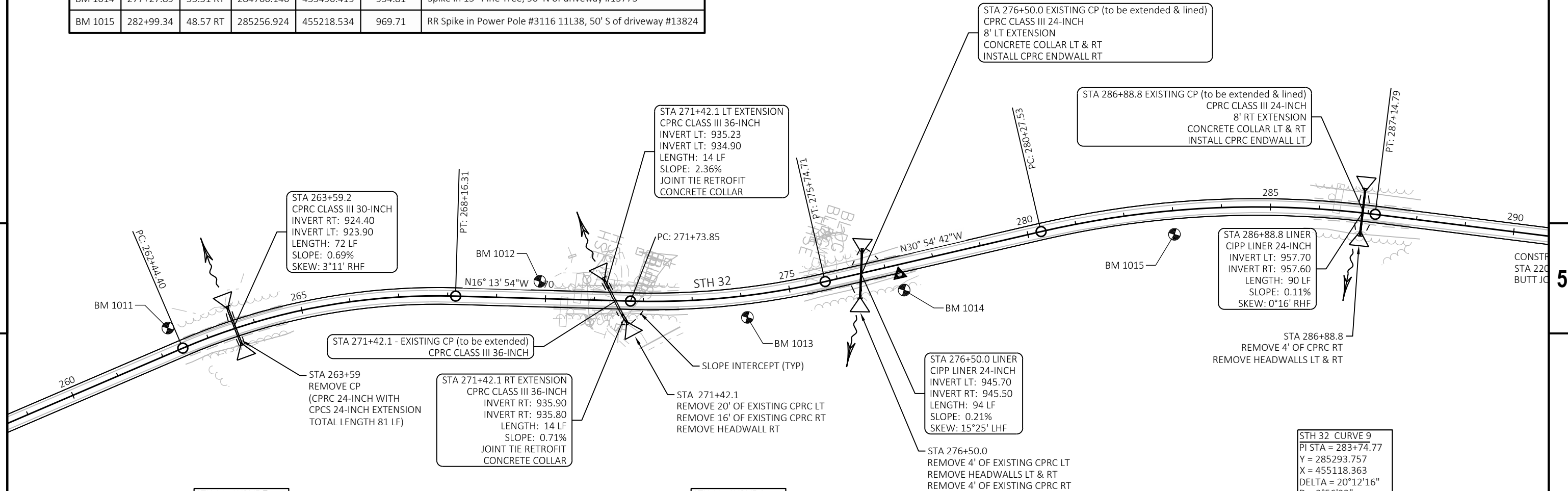
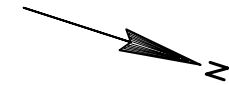
BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1008	233+26.78	49.70 LT	281354.308	458129.663	923.17	Spike in 18" Maple Tree, 400' N of Kuehl Ln CL
BM 1009	238+97.08	51.19 LT	281683.639	457663.756	921.85	Spike in 12" Poplar Tree, 670' S of driveway #13545
BM 1010	247+47.27	38.58 LT	282245.681	457015.944	920.27	RR Spike in Power Pole #3116 14E1, 70' S of driveway #13638



STH 32 CURVE 6
 PI STA = 244+61.72
 Y = 282053.830
 X = 457234.334
 DELTA = 13°20'27"
 D = 2°16'38"
 T = 294.25'
 L = 585.84'
 R = 2516.08'
 PC STA = 241+67.47
 Y = 281882.608
 X = 457473.640
 PT STA = 247+53.31
 Y = 282275.650
 X = 457040.993
 BK = N54°24'59.4"W
 AH = N41°04'32.8"W

STH 32 CURVE 6			
STA	EVENT	LT	RT
240+21	END NORMAL CROWN	-2.0%	-2.0%
240+79	LEVEL CROWN	0.0%	-2.0%
241+37	REVERSE CROWN	2.0%	-2.0%
242+04	BEGIN FULL SUPER	4.3%	-4.3%
247+17	END FULL SUPER	4.3%	-4.3%
247+75	REVERSE CROWN	2.0%	-2.0%
248+27	LEVEL CROWN	0.0%	-2.0%
248+78	BEGIN NORMAL CROWN	-2.0%	-2.0%

BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1011	262+32.49	49.70 LT	283358.061	456031.620	926.75	Spike in 12" Elm Tree, 930' S of driveway #13695
BM 1012	269+87.51	35.14 LT	284052.195	455707.575	937.64	Spike in 12" Spruce Tree, 135' S of driveway #13700
BM 1013	274+07.65	44.43 RT	284478.338	455647.716	950.46	Spike in 18" Pine Tree, across from driveway #13755
BM 1014	277+27.89	53.31 RT	284766.146	455496.419	954.81	Spike in 15" Pine Tree, 90' N of driveway #13773
BM 1015	282+99.34	48.57 RT	285256.924	455218.534	969.71	RR Spike in Power Pole #3116 11L38, 50' S of driveway #13824



STH 32 CURVE 7
 PI STA = 265+34.92
 Y = 283618.697
 X = 455870.378
 DELTA = 24°50'39"
 D = 4°20'39"
 T = 290.52'
 L = 571.91'
 R = 1318.95'
 PC STA = 262+44.40
 Y = 283399.689
 X = 456061.268
 PT STA = 268+16.31
 Y = 283897.639
 X = 455789.171
 BK = N41°04'32.8"W
 AH = N16°13'53.7"W

STH 32 CURVE 7			
STA	EVENT	LT	RT
260+66	END NORMAL CROWN	-2.0%	-2.0%
261+24	LEVEL CROWN	0.0%	-2.0%
261+82	REVERSE CROWN	2.0%	-2.0%
262+95	BEGIN FULL SUPER	5.9%	-5.9%
267+67	END FULL SUPER	5.9%	-5.9%
268+66	REVERSE CROWN	2.0%	-2.0%
269+17	LEVEL CROWN	0.0%	-2.0%
269+68	BEGIN NORMAL CROWN	-2.0%	-2.0%

STH 32 CURVE 8
 PI STA = 273+75.39
 Y = 284434.432
 X = 455632.898
 DELTA = 14°40'49"
 D = 3°39'44"
 T = 201.54'
 L = 400.86'
 R = 1564.55'
 PC STA = 271+73.85
 Y = 284240.930
 X = 455689.231
 PT STA = 275+74.71
 Y = 284607.341
 X = 455529.366
 BK = N16°13'53.7"W
 AH = N30°54'42.2"W

STH 32 CURVE 8			
STA	EVENT	LT	RT
270+64	END NORMAL CROWN	-2.0%	-2.0%
271+08	LEVEL CROWN	-2.0%	0.0%
271+53	REVERSE CROWN	-2.0%	2.0%
272+06	BEGIN FULL SUPER	-4.4%	4.4%
275+42	END FULL SUPER	-4.4%	4.4%
275+96	REVERSE CROWN	-2.0%	2.0%
276+40	LEVEL CROWN	-2.0%	0.0%
276+85	BEGIN NORMAL CROWN	-2.0%	-2.0%

STH 32 CURVE 9
 PI STA = 283+74.77
 Y = 285293.757
 X = 455118.363
 DELTA = 20°12'16"
 D = 2°56'23"
 T = 347.23'
 L = 687.26'
 R = 1948.93'
 PC STA = 280+27.53
 Y = 284995.843
 X = 455296.744
 PT STA = 287+14.79
 Y = 285634.946
 X = 455053.850
 BK = N30°54'42.2"W
 AH = N10°42'26.4"W

STH 32 CURVE 9			
STA	EVENT	LT	RT
279+25	END NORMAL CROWN	-2.0%	-2.0%
279+70	LEVEL CROWN	0.0%	-2.0%
280+14	REVERSE CROWN	2.0%	-2.0%
280+56	BEGIN FULL SUPER	3.9%	-3.9%
286+86	END FULL SUPER	3.9%	-3.9%
287+28	REVERSE CROWN	2.0%	-2.0%
287+73	LEVEL CROWN	0.0%	-2.0%
288+17	BEGIN NORMAL CROWN	-2.0%	-2.0%

BENCHMARK TABLE						
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	DESCRIPTION
BM 1016	293+77.71	39.79 RT	286293.717	454969.783	962.69	RR Spike in Power Pole #3116 11W25, 12' off edge of Church Rd
BM 1017	298+49.75	69.94 LT	286737.151	454774.261	961.47	RR Spike in Power Pole #3116 11W28, 170' S of N wayside entrance
NGS 951	313+20.23	56.80 RT	287834.019	454181.653	973.42	NGS Disk in Concrete, 85' S of recreational trail crossing

SPECIAL TANGENT CROSS SLOPES			
STA	EVENT	LT	RT
306+00	SPECIAL CROSS SLOPE	-2.0%	-3.0%
306+25	SPECIAL CROSS SLOPE	-1.0%	-4.0%
306+50	SPECIAL CROSS SLOPE	0.0%	-5.0%
306+75	SPECIAL CROSS SLOPE	1.0%	-6.0%
308+00	SPECIAL CROSS SLOPE	1.0%	-6.0%
308+25	SPECIAL CROSS SLOPE	0.0%	-5.0%
310+25	SPECIAL CROSS SLOPE	0.0%	-4.0%
310+50	SPECIAL CROSS SLOPE	-1.0%	-3.0%

CTH W
 PI STA = 2402+29.75
 Y = 287649.960
 X = 454217.483
 DELTA = 16°05'39"
 D = 9°32'57"
 T = 84.83'
 L = 168.54'
 R = 600.00'
 PC STA = 2401+44.92
 Y = 287626.516
 X = 454135.960
 PT STA = 2403+13.46
 Y = 287695.084
 X = 454289.312
 BK = N73°57'22.6"E
 AH = N57°51'43.5"E

STH 32 CURVE 11
 PI STA = 311+63.30
 Y = 287697.200
 X = 454278.957
 DELTA = 11°57'33"
 D = 4°06'02"
 T = 146.35'
 L = 291.64'
 R = 1397.24'
 PC STA = 310+16.95
 Y = 287590.574
 X = 454379.205
 PT STA = 313+08.59
 Y = 287780.740
 X = 454158.790
 BK = N43°14'02.6"W
 AH = N55°11'35.4"W

STH 32 CURVE 12
 PI STA = 316+16.58
 Y = 287956.543
 X = 453905.906
 DELTA = 5°00'15"
 D = 1°27'13"
 T = 172.25'
 L = 344.28'
 R = 3941.76'
 PC STA = 314+44.33
 Y = 287858.221
 X = 454047.336
 PT STA = 317+88.61
 Y = 288066.827
 X = 453773.591
 BK = N55°11'35.4"W
 AH = N50°11'19.9"W

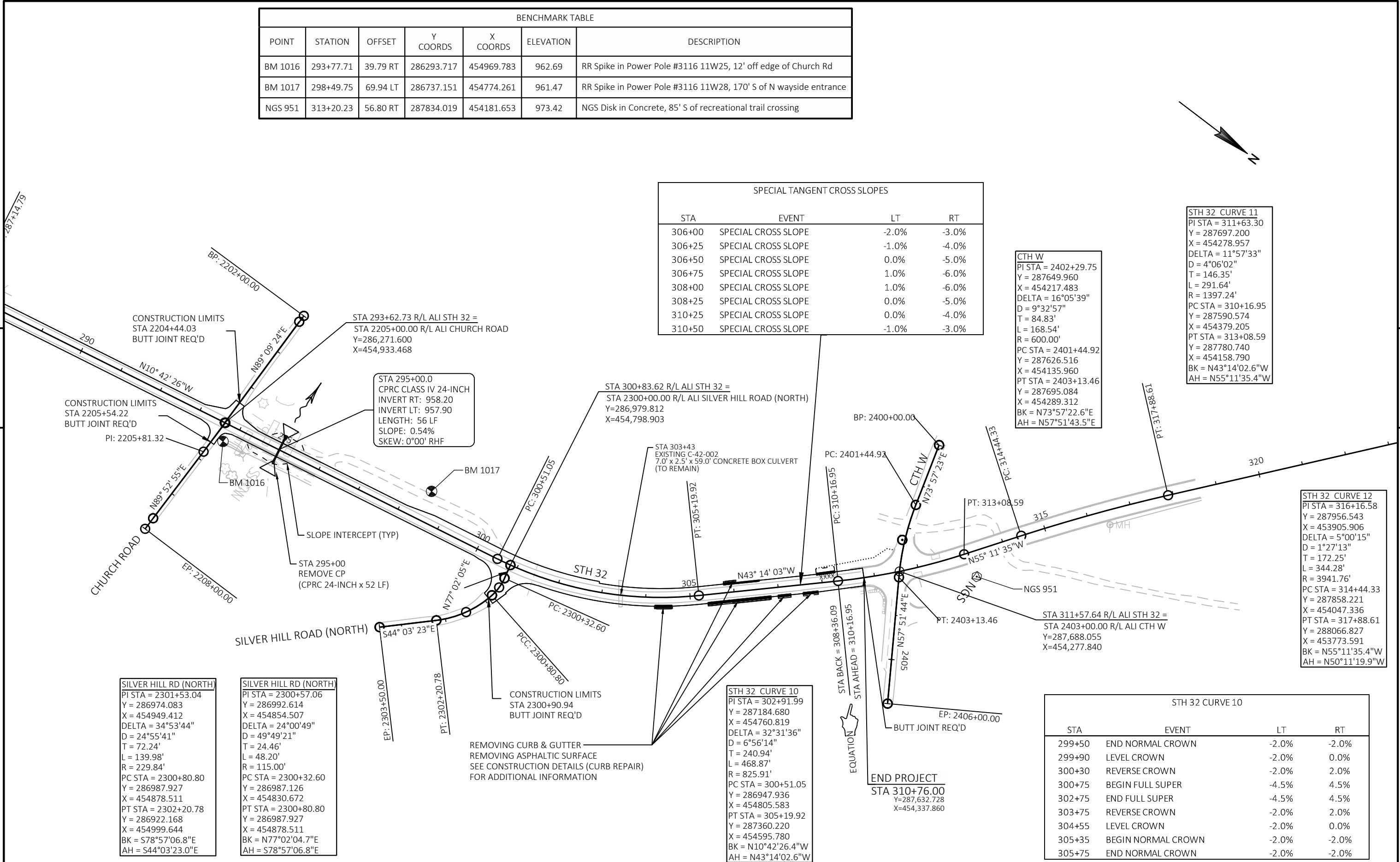
SILVER HILL RD (NORTH)
 PI STA = 2301+53.04
 Y = 286974.083
 X = 454949.412
 DELTA = 34°53'44"
 D = 24°55'41"
 T = 72.24'
 L = 139.98'
 R = 229.84'
 PC STA = 2300+80.80
 Y = 286987.927
 X = 454878.511
 PT STA = 2302+20.78
 Y = 286922.168
 X = 454999.644
 BK = S78°57'06.8"E
 AH = S44°03'23.0"E

SILVER HILL RD (NORTH)
 PI STA = 2300+57.06
 Y = 286992.614
 X = 454854.507
 DELTA = 24°00'49"
 D = 49°49'21"
 T = 24.46'
 L = 48.20'
 R = 115.00'
 PC STA = 2300+32.60
 Y = 286987.126
 X = 454830.672
 PT STA = 2300+80.80
 Y = 286987.927
 X = 454878.511
 BK = N77°02'04.7"E
 AH = S78°57'06.8"E

STH 32 CURVE 10
 PI STA = 302+91.99
 Y = 287184.680
 X = 454760.819
 DELTA = 32°31'36"
 D = 6°56'14"
 T = 240.94'
 L = 468.87'
 R = 825.91'
 PC STA = 300+51.05
 Y = 286947.936
 X = 454805.583
 PT STA = 305+19.92
 Y = 287360.220
 X = 454595.780
 BK = N10°42'26.4"W
 AH = N43°14'02.6"W

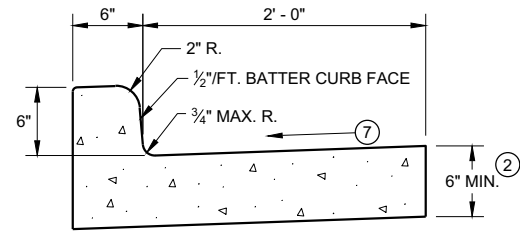
STH 32 CURVE 10			
STA	EVENT	LT	RT
299+50	END NORMAL CROWN	-2.0%	-2.0%
299+90	LEVEL CROWN	-2.0%	0.0%
300+30	REVERSE CROWN	-2.0%	2.0%
300+75	BEGIN FULL SUPER	-4.5%	4.5%
302+75	END FULL SUPER	-4.5%	4.5%
303+75	REVERSE CROWN	-2.0%	2.0%
304+55	LEVEL CROWN	-2.0%	0.0%
305+35	BEGIN NORMAL CROWN	-2.0%	-2.0%
305+75	END NORMAL CROWN	-2.0%	-2.0%

REMOVING CURB & GUTTER
 REMOVING ASPHALTIC SURFACE
 SEE CONSTRUCTION DETAILS (CURB REPAIR)
 FOR ADDITIONAL INFORMATION

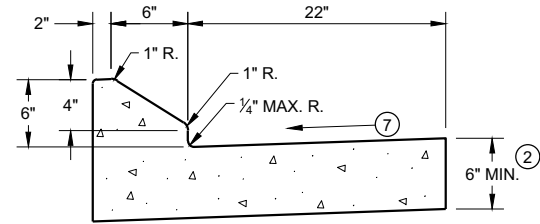


Standard Detail Drawing List

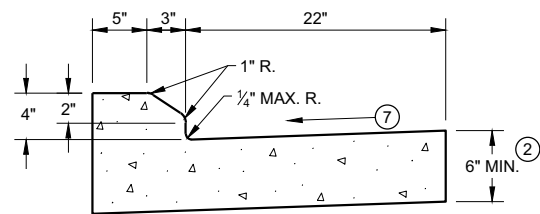
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13C19-03	HMA LONGITUDINAL JOINTS
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-08B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D45-03	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL



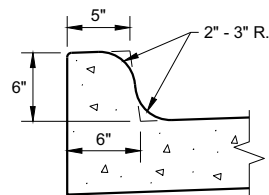
TYPES A^① & D



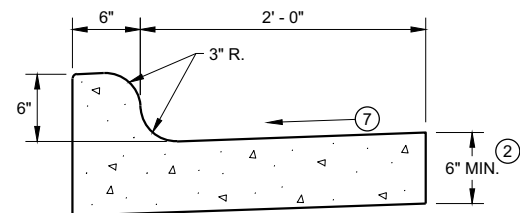
6" SLOPED CURB TYPES G^① & J



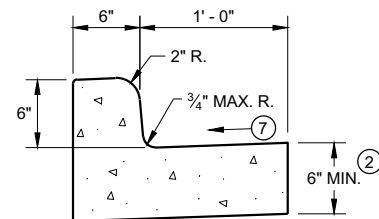
4" SLOPED CURB TYPES G^① & J



TYPES K^① & L
(OPTIONAL CURB SHAPE)

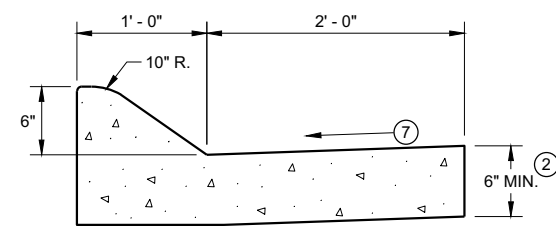


TYPES K^① & L
CONCRETE CURB AND GUTTER 30"

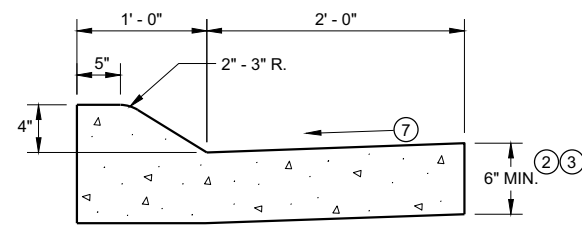


TYPES A^① & D

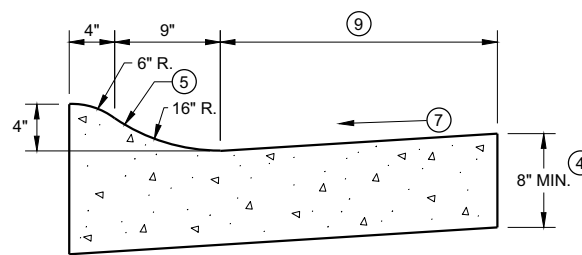
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

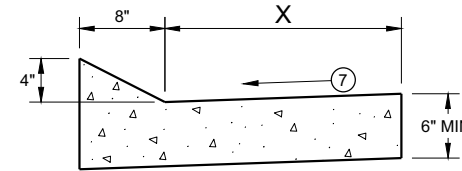


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

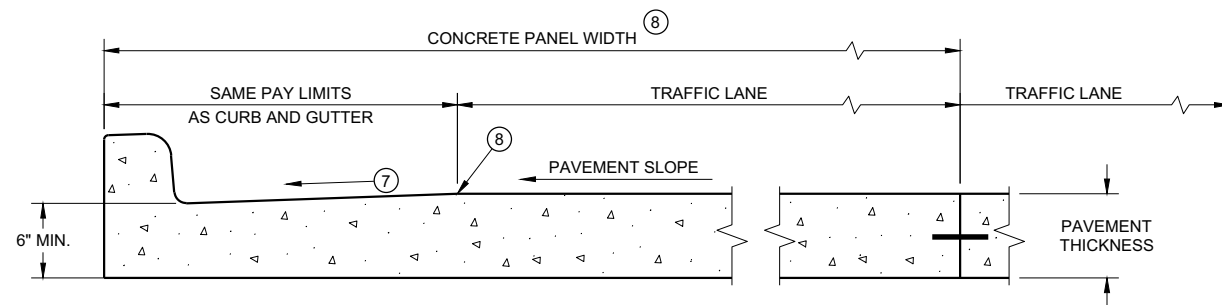


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

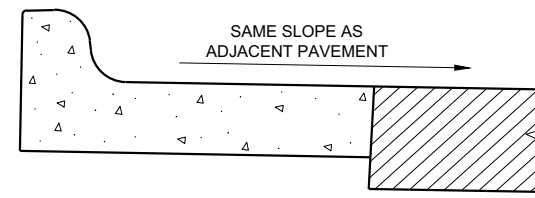
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

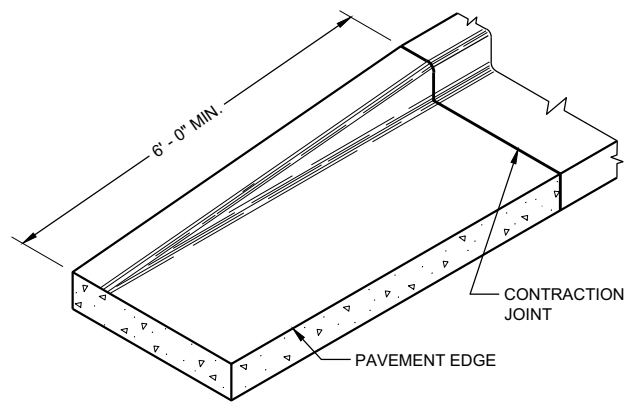
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

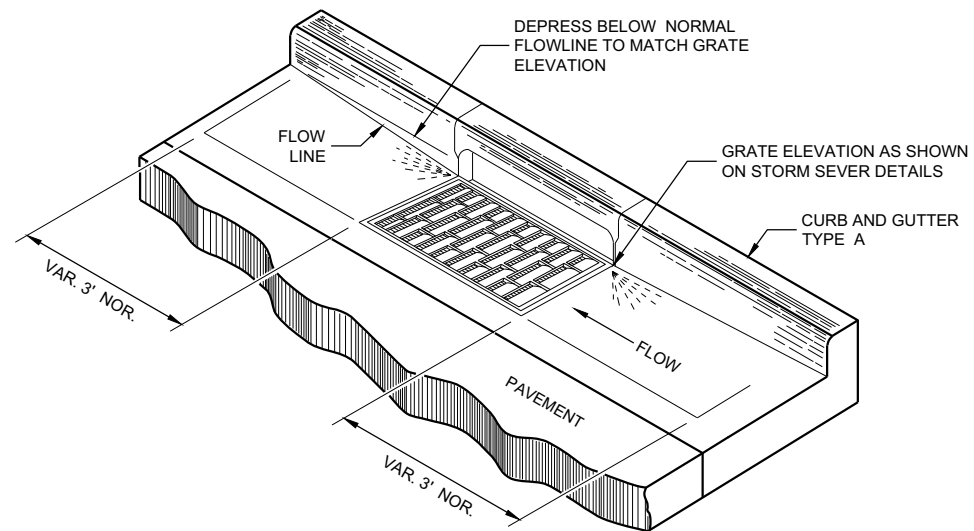
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS
(TYPICAL H INLET COVER SHOWN)

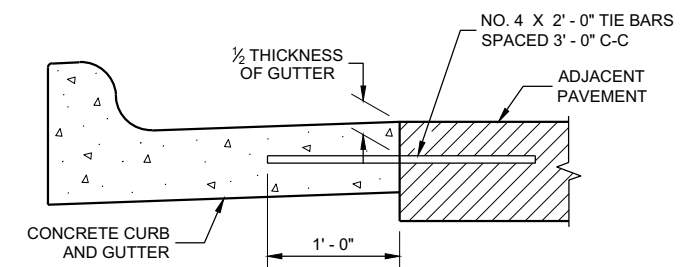
GENERAL NOTES

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

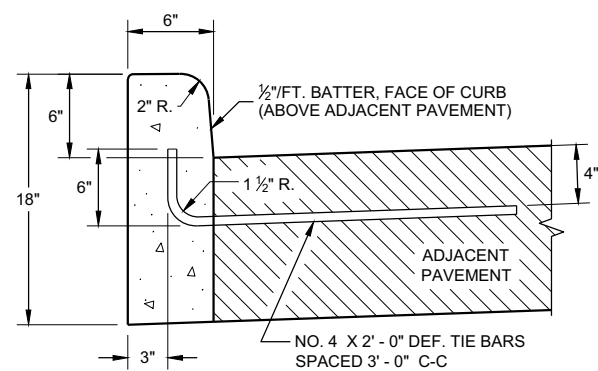
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

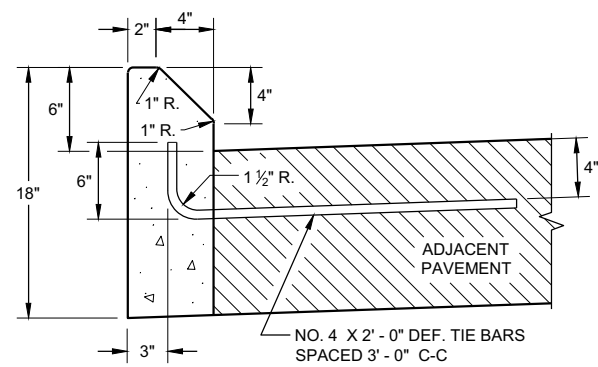
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION ①

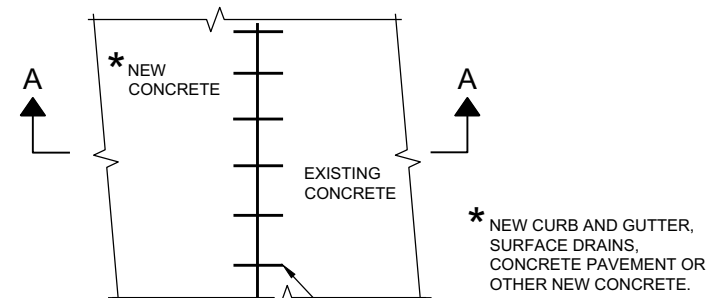


TYPES A ① & D

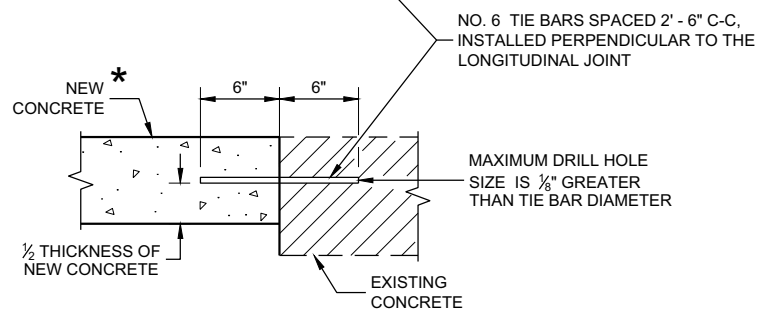


TYPES G ① & J

CONCRETE CURB

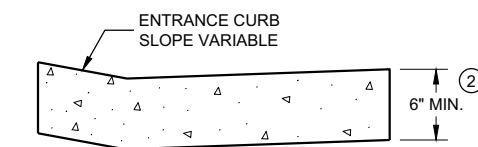


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

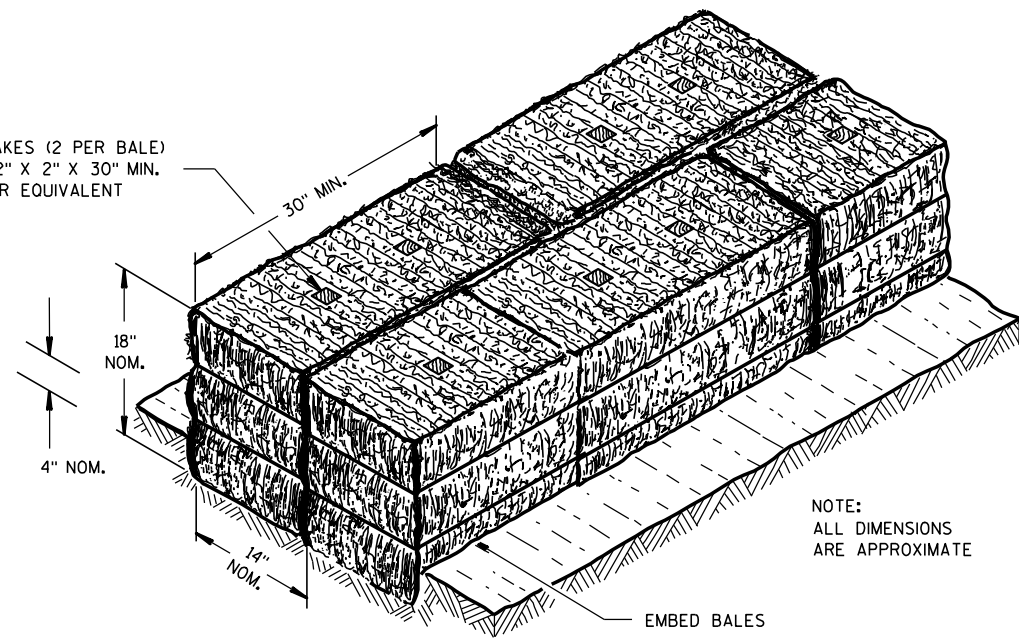
CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

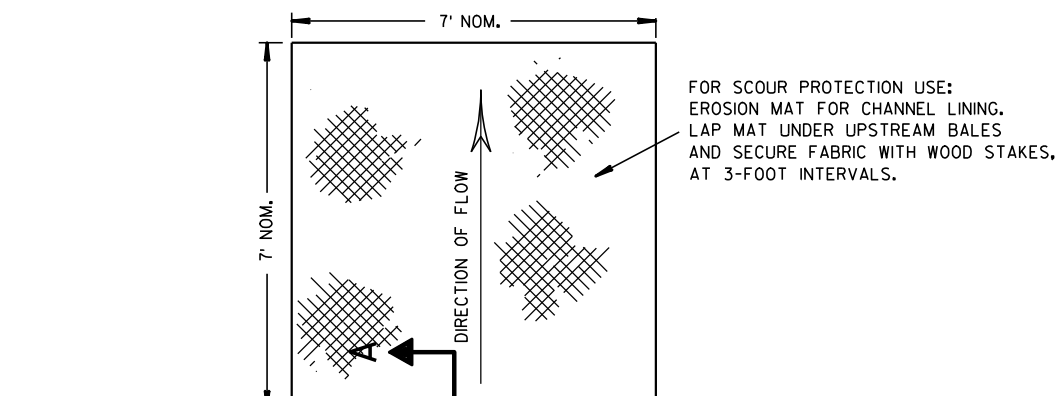
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



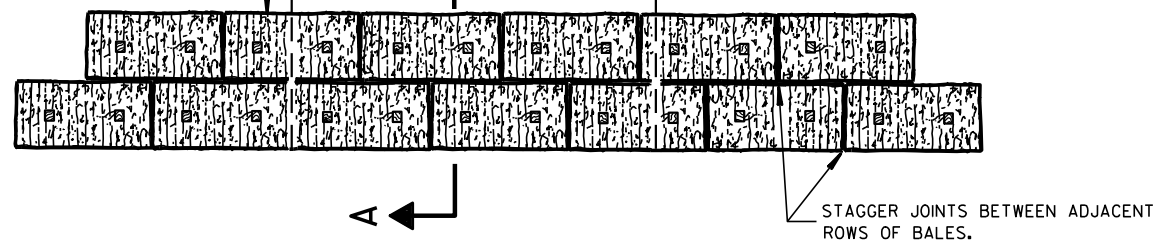
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A

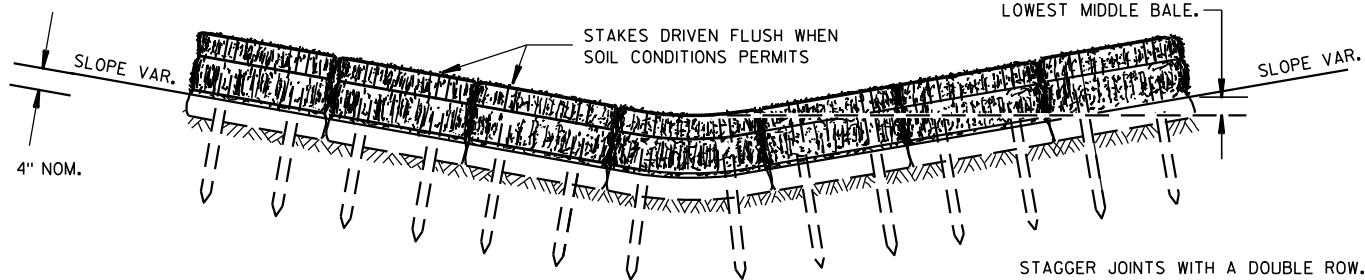


FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.



PLAN VIEW

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



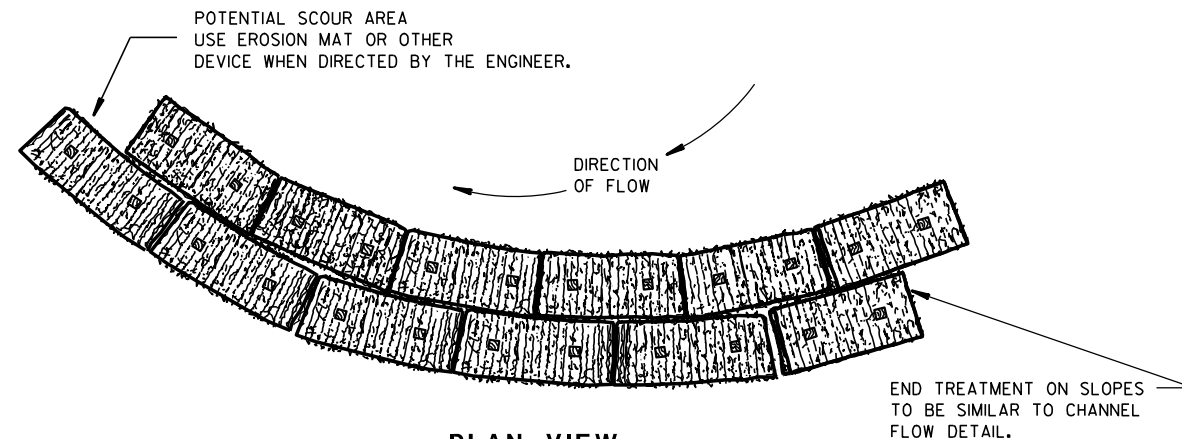
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

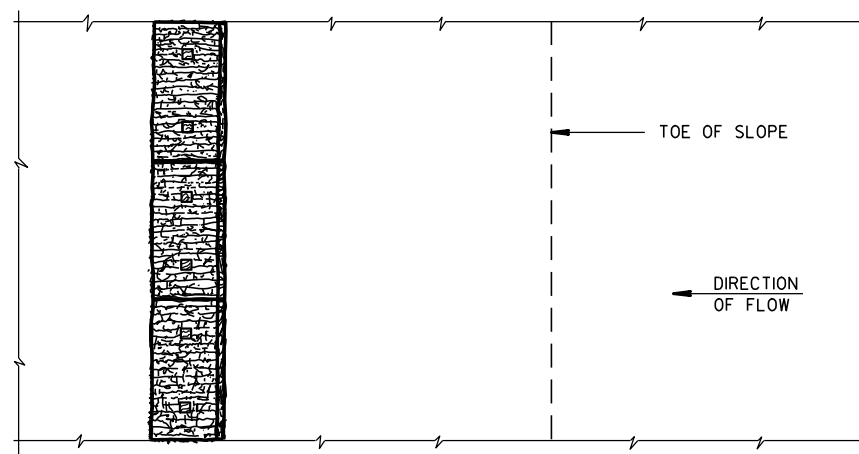
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

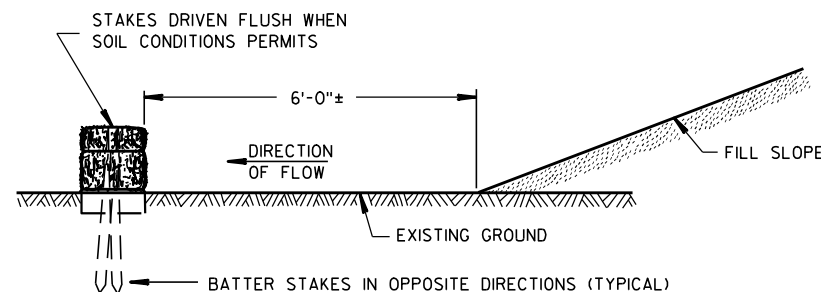


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

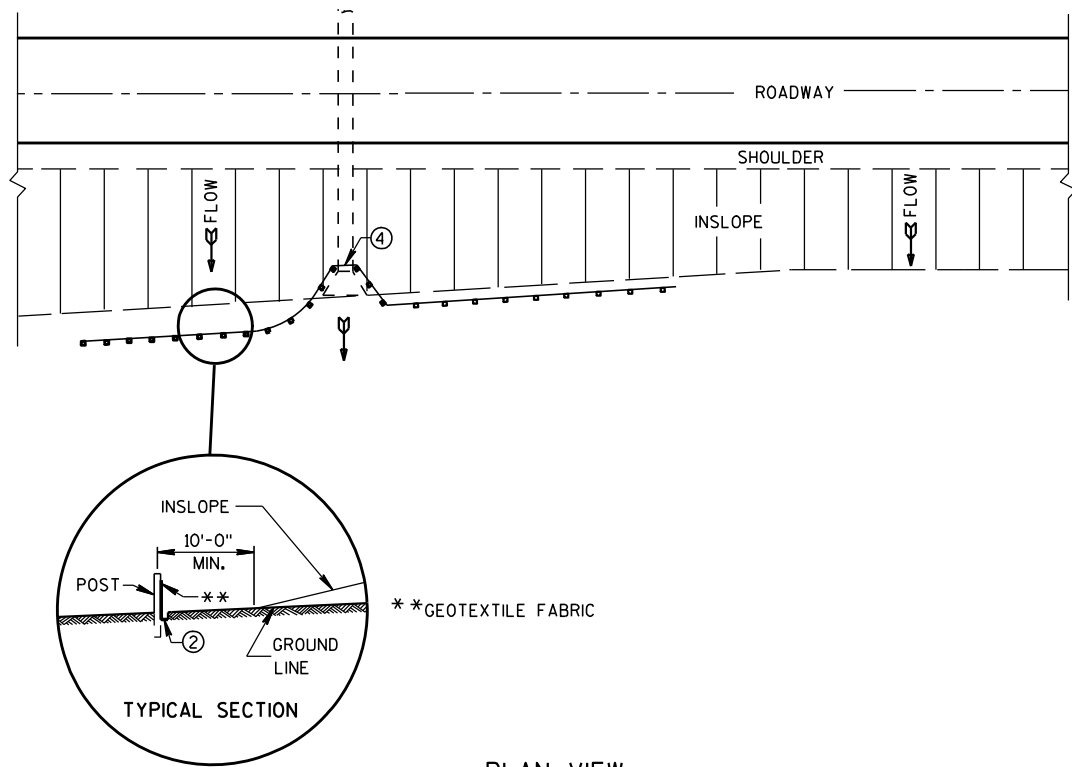
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

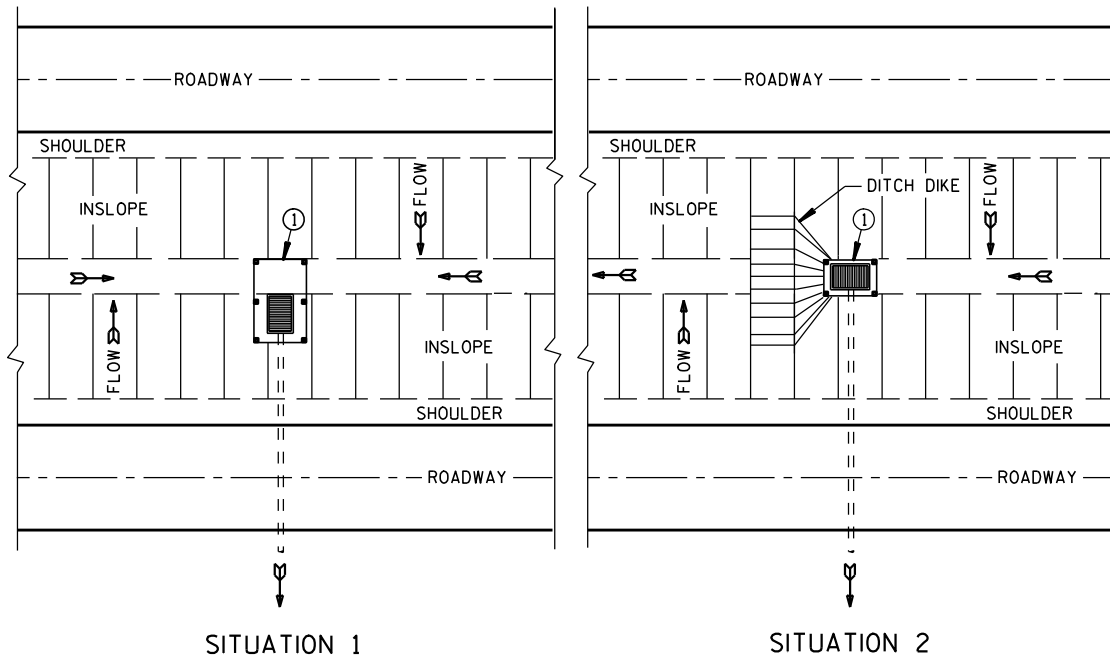
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

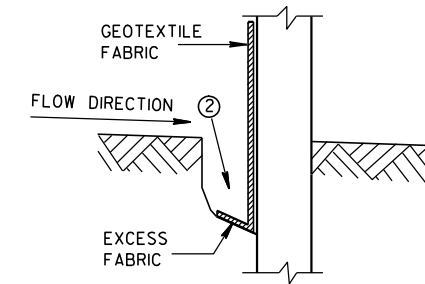


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

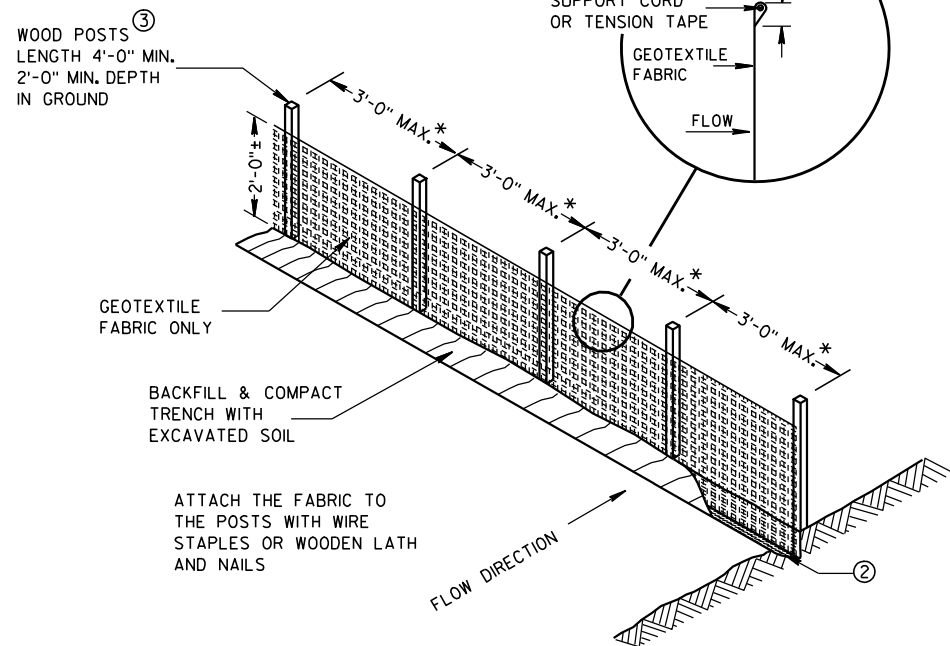
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



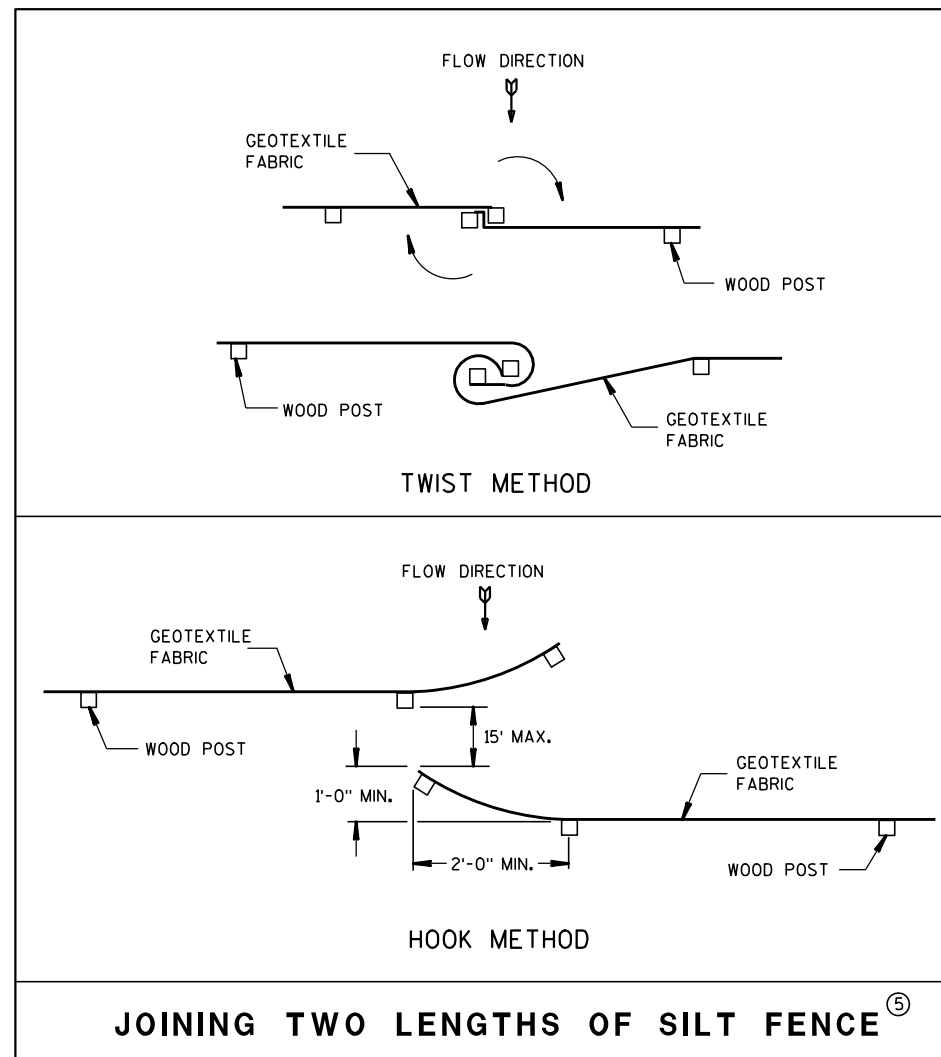
TRENCH DETAIL

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

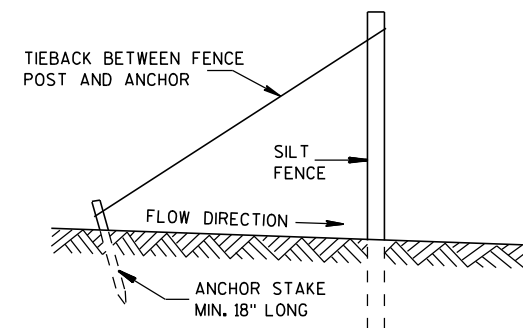


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

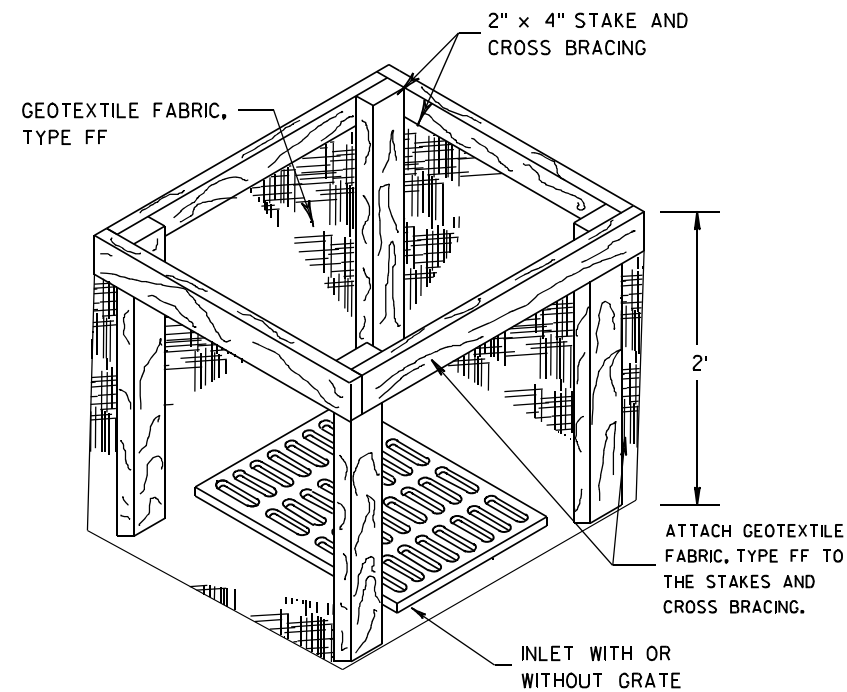
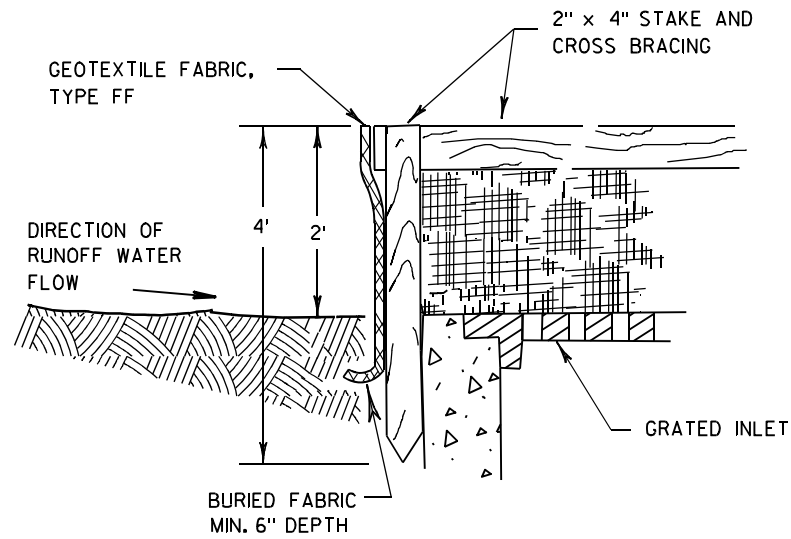


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



INLET PROTECTION, TYPE A

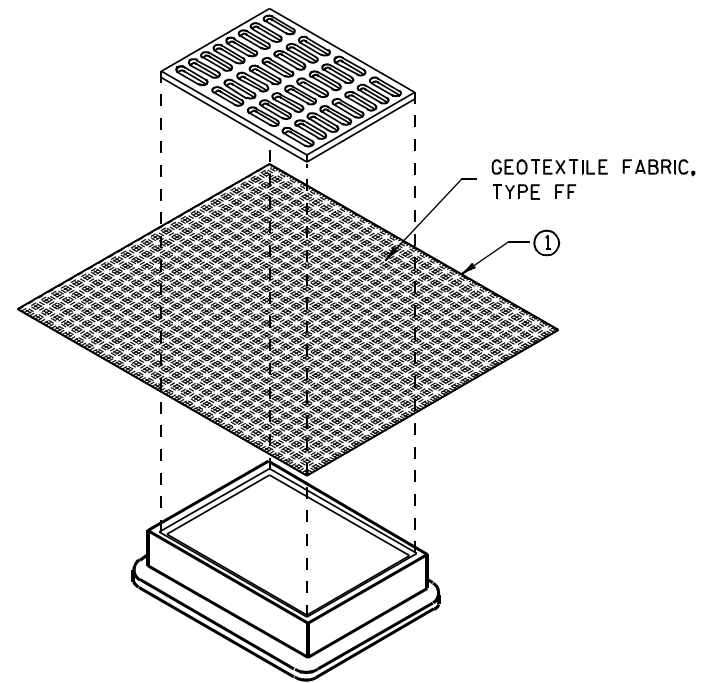
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

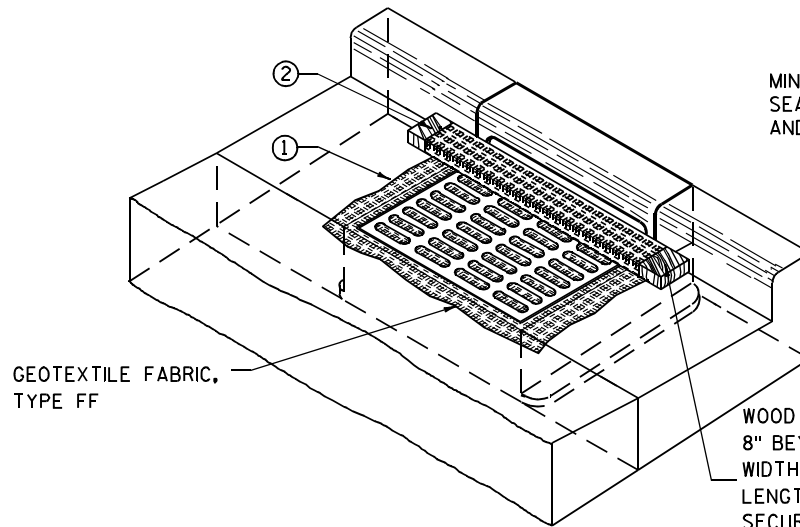
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

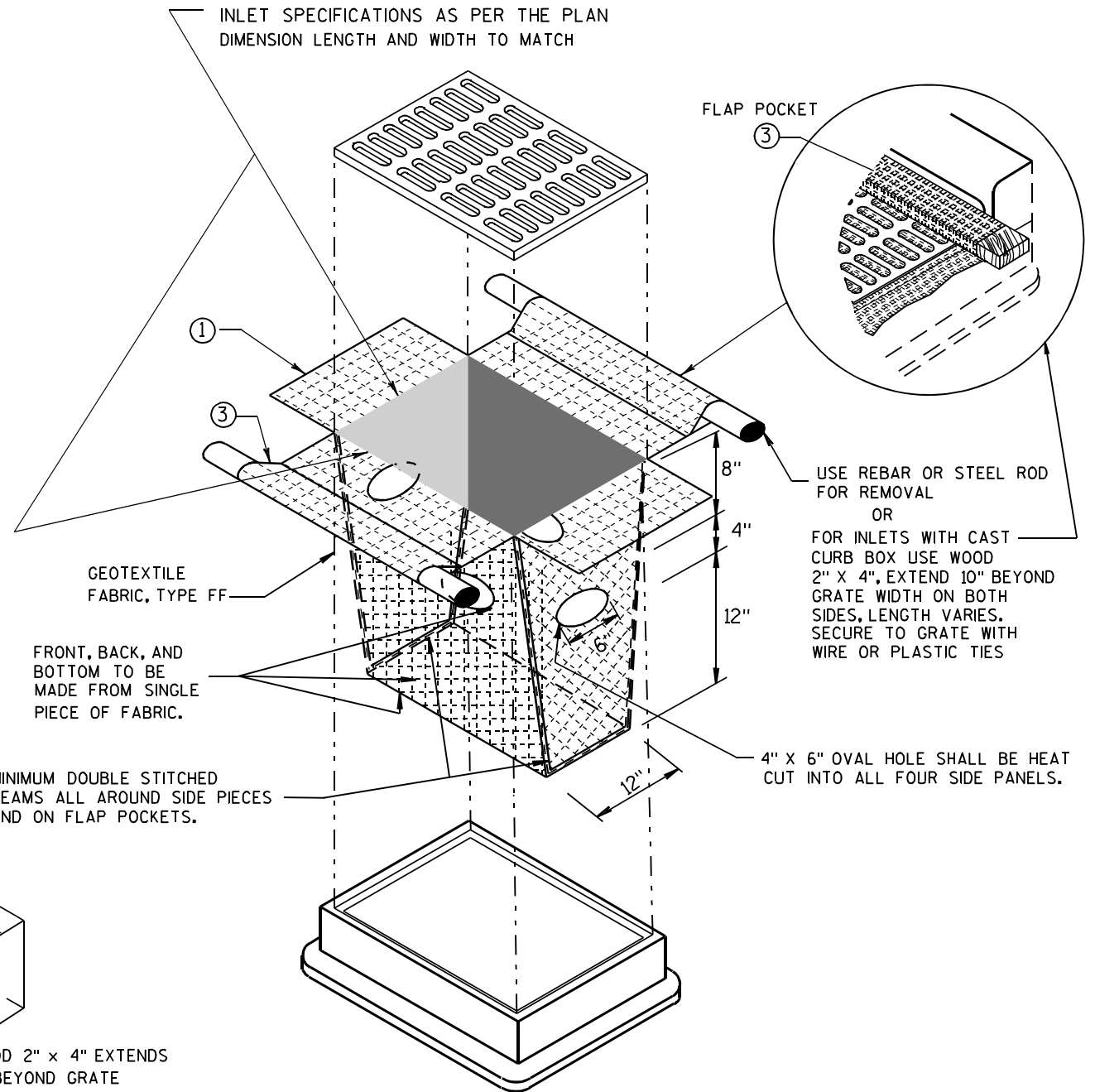
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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



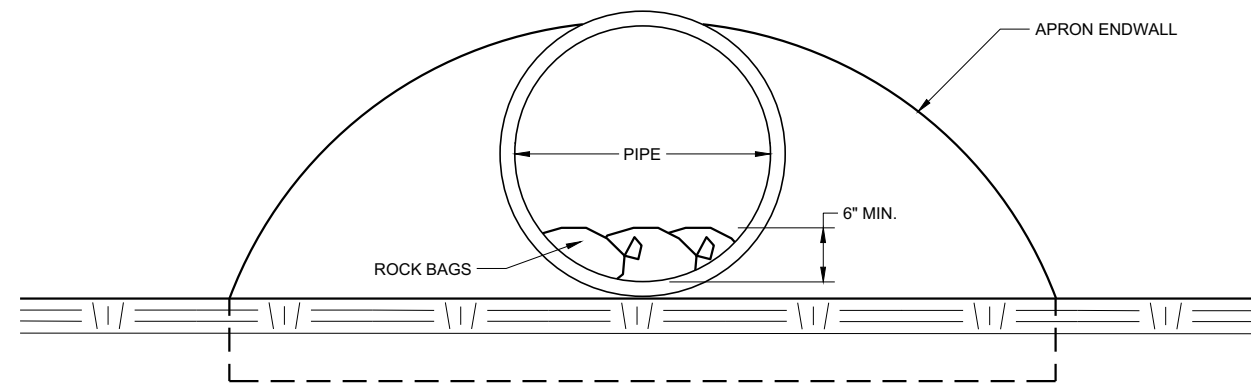
INLET PROTECTION, TYPE D

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

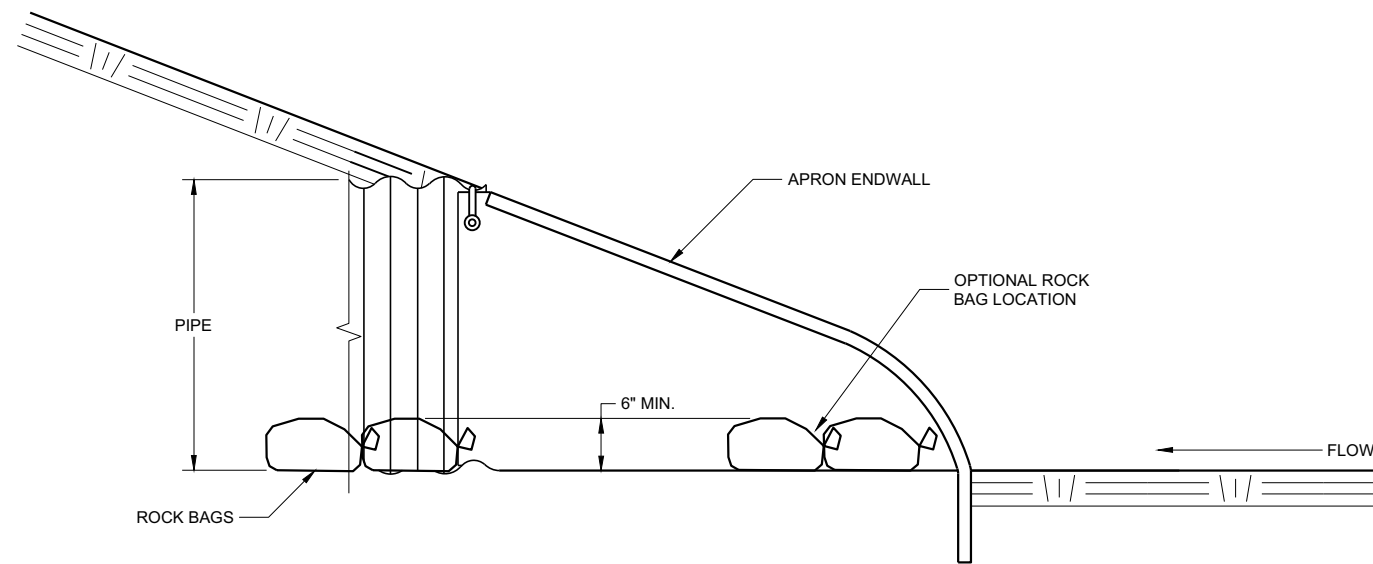
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connestra
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Daniel Schave
DATE EROSION CONTROL ENGINEER

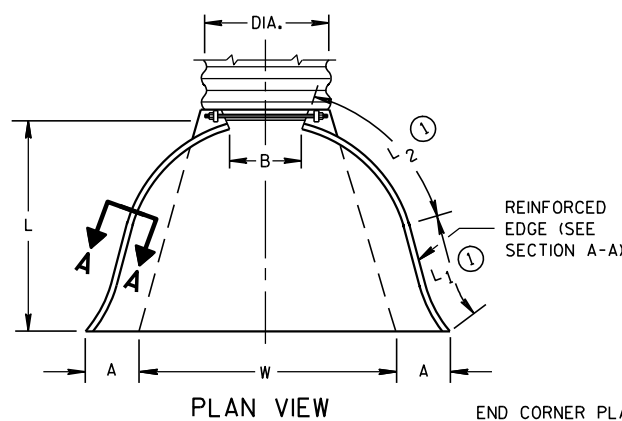
FHWA

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

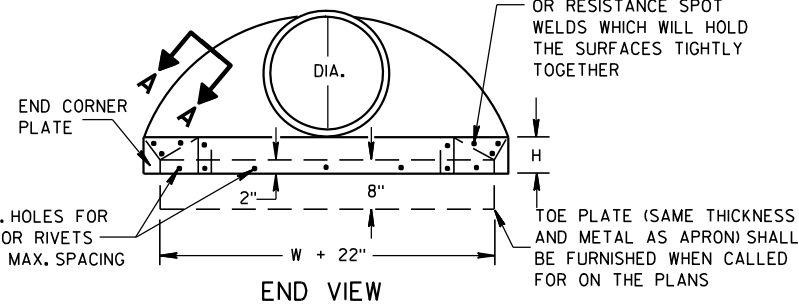
* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

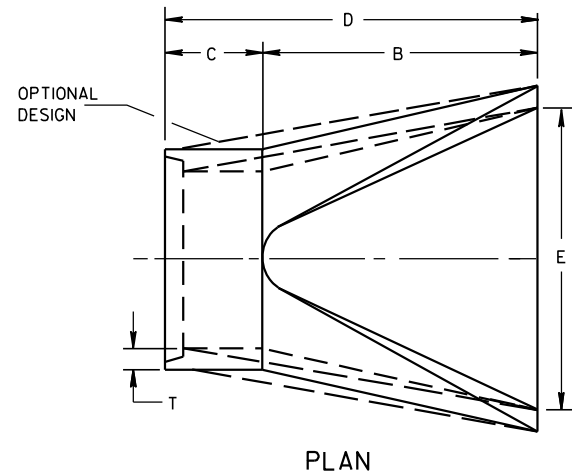
* MINIMUM
** MAXIMUM



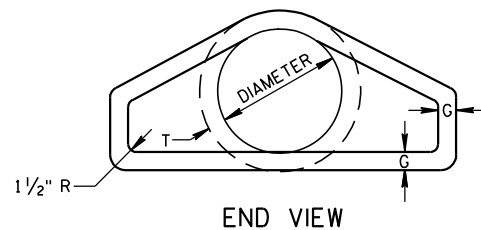
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



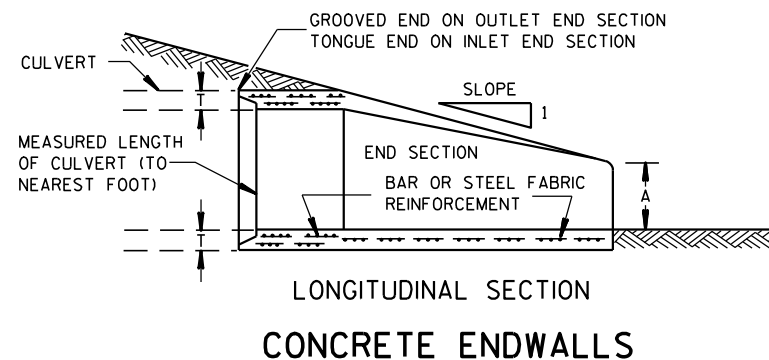
SIDE ELEVATION
METAL ENDWALLS



PLAN

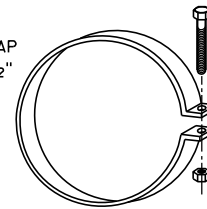


END VIEW

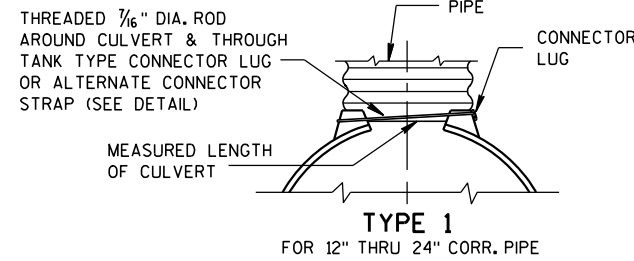


LONGITUDINAL SECTION
CONCRETE ENDWALLS

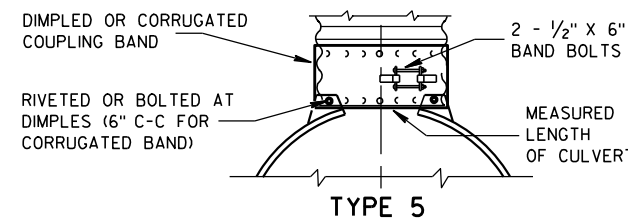
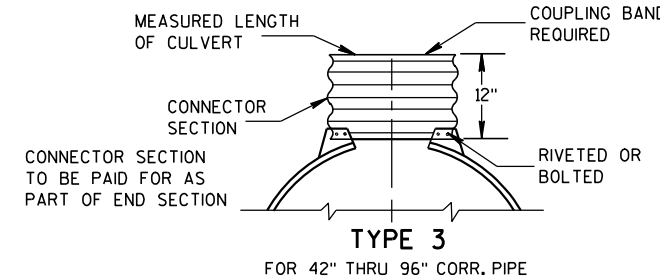
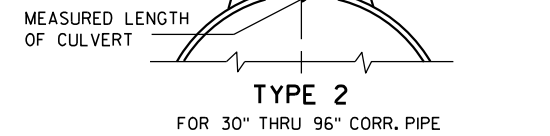
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



THREADED 1/16" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

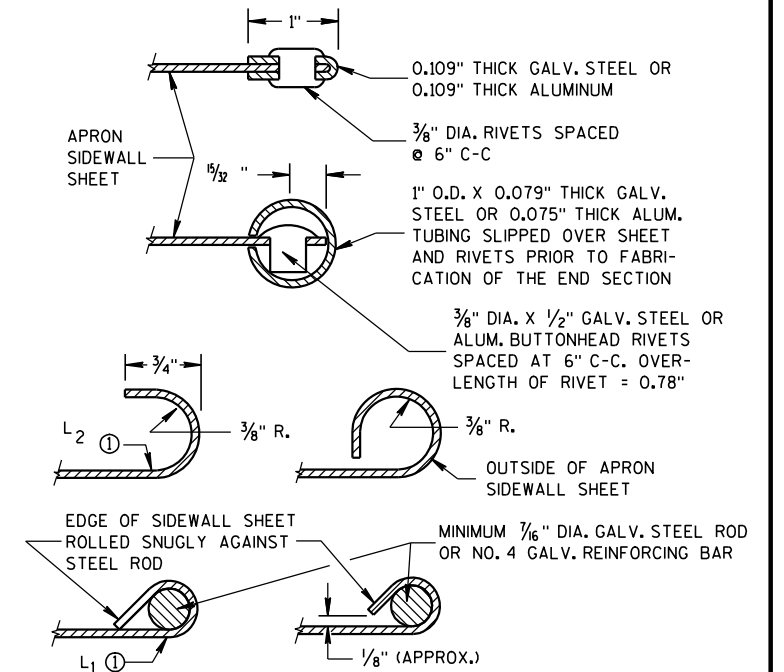
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

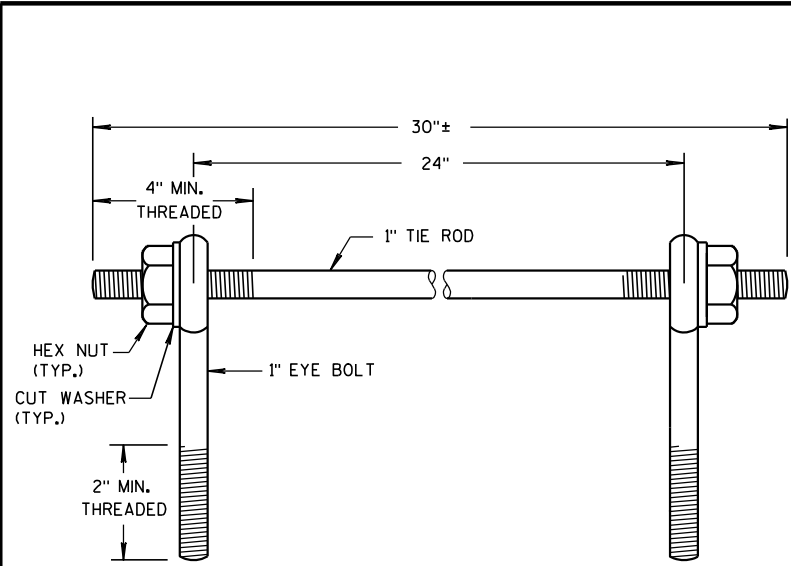
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

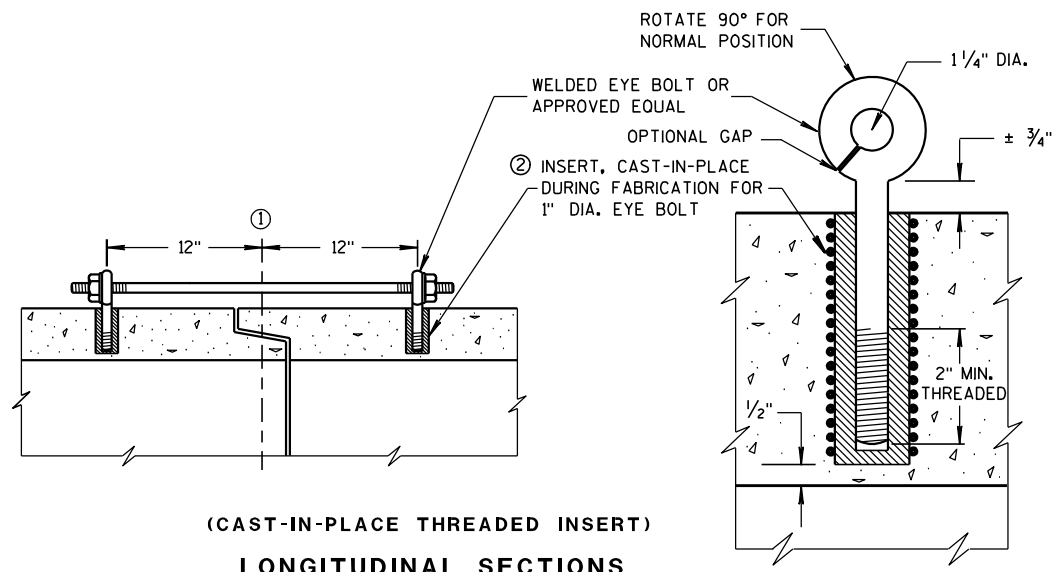
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

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



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

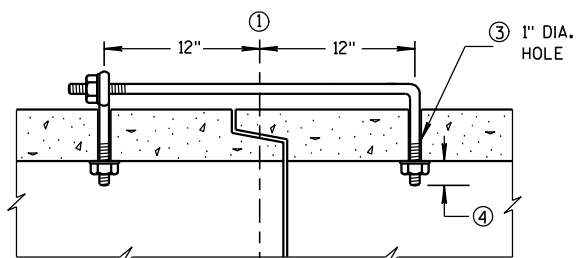
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

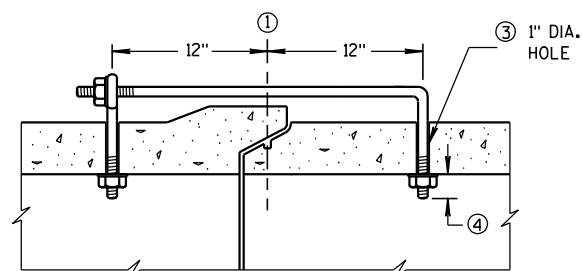
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

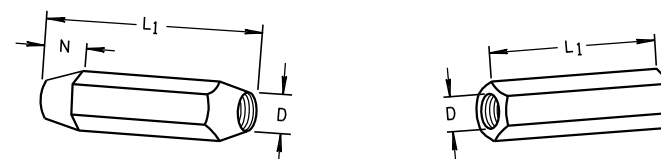
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

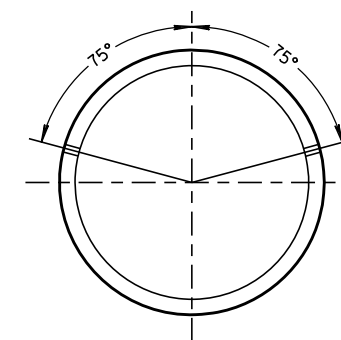
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/6

DIMENSIONS SHOWN ARE IN INCHES

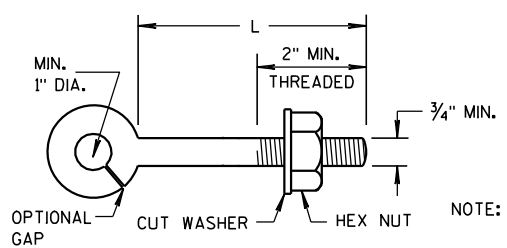


TAPERED PLAIN
RIGHT AND LEFT THREADS
SLEEVE NUTS



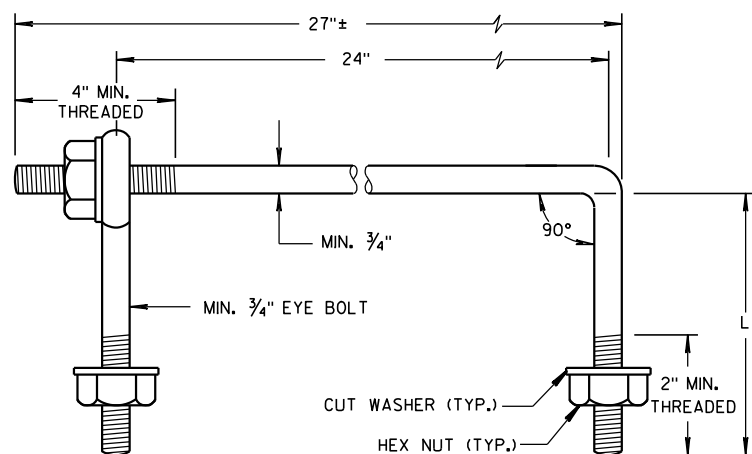
PLACEMENT OF (2) CAST-IN-PLACE
INSERTS OR HOLES DURING FABRICATION
FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



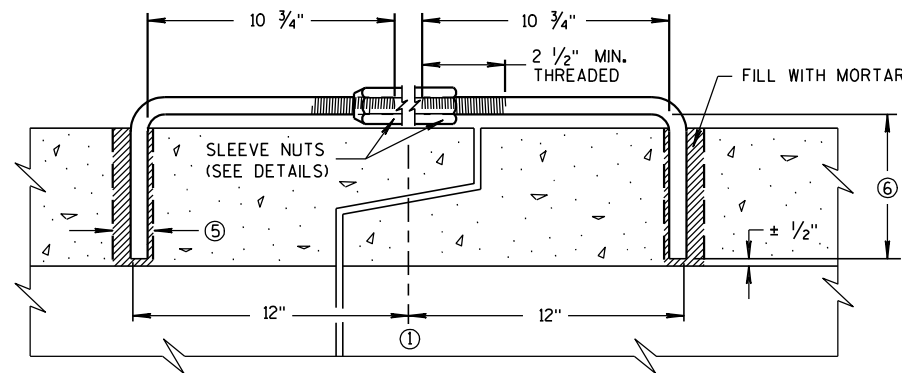
EYE BOLT

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



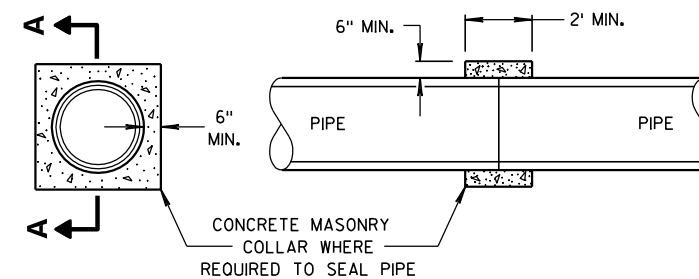
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



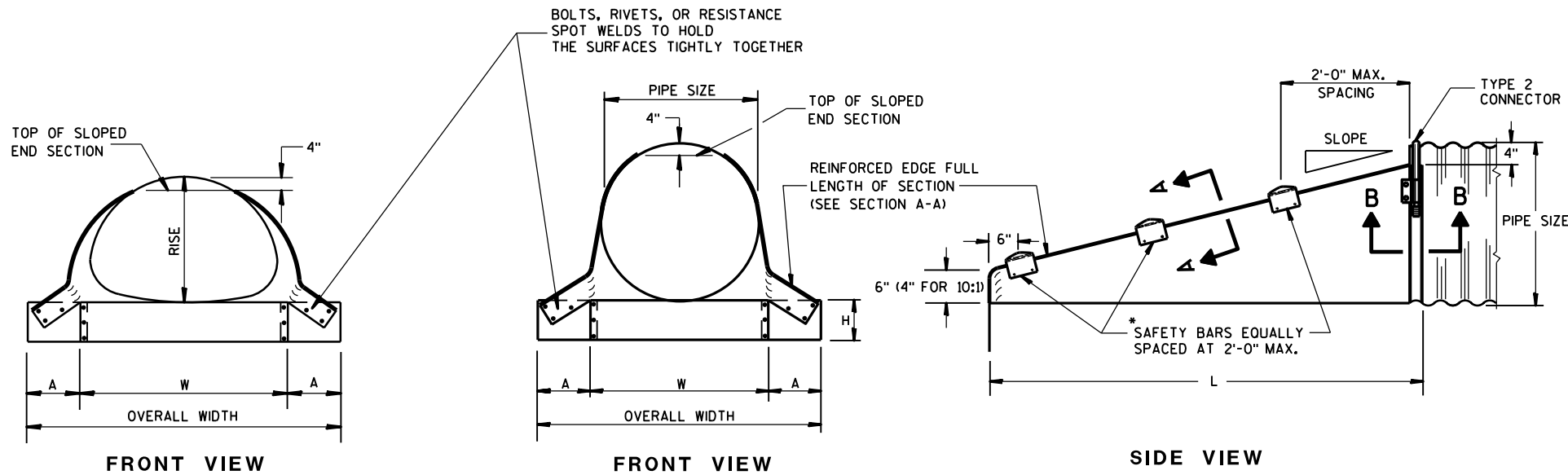
SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE
PIPE AND CONCRETE
COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



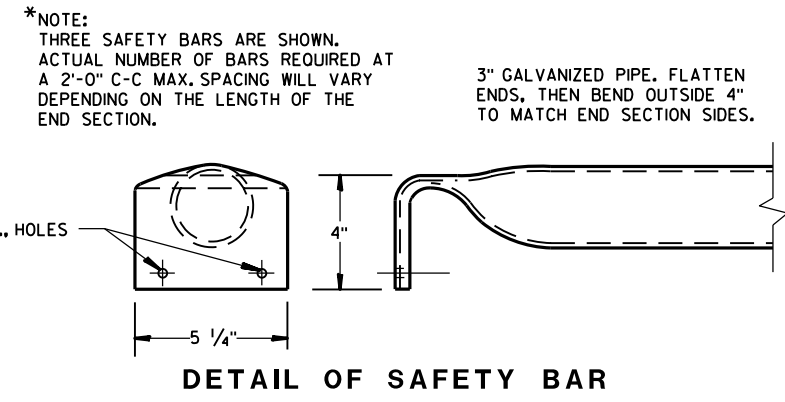
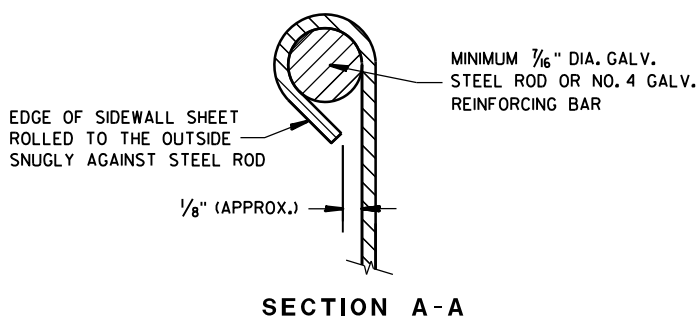
GENERAL NOTES

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

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

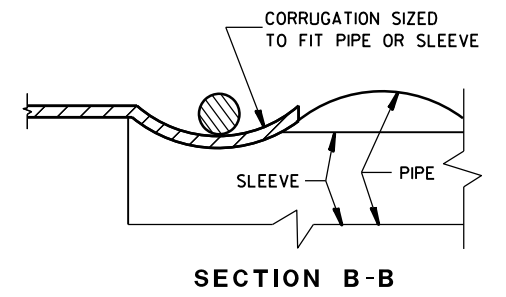
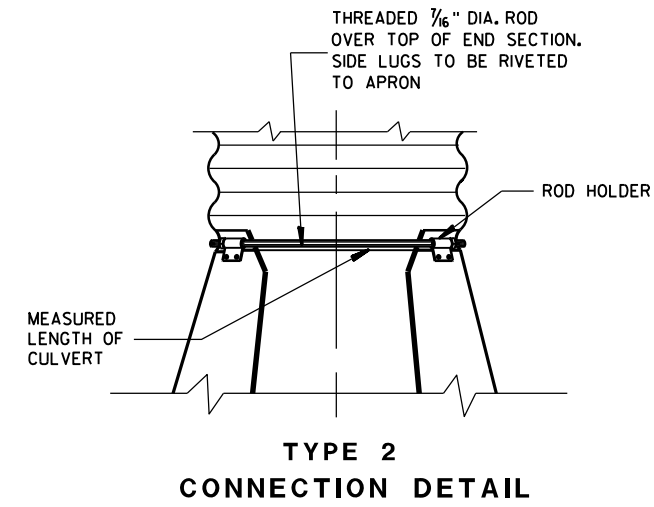
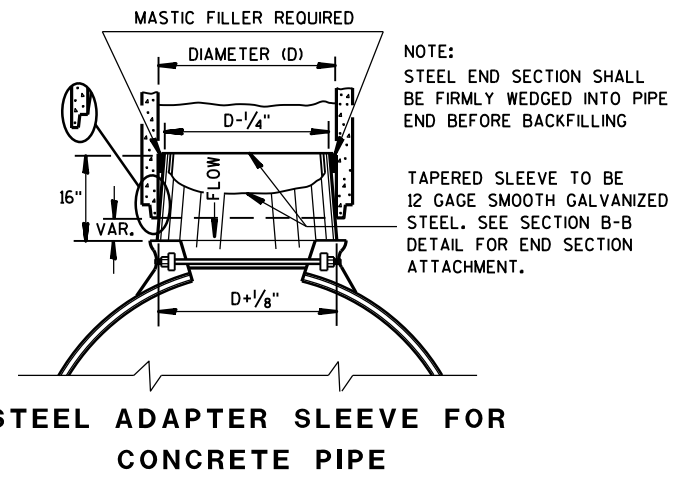
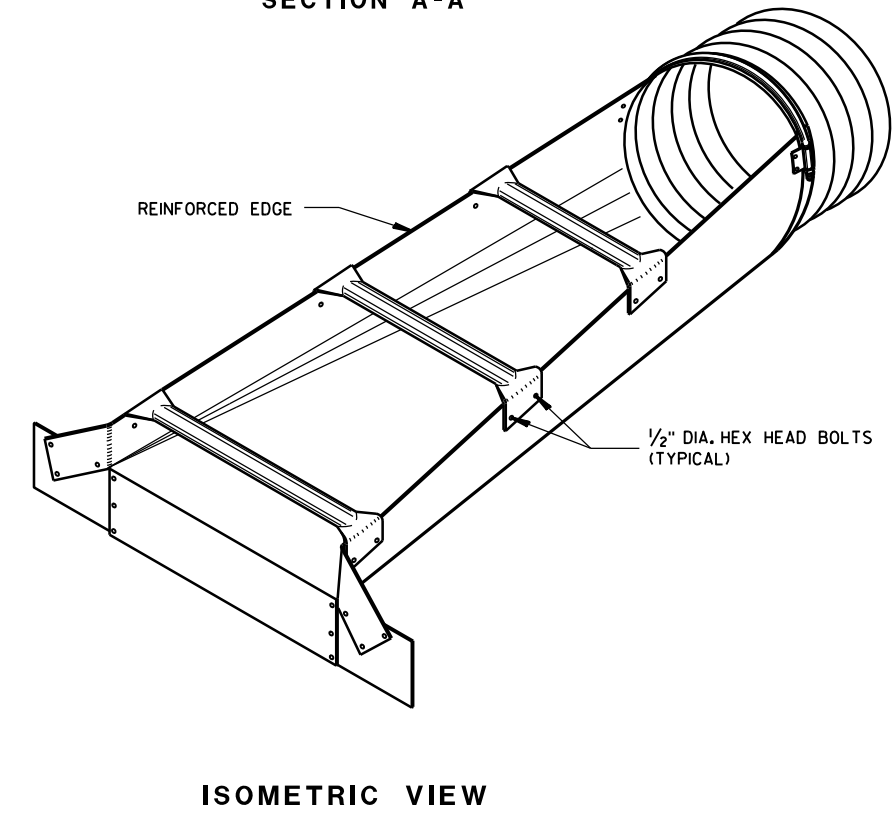
SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
 ② ACTUAL SLOPE GREATER THAN 10:1.

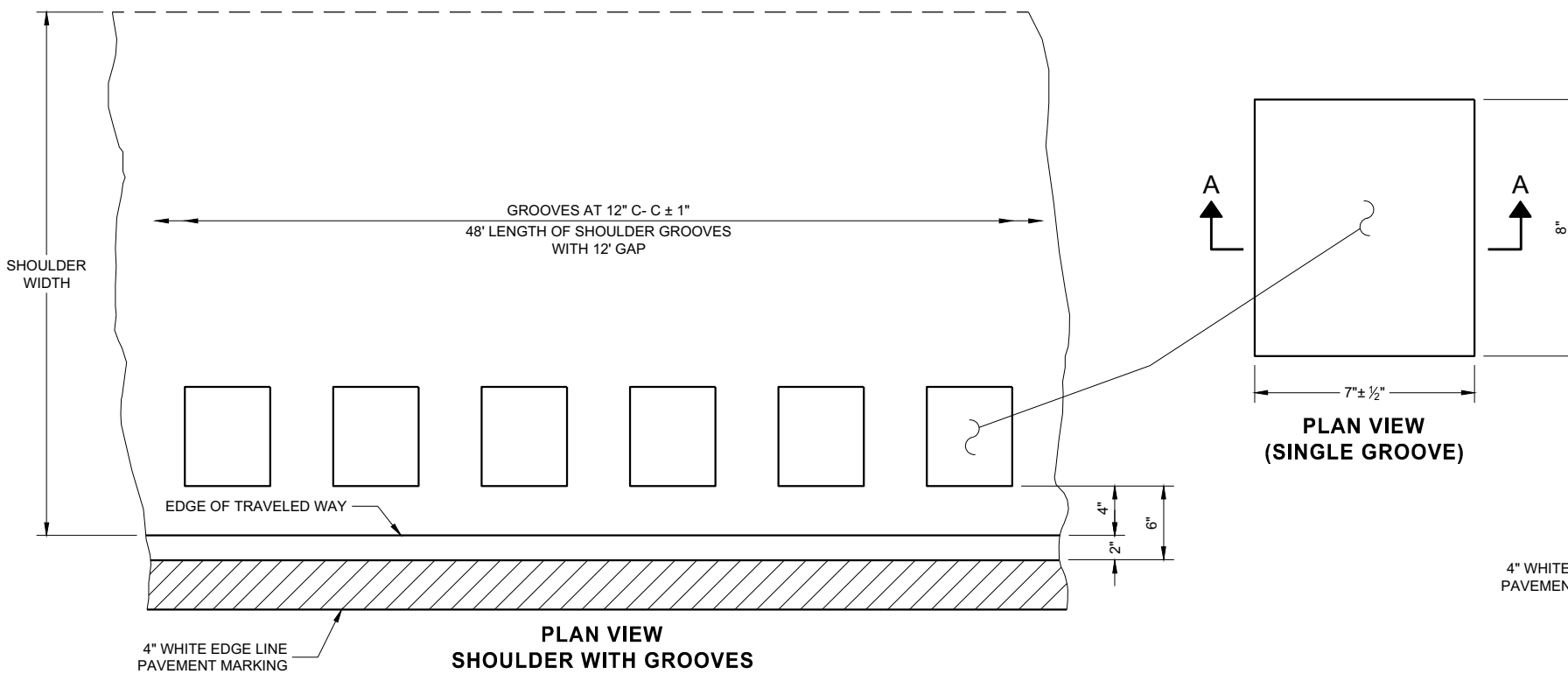


STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 9/14/2012 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



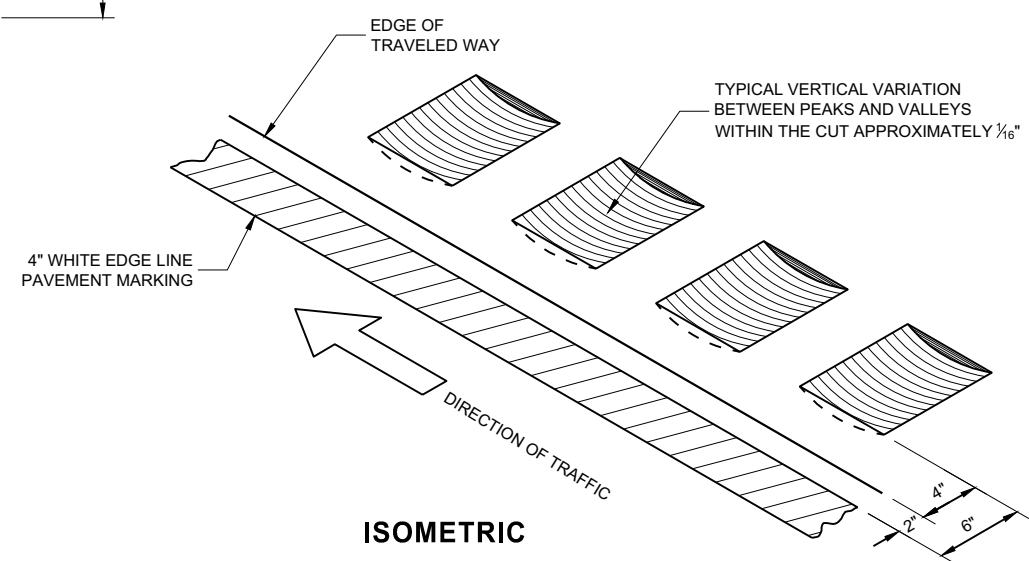
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

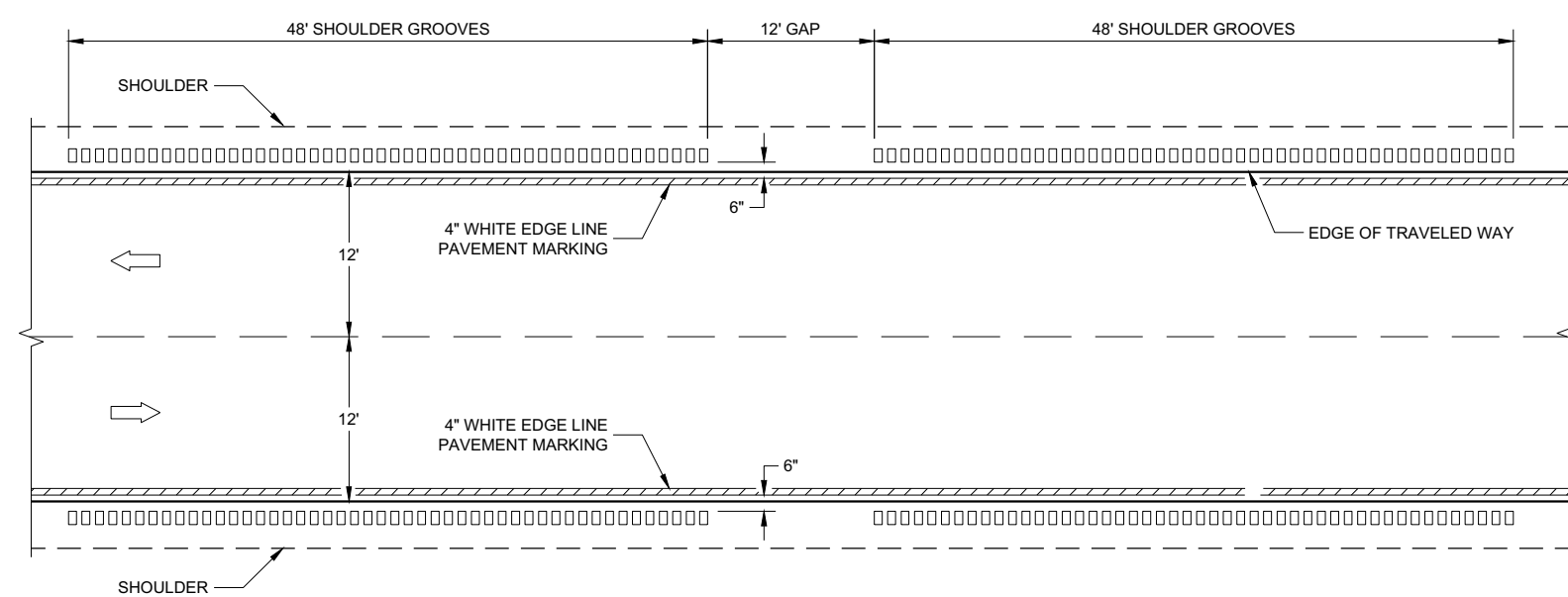
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

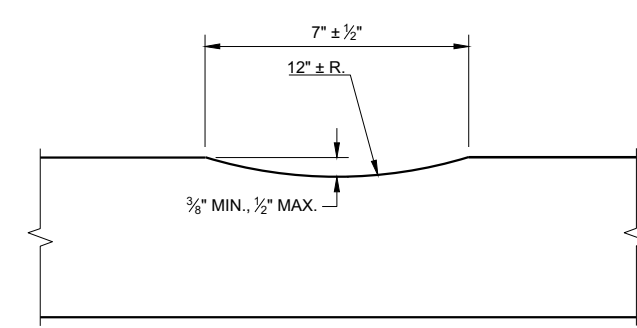
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

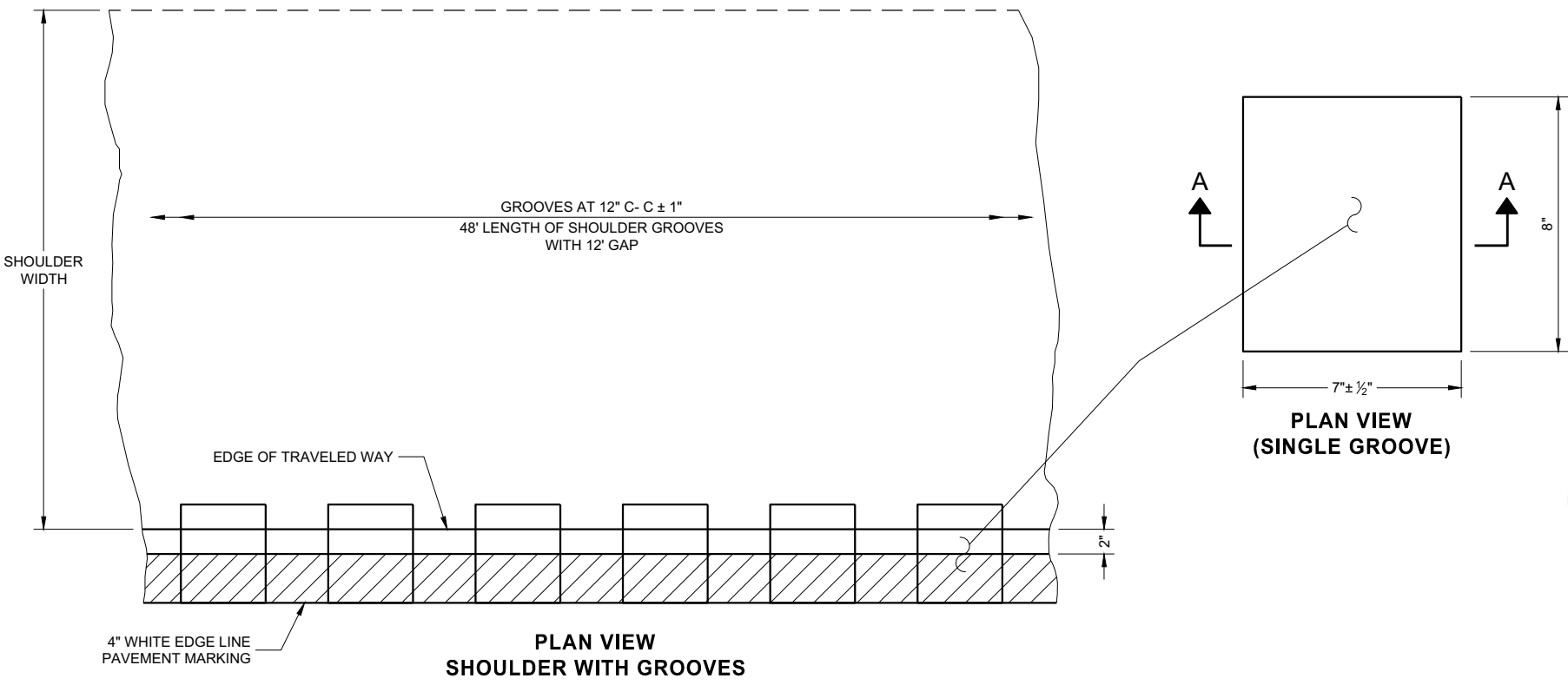
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

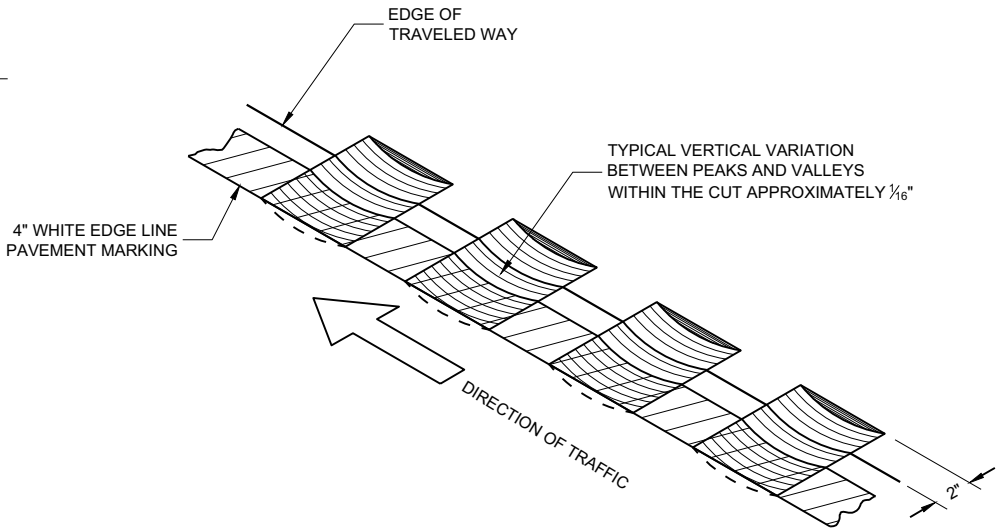
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

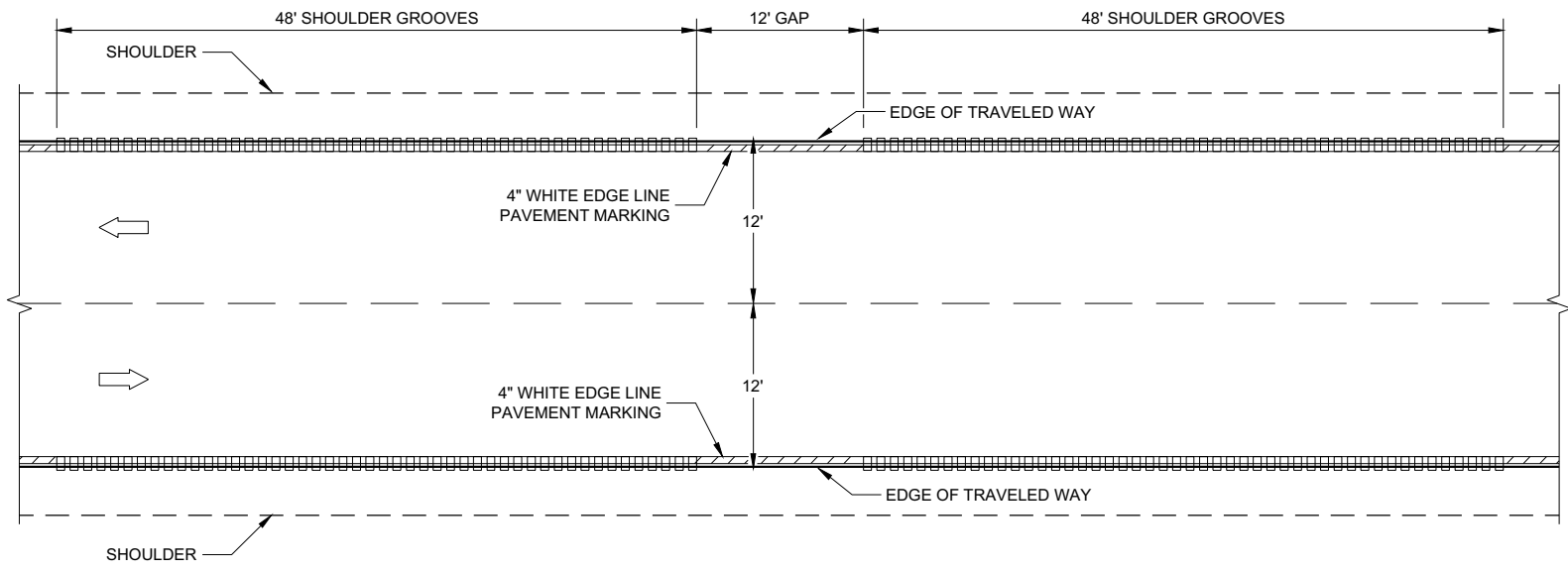
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



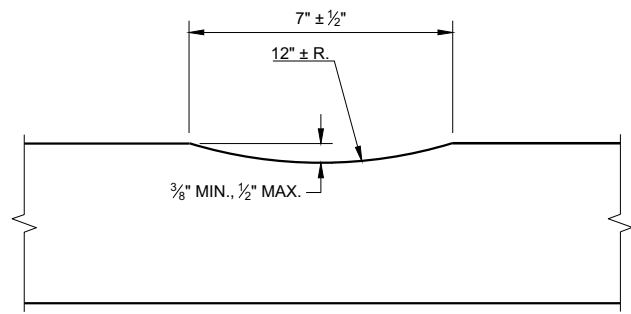
**PLAN VIEW SHOULDER WITH GROOVES
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP**



ISOMETRIC



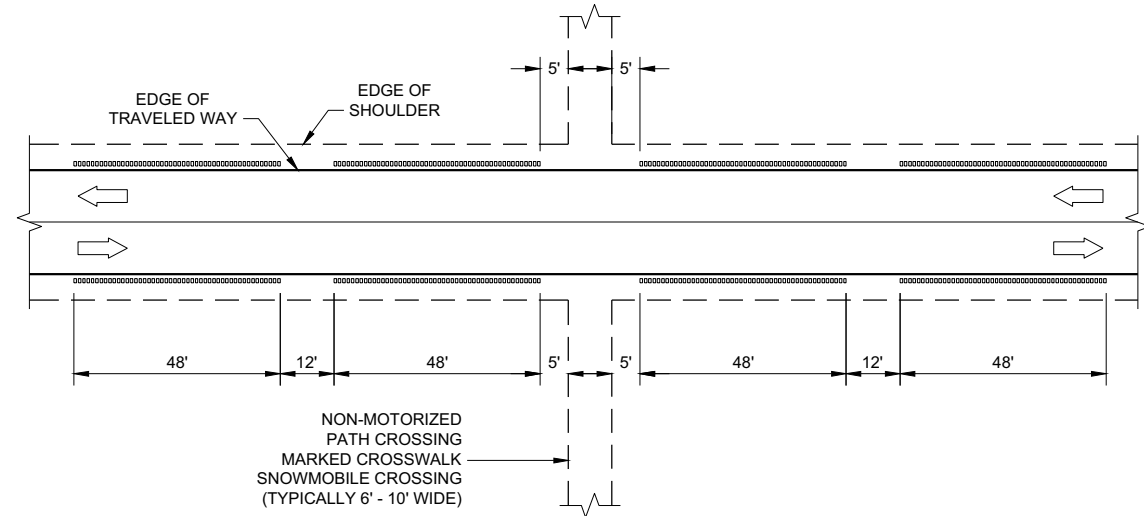
**TYPE 2
2 - LANE SHOULDER RUMBLE STRIP**



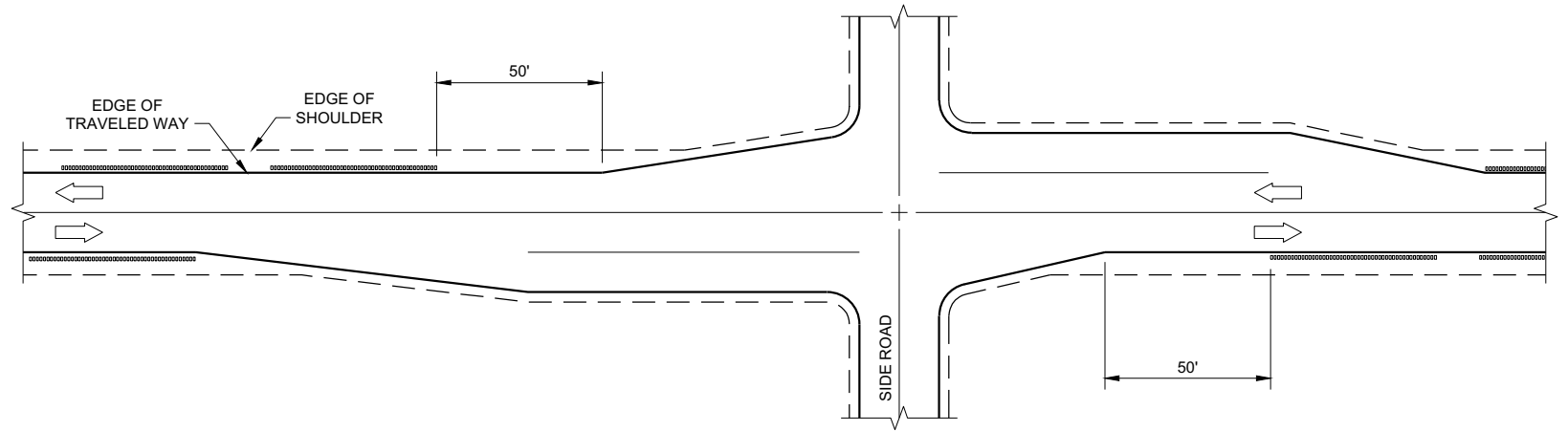
SECTION A - A

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

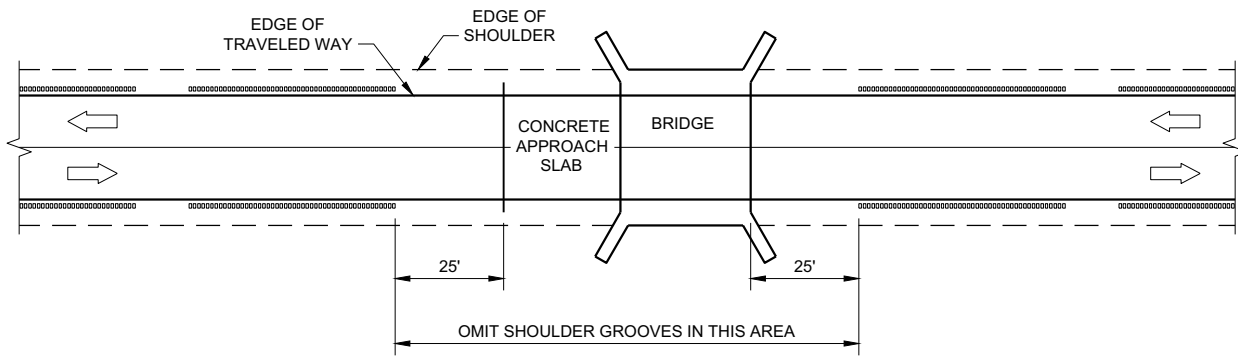
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



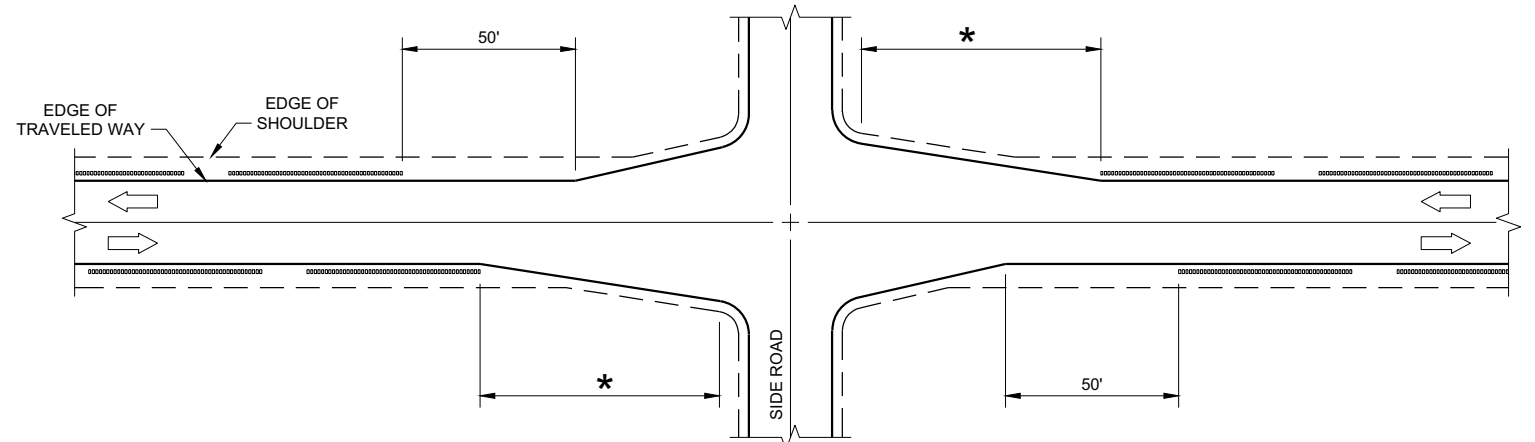
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



SHOULDER GROOVES AT RIGHT TURN LANE

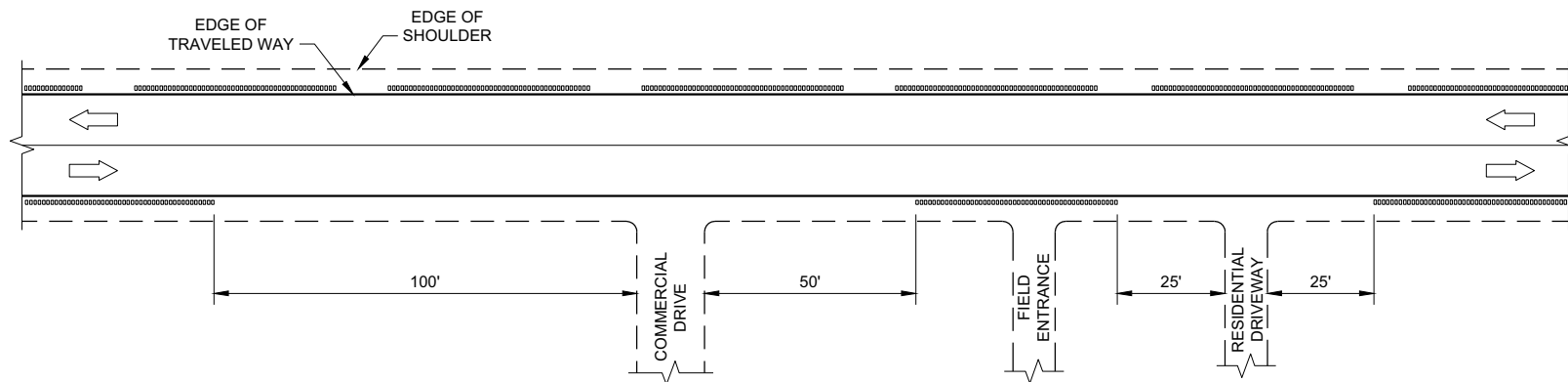


SHOULDER GROOVES AT BRIDGES



* GREATER OF 100' OR APPROACH TAPER LENGTH

SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



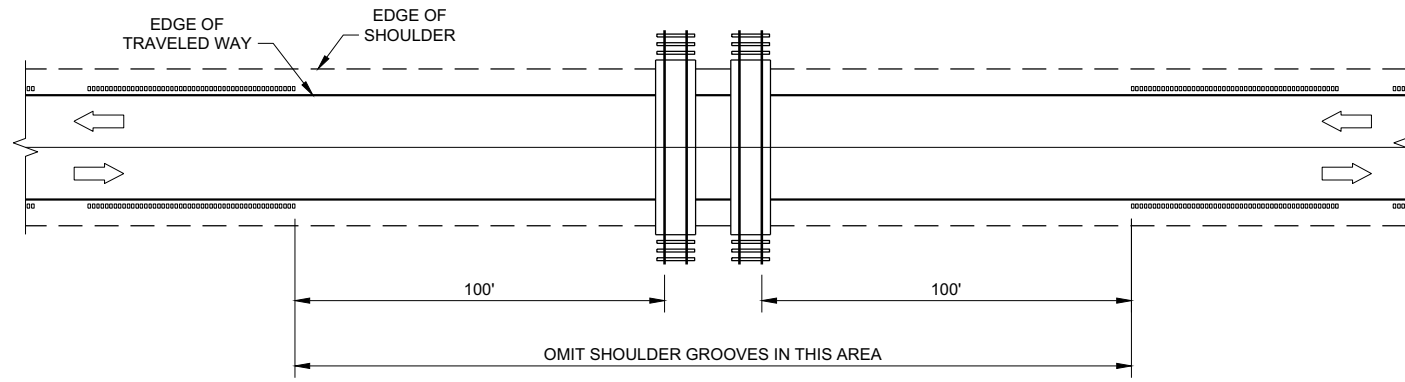
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

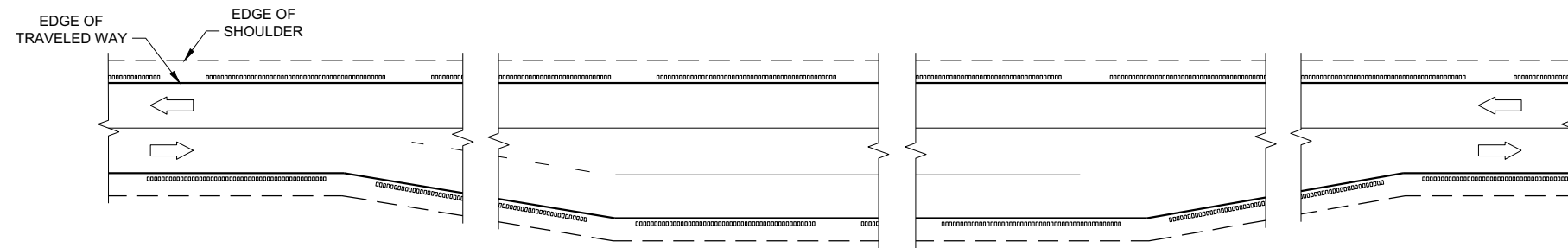
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

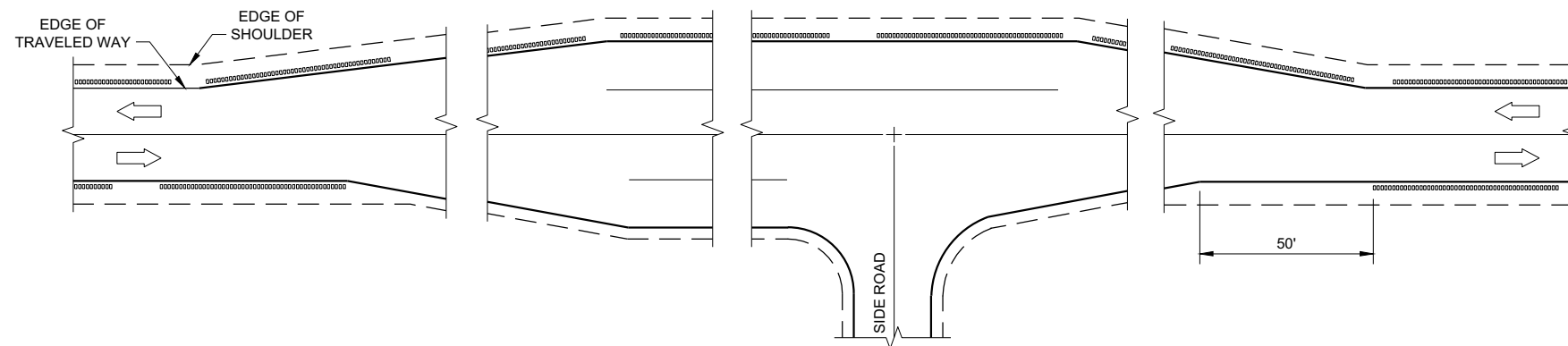
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

**2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

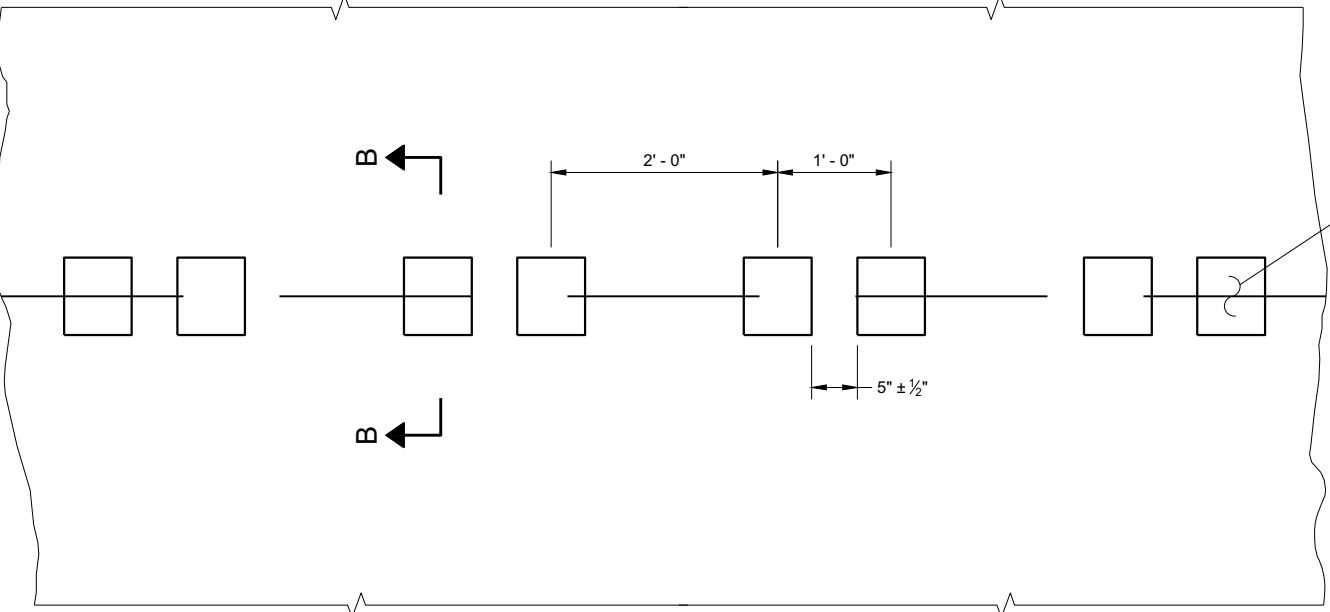
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTERLINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

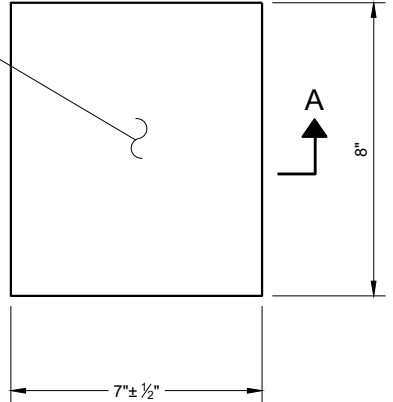
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

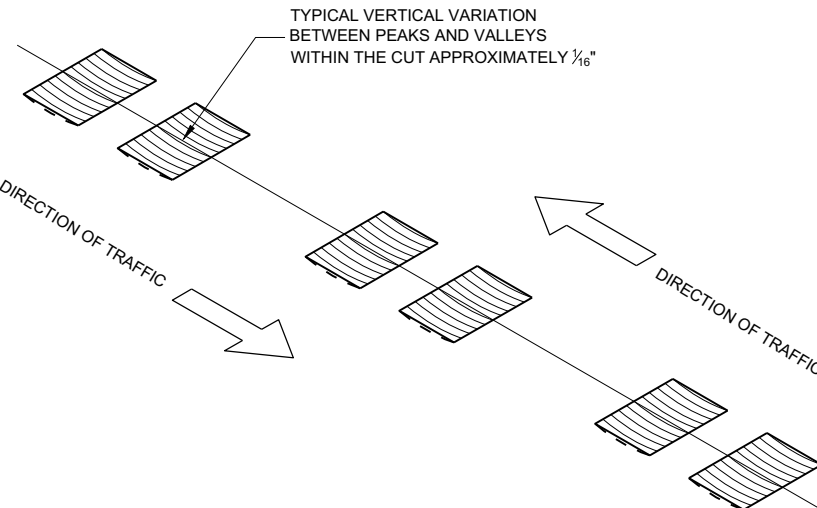
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



**PLAN VIEW
SHOULDER WITH GROOVES**

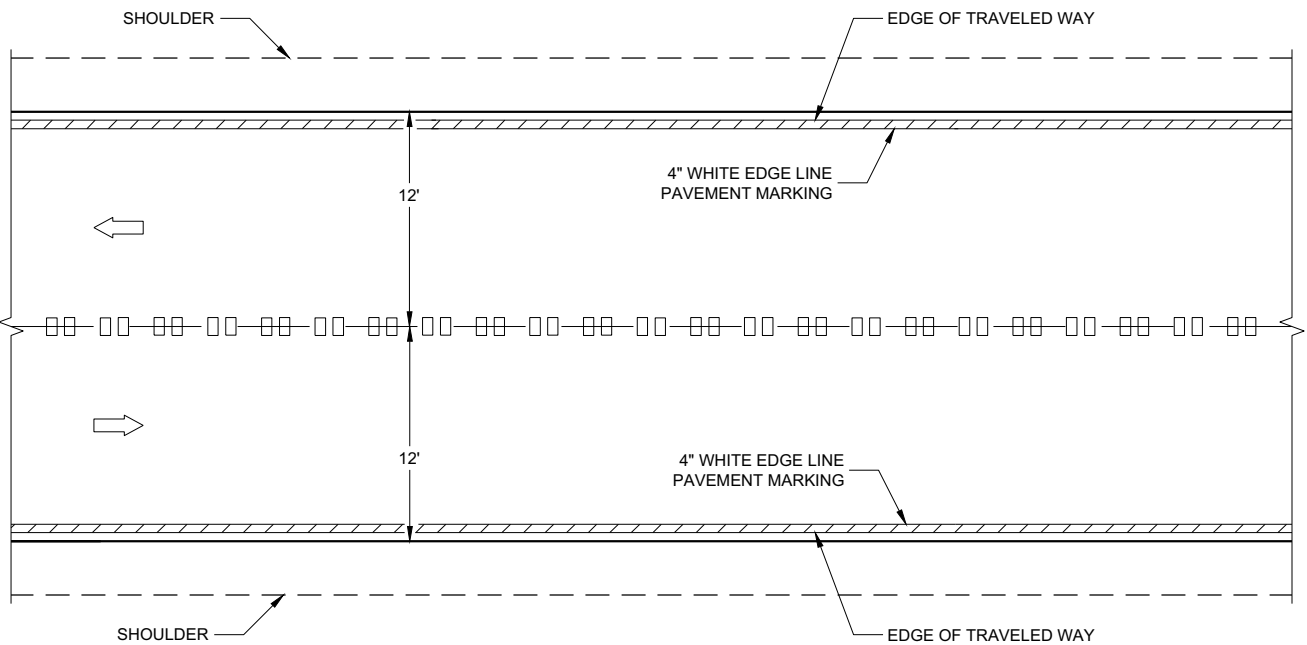


**PLAN VIEW
(SINGLE GROOVE)**

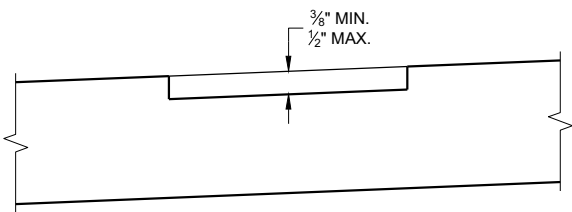


ISOMETRIC

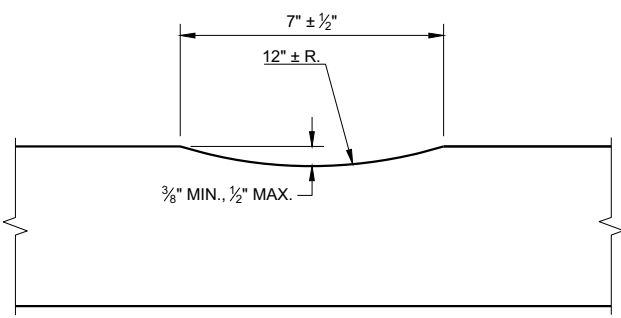
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



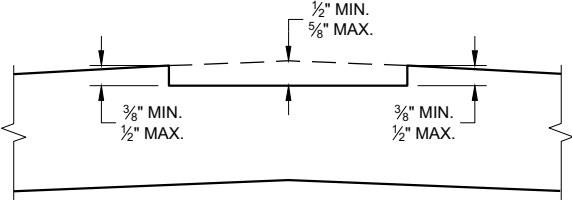
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



**SECTION B - B
SUPERELEVATED ROADWAY**



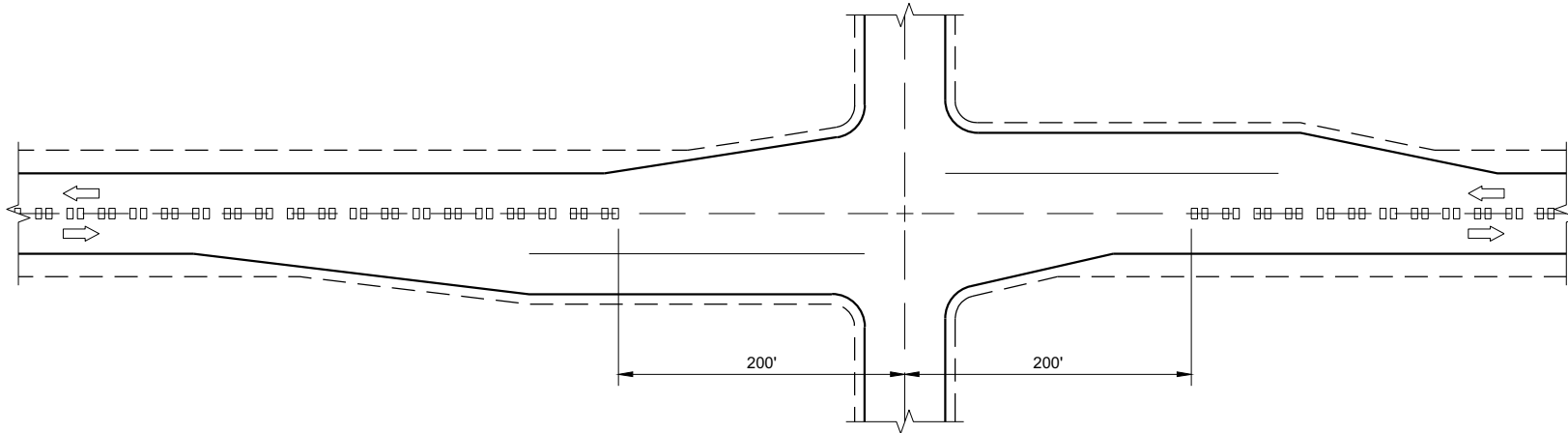
SECTION A - A



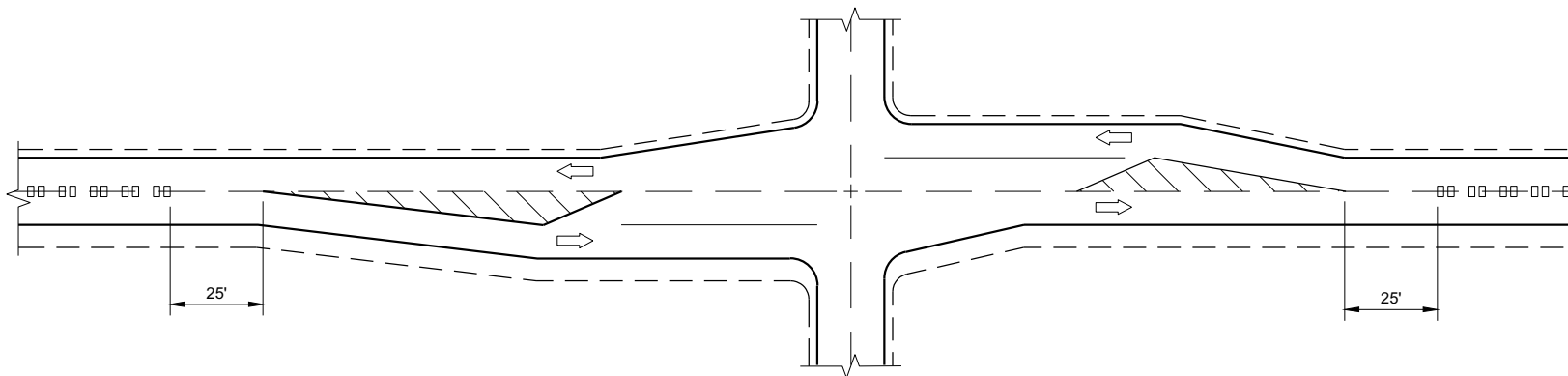
**SECTION B - B
CROWNED ROADWAY**

**2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING**

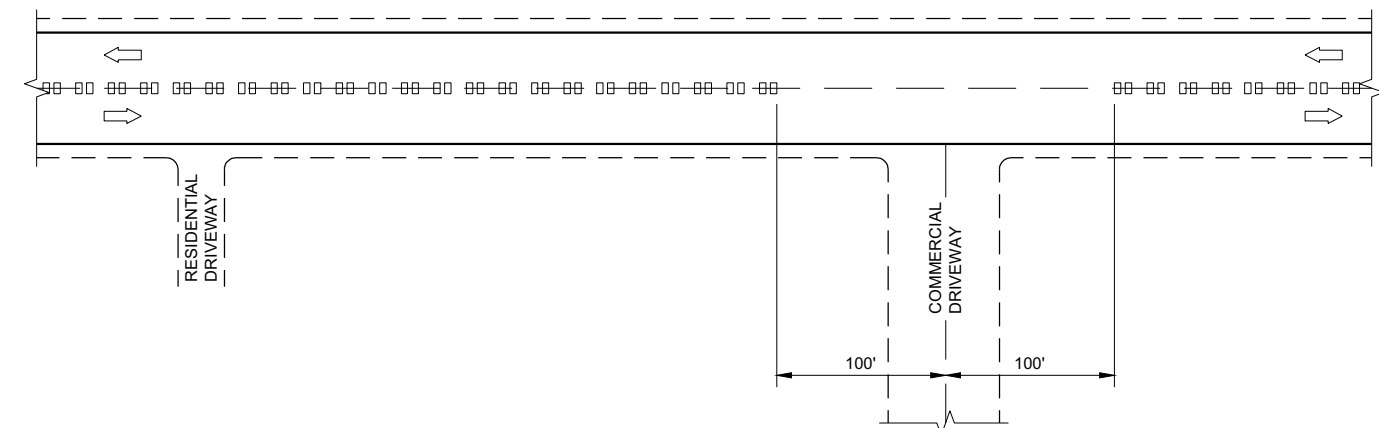
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



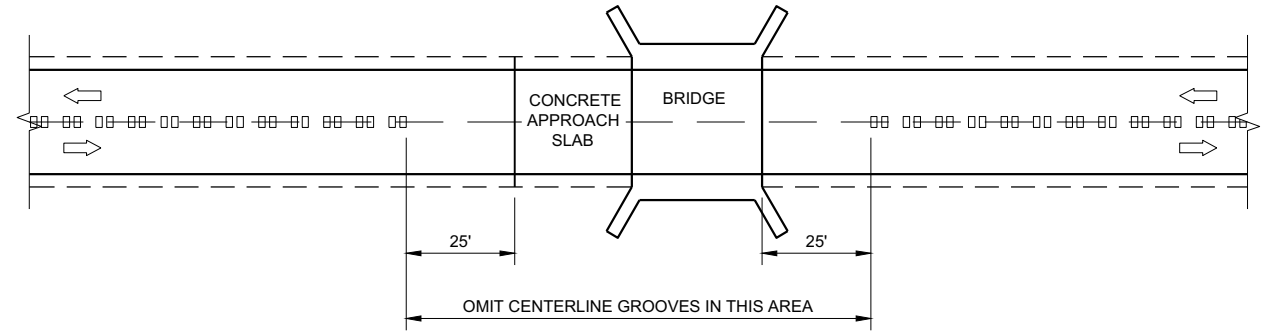
**CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)**



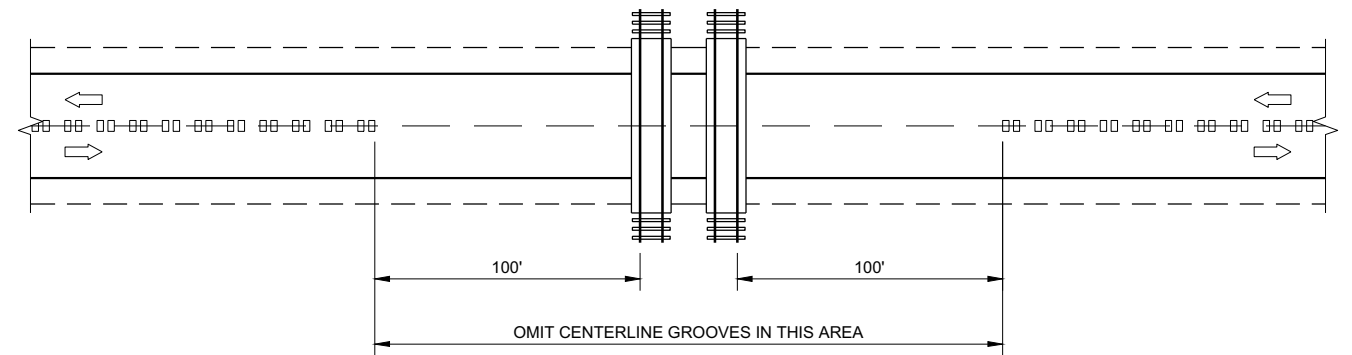
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

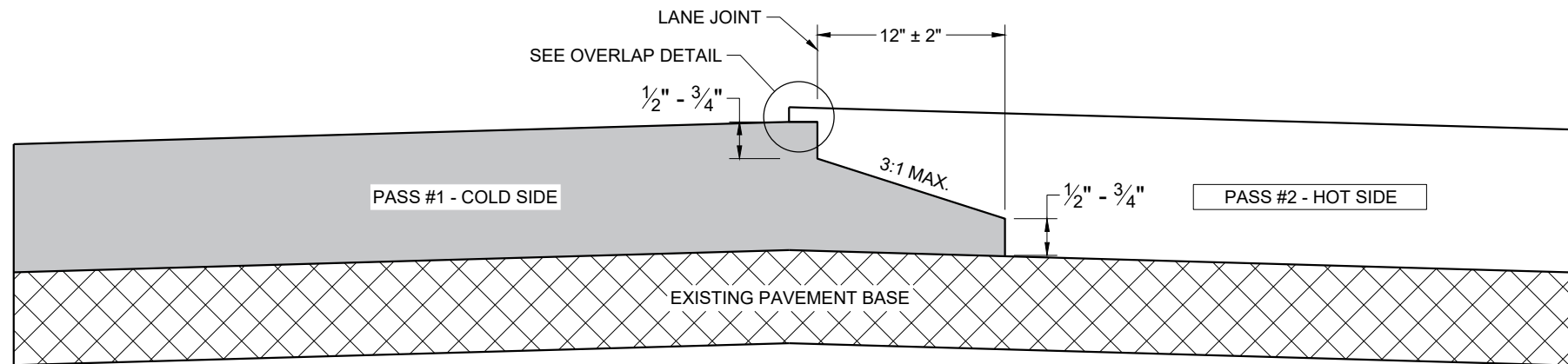
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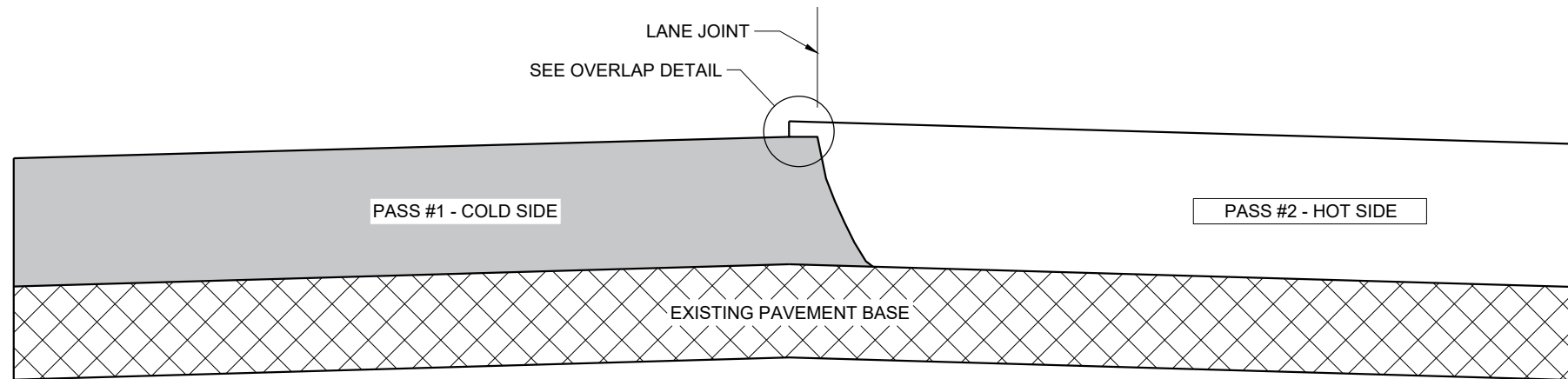
SDD 13A11 - 03b

SDD 13A11 - 03b

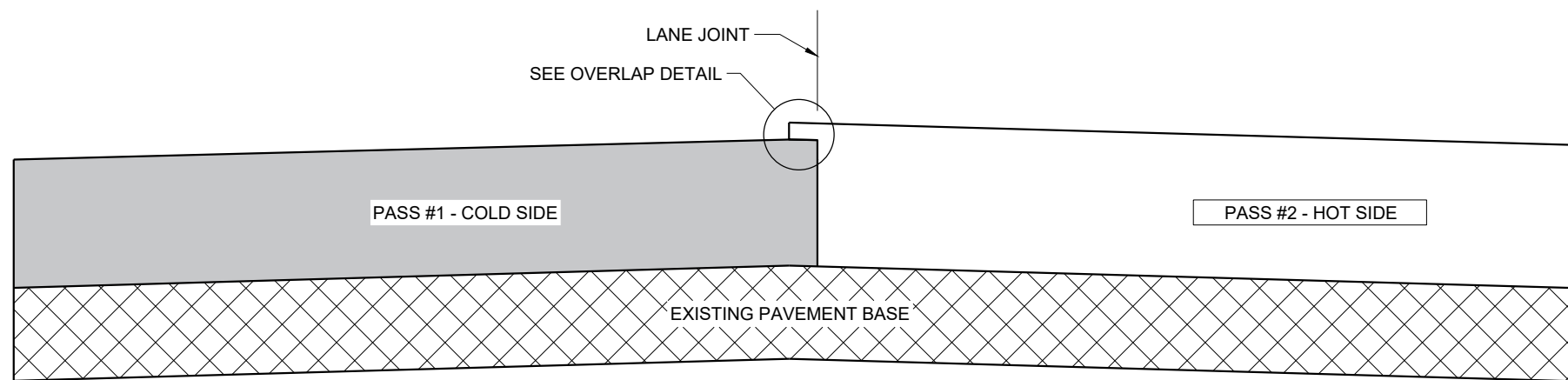
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
<small>FHWA</small>	



TYPICAL PAVEMENT CROSS SECTION NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION VERTICAL JOINT (MILLED)

GENERAL NOTES

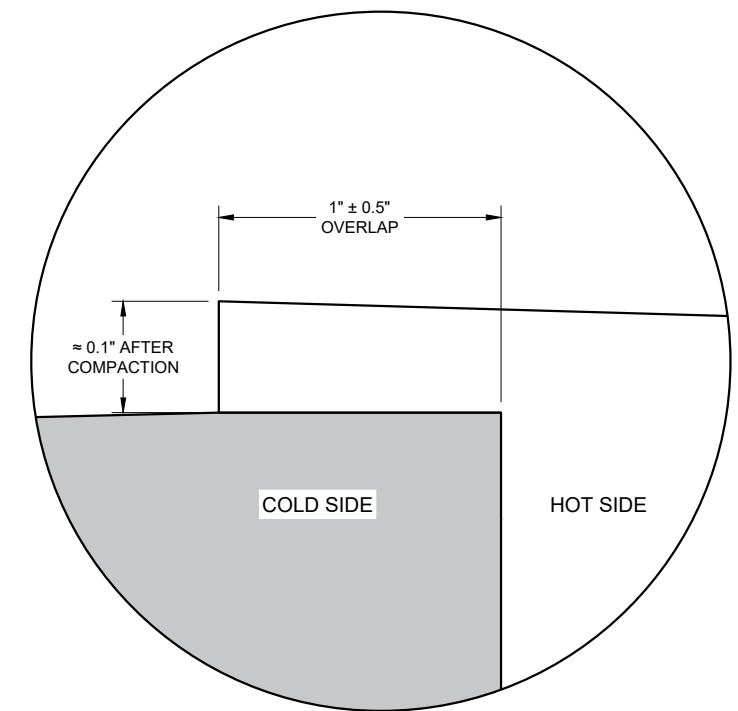
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



OVERLAP DETAIL (TYPICAL)

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SDD 13C19 - 03

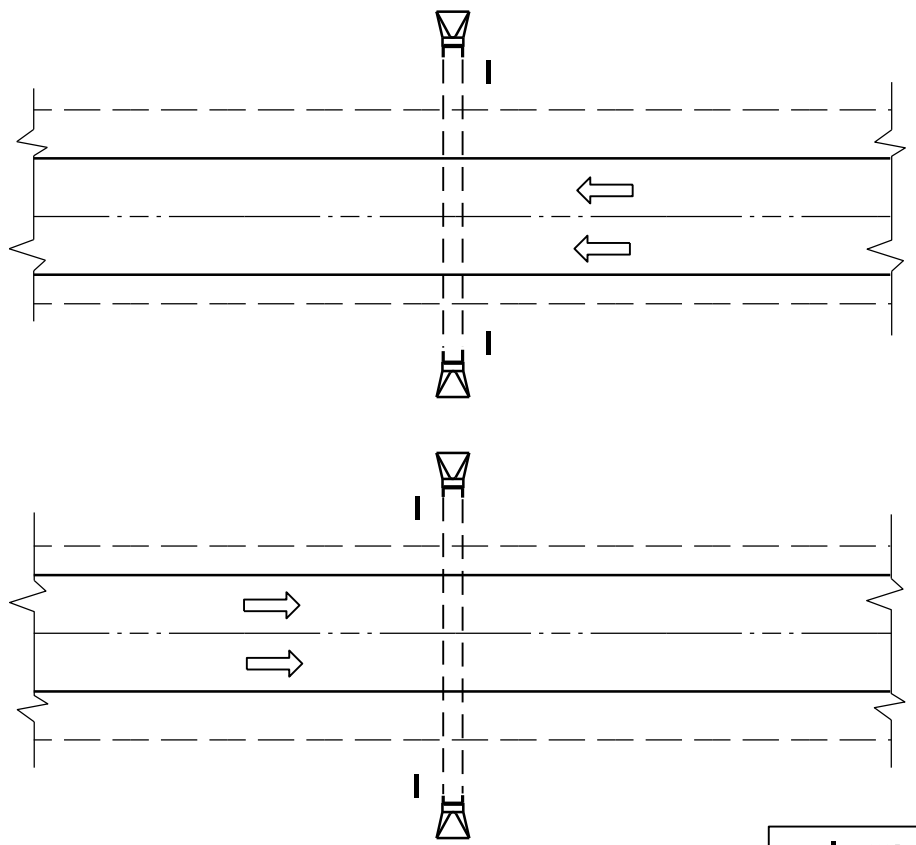
SDD 13C19 - 03

HMA LONGITUDINAL JOINTS

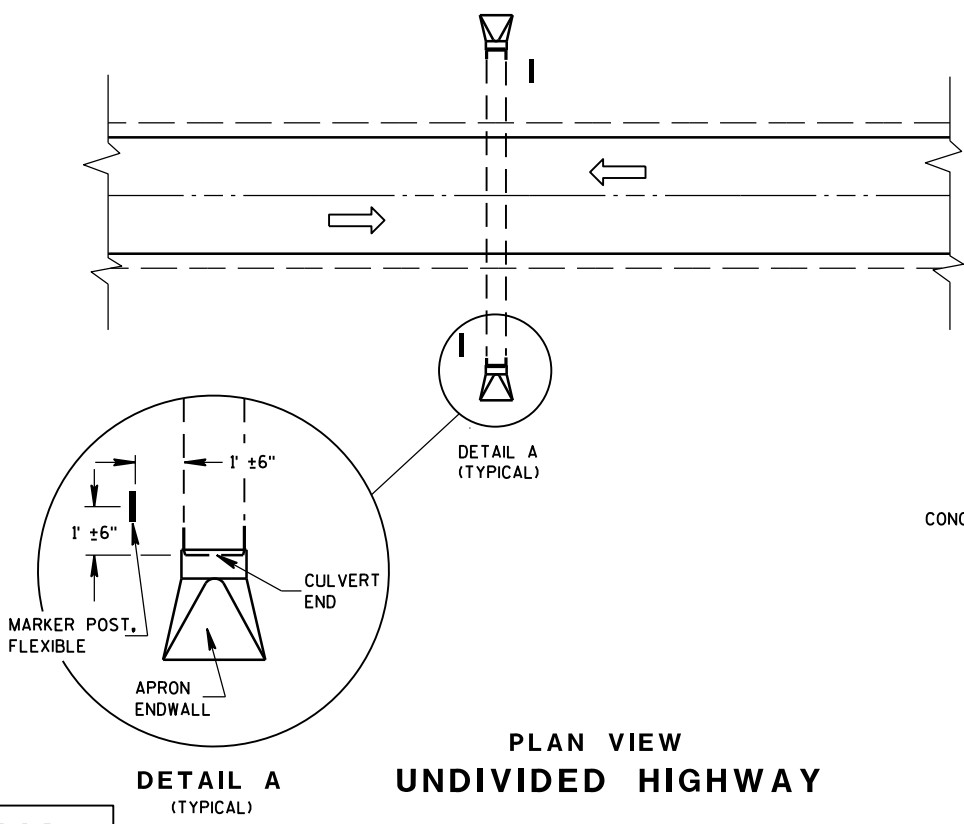
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

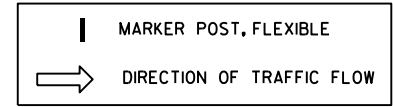


PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

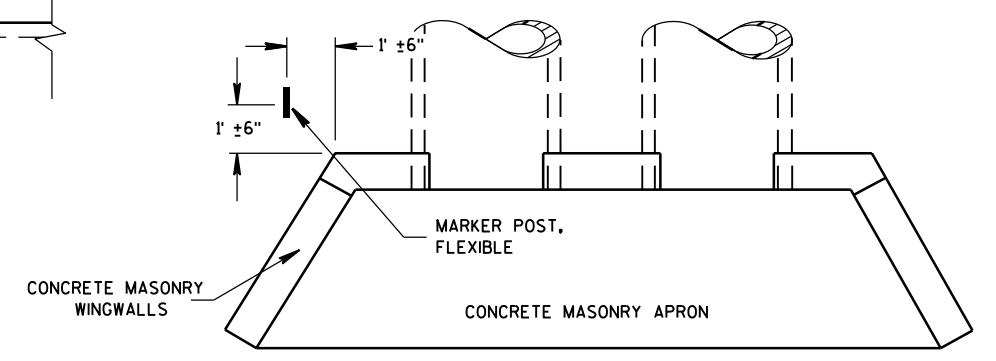
DETAIL A
(TYPICAL)



FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

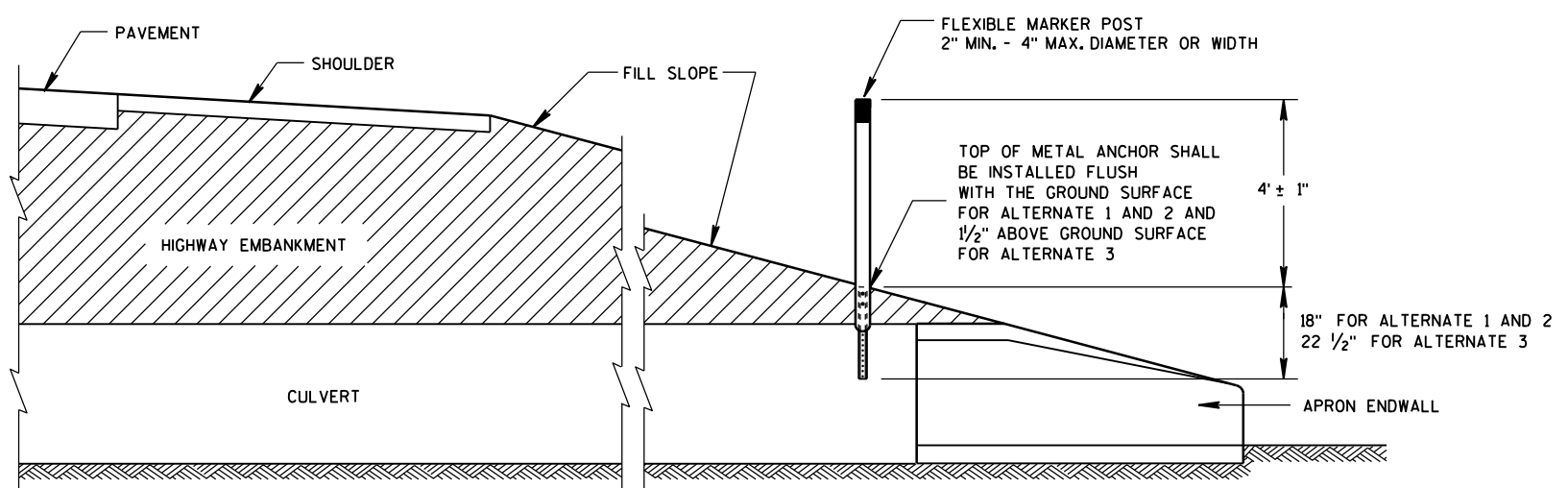
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

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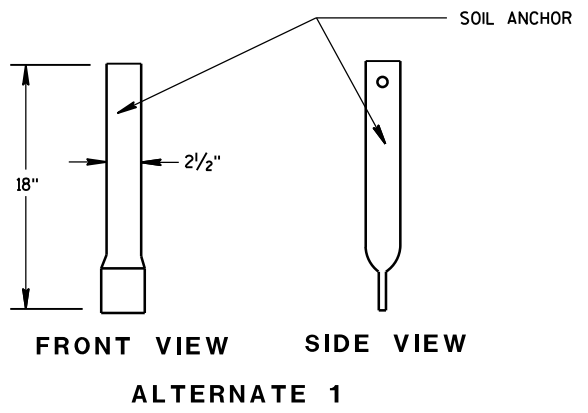
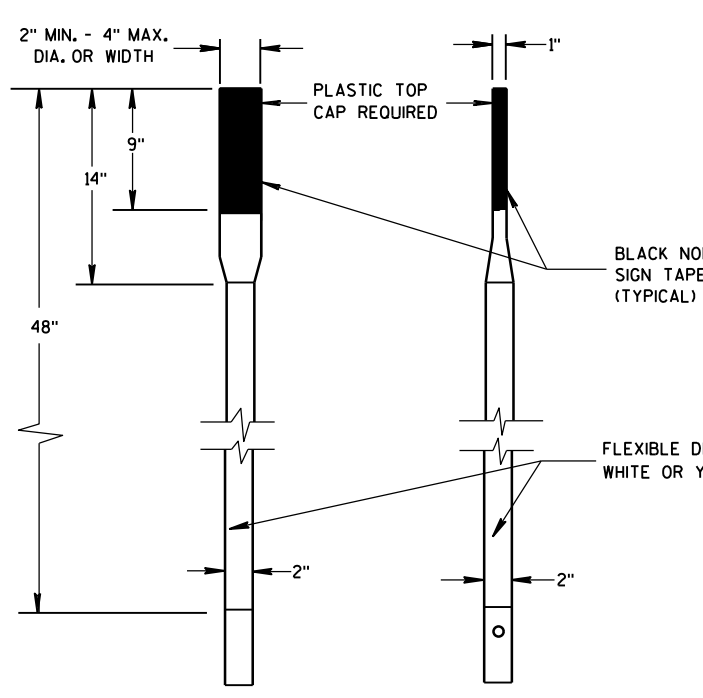
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

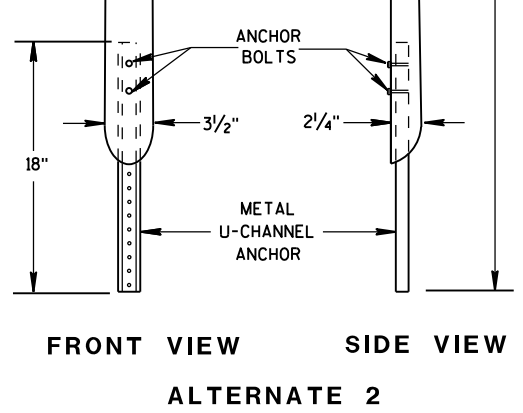
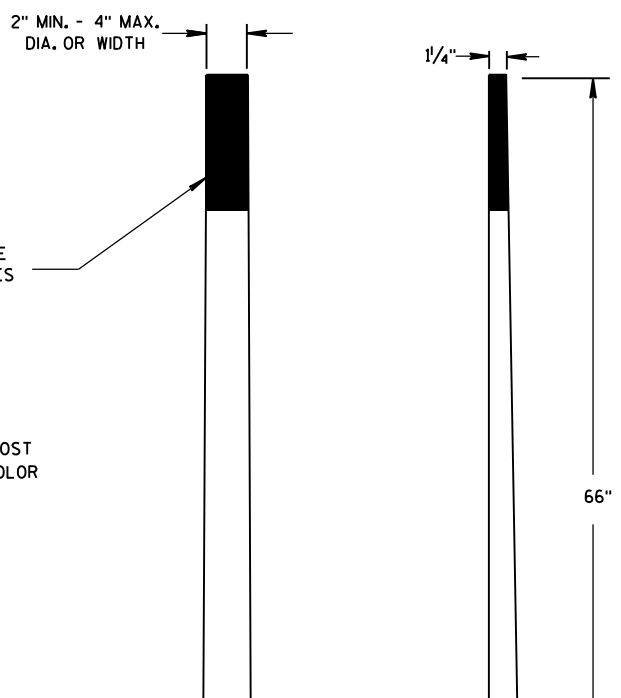
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 15 A 3-2a

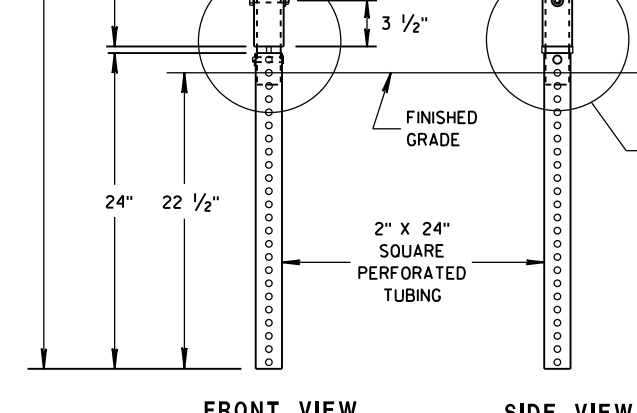
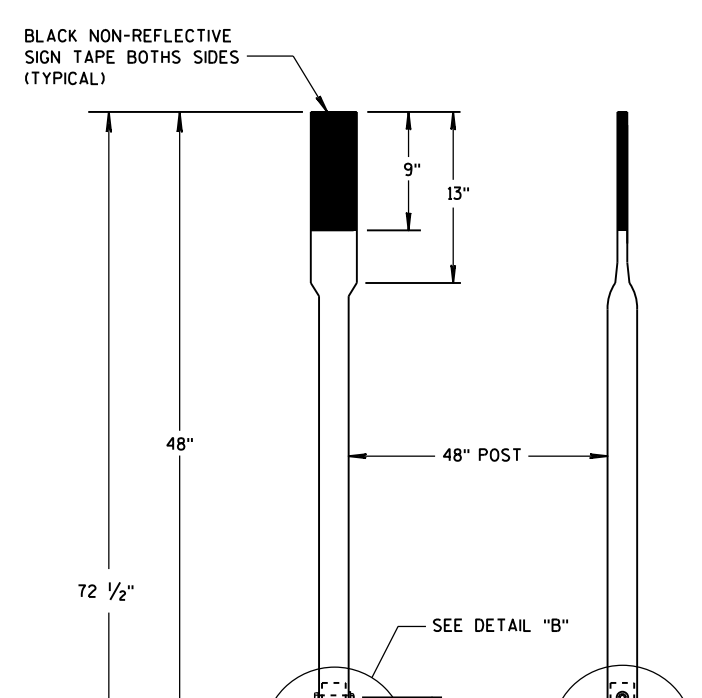
S.D.D. 15 A 3-2a



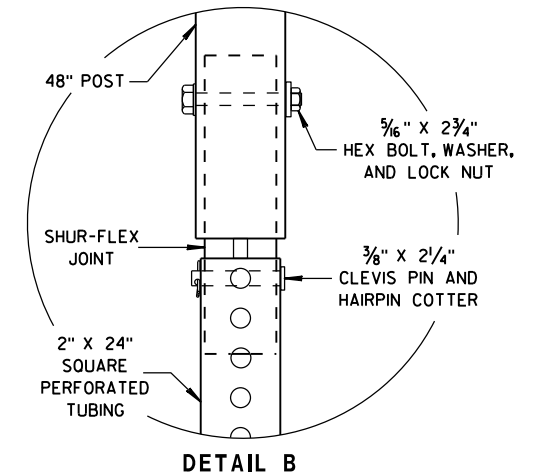
FRONT VIEW SIDE VIEW
ALTERNATE 1



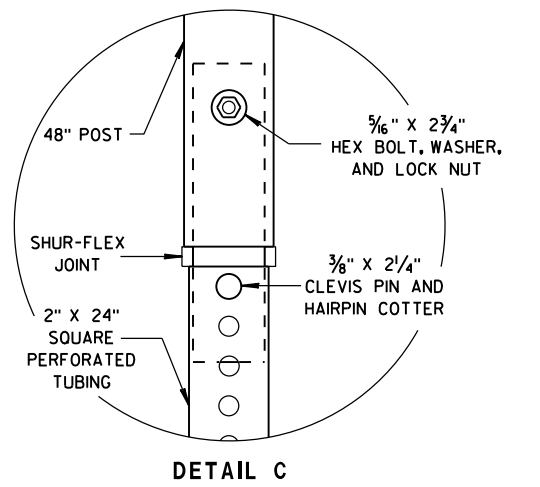
FRONT VIEW SIDE VIEW
ALTERNATE 2



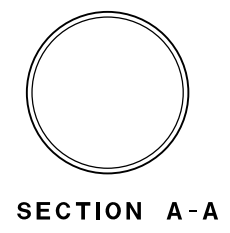
FRONT VIEW SIDE VIEW
ALTERNATE 3



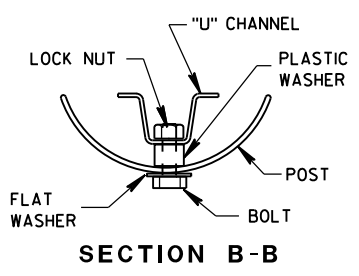
DETAIL B



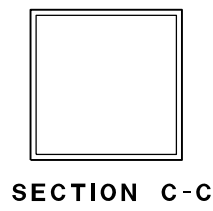
DETAIL C



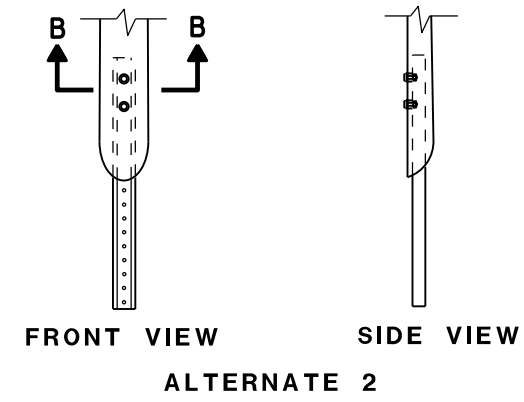
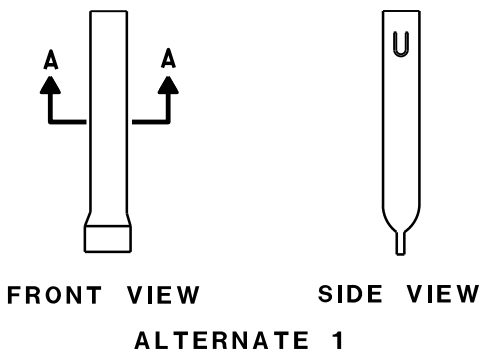
SECTION A-A



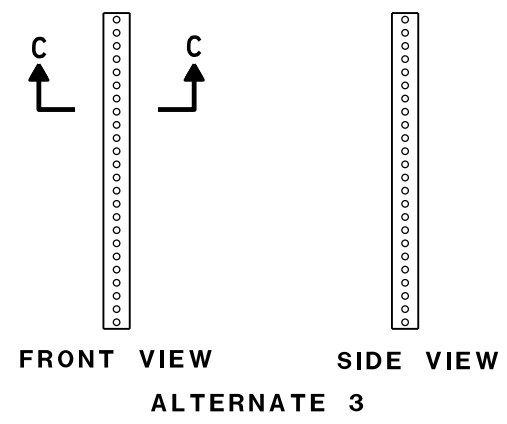
SECTION B-B



SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW
ALTERNATE 3

FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

GENERAL NOTES

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

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




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

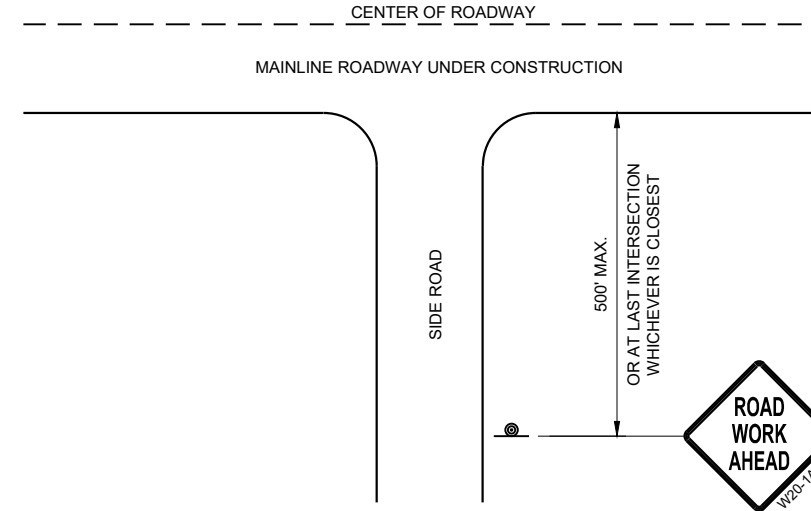
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

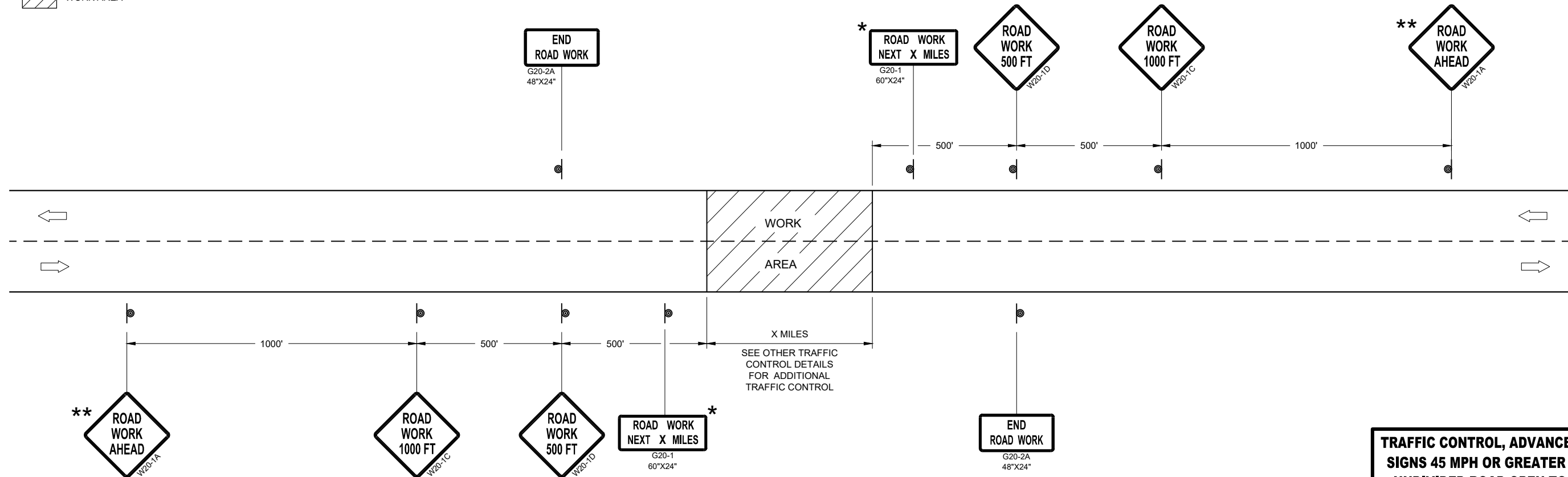
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

GENERAL NOTES

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

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




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"X36" SIGNS MAY BE USED INSTEAD OF 48" X 48" SIGNS.

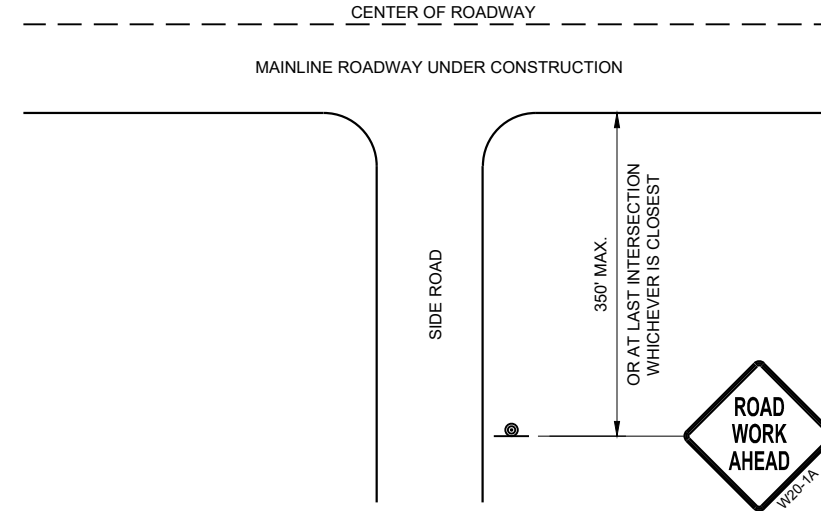
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

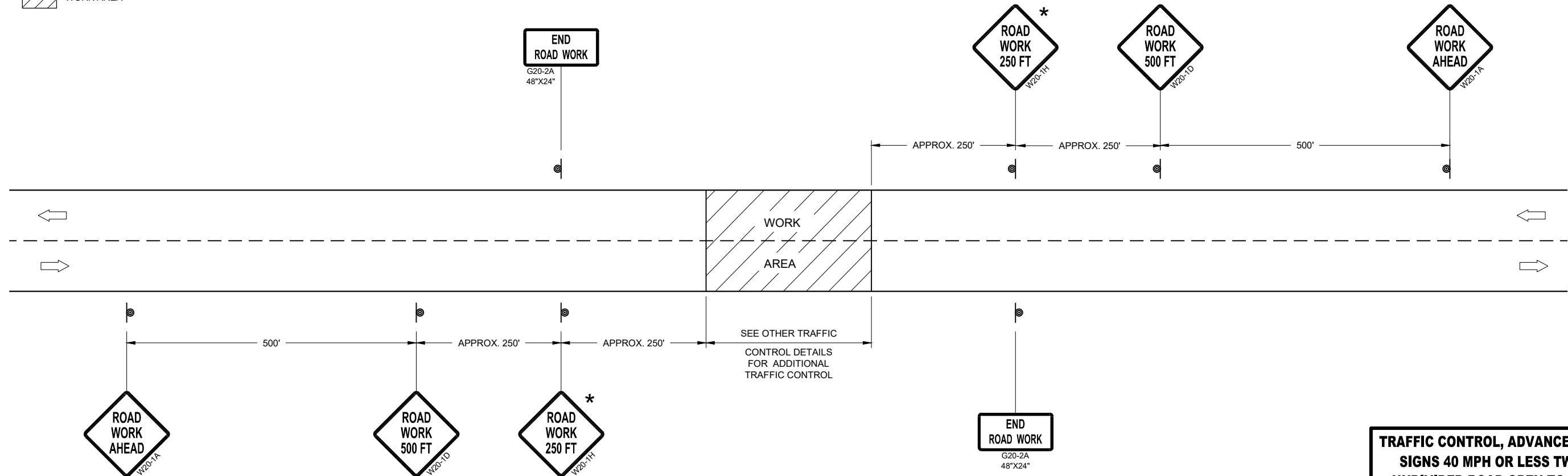
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

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



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



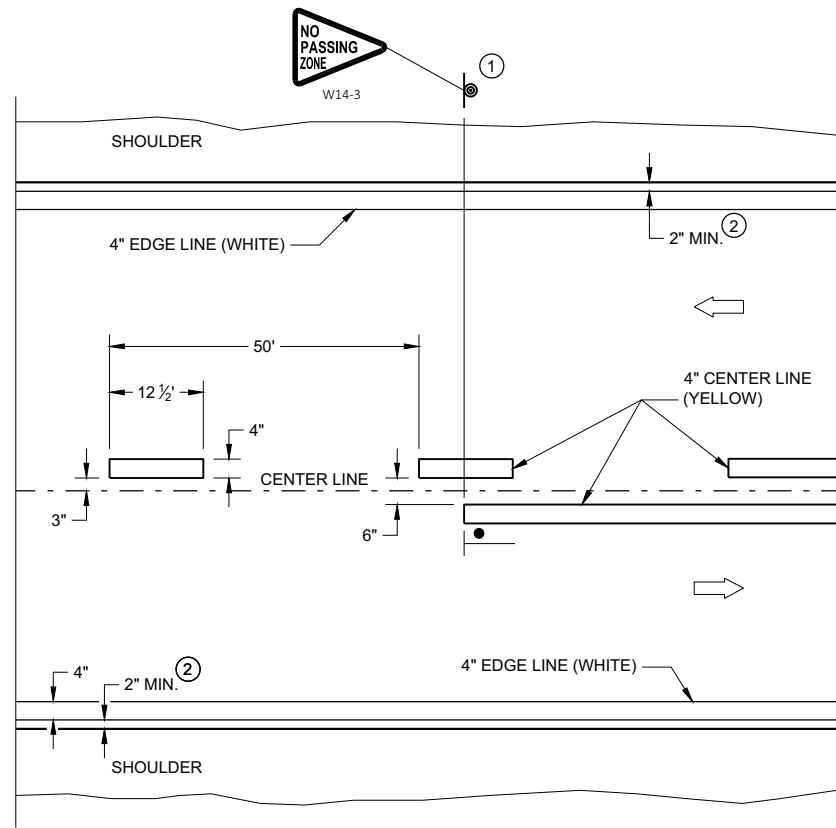
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 40 MPH OR LESS TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

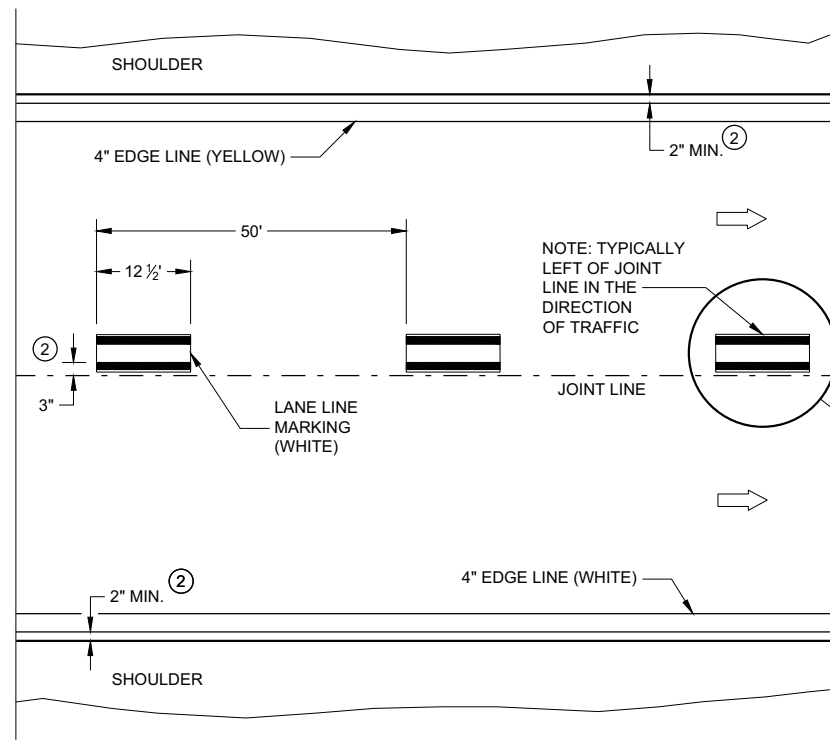
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

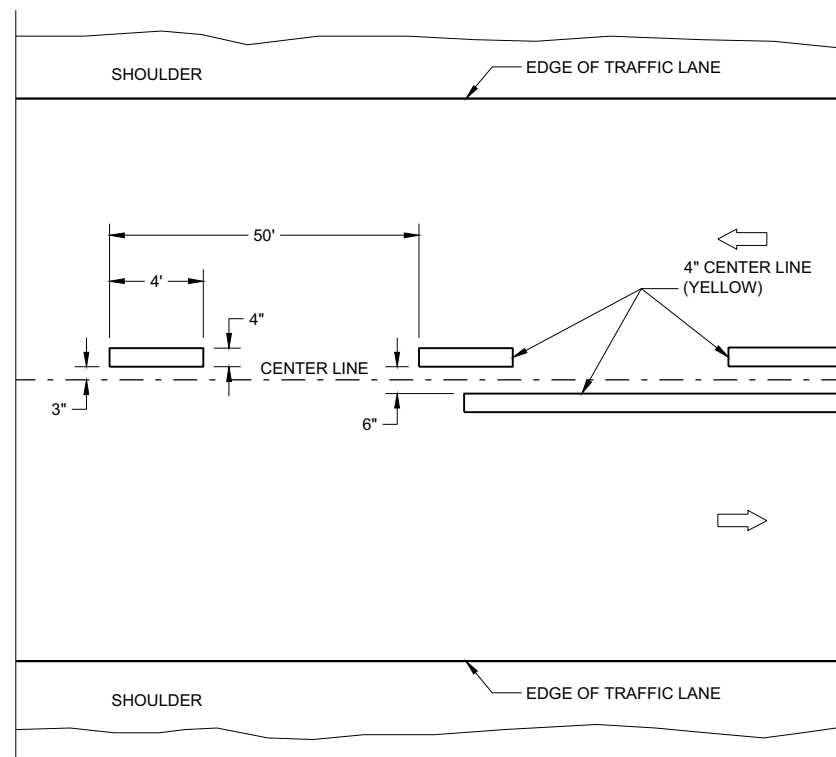


TWO WAY TRAFFIC

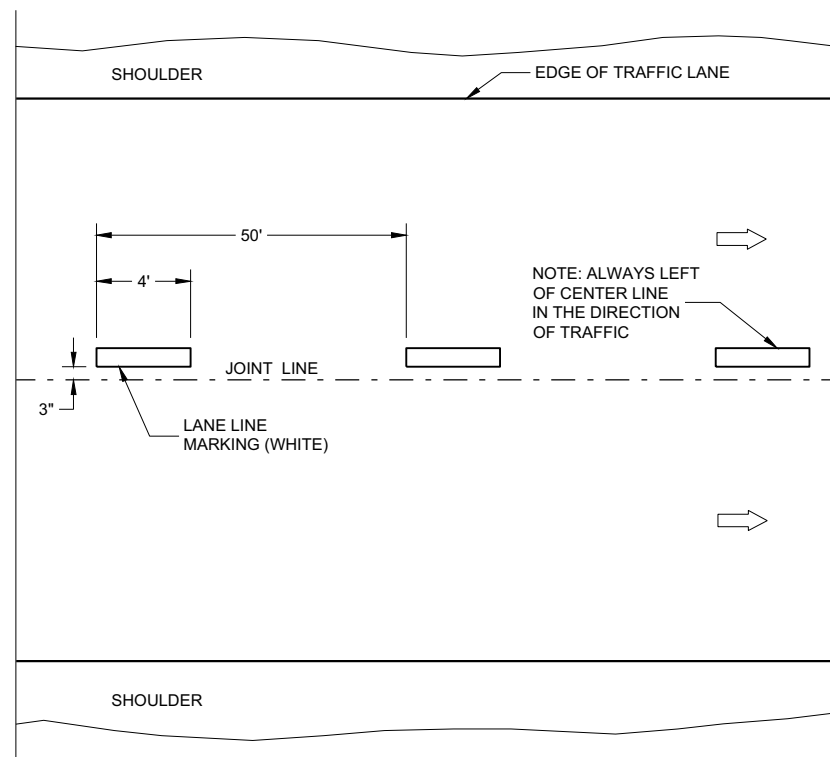


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

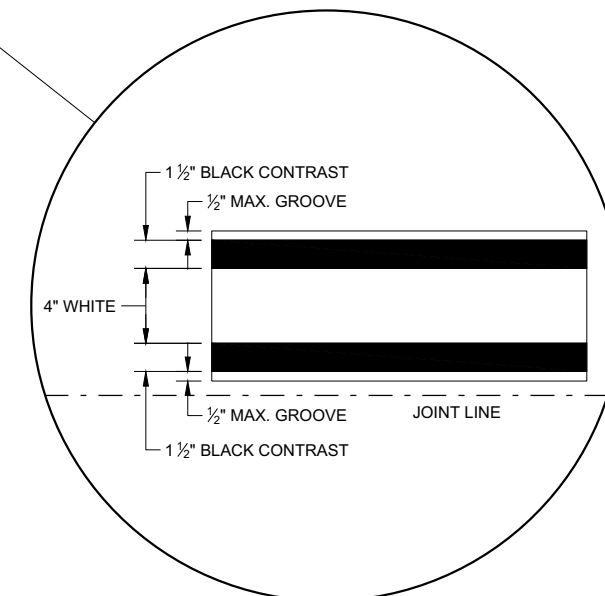
GENERAL NOTES

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

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

LEGEND

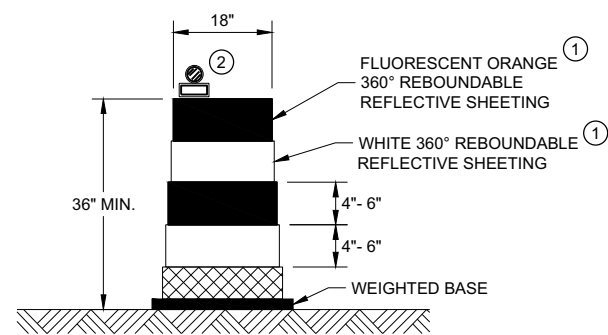
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



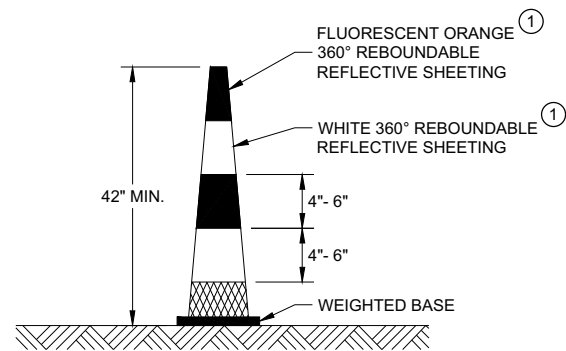
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND MARKING
ENGINEER

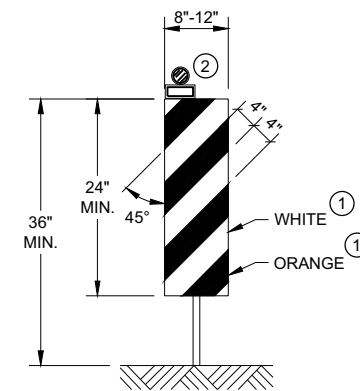


DRUM



42" CONE

DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS

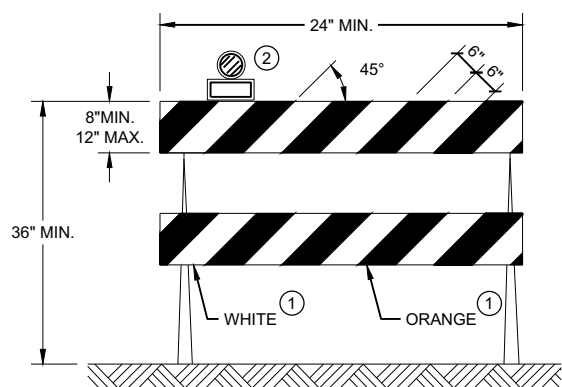


VERTICAL PANEL

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

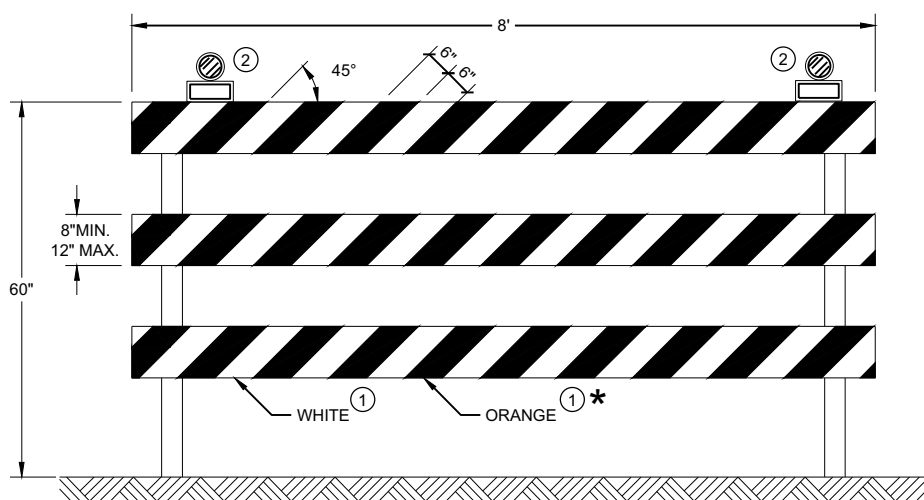
GENERAL NOTES

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



TYPE II BARRICADE

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








TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

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

GENERAL NOTES

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

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

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

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

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

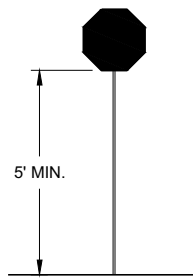
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

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



STOP/SLOW PADDLE ON SUPPORT STAFF

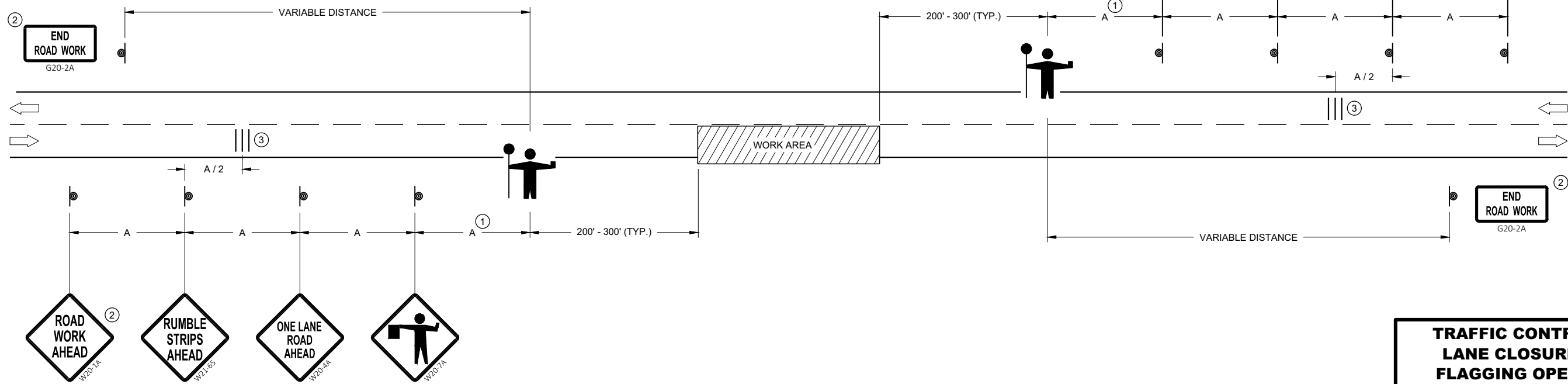
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



W03-4

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



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION





TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2019 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

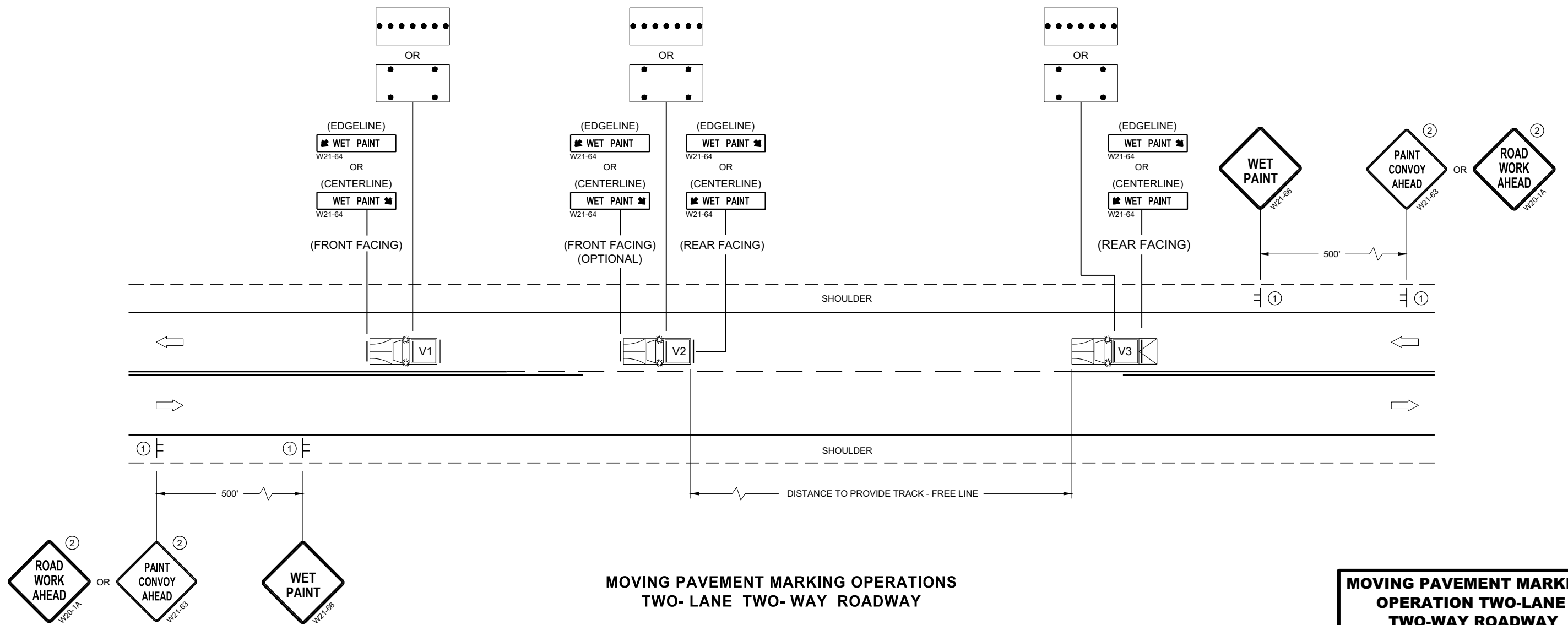
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 18" FOR WET PAVEMENT MARKING.

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.

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

SDD 15C19 - 06a

SDD 15C19 - 06a

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

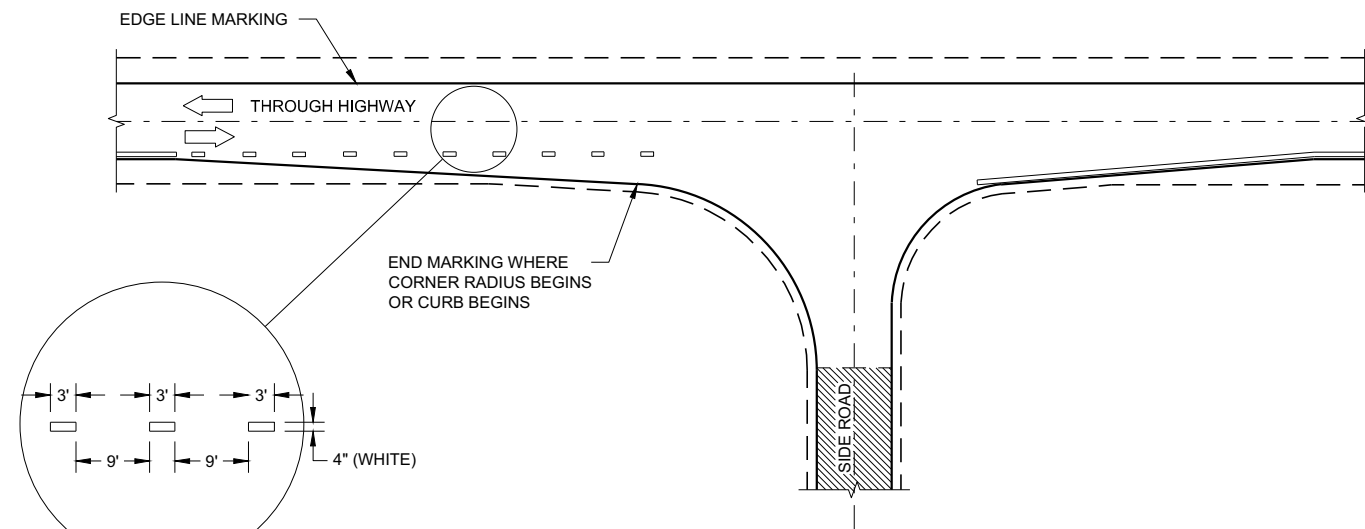
GENERAL NOTES

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

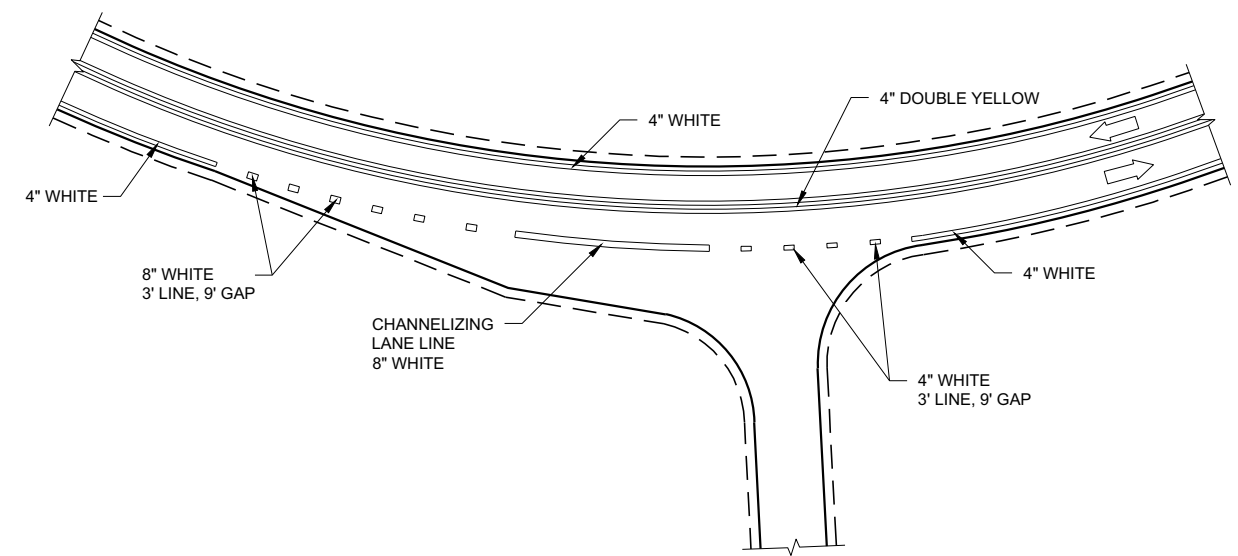
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

LEGEND

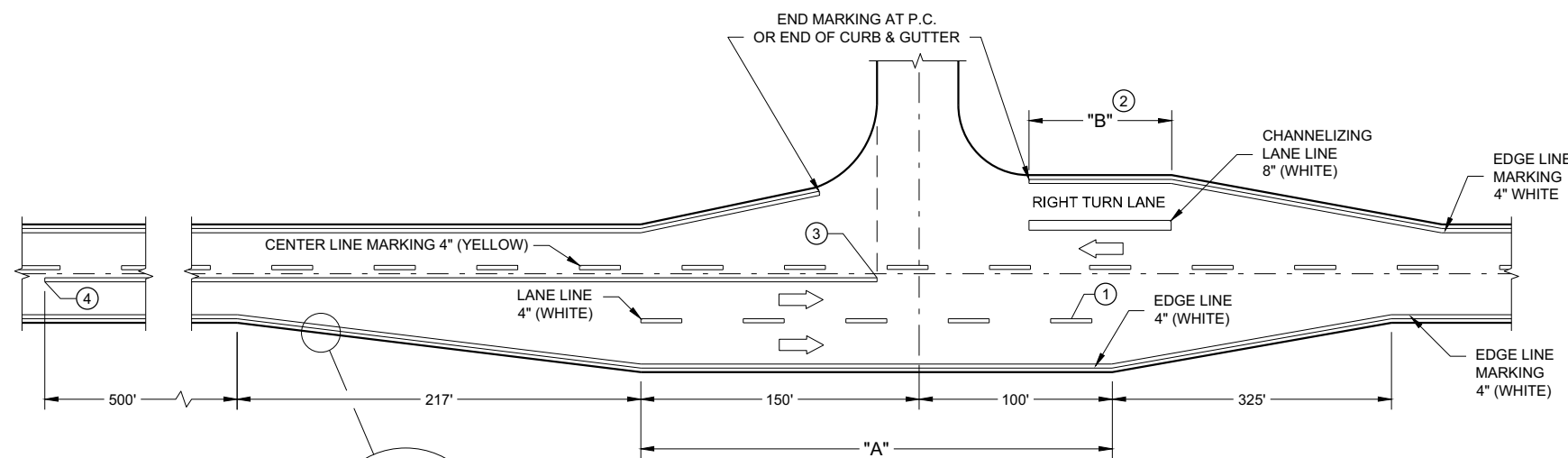
➡ DIRECTION OF TRAVEL



MINOR INTERSECTION



INTERSECTION ON OUTSIDE OF CURVE







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

**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

GENERAL NOTES

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

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

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

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

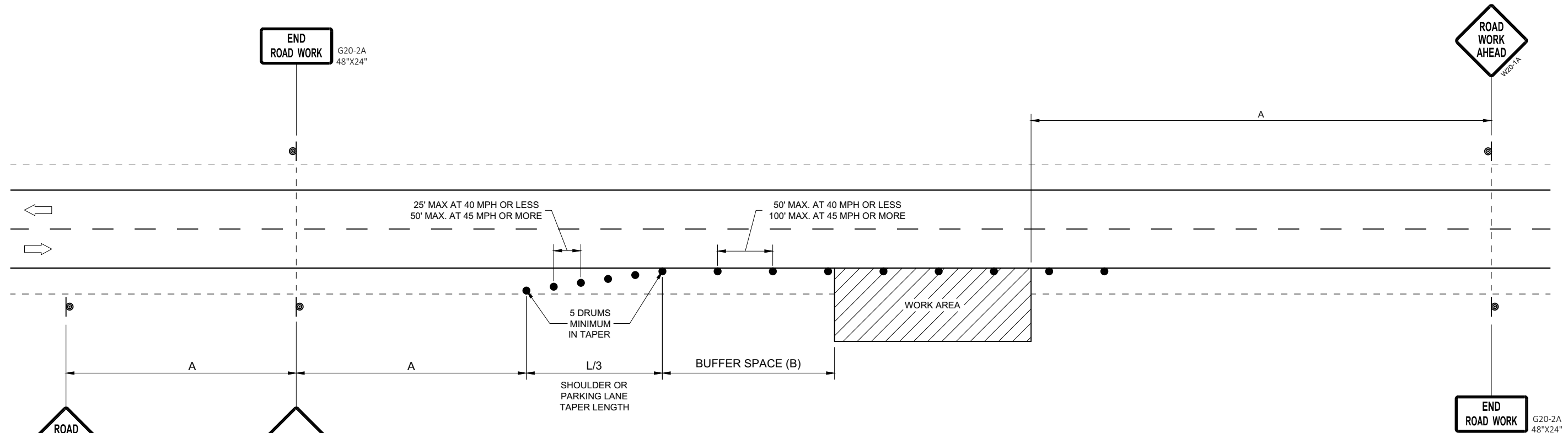
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



OR
IF TRAFFIC CONTROL DEVICES
ENCROACH ONTO TRAVELED WAY, USE

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

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

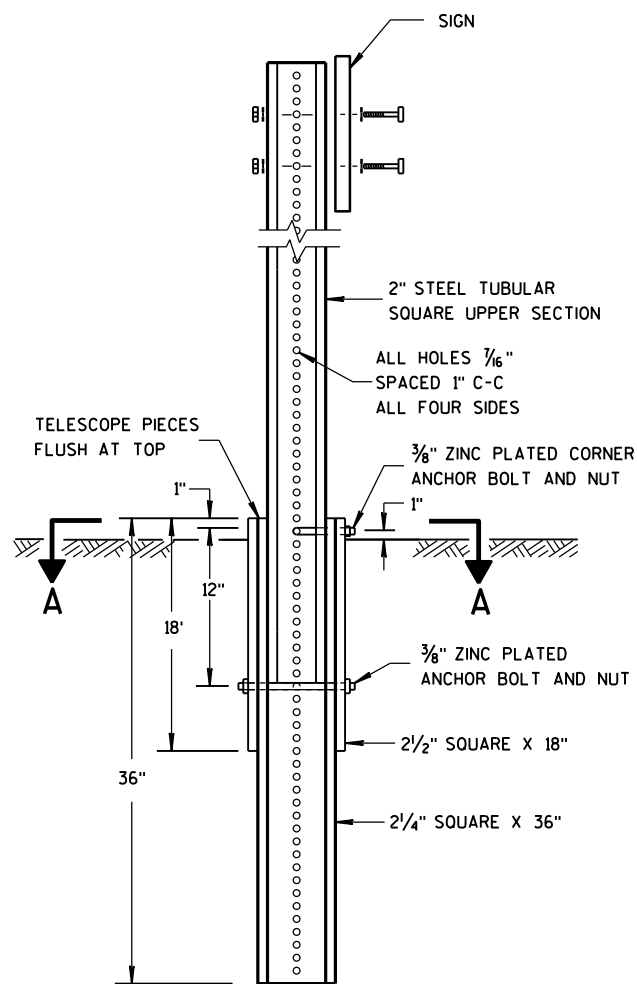
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

FHWA

SDD 15D28 - 04

SDD 15D28 - 04



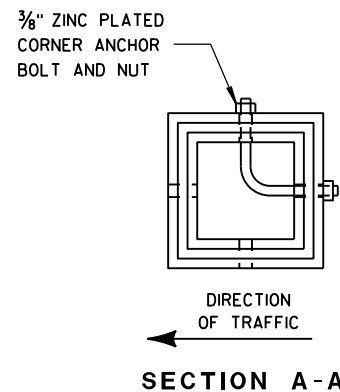
DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

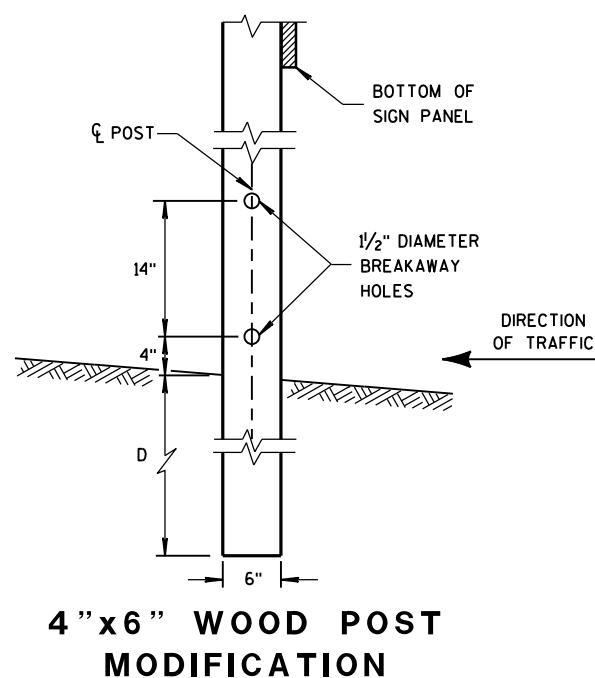
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

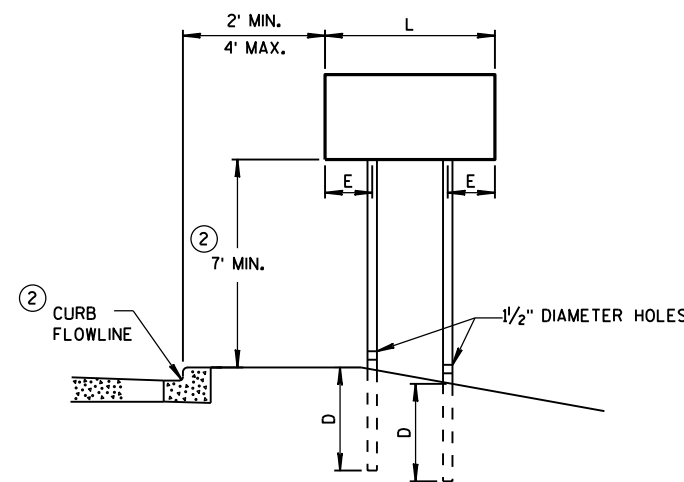
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



SECTION A-A



4" X 6" WOOD POST MODIFICATION

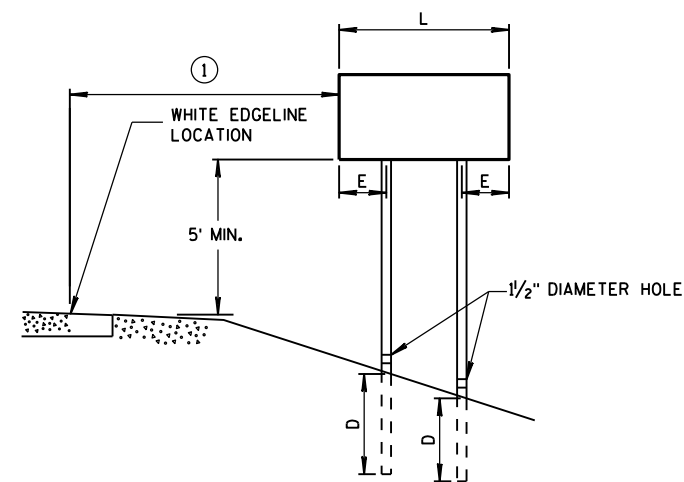


URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



RURAL AREA

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

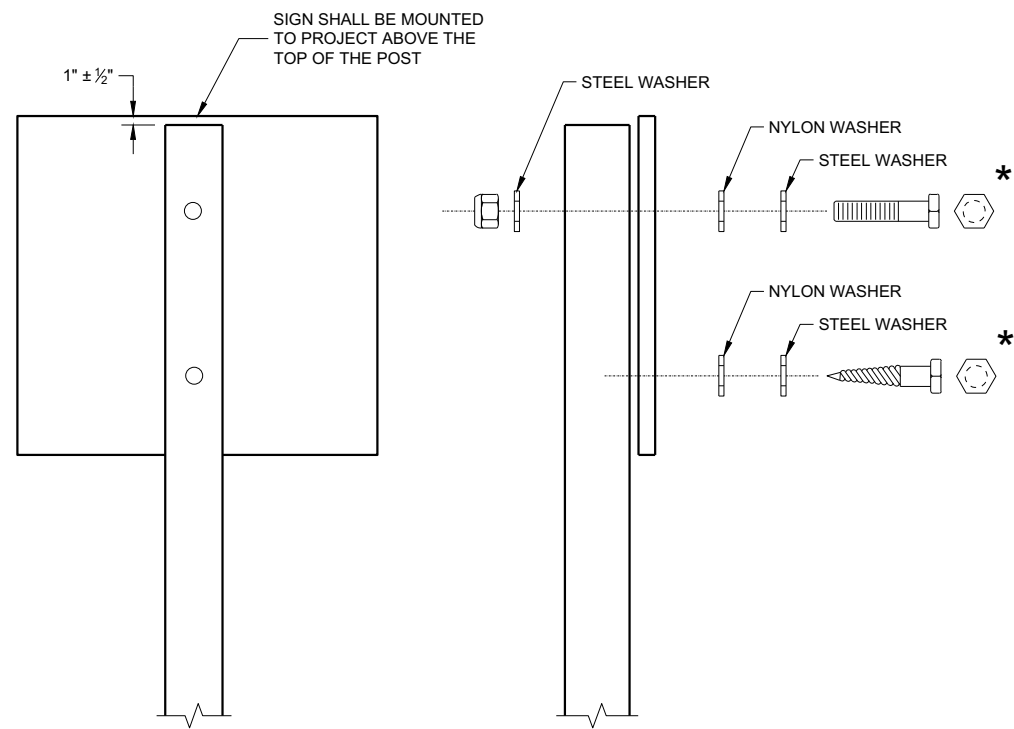
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

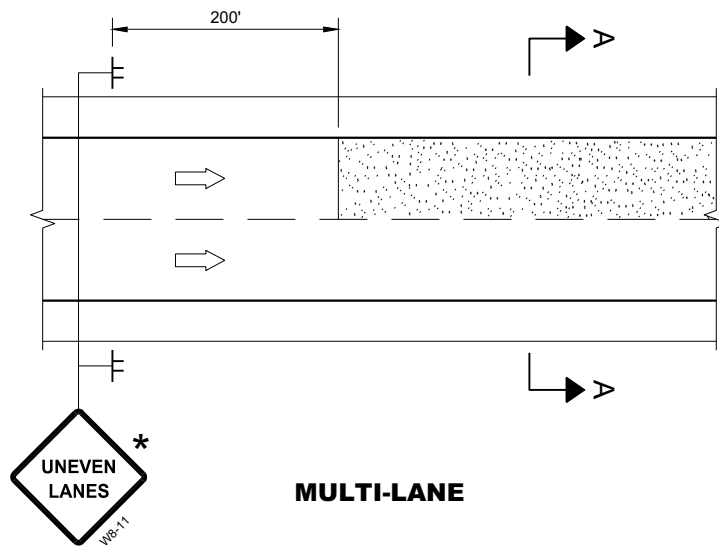
WOOD POST (4" x 6")
 LAG SCREWS - 3/8" x 3"
 MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
 MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
 RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
 BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
 GRIP RANGE 0.042 - 0.375 INCH

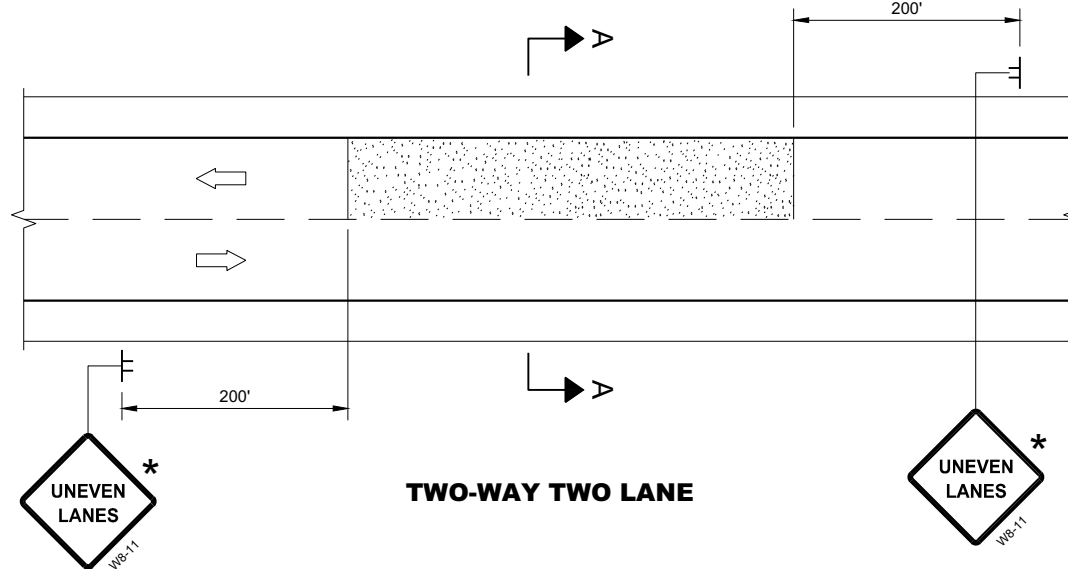
WASHERS (ALL POSTS) -
 1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

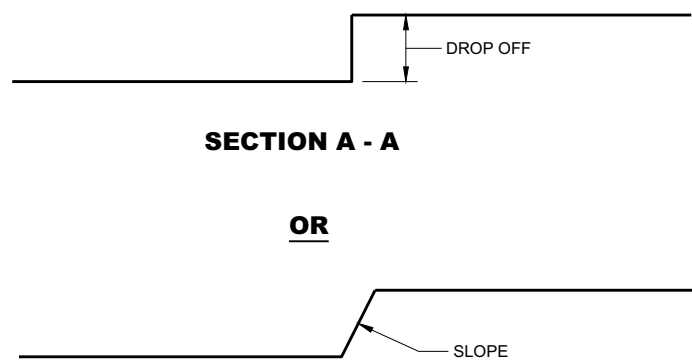
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



MULTI-LANE



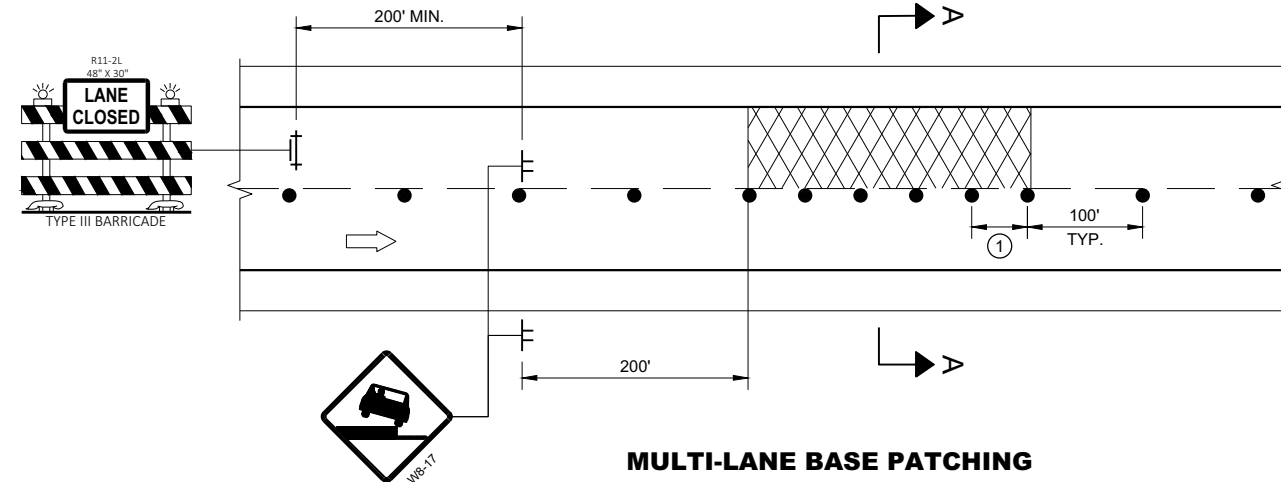
TWO-WAY TWO LANE



SECTION A - A

OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

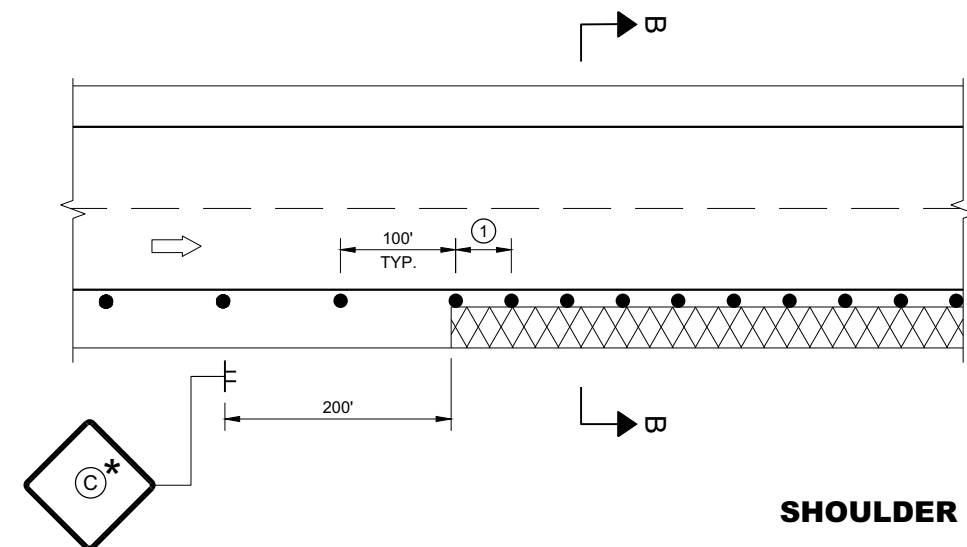
- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- * IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.
- ① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

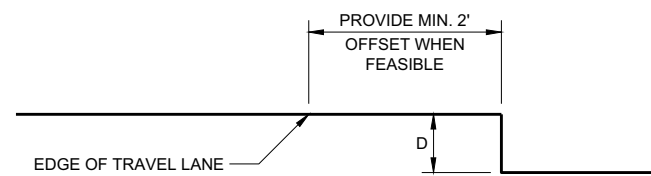
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

6

6



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 SHOULDER DROP - OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

SDD 15D39 - 02

SDD 15D39 - 02

**TRAFFIC CONTROL,
DROP-OFF SIGNING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

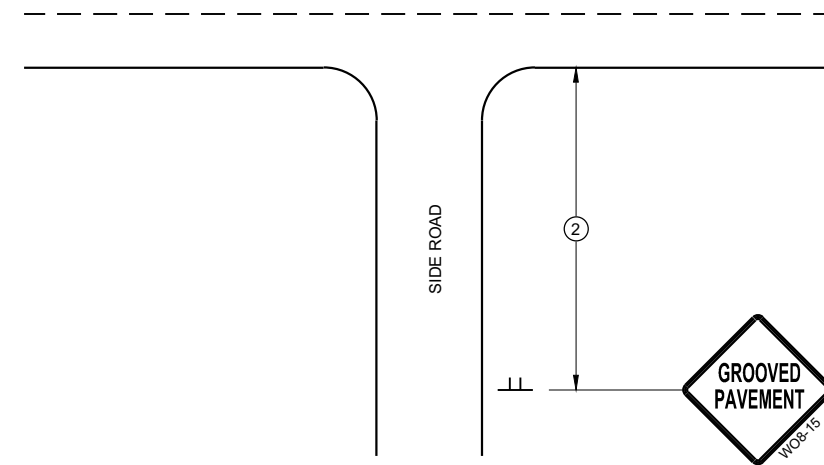
SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

- ① PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

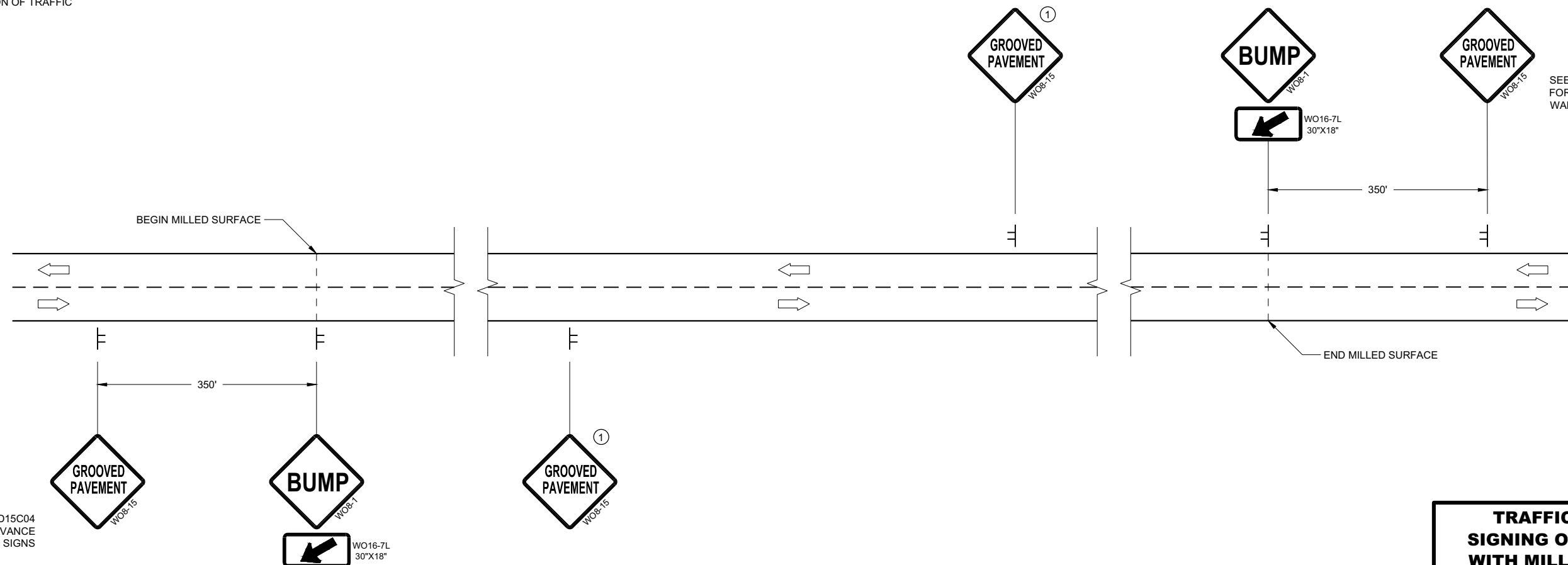
LEGEND

⊥ SIGN ON TEMPORARY SUPPORT

⇨ DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



DETAIL FOR SIGNING ON MILLED SURFACES

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

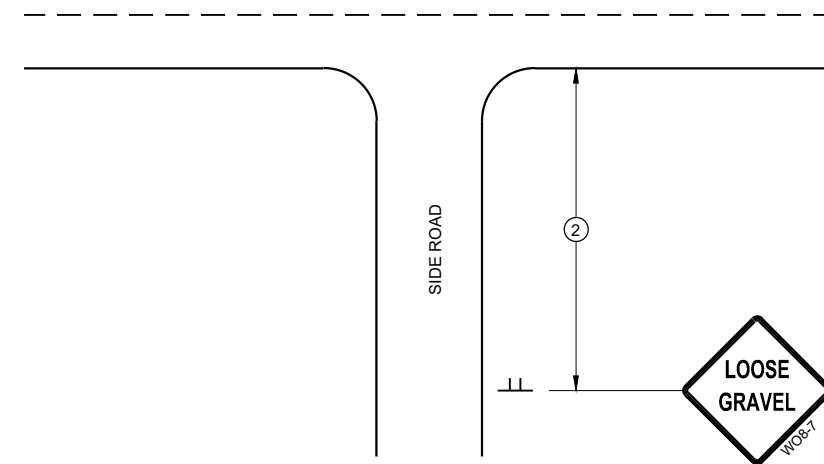
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

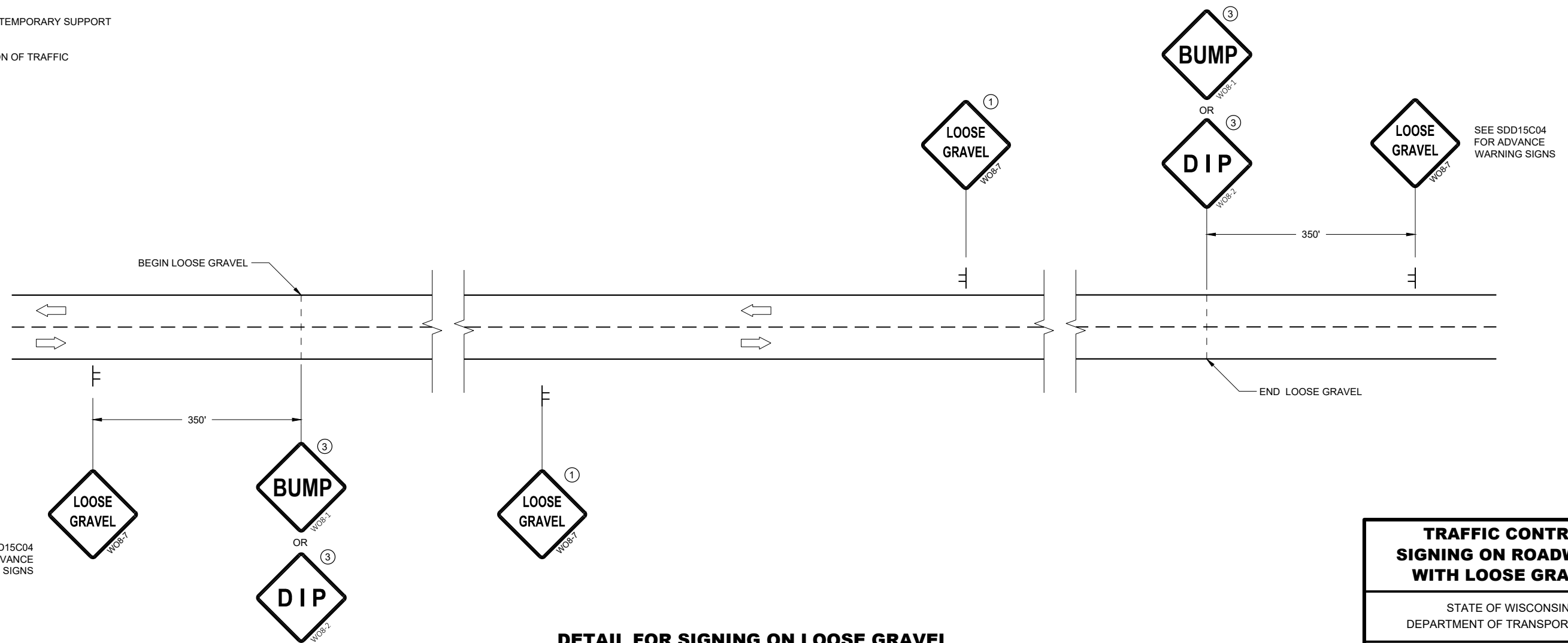
- ① PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.
- ③ ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

LEGEND

- ⊥ SIGN ON TEMPORARY SUPPORT
- ➡ DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



DETAIL FOR SIGNING ON LOOSE GRAVEL OR CHIP SEALED SURFACES

SEE SDD15C04 FOR ADVANCE WARNING SIGNS

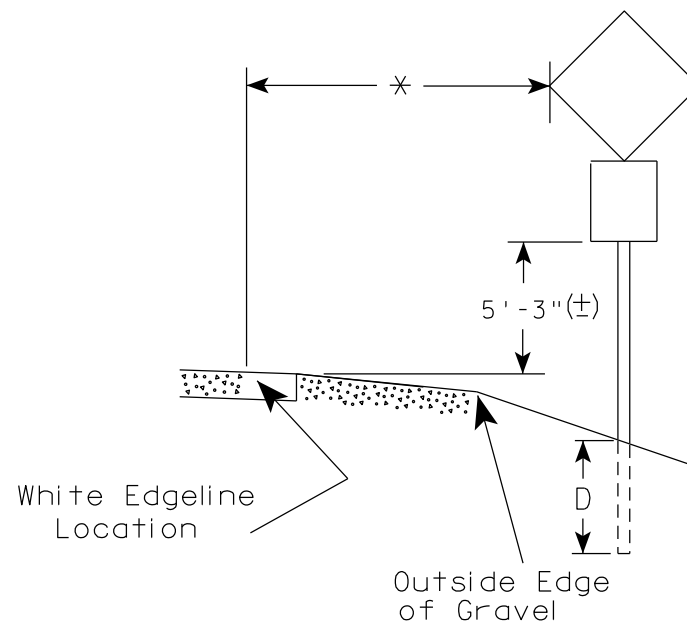
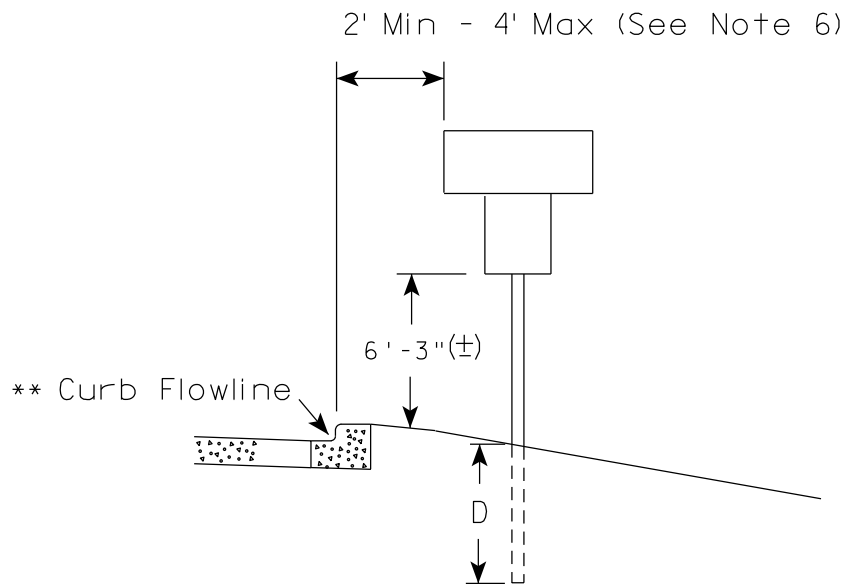
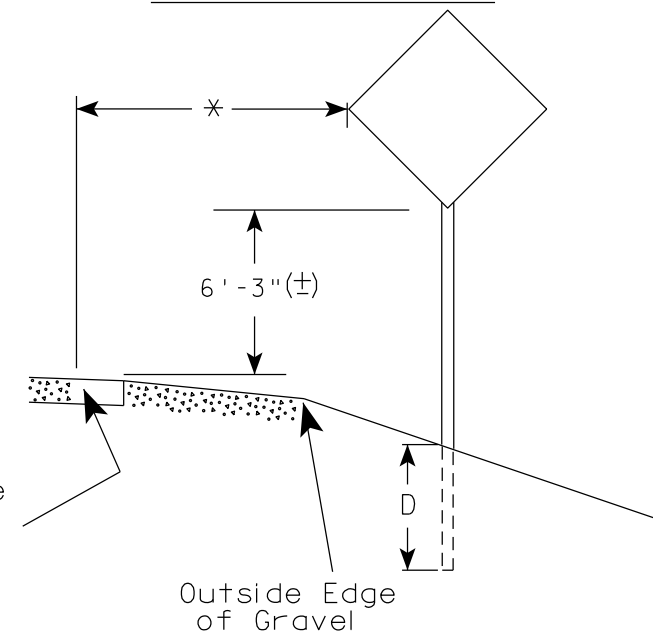
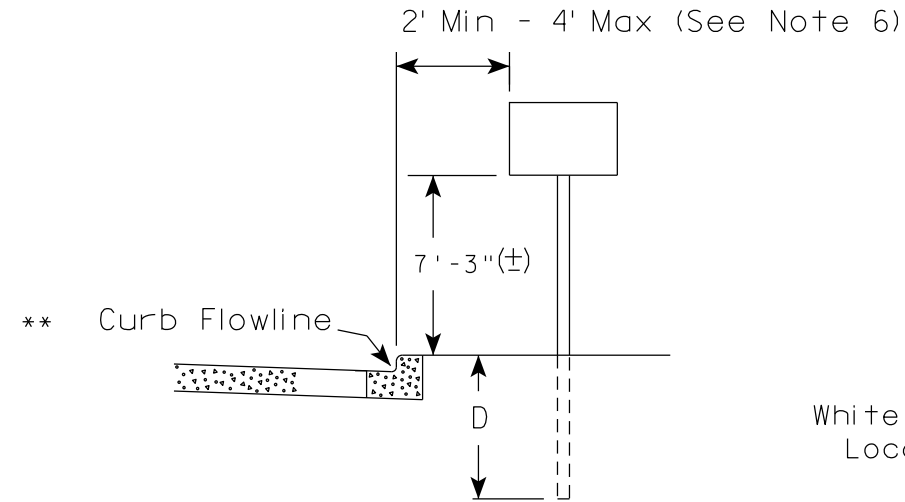
TRAFFIC CONTROL SIGNING ON ROADWAYS WITH LOOSE GRAVEL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

URBAN AREA

RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

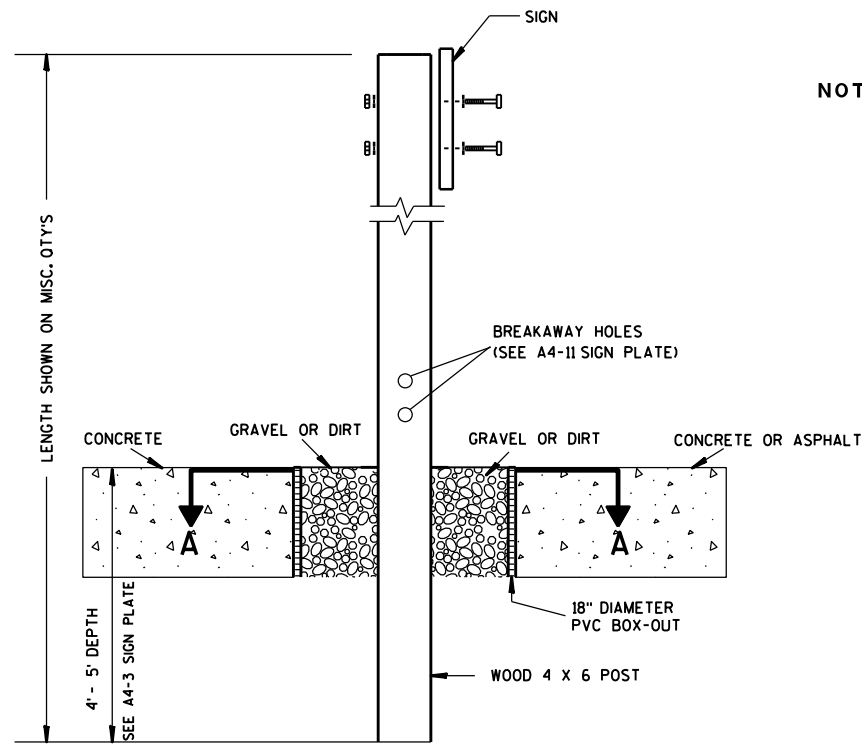
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

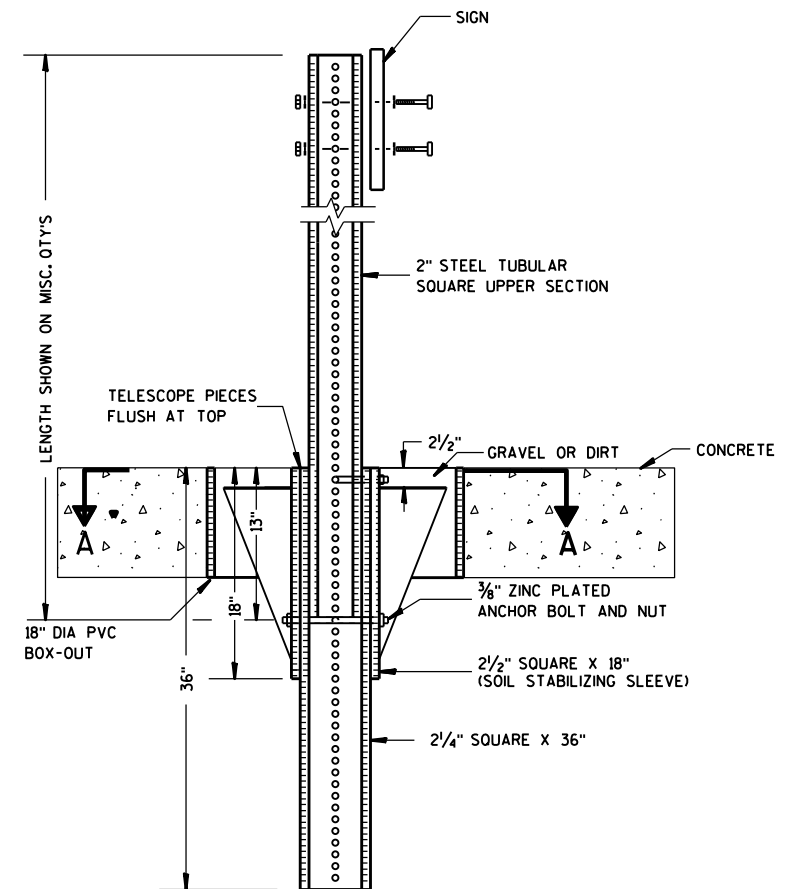
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

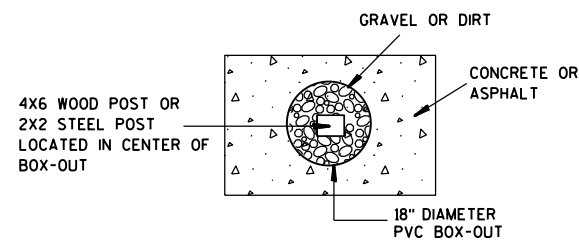
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

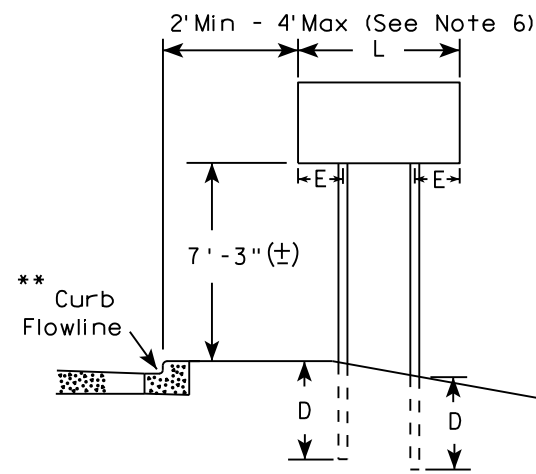
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED <i>Matthew R. Rauch</i> for State Traffic Engineer	
DATE 1/27/14	PLATE NO. A4-3B.1

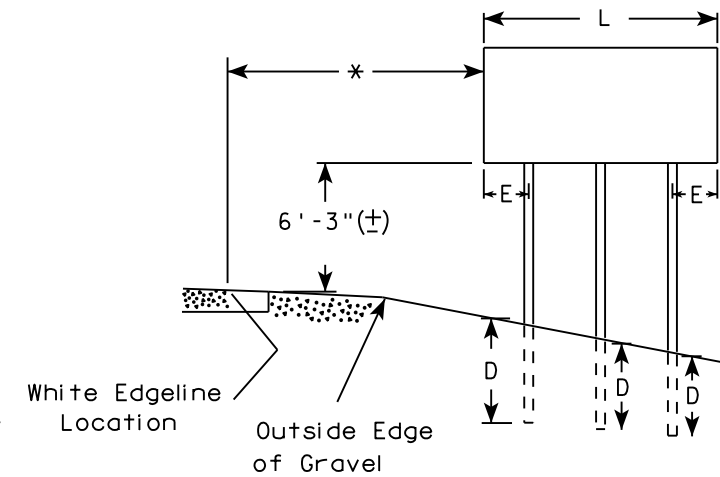
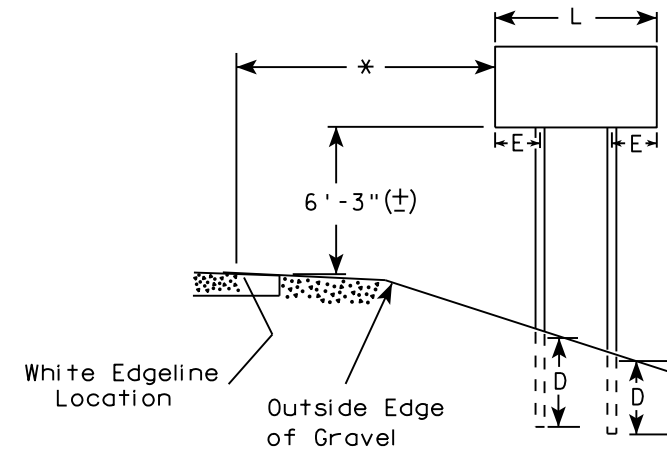
GENERAL NOTES

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

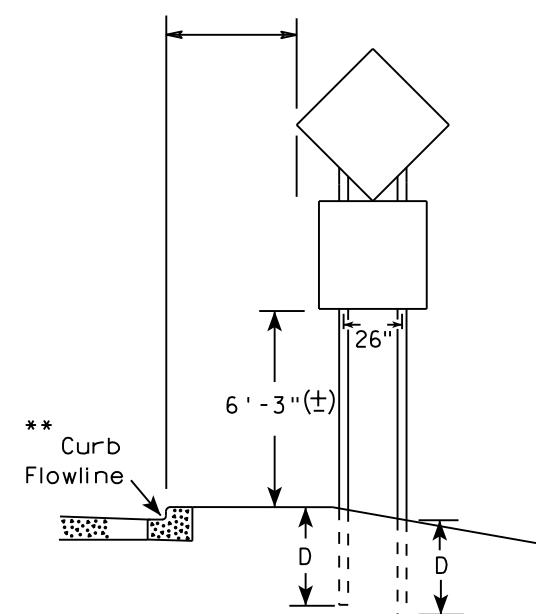
URBAN AREA



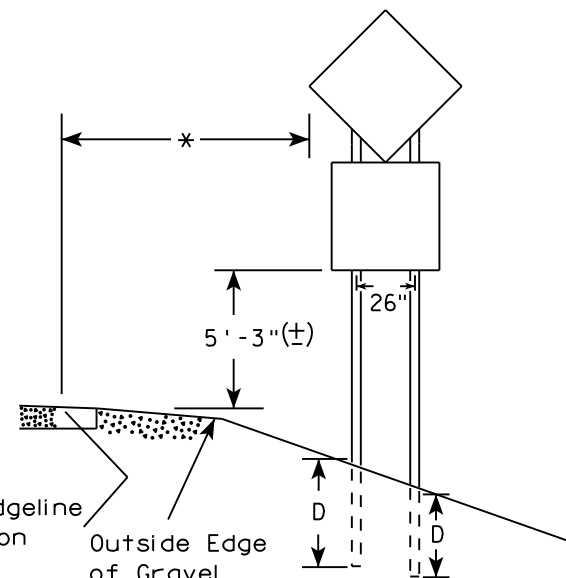
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

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

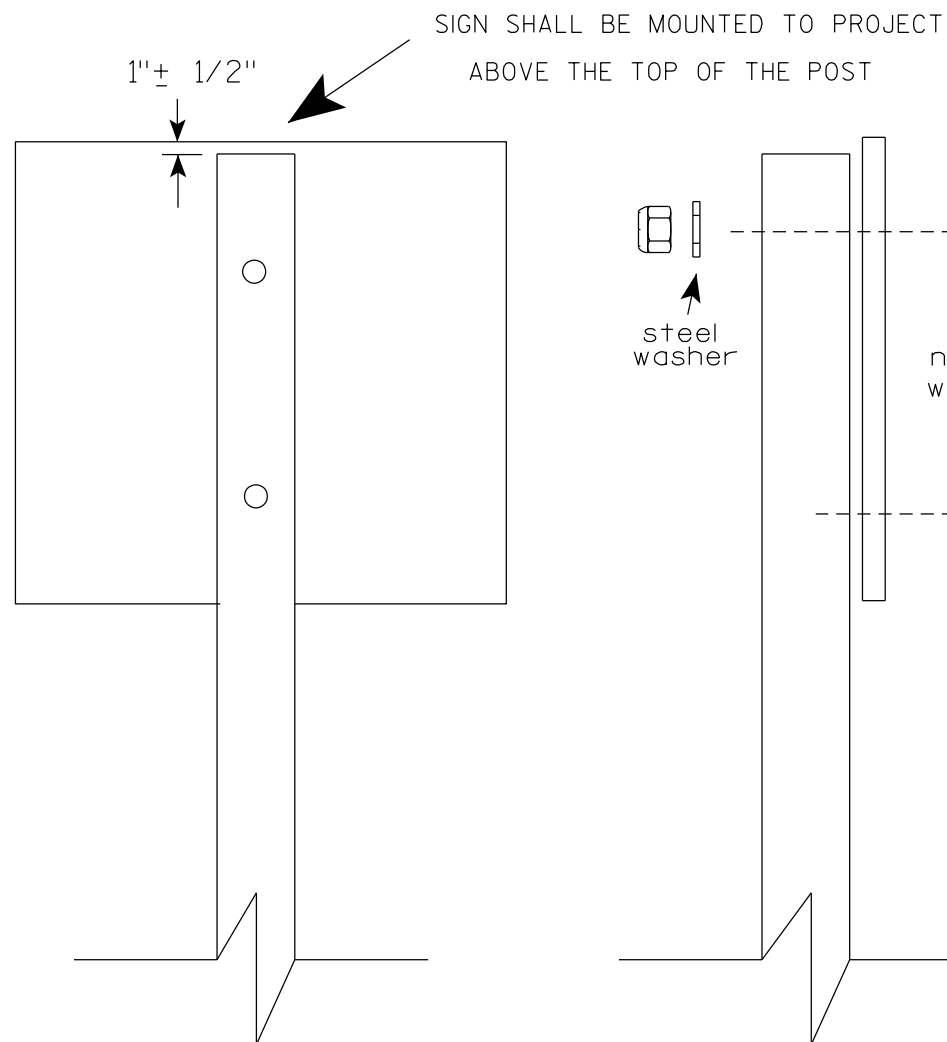
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

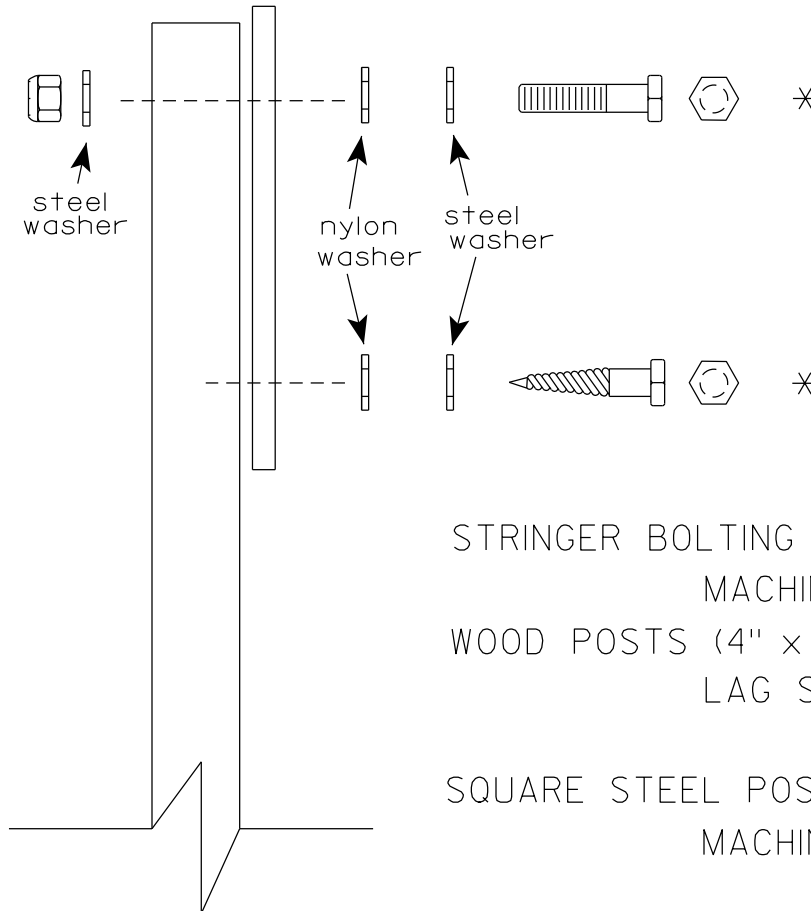
WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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

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

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



STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
 O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

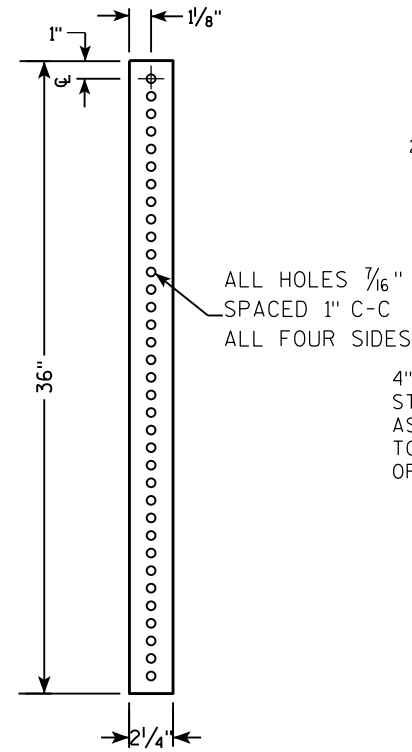
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

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

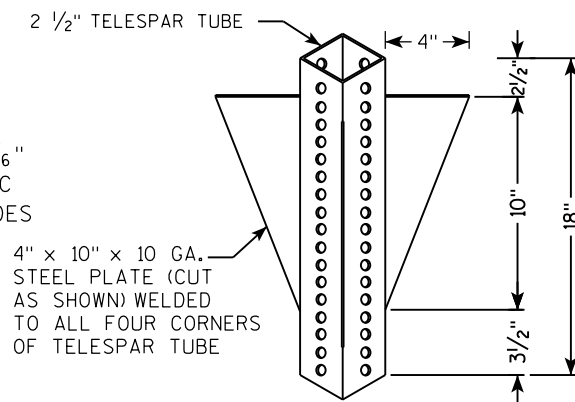
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

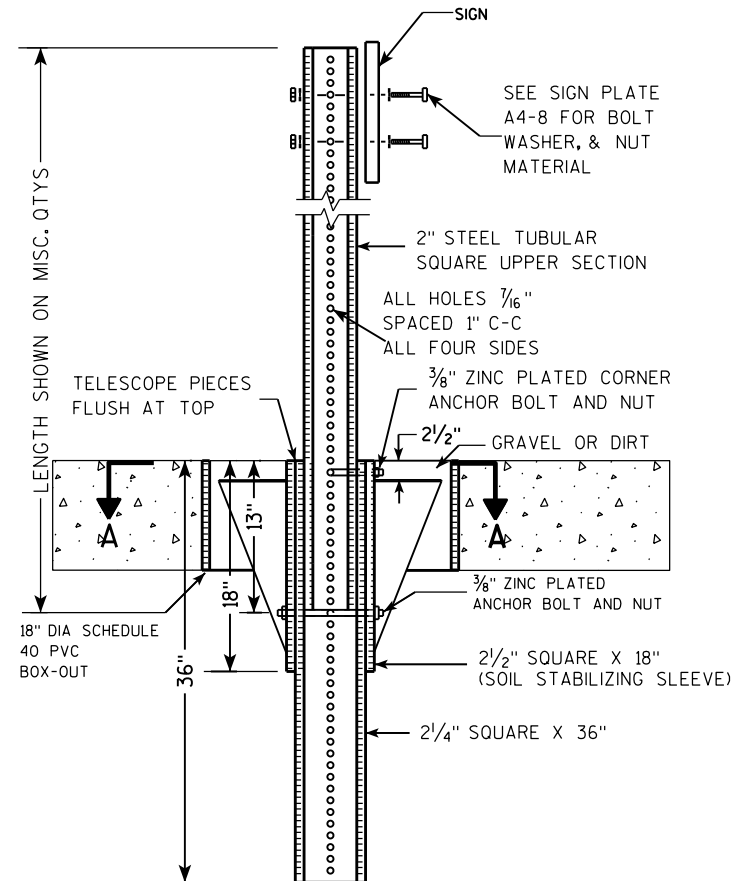
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



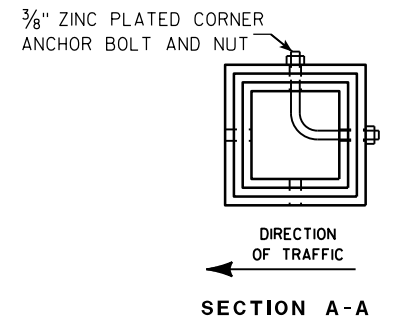
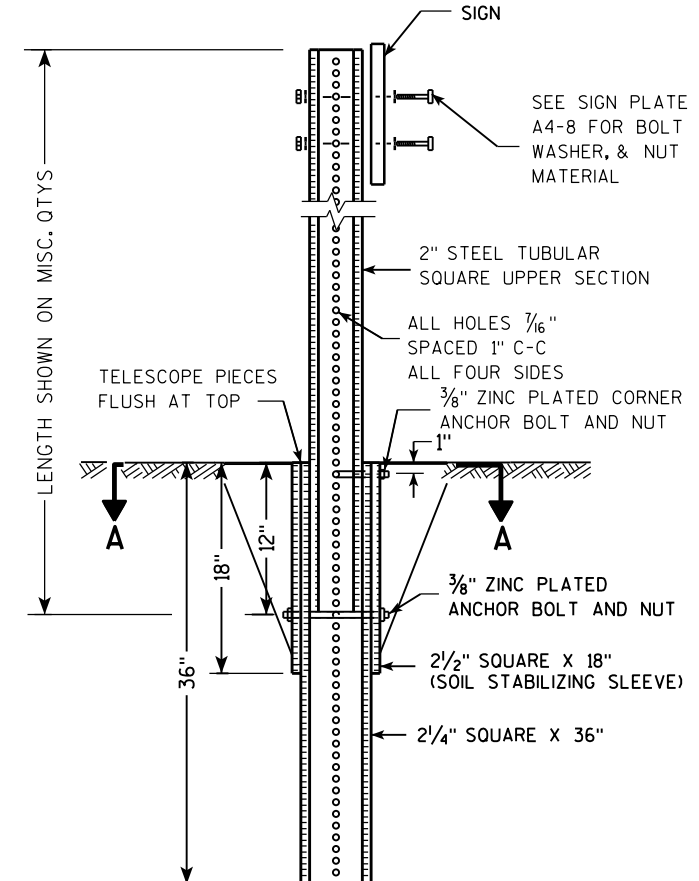
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

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

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

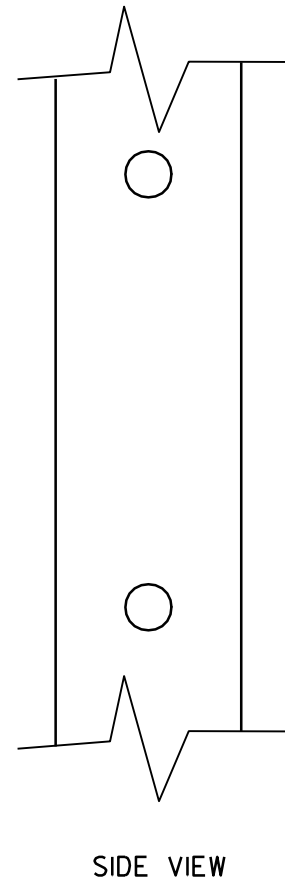
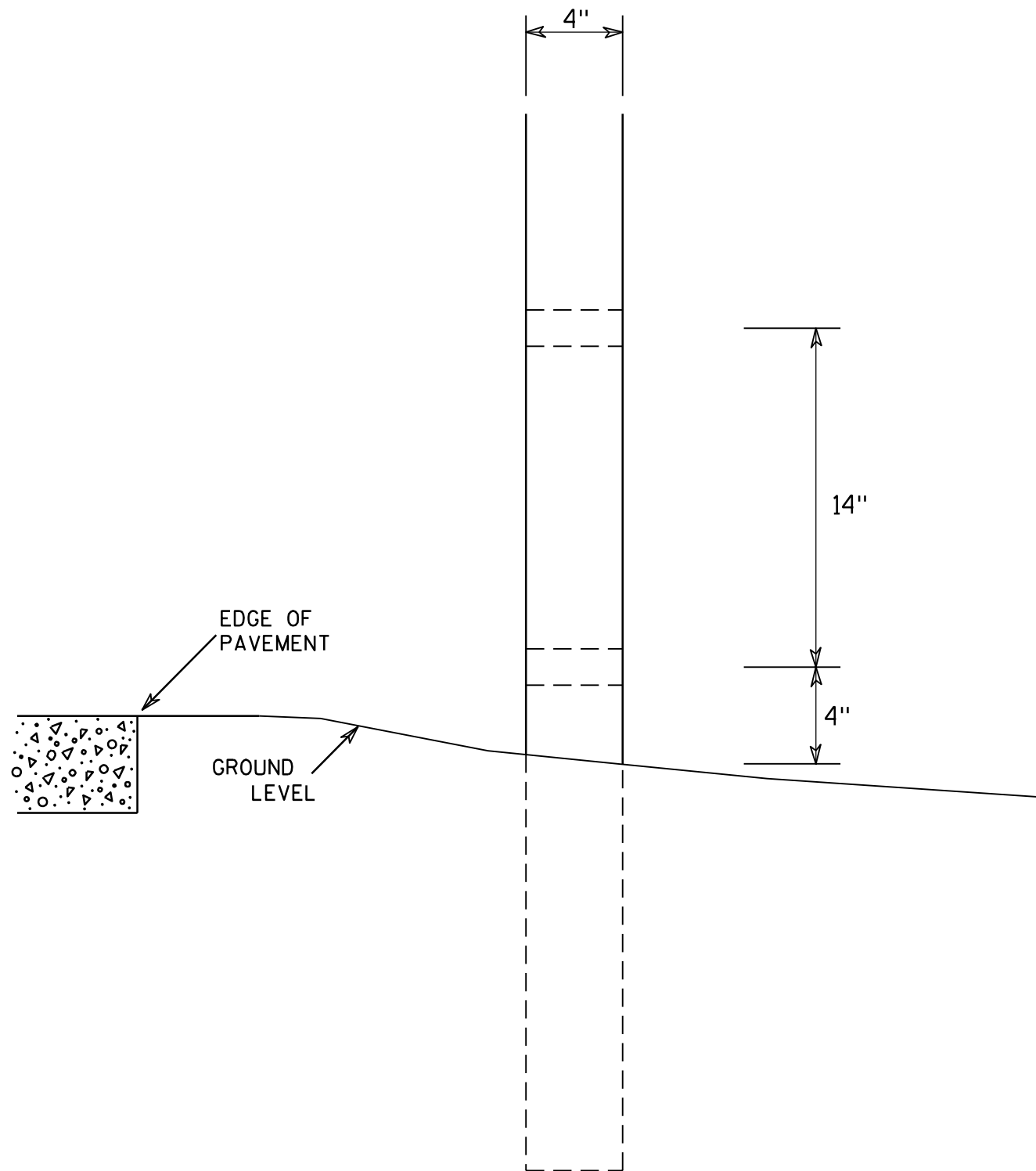
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

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

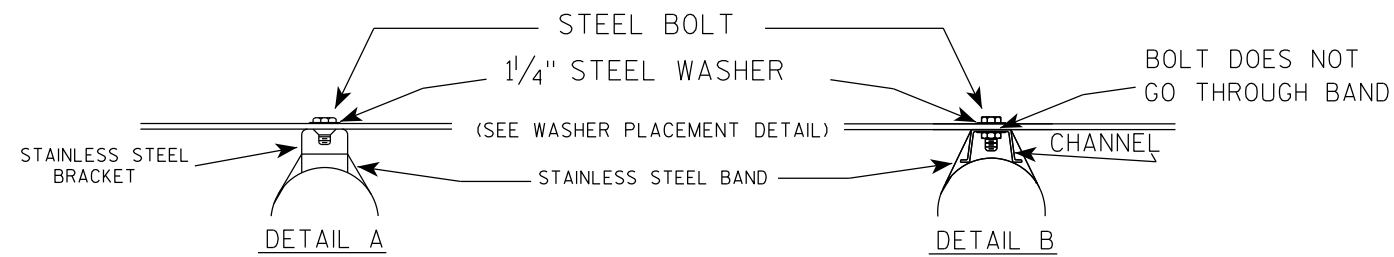
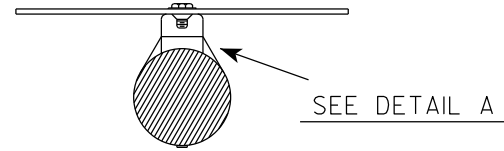
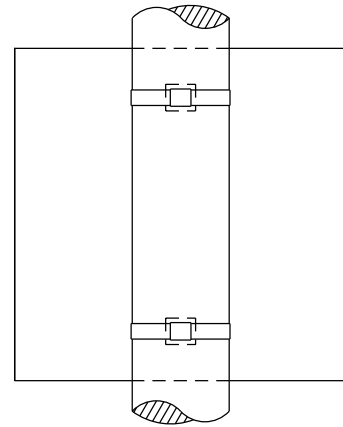
7

7

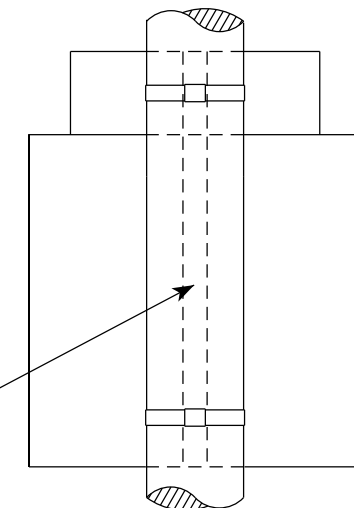
4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

BANDING

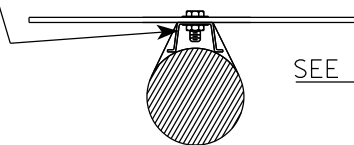
SINGLE SIGN



"J" ASSEMBLY

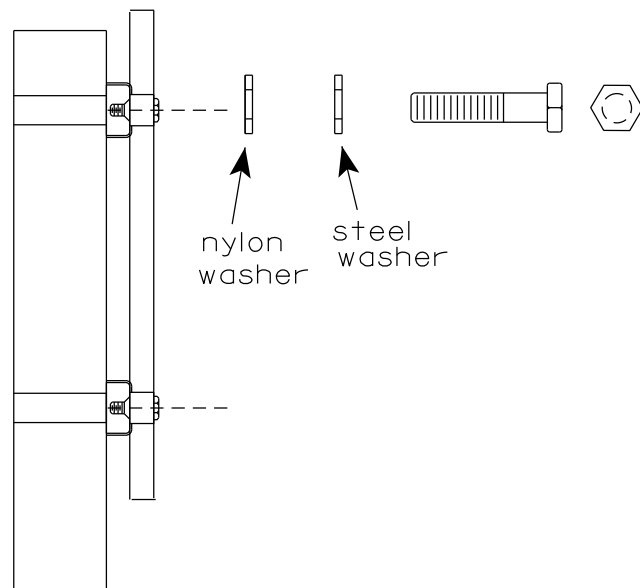


CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



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

WASHER PLACEMENT



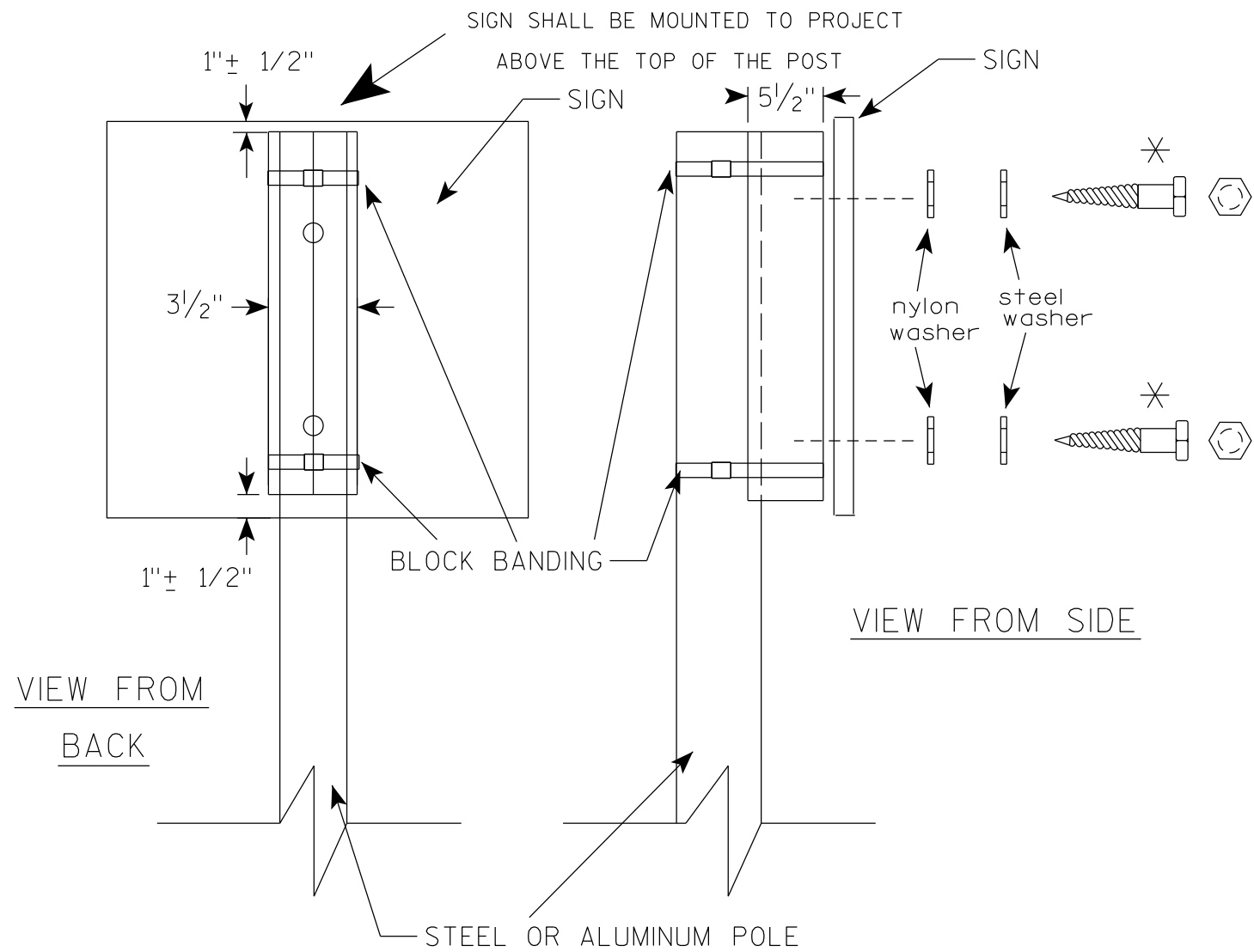
WASHERS (ALL POSTS) -
 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
 1-1/4" O.D. X 3/8" I.D. X .080 NYLON
 FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

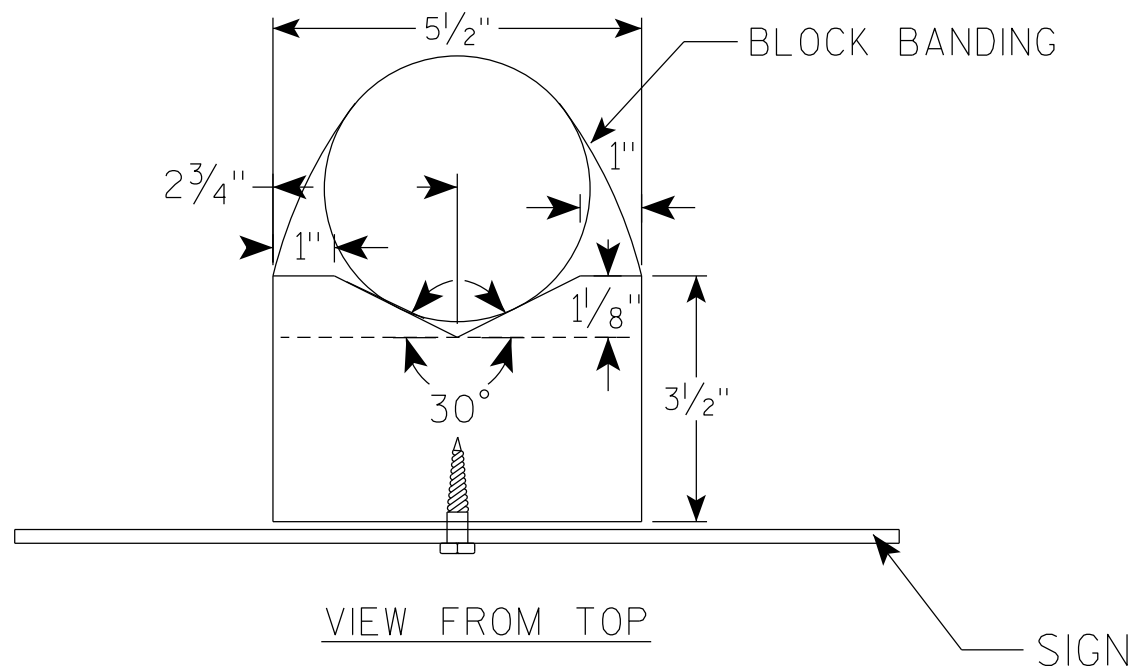
DATE 6/10/19 PLATE NO. A5-9.4



GENERAL NOTES

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

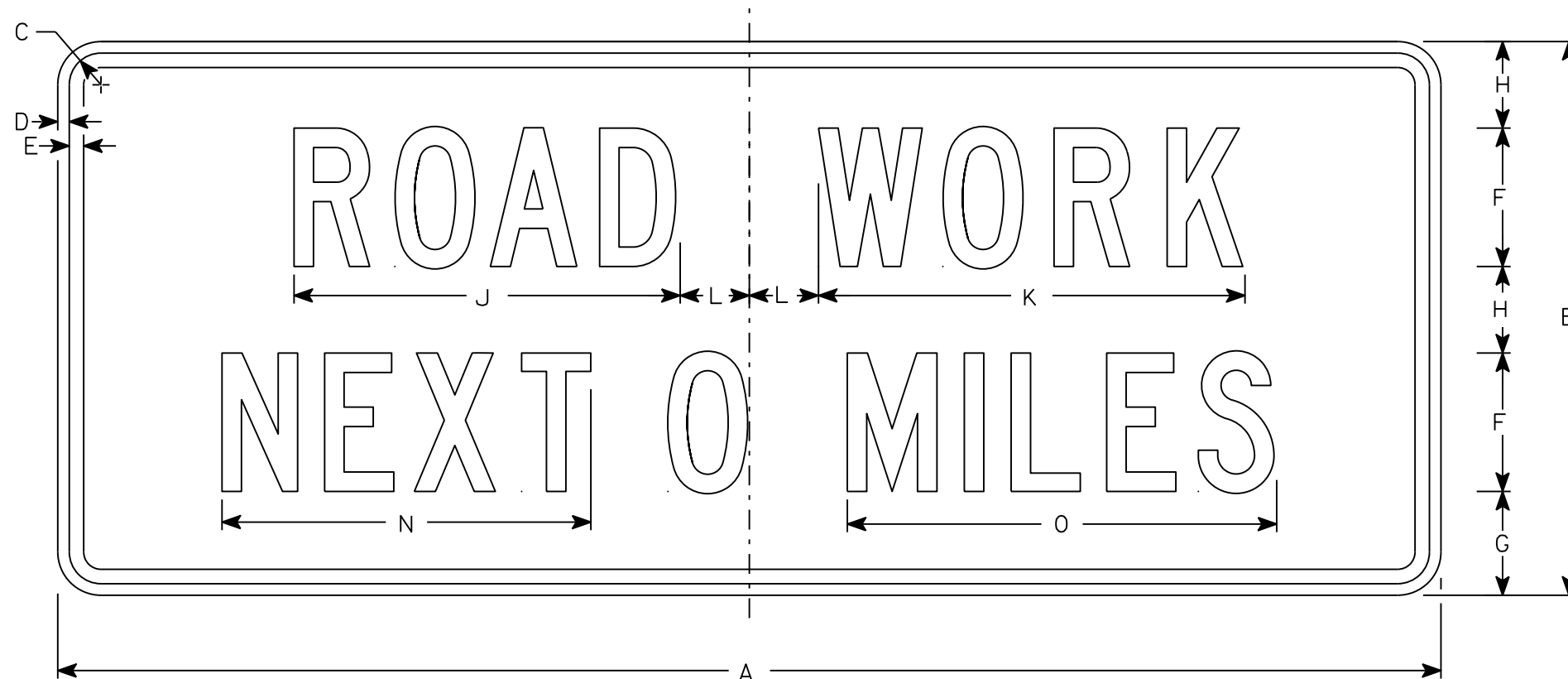
✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-10.2

NOTES

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



G20-1

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4		16 3/4	18 1/2	3		16	18 5/8												10
3																											
4	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4		16 3/4	18 1/2	3		16	18 5/8												10
5																											

STANDARD SIGN
G20-1

WISCONSIN DEPT OF TRANSPORTATION

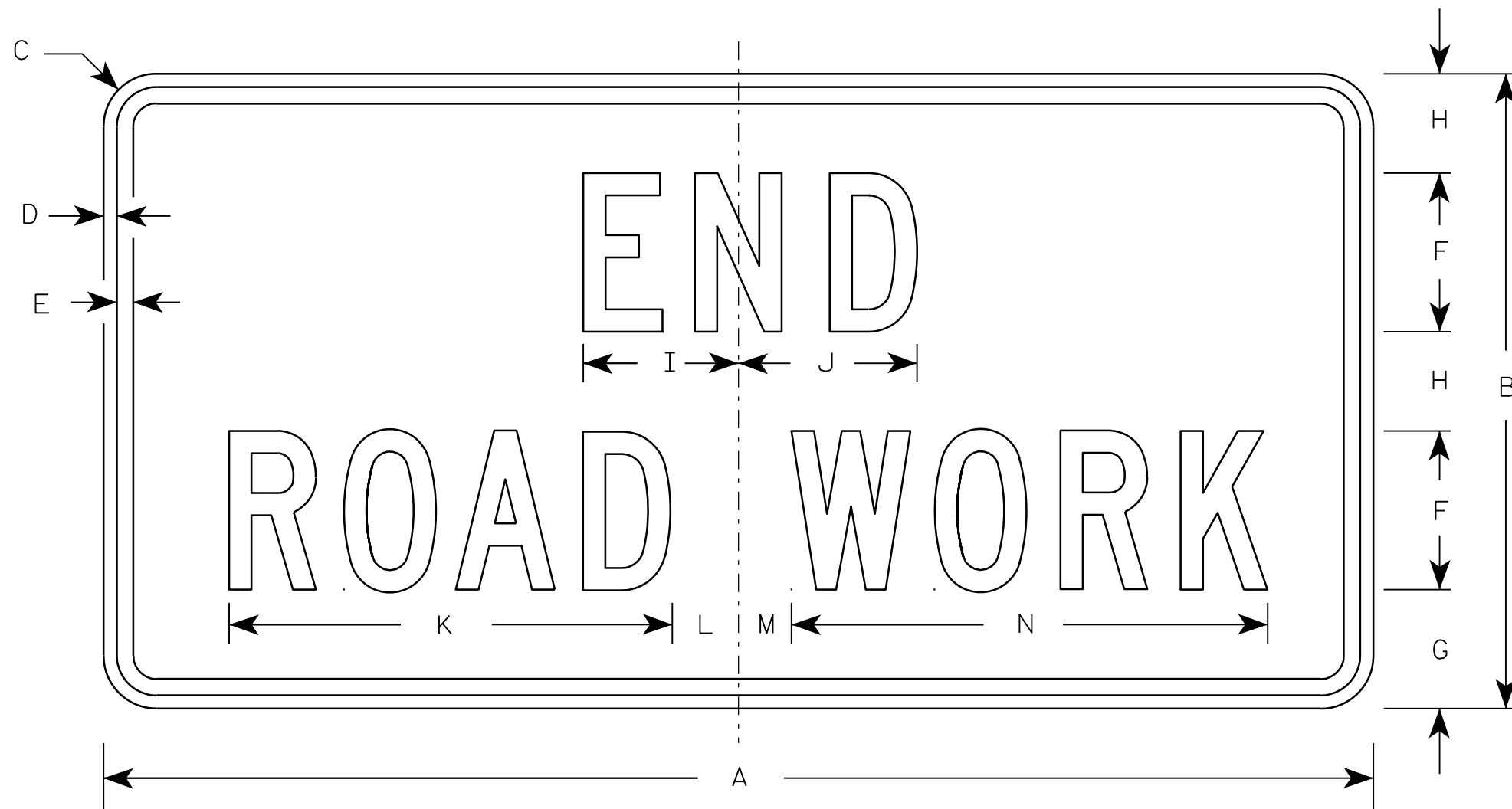
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/14/17 PLATE NO. G20-1.8

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



G20-2A

7

7

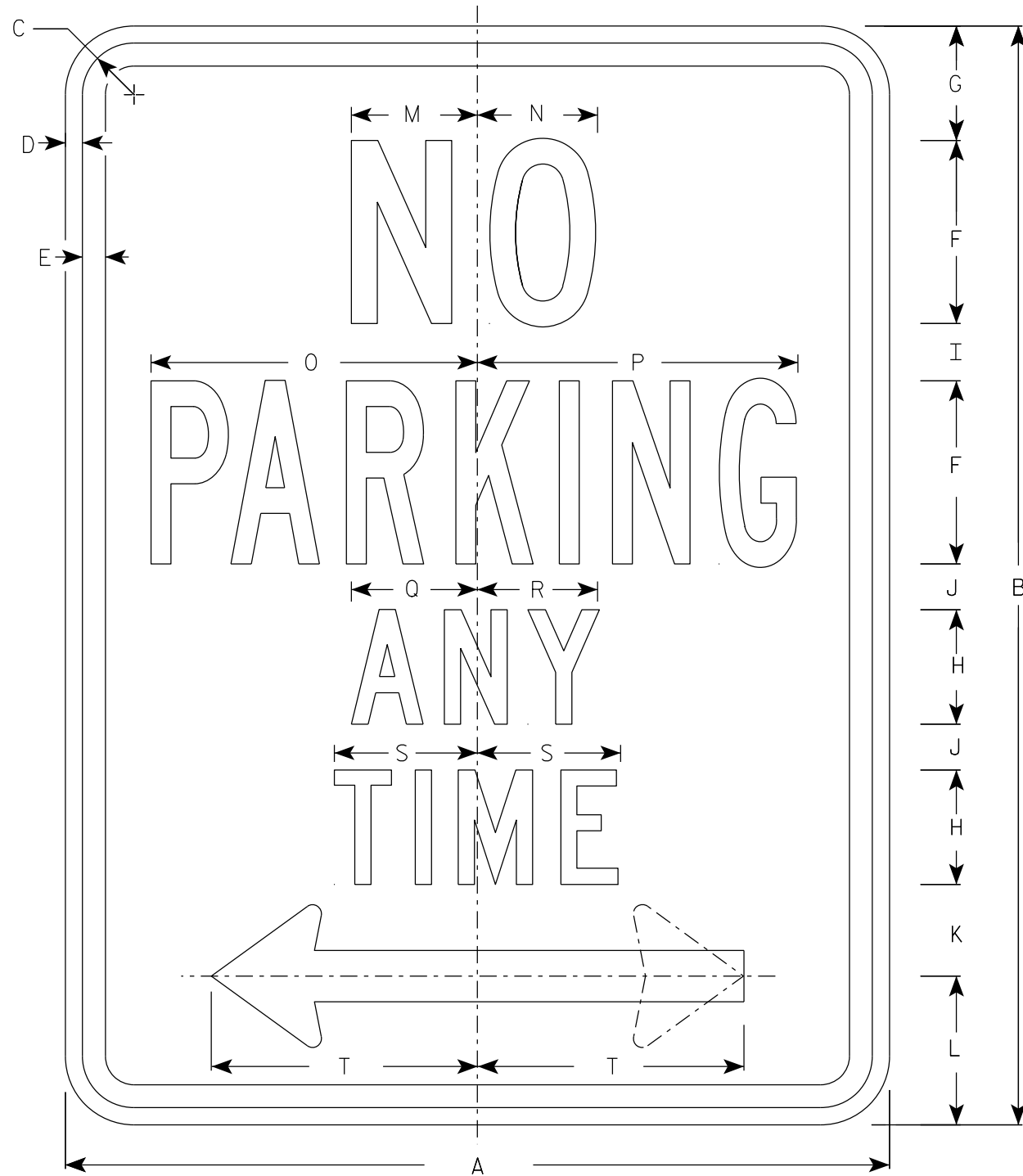
Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8

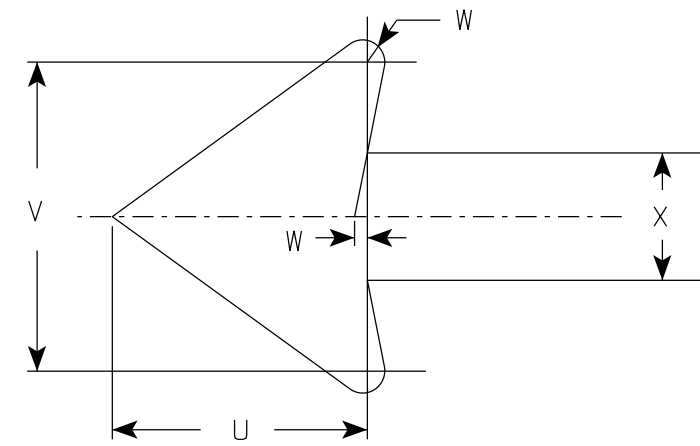
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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R7-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Red
3. Message Series - See Note 5
4. Lines 1, 3 and 4 are series C, line 2 is series B.
5. R7-1D (double arrow)
R7-1L (left arrow)
R7-1R (right arrow)



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	2 1/4	2 1/8	2 1/2	3 7/8	1 1/2	1 3/4	1/8	3/4		1.5	
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	2 3/4	2 5/8	3 1/8	5 7/8	2 1/4	2 5/8	1/4	1 1/8		3.0	
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
4																											
5																											

STANDARD SIGN
R7-1

WISCONSIN DEPT OF TRANSPORTATION

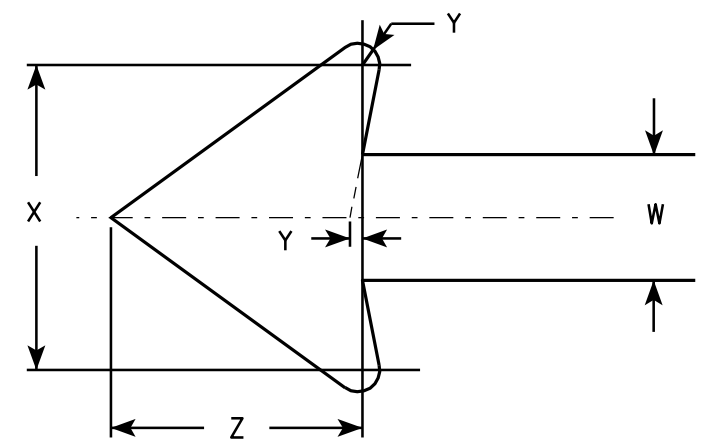
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 3/31/2021 PLATE NO. R7-1.10



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Red
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R7-51D (double arrow)
R7-51R (right arrow)
R7-51L (left arrow)
6. Lines 1, 3 and 4 are Series C.
Line 2 is Series B.



ARROW DETAIL

R7-51

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	4 7/8	5/8	1 3/4	2 1/2	4 3/8	3 7/8	3/4	1 3/4	1/8	1 1/2	1.5
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	5 3/4	1 1/8	1 1/2	3 1/8	5 1/2	5 7/8	1 1/8	2 5/8	1/4	2 1/4	3.0
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	7 1/8	1 1/4	2	3 3/4	6 1/2	7 3/4	1 1/2	3 1/2	1/4	3	5.0
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	7 1/8	1 1/4	2	3 3/4	6 1/2	7 3/4	1 1/2	3 1/2	1/4	3	5.0
4																											
5																											

STANDARD SIGN
R7-51

WISCONSIN DEPT OF TRANSPORTATION

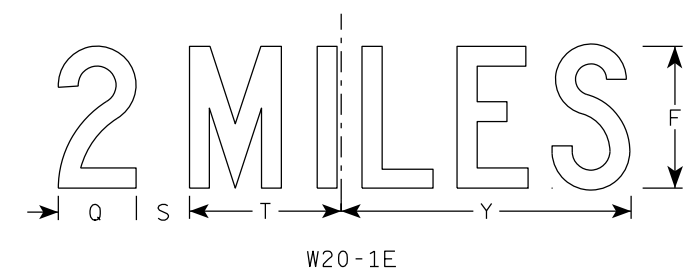
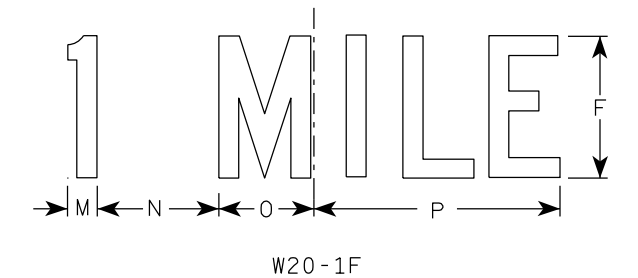
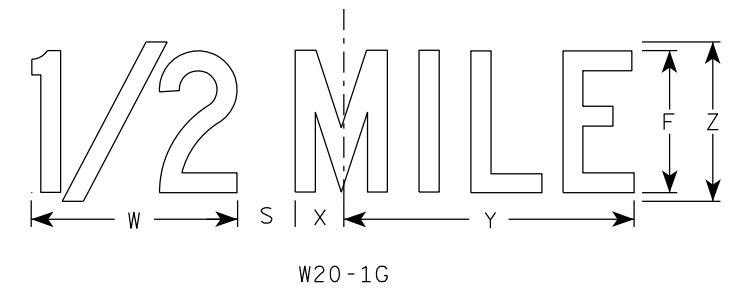
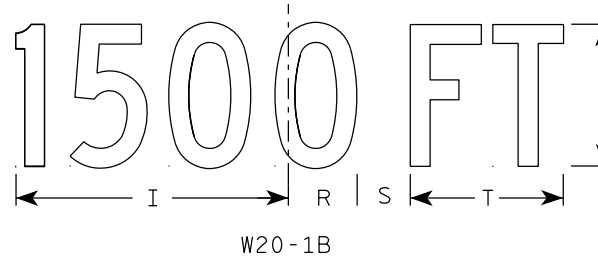
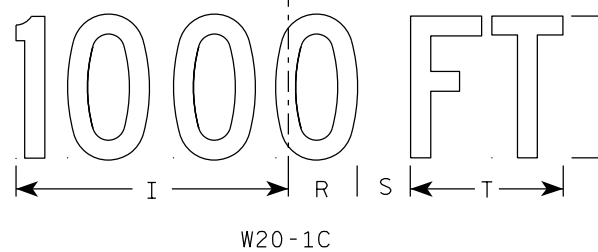
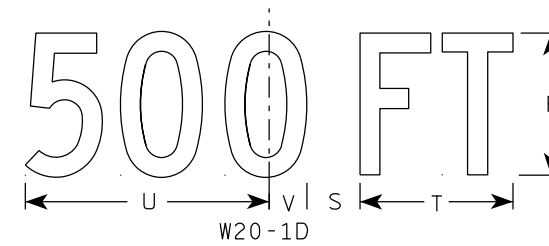
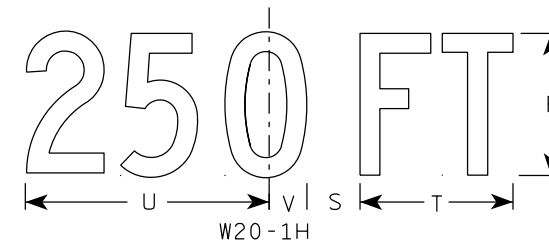
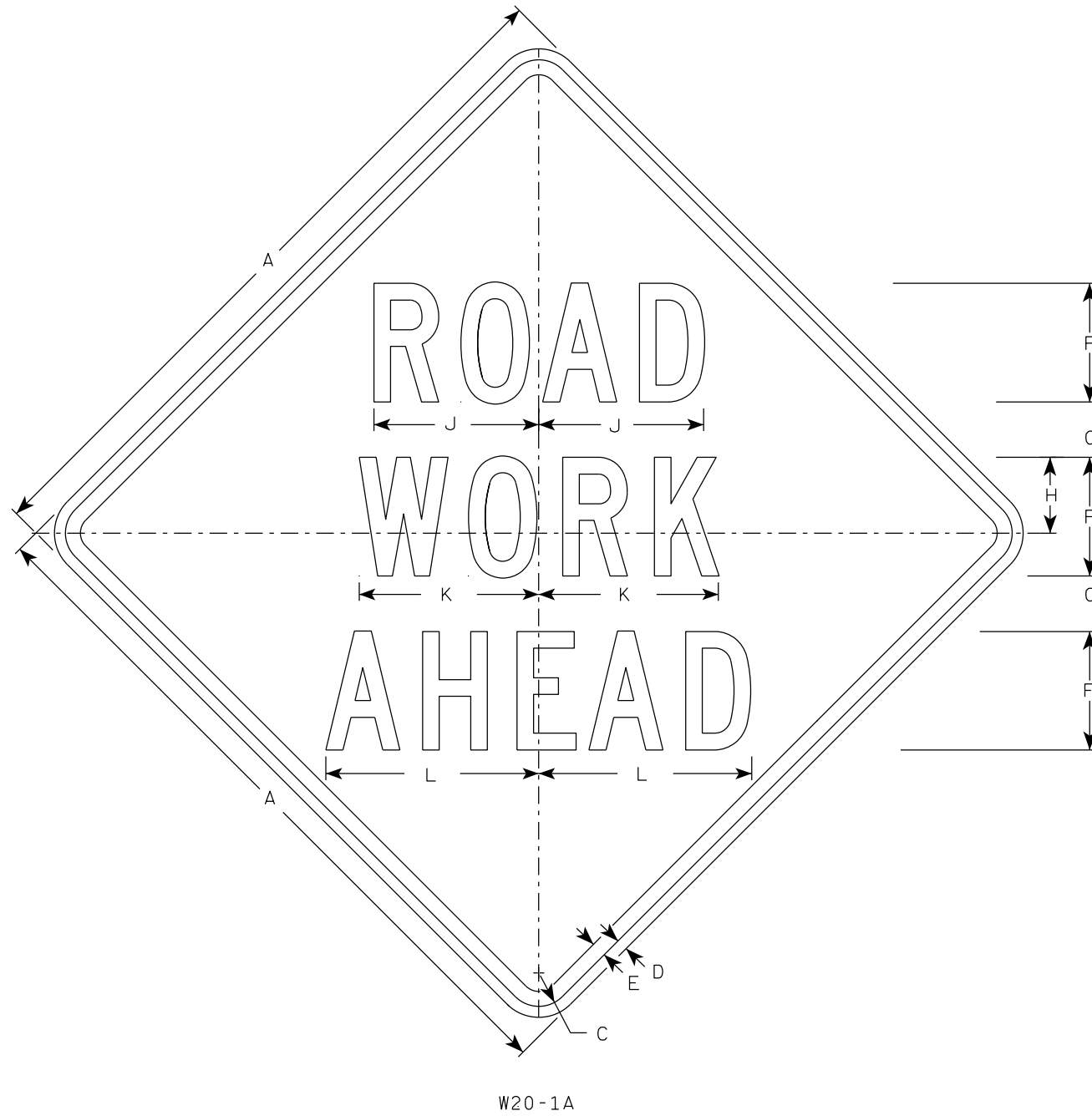
APPROVED *Matthew R. Raub*
For State Traffic Engineer

DATE 3/31/2011 PLATE NO. R7-51.6

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



W20-1A

W20-1C

W20-1B

W20-1G

W20-1F

W20-1E

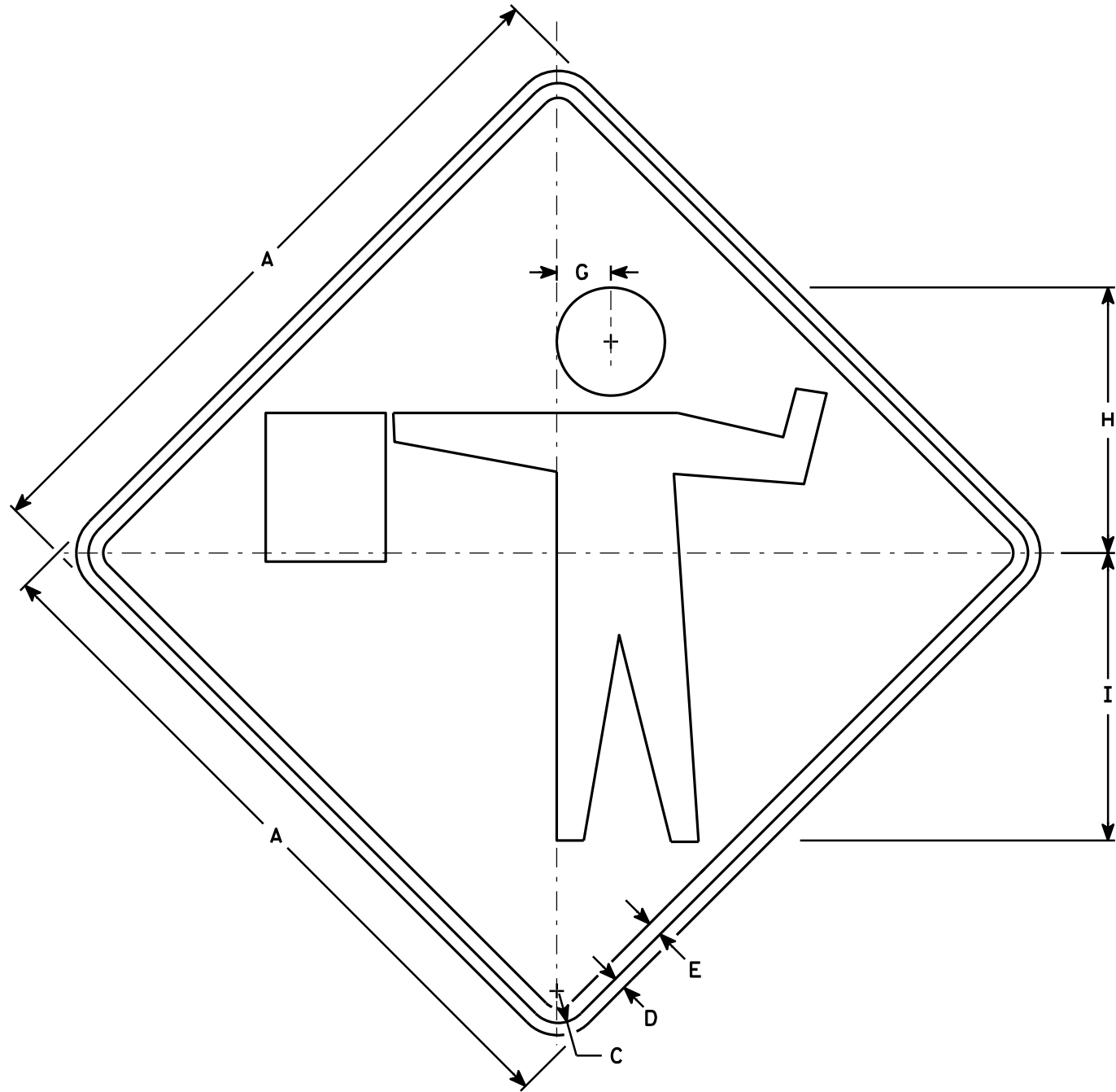
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



W20-7A

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 Background - Orange
 Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		2 3/4	13 1/2	14 5/8																		9.00
2S	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
2M	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
3	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
4	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
5	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00

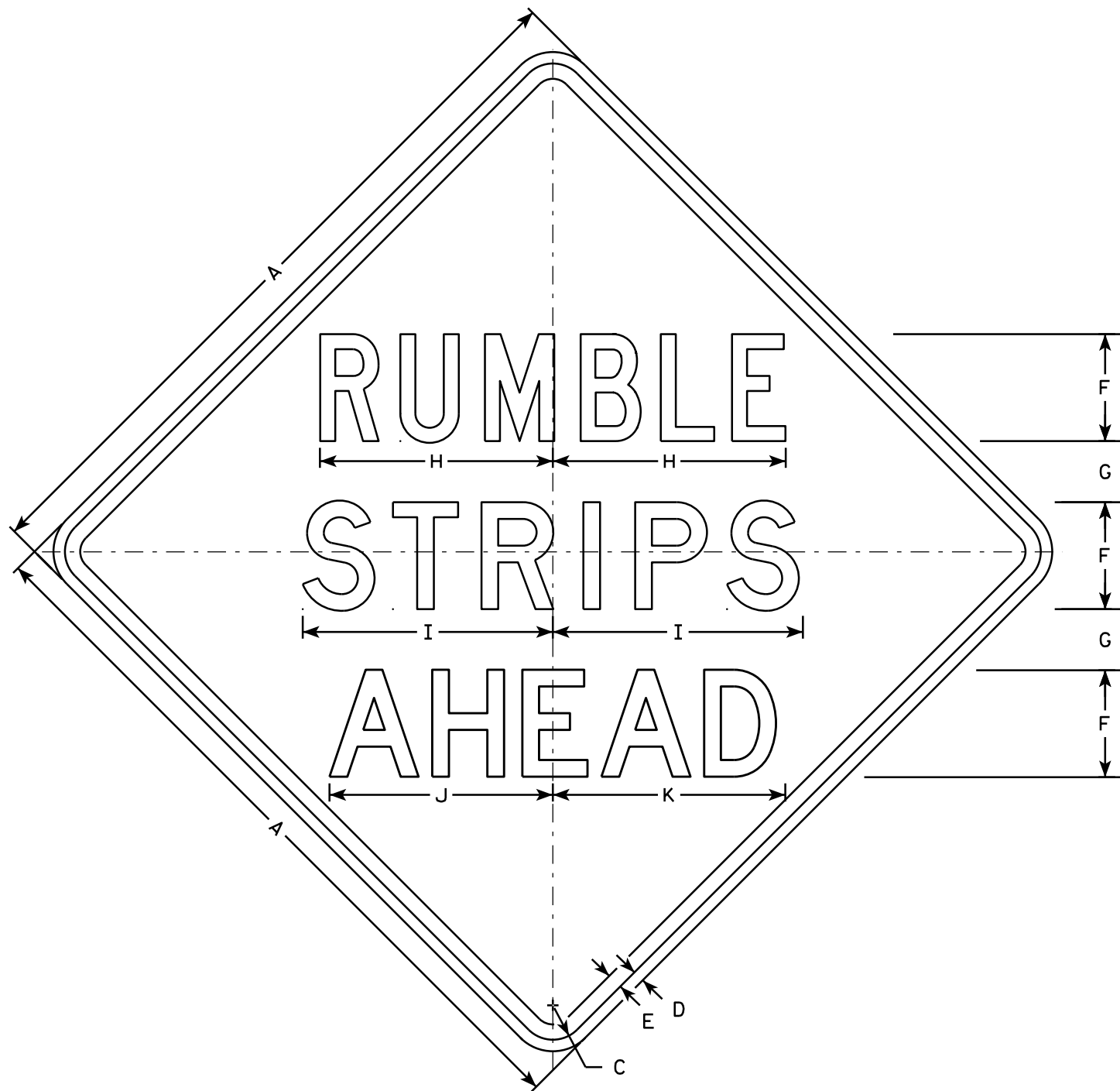
STANDARD SIGN
W20-7A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-7A.5

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



W21-65

NOTES

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

7

7

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

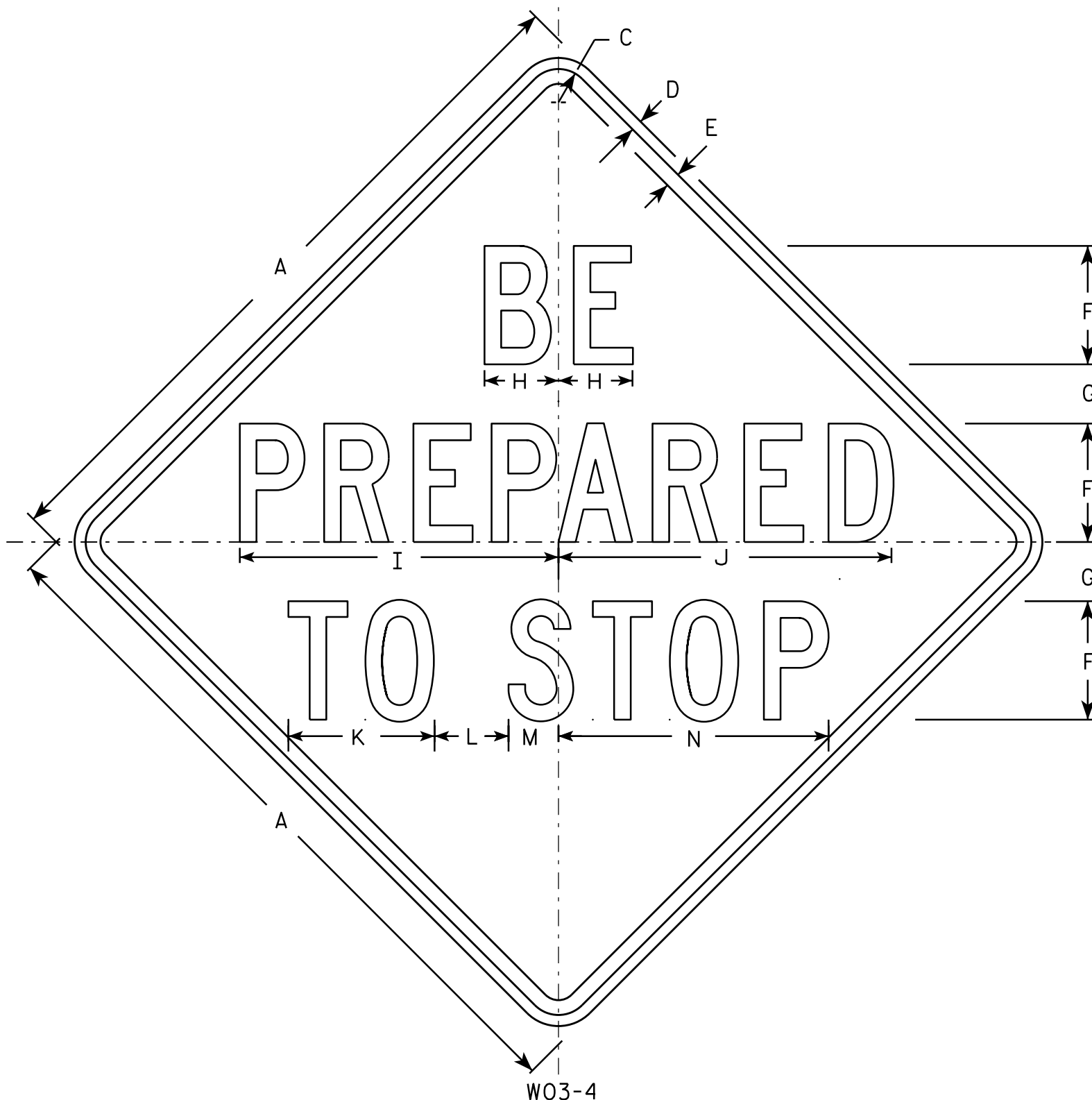
STANDARD SIGN
W21-65

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/28/14 PLATE NO. W21-65.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



W03-4

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	6	2 1/2	3 3/4	15 7/8	16 7/8	7 3/8	4	2 3/8	13 3/4													9.0
2S	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
2M	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
3	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
4	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
5	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0

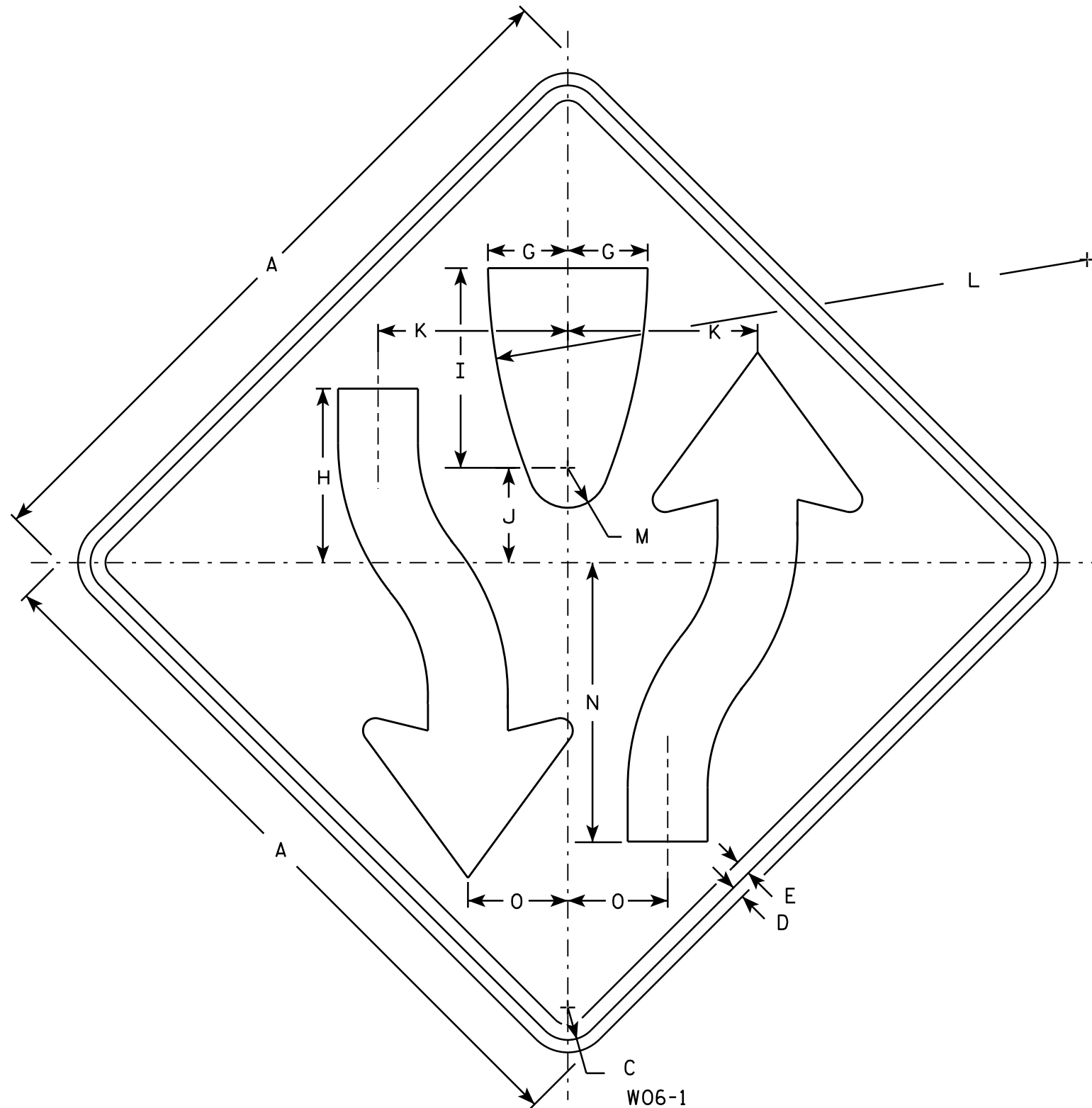
STANDARD SIGN
W03-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

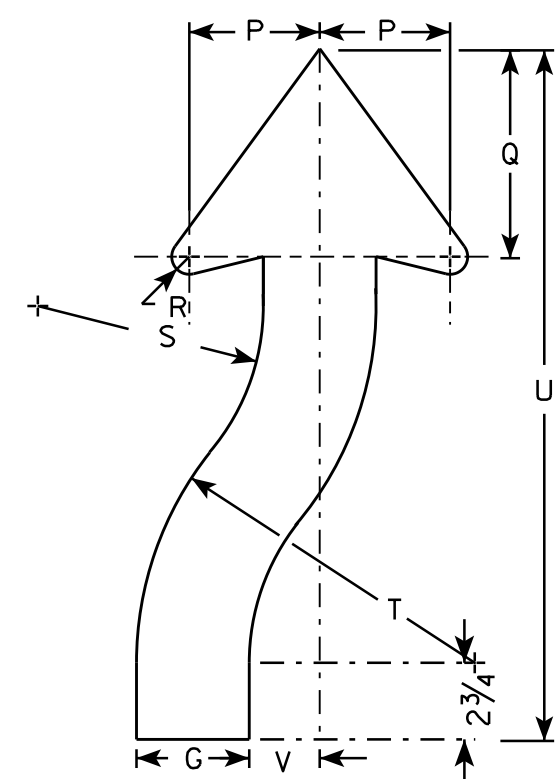
DATE 12/02/13 PLATE NO. W03-4.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W06-2 same as W06-1 but is rotated 180° when mounted.



ARROW DETAIL

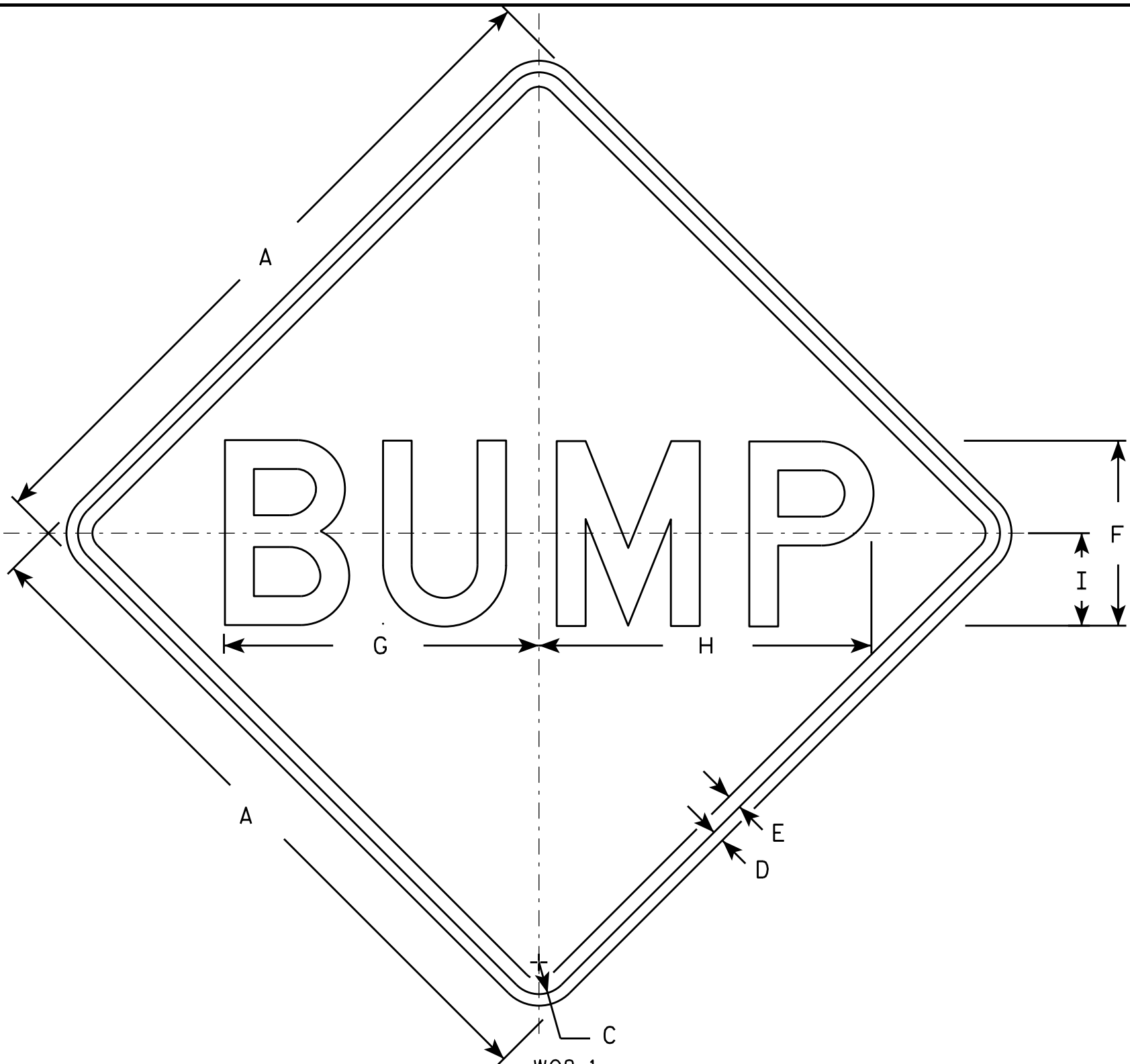
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		4	8 3/4	10	4 3/4	9 1/2	30	2	14	5	4 5/8	7 3/8	7/8	8	12	24 1/2	2 1/2					9.0
2S	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
2M	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
3	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
4	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
5	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0

STANDARD SIGN
W06-1 & W06-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W06-1.1



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	10	16 7/8	17 7/8	5																		9.0
2S	48		2 1/4	3/4	1	12	20 3/8	21 5/8	6																		16.0
2M	48		2 1/4	3/4	1	12	20 3/8	21 5/8	6																		16.0
3	48		2 1/4	3/4	1	12	20 3/8	21 5/8	6																		16.0
4	48		2 1/4	3/4	1	12	20 3/8	21 5/8	6																		16.0
5	48		2 1/4	3/4	1	12	20 3/8	21 5/8	6																		16.0

STANDARD SIGN
W08-1

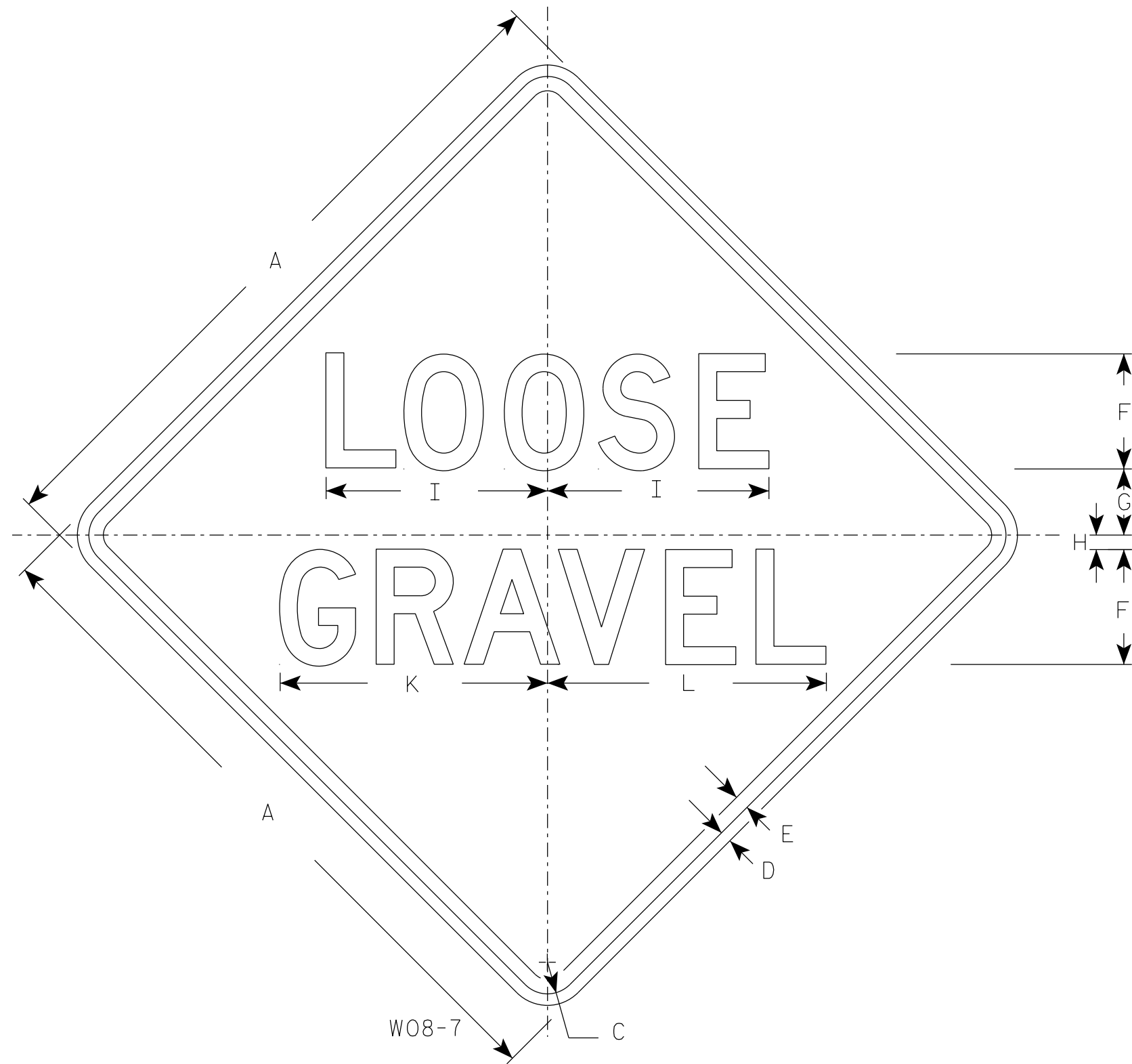
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 11/20/13 PLATE NO. W08-1.1

NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
2S	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
2M	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
3	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
4	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0
5	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0

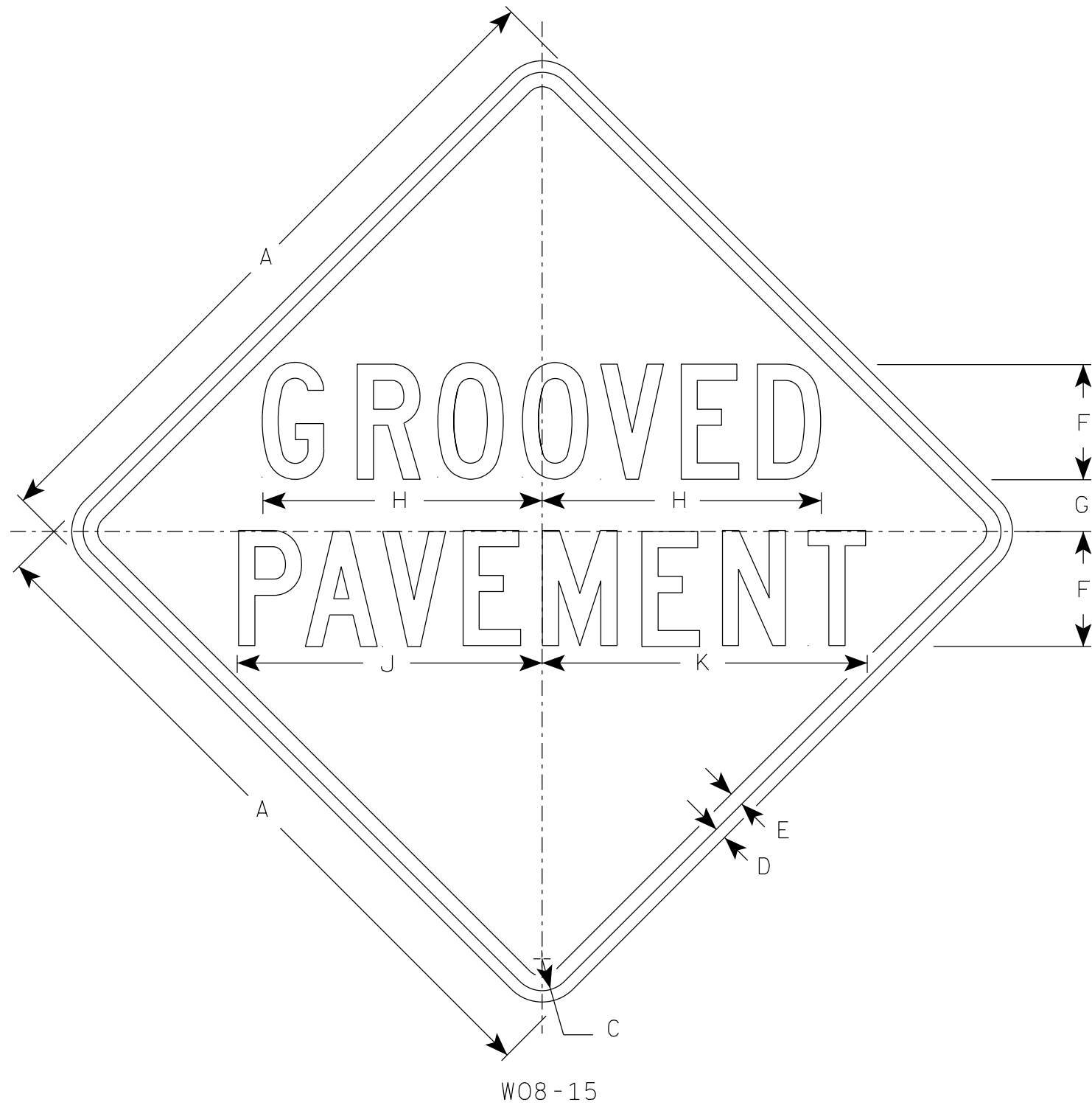
STANDARD SIGN
W08-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/16/2020 PLATE NO. W08-7.8

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	2 5/8	14 1/2		15 7/8	17																9.0
2S	48		2 1/4	3/4	1	8	3 1/2	19 3/8		21 1/4	22 5/8																16.0
2M	48		2 1/4	3/4	1	8	3 1/2	19 3/8		21 1/4	22 5/8																16.0
3	48		2 1/4	3/4	1	8	3 1/2	19 3/8		21 1/4	22 5/8																16.0
4	48		2 1/4	3/4	1	8	3 1/2	19 3/8		21 1/4	22 5/8																16.0
5	48		2 1/4	3/4	1	8	3 1/2	19 3/8		21 1/4	22 5/8																16.0

STANDARD SIGN
W08-15

WISCONSIN DEPT OF TRANSPORTATION

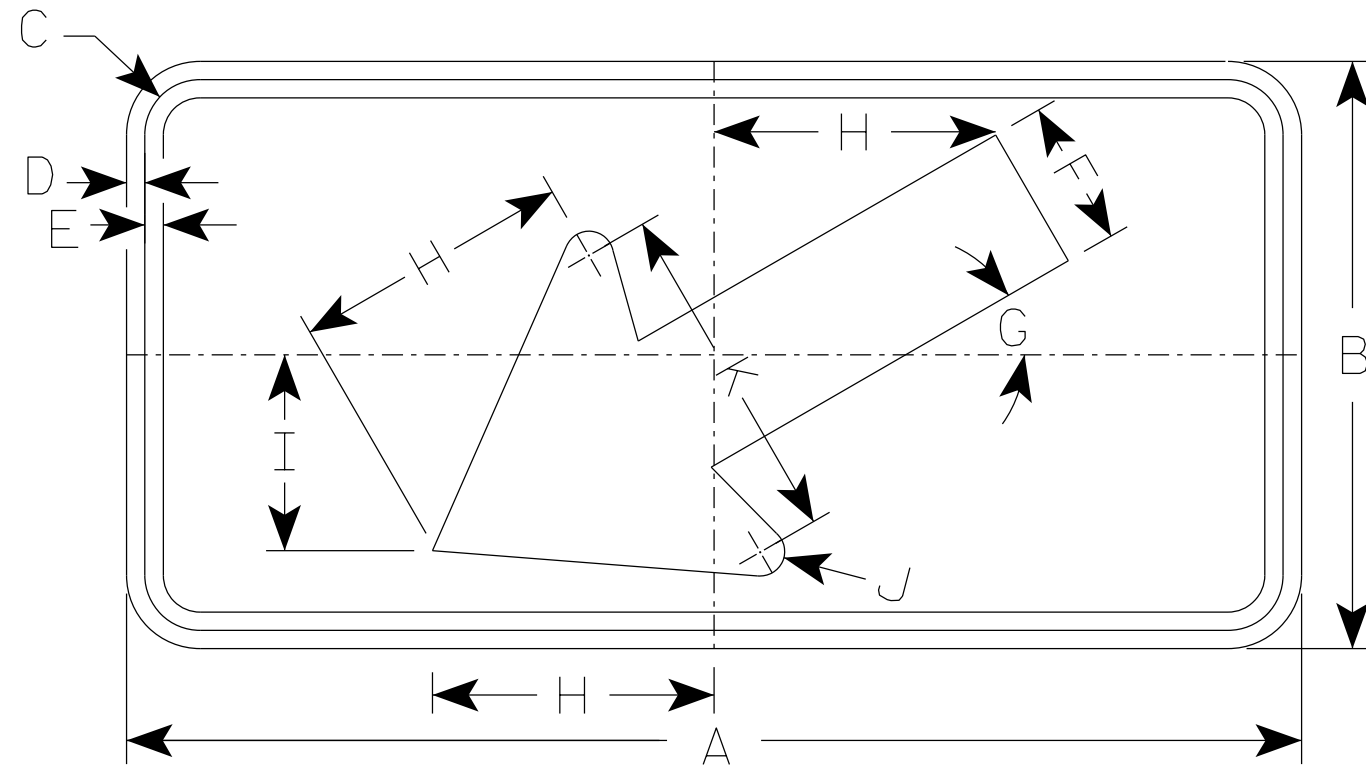
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/16/2020 PLATE NO. W08-15.1

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded but corners shall be rounded when base material is metal.
4. W016-7R is the same as W016-L except the arrow is reversed along the vertical centerline.



W016-7L

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/8	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
2S	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
2M	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
3	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
4	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
5	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0

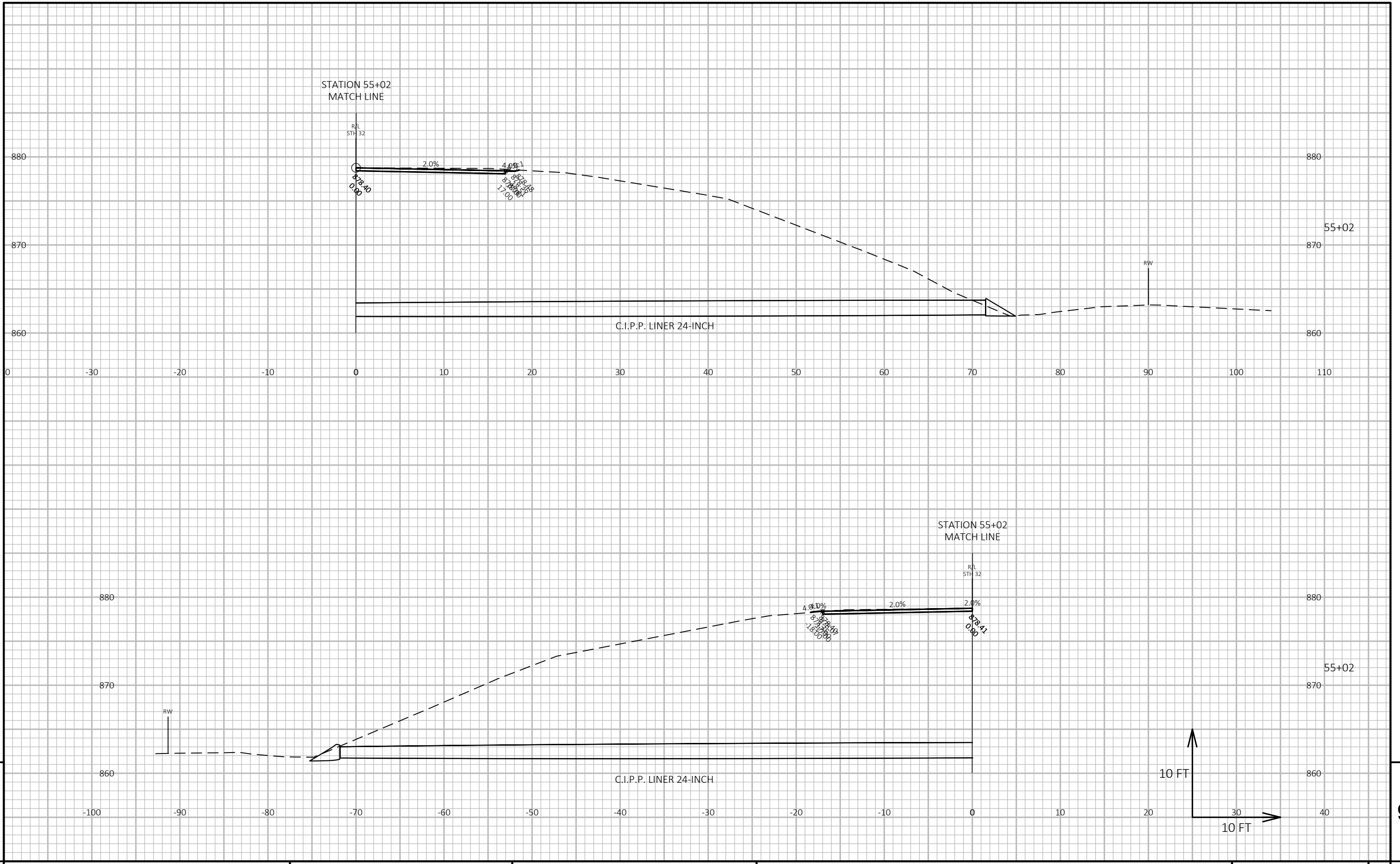
STANDARD SIGN
W016-7

WISCONSIN DEPT OF TRANSPORTATION

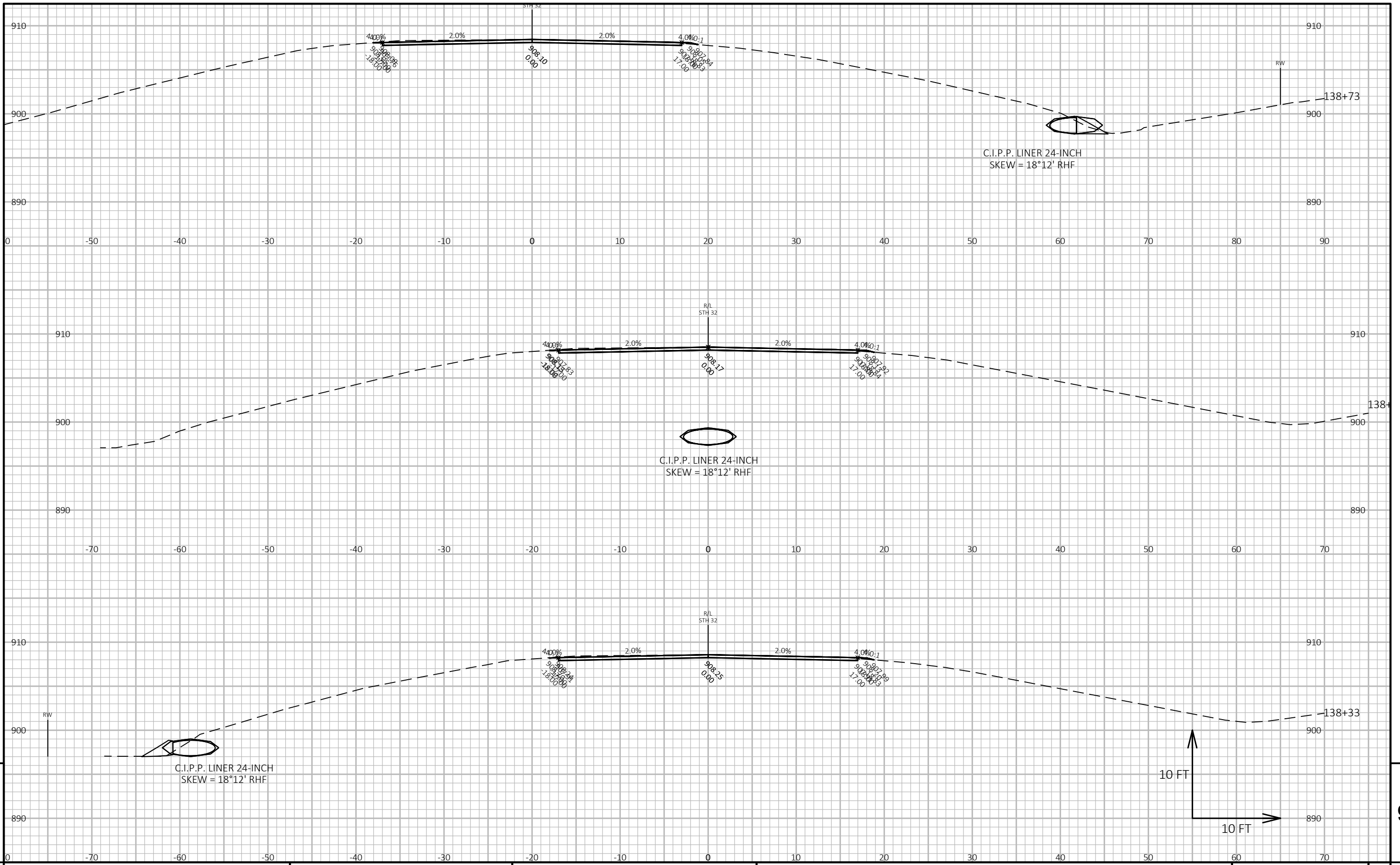
APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 3/16/2021 PLATE NO. W016-7.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**



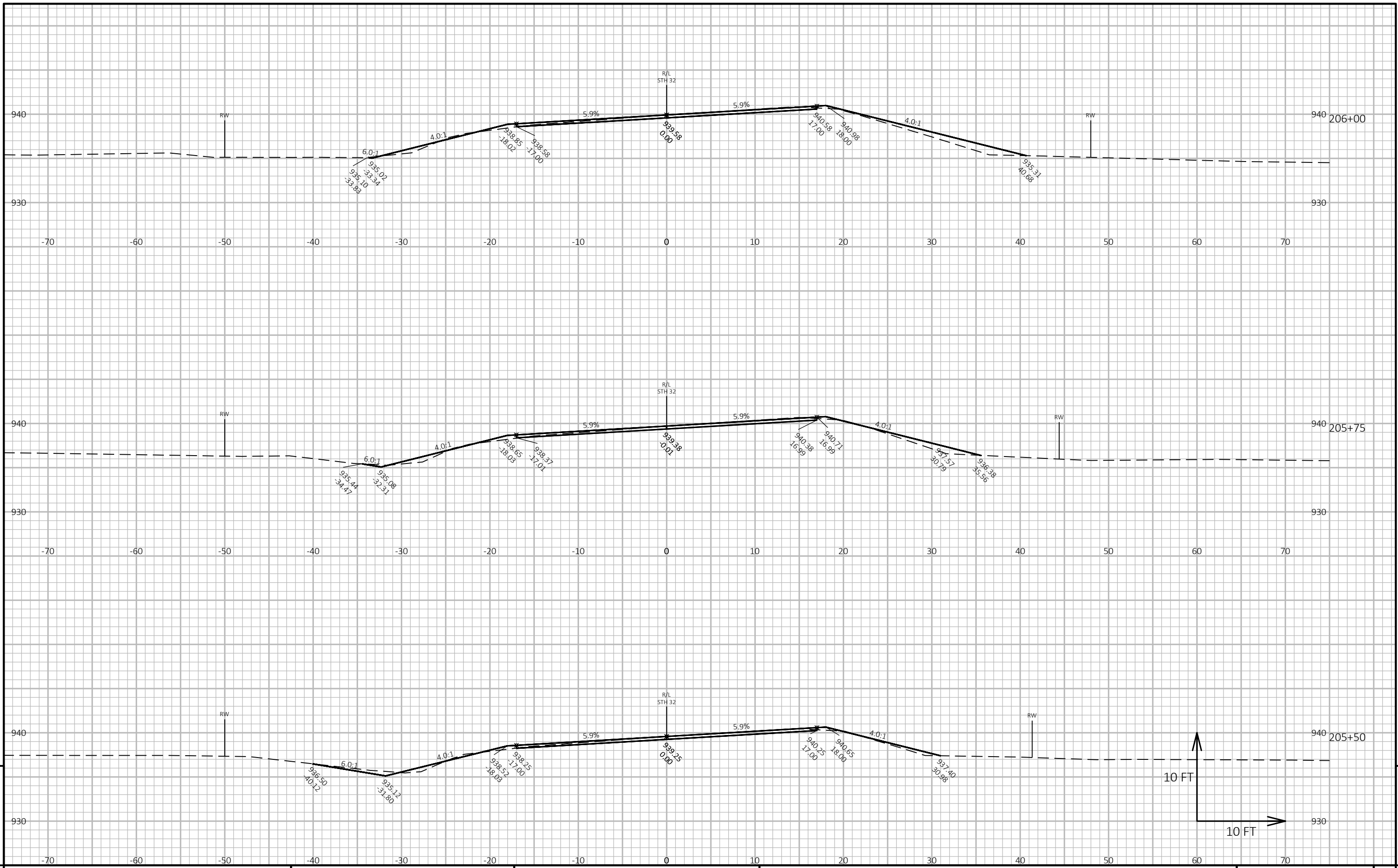
PROJECT NO: 9150-06-71 | HWY: STH 32 | COUNTY: OCONTO | CROSS SECTIONS: STH 32 | SHEET | E



9

9

PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	CROSS SECTIONS: STH 32	SHEET	E
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PROJECT NO: 9150-06-71

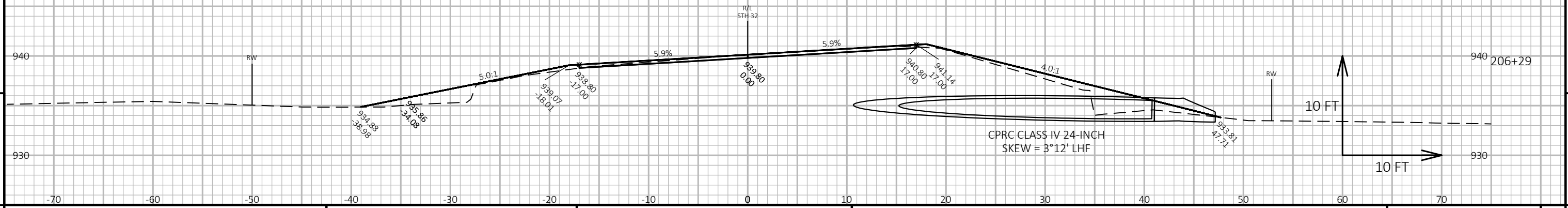
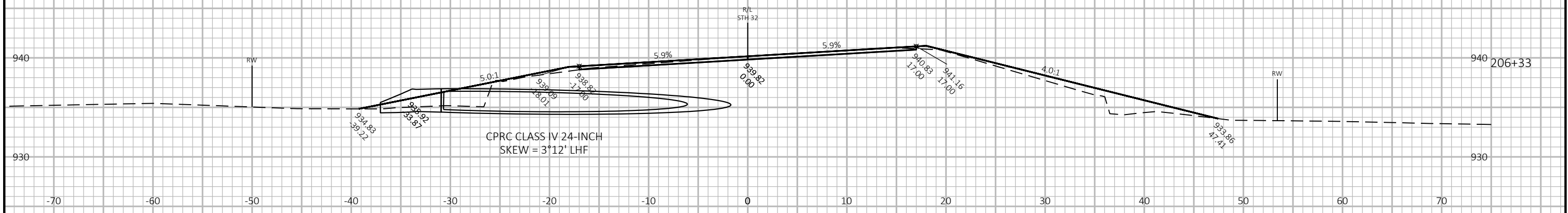
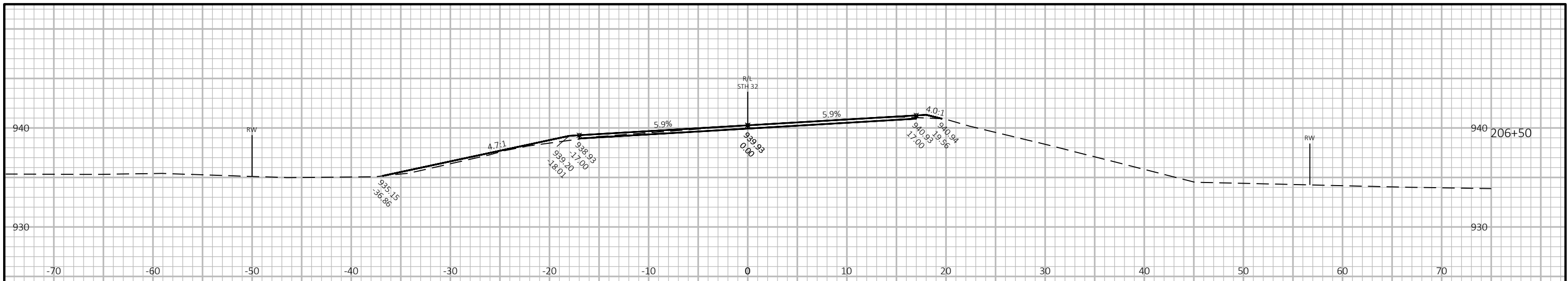
HWY: STH 32

COUNTY: OCONTO

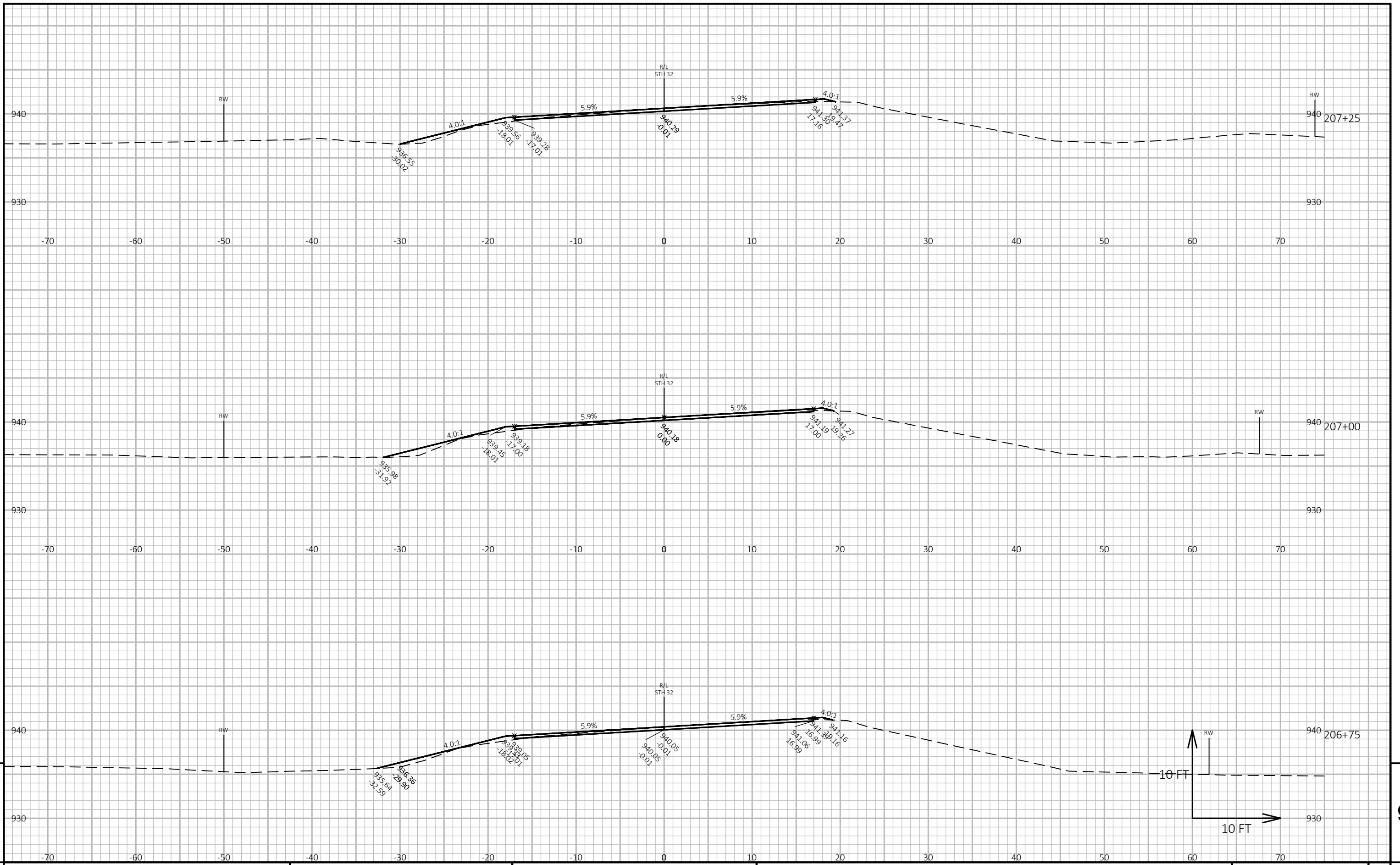
CROSS SECTIONS: STH 32

SHEET

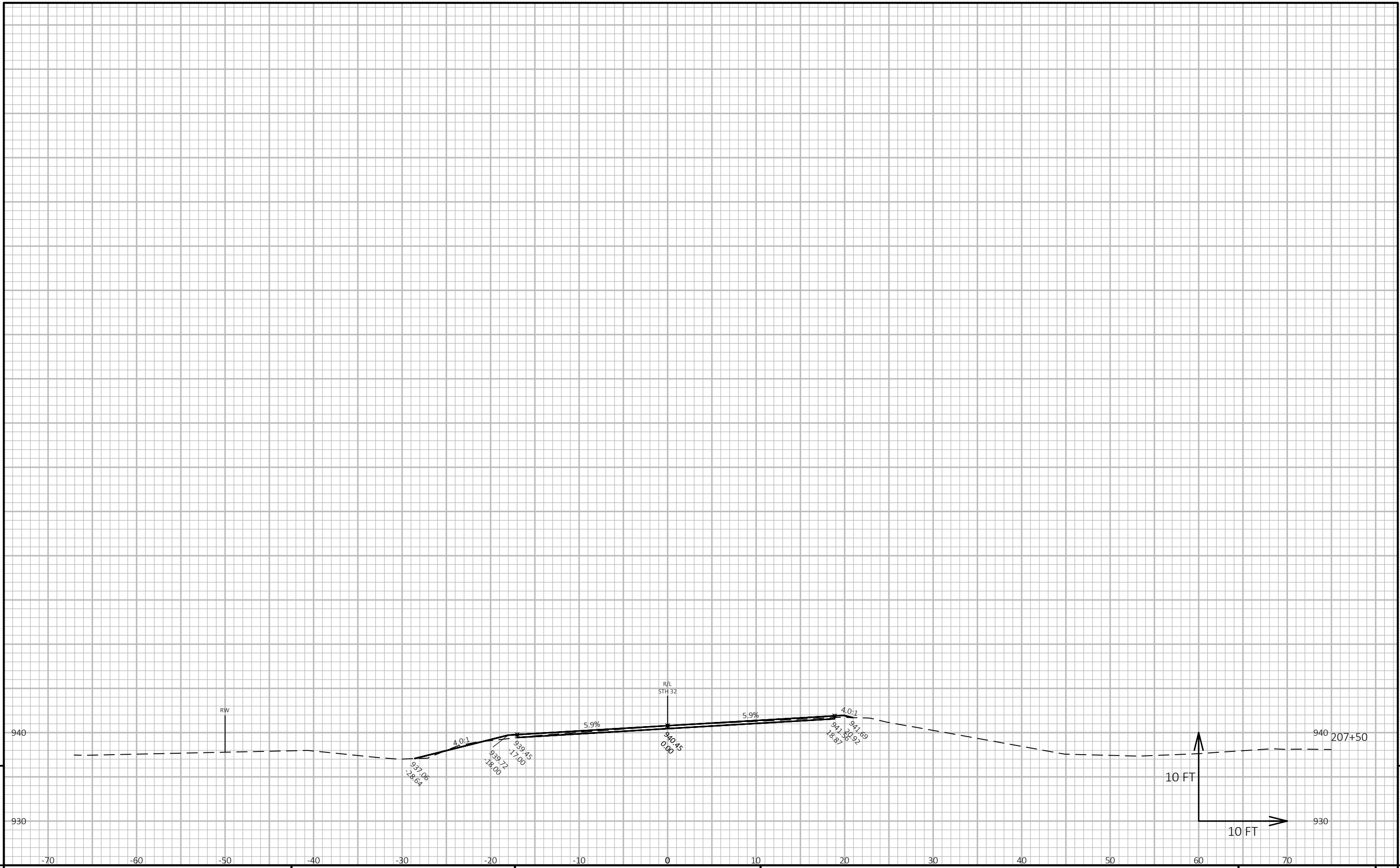
E



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



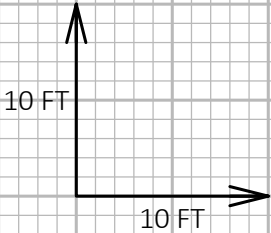
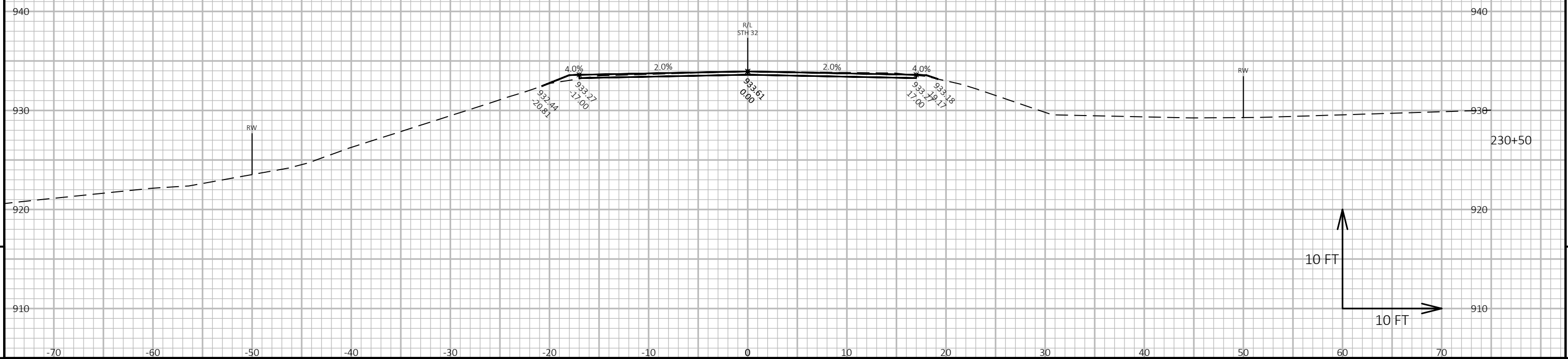
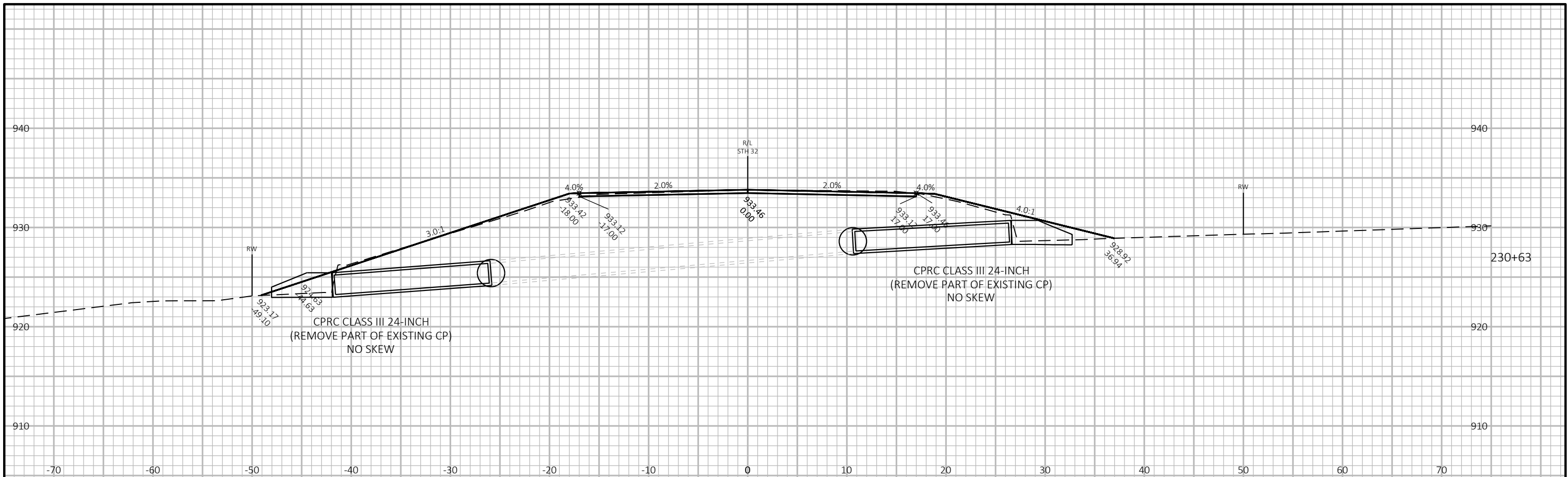
9

9

PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:08 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 090206-xs



9

9

PROJECT NO: 9150-06-71

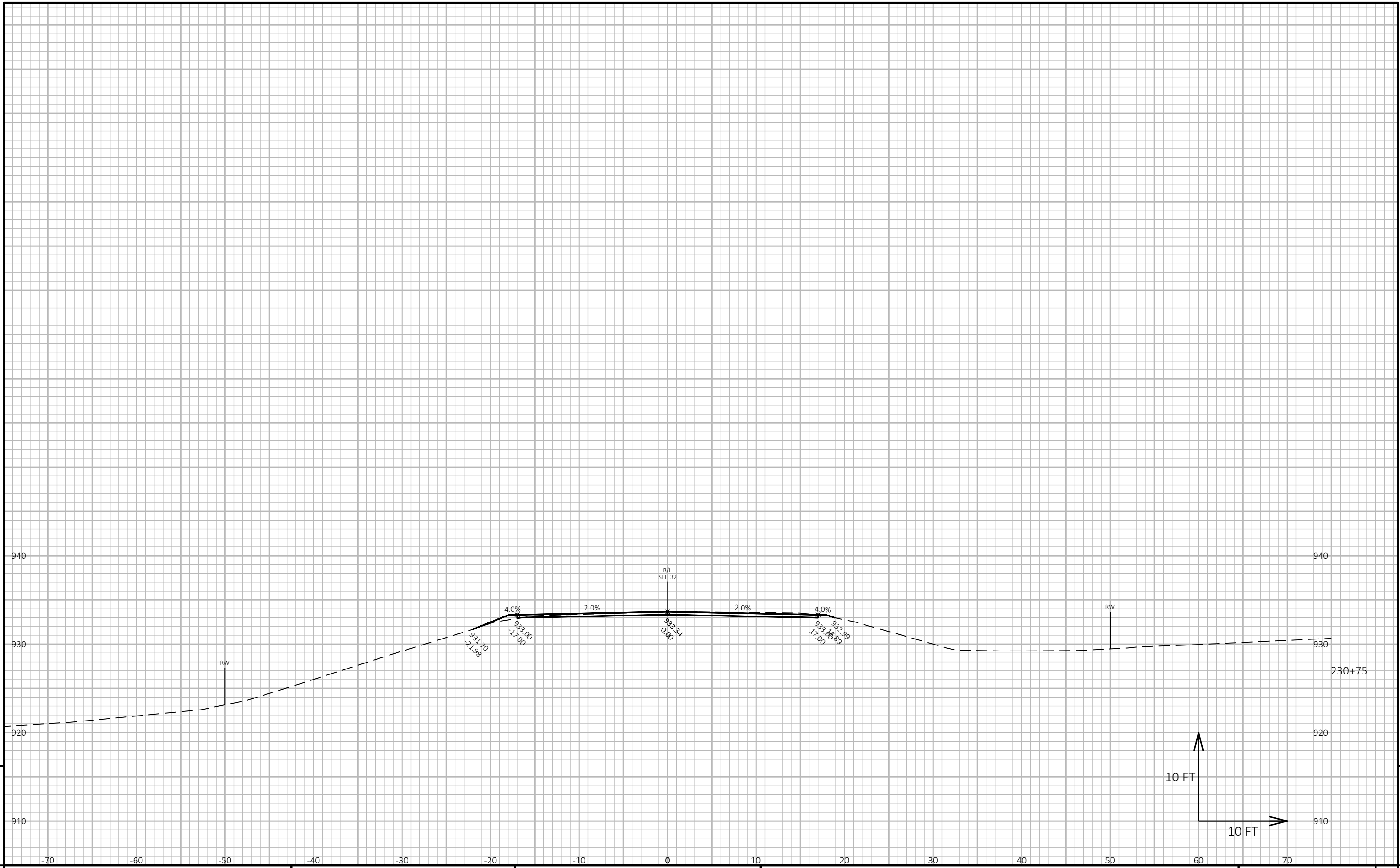
HWY: STH 32

COUNTY: OCONTO

CROSS SECTIONS: STH 32

SHEET

E

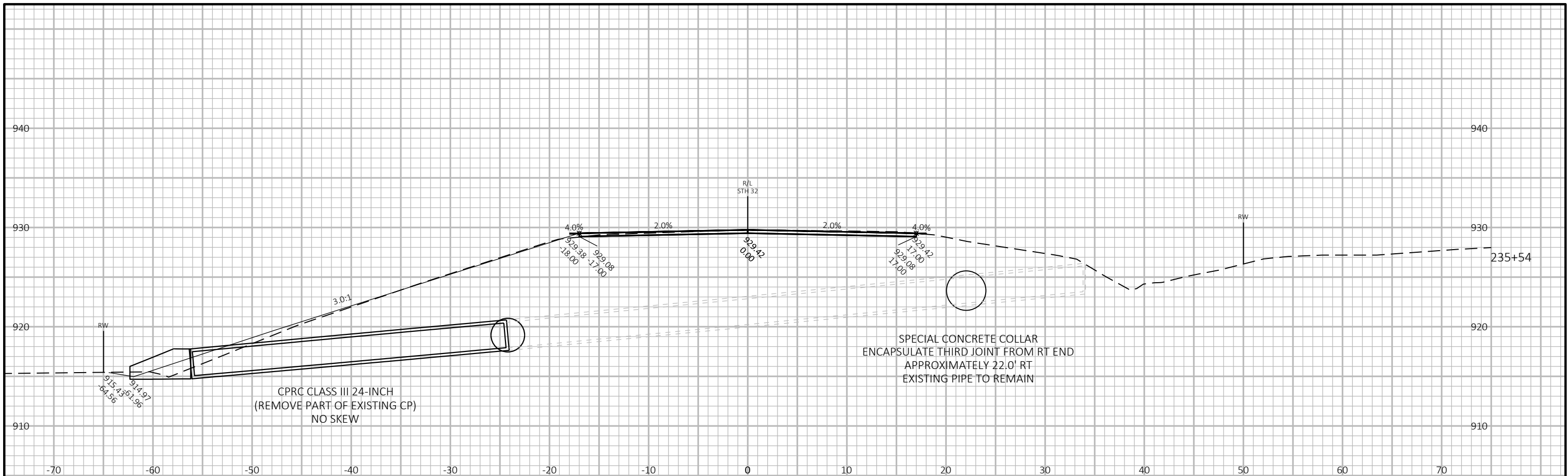


9

9

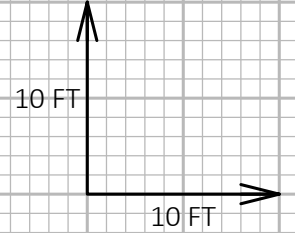
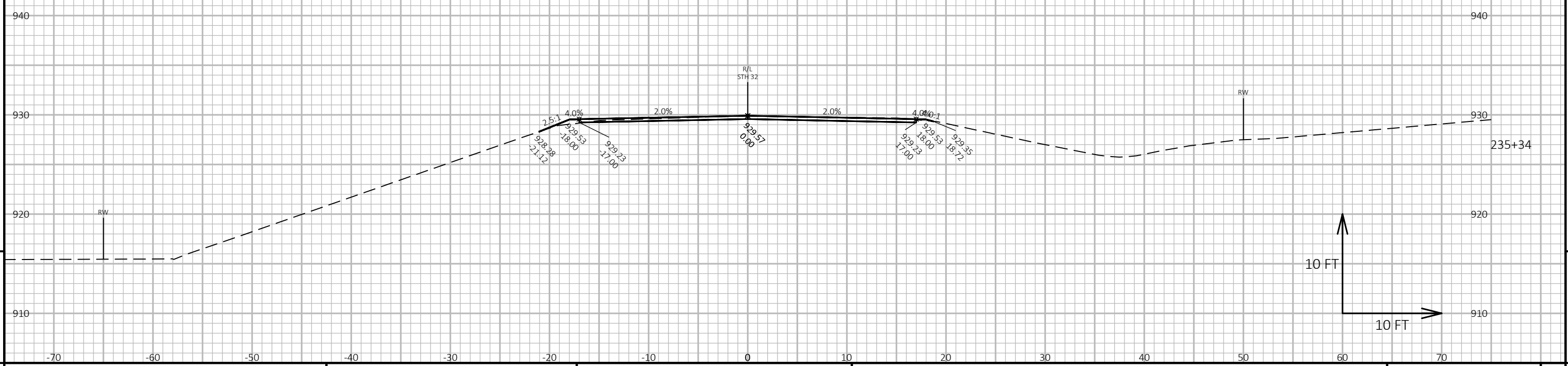
PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:08 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

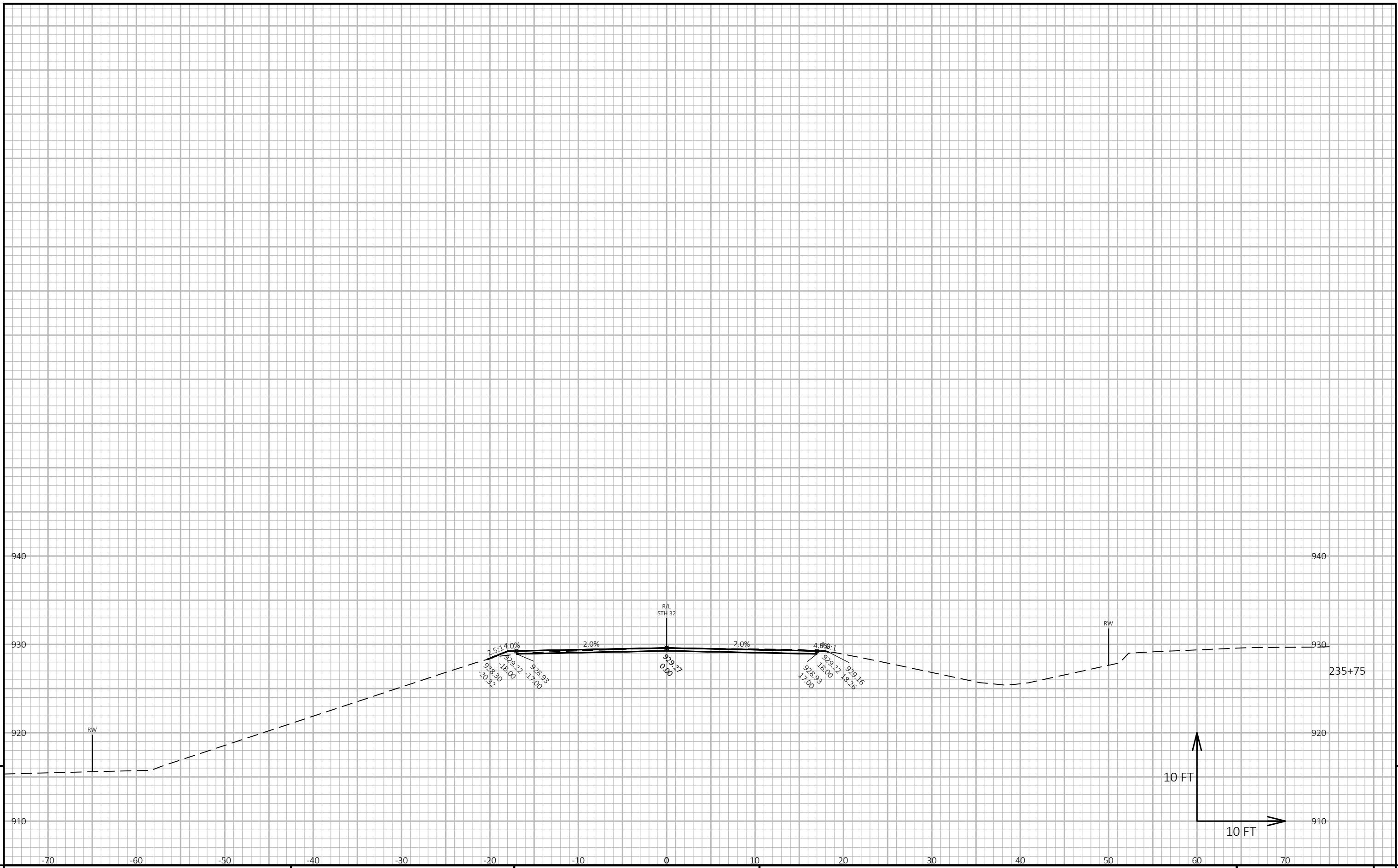


SPECIAL CONCRETE COLLAR
 ENCAPSULATE THIRD JOINT FROM RT END
 APPROXIMATELY 22.0' RT
 EXISTING PIPE TO REMAIN

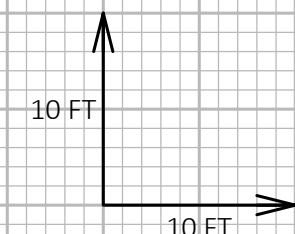
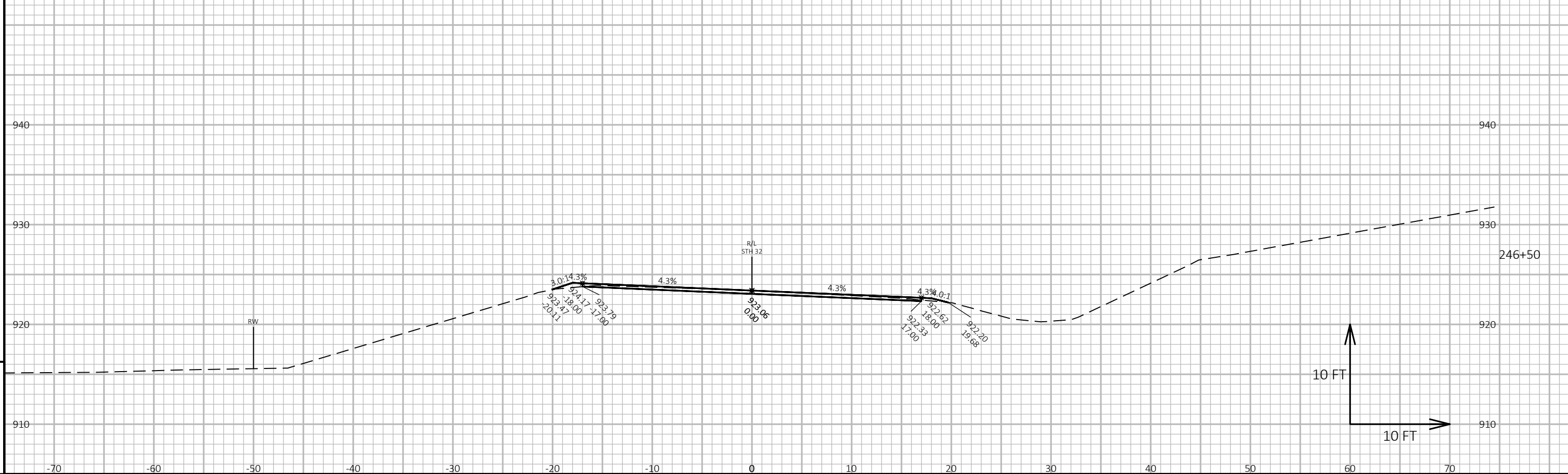
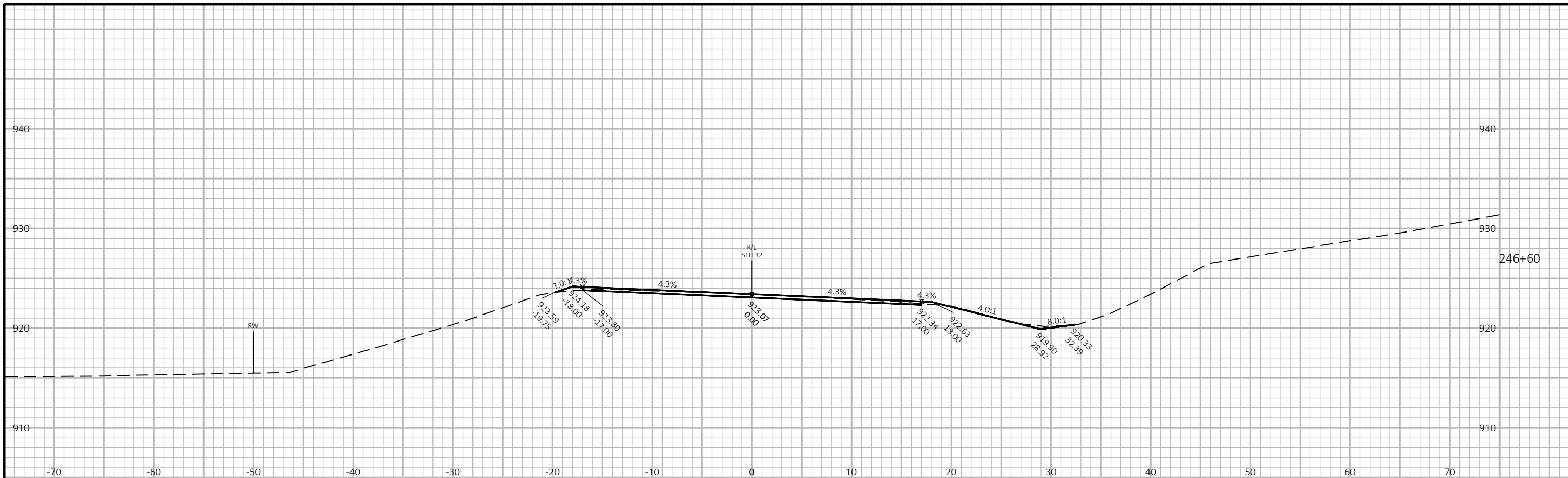
CPRC CLASS III 24-INCH
 (REMOVE PART OF EXISTING CP)
 NO SKEW



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET 9



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



PROJECT NO: 9150-06-71

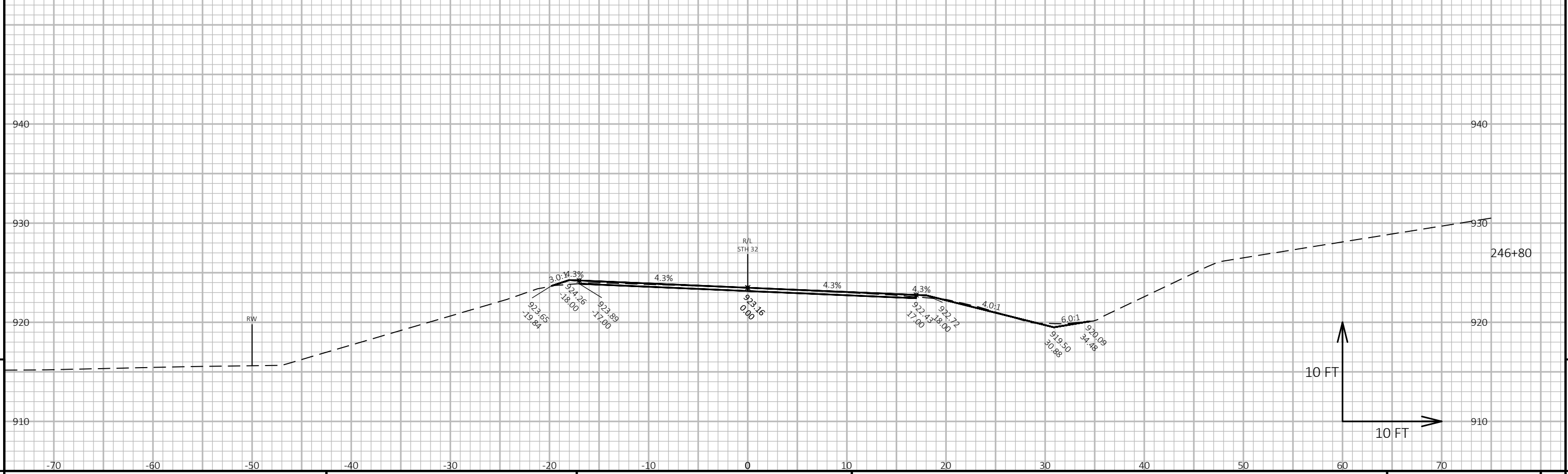
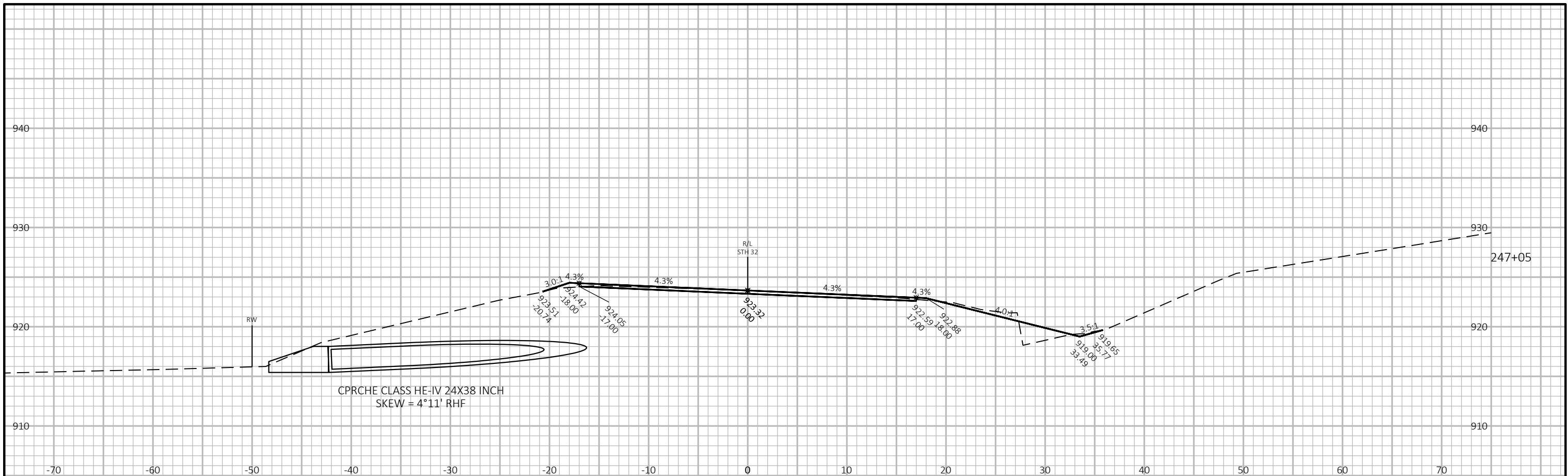
HWY: STH 32

COUNTY: OCONTO

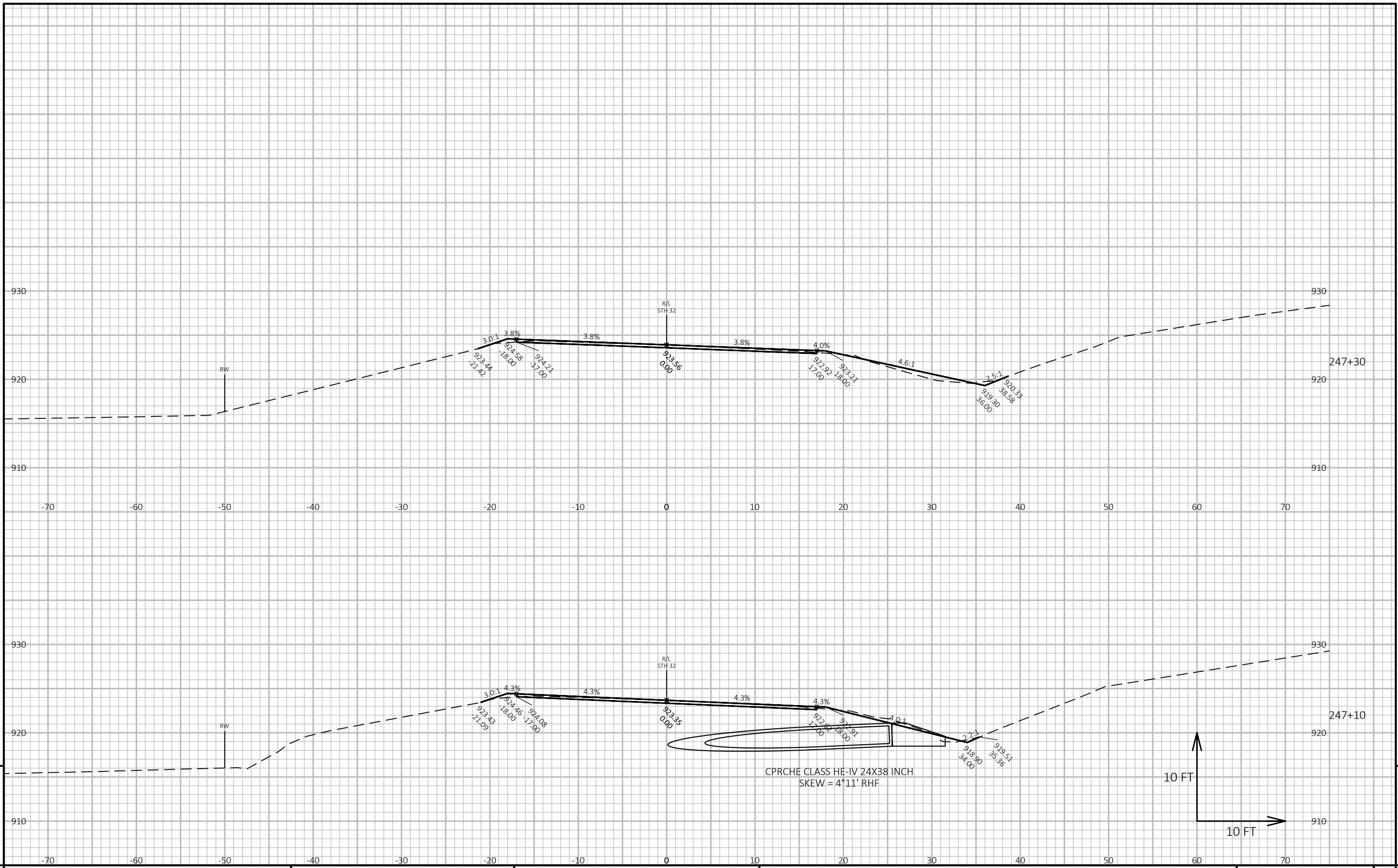
CROSS SECTIONS: STH 32

SHEET

E



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



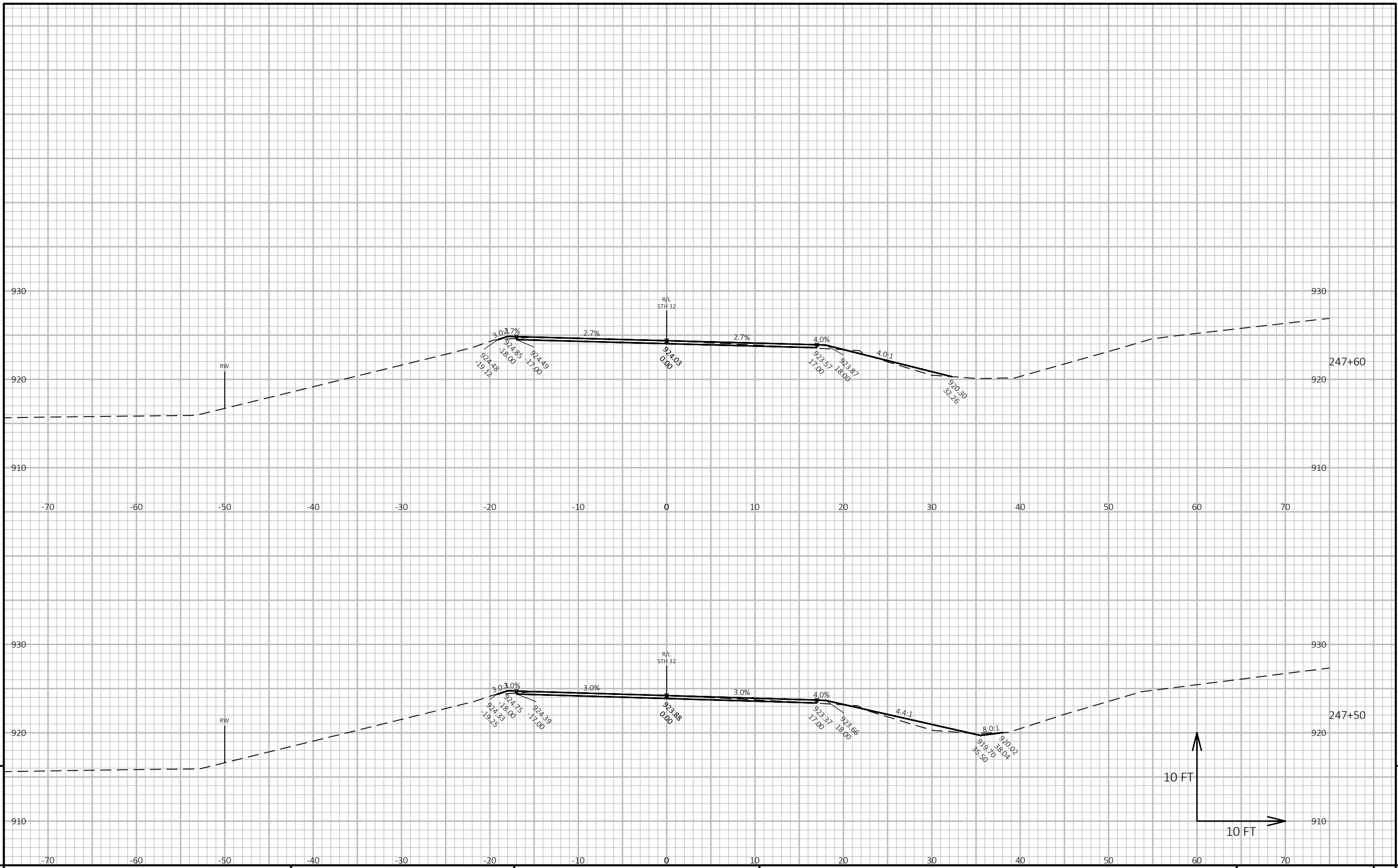
9

9

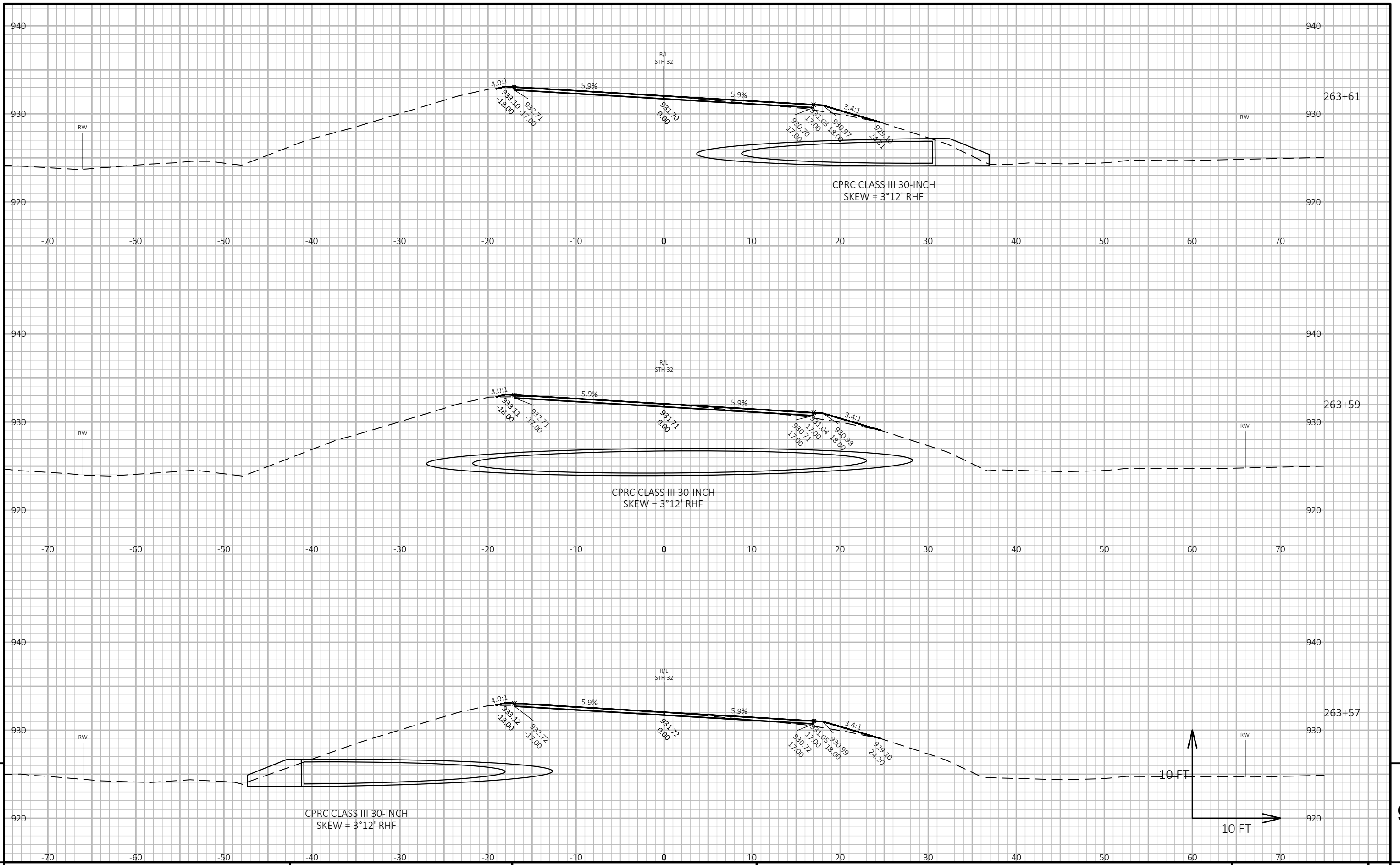
PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME : N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE : 2/24/2021 2:09 PM PLOT BY : BAIERL, KENNETH M PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

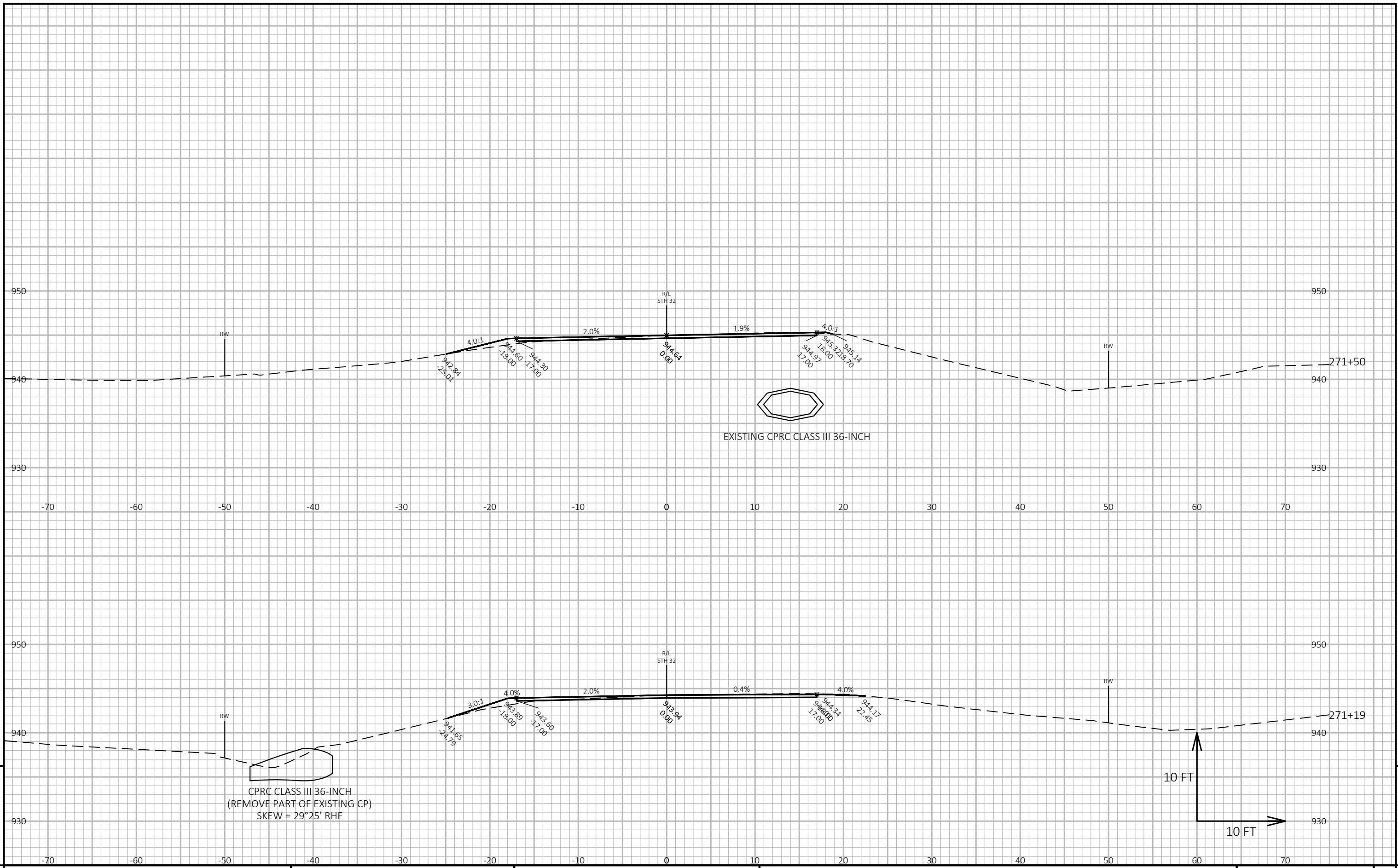
LAYOUT NAME - 090213-xs



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

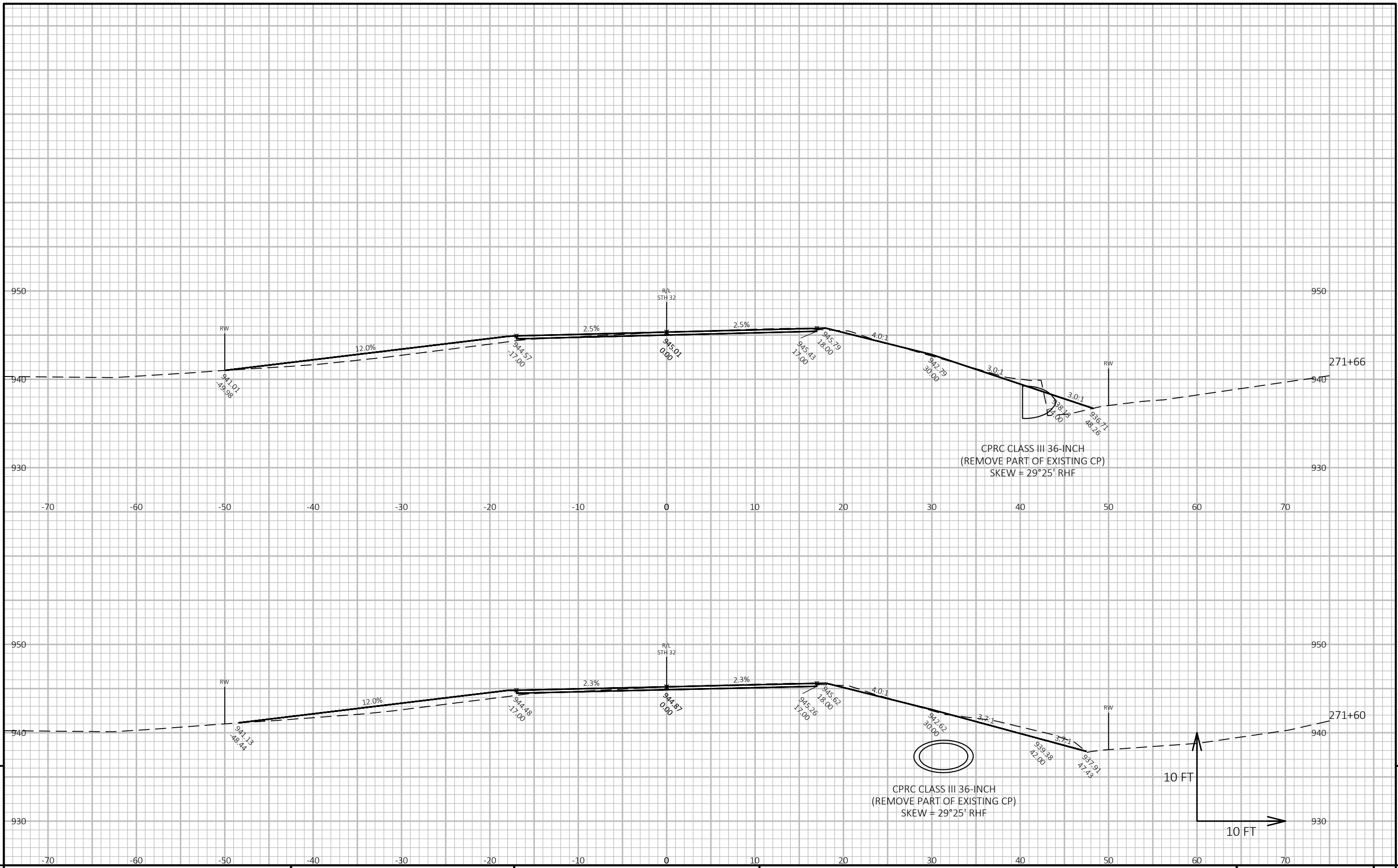


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PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:09 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



PROJECT NO: 9150-06-71

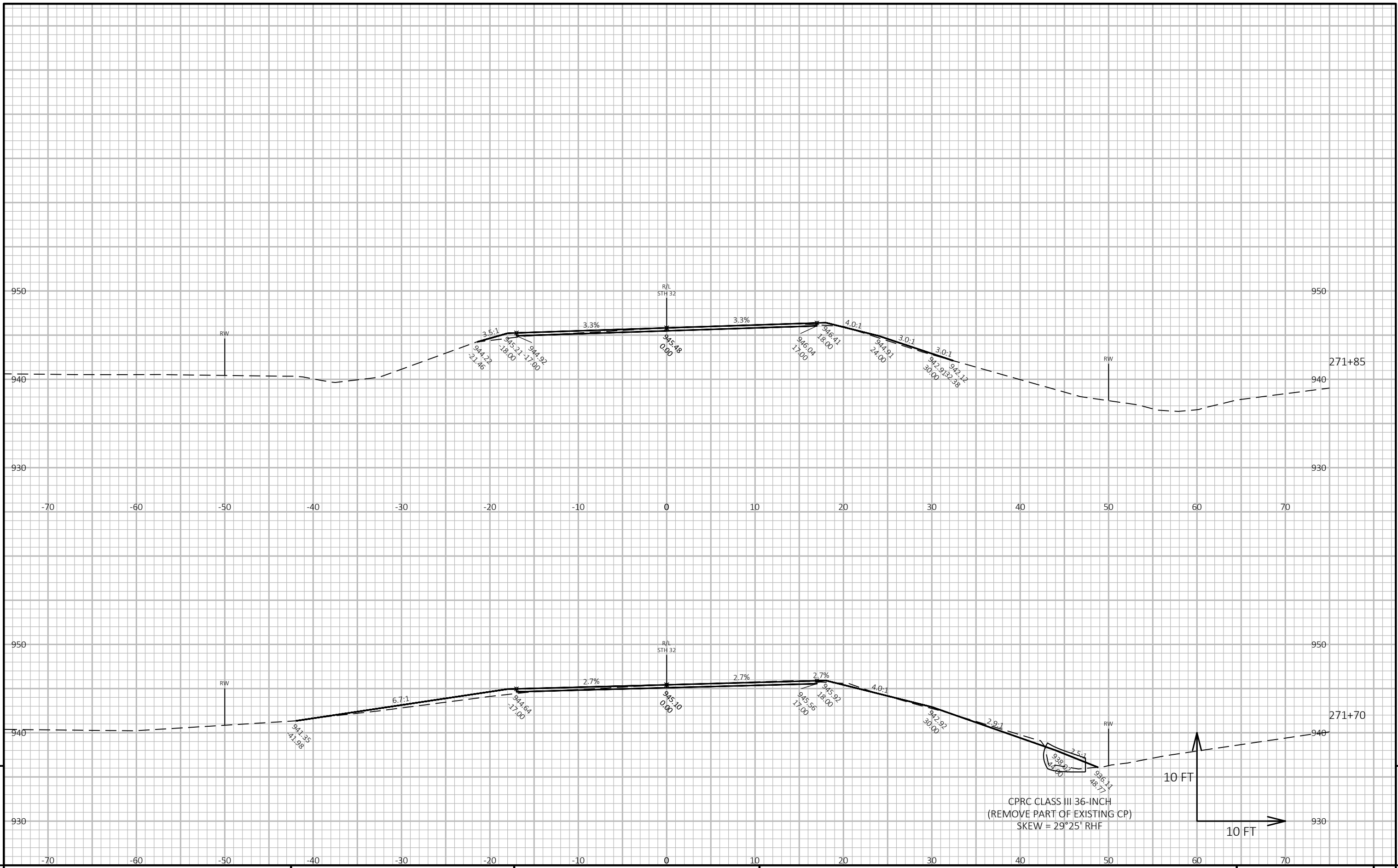
HWY: STH 32

COUNTY: OCONTO

CROSS SECTIONS: STH 32

SHEET

E



PROJECT NO: 9150-06-71

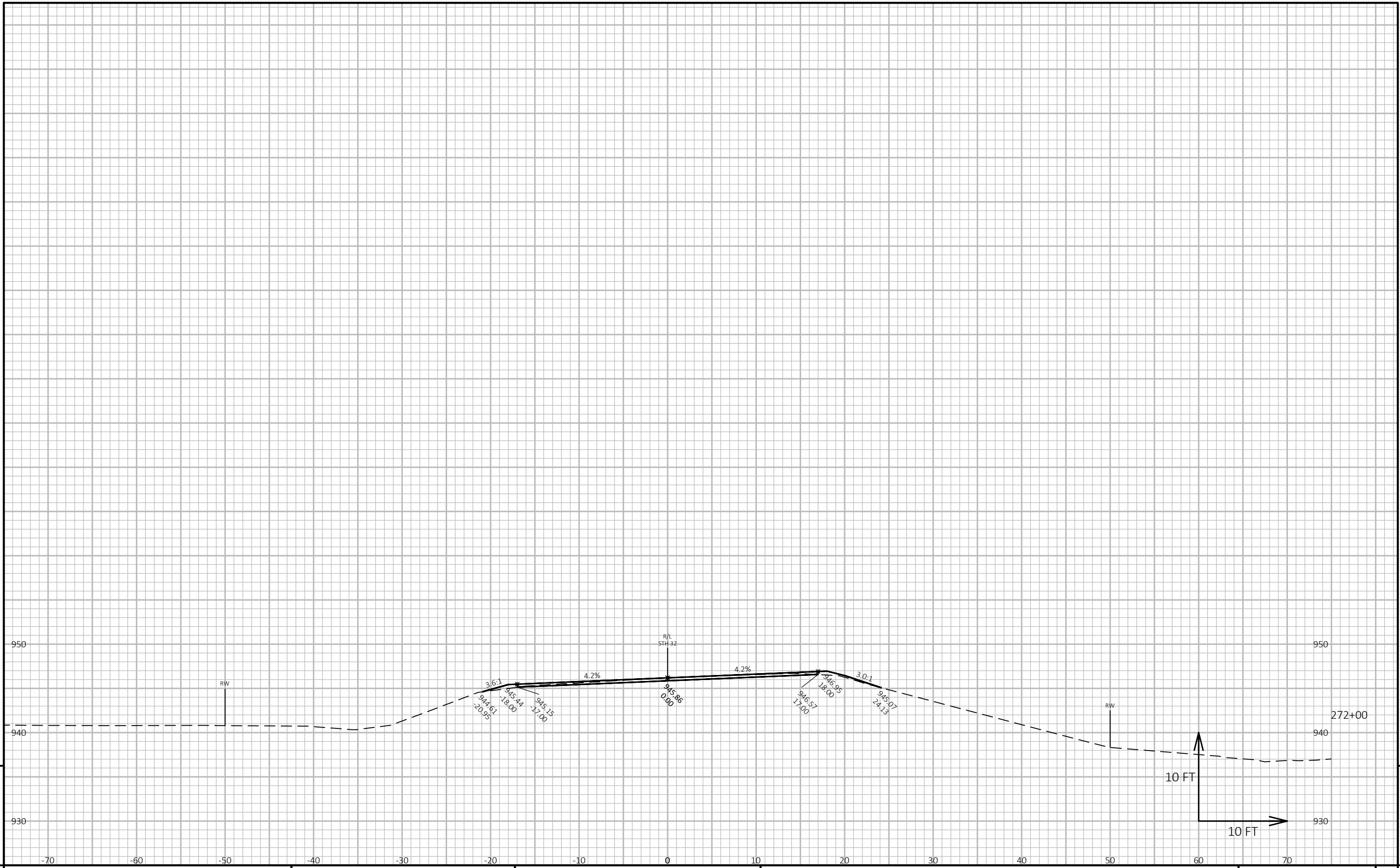
HWY: STH 32

COUNTY: OCONTO

CROSS SECTIONS: STH 32

SHEET

E

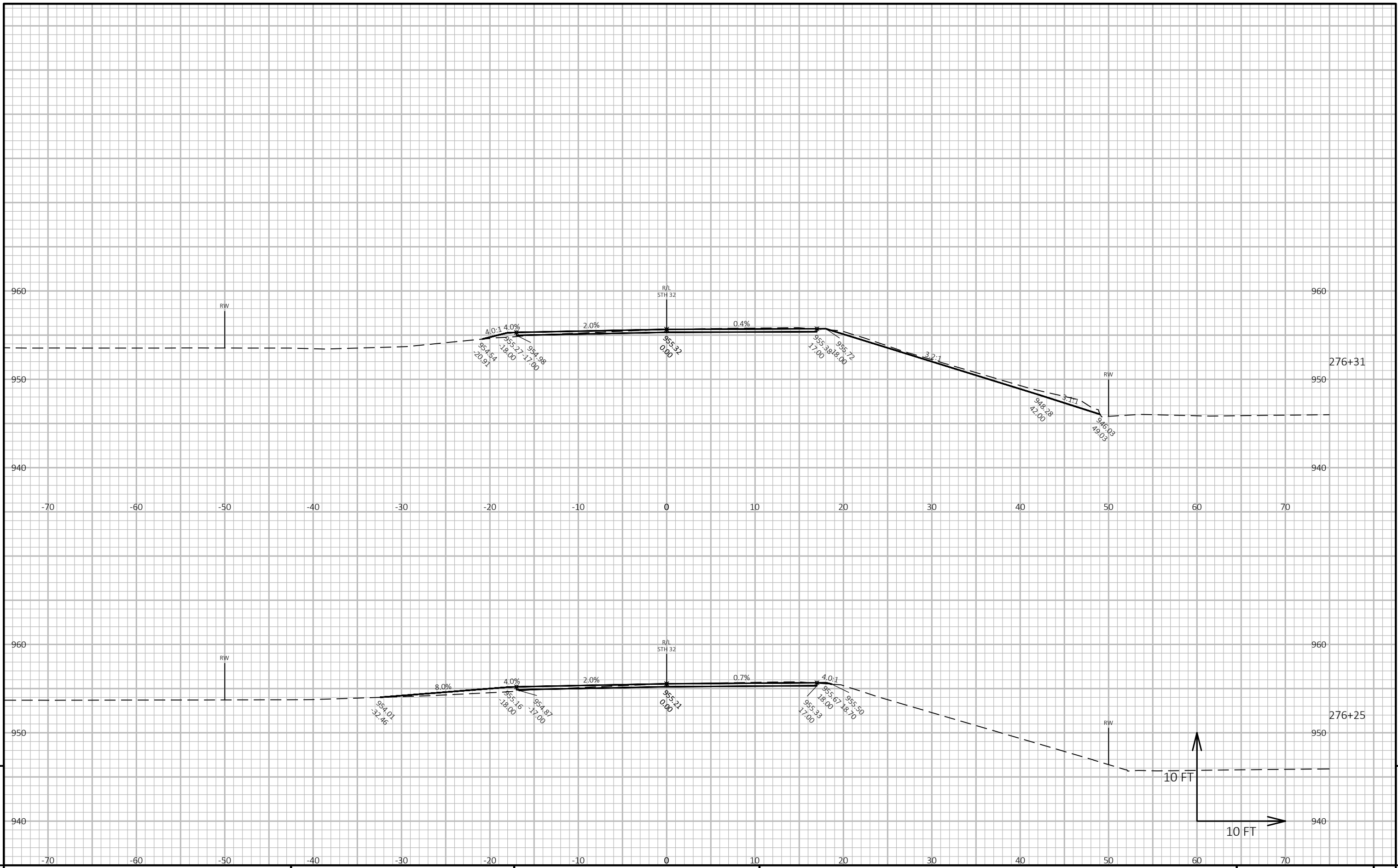


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PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	CROSS SECTIONS: STH 32	SHEET	E
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FILE NAME : N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG
 LAYOUT NAME - 090219-xs
 PLOT DATE : 2/24/2021 2:09 PM
 PLOT BY : BAIERL, KENNETH M
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



PROJECT NO: 9150-06-71

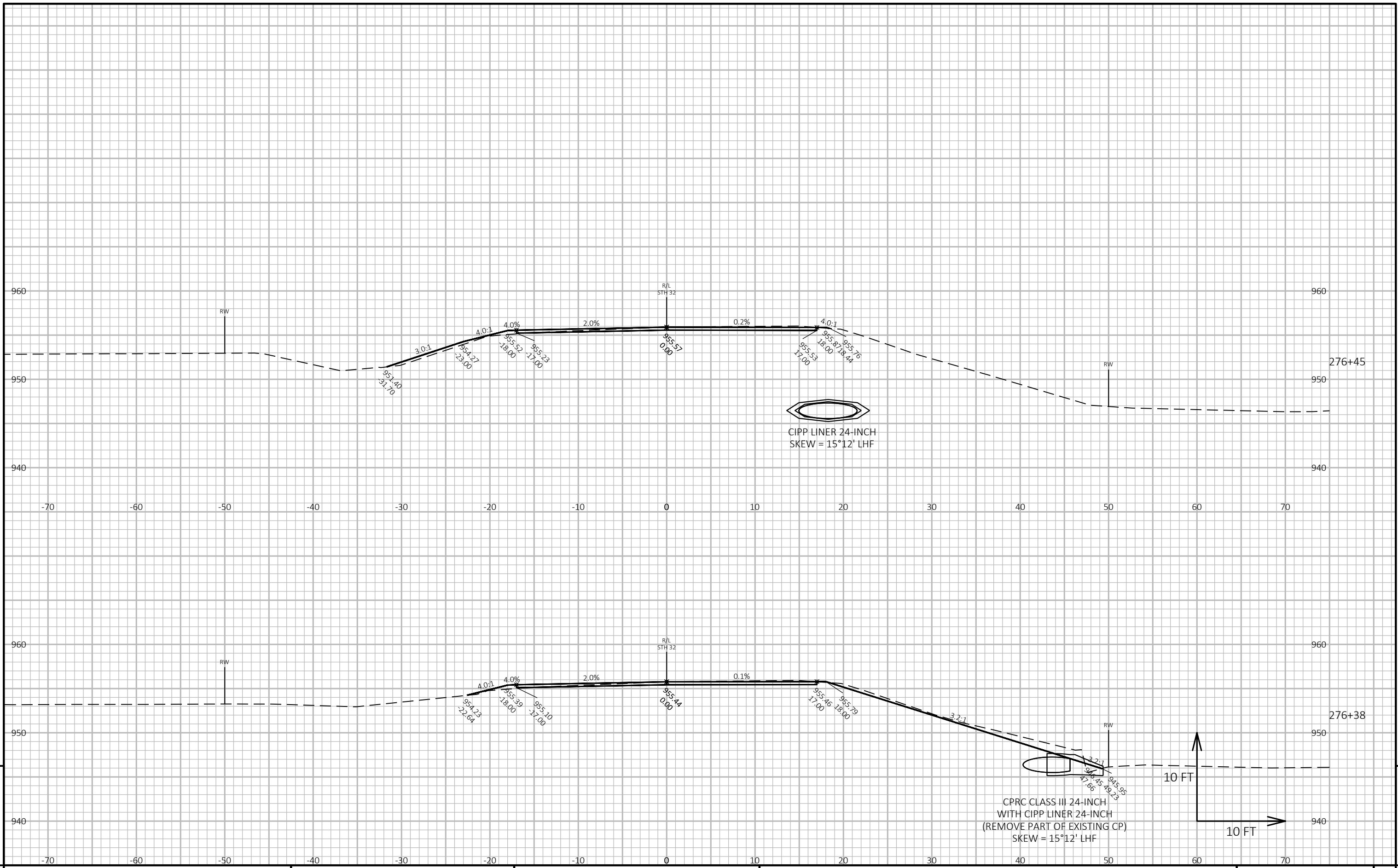
HWY: STH 32

COUNTY: OCONTO

CROSS SECTIONS: STH 32

SHEET

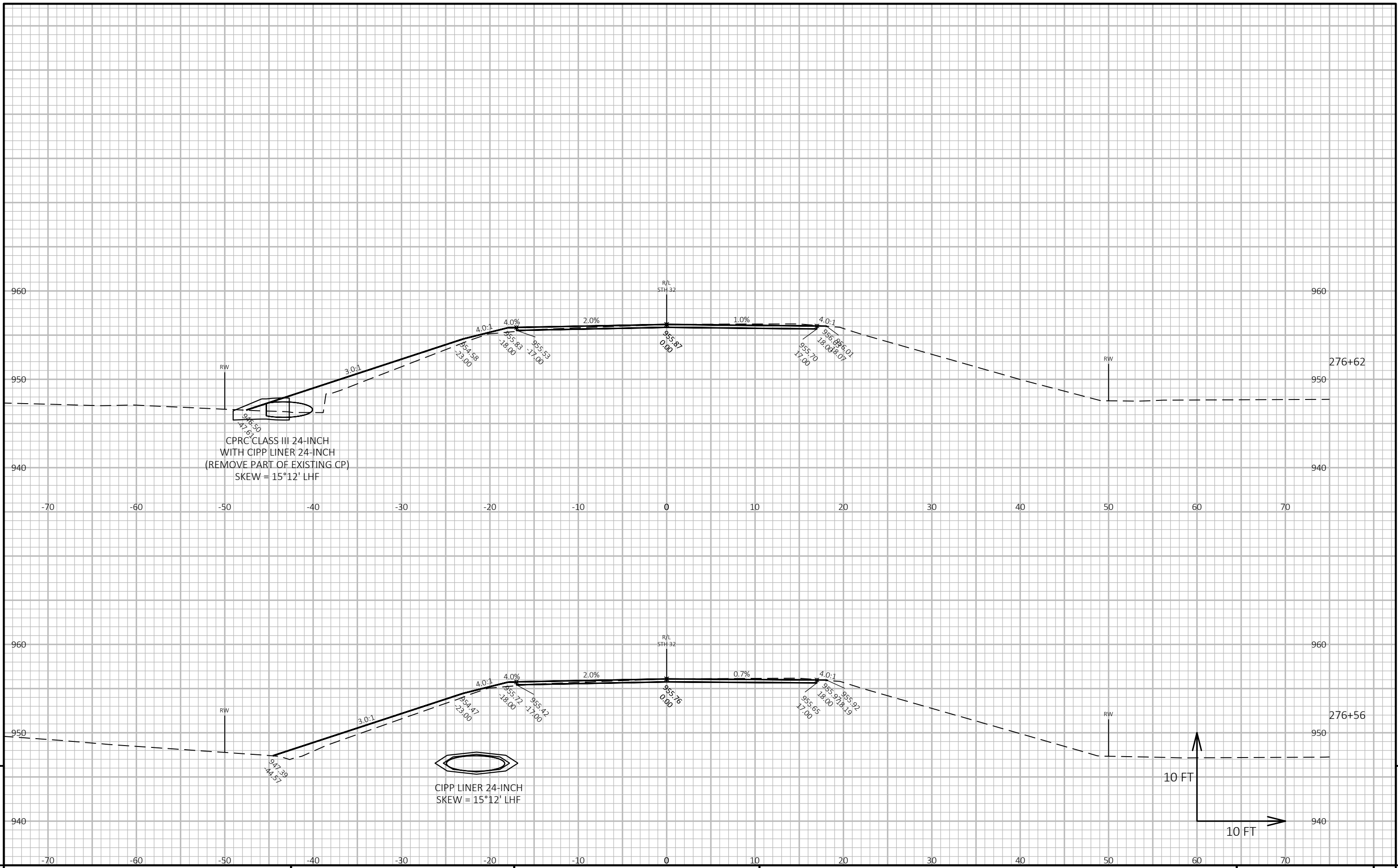
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PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	CROSS SECTIONS: STH 32	SHEET E
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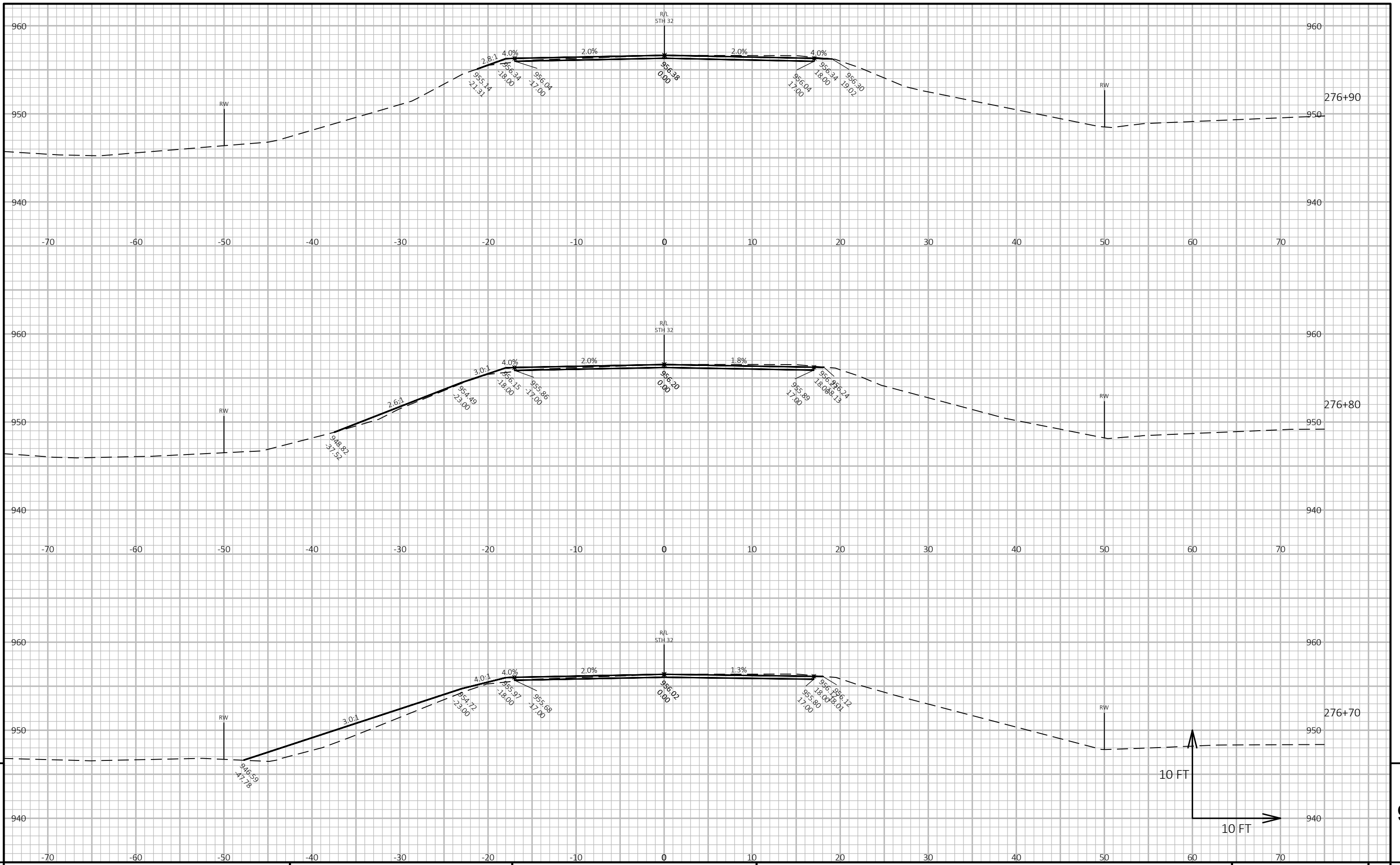


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PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:09 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



PROJECT NO: 9150-06-71

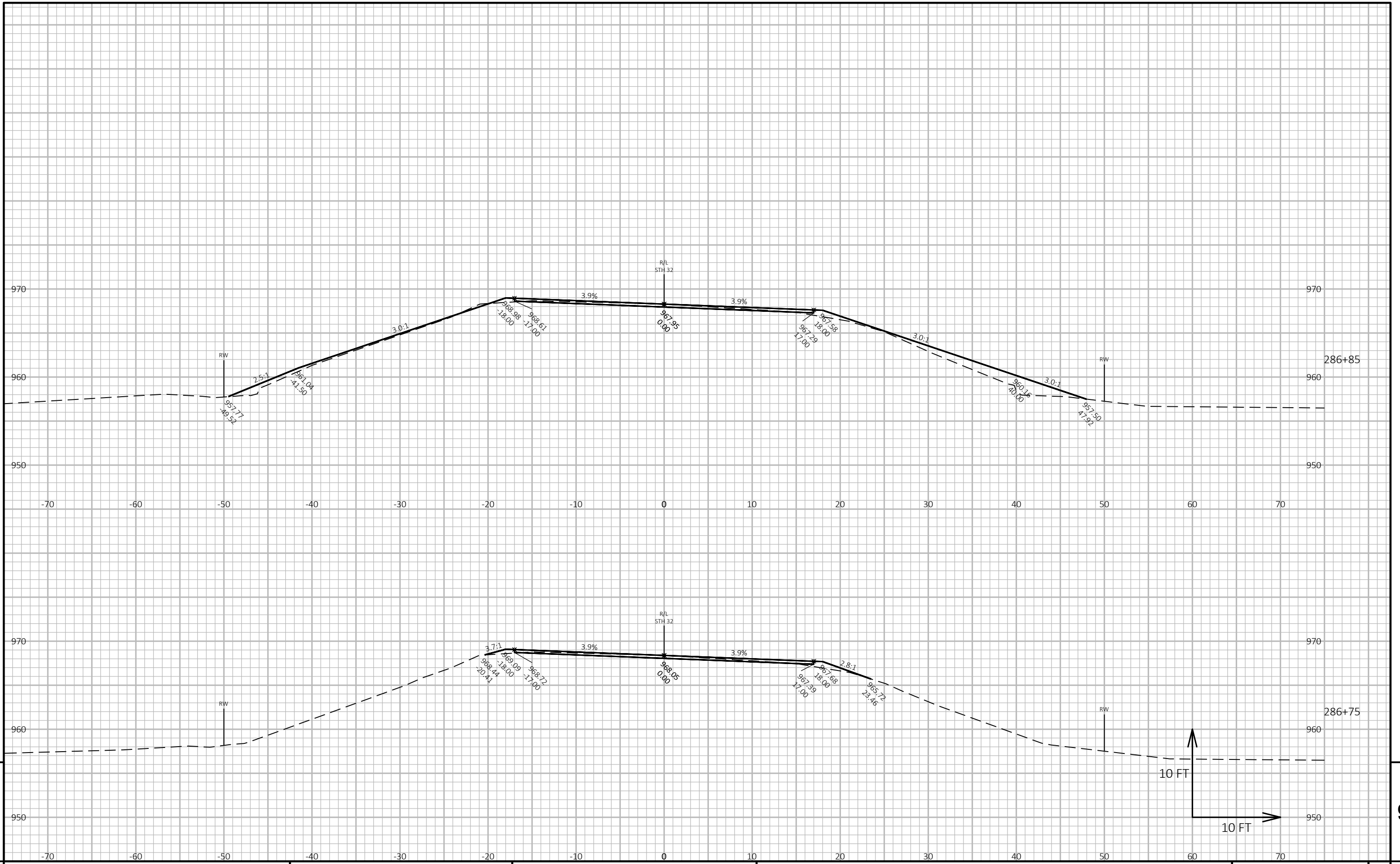
HWY: STH 32

COUNTY: OCONTO

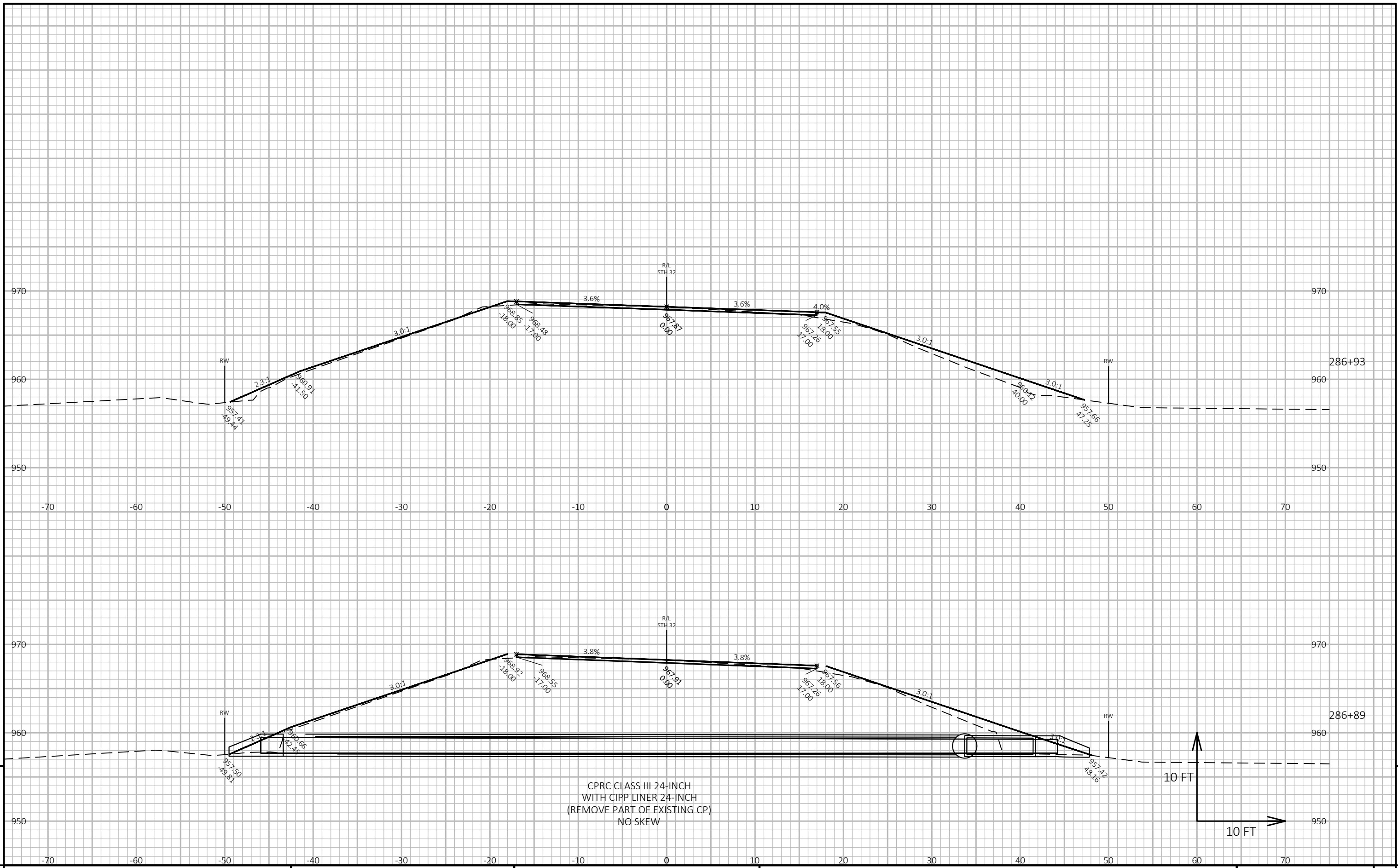
CROSS SECTIONS: STH 32

SHEET

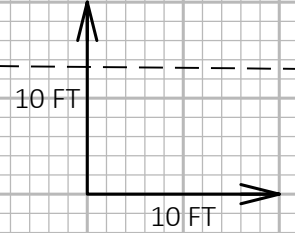
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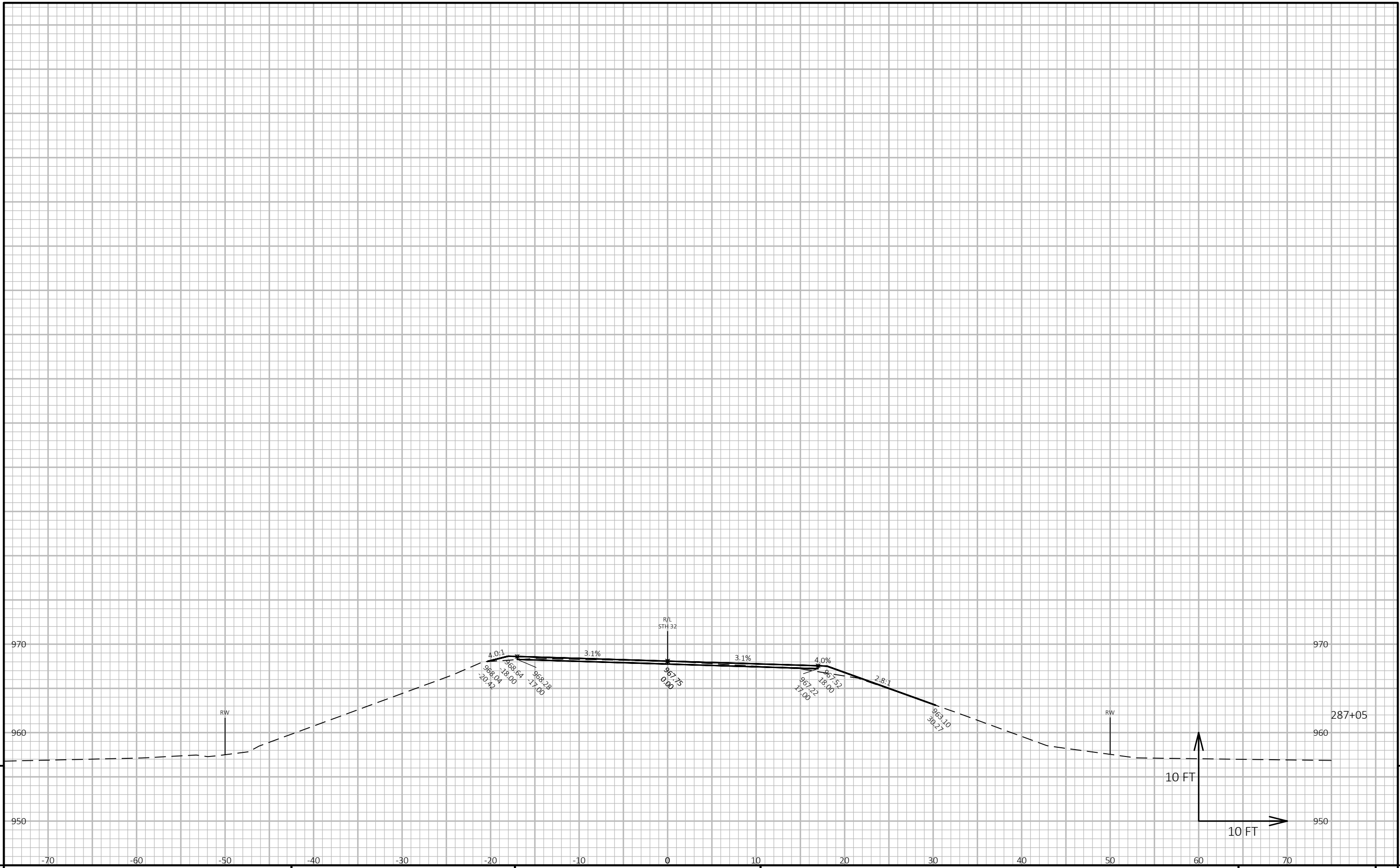


PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E



CPRC CLASS III 24-INCH
WITH CIPP LINER 24-INCH
(REMOVE PART OF EXISTING CP)
NO SKEW



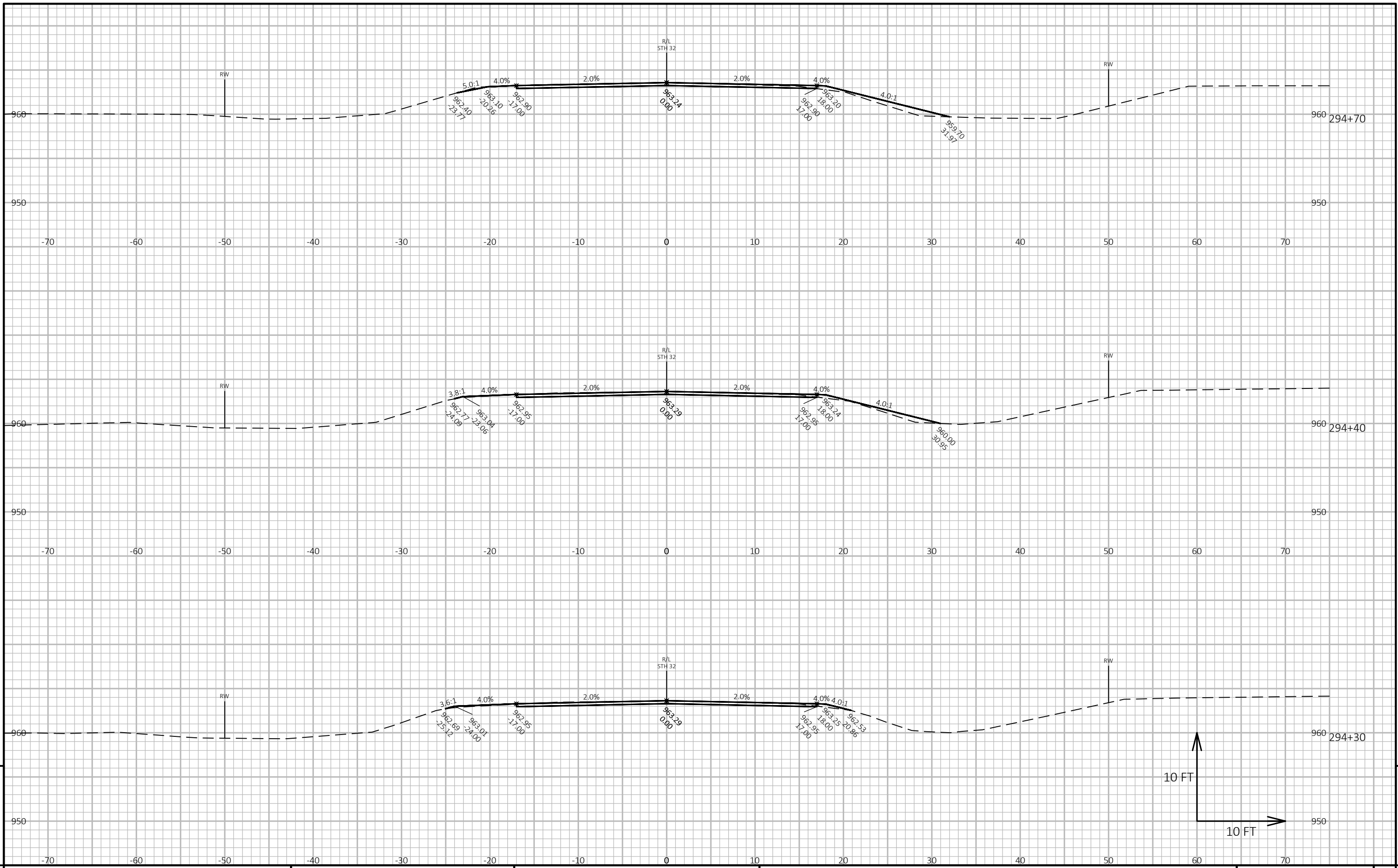


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PROJECT NO: 9150-06-71	HWY: STH 32	COUNTY: OCONTO	CROSS SECTIONS: STH 32	SHEET	E
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FILE NAME : N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG
 LAYOUT NAME - 090226-xs
 PLOT DATE : 2/24/2021 2:09 PM
 PLOT BY : BAIERL, KENNETH M
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49

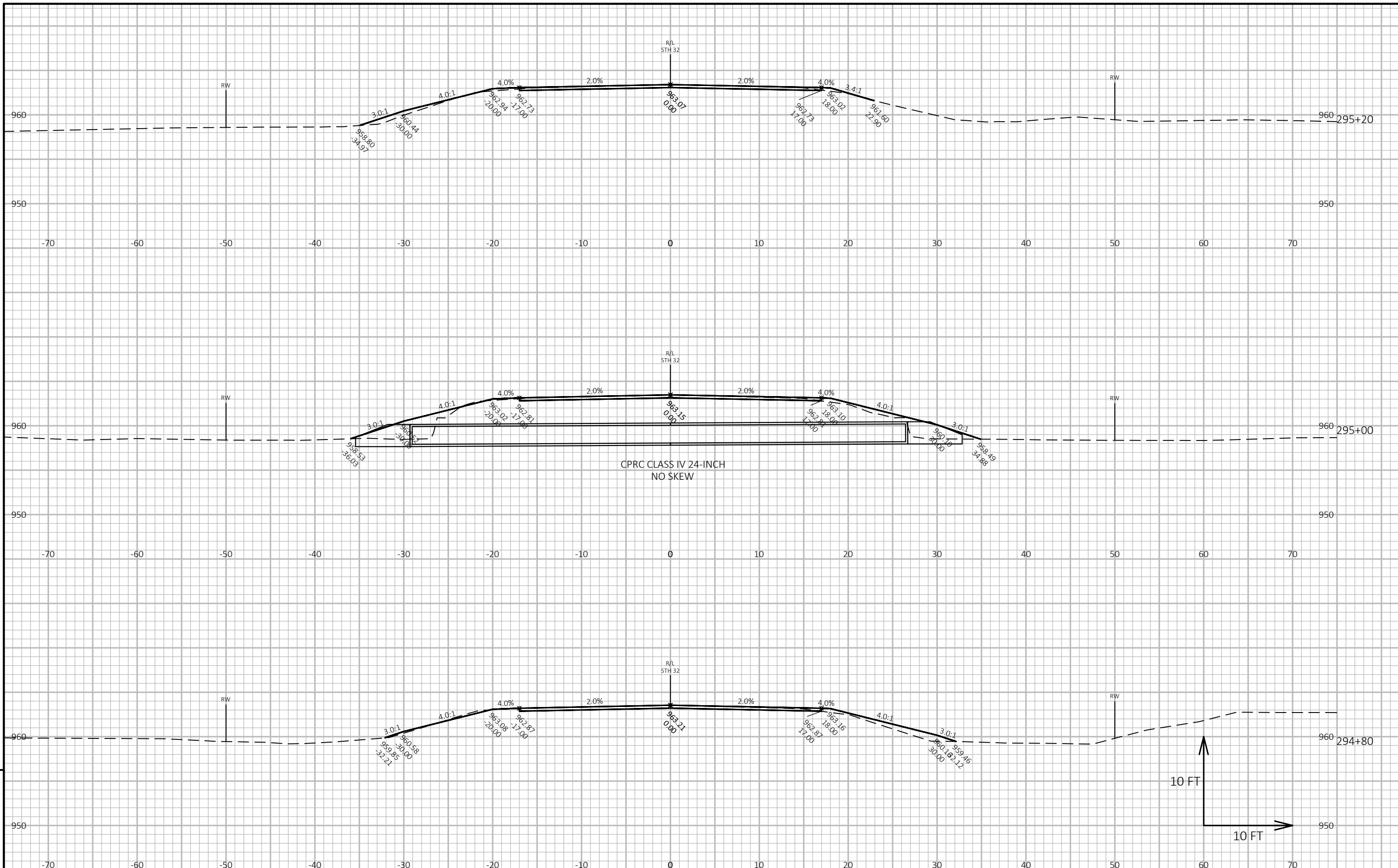


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PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:09 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

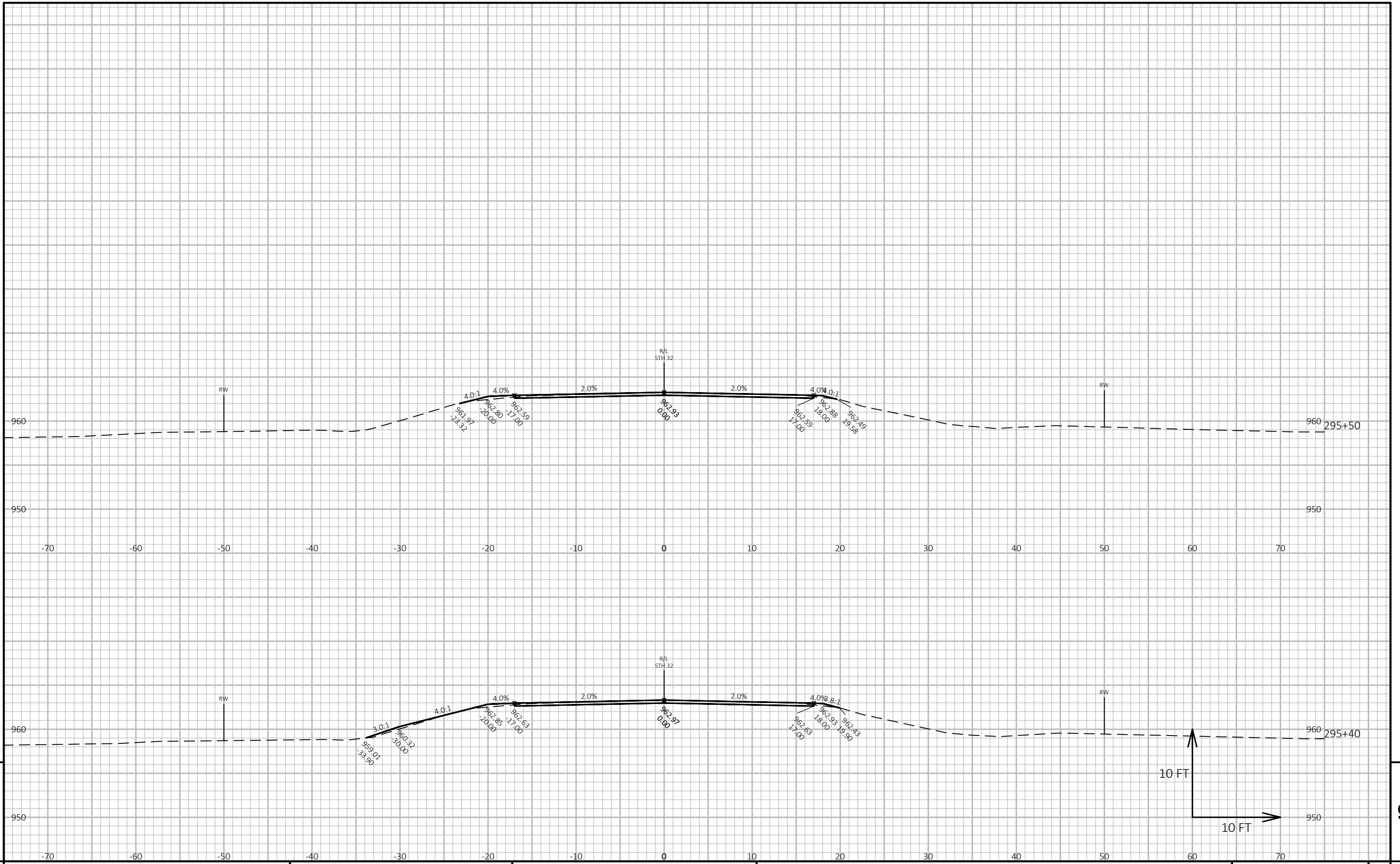


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PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME : N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE : 2/24/2021 2:09 PM PLOT BY : BAIERL, KENNETH M PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



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PROJECT NO: 9150-06-71 HWY: STH 32 COUNTY: OCONTO CROSS SECTIONS: STH 32 SHEET E

FILE NAME: N:\PDS\C3D\91500600\SHEETSPLAN\CULVERT PIPE WORK - XS.DWG PLOT DATE: 2/24/2021 2:09 PM PLOT BY: BAIERL, KENNETH M PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 090229-xs

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>