

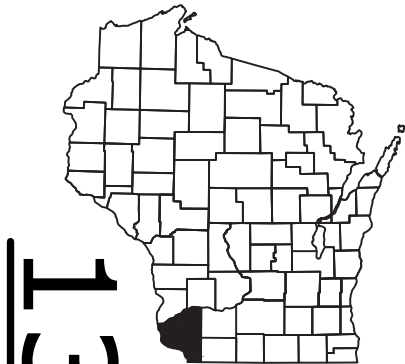
MAD PROJECT ID: 1706-00-70 WITH: NA COUNTY: GRANT

JUNE 2021

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 Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plans
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 200



DESIGN DESIGNATION

A.A.D.T.	2023	=	4300
A.A.D.T.	2043	=	4790
D.H.V.		=	485
D.D.		=	60/40
T.		=	18.2%
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	

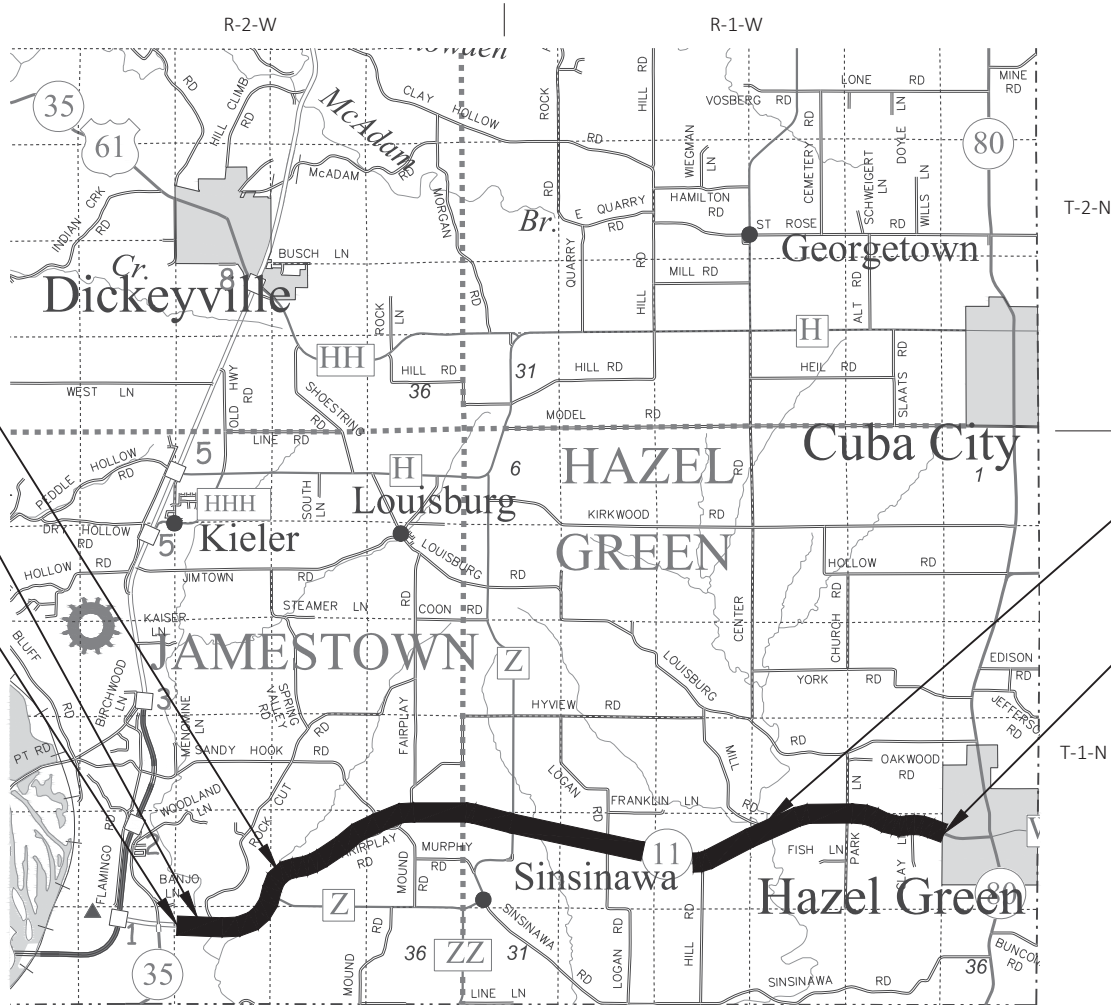
NET EXCEPTION TO CL LENGTH
STA 80+36.75 - STA 80+63.25
B-22-615

NET EXCEPTION TO CL LENGTH
STA 32+91.92 - STA 34+09.08
B-22-134

BEGIN PROJECT
STA 15+35.00
X = 848,670.076
Y = 404,048.443

NET EXCEPTION TO CL LENGTH
STA 368+56.00 - STA 369+60.25
B-22-617

END PROJECT
STA 471+55.00



LAYOUT
SCALE 0 2
TOTAL NET LENGTH OF CENTERLINE = 8.593 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, GRANT COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCE MAY BE USED AS GROUND DISTANCES.

ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88 (2012).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1706-00-70	WISC 2021375	1

ORIGINAL PLANS PREPARED BY

BLOOM
COMPANIES, LLC
Infrastructure Innovation and Ingenuity

DATE: 02/01/21

Yakov N. Nenaydykh
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor TERRATEC ENGINEERING, LLC

Designer BLOOM COMPANIES, LLC

Project Manager DEREK POTTER

Regional Examiner SW REGION

Regional Supervisor SCOTT SCHOENMANN

APPROVED FOR THE DEPARTMENT

DATE: Derek Potter

Derek Potter
(Signature)

Digitally signed by Derek Potter
Reason: I am approving this document
Date: 2021.01.25 14:01:23 -0500

E

GENERAL NOTES

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

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

THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

A SAWCUT IS REQUIRED WHERE NEW HMA PAVEMENT MEETS EXISTING HMA PAVEMENT. ALL SAWCUTS SHALL BE MADE PERPENDICULAR TO THE CENTERLINE UNLESS DIRECTED BY THE ENGINEER.

SAWCUT ASPHALT AND CONCRETE AT THE MATCHLINE AS SHOWN ON THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN AND PROVIDE DOCUMENTATION TO THE ENGINEER.

WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.

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

PLACE SALVAGED TOPSOIL IN ALL GRADED AREAS AS DESIGNATED BY THE ENGINEER IMMEDIATELY AFTER GRADING HAS BEEN COMPLETED. SEED, MULCH AND FERTILIZE ALL AREAS 5 DAYS AFTER PLACEMENT OF SALVAGED TOPSOIL.

RESHAPING AND RESTORING OF ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY OPERATIONS OUTSIDE OF THE ENGINEER DETERMINED CONSTRUCTION LIMITS ARE INCIDENTAL TO THE CONTRACT.

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

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

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

EXISTING SHOULDER AGGREGATE SHALL BE INCORPORATED INTO THE NEW SHOULDERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD.

EXACT LOCATIONS AND WIDTHS OF DRIVEWAYS AND PRIVATE FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

STATIONING AND OFFSETS SHOWN IN THE PLAN ARE APPROXIMATE AND FOR REFERENCE ONLY. ALL NEW TERMINALS SHALL BE LAID OUT AND FIT IN THE FIELD PRIOR TO PLACEMENT. THIS WILL ENSURE THAT THE NEW TERMINALS PROPERLY MATCH IN TO THE EXISTING GUARDRAIL.

PRIOR TO THE PLACEMENT OF THE BEAM GUARD TERMINALS, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

TOTAL PAVEMENT LAYER THICKNESS	LAYERS	NOMINAL MAXIMUM AGGREGATE GRADATION	TRAFFIC	ASPHALT BINDER	BINDER DESIGNATION LEVEL
5"	2" UPPER 3" LOWER	4 3	MT MT	58-28 58-28	H S

ABBREVIATIONS

AEW	APRON ENDWALL
CPCS	CULVERT PIPE CORRUGATED STEEL
EOP	EDGE OF PAVEMENT
SI	SLOPE INTERCEPT

ORDER OF SECTION 2 SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL
TRAFFIC CONTROL
DETOUR PLAN

UTILITIES

COMMUNICATIONS

CENTURYLINK
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135 N BONSON ST.
PLATTEVILLE, WI 53818
PHONE: 608.482.5377
EMAIL: doug.mcgowan1@lumen.com

GAS

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ROB MALY
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LA CROSSE, WI 54602
PHONE: 608.787.1427
MOBILE: 608.518.2633
EMAIL: rob.maly@dairylandpower.com

VILLAGE OF HAZEL GREEN
JOHN BERNING
1610 FAIRPLAY ST.
HAZEL GREEN, WI 53811
PHONE: 608.854.2953
EMAIL: dpw@villageofhazलगreen.org

SCENIC RIVERS ENERGY COOPERATIVE
CHAD OLMSTEAD
231 N. SHERIDAN ST.
LANCASTER, WI 53813
PHONE: 608.723.2121 EXT 561
EMAIL: colmstead@srec.net

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

WISDOT CONTACT

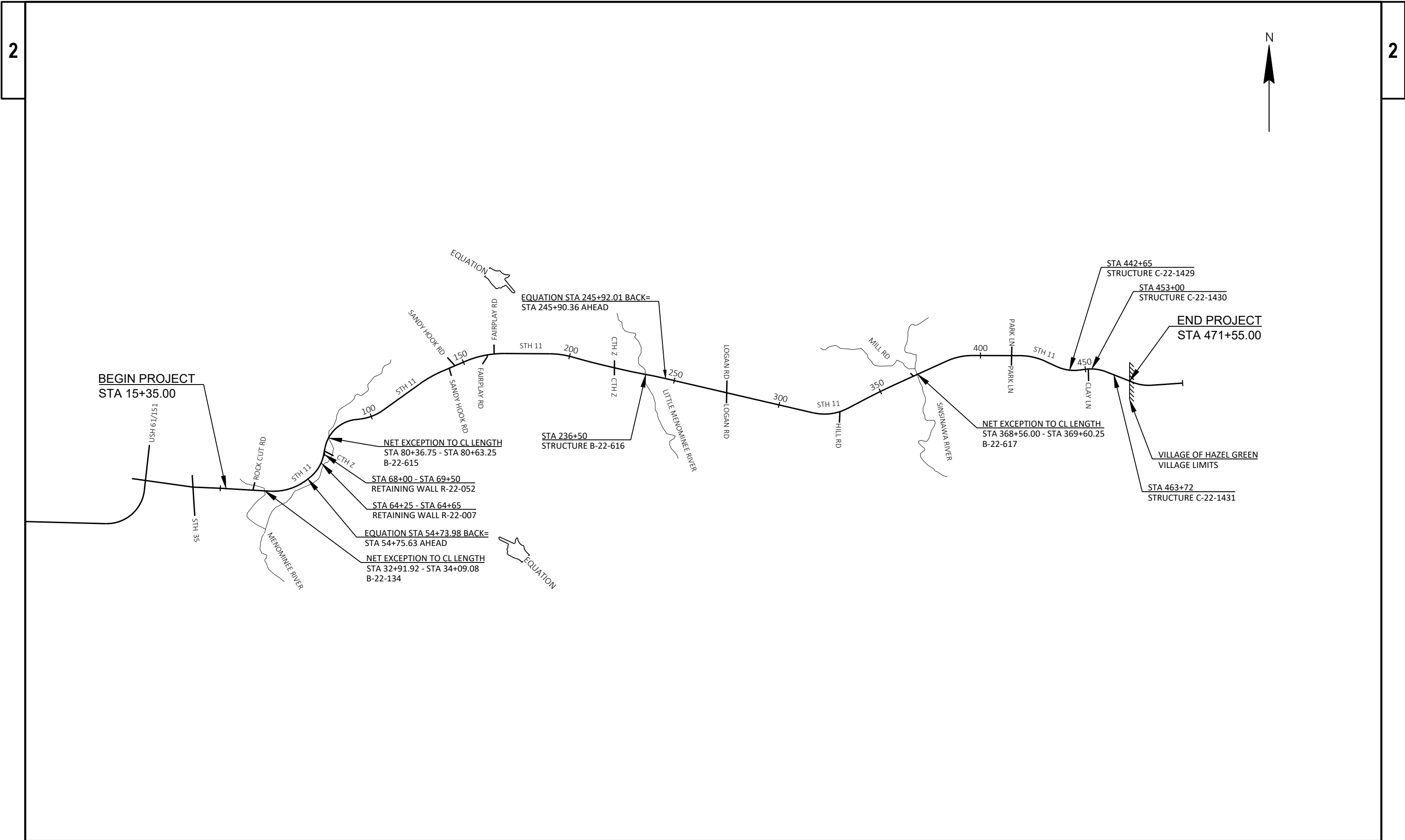
DEREK POTTER
WISDOT, SW REGION
111 INTERSTATE BLVD.
EDGERTON, WI 53534
PHONE: 608.246.3861
EMAIL: derek.potter@dot.wi.gov

DESIGN CONSULTANT

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MILWAUKEE, WI 53226
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EMAIL: ynenaydykh@bloomcos.com

WDNR LIAISON

ANDY BARTA
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NATURAL RESOURCES
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FITCHBURG, WI 53711
PHONE: 608.275.3308
EMAIL: andrew.barta@wisconsin.gov



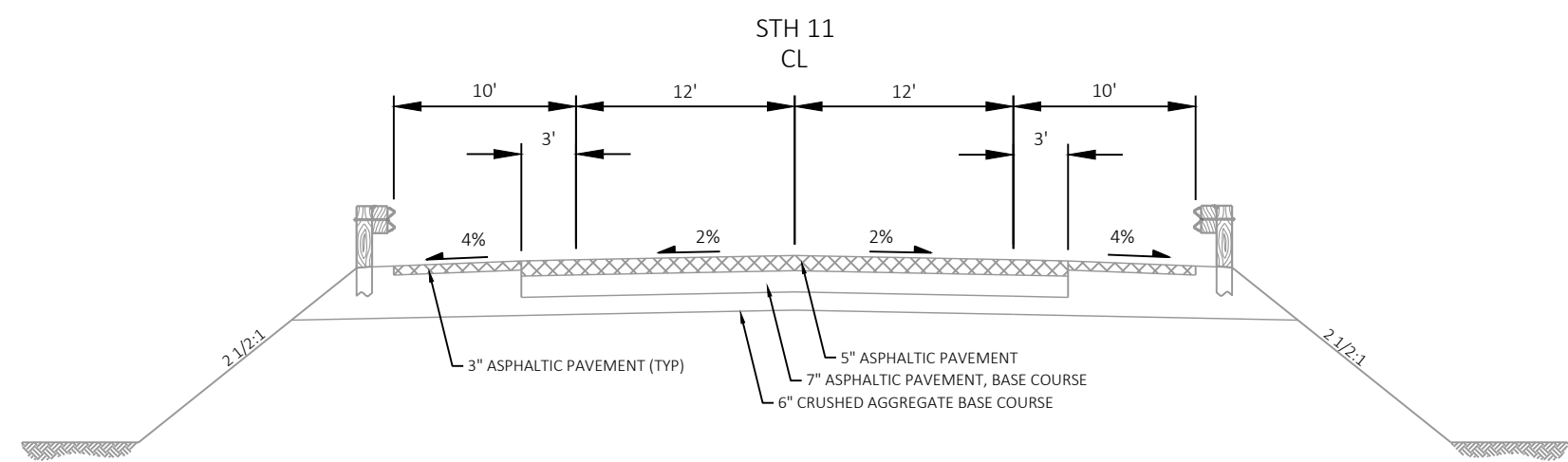
PROJECT NO: 1706-00-70	HWY: STH 11	COUNTY: GRANT	PROJECT OVERVIEW	SHEET	E
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STA 15+85.50 - STA 25+00	STA 361+75 - STA 365+20 RT
STA 36+00 - STA 43+19	STA 361+75 - STA 367+45 L
STA 43+19 - STA 48+15 LT	STA 370+33 - STA 378+00
STA 48+15 - STA 62+05	STA 441+50 - STA 442+19 LT
STA 62+05 - STA 64+57 LT	STA 443+71 - STA 451+63 RT
STA 73+85 - STA 79+66	STA 445+37 - STA 463+26 LT
STA 81+35 - STA 117+00	STA 453+46 - STA 461+84 RT
STA 176+00 - STA 197+00	STA 464+18 - STA 471+55 RT
STA 249+00 - STA 304+00	STA 465+61 - STA 471+55 LT

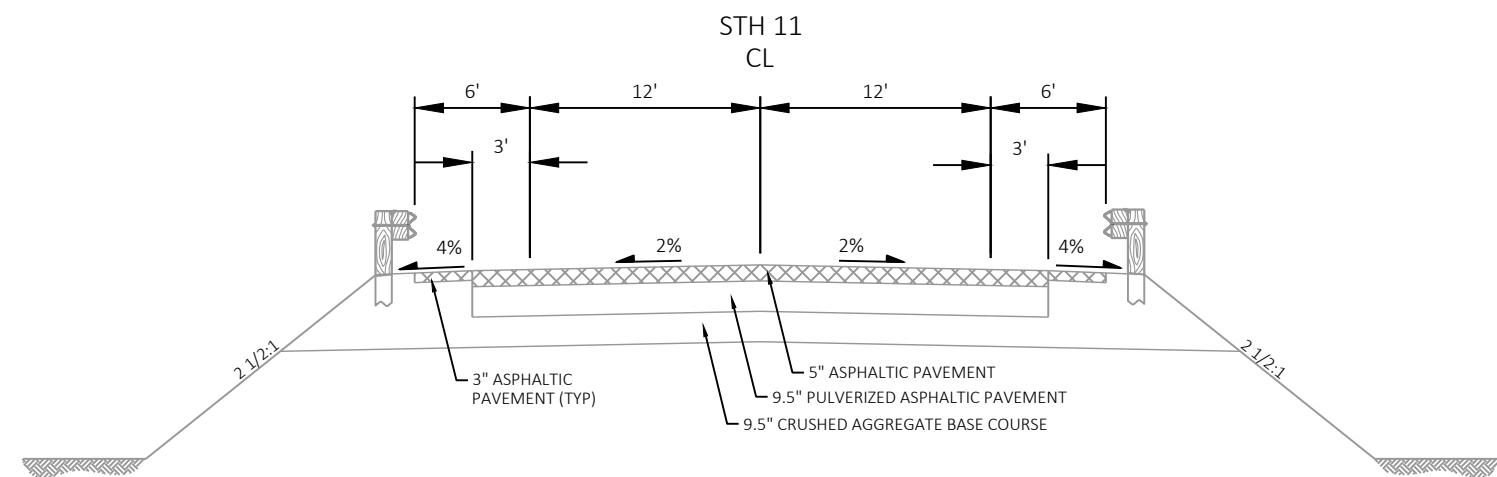


STA 25+00 - STA 28+80 RT
STA 25+00 - STA 29+85 LT
STA 34+96 - STA 36+00
STA 71+74 - STA 73+85 RT
STA 117+00 - STA 176+00
STA 197+00 - STA 233+19 RT
STA 197+00 - STA 249+00 LT
STA 238+15 - STA 249+00 RT
STA 304+00 - STA 311+00 RT
STA 314+30 - STA 361+75 RT
STA 378+00 - STA 425+00 LT



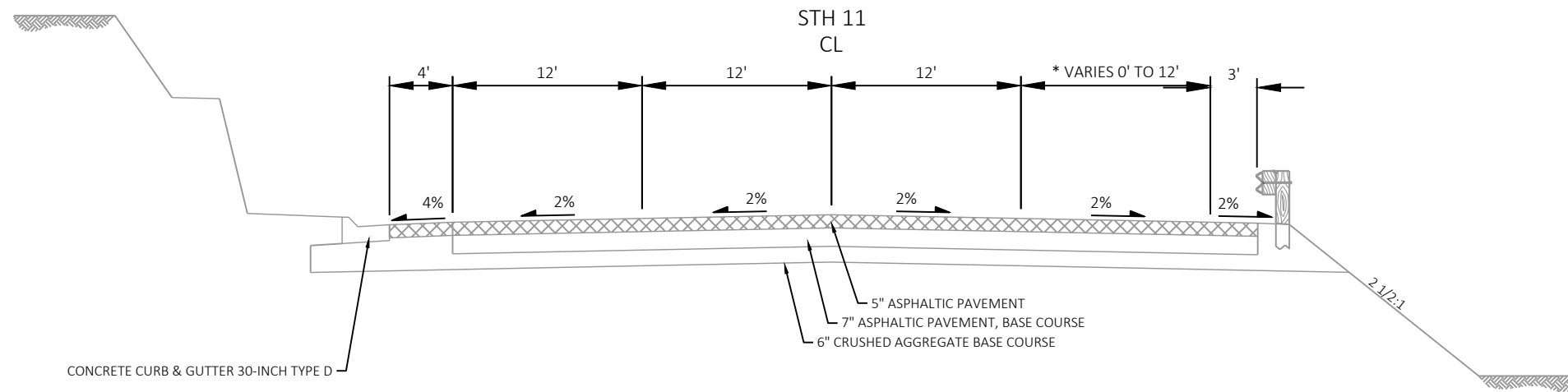
EXISTING TYPICAL SECTION

STA 28+80 - STA 32+91.92 RT
STA 29+85 - STA 32+91.92 LT
STA 34+09.08 - STA 34+96
STA 233+19 - STA 238+15 RT



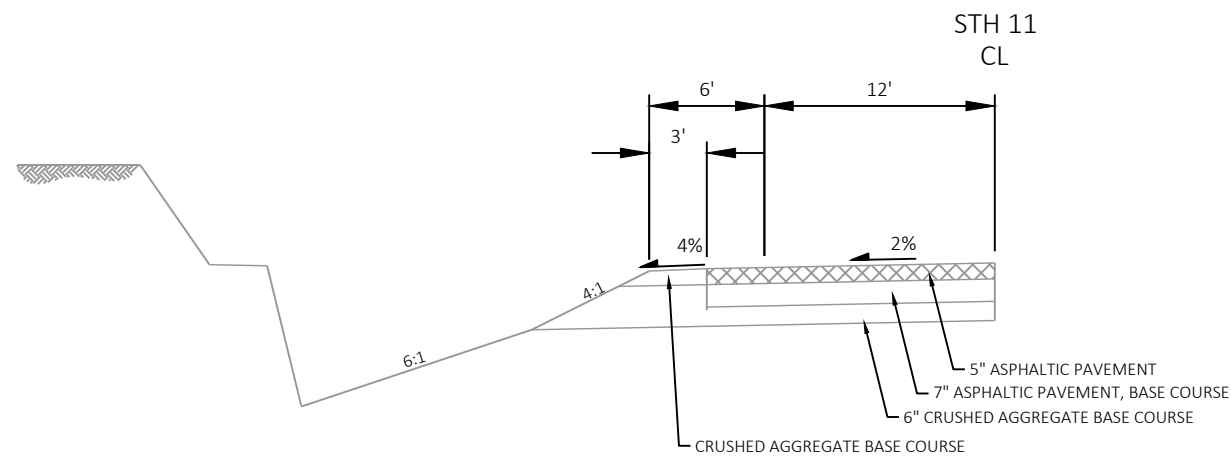
EXISTING TYPICAL SECTION

STA 43+19 - STA 48+15 RT	STA 369+60.25 - STA 370+33
STA 62+05 - STA 64+57 RT	STA 441+50 - STA 443+71 RT
STA 79+66 - STA 80+36.75	STA 442+19 - STA 445+37 LT
STA 80+63.25 - STA 81+35	STA 451+63 - STA 453+46 RT
STA 365+20 - 368+56 RT	STA 461+84 - STA 464+18 RT
STA 367+45 - 368+56 LT	STA 463+26 - STA 465+61 LT

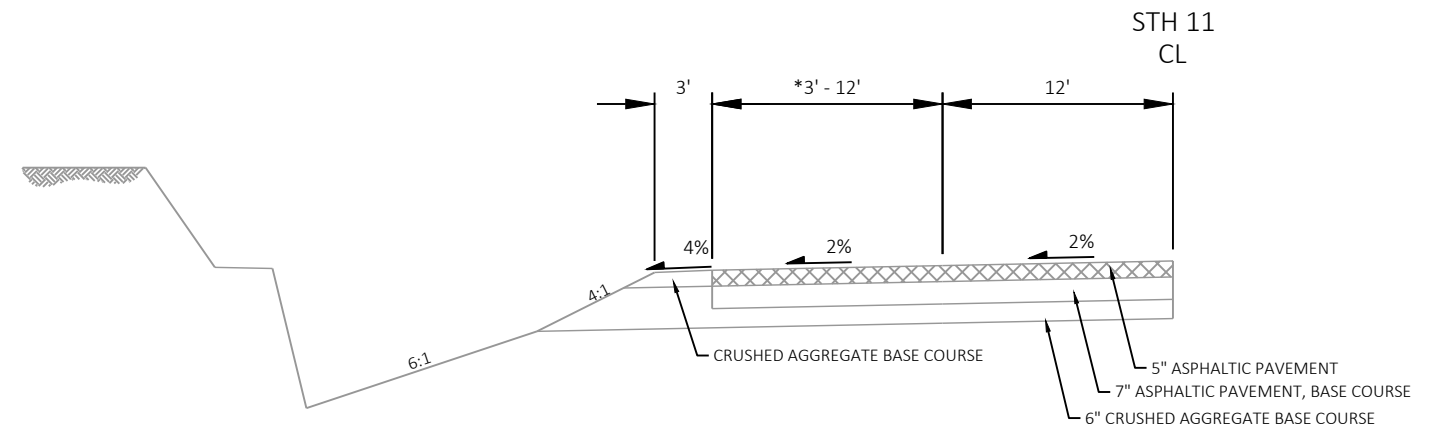
**EXISTING TYPICAL SECTION**

STA 64+57 - STA 71+74 RT
STA 69+28 - STA 71+74 LT

*VARIES 0' TO 12' STA 64+57 TO STA 67+57 RT
*VARIES 12' TO 0' STA 70+74 TO STA 71+74 RT

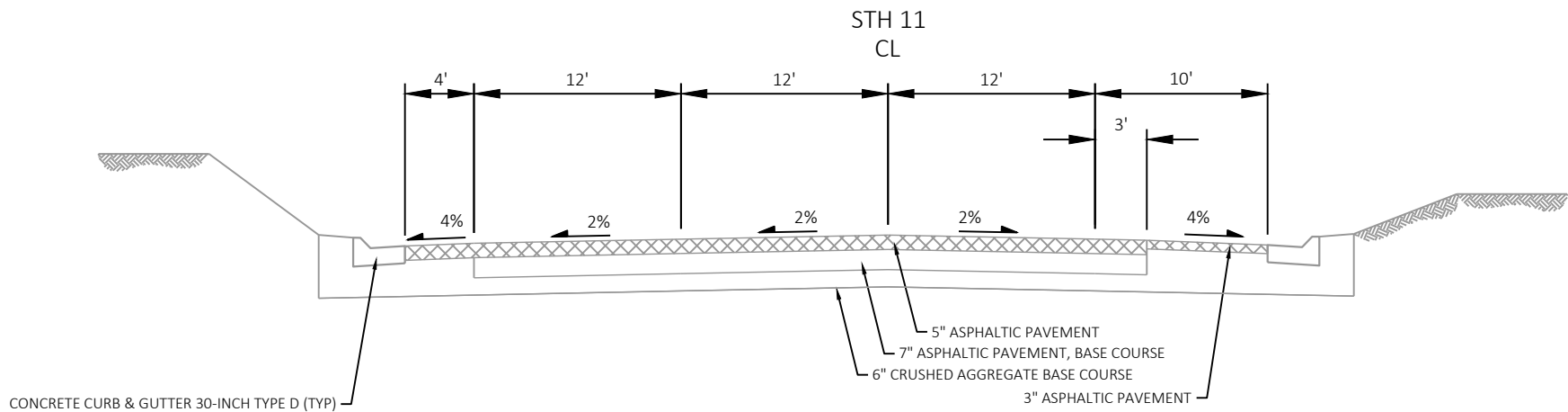
**EXISTING TYPICAL SECTION**

STA 64+57 - STA 67+03 LT
STA 73+35 - STA 73+85 LT

**EXISTING TYPICAL SECTION**

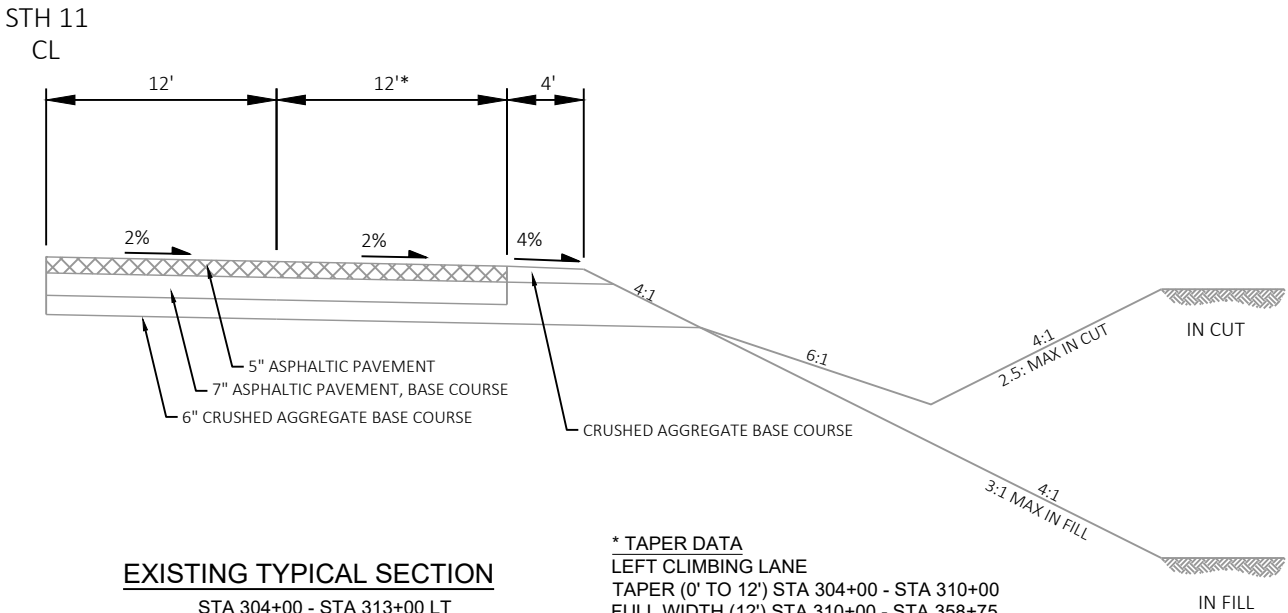
STA 67+03 - STA 69+28 LT
STA 71+74 - STA 73+35 LT

*VARIES 3' TO 12' STA 67+03 TO STA 69+28 LT
*VARIES 12' TO 3' STA 71+85 TO STA 73+35 LT



EXISTING TYPICAL SECTION

STA 311+00 - STA 314+30 RT
STA 313+00 - STA 314+90 LT

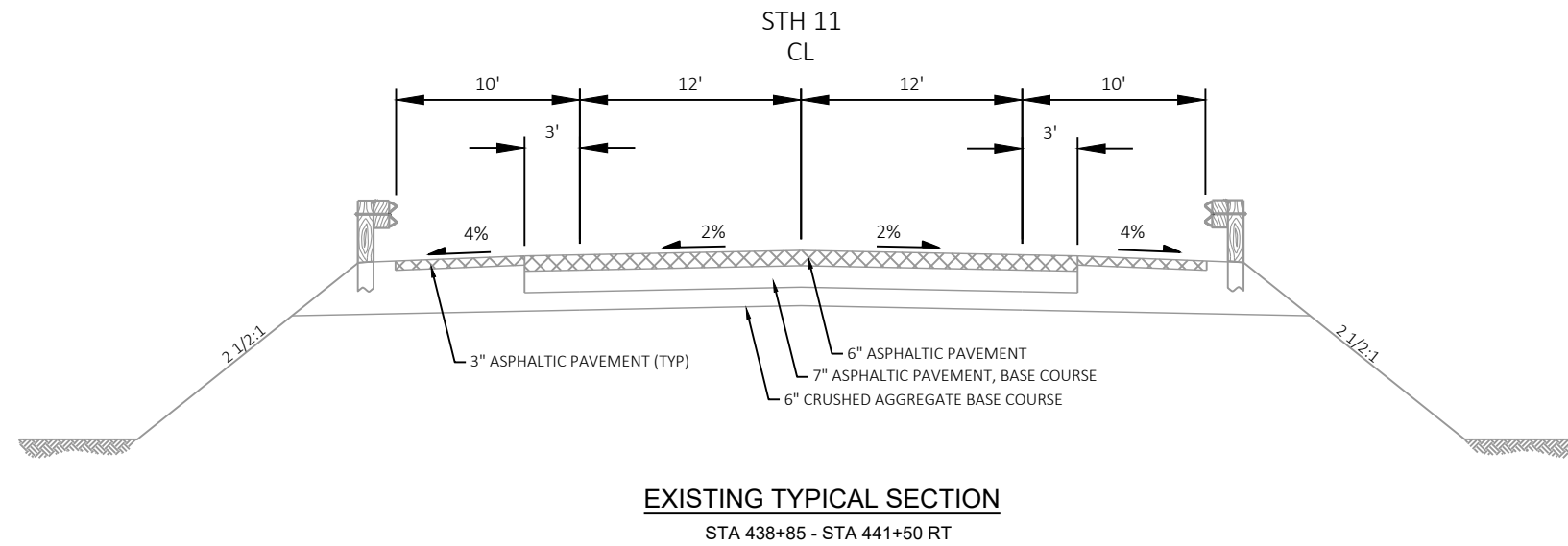


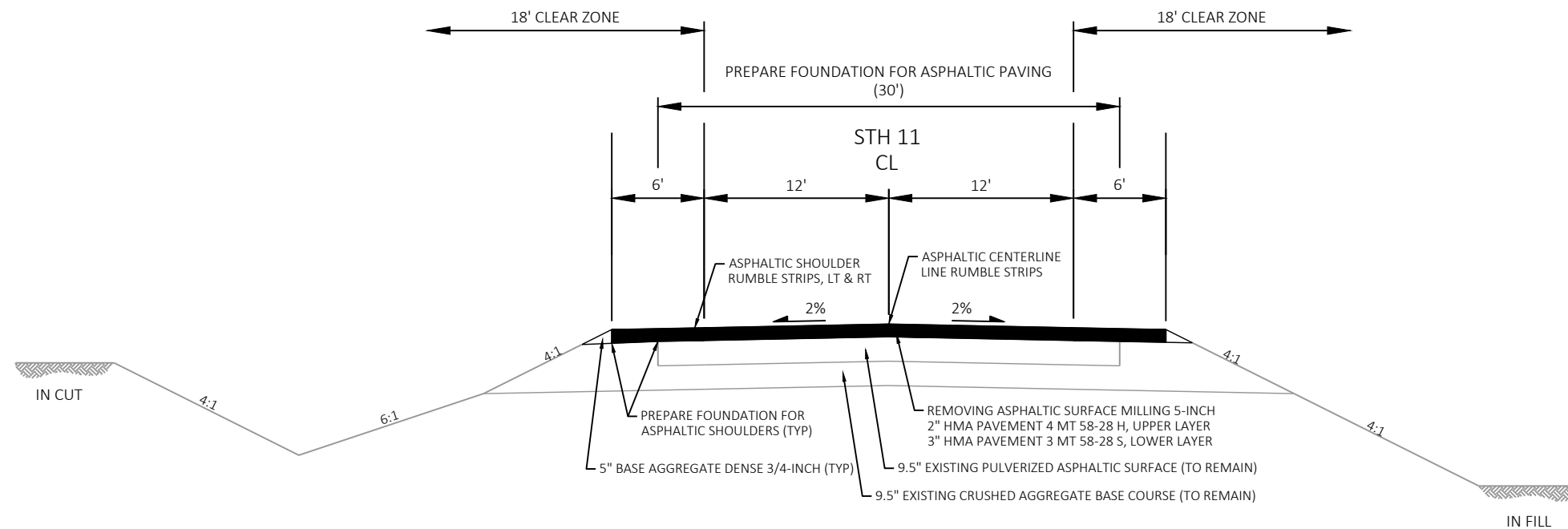
EXISTING TYPICAL SECTION

STA 304+00 - STA 313+00 LT
STA 314+90 - STA 361+75 LT
STA 378+00 - STA 425+00 RT

* TAPER DATA
LEFT CLIMBING LANE
TAPER (0' TO 12') STA 304+00 - STA 310+00
FULL WIDTH (12') STA 310+00 - STA 358+75
TAPER (12' TO 0') STA 358+75 - STA 361+75

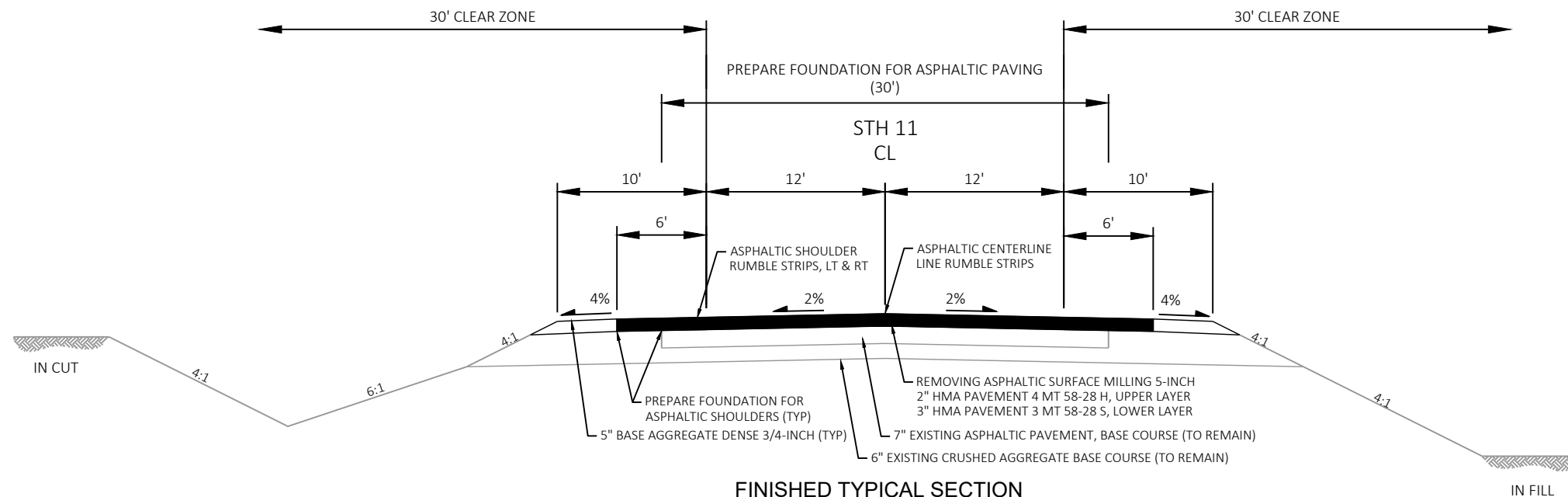
RIGHT CLIMBING LANE
TAPER (0' TO 12') STA 378+00 - STA 381+00
FULL WIDTH (12') STA 381+00 - STA 419+00
TAPER (12' TO 0') STA 419+00 - STA 425+00



**FINISHED TYPICAL SECTION**

STA 15+85.50 - STA 25+00*
STA 36+00 - STA 43+19
STA 43+19 - STA 48+15 LT
STA 48+15 - STA 62+05
STA 62+05 - STA 64+57 LT

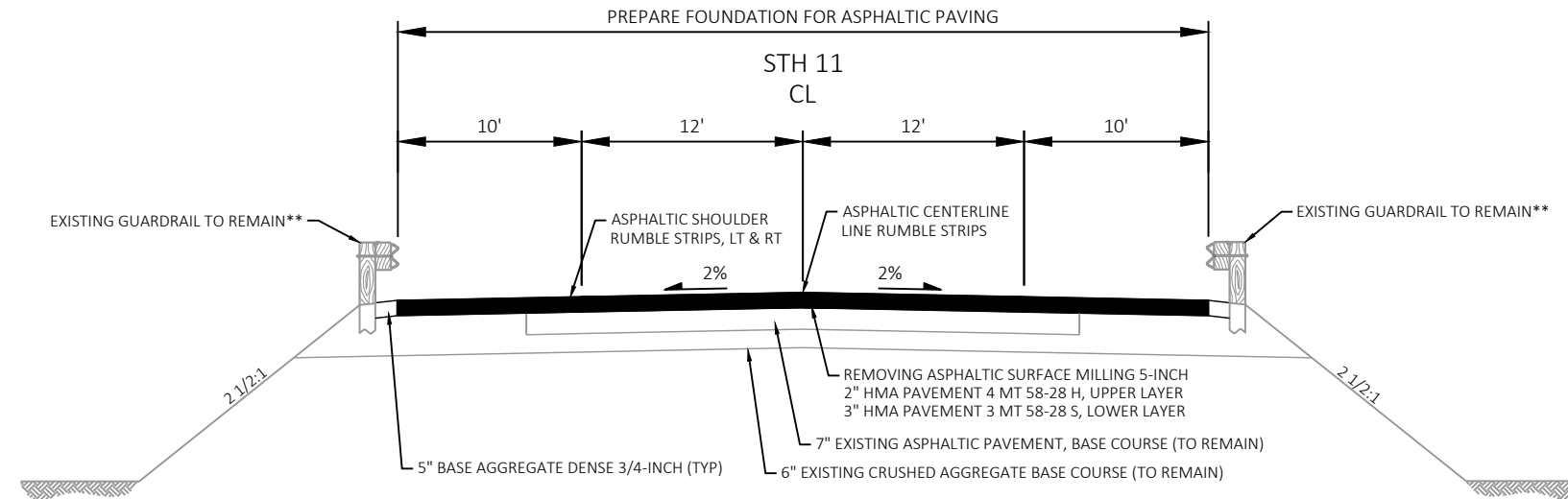
* BEGIN PROJECT LIMITS
STA 15+35 - STA 15+85.50, LT & RT
REMOVE EXISTING SHOULDER PAVEMENT
AND PAVE SHOULDER 6-FEET WIDE WITH
2" HMA PAVEMENT 4 MT 58-28 H, UPPER LAYER AND
3" HMA PAVEMENT 3 MT 58-28 S, LOWER LAYER

**FINISHED TYPICAL SECTION**

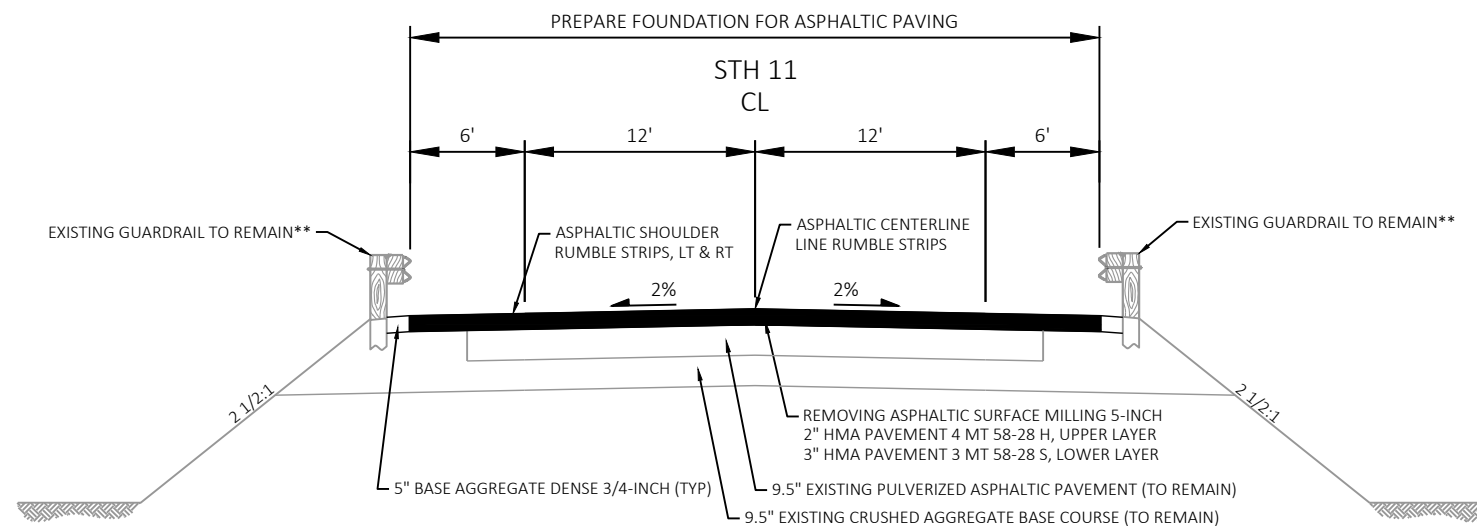
STA 25+00 - STA 28+80 RT
STA 25+00 - STA 29+85 LT
STA 34+96 - STA 36+00

NOTE

- 1) CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS

**FINISHED TYPICAL SECTION**

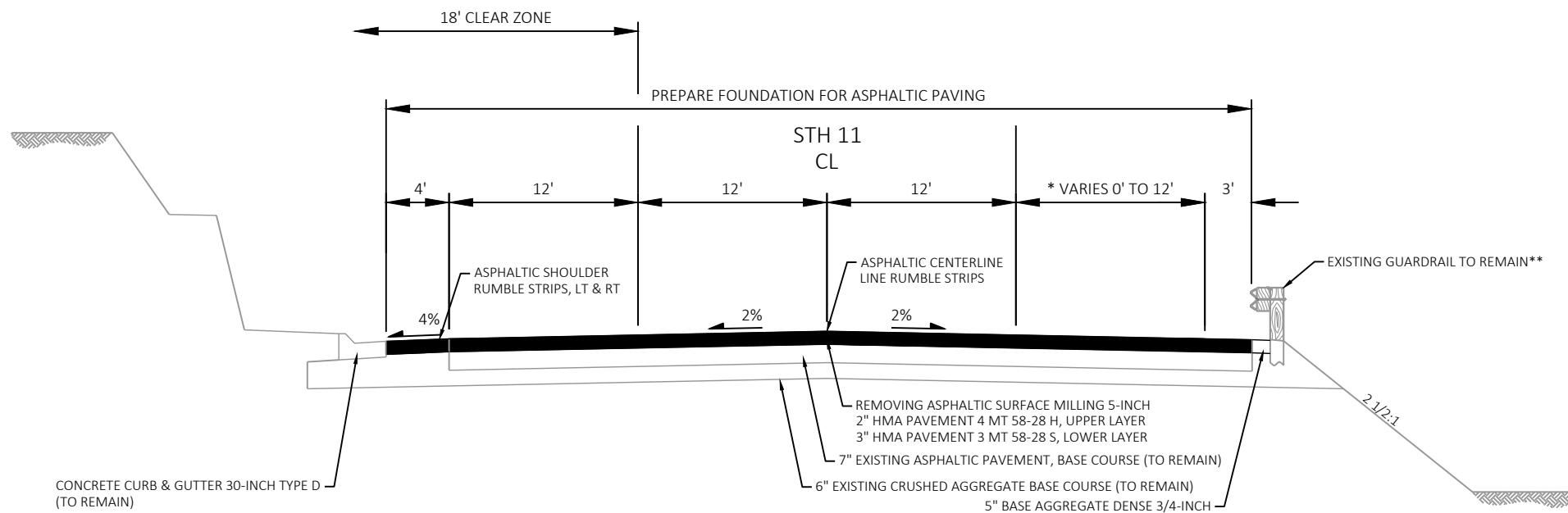
STA 28+80 - STA 32+91.92 RT
STA 29+85 - STA 32+91.92 LT
STA 34+09.08 - STA 34+96
STA 233+19 - STA 238+15 RT

**FINISHED TYPICAL SECTION**

STA 43+19 - STA 48+15 RT	STA 369+60.25 - STA 370+33
STA 62+05 - STA 64+57 RT	STA 441+50 - STA 443+71 RT
STA 79+66 - STA 80+36.75	STA 442+19 - STA 445+37 LT
STA 80+63.25 - STA 81+35	STA 451+63 - STA 453+46 RT
STA 365+20 - 368+56 RT	STA 461+84 - STA 464+18 RT
STA 367+45 - 368+56 LT	STA 463+26 - STA 465+61 LT

NOTES

- CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS
- ** ENERGY ABSORBING TERMINALS TO BE REPLACED IN SPOT LOCATIONS. SEE CONSTRUCTION DETAILS AND EROSION CONTROL PLANS FOR RESTORATION AT LOCATIONS.

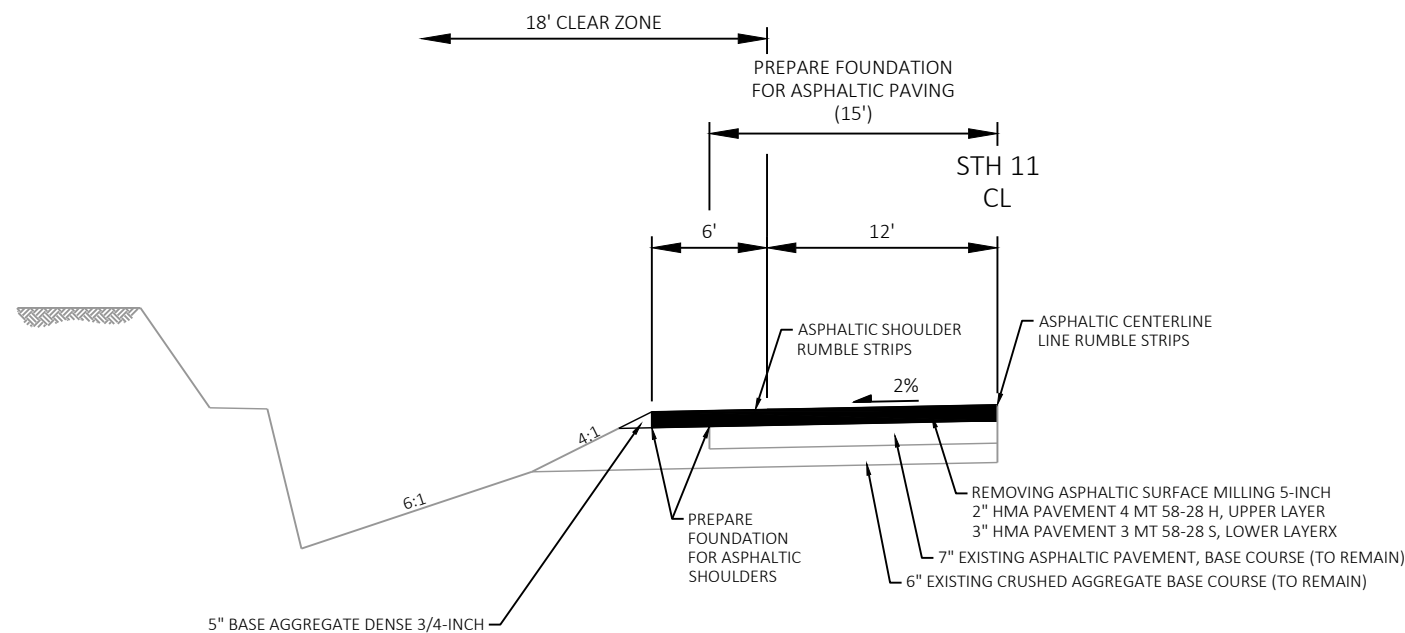
**FINISHED TYPICAL SECTION**

STA 64+57 - STA 71+74 RT
STA 69+28 - STA 71+74 LT

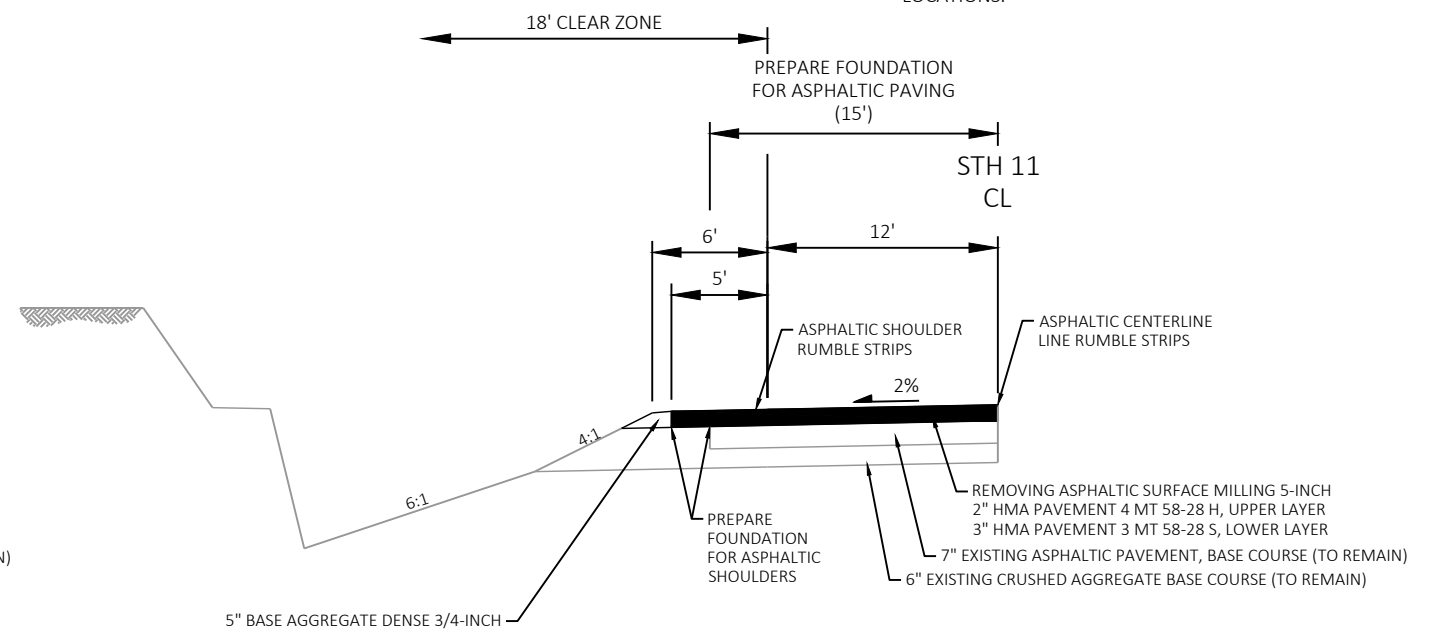
*VARIES 0' TO 12' STA 64+57 TO STA 67+57 RT
*VARIES 12' TO 0' STA 70+74 TO STA 71+74 RT

NOTES

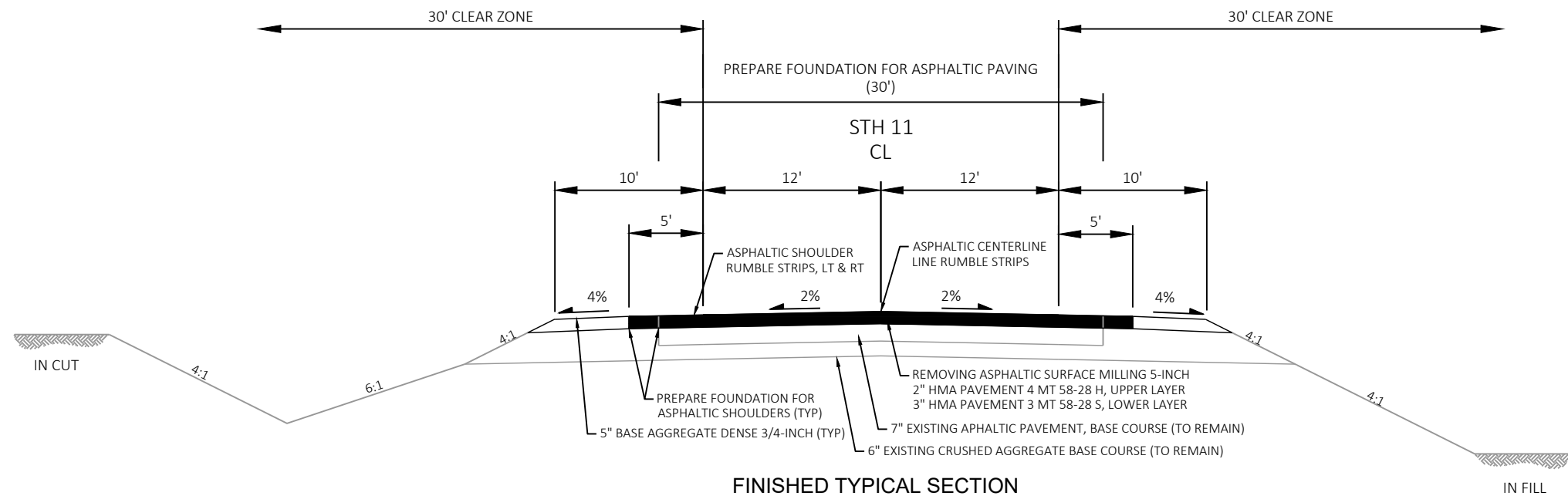
- 1) CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS
- ** ENERGY ABSORBING TERMINALS TO BE REPLACED IN SPOT LOCATIONS. SEE CONSTRUCTION DETAILS AND EROSION CONTROL PLANS FOR RESTORATION AT LOCATIONS.

**FINISHED TYPICAL SECTION**

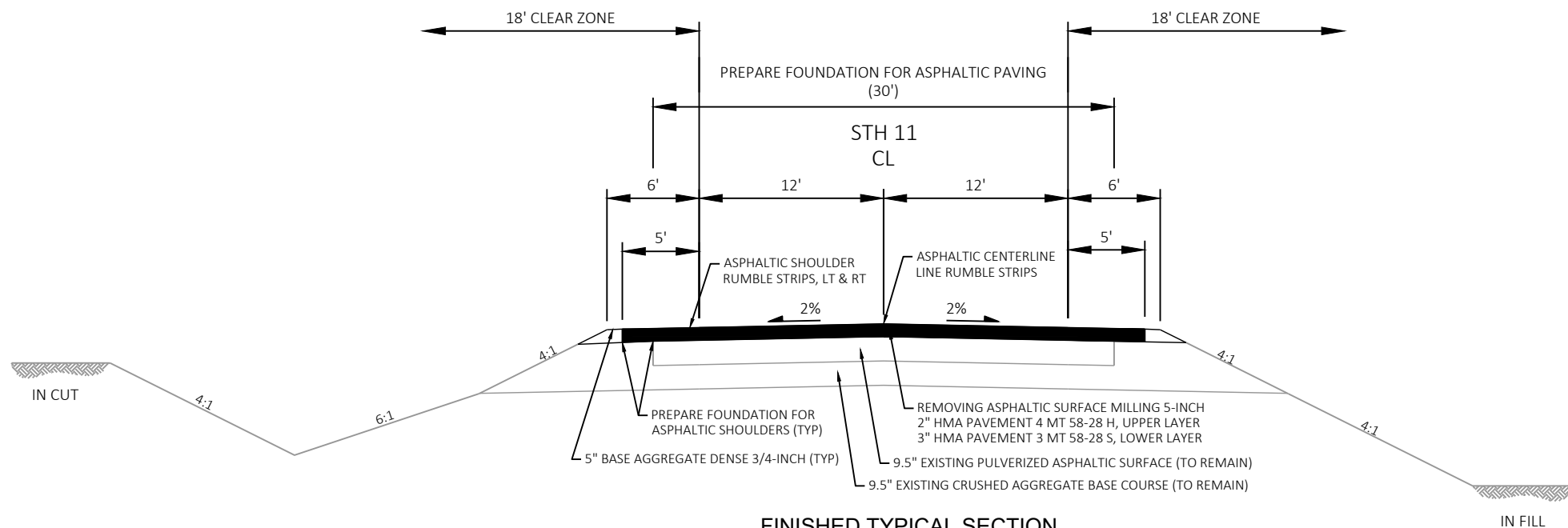
STA 64+57 - STA 67+03 LT

**FINISHED TYPICAL SECTION**

STA 73+35 - STA 73+85 LT

**FINISHED TYPICAL SECTION**

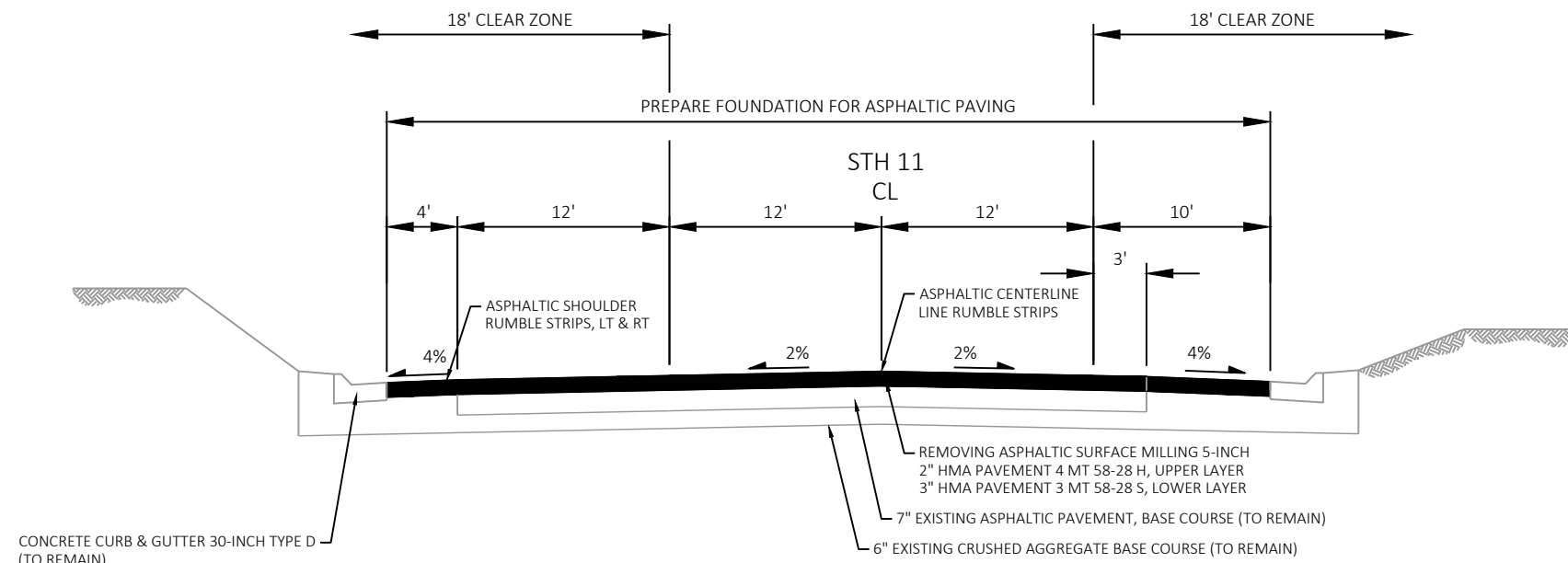
STA 71+74 - STA 73+85 RT
STA 117+00 - STA 176+00
STA 197+00 - STA 249+00 LT
STA 197+00 - STA 233+19 RT
STA 238+15 - STA 249+00 RT
STA 304+00 - STA 311+00 RT
STA 314+30 - STA 361+75 RT
STA 378+00 - STA 425+00 LT

**FINISHED TYPICAL SECTION**

STA 73+85 - STA 79+66	STA 441+50 - STA 442+19 LT
STA 81+35 - STA 117+00	STA 445+37 - STA 463+26 LT
STA 176+00 - STA 197+00	STA 443+71 - STA 451+63 RT
STA 249+00 - STA 304+00	STA 453+46 - STA 461+84 RT
STA 361+75 - STA 365+20 RT	STA 464+18 - STA 471+55 RT
STA 361+75 - STA 367+45 LT	STA 465+61 - STA 471+55 LT
STA 370+33 - STA 378+00	

NOTE

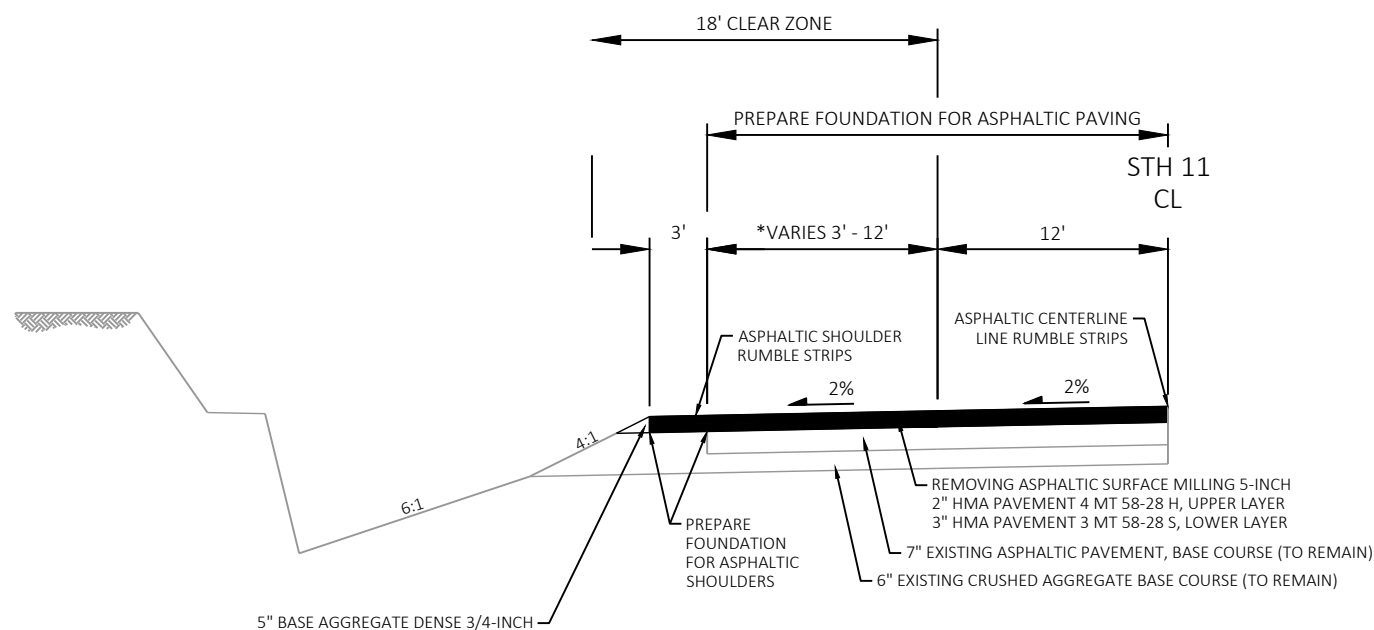
- 1) CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS

**FINISHED TYPICAL SECTION**

STA 313+00 - STA 314+90 LT
STA 311+00 - STA 314+30 RT

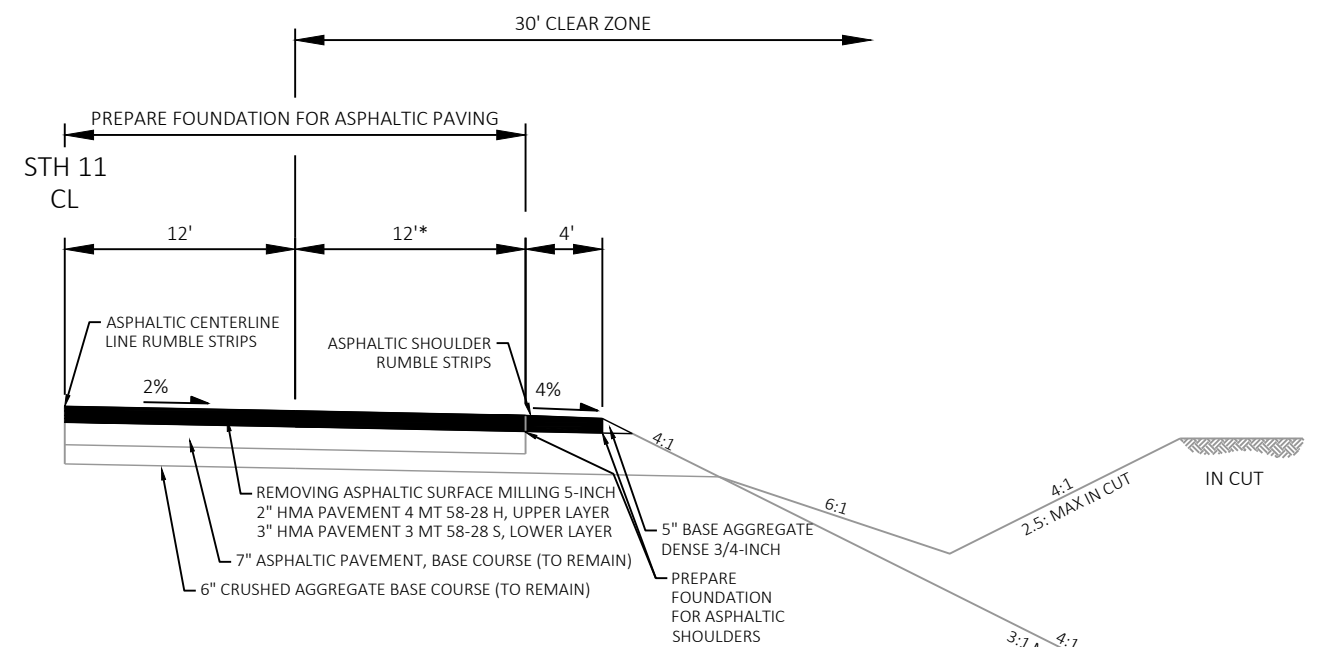
NOTE

- 1) CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS

**FINISHED TYPICAL SECTION**

STA 67+03 - STA 69+28 LT
STA 71+74 - STA 73+35 LT

*VARIES 3' TO 12' STA 67+03 TO STA 69+28 LT
*VARIES 12' TO 3' STA 71+85 TO STA 73+35 LT

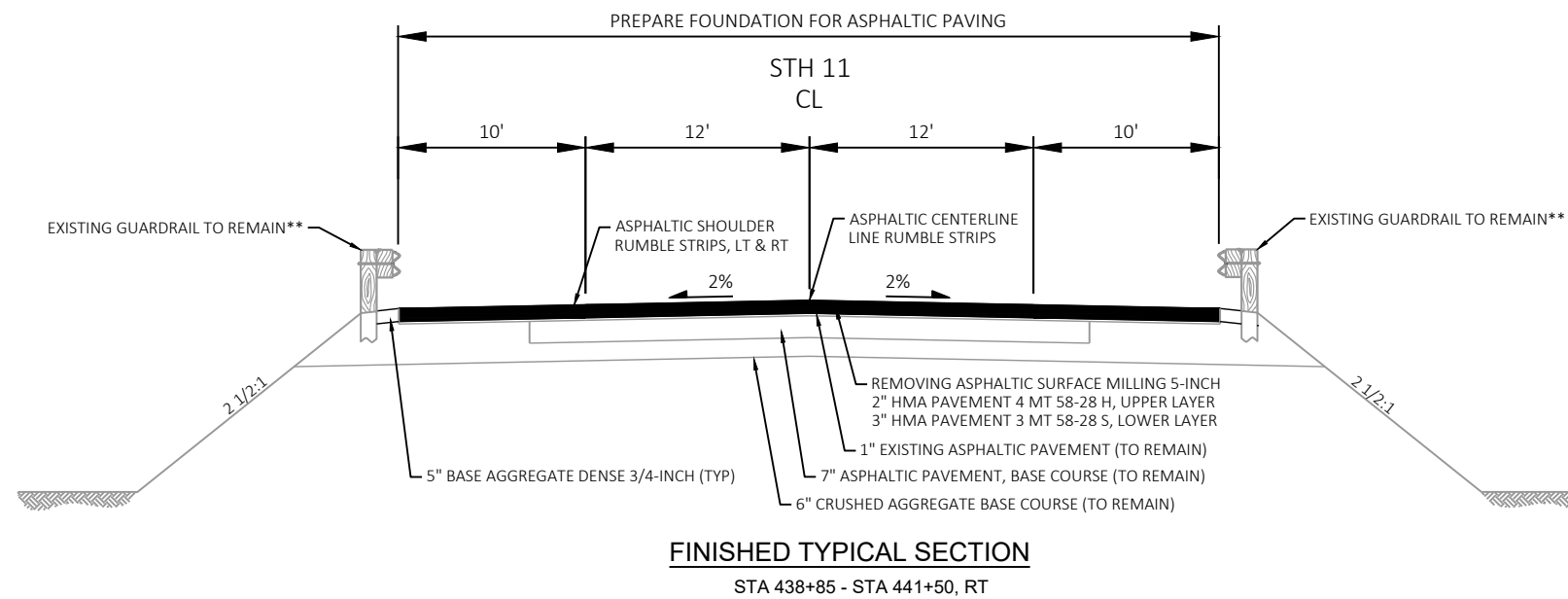
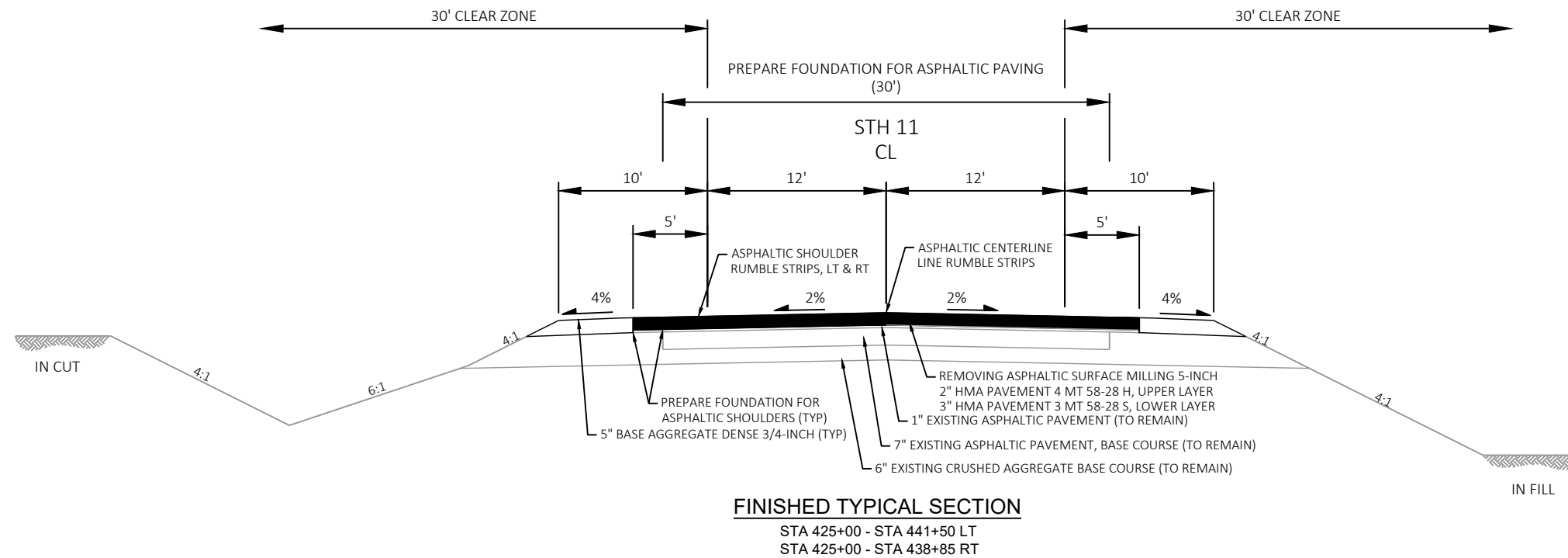
**FINISHED TYPICAL SECTION**

STA 304+00 - STA 313+00 LT
STA 314+90 - STA 361+75 LT
STA 378+00 - STA 425+00 RT

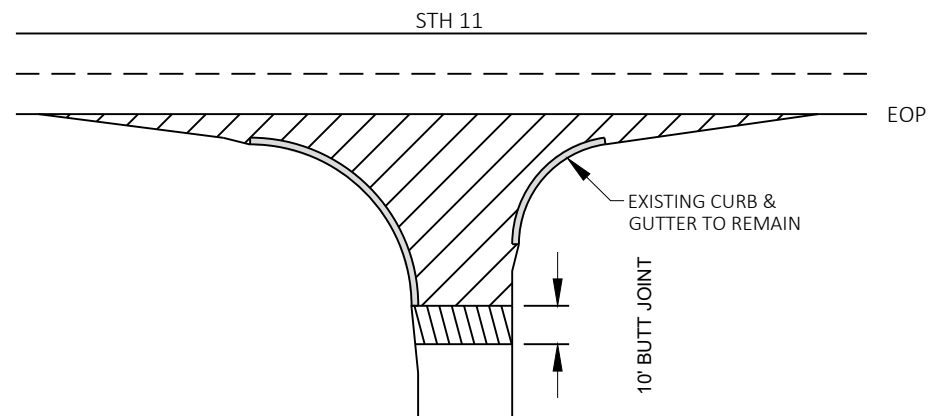
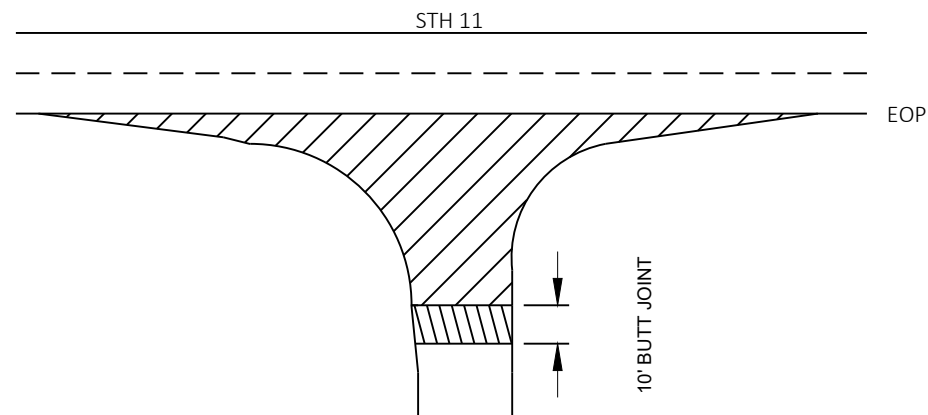
*** TAPER DATA**

LEFT CLIMBING LANE
TAPER (0' TO 12') STA 304+000 - STA 310+00
FULL WIDTH (12') STA 310+00 - STA 358+75
TAPER (12' TO 0') STA 358+75 - STA 361+75

RIGHT CLIMBING LANE
TAPER (0' TO 12') STA 378+00 - STA 381+00
FULL WIDTH (12') STA 381+00 - STA 419+00
TAPER (12' TO 0') STA 419+00 - STA 425+00

**NOTES**

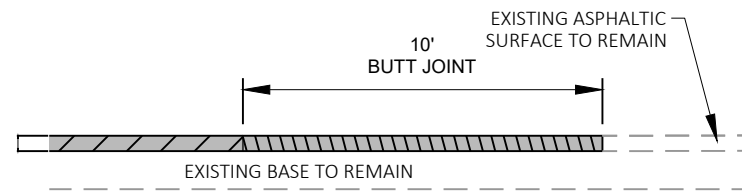
- 1) CROSS SLOPE 2% NORMAL, MATCH EXISTING SUPER ELEVATIONS ALONG THE PAVEMENT AND SHOULDERS
- ** ENERGY ABSORBING TERMINALS TO BE REPLACED IN SPOT LOCATIONS. SEE CONSTRUCTION DETAILS AND EROSION CONTROL PLANS FOR RESTORATION AT LOCATIONS.



- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE
BUTT JOINT IS NOT REQUIRED

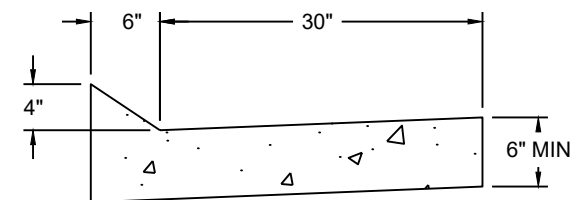
SIDE ROADS



- HMA PAVEMENT
- REMOVING ASPHALTIC SURFACE MILLING
- REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT

MAINLINE AND SIDE ROADS



MODIFIED CONCRETE CURB AND GUTTER TYPE TBTT

STA 32+31 TO STA 32+79

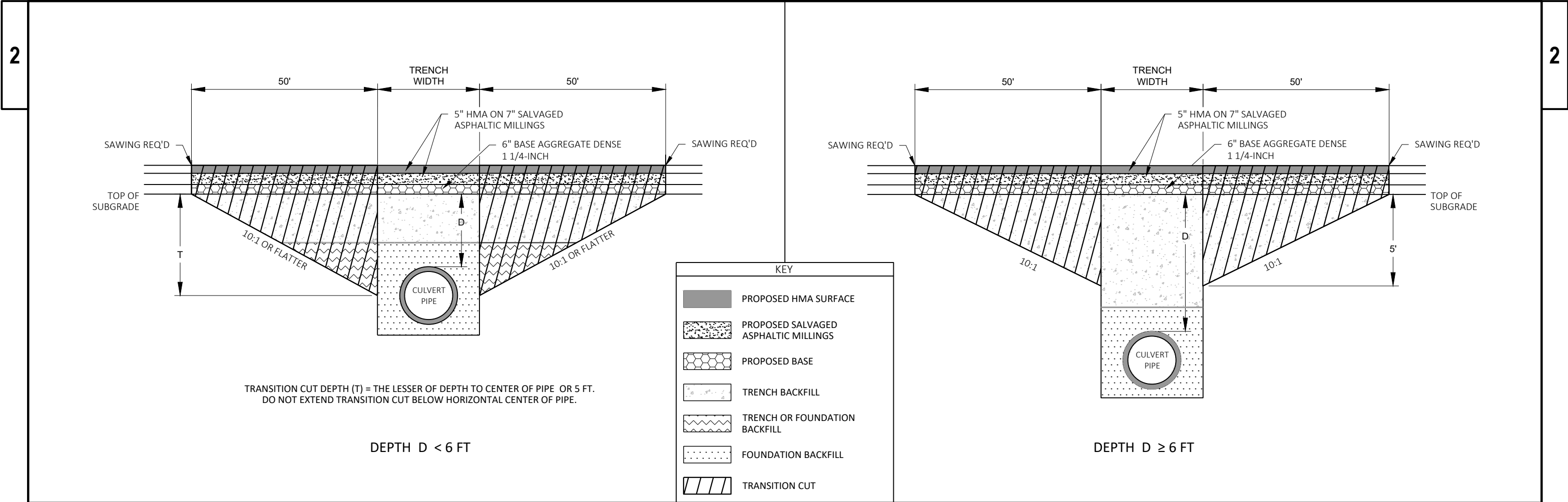
NOTES

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.

TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES TBTT.

USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.



NOTES

- TRANSITION CUT IS PAID AS EXCAVATION COMMON.
- TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
- BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION OR TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.
- PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING AND PAVING.
- PLACE SALVAGED ASPHALTIC MILLINGS AFTER CULVERT PIPE INSTALLATION, BEFORE MILLING AND PAVING IN AREA OF PIPE REPLACEMENT.

CULVERT PIPE INFORMATION

ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	REMARKS
STH 11	219+00	9.7	30	
STH 11	342+10	3.5	24	
STH 11	350+18	5.2	24	
STH 11	382+70	3.1	24	
STH 11	440+00	2.2	24	

DETAIL IS BASED ON SDD 08D-03a, DELETED NOTES 7 AND 13 AND MODIFIED NOTE 6.

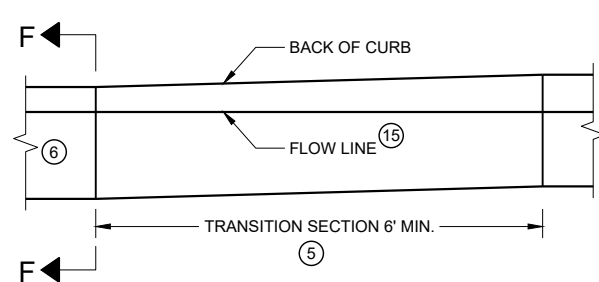
INLET PLAN VIEW

(NOTE: RAIL NOT SHOWN FOR CLARITY)

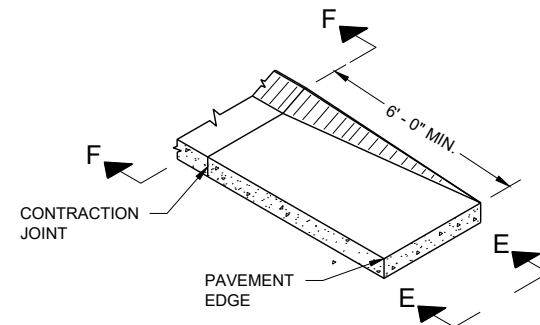
PLAN VIEW

ELEVATION VIEW

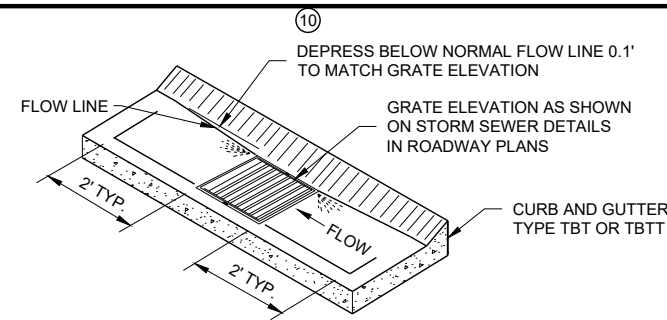
SHEET 1 OF 2



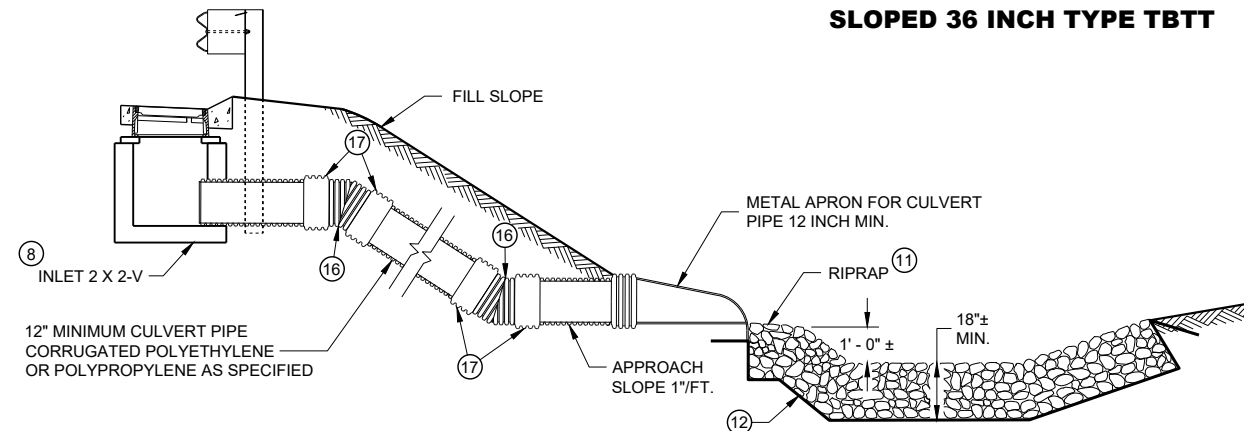
**CURB AND GUTTER TRANSITION SECTION
MODIFIED CONCRETE CURB AND GUTTER 4-INCH
SLOPED 36 INCH TYPE TBTT**



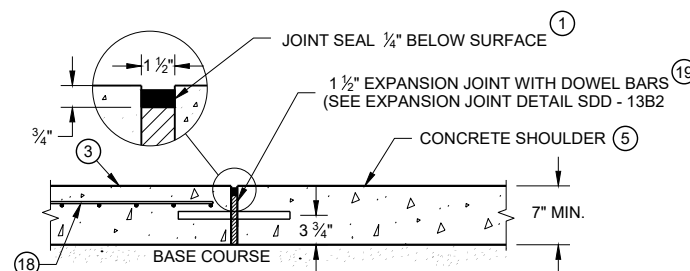
**CURB AND GUTTER END SECTION
MODIFIED CONCRETE CURB AND GUTTER 4-INCH
SLOPED 36 INCH TYPE TBTT**



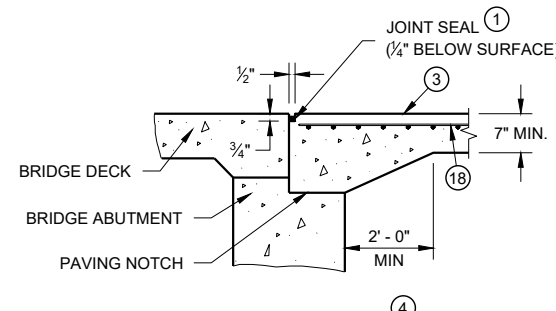
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS MODIFIED CONCRETE CURB AND
GUTTER 4-INCH SLOPED 36 INCH TYPE TBTT**



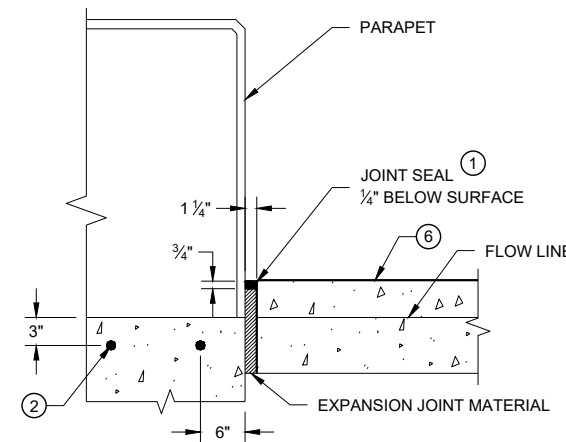
SECTION A - A



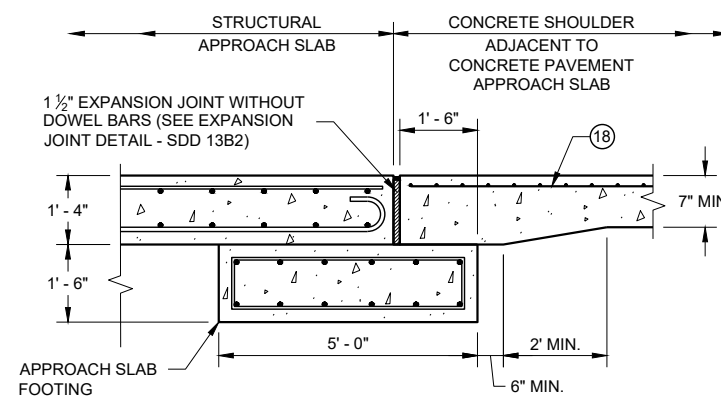
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



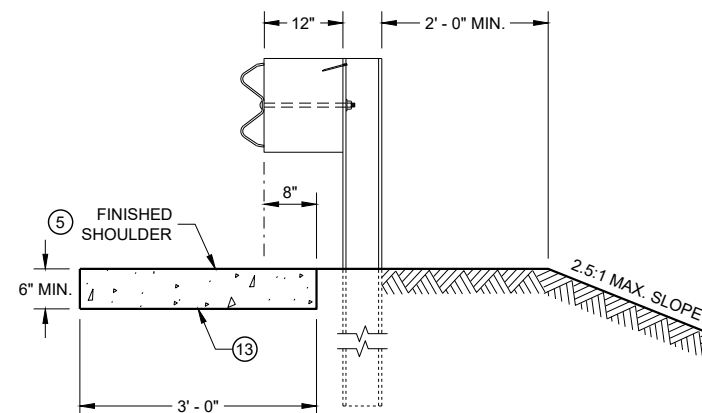
SECTION B-B



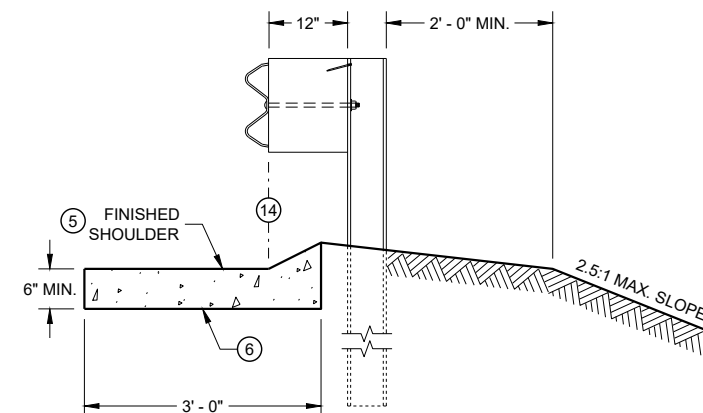
SECTION D - D



**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



SECTION E - E



SECTION F - F

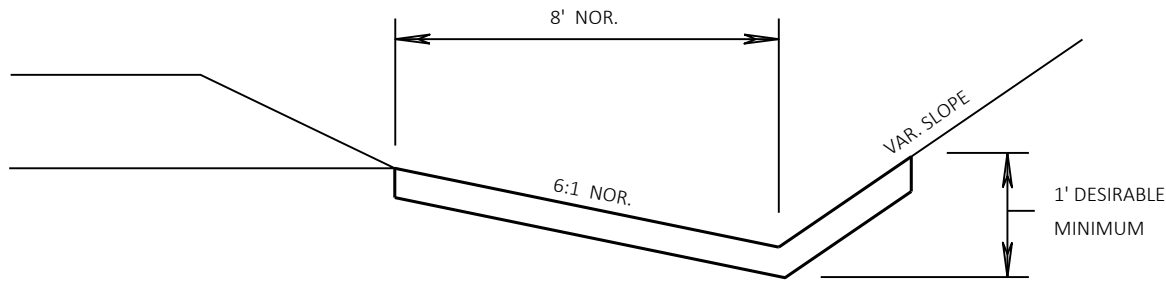
GENERAL NOTES

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.

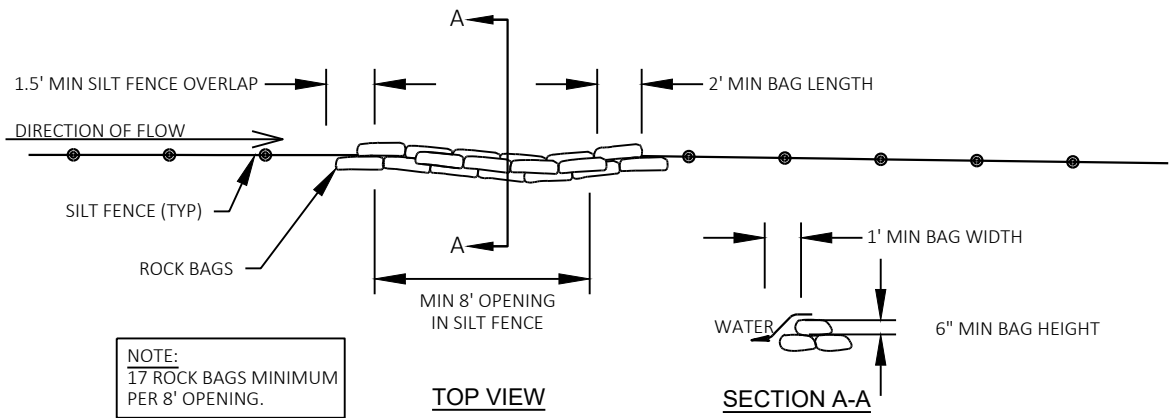
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ MODIFIED CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑧ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑨ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑩ DEPRESS FLOW LINE (SEE DETAIL)
- ⑪ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑫ GEOTEXTILE FABRIC TYPE HR.
- ⑬ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBTT CURB. NOTE 6 FOR TIE BAR SPACING.
- ⑭ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑮ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑯ MANUFACTURER SUPPLIED BEND.
- ⑰ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ⑱ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑲ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

DETAIL IS BASED ON SDD 08D-03a, DELETED NOTES 7, 13, AND 15 AND MODIFIED NOTE 6.



EROSION MAT CLASS II TYPE B DETAIL FOR DITCHES

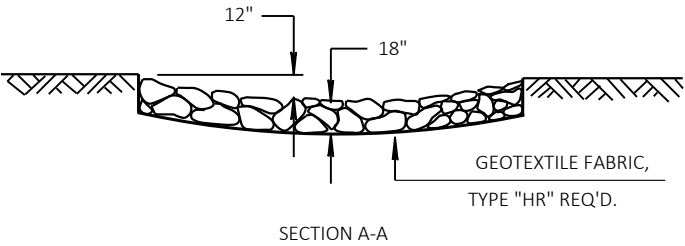
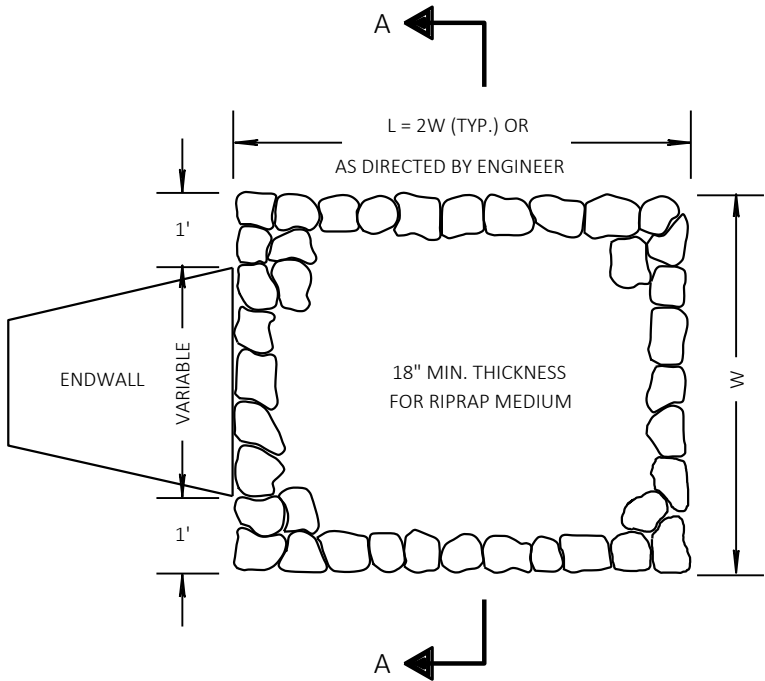


SILT FENCE RELIEF

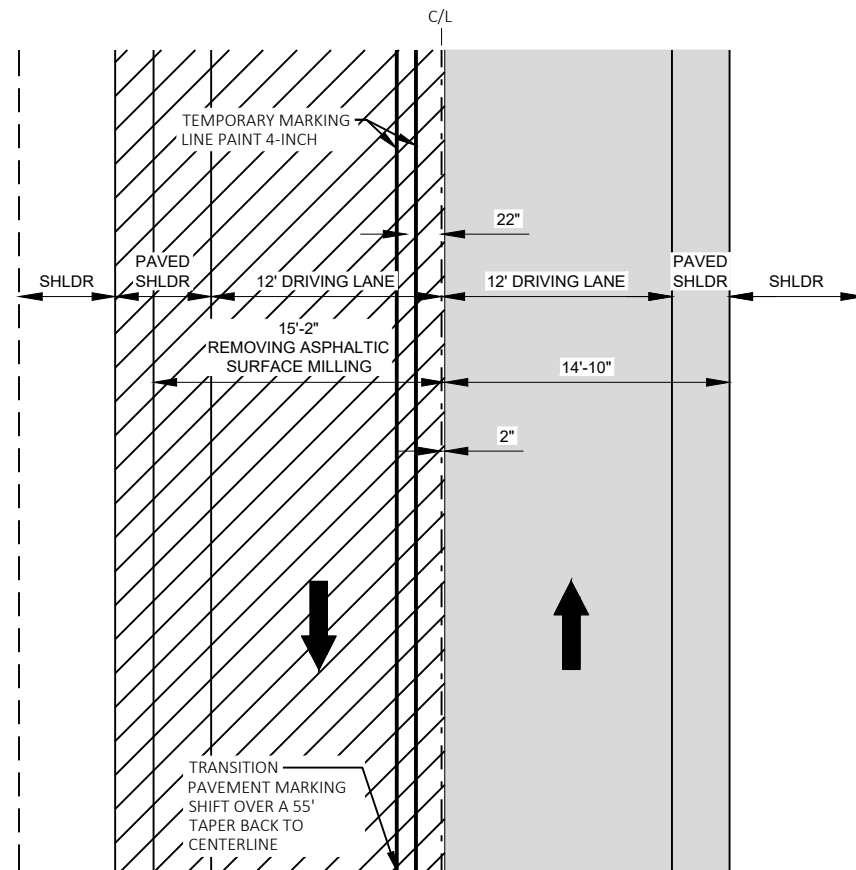
RUNOFF COEFFICIENT TABLE

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

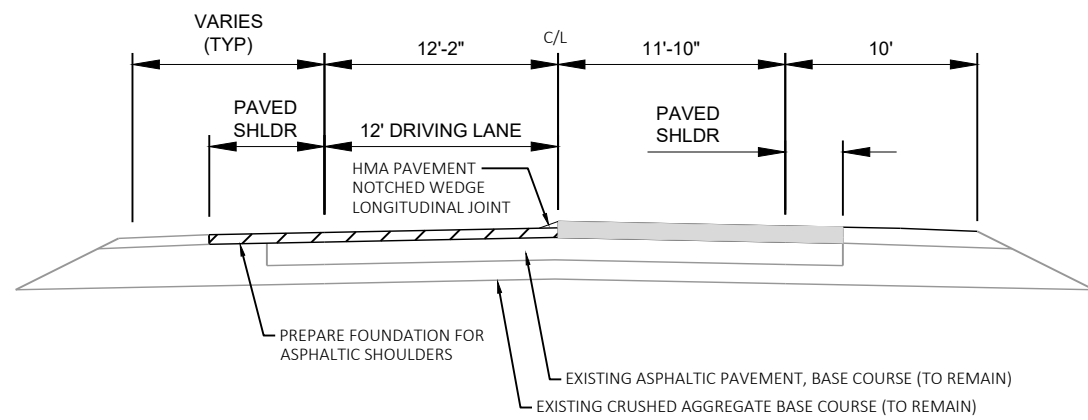
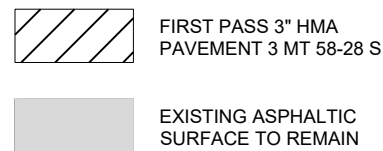
TOTAL PROJECT AREA = 49.6 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 37.7 ACRES



RIPRAP MEDIUM TREATMENT AT CULVERTS

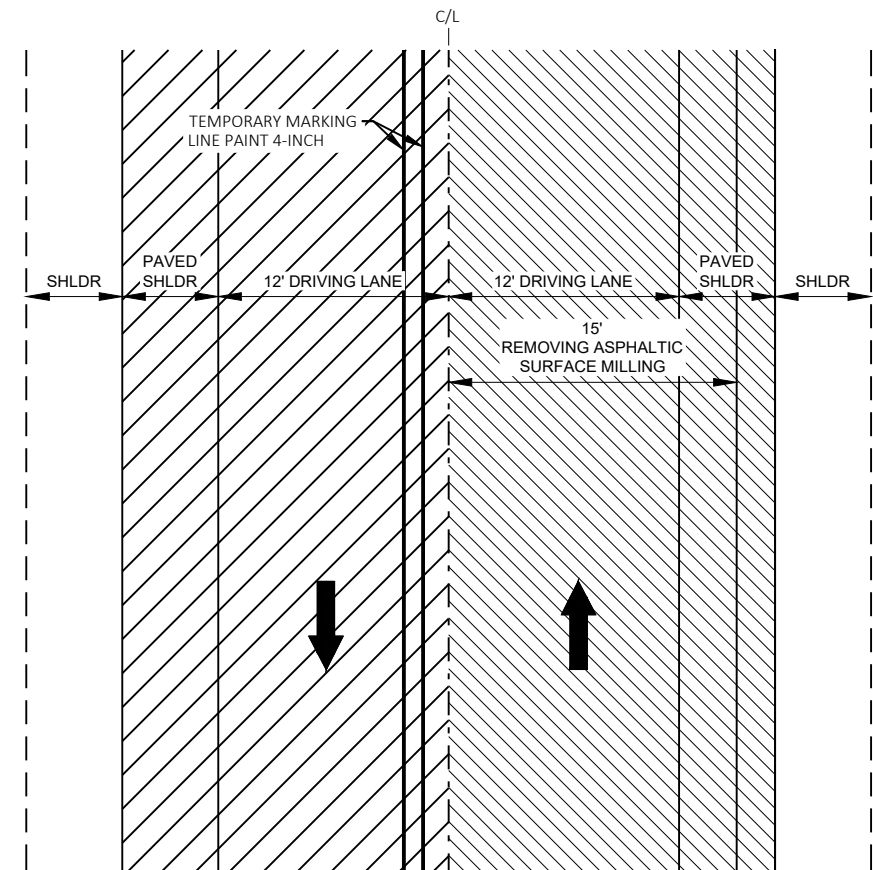


PLAN VIEW

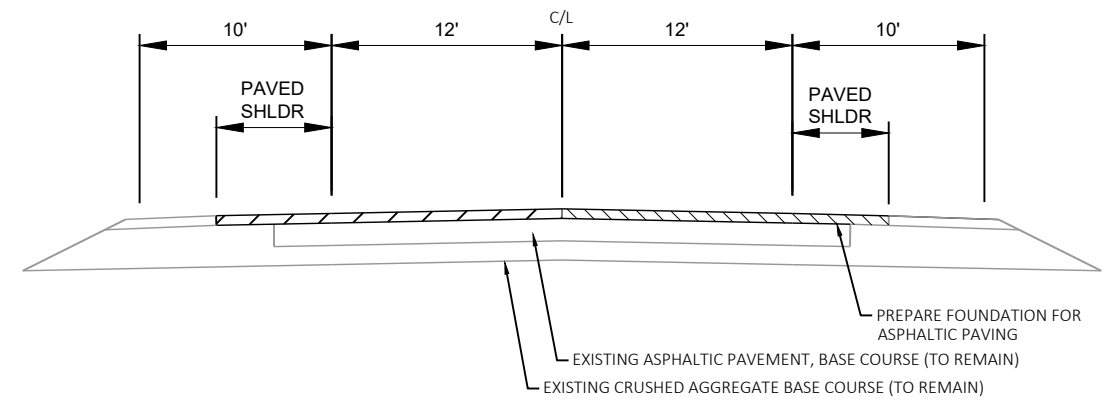
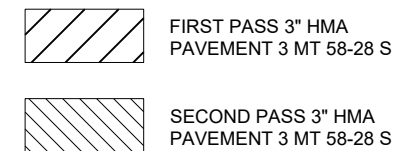


CROSS SECTION VIEW

FIRST PASS DETAIL

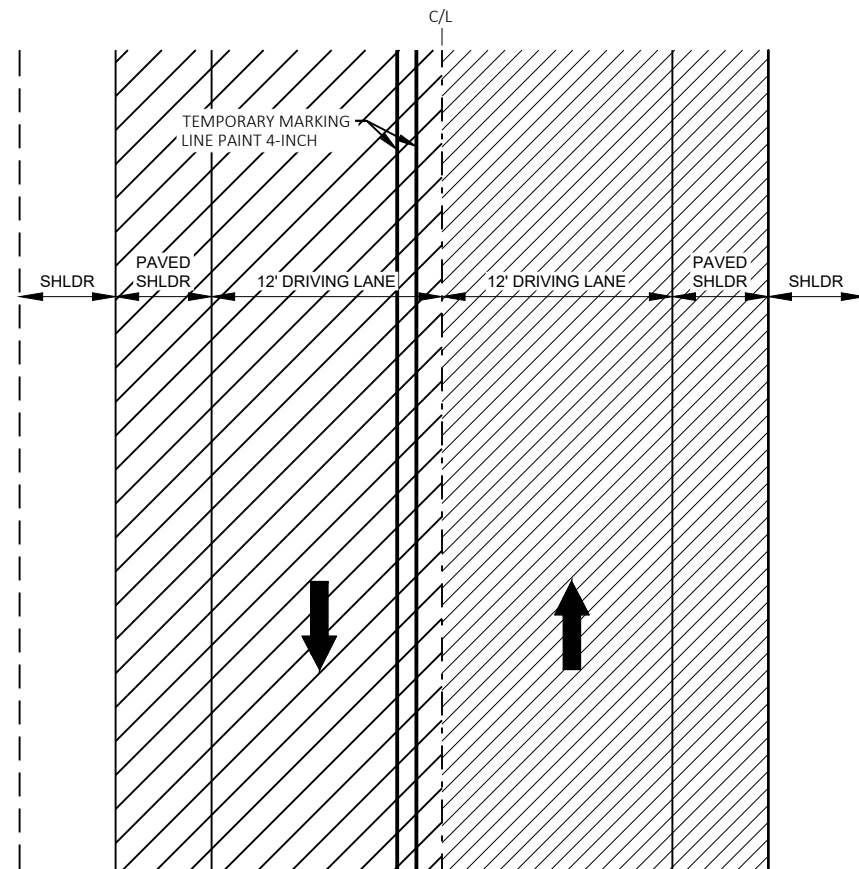


PLAN VIEW

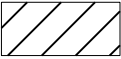


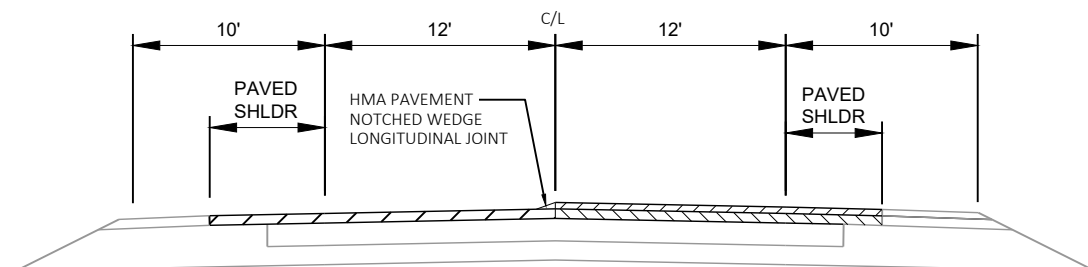
CROSS SECTION VIEW

SECOND PASS DETAIL



PLAN VIEW

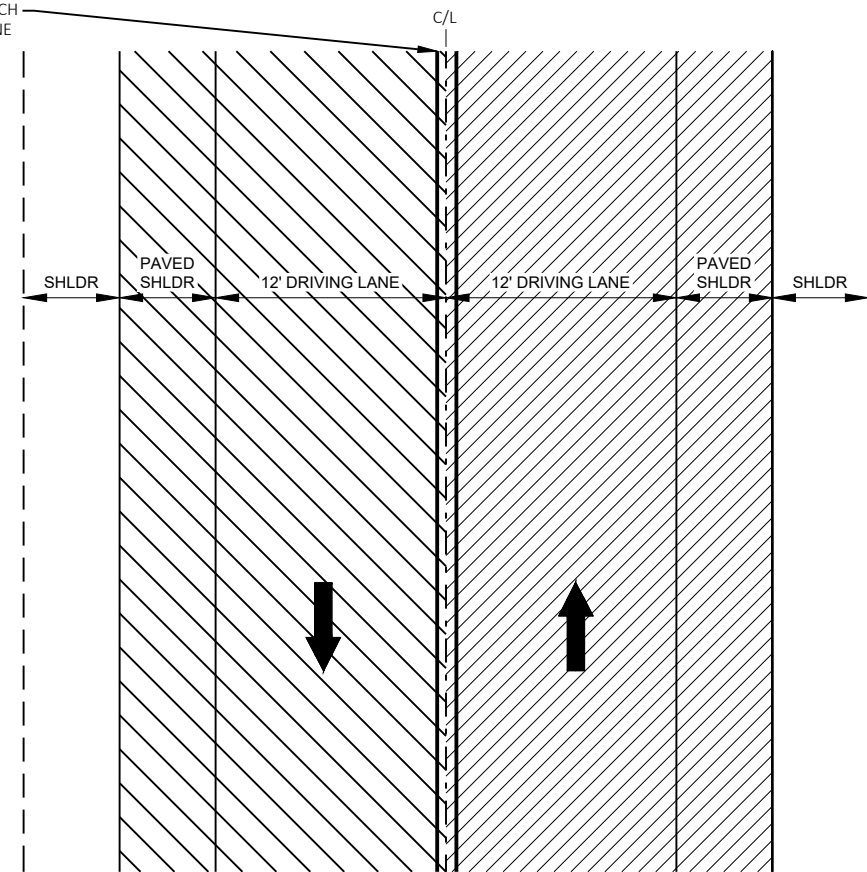
-  FIRST PASS 3" HMA
PAVEMENT 3 MT 58-28 S
-  SECOND PASS 3" HMA
PAVEMENT 3 MT 58-28 S
-  THIRD PASS 2" HMA
PAVEMENT 4 MT 58-28 H



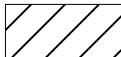
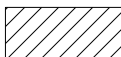
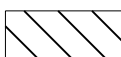
CROSS SECTION VIEW

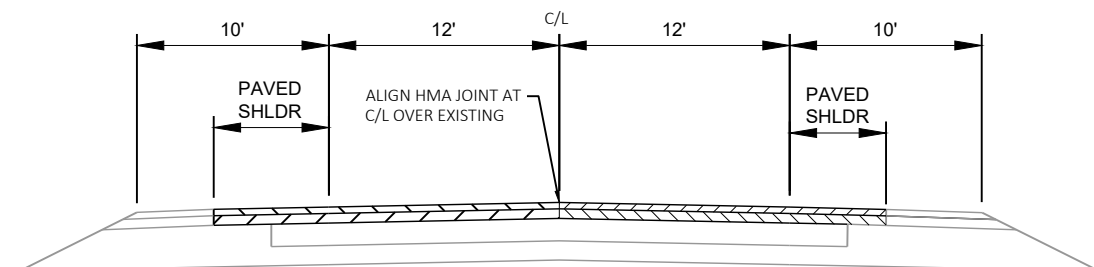
THIRD PASS DETAIL

MARKING LINE SAME DAY EPOXY 4-INCH
(PLACED AFTER ASPHALTIC CENTERLINE
RUMBLE STRIPS)



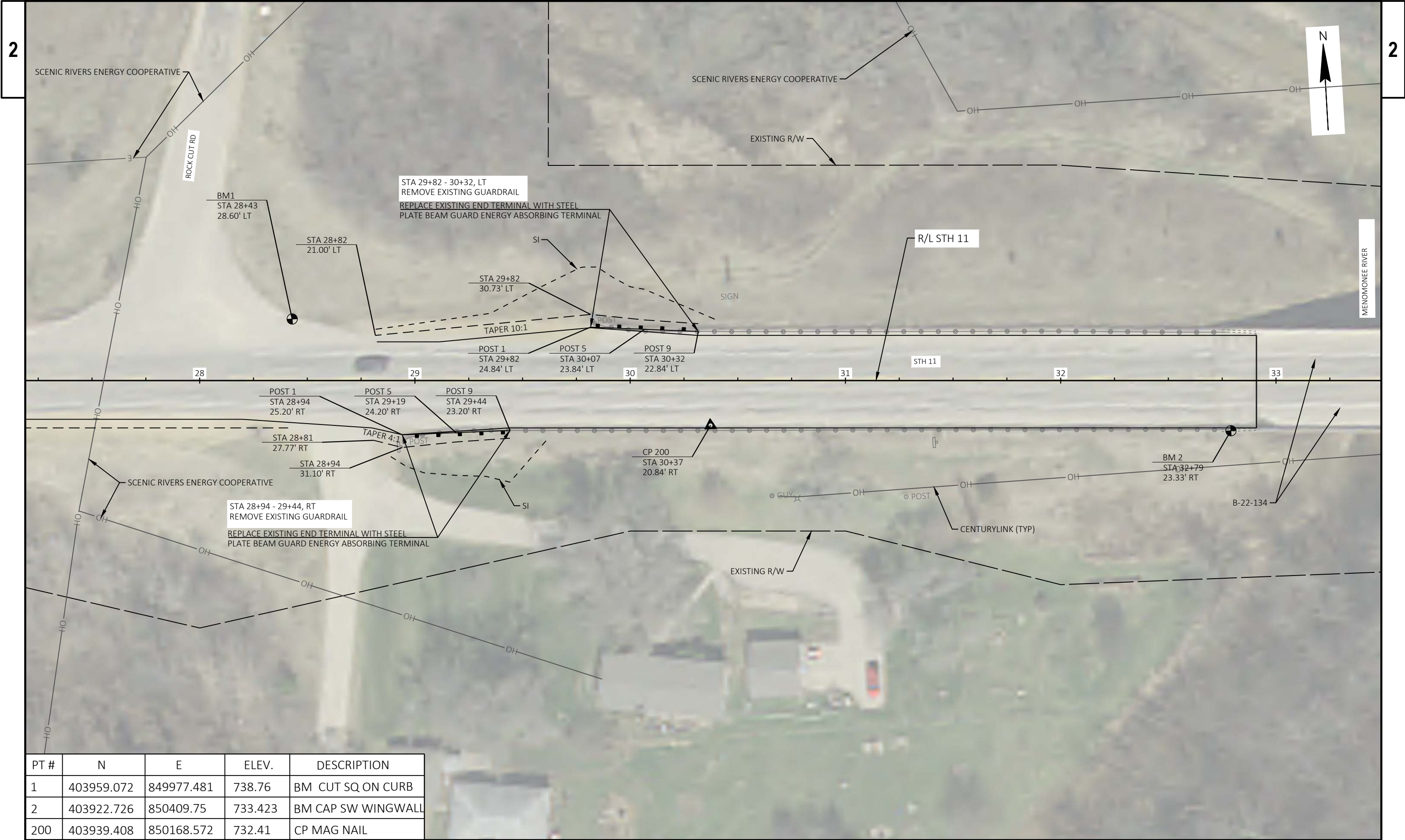
PLAN VIEW

-  FIRST PASS 3" HMA
PAVEMENT 3 MT 58-28 S
-  SECOND PASS 3" HMA
PAVEMENT 3 MT 58-28 S
-  THIRD PASS 2" HMA
PAVEMENT 4 MT 58-28 H
-  FOURTH PASS 2" HMA
PAVEMENT 4 MT 58-28 H

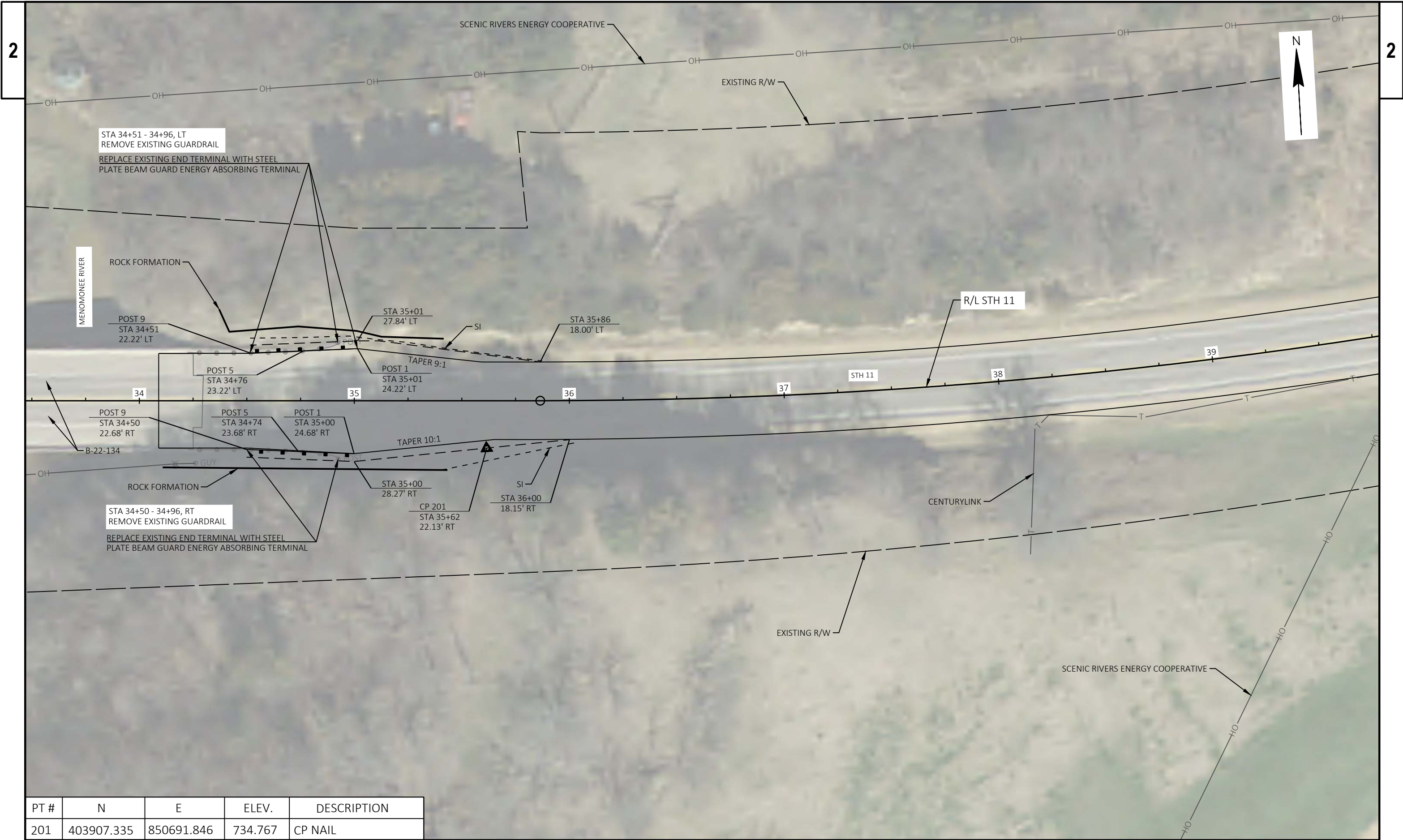


CROSS SECTION VIEW

FOURTH PASS DETAIL

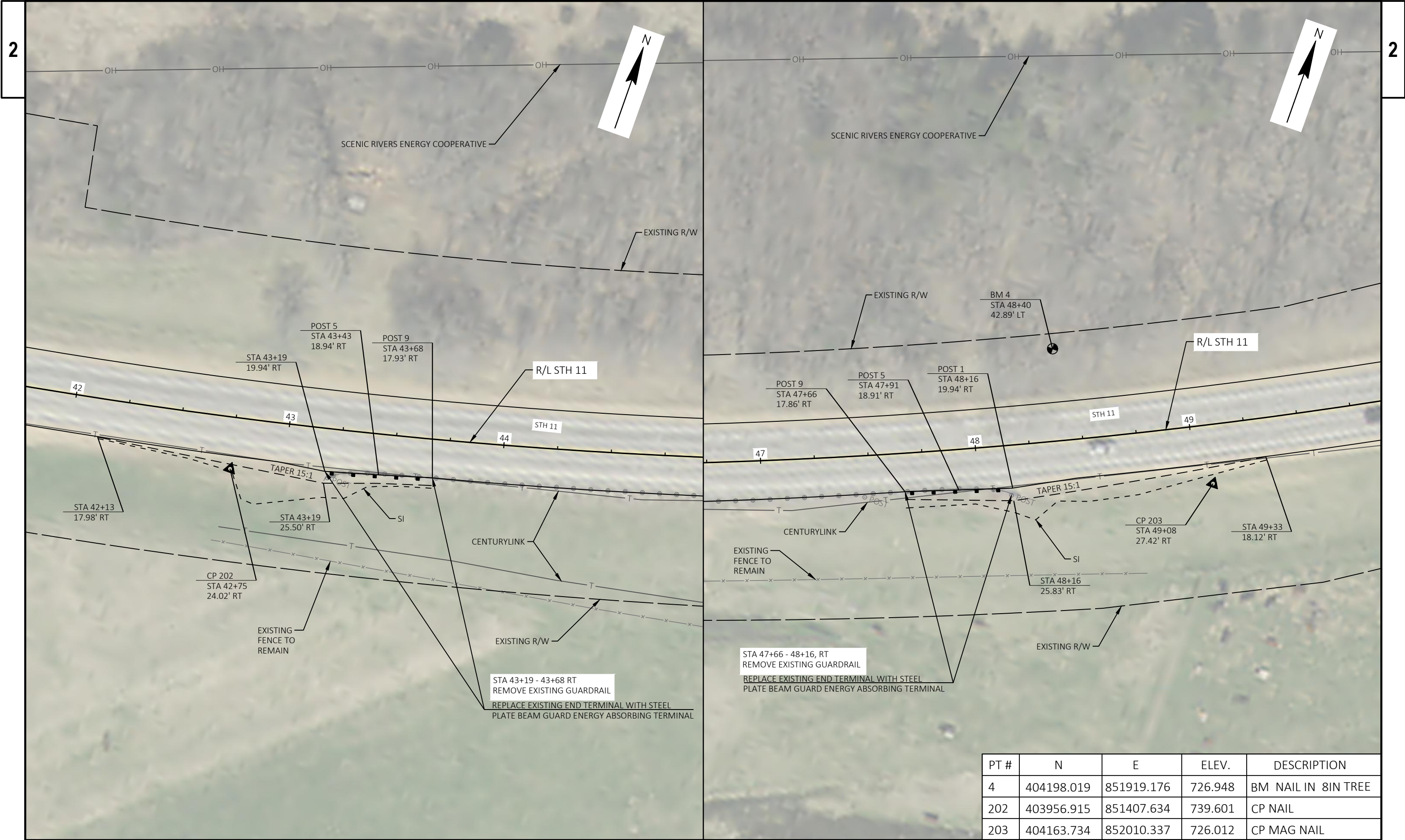


PT #	N	E	ELEV.	DESCRIPTION
1	403959.072	849977.481	738.76	BM CUT SQ ON CURB
2	403922.726	850409.75	733.423	BM CAP SW WINGWALL
200	403939.408	850168.572	732.41	CP MAG NAIL

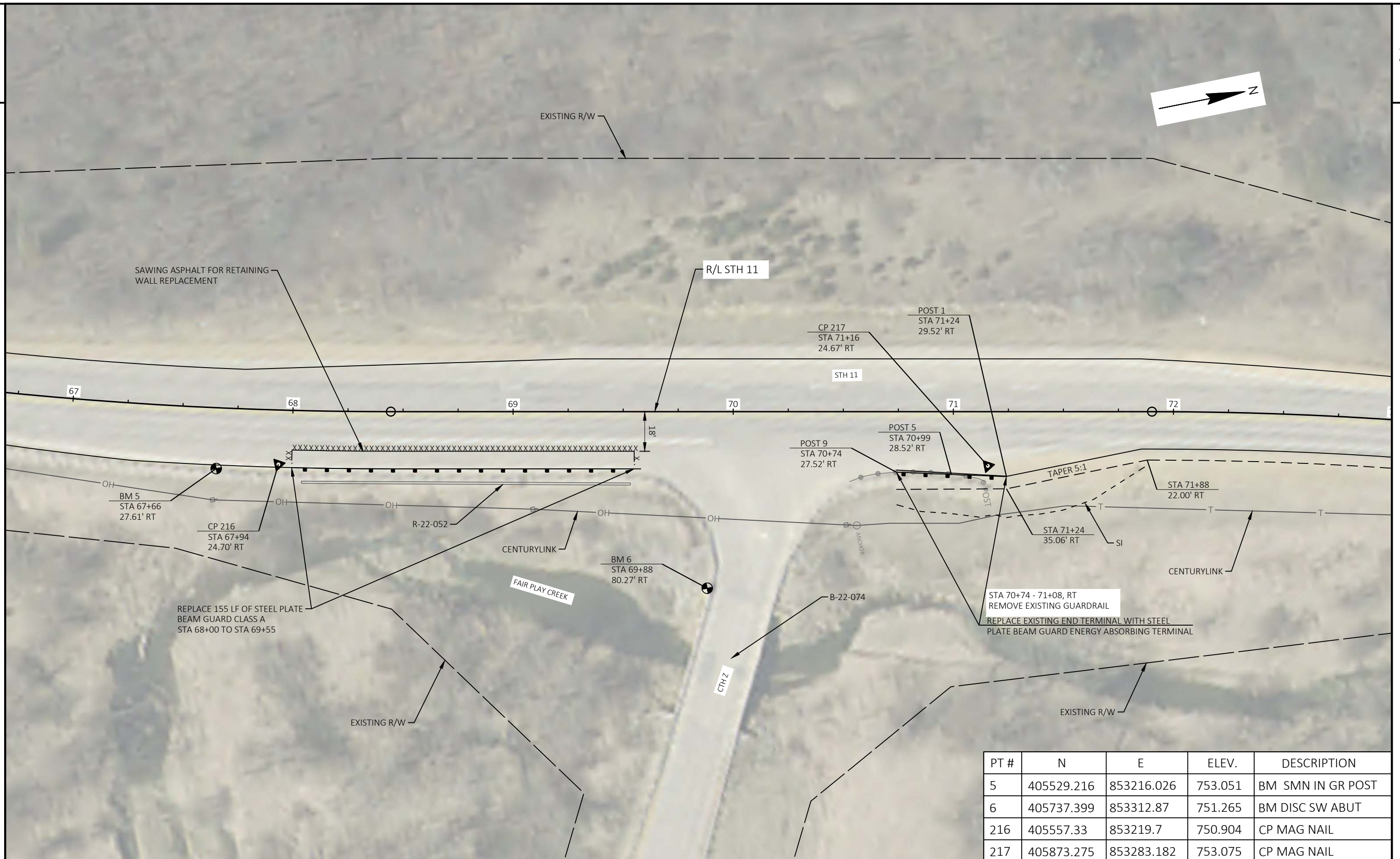


PT #	N	E	ELEV.	DESCRIPTION
201	403907.335	850691.846	734.767	CP NAIL

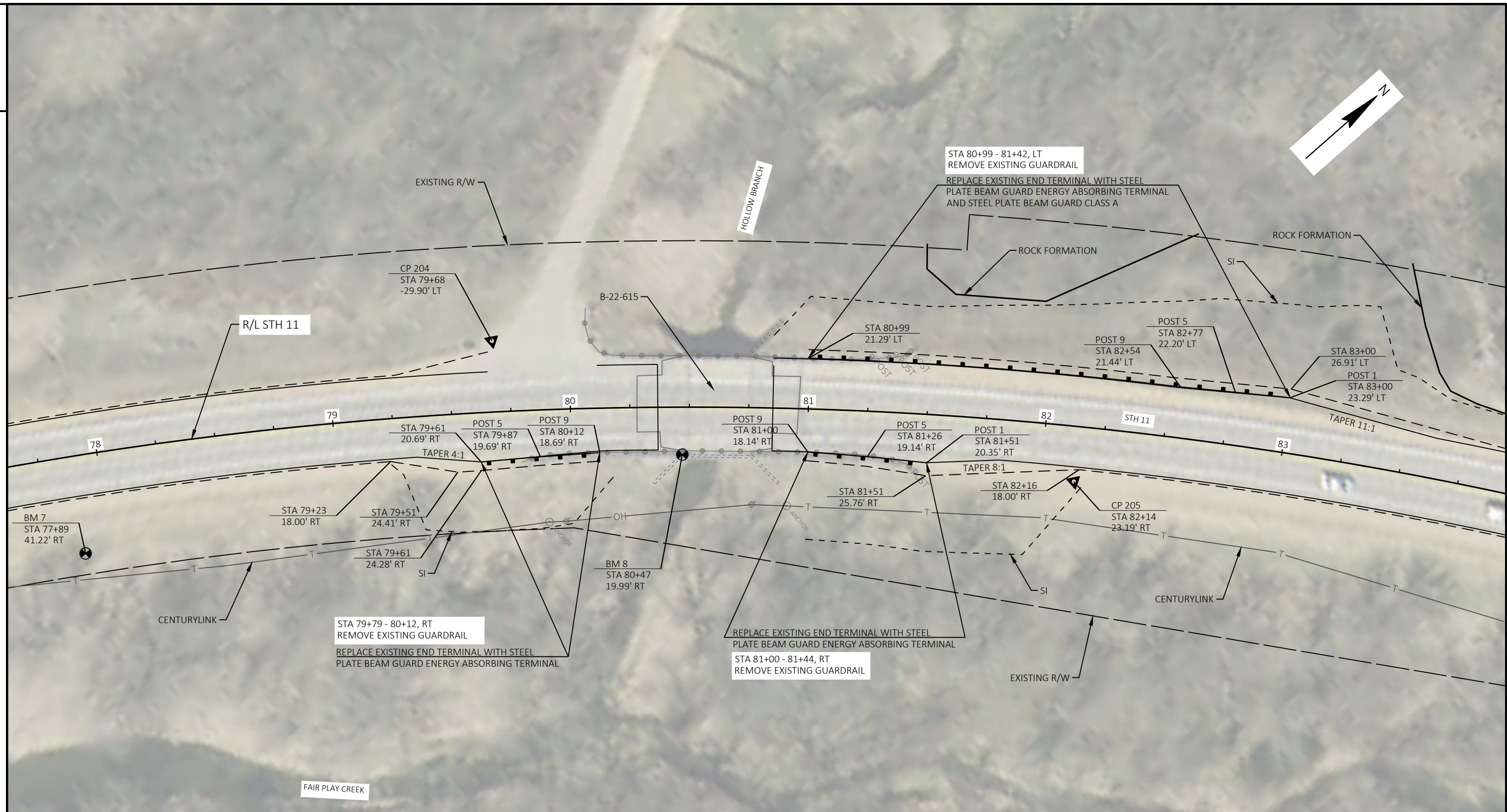
PROJECT NO:	1706-00-70	HWY:	STH 11	COUNTY:	GRANT	CONSTRUCTION DETAILS - BEAM GUARD REPLACEMENTS	SHEET	E
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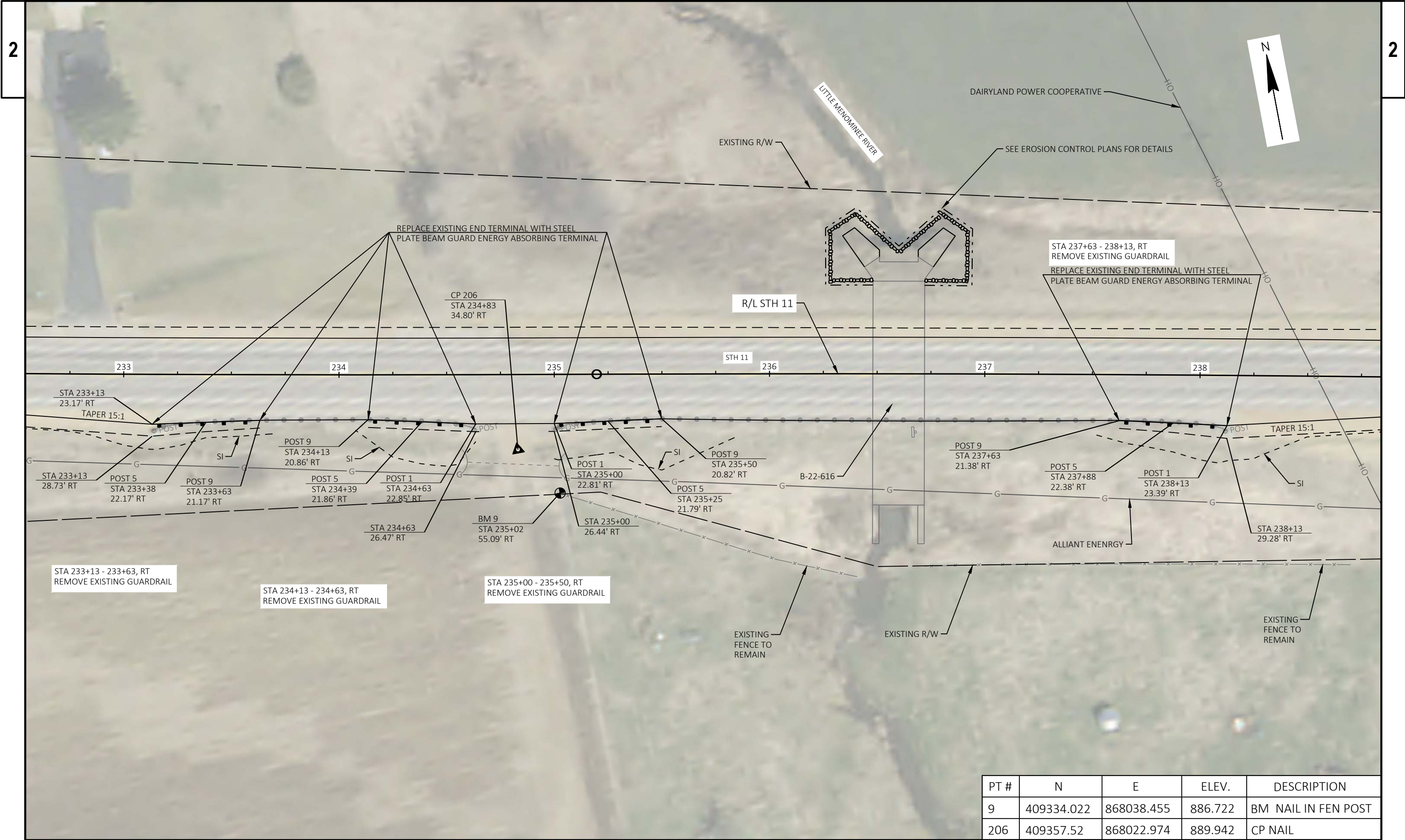
PT #	N	E	ELEV.	DESCRIPTION
4	404198.019	851919.176	726.948	BM NAIL IN 8IN TREE
202	403956.915	851407.634	739.601	CP NAIL
203	404163.734	852010.337	726.012	CP MAG NAIL



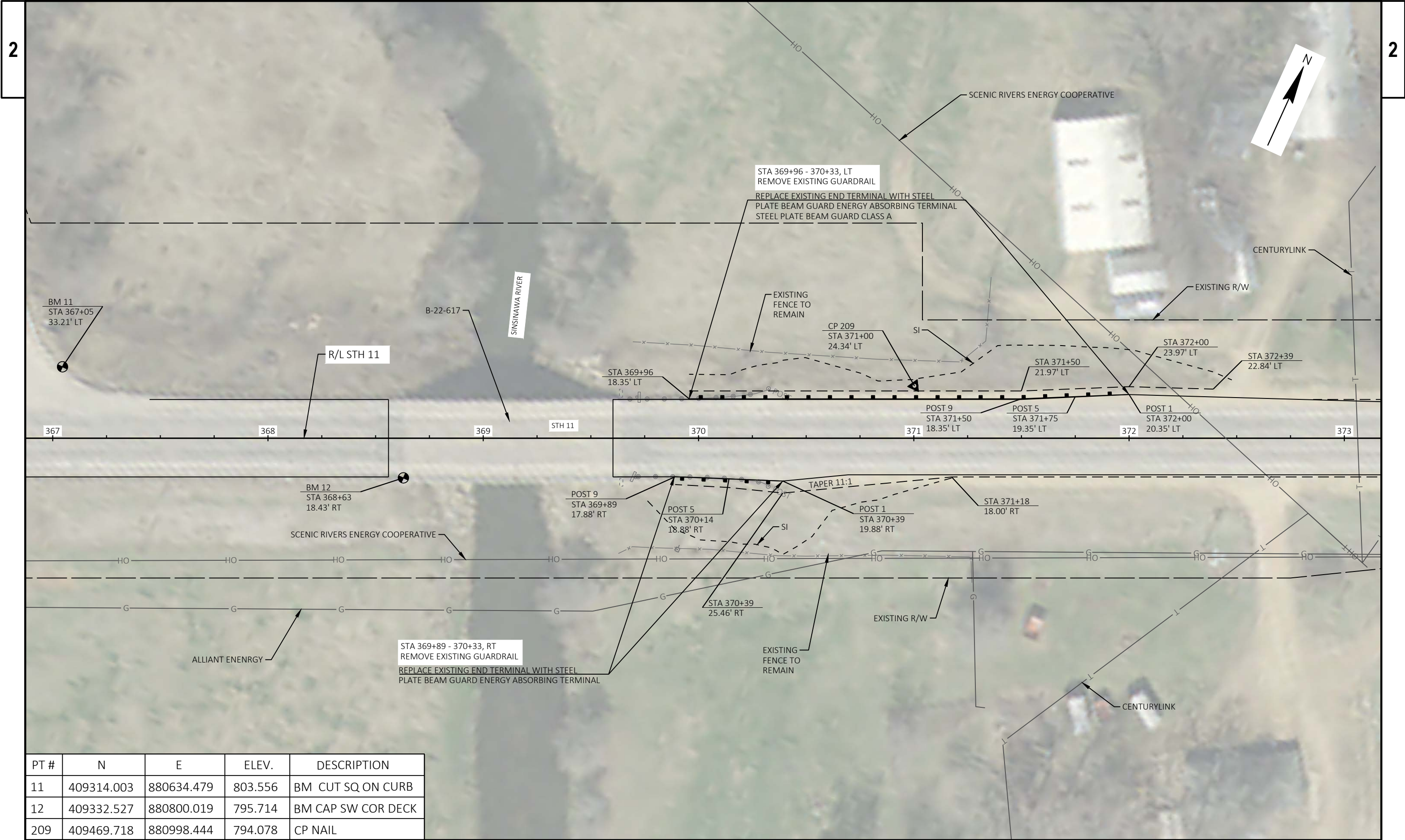
PT #	N	E	ELEV.	DESCRIPTION
5	405529.216	853216.026	753.051	BM SMN IN GR POST
6	405737.399	853312.87	751.265	BM DISC SW ABUT
216	405557.33	853219.7	750.904	CP MAG NAIL
217	405873.275	853283.182	753.075	CP MAG NAIL



PT #	N	E	ELEV.	DESCRIPTION
7	406482.128	853528.532	748.661	BM CUT SQ S RCCP
8	406697.842	853662.946	758.374	BM CAP SW WINGWALL
204	406669.336	853574.183	759.16	CP MAG NAIL
205	406813.926	853780.096	760.123	CP NAIL

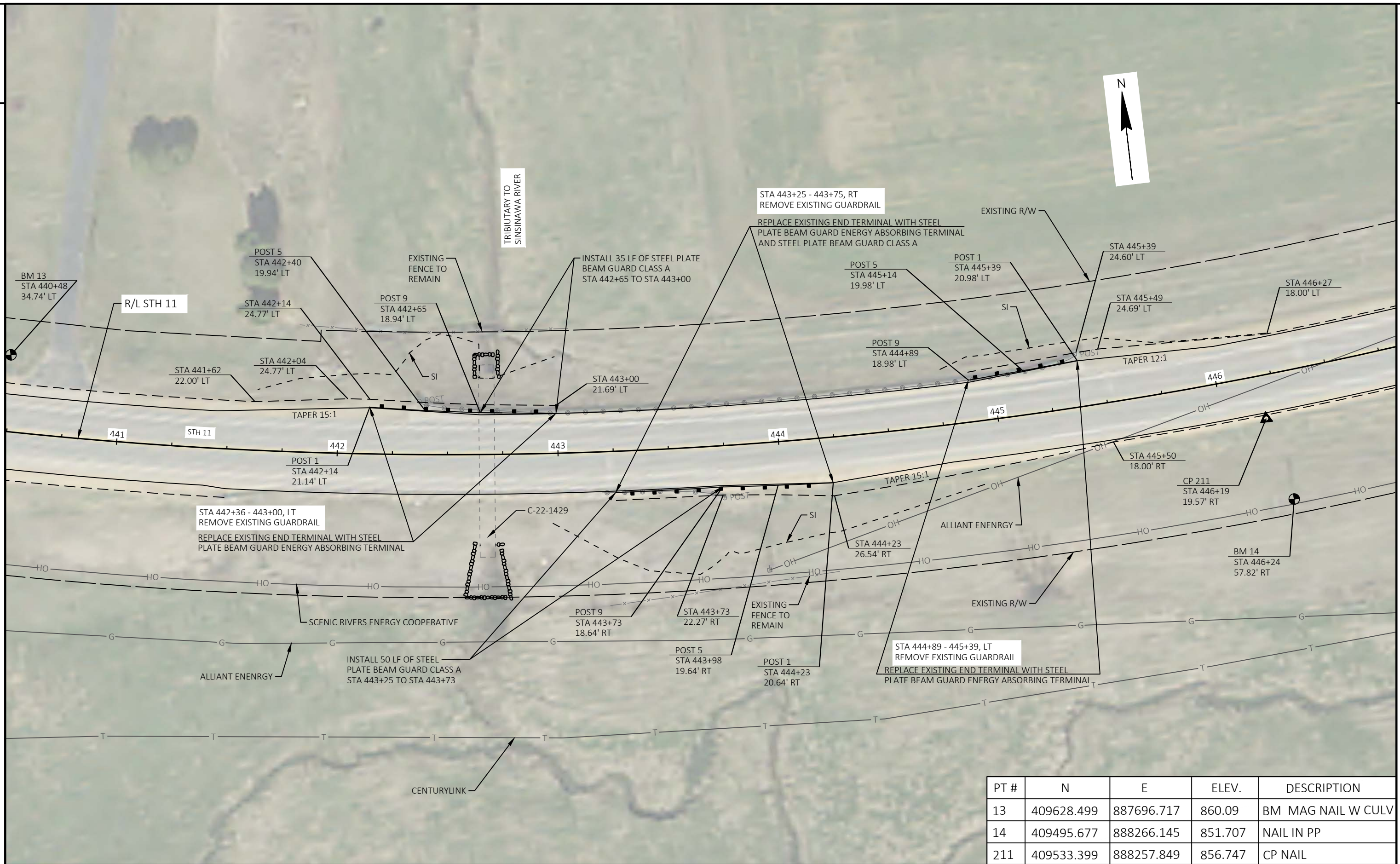


PT #	N	E	ELEV.	DESCRIPTION
9	409334.022	868038.455	886.722	BM NAIL IN FEN POST
206	409357.52	868022.974	889.942	CP NAIL

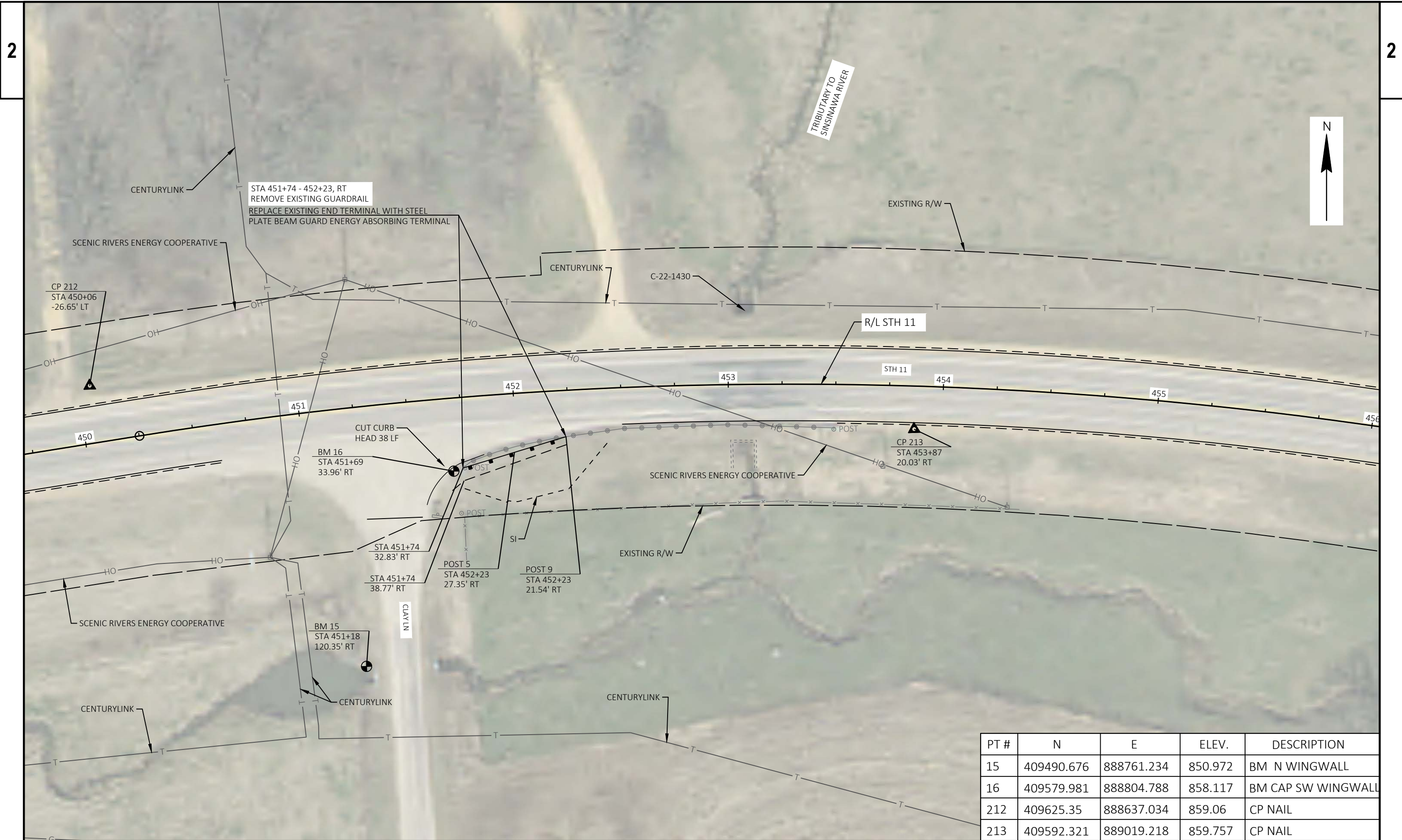


PT #	N	E	ELEV.	DESCRIPTION
11	409314.003	880634.479	803.556	BM CUT SQ ON CURB
12	409332.527	880800.019	795.714	BM CAP SW COR DECK
209	409469.718	880998.444	794.078	CP NAIL

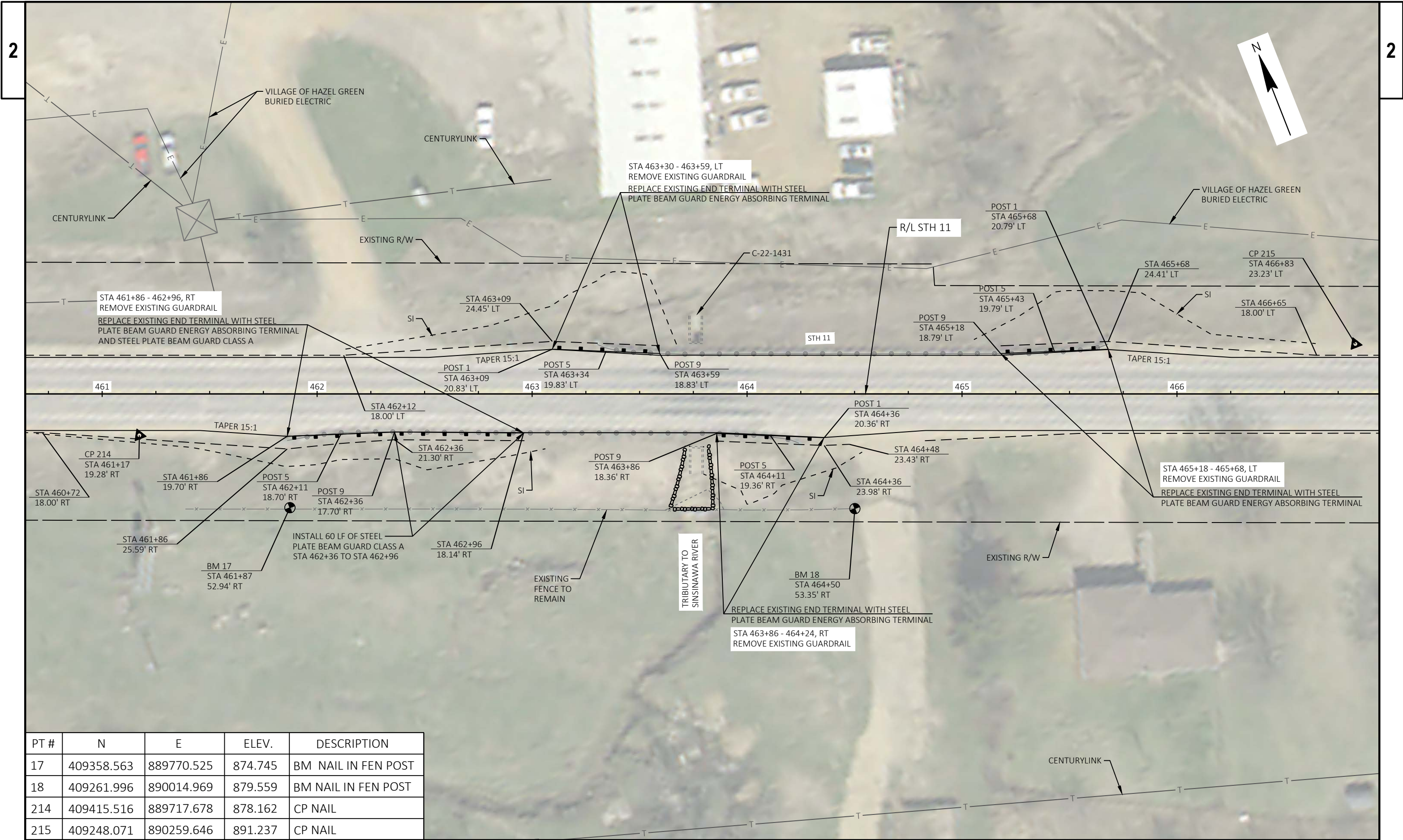
PROJECT NO:	1706-00-70	HWY:	STH 11	COUNTY:	GRANT	CONSTRUCTION DETAILS - BEAM GUARD REPLACEMENTS	SHEET	E
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PT #	N	E	ELEV.	DESCRIPTION
13	409628.499	887696.717	860.09	BM MAG NAIL W CULV
14	409495.677	888266.145	851.707	NAIL IN PP
211	409533.399	888257.849	856.747	CP NAIL

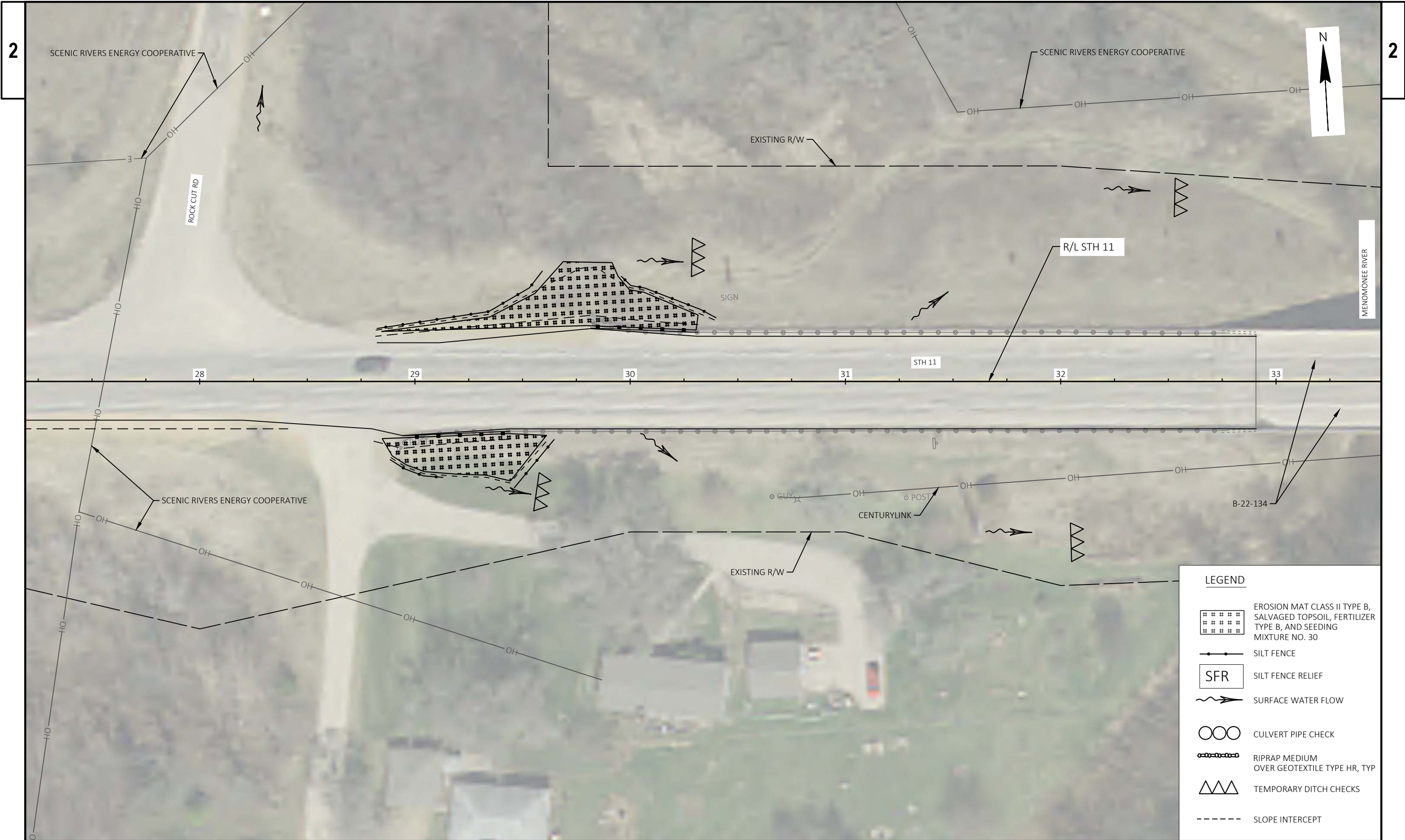


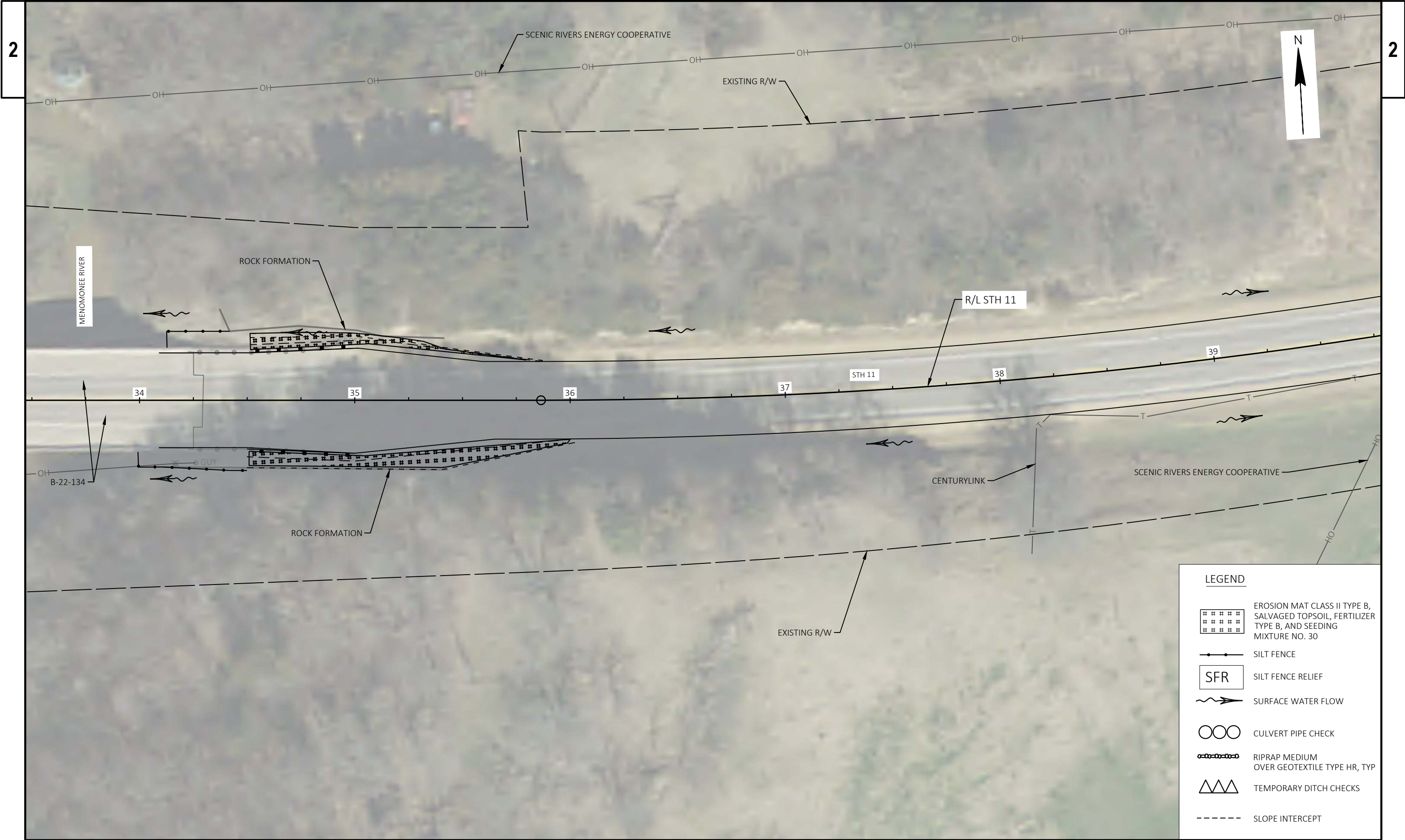
PT #	N	E	ELEV.	DESCRIPTION
15	409490.676	888761.234	850.972	BM N WINGWALL
16	409579.981	888804.788	858.117	BM CAP SW WINGWALL
212	409625.35	888637.034	859.06	CP NAIL
213	409592.321	889019.218	859.757	CP NAIL



PT #	N	E	ELEV.	DESCRIPTION
17	409358.563	889770.525	874.745	BM NAIL IN FEN POST
18	409261.996	890014.969	879.559	BM NAIL IN FEN POST
214	409415.516	889717.678	878.162	CP NAIL
215	409248.071	890259.646	891.237	CP NAIL

PROJECT NO:	1706-00-70	HWY:	STH 11	COUNTY:	GRANT	CONSTRUCTION DETAILS - BEAM GUARD REPLACEMENTS	SHEET	E
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LEGEND

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EROSION MAT CLASS II TYPE B,
SALVAGED TOPSOIL, FERTILIZER
TYPE B, AND SEEDING
MIXTURE NO. 30

—●—

SILT FENCE

SFR

SILT FENCE RELIEF

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SURFACE WATER FLOW

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CULVERT PIPE CHECK

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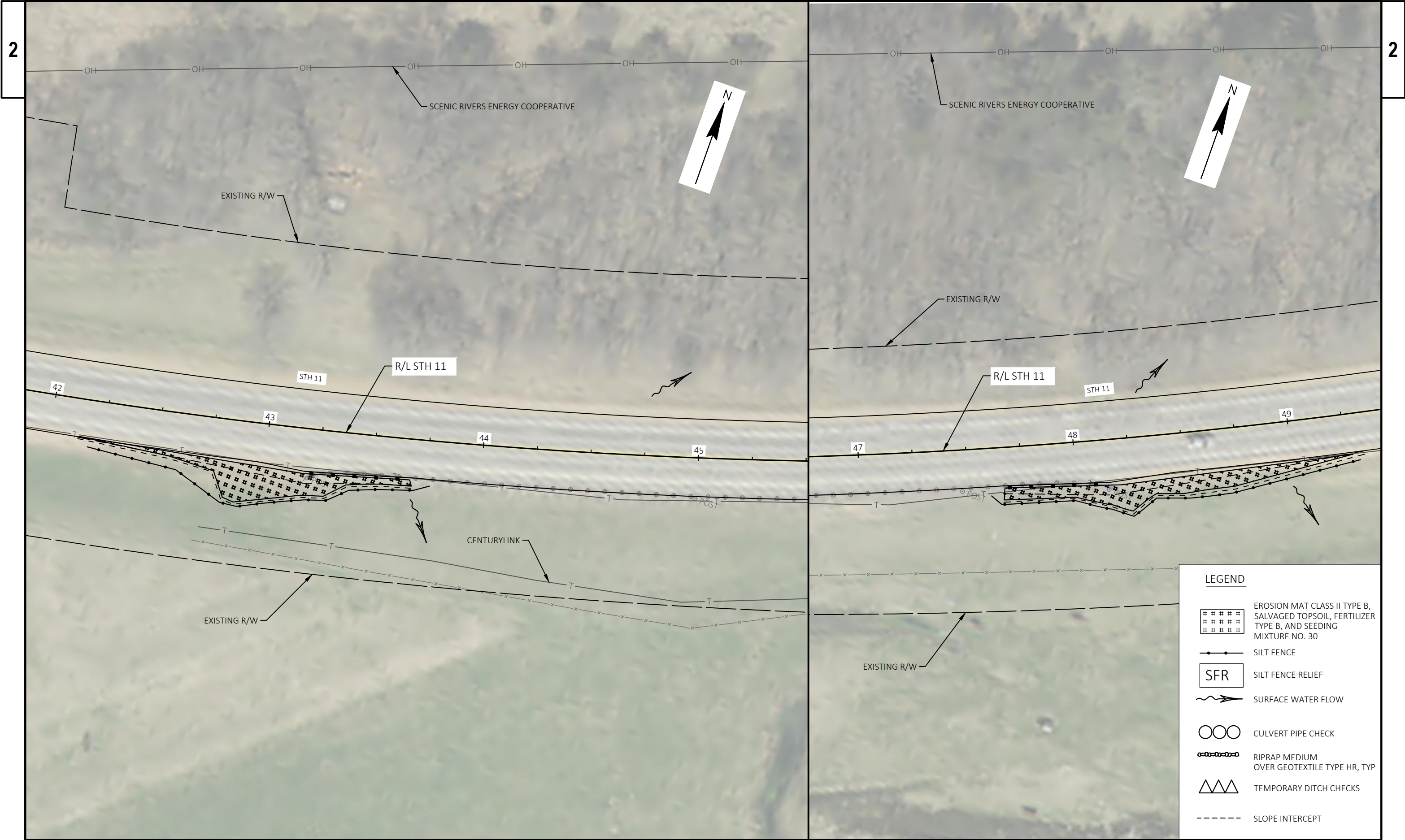
RIPRAP MEDIUM  
OVER GEOTEXTILE TYPE HR, TYP

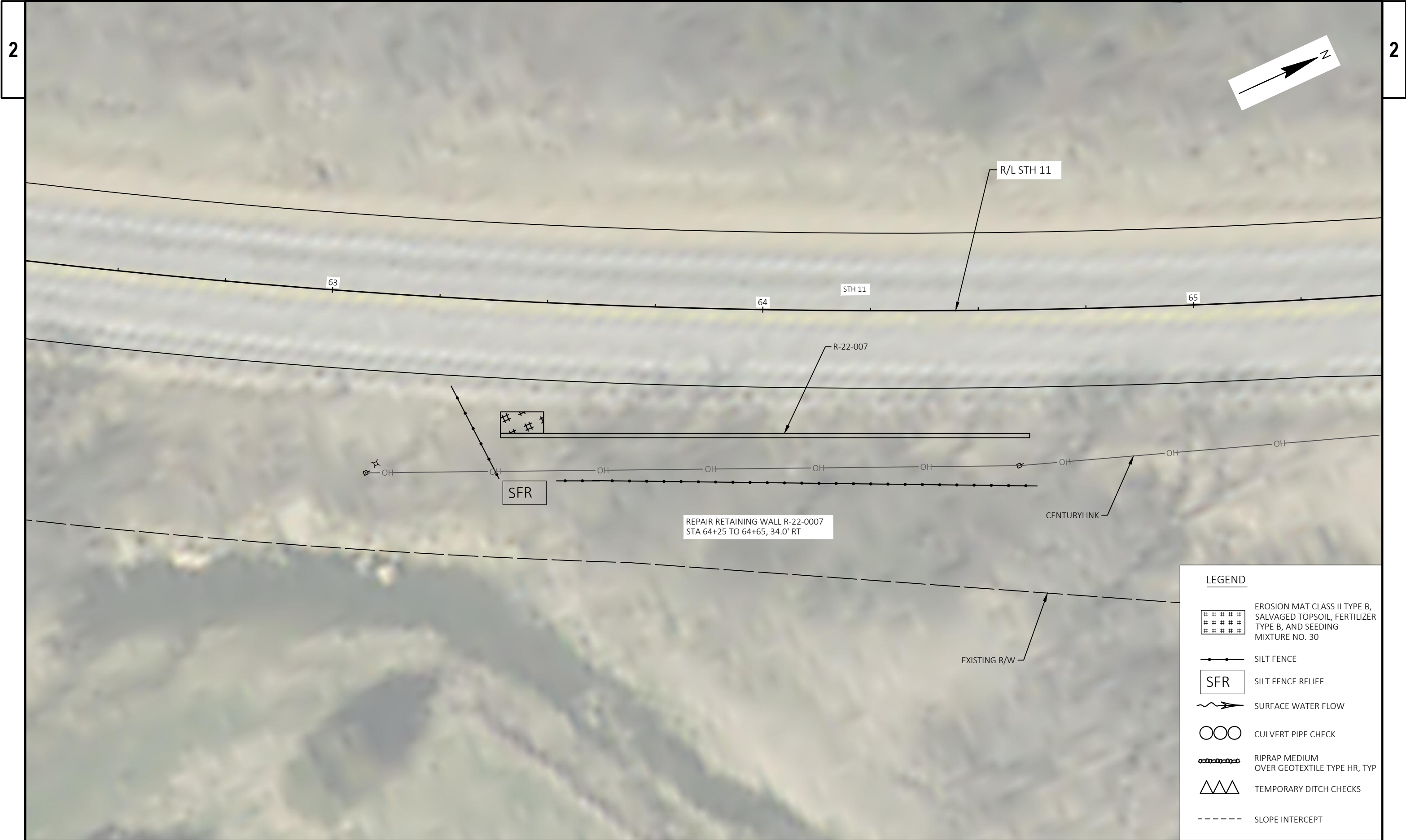
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TEMPORARY DITCH CHECKS

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SLOPE INTERCEPT





LEGEND

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EROSION MAT CLASS II TYPE B,  
SALVAGED TOPSOIL, FERTILIZER  
TYPE B, AND SEEDING  
MIXTURE NO. 30

SILT FENCE RELIEF

SURFACE WATER FLOW

CULVERT PIPE CHECK

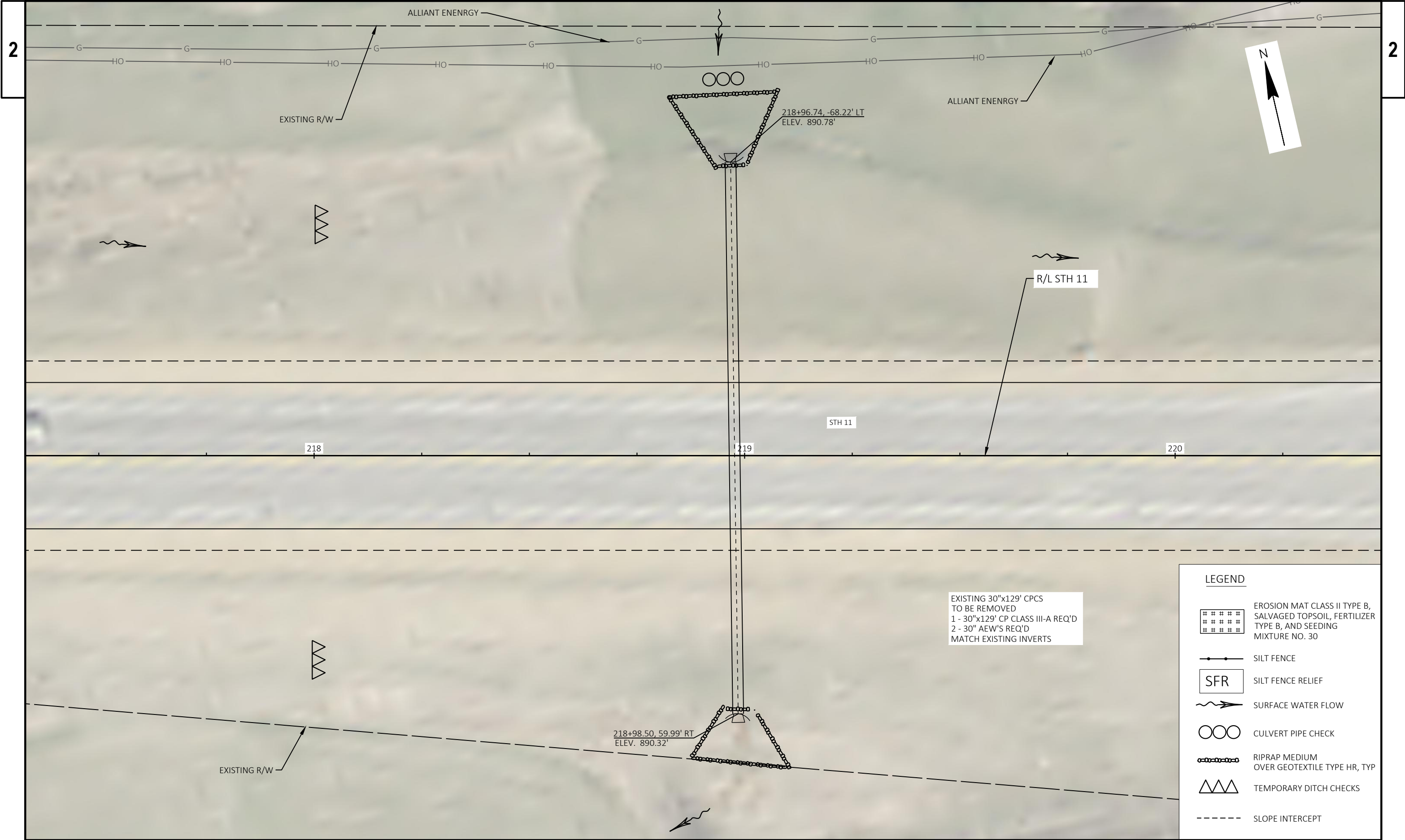
RIPRAP MEDIUM  
OVER GEOTEXTILE TYPE HR, TYP

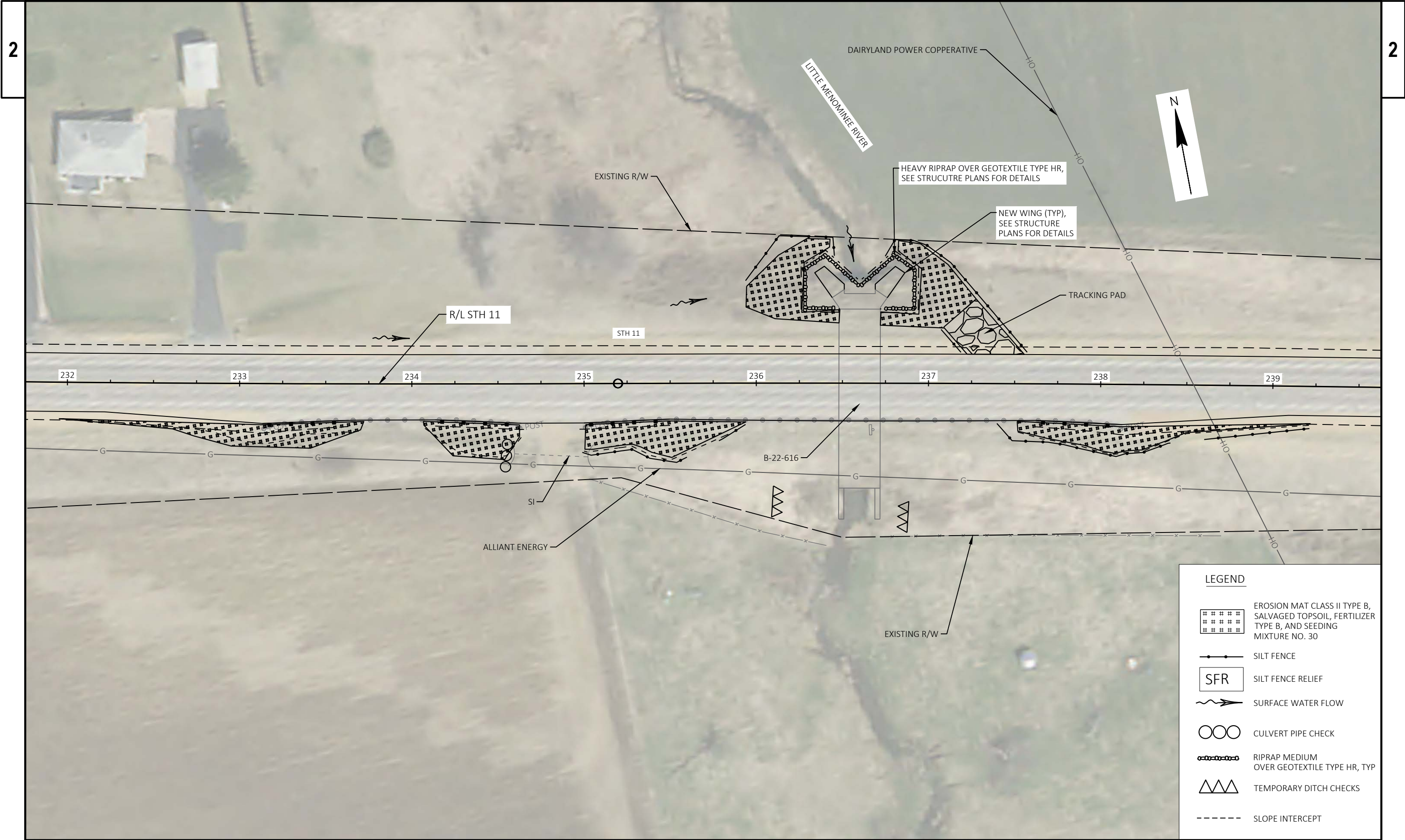
TEMPORARY DITCH CHECKS

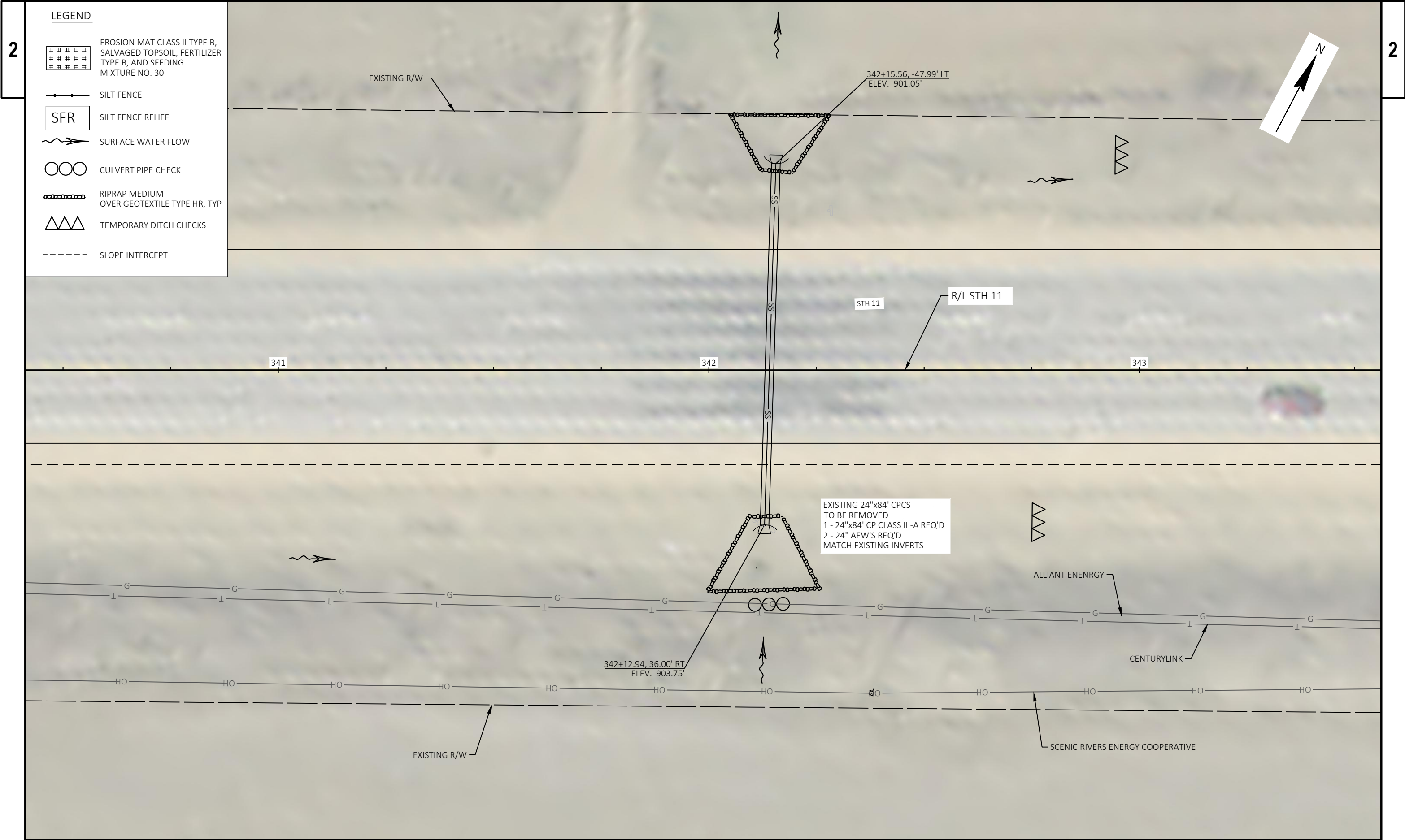
SLOPE INTERCEPT

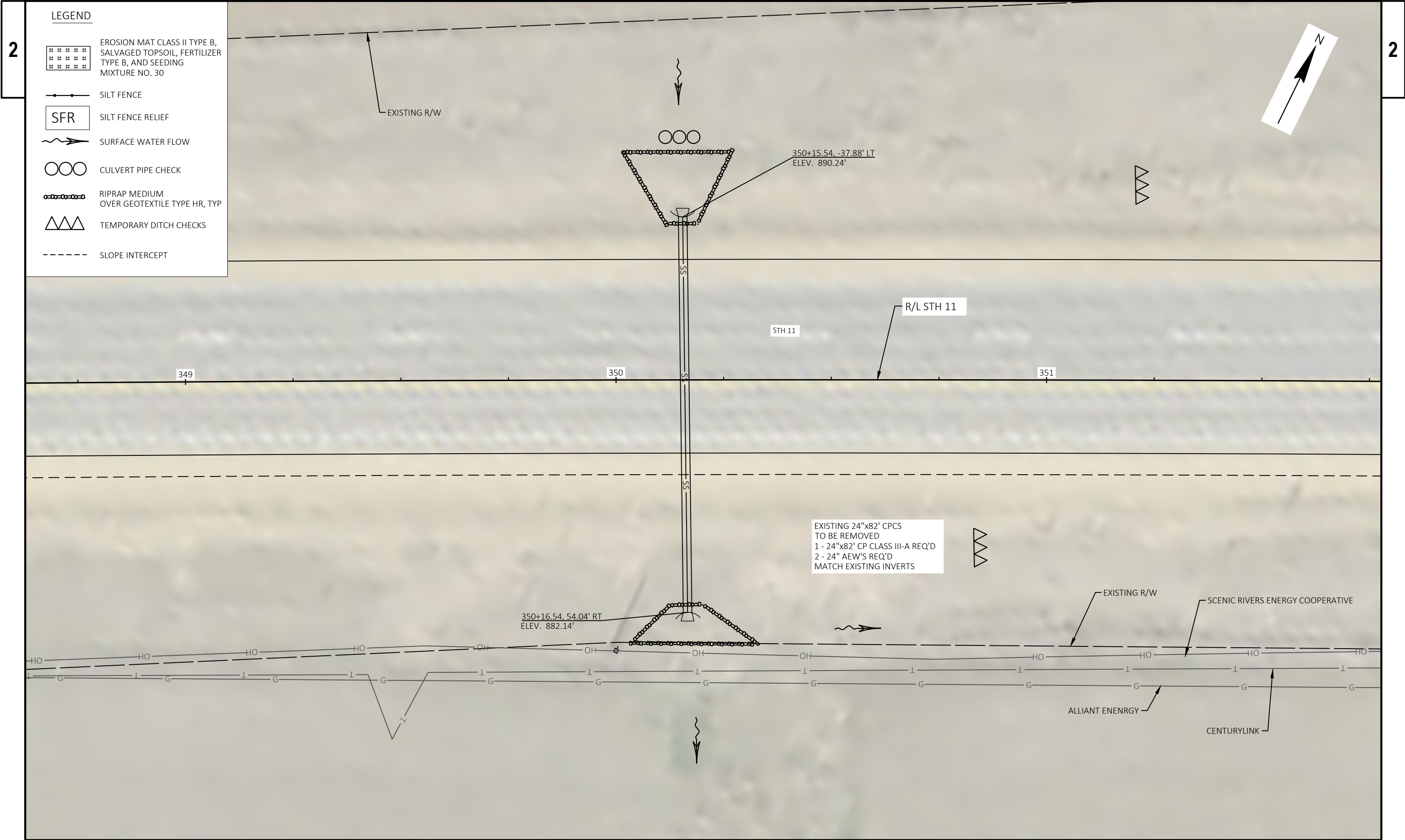


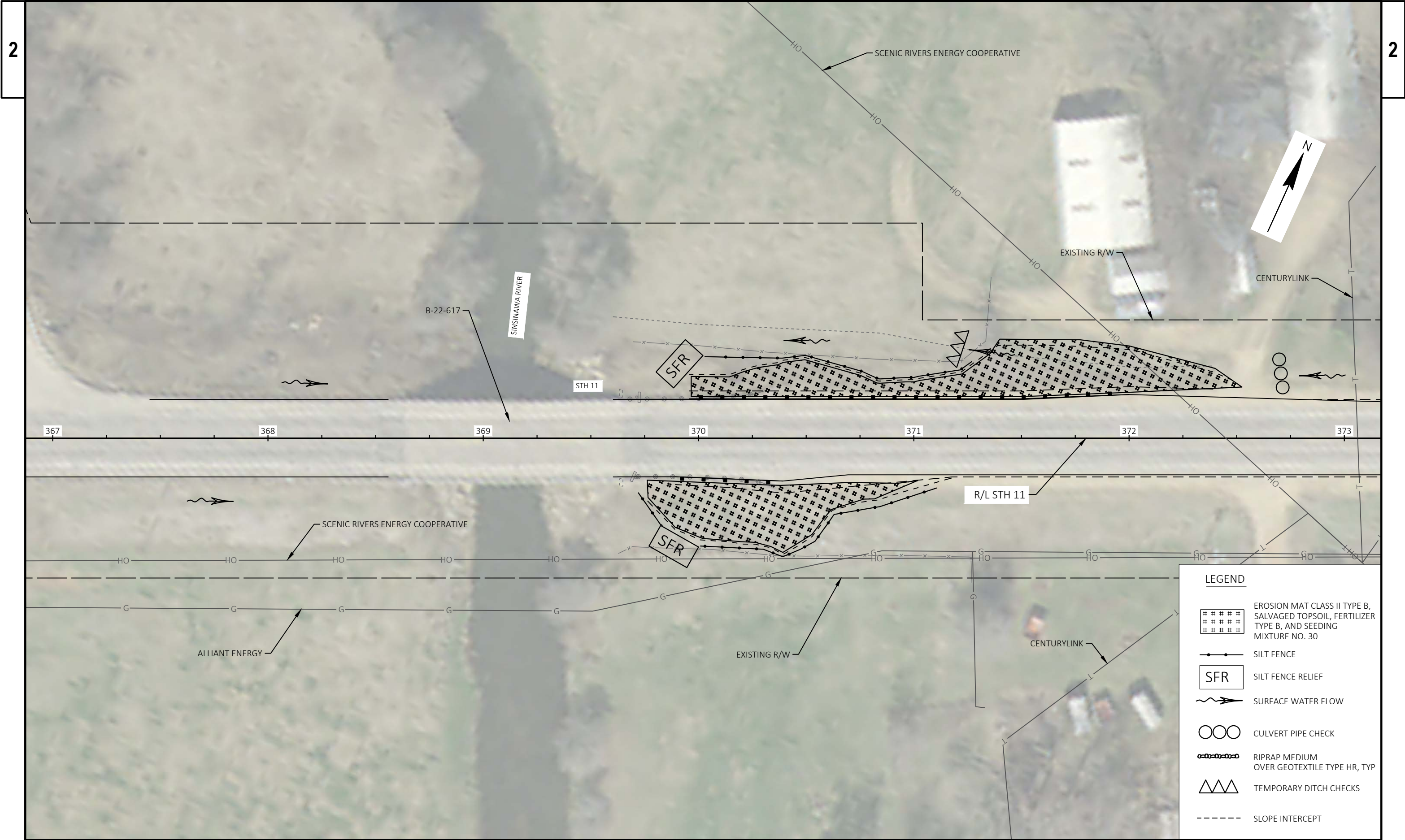












LEGEND

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EROSION MAT CLASS II TYPE B,  
SALVAGED TOPSOIL, FERTILIZER  
TYPE B, AND SEEDING  
MIXTURE NO. 30

—●—

SILT FENCE

SFR

SILT FENCE RELIEF

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SURFACE WATER FLOW

OOO

CULVERT PIPE CHECK

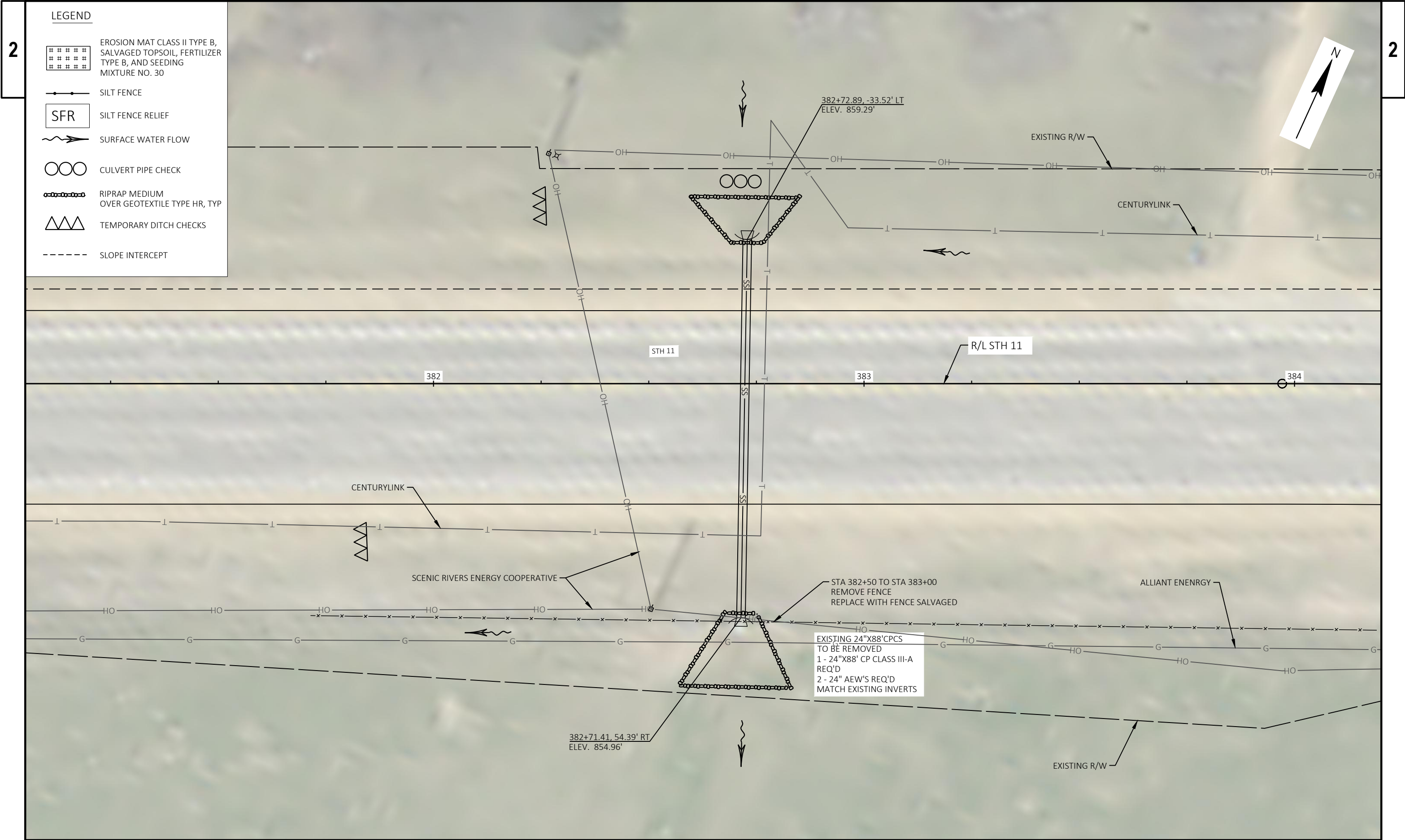
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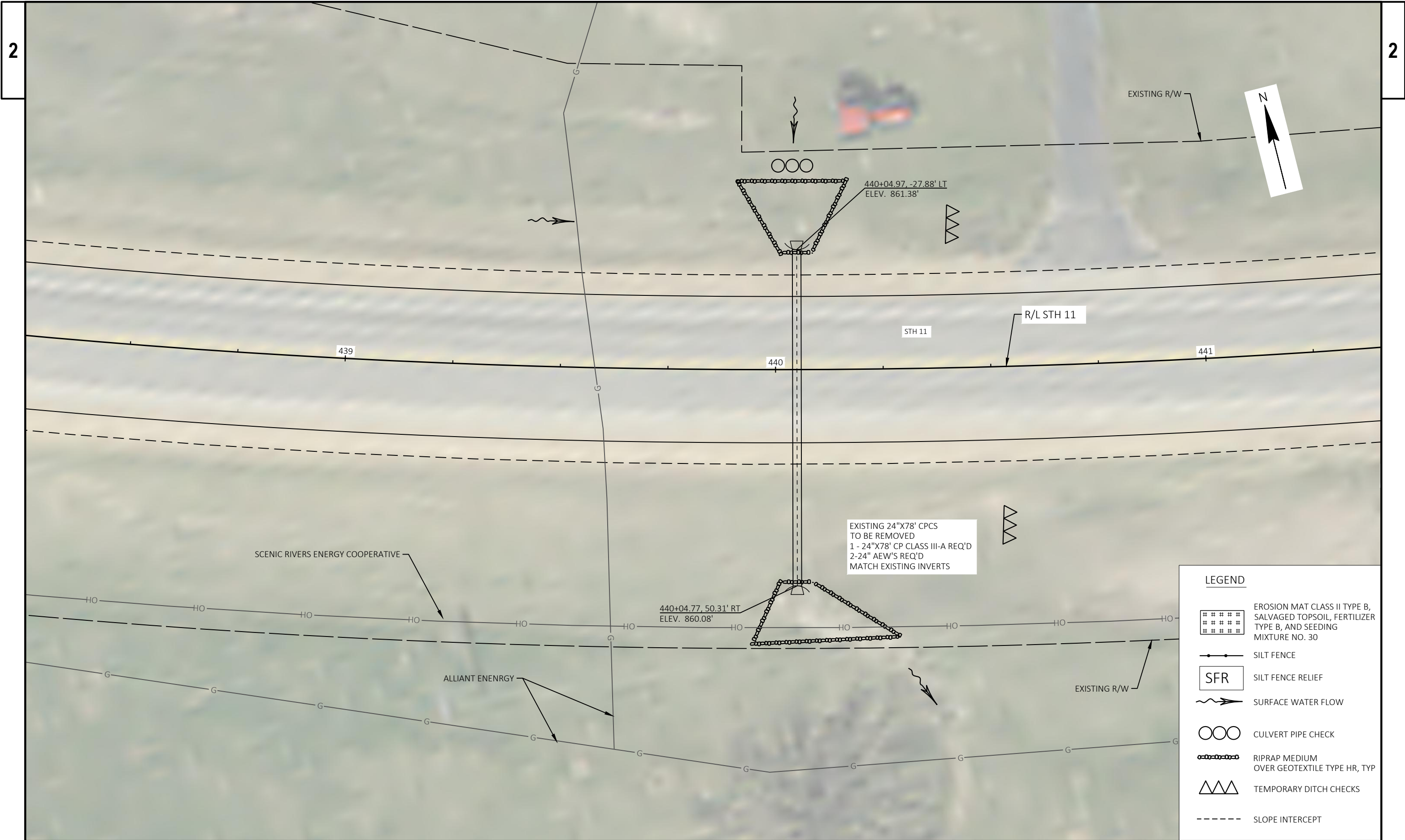
RIPRAP MEDIUM
OVER GEOTEXTILE TYPE HR, TYP

▲▲▲

TEMPORARY DITCH CHECKS

SLOPE INTERCEPT





LEGEND

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EROSION MAT CLASS II TYPE B, SALVAGED TOPSOIL, FERTILIZER TYPE B, AND SEEDING MIXTURE NO. 30

—●—

SILT FENCE

SFR

SILT FENCE RELIEF

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SURFACE WATER FLOW

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CULVERT PIPE CHECK

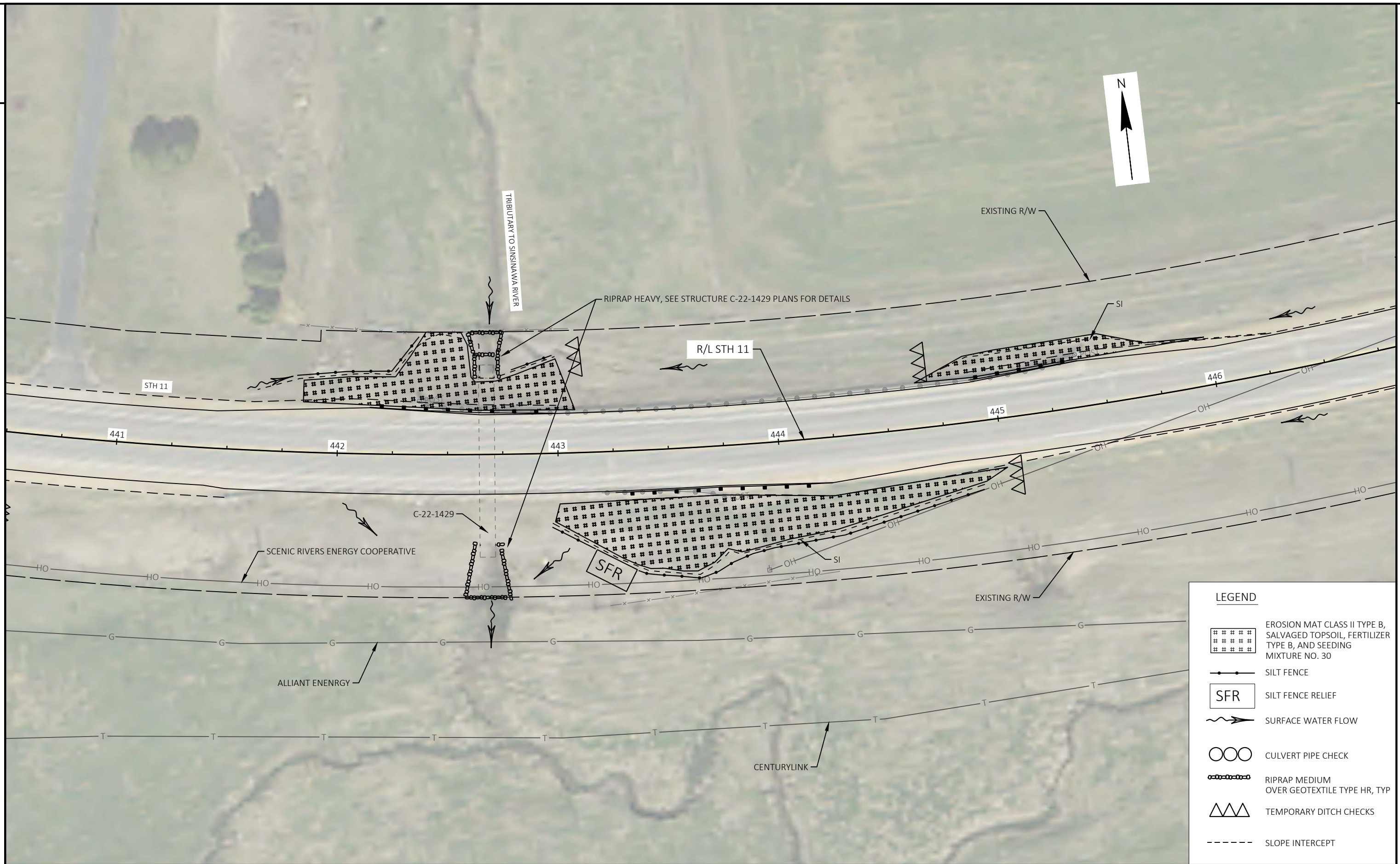
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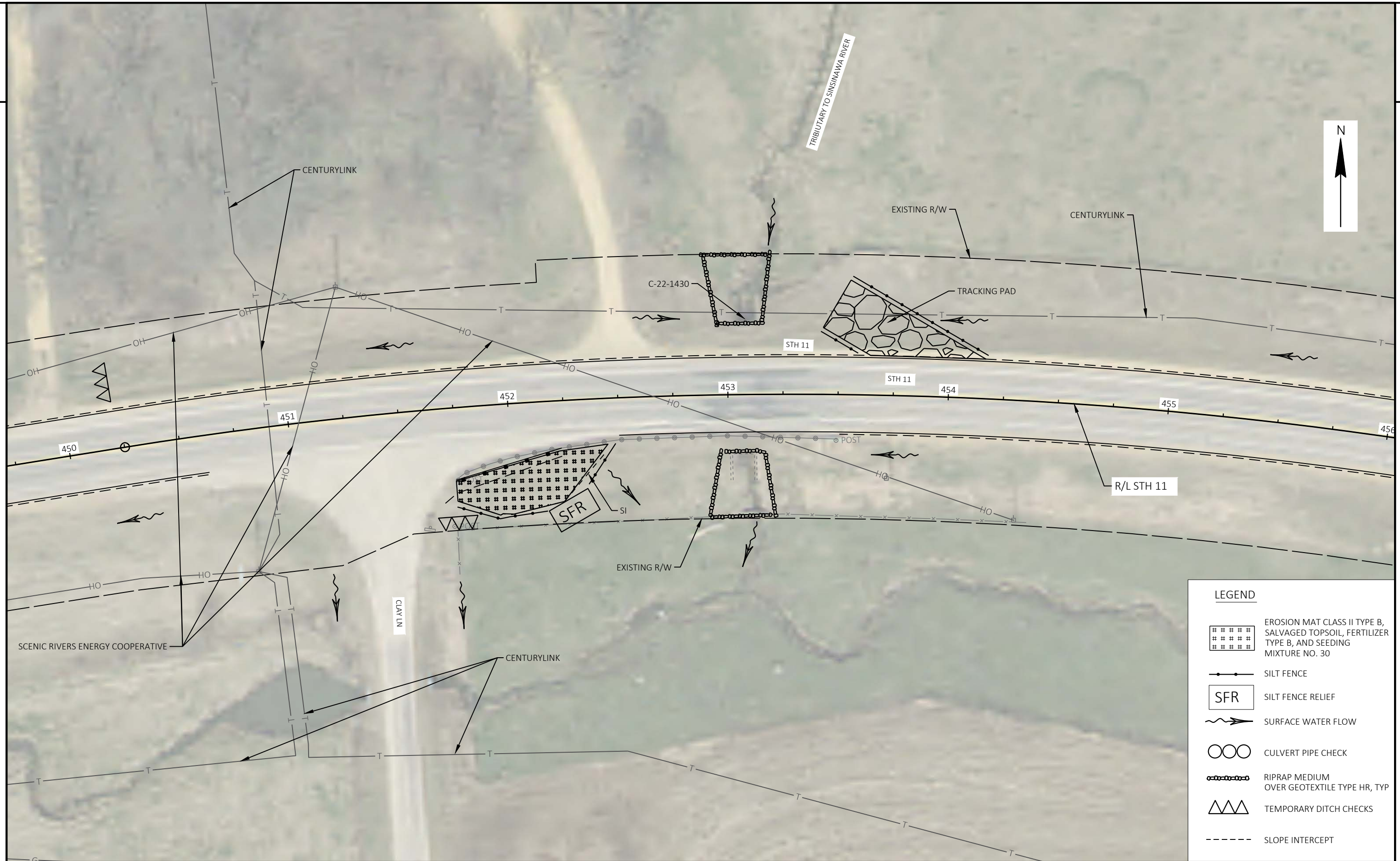
RIPRAP MEDIUM OVER GEOTEXTILE TYPE HR, TYP

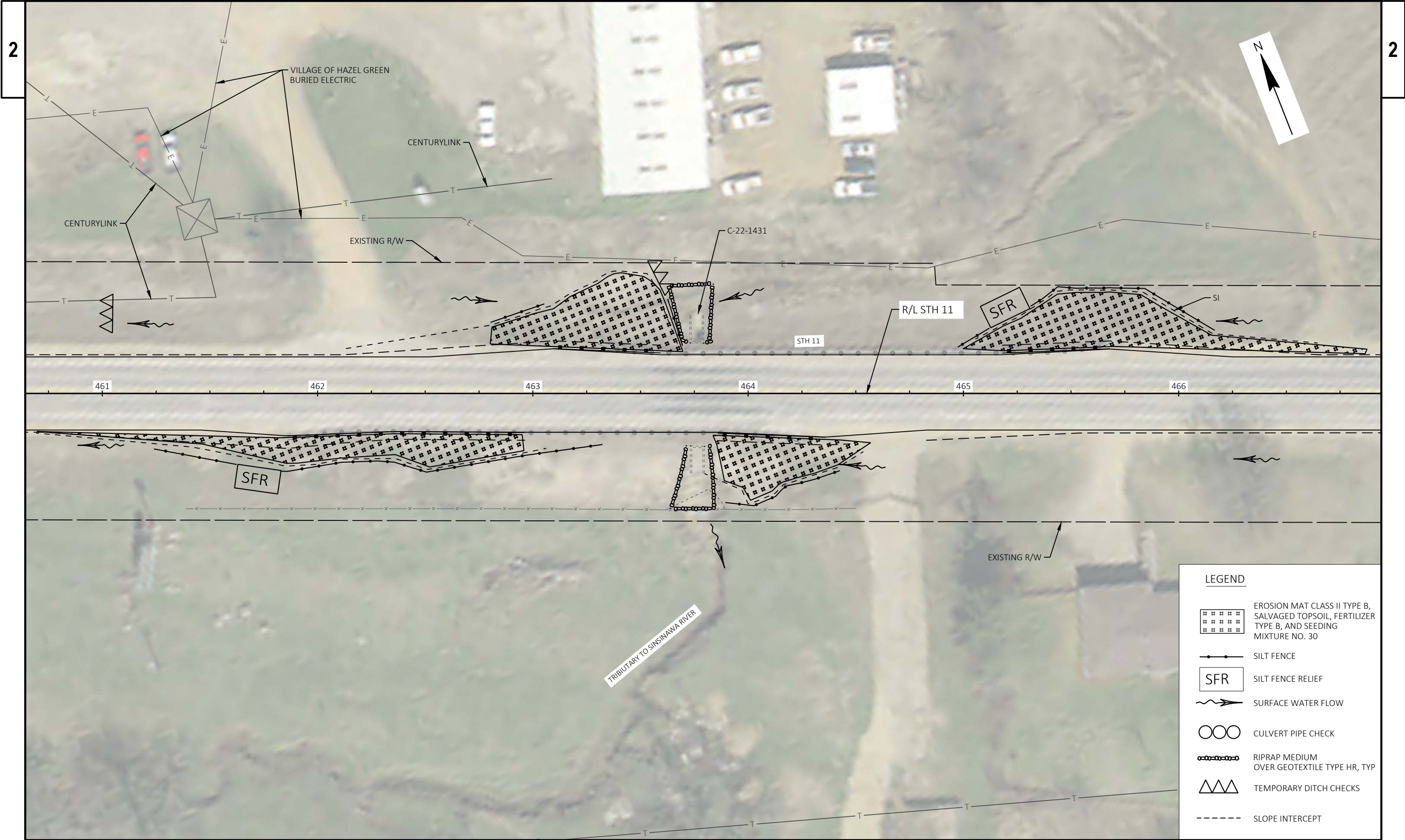
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TEMPORARY DITCH CHECKS

SLOPE INTERCEPT







LEGEND

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EROSION MAT CLASS II TYPE B, SALVAGED TOPSOIL, FERTILIZER TYPE B, AND SEEDING MIXTURE NO. 30

—●—

SILT FENCE

SFR

SILT FENCE RELIEF

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SURFACE WATER FLOW

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CULVERT PIPE CHECK

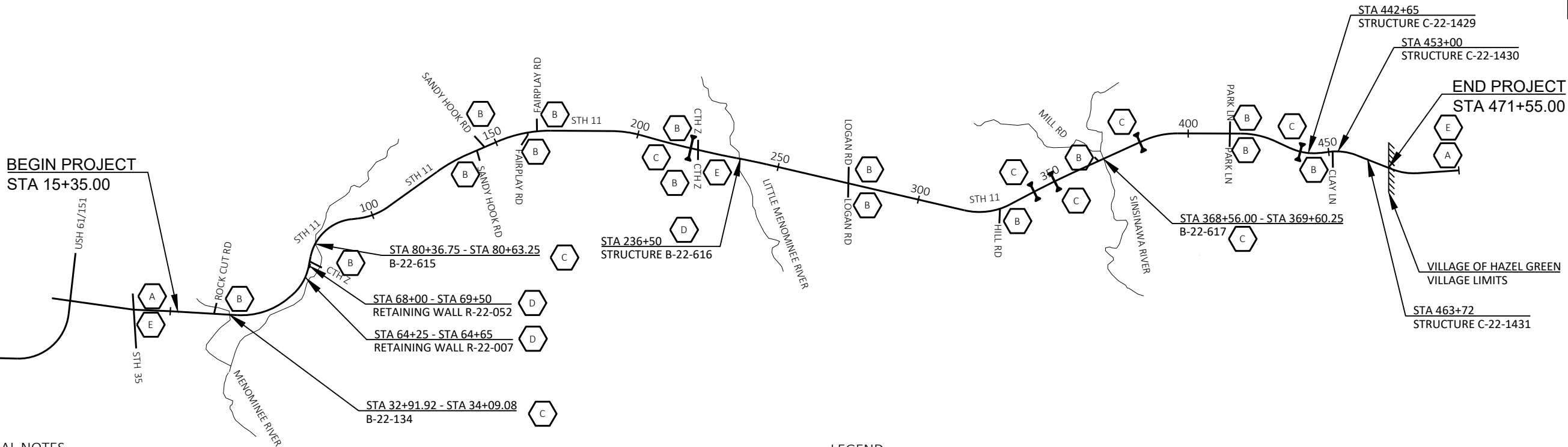
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RIPRAP MEDIUM OVER GEOTEXTILE TYPE HR, TYP

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TEMPORARY DITCH CHECKS

SLOPE INTERCEPT



GENERAL NOTES

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

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 ARE 48" X 48" UNLESS OTHERWISE NOTED IN STANDARD DETAIL DRAWINGS.

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

SIGNS IN CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID UNDER THE ITEM "TRAFFIC CONTROL COVERING SIGNS TYPE II".

FOLLOW SDD 15C12 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION" FOR WORK OPERATIONS THAT REQUIRE ENCROACHMENT OR CLOSURE OF A TRAVEL LANE OF STH 11.

PLACE WO8-1 "BUMP" SIGNS IN ADVANCE OF THE LIMITS OF MILLING AND/OR PAVING LIMITS WHERE THE DRIVING SURFACE IS NOT AT THE SAME ELEVATION AS THE ADJACENT SURFACE, INCLUDING AT SIDE ROADS.

PLACE WO8-15 "GROOVED PAVEMENT" SIGNS IN ADVANCE OF THE LIMITS WHERE TRAFFIC WILL UTILIZE THE MILLED SURFACE, INCLUDING AT SIDE ROADS.

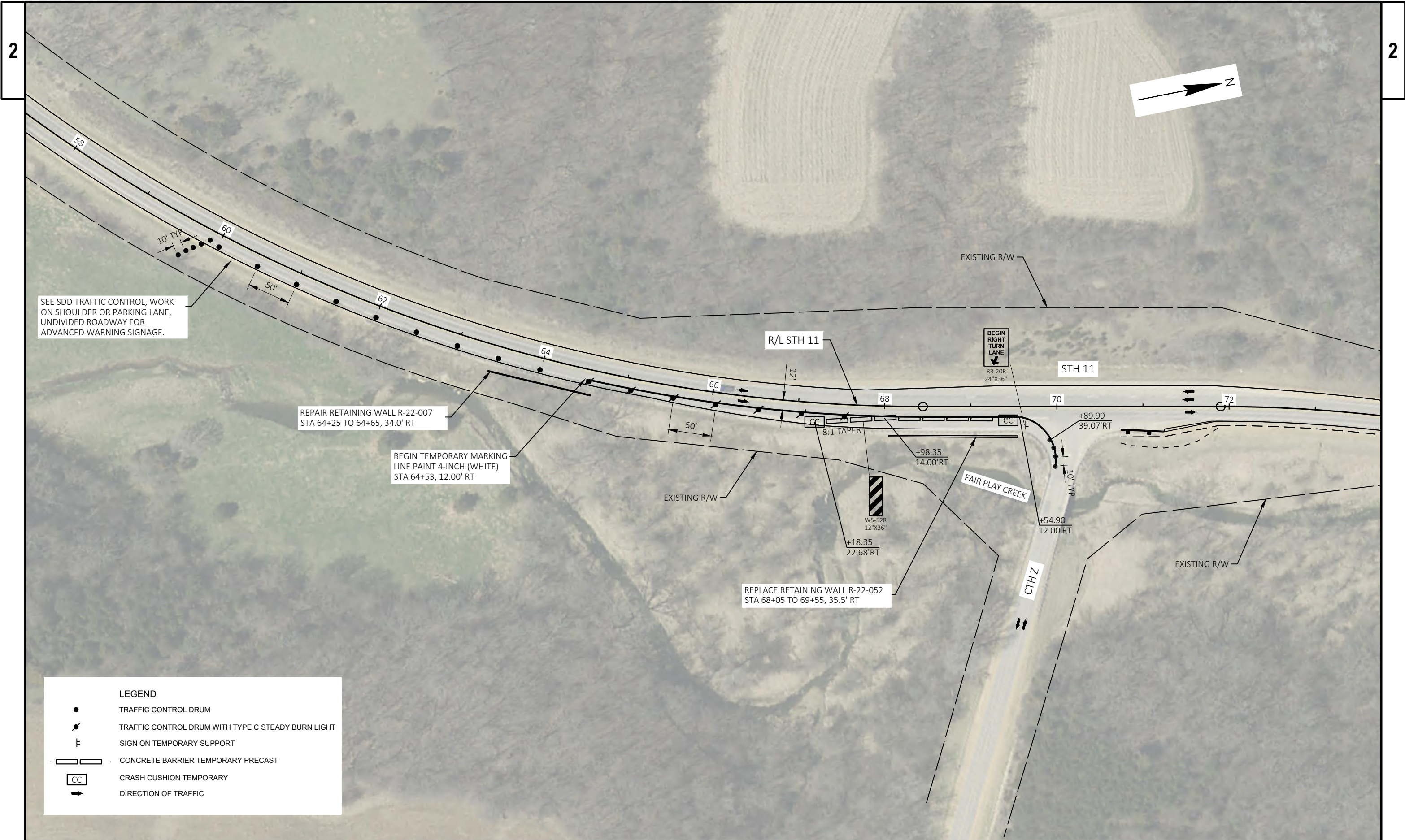
PLACE WO8-12 "NO CENTER LINE" SIGNS AT THE BEGINNING OF SEGMENTS WITHOUT CENTERLINE MARKINGS AND AT INTERVALS OF NO MORE THAN 2 MILES WITHIN THE WORK ZONE.

PERFORM MAINLINE PAVEMENT MARKING OPERATIONS IN ACCORDANCE WITH SDD "MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY".

LEGEND

- A** FOLLOW SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" AND SDD "BARRICADES AND SIGNS FOR VARIOUS CLOSURES".
- B** FOLLOW SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC" FOR TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL.
- C** FOLLOW SDD "TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION" UTILIZING THE TEMPORARY CONCRETE BARRIER WALL DETAIL FOR STAGED WORK ON B-22-134, B-22-615 AND B-22-617. FOLLOW SDD "TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION" UTILIZING THE DRUMS DETAIL FOR CULVERT REPLACEMENTS AT STA 218+98, STA 342+15, STA 350+16, STA 382+82, AND STA 428+75.
- D** FOLLOW SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY" FOR WORK THAT WILL TAKE PLACE OUTSIDE OF THE TRAVEL LANES OF STH 11. IF WORK, EQUIPMENT, MATERIALS, ETC. WILL ENCROACH INTO THE TRAVEL LANES OF STH 11, SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION" SHALL BE UTILIZED. LOCATIONS AS SHOWN IN PLAN FOR SHOULDER CLOSURES ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL TRAFFIC CONTROL REQUIREMENTS WILL BE DEPENDENT ON CONTRACTOR MEANS & METHODS AND/OR AS DIRECTED BY THE ENGINEER. SEE SHEET TRAFFIC CONTROL - R-22-052 DETAIL FOR MORE INFORMATION.
- E** PLACE PORTABLE CHANGEABLE MESSAGE SIGN 7 DAYS PRIOR TO BEGINNING CONSTRUCTION AND 7 DAYS PRIOR TO CLOSURE FROM CTH Z TO STH 80 FOR REPLACEMENT OF CULVERT PIPES. PCMS MESSAGE OR AS DIRECTED BY THE ENGINEER AS FOLLOWS:

PRIOR TO CONSTRUCTION
ROAD STARTING
CLOSED XX/XX/XX



LEGEND

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TRAFFIC CONTROL DRUM

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TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

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SIGN ON TEMPORARY SUPPORT

▬

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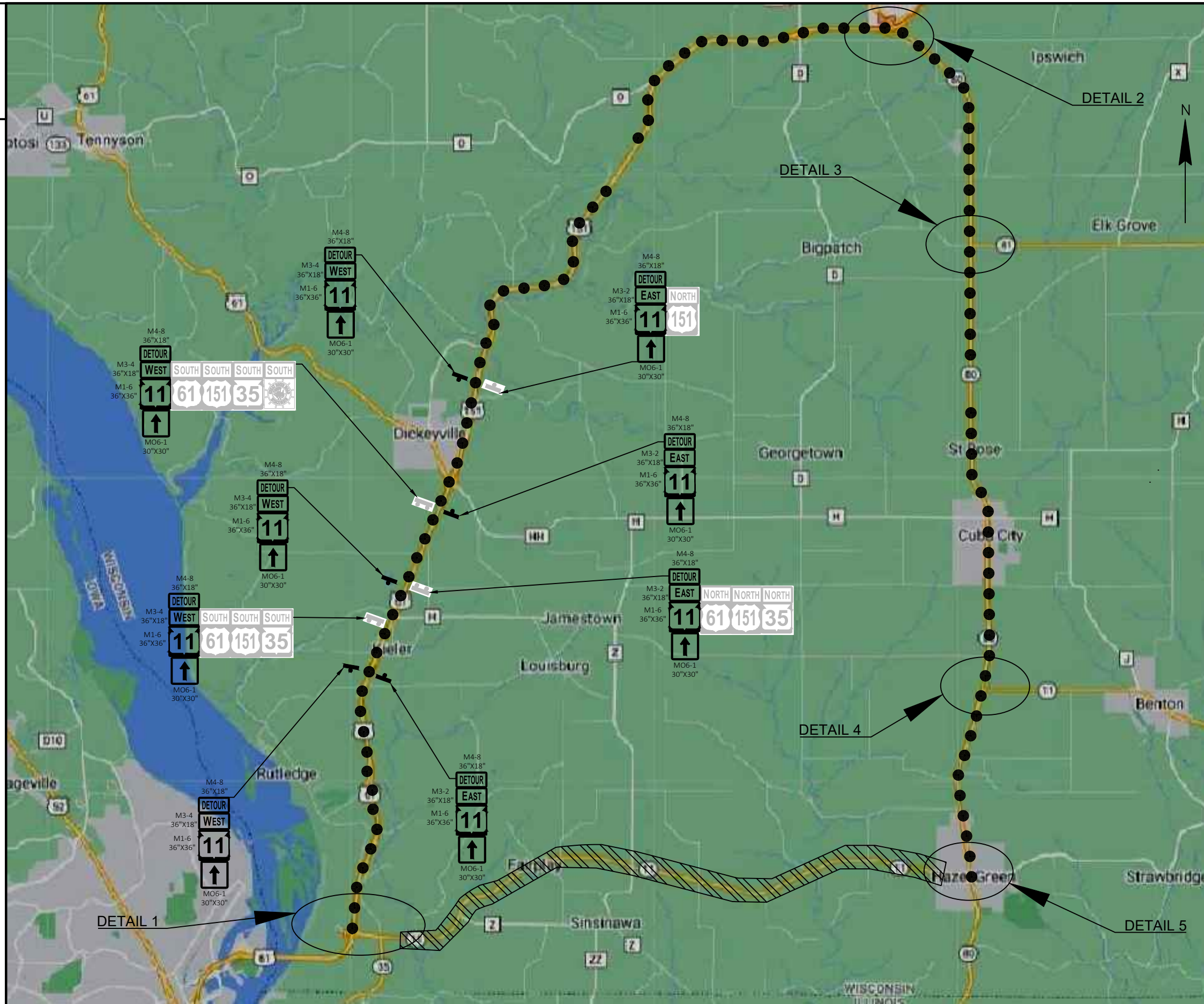
CONCRETE BARRIER TEMPORARY PRECAST

CC

CRASH CUSHION TEMPORARY

➡

DIRECTION OF TRAFFIC

**GENERAL NOTES**

DRAWING IS NOT TO SCALE

FOR DETOUR SIGN ASSEMBLIES LOCATED ON DIVIDED HIGHWAYS, PLEASE PLACE ON BOTH THE RIGHT SHOULDER AND IN THE MEDIAN WITH EXCEPTION TO DETOUR ASSEMBLIES THAT HAVE THE MO6-2 DIRECTIONAL ARROW.

LEGEND

PROPOSED SIGN POST



EXISTING SIGN POST



STH 11 DETOUR ROUTE



COVER EXISTING SIGN



WORK AREA

PROJECT NO: 1706-00-70

HWY: STH 11

COUNTY: GRANT

DETOUR PLAN

SHEET

E

FILE NAME : X:\BM1-3658 STH 11\5_DESIGN\03_ROADS\17060070\5HEETS\PLAN\027001-DT.DWG
LAYOUT NAME - Detour

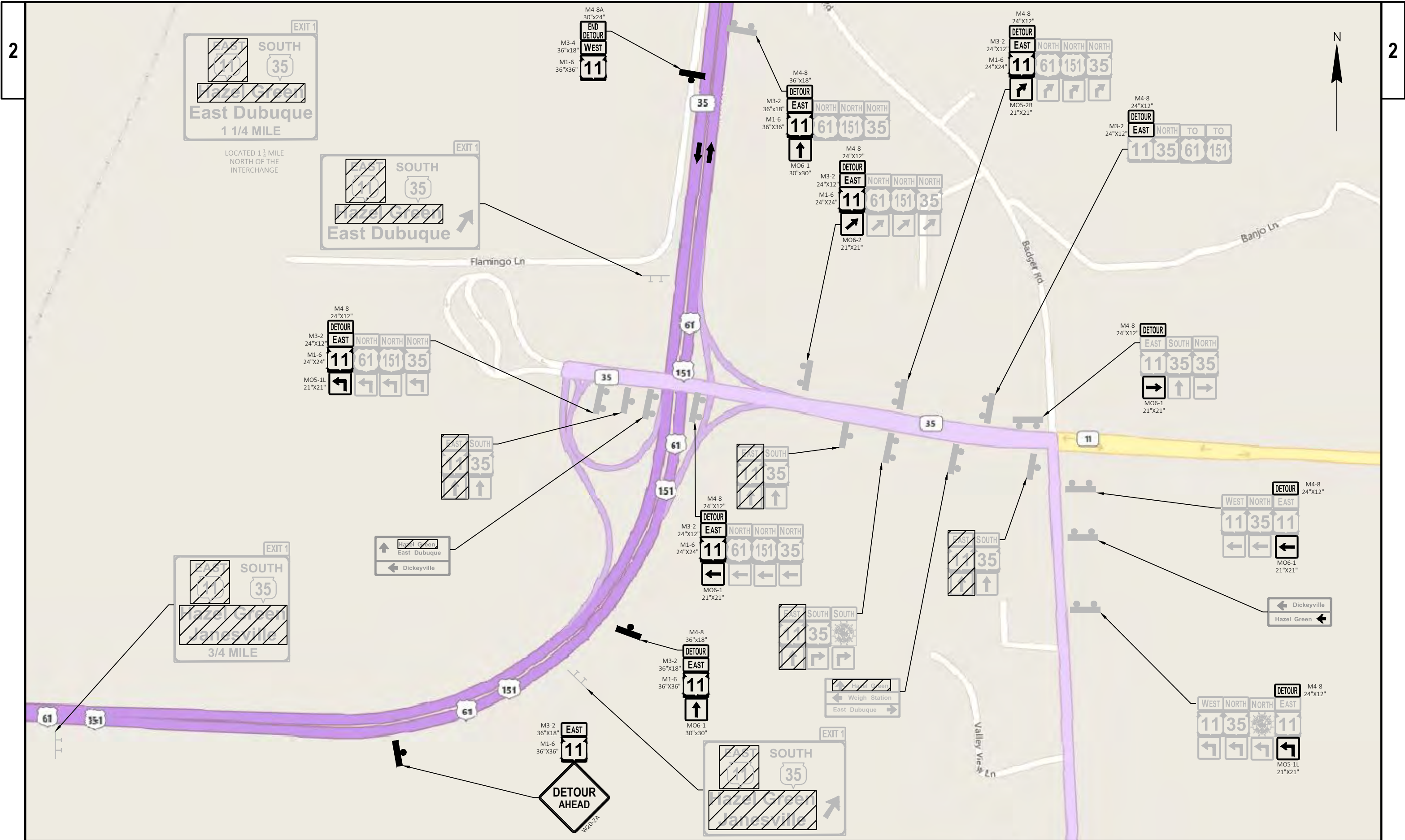
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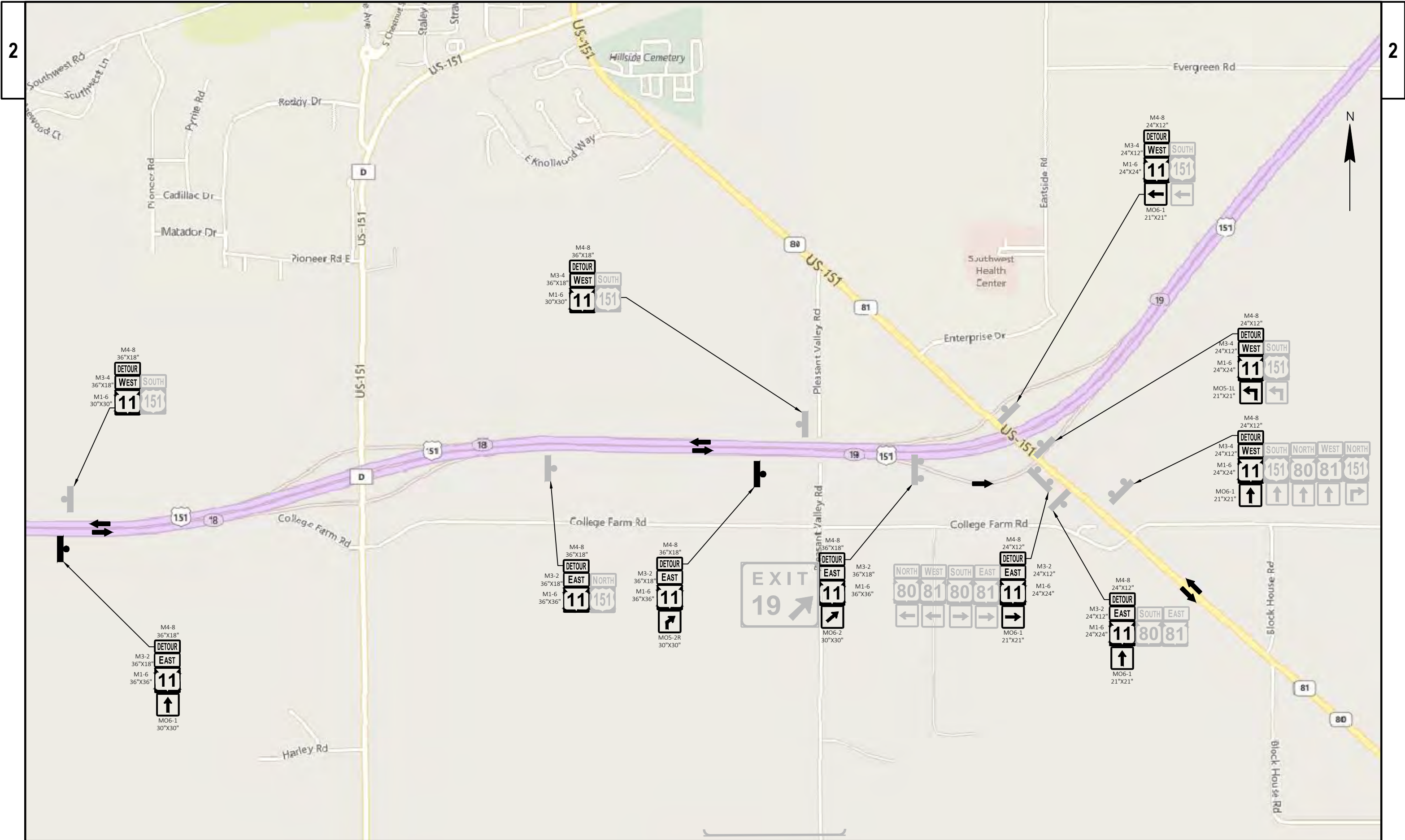
PLOT BY : VALBON LATIFI

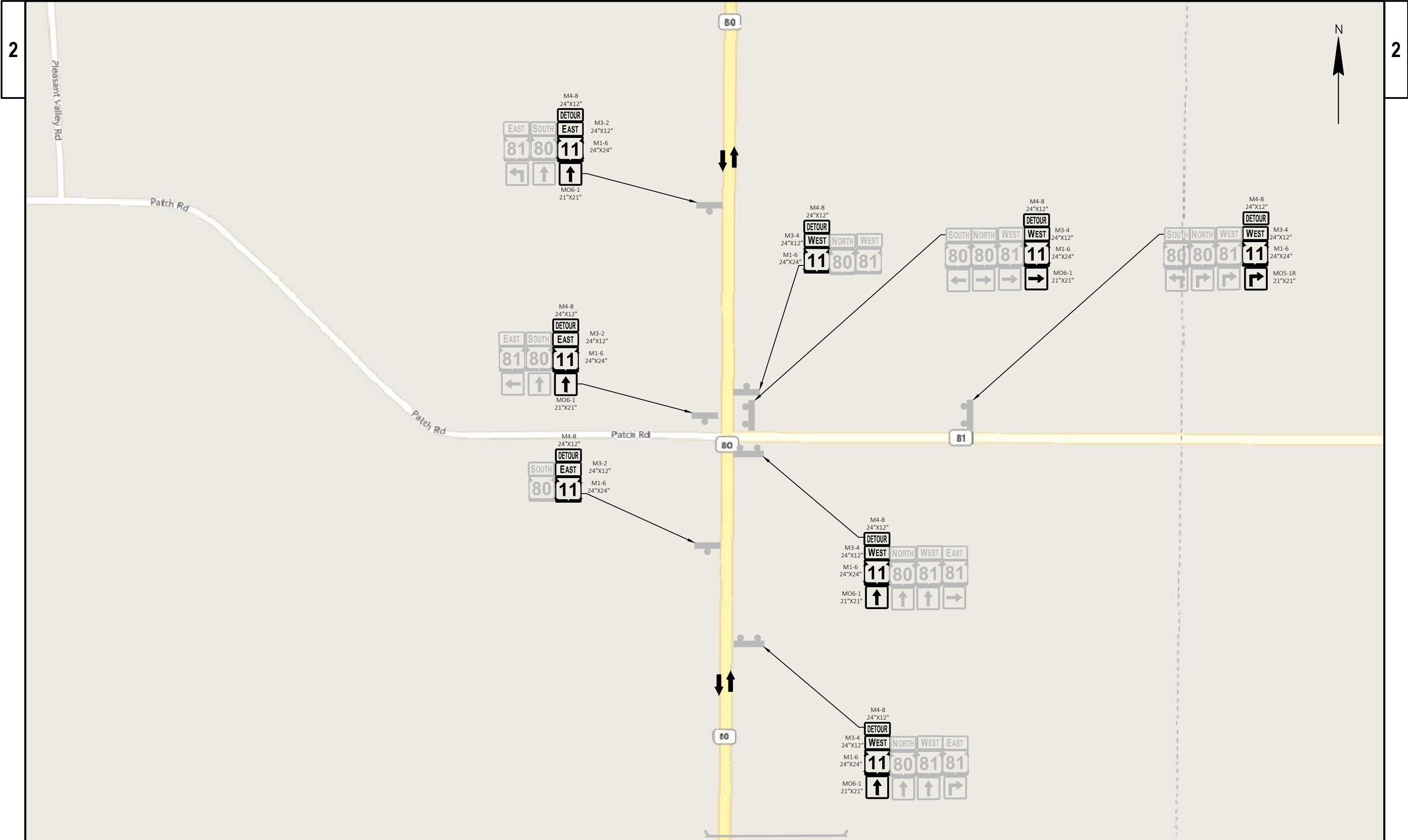
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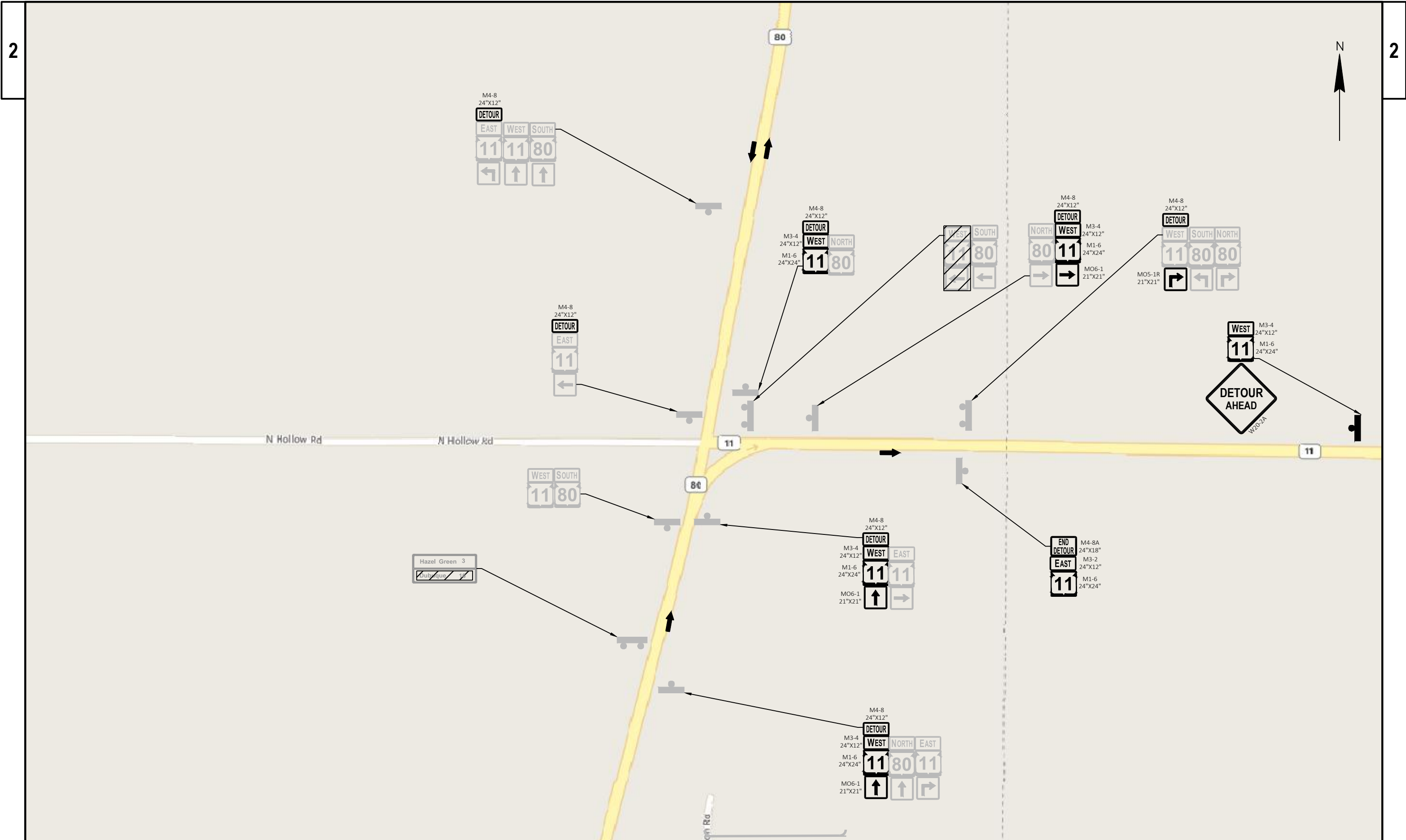
PLOT SCALE : 1 IN=8000 FT

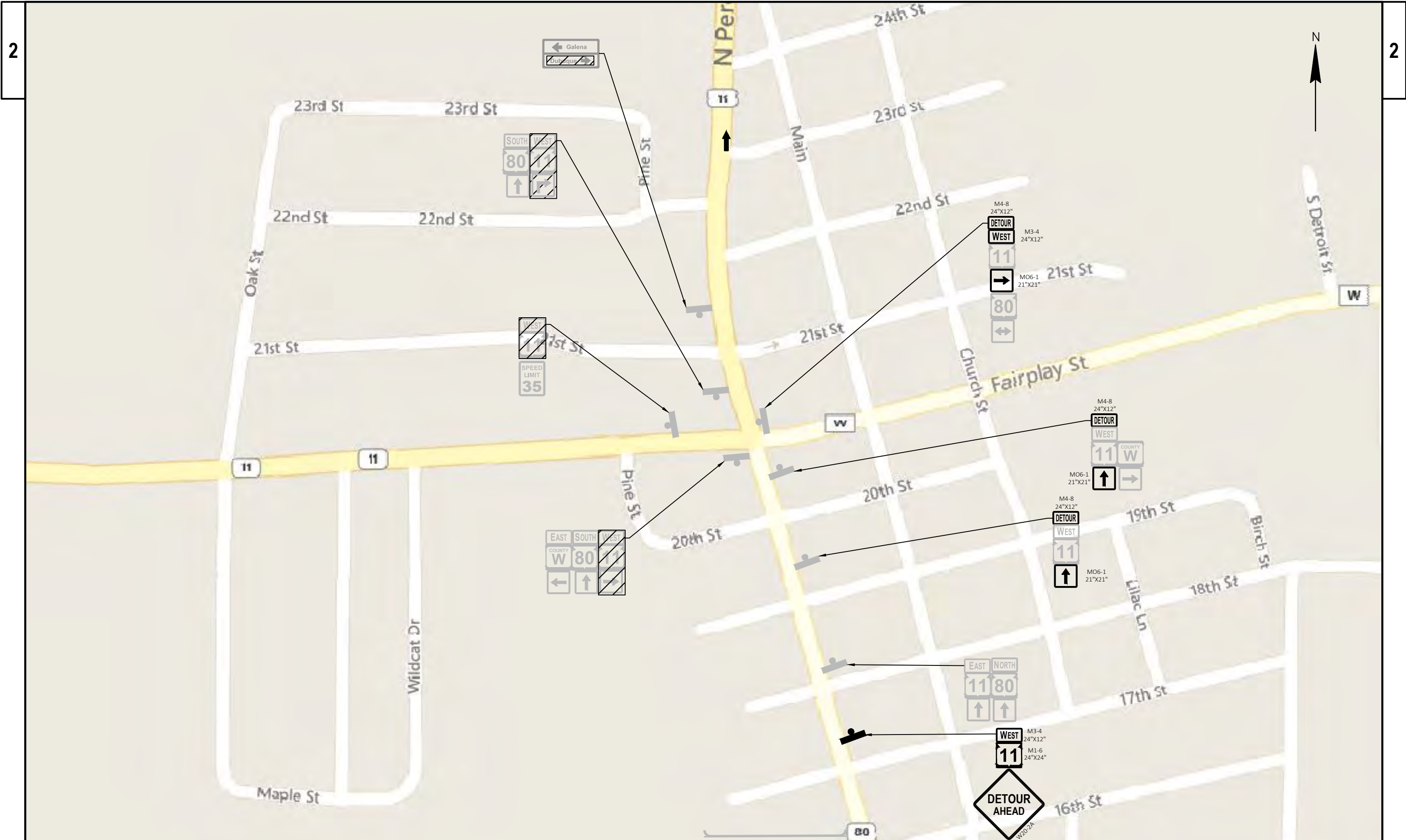
WISDOT/CADDs SHEET 42











Estimate Of Quantities

| 1706-00-70 | | | | | |
|------------|------------|--|------|-------------|-------------|
| Line | Item | Item Description | Unit | Total | Qty |
| 0002 | 203.0100 | Removing Small Pipe Culverts | EACH | 5.000 | 5.000 |
| 0004 | 203.0200 | Removing Old Structure (station) 02. 68+75.00 | LS | 1.000 | 1.000 |
| 0006 | 203.0225.S | Debris Containment (structure) 01. B-22-617 | LS | 1.000 | 1.000 |
| 0008 | 203.0500.S | Removing Old Structure Over Waterway (station) 01. 236+60 | LS | 1.000 | 1.000 |
| 0010 | 204.0115 | Removing Asphaltic Surface Butt Joints | SY | 300.000 | 300.000 |
| 0012 | 204.0120 | Removing Asphaltic Surface Milling | SY | 195,000.000 | 195,000.000 |
| 0014 | 204.0165 | Removing Guardrail | LF | 1,320.000 | 1,320.000 |
| 0016 | 204.0170 | Removing Fence | LF | 50.000 | 50.000 |
| 0018 | 205.0100 | Excavation Common | CY | 18,550.000 | 18,550.000 |
| 0020 | 206.2000 | Excavation for Structures Culverts (structure) 01. B-22-616 | LS | 1.000 | 1.000 |
| 0022 | 206.5000 | Cofferdams (structure) 01. B-22-616 | LS | 1.000 | 1.000 |
| 0024 | 210.2500 | Backfill Structure Type B | TON | 293.000 | 293.000 |
| 0026 | 211.0100 | Prepare Foundation for Asphaltic Paving (project) 01. 1706-00-70 | LS | 1.000 | 1.000 |
| 0028 | 211.0400 | Prepare Foundation for Asphaltic Shoulders | STA | 632.000 | 632.000 |
| 0030 | 213.0100 | Finishing Roadway (project) 01. 1706-00-70 | EACH | 1.000 | 1.000 |
| 0032 | 305.0110 | Base Aggregate Dense 3/4-Inch | TON | 9,600.000 | 9,600.000 |
| 0034 | 305.0120 | Base Aggregate Dense 1 1/4-Inch | TON | 13,690.000 | 13,690.000 |
| 0036 | 305.0504.S | Hauling Excess Shoulder Material | CY | 2,545.000 | 2,545.000 |
| 0038 | 415.0080 | Concrete Pavement 8-Inch | SY | 185.000 | 185.000 |
| 0040 | 415.0410 | Concrete Pavement Approach Slab | SY | 270.000 | 270.000 |
| 0042 | 450.4000 | HMA Cold Weather Paving | TON | 2,200.000 | 2,200.000 |
| 0044 | 455.0605 | Tack Coat | GAL | 27,200.000 | 27,200.000 |
| 0046 | 460.0105.S | HMA Percent Within Limits (PWL) Test Strip Volumetrics | EACH | 2.000 | 2.000 |
| 0048 | 460.0110.S | HMA Percent Within Limits (PWL) Test Strip Density | EACH | 1.000 | 1.000 |
| 0050 | 460.2000 | Incentive Density HMA Pavement | DOL | 21,120.000 | 21,120.000 |
| 0052 | 460.2005 | Incentive Density PWL HMA Pavement | DOL | 54,730.000 | 54,730.000 |
| 0054 | 460.2007 | Incentive Density HMA Pavement Longitudinal Joints | DOL | 22,340.000 | 22,340.000 |
| 0056 | 460.2010 | Incentive Air Voids HMA Pavement | DOL | 54,730.000 | 54,730.000 |
| 0058 | 460.6223 | HMA Pavement 3 MT 58-28 S | TON | 33,000.000 | 33,000.000 |
| 0060 | 460.6424 | HMA Pavement 4 MT 58-28 H | TON | 22,000.000 | 22,000.000 |
| 0062 | 465.0120 | Asphaltic Surface Driveways and Field Entrances | TON | 190.000 | 190.000 |
| 0064 | 465.0315 | Asphaltic Flumes | SY | 30.000 | 30.000 |
| 0066 | 465.0425 | Asphaltic Shoulder Rumble Strips 2-Lane Rural | LF | 90,650.000 | 90,650.000 |
| 0068 | 465.0475 | Asphalt Centerline Rumble Strips 2-Lane Rural | LF | 45,400.000 | 45,400.000 |
| 0070 | 502.3200 | Protective Surface Treatment | SY | 60.000 | 60.000 |
| 0072 | 502.4205 | Adhesive Anchors No. 5 Bar | EACH | 24.000 | 24.000 |
| 0074 | 504.0100 | Concrete Masonry Culverts | CY | 41.000 | 41.000 |

Estimate Of Quantities

1706-00-70

| Line | Item | Item Description | Unit | Total | Qty |
|------|------------|---|------|-----------|-----------|
| 0076 | 505.0400 | Bar Steel Reinforcement HS Structures | LB | 850.000 | 850.000 |
| 0078 | 505.0600 | Bar Steel Reinforcement HS Coated Structures | LB | 1,840.000 | 1,840.000 |
| 0080 | 509.0301 | Preparation Decks Type 1 | SY | 33.000 | 33.000 |
| 0082 | 509.0302 | Preparation Decks Type 2 | SY | 13.000 | 13.000 |
| 0084 | 509.0310.S | Sawing Pavement Deck Preparation Areas | LF | 330.000 | 330.000 |
| 0086 | 509.1500 | Concrete Surface Repair | SF | 309.000 | 309.000 |
| 0088 | 509.2000 | Full-Depth Deck Repair | SY | 2.000 | 2.000 |
| 0090 | 509.2100.S | Concrete Masonry Deck Repair | CY | 3.000 | 3.000 |
| 0092 | 511.1200 | Temporary Shoring (structure) 01. B-22-616 | SF | 720.000 | 720.000 |
| 0094 | 516.0500 | Rubberized Membrane Waterproofing | SY | 5.000 | 5.000 |
| 0096 | 520.1024 | Apron Endwalls for Culvert Pipe 24-Inch | EACH | 8.000 | 8.000 |
| 0098 | 520.1030 | Apron Endwalls for Culvert Pipe 30-Inch | EACH | 2.000 | 2.000 |
| 0100 | 520.3324 | Culvert Pipe Class III-A 24-Inch | LF | 332.000 | 332.000 |
| 0102 | 520.3330 | Culvert Pipe Class III-A 30-Inch | LF | 129.000 | 129.000 |
| 0104 | 520.8700 | Cleaning Culvert Pipes | EACH | 10.000 | 10.000 |
| 0106 | 603.8000 | Concrete Barrier Temporary Precast Delivered | LF | 600.000 | 600.000 |
| 0108 | 603.8125 | Concrete Barrier Temporary Precast Installed | LF | 960.000 | 960.000 |
| 0110 | 606.0200 | Riprap Medium | CY | 450.000 | 450.000 |
| 0112 | 606.0300 | Riprap Heavy | CY | 84.000 | 84.000 |
| 0114 | 606.0400 | Riprap Extra-Heavy | CY | 85.000 | 85.000 |
| 0116 | 611.0654 | Inlet Covers Type V | EACH | 2.000 | 2.000 |
| 0118 | 611.3220 | Inlets 2x2-FT | EACH | 2.000 | 2.000 |
| 0120 | 612.0206 | Pipe Underdrain Unperforated 6-Inch | LF | 31.000 | 31.000 |
| 0122 | 612.0406 | Pipe Underdrain Wrapped 6-Inch | LF | 203.000 | 203.000 |
| 0124 | 614.0010 | Barrier System Grading Shaping Finishing | EACH | 25.000 | 25.000 |
| 0126 | 614.0305 | Steel Plate Beam Guard Class A | LF | 555.000 | 555.000 |
| 0128 | 614.0370 | Steel Plate Beam Guard Energy Absorbing Terminal | EACH | 25.000 | 25.000 |
| 0130 | 614.0905 | Crash Cushions Temporary | EACH | 14.000 | 14.000 |
| 0132 | 616.0405 | Fence Chain Link Salvaged 5-FT | LF | 50.000 | 50.000 |
| 0134 | 618.0100 | Maintenance And Repair of Haul Roads (project) 01. 1706-00-70 | EACH | 1.000 | 1.000 |
| 0136 | 619.1000 | Mobilization | EACH | 1.000 | 1.000 |
| 0138 | 624.0100 | Water | MGAL | 470.000 | 470.000 |
| 0140 | 627.0200 | Mulching | SY | 5,000.000 | 5,000.000 |
| 0142 | 628.1104 | Erosion Bales | EACH | 150.000 | 150.000 |
| 0144 | 628.1504 | Silt Fence | LF | 3,900.000 | 3,900.000 |
| 0146 | 628.1520 | Silt Fence Maintenance | LF | 3,900.000 | 3,900.000 |
| 0148 | 628.1905 | Mobilizations Erosion Control | EACH | 8.000 | 8.000 |
| 0150 | 628.1910 | Mobilizations Emergency Erosion Control | EACH | 4.000 | 4.000 |
| 0152 | 628.2023 | Erosion Mat Class II Type B | SY | 6,275.000 | 6,275.000 |

Estimate Of Quantities

1706-00-70

| Line | Item | Item Description | Unit | Total | Qty |
|------|----------|---|------|-------------|-------------|
| 0154 | 628.7504 | Temporary Ditch Checks | LF | 1,025.000 | 1,025.000 |
| 0156 | 628.7555 | Culvert Pipe Checks | EACH | 30.000 | 30.000 |
| 0158 | 628.7560 | Tracking Pads | EACH | 2.000 | 2.000 |
| 0160 | 628.7570 | Rock Bags | EACH | 300.000 | 300.000 |
| 0162 | 630.0200 | Seeding Temporary | LB | 100.000 | 100.000 |
| 0164 | 630.0500 | Seed Water | MGAL | 95.000 | 95.000 |
| 0166 | 633.5200 | Markers Culvert End | EACH | 30.000 | 30.000 |
| 0168 | 638.2102 | Moving Signs Type II | EACH | 24.000 | 24.000 |
| 0170 | 638.4000 | Moving Small Sign Supports | EACH | 24.000 | 24.000 |
| 0172 | 642.5001 | Field Office Type B | EACH | 1.000 | 1.000 |
| 0174 | 643.0300 | Traffic Control Drums | DAY | 19,000.000 | 19,000.000 |
| 0176 | 643.0420 | Traffic Control Barricades Type III | DAY | 4,050.000 | 4,050.000 |
| 0178 | 643.0705 | Traffic Control Warning Lights Type A | DAY | 8,100.000 | 8,100.000 |
| 0180 | 643.0715 | Traffic Control Warning Lights Type C | DAY | 6,550.000 | 6,550.000 |
| 0182 | 643.0900 | Traffic Control Signs | DAY | 52,900.000 | 52,900.000 |
| 0184 | 643.0910 | Traffic Control Covering Signs Type I | EACH | 35.000 | 35.000 |
| 0186 | 643.0920 | Traffic Control Covering Signs Type II | EACH | 20.000 | 20.000 |
| 0188 | 643.1050 | Traffic Control Signs PCMS | DAY | 100.000 | 100.000 |
| 0190 | 643.5000 | Traffic Control | EACH | 1.000 | 1.000 |
| 0192 | 645.0120 | Geotextile Type HR | SY | 1,048.000 | 1,048.000 |
| 0194 | 645.0220 | Geogrid Type SR | SY | 7,520.000 | 7,520.000 |
| 0196 | 646.1040 | Marking Line Grooved Wet Ref Epoxy 4-Inch | LF | 91,755.000 | 91,755.000 |
| 0198 | 646.3040 | Marking Line Grooved Wet Ref Epoxy 8-Inch | LF | 170.000 | 170.000 |
| 0200 | 646.4520 | Marking Line Same Day Epoxy 4-Inch | LF | 58,815.000 | 58,815.000 |
| 0202 | 646.6120 | Marking Stop Line Epoxy 18-Inch | LF | 375.000 | 375.000 |
| 0204 | 646.6464 | Cold Weather Marking Epoxy 4-Inch | LF | 150,570.000 | 150,570.000 |
| 0206 | 646.6468 | Cold Weather Marking Epoxy 8-Inch | LF | 170.000 | 170.000 |
| 0208 | 648.0100 | Locating No-Passing Zones | MI | 9.000 | 9.000 |
| 0210 | 649.0105 | Temporary Marking Line Paint 4-Inch | LF | 91,240.000 | 91,240.000 |
| 0212 | 649.0805 | Temporary Marking Stop Line Paint 18-Inch | LF | 240.000 | 240.000 |
| 0214 | 650.4000 | Construction Staking Storm Sewer | EACH | 2.000 | 2.000 |
| 0216 | 650.5500 | Construction Staking Curb Gutter and Curb & Gutter | LF | 96.000 | 96.000 |
| 0218 | 650.6000 | Construction Staking Pipe Culverts | EACH | 5.000 | 5.000 |
| 0220 | 650.8000 | Construction Staking Resurfacing Reference | LF | 45,375.000 | 45,375.000 |
| 0222 | 650.9910 | Construction Staking Supplemental Control (project) 01.
1706-00-70 | LS | 1.000 | 1.000 |
| 0224 | 650.9920 | Construction Staking Slope Stakes | LF | 4,300.000 | 4,300.000 |
| 0226 | 690.0150 | Sawing Asphalt | LF | 560.000 | 560.000 |
| 0228 | 715.0415 | Incentive Strength Concrete Pavement | DOL | 500.000 | 500.000 |
| 0230 | 740.0440 | Incentive IRI Ride | DOL | 34,180.000 | 34,180.000 |

Estimate Of Quantities

1706-00-70

| Line | Item | Item Description | Unit | Total | Qty |
|------|----------|---|------|-----------|-----------|
| 0232 | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR | HRS | 300.000 | 300.000 |
| 0234 | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR | HRS | 1,200.000 | 1,200.000 |
| 0236 | SPV.0035 | Special 01. Salvaged Asphaltic Millings | CY | 515.000 | 515.000 |
| 0238 | SPV.0060 | Special 01. Verify Landmark Reference Monuments | EACH | 4.000 | 4.000 |
| 0240 | SPV.0060 | Special 02. Landmark Reference Monuments Special | EACH | 4.000 | 4.000 |
| 0242 | SPV.0060 | Special 03. Cleaning and Painting Bearings | EACH | 16.000 | 16.000 |
| 0244 | SPV.0060 | Special 04. Bearing Repair | EACH | 16.000 | 16.000 |
| 0246 | SPV.0090 | Special 01. Modified Concrete Curb and Gutter Type TBTT | LF | 96.000 | 96.000 |
| 0248 | SPV.0090 | Special 02. Flashing Stainless Steel | LF | 161.000 | 161.000 |
| 0250 | SPV.0090 | Special 03. Expansion Joint Seal | LF | 38.000 | 38.000 |
| 0252 | SPV.0105 | Special 03. Box Culvert Joint Repair C-22-1429 | LS | 1.000 | 1.000 |
| 0254 | SPV.0105 | Special 04. Box Culvert Joint Repair C-22-1430 | LS | 1.000 | 1.000 |
| 0256 | SPV.0105 | Special 05. Box Culvert Joint Repair C-22-1431 | LS | 1.000 | 1.000 |
| 0258 | SPV.0105 | Special 06. Vegetation Removal C-22-1429 | LS | 1.000 | 1.000 |
| 0260 | SPV.0105 | Special 07. Vegetation Removal C-22-1430 | LS | 1.000 | 1.000 |
| 0262 | SPV.0105 | Special 08. Vegetation Removal C-22-1431 | LS | 1.000 | 1.000 |
| 0264 | SPV.0105 | Special 09. Vegetation Removal R-22-7 | LS | 1.000 | 1.000 |
| 0266 | SPV.0105 | Special 10. Vegetation Removal R-22-52 | LS | 1.000 | 1.000 |
| 0268 | SPV.0165 | Special 01. Modular Block Wall Repair | SF | 52.000 | 52.000 |
| 0270 | SPV.0165 | Special 02. Wall Modular Block Gravity R-22-52 | SF | 546.000 | 546.000 |
| 0272 | SPV.0180 | Special 01. Abutment Seat Cleaning and Sealing | SY | 32.000 | 32.000 |

REMOVING SMALL PIPE CULVERTS

| CATEGORY | STATION | TO | STATION | LOCATION | 203.0100
EACH | REMARKS |
|----------|---------|----|---------|------------|------------------|---------------|
| 0010 | 218+97 | - | 218+99 | LT & RT | 1 | 30"x129' CPCS |
| 0010 | 342+13 | - | 342+16 | LT & RT | 1 | 24"x84' CPCS |
| 0010 | 350+16 | - | 350+17 | LT & RT | 1 | 24"x82' CPCS |
| 0010 | 382+71 | - | 382+73 | LT & RT | 1 | 24"x88' CPCS |
| 0010 | 440+05 | - | 440+05 | LT & RT | 1 | 24"x78 CPCS |
| | | | | TOTAL 0010 | 5 | |

REMOVING ASPHALTIC SURFACE BUTT JOINT

| CATEGORY | STATION | LOCATION | 204.0115
SY | REMARKS |
|----------|---------|------------|----------------|------------------|
| 0010 | 15+35 | LT & RT | 14 | BEGIN OF PROJECT |
| 0010 | 23+90 | 92' LT | 9 | ROCK CUT ROAD |
| 0010 | 32+91 | LT & RT | 20 | B-22-134 |
| 0010 | 34+09 | LT & RT | 20 | B-22-134 |
| 0010 | 70+04 | 86' RT | 10 | CTH Z |
| 0010 | 80+37 | LT & RT | 16 | B-22-615 |
| 0010 | 80+63 | LT & RT | 16 | B-22-615 |
| 0010 | 142+71 | 88' RT | 8 | SANDY HOOK ROAD |
| 0010 | 145+55 | 93' LT | 8 | SANDY HOOK ROAD |
| 0010 | 161+30 | 96' RT | 9 | FAIRPLAY ROAD |
| 0010 | 164+92 | 86' LT | 9 | FAIRPLAY ROAD |
| 0010 | 221+42 | 75' LT | 10 | CTH Z |
| 0010 | 221+77 | 75' RT | 10 | CTH Z |
| 0010 | 236+47 | LT & RT | 16 | B-22-616 |
| 0010 | 236+70 | LT & RT | 16 | B-22-616 |
| 0010 | 274+86 | 76' LT | 9 | LOGAN ROAD |
| 0010 | 275+18 | 82' RT | 9 | LOGAN ROAD |
| 0010 | 328+65 | 89' RT | 8 | HILL ROAD |
| 0010 | 366+71 | 64' LT | 9 | MILL ROAD |
| 0010 | 368+56 | LT & RT | 16 | B-22-617 |
| 0010 | 369+60 | LT & RT | 16 | B-22-617 |
| 0010 | 414+41 | 90' RT | 9 | PARK LANE |
| 0010 | 414+51 | 82' LT | 9 | PARK LANE |
| 0010 | 451+35 | 62' RT | 10 | CLAY LANE |
| 0010 | 471+55 | LT & RT | 14 | END OF PROJECT |
| | | TOTAL 0010 | 300 | |

REMOVING FENCE

| CATEGORY | STATION | TO | STATION | LOCATION | 204.0170
LF |
|----------|---------|----|---------|------------|----------------|
| 0010 | 382+50 | - | 383+00 | RT | 50 |
| | | | | TOTAL 0010 | 50 |

REMOVING ASPHALTIC SURFACE MILLING

| CATEGORY | STATION | TO | STATION | LOCATION | 204.0120
SY | REMARKS |
|----------|---------|----|---------|------------|----------------|---------------|
| 0010 | 15+85 | - | 32+92 | LT & RT | 7,120 | |
| 0010 | 34+09 | - | 70+04 | LT & RT | 13,813 | |
| 0010 | 70+04 | - | 80+37 | LT & RT | 4,281 | |
| 0010 | 80+63 | - | 142+71 | LT & RT | 23,757 | |
| 0010 | 142+71 | - | 145+55 | LT & RT | 1,173 | |
| 0010 | 145+55 | - | 161+30 | LT & RT | 6,017 | |
| 0010 | 161+30 | - | 164+92 | LT & RT | 1,465 | |
| 0010 | 164+92 | - | 221+60 | LT & RT | 21,628 | |
| 0010 | 221+60 | - | 275+02 | LT & RT | 20,586 | |
| 0010 | 275+02 | - | 328+65 | LT & RT | 23,178 | |
| 0010 | 328+65 | - | 368+56 | LT & RT | 19,125 | |
| 0010 | 369+60 | - | 414+46 | LT & RT | 21,374 | |
| 0010 | 414+46 | - | 451+34 | LT & RT | 14,753 | |
| 0010 | 451+34 | - | 471+55 | LT & RT | 7,722 | |
| 0010 | 15+35 | - | 471+55 | LT & RT | 9,000 | ALL SIDEROADS |
| | | | | TOTAL 0010 | 195,000 | |

REMOVING GUARDRAIL

| CATEGORY | STATION | TO | STATION | LOCATION | 204.0165
LF |
|----------|---------|----|---------|------------|----------------|
| 0010 | 28+94 | - | 29+44 | RT | 50 |
| 0010 | 29+82 | - | 30+32 | LT | 50 |
| 0010 | 34+50 | - | 34+96 | RT | 46 |
| 0010 | 34+51 | - | 34+96 | LT | 45 |
| 0010 | 43+19 | - | 43+68 | RT | 49 |
| 0010 | 47+66 | - | 48+16 | RT | 50 |
| 0010 | 68+00 | - | 69+55 | RT | 155 |
| 0010 | 70+74 | - | 71+08 | RT | 34 |
| 0010 | 79+79 | - | 80+12 | RT | 33 |
| 0010 | 80+99 | - | 81+42 | LT | 43 |
| 0010 | 81+00 | - | 81+44 | RT | 44 |
| 0010 | 233+13 | - | 233+63 | RT | 50 |
| 0010 | 234+14 | - | 234+64 | RT | 50 |
| 0010 | 235+00 | - | 235+50 | RT | 50 |
| 0010 | 237+63 | - | 238+13 | RT | 50 |
| 0010 | 369+89 | - | 370+33 | RT | 44 |
| 0010 | 369+96 | - | 370+33 | LT | 37 |
| 0010 | 442+36 | - | 443+00 | LT | 64 |
| 0010 | 443+25 | - | 443+75 | RT | 50 |
| 0010 | 444+89 | - | 445+39 | LT | 50 |
| 0010 | 451+74 | - | 452+23 | RT | 49 |
| 0010 | 461+86 | - | 462+96 | RT | 110 |
| 0010 | 463+30 | - | 463+59 | LT | 29 |
| 0010 | 463+86 | - | 464+24 | RT | 38 |
| 0010 | 465+18 | - | 465+68 | LT | 50 |
| | | | | TOTAL 0010 | 1,320 |

| EBS ITEMS | | | | | | | | |
|---|---------|----|---------|-------------|------------|------------|----------|----------------------|
| | | | | | * | * | | |
| | | | | | 205.0100 | 305.0120 | 645.0220 | |
| | | | | | | BASE | | |
| | | | | | | AGGREGATE | | |
| | | | | | EXCAVATION | DENSE | GEOGRID | |
| | | | | | COMMON | 1 1/4-INCH | TYPE SR | |
| | | | | | CY | TON | SY | |
| CATEGORY | STATION | TO | STATION | LOCATION | | | | REMARKS |
| 0010 | BEGIN | - | END | LT & RT | 7,800 | 12,440 | 7,520 | 5% OF PROJECT LENGTH |
| | | | | TOTALS 0010 | 7,800 | 12,440 | 7,520 | |
| * ADDITIONAL QUANTITIES SHOWN ELSEWHERE | | | | | | | | |

| PREPARE FOUNDATION FOR ASPHALTIC PAVING 1706-00-70 | | | | | |
|--|---------|----|---------|------------|-------------|
| | | | | | 211.0100.01 |
| CATEGORY | STATION | TO | STATION | LOCATION | LS |
| 0010 | BEGIN | - | END | LT & RT | 1 |
| | | | | TOTAL 0010 | 1 |

| PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS | | | | | |
|--|---------|----|---------|------------|----------|
| | | | | | 211.0400 |
| CATEGORY | STATION | TO | STATION | LOCATION | STA |
| 0010 | 15+85 | - | 32+92 | LT & RT | 18 |
| 0010 | 34+09 | - | 70+04 | LT & RT | 34 |
| 0010 | 70+04 | - | 80+37 | LT & RT | 11 |
| 0010 | 80+63 | - | 142+71 | LT & RT | 61 |
| 0010 | 142+71 | - | 145+55 | LT & RT | 3 |
| 0010 | 145+55 | - | 161+30 | LT & RT | 16 |
| 0010 | 161+30 | - | 164+92 | LT & RT | 4 |
| 0010 | 164+92 | - | 221+60 | LT & RT | 81 |
| 0010 | 221+60 | - | 275+02 | LT & RT | 76 |
| 0010 | 275+02 | - | 328+65 | LT & RT | 73 |
| 0010 | 328+65 | - | 368+56 | LT & RT | 75 |
| 0010 | 369+60 | - | 414+46 | LT & RT | 81 |
| 0010 | 414+46 | - | 451+34 | LT & RT | 66 |
| 0010 | 451+34 | - | 471+55 | LT & RT | 34 |
| | | | | TOTAL 0010 | 632 |

| AGGREGATE SHOULDER ITEMS | | | | | | | |
|---|---------|----|---------------|-------------|------------|----------------|----------------|
| | | | | | * | | |
| | | | | | 205.0100 | 305.0110 | 305.0504.S |
| | | | | | | BASE | HAULING EXCESS |
| | | | | | EXCAVATION | AGGREGATE | SHOULDER |
| | | | | | COMMON | DENSE 3/4-INCH | MATERIAL |
| | | | | | CY | TON | CY |
| CATEGORY | STATION | TO | STATION | LOCATION | | | |
| 0010 | 15+85 | - | 32+92 | LT & RT | -- | 222 | -- |
| 0010 | 34+09 | - | 70+04 | LT & RT | -- | 272 | -- |
| 0010 | 70+04 | - | 80+37 | LT & RT | -- | 126 | -- |
| 0010 | 80+63 | - | 142+71 | LT & RT | -- | 1,414 | -- |
| 0010 | 142+71 | - | 145+55 | LT & RT | -- | 107 | -- |
| 0010 | 145+55 | - | 161+30 | LT & RT | -- | 595 | -- |
| 0010 | 161+30 | - | 164+92 | LT & RT | -- | 137 | -- |
| 0010 | 164+92 | - | 221+60 | LT & RT | -- | 1,609 | -- |
| 0010 | 221+60 | - | 275+02 | LT & RT | -- | 1,291 | -- |
| 0010 | 275+02 | - | 328+65 | LT & RT | -- | 809 | -- |
| 0010 | 328+65 | - | 368+56 | LT & RT | -- | 810 | -- |
| 0010 | 369+60 | - | 414+46 | LT & RT | -- | 1,002 | -- |
| 0010 | 414+46 | - | 451+34 | LT & RT | -- | 968 | -- |
| 0010 | 451+34 | - | 471+55 | LT & RT | -- | 238 | -- |
| 0010 | | | UNDISTRIBUTED | | 7,400 | -- | 2,545 |
| | | | | TOTALS 0010 | 7,400 | 9,600 | 2,545 |
| * ADDITIONAL QUANTITIES SHOWN ELSEWHERE | | | | | | | |

CONCRETE ITEMS

| CATEGORY | STATION | TO | STATION | LOCATION | 415.0080 | 415.0410 |
|-------------|---------|----|---------|----------|--------------------------------------|---|
| | | | | | CONCRETE
PAVEMENT
8-INCH
SY | CONCRETE
PAVEMENT
APPROACH SLAB
SY |
| 0010 | 32+77 | - | 34+24 | LT & RT | 115 | 150 |
| 0010 | 80+22 | - | 80+78 | LT & RT | 70 | 120 |
| TOTALS 0010 | | | | | 185 | 270 |

HMA ITEMS

| CATEGORY | STATION | TO | STATION | LOCATION | 450.4000 | 455.0605 | 460.6223 | 460.6424 | 465.0120 | 465.0315 | 465.0425 | 465.0475 | REMARKS |
|-------------|---------|----|---------|----------|--------------------------------------|------------------|-------------------------------------|-------------------------------------|--|---------------------------|--|--|---------------|
| | | | | | HMA COLD
WEATHER
PAVING
TON | TACK COAT
GAL | HMA PAVEMENT
3 MT 58-28 S
TON | HMA PAVEMENT
4 MT 58-28 H
TON | ASPHALTIC
SURFACE
DRIVEWAYS AND
FIELD
ENTRANCES
TON | ASPHALTIC
FLUMES
SY | ASPHALTIC
SHOULDER
RUMBLE STRIPS
2-LANE RURAL
LF | ASPHALT
CENTERLINE
RUMBLE STRIPS
2-LANE RURAL
LF | |
| 0010 | 15+85 | - | 32+92 | LT & RT | 73 | 997 | 1,097 | 731 | 6 | -- | -- | 1,707 | |
| 0010 | 34+09 | - | 70+04 | LT & RT | 143 | 1,934 | 2,141 | 1,428 | 6 | -- | -- | 3,595 | |
| 0010 | 70+04 | - | 80+37 | LT & RT | 46 | 599 | 688 | 459 | 18 | -- | -- | 1,033 | |
| 0010 | 80+63 | - | 142+71 | LT & RT | 260 | 3,312 | 3,846 | 2,599 | 22 | -- | -- | 6,258 | |
| 0010 | 142+71 | - | 145+55 | LT & RT | 11 | 150 | 170 | 114 | 4 | -- | -- | 284 | |
| 0010 | 145+55 | - | 161+30 | LT & RT | 64 | 842 | 952 | 635 | 14 | -- | -- | 1,575 | |
| 0010 | 161+30 | - | 164+92 | LT & RT | 16 | 205 | 233 | 155 | 4 | -- | -- | 362 | |
| 0010 | 164+92 | - | 221+60 | LT & RT | 221 | 3,014 | 3,364 | 2,209 | 14 | -- | -- | 5,693 | |
| 0010 | 221+60 | - | 275+02 | LT & RT | 211 | 2,868 | 3,159 | 2,106 | 22 | -- | -- | 5,344 | |
| 0010 | 275+02 | - | 328+65 | LT & RT | 256 | 3,231 | 3,794 | 2,560 | 26 | -- | -- | 5,363 | |
| 0010 | 328+65 | - | 368+56 | LT & RT | 203 | 2,663 | 3,039 | 2,026 | 14 | -- | -- | 3,991 | |
| 0010 | 369+60 | - | 414+46 | LT & RT | 227 | 2,978 | 3,460 | 2,273 | 12 | -- | -- | 4,486 | |
| 0010 | 414+46 | - | 451+34 | LT & RT | 152 | 2,065 | 2,273 | 1,515 | 16 | -- | -- | 3,688 | |
| 0010 | 451+34 | - | 471+55 | LT & RT | 78 | 1,081 | 1,172 | 782 | 12 | 5 | -- | 2,021 | |
| 0010 | 15+35 | - | 471+55 | LT & RT | 101 | 1,260 | 1,512 | 1,008 | -- | 25 | -- | -- | ALL SIDEROADS |
| TOTALS 0010 | | | | | 2,060 | 27,200 | 30,900 | 20,600 | 190 | 30 | 0 | 45,400 | |
| 0090 | 15+85 | - | 32+92 | LT & RT | 7 | -- | 100 | 66 | -- | -- | 3,414 | -- | |
| 0090 | 34+09 | - | 70+04 | LT & RT | 12 | -- | 180 | 120 | -- | -- | 7,190 | -- | |
| 0090 | 70+04 | - | 80+37 | LT & RT | 2 | -- | 31 | 21 | -- | -- | 2,066 | -- | |
| 0090 | 80+63 | - | 142+71 | LT & RT | 15 | -- | 239 | 153 | -- | -- | 12,420 | -- | |
| 0090 | 142+71 | - | 145+55 | LT & RT | 1 | -- | 11 | 7 | -- | -- | 568 | -- | |
| 0090 | 145+55 | - | 161+30 | LT & RT | 4 | -- | 59 | 39 | -- | -- | 3,150 | -- | |
| 0090 | 161+30 | - | 164+92 | LT & RT | 1 | -- | 14 | 9 | -- | -- | 724 | -- | |
| 0090 | 164+92 | - | 221+60 | LT & RT | 21 | -- | 313 | 212 | -- | -- | 11,336 | -- | |
| 0090 | 221+60 | - | 275+02 | LT & RT | 20 | -- | 293 | 199 | -- | -- | 10,684 | -- | |
| 0090 | 275+02 | - | 328+65 | LT & RT | 13 | -- | 197 | 130 | -- | -- | 10,726 | -- | |
| 0090 | 328+65 | - | 368+56 | LT & RT | 11 | -- | 158 | 105 | -- | -- | 7,982 | -- | |
| 0090 | 369+60 | - | 414+46 | LT & RT | 11 | -- | 165 | 110 | -- | -- | 8,972 | -- | |
| 0090 | 414+46 | - | 451+34 | LT & RT | 15 | -- | 216 | 145 | -- | -- | 7,376 | -- | |
| 0090 | 451+34 | - | 471+55 | LT & RT | 8 | -- | 125 | 84 | -- | -- | 4,042 | -- | |
| TOTALS 0090 | | | | | 140 | 0 | 2,100 | 1,400 | 0 | 0 | 90,650 | 0 | |

HMA PERCENT WITHIN LIMITS ITEMS

| CATEGORY | STATION | TO | STATION | LOCATION | 460.0105.S | 460.0110.S |
|----------|---------|----|---------|-------------|---|---|
| | | | | | HMA PERCENT
WITHIN LIMITS
(PWL) TEST STRIP
VOLUMETRICS
EACH | HMA PERCENT
WITHIN LIMITS
(PWL) TEST STRIP
DENSITY
EACH |
| 0010 | BEGIN | - | END | LT & RT | 2 | 1 |
| | | | | TOTALS 0010 | 2 | 1 |

PWL MIXTURE USE TABLE

| ROADWAY | LOCATION | STATION | MIXTURE USE | UNDERLYING SURFACE | BID ITEM | TONS | THICKNESS | QUALITY MANAGEMENT PROGRAM TO BE USED FOR: | |
|---------|---------------------------------------|-----------------|-------------|--|--------------|--------|-----------|--|--|
| | | | | | | | | MIXTURE ACCEPTANCE | DENSITY ACCEPTANCE |
| STH 11 | 12-FOOT
EB LANE | 15+80 - 471+55 | UPPER LAYER | 3 MT 58-28 S | 4 MT 58-28 H | 7,380 | 2.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | PWL INCENTIVE DENSITY HMA
PAVEMENT 460.2005 |
| STH 11 | 12-FOOT
EB LANE | 15+80 - 471+55 | LOWER LAYER | PULVERIZED ASPHALTIC SURFACE/
ASPHALTIC PAVEMENT, BASE COURSE | 3 MT 58-28 S | 11,060 | 3.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | INCENTIVE DENSITY HMA
PAVEMENT 460.2000 |
| STH 11 | 12-FOOT
WB LANE | 15+80 - 471+55 | UPPER LAYER | 3 MT 58-28 S | 4 MT 58-28 H | 6,810 | 2.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | PWL INCENTIVE DENSITY HMA
PAVEMENT 460.2005 |
| STH 11 | 12-FOOT
WB LANE | 15+80 - 471+55 | LOWER LAYER | PULVERIZED ASPHALTIC SURFACE/
ASPHALTIC PAVEMENT, BASE COURSE | 3 MT 58-28 S | 10,210 | 3.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | INCENTIVE DENSITY HMA
PAVEMENT 460.2000 |
| STH 11 | 12-FOOT
EB CLIMBING LANE | 378+00 - 425+00 | UPPER LAYER | 3 MT 58-28 S | 4 MT 58-28 H | 710 | 2.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | PWL INCENTIVE DENSITY HMA
PAVEMENT 460.2005 |
| STH 11 | 12-FOOT
EB CLIMBING LANE | 378+00 - 425+00 | LOWER LAYER | PULVERIZED ASPHALTIC SURFACE/
ASPHALTIC PAVEMENT, BASE COURSE | 3 MT 58-28 S | 1,060 | 3.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | INCENTIVE DENSITY HMA
PAVEMENT 460.2000 |
| STH 11 | 12-FOOT
WB CLIMBING LANE | 304+00 - 361+75 | UPPER LAYER | 3 MT 58-28 S | 4 MT 58-28 H | 870 | 2.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | PWL INCENTIVE DENSITY HMA
PAVEMENT 460.2005 |
| STH 11 | 12-FOOT
WB CLIMBING LANE | 304+00 - 361+75 | LOWER LAYER | PULVERIZED ASPHALTIC SURFACE/
ASPHALTIC PAVEMENT, BASE COURSE | 3 MT 58-28 S | 1,300 | 3.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | INCENTIVE DENSITY HMA
PAVEMENT 460.2000 |
| STH 11 | 5-FOOT TO 10-FOOT
OUTSIDE SHOULDER | 15+35 - 471+55 | UPPER LAYER | 3 MT 58-28 S | 4 MT 58-28 H | 6,250 | 2.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | ACCEPTANCE TESTING BY THE
DEPARTMENT; NOT ELIGIBLE
FOR INCENTIVE |
| STH 11 | 5-FOOT TO 10-FOOT
OUTSIDE SHOULDER | 15+35 - 471+55 | LOWER LAYER | PULVERIZED ASPHALTIC SURFACE/
ASPHALTIC PAVEMENT, BASE COURSE/
CRUSHED AGGREGATE BASE COURSE | 3 MT 58-28 S | 9,370 | 3.0" | PWL INCENTIVE AIR VOIDS
HMA PAVEMENT 460.2010 | INCENTIVE DENSITY HMA
PAVEMENT 460.2000 |

| CULVERT PIPE ITEMS | | | | | | | | | | | | | |
|---|--------------|----|---------|----------|------------|----------|--------------|--------------|--------------|--------------|---------------|-------------|---------------|
| | | | | | * | * | | | | | | | |
| | | | | | 205.0100 | 305.0120 | 520.1024 | 520.1030 | 520.3324 | 520.3330 | 520.8700 | 633.5200 | SPV.0035.01 |
| | | | | | EXCAVATION | BASE | ENDWALLS FOR | ENDWALLS FOR | CULVERT PIPE | CULVERT PIPE | CLEANING | MARKERS | (01. SALVAGED |
| | | | | | COMMON | DENSE | CULVERT PIPE | CULVERT PIPE | CLASS III-A | CLASS III-A | CULVERT PIPES | CULVERT END | ASPHALTIC |
| CATEGORY | STATION | TO | STATION | LOCATION | CY | TON | 24-INCH | 30-INCH | 24-INCH | 30-INCH | EACH | EACH | CY |
| 0010 | 57+45 | - | 57+45 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| 0010 | 62+95 | - | 62+95 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| 0010 | 73+10 | - | 73+10 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| 0010 | 98+03 | - | 98+03 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | 2 | -- |
| 0010 | 110+20 | - | 110+20 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| 0010 | 115+65 | - | 115+65 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | -- | -- |
| 0010 | 126+80 | - | 126+80 | LT & RT | -- | -- | -- | -- | -- | -- | 1 | 2 | -- |
| 0010 | 218+97 | - | 218+99 | LT & RT | 660 | 220 | -- | 2 | -- | 129 | -- | 2 | 80 |
| 0010 | 342+13 | - | 342+16 | LT & RT | 675 | 245 | 2 | -- | 84 | -- | -- | 2 | 110 |
| 0010 | 350+16 | - | 350+17 | LT & RT | 870 | 245 | 2 | -- | 82 | -- | -- | 2 | 110 |
| 0010 | 382+71 | - | 382+73 | LT & RT | 630 | 245 | 2 | -- | 88 | -- | -- | 2 | 110 |
| 0010 | 419+08 | - | 419+08 | LT & RT | -- | -- | -- | -- | -- | -- | -- | 2 | -- |
| 0010 | 428+75 | - | 428+75 | LT & RT | -- | -- | -- | -- | -- | -- | -- | 2 | -- |
| 0010 | 440+05 | - | 440+05 | LT & RT | 475 | 220 | 2 | -- | 78 | -- | -- | 2 | 104 |
| 0010 | UNDISRIBUTED | | | | 40 | 75 | -- | -- | -- | -- | 3 | 12 | -- |
| TOTALS 0010 | | | | | 3,350 | 1,250 | 8 | 2 | 332 | 129 | 10 | 30 | 515 |
| * ADDITIONAL QUANTITIES SHOWN ELSEWHERE | | | | | | | | | | | | | |

| INLET ITEMS | | | | | | | | |
|-------------|---------|----|---------|----------|--------------|---------------|---------------|--|
| | | | | | 611.0654 | 611.3220 | SPV.0090.01 | |
| | | | | | INLET COVERS | INLETS 2X2-FT | SPECIAL (01. | |
| | | | | | TYPE V | | MODIFIED | |
| | | | | | EACH | EACH | CONCRETE CURB | |
| | | | | | | | AND GUTTER | |
| CATEGORY | STATION | TO | STATION | LOCATION | | | TYPE TBTT) | |
| | | | | | | | LF | |
| 0010 | 32+31 | - | 32+79 | LT & RT | 2 | 2 | 96 | |
| TOTALS 0010 | | | | | 2 | 2 | 96 | |

| TEMPORARY BARRIER ITEMS | | | | | | | | | | | | | | |
|------------------------------------|---------|----|---------|----------|--|--|--|---------------|------------------------------|---------------------|----------------------|---------------------|---------------------------------------|---|
| CATEGORY | STATION | TO | STATION | LOCATION | 603.8000 | 603.8125 | 614.0905 | ** | ** | ** | ** | ** | ** | REMARKS |
| | | | | | CONCRETE
BARRIER
TEMPORARY
PRECAST
DELIVERED | CONCRETE
BARRIER
TEMPORARY
PRECAST
INSTALLED | CRASH
CUSHIONS
TEMPORARY
EACH | | | | | | | |
| | | | | | LF | LF | FT | BACK
WIDTH | OBJECT
MARKING
PATTERN | CRASH TEST
LEVEL | TRAFFIC
DIRECTION | TRAFFIC
LOCATION | CRASH CUSHION
SHIELDS | |
| 0010 | 67+18 | - | 69+55 | RT | 240 | 240 | 2 | 4 | OM-3L/
OM-3R | TL-3 | BIDIRECTIONAL | R | CONCRETE BARRIER
TEMPORARY PRECAST | |
| 0010 | 32+27 | - | 34+75 | LT & RT | 130 | 260 | 4 | 4 | OM-3L/
OM-3R | TL-3 | BIDIRECTIONAL | L & R | CONCRETE BARRIER
TEMPORARY PRECAST | B-22-134/CRASH CUSHIONS TO BE
REINSTALLED ON OPPOSITE SIDE |
| 0010 | 79+72 | - | 81+28 | LT & RT | 130 | 260 | 4 | 4 | OM-3L/
OM-3R | TL-3 | BIDIRECTIONAL | L & R | CONCRETE BARRIER
TEMPORARY PRECAST | B-22-615/CRASH CUSHIONS TO BE
REINSTALLED ON OPPOSITE SIDE |
| 0010 | 368+10 | - | 370+15 | LT & RT | 100 | 200 | 4 | 4 | OM-3L/
OM-3R | TL-3 | BIDIRECTIONAL | L & R | CONCRETE BARRIER
TEMPORARY PRECAST | B-22-617/CRASH CUSHIONS TO BE
REINSTALLED ON OPPOSITE SIDE |
| TOTALS 0010 | | | | | 600 | 960 | 14 | | | | | | | |
| ** FOR INFORMATIONAL PURPOSES ONLY | | | | | | | | | | | | | | |

| BEAM GUARD ITEMS | | | | | | | | | | | | | | |
|----------------------------------|---------|----|---------|----------|--|-----------------|------------------------------|--------------------------------|------------------------------------|--------------------------------------|------|-----|------|--|
| CATEGORY | STATION | TO | STATION | LOCATION | 614.0010 | | | | | 614.0305 | | | | 614.0370 |
| | | | | | BARRIER SYSTEM GRADING SHAPING FINISHING | | | | | STEEL PLATE
BEAM GUARD
CLASS A | | | | STEEL PLATE
BEAM GUARD
ENERGY
ABSORBING
TERMINAL |
| | | | | | EXCAVATION
COMMON
CY** | BORROW
CY ** | SALVAGED
TOPSOIL
SY ** | FERTILIZER
TYPE B
CWT ** | SEEDING
MIXTURE NO. 30
LB ** | MULCHING
SY ** | EACH | LF | EACH | |
| 0010 | 28+94 | - | 29+44 | RT | 1 | 11 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 29+82 | - | 30+32 | LT | 1 | 18 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 34+50 | - | 35+00 | RT | 3 | 4 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 34+51 | - | 35+01 | LT | -- | 3 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 43+19 | - | 43+68 | RT | -- | 2 | 195 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 47+66 | - | 48+16 | RT | 4 | -- | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 68+00 | - | 69+55 | RT | 1 | 17 | 615 | 0.9 | 14 | -- | 1 | 105 | 1 | |
| 0010 | 70+74 | - | 71+24 | RT | -- | 88 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 79+61 | - | 80+12 | RT | 1 | 632 | 205 | 0.3 | 6 | -- | 1 | -- | 1 | |
| 0010 | 80+99 | - | 83+00 | LT | -- | 158 | 800 | 1.2 | 18 | -- | 1 | 151 | 1 | |
| 0010 | 81+00 | - | 81+51 | RT | -- | 158 | 205 | 0.3 | 6 | -- | 1 | -- | 1 | |
| 0010 | 233+13 | - | 233+63 | RT | 1 | 7 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 234+13 | - | 234+63 | RT | -- | 8 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 235+00 | - | 235+50 | RT | -- | 12 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 237+63 | - | 238+13 | RT | -- | 8 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 369+89 | - | 370+39 | RT | -- | 19 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 369+96 | - | 372+00 | LT | 9 | 61 | 810 | 1.2 | 18 | -- | 1 | 154 | 1 | |
| 0010 | 442+14 | - | 443+00 | LT | -- | 73 | 345 | 0.5 | 8 | -- | 1 | 35 | 1 | |
| 0010 | 443+25 | - | 444+23 | RT | -- | 59 | 390 | 0.6 | 8 | -- | 1 | 50 | 1 | |
| 0010 | 444+89 | - | 445+39 | LT | -- | 12 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 451+74 | - | 452+23 | RT | -- | 35 | 195 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 461+86 | - | 462+96 | RT | -- | 19 | 440 | 0.7 | 10 | -- | 1 | 60 | 1 | |
| 0010 | 463+09 | - | 463+59 | LT | 1 | 46 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 463+86 | - | 464+36 | RT | 3 | 28 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| 0010 | 465+18 | - | 465+68 | LT | 1 | 32 | 200 | 0.3 | 4 | -- | 1 | -- | 1 | |
| TOTALS 0010 | | | | | 26 | 1,510 | 7,200 | 10.8 | 156 | 0 | 25 | 555 | 25 | |
| ** FOR INFORMATION PURPOSES ONLY | | | | | | | | | | | | | | |

3

| FENCE CHAIN LINK SALVAGED 5-FT | | | | | |
|--------------------------------|---------|----|---------|------------|----------------|
| CATEGORY | STATION | TO | STATION | LOCATION | 616.0405
LF |
| 0010 | 382+50 | - | 383+00 | RT | 50 |
| | | | | TOTAL 0010 | 50 |

| WATER | | | | | |
|----------|---------|----|---------|------------|------------------|
| CATEGORY | STATION | TO | STATION | LOCATION | 624.0100
MGAL |
| 0010 | BEGIN | - | END | LT & RT | 470 |
| | | | | TOTAL 0010 | 470 |

3

| EROSION CONTROL ITEMS | | | | | | | | | | | | | | | | |
|-----------------------|---------------|----|---------|----------|---------------|---------------|------------|-------------|---------------|---------------|-----------------|--------------|--------------|---------------|-----------|------------|
| | | | | | 606.0200 | 628.1104 | 628.1504 | 628.1520 | 628.1905 | 628.1910 | 628.2023 | 628.7504 | 628.7555 | 628.7560 | 628.7570 | 645.0120 |
| | | | | | | | | SILT FENCE | MOBILIZATIONS | MOBILIZATIONS | | | | | | |
| | | | | | RIPRAP MEDIUM | EROSION BALES | SILT FENCE | MAINTENANCE | EROSION | EROSION | EROSION MAT | TEMPORARY | CULVERT PIPE | TRACKING PADS | ROCK BAGS | GEOTEXTILE |
| CATEGORY | STATION | TO | STATION | LOCATION | CY | EACH | LF | LF | CONTROL | CONTROL | CLASS II TYPE B | DITCH CHECKS | CHECKS | EACH | EACH | TYPE HR |
| 0010 | 15+35 | - | 70+25 | LT & RT | -- | -- | 1,002 | 1,002 | -- | -- | 787 | 60 | -- | -- | 34 | -- |
| 0010 | 70+25 | - | 86+00 | LT & RT | -- | -- | 543 | 543 | -- | -- | 1,727 | 120 | -- | -- | 34 | -- |
| 0010 | 214+00 | - | 221+50 | LT & RT | 43 | -- | -- | -- | -- | -- | -- | 90 | 1 | -- | 4 | 64 |
| 0010 | 221+50 | - | 275+00 | LT & RT | -- | -- | 476 | 476 | -- | -- | 805 | 75 | 1 | 1 | 38 | -- |
| 0010 | 329+00 | - | 367+00 | LT & RT | 86 | -- | -- | -- | -- | -- | -- | 120 | 2 | -- | 6 | 128 |
| 0010 | 367+00 | - | 414+50 | LT & RT | 52 | -- | 268 | 268 | -- | -- | 681 | 105 | 2 | -- | 51 | 78 |
| 0010 | 414+50 | - | 471+55 | LT & RT | 245 | -- | 827 | 827 | -- | -- | 1,701 | 240 | 1 | 1 | 71 | 366 |
| 0010 | UNDISTRIBUTED | | | | 24 | 150 | 784 | 784 | 8 | 4 | 574 | 215 | 23 | -- | 62 | 74 |
| TOTALS 0010 | | | | | 450 | 150 | 3,900 | 3,900 | 8 | 4 | 6,275 | 1,025 | 30 | 2 | 300 | 710 |

| <u>RESTORATION ITEMS</u> | | | | | | | |
|--------------------------|---------|---------------|---------|-------------|----------|-----------|----------|
| | | | | | 627.0200 | 630.0200 | 630.0500 |
| | | | | | MULCHING | SEEDING | SEED |
| CATEGORY | STATION | TO | STATION | LOCATION | SY | TEMPORARY | WATER |
| | | | | | | LB | MGAL |
| 0010 | 15+35 | - | 70+25 | LT & RT | -- | -- | 9 |
| 0010 | 70+25 | - | 86+00 | LT & RT | -- | -- | 20 |
| 0010 | 221+50 | - | 275+00 | LT & RT | -- | -- | 10 |
| 0010 | 367+00 | - | 414+50 | LT & RT | -- | -- | 8 |
| 0010 | 414+50 | - | 471+55 | LT & RT | -- | -- | 20 |
| 0010 | | UNDISTRIBUTED | | | 5,000 | 100 | 28 |
| | | | | TOTALS 0010 | 5,000 | 100 | 95 |

| TRAFFIC CONTROL ITEMS | | | | | | | | | | | | | | | | | | | |
|-----------------------|------|---------------|----|---------|----------|-----------------|-------|---------------------|-------|-----------------------|-------|-----------------------|-------|-----------------|-------|-----------------|-----|-------------------------|-----|
| CATEGORY | DAYS | STATION | TO | STATION | LOCATION | 643.0300 | | 643.0420 | | 643.0705 | | 643.0715 | | *
643.0900 | | 643.1050 | | 649.0805 | |
| | | | | | | TRAFFIC CONTROL | | TRAFFIC CONTROL | | TRAFFIC CONTROL | | TRAFFIC CONTROL | | TRAFFIC CONTROL | | TRAFFIC CONTROL | | TEMPORARY MARKING | |
| | | | | | | DRUMS | | BARRICADES TYPE III | | WARNING LIGHTS TYPE A | | WARNING LIGHTS TYPE C | | SIGNS | | SIGNS PCMS | | STOP LINE PAINT 18-INCH | |
| | | | | | | EACH ** | DAY | EACH ** | DAY | EACH ** | DAY | EACH ** | DAY | EACH ** | DAY | EACH ** | DAY | EACH ** | DAY |
| 110 | | | | | | | | | | | | | | | | | | | |
| 0010 | | 15+35 | - | 70+25 | LT & RT | 30 | 3,300 | 10 | 1,100 | 20 | 2,200 | -- | -- | 40 | 4,400 | 1 | 14 | 30 | |
| 0010 | | 70+25 | - | 86+00 | LT & RT | -- | -- | 2 | 220 | 4 | 440 | -- | -- | 22 | 2,420 | -- | -- | 30 | |
| 0010 | | 86+00 | - | 214+00 | LT & RT | -- | -- | -- | -- | -- | -- | -- | -- | 4 | 440 | -- | -- | -- | |
| 0010 | | 214+00 | - | 221+50 | LT & RT | 20 | 2,200 | 2 | 220 | 4 | 440 | 10 | 1,100 | 24 | 2,640 | 2 | 28 | 30 | |
| 0010 | | 221+50 | - | 275+00 | LT & RT | 10 | 1,100 | -- | -- | -- | -- | -- | -- | 5 | 550 | -- | -- | -- | |
| 0010 | | 329+00 | - | 367+00 | LT & RT | 40 | 4,400 | 4 | 440 | 8 | 880 | 20 | 2,200 | 46 | 5,060 | -- | -- | 60 | |
| 0010 | | 367+00 | - | 414+50 | LT & RT | 20 | 2,200 | 4 | 440 | 8 | 880 | 10 | 1,100 | 44 | 4,840 | -- | -- | 60 | |
| 0010 | | 414+50 | - | 471+55 | LT & RT | 30 | 3,300 | 10 | 1,100 | 20 | 2,200 | 10 | 1,100 | 35 | 3,850 | 1 | 14 | 30 | |
| 0010 | | UNDISTRIBUTED | | | | | 2,500 | | 530 | | 1,060 | | 1,050 | | 3,650 | | 44 | | -- |
| TOTALS 0010 | | | | | | 19,000 | | 4,050 | | 8,100 | | 6,550 | | 27,850 | | 100 | | 240 | |

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE
** FOR INFORMATIONAL PURPOSES ONLY

| TRAFFIC CONTROL ITEMS | | | | | | | |
|-----------------------|---------|----|---------|----------|--------------|---------------|---------------|
| CATEGORY | STATION | TO | STATION | LOCATION | 638.2102 | 638.4000 | 648.0100 |
| | | | | | MOVING SIGNS | MOVING SMALL | LOCATING NO- |
| | | | | | TYPE II | SIGN SUPPORTS | PASSING ZONES |
| | | | | | EACH | EACH | MI |
| 0010 | BEGIN | - | END | LT & RT | 24 | 24 | 9 |
| TOTALS 0010 | | | | | 24 | 24 | 9 |

| DETOUR ITEMS | | | | | | | | | | |
|--------------------------------|------|--------------------------|---------|--------|------|----------|---------|------|----------|---------|
| * | | | | | | | | | | |
| 643.0900 | | | | | | | | | | |
| TRAFFIC CONTROL | | | | | | | | | | |
| SIGNS | | | | | | | | | | |
| 643.0910 | | | | | | | | | | |
| TRAFFIC CONTROL COVERING SIGNS | | | | | | | | | | |
| TYPE I | | | | | | | | | | |
| NUMBER | | | | | | | | | | |
| OF | | | | | | | | | | |
| CYCLES** | | | | | | | | | | |
| NUMBER | | | | | | | | | | |
| OF | | | | | | | | | | |
| SIGNS** | | | | | | | | | | |
| 643.0920 | | | | | | | | | | |
| TRAFFIC CONTROL COVERING SIGNS | | | | | | | | | | |
| TYPE II | | | | | | | | | | |
| NUMBER | | | | | | | | | | |
| OF | | | | | | | | | | |
| CYCLES** | | | | | | | | | | |
| NUMBER | | | | | | | | | | |
| OF | | | | | | | | | | |
| SIGNS** | | | | | | | | | | |
| CATEGORY | DAYS | LOCATION | EACH ** | DAY | EACH | CYCLES** | SIGNS** | EACH | CYCLES** | SIGNS** |
| | 110 | | | | | | | | | |
| 0010 | | USH 151 & STH 35 | 36 | 3,960 | 9 | 1 | 9 | 17 | 1 | 17 |
| 0010 | | USH 151 & BADGER ROAD | 12 | 1,320 | -- | -- | -- | -- | -- | -- |
| 0010 | | USH 151 & EAGLE POINT RD | 12 | 1,320 | -- | -- | -- | -- | -- | -- |
| 0010 | | USH 151 & CTH H | 16 | 1,760 | -- | -- | -- | -- | -- | -- |
| 0010 | | USH 151 & STH 61/35 | 16 | 1,760 | -- | -- | -- | -- | -- | -- |
| 0010 | | USH 151 & STH 80/81 | 41 | 4,510 | -- | -- | -- | -- | -- | -- |
| 0010 | | STH 80 & STH 81 | 30 | 3,300 | -- | -- | -- | -- | -- | -- |
| 0010 | | STH 81 & STH 11 EAST | 25 | 2,750 | 4 | 1 | 4 | -- | -- | -- |
| 0010 | | STH 80 & STH 11 WEST | 10 | 1,100 | 9 | 1 | 9 | -- | -- | -- |
| 0010 | | UNDISTRIBUTED | | 3,270 | 13 | 1 | 13 | 3 | 1 | 3 |
| | | TOTALS 0010 | | 25,050 | 35 | | | 20 | | |

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

** FOR INFORMATION PURPOSES ONLY

| CONSTRUCTION STAKING ITEMS | | | | | | | | | | |
|----------------------------|---------|----|---------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | 650.4000 | 650.5500 | 650.6000 | 650.8000 | 650.9910 | 650.9920 |
| | | | | | CONSTRUCTION | CONSTRUCTION | CONSTRUCTION | CONSTRUCTION | CONSTRUCTION | CONSTRUCTION |
| | | | | | STAKING | STAKING CURB | STAKING PIPE | STAKING | STAKING | STAKING |
| | | | | | STORM SEWER | GUTTER AND | CULVERTS | RESURFACING | SUPPLEMENTAL | SLOPE |
| | | | | | EACH | LF | EACH | LF | LS | LF |
| CATEGORY | STATION | TO | STATION | LOCATION | | | | | | |
| 0010 | BEGIN | - | END | LT & RT | 2 | 96 | 5 | 45,375 | 1 | 4,300 |
| | | | | TOTALS 0010 | 2 | 96 | 5 | 45,375 | 1 | 4,300 |

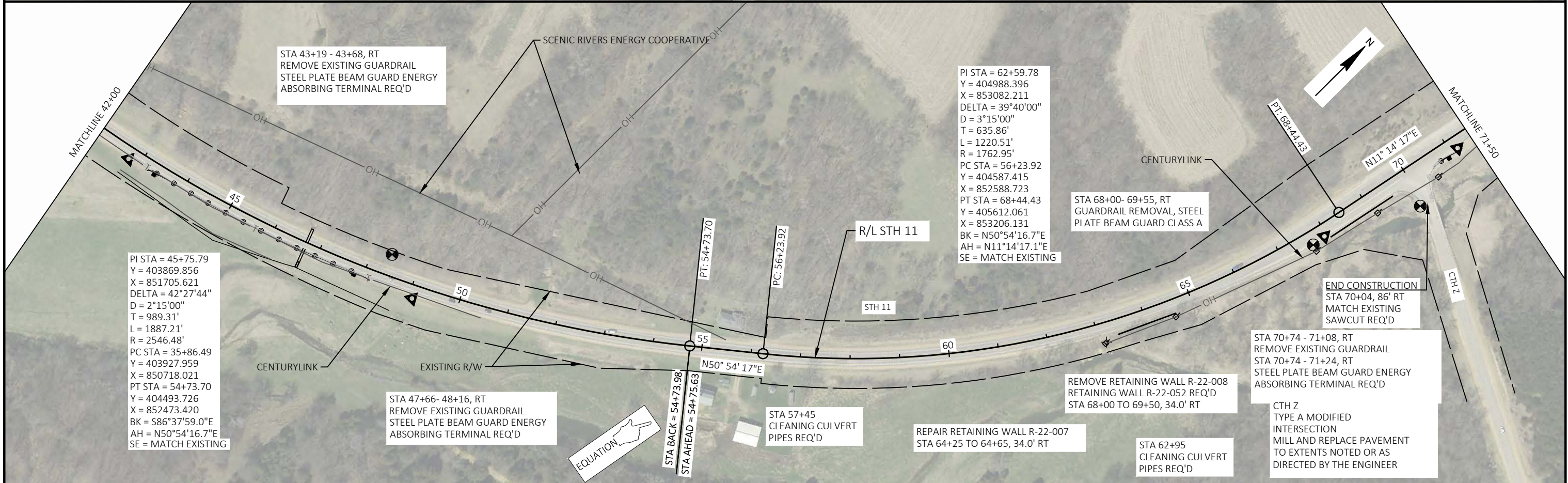
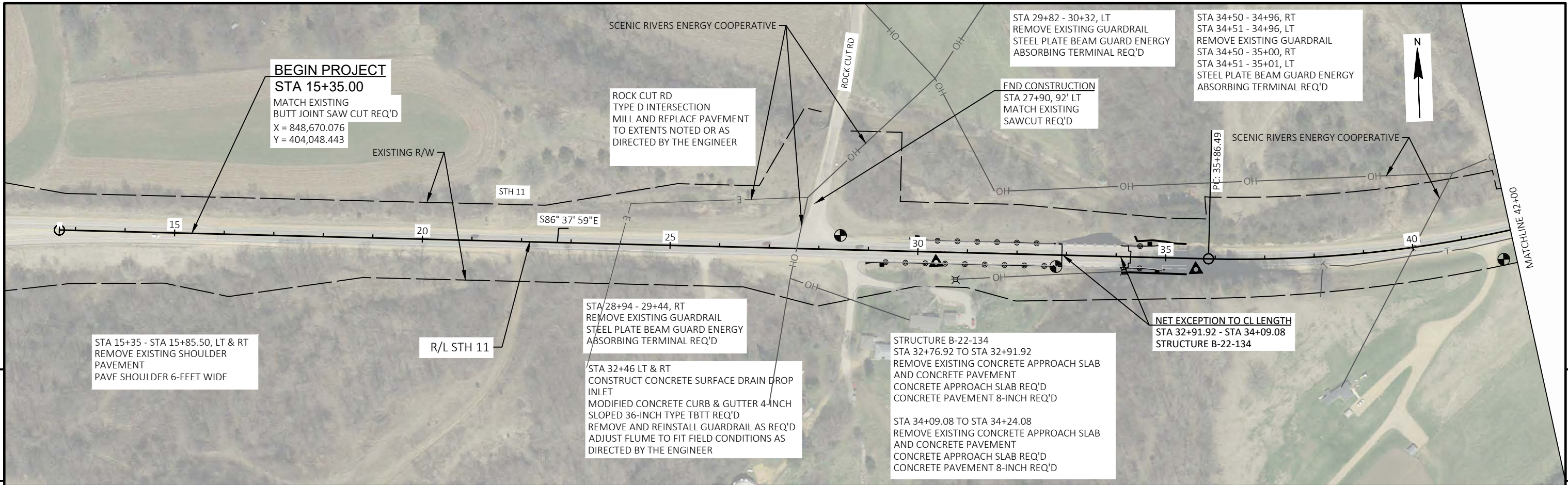
| TEMPORARY AND PERMANENT MARKING ITEMS | | | | | | | | | | | | | | | |
|---------------------------------------|---------|----|---------|-------------|--------------|--------------|------------------------------------|--------|----------------|--------------|---------------|---------|---------------|--------------|--------------------|
| CATEGORY | STATION | TO | STATION | LOCATION | 646.1040 | 646.3040 | 646.4520 | | | 646.6120 | 646.6464 | | 646.6468 | 649.0105 | REMARKS |
| | | | | | MARKING LINE | MARKING LINE | | | | MARKING STOP | COLD WEATHER | | COLD WEATHER | TEMPORARY | |
| | | | | | GROOVED WET | GROOVED WET | MARKING LINE SAME DAY EPOXY 4-INCH | | | LINE EPOXY | MARKING EPOXY | | MARKING EPOXY | MARKING LINE | |
| | | | | | REF EPOXY | REF EPOXY | | | | 18-INCH | 4-INCH | | 8-INCH | PAINT | |
| | | | | | 4-INCH | 8-INCH | | | | | | | | 4-INCH | |
| | | | | | | | DASHED YELLOW | | DASHED WHITE | | | | | | |
| | | | | | | | 12.5-FOOT LINE | | 12.5-FOOT LINE | | | | | | |
| | | | | | WHITE | WHITE | 37.5-FOOT SKIP | YELLOW | 37.5-FOOT SKIP | WHITE | WHITE | YELLOW | WHITE | WHITE | |
| | | | | | LF | LF | LF | LF | LF | LF | LF | LF | LF | LF | |
| 0010 | 15+35 | - | 31+50 | LT & RT | 3,230 | -- | 405 | -- | -- | -- | 3,230 | 405 | -- | 3,230 | |
| 0010 | 31+50 | - | 36+50 | LT & RT | 1,000 | -- | 125 | 500 | -- | -- | 1,000 | 625 | -- | 1,000 | |
| 0010 | 36+50 | - | 88+00 | LT & RT | 10,300 | -- | -- | 10,300 | -- | -- | 10,300 | 10,300 | -- | 10,300 | |
| 0010 | 69+08 | - | 70+73 | LT & RT | -- | 170 | -- | -- | -- | -- | -- | -- | 170 | -- | CTH Z INTERSECTION |
| 0010 | 69+28 | - | 71+85 | LT & RT | 515 | -- | 65 | 260 | -- | -- | 515 | 325 | -- | -- | |
| 0010 | 88+00 | - | 99+00 | LT & RT | 2,200 | -- | 275 | -- | -- | -- | 2,200 | 275 | -- | 2,200 | |
| 0010 | 99+00 | - | 112+00 | LT & RT | 2,600 | -- | -- | 2,600 | -- | -- | 2,600 | 2,600 | -- | 2,600 | |
| 0010 | 112+00 | - | 135+50 | LT & RT | 4,700 | -- | 590 | -- | -- | -- | 4,700 | 590 | -- | 4,700 | |
| 0010 | 135+50 | - | 141+50 | LT & RT | 1,200 | -- | 150 | 600 | -- | -- | 1,200 | 750 | -- | 1,200 | |
| 0010 | 141+50 | - | 157+50 | LT & RT | 3,200 | -- | -- | 3,200 | -- | -- | 3,200 | 3,200 | -- | 3,200 | |
| 0010 | 157+50 | - | 164+00 | LT & RT | 1,300 | -- | 165 | 650 | -- | -- | 1,300 | 815 | -- | 1,300 | |
| 0010 | 164+00 | - | 173+50 | LT & RT | 1,900 | -- | 240 | -- | -- | -- | 1,900 | 240 | -- | 1,900 | |
| 0010 | 173+50 | - | 185+00 | LT & RT | 2,300 | -- | 290 | 1,150 | -- | -- | 2,300 | 1,440 | -- | 2,300 | |
| 0010 | 185+00 | - | 198+00 | LT & RT | 2,600 | -- | 325 | -- | -- | -- | 2,600 | 325 | -- | 2,600 | |
| 0010 | 198+00 | - | 211+00 | LT & RT | 2,600 | -- | 325 | 1,300 | -- | -- | 2,600 | 1,625 | -- | 2,600 | |
| 0010 | 211+00 | - | 224+50 | LT & RT | 2,700 | -- | 340 | -- | -- | -- | 2,700 | 340 | -- | 2,700 | |
| 0010 | 224+50 | - | 235+50 | LT & RT | 2,200 | -- | 275 | 1,100 | -- | -- | 2,200 | 1,375 | -- | 2,200 | |
| 0010 | 235+50 | - | 247+50 | LT & RT | 2,400 | -- | 300 | -- | -- | -- | 2,400 | 300 | -- | 2,400 | |
| 0010 | 247+50 | - | 258+00 | LT & RT | 2,100 | -- | 265 | 1,050 | -- | -- | 2,100 | 1,315 | -- | 2,100 | |
| 0010 | 258+00 | - | 260+00 | LT & RT | 400 | -- | 50 | -- | -- | -- | 400 | 50 | -- | 400 | |
| 0010 | 260+00 | - | 271+50 | LT & RT | 2,300 | -- | 290 | 1,150 | -- | -- | 2,300 | 1,440 | -- | 2,300 | |
| 0010 | 271+50 | - | 275+50 | LT & RT | 800 | -- | 100 | -- | -- | -- | 800 | 100 | -- | 800 | |
| 0010 | 275+50 | - | 286+50 | LT & RT | 2,200 | -- | 275 | 1,100 | -- | -- | 2,200 | 1,375 | -- | 2,200 | |
| 0010 | 286+50 | - | 298+00 | LT & RT | 2,300 | -- | -- | 2,300 | -- | -- | 2,300 | 2,300 | -- | 2,300 | |
| 0010 | 298+00 | - | 304+50 | LT & RT | 1,300 | -- | 165 | -- | -- | -- | 1,300 | 165 | -- | 1,300 | |
| 0010 | 304+50 | - | 315+50 | LT & RT | 2,200 | -- | 275 | 1,100 | -- | -- | 2,200 | 1,375 | -- | 2,200 | |
| 0010 | 310+00 | - | 358+75 | LT & RT | -- | -- | -- | -- | 1,045 | -- | 1,045 | -- | -- | -- | CLIMBING LANE |
| 0010 | 315+50 | - | 331+00 | LT & RT | 3,100 | -- | -- | 3,100 | -- | -- | 3,100 | 3,100 | -- | 3,100 | |
| 0010 | 331+00 | - | 361+00 | LT & RT | 6,000 | -- | 750 | 3,000 | -- | -- | 6,000 | 3,750 | -- | 6,000 | |
| 0010 | 361+00 | - | 381+00 | LT & RT | 4,000 | -- | 500 | -- | -- | -- | 4,000 | 500 | -- | 4,000 | |
| 0010 | 381+00 | - | 384+00 | LT & RT | 600 | -- | 75 | 300 | -- | -- | 600 | 375 | -- | 600 | |
| 0010 | 381+00 | - | 419+00 | LT & RT | -- | -- | -- | -- | 775 | -- | 775 | -- | -- | -- | CLIMBING LANE |
| 0010 | 384+00 | - | 428+00 | LT & RT | 8,800 | -- | -- | 8,800 | -- | -- | 8,800 | 8,800 | -- | 8,800 | |
| 0010 | 428+00 | - | 433+00 | LT & RT | 1,000 | -- | 125 | -- | -- | -- | 1,000 | 125 | -- | 1,000 | |
| 0010 | 433+00 | - | 439+00 | LT & RT | 1,200 | -- | 150 | 600 | -- | -- | 1,200 | 750 | -- | 1,200 | |
| 0010 | 439+00 | - | 464+00 | LT & RT | 5,000 | -- | -- | 5,000 | -- | -- | 5,000 | 5,000 | -- | 5,000 | |
| 0010 | 464+00 | - | 471+55 | LT & RT | 1,510 | -- | 190 | 755 | -- | -- | 1,510 | 945 | -- | 1,510 | |
| 0010 | 15+35 | - | 471+55 | LT & RT | -- | -- | -- | -- | -- | 375 | -- | -- | -- | -- | |
| | | | | TOTALS 0010 | 91,755 | 170 | | 58,815 | | 375 | | 150,570 | 170 | 91,240 | |

SAWING ASPHALT

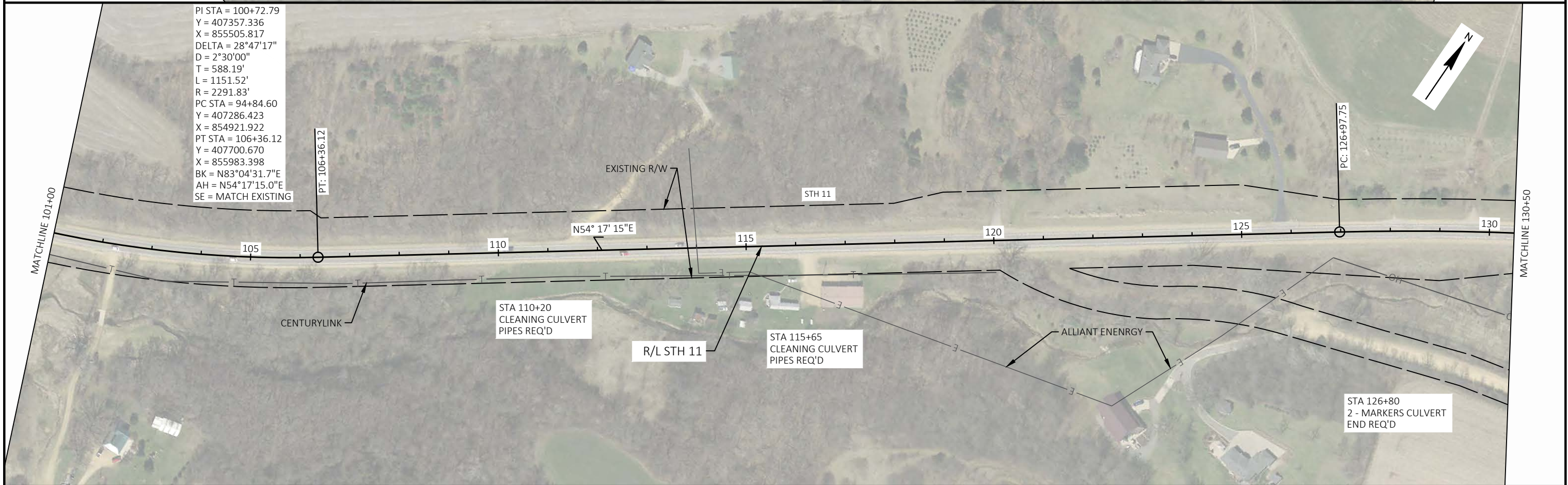
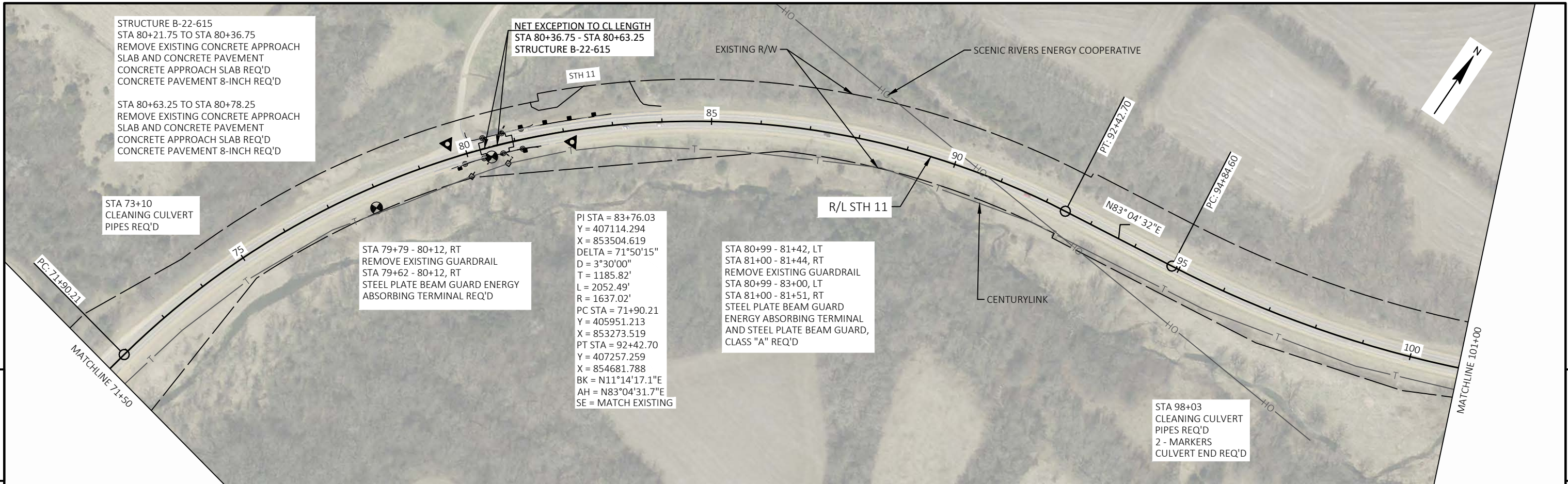
| 690.0150 | | | | |
|------------|---------|----------|-----|-----------------|
| CATEGORY | STATION | LOCATION | LF | REMARKS |
| 0010 | 15+35 | LT & RT | 6 | BEGIN PROJECT |
| 0010 | 23+90 | 92' LT | 21 | ROCK CUT ROAD |
| 0010 | 70+04 | 86' RT | 23 | CTH Z |
| 0010 | 142+71 | 88' RT | 18 | SANDY HOOK ROAD |
| 0010 | 145+55 | 93' LT | 18 | SANDY HOOK ROAD |
| 0010 | 161+30 | 96' RT | 21 | FAIRPLAY ROAD |
| 0010 | 164+92 | 86' LT | 20 | FAIRPLAY ROAD |
| 0010 | 219+00 | LT & RT | 31 | CULVERT |
| 0010 | 221+42 | 75' LT | 22 | CTH Z |
| 0010 | 221+77 | 75' RT | 23 | CTH Z |
| 0010 | 274+86 | 76' LT | 20 | LOGAN ROAD |
| 0010 | 275+18 | 82' RT | 20 | LOGAN ROAD |
| 0010 | 328+65 | 89' RT | 18 | HILL ROAD |
| 0010 | 342+10 | LT & RT | 40 | CULVERT |
| 0010 | 350+18 | LT & RT | 40 | CULVERT |
| 0010 | 366+71 | 64' LT | 20 | MILL ROAD |
| 0010 | 382+70 | LT & RT | 40 | CULVERT |
| 0010 | 405+55 | LT & RT | 39 | CULVERT |
| 0010 | 414+41 | 90' RT | 20 | PARK LANE |
| 0010 | 414+51 | 82' LT | 20 | PARK LANE |
| 0010 | 440+00 | LT & RT | 30 | CULVERT |
| 0010 | 451+35 | 62' RT | 20 | CLAY LANE |
| 0010 | 471+55 | LT & RT | 30 | END PROJECT |
| TOTAL 0010 | | | 560 | |

LANDMARK ITEMS

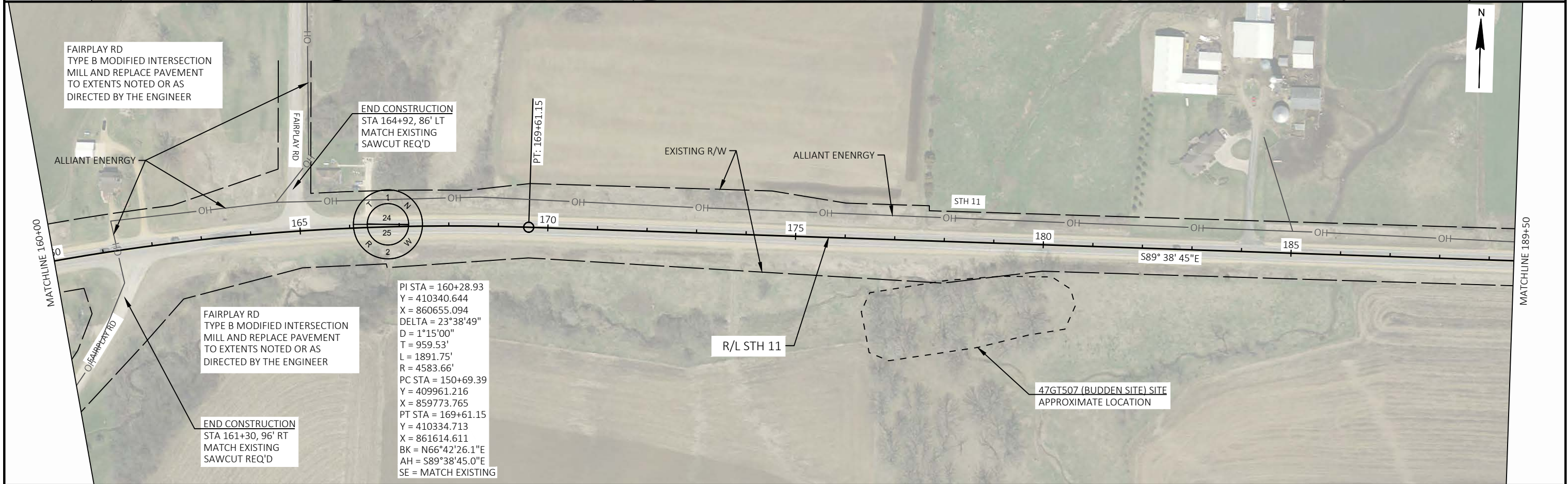
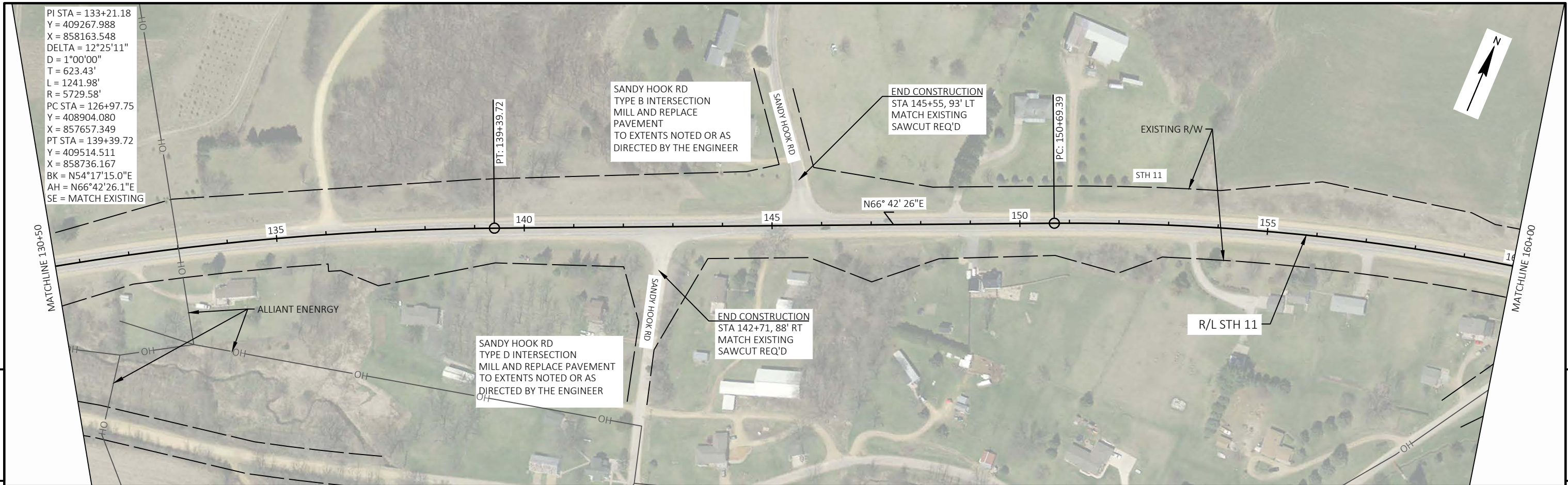
| SPV.0060.01 | | | | | SPV.0060.02 | |
|--------------|---------|----------|------|--|--------------|--|
| SPECIAL (01. | | | | | SPECIAL (02. | |
| VERIFY | | | | | LANDMARK | |
| LANDMARK | | | | | REFERENCE | |
| REFERENCE | | | | | MONUMENTS | |
| MONUMENTS) | | | | | SPECIAL) | |
| CATEGORY | STATION | LOCATION | EACH | | EACH | |
| 0010 | 166+77 | 5' LT | 1 | | 1 | |
| 0010 | 193+26 | 22' LT | 1 | | 1 | |
| 0010 | 328+94 | 14' RT | 1 | | 1 | |
| 0010 | 414+44 | 20' RT | 1 | | 1 | |
| TOTALS 0010 | | | 4 | | 4 | |



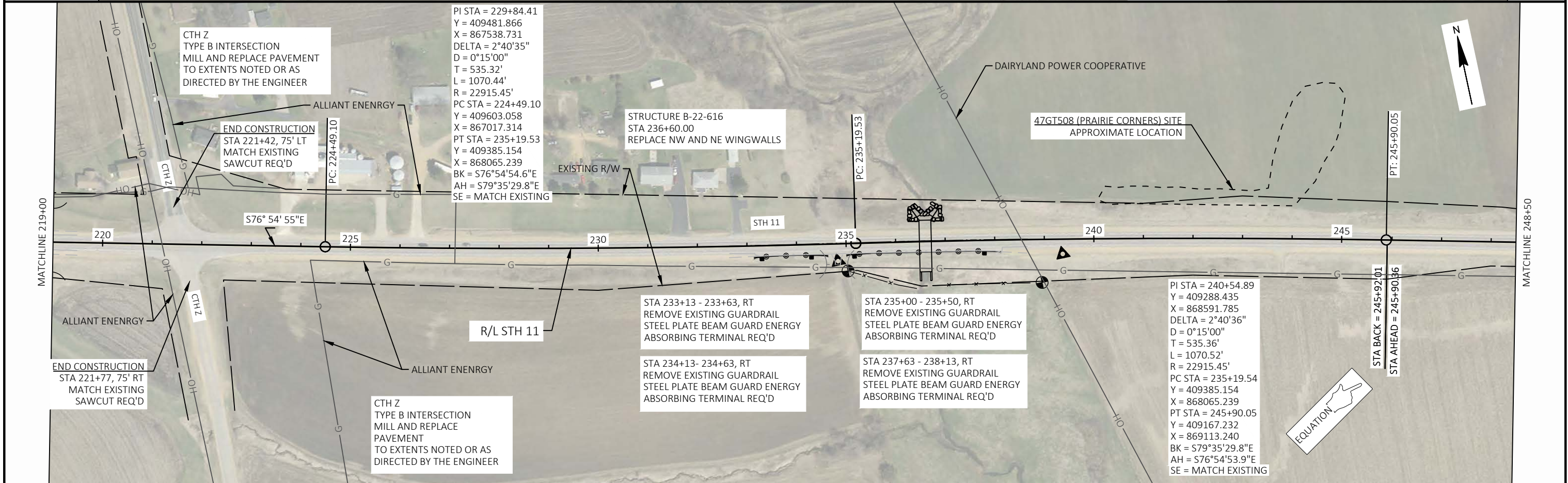
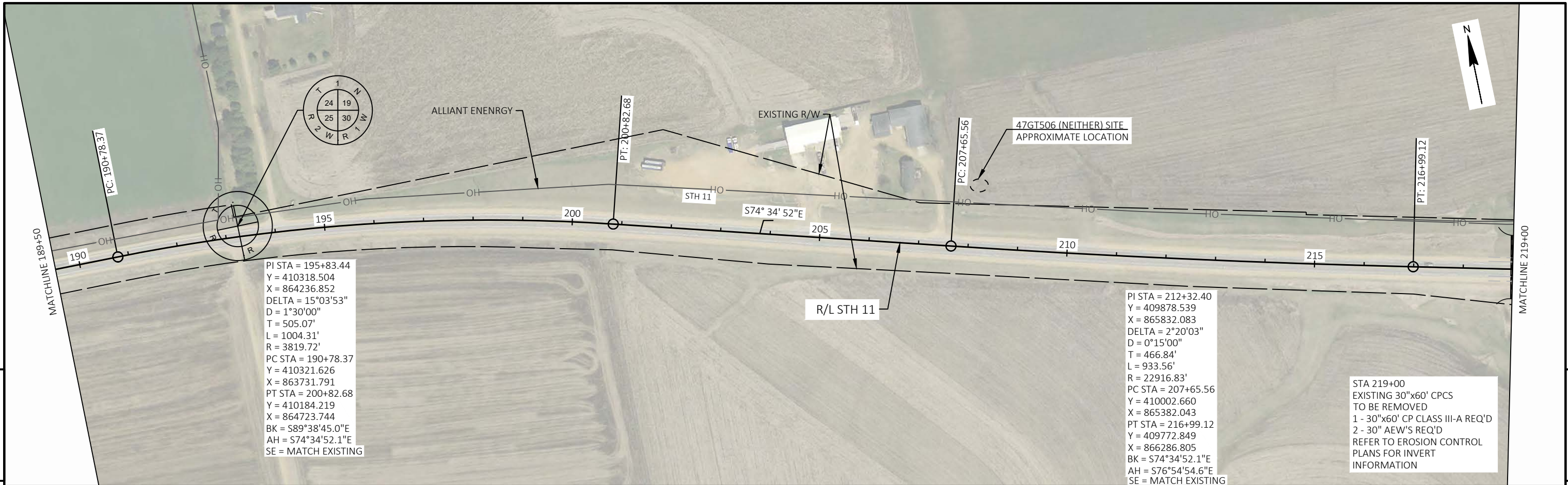
| | | | | | |
|------------------------|-------------|---------------|-------------|-------|---|
| PROJECT NO: 1706-00-70 | HWY: STH 11 | COUNTY: GRANT | PLAN SHEETS | SHEET | 5 |
|------------------------|-------------|---------------|-------------|-------|---|

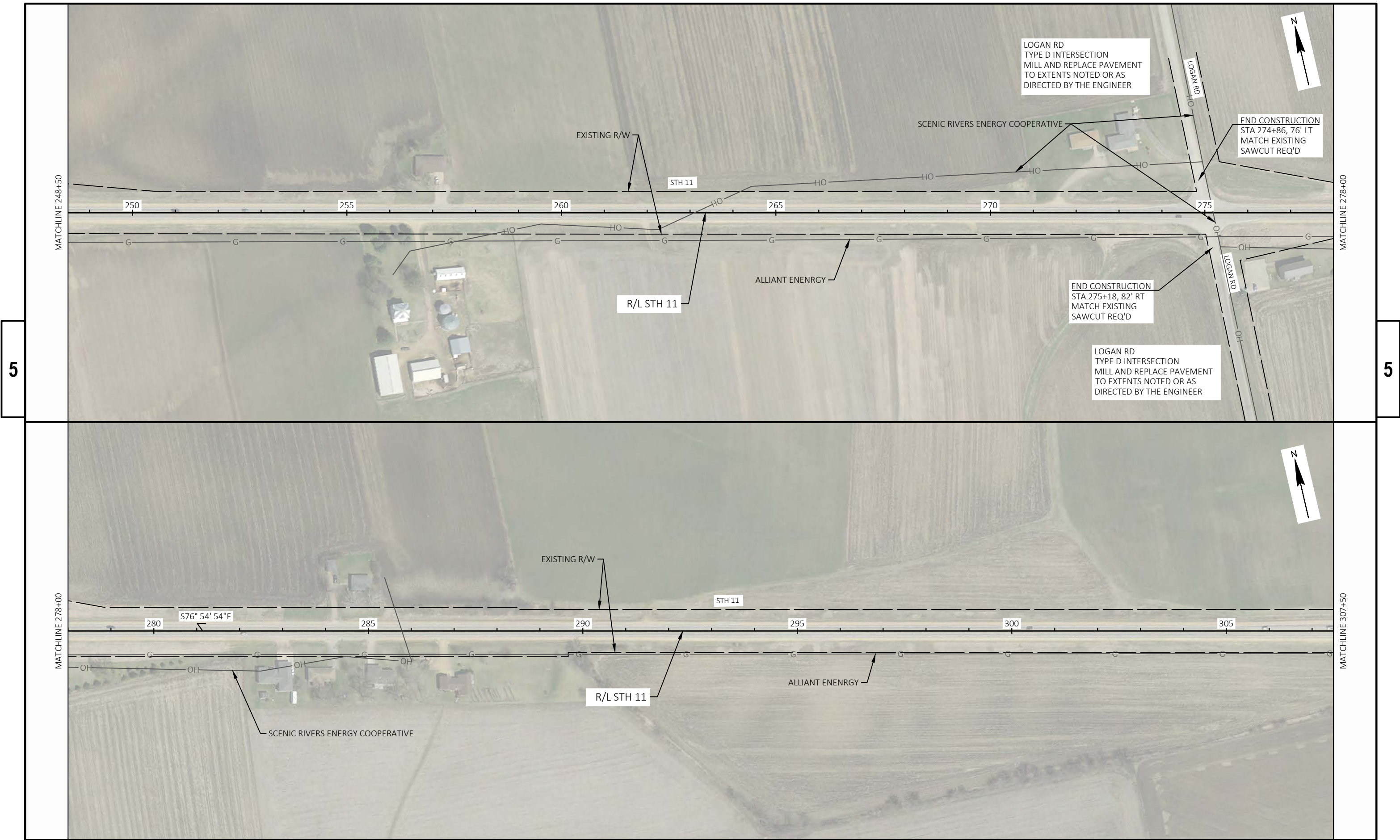


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| PROJECT NO: 1706-00-70 | HWY: STH 11 | COUNTY: GRANT | PLAN SHEETS | SHEET | E |
|------------------------|-------------|---------------|-------------|-------|---|



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| PROJECT NO: 1706-00-70 | HWY: STH 11 | COUNTY: GRANT | PLAN SHEETS | SHEET | E |
|------------------------|-------------|---------------|-------------|-------|---|

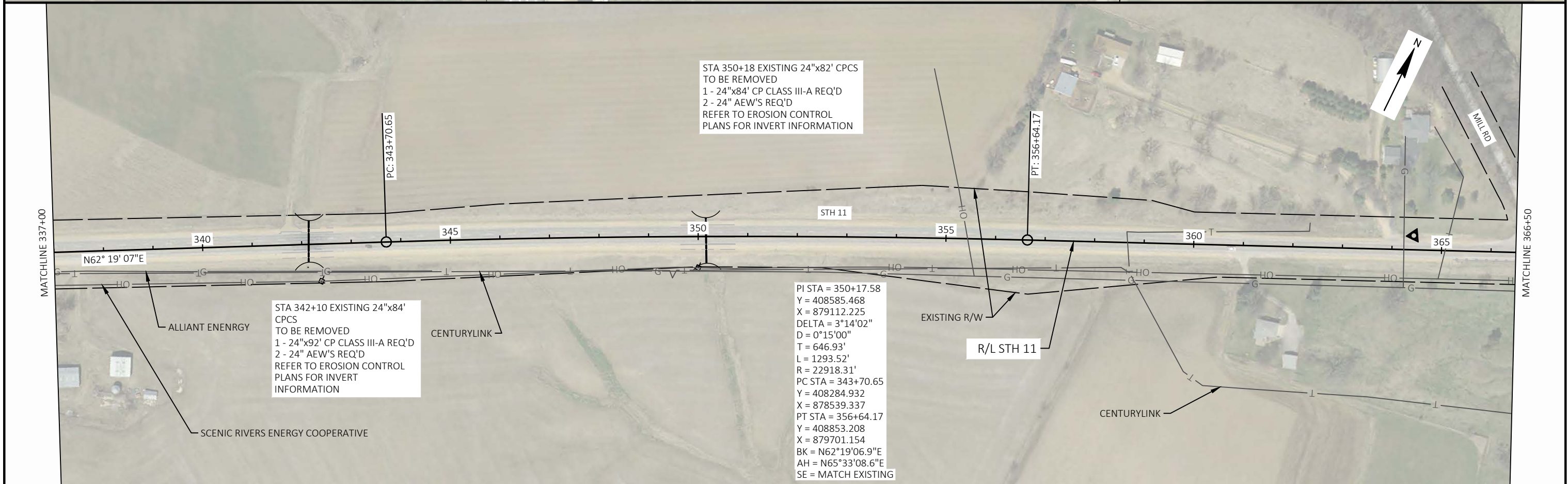
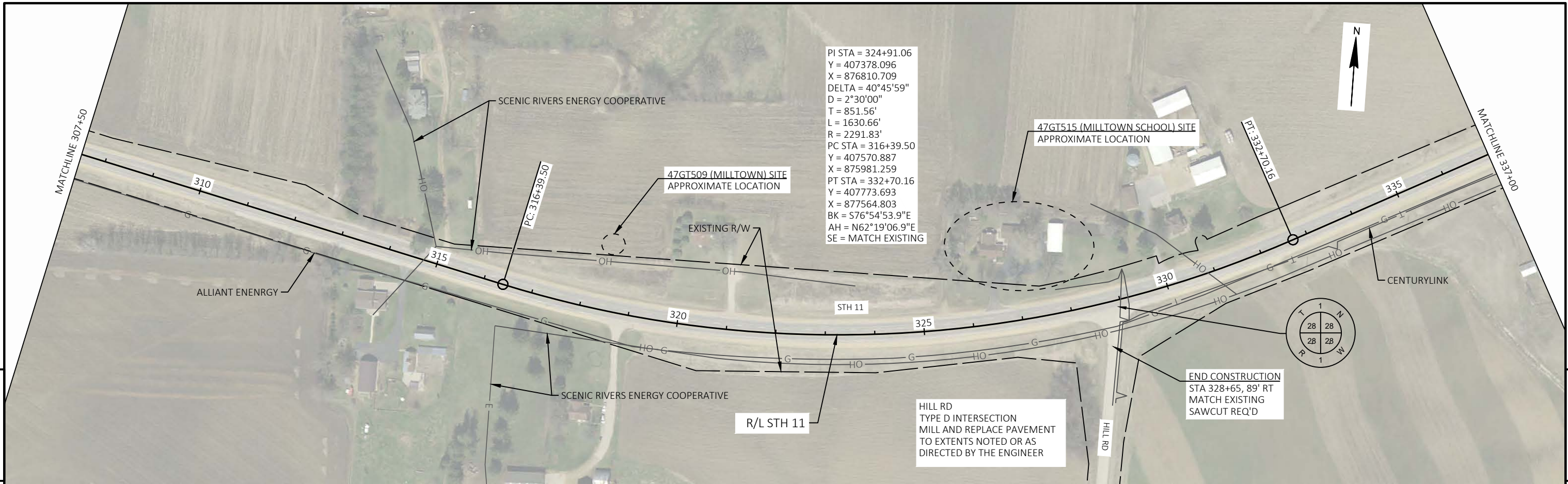


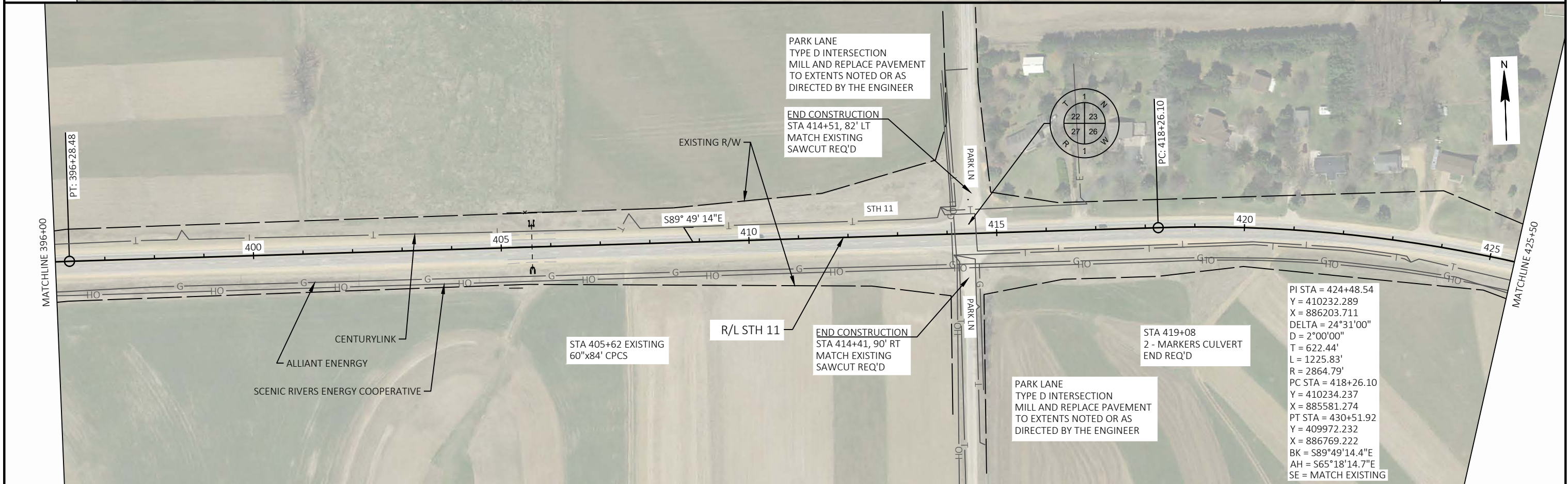
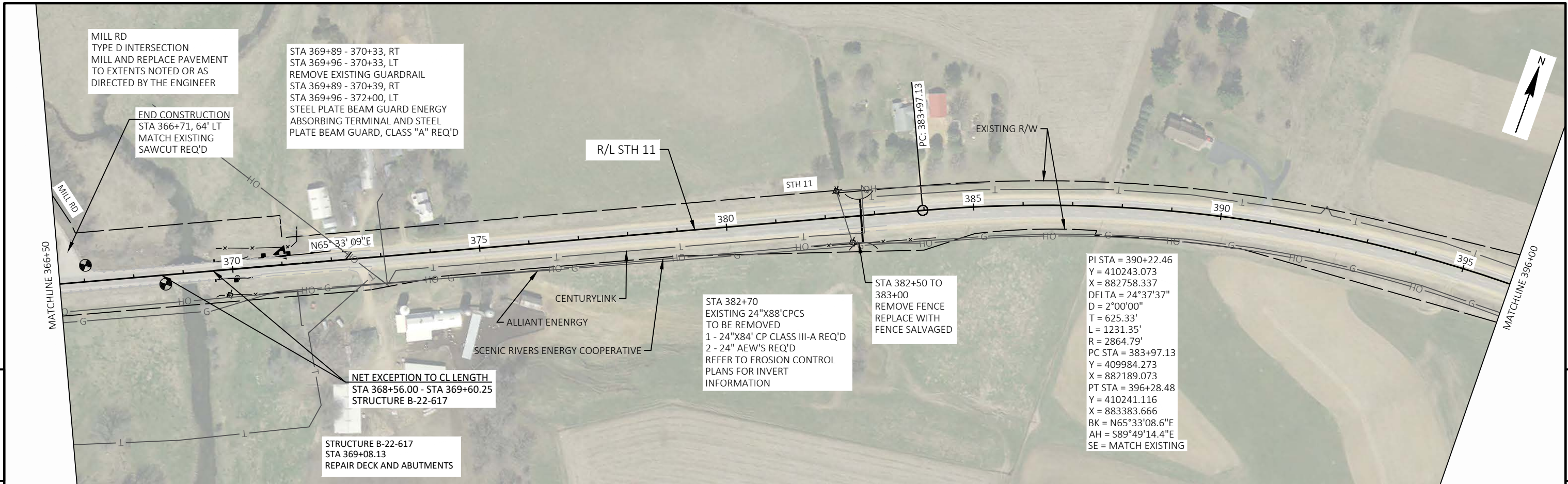


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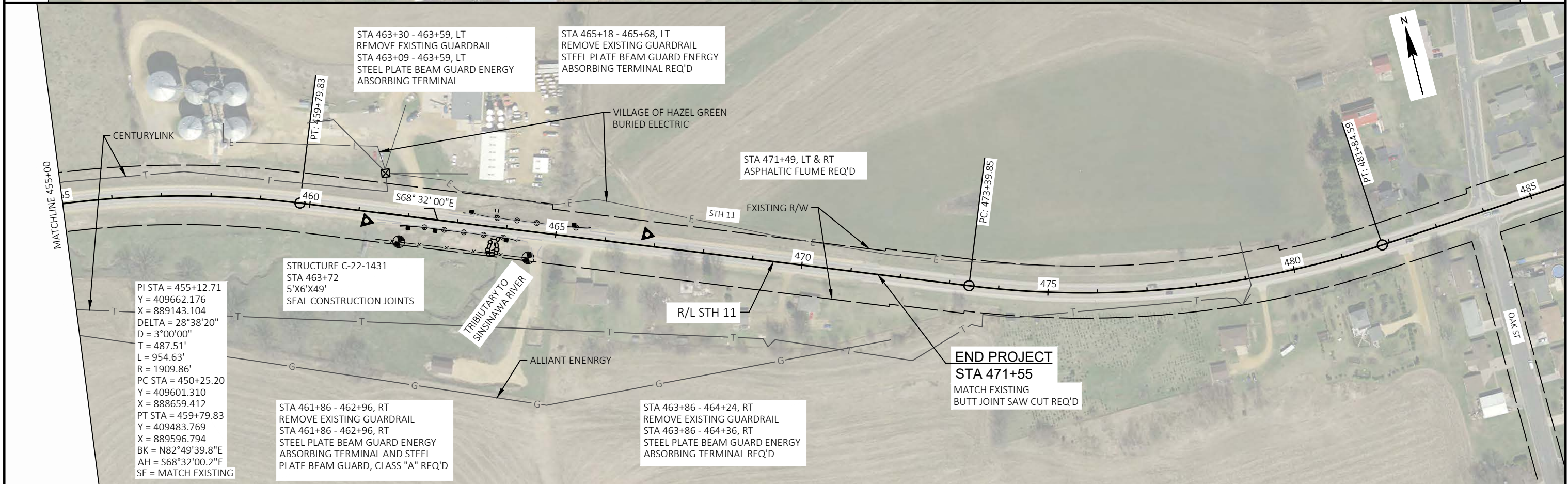
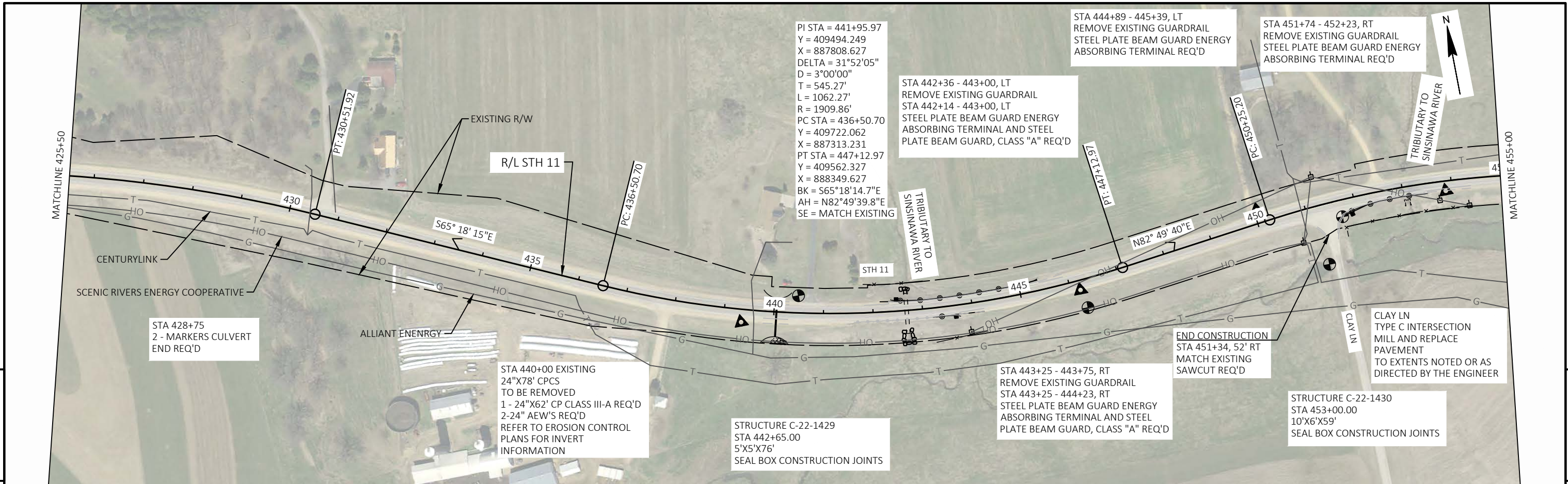
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| PROJECT NO: 1706-00-70 | HWY: STH 11 | COUNTY: GRANT | PLAN SHEETS | SHEET | E |
|------------------------|-------------|---------------|-------------|-------|---|





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| PROJECT NO: | 1706-00-70 | HWY: | STH 11 | COUNTY: | GRANT | PLAN SHEETS | SHEET | E |
|-------------|------------|------|--------|---------|-------|-------------|-------|---|



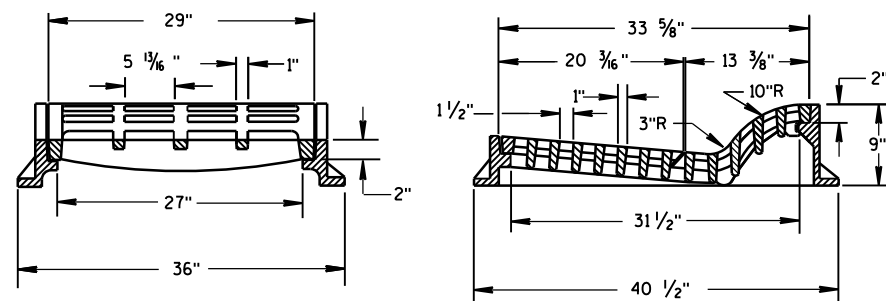
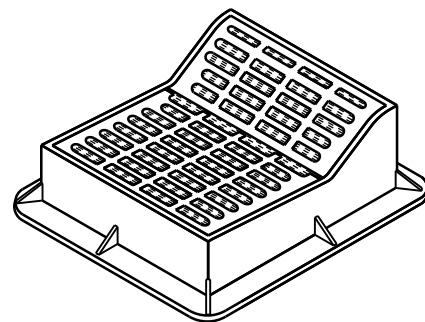
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| PROJECT NO: | 1706-00-70 | HWY: | STH 11 | COUNTY: | GRANT | PLAN SHEETS | SHEET | E |
|-------------|------------|------|--------|---------|-------|-------------|-------|---|

Standard Detail Drawing List

| | |
|-----------|--|
| 08A05-19C | INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S |
| 08A05-19D | INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M |
| 08C07-02 | INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT |
| 08D04-05 | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES |
| 08D22-01 | DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL |
| 08E08-03 | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS |
| 08E09-06 | SILT FENCE |
| 08E14-01 | TRACKING PAD |
| 08E15-01 | CULVERT PIPE CHECK |
| 08F01-11 | APRON ENDWALLS FOR CULVERT PIPE |
| 08F02-01 | APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE |
| 13A03-06 | CONCRETE PAVEMENT SHOULDERS |
| 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 |
| 13B02-09A | CONCRETE PAVEMENT APPROACH SLAB |
| 13B02-09B | STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB |
| 13C01-19 | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES |
| 13C19-03 | HMA LONGITUDINAL JOINTS |
| 14B07-15A | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15B | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15C | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15D | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15E | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15F | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15G | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15H | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B07-15I | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" |
| 14B08-02A | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS |
| 14B08-02B | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS |
| 14B08-02C | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS |
| 14B08-02D | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS |
| 14B08-02E | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS |
| 14B15-11A | STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS |
| 14B15-11B | STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS |
| 14B15-11C | STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS |
| 14B18-06A | STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS) |
| 14B18-06B | STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES |
| 14B24-09A | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL |
| 14B24-09B | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL |
| 14B24-09C | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL |
| 14B25-01 | STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS |
| 15A03-02A | FLEXIBLE MARKER POST FOR CULVERT END |
| 15A03-02B | FLEXIBLE MARKER POST FOR CULVERT END |
| 15B03-15A | FENCE CHAIN LINK |
| 15B03-15B | FENCE CHAIN LINK |
| 15C02-08A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C02-08B | BARRICADES AND SIGNS FOR VARIOUS CLOSURES |
| 15C02-08C | DETOUR SIGNING FOR MAINLINE CLOSURES |
| 15C02-08F | ADVANCED WIDTH RESTRICTION SIGNING |
| 15C03-05 | BARRICADES AND SIGNS FOR SIDEROAD CLOSURES |
| 15C04-05 | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC |
| 15C08-20A | LONGITUDINAL MARKING (MAINLINE) |
| 15C08-20B | PAVEMENT MARKING (TURN LANES) |
| 15C08-20C | PAVEMENT MARKING (TURN LANES) |
| 15C11-08A | CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST |
| 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 |
| 15C33-04 | STOP LINE AND CROSSWALK PAVEMENT MARKING |
| 15C35-04A | PAVEMENT MARKING (INTERSECTIONS) |
| 15C35-04B | PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE) |
| 15C35-04C | PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE) |
| 15D21-07A | TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE |

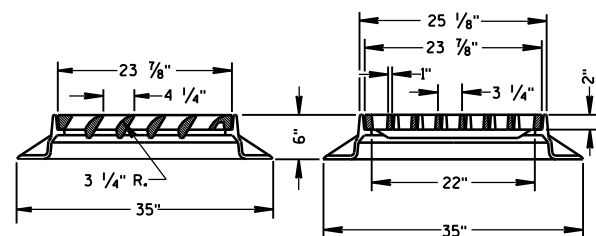
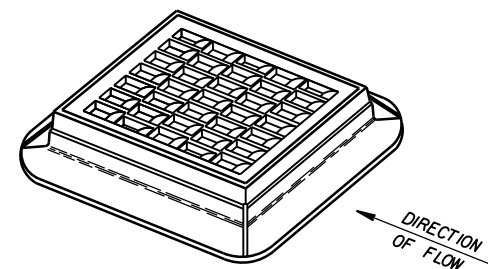
Standard Detail Drawing List

| | |
|-----------|--|
| 15D21-07B | TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE |
| 15D28-04 | TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY |
| 15D32-05 | TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION |
| 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 |
| 15D45-02 | TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL |

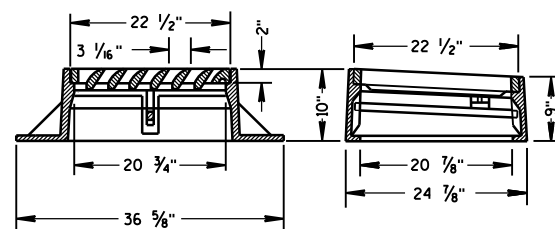
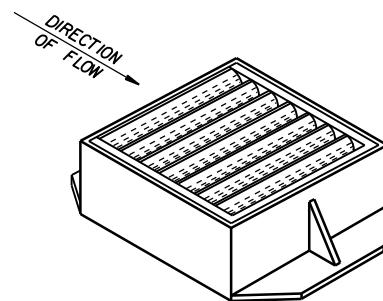


TYPE "F"

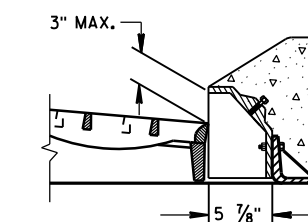
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



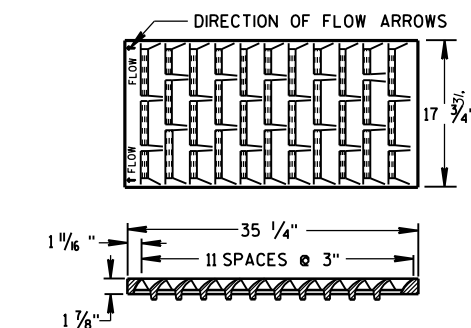
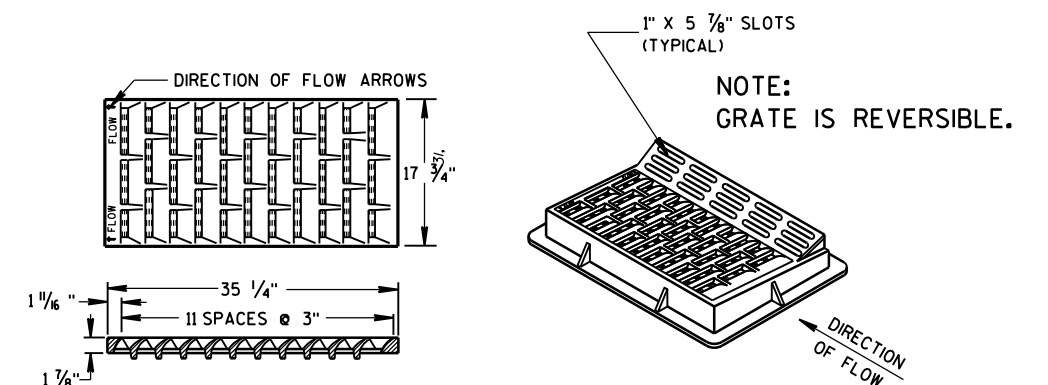
TYPE "S"



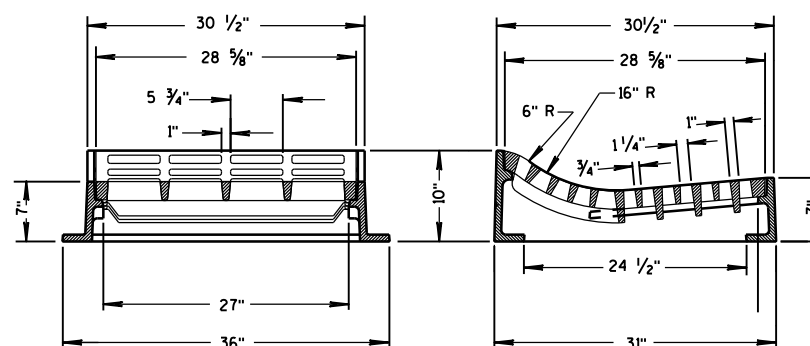
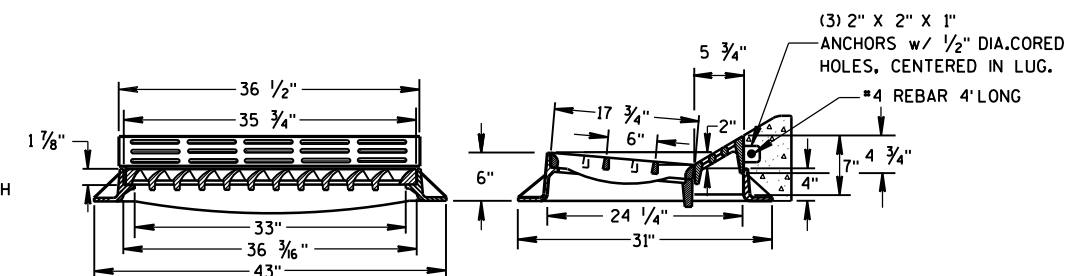
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

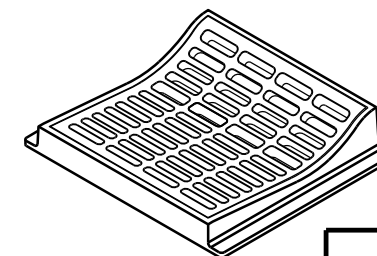
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

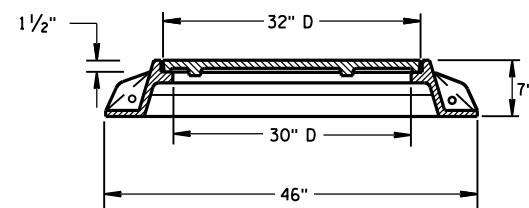
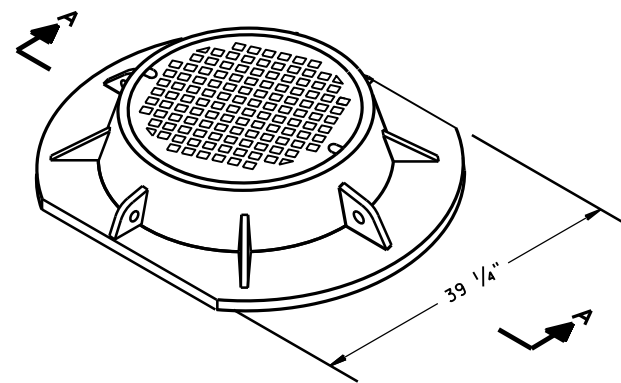
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

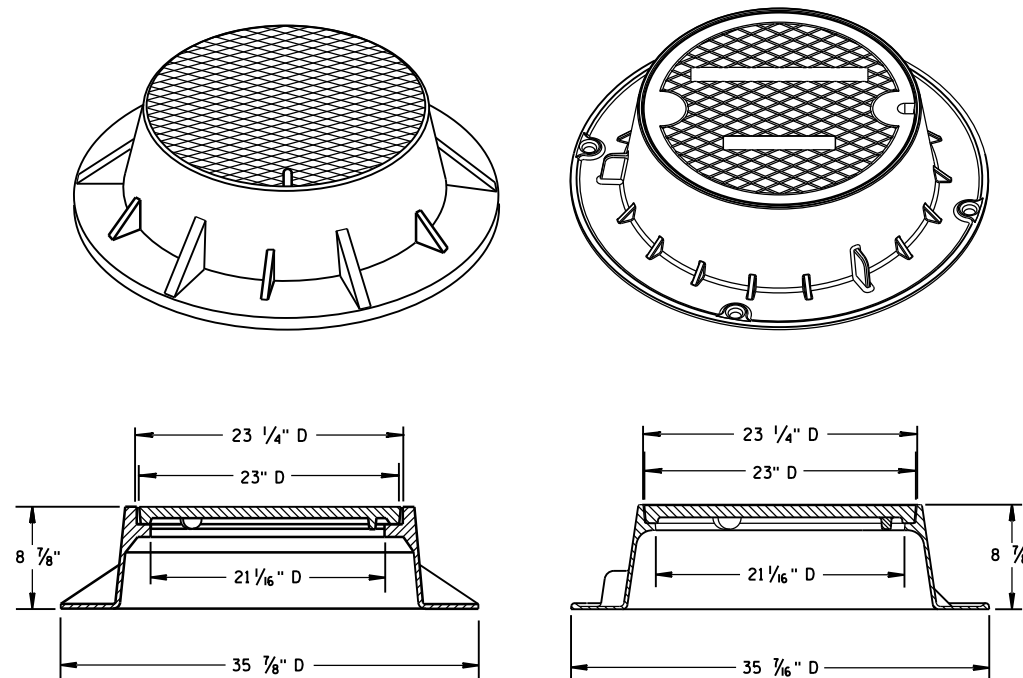
TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.

INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

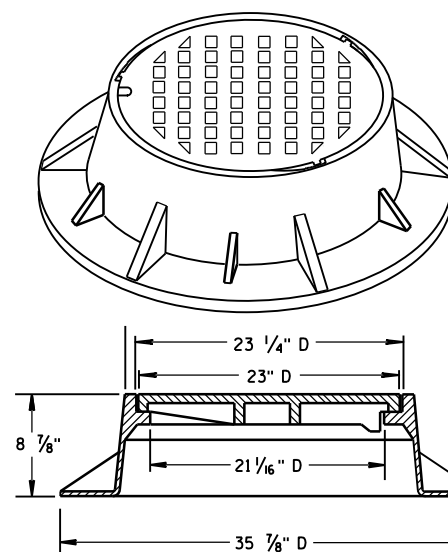
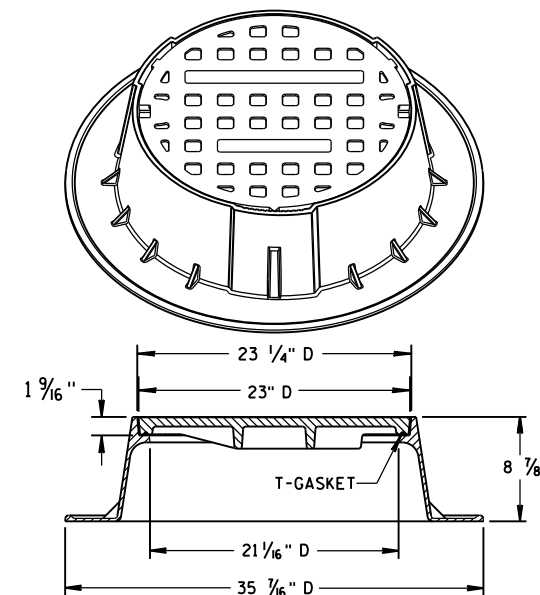


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

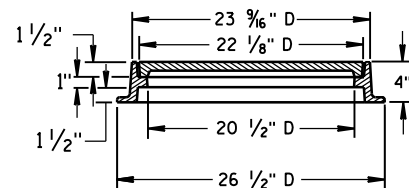
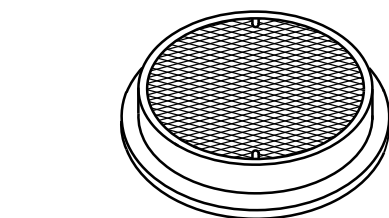


TYPE "J" SPECIAL

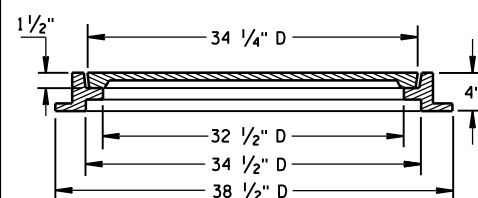
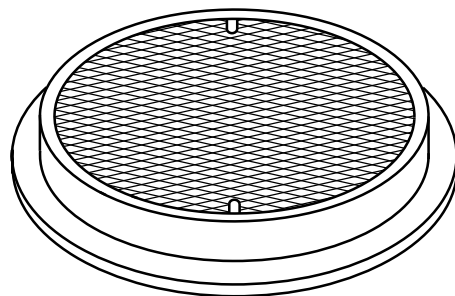
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

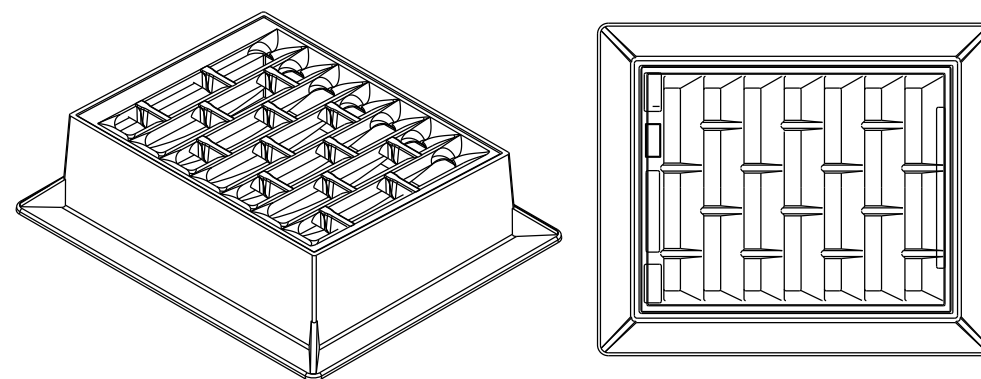
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

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.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

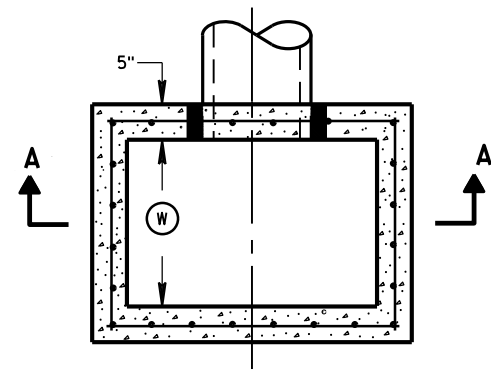
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

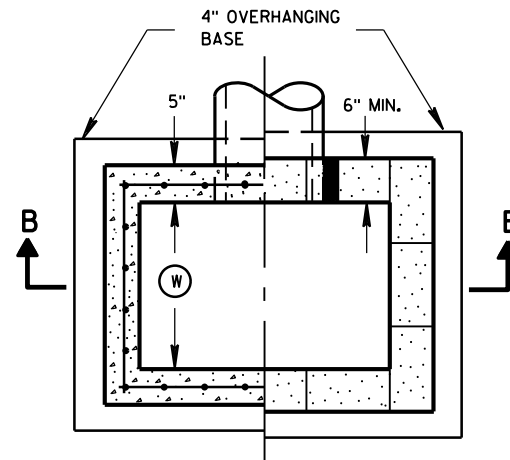
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

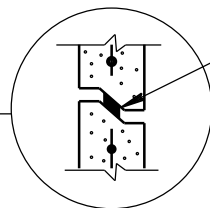
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



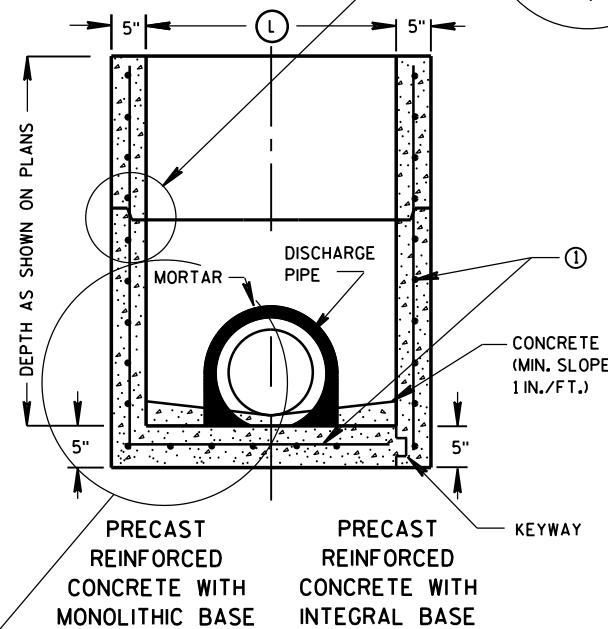
PLAN VIEW



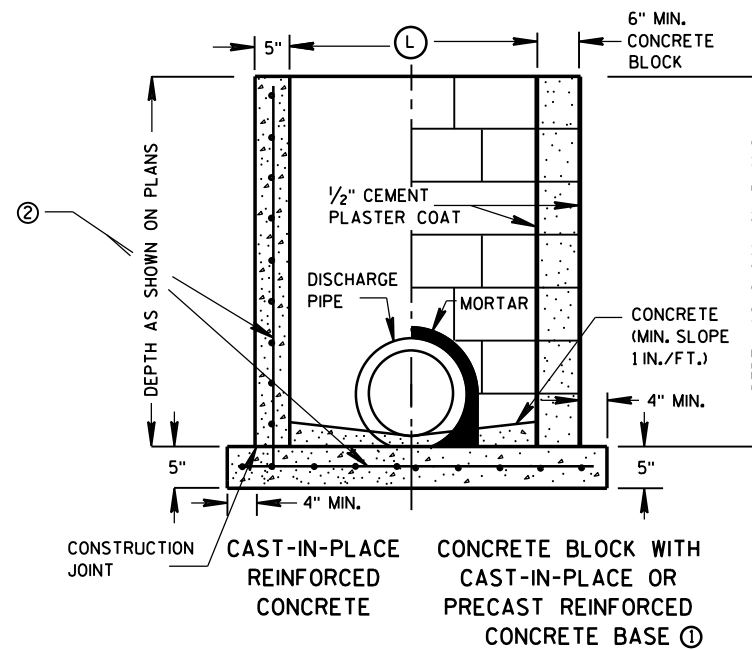
PLAN VIEW



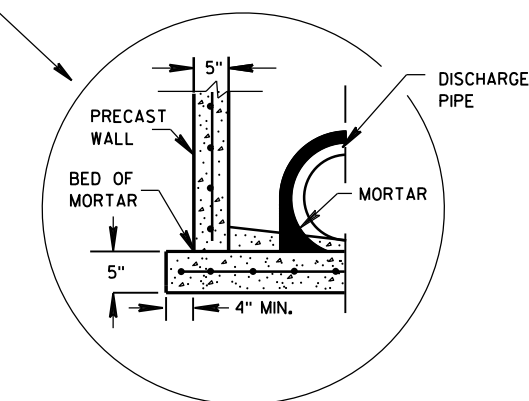
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

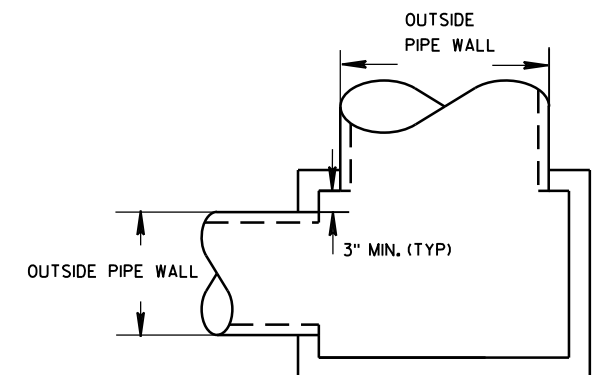
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

| INLET SIZE | INLET COVER TYPE | ALL A'S | ALL B'S | BW | F | ALL H'S | S | T | V | WM |
|------------|------------------|-----------------|---------|----|---|---------|---|---|---|----|
| | WIDTH (1) (FT) | LENGTH (2) (FT) | | | | | | | | |
| 2X2-FT | 2 | 2 | X | X | | | X | | X | |
| 2X2.5-FT | 2 | 2.5 | | | X | | X | X | X | X |
| 2X3-FT | 2 | 3 | | | | X | | | | |
| 2.5X3-FT | 2.5 | 3 | | | X | | | | | |

PIPE MATRIX

| INLET SIZE | MAXIMUM INSIDE PIPE DIAMETER | |
|------------|------------------------------|-------------|
| | WIDTH (IN) | LENGTH (IN) |
| 2X2-FT | 12 | 12 |
| 2X2.5-FT | 12 | 18 |
| 2X3-FT | 12 | 24 |
| 2.5X3-FT | 18 | 24 |



DETAIL "A"

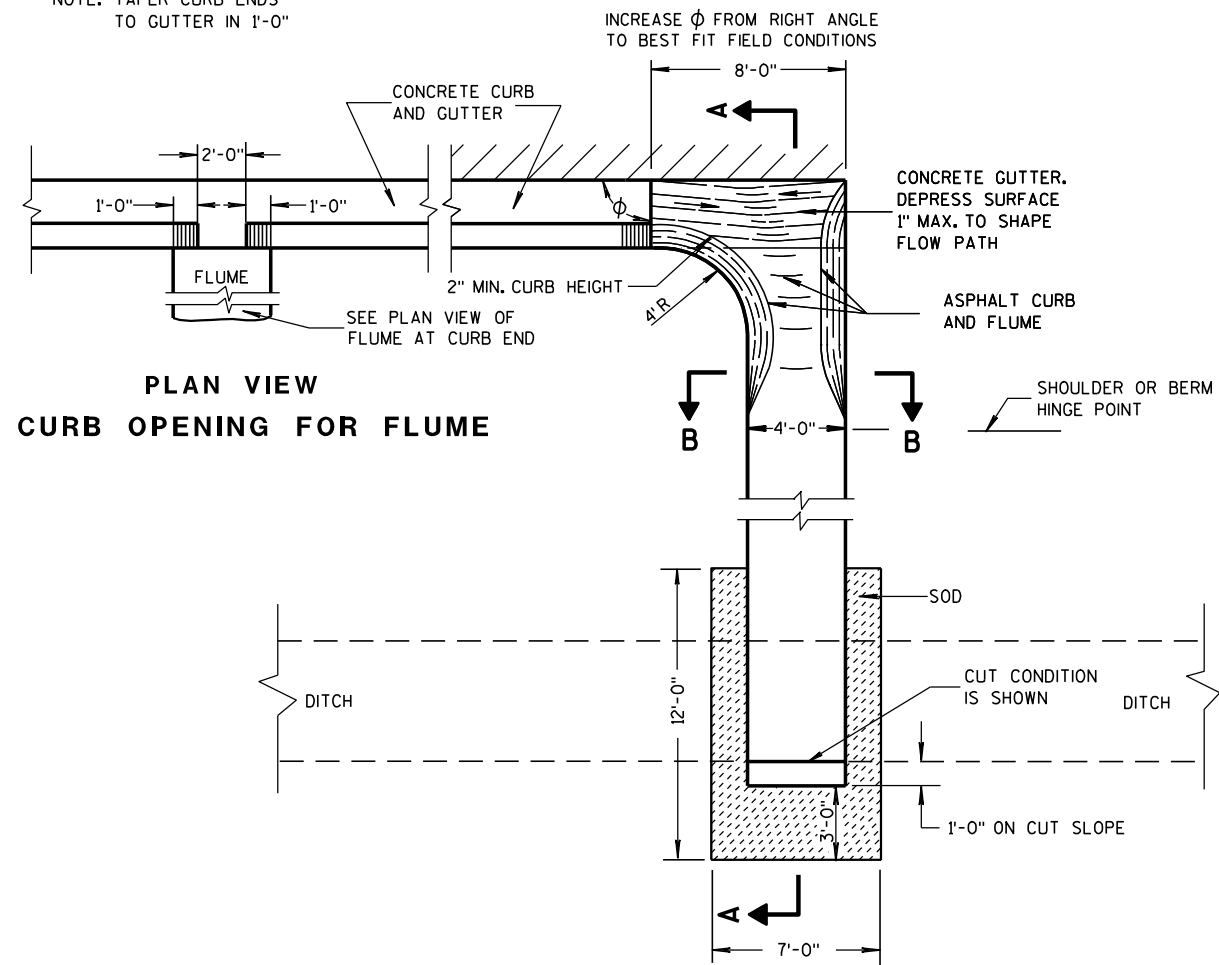
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

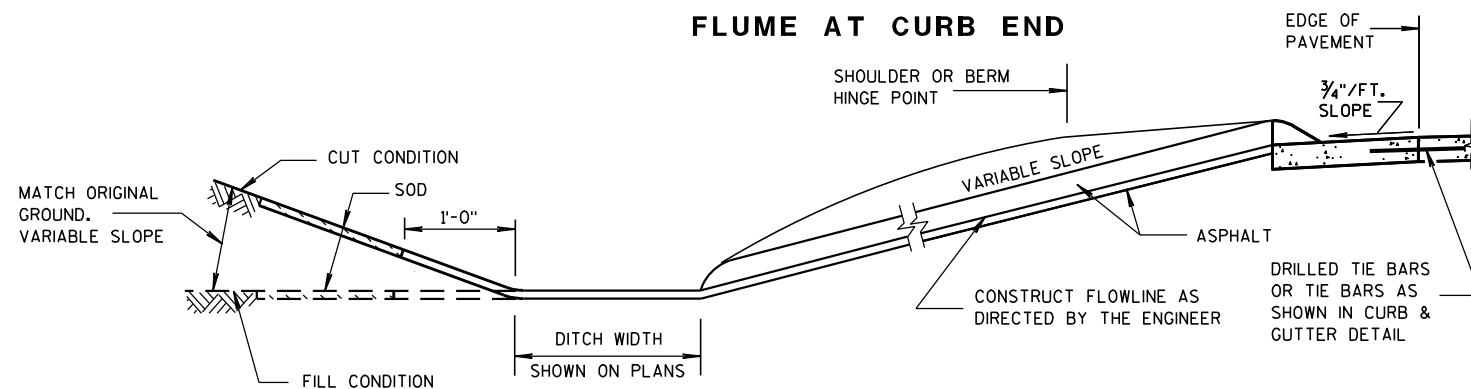
ASPHALTIC FLUME

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

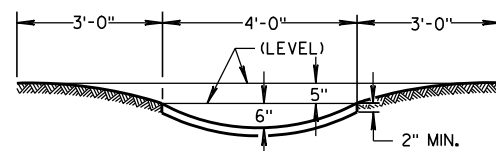


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

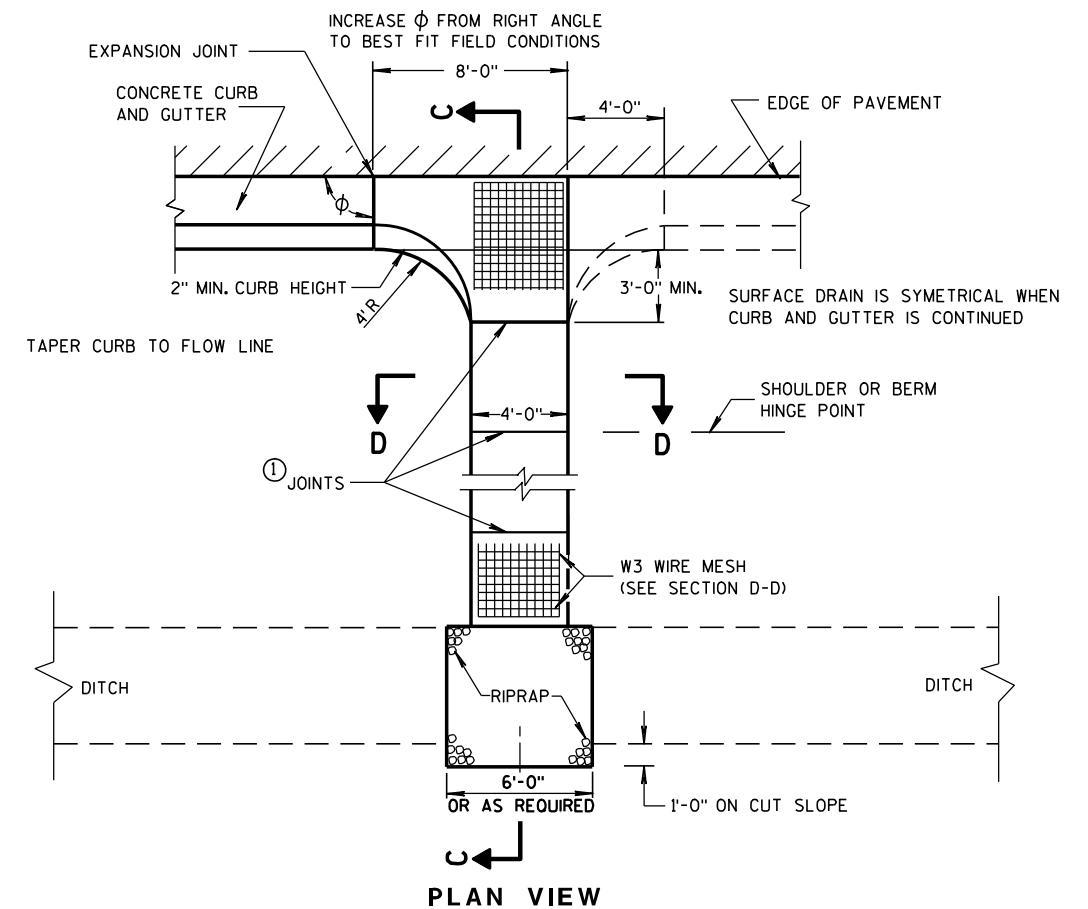
GENERAL NOTES

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

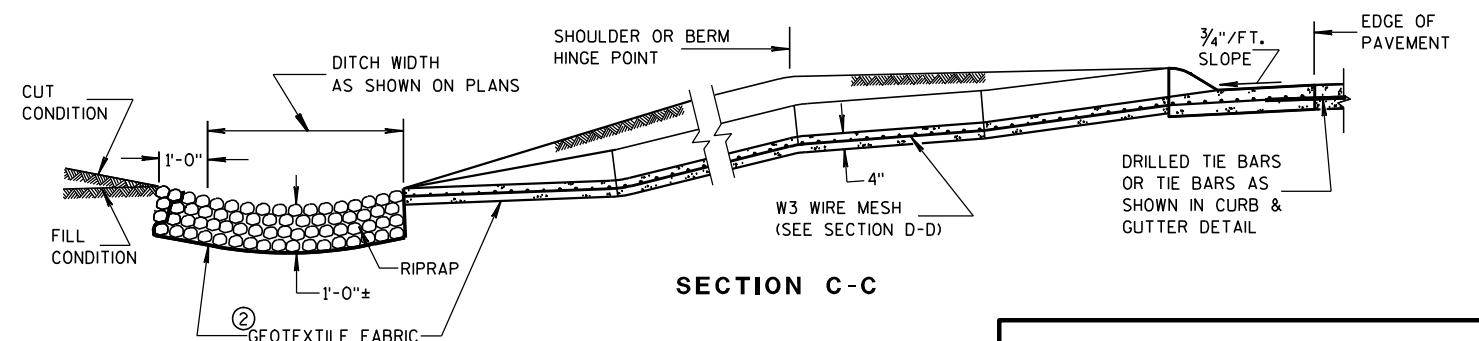
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

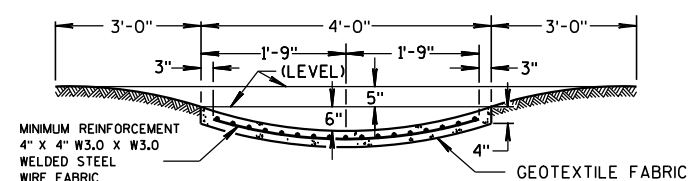
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

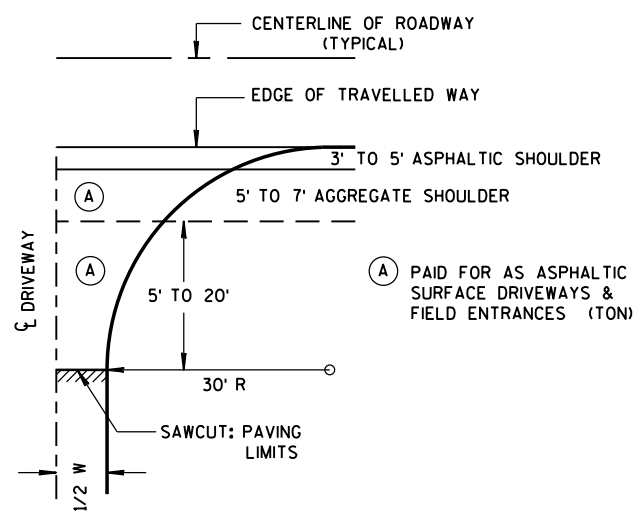
APPROVED

9-4-08

DATE

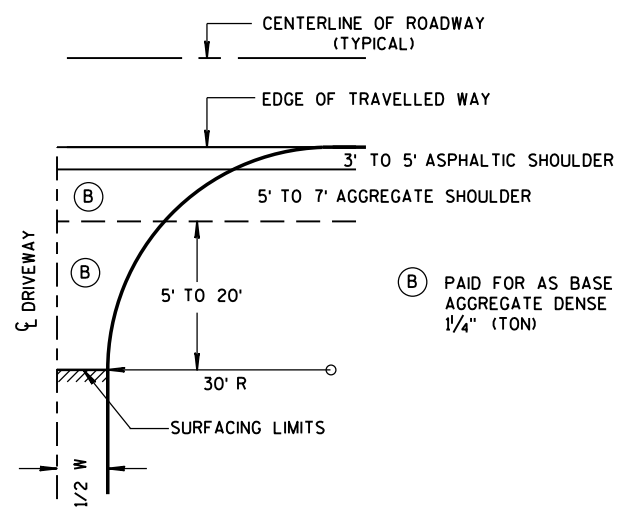
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

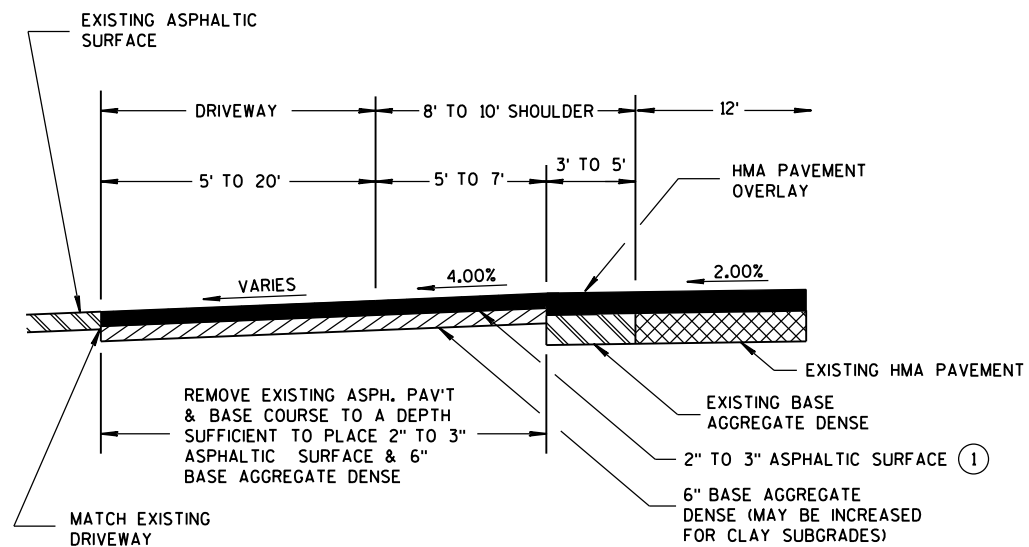


PLAN VIEW
HALF SECTION

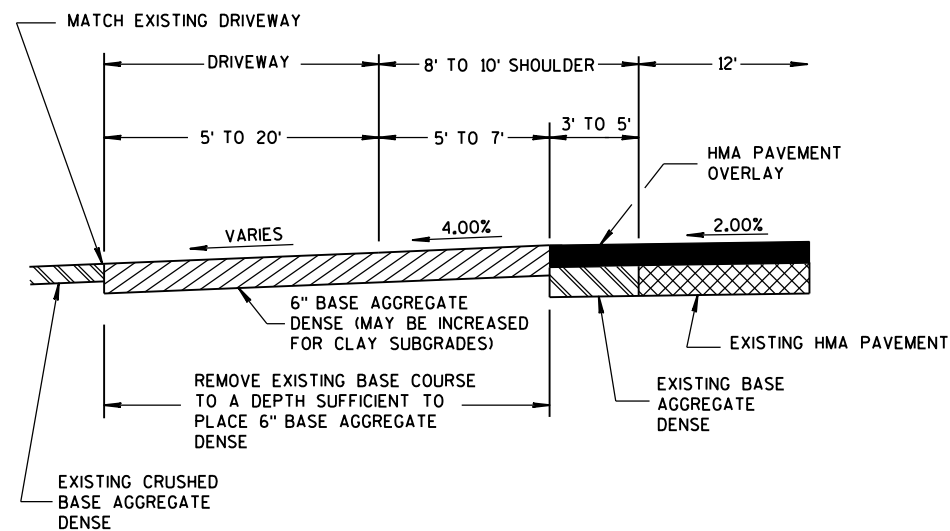
W MIN. = 16'
W MAX. = 24'



PLAN VIEW
HALF SECTION



PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS



PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

GENERAL NOTES

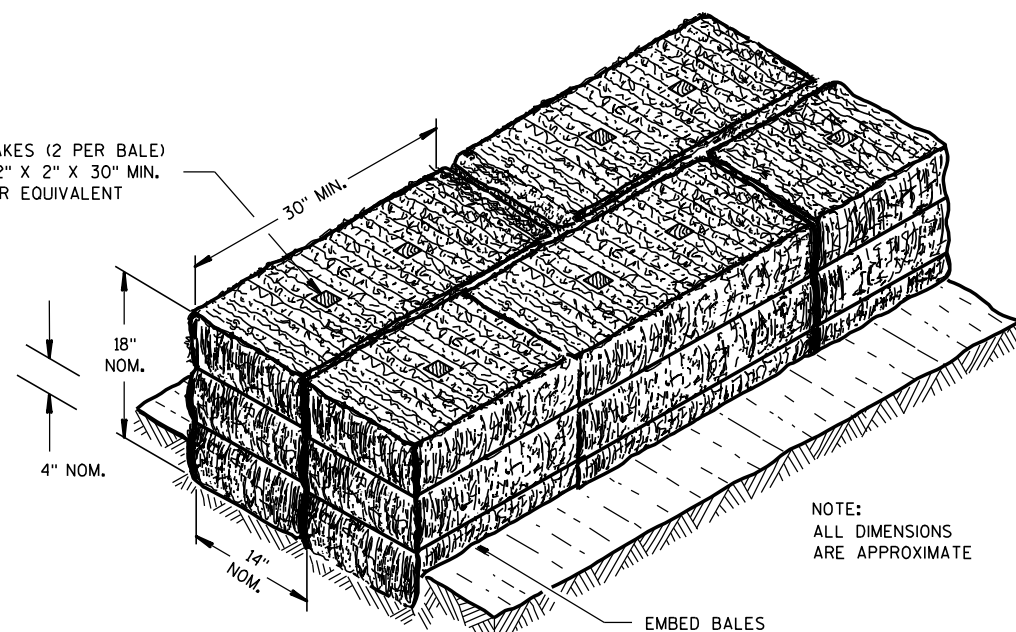
- DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

DRIVEWAYS WITHOUT
CURB & GUTTER
RESURFACING PROJECTS RURAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

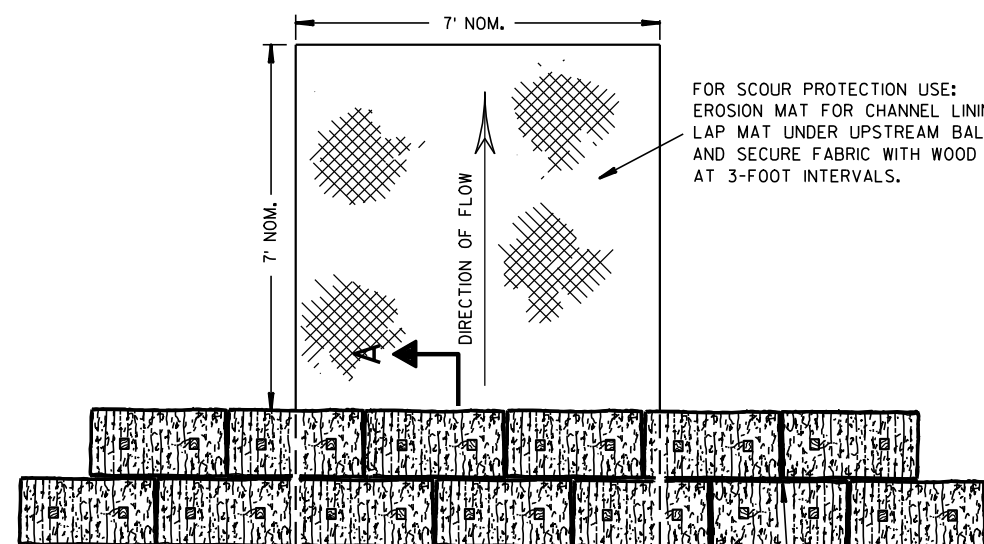
APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

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



SECTION A-A

NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

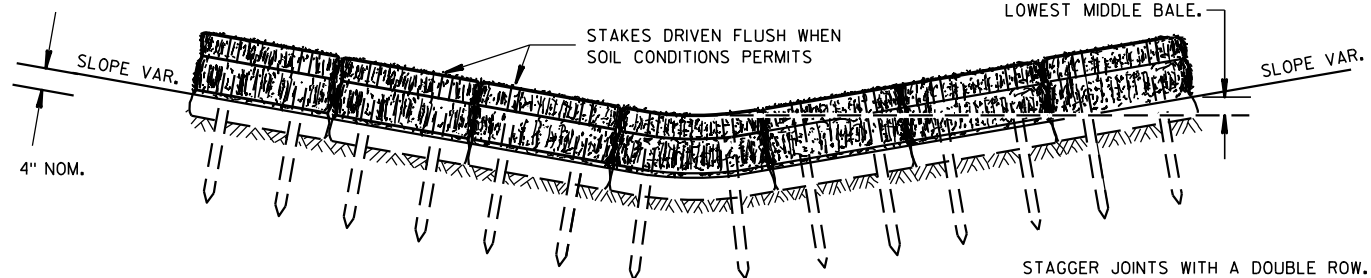


PLAN VIEW

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

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

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



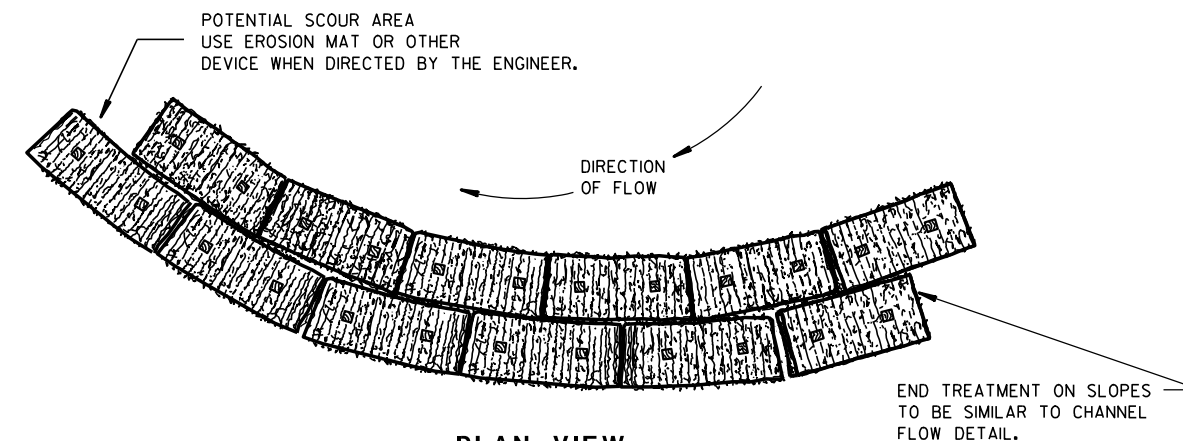
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

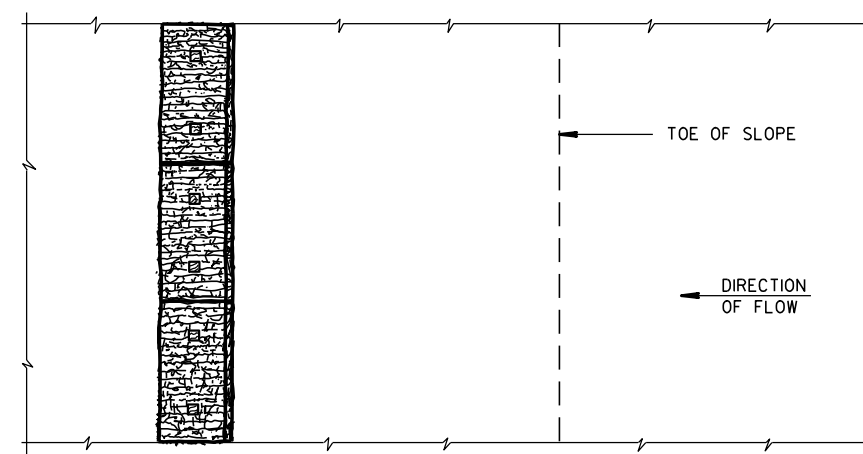
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

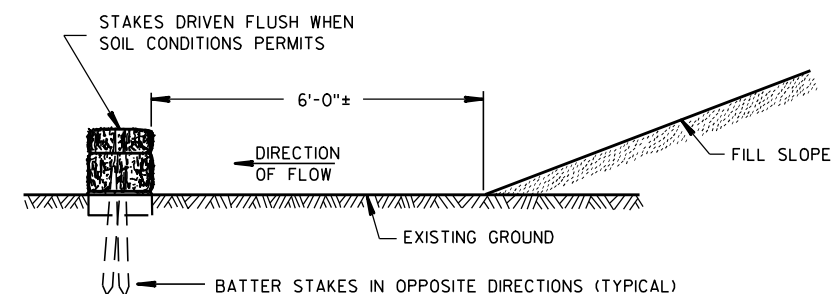


PLAN VIEW

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
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



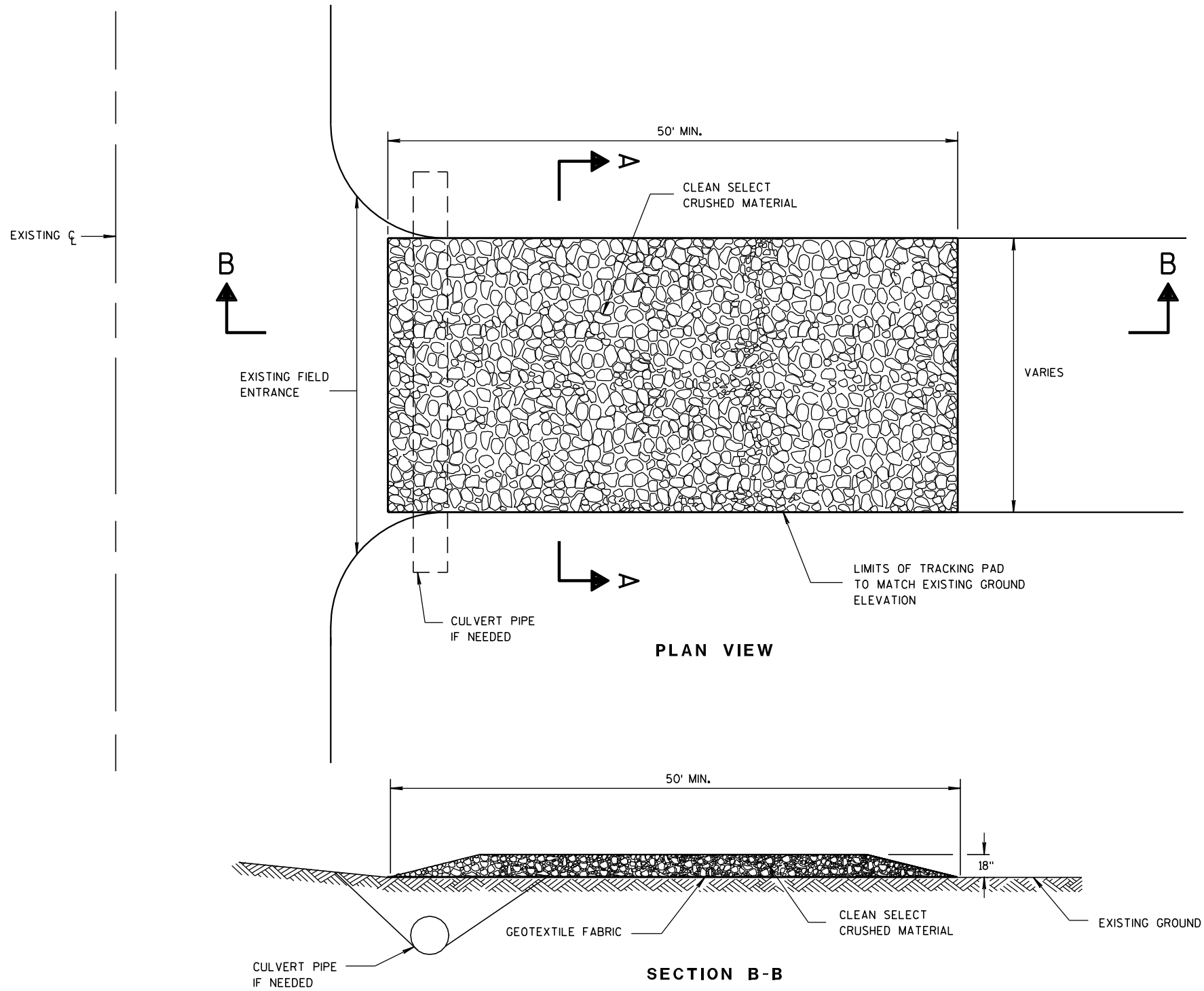
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



| | |
|--|--|
| SILT FENCE | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | |
| APPROVED
4-29-05

DATE | /S/ Beth Canestra

CHIEF ROADWAY DEVELOPMENT ENGINEER |



TRACKING PAD

GENERAL NOTES

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

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

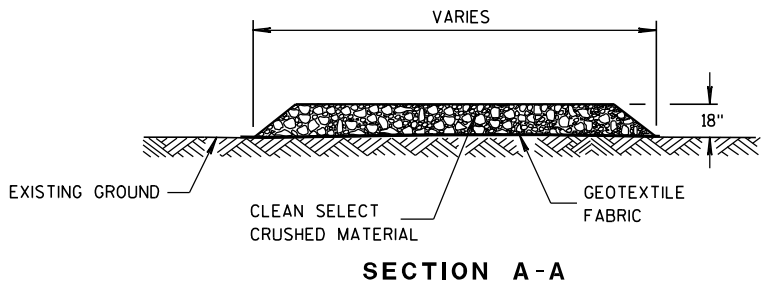
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

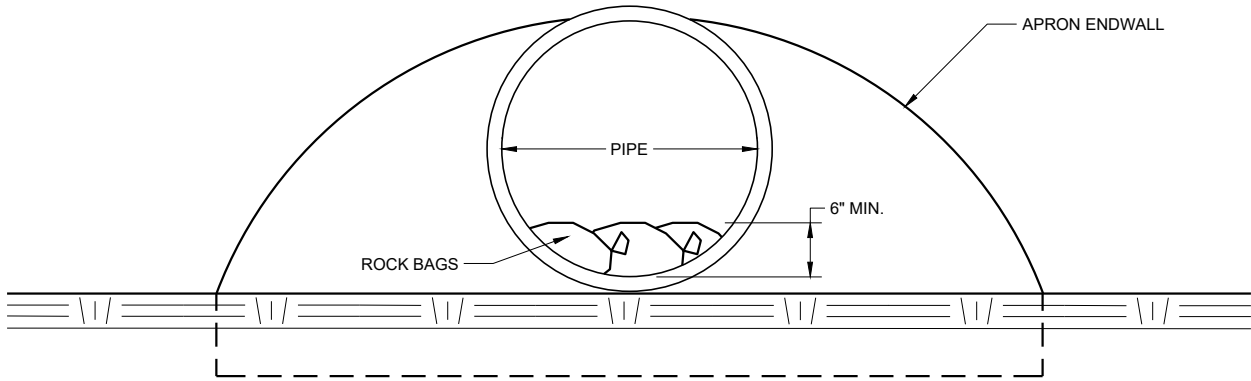
THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



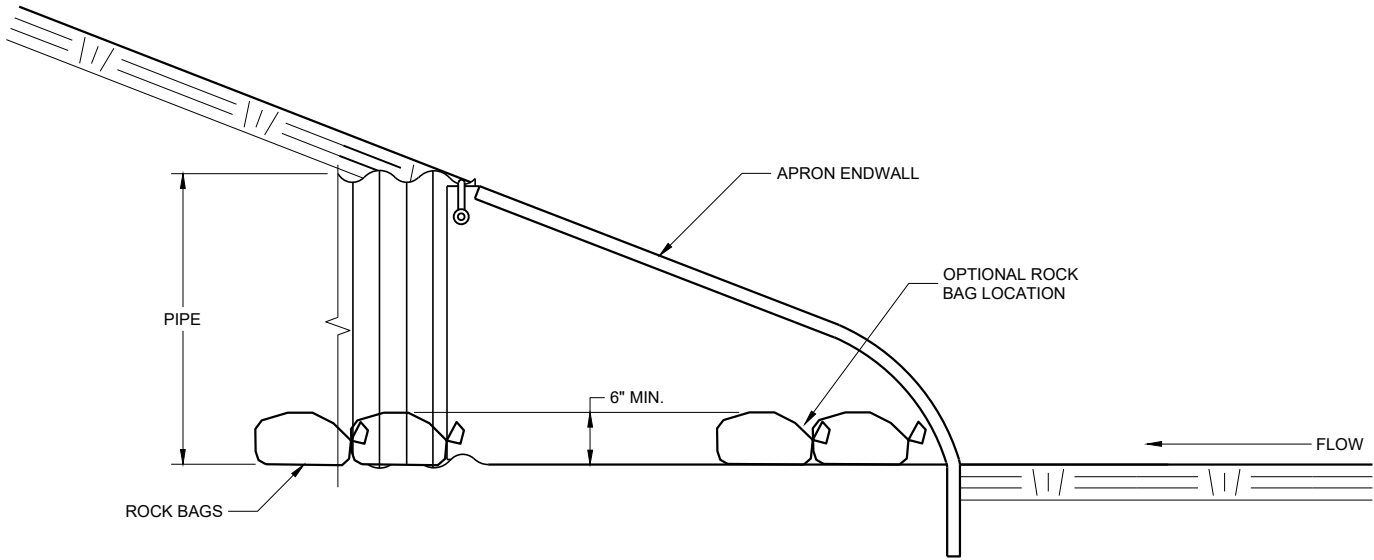
TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



END VIEW



SIDE VIEW

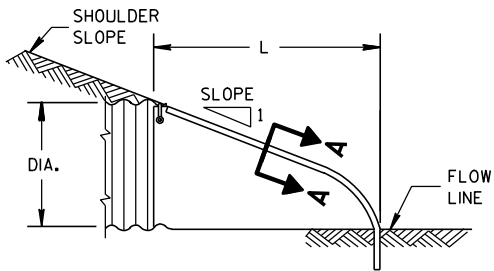
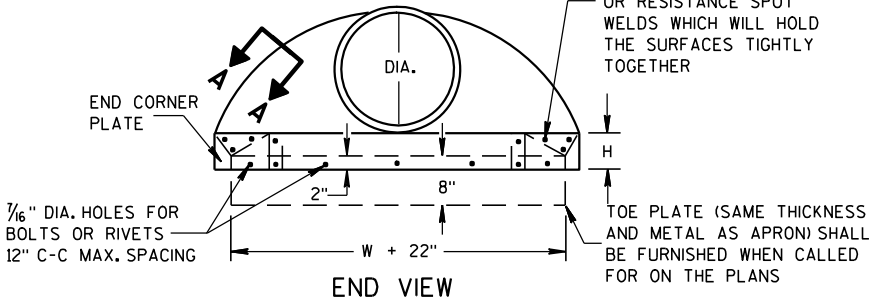
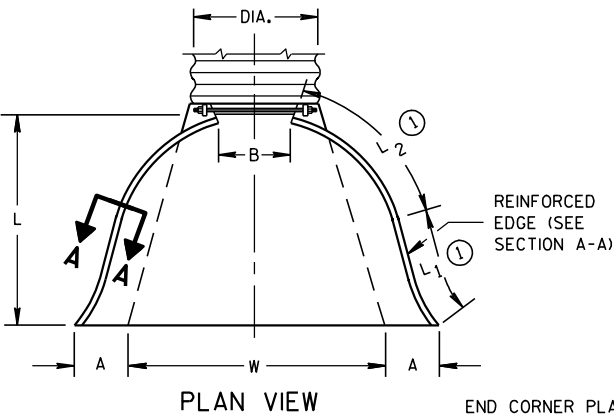
CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

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

FHWA

| METAL APRON ENDWALLS | | | | | | | | | | | | |
|----------------------|-------------------------|-------|---------------------|-------------|------------|----------------|---------|---------|------------|------------------|--|-------|
| PIPE DIA.
(IN.) | MIN. THICK.
(Inches) | | DIMENSIONS (Inches) | | | | | | | APPROX.
SLOPE | | BODY |
| | STEEL | ALUM. | A
(±1") | B
(MAX.) | H
(±1") | L
(±1 1/2") | L1
① | L2
① | W
(±2") | | | |
| 12 | .064 | .060 | 6 | 6 | 6 | 21 | 12 | 17 1/2 | 24 | 2 1/2 to 1 | | 1 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. |

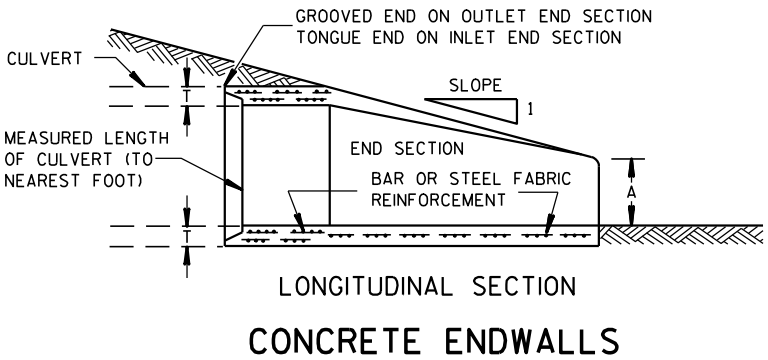
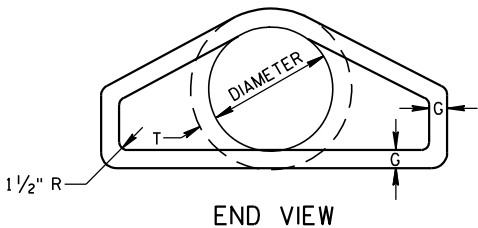
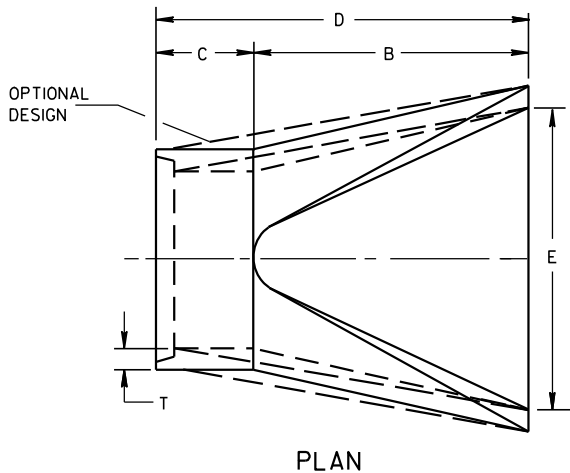
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



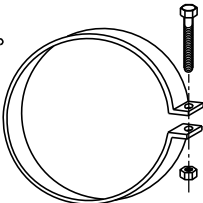
SIDE ELEVATION
METAL ENDWALLS

| REINFORCED CONCRETE APRON ENDWALLS | | | | | | | | | | | | |
|------------------------------------|---------------------|--------|--------|-----------|------------|-----|-------|------------------|--|--|--|--|
| PIPE DIA.
(IN.) | DIMENSIONS (Inches) | | | | | | | APPROX.
SLOPE | | | | |
| | T | A | B | C | D | E | G | | | | | |
| 12 | 2 | 4 | 24 | 48 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 | | | | |

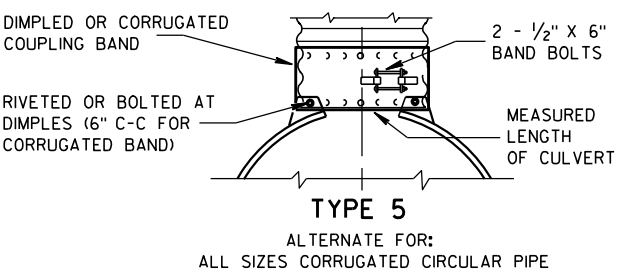
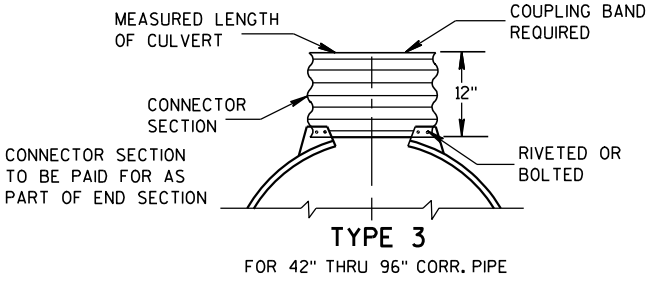
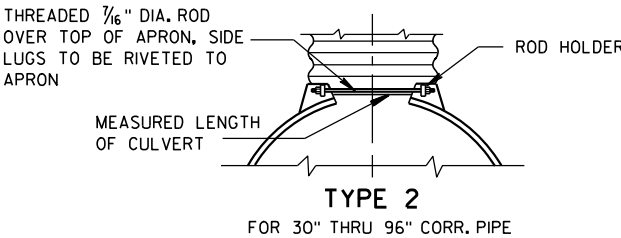
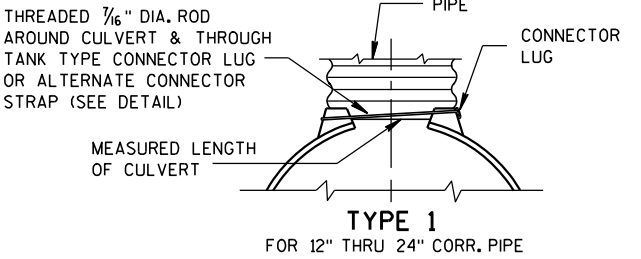
* MINIMUM
** MAXIMUM



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



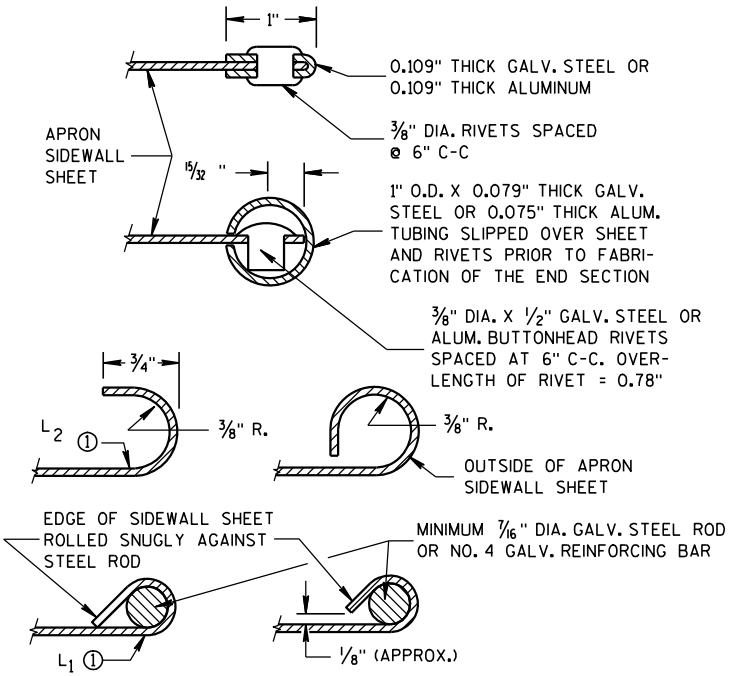
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



GENERAL NOTES

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

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

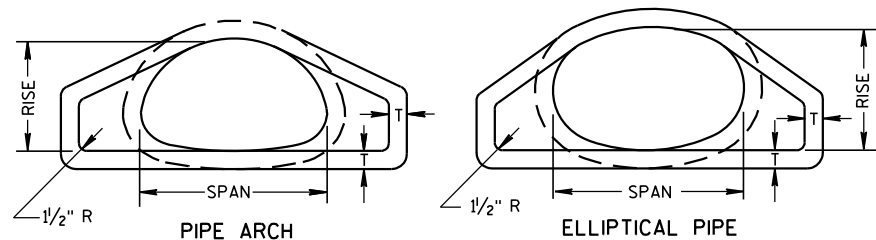
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

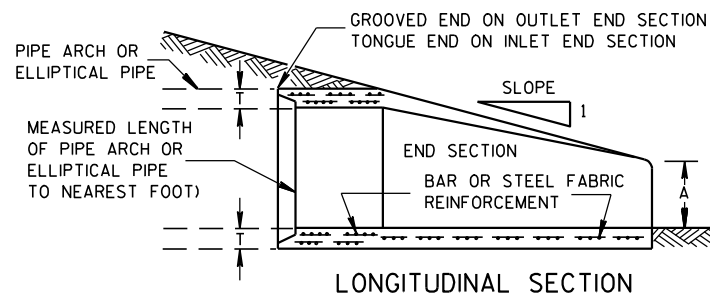
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

| | |
|--|--|
| APRON ENDWALLS FOR
CULVERT PIPE | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | |
| APPROVED
11/30/94
DATE | /S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER |
| FHWA | |

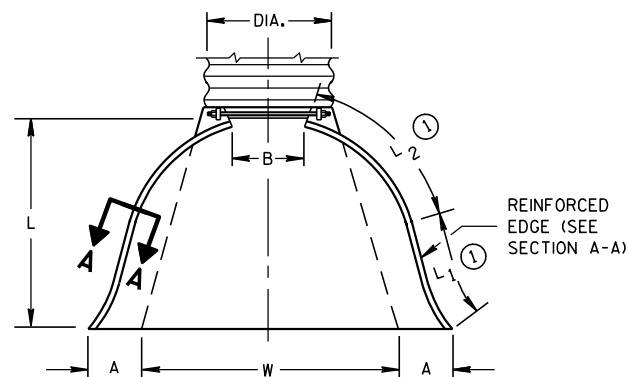


END VIEW



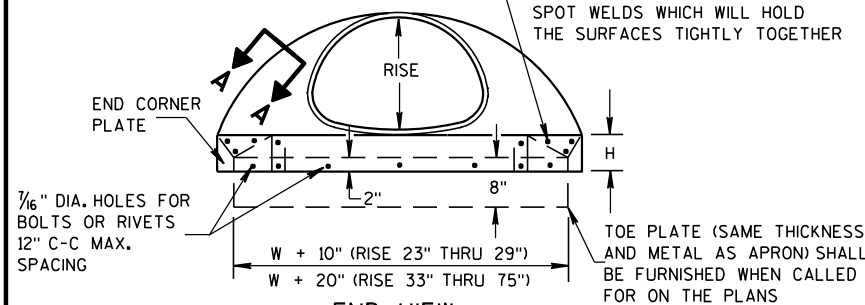
LONGITUDINAL SECTION

CONCRETE ENDWALLS

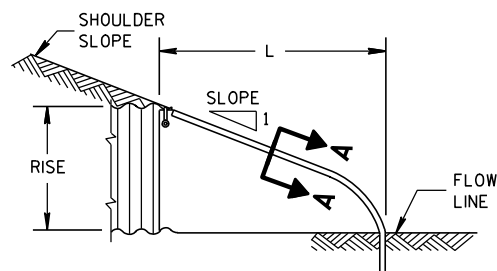
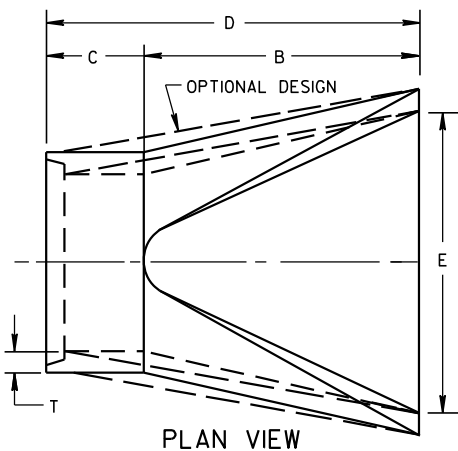


PLAN VIEW

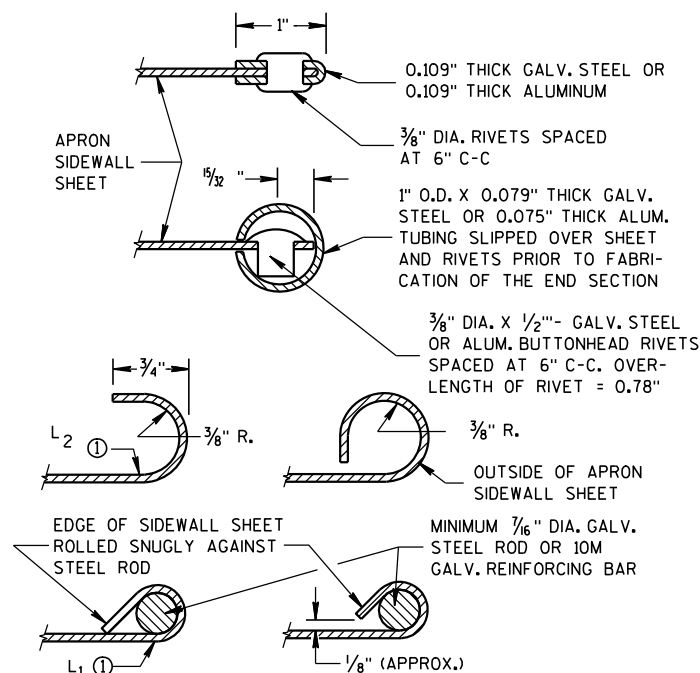
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

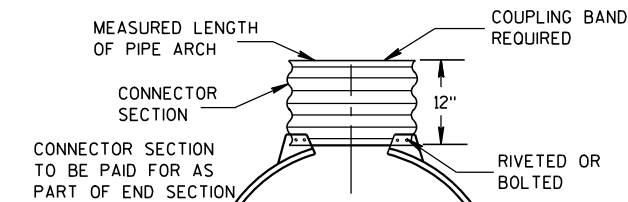


SECTION A-A



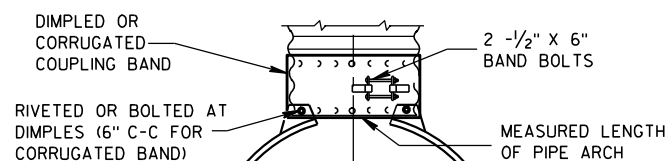
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHESNOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

2- 2/3" X 1/2" CORRUGATIONS

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

3" X 1" CORRUGATIONS

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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

REINFORCED CONCRETE PIPE ARCH

| EQUIV. DIA.
(Inches) | DIMENSIONS (Inches) | | | | | | | | APPROX. SLOPE |
|-------------------------|---------------------|----------|----------|----------|----------|----------|----------|----------|---------------|
| | ** SPAN | ** RISE | T | A | B | C | D | E | |
| | (Inches) | (Inches) | (Inches) | (Inches) | (Inches) | (Inches) | (Inches) | (Inches) | |
| 24 | 29 | 18 | 3 | 8 1/2 | 39 | 33 | 72 | 48 | 3 to 1 |
| 30 | 36 | 22 | 3 1/2 | 9 1/2 | 50 | 46 | 96 | 60 | 3 to 1 |
| 36 | 44 | 27 | 4 | 11 1/8 | 60 | 36 | 96 | 72 | 3 to 1 |
| 42 | 51 | 31 | 4 1/2 | 15 1/16 | 60 | 36 | 96 | 78 | 3 to 1 |
| 48 | 58 | 36 | 5 | 21 | 60 | 36 | 96 | 84 | 3 to 1 |
| 54 | 65 | 40 | 5 1/2 | 25 1/2 | 60 | 36 | 96 | 90 | 3 to 1 |
| 60 | 73 | 45 | 6 | 31 | 60 | 36 | 96 | 96 | 3 to 1 |
| 72 | 88 | 54 | 7 | 31 | 60 | 39 | 99 | 120 | 2 to 1 |
| 84 | 102 | 62 | 8 | 28 1/2 | 83 | 19 | 102 | 144 | 2 to 1 |

REINFORCED CONCRETE ELLIPTICAL PIPE

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

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

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

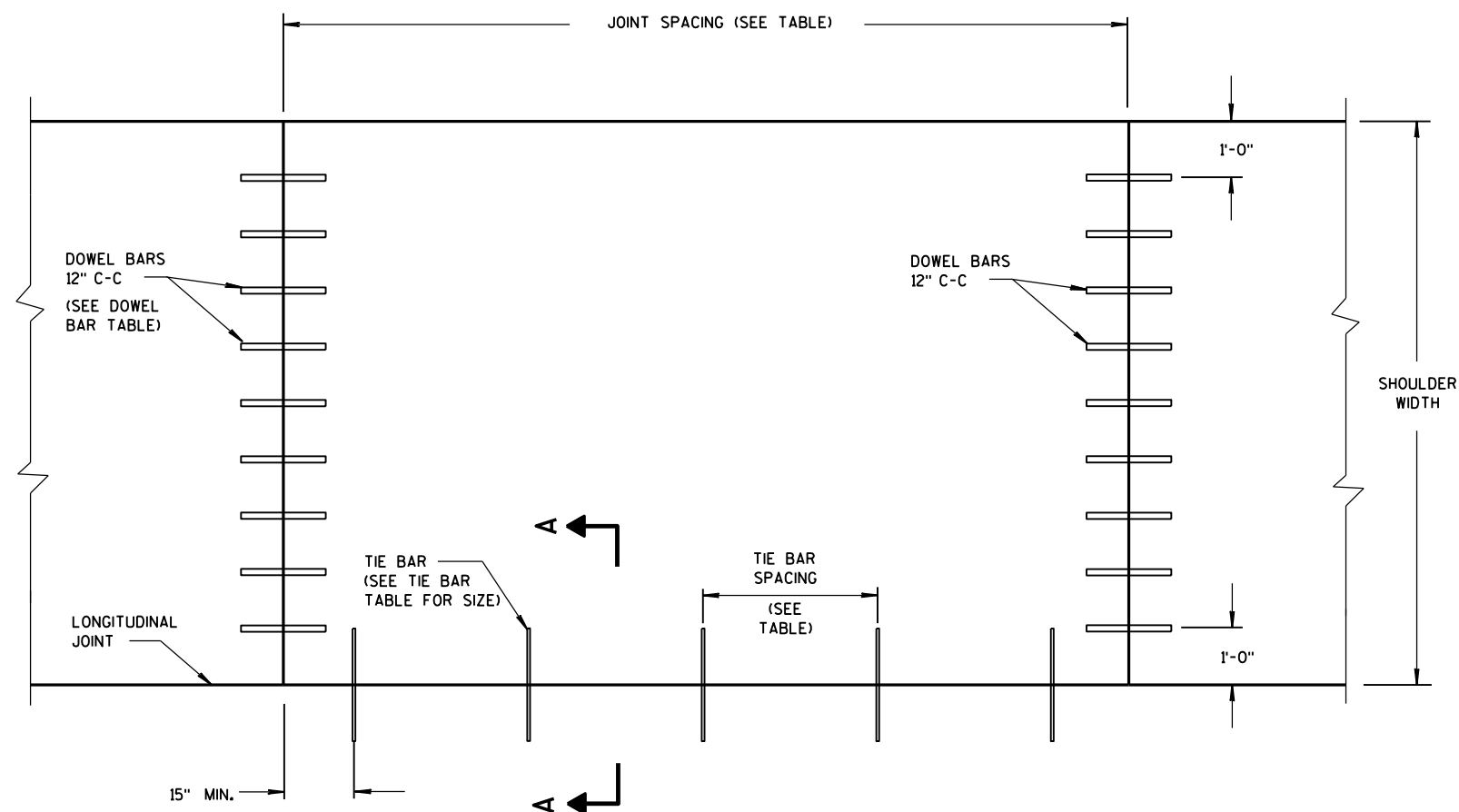
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

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

APPROVED

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

FHWA



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2" | NO. 4 | 30" | 36" |
| ≥ 10 1/2" | NO. 5 | 36" | 36" |
| | NO. 4 * | 30" | 24" ** |

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g., AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

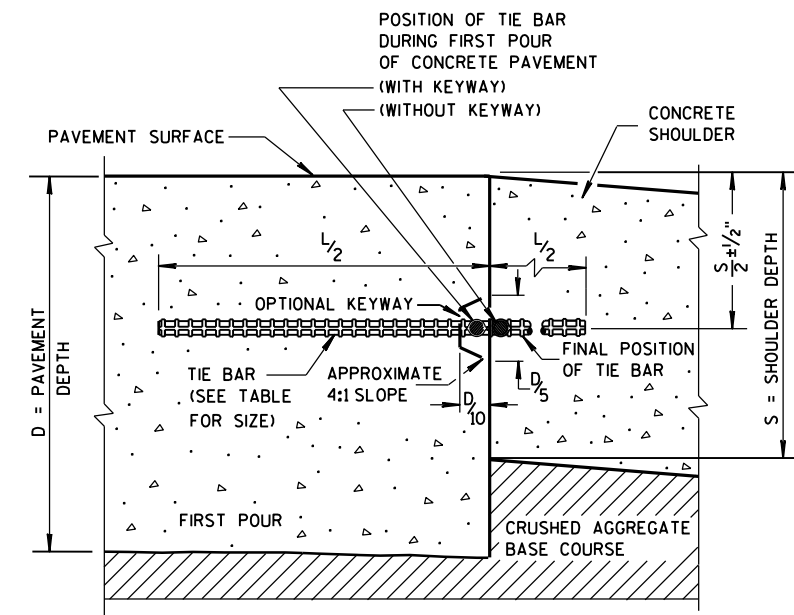
GENERAL NOTES

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER*** | CONTRACTION JOINT SPACING |
|--------------------|-----------------------|---------------------------|
| 5 1/2", 6", 6 1/2" | NONE | 12' |
| 7", 7 1/2" | 1" | 14' |
| 8", 8 1/2" | 1 1/4" | 15' |
| 9", 9 1/2" | 1 1/4" | 15' |
| 10" & ABOVE | 1 1/2" | 15' |

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

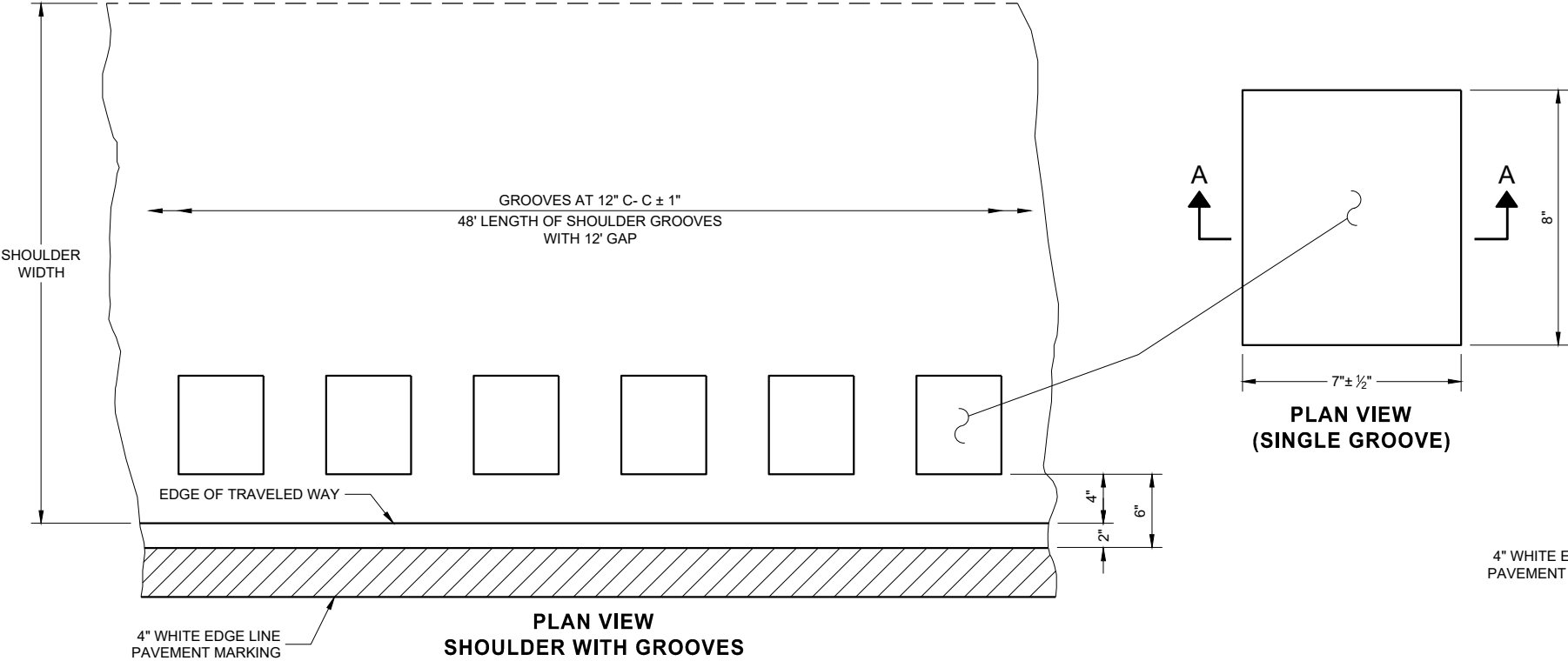
June, 2015

DATE

FHWA

/S/ Peter Kemp, P.E.

PAVEMENT SUPERVISOR



6

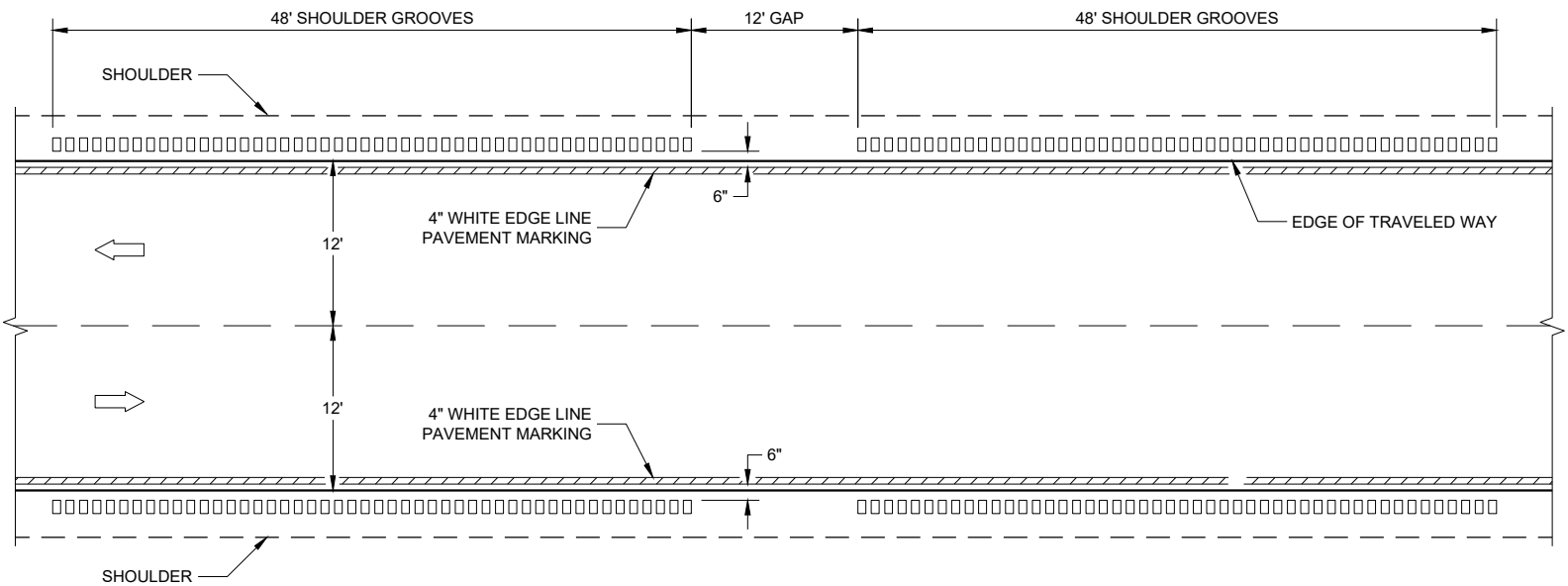
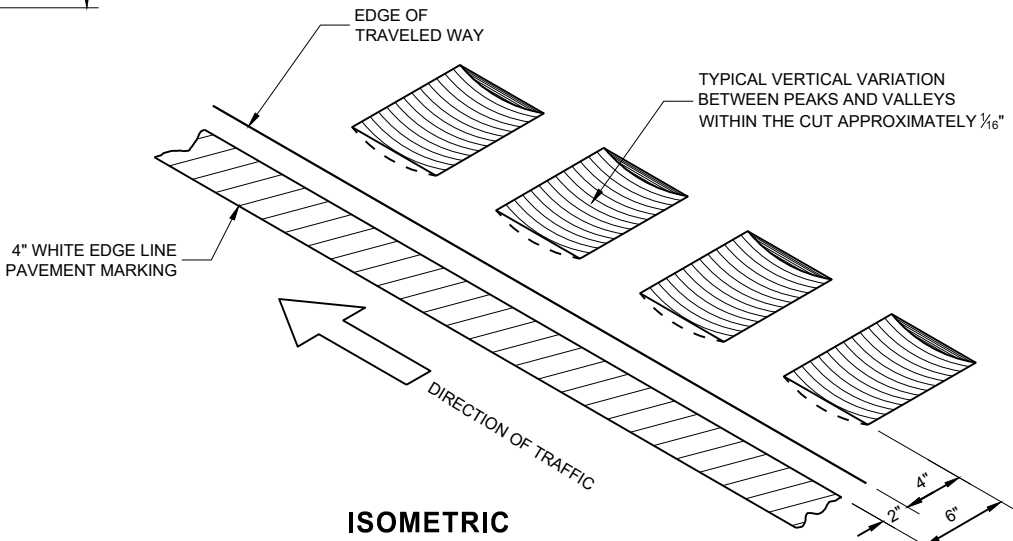
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

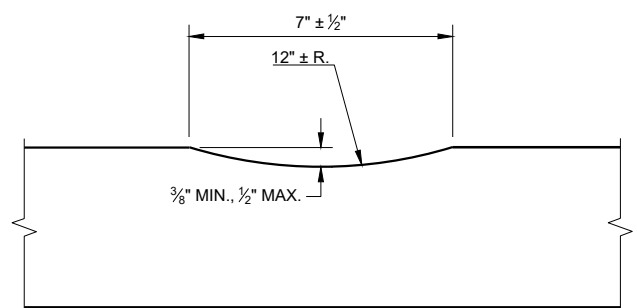
DETAILS OF CONSTRUCTION NO SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.



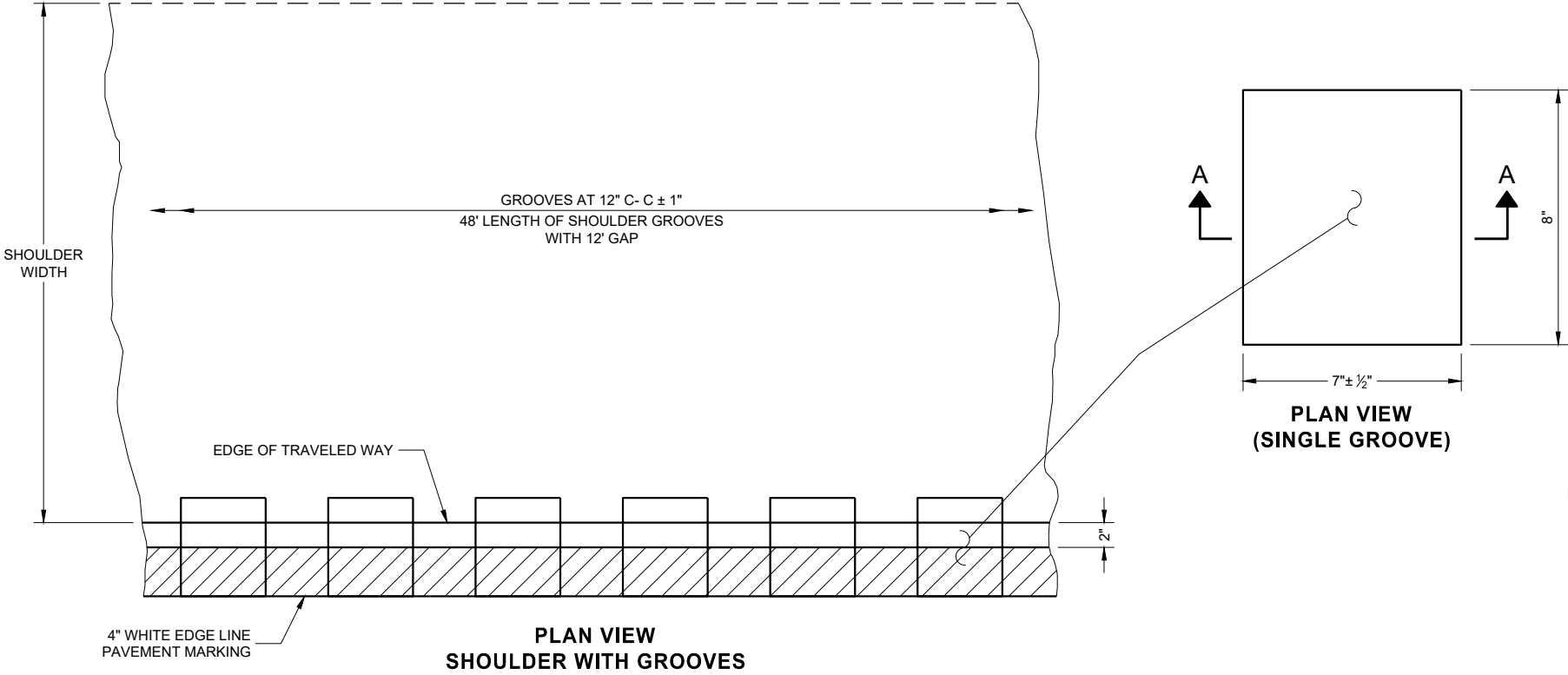
TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



6

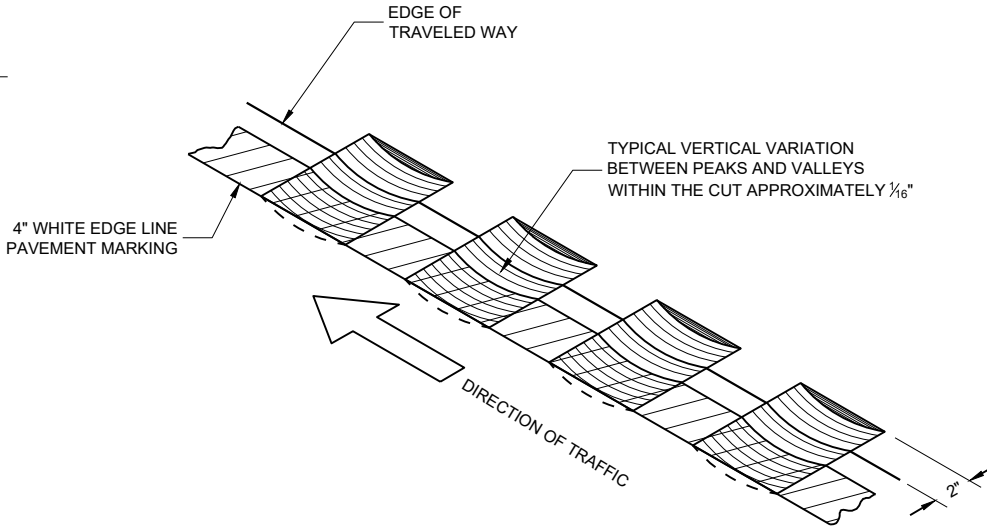
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

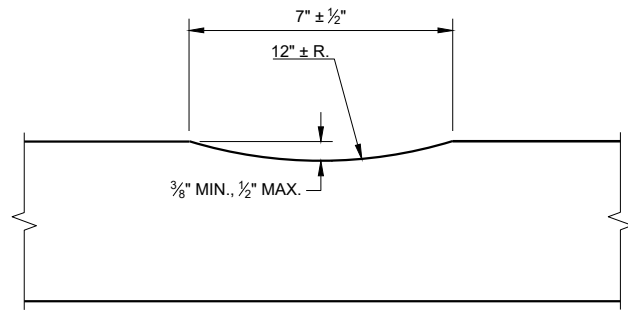
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.



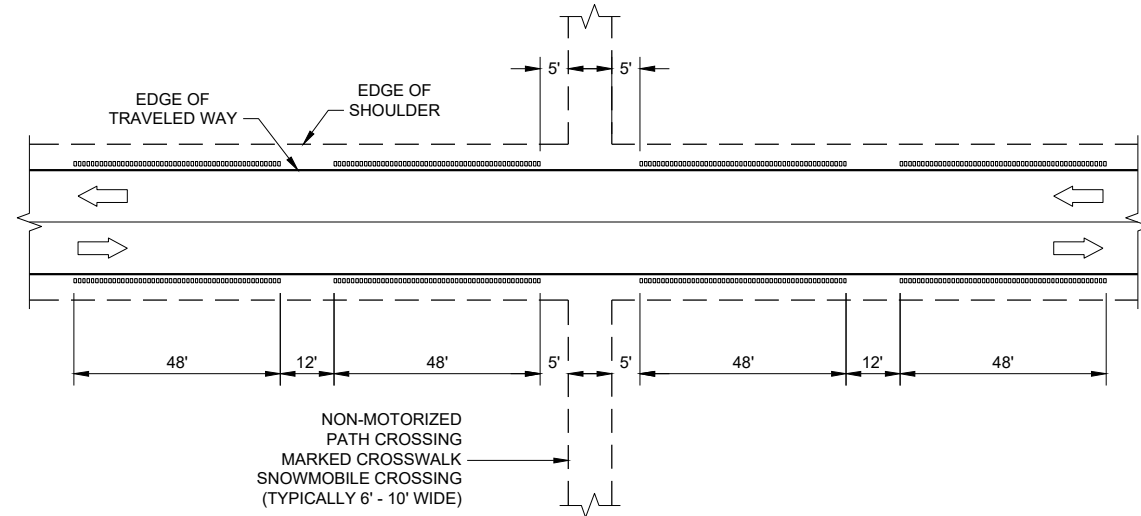
ISOMETRIC



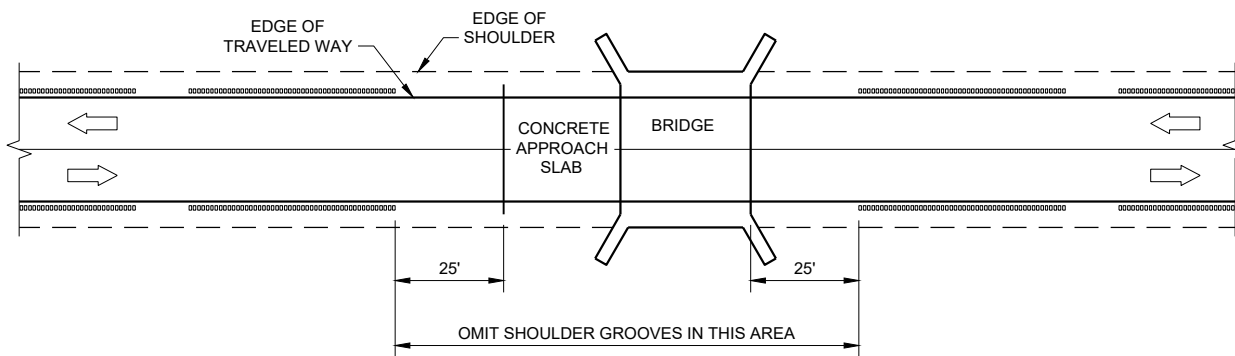
SECTION A - A

2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING

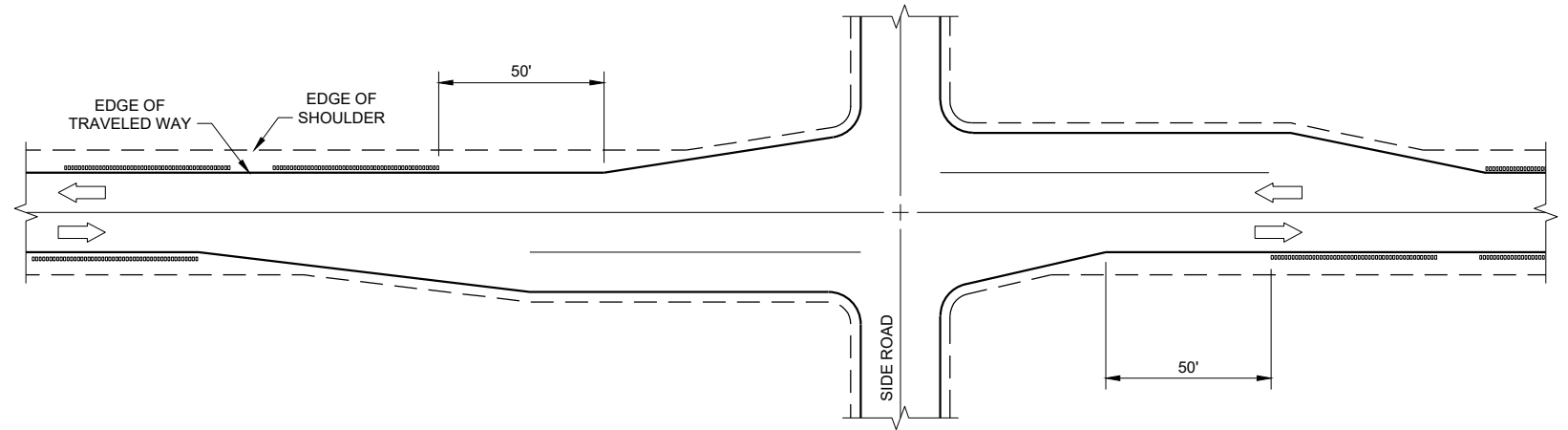
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



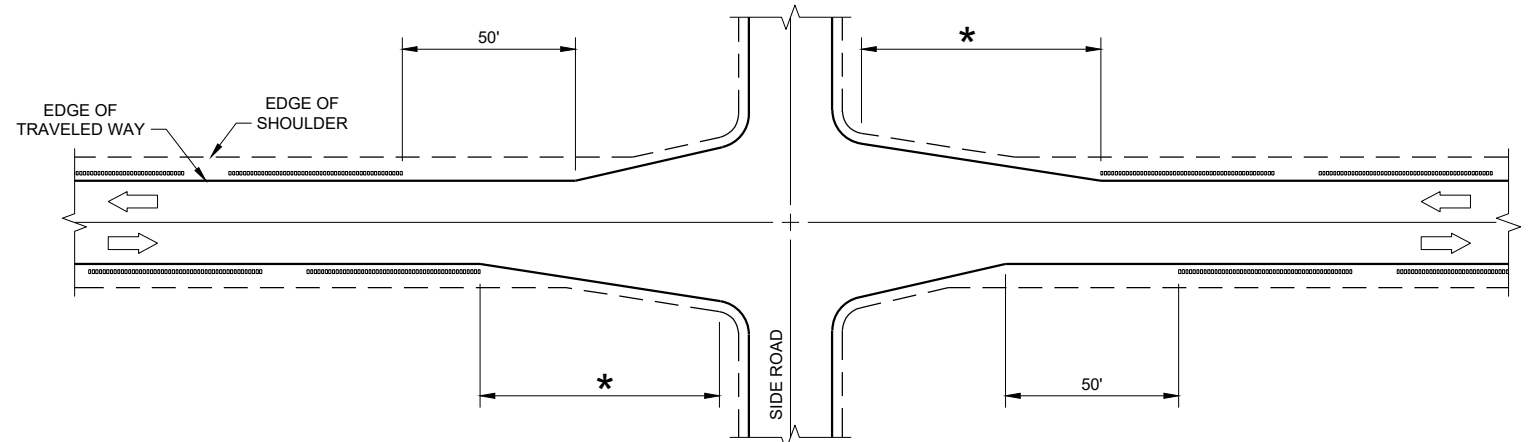
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



SHOULDER GROOVES AT BRIDGES

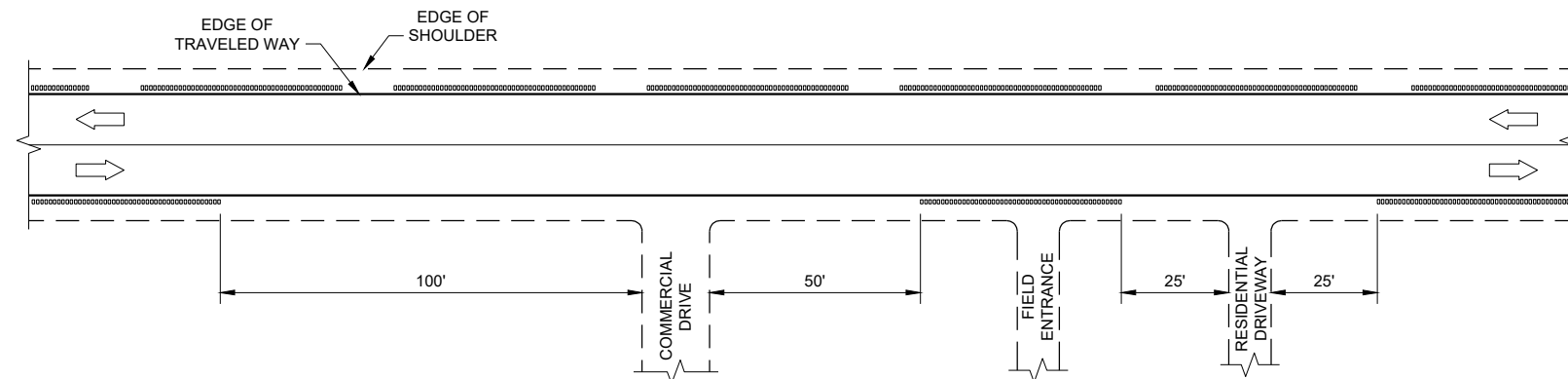


SHOULDER GROOVES AT RIGHT TURN LANE



* GREATER OF 100' OR APPROACH TAPER LENGTH

SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



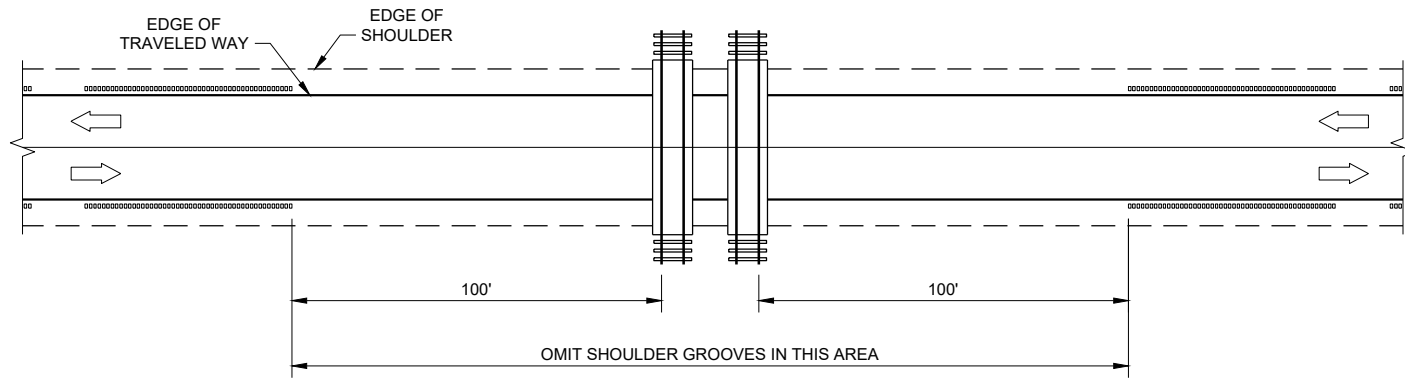
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

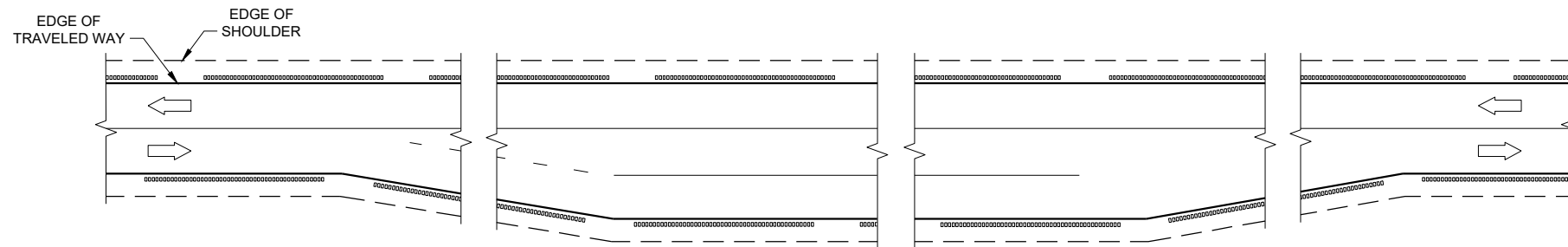
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

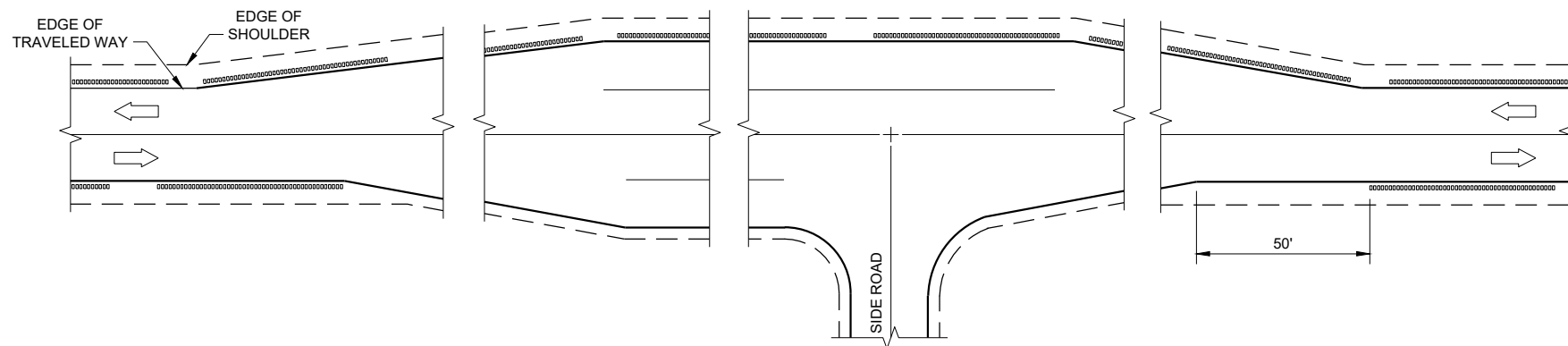
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



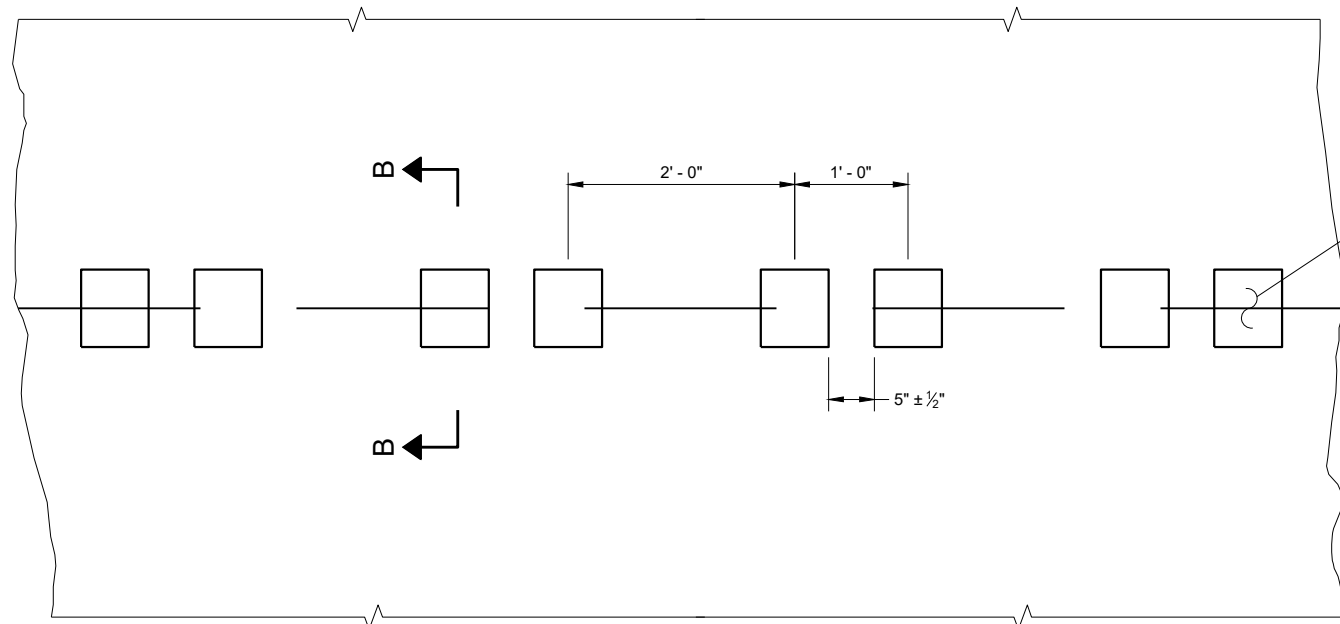
SHOULDER GROOVES AT BYPASS LANES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

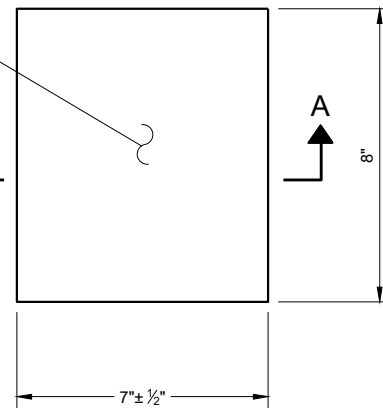
FHWA



PLAN VIEW
SHOULDER WITH GROOVES

6

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

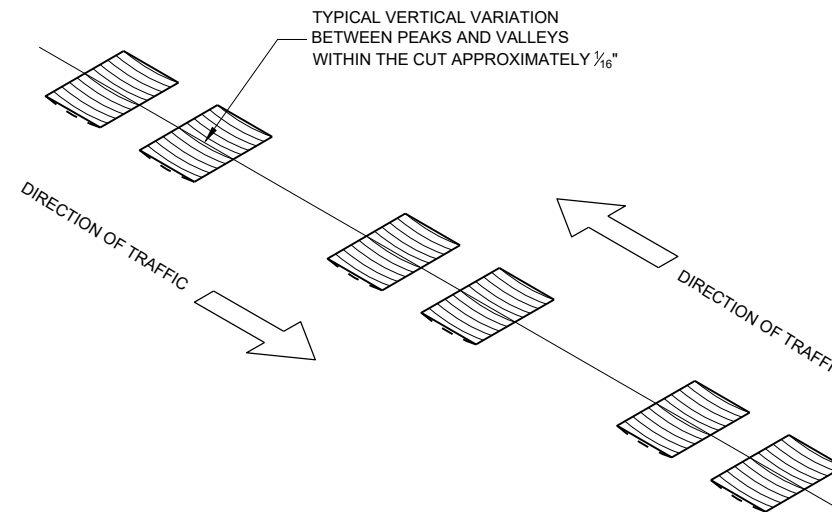
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

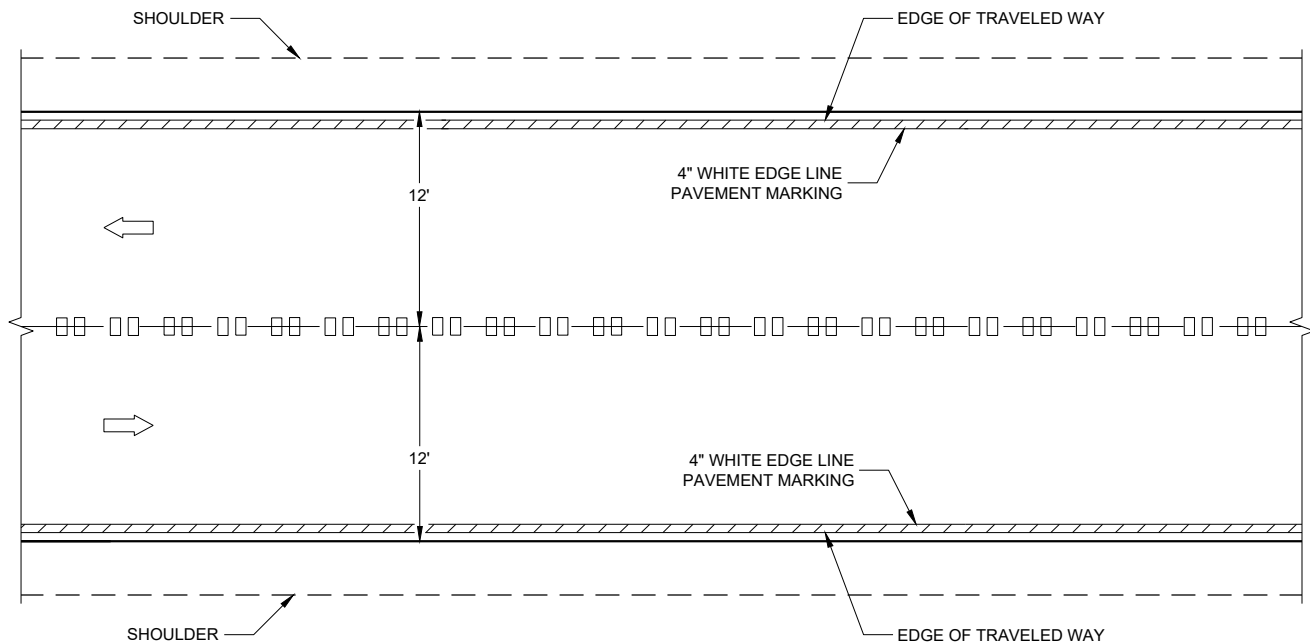
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

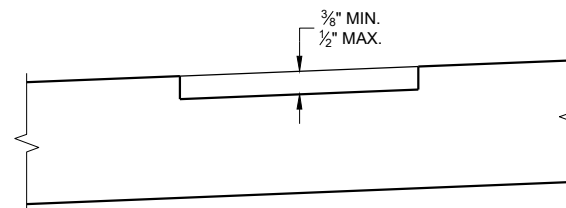
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



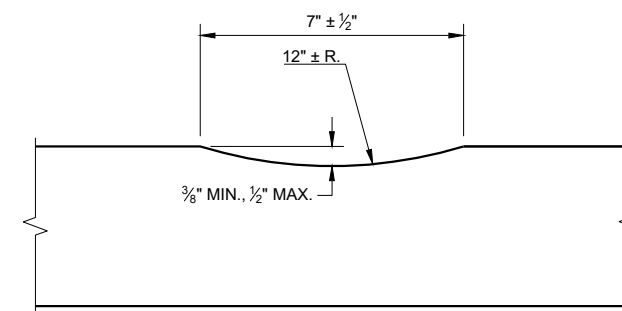
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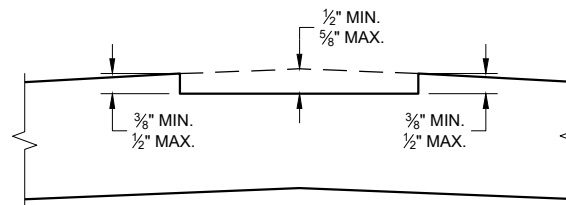
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY



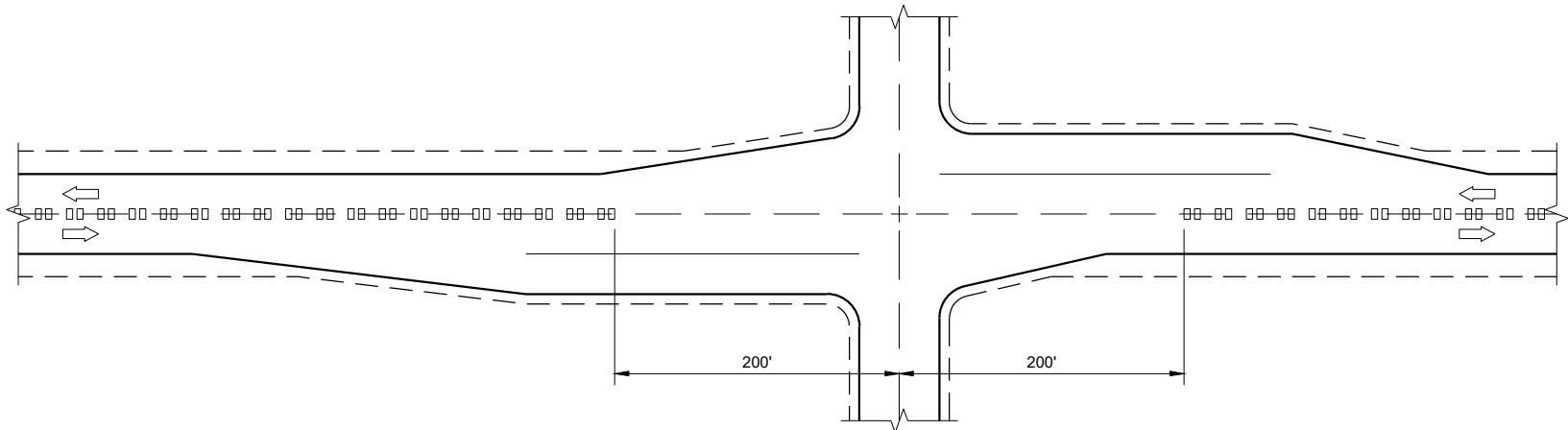
SECTION A - A



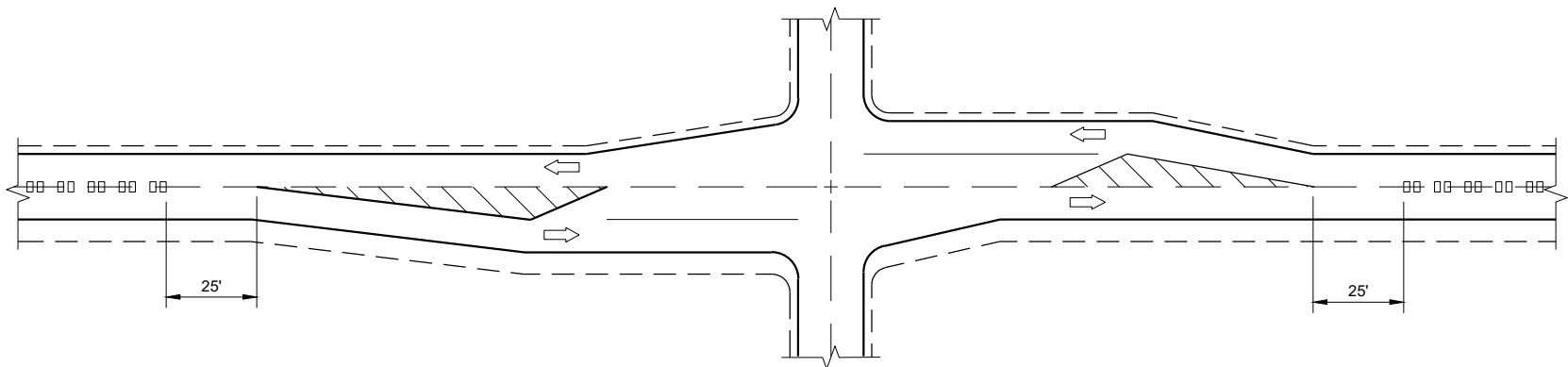
SECTION B - B
CROWNED ROADWAY

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

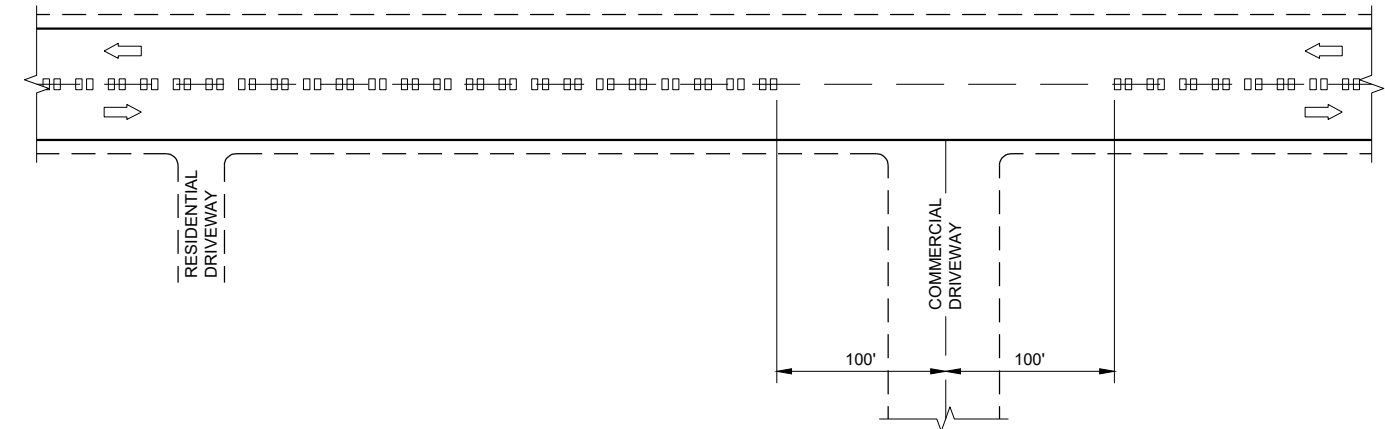
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



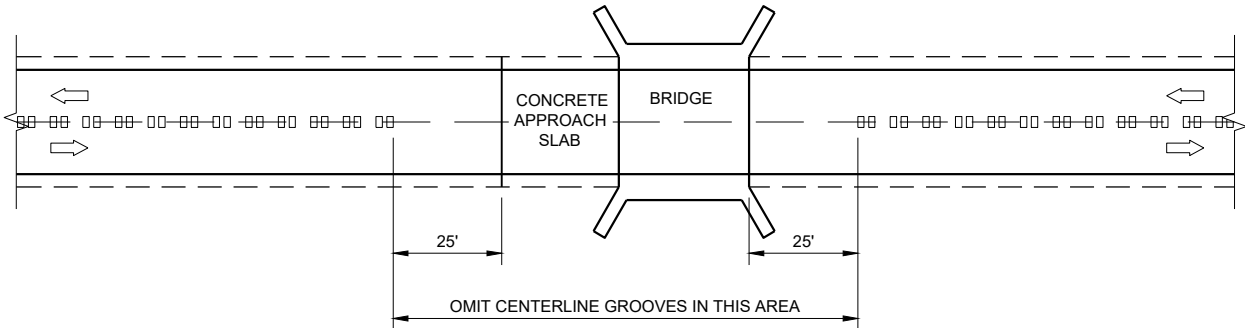
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



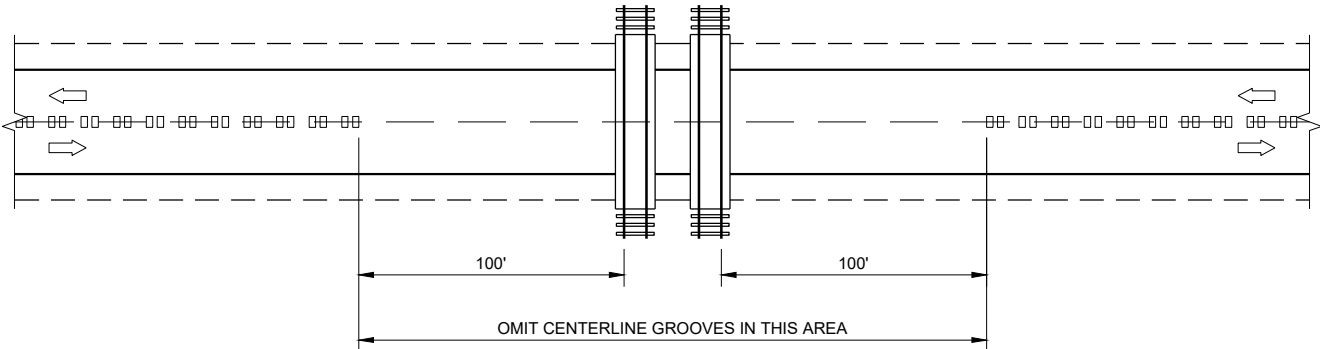
CENTERLINE GROOVES AT DRIVEWAYS^①

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

2-LANE RURAL
CENTERLINE RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

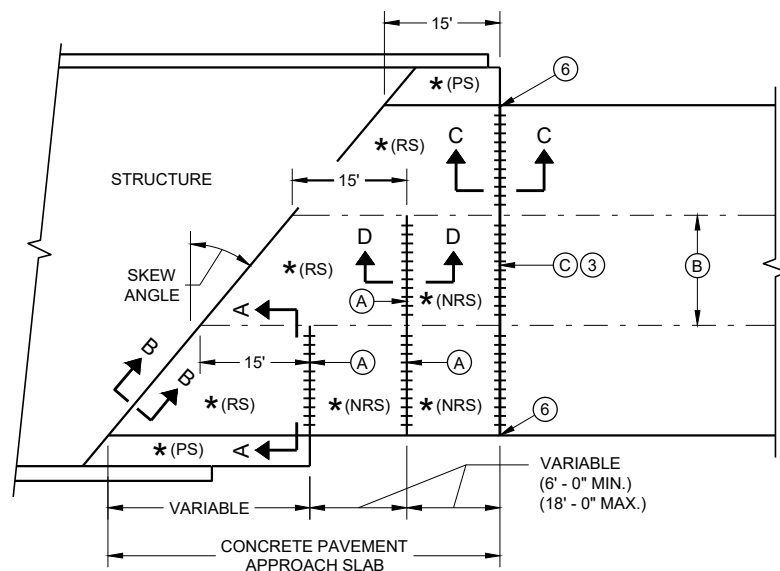
DATE

FHWA

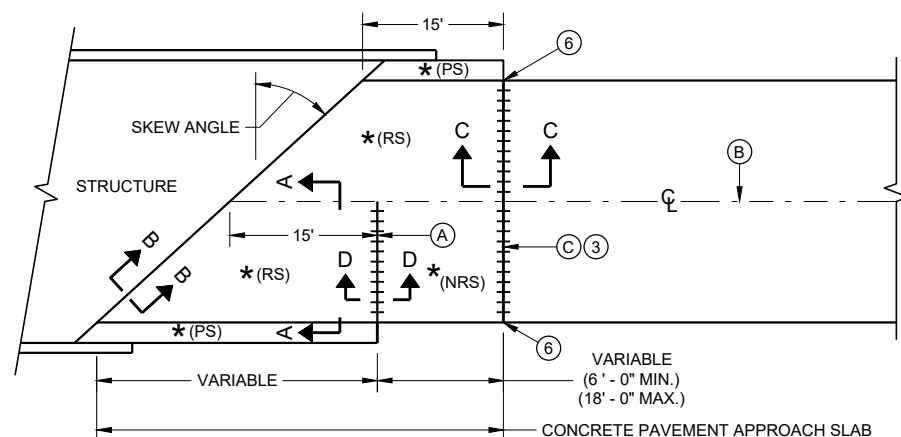
/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

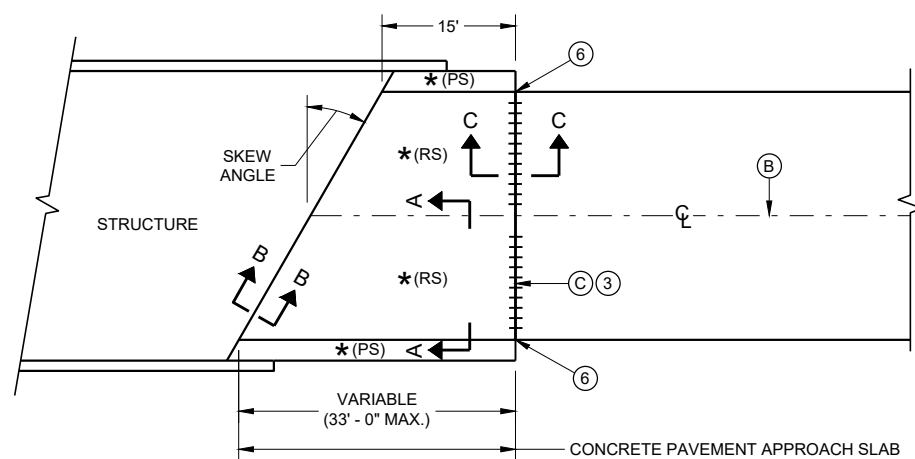
ENGINEER



**SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)**



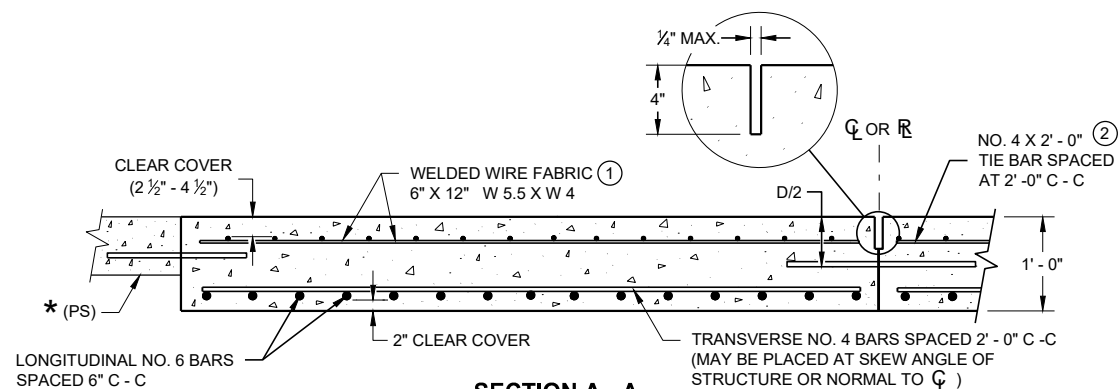
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



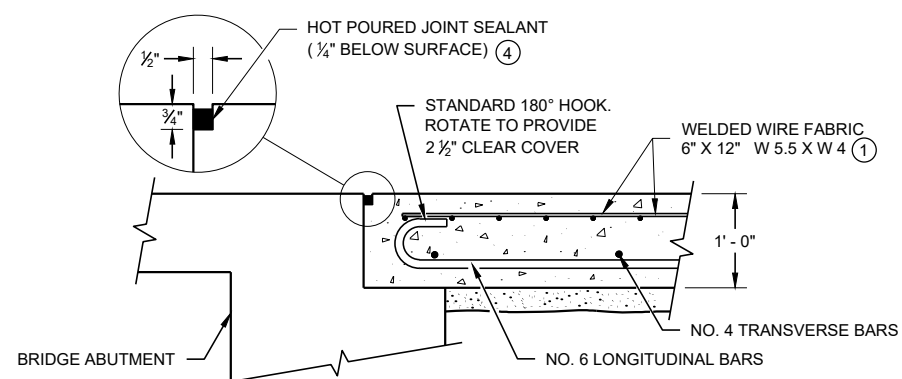
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

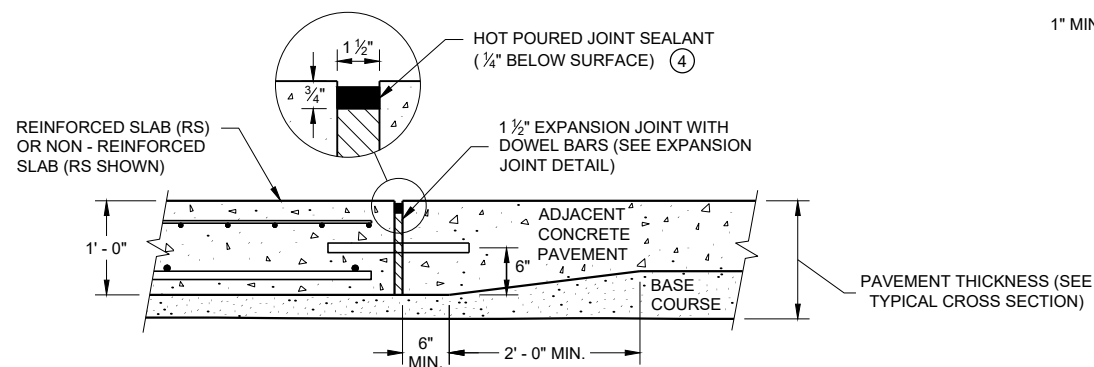
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



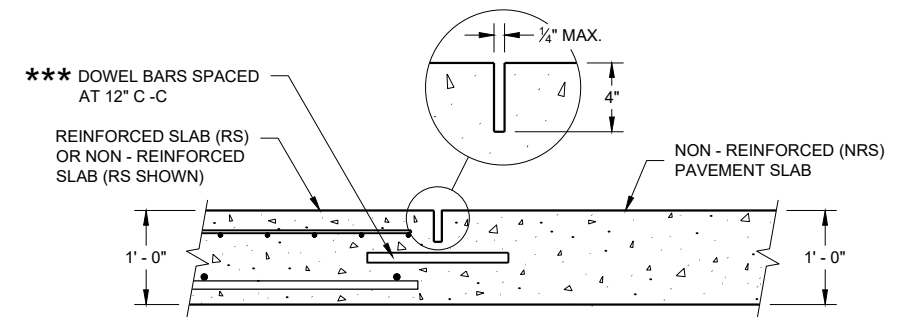
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

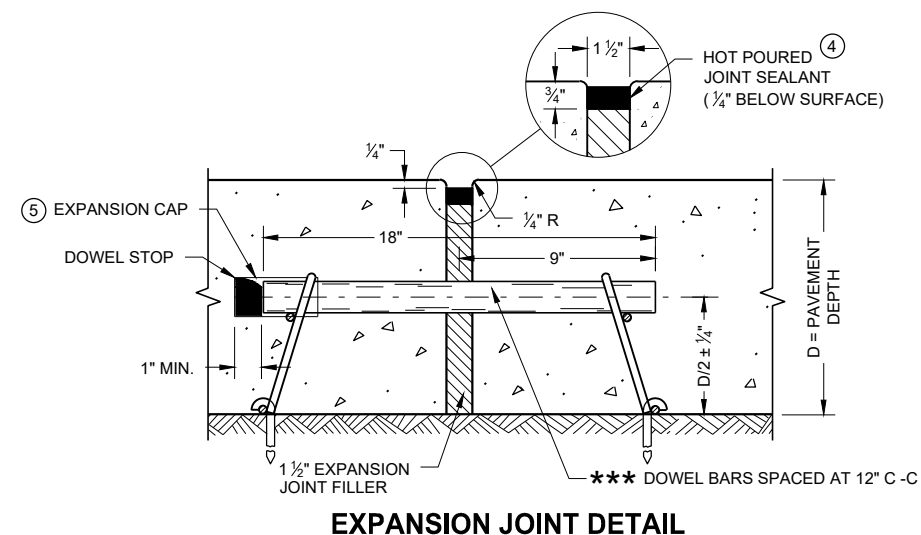
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- A STANDARD CONTRACTION JOINT NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.
- B STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- C 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**



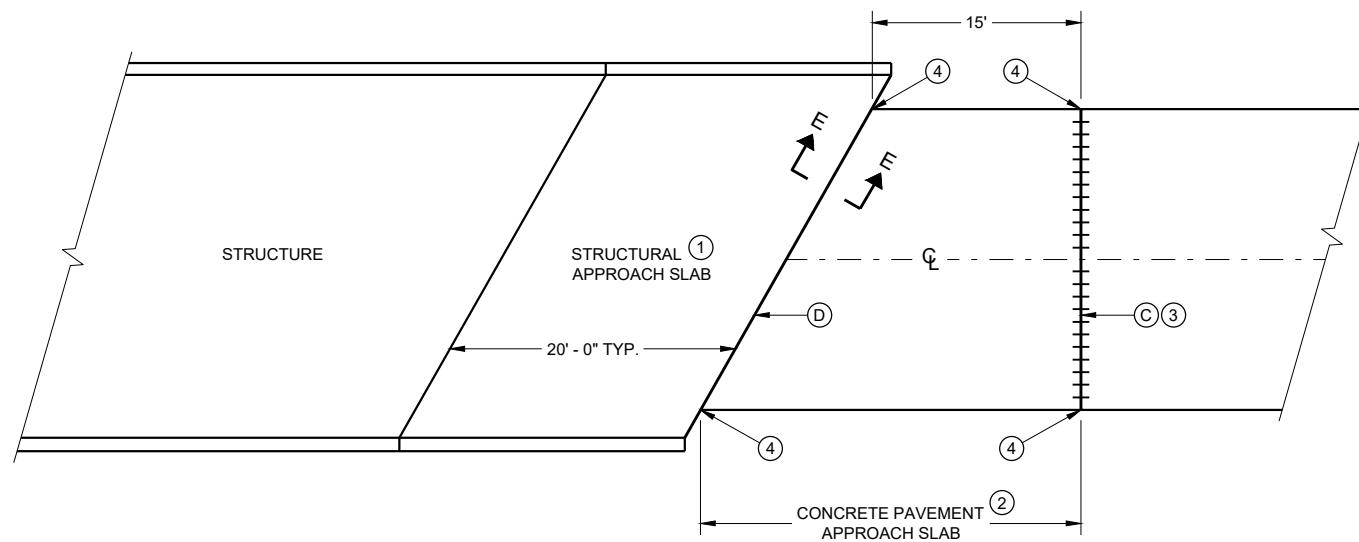
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR

FHWA

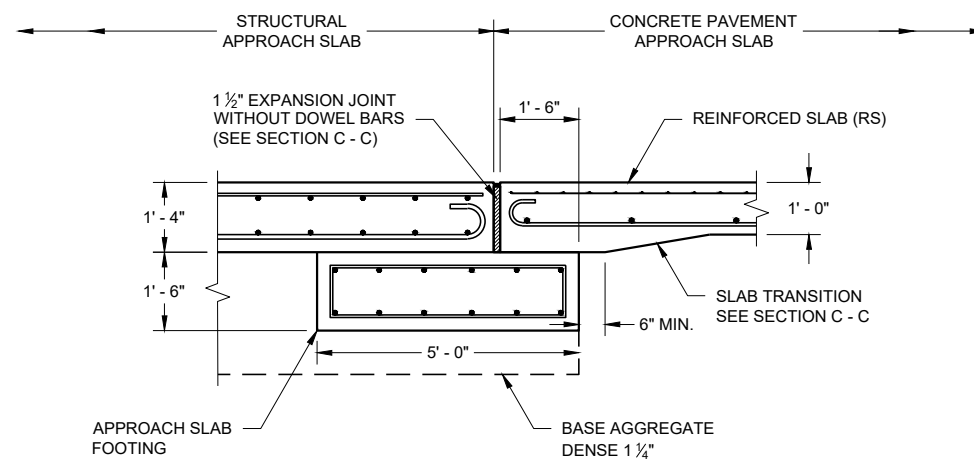


GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

- ① SEE BRIDGE PLAN.
- ② CONFORM TO SDD 13B02 SHEET A FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- Ⓒ 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\overline{CL}$ OR $\overline{RL}$.
- Ⓓ 1 ½" EXPANSION JOINT (NO DOWELS)

BRIDGE APPROACHES



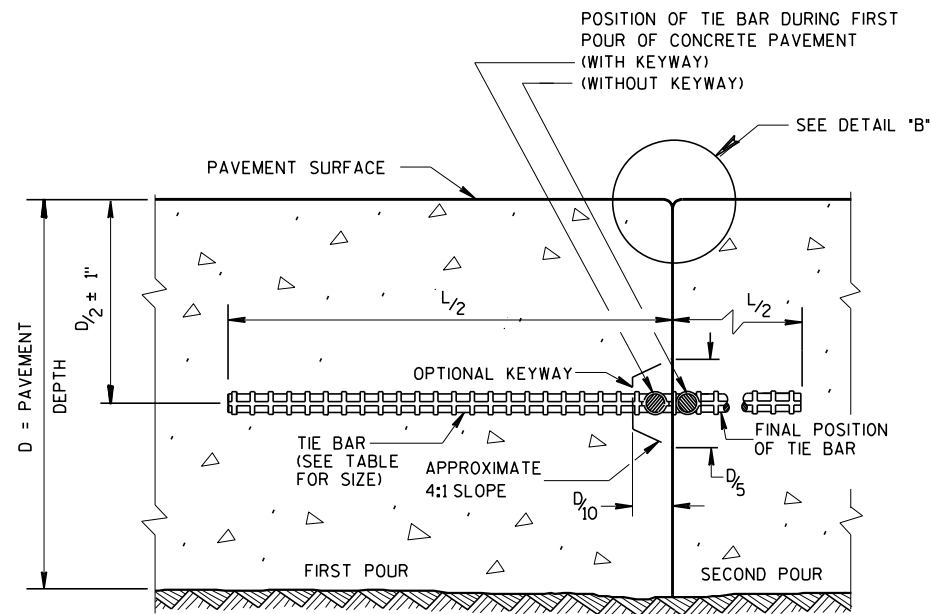
SECTION E - E FOOTING DETAIL STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

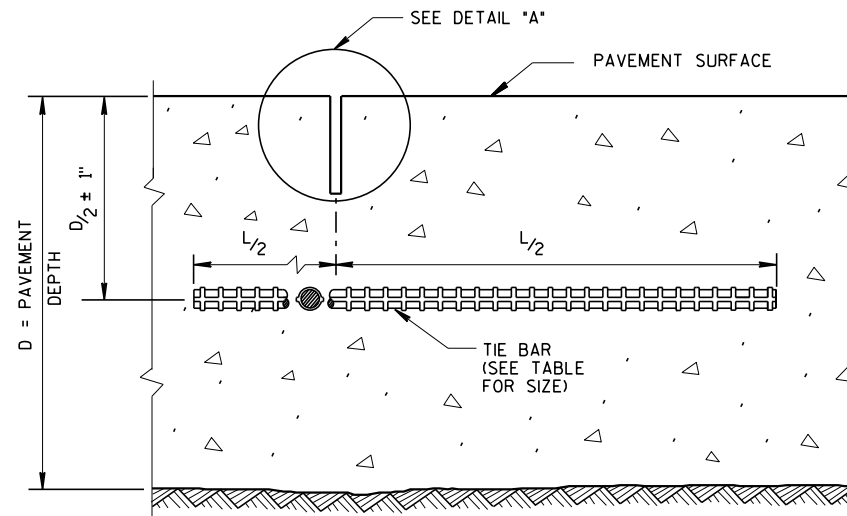
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR

FHWA



CONSTRUCTION JOINT



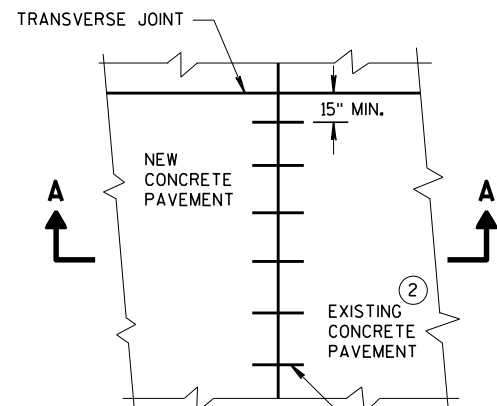
SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

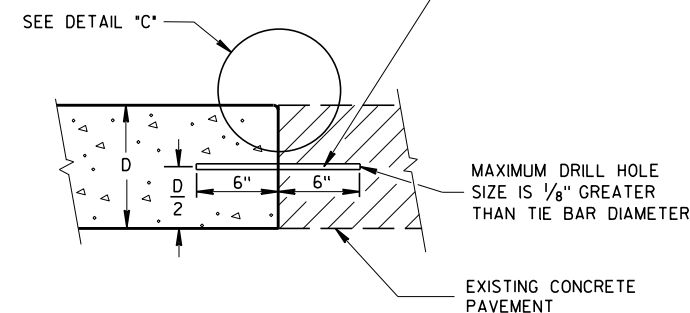
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

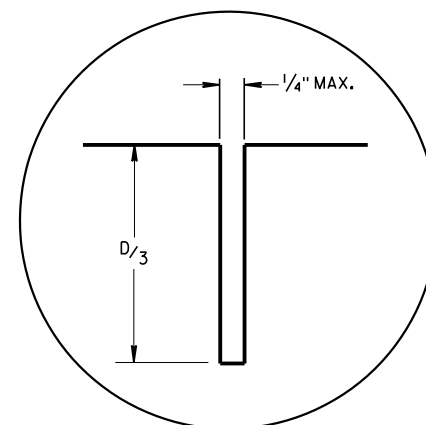


PLAN VIEW

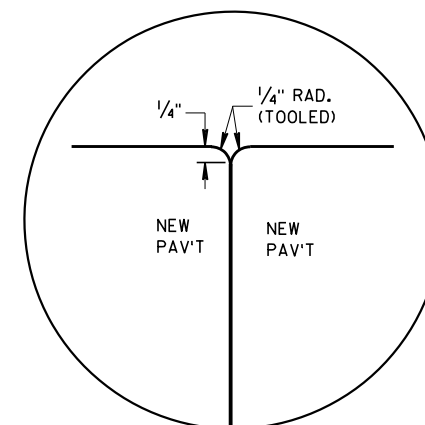
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



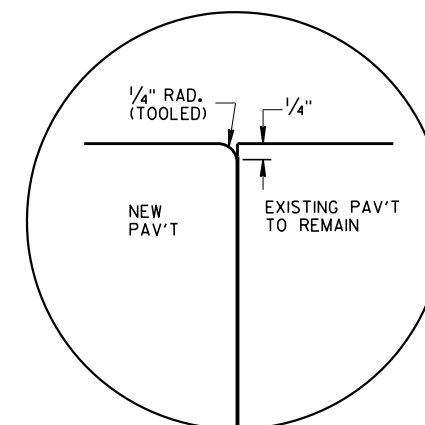
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



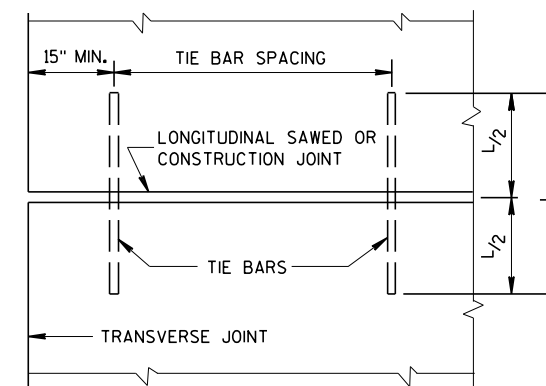
DETAIL "C"

TIE BAR TABLE

| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2" | NO. 4 | 30" | 36" |
| ≥ 10 1/2" | NO. 5 | 36" | 36" |
| | NO. 4 * | 30" | 24" ** |

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

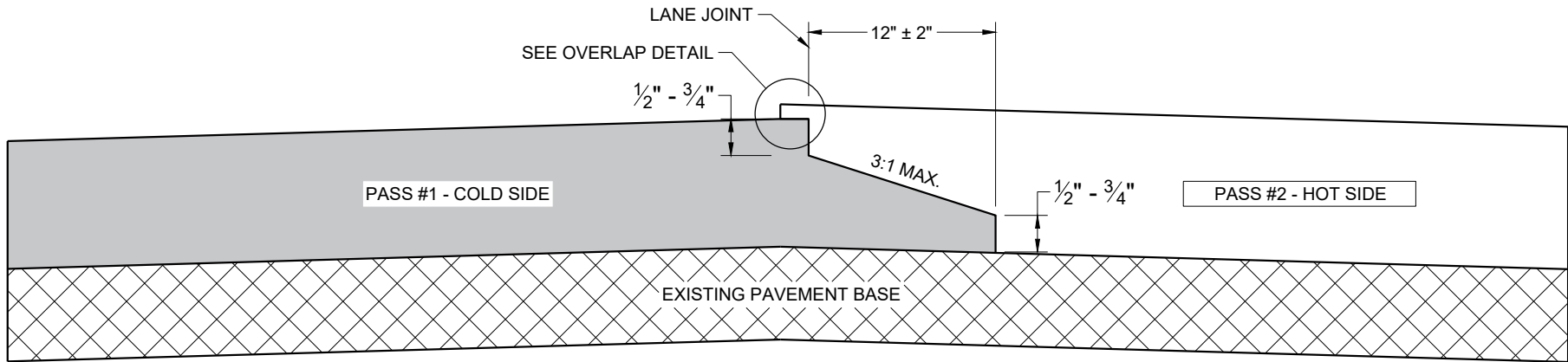


PLAN VIEW
SHOWING LOCATION OF TIE BARS

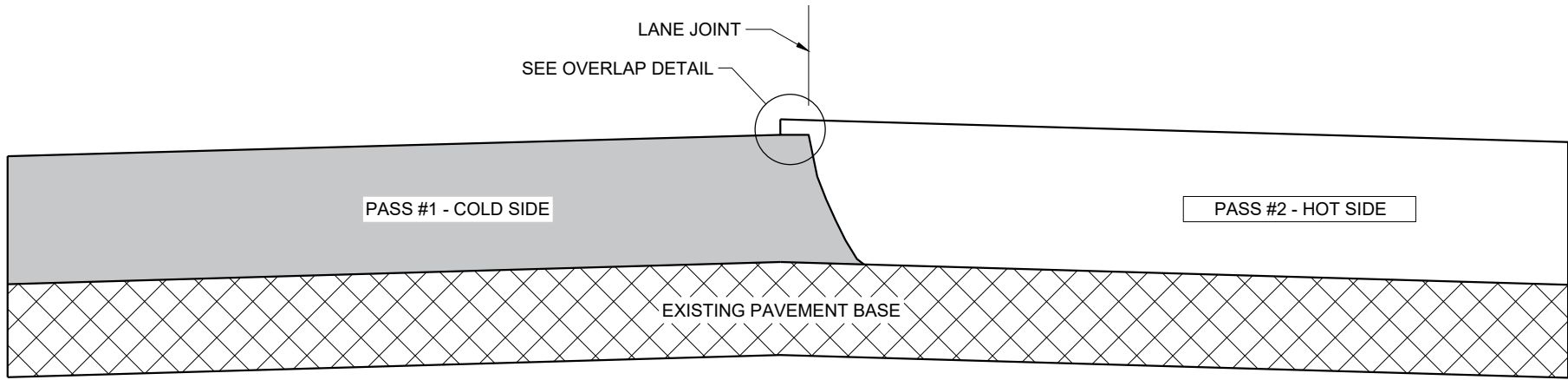
CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

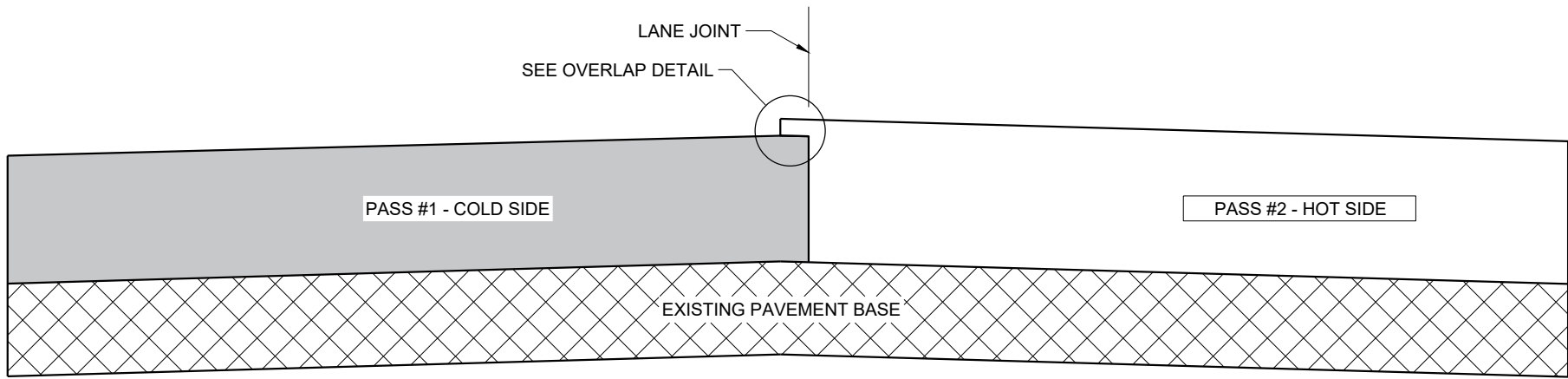
APPROVED
March 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

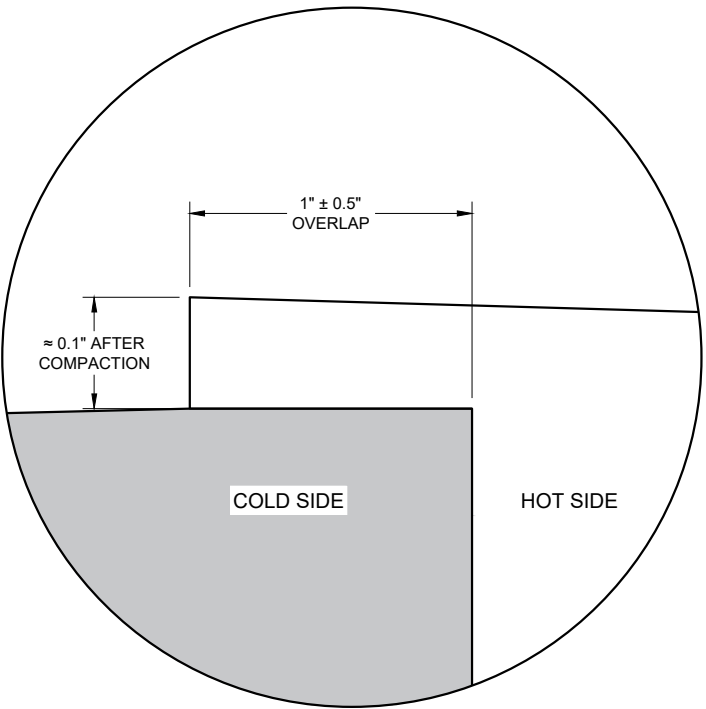
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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

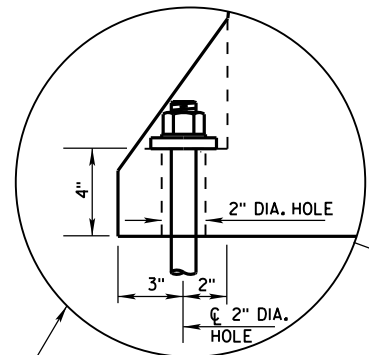


OVERLAP DETAIL (TYPICAL)

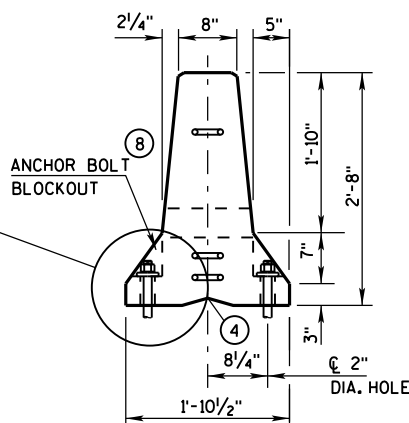
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

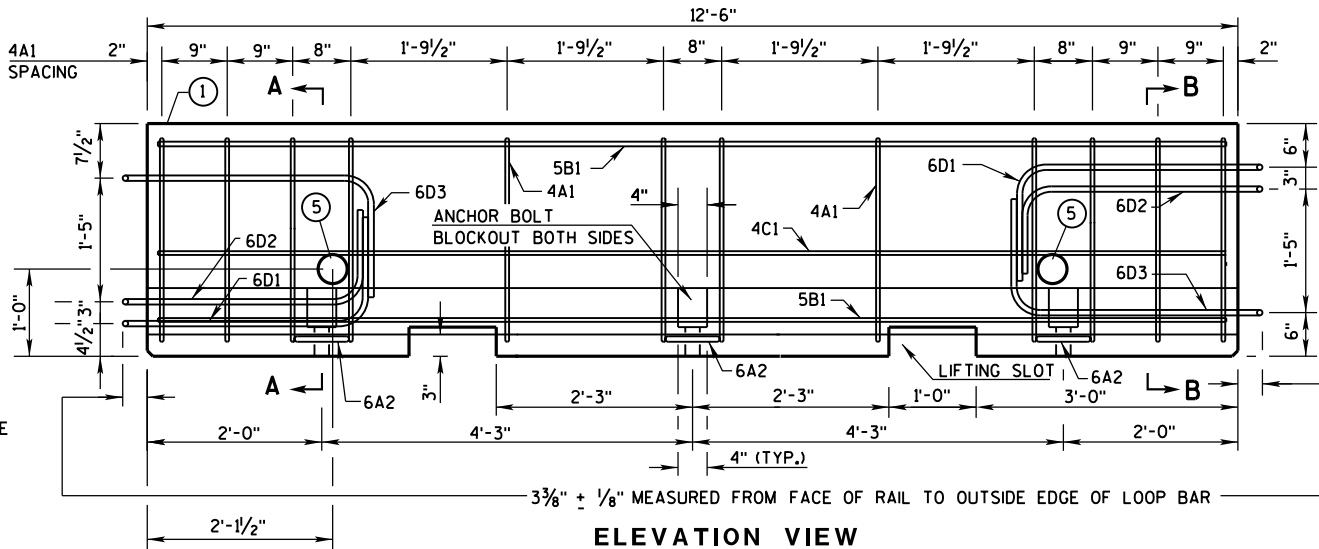
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA



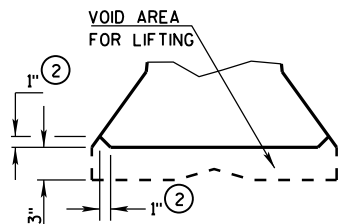
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



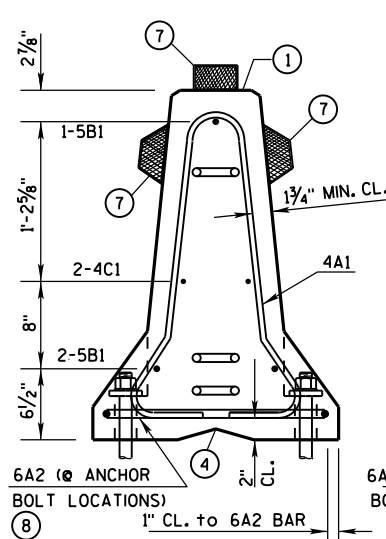
END VIEW



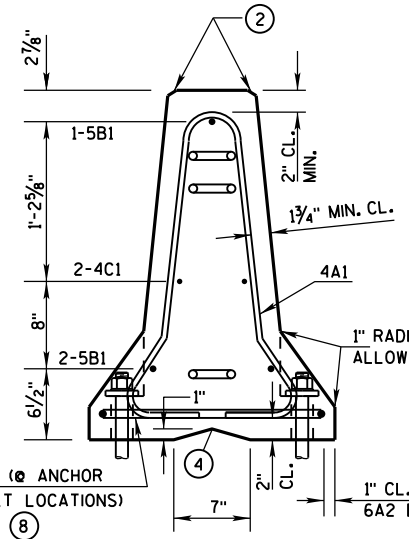
ELEVATION VIEW



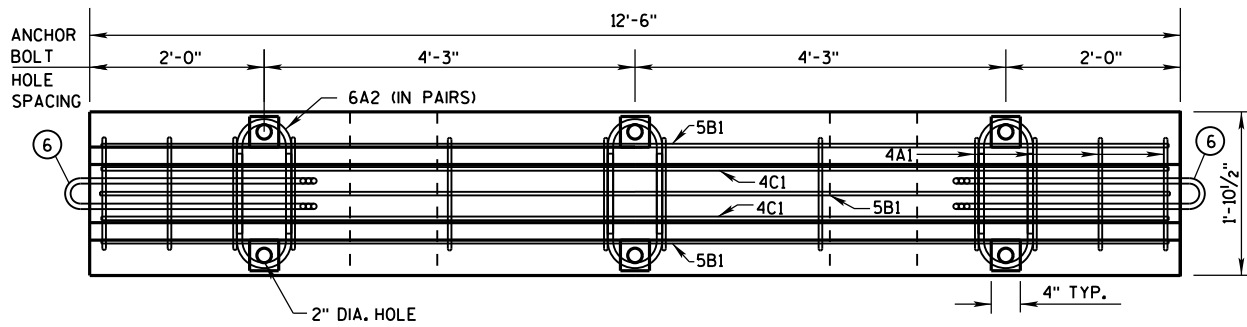
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

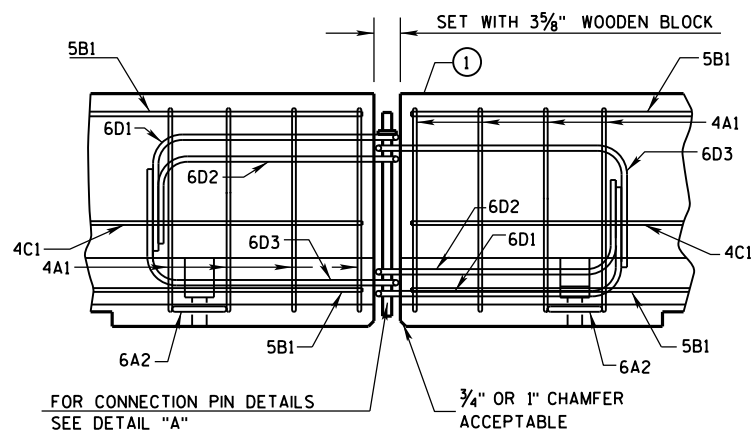


SECTION B-B
(STIRRUP PLACEMENT)

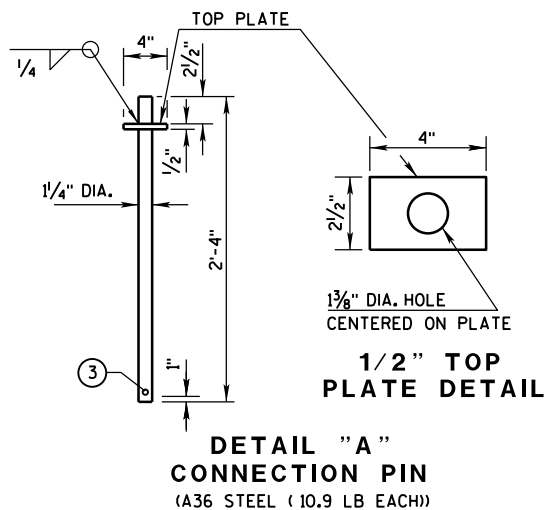


PLAN VIEW

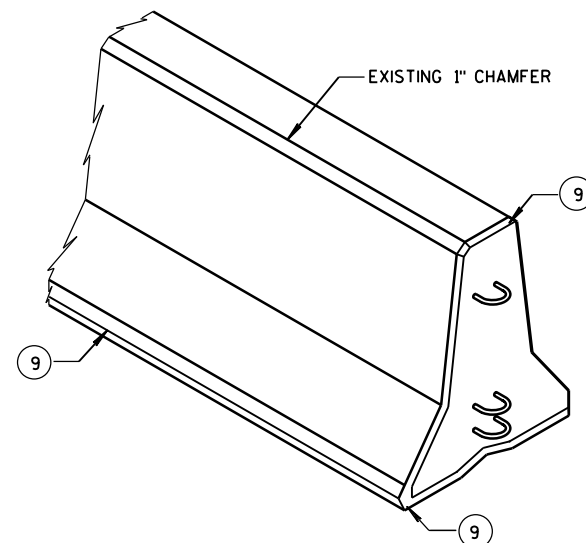
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
- 1" CHAMFER TO PREVENT SPALLING.
- A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- "V" NOTCH IS OPTIONAL.
- THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 1" CHAMFER OPTIONAL.

f'c = 4,000 psi

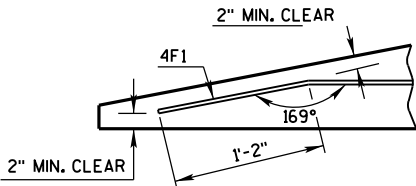
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

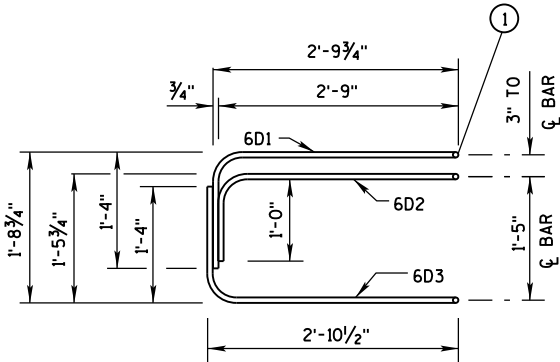
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

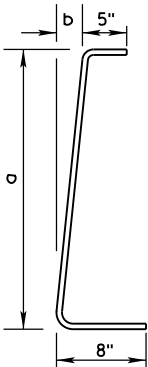
| BAR | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4V1 | 4 | 2 | 1'-11" |
| 4V2 | 4 | 2 | 2'-2" |
| 4V3 | 4 | 2 | 2'-6" |
| 4V4 | 4 | 2 | 2'-9" |
| 4V5 | 4 | 2 | 3'-2" |
| 4V6 | 4 | 2 | 3'-4" |
| 4F1 | 4 | 2 | 12'-0" |
| 4F2 | 4 | 2 | 7'-6" |
| 5F3 | 5 | 1 | 11'-9" |
| LOOP ASSEMBLY | | | |
| 6D1 | 6 | 1 | 8'-5" |
| 6D2 | 6 | 1 | 7'-7" |
| 6D3 | 6 | 1 | 8'-6" |



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

| BAR | a | b |
|-----|-----------|--------|
| V1 | 10" | 1" |
| V2 | 1'-1" | 1 1/4" |
| V3 | 1'-5" | 1 5/8" |
| V4 | 1'-8" | 1 7/8" |
| V5 | 2'-0 1/2" | 2 3/8" |
| V6 | 2'-3" | 2 3/4" |

TAPER BARRIER SECTION

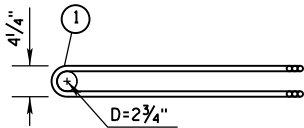
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

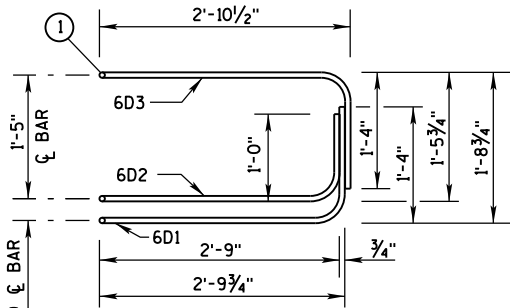
(PER 12'-6" BARRIER SECTION)

| BAR | BAR SIZE | NO. OF BARS | LENGTH FT. |
|---------------|----------|-------------|------------|
| 4A1 | 4 | 12 | 6'-0" |
| 6A2 | 6 | 6 | 2'-11" |
| 5B1 | 5 | 3 | 12'-2" |
| 4C1 | 4 | 2 | 12'-2" |
| LOOP ASSEMBLY | | | |
| 6D1 | 6 | 2 | 8'-5" |
| 6D2 | 6 | 2 | 7'-7" |
| 6D3 | 6 | 2 | 8'-6" |

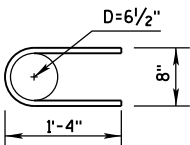


PLAN VIEW
LOOP BAR ASSEMBLY

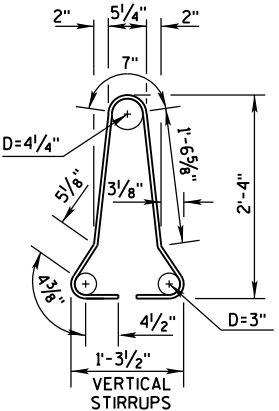
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

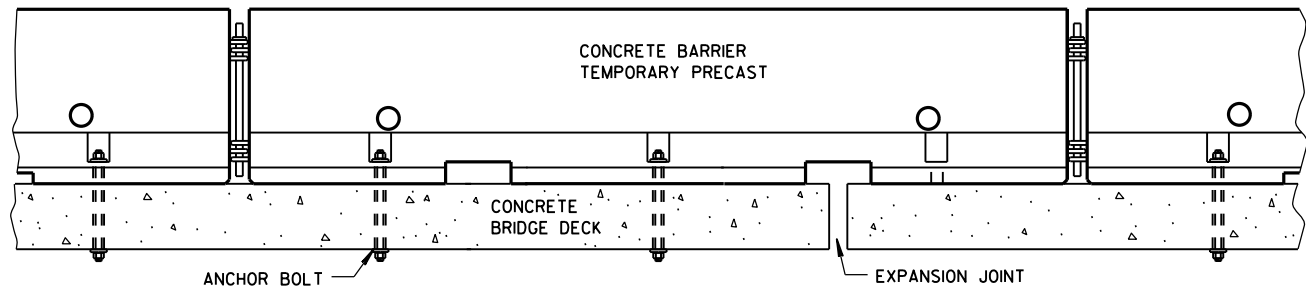
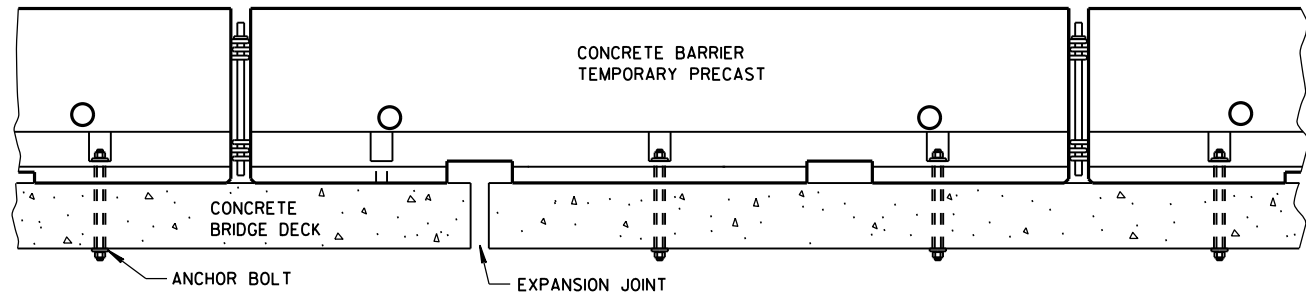


4A1

BARRIER SECTION

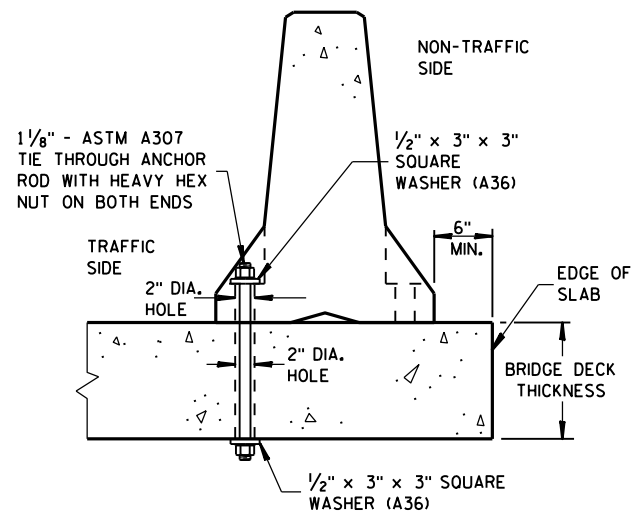
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



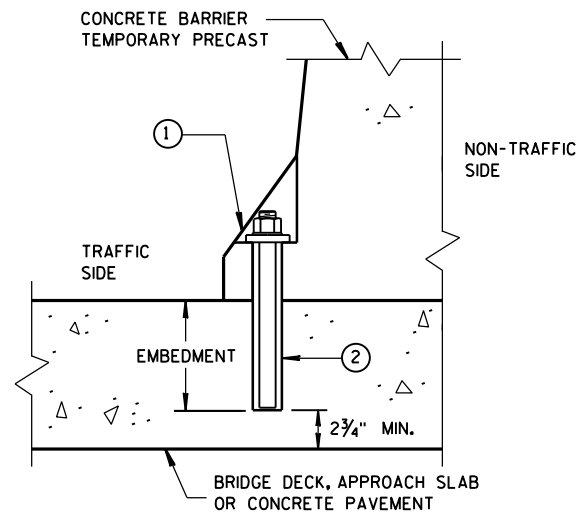
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



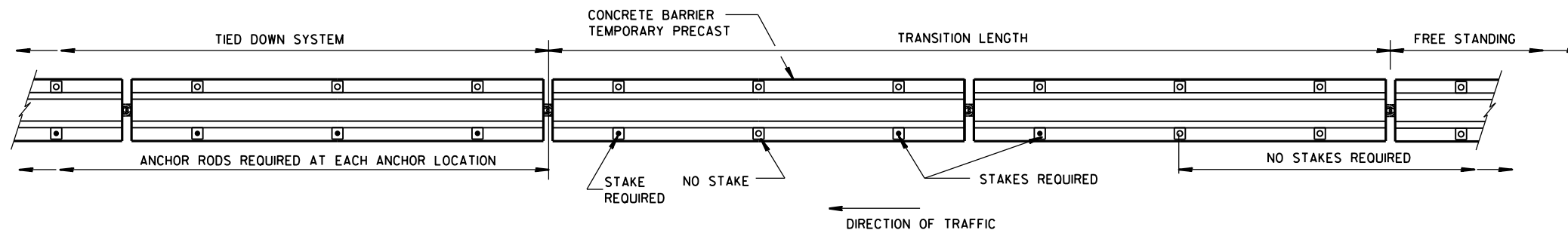
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

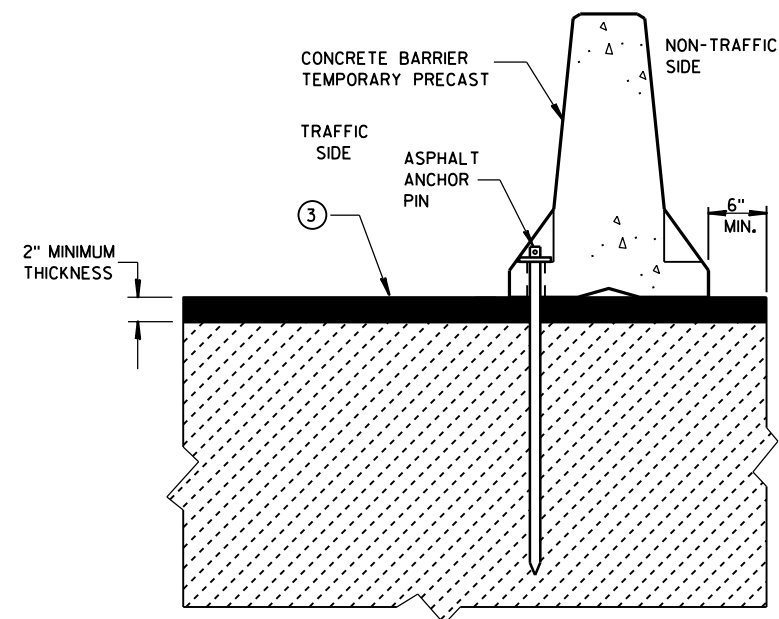
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

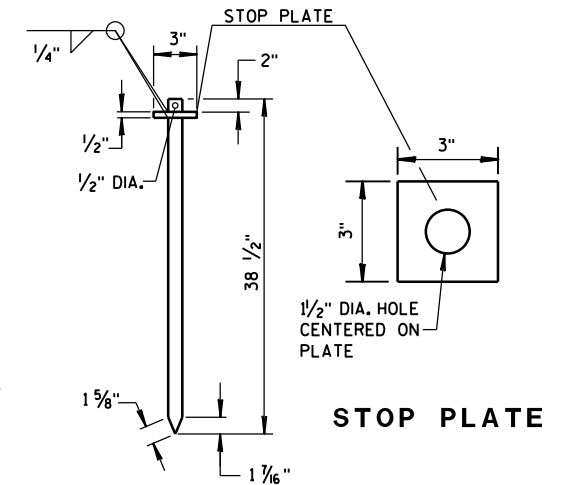
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

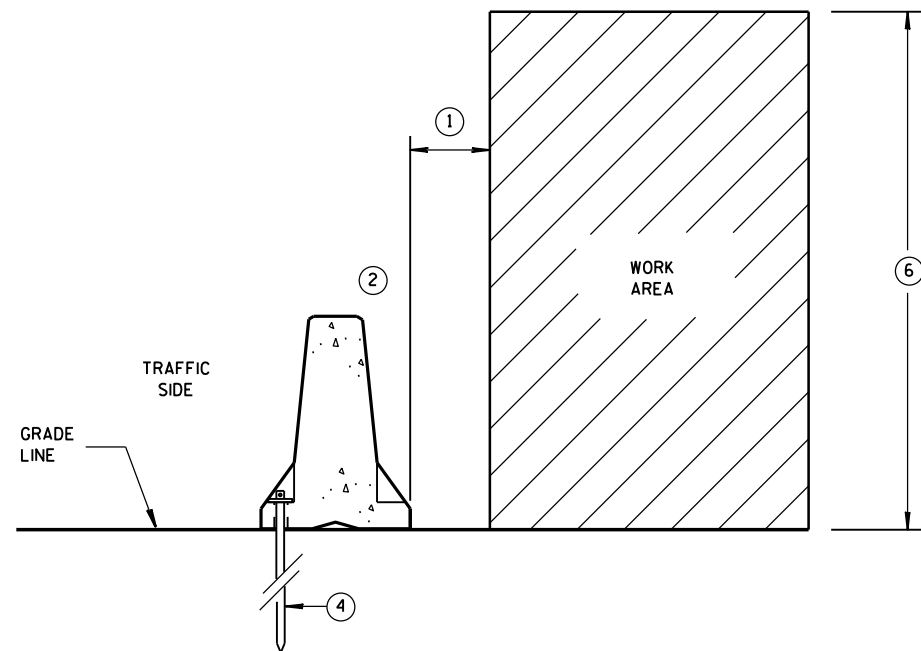


ASPHALT ANCHOR PIN

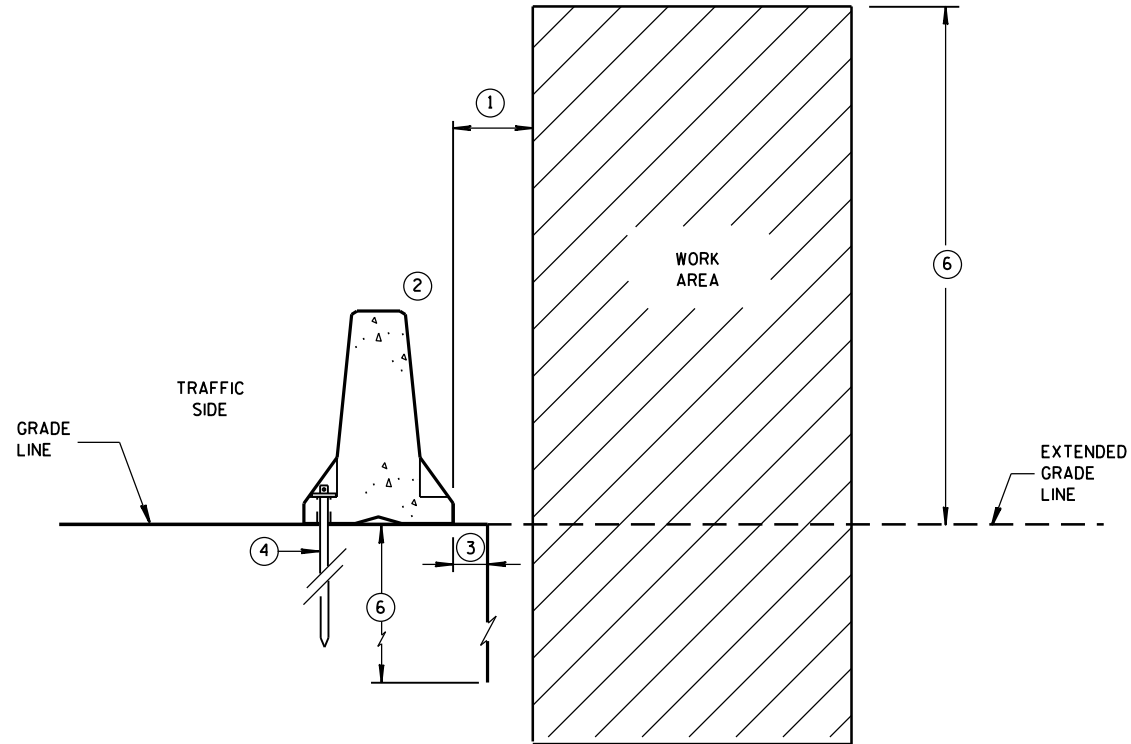
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

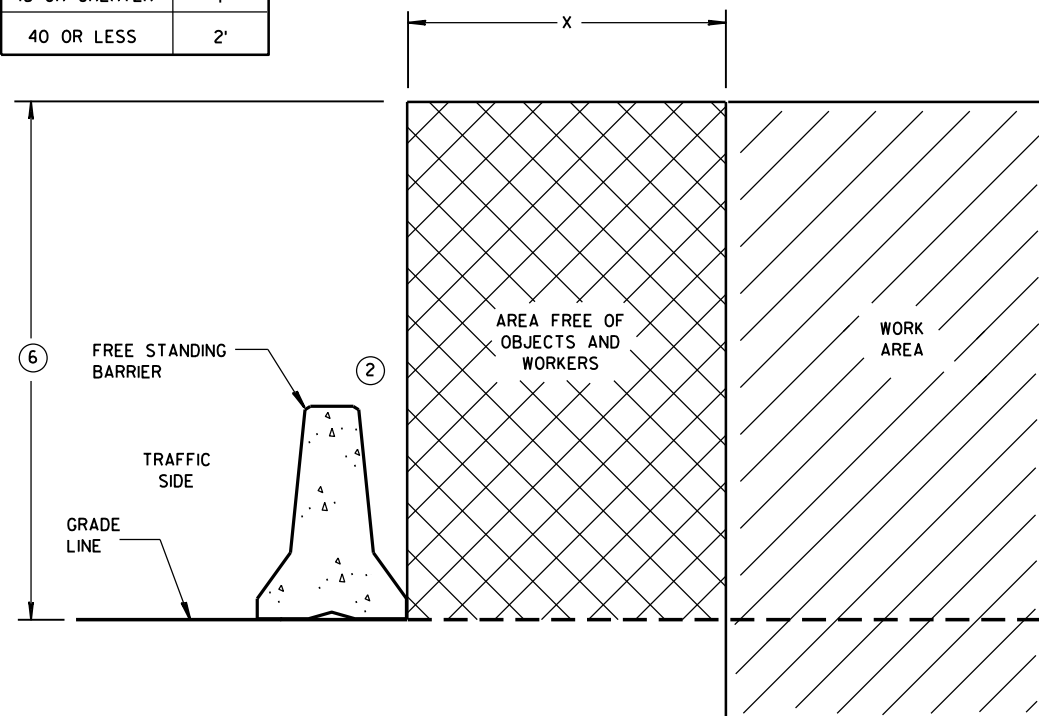


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

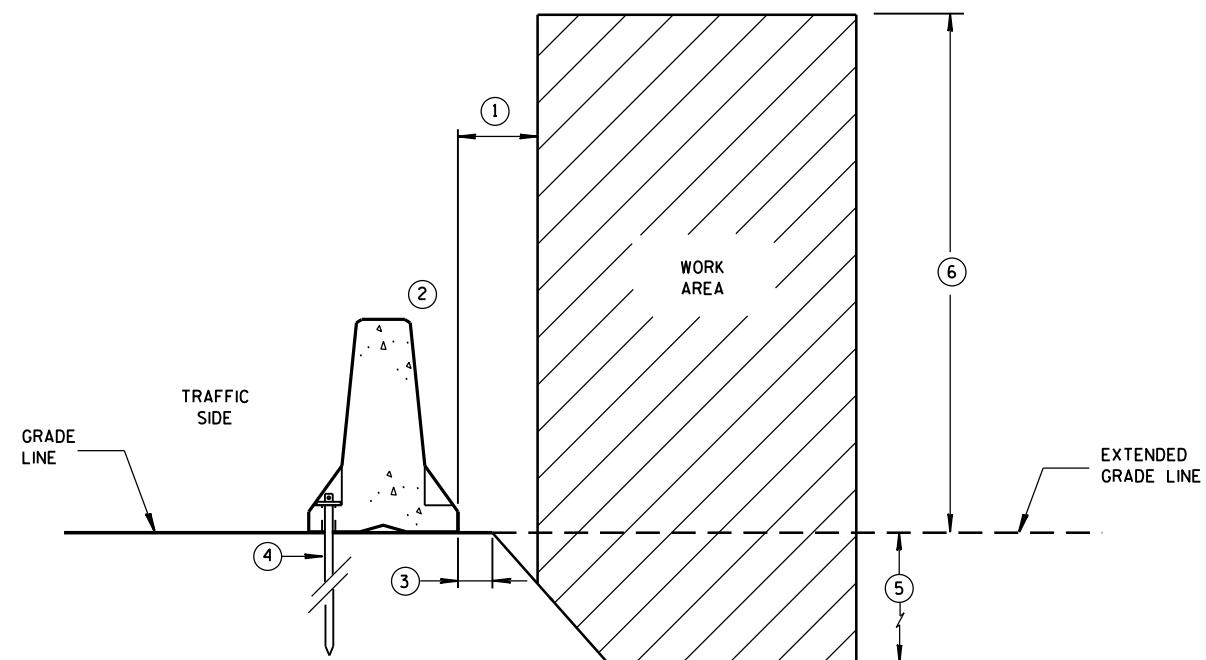
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

| POSTED SPEED
MPH | X |
|---------------------|----|
| 45 OR GREATER | 4' |
| 40 OR LESS | 2' |



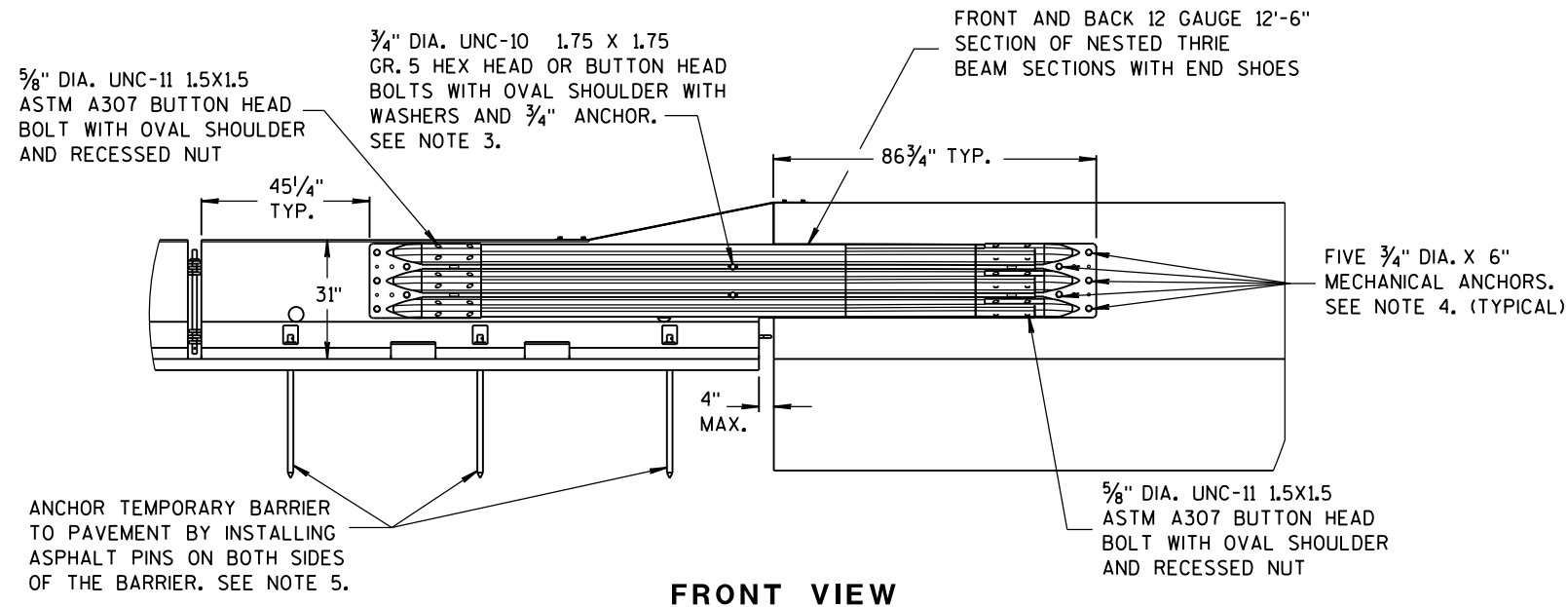
FREE STANDING BARRIER SPACE REQUIREMENTS



**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



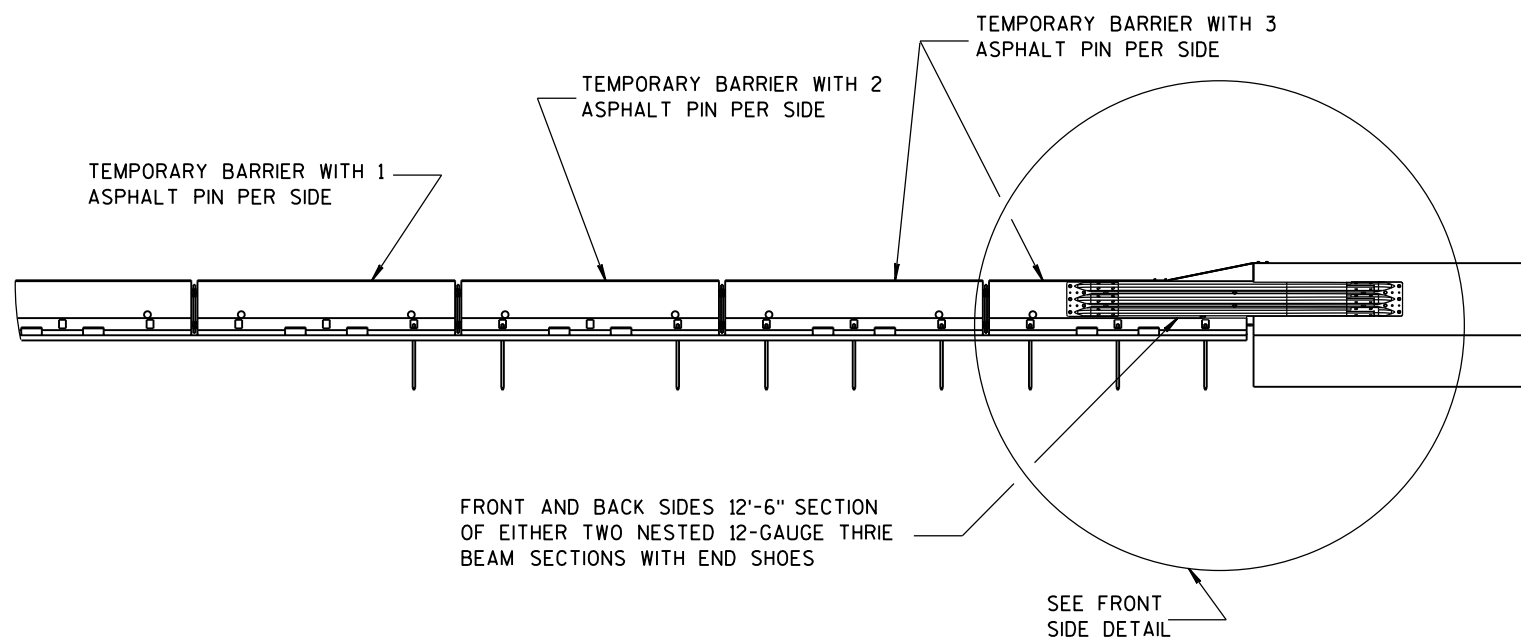
FRONT VIEW

NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.

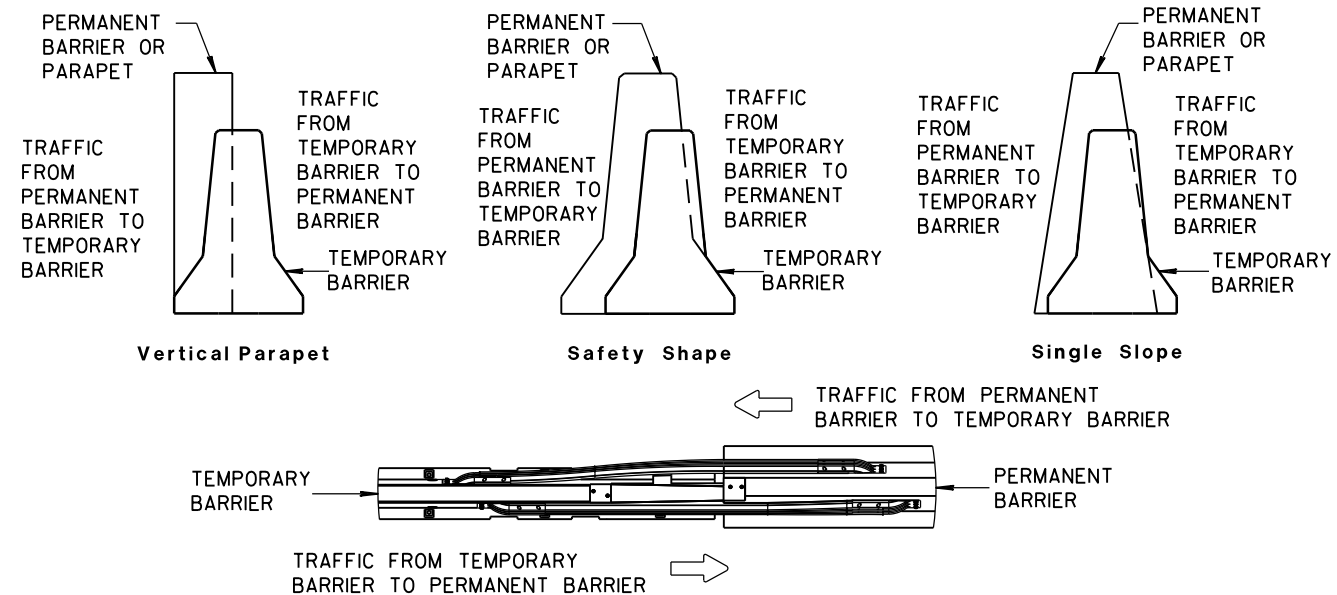
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

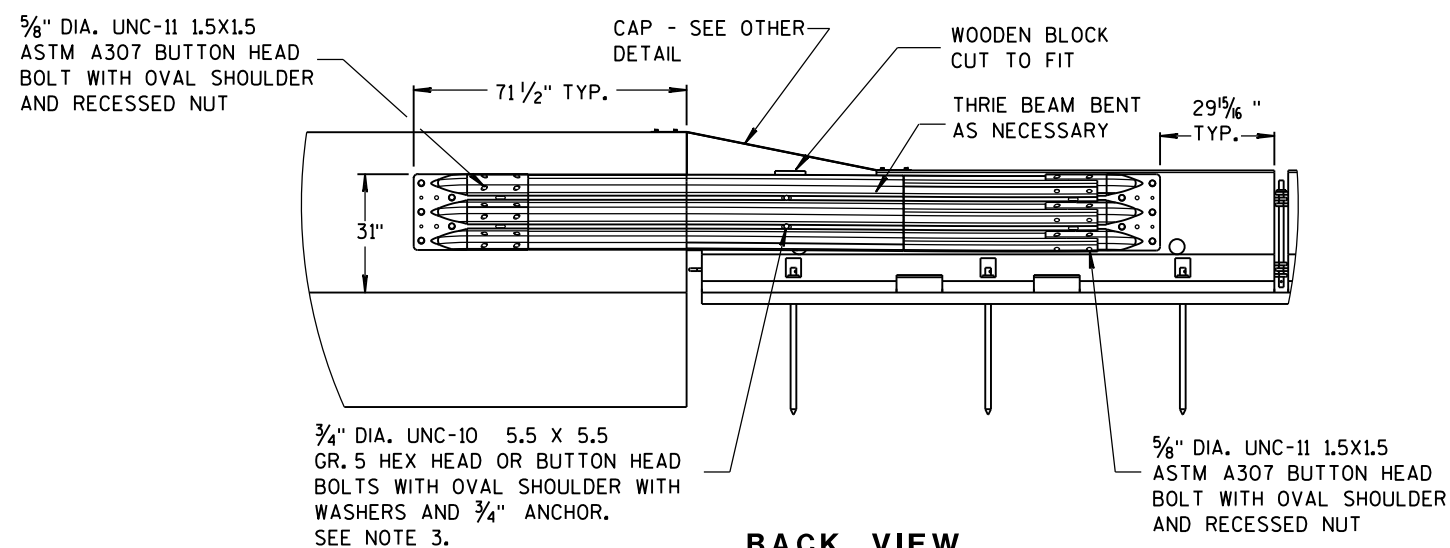


FRONT VIEW

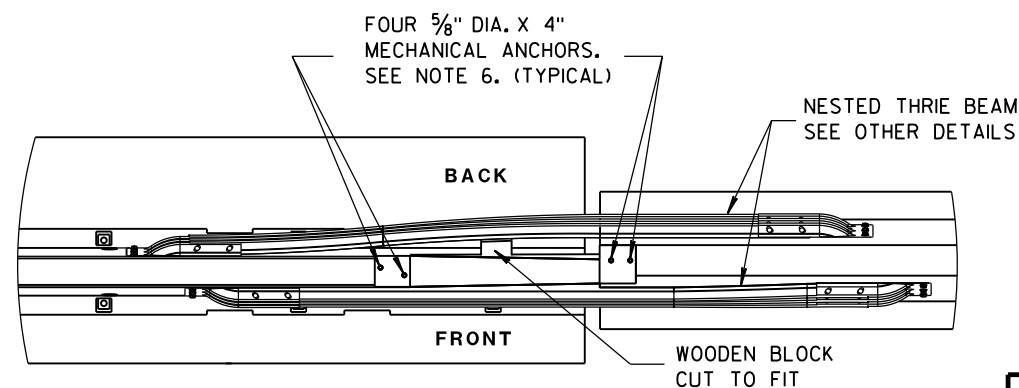
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



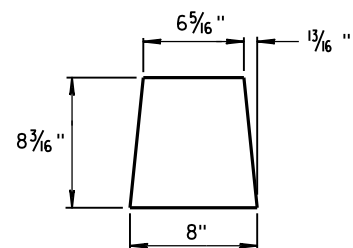
BACK VIEW



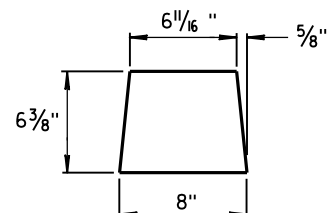
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

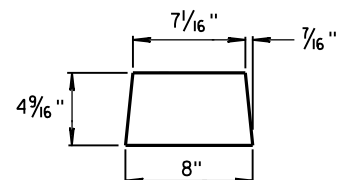
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



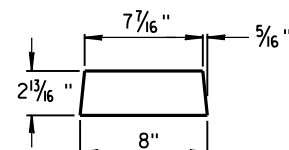
GUSSET 1



GUSSET 2

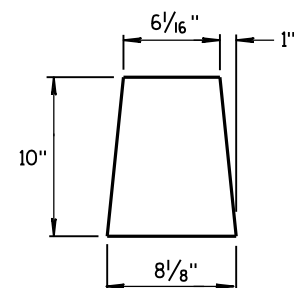


GUSSET 3

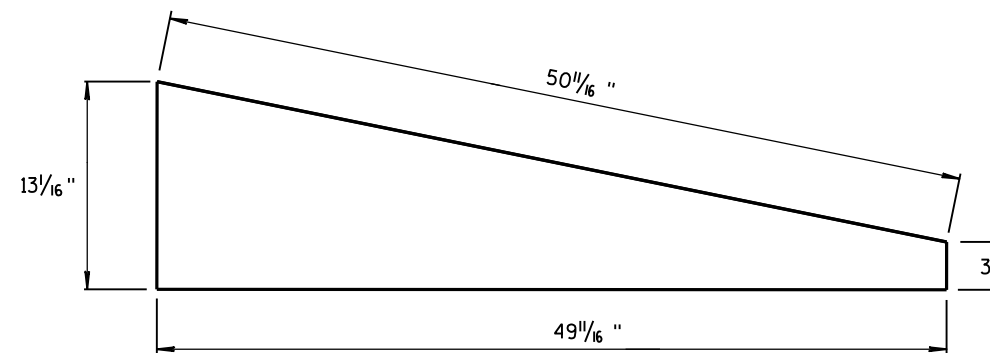


GUSSET 4

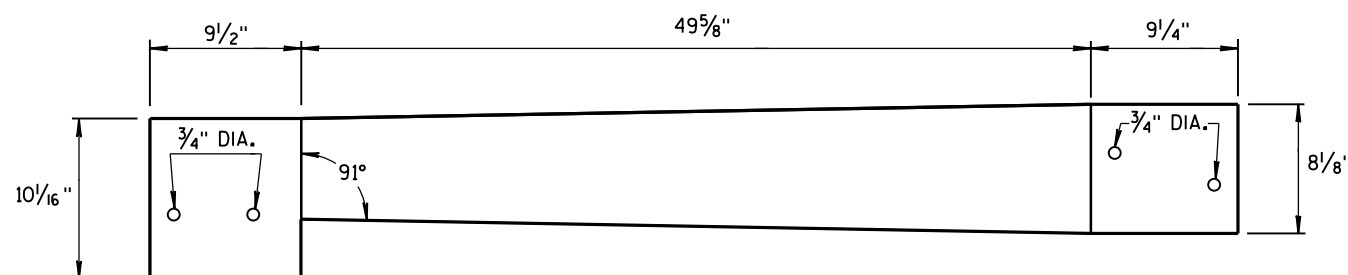
GUSSETS



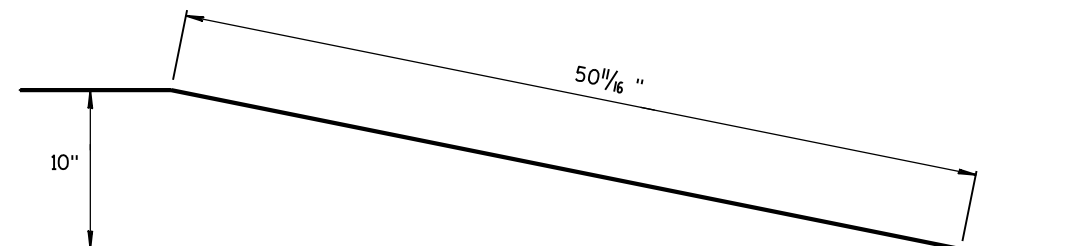
END PLATE



SIDE PLATE

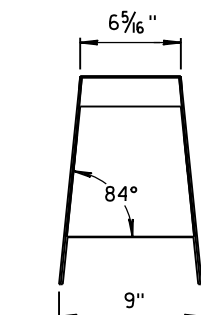
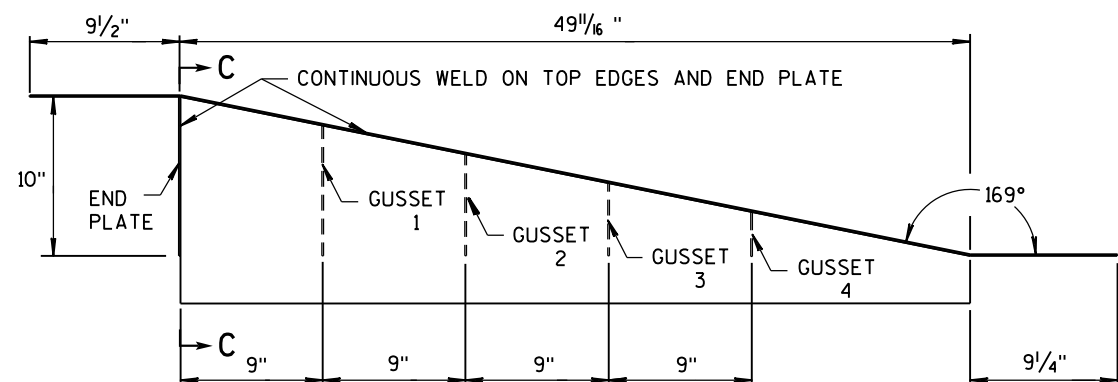
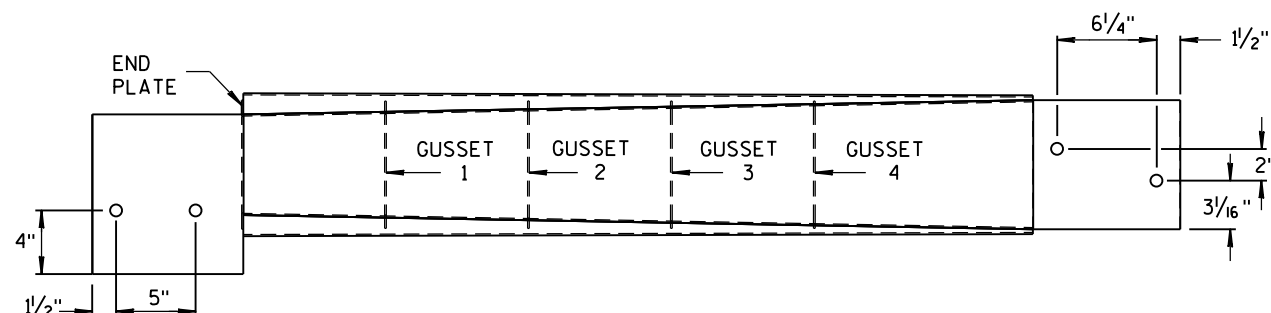


TOP PLATE



**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

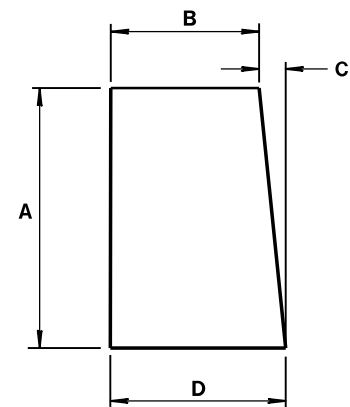
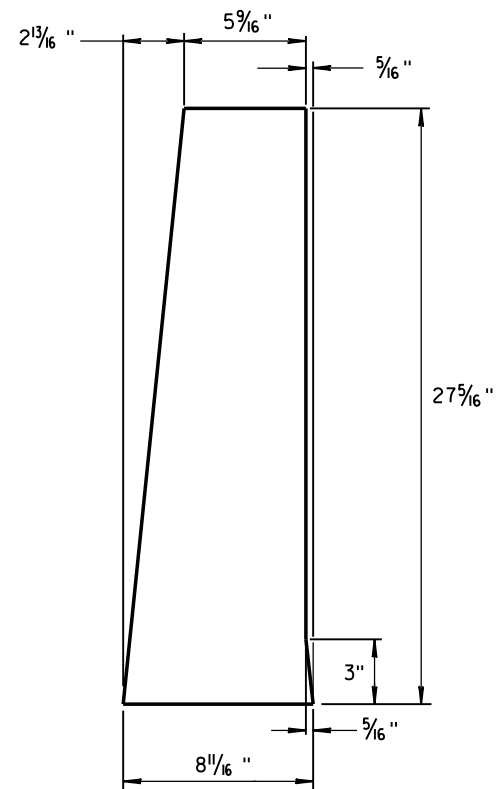
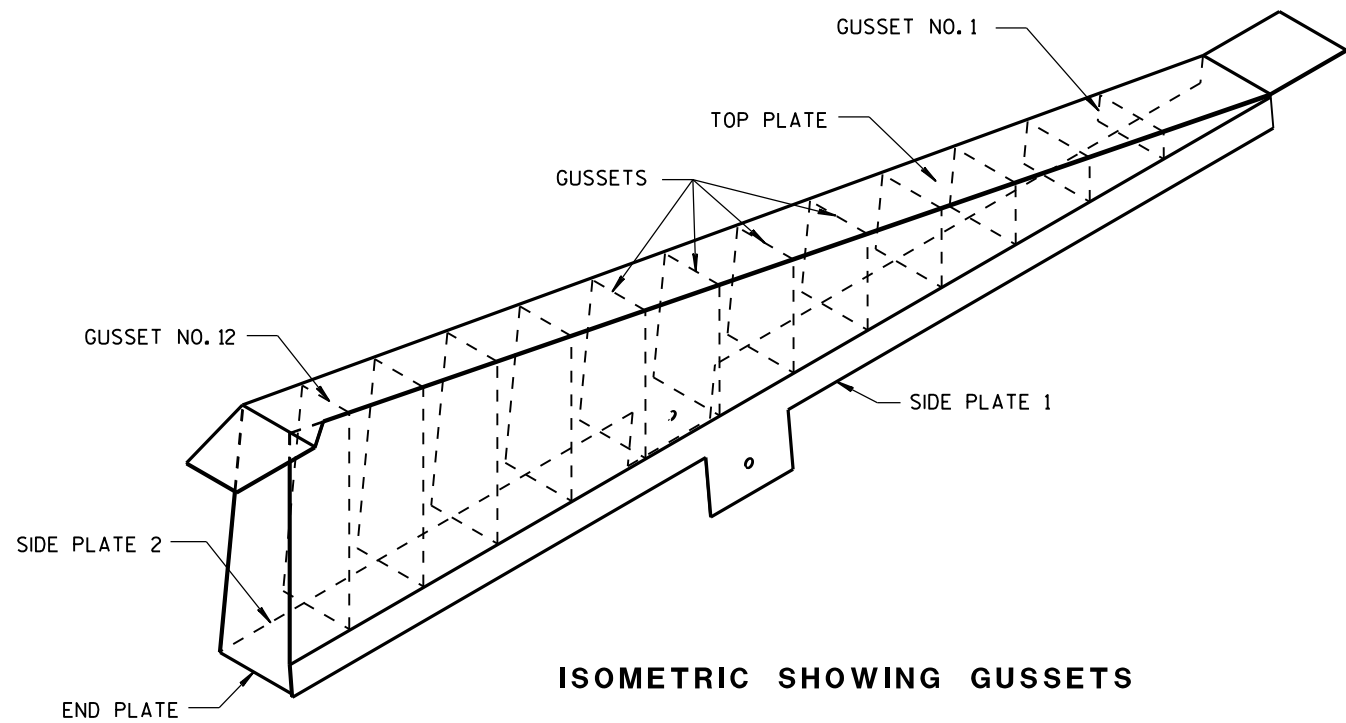
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

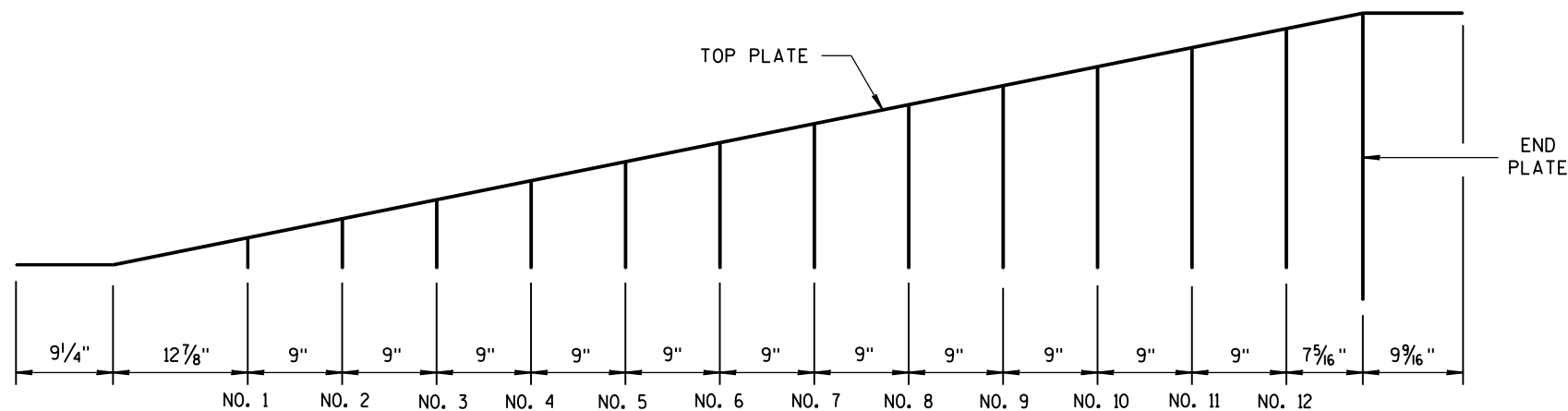


ALL GUSSETS 1/8" STEEL PLATE

| GUSSET DIMENSIONS | | | | |
|-------------------|------------|-----------|-----------|----------|
| GUSSET NO. | A | B | C | D |
| 1 | 2 7/8" | 7 3/4" | 1/4" | 8 |
| 2 | 4 1/16 " | 7 9/16 " | 1/2" | 8 |
| 3 | 6 1/2" | 7 3/8" | 1 1/16 " | 8 1/16 " |
| 4 | 8 5/16" | 7 3/16" | 7/8" | 8 1/16" |
| 5 | 10 1/8" | 7" | 1 1/16 " | 8 1/16" |
| 6 | 11 5/16 " | 6 13/16 " | 1 1/4" | 8 1/16" |
| 7 | 13 3/4" | 6 5/8" | 1 7/16 " | 8 1/16" |
| 8 | 15 9/16" | 6 7/16" | 1 9/16 " | 8 1/16" |
| 9 | 17 3/8" | 6 1/4" | 1 13/16 " | 8 1/16" |
| 10 | 19 3/16" | 6 1/16" | 1 15/16 " | 8 1/16" |
| 11 | 21" | 5 7/8" | 2 3/16" | 8 1/16" |
| 12 | 22 13/16 " | 5 11/16 " | 2 5/16" | 8 1/16" |

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

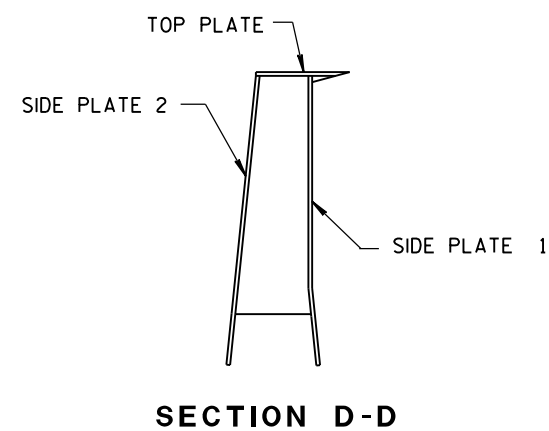
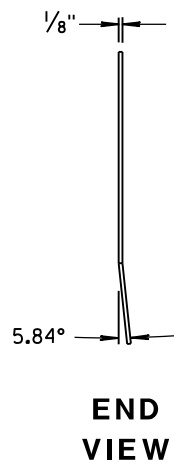
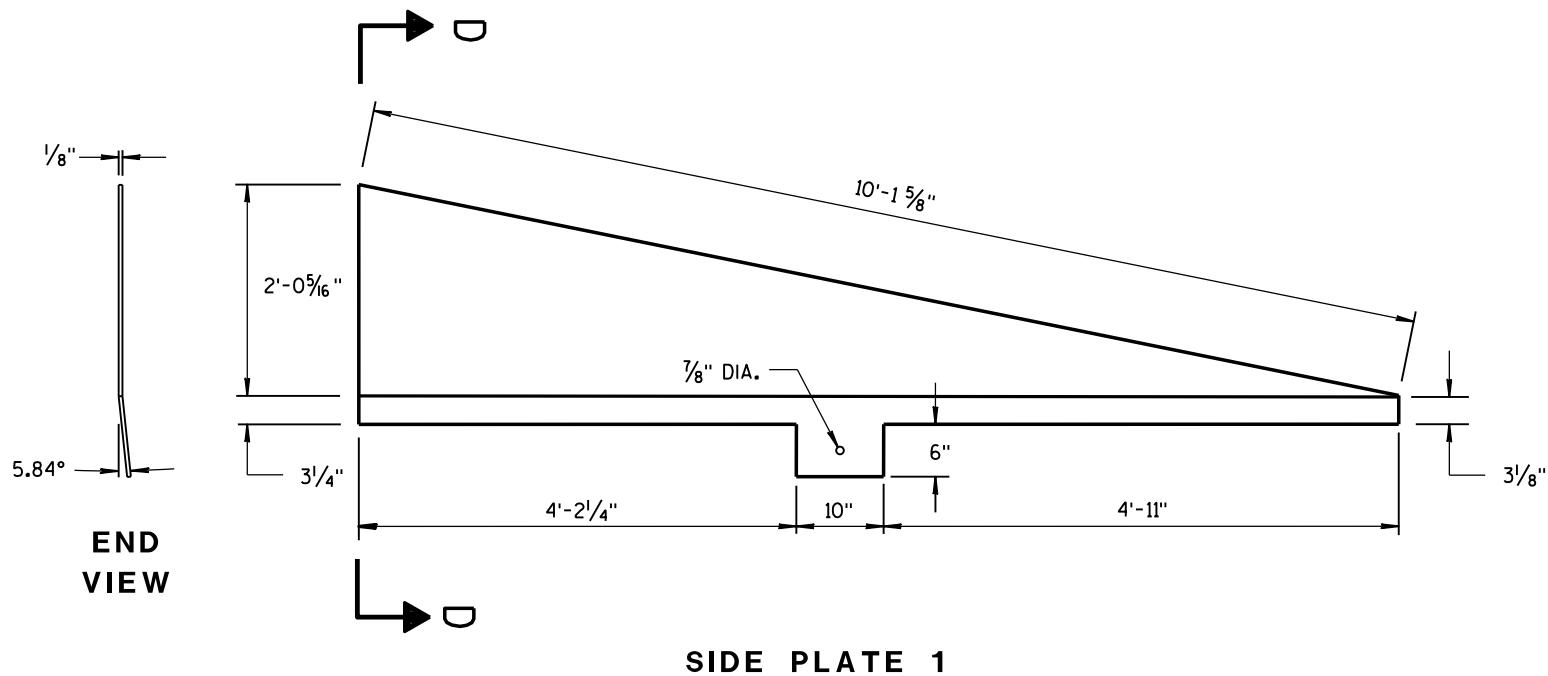
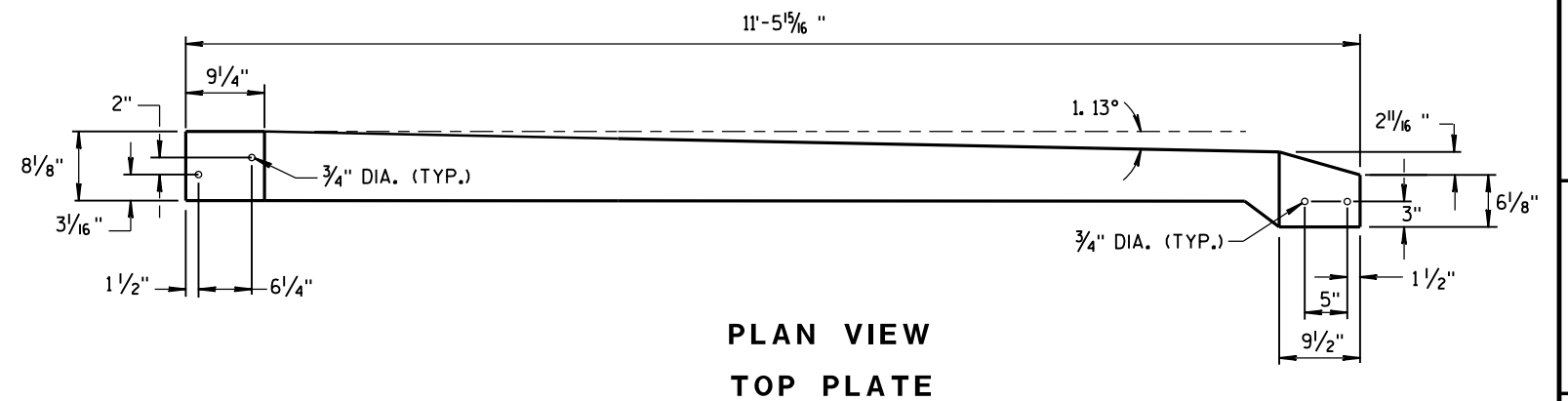
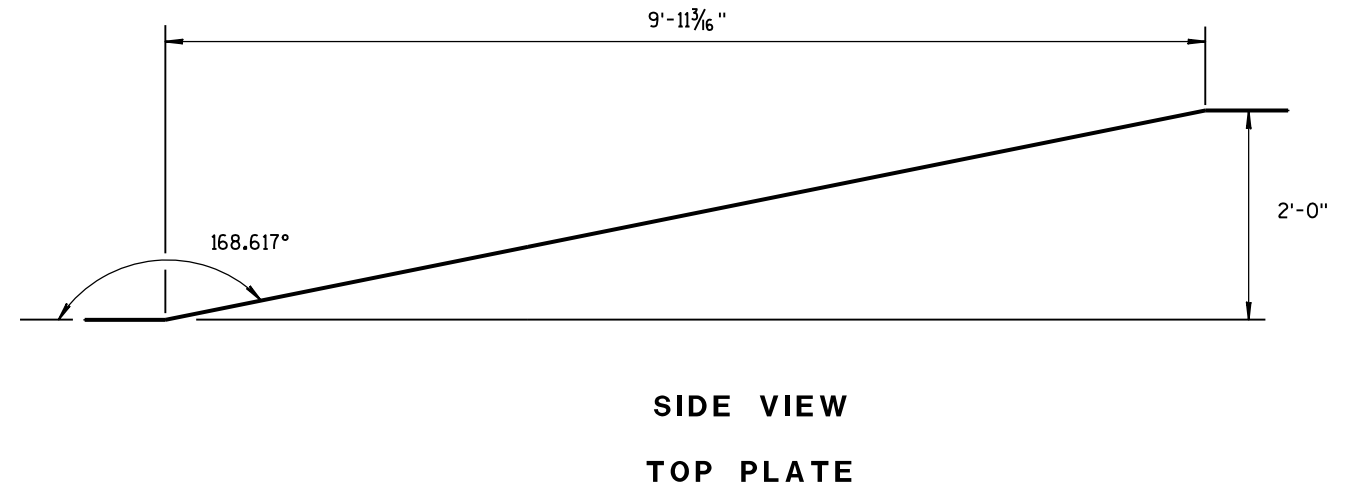
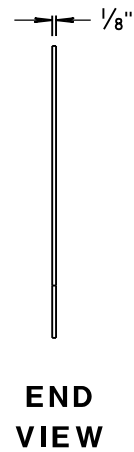
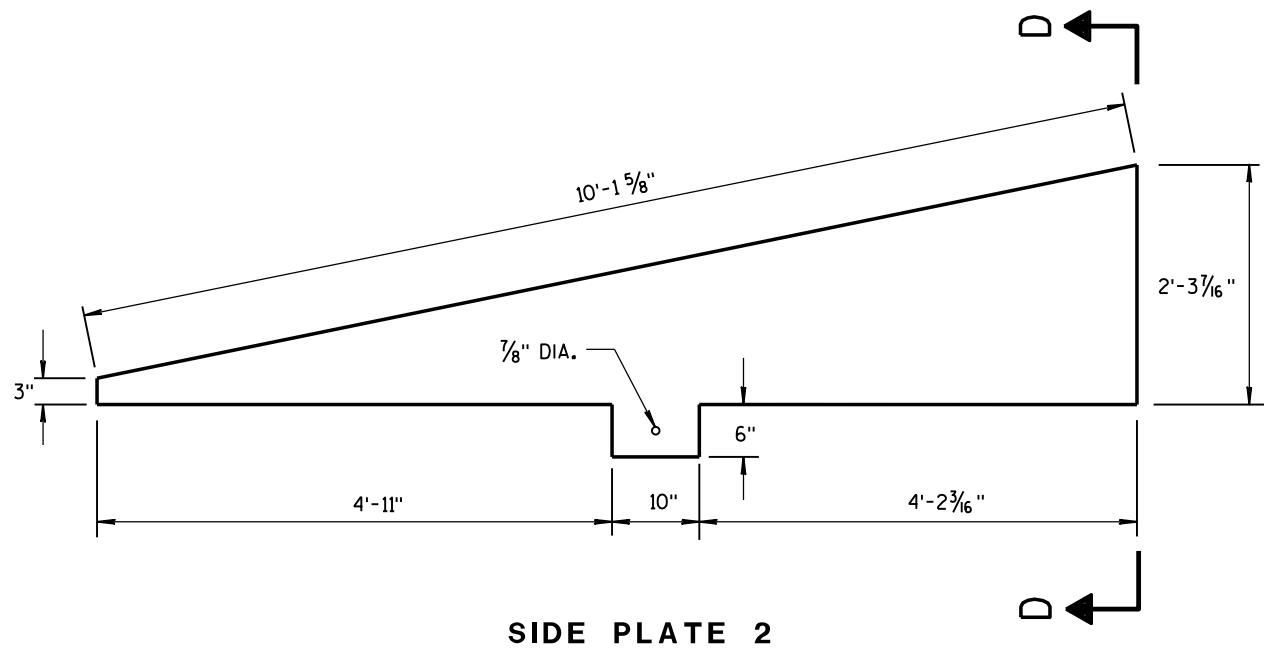
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

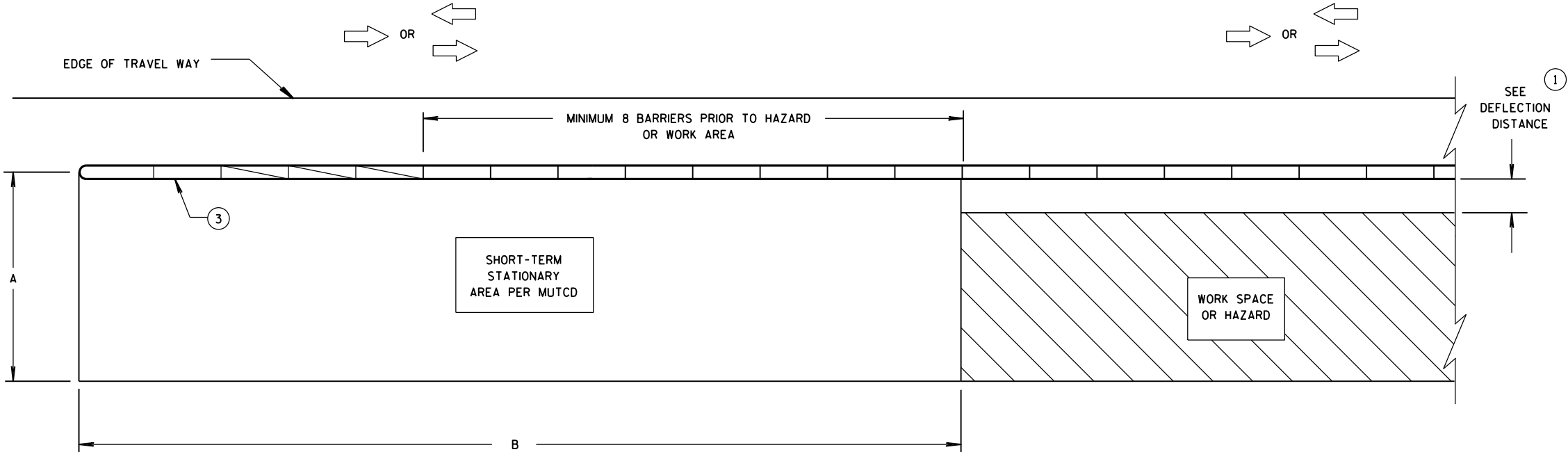
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

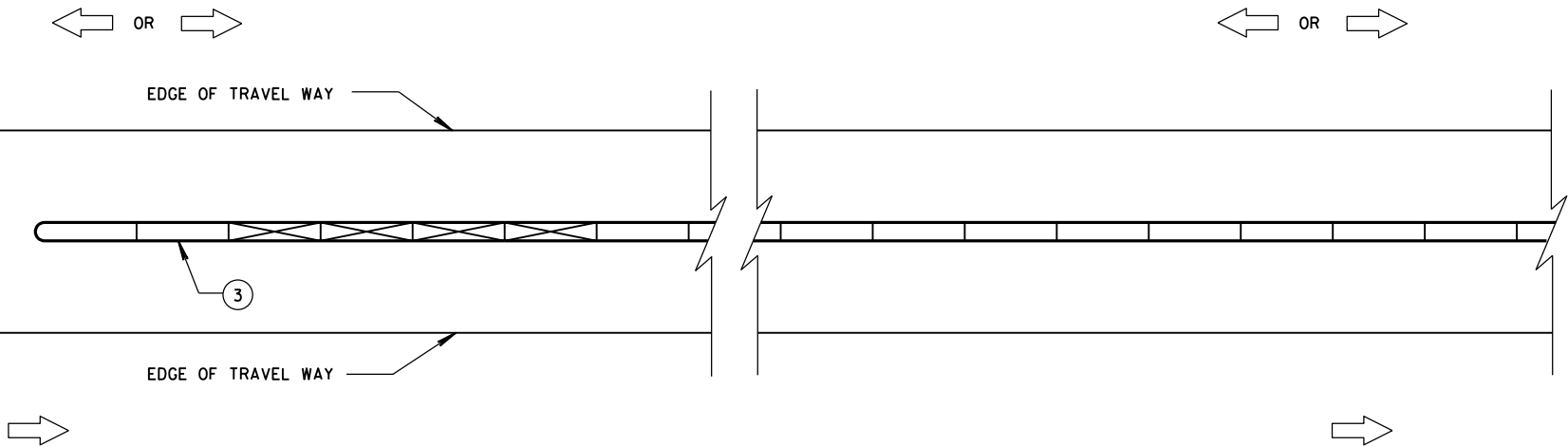


CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER

| | |
|--|--|
| CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6" | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | |
| APPROVED
June 2017
DATE | /S/ Rodney Taylor
ROADWAY STANDARD DEVELOPMENT
UNIT SUPERVISOR |
| FHWA | |



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

DIMENSION A TABLE ②

| FACILITY | POSTED SPEED
MPH | DIMENSION A | |
|------------------------|--------------------------------|-------------|------------|
| | | MIN.
FT | MAX.
FT |
| FREEWAY/EXPRESSWAY | ALL | 15 | 20 |
| NON-FREEWAY/EXPRESSWAY | GREATER THAN
OR EQUAL TO 45 | 10 | 15 |
| NON-FREEWAY/EXPRESSWAY | LESS THAN 45 | 8 | 10 |
| AADT LESS THAN 1,500 | ALL | 8 | 10 |

DIMENSION B TABLE ②

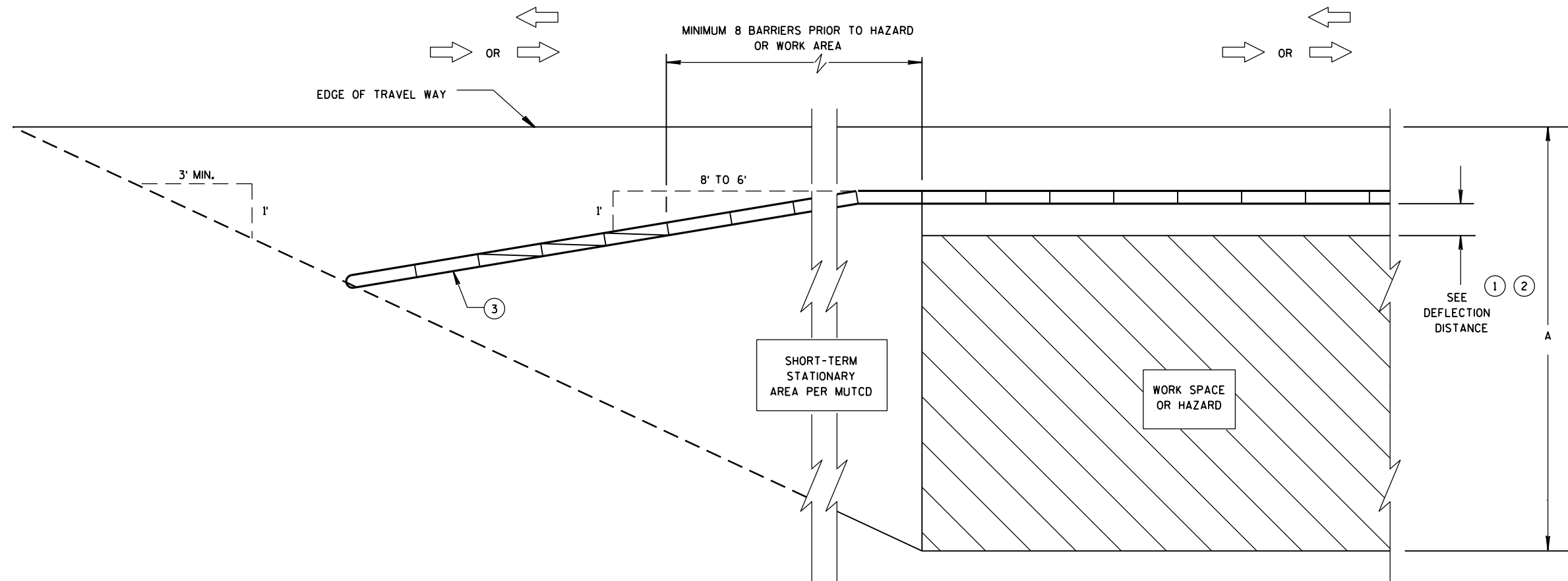
| POSTED SPEEDS
MPH | DIMENSION B
FT |
|----------------------|-------------------|
| 20 | 115 |
| 25 | 155 |
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |
| 65 | 645 |

LEGEND

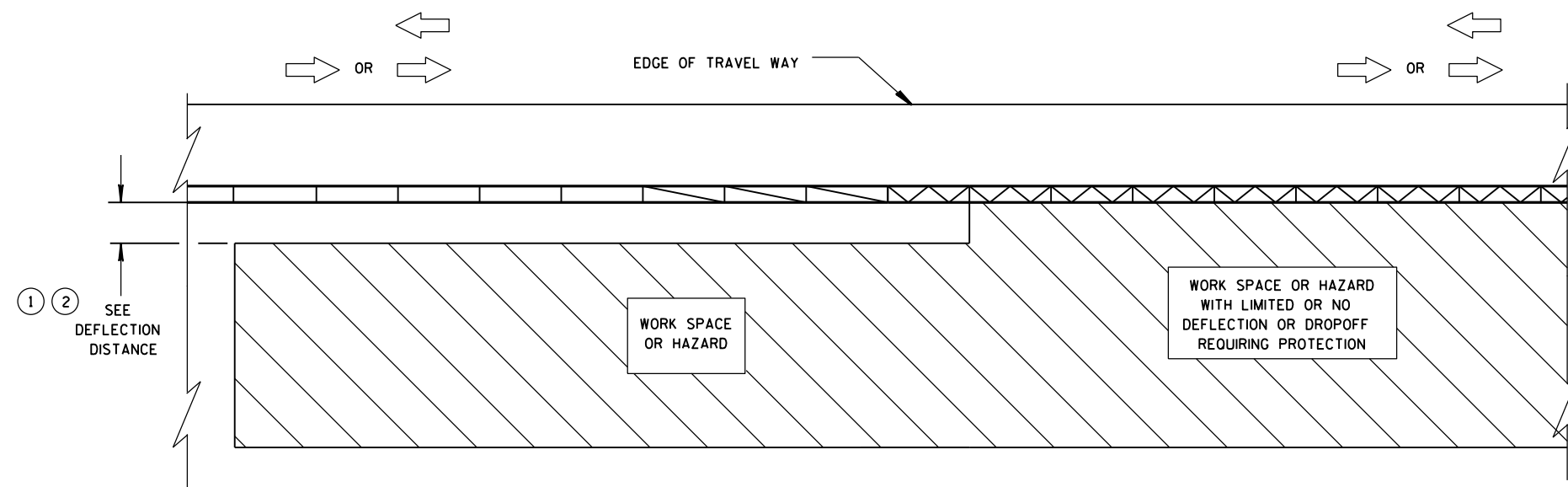
- DIRECTION OF TRAVEL →
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



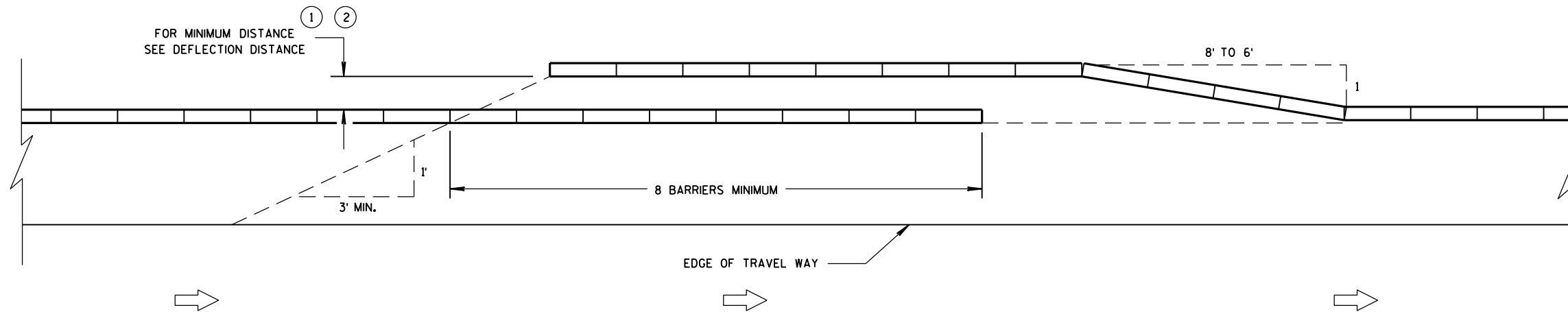
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

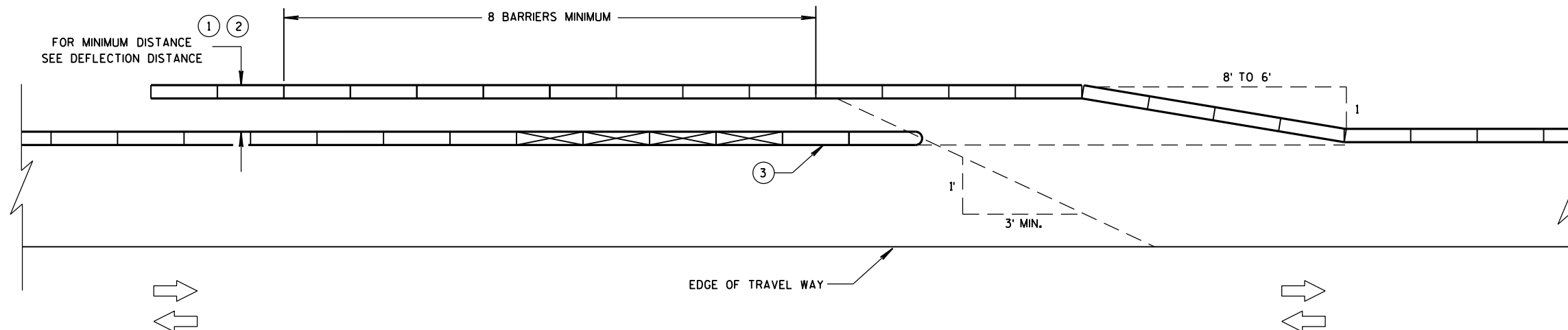
| | |
|---|--|
| DIRECTION OF TRAVEL | |
| CRASH CUSHION OR SAND BARREL ARRAY | |
| SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS | |
| SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS | |
| 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER | |
| PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET | |
| FREE STANDING TEMPORARY BARRIER | |

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

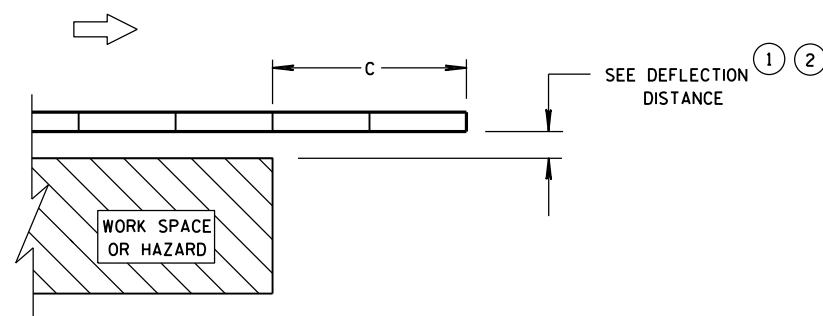
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



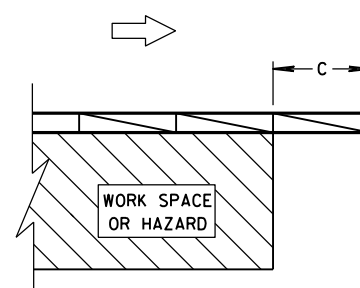
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



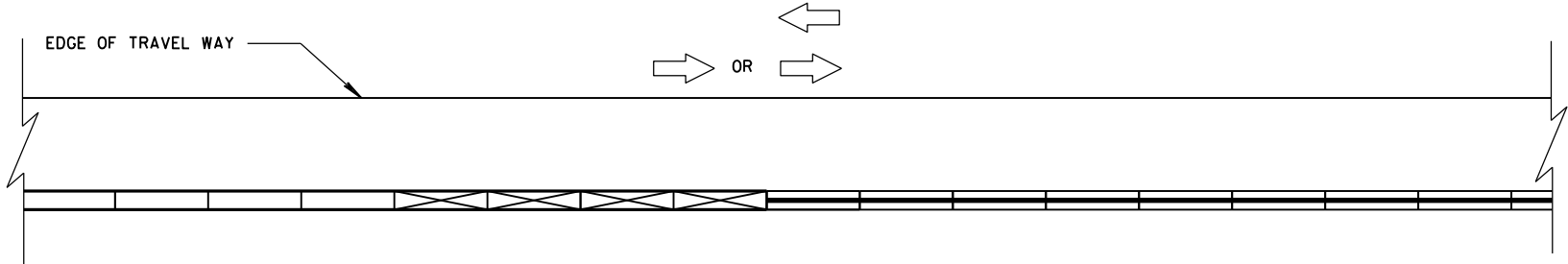
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

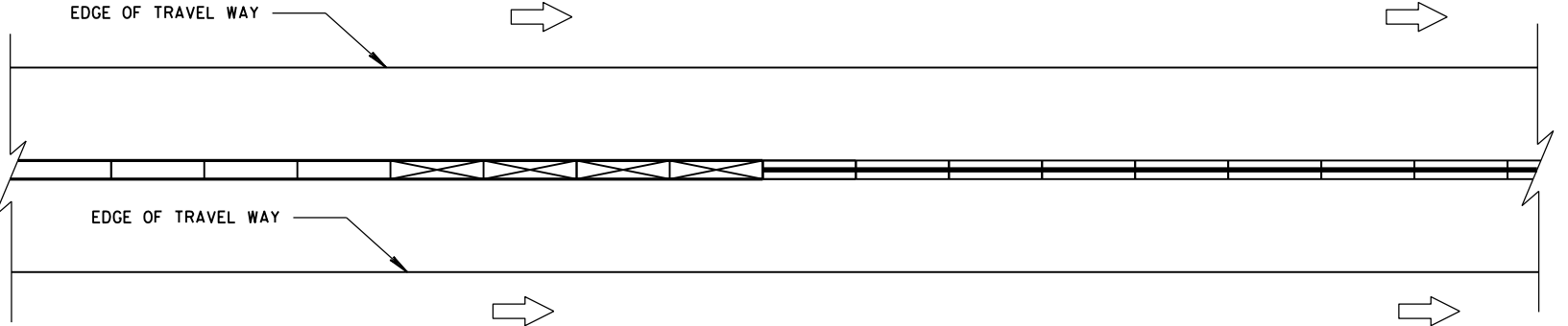
| | |
|--|--|
| DIRECTION OF TRAVEL | |
| CRASH CUSHION OR
SAND BARREL ARRAY | |
| SEE FREE STANDING TRANSITION
TO TIED-DOWN SYSTEM DETAILS | |
| SEE BI-DIRECTIONAL TRANSITION
TO TIED-DOWN SYSTEM DETAILS | |
| 3 PINS PLACED ON
TRAFFIC SIDE OF BARRIER | |
| PERMANENT CONCRETE BARRIER
OR CONCRETE PARAPET | |
| FREE STANDING TEMPORARY
BARRIER | |

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

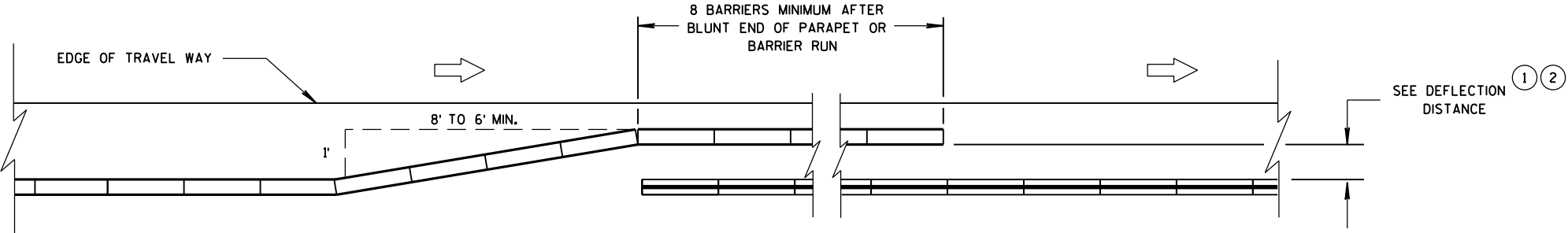


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE

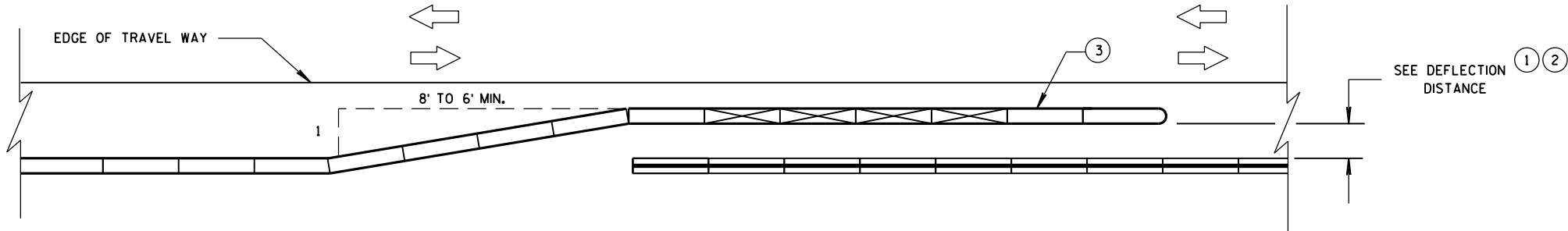


CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

| LEGEND | |
|---|--|
| DIRECTION OF TRAVEL | |
| CRASH CUSHION OR SAND BARREL ARRAY | |
| SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS | |
| SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS | |
| 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER | |
| PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET | |
| FREE STANDING TEMPORARY BARRIER | |



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

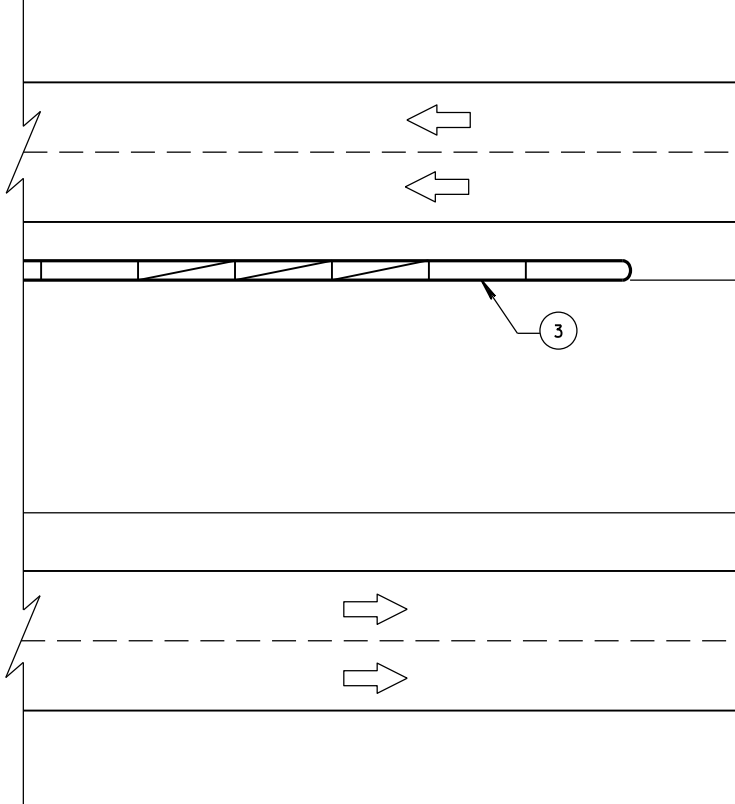
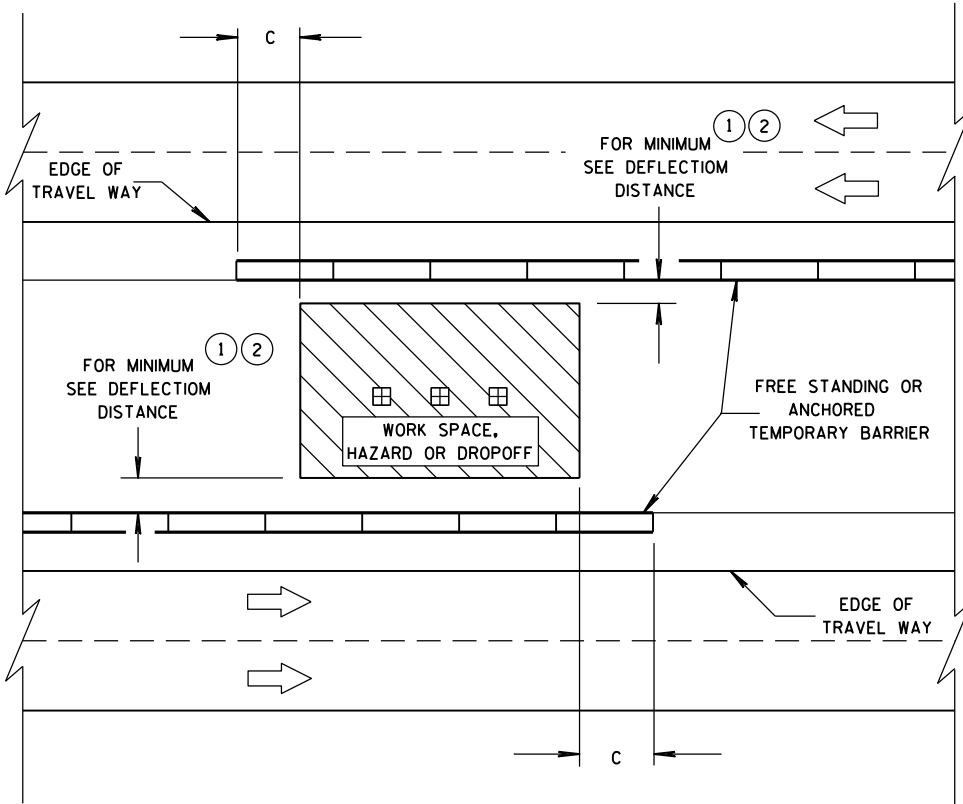
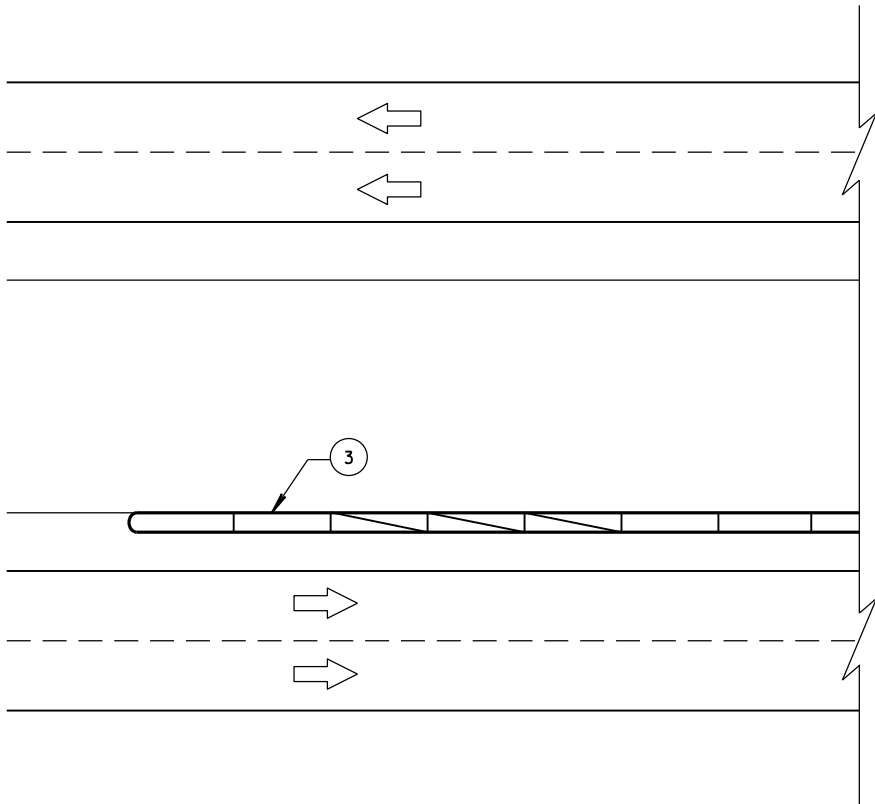
LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE

| AVAILABLE DEFLECTION DISTANCE | MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT |
|--|--|
| GREATER THAN 8' | 12.5 |
| LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4' | 50 |
| LESS THAN OR EQUAL TO 4' | 100 |

6



6

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

6

- S.D.D. 14 B 15-11a**

S.D.D. 14 B 15-11a



6



S.D.D. 14 B 15-11a



6



6



S.D.D. 14 B 15-11a



6

6



6



6



6



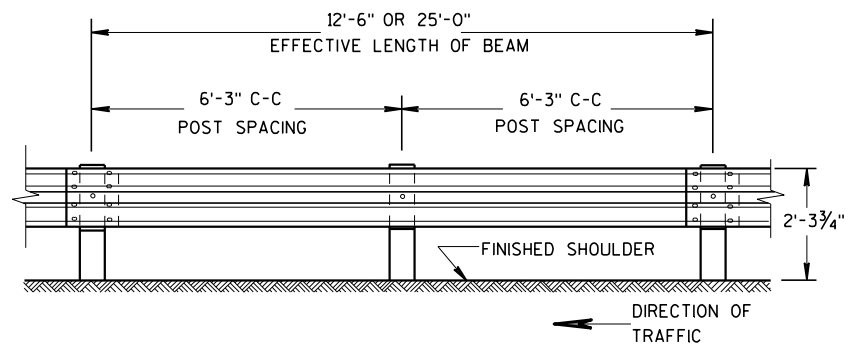
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6

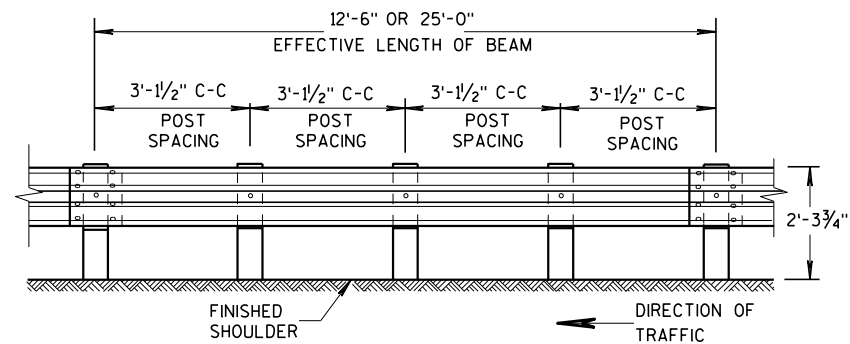
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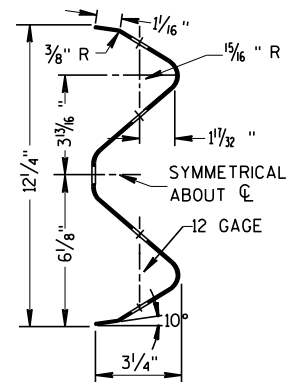


FRONT VIEW

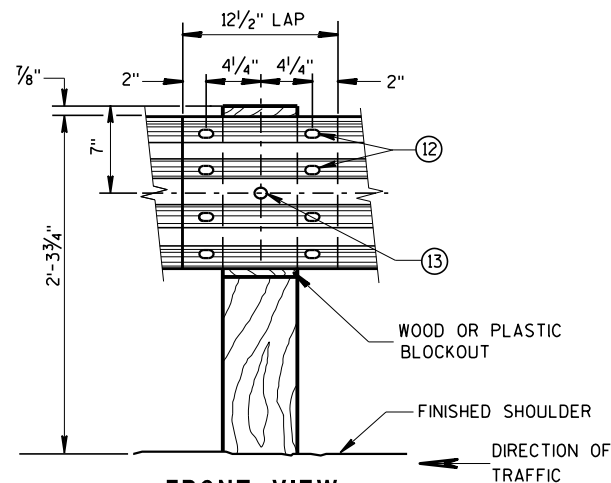
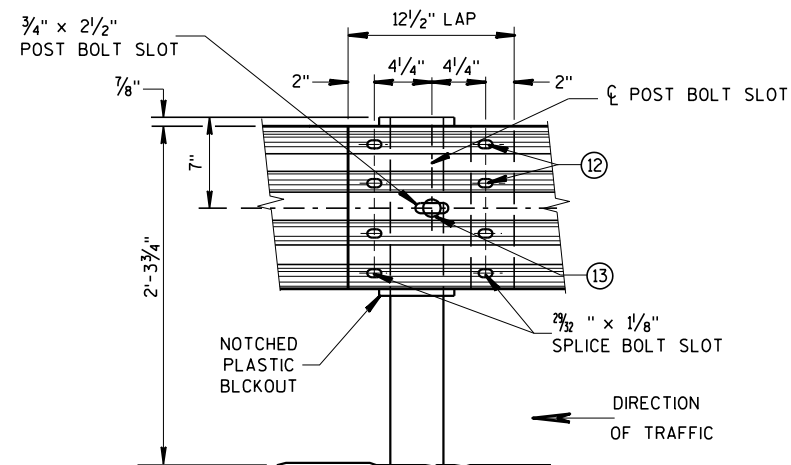
POST SPACING STANDARD INSTALLATION



FRONT VIEW

POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)

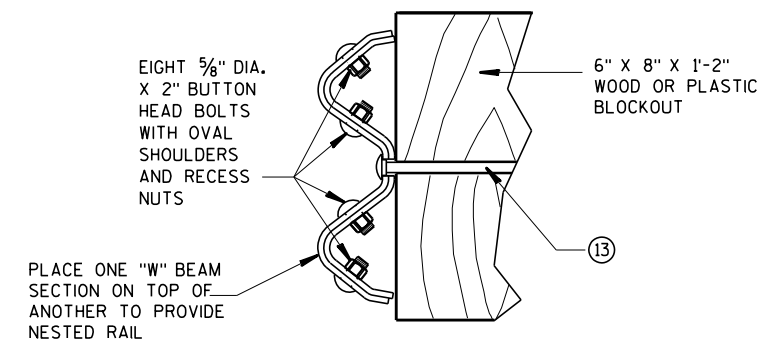
SECTION THRU W BEAM

FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAILFRONT VIEW
BEAM SPLICE AT STEEL POST
TYPICAL SPlicing DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

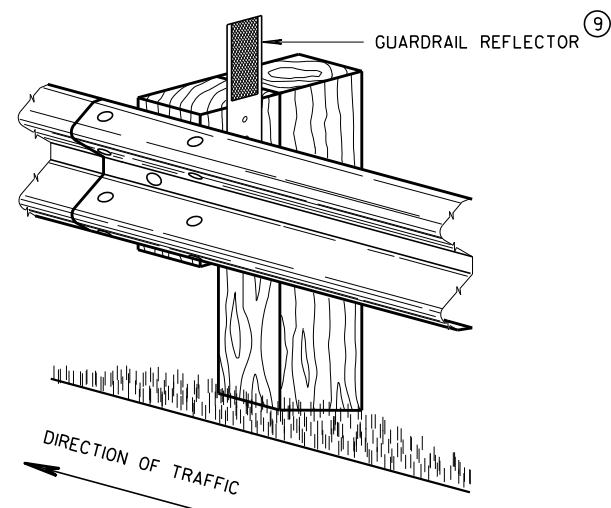
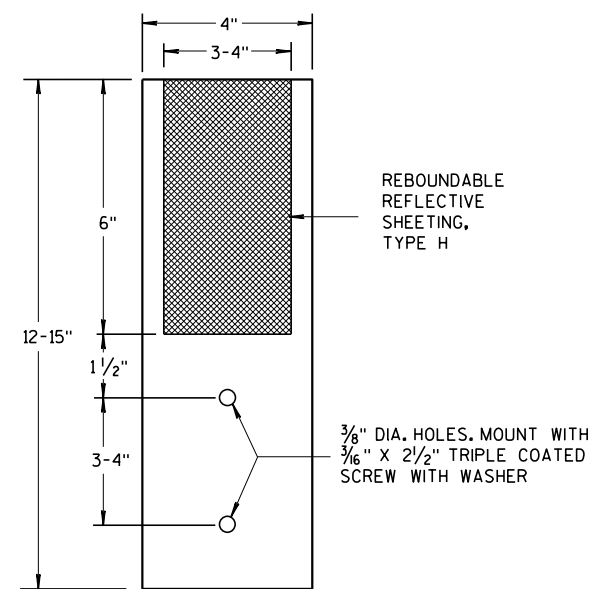
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



NESTED W BEAM (NW)

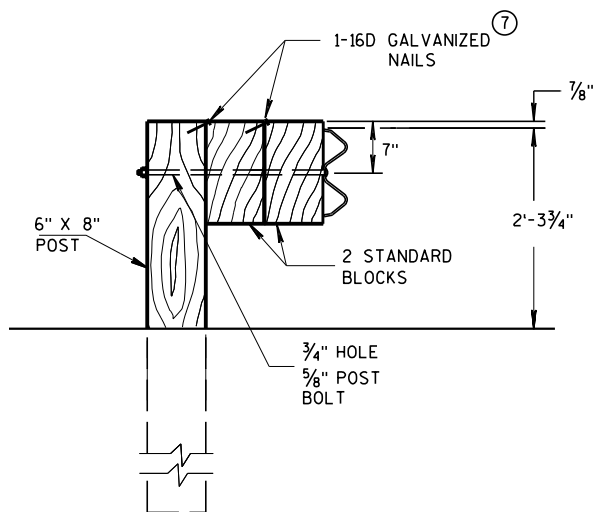
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.

4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION *

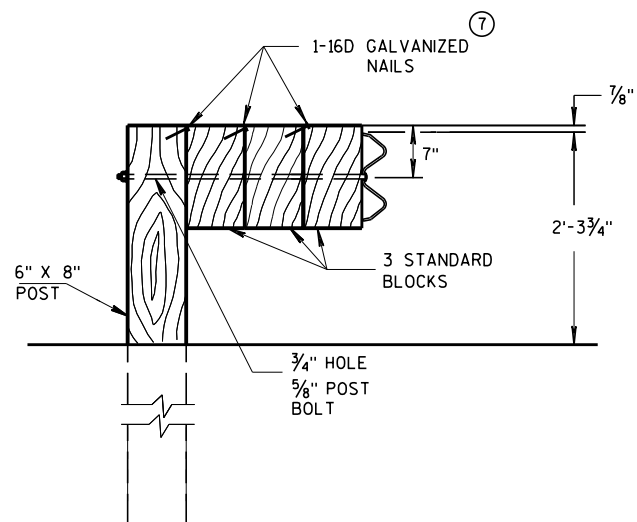
4"x 12" GUARDRAIL REFLECTOR

STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTSSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

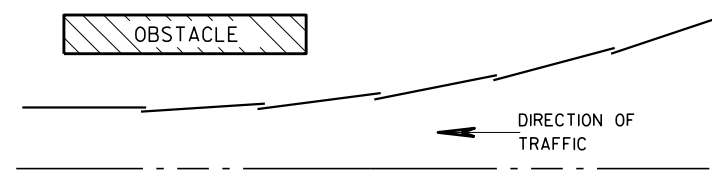


DETAIL FOR TRIPLE BLOCKS

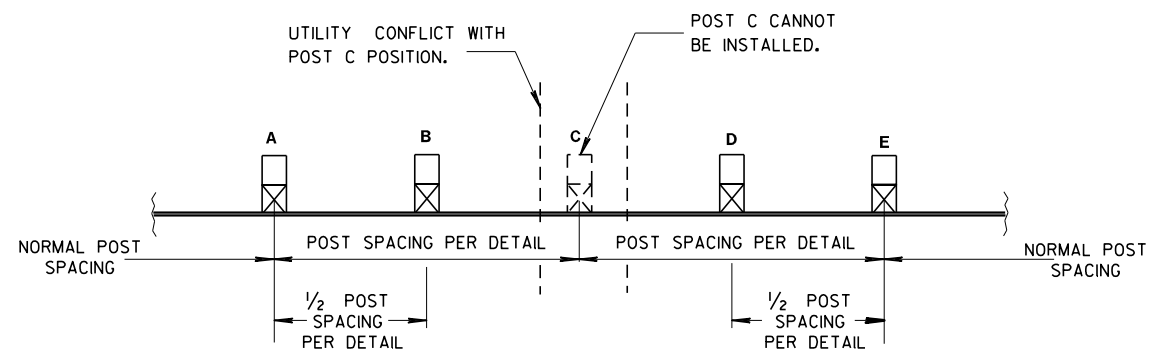
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

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



PLAN VIEW BEAM LAPPING DETAIL

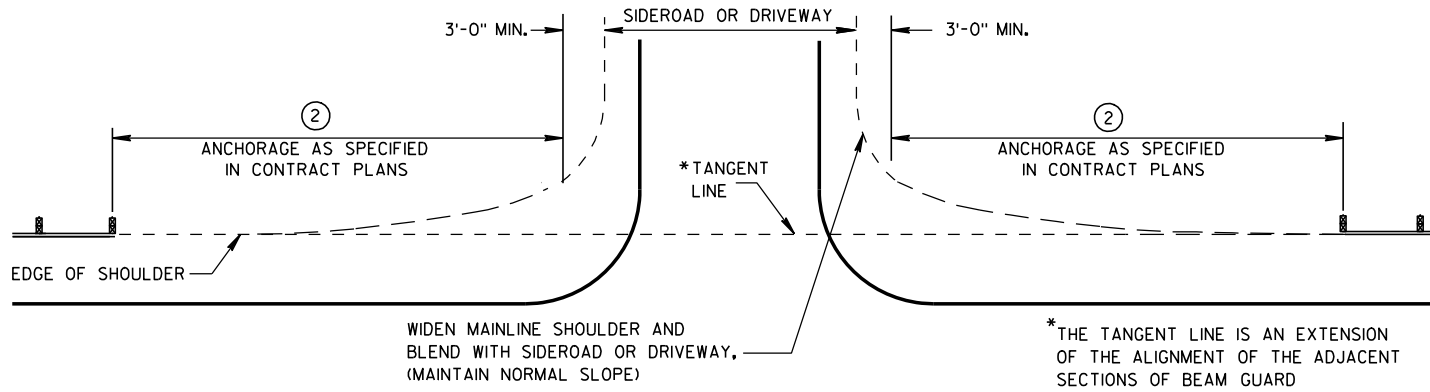


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

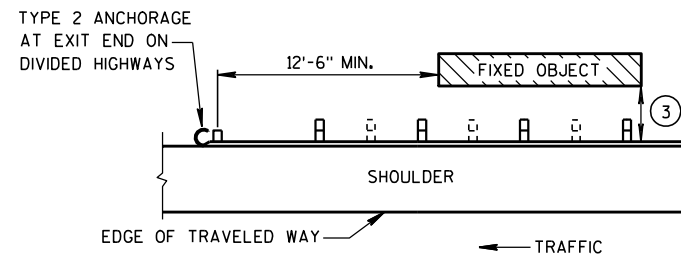
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

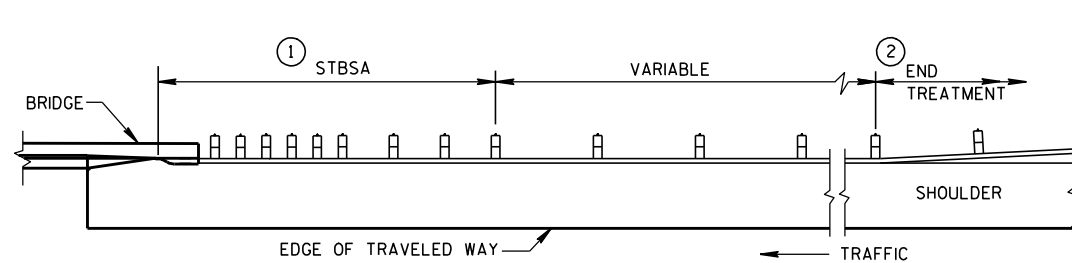
APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



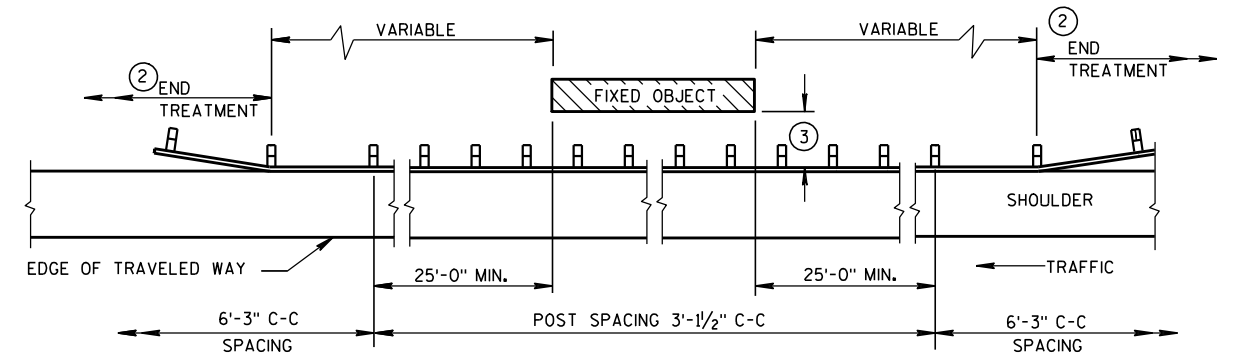
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

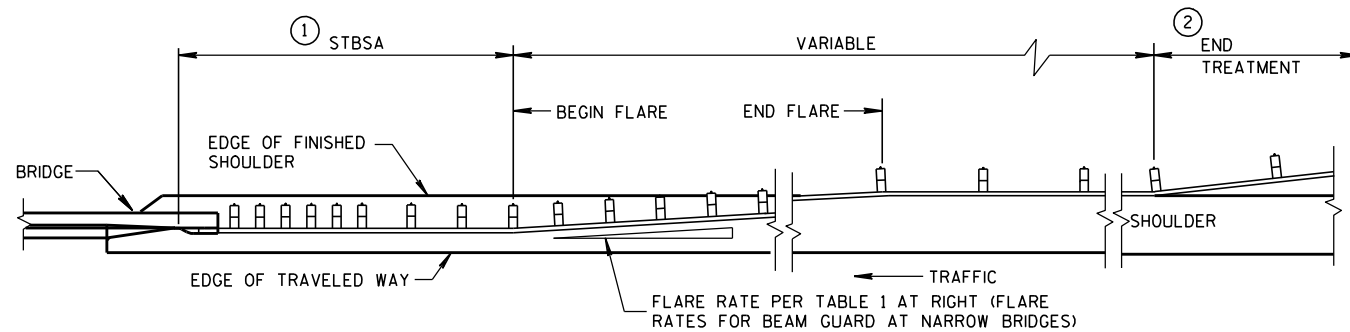


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

| POSTED SPEED (MPH) | FLARE RATE |
|--------------------|------------|
| 25 | 13:1 |
| 30 | 15:1 |
| 35 | 16:1 |
| 40 | 18:1 |
| 45 | 21:1 |
| 50 | 24:1 |
| 55 | 26:1 |
| 65 | 30:1 |



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

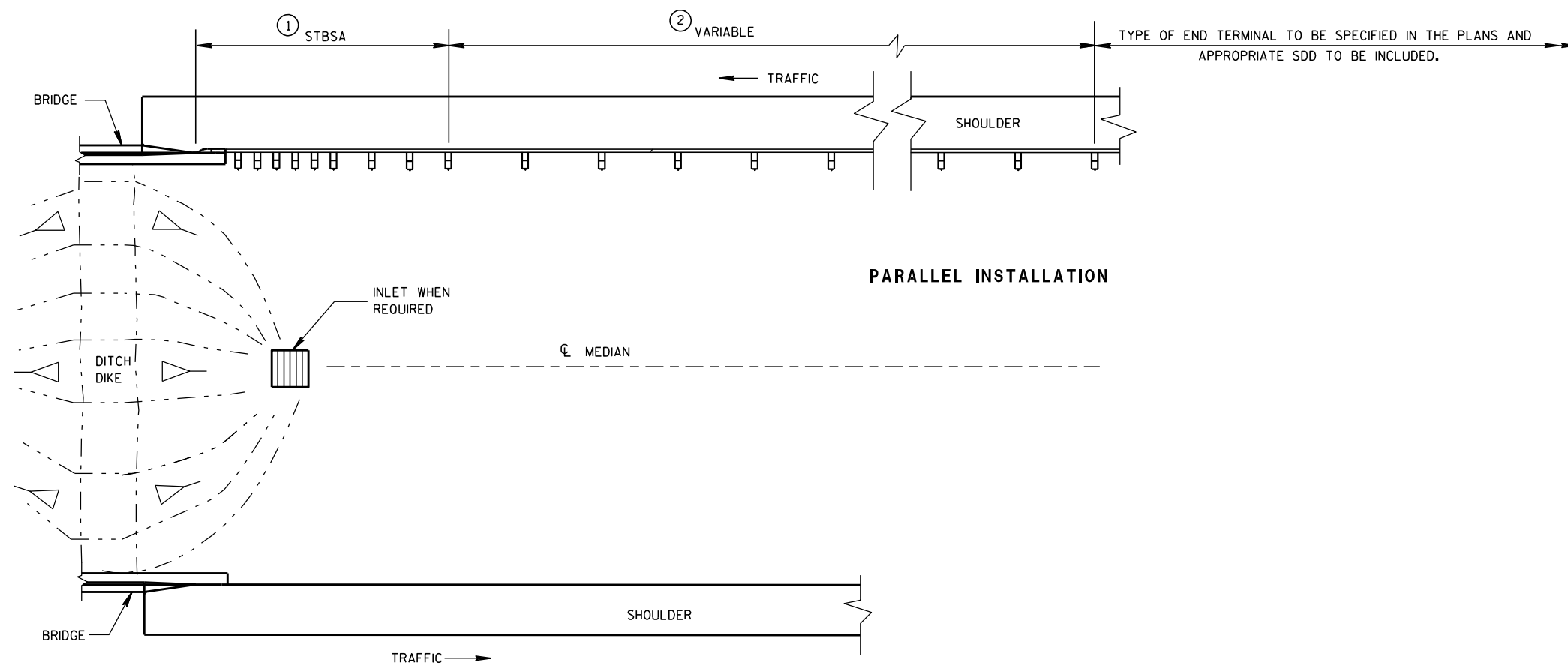
- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

| MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT | POST SPACING |
|--|--------------|
| 3'-6" | 3' - 1 1/2" |
| 4'-6" | 6' - 3" |

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

GENERAL NOTES

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

STEEL PLATE BEAM GUARD
CLASS "A" AT
MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

BILL OF MATERIALS

| NOTE NO. | DESCRIPTION |
|----------|--|
| ① | WOOD BREAKAWAY TERMINAL POST:
5½" X 7½" X 3'-9" |
| ② | STEEL TUBE
TS 8" X 6" X 0.188", 6'-0" |
| ④ | WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0" |
| ⑤ | WOOD OFFSET BLOCKS: 6' X 8" X 1'-2" |
| ⑥ | PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE |
| ⑦ | BEARING PLATE |
| ⑧ | BCT CABLE ASSEMBLY |
| ⑨ | CABLE ANCHOR BOX |
| ⑩ | STRUT & YOKE |
| ⑪ | STEEL PLATE BEAM, END PANEL 12 GA. |
| ⑫ | STEEL PLATE BEAM: 12 GA. 13'-6½" |
| ⑬ | IMPACT HEAD |
| ⑭ | 0.040" ALUMINUM SHEET WITH REFLECTIVE
SHEETING TYPE F PER SECTION 637 OF THE
STANDARD SPECIFICATIONS |

GENERAL NOTES

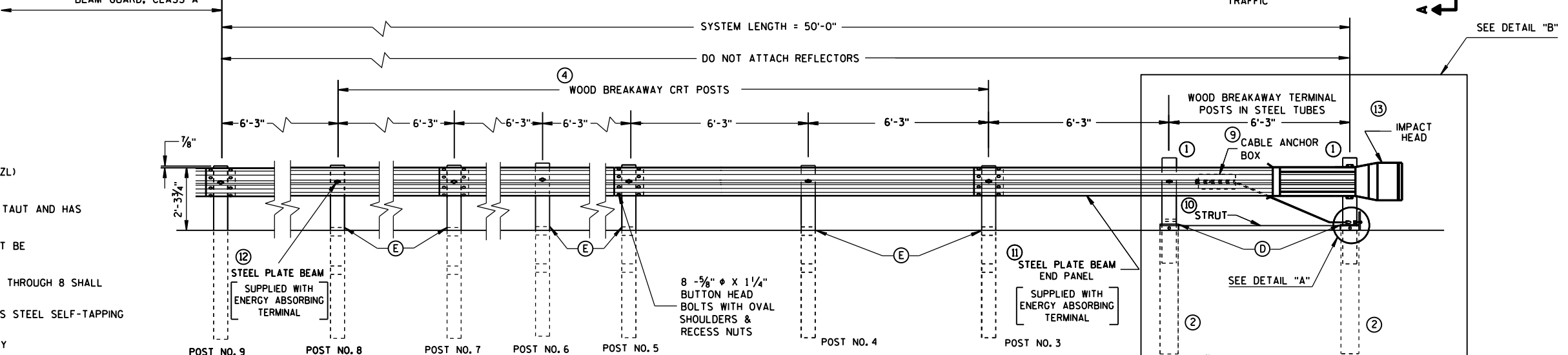
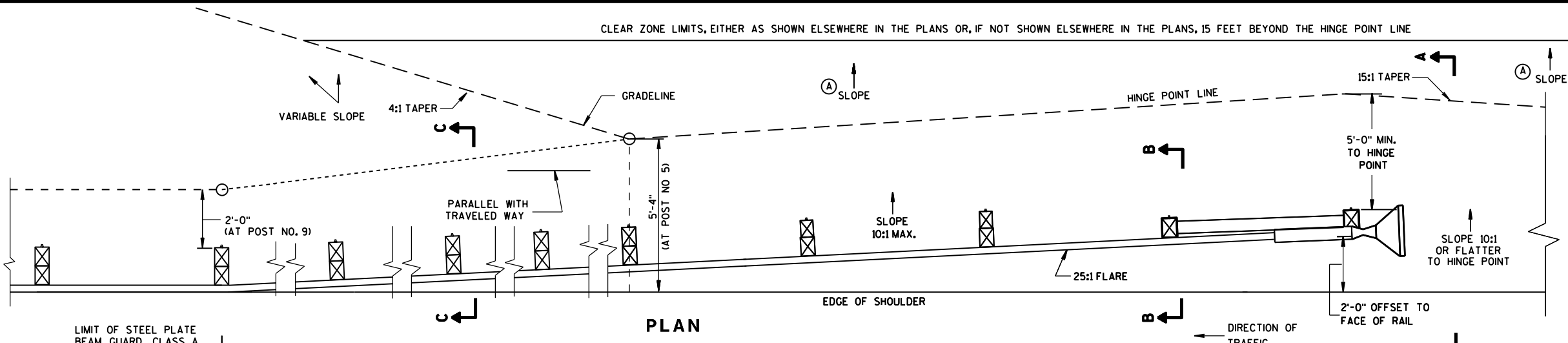
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

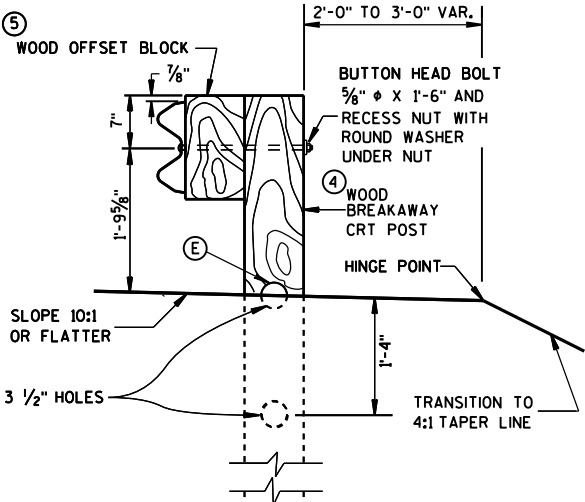
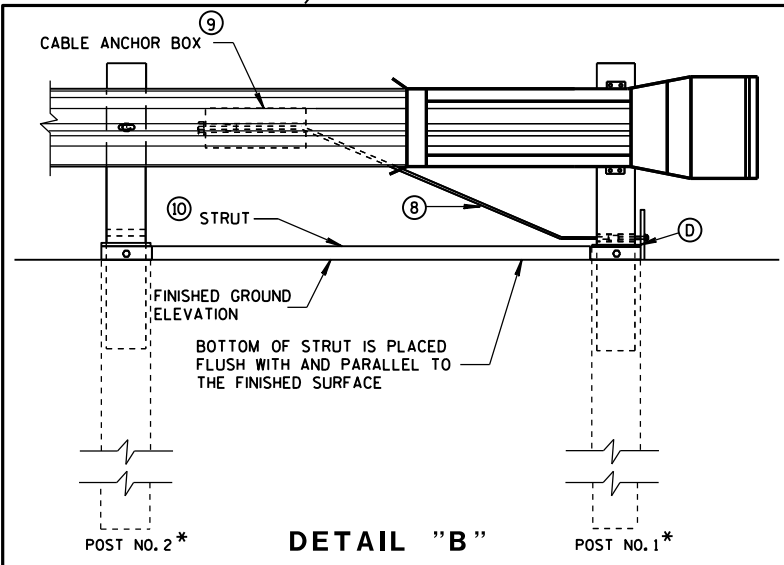
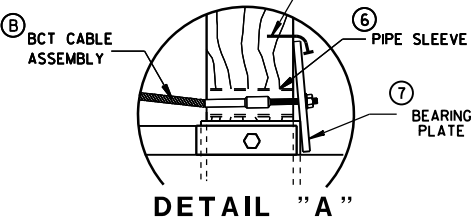
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

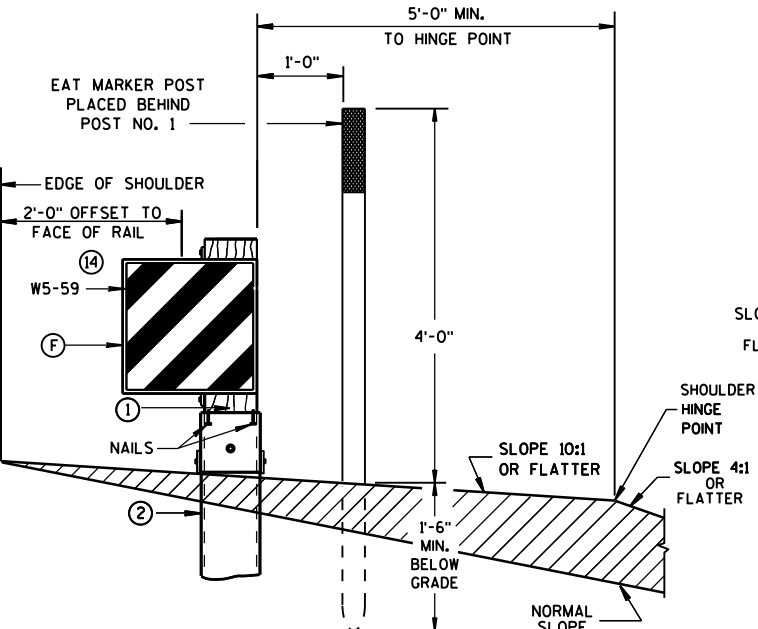
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



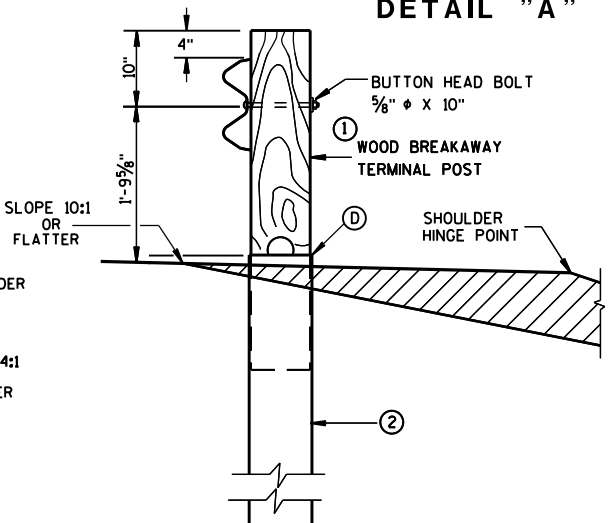
ELEVATION



SECTION C-C
TYPICAL AT POST NOS. 6, 8



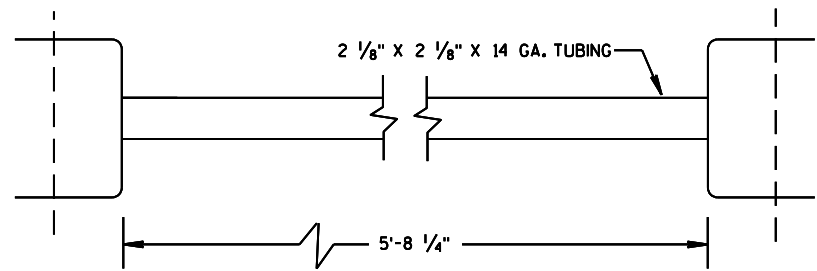
SECTION A-A
TYPICAL AT POST NO. 1*



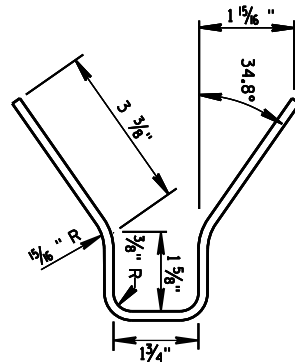
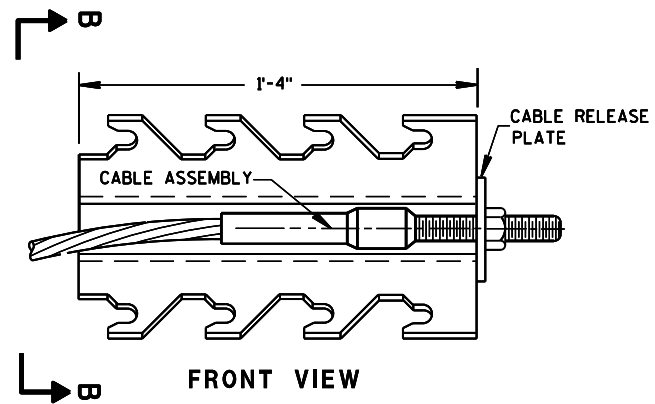
SECTION B-B
TYPICAL AT POST NO. 2*

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

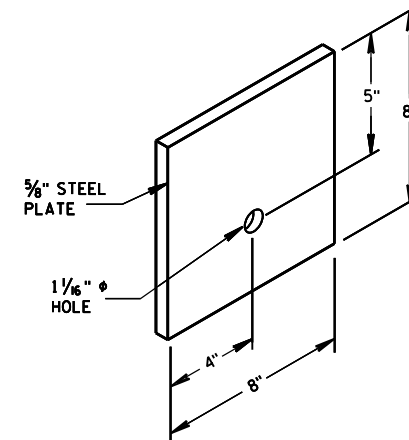
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



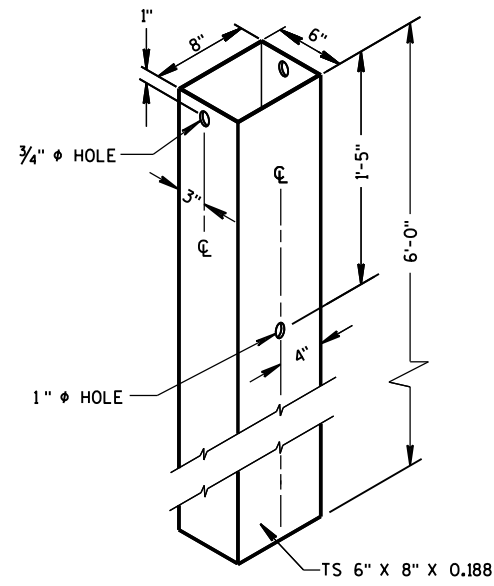
⑩ STRUT DETAIL



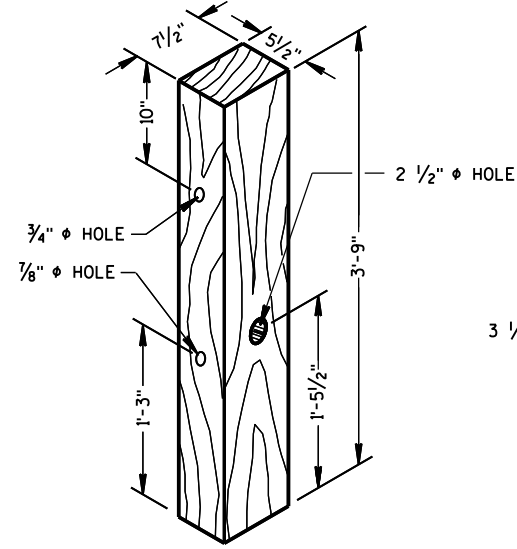
⑨ CABLE ANCHOR BOX



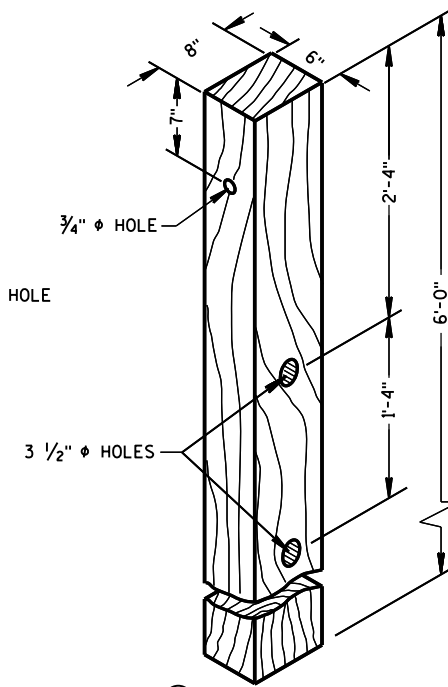
⑦ STEEL BEARING PLATE



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

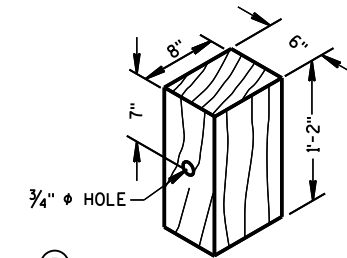


④ **CRT POST**
(POSTS NO'S 5-8)

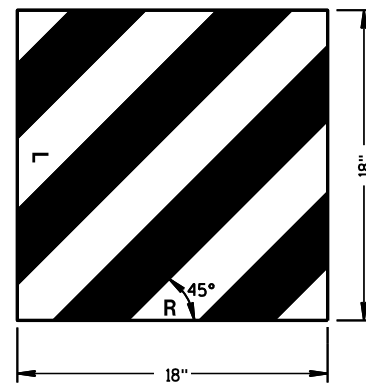
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



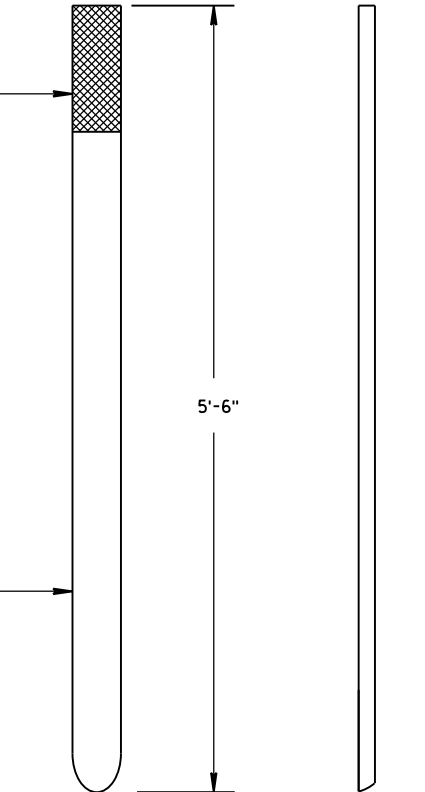
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST



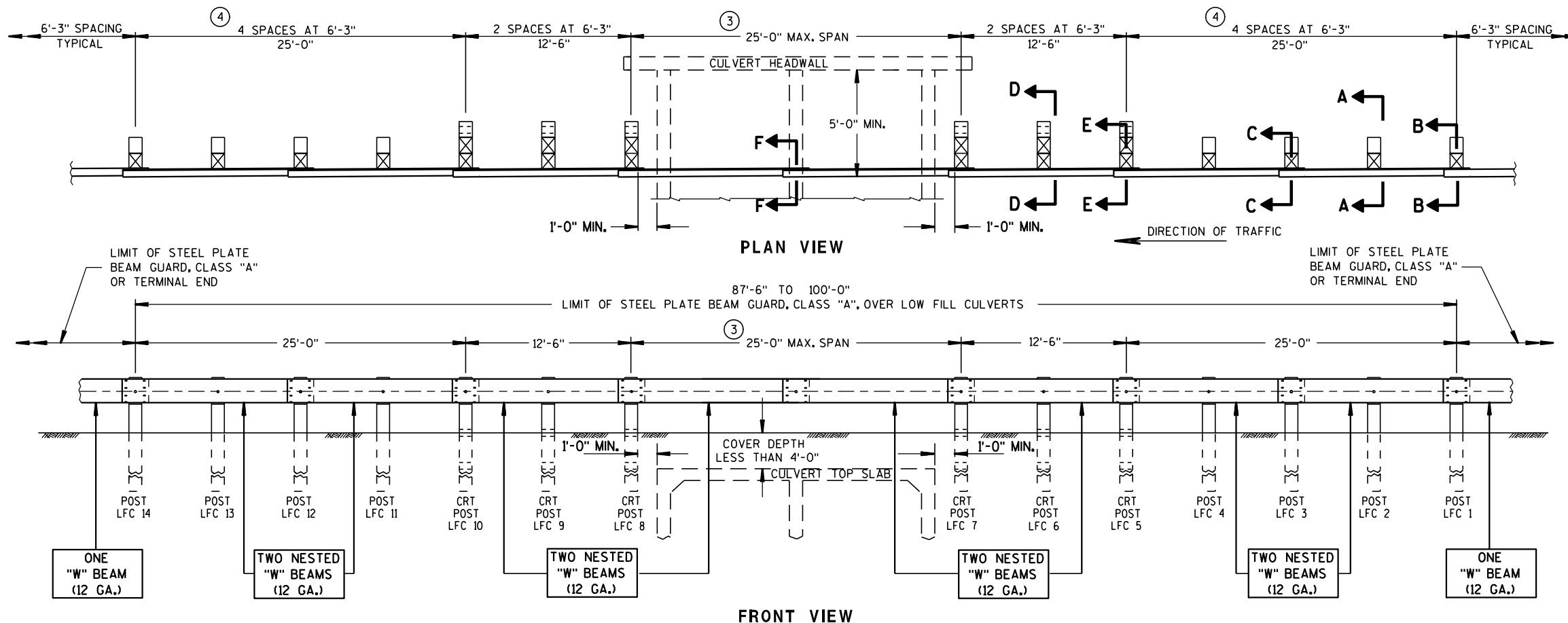
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST

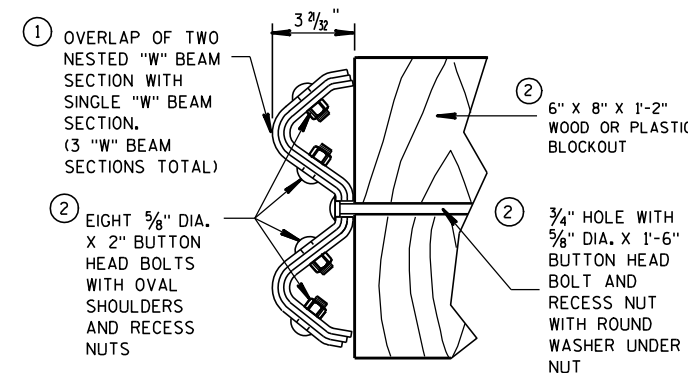
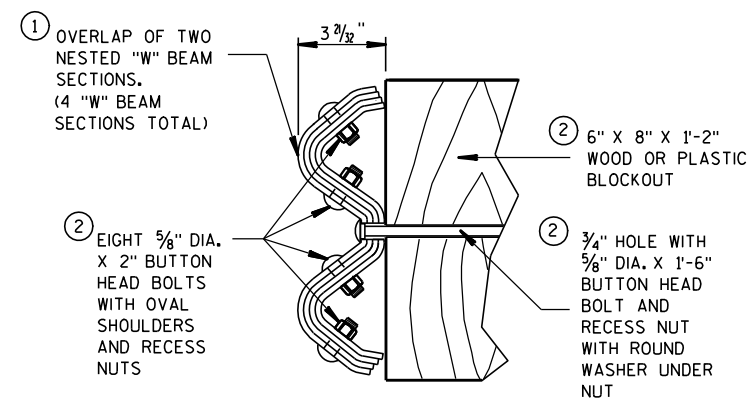
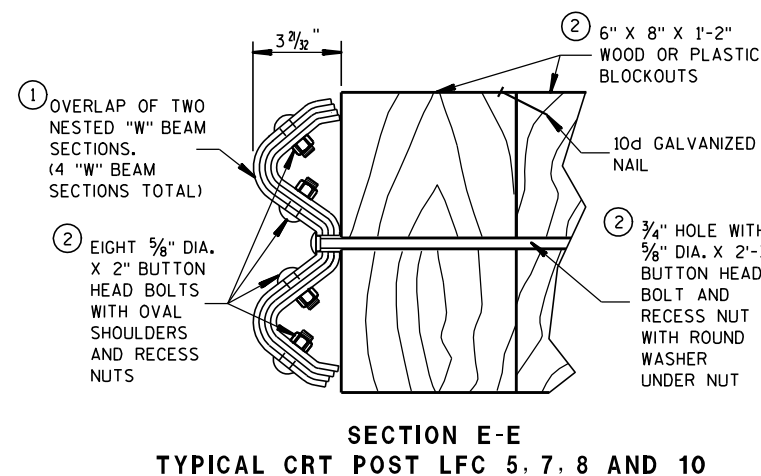
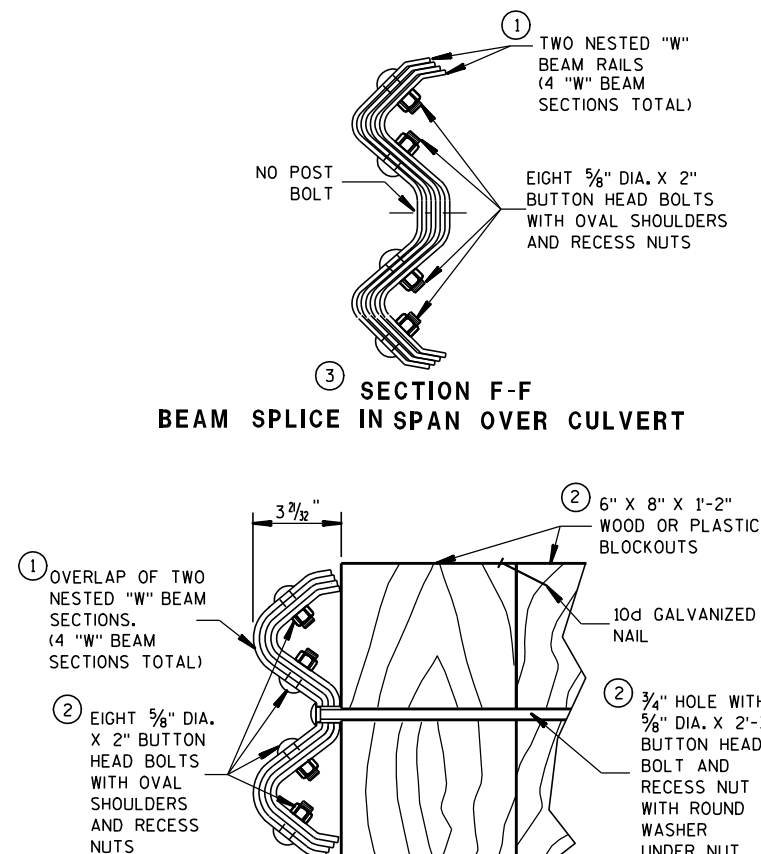
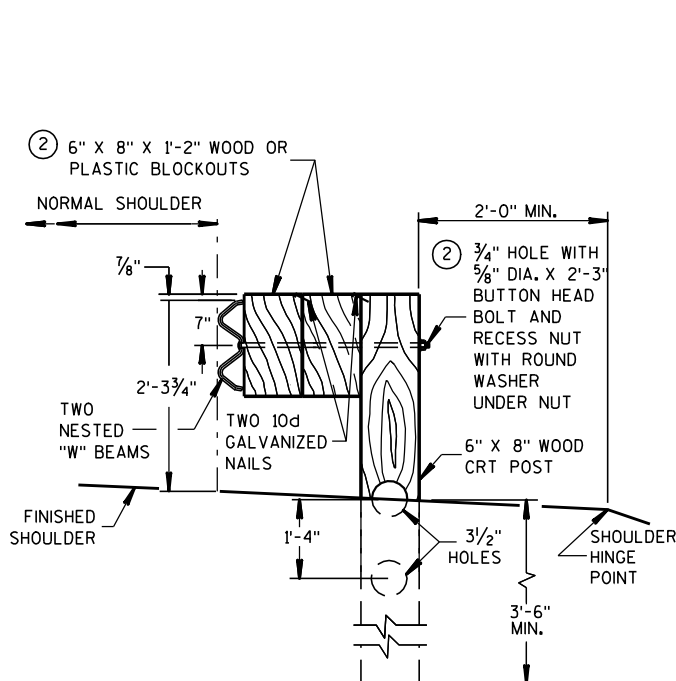
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



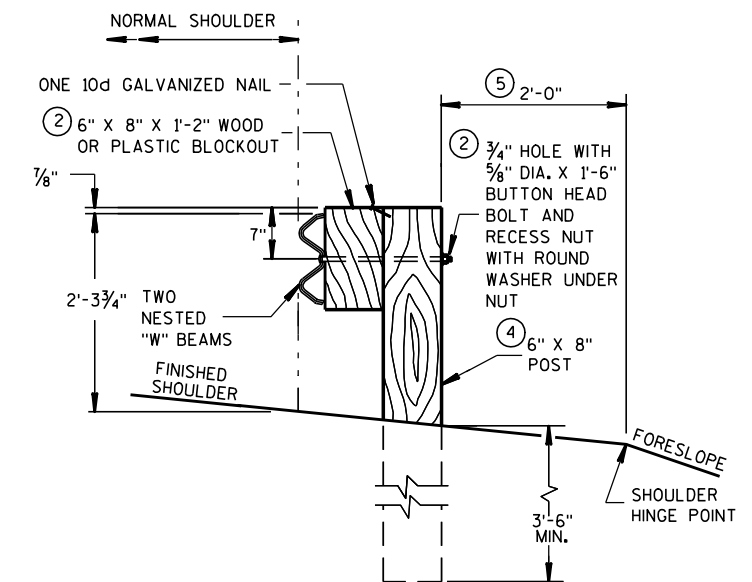
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD OVER LOW FILL CULVERTS



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 MAINTAIN THE NESTING OF EACH NESTED PAIR OF "W" BEAM SECTIONS THROUGH SPLICES. ORIENTATE NESTED "W" BEAM SPLICES IN THE DIRECTION OF TRAFFIC AS THE PLAN VIEW SHOWS. SEE S.D.D. 14 B 15 FOR SPLICE INSTALLATION.
- ② THE CONTRACTOR MAY USE APPROVED PLASTIC BLOCKOUTS IN LIEU OF WOOD BLOCKOUTS. SEE S.D.D. 14 B 15 FOR TYPICAL BLOCKOUT, SPLICE AND REFLECTOR INSTALLATIONS. USE BOLT SIZES AND LENGTHS AS SHOWN ON THIS DETAIL.
- ③ PROVIDE 12'-6", 18'-9" AND 25'-0" SPANS ONLY. USE A MAXIMUM OF ONE SPLICE LOCATED ANYWHERE WITHIN THE SPAN SECTION. LOCATE ALL OTHER SPLICES AT BEAM GUARD POSTS.
- ④ IN THE FIRST AND LAST 25 FOOT SECTIONS (POSTS LFC 1-4 & LFC 11-14), THE CONTRACTOR MAY USE W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS OR 6" X 8" WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS. DO NOT MIX STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS AND WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS IN THE SAME INSTALLATION.
- ⑤ WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK, THE PLAN TYPICAL SECTIONS OR DETAILS MAY SHOW, OR THE ENGINEER MAY ALLOW, THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. BUILD AS THE PLAN SHOWS OR ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST SOIL DEPTH TO 4'-6" OR MORE.



STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

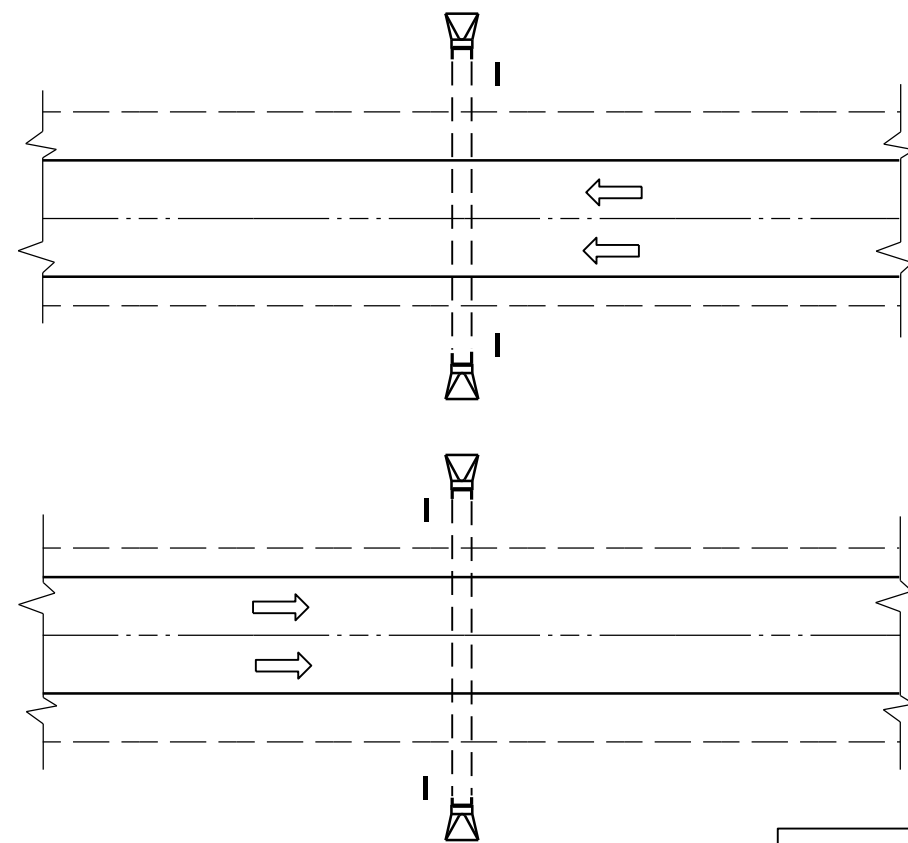
APPROVED

12/8/00

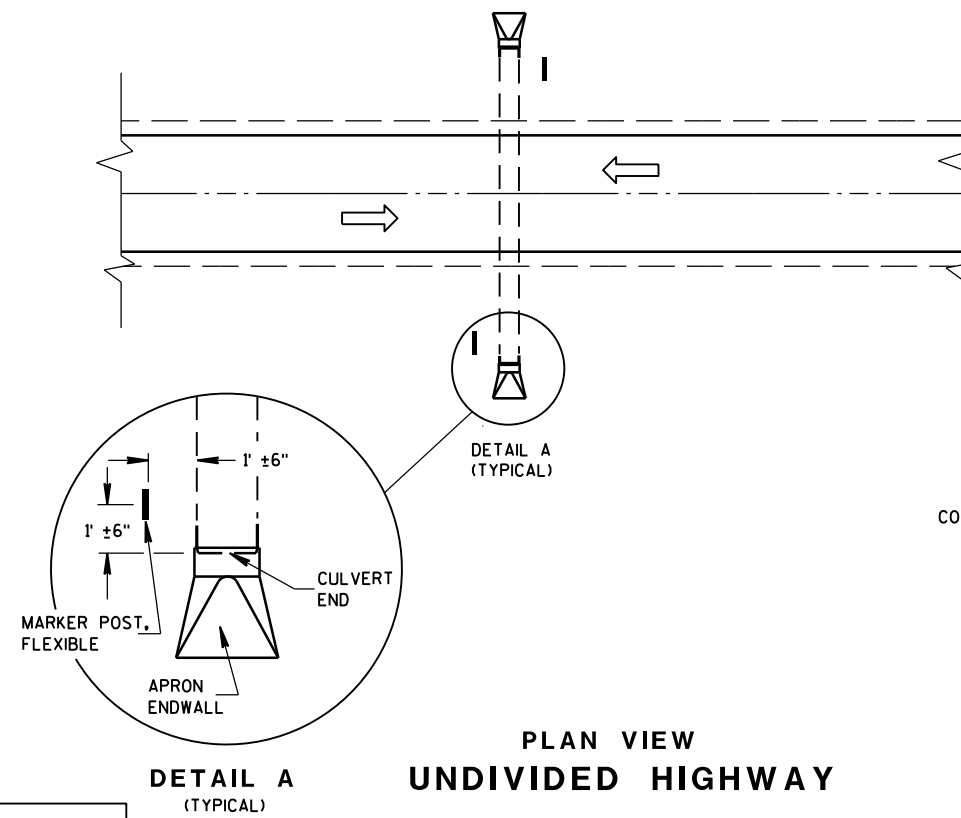
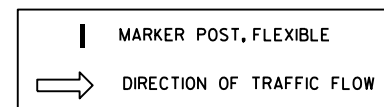
DATE

FHWA

/S/ John Haverberg
CHIEF ROADWAY DEVELOPMENT ENGINEER



PLAN VIEW
DIVIDED HIGHWAY

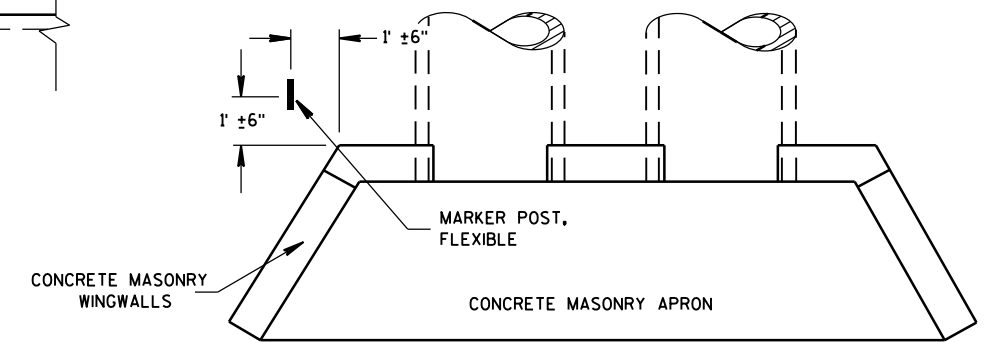


PLAN VIEW
UNDIVIDED HIGHWAY

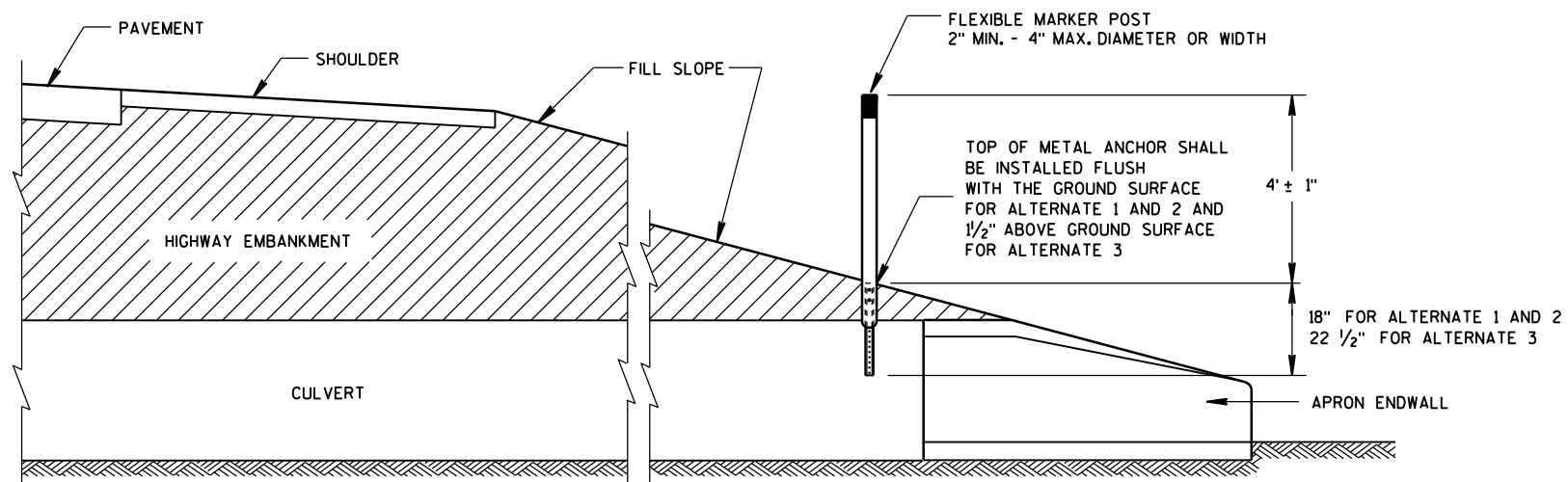
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

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



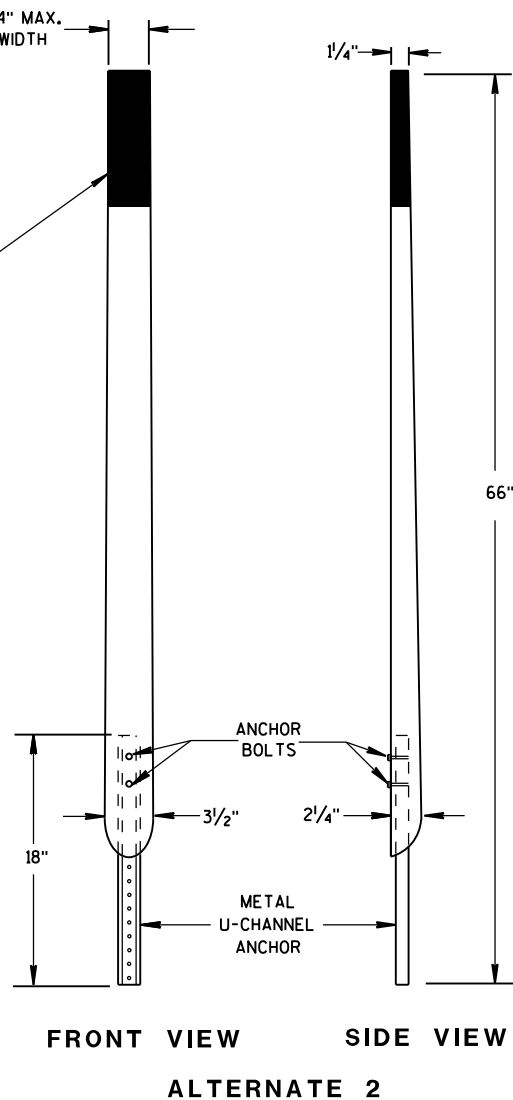
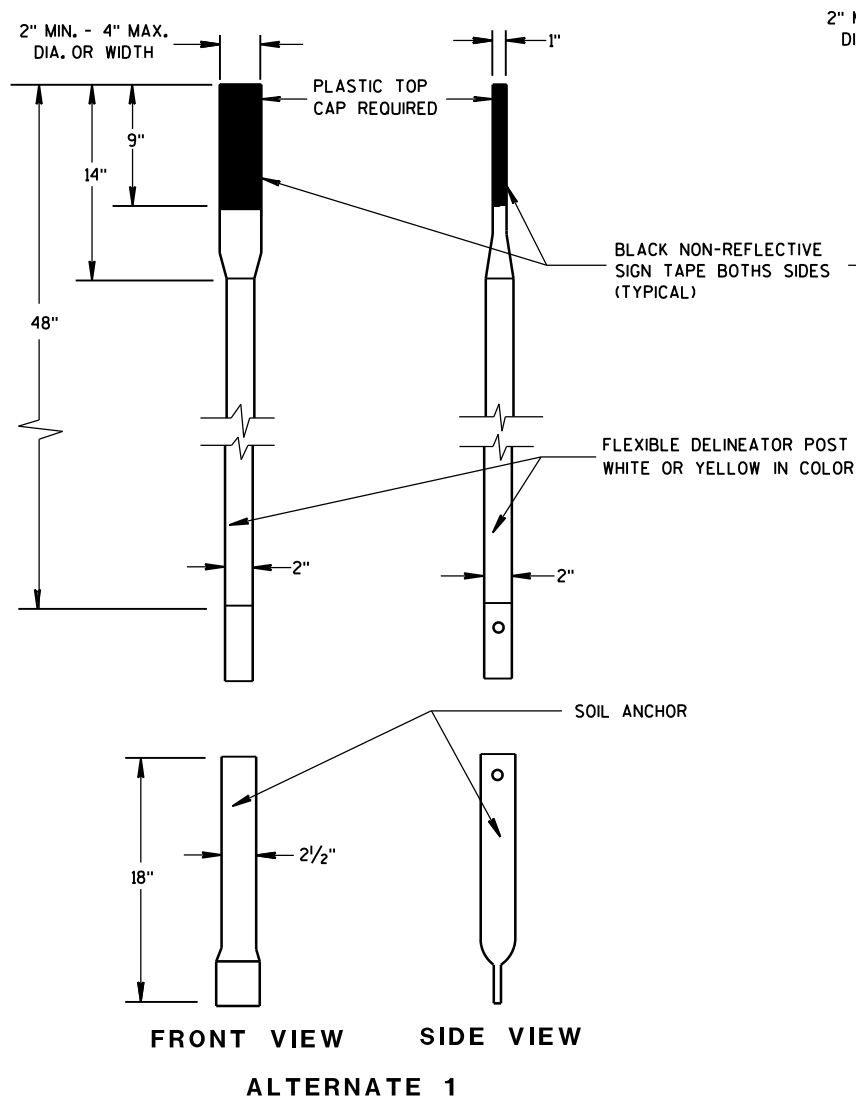
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



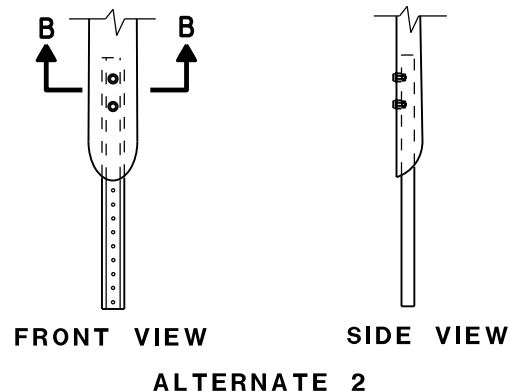
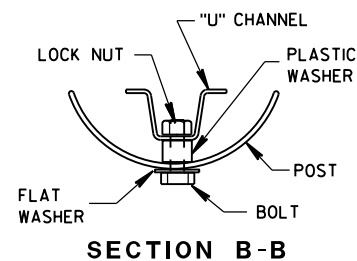
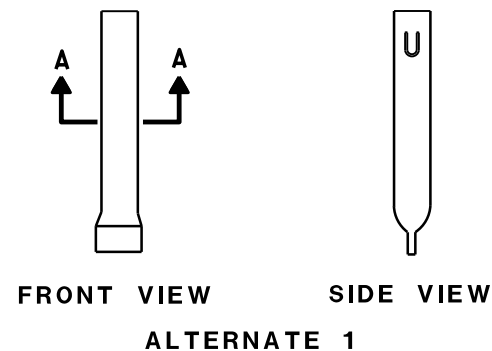
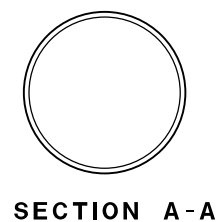
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

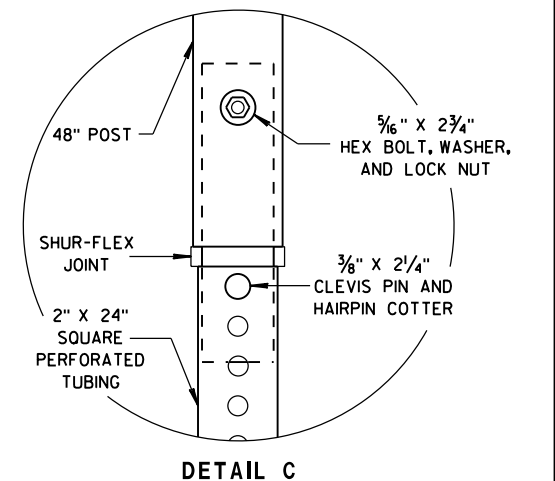
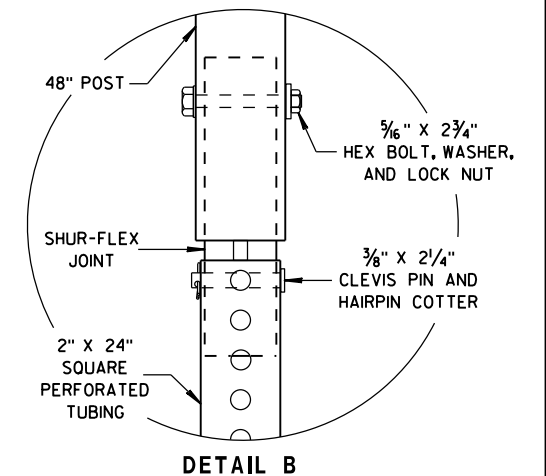
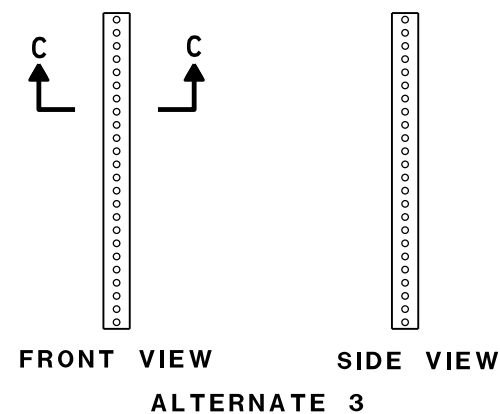
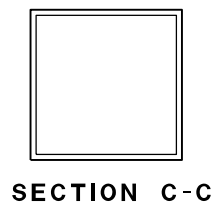
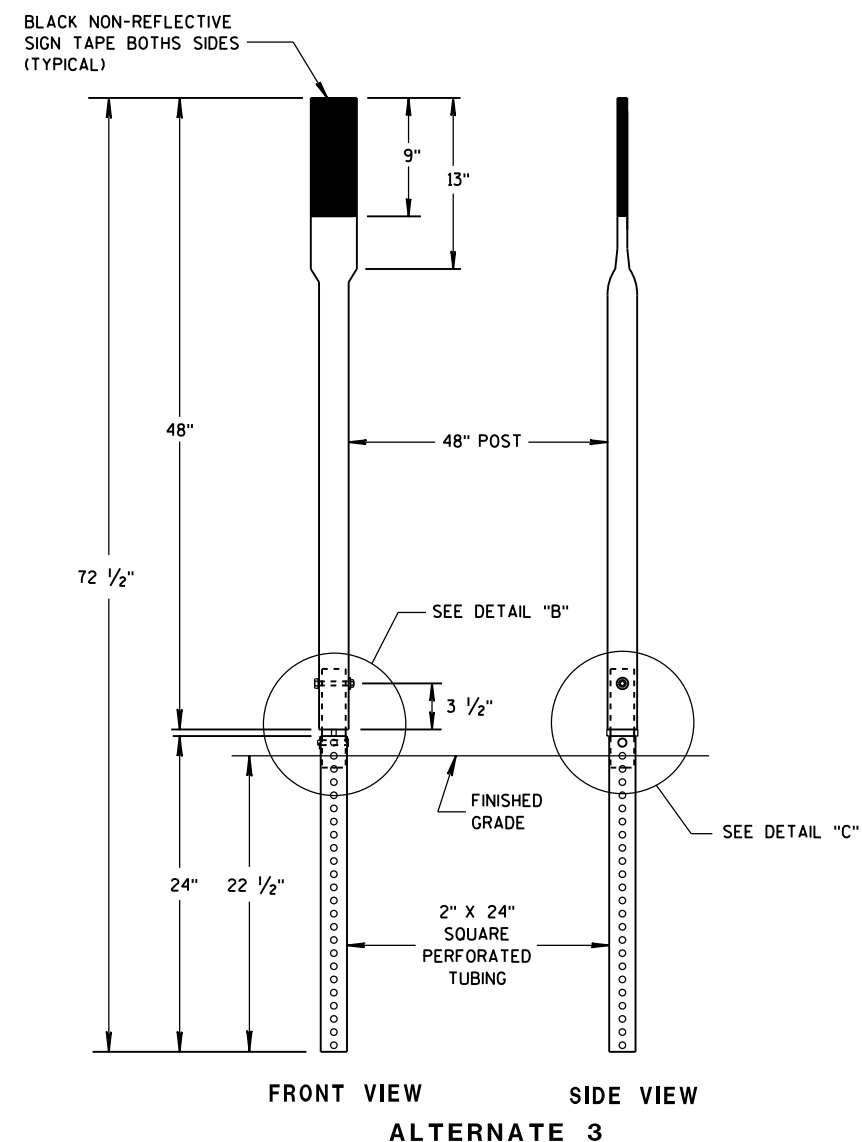
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POSTS



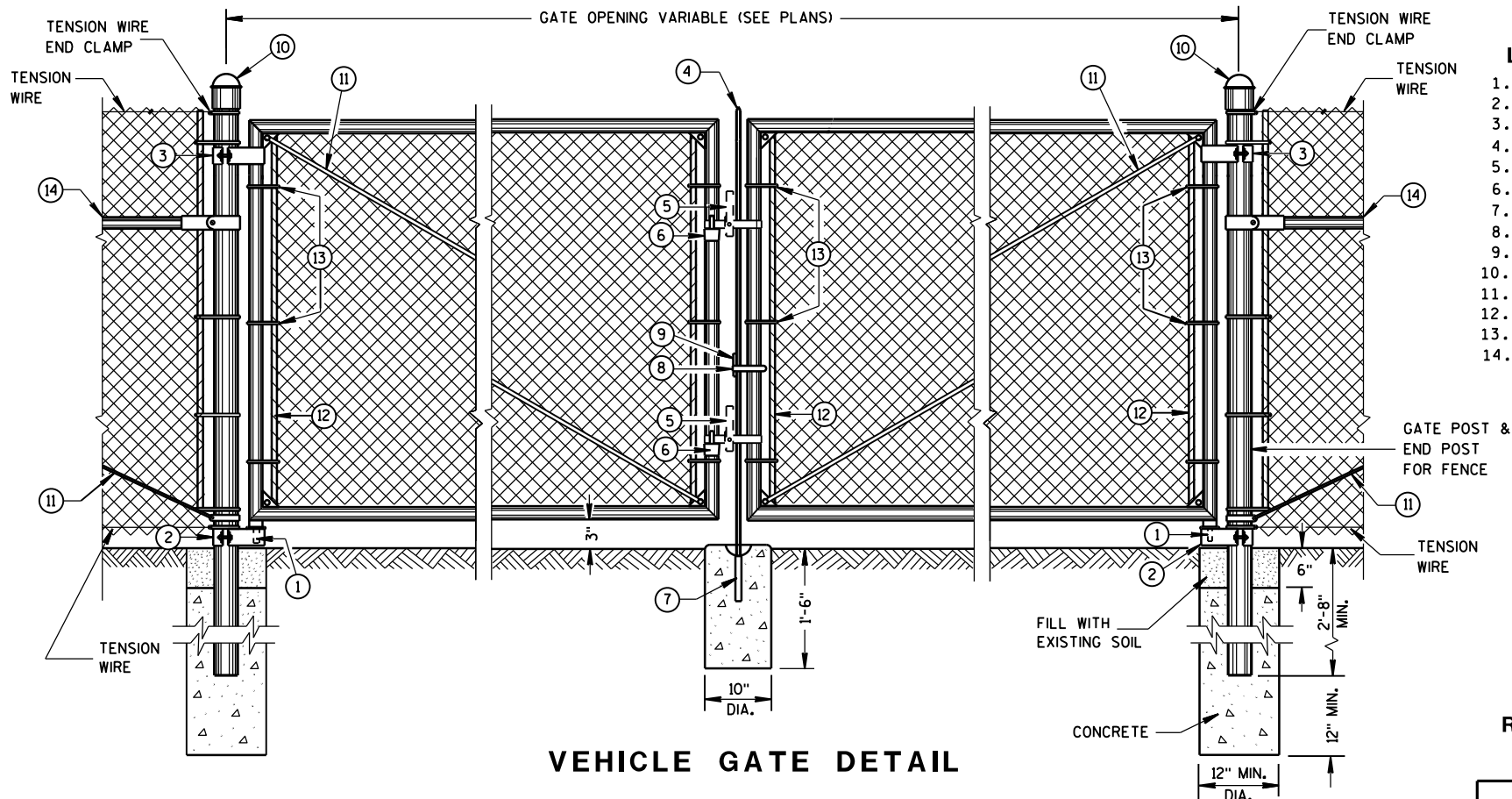
FLEXIBLE MARKER POST ANCHORS



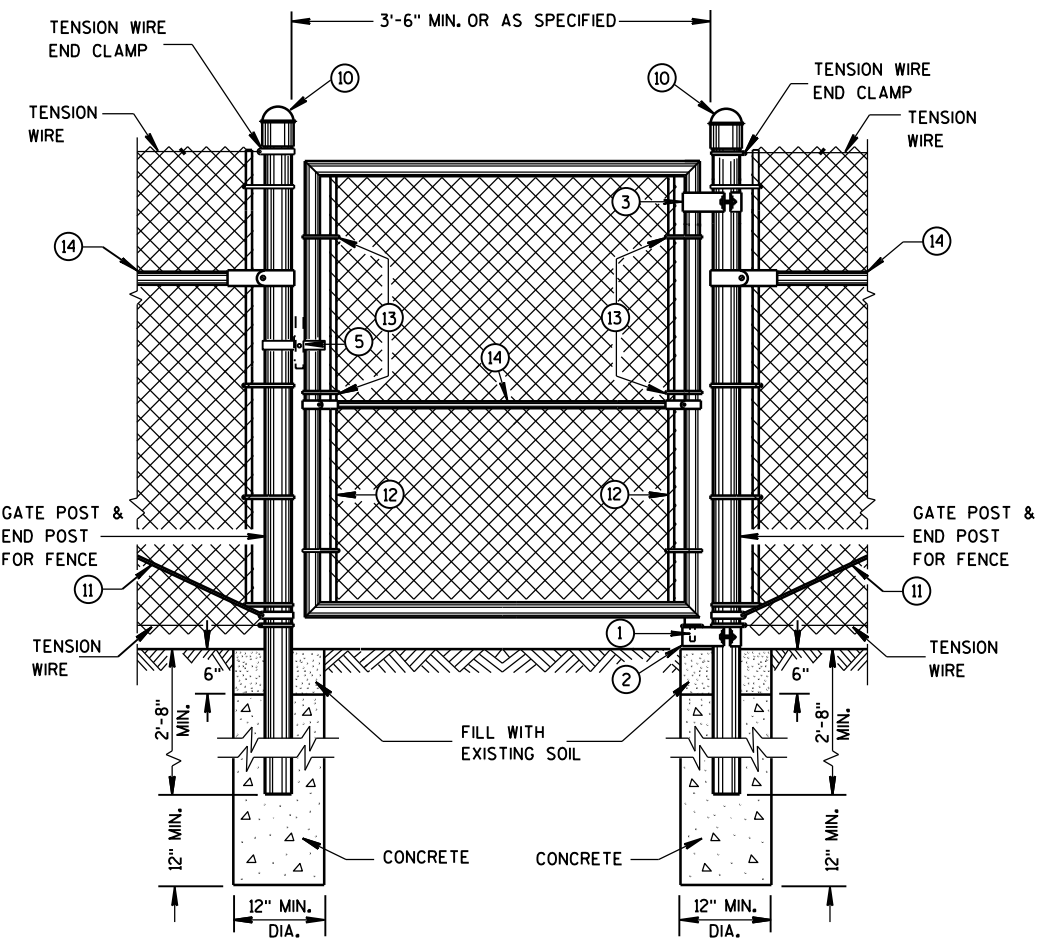
FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

LEGEND

- 1. STRAIGHT PLUG
- 2. BOTTOM HINGE
- 3. TOP HINGE
- 4. PLUNGER ROD
- 5. FULCRUM LATCH
- 6. FORK CATCH *
- 7. PLUNGER ROD CATCH
- 8. LOCK KEEPER GUIDE
- 9. LOCK KEEPER
- 10. DOME TOPS
- 11. TRUSS RODS
- 12. TENSION BAR
- 13. TENSION BANDS
- 14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

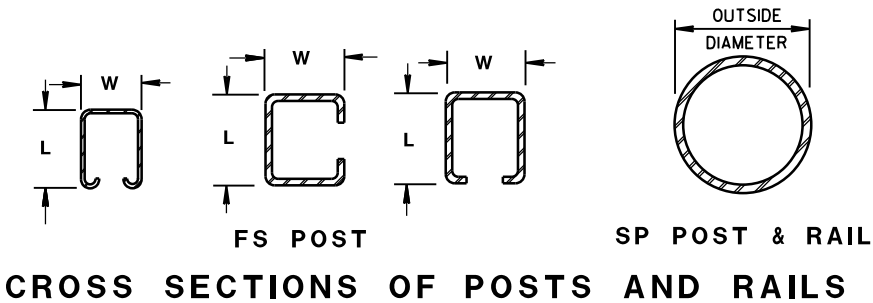
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



ROLLED-FORMED STEEL FENCE POST
(2.0 OZ./SQ. FT. COATING)

| POST TYPE | LENGTH (L)
INCH | WIDTH (W)
INCH | WEIGHT
LBS/FT |
|-----------|--------------------|-------------------|------------------|
| FS1 | 1.625 | 1.25 | 1.35 |
| FS2† | 1.875 | 1.625 | 1.850 |
| FS2 | 1.875 | 1.625 | 2.400 |
| FS3 | 2.250 | 1.700 | 2.780 |

ROUND STEEL FENCE POST
(1.8 OZ./SQ. FT. COATING)

| POST TYPE | OUTSIDE
DIMENSION
INCH | WALL
THICKNESS
INCH | WEIGHT
LBS/FT |
|-----------|------------------------------|---------------------------|------------------|
| SP1 | 1.660 | 0.140 | 2.270 |
| SP2 | 1.900 | 0.145 | 2.720 |
| SP3 | 2.375 | 0.154 | 3.650 |
| SP4 | 2.875 | 0.203 | 5.800 |
| SP5 | 4.000 | 0.226 | 9.120 |
| SP6 | 6.625 | 0.280 | 18.990 |
| SP7 | 8.625 | 0.322 | 28.580 |

REQUIRED FENCE POST SIZES

| USE | FABRIC HEIGHTS
FEET | POST
TYPE |
|-------------------------|-----------------------------------|----------------|
| TERMINAL
POSTS
** | LESS THAN OR
EQUAL TO 6 FT. | SP3 |
| | GREATER THAN OR
EQUAL TO 6 FT. | SP4 |
| LINE
POSTS | LESS THAN OR
EQUAL TO 6 FT. | SP2 |
| | LESS THAN OR
EQUAL TO 8 FT. | SP3 |
| | GREATER THAN OR
EQUAL TO 8 FT. | SP4 |
| | LESS THAN OR
EQUAL TO 8 FT. | FS2 OR
FS2† |
| | GREATER THAN OR
EQUAL TO 8 FT. | FS3 |

REQUIRED POST
SIZE FOR GATES

| USE | LEAF WIDTHS
FEET | POST
TYPE |
|-------|---------------------------------|--------------|
| GATES | LESS THAN OR
EQUAL TO 6 FT. | SP4 |
| | LESS THAN OR
EQUAL TO 13 FT. | SP5 |
| | LESS THAN OR
EQUAL TO 18 FT. | SP6 |
| | LESS THAN OR
EQUAL TO 23 FT. | SP7 |

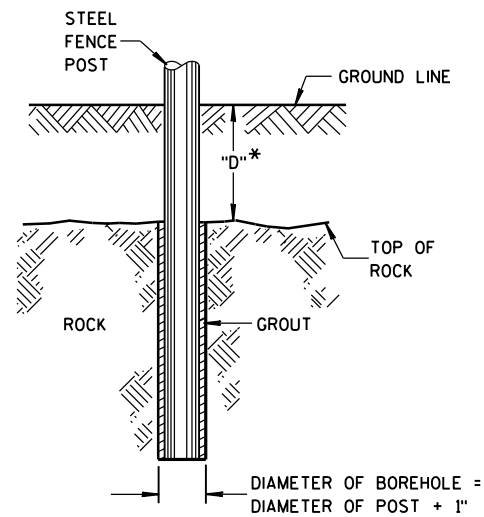
BRACE RAIL TYPES

| USE | TYPE |
|------------|---------------|
| BRACE RAIL | SP1 OR
FS1 |

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

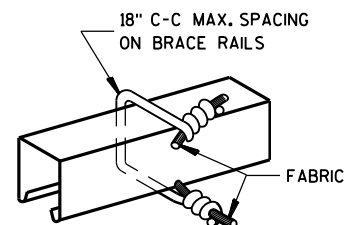
FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



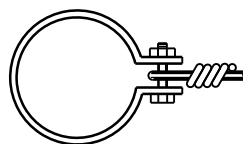
* IF "D" IS LESS THAN 2'-6",
DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST

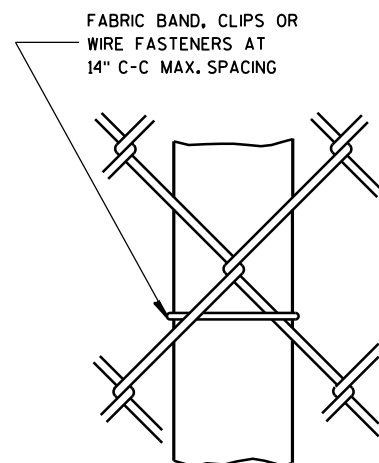


BRACE RAIL FABRIC FASTENER

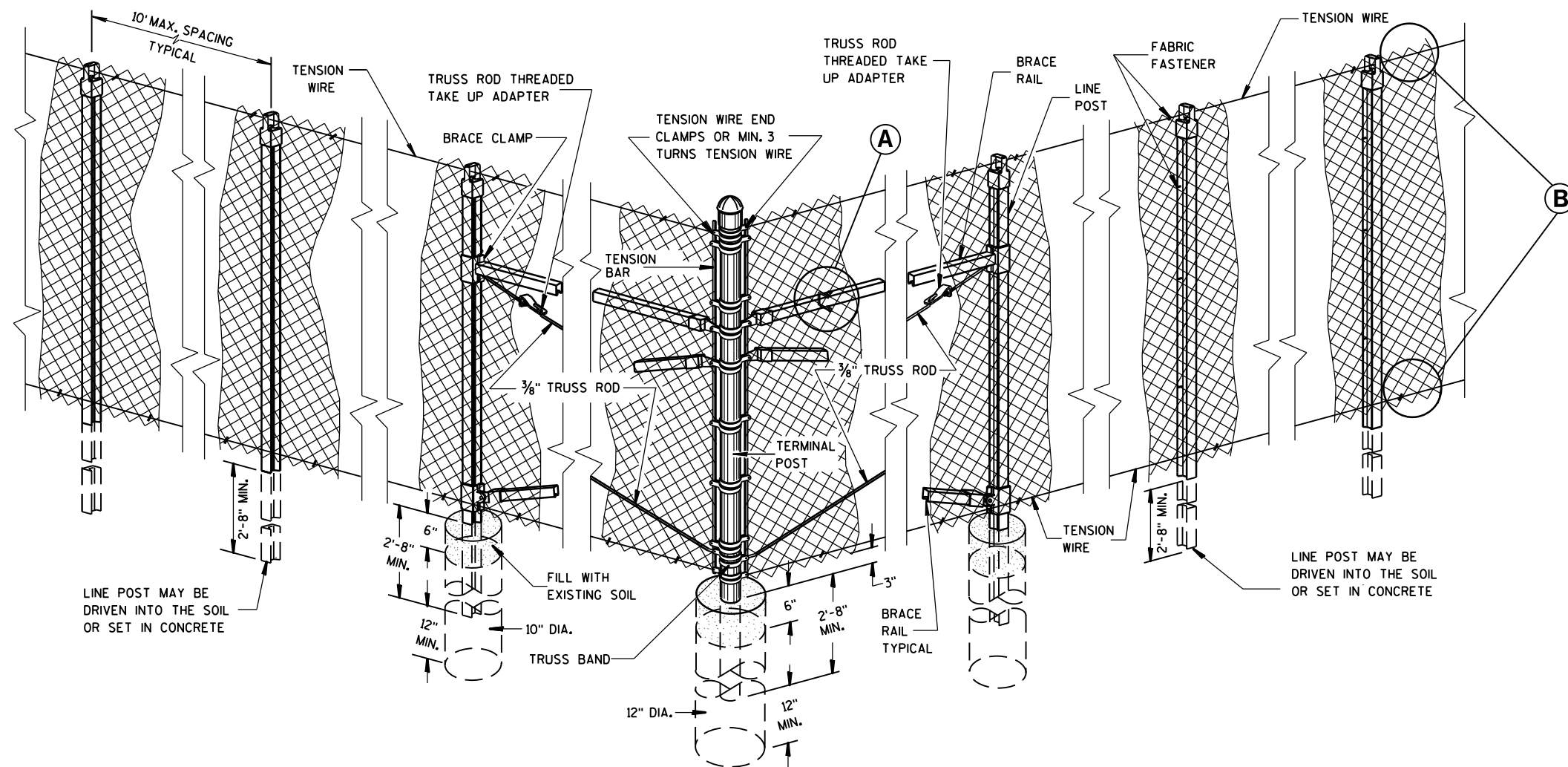
(A)



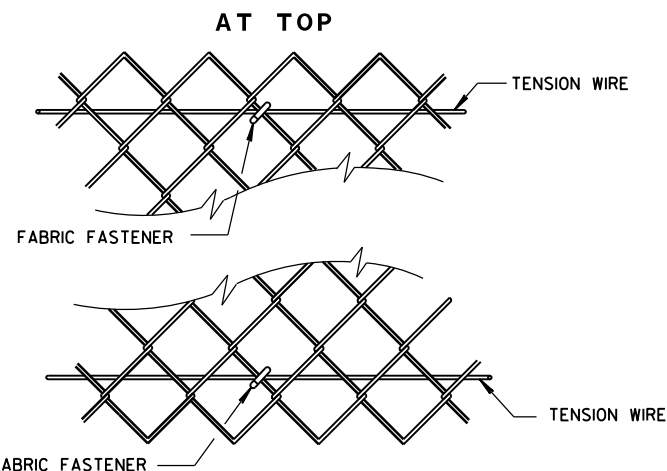
TENSION WIRE END CLAMP



LINE POST FABRIC FASTENER



END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS

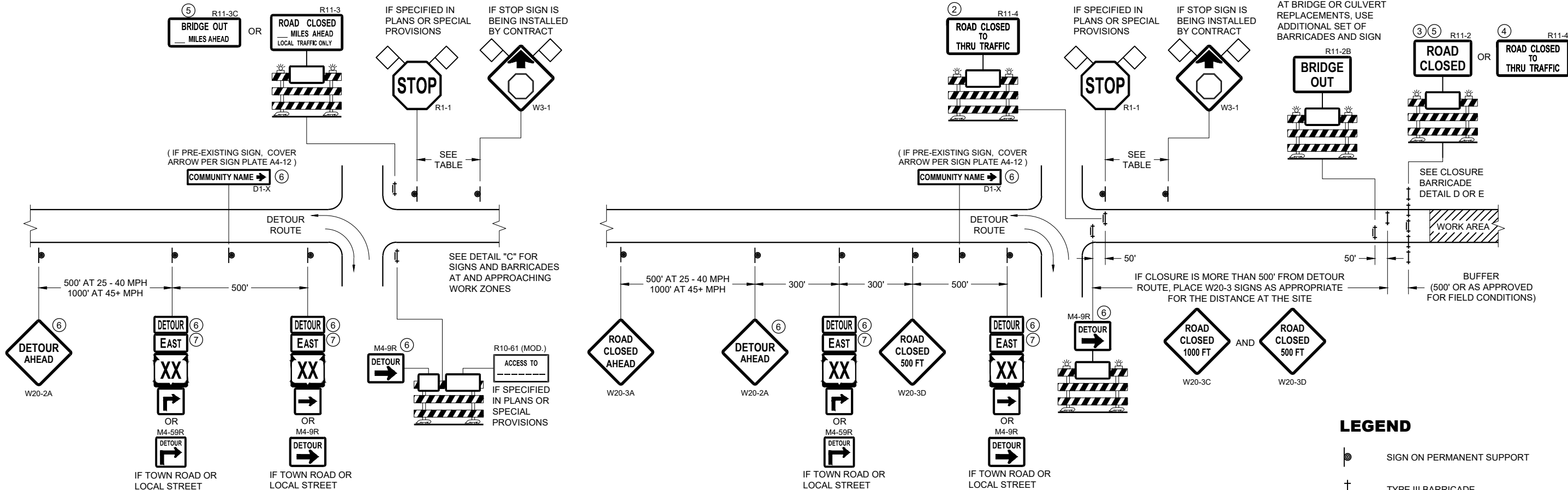


(B)

FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
FEB. 2015
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

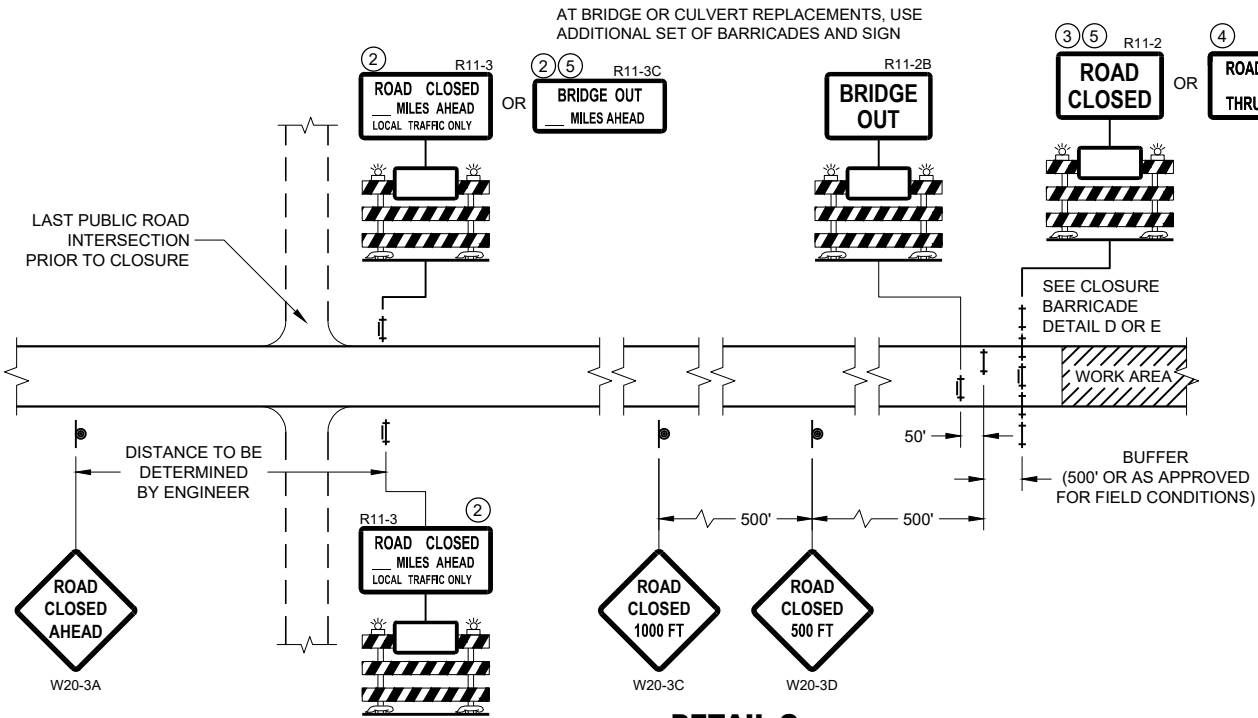


DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SEE SDD 15C2 - SHEET "a" FOR LEGEND

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

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

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

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

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

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

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

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

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

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

LESS OTHERWISE NOTED BELOW:

R11 - 2 SHALL BE 48" X 30"

R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"

M4 - 9 SHALL BE 30" X 24"

M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)

M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)

M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)

MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)

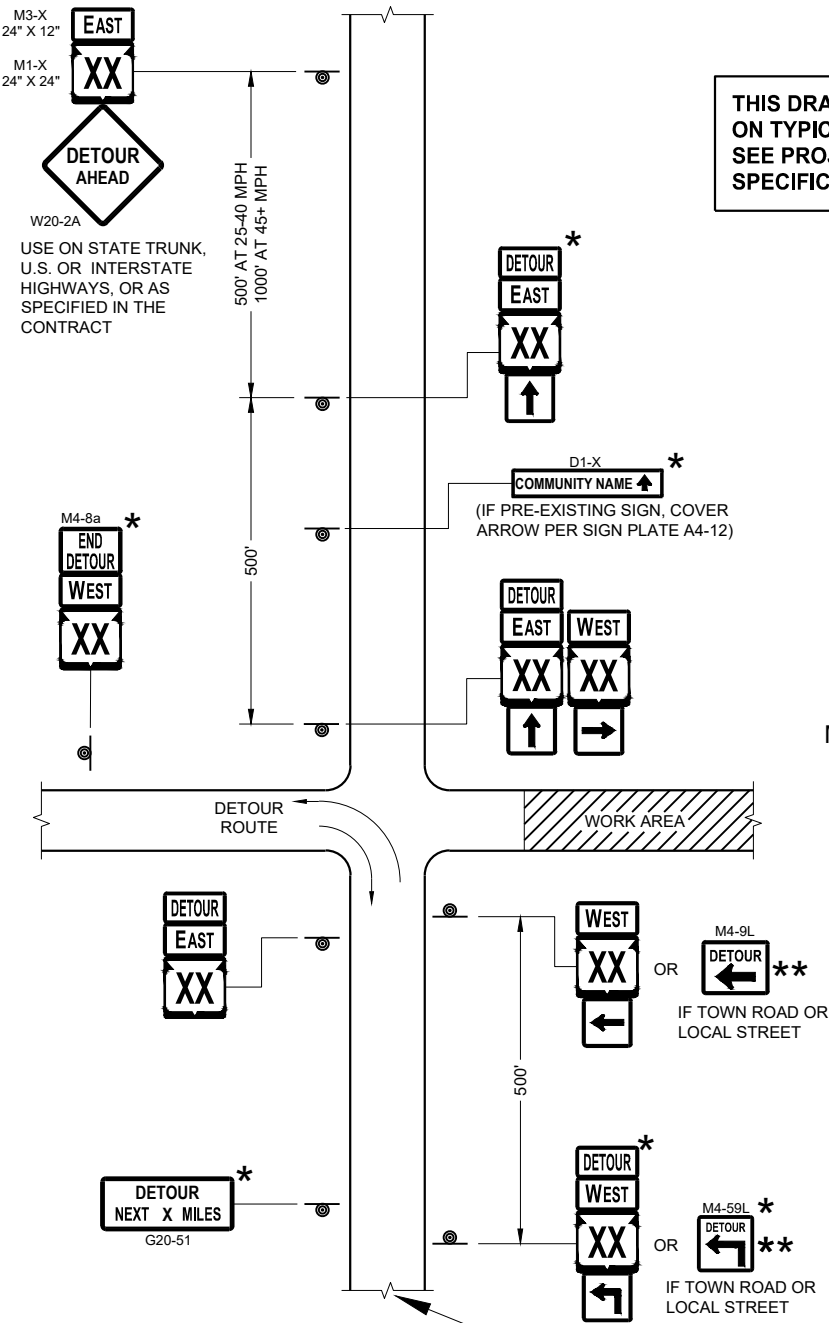
D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

R1 - 1 SHALL BE 36" X 36"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

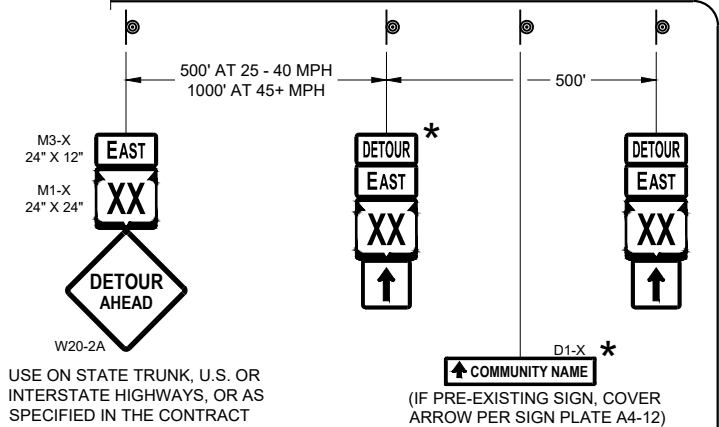
APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER



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

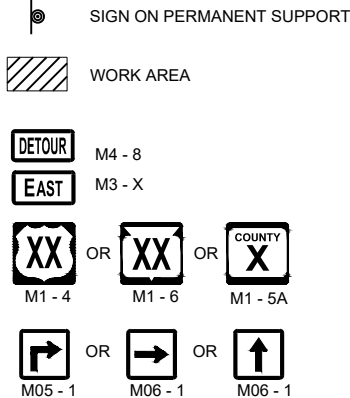
THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND



GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

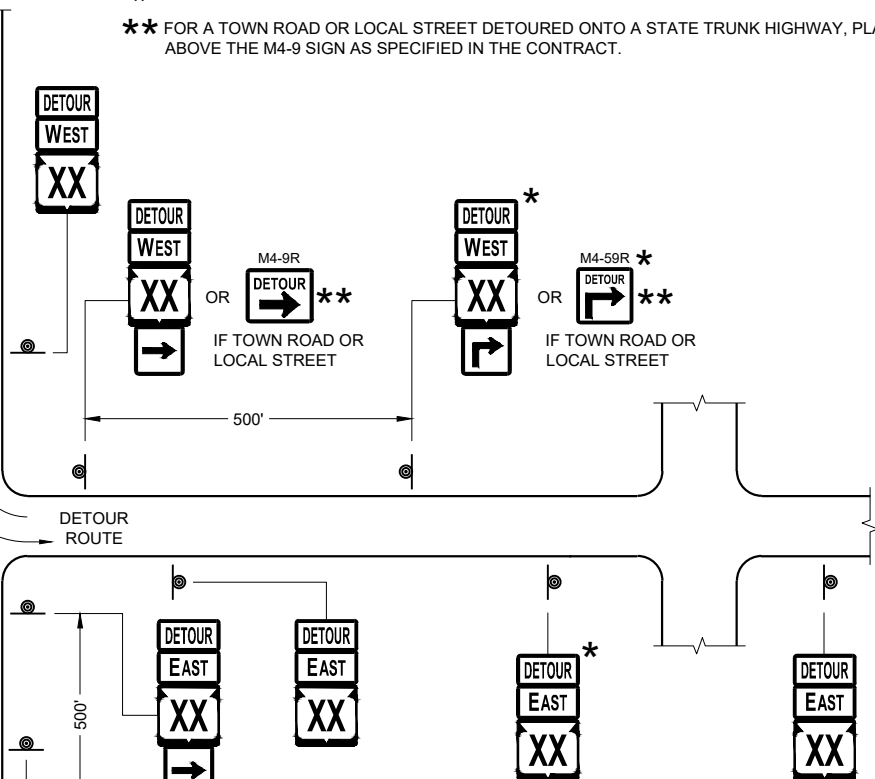
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

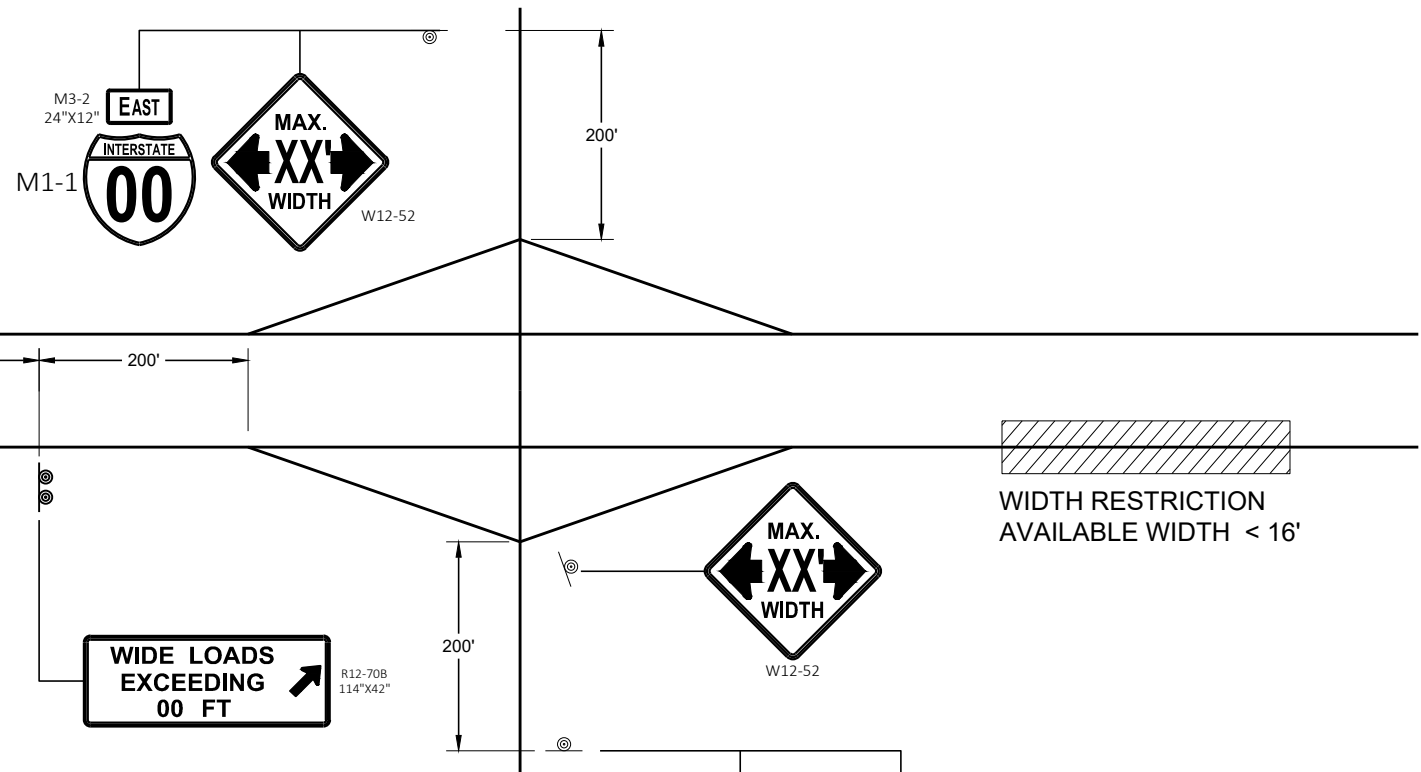


PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

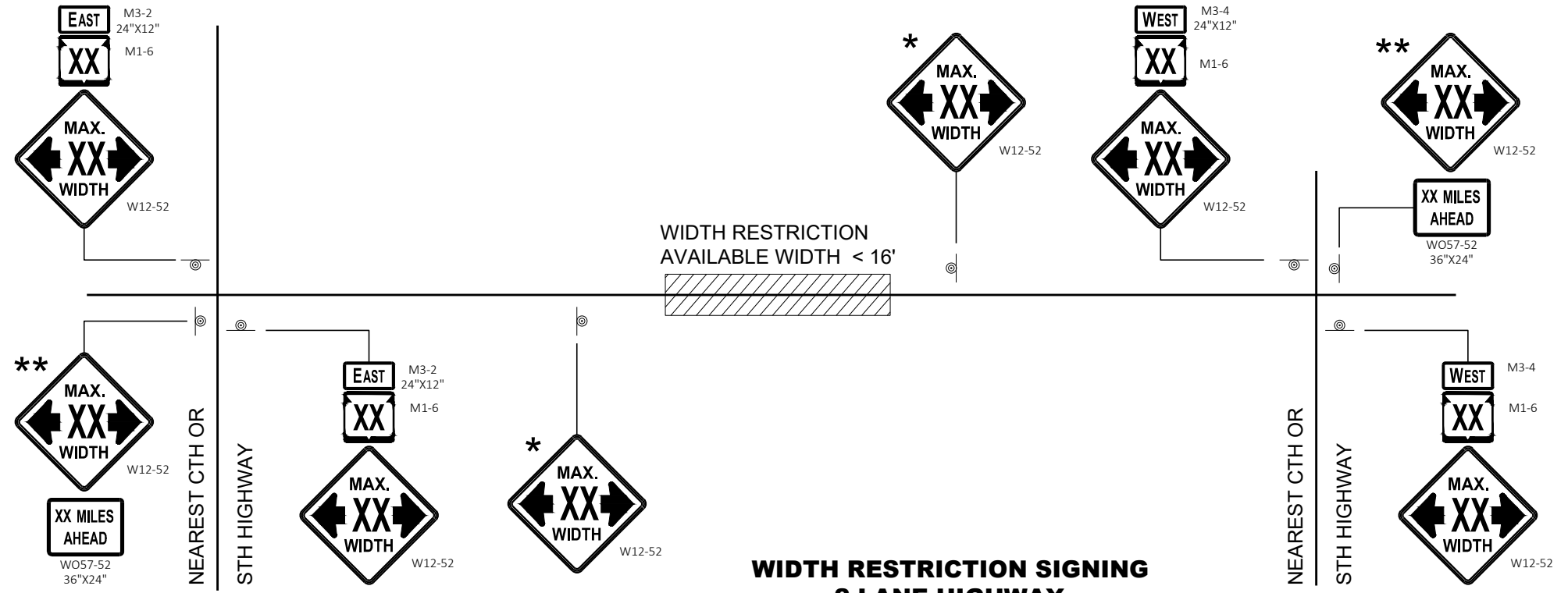
DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.
- * PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- ** SIGN SHALL BE VISIBLE FROM ROADWAY.
- *** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

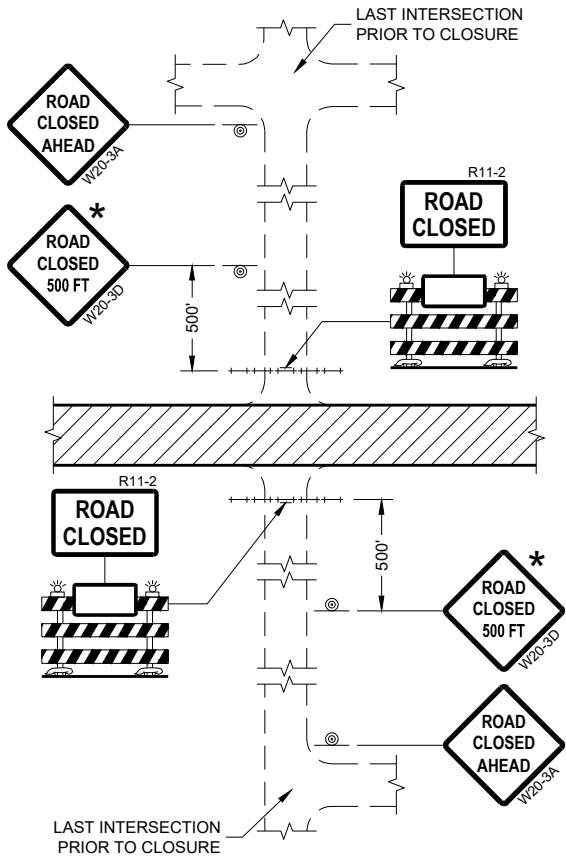


ADVANCED WIDTH
RESTRICTION SIGNING

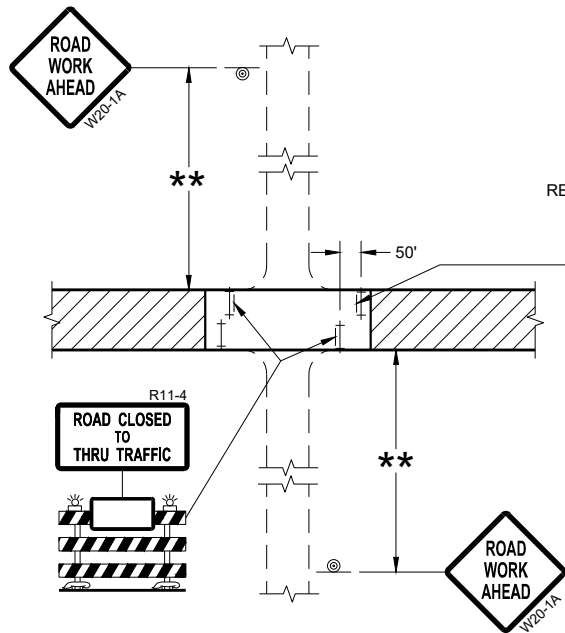
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

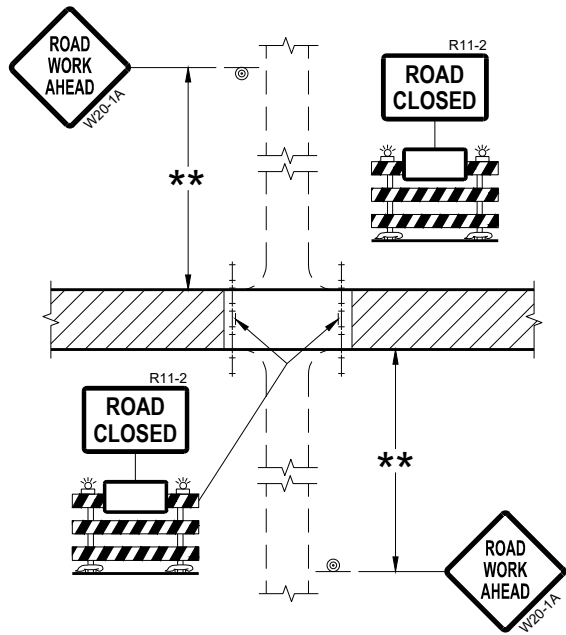
FHWA



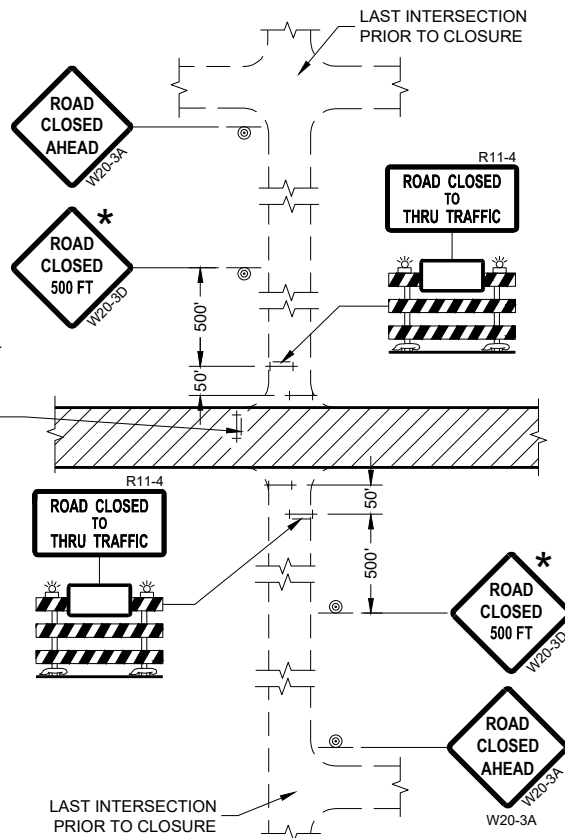
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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.

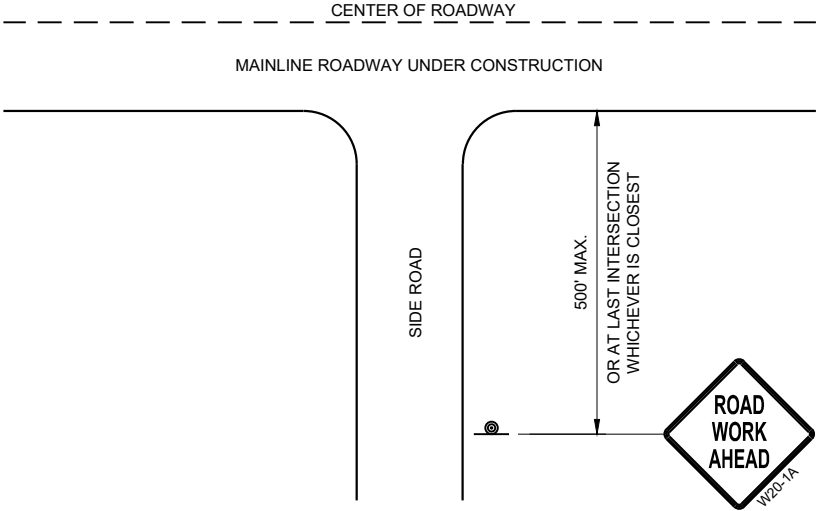
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

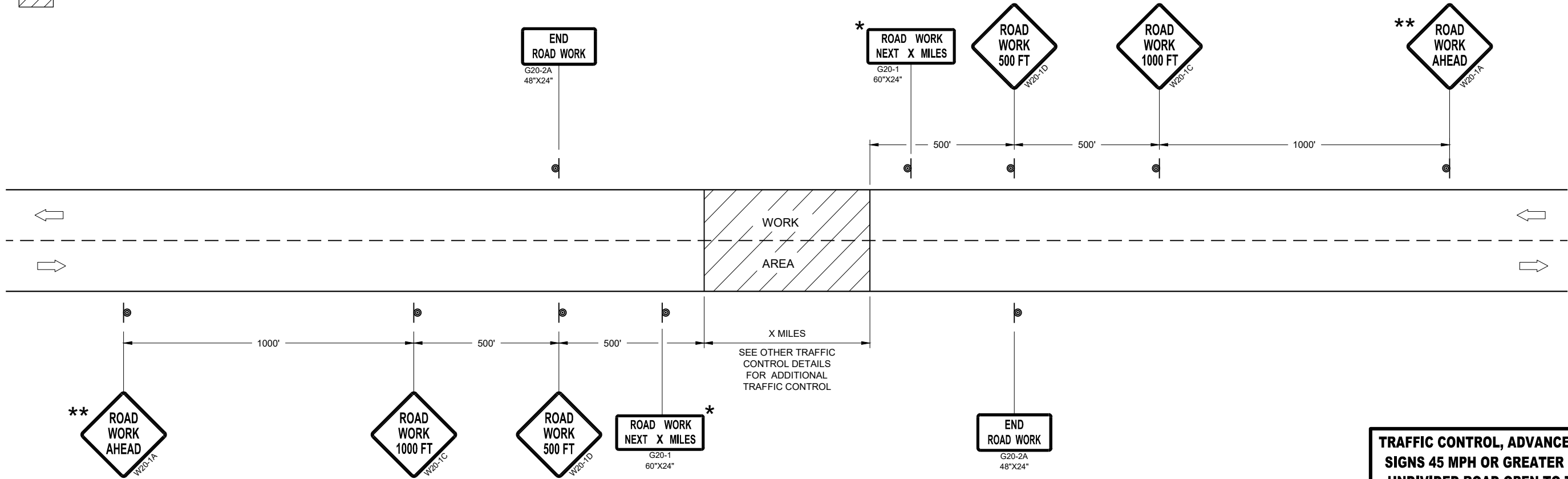
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

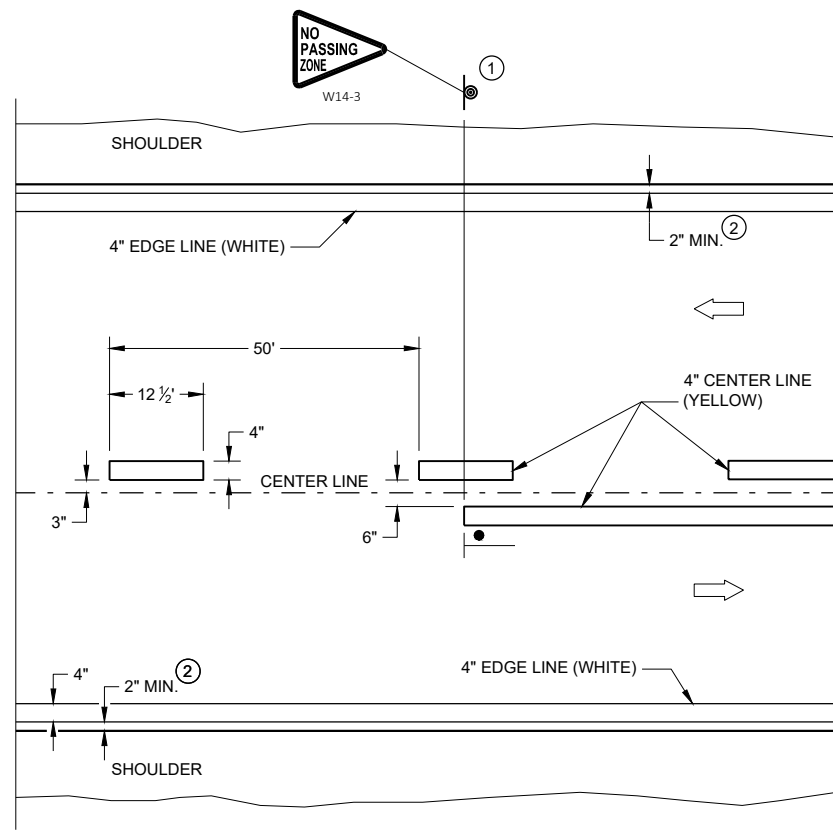


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

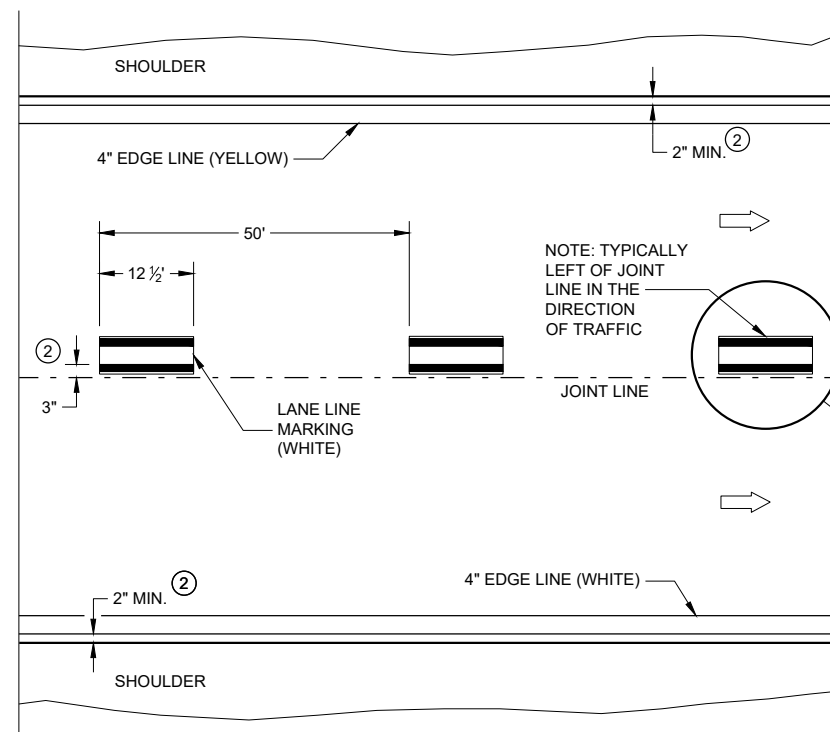
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

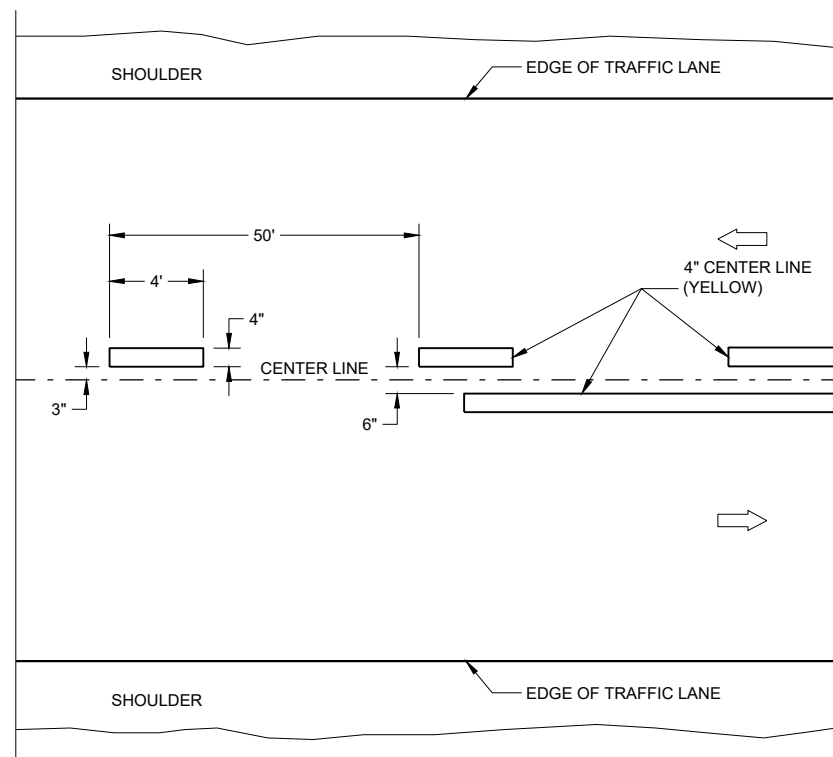


TWO WAY TRAFFIC

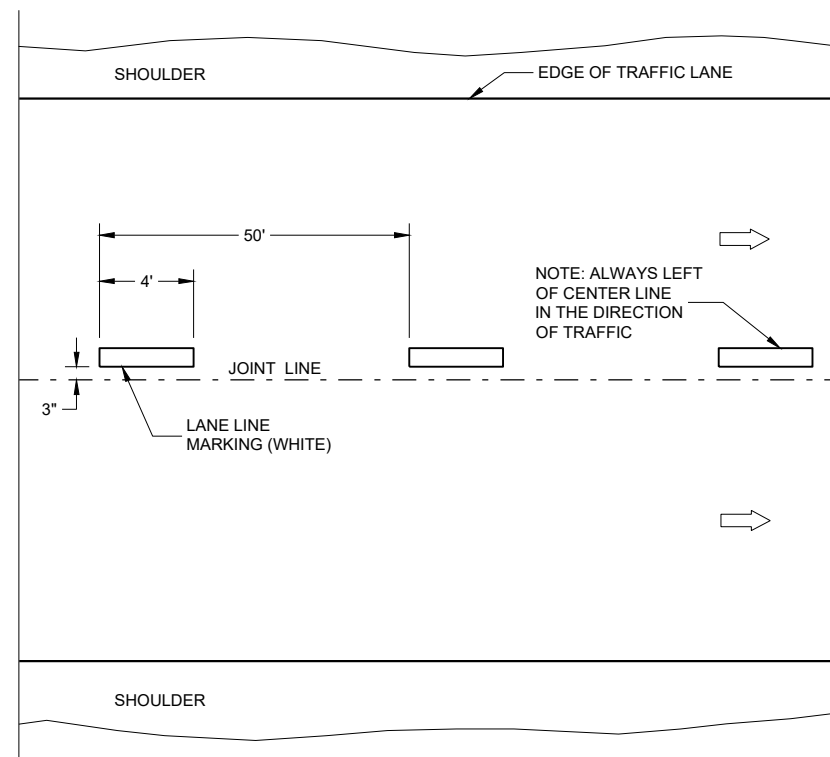


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

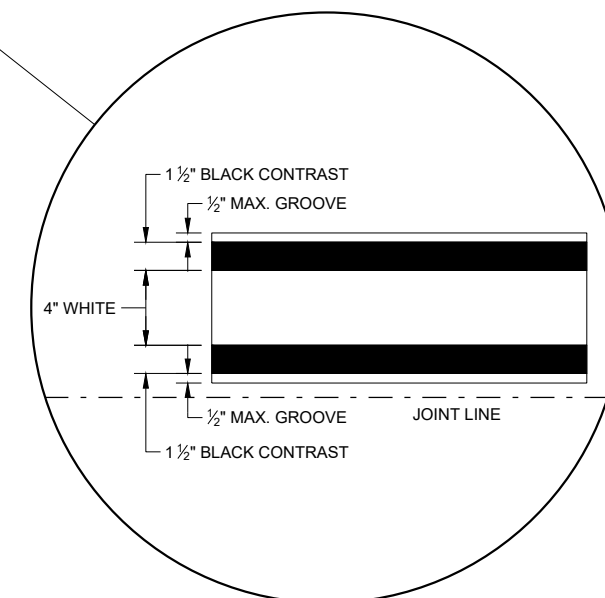
GENERAL NOTES

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

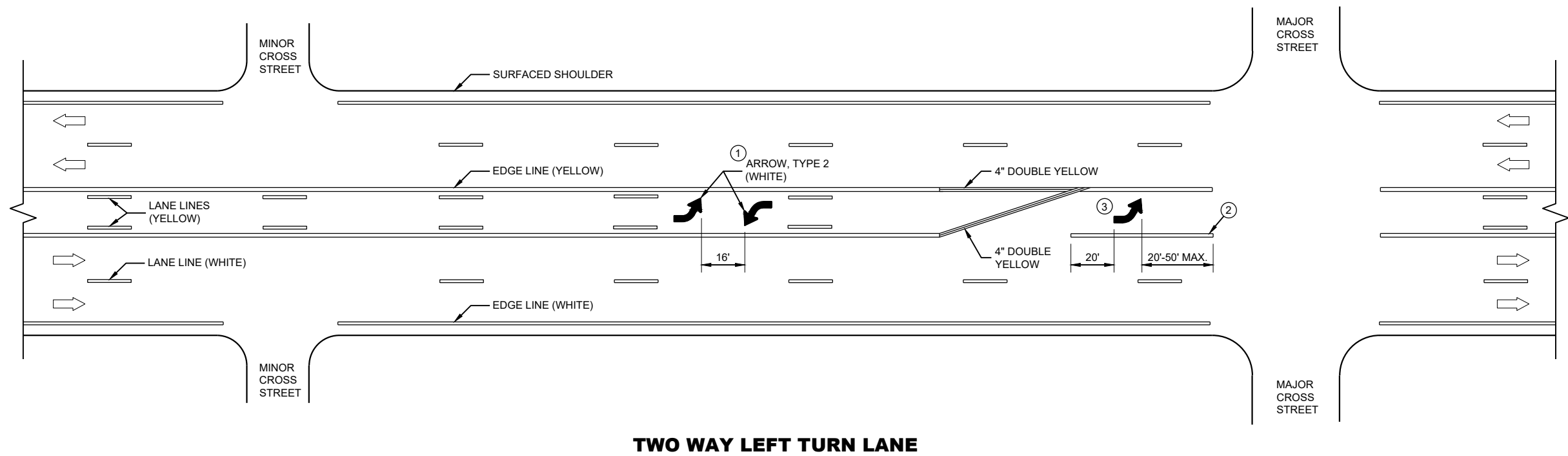


LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

/S/ Matthew Rauch
STATEWIDE SIGNING AND MARKING
ENGINEER



GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 8" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

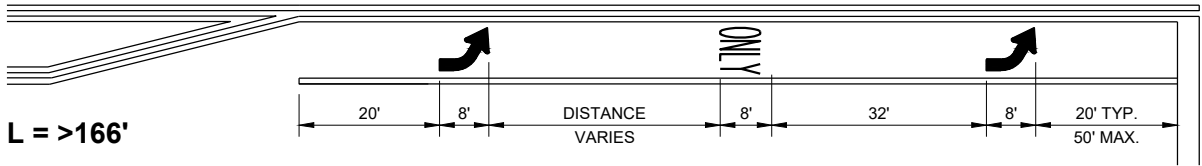
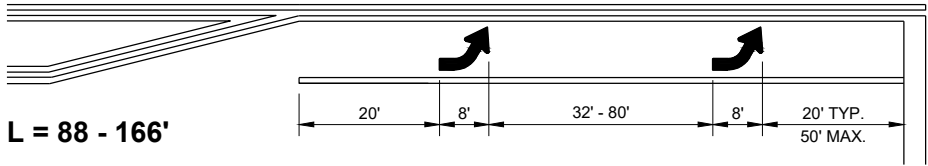
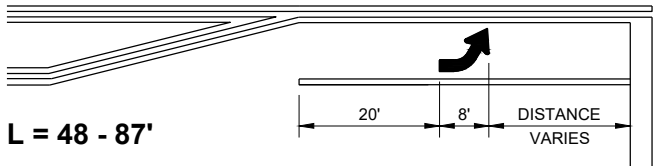
➡ DIRECTION OF TRAFFIC

**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

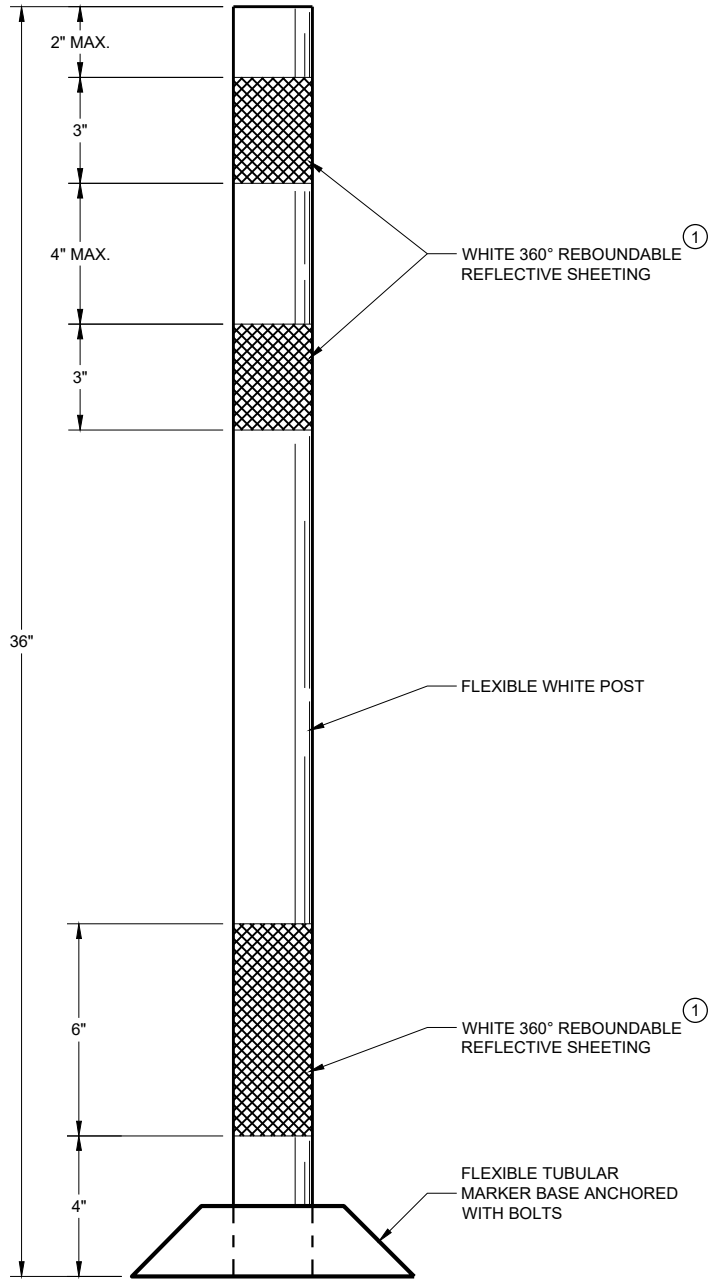
- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

➡ DIRECTION OF TRAFFIC

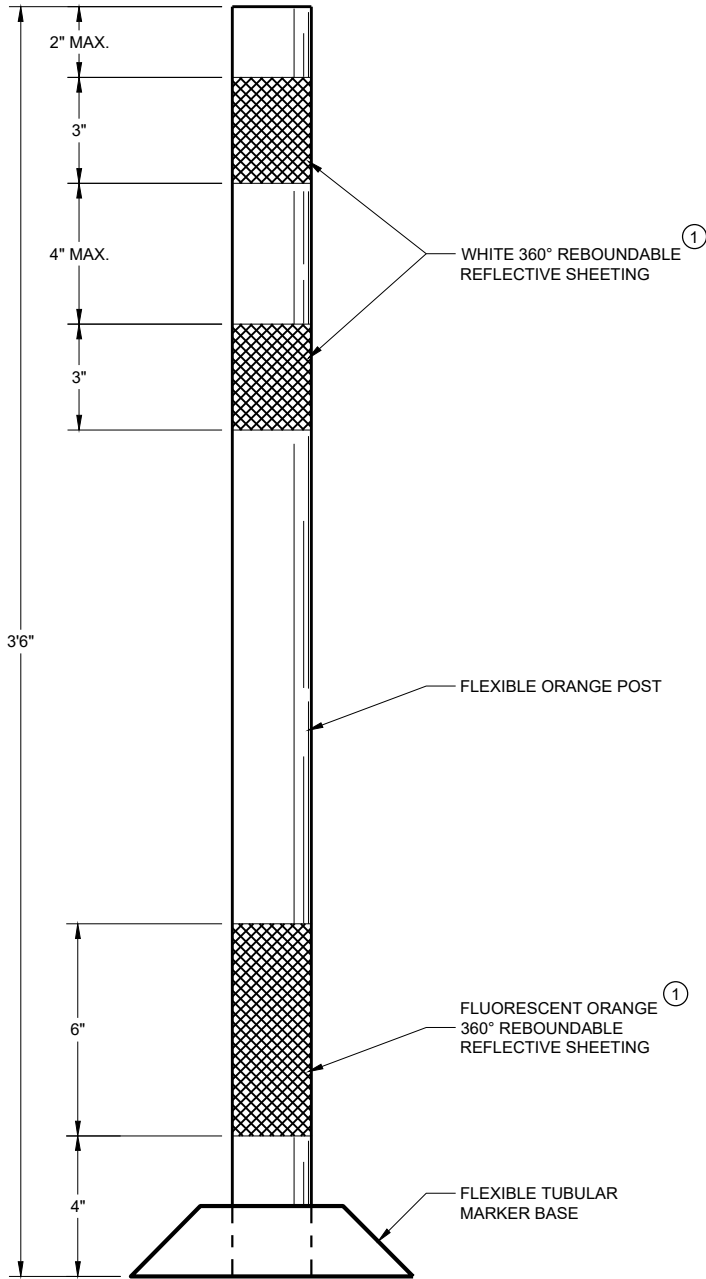
L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE TUBULAR
MARKER POST
PERMANENT CROSSOVER



FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

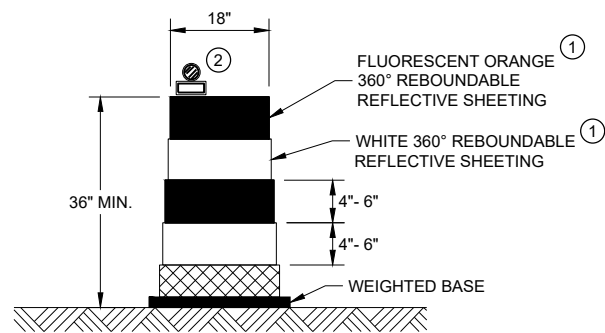
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST

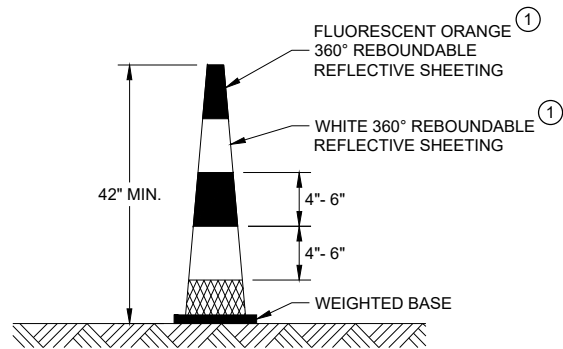
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

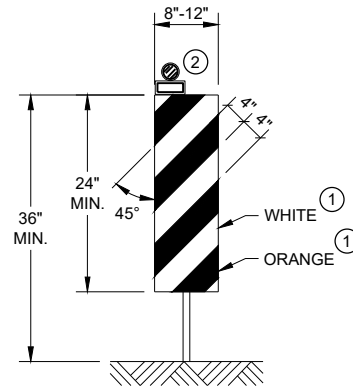


DRUM



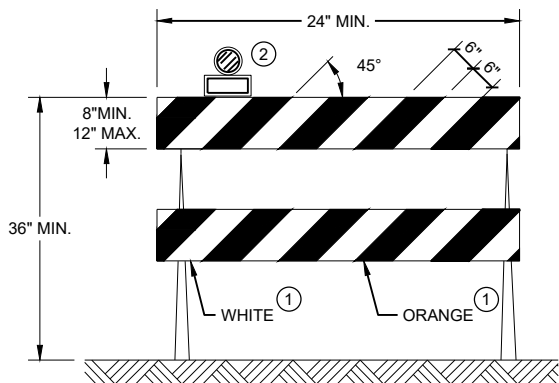
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



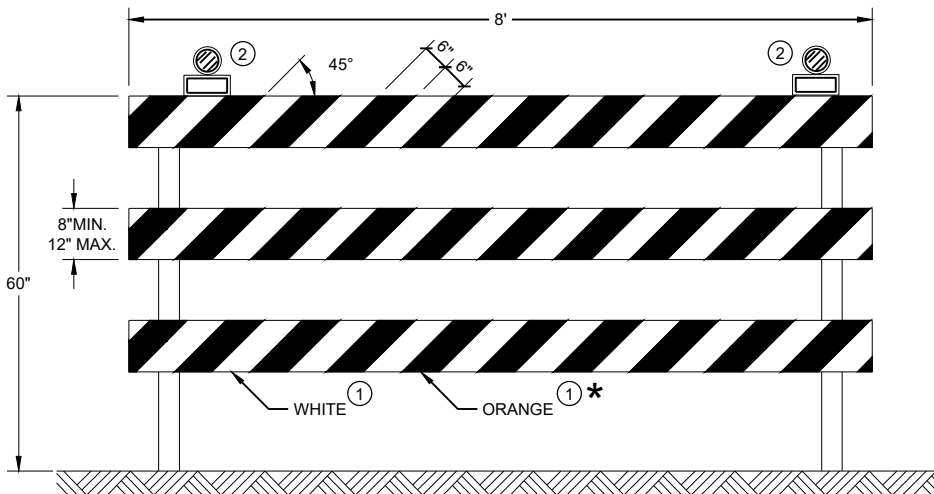
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

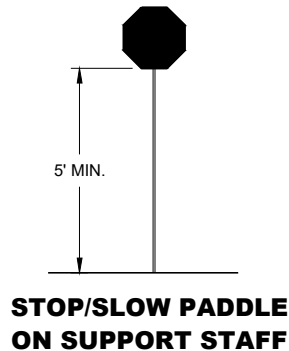
THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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

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

FLAGGING

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

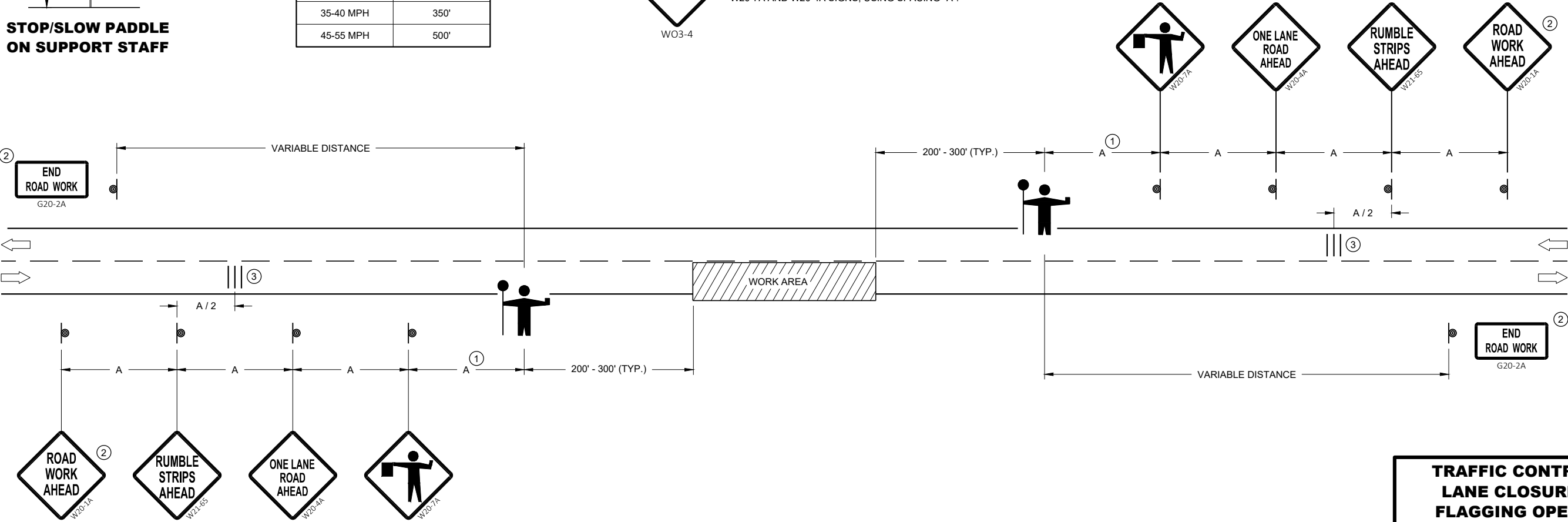


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

| | |
|---|--|
| TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | |
| APPROVED
May 2019
DATE | /S/ Andrew Heidtke
WORK ZONE ENGINEER |
| FHWA | |

LEGEND

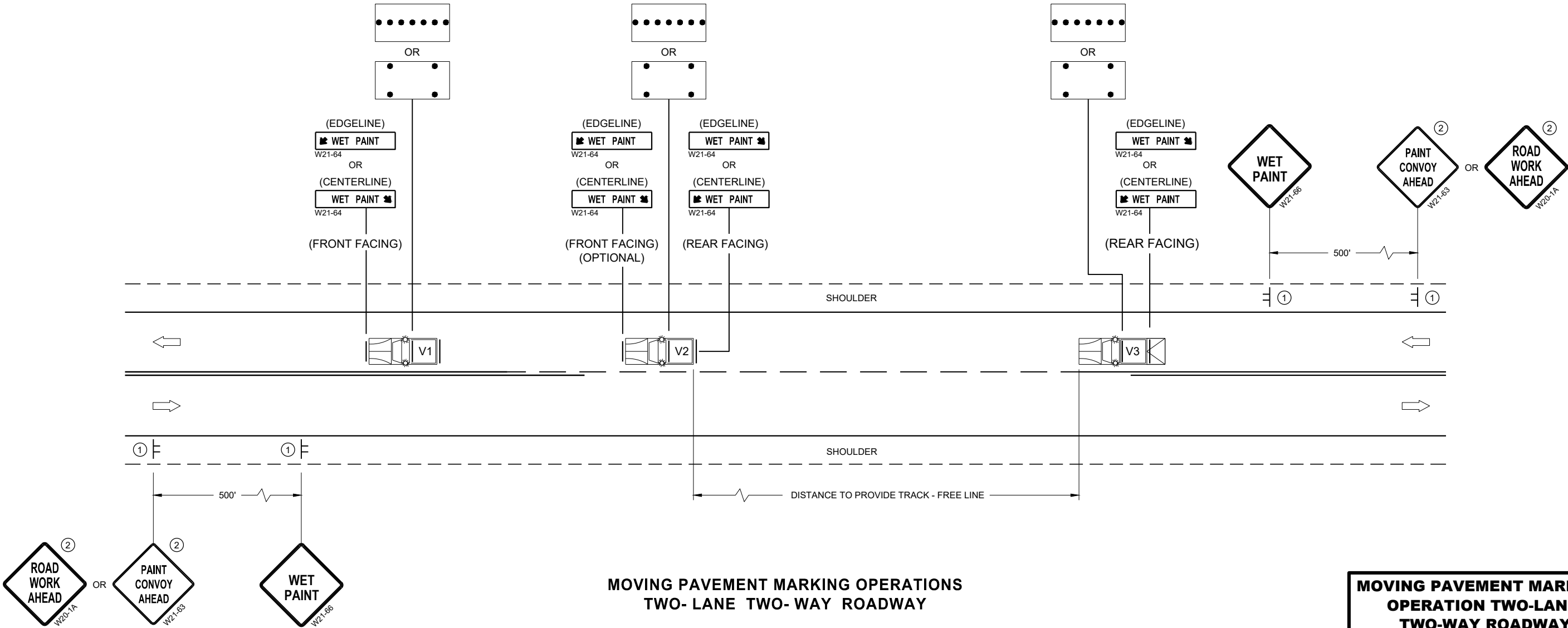
- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

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 .

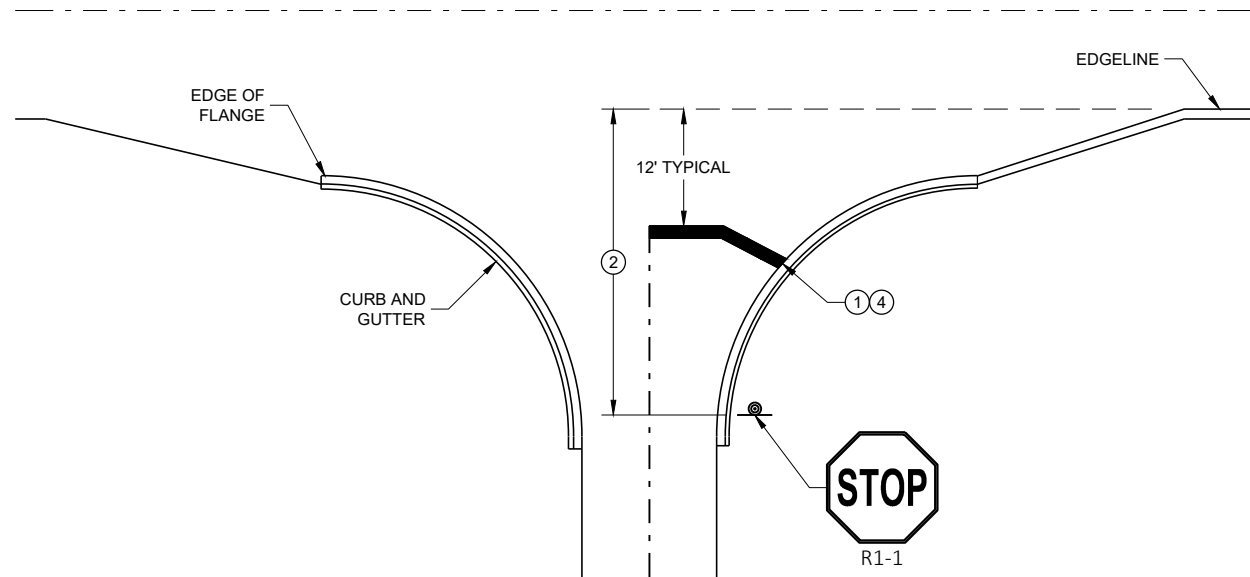
- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



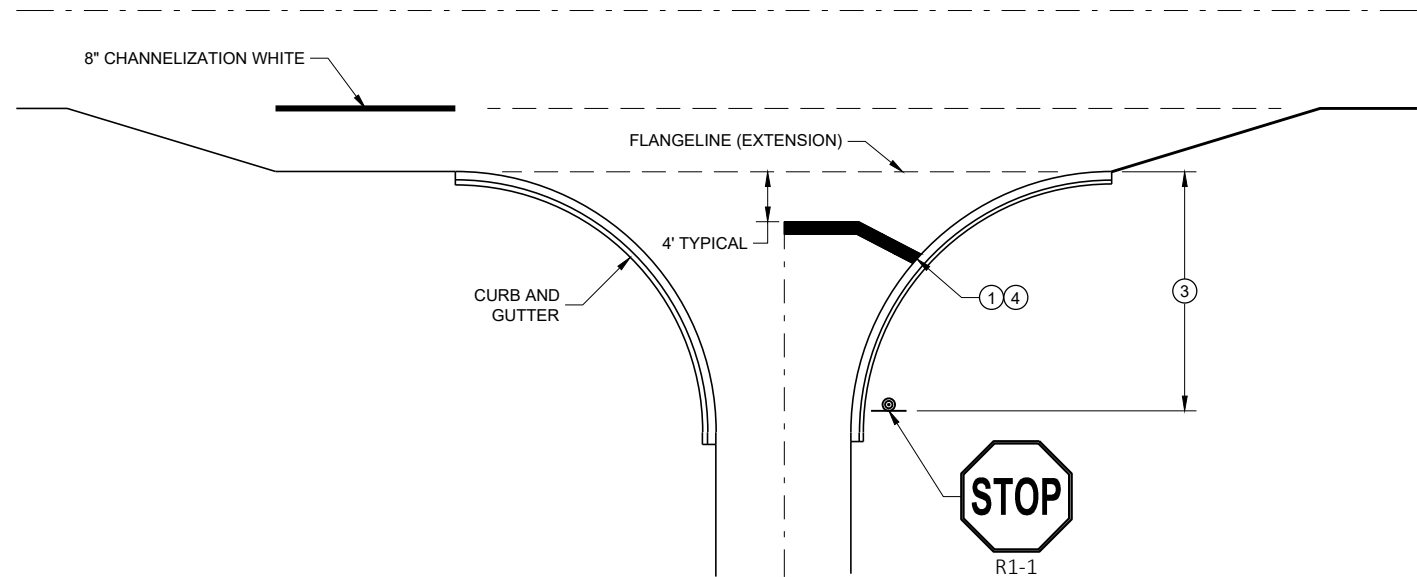
MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

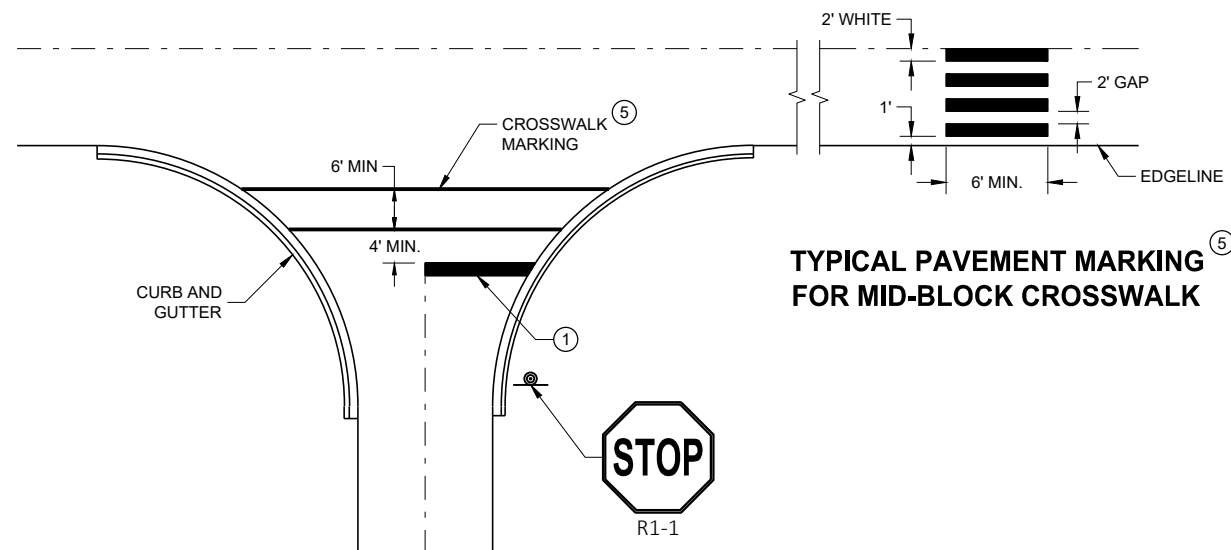
APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



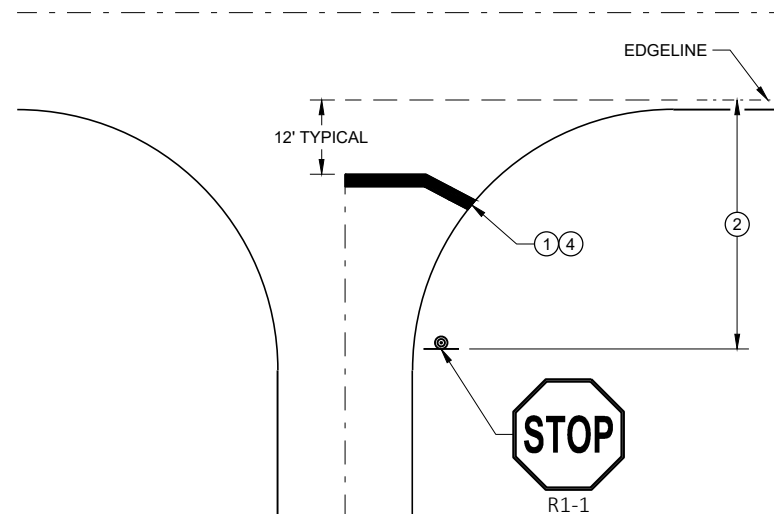
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

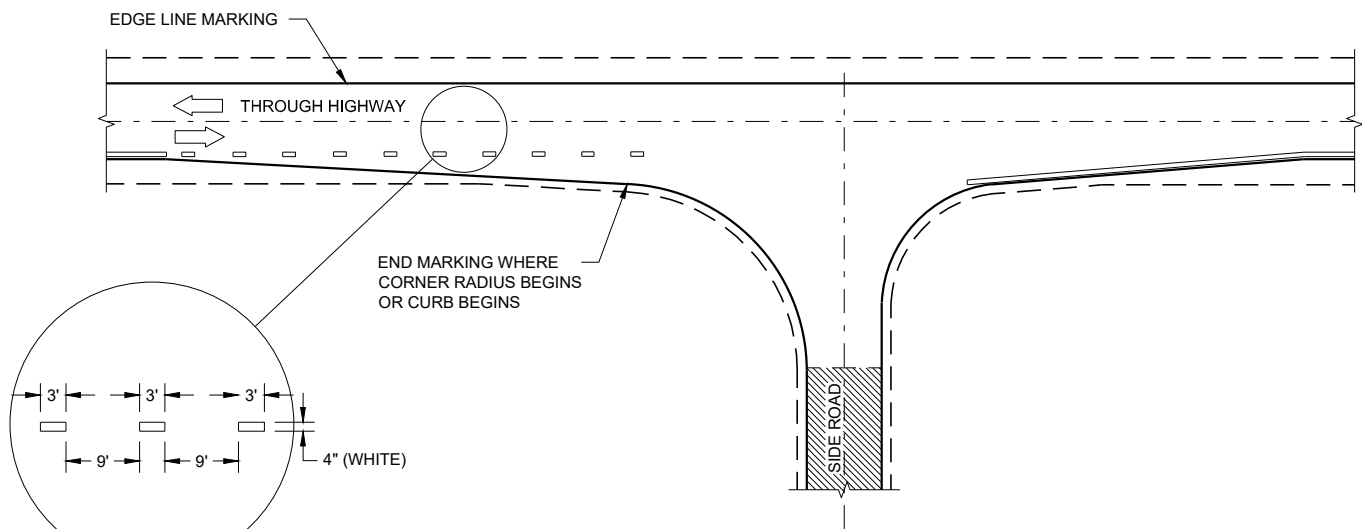
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

- 1 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- 2 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE.
- 3 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- 4 MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- 5 LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.

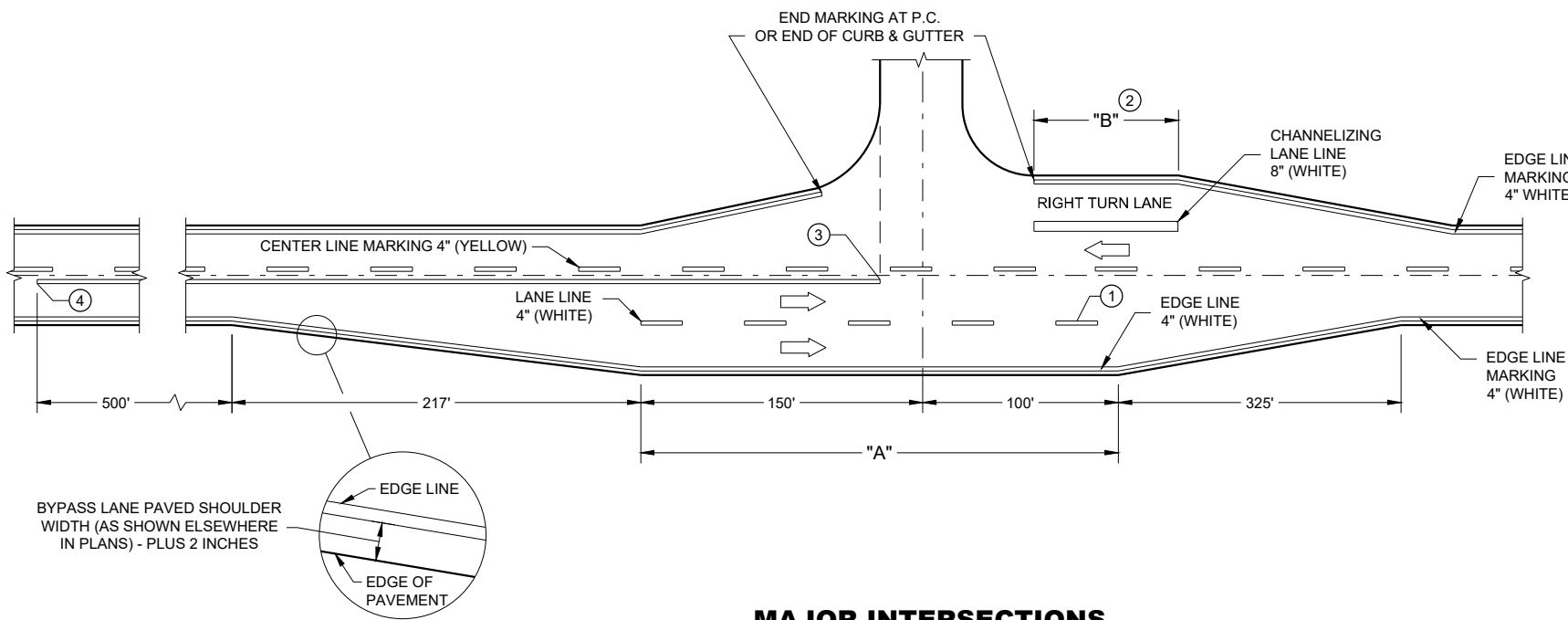
STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING
ENGINEER
FHWA



MINOR INTERSECTION



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

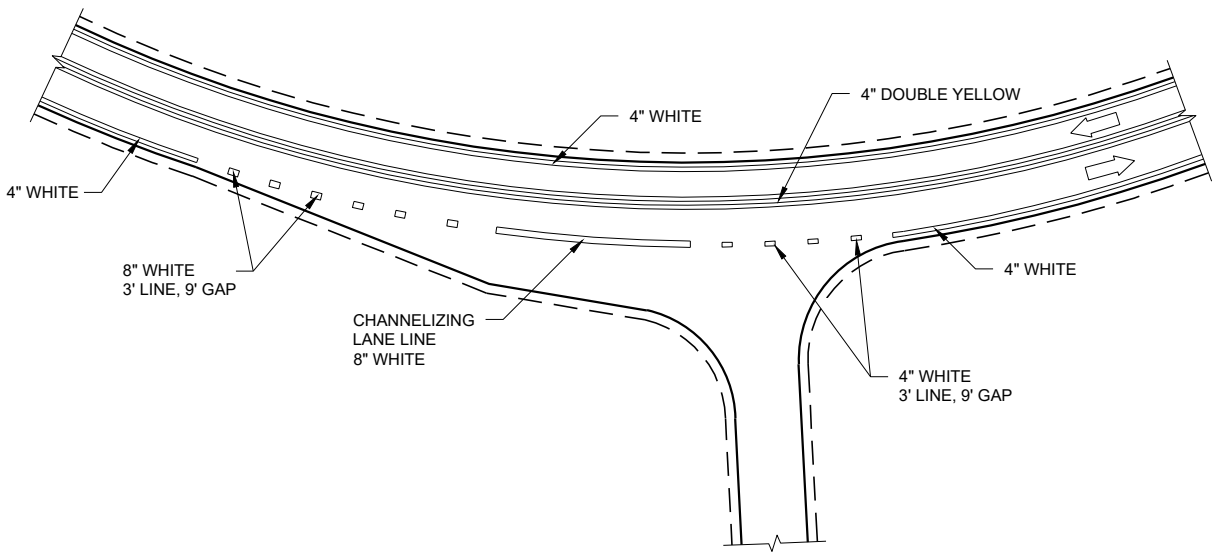
GENERAL NOTES

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

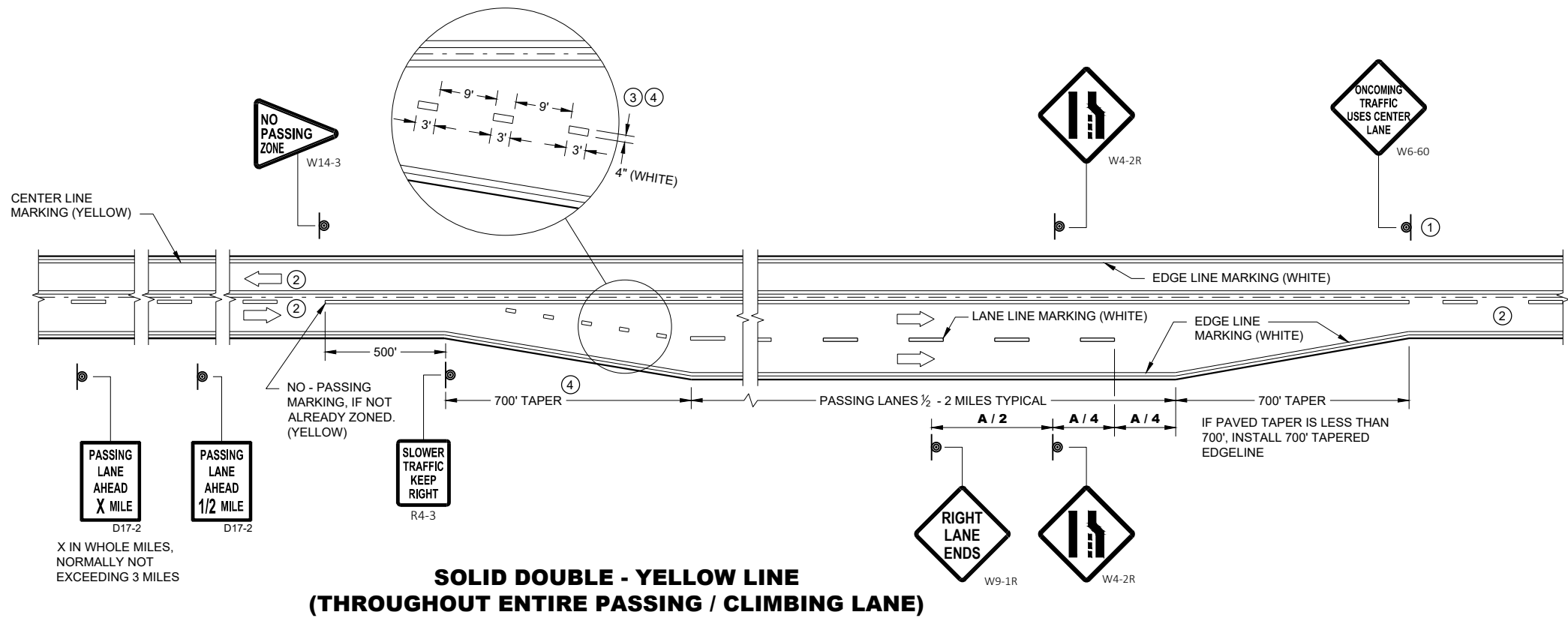
➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



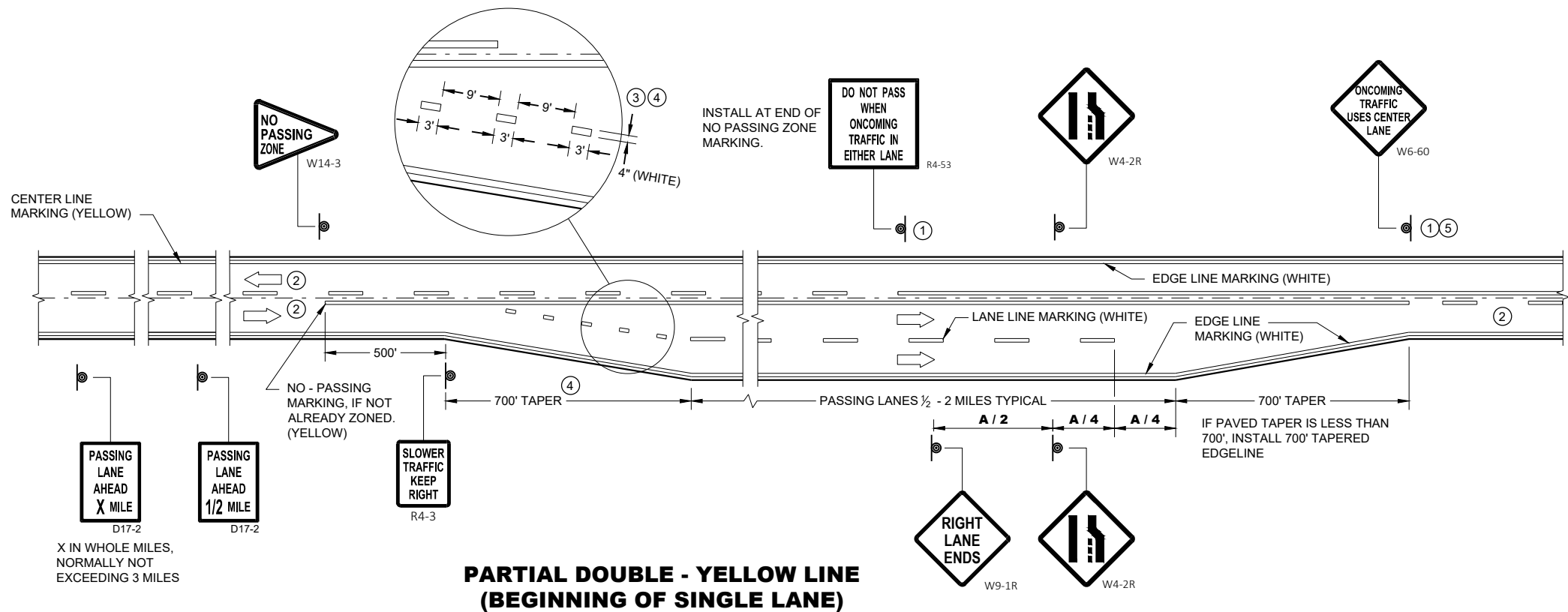
GENERAL NOTES

- 1 SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
- 2 THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
- 3 THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- 4 WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
- 5 REPEAT EVERY 1 MILE UP UNTIL R4-53.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

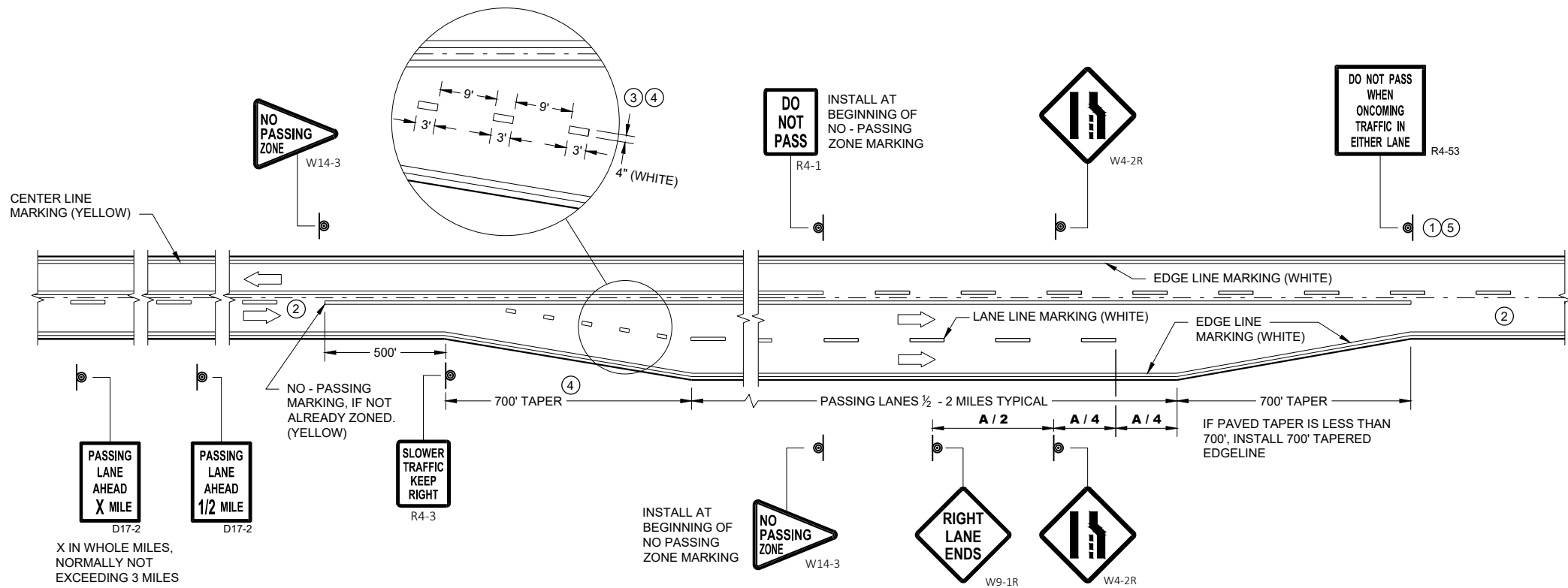
DISTANCE TABLE

| POSTED OR 85th PERCENTILE SPEED | DISTANCE "A" |
|---------------------------------|--------------|
| 45 | 775 |
| 50 | 885 |
| 55 | 990 |

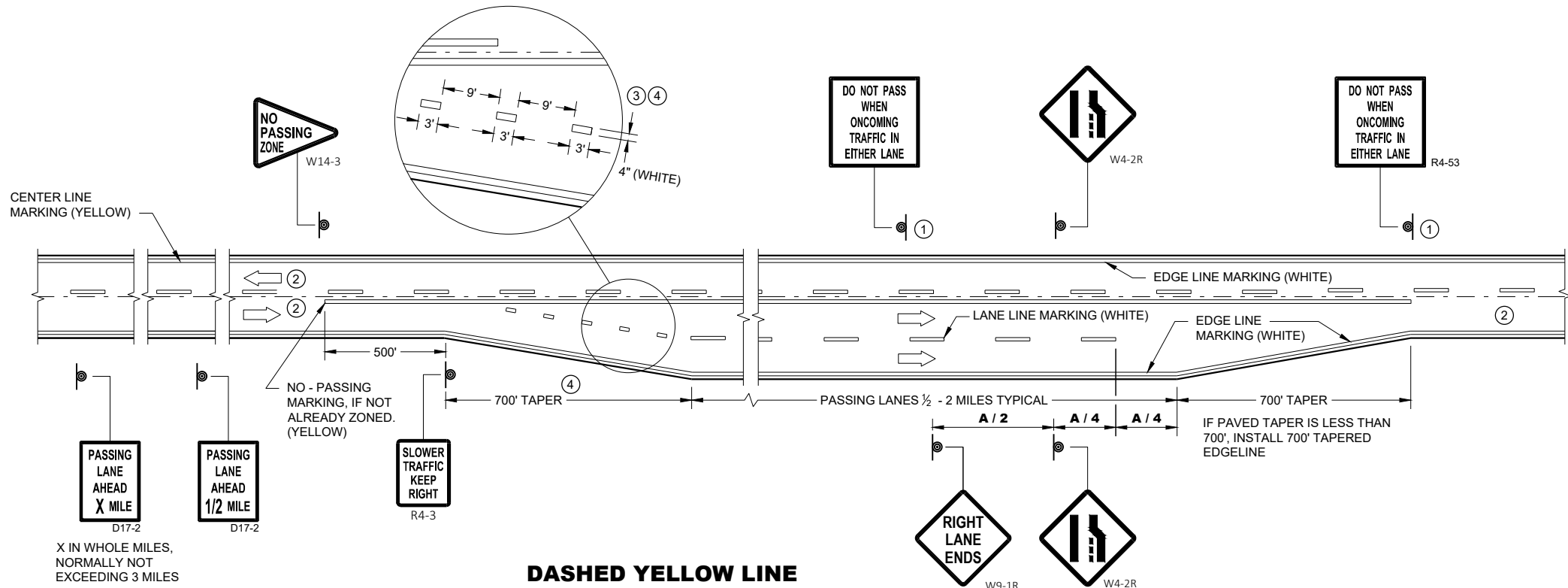


**PAVEMENT MARKING & SIGNING
(CLIMBING LANE & PASSING LANE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**SOLID DOUBLE - YELLOW LINE
(END OF SINGLE LANE)**



**DASHED YELLOW LINE
(THROUGHOUT SINGLE LANE)**

GENERAL NOTES

- ① SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
- ② THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
- ③ THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- ④ WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
- ⑤ REPEAT EVERY ONE MILE UP UNTIL NO PASSING ZONE.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

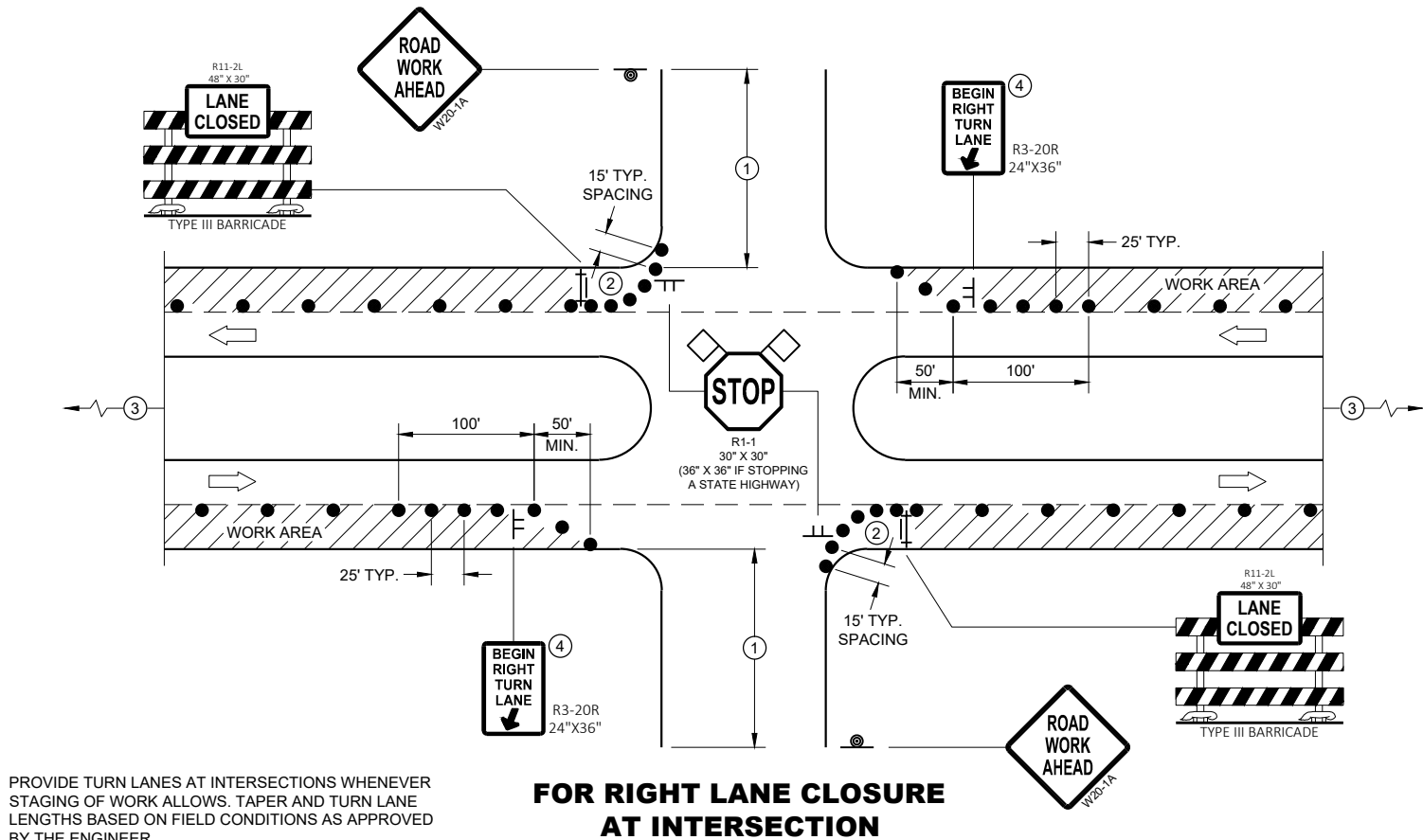
DISTANCE TABLE

| POSTED OR 85th PERCENTILE SPEED | DISTANCE "A" |
|---------------------------------|--------------|
| 45 | 775 |
| 50 | 885 |
| 55 | 990 |

**PAVEMNET MARKING & SIGNING
(CLIMBING LANE & PASSING LANE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

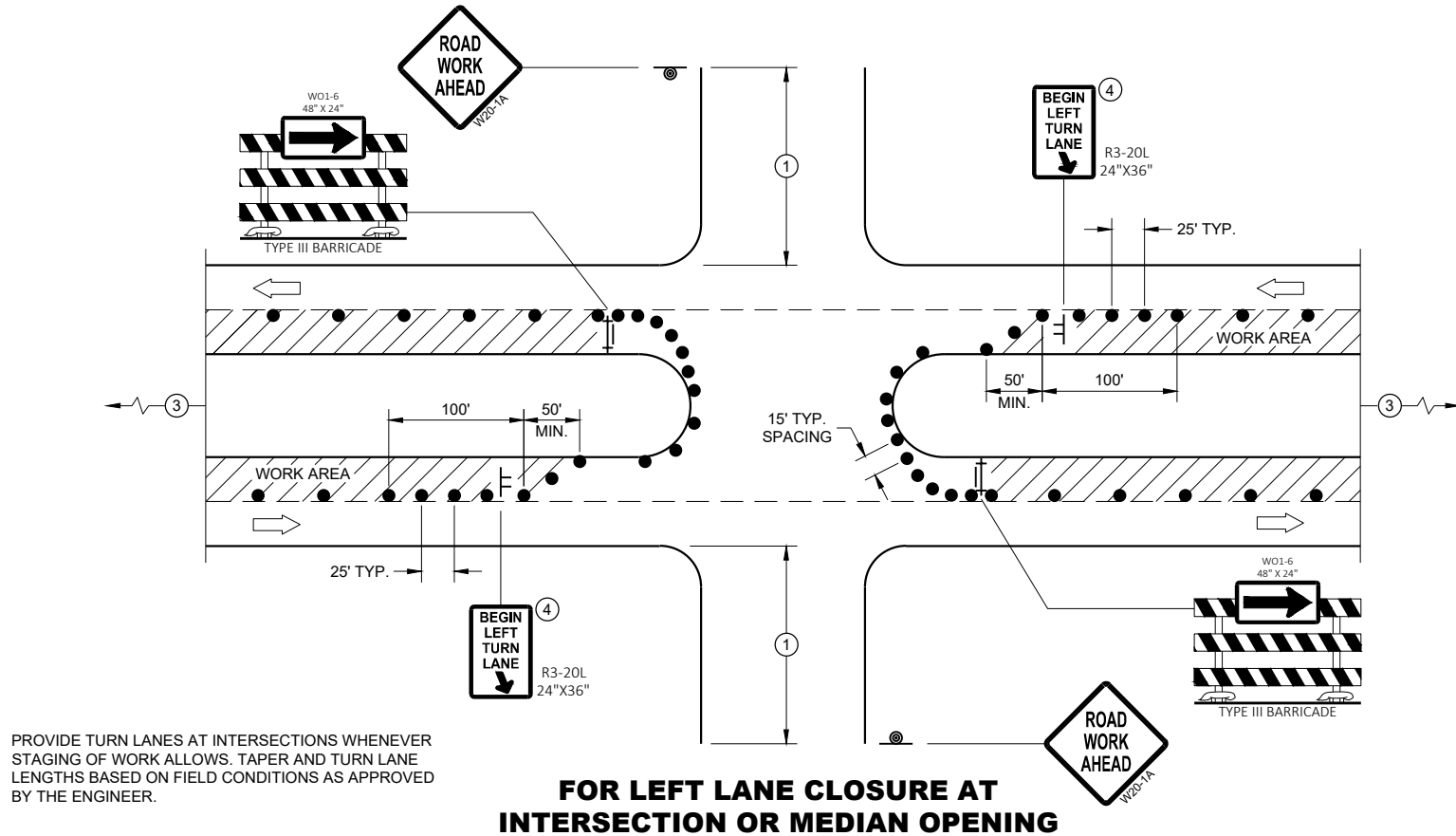
LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

**TRAFFIC CONTROL,
INTERSECTION WITHIN SINGLE
RIGHT LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

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

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

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SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

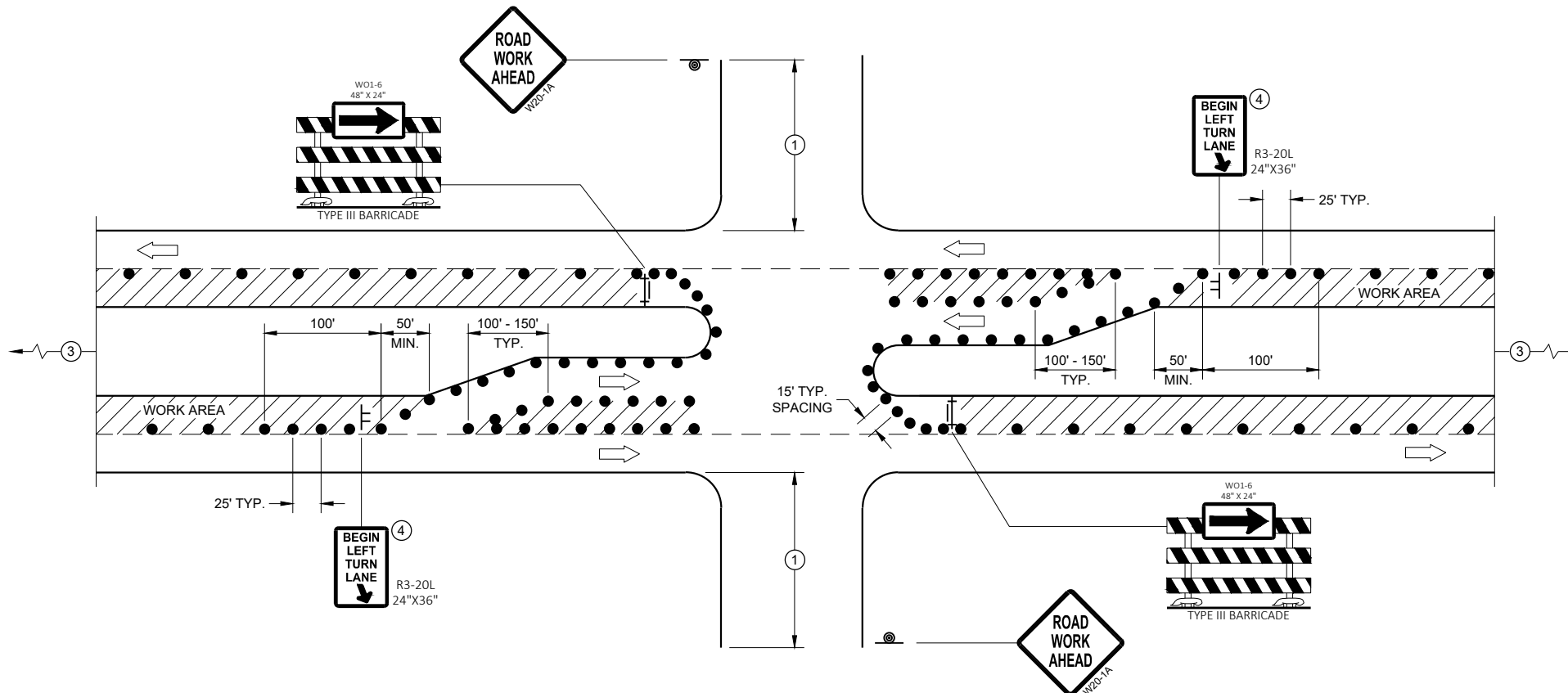
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

- 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA

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.

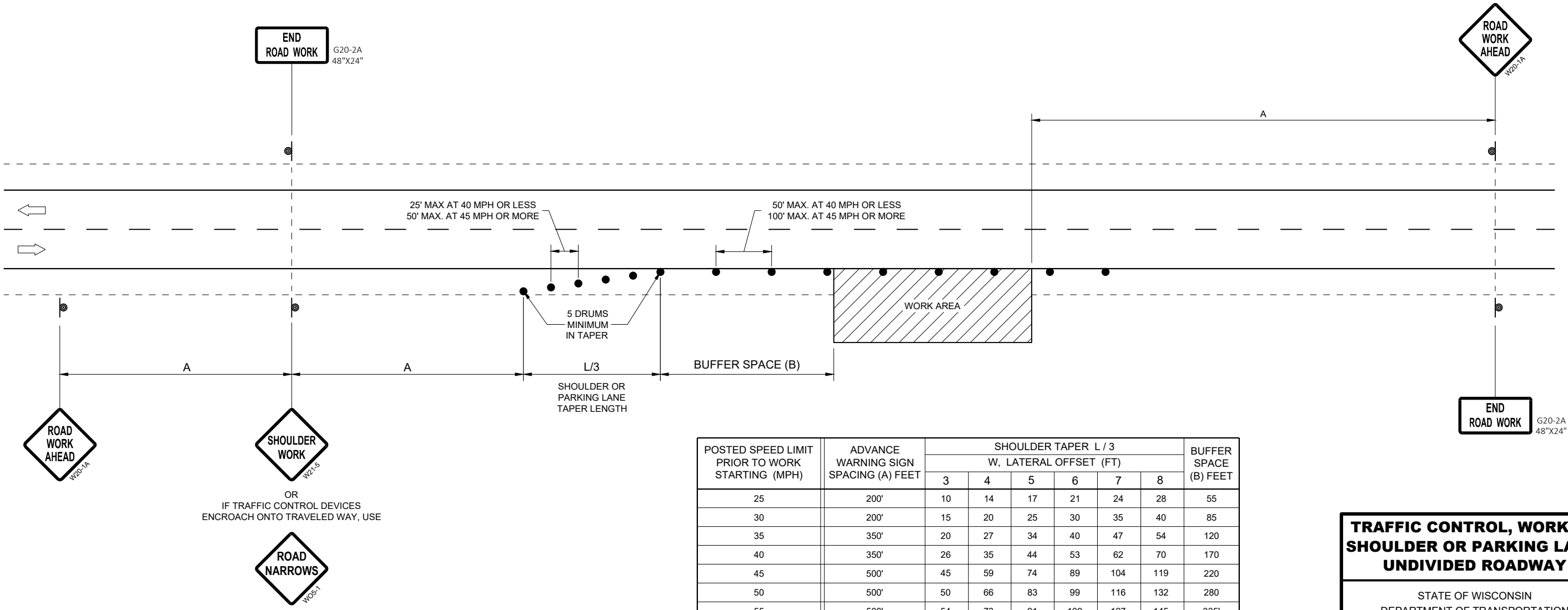
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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



| 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
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

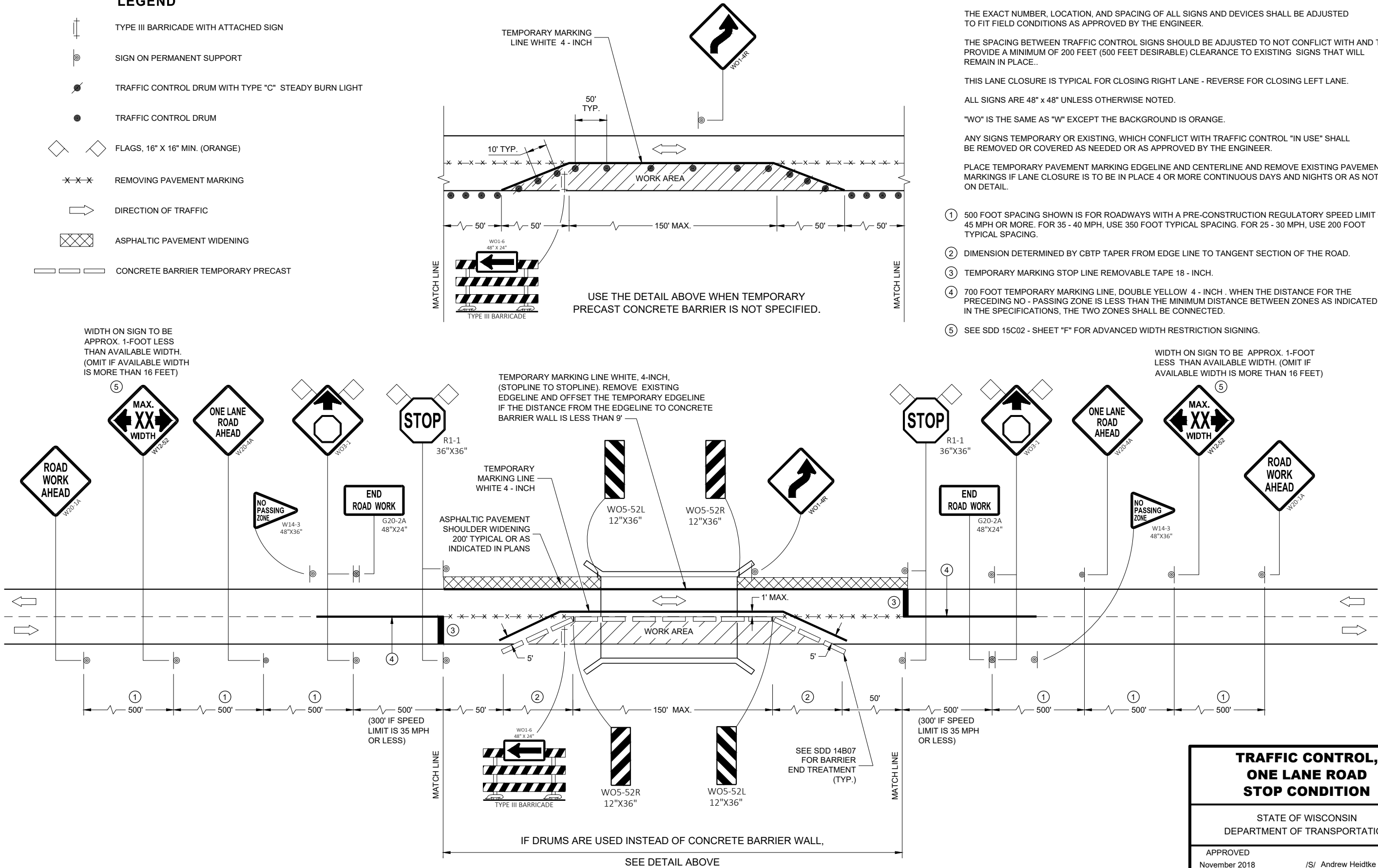
FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.
- 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
 - DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
 - TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH.
 - 700 FOOT TEMPORARY MARKING LINE, DOUBLE YELLOW 4 - INCH . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
 - SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.

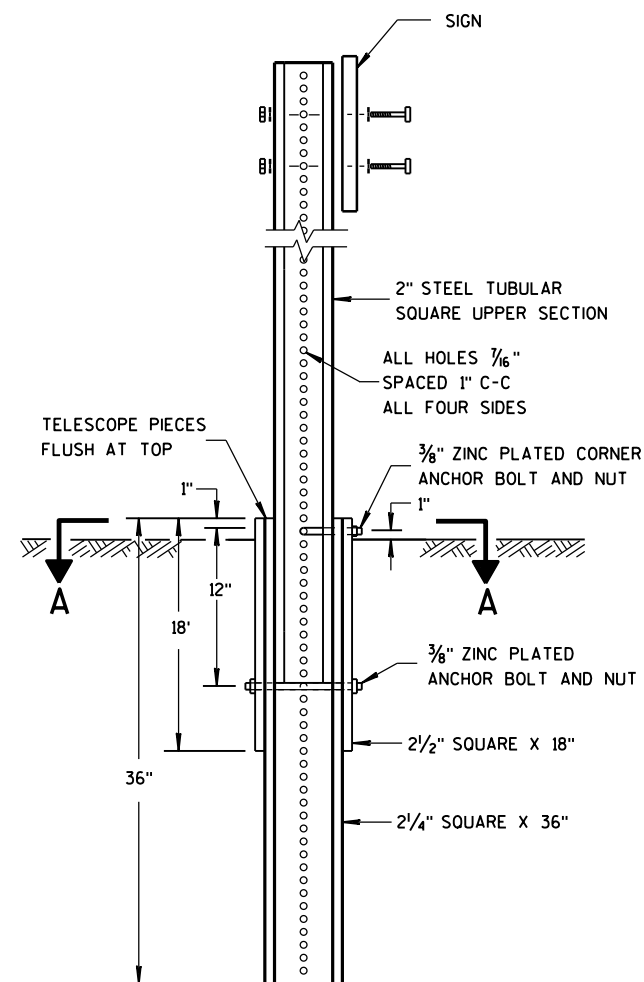


**TRAFFIC CONTROL,
ONE LANE ROAD
STOP CONDITION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

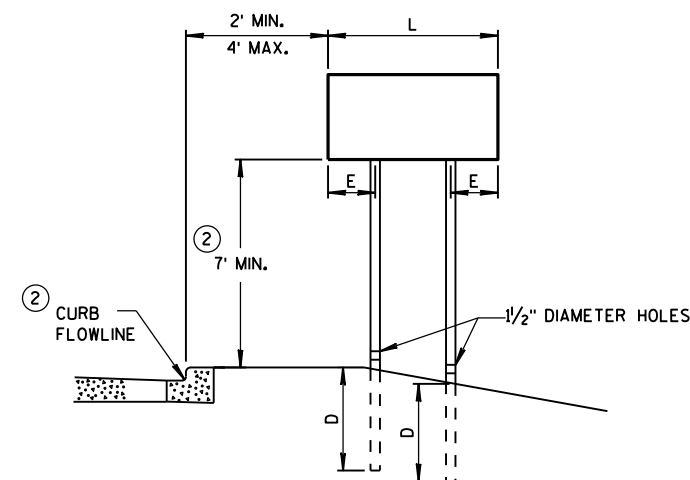
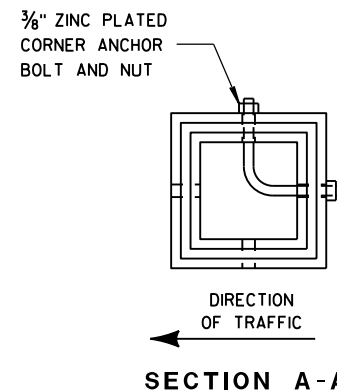


DETAIL OF TUBULAR STEEL SIGN POST

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 |

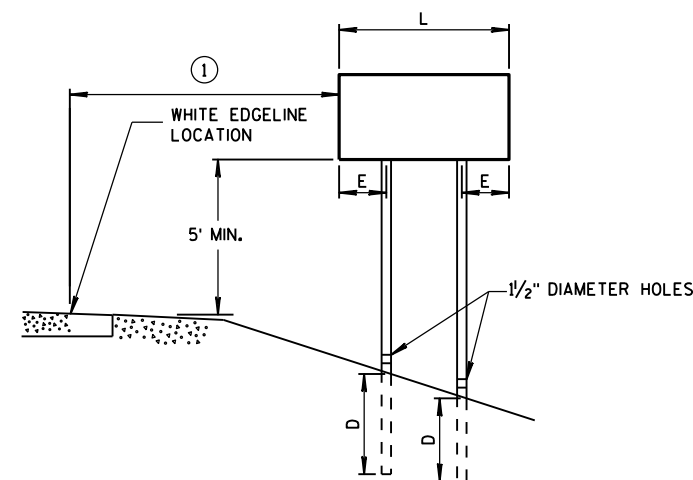
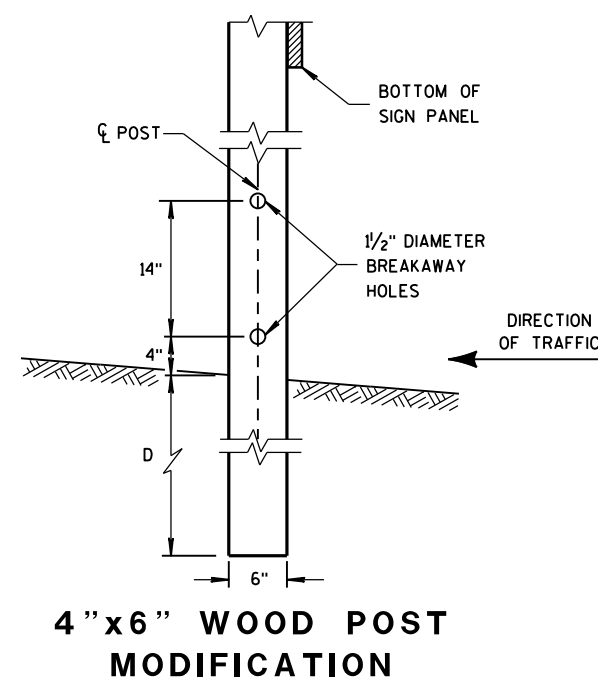
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



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

| 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 |

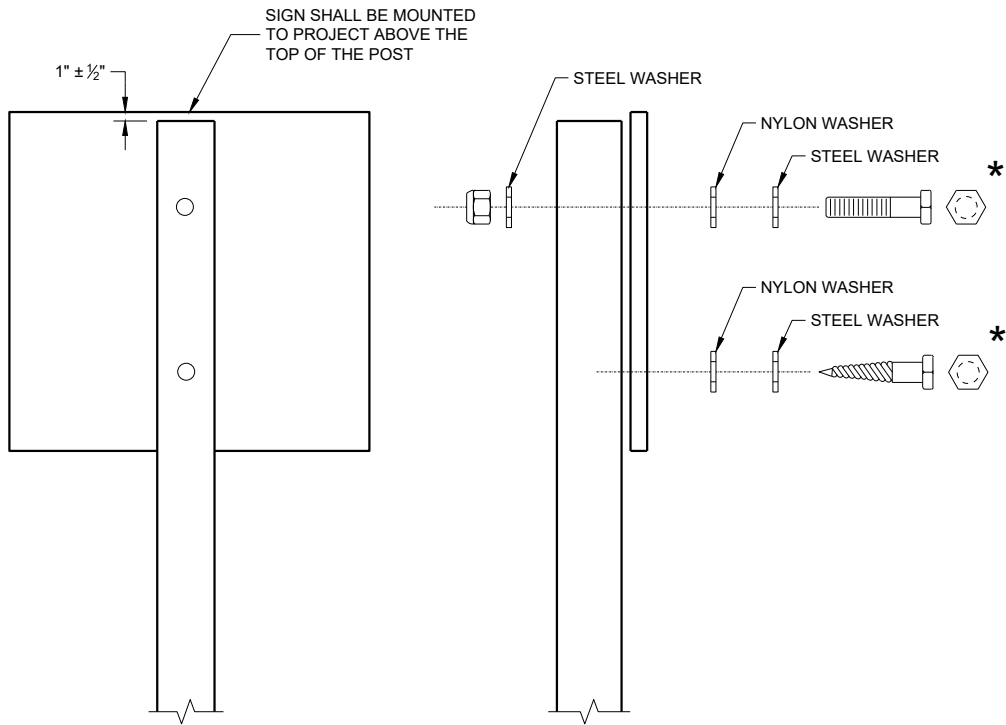
SEE NOTE ③

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

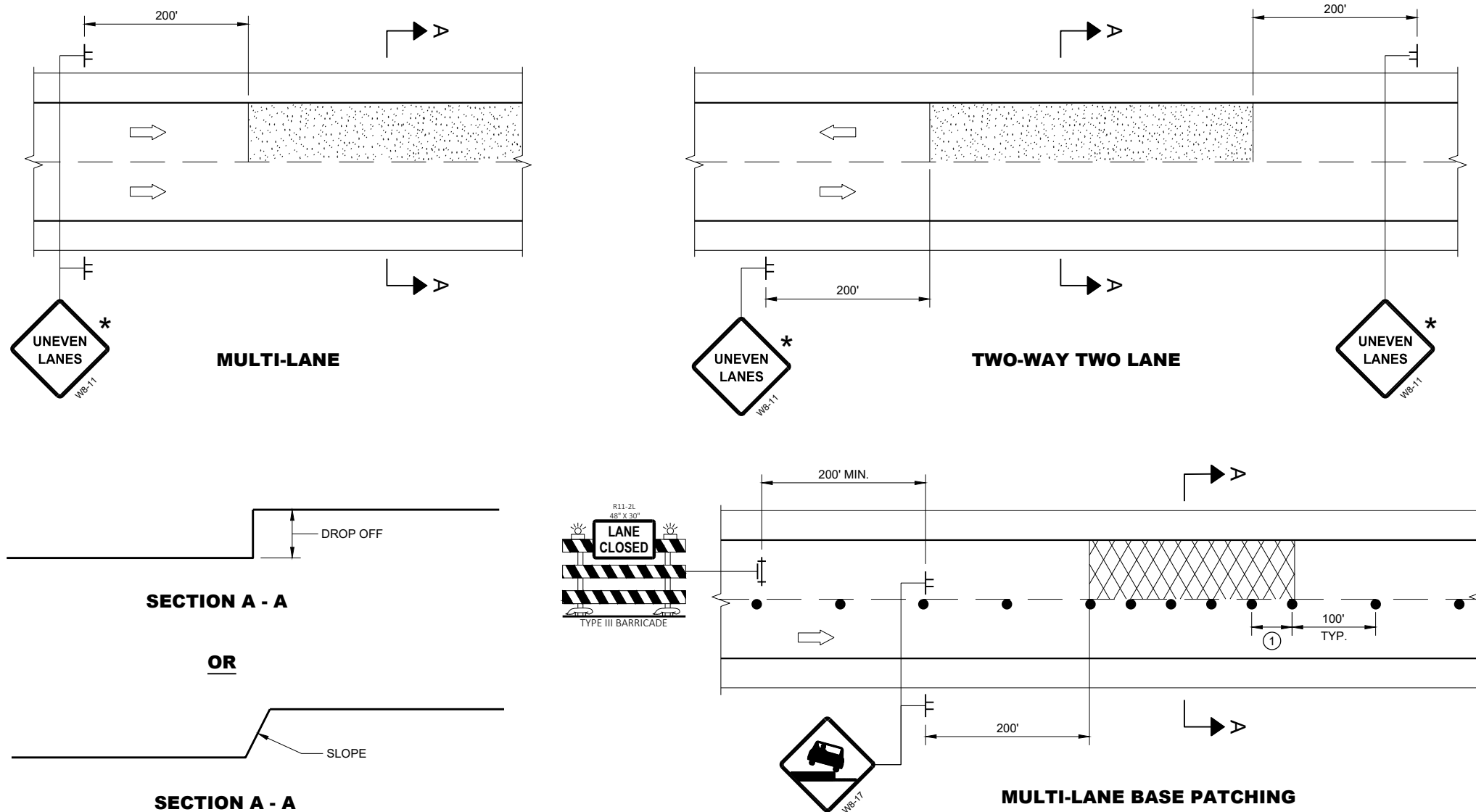
WASHERS (ALL POSTS) -
1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

* 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 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

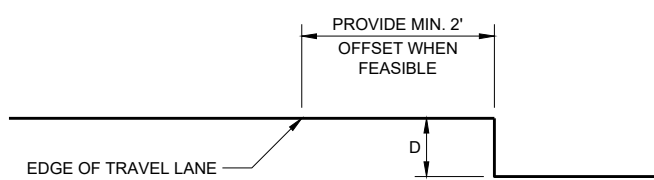
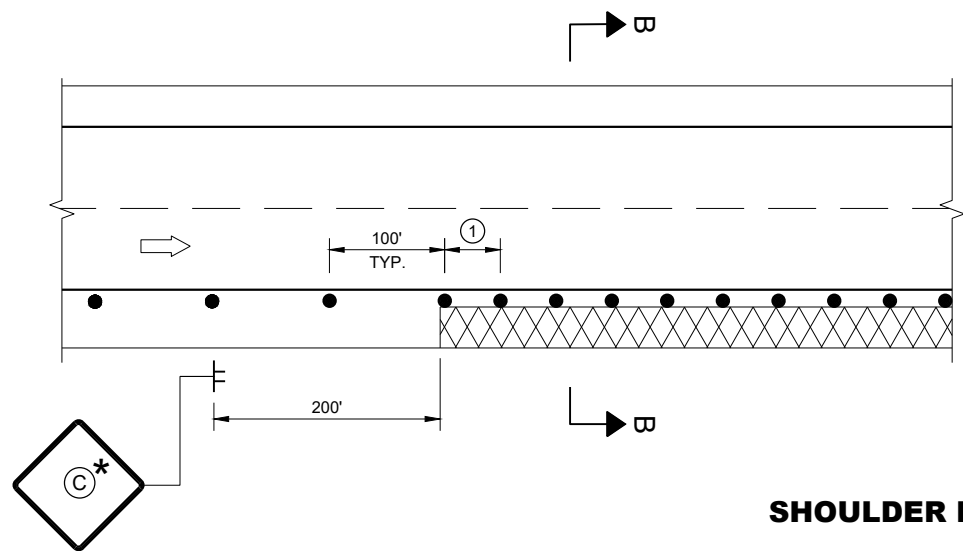
"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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



| 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 |

| | |
|--|--|
| TRAFFIC CONTROL, DROP-OFF SIGNING | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | |
| APPROVED
March 2018
DATE | /S/ Andrew Heidtke
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.

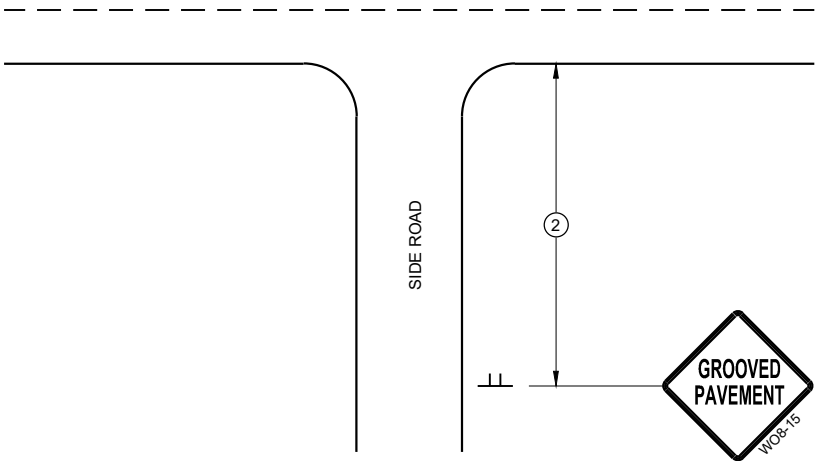
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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.

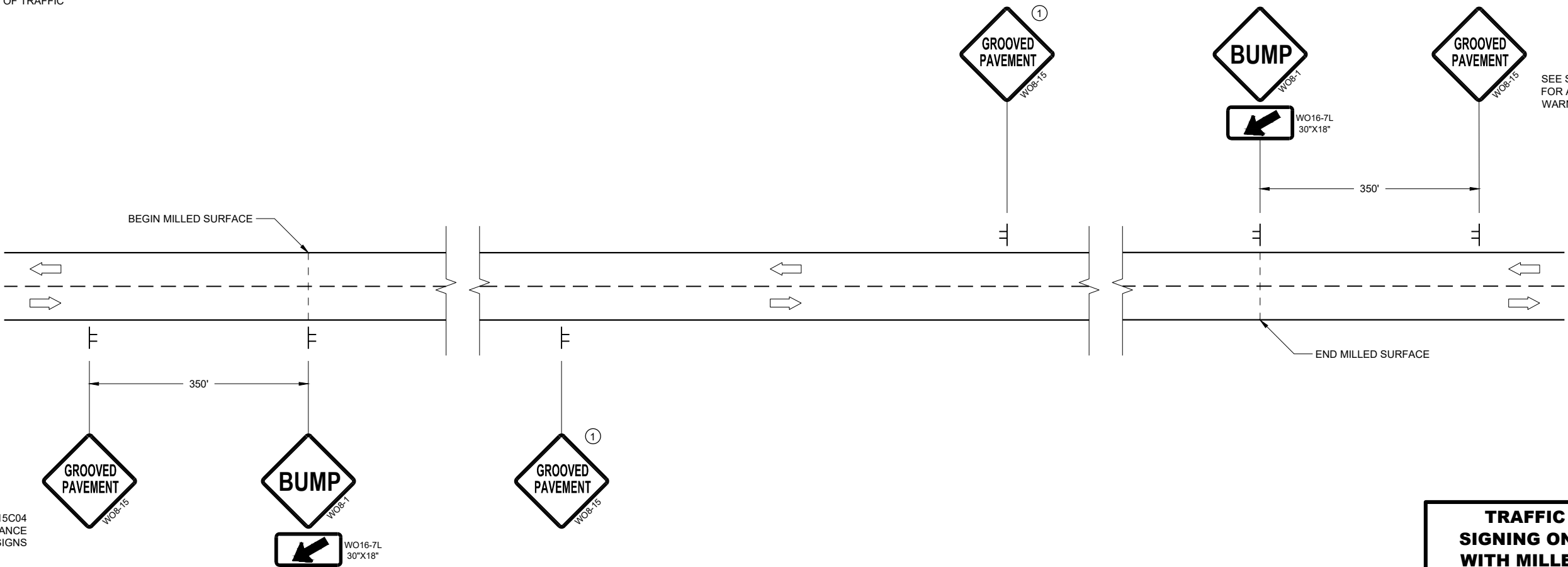
- ① PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

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

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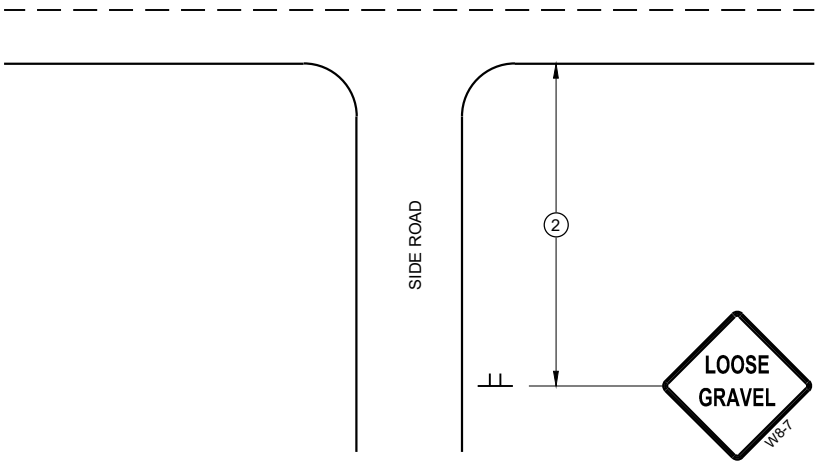
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SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

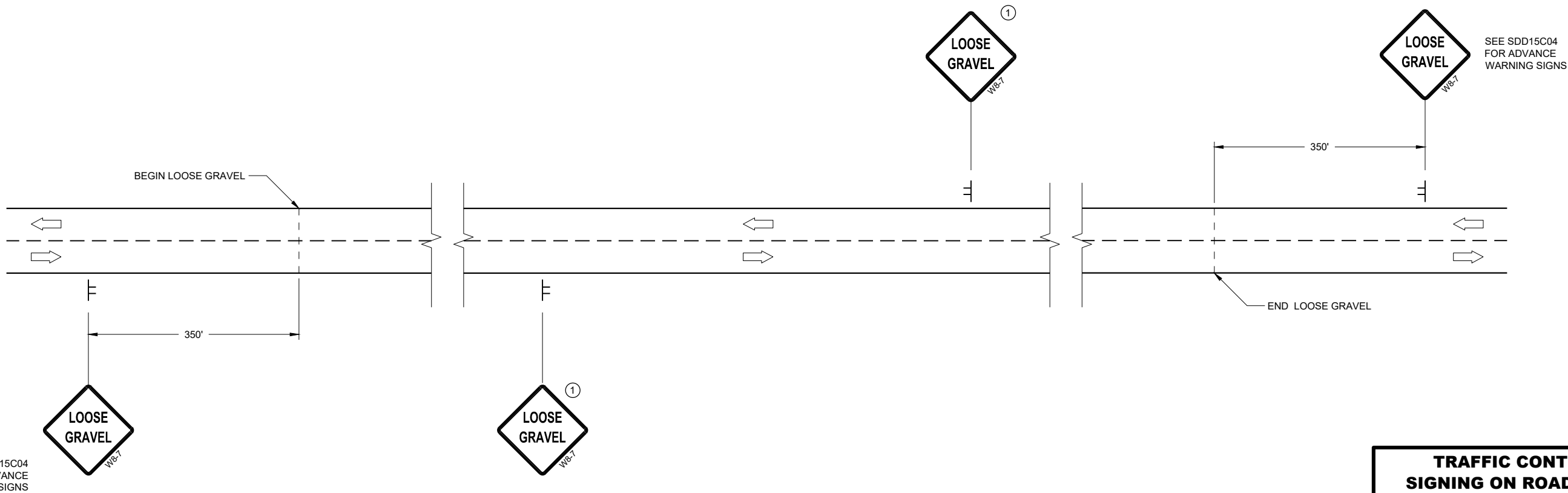
- ① PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



DETAIL FOR SIGNING ON CHIP SEALED SURFACES

TRAFFIC CONTROL
SIGNING ON ROADWAYS
WITH LOOSE GRAVEL

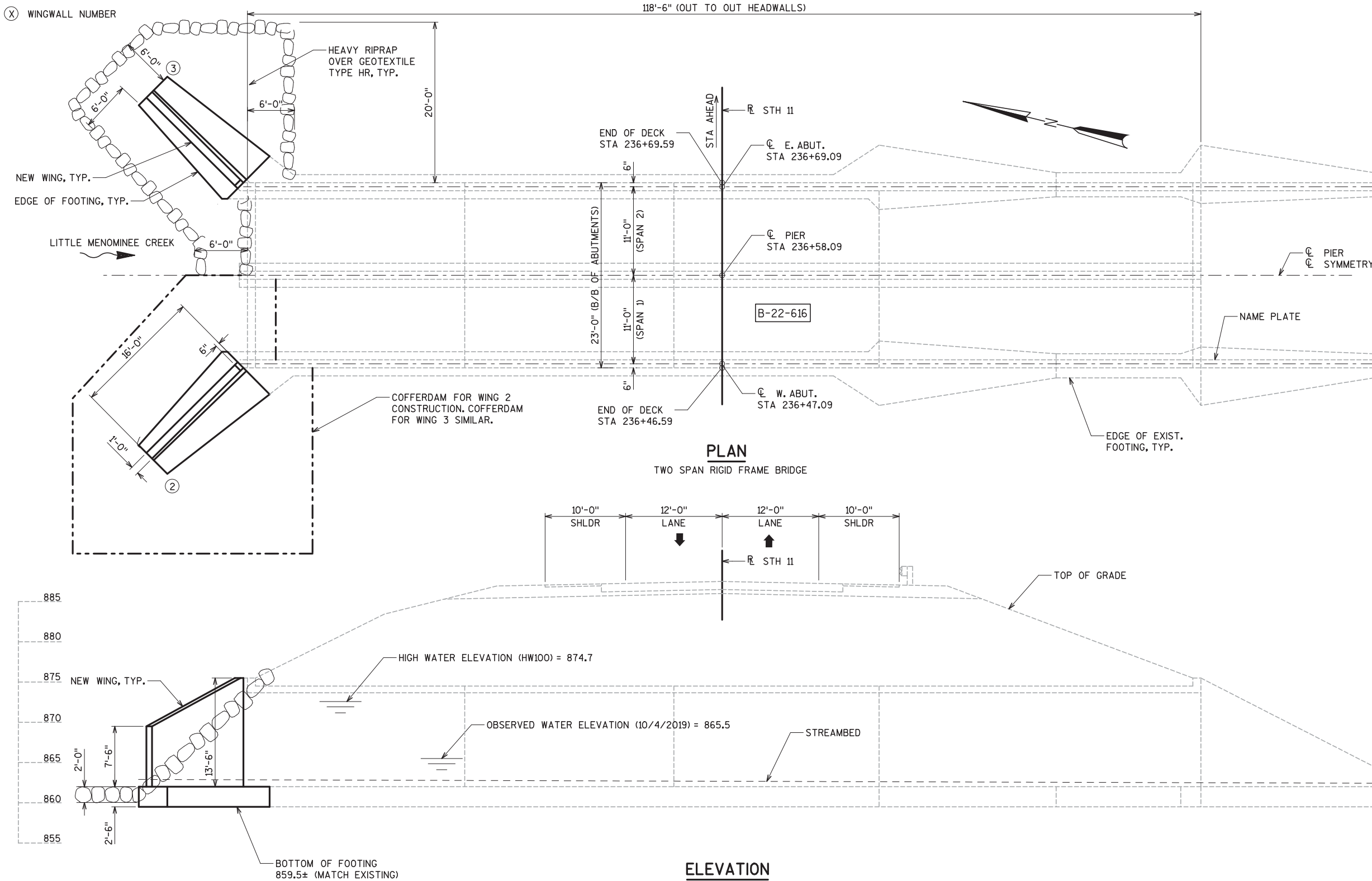
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

FILE NAME: X:\B-22-616\B-22-616.dgn
DATE: 9/15/2020 10:43:36 AM
PLOT BY: bthengon

8



DESIGN DATA

LIVE LOAD

DESIGN LOAD: H15
INVENTORY RATING: HS15 (TAKEN FROM HSI 12/20/2019)
OPERATIONAL RATING: HS20 (TAKEN FROM HSI 12/20/2019)
WISCONSIN STANDARD PERMIT VEHICLE LOAD (WIS-SPV):.....190 KIPS (TAKEN FROM HSI 12/20/2019)

TRAFFIC DATA

STH 11

A.D.T. (2023) = 4300
A.D.T. (2043) = 4790
DESIGN SPEED = 55 MPH

MATERIAL PROPERTIES

CONCRETE MASONRY..... f'c = 3,500 psi
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 psi

HYDRAULIC DATA (TAKEN FROM EXISTING STRUCTURE PLANS)

Q100 = 1880 CFS
HW(100) = 874.7
VELOCITY = 12.0 FT/SEC
WATERWAY AREA = 157 SQ FT
DRAINAGE AREA = 2.17 SQ MI
Q2 = 340 CFS
HW(2) = 868.4
SCOUR CRITICAL CODE = 5
ROADWAY OVERTOPPING = N/A

FOUNDATION DATA

FOOTINGS SHALL BE PLACED ON SOUND ROCK

LIST OF DRAWINGS

- GENERAL PLAN AND ELEVATION
- TYPICAL SECTION AND QUANTITIES
- WING DETAILS



STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599

STATE PROJECT NUMBER

1706-00-70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ALL DIMENSIONS ARE IN FEET AND INCHES.

ALL NEW BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED.

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

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

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

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK. EXISTING BARS SHALL BE CLEANED AND STRAIGHTENED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL CONCRETE REMOVAL LIMITS SHALL BE DEFINED BY A 1 INCH DEEP SAWCUT.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. THE NEW NAME PLATE SHALL SHOW THE ORIGINAL CONSTRUCTION YEAR. ORIGINAL CONSTRUCTION YEAR IS 1939. ATTACH THE NAME PLATE TO EXISTING WING WITH RESIN ANCHORS.

EXISTING NORTHEAST AND NORTHWEST WINGWALLS, INCLUDING FOOTINGS, SHALL BE REMOVED AND REPLACED IN THIS CONTRACT.

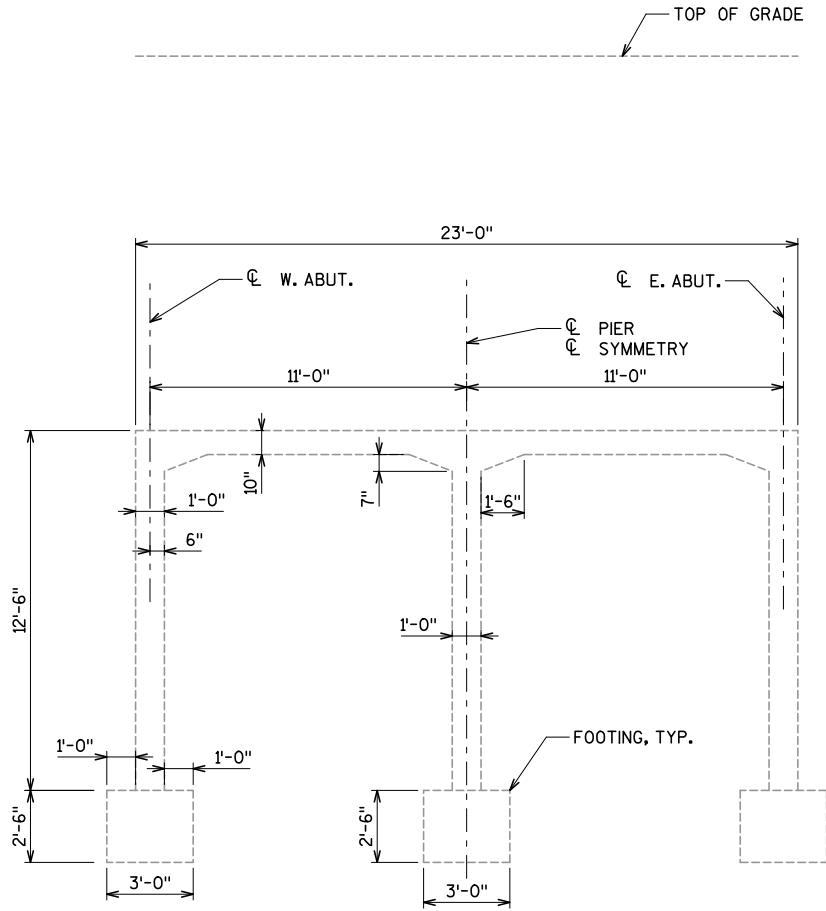
PLANS OF THE EXISTING BRIDGE ARE ON FILE AND ARE AVAILABLE FOR INSPECTION AT THE WISCONSIN DEPARTMENT OF TRANSPORTATION, SOUTH WEST REGION.

SEE SHEET 2 FOR ADDITIONAL GENERAL NOTES

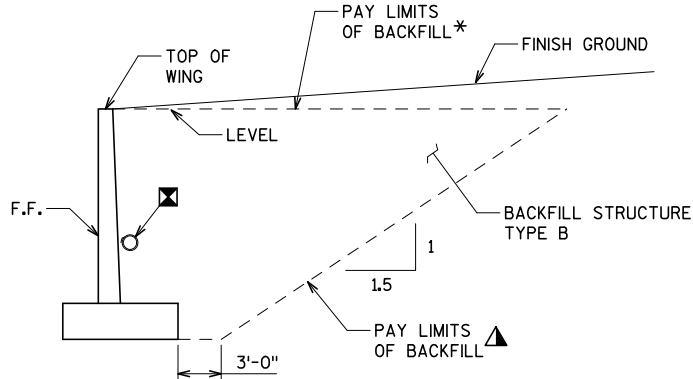
| | | | |
|--|--|--------------|--------------|
| | | | |
| NO. | DATE | REVISION | BY |
| <div><div>BLOOM
COMPANIES, LLC
<i>Infrastructure Innovation and Ingenuity</i></div></div> <div>10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490</div> | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED |  <div>SDR</div> | | 02/11/21 |
| CHIEF STRUCTURES DESIGN ENGINEER | | | DATE |
| STRUCTURE B-22-616 | | | |
| STH 11 OVER LITTLE MENOMINEE CREEK | | | |
| COUNTY | GRANT | TOWN: | HAZEL GREEN |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | BDT | DESIGN CK'D. | YNN |
| DRAWN BY | TAL | PLANS CK'D. | DMC |
| GENERAL PLAN AND ELEVATION | | | SHEET 1 OF 3 |

8

FILE NAME: X:\BML-3658 STH 1145.Design\04.Structures.Bridges\cds\current plans\B-22-616s\02.B-22-616-1.typ.dgn
DATE: 9/15/2020 10:45:30 AM Plotted by: bthengon PEN TABLE: V8-STRUCTURAL.REV.TEL



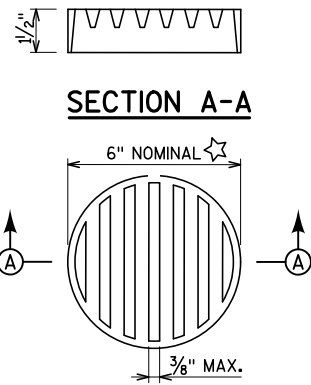
TYPICAL SECTION THROUGH RIGID FRAME
(LOOKING NORTH)



STRUCTURE BACKFILL LIMITS

(LOOKING NORMAL TO FRONT FACE OF WING)

* AT THE EXPOSED BOX, THE UPPER LIMIT OF STRUCTURE BACKFILL SHALL BE MIN. 1'-0" ABOVE THE TOP OF BOX.



RODENT SHIELD

☆ DIMENSIONS ARE APPROXIMATE, THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

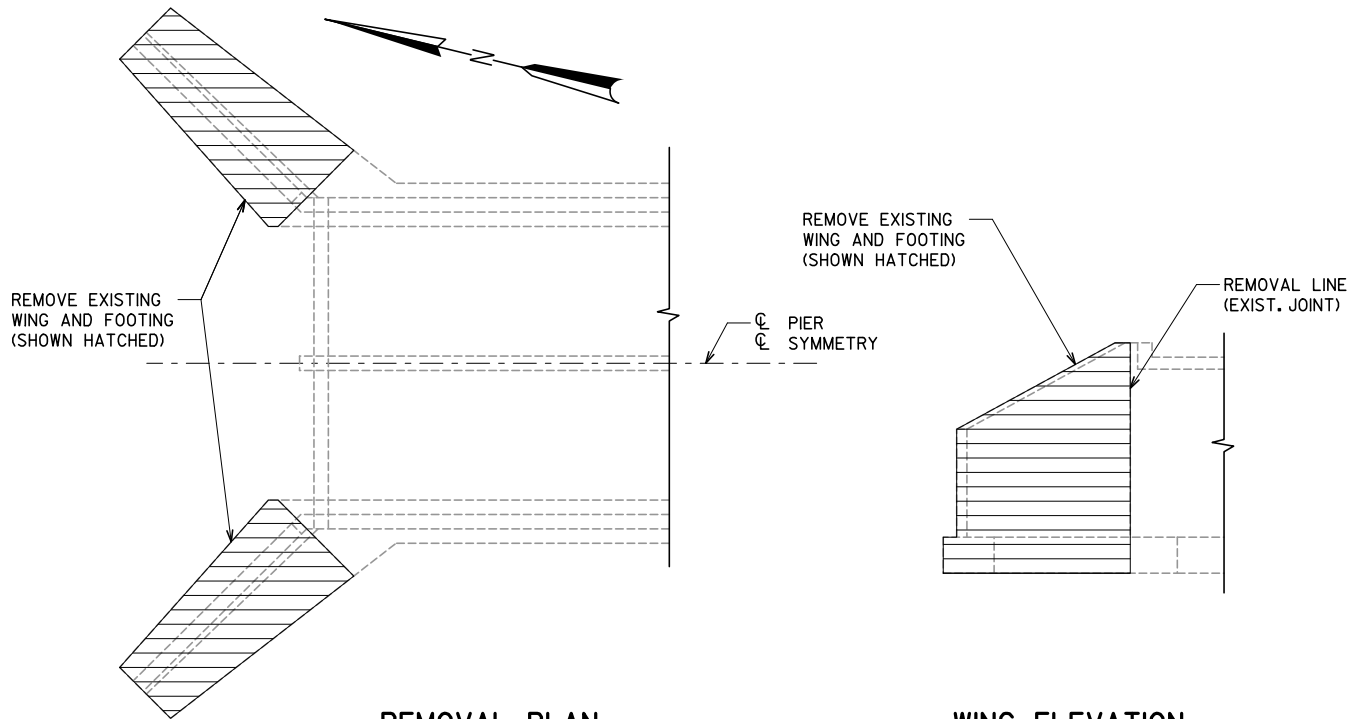
THE RODENT SHIELD, PIPE COUPLING, AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

LEGEND

▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

☒ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO THE STREAM. MATCH OUTLET INVERT ELEVATION WITH INVERT ELEVATION OF WEEP HOLES IN ABUTMENT WALL. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



REMOVAL PLAN

WING ELEVATION

(SHOWING REMOVAL)

TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|-------------|---|------|-------|
| 203.0500.S | REMOVING OLD STRUCTURE OVER WATERWAY STATION 236+60 | LS | 1 |
| 206.2000 | EXCAVATION FOR STRUCTURES CULVERTS B-22-616 | LS | 1 |
| 206.5000 | COFFERDAMS B-22-616 | LS | 1 |
| 210.2500 | BACKFILL STRUCTURE TYPE B | TON | 293 |
| 502.4205 | ADHESIVE ANCHORS NO. 5 BAR | EACH | 24 |
| 504.0100 | CONCRETE MASONRY CULVERTS | CY | 41 |
| 505.0400 | BAR STEEL REINFORCEMENT HS STRUCTURES | LB | 850 |
| 505.0600 | BAR STEEL REINFORCEMENT HS COATED STRUCTURES | LB | 1840 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 30 |
| 511.1200 | TEMPORARY SHORING STRUCTURE B-22-616 | SF | 720 |
| 516.0500 | RUBBERIZED MEMBRANE WATERPROOFING | SY | 5 |
| 606.0300 | RIPRAP HEAVY | CY | 84 |
| 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | 31 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 43 |
| 645.0120 | GEOTEXTILE TYPE HR | SY | 192 |
| | NON BID ITEMS | | |
| | NAME PLATE | | |
| | PREFORMED FILLER | SIZE | 1/2" |

ALL ITEMS ARE CATEGORY 0020

STATE PROJECT NUMBER

1706-00-70

GENERAL NOTES

THE GROUND AROUND THE WINGWALLS SHALL BE COVERED WITH HEAVY RIPRAP AS SHOWN ON SHEET 1.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

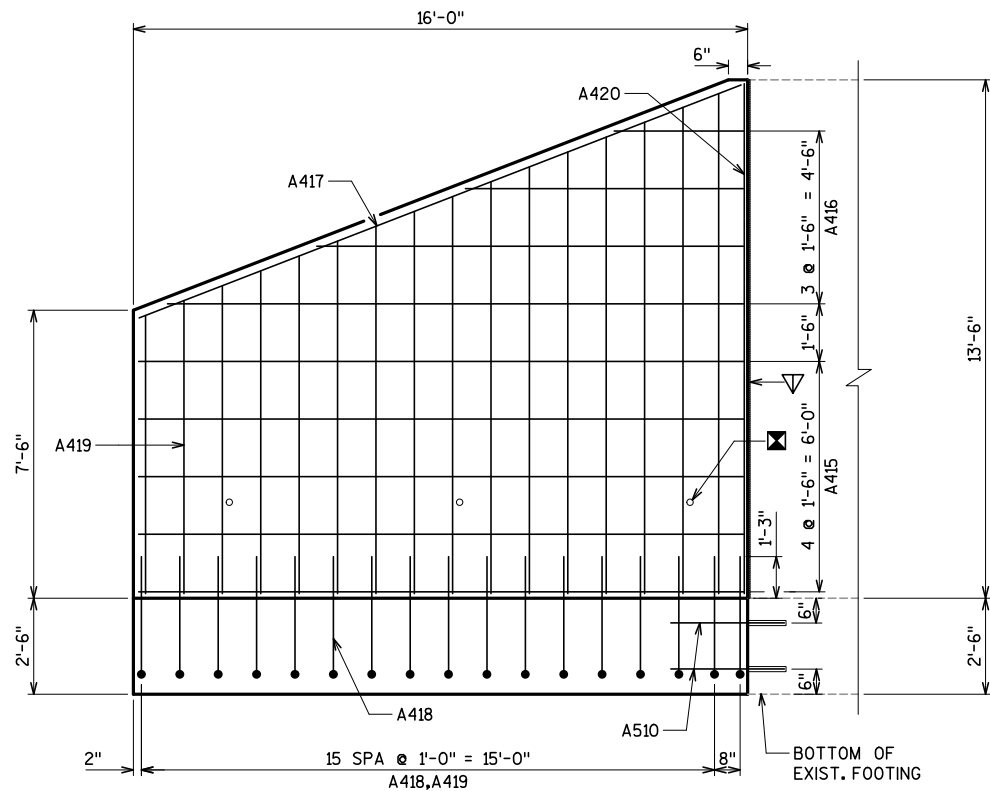
CONCRETE SURFACE REPAIR REQUIRED IN AREAS DESIGNATED BY THE FIELD ENGINEER. QUANTITIES SHOWN ARE APPROXIMATE AND UNDISTRIBUTED.

SEE SHEET 1 FOR ADDITIONAL GENERAL NOTES

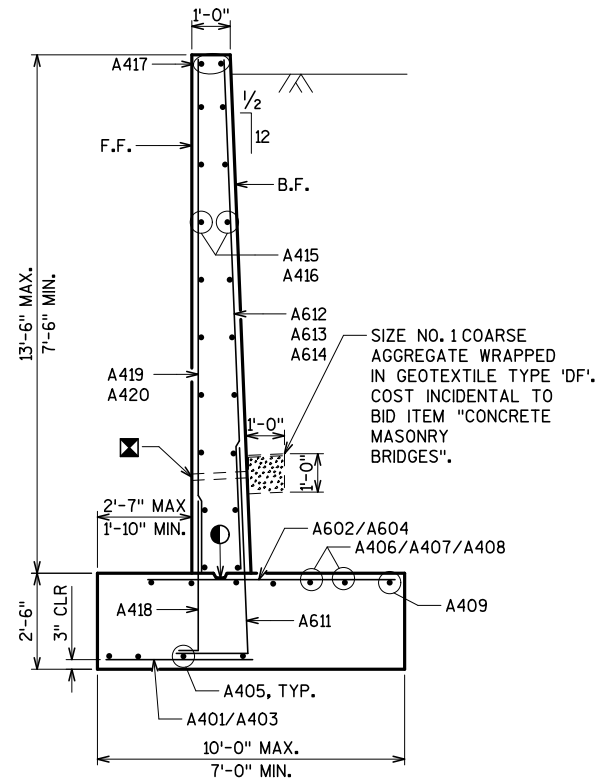
| NO. | DATE | REVISION | BY |
|--|------|----------|-----------------|
| | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-22-616 | | | |
| DRAWN BY | | BDT | PLANS CK'D. DMC |
| TYPICAL SECTION AND QUANTITIES | | | SHEET 2 OF 3 |

FILE NAME: X:\BML-3658 STH 1145.Design\04.Structures.Bridges\cds\current plans\B-22-616.wing.dgn
DATE: 9/15/2020 10:46:50 AM Plotted by: bthengon PEN TABLE: V8-STRUCTURAL-REV.TEL

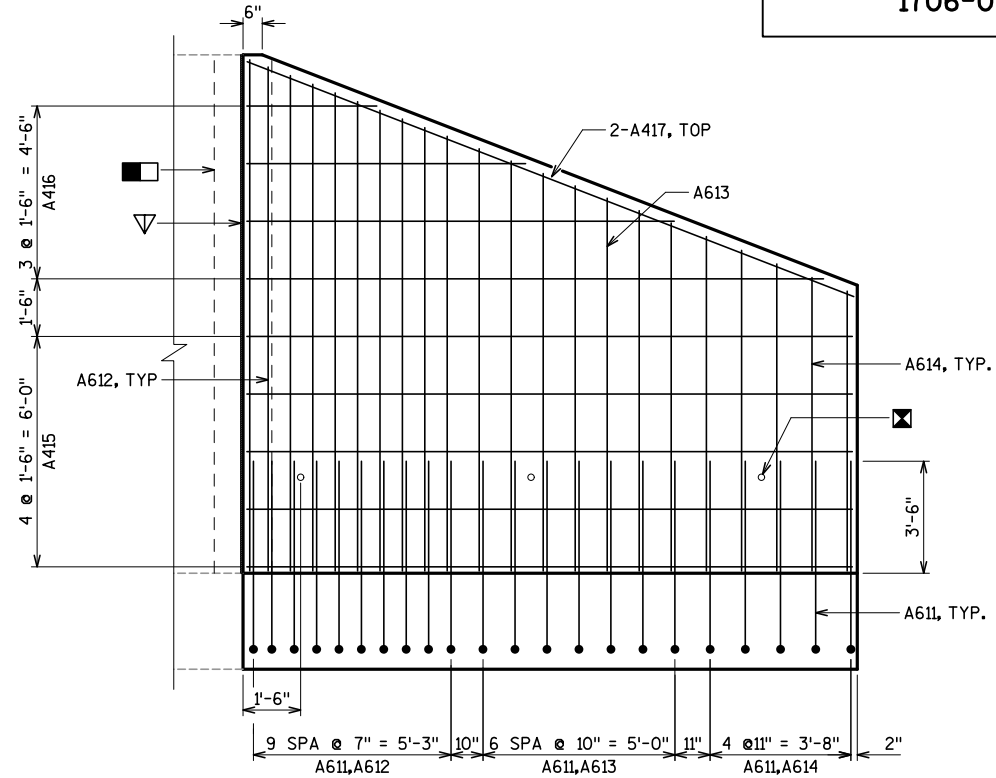
8



WING ELEVATION
(SHOWING FRONT FACE REINFORCEMENT)



SECTION A-A



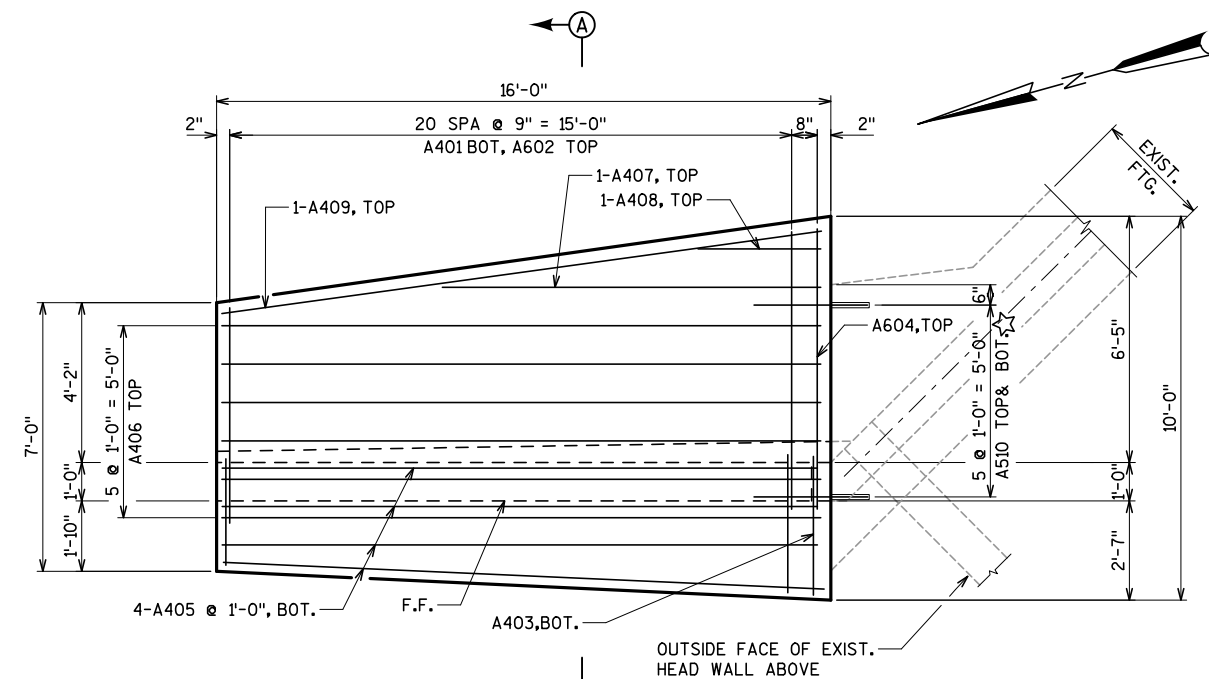
WING ELEVATION
(SHOWING BACK FACE REINFORCEMENT)

BILL OF BARS

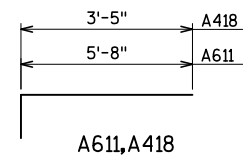
| BAR MARK | COM | NO. | LENGTH | BENT | BAR * SERIES | LOCATION |
|----------|-----|-----|---------|------|--------------|--------------------------|
| A401 | - | 42 | 3'-0" | - | X | WING FTG TRANSV. BOT. |
| A602 | - | 42 | 6'-6" | - | X | WING FTG TRANSV. TOP |
| A403 | - | 2 | 3'-5" | - | - | WING FTG TRANSV. BOTTOM |
| A604 | - | 2 | 7'-8" | - | - | WING FTG TRANSV. TOP |
| A405 | - | 8 | 15'-8" | - | - | WING FTG LONGIT., BOTTOM |
| A406 | - | 12 | 15'-8" | - | - | WING FTG LONGIT., TOP |
| A407 | - | 2 | 11'-11" | - | - | WING FTG LONGIT., TOP |
| A408 | - | 2 | 4'-5" | - | - | WING FTG LONGIT., TOP |
| A409 | - | 2 | 15'-9" | - | - | WING FTG LONGIT., TOP |
| A510 | - | 24 | 3'-0" | - | - | WING FOOTING DOWELS |
| A611 | X | 44 | 7'-0" | X | - | WING VERTICAL, B.F. |
| A612 | X | 20 | 12'-3" | - | X | WING VERT., B.F. |
| A613 | X | 14 | 10'-0" | - | X | WING VERT., B.F. |
| A614 | X | 10 | 8'-0" | - | X | WING VERT., B.F. |
| A415 | X | 20 | 15'-8" | - | - | WING HORIZ., E.F. |
| A416 | X | 16 | 9'-6" | - | X | WING HORIZ., B.F. |
| A417 | X | 4 | 16'-8" | - | - | WING TOP, INCLINED |
| A418 | X | 34 | 4'-0" | X | - | WING VERTICAL, F.F. |
| A419 | X | 32 | 10'-2" | - | X | WING VERT., F.F. |
| A420 | X | 2 | 13'-3" | - | - | WING VERTICAL, F.F. |

▲ QUANTITY SHOWN IS FOR TWO WINGS. DIVIDE QUANTITY EQUALLY BETWEEN WING 2 AND WING 3.

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



WING FOOTING PLAN
(WING 3 SHOWN, WING 2 OPPOSITE)



BENDING DIAGRAMS

BAR SERIES TABLE

| BAR MARK | NO. REQ'D | LENGTH |
|----------|----------------|------------------|
| A401 | 2 SERIES OF 21 | 2'-8" TO 3'-5" |
| A602 | 2 SERIES OF 21 | 5'-6" TO 7'-7" |
| A614 | 2 SERIES OF 5 | 7'-3" TO 8'-9" |
| A613 | 2 SERIES OF 7 | 9'-1" TO 11'-0" |
| A416 | 4 SERIES OF 4 | 3'-9" TO 15'-4" |
| A419 | 2 SERIES OF 16 | 7'-3" TO 13'-2" |
| A612 | 2 SERIES OF 10 | 11'-4" TO 13'-3" |

BUNDLE AND TAG EACH SERIES SEPARATELY

LEGEND

- ☆ ADHESIVE ANCHORS NO.5 BAR. EMBED 1'-0" IN CONCRETE.
- 2" x 6" BEVELED KEYWAY
- RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE TO EXTEND FROM TOP OF WING TO TOP OF FOOTING.
- ▽ 3/4" PREFORMED JOINT FILLER TO EXTEND FROM TOP OF WING TO TOP OF FOOTING
- ☒ 2"± WEEP HOLES @ 6'± SPACING, TYP. MATCH ELEVATION OF EXISTING WEEP HOLES.

F.F. - FRONT FACE, B.F. - BACK FACE, E.F. - EACH FACE

| | | | |
|--|------|--------------|-----------------|
| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-22-616 | | | |
| DRAWN BY | | BDT | PLANS CK'D. DMC |
| WING DETAILS | | SHEET 3 OF 3 | |

8

(X) INDICATES WING NUMBER

STATE PROJECT NUMBER

1706-00-70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ALL DIMENSIONS ARE IN FEET AND INCHES.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS UNLESS NOTED OTHERWISE.

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

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF DECK REPAIR, AND CONCRETE SURFACE REPAIR OF DECK EDGE.

ALL DECK CONCRETE REMOVAL LIMITS SHALL BE DEFINED BY A 1 INCH DEEP SAWCUT. ALL SUBSTRUTURE CONCRETE REMOVAL LIMITS SHALL BE DEFINED BY A $\frac{1}{2}$ INCH DEEP SAWCUT.

EXERCISE CARE NOT TO DAMAGE EXISTING REINFORCEMENT WHILE REMOVING OR SAWCUTTING CONCRETE.

STRICTLY CONFORM TO THE APPROVED DEBRIS CONTAINMENT PLAN.

PLANS OF THE EXISTING BRIDGE ARE ON FILE AND ARE AVAILABLE FOR INSPECTION AT THE WISCONSIN DEPARTMENT OF TRANSPORTATION, SOUTH WEST REGION.

* CONCRETE SURFACE REPAIR, DECK PREPARATION, AND STAINLESS STEEL FLASHING REQUIRED IN AREAS DESIGNATED BY THE FIELD ENGINEER. QUANTITIES SHOWN ARE APPROXIMATE AND UNDISTRIBUTED.

DECK PREPARATION SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

REPAIR ALL EXISTING BEARINGS AT BOTH ABUTMENTS.

CLEAN AND PAINT ALL EXISTING BEARINGS AT PIER.

APPLY BRIDGE SEAT PROTECTION, PER 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF BOTH ABUTMENTS, POWERWASH AND ADEQUATELY DRY SURFACES BEFORE APPLICATION.

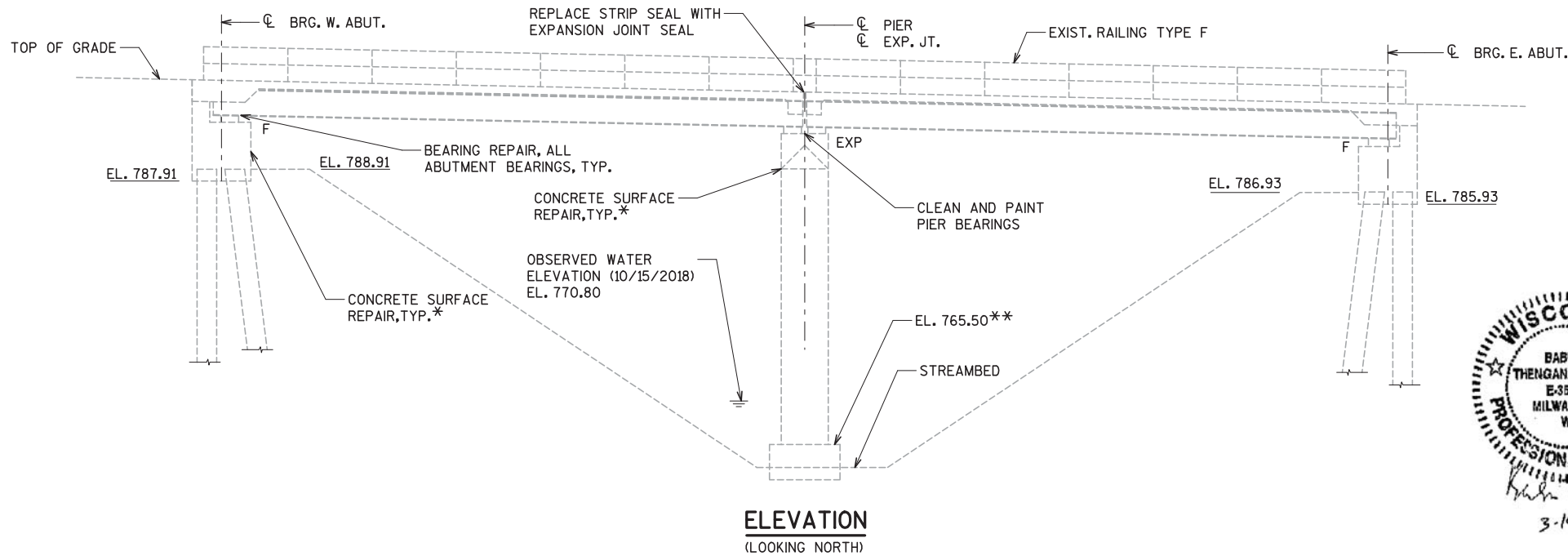
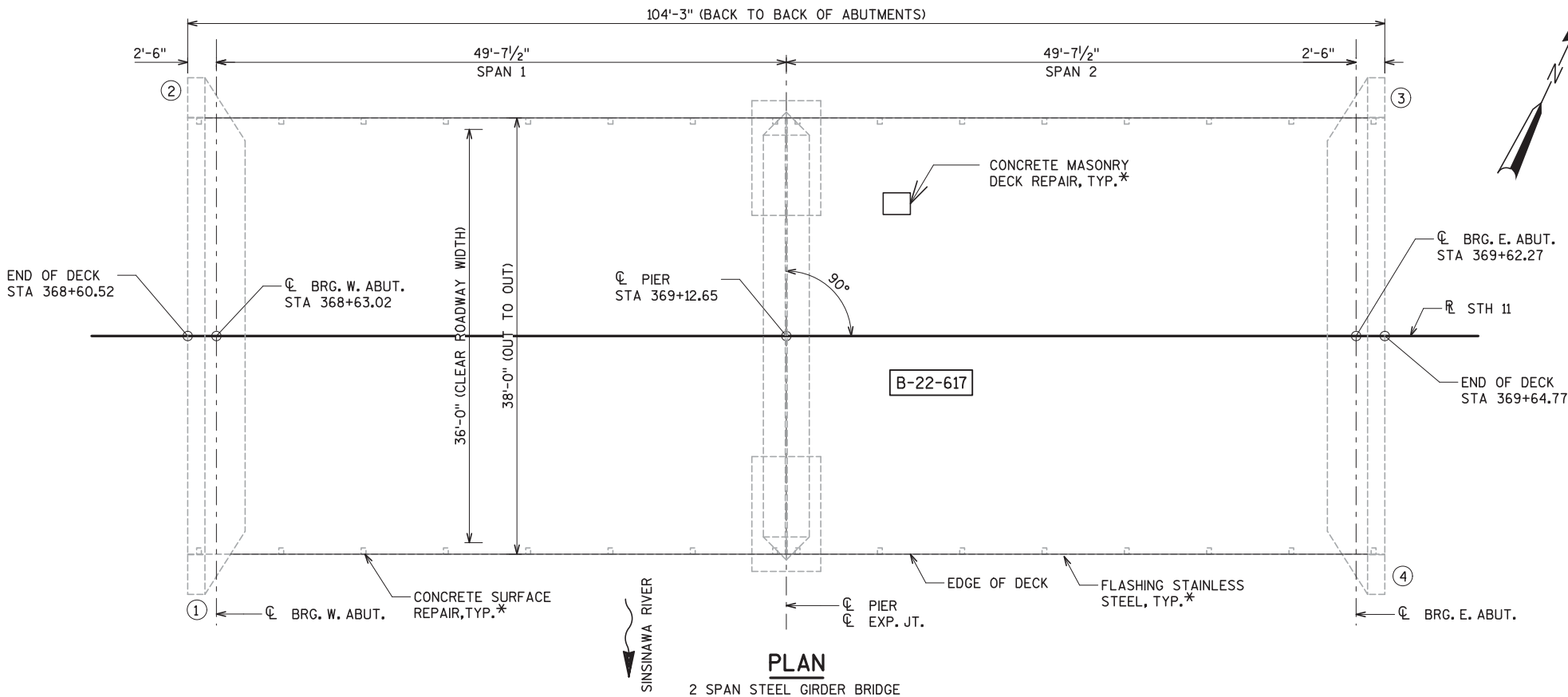
THE FINISH PAINT COLOR FOR PAINTING BEARINGS IS GRAY (LIGHT GRAY), AMS STANDARD COLOR NUMBER 26293.



STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599



DESIGN DATA

LIVE LOAD

DESIGN LOAD: H20
INVENTORY RATING: HS19 (TAKEN FROM HSI12/20/2019)
OPERATIONAL RATING: HS31 (TAKEN FROM HSI12/20/2019)
WISCONSIN STANDARD PERMIT VEHICLE LOAD (WIS-SPV):.....250 KIPS (TAKEN FROM HSI12/20/2019)

MATERIAL PROPERTIES

CONCRETE MASONRY
DECK REPAIR.....f'c = 4,000 psi
ALL OTHER f'c = 3,500 psi
BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 psi

TRAFFIC DATA

STH 11

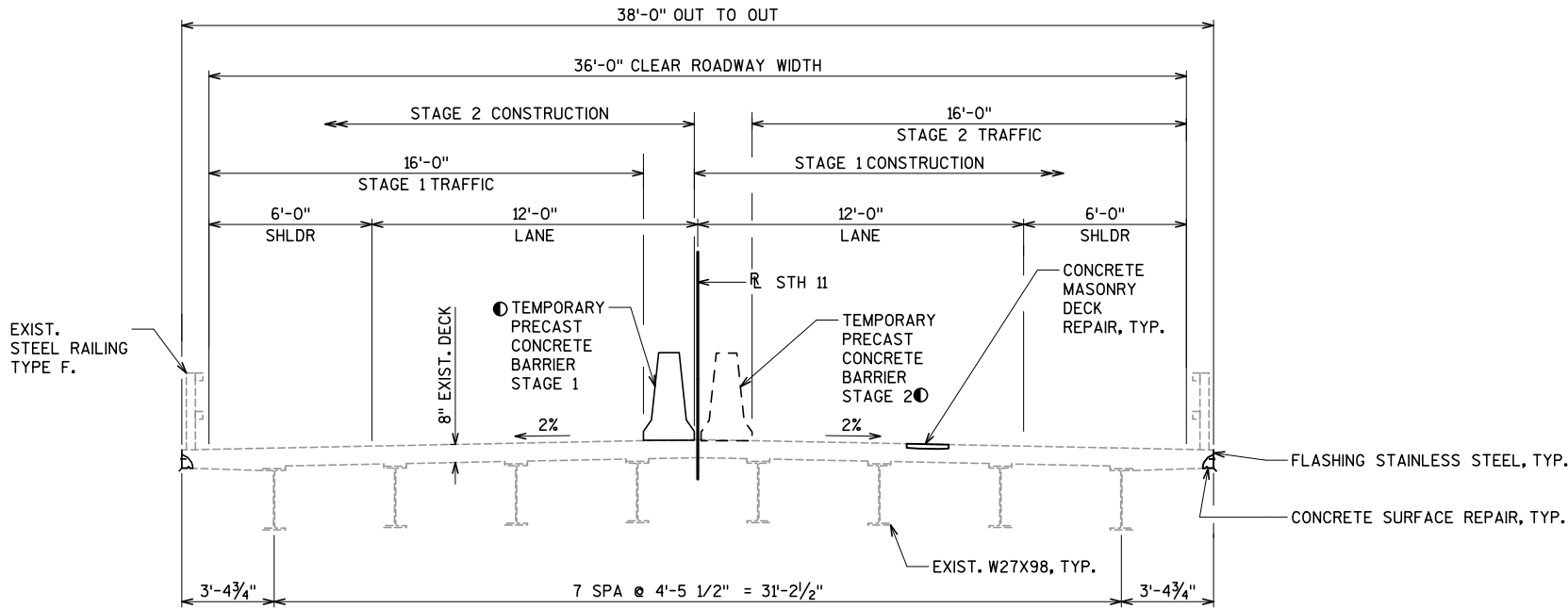
A.D.T. (2023) = 4300
A.D.T. (2043) = 4790
DESIGN SPEED = 55 MPH

LIST OF DRAWINGS

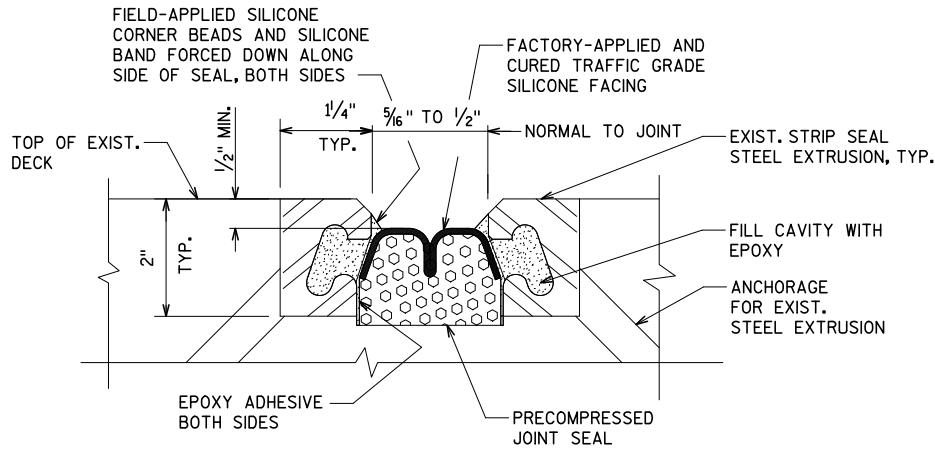
1. GENERAL PLAN AND ELEVATION
2. TYPICAL SECTION AND GENERAL NOTES

** TOP OF PIER FOOTING ELEVATION BASED ON UNDERWATER INSPECTION REPORT, CONVERTED TO PROJECTED DATUM.

FILE NAME: X:\BML-3658 STH 1145 Design\04.Structures.Bridges\cds\current plans\B-22-617\st01.B-22-617-tyr.dgn
DATE: 3/19/2021 10:21:37 AM Plotted by: bthengon PEN TABLE: V8-STRUCTURAL-REV.TBL



TYPICAL SECTION THRU ROADWAY
(LOOKING EAST)

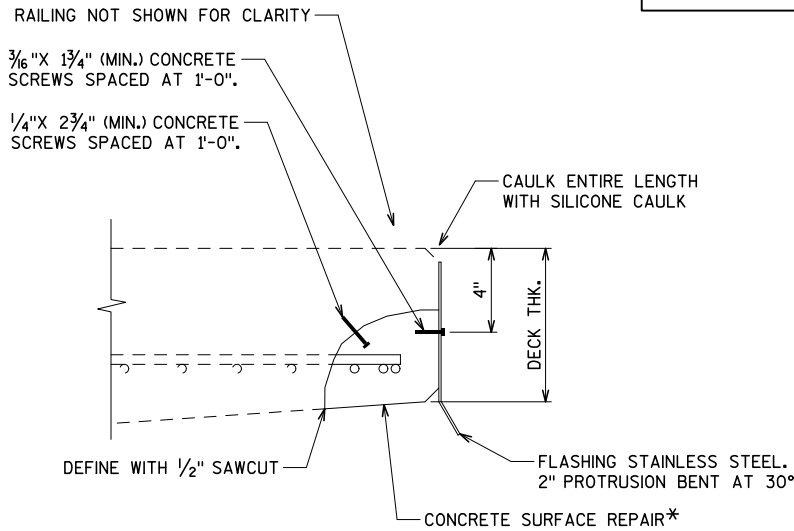


SECTION THRU EXPANSION JOINT

TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEMS | UNIT | WEST ABUTMENT | PIER | EAST ABUTMENT | SUPER | TOTAL |
|-------------|--|------|---------------|------|---------------|-------|-------|
| 203.0225.S | DEBRIS CONTAINMENT B-22-617 | LS | | | | | 1 |
| 502.3200 | PROTECTIVE SURFACE TREATMENT | SY | | | | 60 | 60 |
| 509.0301 | PREPARATION DECKS TYPE 1 | SY | | | | 33 | 33 |
| 509.0302 | PREPARATION DECKS TYPE 2 | SY | | | | 13 | 13 |
| 509.0310.S | SAWING PAVEMENT DECK PREPARATION AREAS | LF | | | | 330 | 330 |
| 509.1500 | CONCRETE SURFACE REPAIR | SF | 8 | 24 | 4 | 243 | 279 |
| 509.2000 | FULL-DEPTH DECK REPAIR | SY | | | | 2 | 2 |
| 509.2100.S | CONCRETE MASONRY DECK REPAIR | CY | | | | 3 | 3 |
| SPV.0060.03 | CLEANING AND PAINTING BEARINGS | EACH | | 16 | | | 16 |
| SPV.0060.04 | BEARING REPAIR | EACH | 8 | | 8 | | 16 |
| SPV.0090.02 | FLASHING STAINLESS STEEL | LF | | | | 161 | 161 |
| SPV.0090.03 | EXPANSION JOINT SEAL | LF | | | | 38 | 38 |
| SPV.0180.01 | ABUTMENT SEAT CLEANING AND SEALING | SY | 16 | | 16 | | 32 |
| | NON-BID ITEMS | | | | | | |

ALL ITEMS ARE CATEGORY 0030



STAINLESS STEEL FLASHING

STAINLESS STEEL FLASHING NOTES:
THE BID ITEM " FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK AND 3/16" AND 1/4" CONCRETE SCREWS, AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING.

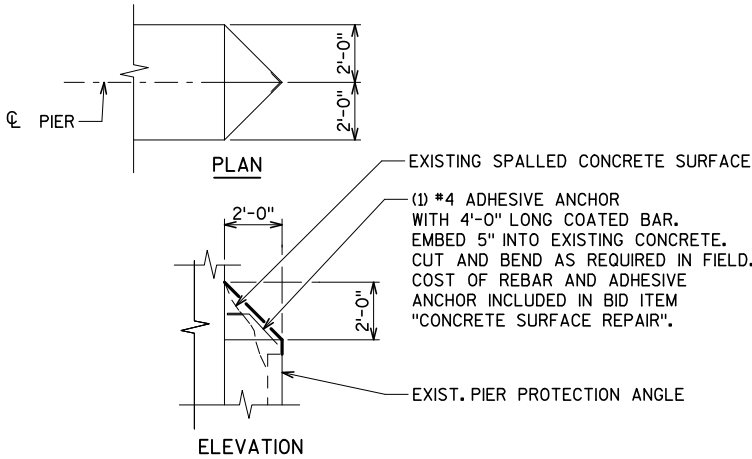
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHAL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO F.F. OF ABUTMENT BACK WALL.

TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK SURFACE.

* EXPOSED AREA OF CONCRETE SURFACE REPAIR WILL BE MEASURED FOR PAYMENT, INCLUDING THE UNDERSIDE OF DECK AND VERTICAL SURFACE OF DECK EDGE.



PIER REPAIR

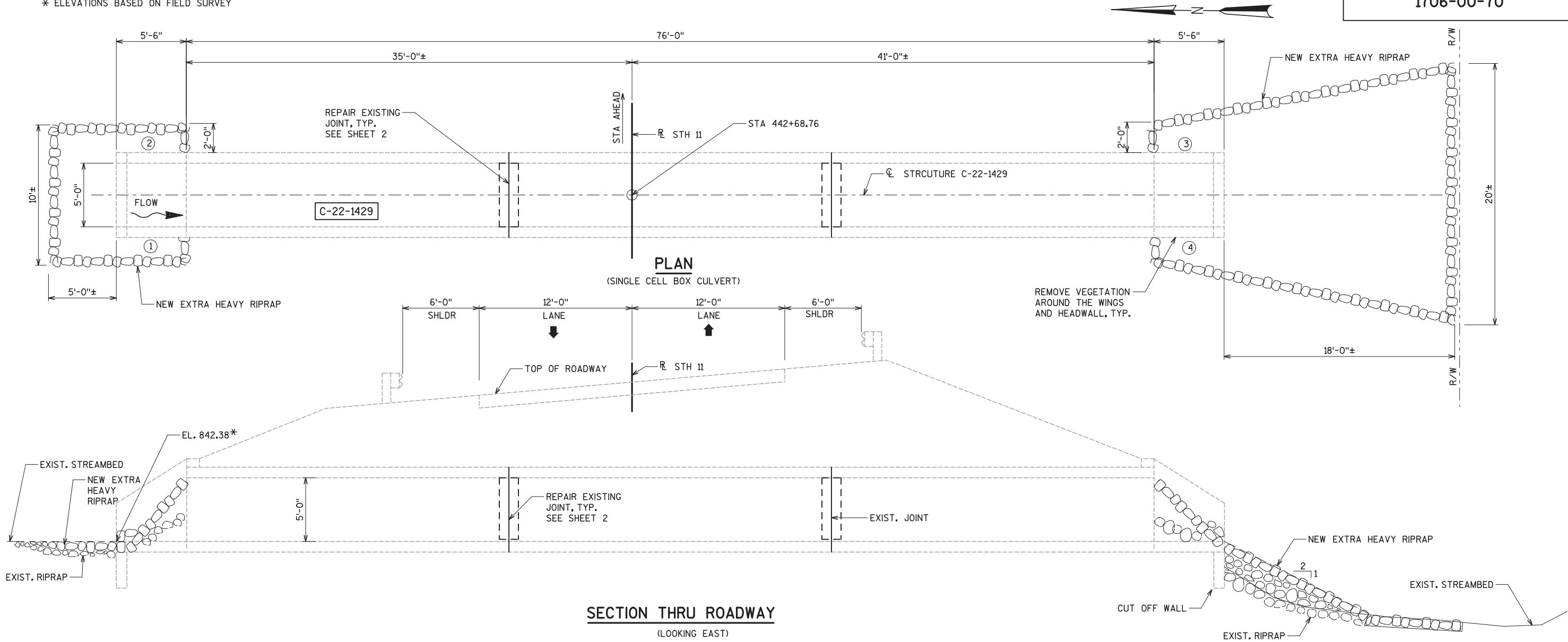
NOTE: ADHESIVE ANCHOR AND REBAR NOT REQUIRED ON NORTH FACE OF PIER.

LEGEND

● TEMPORARY CONCRETE BARRIER IS PAID UNDER ROADWAY BID ITEMS

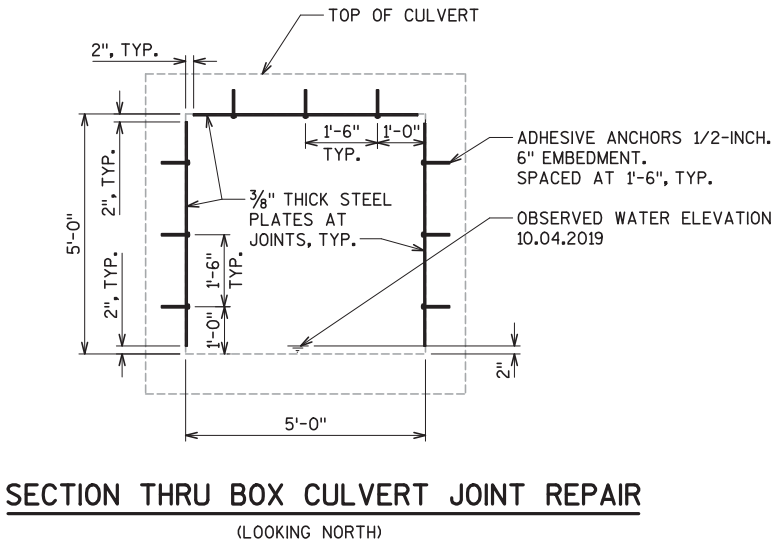
| NO. | DATE | REVISION | BY |
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| | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-22-617 | | | |
| | DRAWN BY | BDT | PLANS CK'D. DMC |
| TYPICAL SECTION AND GENERAL NOTES | | | SHEET 2 OF 2 |

(X) DENOTES WING NUMBER
* ELEVATIONS BASED ON FIELD SURVEY



FILE NAME: X:\BML-3658 STH 11\45.Design\04.Structures.Bridges\cds\current plans\C-22-1429\01.C-22-1429_OP&E.dgn
DATE: 9/14/2020 2:55:58 PM
PEN TABLE: V8.STRUCTURAL_REV.TBL
Plotted by: bthengon

8



SECTION THRU BOX CULVERT JOINT REPAIR
(LOOKING NORTH)

DESIGN DATA

MATERIAL PROPERTIES

STRUCTURAL STEEL CARBON
(ASTM A36, GRADE 36).....Fy = 36,000 psi

TRAFFIC DATA

STH 11

ADT (2023) =4300
ADT (2043) = 4790
DESIGN SPEED = 55 MPH

LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. BOX CULVERT JOINT REPAIR

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ALL DIMENSIONS ARE IN FEET AND INCHES.
DIMENSIONS SHOWN ARE BASED ON EXISTING ROADWAY PLANS.

REMOVE DEBRIS FROM THE BOX, INCLUDING THE INLET AND OUTLET.
REMOVE VEGETATION AROUND THE WINGS AND HEADWALL WITHIN THE LIMITS SHOWN ON SHEET 2. COST INCLUDED IN THE BID ITEM "VEGETATION REMOVAL C-22-1429".

ANY EXCAVATION REQUIRED TO COMPLETE THE INSTALLATION OF RIPRAP IS INCIDENTAL TO THE BID ITEM "RIPRAP EXTRA-HEAVY".

SUPPLEMENT EXISTING RIPRAP IN FRONT OF THE CUT OFF WALLS, AND FILL THE SCOUR HOLE DOWNSTREAM OF THE CULVERT WITH EXTRA-HEAVY RIPRAP AS SHOWN ON THIS SHEET AND SHEET 2.

BOX CULVERT JOINT REPAIR SHALL BE DONE IN DRY CONDION. COST OF PUMPING/DIVERTING WATER IS INCLUDED IN THE BID ITEM "BOX CULVERT JOINT REPAIR C-22-1429".

BOX CULVERT JOINT REPAIR, INCLUDING STEEL PLATES, ADHESIVE ANCHORS, POLYURETHANE BASED FOAM SEALANT, AND ANY OTHER MISCELLANEOUS WORK ASSOCIATED WITH BOX CULVERT JOINT REPAIR SHALL BE PAID FOR UNDER THE LUMP SUM BID PRICE FOR "BOX CULVERT JOINT REPAIR C-22-1429".



STRUCTURE DESIGN CONTACTS

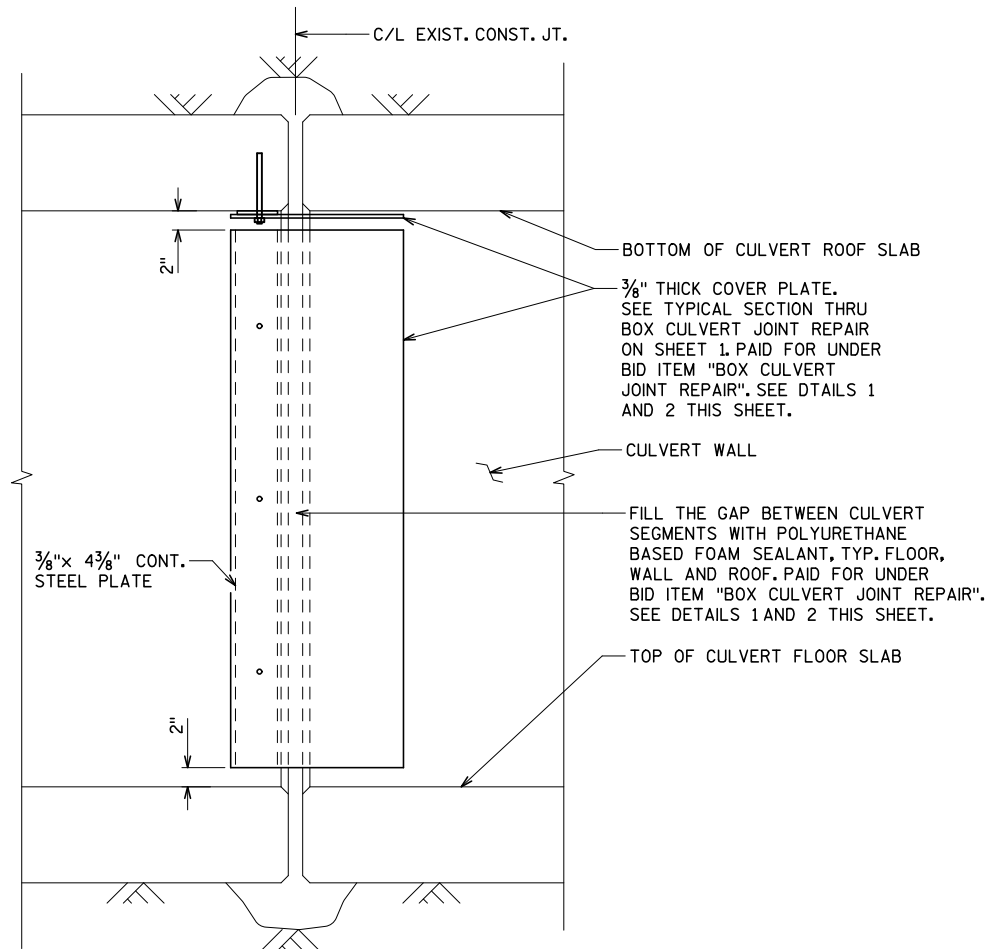
BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599

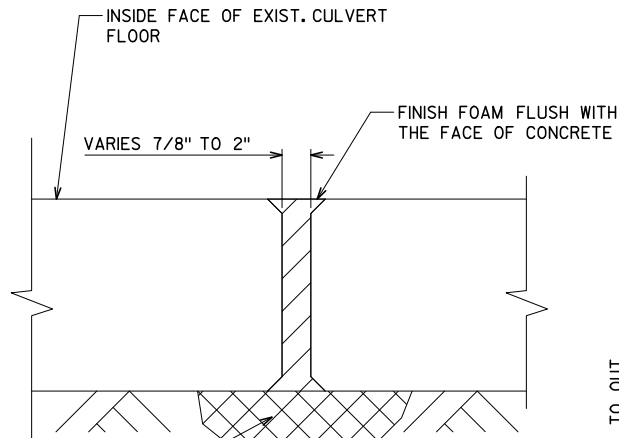
| | | | |
|--|-------|--|--------------|
| NO. | DATE | REVISION | BY |
| <div><div><div><div></div><div></div></div><div>BLOOM
COMPANIES, LLC
<i>Infrastructure Innovation and Ingenuity</i>
10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490</div></div></div> | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED | |  SDR 02/17/21 | DATE |
| CHIEF STRUCTURES DESIGN ENGINEER | | | |
| STRUCTURE C-22-1429 | | | |
| STH 11 OVER UNKNOWN STREAM | | | |
| COUNTY | GRANT | TOWN: | HAZEL GREEN |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | BDT | DESIGN CK'D. | YNN |
| | | DRAWN BY | TAL |
| | | PLANS CK'D. | DMC |
| GENERAL PLAN AND ELEVATION | | | SHEET 1 OF 2 |

8

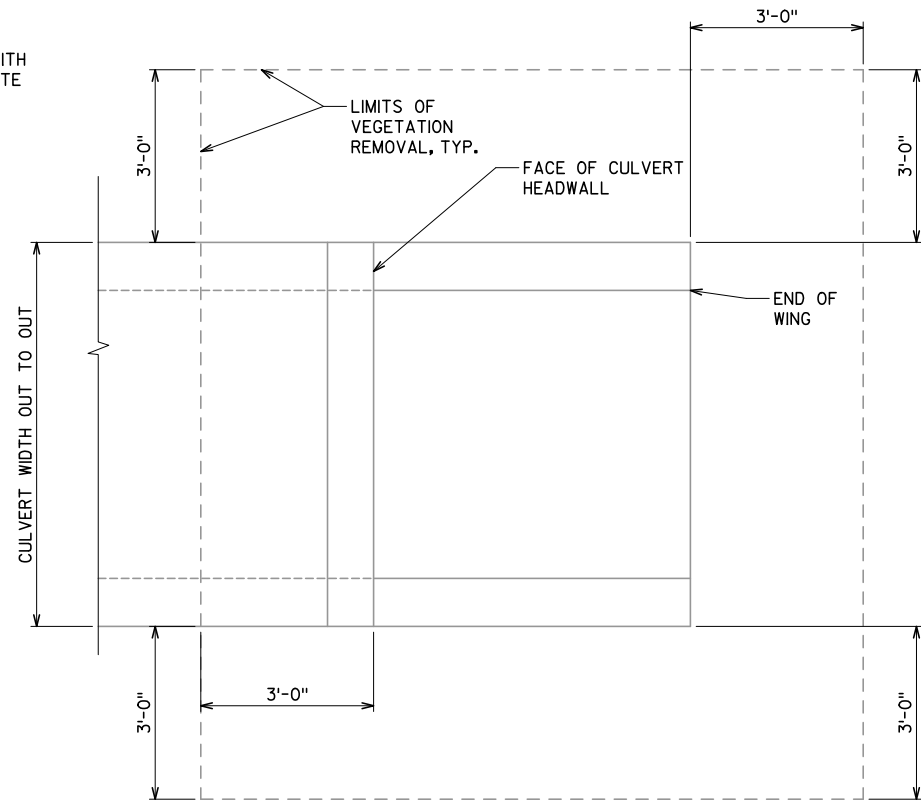
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DATE: 9/15/2020 2:02:44 PM Plotted by: bthengon PEN TABLE: V8_STRUCTURAL_REV.TBL



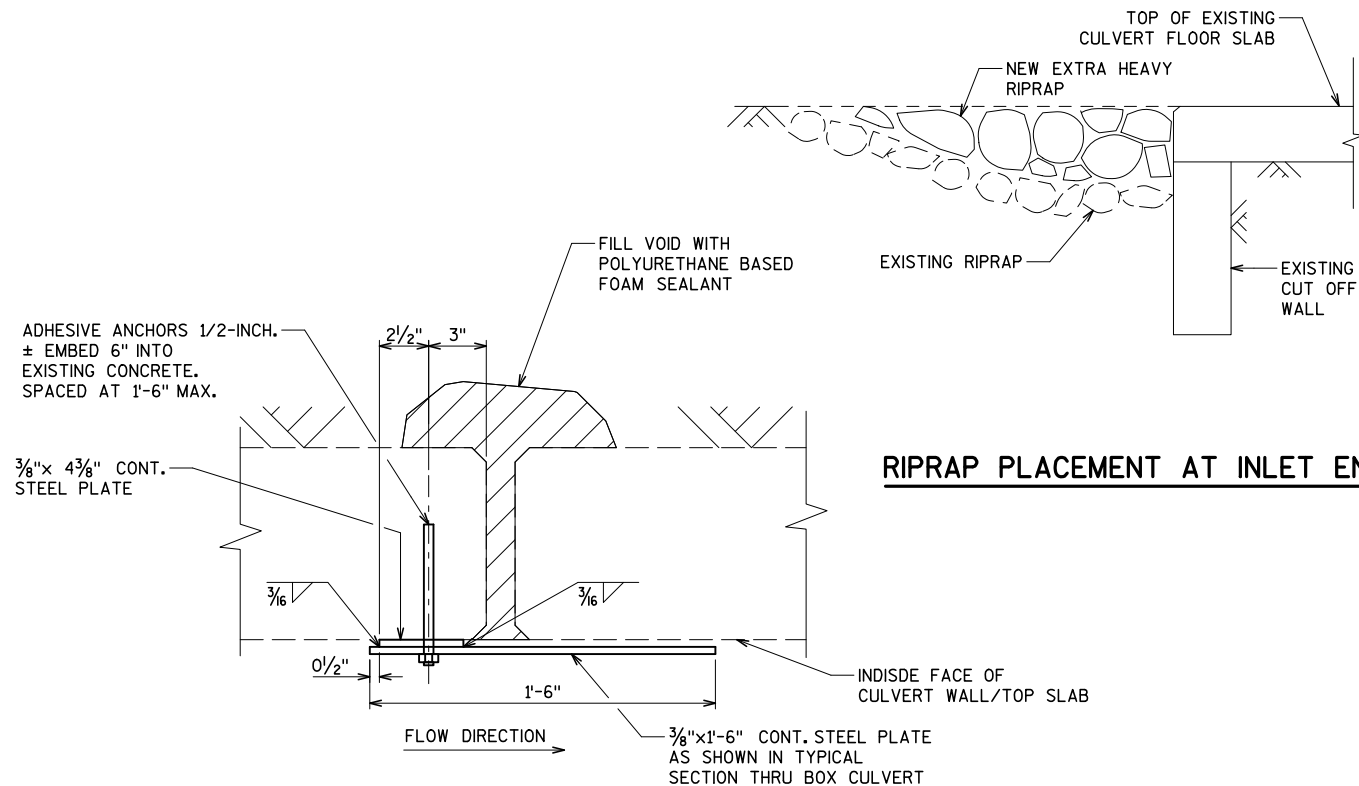
BOX CULVERT JOINT REPAIR
(INSIDE ELEVATION)



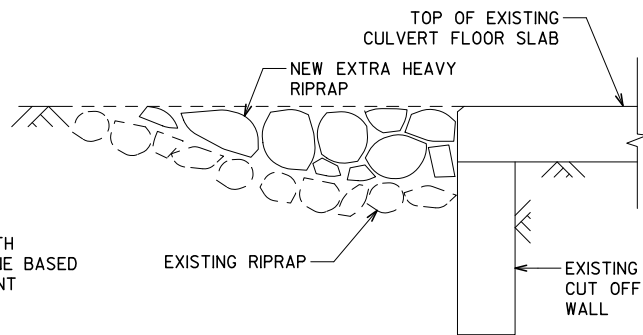
DETAIL 1 - BOX CULVERT JOINT REPAIR
(BOTTOM SLAB)



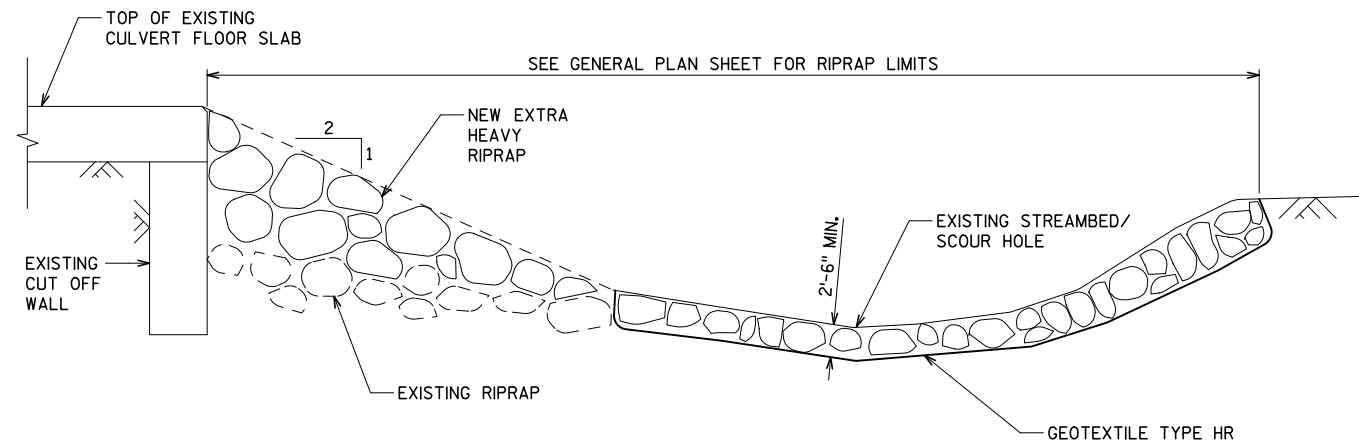
PLAN- BOX CULVERT VEGETATION REMOVAL LIMITS
(VEGETATION REMOVAL REQUIRED AT UPSTREAM AND DOWNSTREAM ENDS OF CULVERT)



DETAIL 2 - BOX CULVERT JOINT REPAIR DETAIL
(WALLS AND TOP SLAB)



RIPRAP PLACEMENT AT INLET END



RIPRAP PLACEMENT AT OUTLET END

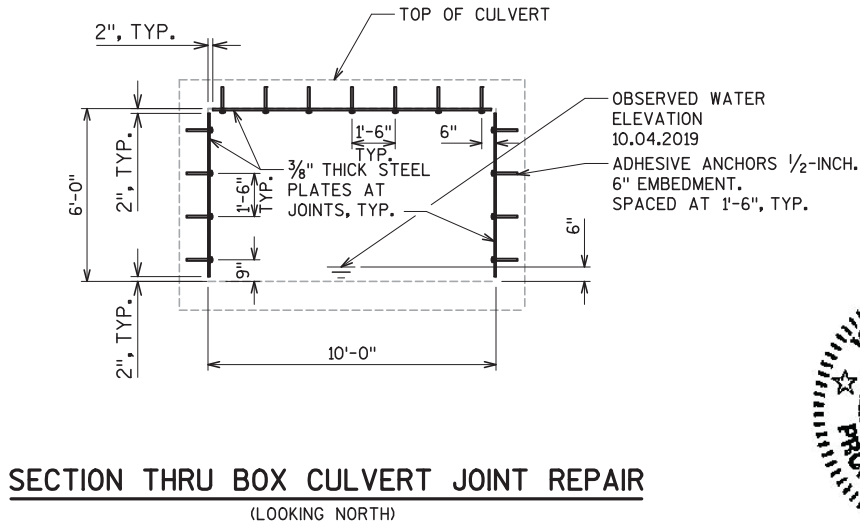
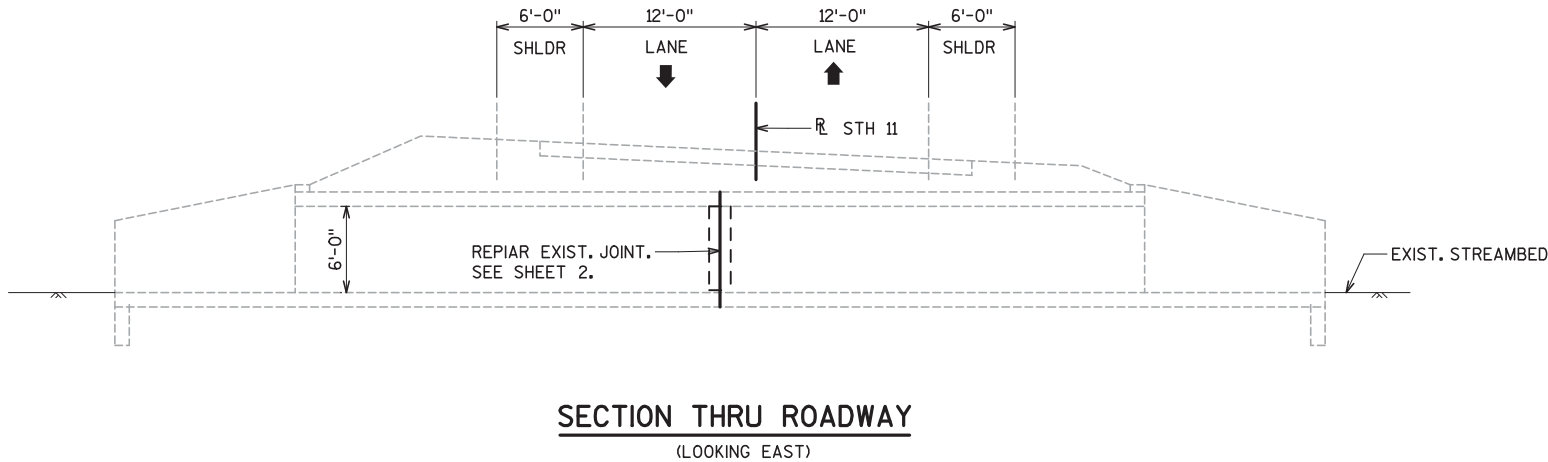
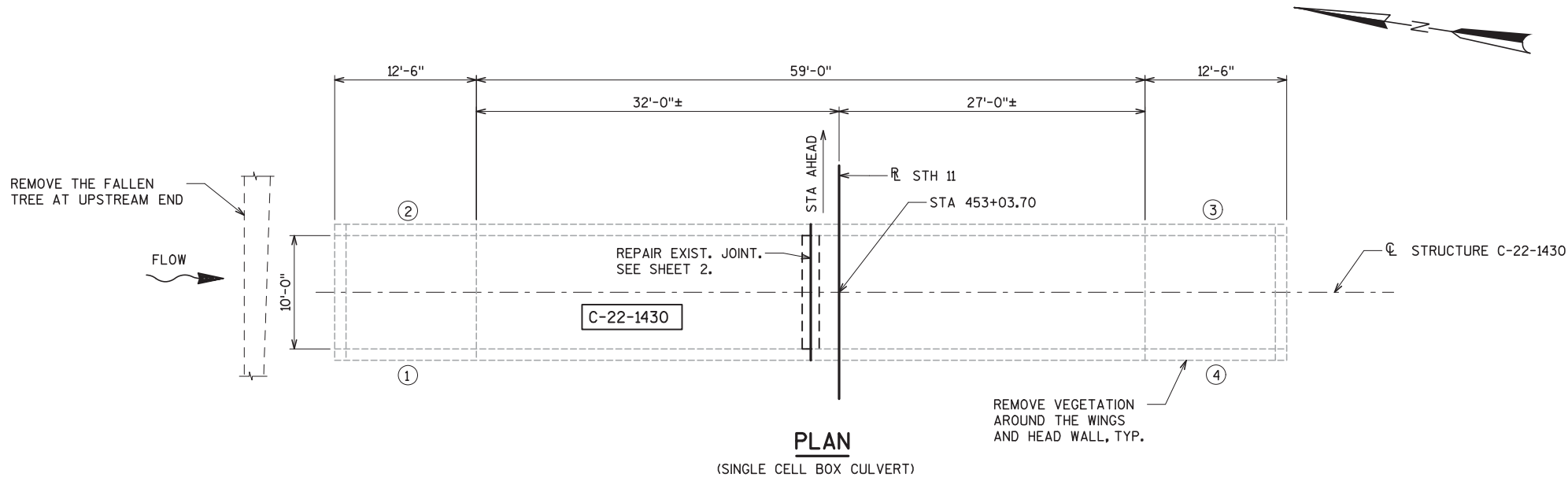
TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|-------------|------------------------------------|------|-------|
| 606.0400 | RIPRAP EXTRA-HEAVY | CY | 41 |
| 645.0120 | GEOTEXTILE TYPE HR | SY | 69 |
| SPV.0105.03 | BOX CULVERT JOINT REPAIR C-22-1429 | LS | 1 |
| SPV.0105.06 | VEGETATION REMOVAL C-22-1429 | LS | 1 |

ALL ITEMS ARE CATEGORY 0040

| NO. | DATE | REVISION | BY |
|--|------|----------|-----------------|
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE C-22-1429 | | | |
| DRAWN BY | | BDT | PLANS CK'D. DMC |
| BOX CULVERT JOINT REPAIR | | | SHEET 2 OF 2 |

⊗ DENOTES WING NUMBER



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

ALL DIMENSIONS ARE IN FEET AND INCHES. DIMENSIONS SHOWN ARE BASED ON EXISTING ROADWAY PLANS.

REMOVE DEBRIS FROM THE BOX, INCLUDING THE INLET AND OUTLET. REMOVE VEGETATION AROUND THE WINGS AND HEADWALL WITHIN THE LIMITS SHOWN ON SHEET 2. COST INCLUDED IN THE BID ITEM "VEGETATION REMOVAL C-22-1430".

COST OF REMOVING THE FALLEN TREE IS INCIDENTAL TO THE BID ITEM " VEGETATION REMOVAL C-22-1430".

BOX CULVERT JOINT REPAIR SHALL BE DONE IN DRY CONDION. COST OF PUMPING/DIVERTING WATER IS INCLUDED IN THE BID ITEM "BOX CULVERT JOINT REPAIR C-22-1430".

BOX CULVERT JOINT REPAIR, INCLUDING STEEL PLATES, ADHESIVE ANCHORS, POLYURETHANE BASED FOAM SEALANT, AND ANY OTHER MISCELLANEOUS WORK ASSOCIATED WITH BOX CULVERT JOINT REPAIR SHALL BE PAID FOR UNDER THE LUMP SUM BID PRICE FOR "BOX CULVERT JOINT REPAIR C-22-1430".

DESIGN DATA

MATERIAL PROPERTIES

STRUCTURAL STEEL CARBON
(ASTM A36, GRADE 36).....Fy = 36,000 psi

TRAFFIC DATA

STH 11

ADT (2023) = 4300
ADT (2043) = 4790
DESIGN SPEED = 55 MPH

LIST OF DRAWINGS

- GENERAL PLAN AND ELEVATION
- BOX CULVERT JOINT REPAIR

| | | | |
|--|--|--------------|--------------|
| NO. | DATE | REVISION | BY |
| <div><div><div><div>BLOOM</div><div>COMPANIES, LLC</div><div>Infrastructure Innovation and Ingenuity</div></div></div><div><div>10501 W. Research Drive</div><div>• Milwaukee, WI 53226</div><div>Phone: (414) 771-3390</div><div>Fax: (414) 771-4490</div></div></div> | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED |  <div>SDR</div> | | 02/17/21 |
| CHIEF STRUCTURES DESIGN ENGINEER | | | DATE |
| STRUCTURE C-22-1430 | | | |
| STH 11 OVER UNKNOWN STREAM | | | |
| COUNTY | GRANT | TOWN: | HAZEL GREEN |
| DESIGN SPEC. REHABILITATION N/A | | | |
| DESIGNED BY | BDT | DESIGN CK'D. | YNN |
| DRAWN BY | TAL | PLANS CK'D. | DMC |
| GENERAL PLAN AND ELEVATION | | | SHEET 1 OF 2 |

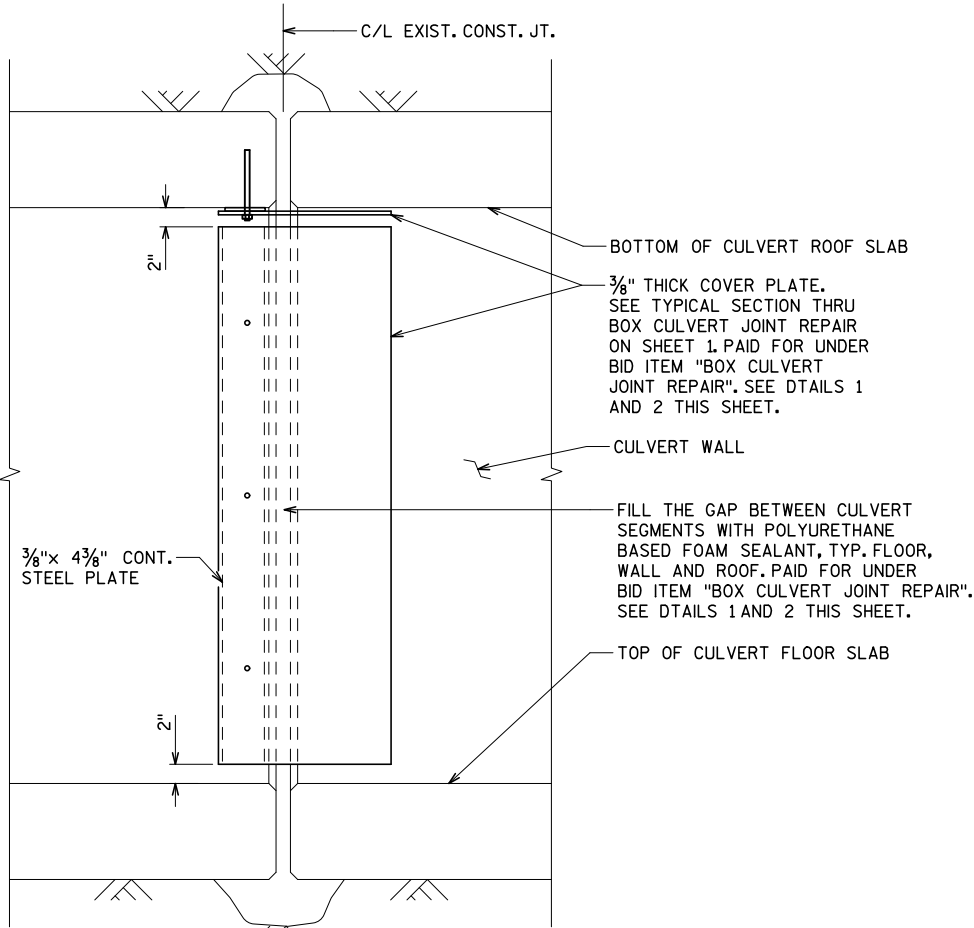
STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

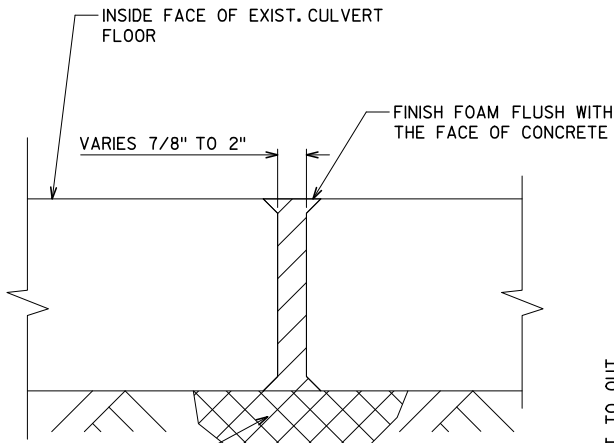
CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599



FILE NAME: X:\BML-3658 STH 1145 Design\04.Structures\Bridges\cds\current plans\C-22-1430\02.C-22-1430.deta1.dgn
DATE: 9/14/2020 22:00:09 PM
PEN TABLE: V8.STRUCTURAL.REV.TEL
Plotted by: bthengon

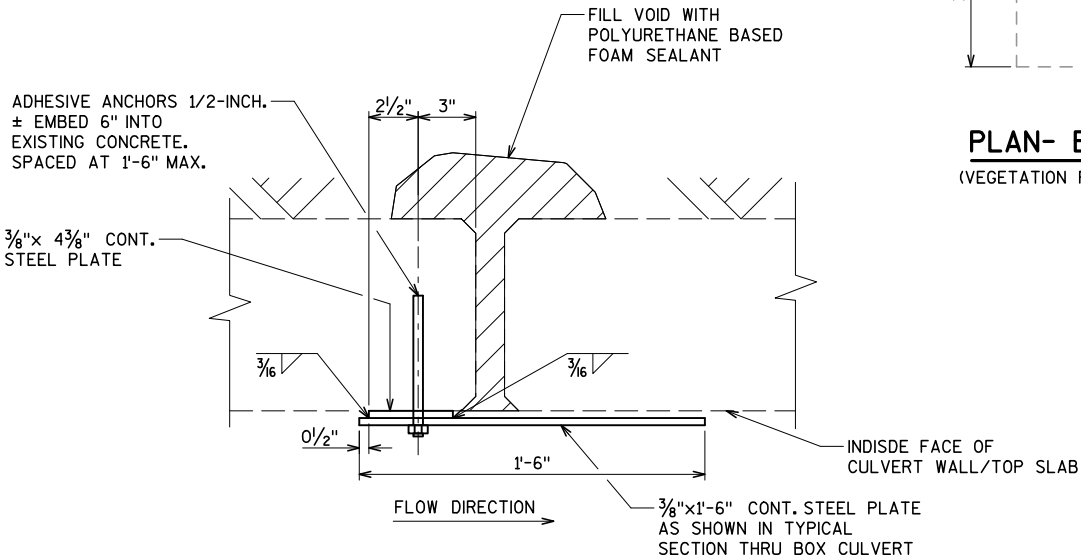


BOX CULVERT JOINT REPAIR
(INSIDE ELEVATION)

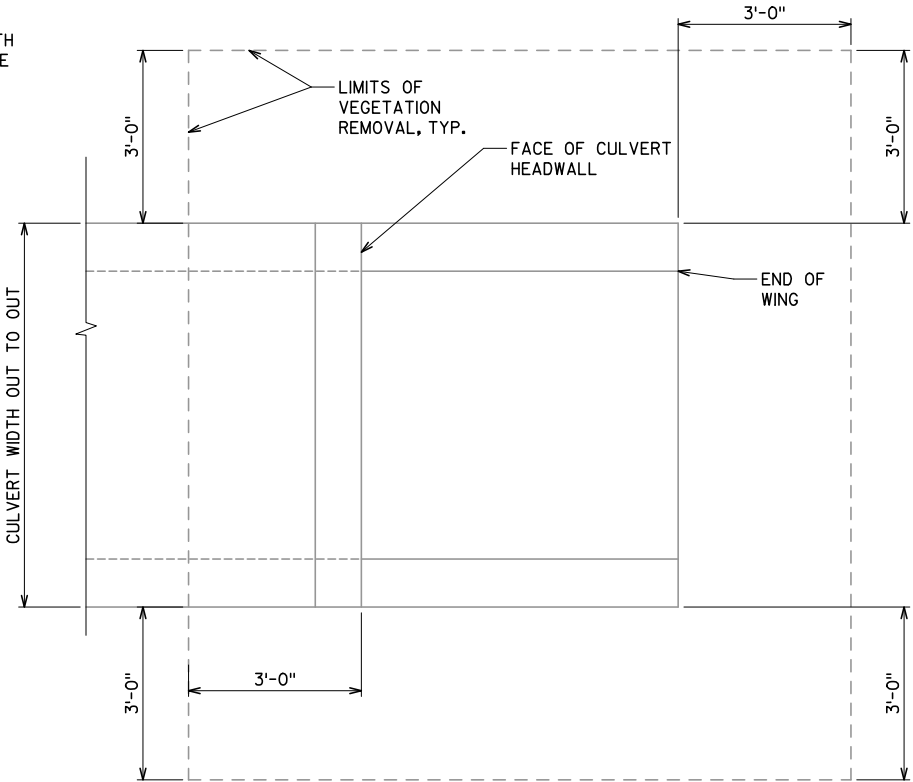


DETAIL 1 - BOX CULVERT JOINT REPAIR
(BOTTOM SLAB)

FILL ANY EXISTING VOID OUTSIDE THE CULVERT WITH CLOSED CELL EXPANDING FOAM. AT THE CULVERT FLOOR SLAB, THIS VOLUME MAY BE FILLED WITH CEMENT GROUT.



DETAIL 2 - BOX CULVERT JOINT REPAIR DETAIL
(WALLS AND TOP SLAB)



PLAN- BOX CULVERT VEGETATION REMOVAL LIMITS
(VEGETATION REMOVAL REQUIRED AT UPSTREAM AND DOWNSTREAM ENDS OF CULVERT)

TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|-------------|------------------------------------|------|-------|
| SPV.0105.04 | BOX CULVERT JOINT REPAIR C-22-1430 | LS | 1 |
| SPV.0105.07 | VEGETATION REMOVAL C-22-1430 | LS | 1 |
| | | | |
| | | | |

ALL ITEMS CATEGORY 0050

| | | | |
|--|------|--------------|-----------------|
| | | | |
| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE C-22-1430 | | | |
| DRAWN BY | | BDT | PLANS CK'D. DMC |
| BOX CULVERT JOINT REPAIR | | SHEET 2 OF 2 | |

PLAN
(SINGLE CELL BOX CULVERT)

Dimensions and Stationing:

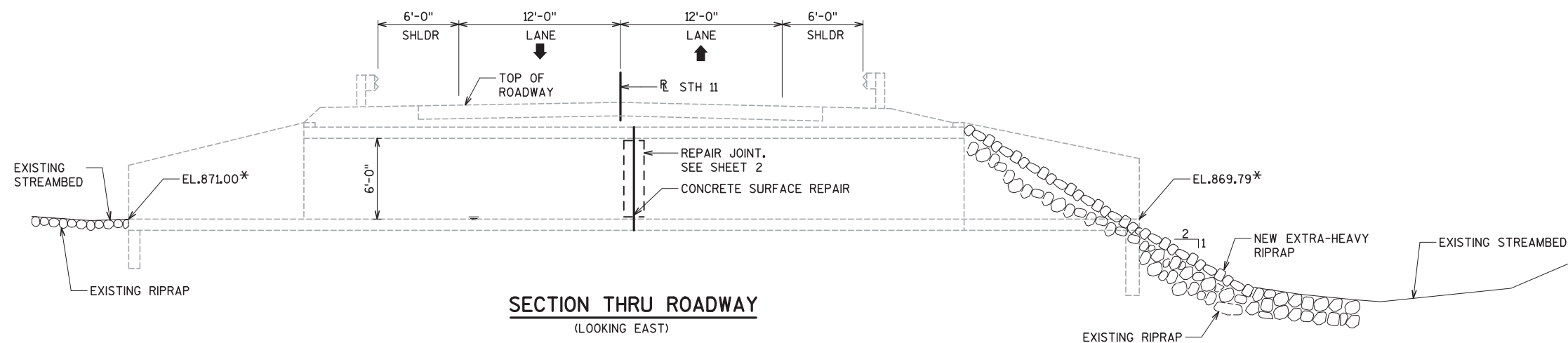
- Left wing width: 13'-0"
- Right wing width: 13'-0"
- Right wing width: 16'±
- Left wing width: 4'-0"
- Structure width: 49'-0"
- Left wing length: 23'-6"±
- Right wing length: 25'-6"±
- Station: STA 463+75.70
- Structure ID: C-22-1431
- Repair joint location: REPAIR JOINT. SEE SHEET 2
- Structure centerline: CL STRUCTURE C-22-1431
- Structure ahead: STA AHEAD
- Structure behind: STH 11

Notes:

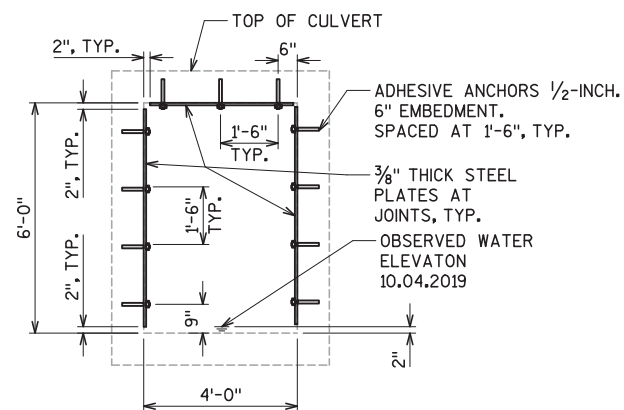
- REMOVE VEGETATION AROUND THE WINGS AND HEADWALL, TYP.
- NEW EXTRA-HEAVY RIPRAP
- Flow direction: FLOW

Other labels: 1, 2, 3, 4, R/W

(SINGLE CELL BOX CULVERT)



(LOOKING EAST)



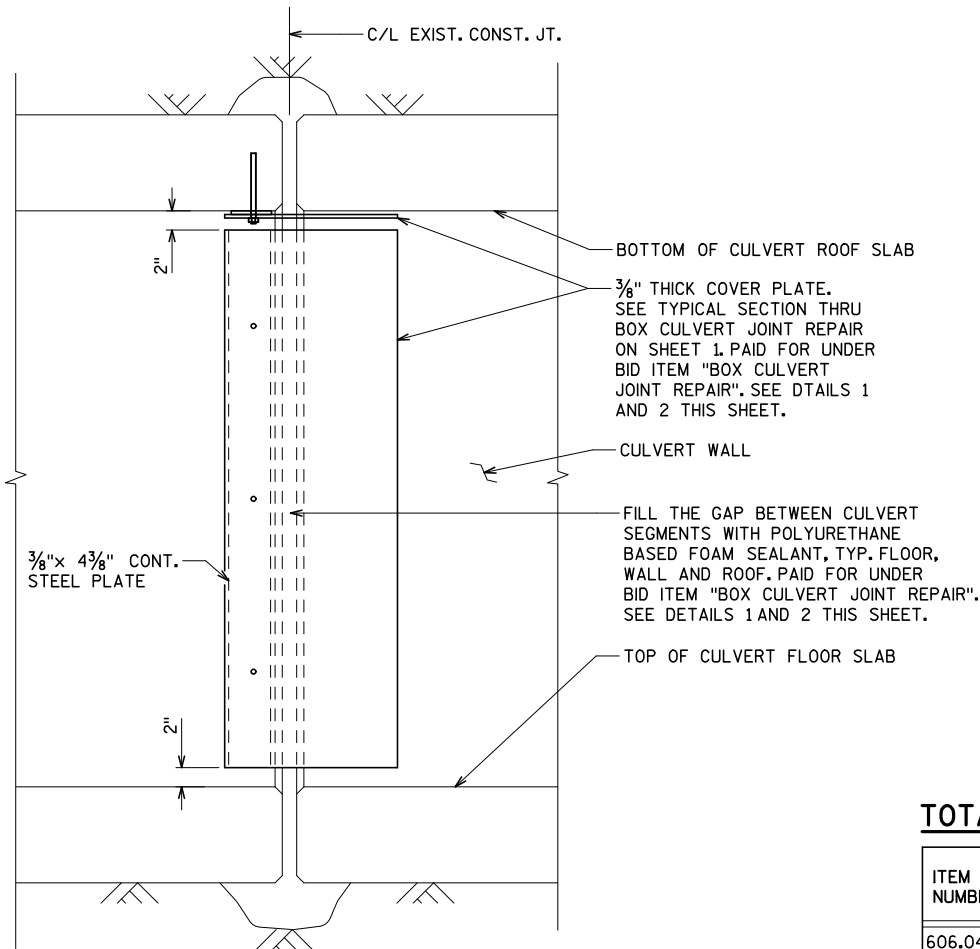
(LOOKING NORTH)

1. GENERAL PLAN AND ELEVATION
2. BOX CULVERT JOINT REPAIR

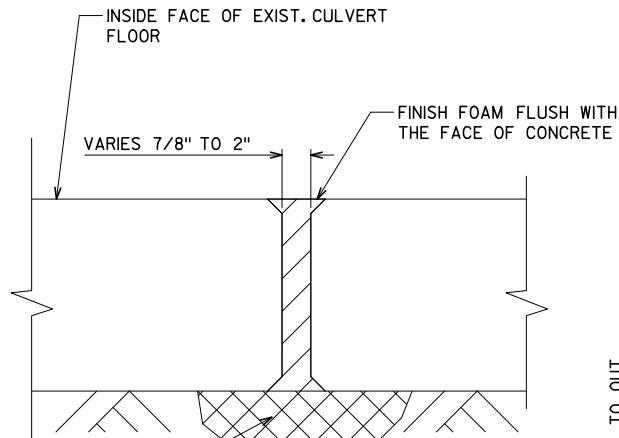
| | | | |
|---|---|---|--------------|
| | | | |
| NO. | DATE | REVISION | BY |
|  | | BLOOM
COMPANIES, LLC
<i>Infrastructure Innovation and Ingenuity</i> | |
| 10501 W. Research Drive | | • Milwaukee, WI 53226 | |
| Phone: (414) 771-3390 | | Fax: (414) 771-4490 | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED |  | | 02/17/21 |
| CHIEF STRUCTURES DESIGN ENGINEER | | DATE | |
| STRUCTURE C-22-1431 | | | |
| STH 11 OVER DRAINAGE WAY | | | |
| COUNTY | GRANT | TOWN: | HAZEL GREEN |
| DESIGN SPEC. | | | |
| REHABILITATION N/A | | | |
| DESIGNED BY | DESIGN CK'D. | DRAWN BY | PLANS CK'D. |
| BDT | YNN | TAL | DMC |
| GENERAL PLAN AND ELEVATION | | | SHEET 1 OF 2 |

CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599

FILE NAME: X:\BML-3658 STH 1145 Design\04.Structures\Bridges\current plans\C-22-1431\02.C-22-1431.dgn
DATE: 9/14/2020 2:06:51 PM
PEN TABLE: V8-STRUCTURAL.REV.TEL
Plotted by: bthengon



BOX CULVERT JOINT REPAIR
(INSIDE ELEVATION)

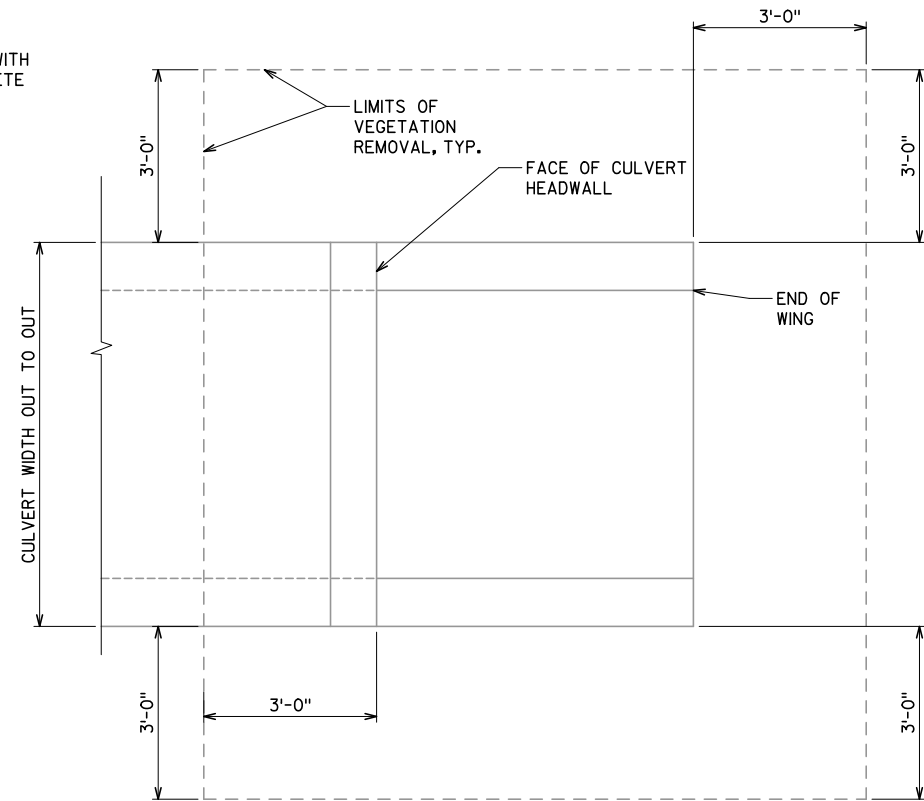


DETAIL 1 - BOX CULVERT JOINT REPAIR
(BOTTOM SLAB)

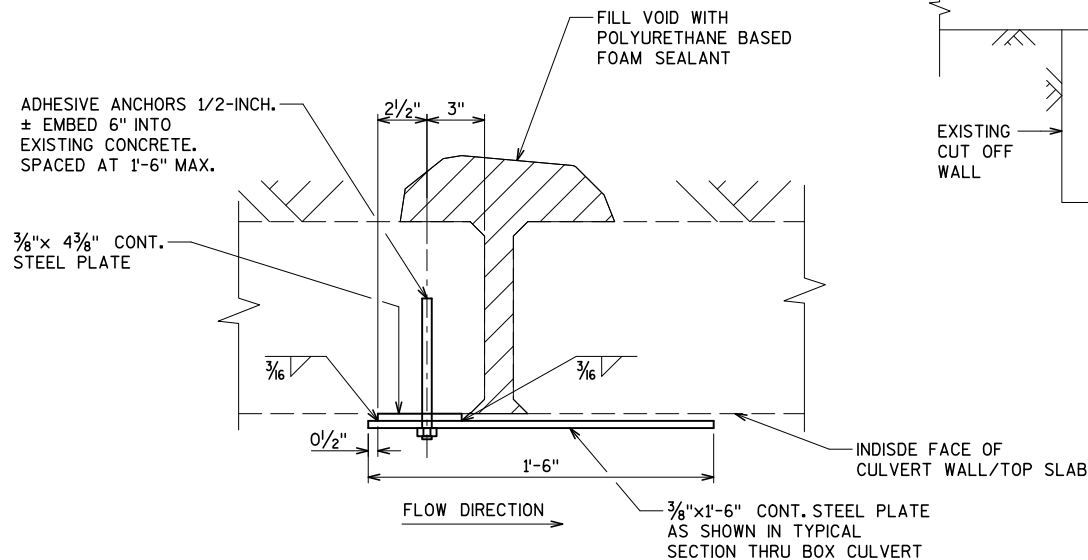
TOTAL ESTIMATED QUANTITIES

| ITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|-------------|------------------------------------|------|-------|
| 606.0400 | RIPRAP EXTRA-HEAVY | CY | 44 |
| 645.0120 | GEOTEXTILE TYPE HR | SY | 77 |
| SPV.0105.05 | BOX CULVERT JOINT REPAIR C-22-1431 | LS | 1 |
| SPV.0105.08 | VEGETATION REMOVAL C-22-1431 | LS | 1 |

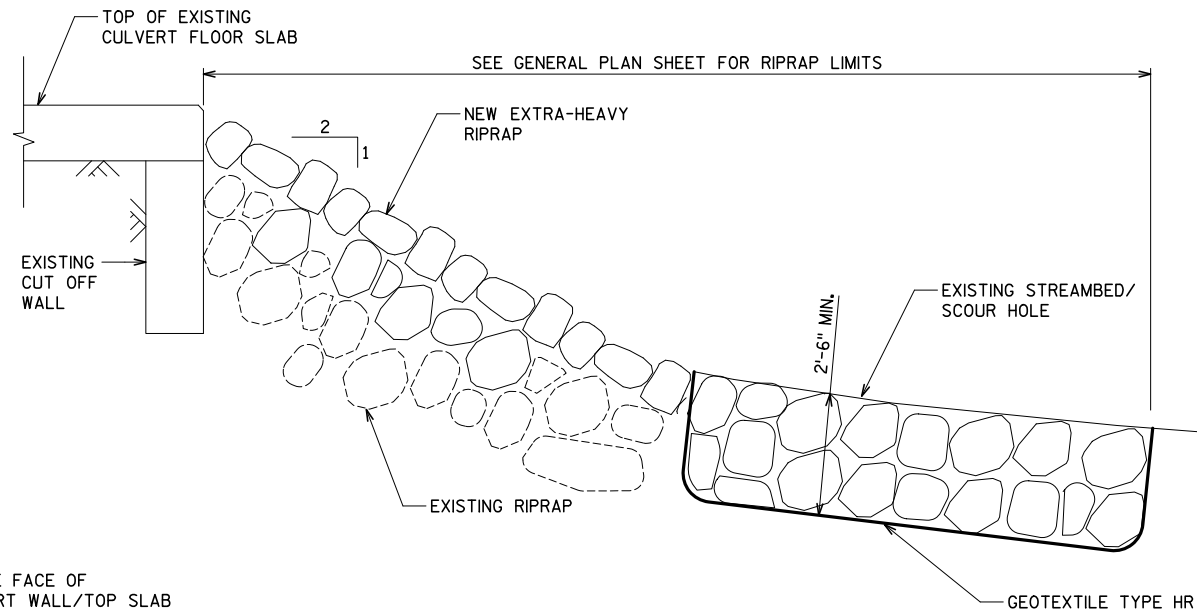
ALL ITEMS ARE CATEGORY 0060



PLAN- BOX CULVERT VEGETATION REMOVAL LIMITS
(VEGETATION REMOVAL REQUIRED AT UPSTREAM AND DOWNSTREAM ENDS OF CULVERT)



DETAIL 2 - BOX CULVERT JOINT REPAIR DETAIL
(WALLS AND TOP SLAB)



RIPRAP PLACEMENT AT OUTLET END

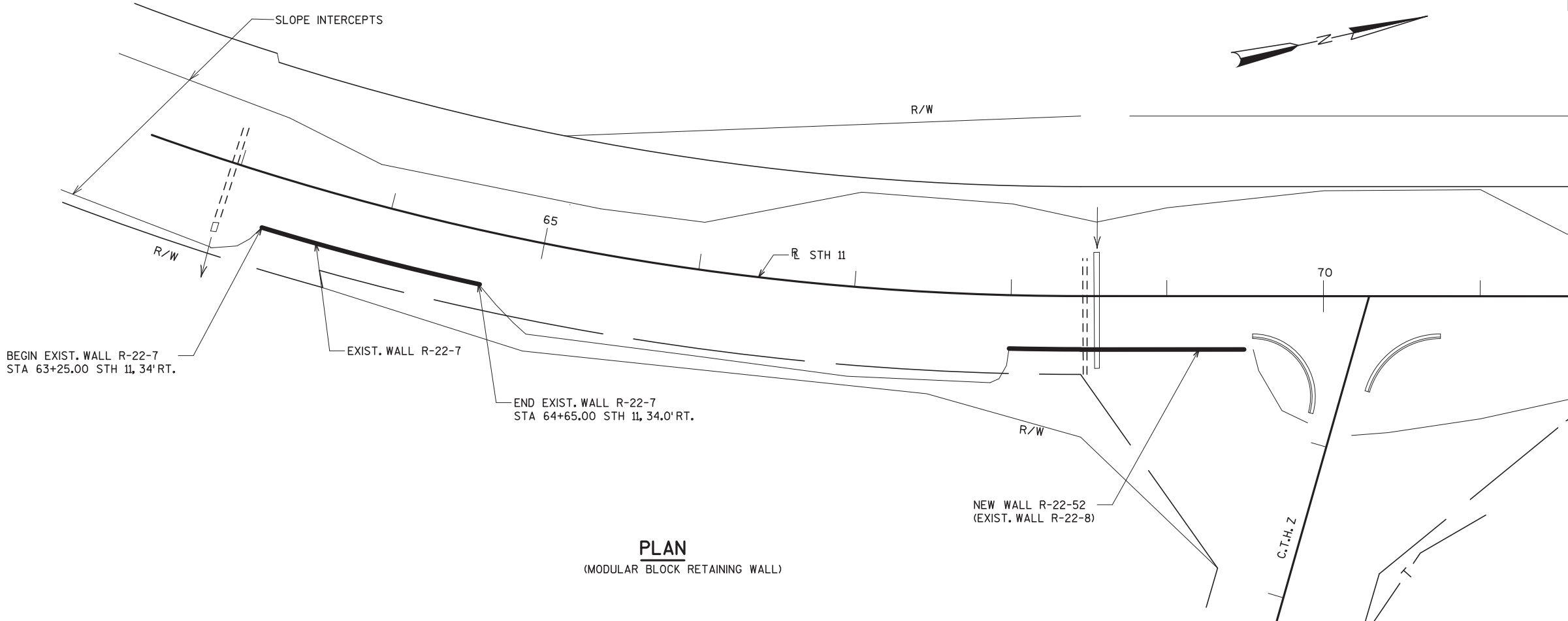
| NO. | DATE | REVISION | BY |
|--|------|--------------|-----------------|
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE C-22-1431 | | | |
| DRAWN BY | | TAL | PLANS CK'D. DMC |
| BOX CULVERT JOINT REPAIR | | SHEET 2 OF 2 | |

DESIGN DATA

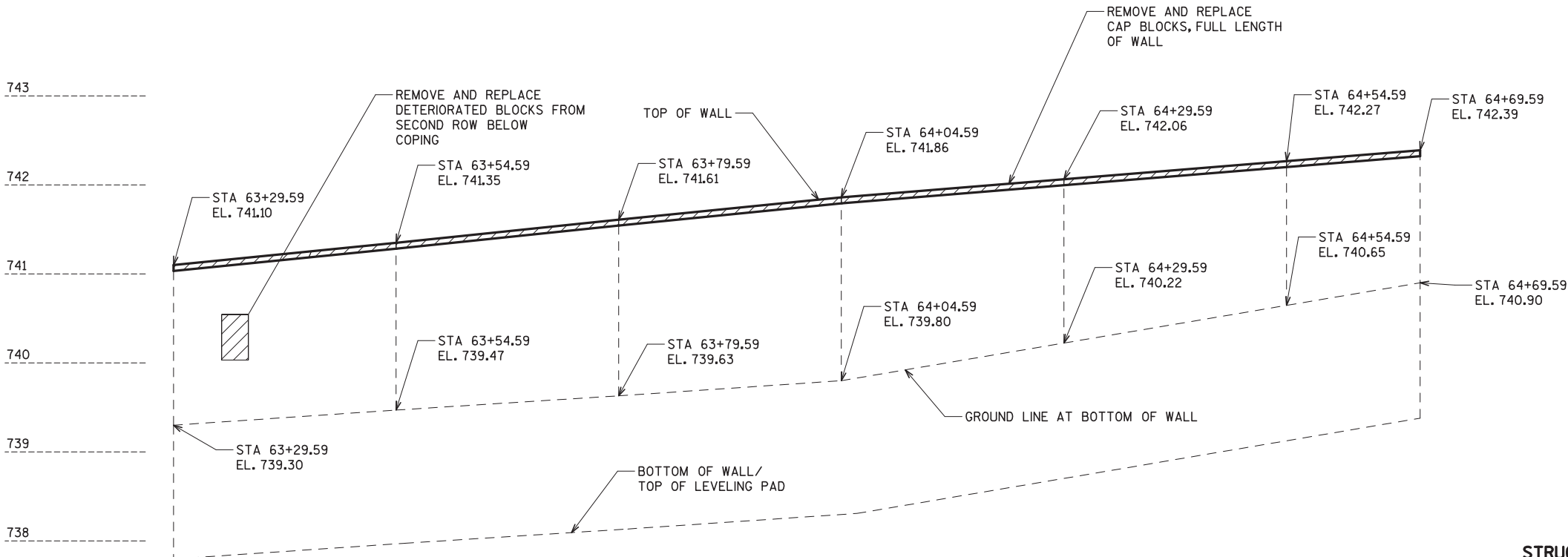
MATERIAL PROPERTIES:
MODULAR CONCRETE BLOCKS:
DRY CAST..f'c = 5,000 psi
WET CAST..f'c = 4,000 psi

LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. TYPICAL SECTION AND GENERAL NOTES



PLAN
(MODULAR BLOCK RETAINING WALL)



ELEVATION
(LOOKING AT FRONT FACE OF WALL)

STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

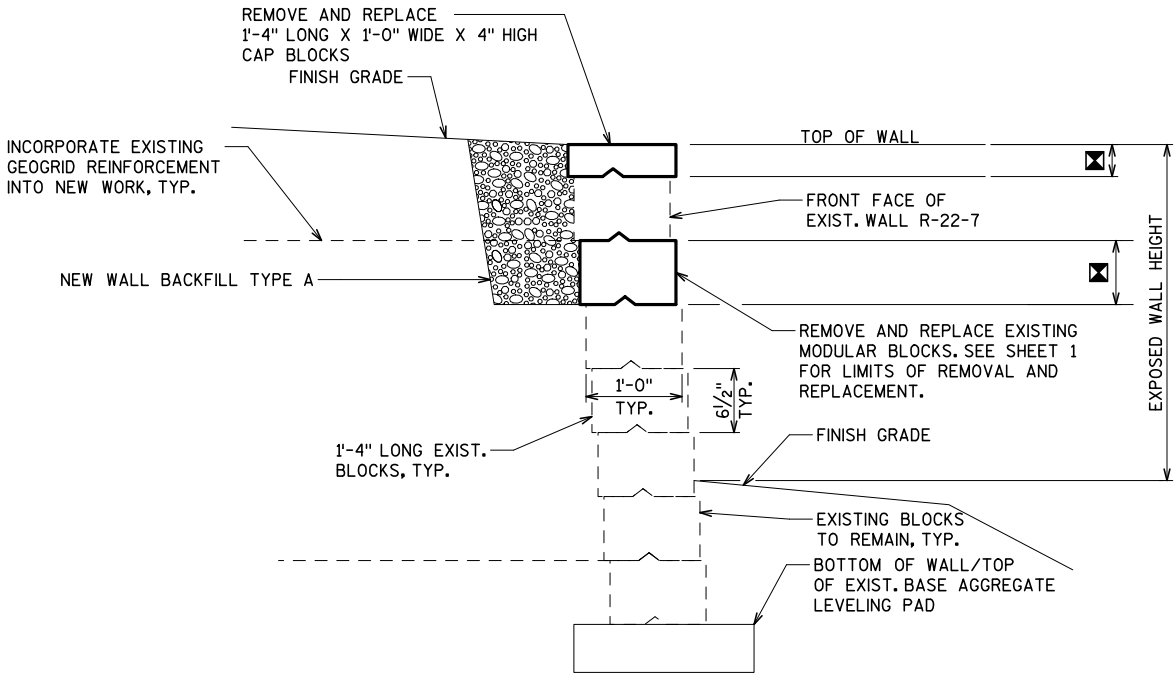
CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599

| NO. | DATE | REVISION | BY |
|--|---|-----------------|--------------|
| <div>BLOOM
COMPANIES, LLC
<i>Infrastructure Innovation and Ingenuity</i>
10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490</div> | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED |  | SDR | 03/25/21 |
| CHIEF STRUCTURES DESIGN ENGINEER DATE | | | |
| STRUCTURE R-22-7 | | | |
| RETAINING WALL E OF STH 11 / S OF CTH Z | | | |
| COUNTY | GRANT | TOWN: | JAMESTOWN |
| DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS | | | |
| DESIGNED
BY | BDT | DESIGN
CK'D. | YNN |
| DRAWN
BY | TAL | PLANS
CK'D. | DMC |
| GENERAL PLAN
AND ELEVATION | | | SHEET 1 OF 2 |

FILE NAME: X:\BM\3658 STH 1145 Design\04.Structures.Bridges\cds\current plans\R-22-7\402_R-22-7.typ section.dgn
DATE: 2/1/2021 9:31:35 AM Plotted by: bthengon PEN TABLE: V8-STRUCTURAL-REV.TBL

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- ALL STATIONS AND ELEVATIONS ARE IN FEET.
- COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), GRANT COUNTY.
- ALL DIMENSIONS ARE ALONG THE FRONT FACE OF MODULAR BLOCK WALL, UNLESS OTHERWISE SHOWN.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL CONSTRUCTION PLANS.
- PROVIDE COMPLETE SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- THE PLAN QUANTITY FOR THE ITEM "MODULAR BLOCK WALL REPAIR" IS BASED ON THE ACTUAL AREA OF REPLACEMENT BLOCKS, AS MEASURED ON THE FRONT ELEVATION OF THE WALL.
- PLANS, ELEVATIONS, AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE EXISTING WALL SYSTEM. MODULAR BLOCK SYSTEM SELECTED FOR REPLACEMENT SHALL BE DIMENSIONALLY COMPATIBLE WITH THE EXISTING WALL SYSTEM.
- AT THE BACKFACE OF MODULAR BLOCK WALL, BACKFILL ALL EXCAVATED VOLUME WITH WALL BACKFILL TYPE A.
- WALL BACKFILL TYPE A, SHALL COMPLY WITH THE REQUIREMENTS FOR COARSE AGGREGATS SIZE NO.1 PER STANDARD SPEC 501.2.5.4.
- COST OF WALL BACKFILL TYPE A IS INCLUDED IN THE COST OF BID ITEM "MODULAR BLOCK WALL REPAIR".
- COLOR AND SURFACE TEXTURE OF REPLACEMENT BLOCKS SHALL MATCH THAT OF EXISTING BLOCKS TO REMAIN. ANY EXCAVATION REQUIRED TO REPLACE EXISTING MODULAR BLOCKS IS INCIDENTAL THE BID ITEM "MODULAR BLOCK WALL REPAIR".
- UNDER THE BID ITEM "VEGETATION REMOVAL R-22-7", REMOVE ALL VEGETATION WITHIN 5 FEET FROM THE FRONT FACE OF WALL FOR THE ENTIRE LENGTH OF WALL.
- MODULAR BLOCK WALL REPAIR TO BE PERFORMED IN AREAS DESIGNATED BY THE FIELD ENGINEER.
- REMOVE AND REINSTALL EXISTING BLOCKS AS NECESSARY TO FACILITATE REMOVAL AND REPLACEMENT OF DETERIORATED BLOCKS. COST INCLUDED IN THE BID ITEM " MODULAR BLOCK WALL REPAIR".
- BLOCKS SALVAGED DURING THE DEMOLITION OF THE EXISTING ADJACENT RETAINING WALL R-22-8 MAY BE REUSED AS REPALCEMENT BLOCKS FOR R-22-7, WITH THE APPROVAL OF THE FIELD ENGINEER. THE SALVAGED BLOCKS SHALL BE IN SOUND CONDITION AND SHALL BE FROM THE LOWEST BURIED ROW OF WALL R-22-8.



SECTION THRU RETAINING WALL
(LOOKING NORTH)

☒ PAY LIMIT FOR "MODULAR BLOCK WALL REPAIR"

TOTAL ESTIMATED QUANTITIES

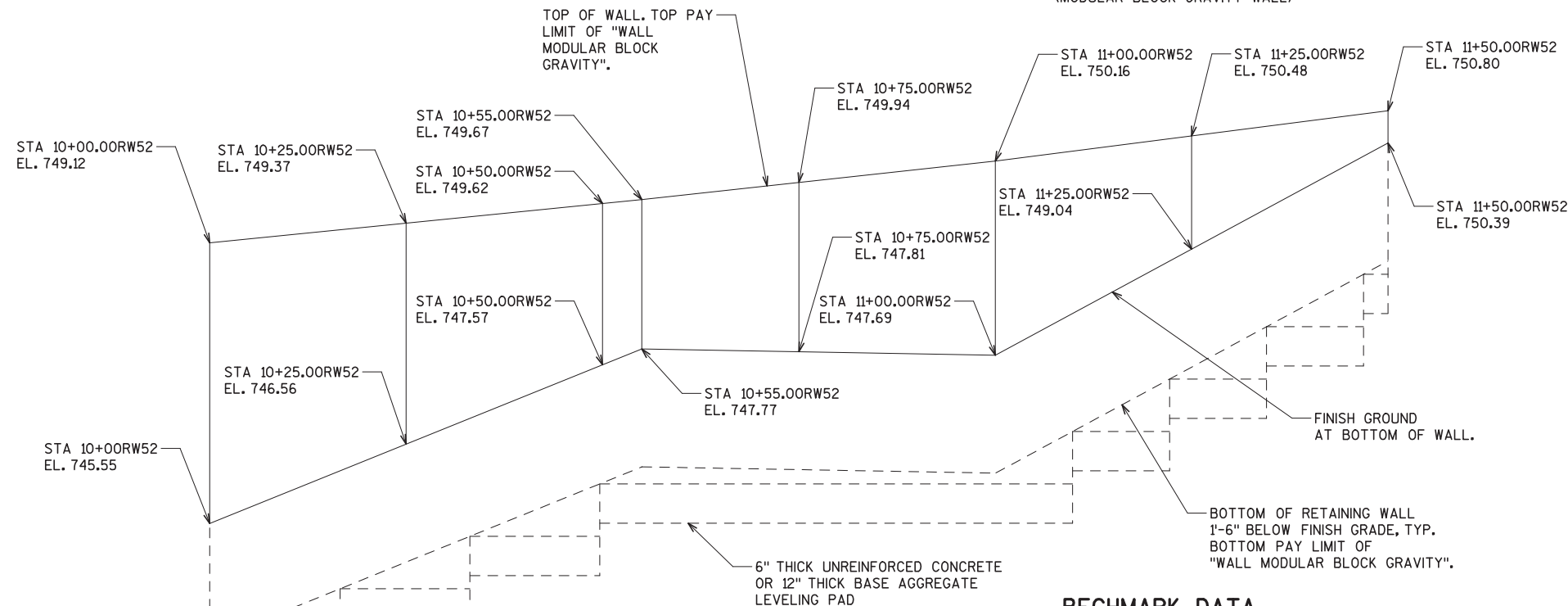
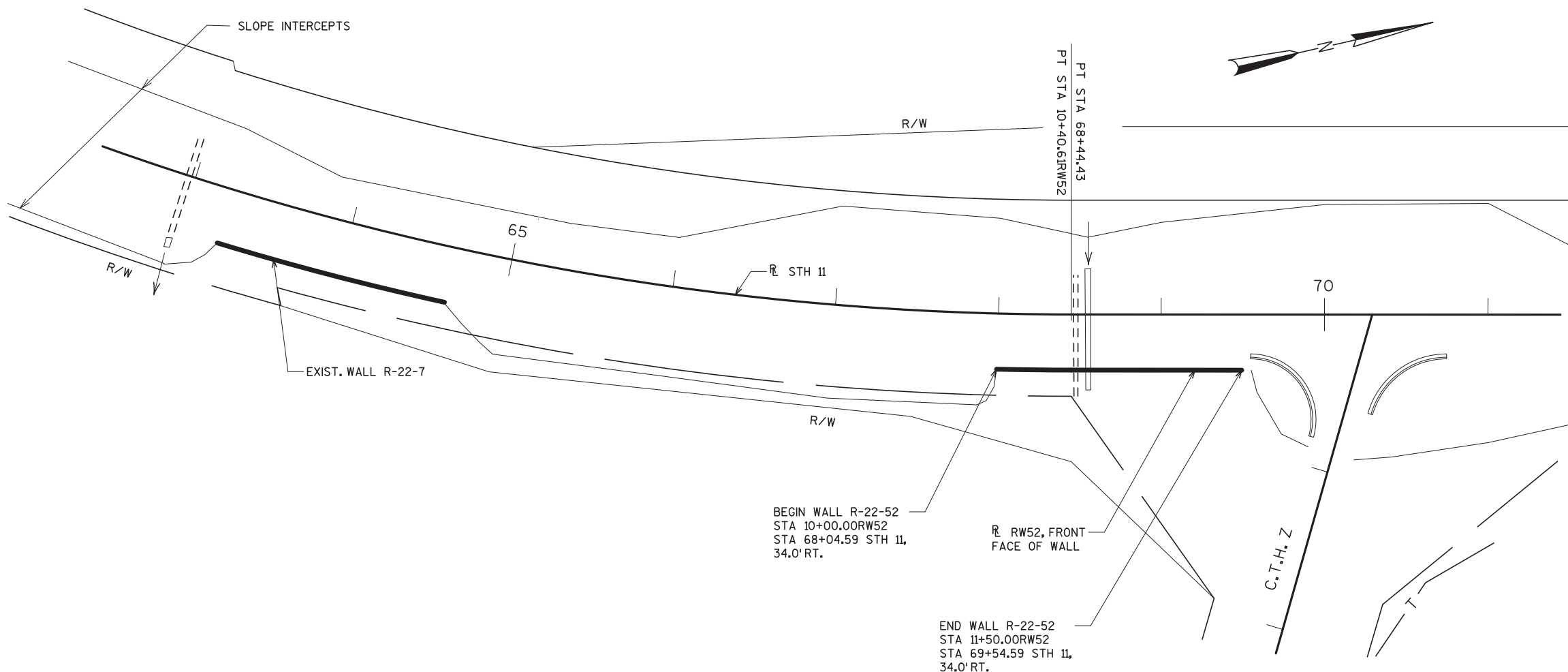
| ITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|-------------|---------------------------|------|-------|
| SPV.0105.09 | VEGETATION REMOVAL R-22-7 | LS | 1 |
| SPV.0165.01 | MODULAR BLOCK WALL REPAIR | SF | 52 |

ALL ITEMS ARE CATEGORY 0070

| | | | |
|--|------|--------------|-----------------|
| | | | |
| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE R-22-7 | | | |
| DRAWN BY | | BDT | PLANS CK'D. DMC |
| TYPICAL SECTION
AND
GENERAL NOTES | | SHEET 2 OF 2 | |
| | | | |

FILE NAME: X:\BIM-3658 STH 11\5.Design\04.Structures.Bridges\current plans\R-22-52\01R-22-52.GP&E.dgn
DATE: 2/1/2021 9:34:03 AM
Plotted by: bthengon
PEN TABLE: V8.STRUCTURAL_REV.TBL

8



BECHMARK DATA

| NO. | STATION | DESCRIPTION | ELEVATION |
|------|--------------------------|---|-----------|
| BM-1 | 69+88.16 STH 11, 80' RT. | WISDOT BENCHMARK DISK ON SW WINGWALL OF STRUCTURE B-22-74 | 751.26 |

CURVE DATA

STH 11

P.I. STA 62+59.78
Y = 404988.396
X = 853082.211
DELTA = 39°40'00"
D = 3°15'00"
T = 635.86'
L = 1220.51'
R = 1762.95'
PC STA = 56+23.92
PT STA = 68+44.43
SE = 5.1%

R-22-52

P.I. STA 10+20.31RW52
Y = 405585.52
X = 853235.52
DELTA = 1°17'42"
D = 3°11'20"
T = 20.31'
L = 40.61'
R = 1796.95'
PC STA = 10+00.00RW52
PT STA = 10+40.61RW52

STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
AARON BONK
(608) 261-0261

CONSULTANT CONTACT:
YAN NENAYDYKH
(414) 292-4599

STATE PROJECT NUMBER

1706-00-70

DESIGN DATA

MATERIAL PROPERTIES:
CONCRETE MASONRY...f'c = 4,000 psi
MODULAR CONCRETE BLOCKS:
DRY CAST..f'c = 5,000 psi
WET CAST..f'c = 4,000 psi
LIVE LOAD SURCHARGE: 100 PSF

LIST OF DRAWINGS

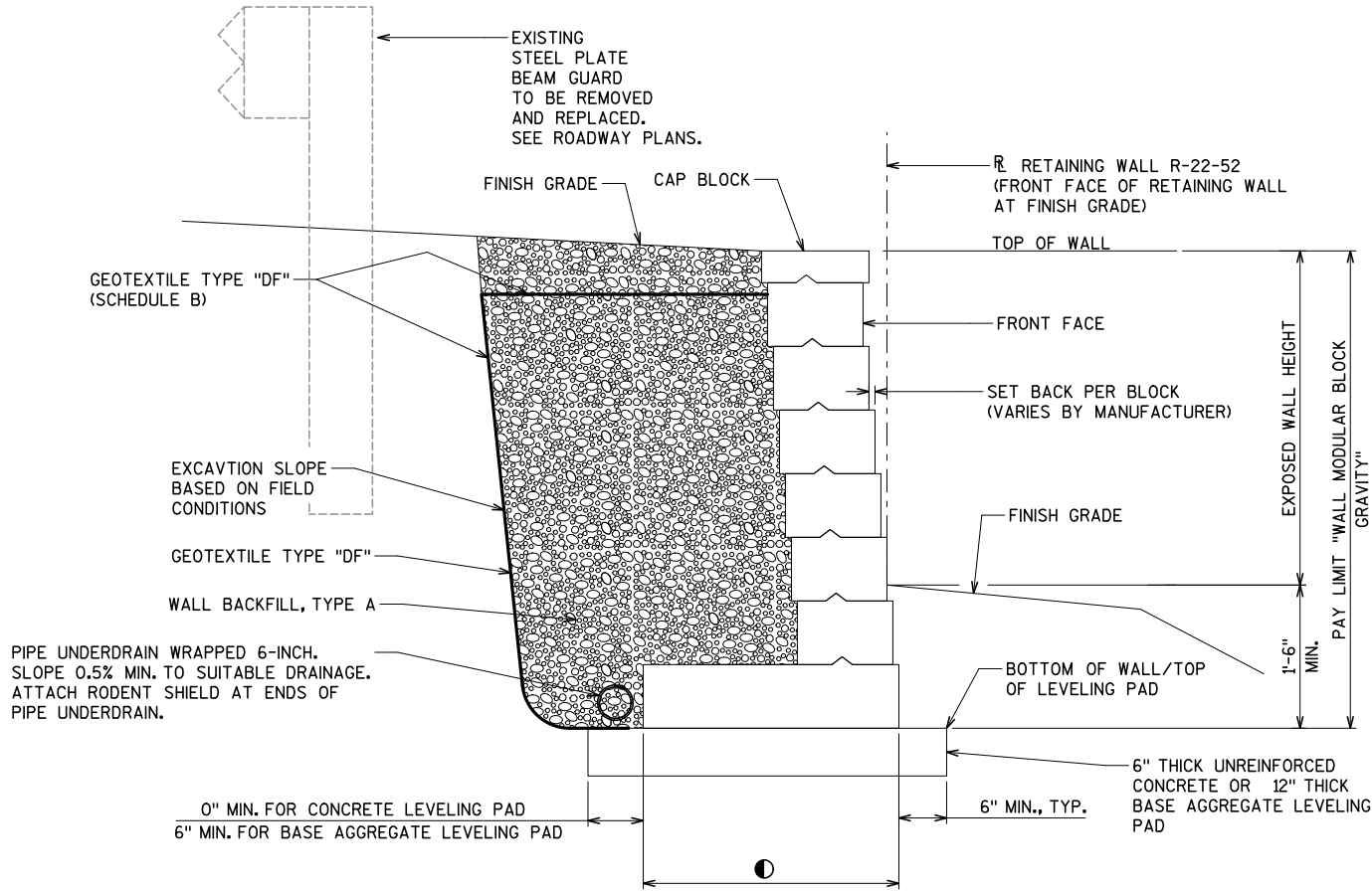
1. GENERAL PLAN AND ELEVATION
2. TYPICAL SECTION AND GENERAL NOTES
3. SUBSURFACE EXPLORATION



| | | | |
|--|---|--------------|-------------------------|
| NO. | DATE | REVISION | BY |
|  BLOOM COMPANIES, LLC
Infrastructure Innovation and Ingenuity
10501 W. Research Drive • Milwaukee, WI 53226
Phone: (414) 771-3390 Fax: (414) 771-4490 | | | |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED | 
CHIEF STRUCTURES DESIGN ENGINEER | | SDR
03/25/21
DATE |
| STRUCTURE R-22-52 | | | |
| RETAINING WALL E OF STH 11 / S OF CTH Z | | | |
| COUNTY | GRANT | TOWN: | JAMESTOWN |
| DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS | | | |
| DESIGNED BY | BDT | DESIGN CK'D. | YNN |
| DRAWN BY | TAL | PLANS CK'D. | DMC |
| GENERAL PLAN AND ELEVATION | | | SHEET 1 OF 3 |

8

FILE NAME: X:\BML-3658_STH_1145_Design\04_Structures\Bridges\cds\current\plans\R-22-52\02_R-22-52_Typ_section.dgn
DATE: 2/1/2021 9:34:44 AM
PEN TABLE: V8_STRUCTURAL_REV.TBL
Plotted by: bthengon



SECTION THRU RETAINING WALL
(LOOKING NORTH)

TOTAL ESTIMATED QUANTITIES

| IITEM NUMBER | BID ITEMS | UNIT | TOTAL |
|--------------|---|------|-------|
| 203.0200 | REMOVING OLD STRUCTURE STATION 68+75.00 | LS | 1 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | 160 |
| SPV.0105.10 | VEGETATION REMOVAL R-22-52 | LS | 1 |
| SPV.0165.02 | WALL MODULAR BLOCK GRAVITY R-22-52 | SF | 546 |

ALL ITEMS ARE CATEGORY 0080

SOIL PARAMETERS

| BORING | SOIL DESCRIPTION | UNIT WEIGHT (PCF) | FRICTION ANGLE (DEGREES) | COHESION (PSF) |
|----------------------------------|-------------------------|-------------------|--------------------------|----------------|
| NONE (GENERAL DESIGN PARAMETERS) | NEW BACKFILL | 130 | 28 | - |
| | EXISTING FILL MATERIAL | 130 | 28 | - |
| | SILTY SAND AND GRAVEL | 130 | 32 | - |
| | CLAYEY SAND WITH GRAVEL | 130 | 32 | - |

WALL EXTERNAL AND OVERALL STABILITY EVALUATION

| DIMENSIONS | EVALUATED LOCATIONS | | |
|-----------------------------------|---------------------|----------|--|
| WALL HEIGHT (FT) | 5.07 | 3.97 | |
| EXPOSED WALL HEIGHT (FT) | 3.57 | 2.47 | |
| STATION | 10+00RW8 | 11+00RW8 | |
| BORING USED | BOR-3 | BOR-3 | |
| WIDTH OF BOTTOM BLOCK | 3.33 | 2.75 | |
| CAPACITY TO DEMAND RATIO (CDR) | | | |
| SLIDING (CDR>1.0) | 1.04 | 1.02 | |
| ECCENTRICITY (CDR>1.0) | 1.04 | 1.05 | |
| OVERALL STABILITY (CDR>1.0) | 1.1 | ▽ | |
| BEARING RESISTANCE (CDR>1.0) | 1.26 | 1.62 | |
| FACTORED BEARING RESISTANCE (KSF) | 2.00 | 2.00 | |

- EXTERNAL AND OVERALL STABILITY NUMBERS ARE BASED ON THE BOTTOM BLOCK WIDTH SHOWN IN THE TABLE. THE WALL MANUFACTURER SHALL RECALCULATE THE STABILITY NUMBERS, IF THE WALL BOTTOM WIDTH IS LESS THAN THE WIDTH SHOWN IN THE TABLE. WIDTHS OF BLOCKS ABOVE THE BOTTOM BLOCK SHALL BE DETERMINED BY THE WALL MANUFACTURER. INTERNAL STABILITY SHALL BE EVALUATED AT EACH BLOCK LEVEL, AS REQUIRED BY THE SPECIAL PROVISIONS.

OVERALL STABILITY WAS EVALUATED FOR THE MAXIMUM WALL HEIGHT ONLY.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ELEVATIONS ARE IN FEET.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), GRANT COUNTY.

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF MODULAR BLOCK GRAVITY WALL, UNLESS OTHERWISE SHOWN.

PROVIDE COMPLETE DESIGN, PLANS, DETAILS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS IS INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK GRAVITY".

THE COST OF FURNISHING AND PLACING THE LEVELING PAD UNDER THE MODULAR BLOCK GRAVITY WALL IS INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK GRAVITY".

WALL BACKFILL TYPE A, SHALL COMPLY WITH THE REQUIREMENTS FOR COARSE AGGREGATS SIZE NO.1PER STANDARD SPEC 501.2.5.4.

COST OF EXCAVATION, LEVELING PAD, BACKFILL TYPE A, AND GEOTEXTILE TYPE "DF" (SCHEDULE B) IS INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK GRAVITY".

THE PLAN QUANTITY FOR THE ITEM "WALL MODULAR BLOCK GRAVITY IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF LEVELING PAD TO THE TOP OF WALL AS SHOWN ON THE PLANS.

PLANS, ELEVATIONS, AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

DESIGN THE RETAINING WALL FOR HORIZONTAL FINISHED GRADE BEHIND THE WALL AND A LIVE LOAD SURCHARGE OF 100 PSF.

IGNORE PASSIVE PRESSURE ON THE FRONT FACE OF THE WALL IN DESIGN CALCULATIONS.

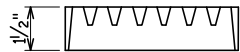
UNDER THE BID ITEM " VEGETATION REMOVAL R-22-52", REMOVE ALL VEGETATION WITHIN 5 FEET FROM THE FRONT FACE OF THE WALL.

- ☆ DIMENSIONS ARE APPROXIMATE, THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

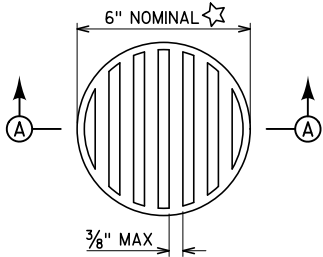
ORIENT SHIELD SO SLOTS ARE VERTICAL.

COST OF RODENT SHIELD, PIPE COUPLING, AND SCREWS TO BE INCLUDED IN THE BID ITEM " PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



SECTION A-A



RODENT SHIELD

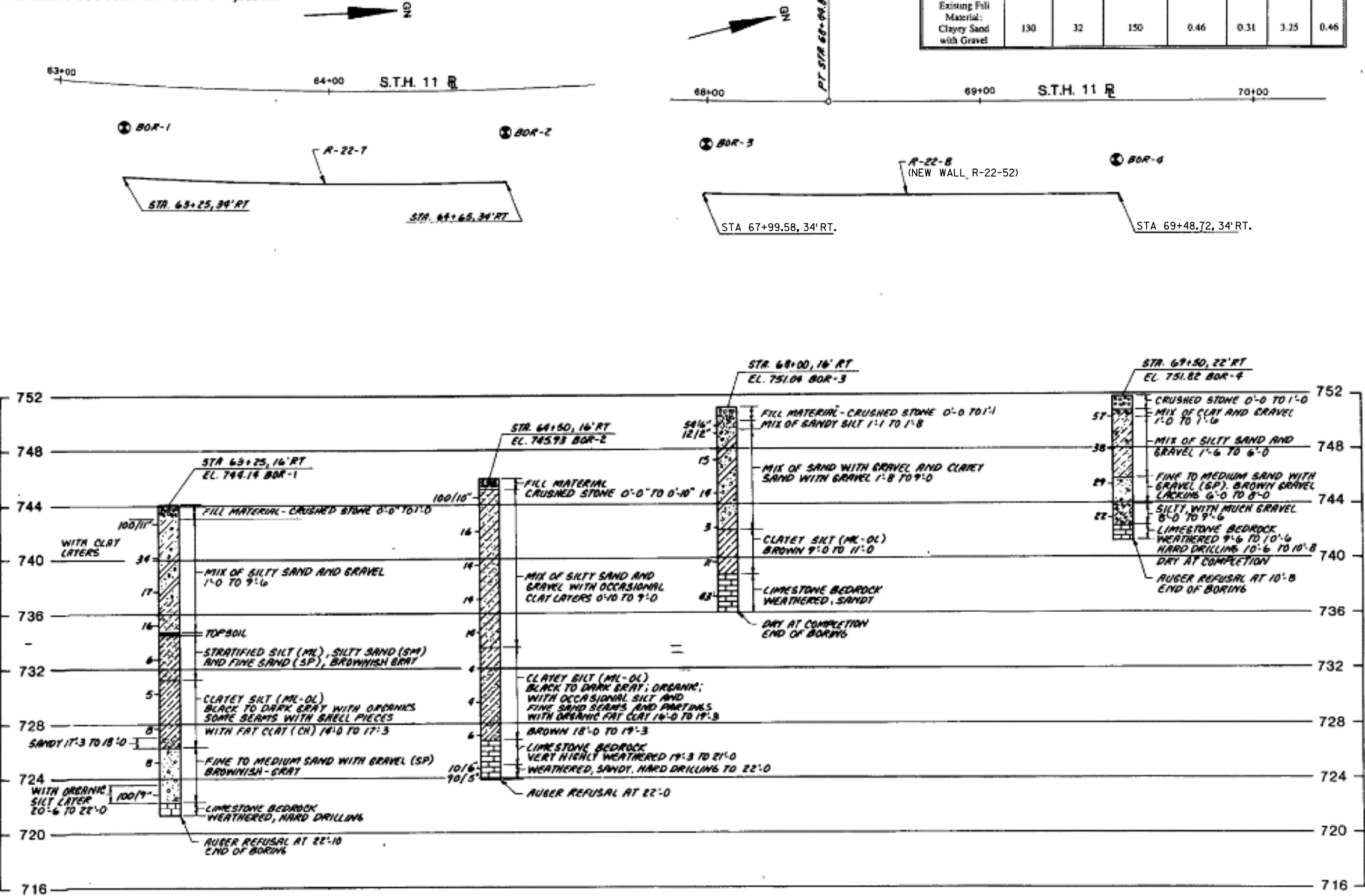
| NO. | DATE | REVISION | BY |
|--|------|----------|-----------------|
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE R-22-52 | | | |
| DRAWN BY | | TAL | PLANS CK'D. DMC |
| TYPICAL SECTION AND GENERAL NOTES | | | SHEET 2 OF 3 |

| Retained Backfill Material | Compacted Unit Weight (lb/ft ³) | Friction Angle, ϕ Degrees | Cohesion, c (lb/ft ²) | Active EPC K_a | Passive EPC K_p | At-Rest EPC K_r |
|----------------------------|---|--------------------------------|-------------------------------------|------------------|-------------------|-------------------|
| Sand and Gravel | 125 | 30 | 0 | 0.33 | 3.00 | 0.50 |
| Silty Sand and Gravel | 130 | 32 | 250 | 0.31 | 3.25 | 0.47 |
| Clayey Sand with Gravel | 130 | 32 | 150 | 0.31 | 3.25 | 0.47 |

| Native Soil or Existing Fill Material | Soil Unit Weight (lb/ft ³) | Friction Angle, ϕ Degrees | Cohesion, c (lb/ft ²) | Coefficient of Friction $\tan \phi$ | Active EPC K_a | Passive EPC K_p | At-Rest EPC K_r |
|--|--|--------------------------------|-------------------------------------|-------------------------------------|------------------|-------------------|-------------------|
| Native Soil: Clayey Silts | 115 | 0 | 1,500 | 0 | 1.0 | 1.0 | 1.0 |
| Native Soil: Fine to Medium Sand with Gravel | 120 | 32 | 0 | 0.45 | 0.31 | 3.25 | 0.47 |

| Native Soil or Existing Fill Material | Soil Unit Weight (lb/ft ³) | Friction Angle, ϕ Degrees | Cohesion, c (lb/ft ²) | Coefficient of Friction $\tan \phi$ | Active EPC K_a | Passive EPC K_p | At-Rest EPC K_r |
|---|--|--------------------------------|-------------------------------------|-------------------------------------|------------------|-------------------|-------------------|
| Existing Fill Material: Sand and Gravel | 125 | 28 | 0 | 0.38 | 0.36 | 2.77 | 0.53 |
| Existing Fill Material: Silty Sand and Gravel | 130 | 32 | 250 | 0.46 | 0.31 | 3.25 | 0.46 |
| Existing Fill Material: Clayey Sand with Gravel | 130 | 32 | 150 | 0.46 | 0.31 | 3.25 | 0.46 |

ALLOWABLE SOIL BEARING PRESSURE = 1,500 P.S.F.



Abbreviations: F - Fine, M - Medium, C - Coarse; Ws - Weathered, Su - Sound

Material Symbols: Topsoil, Sand, Gravel, Silty Sand, Clay, Sandstone, Limestone, Impervious Rock

Legend of Probing: Probing No., Sta., Elevation, 95.6-95 Blows for 6' Penetration, Probing taken with a 350# wt. Falling 18" on a 2" O. D. Point., Refusal 95.6

Legend of Boring: Boring No., Sta., Elev., Unconfined Strength, Blows Per Ft. Using 140# Wt. Falling 30", Wash Sample, Shelby Tube, S T, Ground Water Elevation, No Ground Water Observed Above This Elevation

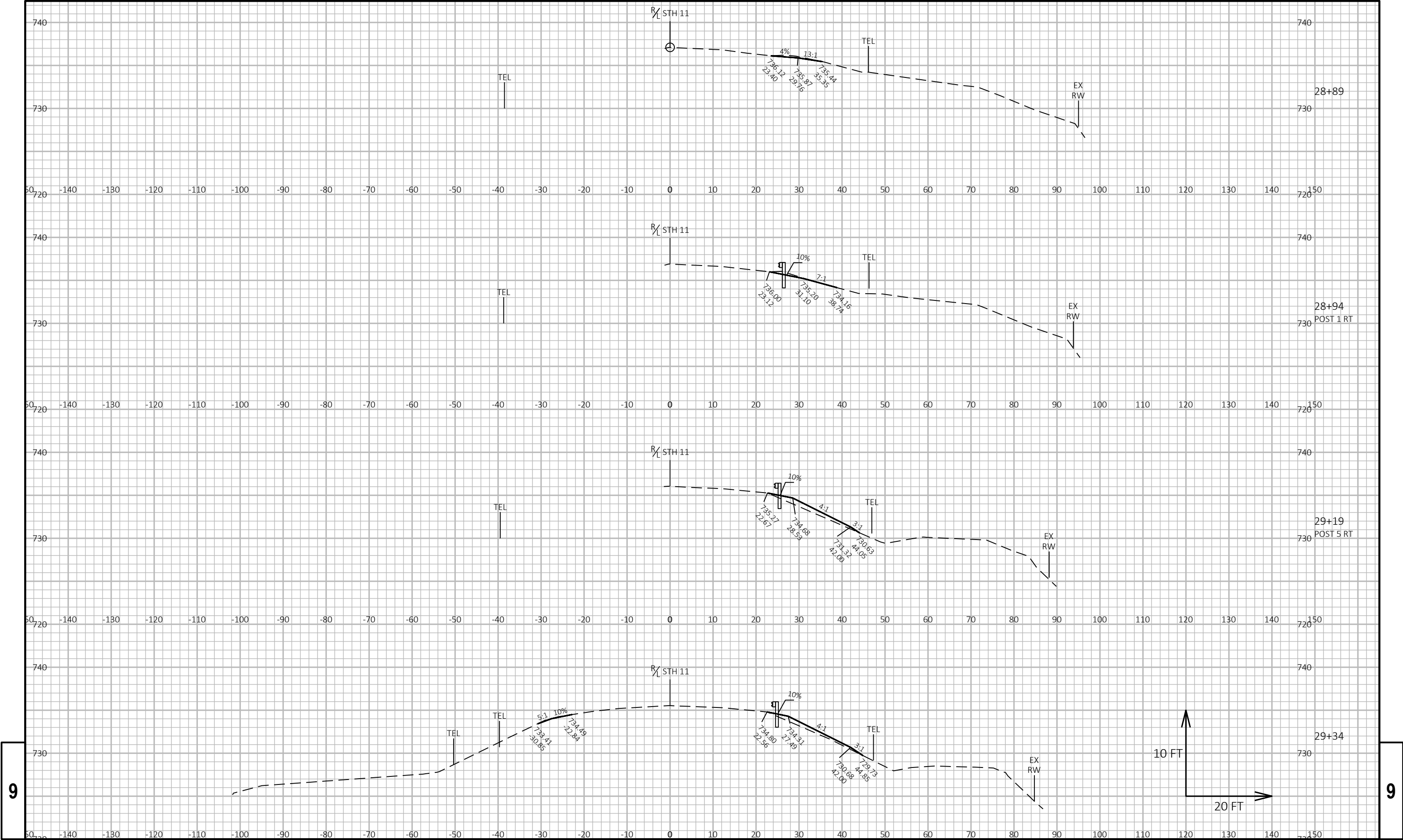
Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 2" O D x 14" I.D. split spoon sampler with a 140# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

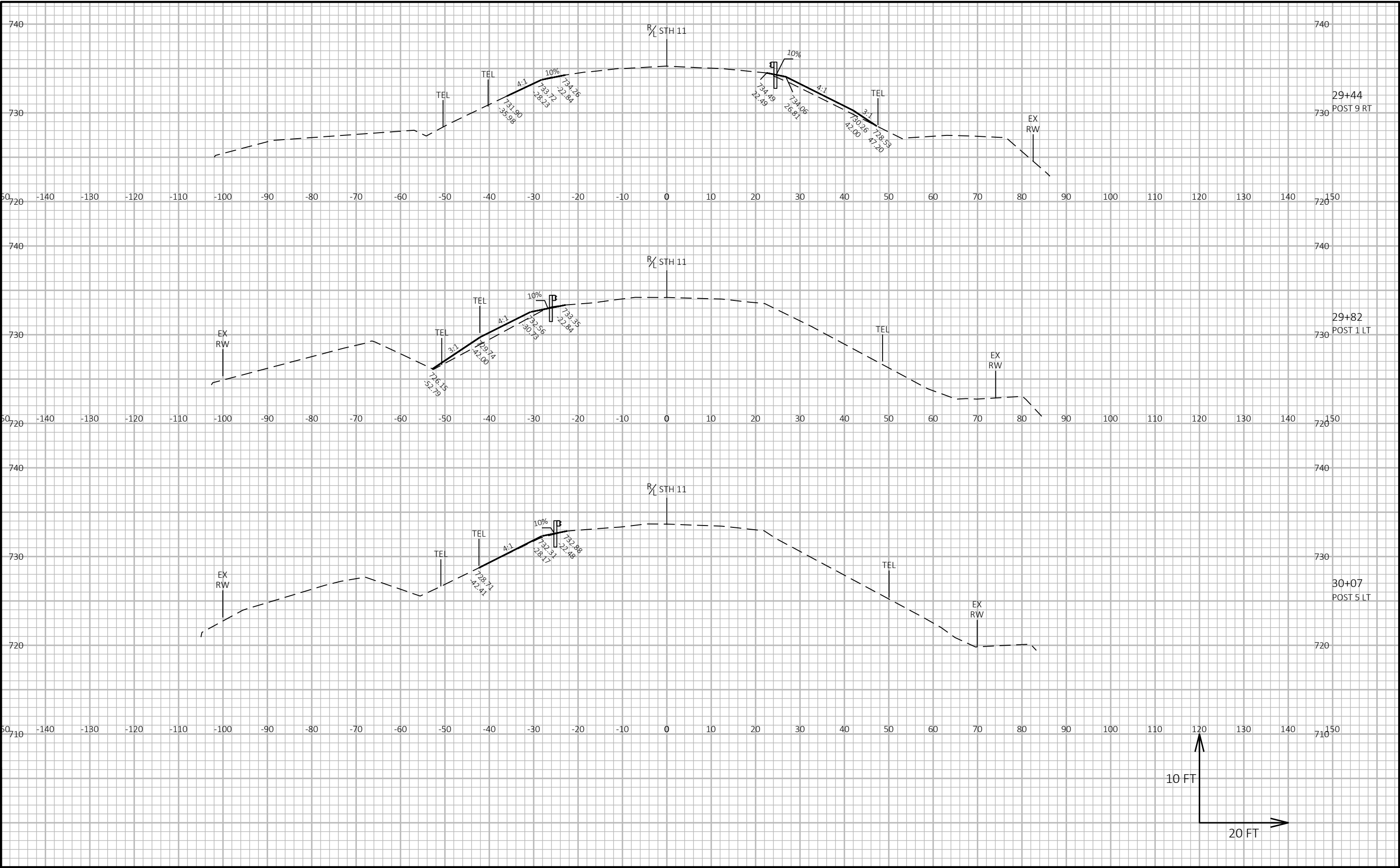
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

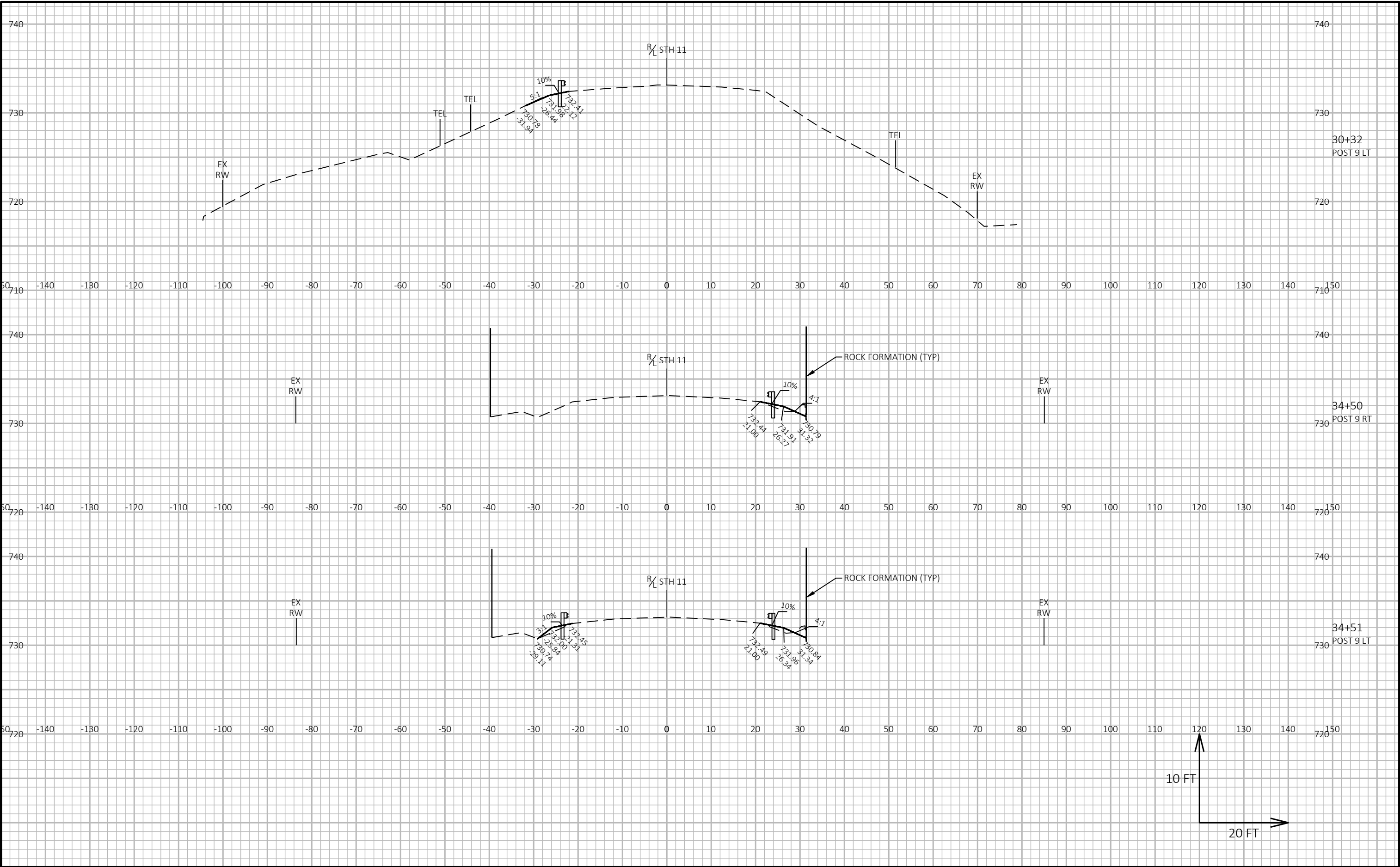
To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NOTE: INFORMATION CONTAINED ON THIS SHEET IS TAKEN FROM SUBSURFACE EXPLORATION SHEET FOR THE EXISTING WALL.

| NO. | DATE | REVISION | BY |
|--|------|--------------|-----------------|
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE R-22-52 | | | |
| DRAWN BY | | TAL | PLANS CK'D. BDT |
| SUBSURFACE EXPLORATION | | SHEET 3 OF 3 | |



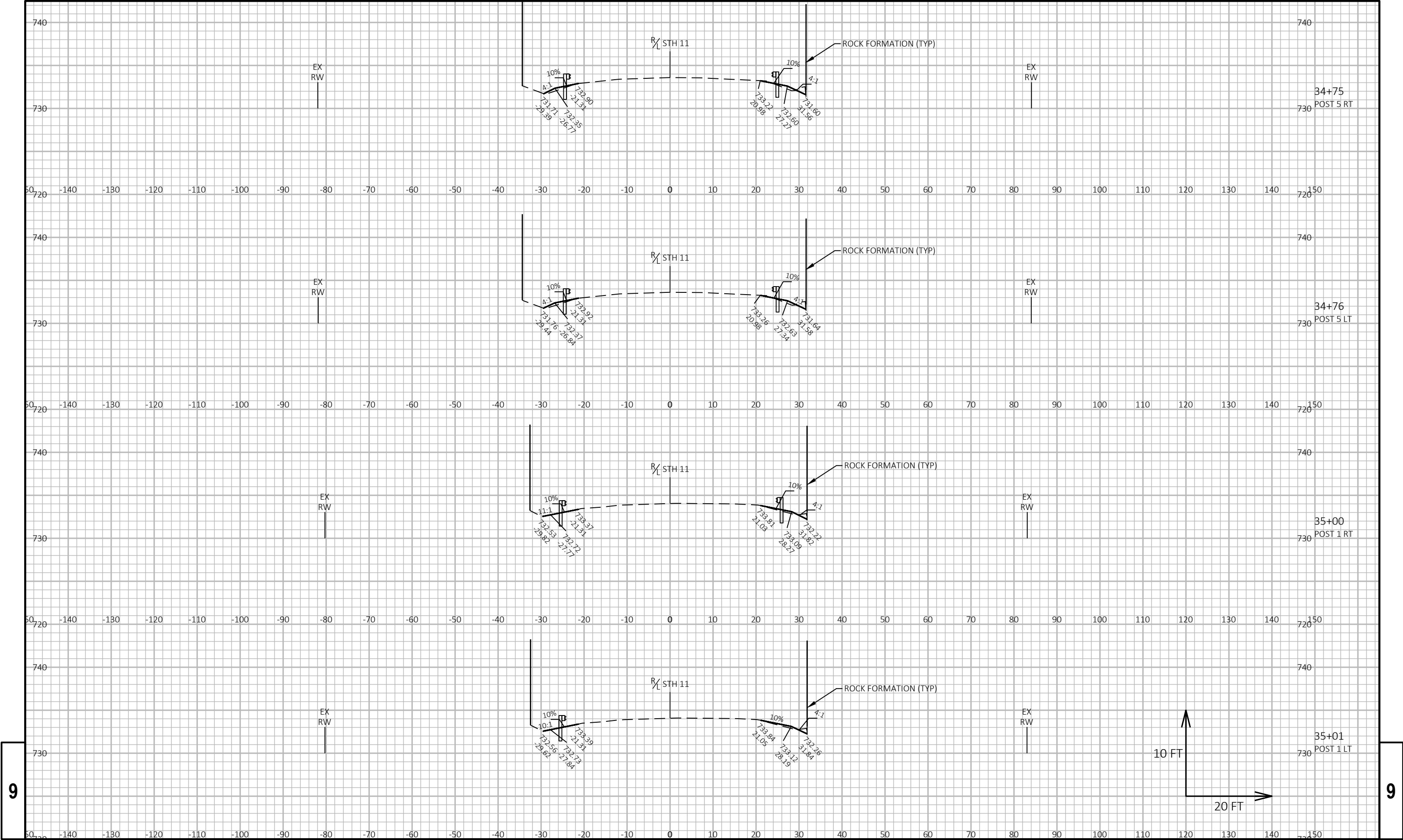


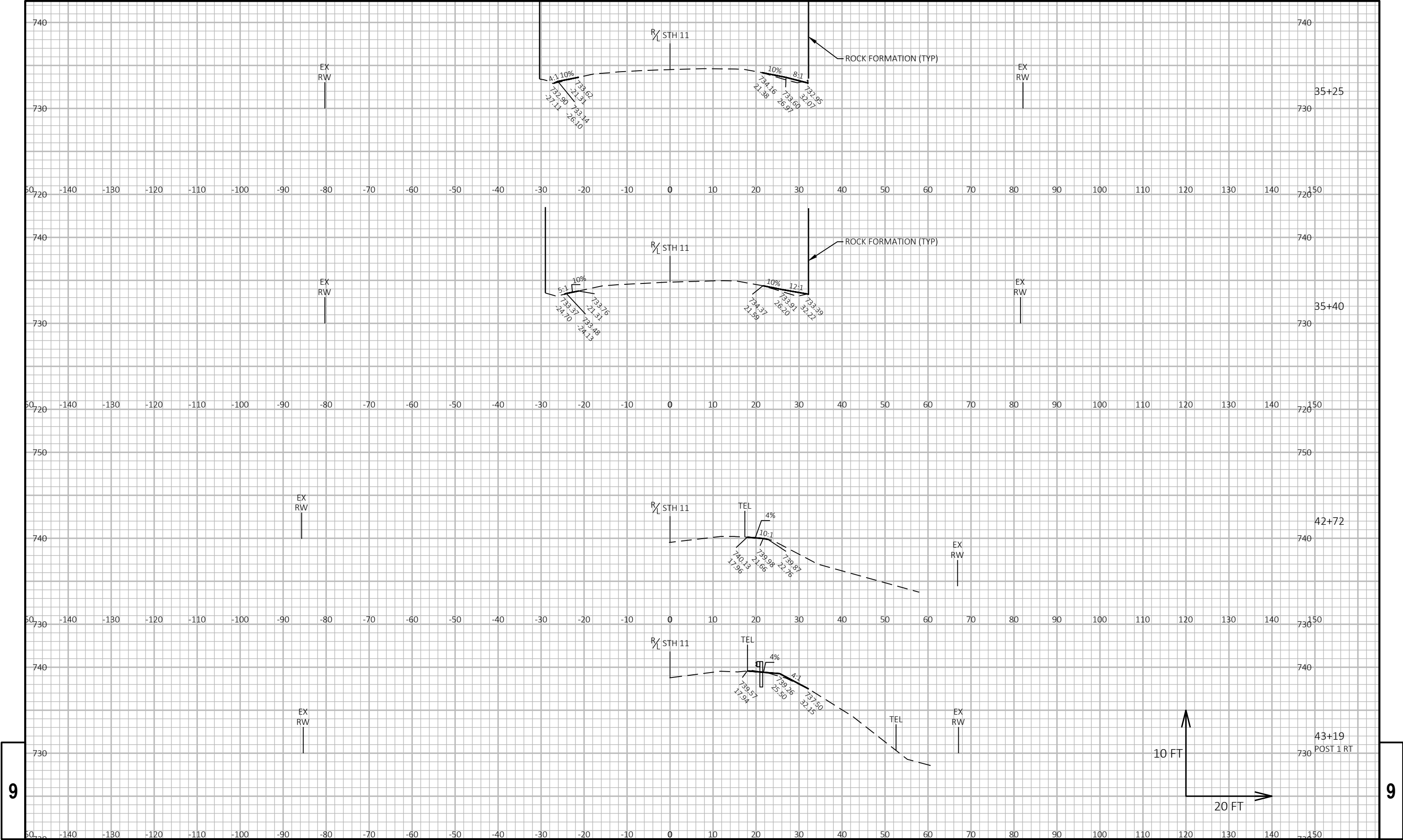


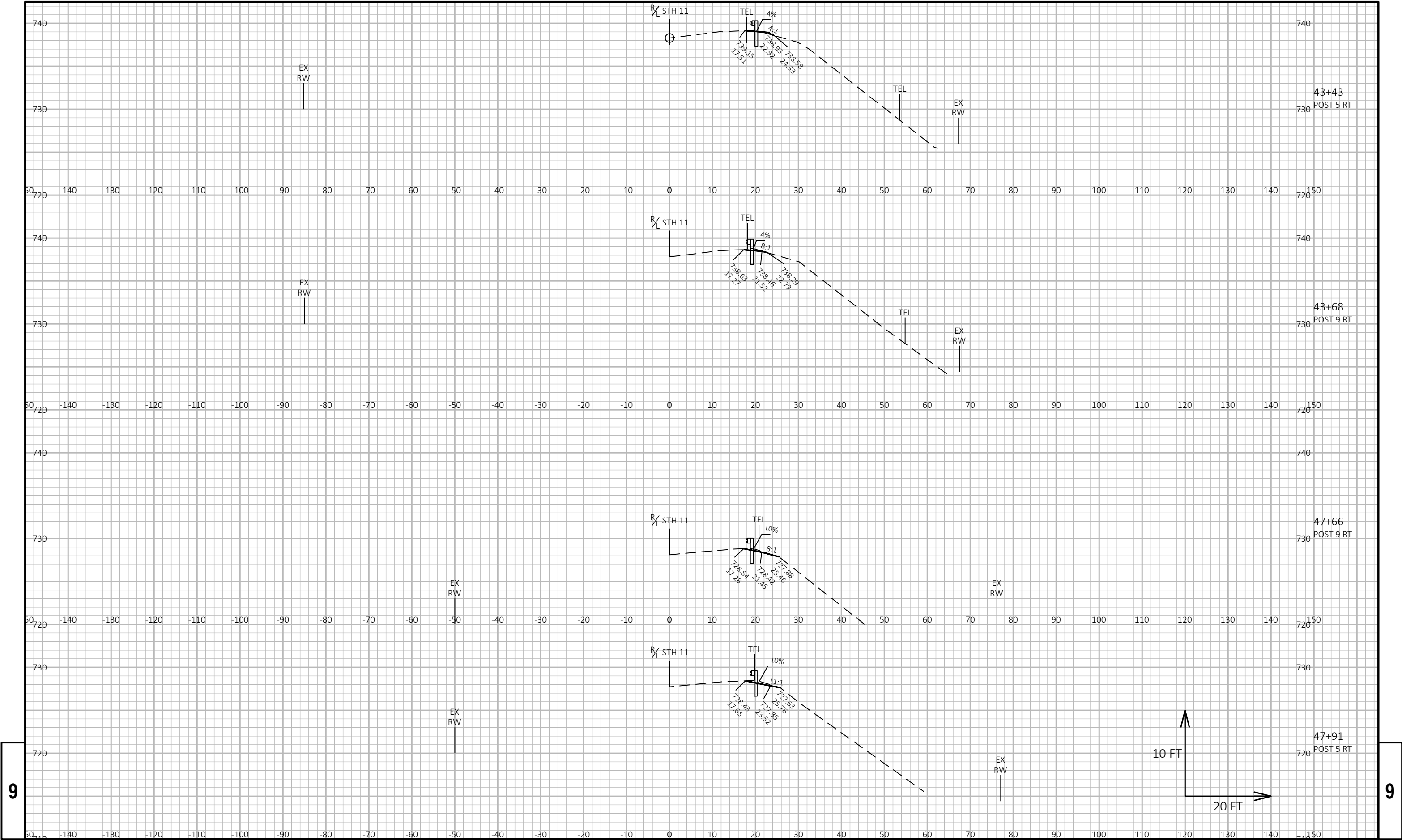
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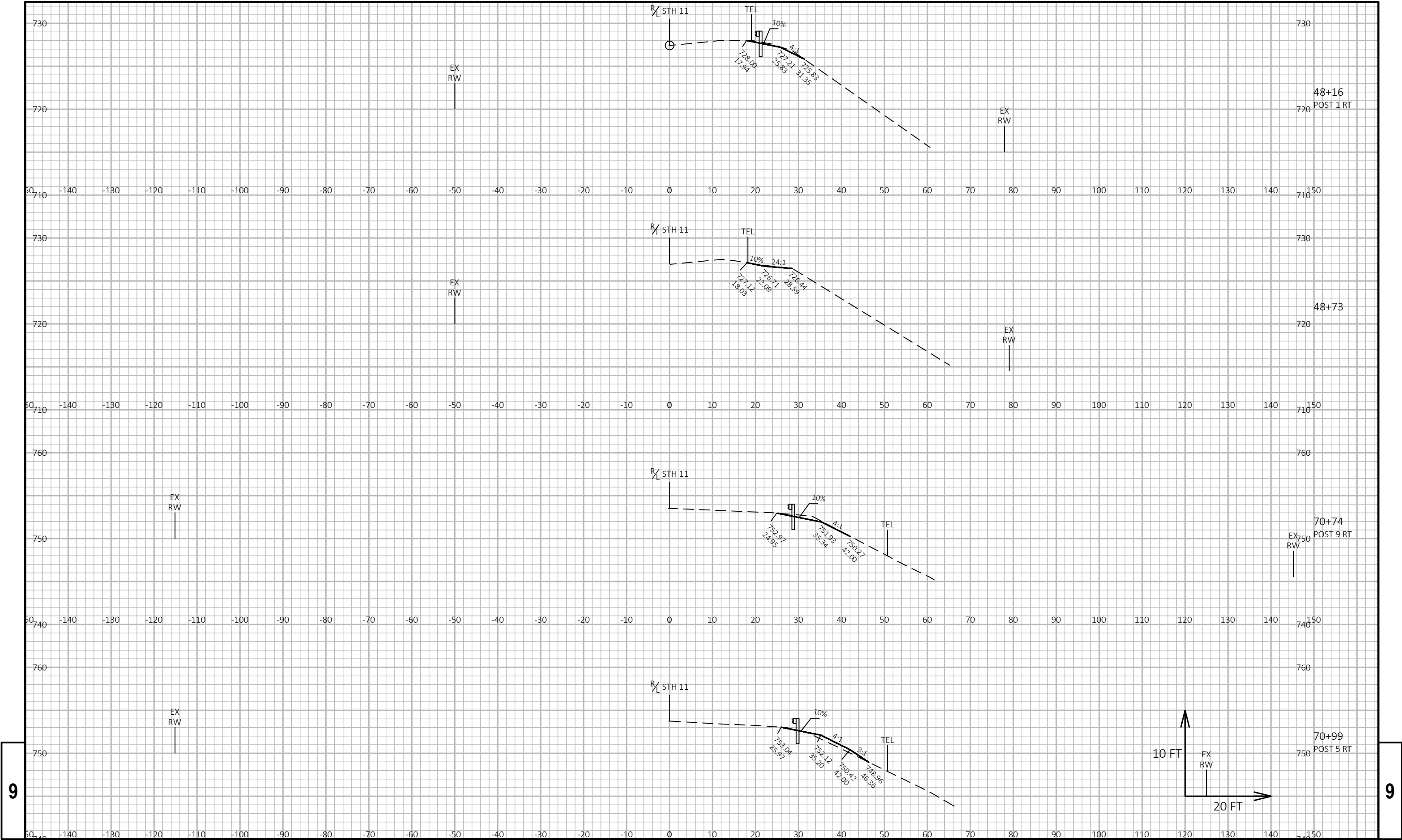
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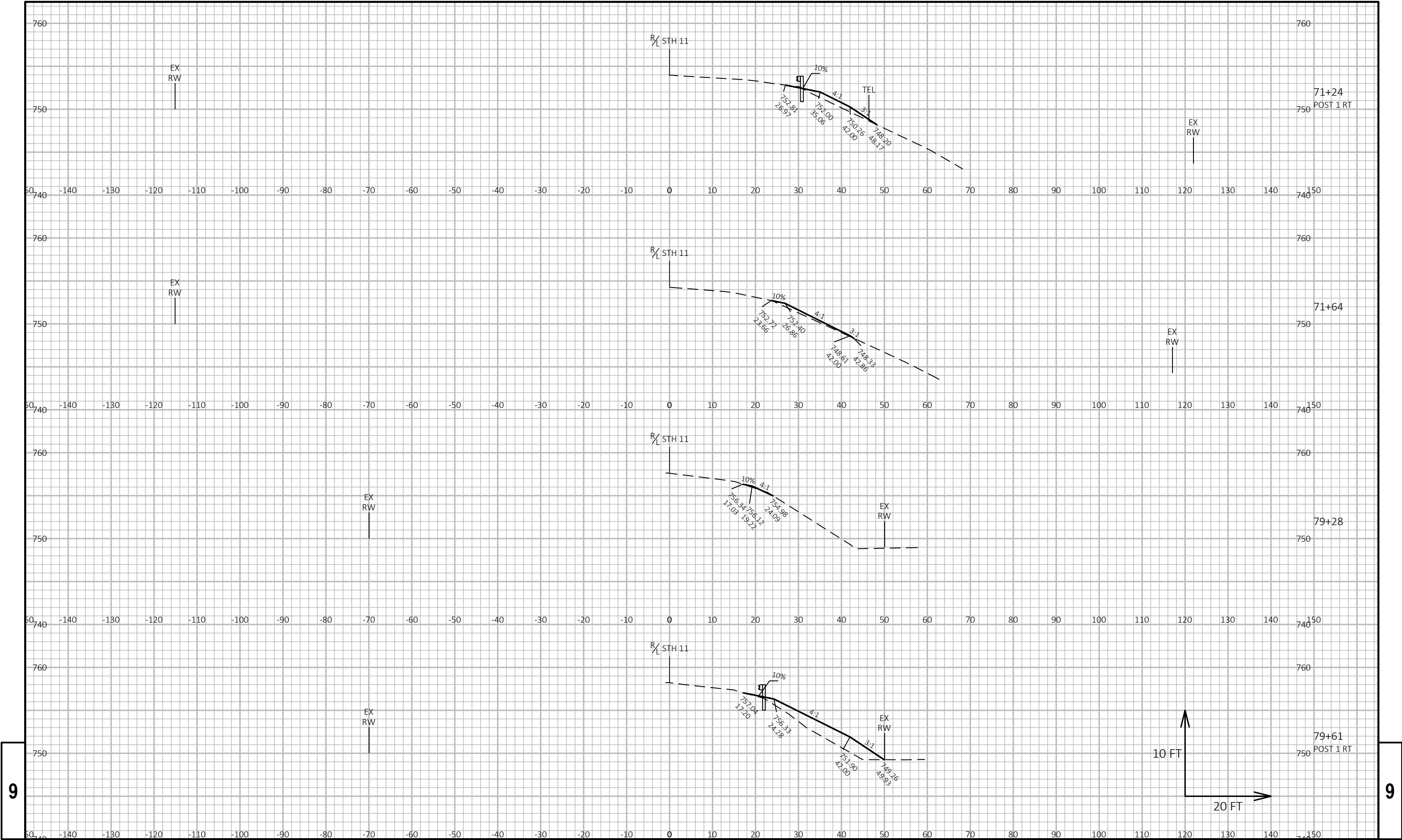
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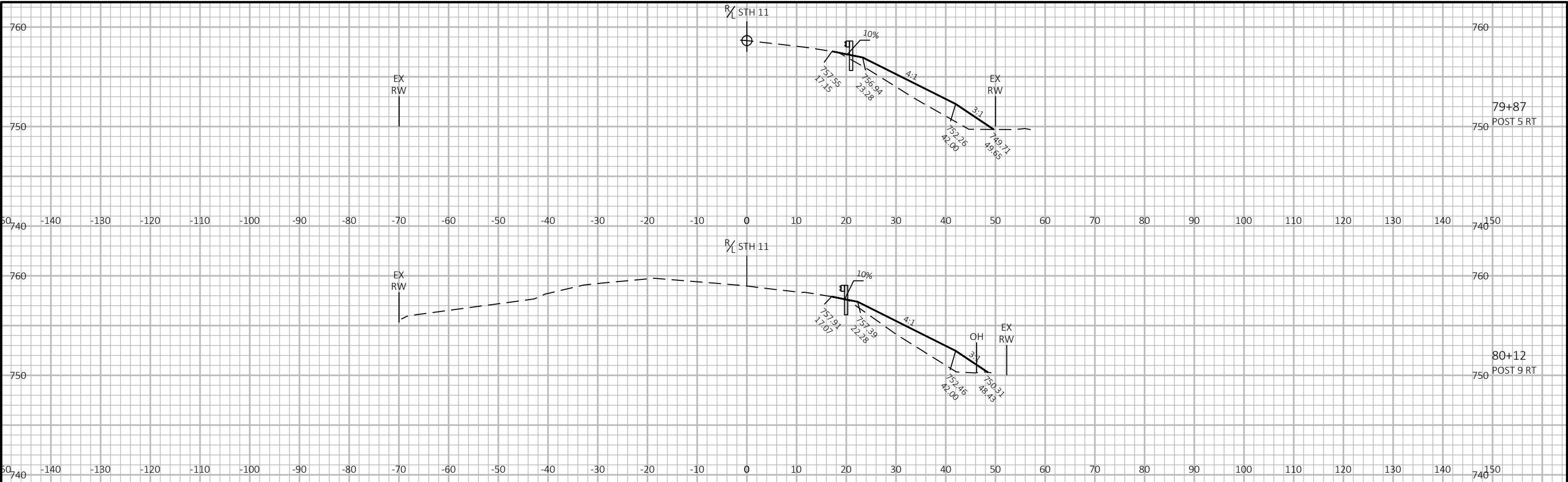




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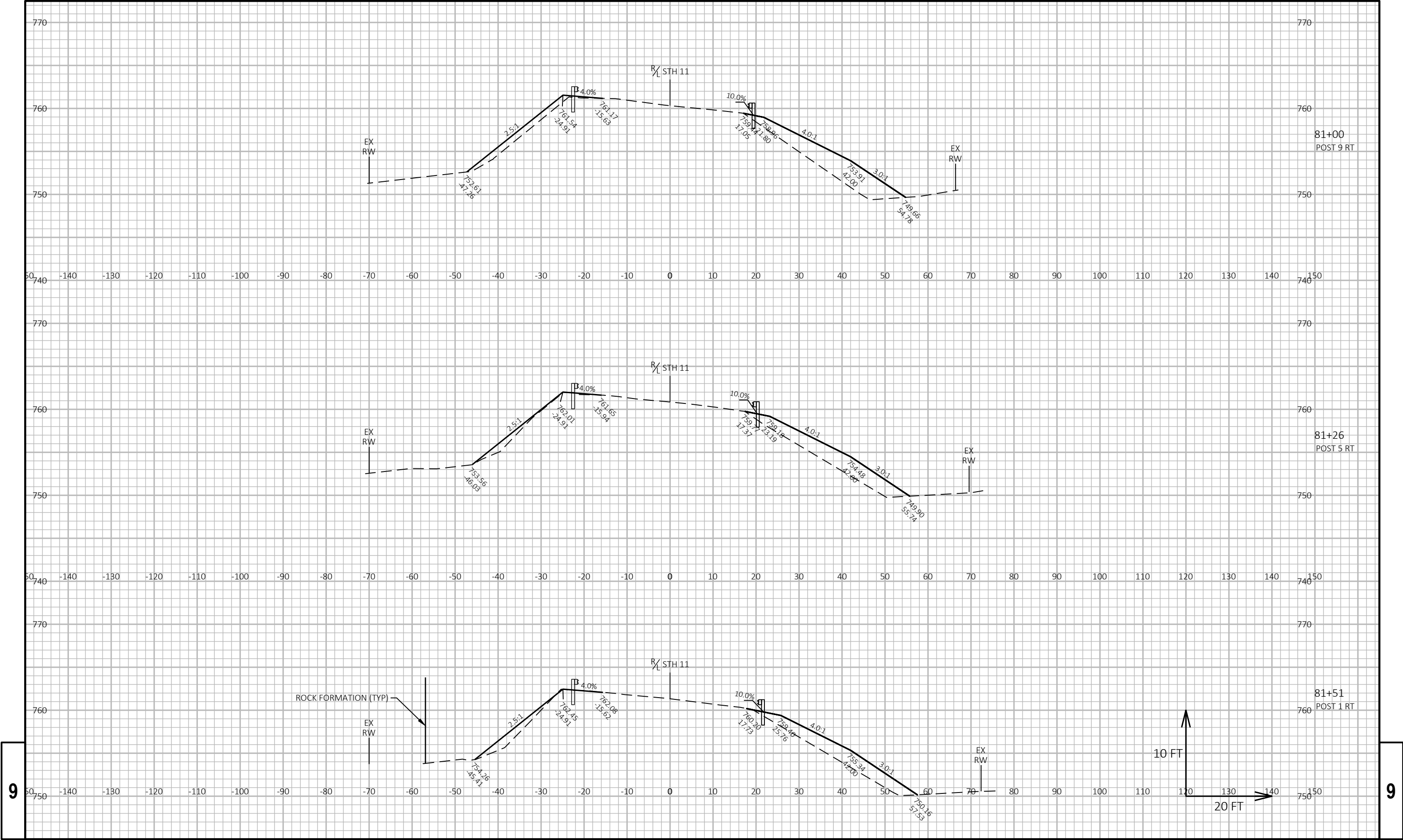
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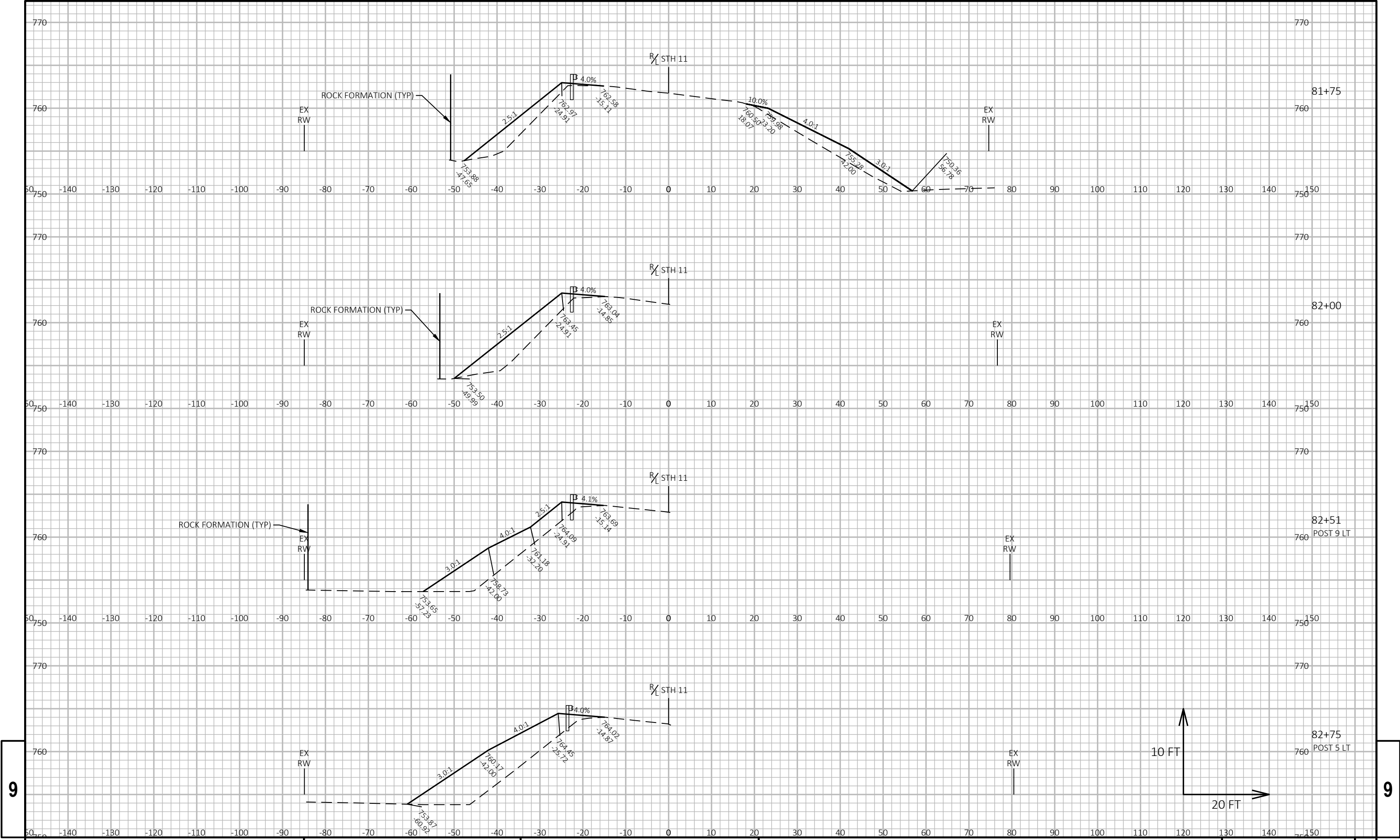
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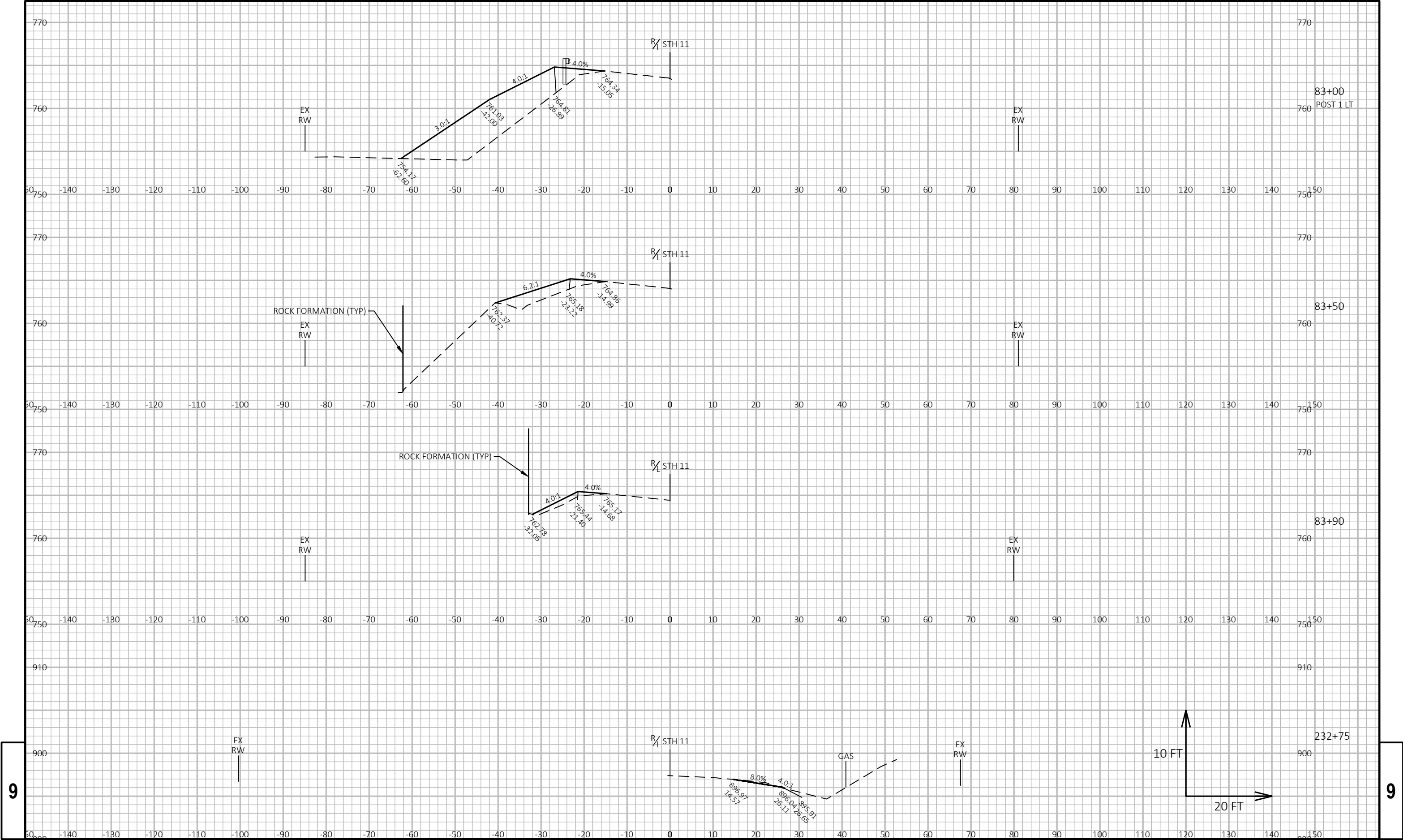


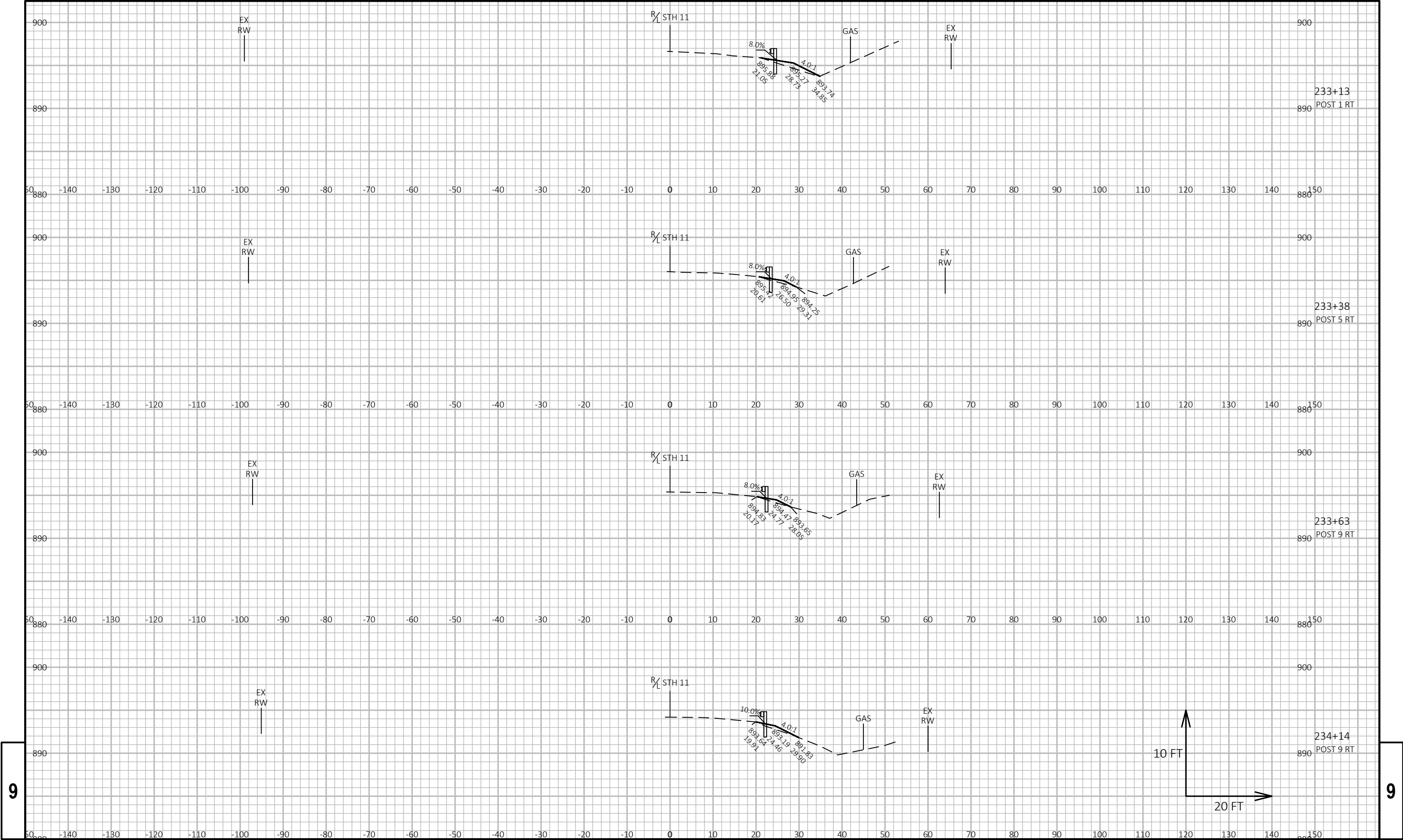
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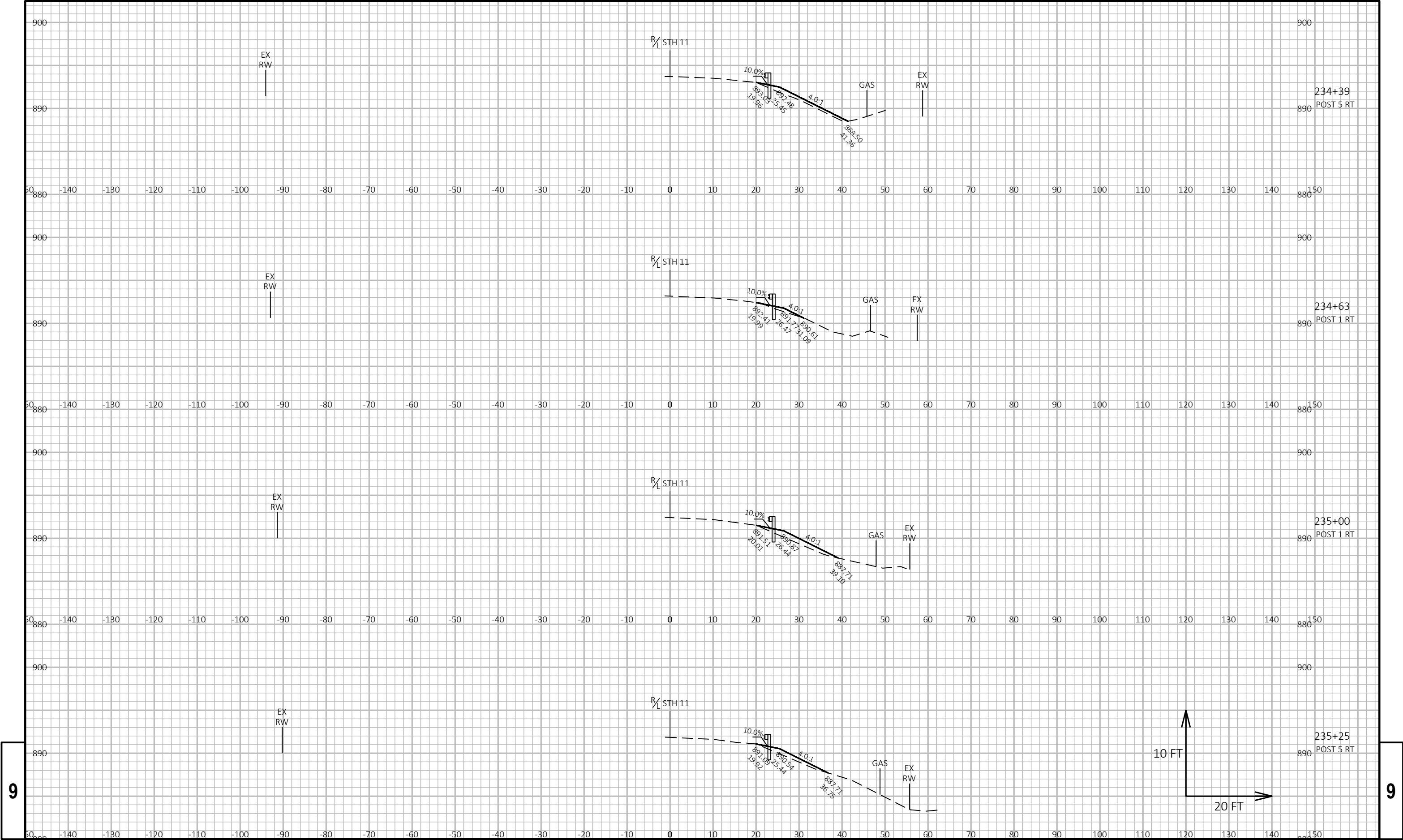


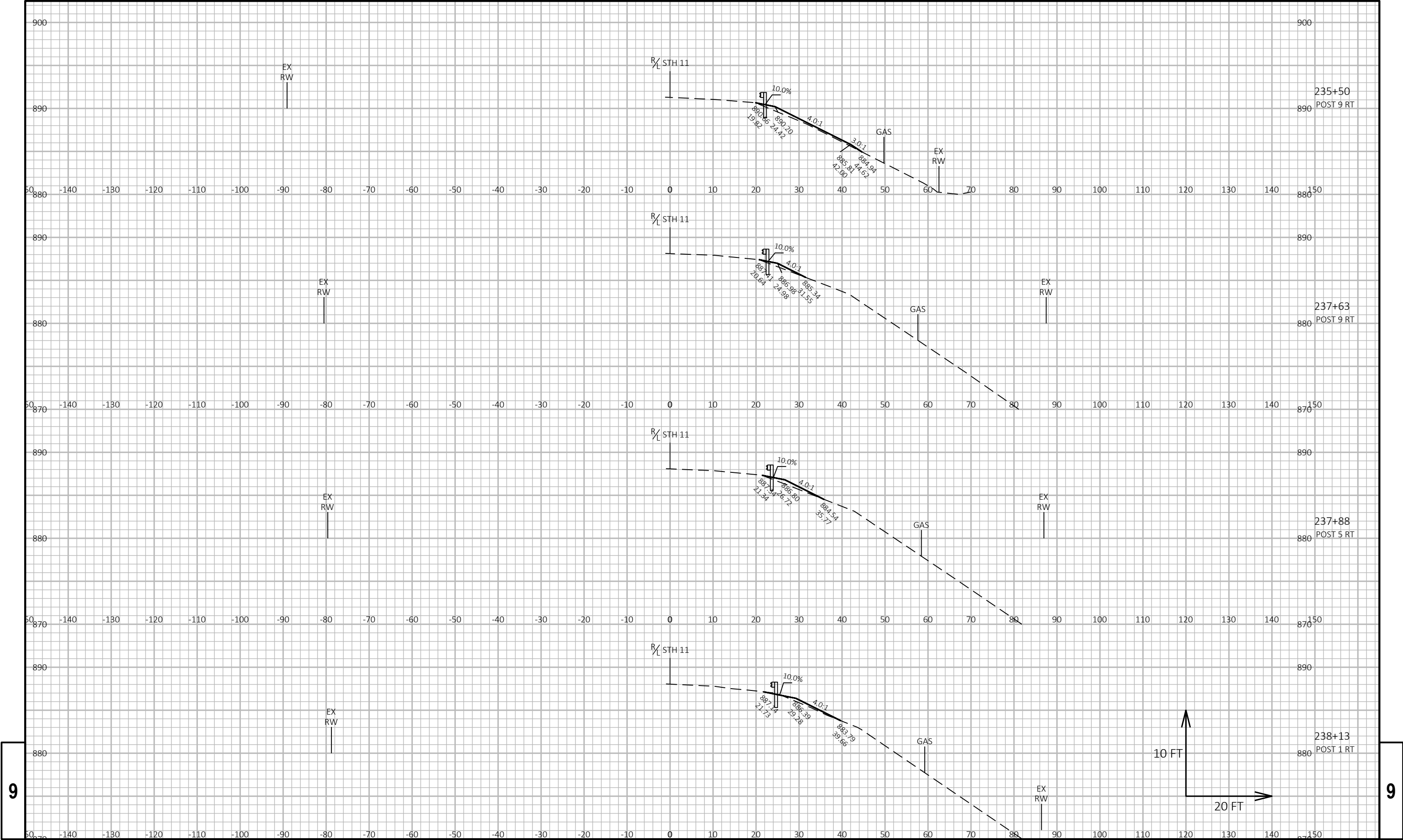


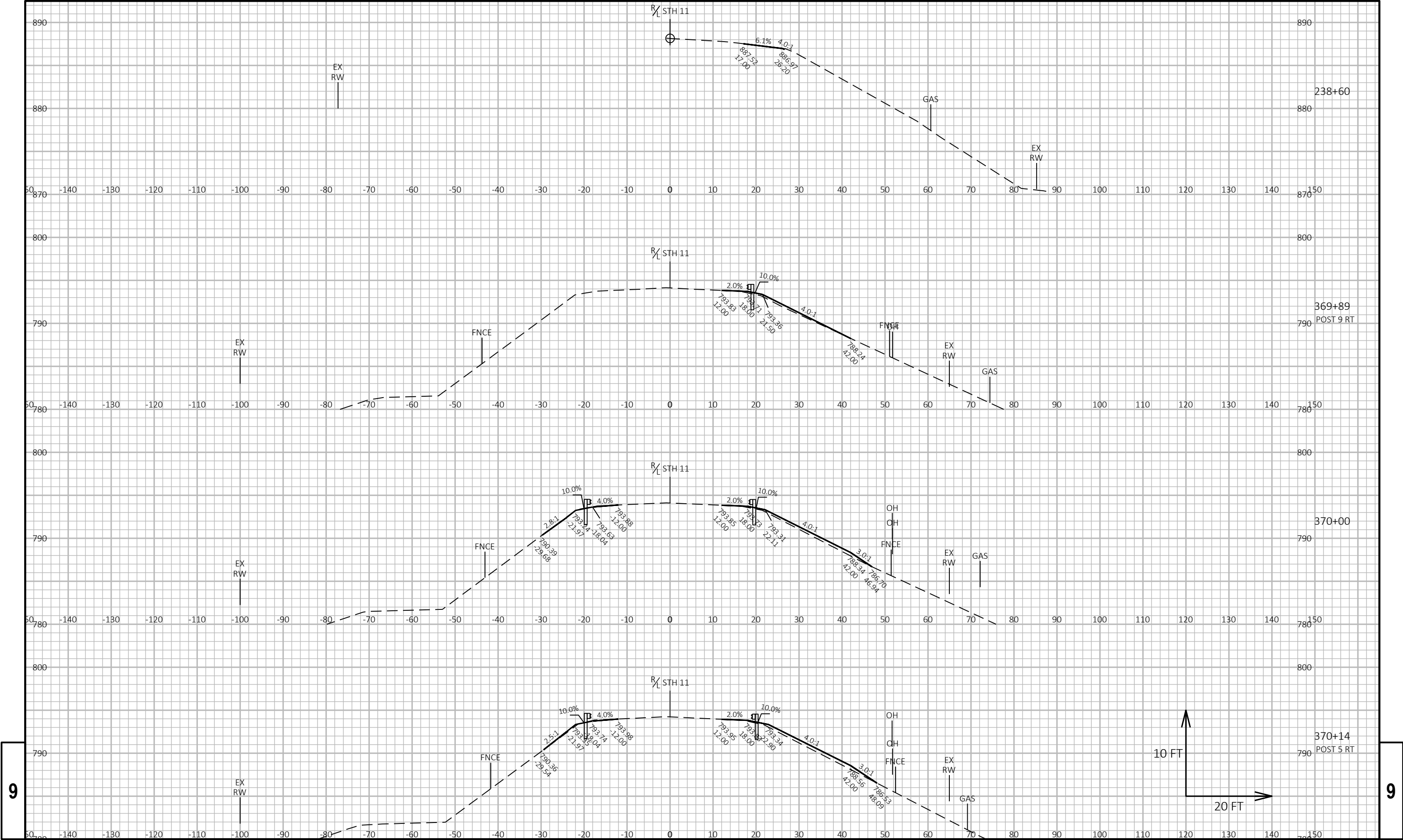
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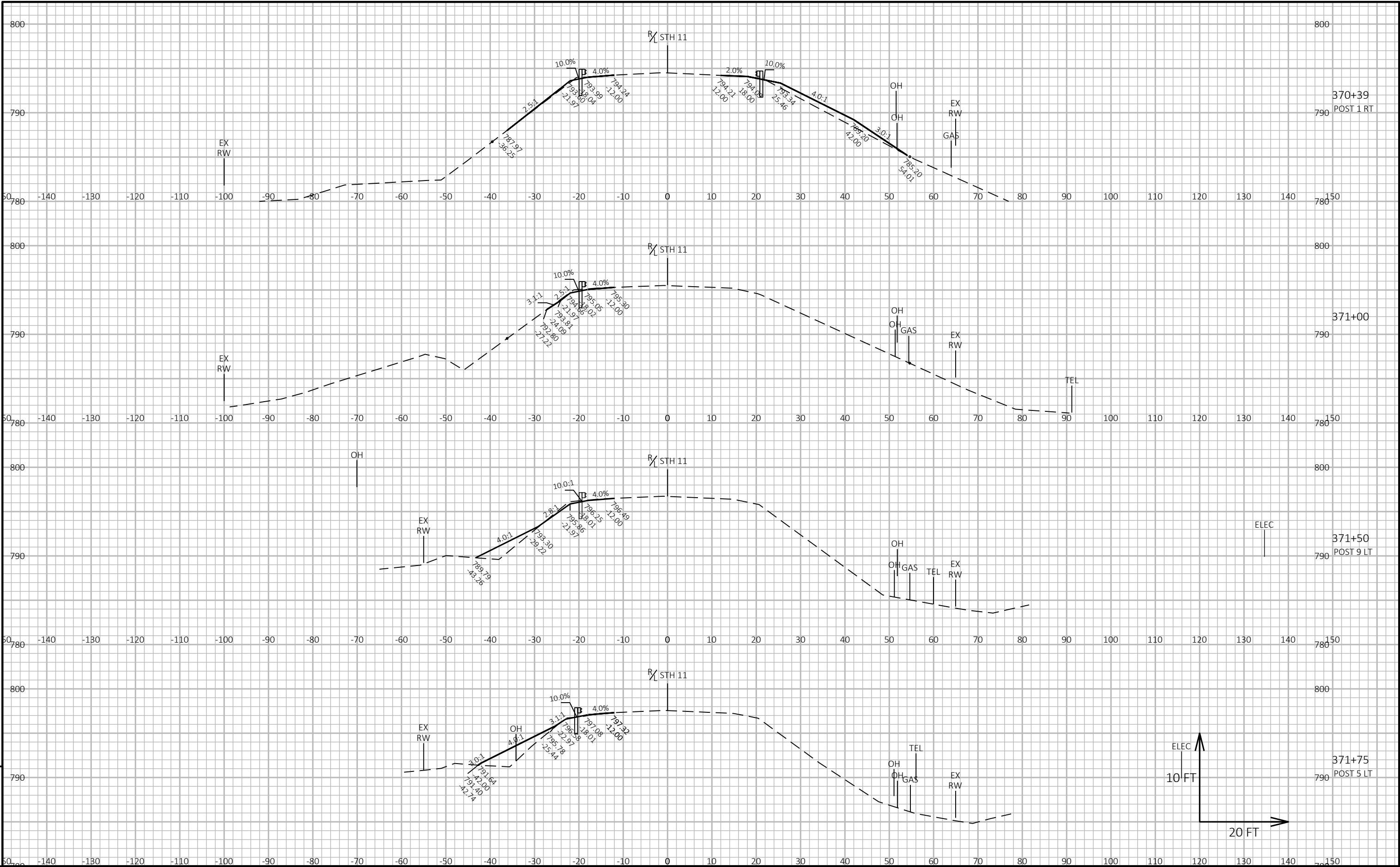
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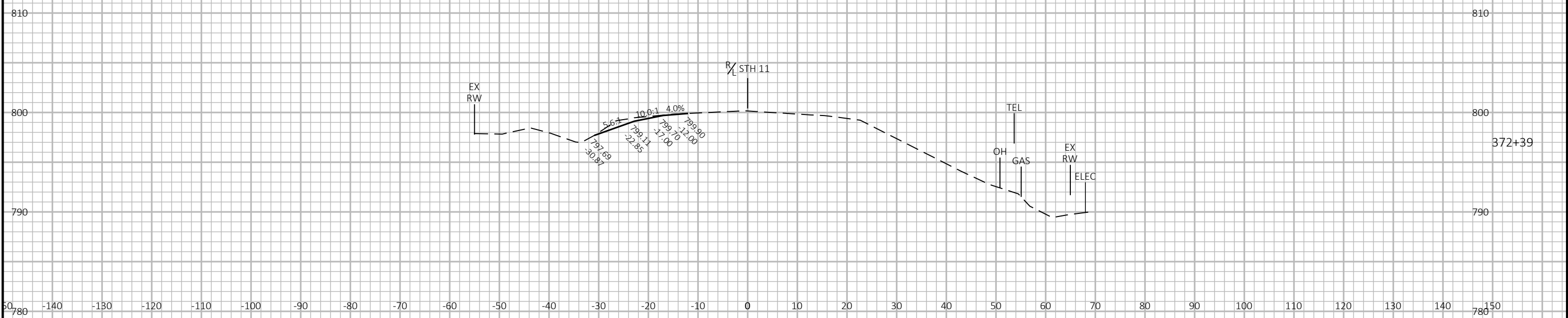
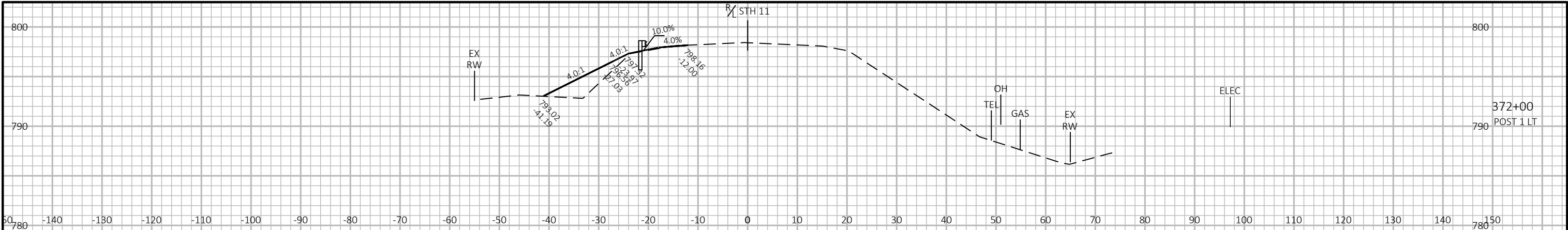
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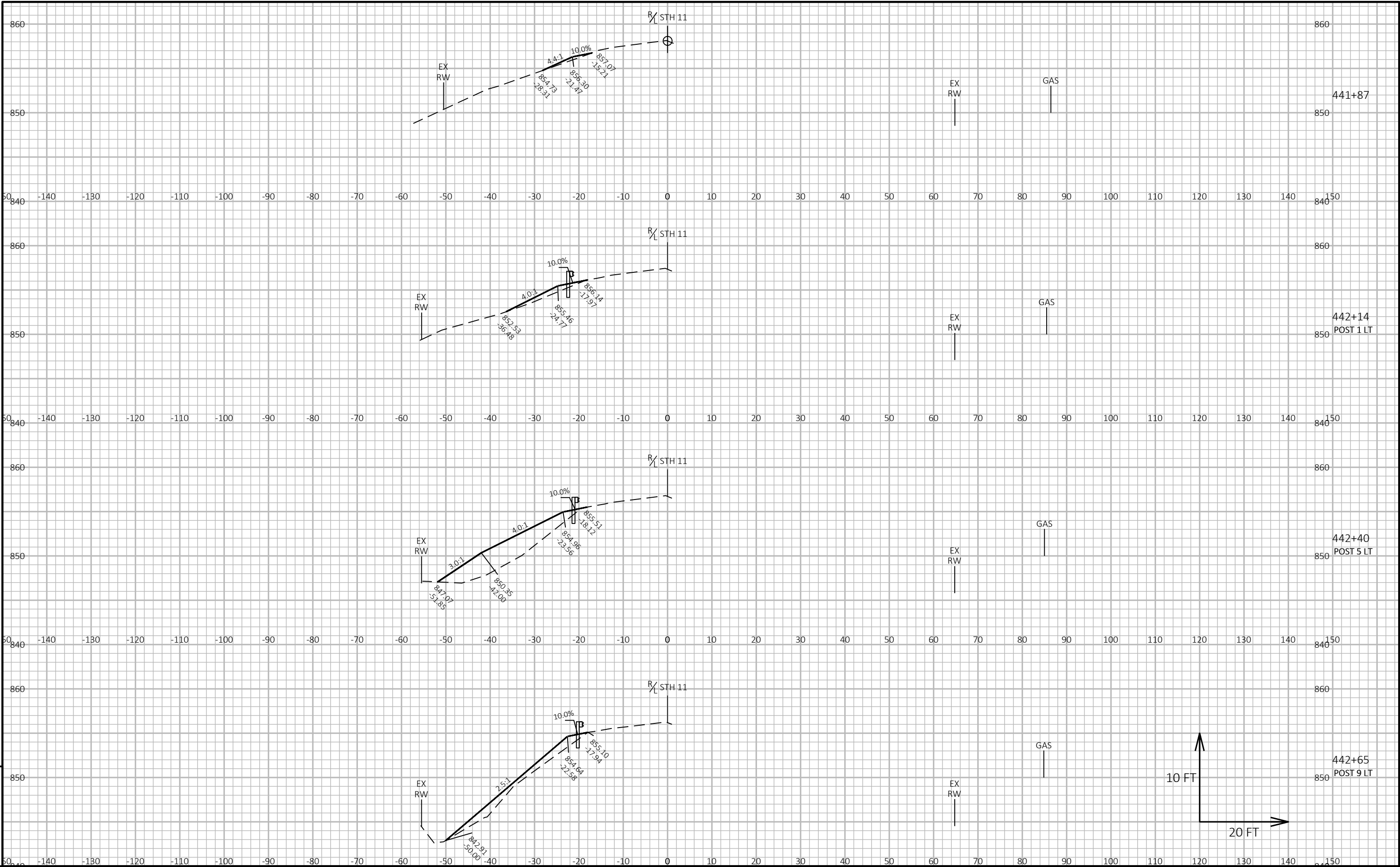


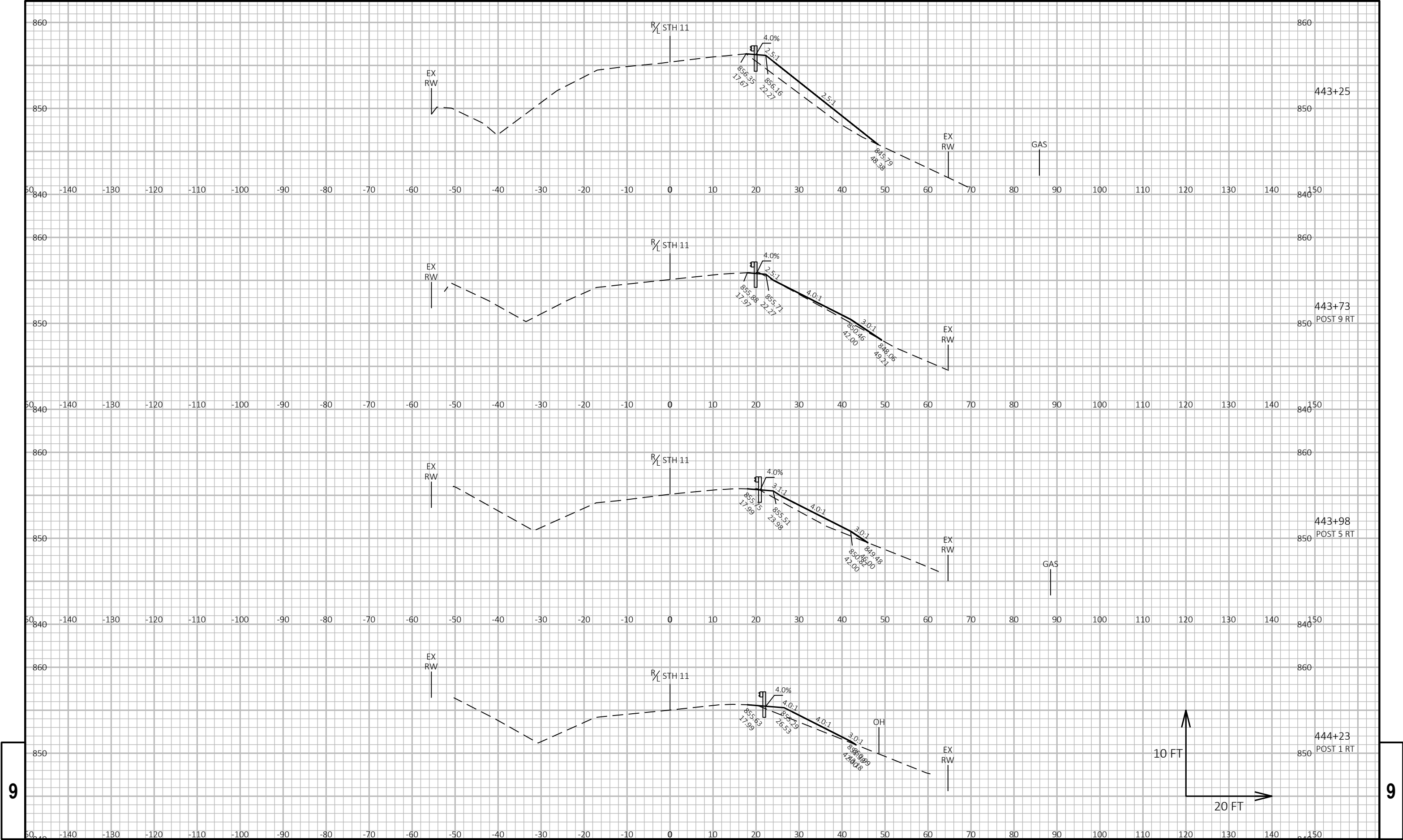








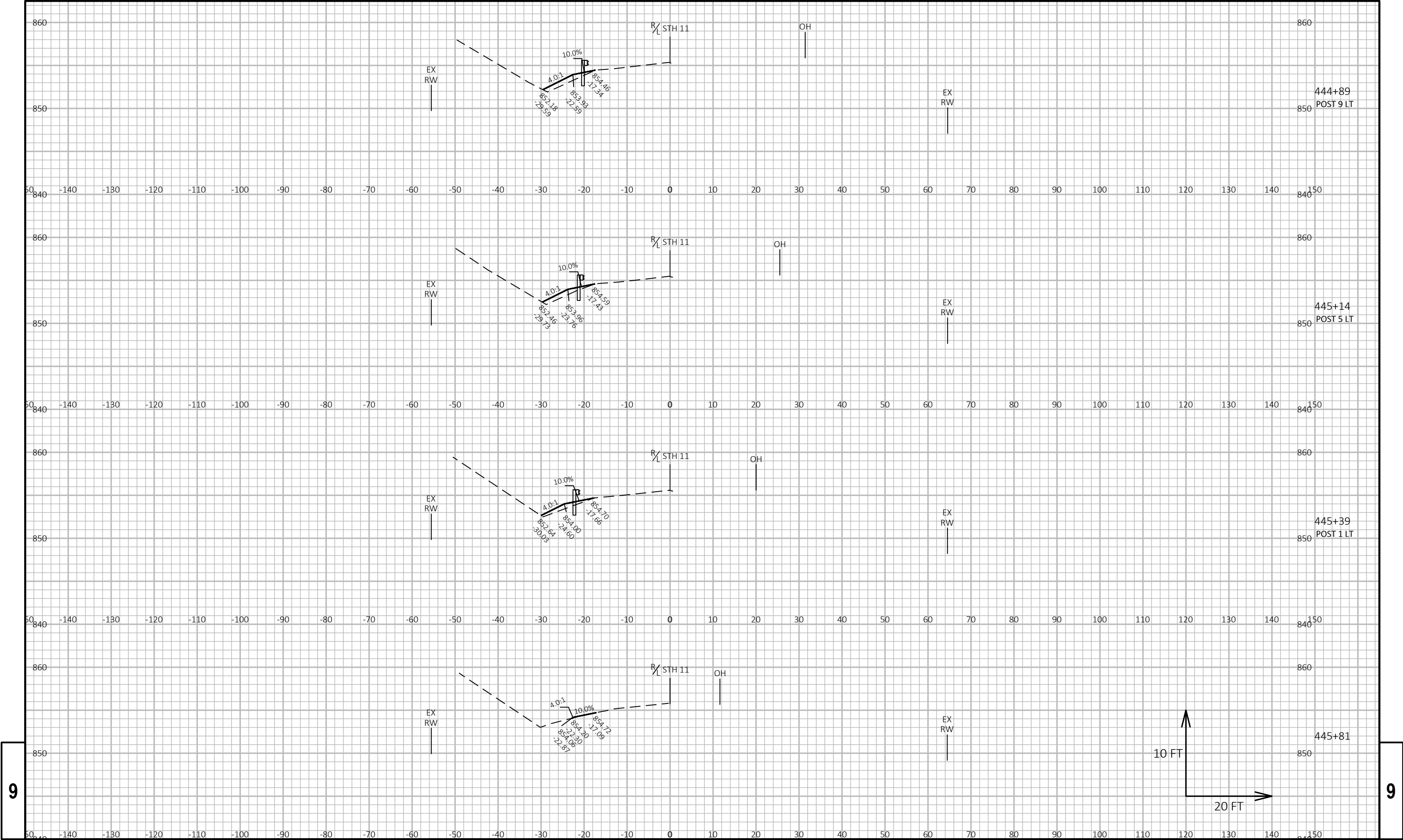




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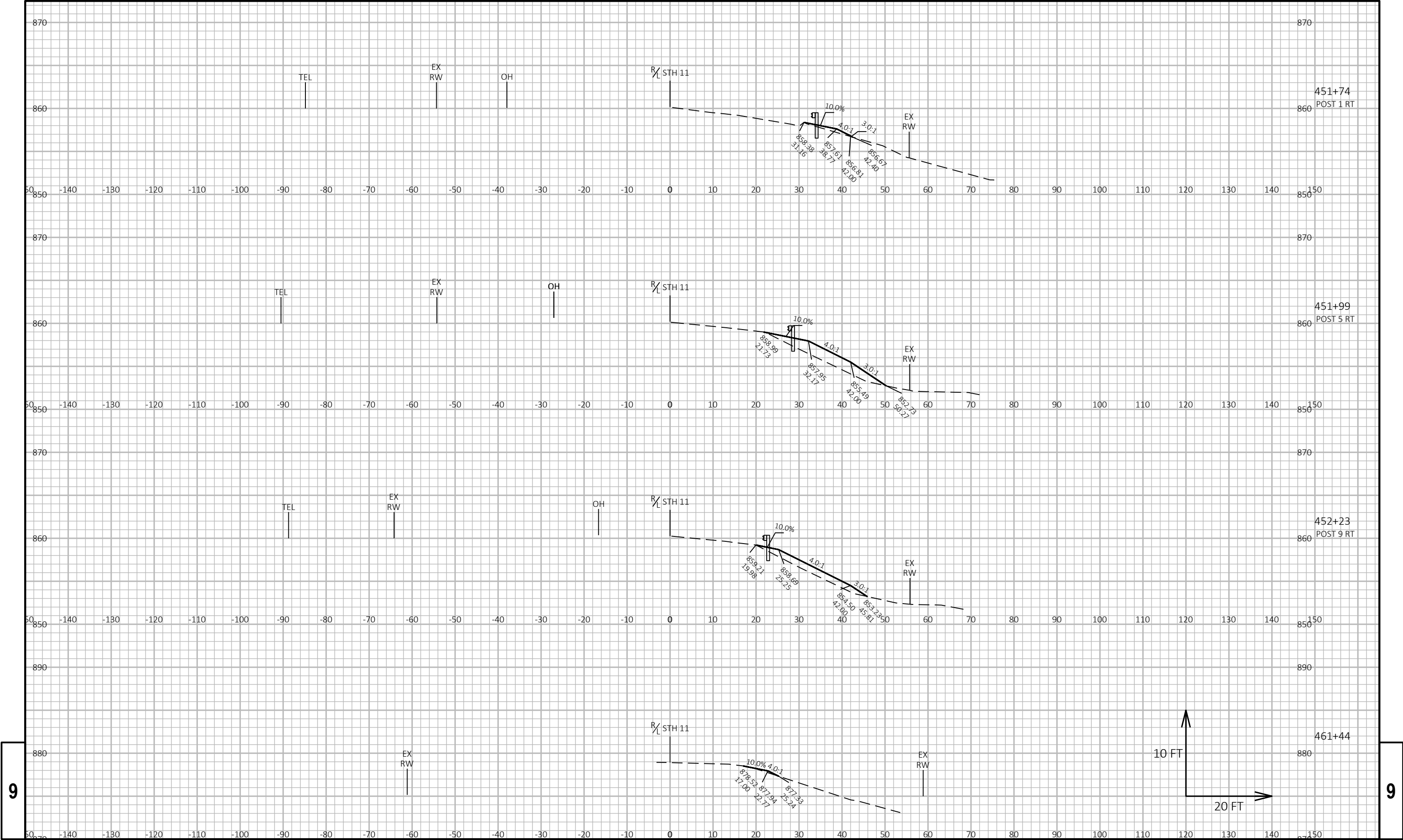
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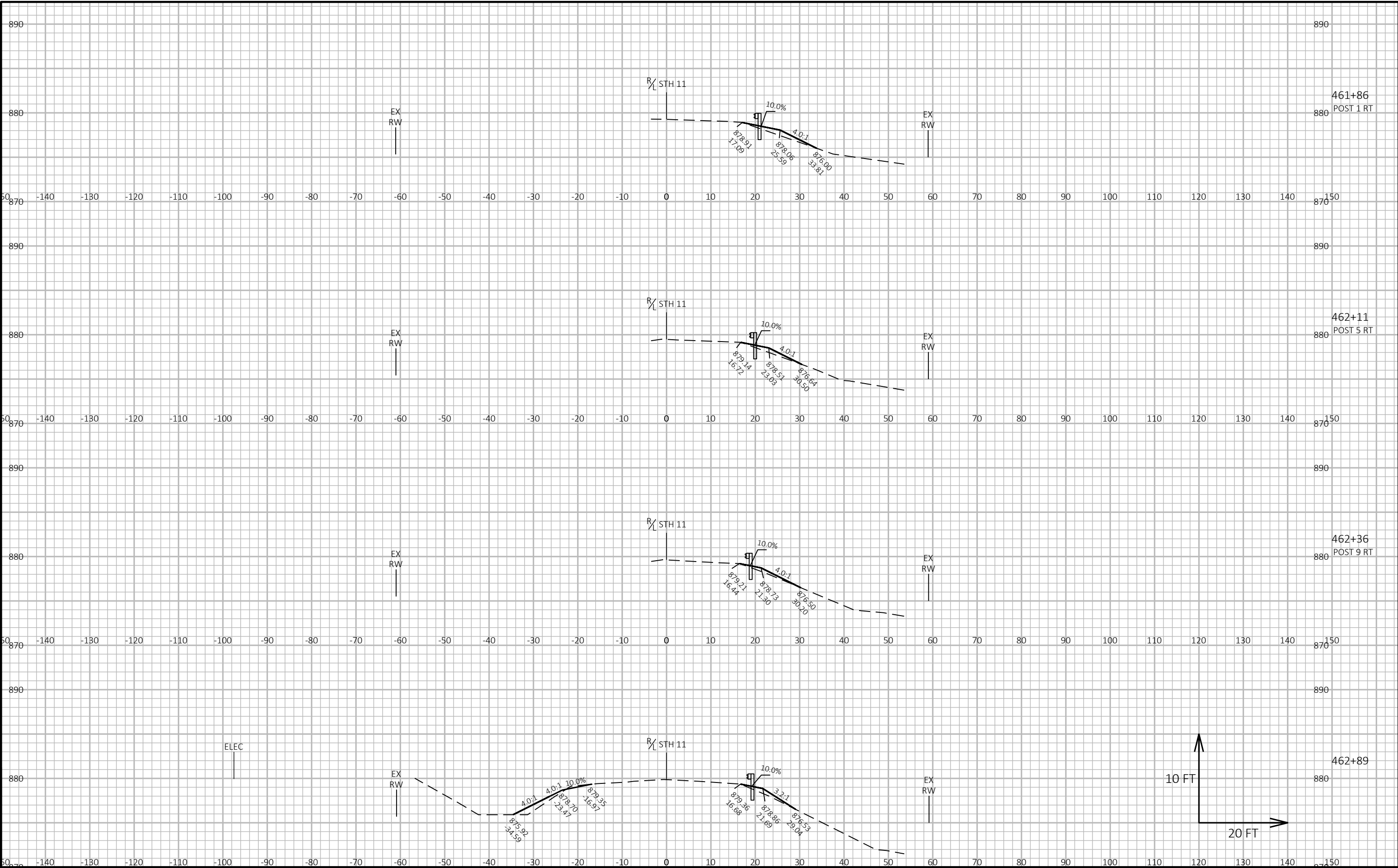
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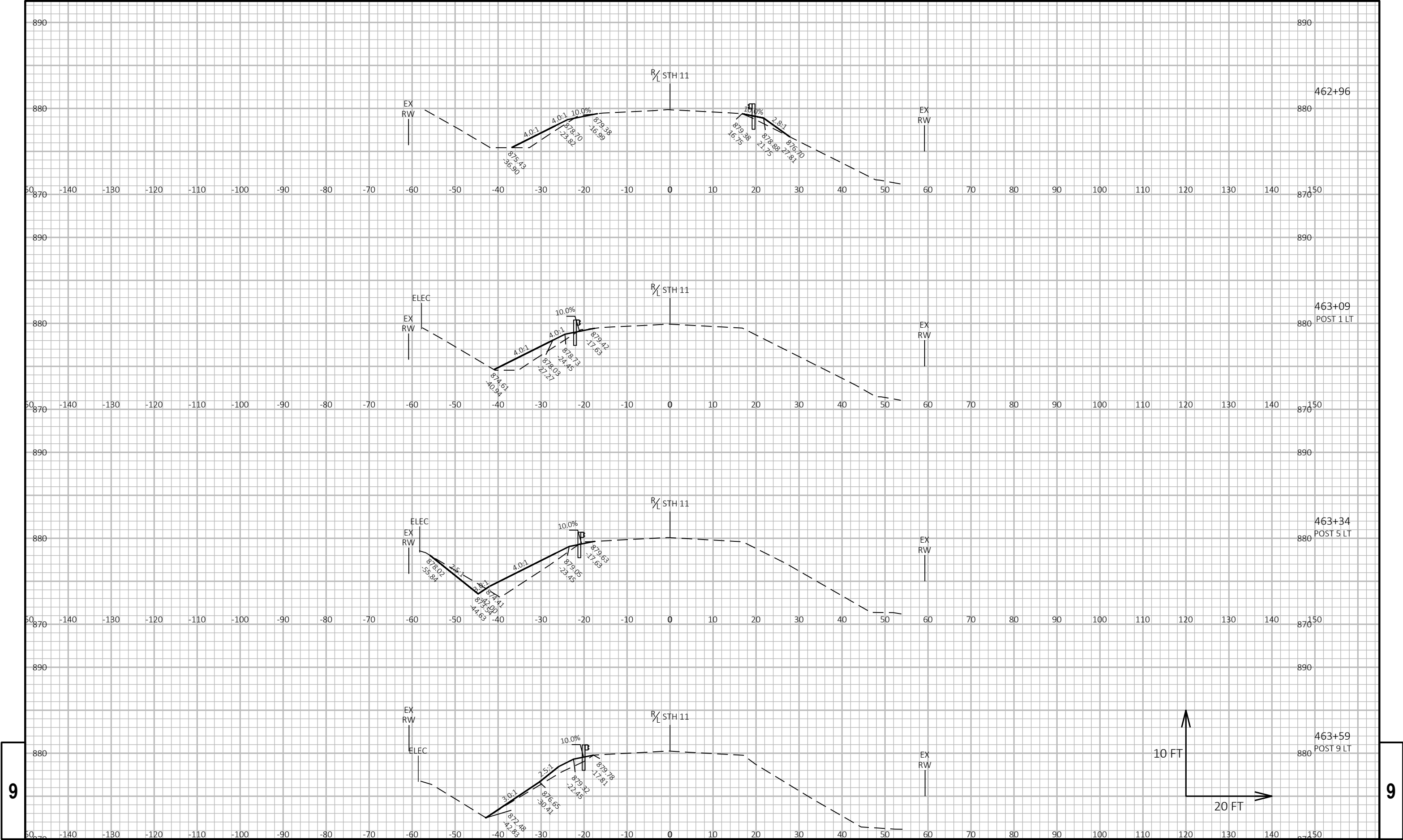


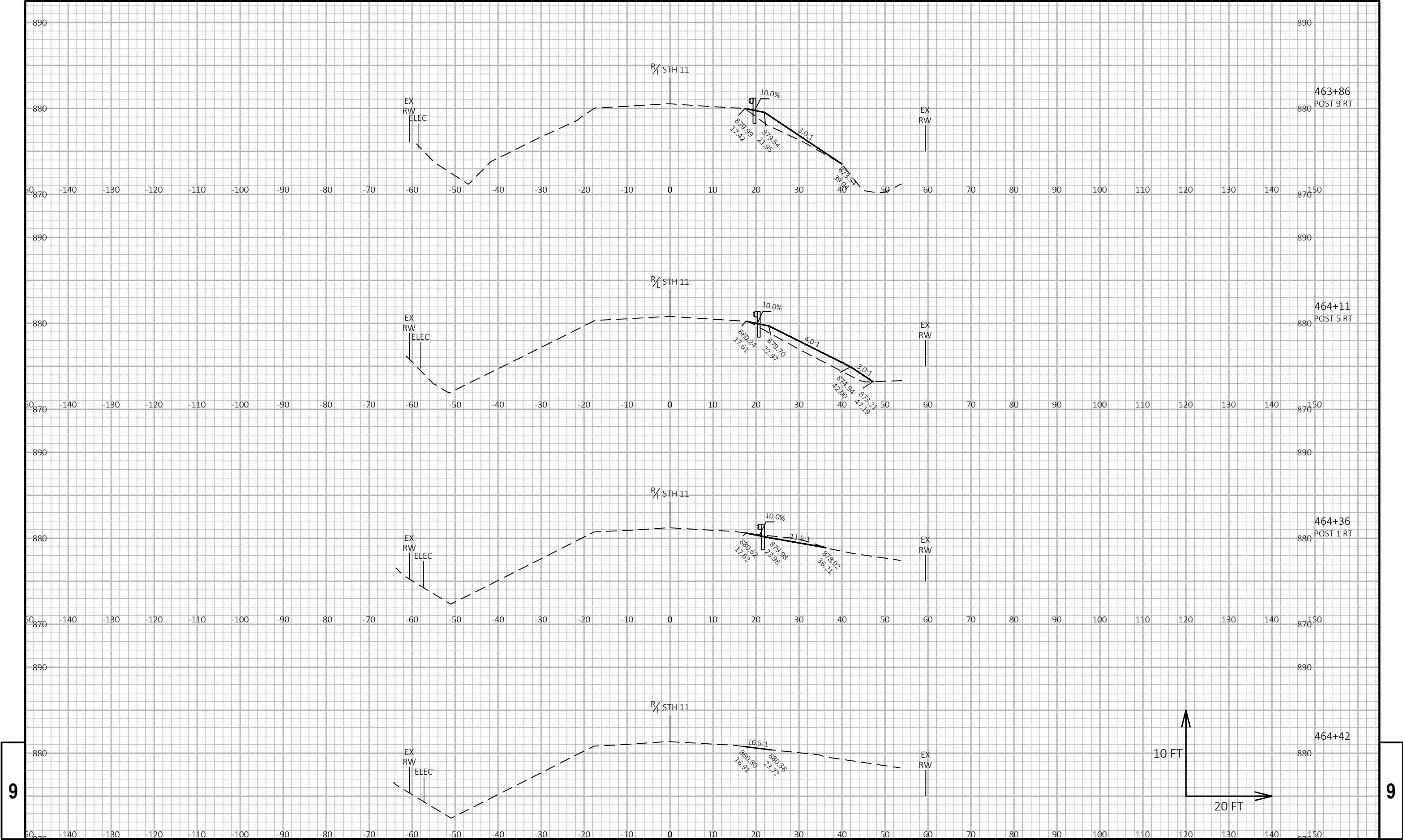
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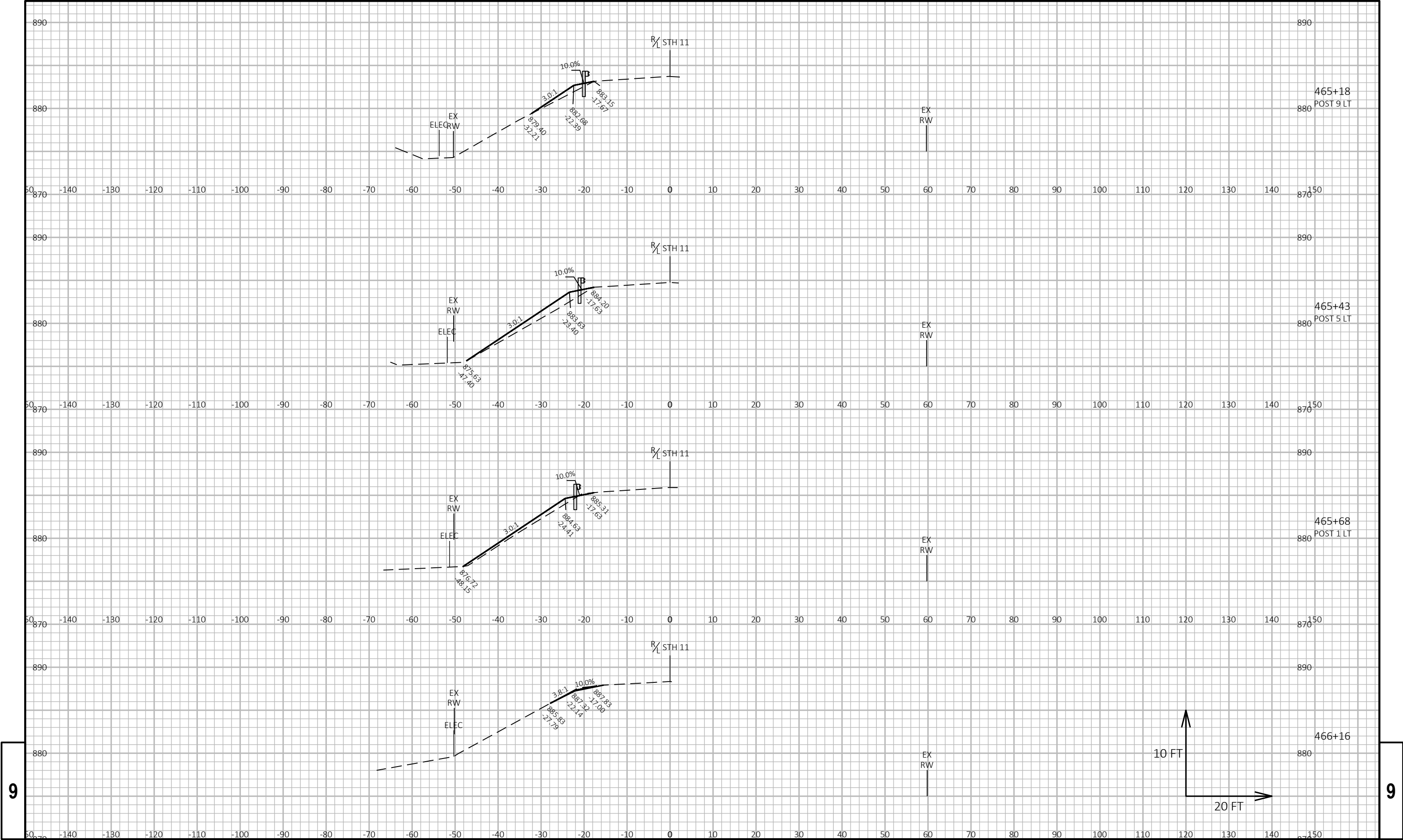
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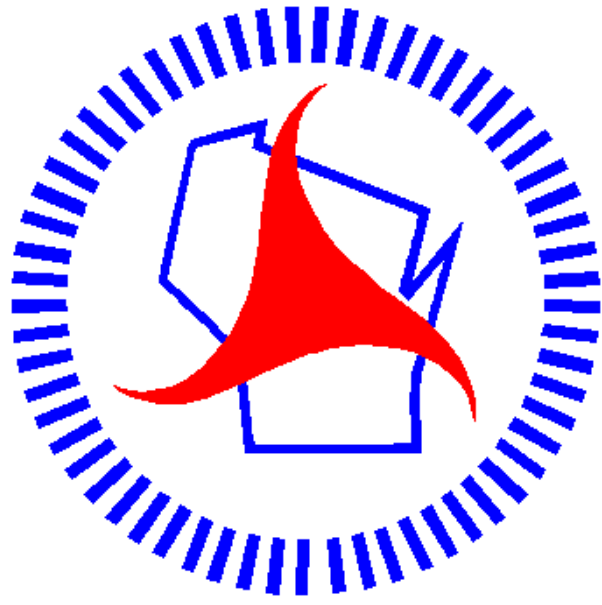








Notes



Wisconsin Department of Transportation

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