

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

## PLAN OF PROPOSED IMPROVEMENT

### WATERTOWN - WAUPUN

STH 33 TO 0.2 MI S OF MILLIGAN RD

STH 26

DODGE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1390-06-70	WISC 2024054	1

ORDER OF SHEETS

Section No.	Title
1	Title
2	Typical Sections and Details (Includes Erosion Control Details)
3	Estimate of Quantities
3	Miscellaneous Quantities
<del>4</del>	<del>Right of Way Plat</del>
5	Plan and Profile
6	Standard Detail Drawings
<del>7</del>	<del>Sign Plates</del>
<del>8</del>	<del>Structure Plans</del>
9	Computer Earthwork Data
9	Cross Sections

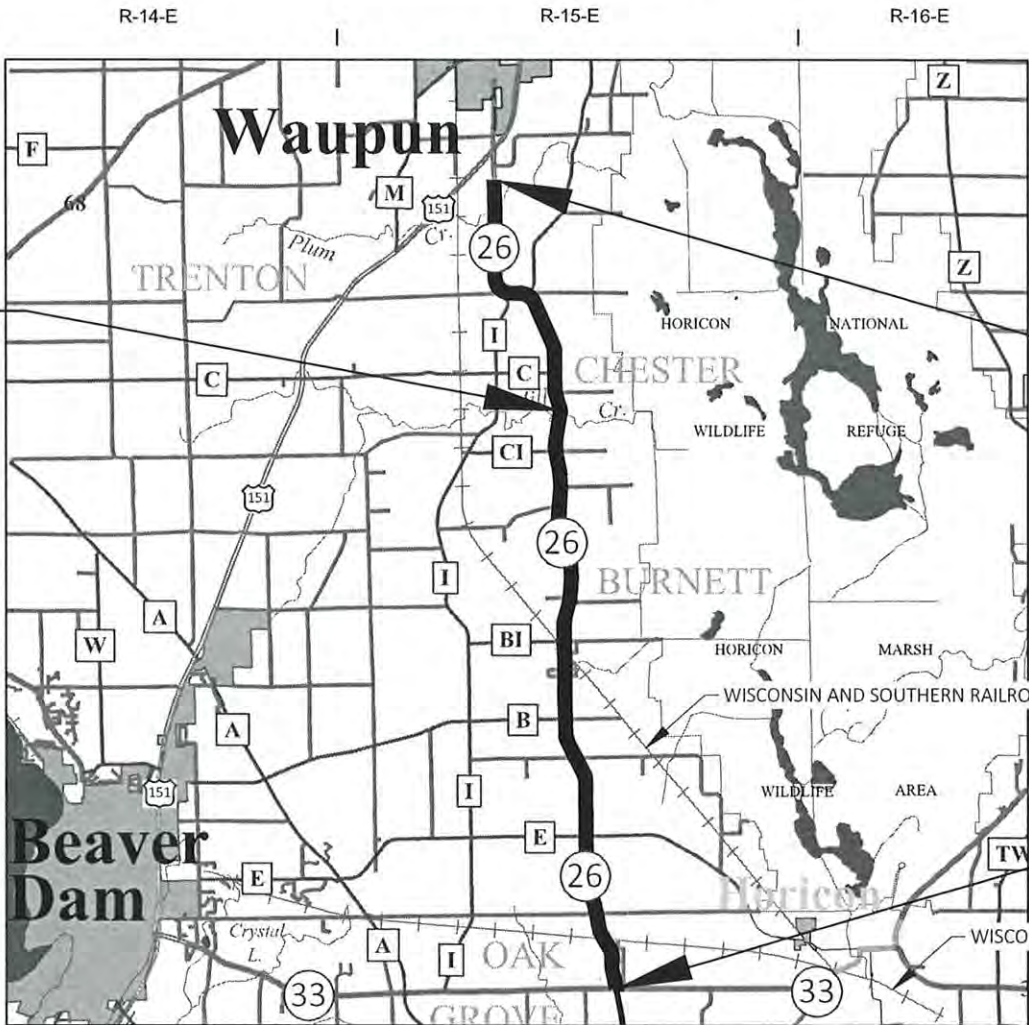
TOTAL SHEETS = 126

PROJECT ID: 1390-06-70

COUNTY: DODGE



STATE PROJECT NUMBER
<b>1390-06-70</b>



**EXCEPTION TO NET & LENGTH**  
 STA. 406+13 TO STA. 406+60  
 B-14-097

END PROJECT  
STA. 580+00

BEGIN PROJECT  
 STA. 2+56  
 X=884,816.06  
 Y=719,122.87

DESIGN DESIGNATION (STH 26; DESIGN ID: 1390-06-00)

A.A.D.T. (2025)	=	2,900
A.A.D.T. (2045)	=	3,400
D.H.V.	=	-----
D.D.	=	-----
T. (% D.H.V.)	=	22.6%
DESIGN SPEED	=	55 MPH
ESALS	=	1,400,000

#### CONVENTIONAL SYMBOLS

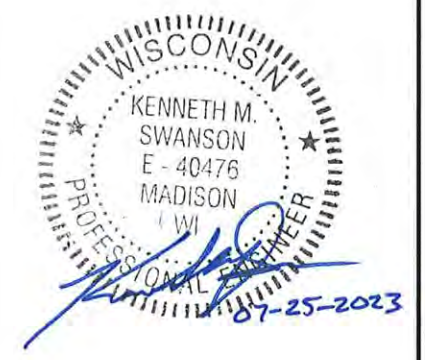
PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

LAYOUT  
 SCALE 0 2.5 MI  
 TOTAL NET LENGTH OF CENTERLINE = 10.927 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DANE COUNTY NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

ORIGINAL PLANS PREPARED BY:



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	STRAND ASSOCIATES, INC.
Designer	STRAND ASSOCIATES, INC.
Project Manager	MIKE RAMPETSREITER, P.E.
Regional Examiner	WISDOT SOUTHWEST REGION
Regional Supervisor	JUSTIN KUTSCHENREUTER, P.E.

APPROVED FOR THE DEPARTMENT

Digitally signed by Michael Rampetsreiter  
 DN: cn=Michael Rampetsreiter, o=Wisconsin Department of Transportation, ou=Southwest Region, email=Michael.Rampetsreiter@wisconsin.gov, c=WI  
 Date: 2023.07.21 08:18:23 -0500

**GENERAL NOTES**

THE CENTERLINE OF STH 26 IS APPROXIMATELY THE MAINLINE REFERENCE LINE.

A SOILS REPORT WAS COMPLETED FOR THE PROJECT AND CONTAINS SOIL BORING INFORMATION. A COPY OF THIS REPORT CAN BE OBTAINED BY CONTACTING THE WISDOT REGION REPRESENTATIVE LISTED ON THIS GENERAL NOTE SHEET.

EXISTING RIGHT OF WAY SHOWN IS APPROXIMATE AND BASED ON DODGE COUNTY GIS PARCEL LINE WORK AND AVAILABLE PLAT DRAWINGS. USE FOR REFERENCE PURPOSES ONLY.

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

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER IN CONSULTATION WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

WHEN THE QUANTITY OF BASE AGGREGATE DENSE IS MEASURED FOR PAYMENT IN TONS, THE DEPTH OR THICKNESS AS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

ALL EXISTING SIGNS SHALL REMAIN IN PLACE UNLESS THE ENGINEER APPROVES THEIR REMOVAL. ANY SIGNS REMOVED BECAUSE OF CONTRACTOR MEANS AND METHODS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.

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.

**HMA PAVEMENT SUMMARY TABLE**

STH 26 - 2" HMA PAVEMENT (OVERLAY)*		
LAYER	THICKNESS	HMA TYPE
UPPER	2"	4 MT 58-28 S
LOWER*	2"	ASPHALTIC SURFACE (USE 4 MT 58-28 S)

\* 2" LOWER LAYER THICKNESS OF ASPHALTIC SURFACE REQUIRED IN 2' SHOULDER WIDENING AREAS. SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

STH 26 - 5.5" HMA PAVEMENT (FOR CULVERT REPLACEMENT LOCATIONS)		
LAYER	THICKNESS	HMA TYPE
UPPER	2"	4 MT 58-28 S
LOWER (TOP)	1.75"	ASPHALTIC SURFACE (USE 4 MT 58-28 S)
LOWER (BOTTOM)	1.75"	ASPHALTIC SURFACE (USE 4 MT 28-28 S)

**ORDER OF SECTION 2 SHEETS**

GENERAL NOTES  
PROJECT OVERVIEW  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
GUARDRAIL LAYOUT DETAILS  
TRAFFIC CONTROL - ADVANCED WARNING SIGNING  
DETOUR ROUTE SIGNING

**RAILROAD CONTACT**

ROGER SCHAALMA  
WISCONSIN AND SOUTHERN RAILROAD COMPANY  
1890 EAST JOHNSON STREET  
MADISON, WI 53704  
PHONE: (608) 620-2044  
RSCHAALMA@WATCOCOMPANIES.COM

**WISDOT REGION CONTACT**

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WISDOT SOUTHWEST REGION  
2101 WRIGHT STREET  
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PHONE: (608) 246-7917  
MICHAEL.RAMPETSREITER@DOT.WI.GOV

**DNR LIAISON**

SHELLEY NELSON  
WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
SOUTH CENTRAL REGION HEADQUARTERS  
3911 FISH HATCHERY ROAD  
FITCHBURG, WI 53711  
PHONE: (608) 444-2835  
SHELLEY.NELSON@WISCONSIN.GOV

**DESIGN CONSULTANT CONTACT**

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STRAND ASSOCIATES, INC.  
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PHONE: (608) 251-4843  
KEN.SWANSON@STRAND.COM

**OTHER UTILITY CONTACTS**

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ALLIANT ENERGY - COMMUNICATION  
200 1ST STREET SE  
CEDAR RAPIDS, IA 52401  
PHONE: (319) 786-4198  
LAURASEALS@ALLIANTENERGY.COM

**TRANS 220 UTILITY CONTACTS**

\* PERRY BOECK  
ALLIANT ENERGY - ELECTRICITY  
120 E. MAPLE AVENUE  
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OFFICE: (920) 887-6061  
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\* LORI KETTER  
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969 WAUBE LANE  
GREEN BAY, WI 54302  
MOBILE: (920) 410-6902  
LORI.KETTER@WINDSTREAM.COM


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\* ADAM OLSON  
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\* CHUCK BARTELT  
AT&T WISCONSIN - COMMUNICATION LINE  
70 E DIVISION STREET  
FOND DU LAC, WI 54935  
MOBILE: (920) 410-5104  
CB1461@ATT.COM

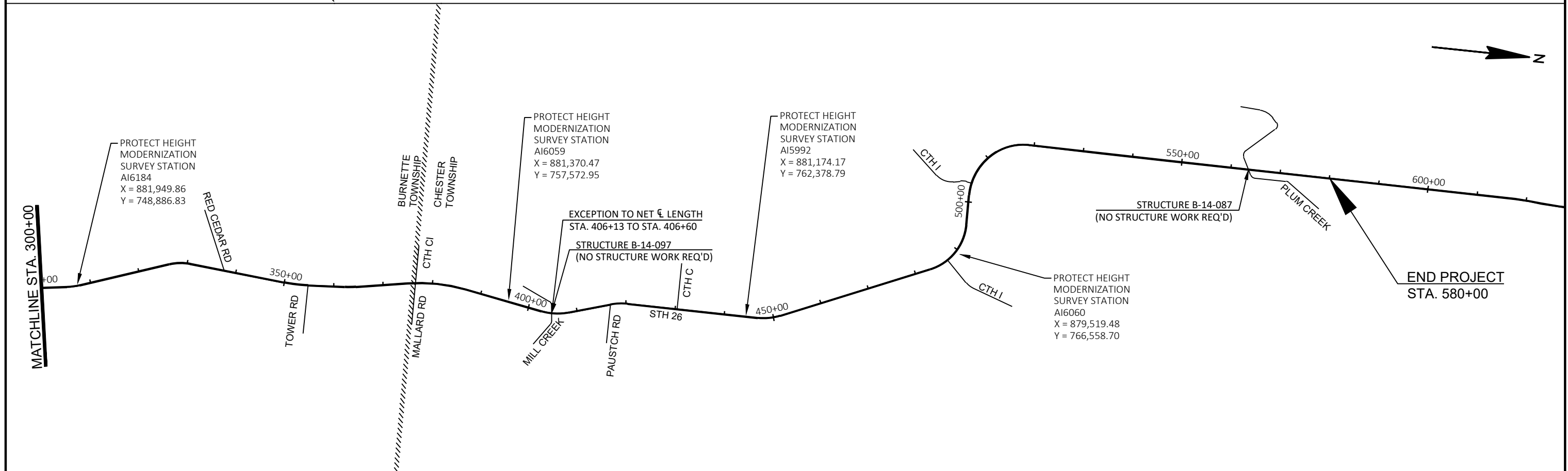
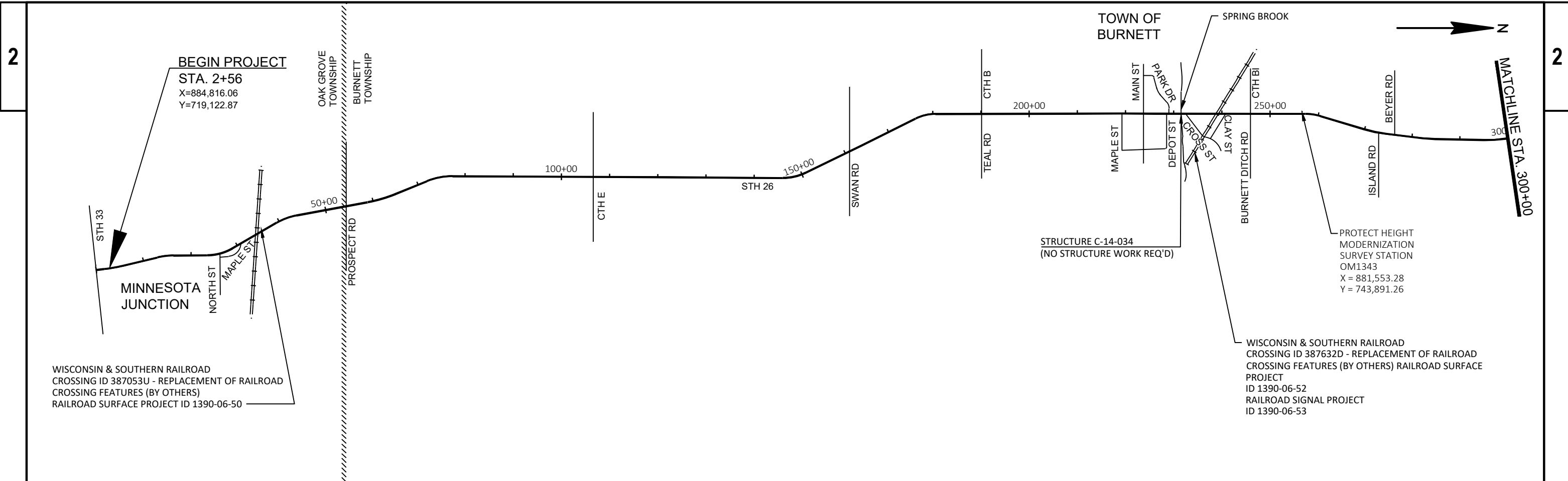
TIM FLETCHER  
BURNETT SANITARY DISTRICT NO. 1 - SEWER  
N8000 WHITETAIL ROAD  
BURNETT, WI 53922  
OFFICE: (920) 392-2846  
MOBILE: (920) 210-5333  
TFLETCHER3699@GMAIL.COM



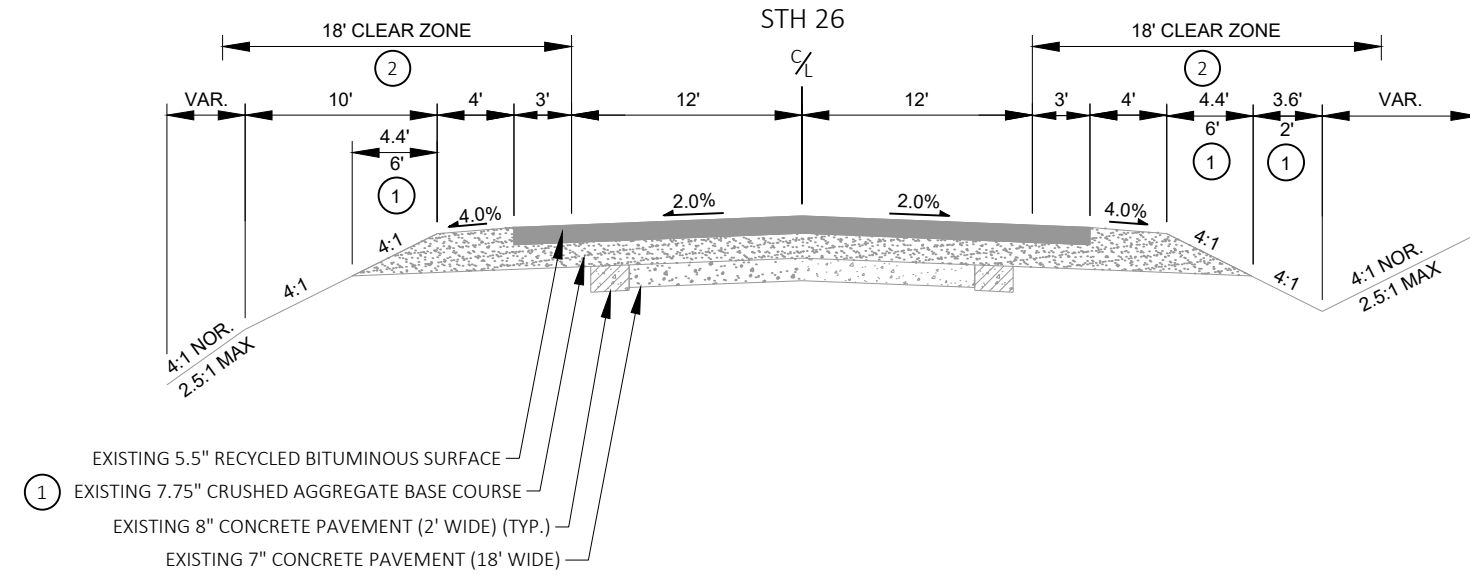
Dial  or (800)242-8511

www.DiggersHotline.com

\* DENOTES DIGGERS HOTLINE MEMBERS



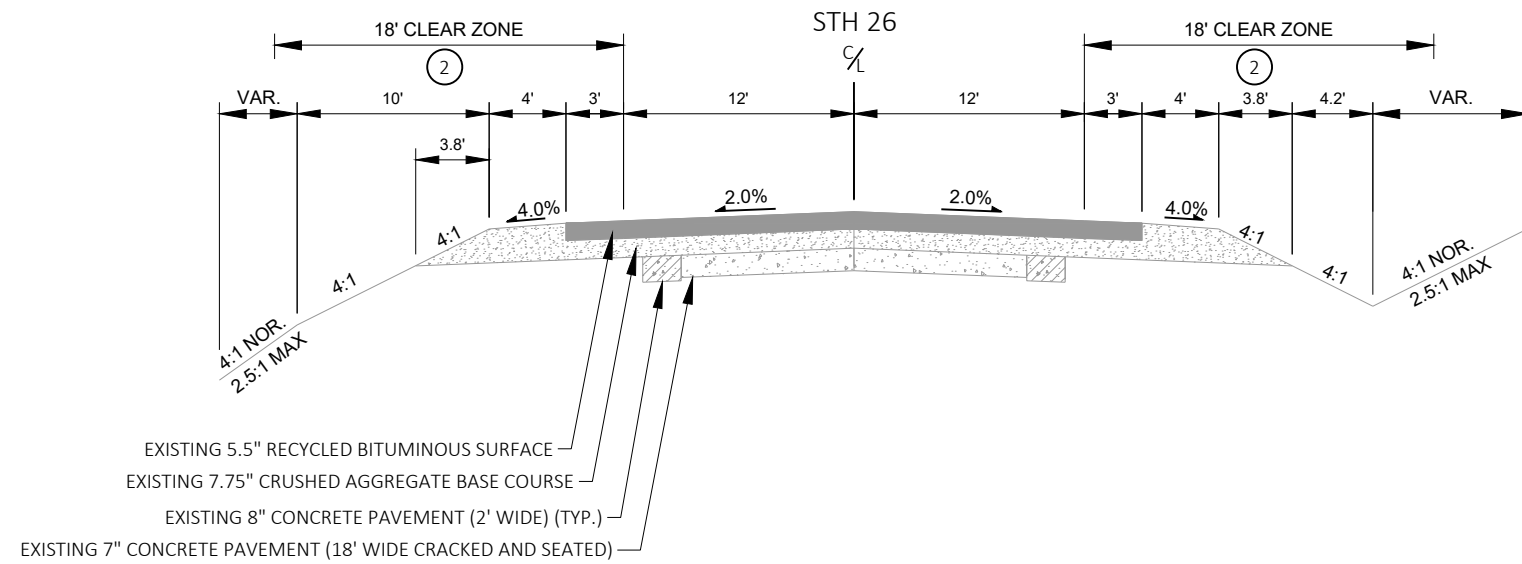
PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PROJECT OVERVIEW	SHEET	<b>E</b>
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**EXISTING TYPICAL SECTION**

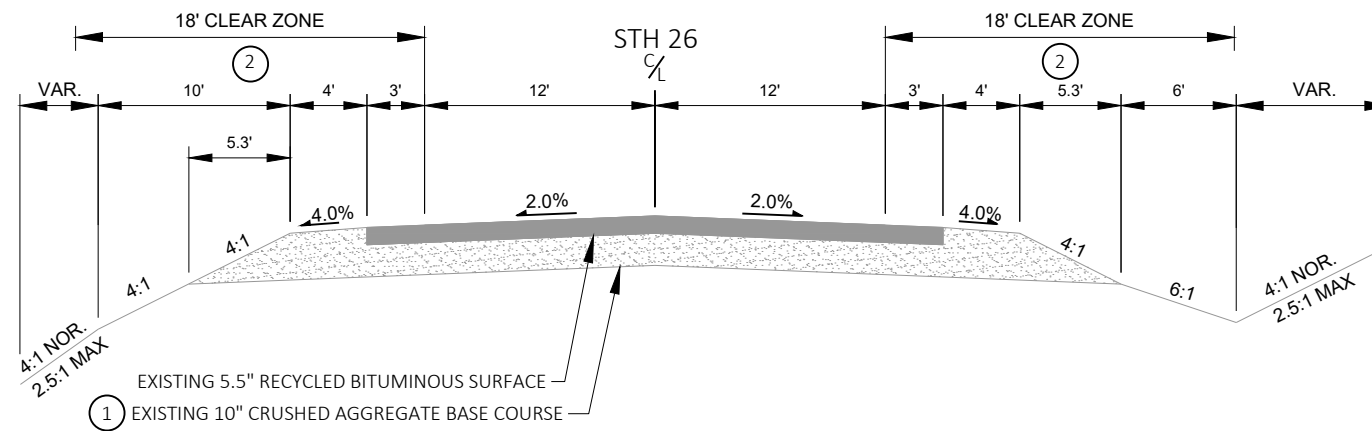
- ① STA. 2+75 - STA. 22+50
- ① STA. 34+50 - STA. 60+00
- ① STA. 83+00 - STA. 100+27
- ① STA. 275+50 - STA. 284+00
- ① STA. 313+50 - STA. 331+50
- ① STA. 339+00 - STA. 372+50
- ① STA. 435+00 - STA. 443+50
- ① STA. 475+00 - STA. 481+00
- ① STA. 512+00 - STA. 540+00
- ① STA. 548+00 - STA. 580+00

- ① 12-INCH EXISTING BASE COURSE THICKNESS STA. 83+00 - STA. 100+27.
- ② CLEAR ZONE REQUIREMENTS WERE NOT IDENTIFIED ON THE AS-BUILT PLANS.



**EXISTING TYPICAL SECTION**

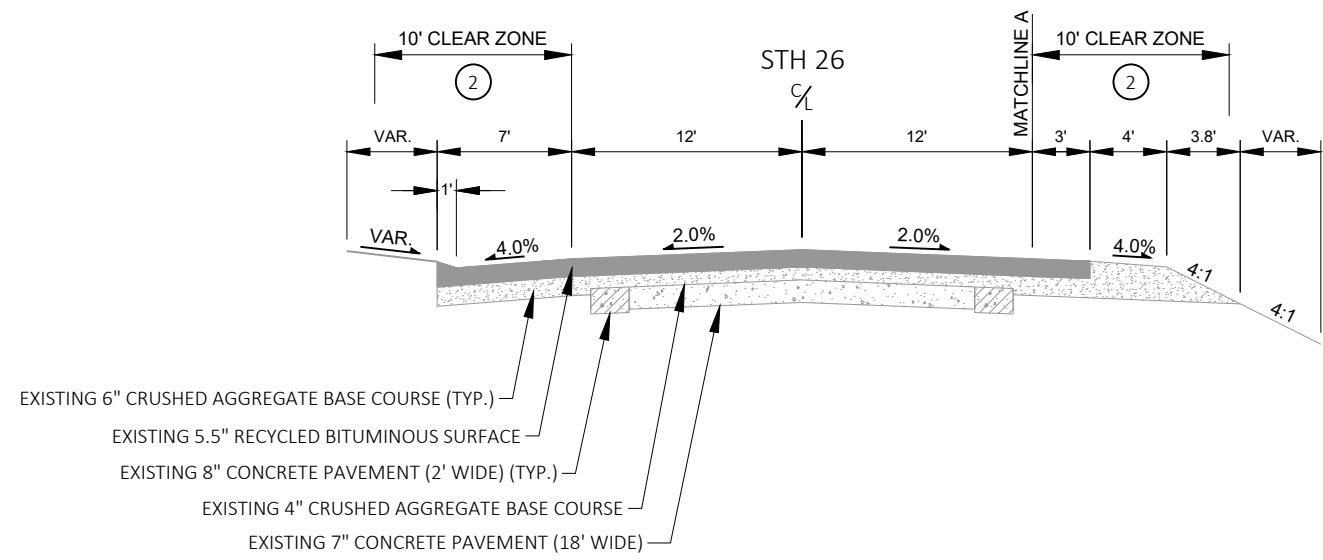
- ① STA. 119+27 - STA. 137+00
- ① STA. 147+00 - STA. 169+00
- ① STA. 180+00 - STA. 218+50
- ① STA. 231+50 - STA. 254+00
- ① STA. 261+50 - STA. 275+50
- ① STA. 503+00 - STA. 512+00



**EXISTING TYPICAL SECTION**

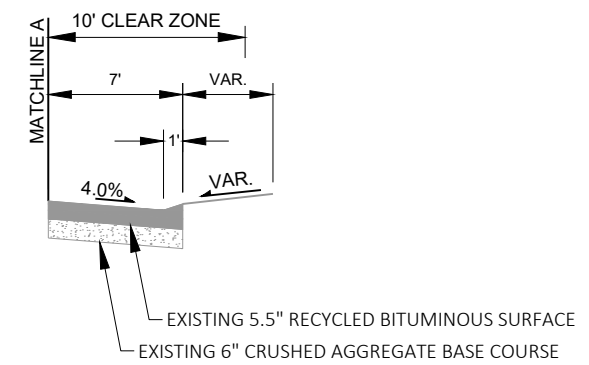
- STA. 22+50 - STA. 34+50
- STA. 60+00 - STA. 83+00
- ① STA. 100+27 - STA. 119+27
- STA. 137+00 - STA. 147+00
- STA. 169+00 - STA. 180+00
- STA. 254+00 - STA. 261+50
- STA. 284+00 - STA. 313+50
- STA. 331+00 - STA. 339+00
- STA. 372+50 - STA. 435+00
- STA. 443+50 - STA. 475+00
- STA. 481+00 - STA. 503+00
- STA. 540+00 - STA. 548+00

- ① 6-INCH EXISTING BASE COURSE OVER 6-INCH EXISTING SUBBASE COURSE STA. 100+27 - STA. 119+27.
- ② CLEAR ZONE REQUIREMENTS WERE NOT IDENTIFIED ON THE AS-BUILT PLANS.

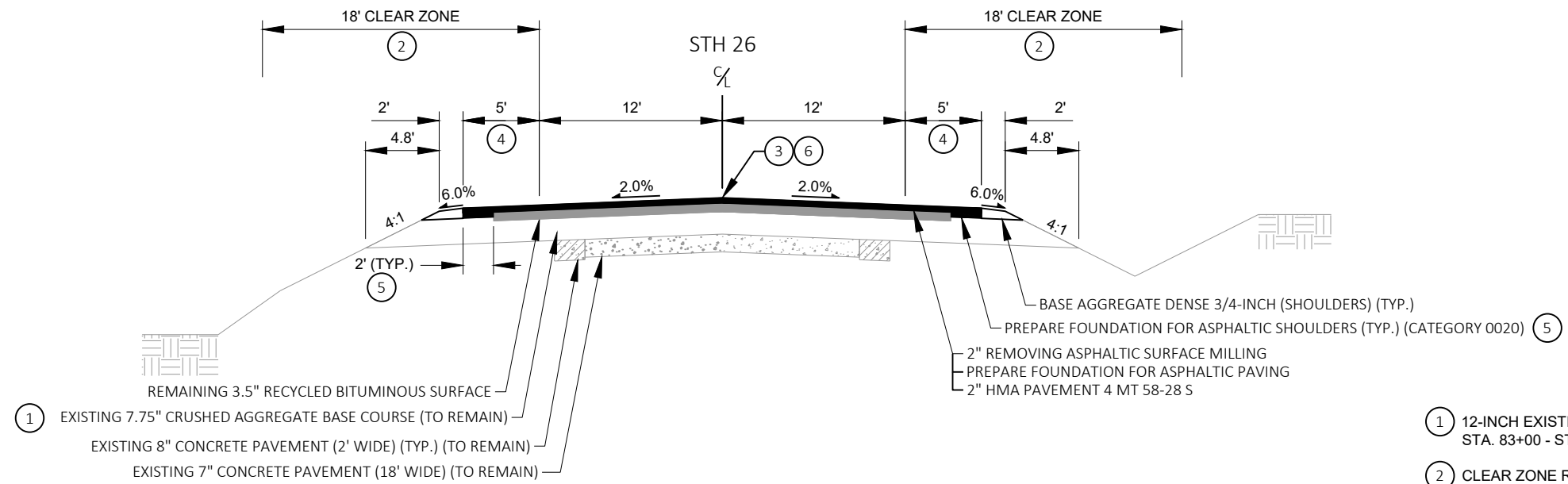


**EXISTING TYPICAL SECTION**

STA. 218+50 - STA. 231+50



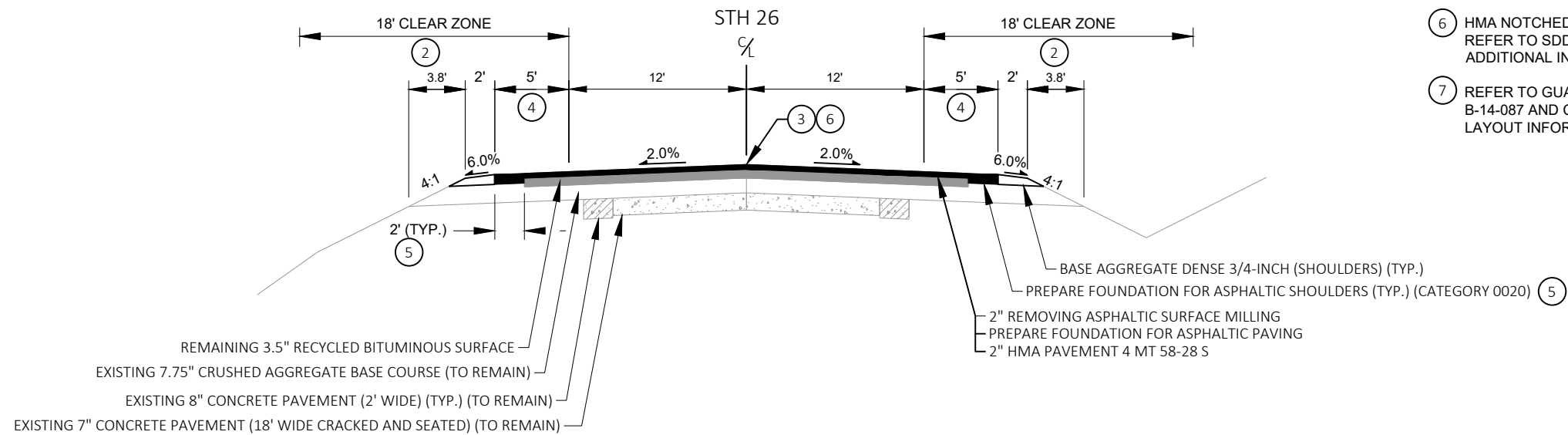
STA. 221+00 - STA. 231+50



**FINISHED TYPICAL SECTION**

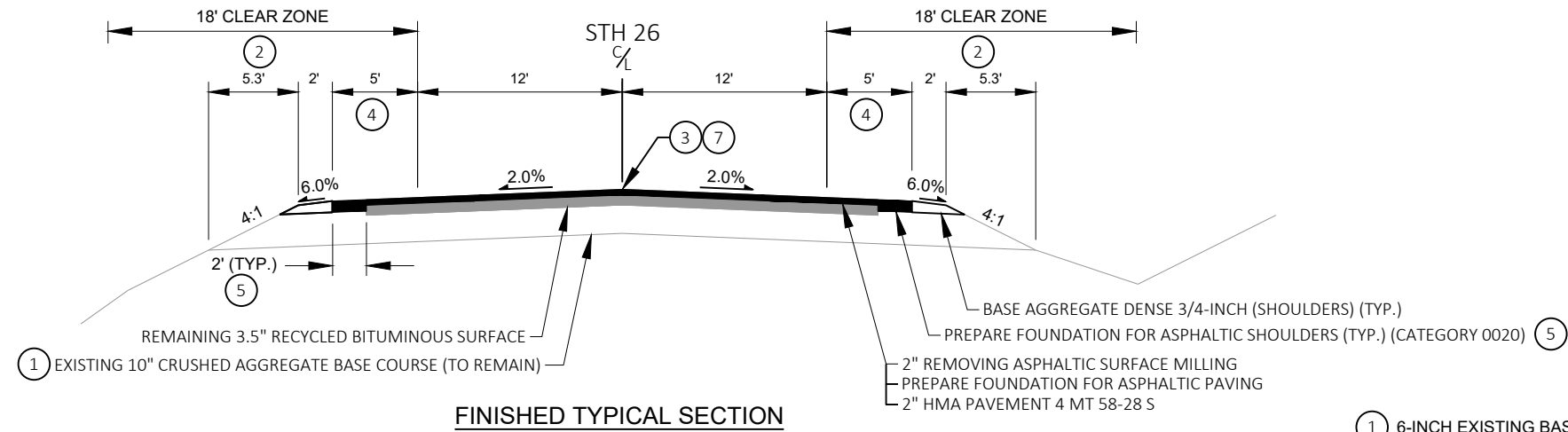
- |                           |                               |
|---------------------------|-------------------------------|
| STA. 2+75 - STA. 22+50    | STA. 435+00 - STA. 443+50     |
| STA. 34+50 - STA. 60+00   | STA. 475+00 - STA. 481+00     |
| STA. 83+00 - STA. 100+27  | STA. 512+00 - STA. 540+00     |
| STA. 275+50 - STA. 284+00 | STA. 548+00 - STA. 580+00 (7) |
| STA. 313+50 - STA. 331+00 |                               |
| STA. 339+00 - STA. 372+50 |                               |

- 1 12-INCH EXISTING BASE COURSE THICKNESS STA. 83+00 - STA. 100+27.
- 2 CLEAR ZONE REQUIREMENTS WERE NOT IDENTIFIED ON THE AS-BUILT PLANS.
- 3 ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D.
- 4 ASPHALTIC RUMBLE STRIPS, SHOULDER REQ'D (CATEGORY 0020).
- 5 IN AREAS OF PAVED SHOULDER WIDENING (2-FOOT WIDTH), PLACE ADDITIONAL 2 INCH ASPHALTIC SURFACE LOWER LAYER (USE HMA PAVEMENT 4 MT 58-28 S). (FULL DEPTH OF PAVEMENT WITHIN 2-FOOT LIMIT PAID FOR UNDER CATEGORY 0020).
- 6 HMA NOTCHED WEDGE JOINT REQUIRED. REFER TO SDD "HMA LONGITUDINAL JOINTS" FOR ADDITIONAL INFORMATION.
- 7 REFER TO GUARDRAIL LAYOUT DETAIL - STRUCTURE B-14-087 AND CROSS SECTIONS FOR GUARDRAIL LAYOUT INFORMATION.

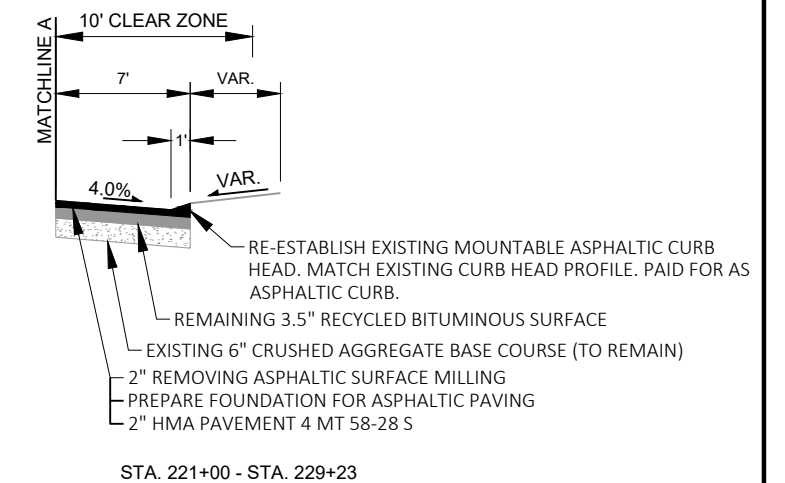
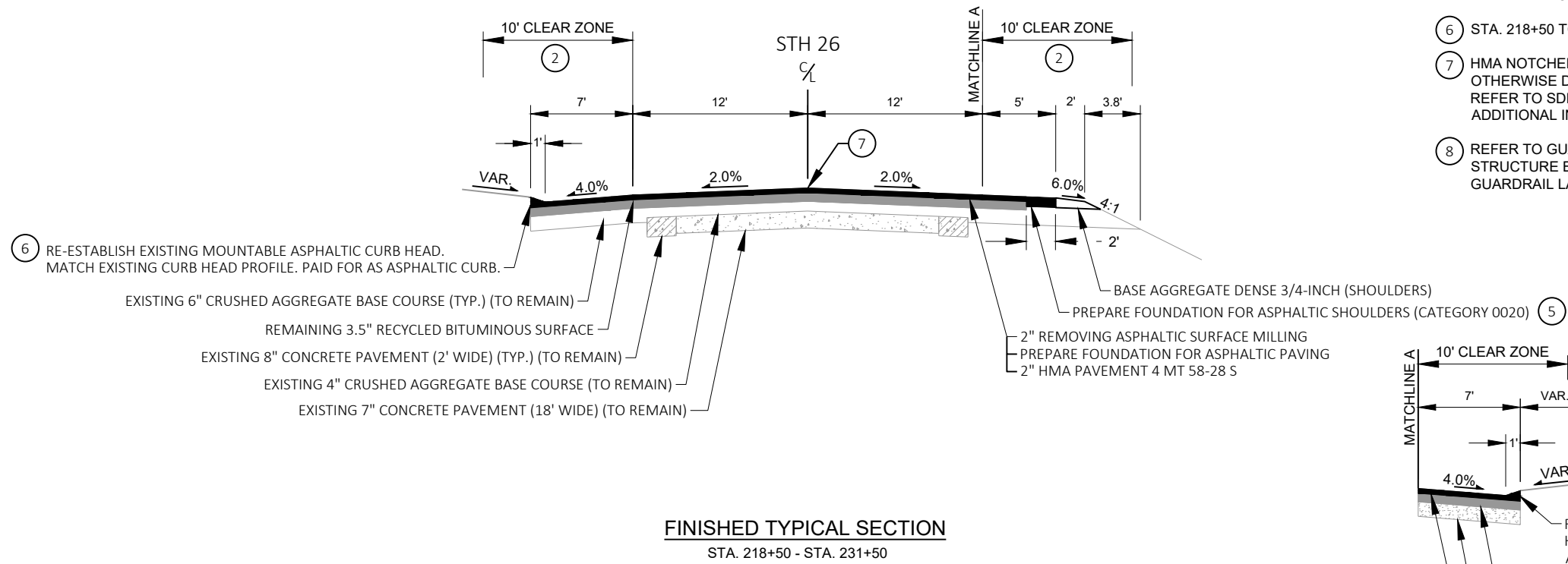


**FINISHED TYPICAL SECTION**

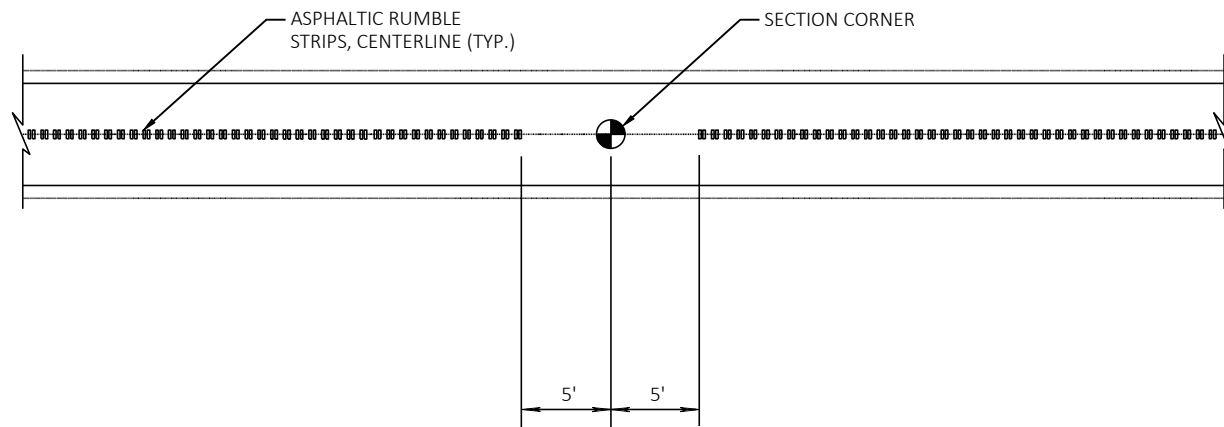
- |                           |                           |
|---------------------------|---------------------------|
| STA. 119+27 - STA. 137+00 | STA. 231+50 - STA. 254+00 |
| STA. 147+00 - STA. 169+00 | STA. 261+50 - STA. 275+50 |
| STA. 180+00 - STA. 218+50 | STA. 503+00 - STA. 512+00 |



- 1 6-INCH EXISTING BASE COURSE OVER 6-INCH EXISTING SUBBASE COURSE STA. 100+27 - STA. 119+27.
- 2 CLEAR ZONE REQUIREMENTS WERE NOT IDENTIFIED ON THE AS-BUILT PLANS.
- 3 ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D.
- 4 ASPHALTIC RUMBLE STRIPS, SHOULDER REQ'D (CATEGORY 0020).
- 5 IN AREAS OF PAVED SHOULDER WIDENING (2-FOOT WIDTH), PLACE ADDITIONAL 2 INCH ASPHALTIC SURFACE LOWER LAYER (USE HMA PAVEMENT 4 MT 58-28 S). (FULL DEPTH OF PAVEMENT WITHIN 2-FOOT LIMIT PAID FOR UNDER CATEGORY 0020).
- 6 STA. 218+50 TO STA.229+59.
- 7 HMA NOTCHED WEDGE JOINT REQUIRED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. REFER TO SDD "HMA LONGITUDINAL JOINTS" FOR ADDITIONAL INFORMATION.
- 8 REFER TO GUARDRAIL LAYOUT DETAIL - STRUCTURE B-14-097 AND CROSS SECTIONS FOR GUARDRAIL LAYOUT INFORMATION.



NOT TO SCALE



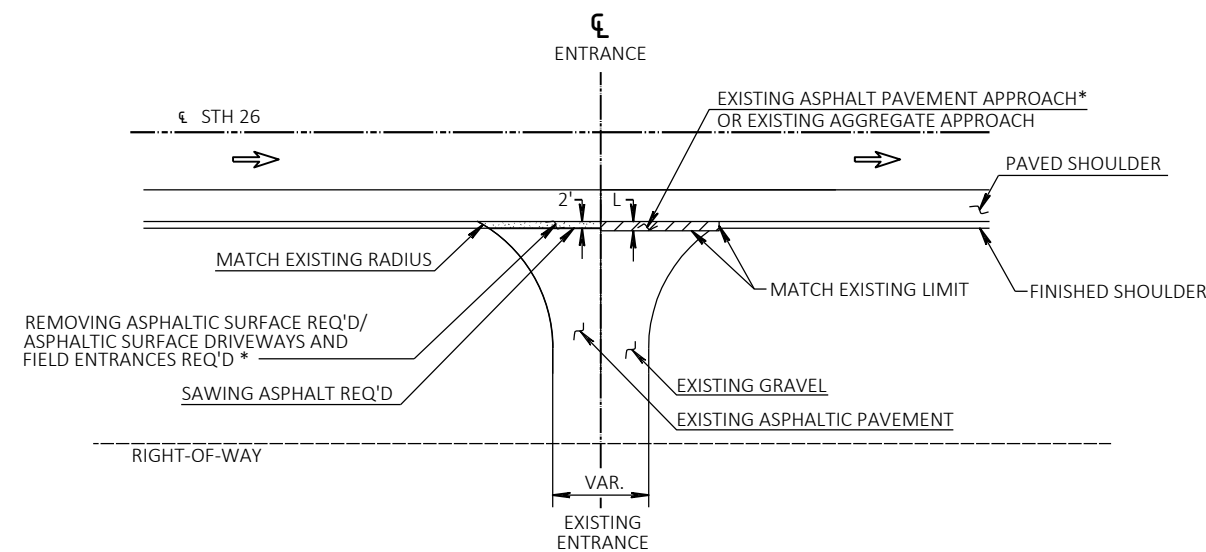
**ASPHALTIC RUMBLE STRIPS, CENTERLINE AT SECTION CORNER LOCATIONS**

NOTE: REFER TO PLAN SHEETS FOR SECTION CORNER LOCATIONS.

**RUNOFF COEFFICIENT TABLE**

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

TOTAL PROJECT AREA = 123.6 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.7 ACRES

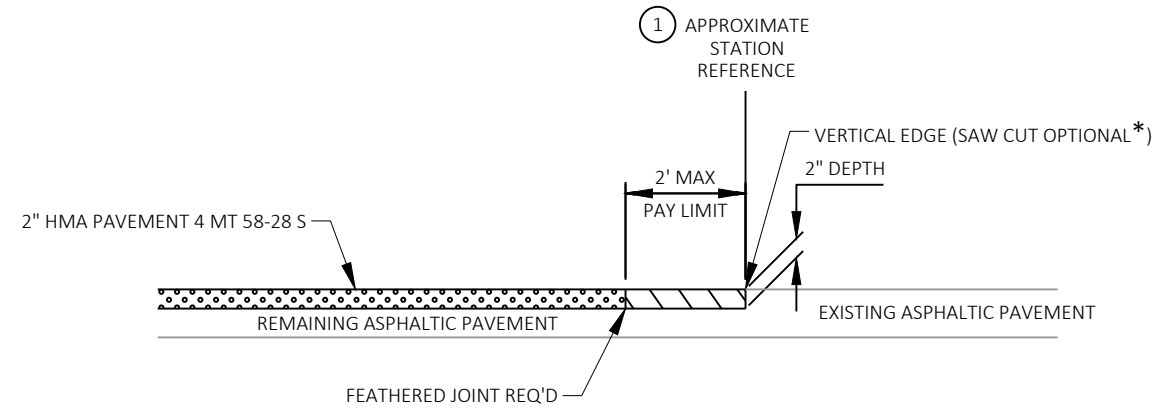


\* 3-INCHES ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES OVER VARIABLE DEPTH BASE AGGREGATE DENSE 3/4-INCH



**RURAL DRIVEWAY DETAIL**



NOT TO SCALE



\*NOT PAID FOR SEPARATELY

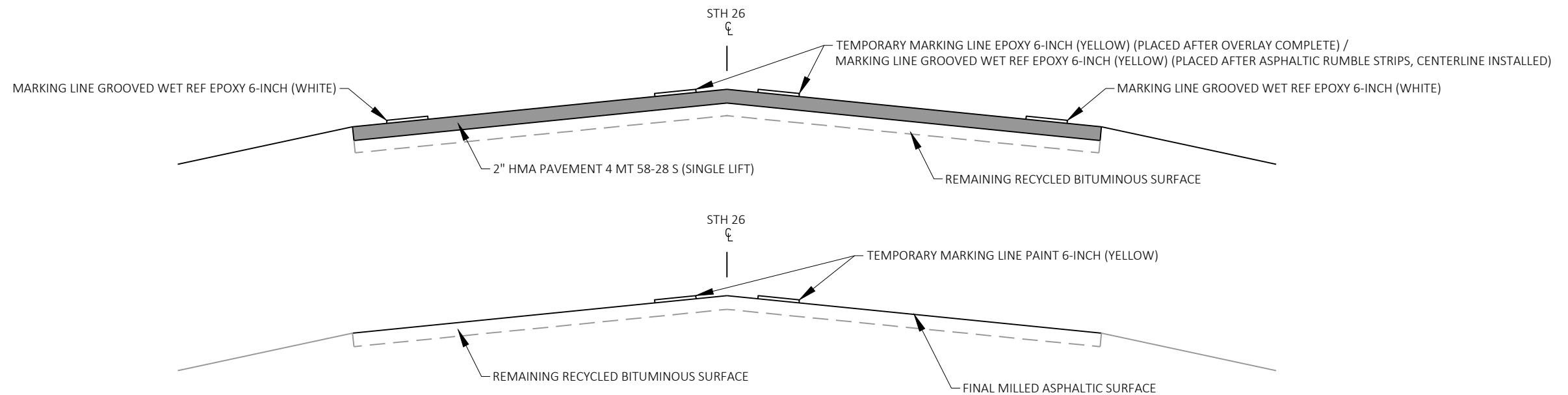
-  REMOVING ASPHALTIC SURFACE MILLING (2-INCHES)
-  REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE PAID FOR UNDER BID ITEM REMOVING ASPHALTIC SURFACE BUTT JOINTS.

① EDGE OF DECK AT B-14-097

REMOVING ASPHALTIC SURFACE BUTT JOINTS DETAIL (NO PROFILE CHANGE)

STA. 2+56 (BEGIN PROJECT)  
 STA. 580+00 (END PROJECT)  
 SIDEROAD MATCH (END OF RADIUS)  
 ① B-14-097 (MILL CREEK)

NOT TO SCALE

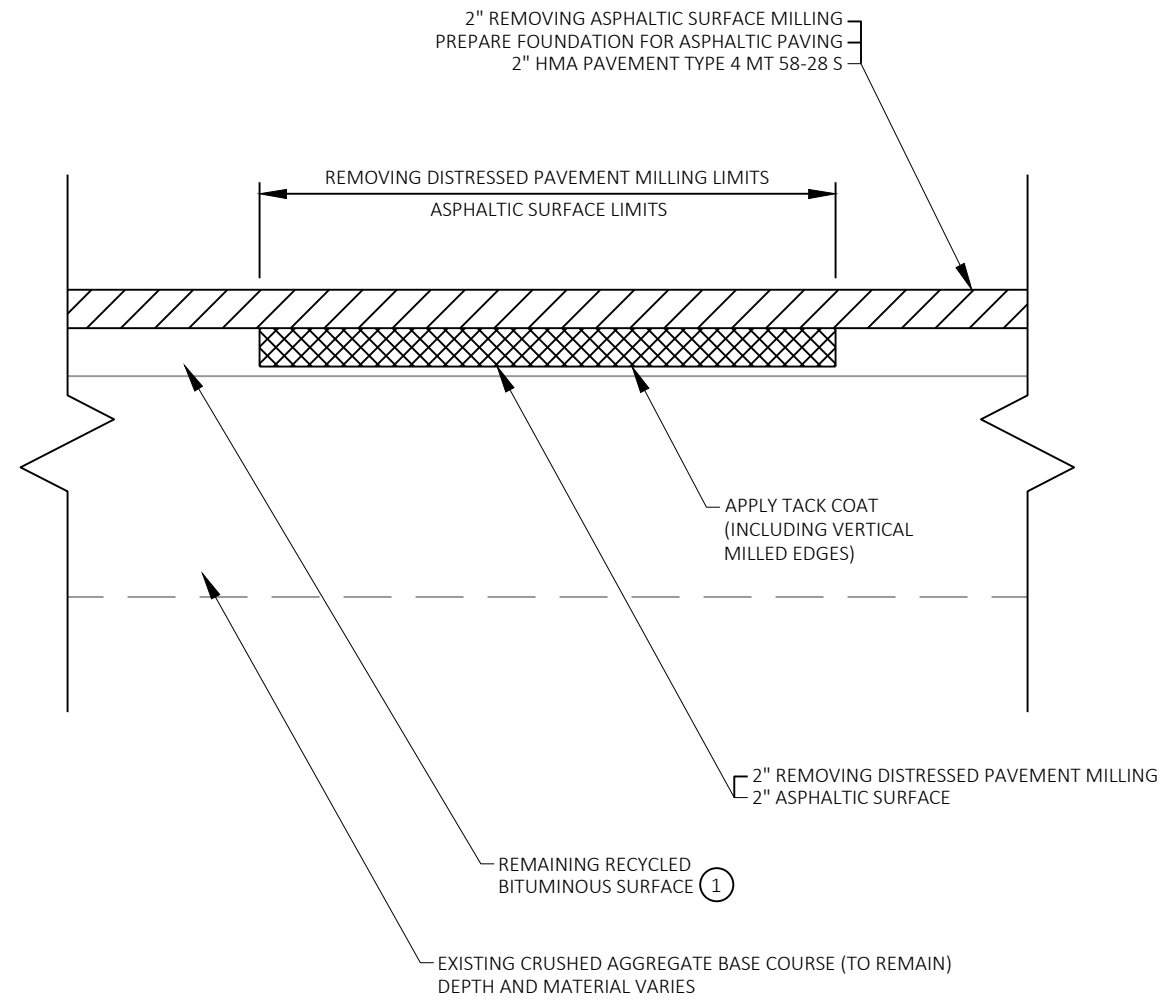


PAVEMENT MARKING APPLICATION SEQUENCE DETAIL

NOTE: ALL NEW CENTERLINE PASSING/NO PASSING PAVEMENT MARKING (BEGIN/END) LOCATIONS TO MATCH EXISTING PASSING/NO PASSING MARKING (BEGIN/END) LOCATIONS.

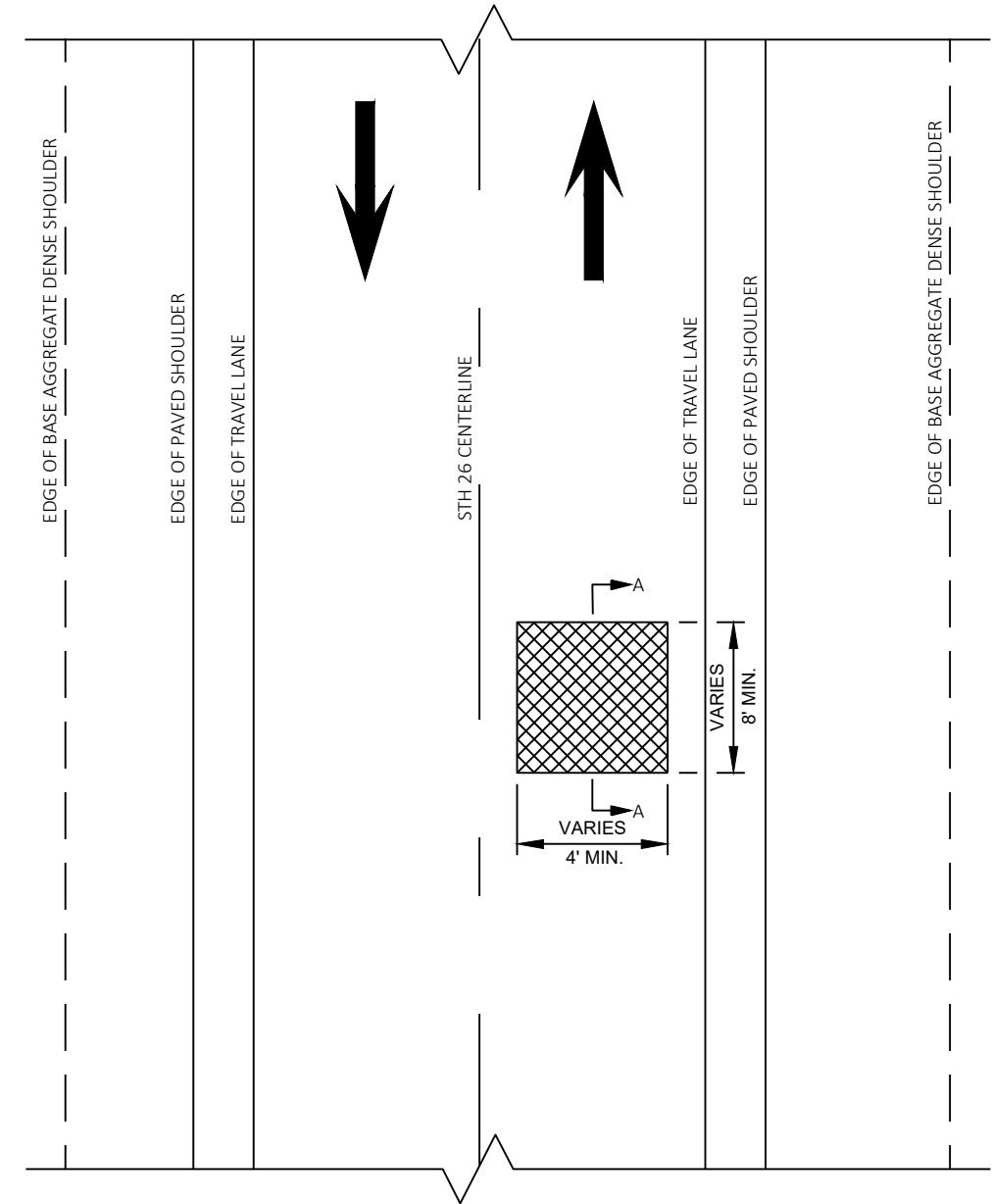
SEE SDD "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" FOR ADDITIONAL INFORMATION.

NOT TO SCALE



SECTION A -A

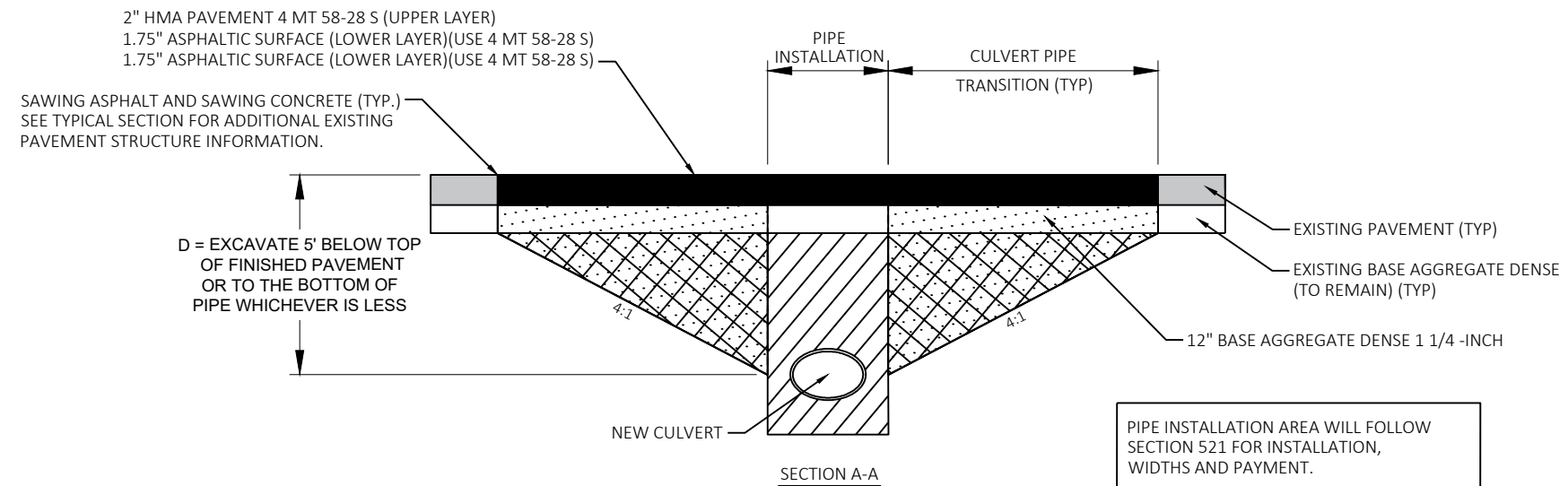
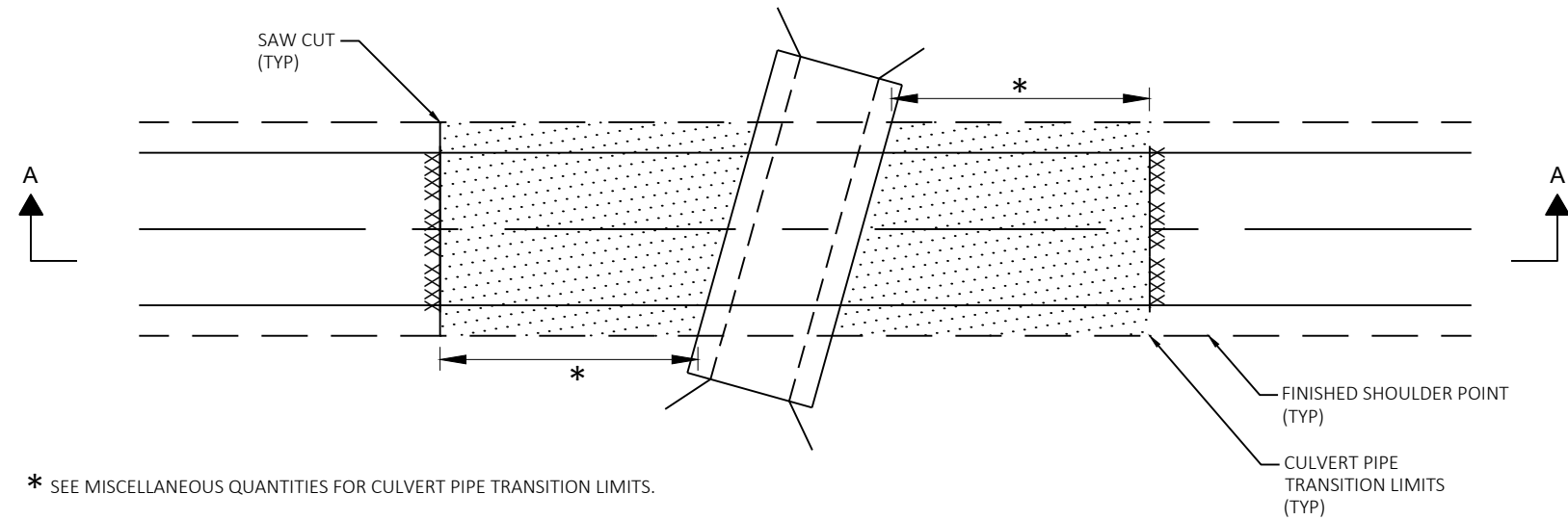
① VARIES. SEE TYPICAL SECTIONS FOR EXISTING PAVEMENT THICKNESSES.



PLAN VIEW

REMOVING DISTRESSED PAVEMENT MILLING

NOTE: EXACT LOCATION AND LIMITS OF REMOVING DISTRESSED PAVEMENT MILLING TO BE DETERMINED BY THE ENGINEER IN THE FIELD.



- EXCAVATION COMMON
- FOUNDATION BACKFILL (NOT PAID FOR SEPARATELY)
- FOUNDATION BACKFILL FOR CULVERT PIPE TRANSITION AREAS

PIPE INSTALLATION AREA WILL FOLLOW SECTION 521 FOR INSTALLATION, WIDTHS AND PAYMENT.

CONSTRUCT TRANSITION PERPENDICULAR TO CULVERT PIPE.

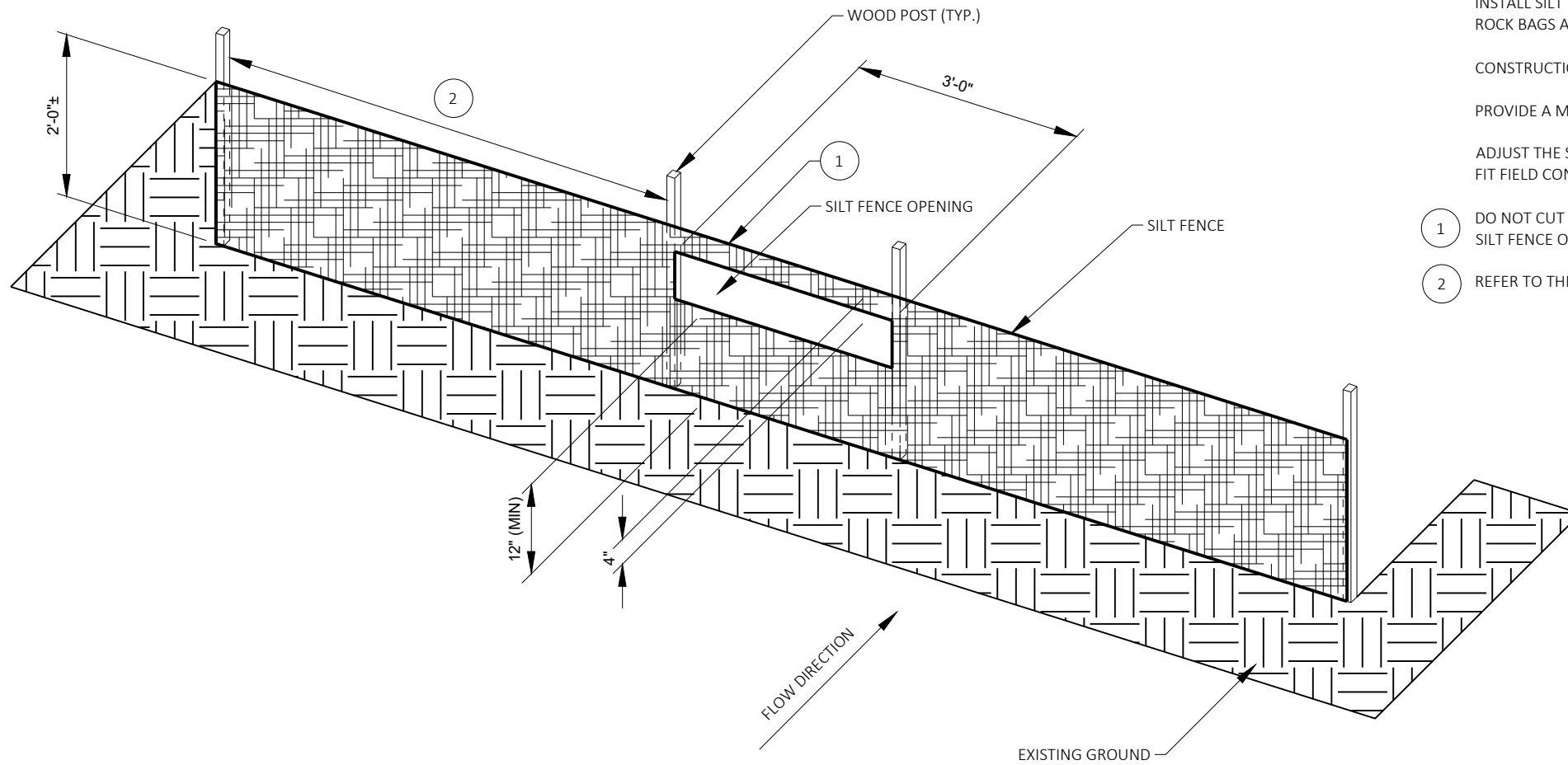
CULVERT PIPE TRANSITION AREAS WILL BE PAID BY EXCAVATION COMMON & SPV FOUNDATION BACKFILL FOR CULVERT PIPE TRANSITION AREAS.

PAVEMENT SAW CUT TO BE PERPENDICULAR TO ROADWAY ALIGNMENT.

**NEW CORRUGATED STEEL CULVERT PIPES WITH TRANSITION**

STA. 24+61	STA. 325+64
STA. 46+59	STA. 473+83
STA. 218+21	STA. 505+52
STA. 218+31	STA. 572+91

NOT TO SCALE



### GENERAL NOTES

THE SILT FENCE RELIEF DETAIL IS A SUPPLEMENTAL DETAIL TO THE SILT FENCE STANDARD DETAILS AND SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

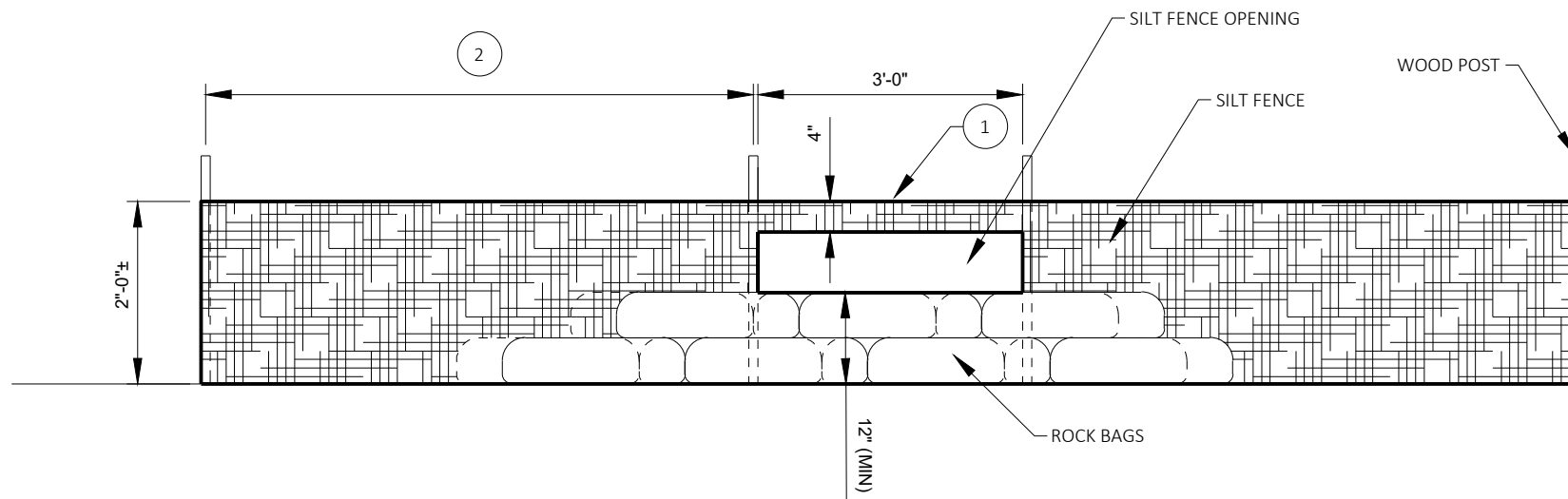
INSTALL SILT FENCE PRIOR TO CONSTRUCTING THE SILT FENCE OPENING. PRIOR TO CONSTRUCTING THE SILT FENCE OPENING, PLACE ROCK BAGS AT THE SILT FENCE OPENING AS SHOWN IN THIS DETAIL.

CONSTRUCTION OF THE SILT FENCE OPENING SHALL BE INCLUDED IN THE COST OF THE SILT FENCE BID ITEM.

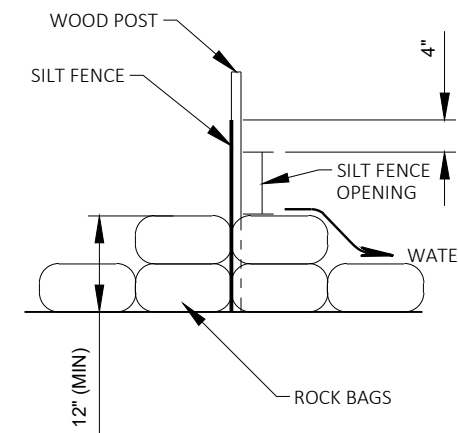
PROVIDE A MINIMUM OF 22 ROCK BAGS PER 3 FOOT OPENING. ROCK BAGS SHALL BE PAID FOR UNDER THE ROCK BAGS BID ITEMS.

ADJUST THE SILT FENCE RELIEF OPENINGS WITHIN THE SILT FENCE AS NECESSARY TO PROVIDE RELIEF AS SHOWN ON THE PLANS, TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE FIELD ENGINEER.

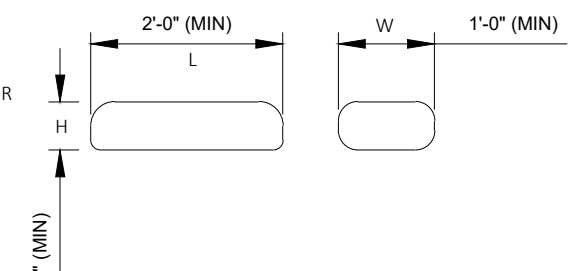
- 1 DO NOT CUT THE SUPPORT CORD OR TENSION TAPE WHEN CONSTRUCTING THE SILT FENCE OPENING. KEEP THE TOP OF THE SILT FENCE OPENING 1"± BELOW THE 3" FOLD AT THE SUPPORT CORD OR TENSION TAPE.
- 2 REFER TO THE SILT FENCE STANDARD DETAIL DRAWINGS FOR ALLOWABLE ADJUSTMENTS TO POST SPACING.



### SECTION VIEW

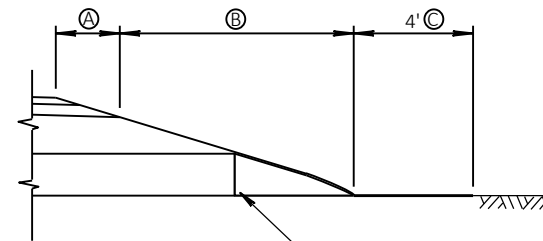
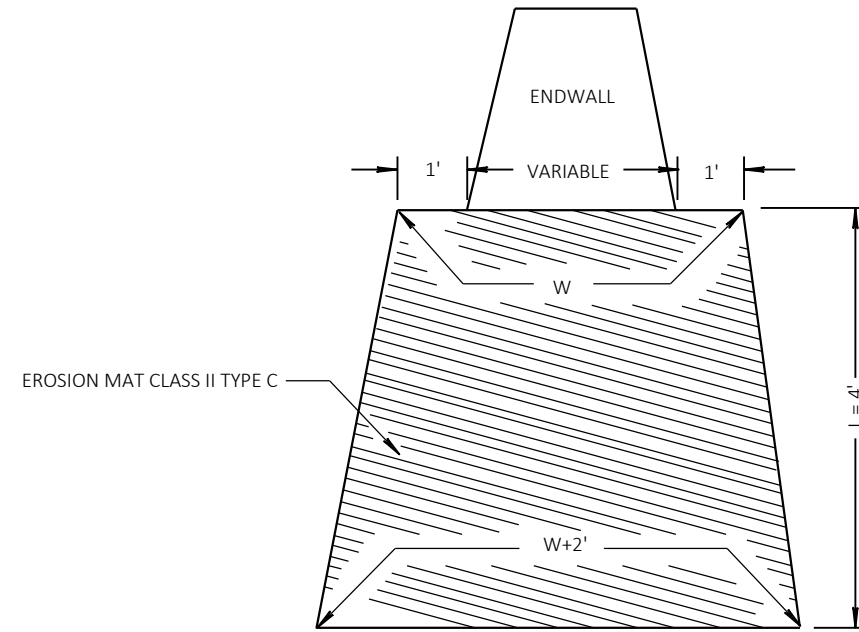


### ROCK BAG DETAIL



SILT FENCE RELIEF DETAIL

NOT TO SCALE



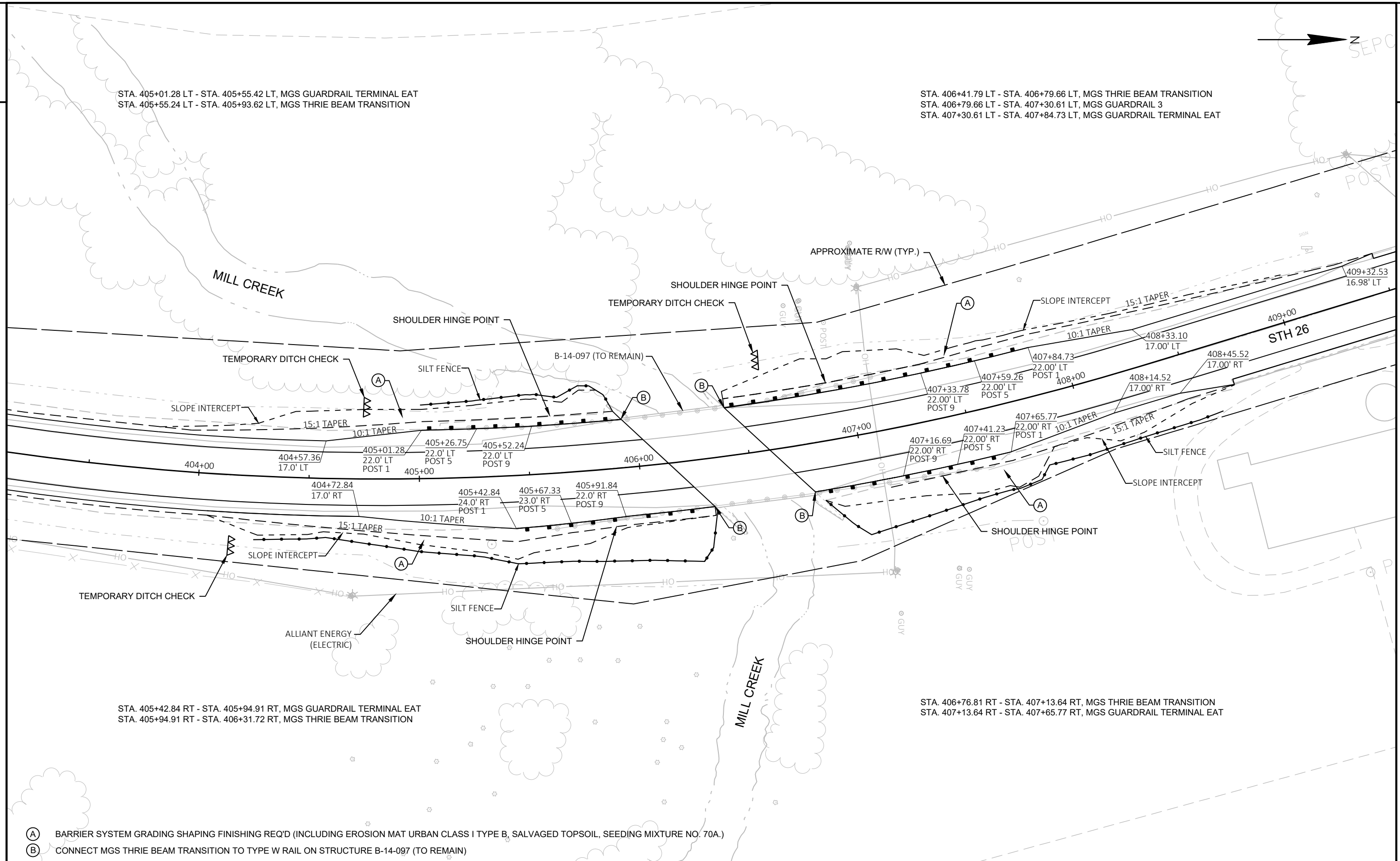
INSTALL CULVERT PIPE CHECKS AT UPSTREAM SIDE.  
SEE MISCELLANEOUS QUANTITIES FOR ADDITIONAL INFORMATION.

- Ⓐ FERTILIZER TYPE A; SEEDING MIXTURE NO. 40
- Ⓑ TOPSOIL; FERTILIZER TYPE A; SEEDING MIXTURE NO. 40; MULCHING
- Ⓒ TOPSOIL; FERTILIZER TYPE A; SEEDING MIXTURE NO. 40; EROSION MAT CLASS II TYPE C

EROSION CONTROL/FINISHING AT CULVERT PIPE REPLACEMENT LOCATIONS

STA. 405+01.28 LT - STA. 405+55.42 LT, MGS GUARDRAIL TERMINAL EAT  
STA. 405+55.24 LT - STA. 405+93.62 LT, MGS THRIE BEAM TRANSITION

STA. 406+41.79 LT - STA. 406+79.66 LT, MGS THRIE BEAM TRANSITION  
STA. 406+79.66 LT - STA. 407+30.61 LT, MGS GUARDRAIL 3  
STA. 407+30.61 LT - STA. 407+84.73 LT, MGS GUARDRAIL TERMINAL EAT



STA. 405+42.84 RT - STA. 405+94.91 RT, MGS GUARDRAIL TERMINAL EAT  
STA. 405+94.91 RT - STA. 406+31.72 RT, MGS THRIE BEAM TRANSITION

STA. 406+76.81 RT - STA. 407+13.64 RT, MGS THRIE BEAM TRANSITION  
STA. 407+13.64 RT - STA. 407+65.77 RT, MGS GUARDRAIL TERMINAL EAT

- (A) BARRIER SYSTEM GRADING SHAPING FINISHING REQ'D (INCLUDING EROSION MAT URBAN CLASS I TYPE B, SALVAGED TOPSOIL, SEEDING MIXTURE NO. 70A.)
- (B) CONNECT MGS THRIE BEAM TRANSITION TO TYPE W RAIL ON STRUCTURE B-14-097 (TO REMAIN)

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	GUARDRAIL LAYOUT DETAIL - STRUCTURE B-14-097	SHEET	E
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STA. 563+99.29 LT - STA. 564+49.25 LT, STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL  
STA. 564+49.25 LT - STA. 564+99.25 LT, STEEL PLATE BEAM GUARD CLASS A

STA. 565+24.25 LT - STA. 565+99.25 LT, STEEL PLATE BEAM GUARD CLASS A  
STA. 565+99.25 LT - STA. 566+49.21 LT, STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

PLUM CREEK

SLAB

B-14-087 (TO REMAIN)

(B) STA. 564+99.25 LT - STA. 565+24.25 LT, ADJUSTING STEEL PLATE BEAM GUARD REQ'D

TEMPORARY DITCH CHECK

SLOPE INTERCEPT

563+99.29 21.0' LT POST 1  
564+24.27 20.0' LT POST 5  
564+49.25 19.0' LT POST 9

565+99.25 19.00' LT POST 9  
566+24.23 20.00' LT POST 5  
566+49.21 21.00' LT POST 1

APPROXIMATE R/W (TYP.)

ALLIANT ENERGY (ELECTRIC)

15:1 TAPER

SLOPE INTERCEPT

10:1 TAPER

(A)

(A)

15:1 TAPER

10:1 TAPER

563+00 563+59.29 17.0' LT 564+00 565+00 566+00 566+89.21 17.02' LT 567+00 568+00

STH 26

563+50.51 17.0' RT

566+60.27 17.00' RT

15:1 TAPER

10:1 TAPER

(A)

SLOPE INTERCEPT

563+90.32 21.0' RT POST 1  
564+15.30 20.0' RT POST 5  
564+40.27 19.0' RT POST 9

565+90.27 19.0' RT POST 9  
566+15.27 19.0' RT POST 5  
566+40.27 19.00' RT POST 1

15:1 TAPER

SLOPE INTERCEPT

PLUM CREEK

TEMPORARY DITCH CHECK

SILT FENCE

(B) STA. 565+15.27 RT - STA. 565+52.77 RT, ADJUSTING STEEL PLATE BEAM GUARD REQ'D

PAETEC (COMMUNICATION)

STA. 563+90.32 RT - STA. 564+40.27 RT, STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL  
STA. 564+40.27 RT - STA. 565+15.27 RT, STEEL PLATE BEAM GUARD CLASS A

STA. 565+52.77 RT - STA. 565+90.27 RT, STEEL PLATE BEAM GUARD CLASS A  
STA. 565+90.27 RT - STA. 566+40.27 RT, STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

- (A) BARRIER SYSTEM GRADING SHAPING FINISHING REQ'D (INCLUDING EROSION MAT URBAN CLASS I TYPE B, SALVAGED TOPSOIL, SEEDING MIXTURE NO. 70A.)
- (B) CONNECT STEEL PLATE BEAM GUARD CLASS A TO EXISTING STEEL PLATE BEAM GUARD CLASS A ATTACHED TO BOX CULVERT B-14-087 (AFTER ADJUSTING IS COMPLETE)

**GENERAL NOTES FOR TRAFFIC CONTROL**

2

ALL SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTOR'S METHODS OR SEQUENCES OF OPERATION.

TEMPORARY OR PERMANENT SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN SHALL BE REMOVED OR COVERED.

ROAD MACHINERY, TRUCK ENTRANCE, FLAGMEN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO WARNING LIGHT SHALL BE USED WITH A COVERED SIGN.

"WO" SERIES SIGNS ARE "W" SERIES EXCEPT THE BACKGROUND IS ORANGE.

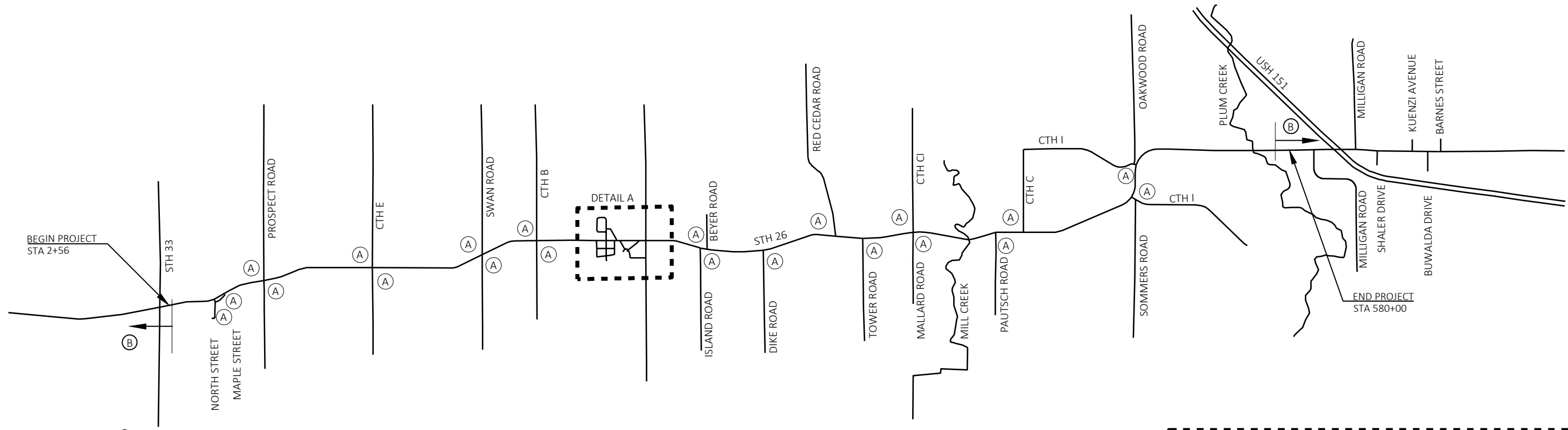
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

FOR ADDITIONAL INFORMATION SEE STANDARD DETAIL DRAWINGS:  
 "TRAFFIC CONTROL, ADVANCED WARNING SIGNS 45 MPH OR GREATER UNDIVIDED ROAD OPEN TO TRAFFIC"  
 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"  
 "MOVING PAVEMENT MARKING OPERATION, TWO-LANE TWO-WAY ROADWAY"  
 "TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES"  
 "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY"  
 "TRAFFIC CONTROL SIGNING ON ROADWAYS WITH LOOSE GRAVEL"  
 "TRAFFIC CONTROL, DROP-OFF SIGNING"



2



PLACE W20-1A ON SIDE STREETS WHEN FLAGGING OPERATIONS ARE IN THE AREA, AS DIRECTED BY THE ENGINEER.

B

PLACE ADVANCED WARNING IN ACCORDANCE WITH STANDARD DETAIL DRAWING "TRAFFIC CONTROL, ADVANCED WARNING SIGNS 45 MPH OR GREATER UNDIVIDED ROAD OPEN TO TRAFFIC"



(WHEN REQUIRED)



(WHEN REQUIRED)



(WHEN REQUIRED)



(WHEN REQUIRED)



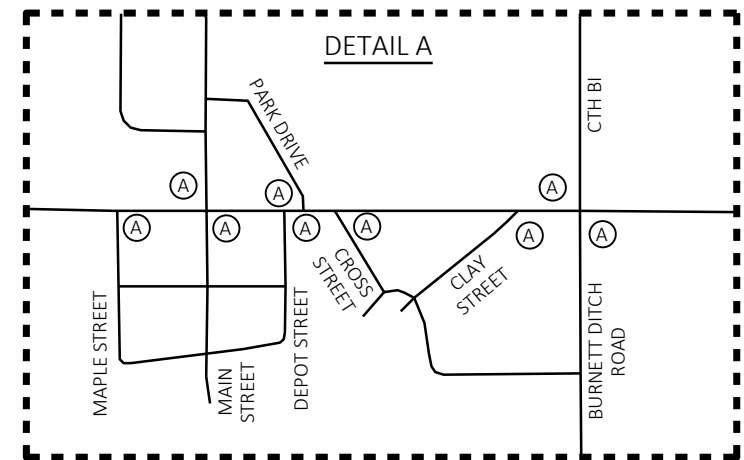
(WHEN REQUIRED)



(WHEN REQUIRED)



(WHEN REQUIRED)





**GENERAL NOTES FOR TRAFFIC CONTROL**

2

ALL SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTOR'S METHODS OR SEQUENCES OF OPERATION.

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ROAD MACHINERY, TRUCK ENTRANCE, FLAGMEN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO WARNING LIGHT SHALL BE USED WITH A COVERED SIGN.

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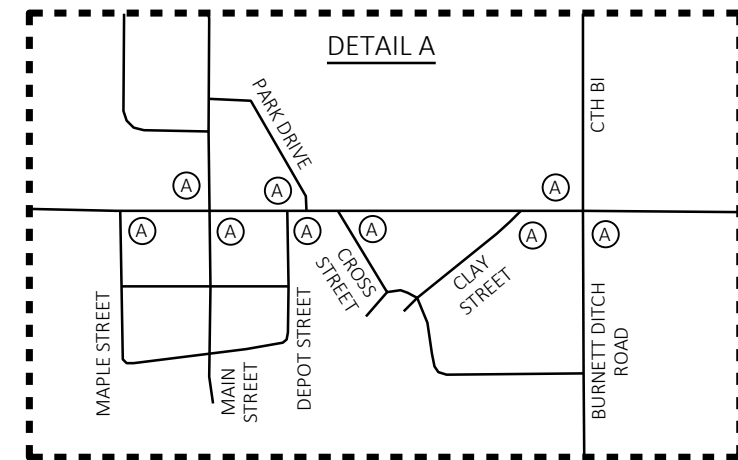
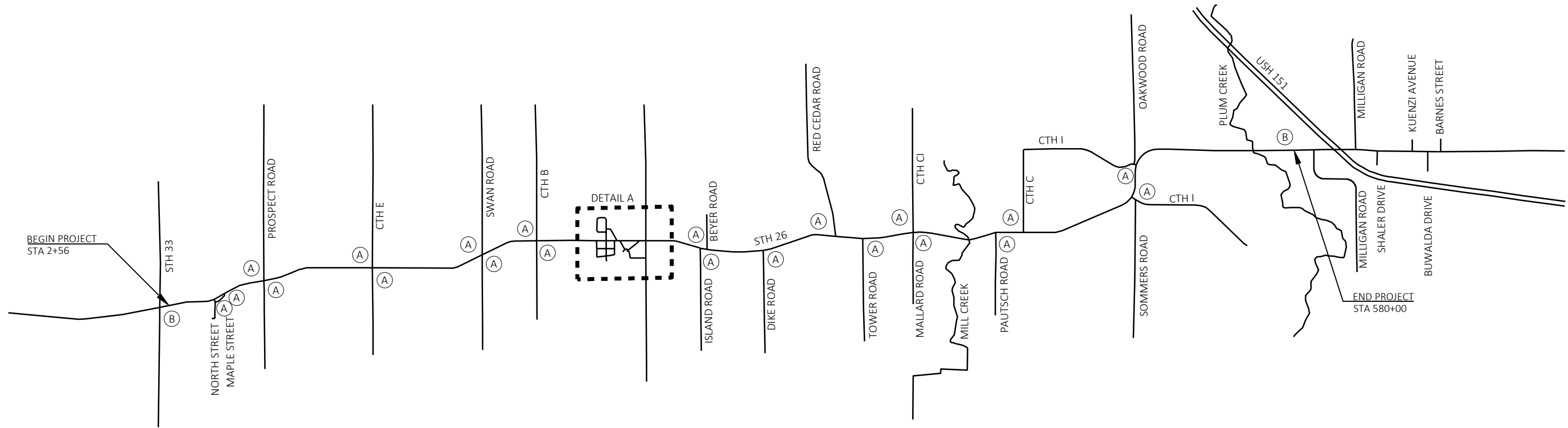
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

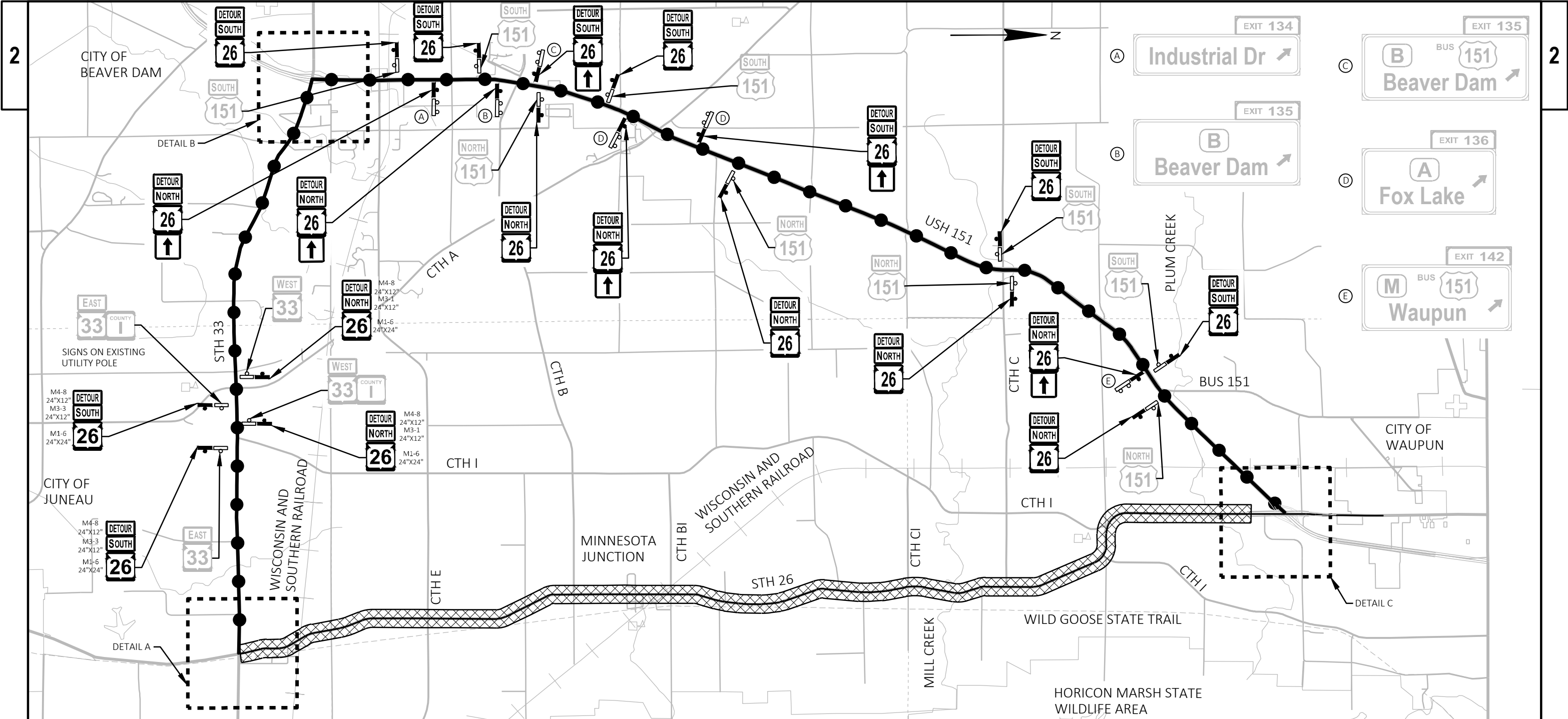
DETAILS OF TRAFFIC CONTROL NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, APPLICABLE SPECIAL PROVISIONS, AND THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD).

- (A) SEE SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" DETAIL 4.
- (B) SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" SHEET A - DETAIL B AND SHEET B - DETAIL E.



2





**GENERAL NOTES**

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

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

ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

ALL M3 SERIES SIGNS (NORTH, SOUTH, EAST, WEST) WHICH ARE PART OF ANY DETOUR MARKER SIGNING ASSEMBLY OR ATTACHED TO ANY WARNING SIGN SHALL BE BLACK LETTERING ON A WHITE BACKGROUND.

ALL M05 AND M06 ARROW SIGNS SHALL BE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

**SIGN LEGEND**

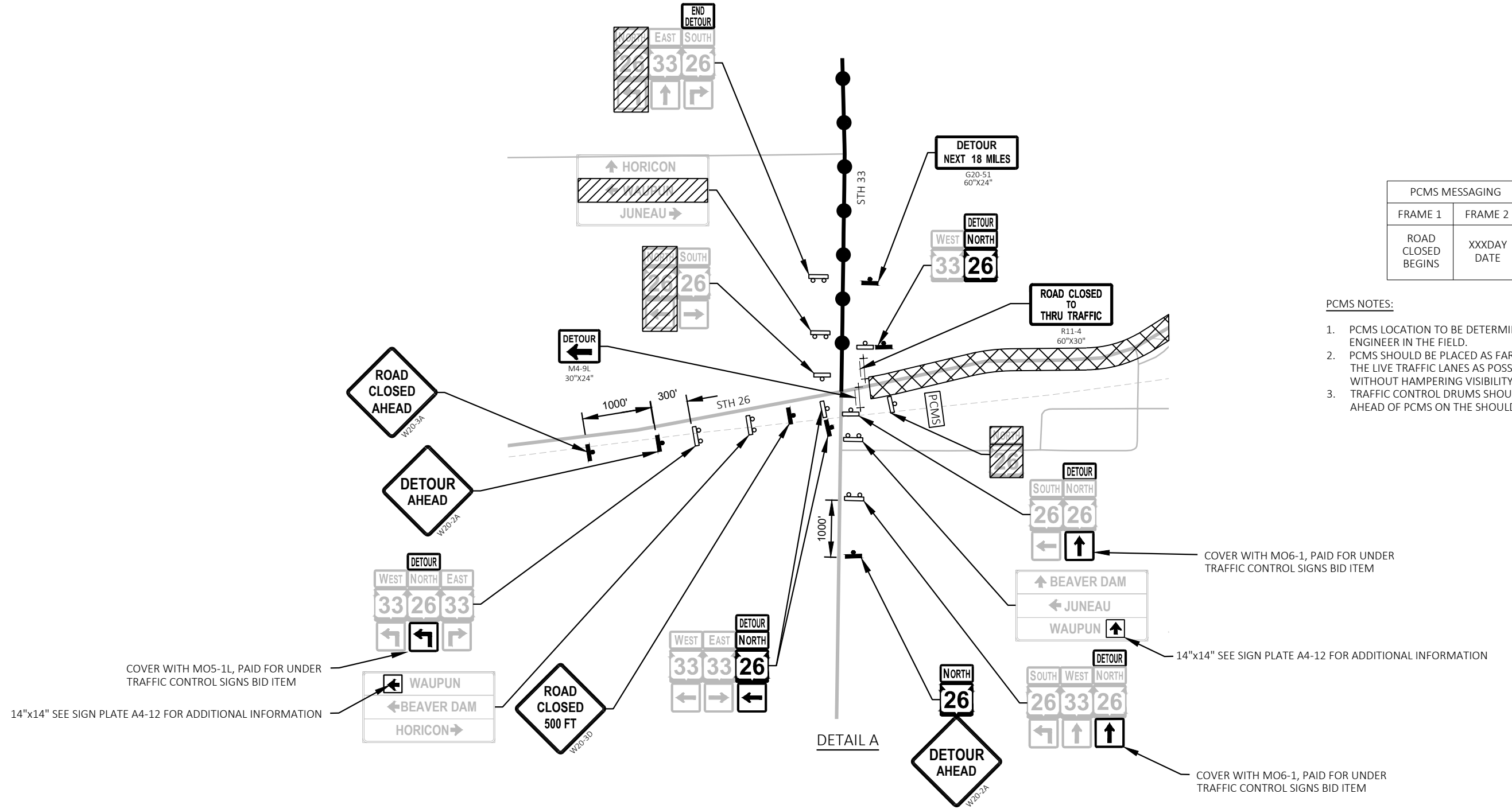
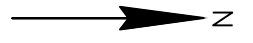
	M4-8 36"x18"		M06-1 30"x30"
	M4-8A 30"x24"		M06-1 30"x30"
	M3-1 36"x18"		M06-1 30"x30"
	M3-3 36"x18"		M05-1R 30"x30"
	M1-6 36"x36"		M05-1L 30"x30"

\*SIZES OF SIGNS ON THIS SHEET FOLLOW LEGEND UNLESS OTHERWISE NOTED

**LEGEND**

	DETOUR ROUTE
	EXISTING SIGNS AND POST(S) TO REMAIN
	WOOD POST(S) WITH ATTACHED SIGN
	EXISTING SIGN (TYP.)
	TRAFFIC CONTROL COVERING SIGNS TYPE 2 (TYP.)
	WORK ZONE

FOR ADDITIONAL INFORMATION SEE STANDARD DETAIL DRAWINGS:  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET A BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET B BARRICADES AND SIGNS FOR VARIOUS MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET C DETOUR SIGNING FOR MAINLINE CLOSURES"



PCMS MESSAGING	
FRAME 1	FRAME 2
ROAD CLOSED BEGINS	XXXDAY DATE

- PCMS NOTES:**
1. PCMS LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.
  2. PCMS SHOULD BE PLACED AS FAR AWAY FROM THE LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY.
  3. TRAFFIC CONTROL DRUMS SHOULD BE PLACED AHEAD OF PCMS ON THE SHOULDER.

**GENERAL NOTES**

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

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

ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

ALL M3 SERIES SIGNS (NORTH, SOUTH, EAST, WEST) WHICH ARE PART OF ANY DETOUR MARKER SIGNING ASSEMBLY OR ATTACHED TO ANY WARNING SIGN SHALL BE BLACK LETTERING ON A WHITE BACKGROUND.

ALL MO5 AND MO6 ARROW SIGNS SHALL BE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

**SIGN LEGEND**

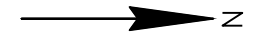
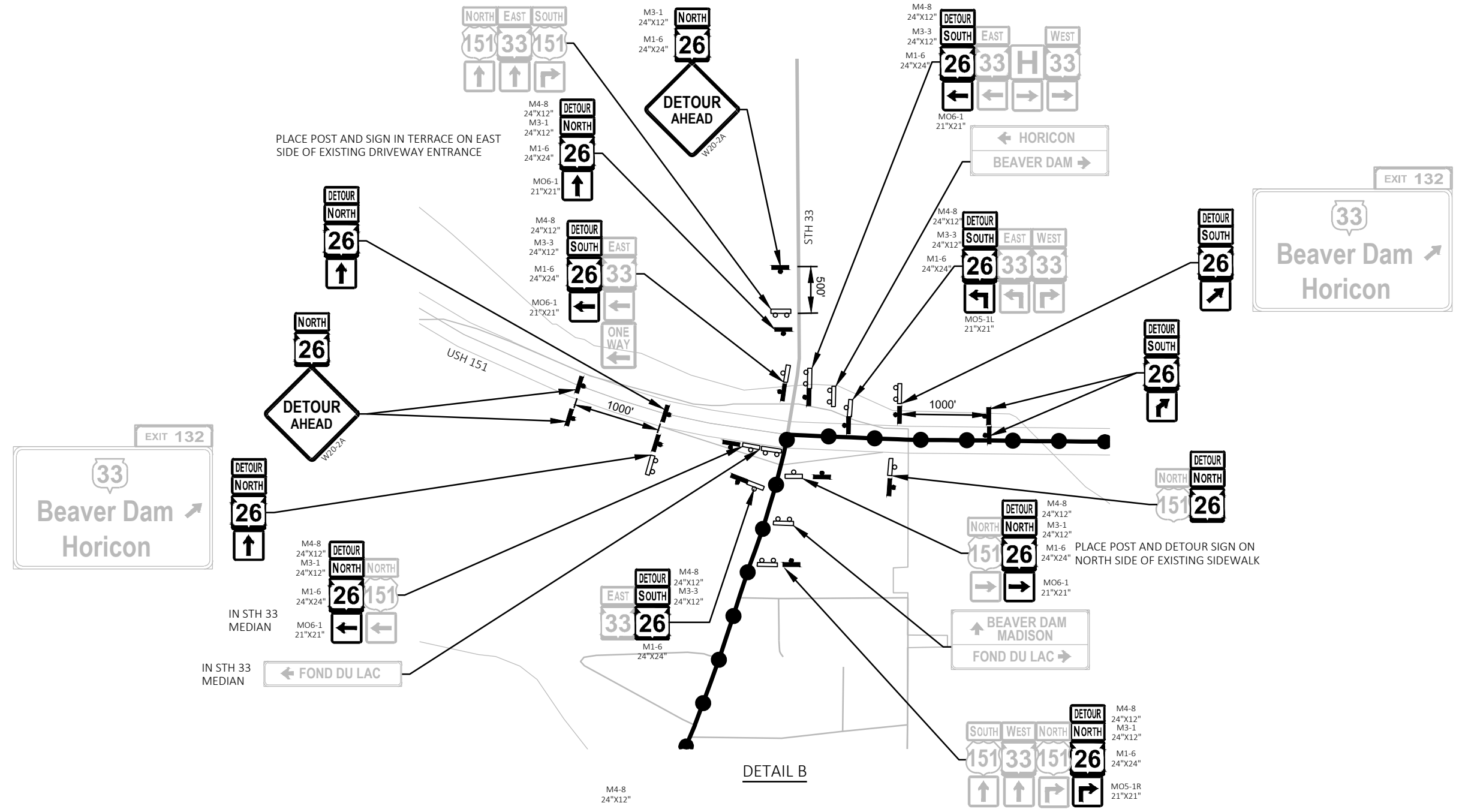
	M4-8 24"x12"		MO6-1 21"x21"
	M4-8A 24"x18"		MO6-1 21"x21"
	M3-1 24"x12"		MO6-1 21"x21"
	M3-3 24"x12"		MO5-1L 21"x21"
	M1-6 24"x24"		MO5-1R 21"x21"

**LEGEND**

	DETOUR ROUTE
	EXISTING SIGNS AND POST(S) TO REMAIN
	WOOD POST(S) WITH ATTACHED SIGN
	EXISTING SIGN (TYP.)
	TRAFFIC CONTROL COVERING SIGNS TYPE 2 (TYP.)
	WORK ZONE
	TRAFFIC CONTROL SIGNS PCMS

FOR ADDITIONAL INFORMATION SEE STANDARD DETAIL DRAWINGS:  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET A BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET B BARRICADES AND SIGNS FOR VARIOUS MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET C DETOUR SIGNING FOR MAINLINE CLOSURES"

\*SIZES OF SIGNS ON THIS SHEET FOLLOW LEGEND UNLESS OTHERWISE NOTED



**GENERAL NOTES**

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

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

ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

ALL M3 SERIES SIGNS (NORTH, SOUTH, EAST, WEST) WHICH ARE PART OF ANY DETOUR MARKER SIGNING ASSEMBLY OR ATTACHED TO ANY WARNING SIGN SHALL BE BLACK LETTERING ON A WHITE BACKGROUND.

ALL MO5 AND MO6 ARROW SIGNS SHALL BE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

**SIGN LEGEND**

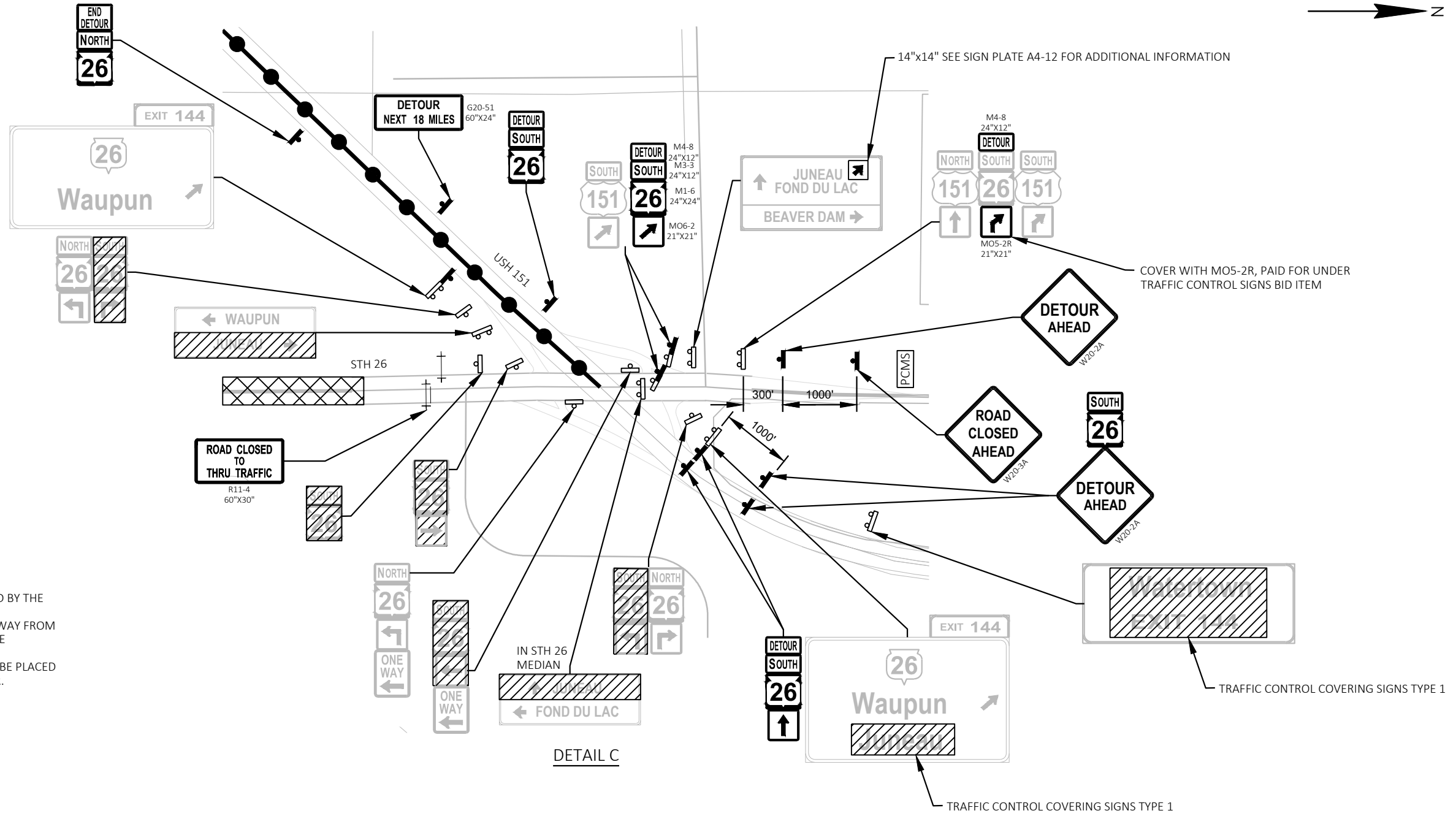
	M4-8 36"x18"		MO6-1 30"x30"		MO5-1R 30"x30"
	M4-8A 30"x24"		MO6-1 30"x30"		MO5-2R 30"x30"
	M3-1 36"x18"		MO6-1 30"x30"		MO6-2 30"x30"
	M3-3 36"x18"		MO5-1L 30"x30"		
	M1-6 36"x36"				

\*SIZES OF SIGNS ON THIS SHEET FOLLOW LEGEND UNLESS OTHERWISE NOTED

**LEGEND**

	DETOUR ROUTE
	EXISTING SIGNS AND POST(S) TO REMAIN
	WOOD POST(S) WITH ATTACHED SIGN
	EXISTING SIGN (TYP.)
	TRAFFIC CONTROL COVERING SIGNS TYPE 2 (TYP.)
	WORK ZONE
	TRAFFIC CONTROL SIGNS PCMS

FOR ADDITIONAL INFORMATION SEE STANDARD DETAIL DRAWINGS:  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET A BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET B BARRICADES AND SIGNS FOR VARIOUS MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET C DETOUR SIGNING FOR MAINLINE CLOSURES"



PCMS MESSAGING	
FRAME 1	FRAME 2
ROAD CLOSED BEGINS	XXXDAY DATE

PCMS NOTES:

1. PCMS LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. PCMS SHOULD BE PLACED AS FAR AWAY FROM THE LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY.
3. TRAFFIC CONTROL DRUMS SHOULD BE PLACED AHEAD OF PCMS ON THE SHOULDER.

GENERAL NOTES

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

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

ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

ALL M3 SERIES SIGNS (NORTH, SOUTH, EAST, WEST) WHICH ARE PART OF ANY DETOUR MARKER SIGNING ASSEMBLY OR ATTACHED TO ANY WARNING SIGN SHALL BE BLACK LETTERING ON A WHITE BACKGROUND.

ALL MO5 AND MO6 ARROW SIGNS SHALL BE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.

SIGN LEGEND

	M4-8 36"x18"		MO6-1 30"x30"
	M4-8A 30"x24"		MO6-1 30"x30"
	M3-1 36"x18"		MO6-1 30"x30"
	M3-3 36"x18"		MO5-1L 30"x30"
	M1-6 36"x36"		MO5-1R 30"x30"

\*SIZES OF SIGNS ON THIS SHEET FOLLOW LEGEND UNLESS OTHERWISE NOTED

LEGEND

	DETOUR ROUTE
	EXISTING SIGNS AND POST(S) TO REMAIN
	WOOD POST(S) WITH ATTACHED SIGN
	EXISTING SIGN (TYP.)
	TRAFFIC CONTROL COVERING SIGNS TYPE 2 (UNLESS OTHERWISE NOTED)
	WORK ZONE
	TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN (TWO TYPE "A" WARNING LIGHTS)
	TRAFFIC CONTROL SIGNS PCMS

FOR ADDITIONAL INFORMATION SEE STANDARD DETAIL DRAWINGS:  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET A BARRICADES AND SIGNS FOR MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET B BARRICADES AND SIGNS FOR VARIOUS MAINLINE CLOSURES"  
 "BARRICADES AND SIGNS FOR MAINLINE, DETOUR, ON RAMP, OFF RAMP CLOSURES AND ADVANCED WIDTH RESTRICTIONS - SHEET C DETOUR SIGNING FOR MAINLINE CLOSURES"

Estimate Of Quantities

1390-06-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	10.000	10.000
0004	204.0100	Removing Concrete Pavement	SY	435.000	435.000
0006	204.0110	Removing Asphaltic Surface	SY	1,910.000	1,910.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	255.000	255.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	202,400.000	202,400.000
0012	204.0150	Removing Curb & Gutter	LF	44.000	44.000
0014	204.0165	Removing Guardrail	LF	591.000	591.000
0016	205.0100	Excavation Common	CY	795.000	795.000
0018	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 1390-06-70	EACH	1.000	1.000
0020	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	1,142.000	1,142.000
0022	213.0100	Finishing Roadway (project) 01. 1390-06-70	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,586.000	3,586.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	825.000	825.000
0028	455.0605	Tack Coat	GAL	16,243.000	16,243.000
0030	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0032	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0034	460.2005	Incentive Density PWL HMA Pavement	DOL	17,250.000	17,250.000
0036	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	11,550.000	11,550.000
0038	460.2010	Incentive Air Voids HMA Pavement	DOL	25,510.000	25,510.000
0040	460.6224	HMA Pavement 4 MT 58-28 S	TON	25,510.000	25,510.000
0042	465.0105	Asphaltic Surface	TON	3,585.000	3,585.000
0044	465.0110	Asphaltic Surface Patching	TON	5.000	5.000
0046	465.0115	Asphaltic Surface Detours	TON	5.000	5.000
0048	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	170.000	170.000
0050	465.0310	Asphaltic Curb	LF	2,123.000	2,123.000
0052	465.0520	Asphaltic Rumble Strips, Shoulder	LF	96,830.000	96,830.000
0054	465.0560	Asphaltic Rumble Strips, Centerline	LF	48,390.000	48,390.000
0056	521.1030	Apron Endwalls for Culvert Pipe Steel 30-Inch	EACH	6.000	6.000
0058	521.1054	Apron Endwalls for Culvert Pipe Steel 54-Inch	EACH	2.000	2.000
0060	521.1235	Apron Endwalls for Pipe Arch Steel 35x24-Inch	EACH	2.000	2.000
0062	521.1242	Apron Endwalls for Pipe Arch Steel 42x29-Inch	EACH	6.000	6.000
0064	521.1249	Apron Endwalls for Pipe Arch Steel 49x33-Inch	EACH	4.000	4.000
0066	521.3130	Culvert Pipe Corrugated Steel 30-Inch	LF	208.000	208.000
0068	521.3154	Culvert Pipe Corrugated Steel 54-Inch	LF	85.000	85.000
0070	521.3735	Pipe Arch Corrugated Steel 35x24-Inch	LF	53.000	53.000
0072	521.3742	Pipe Arch Corrugated Steel 42x29-Inch	LF	187.000	187.000
0074	521.3749	Pipe Arch Corrugated Steel 49x33-Inch	LF	104.000	104.000
0076	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	44.000	44.000
0078	614.0010	Barrier System Grading Shaping Finishing	EACH	8.000	8.000
0080	614.0305	Steel Plate Beam Guard Class A	LF	238.000	238.000
0082	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	4.000	4.000
0084	614.0400	Adjusting Steel Plate Beam Guard	LF	251.000	251.000
0086	614.0950	Replacing Guardrail Posts and Blocks	EACH	10.000	10.000
0088	614.2300	MGS Guardrail 3	LF	50.000	50.000
0090	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0092	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0094	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1390-06-70	EACH	1.000	1.000
0096	619.1000	Mobilization	EACH	1.000	1.000
0098	624.0100	Water	MGAL	82.000	82.000

Estimate Of Quantities

1390-06-70

Line	Item	Item Description	Unit	Total	Qty
0100	625.0100	Topsoil	SY	919.000	919.000
0102	627.0200	Mulching	SY	1,223.000	1,223.000
0104	628.1504	Silt Fence	LF	866.000	866.000
0106	628.1520	Silt Fence Maintenance	LF	866.000	866.000
0108	628.1905	Mobilizations Erosion Control	EACH	22.000	22.000
0110	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0112	628.2027	Erosion Mat Class II Type C	SY	96.000	96.000
0114	628.7010	Inlet Protection Type B	EACH	3.000	3.000
0116	628.7504	Temporary Ditch Checks	LF	65.000	65.000
0118	628.7555	Culvert Pipe Checks	EACH	73.000	73.000
0120	628.7560	Tracking Pads	EACH	1.000	1.000
0122	628.7570	Rock Bags	EACH	66.000	66.000
0124	629.0205	Fertilizer Type A	CWT	0.120	0.120
0126	630.0140	Seeding Mixture No. 40	LB	21.600	21.600
0128	630.0300	Seeding Borrow Pit	LB	11.000	11.000
0130	630.0500	Seed Water	MGAL	21.240	21.240
0132	633.5200	Markers Culvert End	EACH	20.000	20.000
0134	642.5201	Field Office Type C	EACH	1.000	1.000
0136	643.0300	Traffic Control Drums	DAY	1,060.000	1,060.000
0138	643.0420	Traffic Control Barricades Type III	DAY	2,797.000	2,797.000
0140	643.0705	Traffic Control Warning Lights Type A	DAY	5,594.000	5,594.000
0142	643.0900	Traffic Control Signs	DAY	16,618.000	16,618.000
0144	643.0910	Traffic Control Covering Signs Type I	EACH	6.000	6.000
0146	643.0920	Traffic Control Covering Signs Type II	EACH	75.000	75.000
0148	643.1050	Traffic Control Signs PCMS	DAY	56.000	56.000
0150	643.3165	Temporary Marking Line Paint 6-Inch	LF	84,405.000	84,405.000
0152	643.3170	Temporary Marking Line Epoxy 6-Inch	LF	84,405.000	84,405.000
0154	643.5000	Traffic Control	EACH	1.000	1.000
0156	646.2020	Marking Line Epoxy 6-Inch	LF	8,615.000	8,615.000
0158	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	191,035.000	191,035.000
0160	646.5320	Marking Railroad Crossing Epoxy	EACH	4.000	4.000
0162	646.6120	Marking Stop Line Epoxy 18-Inch	LF	154.000	154.000
0164	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	44.000	44.000
0166	650.6000	Construction Staking Pipe Culverts	EACH	10.000	10.000
0168	650.8000	Construction Staking Resurfacing Reference	LF	57,750.000	57,750.000
0170	650.9911	Construction Staking Supplemental Control (project) 01. 1390-06-70	EACH	1.000	1.000
0172	650.9920	Construction Staking Slope Stakes	LF	730.000	730.000
0174	690.0150	Sawing Asphalt	LF	1,609.000	1,609.000
0176	690.0250	Sawing Concrete	LF	270.000	270.000
0178	740.0440	Incentive IRI Ride	DOL	43,745.000	43,745.000
0180	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	700.000	700.000
0182	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	575.000	575.000
0184	SPV.0035	Special 01. Foundation Backfill For Culvert Pipe Transition Areas	CY	475.000	475.000
0186	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	5.000	5.000
0188	SPV.0060	Special 02. Salvage and Replace Culvert Pipe Gate	EACH	2.000	2.000
0190	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	4,100.000	4,100.000

3

PAVEMENT REMOVALS

CATEGORY	STATION - STATION	LOCATION	204.0110	204.0115	204.0120	SPV.0180.01
			REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	MILLING SY	REMOVING DISTRESSED PAVEMENT MILLING SY	
0010	2+56 - 146+50	LT/RT	490	65	50,000	---
	146+50 - 291+00	LT/RT	540	110	53,200	---
	291+00 - 435+50	LT/RT	500	60	50,400	---
	435+50 - 580+00	LT/RT	380	20	48,800	---
	UNDISTRIBUTED	LT/RT	---	---	---	4,100
TOTALS			1,910	255	202,400	4,100

CULVERT PIPE EARTHWORK SUMMARY

CATEGORY	STATION - STATION	LOCATION	TRANSITION	204.0100	205.0100	**
			LENGTH LF	REMOVING CONCRETE PAVEMENT SY	EXCAVATION COMMON CY	SPV.0035.01 FOUNDATION BACKFILL FOR CULVERT PIPE TRANSITION AREAS CY
0010	24+44 - 24+78	LT/RT	14	---	130	80
	46+42 - 46+74	LT/RT	13	80	110	65
	218+08 - 218+44	LT/RT	9	90	70	35
	240+31 - 240+36	LT/RT	---	10	---	---
	325+46 - 325+80	LT/RT	14	85	130	80
	473+68 - 473+98	LT/RT	11	---	95	55
	505+35 - 505+70	LT/RT	14	85	130	80
	572+73 - 573+08	LT/RT	14	85	130	80
TOTALS				435	795	475

\*\* ACCOUNTS FOR EXPANSION FACTOR OF 1.15

CONCRETE CURB & GUTTER

CATEGORY	LOCATION	204.0150	601.0557	650.5500
		REMOVING CURB & GUTTER LF	6-INCH SLOPED 36-INCH TYPE D LF	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF
0010	505+52 LT	44	44	44

PREPARE FOUNDATION FOR ASPHALTIC PAVING

CATEGORY	PROJECT	STATION - STATION	211.0101 EACH
0010	01. 1390-06-70	2+56 - 580+00	1



PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

CATEGORY	STATION - STATION	LOCATION	211.0400 STA
0020	2+56 - 146+50	LT/RT	288
	146+50 - 218+50	LT/RT	144
	218+50 - 231+50	RT	13
	231+50 - 291+00	LT/RT	119
	291+00 - 435+50	LT/RT	289
	435+50 - 580+00	LT/RT	289
TOTAL			1,142

NOTE: REFER TO TYPICAL SECTIONS FOR SPECIFIC LOCATIONS

BASE AGGREGATE DENSE

CATEGORY	STATION - STATION	305.0110	305.0120	624.0100	
		3/4-INCH	1 1/4-INCH	(FOR COMPACTION)	(FOR DUST CONTROL)
		TON	TON	MGAL	MGAL
0010	2+56 - 146+50	840	---	15	2
	146+50 - 291+00	840	---	15	2
	291+00 - 435+50	920	---	15	2
	435+50 - 580+00	920	---	15	2
	24+61	10	110	2	---
	46+59	9	100	2	---
	218+26	10	120	2	---
	240+33	1	15	---	---
	288+40	2	25	---	---
	325+64	10	110	2	---
	473+83	9	95	2	---
	505+52	5	140	2	---
	572+91	10	110	2	---
SUBTOTALS		3,586	825	74	8
TOTALS		3,586	825	82	

ASPHALTIC ITEMS

CATEGORY	STATION - STATION	460.6224	465.0105	465.0120	465.0310	455.0605
		HMA PAVEMENT 4 MT 58-28 S	ASPHALTIC SURFACE	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC CURB	TACK COAT
		TON	TON	TON	LF	GAL
0010	2+56 - 146+50	5,600	---	40	---	3,500
	146+50 - 291+00	5,960	---	50	---	3,700
	218+50 - 231+50	---	---	---	1,300	---
	221+00 - 229+23	---	---	---	823	---
	291+00 - 435+50	5,640	---	40	---	3,500
	435+50 - 580+00	5,460	---	40	---	3,400
	24+61	---	35	---	---	6
	46+59	---	33	---	---	5
	218+26	---	37	---	---	6
	240+33	---	5	---	---	1
	288+40	---	8	---	---	2
	325+64	---	35	---	---	8
	473+83	---	30	---	---	7
	505+52	---	57	---	---	10
	572+91	---	35	---	---	8
	(1) UNDISTRIBUTED	---	460	---	---	300
SUBTOTALS (0010)		22,660	735	170	2,123	14,453
0020	2+56 - 146+50	710	710	---	---	450
	146+50 - 291+00	630	630	---	---	400
	291+00 - 435+50	740	740	---	---	460
	435+50 - 580+00	770	770	---	---	480
SUBTOTALS (0020)		2,850	2,850	0	0	1,790
TOTALS		25,510	3,585	170	2,123	16,243

NOTE: HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN.  
TACK COAT QUANTITY IS BASED ON AN APPLICATION RATE OF 0.07 GAL/SY.  
(1) FOR REMOVING DISTRESSED PAVEMENT MILLING AREAS.

PWL MIXTURE USE TABLE

CATEGORY	LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
								MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
0010	12 FOOT DRIVING LANE	2+56 to 580+00	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	17,250	2"	INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
0010	MGS SHOULDER	2+56 to 580+00	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	5,410	2"	INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
0010	VARIOUS		CULVERT PATCHES	BASE AGGREGATE	ASPHALTIC SURFACE	3,585	5.5"	QMP AS PER SS 465	ACCEPTANCE BY ORDINARY COMPACTION
0020	MGS SHOULDER	2+56 to 580+00	LOWER LAYER	BASE AGGREGATE	ASPHALTIC SURFACE	2,850	2"	QMP AS PER SS 465	ACCEPTANCE BY ORDINARY COMPACTION
0020	MGS SHOULDER	2+56 to 580+00	UPPER LAYER	HMA SURFACE	4 MT 58-28 S	2,850	2"	INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP

CATEGORY	STATION - STATION	460.0105.S VOLUMETRICS EACH	460.0110.S DENSITY EACH
0010	2+56 - 580+00	1	1

ASPHALTIC SURFACE PATCHING

CATEGORY	LOCATION	465.0110 TON
0010	FOR FILLING POTHOLES/TEMPORARY MAINLINE RAMPING	5

ASPHALTIC SURFACE DETOURS

CATEGORY	LOCATION	465.0115 TON
0010	UNDISTRIBUTED	5

RUMBLE STRIPS

CATEGORY	STATION - STATION	465.0520 ASPHALTIC RUMBLE STRIPS, SHOULDER LF	465.0560 ASPHALTIC RUMBLE STRIPS, CENTERLINE LF
0010	2+56 - 146+50	---	11,970
	146+50 - 218+72	---	6,380
	234+09 - 291+00	---	4,070
	291+00 - 435+50	---	12,330
	435+50 - 580+00	---	13,640
	SUBTOTALS (0010)	0	48,390
0020	2+56 - 146+50	24,180	---
	146+50 - 218+72	12,310	---
	234+09 - 291+00	8,870	---
	291+00 - 435+50	24,500	---
	435+50 - 580+00	26,970	---
	SUBTOTALS (0020)	96,830	0
	TOTALS	96,830	48,390

**CULVERT ITEMS**

CATEGORY	STATION	LOCATION	203.0100	521.1030	521.1054	521.1235	521.1242	521.1249	521.3130	521.3154	521.3735	521.3742	521.3749	THICKNESS (INCHES)	633.5200	650.6000	SPV.0060.02
			REMOVING	APRON ENDWALLS FOR						CULVERT PIPE CORRUGATED STEEL			CULVERT		CONSTRUCTION	SALVAGE AND REPLACE	
			SMALL PIPE	CULVERT PIPE STEEL		PIPE ARCH STEEL			PIPE ARCH CORRUGATED STEEL			END					STAKING
CULVERTS	30-INCH	54-INCH	35X24-INCH	42X29-INCH	49X33-INCH	30-INCH	54-INCH	35X24-INCH	42X29-INCH	49X33-INCH	EACH	EACH	EACH				
0010	24+61	RT/LT	1**	2	---	---	---	---	65	---	---	---	---	0.079	2	1	---
	46+59	RT/LT	1**	---	---	---	2	---	---	---	---	54	---	0.079	2	1	---
	218+21	RT/LT	1	---	---	---	---	2	---	---	---	---	52	0.109	2	1	1
	218+31	RT/LT	1	---	---	---	---	2	---	---	---	---	52	0.109	2	1	1
	240+33	RT/LT	1**	2	---	---	---	---	83	---	---	---	---	0.079	2	1	---
	288+40	RT/LT	1**	---	2	---	---	---	---	85	---	---	---	0.109	2	1	---
	325+64	RT/LT	1**	2	---	---	---	---	60	---	---	---	---	0.079	2	1	---
	473+83	RT/LT	1	---	---	---	2	---	---	---	---	56	---	0.079	2	1	---
	505+52	RT/LT	1	---	---	---	2	---	---	---	---	77	---	0.079	2	1	---
	572+91	RT/LT	1	---	---	2	---	---	---	---	53	---	---	0.079	2	1	---
<b>TOTALS</b>			10	6	2	2	6	4	208	85	53	187	104		20	10	2

\*\* EXISTING CULVERT PIPE IS SQUARE CONCRETE PIPE WITH CMCP EXTENSIONS. REMOVAL OF ALL CMCP AND SQUARE CONCRETE PIPE IS INCLUDED IN REMOVING SMALL PIPE CULVERTS ITEM.

**BEAM GUARD ITEMS**

CATEGORY	STATION - STATION	LOCATION	204.0165	614.0305	614.0370	614.0400	614.0950	614.2300	614.2500	614.2610	
			REMOVING	STEEL PLATE BEAM GUARD			ADJUSTING	REPLACING	MGS		
			GUARDRAIL	CLASS A	ABSORBING	ENERGY	STEEL PLATE	GUARDRAIL	GUARDRAIL	THRIE BEAM	GUARDRAIL TERMINAL
			LF	LF	EACH	LF	POSTS AND BLOCKS	3	TRANSITION	EAT	
							EACH	LF	LF	EACH	
0010	230+93.00 - 232+10.00	RT	---	---	---	125	3	---	---	---	
	231+36.00 - 232+10.00	LT	---	---	---	62	3	---	---	---	
	405+01.28 - 405+93.62	LT	81	---	---	---	---	---	39	1	
	405+42.84 - 406+31.72	RT	77	---	---	---	---	---	39	1	
	406+41.79 - 407+84.73	LT	75	---	---	---	---	50	39	1	
	406+76.81 - 407+65.77	RT	80	---	---	---	---	---	39	1	
	563+90.32 - 565+15.27	RT	65	75	1	---	---	---	---	---	
	563+99.29 - 564+99.25	LT	75	50	1	---	---	---	---	---	
	564+99.25 - 565+24.25	LT	---	---	---	26	2	---	---	---	
	565+15.27 - 565+52.77	RT	---	---	---	38	2	---	---	---	
	565+24.25 - 566+49.21	LT	70	75	1	---	---	---	---	---	
	565+52.77 - 566+40.27	RT	68	38	1	---	---	---	---	---	
<b>TOTALS</b>			591	238	4	251	10	50	156	4	

BARRIER SYSTEM GRADING AND SILT FENCE

CATEGORY	STATION - STATION	LOCATION	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE LF	* BORROW CY	* SALVAGED TOPSOIL SY	* SEEDING MIXTURE NO. 70A LB	* EROSION MAT URBAN CLASS 1 TYPE B SY	* SEED WATER MGAL
0010	405+01.28 - 405+93.62	LT	1	96	96	7	14	2	14	2.8
	405+42.84 - 406+31.72	RT	1	232	232	1	16	3	16	3.2
	406+41.79 - 407+84.73	LT	1	---	---	1	8	1	8	1.6
	406+76.81 - 407+65.77	RT	1	198	198	1	15	3	15	3.1
	563+90.32 - 565+15.27	RT	1	---	---	1	2	1	2	0.4
	563+99.29 - 564+99.25	LT	1	---	---	5	9	2	9	1.8
	565+25.36 - 566+49.21	LT	1	207	207	1	11	2	11	2.2
	565+52.77 - 566+40.27	RT	1	133	133	3	11	2	11	2.3
TOTALS			8	866	866	20	86	16	86	17.4

\* FOR INFORMATION ONLY

MOBILIZATIONS EROSION CONTROL

CATEGORY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	22	4

EROSION CONTROL ITEMS

CATEGORY	STATION	LOCATION	628.7010 INLET PROTECTION TYPE B EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
0010	24+61	INLET END	---	---	6	---
	46+59	INLET END	---	---	6	---
	218+21	INLET END	---	---	6	---
	218+31	INLET END	---	---	6	---
	228+56	LT	1	---	---	---
	229+21	RT	1	---	---	---
	240+33	INLET END	---	---	6	---
	288+40	INLET END	---	---	6	---
	325+64	INLET END	---	---	6	---
	404+15	RT	---	10	---	---
	404+75	LT	---	10	---	---
	406+60	LT	---	10	---	---
	473+83	INLET END	---	---	6	---
	505+52	INLET END	---	---	6	---
	564+75	LT	---	10	---	---
	565+10	RT	---	10	---	---
	572+91	INLET END	---	---	4	---
	UNDISTRIBUTED	LT/RT	1	15	15	66
TOTALS			3	65	73	66

FINISHING ITEMS

CATEGORY	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	628.2027 EROSION MAT CLASS II TYPE C SY	629.0205 FERTILIZER TYPE A CWT	630.0140 SEEDING MIXTURE NO. 40 LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
0010	24+61	109	102	7	0.01	2	---	2.5
	46+59	72	64	8	0.01	2	---	1.7
	218+21	52	43	9	0.01	1	---	1.2
	218+31	50	41	9	0.01	1	---	1.2
	240+33	62	55	7	0.01	2	---	1.4
	288+40	97	87	10	0.01	2	---	2.2
	325+64	94	87	7	0.01	2	---	2.2
	473+83	76	68	8	0.01	2	---	1.8
	505+52	98	90	8	0.01	2	---	2.2
	572+91	56	49	7	0.01	2	---	1.3
WASTE/BORROW SITES		---	400	---	---	---	11	---
UNDISTRIBUTED		153	137	16	0.02	3.6	---	3.54
TOTALS		919	1,223	96	0.12	21.6	11	21.24

TRACKING PADS

CATEGORY	LOCATION	628.7560 EACH
0010	WASTE SITE	1

TRAFFIC CONTROL AND DETOUR ITEMS

CATEGORY	LOCATION	DAYS	643.0300 TRAFFIC CONTROL DRUMS		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I			643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II			643.1050 TRAFFIC CONTROL SIGNS PCMS	
			EACH	DAY	EACH	DAY	EACH	DAY	EACH	DAY	NO. SIGNS	CYCLES	EACH	NO. SIGNS	CYCLES	EACH	EACH	DAY
0010	ADVANCED WARNING	90	---	---	---	---	---	---	40	3,600	---	---	---	---	---	---	---	---
	DROP-OFF AND MILLED SURFACE	30	---	---	---	---	---	---	128	3,840	---	---	---	---	---	---	---	---
	DETOUR ROUTE PRE-WARN	28	10	280	---	---	---	---	---	---	---	---	---	---	---	---	2	56
	DETOUR ROUTE	31	---	---	87	2,697	174	5,394	288	8,928	2	3	6	25	3	75	---	---
	GUARDRAIL REPLACEMENT AREAS	7	40	280	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	UNDISTRIBUTED	10	50	500	10	100	20	200	25	250	---	---	---	---	---	---	---	---
TOTALS				1,060		2,797		5,594		16,618			6			75		56

TRAFFIC CONTROL

CATEGORY	PROJECT	643.5000 EACH
0010	1390-06-70	1

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3

TEMPORARY MARKING ITEMS

CATEGORY	STATION - STATION	TEMPORARY MARKING LINE					
		643.3165			643.3170		
		PAINT			EPOXY		
		6-INCH			6-INCH		
	(YELLOW)	(4' SEG., 46' GAP)	(DOUBLE YELLOW)	(YELLOW)	(4' SEG., 46' GAP)	(DOUBLE YELLOW)	
	(YELLOW)	(YELLOW)	(YELLOW)	(YELLOW)	(YELLOW)	(YELLOW)	
	LF	LF	LF	LF	LF	LF	
0010	2+56 - 146+50	5,100	620	12,900	5,100	620	12,900
	146+50 - 215+82	1,150	300	6,400	1,150	300	6,400
	215+82 - 244+76	2,300	230	---	2,300	230	---
	244+76 - 291+00	1,250	110	6,500	1,250	110	6,500
	291+00 - 435+50	1,050	80	26,800	1,050	80	26,800
	435+50 - 580+00	7,150	700	11,100	7,150	700	11,100
	CTH E	---	---	180	---	---	180
	CTH B	---	---	95	---	---	95
	CTH CI	---	---	120	---	---	120
	CTH C	---	---	120	---	---	120
	CTH I NORTH	---	---	85	---	---	85
	CTH I SOUTH	---	---	65	---	---	65
	SUBTOTALS	18,000	2,040	64,365	18,000	2,040	64,365
	TOTALS		84,405			84,405	

PAVEMENT MARKING ITEMS

CATEGORY	STATION - STATION	646.2020					646.2040					646.5320	646.6120
		MARKING LINE EPOXY 6-INCH					MARKING LINE GROOVED WET REF EPOXY 6-INCH					MARKING RAILROAD	MARKING STOP LINE
		(YELLOW)	(WHITE)	(3' SEG., 9' GAP)	(12.5' SEG., 37.5' GAP)	(DOUBLE YELLOW)	(YELLOW)	(12.5' SEG., 37.5' GAP)	(DOUBLE YELLOW)	(WHITE)	(3' SEG., 9' GAP)	CROSSING EPOXY	EPOXY 18-INCH
		(WHITE)	(WHITE)	(WHITE)	(YELLOW)	(YELLOW)	(YELLOW)	(YELLOW)	(YELLOW)	(WHITE)	(WHITE)	(WHITE)	(WHITE)
	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EACH	LF	
0010	2+56 - 146+50	---	---	---	---	---	5,100	1,950	12,900	27,900	60	2	46
	146+50 - 215+82	---	---	---	---	---	1,150	940	6,400	13,000	95	2	---
	215+82 - 244+76	2,300	4,900	30	720	---	---	---	---	---	---	---	---
	244+76 - 291+00	---	---	---	---	---	1,250	340	6,500	8,600	75	---	---
	291+00 - 435+50	---	---	---	---	---	1,050	260	26,800	27,600	240	---	---
	435+50 - 580+00	---	---	---	---	---	7,150	2,200	11,100	28,300	75	---	---
	CTH E	---	---	---	---	180	---	---	---	---	---	---	32
	CTH B	---	---	---	---	95	---	---	---	---	---	---	---
	CTH CI	---	---	---	---	120	---	---	---	---	---	---	23
	CTH C	---	---	---	---	120	---	---	---	---	---	---	33
	CTH I NORTH	---	---	---	---	85	---	---	---	---	---	---	20
	CTH I SOUTH	---	---	---	---	65	---	---	---	---	---	---	---
	SUBTOTALS	2,300	4,900	30	720	665	15,700	5,690	63,700	105,400	545	4	154
	TOTALS				8,615				191,035			4	154

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	STATION - STATION	650.8000 LF
0010	2+56 - 580+00	57,750

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

CATEGORY	PROJECT	650.9911 EACH
0010	01. 1390-06-70	1

CONSTRUCTION STAKING SLOPE STAKES

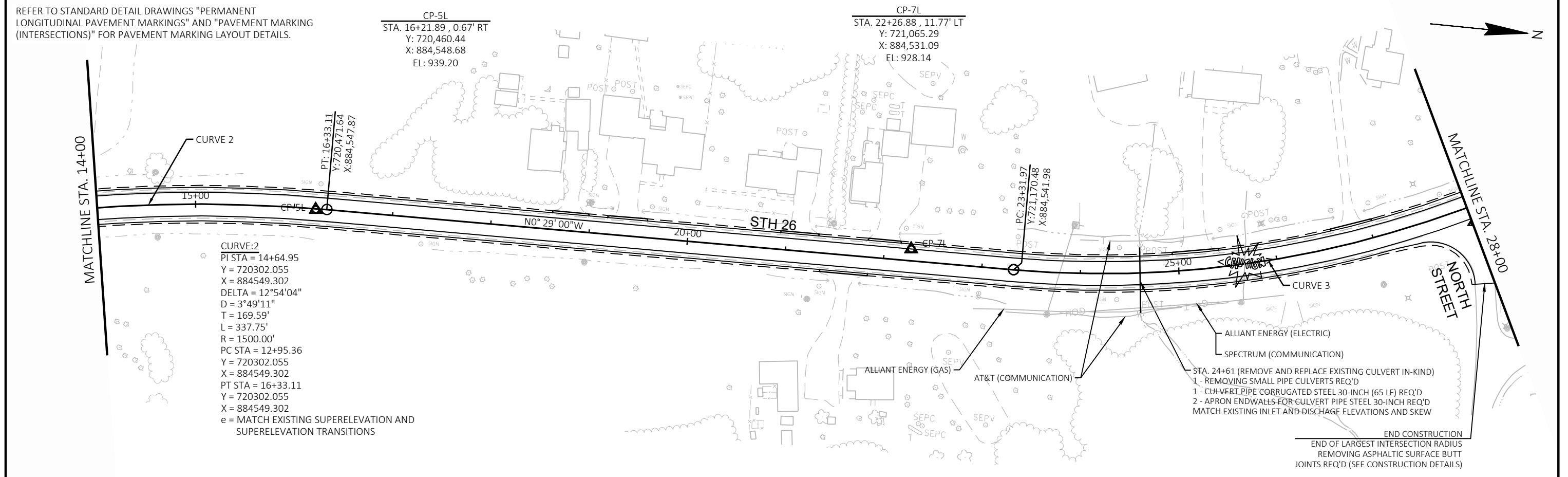
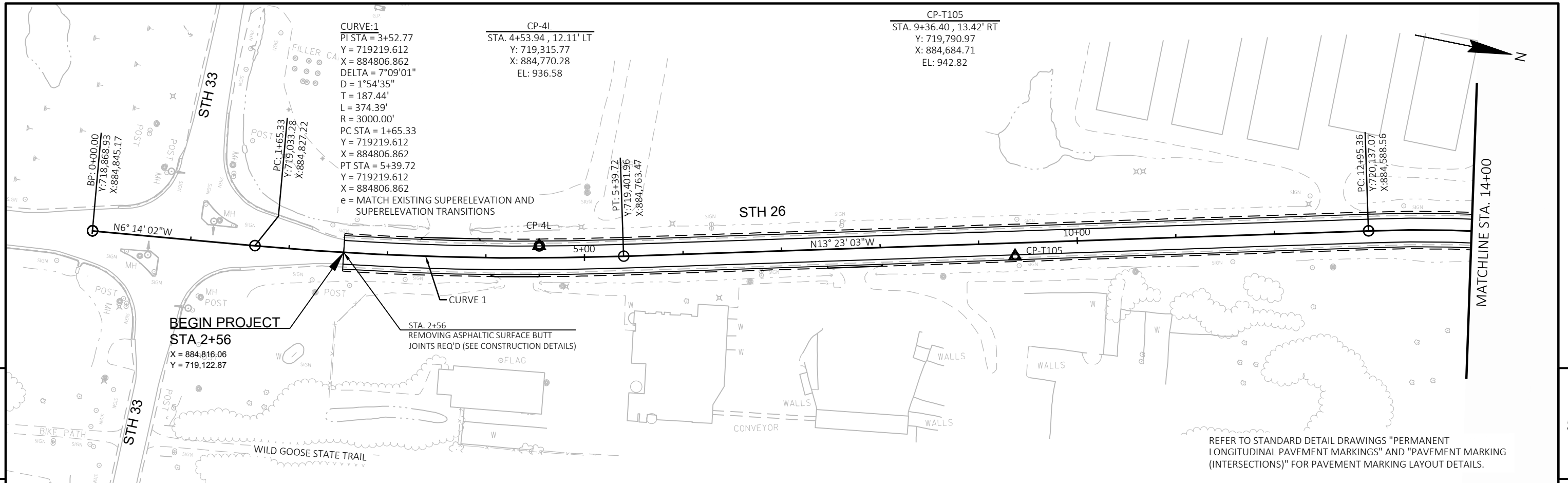
CATEGORY	STATION - STATION	650.9920 LF
0010	404+57 - 408+46	390
	563+50 - 566+89	340
TOTAL		730

SAWING EXISTING PAVEMENT

CATEGORY	STATION - STATION	LOCATION	690.0150	690.0250
			SAWING ASPHALT LF	SAWING CONCRETE LF
0010	2+56 - 146+50	LT/RT	486	44
	146+50 - 291+00	LT/RT	410	88
	291+00 - 435+50	LT/RT	350	44
	435+50 - 580+00	LT/RT	363	94
TOTALS			1,609	270

VERIFY LANDMARK REFERENCE MONUMENTS

CATEGORY	STATION	SPV.0060.01 EACH
0010	81+53	1
	108+40	1
	135+10	1
	534+83	1
	561+87	1
TOTAL		5



PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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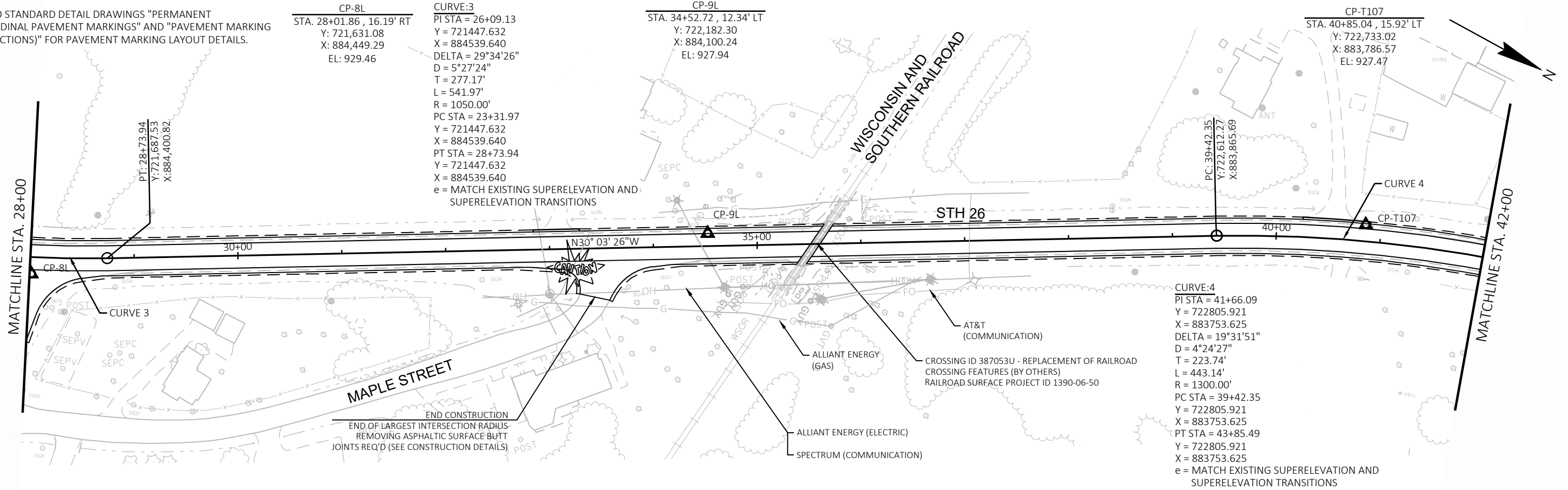
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

**CP-8L**  
 STA. 28+01.86 , 16.19' RT  
 Y: 721,631.08  
 X: 884,449.29  
 EL: 929.46

**CURVE 3**  
 PI STA = 26+09.13  
 Y = 721447.632  
 X = 884539.640  
 DELTA = 29°34'26"  
 D = 5°27'24"  
 T = 277.17'  
 L = 541.97'  
 R = 1050.00'  
 PC STA = 23+31.97  
 Y = 721447.632  
 X = 884539.640  
 PT STA = 28+73.94  
 Y = 721447.632  
 X = 884539.640  
 e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

**CP-9L**  
 STA. 34+52.72 , 12.34' LT  
 Y: 722,182.30  
 X: 884,100.24  
 EL: 927.94

**CP-T107**  
 STA. 40+85.04 , 15.92' LT  
 Y: 722,733.02  
 X: 883,786.57  
 EL: 927.47



5

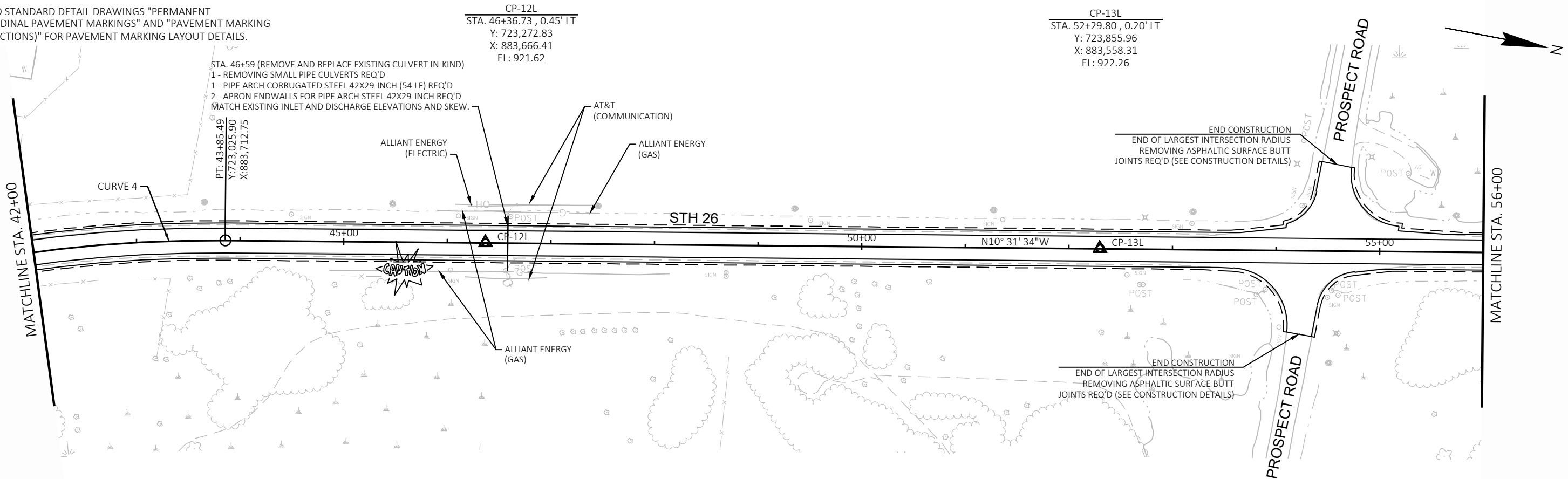
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

**CP-12L**  
 STA. 46+36.73 , 0.45' LT  
 Y: 723,272.83  
 X: 883,666.41  
 EL: 921.62

**CP-13L**  
 STA. 52+29.80 , 0.20' LT  
 Y: 723,855.96  
 X: 883,558.31  
 EL: 922.26

STA. 46+59 (REMOVE AND REPLACE EXISTING CULVERT IN-KIND)  
 1 - REMOVING SMALL PIPE CULVERTS REQ'D  
 1 - PIPE ARCH CORRUGATED STEEL 42X29-INCH (54 LF) REQ'D  
 2 - APRON ENDWALLS FOR PIPE ARCH STEEL 42X29-INCH REQ'D  
 MATCH EXISTING INLET AND DISCHARGE ELEVATIONS AND SKEW.

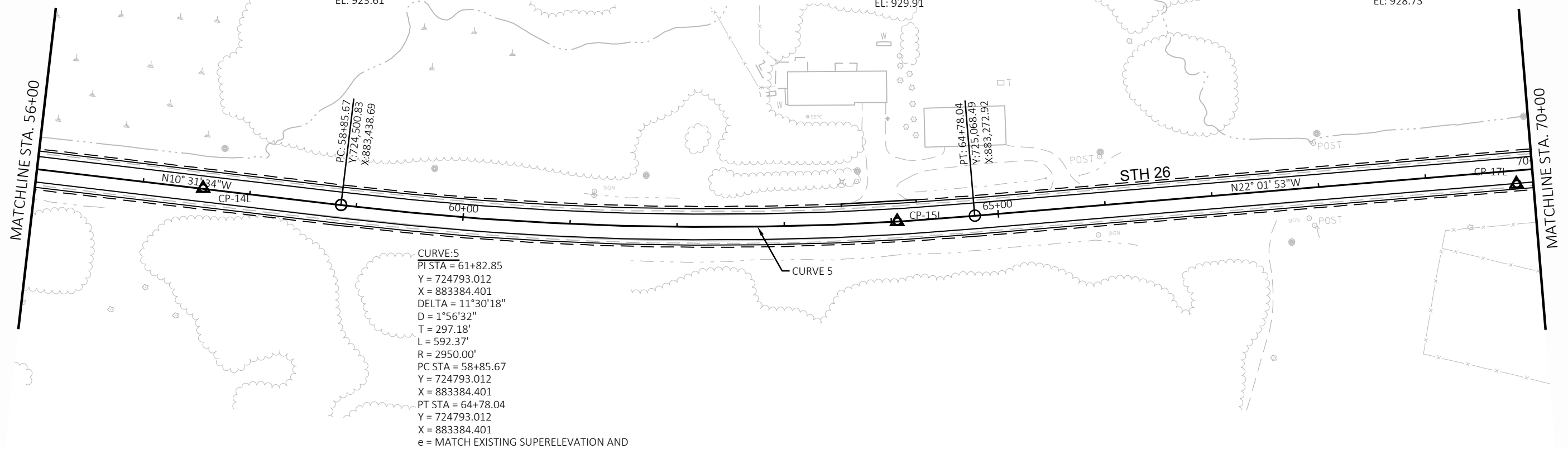


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-14L  
STA. 57+56.05, 0.55' LT  
Y: 724,373.29  
X: 883,461.83  
EL: 923.61

CP-15L  
STA. 64+05.38, 0.02' RT  
Y: 725,000.82  
X: 883,299.36  
EL: 929.91

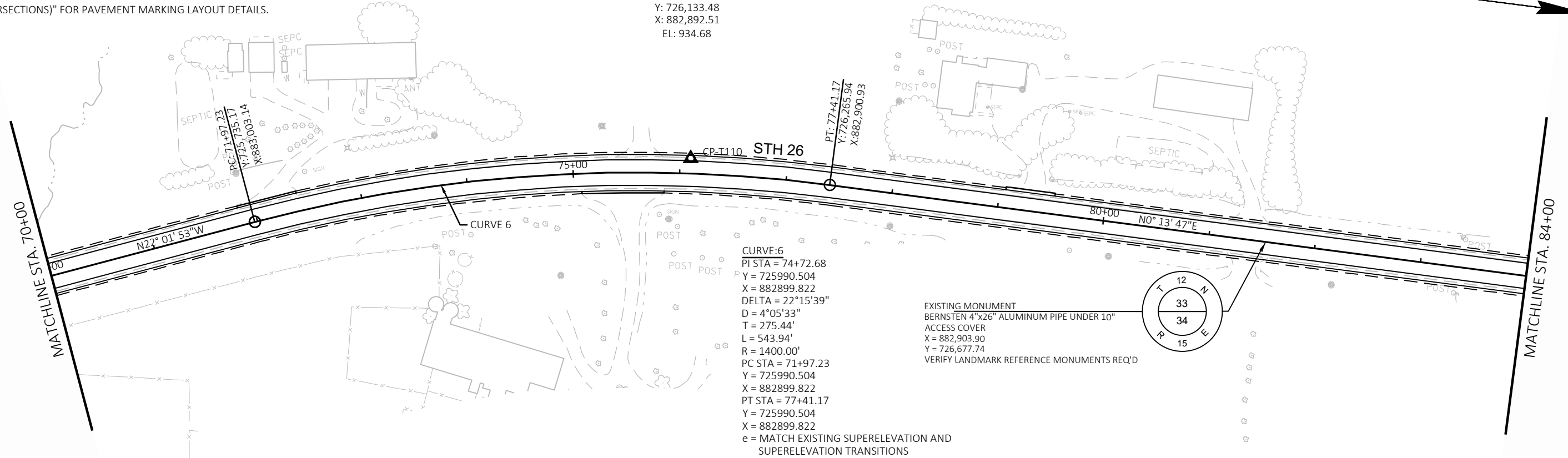
CP-17L  
STA. 69+84.21, 12.30' RT  
Y: 725,542.32  
X: 883,094.45  
EL: 928.73



CURVE:5  
PI STA = 61+82.85  
Y = 724793.012  
X = 883384.401  
DELTA = 11°30'18"  
D = 1°56'32"  
T = 297.18'  
L = 592.37'  
R = 2950.00'  
PC STA = 58+85.67  
Y = 724793.012  
X = 883384.401  
PT STA = 64+78.04  
Y = 724793.012  
X = 883384.401  
e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

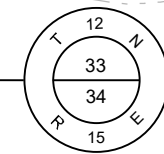
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-T110  
STA. 76+09.80, 14.10' LT  
Y: 726,133.48  
X: 882,892.51  
EL: 934.68



CURVE:6  
PI STA = 74+72.68  
Y = 725990.504  
X = 882899.822  
DELTA = 22°15'39"  
D = 4°05'33"  
T = 275.44'  
L = 543.94'  
R = 1400.00'  
PC STA = 71+97.23  
Y = 725990.504  
X = 882899.822  
PT STA = 77+41.17  
Y = 725990.504  
X = 882899.822  
e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

EXISTING MONUMENT  
BERNSTEIN 4"x26" ALUMINUM PIPE UNDER 10"  
ACCESS COVER  
X = 882,903.90  
Y = 726,677.74  
VERIFY LANDMARK REFERENCE MONUMENTS REQ'D



REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-19L  
 STA. 87+82.13 , 11.97' LT  
 Y: 727,306.94  
 X: 882,893.13  
 EL: 920.84

CP-22L  
 STA. 94+05.77 , 0.28' LT  
 Y: 727,930.53  
 X: 882,907.32  
 EL: 924.56

MATCHLINE STA. 84+00

MATCHLINE STA. 98+00

5

5

REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-T111  
 STA. 101+61.71 , 13.22' RT  
 Y: 728,686.41  
 X: 882,923.84  
 EL: 924.50

CP-23L  
 STA. 105+55.50 , 0.07' LT  
 Y: 729,080.25  
 X: 882,912.58  
 EL: 922.48

CP-24L  
 STA. 111+43.44 , 0.21' RT  
 Y: 729,668.18  
 X: 882,916.35  
 EL: 919.35

MATCHLINE STA. 98+00

MATCHLINE STA. 112+00

PROJECT NO: 1390-06-70

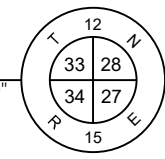
HWY: STH 26

COUNTY: DODGE

PLAN: STH 26

SHEET

E



EXISTING MONUMENT  
 BERNSTEN 4"x26" ALUMINUM PIPE UNDER 10"  
 ACCESS COVER  
 X = 882,913.91  
 Y = 729,364.37  
 VERIFY LANDMARK REFERENCE MONUMENTS REQ'D

END CONSTRUCTION  
 (AT CONCRETE PAVEMENT JOINT)  
 REMOVING ASPHALTIC SURFACE BUTT  
 JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

END CONSTRUCTION  
 (AT CONCRETE PAVEMENT JOINT)  
 REMOVING ASPHALTIC SURFACE BUTT  
 JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

S-14-007 (TO REMAIN)

S-14-009 (TO REMAIN)

S-14-010 (TO REMAIN)

S-14-008 (TO REMAIN)

CTHE

CTHE

STH 26

STH 26

85+00

90+00

95+00

100+00

105+00

110+00

N0° 13' 47"E

N0° 20' 24"E

POST

POST

POST

POST

POST

POST

POST

POST

POST

POST

ANT.

SEPC

SEPC

PI: 103+27.10

Y: 728,851.85

X: 882,911.29

REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-25L  
STA. 117+63.42, 0.43' LT  
Y: 730,288.15  
X: 882,919.38  
EL: 915.58

CP-T114  
STA. 125+76.89, 13.50' LT  
Y: 731,101.69  
X: 882,911.41  
EL: 911.78

MATCHLINE STA. 112+00

MATCHLINE STA. 126+00

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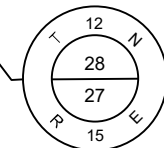
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-26L  
STA. 132+73.08, 1.27' RT  
Y: 731,797.77  
X: 882,930.79  
EL: 922.63

CP-28L  
STA. 138+56.31, 0.63' RT  
Y: 732,380.99  
X: 882,934.02  
EL: 925.57

MATCHLINE STA. 126+00

MATCHLINE STA. 140+00



EXISTING MONUMENT  
BERNSTEIN 4"x16" ALUMINUM PIPE UNDER 10"  
ACCESS COVER  
X = 882,927.78  
Y = 732,034.62  
VERIFY LANDMARK REFERENCE MONUMENTS REQ'D

PROJECT NO: 1390-06-70

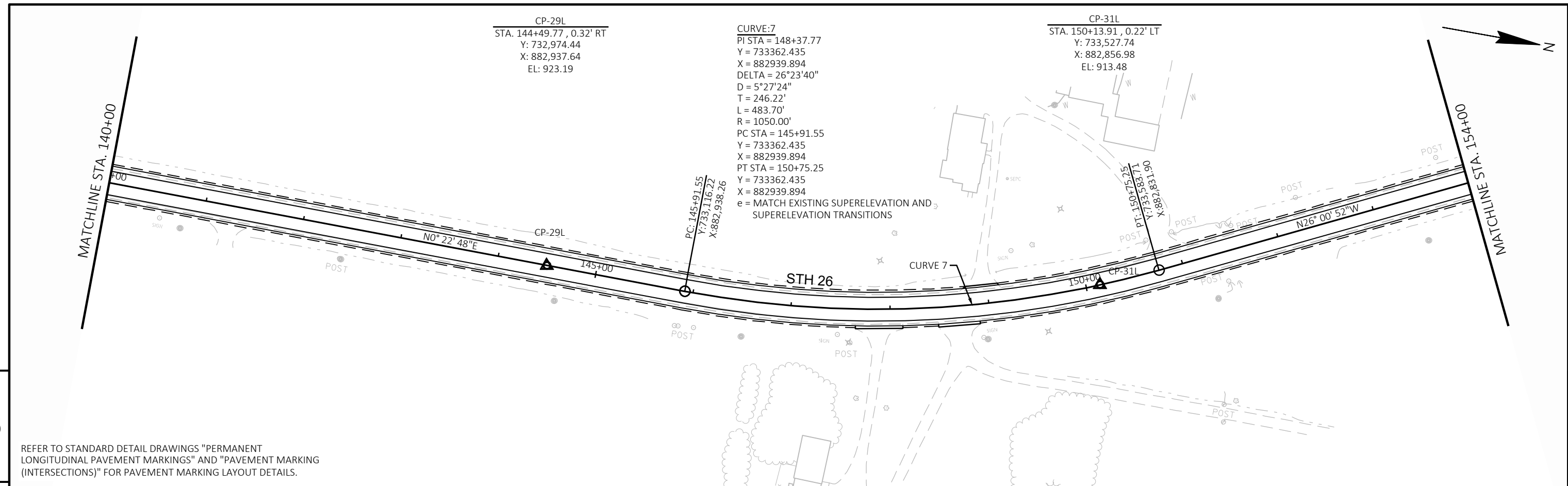
HWY: STH 26

COUNTY: DODGE

PLAN: STH 26

SHEET

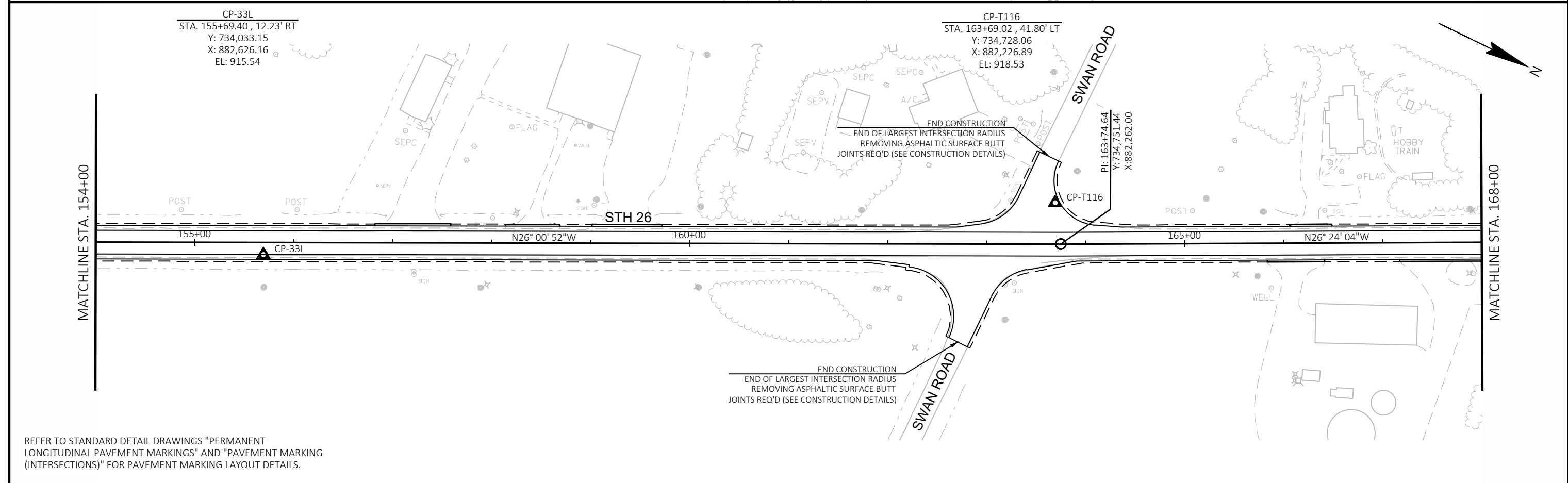
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

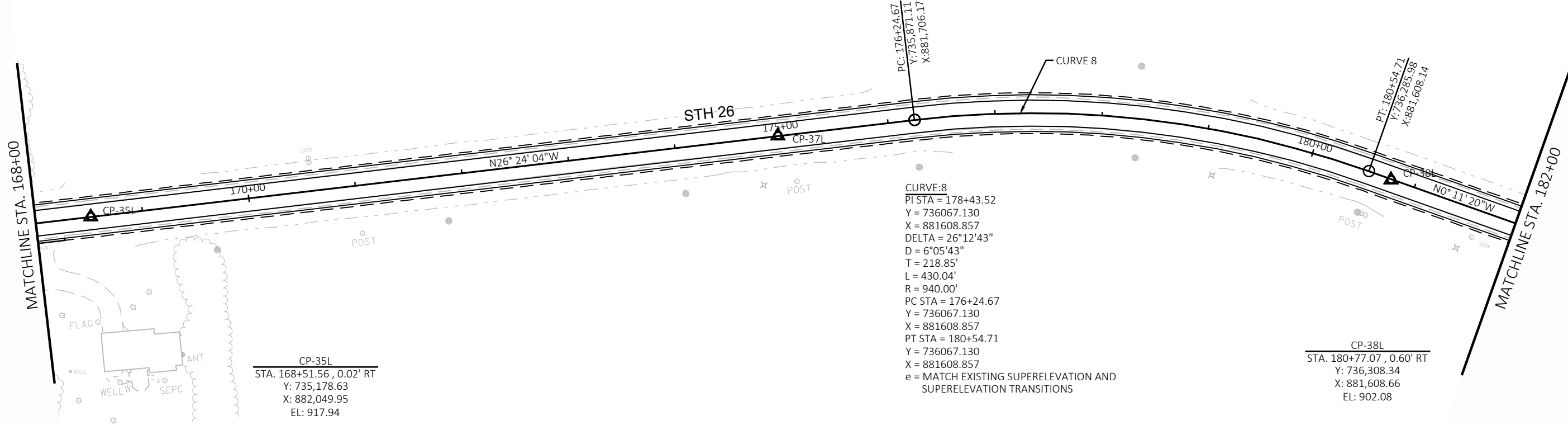


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-37L  
 STA. 174+96.54 , 0.14' LT  
 Y: 735,756.27  
 X: 881,763.02  
 EL: 906.70



CP-35L  
 STA. 168+51.56 , 0.02' RT  
 Y: 735,178.63  
 X: 882,049.95  
 EL: 917.94

CURVE:8  
 PI STA = 178+43.52  
 Y = 736067.130  
 X = 881608.857  
 DELTA = 26°12'43"  
 D = 6°05'43"  
 T = 218.85'  
 L = 430.04'  
 R = 940.00'  
 PC STA = 176+24.67  
 Y = 736067.130  
 X = 881608.857  
 PT STA = 180+54.71  
 Y = 736067.130  
 X = 881608.857  
 e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

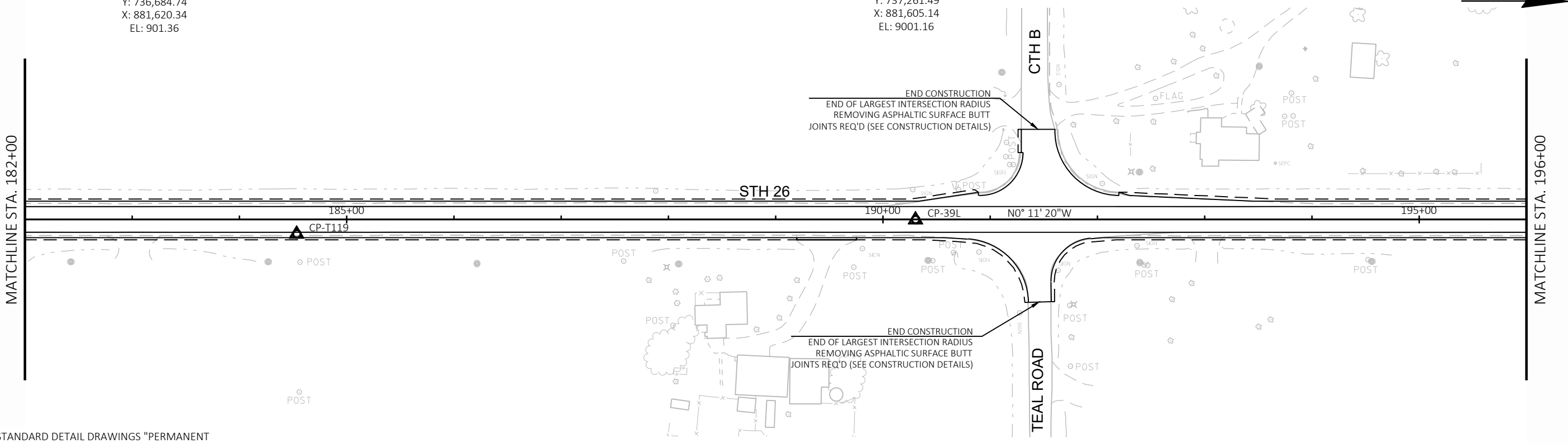
CP-38L  
 STA. 180+77.07 , 0.60' RT  
 Y: 736,308.34  
 X: 881,608.66  
 EL: 902.08

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CP-T119  
 STA. 184+53.43 , 13.52' RT  
 Y: 736,684.74  
 X: 881,620.34  
 EL: 901.36

CP-39L  
 STA. 190+30.23 , 0.22' RT  
 Y: 737,261.49  
 X: 881,605.14  
 EL: 9001.16

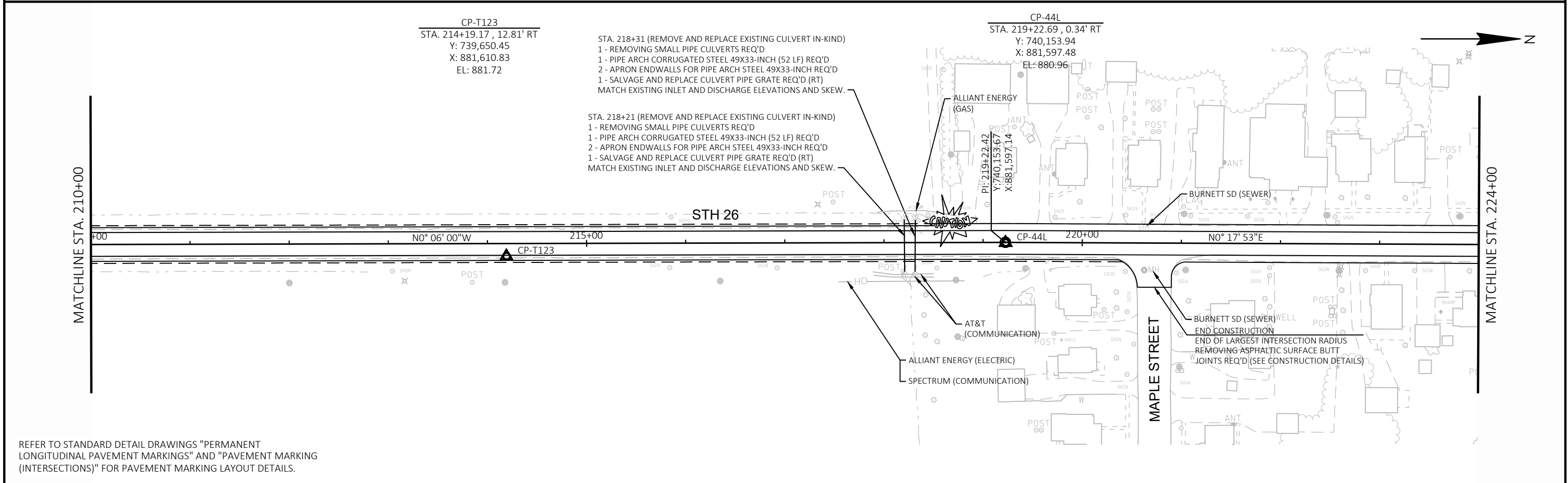
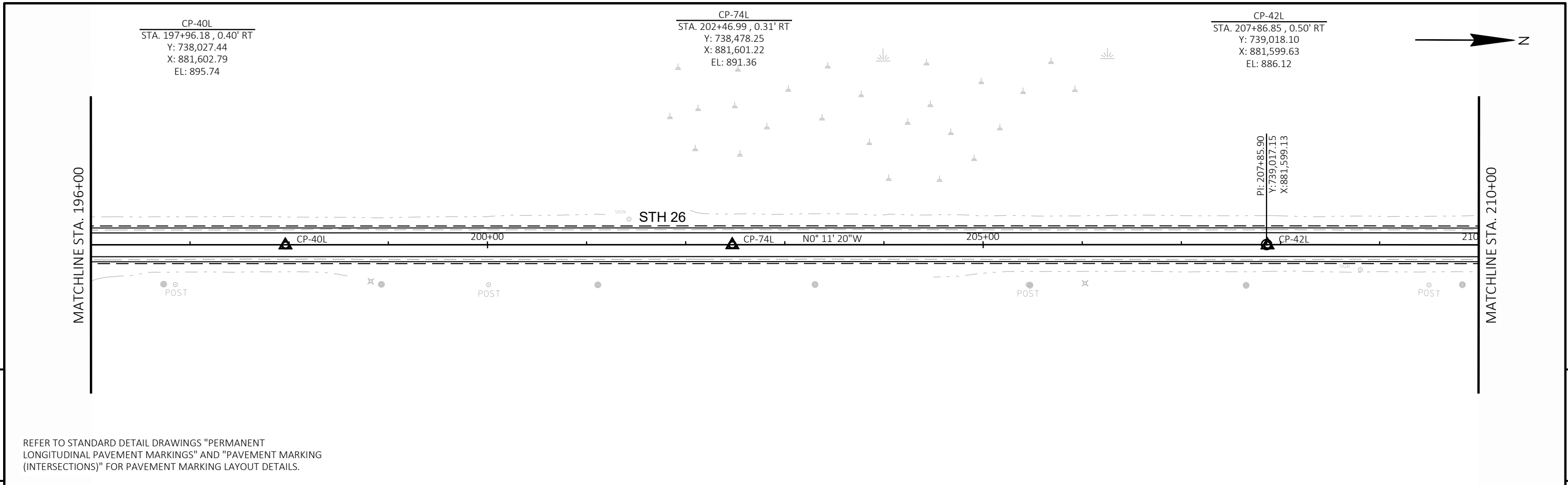


END CONSTRUCTION  
 END OF LARGEST INTERSECTION RADIUS  
 REMOVING ASPHALTIC SURFACE BUTT JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

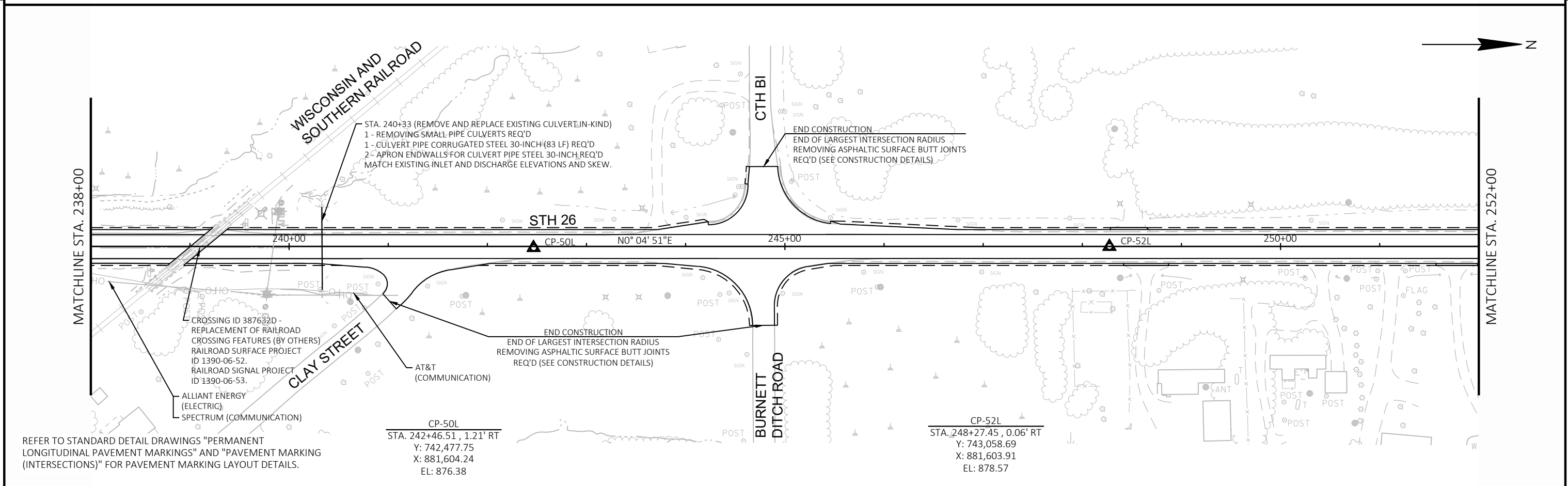
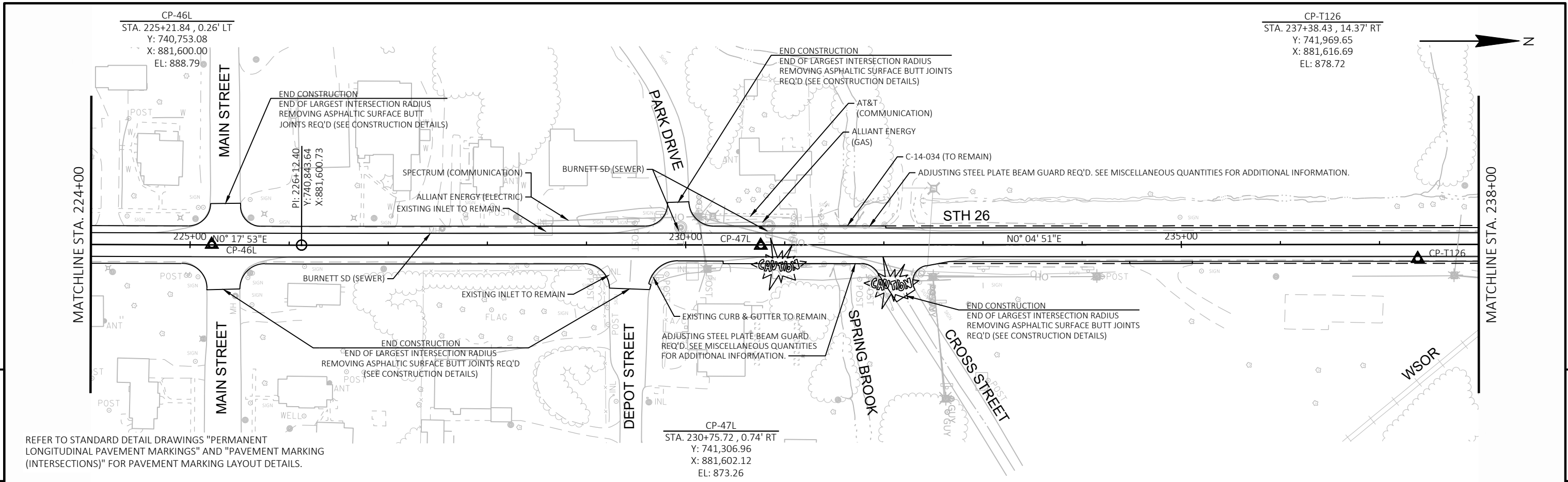
END CONSTRUCTION  
 END OF LARGEST INTERSECTION RADIUS  
 REMOVING ASPHALTIC SURFACE BUTT JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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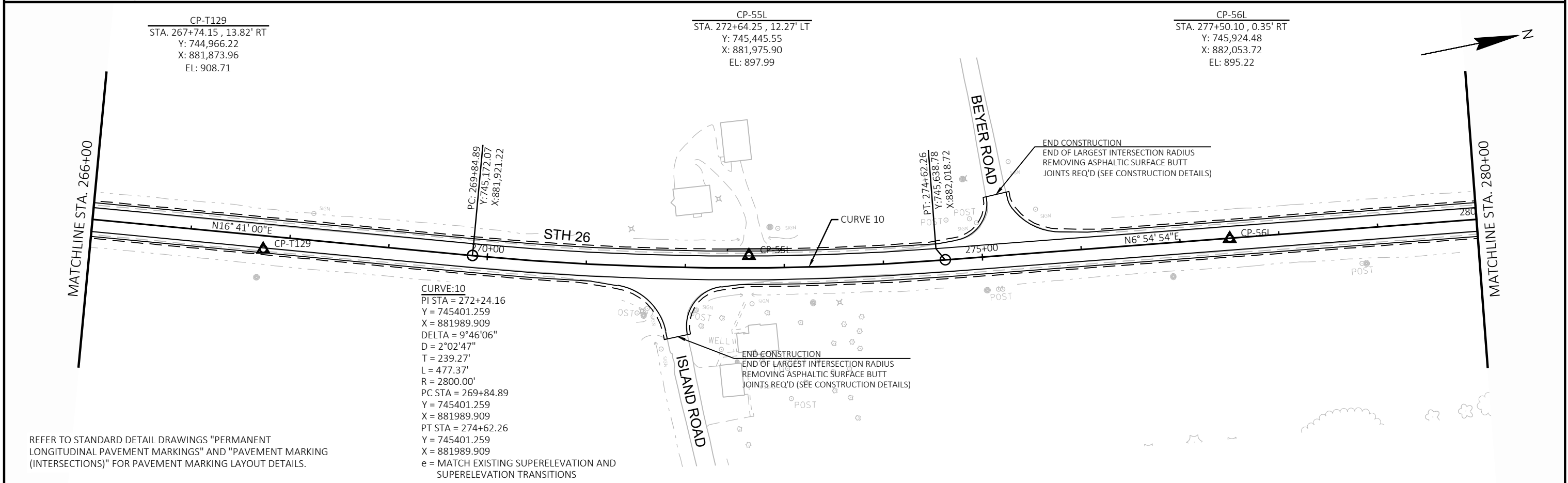
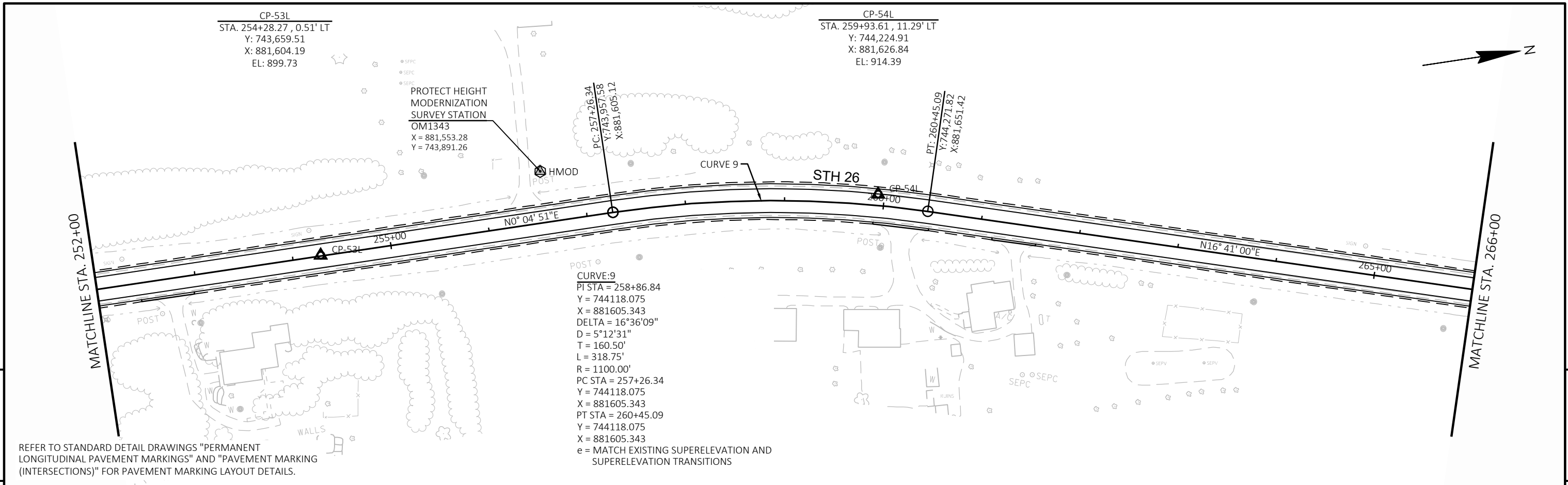


PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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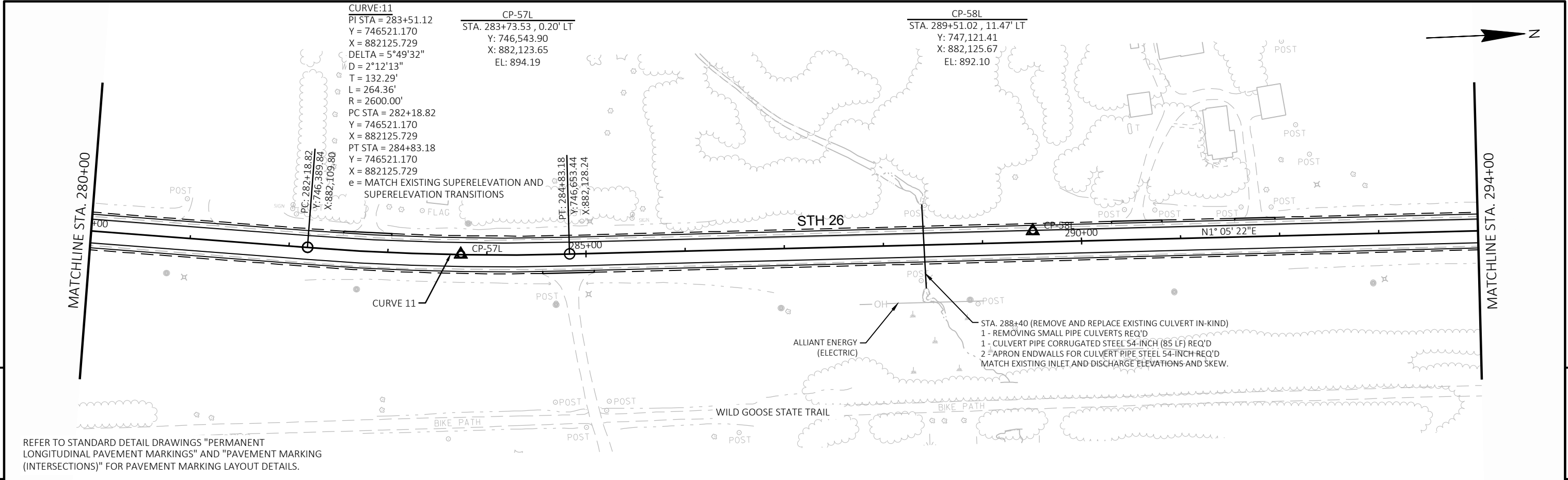


PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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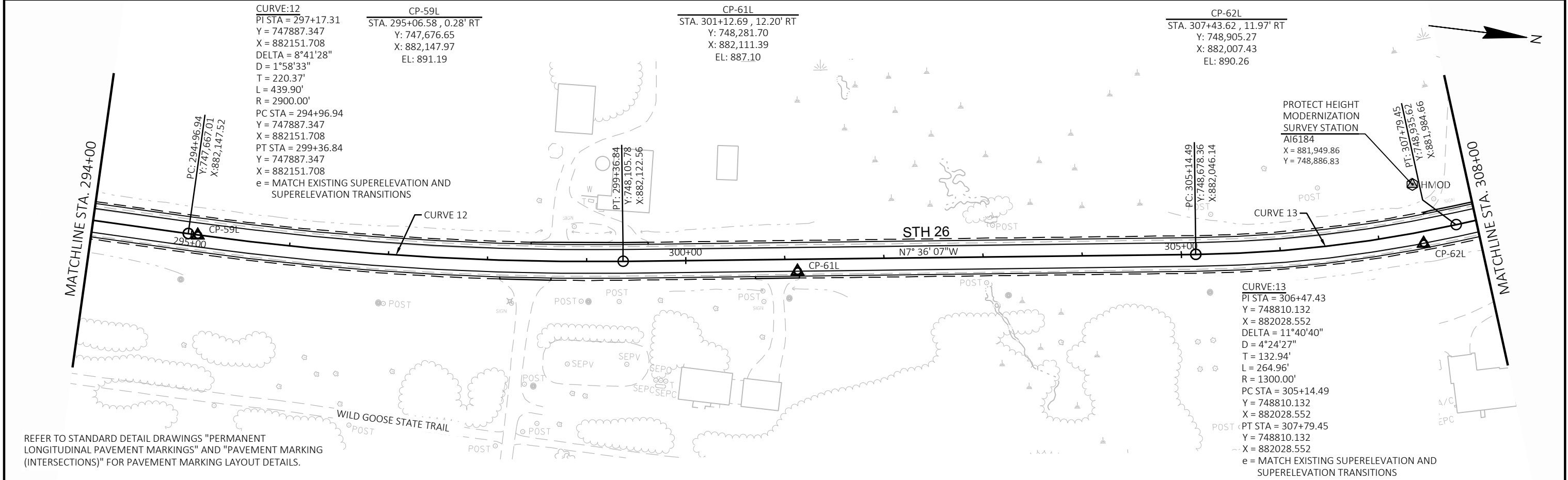




PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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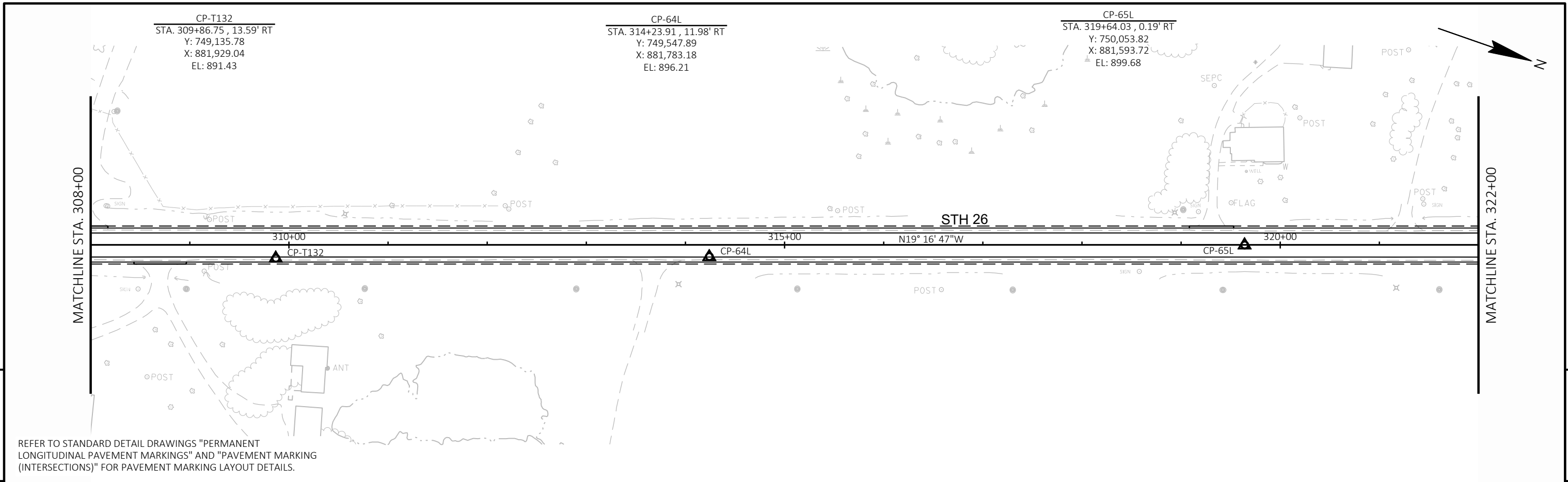


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

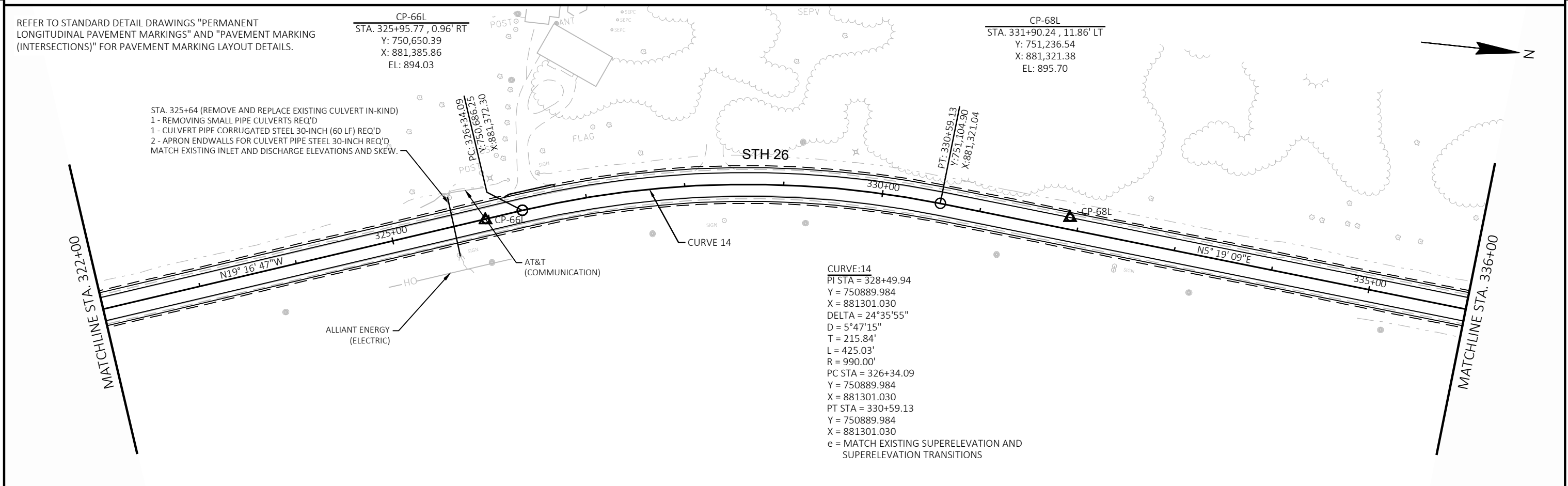


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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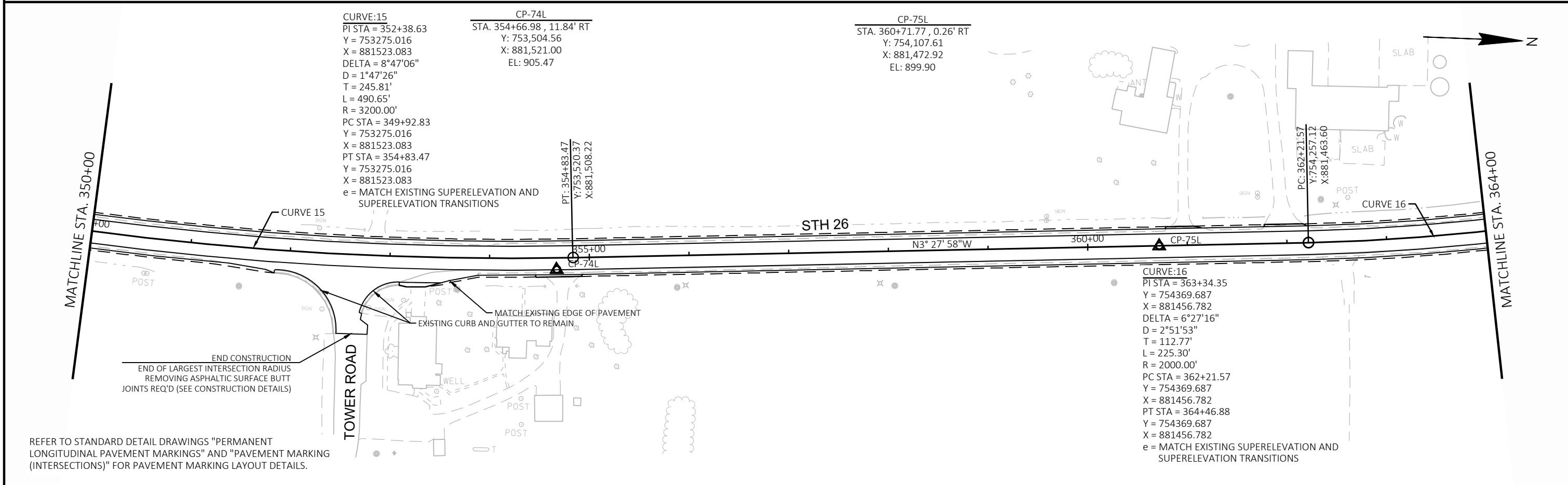
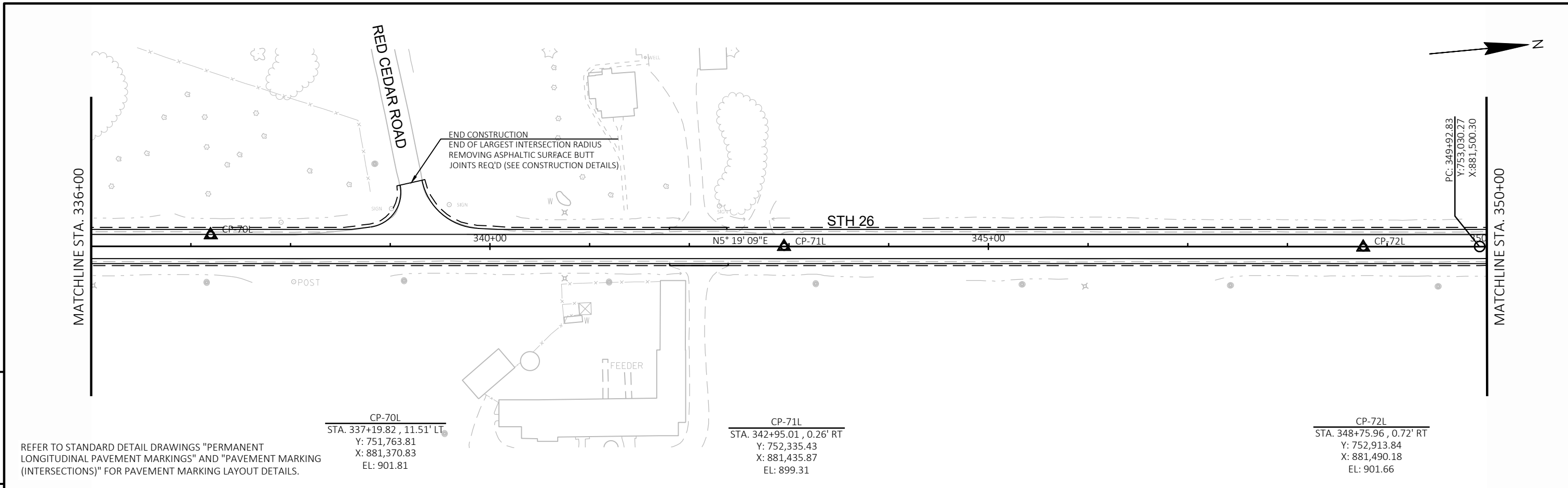


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

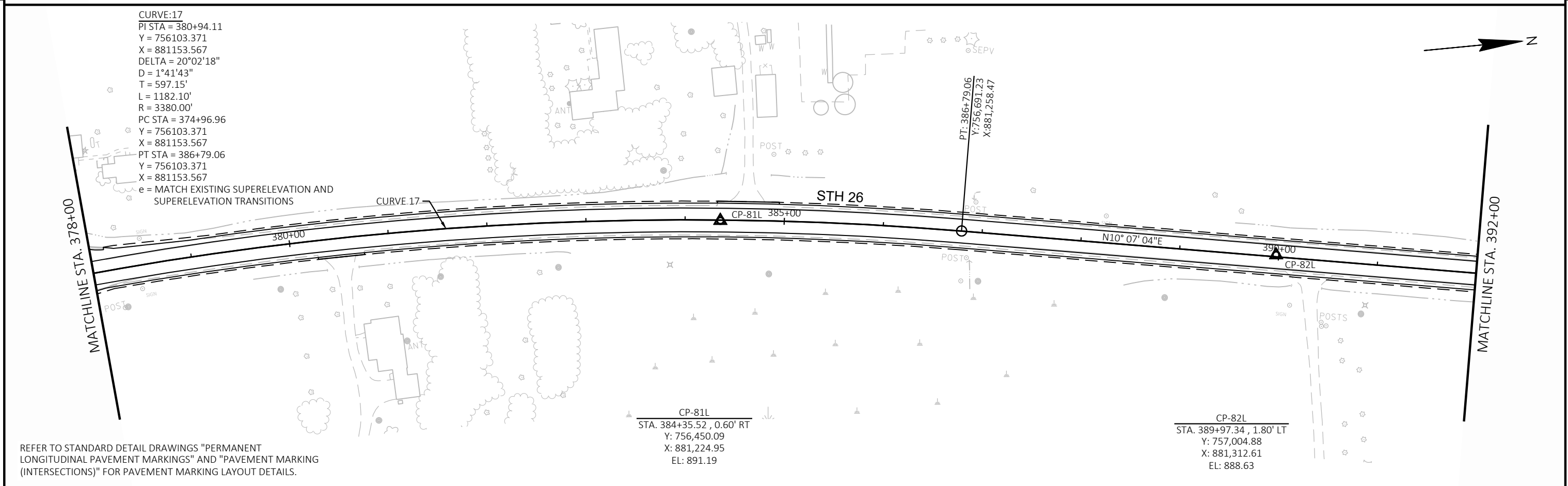
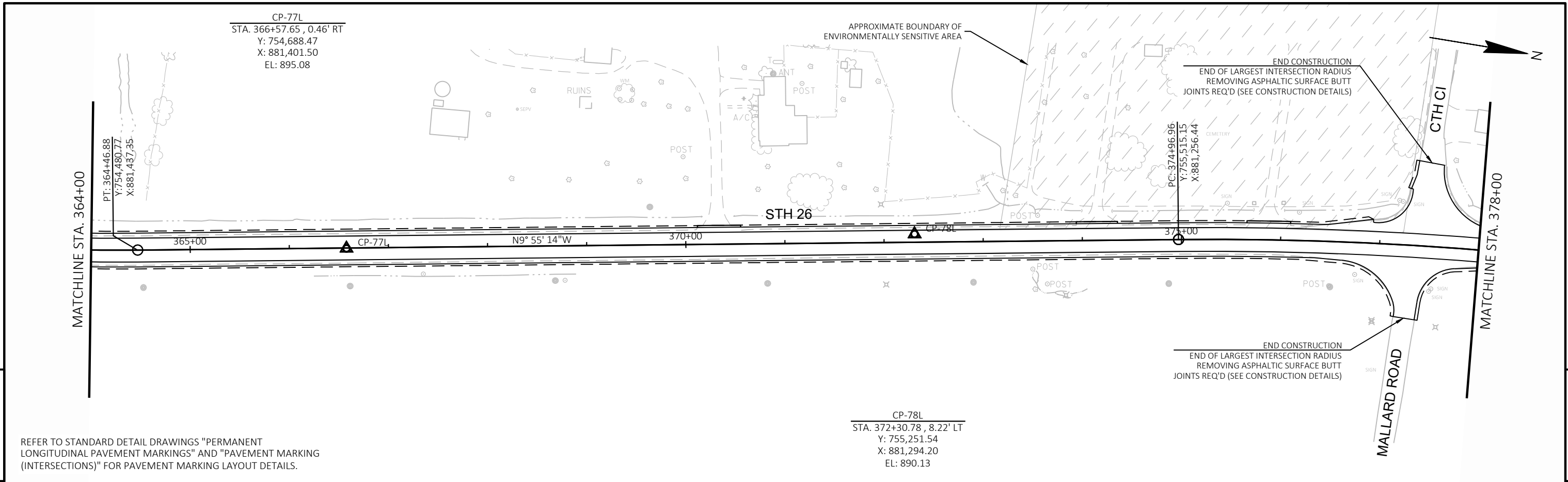


REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

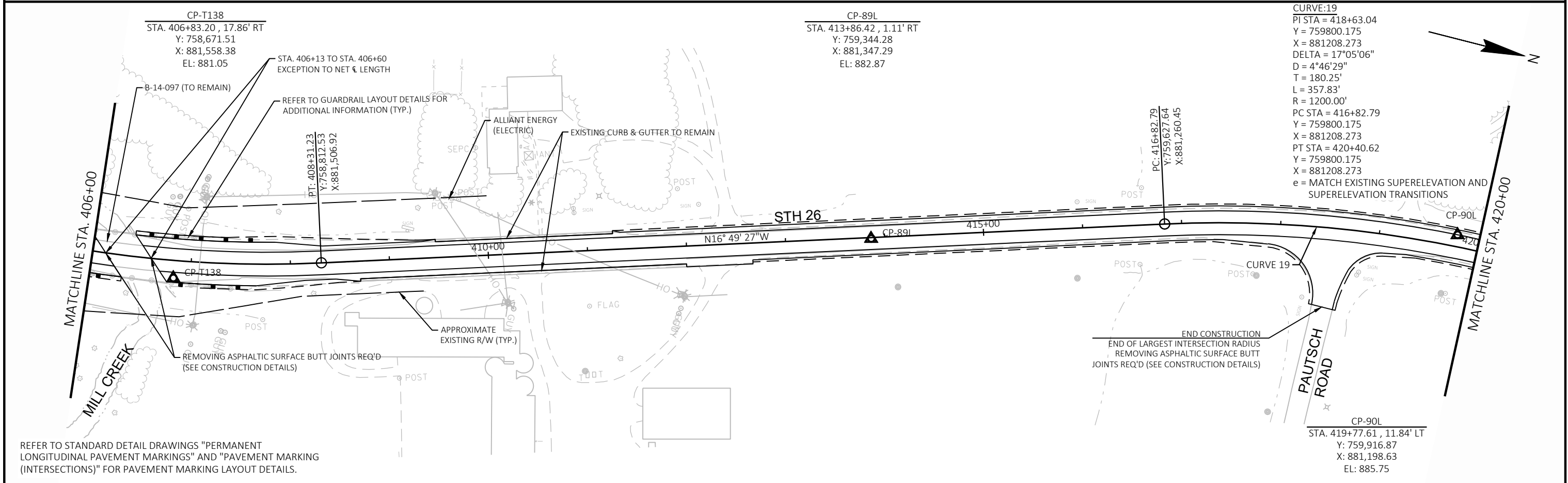
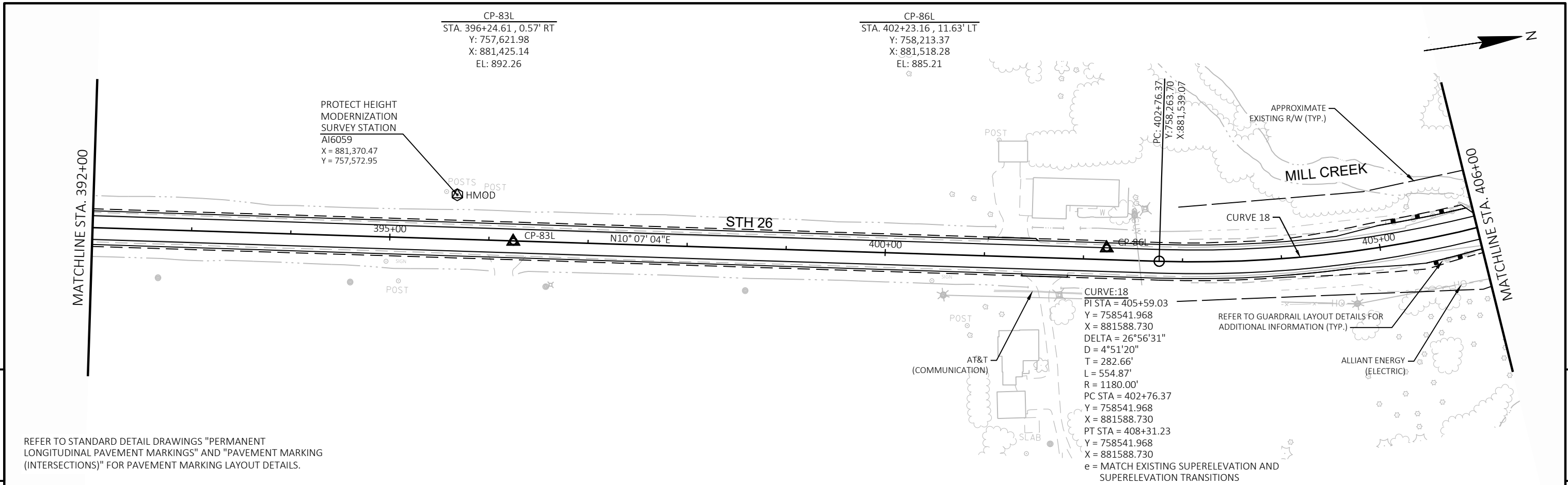
PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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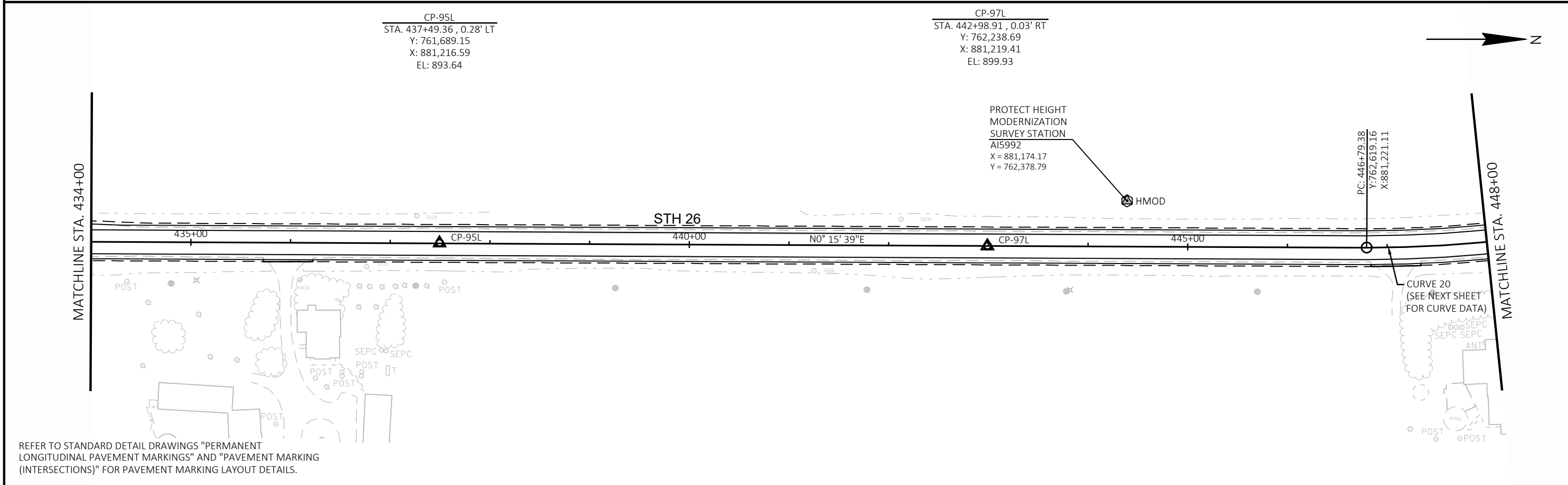
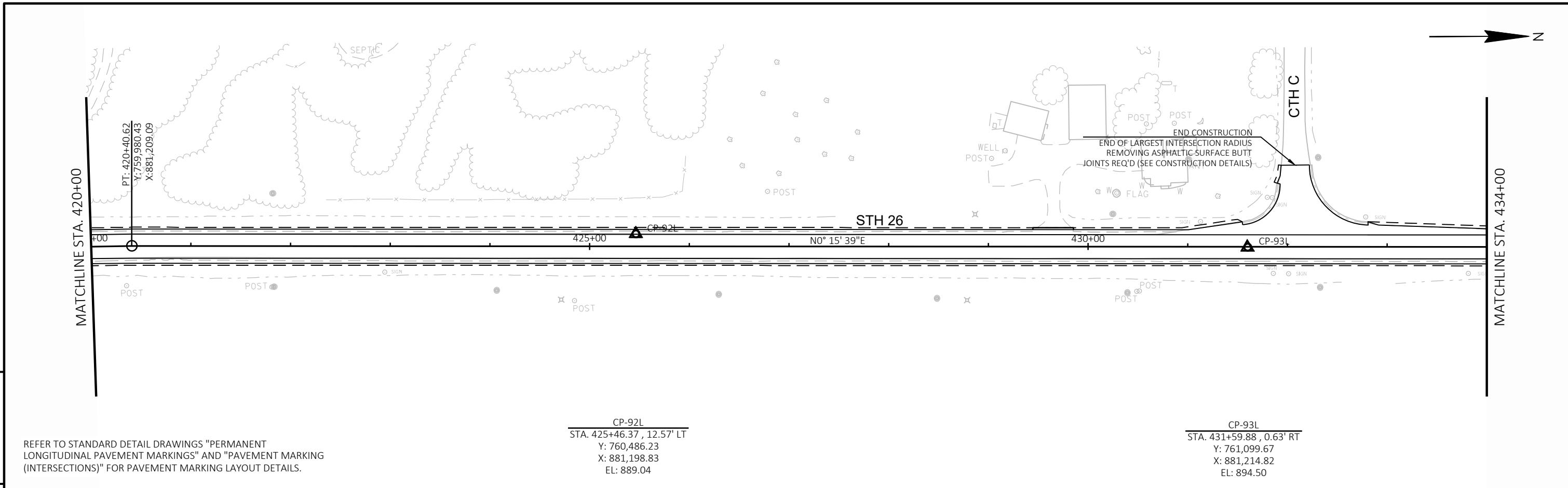
PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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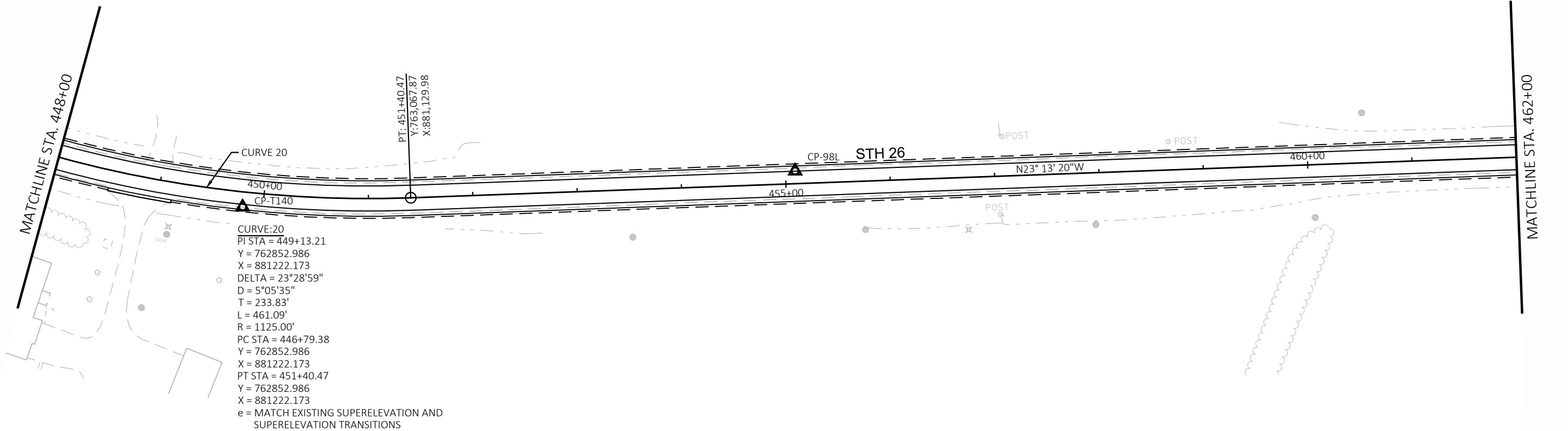


PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-T140  
 STA. 449+80.76 , 14.43' RT  
 Y: 762,920.88  
 X: 881,196.27  
 EL: 905.39

CP-98L  
 STA. 455+09.26 , 12.05' LT  
 Y: 763,402.03  
 X: 880,973.49  
 EL: 899.98



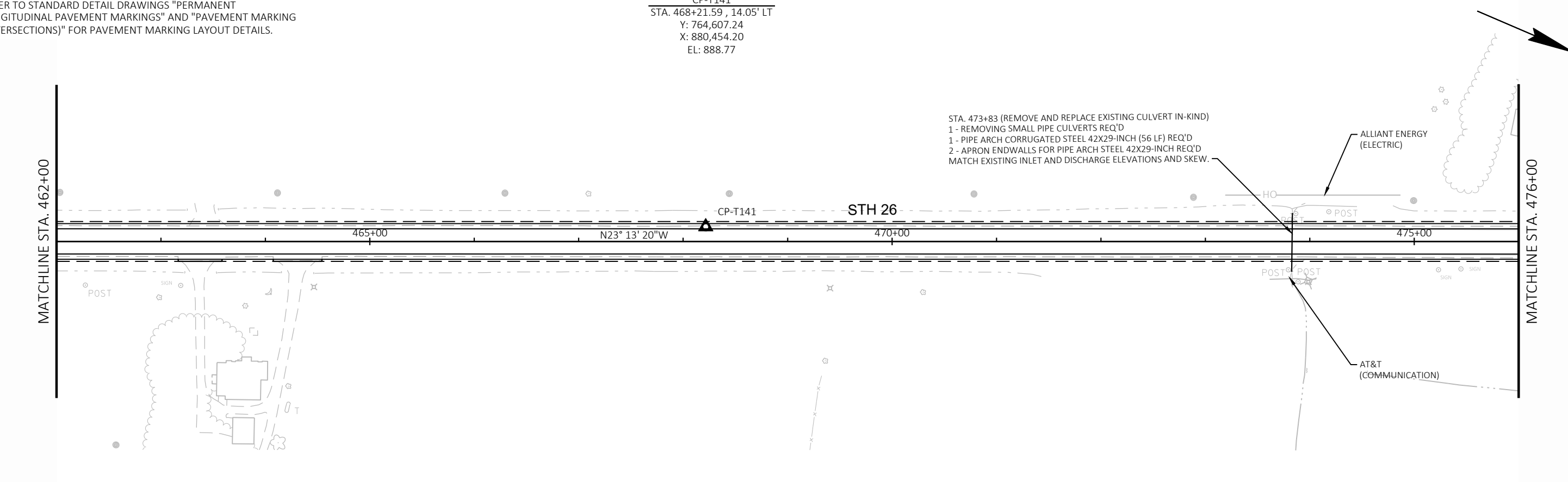
CURVE:20  
 PI STA = 449+13.21  
 Y = 762852.986  
 X = 881222.173  
 DELTA = 23°28'59"  
 D = 5°05'35"  
 T = 233.83'  
 L = 461.09'  
 R = 1125.00'  
 PC STA = 446+79.38  
 Y = 762852.986  
 X = 881222.173  
 PT STA = 451+40.47  
 Y = 762852.986  
 X = 881222.173  
 e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-T141  
 STA. 468+21.59 , 14.05' LT  
 Y: 764,607.24  
 X: 880,454.20  
 EL: 888.77



STA. 473+83 (REMOVE AND REPLACE EXISTING CULVERT IN-KIND)  
 1 - REMOVING SMALL PIPE CULVERTS REQ'D  
 1 - PIPE ARCH CORRUGATED STEEL 42X29-INCH (56 LF) REQ'D  
 2 - APRON ENDWALLS FOR PIPE ARCH STEEL 42X29-INCH REQ'D  
 MATCH EXISTING INLET AND DISCHARGE ELEVATIONS AND SKEW.

ALLIANT ENERGY (ELECTRIC)

AT&T (COMMUNICATION)

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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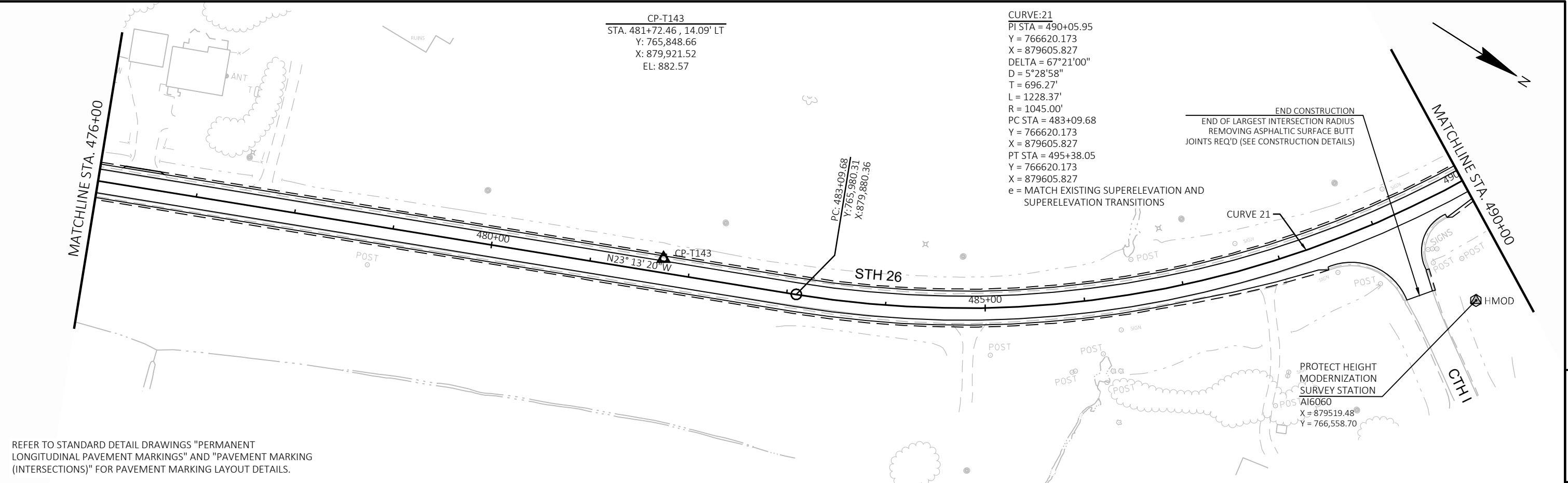


CP-T143  
 STA. 481+72.46, 14.09' LT  
 Y: 765,848.66  
 X: 879,921.52  
 EL: 882.57

CURVE:21  
 PI STA = 490+05.95  
 Y = 766620.173  
 X = 879605.827  
 DELTA = 67°21'00"  
 D = 5°28'58"  
 T = 696.27'  
 L = 1228.37'  
 R = 1045.00'  
 PC STA = 483+09.68  
 Y = 766620.173  
 X = 879605.827  
 PT STA = 495+38.05  
 Y = 766620.173  
 X = 879605.827  
 e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

END CONSTRUCTION  
 END OF LARGEST INTERSECTION RADIUS  
 REMOVING ASPHALTIC SURFACE BUTT  
 JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

PROTECT HEIGHT  
 MODERNIZATION  
 SURVEY STATION  
 AI6060  
 X = 879519.48  
 Y = 766,558.70



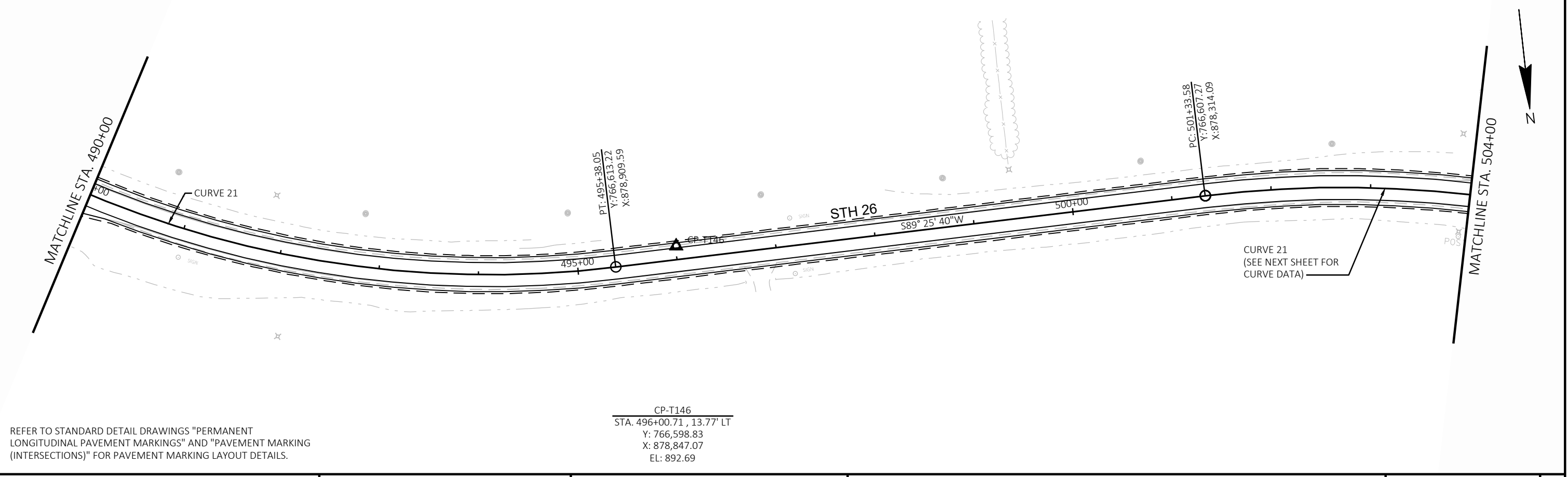
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

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CP-T146  
 STA. 496+00.71, 13.77' LT  
 Y: 766,598.83  
 X: 878,847.07  
 EL: 892.69

CURVE 21  
 (SEE NEXT SHEET FOR CURVE DATA)



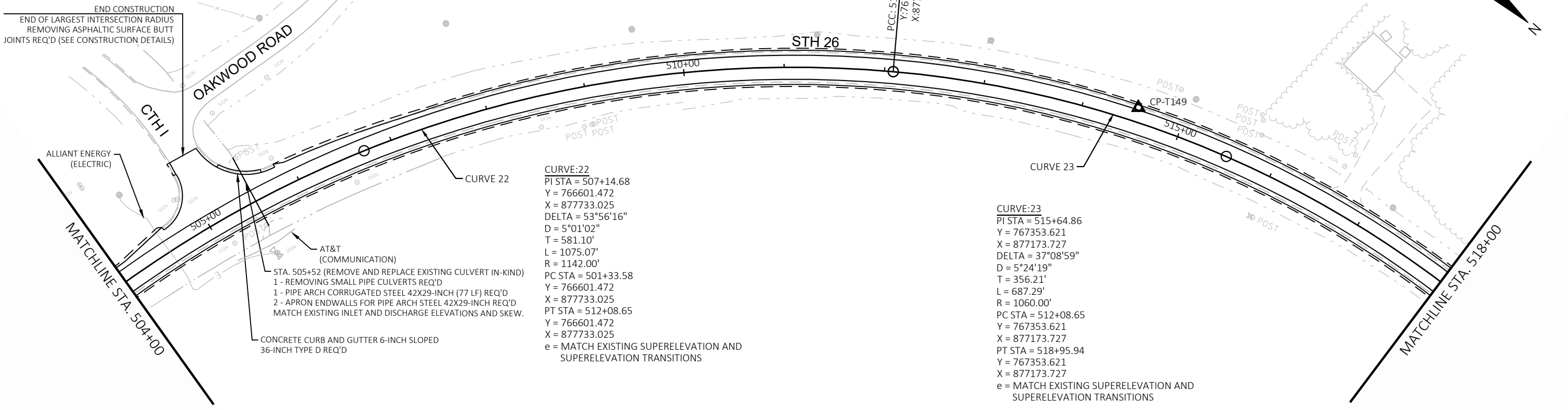
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

END CONSTRUCTION  
END OF LARGEST INTERSECTION RADIUS  
REMOVING ASPHALTIC SURFACE BUTT  
JOINTS REQ'D (SEE CONSTRUCTION DETAILS)

CP-T149  
STA. 514+53.86 , 14.31' LT  
Y: 767,273.97  
X: 877,250.78  
EL: 906.78



**CURVE:22**  
PI STA = 507+14.68  
Y = 766601.472  
X = 877733.025  
DELTA = 53°56'16"  
D = 5°01'02"  
T = 581.10'  
L = 1075.07'  
R = 1142.00'  
PC STA = 501+33.58  
Y = 766601.472  
X = 877733.025  
PT STA = 512+08.65  
Y = 766601.472  
X = 877733.025  
e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

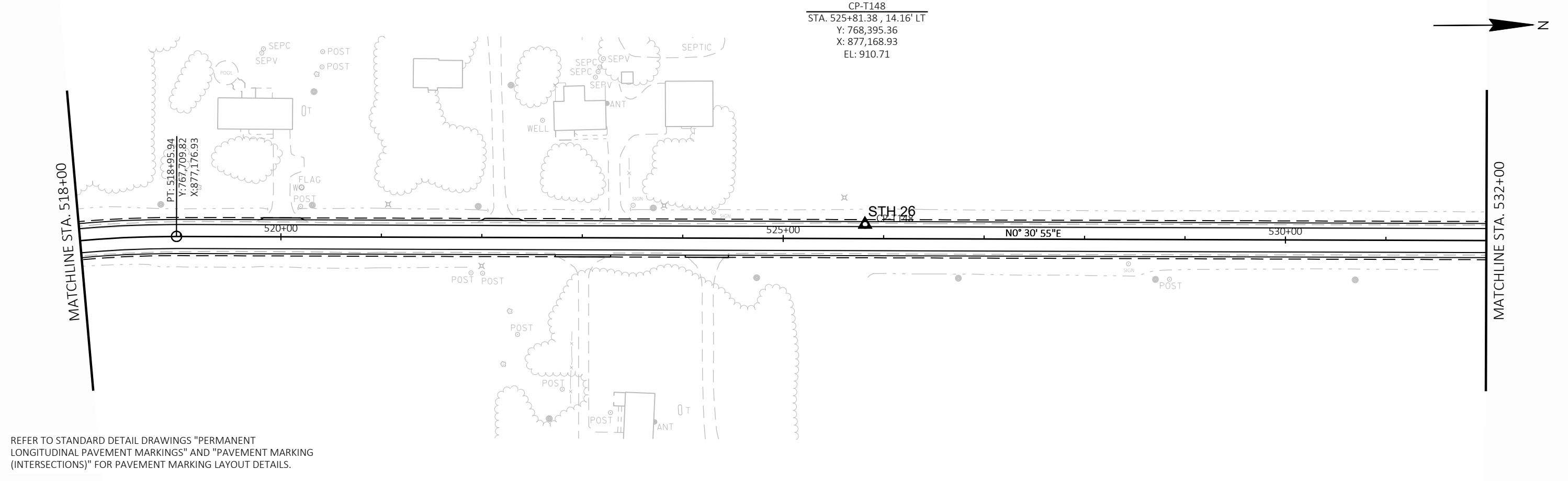
**CURVE:23**  
PI STA = 515+64.86  
Y = 767353.621  
X = 877173.727  
DELTA = 37°08'59"  
D = 5°24'19"  
T = 356.21'  
L = 687.29'  
R = 1060.00'  
PC STA = 512+08.65  
Y = 767353.621  
X = 877173.727  
PT STA = 518+95.94  
Y = 767353.621  
X = 877173.727  
e = MATCH EXISTING SUPERELEVATION AND SUPERELEVATION TRANSITIONS

STA. 505+52 (REMOVE AND REPLACE EXISTING CULVERT IN-KIND)  
1 - REMOVING SMALL PIPE CULVERTS REQ'D  
1 - PIPE ARCH CORRUGATED STEEL 42X29-INCH (77 LF) REQ'D  
2 - APRON ENDWALLS FOR PIPE ARCH STEEL 42X29-INCH REQ'D  
MATCH EXISTING INLET AND DISCHARGE ELEVATIONS AND SKEW.

CONCRETE CURB AND GUTTER 6-INCH SLOPED  
36-INCH TYPE D REQ'D

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CP-T148  
STA. 525+81.38 , 14.16' LT  
Y: 768,395.36  
X: 877,168.93  
EL: 910.71

REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	PLAN: STH 26	SHEET	E
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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.

CP-T151  
 STA. 543+98.80, 14.03' LT  
 Y: 770,212.71  
 X: 877,184.44  
 EL: 936.84



MATCHLINE STA. 532+00

MATCHLINE STA. 546+00

PI: 533+92.98  
 Y: 769,206.80  
 X: 877,190.39

N0° 30' 55" E

STH 26

N0° 27' 37" E

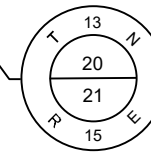
535+00

540+00

545+00

POST

POST



EXISTING MONUMENT  
 BRASS CAP IN CONCRETE UNDER 10" ACCESS COVER  
 X = 877,195.11  
 Y = 769,297.13  
 VERIFY LANDMARK REFERENCE MONUMENTS REQ'D

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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.



MATCHLINE STA. 546+00

MATCHLINE STA. 560+00

PI: 548+33.20  
 Y: 770,646.97  
 X: 877,201.96

550+00

STH 26

555+00

N0° 18' 15" E

560+00

POST

POST

PROJECT NO: 1390-06-70

HWY: STH 26

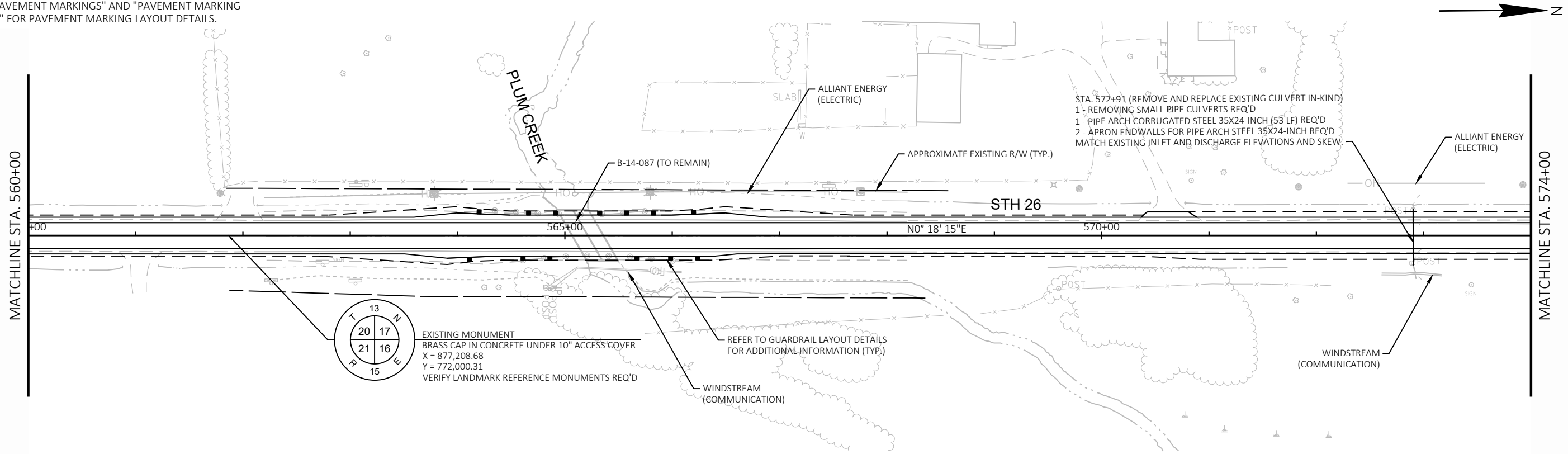
COUNTY: DODGE

PLAN: STH 26

SHEET

E

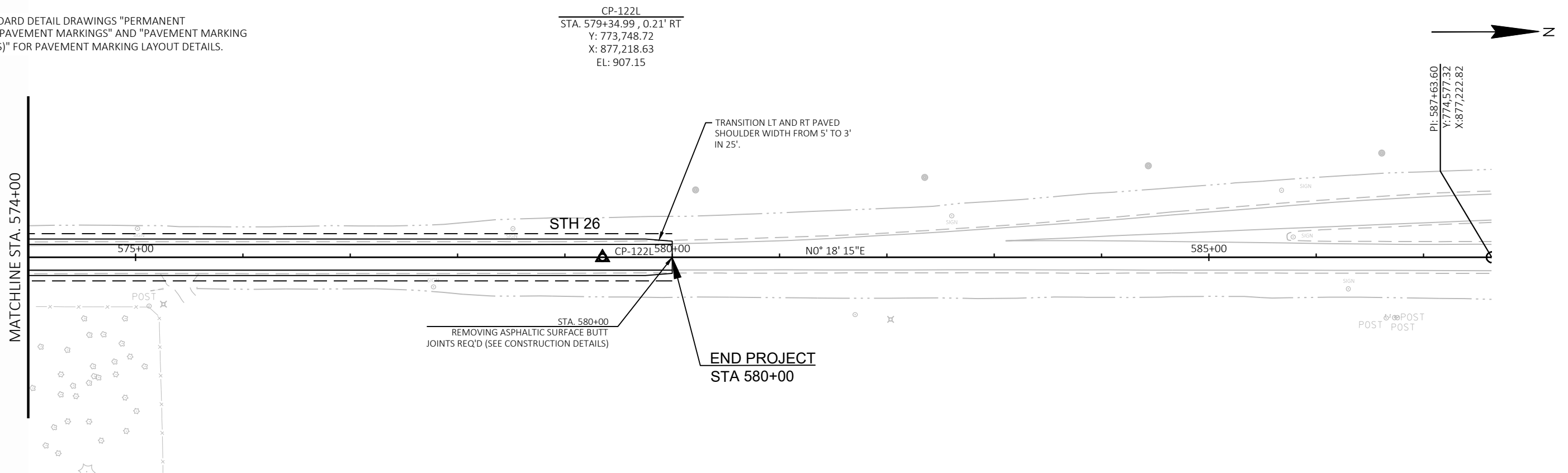
REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.



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REFER TO STANDARD DETAIL DRAWINGS "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND "PAVEMENT MARKING (INTERSECTIONS)" FOR PAVEMENT MARKING LAYOUT DETAILS.



PROJECT NO: 1390-06-70

HWY: STH 26

COUNTY: DODGE

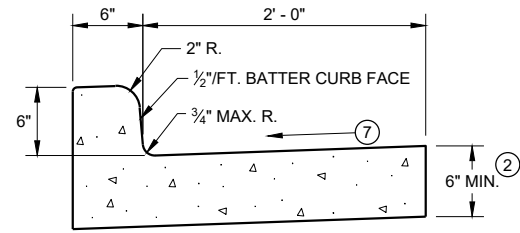
PLAN: STH 26

SHEET

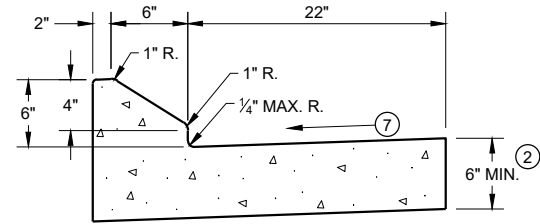
E

## Standard Detail Drawing List

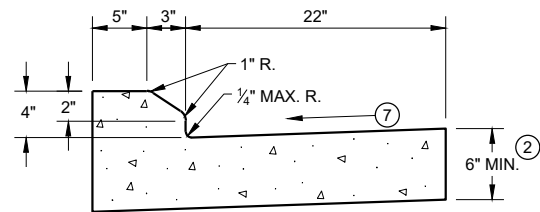
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
13A10-03A	SHOULDER RUMBLE STRIPS - ASPHALT
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C19-03	HMA LONGITUDINAL JOINTS
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
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
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR 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
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C09-13A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-08A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D45-03	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL
16A01-07	LANDMARK REFERENCE MONUMENTS AND COVERS



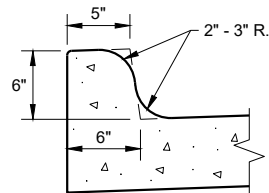
**TYPES A<sup>1</sup> & D**



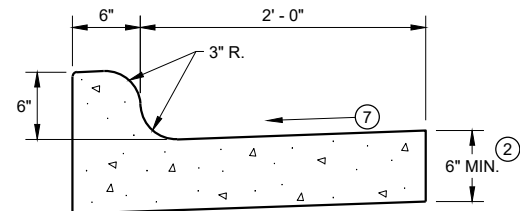
**6" SLOPED CURB TYPES G<sup>1</sup> & J**



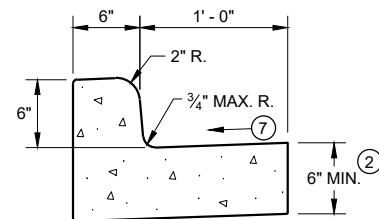
**4" SLOPED CURB TYPES G<sup>1</sup> & J**



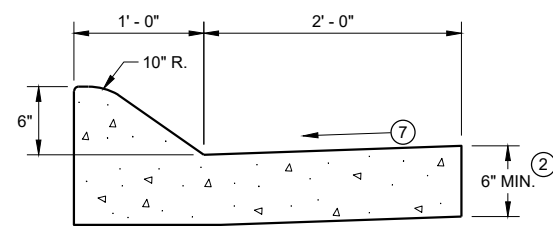
**TYPES K<sup>1</sup> & L**  
(OPTIONAL CURB SHAPE)



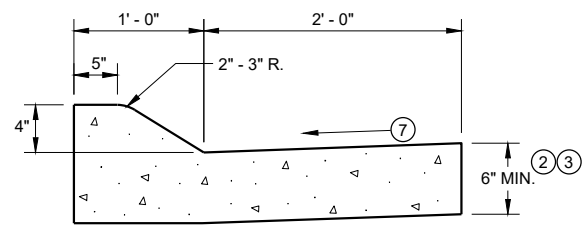
**TYPES K<sup>1</sup> & L**  
**CONCRETE CURB AND GUTTER 30"**



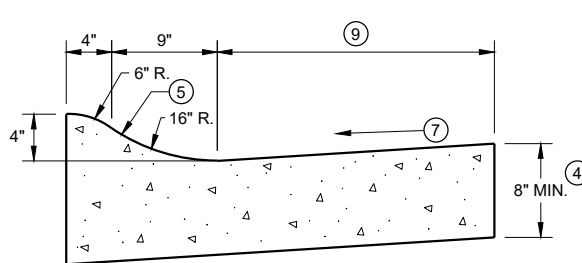
**TYPES A<sup>1</sup> & D**  
**CONCRETE CURB AND GUTTER 18"**



**6" SLOPED CURB TYPES A<sup>1</sup> & D**

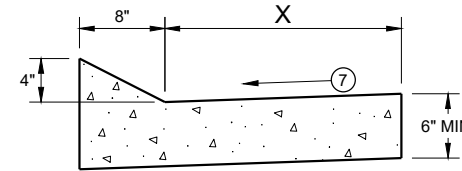


**4" SLOPED CURB TYPES A<sup>1</sup> & D**  
**CONCRETE CURB AND GUTTER 36"**



**4" SLOPED CURB TYPES R<sup>1</sup> & T**

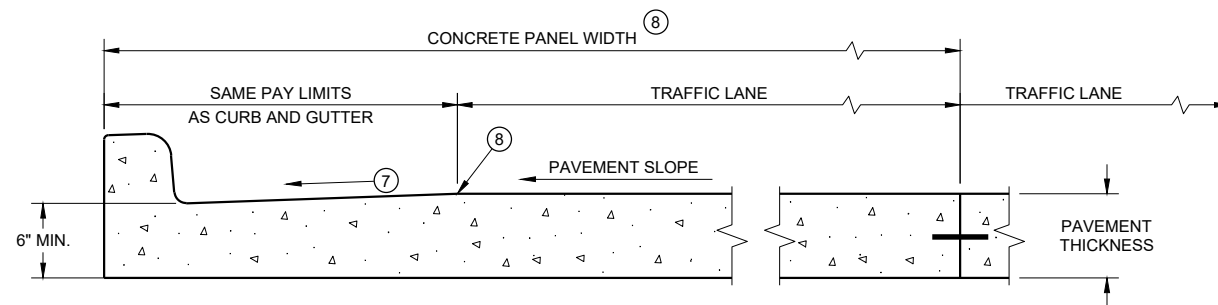
TBT & TBTT	X
30"	22"
36"	28"



**TYPES TBT & TBTT<sup>1</sup>**  
**CONCRETE CURB AND GUTTER**

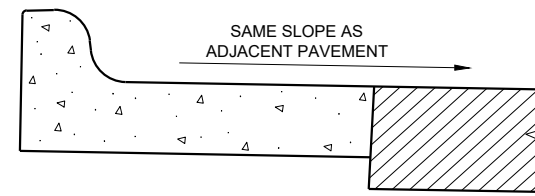
**PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE**

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



**PARTIAL SECTION OF PAVEMENT\* WITH INTEGRAL CURB AND GUTTER**

\* BIKE LANE IS NOT SHOWN



**REVERSE SLOPE GUTTER<sup>6</sup>**  
(TYPICAL FOR ALL CURB & GUTTER TYPES)

**GENERAL NOTES**

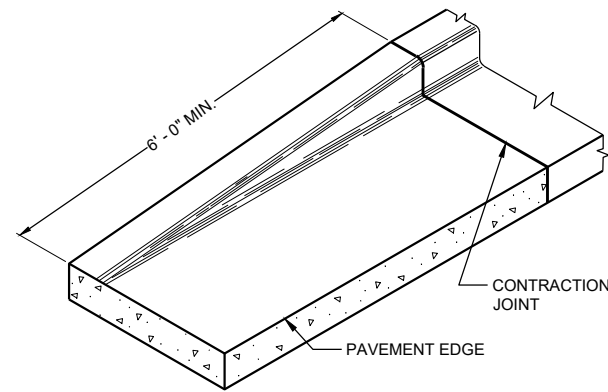
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

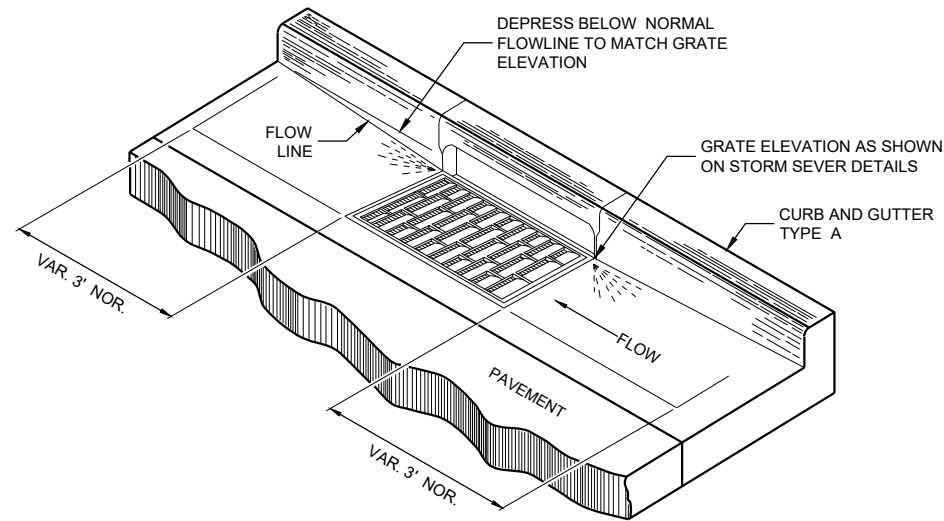
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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



**END SECTION CURB AND GUTTER**



**DETAIL OF CURB AND GUTTER AT INLETS**

(TYPICAL H INLET COVER SHOWN)

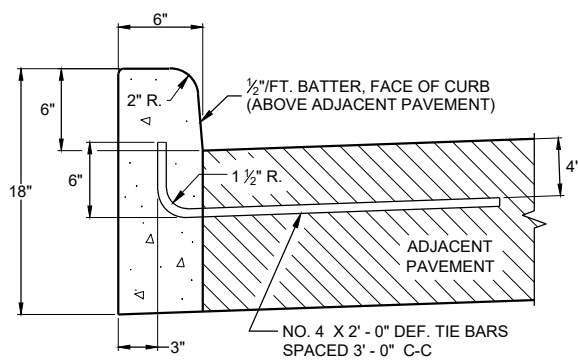
**GENERAL NOTES**

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

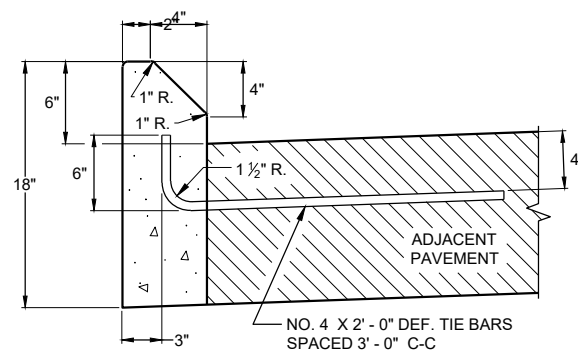
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

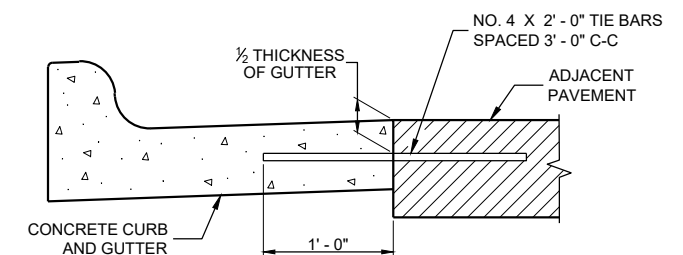
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



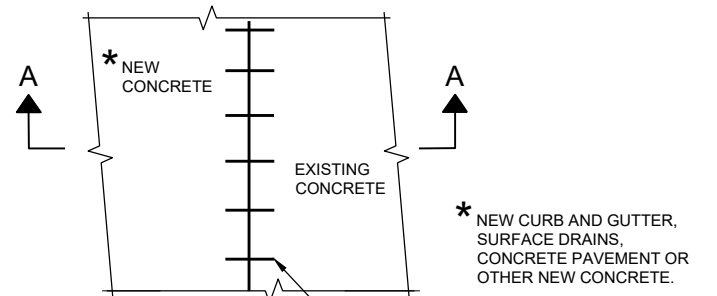
**TYPES A<sup>①</sup> & D**



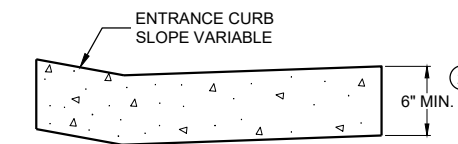
**TYPES G<sup>①</sup> & J  
CONCRETE CURB**



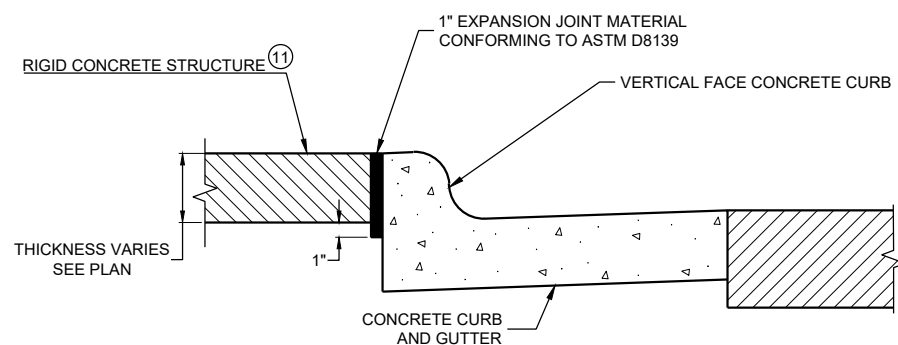
**TYPICAL TIE BAR LOCATION<sup>①</sup>**



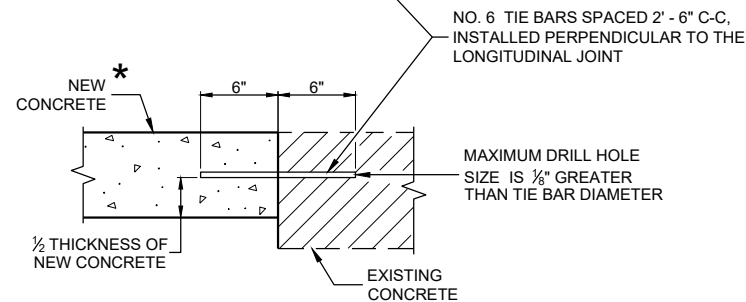
**PLAN VIEW**



**DRIVEWAY ENTRANCE CURB<sup>⑩</sup>  
(WHEN DIRECTED BY THE ENGINEER)**



**EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE<sup>⑪</sup>**



**SECTION A - A  
TIE BARS DRILLED INTO EXISTING PAVEMENT**

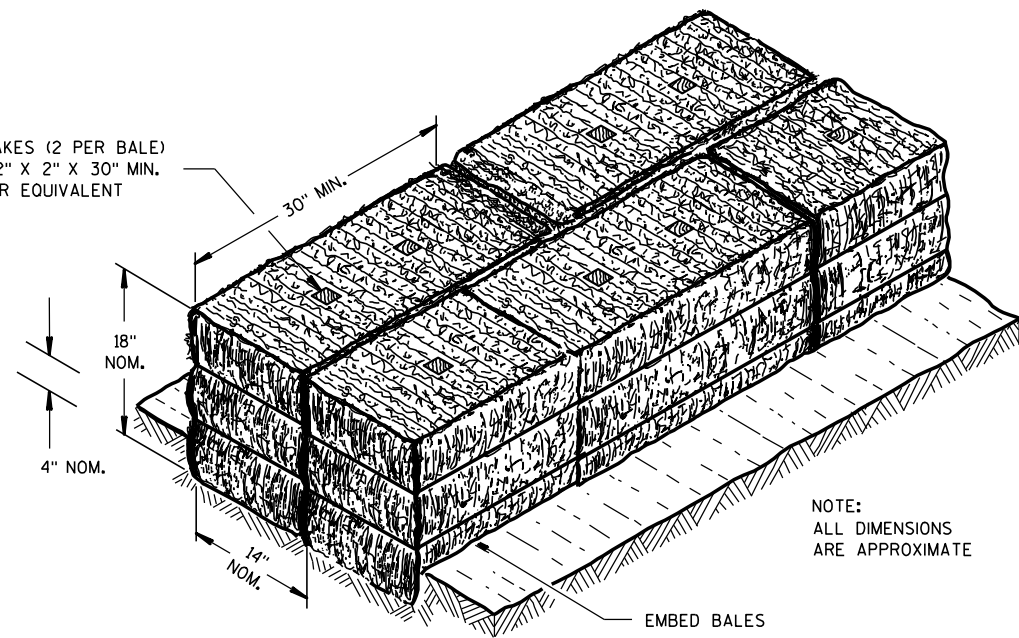
**CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE May 2023 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

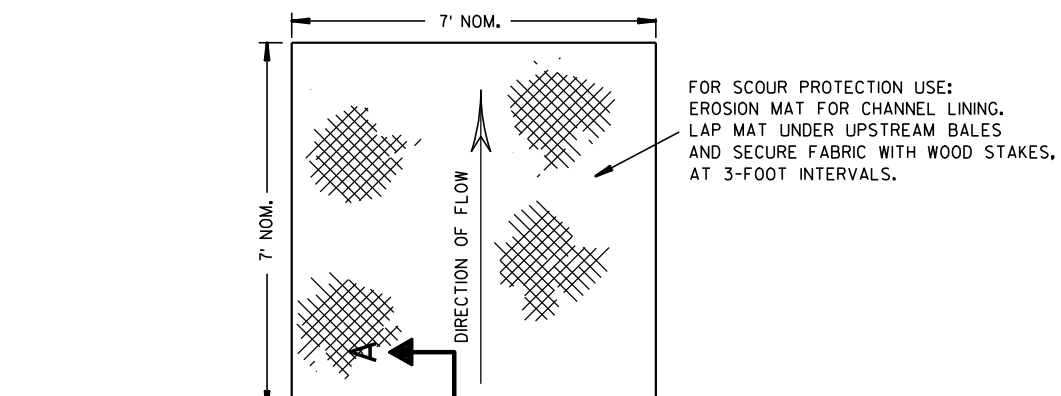
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



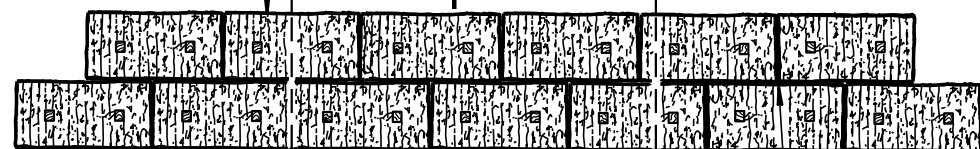
NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

EMBED BALES

SECTION A-A



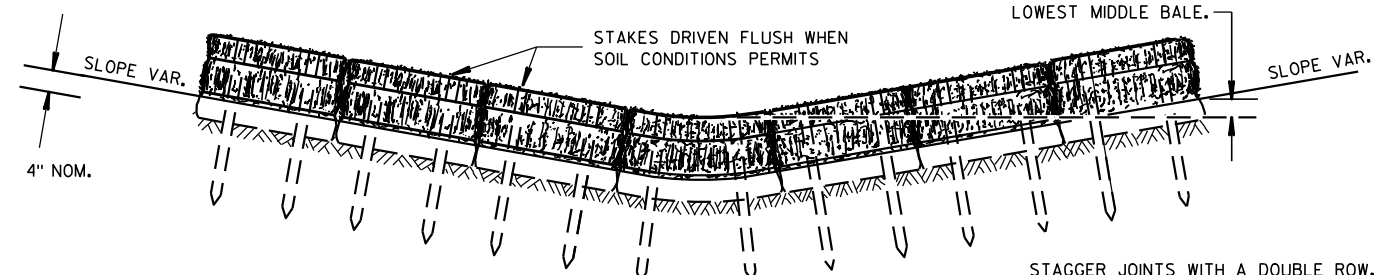
FOR SCOUR PROTECTION USE:  
EROSION MAT FOR CHANNEL LINING.  
LAP MAT UNDER UPSTREAM BALES  
AND SECURE FABRIC WITH WOOD STAKES,  
AT 3-FOOT INTERVALS.



STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

PLAN VIEW

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



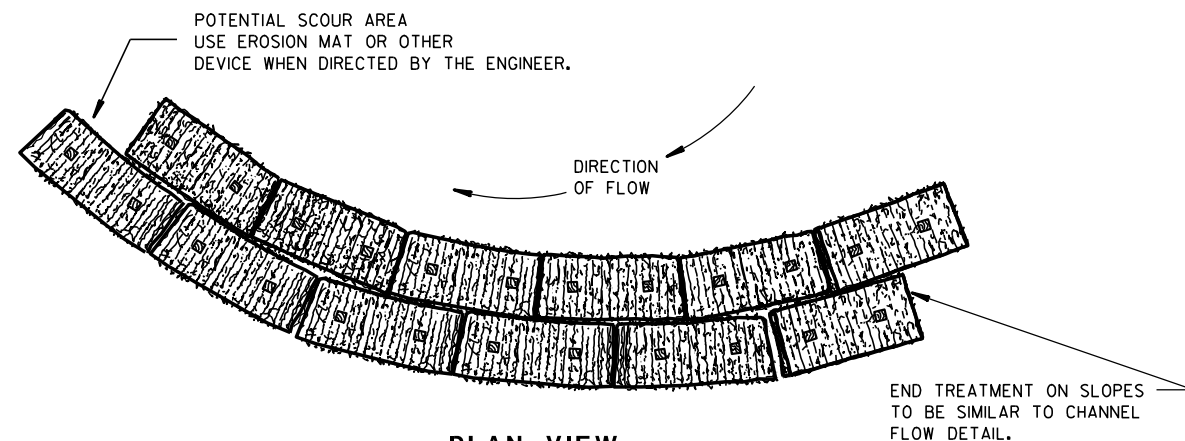
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

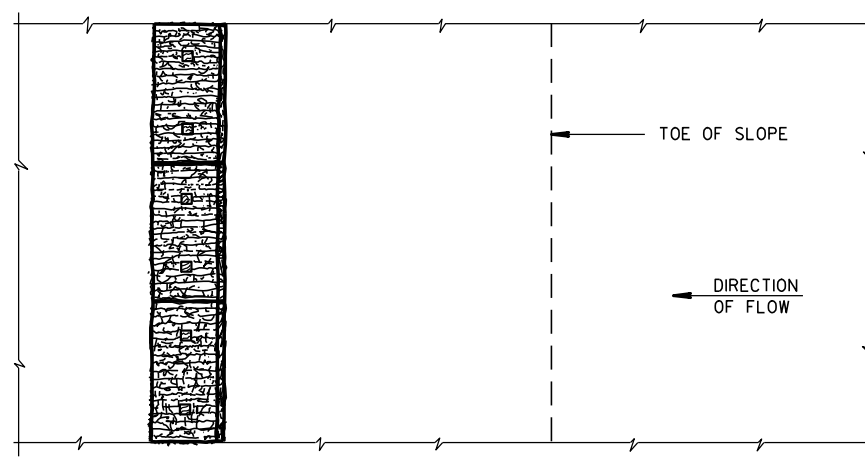
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

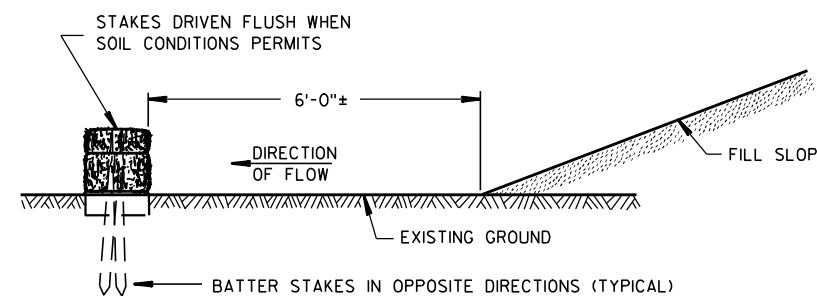


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

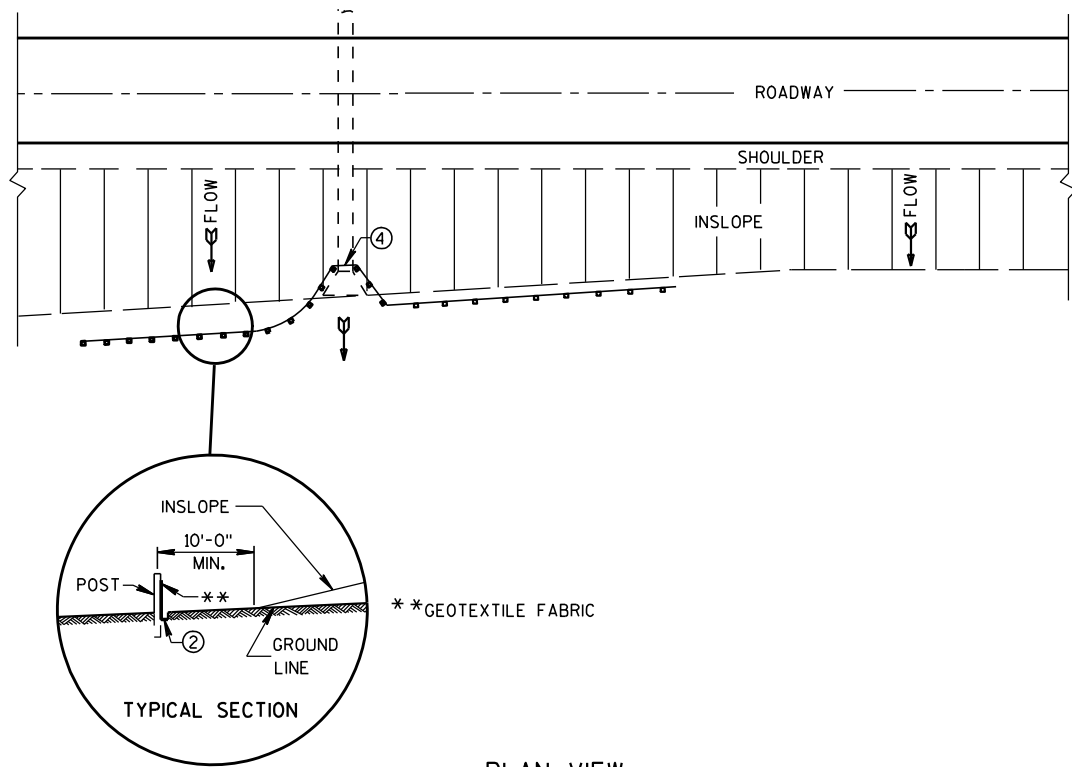
EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

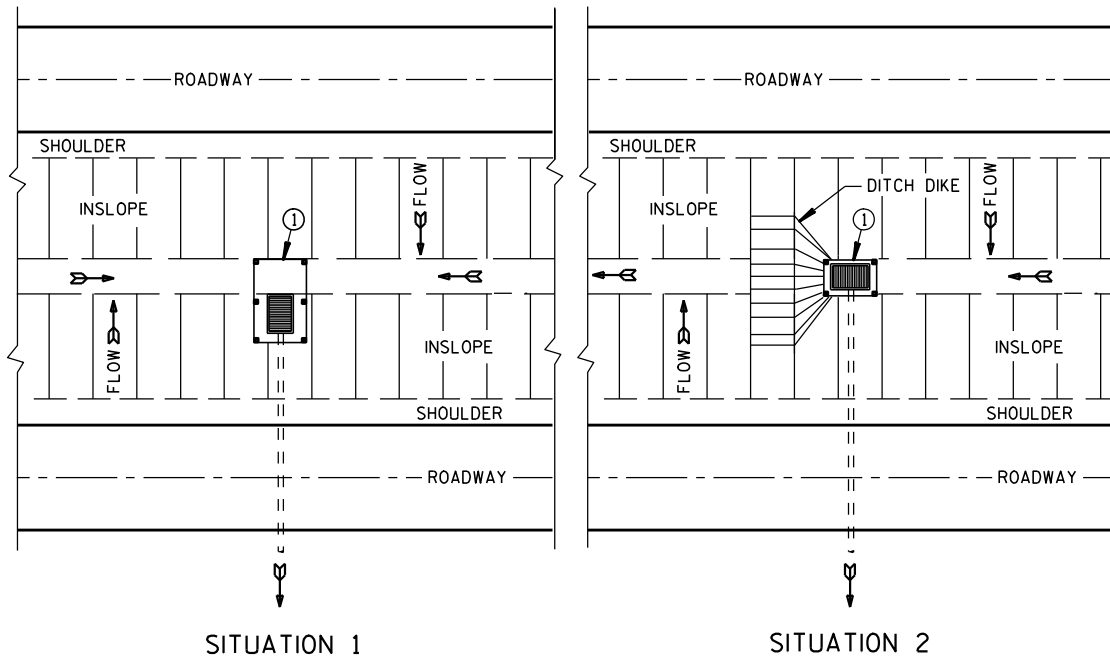
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

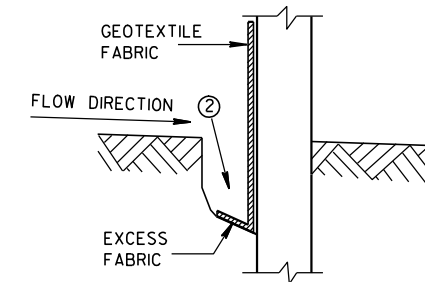


SITUATION 1      SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

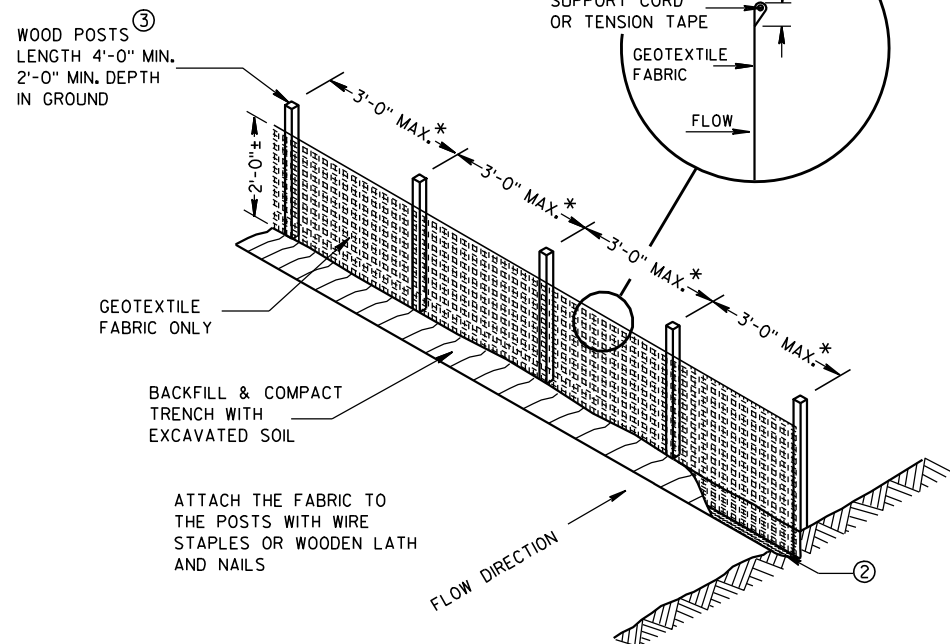
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



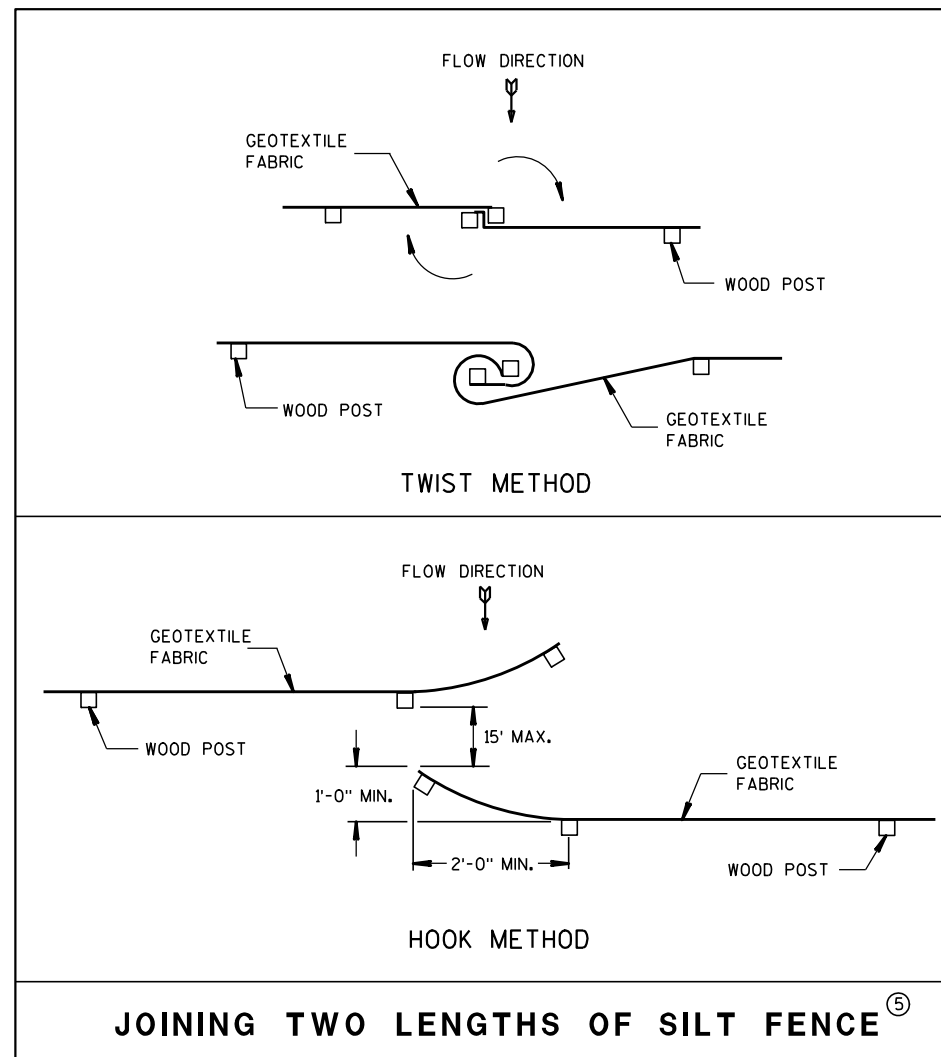
TRENCH DETAIL

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

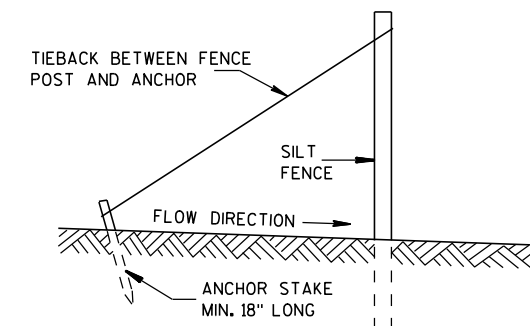


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

**GENERAL NOTES**

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

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

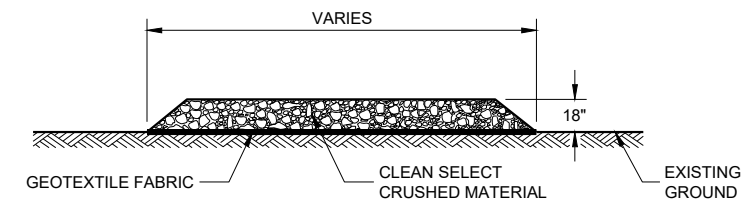
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

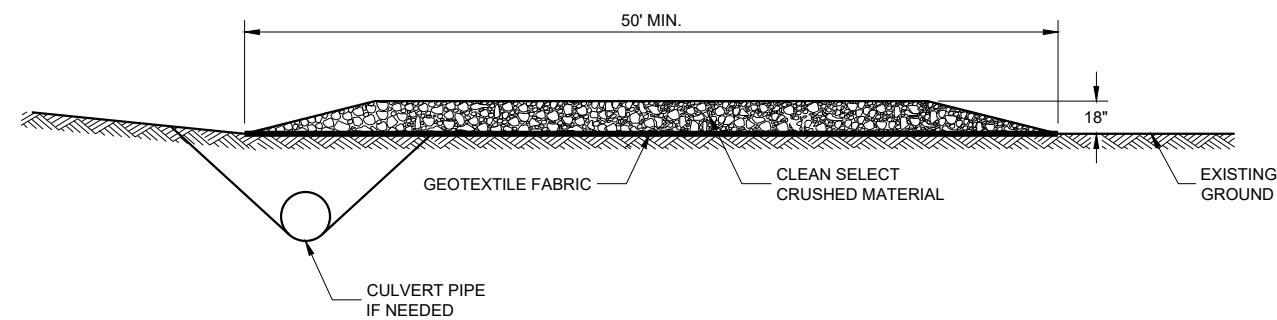
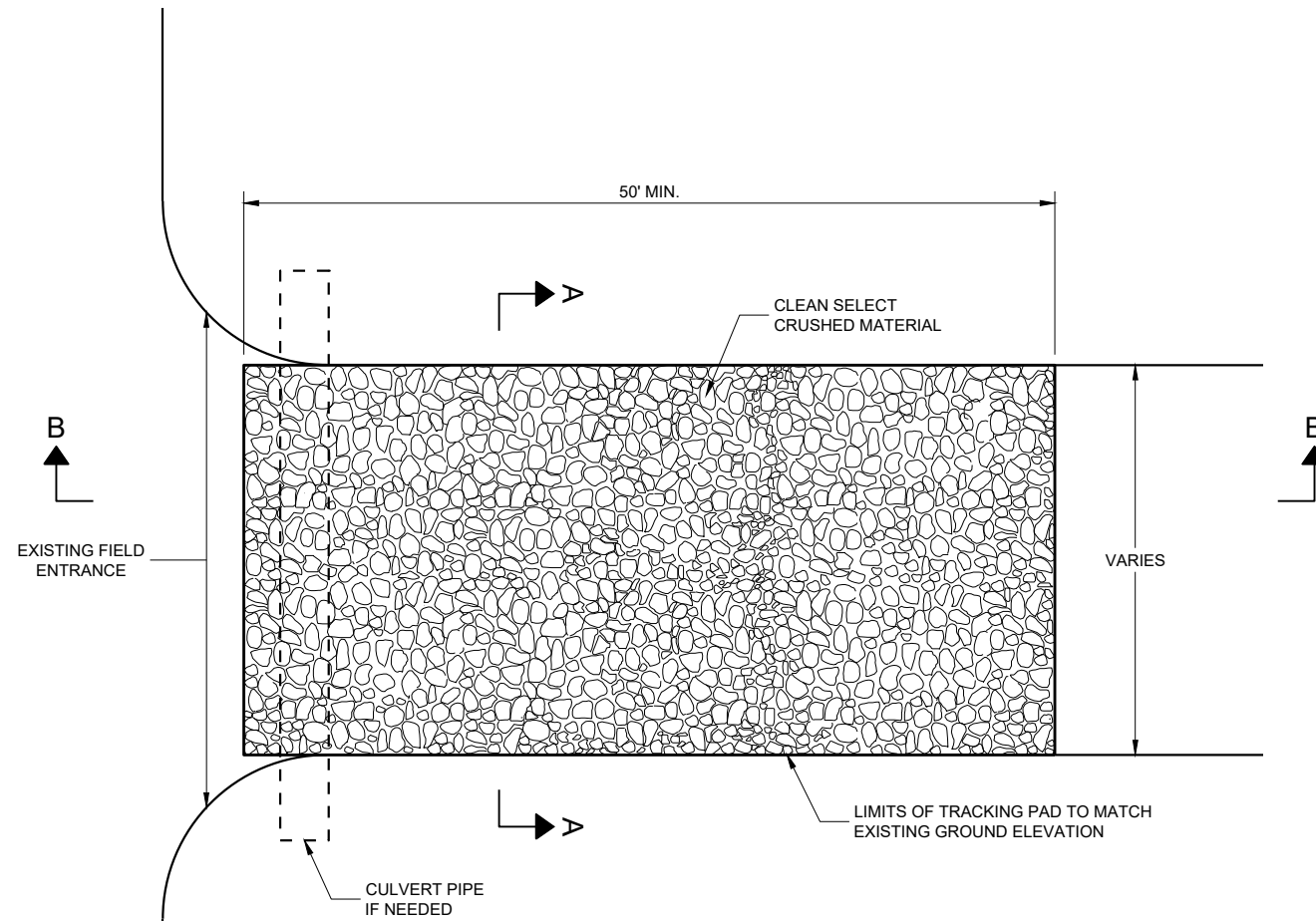
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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

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



**SECTION A - A**



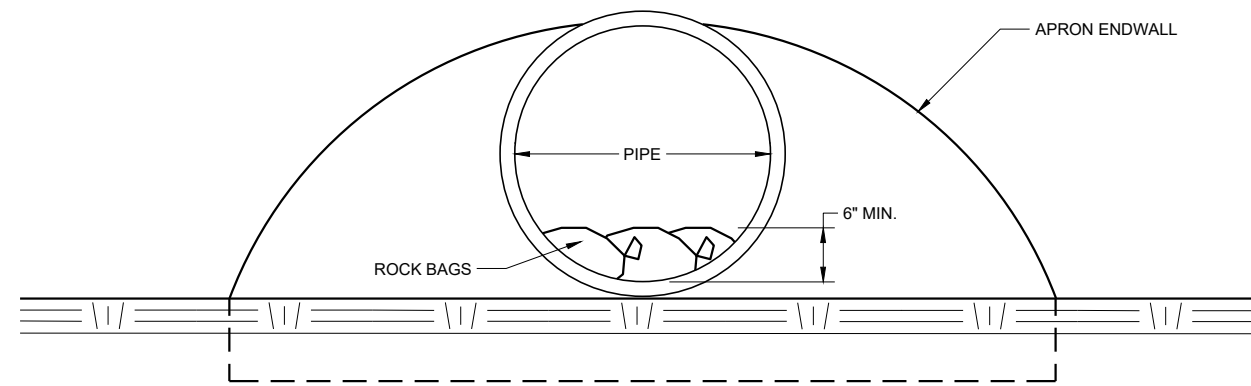
**SECTION B - B**

**TRACKING PAD**

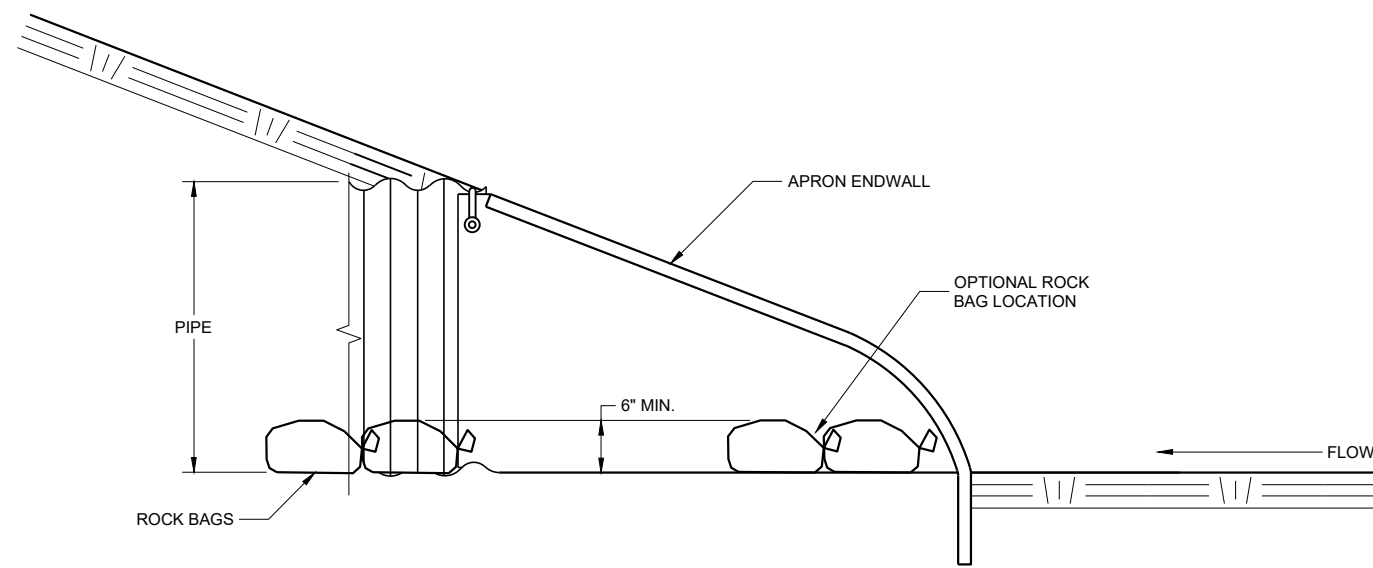
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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 /S/ Daniel Schave  
DATE EROSION CONTROL ENGINEER

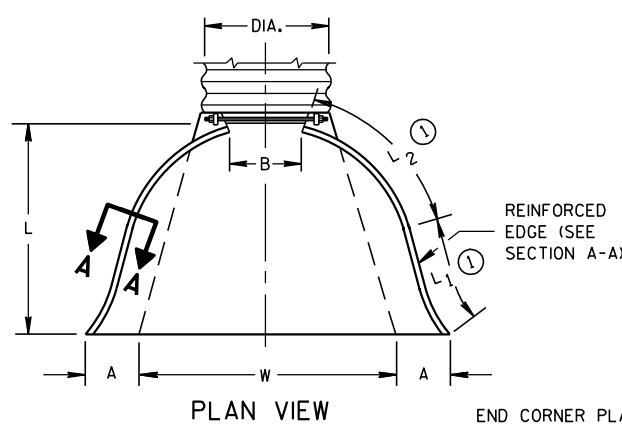
FHWA

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

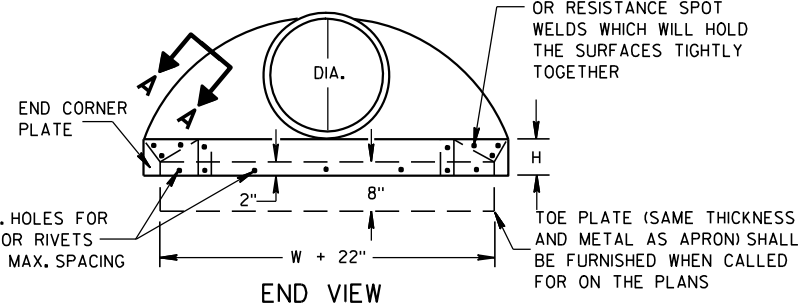
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

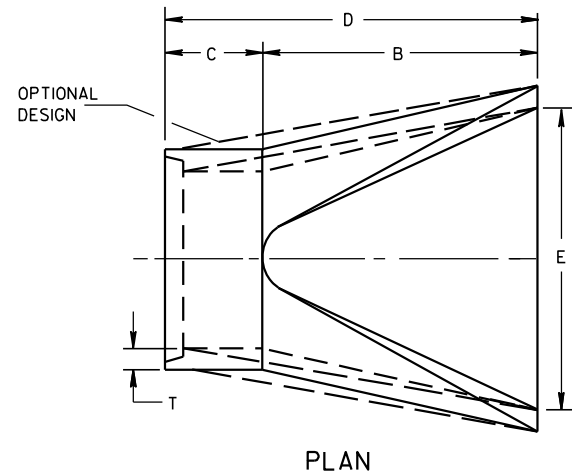
\* MINIMUM  
\*\* MAXIMUM



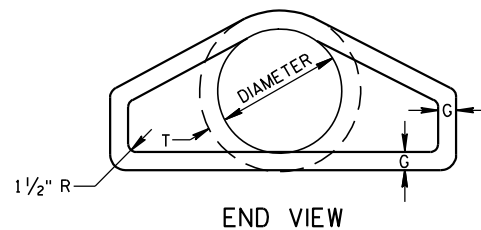
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



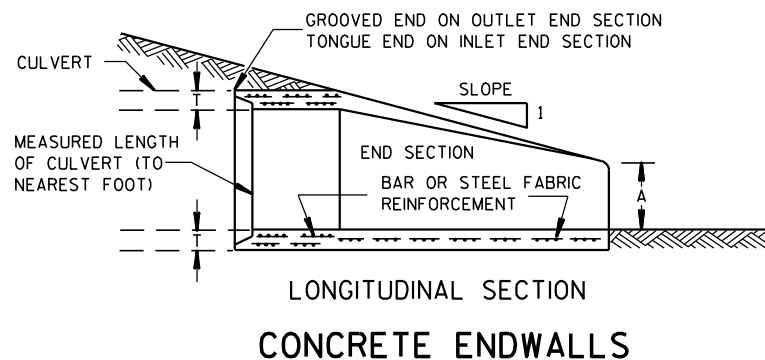
SIDE ELEVATION  
METAL ENDWALLS



PLAN

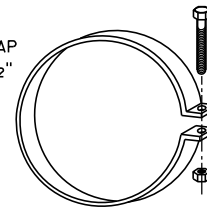


END VIEW

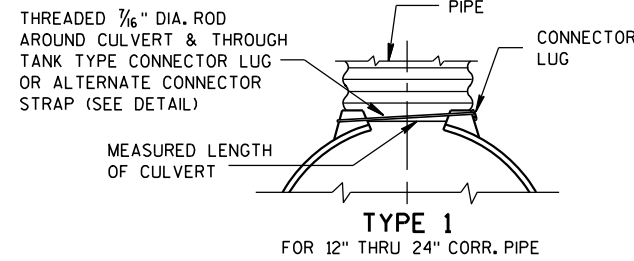


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

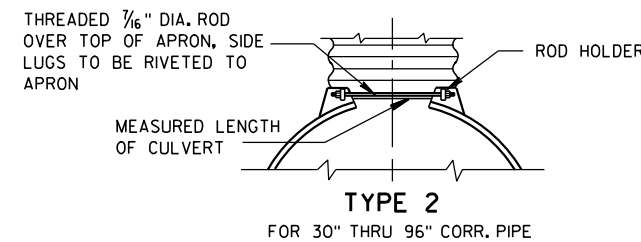
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



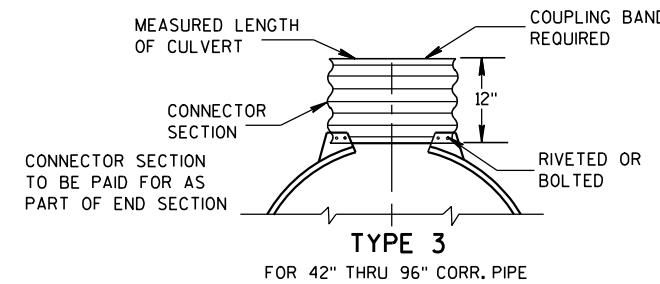
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



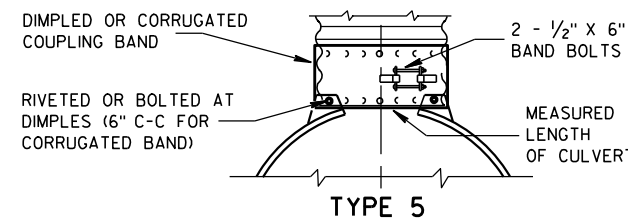
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



TYPE 2  
FOR 30" THRU 96" CORR. PIPE



TYPE 3  
FOR 42" THRU 96" CORR. PIPE



TYPE 5  
ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

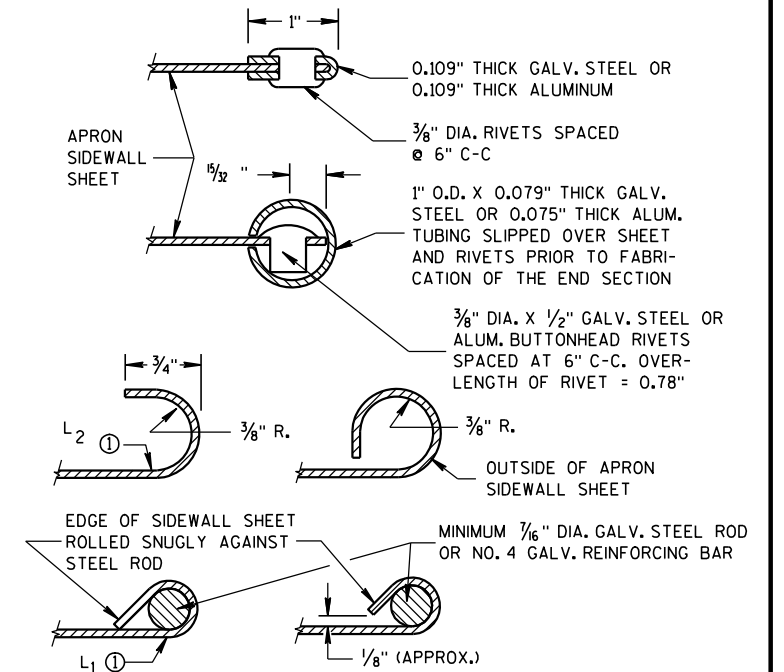
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

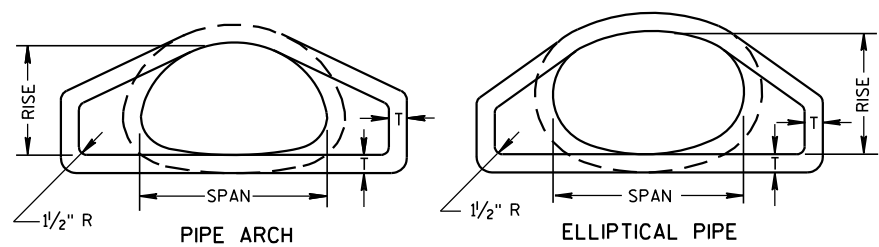
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

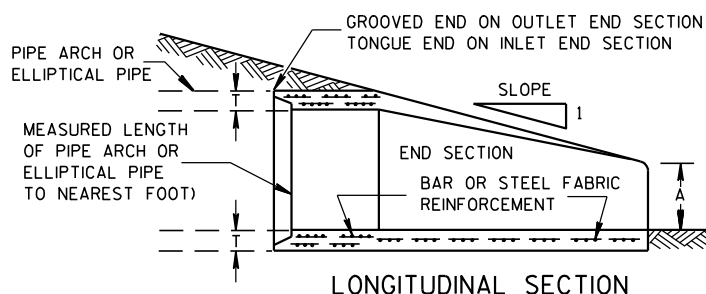
APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

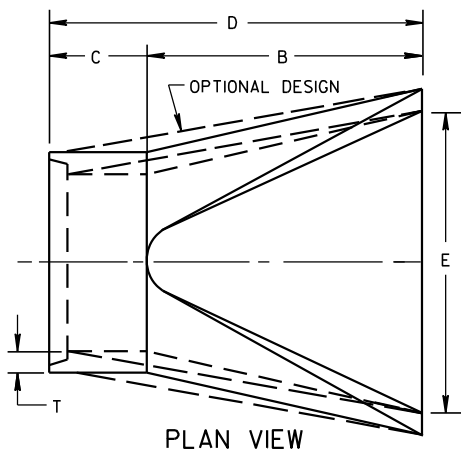


END VIEW



LONGITUDINAL SECTION

CONCRETE ENDWALLS



PLAN VIEW

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

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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED. \* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

REINFORCED CONCRETE ELLIPTICAL PIPE										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)									APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E		
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1	
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1	
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1	
42	53	34	5	15 3/4	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.

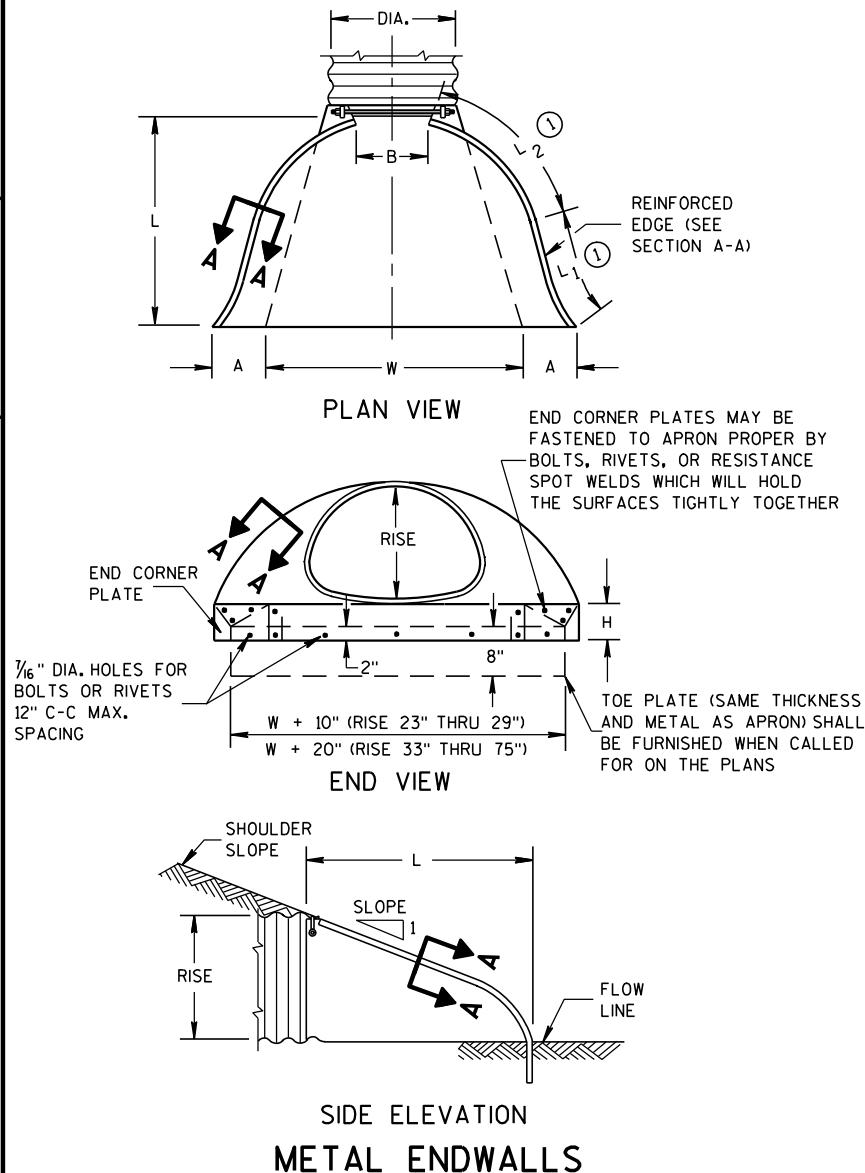
CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

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.

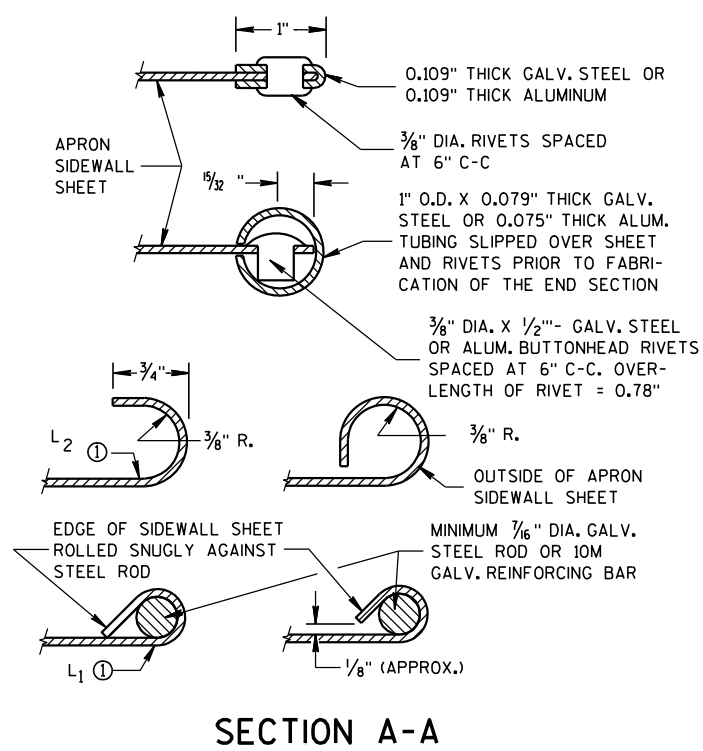
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER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

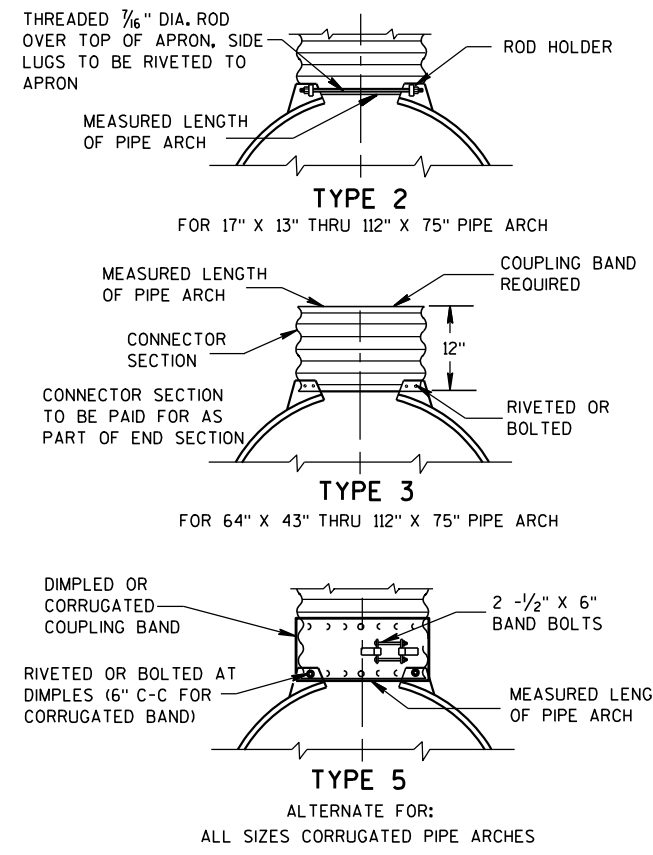
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.



METAL ENDWALLS



SECTION A-A



CONNECTION DETAILS

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

**APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE**

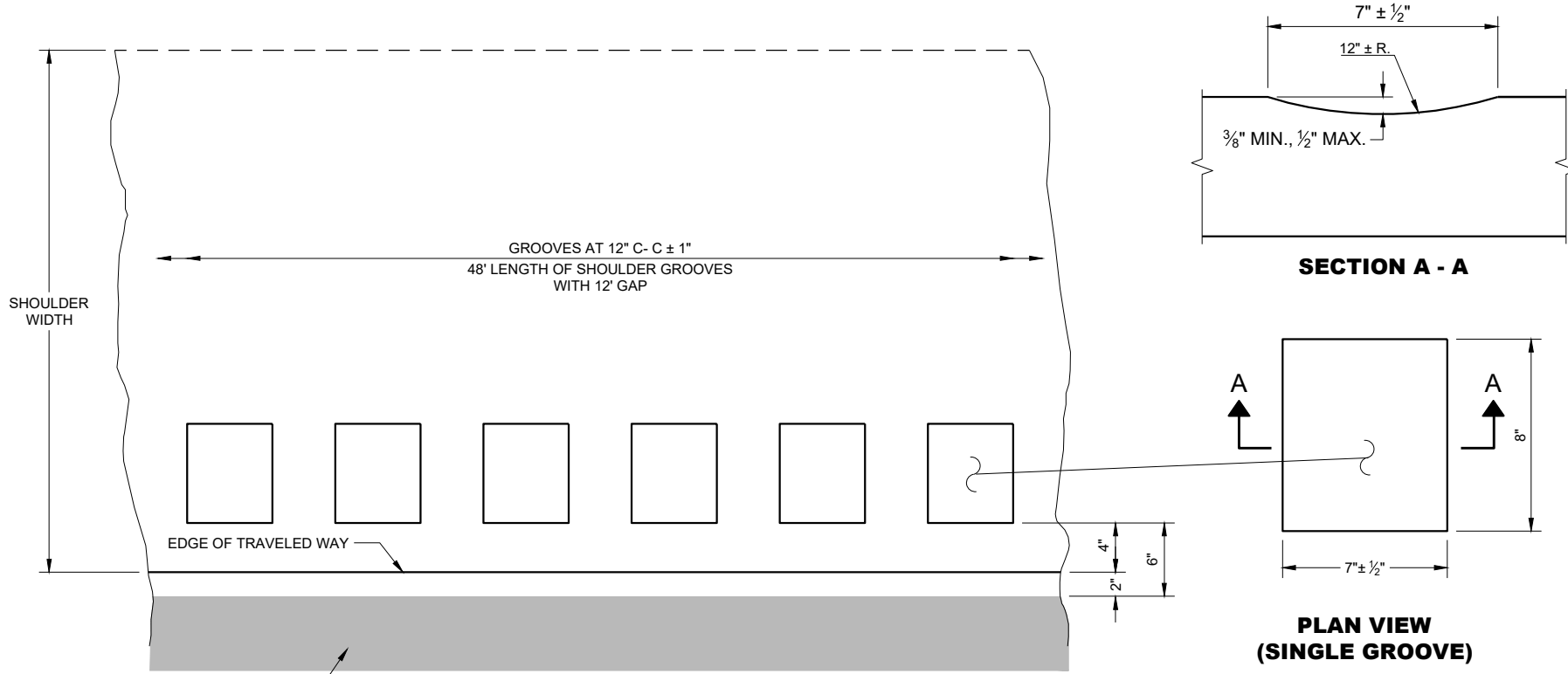
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

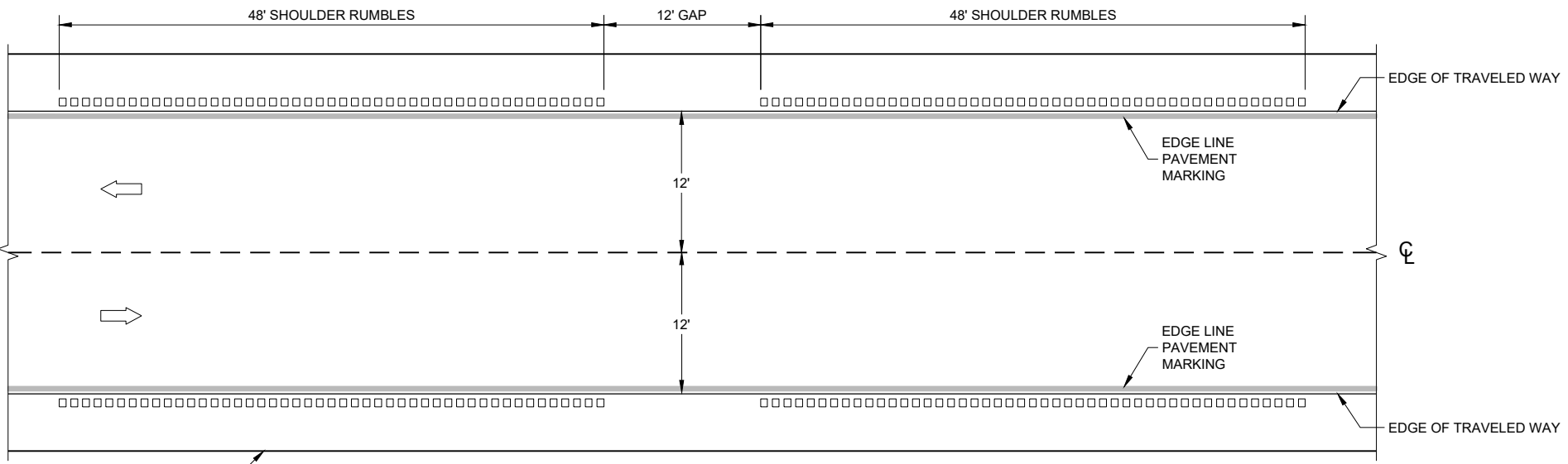
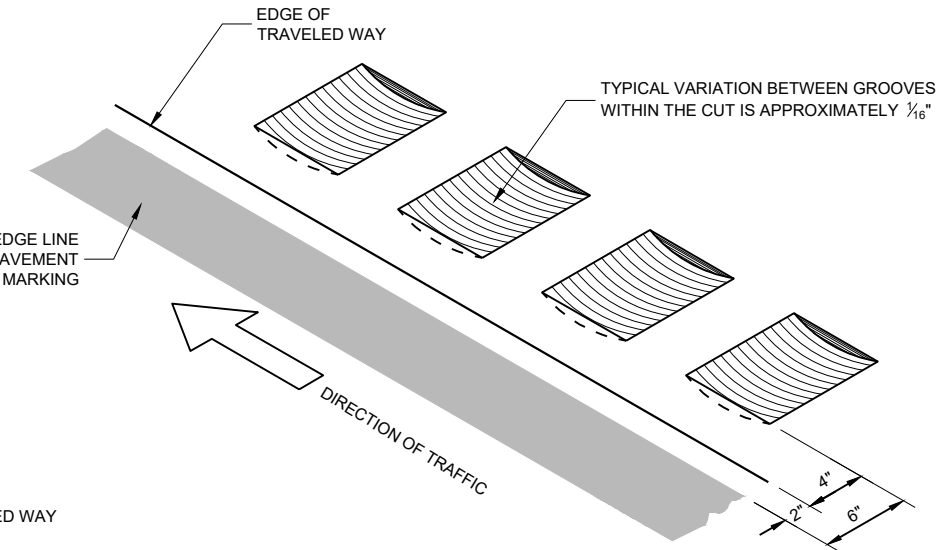
**GENERAL NOTES**

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A10 SHEETS "g" AND "h".

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



**PLAN DETAIL VIEW SHOULDER WITH GROOVES**



**PLAN VIEW SHOULDER RUMBLE STRIPS - ASPHALT**

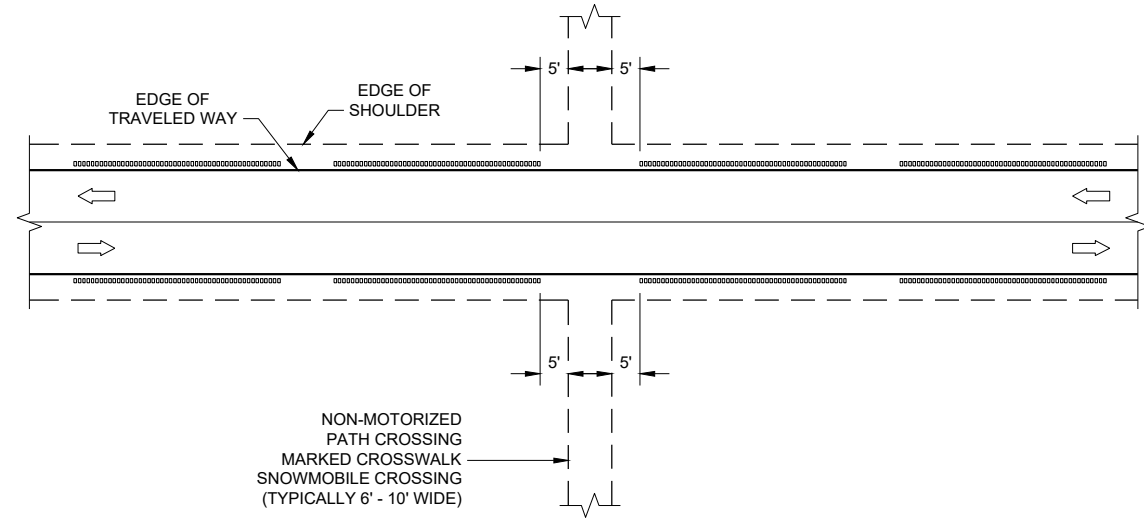
**SHOULDER RUMBLE STRIPS ASPHALT**  
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

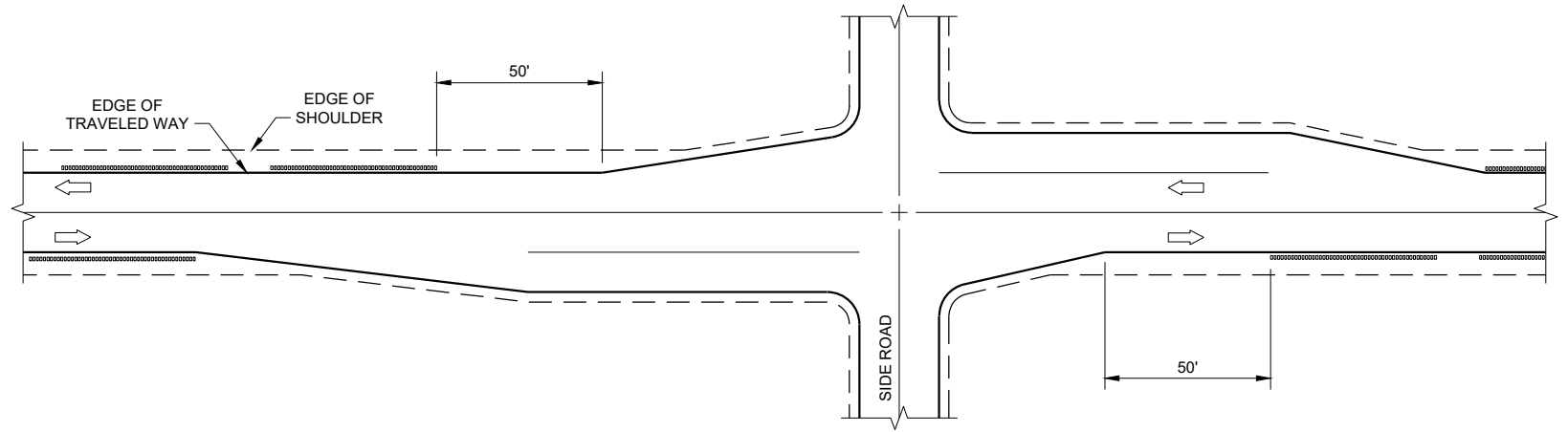
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SDD 13A10 - 03a

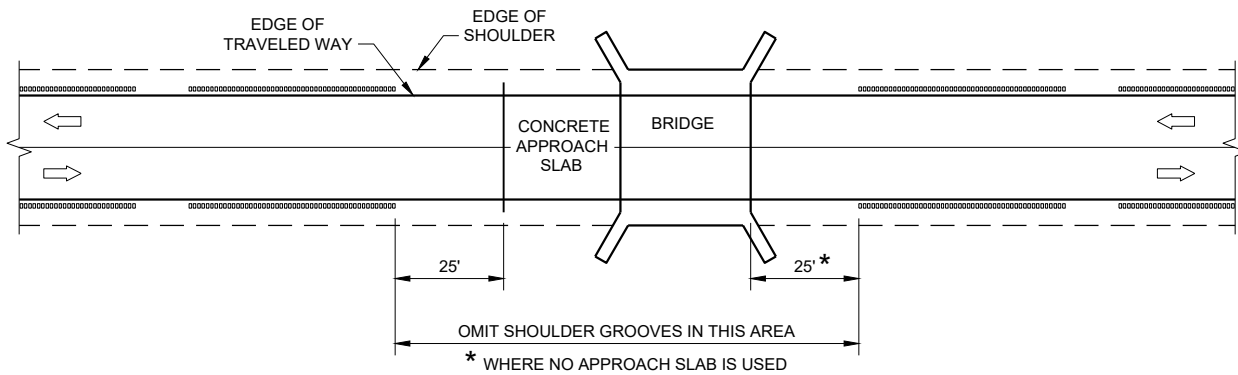
SDD 13A10 - 03a



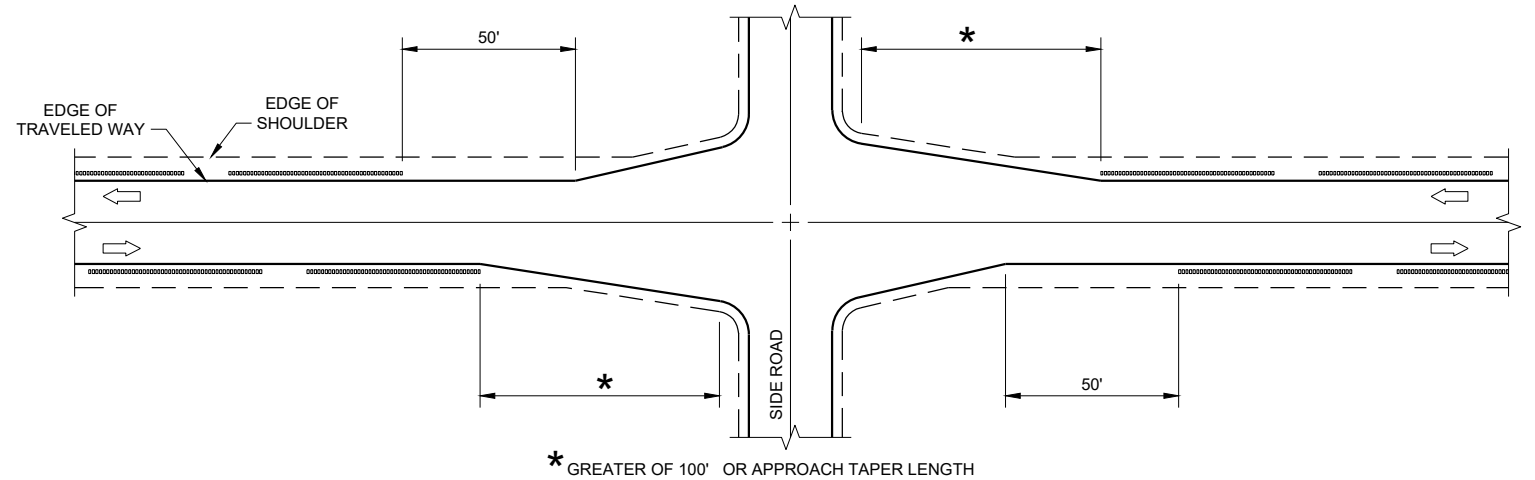
**GROOVES AT MISCELLANEOUS CROSSINGS**



**GROOVES AT RIGHT TURN LANE**

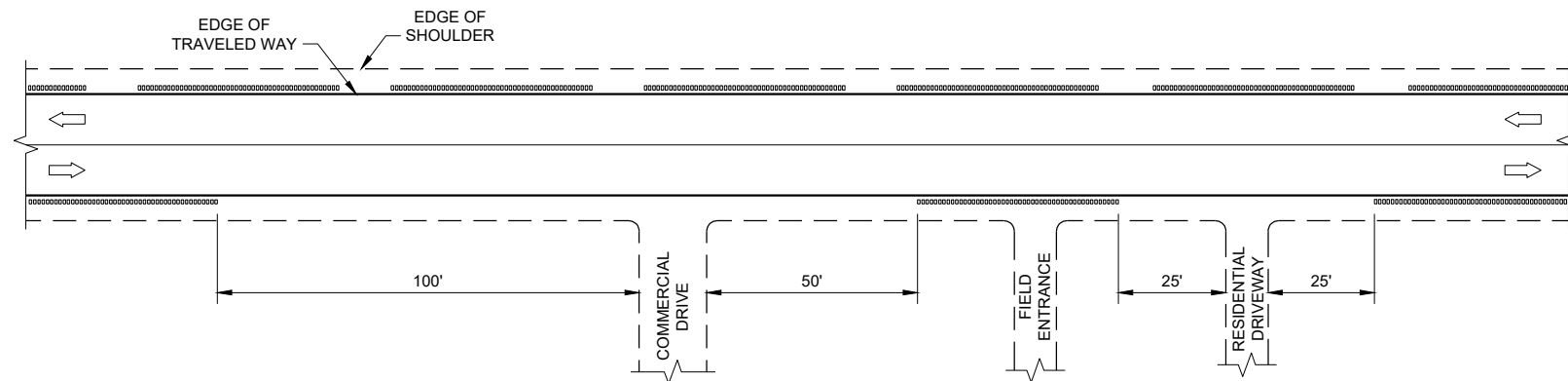


**GROOVES AT BRIDGES**



**GROOVES AT INTERSECTIONS WITH APPROACH TAPER**

\* GREATER OF 100' OR APPROACH TAPER LENGTH



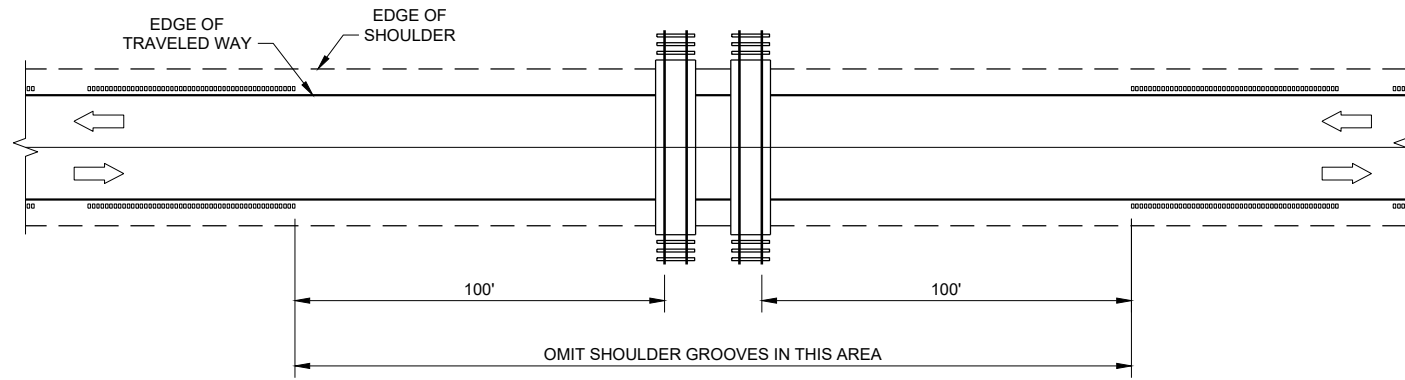
**GROOVES AT DRIVEWAYS**

**GENERAL NOTES**

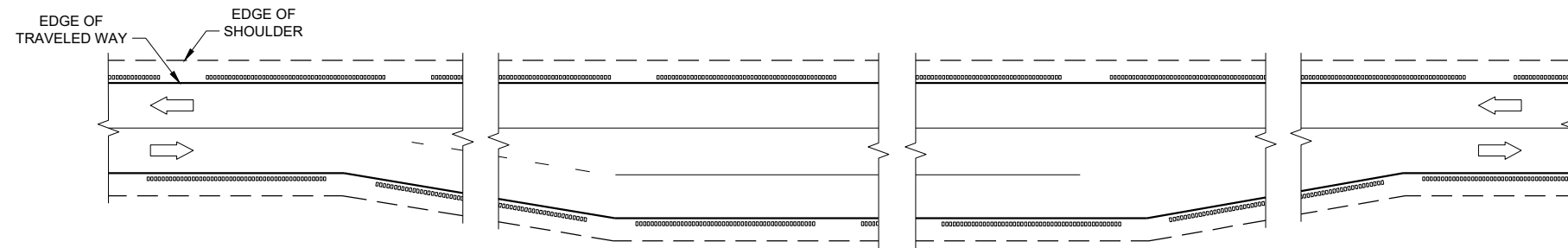
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

**SHOULDER AND EDGE LINE  
RUMBLE STRIPS  
CROSSINGS, INTERSECTIONS,  
BRIDGES, DRIVEWAYS**

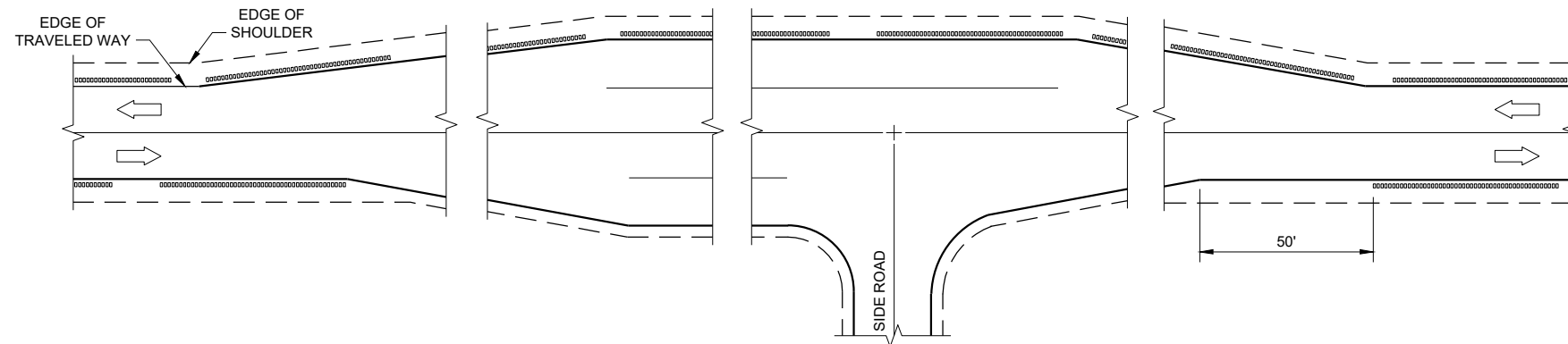
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**GROOVES AT RAILROADS**



**GROOVES AT PASSING AND CLIMBING LANES**



**GROOVES AT BYPASS LANES**

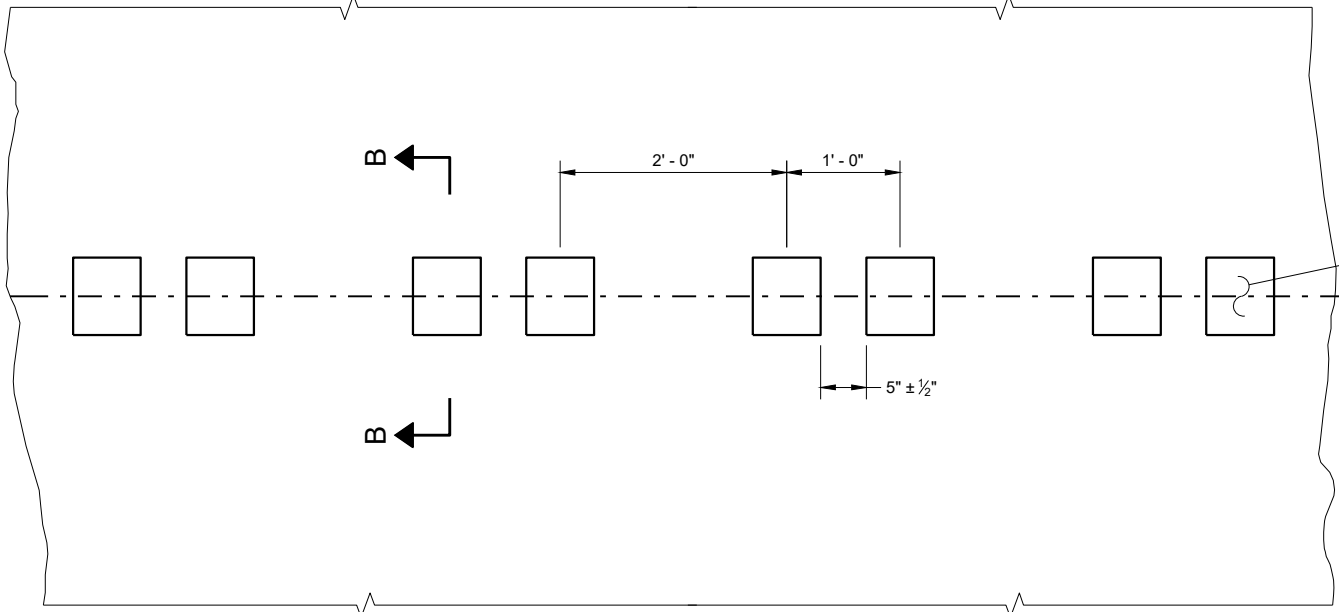
<b>SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ John Jenkins ROADWAY STANDARDS DEVELOPMENT ENGINEER
<small>FHWA</small>	



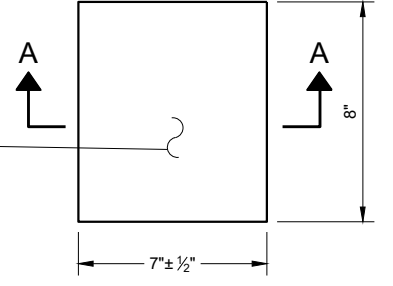
**GENERAL NOTES**

DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

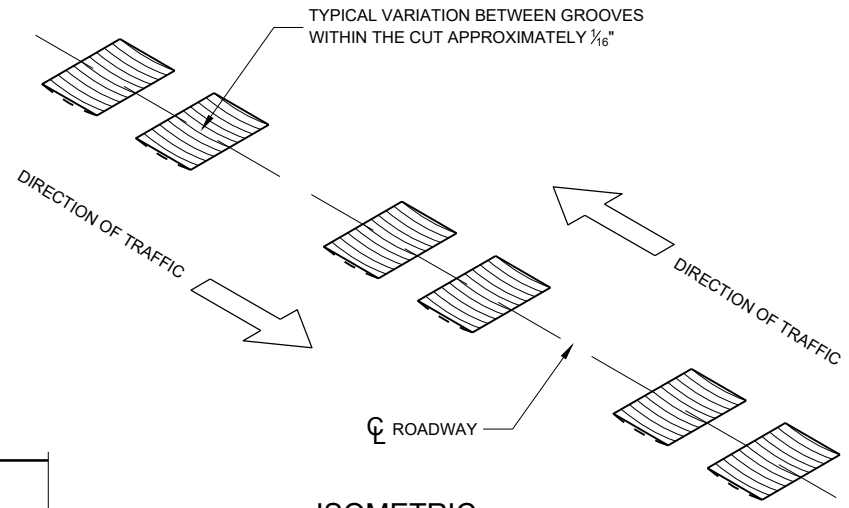
CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



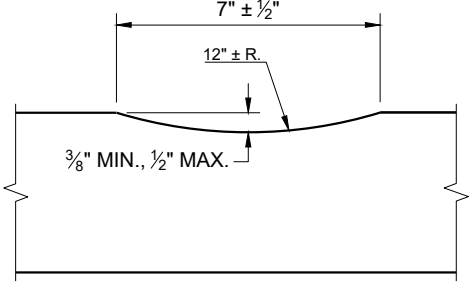
**PLAN DETAIL VIEW**



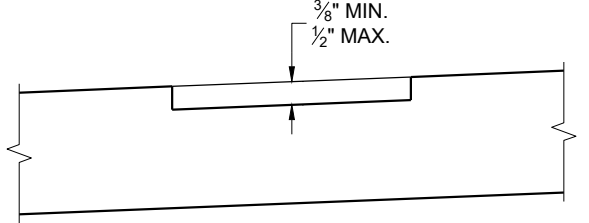
**PLAN VIEW (SINGLE GROOVE)**



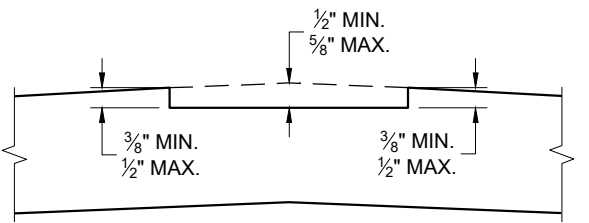
**ISOMETRIC**



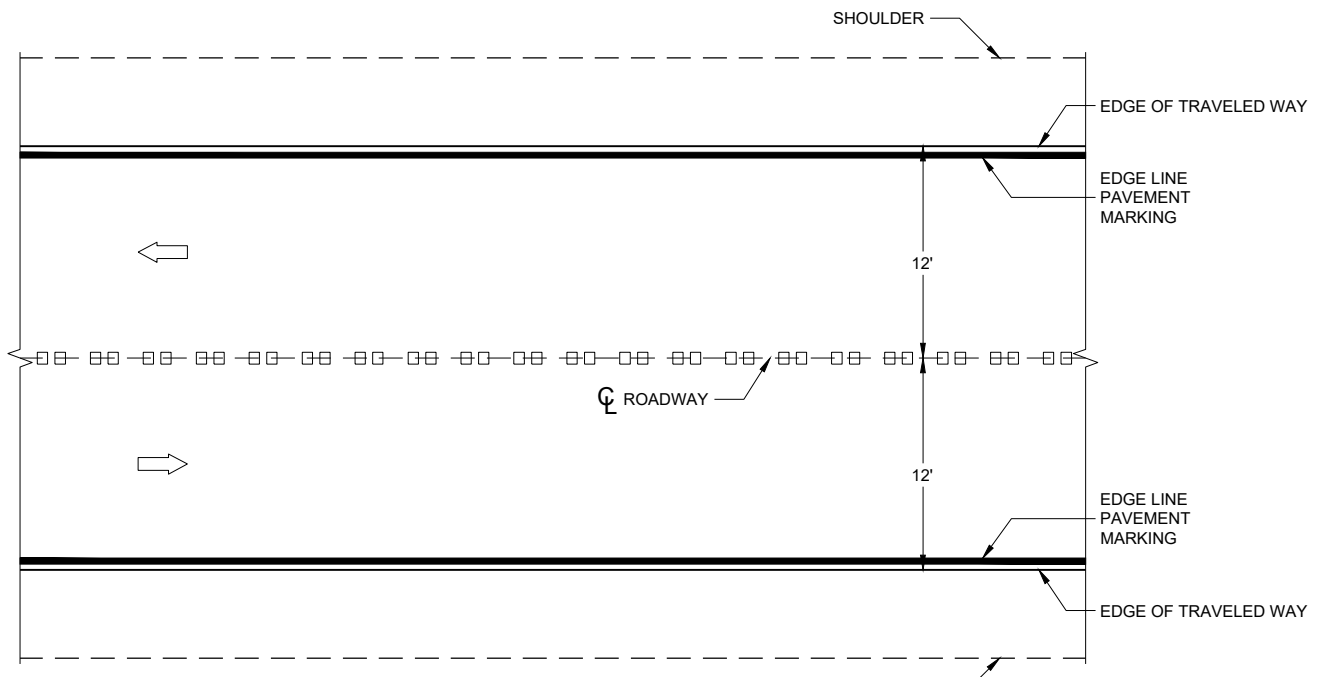
**SECTION A - A**



**SECTION B - B SUPERELEVATED ROADWAY**



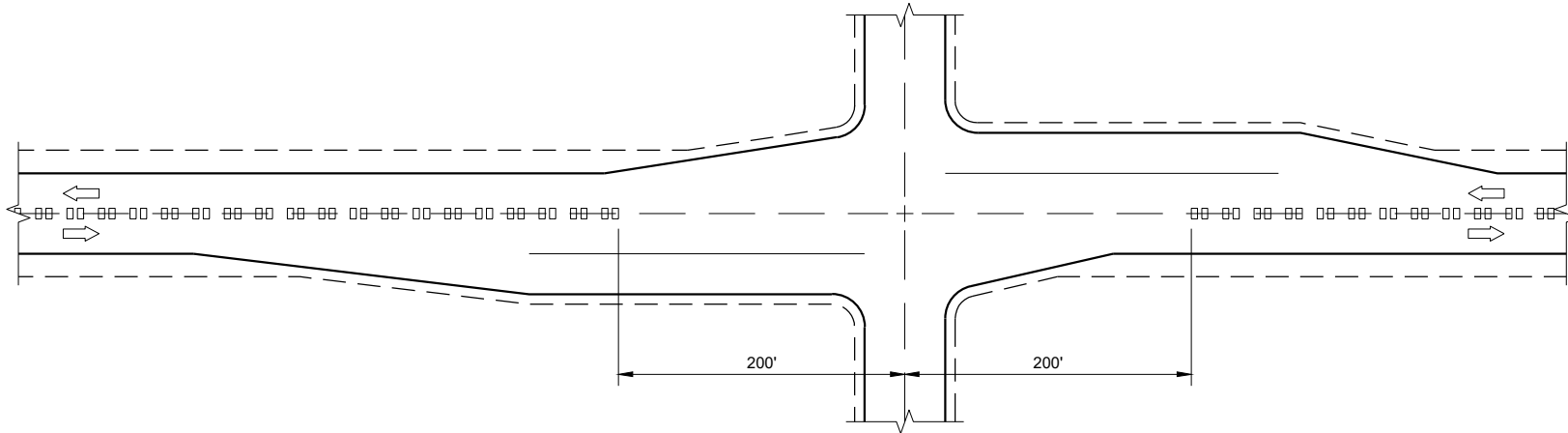
**SECTION B - B CROWNED ROADWAY**



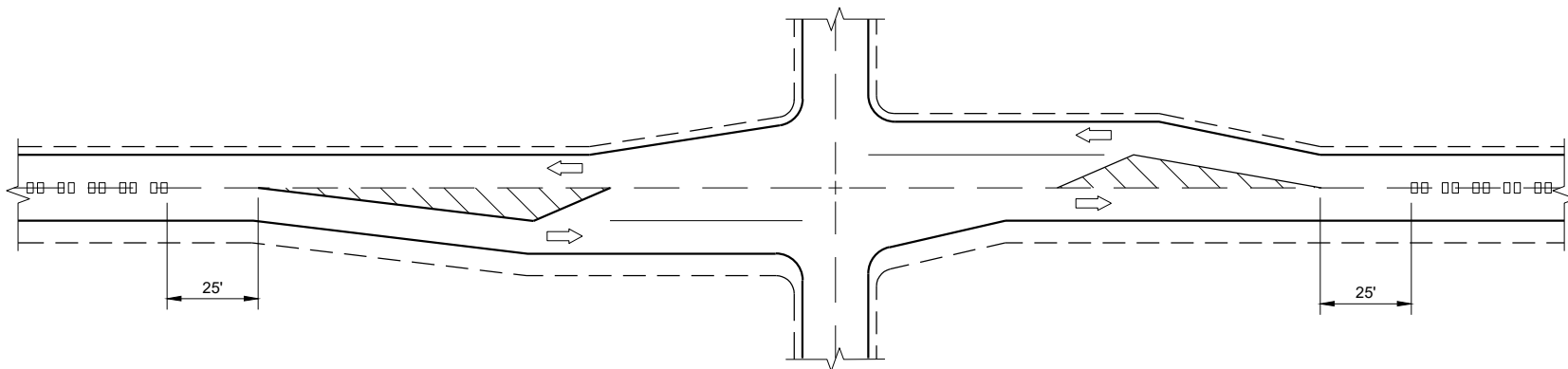
**PLAN VIEW**

**CENTERLINE RUMBLE STRIPS - ASPHALT**

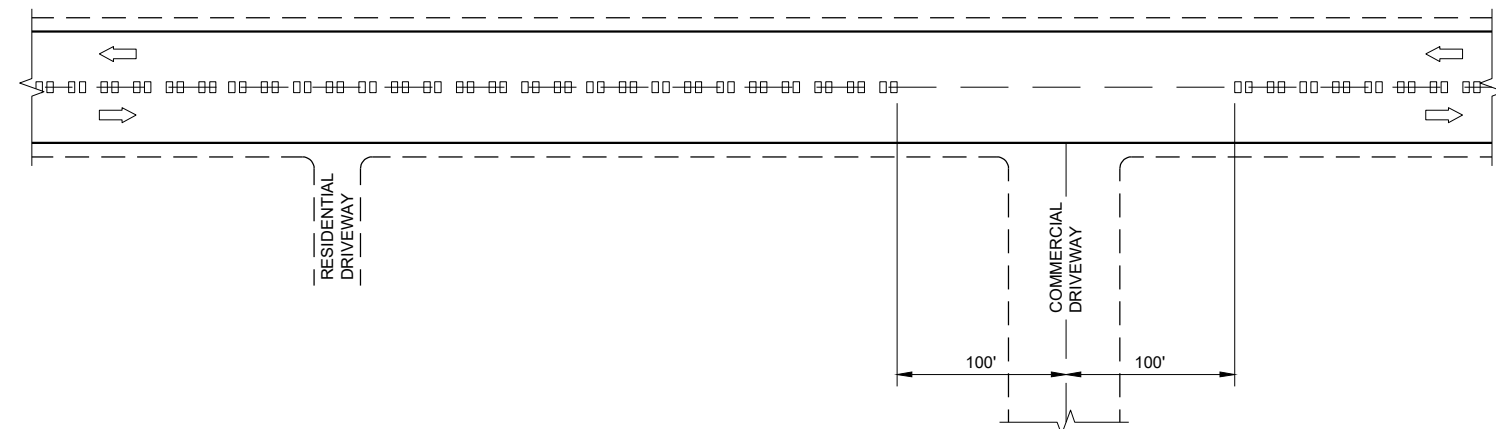
<b>CENTERLINE RUMBLE STRIPS - ASPHALT</b>
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



**CENTERLINE GROOVES AT INTERSECTIONS**



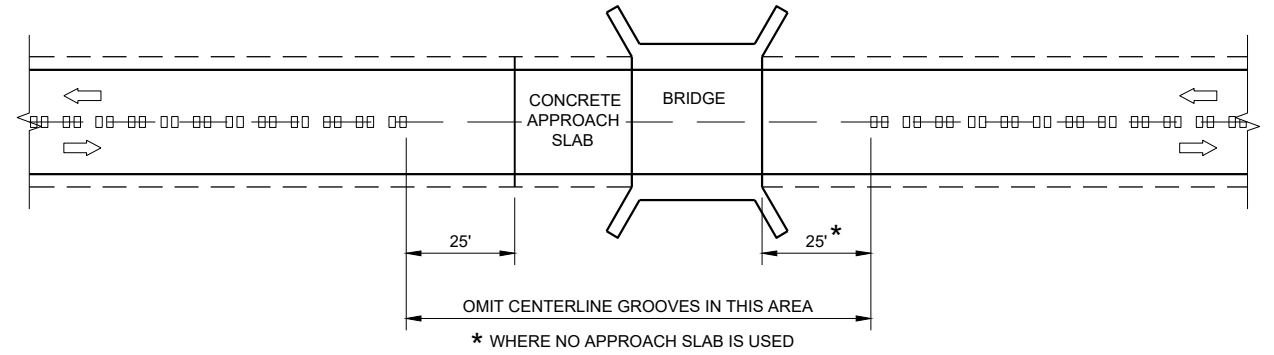
**CENTERLINE GROOVES AT INTERSECTIONS  
(WITH LEFT TURN LANES)**



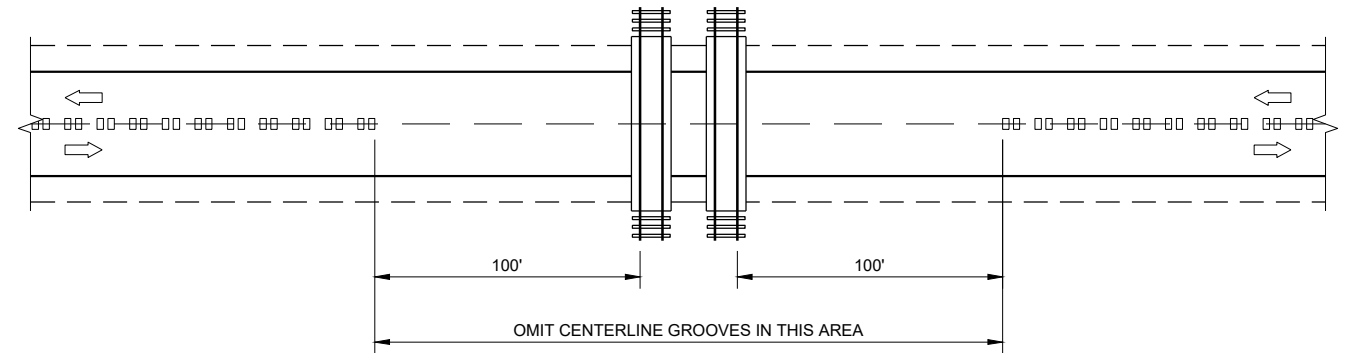
**CENTERLINE GROOVES AT DRIVEWAYS<sup>①</sup>**

**GENERAL NOTES**

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



**CENTERLINE GROOVES AT BRIDGES**



**CENTERLINE GROOVES AT RAILROADS**

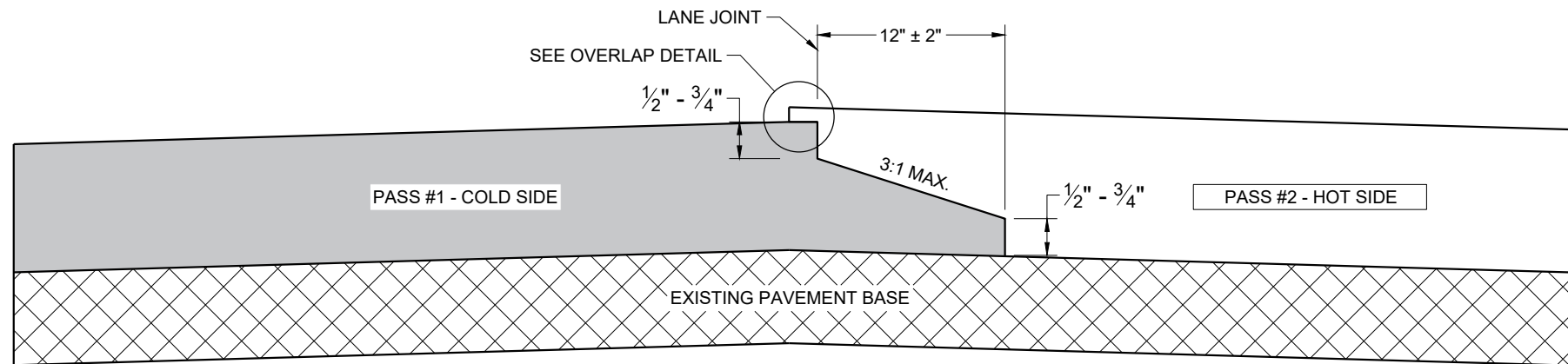
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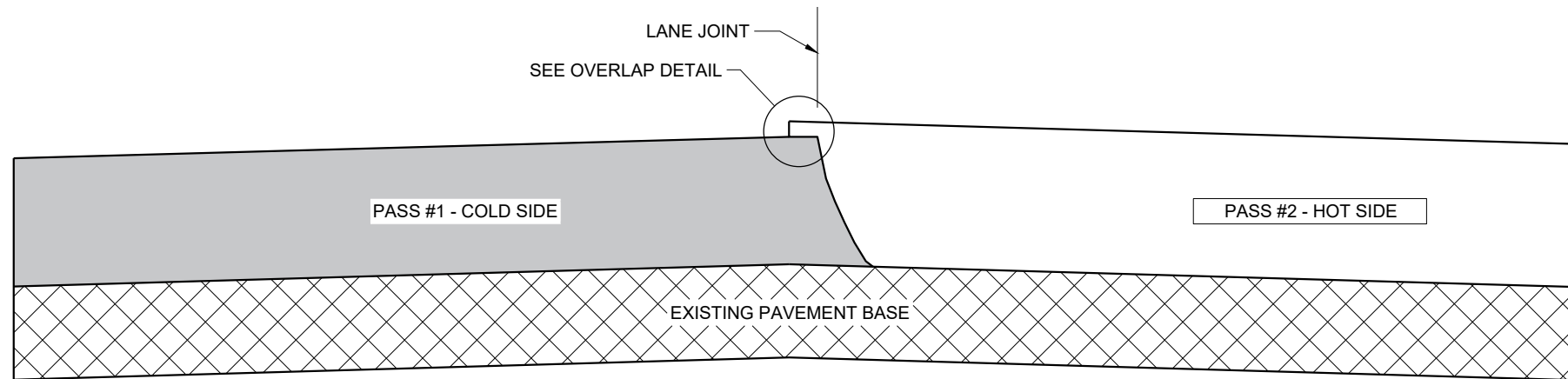
SDD 13A11 - 04d

SDD 13A11 - 04d

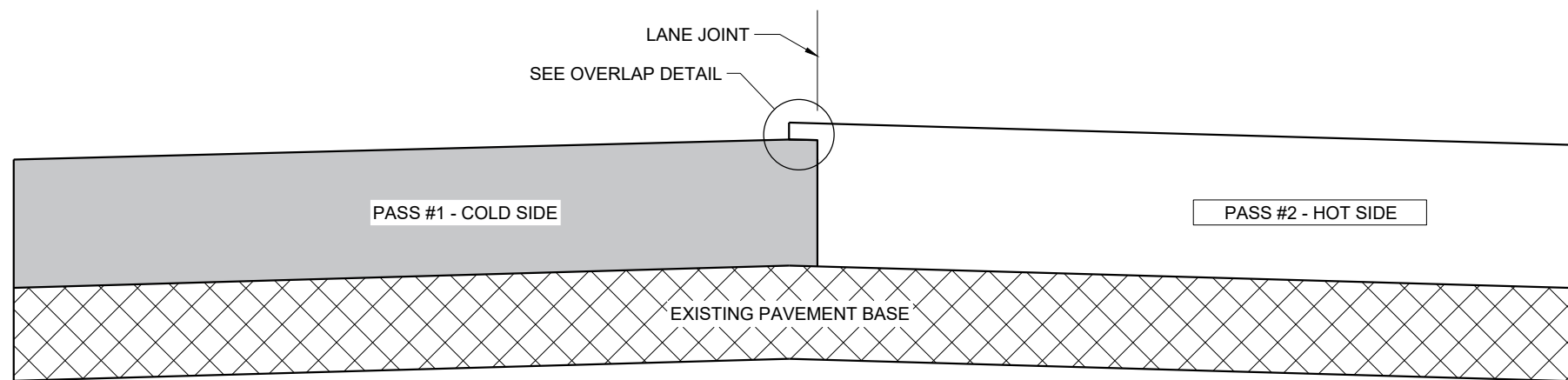
<b>CENTER LINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAIL ROADS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ John Jenkins ROADWAY STANDARDS DEVELOPMENT ENGINEER
<small>FHWA</small>	



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)**

**GENERAL NOTES**

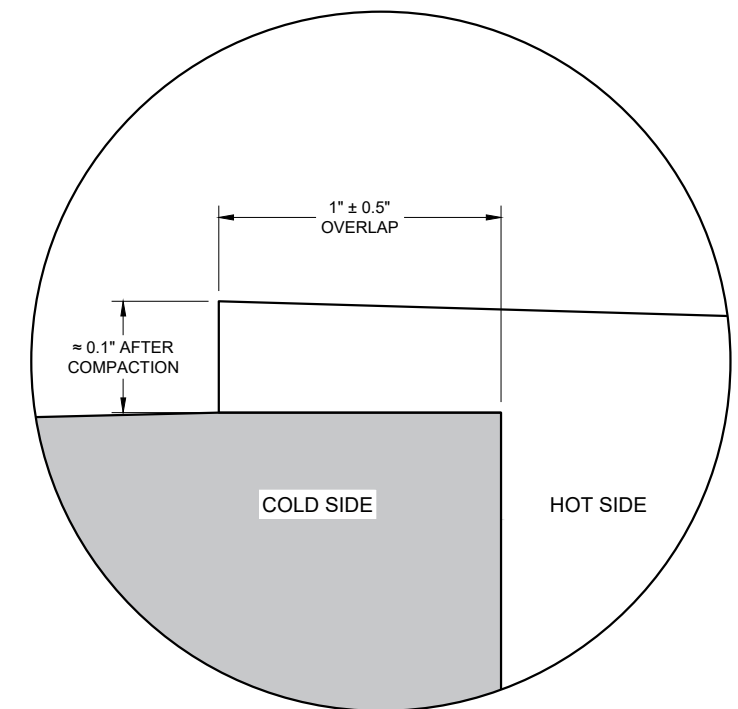
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



**OVERLAP DETAIL (TYPICAL)**

6

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SDD 13C19 - 03

SDD 13C19 - 03

**HMA LONGITUDINAL JOINTS**

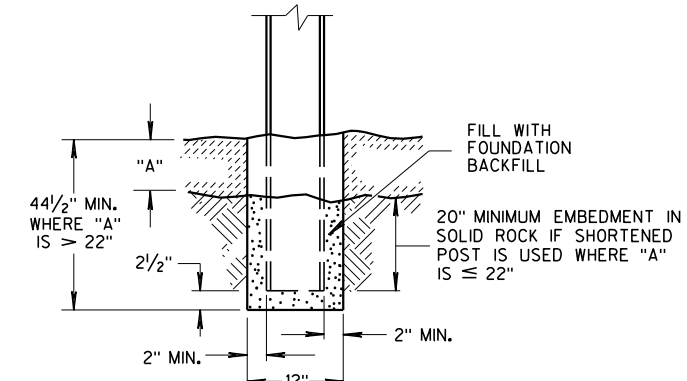
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

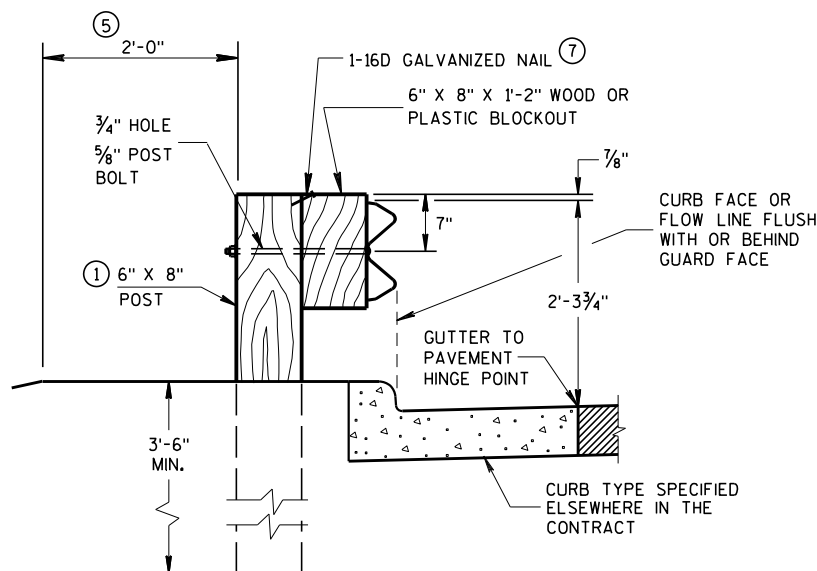
**GENERAL NOTES**

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND 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. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
- ⑦ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

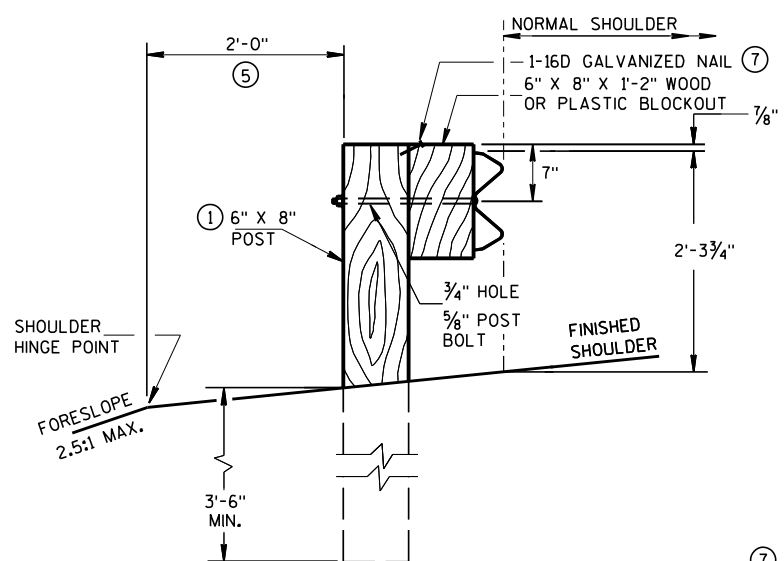
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



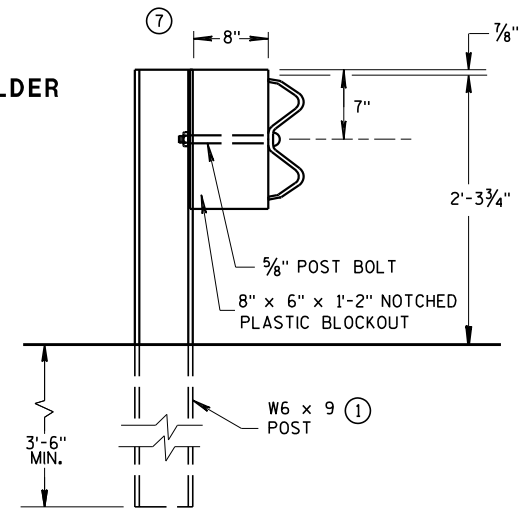
**END VIEW SETTING STEEL OR WOOD POST IN ROCK** ⑥



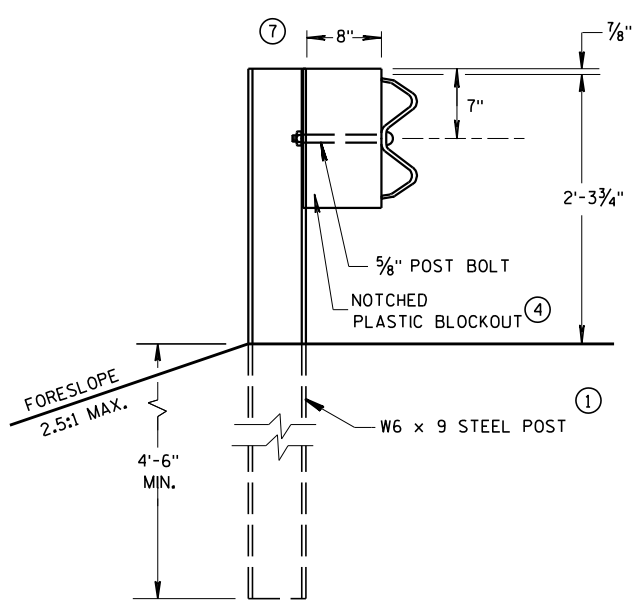
**END VIEW LOCATED ALONG A CURBED ROADWAY**



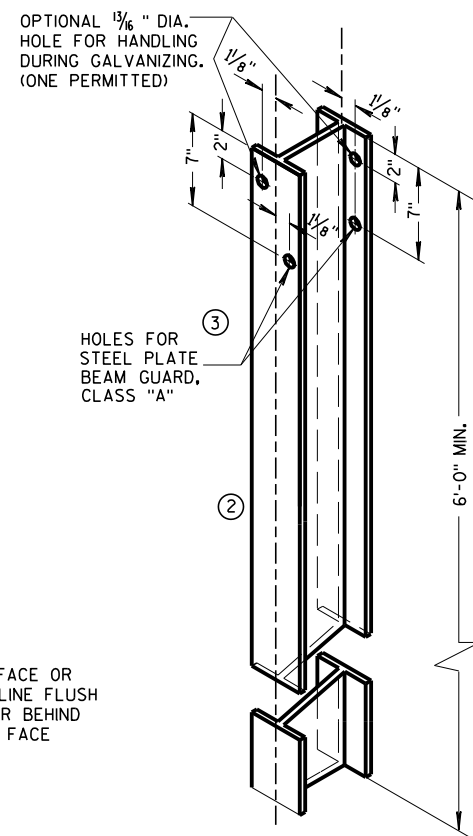
**END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION**



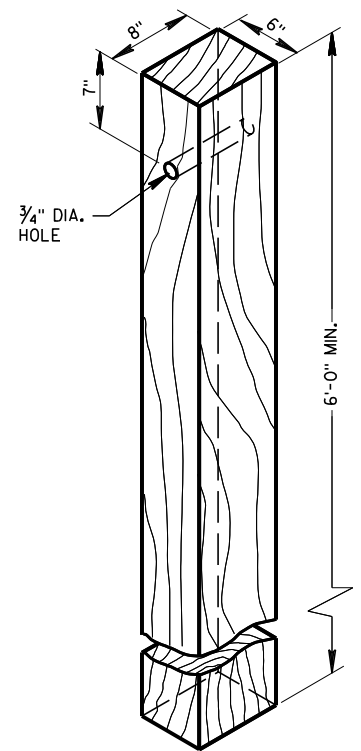
**END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION**



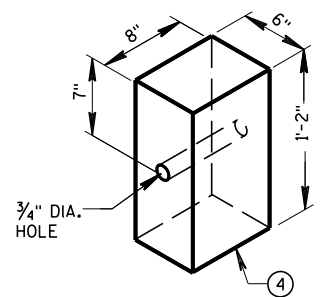
**END VIEW LONGER POST AT HALF POST SPACING W BEAM (LHW)**



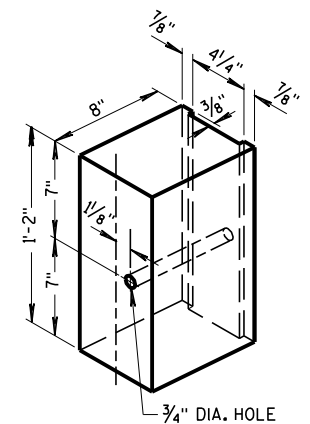
**STEEL POST & HOLE PUNCHING DETAIL (W6 X 9)** ①  
ALL HOLES 3/8" DIAMETER EXCEPT AS NOTED



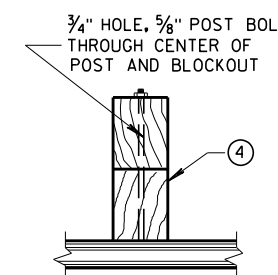
**WOOD POST (6" X 8") NOMINAL**



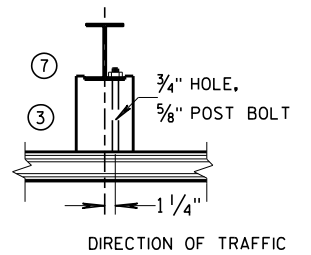
**WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS**



**TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS** ①



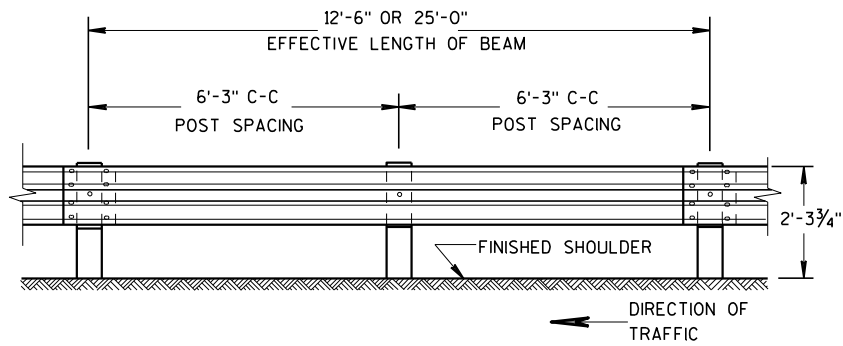
**PLAN VIEW WOOD POST, BLOCKOUT & BEAM**



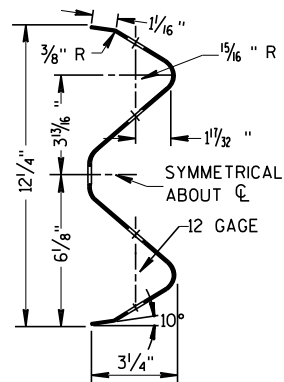
**PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM**

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

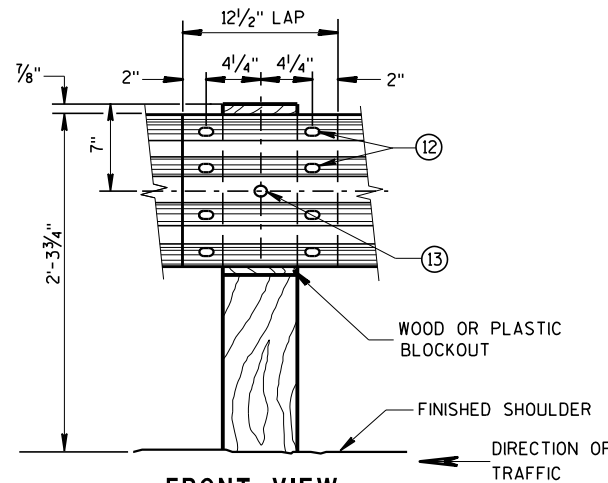
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



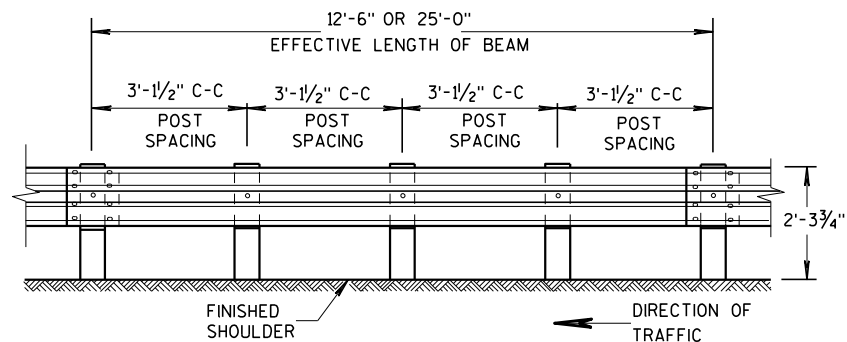
**SECTION THRU W BEAM**



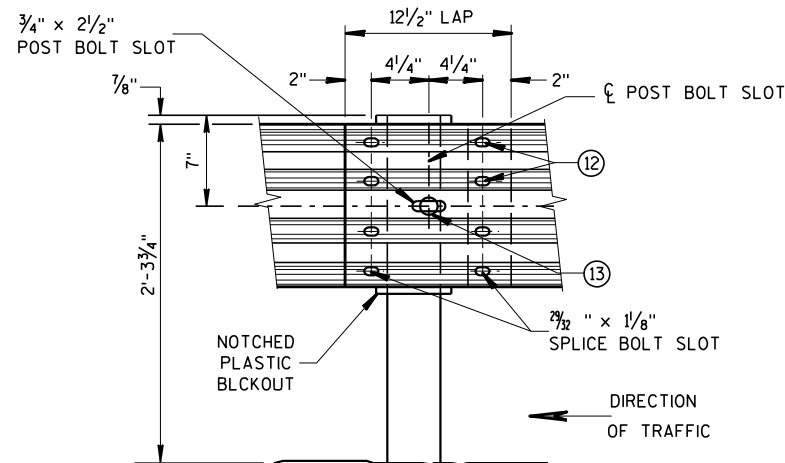
**FRONT VIEW  
BEAM SPLICE AT WOOD POST  
AND POST MOUNTING DETAIL**

**GENERAL NOTES**

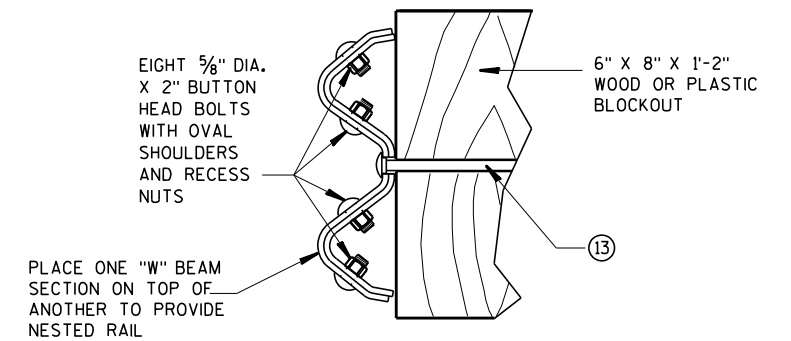
- FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
  - ⑫ 8 - 5/8"  $\phi$  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.



**FRONT VIEW  
POST SPACING FOR LONGER POST  
AT HALF POST SPACING W BEAM (LHW)**

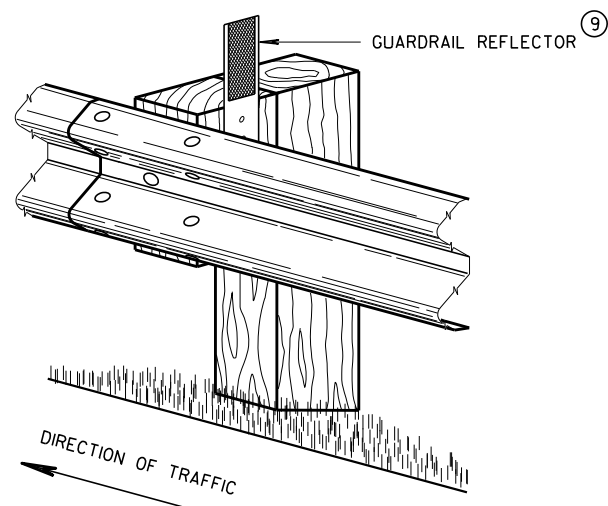


**FRONT VIEW  
BEAM SPLICE AT STEEL POST  
TYPICAL SPLICING DETAILS  
OF STEEL PLATE BEAM GUARD**

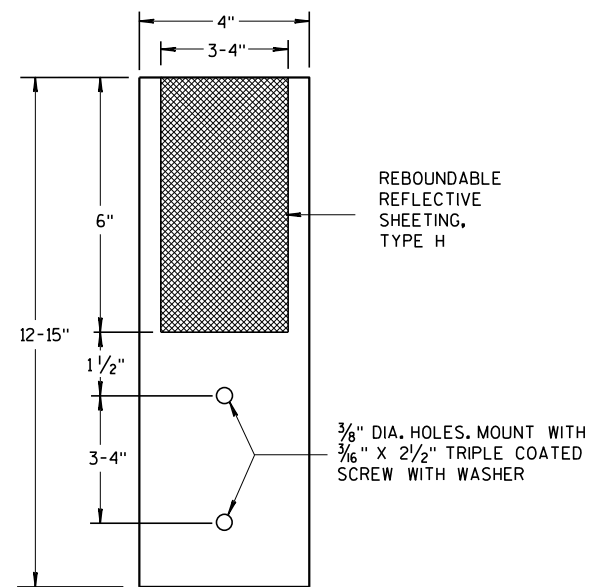


**NESTED W BEAM (NW)**  
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR  
CONSTRUCTING NESTED W BEAM (NW)

\* 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.



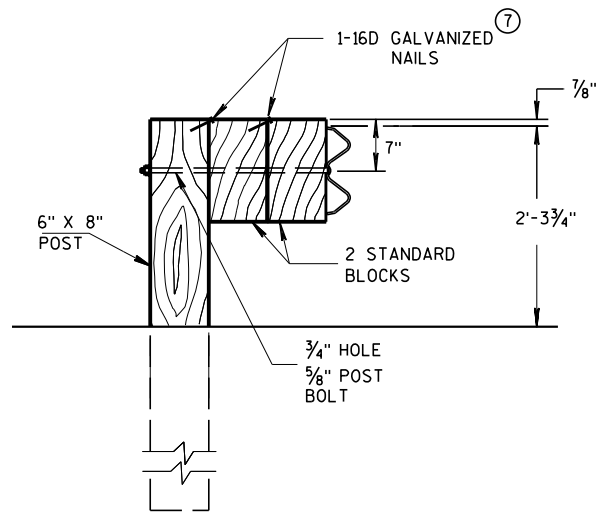
**4" X 12" GUARDRAIL REFLECTOR DETAIL  
AND TYPICAL INSTALLATION \***



**4" x 12" GUARDRAIL REFLECTOR**

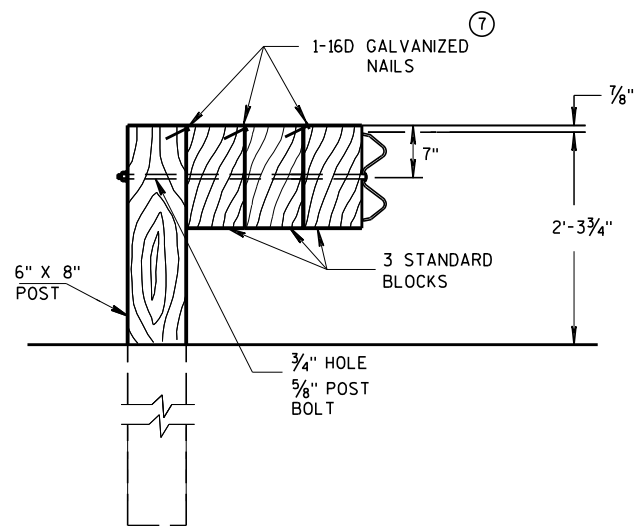
**STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**DETAIL FOR DOUBLE BLOCKS**

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

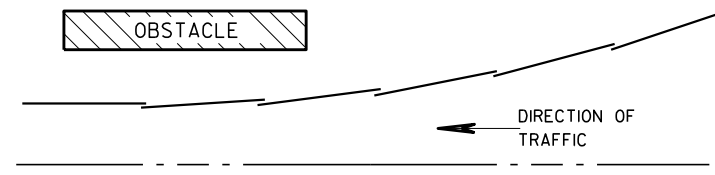


**DETAIL FOR TRIPLE BLOCKS**

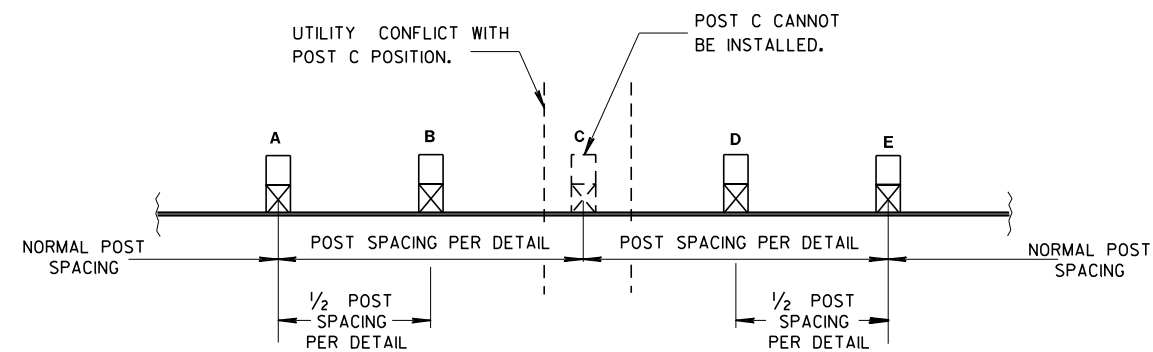
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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**

<b>STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION &amp; ELEMENTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

**BILL OF MATERIALS**

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" 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 1/2" 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'-6 1/2"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

**GENERAL NOTES**

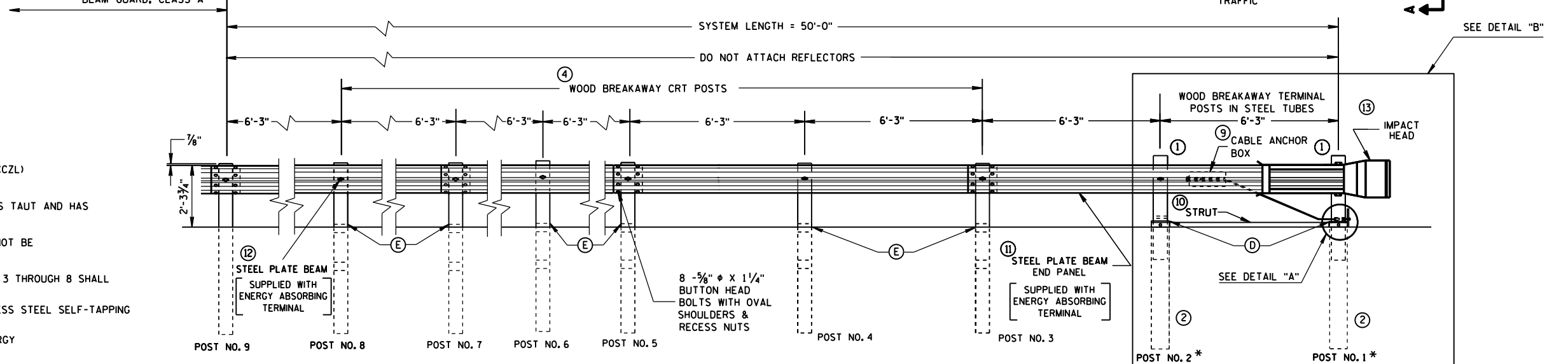
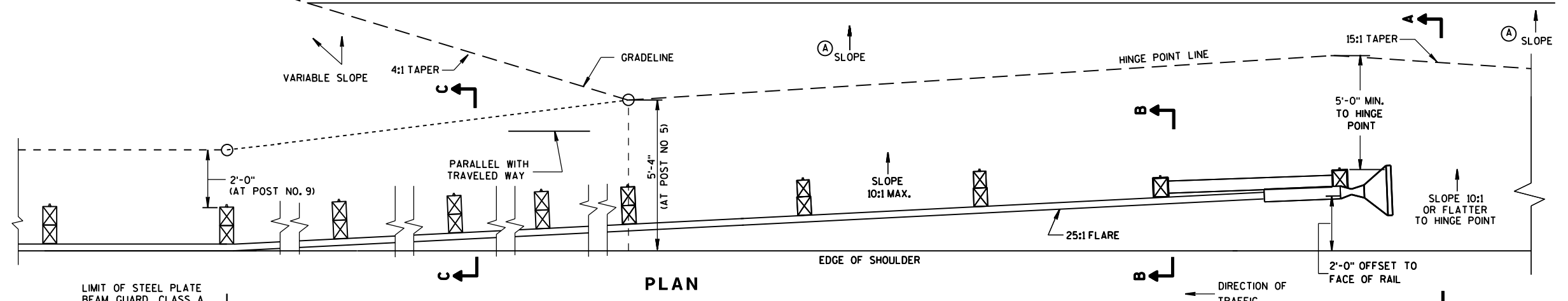
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (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 3 1/2" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE 3/4" 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.

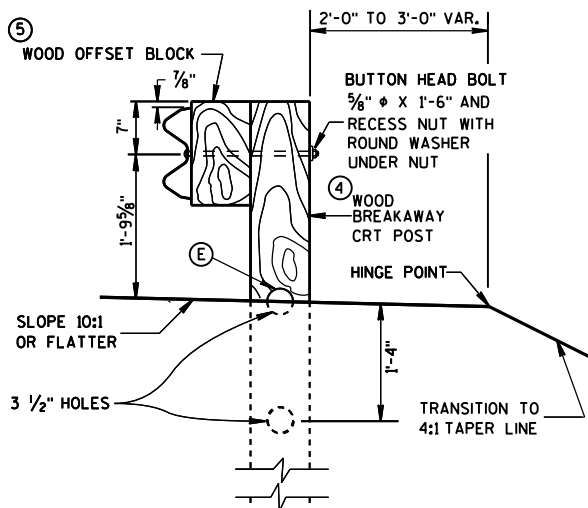
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.  
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

\*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

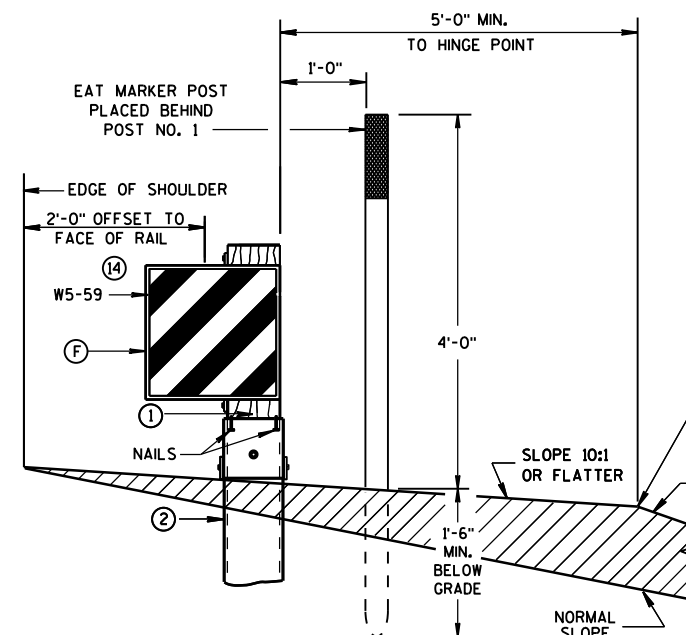
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



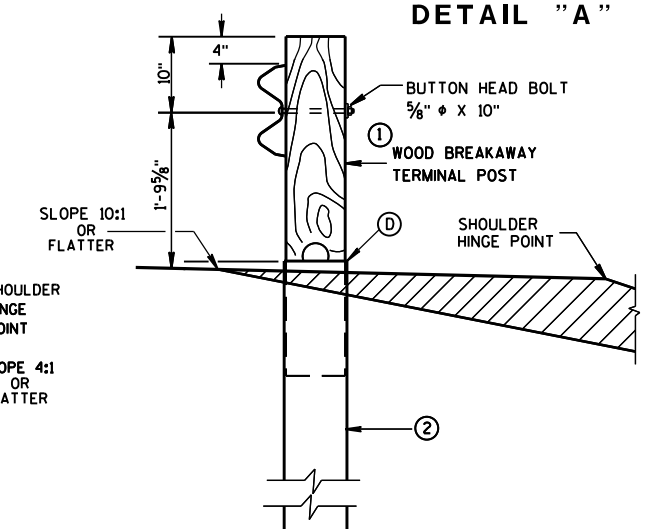
**ELEVATION**



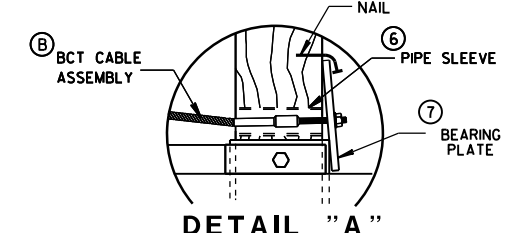
SECTION C-C  
TYPICAL AT POST NOS. 6, 8



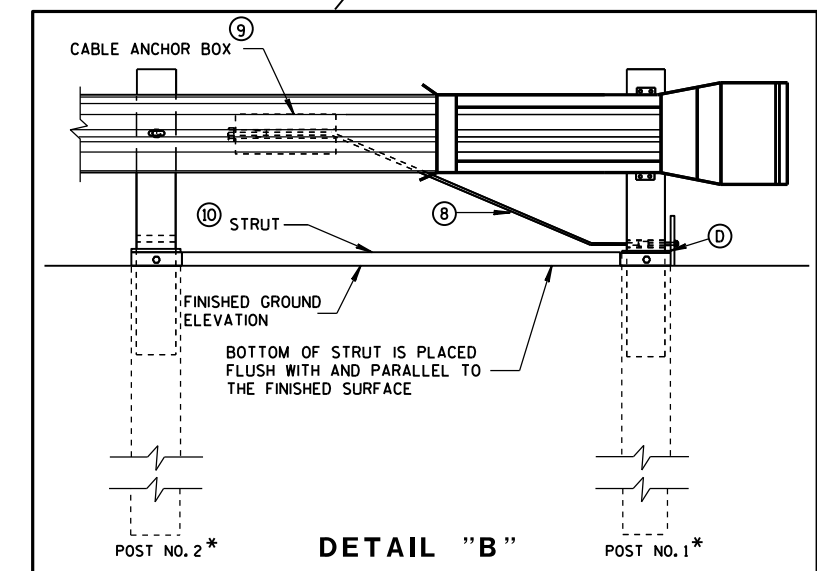
SECTION A-A  
TYPICAL AT POST NO. 1\*



SECTION B-B  
TYPICAL AT POST NO. 2\*



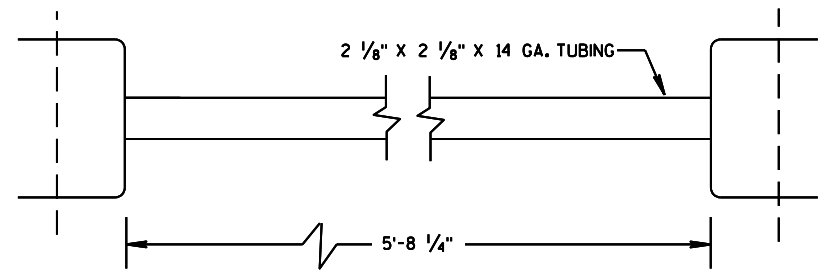
DETAIL "A"



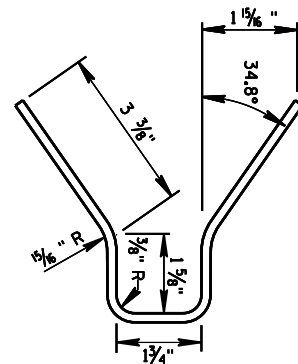
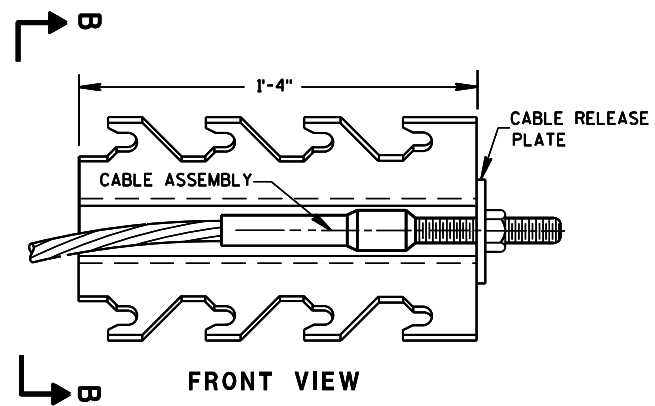
DETAIL "B"

**STEEL PLATE BEAM GUARD  
ENERGY ABSORBING TERMINAL**

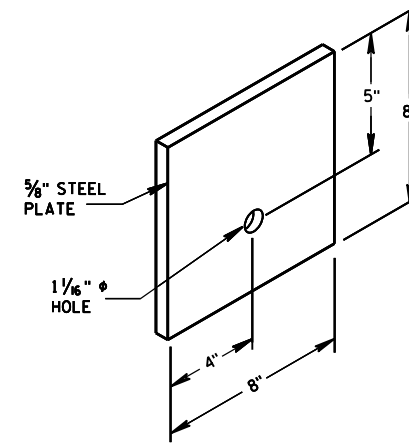
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



⑩ STRUT DETAIL



⑨ CABLE ANCHOR BOX

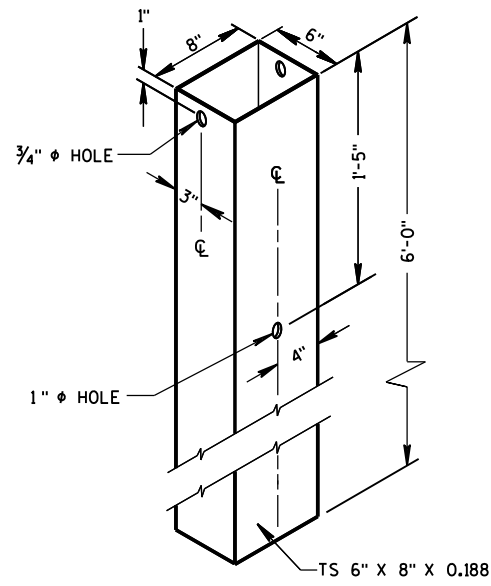


⑦ STEEL BEARING PLATE

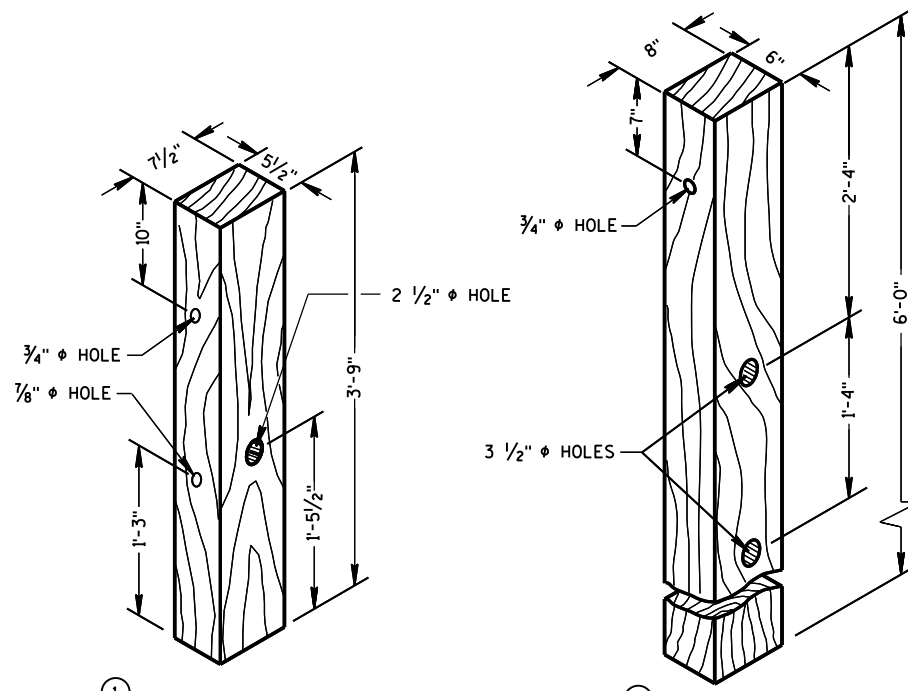
6

6





② 72" STEEL TUBE  
(POSTS NO. 1-2)



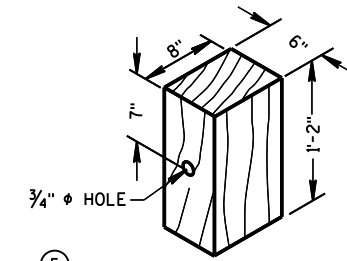
① TERMINAL POST

④ CRT POST  
(POSTS NO'S 5-8)

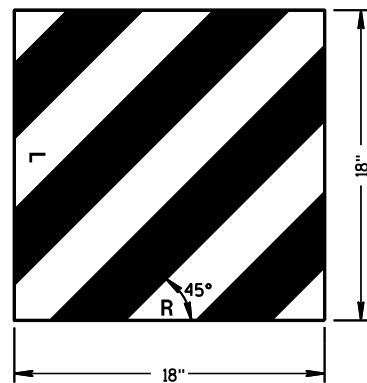
WOOD BREAKAWAY POSTS

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.



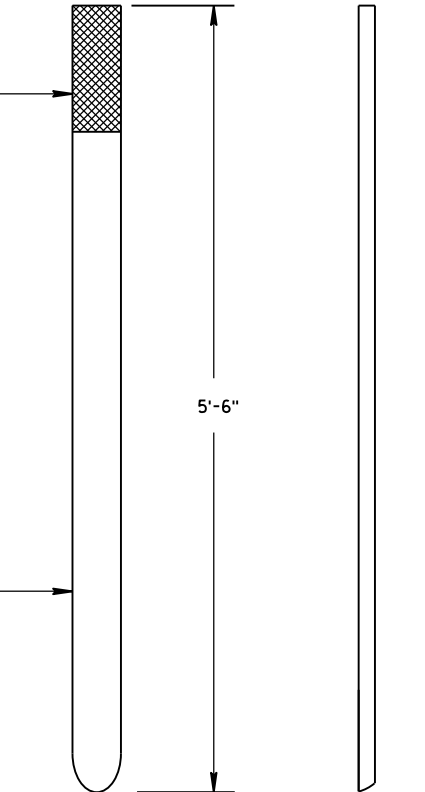
⑤ WOOD OFFSET BLOCK  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



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

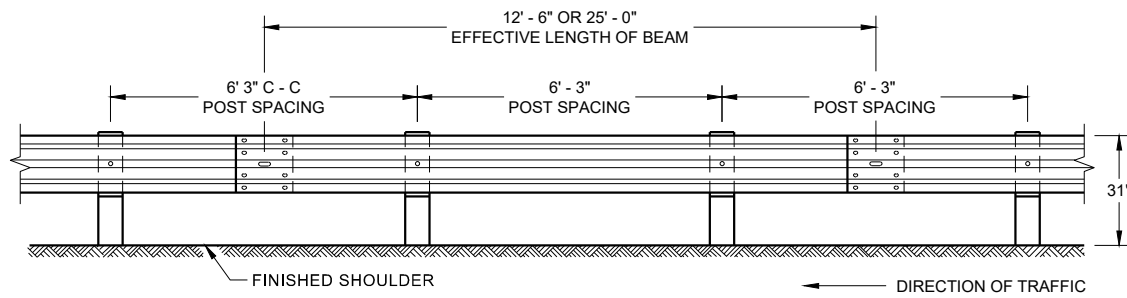
E.A.T. MARKER POST

STEEL PLATE BEAM GUARD  
ENERGY ABSORBING TERMINAL

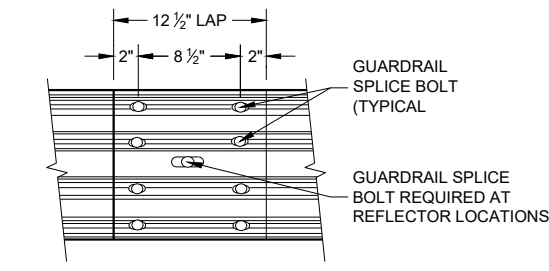
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





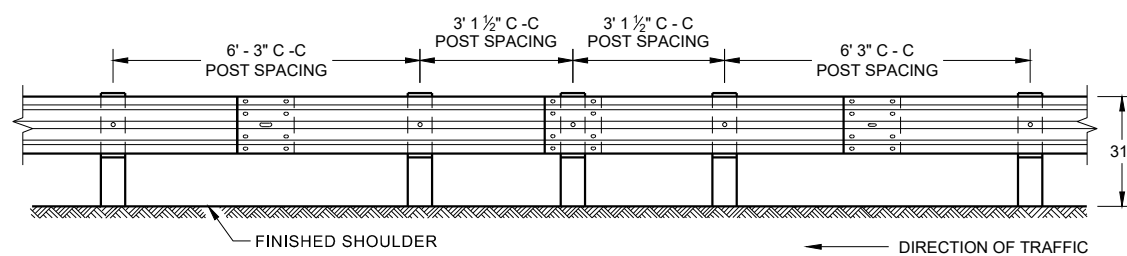
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



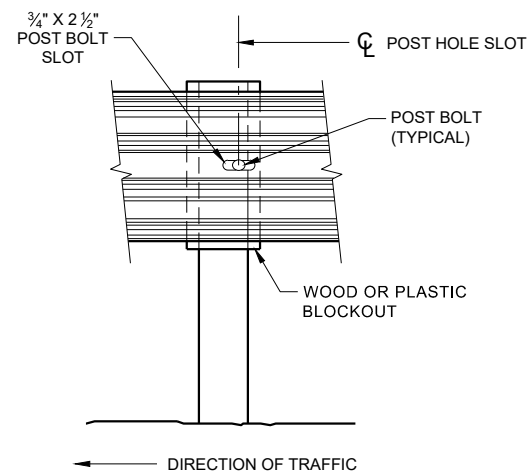
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

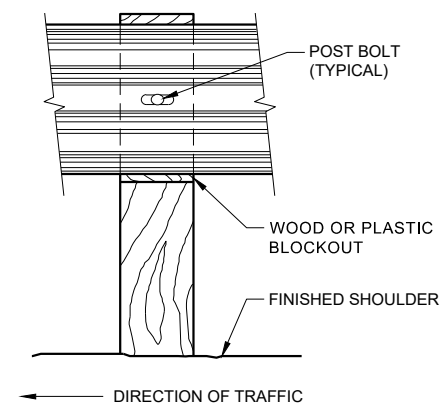
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



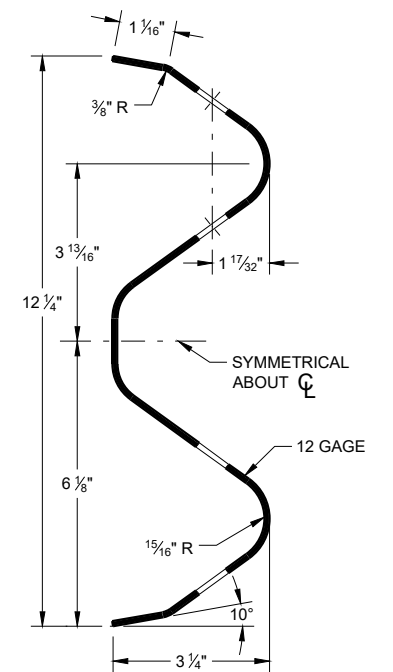
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



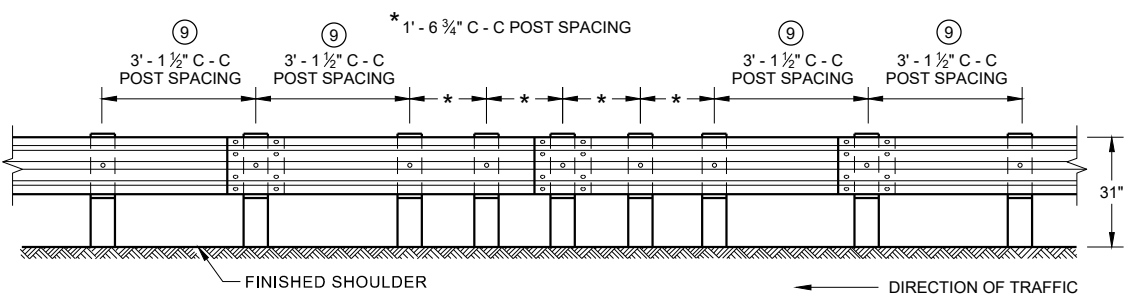
**FRONT VIEW AT STEEL POST**



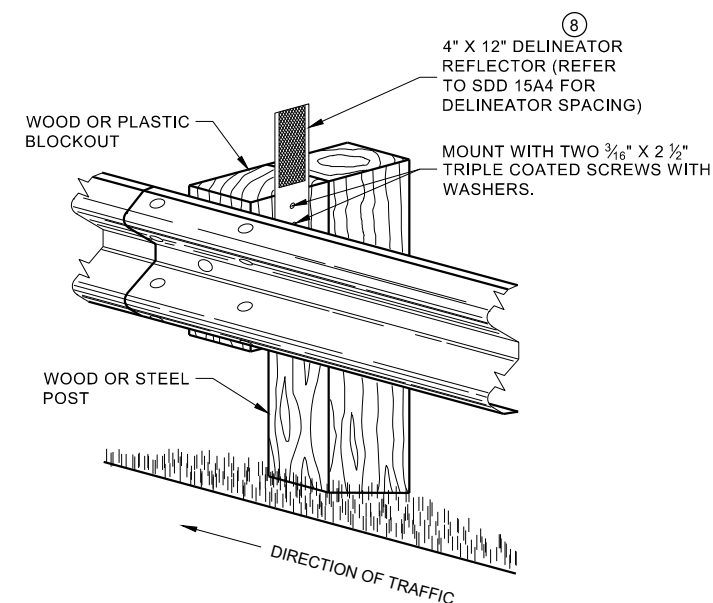
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

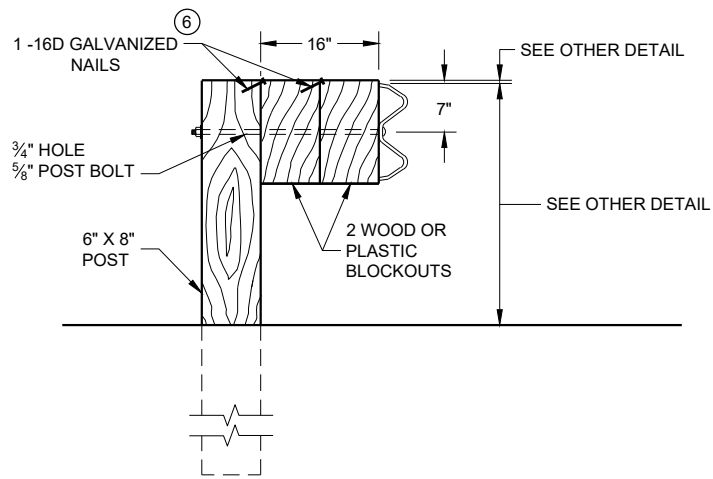
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

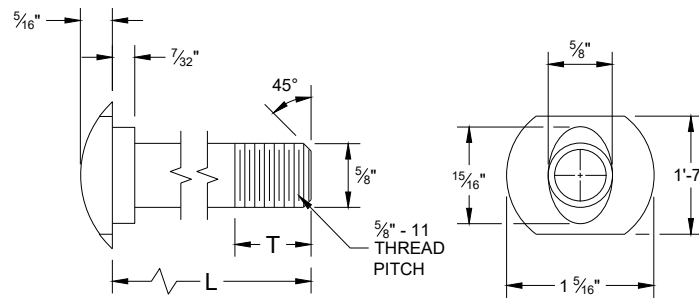


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

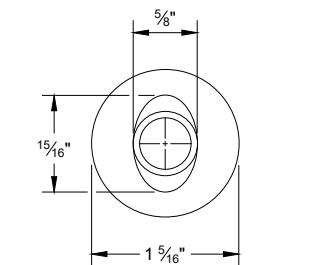
**NOTE:**

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

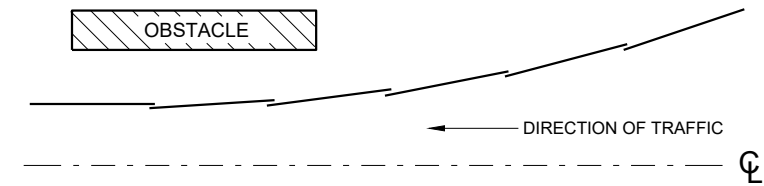


**POST BOLT TABLE**

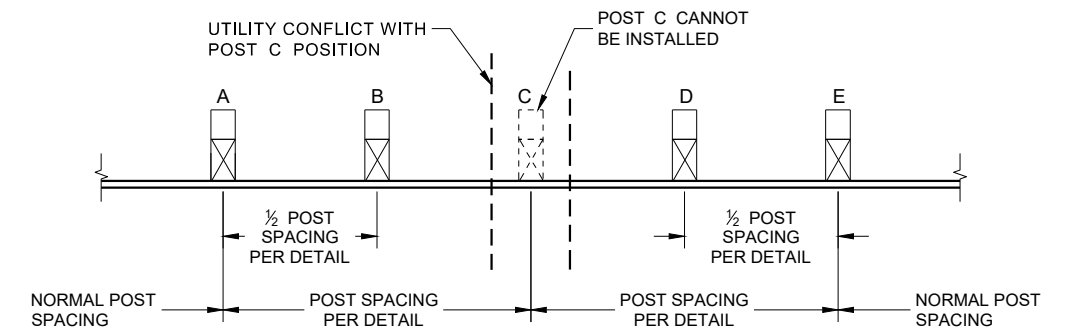
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



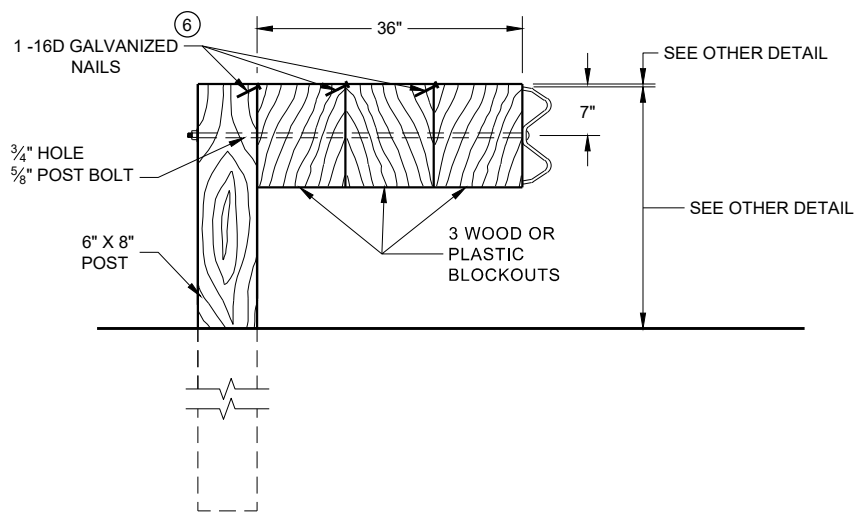
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

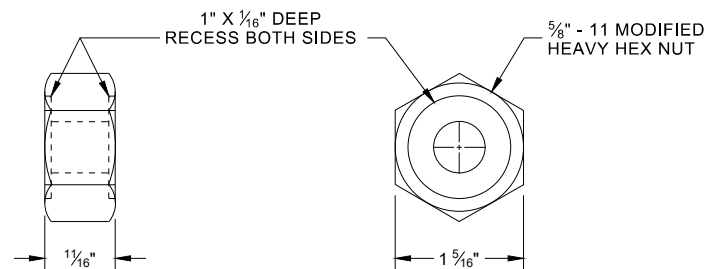


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

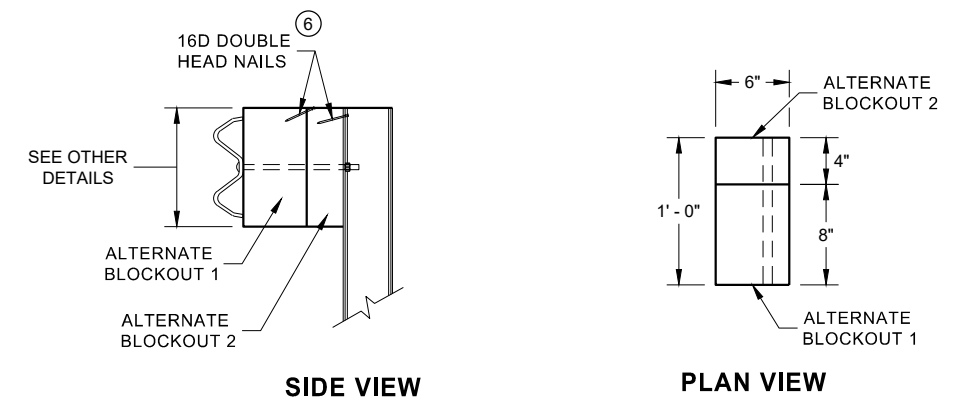


**DETAIL FOR 36" BLOCKOUT DEPTH**

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



**POST BOLT, SPLICE BOLT  
AND RECESS NUT**

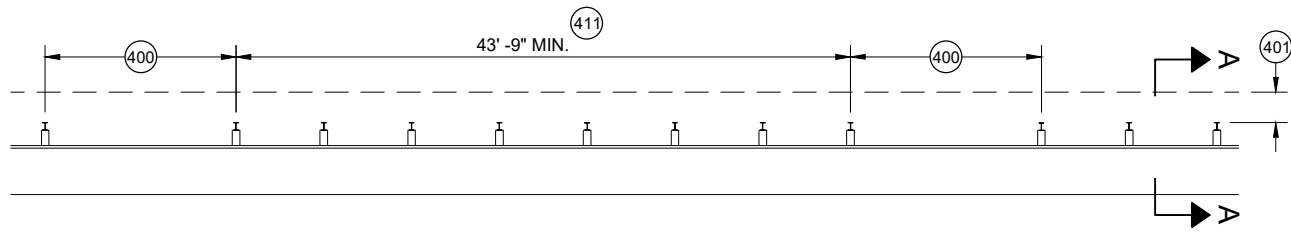


**ALTERNATE WOOD  
BLOCKOUT DETAIL**

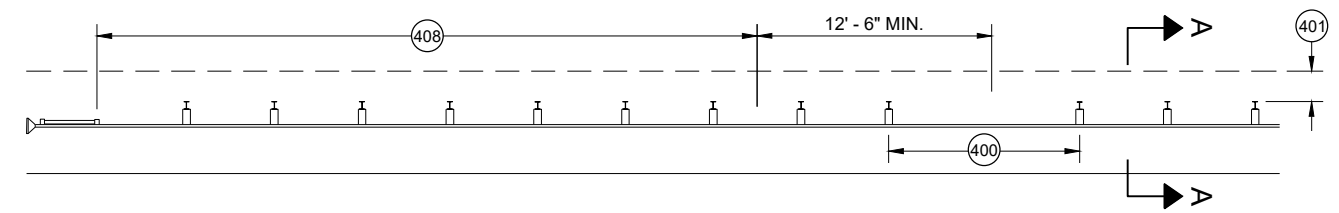
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

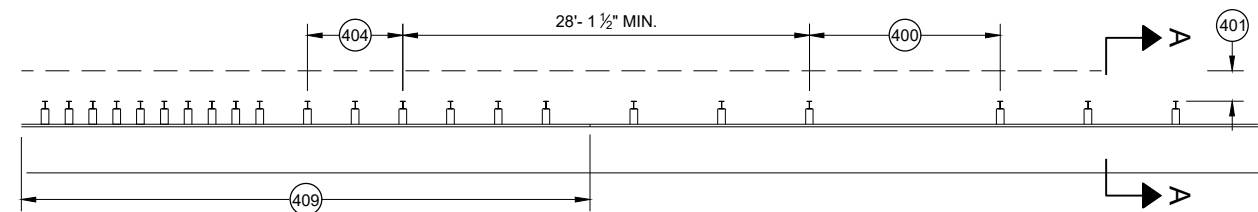
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



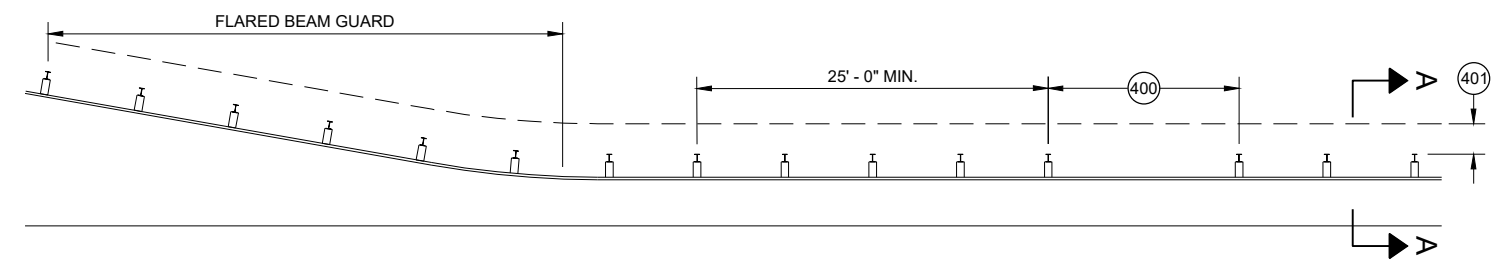
**MISSING POST IN MGS GUARDRAIL**



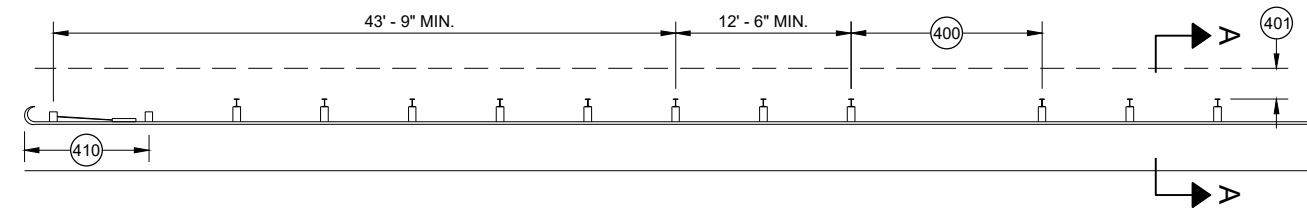
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



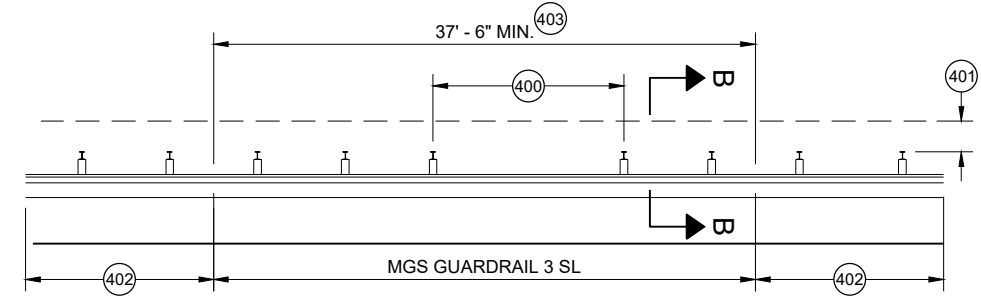
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

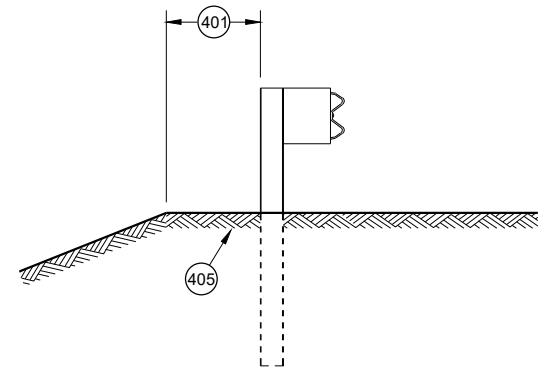


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

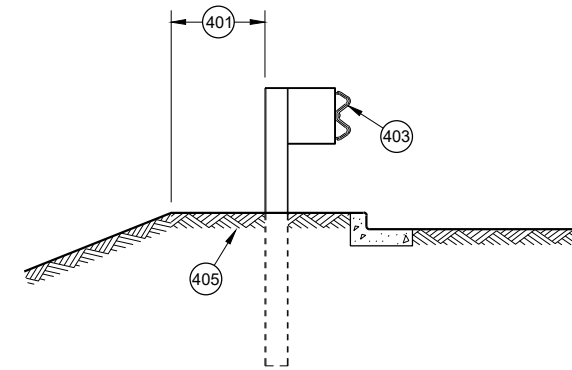


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- ④00 MAX SPAN 12' - 6"
- ④01 2' MIN.
- ④02 MGS GUARDRAIL 3
- ④03 NESTING BEAM GUARD
- ④04 ASYMMETRIC TRANSITION
- ④05 SOIL WELL DRAINED AND COMPACTED
- ④06 SEE OTHER DRAWINGS IN THIS SDD
- ④07 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- ④08 SEE SDD 14B44
- ④09 SEE SDD 14B45
- ④10 SEE SDD 14B47
- ④11 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



**SECTION A - A**



**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

**GENERAL NOTES**

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

SEE SDD 14B42 FOR MORE INFORMATION.

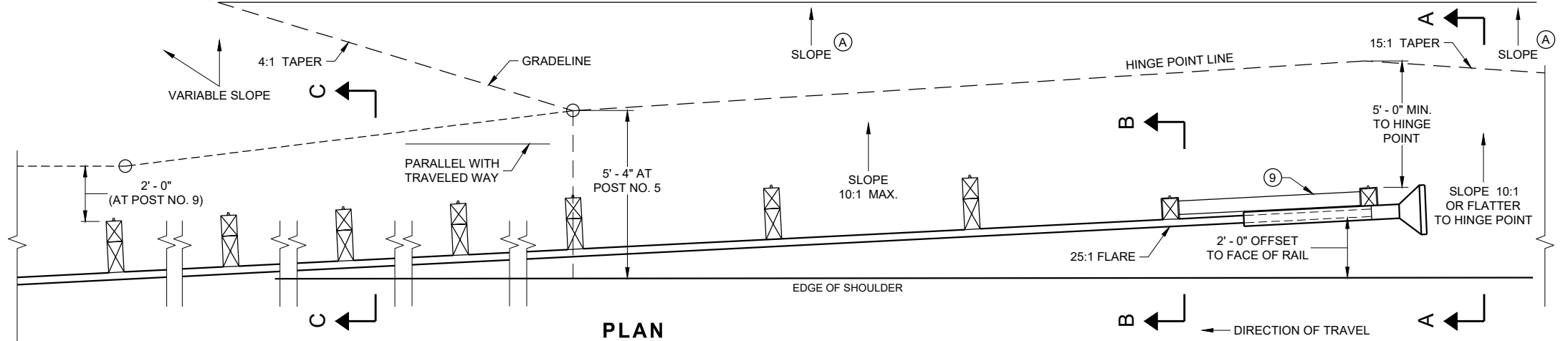
\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

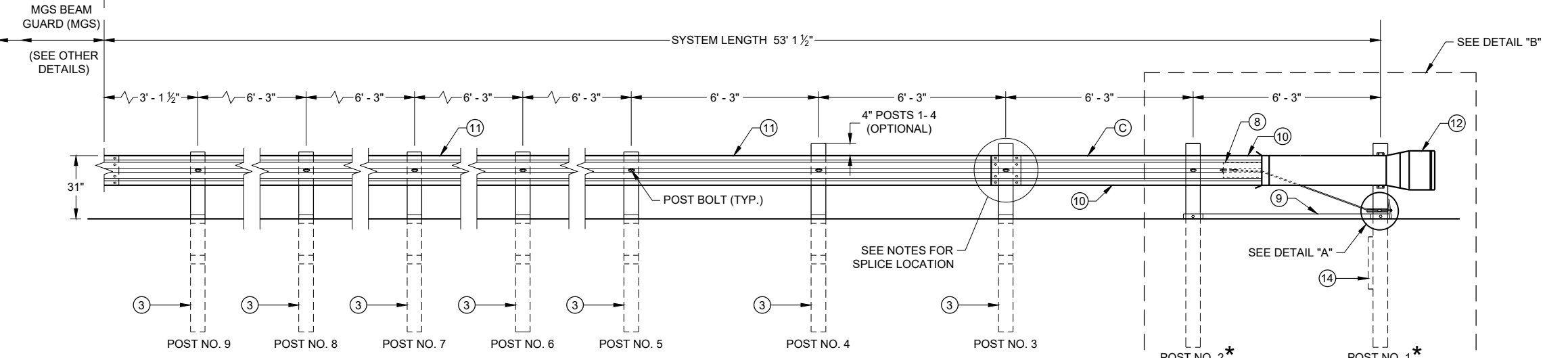
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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

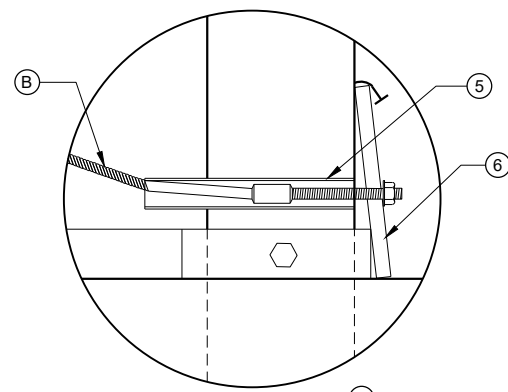
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



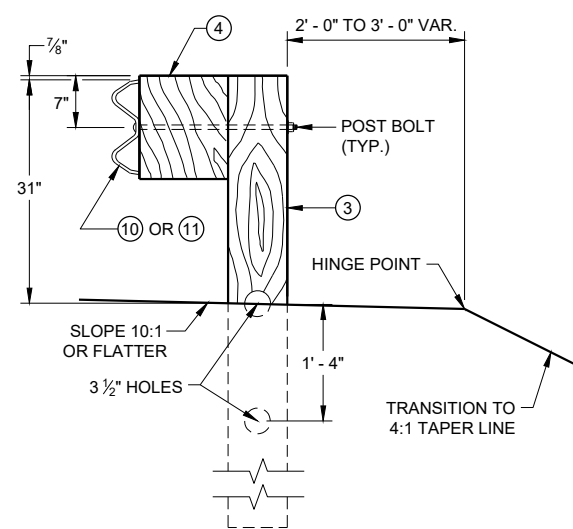
**PLAN**



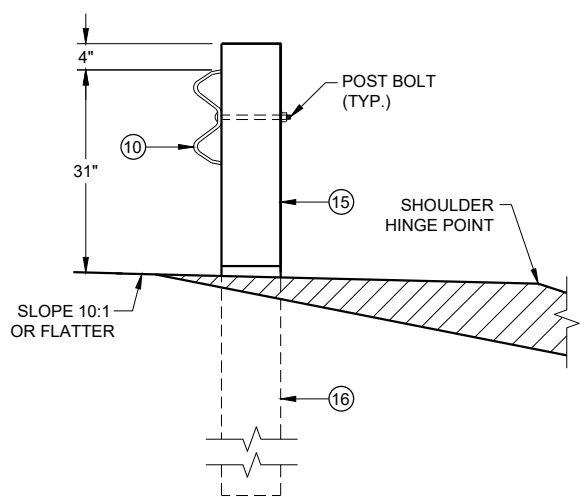
**ELEVATION**



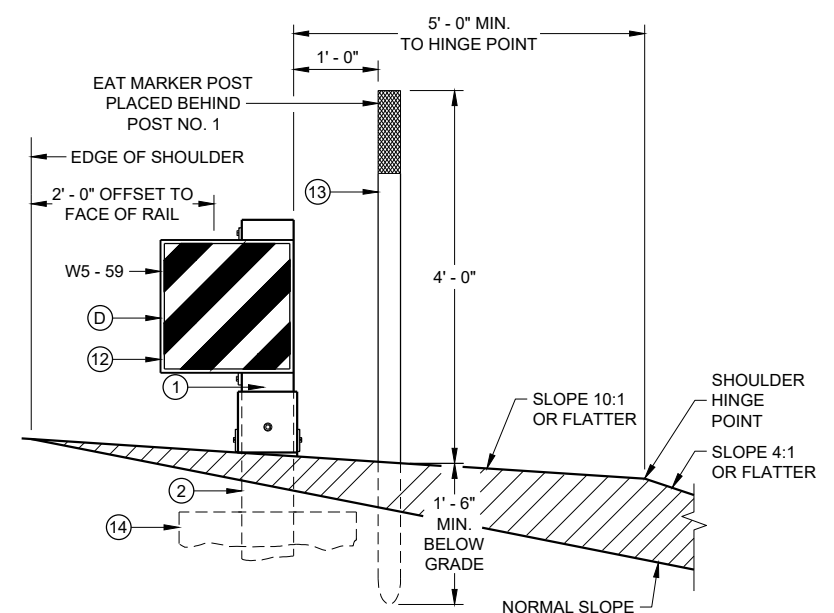
**DETAIL "A"**



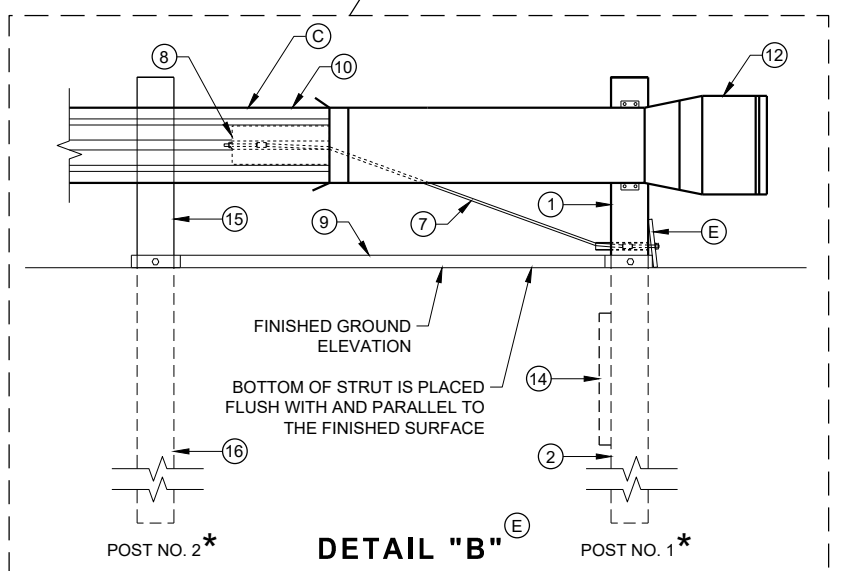
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

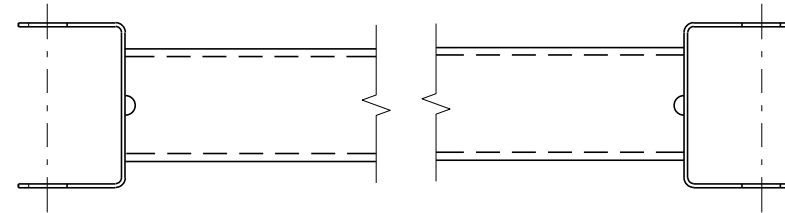
6

SDD 14B44 - 04a

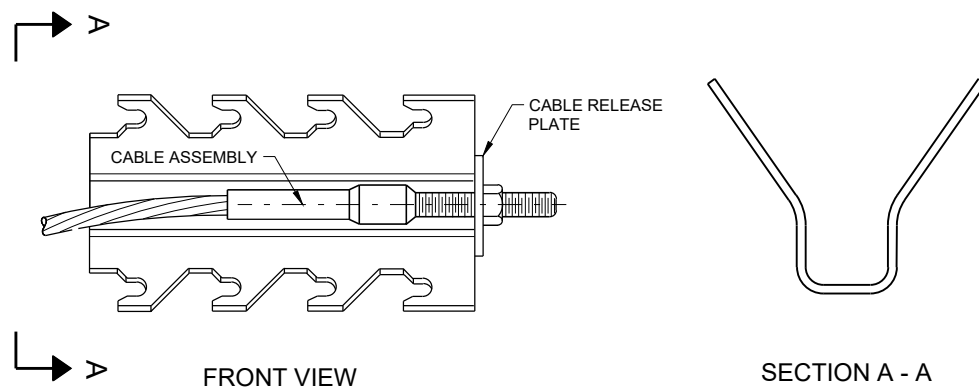
SDD 14B44 - 04a

**BILL OF MATERIALS**

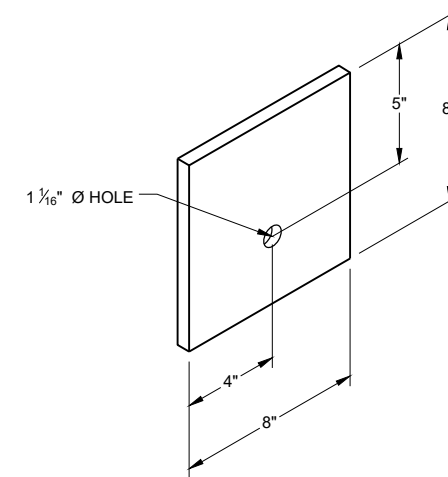
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

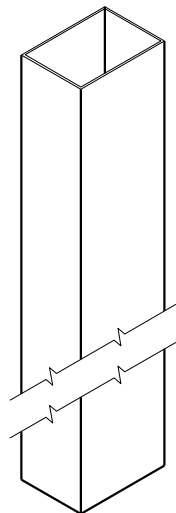
6

SDD 14B44 - 04b

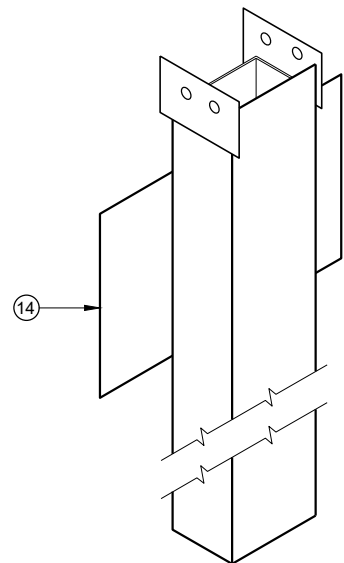
SDD 14B44 - 04b

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

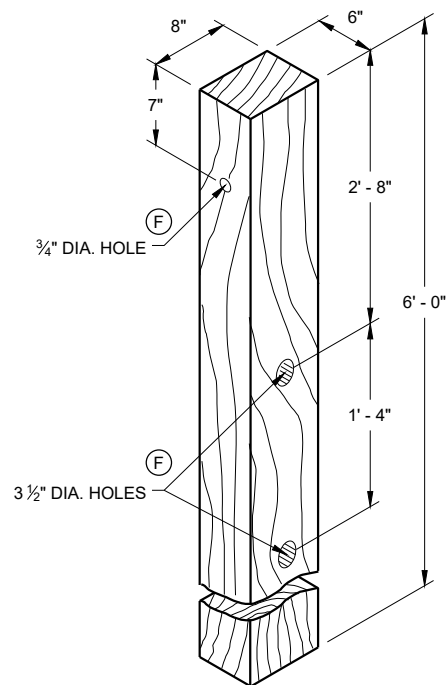
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



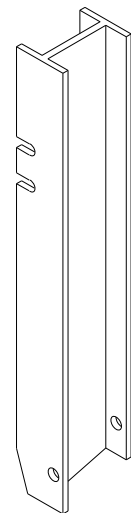
UPPER POST NO. 1 <sup>(1)</sup> (E)



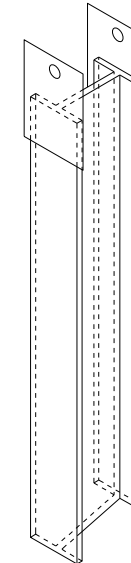
LOWER POST NO. 1 <sup>(2)</sup> (E)



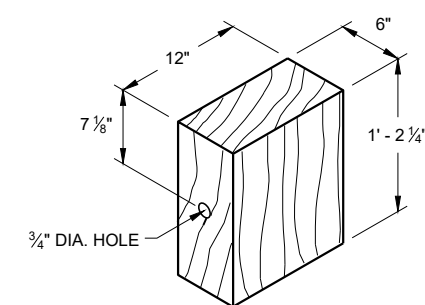
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

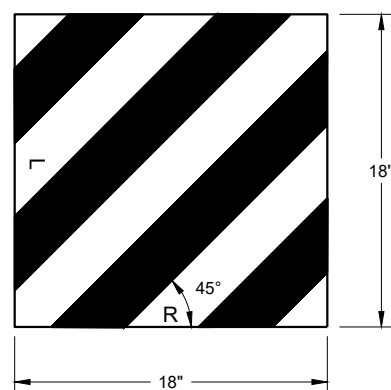


LOWER POST NO. 2 <sup>(16)</sup> (E)



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

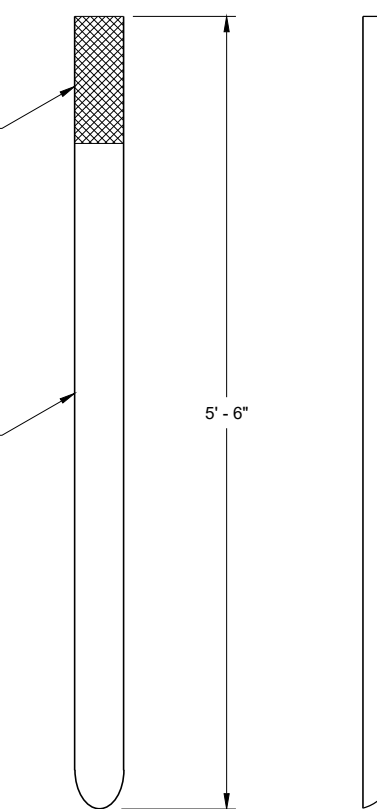
6



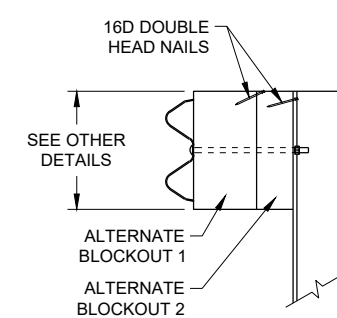
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

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

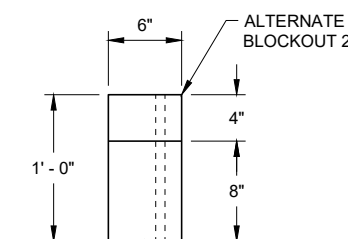
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

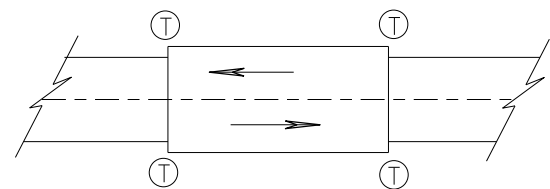
6

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

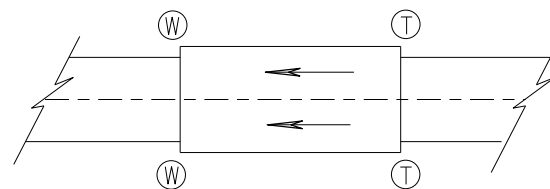
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

**TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE**

**GENERAL NOTES**

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

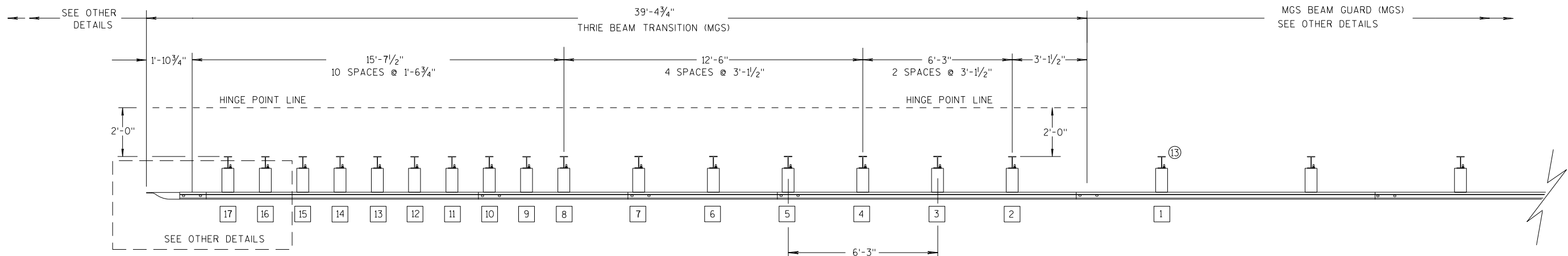
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

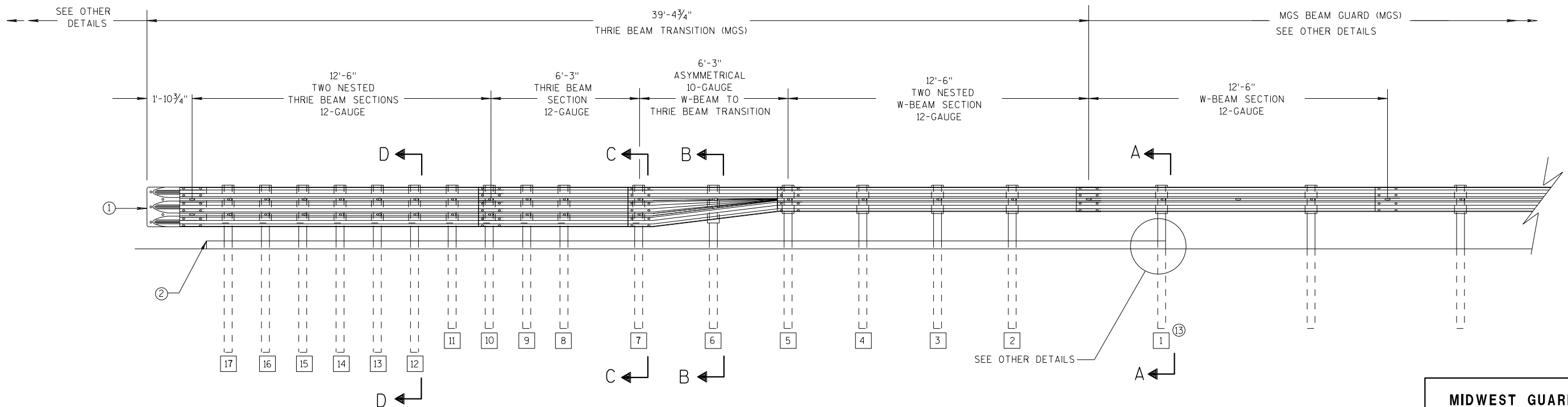
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

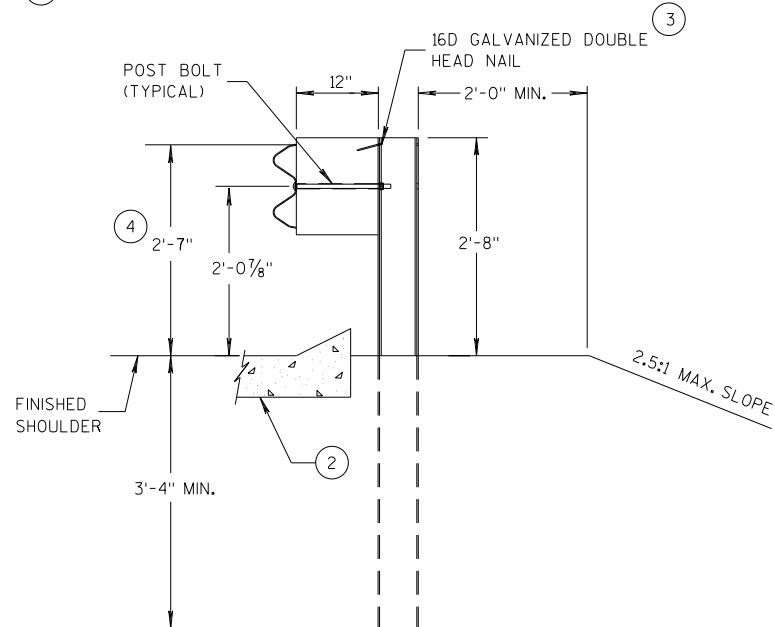
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

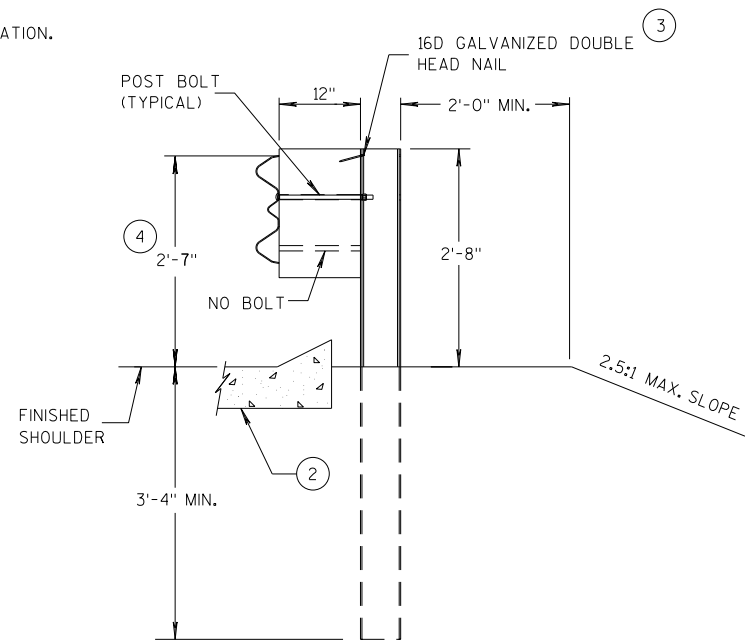
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

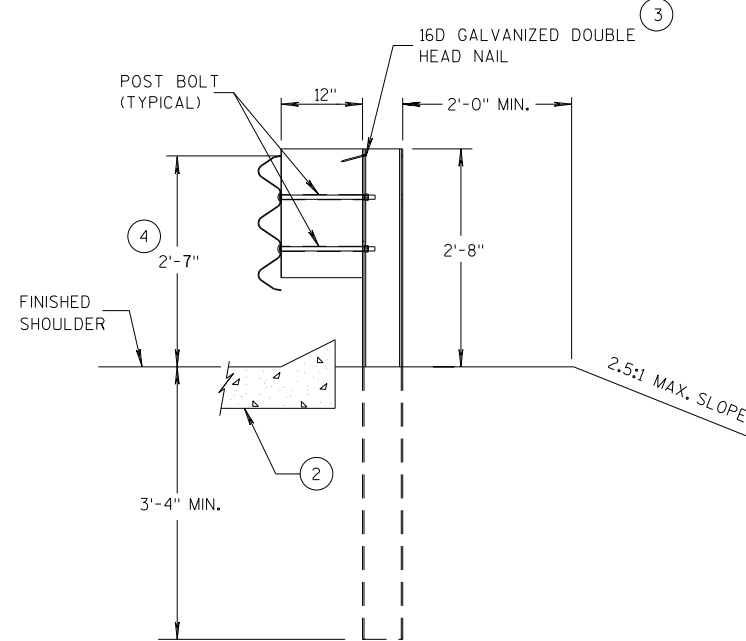
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



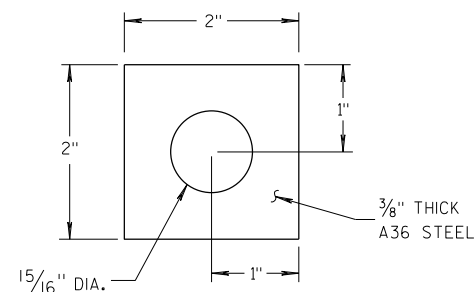
**SECTION A-A  
POSTS 1-5**



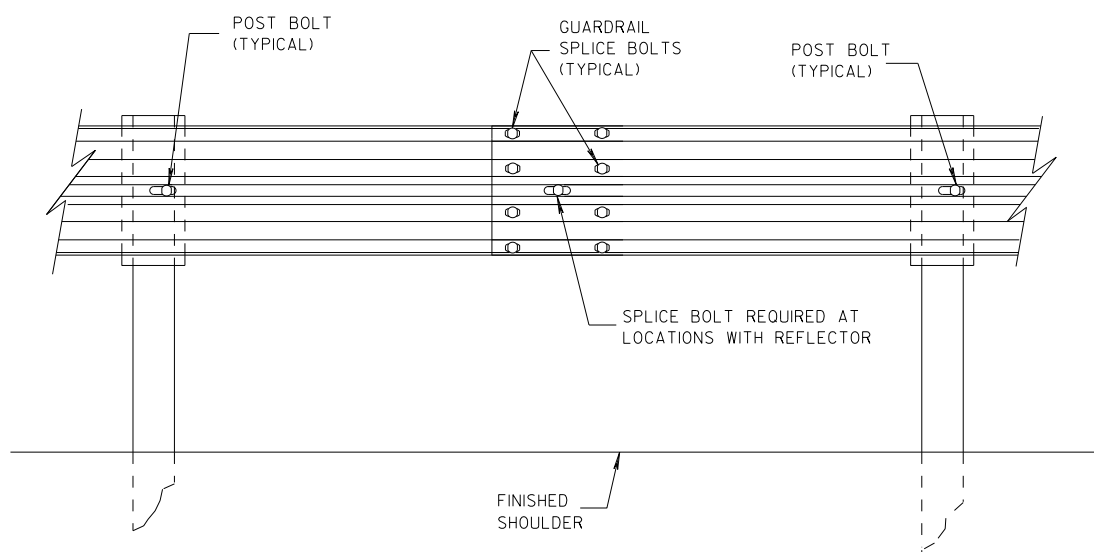
**SECTION B-B  
POST 6**



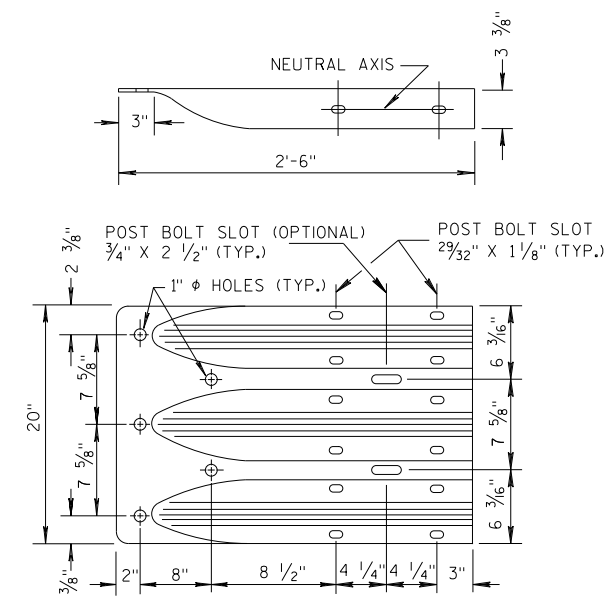
**SECTION C-C  
POSTS 7-11**



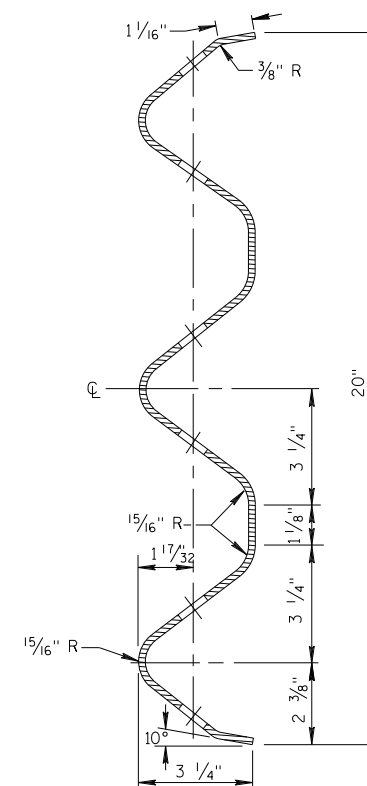
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



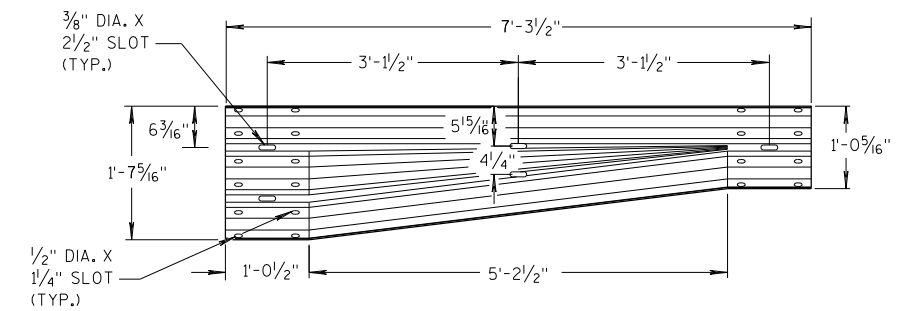
**THRIE BEAM  
TERMINAL CONNECTOR**



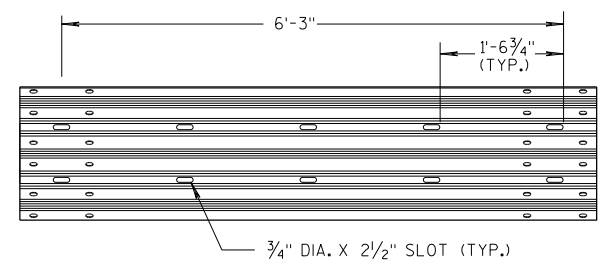
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

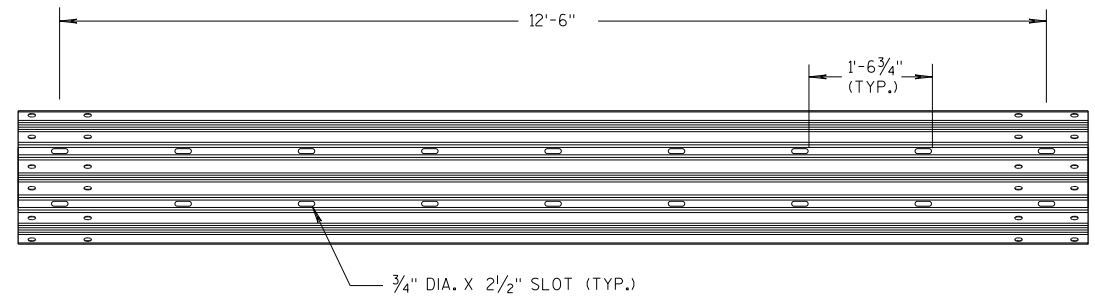
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



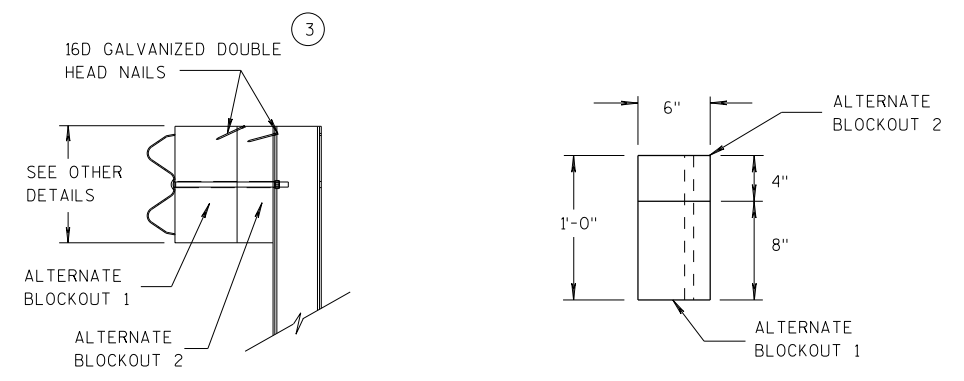
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



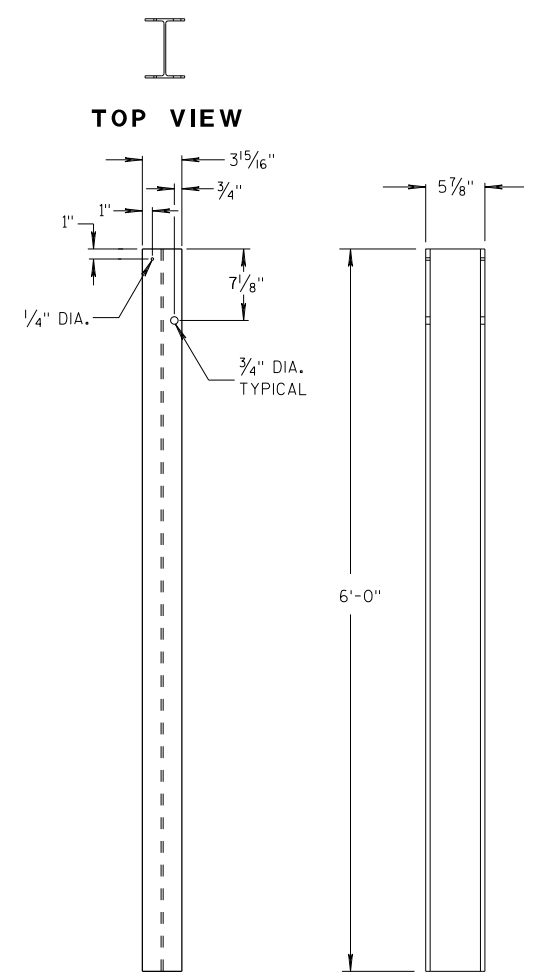
**6'-3\"/>**



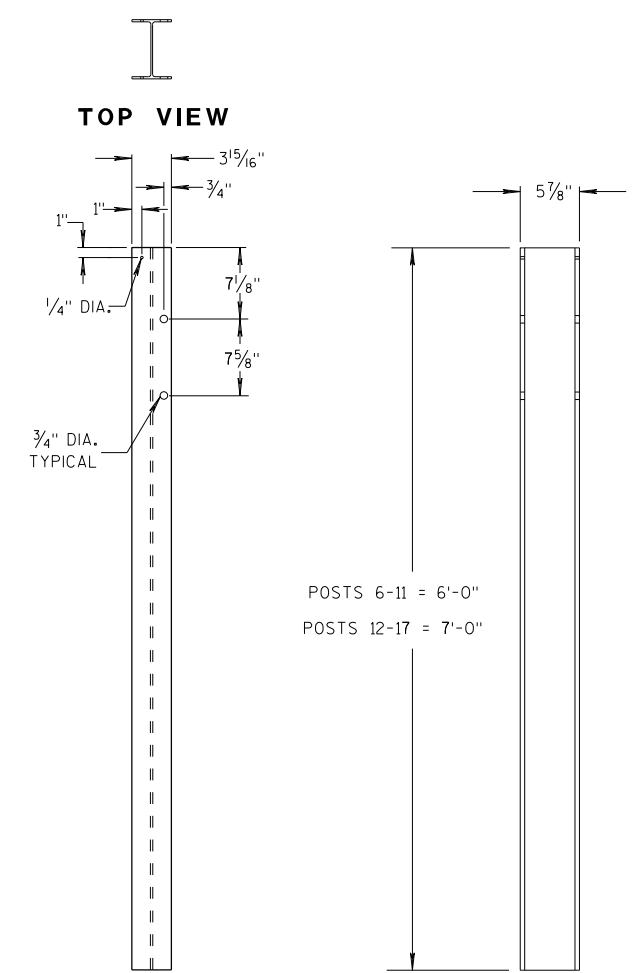
**12'-6\"/>**



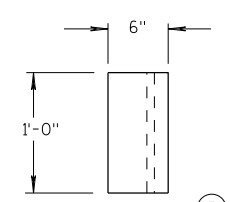
**ALTERNATE WOOD BLOCKOUT DETAIL**



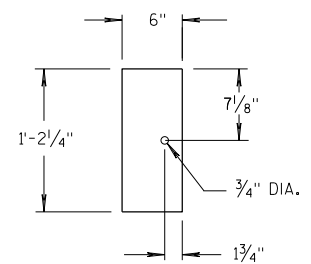
**STEEL POSTS 1-5**



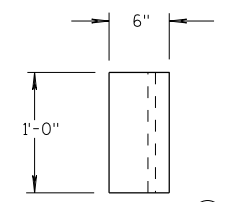
**STEEL POSTS 6-17**



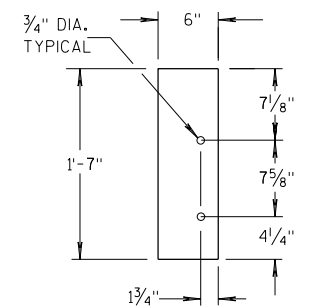
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

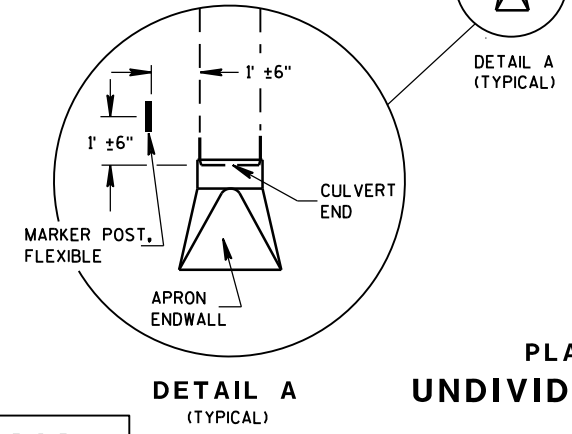
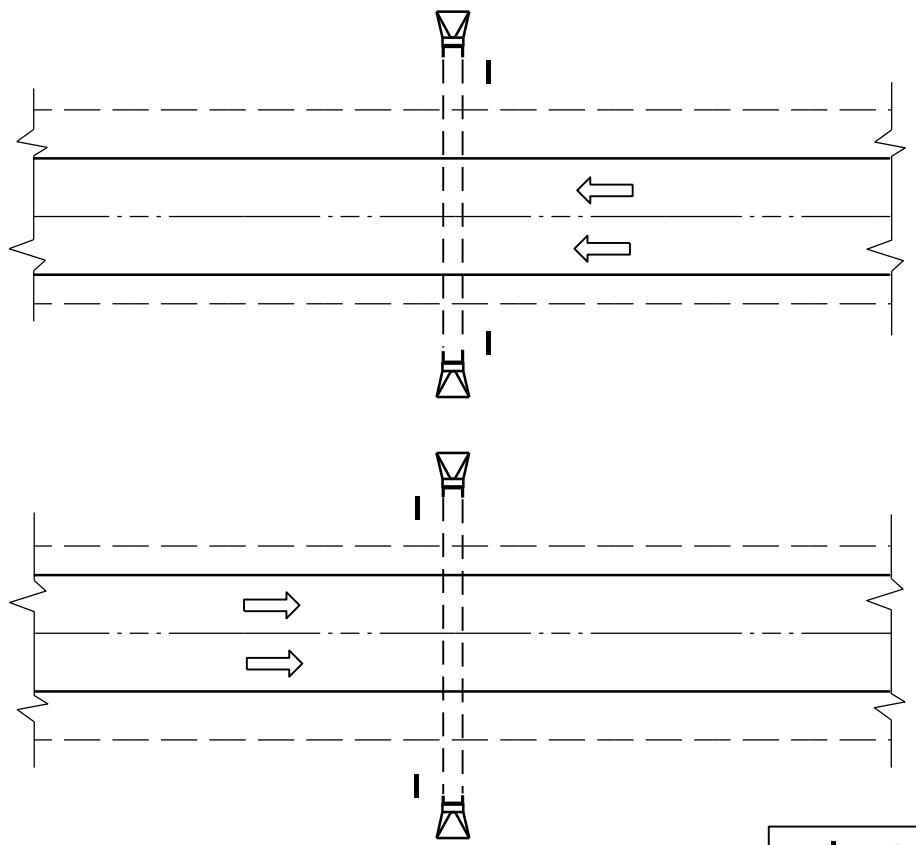
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c

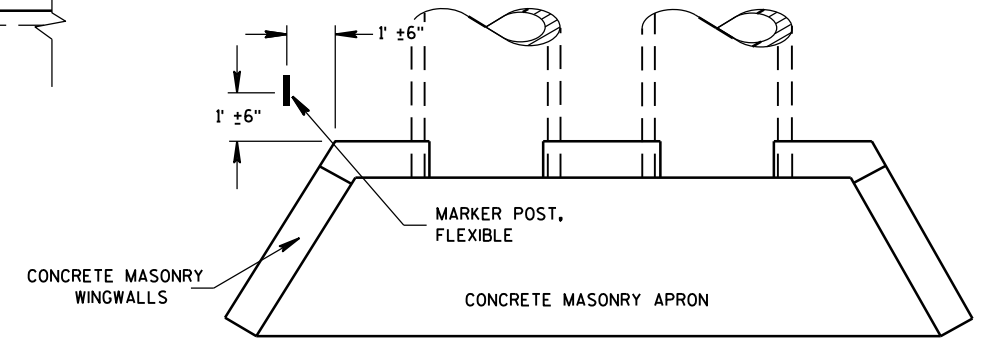


MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

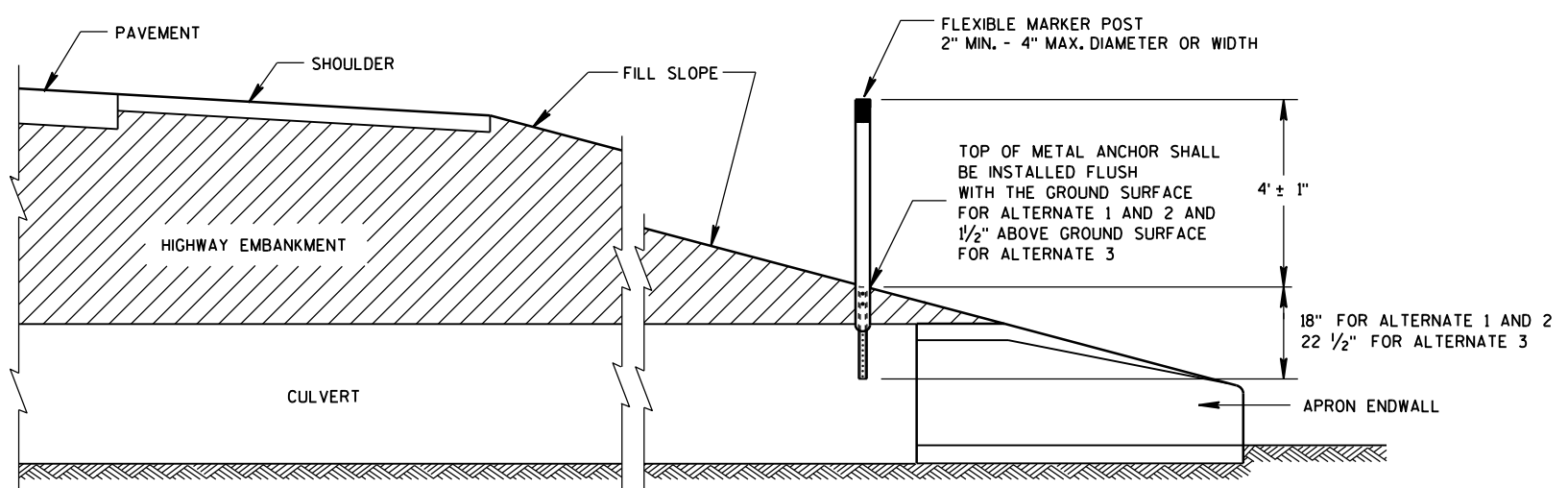
**GENERAL NOTES**

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

**FLEXIBLE MARKER POST LOCATION**



CROSS SECTION  
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST  
FOR CULVERT END

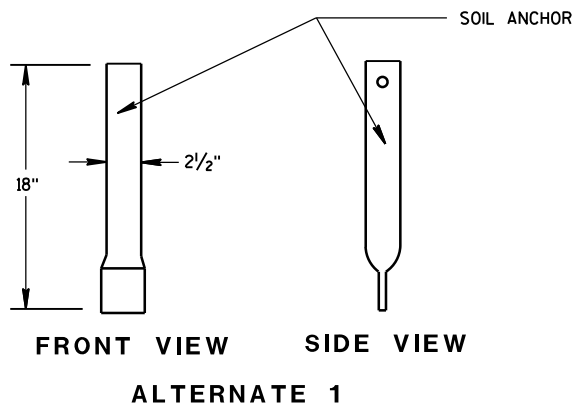
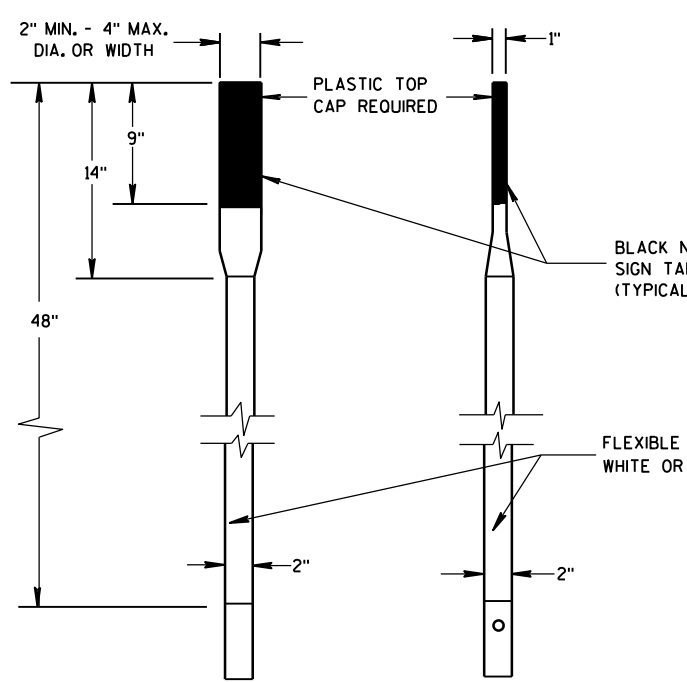
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

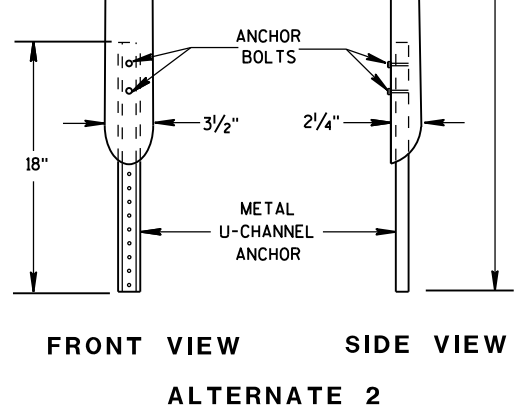
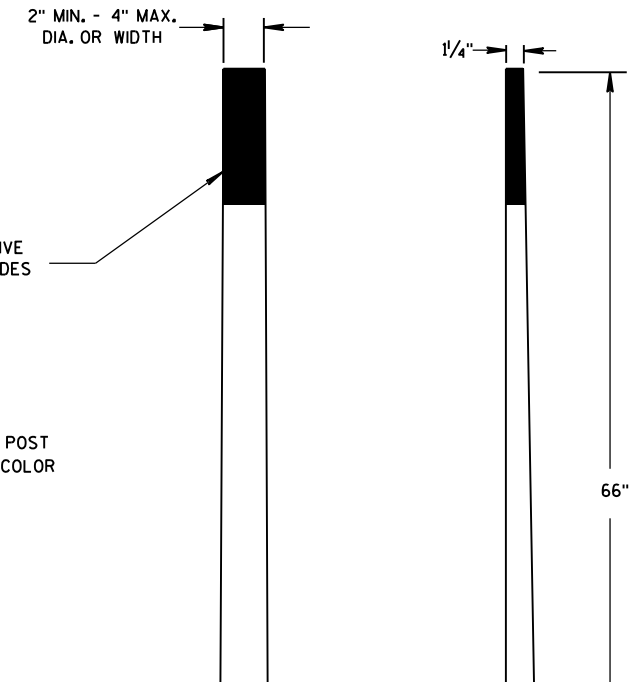
6

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

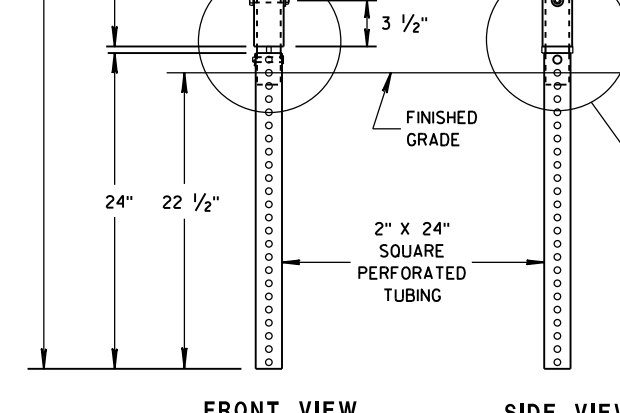
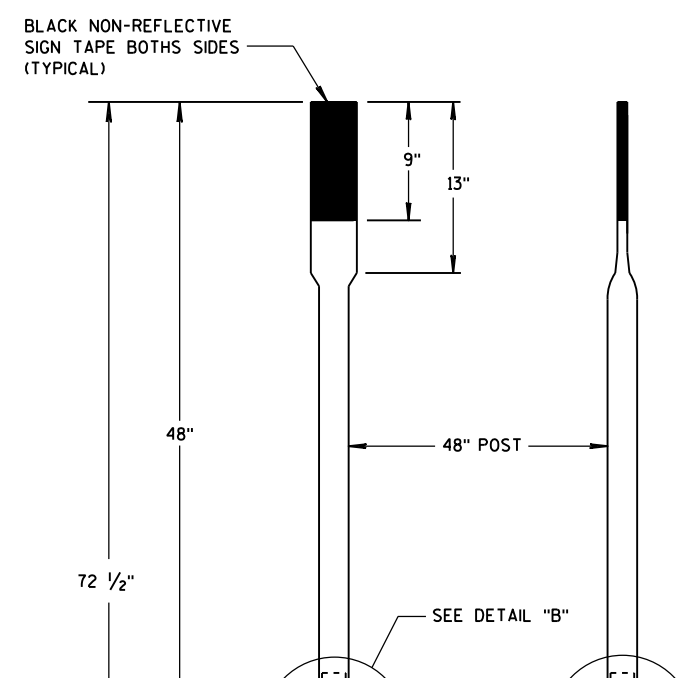
S.D.D. 15 A 3-2a



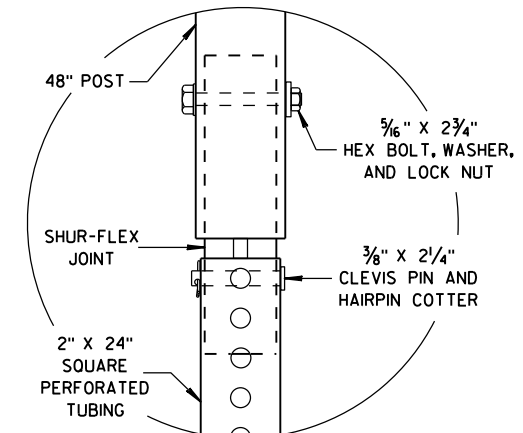
FRONT VIEW SIDE VIEW  
ALTERNATE 1



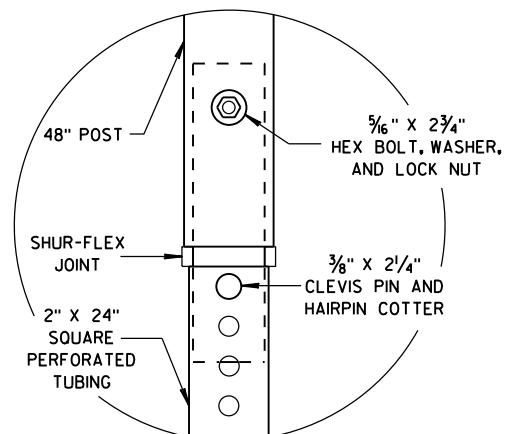
FRONT VIEW SIDE VIEW  
ALTERNATE 2



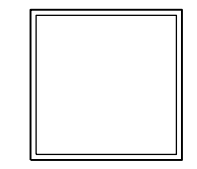
FRONT VIEW SIDE VIEW  
ALTERNATE 3



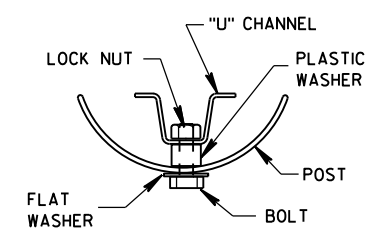
DETAIL B



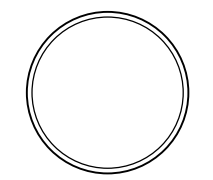
DETAIL C



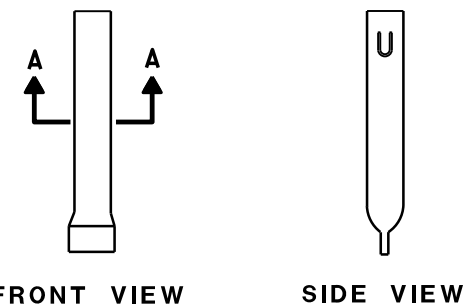
SECTION C-C



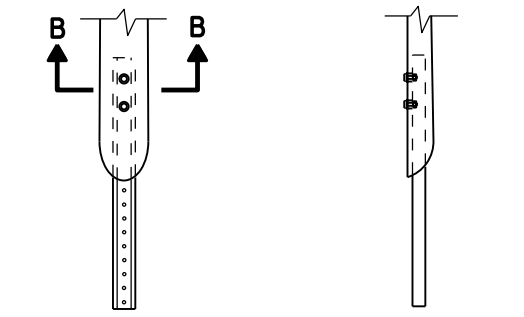
SECTION B-B



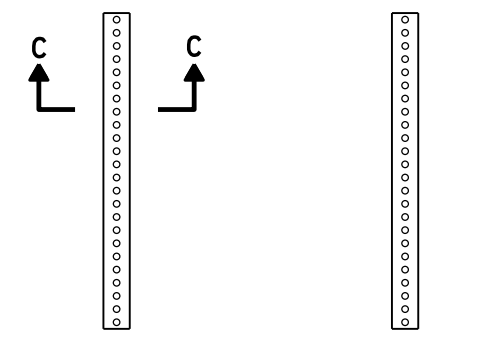
SECTION A-A



FRONT VIEW SIDE VIEW  
ALTERNATE 1



FRONT VIEW SIDE VIEW  
ALTERNATE 2



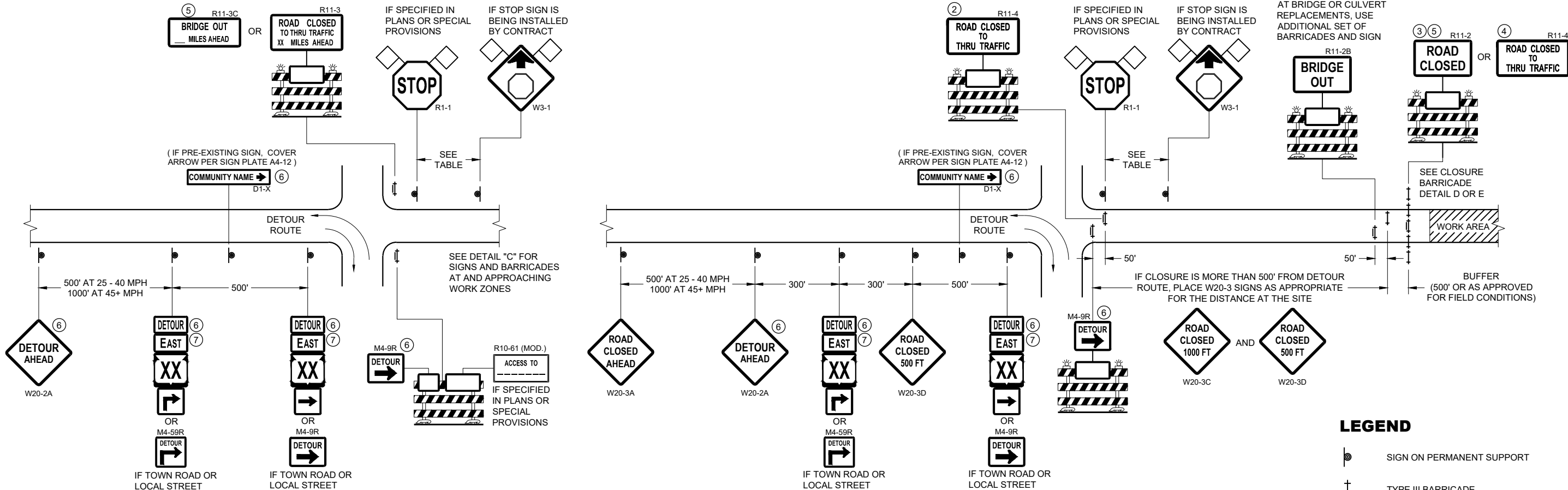
FRONT VIEW SIDE VIEW  
ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

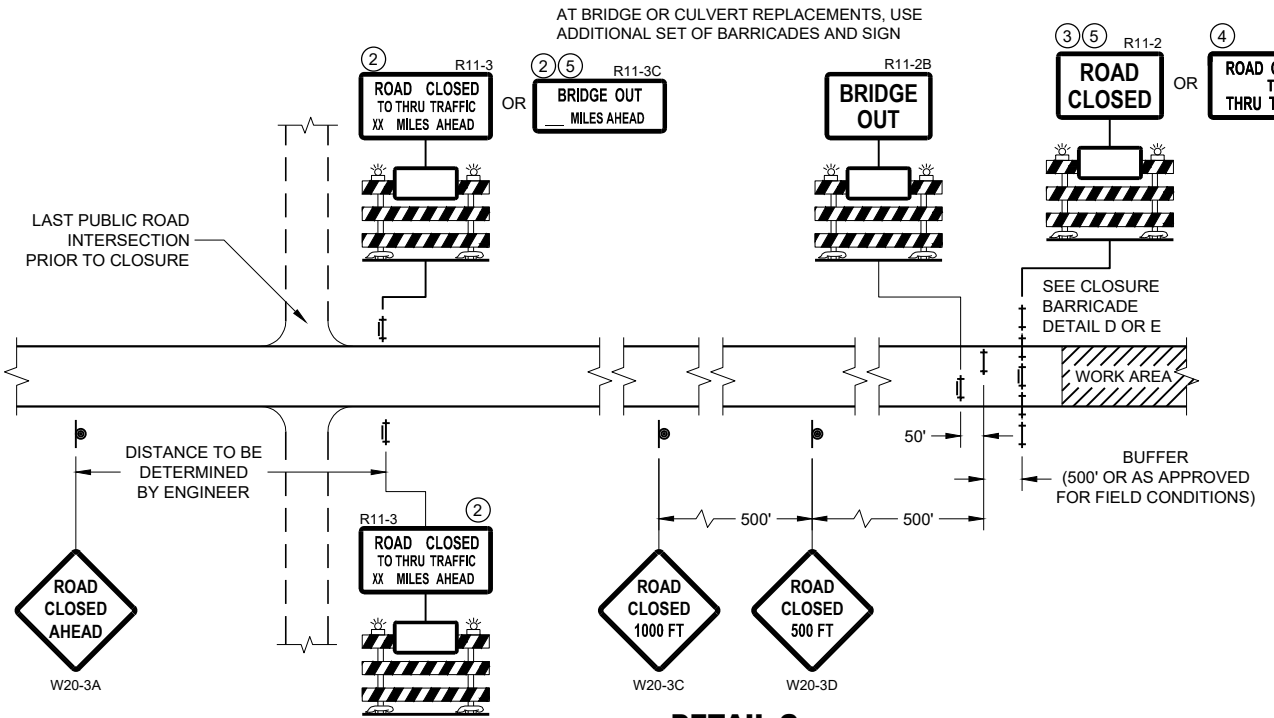
**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

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

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

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

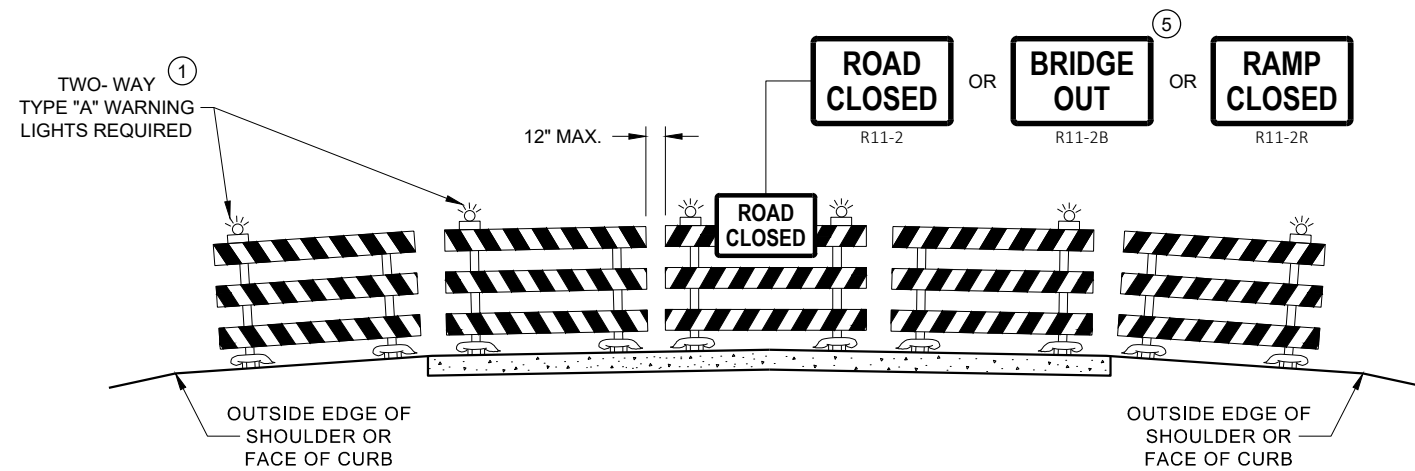
SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

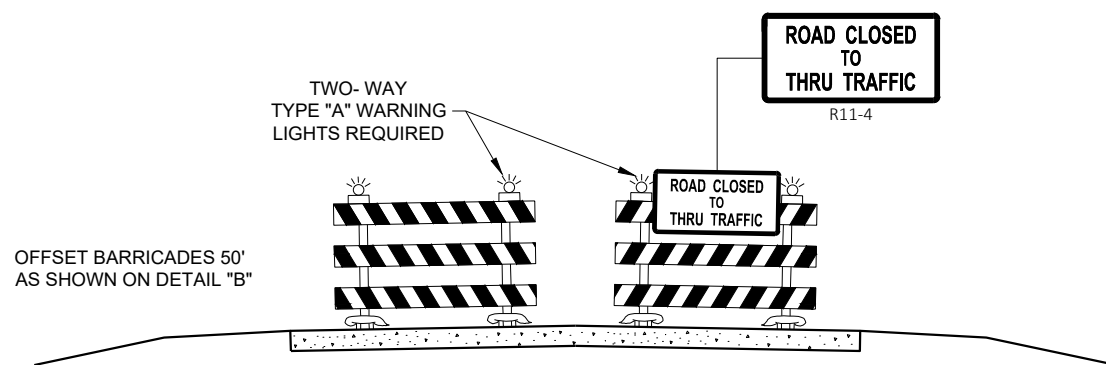
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW**



**DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

**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 TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

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

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

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

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

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

- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

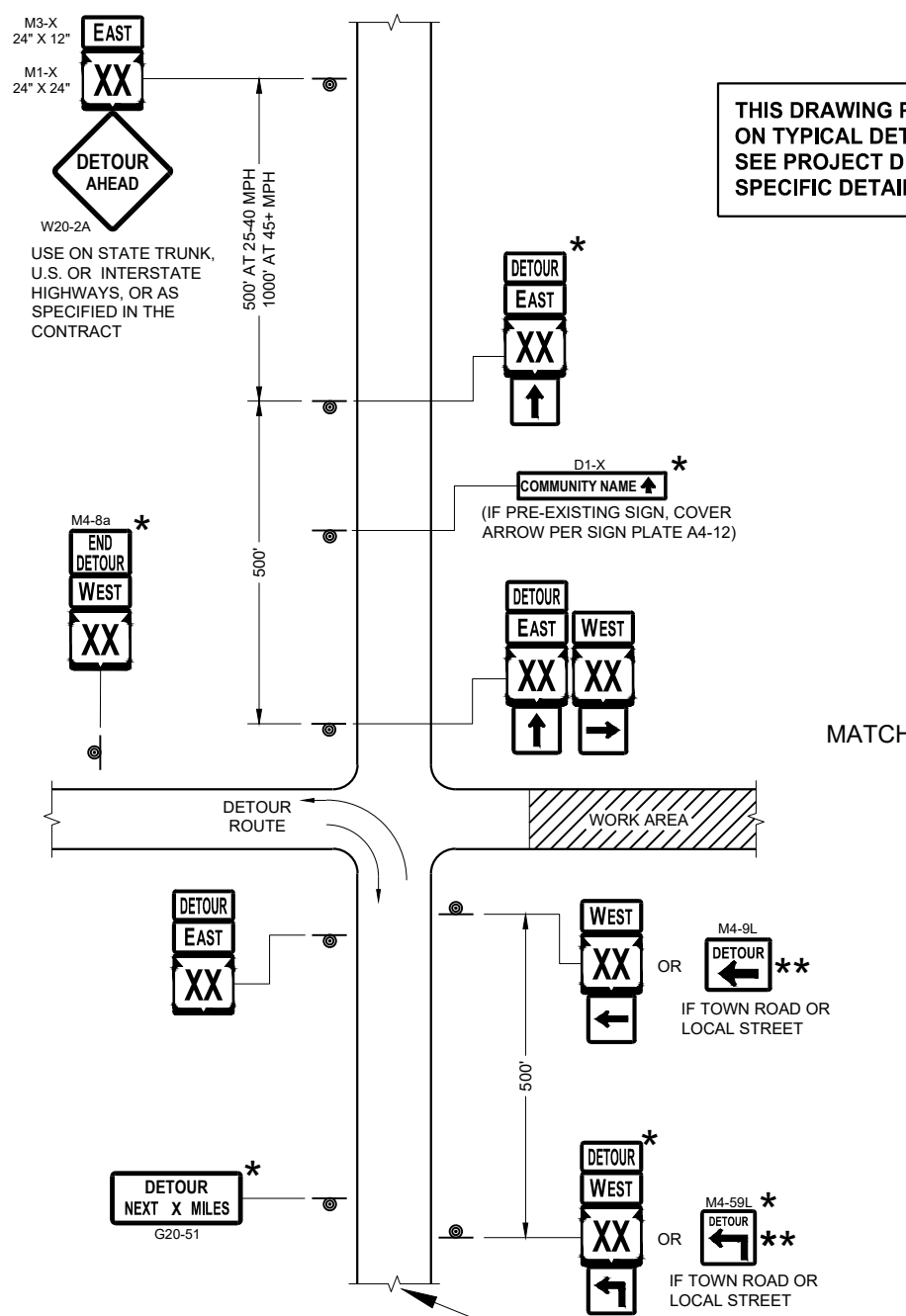
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS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

**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



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

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

**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.

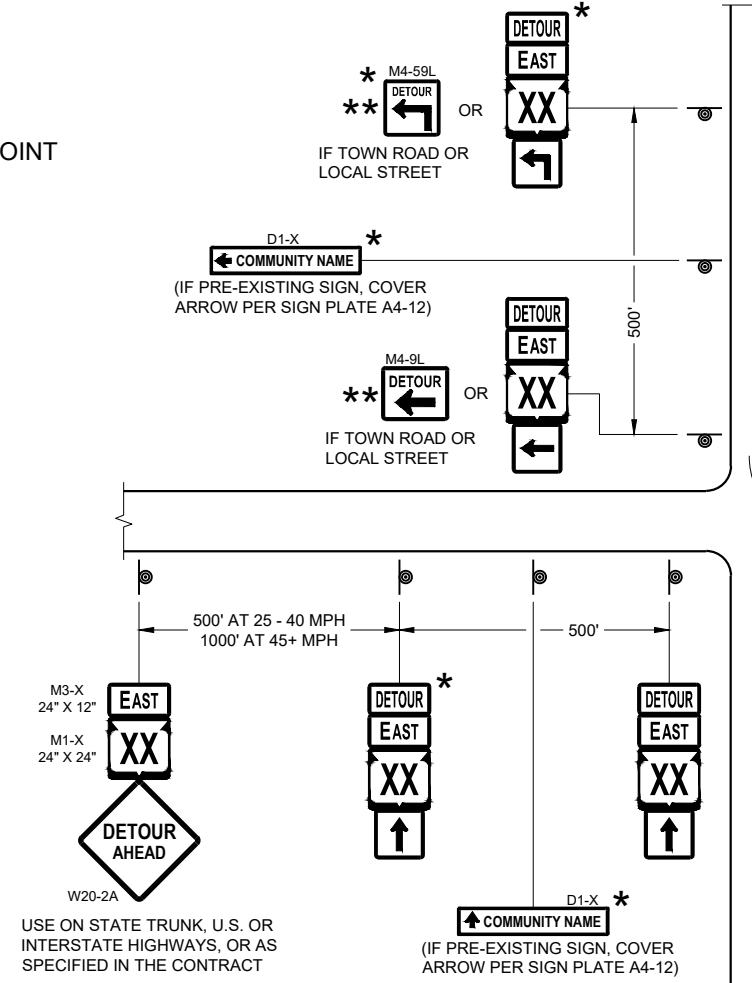
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

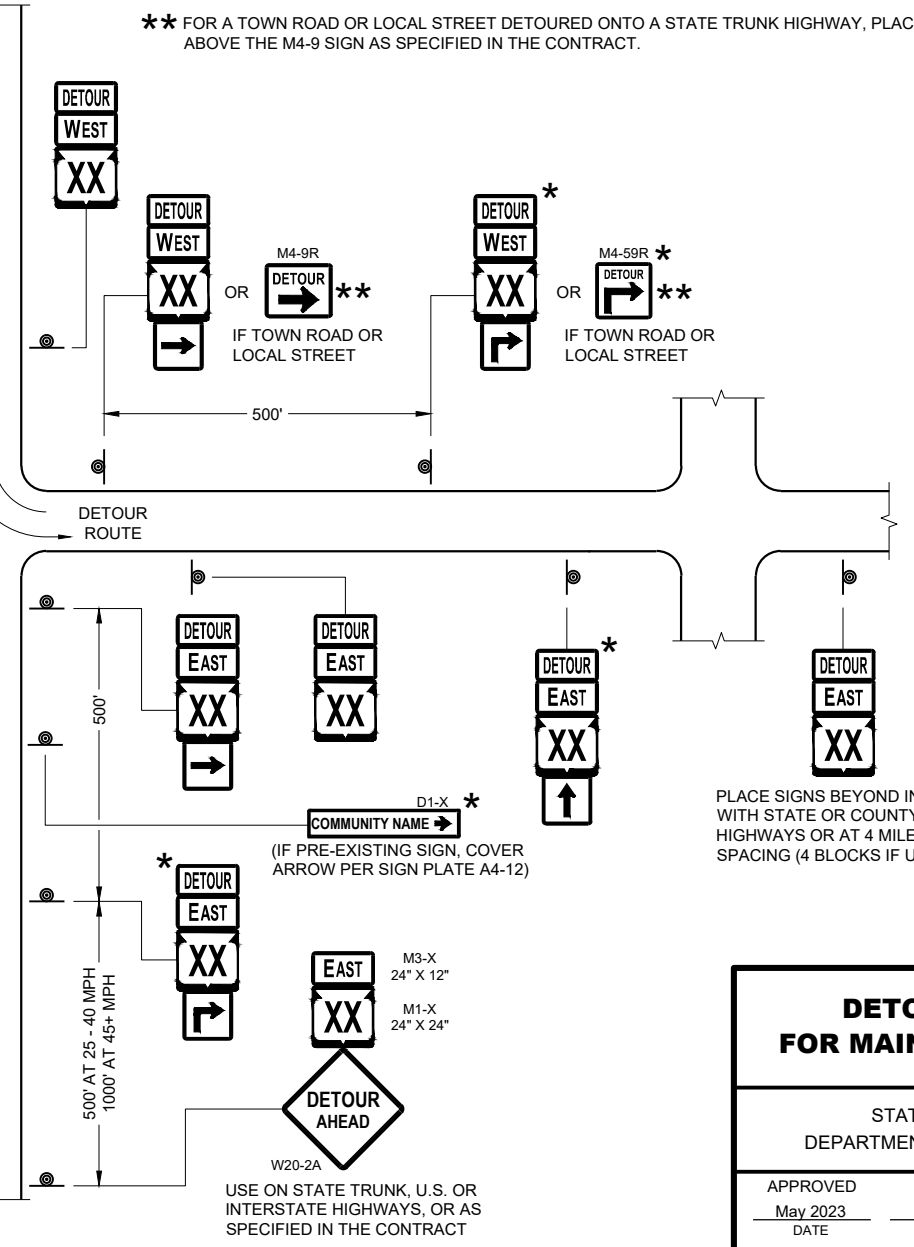
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING 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.

MATCH POINT



**DETAIL F  
DETOUR SIGNING**



**DETOUR SIGNING  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

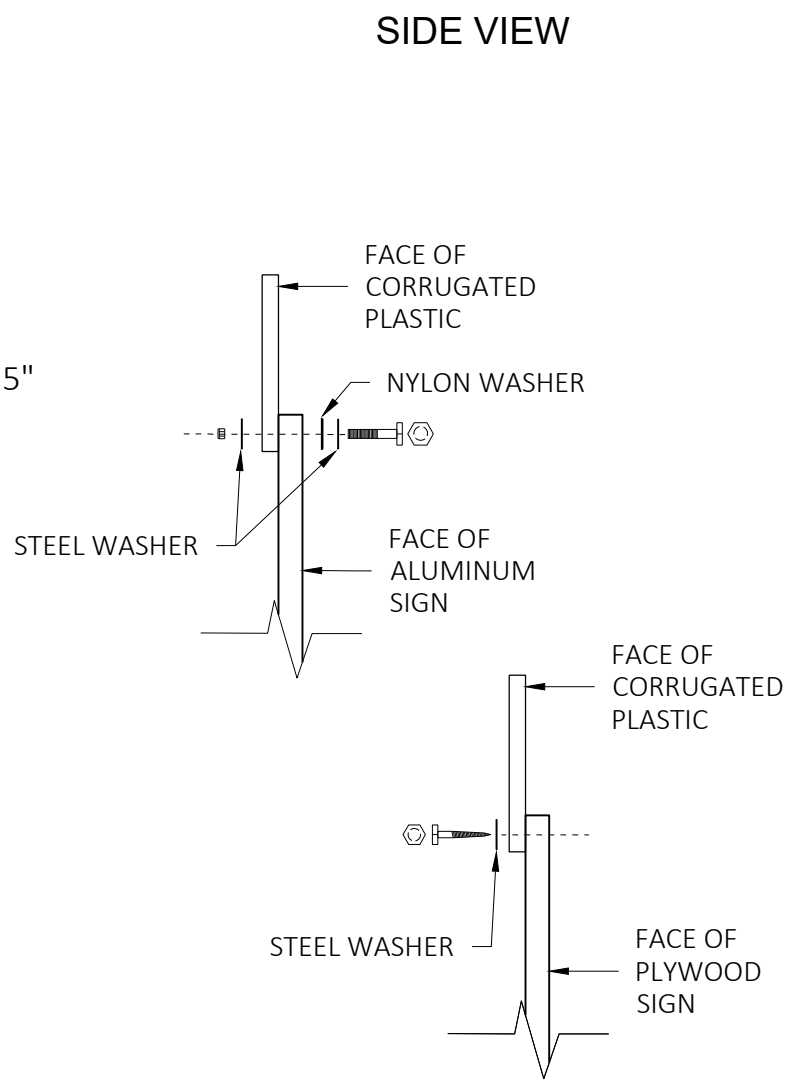
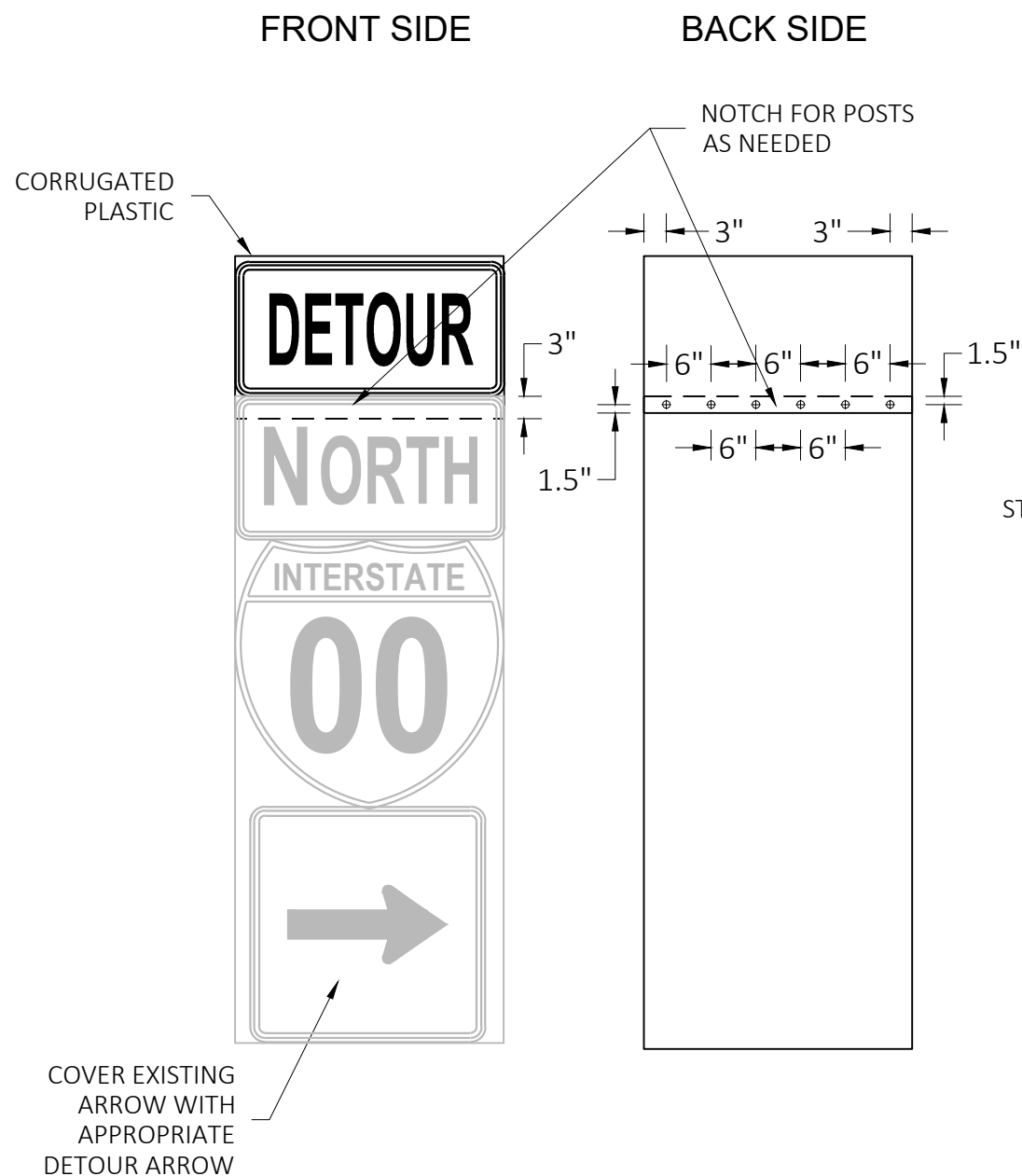
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DATE WORK ZONE ENGINEER

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

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





**GENERAL NOTES**

CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.

PROVIDE A 0.4-INCH THICK BASE CORRUGATED PLASTIC WITH A 0.035-INCH WALL THICKNESS AND 0.4-INCH CELL SIZE.

FOR 36" WIDE SIGNS: USE 6 FASTENERS AS SHOWN.

FOR 24" WIDE SIGNS: USE 4 FASTENERS WITH EDGE SPACING AS SHOWN AND 6" SPACING BETWEEN FASTENERS.

METAL WASHERS, NUTS, BOLTS AND LAGS 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, SC3

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.

PLYWOOD SIGNS:

LAG SCREWS - 5/16" x 1"

ALUMINUM SIGNS:

MACHINE BOLTS - 5/16" x 1-1/4" LENGTH W/NUTS

WASHERS:

1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL

1-1/4" O.D. x 3/8" I.D. x .080 NYLON

**MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING**

**MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING**

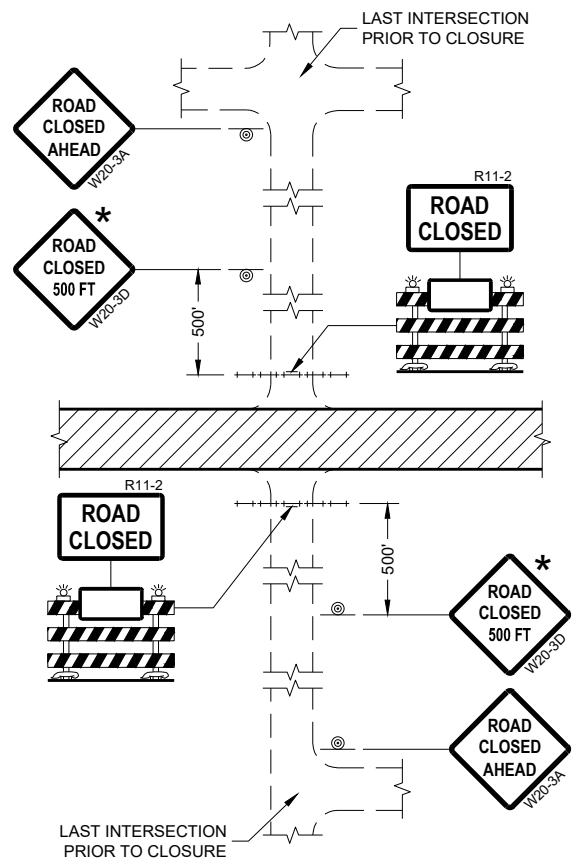
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DEPARTMENT OF TRANSPORTATION

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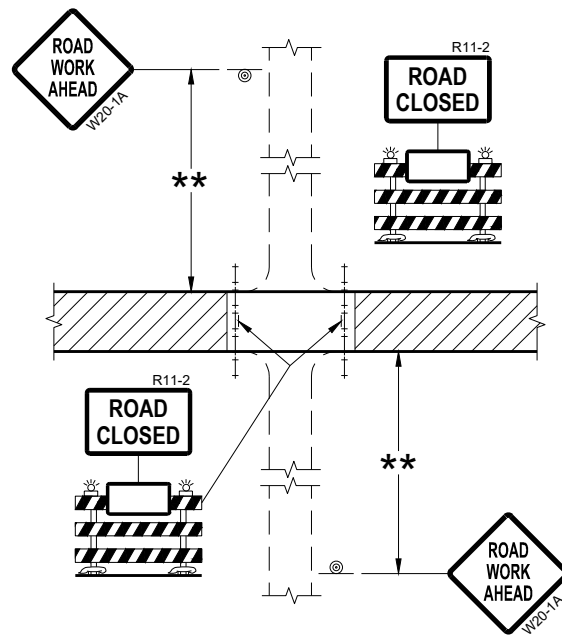
May 2023  
DATE

/S/ Andrew Heidtke  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

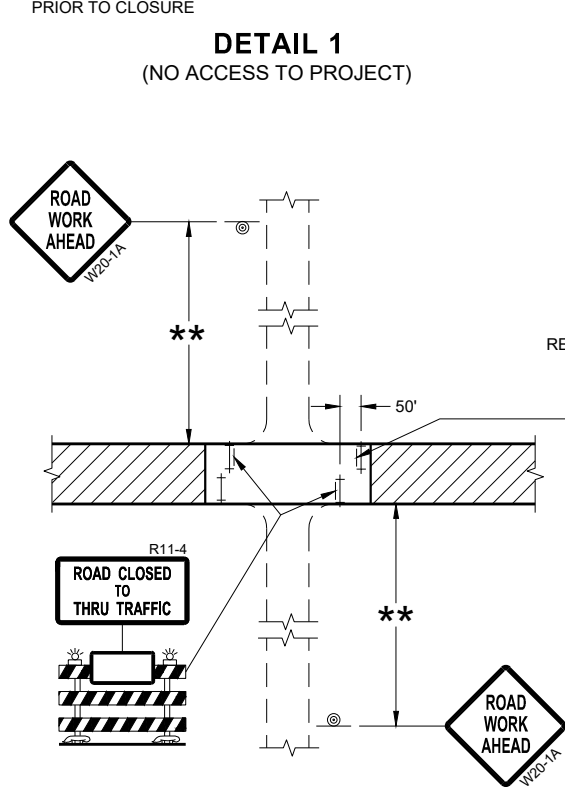
FHWA



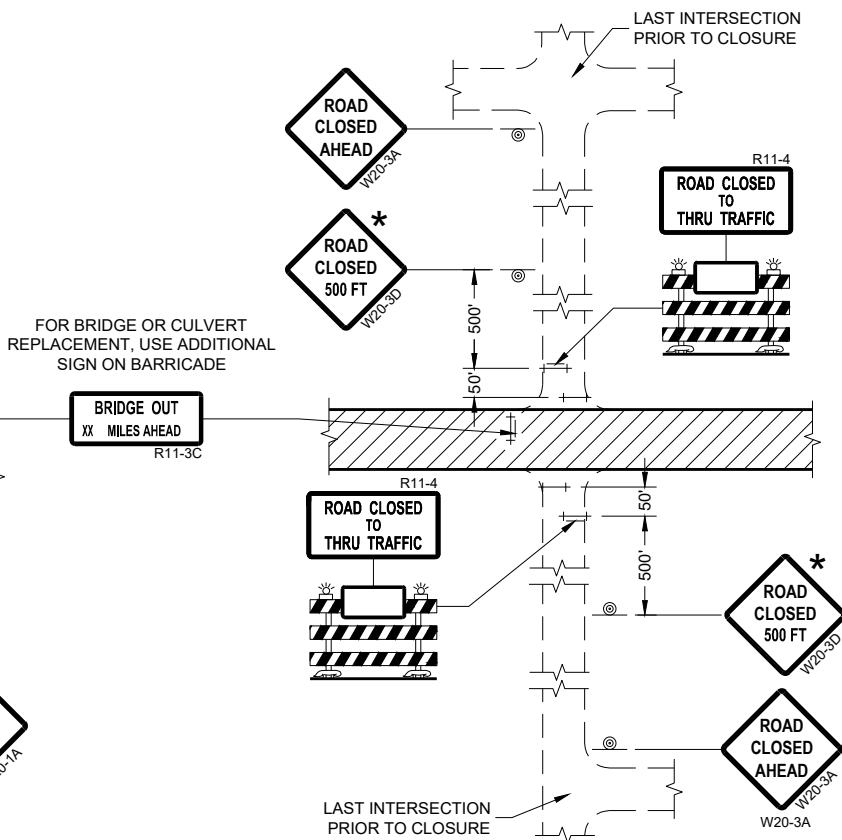
**DETAIL 1**  
(NO ACCESS TO PROJECT)



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



**DETAIL 3**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT 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

**GENERAL NOTES**

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

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




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

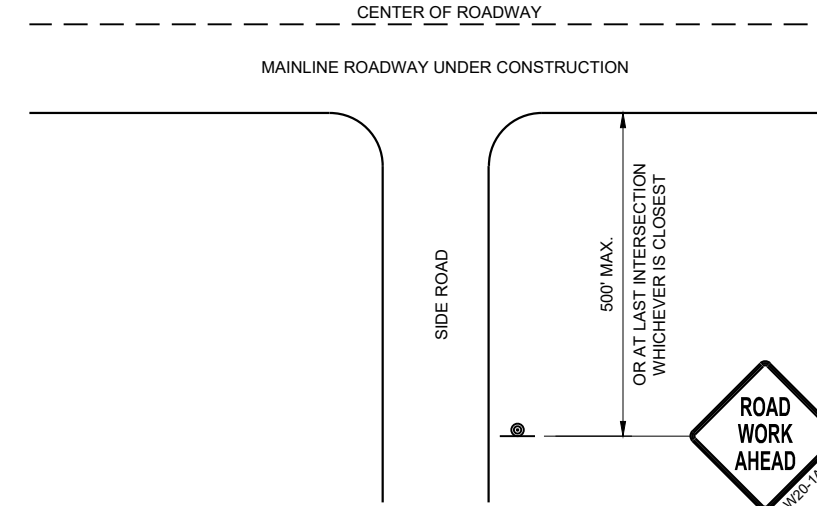
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

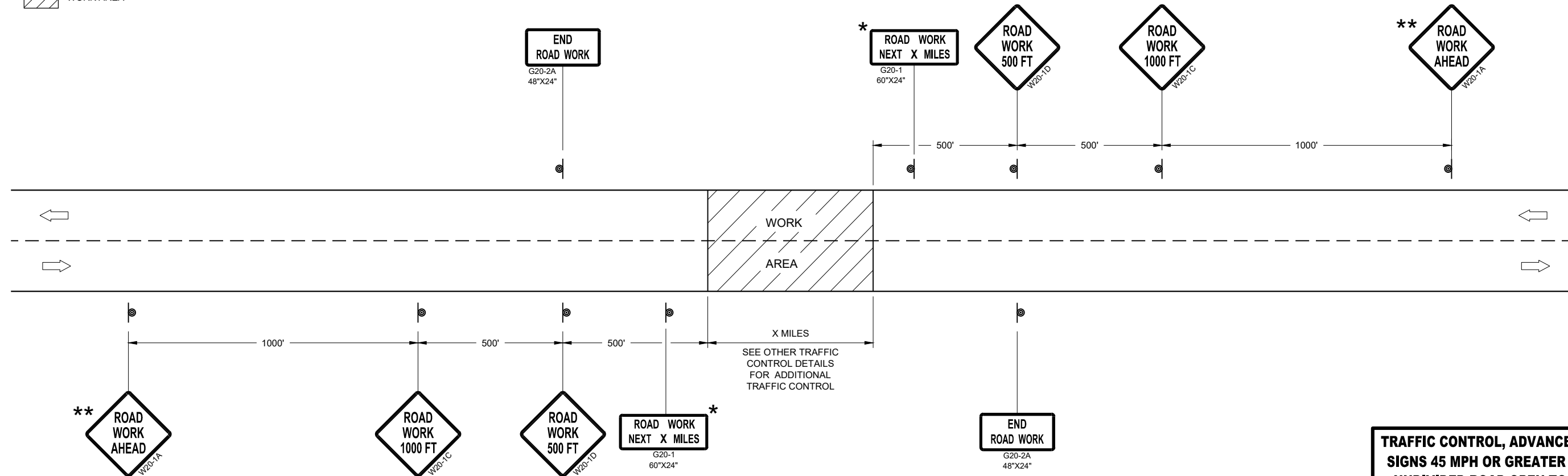
- \* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- \*\* PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

**LEGEND**

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



**TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL**



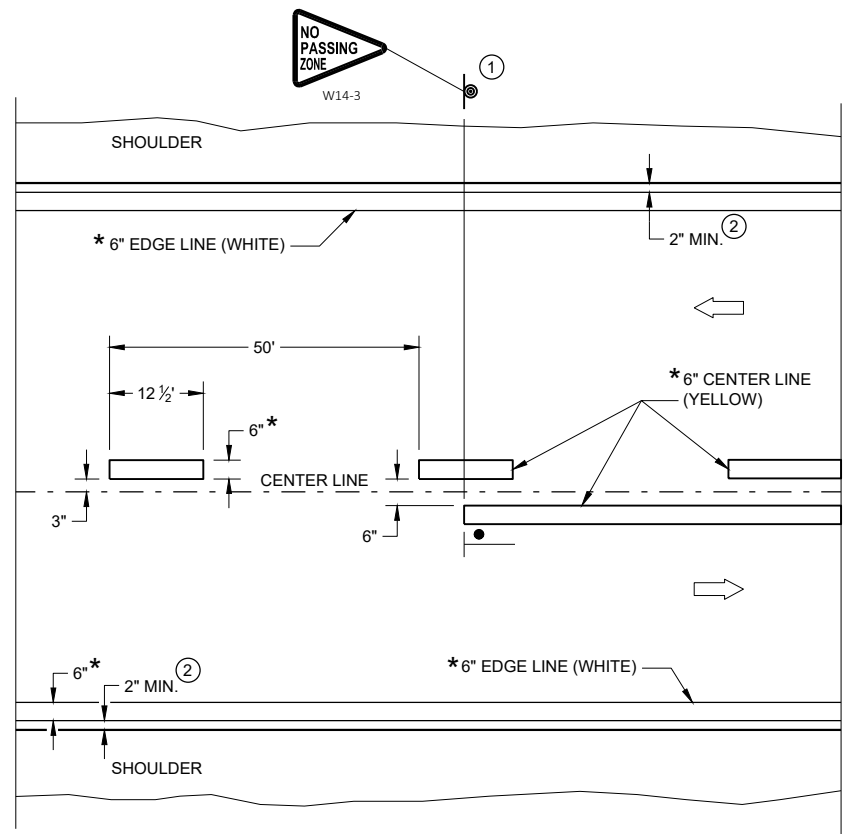
**TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER**

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

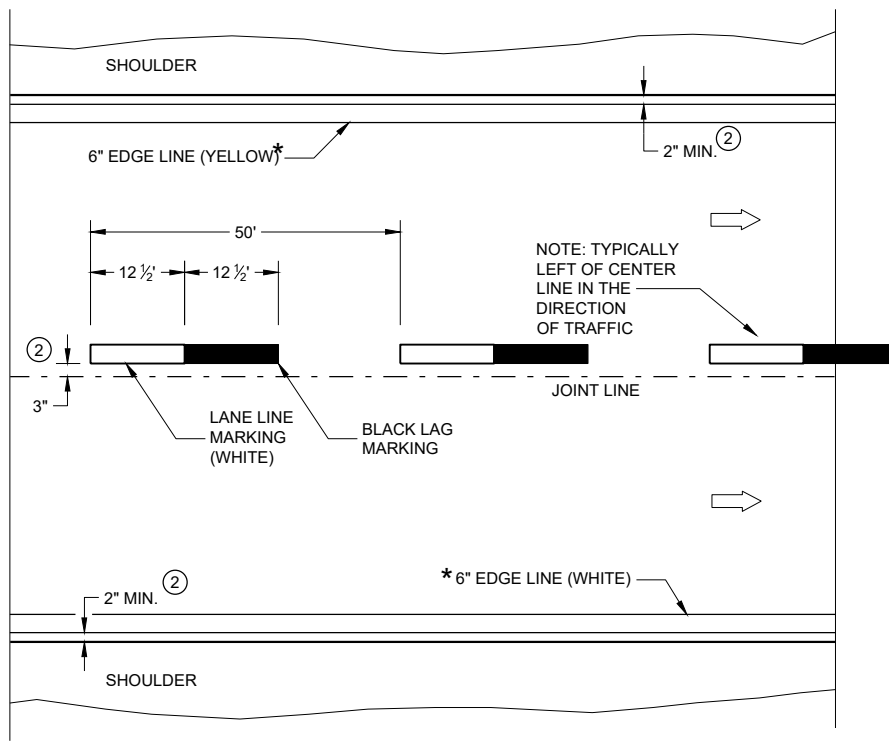
STATE OF WISCONSIN  
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APPROVED  
DATE July 2018 /S/ Andrew Heidtke  
WORK ZONE ENGINEER

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TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

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

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

LEGEND

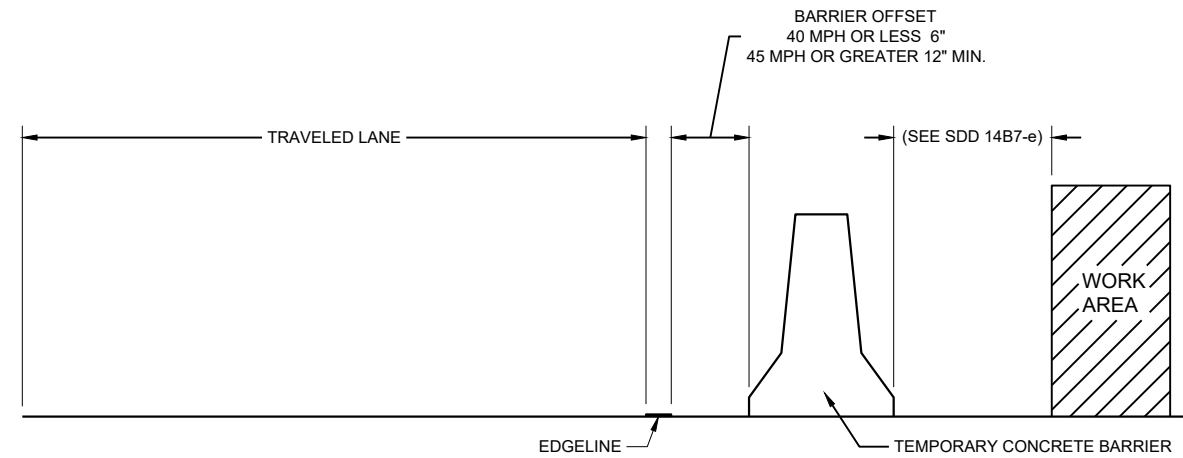
- ⊥ "T" MARKING
- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 May 2023 /S/ Jeannie Silver  
 DATE STATEWIDE SIGNING AND MARKING ENGINEER

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**TEMPORARY BARRIER OFFSET FROM EDGE LINE**

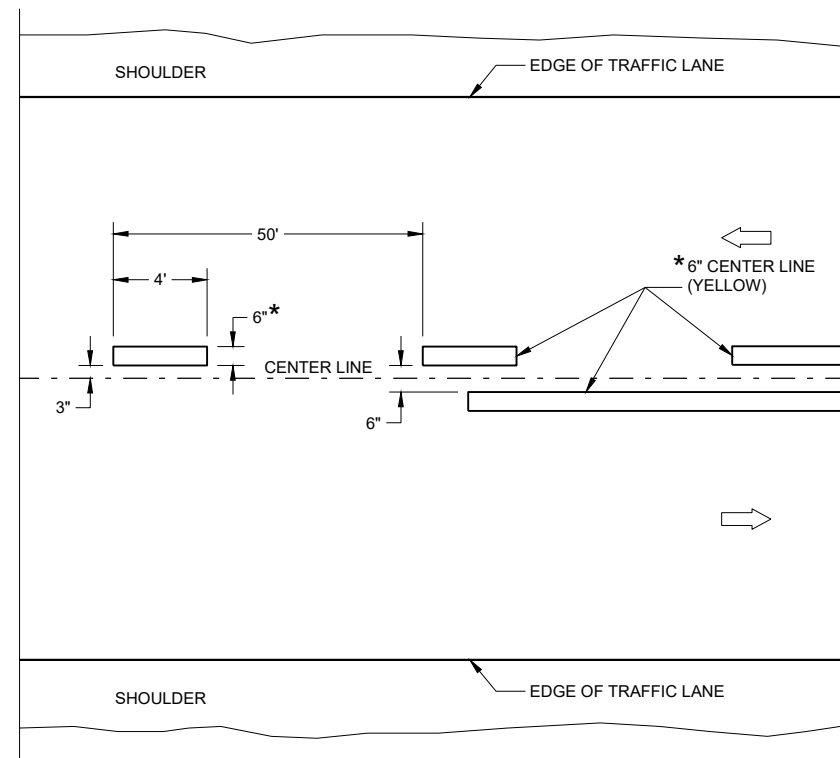
**GENERAL NOTES**

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

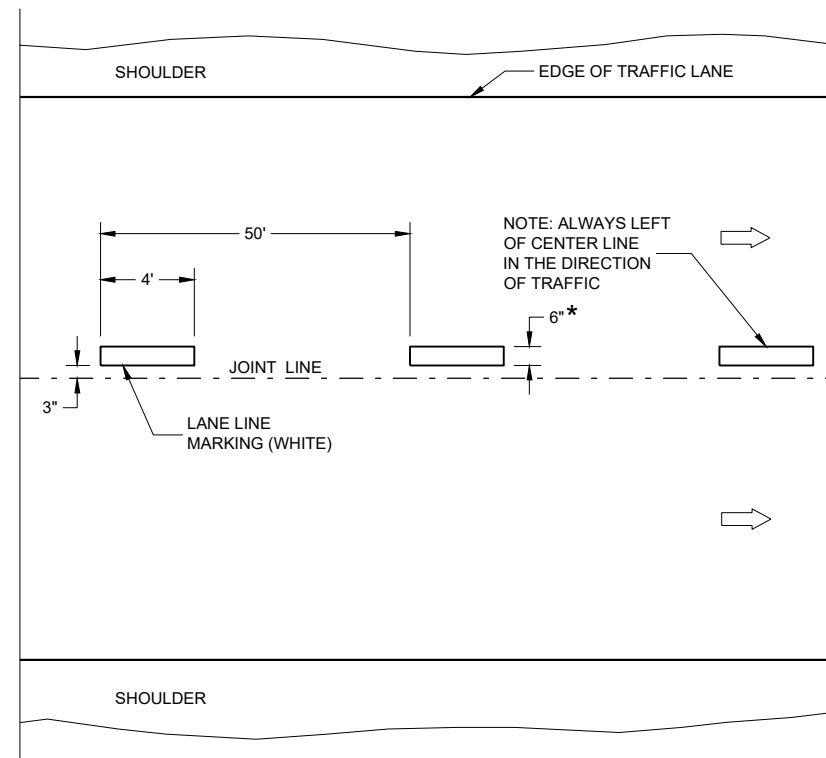
**LEGEND**

➡ DIRECTION OF TRAFFIC

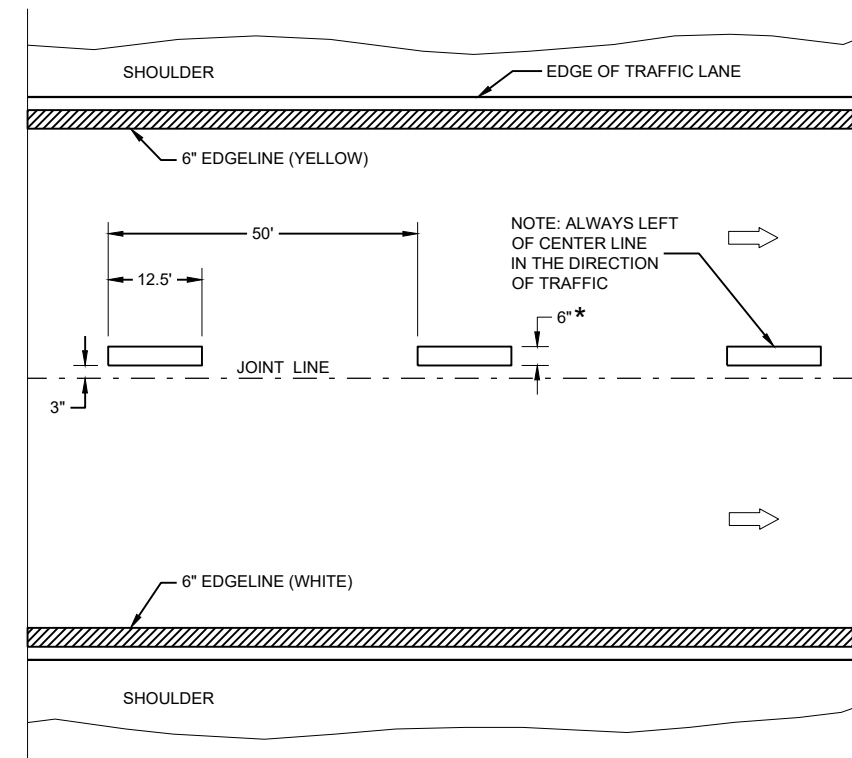
\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**



**FREEWAYS AND EXPRESSWAYS**

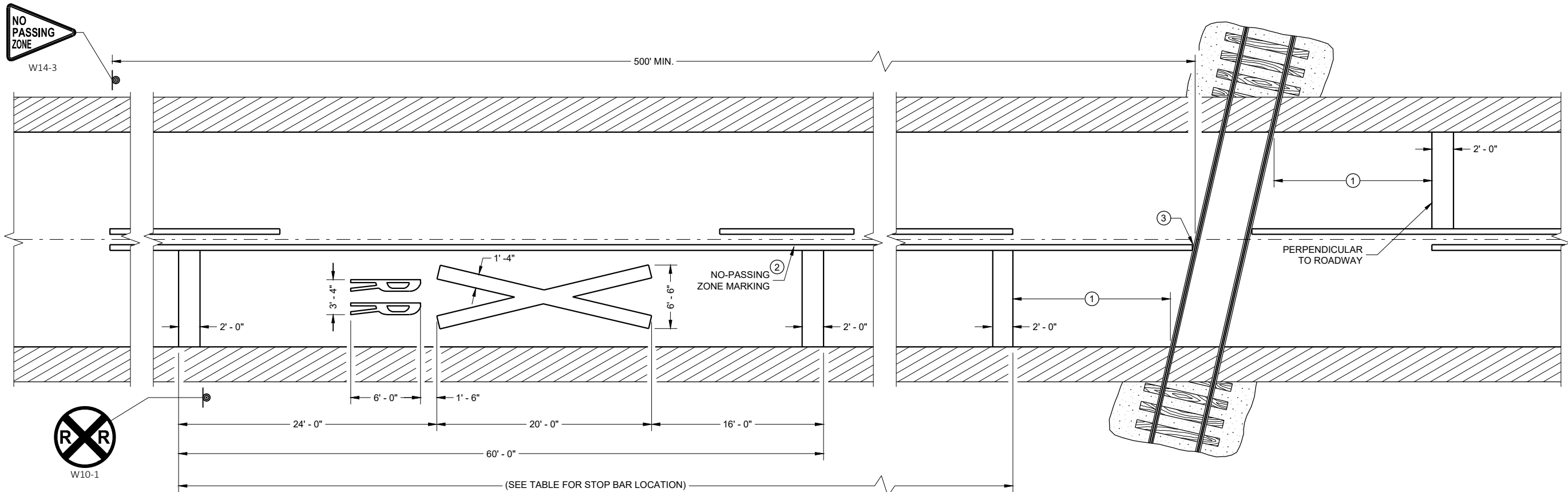
**TEMPORARY PAVEMENT MARKING**

**TEMPORARY LONGITUDINAL PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING  
ENGINEER

FHWA



**PAVEMENT MARKING**

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

**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.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

TRACE EXISTING SYMBOL WHERE EXISTING SYMBOLS ARE PLACED.

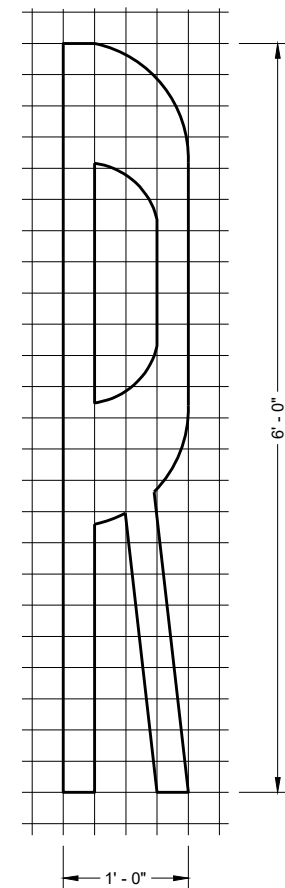
- ① PLACE STOP BAR APPROXIMATELY 8 FEET IN ADVANCE OF THE GATE (IF PRESENT), BUT NO CLOSER THAN 15 FEET IN ADVANCE OF THE NEAREST RAIL. FIELD-FIT STOP BAR TO MAXIMIZE VIEW OF APPROACHING TRAIN.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- ③ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.

**DISTANCE TABLE**

TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

POSTED SPEED (M.P.H.)	DIMENSION RANGE (FEET)
25	150* - 250'
30	200* - 300'
35	250* - 450'
40	300* - 500'
45	400* - 650'
50	550* - 800'
55	750* - 1000'
60	1000* - 1250'
65	1000* - 1250'

\* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSED PROXIMITY OF DRIVEWAYS, BRIDGES, SIDE ROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.

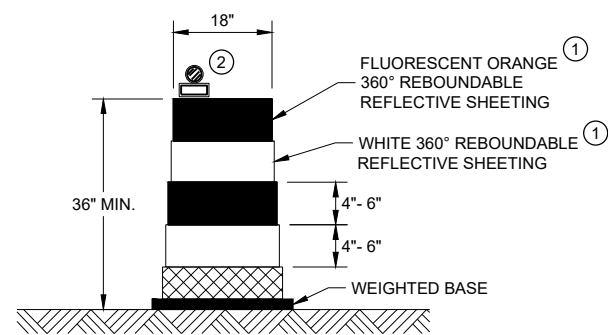


**SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

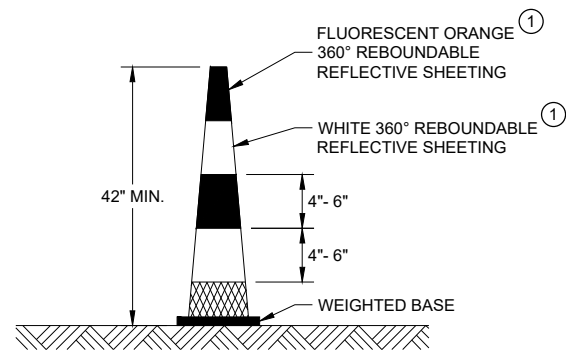
APPROVED  
May 2023 DATE /S/ Matthew R. Rauch  
STATE SIGNING AND MARKING ENGINEER

FHWA



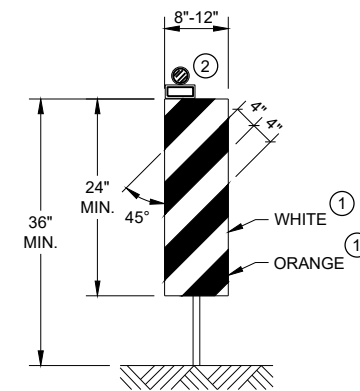
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

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

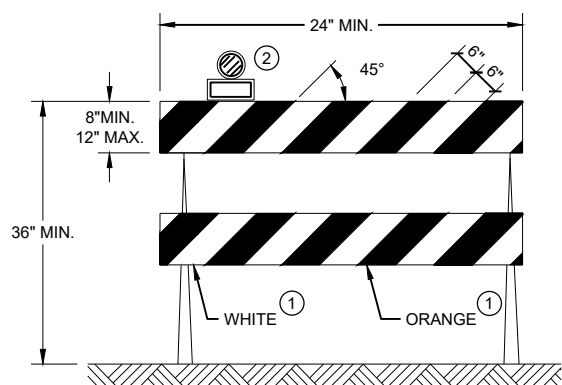


**VERTICAL PANEL**

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

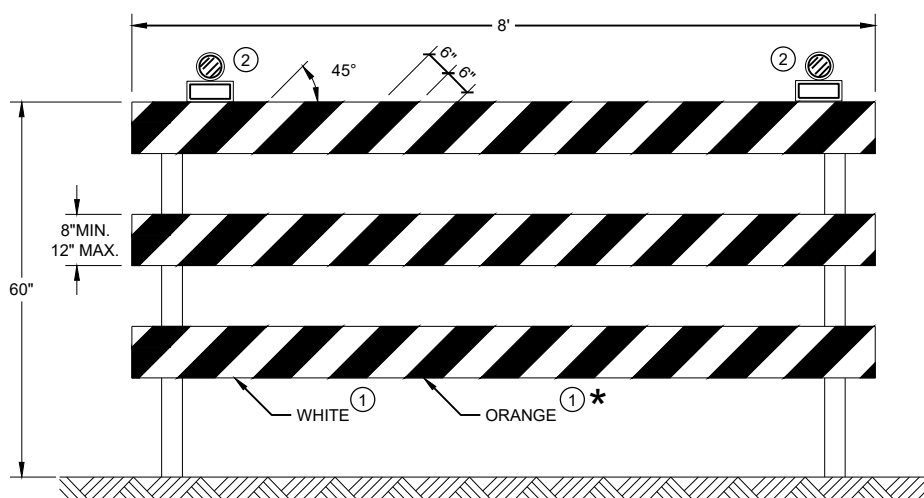
**GENERAL NOTES**

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



**TYPE II BARRICADE**

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



**TYPE III BARRICADE**

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

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.






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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /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.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

**TEMPORARY PORTABLE RUMBLE STRIPS**

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

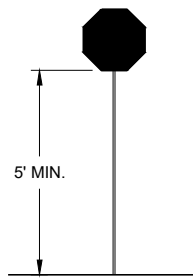
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



**STOP/SLOW PADDLE ON SUPPORT STAFF**

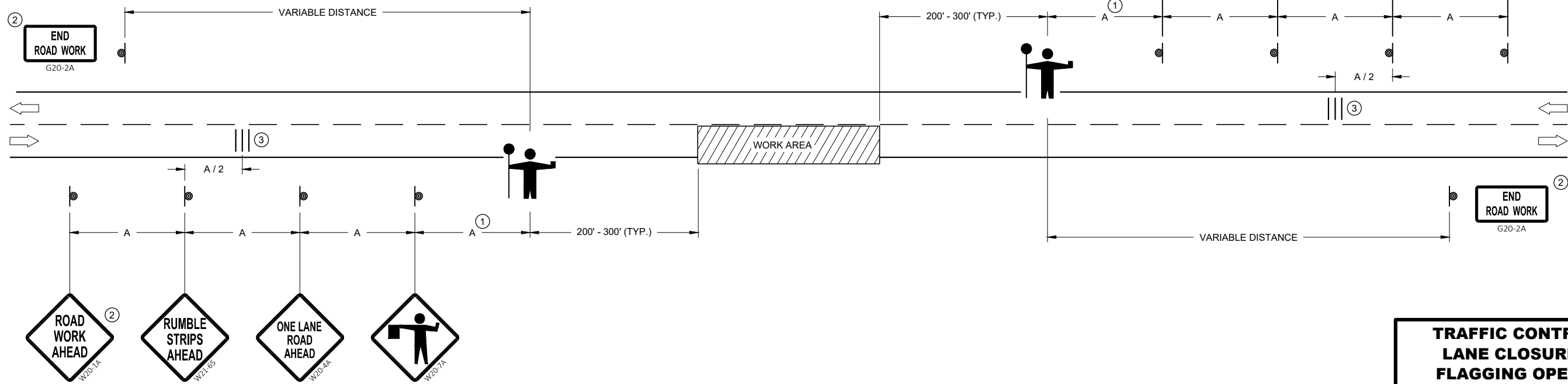
**SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE**

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



W03-4

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



**TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION**





STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2022 /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.

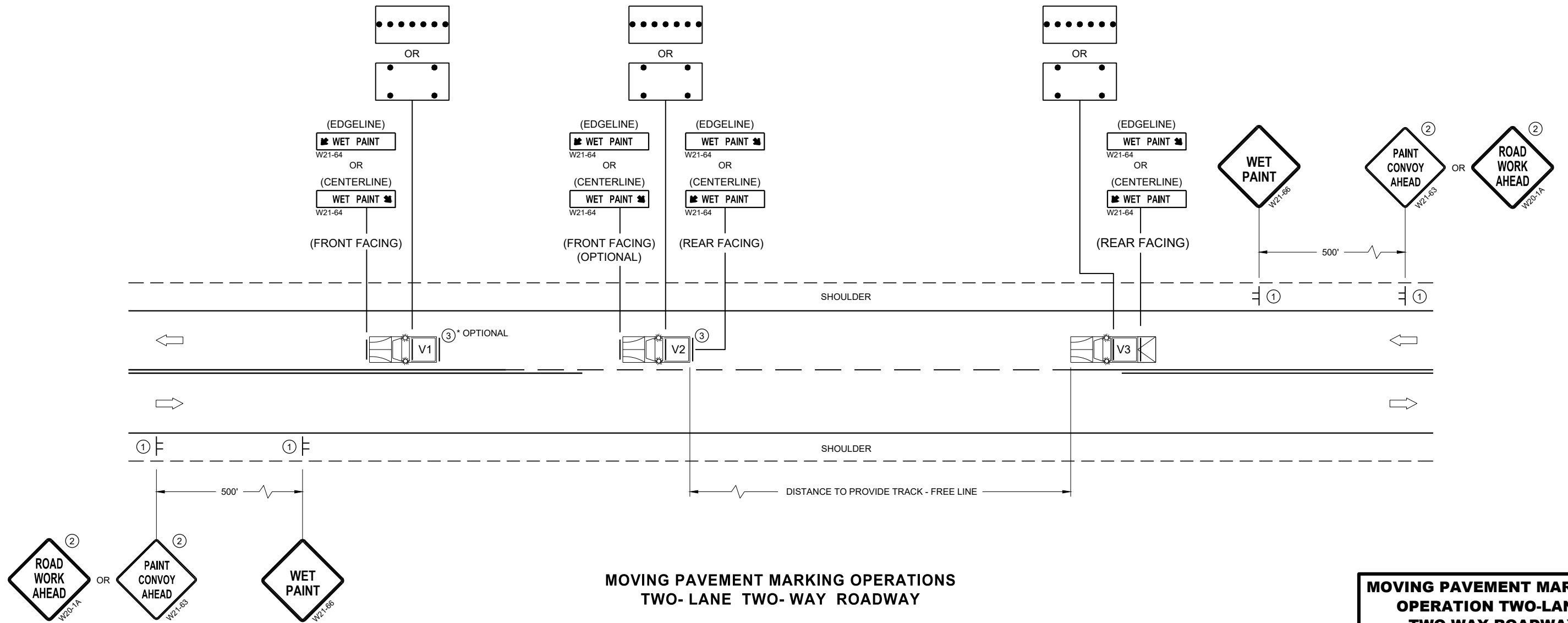
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" 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.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.

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

SDD 15C19-08a

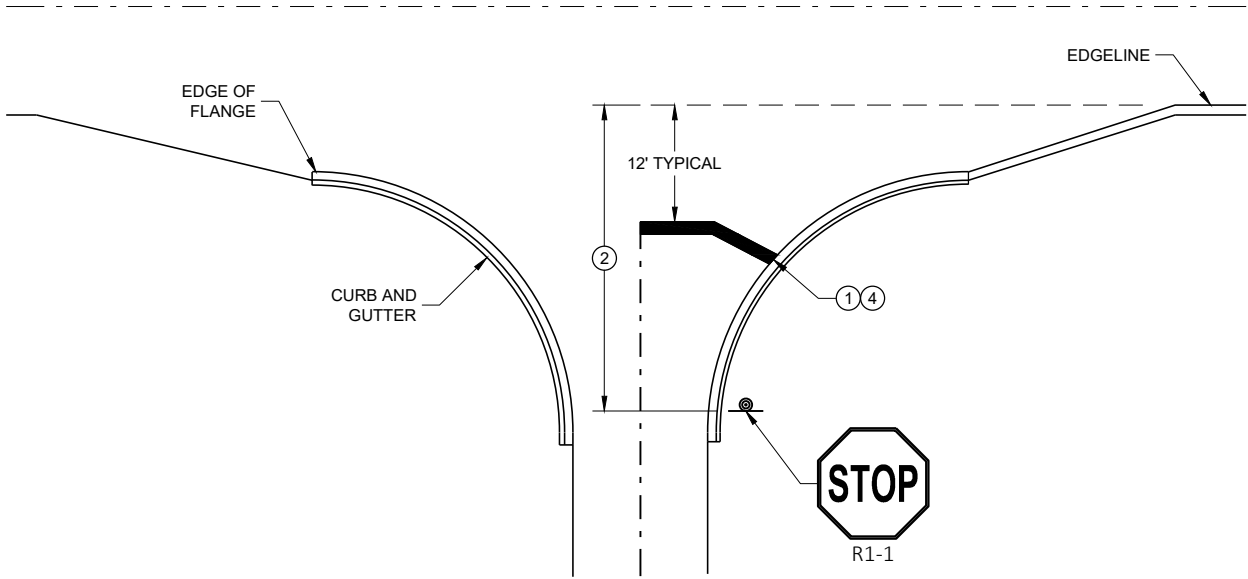
SDD 15C19-08a

<b>MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

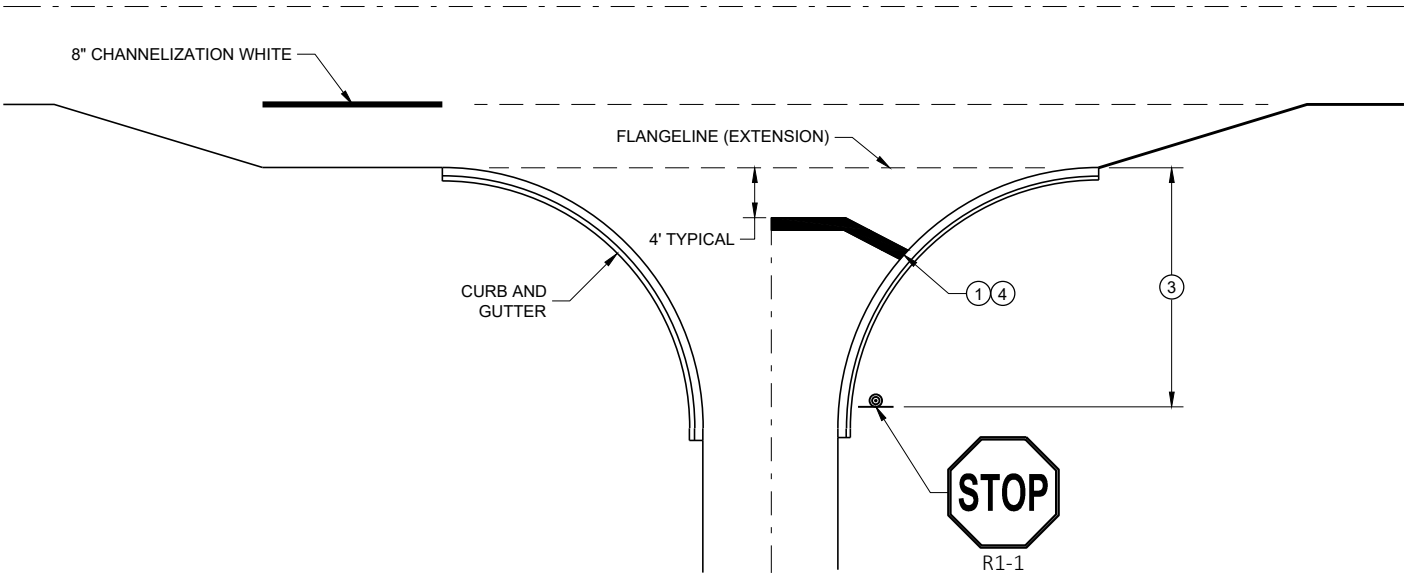
**GENERAL NOTES**

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

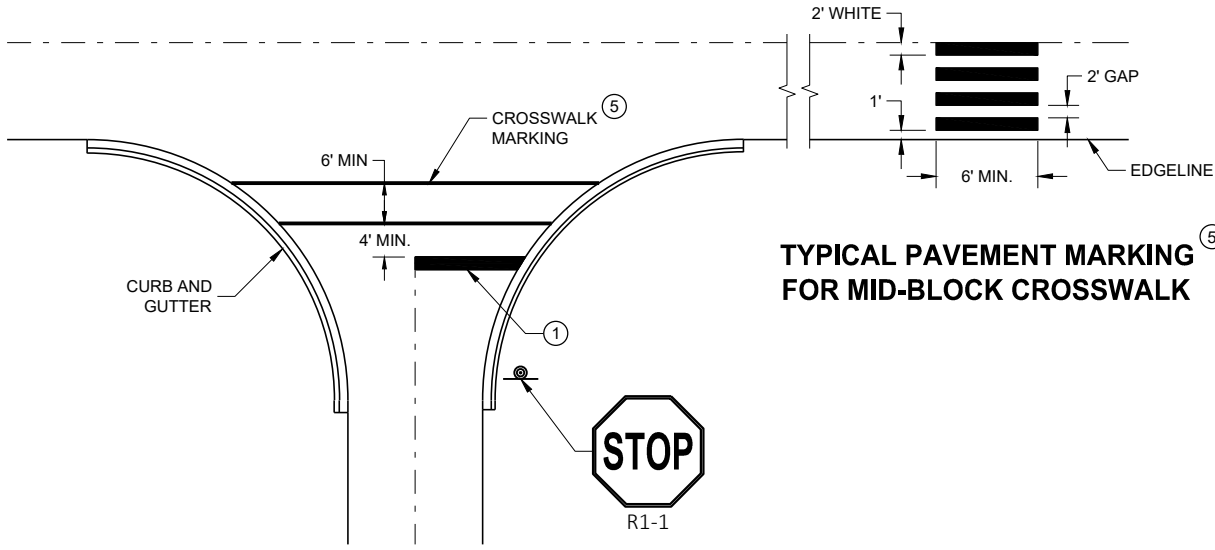
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE 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.



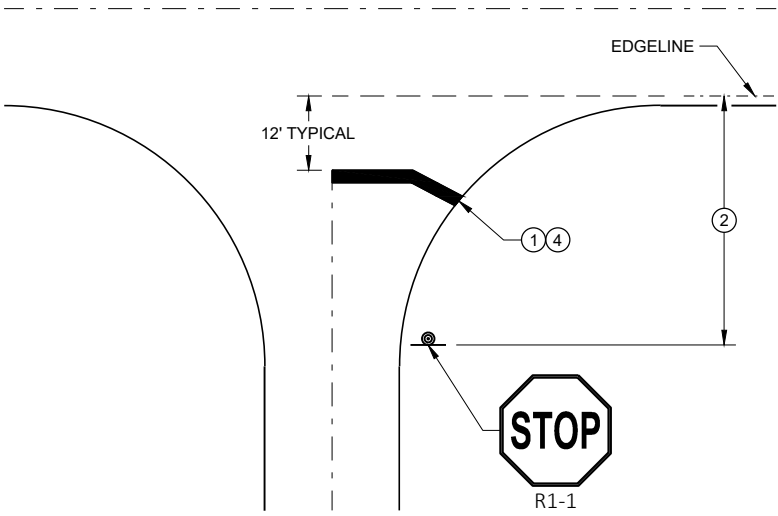
**TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER**



**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE**



**TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING**



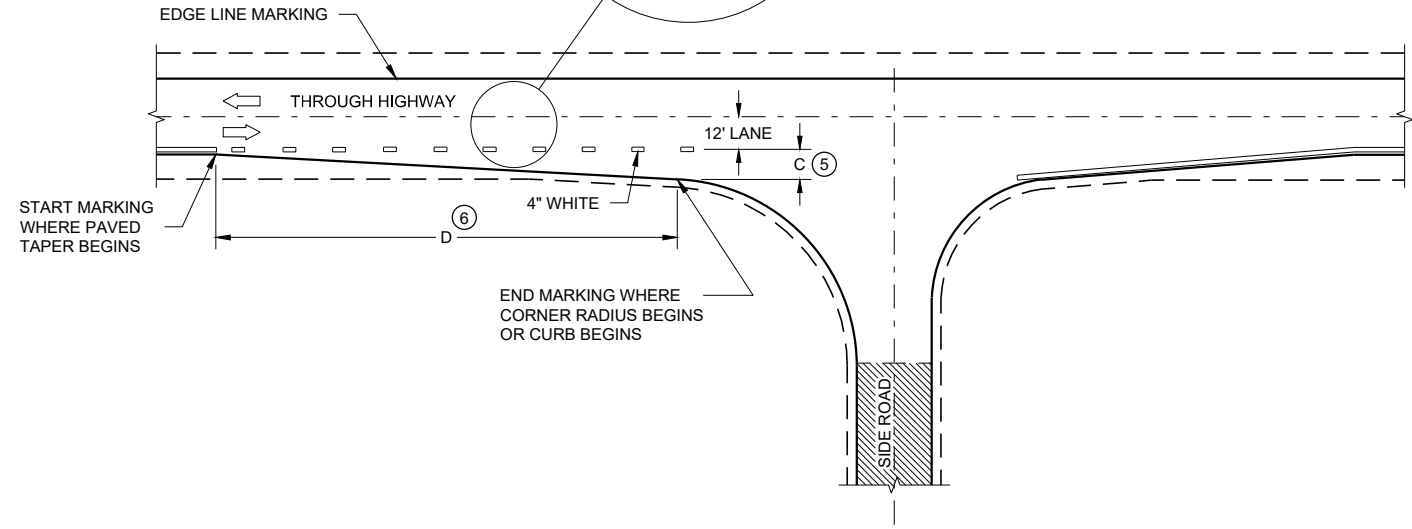
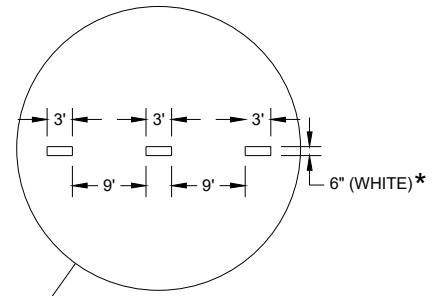
**TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER**

**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**

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

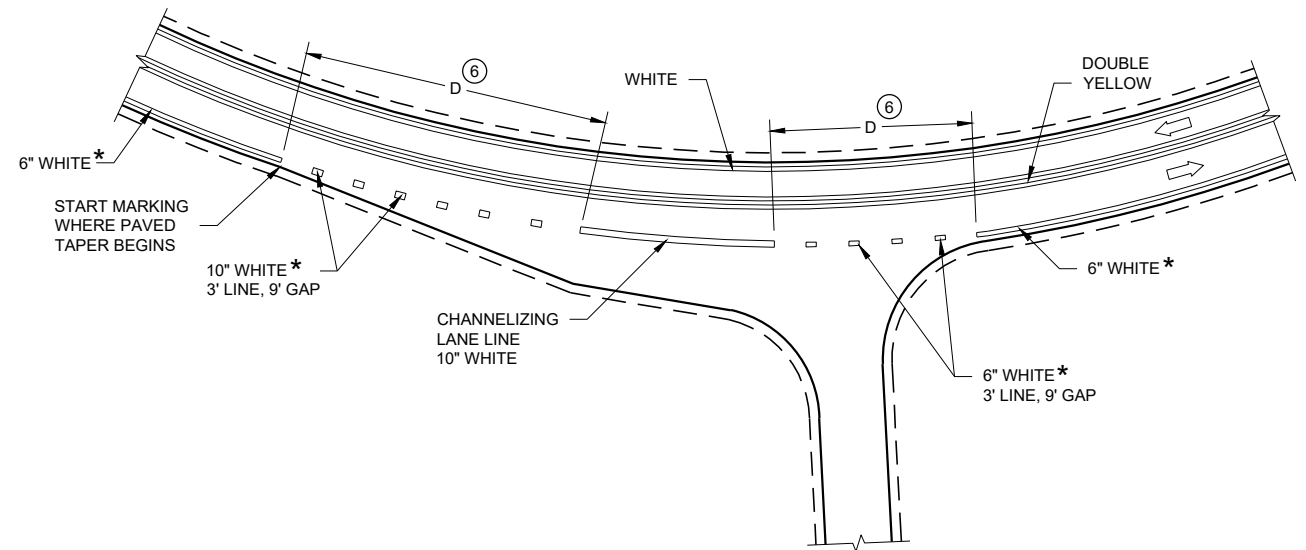
**GENERAL NOTES**

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

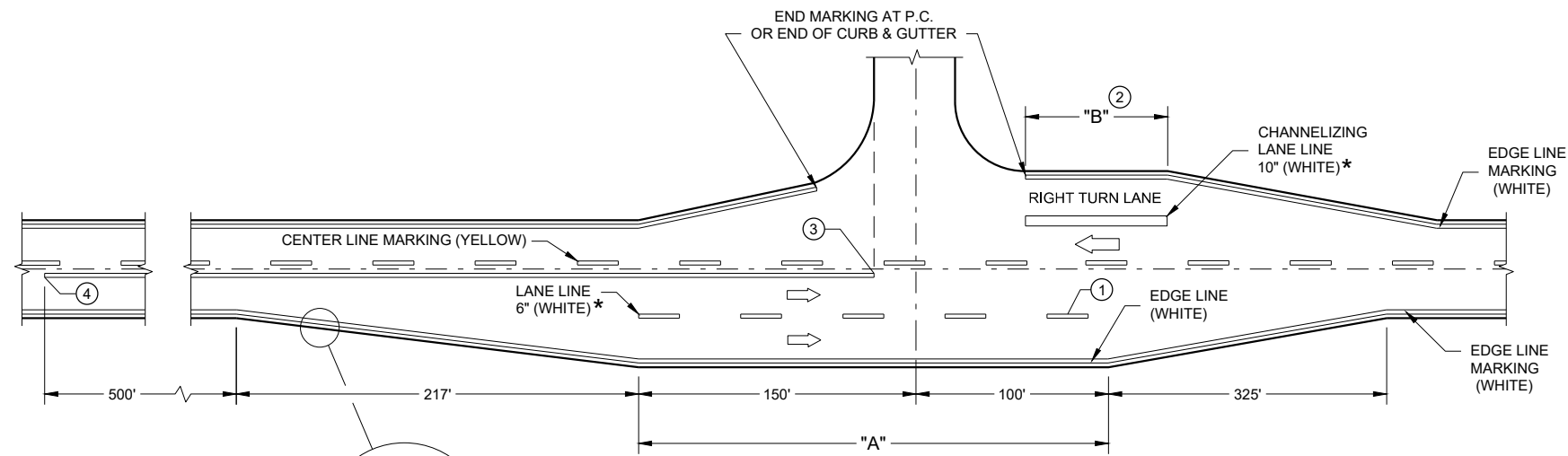
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4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

**LEGEND**

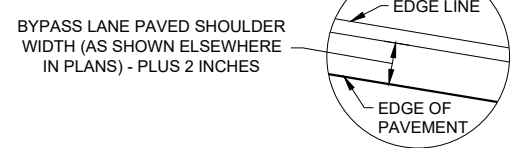
➡ DIRECTION OF TRAVEL



**INTERSECTION ON OUTSIDE OF CURVE**



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







BYPASS LANE PAVED SHOULDER WIDTH (AS SHOWN ELSEWHERE IN PLANS) - PLUS 2 INCHES

**PAVEMENT MARKING  
(INTERSECTIONS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

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

**GENERAL NOTES**

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

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

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

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

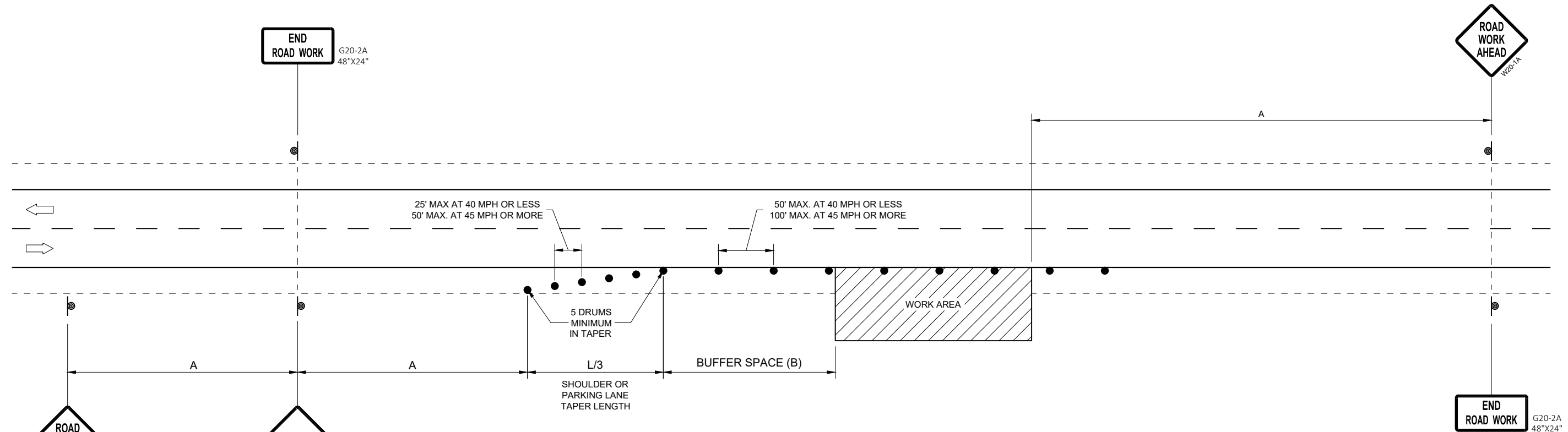
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

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OR  
IF TRAFFIC CONTROL DEVICES  
ENCROACH ONTO TRAVELED WAY, USE

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

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

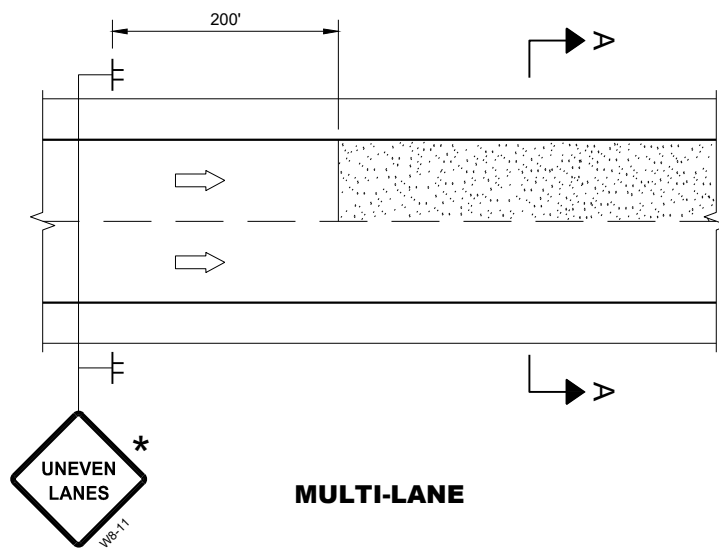
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

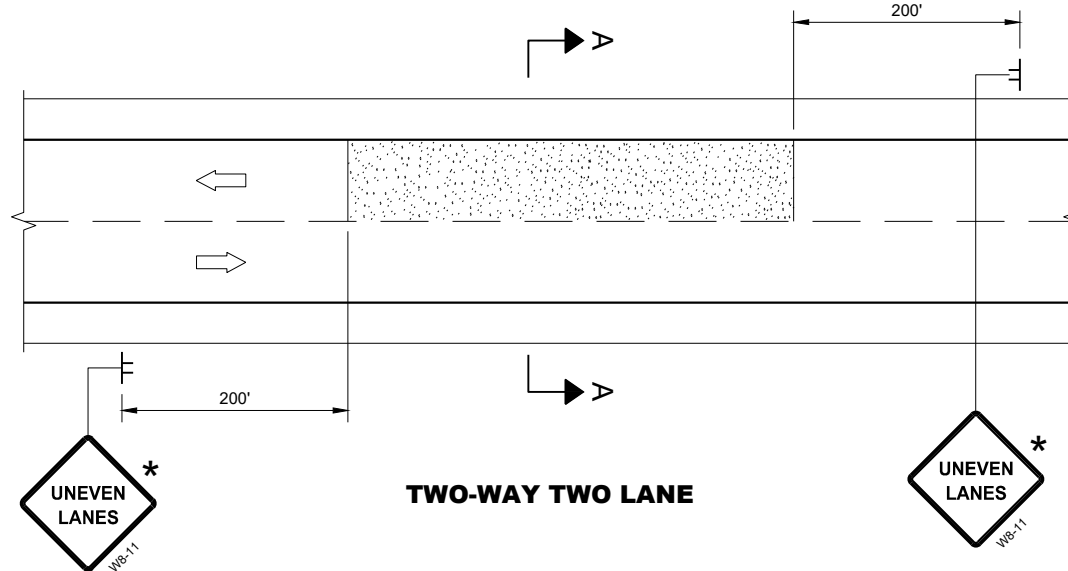
FHWA

SDD 15D28 - 04

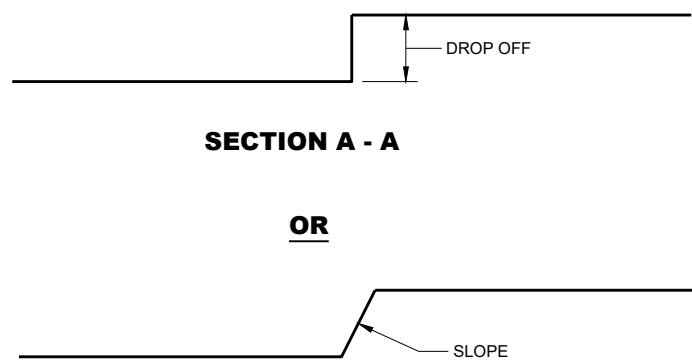
SDD 15D28 - 04



**MULTI-LANE**



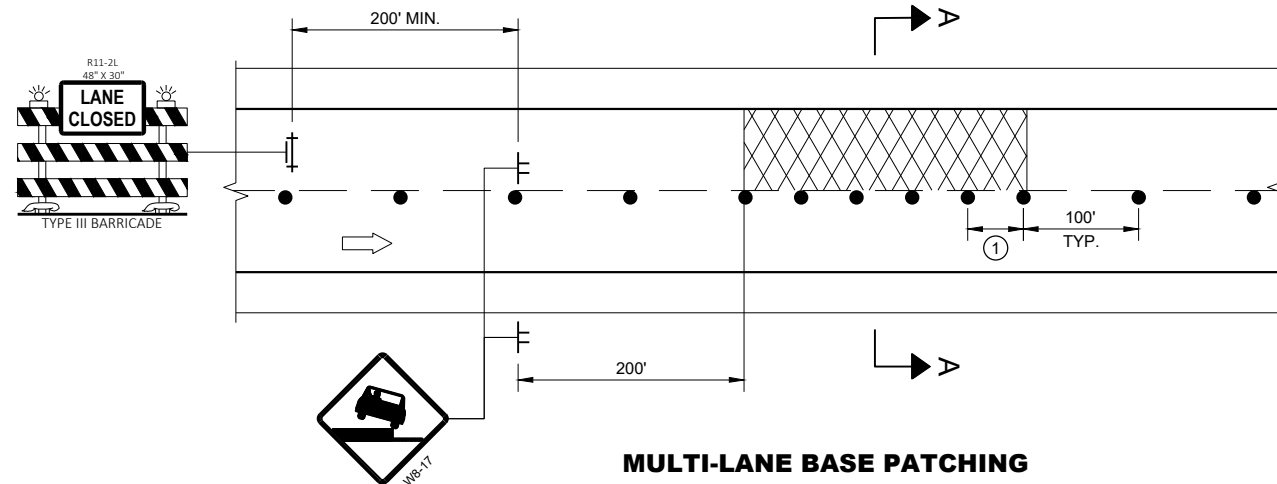
**TWO-WAY TWO LANE**



**SECTION A - A**

**OR**

**SECTION A - A**



**MULTI-LANE BASE PATCHING**

**ADJACENT LANE DROP-OFFS**

**GENERAL NOTES**

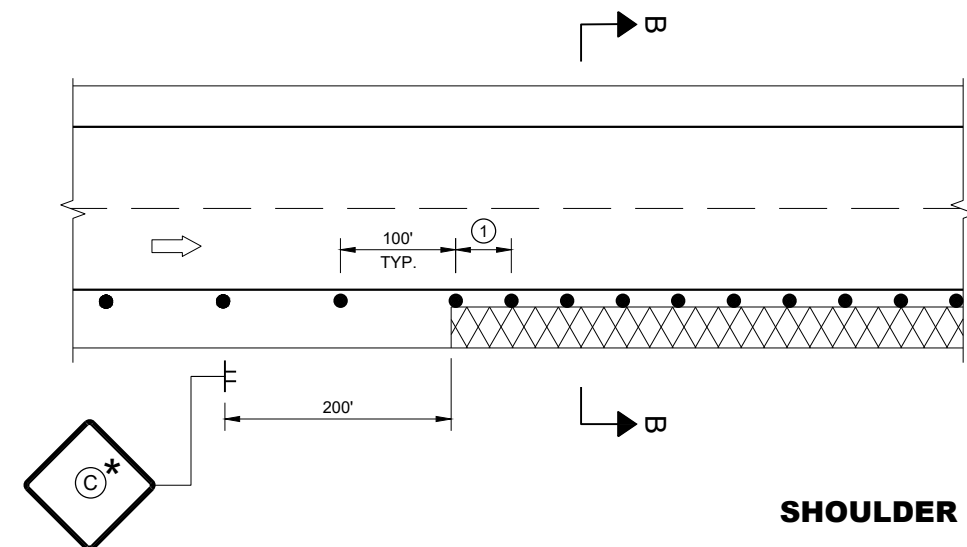
- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- \* IF THE DROP-OFF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

**LEGEND**

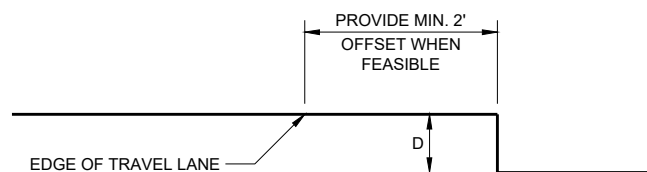
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

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**SHOULDER DROP-OFFS**



**SECTION B - B**

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

SDD 15D39 - 02

SDD 15D39 - 02

**TRAFFIC CONTROL,  
DROP-OFF SIGNING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

**GENERAL NOTES**

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

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

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

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

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

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

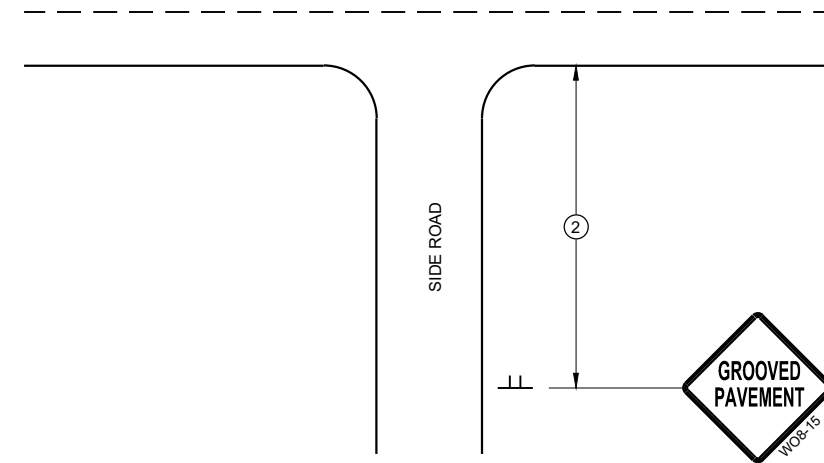
SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

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

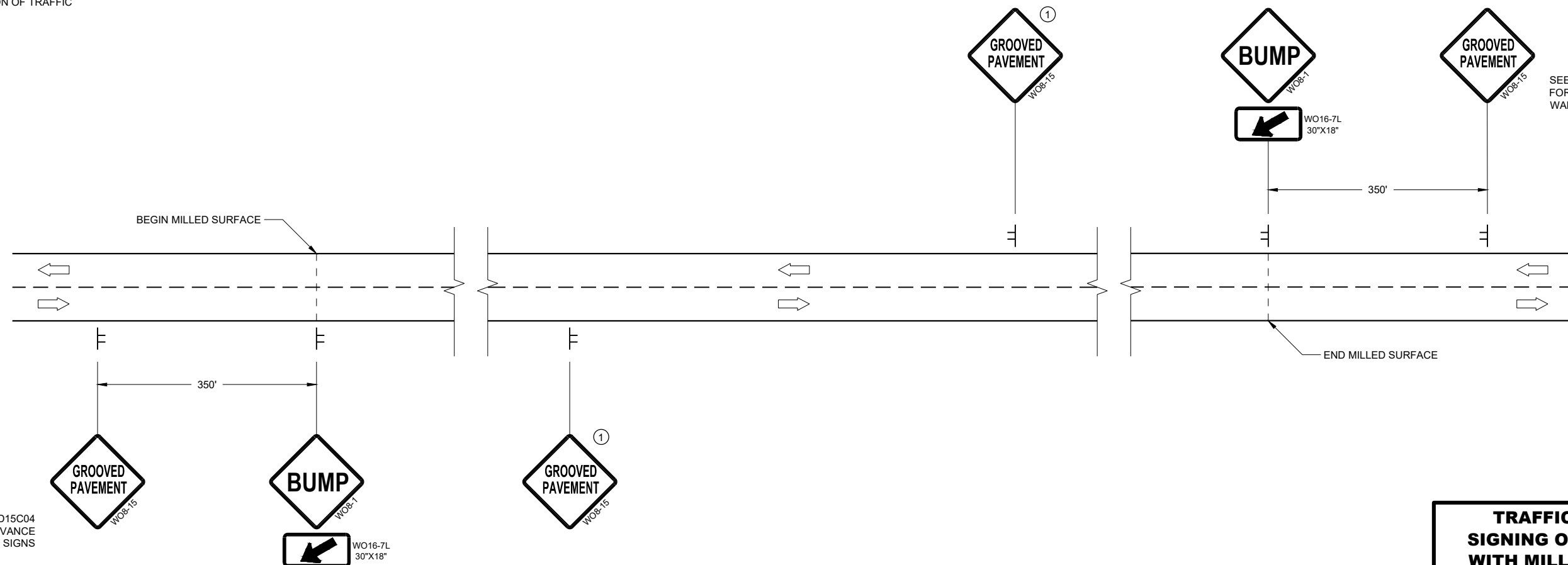
**LEGEND**

⌄ SIGN ON TEMPORARY SUPPORT

➡ DIRECTION OF TRAFFIC



**TYPICAL SIDE ROAD APPROACH SIGN DETAIL**



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**

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.

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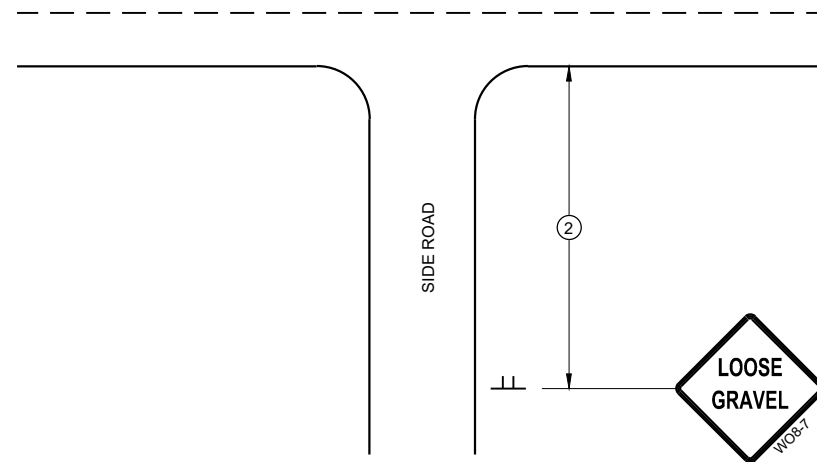
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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

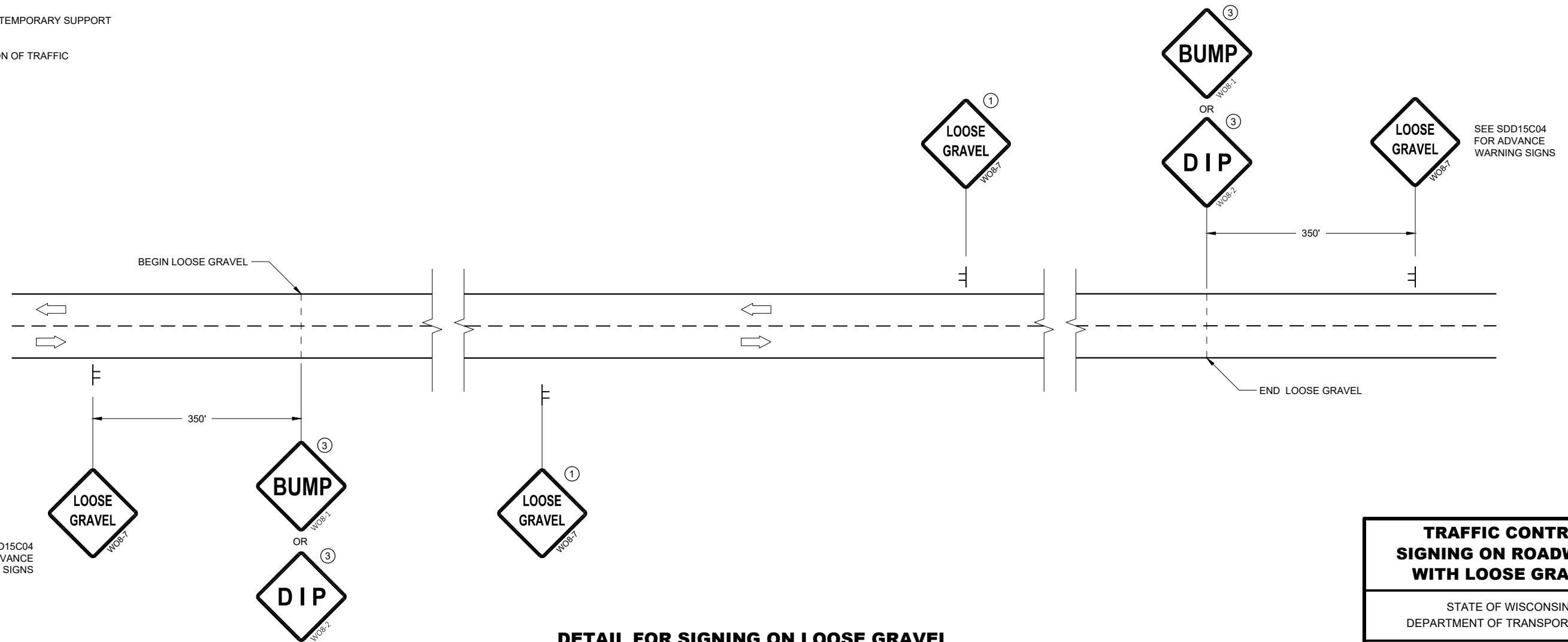
- ① PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- ② PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.
- ③ ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

**LEGEND**

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



**TYPICAL SIDE ROAD APPROACH SIGN DETAIL**



**DETAIL FOR SIGNING ON LOOSE GRAVEL OR CHIP SEALED SURFACES**

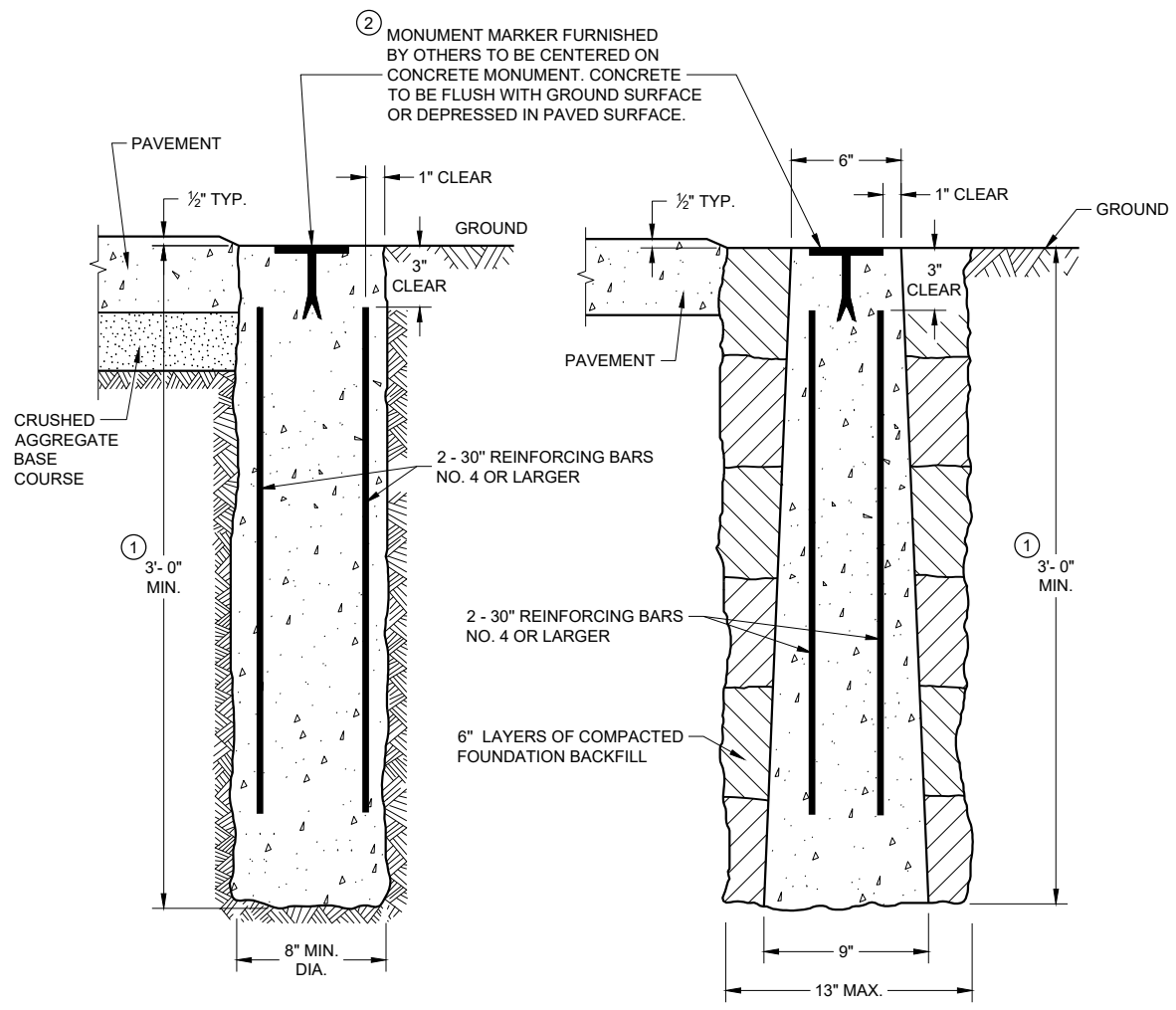
SEE SDD15C04 FOR ADVANCE WARNING SIGNS

**TRAFFIC CONTROL SIGNING ON ROADWAYS WITH LOOSE GRAVEL**

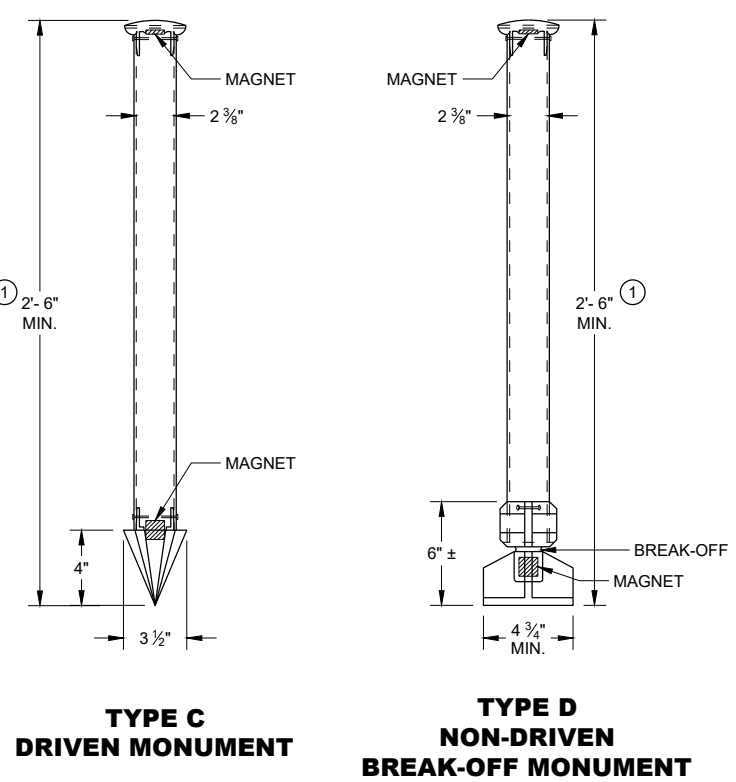
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**CAST-IN-PLACE  
CONCRETE MONUMENTS  
TYPE A**



**ALUMINUM MONUMENTS  
(INCLUDES MARKER)**

**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.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

PERMANENT MAGNETS SHALL BE INSERTED NEAR THE TOP AND BOTTOM OF ALL ALUMINUM MONUMENTS SO THE MONUMENT CAN EASILY BE DETECTED BY A METAL DETECTOR.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

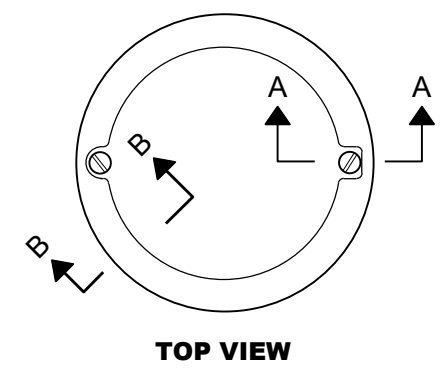
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

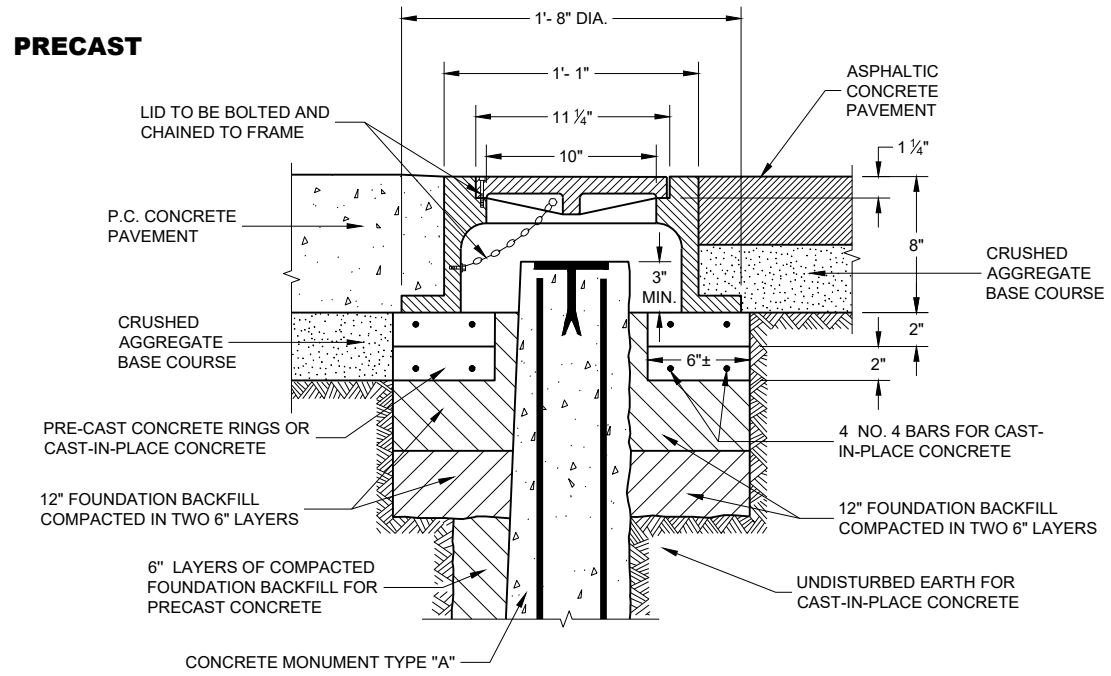
THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

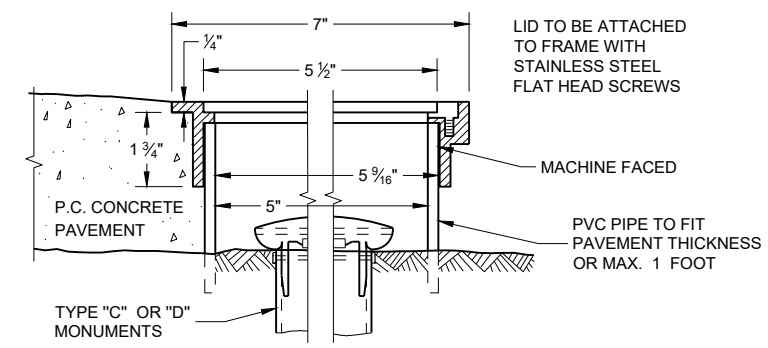
① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.  
② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WISDOT MARKER.



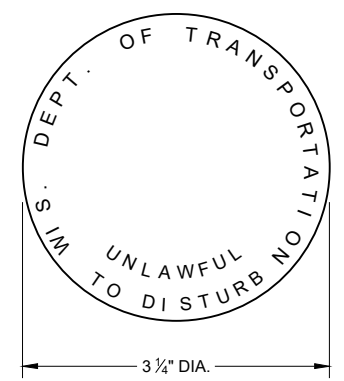
**TOP VIEW**



**CAST IRON MONUMENT COVER  
(APPROXIMATE WEIGHT 95 LBS)**



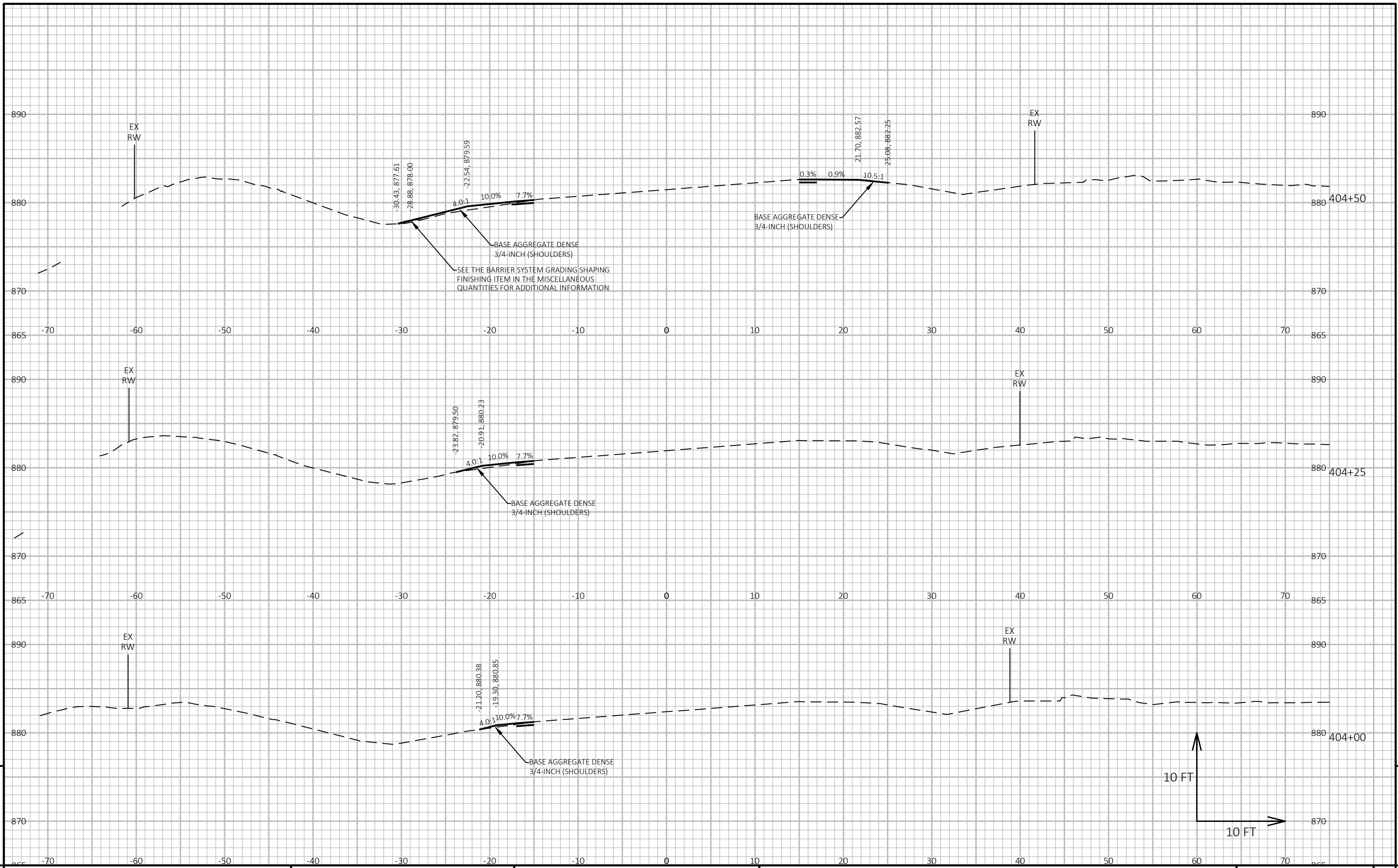
**SECTION B-B SECTION A-A  
ALUMINUM MONUMENT COVER  
(APPROXIMATE WEIGHT 2 LBS)  
(FOR CONCRETE PAVEMENT ONLY)**



② **WIS DOT MONUMENT MARKER LOGO**  
FOR TYPES "A", "C" & "D"

LANDMARK REFERENCE MONUMENTS AND COVERS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/s/ Raymond A. Kumapayii CHIEF SURVEYING AND MAPPING ENGINEER
FHWA	



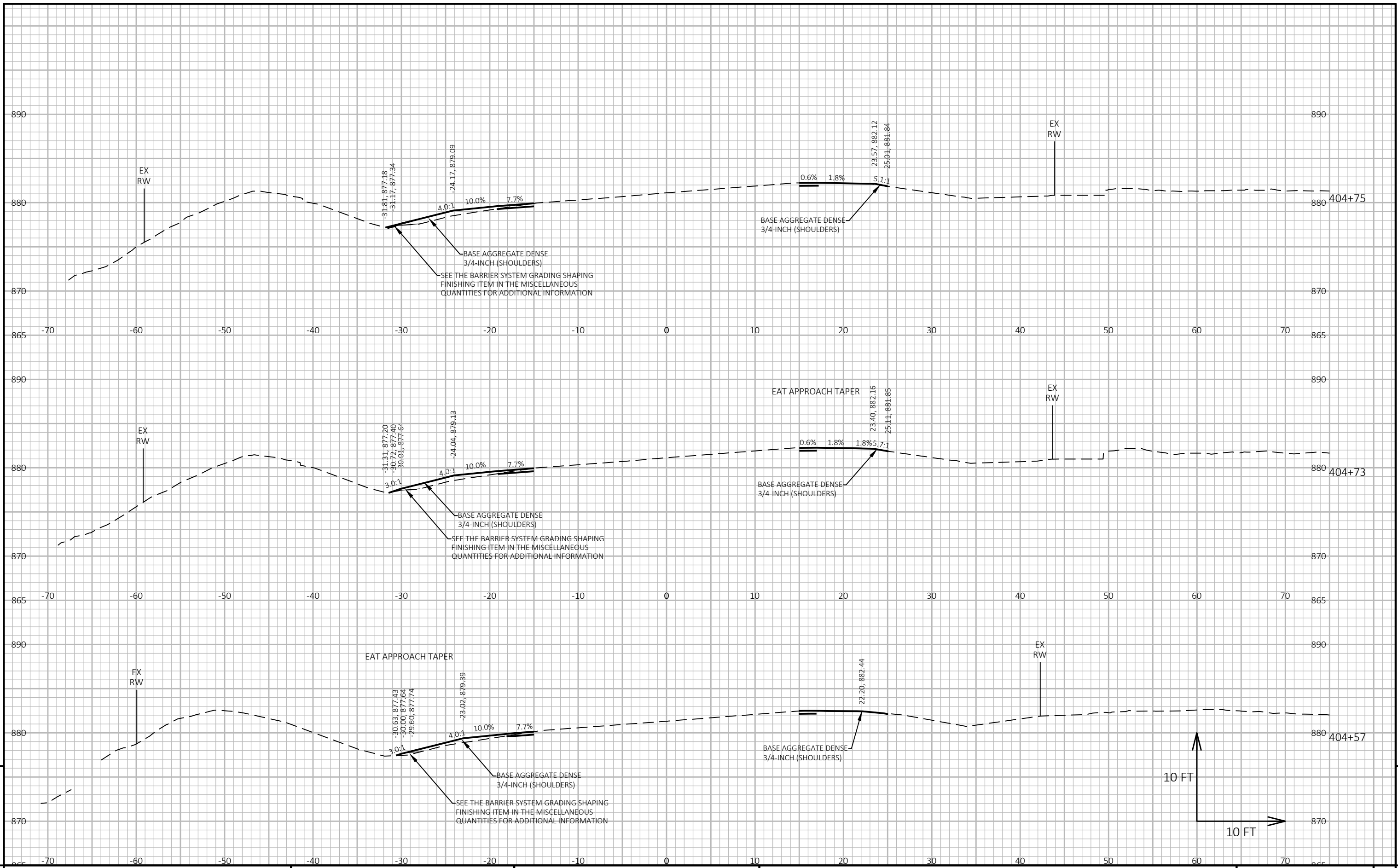


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PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	CROSS SECTIONS: MILL CREEK	SHEET	E
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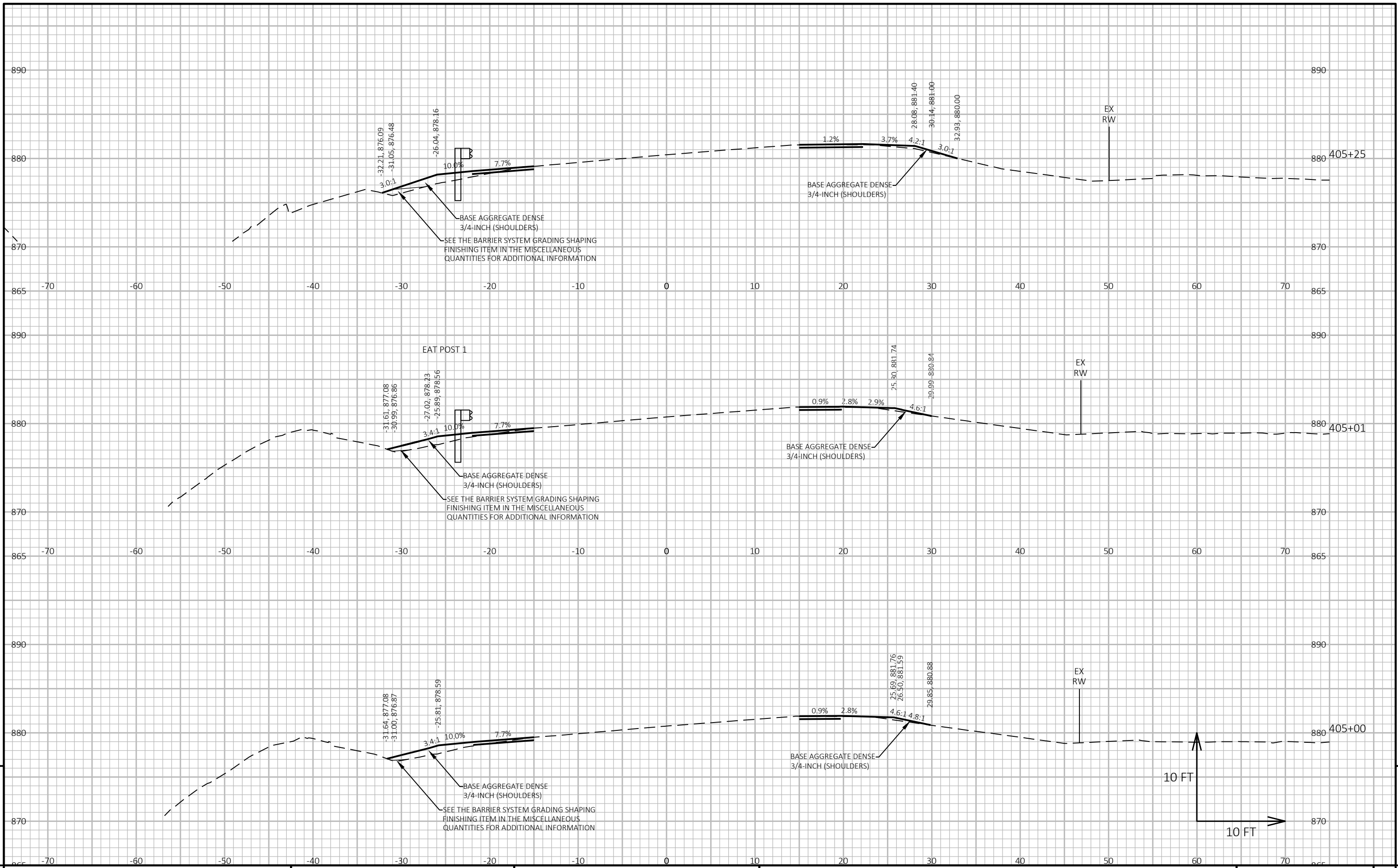
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 PLOT BY : EDERER, BRAD  
 PLOT NAME :  
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.  
 WISDOT/CADD SHEET 49



PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: MILL CREEK      SHEET      E

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LAYOUT NAME - 090202\_xs



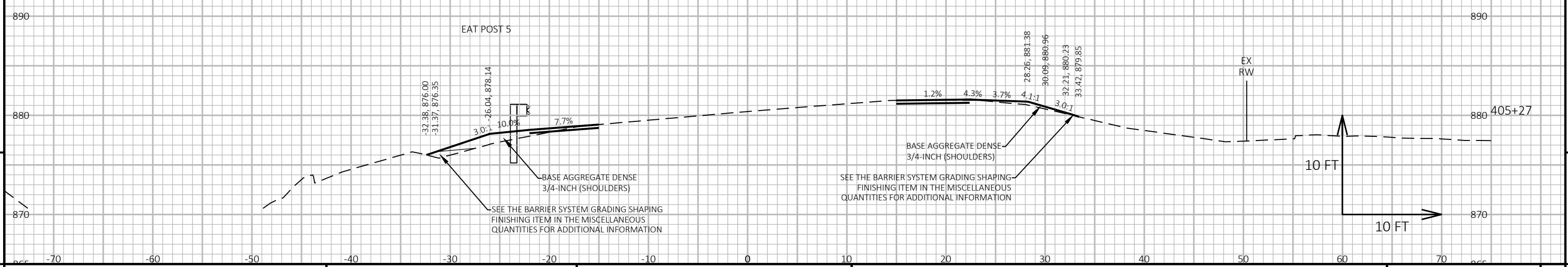
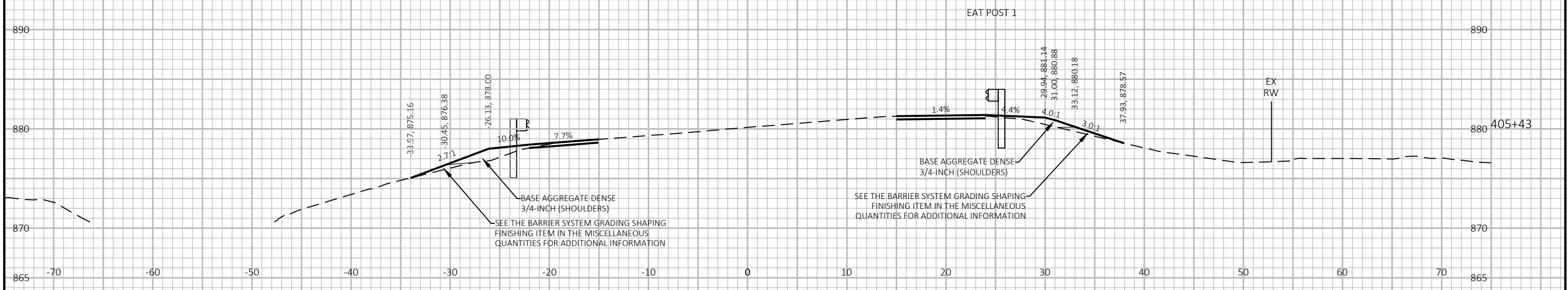
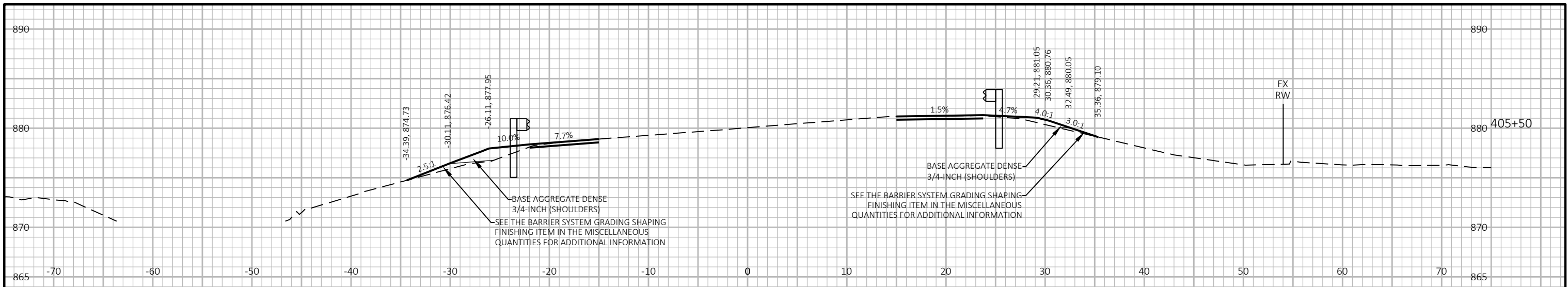
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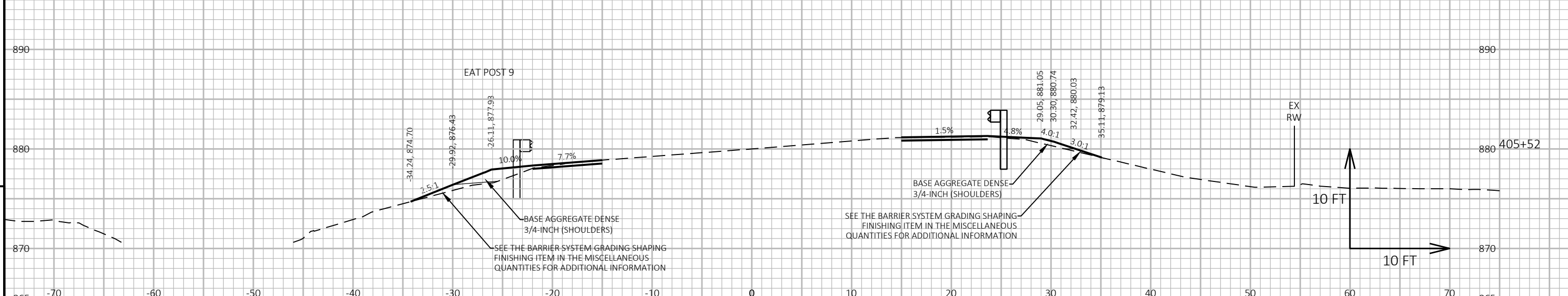
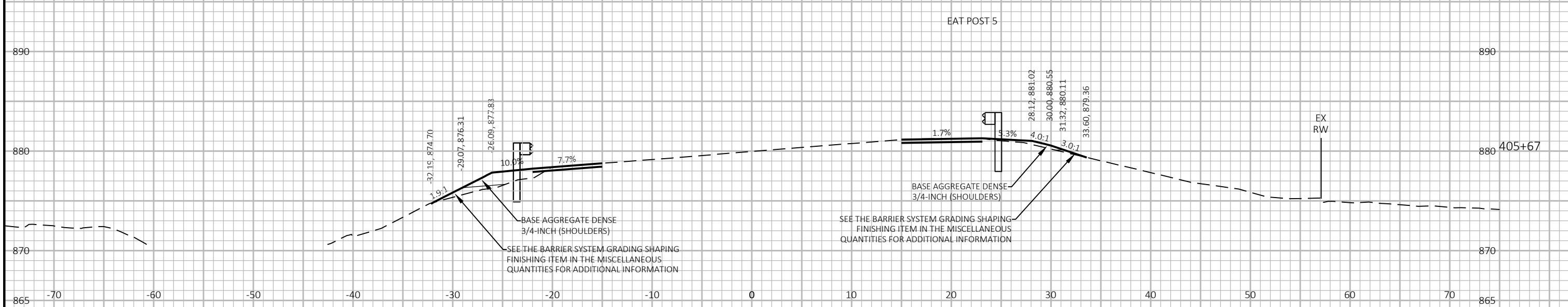
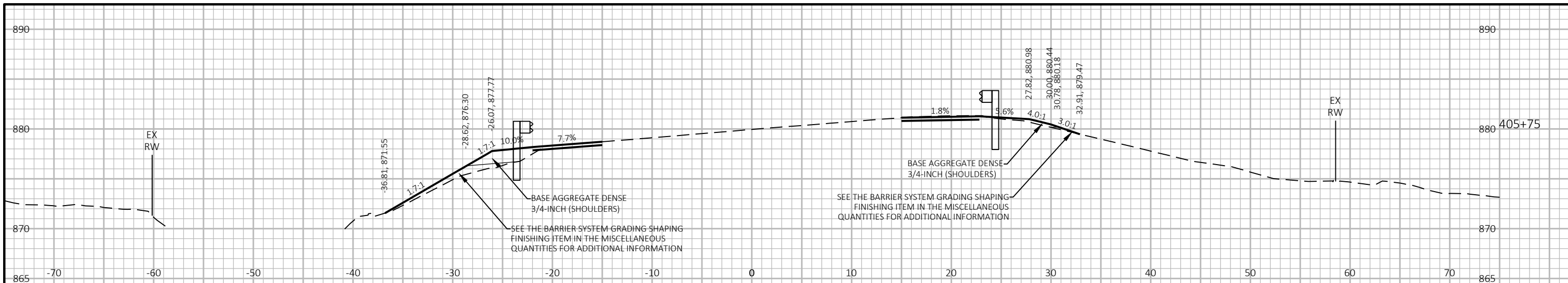
PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: MILL CREEK      SHEET      E

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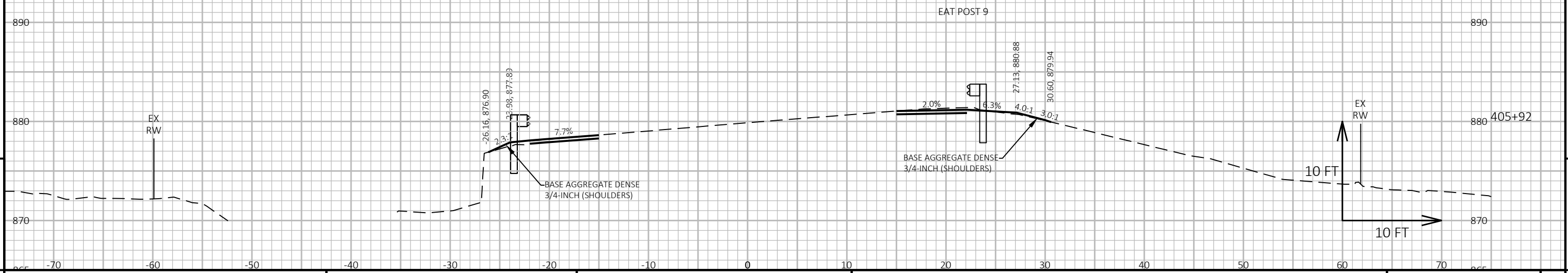
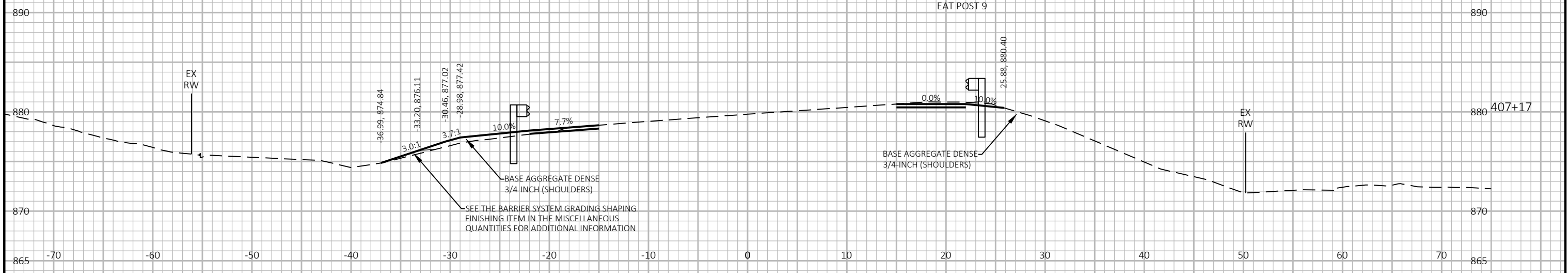
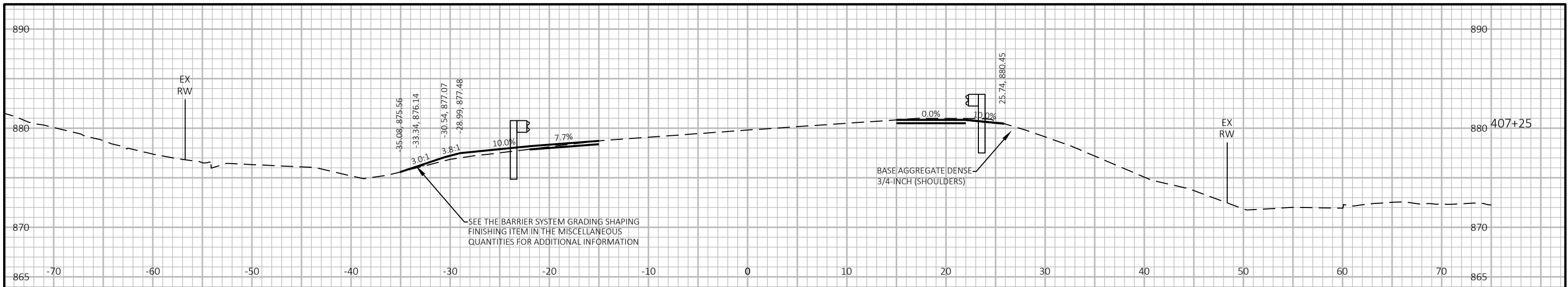
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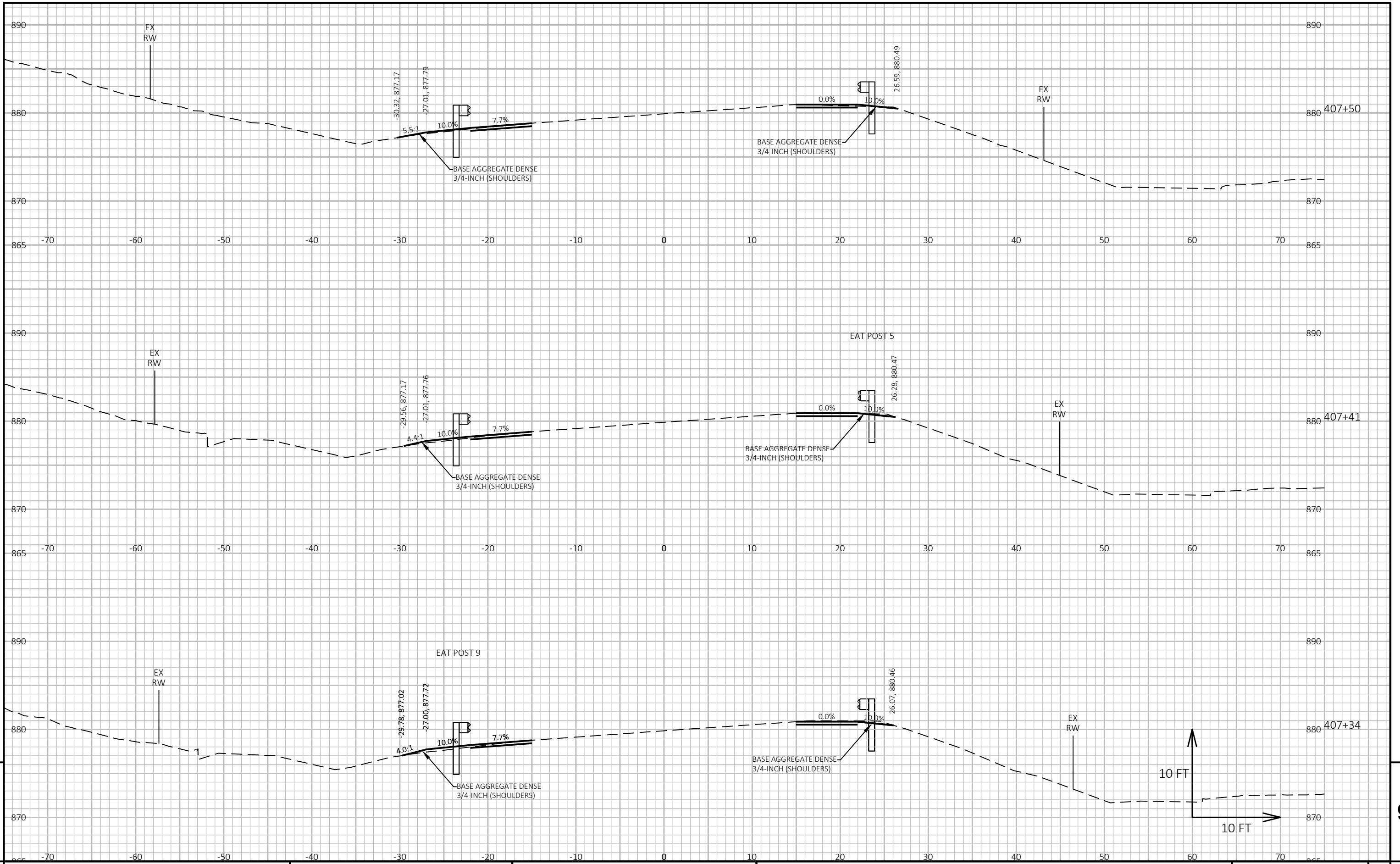
PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: MILL CREEK      SHEET: 9



PROJECT NO: 1390-06-70 HWY: STH 26 COUNTY: DODGE CROSS SECTIONS: MILL CREEK SHEET E



PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: MILL CREEK      SHEET      E



PROJECT NO: 1390-06-70

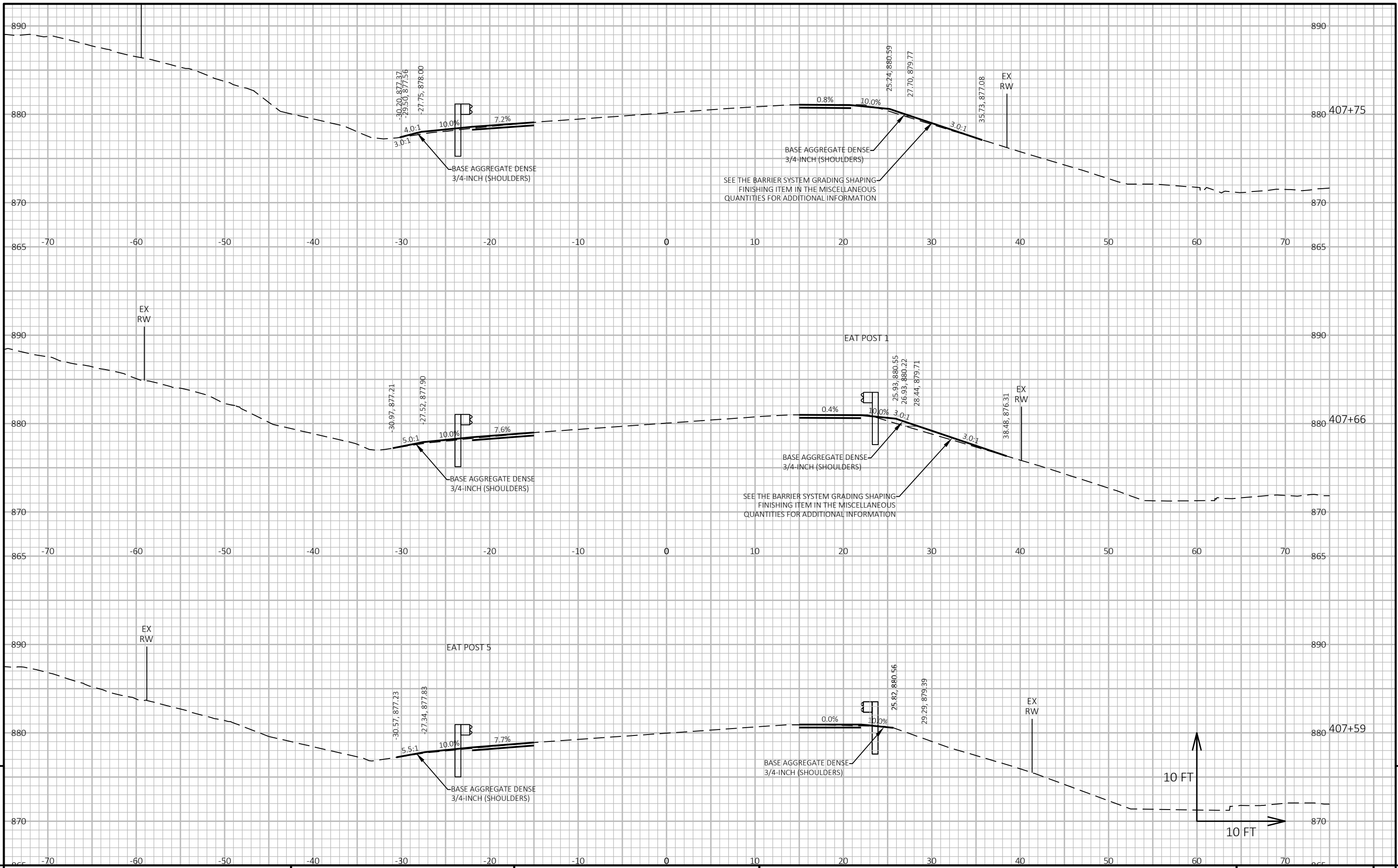
HWY: STH 26

COUNTY: DODGE

CROSS SECTIONS: MILL CREEK

SHEET

E



PROJECT NO: 1390-06-70

HWY: STH 26

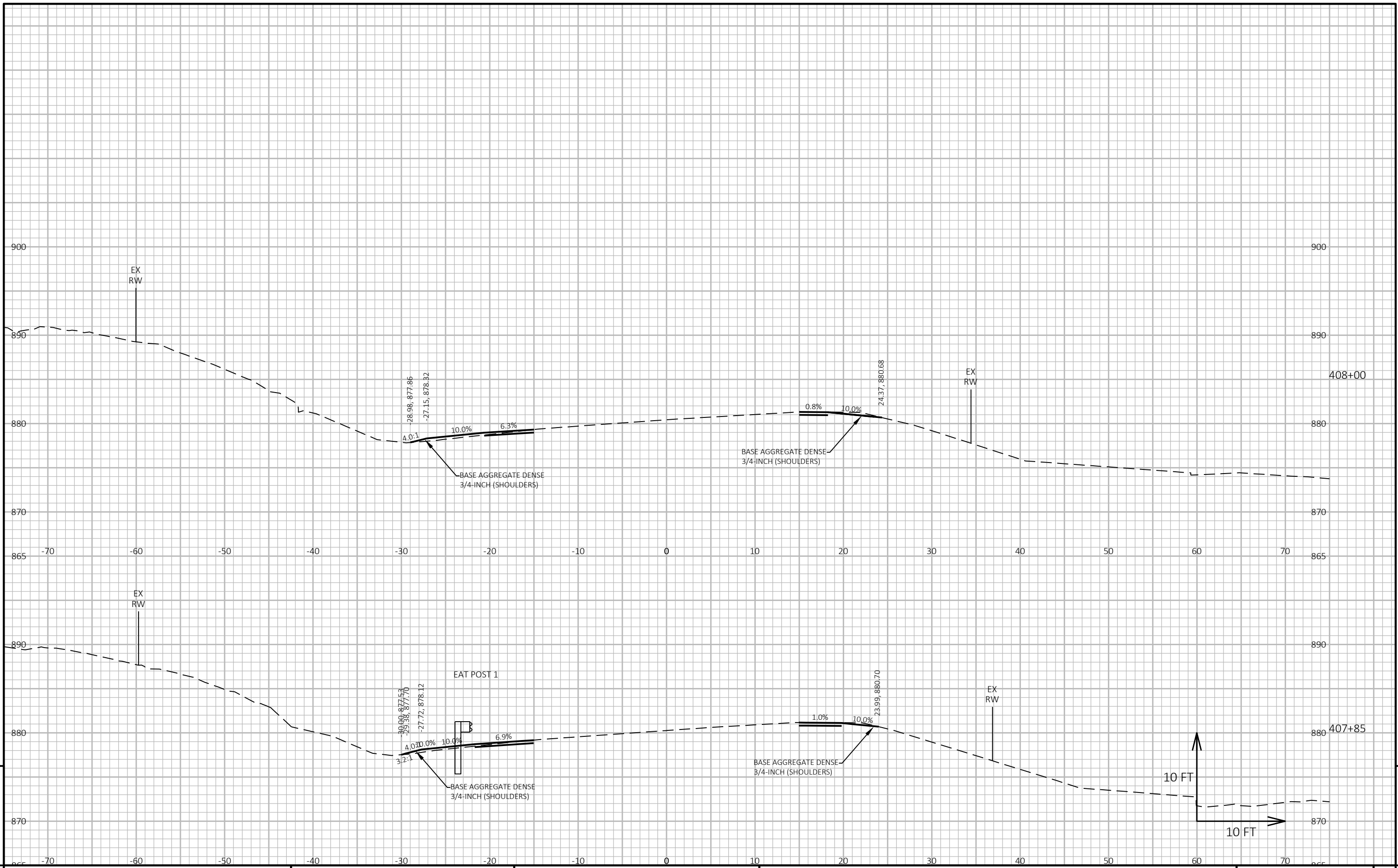
COUNTY: DODGE

CROSS SECTIONS: MILL CREEK

SHEET

E





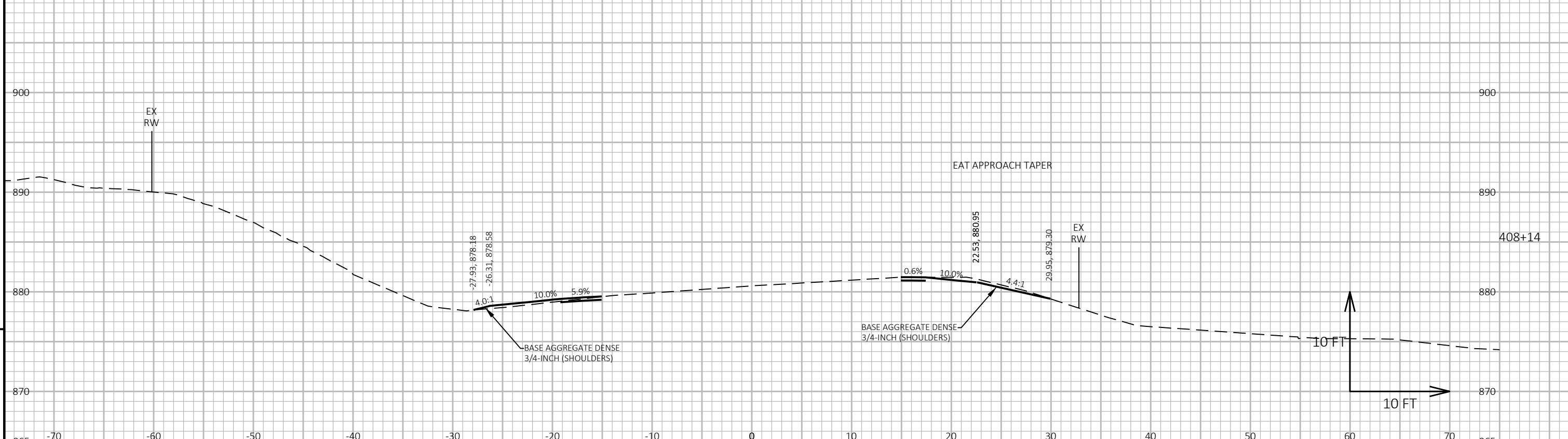
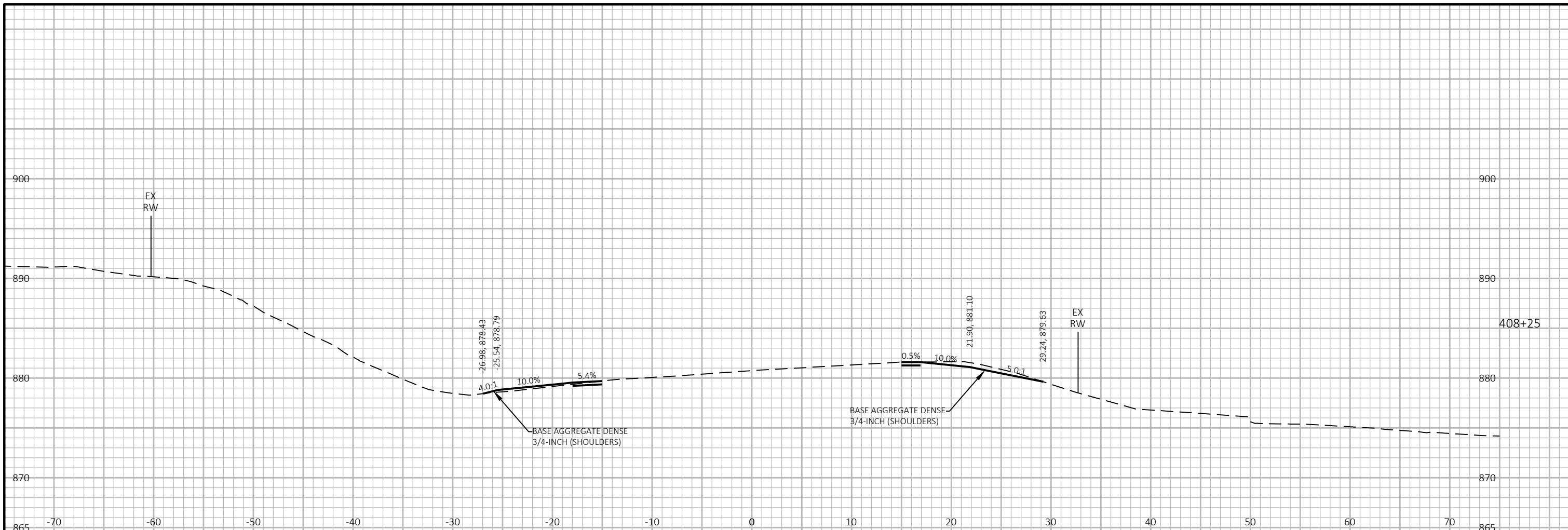
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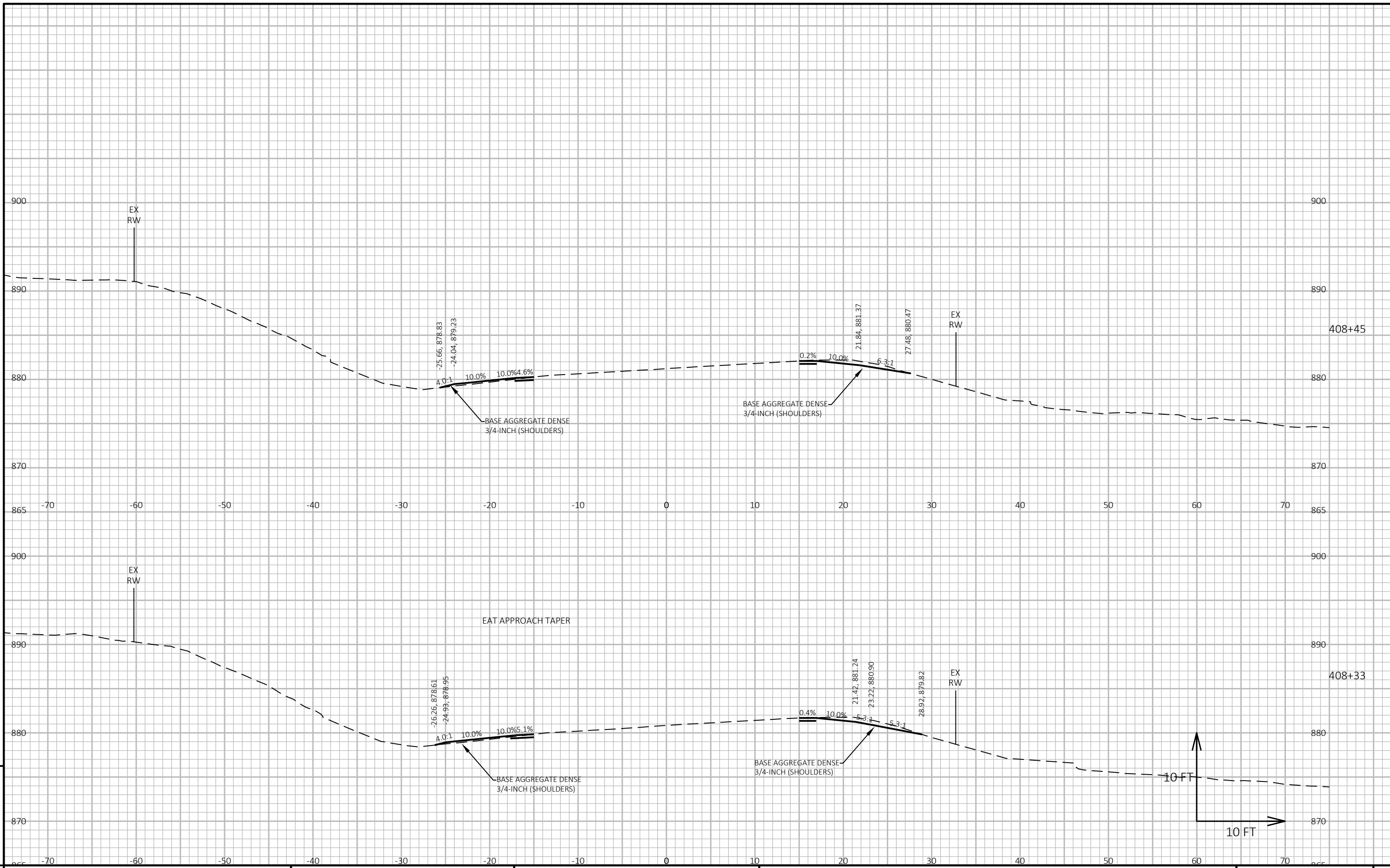
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LAYOUT NAME - 090209\_xs



PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	CROSS SECTIONS: MILL CREEK	SHEET E
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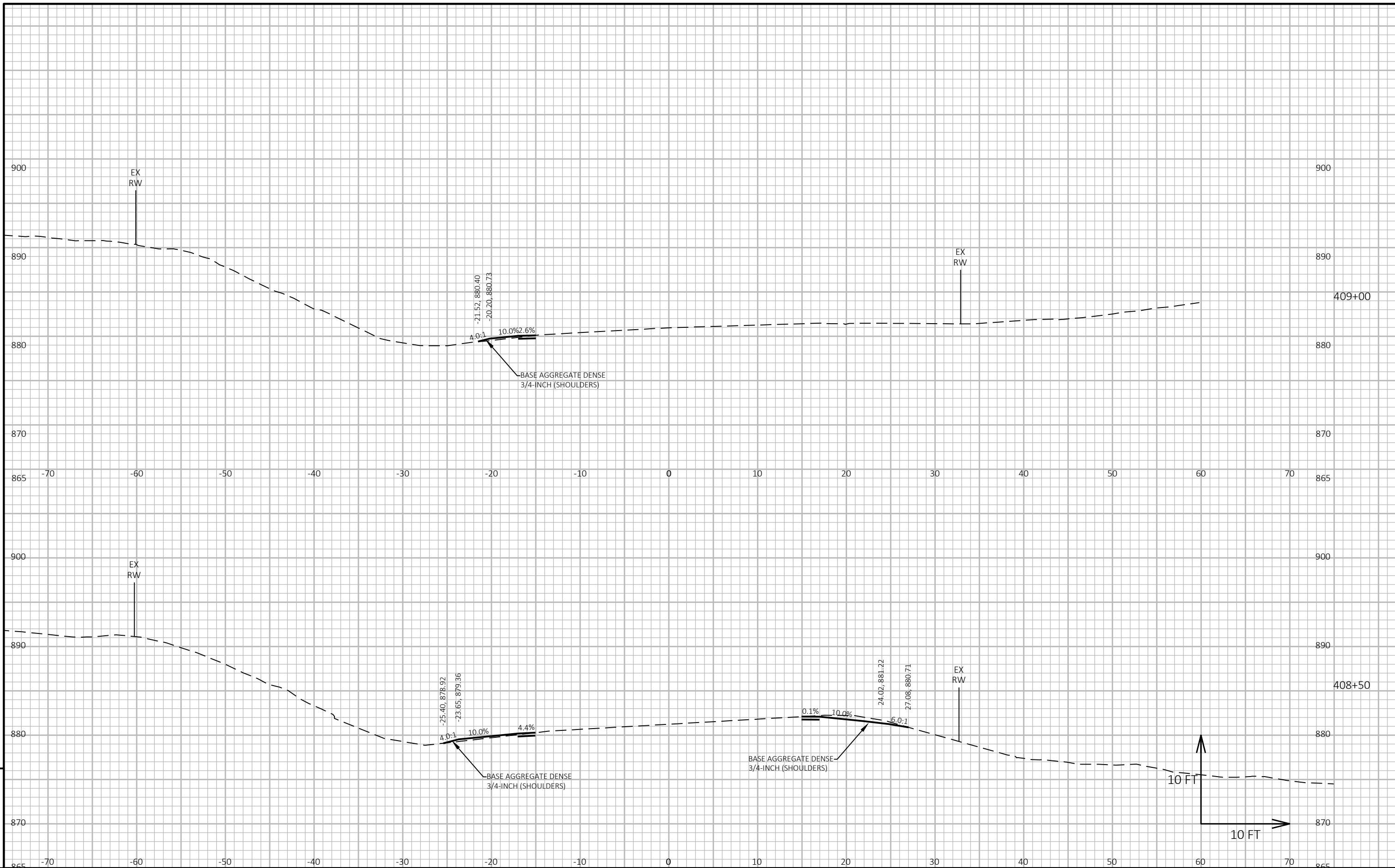
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PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: MILL CREEK      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\952\DRAWINGS\CAD\CIVIL 3D\13900600\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 6/1/2023 10:41 AM      PLOT BY : JURECZEK, JESSIE      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 090211\_xs

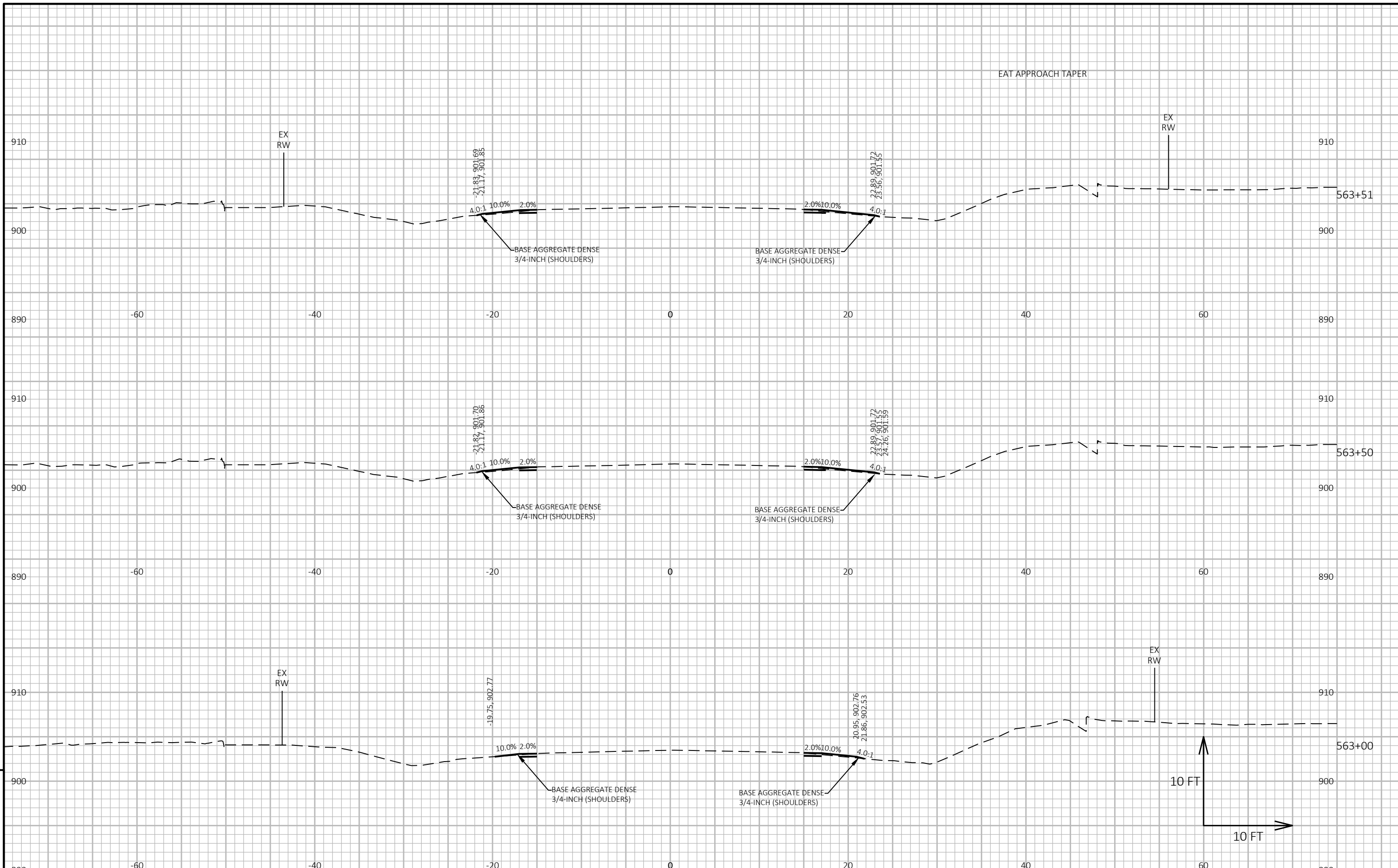


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PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	CROSS SECTIONS: MILL CREEK	SHEET	E
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 PLOT BY : JURECZEK, JESSIE  
 PLOT NAME :  
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.  
 WISDOT/CADD SHEET 49



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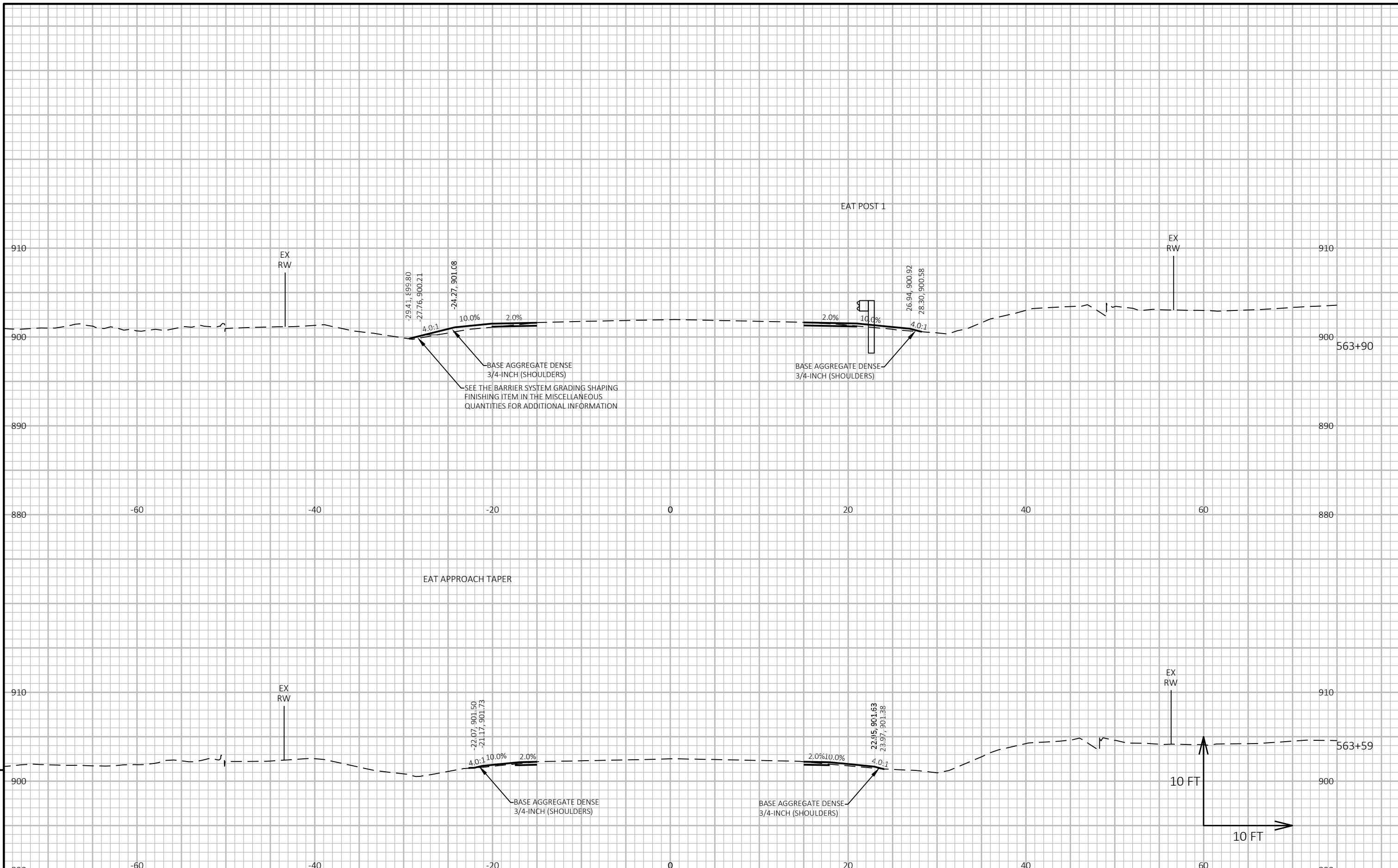
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LAYOUT NAME - 090213-xs



PROJECT NO: 1390-06-70

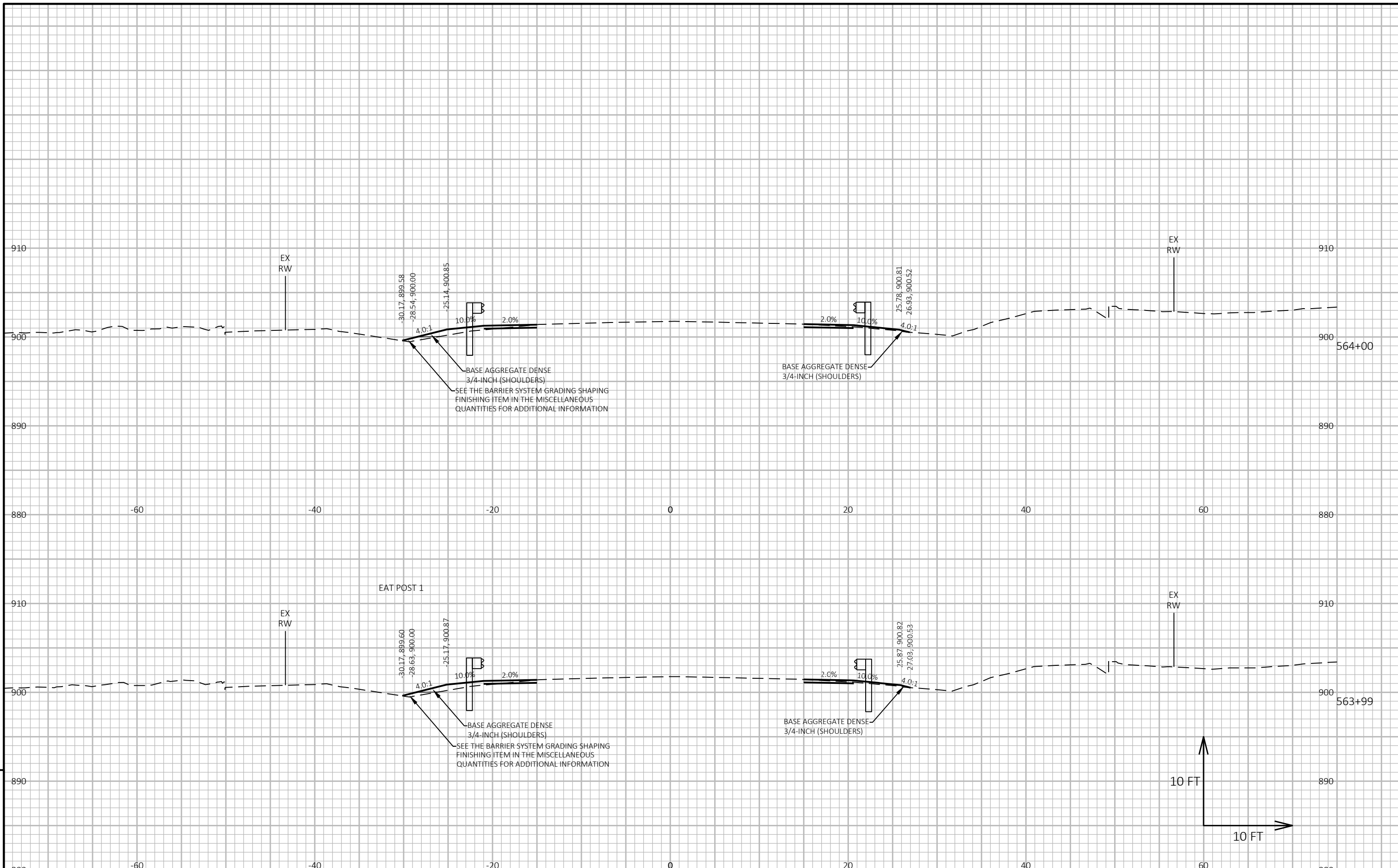
HWY: STH 26

COUNTY: DODGE

CROSS SECTIONS: PLUM CREEK

SHEET

E



PROJECT NO: 1390-06-70

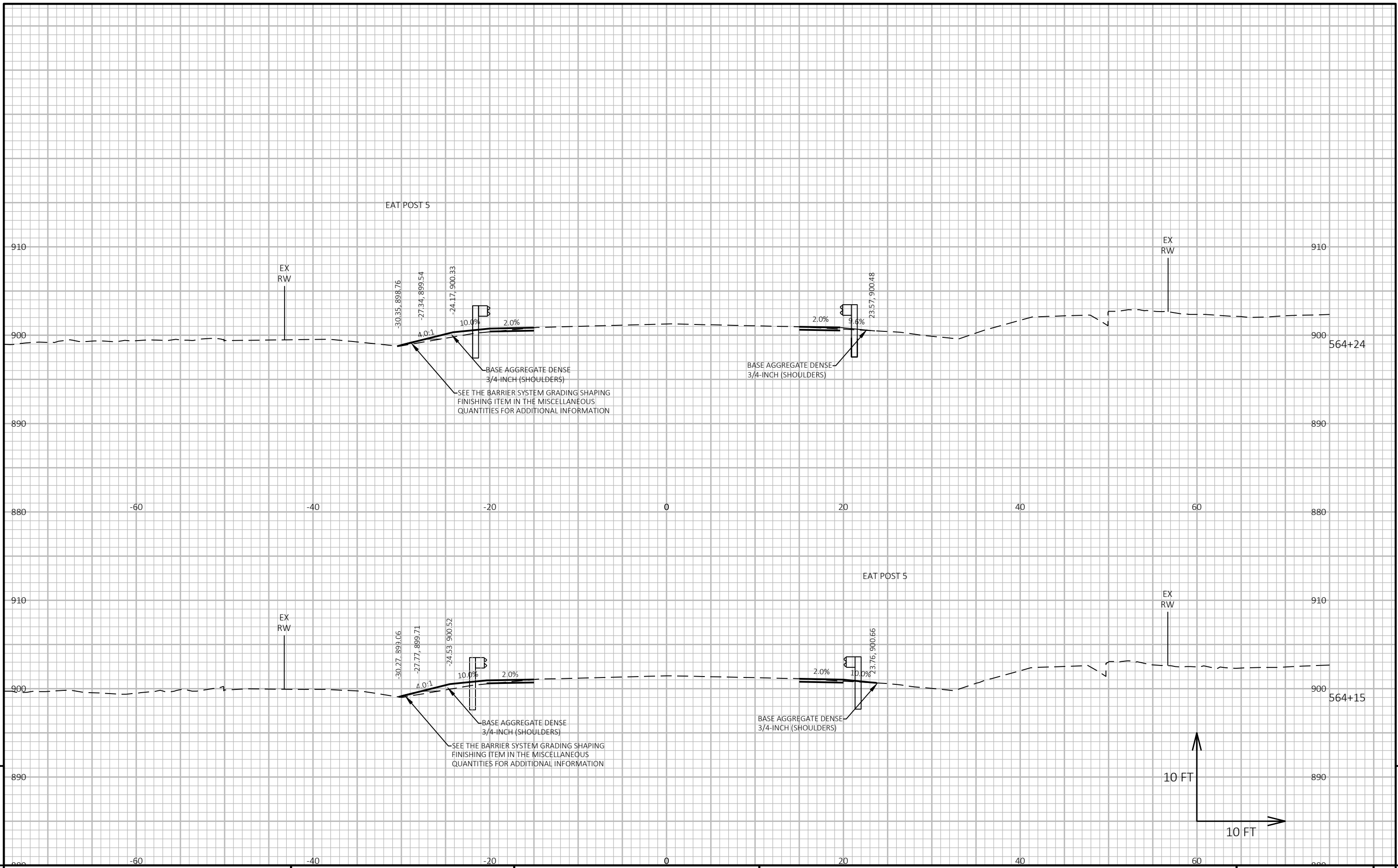
HWY: STH 26

COUNTY: DODGE

CROSS SECTIONS: PLUM CREEK

SHEET

E



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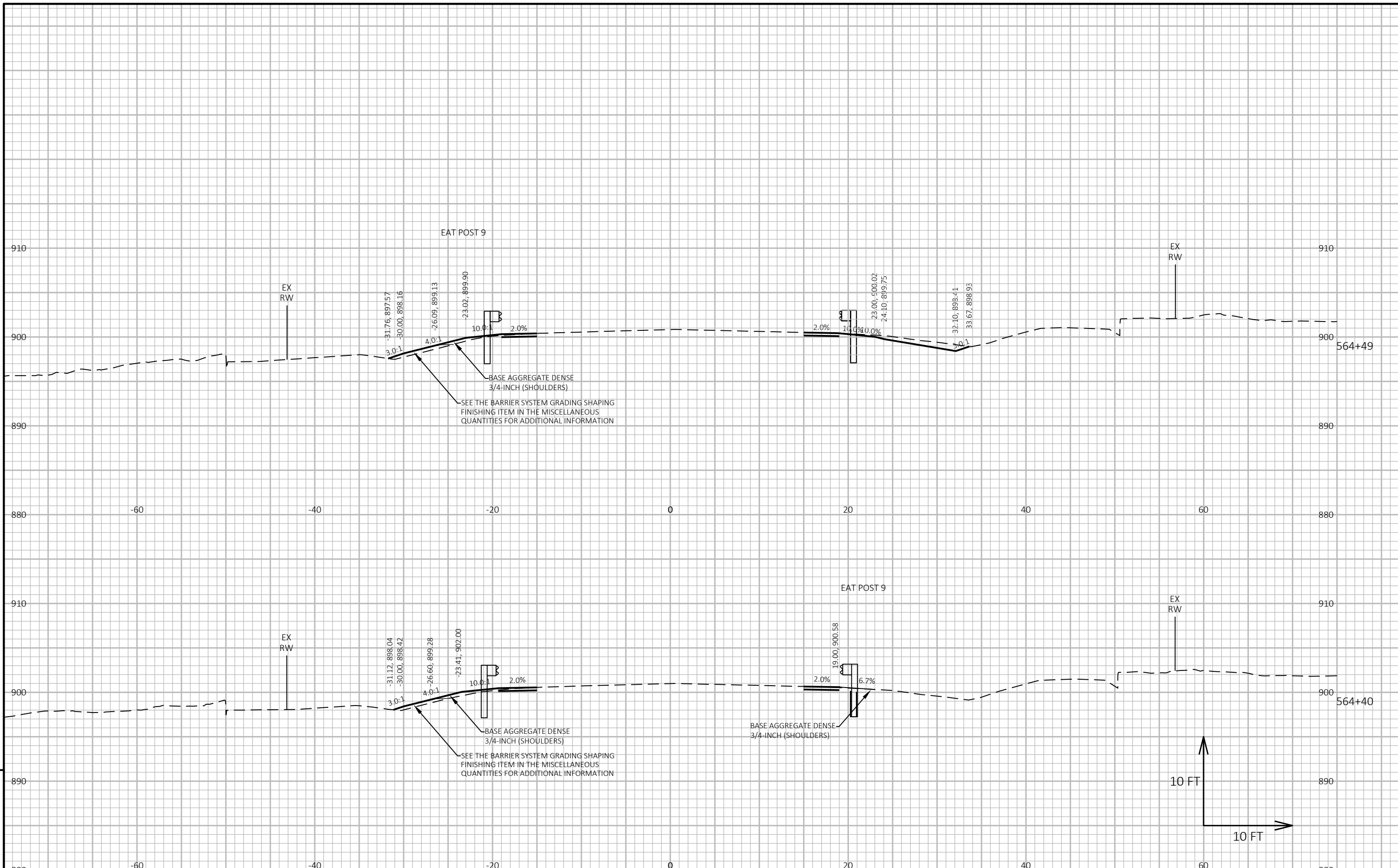
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PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: PLUM CREEK      SHEET      E

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LAYOUT NAME - 090216-xs

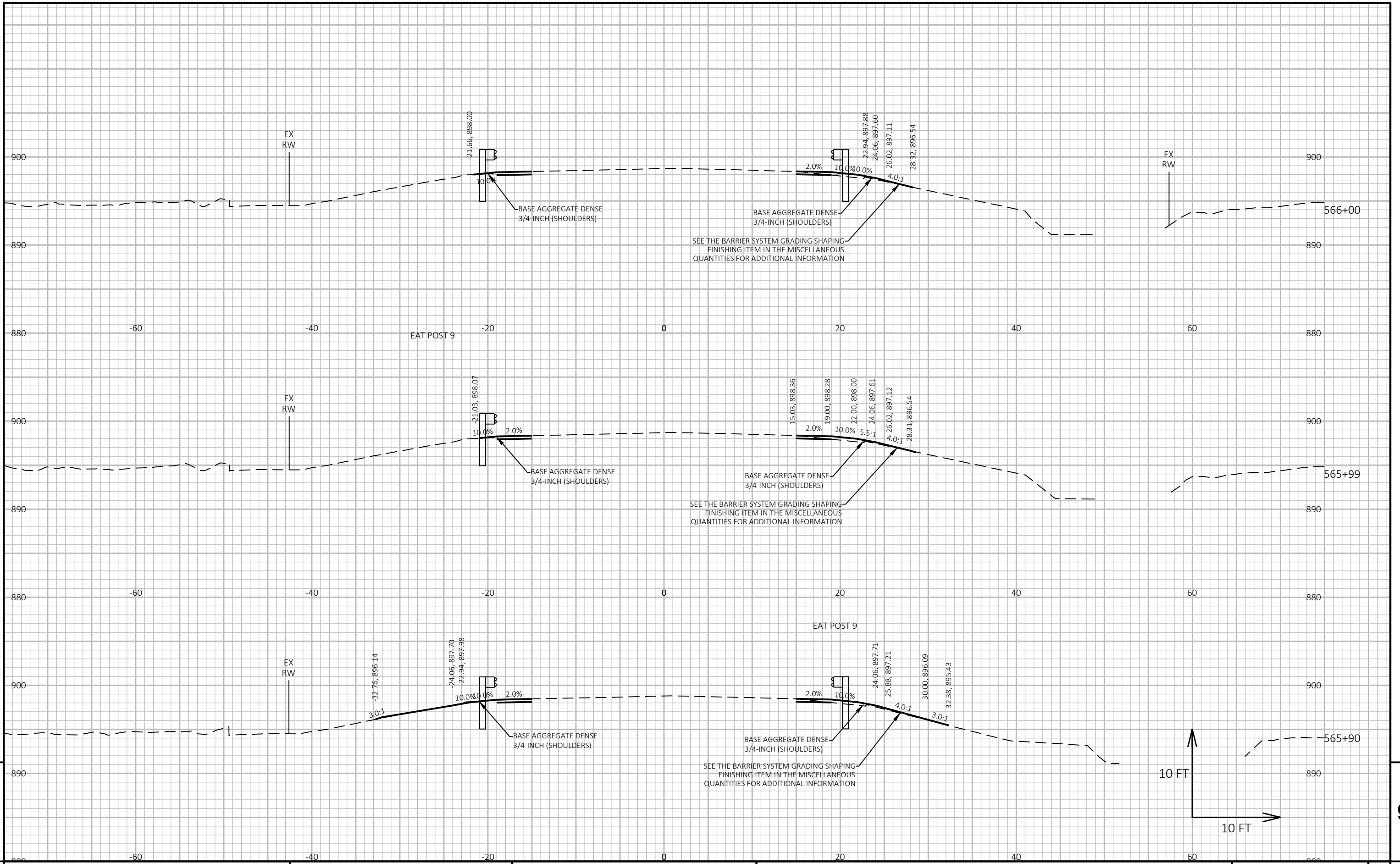




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PROJECT NO: 1390-06-70	HWY: STH 26	COUNTY: DODGE	CROSS SECTIONS: PLUM CREEK	SHEET	E
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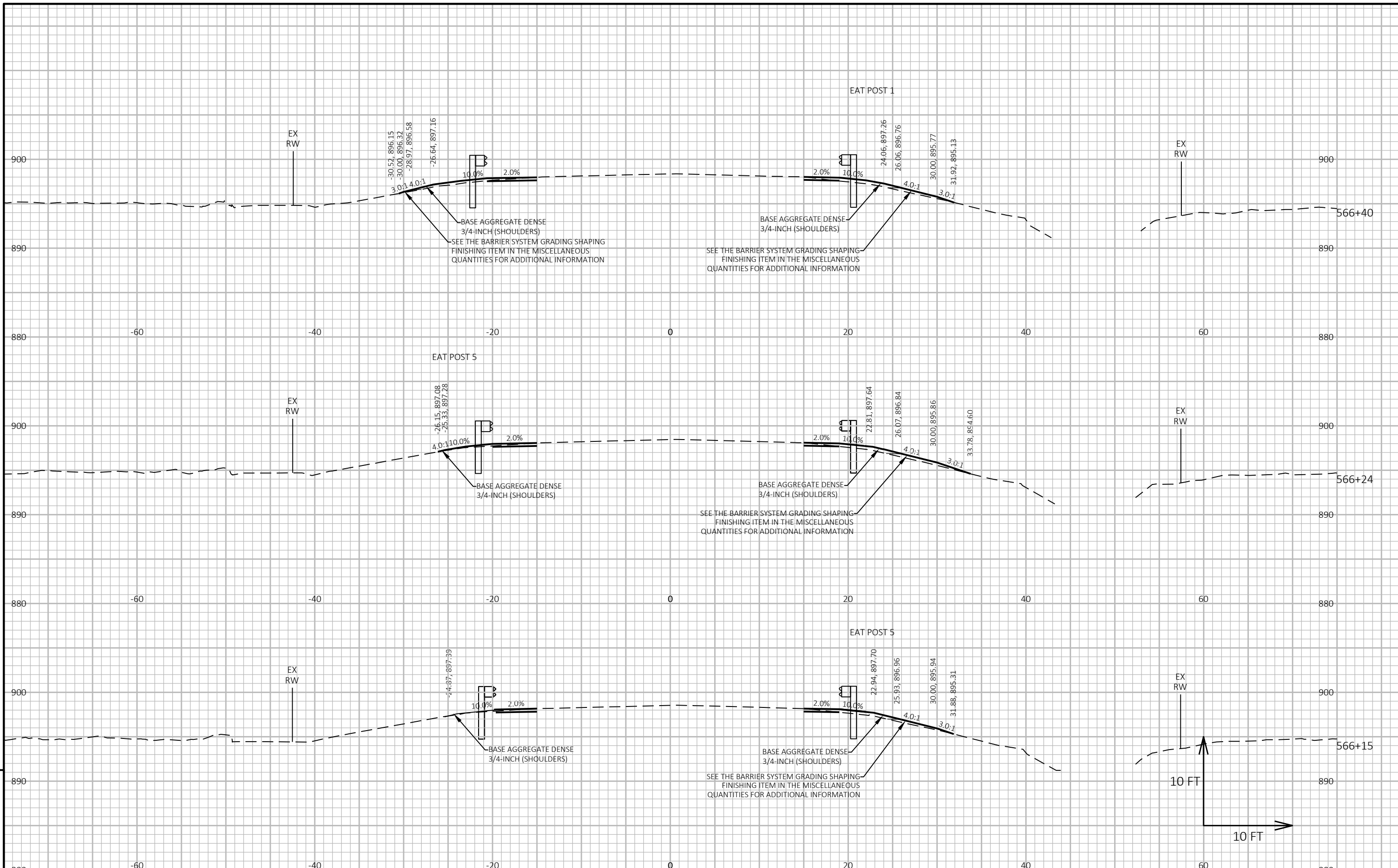
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LAYOUT NAME - 090218-xs



PROJECT NO: 1390-06-70

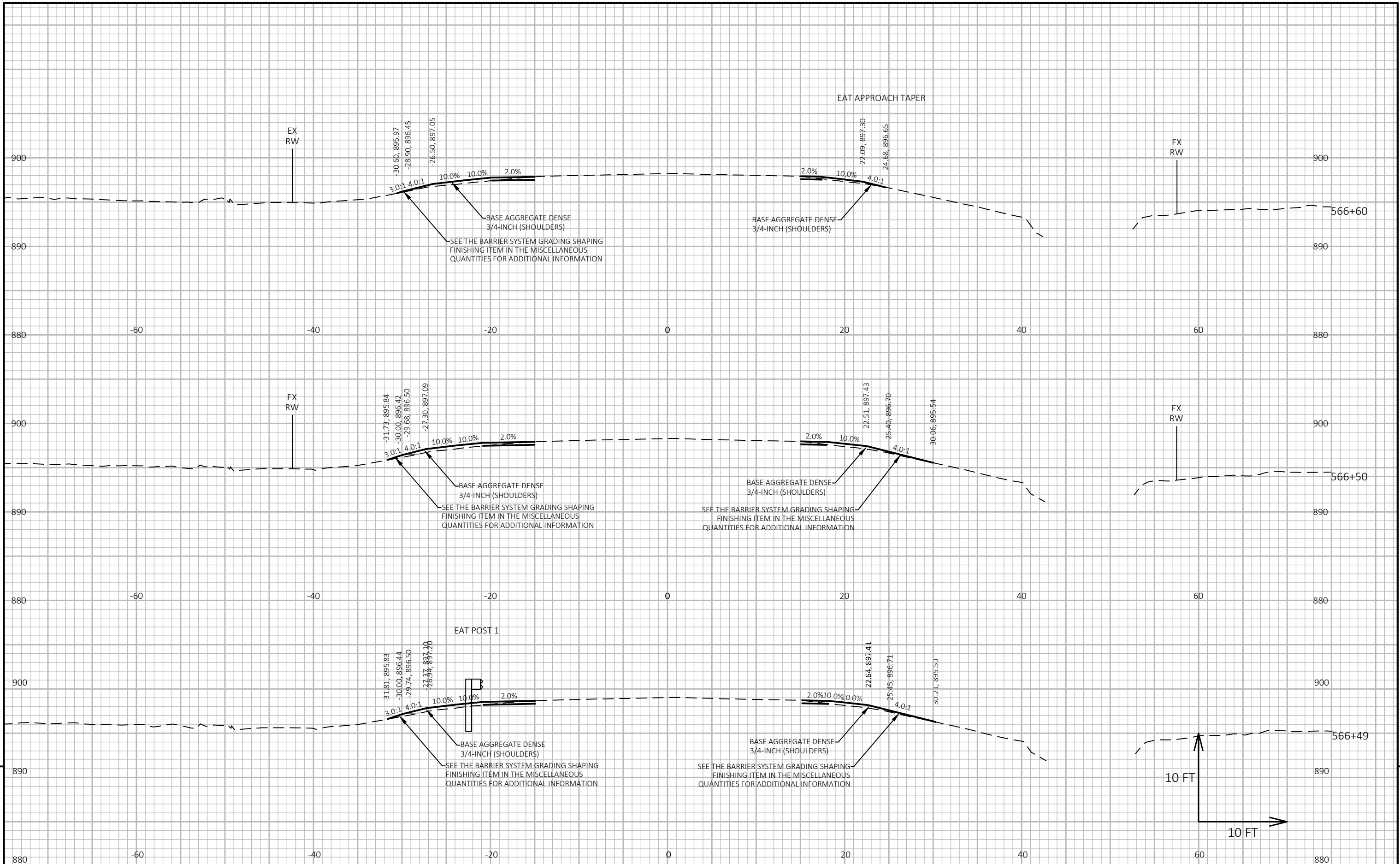
HWY: STH 26

COUNTY: DODGE

CROSS SECTIONS: PLUM CREEK

SHEET

E



PROJECT NO: 1390-06-70

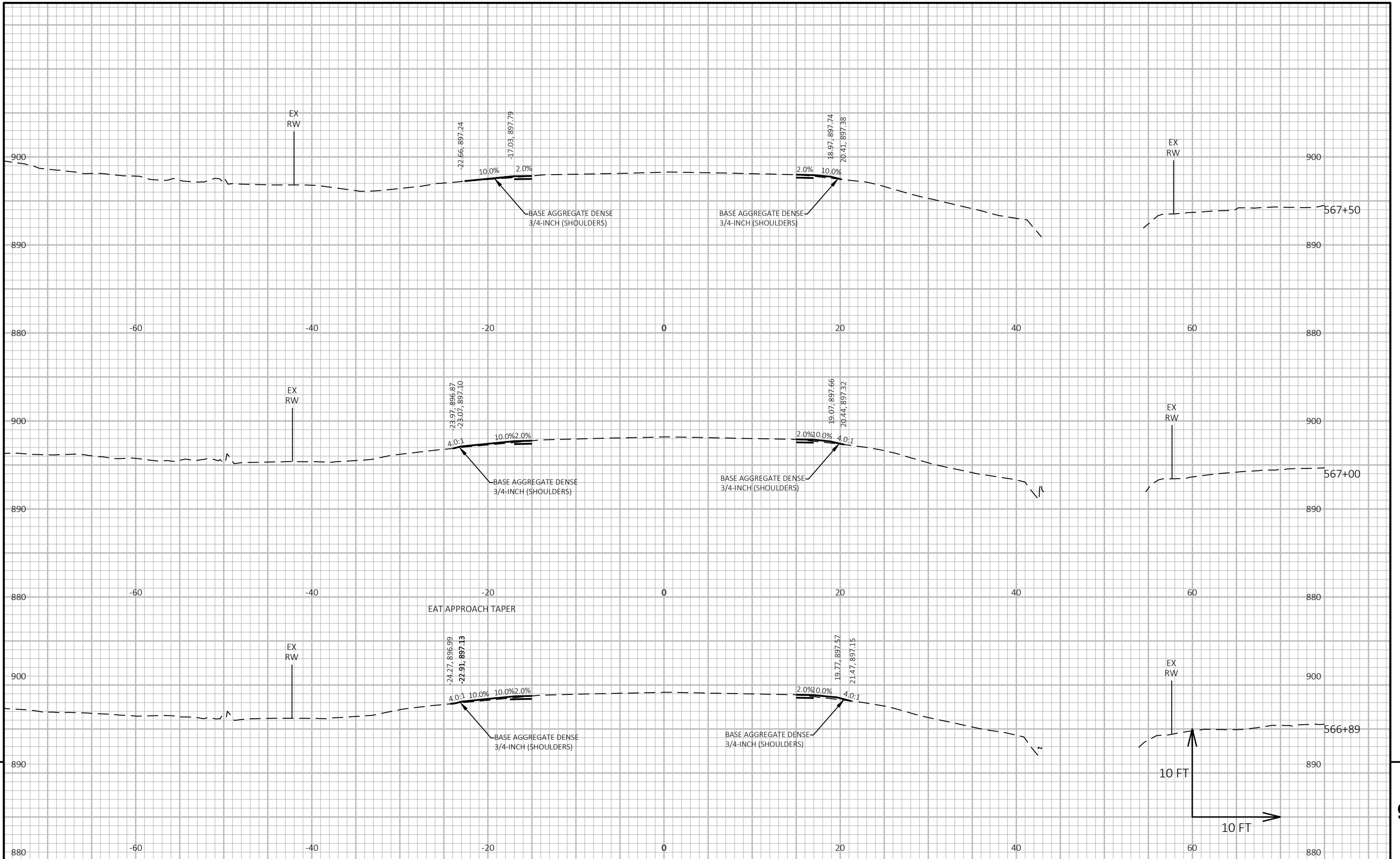
HWY: STH 26

COUNTY: DODGE

CROSS SECTIONS: PLUM CREEK

SHEET

E



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PROJECT NO: 1390-06-70      HWY: STH 26      COUNTY: DODGE      CROSS SECTIONS: PLUM CREEK      SHEET      E

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## *Wisconsin Department of Transportation*

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