

ORDER OF SHEETS

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

TOTAL SHEETS = 262



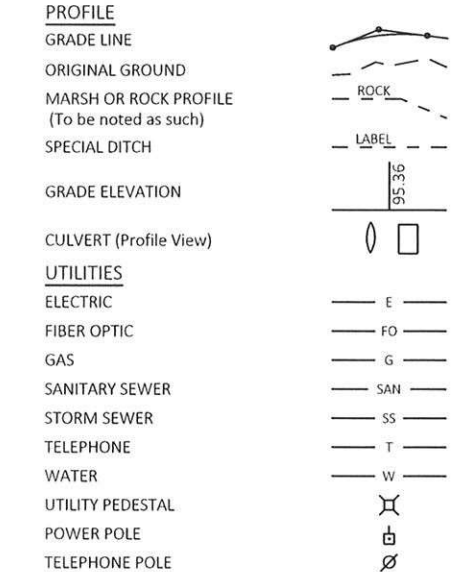
20

DESIGN DESIGNATION

|              |      |   |              |
|--------------|------|---|--------------|
| A.A.D.T.     | 2025 | = | 17,370       |
| A.A.D.T.     | 2045 | = | 18,560       |
| D.H.V.       |      | = | 2,250        |
| D.D.         |      | = | 50/50        |
| T.           |      | = | 12.2%        |
| DESIGN SPEED |      | = | 40/50/60 MPH |
| ESALS        |      | = | 5,400,000    |

CONVENTIONAL SYMBOLS

| PLAN                              | PROFILE  |
|-----------------------------------|--|
| CORPORATE LIMITS                  | GRADE LINE                                     |
| PROPERTY LINE                     | ORIGINAL GROUND                                |
| LOT LINE                          | MARSH OR ROCK PROFILE<br>(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<br>(Box or Pipe) | GAS  |
| COMBUSTIBLE FLUIDS                | SANITARY SEWER                                 |
| MARSH AREA                        | STORM SEWER                                    |
| WOODED OR SHRUB AREA              | TELEPHONE                                      |
|                                   | WATER  |
|                                   | UTILITY PEDESTAL                               |
|                                   | POWER POLE                                     |
|                                   | TELEPHONE POLE                                 |



# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

## PLAN OF PROPOSED IMPROVEMENT

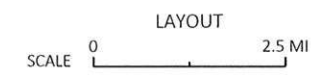
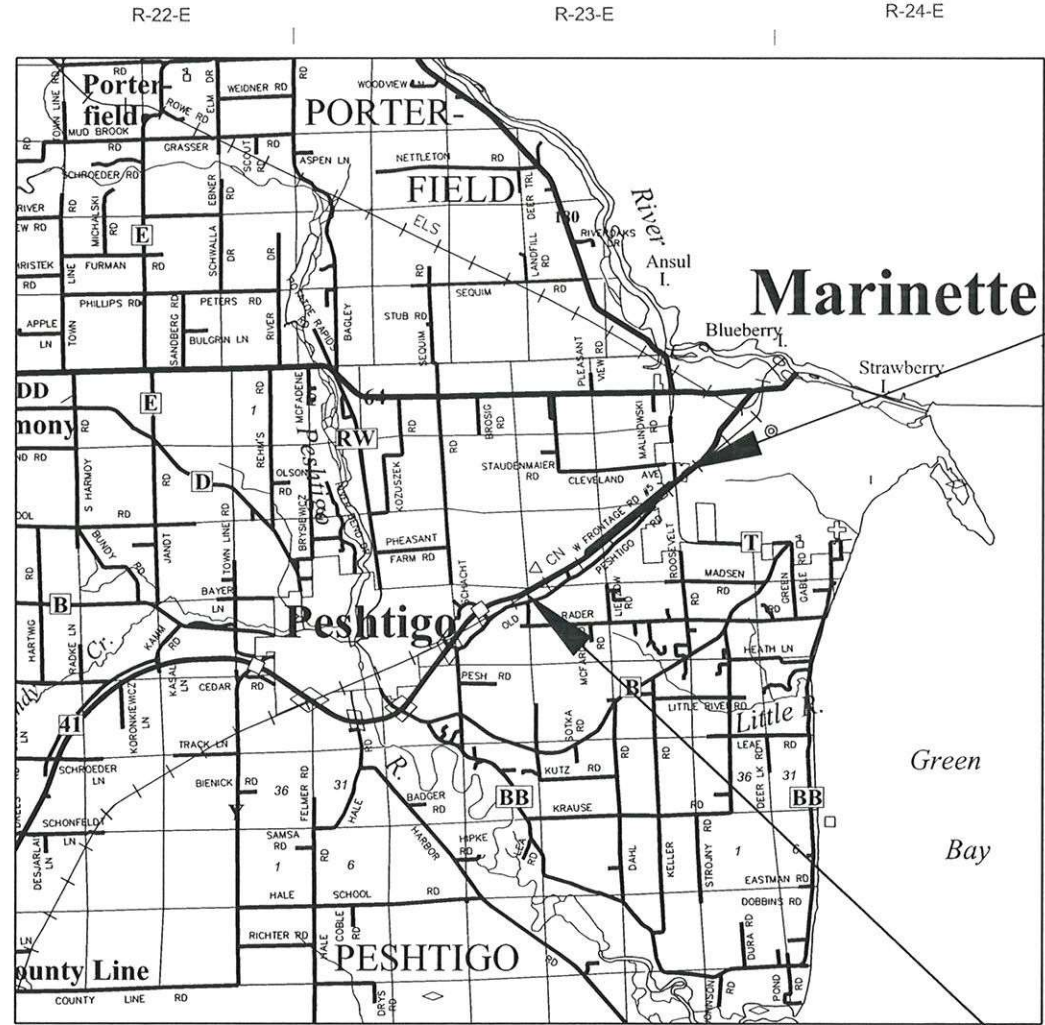
### PESHTIGO-MARINETTE

PESHTIGO BYPASS - CTH T

USH 41

MARINETTE COUNTY

STATE PROJECT NUMBER  
**1150-64-71**



TOTAL NET LENGTH OF CENTERLINE = 2.695 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, MARINETTE COUNTY, NAD83 (1991).

BEGIN PROJECT  
STA. 133+88.67  
Y=135,449.975  
X=785,899.106

END PROJECT  
STA. 276+16.09

| STATE PROJECT | FEDERAL PROJECT |          |
|---------------|-----------------|----------|
|               | PROJECT         | CONTRACT |
| 1150-64-71    |                 |          |
|               |                 |          |
|               |                 |          |

ORIGINAL PLANS PREPARED BY:



*Sara Grimme*  
1-3-2023

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

|                     |                         |                         |
|---------------------|-------------------------|-------------------------|
| PREPARED BY         | Surveyor                | WISDOT NORTHEAST REGION |
| Designer            | STRAND ASSOCIATES, INC. |                         |
| Project Manager     | KURT VOGEL, P.E.        |                         |
| Regional Examiner   | WISDOT NORTHEAST REGION |                         |
| Regional Supervisor | DANIEL SEGERSTROM, P.E. |                         |

APPROVED FOR THE DEPARTMENT  
DATE: 1/3/2023  
*Kurt Vogel*  
(Signature)

E

PROJECT ID: 1150-64-71

COUNTY: MARINETTE

**GENERAL NOTES**

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

DISTURBED AREAS WITHIN THE RIGHT OF WAY SHALL BE RESTORED AS DIRECTED BY THE ENGINEER.

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN ON THE PLANS. COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THAT AREA.

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 DUE TO CONTRACTOR MEANS AND METHODS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.

THE CONTRACTORS 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.

**ORDER OF SECTION 2 SHEETS**

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- INTERSECTION DETAILS
- GUARDRAIL LAYOUT DETAILS
- EROSION CONTROL
- TRAFFIC SIGNALS
- PAVEMENT MARKING AND PERMANENT SIGNING
- TRAFFIC CONTROL
- ALIGNMENT DETAIL

**WISDOT REGION CONTACT**

KURT VOGEL, P.E.  
WISDOT NORTHEAST REGION  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
PHONE: (920) 492-7706  
KURT.VOGEL@DOT.WI.GOV

**DNR LIAISON**

JIM DOPERALSKI JR.  
WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
NORTHEAST REGION HEADQUARTERS  
2984 SHAWANO AVENUE  
GREEN BAY, WI 54313  
PHONE: (920) 412-0165  
JAMES.DOPERALSKI@WISCONSIN.GOV

**DESIGN CONSULTANT CONTACT**

SARA GRIMME, P.E.  
STRAND ASSOCIATES, INC.  
910 WEST WINGRA DRIVE  
MADISON, WI 53715  
PHONE: (608) 251-4843  
SARA.GRIMME@STRAND.COM

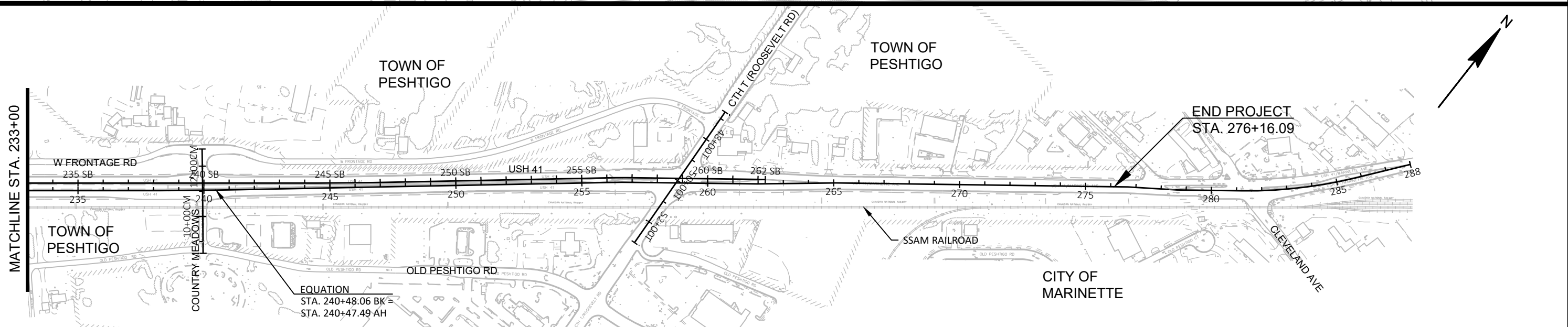
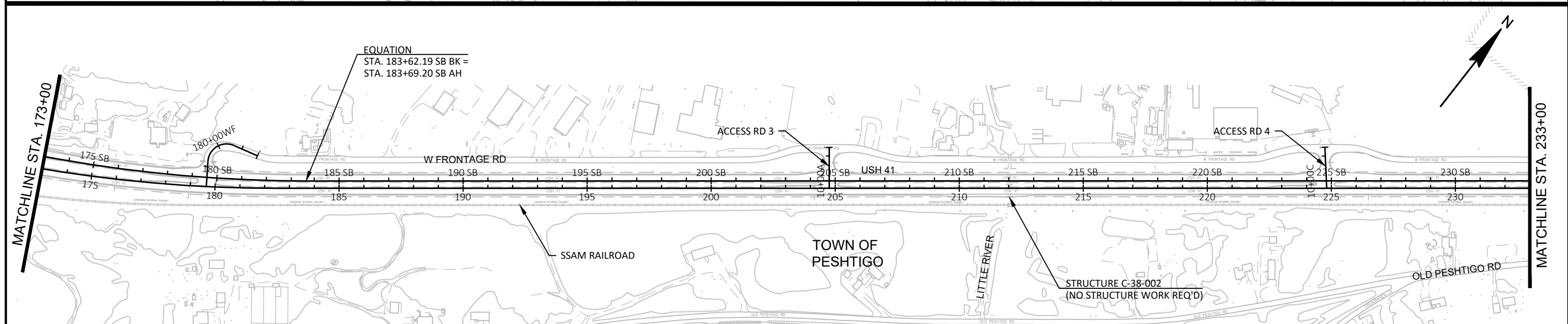
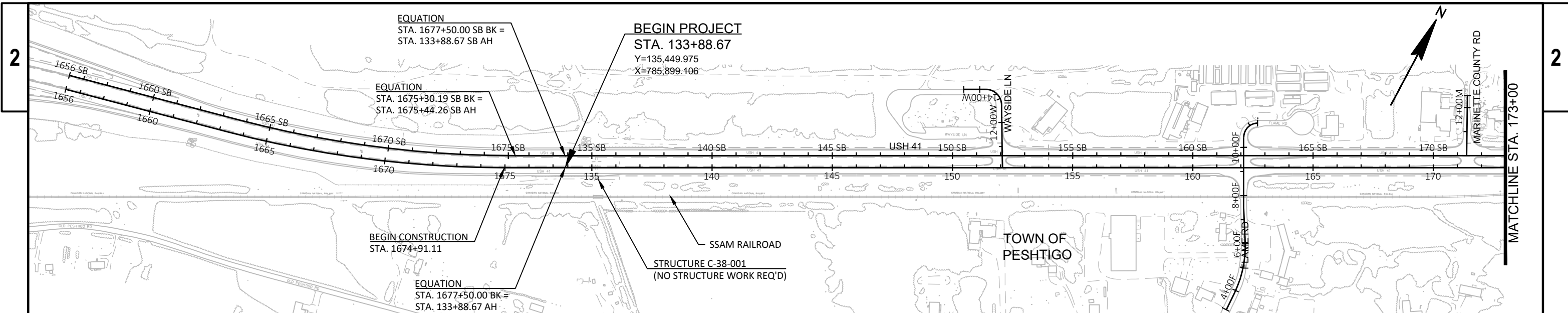
**UTILITY CONTACTS**

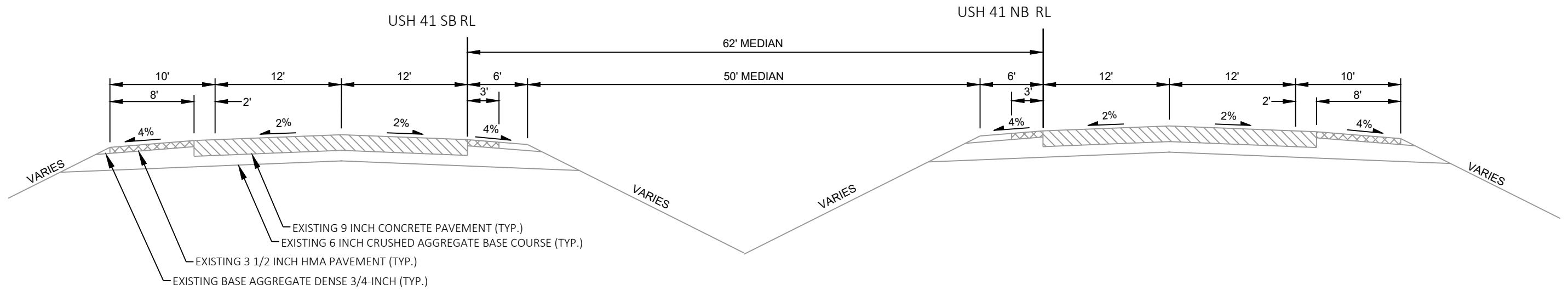
**CONTACT/ADDRESS**

**UTILITY TYPE**

|                                  |   |                |
|----------------------------------|---|----------------|
| *ANR PIPELINE CO.                | TODD BRISTER<br>W3925 PIPELINE LANE<br>EDEN, WI 53019<br>PHONE: (920) 477-2235<br>MOBILE: (920) 979-0060<br>TODD_BRISTER@TCENERGY.COM                         | GAS/PETROLEUM  |
| *ATC MANAGEMENT, INC,            | CHRIS DAILEY<br>PO BOX 47<br>WAUKESHA, WI 53181<br>PHONE: (262) 506-6884<br>CDAILEY@ATCLLC.COM  | ELECTRICITY    |
| *BRIGHTSPEED                     | SCOTT HEINZELMAN<br>144 N. PEARL STREET<br>BERLIN, WI 54923<br>PHONE: (608) 716-5964<br>MOBILE: (920) 757-4802<br>SCOTT.HEINZELMAN@BRIGHTSPEED.COM            | COMMUNICATIONS |
| *MARINETTE WATER UTILITY - SEWER | WARREN HOWARD<br>501 WATER STREET<br>MARINETTE, WI 54143<br>PHONE: (715) 732-5180<br>MOBILE: (715) 938-0811<br>WHOWARD@MARINETTE.WI.US                        | SEWER          |
| *MARINETTE WATER UTILITY - WATER | WARREN HOWARD<br>501 WATER STREET<br>MARINETTE, WI 54143<br>PHONE: (715) 732-5180<br>MOBILE: (715) 938-0811<br>WHOWARD@MARINETTE.WI.US                        | WATER          |
| *SPECTRUM                        | VINCE ALBIN<br>3520 DESTINATION DRIVE<br>APPLETON, WI 54915<br>PHONE: (920) 831-9249<br>MOBILE: (920) 378-0444<br>VINCE.ALBIN@CHARTER.COM                     | COMMUNICATIONS |
| *WPS - ELECTRIC                  | SCOTT ZELLNER<br>2850 S. ASHLAND AVENUE<br>GREEN BAY, WI 54304<br>PHONE: (920) 671-5068<br>MOBILE: (920) 680-2188<br>SCOTT.ZELLNER@WISCONSINPUBLICSERVICE.COM | ELECTRICITY    |
| *WPS - GAS/PETROLEUM             | STEVE BONECK<br>1717 10TH AVENUE<br>MENOMINEE, MI 49858<br>PHONE: (906) 863-4320<br>MOBILE: (920) 606-3338<br>STEVE.BONECK@WISCONSINPUBLICSERVICE.COM         | GAS/PETROLEUM  |

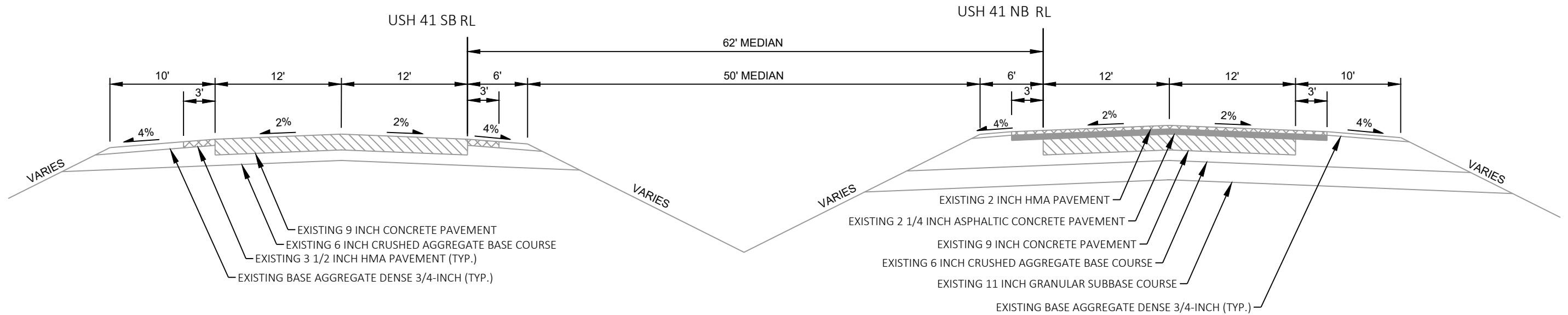
**DIGGERS HOTLINE**  
 Dial **811** or (800)242-8511  
 www.DiggersHotline.com  
 \* DENOTES DIGGERS HOTLINE MEMBERS





**EXISTING TYPICAL SECTION**

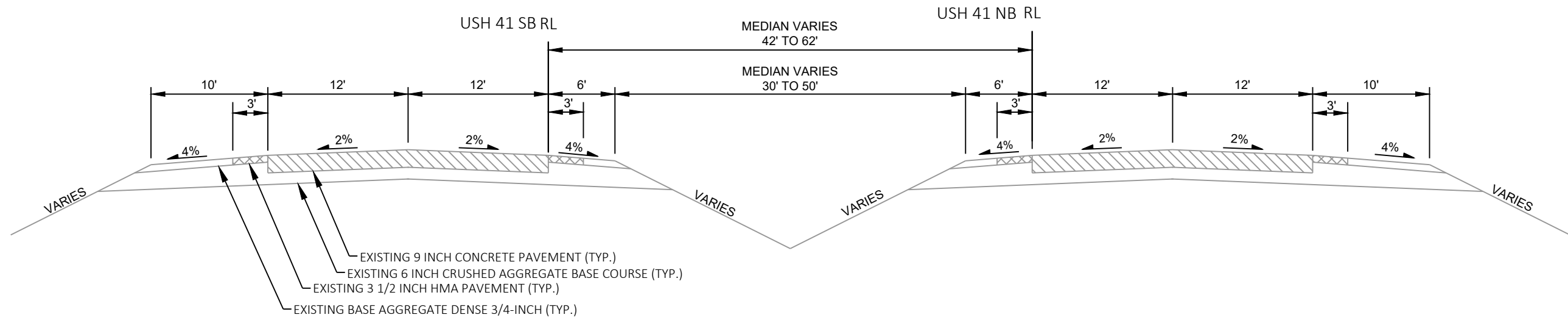
STA. 1675+00.00 - STA.1677+50.00 BK =  
STA.133+86.67 AH



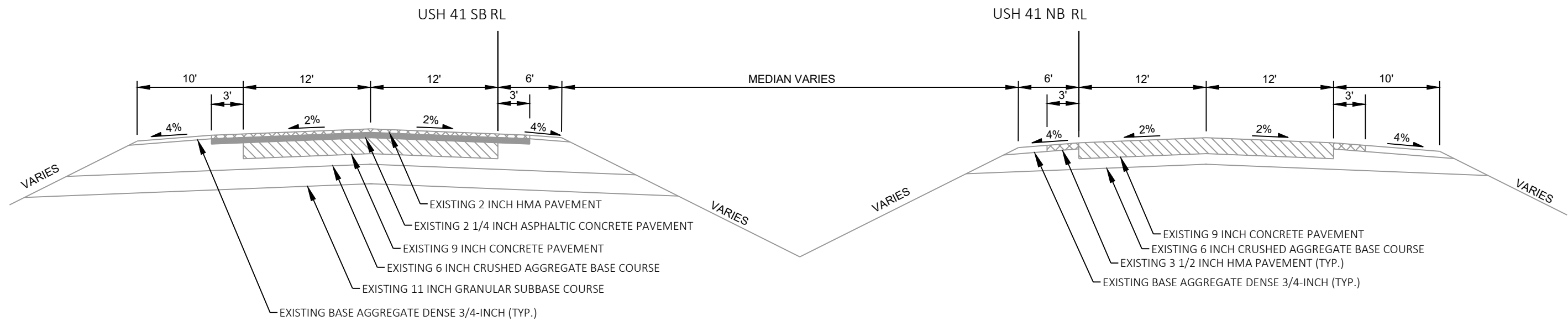
**EXISTING TYPICAL SECTION**

STA. 133+88.67 - STA.169+38.00

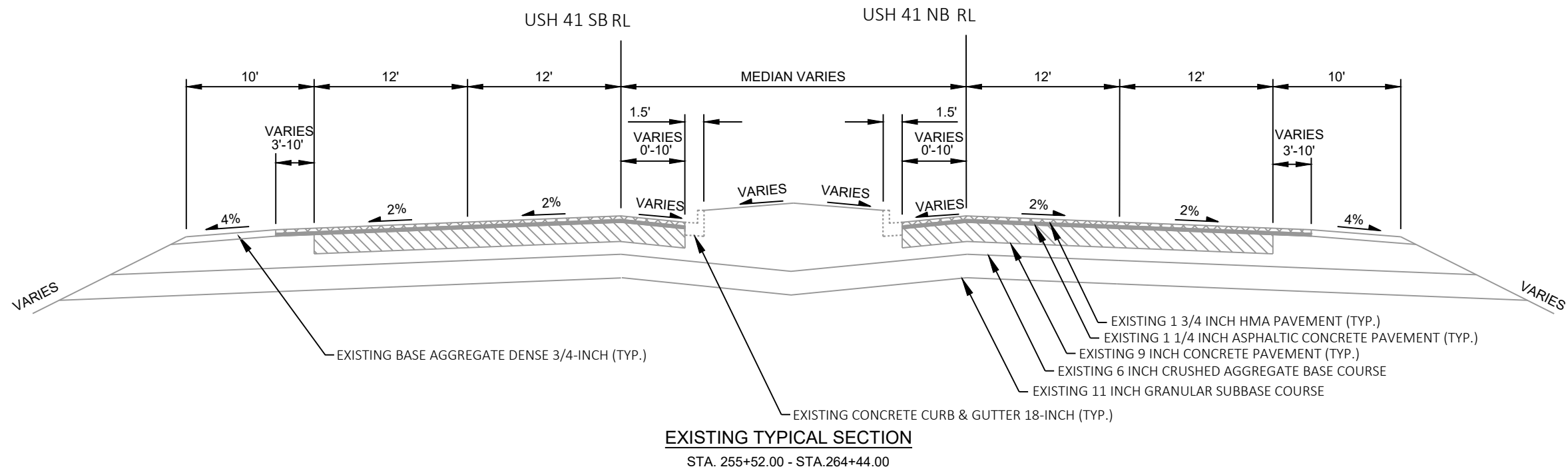
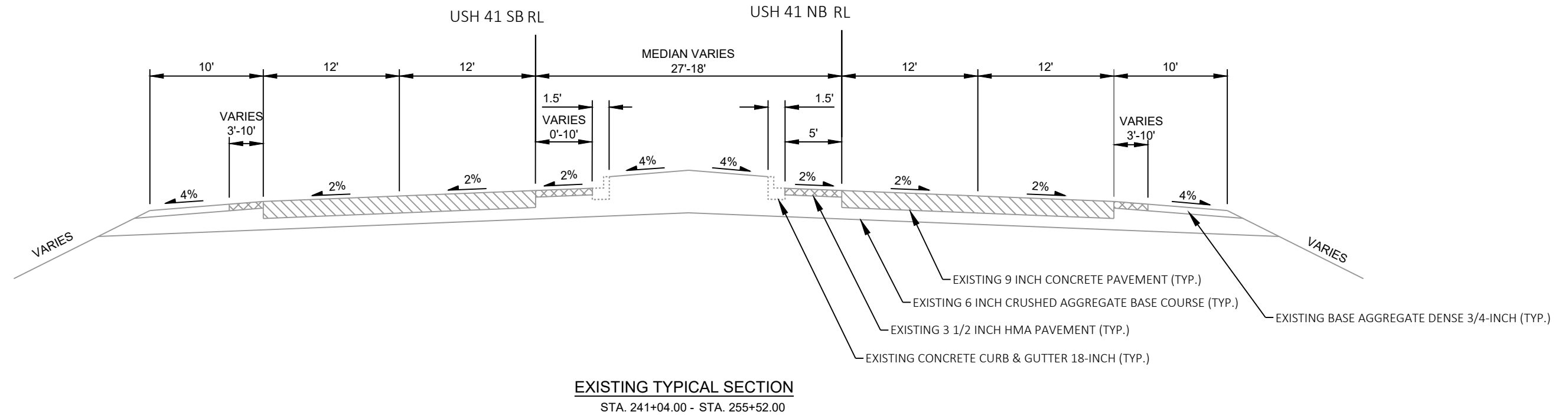


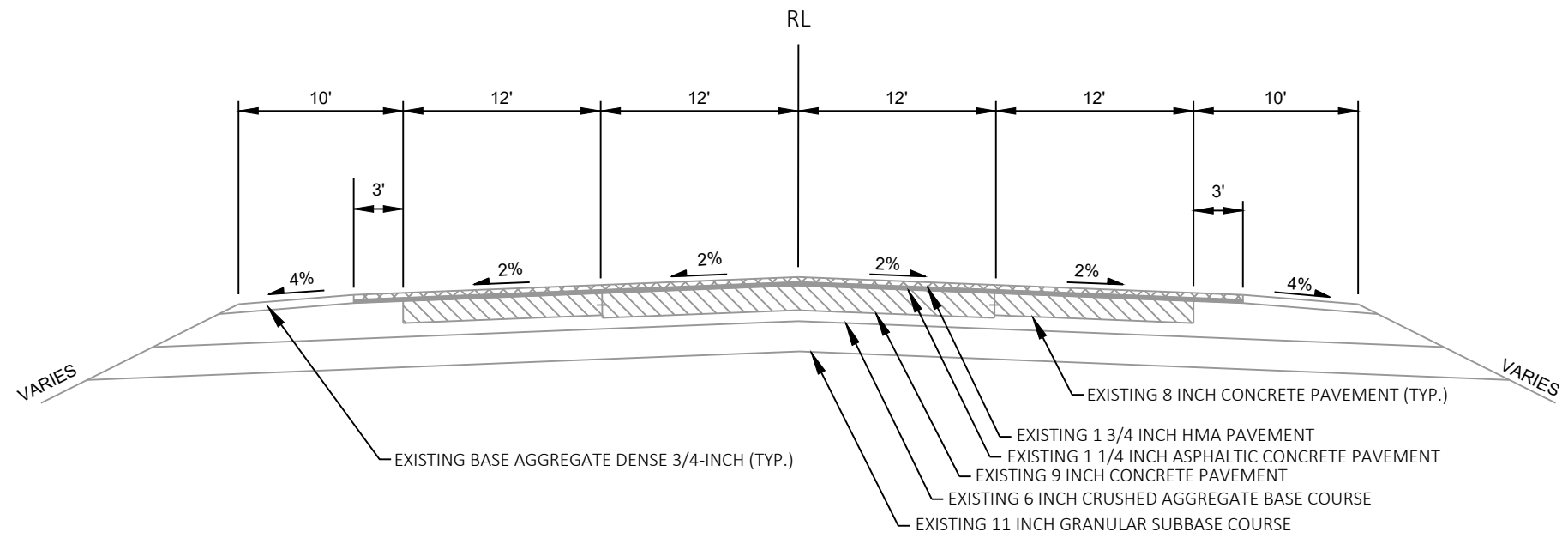


**EXISTING TYPICAL SECTION**  
 STA. 169+38.00 - STA.184+83.00

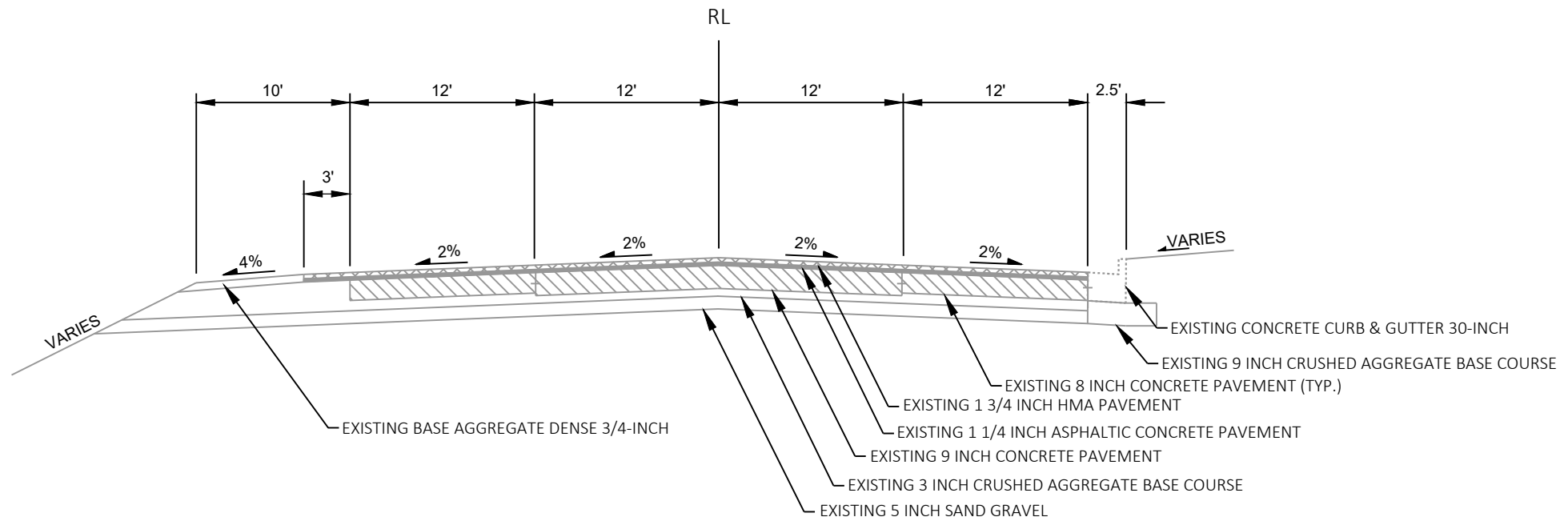


**EXISTING TYPICAL SECTION**  
 STA. 184+83.00 - STA.241+04.00

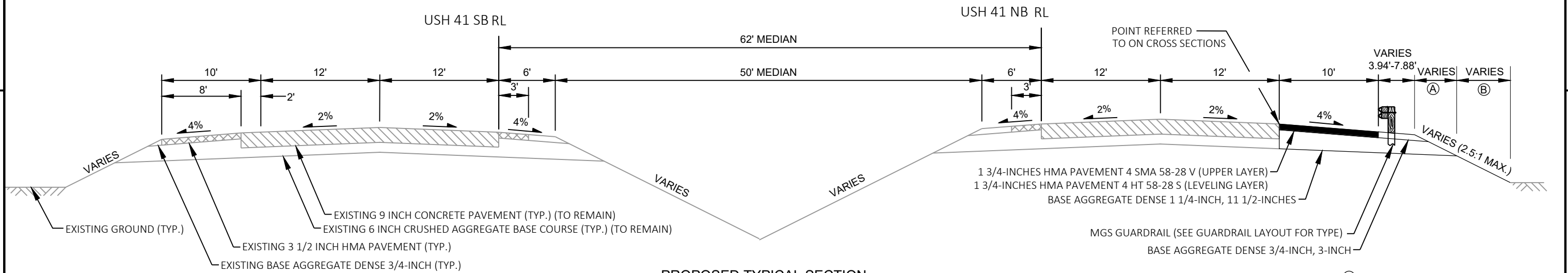




**EXISTING TYPICAL SECTION**  
 STA. 264+44.00 - STA.274+00.00

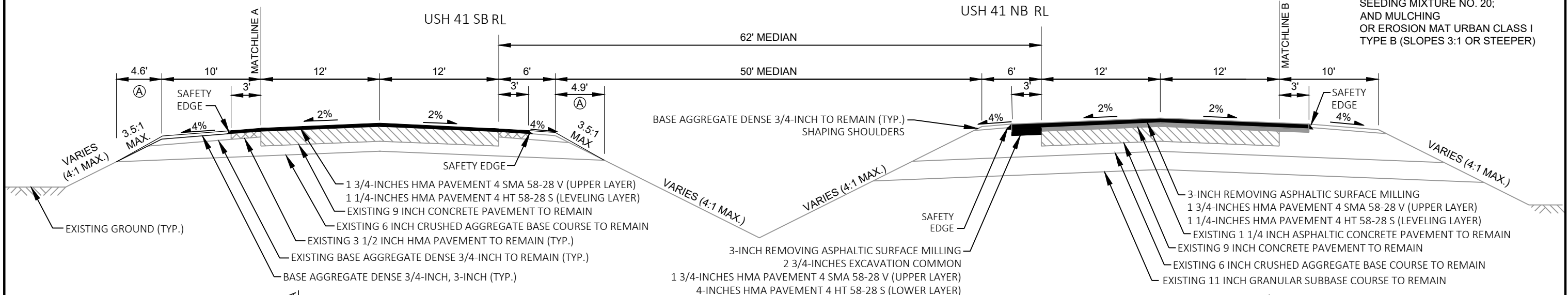


**EXISTING TYPICAL SECTION**  
 STA. 274+00.00 - STA.276+16.09

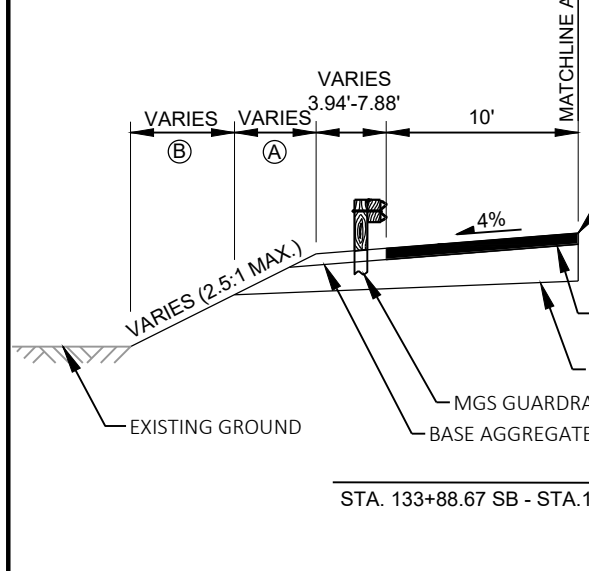


**PROPOSED TYPICAL SECTION**  
 STA. 1674+91.11 - STA. 1677+50.00 BK =  
 STA. 133+86.67 AH

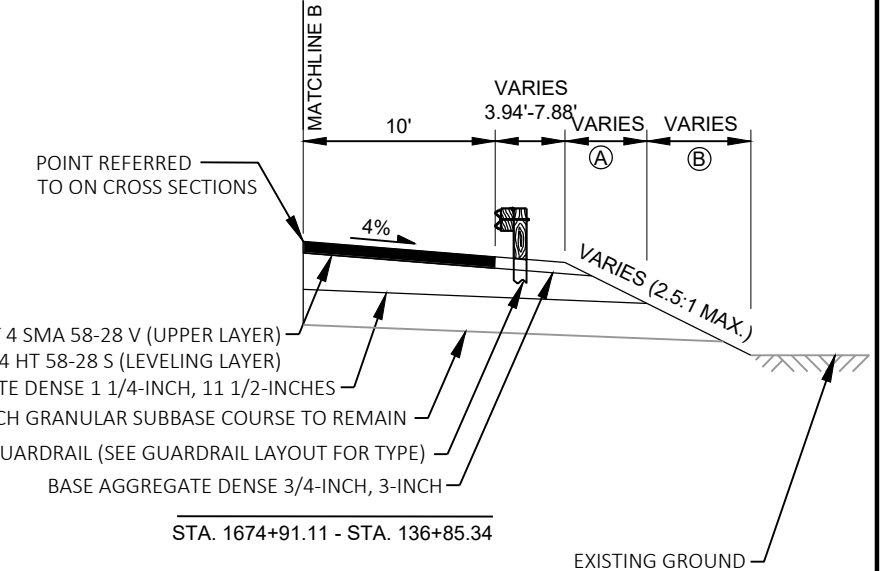
- (A) SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND FERTILIZER TYPE B
- (B) SALVAGED TOPSOIL;  
SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND MULCHING  
OR EROSION MAT URBAN CLASS I  
TYPE B (SLOPES 3:1 OR STEEPER)



**PROPOSED TYPICAL SECTION**  
 STA. 133+88.67 - STA. 169+38.00

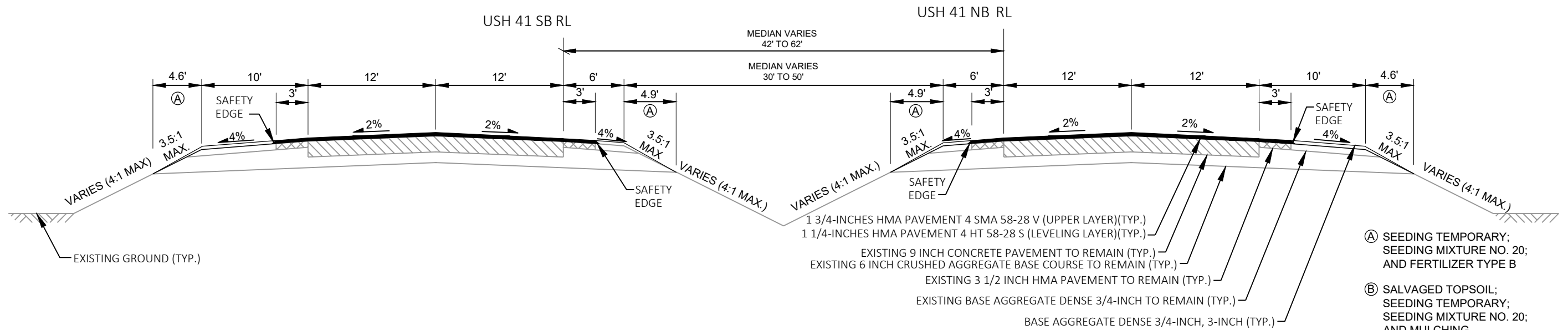


**PROPOSED TYPICAL SECTION**  
 STA. 133+88.67 SB - STA. 138+93.93 SB



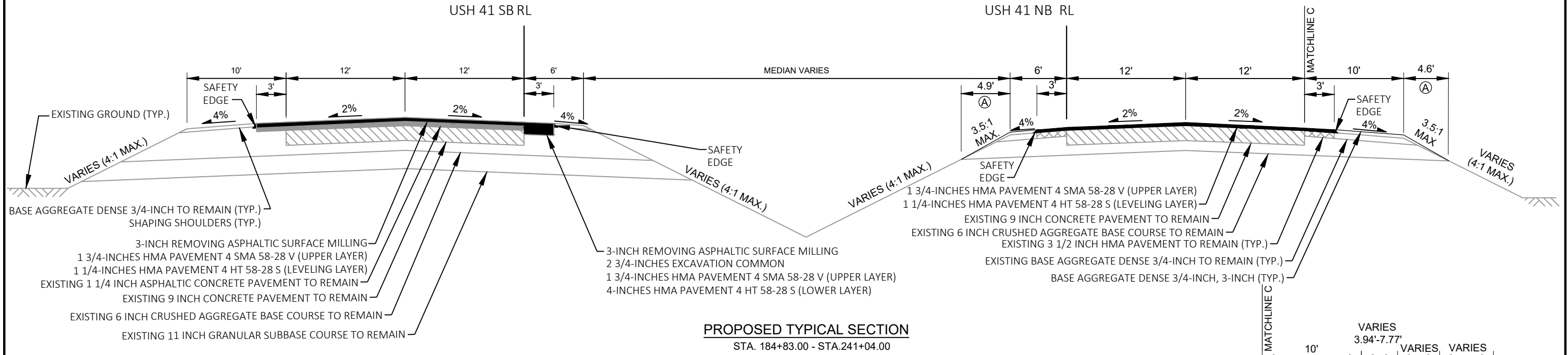
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 STA. 1674+91.11 - STA. 136+85.34





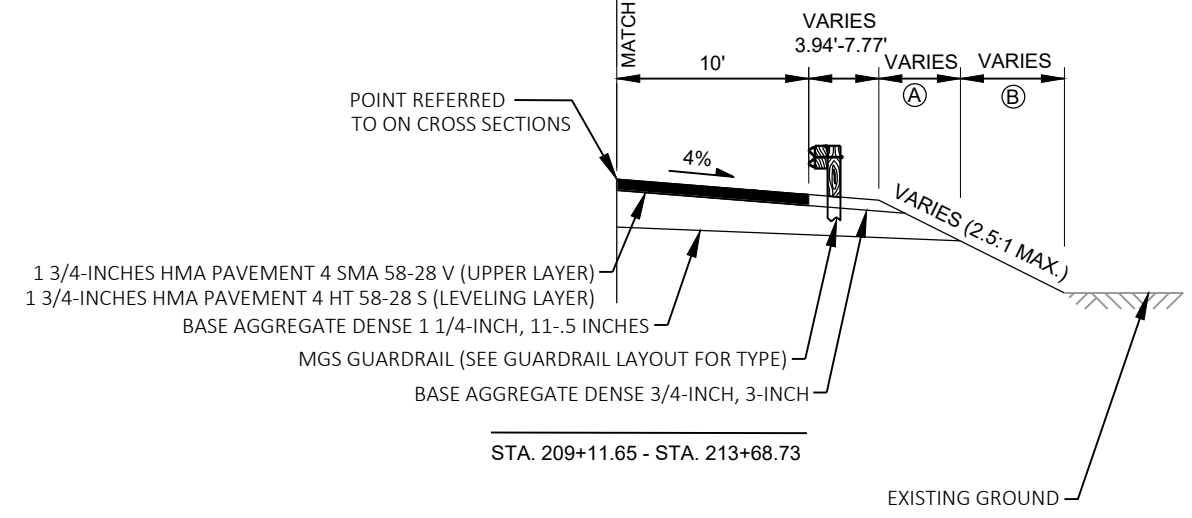
**PROPOSED TYPICAL SECTION**  
 STA. 169+38.00 - STA.184+83.00

- Ⓐ SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND FERTILIZER TYPE B
- Ⓑ SALVAGED TOPSOIL;  
SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND MULCHING  
OR EROSION MAT URBAN CLASS I  
TYPE B (SLOPES 3:1 OR STEEPER)

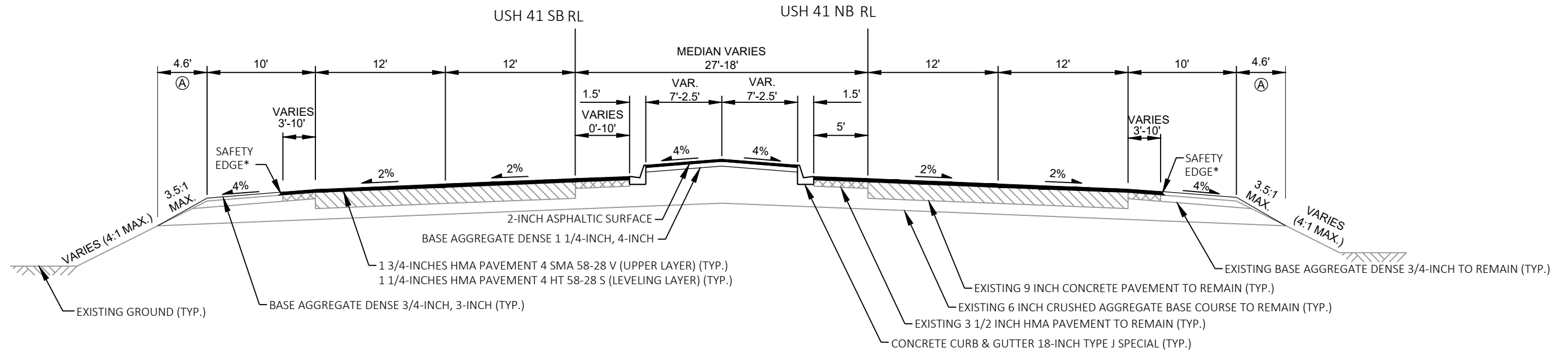


**PROPOSED TYPICAL SECTION**  
 STA. 184+83.00 - STA.241+04.00

- Ⓐ SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND FERTILIZER TYPE B
- Ⓑ SALVAGED TOPSOIL;  
SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND MULCHING  
OR EROSION MAT URBAN CLASS I  
TYPE B (SLOPES STEEPER THAN 3:1)



**PROPOSED TYPICAL SECTION**  
 STA. 209+11.65 - STA. 213+68.73

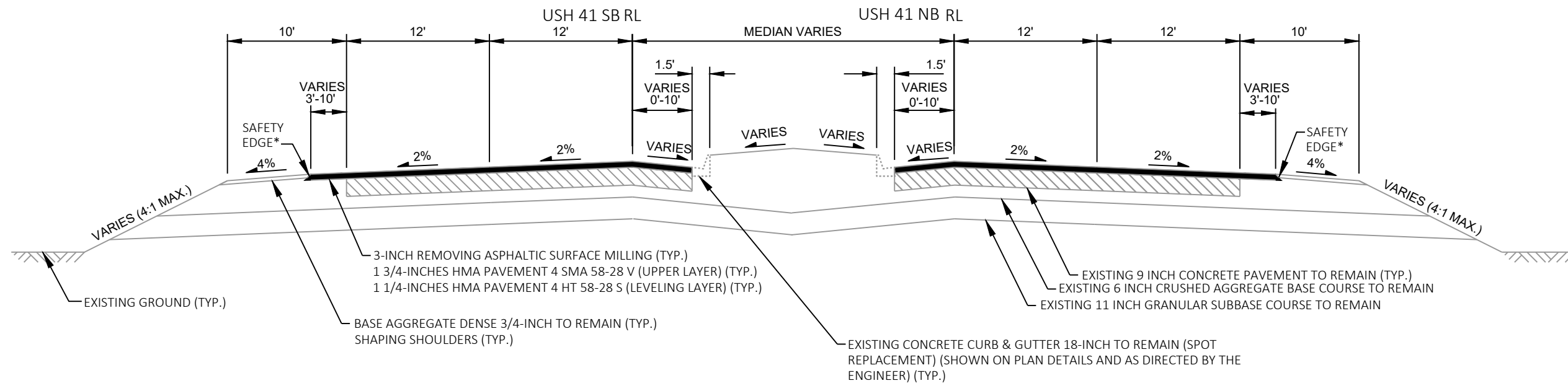


\* INSTALL SAFETY EDGE WHEN SHOULDER IS 3 FEET OR LESS

**PROPOSED TYPICAL SECTION**

STA. 241+04.00 - STA.255+52.00

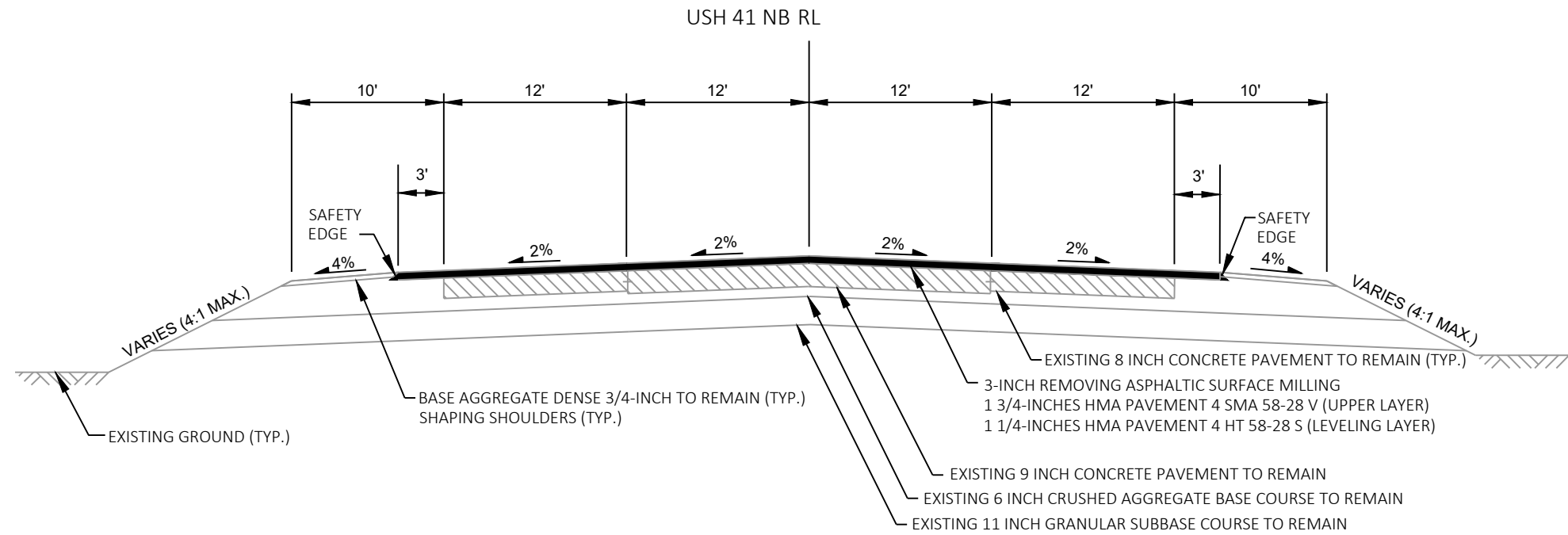
Ⓐ SEEDING TEMPORARY;  
SEEDING MIXTURE NO. 20;  
AND FERTILIZER TYPE B



\* INSTALL SAFETY EDGE WHEN SHOULDER IS 3 FEET OR LESS

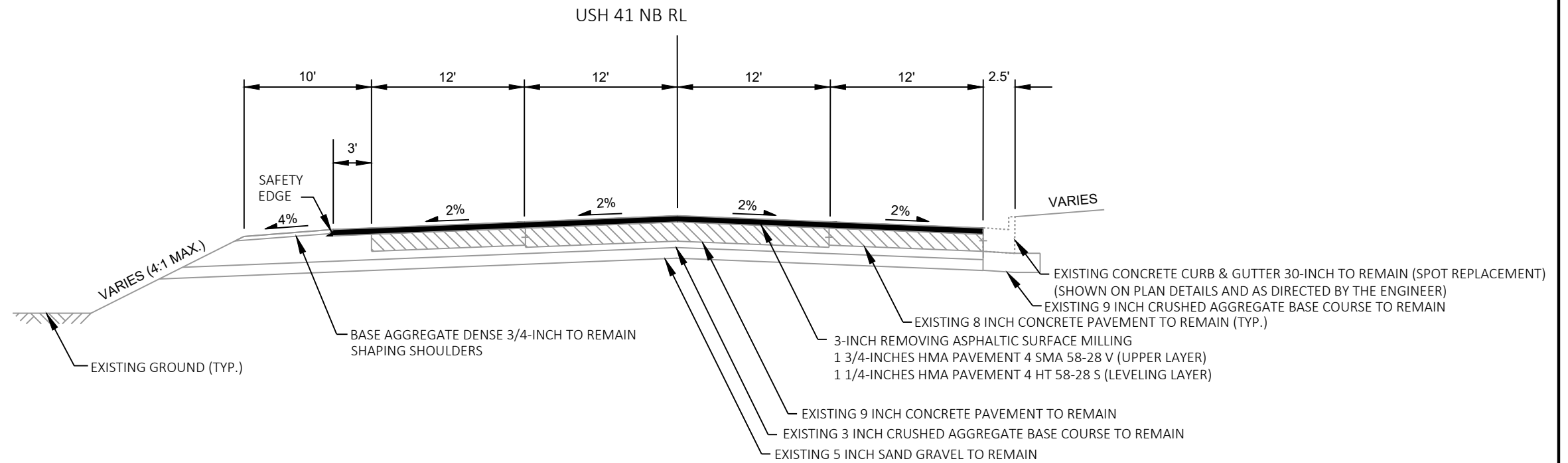
**PROPOSED TYPICAL SECTION**

STA. 255+52.00 - STA.264+44.00



**PROPOSED TYPICAL SECTION**

STA. 264+44.00 - STA.274+00.00

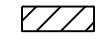
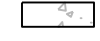
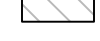


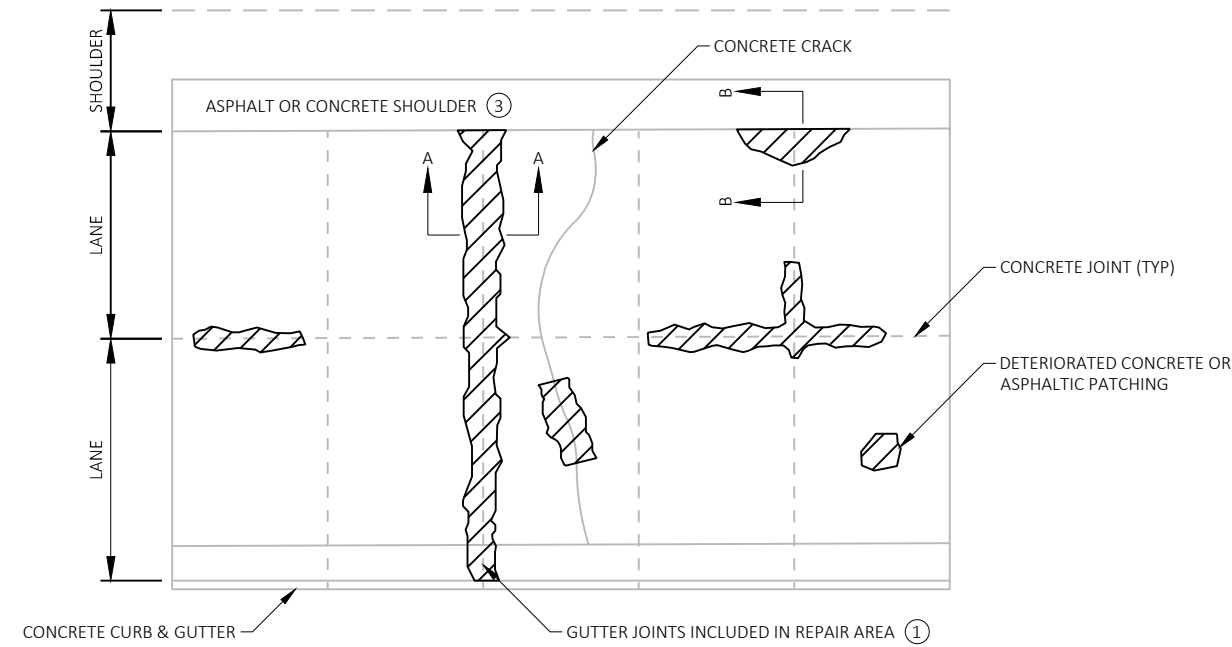
**PROPOSED TYPICAL SECTION**

STA. 274+00.00 - STA.276+16.09

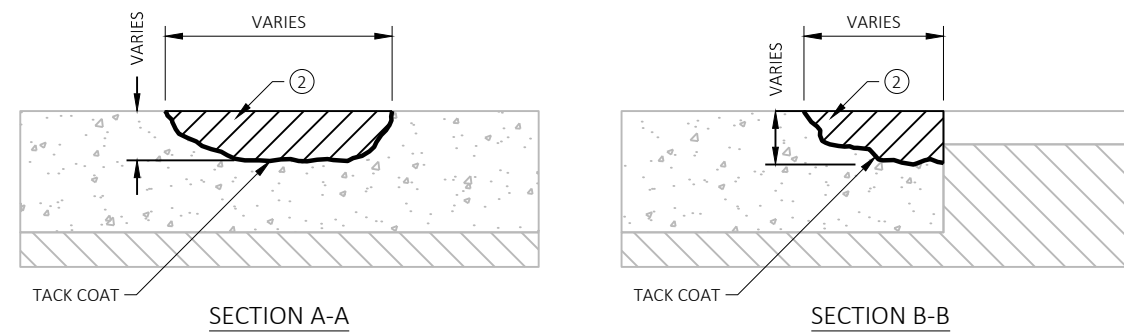
NOTES:

- ① PERFORM CONCRETE JOINT AND CRACK CLEANING AND REPAIR IF ASPHALT OVERLAY WILL BE PLACED ON CONCRETE GUTTER
- ② REMOVE UNSOUND AND DETERIORATED MATERIAL INCLUDING EXISTING ASPHALTIC PATCHING
- ③ EXISTING CONCRETE SHOULDER 5-FOOT OR LESS INCLUDED IN REPAIR AREA OF ADJACENT LANE

-  ASPHALTIC SURFACE
-  EXISTING CONCRETE PAVEMENT
-  EXISTING BASE COURSE

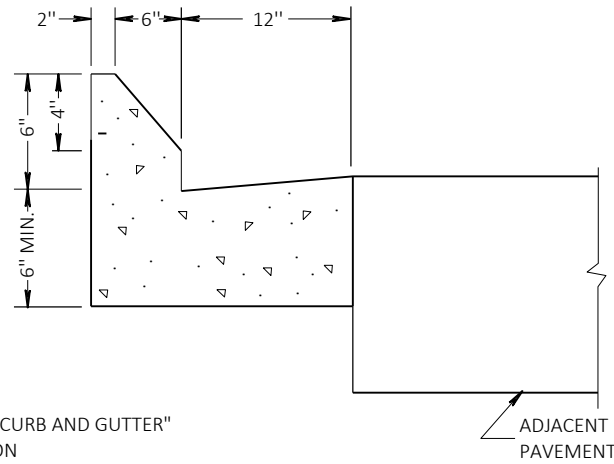


PLAN VIEW



**CONCRETE JOINT AND CRACK CLEANING AND REPAIR**  
 SEE MISCELLANEOUS QUANTITIES FOR LOCATION





NOTE: SEE S.D.D. "CONCRETE CURB AND GUTTER" FOR ADDITIONAL INFORMATION

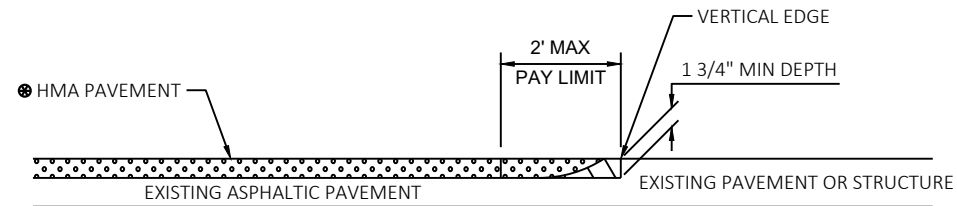
**CONCRETE CURB & GUTTER**  
18-INCH TYPE J

ADJACENT PAVEMENT

**RUNOFF COEFFICIENT TABLE**

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

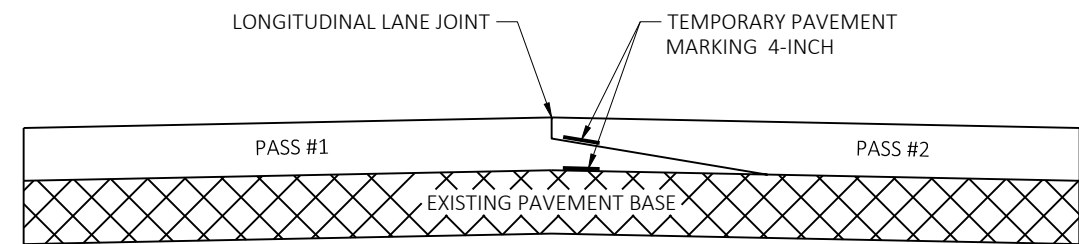
TOTAL PROJECT AREA = 71.3 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 33.7 ACRES



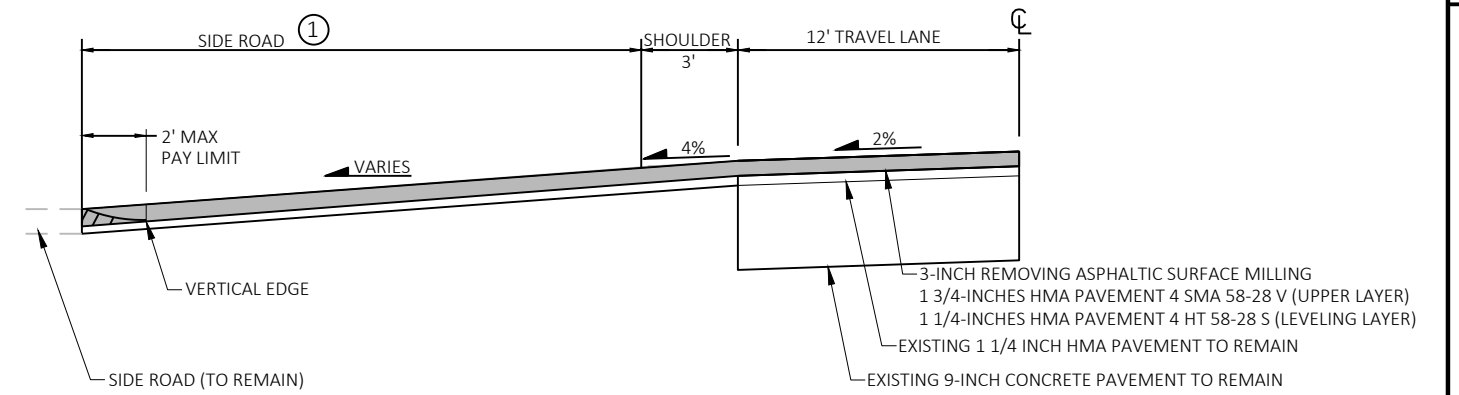
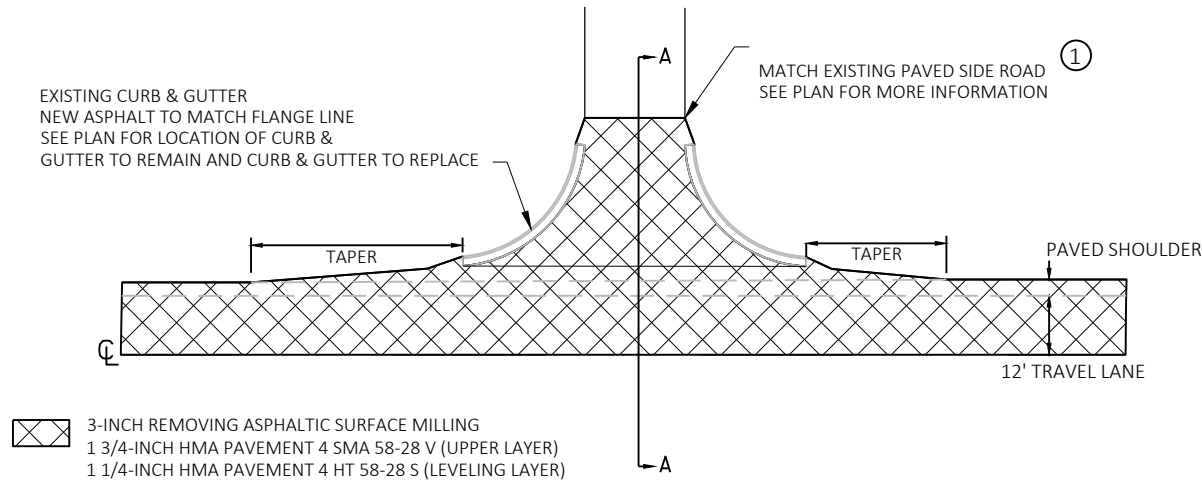
SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

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

BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



PAVEMENT MARKING DETAIL FOR TAPERED OVERLAPPING JOINTS IN HMA PAVEMENTS

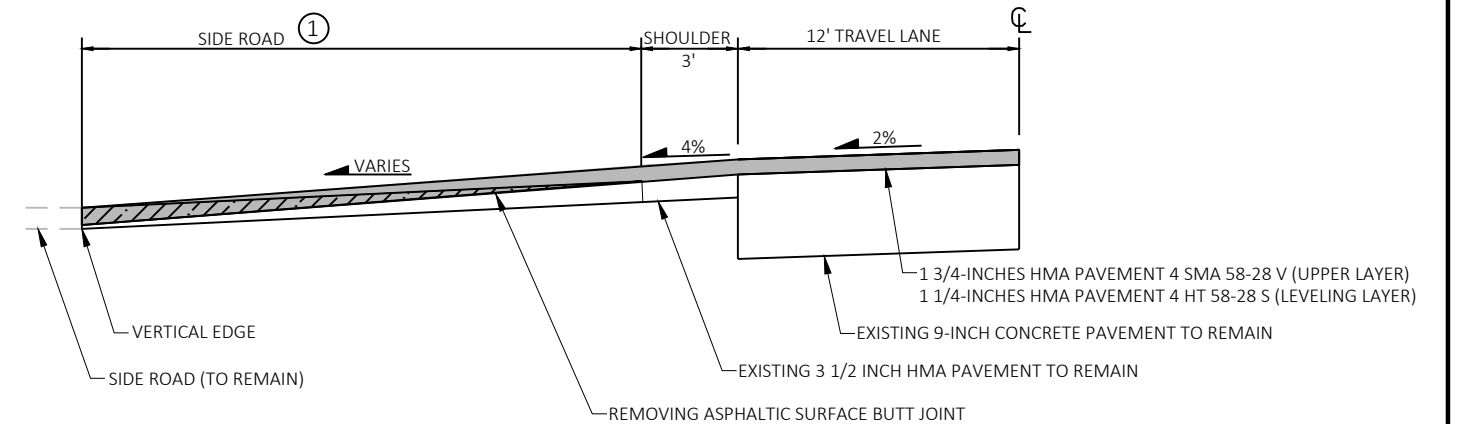
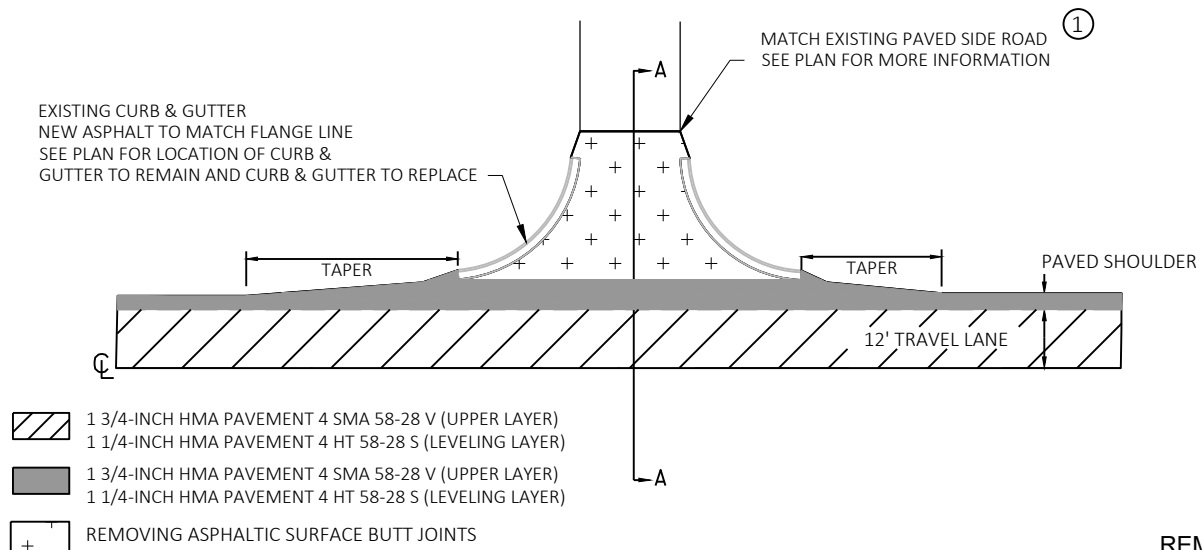


**REMOVING ASPHALTIC SURFACE MILLING AND HMA PAVEMENT ON SIDE ROADS**

**SECTION A-A**

REMOVE ASPHALTIC SURFACE WEDGE AT BUTT JOINT TO CREATE VERTICAL EDGE PAID FOR UNDER BID ITEM REMOVING ASPHALTIC SURFACE BUTT JOINTS

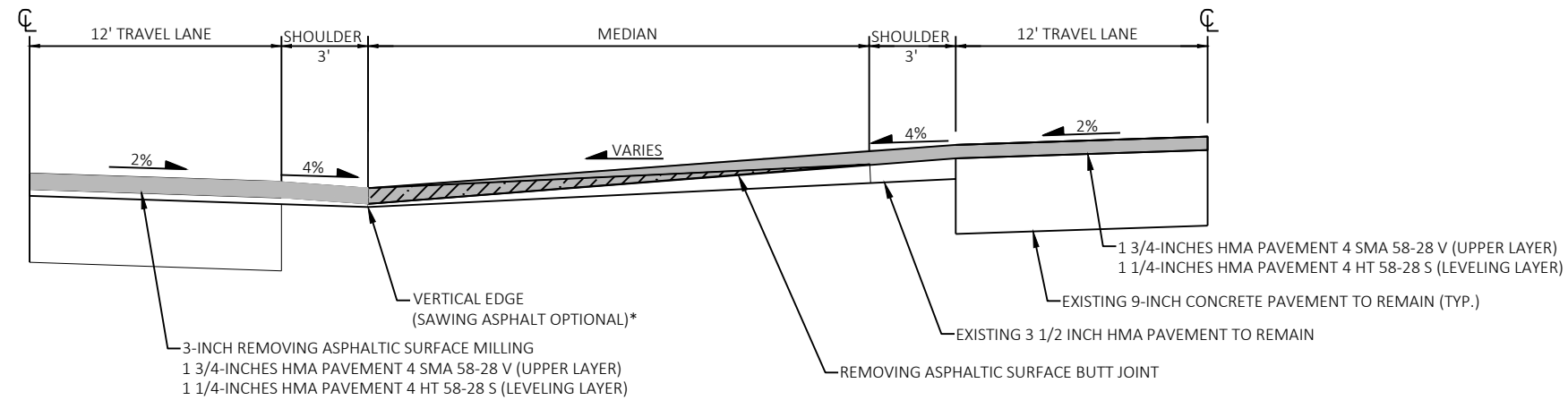
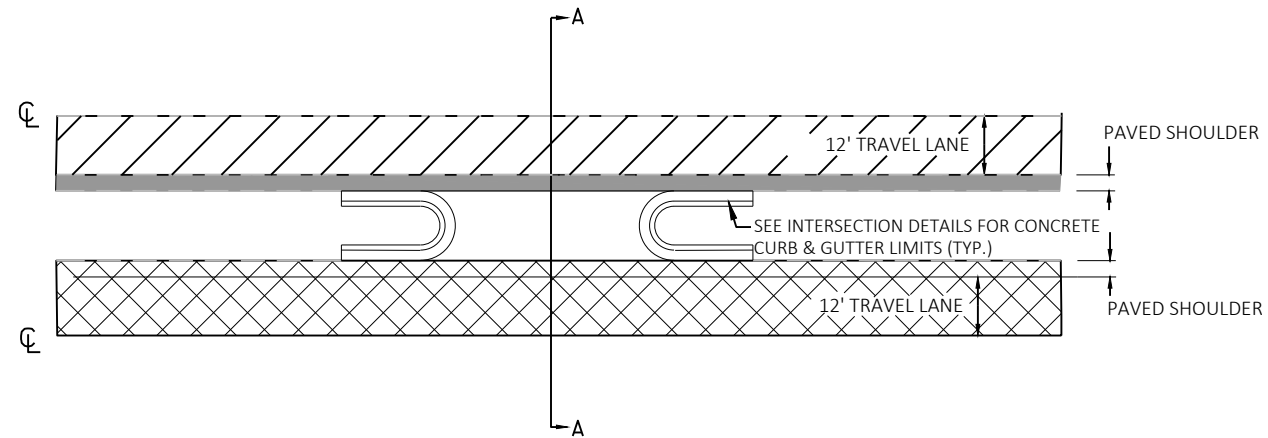
① LIMITS DETERMINED BY THE ENGINEER  
 STA. 10+50 A  
 STA. 10+47 C  
 STA. 11+81 CM



**REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS**




**SECTION A-A**

① LIMITS DETERMINED BY THE ENGINEER  
 STA. 11+20 W  
 STA. 10+12 F  
 STA. 10+53 M  
 STA. 179+03 WF  
 STA. 10+40 CM

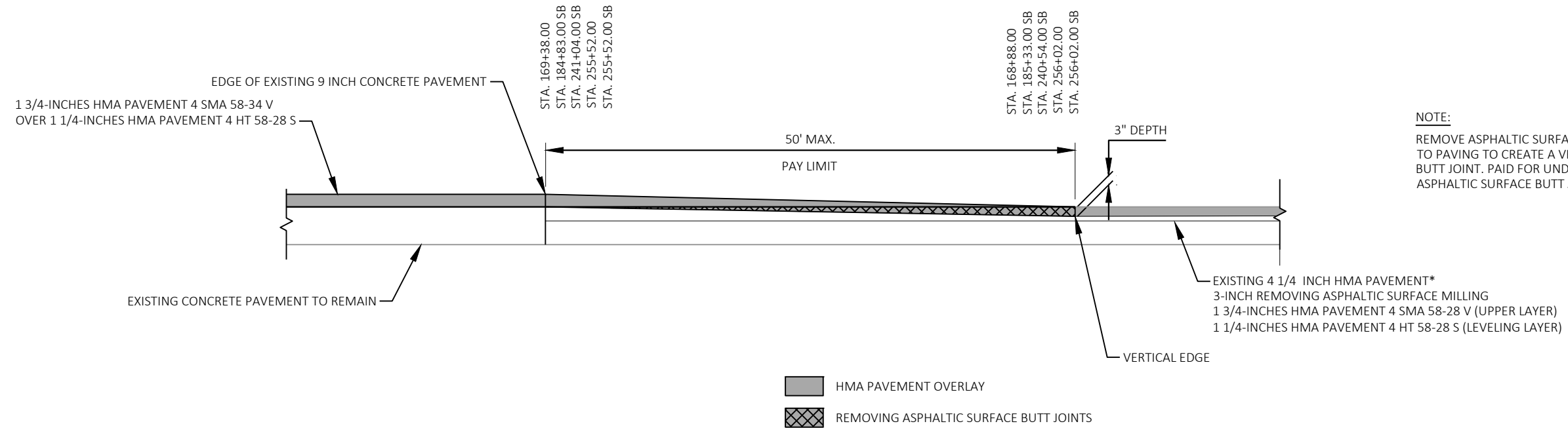


SECTION A-A

REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN

-  1 3/4-INCH HMA PAVEMENT 4 SMA 58-28 V (UPPER LAYER)  
1 1/4-INCH HMA PAVEMENT 4 HT 58-28 S (LEVELING LAYER)
-  1 3/4-INCH HMA PAVEMENT 4 SMA 58-28 V (UPPER LAYER)  
1 1/4-INCH HMA PAVEMENT 4 HT 58-28 S (LEVELING LAYER)
-  3-INCH REMOVING ASPHALTIC SURFACE MILLING  
1 3/4-INCH HMA PAVEMENT 4 SMA 58-28 V (UPPER LAYER)  
1 1/4-INCH HMA PAVEMENT 4 HT 58-28 S (LEVELING LAYER)

\* NOT PAID FOR SEPARATELY

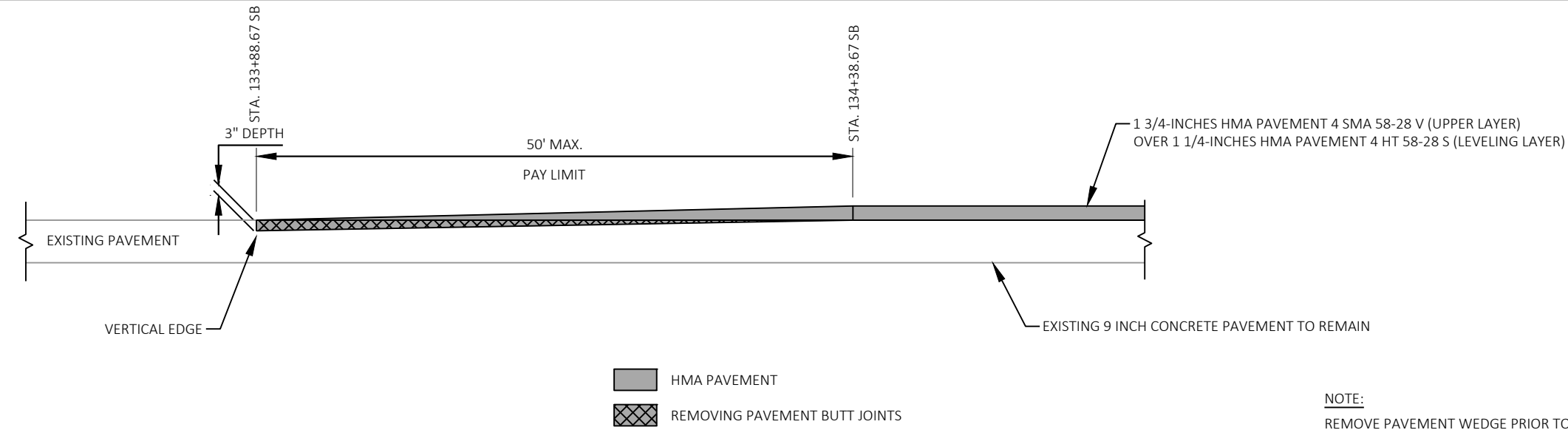


**NOTE:**  
REMOVE ASPHALTIC SURFACE WEDGE PRIOR TO PAVING TO CREATE A VERTICAL FACE AT BUTT JOINT. PAID FOR UNDER REMOVING ASPHALTIC SURFACE BUTT JOINTS.

**TRANSITION BUTT JOINT DETAIL**

STA. 169+38.00  
STA. 184+83.00 SB  
STA. 241+04.00 SB  
STA. 255+52.00 SB  
STA. 255+52.00

\*STA. 256+02.00  
EXISTING 3 INCH HMA PAVEMENT

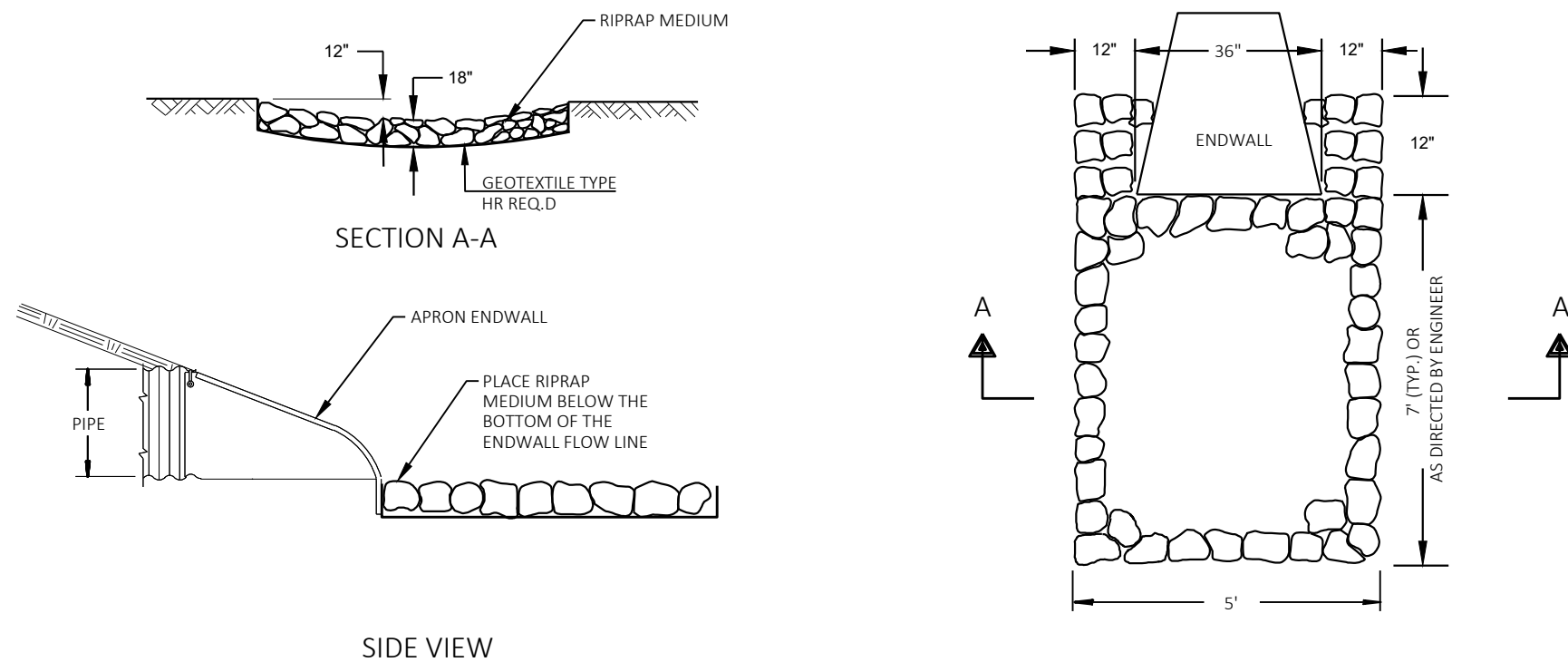


**NOTE:**  
REMOVE PAVEMENT WEDGE PRIOR TO PAVING TO CREATE A VERTICAL FACE AT BUTT JOINT. PAID FOR UNDER REMOVING PAVEMENT BUTT JOINTS.

**REMOVING PAVEMENT BUTT JOINTS DETAIL**

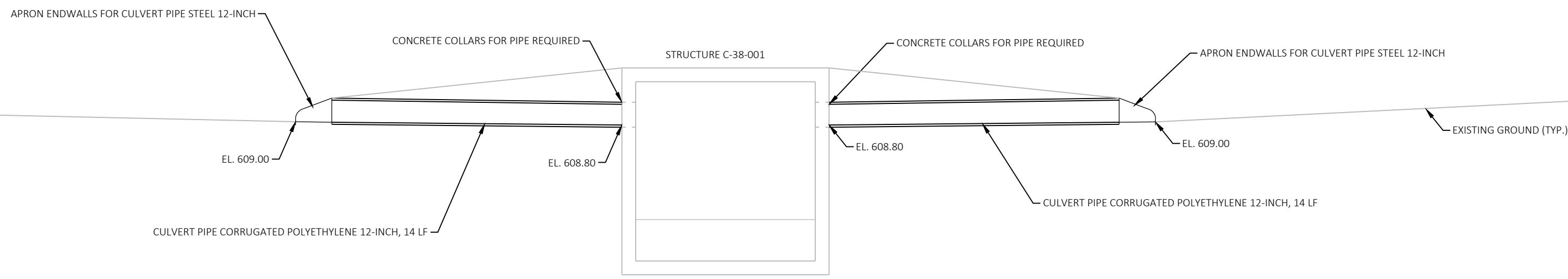
STA. 133+88.67 SB





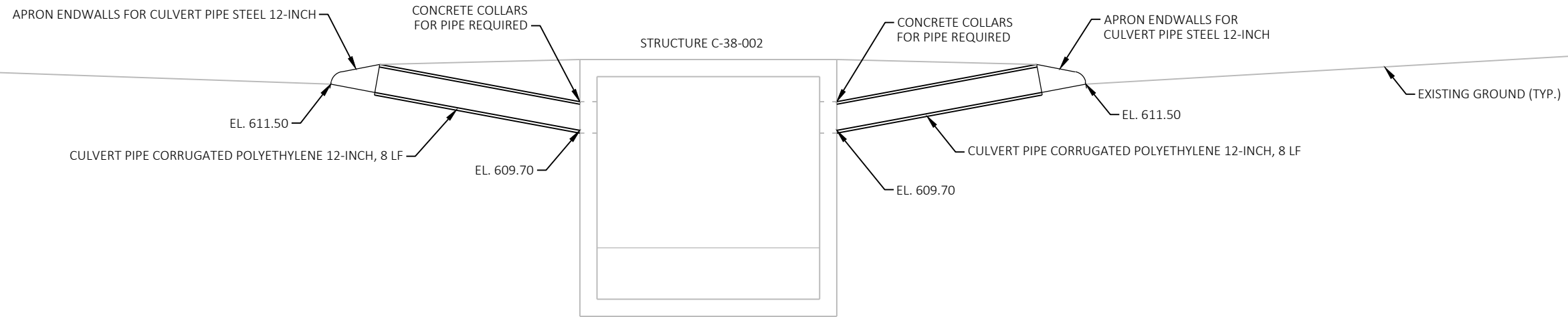
EROSION CONTROL AND RIPRAP MEDIUM TREATMENT AT APRON ENDWALL REPLACEMENT LOCATIONS

STA. 154+00 SB LT  
STA. 166+97 SB LT



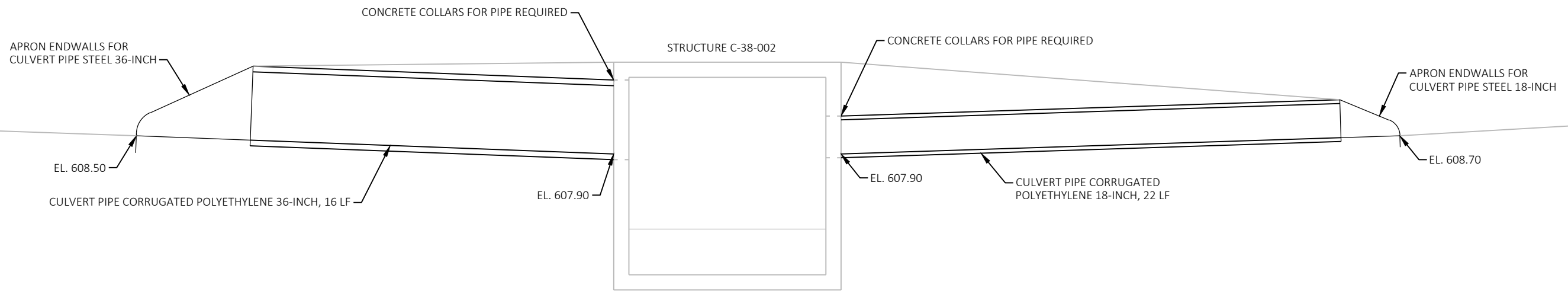
PIPE DETAILS

BOX CULVERT C-38-001  
STA. 135+20 MEDIAN



PIPE DETAILS

BOX CULVERT C-38-002  
STA. 212+00 MEDIAN



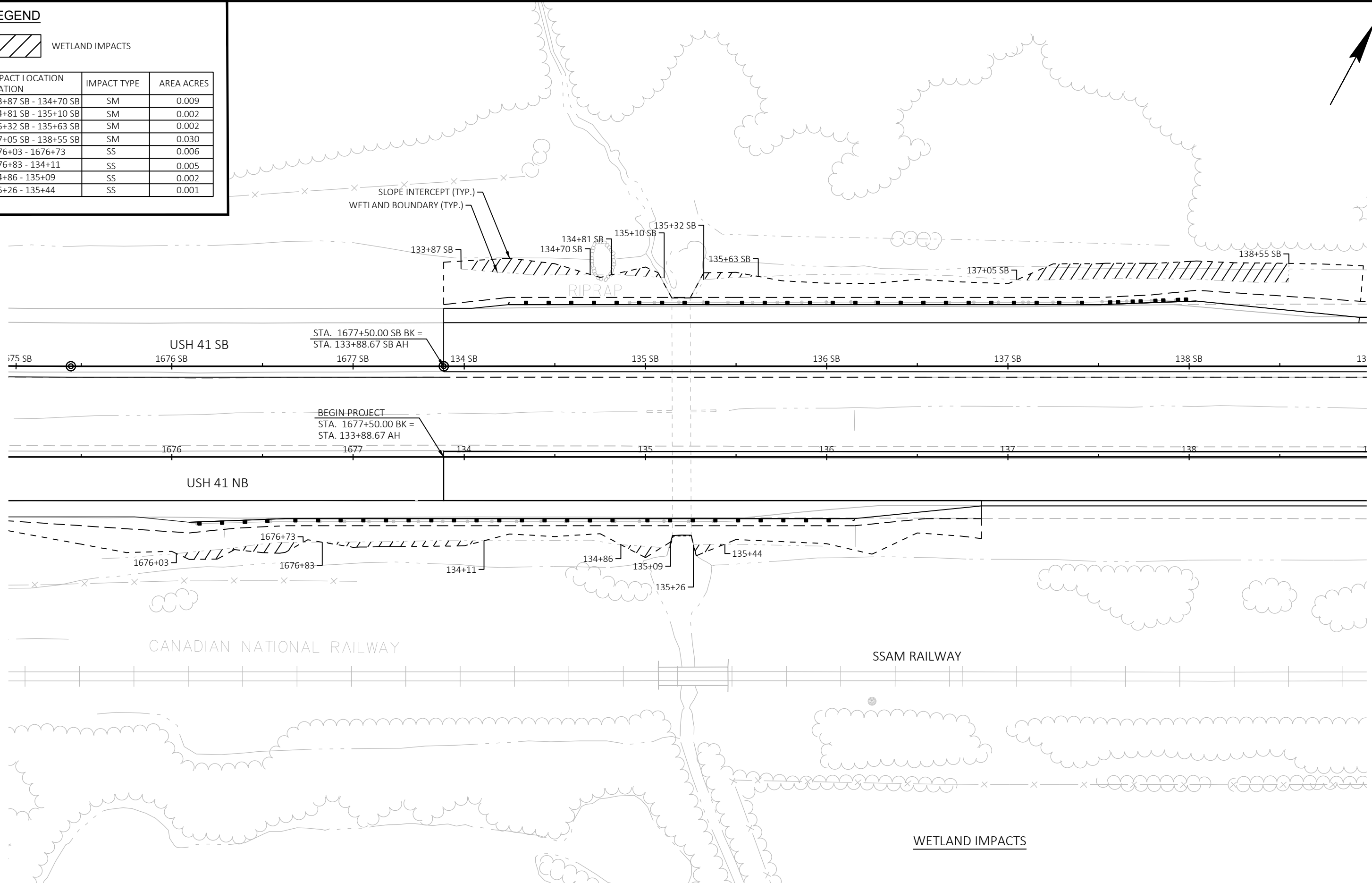
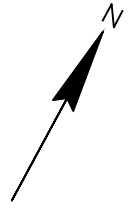
PIPE DETAILS

BOX CULVERT C-38-002  
STA. 212+00 SB LT

LEGEND



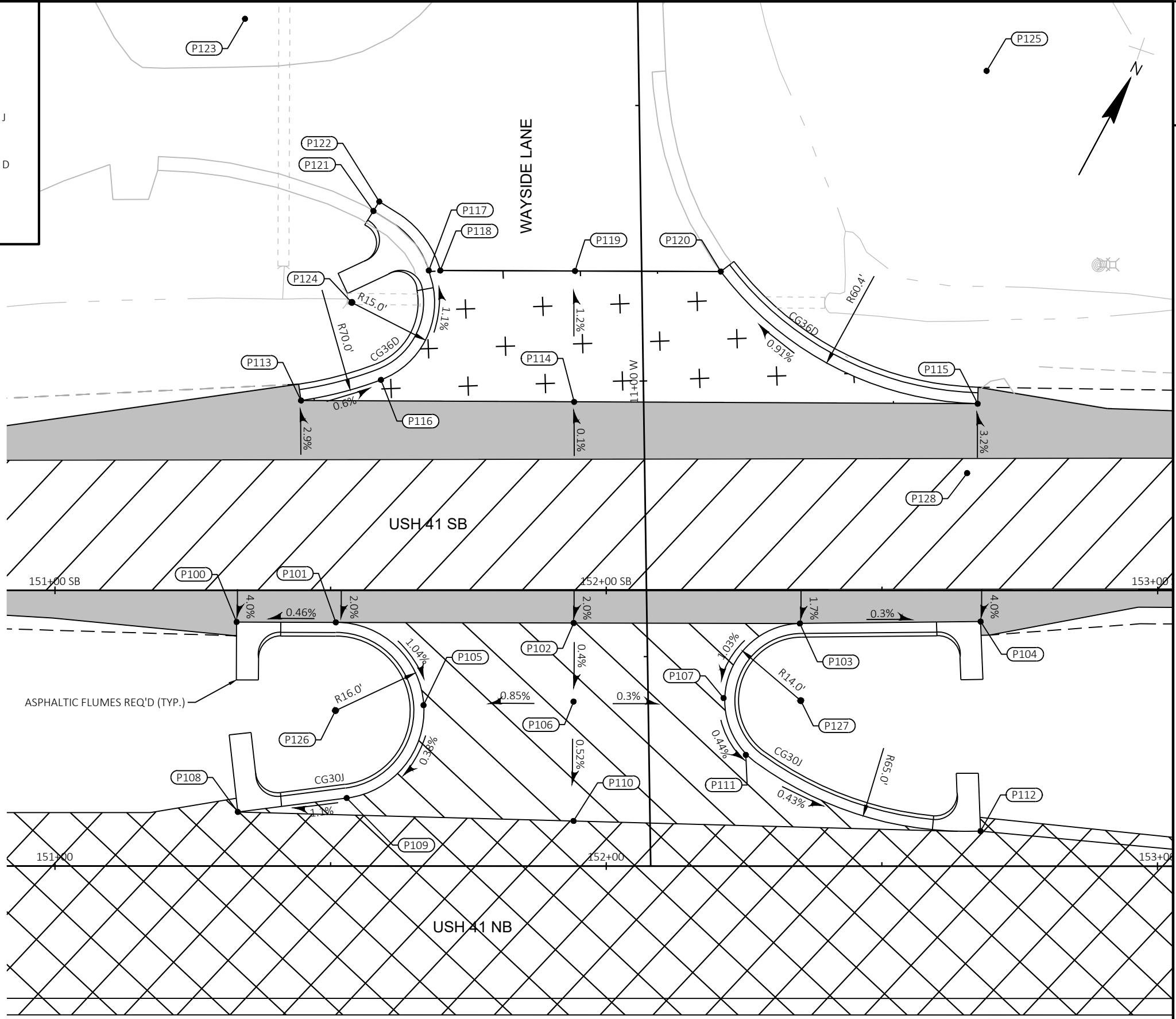
| IMPACT LOCATION STATION | IMPACT TYPE | AREA ACRES |
|-------------------------|-------------|------------|
| 133+87 SB - 134+70 SB   | SM          | 0.009      |
| 134+81 SB - 135+10 SB   | SM          | 0.002      |
| 135+32 SB - 135+63 SB   | SM          | 0.002      |
| 137+05 SB - 138+55 SB   | SM          | 0.030      |
| 1676+03 - 1676+73       | SS          | 0.006      |
| 1676+83 - 134+11        | SS          | 0.005      |
| 134+86 - 135+09         | SS          | 0.002      |
| 135+26 - 135+44         | SS          | 0.001      |



**LEGEND**

|  |  |       |  |
|--|--|-------|--|
|  | HMA OVERLAY (SHOULDERS)  | CG18J | CONCRETE CURB & GUTTER<br>18-INCH TYPE J               |
|  | MILL (HMA) AND OVERLAY   | CG30J | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 30-INCH TYPE J |
|  | CONCRETE REPAIR AND HMA OVERLAY  | CG36D | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 36-INCH TYPE D |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT AT MEDIAN (SEE CONSTRUCTION<br>DETAILS)     |       |  |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT ON SIDE ROADS (SEE CONSTRUCTION<br>DETAILS) |       |  |

| STATION & OFFSET TABLE |              |           |            |            |           |                |
|------------------------|--------------|-----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET    | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P100                   | 151+32.95 SB | 5.73 RT   | 136311.129 | 787416.634 | 615.78    |                |
| P101                   | 151+50.94 SB | 5.80 RT   | 136319.555 | 787432.535 | 615.87    | H.P.           |
| P102                   | 151+94.09 SB | 5.90 RT   | 136339.799 | 787470.640 | 615.93    |                |
| P103                   | 152+35.12 SB | 5.98 RT   | 136359.067 | 787506.860 | 615.99    | H.P.           |
| P104                   | 152+67.90 SB | 5.64 RT   | 136374.820 | 787535.609 | 615.89    |                |
| P105                   | 151+66.86    | 29.19 LT  | 136313.816 | 787453.646 | 615.62    |                |
| P106                   | 151+94.07    | 29.84 LT  | 136327.212 | 787477.336 | 615.85    |                |
| P107                   | 152+21.28    | 30.49 LT  | 136340.607 | 787501.026 | 615.77    |                |
| P108                   | 151+33.17    | 9.81 LT   | 136280.841 | 787433.065 | 615.40    | MATCH EXISTING |
| P109                   | 151+52.92    | 12.33 LT  | 136292.376 | 787449.296 | 615.53    |                |
| P110                   | 151+94.07    | 8.19 LT   | 136308.114 | 787487.542 | 615.74    | MATCH EXISTING |
| P111                   | 152+25.32    | 20.17 LT  | 136333.414 | 787509.453 | 615.72    |                |
| P112                   | 152+67.90    | 6.36 LT   | 136341.297 | 787553.521 | 615.52    | MATCH EXISTING |
| P113                   | 151+44.62 SB | 34.45 LT  | 136352.069 | 787407.994 | 615.66    |                |
| P114                   | 151+94.17 SB | 34.22 LT  | 136375.221 | 787451.796 | 615.98    |                |
| P115                   | 152+67.35 SB | 33.89 LT  | 136409.420 | 787516.499 | 615.76    |                |
| P116                   | 151+59.12 SB | 38.20 LT  | 136362.208 | 787419.010 | 615.57    |                |
| P117                   | 151+67.79 SB | 58.04 LT  | 136383.800 | 787417.309 | 615.31    | L.P.           |
| P118                   | 151+69.88 SB | 58.04 LT  | 136384.777 | 787419.151 | 615.35    | MATCH EXISTING |
| P119                   | 151+94.32 SB | 57.96 LT  | 136396.227 | 787440.740 | 615.70    | MATCH EXISTING |
| P120                   | 152+20.76 SB | 57.87 LT  | 136408.613 | 787464.102 | 615.26    | MATCH EXISTING |
| P121                   | 151+57.75 SB | 68.84 LT  | 136388.585 | 787403.361 | 615.36    | MATCH EXISTING |
| P122                   | 151+58.81 SB | 70.53 LT  | 136390.579 | 787403.497 | 615.39    | MATCH EXISTING |
| P123                   | 151+34.44 SB | 103.70 LT | 136408.348 | 787366.375 | ---       | R=70'          |
| P124                   | 151+53.81 SB | 52.24 LT  | 136372.091 | 787407.711 | ---       | R=15'          |
| P125                   | 152+68.97 SB | 94.28 LT  | 136463.444 | 787489.466 | ---       | R=60.4'        |
| P126                   | 151+50.89    | 28.20 LT  | 136305.409 | 787440.027 | ---       | R=16'          |
| P127                   | 152+35.27    | 30.02 LT  | 136346.787 | 787513.592 | ---       | R=14'          |
| P128                   | 152+65.44 SB | 21.31 LT  | 136397.424 | 787520.745 | ---       | R=65'          |

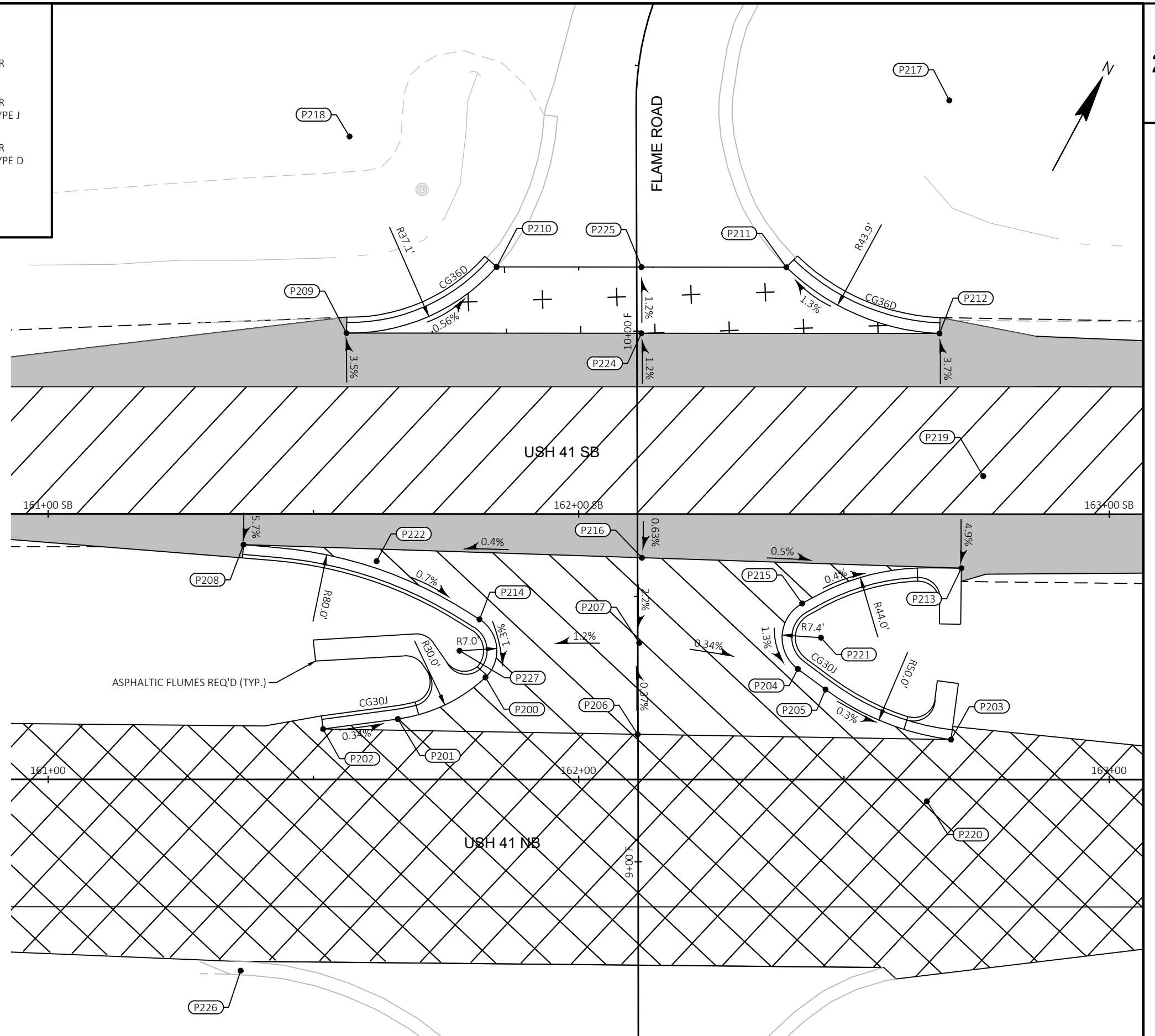




LEGEND

|  |  |       |  |
|--|--|-------|--|
|  | HMA OVERLAY (SHOULDERS)  | CG18J | CONCRETE CURB & GUTTER<br>18-INCH TYPE J               |
|  | MILL (HMA) AND OVERLAY   | CG30J | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 30-INCH TYPE J |
|  | CONCRETE REPAIR AND HMA OVERLAY  | CG36D | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 36-INCH TYPE D |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT AT MEDIAN (SEE CONSTRUCTION<br>DETAILS)     |       |  |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT ON SIDE ROADS (SEE CONSTRUCTION<br>DETAILS) |       |  |

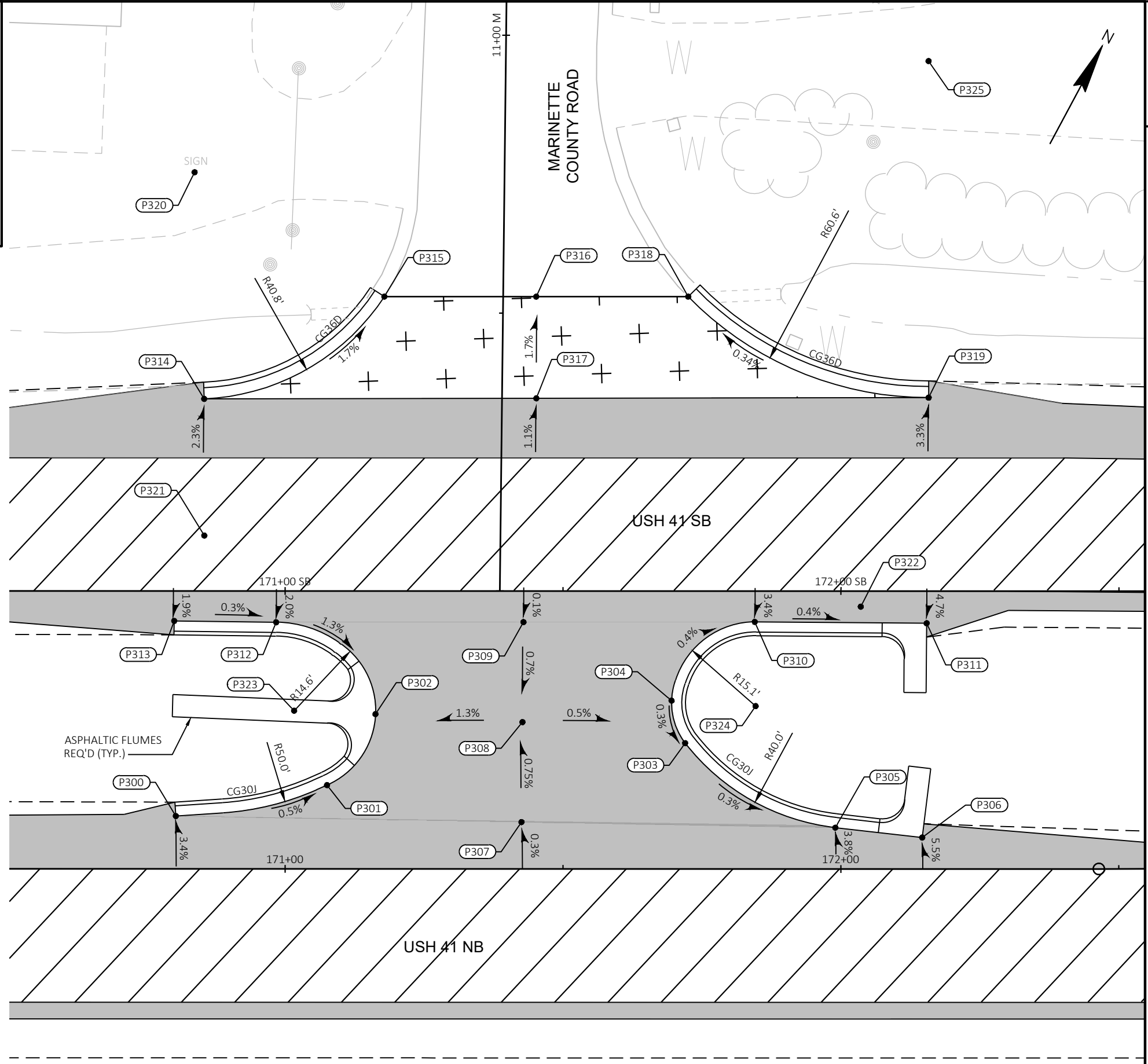
| STATION & OFFSET TABLE |              |          |            |            |           |                |
|------------------------|--------------|----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P200                   | 161+82.44    | 19.25 LT | 136783.704 | 788354.033 | 616.16    | L.P.           |
| P201                   | 161+65.91    | 11.38 LT | 136768.981 | 788343.163 | 616.17    |                |
| P202                   | 161+51.83    | 9.48 LT  | 136760.667 | 788331.636 | 616.22    | MATCH EXISTING |
| P203                   | 162+70.18    | 7.53 LT  | 136814.721 | 788436.940 | 616.35    | MATCH EXISTING |
| P204                   | 162+41.30    | 20.82 LT | 136812.834 | 788405.208 | 616.45    |                |
| P205                   | 162+46.53    | 16.95 LT | 136811.889 | 788411.638 | 616.43    |                |
| P206                   | 162+11.13    | 8.50 LT  | 136787.751 | 788384.399 | 616.61    | MATCH EXISTING |
| P207                   | 162+11.41    | 25.74 LT | 136803.090 | 788376.525 | 616.55    |                |
| P208                   | 161+36.82 SB | 5.78 RT  | 136784.232 | 788302.039 | 616.58    |                |
| P209                   | 161+56.23 SB | 34.08 LT | 136828.533 | 788300.370 | 616.63    |                |
| P210                   | 161+84.52 SB | 46.56 LT | 136852.880 | 788319.435 | 616.45    | MATCH EXISTING |
| P211                   | 162+39.13 SB | 46.50 LT | 136878.563 | 788367.624 | 616.32    | MATCH EXISTING |
| P212                   | 162+68.00 SB | 34.03 LT | 136881.169 | 788398.968 | 616.74    |                |
| P213                   | 162+72.13 SB | 10.20 RT | 136844.112 | 788423.454 | 616.51    |                |
| P214                   | 161+81.30 SB | 19.85 RT | 136792.783 | 788347.896 | 616.26    |                |
| P215                   | 162+42.12 SB | 16.84 RT | 136824.110 | 788400.112 | 616.64    | H.P.           |
| P216                   | 162+11.93 SB | 8.24 RT  | 136817.465 | 788369.436 | 616.91    |                |
| P217                   | 162+69.84 SB | 77.93 LT | 136920.758 | 788379.896 | ---       | R=43.9'        |
| P218                   | 161+56.78 SB | 71.12 LT | 136861.466 | 788283.391 | ---       | R=37.1'        |
| P219                   | 162+76.25 SB | 7.16 LT  | 136861.358 | 788418.905 | ---       | R=50'          |
| P220                   | 162+65.64    | 4.11 RT  | 136802.314 | 788438.422 | ---       | R=44'          |
| P221                   | 162+45.67    | 26.73 LT | 136820.106 | 788406.276 | ---       | R=7.4'         |
| P222                   | 161+61.90 SB | 8.89 RT  | 136793.313 | 788325.614 | ---       | R=30'          |
| P224                   | 162+11.82 SB | 34.05 LT | 136854.711 | 788349.407 | 616.84    |                |
| P225                   | 162+11.82 SB | 46.53 LT | 136865.722 | 788343.529 | 616.68    | MATCH EXISTING |
| P226                   | 161+36.30    | 36.03 RT | 136713.203 | 788339.394 | ---       | R=80'          |
| P227                   | 161+77.53    | 24.24 LT | 136785.802 | 788347.353 | ---       | R=7'           |



**LEGEND**

|  |  |       |  |
|--|--|-------|--|
|  | HMA OVERLAY (SHOULDERS)  | CG18J | CONCRETE CURB & GUTTER<br>18-INCH TYPE J               |
|  | MILL (HMA) AND OVERLAY   | CG30J | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 30-INCH TYPE J |
|  | CONCRETE REPAIR AND HMA OVERLAY  | CG36D | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 36-INCH TYPE D |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT AT MEDIAN (SEE CONSTRUCTION<br>DETAILS)     |       |  |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT ON SIDE ROADS (SEE CONSTRUCTION<br>DETAILS) |       |  |




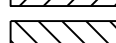
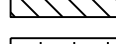
| STATION & OFFSET TABLE |              |          |            |            |           |                |
|------------------------|--------------|----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P300                   | 170+80.34    | 9.51 LT  | 137198.317 | 789150.539 | 617.10    |                |
| P301                   | 171+07.55    | 15.07 LT | 137216.040 | 789171.917 | 616.96    |                |
| P302                   | 171+16.26    | 27.84 LT | 137231.412 | 789173.577 | 616.88    | L.P.           |
| P303                   | 171+71.97    | 22.63 LT | 137253.077 | 789225.172 | 617.07    |                |
| P304                   | 171+69.54    | 30.28 LT | 137258.675 | 789219.420 | 617.10    | L.P.           |
| P305                   | 171+99.01    | 7.44 LT  | 137252.419 | 789256.177 | 616.98    |                |
| P306                   | 172+14.63    | 5.65 LT  | 137258.204 | 789270.796 | 616.93    |                |
| P307                   | 171+42.54    | 8.42 LT  | 137226.673 | 789205.907 | 617.38    |                |
| P308                   | 171+42.71    | 26.42 LT | 137242.623 | 789197.578 | 617.23    |                |
| P309                   | 171+42.88 SB | 5.59 RT  | 137258.573 | 789189.250 | 617.34    |                |
| P310                   | 171+84.49 SB | 5.55 RT  | 137278.227 | 789225.935 | 617.01    |                |
| P311                   | 172+15.42 SB | 5.79 RT  | 137292.585 | 789253.324 | 616.88    |                |
| P312                   | 170+98.38 SB | 5.64 RT  | 137237.560 | 789150.028 | 617.24    |                |
| P313                   | 170+80.05 SB | 5.40 RT  | 137229.129 | 789133.746 | 617.29    |                |
| P314                   | 170+85.42 SB | 34.55 LT | 137266.900 | 789119.658 | 617.01    |                |
| P315                   | 171+17.84 SB | 52.96 LT | 137298.410 | 789139.571 | 616.36    | MATCH EXISTING |
| P316                   | 171+45.17 SB | 52.96 LT | 137311.292 | 789163.677 | 616.77    | MATCH EXISTING |
| P317                   | 171+45.19 SB | 34.67 LT | 137295.167 | 789172.312 | 617.08    |                |
| P318                   | 171+72.50 SB | 52.96 LT | 137324.174 | 789187.782 | 616.49    | MATCH EXISTING |
| P319                   | 172+15.77 SB | 34.80 LT | 137328.551 | 789234.499 | 616.65    |                |
| P320                   | 170+83.70 SB | 75.33 LT | 137302.053 | 789098.920 | ---       | R=40.8'        |
| P321                   | 170+85.45 SB | 9.97 LT  | 137245.232 | 789131.271 | ---       | R=50'          |
| P322                   | 172+03.56 SB | 2.81 RT  | 137289.631 | 789241.457 | ---       | R=40'          |
| P323                   | 171+01.64    | 28.45 LT | 137225.060 | 789160.394 | ---       | R=14.6'        |
| P324                   | 171+84.65    | 29.30 LT | 137264.939 | 789233.210 | ---       | R=15.1'        |
| P325                   | 172+15.74 SB | 95.36 LT | 137381.948 | 789205.933 | ---       | R=60.6'        |

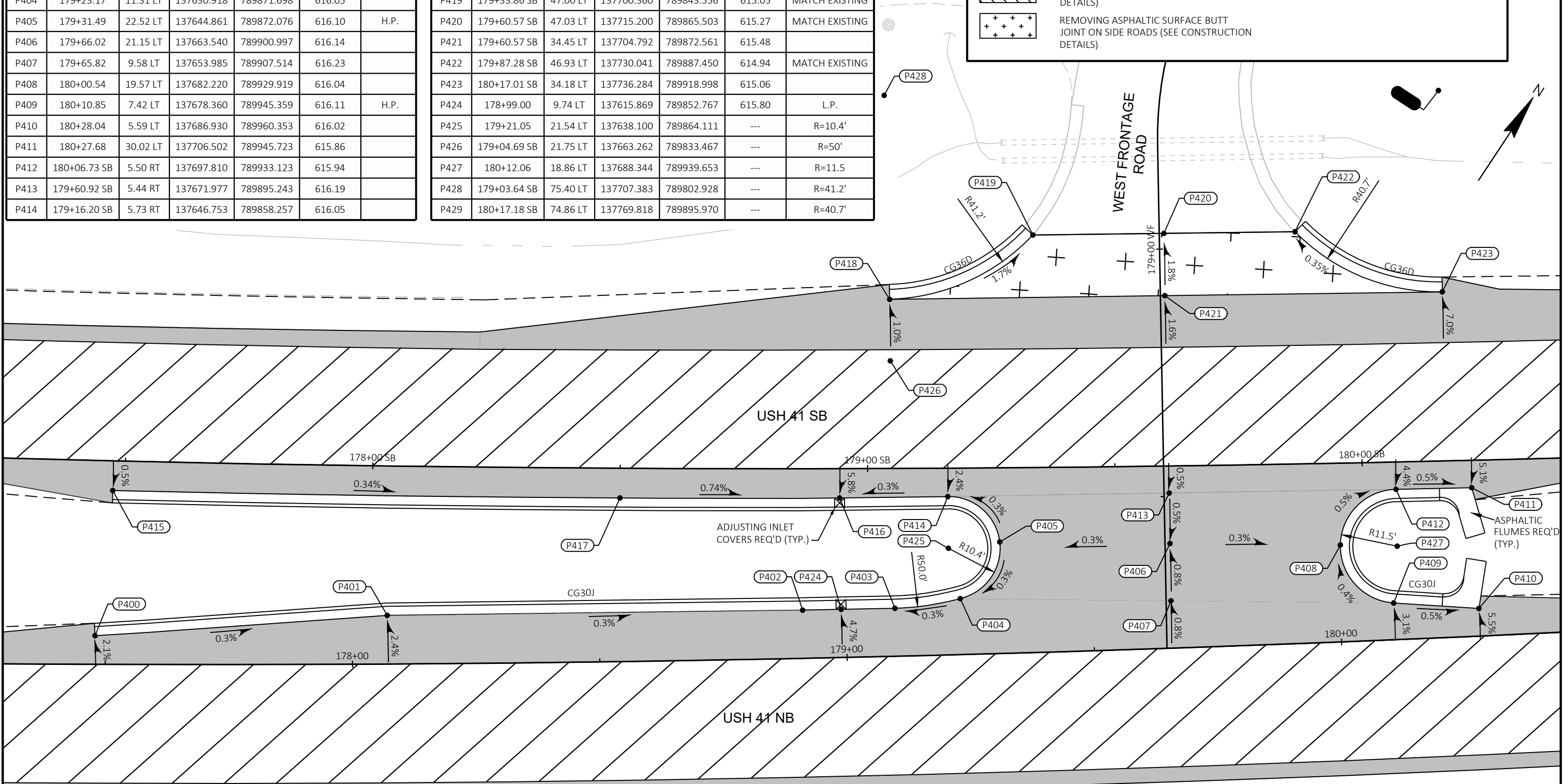


| STATION & OFFSET TABLE |              |          |            |            |           |         |
|------------------------|--------------|----------|------------|------------|-----------|---------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS |
| P400                   | 177+47.93    | 5.81 LT  | 137528.487 | 789729.737 | 616.51    |         |
| P401                   | 178+07.07    | 9.84 LT  | 137564.392 | 789776.799 | 616.34    |         |
| P402                   | 178+91.21    | 9.74 LT  | 137611.449 | 789846.369 | 616.08    |         |
| P403                   | 179+09.90    | 9.69 LT  | 137622.026 | 789861.745 | 616.01    |         |
| P404                   | 179+23.17    | 11.31 LT | 137630.918 | 789871.698 | 616.05    |         |
| P405                   | 179+31.49    | 22.52 LT | 137644.861 | 789872.076 | 616.10    | H.P.    |
| P406                   | 179+66.02    | 21.15 LT | 137663.540 | 789900.997 | 616.14    |         |
| P407                   | 179+65.82    | 9.58 LT  | 137653.985 | 789907.514 | 616.23    |         |
| P408                   | 180+00.54    | 19.57 LT | 137682.220 | 789929.919 | 616.04    |         |
| P409                   | 180+10.85    | 7.42 LT  | 137678.360 | 789945.359 | 616.11    | H.P.    |
| P410                   | 180+28.04    | 5.59 LT  | 137686.930 | 789960.353 | 616.02    |         |
| P411                   | 180+27.68    | 30.02 LT | 137706.502 | 789945.723 | 615.86    |         |
| P412                   | 180+06.73 SB | 5.50 RT  | 137697.810 | 789933.123 | 615.94    |         |
| P413                   | 179+60.92 SB | 5.44 RT  | 137671.977 | 789895.243 | 616.19    |         |
| P414                   | 179+16.20 SB | 5.73 RT  | 137646.753 | 789858.257 | 616.05    |         |

| STATION & OFFSET TABLE |              |          |            |            |           |                |
|------------------------|--------------|----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P415                   | 177+47.56 SB | 6.00 RT  | 137554.938 | 789716.604 | 616.67    |                |
| P416                   | 178+94.35 SB | 5.91 RT  | 137634.501 | 789840.144 | 615.99    | L.P.           |
| P417                   | 178+50.00 SB | 6.00 RT  | 137610.077 | 789803.067 | 616.32    |                |
| P418                   | 179+04.61 SB | 34.18 LT | 137673.574 | 789826.527 | 615.58    |                |
| P419                   | 179+33.86 SB | 47.00 LT | 137700.360 | 789843.556 | 615.05    | MATCH EXISTING |
| P420                   | 179+60.57 SB | 47.03 LT | 137715.200 | 789865.503 | 615.27    | MATCH EXISTING |
| P421                   | 179+60.57 SB | 34.45 LT | 137704.792 | 789872.561 | 615.48    |                |
| P422                   | 179+87.28 SB | 46.93 LT | 137730.041 | 789887.450 | 614.94    | MATCH EXISTING |
| P423                   | 180+17.01 SB | 34.18 LT | 137736.284 | 789918.998 | 615.06    |                |
| P424                   | 178+99.00    | 9.74 LT  | 137615.869 | 789852.767 | 615.80    | L.P.           |
| P425                   | 179+21.05    | 21.54 LT | 137638.100 | 789864.111 | ---       | R=10.4'        |
| P426                   | 179+04.69 SB | 21.75 LT | 137663.262 | 789833.467 | ---       | R=50'          |
| P427                   | 180+12.06    | 18.86 LT | 137688.344 | 789939.653 | ---       | R=11.5         |
| P428                   | 179+03.64 SB | 75.40 LT | 137707.383 | 789802.928 | ---       | R=41.2'        |
| P429                   | 180+17.18 SB | 74.86 LT | 137769.818 | 789895.970 | ---       | R=40.7'        |

LEGEND




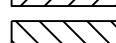
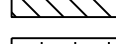
-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)
- CG18J CONCRETE CURB & GUTTER 18-INCH TYPE J
- CG30J CONCRETE CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE J
- CG36D CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

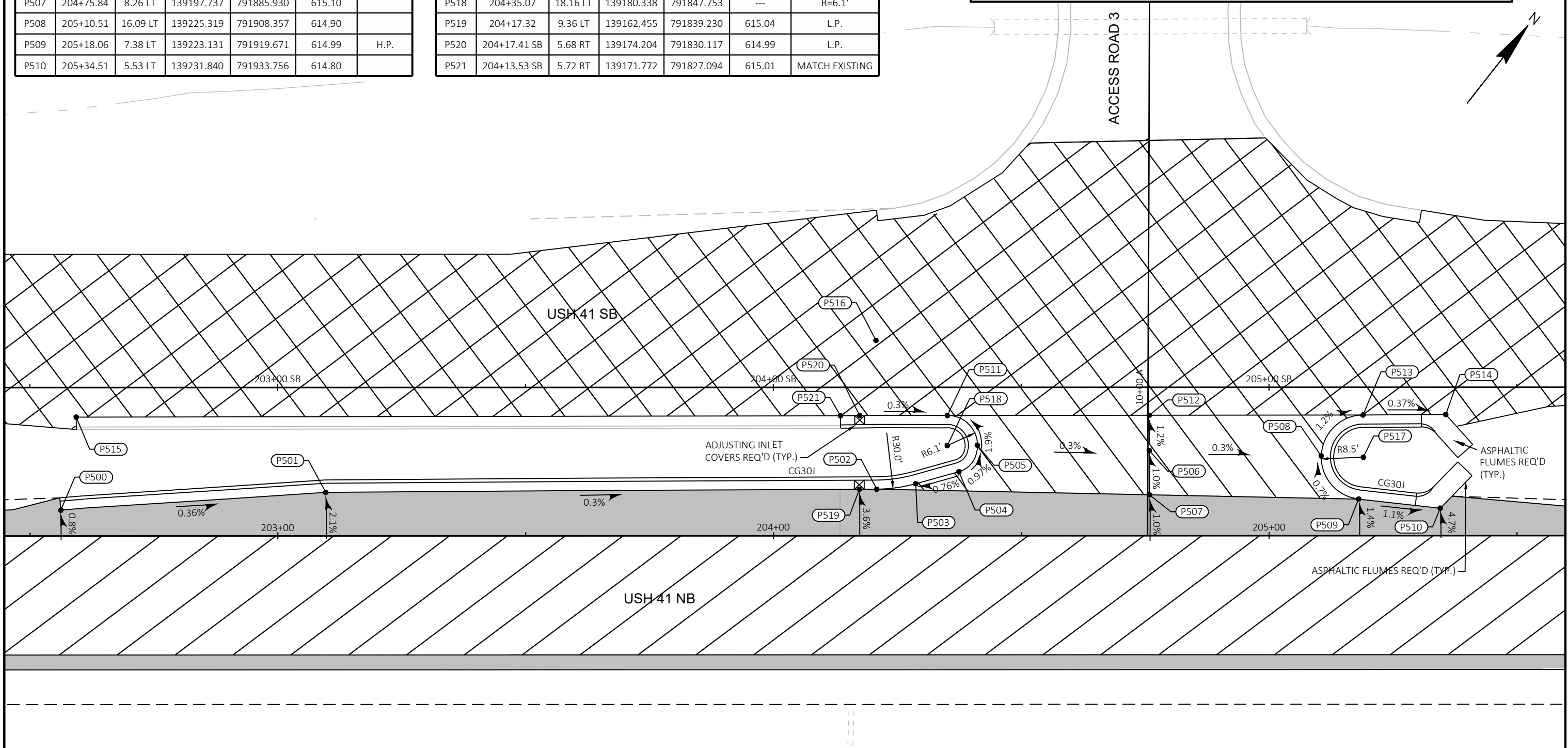


| STATION & OFFSET TABLE |           |          |            |            |           |         |
|------------------------|-----------|----------|------------|------------|-----------|---------|
| POINT                  | STATION   | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS |
| P500                   | 202+56.24 | 5.19 LT  | 139059.651 | 791715.146 | 615.53    |         |
| P501                   | 203+09.68 | 8.76 LT  | 139095.481 | 791754.970 | 615.36    |         |
| P502                   | 204+20.85 | 9.38 LT  | 139164.654 | 791841.995 | 615.04    |         |
| P503                   | 204+28.71 | 10.48 LT | 139170.372 | 791847.502 | 615.13    |         |
| P504                   | 204+37.42 | 12.90 LT | 139177.656 | 791852.855 | 615.14    | H.P.    |
| P505                   | 204+41.14 | 18.25 LT | 139184.161 | 791852.475 | 615.11    |         |
| P506                   | 204+75.83 | 17.17 LT | 139204.740 | 791880.416 | 614.92    |         |
| P507                   | 204+75.84 | 8.26 LT  | 139197.737 | 791885.930 | 615.10    |         |
| P508                   | 205+10.51 | 16.09 LT | 139225.319 | 791908.357 | 614.90    |         |
| P509                   | 205+18.06 | 7.38 LT  | 139223.131 | 791919.671 | 614.99    | H.P.    |
| P510                   | 205+34.51 | 5.53 LT  | 139231.840 | 791933.756 | 614.80    |         |

| STATION & OFFSET TABLE |              |          |            |            |           |                |
|------------------------|--------------|----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P511                   | 204+35.09 SB | 5.68 RT  | 139185.127 | 791844.016 | 614.93    | MATCH EXISTING |
| P512                   | 204+75.82 SB | 5.64 RT  | 139210.326 | 791876.018 | 614.98    | MATCH EXISTING |
| P513                   | 205+18.97 SB | 5.59 RT  | 139237.016 | 791909.914 | 614.75    | MATCH EXISTING |
| P514                   | 205+35.65 SB | 5.50 RT  | 139247.395 | 791922.979 | 614.69    | MATCH EXISTING |
| P515                   | 202+59.35 SB | 5.96 RT  | 139076.316 | 791706.007 | 615.28    |                |
| P516                   | 204+20.69 SB | 9.47 LT  | 139188.139 | 791823.329 | ---       | R=30'          |
| P517                   | 205+19.01    | 15.83 LT | 139230.360 | 791915.201 | ---       | R=8.5'         |
| P518                   | 204+35.07    | 18.16 LT | 139180.338 | 791847.753 | ---       | R=6.1'         |
| P519                   | 204+17.32    | 9.36 LT  | 139162.455 | 791839.230 | 615.04    | L.P.           |
| P520                   | 204+17.41 SB | 5.68 RT  | 139174.204 | 791830.117 | 614.99    | L.P.           |
| P521                   | 204+13.53 SB | 5.72 RT  | 139171.772 | 791827.094 | 615.01    | MATCH EXISTING |

LEGEND




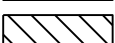
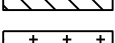

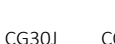

-  HMA OVERLAY (SHOULDERS)
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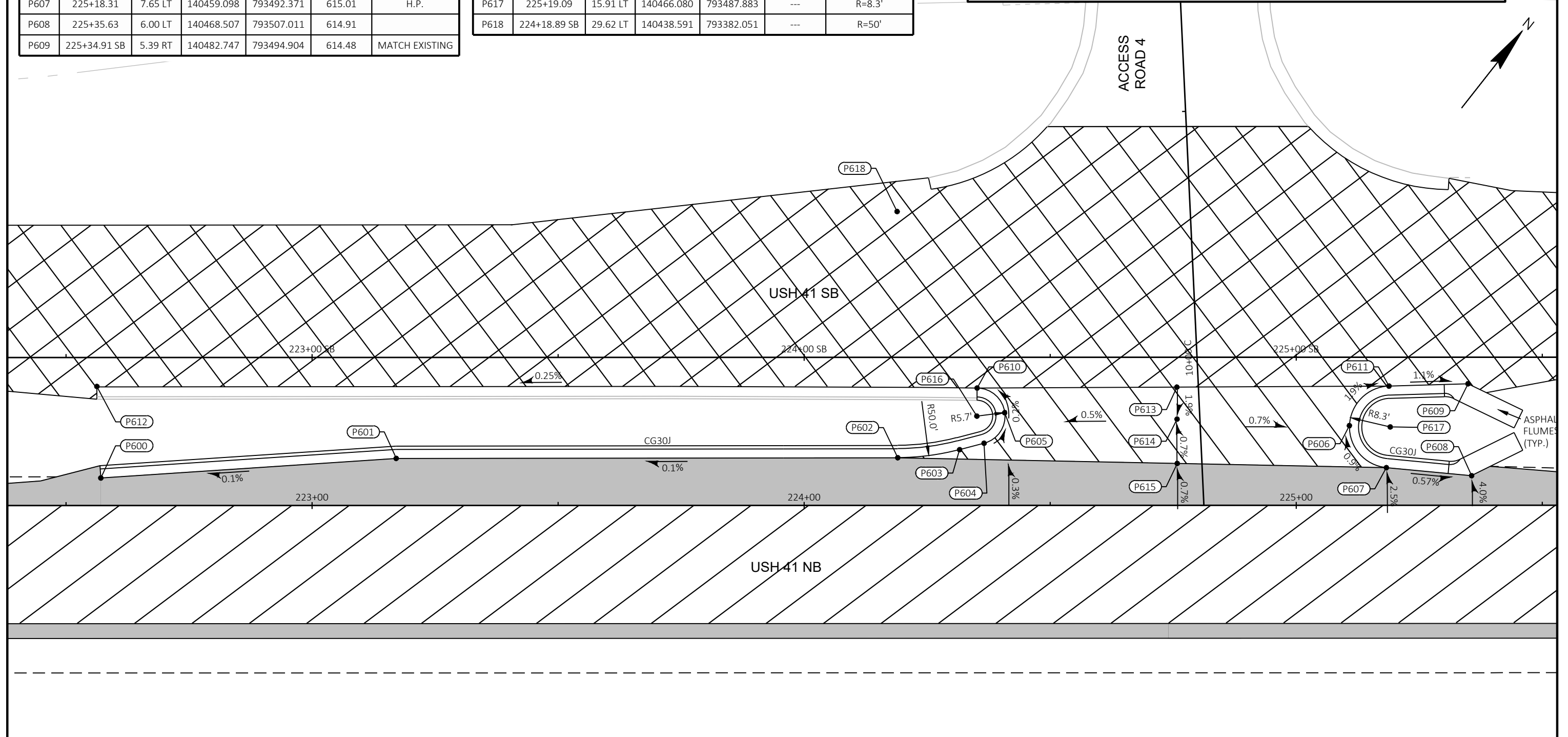


| STATION & OFFSET TABLE |              |          |            |            |           |                     |
|------------------------|--------------|----------|------------|------------|-----------|---------------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS             |
| P600                   | 222+57.06    | 5.60 LT  | 140296.093 | 793288.208 |           | EXIST ELEV. PLUS 3" |
| P601                   | 223+17.10    | 9.56 LT  | 140336.296 | 793332.971 |           | EXIST ELEV. PLUS 3" |
| P602                   | 224+19.01    | 9.68 LT  | 140399.349 | 793413.035 |           | EXIST ELEV. PLUS 3" |
| P603                   | 224+31.58    | 11.32 LT | 140408.404 | 793421.910 | 615.02    | H.P.                |
| P604                   | 224+36.55    | 12.62 LT | 140412.496 | 793425.009 | 615.02    | H.P.                |
| P605                   | 224+40.74    | 18.82 LT | 140419.963 | 793424.470 | 614.98    |                     |
| P606                   | 225+10.80    | 16.18 LT | 140461.168 | 793481.192 | 614.90    |                     |
| P607                   | 225+18.31    | 7.65 LT  | 140459.098 | 793492.371 | 615.01    | H.P.                |
| P608                   | 225+35.63    | 6.00 LT  | 140468.507 | 793507.011 | 614.91    |                     |
| P609                   | 225+34.91 SB | 5.39 RT  | 140482.747 | 793494.904 | 614.48    | MATCH EXISTING      |

| STATION & OFFSET TABLE |              |          |            |            |           |                |
|------------------------|--------------|----------|------------|------------|-----------|----------------|
| POINT                  | STATION      | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
| P610                   | 224+35.15 SB | 6.24 RT  | 140420.443 | 793416.982 | 614.94    | MATCH EXISTING |
| P611                   | 225+18.85 SB | 5.86 RT  | 140472.453 | 793482.566 | 614.65    | MATCH EXISTING |
| P612                   | 222+56.27 SB | 5.87 RT  | 140310.212 | 793276.110 | 614.49    |                |
| P613                   | 224+75.74 SB | 6.06 RT  | 140445.665 | 793448.787 | 615.02    |                |
| P614                   | 224+75.77    | 17.50 LT | 140440.565 | 793452.831 | 615.15    |                |
| P615                   | 224+75.81    | 8.52 LT  | 140433.525 | 793458.414 | 615.22    |                |
| P616                   | 224+35.08    | 18.13 LT | 140415.920 | 793420.451 | ---       | R=5.7'         |
| P617                   | 225+19.09    | 15.91 LT | 140466.080 | 793487.883 | ---       | R=8.3'         |
| P618                   | 224+18.89 SB | 29.62 LT | 140438.591 | 793382.051 | ---       | R=50'          |

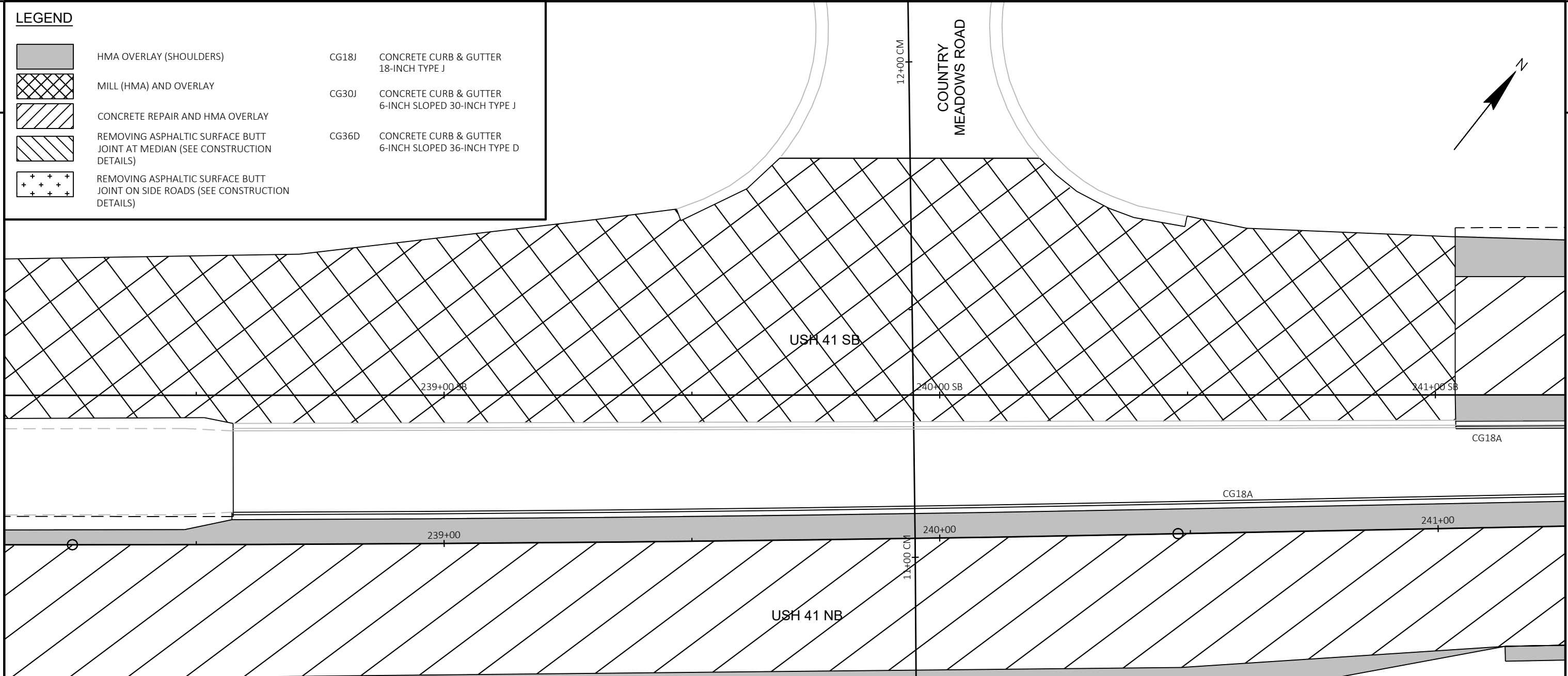
LEGEND

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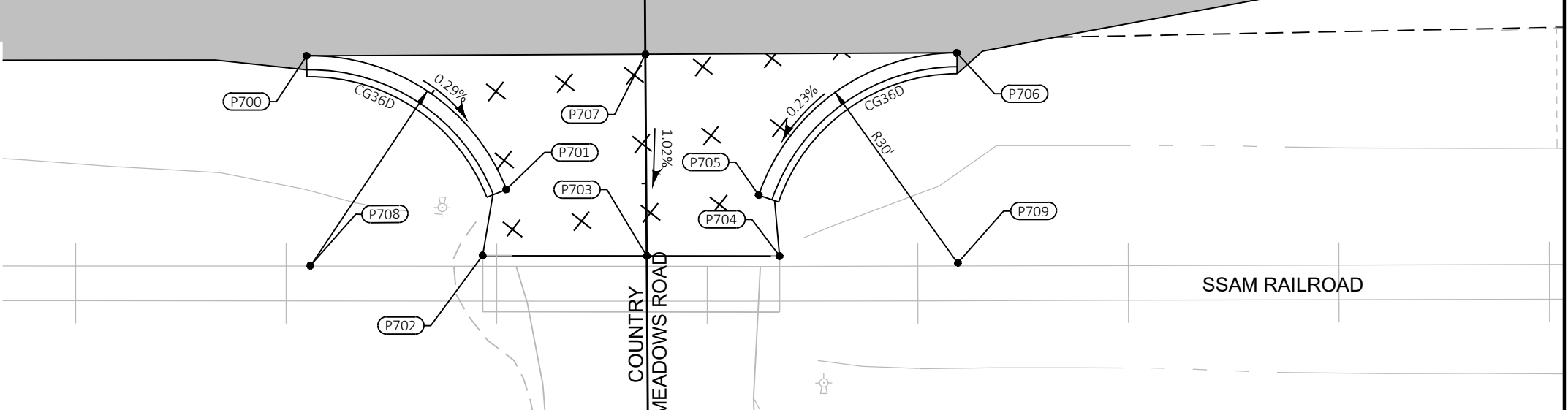
**LEGEND**

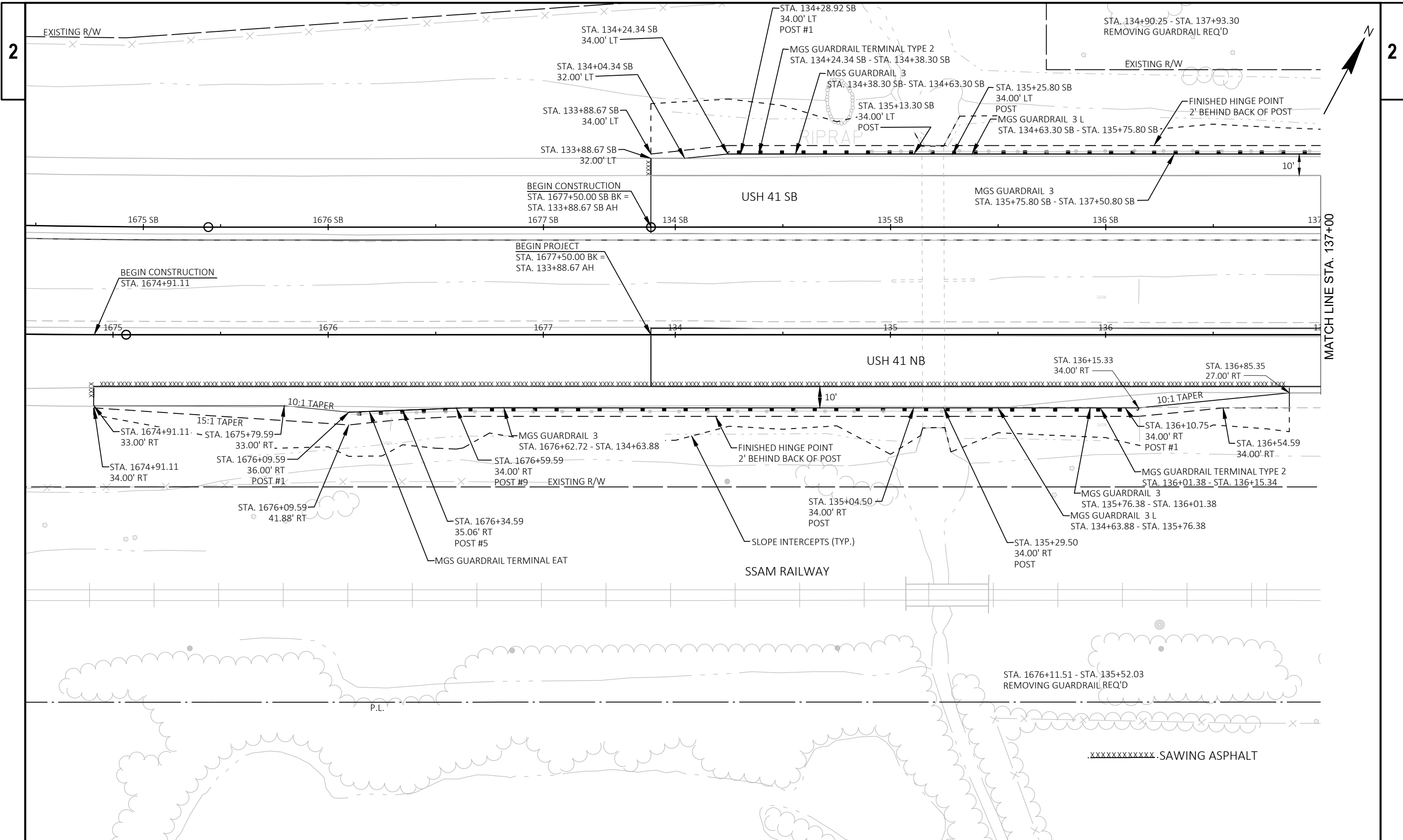
|  |  |       |  |
|--|--|-------|--|
|  | HMA OVERLAY (SHOULDERS)  | CG18J | CONCRETE CURB & GUTTER<br>18-INCH TYPE J               |
|  | MILL (HMA) AND OVERLAY   | CG30J | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 30-INCH TYPE J |
|  | CONCRETE REPAIR AND HMA OVERLAY  | CG36D | CONCRETE CURB & GUTTER<br>6-INCH SLOPED 36-INCH TYPE D |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT AT MEDIAN (SEE CONSTRUCTION<br>DETAILS)     |       |  |
|  | REMOVING ASPHALTIC SURFACE BUTT<br>JOINT ON SIDE ROADS (SEE CONSTRUCTION<br>DETAILS) |       |  |



**STATION & OFFSET TABLE**

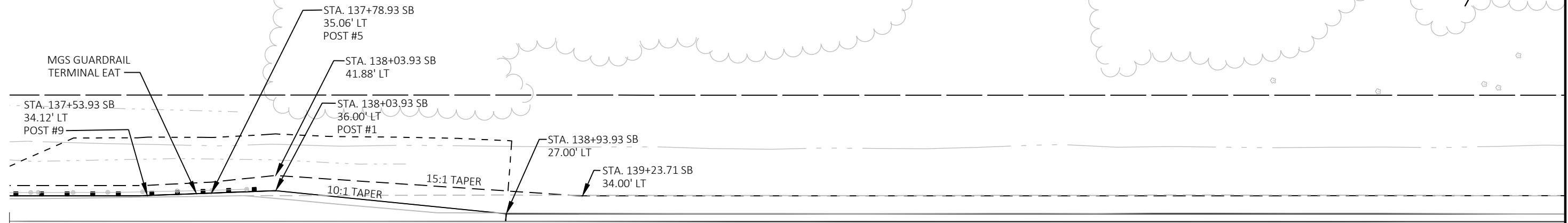
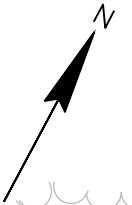
| POINT | STATION     | OFFSET   | Y COORDS   | X COORDS   | ELEVATION | REMARKS        |
|-------|-------------|----------|------------|------------|-----------|----------------|
| P700  | 10+68.51 CM | 48.29 LT | 141308.701 | 794641.748 | 616.63    |                |
| P701  | 10+49.27 CM | 19.97 LT | 141311.290 | 794675.884 | 616.53    |                |
| P702  | 10+39.88 CM | 23.39 LT | 141301.820 | 794679.063 | 616.76    | MATCH EXISTING |
| P703  | 10+39.67 CM | 0.00     | 141316.228 | 794697.487 | 616.84    | MATCH EXISTING |
| P704  | 10+39.53 CM | 18.90 RT | 141327.898 | 794712.358 | 616.42    | MATCH EXISTING |
| P705  | 10+48.22 CM | 16.00 RT | 141332.890 | 794704.674 | 616.69    |                |
| P706  | 10+68.30 CM | 44.38 RT | 141366.272 | 794714.364 | 616.76    |                |
| P707  | 10+68.40 CM | 0.00     | 141338.700 | 794679.586 | 617.13    |                |
| P708  | 10+38.51 CM | 47.98 LT | 141285.429 | 794660.680 | ---       | R=30'          |
| P709  | 10+38.30 CM | 44.31 RT | 141342.764 | 794733.002 | ---       | R=30'          |



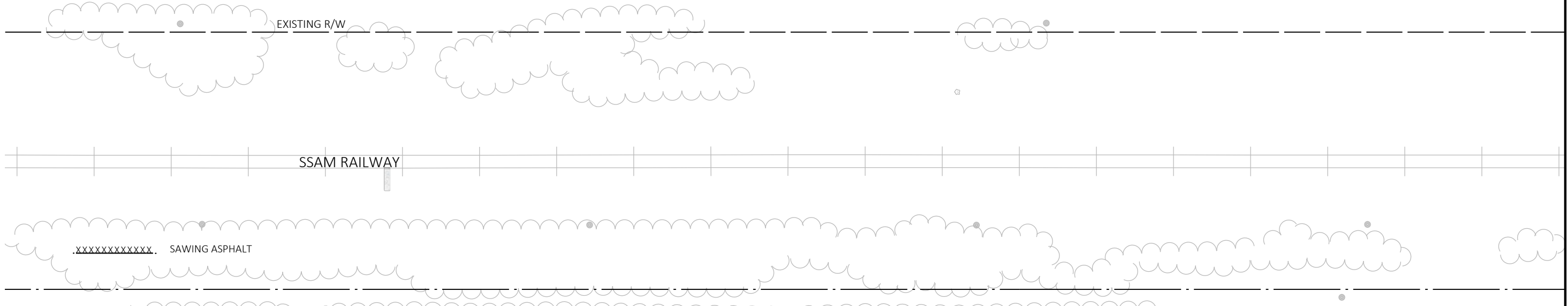
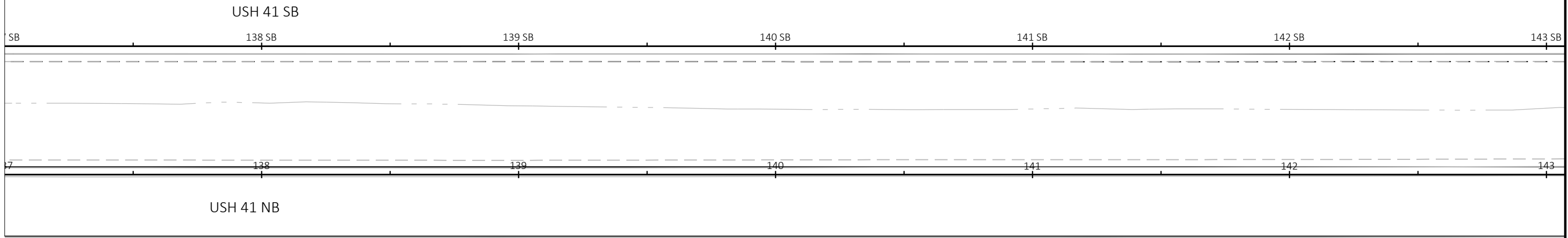


|                        |             |                   |                |       |   |
|------------------------|-------------|-------------------|----------------|-------|---|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | GUARDRAIL PLAN | SHEET | E |
|------------------------|-------------|-------------------|----------------|-------|---|

STA. 134+90.25 - STA. 137+93.30  
REMOVING GUARDRAIL REQ'D

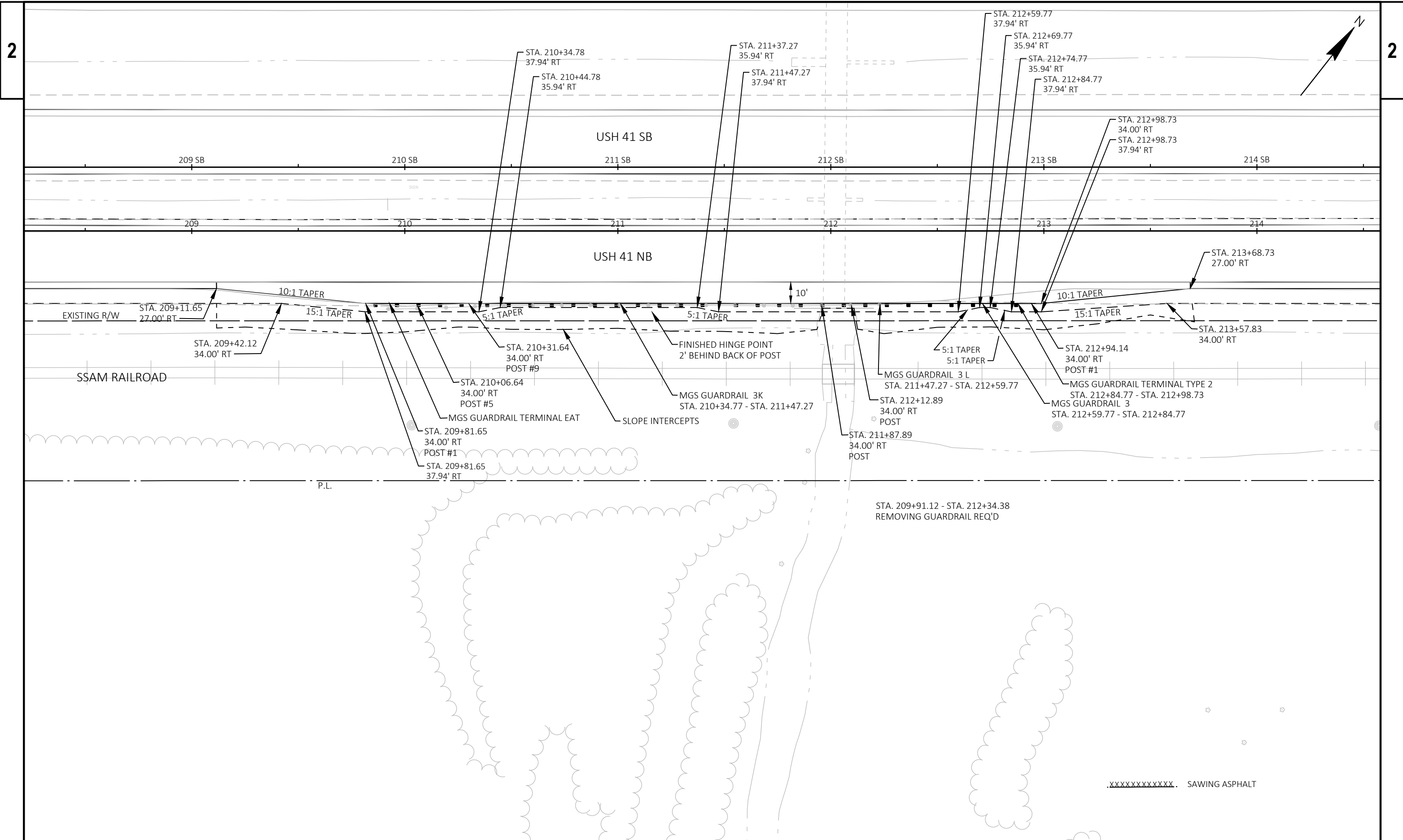






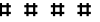



MATCH LINE STA. 137+00

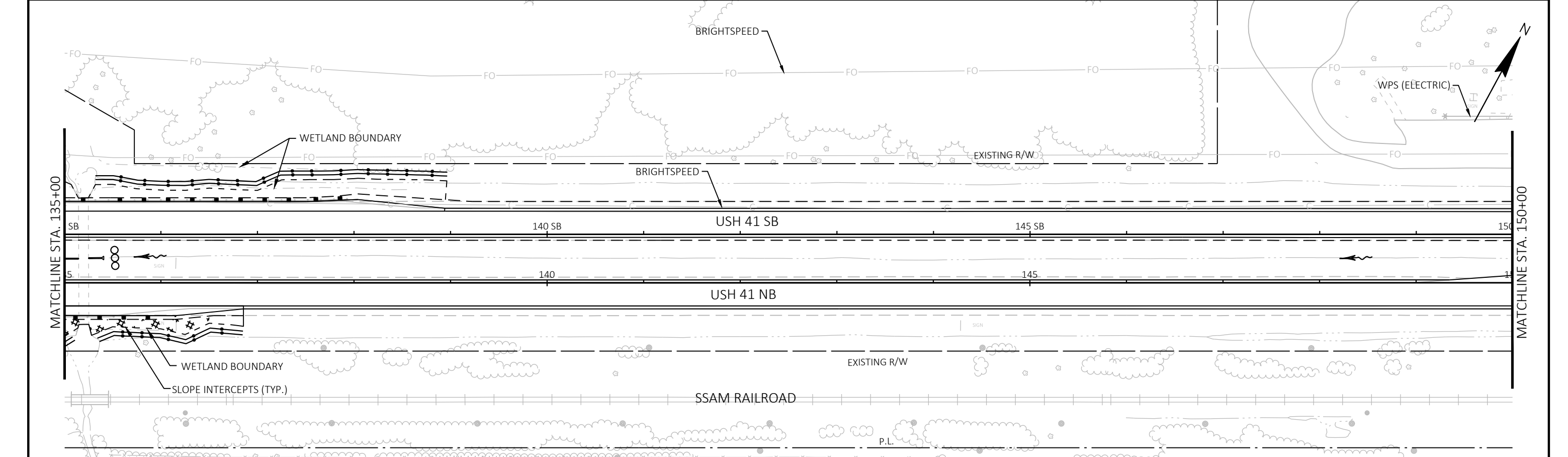
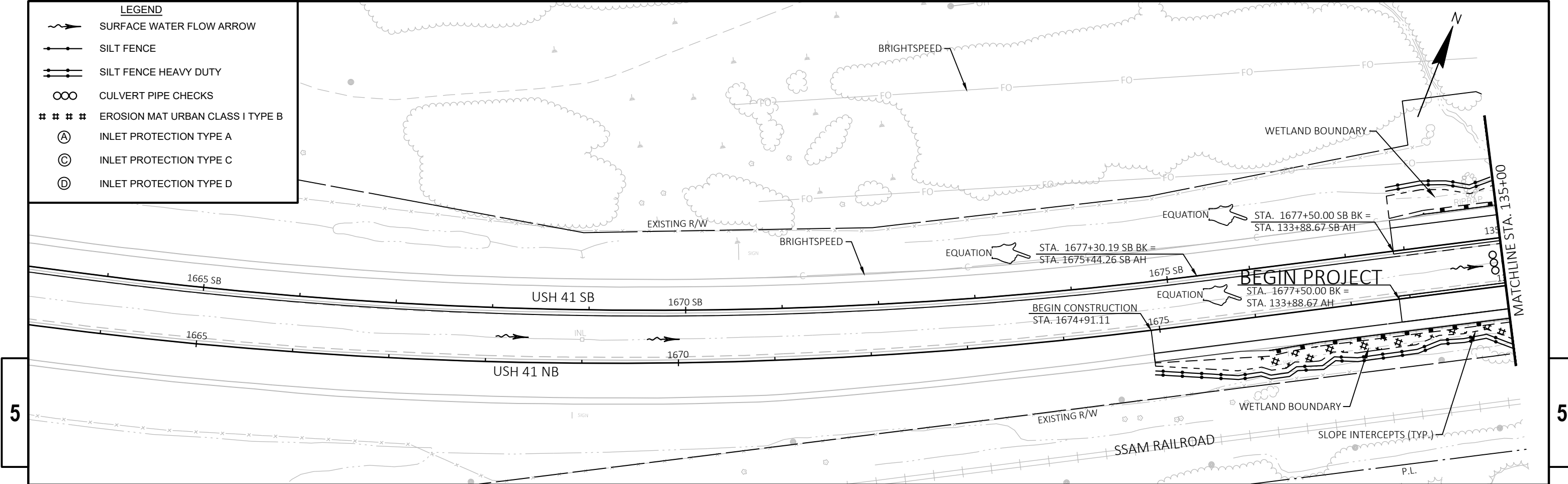


|                        |             |                   |                |       |   |
|------------------------|-------------|-------------------|----------------|-------|---|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | GUARDRAIL PLAN | SHEET | E |
|------------------------|-------------|-------------------|----------------|-------|---|

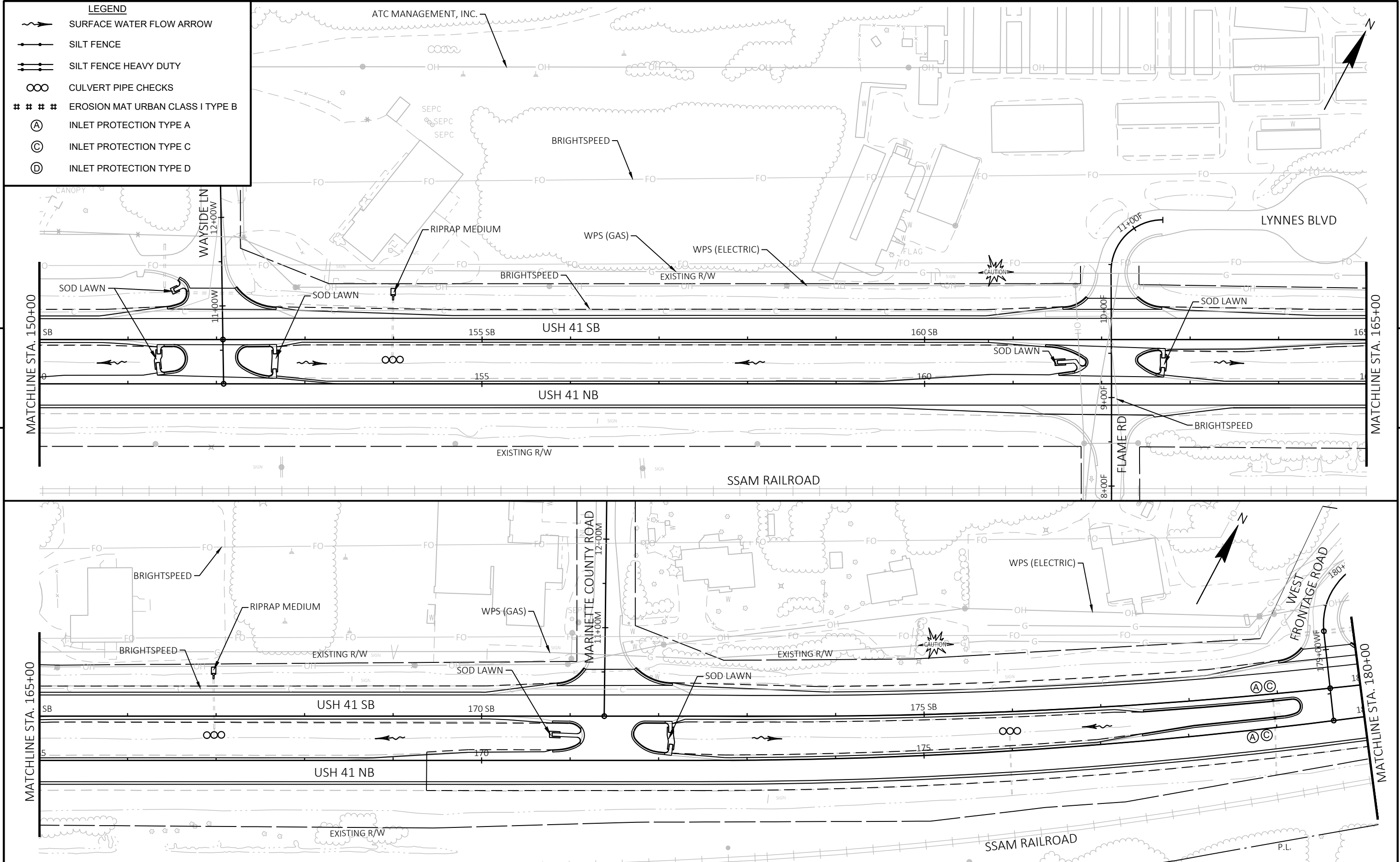




- LEGEND**
-  SURFACE WATER FLOW ARROW
  -  SILT FENCE
  -  SILT FENCE HEAVY DUTY
  -  CULVERT PIPE CHECKS
  -  EROSION MAT URBAN CLASS I TYPE B
  -  INLET PROTECTION TYPE A
  -  INLET PROTECTION TYPE C
  -  INLET PROTECTION TYPE D

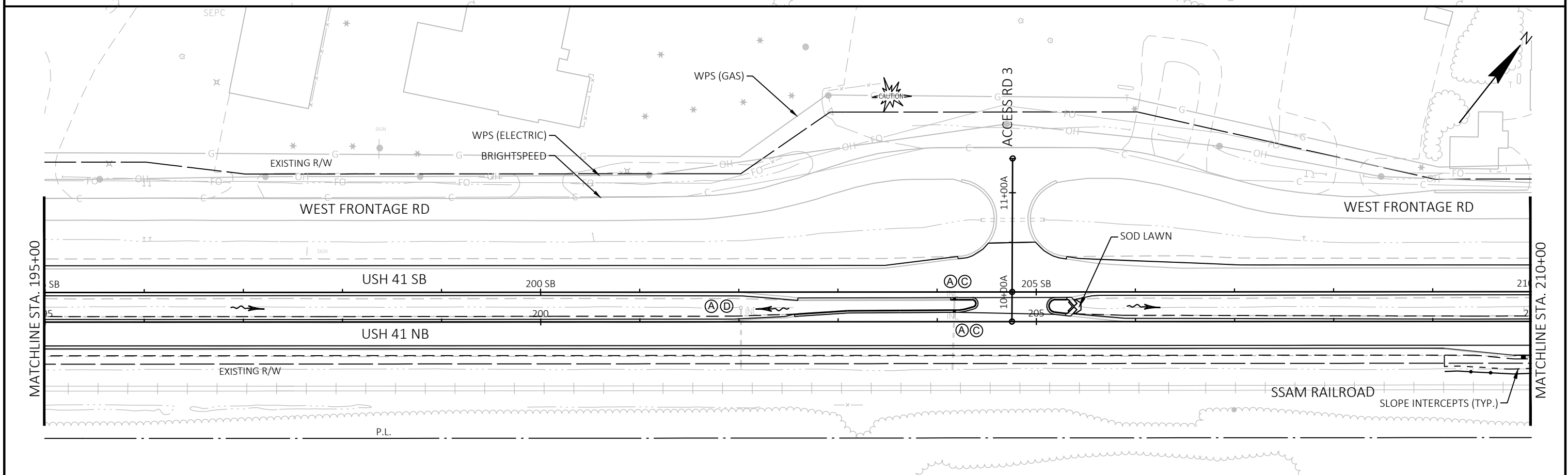
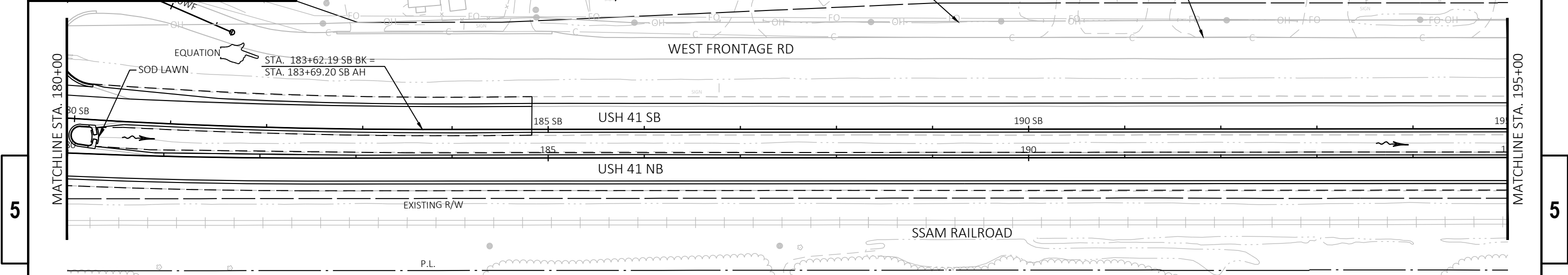


|                        |             |                   |                 |
|------------------------|-------------|-------------------|-----------------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | EROSION CONTROL |
| SHEET                  |             |                   | <b>E</b>        |







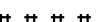



**LEGEND**

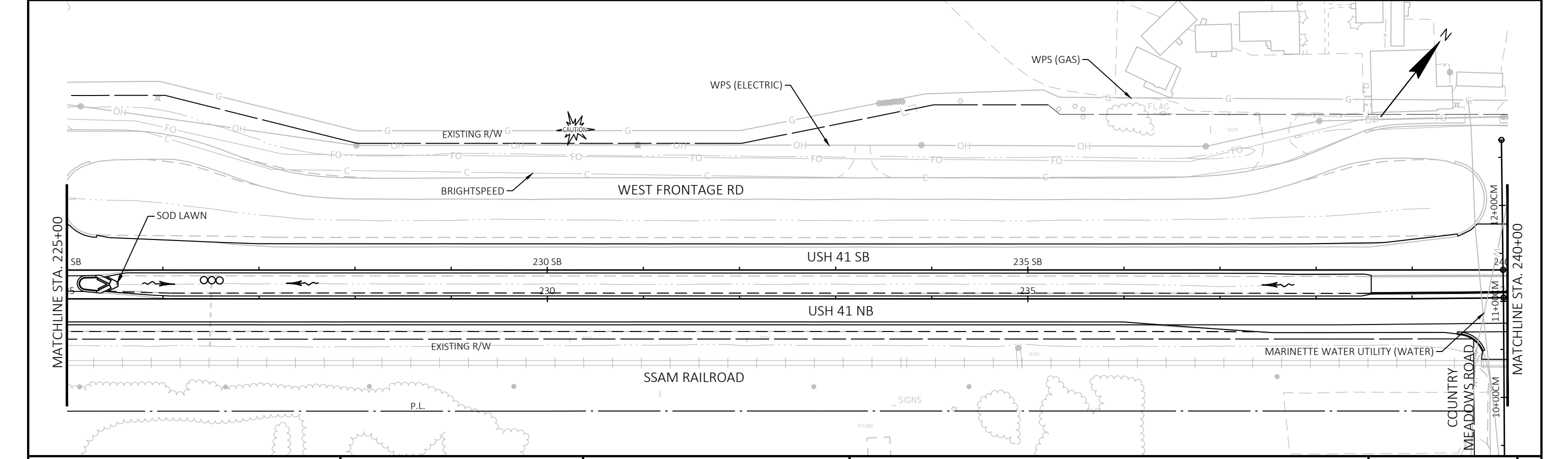
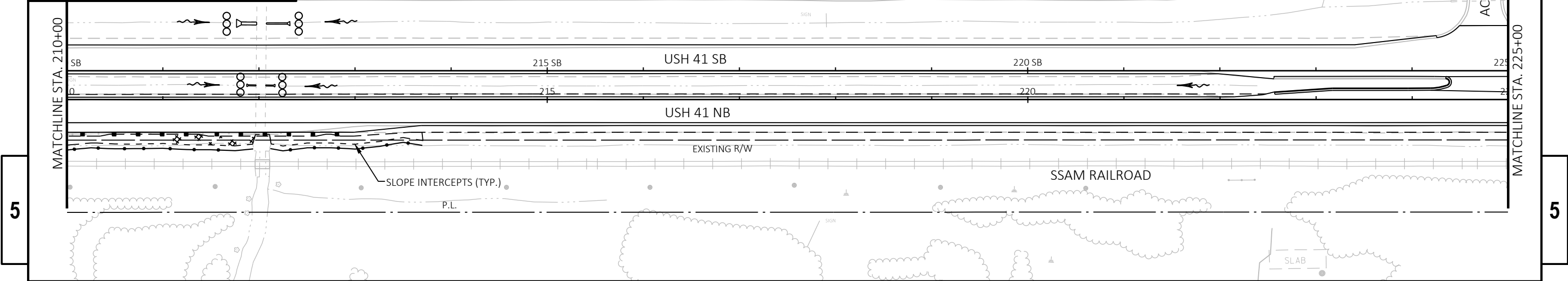
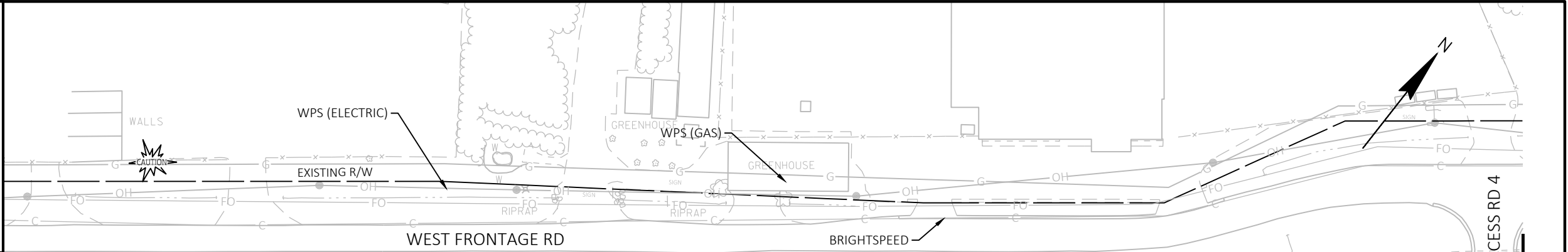
- SURFACE WATER FLOW ARROW
- SILT FENCE
- SILT FENCE HEAVY DUTY
- CULVERT PIPE CHECKS
- EROSION MAT URBAN CLASS I TYPE B
- INLET PROTECTION TYPE A
- INLET PROTECTION TYPE C
- INLET PROTECTION TYPE D



|                        |             |                   |                 |       |          |
|------------------------|-------------|-------------------|-----------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | EROSION CONTROL | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|-----------------|-------|----------|





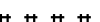



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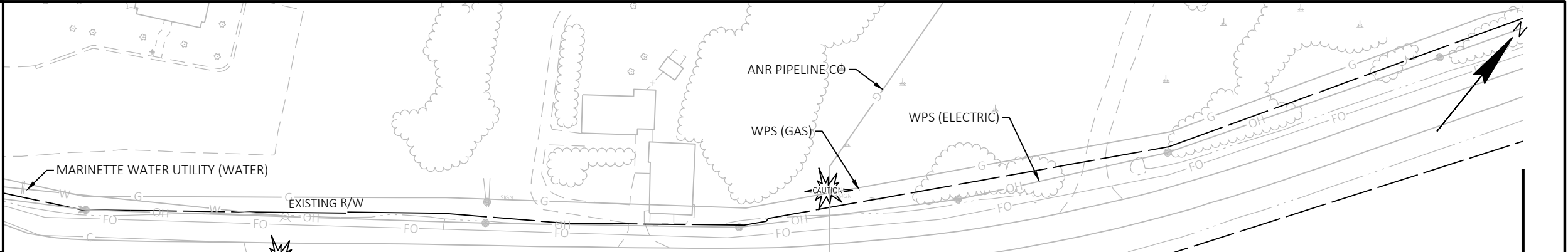
-  SURFACE WATER FLOW ARROW
-  SILT FENCE
-  SILT FENCE HEAVY DUTY
-  CULVERT PIPE CHECKS
-  EROSION MAT URBAN CLASS I TYPE B
-  INLET PROTECTION TYPE A
-  INLET PROTECTION TYPE C
-  INLET PROTECTION TYPE D



|                        |             |                   |                 |       |          |
|------------------------|-------------|-------------------|-----------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | EROSION CONTROL | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|-----------------|-------|----------|

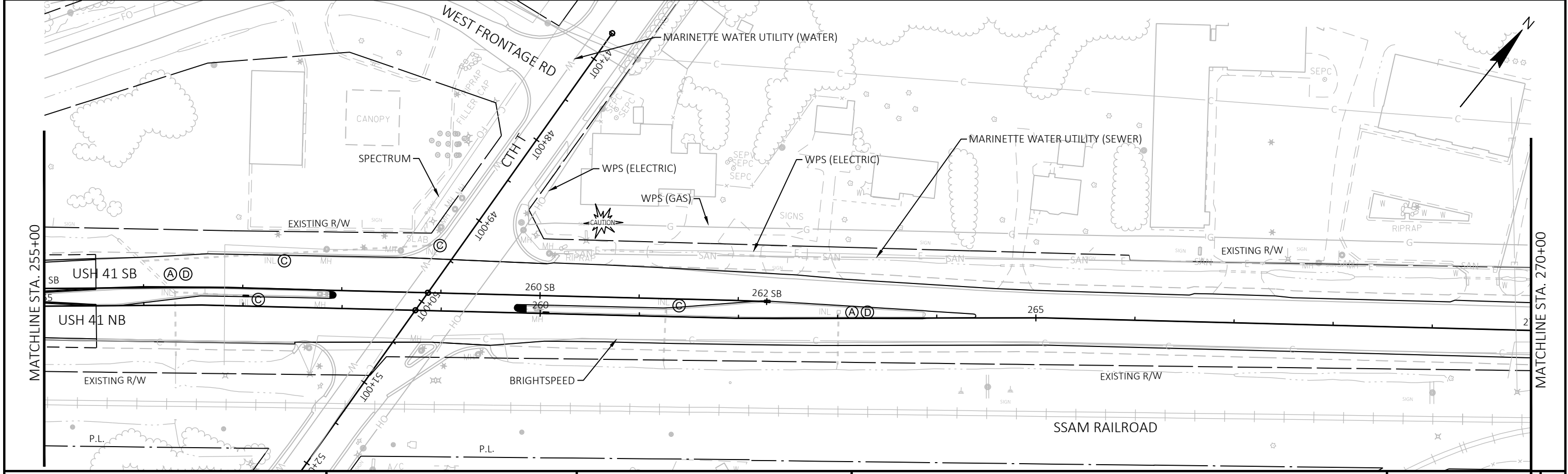
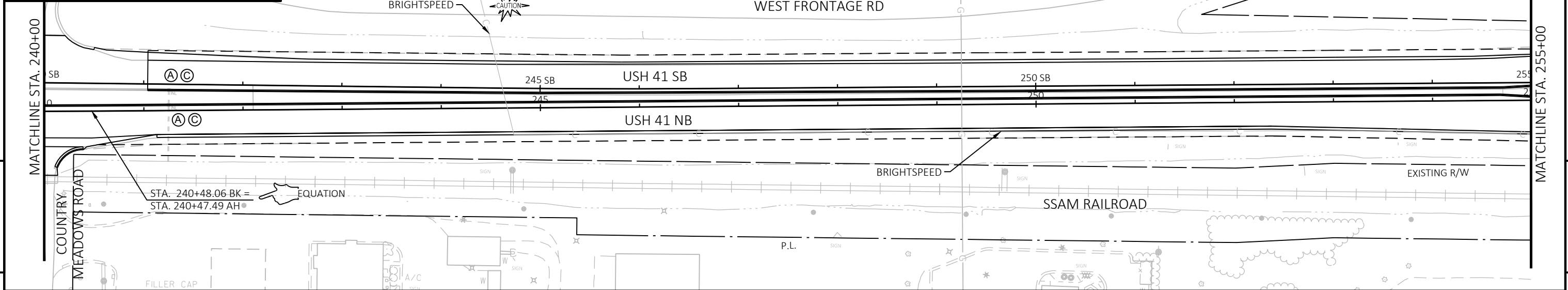
**LEGEND**

-  SURFACE WATER FLOW ARROW
-  SILT FENCE
-  SILT FENCE HEAVY DUTY
-  CULVERT PIPE CHECKS
-  EROSION MAT URBAN CLASS I TYPE B
-  INLET PROTECTION TYPE A
-  INLET PROTECTION TYPE C
-  INLET PROTECTION TYPE D



5

5



PROJECT NO: 1150-64-71





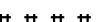



HWY: USH 41

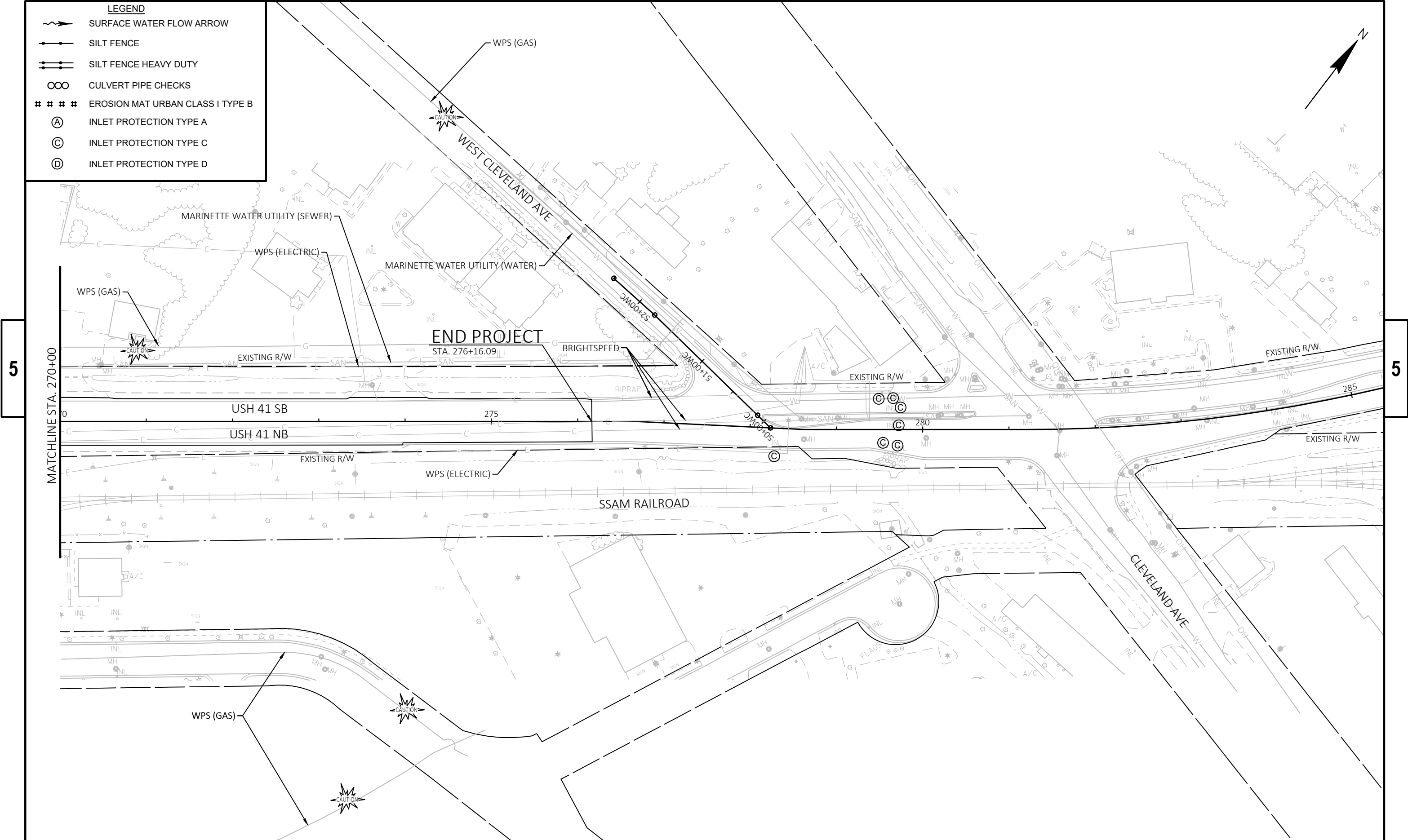
COUNTY: MARINETTE

EROSION CONTROL

SHEET

**E**

- LEGEND**
-  SURFACE WATER FLOW ARROW
  -  SILT FENCE
  -  SILT FENCE HEAVY DUTY
  -  CULVERT PIPE CHECKS
  -  EROSION MAT URBAN CLASS I TYPE B
  -  INLET PROTECTION TYPE A
  -  INLET PROTECTION TYPE C
  -  INLET PROTECTION TYPE D



5

5

|                        |             |                   |                 |       |          |
|------------------------|-------------|-------------------|-----------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | EROSION CONTROL | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|-----------------|-------|----------|

| CONFIGURATION WITH HEAD NUMBERS                          |                          |  |                           |                           |                               |
|--|--------------------------|--|---------------------------|---------------------------|-------------------------------|
| 3-V<br>R<br>Y<br>G<br>3, 4, 5<br>9, 10, 11<br>12, 14, 19 | 3-H<br>R<br>Y<br>G<br>13 | 4-VLFY<br>R<br>Y<br>G<br>1, 2<br>6, 7, 8 | 5-VL<br>R<br>Y<br>G<br>15 | 5-HL<br>R<br>Y<br>G<br>16 | 5-VR<br>R<br>Y<br>G<br>17, 18 |

| MONOTUBE STRUCTURE NUMBERS |           |
|----------------------------|-----------|
| SB3                        | S-38-0012 |
| SB8                        | S-38-0013 |

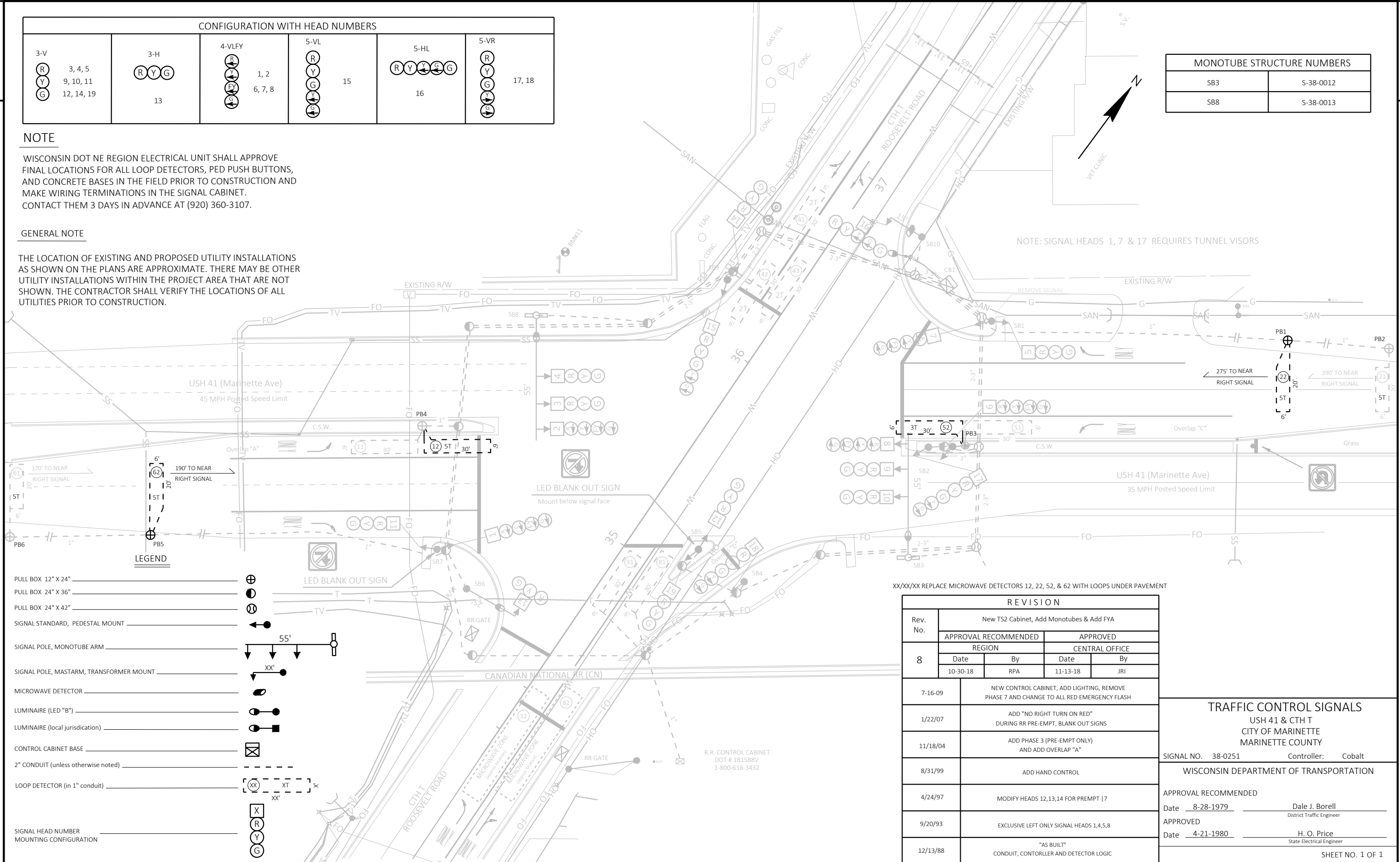
NOTE

WISCONSIN DOT NE REGION ELECTRICAL UNIT SHALL APPROVE FINAL LOCATIONS FOR ALL LOOP DETECTORS, PED PUSH BUTTONS, AND CONCRETE BASES IN THE FIELD PRIOR TO CONSTRUCTION AND MAKE WIRING TERMINATIONS IN THE SIGNAL CABINET. CONTACT THEM 3 DAYS IN ADVANCE AT (920) 360-3107.

GENERAL NOTE

THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.

NOTE: SIGNAL HEADS 1, 7 & 17 REQUIRES TUNNEL VISORS



XX/XX/XX REPLACE MICROWAVE DETECTORS 12, 22, 52, & 62 WITH LOOPS UNDER PAVEMENT

| REVISION |   |                |              |
|----------|---|----------------|--------------|
| Rev. No. | New TS2 Cabinet, Add Monotubes & Add FYA  |                |              |
| 8        | APPROVAL RECOMMENDED  | APPROVED       |              |
|          | REGION  | CENTRAL OFFICE |              |
|          | Date  | By             | Date By      |
|          | 10-30-18  | RPA            | 11-13-18 JRI |
| 7-16-09  | NEW CONTROL CABINET, ADD LIGHTING, REMOVE PHASE 7 AND CHANGE TO ALL RED EMERGENCY FLASH |                |              |
| 1/22/07  | ADD "NO RIGHT TURN ON RED" DURING RR PRE-EMPT, BLANK OUT SIGNS                          |                |              |
| 11/18/04 | ADD PHASE 3 (PRE-EMPT ONLY) AND ADD OVERLAP "A"   |                |              |
| 8/31/99  | ADD HAND CONTROL  |                |              |
| 4/24/97  | MODIFY HEADS 12,13,14 FOR PREMPT  7   |                |              |
| 9/20/93  | EXCLUSIVE LEFT ONLY SIGNAL HEADS 1,4,5,8  |                |              |
| 12/13/88 | "AS BUILT" CONDUIT, CONTORLLER AND DETECTOR LOGIC                                       |                |              |

**TRAFFIC CONTROL SIGNALS**  
 USH 41 & CTH T  
 CITY OF MARINETTE  
 MARINETTE COUNTY

SIGNAL NO. 38-0251 Controller: Cobalt

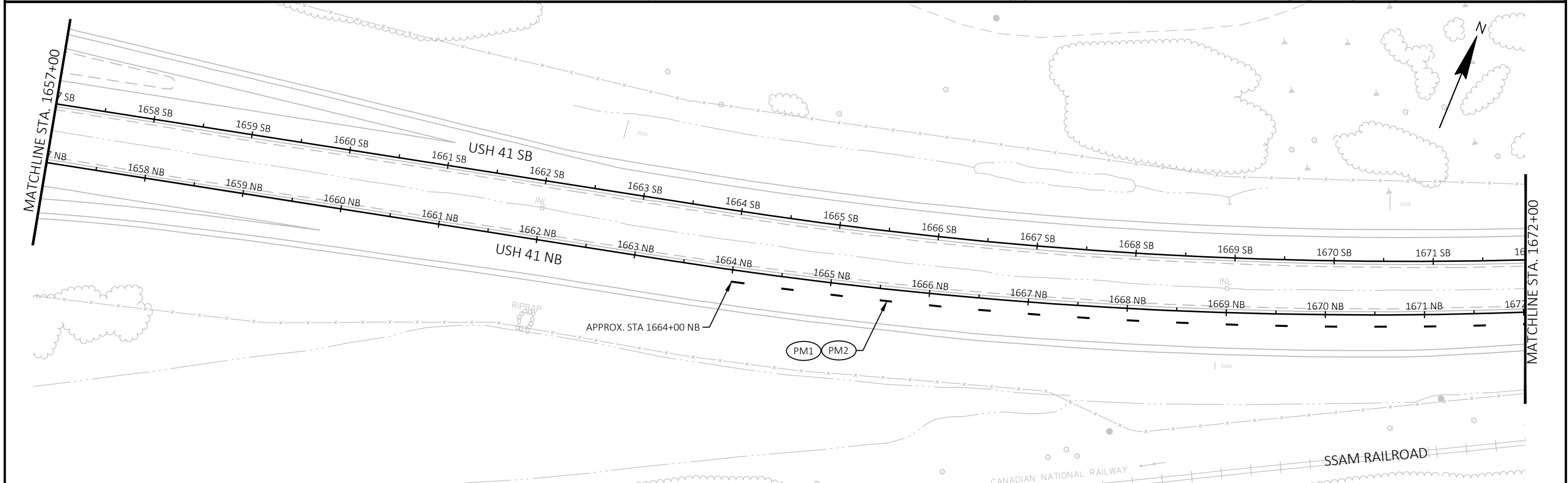
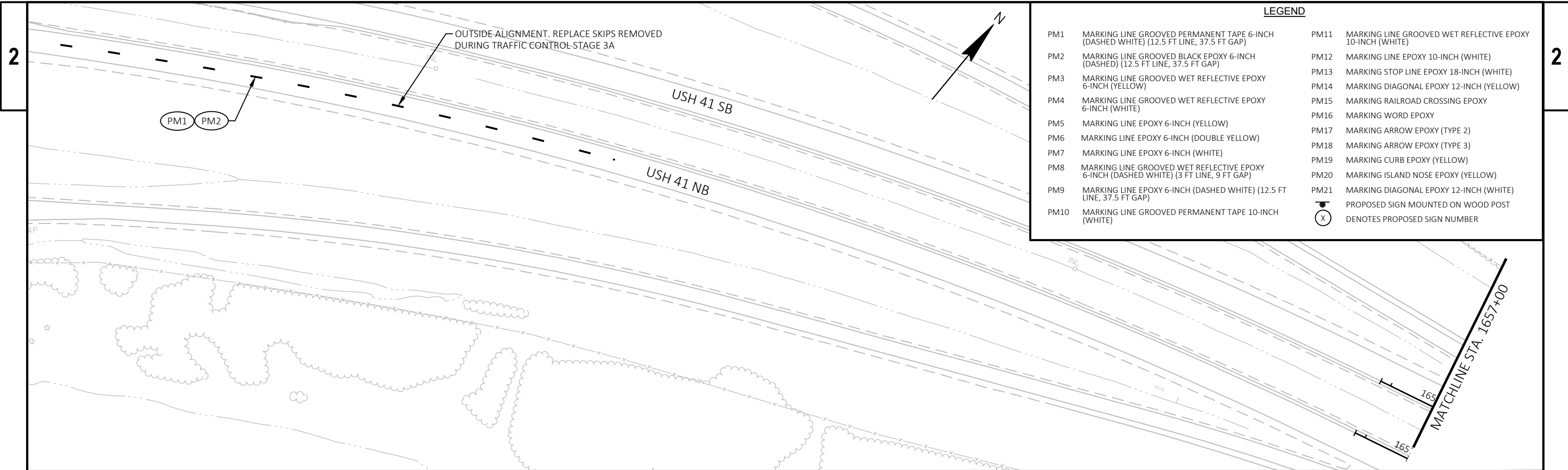
WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED  
 Date 8-28-1979 Dale J. Borell  
 District Traffic Engineer

APPROVED  
 Date 4-21-1980 H. O. Price  
 State Electrical Engineer

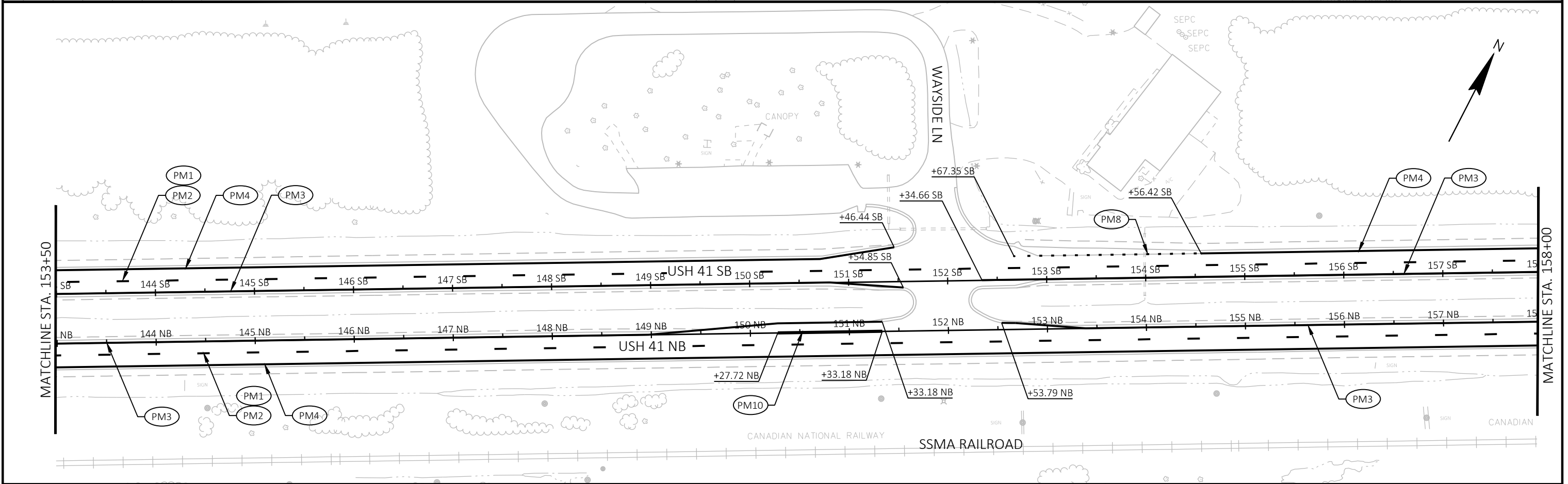
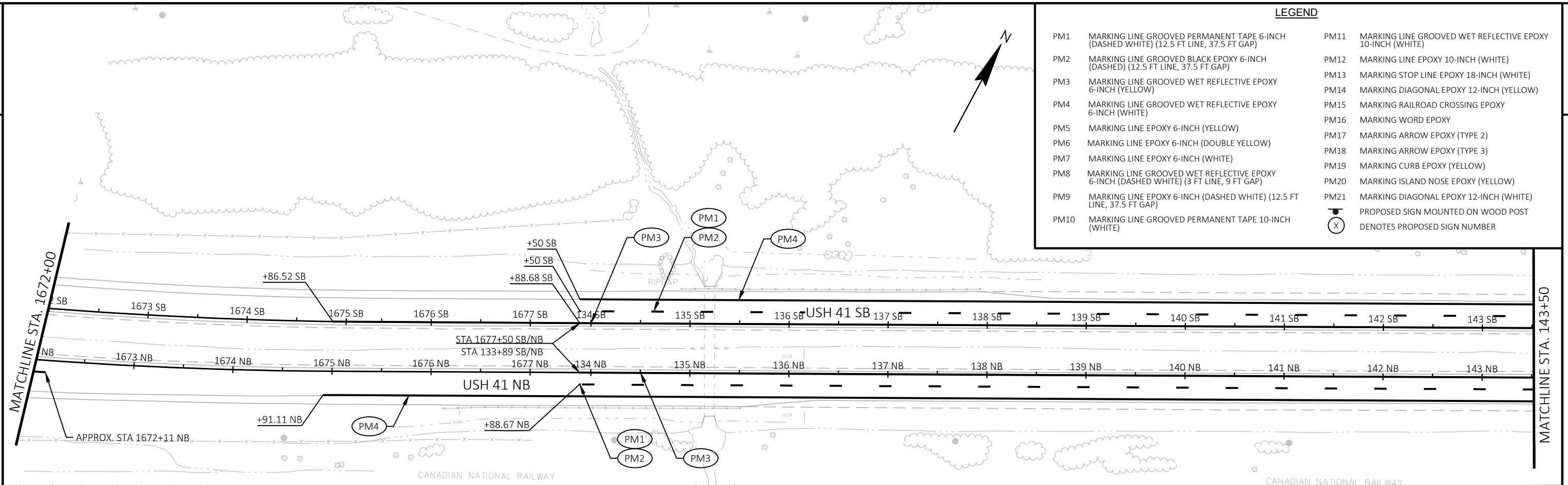
SHEET NO. 1 OF 1

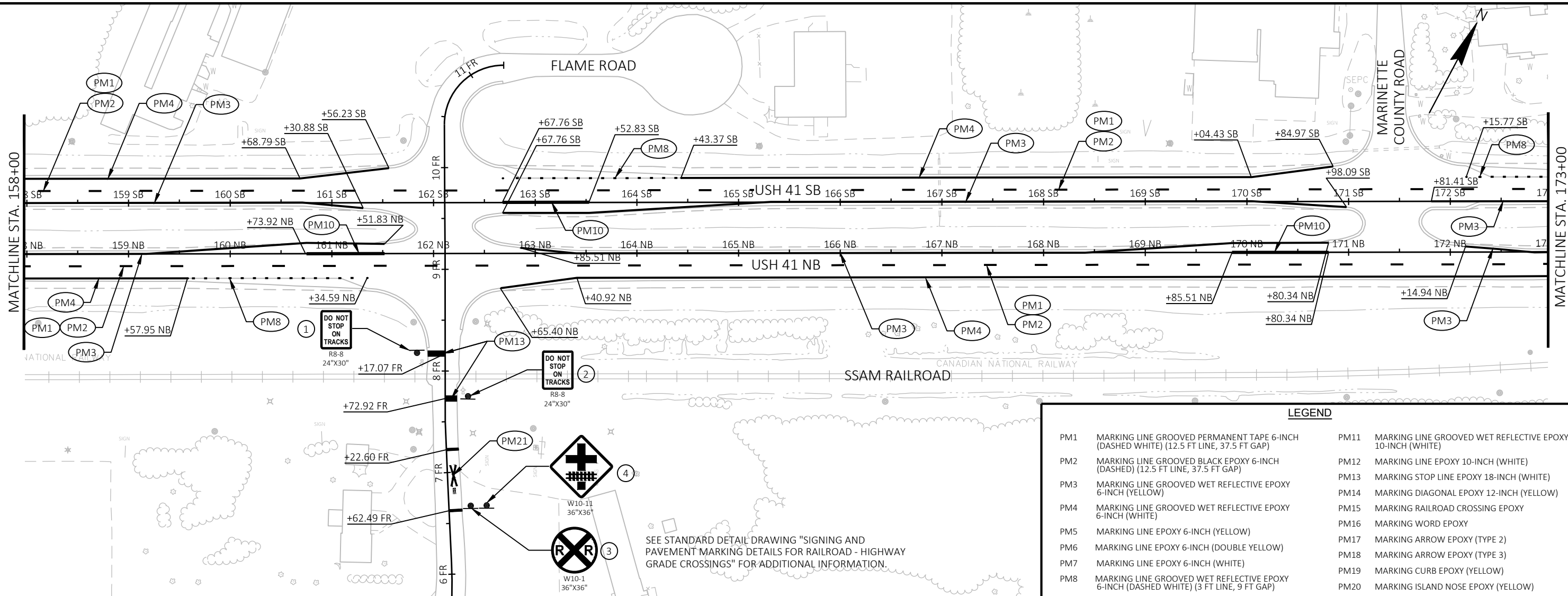




LEGEND

|      |   |      |   |
|------|---|------|---|
| PM1  | MARKING LINE GROOVED PERMANENT TAPE 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP) | PM11 | MARKING LINE GROOVED WET REFLECTIVE EPOXY 10-INCH (WHITE) |
| PM2  | MARKING LINE GROOVED BLACK EPOXY 6-INCH (DASHED) (12.5 FT LINE, 37.5 FT GAP)          | PM12 | MARKING LINE EPOXY 10-INCH (WHITE)                        |
| PM3  | MARKING LINE GROOVED WET REFLECTIVE EPOXY 6-INCH (YELLOW)                             | PM13 | MARKING STOP LINE EPOXY 18-INCH (WHITE)                   |
| PM4  | MARKING LINE GROOVED WET REFLECTIVE EPOXY 6-INCH (WHITE)                              | PM14 | MARKING DIAGONAL EPOXY 12-INCH (YELLOW)                   |
| PM5  | MARKING LINE EPOXY 6-INCH (YELLOW)  | PM15 | MARKING RAILROAD CROSSING EPOXY                           |
| PM6  | MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)   | PM16 | MARKING WORD EPOXY  |
| PM7  | MARKING LINE EPOXY 6-INCH (WHITE)   | PM17 | MARKING ARROW EPOXY (TYPE 2)                              |
| PM8  | MARKING LINE GROOVED WET REFLECTIVE EPOXY 6-INCH (DASHED WHITE) (3 FT LINE, 9 FT GAP) | PM18 | MARKING ARROW EPOXY (TYPE 3)                              |
| PM9  | MARKING LINE EPOXY 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP)                  | PM19 | MARKING CURB EPOXY (YELLOW)                               |
| PM10 | MARKING LINE GROOVED PERMANENT TAPE 10-INCH (WHITE)                                   | PM20 | MARKING ISLAND NOSE EPOXY (YELLOW)                        |
|      |   | PM21 | MARKING DIAGONAL EPOXY 12-INCH (WHITE)                    |
|      |   | ●    | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   | ⊗    | DENOTES PROPOSED SIGN NUMBER                              |

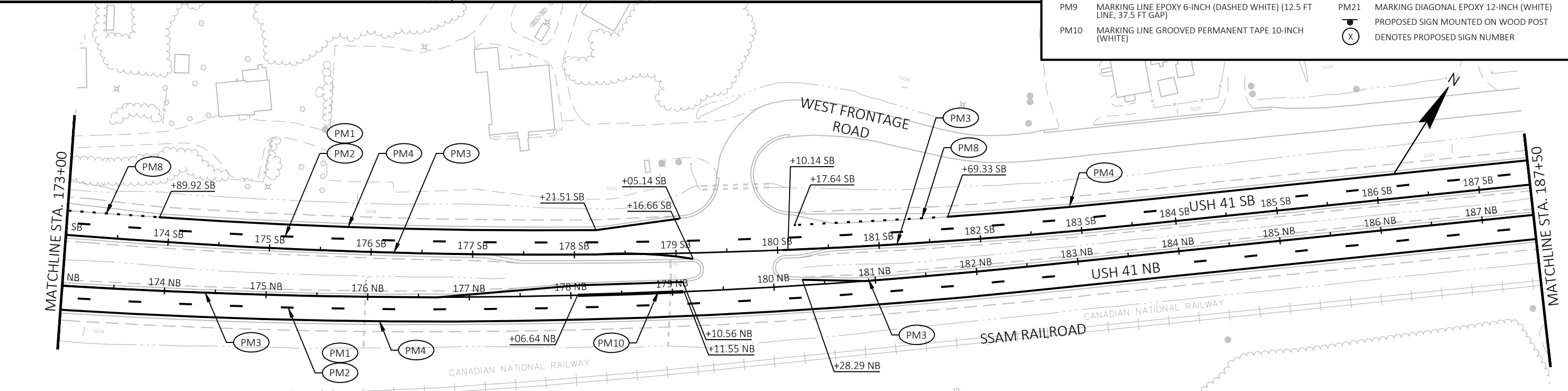




**LEGEND**

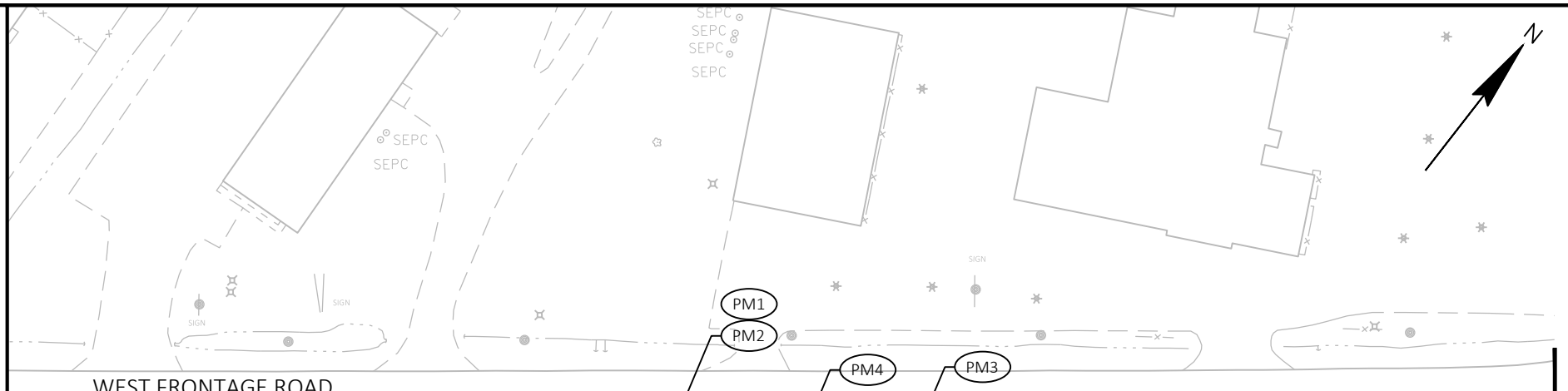
|      |   |      |   |
|------|---|------|---|
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|      |   | PM21 | MARKING DIAGONAL EPOXY 12-INCH (WHITE)                    |
|      |   |      | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   |      | DENOTES PROPOSED SIGN NUMBER                              |

SEE STANDARD DETAIL DRAWING "SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS" FOR ADDITIONAL INFORMATION.



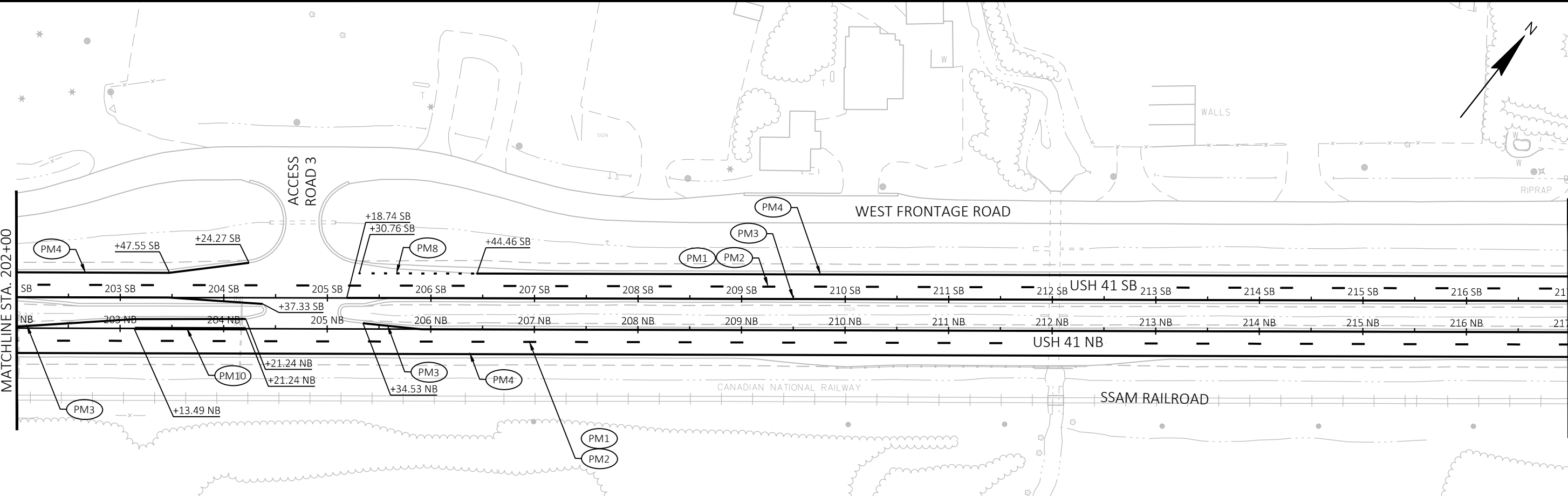
LEGEND

|      |   |      |   |
|------|---|------|---|
| PM1  | MARKING LINE GROOVED PERMANENT TAPE 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP) | PM11 | MARKING LINE GROOVED WET REFLECTIVE EPOXY 10-INCH (WHITE) |
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|      |   | (X)  | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   | (X)  | DENOTES PROPOSED SIGN NUMBER                              |



MATCHLINE STA. 187+50

MATCHLINE STA. 202+00

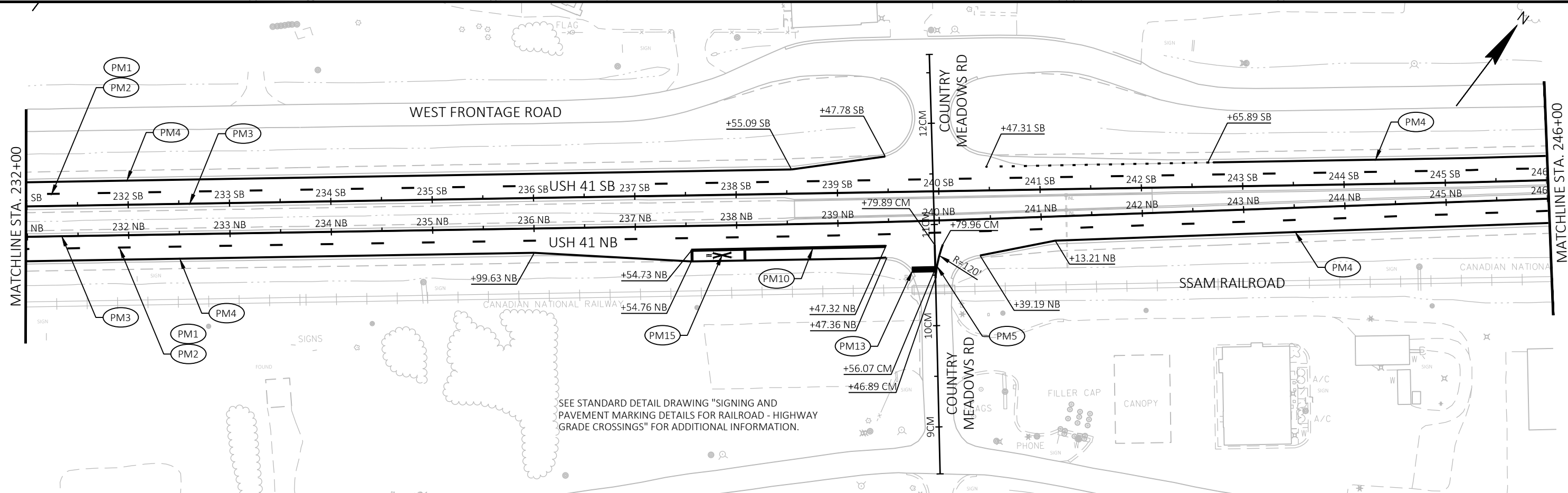
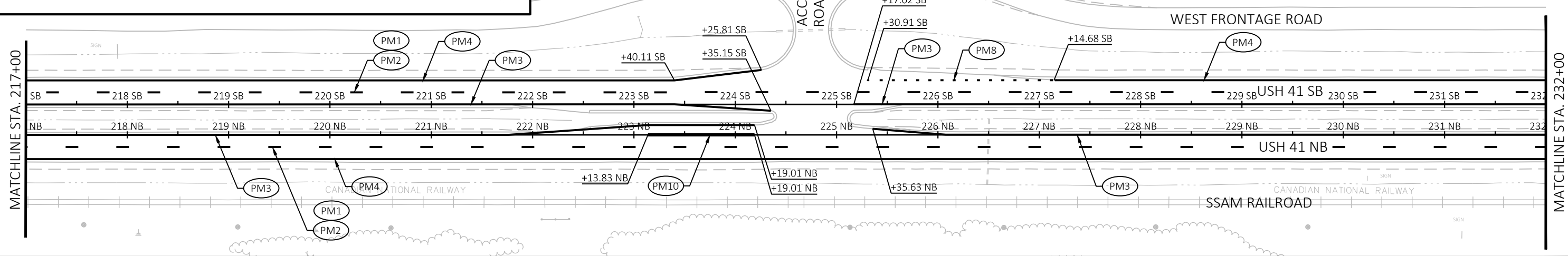


MATCHLINE STA. 202+00

MATCHLINE STA. 217+00

LEGEND

|      |   |      |   |
|------|---|------|---|
| PM1  | MARKING LINE GROOVED PERMANENT TAPE 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP) | PM11 | MARKING LINE GROOVED WET REFLECTIVE EPOXY 10-INCH (WHITE) |
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| PM10 | MARKING LINE GROOVED PERMANENT TAPE 10-INCH (WHITE)                                   | PM20 | MARKING ISLAND NOSE EPOXY (YELLOW)                        |
|      |   | PM21 | MARKING DIAGONAL EPOXY 12-INCH (WHITE)                    |
|      |   | PM22 | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   | (X)  | DENOTES PROPOSED SIGN NUMBER                              |

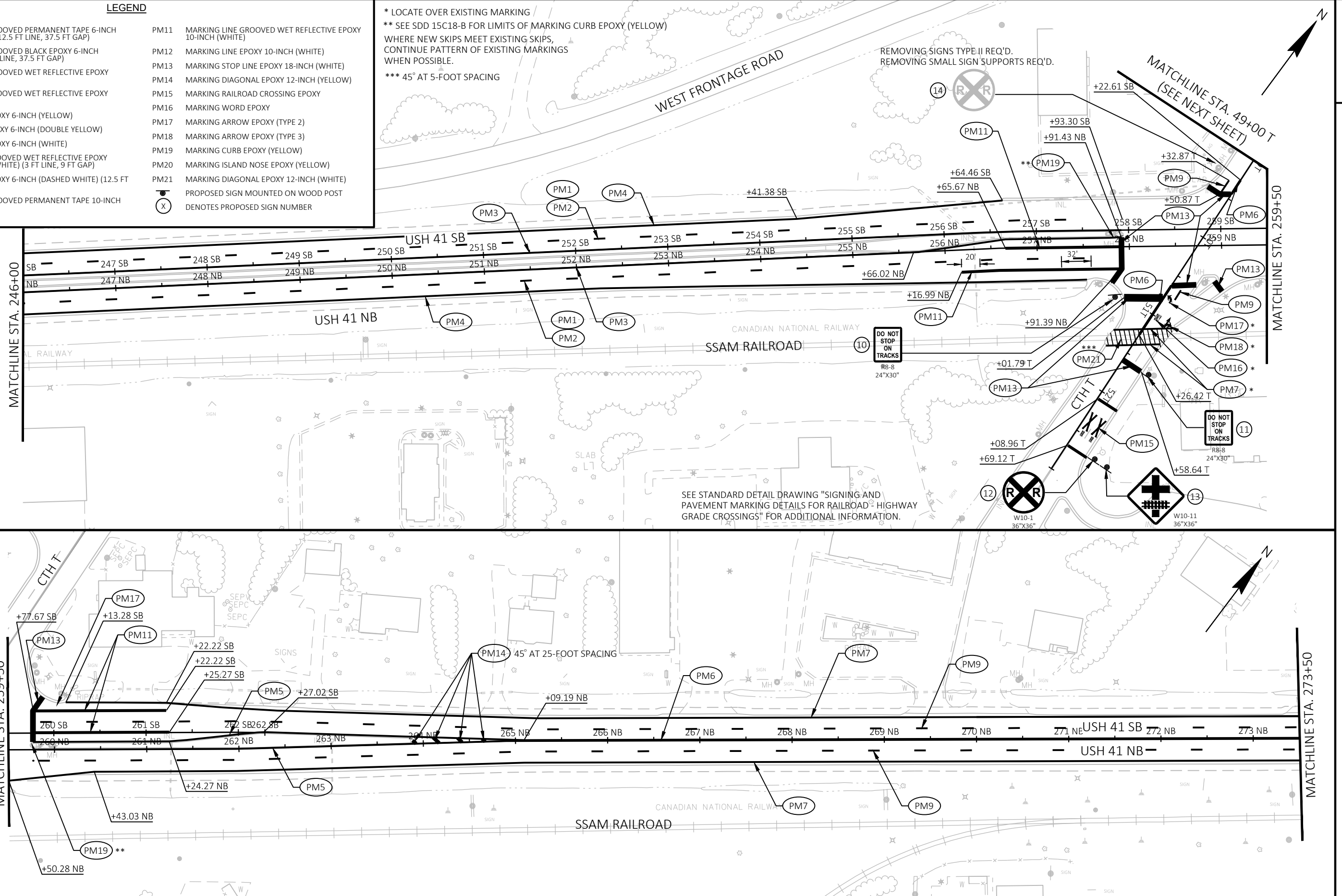


SEE STANDARD DETAIL DRAWING "SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS" FOR ADDITIONAL INFORMATION.

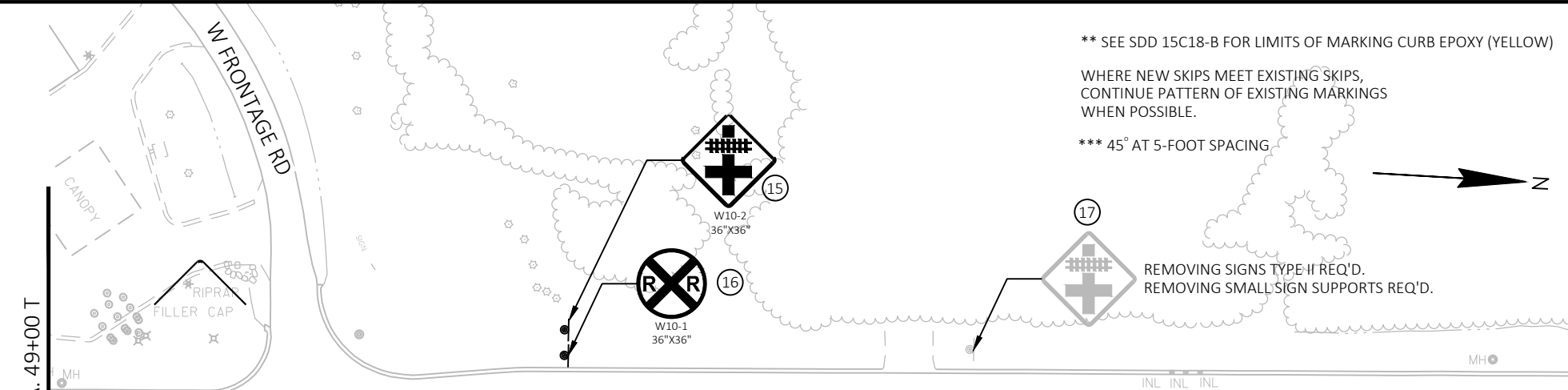
LEGEND

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|------|---|------|---|
| PM1  | MARKING LINE GROOVED PERMANENT TAPE 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP) | PM11 | MARKING LINE GROOVED WET REFLECTIVE EPOXY 10-INCH (WHITE) |
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|      |   | PM21 | MARKING DIAGONAL EPOXY 12-INCH (WHITE)                    |
|      |   | (X)  | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   |      | ○ X DENOTES PROPOSED SIGN NUMBER                          |

\* LOCATE OVER EXISTING MARKING  
 \*\* SEE SDD 15C18-B FOR LIMITS OF MARKING CURB EPOXY (YELLOW)  
 WHERE NEW SKIPS MEET EXISTING SKIPS, CONTINUE PATTERN OF EXISTING MARKINGS WHEN POSSIBLE.  
 \*\*\* 45° AT 5-FOOT SPACING

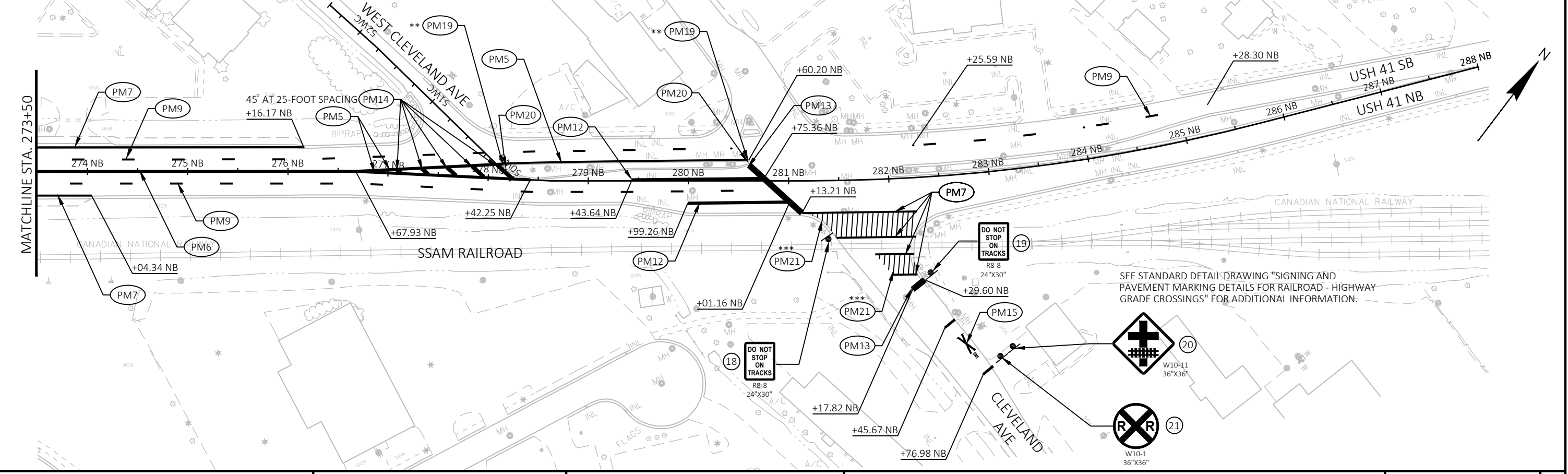
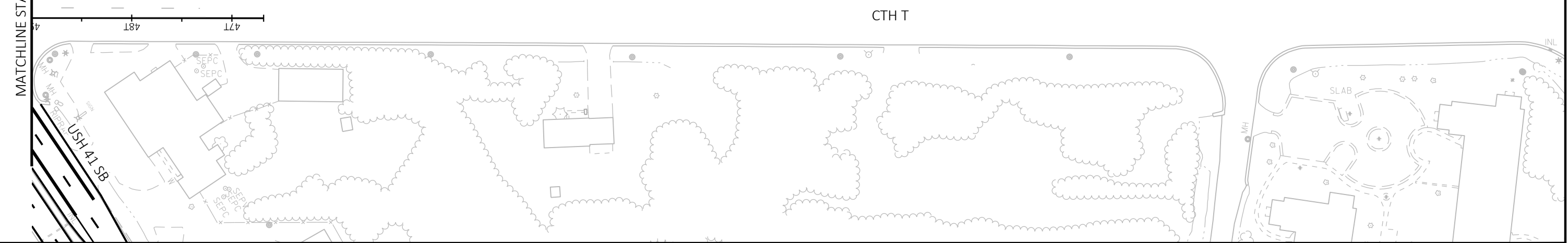


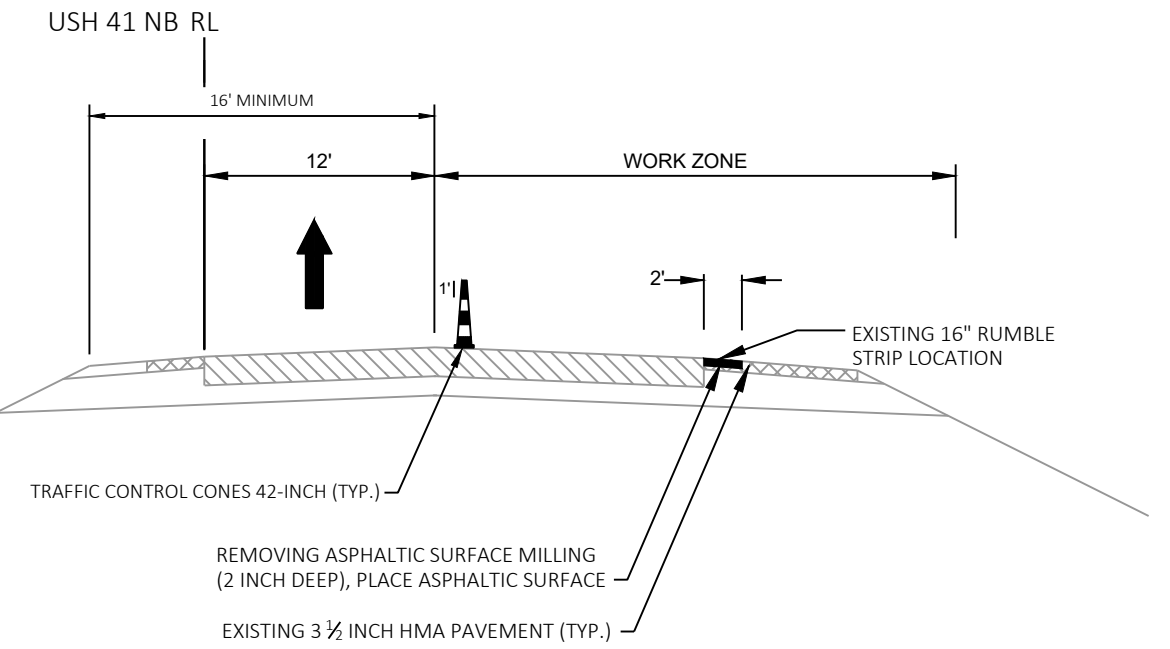
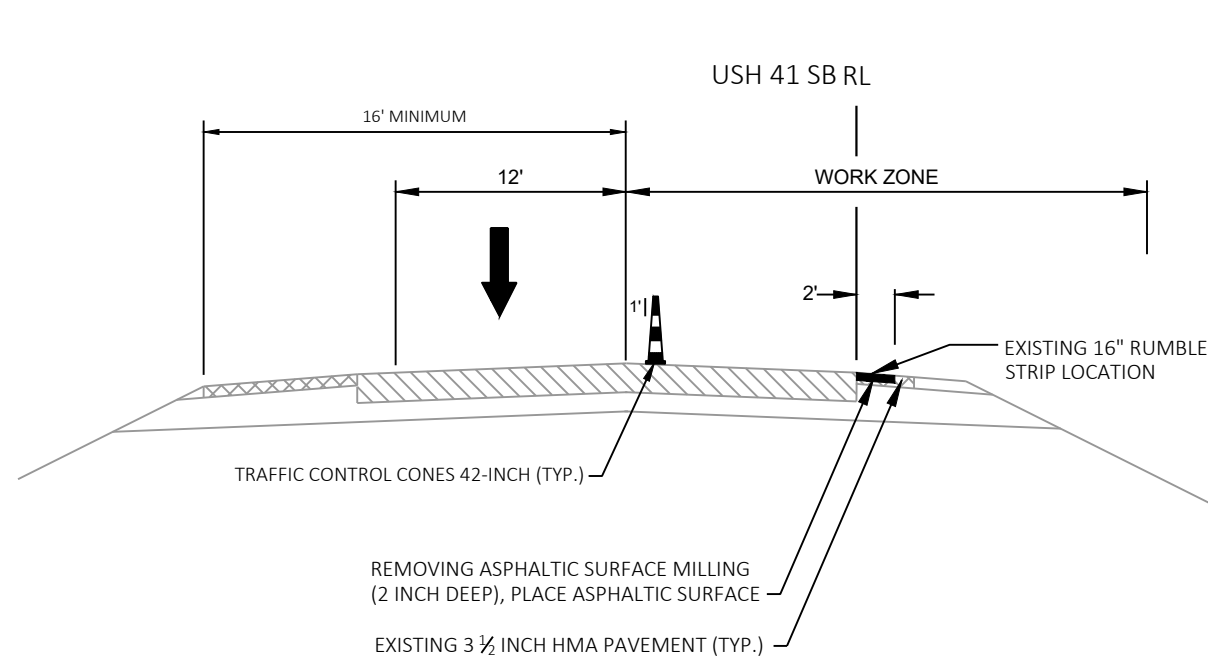
SEE STANDARD DETAIL DRAWING "SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS" FOR ADDITIONAL INFORMATION.



**LEGEND**

|      |   |      |   |
|------|---|------|---|
| PM1  | MARKING LINE GROOVED PERMANENT TAPE 6-INCH (DASHED WHITE) (12.5 FT LINE, 37.5 FT GAP) | PM11 | MARKING LINE GROOVED WET REFLECTIVE EPOXY 10-INCH (WHITE) |
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|      |   | PM21 | MARKING DIAGONAL EPOXY 12-INCH (WHITE)                    |
|      |   |      | PROPOSED SIGN MOUNTED ON WOOD POST                        |
|      |   |      | DENOTES PROPOSED SIGN NUMBER                              |

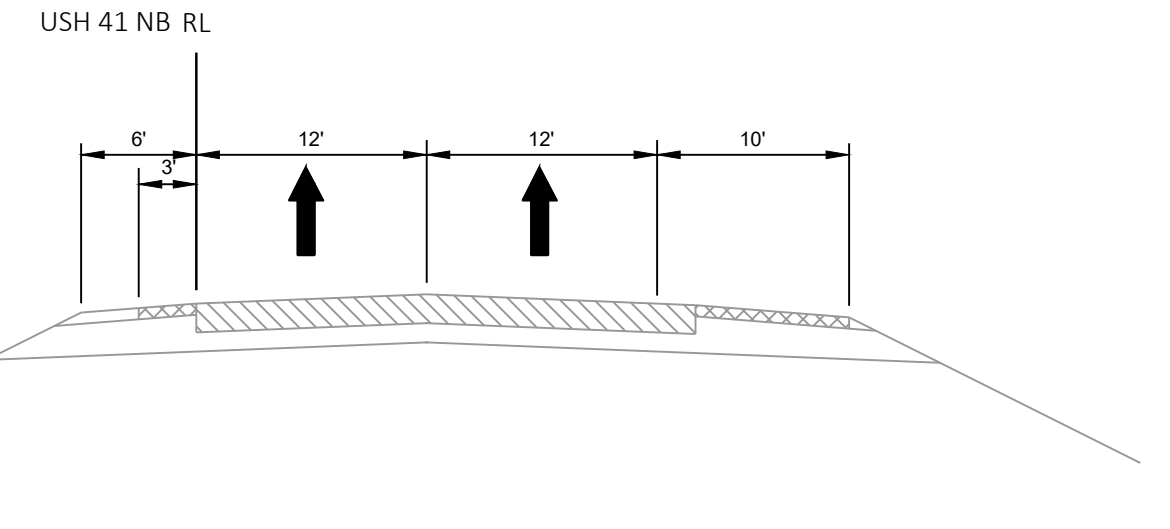
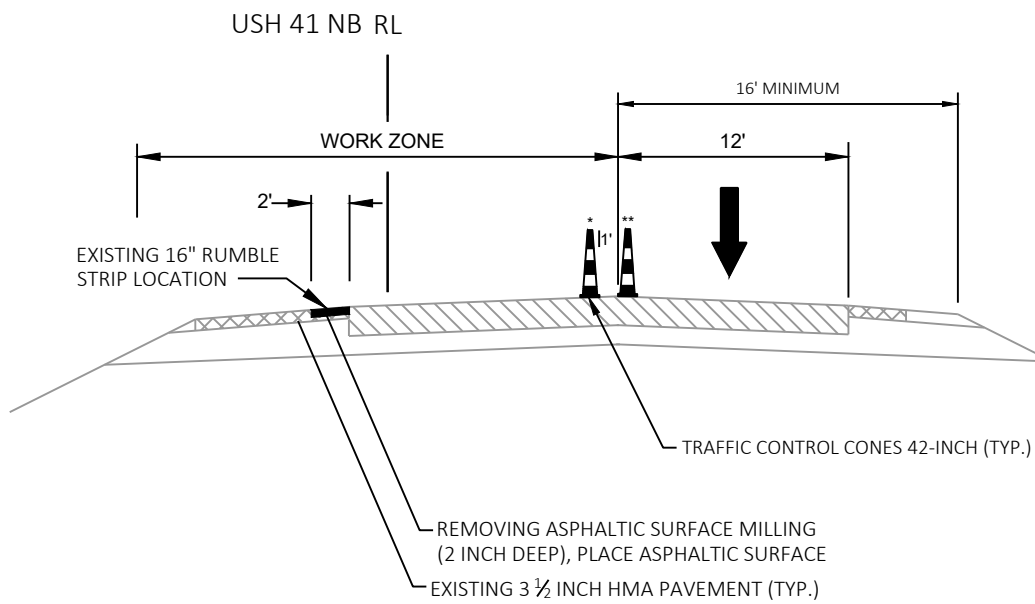




**STAGE 1**

STA. 1675+00.00 - STA. 1677+50.00 BK =  
STA. 133+86.67 AH

REMOVING RUMBLE STRIPS  
SB MEDIAN  
NB OUTSIDE



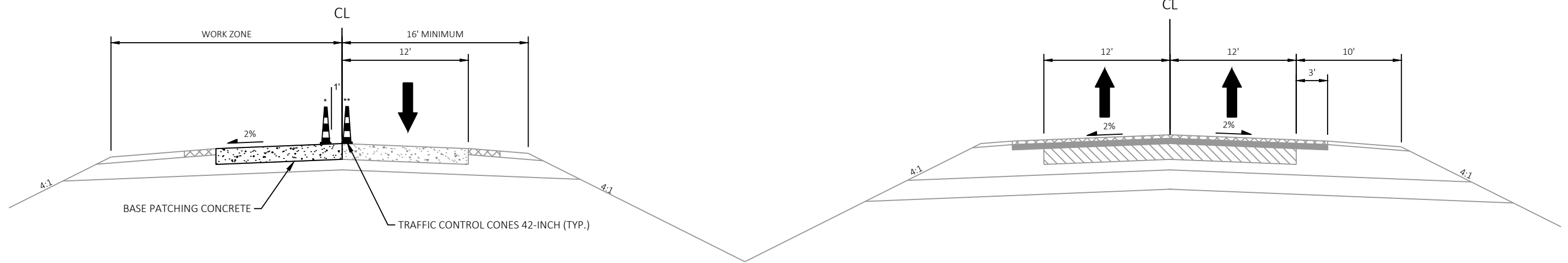
**STAGE 2A**

STA. 1675+00.00 - STA. 1677+50.00 BK =  
STA. 133+86.67 AH

REMOVING RUMBLE STRIPS  
SB OUTSIDE

\* NORMAL CONE (TYP.) AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED  
 \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.

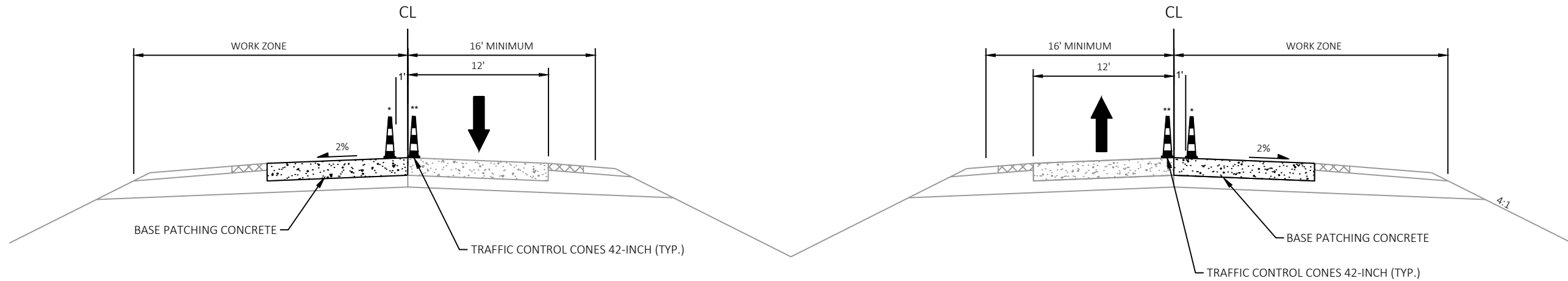




**STAGE 2A**

STA. 133+88.67 - STA.169+38.00  
OUTSIDE BASE PATCHING CONCRETE

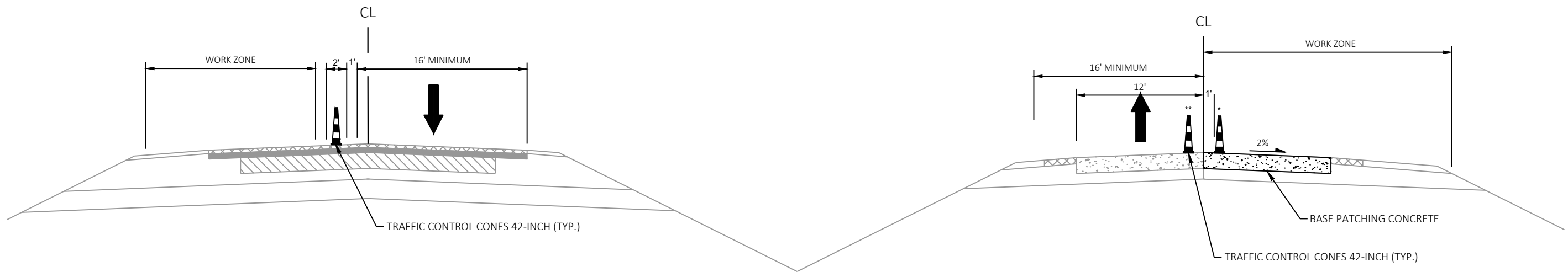
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**STAGE 2A**

STA. 169+38.00 - STA.184+83.00  
OUTSIDE BASE PATCHING CONCRETE

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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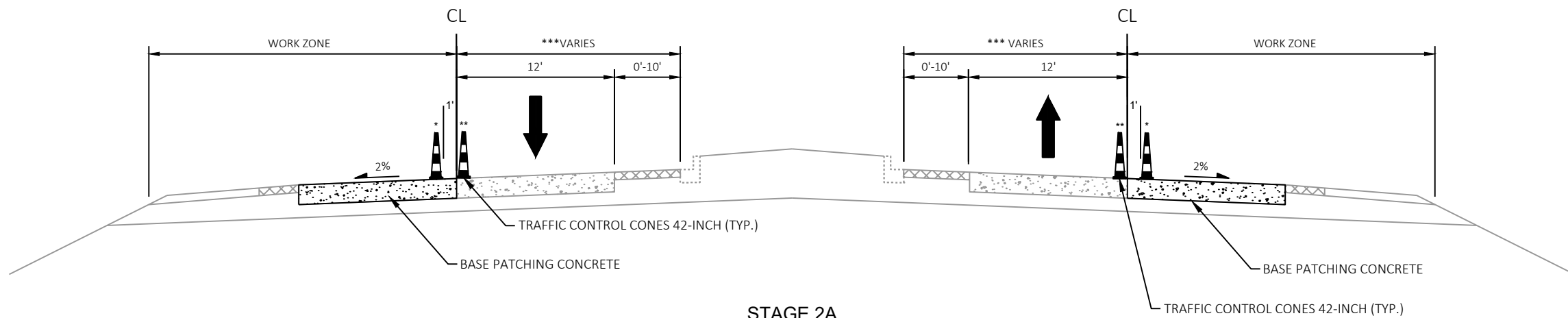


**STAGE 2A**

STA. 184+83.00 - STA.241+04.00

OUTSIDE BASE PATCHING CONCRETE

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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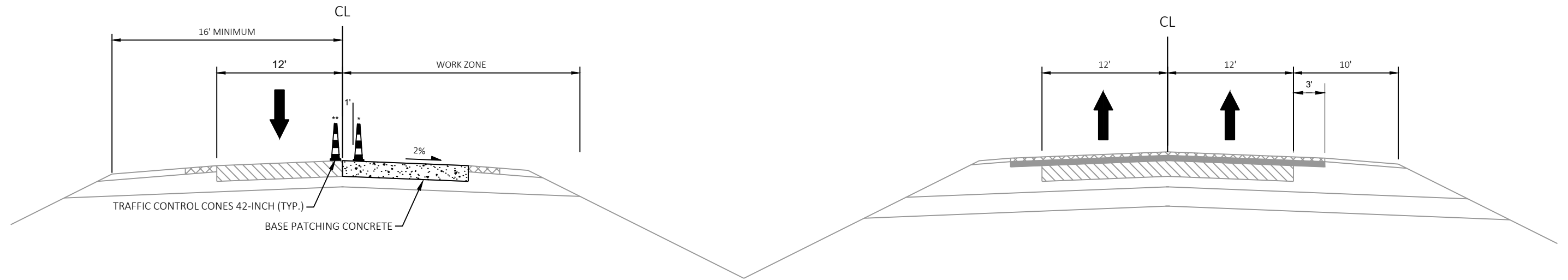


**STAGE 2A**

STA. 241+04.00 - STA.255+52.00

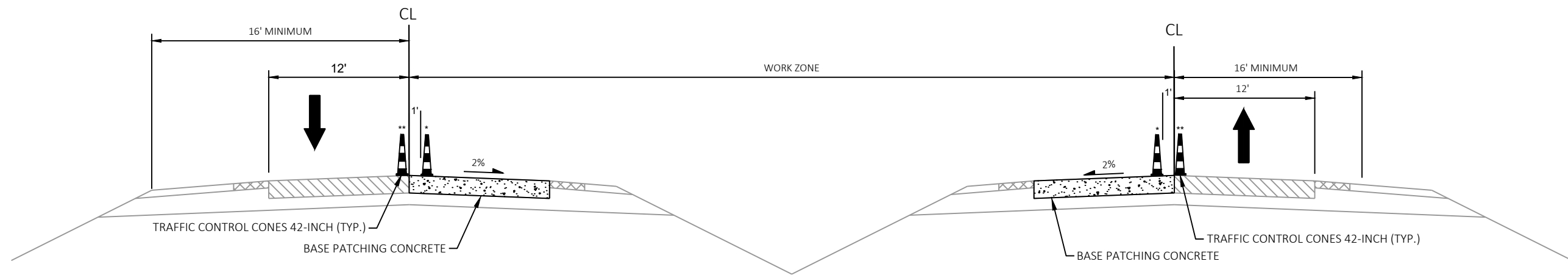
OUTSIDE BASE PATCHING CONCRETE

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- \*\*\*5' NORMAL SHOULDER WIDTH. PAVED SHOULDER WIDTH NARROWS FROM 5' TO 0' BETWEEN STA. 254+71 AND STA. 255+52. 16' MINIMUM CLEAR WIDTH NOT POSSIBLE WHEN WORKING IN THIS AREA.



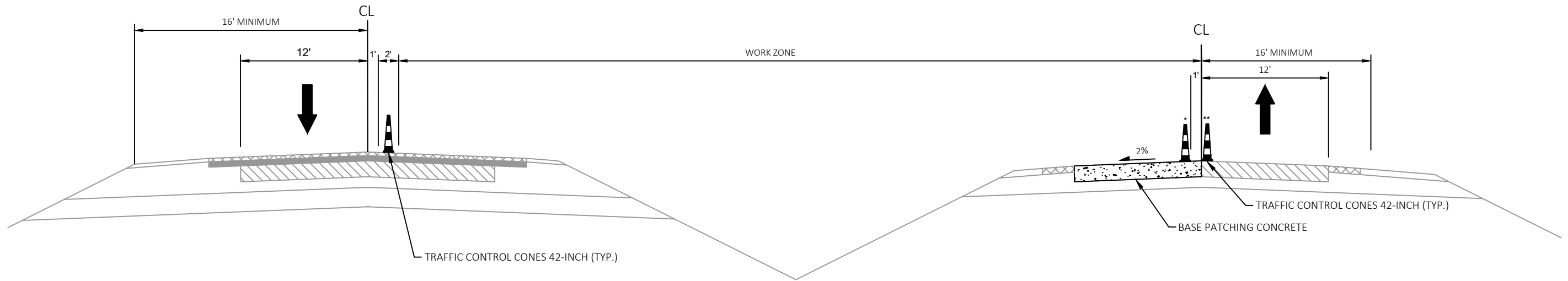
**STAGE 2B**  
 STA. 133+88.67 - STA. 169+38.00  
 INSIDE BASE PATCHING CONCRETE

\* NORMAL CONE (TYP.) AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED  
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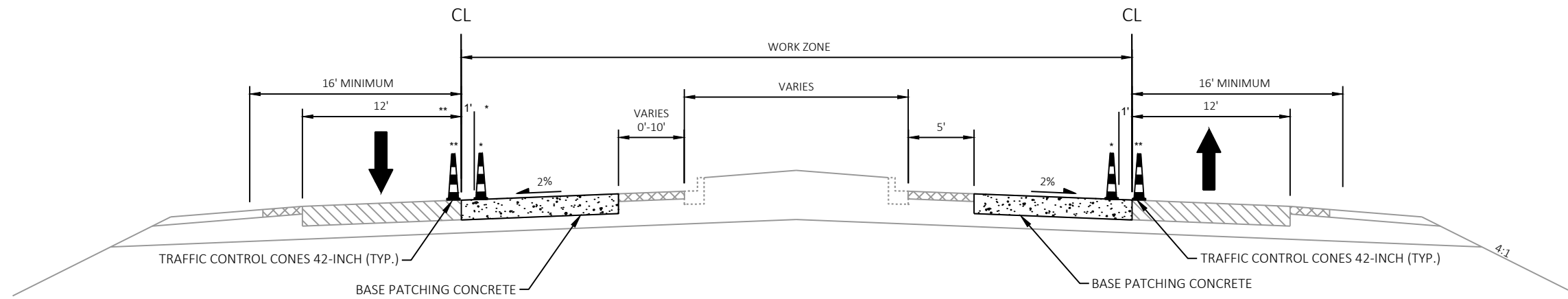
**STAGE 2B**  
 STA. 169+38.00 - STA. 184+83.00  
 INSIDE BASE PATCHING CONCRETE

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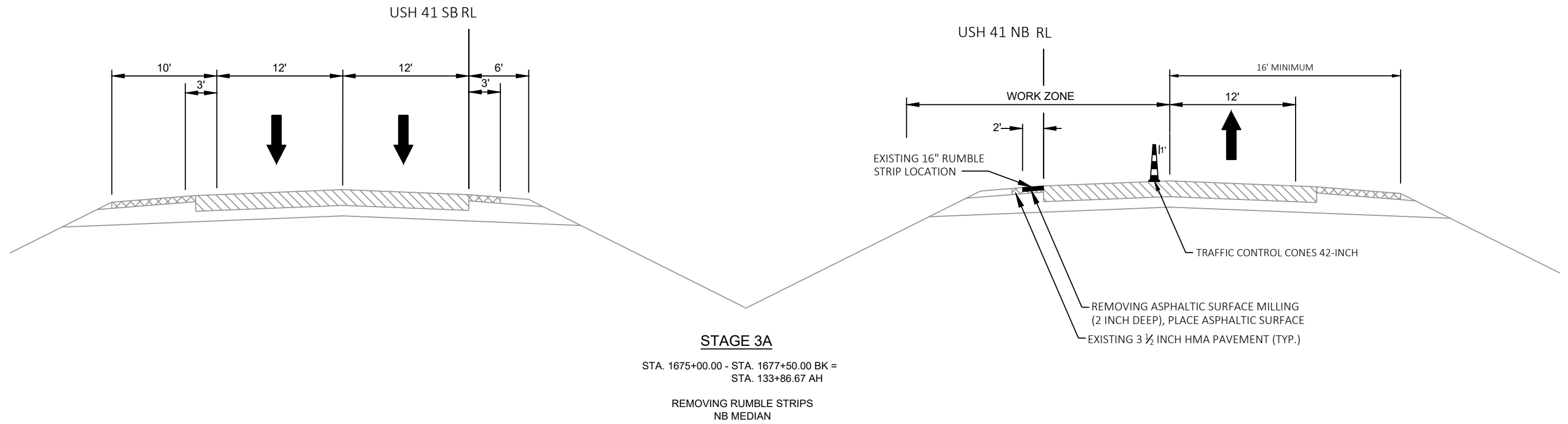
**STAGE 2B**  
 STA. 184+83.00 - STA.241+04.00  
 INSIDE BASE PATCHING CONCRETE

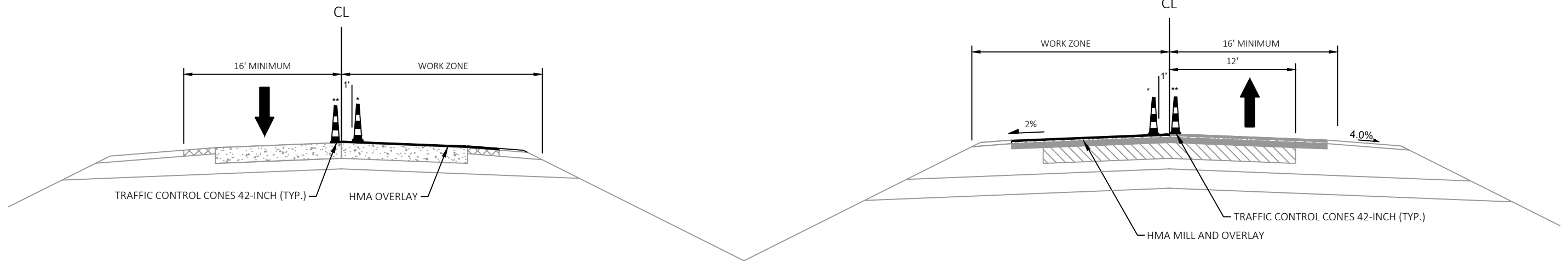
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**STAGE 2B**  
 STA. 241+04.00 - STA.255+52.00  
 INSIDE BASE PATCHING CONCRETE

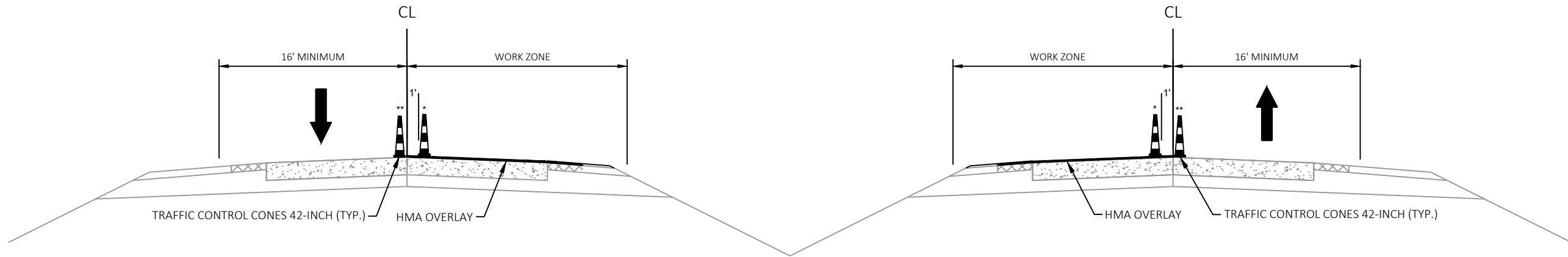
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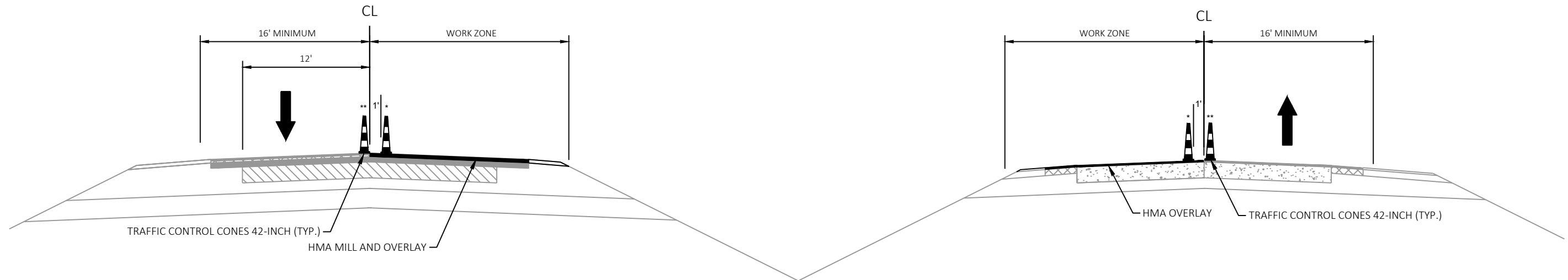
**STAGE 3A, 4C**  
 STA. 133+88.67 - STA.169+38.00  
 INSIDE LANE HMA MILL & OVERLAY

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.



**STAGE 3A, 4C**  
 STA. 169+38.00 - STA.184+83.00  
 INSIDE LANE HMA OVERLAY

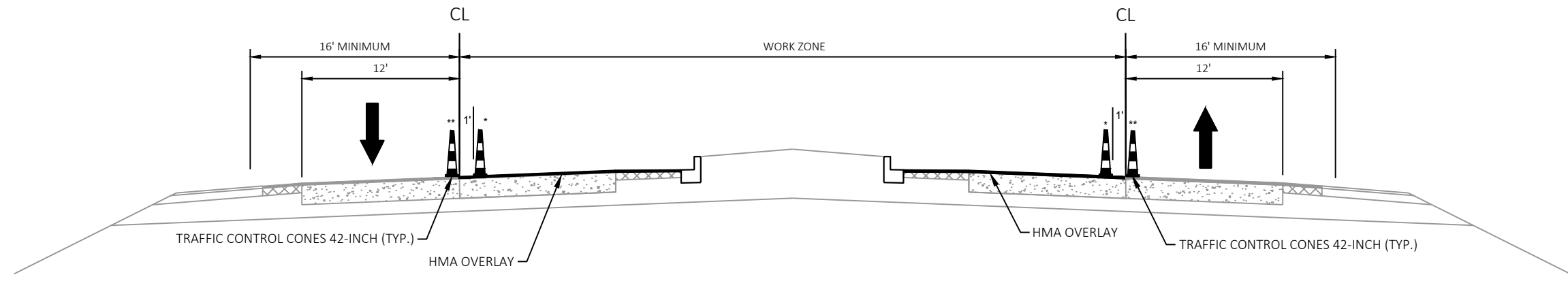
- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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**STAGE 3A, 4C**

STA. 184+83.00 - STA.241+04.00  
INSIDE LANE HMA MILL & OVERLAY

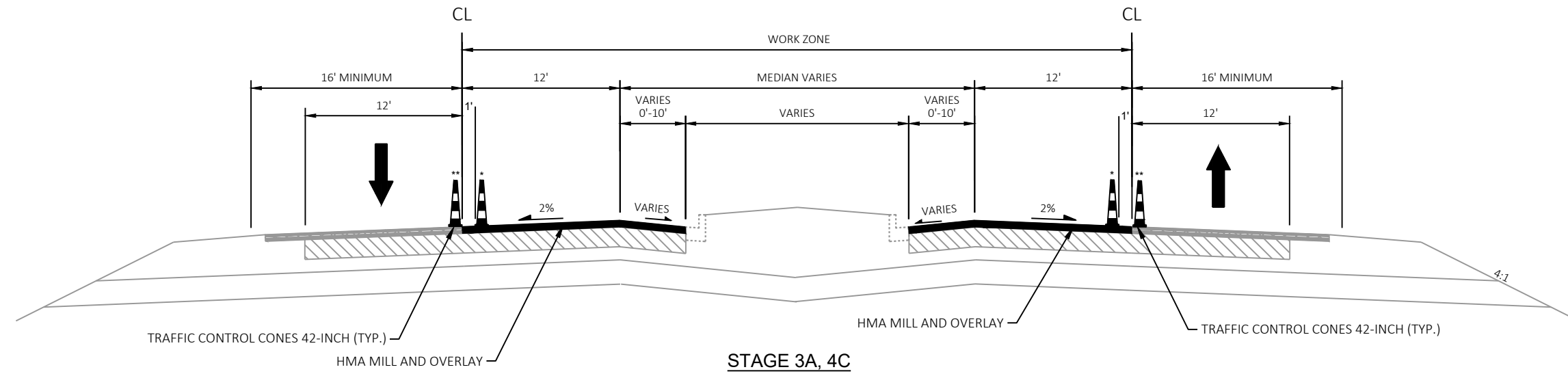
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**STAGE 3A, 4C**

STA. 241+04.00 - STA.255+52.00  
INSIDE LANE HMA OVERLAY

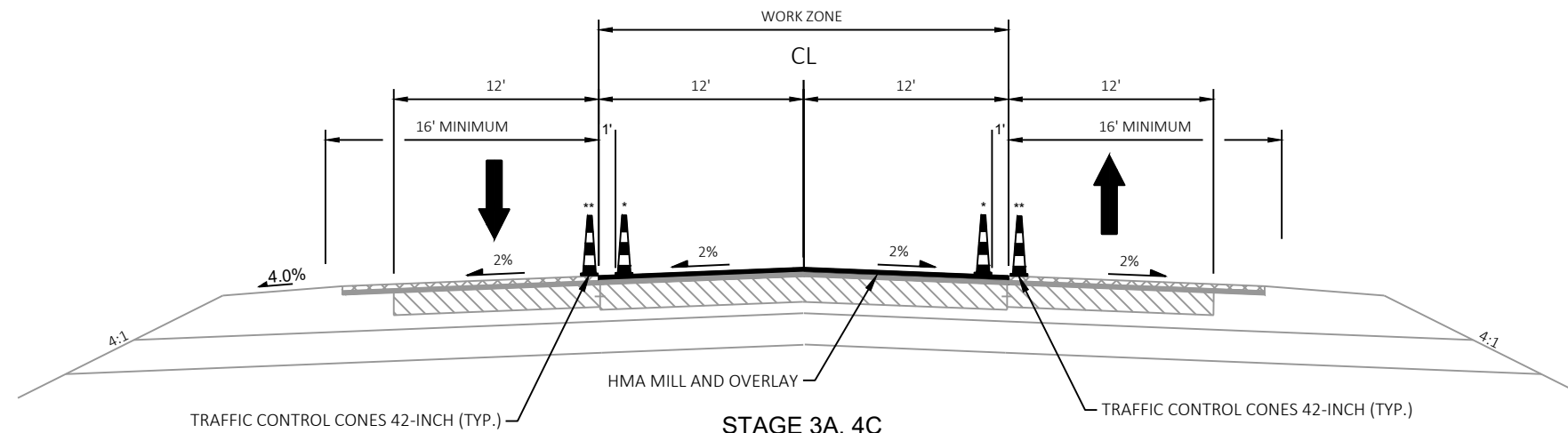
- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.



**STAGE 3A, 4C**

STA. 255+52.00 - STA.264+44.00  
INSIDE LANE HMA MILL & OVERLAY

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.

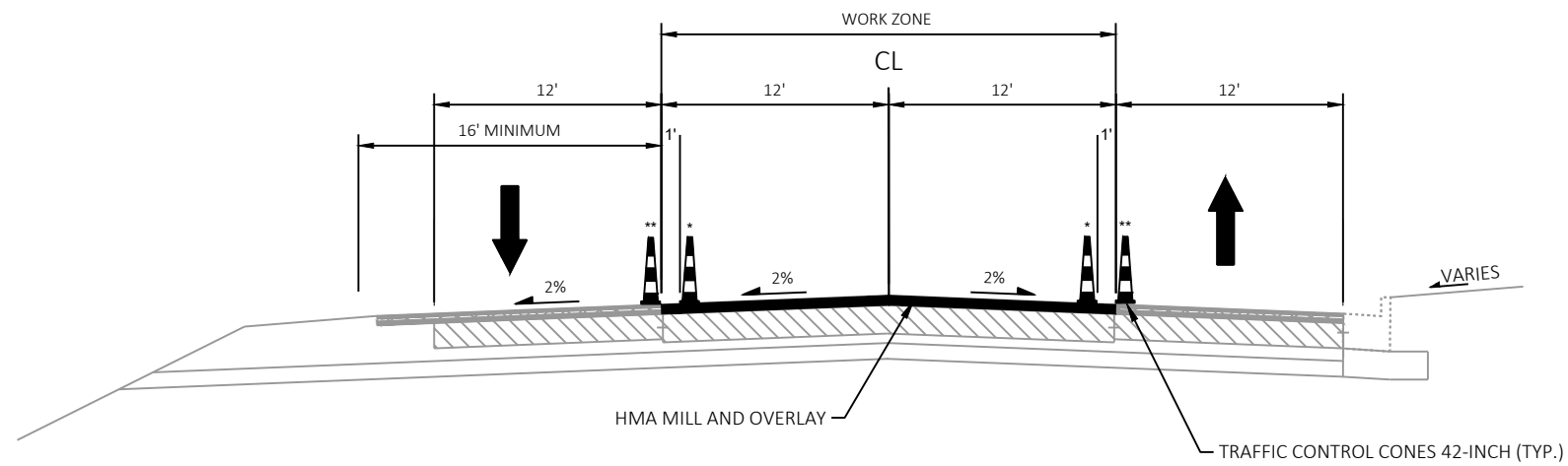


**STAGE 3A, 4C**

STA. 264+44.00 - STA.274+00.00  
INSIDE LANE HMA MILL & OVERLAY

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.

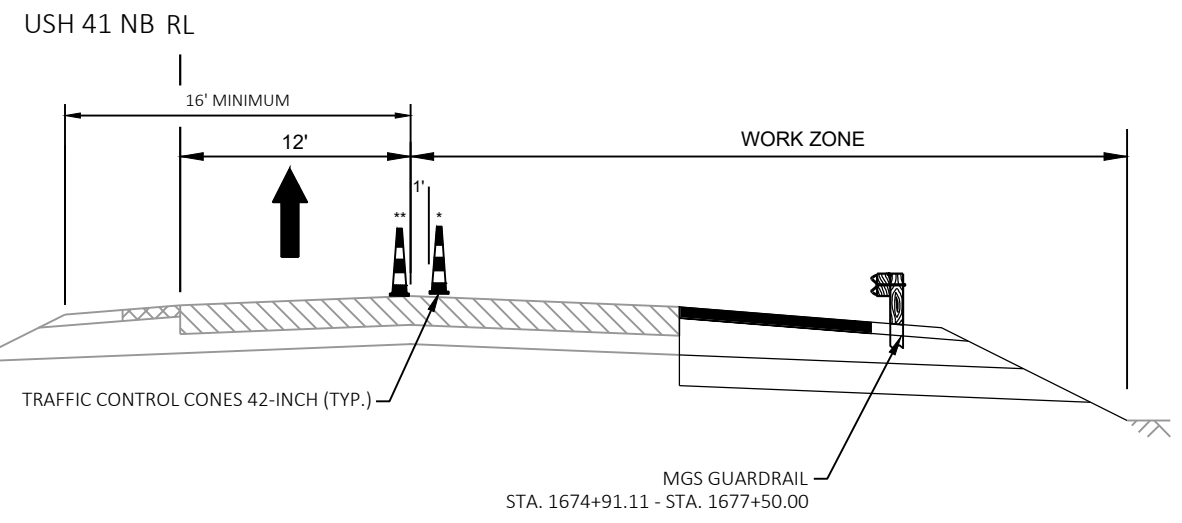
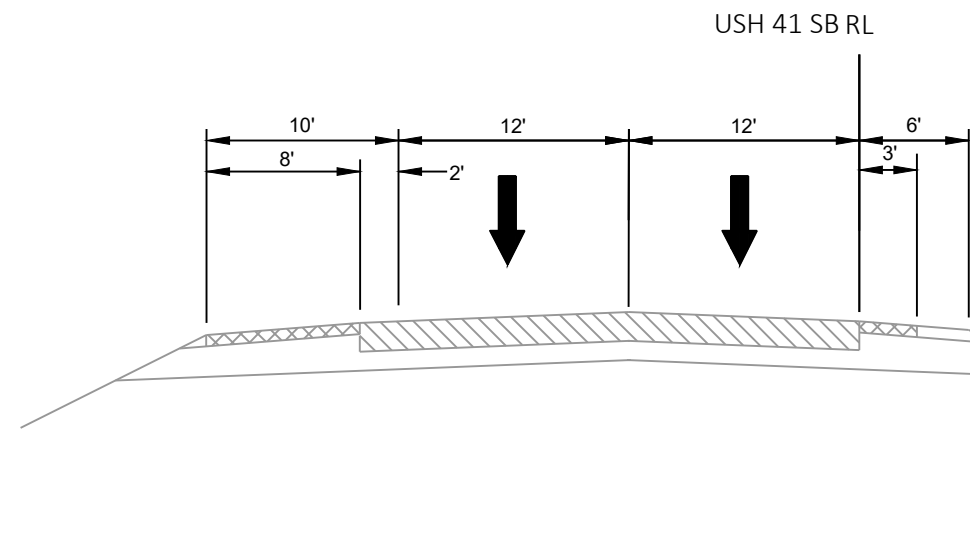




**STAGE 3A, 4C**

STA. 274+00.00 - STA.276+16.09  
INSIDE LANE HMA MILL & OVERLAY

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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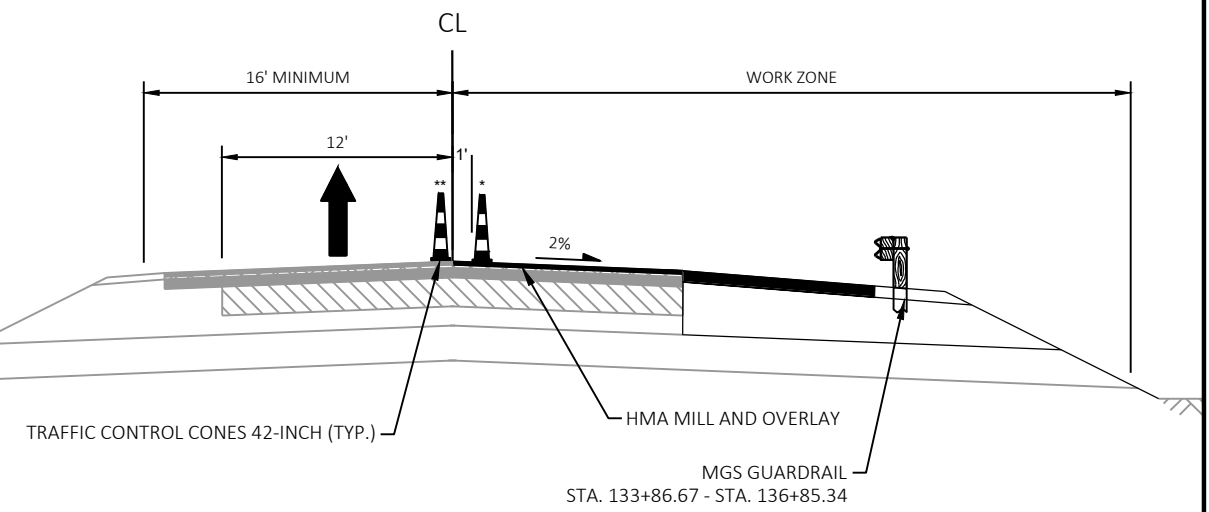
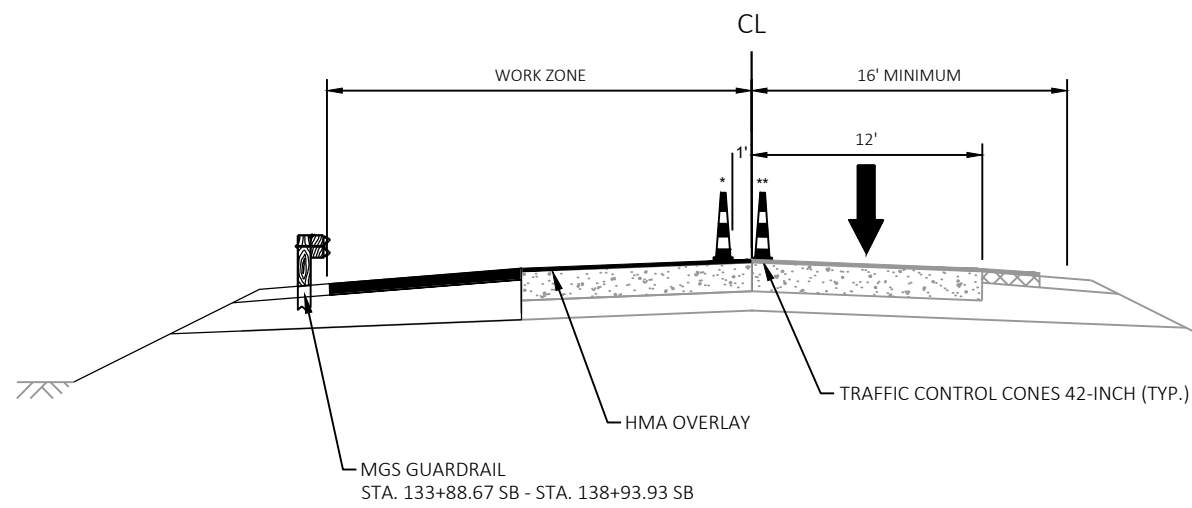


**STAGE 3B, 4A**

STA. 1675+00.00 - STA. 1677+50.00 BK =  
STA. 133+86.67 AH

**NB OUTSIDE SHOULDER CONSTRUCTION**

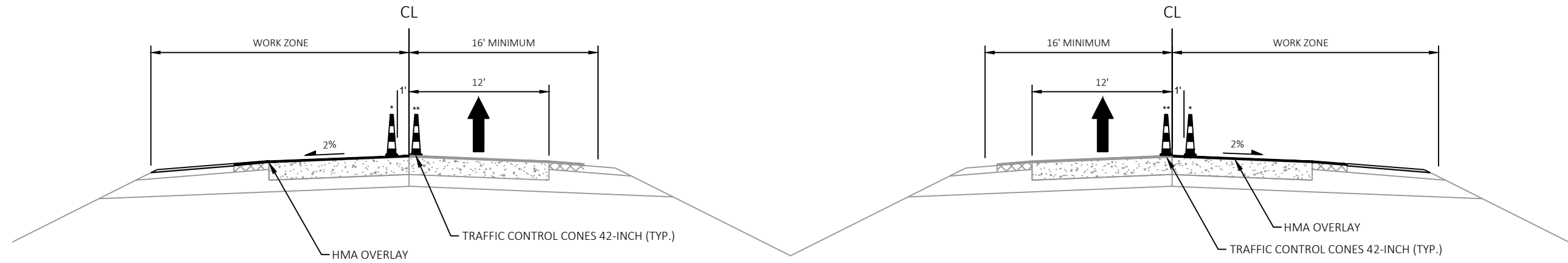
- \* NORMAL CONE (TYP.) AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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**STAGE 3B, 4A**

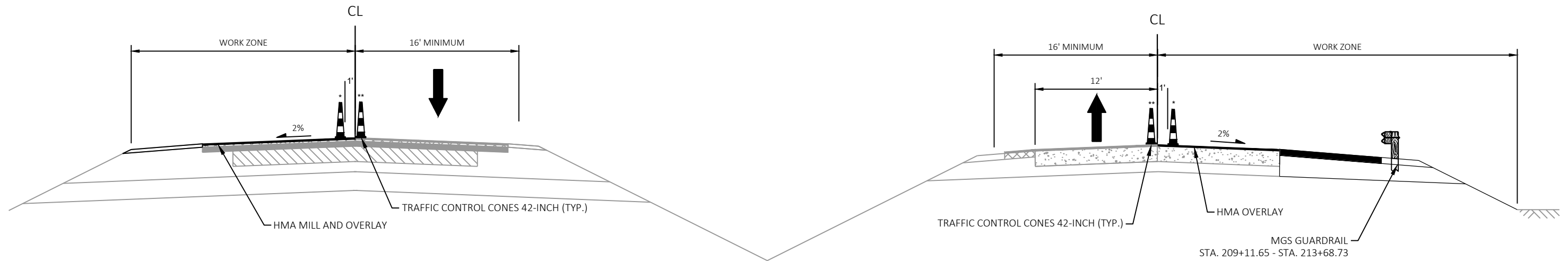
STA. 133+88.67 - STA. 169+38.00  
**SB OUTSIDE SHOULDER CONSTRUCTION  
OUTSIDE LANE HMA MILL & OVERLAY**

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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**STAGE 3B, 4A**

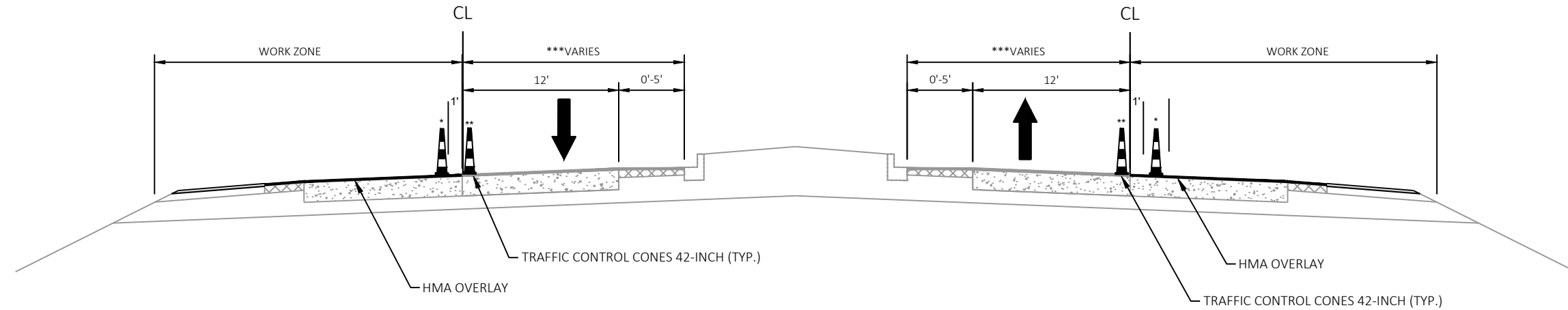
STA. 169+38.00 - STA.184+83.00  
OUTSIDE LANE HMA OVERLAY



**STAGE 3B, 4A**

STA. 184+83.00 - STA.241+04.00  
NB OUTSIDE SHOULDER CONSTRUCTION  
OUTSIDE LANE HMA MILL & OVERLAY

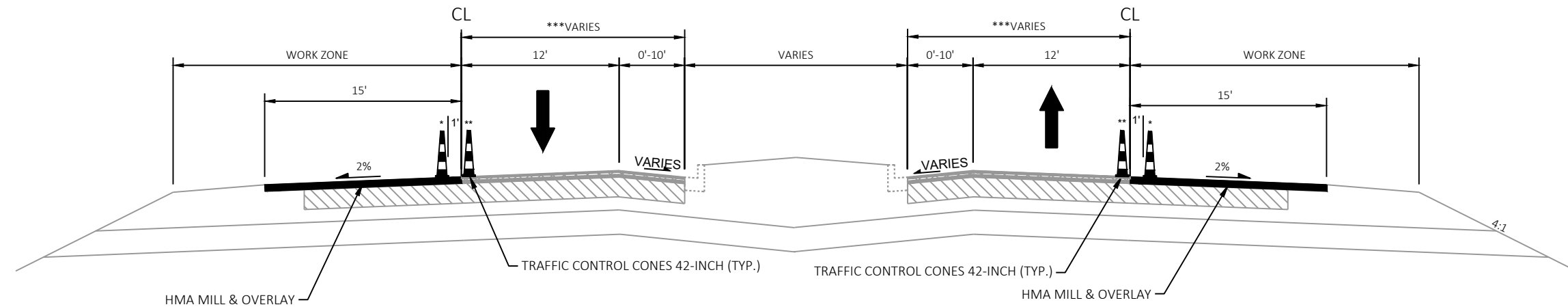
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**STAGE 3B, 4A**

STA. 241+04.00 - STA.255+52.00  
OUTSIDE LANE HMA OVERLAY

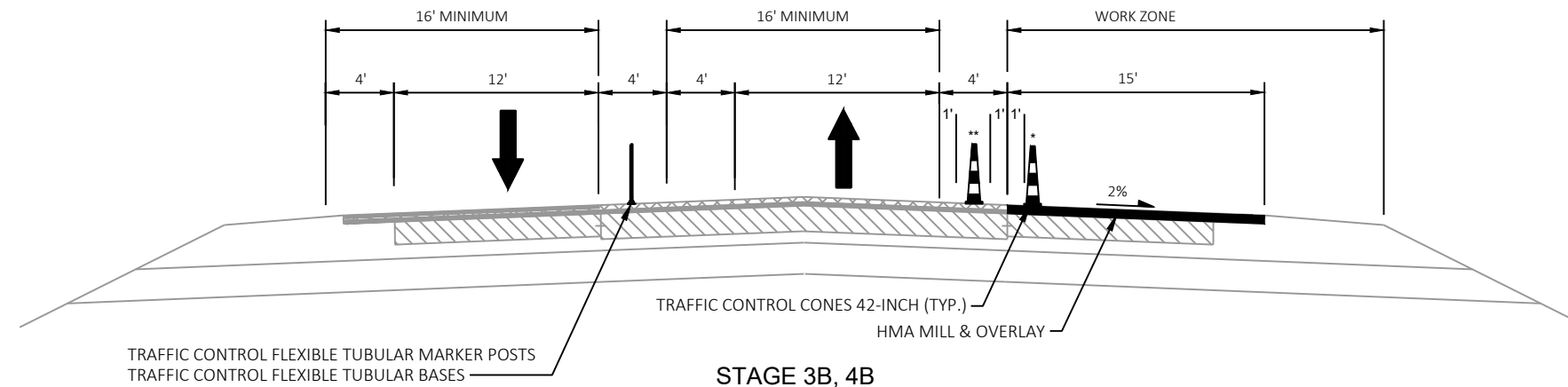
- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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- \*\*\*5' NORMAL SHOULDER WIDTH. PAVED SHOULDER WIDTH NARROWS FROM 5' TO 0' BETWEEN STA. 254+71 AND STA. 255+52. 16' MINIMUM CLEAR WIDTH NOT POSSIBLE WHEN WORKING IN THIS AREA.



**STAGE 3B, 4A**

STA. 255+52.00 - STA.264+44.00  
OUTSIDE LANE HMA MILL & OVERLAY

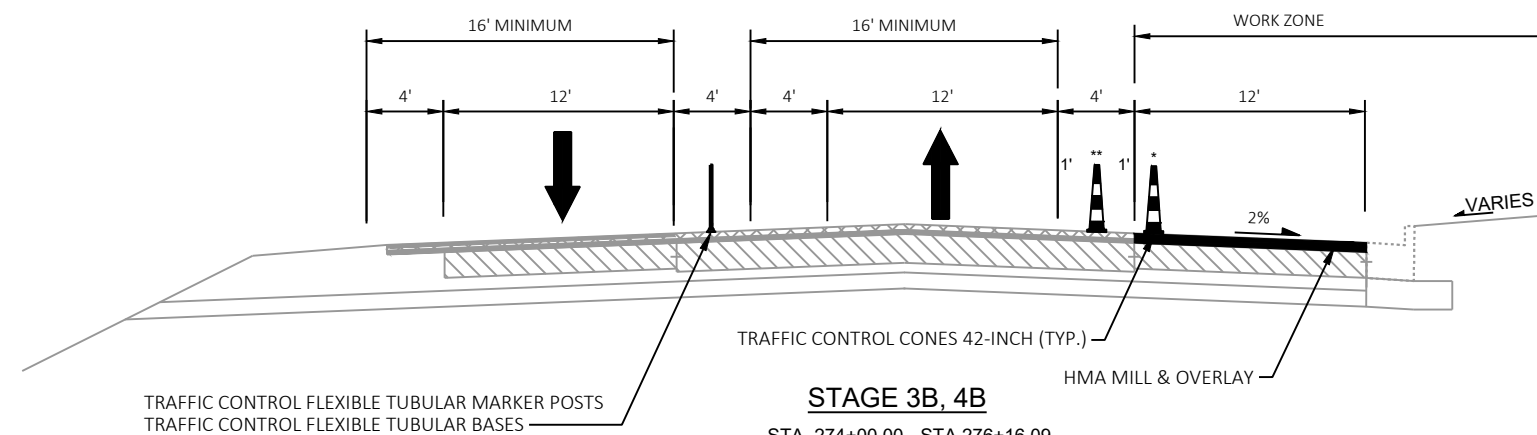
- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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- \*\*\*TURN LANE/PAVED SHOULDER WIDTH VARIES FROM 0' TO 10'. 16' MINIMUM CLEAR WIDTH NOT POSSIBLE WHEN WORKING IN THIS AREA.



**STAGE 3B, 4B**

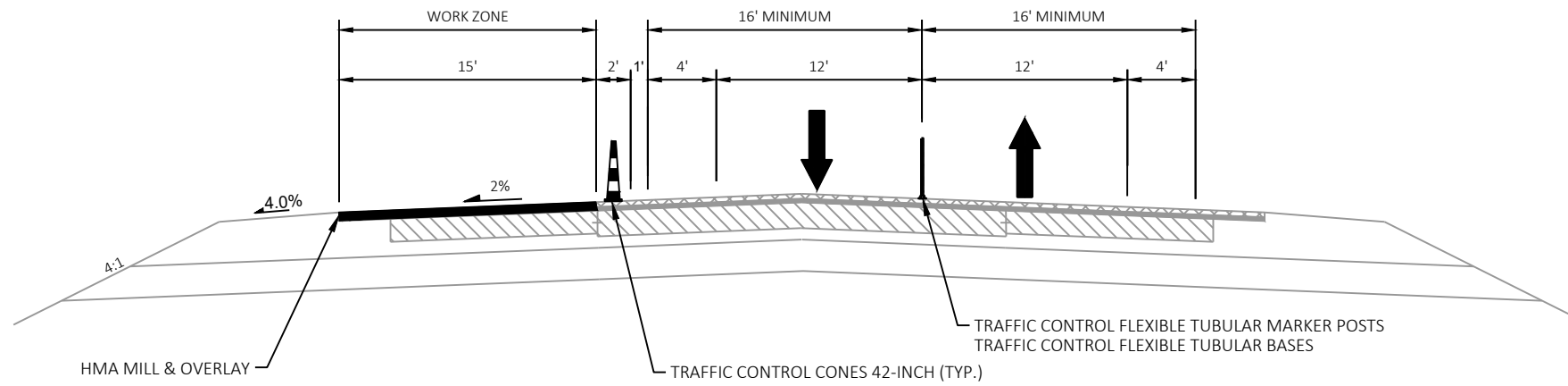
STA. 264+44.00 - STA.274+00.00  
OUTSIDE NB LANE HMA MILL & OVERLAY

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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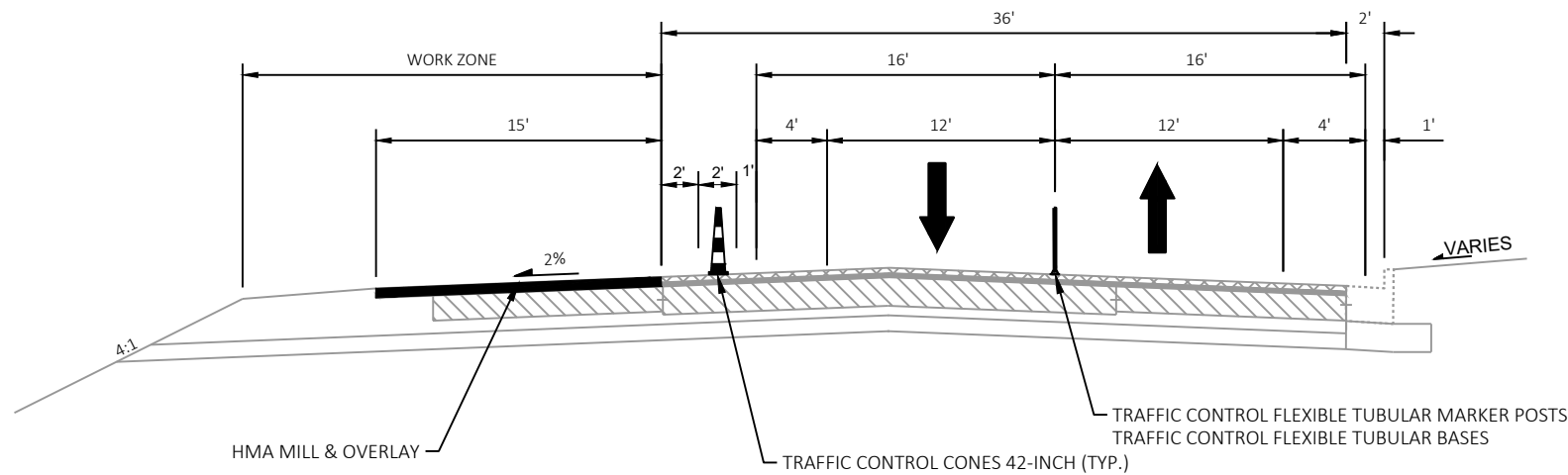
**STAGE 3B, 4B**

STA. 274+00.00 - STA.276+16.09  
OUTSIDE NB LANE HMA MILL & OVERLAY



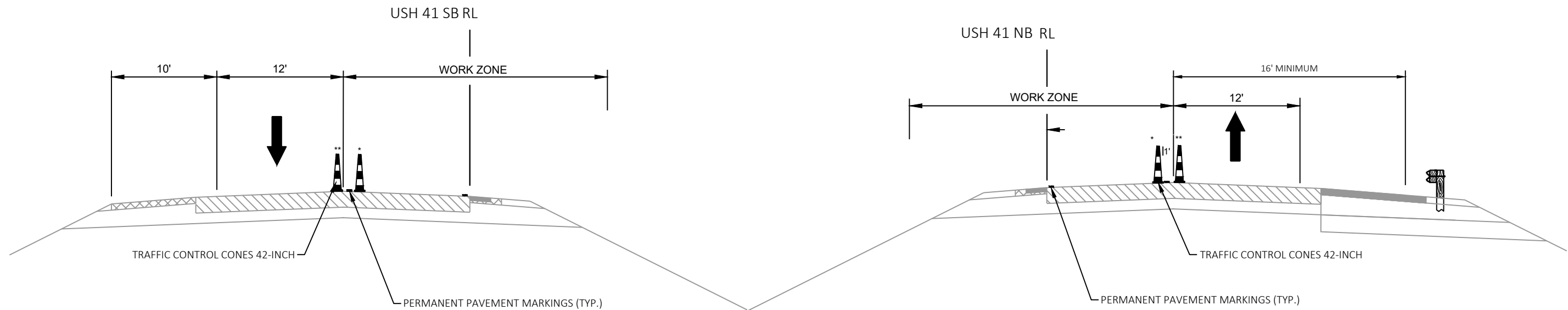
**STAGE 3C, 4A**

STA. 264+44.00 - STA.274+00.00  
OUTSIDE SB LANE HMA MILL & OVERLAY



**STAGE 3C, 4A**

STA. 274+00.00 - STA.276+16.09  
OUTSIDE SB LANE HMA MILL & OVERLAY

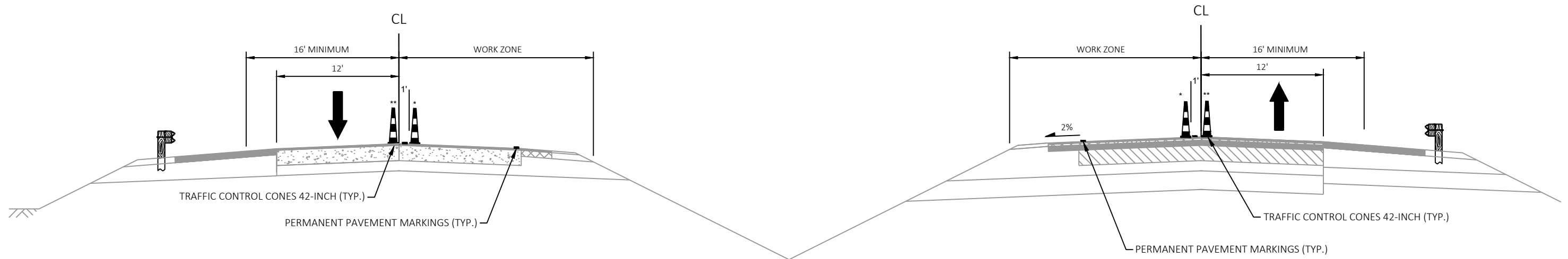


**STAGE 5A**

STA. 1675+00.00 - STA. 1677+50.00 BK =  
STA. 133+86.67 AH

INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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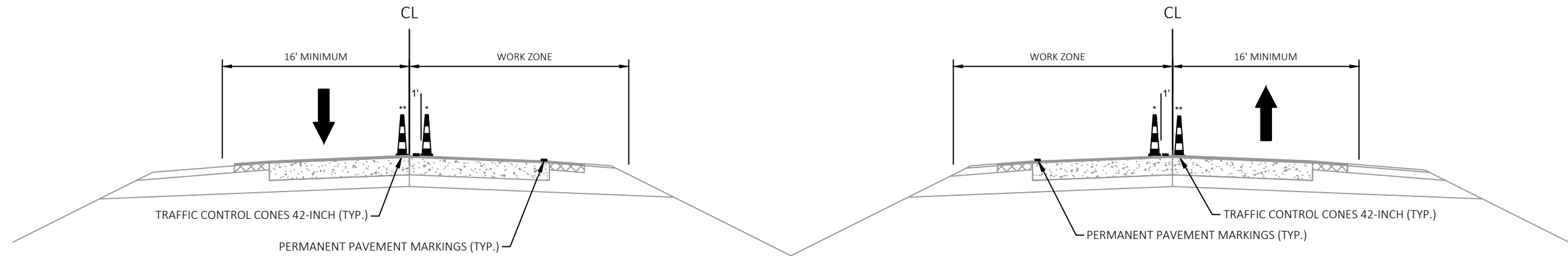


**STAGE 5A**

STA. 133+88.67 - STA. 169+38.00

INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

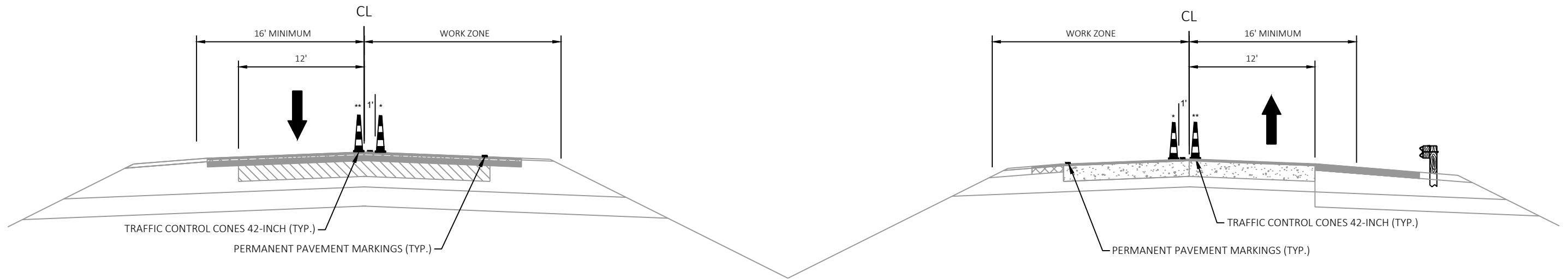
- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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**STAGE 5A**

STA. 169+38.00 - STA.184+83.00  
INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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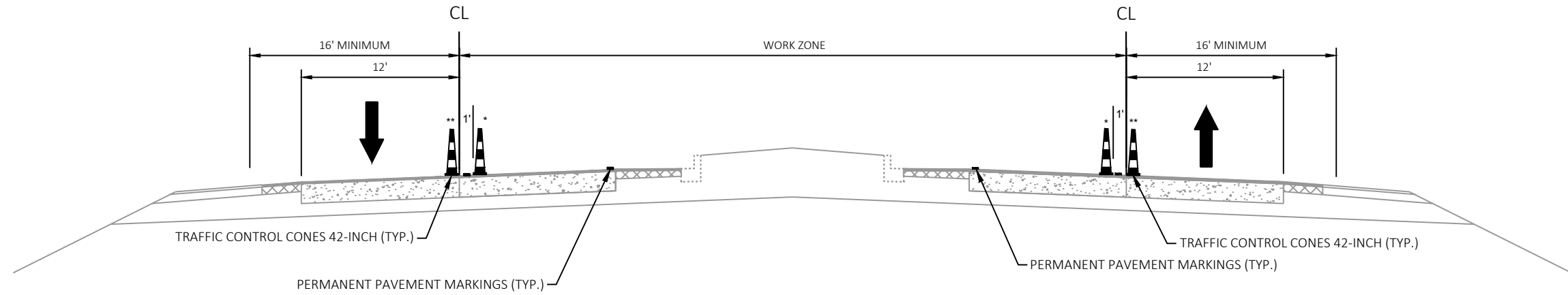


**STAGE 5A**

STA. 184+83.00 - STA.241+04.00  
INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

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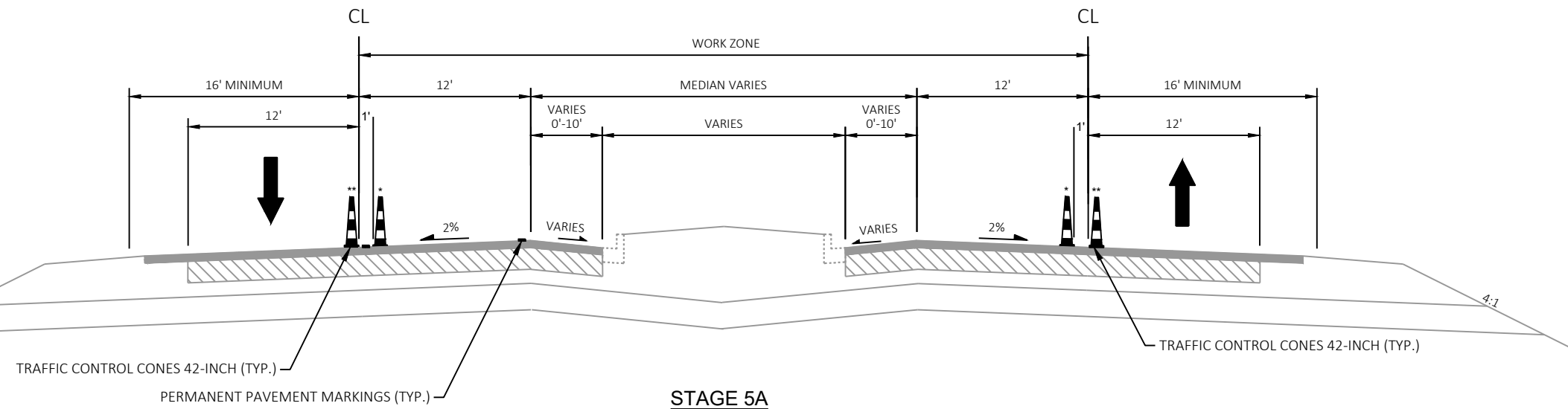




**STAGE 5A**

STA. 241+04.00 - STA.255+52.00  
INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

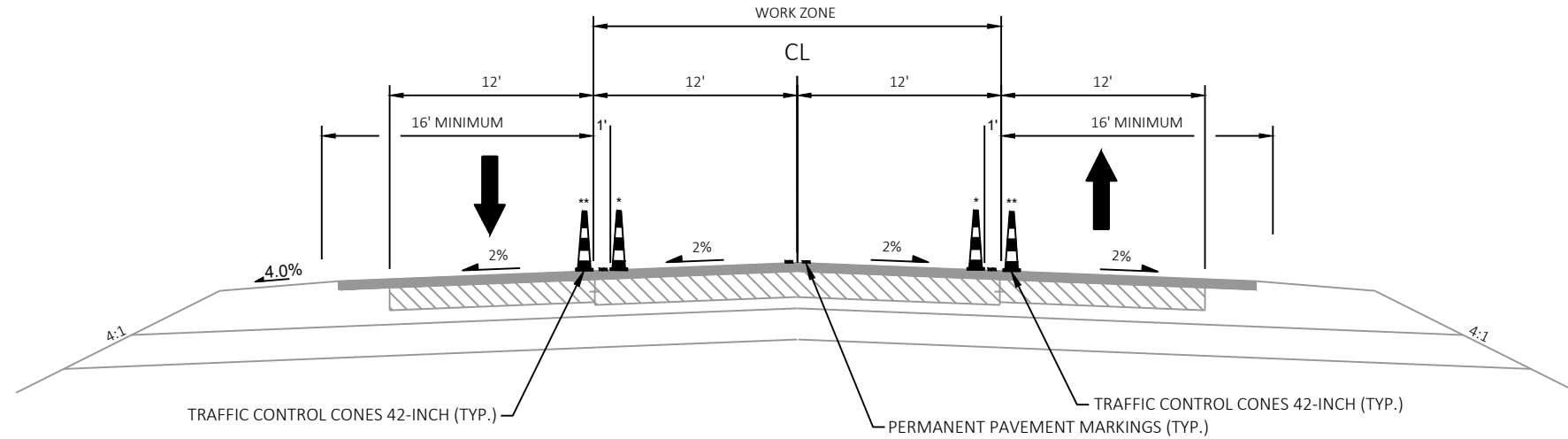
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**STAGE 5A**

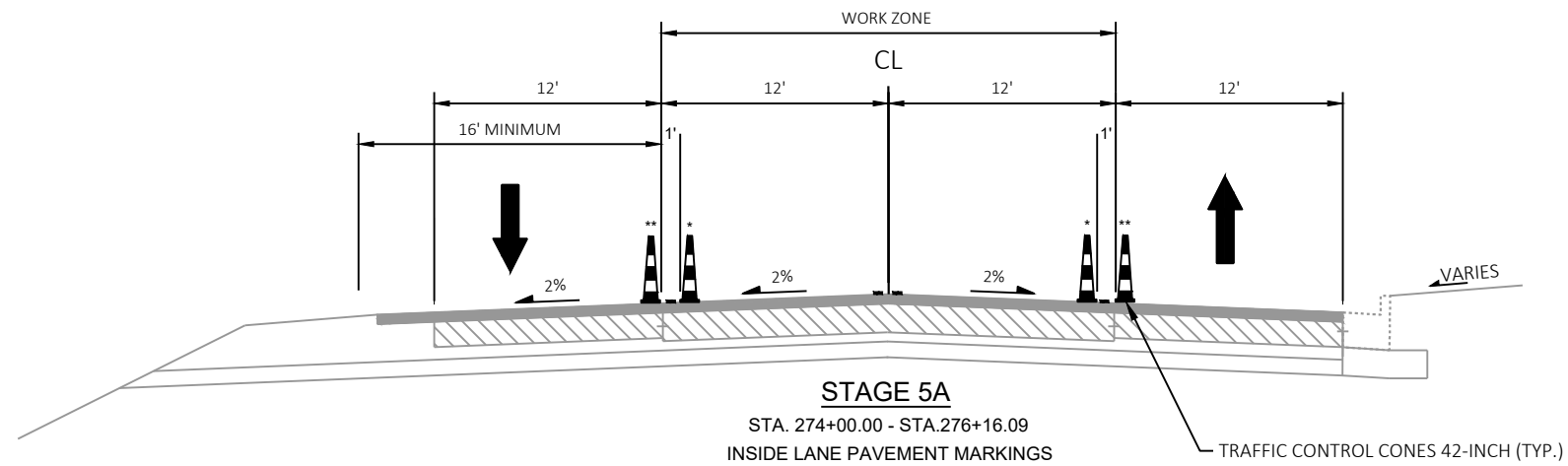
STA. 255+52.00 - STA.264+44.00  
INSIDE LANE PAVEMENT MARKINGS  
INSIDE SHOULDER RUMBLE STRIPS

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.



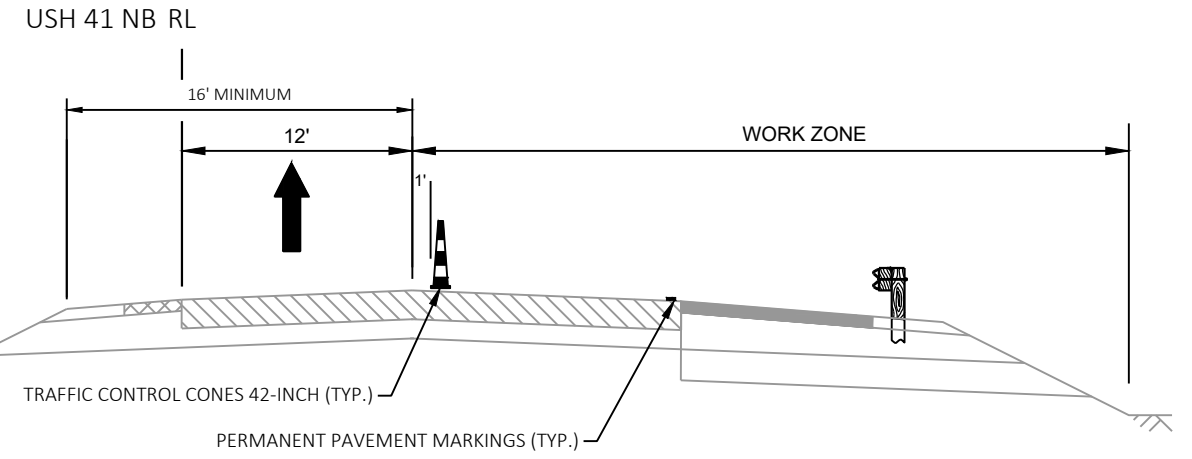
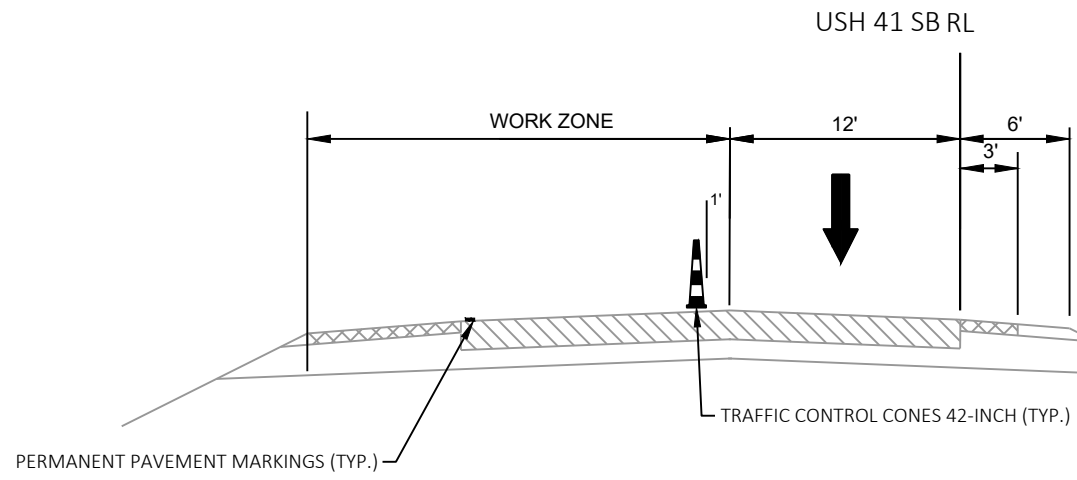
**STAGE 5A**  
 STA. 264+44.00 - STA.274+00.00  
 INSIDE LANE PAVEMENT MARKINGS

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
- \*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS.



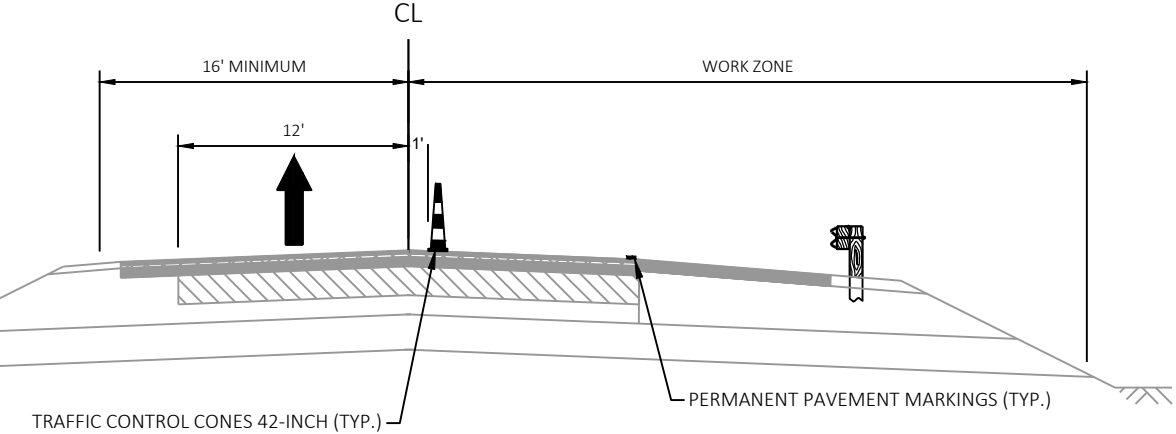
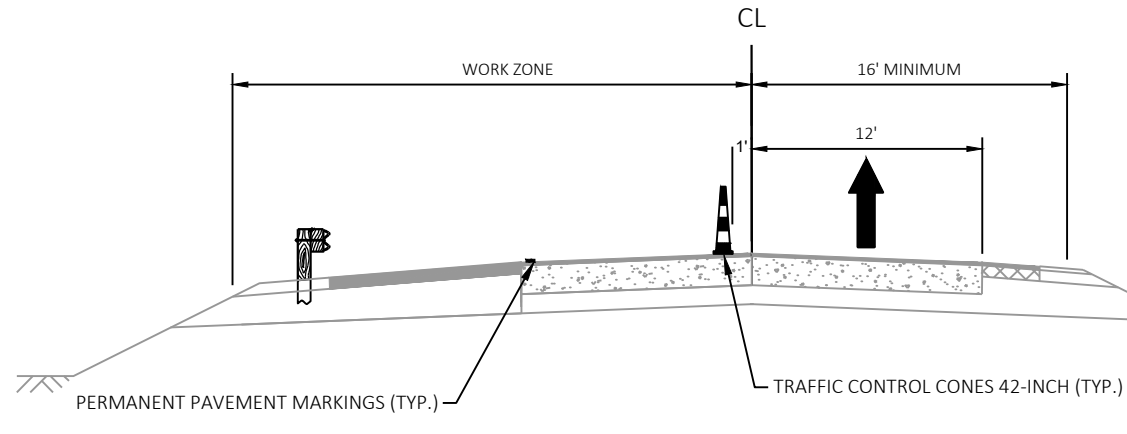
**STAGE 5A**  
 STA. 274+00.00 - STA.276+16.09  
 INSIDE LANE PAVEMENT MARKINGS

- \* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED
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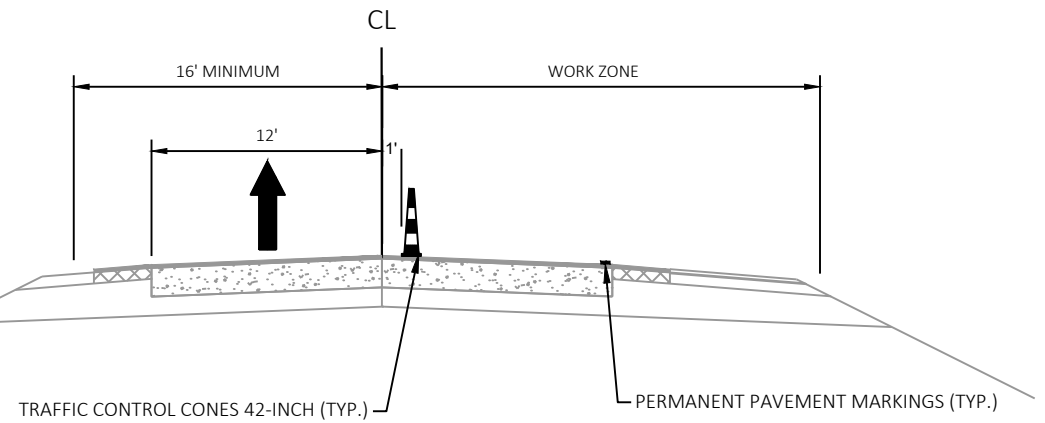
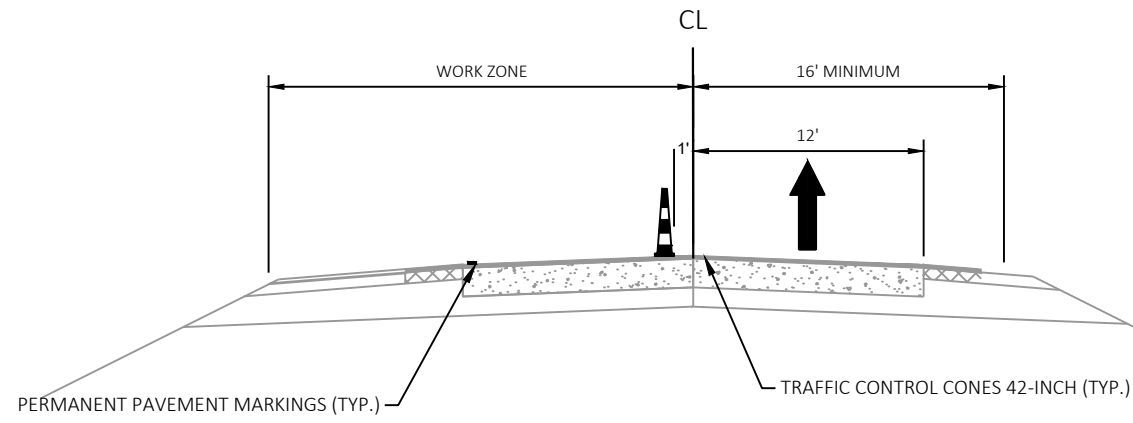
**STAGE 5B**

STA. 1675+00.00 - STA. 1677+50.00 BK =  
 STA. 133+86.67 AH  
 OUTSIDE LANE PAVEMENT MARKINGS  
 OUTSIDE SHOULDER RUMBLE STRIPS



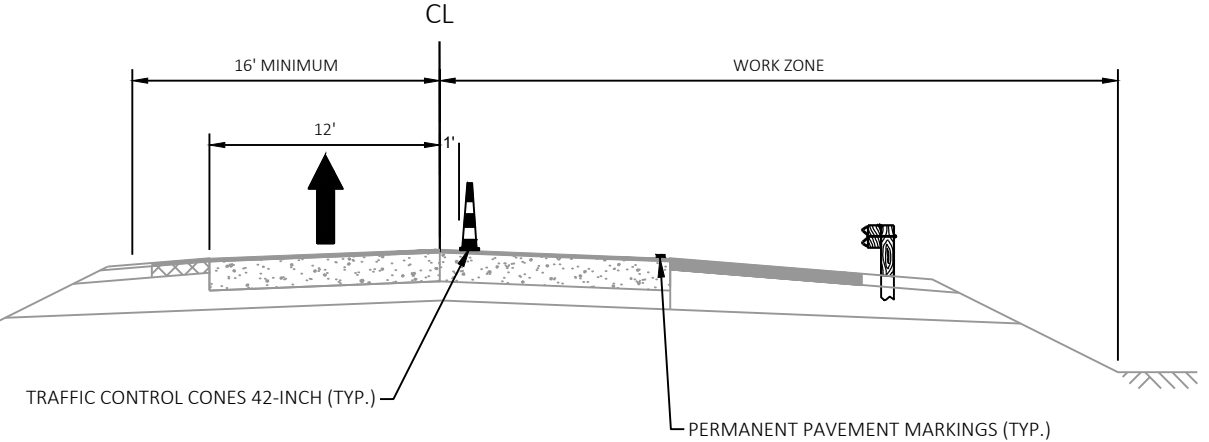
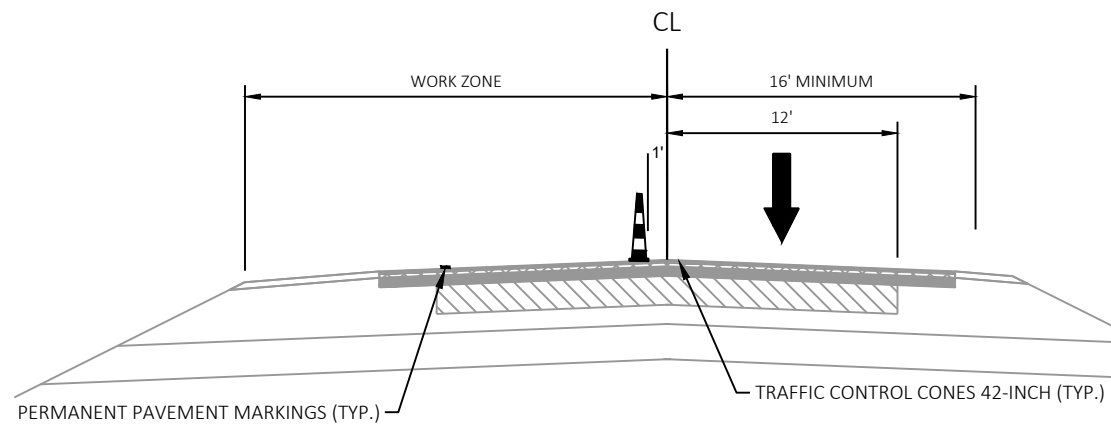
**STAGE 5B**

STA. 133+88.67 - STA. 169+38.00  
 OUTSIDE LANE PAVEMENT MARKINGS  
 OUTSIDE SHOULDER RUMBLE STRIPS



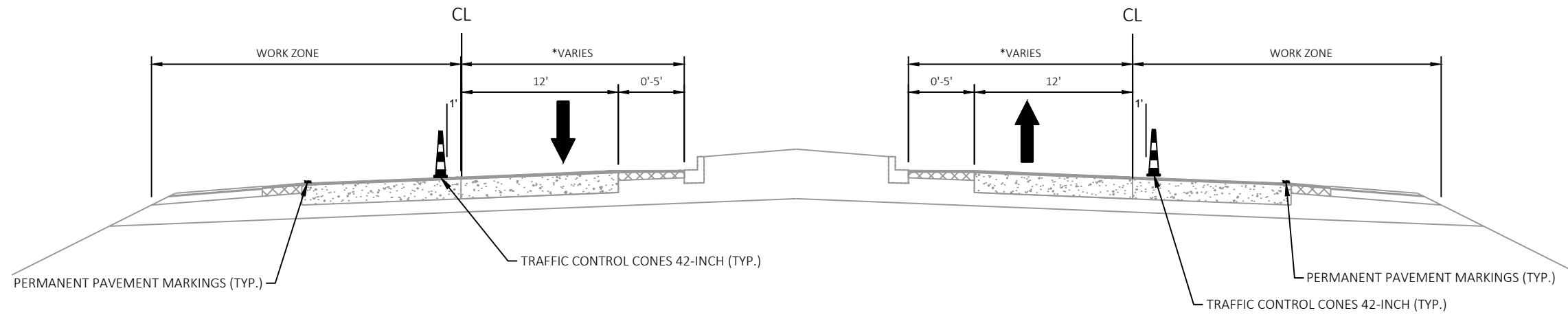
**STAGE 5B**

STA. 169+38.00 - STA.184+83.00  
OUTSIDE LANE PAVEMENT MARKINGS  
OUTSIDE SHOULDER RUMBLE STRIPS



**STAGE 5B**

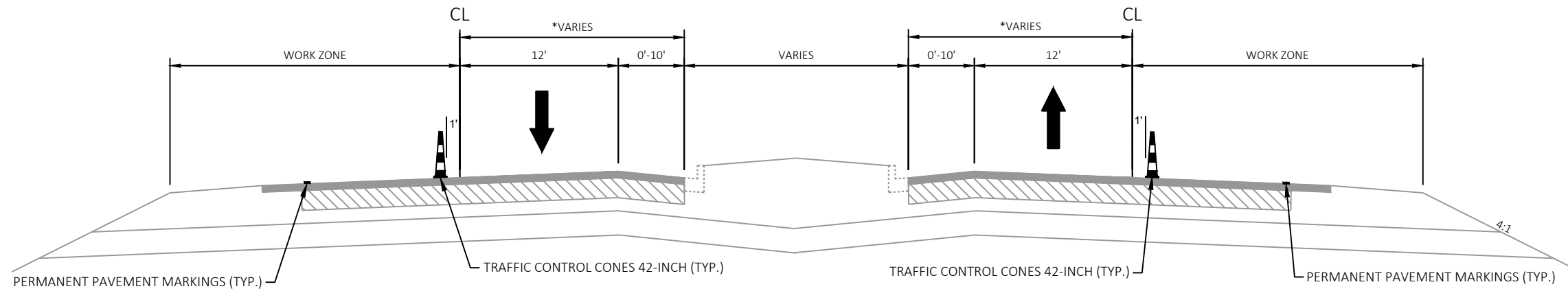
STA. 184+83.00 - STA.241+04.00  
OUTSIDE LANE PAVEMENT MARKINGS  
OUTSIDE SHOULDER RUMBLE STRIPS



**STAGE 5B**

STA. 241+04.00 - STA.255+52.00  
OUTSIDE LANE PAVEMENT MARKINGS  
OUTSIDE SHOULDER RUMBLE STRIPS

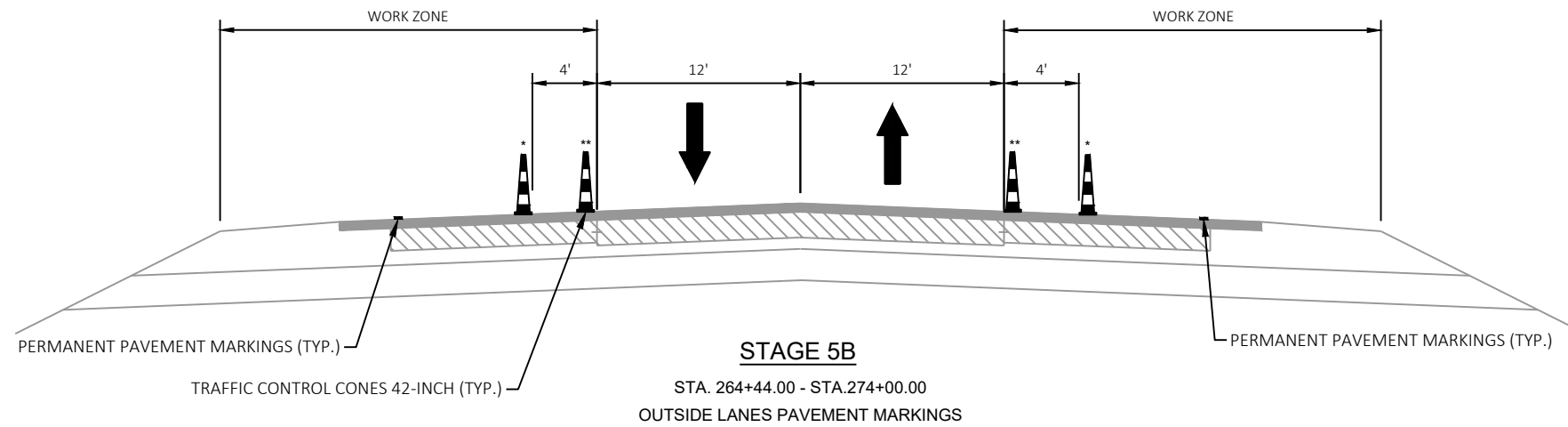
\*5' NORMAL SHOULDER WIDTH. PAVED SHOULDER WIDTH NARROWS FROM 5' TO 0' BETWEEN STA. 254+71 AND STA. 255+52.  
16' MINIMUM CLEAR WIDTH NOT POSSIBLE WHEN WORKING IN THIS AREA.



**STAGE 5B**

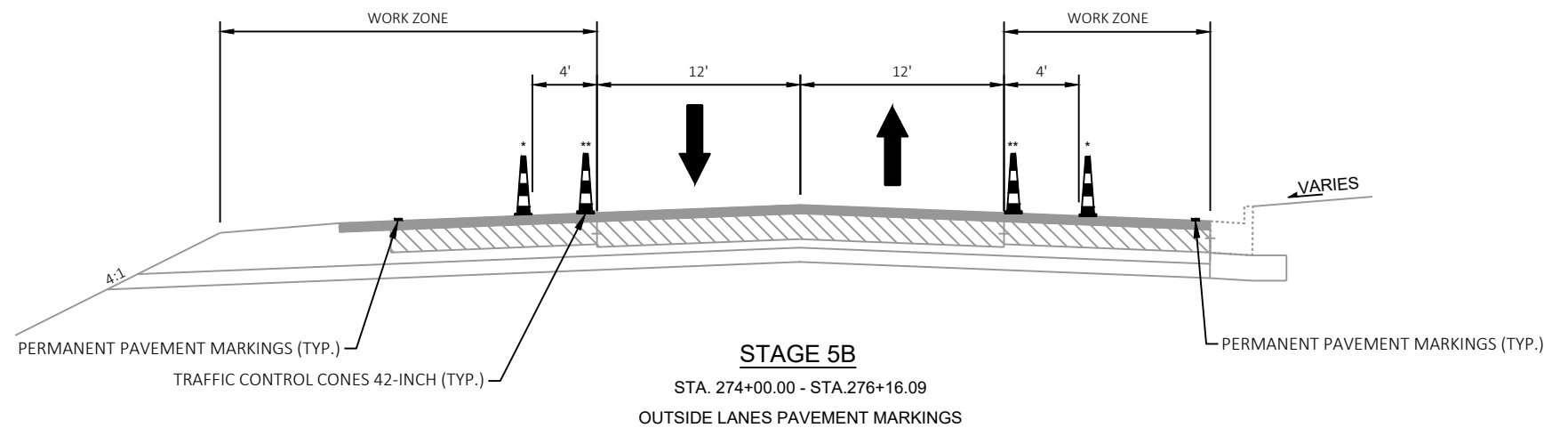
STA. 255+52.00 - STA.264+44.00  
OUTSIDE LANE PAVEMENT MARKINGS  
OUTSIDE SHOULDER RUMBLE STRIPS

\*TURN LANE/PAVED SHOULDER WIDTH VARIES FROM 0' TO 10'.  
16' MINIMUM CLEAR WIDTH NOT POSSIBLE WHEN WORKING IN THIS AREA.



\* NORMAL CONE AND LANE LOCATION DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED

\*\* TEMPORARY CONE LOCATION DURING WORKING HOURS ONLY. CONE SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.

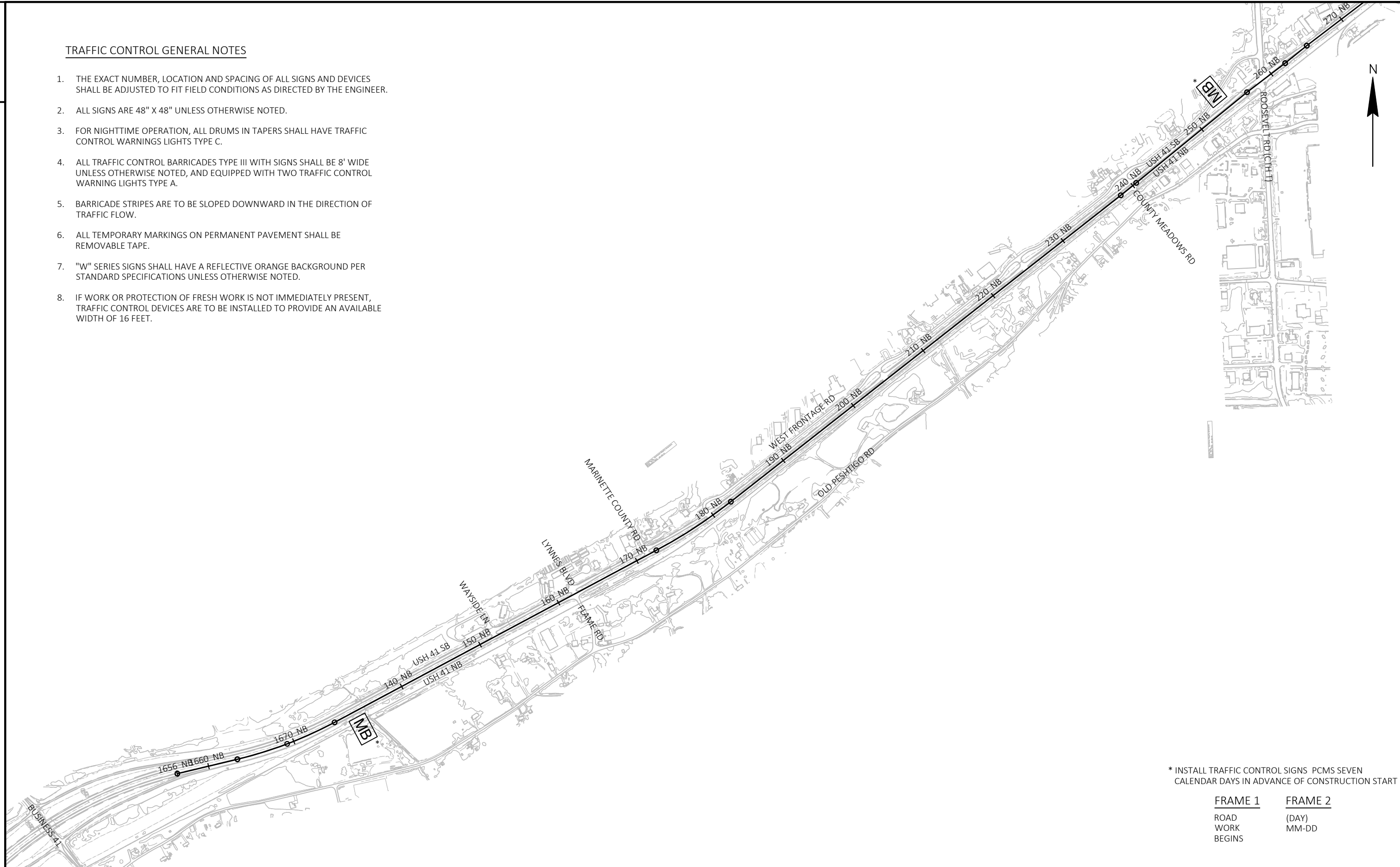


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TRAFFIC CONTROL GENERAL NOTES

1. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
2. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
3. FOR NIGHTTIME OPERATION, ALL DRUMS IN TAPERS SHALL HAVE TRAFFIC CONTROL WARNINGS LIGHTS TYPE C.
4. ALL TRAFFIC CONTROL BARRICADES TYPE III WITH SIGNS SHALL BE 8' WIDE UNLESS OTHERWISE NOTED, AND EQUIPPED WITH TWO TRAFFIC CONTROL WARNING LIGHTS TYPE A.
5. BARRICADE STRIPES ARE TO BE SLOPED DOWNWARD IN THE DIRECTION OF TRAFFIC FLOW.
6. ALL TEMPORARY MARKINGS ON PERMANENT PAVEMENT SHALL BE REMOVABLE TAPE.
7. "W" SERIES SIGNS SHALL HAVE A REFLECTIVE ORANGE BACKGROUND PER STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
8. IF WORK OR PROTECTION OF FRESH WORK IS NOT IMMEDIATELY PRESENT, TRAFFIC CONTROL DEVICES ARE TO BE INSTALLED TO PROVIDE AN AVAILABLE WIDTH OF 16 FEET.



\* INSTALL TRAFFIC CONTROL SIGNS PCMS SEVEN  
CALENDAR DAYS IN ADVANCE OF CONSTRUCTION START

| FRAME 1          | FRAME 2     |
|------------------|-------------|
| ROAD WORK BEGINS | (DAY) MM-DD |

PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE

TRAFFIC CONTROL - GENERAL

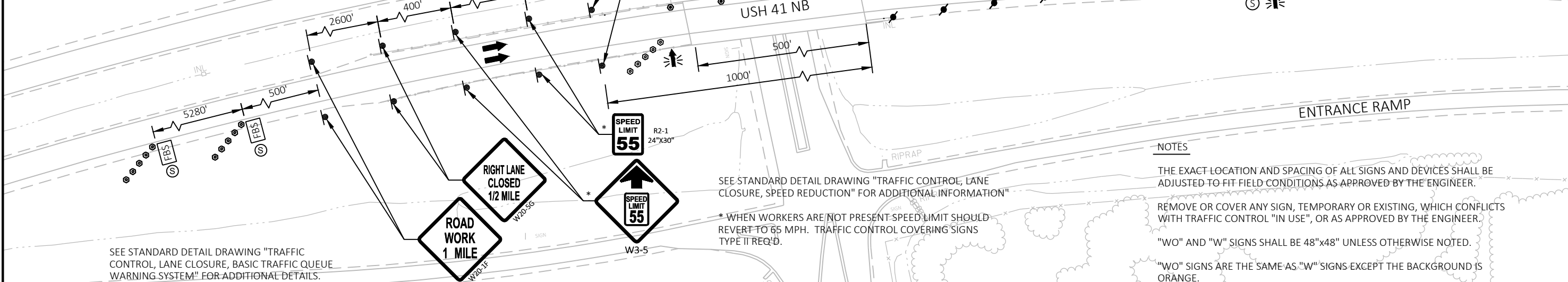
SHEET

E

| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
WO8-76 96"x48"

\* PLACE 1000' IN ADVANCE OF GORE



SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM" FOR ADDITIONAL DETAILS.

SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION" FOR ADDITIONAL INFORMATION

\* WHEN WORKERS ARE NOT PRESENT SPEED LIMIT SHOULD REVERT TO 65 MPH. TRAFFIC CONTROL COVERING SIGNS TYPE II REQ'D.

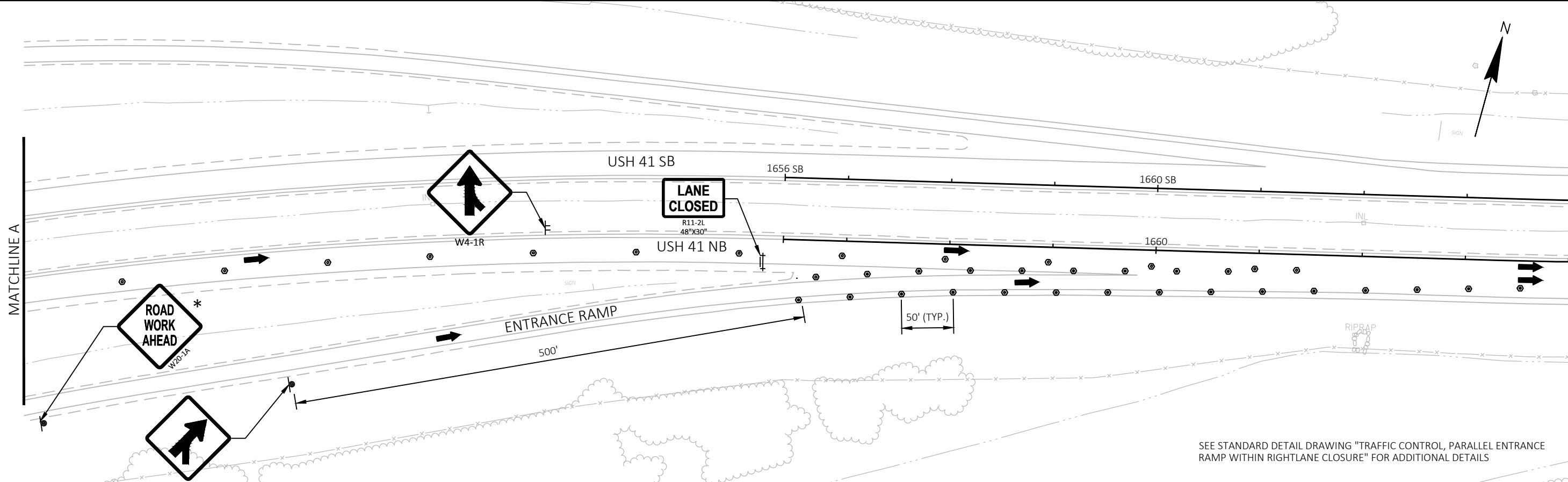
**NOTES**

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REMOVE OR COVER ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH TRAFFIC CONTROL "IN USE", OR AS APPROVED BY THE ENGINEER.

"WO" AND "W" SIGNS SHALL BE 48"x48" UNLESS OTHERWISE NOTED.

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



SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN RIGHTLANE CLOSURE" FOR ADDITIONAL DETAILS



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
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|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**NOTES**

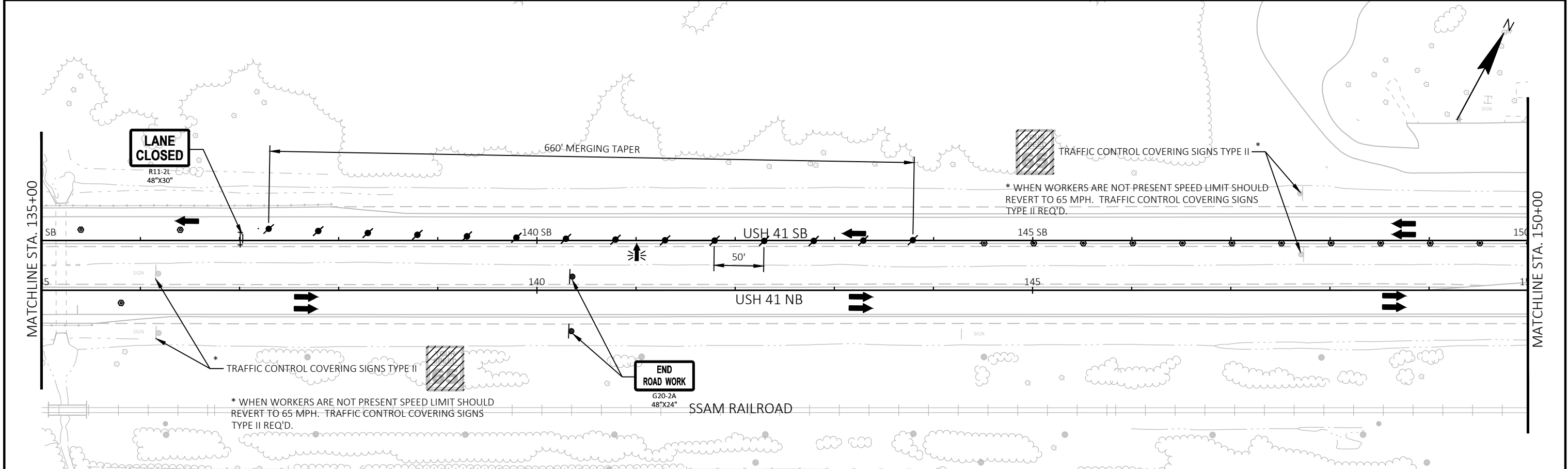
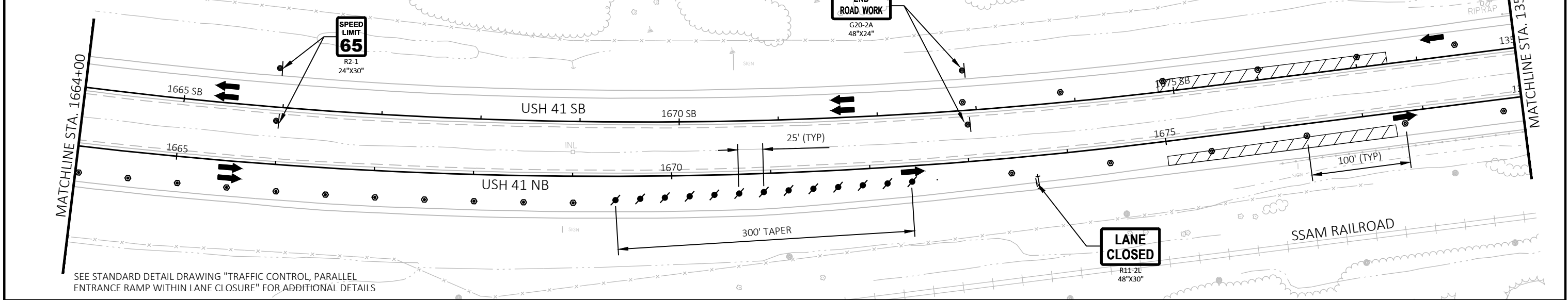
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**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
WO8-76  
96"x48"



**2**

**LEGEND**

|     |  |       |  |
|-----|--|-------|--|
| ↑↑  | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL   | MARKING REMOVAL LINE 4-INCH                                  |
| ⊙   | TRAFFIC CONTROL CONES 42-INCH                                    | TY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
| ●   | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6   | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
| →   | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6  | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
| ↑   | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
| ↑   | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
| ⊙   | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
| ⊙   | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10 | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
| ▨   | WORK AREA  |       |  |
| →   | DIRECTION OF TRAFFIC   |       |  |
| MB  | TRAFFIC CONTROL SIGNS PCMS                                       |       |  |
| FBS | FLASHING BEACON SIGN   |       |  |

**STOPPED OR SLOW TRAFFIC WHEN FLASHING** W08-76 96"x48"

**NOTES**

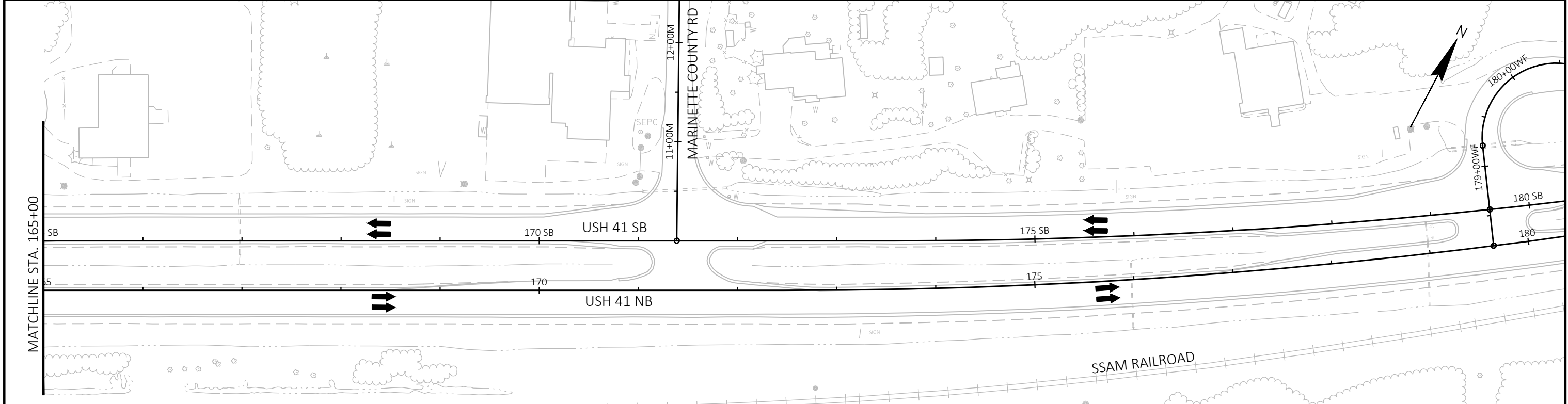
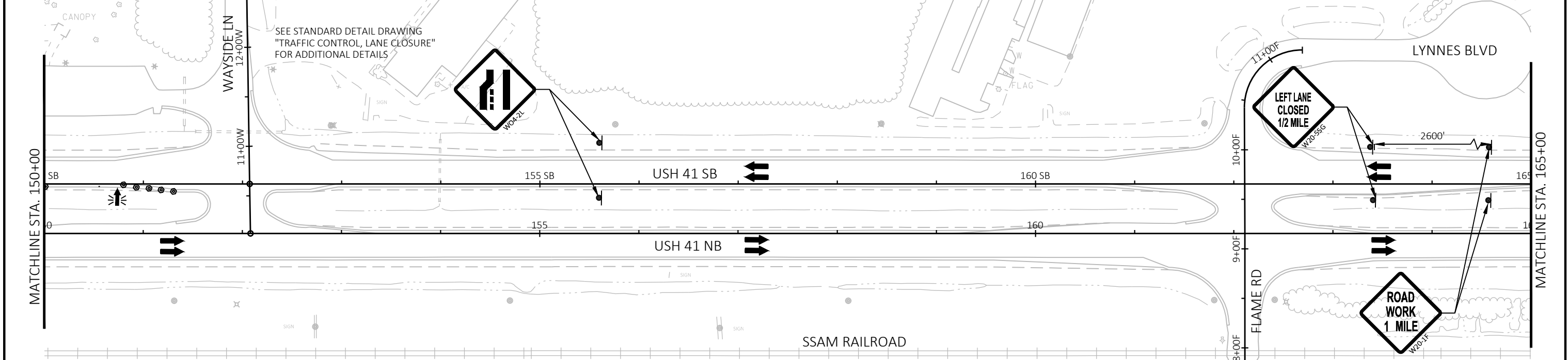
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**2**



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**NOTES**

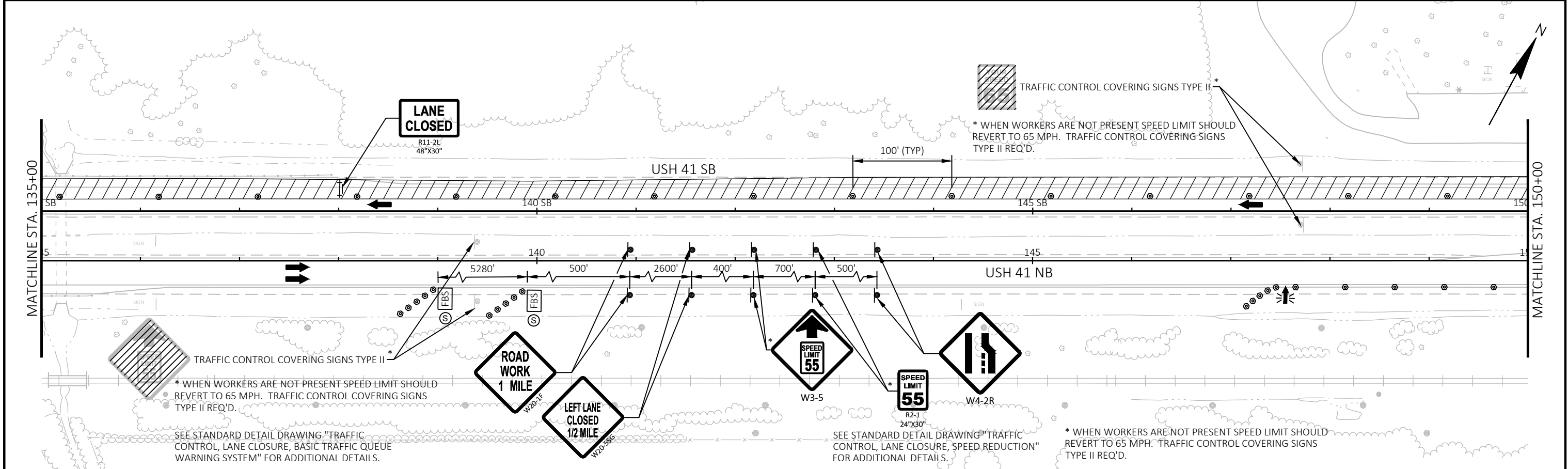
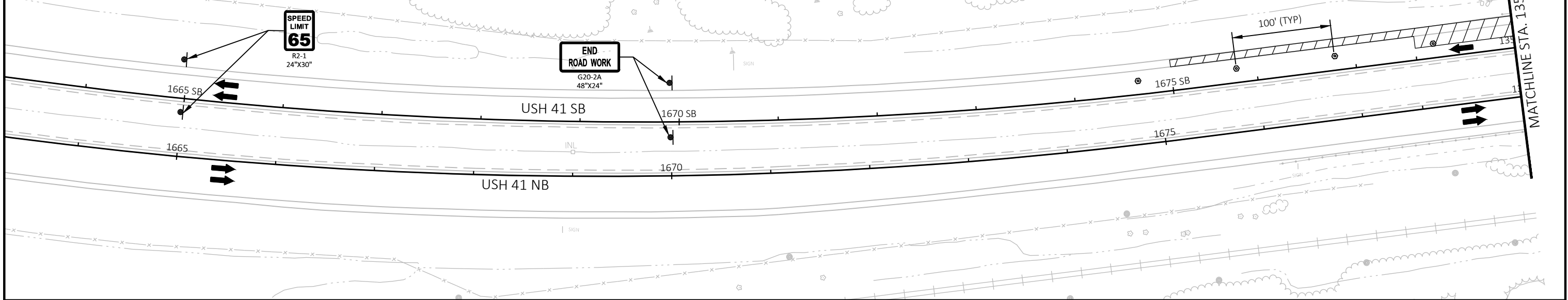
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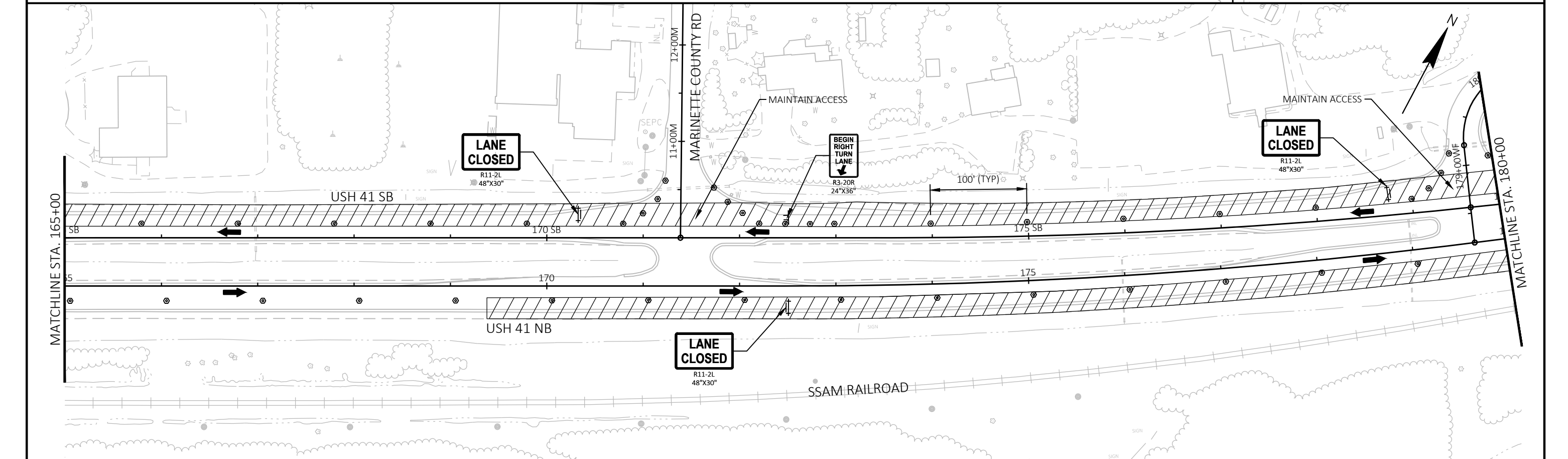
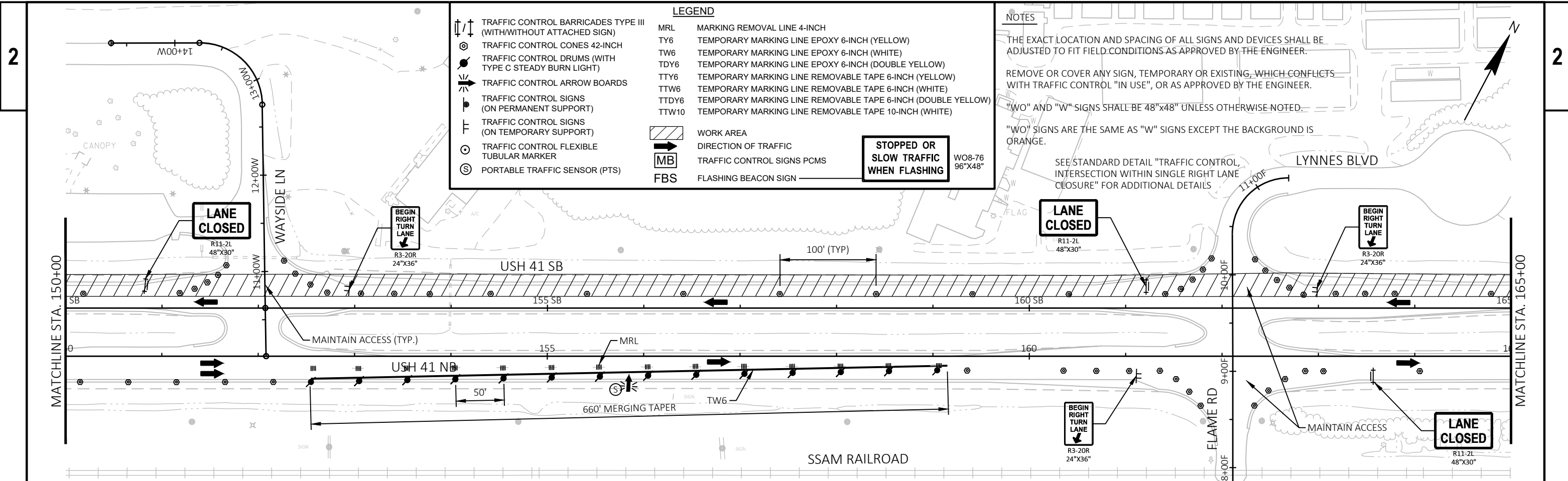
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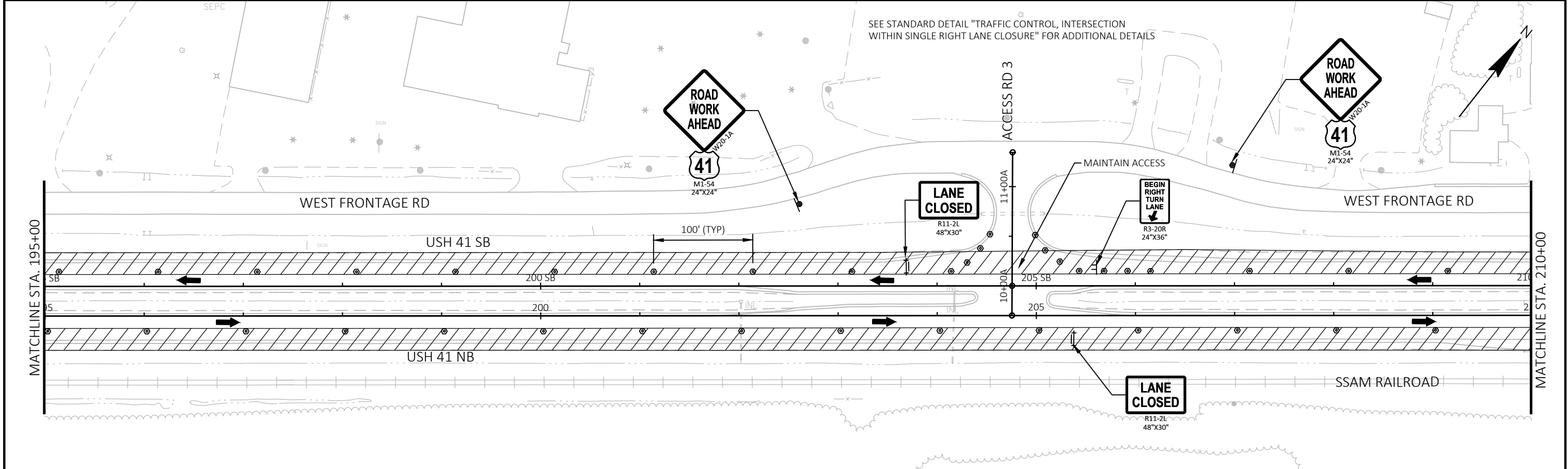
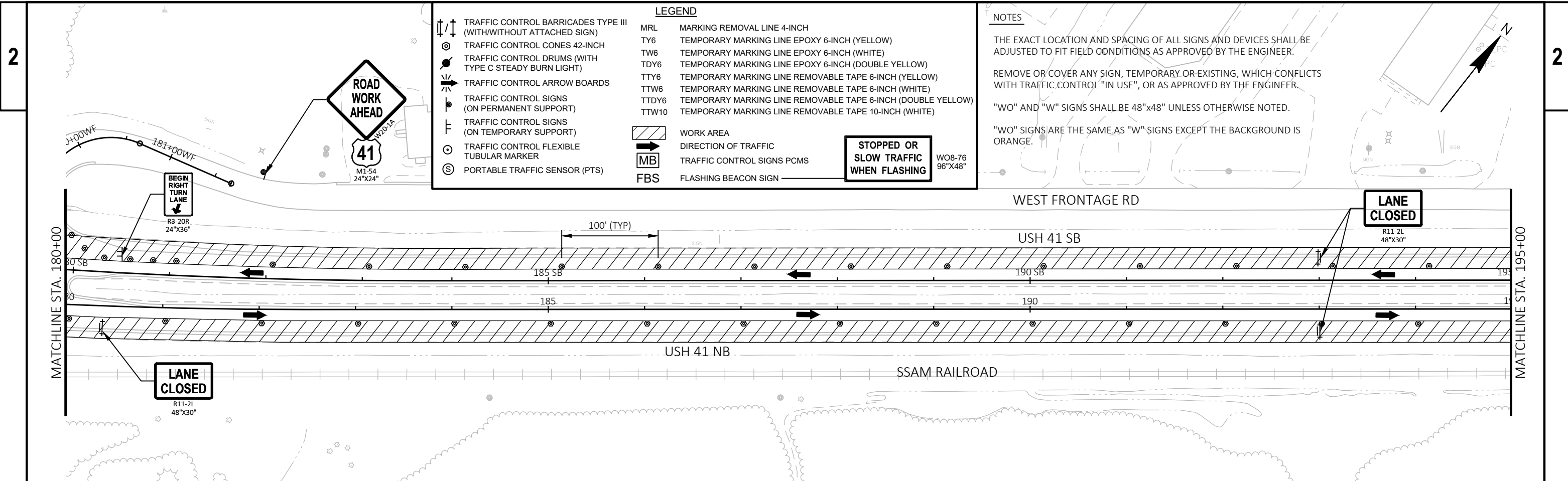
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**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
WO8-76  
96"x48"



|                        |             |                   |                            |       |   |
|------------------------|-------------|-------------------|----------------------------|-------|---|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | TRAFFIC CONTROL - STAGE 2A | SHEET | E |
|------------------------|-------------|-------------------|----------------------------|-------|---|





| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
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|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

**NOTES**

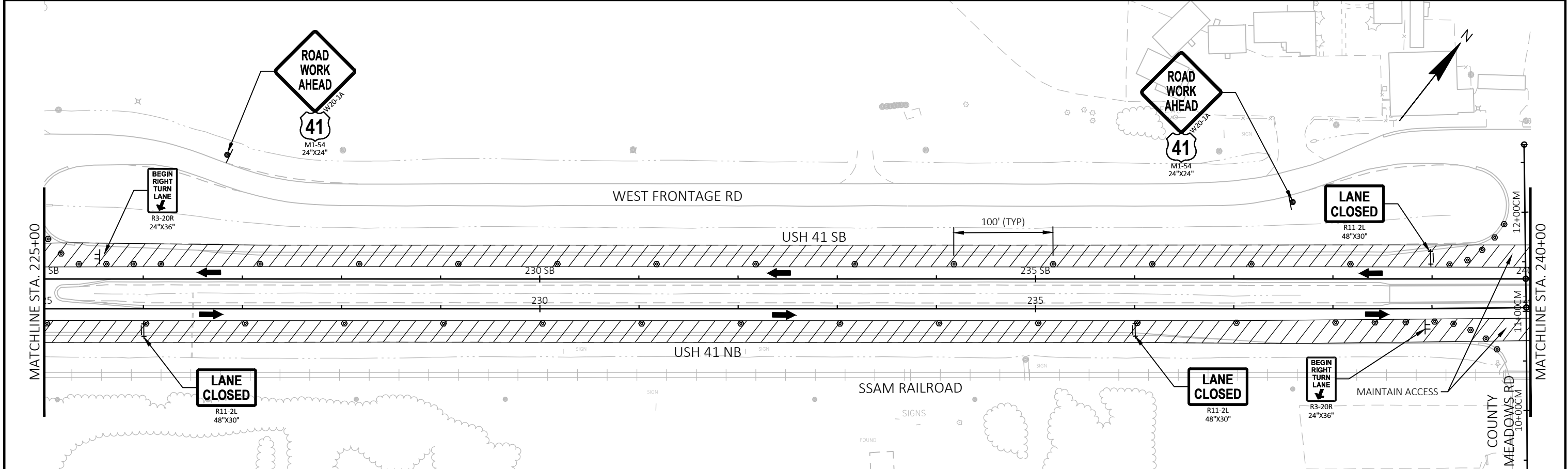
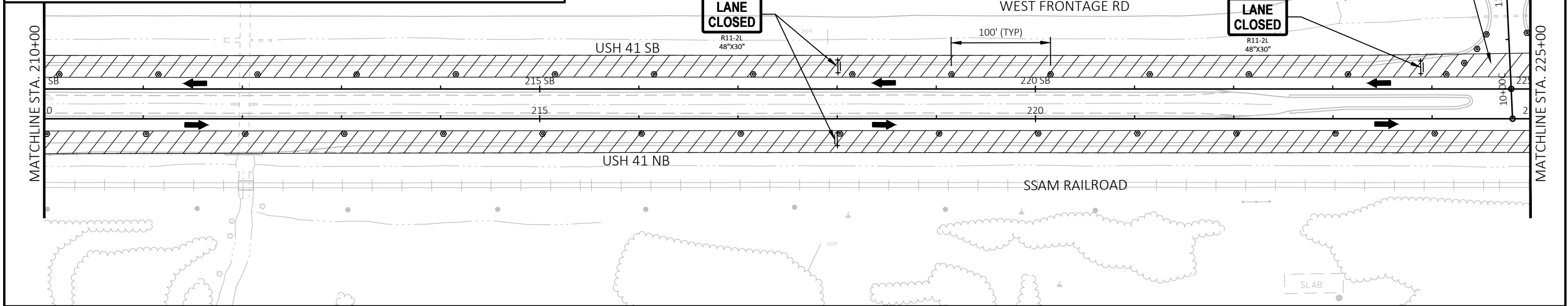
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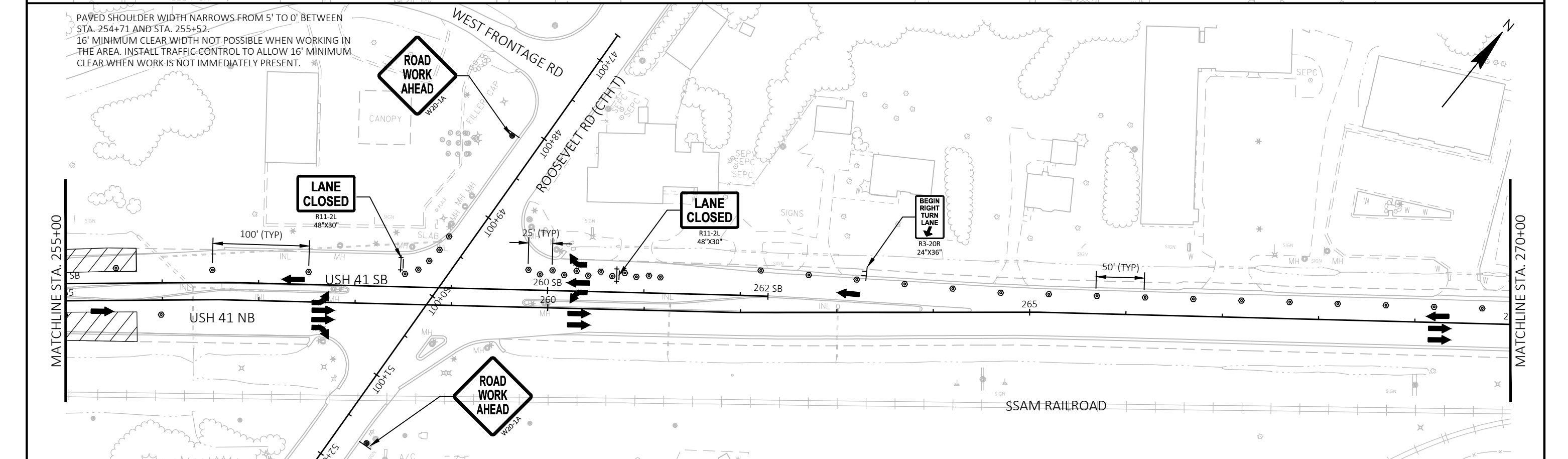
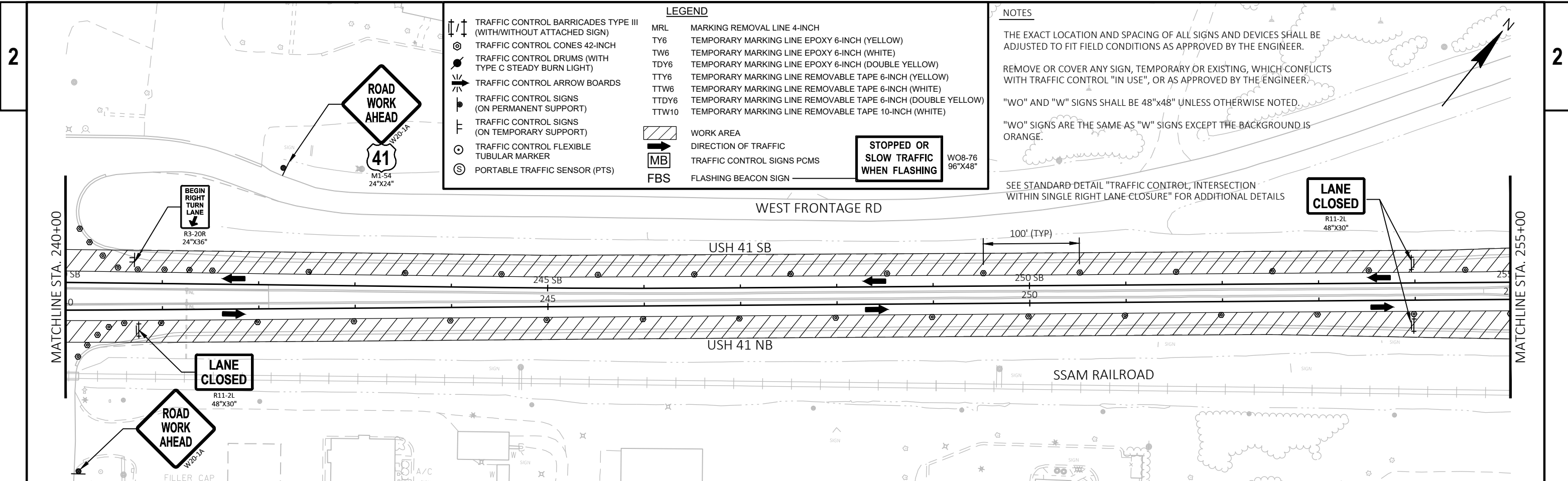
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SEE STANDARD DETAIL "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE" FOR ADDITIONAL DETAILS







| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | <b>STOPPED OR SLOW TRAFFIC WHEN FLASHING</b> W08-76 96"x48"        |

**NOTES**

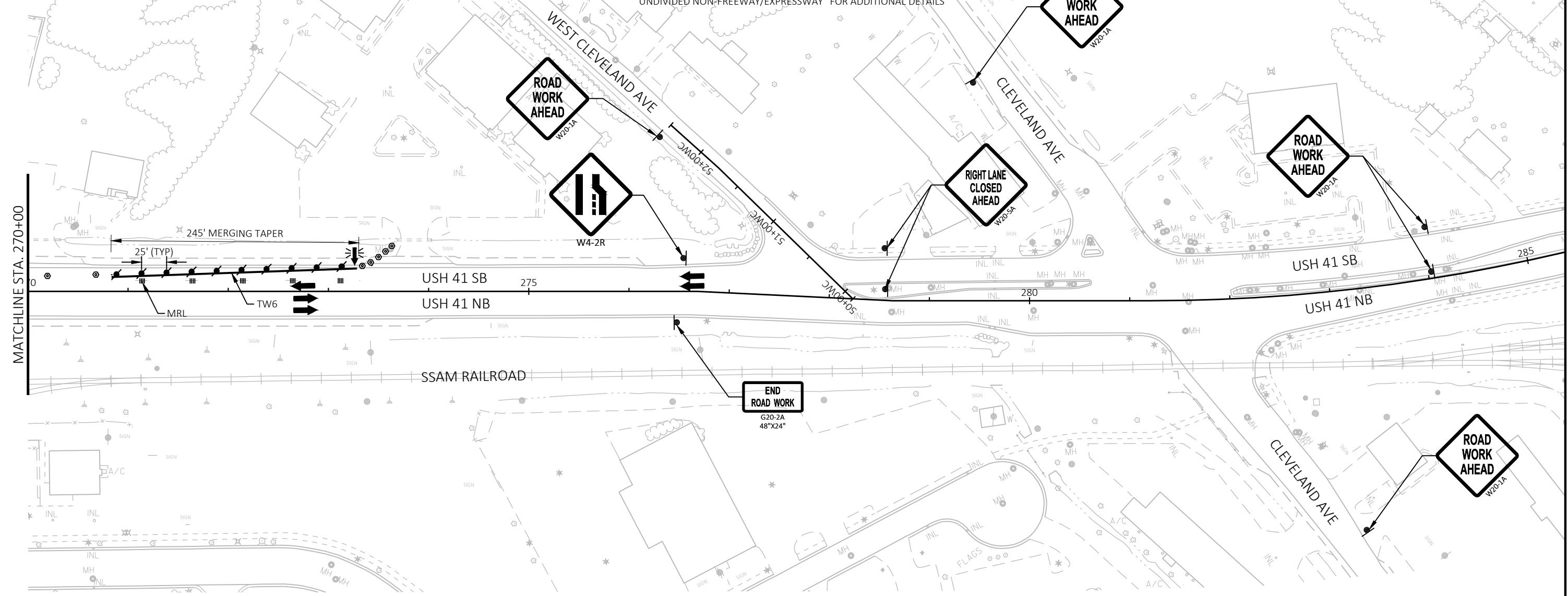
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SEE STANDARD DETAIL "TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY" FOR ADDITIONAL DETAILS





| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
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|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
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|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

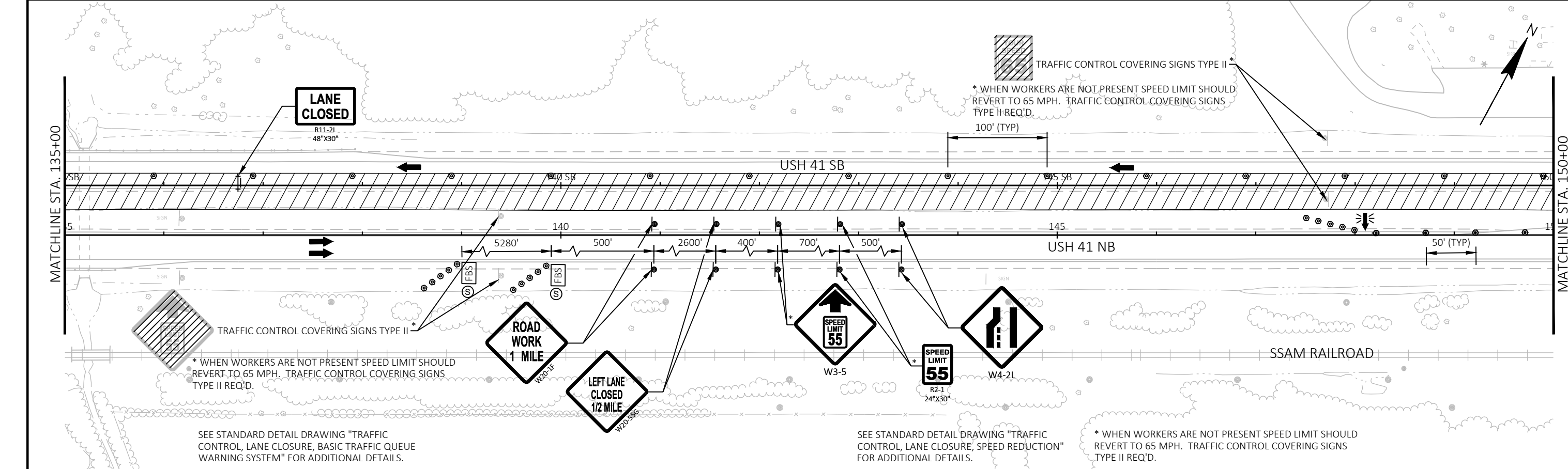
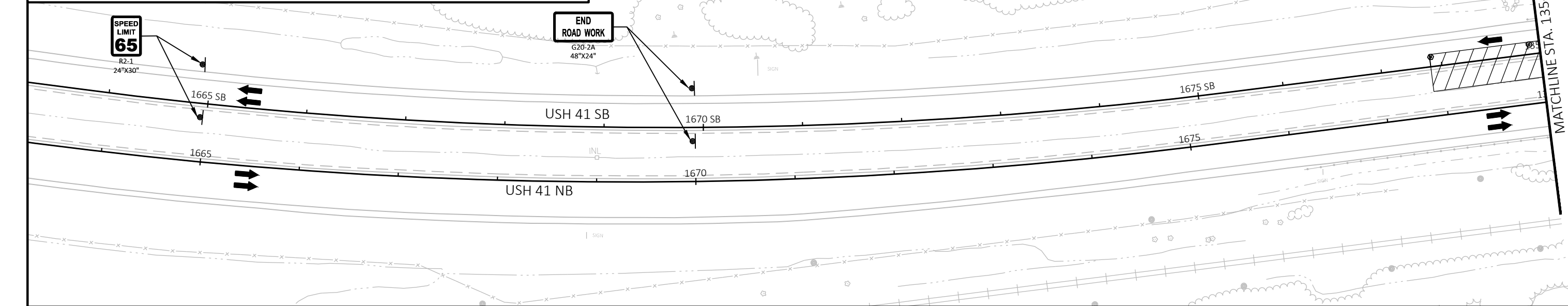
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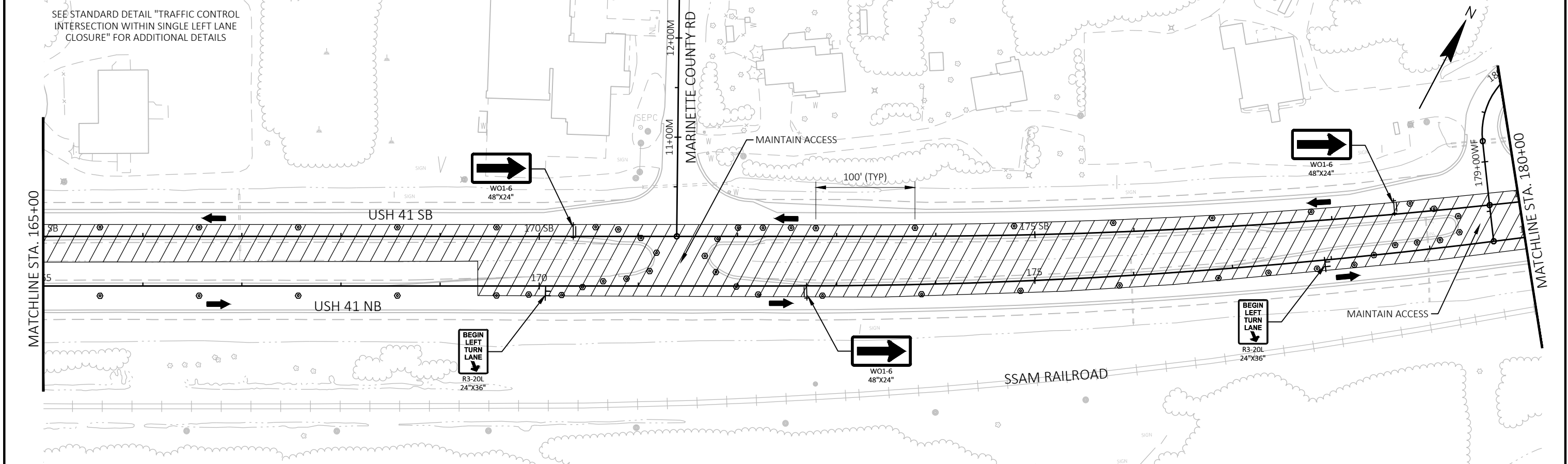
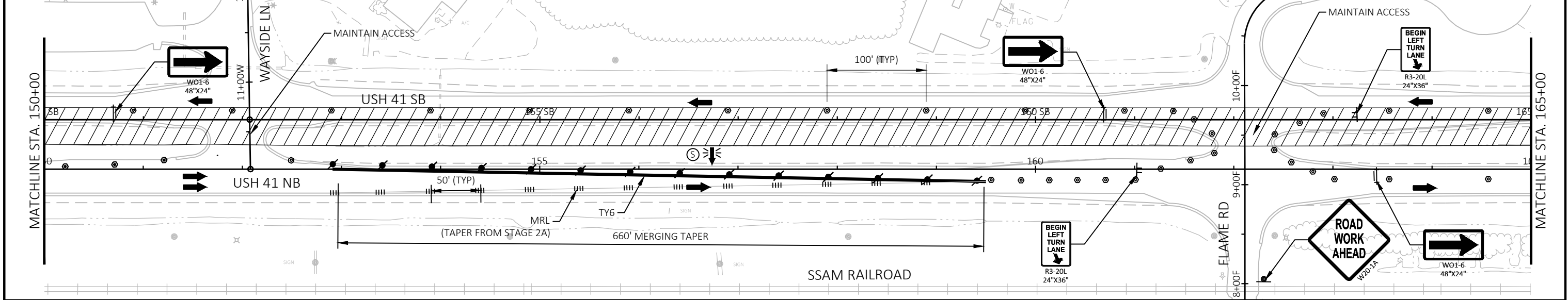
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|------------------------|-------------|-------------------|----------------------------|-------|---|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | TRAFFIC CONTROL - STAGE 2B | SHEET | E |
|------------------------|-------------|-------------------|----------------------------|-------|---|

| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
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|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
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|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
WO8-76  
96"x48"

**NOTES**  
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SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION" FOR ADDITIONAL DETAILS.



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
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|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

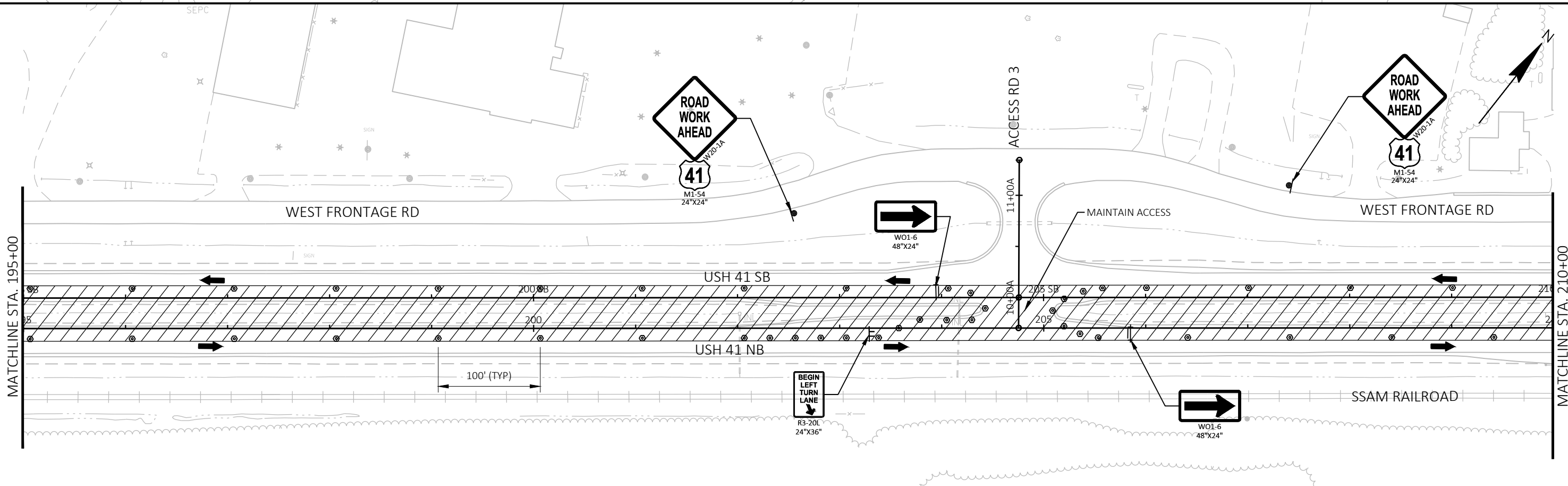
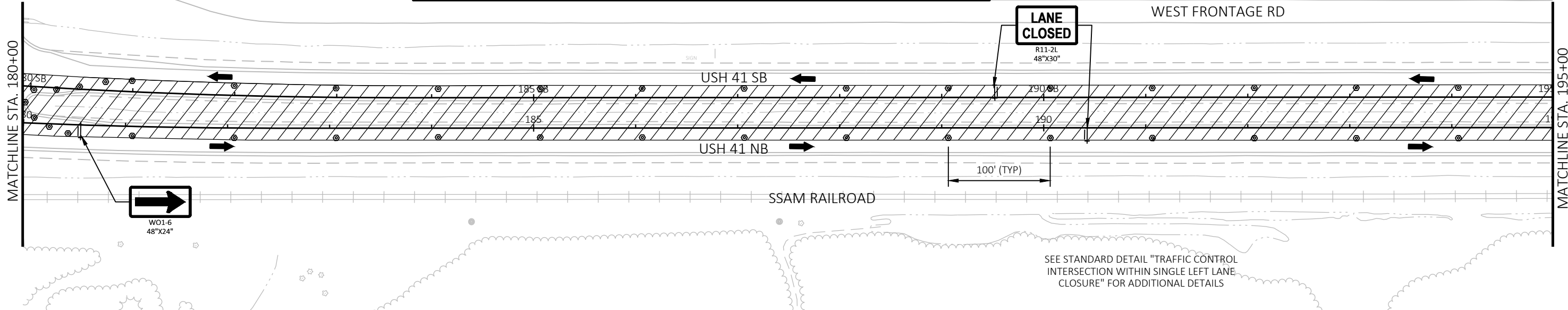
**NOTES**

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REMOVE OR COVER ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH TRAFFIC CONTROL "IN USE", OR AS APPROVED BY THE ENGINEER.

"WO" AND "W" SIGNS SHALL BE 48"x48" UNLESS OTHERWISE NOTED.

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



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

**NOTES**

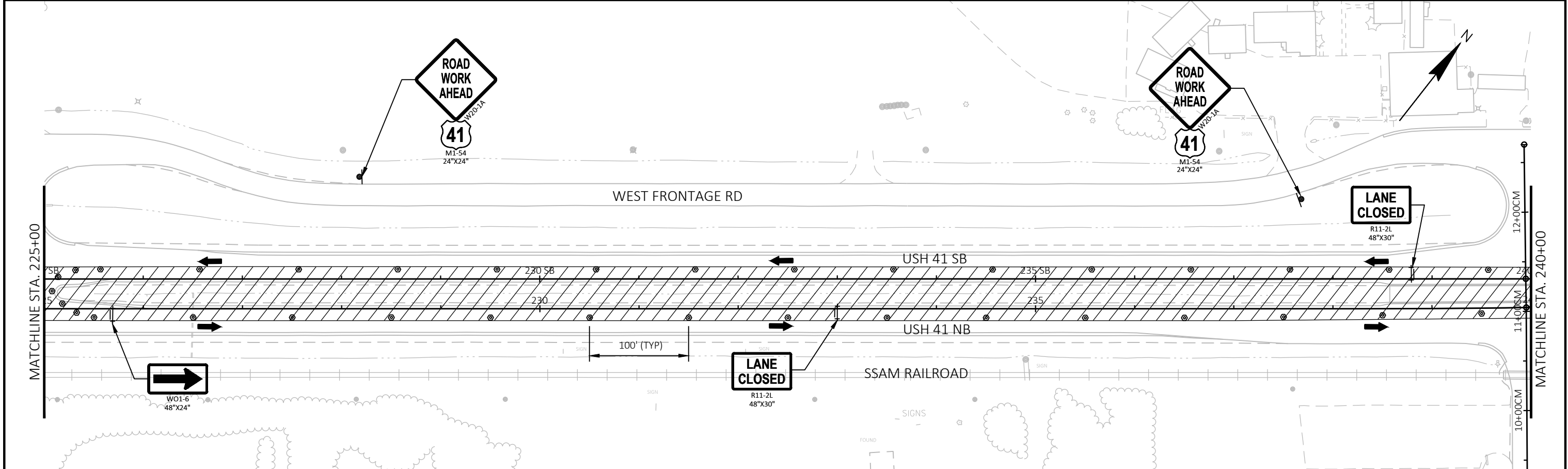
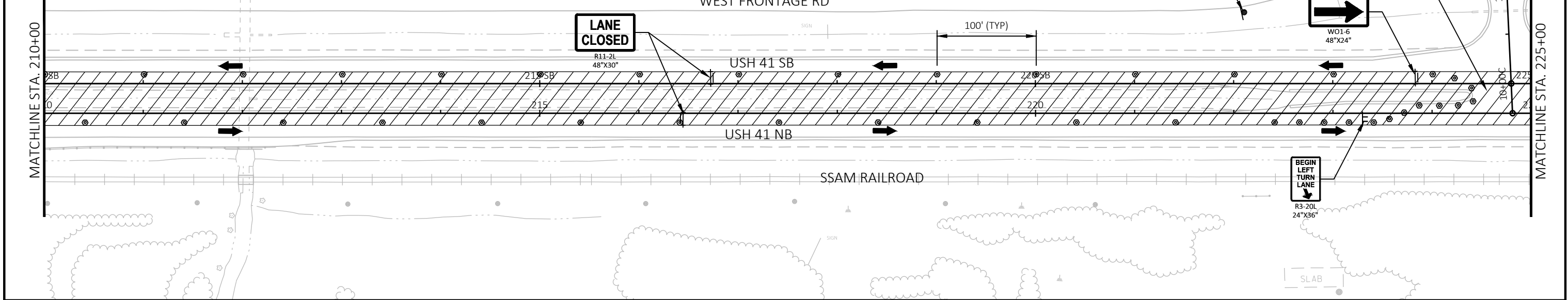
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SEE STANDARD DETAIL "TRAFFIC CONTROL INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE" FOR ADDITIONAL DETAILS



2

**LEGEND**

|  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>⊥ TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)</li> <li>⊙ TRAFFIC CONTROL CONES 42-INCH</li> <li>⊙ TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)</li> <li>➔ TRAFFIC CONTROL ARROW BOARDS</li> <li>⊥ TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)</li> <li>⊥ TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)</li> <li>⊙ TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER</li> <li>⊙ PORTABLE TRAFFIC SENSOR (PTS)</li> </ul> | <ul style="list-style-type: none"> <li>MRL MARKING REMOVAL LINE 4-INCH</li> <li>TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)</li> <li>TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)</li> <li>TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)</li> <li>TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)</li> <li>TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)</li> <li>TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW)</li> <li>TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)</li> </ul> | <ul style="list-style-type: none"> <li>▨ WORK AREA</li> <li>➔ DIRECTION OF TRAFFIC</li> <li>MB TRAFFIC CONTROL SIGNS PCMS</li> <li>FBS FLASHING BEACON SIGN</li> </ul> |
|--|--|--|

**NOTES**

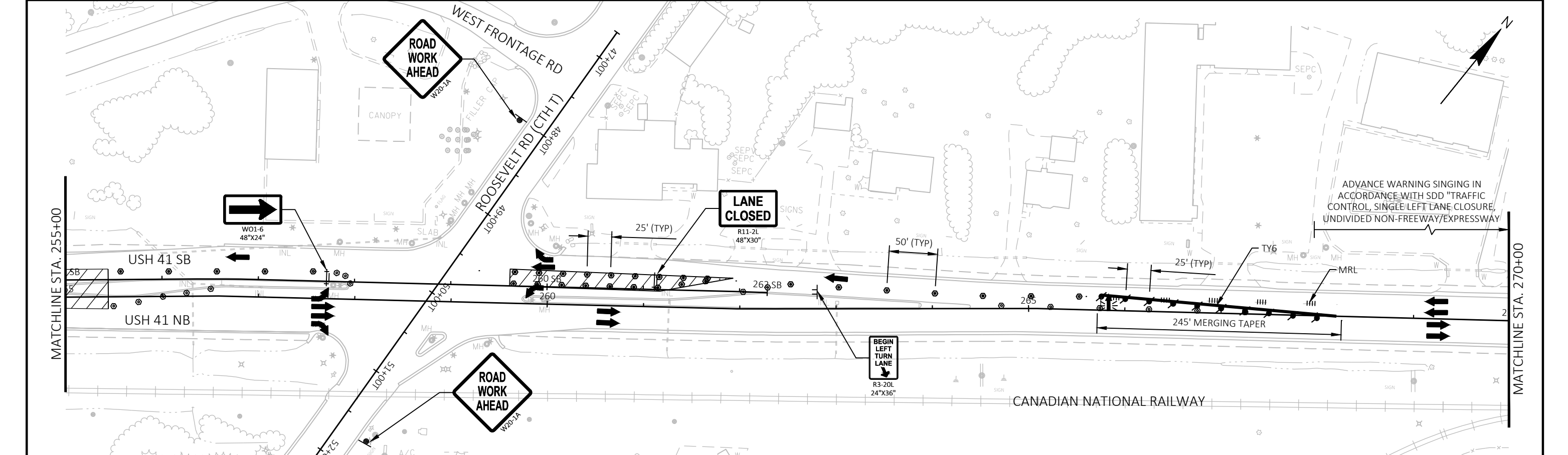
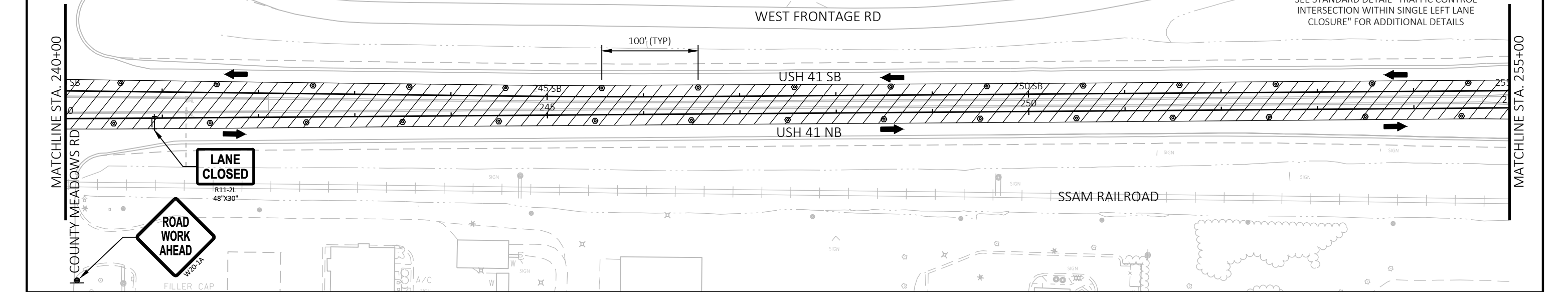
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2



LEGEND

|  |  |        |  |
|--|--|--------|--|
|  | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL    | MARKING REMOVAL LINE 4-INCH                                  |
|  | TRAFFIC CONTROL CONES 42-INCH                                    | TY6    | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
|  | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6    | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
|  | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
|  | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6   | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
|  | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6   | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
|  | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|  | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10  | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|  | WORK AREA  |        |  |
|  | DIRECTION OF TRAFFIC   |        |  |
|  | TRAFFIC CONTROL SIGNS PCMS                                       |        |  |
|  | FLASHING BEACON SIGN   |        |  |
|  | STOPPED OR SLOW TRAFFIC WHEN FLASHING                            | WO8-76 | 96"x48"  |

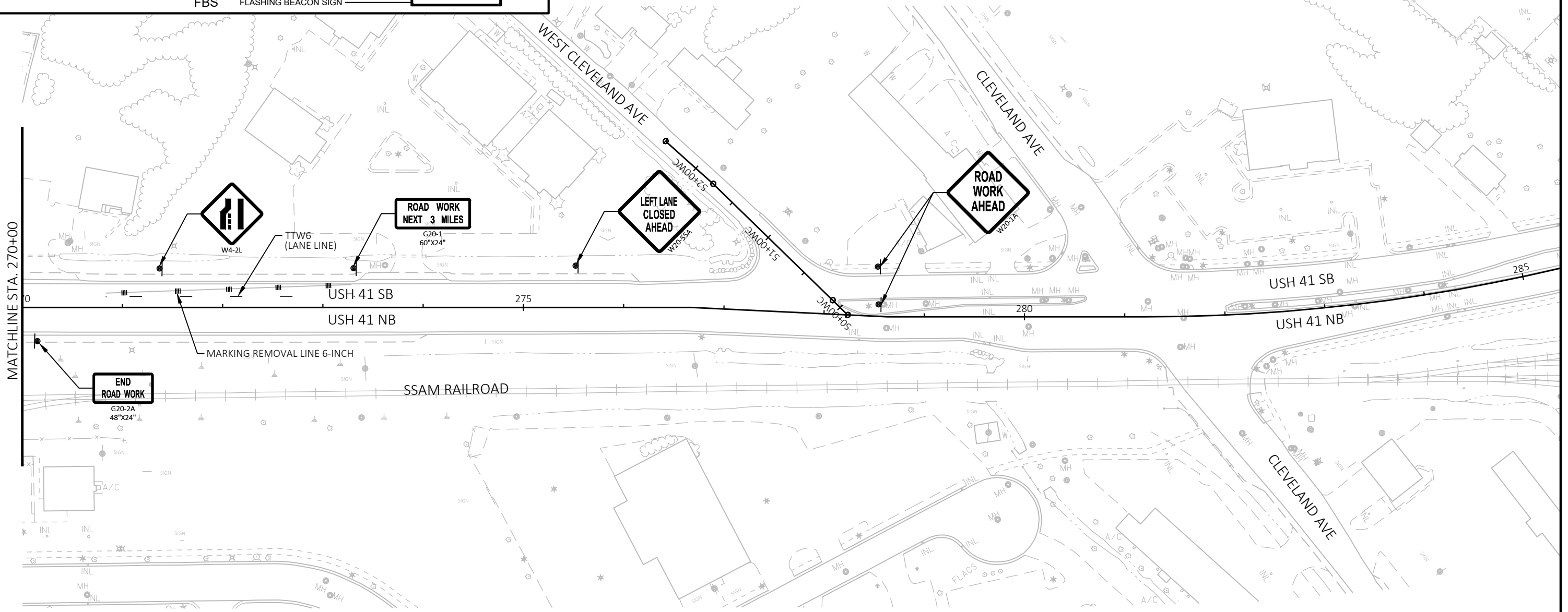
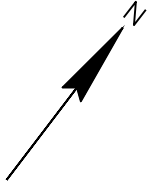
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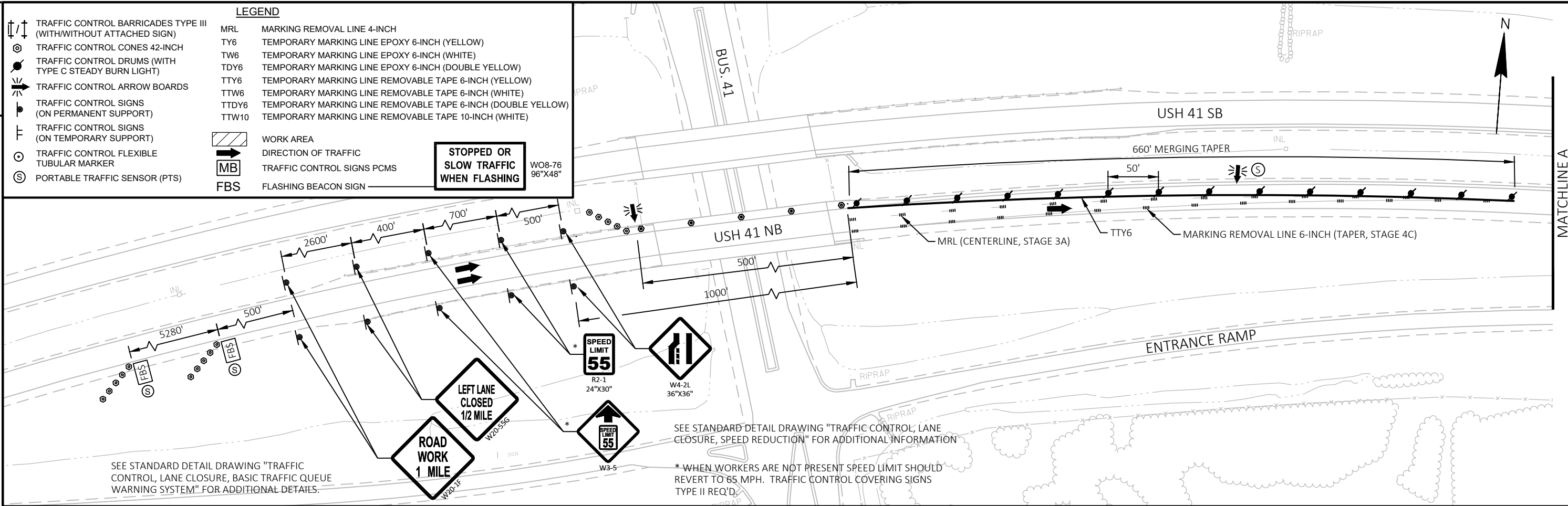
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| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
WO8-76 96"x48"



SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM" FOR ADDITIONAL DETAILS.

SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION" FOR ADDITIONAL INFORMATION

\* WHEN WORKERS ARE NOT PRESENT SPEED LIMIT SHOULD REVERT TO 65 MPH. TRAFFIC CONTROL COVERING SIGNS TYPE II REQ'D.

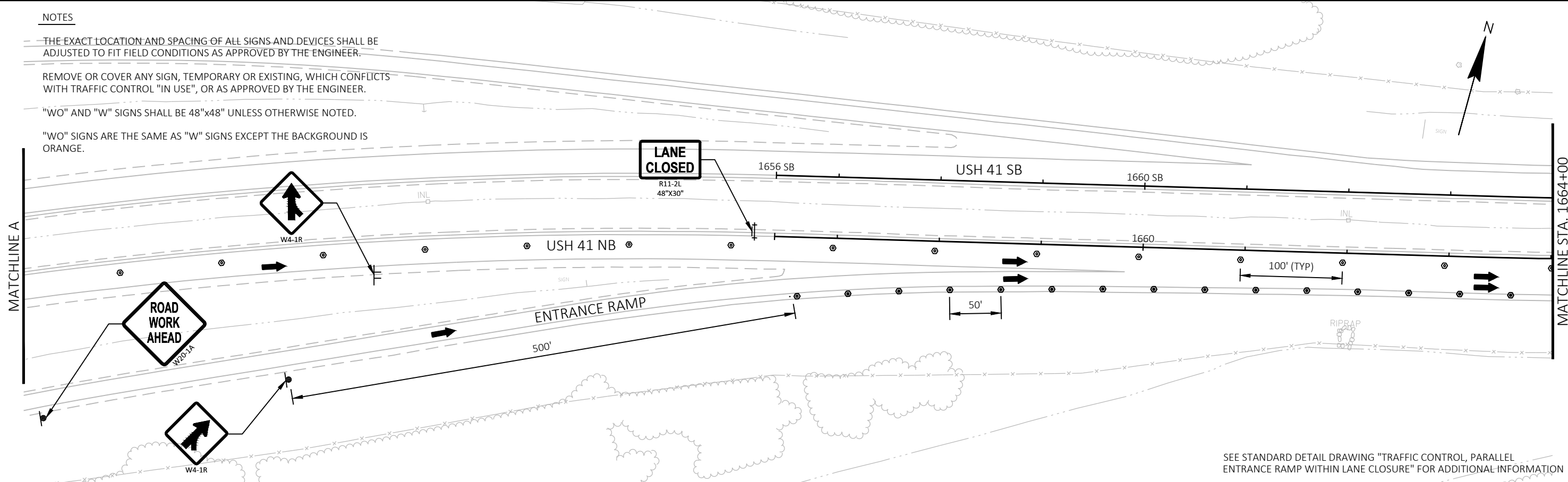
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SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE" FOR ADDITIONAL INFORMATION



**LEGEND**

|  |  |  |  |
|--|--|--|--|
|  | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) |  | MRL MARKING REMOVAL LINE 4-INCH                                    |
|  | TRAFFIC CONTROL CONES 42-INCH                                    |  | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|  | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            |  | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|  | TRAFFIC CONTROL ARROW BOARDS                                     |  | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|  | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     |  | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|  | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     |  | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|  | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          |  | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|  | PORTABLE TRAFFIC SENSOR (PTS)                                    |  | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|  | WORK AREA  |  | DIRECTION OF TRAFFIC   |
|  | TRAFFIC CONTROL SIGNS PCMS                                       |  | <b>STOPPED OR SLOW TRAFFIC WHEN FLASHING</b> W08-76 96"x48"        |
|  | FLASHING BEACON SIGN   |  |  |

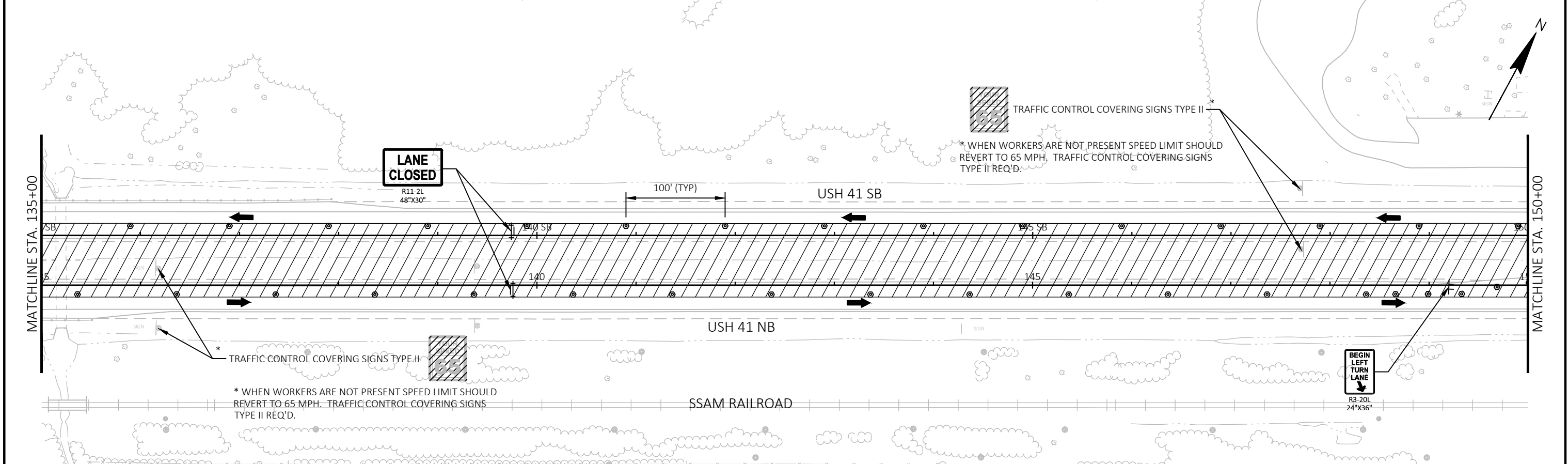
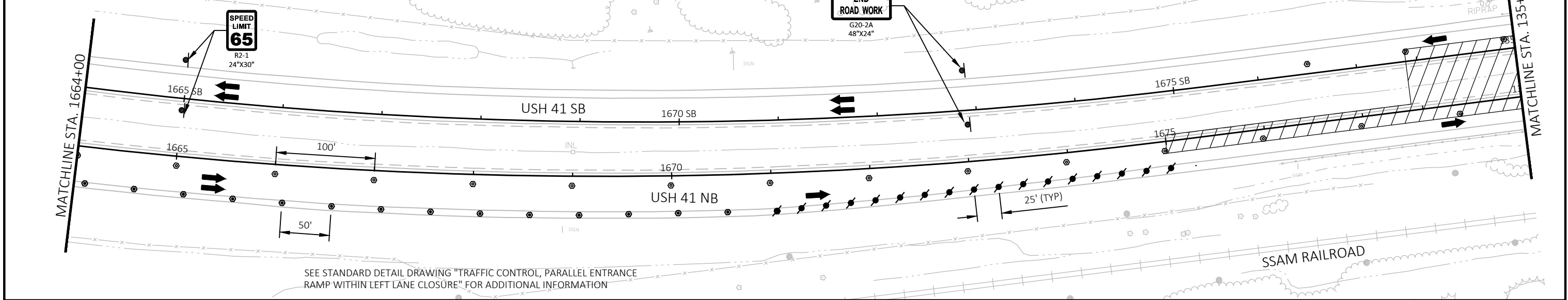
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**LEGEND**

|  |  |       |  |
|--|--|-------|--|
|  | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL   | MARKING REMOVAL LINE 4-INCH                                  |
|  | TRAFFIC CONTROL CONES 42-INCH                                    | TY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
|  | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6   | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
|  | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6  | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
|  | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
|  | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
|  | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|  | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10 | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|  | WORK AREA  |       |  |
|  | DIRECTION OF TRAFFIC   |       |  |
|  | TRAFFIC CONTROL SIGNS PCMS                                       |       |  |
|  | FLASHING BEACON SIGN   |       |  |

**NOTES**

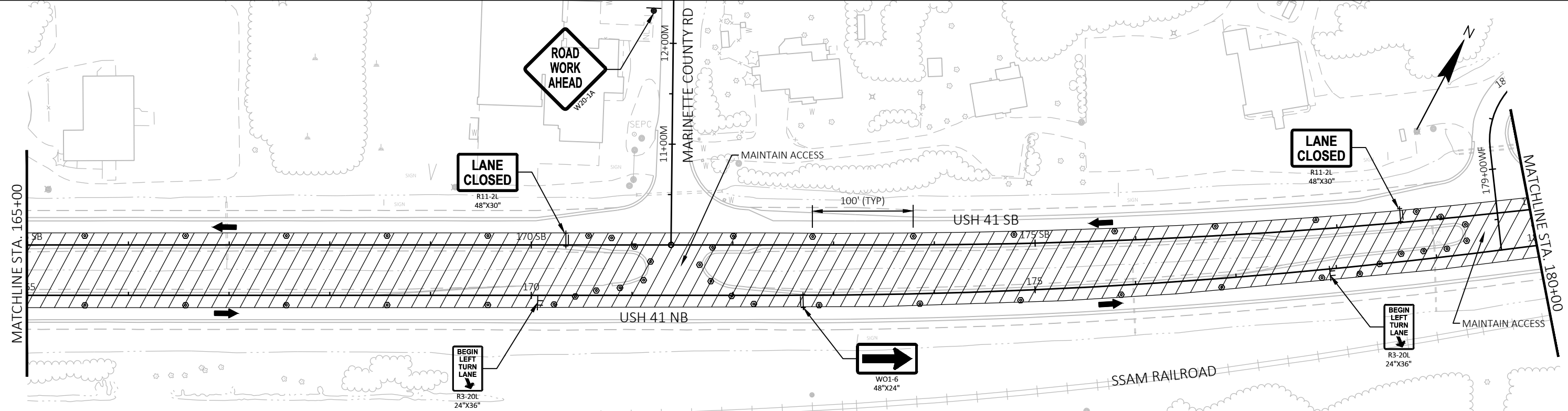
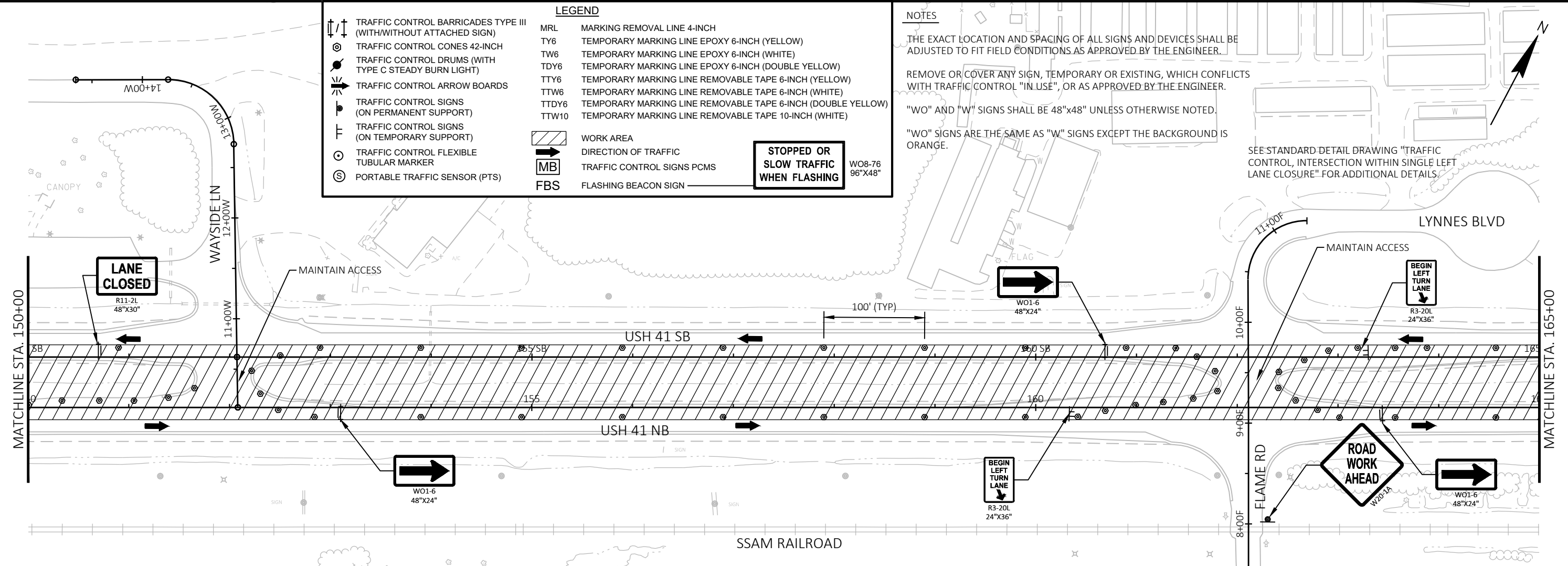
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SEE STANDARD-DETAIL DRAWING "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE" FOR ADDITIONAL DETAILS.



**2**

**LEGEND**

|   |  |       |  |
|---|--|-------|--|
| ↑ | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL   | MARKING REMOVAL LINE 4-INCH                                  |
| ⊙ | TRAFFIC CONTROL CONES 42-INCH                                    | TY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
| ⊙ | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6   | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
| → | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6  | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
| ↑ | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
| ↑ | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
| ⊙ | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
| ⊙ | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10 | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|   |  | ▨     | WORK AREA  |
|   |  | →     | DIRECTION OF TRAFFIC   |
|   |  | MB    | TRAFFIC CONTROL SIGNS PCMS                                   |
|   |  | FBS   | FLASHING BEACON SIGN   |

**STOPPED OR SLOW TRAFFIC WHEN FLASHING** W08-76 96"x48"

**2**

**NOTES**

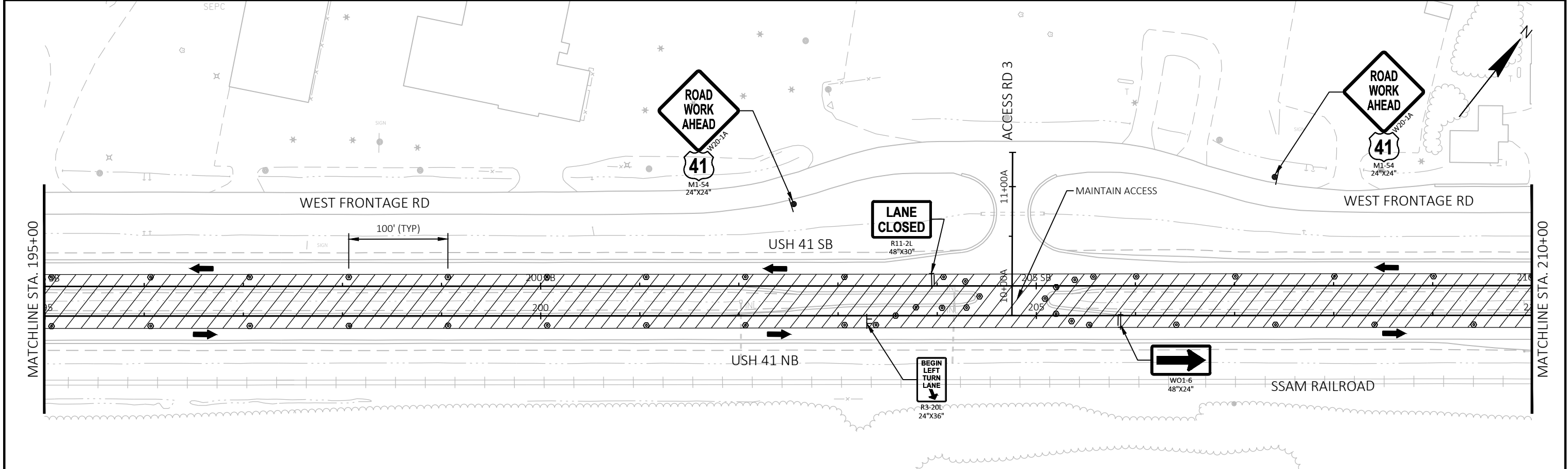
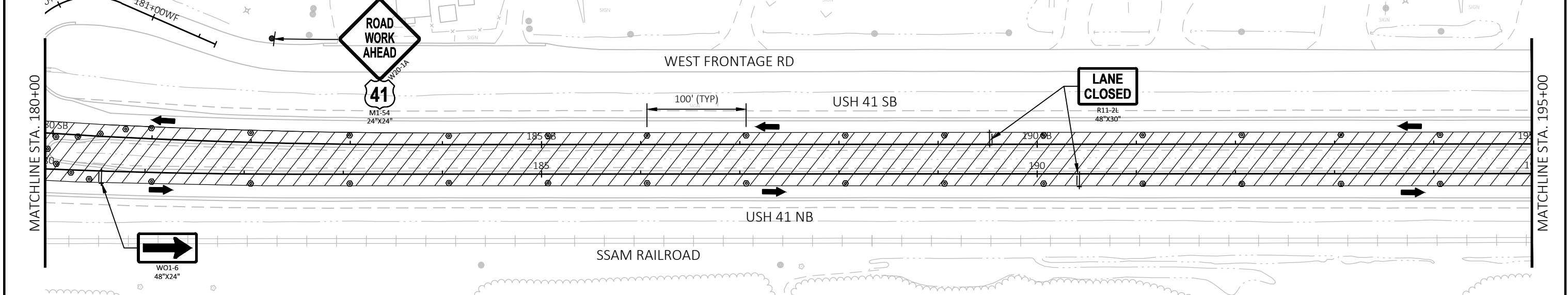
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| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

**NOTES**

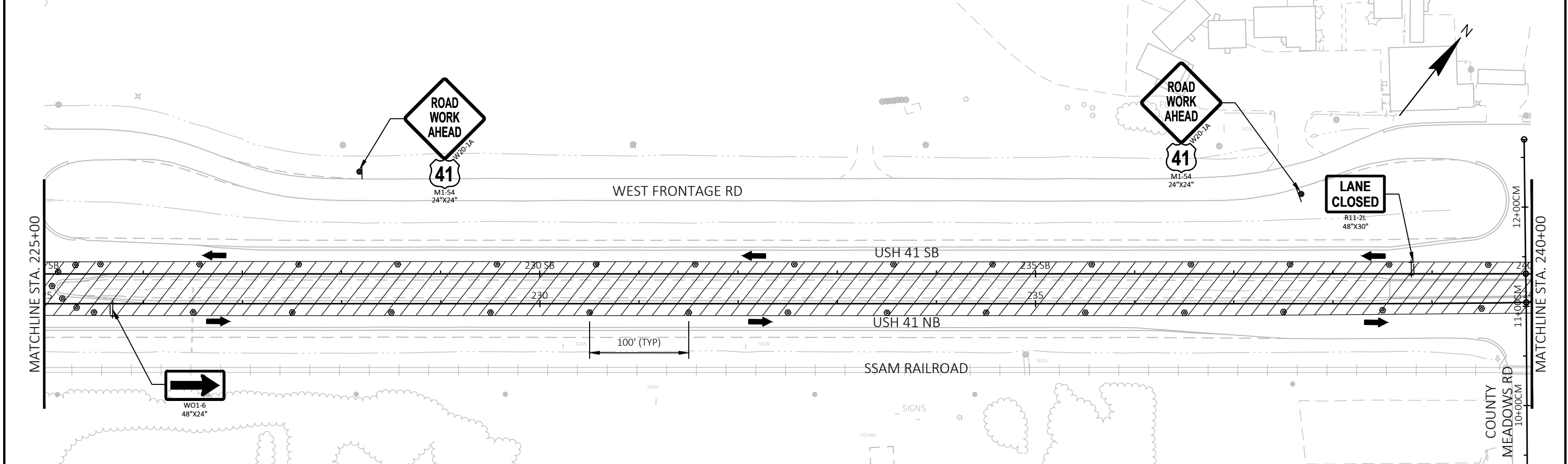
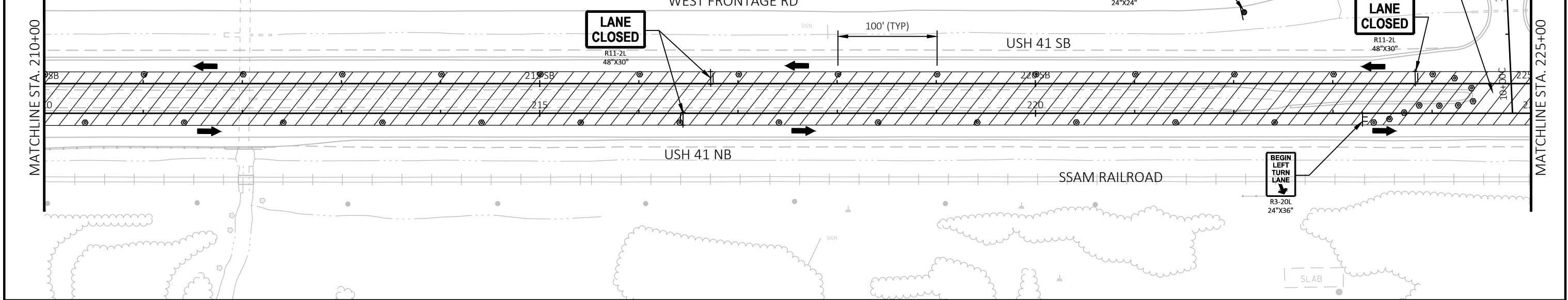
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SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE" FOR ADDITIONAL DETAILS.

**LEGEND**

|   |  |       |  |
|---|--|-------|--|
| ↑ | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL   | MARKING REMOVAL LINE 4-INCH                                  |
| ⊙ | TRAFFIC CONTROL CONES 42-INCH                                    | TY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
| ⊙ | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6   | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
| → | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6  | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
| ↑ | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
| ↑ | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
| ⊙ | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
| ⊙ | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10 | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|   |  | ▨     | WORK AREA  |
|   |  | →     | DIRECTION OF TRAFFIC   |
|   |  | MB    | TRAFFIC CONTROL SIGNS PCMS                                   |
|   |  | FBS   | FLASHING BEACON SIGN   |

**NOTES**

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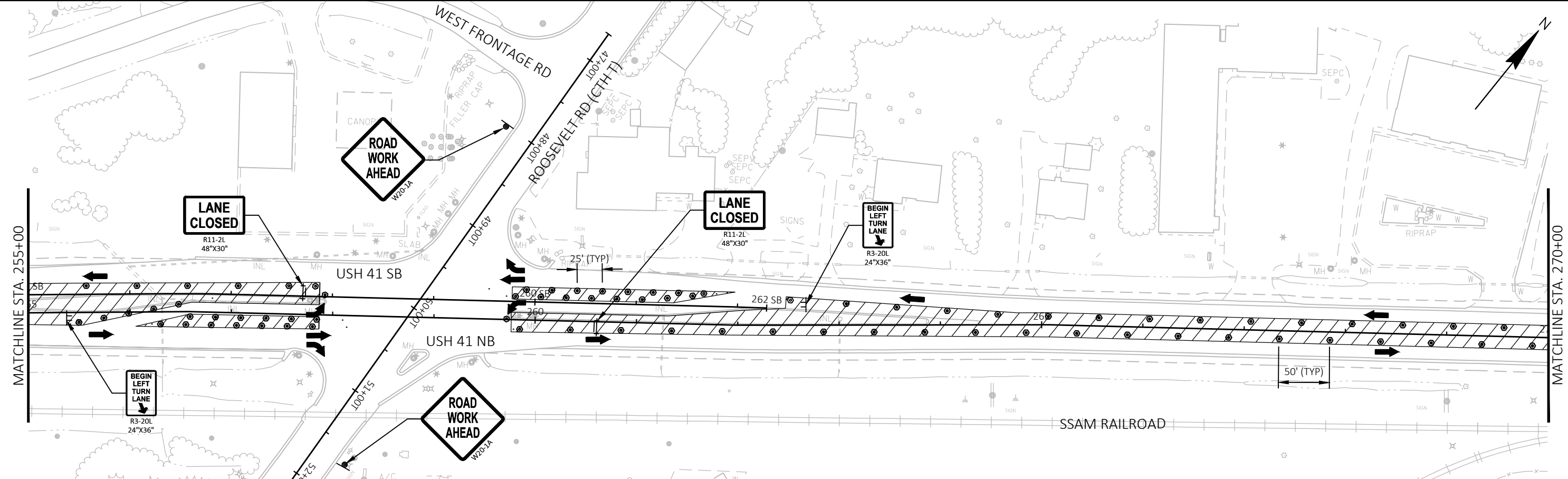
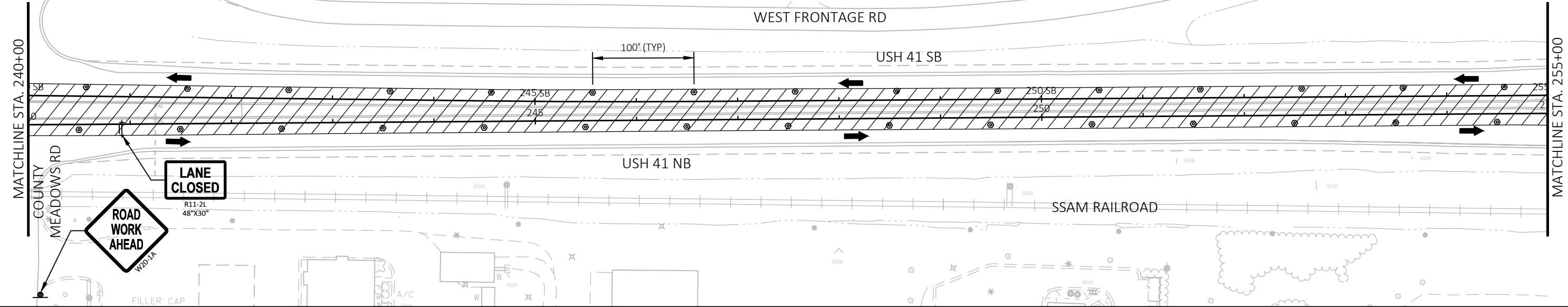
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**STOPPED OR SLOW TRAFFIC WHEN FLASHING**

WO8-76  
96"x48"



|                        |             |                   |                                |       |          |
|------------------------|-------------|-------------------|--------------------------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | TRAFFIC CONTROL - STAGE 3A, 4C | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|--------------------------------|-------|----------|

LEGEND

|  |  |        |  |
|--|--|--------|--|
|  | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL    | MARKING REMOVAL LINE 4-INCH                                  |
|  | TRAFFIC CONTROL CONES 42-INCH                                    | TY6    | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
|  | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6    | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
|  | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
|  | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6   | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
|  | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6   | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
|  | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|  | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10  | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|  | WORK AREA  |        |  |
|  | DIRECTION OF TRAFFIC   |        |  |
|  | TRAFFIC CONTROL SIGNS PCMS                                       |        |  |
|  | FLASHING BEACON SIGN   |        |  |
|  | STOPPED OR SLOW TRAFFIC WHEN FLASHING                            | WO8-76 | 96"x48"  |

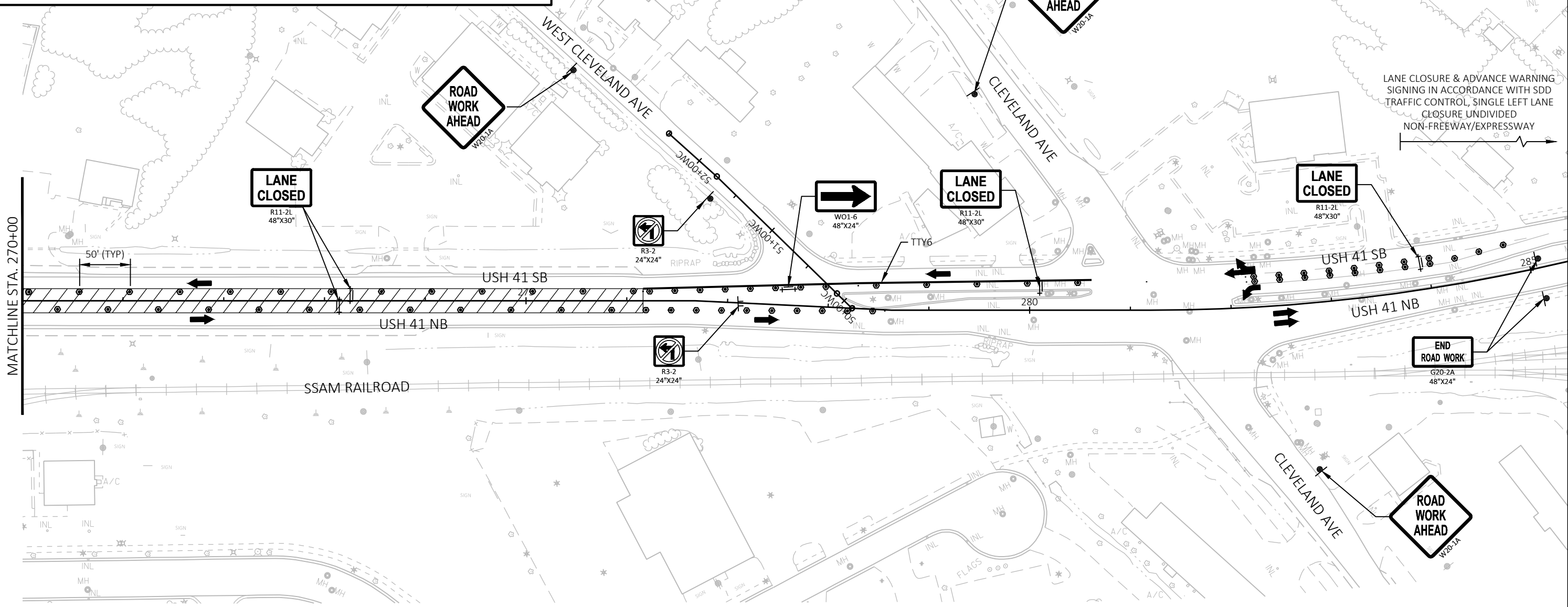
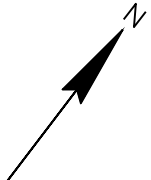
NOTES

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REMOVE OR COVER ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH TRAFFIC CONTROL "IN USE", OR AS APPROVED BY THE ENGINEER.

"WO" AND "W" SIGNS SHALL BE 48"x48" UNLESS OTHERWISE NOTED.

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



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
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|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FBS FLASHING BEACON SIGN   |

NOTES

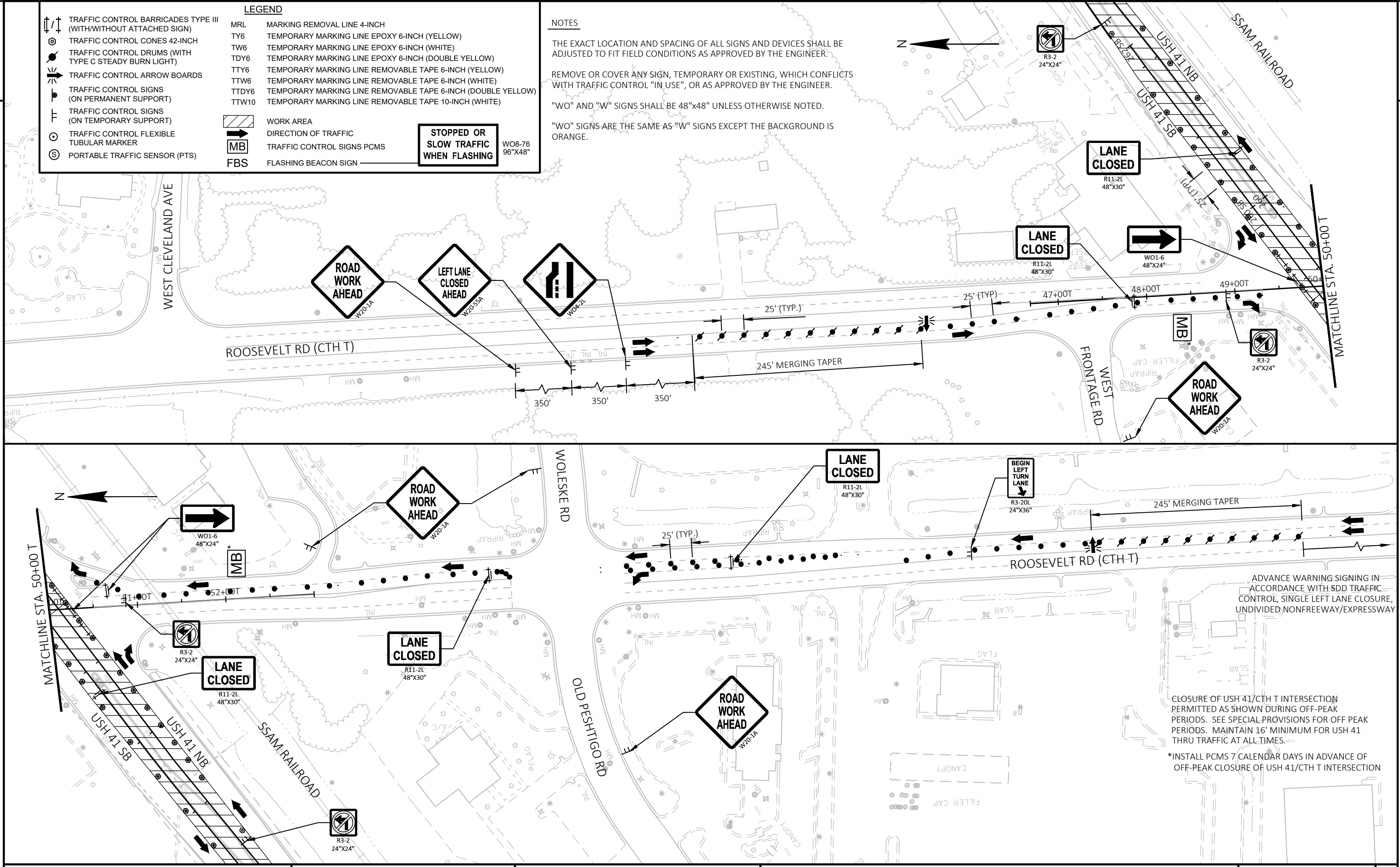
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**STOPPED OR SLOW TRAFFIC WHEN FLASHING**  
W08-76  
96"x48"

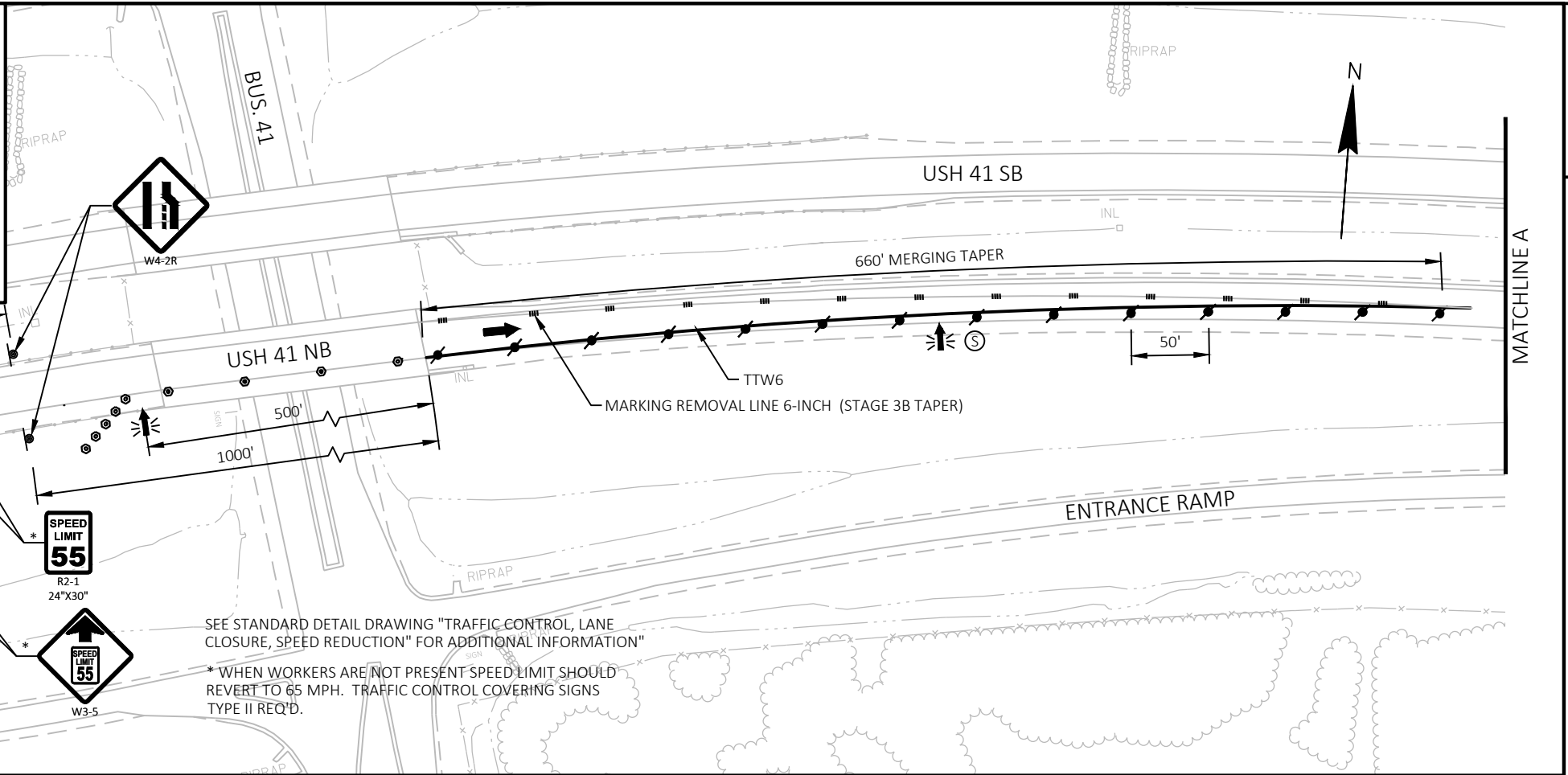


ADVANCE WARNING SIGNING IN ACCORDANCE WITH SDD TRAFFIC CONTROL, SINGLE LEFT LANE CLOSURE, UNDIVIDED NONFREEWAY/EXPRESSWAY

CLOSURE OF USH 41/CTH T INTERSECTION PERMITTED AS SHOWN DURING OFF-PEAK PERIODS. SEE SPECIAL PROVISIONS FOR OFF PEAK PERIODS. MAINTAIN 16' MINIMUM FOR USH 41 THRU TRAFFIC AT ALL TIMES.

\*INSTALL PCMS 7 CALENDAR DAYS IN ADVANCE OF OFF-PEAK CLOSURE OF USH 41/CTH T INTERSECTION

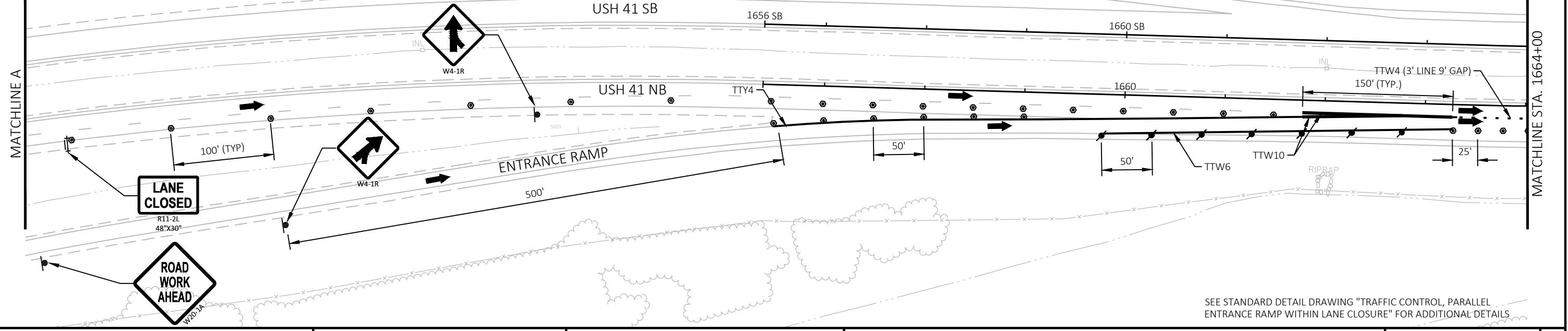
| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |



SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM" FOR ADDITIONAL DETAILS.

SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION" FOR ADDITIONAL INFORMATION.  
 \* WHEN WORKERS ARE NOT PRESENT SPEED LIMIT SHOULD REVERT TO 65 MPH. TRAFFIC CONTROL COVERING SIGNS TYPE II REQ'D.

- NOTES**
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SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE" FOR ADDITIONAL DETAILS.



**2**

**LEGEND**

|   |  |       |  |
|---|--|-------|--|
| ↑ | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN) | MRL   | MARKING REMOVAL LINE 4-INCH                                  |
| ⊙ | TRAFFIC CONTROL CONES 42-INCH                                    | TY6   | TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                 |
| ⊙ | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)            | TW6   | TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                  |
| → | TRAFFIC CONTROL ARROW BOARDS                                     | TDY6  | TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)          |
| ↑ | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                     | TTY6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)        |
| ↑ | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                     | TTW6  | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)         |
| ⊙ | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                          | TTDY6 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
| ⊙ | PORTABLE TRAFFIC SENSOR (PTS)                                    | TTW10 | TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |

|  |                      |  |   |
|--|----------------------|--|---|
|  | WORK AREA            |  | <b>STOPPED OR SLOW TRAFFIC WHEN FLASHING</b> W08-76 96"x48" |
|  | DIRECTION OF TRAFFIC |  | TRAFFIC CONTROL SIGNS PCMS                                  |
|  | FLASHING BEACON SIGN |  |   |

**NOTES**

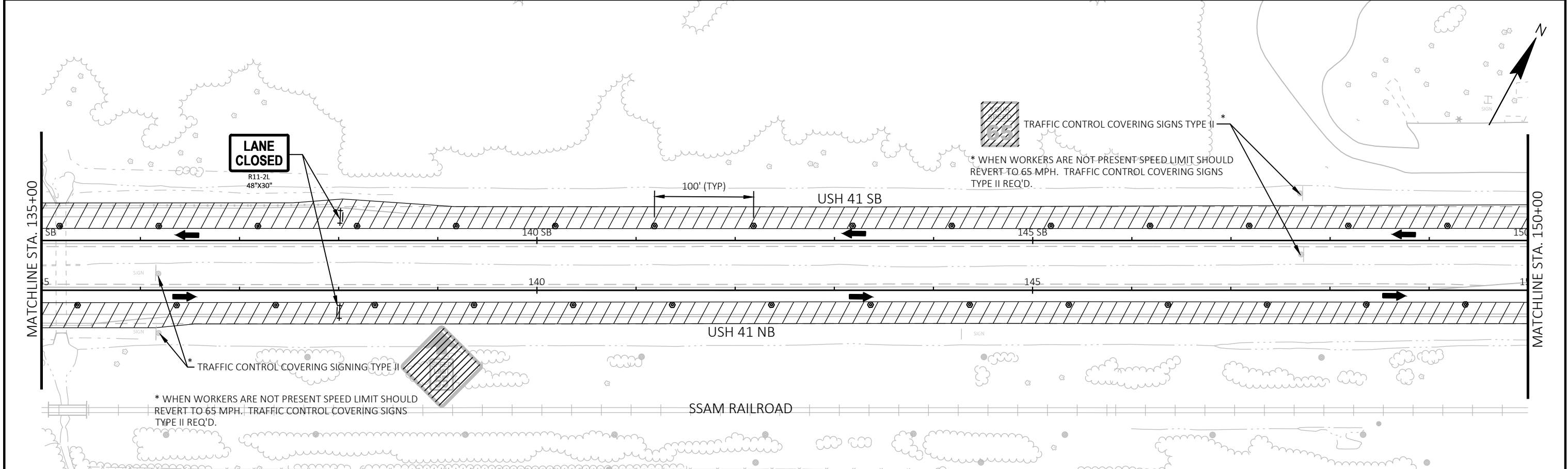
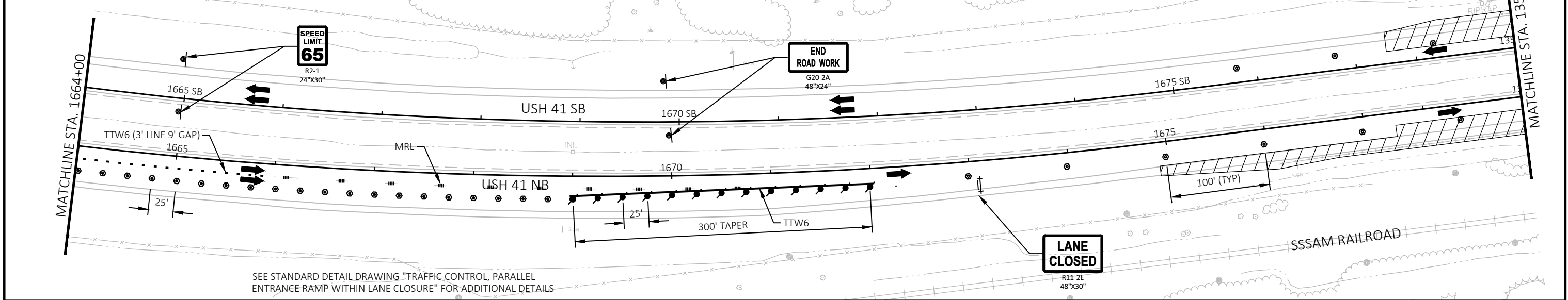
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**2**





| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | <b>STOPPED OR SLOW TRAFFIC WHEN FLASHING</b> WO8-76 96"x48"        |

**NOTES**

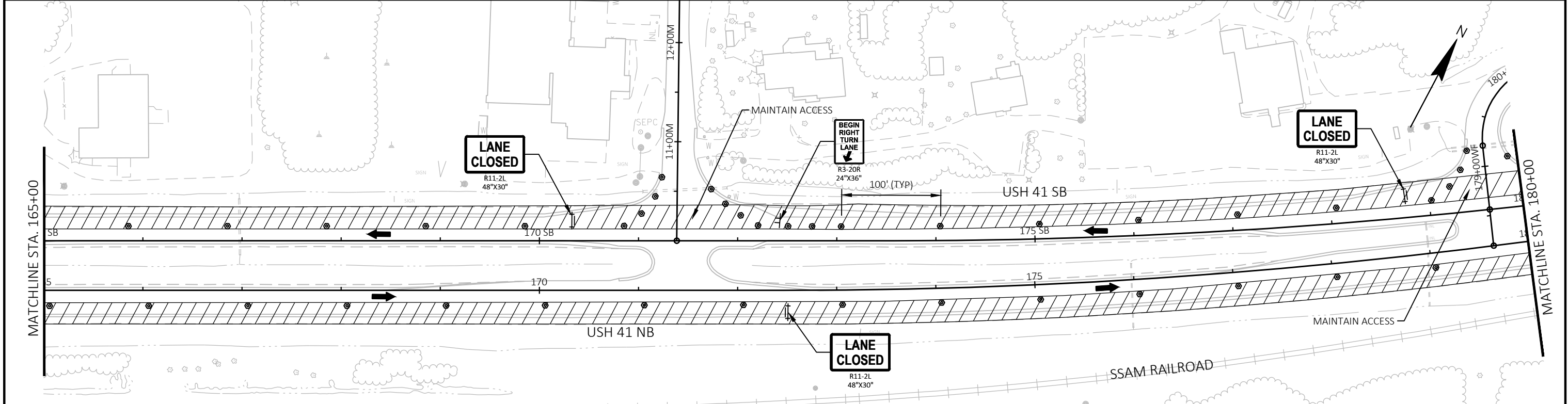
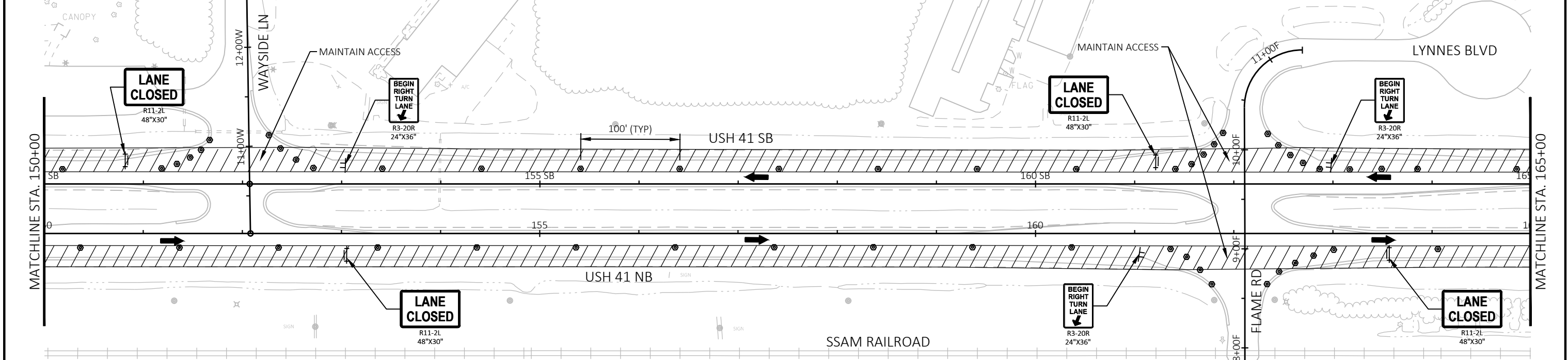
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SEE STANDARD DETAIL "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE" FOR ADDITIONAL DETAILS



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**NOTES**

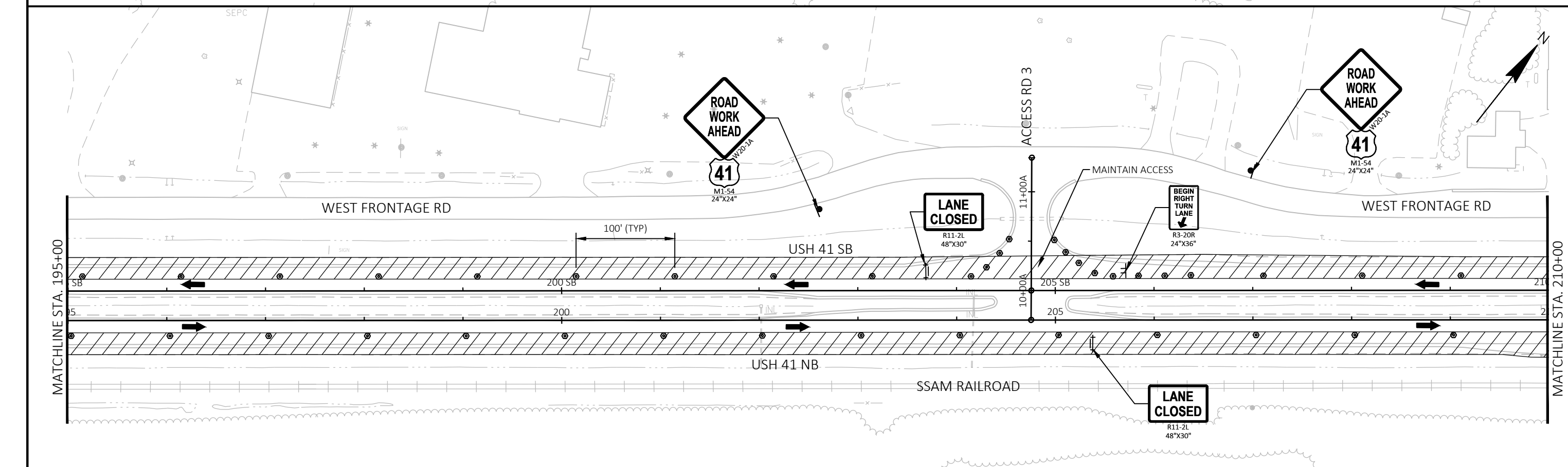
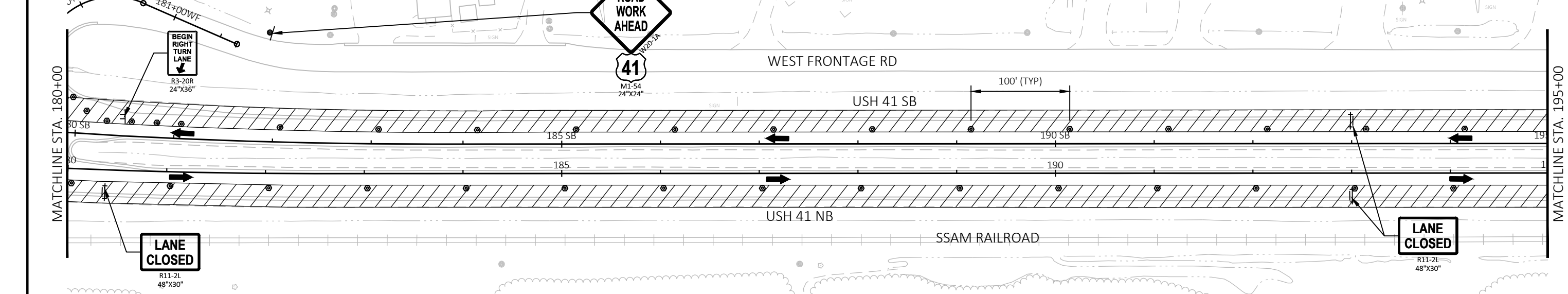
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|                        |             |                   |                                |       |          |
|------------------------|-------------|-------------------|--------------------------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | TRAFFIC CONTROL - STAGE 3B, 4A | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|--------------------------------|-------|----------|

| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

**NOTES**

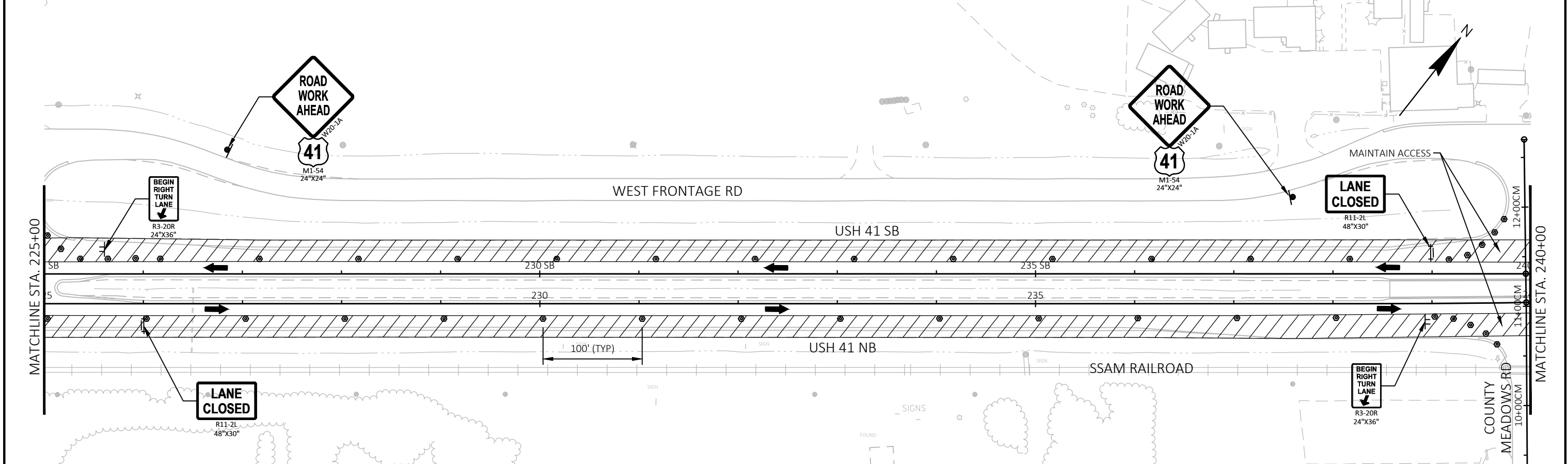
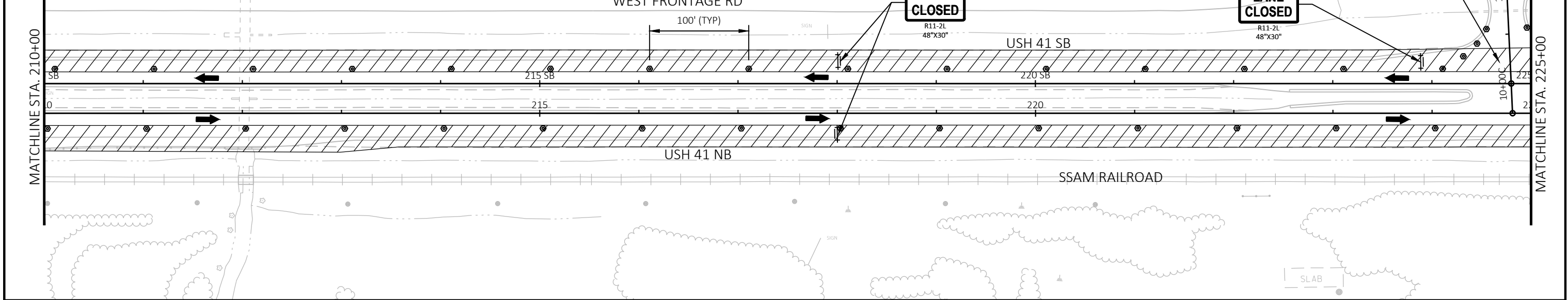
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SEE STANDARD DETAIL "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE" FOR ADDITIONAL DETAILS



|                        |             |                   |                                |       |   |
|------------------------|-------------|-------------------|--------------------------------|-------|---|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | TRAFFIC CONTROL - STAGE 3B, 4A | SHEET | E |
|------------------------|-------------|-------------------|--------------------------------|-------|---|

| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS WITH TYPE C STEADY BURN LIGHT                |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
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|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

**NOTES**

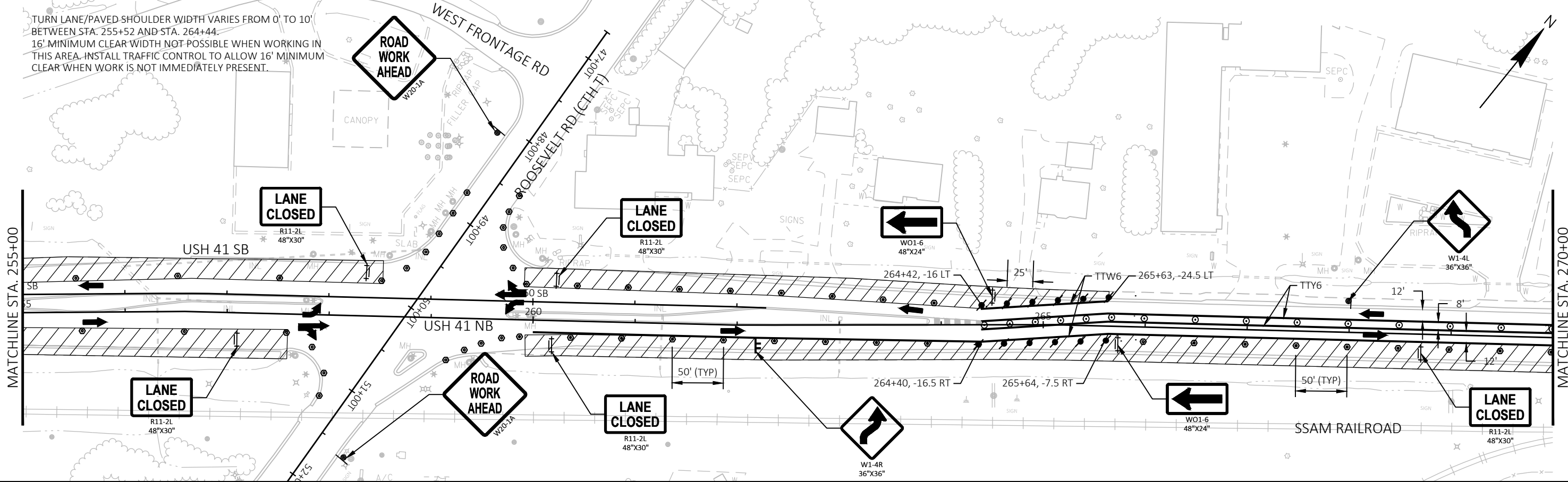
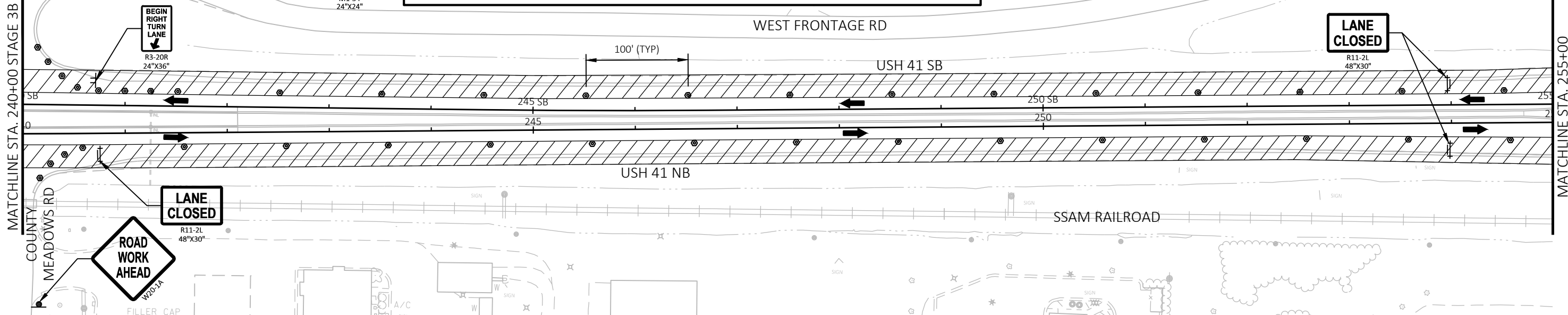
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SEE STANDARD DETAIL "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE" FOR ADDITIONAL DETAILS



LEGEND

|  |  |  |  |
|--|--|--|--|
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|  | TRAFFIC CONTROL ARROW BOARDS                                     |  | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
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|  | PORTABLE TRAFFIC SENSOR (PTS)                                    |  | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|  | WORK AREA  |  | DIRECTION OF TRAFFIC   |
|  | TRAFFIC CONTROL SIGNS PCMS                                       |  | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |
|  | FLASHING BEACON SIGN   |  |  |

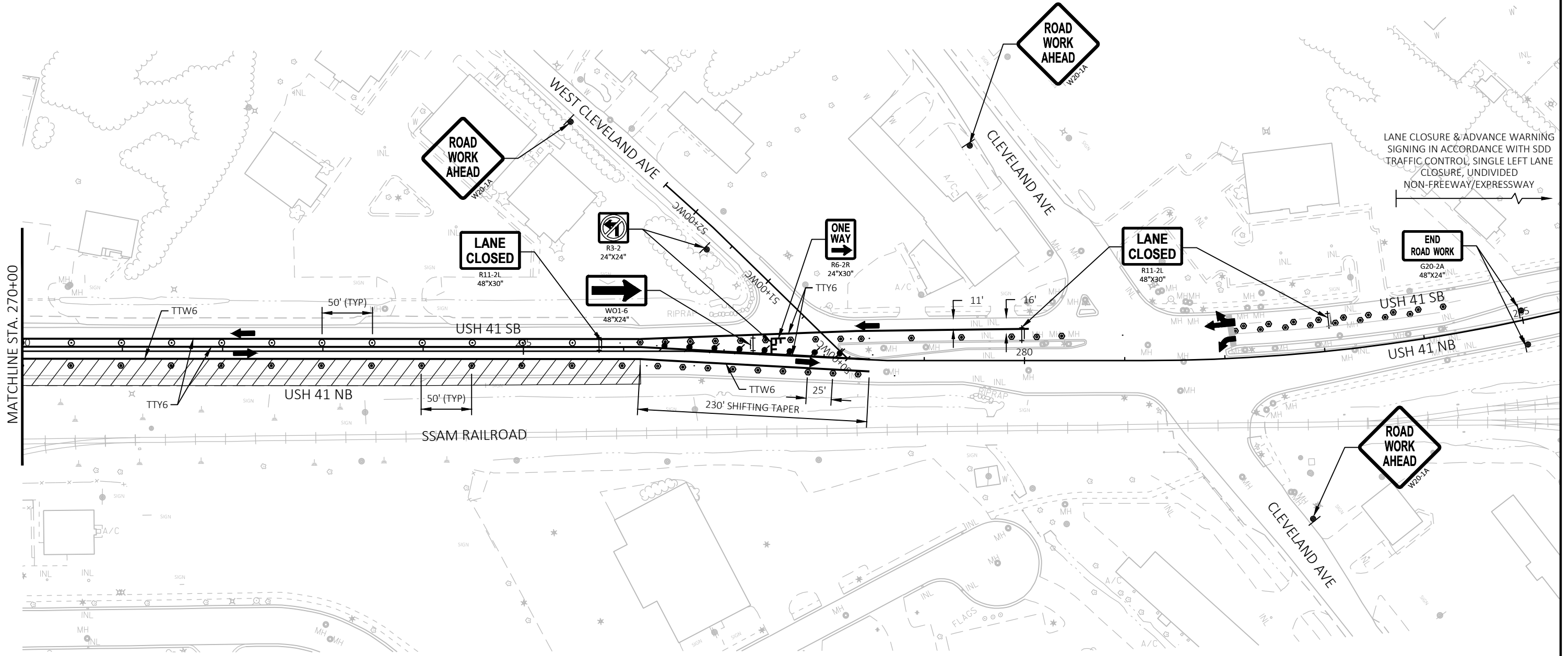
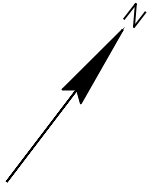
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| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
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|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FBS FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

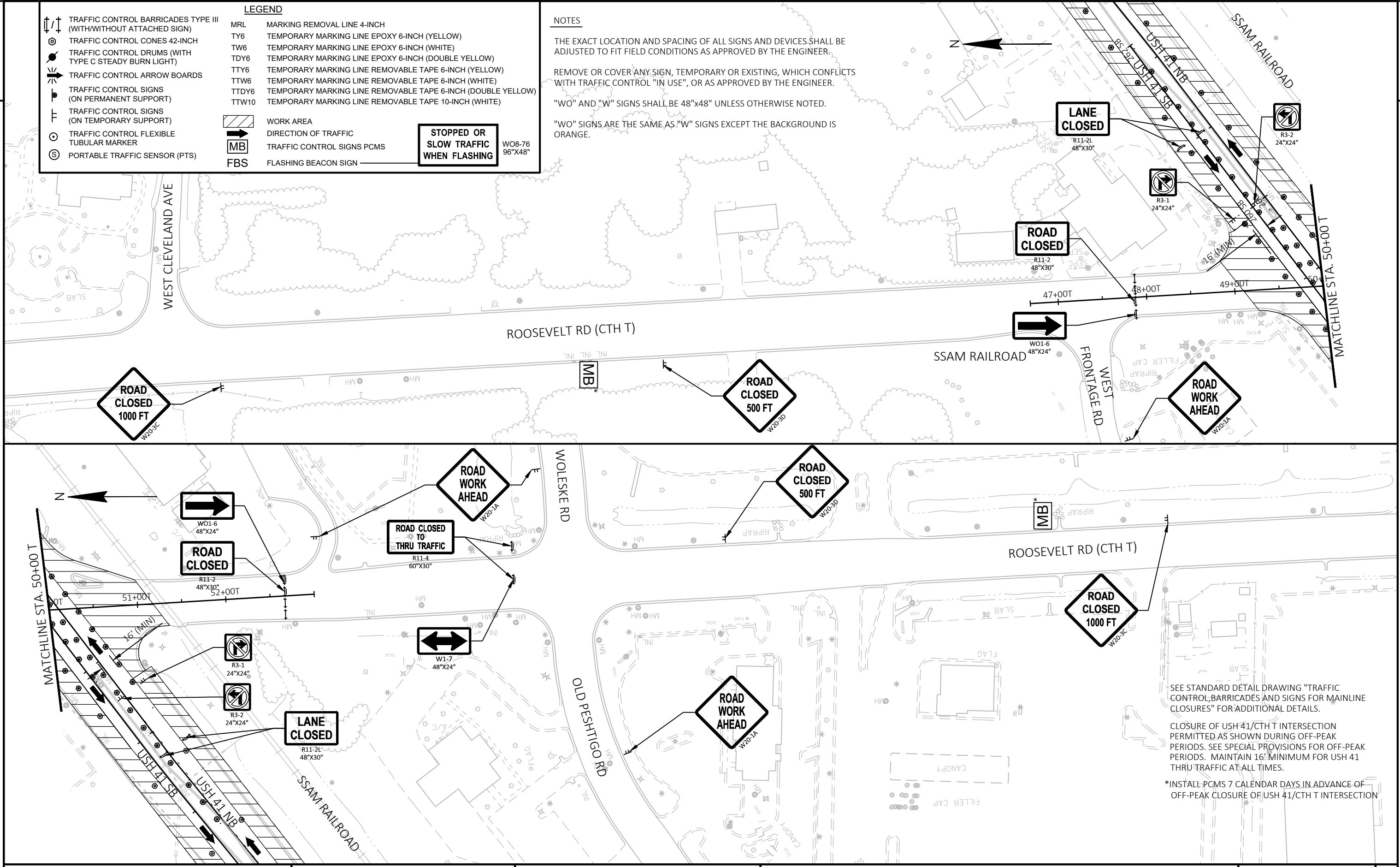
NOTES

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SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL DETAILS.

CLOSURE OF USH 41/CTH T INTERSECTION PERMITTED AS SHOWN DURING OFF-PEAK PERIODS. SEE SPECIAL PROVISIONS FOR OFF-PEAK PERIODS. MAINTAIN 16' MINIMUM FOR USH 41 THRU TRAFFIC AT ALL TIMES.

\*INSTALL PCMS 7 CALENDAR DAYS IN ADVANCE OF OFF-PEAK CLOSURE OF USH 41/CTH T INTERSECTION



| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
|        | TRAFFIC CONTROL SIGNS (ON TEMPORARY SUPPORT)                       |
|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
|        | PORTABLE TRAFFIC SENSOR (PTS)                                      |
|        | MRL MARKING REMOVAL LINE 4-INCH                                    |
|        | TY6 TEMPORARY MARKING LINE EPOXY 6-INCH (YELLOW)                   |
|        | TW6 TEMPORARY MARKING LINE EPOXY 6-INCH (WHITE)                    |
|        | TDY6 TEMPORARY MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)           |
|        | TTY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)         |
|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FBS FLASHING BEACON SIGN   |
|        | STOPPED OR SLOW TRAFFIC WHEN FLASHING W08-76 96"x48"               |

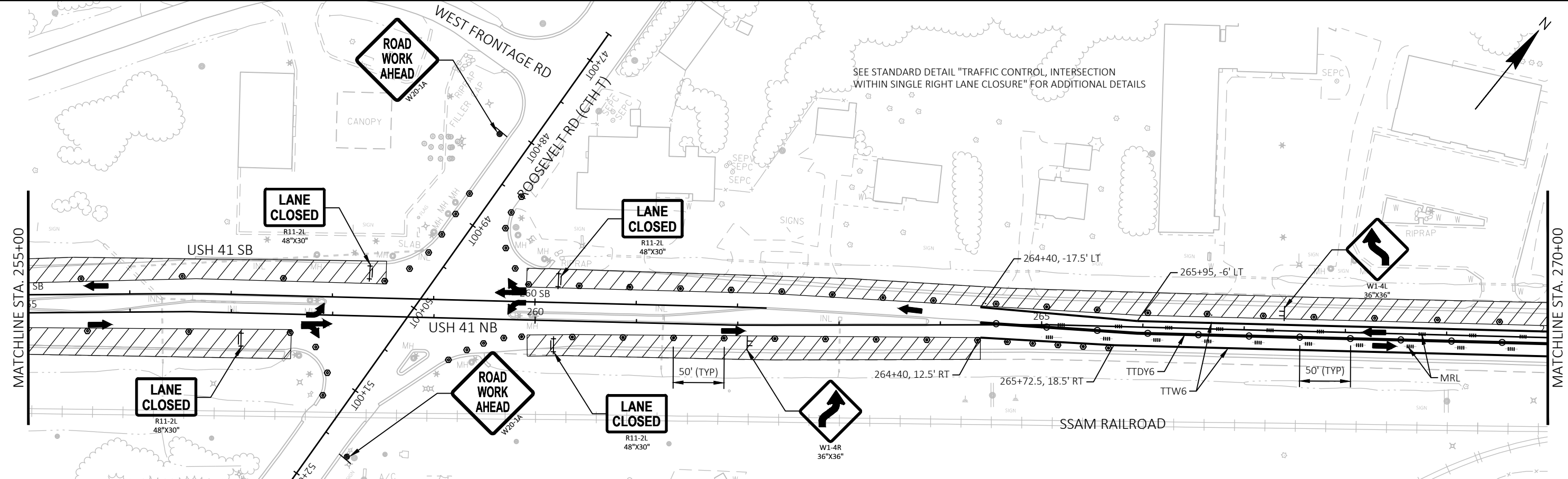
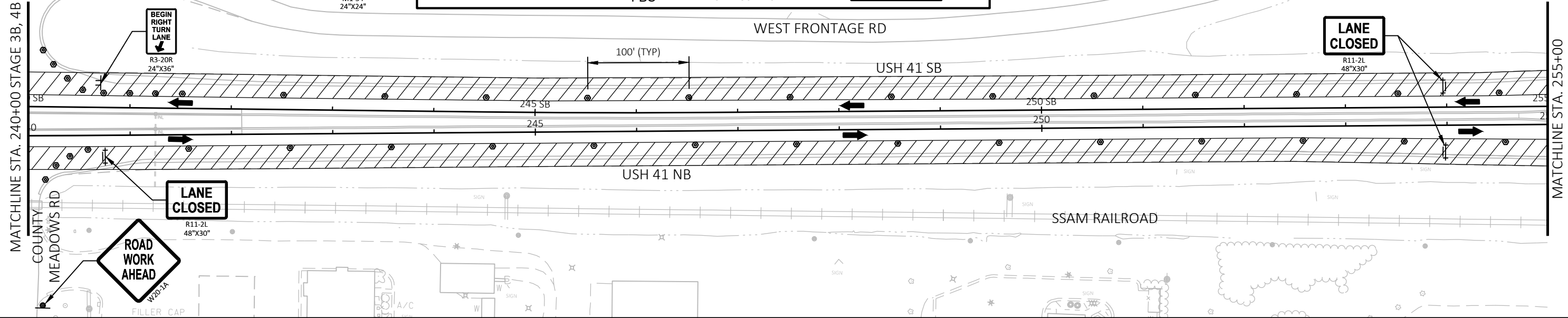
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| LEGEND |  |
|--------|--|
|        | TRAFFIC CONTROL BARRICADES TYPE III (WITH/WITHOUT ATTACHED SIGN)   |
|        | TRAFFIC CONTROL CONES 42-INCH                                      |
|        | TRAFFIC CONTROL DRUMS (WITH TYPE C STEADY BURN LIGHT)              |
|        | TRAFFIC CONTROL ARROW BOARDS                                       |
|        | TRAFFIC CONTROL SIGNS (ON PERMANENT SUPPORT)                       |
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|        | TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER                            |
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|        | TTW6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)          |
|        | TTDY6 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (DOUBLE YELLOW) |
|        | TTW10 TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH (WHITE)        |
|        | WORK AREA  |
|        | DIRECTION OF TRAFFIC   |
|        | TRAFFIC CONTROL SIGNS PCMS   |
|        | FLASHING BEACON SIGN   |

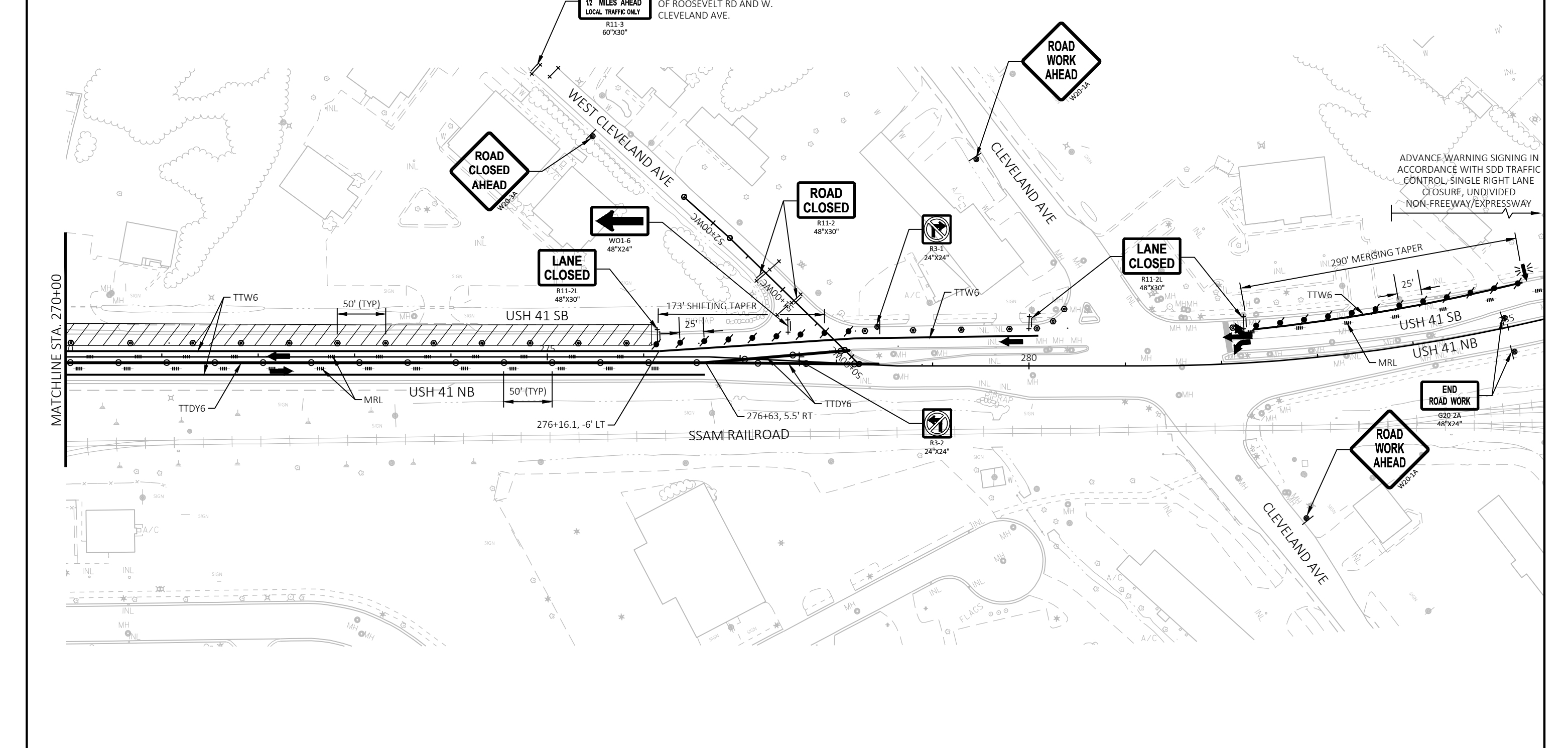
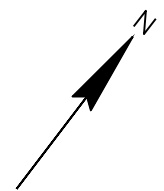
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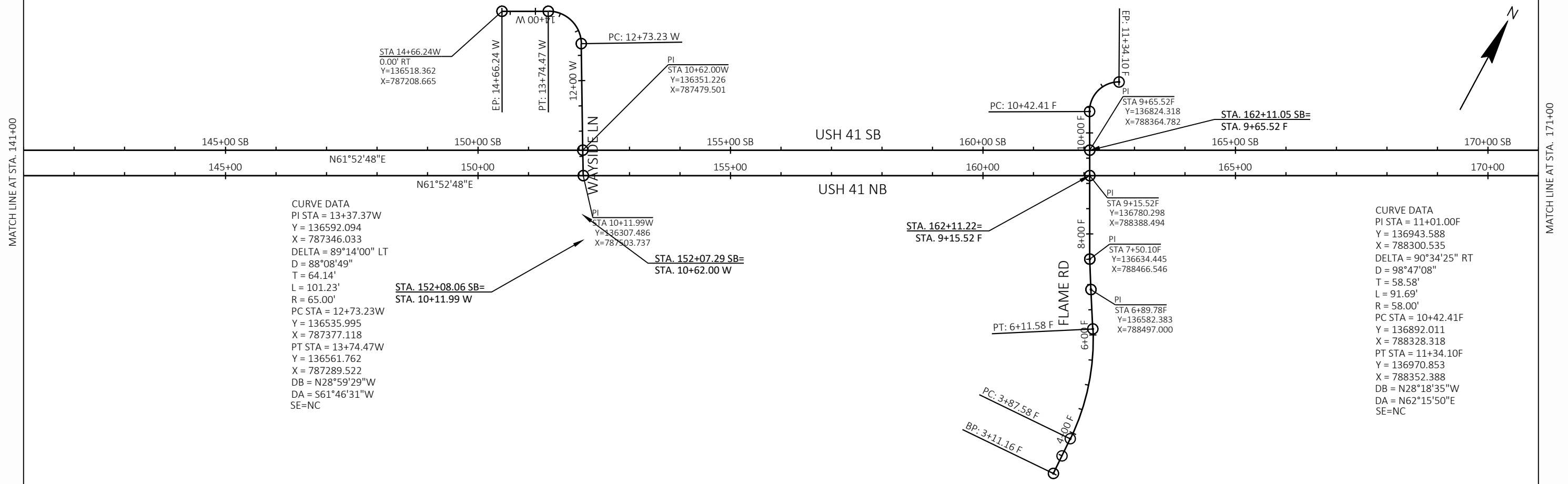
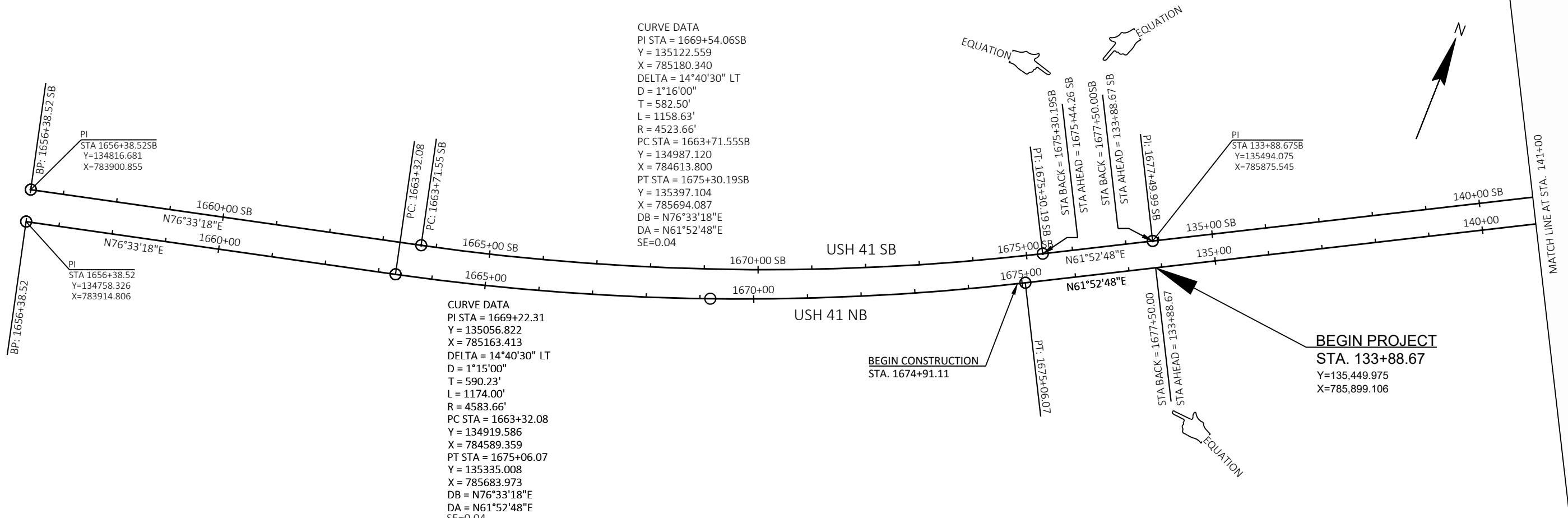
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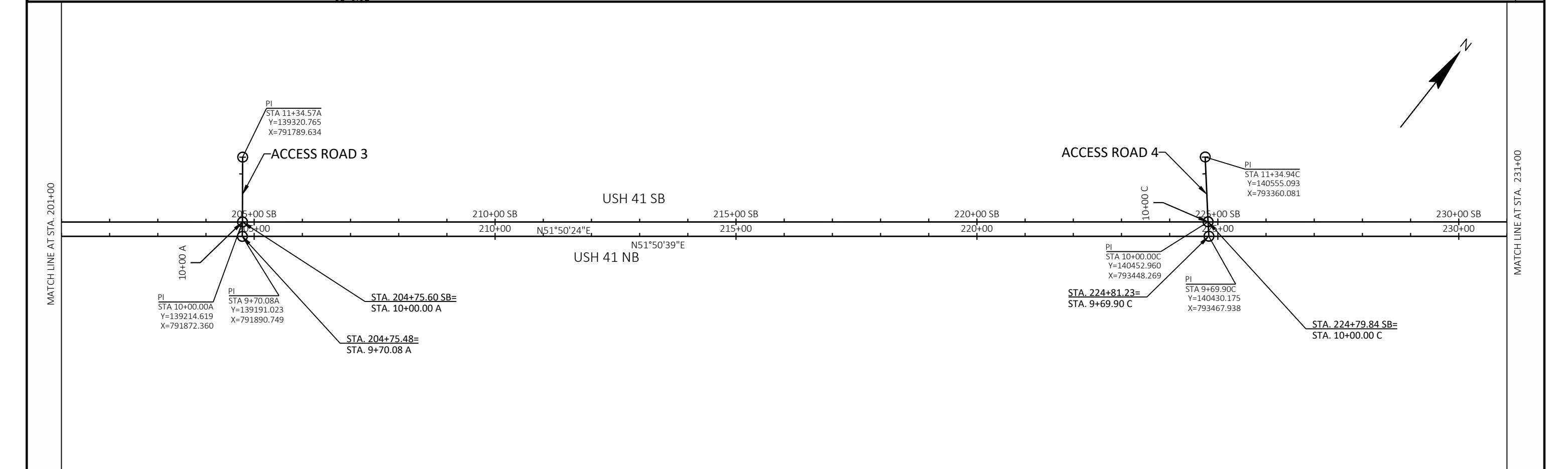
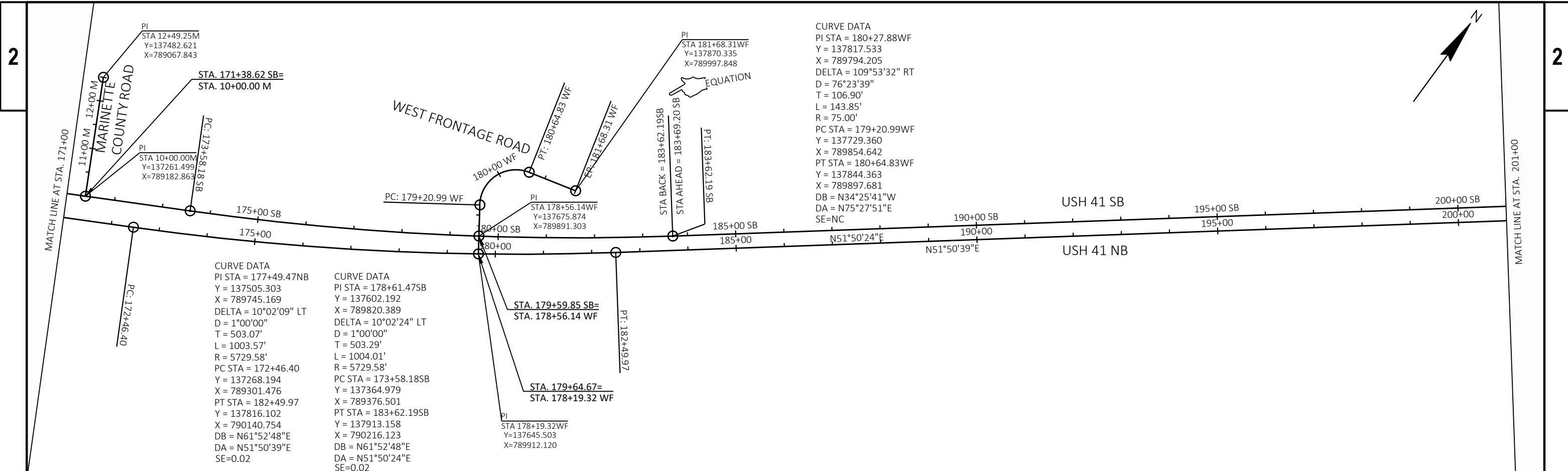
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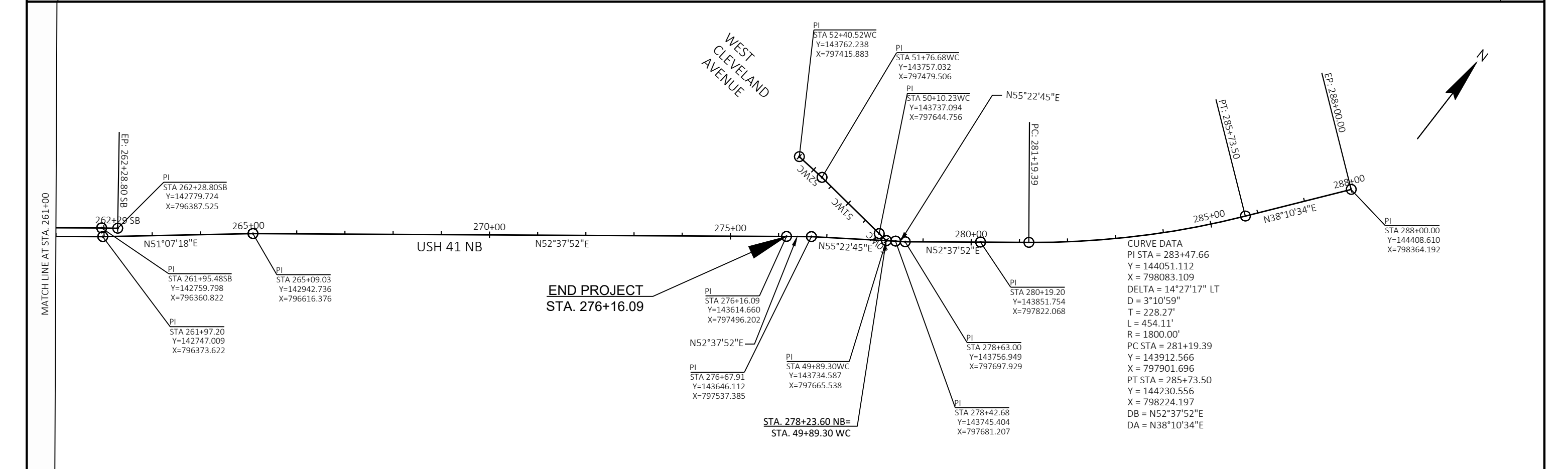
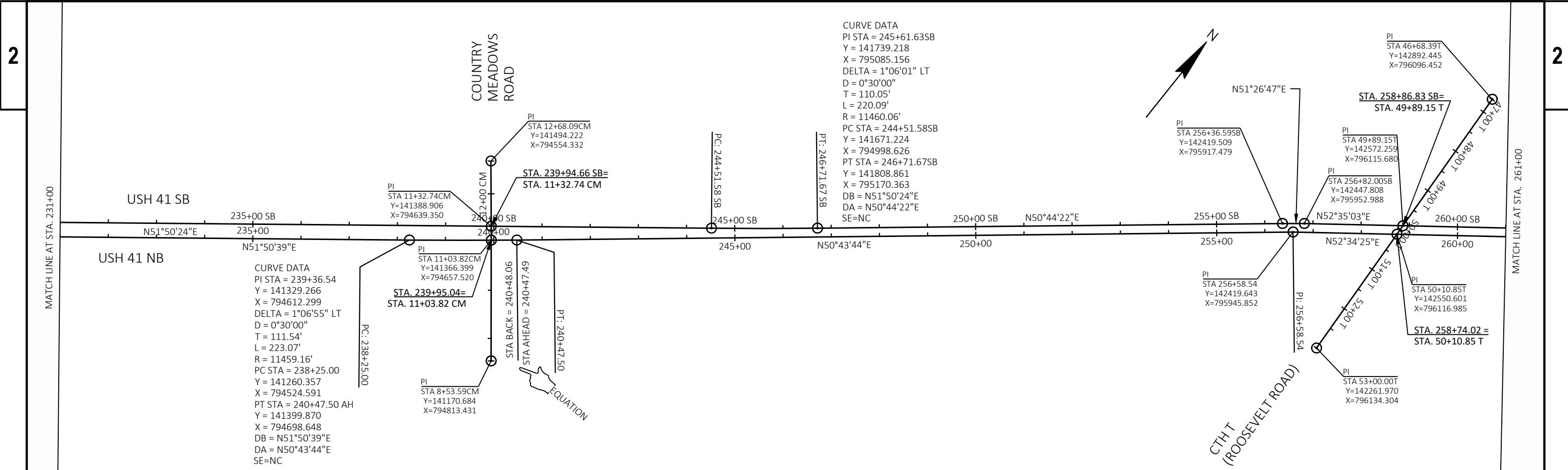
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|                        |             |                   |                   |       |          |
|------------------------|-------------|-------------------|-------------------|-------|----------|
| PROJECT NO: 1150-64-71 | HWY: USH 41 | COUNTY: MARINETTE | ALIGNMENT DETAILS | SHEET | <b>E</b> |
|------------------------|-------------|-------------------|-------------------|-------|----------|

Estimate Of Quantities

1150-64-71

| Line | Item       | Item Description   | Unit | Total      | Qty        |
|------|------------|--|------|------------|------------|
| 0002 | 203.0100   | Removing Small Pipe Culverts                                     | EACH | 6.000      | 6.000      |
| 0004 | 204.0105   | Removing Concrete Pavement Butt Joints                           | SY   | 5.600      | 5.600      |
| 0006 | 204.0115   | Removing Asphaltic Surface Butt Joints                           | SY   | 141.600    | 141.600    |
| 0008 | 204.0120   | Removing Asphaltic Surface Milling                               | SY   | 42,676.000 | 42,676.000 |
| 0010 | 204.0150   | Removing Curb & Gutter   | LF   | 5,092.000  | 5,092.000  |
| 0012 | 204.0165   | Removing Guardrail   | LF   | 850.000    | 850.000    |
| 0014 | 204.9060.S | Removing (item description) 01. Removing Endwalls                | EACH | 8.000      | 8.000      |
| 0016 | 205.0100   | Excavation Common  | CY   | 1,156.000  | 1,156.000  |
| 0018 | 211.0101   | Prepare Foundation for Asphaltic Paving (project) 01. 1150-64-71 | EACH | 1.000      | 1.000      |
| 0020 | 211.0400   | Prepare Foundation for Asphaltic Shoulders                       | STA  | 16.000     | 16.000     |
| 0022 | 213.0100   | Finishing Roadway (project) 01. 1150-64-71                       | EACH | 1.000      | 1.000      |
| 0024 | 305.0110   | Base Aggregate Dense 3/4-Inch                                    | TON  | 2,915.000  | 2,915.000  |
| 0026 | 305.0120   | Base Aggregate Dense 1 1/4-Inch                                  | TON  | 1,950.000  | 1,950.000  |
| 0028 | 305.0500   | Shaping Shoulders  | STA  | 192.000    | 192.000    |
| 0030 | 312.0110   | Select Crushed Material  | TON  | 80.000     | 80.000     |
| 0032 | 390.0100   | Removing Pavement for Base Patching                              | CY   | 69.000     | 69.000     |
| 0034 | 390.0405   | Base Patching Concrete SHES                                      | CY   | 69.000     | 69.000     |
| 0036 | 416.0610   | Drilled Tie Bars   | EACH | 45.000     | 45.000     |
| 0038 | 416.0620   | Drilled Dowel Bars   | EACH | 225.000    | 225.000    |
| 0040 | 455.0605   | Tack Coat  | GAL  | 10,502.000 | 10,502.000 |
| 0042 | 460.0115.S | HMA Pavement Test Strip Volumetrics                              | EACH | 1.000      | 1.000      |
| 0044 | 460.0120.S | HMA Pavement Test Strip Density                                  | EACH | 1.000      | 1.000      |
| 0046 | 460.2000   | Incentive Density HMA Pavement                                   | DOL  | 11,510.000 | 11,510.000 |
| 0048 | 460.7224   | HMA Pavement 4 HT 58-28 S  | TON  | 7,795.000  | 7,795.000  |
| 0050 | 460.8624   | HMA Pavement 4 SMA 58-28 V                                       | TON  | 10,190.000 | 10,190.000 |
| 0052 | 460.9000.S | Material Transfer Vehicle  | EACH | 1.000      | 1.000      |
| 0054 | 465.0105   | Asphaltic Surface  | TON  | 210.000    | 210.000    |
| 0056 | 465.0110   | Asphaltic Surface Patching                                       | TON  | 100.000    | 100.000    |
| 0058 | 465.0315   | Asphaltic Flumes   | SY   | 94.000     | 94.000     |
| 0060 | 465.0520   | Asphaltic Rumble Strips, Shoulder                                | LF   | 1,036.000  | 1,036.000  |
| 0062 | 520.1018   | Apron Endwalls for Culvert Pipe 18-Inch                          | EACH | 2.000      | 2.000      |
| 0064 | 520.8000   | Concrete Collars for Pipe  | EACH | 6.000      | 6.000      |
| 0066 | 521.1012   | Apron Endwalls for Culvert Pipe Steel 12-Inch                    | EACH | 4.000      | 4.000      |
| 0068 | 521.1018   | Apron Endwalls for Culvert Pipe Steel 18-Inch                    | EACH | 1.000      | 1.000      |
| 0070 | 521.1036   | Apron Endwalls for Culvert Pipe Steel 36-Inch                    | EACH | 1.000      | 1.000      |
| 0072 | 530.0112   | Culvert Pipe Corrugated Polyethylene 12-Inch                     | LF   | 44.000     | 44.000     |
| 0074 | 530.0118   | Culvert Pipe Corrugated Polyethylene 18-Inch                     | LF   | 22.000     | 22.000     |
| 0076 | 530.0136   | Culvert Pipe Corrugated Polyethylene 36-Inch                     | LF   | 16.000     | 16.000     |
| 0078 | 601.0415   | Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type J              | LF   | 1,547.000  | 1,547.000  |
| 0080 | 601.0557   | Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D              | LF   | 377.000    | 377.000    |
| 0082 | 606.0200   | Riprap Medium  | CY   | 4.000      | 4.000      |
| 0084 | 611.8115   | Adjusting Inlet Covers   | EACH | 5.000      | 5.000      |
| 0086 | 614.2300   | MGS Guardrail 3  | LF   | 412.500    | 412.500    |
| 0088 | 614.2330   | MGS Guardrail 3 K  | LF   | 112.500    | 112.500    |
| 0090 | 614.2340   | MGS Guardrail 3 L  | LF   | 337.500    | 337.500    |
| 0092 | 614.2610   | MGS Guardrail Terminal EAT                                       | EACH | 3.000      | 3.000      |
| 0094 | 614.2620   | MGS Guardrail Terminal Type 2                                    | EACH | 3.000      | 3.000      |
| 0096 | 618.0100   | Maintenance And Repair of Haul Roads (project) 01. 1150-64-71    | EACH | 1.000      | 1.000      |
| 0098 | 619.1000   | Mobilization   | EACH | 1.000      | 1.000      |

Estimate Of Quantities

1150-64-71

| Line | Item       | Item Description                              | Unit | Total      | Qty        |
|------|------------|---|------|------------|------------|
| 0100 | 620.0300   | Concrete Median Sloped Nose                   | SF   | 120.000    | 120.000    |
| 0102 | 624.0100   | Water   | MGAL | 38.200     | 38.200     |
| 0104 | 625.0500   | Salvaged Topsoil                              | SY   | 1,145.000  | 1,145.000  |
| 0106 | 627.0200   | Mulching                                      | SY   | 1,425.000  | 1,425.000  |
| 0108 | 628.1504   | Silt Fence                                    | LF   | 430.000    | 430.000    |
| 0110 | 628.1520   | Silt Fence Maintenance                        | LF   | 855.000    | 855.000    |
| 0112 | 628.1530.S | Silt Fence Heavy Duty                         | LF   | 1,005.000  | 1,005.000  |
| 0114 | 628.1535.S | Silt Fence Heavy Duty Maintenance             | LF   | 2,010.000  | 2,010.000  |
| 0116 | 628.1905   | Mobilizations Erosion Control                 | EACH | 10.000     | 10.000     |
| 0118 | 628.1910   | Mobilizations Emergency Erosion Control       | EACH | 10.000     | 10.000     |
| 0120 | 628.2008   | Erosion Mat Urban Class I Type B              | SY   | 725.000    | 725.000    |
| 0122 | 628.7005   | Inlet Protection Type A                       | EACH | 9.000      | 9.000      |
| 0124 | 628.7015   | Inlet Protection Type C                       | EACH | 17.000     | 17.000     |
| 0126 | 628.7020   | Inlet Protection Type D                       | EACH | 3.000      | 3.000      |
| 0128 | 628.7555   | Culvert Pipe Checks                           | EACH | 34.000     | 34.000     |
| 0130 | 628.7560   | Tracking Pads                                 | EACH | 6.000      | 6.000      |
| 0132 | 629.0210   | Fertilizer Type B                             | CWT  | 10.600     | 10.600     |
| 0134 | 630.0120   | Seeding Mixture No. 20                        | LB   | 499.000    | 499.000    |
| 0136 | 630.0200   | Seeding Temporary                             | LB   | 499.000    | 499.000    |
| 0138 | 630.0300   | Seeding Borrow Pit                            | LB   | 13.000     | 13.000     |
| 0140 | 630.0500   | Seed Water                                    | MGAL | 459.000    | 459.000    |
| 0142 | 631.0300   | Sod Water                                     | MGAL | 7.800      | 7.800      |
| 0144 | 631.1000   | Sod Lawn                                      | SY   | 108.000    | 108.000    |
| 0146 | 633.5200   | Markers Culvert End                           | EACH | 8.000      | 8.000      |
| 0148 | 634.0614   | Posts Wood 4x6-Inch X 14-FT                   | EACH | 14.000     | 14.000     |
| 0150 | 637.2210   | Signs Type II Reflective H                    | SF   | 30.000     | 30.000     |
| 0152 | 637.2230   | Signs Type II Reflective F                    | SF   | 72.000     | 72.000     |
| 0154 | 638.2602   | Removing Signs Type II                        | EACH | 2.000      | 2.000      |
| 0156 | 638.3000   | Removing Small Sign Supports                  | EACH | 2.000      | 2.000      |
| 0158 | 642.5201   | Field Office Type C                           | EACH | 1.000      | 1.000      |
| 0160 | 643.0300   | Traffic Control Drums                         | DAY  | 4,153.000  | 4,153.000  |
| 0162 | 643.0420   | Traffic Control Barricades Type III           | DAY  | 2,863.000  | 2,863.000  |
| 0164 | 643.0500   | Traffic Control Flexible Tubular Marker Posts | EACH | 114.000    | 114.000    |
| 0166 | 643.0600   | Traffic Control Flexible Tubular Marker Bases | EACH | 114.000    | 114.000    |
| 0168 | 643.0705   | Traffic Control Warning Lights Type A         | DAY  | 276.000    | 276.000    |
| 0170 | 643.0715   | Traffic Control Warning Lights Type C         | DAY  | 3,381.000  | 3,381.000  |
| 0172 | 643.0800   | Traffic Control Arrow Boards                  | DAY  | 290.000    | 290.000    |
| 0174 | 643.0900   | Traffic Control Signs                         | DAY  | 7,429.000  | 7,429.000  |
| 0176 | 643.0920   | Traffic Control Covering Signs Type II        | EACH | 506.000    | 506.000    |
| 0178 | 643.1050   | Traffic Control Signs PCMS                    | DAY  | 70.000     | 70.000     |
| 0180 | 643.1070   | Traffic Control Cones 42-Inch                 | DAY  | 37,060.000 | 37,060.000 |
| 0182 | 643.1205.S | Basic Traffic Queue Warning System            | DAY  | 64.000     | 64.000     |
| 0184 | 643.3170   | Temporary Marking Line Epoxy 6-Inch           | LF   | 1,810.000  | 1,810.000  |
| 0186 | 643.3180   | Temporary Marking Line Removable Tape 6-Inch  | LF   | 17,902.000 | 17,902.000 |
| 0188 | 643.3280   | Temporary Marking Line Removable Tape 10-Inch | LF   | 375.000    | 375.000    |
| 0190 | 643.5000   | Traffic Control                               | EACH | 1.000      | 1.000      |
| 0192 | 645.0120   | Geotextile Type HR                            | SY   | 16.000     | 16.000     |
| 0194 | 646.2020   | Marking Line Epoxy 6-Inch                     | LF   | 8,658.000  | 8,658.000  |
| 0196 | 646.2025   | Marking Line Grooved Black Epoxy 6-Inch       | LF   | 6,570.000  | 6,570.000  |

Estimate Of Quantities

1150-64-71

| Line | Item     | Item Description   | Unit | Total      | Qty        |
|------|----------|--|------|------------|------------|
| 0198 | 646.2040 | Marking Line Grooved Wet Ref Epoxy 6-Inch                          | LF   | 46,848.000 | 46,848.000 |
| 0200 | 646.2050 | Marking Line Grooved Permanent Tape 6-Inch                         | LF   | 6,570.000  | 6,570.000  |
| 0202 | 646.4020 | Marking Line Epoxy 10-Inch   | LF   | 230.000    | 230.000    |
| 0204 | 646.4040 | Marking Line Grooved Wet Ref Epoxy 10-Inch                         | LF   | 595.000    | 595.000    |
| 0206 | 646.4050 | Marking Line Grooved Permanent Tape 10-Inch                        | LF   | 795.000    | 795.000    |
| 0208 | 646.5020 | Marking Arrow Epoxy  | EACH | 2.000      | 2.000      |
| 0210 | 646.5120 | Marking Word Epoxy   | EACH | 1.000      | 1.000      |
| 0212 | 646.5320 | Marking Railroad Crossing Epoxy                                    | EACH | 4.000      | 4.000      |
| 0214 | 646.6120 | Marking Stop Line Epoxy 18-Inch                                    | LF   | 364.000    | 364.000    |
| 0216 | 646.7120 | Marking Diagonal Epoxy 12-Inch                                     | LF   | 1,220.000  | 1,220.000  |
| 0218 | 646.8120 | Marking Curb Epoxy   | LF   | 150.000    | 150.000    |
| 0220 | 646.8220 | Marking Island Nose Epoxy  | EACH | 2.000      | 2.000      |
| 0222 | 646.9000 | Marking Removal Line 4-Inch  | LF   | 4,155.000  | 4,155.000  |
| 0224 | 646.9002 | Marking Removal Line 6-Inch  | LF   | 1,565.000  | 1,565.000  |
| 0226 | 650.4500 | Construction Staking Subgrade                                      | LF   | 1,525.000  | 1,525.000  |
| 0228 | 650.5000 | Construction Staking Base  | LF   | 30,410.000 | 30,410.000 |
| 0230 | 650.5500 | Construction Staking Curb Gutter and Curb & Gutter                 | LF   | 5,092.000  | 5,092.000  |
| 0232 | 650.6000 | Construction Staking Pipe Culverts                                 | EACH | 8.000      | 8.000      |
| 0234 | 650.8000 | Construction Staking Resurfacing Reference                         | LF   | 27,070.000 | 27,070.000 |
| 0236 | 650.9911 | Construction Staking Supplemental Control (project) 01. 1150-64-71 | EACH | 1.000      | 1.000      |
| 0238 | 650.9920 | Construction Staking Slope Stakes                                  | LF   | 1,525.000  | 1,525.000  |
| 0240 | 652.0800 | Conduit Loop Detector  | LF   | 338.000    | 338.000    |
| 0242 | 653.0105 | Pull Boxes Steel 12x24-Inch  | EACH | 2.000      | 2.000      |
| 0244 | 655.0700 | Loop Detector Lead In Cable  | LF   | 2,488.000  | 2,488.000  |
| 0246 | 655.0800 | Loop Detector Wire   | LF   | 1,538.000  | 1,538.000  |
| 0248 | 690.0150 | Sawing Asphalt   | LF   | 585.000    | 585.000    |
| 0250 | 690.0250 | Sawing Concrete  | LF   | 428.000    | 428.000    |
| 0252 | 740.0440 | Incentive IRI Ride   | DOL  | 43,120.000 | 43,120.000 |
| 0254 | SPV.0090 | Special 01. Concrete Joint and Crack Cleaning and Repair           | LF   | 2,055.000  | 2,055.000  |
| 0256 | SPV.0090 | Special 02. Concrete Curb & Gutter 18-Inch Type J                  | LF   | 3,168.000  | 3,168.000  |

REMOVING SMALL PIPE CULVERTS

| 203.0100 |           |          |      |                     |
|----------|-----------|----------|------|---------------------|
| CATEGORY | STATION   | LOCATION | EACH | REMARK              |
| 0010     | 135+08    | LT       | 1    | 12" X 14' RCCP      |
|          | 135+32    | LT       | 1    | 12" X 14' RCCP      |
|          | 212+11    | LT       | 1    | 12" X 8' RCCP       |
|          | 212+93    | LT       | 1    | 12" X 8' RCCP       |
|          | 211+90 SB | LT       | 1    | 49" X 33" X 8' RCCP |
|          | 212+18 SB | LT       | 1    | 18" X 22' RCCP      |
| TOTAL    |           |          | 6    |                     |

REMOVING CONCRETE PAVEMENT BUTT JOINTS

| 204.0105 |       |           |          |     |
|----------|-------|-----------|----------|-----|
| CATEGORY | STAGE | STATION   | LOCATION | SY  |
| 0010     | 3     | 133+88.67 | LT       | 2.8 |
|          | 4     | 133+88.67 | LT & RT  | 2.8 |
| TOTAL    |       |           |          | 5.6 |

REMOVING ASPHALTIC SURFACE BUTT JOINTS

| 204.0115 |             |                         |          |      |
|----------|-------------|-------------------------|----------|------|
| CATEGORY | STAGE       | STATION - STATION       | LOCATION | SY   |
| 0010     | STAGE 3A/4C | 133+88.67               | LT & RT  | 0.1  |
|          |             | 169+38 - 168+88         | LT & RT  | 2.8  |
|          |             | 255+52 - 256+02         | RT       | 5.3  |
|          |             | 276+16.09               | LT & RT  | 0.2  |
|          |             | 184+83 SB - 185+33 SB   | LT & RT  | 3.5  |
|          |             | 240+54 SB - 241+04 SB   | LT & RT  | 3.9  |
|          |             | 255+52 SB - 256+02 SB   | LT       | 2.8  |
|          |             | 10+19.81 W - 10+56.17 W | LT & RT  | 11.2 |
|          |             | 9+24+03 F - 9+59.00 F   | LT & RT  | 11.4 |
|          |             | 9+78.34 A - 9+94.36 A   | LT & RT  | 5.5  |
|          |             | 9+78.23 C - 9+93.96 C   | LT & RT  | 5.4  |

SUBTOTAL (STAGE 3A/4C) 52.1

| 204.0120            |       |                   |                            |        |
|---------------------|-------|-------------------|----------------------------|--------|
| CATEGORY            | STAGE | STATION - STATION | LOCATION                   | SY     |
| 0010                | 1     | 1675+00 - 1677+50 | US 41 SB, RT, RUMBLE STRIP | 56     |
|                     |       | 1675+00 - 1677+50 | US 41 NB, RT, RUMBLE STRIP | 56     |
| SUBTOTAL (STAGE 1)  |       |                   |                            | 112    |
|                     | 2A    | 1675+00 - 1677+50 | US 41 SB, LT, RUMBLE STRIP | 56     |
| SUBTOTAL (STAGE 2A) |       |                   |                            | 56     |
|                     | 3A    | 1675+00 - 1677+50 | US 41 NB, LT, RUMBLE STRIP | 56     |
|                     |       | 133+88 - 169+38   | US 41 NB, LT               | 5,915  |
|                     |       | 184+83 - 241+04   | US 41 SB, RT               | 9,368  |
|                     |       | 255+52 - 264+44   | US 41 SB, LT               | 1,567  |
|                     |       | 255+52 - 264+44   | US 41 NB, RT               | 1,567  |
|                     |       | 264+44 - 274+00   | US 41 SB, RT               | 1,275  |
|                     |       | 264+44 - 274+00   | US 41, NB, RT              | 1,275  |
|                     |       | 274+00 - 276+16   | US 41, SB, RT              | 288    |
|                     |       | 274+00 - 276+16   | US 41, NB, RT              | 288    |
| SUBTOTAL (STAGE 3A) |       |                   |                            | 21,599 |
|                     | 3B    | 133+88 - 169+38   | US 41, NB, RT              | 4,733  |
|                     |       | 184+83 - 241+04   | US 41, SB, LT              | 9,368  |
|                     |       | 255+52 - 264+44   | US 41, SB, LT              | 1,487  |
|                     |       | 255+52 - 264+44   | US 41, NB, RT              | 1,487  |
|                     |       | 264+44 - 274+00   | US 41, NB, RT              | 1,593  |
|                     |       | 274+00 - 276+16   | US 41, NB RT               | 288    |
| SUBTOTAL (STAGE 3B) |       |                   |                            | 18,956 |
|                     | 3C    | 264+44 - 274+00   | US 41, SB LT               | 1,593  |
|                     |       | 274+00 - 276+16   | US 41, SB, LT              | 360    |
| SUBTOTAL (STAGE3C)  |       |                   |                            | 1,953  |
| TOTAL               |       |                   |                            | 42,676 |

SUBTOTAL (STAGE 3B/4A) 89.5

TOTAL 141.6

REMOVING ENDWALLS

| 204.9060.S.01 |           |          |      |
|---------------|-----------|----------|------|
| CATEGORY      | STATION   | LOCATION | EACH |
| 0010          | 135+08    | LT       | 1    |
|               | 135+32    | LT       | 1    |
|               | 212+11    | LT       | 1    |
|               | 212+93    | LT       | 1    |
|               | 154+00 SB | LT       | 1    |
|               | 166+97 SB | LT       | 1    |
|               | 211+90 SB | LT       | 1    |
|               | 212+18 SB | LT       | 1    |

TOTAL 8

3

REMOVING CURB & GUTTER

| CATEGORY                    | STAGE   | STATION - STATION           | LOCATION | 204.0150<br>LF           |         |     |
|-----------------------------|---------|-----------------------------|----------|--------------------------|---------|-----|
| 0010                        | 3A      | 151+44.62 SB - 151+58.81 SB | LT       | 49                       |         |     |
|                             |         | 152+20.76 SB - 152+67.35 SB | LT       | 52                       |         |     |
|                             |         | 161+56.23 SB - 161+84.52 SB | LT       | 30                       |         |     |
|                             |         | 162+39.13 SB - 162+68.00 SB | LT       | 31                       |         |     |
|                             |         | 170+85.42 SB - 171+17.84 SB | LT       | 37                       |         |     |
|                             |         | 171+72.50 SB - 172+15.77 SB | LT       | 47                       |         |     |
|                             |         | 179+04.61 SB - 179+33.86 SB | LT       | 31                       |         |     |
|                             |         | 179+87.28 SB - 180+17.01 SB | LT       | 31                       |         |     |
|                             |         | SUBTOTAL (STAGE 3)          |          |                          | 308     |     |
|                             |         | 3B                          |          | 151+32.95 SB - 151+33.17 | LT & RT | 64  |
|                             |         |                             |          | 152+67.90 - 152+67.90 SB | LT & RT | 105 |
|                             |         |                             |          | 161+36.82 SB - 161+51.83 | LT & RT | 85  |
|                             |         |                             |          | 162+70.18 - 162+72.13 SB | LT & RT | 73  |
| 170+80.34 - 170+80.05 SB    | LT & RT |                             |          | 82                       |         |     |
| 172+14.63 - 172+15.42 SB    | LT & RT |                             |          | 105                      |         |     |
| 177+47.56 SB - 177+47.93    | LT & RT |                             |          | 365                      |         |     |
| 180+27.68 SB - 180+28.04    | LT & RT |                             |          | 63                       |         |     |
| 202+56.24 - 204+13.53 SB    | LT & RT |                             |          | 215                      |         |     |
| 205+34.54 - 205+35.65 SB    | LT & RT |                             |          | 100                      |         |     |
| 222+57.06 - 224+35.15 SB    | LT & RT |                             |          | 190                      |         |     |
| 225+34.91 SB - 225+35.63    | LT & RT |                             |          | 100                      |         |     |
| 238+57.46 - 255+51.94       | LT      |                             |          | 1,700                    |         |     |
| 239+46.62 - 239+74.72       | RT      |                             |          | 34                       |         |     |
| 240+10.52 - 240+39.02       | RT      |                             |          | 35                       |         |     |
| 256+99.72 - 257+05.72       | LT      |                             |          | 6                        |         |     |
| 260+02.81 - 260+08.81       | LT      |                             |          | 6                        |         |     |
| 262+26.09 - 262+32.09       | LT      | 6                           |          |                          |         |     |
| 241+04.00 SB - 255+52.01 SB | RT      | 1,450                       |          |                          |         |     |
| SUBTOTAL (STAGE 3B)         |         |                             | 4,784    |                          |         |     |
| TOTAL                       |         |                             | 5,092    |                          |         |     |

REMOVING GUARDRAIL

| CATEGORY | STATION      | - | STATION      | LOCATION | 204.0165<br>LF |
|----------|--------------|---|--------------|----------|----------------|
| 0010     | 1676+11.51   | - | 135+52.03    | RT       | 300            |
|          | 209+91.12    | - | 212+34.38    | RT       | 245            |
|          | 134+90.25 SB | - | 137+93.30 SB | LT       | 305            |
| TOTAL    |              |   |              |          | 850            |

BASE AGGREGATE DENSE SUMMARY

| CATEGORY             | STAGE               | STATION              | LOCATION            | 305.0110             | 305.0120           | 624.0100       |      |
|----------------------|---------------------|----------------------|---------------------|----------------------|--------------------|----------------|------|
|                      |                     |                      |                     | BASE AGGREGATE DENSE |                    |                |      |
|                      |                     |                      |                     | 3/4-INCH<br>TON      | 1 1/4-INCH<br>TON  | WATER*<br>MGAL |      |
| 0010                 | 4A                  | 1674+91 - 1677+50    | NB OUTSIDE SHOULDER | 20                   | 290                | 3.1            |      |
|                      |                     | 133+86 - 169+38      | SB OUTSIDE SHOULDER | 400                  | 560                | 9.6            |      |
|                      |                     | 133+86 - 169+38      | NB OUTSIDE SHOULDER | 510                  | 310                | 8.2            |      |
|                      |                     | 169+38 - 184+83      | SB OUTSIDE SHOULDER | 140                  | ---                | ---            |      |
|                      |                     | 169+38 - 184+83      | NB OUTSIDE SHOULDER | 200                  | ---                | ---            |      |
|                      |                     | 184+83 - 241+04      | NB OUTSIDE SHOULDER | 680                  | 460                | 10.0           |      |
|                      |                     | 241+04 - 255+52      | SB OUTSIDE SHOULDER | 190                  | ---                | ---            |      |
|                      |                     | 241+04 - 255+52      | NB OUTSIDE SHOULDER | 200                  | ---                | ---            |      |
|                      |                     | SUBTOTALS (STAGE 4A) |                     |                      | 2,340              | 1,620          | 30.9 |
|                      |                     | 4C                   |                     | 133+88 - 169+38      | SB INSIDE SHOULDER | 190            | ---  |
| 169+38 - 184+83      | SB INSIDE SHOULDER  |                      |                     | 65                   | ---                | ---            |      |
| 169+38 - 184+83      | NB INSIDER SHOULDER |                      |                     | 60                   | ---                | ---            |      |
| 184+83 - 241+04      | NB INSIDE SHOULDER  |                      |                     | 260                  | ---                | ---            |      |
| 241+04               | 255+52              |                      |                     | MEDIAN               | ---                | 330            | 3.3  |
| SUBTOTALS (STAGE 4C) |                     |                      |                     | 575                  | 330                | 3.3            |      |
| TOTALS               |                     |                      |                     | 2,915                | 1,950              | 34.2           |      |

\*ADDITIONAL QUANTITIES LISTED ELSEWHERE

PREPARATION FOUNDATION FOR ASPHALTIC PAVING

| CATEGORY | PROJECT    | 211.0101<br>EACH |
|----------|------------|------------------|
| 0010     | 1150-64-71 | 1                |

FINISHING ROADWAY

| CATEGORY | PROJECT    | 213.0100<br>EACH |
|----------|------------|------------------|
| 0010     | 1150-64-71 | 1                |

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

| CATEGORY | STATION      | - | STATION      | LOCATION | 211.0400<br>STA |
|----------|--------------|---|--------------|----------|-----------------|
| 0010     | 1674+91.11   | - | 136+85.35    | RT       | 6               |
|          | 133+88.67 SB | - | 138+93.93 SB | LT       | 5               |
|          | 209+11.65    | - | 213+68.73    | RT       | 5               |
| TOTAL    |              |   |              |          | 16              |



EARTHWORK SUMMARY

| CATEGORY    | STATION           | LOCATION       | 205.0100 EXCAVATION COMMON (1) |                       | SALVAGED/<br>UNUSABLE PAVEMENT<br>MATERIAL | AVAILABLE<br>MATERIAL (4) | EXPANDED EBS<br>BACKFILL (5) | UNEXPANDED<br>FILL | EXPANDED<br>FILL (6) | MASS ORDINATE<br>+/- (7) | WASTE<br>(8)   | 312.0110 | *624.0100 |           |
|-------------|-------------------|----------------|--------------------------------|-----------------------|--|---------------------------|------------------------------|--------------------|----------------------|--------------------------|----------------|----------|-----------|-----------|
|             |                   |                | CUT (2)                        | EBS EXCAVATION<br>(3) |  |                           |                              |                    |                      |                          |                | SELECT   | WATER     |           |
|             |                   |                |                                |                       | 5% OF CUT                                  |                           | FACTOR<br>1.25               |                    | FACTOR<br>1.25       |                          | FACTOR<br>1.90 |          | CRUSHED   | (FOR DUST |
|             |                   |                | CY                             | CY                    | CY   | CY                        | CY                           | CY                 | CY                   | CY                       | CY             | CY       | CY        | TON       |
| 0010        | 1674+91 - 1680+47 | USH 41, NB, RT | 536                            | 20                    | 0  | 536                       | 25                           | 27                 | 34                   | 502                      | 522            | 40       | 2         |           |
|             | 208+92 - 213+69   | USH 41, NB, RT | 321                            | 10                    | 0  | 321                       | 13                           | 43                 | 54                   | 267                      | 277            | 20       | 1         |           |
|             | 133+89 - 138+94   | USH 41, SB, LT | 259                            | 10                    | 0  | 259                       | 13                           | 173                | 216                  | 42                       | 52             | 20       | 1         |           |
| TOTALS      |                   |                | 1,116                          | 40                    | 0  | 1,116                     | 51                           | 243                | 304                  | 811                      | 851            | 80       | 4         |           |
| ITEM TOTALS |                   |                | 1,156                          |                       |  |                           |                              |                    |                      |                          |                |          |           |           |

NOTES

- 1) EXCAVATION COMMON IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. BID ITEM NUMBER 205.0100.
- 2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 3) EBS EXCAVATION TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL.
- 4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL.
- 5) EXPANDED EBS BACKFILL: THIS IS TO BE FILLED WITH SELECT CRUSHED MATERIAL. EBS BACKFILL FACTOR = 1.25.
- 6) EXPANDED FILL = UNEXPANDED FILL \* EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25.
- 7) MASS ORDINATE: MASS ORDINATE = (AVAILABLE MATERIAL - EXPANDED FILL)  
POSITIVE MASS ORDINATE QUANTITY = WASTE. NEGATIVE MASS ORDINATE QUANTITY =BORROW.
- 8) WASTE = MASS ORDINATE + (3) EBS EXCAVATION

\*ADDITIONAL QUANTITIES LISTED ELSEWHERE

3

3

SHAPING SHOULDERS

| CATEGORY            | STAGE               | STATION - STATION | LOCATION              | 305.0500 STA |       |
|---------------------|---------------------|-------------------|-----------------------|--------------|-------|
| 0010                | 4A                  | 136+85 - 161+32   | NB RT                 | 24.5         |       |
|                     |                     | 162+89 - 169+38   | NB RT                 | 6.5          |       |
|                     |                     | 255+52 - 257+54   | NB RT                 | 2.0          |       |
|                     |                     | 259+50 - 274+04   | NB RT                 | 14.5         |       |
|                     |                     |                   | 184+83 SB - 204+05 SB | SB LT        | 19.0  |
|                     |                     |                   | 205+39 SB - 224+25 SB | SB LT        | 19.0  |
|                     |                     |                   | 225+31 SB - 239+18 SB | SB LT        | 14.0  |
|                     |                     |                   | 240+62 SB - 241+04 SB | SB LT        | 0.5   |
|                     |                     |                   | 255+52 SB - 256+65 SB | SB LT        | 1.0   |
|                     |                     |                   | 261+10 SB - 276+16 SB | SB LT        | 15.0  |
|                     | SUBTOTAL (STAGE 2B) |                   |                       |              | 116.0 |
|                     | 4C                  |                   | 136+89 - 151+33       | NB LT        | 14.5  |
|                     |                     |                   | 152+68 - 159+92       | NB LT        | 7.0   |
|                     |                     |                   | 162+71 - 169+38       | NB LT        | 6.5   |
|                     |                     |                   | 184+83 SB - 202+59 SB | SB RT        | 18.0  |
|                     |                     |                   | 205+38 SB - 222+31 SB | SB RT        | 17.0  |
|                     |                     |                   | 225+39 SB - 238+57 SB | SB RT        | 13.0  |
| SUBTOTAL (STAGE 3B) |                     |                   |                       | 76.0         |       |
| TOTAL               |                     |                   |                       | 192.0        |       |

HMA PAVEMENT TEST STRIP ITEMS

| CATEGORY | STATION - STATION | 460.0115.S                               | 460.0120.S                           |
|----------|-------------------|--|--------------------------------------|
|          |                   | HMA PAVEMENT TEST STRIP VOLUMETRICS EACH | HMA PAVEMENT TEST STRIP DENSITY EACH |
| 0010     | 133+89 - 276+16   | 1  | 1                                    |

ASPHALTIC SURFACE PATCHING

| CATEGORY | LOCATION      | 465.0110 | REMARKS       |
|----------|---------------|----------|---------------|
|          |               | TON      |               |
| 0010     | UNDISTRIBUTED | 100      | MINOR REPAIRS |

ASPHALTIC RUMBLE STRIPS, SHOULDER

| CATEGORY            | STAGE | STATION - STATION       | LOCATION | 465.0520 |
|---------------------|-------|-------------------------|----------|----------|
|                     |       |                         |          | LF       |
| 0010                | 5A    | 1675+00 - 1677+50       | LT       | 259      |
|                     |       | 1675+00 SB - 1677+50 SB | RT       | 259      |
| SUBTOTAL (STAGE 5A) |       |                         |          | 518      |
|                     | 5B    | 1675+00 - 1677+50       | RT       | 259      |
|                     |       | 1675+00 SB - 1677+50 SB | LT       | 259      |
| SUBTOTAL (STAGE 5B) |       |                         |          | 518      |
| TOTAL               |       |                         |          | 1,036    |

MATERIAL TRANSFER VEHICLE

| CATEGORY | PROJECT    | 460.9000.S |
|----------|------------|------------|
|          |            | EACH       |
| 0010     | 1150-64-71 | 1          |

BASE PATCHING CONCRETE AND CONCRETE JOINT AND CRACK CLEANING AND REPAIR

| CATEGORY             | STAGE | STATION - STATION | LOCATION       | 390.0100                               | 390.0405                       | 690.0250           | SPV.0090.01                                     | 416.0610              | 416.0620                |
|----------------------|-------|-------------------|----------------|--|--------------------------------|--------------------|---|-----------------------|-------------------------|
|                      |       |                   |                | REMOVING PAVEMENT FOR BASE PATCHING CY | BASE PATCHING CONCRETE SHES CY | SAWING CONCRETE LF | CONCRETE JOINT AND CRACK CLEANING AND REPAIR LF | DRILLED TIE BARS EACH | DRILLED DOWEL BARS EACH |
| 0010                 | 2A    | 133+88 - 184+83   | SB, NB OUTSIDE | 20                                     | 20                             | 35                 | 260   | ---                   | 15                      |
|                      |       | 169+38 - 255+52   | SB, NB OUTSIDE | 15                                     | 15                             | 140                | 390   | 20                    | 95                      |
| SUBTOTALS (STAGE 2A) |       |                   |                | 35                                     | 35                             | 175                | 650   | 20                    | 110                     |
|                      | 2B    | 133+88 - 184+83   | SB, NB INSIDE  | 2                                      | 2                              | 35                 | 310   | ---                   | 15                      |
|                      |       | 169+38 - 255+52   | SB, NB INSIDE  | 9                                      | 9                              | 75                 | 410   | 10                    | 25                      |
| SUBTOTALS (STAGE 2B) |       |                   |                | 11                                     | 11                             | 110                | 720   | 10                    | 40                      |
| UNDISTRIBUTED        |       |                   |                | 23                                     | 23                             | 143                | 685   | 15                    | 75                      |
| TOTALS               |       |                   |                | 69                                     | 69                             | 428                | 2,055   | 45                    | 225                     |

ASPHALTIC FLUMES SUMMARY

| CATEGORY | STATION   | LOCATION | 465.0315            | 631.1000    | 631.0300       |     |
|----------|-----------|----------|---------------------|-------------|----------------|-----|
|          |           |          | ASPHALTIC FLUMES SY | SOD LAWN SY | SOD WATER MGAL |     |
| 0010     | 151+33    | LT       | 5                   | 6           | 0.5            |     |
|          | 152+65    | LT       | 4                   | 8           | 0.7            |     |
|          | 161+50    | LT       | 14                  | 5           | 0.2            |     |
|          | 162+70    | LT       | 4                   | 6           | 0.5            |     |
|          | 170+83    | LT       | 17                  | 5           | 0.2            |     |
|          | 172+14    | LT       | 5                   | 7           | 0.6            |     |
|          | 180+28    | LT       | 3                   | 3           | 0.3            |     |
|          | 205+40    | LT       | 3                   | 4           | 0.4            |     |
|          | 225+45    | LT       | 4                   | 6           | 0.6            |     |
|          | 151+35 SB | RT       | 4                   | 6           | 0.5            |     |
|          | 152+66 SB | RT       | 4                   | 8           | 0.7            |     |
|          | 162+70 SB | RT       | 4                   | 6           | 0.5            |     |
|          | 172+13 SB | RT       | 5                   | 7           | 0.6            |     |
|          | 180+23 SB | RT       | 4                   | 3           | 0.3            |     |
|          | 205+36 SB | RT       | 3                   | 4           | 0.4            |     |
|          | 225+45 SB | RT       | 5                   | 6           | 0.6            |     |
|          | 11+19 W   | LT       | 6                   | 18          | 0.2            |     |
|          | TOTAL     |          |                     | 94          | 108            | 7.8 |

PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE

MISCELLANEOUS QUANTITIES

SHEET:

E

FILE NAME :

PLOT DATE :

PLOT BY :

PLOT NAME :

PLOT SCALE : 1" = 1"

WISDOT/CADD SHEET 42

ASPHALTIC ITEMS

455.0605 460.7224 460.8624 465.0105

| CATEGORY             | STAGE    | STATION - STATION | LOCATION                   | TACK  | HMA PAVEMENT | HMA PAVEMENT  | ASPHALTIC |
|----------------------|----------|-------------------|----------------------------|-------|--------------|---------------|-----------|
|                      |          |                   |                            | COAT  | 4 HT 58-28 S | 4 SMA 58-28 V | SURFACE   |
|                      |          |                   |                            | GAL   | TON          | TON           | TON       |
| 0010                 | STAGE 1  | 1674+91 - 1677+50 | RUMBLE STRIP - SB INSIDE   | 4     | 0            | 0             | 10        |
|                      |          | 1674+91 - 1677+50 | RUMBLE STRIP - NB OUTSIDE  | 4     | 0            | 0             | 10        |
| SUBTOTALS (STAGE 1)  |          |                   |                            | 8     | 0            | 0             | 20        |
|                      | STAGE 2A | 1674+91 - 1677+50 | RUMBLE STRIP - SB OUTSIDE  | 4     | 0            | 0             | 10        |
| SUBTOTALS (STAGE 2A) |          |                   |                            | 4     | 0            | 0             | 10        |
|                      | STAGE 3A | 1674+91 - 1677+50 | RUMBLE STRIP - NB INSIDE   | 4     | 0            | 0             | 10        |
|                      |          | 133+88 - 169+38   | US 41 - NB INSIDE          | 331   | 630          | 0             | 0         |
|                      |          | 133+88 - 169+38   | US 41 - SB INSIDE          | 296   | 440          | 0             | 0         |
|                      |          | 169+38 - 184+83   | US 41 - NB INSIDE          | 129   | 200          | 0             | 0         |
|                      |          | 169+38 - 184+83   | US 41 - SB INSIDE          | 129   | 190          | 0             | 0         |
|                      |          | 184+83 - 241+04   | US 41 - NB INSIDE          | 468   | 680          | 0             | 0         |
|                      |          | 184+83 - 241+04   | US 41 - SB INSIDE          | 656   | 970          | 0             | 0         |
|                      |          | 241+04 - 255+52   | US 41 - NB INSIDE & MEDIAN | 137   | 190          | 0             | 0         |
|                      |          | 241+04 - 255+52   | US 41 - SB INSIDE          | 127   | 170          | 0             | 0         |
|                      |          | 255+52 - 264+44   | US 41 - NB INSIDE          | 110   | 140          | 0             | 0         |
|                      |          | 255+52 - 264+44   | US 41 - SB INSIDE          | 110   | 70           | 0             | 0         |
|                      |          | 264+44 - 274+00   | US 41 - NB&SB LANE         | 178   | 180          | 0             | 0         |
|                      |          | 274+00 - 276+16   | US 41 - NB&SB LANE         | 40    | 40           | 0             | 0         |
|                      |          | 1674+91 - 276+16  | MEDIANS/CROSSOVERS         | 136   | 140          | 0             | 0         |
| SUBTOTALS (STAGE 3A) |          |                   |                            | 2,851 | 4,040        | 0             | 10        |
|                      | STAGE 3B | 1674+91 - 1677+50 | US 41 - NB OUTSIDE         | ---   | 60           | 0             | 0         |
|                      |          | 133+88 - 169+38   | US 41 - NB OUTSIDE         | 237   | 465          | 0             | 0         |
|                      |          | 133+88 - 169+38   | US 41 - SB OUTSIDE         | 237   | 470          | 0             | 0         |
|                      |          | 169+38 - 184+83   | US 41 - NB OUTSIDE         | 129   | 180          | 0             | 0         |
|                      |          | 169+38 - 184+83   | US 41 - SB OUTSIDE         | 129   | 210          | 0             | 0         |
|                      |          | 184+83 - 241+04   | US 41 - NB OUTSIDE         | 375   | 710          | 0             | 0         |
|                      |          | 184+83 - 241+04   | US 41 - SB OUTSIDE         | 656   | 720          | 0             | 0         |
|                      |          | 241+04 - 255+52   | US 41 - NB OUTSIDE         | 121   | 180          | 0             | 0         |
|                      |          | 241+04 - 255+52   | US 41 - SB OUTSIDE         | 121   | 170          | 0             | 0         |
|                      |          | 255+52 - 264+44   | US 41 - NB OUTSIDE         | 83    | 130          | 0             | 0         |
|                      |          | 255+52 - 264+44   | US 41 - SB OUTSIDE         | 83    | 150          | 0             | 0         |
|                      |          | 264+44 - 274+00   | US 41 - NB OUTSIDE         | 89    | 110          | 0             | 0         |
|                      |          | 274+00 - 276+16   | US 41 - NB OUTSIDE         | 20    | 20           | 0             | 0         |
|                      |          | 1674+91 - 276+16  | SIDEROADS                  | 49    | 50           | 0             | 0         |
| SUBTOTALS (STAGE 3B) |          |                   |                            | 2,329 | 3,625        | 0             | 0         |
|                      | STAGE 3C | 264+44 - 274+00   | US 41 - SB OUTSIDE         | 89    | 110          | 0             | 0         |
|                      |          | 274+00 - 276+16   | US 41 - SB OUTSIDE         | 20    | 20           | 0             | 0         |
| SUBTOTALS (STAGE 3C) |          |                   |                            | 109   | 130          | 0             | 0         |
|                      | STAGE 4A | 1674+91 - 1677+50 | US 41 - NB OUTSIDE         | 31    | 0            | 60            | 0         |
|                      |          | 133+88 - 169+38   | US 41 - NB OUTSIDE         | 317   | 0            | 620           | 0         |
|                      |          | 133+88 - 169+38   | US 41 - SB OUTSIDE         | 334   | 0            | 650           | 0         |
|                      |          | 169+38 - 184+83   | US 41 - NB OUTSIDE         | 128   | 0            | 250           | 0         |
|                      |          | 169+38 - 184+83   | US 41 - SB OUTSIDE         | 151   | 0            | 300           | 0         |
|                      |          | 184+83 - 241+04   | US 41 - NB OUTSIDE         | 498   | 0            | 980           | 0         |
|                      |          | 184+83 - 241+04   | US 41 - SB OUTSIDE         | 513   | 0            | 1,010         | 0         |
|                      |          | 241+04 - 255+52   | US 41 - NB OUTSIDE         | 128   | 0            | 250           | 0         |
|                      |          | 241+04 - 255+52   | US 41 - SB OUTSIDE         | 124   | 0            | 240           | 0         |
|                      |          | 255+52 - 264+44   | US 41 - NB OUTSIDE         | 94    | 0            | 180           | 0         |
|                      |          | 255+52 - 264+44   | US 41 - SB OUTSIDE         | 104   | 0            | 200           | 0         |
|                      |          | 264+44 - 274+00   | US 41 - NB OUTSIDE         | 81    | 0            | 160           | 0         |
|                      |          | 274+00 - 276+16   | US 41 - NB OUTSIDE         | 18    | 0            | 30            | 0         |
|                      |          | 1674+91 - 276+16  | SIDEROADS                  | 35    | 0            | 70            | 0         |
| SUBTOTALS (STAGE 4A) |          |                   |                            | 2,556 | 0            | 5,000         | 0         |

CON'T. ON NEXT PAGE

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ASPHALTIC ITEMS (CON'T.)

|                      |          |                   |                            | 455.0605      | 460.7224                      | 460.8624                       | 465.0105              |
|----------------------|----------|-------------------|----------------------------|---------------|-------------------------------|--------------------------------|-----------------------|
| CATEGORY             | STAGE    | STATION - STATION | LOCATION                   | TACK COAT GAL | HMA PAVEMENT 4 HT 58-28 S TON | HMA PAVEMENT 4 SMA 58-28 V TON | ASPHALTIC SURFACE TON |
| 0010                 | STAGE 4B | 264+44 - 274+00   | US 41 - NB OUTSIDE         | 82            | 0                             | 160                            | 0                     |
|                      |          | 274+00 - 276+16   | US 41 - NB OUTSIDE         | 14            | 0                             | 30                             | 0                     |
| SUBTOTALS (STAGE 4B) |          |                   |                            | 96            | 0                             | 190                            | 0                     |
|                      | STAGE 4C | 133+88 - 169+38   | US 41 - NB INSIDE          | 317           | 0                             | 620                            | 0                     |
|                      |          | 133+88 - 169+38   | US 41 - SB INSIDE          | 312           | 0                             | 610                            | 0                     |
|                      |          | 169+38 - 184+83   | US 41 - NB INSIDE          | 146           | 0                             | 290                            | 0                     |
|                      |          | 169+38 - 184+83   | US 41 - SB INSIDE          | 137           | 0                             | 270                            | 0                     |
|                      |          | 184+83 - 241+04   | US 41 - NB INSIDE          | 487           | 0                             | 950                            | 0                     |
|                      |          | 184+83 - 241+04   | US 41 - SB INSIDE          | 489           | 0                             | 960                            | 0                     |
|                      |          | 241+04 - 255+52   | US 41 - NB INSIDE & MEDIAN | 136           | 0                             | 270                            | 0                     |
|                      |          | 241+04 - 255+52   | US 41 - SB INSIDE          | 124           | 0                             | 240                            | 170                   |
|                      |          | 255+52 - 264+44   | US 41 - NB INSIDE          | 97            | 0                             | 190                            | 0                     |
|                      |          | 255+52 - 264+44   | US 41 - SB INSIDE          | 51            | 0                             | 100                            | 0                     |
|                      |          | 264+44 - 274+00   | US 41 - NB&SB LANE         | 127           | 0                             | 250                            | 0                     |
|                      |          | 274+00 - 276+16   | US 41 - NB&SB LANE         | 29            | 0                             | 60                             | 0                     |
|                      |          | 1674+91 - 276+16  | MEDIANS/CROSSOVERS         | 97            | 0                             | 190                            | 0                     |
| SUBTOTALS (STAGE 4C) |          |                   |                            | 2,549         | 0                             | 5,000                          | 170                   |
| TOTALS               |          |                   |                            | 10,502        | 7,795                         | 10,190                         | 210                   |

NOTES: HMA PAVEMENT (TYPE) WEIGHT CALCULATIONS ARE BASED ON 112 LB/(SY\*IN)  
TACK COAT WAS MEASURED AT A RATE OF 0.07 GAL/SY ON MILLED SURFACES AND 0.05 GAL/SY ON NEW SURFACES

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CULVERT PIPE ITEMS

| CATEGORY | STATION - STATION     | LOCATION | 520.1018<br>APRON ENDWALLS<br>FOR CULVERT PIPE<br>18-INCH<br>EACH | 520.8000<br>CONCRETE<br>COLLARS<br>FOR<br>PIPE<br>EACH | 521.1012<br>APRON ENDWALLS<br>FOR CULVERT PIPE<br>STEEL<br>12-INCH<br>EACH | 521.1018<br>APRON ENDWALLS<br>FOR CULVERT PIPE<br>STEEL<br>18-INCH<br>EACH | 521.1036<br>APRON ENDWALLS<br>FOR CULVERT PIPE<br>STEEL<br>36-INCH<br>EACH | 530.0112<br>CULVERT PIPE<br>CORRUGATED<br>POLYETHYLENE<br>12-INCH<br>LF | 530.0118<br>CULVERT PIPE<br>CORRUGATED<br>POLYETHYLENE<br>18-INCH<br>LF | 530.0136<br>CULVERT PIPE<br>CORRUGATED<br>POLYETHYLENE<br>36-INCH<br>LF | 633.5200<br>MARKERS<br>CULVERT<br>END<br>EACH | 650.6000<br>CONSTRUCTION<br>STAKING<br>PIPE<br>CULVERTS<br>EACH |
|----------|-----------------------|----------|---|--|--|--|--|---|---|---|---|---|
| 0010     | 134+99 - 135+15       | LT       | ---   | 1  | 1  | ---  | ---  | 14  | ---   | ---   | 1   | 1   |
|          | 135+25 - 135+41       | LT       | ---   | 1  | 1  | ---  | ---  | 14  | ---   | ---   | 1   | 1   |
|          | 211+87 - 211+97       | LT       | ---   | 1  | 1  | ---  | ---  | 8   | ---   | ---   | 1   | 1   |
|          | 212+07 - 212+17       | LT       | ---   | 1  | 1  | ---  | ---  | 8   | ---   | ---   | 1   | 1   |
|          | 154+00 SB -           | LT       | 1   | ---  | ---  | ---  | ---  | ---   | ---   | ---   | 1   | 1   |
|          | 166+97 SB -           | LT       | 1   | ---  | ---  | ---  | ---  | ---   | ---   | ---   | 1   | 1   |
|          | 211+77 SB - 211+98 SB | LT       | ---   | 1  | ---  | ---  | 1  | ---   | ---   | 16  | 1   | 1   |
|          | 212+08 SB - 212+32 SB | LT       | ---   | 1  | ---  | 1  | ---  | ---   | 22  | ---   | 1   | 1   |
| TOTALS   |                       |          | 2   | 6  | 4  | 1  | 1  | 44  | 22  | 16  | 8   | 8   |

APRON ENDWALL TREATMENT

| CATEGORY | STATION   | LOCATION | 606.0200<br>RIPRAP<br>MEDIUM<br>CY | 645.0120<br>GEOTEXTILE<br>FABRIC HR<br>SY |
|----------|-----------|----------|------------------------------------|---|
| 0010     | 154+00 SB | LT       | 2                                  | 8   |
|          | 166+97 SB | LT       | 2                                  | 8   |
| TOTAL    |           |          | 4                                  | 16  |

ADJUSTING INLET COVERS

| CATEGORY | STATION   | LOCATION | 611.8115<br>EACH |
|----------|-----------|----------|------------------|
| 0010     | 178+99    | LT       | 1                |
|          | 204+17    | LT       | 1                |
|          | 257+03    | LT       | 1                |
|          | 178+94 SB | RT       | 1                |
|          | 204+17 SB | RT       | 1                |
| TOTAL    |           |          | 5                |

MGS GUARDRAIL ITEMS

| CATEGORY | STAGE | STATION - STATION           | LOCATION    | 614.2300<br>MGS<br>GUARDRAIL 3<br>LF | 614.2330<br>MGS<br>GUARDRAIL 3 K<br>LF | 614.2340<br>MGS<br>GUARDRAIL 3 L<br>LF | 614.2610<br>MGS<br>GUARDRAIL TERMINAL EAT<br>EACH | 614.2620<br>MGS<br>GUARDRAIL TERMINAL TYPE 2<br>EACH |
|----------|-------|-----------------------------|-------------|--------------------------------------|--|--|---|--|
| 0010     | 3B    | 1676+09.59 - 1676+62.72     | US 41 NB RT | ---                                  | ---                                    | ---                                    | 1   | ---  |
|          |       | 1676+62.72 - 134+63.88      | US 41 NB RT | 162.5                                | ---                                    | ---                                    | ---   | ---  |
|          |       | 134+63.88 - 135+76.38       | US 41 NB RT | ---                                  | ---                                    | 112.5                                  | ---   | ---  |
|          |       | 135+76.38 - 136+01.38       | US 41 NB RT | 25.0                                 | ---                                    | ---                                    | ---   | ---  |
|          |       | 136+01.38 - 136+15.34       | US 41 NB RT | ---                                  | ---                                    | ---                                    | ---   | 1  |
|          |       | 134+24.34 SB - 134+38.30 SB | US 41 SB LT | ---                                  | ---                                    | ---                                    | ---   | 1  |
|          |       | 134+38.30 SB - 134+63.30 SB | US 41 SB LT | 25.0                                 | ---                                    | ---                                    | ---   | ---  |
|          |       | 134+63.30 SB - 135+75.80 SB | US 41 SB LT | ---                                  | ---                                    | 112.5                                  | ---   | ---  |
|          |       | 135+75.80 SB - 137+50.80 SB | US 41 SB LT | 175.0                                | ---                                    | ---                                    | ---   | ---  |
|          |       | 137+50.80 SB - 138+03.93 SB | US 41 SB LT | ---                                  | ---                                    | ---                                    | 1   | ---  |
|          |       | 209+81.65 - 210+34.77       | US 41 NB RT | ---                                  | ---                                    | ---                                    | 1   | ---  |
|          |       | 210+34.77 - 211+47.27       | US 41 NB RT | ---                                  | 112.5                                  | ---                                    | ---   | ---  |
|          |       | 211+47.27 - 212+59.77       | US 41 NB RT | ---                                  | ---                                    | 112.5                                  | ---   | ---  |
|          |       | 212+59.77 - 212+84.77       | US 41 NB RT | 25.0                                 | ---                                    | ---                                    | ---   | ---  |
|          |       | 212+84.77 - 212+98.73       | US 41 NB RT | ---                                  | ---                                    | ---                                    | ---   | 1  |
| TOTALS   |       |                             |             | 412.5                                | 112.5                                  | 337.5                                  | 3   | 3  |

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CONCRETE CURB AND CONCRETE CURB & GUTTER SUMMARY

| CATEGORY            | STAGE | STATION - STATION           | LOCATION | 601.0415               |               | 601.0557 | SPV.0090.02   | 650.5500 |              |         |
|---------------------|-------|-----------------------------|----------|------------------------|---------------|----------|---------------|----------|--------------|---------|
|                     |       |                             |          | CONCRETE CURB & GUTTER |               |          |               | 18-INCH  | CONSTRUCTION | STAKING |
|                     |       |                             |          | 6-INCH SLOPED          | 6-INCH SLOPED | 30-INCH  | 36-INCH       |          |              |         |
|                     |       |                             |          | TYPE J                 | TYPE D        | TYPE J   | CURB & GUTTER | LF       |              |         |
| 0010                | 3A    | 151+44.62 SB - 151+58.81 SB | LT       | ---                    | 49            | ---      | 49            | 49       |              |         |
|                     |       | 152+20.76 SB - 152+67.35 SB | LT       | ---                    | 52            | ---      | 52            | 52       |              |         |
|                     |       | 161+56.23 SB - 161+84.52 SB | LT       | ---                    | 30            | ---      | 30            | 30       |              |         |
|                     |       | 162+39.13 SB - 162+68.00 SB | LT       | ---                    | 31            | ---      | 31            | 31       |              |         |
|                     |       | 170+85.42 SB - 171+17.84 SB | LT       | ---                    | 37            | ---      | 37            | 37       |              |         |
|                     |       | 171+72.50 SB - 172+15.77 SB | LT       | ---                    | 47            | ---      | 47            | 47       |              |         |
|                     |       | 179+04.61 SB - 179+33.86 SB | LT       | ---                    | 31            | ---      | 31            | 31       |              |         |
|                     |       | 179+87.28 SB - 180+17.01 SB | LT       | ---                    | 31            | ---      | 31            | 31       |              |         |
|                     |       | 10+49.27 CM - 10+68.51 CM   | LT       | ---                    | 34            | ---      | 34            | 34       |              |         |
|                     |       | 10+48.22 CM - 10+68.30 CM   | RT       | ---                    | 35            | ---      | 35            | 35       |              |         |
| SUBTOTALS (STAGE 3) |       |                             |          | 0                      | 377           | 0        | 377           |          |              |         |
| 0010                | 3B    | 151+32.95 SB - 151+33.17    | LT & RT  | 64                     | ---           | ---      | 64            | 64       |              |         |
|                     |       | 152+67.90 SB - 152+67.90 SB | LT & RT  | 105                    | ---           | ---      | 105           | 105      |              |         |
|                     |       | 161+36.82 SB - 161+51.83    | LT & RT  | 85                     | ---           | ---      | 85            | 85       |              |         |
|                     |       | 162+70.18 SB - 162+72.13 SB | LT & RT  | 73                     | ---           | ---      | 73            | 73       |              |         |
|                     |       | 170+80.34 SB - 170+80.05 SB | LT & RT  | 82                     | ---           | ---      | 82            | 82       |              |         |
|                     |       | 172+14.63 SB - 172+15.42 SB | LT & RT  | 105                    | ---           | ---      | 105           | 105      |              |         |
|                     |       | 177+47.56 SB - 177+47.93    | LT & RT  | 365                    | ---           | ---      | 365           | 365      |              |         |
|                     |       | 180+27.68 SB - 180+28.04    | LT & RT  | 63                     | ---           | ---      | 63            | 63       |              |         |
|                     |       | 202+56.24 SB - 204+13.53 SB | LT & RT  | 215                    | ---           | ---      | 215           | 215      |              |         |
|                     |       | 205+34.54 SB - 205+35.65 SB | LT & RT  | 100                    | ---           | ---      | 100           | 100      |              |         |
|                     |       | 222+57.06 SB - 224+35.15 SB | LT & RT  | 190                    | ---           | ---      | 190           | 190      |              |         |
|                     |       | 225+34.91 SB - 225+35.63    | LT & RT  | 100                    | ---           | ---      | 100           | 100      |              |         |
|                     |       | 238+57.46 SB - 255+51.94    | LT       | ---                    | ---           | 1,700    | 1,700         | 1,700    |              |         |
|                     |       | 256+99.72 SB - 257+05.72    | LT       | ---                    | ---           | 6        | 6             | 6        |              |         |
|                     |       | 260+02.81 SB - 260+08.81    | LT       | ---                    | ---           | 6        | 6             | 6        |              |         |
|                     |       | 262+26.09 SB - 262+32.09    | LT       | ---                    | ---           | 6        | 6             | 6        |              |         |
|                     |       | 241+04.00 SB - 255+52.01 SB | RT       | ---                    | ---           | 1,450    | 1,450         | 1,450    |              |         |
| SUBTOTALS (STAGE 4) |       |                             |          | 1,547                  | 0             | 3,168    | 4,715         |          |              |         |
| TOTALS              |       |                             |          | 1,547                  | 377           | 3,168    | 5,092         |          |              |         |

MAINTENANCE AND REPAIR OF HAUL ROADS

| CATEGORY | PROJECT    | 618.0100 EACH |
|----------|------------|---------------|
| 0010     | 1150-64-71 | 1             |

MOBILIZATION

| CATEGORY | PROJECT    | 619.1000 EACH |
|----------|------------|---------------|
| 0010     | 1150-64-71 | 1             |

CONCRETE MEDIAN SLOPED NOSE

| CATEGORY | STATION   | LOCATION | 620.0300 | REMARKS |
|----------|-----------|----------|----------|---------|
|          |           |          | SF       |         |
| 0010     | 259+77    | LT       | 85       | TYPE 1  |
|          | 257+91 SB | RT       | 35       | TYPE 1  |
| TOTAL    |           |          | 120      |         |

MOBILIZATIONS EROSION CONTROL

| CATEGORY | STAGE | 628.1905                           | 628.1910                                     |
|----------|-------|------------------------------------|--|
|          |       | MOBILIZATIONS EROSION CONTROL EACH | MOBILIZATIONS EMERGENCY EROSION CONTROL EACH |
| 0010     | 1     | 1                                  | 1  |
|          | 2     | 2                                  | 2  |
|          | 3     | 3                                  | 3  |
|          | 4     | 3                                  | 3  |
|          | 5     | 1                                  | 1  |
| TOTALS   |       | 10                                 | 10   |

EROSION MAT URBAN CLASS 1 TYPE B

| CATEGORY      | STATION - STATION | LOCATION | 628.2008 |
|---------------|-------------------|----------|----------|
|               |                   |          | SY       |
| 0010          | 1676+50 - 136+50  | RT       | 475      |
|               | 211+00 - 213+00   | RT       | 105      |
| UNDISTRIBUTED |                   |          | 145      |
| TOTAL         |                   |          | 725      |

TRACKING PADS

| CATEGORY | LOCATION                       | 628.7560 |
|----------|--------------------------------|----------|
|          |                                | EACH     |
| 0010     | PAVEMENT/GUARDRAIL REPLACEMENT | 5        |
|          | WASTE SITE                     | 1        |
| TOTAL    |                                | 6        |

CULVERT PIPE CHECKS

| CATEGORY | STATION   | LOCATION | 628.7555 |
|----------|-----------|----------|----------|
|          |           |          | EACH     |
| 0010     | 134+90    | MEDIAN   | 3        |
|          | 135+52    | MEDIAN   | 3        |
|          | 154+00    | MEDIAN   | 3        |
|          | 167+00    | MEDIAN   | 3        |
|          | 176+00    | MEDIAN   | 3        |
|          | 211+82    | MEDIAN   | 3        |
|          | 212+25    | MEDIAN   | 3        |
|          | 211+65 SB | LT       | 6        |
|          | 212+42 SB | LT       | 4        |
|          | 226+50    | MEDIAN   | 3        |
| TOTAL    |           |          | 34       |

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SILT FENCE

| CATEGORY | STATION      | - | STATION      | LOCATION | 628.1504      | 628.1520                  | 628.1530.S               | 628.1535.S                           |
|----------|--------------|---|--------------|----------|---------------|---------------------------|--------------------------|--------------------------------------|
|          |              |   |              |          | SILT FENCE LF | SILT FENCE MAINTENANCE LF | SILT FENCE HEAVY DUTY LF | SILT FENCE HEAVY DUTY MAINTENANCE LF |
| 0010     | 1674+91.11   | - | 135+10.92    | RT       | ---           | ---                       | 380                      | 760                                  |
|          | 135+46.81    | - | 136+87.24    | RT       | ---           | ---                       | 140                      | 280                                  |
|          | 209+11       | - | 211+94       | RT       | 285           | 565                       | ---                      | ---                                  |
|          | 212+11       | - | 213+55       | RT       | 145           | 290                       | ---                      | ---                                  |
|          | 133+88.67 SB | - | 134+98.88 SB | LT       | ---           | ---                       | 110                      | 220                                  |
|          | 135+32.15 SB | - | 139+07.93 SB | LT       | ---           | ---                       | 375                      | 750                                  |
| TOTALS   |              |   |              |          | 430           | 855                       | 1,005                    | 2,010                                |

FINISHING SUMMARY

| CATEGORY | STATION -     | STATION   | LOCATION | 625.0500            | 627.0200    | 629.0210              | 630.0120                  | 630.0200             | 630.0300              | 630.0500        |
|----------|---------------|-----------|----------|---------------------|-------------|-----------------------|---------------------------|----------------------|-----------------------|-----------------|
|          |               |           |          | SALVAGED TOPSOIL SY | MULCHING SY | FERTILIZER TYPE B CWT | SEEDING MIXTURE NO. 20 LB | SEEDING TEMPORARY LB | SEEDING BORROW PIT LB | SEED WATER MGAL |
| 0010     | 1674+91 -     | 136+85    | RT       | 340                 | 225         | 0.2                   | 19                        | 19                   | ---                   | 17              |
|          | 169+38 -      | 179+23    | LT       | ---                 | ---         | 0.3                   | 15                        | 15                   | ---                   | 13              |
|          | 169+38 -      | 209+12    | RT       | ---                 | ---         | 1.3                   | 55                        | 55                   | ---                   | 49              |
|          | 180+11 -      | 204+37    | LT       | ---                 | ---         | 0.8                   | 36                        | 36                   | ---                   | 32              |
|          | 205+18 -      | 224+37    | LT       | ---                 | ---         | 0.7                   | 28                        | 28                   | ---                   | 25              |
|          | 209+12 -      | 213+69    | RT       | 195                 | 305         | 0.1                   | 11                        | 11                   | ---                   | 10              |
|          | 213+69 -      | 239+60    | RT       | ---                 | ---         | 0.8                   | 36                        | 36                   | ---                   | 32              |
|          | 255+18 -      | 238+10    | LT       | ---                 | ---         | 0.4                   | 19                        | 19                   | ---                   | 17              |
|          | 240+15 -      | 255+52    | RT       | ---                 | ---         | 0.5                   | 21                        | 21                   | ---                   | 19              |
|          | 1677+50 SB -  | 138+94 SB | LT & RT  | 610                 | 610         | 0.3                   | 29                        | 29                   | ---                   | 27              |
|          | 138+94 SB -   | 151+45 SB | LT & RT  | ---                 | ---         | 0.8                   | 36                        | 36                   | ---                   | 32              |
|          | 152+68 SB -   | 161+56 SB | LT & RT  | ---                 | ---         | 0.6                   | 25                        | 25                   | ---                   | 23              |
|          | 162+68 SB -   | 170+85 SB | LT & RT  | ---                 | ---         | 0.5                   | 23                        | 23                   | ---                   | 21              |
|          | 172+16 SB -   | 179+05 SB | LT & RT  | ---                 | ---         | 0.5                   | 20                        | 20                   | ---                   | 18              |
|          | 180+17 SB -   | 184+83 SB | LT & RT  | ---                 | ---         | 0.2                   | 6                         | 6                    | ---                   | 6               |
|          | 241+04 SB -   | 255+52 SB | LT & RT  | ---                 | ---         | 0.5                   | 20                        | 20                   | ---                   | 18              |
|          | WASTE SITE    |           |          | ---                 | ---         | ---                   | ---                       | ---                  | 10                    | 10              |
|          | UNDISTRIBUTED |           |          | ---                 | 285         | 2.1                   | 100                       | 100                  | 3                     | 90              |
| TOTALS   |               |           |          | 1,145               | 1,425       | 10.6                  | 499                       | 499                  | 13                    | 459             |

INLET PROTECTION

| CATEGORY | STATION   | LOCATION        | 628.7005    | 628.7015    | 628.7020    |
|----------|-----------|-----------------|-------------|-------------|-------------|
|          |           |                 | TYPE A EACH | TYPE C EACH | TYPE D EACH |
| 0010     | 178+96    | MEDIAN          | 1           | 1           | ---         |
|          | 179+00    | MEDIAN          | 1           | 1           | ---         |
|          | 202+10    | MEDIAN          | 1           | ---         | 1           |
|          | 204+18    | MEDIAN          | 1           | 1           | ---         |
|          | 204+18    | MEDIAN          | 1           | 1           | ---         |
|          | 241+25    | MEDIAN          | 1           | 1           | ---         |
|          | 241+25    | MEDIAN          | 1           | 1           | ---         |
|          | 256+31    | CONCRETE MEDIAN | 1           | ---         | 1           |
|          | 257+06    | CONCRETE MEDIAN | ---         | 1           | ---         |
|          | 261+26    | CONCRETE MEDIAN | ---         | 1           | ---         |
|          | 263+00    | CONCRETE MEDIAN | 1           | ---         | 1           |
|          | 278+35    | RT              | ---         | 1           | ---         |
|          | 279+60    | RT              | ---         | 1           | ---         |
|          | 279+65    | CONCRETE MEDIAN | ---         | 1           | ---         |
|          | 279+65    | CONCRETE MEDIAN | ---         | 1           | ---         |
|          | 279+66    | NB RT           | ---         | 1           | ---         |
|          | 257+27 SB | LT              | ---         | 1           | ---         |
|          | 279+54 SB | LT              | ---         | 1           | ---         |
|          | 279+61 SB | LT              | ---         | 1           | ---         |
|          | 49+50 T   | RT              | ---         | 1           | ---         |
| TOTALS   |           |                 | 9           | 17          | 3           |

FIELD OFFICE TYPE C

| CATEGORY | PROJECT    | 642.5201 |
|----------|------------|----------|
|          |            | EACH     |
| 0010     | 1150-64-71 | 1        |

PERMANENT SIGNING SUMMARY

| CATEGORY | SIGN NO. | APPROX. STA.  | LOC. | SIGN CODE | SIGN MESSAGE                      | SIGN SIZE (W x H) IN | 637.2210                      | 637.2230                      | 634.0614                    | 638.2602                    | 638.3000                          |
|----------|----------|---------------|------|-----------|-----------------------------------|----------------------|-------------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|
|          |          |               |      |           |                                   |                      | SIGNS TYPE II REFLECTIVE H SF | SIGNS TYPE II REFLECTIVE F SF | POSTS 4x6-INCH X 14-FT EACH | REMOVING SIGNS TYPE II EACH | REMOVING SMALL SIGN SUPPORTS EACH |
| 0010     | 1        | 8+17FR        | LT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 2        | 7+73FR        | RT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 3        | 6+62FR        | RT   | W10-1     | RAILROAD CROSSING                 | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 4        | 6+62FR        | RT   | W10-11    | CROSS ROAD TRACKS LEFT/RIGHT SIDE | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 10       | 50+70T        | RT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 11       | 51+60T        | LT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 12       | 52+69T        | LT   | W10-1     | RAILROAD CROSSING                 | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 13       | 52+69T        | LT   | W10-11    | CROSS ROAD TRACKS LEFT/RIGHT SIDE | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 14       | 49+25T        | RT   | W10-1     | RAILROAD CROSSING                 | 36 x 36              | ---                           | ---                           | ---                         | 1                           | 1                                 |
|          | 15       | CTH T         | RT   | W10-2     | CROSS ROAD TRACKS LEFT/RIGHT SIDE | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 16       | CTH T         | RT   | W10-1     | RAILROAD CROSSING                 | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 17       | CTH T         | RT   | W10-2     | CROSS ROAD TRACKS LEFT/RIGHT SIDE | 36 x 36              | ---                           | ---                           | ---                         | 1                           | 1                                 |
|          | 18       | CLEVELAND AVE | LT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 19       | CLEVELAND AVE | RT   | R8-8      | DO NOT STOP ON TRACKS             | 24 x 30              | 5.00                          | ---                           | 1                           | ---                         | ---                               |
|          | 20       | CLEVELAND AVE | RT   | W10-11    | CROSS ROAD TRACKS LEFT/RIGHT SIDE | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
|          | 21       | CLEVELAND AVE | RT   | W10-1     | RAILROAD CROSSING                 | 36 x 36              | ---                           | 9.00                          | 1                           | ---                         | ---                               |
| TOTALS   |          |               |      |           |                                   |                      | 30.00                         | 72.00                         | 14                          | 2                           | 2                                 |

TRAFFIC CONTROL COVERING SIGNS SUMMARY

| CATEGORY | STAGE    | LOCATION                  | NUMBER OF CYCLES | NUMBER OF SIGNS | 643.0920 TYPE II EACH |
|----------|----------|---------------------------|------------------|-----------------|-----------------------|
| 0010     | STAGE 1  | USH 41 SB                 | 3                | 2               | 6                     |
|          | STAGE 1  | USH 41 NB SPEED REDUCTION | 3                | 4               | 12                    |
|          | STAGE 2A | USH 41 NB & SB            | 5                | 4               | 20                    |
|          | STAGE 2A | USH 41 NB SPEED REDUCTION | 5                | 4               | 20                    |
|          | STAGE 2B | USH 41 NB & SB            | 3                | 4               | 12                    |
|          | STAGE 2B | USH 41 NB SPEED REDUCTION | 3                | 4               | 12                    |
|          | STAGE 3A | USH 41 SB                 | 9                | 4               | 36                    |
|          | STAGE 3A | USH 41 NB SPEED REDUCTION | 9                | 4               | 36                    |
|          | STAGE 3B | USH 41 NB & SB            | 28               | 4               | 112                   |
|          | STAGE 3B | USH 41 NB SPEED REDUCTION | 28               | 4               | 112                   |
|          | STAGE 4A | USH 41 NB & SB            | 8                | 4               | 32                    |
|          | STAGE 4A | USH 41 NB SPEED REDUCTION | 8                | 4               | 32                    |
|          | STAGE 4B | USH 41 SB                 | 4                | 4               | 16                    |
|          | STAGE 4B | USH 41 NB SPEED REDUCTION | 4                | 4               | 16                    |
|          | STAGE 5A | USH 41 NB & SB            | 2                | 4               | 8                     |
|          | STAGE 5A | USH 41 NB SPEED REDUCTION | 2                | 4               | 8                     |
|          | STAGE 5B | USH 41 SB                 | 2                | 4               | 8                     |
|          | STAGE 5B | USH 41 NB SPEED REDUCTION | 2                | 4               | 8                     |
| TOTAL    |          |                           |                  |                 | 506                   |

TRAFFIC CONTROL SIGNS PCMS

| CATEGORY | STAGE | DURATION | LOCATION                         | EACH | 643.1050 DAY |
|----------|-------|----------|----------------------------------|------|--------------|
|          | 1     | 7        | USH 41 NB AND SB PROJECT STARTUP | 2    | 14           |
| 0010     | 3A    | 7        | USH 41/CTH T INTERSECTION        | 2    | 14           |
|          | 3B    | 7        | USH 41/CTH T INTERSECTION        | 2    | 14           |
|          | 4B    | 7        | USH 41/CTH T INTERSECTION        | 2    | 14           |
|          | 4C    | 7        | USH 41/CTH T INTERSECTION        | 2    | 14           |
| TOTAL    |       |          |                                  |      | 70           |

TRAFFIC CONTROL

| CATEGORY | PROJECT    | 643.5000 EACH |
|----------|------------|---------------|
| 0010     | 1150-64-71 | 1             |

PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE

MISCELLANEOUS QUANTITIES

SHEET:

E

FILE NAME :

PLOT DATE :

PLOT BY :

PLOT NAME :

PLOT SCALE : 1" = 1"

WISDOT/CADD SHEET 42



TRAFFIC CONTROL SUMMARY

| CATEGORY | STAGE | DURATION<br>DAYS | LOCATION | 643.0300 |       | 643.0420   |       | 643.0500         |        | 643.0600 |      | 643.0705       |       | 643.0715       |      | 643.0800     |       | 643.0900 |        | 643.1070 |      | 643.1205.S  |      |
|----------|-------|------------------|----------|----------|-------|------------|-------|------------------|--------|----------|------|----------------|-------|----------------|------|--------------|-------|----------|--------|----------|------|-------------|------|
|          |       |                  |          | DRUMS    |       | BARRICADES |       | FLEXIBLE TUBULAR |        | MARKER   |      | WARNING LIGHTS |       | WARNING LIGHTS |      | ARROW BOARDS |       | SIGNS    |        | CONES    |      | BASIC QUEUE |      |
|          |       |                  |          | EACH     | DAY   | TYPE III   | POSTS | BASES            | TYPE A | TYPE C   | EACH | DAY            | EACH  | DAY            | EACH | DAY          | EACH  | DAY      | EACH   | DAY      | EACH | DAY         | EACH |
| 0010     | 1     | 3                | USH 41   | 41       | 123   | 3          | 9     | 0                | 0      | 6        | 18   | 41             | 123   | 4              | 12   | 28           | 84    | 100      | 300    | 1        | 3    |             |      |
|          | 2A    | 5                | USH 41   | 24       | 120   | 21         | 105   | 0                | 0      | 42       | 210  | 24             | 120   | 3              | 15   | 75           | 375   | 368      | 1,840  | 1        | 5    |             |      |
|          | 2B    | 3                | USH 41   | 25       | 75    | 19         | 57    | 0                | 0      | 16       | 48   | 24             | 72    | 3              | 9    | 60           | 180   | 354      | 1,062  | 1        | 3    |             |      |
|          | 3A    | 9                | USH 41   | 97       | 873   | 40         | 360   | 0                | 0      | 50       | 0    | 38             | 342   | 2              | 18   | 106          | 954   | 582      | 5,238  | 1        | 9    |             |      |
|          | 3B    | 28               | USH 41   | 46       | 1,288 | 45         | 1,260 | 26               | 26     | 72       | 0    | 46             | 1,288 | 5              | 140  | 117          | 3,276 | 596      | 16,688 | 1        | 28   |             |      |
|          | 3C    | 28               | USH 41   | 21       | 588   | 16         | 448   | 31               | 31     | 20       | 0    | 21             | 588   | 1              | 28   | 33           | 924   | 116      | 3,248  | 0        | 0    |             |      |
|          | 4A    | 8                | USH 41   | 69       | 552   | 35         | 280   | 31               | 31     | 72       | 0    | 69             | 552   | 6              | 48   | 92           | 736   | 506      | 4,048  | 1        | 8    |             |      |
|          | 4B    | 4                | USH 41   | 12       | 48    | 26         | 104   | 26               | 26     | 30       | 0    | 12             | 48    | 0              | 0    | 54           | 216   | 211      | 844    | 0        | 0    |             |      |
|          | 4C    | 4                | USH 41   | 97       | 388   | 40         | 160   | 0                | 0      | 50       | 0    | 38             | 152   | 2              | 8    | 106          | 424   | 582      | 2,328  | 1        | 4    |             |      |
|          | 5A    | 2                | USH 41   | 24       | 48    | 21         | 42    | 0                | 0      | 42       | 0    | 24             | 48    | 3              | 6    | 70           | 140   | 373      | 746    | 1        | 2    |             |      |
|          | 5B    | 2                | USH 41   | 25       | 50    | 19         | 38    | 0                | 0      | 16       | 0    | 24             | 48    | 3              | 6    | 60           | 120   | 359      | 718    | 1        | 2    |             |      |
| TOTALS   |       |                  |          | 4,153    |       | 2,863      |       | 114              | 114    | 276      |      | 3,381          |       | 290            |      | 7,429        |       | 37,060   |        | 64       |      |             |      |

MARKING LINE EPOXY 6-INCH

| CATEGORY  | STATION   | - | STATION   | LOCATION       | 646.2020 |          |                 |                              |
|-----------|-----------|---|-----------|----------------|----------|----------|-----------------|------------------------------|
|           |           |   |           |                | (WHITE)  | (YELLOW) | (DOUBLE YELLOW) | (WHITE)                      |
|           |           |   |           |                | LF       | LF       | LF              | (12.5' SEG, 37.5' GAP)<br>LF |
| 0010      | 259+50 NB | - | 274+04 NB | RT             | 1,455    | ---      | ---             | ---                          |
|           | 259+77 NB | - | 265+09 NB | CL/RT          | ---      | 535      | ---             | ---                          |
|           | 259+77 SB | - | 265+09 NB | CL/LT          | ---      | 535      | ---             | ---                          |
|           | 259+77 NB | - | 280+88 NB | RT             | ---      | ---      | ---             | 530                          |
|           | 259+77 SB | - | 280+42 NB | LT             | ---      | ---      | ---             | 515                          |
|           | 260+13 NB | - | 276+16 NB | LT             | 1,605    | ---      | ---             | ---                          |
|           | 265+09 NB | - | 276+68 NB | CL             | ---      | ---      | ---             | 2,320                        |
|           | 276+68 NB | - | 277+42 NB | RT             | 75       | ---      | ---             | ---                          |
|           | 276+68 SB | - | 280+60 NB | LT             | 395      | ---      | ---             | ---                          |
|           | 282+26 NB | - | 285+28 NB | LT             | ---      | ---      | ---             | 75                           |
|           | 10+47 CM  | - | 10+80 CM  | CL             | ---      | 35       | ---             | ---                          |
|           | 49+26 T   | - | 49+43 T   | CL             | ---      | ---      | 35              | ---                          |
|           | 49+33 T   | - | 49+51 T   | CL             | ---      | ---      | ---             | 5                            |
|           | 50+55 T   | - | 51+18 T   | CL             | ---      | ---      | ---             | 28                           |
|           | 50+62 T   | - | 51+26 T   | CL             | ---      | ---      | 130             | ---                          |
|           | 51+19 T   | - | ---       | LT & RT        | 66       | ---      | ---             | ---                          |
|           | 51+40 T   | - | ---       | LT & RT        | 59       | ---      | ---             | ---                          |
|           | ---       | - | ---       | CLEVELAND AVE. | 260      | ---      | ---             | ---                          |
| SUBTOTALS |           |   |           |                | 3,915    | 1,105    | 165             | 3,473                        |
| TOTALS    |           |   |           |                | 8,658    |          |                 |                              |

MARKING REMOVAL LINE SUMMARY

| CATEGORY | STAGE | STATION            | -           | STATION | LOCATION | DESCRIPTION   | 646.9000     | 646.9002     |
|----------|-------|--------------------|-------------|---------|----------|---------------|--------------|--------------|
|          |       |                    |             |         |          |               | 4-INCH<br>LF | 6-INCH<br>LF |
| 0010     | 2A    | 152+55             | -           | 159+15  | RT       | CENTERLINE    | 165          | --           |
|          | 2A    | 270+83             | -           | 273+28  | LT       | CENTERLINE    | 61           | ---          |
|          | 2B    | 152+90             | -           | 159+50  | RT       | MERGING TAPER | 660          | ---          |
|          | 2B    | 265+75             | -           | 268+20  | LT       | CENTERLINE    | 61           | ---          |
|          | 2B    | 270+83             | -           | 273+28  | LT       | MERGING TAPER | ---          | 245          |
|          | 3A    | USH 41/BUSINESS 41 | INTERCHANGE | NB      |          | CENTERLINE    | 165          | ---          |
|          | 3B    | USH 41/BUSINESS 41 | INTERCHANGE | NB      |          | MERGING TAPER | ---          | 660          |
|          | 3B    | 1663+27            | -           | 1672+02 | NB       | CENTERLINE    | 219          | ---          |
|          | 3C    | 264+40             | -           | 276+63  | NB       | CENTERLINE    | 305          | ---          |
|          | 3C    | 264+40             | -           | 276+63  | -        | DOUBLE YELLOW | 2,446        | ---          |
|          | 3C    | 282+35             | -           | 285+25  | SB       | CENTERLINE    | 73           | ---          |
|          | 4C    | USH 41/BUSINESS 41 | INTERCHANGE | NB      |          | MERGING TAPER | ---          | 660          |
| TOTALS   |       |                    |             |         |          |               | 4,155        | 1,565        |

MARKING LINE GROOVED WET REFLECTIVE EPOXY

| CATEGORY  | STATION    | - | STATION   | LOCATION | 646.2040                |                          |  |
|-----------|------------|---|-----------|----------|-------------------------|--------------------------|--|
|           |            |   |           |          | 6-INCH<br>(WHITE)<br>LF | 6-INCH<br>(YELLOW)<br>LF | 6-INCH<br>(WHITE) (3' SEG, 9' GAP)<br>LF |
| 0010      | 1674+87 SB | - | 151+55 SB | RT       | ---                     | 2,015                    | ---                                      |
|           | 1674+91 NB | - | 159+58 NB | RT       | 2,830                   | ---                      | ---                                      |
|           | 133+50 SB  | - | 151+47 SB | LT       | 1,760                   | ---                      | ---                                      |
|           | 133+89 NB  | - | 151+33 NB | LT       | ---                     | 1,745                    | ---                                      |
|           | 152+54 NB  | - | 161+52 NB | LT       | ---                     | 800                      | ---                                      |
|           | 152+35 SB  | - | 161+31 SB | RT       | ---                     | 895                      | ---                                      |
|           | 152+67 SB  | - | 154+56 SB | LT       | ---                     | ---                      | 50                                       |
|           | 154+56 SB  | - | 161+56 SB | LT       | 700                     | ---                      | ---                                      |
|           | 159+58 NB  | - | 161+35 NB | RT       | ---                     | ---                      | 45                                       |
|           | 162+65 NB  | - | 239+47 NB | LT       | 7,690                   | ---                      | ---                                      |
|           | 162+68 SB  | - | 164+44 SB | LT       | ---                     | ---                      | 45                                       |
|           | 162+68 SB  | - | 170+98 SB | RT       | ---                     | 885                      | ---                                      |
|           | 162+86 NB  | - | 170+80 NB | LT       | ---                     | 760                      | ---                                      |
|           | 164+44 SB  | - | 170+85 SB | LT       | 645                     | ---                      | ---                                      |
|           | 171+81 SB  | - | 179+17 SB | RT       | ---                     | 735                      | ---                                      |
|           | 172+15 NB  | - | 179+11 NB | LT       | ---                     | 700                      | ---                                      |
|           | 172+15 SB  | - | 173+90 SB | LT       | ---                     | ---                      | 45                                       |
|           | 173+90 SB  | - | 179+05 SB | LT       | 515                     | ---                      | ---                                      |
|           | 180+07 SB  | - | 204+37 SB | RT       | ---                     | 2,425                    | ---                                      |
|           | 180+18 SB  | - | 181+69 SB | LT       | ---                     | ---                      | 40                                       |
|           | 180+28 NB  | - | 204+21 NB | LT       | ---                     | 2,698                    | ---                                      |
|           | 181+69 SB  | - | 204+24 SB | LT       | 2,250                   | ---                      | ---                                      |
|           | 203+13 NB  | - | 204+21 NB | LT       | ---                     | ---                      | ---                                      |
|           | 204+39 NB  | - | 257+54 NB | RT       | 1,715                   | ---                      | ---                                      |
|           | 205+19 SB  | - | 224+35 SB | RT       | ---                     | 1,915                    | ---                                      |
|           | 205+31 SB  | - | 206+45 SB | LT       | ---                     | ---                      | 30                                       |
|           | 225+31 SB  | - | 227+15 SB | LT       | ---                     | ---                      | 45                                       |
|           | 205+35 NB  | - | 224+19 NB | LT       | ---                     | 1,885                    | ---                                      |
|           | 206+44 SB  | - | 224+26 SB | LT       | 1,780                   | ---                      | ---                                      |
|           | 225+17 SB  | - | 257+92 SB | RT       | ---                     | 3,260                    | ---                                      |
|           | 225+36 NB  | - | 257+91 NB | LT       | ---                     | 3,260                    | ---                                      |
|           | 227+15 SB  | - | 239+48 SB | LT       | 1,235                   | ---                      | ---                                      |
|           | 240+47 SB  | - | 242+66 SB | LT       | ---                     | ---                      | 55                                       |
|           | 242+66 SB  | - | 256+64 SB | LT       | 1,395                   | ---                      | ---                                      |
| SUBTOTALS |            |   |           |          | 22,515                  | 23,978                   | 355                                      |
| TOTAL     |            |   |           |          | 46,848                  |                          |  |

TEMPORARY MARKING LINE REMOVABLE TAPE

| CATEGORY             | STAGE | STATION                        | - | STATION | LOCATION           | 643.3180                |                          | 643.3280                 |
|----------------------|-------|--------------------------------|---|---------|--------------------|-------------------------|--------------------------|--------------------------|
|                      |       |                                |   |         |                    | 6-INCH<br>(WHITE)<br>LF | 6-INCH<br>(YELLOW)<br>LF | 10-INCH<br>(WHITE)<br>LF |
| 0010                 | 2B    | 270+83                         | - | 273+28  | CENTERLINE LT      | 60                      | ---                      | ---                      |
| SUBTOTALS (STAGE 2A) |       |                                |   |         |                    | 60                      | 0                        | 0                        |
|                      | 3A    | USH 41/BUSINESS 41 INTERCHANGE |   |         | NB MERGING TAPER   | ---                     | 660                      | ---                      |
|                      |       | 276+16                         | - | 280+62  | SB EDGELINE        | ---                     | 446                      | ---                      |
| SUBTOTALS (STAGE 3A) |       |                                |   |         |                    | 0                       | 1,106                    | 0                        |
|                      | 3B    | USH 41/BUSINESS 41 INTERCHANGE |   |         | NB MERGING TAPER   | 660                     | ---                      | ---                      |
|                      |       | 1656+50                        | - | 1661+77 | RAMP MERGING TAPER | ---                     | 677                      | ---                      |
|                      |       | 1659+77                        | - | 1661+77 | RAMP EDGELINE      | 350                     | ---                      | ---                      |
|                      |       | 1661+77                        | - | 1663+27 | NB                 | ---                     | ---                      | 300                      |
|                      |       | 1663+27                        | - | 1666+00 | NB LANE LINE       | 91                      | ---                      | ---                      |
|                      |       | 1668+97                        | - | 1672+02 | NB MERGING TAPER   | 300                     | ---                      | ---                      |
|                      |       | 264+41                         | - | 265+63  | LT                 | 121                     | ---                      | ---                      |
|                      |       | 260+00                         | - | 278+46  | RT                 | 1,845                   | ---                      | ---                      |
|                      |       | 264+40                         | - | 276+16  | CENTERLINE         | ---                     | 2,352                    | ---                      |
|                      |       | 276+16                         | - | 278+46  | NB EDGELINE        | 230                     | ---                      | ---                      |
|                      |       | 276+16                         | - | 278+46  | NB LANE LINE       | ---                     | 230                      | ---                      |
|                      |       | 276+16                         | - | 280+04  | SB EDGELINE        | ---                     | 388                      | ---                      |
| SUBTOTALS (STAGE 3B) |       |                                |   |         |                    | 3,597                   | 3,647                    | 300                      |
|                      | 3C    | 264+40                         | - | 280+10  | LT                 | 1,177                   | ---                      | ---                      |
|                      |       | 264+40                         | - | 276+63  | RT                 | 1,223                   | ---                      | ---                      |
|                      |       | 264+40                         | - | 276+16  | CENTERLINE         | ---                     | 2,352                    | ---                      |
|                      |       | 276+16                         | - | 278+44  | CENTERLINE         | ---                     | 456                      | ---                      |
|                      |       | 276+16                         | - | 280+10  | SB EDGELINE        | 394                     | ---                      | ---                      |
|                      |       | 282+35                         | - | 285+45  | SB MERGING TAPER   | 310                     | ---                      | ---                      |
| SUBTOTALS (STAGE 3C) |       |                                |   |         |                    | 3,104                   | 2,808                    | 0                        |
| UNDISTRIBUTED        |       |                                |   |         |                    | 1,690                   | 1,890                    | 75                       |
| TOTALS               |       |                                |   |         |                    | 17,902                  |                          | 375                      |

3

3

PAVEMENT MARKING ITEMS

| CATEGORY | STATION    | - | STATION    | LOCATION          | 646.2025   | 646.2050   | 646.4020   | 646.4040   | 646.4050   | 646.5020   |  | 646.5120                                    | 646.5320   | 646.6120  | 646.7120   | 646.8120                                       | 646.8220                                   |  |
|----------|------------|---|------------|-------------------|--|--|--|--|--|--|--|---|--|---|--|--|--|--|
|          |            |   |            |                   | MARKING LINE<br>GROOVED<br>BLACK EPOXY<br>6-INCH<br>(DASHED)<br>(12.5'SEG, 37.5'GAP)<br>LF | MARKING LINE<br>GROOVED<br>PERMANENT TAPE<br>6-INCH<br>(12.5'SEG, 37.5'GAP)<br>(WHITE)<br>LF | MARKING<br>LINE<br>EPOXY<br>10-INCH<br>(WHITE)<br>LF | MARKING LINE<br>GROOVED WET<br>REFLECTIVE<br>EPOXY<br>10-INCH<br>(WHITE)<br>LF | MARKING<br>LINE<br>GROOVED<br>PERMANENT TAPE<br>10-INCH<br>(WHITE)<br>LF | MARKING<br>ARROW<br>EPOXY<br>TYPE 2<br>(WHITE)<br>EACH | MARKING<br>ARROW<br>EPOXY<br>TYPE 3<br>(WHITE)<br>EACH | MARKING<br>WORD<br>EPOXY<br>(WHITE)<br>EACH | MARKING<br>RAILROAD<br>CROSSING<br>EPOXY<br>EACH | MARKING<br>STOP LINE<br>EPOXY<br>18-INCH<br>(WHITE)<br>LF | MARKING<br>DIAGONAL<br>EPOXY<br>12-INCH<br>(WHITE)<br>LF | MARKING<br>DIAGONAL<br>EPOXY<br>(YELLOW)<br>LF | MARKING<br>CURB<br>EPOXY<br>(YELLOW)<br>LF | MARKING<br>ISLAND<br>NOSE<br>EPOXY<br>(YELLOW)<br>EACH |
| 0010     | ---        | - | ---        | 900' PRIOR TO BOP | 165  | 165  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 1664+00 NB | - | 1672+11 NB | RT                | 205  | 205  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 133+89 NB  | - | 257+92 NB  | RT                | 3,100  | 3,100  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 133+89 SB  | - | 257+92 SB  | LT                | 3,100  | 3,100  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 150+28 NB  | - | 151+33 NB  | LT                | ---  | ---  | ---  | ---  | 105  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 162+68 SB  | - | 163+53 SB  | LT                | ---  | ---  | ---  | ---  | 85   | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 169+86 NB  | - | 170+80 NB  | LT                | ---  | ---  | ---  | ---  | 95   | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 178+07 NB  | - | 179+12 NB  | LT                | ---  | ---  | ---  | ---  | 105  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 203+13 NB  | - | 204+21 NB  | LT                | ---  | ---  | ---  | ---  | 110  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 223+14 NB  | - | 224+19 NB  | LT                | ---  | ---  | ---  | ---  | 105  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 237+55 NB  | - | 239+47 NB  | RT                | ---  | ---  | ---  | ---  | 190  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 238+00 NB  | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 1   | ---  | ---   | ---  | ---  | ---  |  |
|          | 256+17 NB  | - | 257+91 NB  | RT                | ---  | ---  | ---  | 175  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 256+66 NB  | - | 257+91 NB  | LT                | ---  | ---  | ---  | 125  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 257+86 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | 21   | ---  | ---  |  |
|          | 257+91 NB  | - | ---        | LT & RT           | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 53   | ---   | ---  | ---  | ---  |  |
|          | 259+77 SB  | - | 261+22 SB  | LT                | ---  | ---  | ---  | 145  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 259+77 NB  | - | 261+25 NB  | LT                | ---  | ---  | ---  | 150  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 259+77 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | 28   | ---  | ---  |  |
|          | 259+86 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 52   | ---   | ---  | ---  | ---  |  |
|          | 263+92 NB  | - | 264+67 NB  | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | 25   | ---  | ---  |  |
|          | 277+12 NB  | - | 278+24 NB  | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | 60   | ---  | ---  |  |
|          | 278+16 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | 1  |  |
|          | 278+42 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | 64   | ---  |  |
|          | 279+44 NB  | - | 280+75 NB  | LT                | ---  | ---  | 130  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 279+99 NB  | - | 281+01 NB  | RT                | ---  | ---  | 100  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 280+50 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | 37   | ---  |  |
|          | 280+60 NB  | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | ---   | ---  | ---  | 1  |  |
|          | 280+75 NB  | - | ---        | LT & RT           | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 71   | ---   | ---  | ---  | ---  |  |
|          | 282+30 NB  | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 15   | ---   | ---  | ---  | ---  |  |
|          | 7+00 FR    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 1   | ---  | ---   | ---  | ---  | ---  |  |
|          | 7+73 FR    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 12   | ---   | ---  | ---  | ---  |  |
|          | 8+17 FR    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 17   | ---   | ---  | ---  | ---  |  |
|          | 10+56 CM   | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 23   | ---   | ---  | ---  | ---  |  |
|          | 49+44 T    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 16   | ---   | ---  | ---  | ---  |  |
|          | 50+33 T    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 14   | ---   | ---  | ---  | ---  |  |
|          | 50+62 T    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 26   | ---   | ---  | ---  | ---  |  |
|          | 50+75 T    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | 1  | ---  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 50+79 T    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 42   | ---   | ---  | ---  | ---  |  |
|          | 51+00 T    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | 1  | ---   | ---  | ---   | ---  | ---  | ---  |  |
|          | 51+00 T    | - | ---        | RT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 1   | ---  | ---   | ---  | ---  | ---  |  |
|          | 51+19 T    | - | ---        | LT & RT           | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | 305   | ---  | ---  | ---  |  |
|          | 51+59 T    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 23   | ---   | ---  | ---  | ---  |  |
|          | 52+00 T    | - | ---        | LT                | ---  | ---  | ---  | ---  | ---  | ---  | ---  | 1   | ---  | ---   | ---  | ---  | ---  |  |
|          | ---        | - | ---        | CLEVELAND AVE.    | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | 1  | ---   | ---  | ---  | ---  |  |
|          | ---        | - | ---        | CLEVELAND AVE.    | ---  | ---  | ---  | ---  | ---  | ---  | ---  | ---   | ---  | 830   | ---  | ---  | ---  |  |
|          | SUBTOTALS  |   |            |                   |  |  |  |  |  | 1  | 1  |   |  | 1,135   | 85   |  |  |  |
|          | TOTALS     |   |            |                   | 6,570  | 6,570  | 230  | 595  | 795  | 2  | 1  | 4   | 364  | 1,220   | 150  | 2  |  |  |

PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE

MISCELLANEOUS QUANTITIES

SHEET:

E

FILE NAME :

PLOT DATE :

PLOT BY :

PLOT NAME :

PLOT SCALE : 1" = 1"

WISDOT/CADD SHEET 42

3

TEMPORARY MARKING LINE EPOXY 6-INCH

| CATEGORY             | STAGE | STATION - | STATION | LOCATION | 643.3170      |                |
|----------------------|-------|-----------|---------|----------|---------------|----------------|
|                      |       |           |         |          | (WHITE)<br>LF | (YELLOW)<br>LF |
| 0010                 | 2A    | 152+90 -  | 159+50  | RT       | 660           | ---            |
|                      |       | 270+83 -  | 273+28  | LT       | ---           | 245            |
| SUBTOTALS (STAGE 2A) |       |           |         |          | 660           | 245            |
|                      | 2B    | 152+91 -  | 159+51  | RT       | ---           | 660            |
|                      |       | 265+75 -  | 268+20  | LT       | ---           | 245            |
| SUBTOTALS (STAGE 2B) |       |           |         |          | 0             | 905            |
| TOTALS               |       |           |         |          | 1,810         |                |

LOOP DETECTORS

| CATEGORY | LOCATION                  | LOOP NO. | # OF TURNS | 652.0800                       | 655.0700                             | 655.0800                    |
|----------|---------------------------|----------|------------|--------------------------------|--------------------------------------|-----------------------------|
|          |                           |          |            | CONDUIT<br>LOOP DETECTOR<br>LF | LOOP DETECTOR<br>LEAD IN CABLE<br>LF | LOOP DETECTOR<br>WIRE<br>LF |
| 0010     | USH 41 & CTH T (S38-0251) | 12       | 5          | 92                             | 328                                  | 468                         |
|          |                           | 21       | 5          | ---                            | 433                                  | ---                         |
|          |                           | 22       | 5          | 77                             | 318                                  | 393                         |
|          |                           | 52       | 3          | 92                             | 113                                  | 284                         |
|          |                           | 61       | 5          | ---                            | 738                                  | ---                         |
|          |                           | 62       | 5          | 77                             | 558                                  | 393                         |
| TOTALS   |                           |          |            | 338                            | 2,488                                | 1,538                       |

3

CONSTRUCTION STAKING ITEMS

| CATEGORY | STATION -   | STATION   | LOCATION     | 650.4500                                  | 650.5000                              | 650.9920                                      |
|----------|-------------|-----------|--------------|---|---------------------------------------|---|
|          |             |           |              | CONSTRUCTION<br>STAKING<br>SUBGRADE<br>LF | CONSTRUCTION<br>STAKING<br>BASE<br>LF | CONSTRUCTION<br>STAKING<br>SLOPE STAKES<br>LF |
| 0010     | 1674+91 -   | 136+85    | GUARDRAIL RT | 555                                       | 555                                   | 555   |
|          | 169+38 -    | 255+52    | SHOULDER LT  | ---                                       | 8,615                                 | ---   |
|          | 169+38 -    | 209+12    | SHOULDER RT  | ---                                       | 3,975                                 | ---   |
|          | 209+12 -    | 213+69    | GUARDRAIL RT | 460                                       | 460                                   | 460   |
|          | 213+69 -    | 236+40    | SHOULDER RT  | ---                                       | 2,270                                 | ---   |
|          | 241+13 -    | 255+52    | SHOULDER RT  | ---                                       | 1,440                                 | ---   |
|          | 133+89 SB - | 138+94 SB | GUARDRAIL LT | 510                                       | 510                                   | 510   |
|          | 133+89 SB - | 184+83 SB | SHOULDER RT  | ---                                       | 5,095                                 | ---   |
|          | 138+94 SB - | 184+83 SB | SHOULDER LT  | ---                                       | 4,590                                 | ---   |
|          | 241+04 SB - | 255+52 SB | SHOULDER LT  | ---                                       | 1,450                                 | ---   |
|          | 241+04 SB - | 255+52 SB | SHOULDER RT  | ---                                       | 1,450                                 | ---   |
|          | TOTALS      |           |              |   | 1,525                                 | 30,410  |

PULL BOXES STEEL 12X24-INCH

| CATEGORY | LOCATION                  | 653.0105<br>EACH |
|----------|---------------------------|------------------|
| 0010     | USH 41 & CTH T (S38-0251) | 2                |

SAWING ASPHALT

| CATEGORY | STATION -     | STATION | LOCATION | 690.0150 |
|----------|---------------|---------|----------|----------|
|          |               |         |          | LF       |
| 0010     | 1674+91 -     | 136+85  | RT       | 518      |
|          | 209+42        |         | RT       | 3        |
|          | 213+69        |         | RT       | 3        |
|          | 1677+50 SB    |         | LT       | 3        |
|          | 138+94 SB     |         | LT       | 3        |
|          | UNDISTRIBUTED |         |          | 55       |
| TOTALS   |               |         |          | 585      |





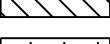
CONSTRUCTION STAKING RESURFACING REFERENCE

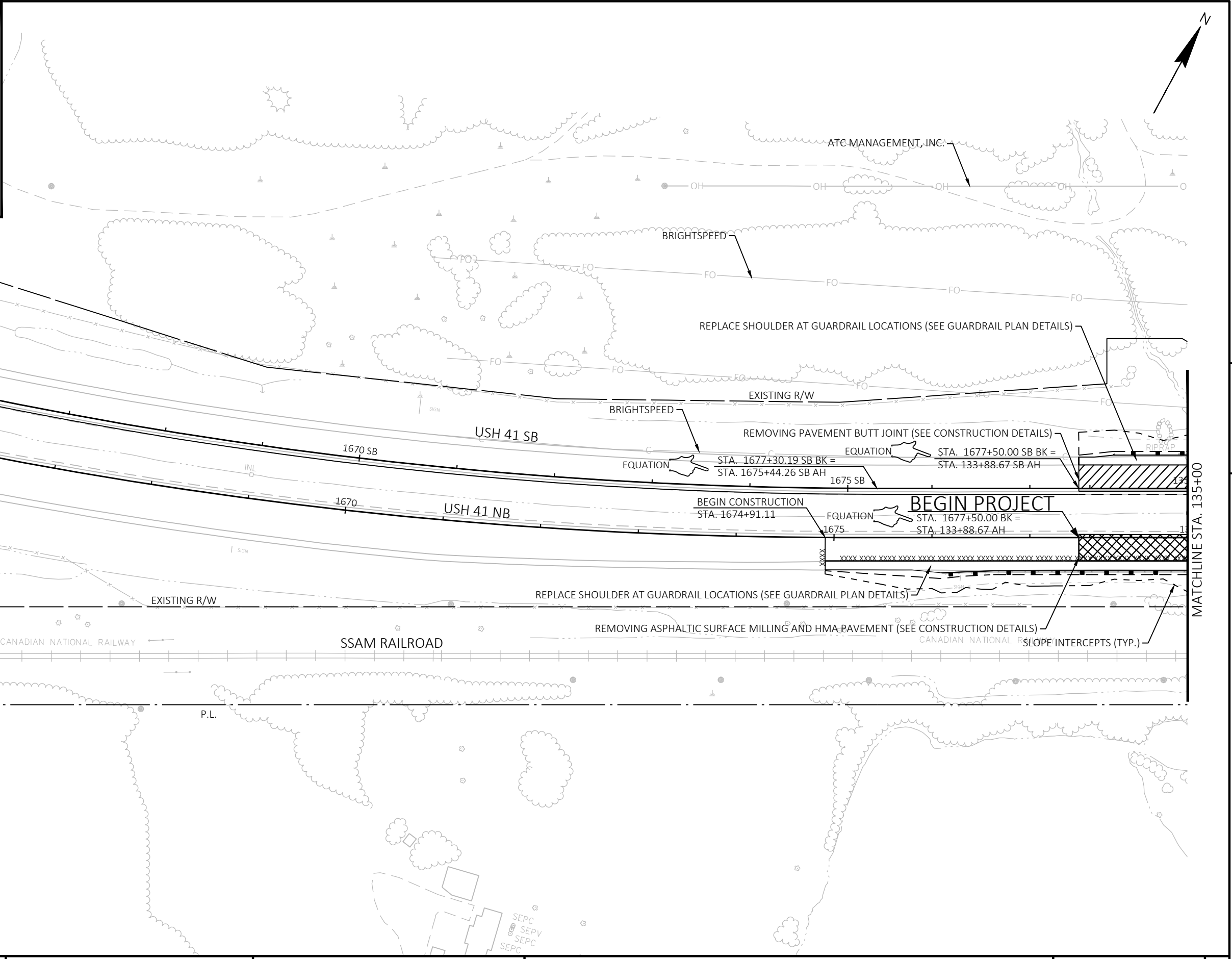
| CATEGORY | STATION -      | STATION   | LOCATION | 650.8000<br>LF |
|----------|----------------|-----------|----------|----------------|
| 0010     | 133+88.67 -    | 276+16.09 | NB       | 14,230         |
|          | 133+88.67 SB - | 262+28.80 | SB       | 12,840         |
| TOTAL    |                |           |          | 27,070         |

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

| CATEGORY | PROJECT    | 650.9911.01<br>EACH |
|----------|------------|---------------------|
| 0010     | 1150-64-71 | 1                   |





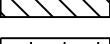
**LEGEND**

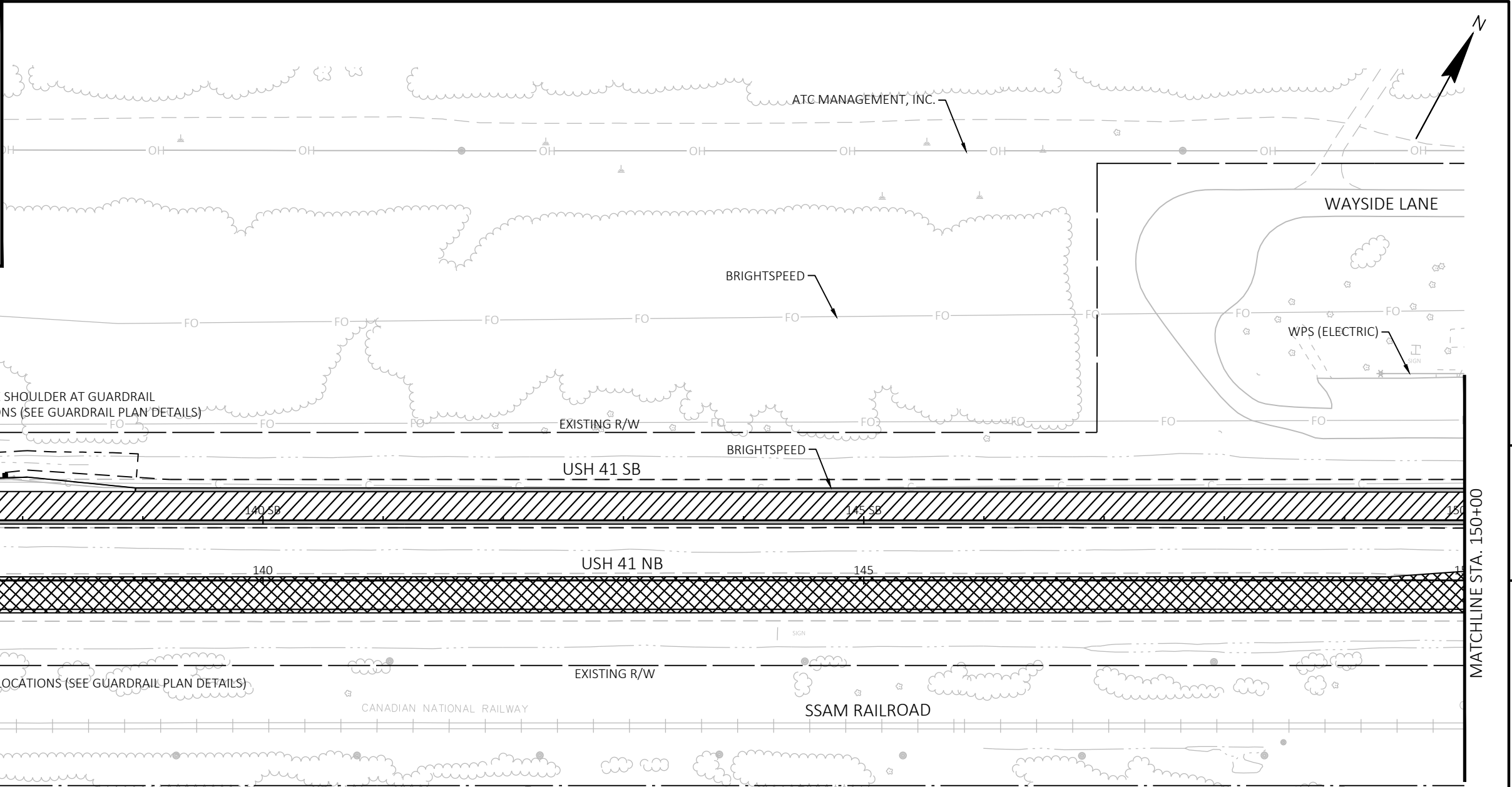
-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)



PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      PLAN      SHEET      E

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)



- STA. 135+32 LT  
 REMOVING SMALL CULVERT PIPES (12" X 14' RCCP) REQ'D.  
 1 - REMOVING ENDWALLS REQ'D.  
 1 - 14' CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH REQ'D.  
 1 - APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH REQ'D.  
 1 - CONCRETE COLLARS FOR PIPE REQ'D.
- STA. 135+08 LT  
 REMOVING SMALL CULVERT PIPES (12" X 14' RCCP) REQ'D.  
 1 - REMOVING ENDWALLS REQ'D.  
 1 - 14' CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH REQ'D.  
 1 - APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH REQ'D.  
 1 - CONCRETE COLLARS FOR PIPE REQ'D.





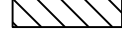
STA. 135+20  
 C-38-1  
 EXISTING 8' X 10' RCBC TO REMAIN

BENCH MARKS

| NO. | STATION      | OFFSET    | DESCRIPTION                         | ELEV.  |
|-----|--------------|-----------|-------------------------------------|--------|
| 1   | 135+25.31    | 42.64' RT | DISK ON TOP OF NORTH RETAINING WALL | 611.05 |
| 2   | 135+14.30 SB | 38.35' LT | DISK ON TOP OF SOUTH RETAINING WALL | 611.60 |

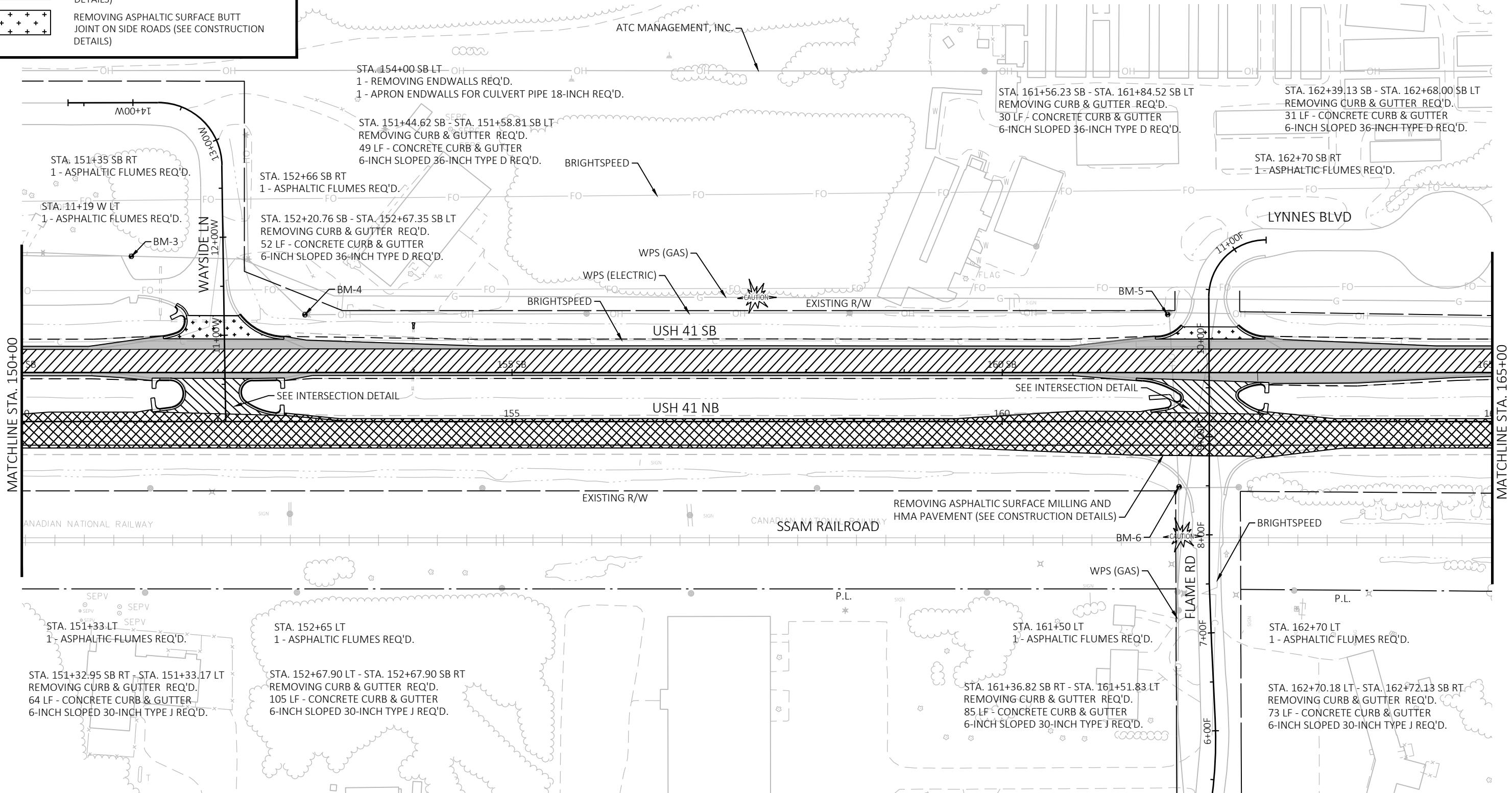
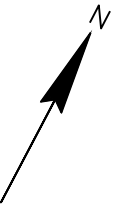


**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
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**BENCH MARKS**

| NO. | STATION      | OFFSET     | DESCRIPTION        | ELEV.  |
|-----|--------------|------------|--------------------|--------|
| 3   | 151+11.80 SB | 118.34' LT | NAIL IN POWER POLE | 616.07 |
| 4   | 152+88.77 SB | 59.01' LT  | NAIL IN POWER POLE | 616.40 |
| 5   | 161+68.71 SB | 59.04' LT  | NAIL IN POWER POLE | 615.81 |
| 6   | 161+80.40    | 66.54' RT  | NAIL IN POWER POLE | 617.00 |



PROJECT NO: 1150-64-71

HWY: USH 41




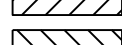
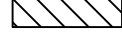
COUNTY: MARINETTE

PLAN

SHEET

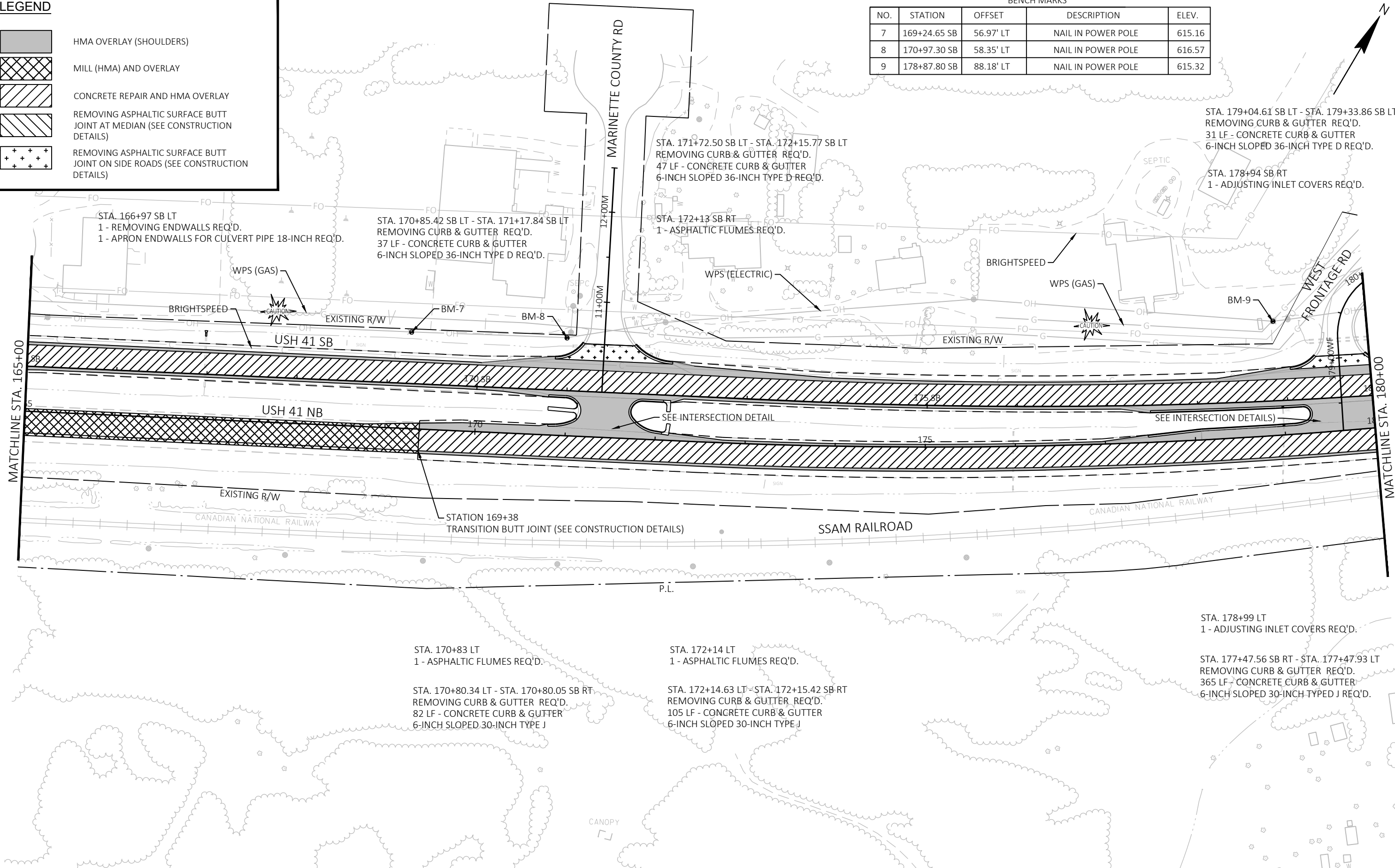
E

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
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**BENCH MARKS**

| NO. | STATION      | OFFSET    | DESCRIPTION        | ELEV.  |
|-----|--------------|-----------|--------------------|--------|
| 7   | 169+24.65 SB | 56.97' LT | NAIL IN POWER POLE | 615.16 |
| 8   | 170+97.30 SB | 58.35' LT | NAIL IN POWER POLE | 616.57 |
| 9   | 178+87.80 SB | 88.18' LT | NAIL IN POWER POLE | 615.32 |



PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE


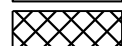


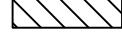
PLAN

SHEET

**E**

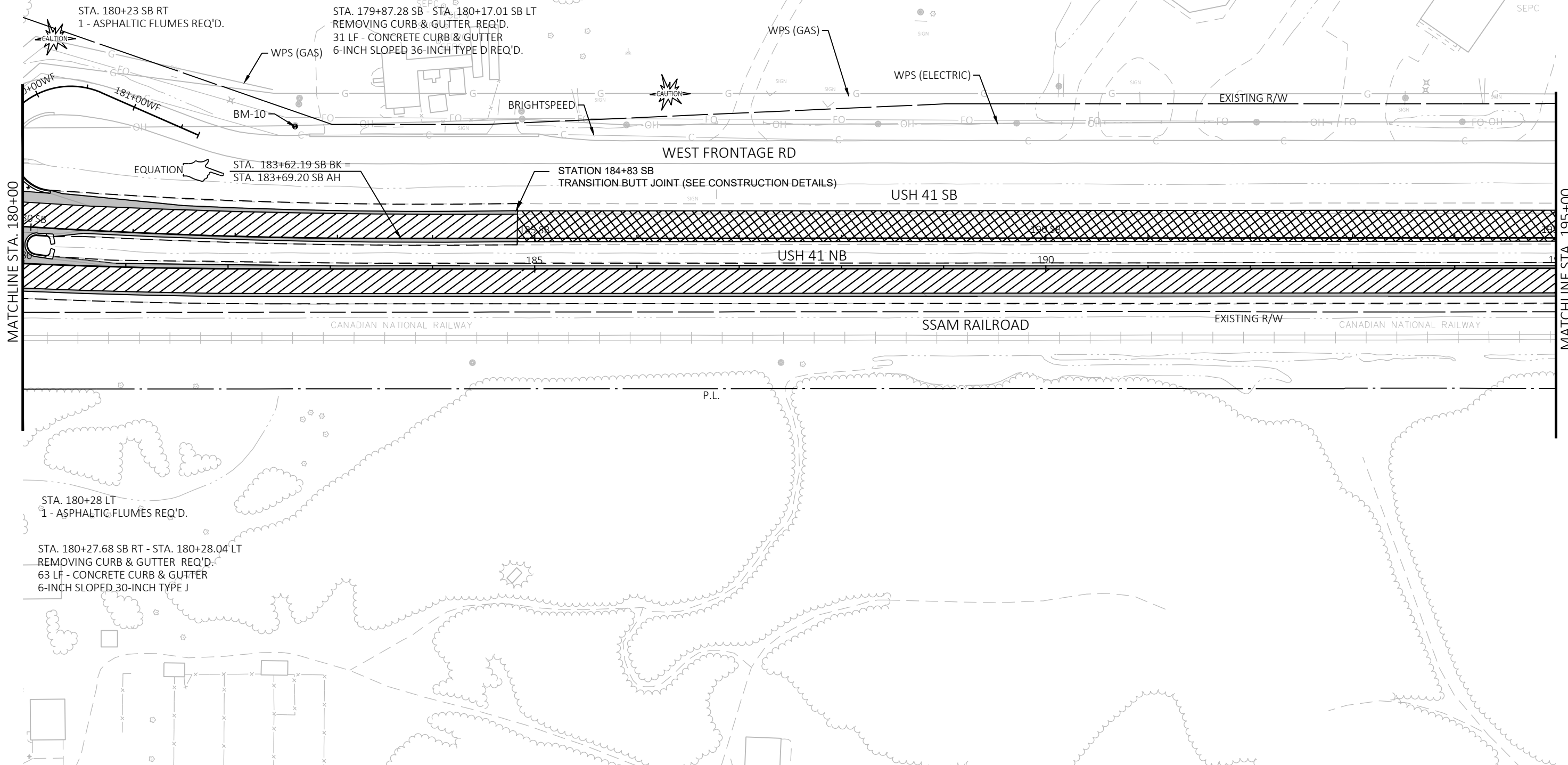
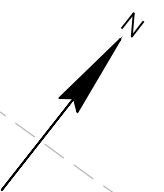


**LEGEND**

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**BENCH MARKS**

| NO. | STATION      | OFFSET     | DESCRIPTION        | ELEV.  |
|-----|--------------|------------|--------------------|--------|
| 10  | 182+56.66 SB | 108.57' LT | NAIL IN POWER POLE | 614.89 |



5

5

PROJECT NO: 1150-64-71

HWY: USH 41



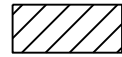
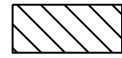
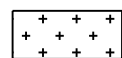
COUNTY: MARINETTE

PLAN

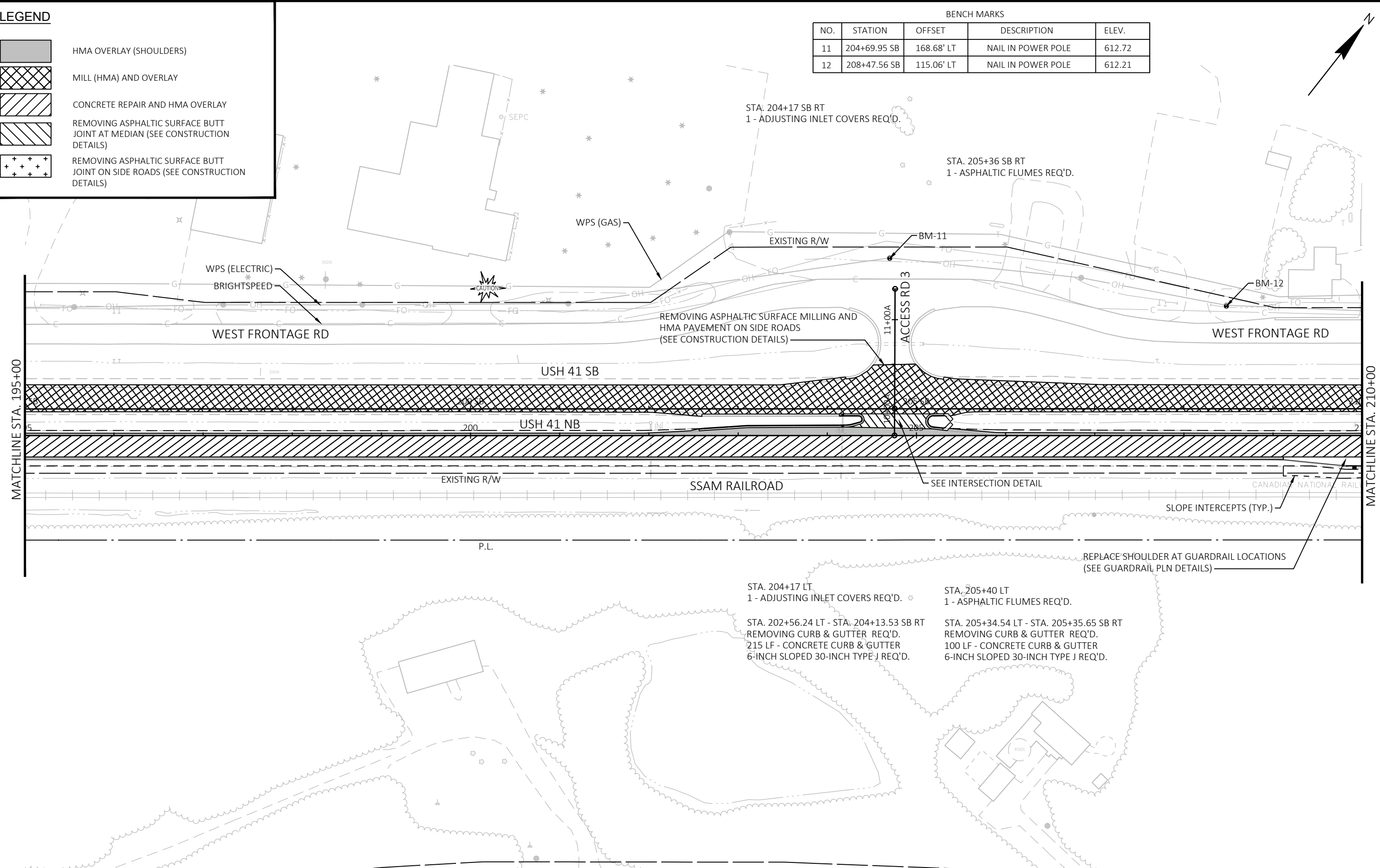
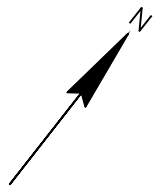
SHEET

E

**LEGEND**


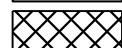

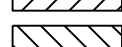
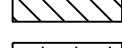
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| BENCH MARKS |              |            |                    |        |
|-------------|--------------|------------|--------------------|--------|
| NO.         | STATION      | OFFSET     | DESCRIPTION        | ELEV.  |
| 11          | 204+69.95 SB | 168.68' LT | NAIL IN POWER POLE | 612.72 |
| 12          | 208+47.56 SB | 115.06' LT | NAIL IN POWER POLE | 612.21 |

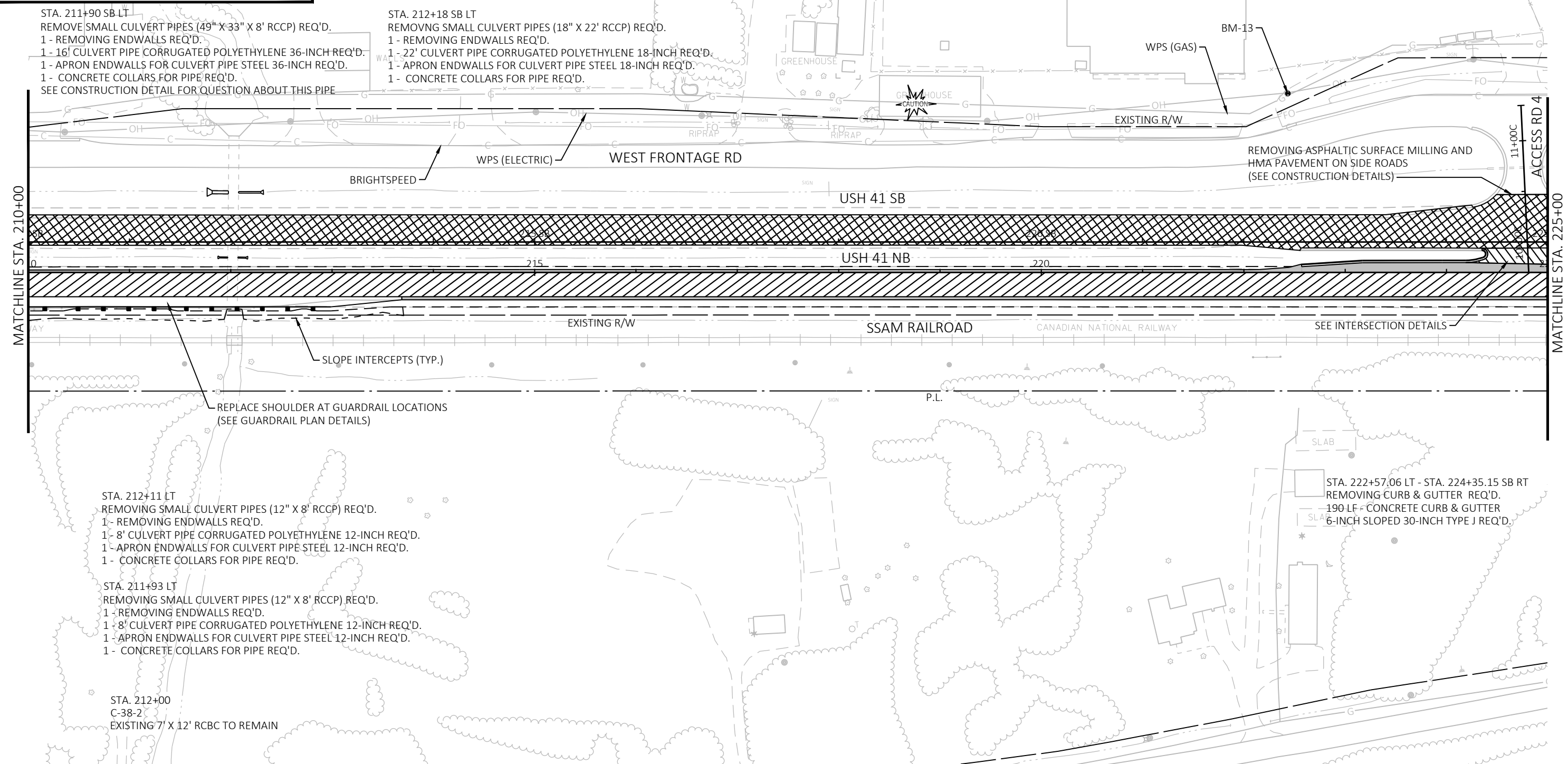
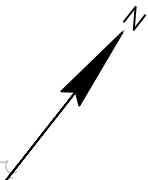


- STA. 204+17 LT  
1 - ADJUSTING INLET COVERS REQ'D.
- STA. 205+40 LT  
1 - ASPHALTIC FLUMES REQ'D.
- STA. 202+56.24 LT - STA. 204+13.53 SB RT  
REMOVING CURB & GUTTER REQ'D.  
215 LF - CONCRETE CURB & GUTTER  
6-INCH SLOPED 30-INCH TYPE J REQ'D.
- STA. 205+34.54 LT - STA. 205+35.65 SB RT  
REMOVING CURB & GUTTER REQ'D.  
100 LF - CONCRETE CURB & GUTTER  
6-INCH SLOPED 30-INCH TYPE J REQ'D.

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)

| BENCH MARKS |              |            |                    |        |
|-------------|--------------|------------|--------------------|--------|
| NO.         | STATION      | OFFSET     | DESCRIPTION        | ELEV.  |
| 13          | 222+43.44 SB | 146.49' LT | NAIL IN LIGHT POLE | 613.29 |



STA. 211+90 SB LT  
 REMOVE SMALL CULVERT PIPES (49" X 33" X 8' RCCP) REQ'D.  
 1- REMOVING ENDWALLS REQ'D.  
 1- 16' CULVERT PIPE CORRUGATED POLYETHYLENE 36-INCH REQ'D.  
 1- APRON ENDWALLS FOR CULVERT PIPE STEEL 36-INCH REQ'D.  
 1- CONCRETE COLLARS FOR PIPE REQ'D.  
 SEE CONSTRUCTION DETAIL FOR QUESTION ABOUT THIS PIPE

STA. 212+18 SB LT  
 REMOVING SMALL CULVERT PIPES (18" X 22' RCCP) REQ'D.  
 1- REMOVING ENDWALLS REQ'D.  
 1- 22' CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH REQ'D.  
 1- APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH REQ'D.  
 1- CONCRETE COLLARS FOR PIPE REQ'D.

BM-13

WPS (GAS)

EXISTING R/W

REMOVING ASPHALTIC SURFACE MILLING AND HMA PAVEMENT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)

REPLACE SHOULDER AT GUARDRAIL LOCATIONS (SEE GUARDRAIL PLAN DETAILS)




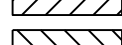
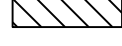
STA. 212+11 LT  
 REMOVING SMALL CULVERT PIPES (12" X 8' RCCP) REQ'D.  
 1- REMOVING ENDWALLS REQ'D.  
 1- 8' CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH REQ'D.  
 1- APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH REQ'D.  
 1- CONCRETE COLLARS FOR PIPE REQ'D.

STA. 211+93 LT  
 REMOVING SMALL CULVERT PIPES (12" X 8' RCCP) REQ'D.  
 1- REMOVING ENDWALLS REQ'D.  
 1- 8' CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH REQ'D.  
 1- APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH REQ'D.  
 1- CONCRETE COLLARS FOR PIPE REQ'D.

STA. 212+00  
 C-38-2  
 EXISTING 7' X 12' RCBC TO REMAIN

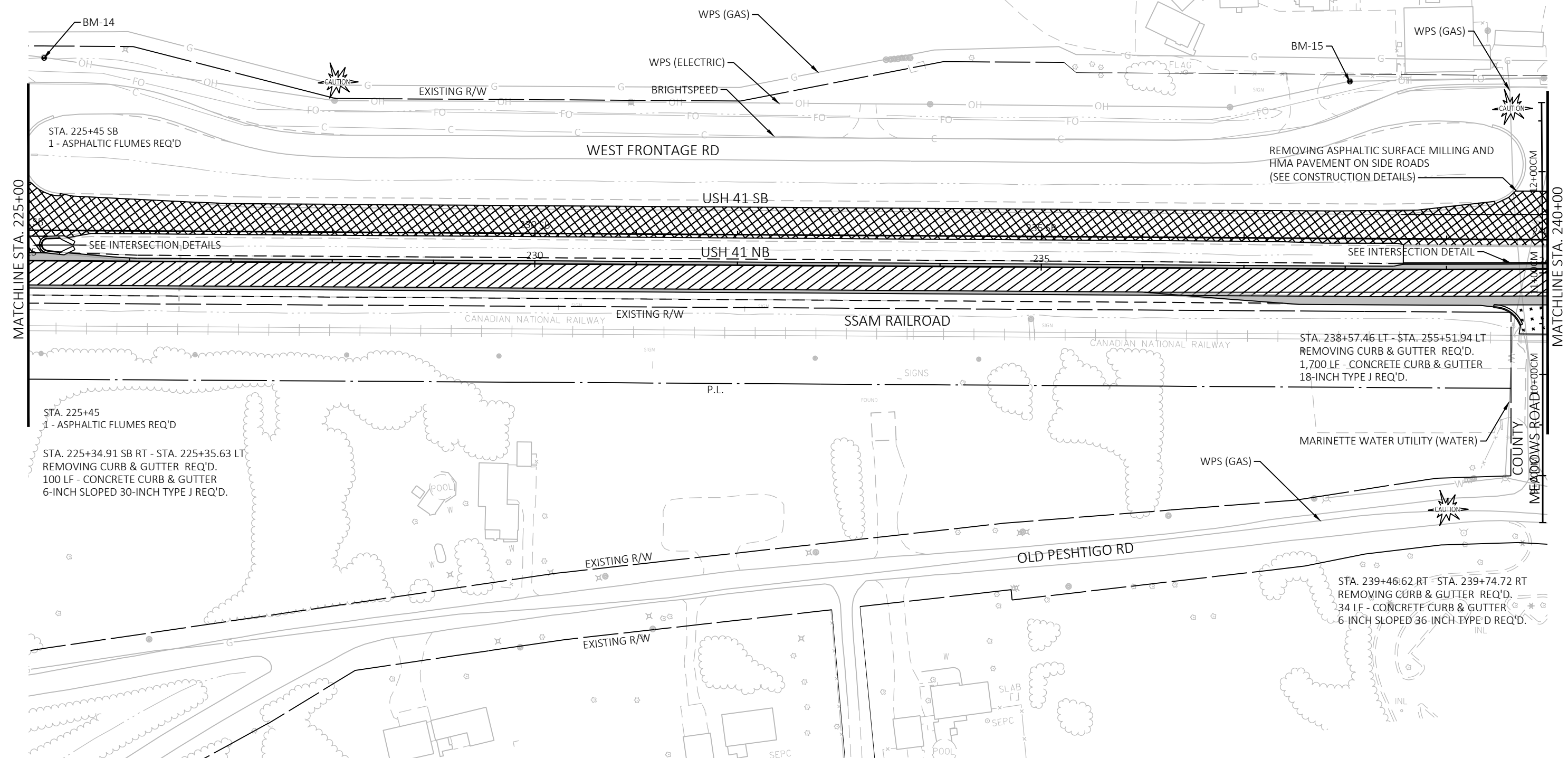
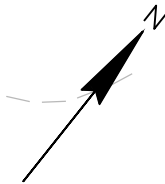
STA. 222+57.06 LT - STA. 224+35.15 SB RT  
 REMOVING CURB & GUTTER REQ'D.  
 190 LF - CONCRETE CURB & GUTTER  
 6-INCH SLOPED 30-INCH TYPE J REQ'D.

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)

**BENCH MARKS**

| NO. | STATION      | OFFSET     | DESCRIPTION              | ELEV.  |
|-----|--------------|------------|--------------------------|--------|
| 14  | 225+14.28 SB | 169.91' LT | NAIL IN POWER POLE       | 611.89 |
| 15  | 238+03.39 SB | 154.80' LT | NAIL IN SHORT LIGHT POLE | 616.60 |


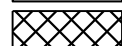


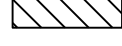


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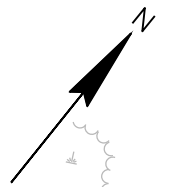
PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      PLAN      SHEET      E

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)

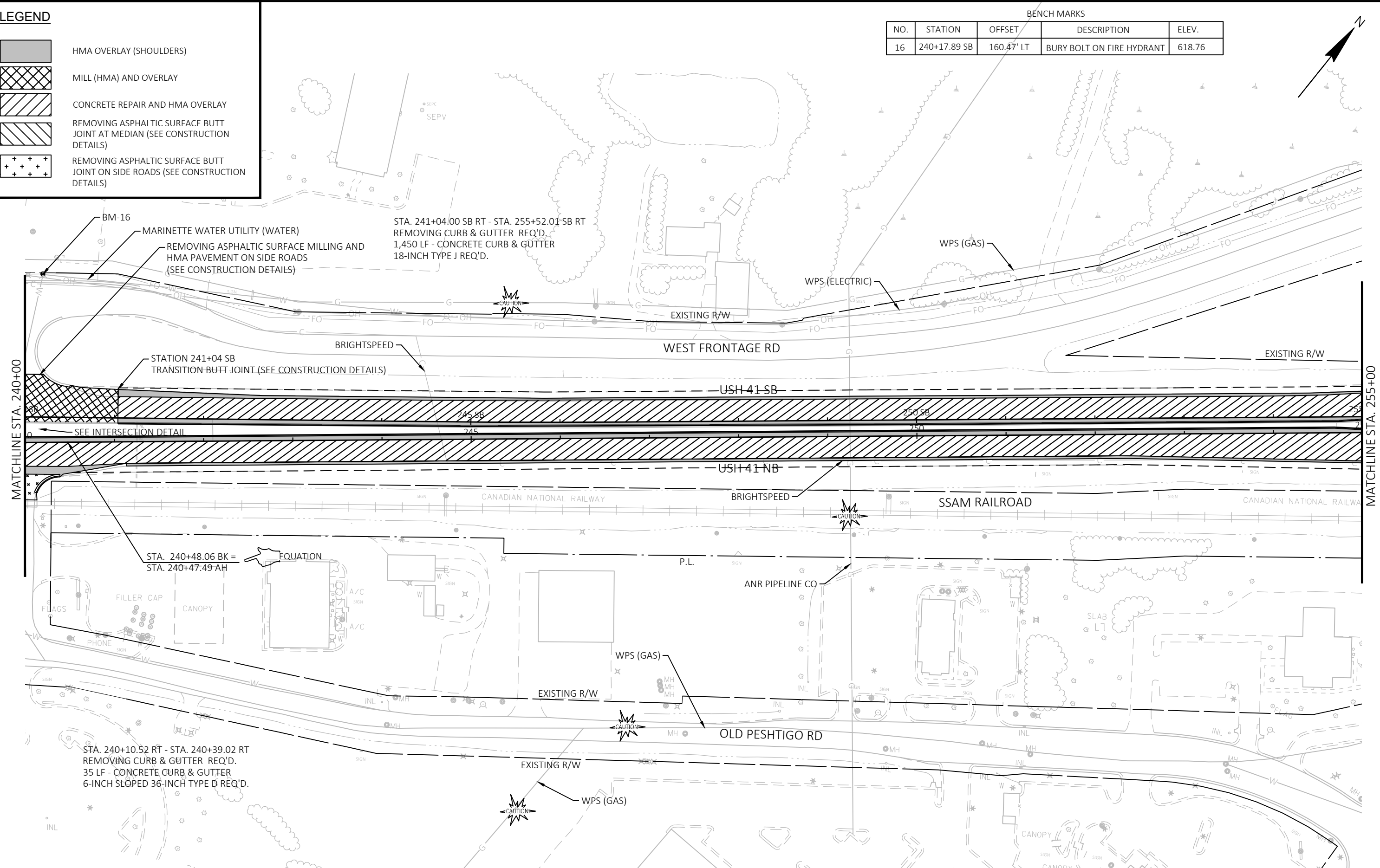
BENCH MARKS

| NO. | STATION      | OFFSET     | DESCRIPTION               | ELEV.  |
|-----|--------------|------------|---------------------------|--------|
| 16  | 240+17.89 SB | 160.47' LT | BURY BOLT ON FIRE HYDRANT | 618.76 |



5

5



PROJECT NO: 1150-64-71

HWY: USH 41

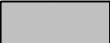


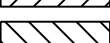
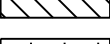
COUNTY: MARINETTE

PLAN

SHEET

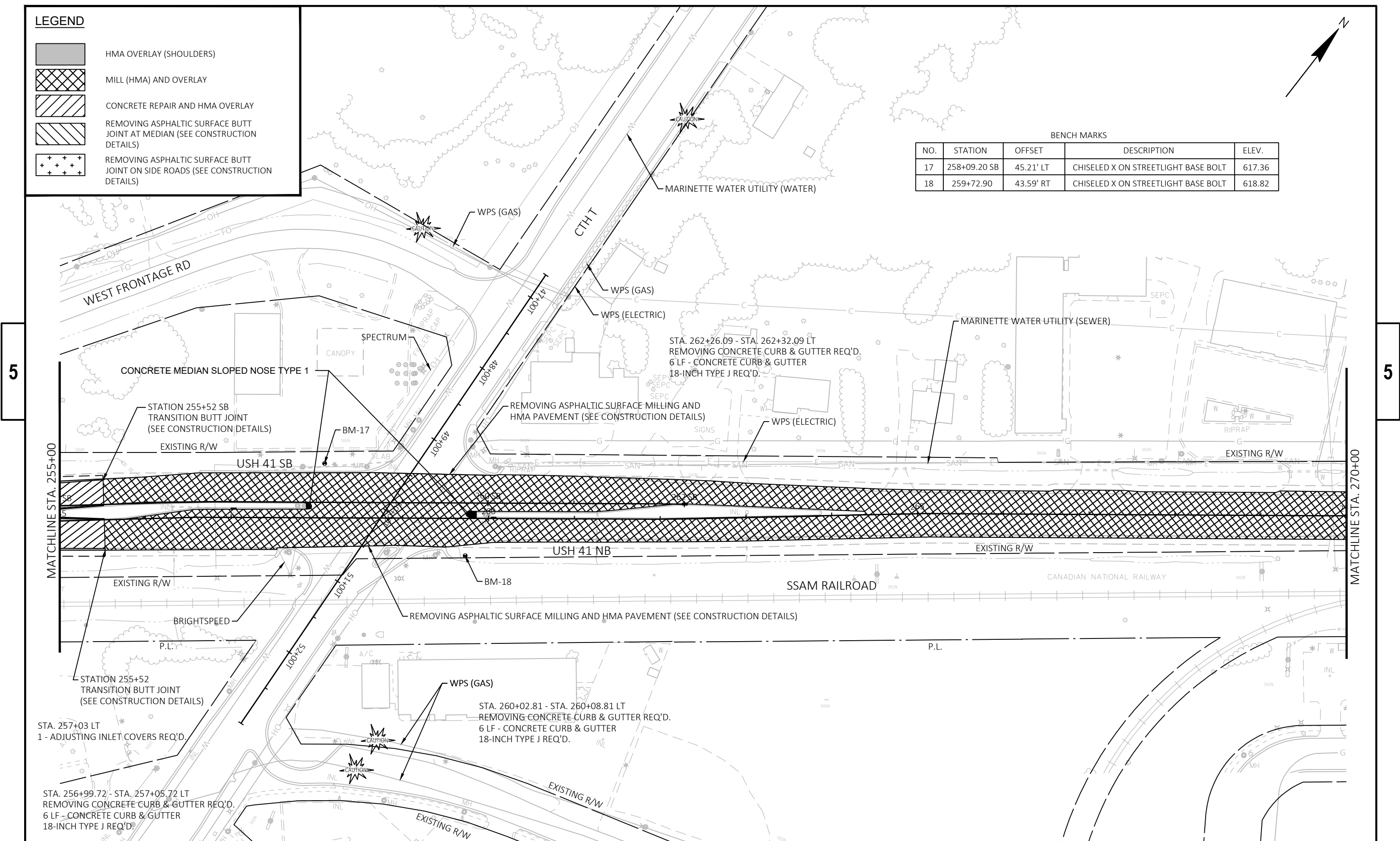
E

**LEGEND**

-  HMA OVERLAY (SHOULDERS)
-  MILL (HMA) AND OVERLAY
-  CONCRETE REPAIR AND HMA OVERLAY
-  REMOVING ASPHALTIC SURFACE BUTT JOINT AT MEDIAN (SEE CONSTRUCTION DETAILS)
-  REMOVING ASPHALTIC SURFACE BUTT JOINT ON SIDE ROADS (SEE CONSTRUCTION DETAILS)

BENCH MARKS

| NO. | STATION      | OFFSET    | DESCRIPTION                         | ELEV.  |
|-----|--------------|-----------|-------------------------------------|--------|
| 17  | 258+09.20 SB | 45.21' LT | CHISELED X ON STREETLIGHT BASE BOLT | 617.36 |
| 18  | 259+72.90    | 43.59' RT | CHISELED X ON STREETLIGHT BASE BOLT | 618.82 |



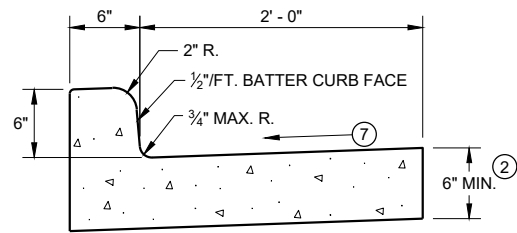




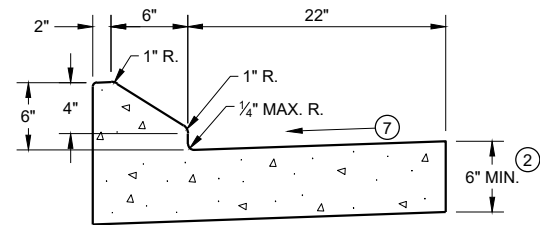
## Standard Detail Drawing List

|           |   |
|-----------|---|
| 08D01-23A | CONCRETE CURB & GUTTER  |
| 08D01-23B | CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS                      |
| 08D04-07  | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES                                |
| 08E09-06  | SILT FENCE  |
| 08E10-02  | INLET PROTECTION TYPE A, B, C AND D                                       |
| 08E14-01  | TRACKING PAD  |
| 08E15-01  | CULVERT PIPE CHECK  |
| 08F01-11  | APRON ENDWALLS FOR CULVERT PIPE   |
| 08F04-08  | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL                   |
| 11B02-02  | CONCRETE MEDIAN NOSE  |
| 13A05-06A | SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY                                   |
| 13A05-06B | SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY                                   |
| 13C01-19  | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES                            |
| 13C09-17A | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                  |
| 13C09-17B | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                  |
| 13C09-17C | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                  |
| 13C11-14A | RURAL DOWELED CONCRETE PAVEMENT   |
| 13C11-14B | RURAL DOWELED CONCRETE PAVEMENT   |
| 13C14-07A | BASE PATCHING CONCRETE  |
| 13C14-07B | BASE PATCHING CONCRETE  |
| 13C14-07C | BASE PATCHING CONCRETE  |
| 13C19-03  | HMA LONGITUDINAL JOINTS   |
| 14B29-01  | SAFETY EDGE   |
| 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                                  |
| 14B43-04A | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                |
| 14B43-04B | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                |
| 14B43-04C | MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)                                |
| 14B47-04A | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04B | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04C | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04D | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04E | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04F | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 14B47-04G | MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL                            |
| 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                                 |
| 15C07-15B | PAVEMENT MARKING WORDS  |
| 15C07-15C | PAVEMENT MARKING ARROWS   |
| 15C08-23A | PERMANENT LONGITUDINAL PAVEMENT MARKINGS                                  |
| 15C08-23D | PAVEMENT MARKING (TURN LANES)   |
| 15C09-13A | SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS |
| 15C11-10A | CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST                         |
| 15C11-10B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS         |
| 15C18-08B | MEDIAN ISLAND MARKING MEDIAN ISLAND NOSE                                  |
| 15D12-11A | TRAFFIC CONTROL, LANE CLOSURE   |
| 15D12-11B | TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION                            |
| 15D12-11D | TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM         |
| 15D15-07A | TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE               |
| 15D15-07B | TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE                        |
| 15D15-07C | TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE                |
| 15D21-07A | TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE                  |

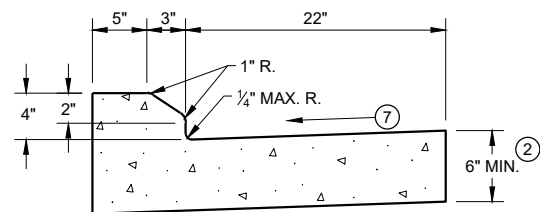




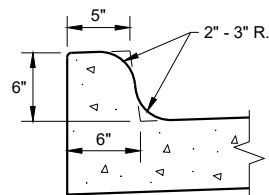
**TYPES A<sup>①</sup> & D**



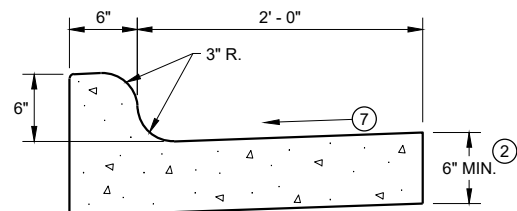
**6" SLOPED CURB TYPES G<sup>①</sup> & J**



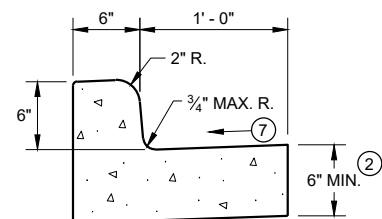
**4" SLOPED CURB TYPES G<sup>①</sup> & J**



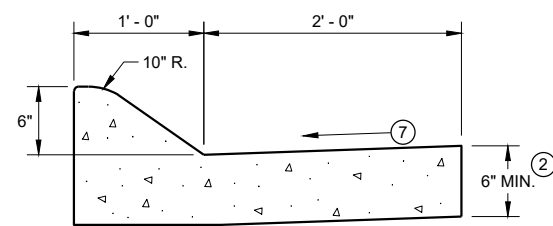
**TYPES K<sup>①</sup> & L**  
(OPTIONAL CURB SHAPE)



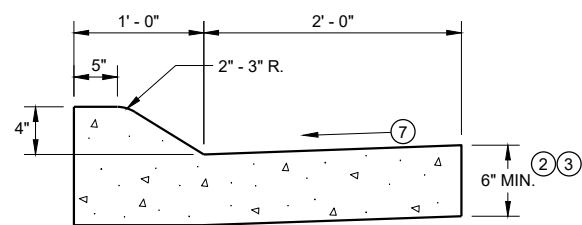
**TYPES K<sup>①</sup> & L**  
**CONCRETE CURB AND GUTTER 30"**



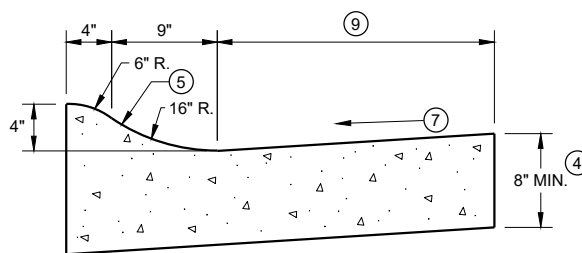
**TYPES A<sup>①</sup> & D**  
**CONCRETE CURB AND GUTTER 18"**



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

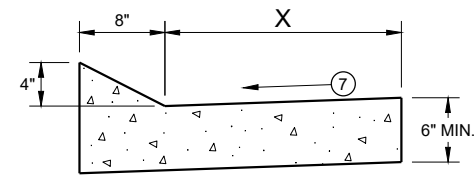


**4" SLOPED CURB TYPES A<sup>①</sup> & D**  
**CONCRETE CURB AND GUTTER 36"**



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

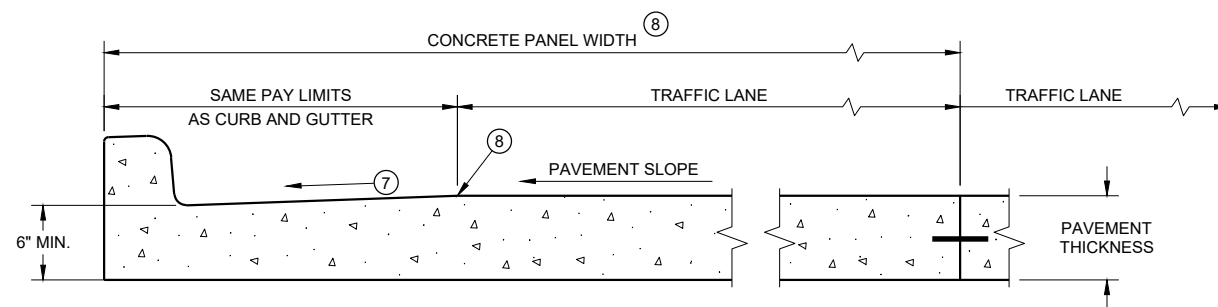
|            |     |
|------------|-----|
| TBT & TBTT | X   |
| 30"        | 22" |
| 36"        | 28" |



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

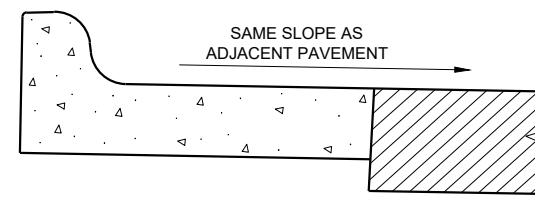
**PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE**

| 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**

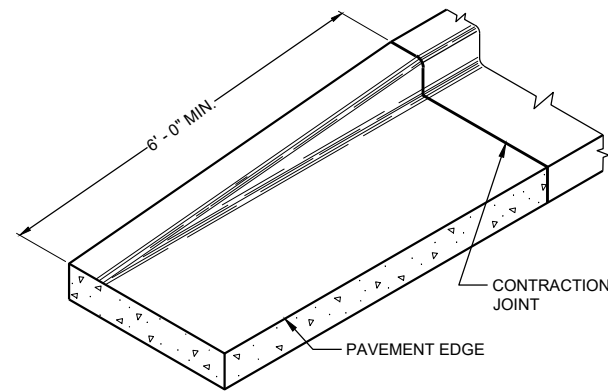
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

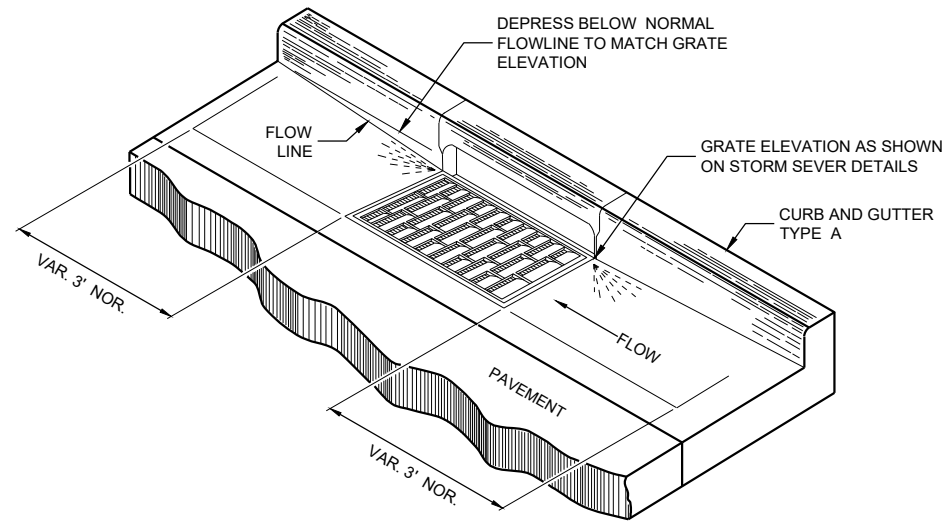
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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)

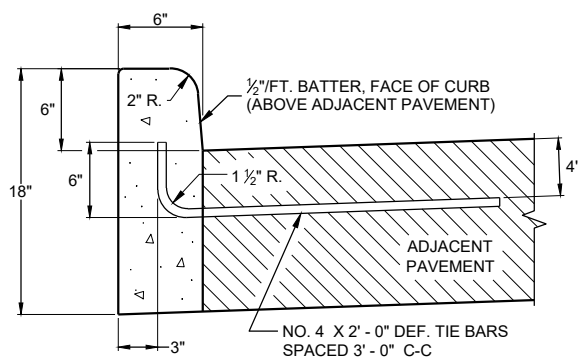
**GENERAL NOTES**

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

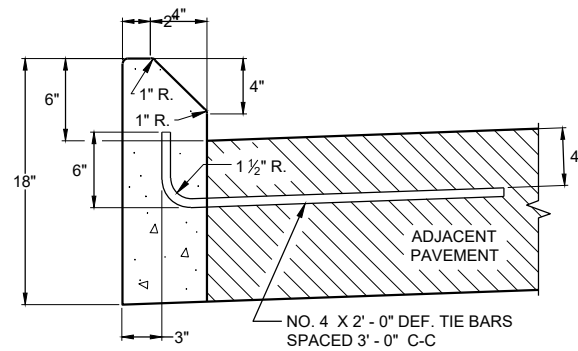
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

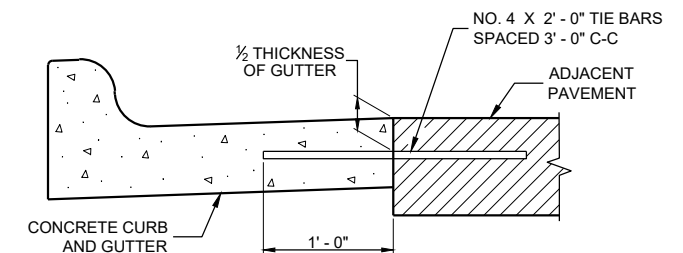
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL 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.



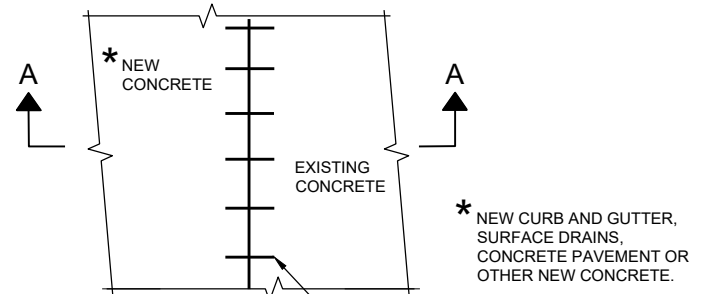
**TYPES A<sup>①</sup> & D**



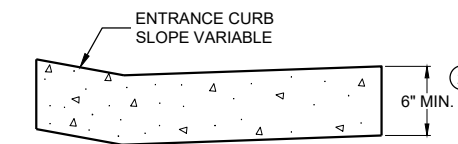
**TYPES G<sup>①</sup> & J  
CONCRETE CURB**



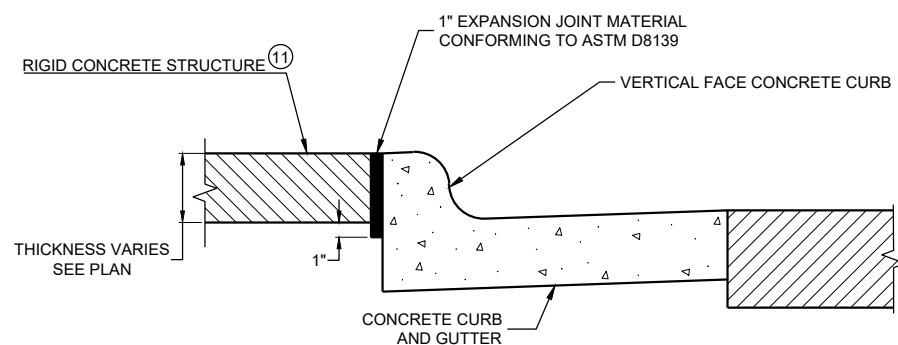
**TYPICAL TIE BAR LOCATION<sup>①</sup>**



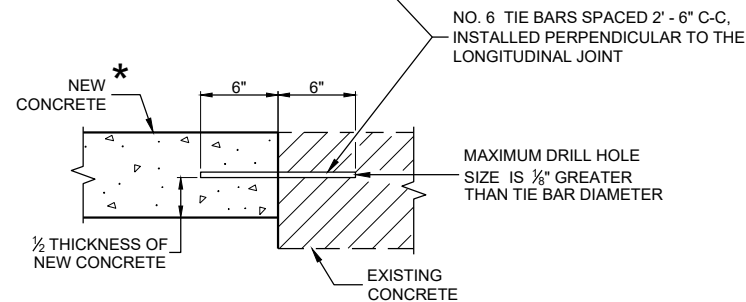
**PLAN VIEW**



**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**

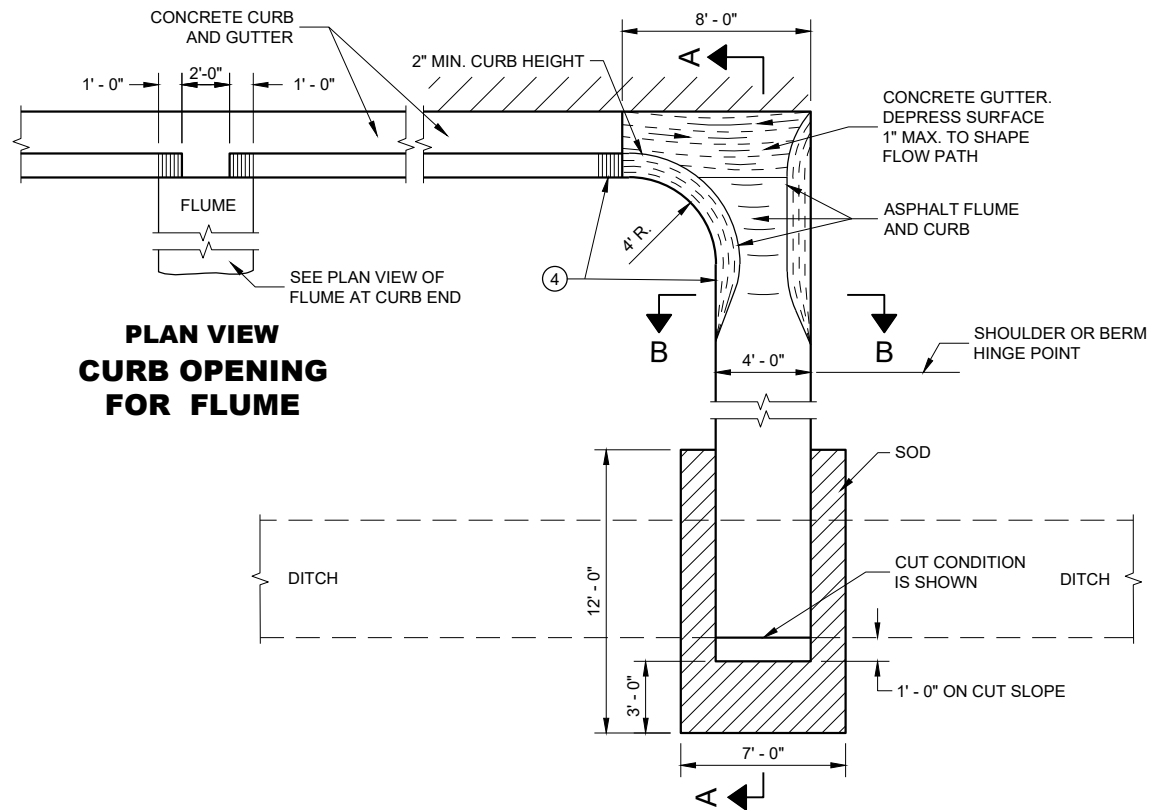
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

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

### ASPHALTIC FLUME



**PLAN VIEW  
CURB OPENING  
FOR FLUME**

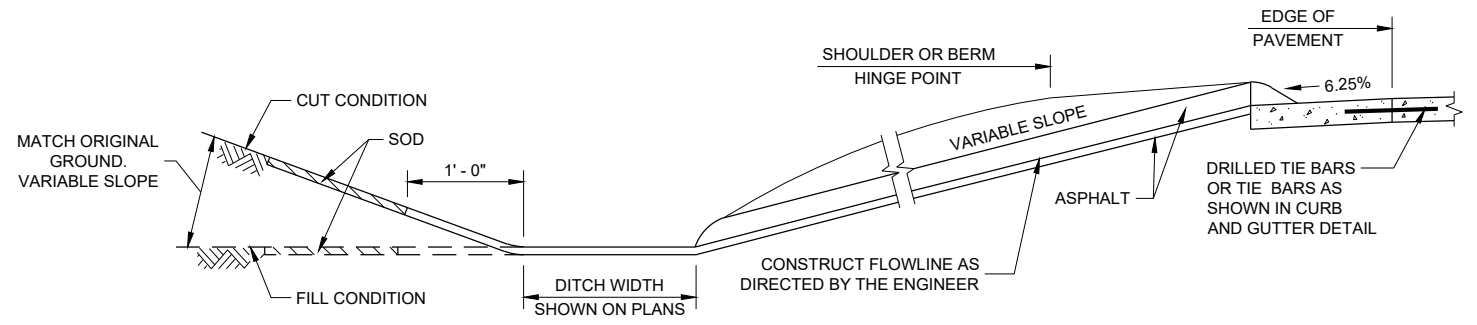
**PLAN VIEW  
FLUME AT CURB END**

### GENERAL NOTES

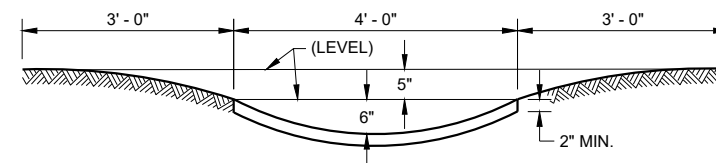
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

4" X 4" - W3.0 X W3.0 CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

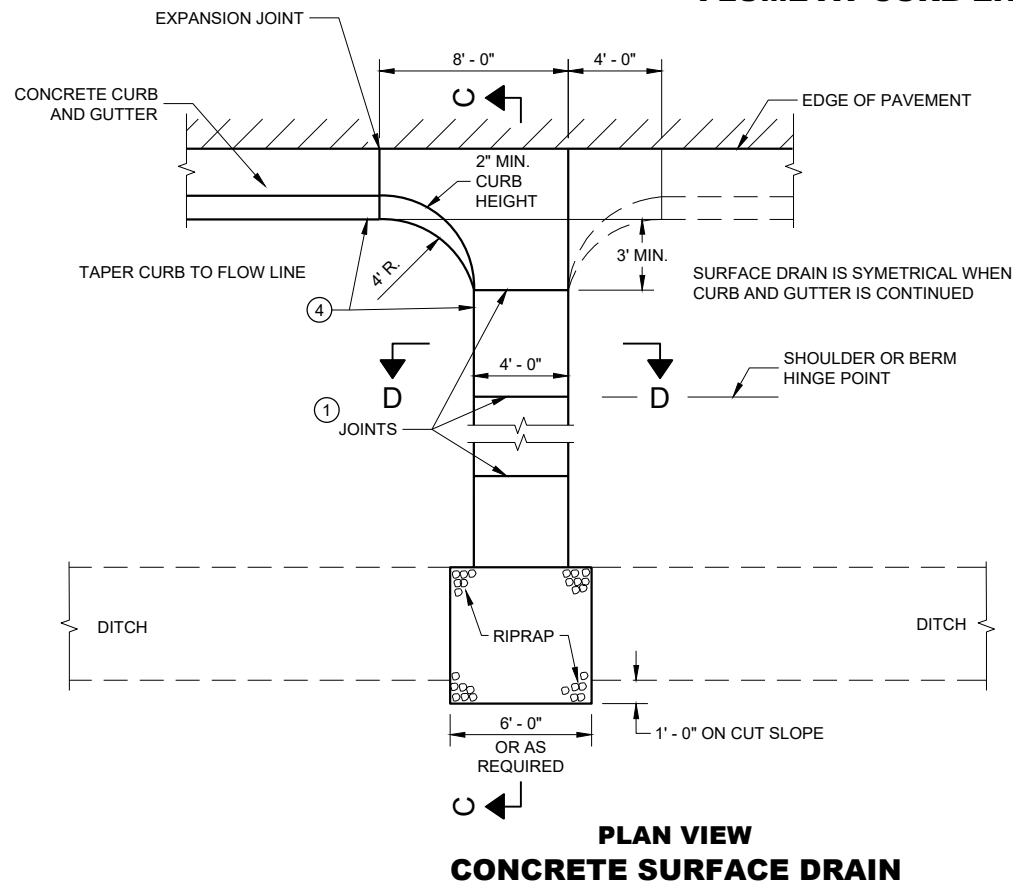
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ④ ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



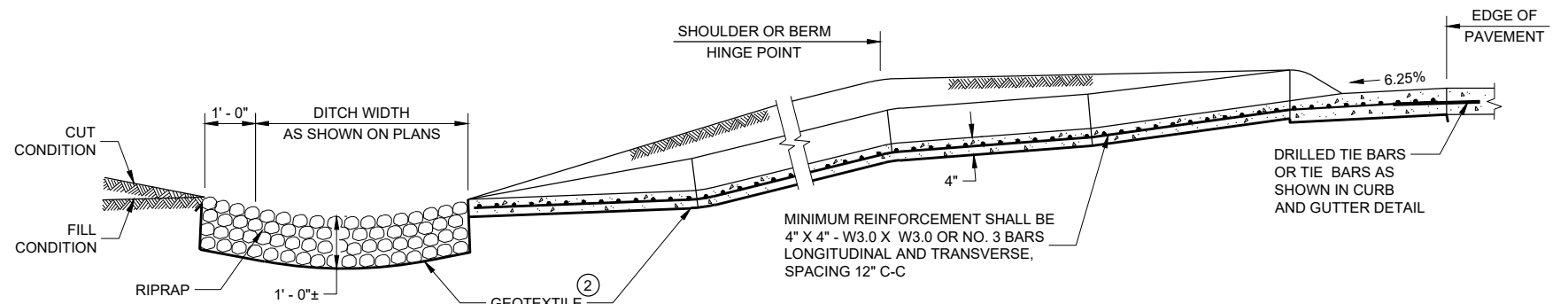
**SECTION A - A**



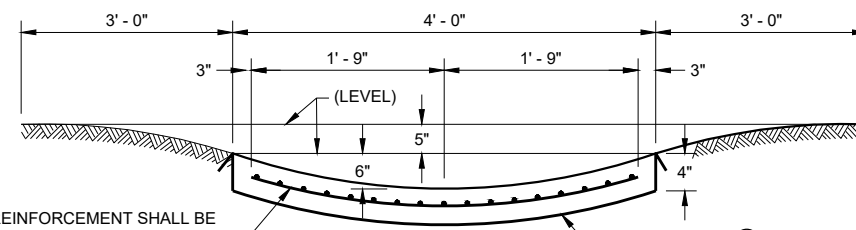
**SECTION B - B**



**PLAN VIEW  
CONCRETE SURFACE DRAIN**



**SECTION C - C**



**SECTION D - D**

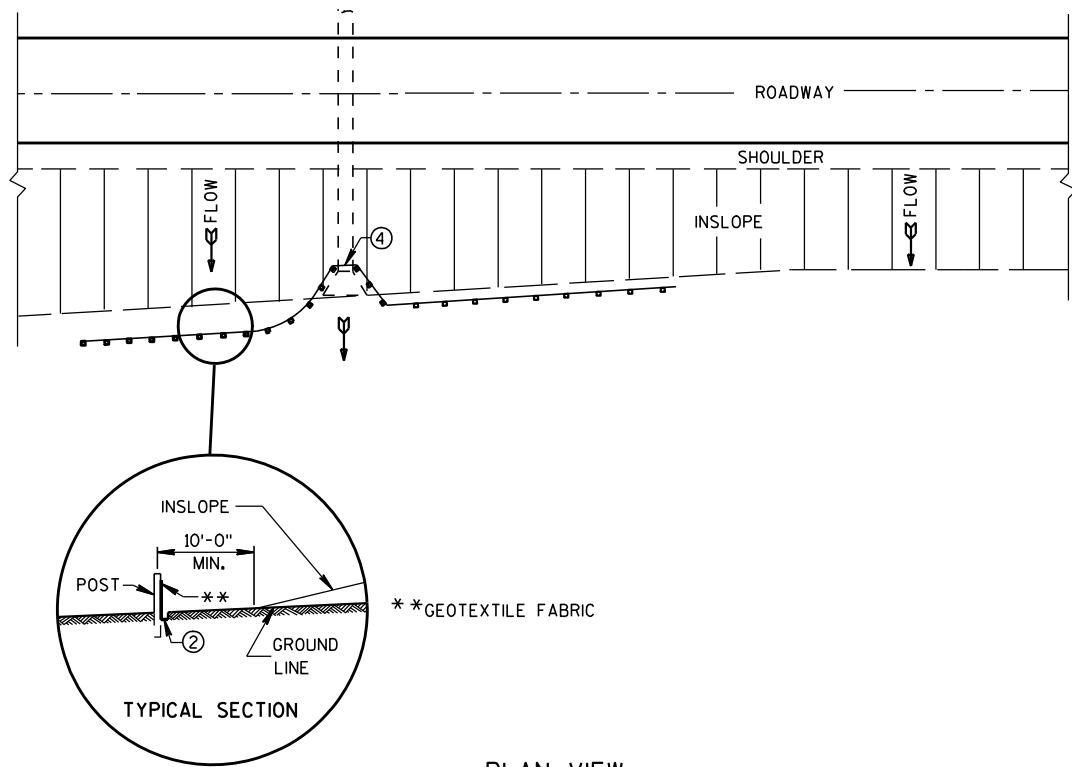
MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

### CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

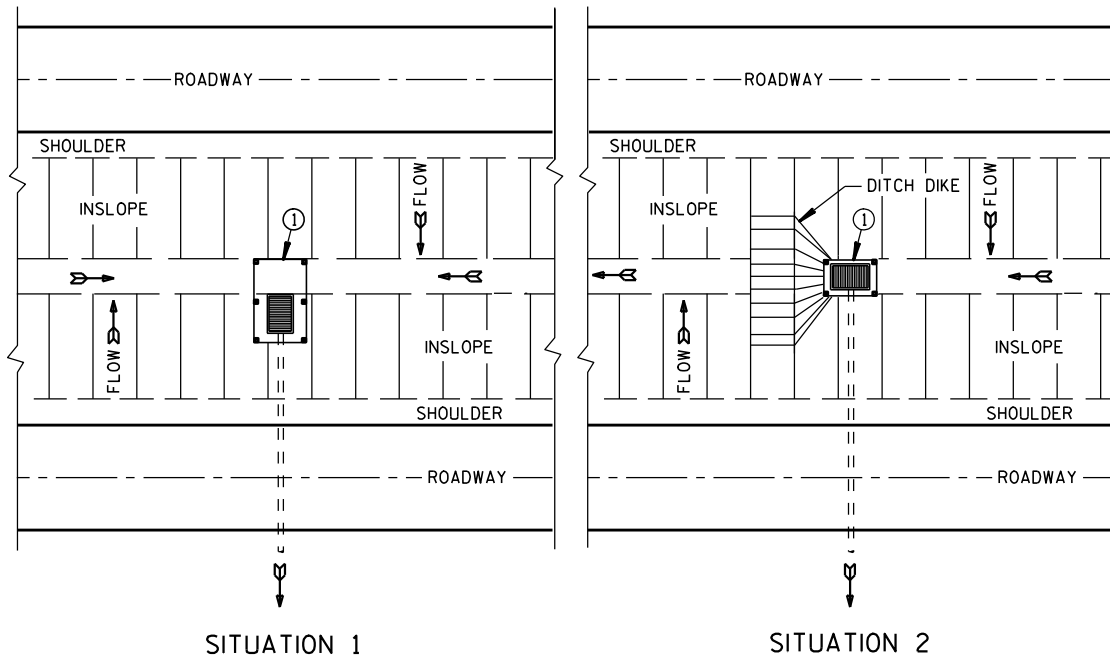
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

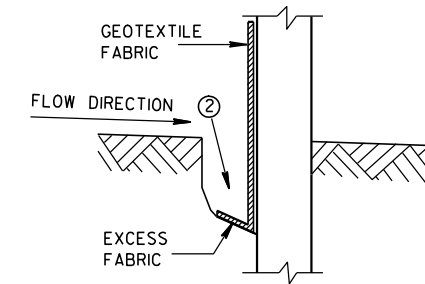


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

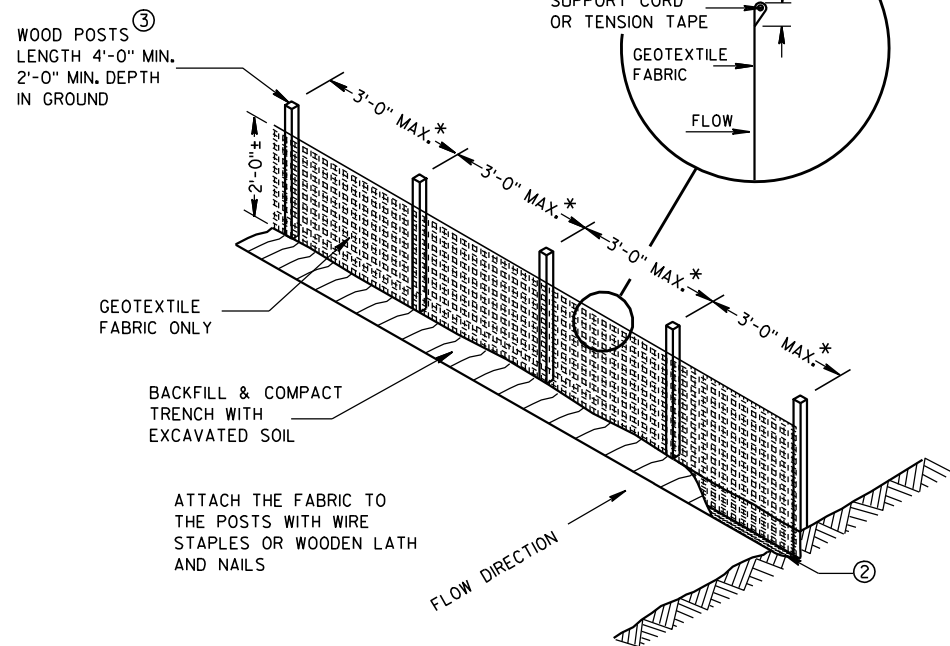
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



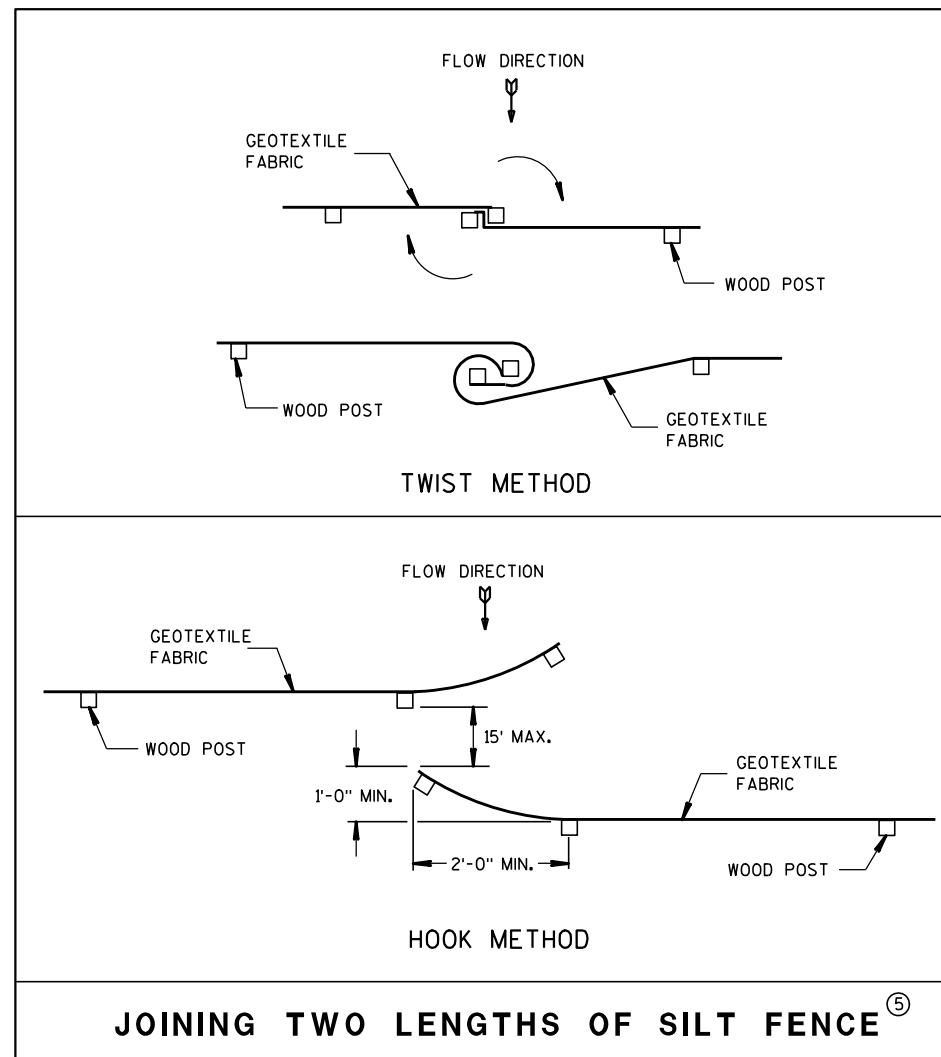
TRENCH DETAIL

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

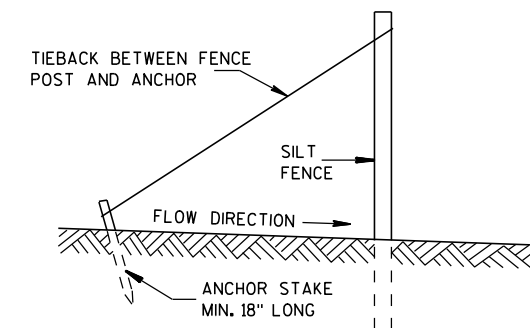


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

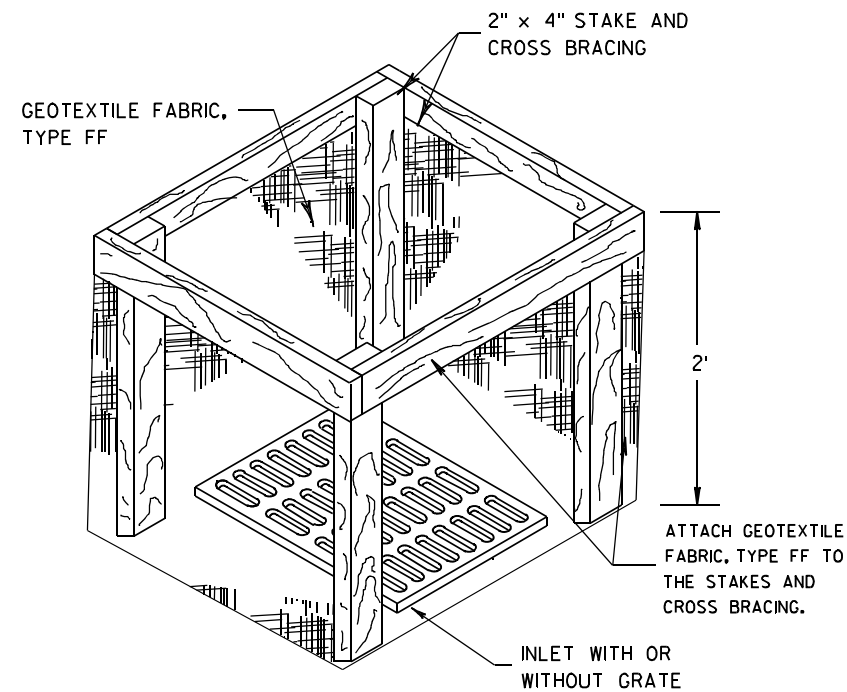
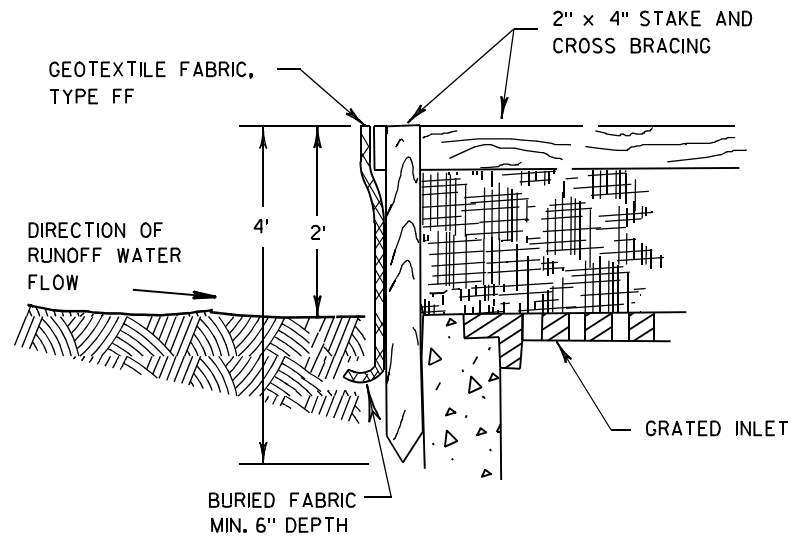


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**INLET PROTECTION, TYPE A**

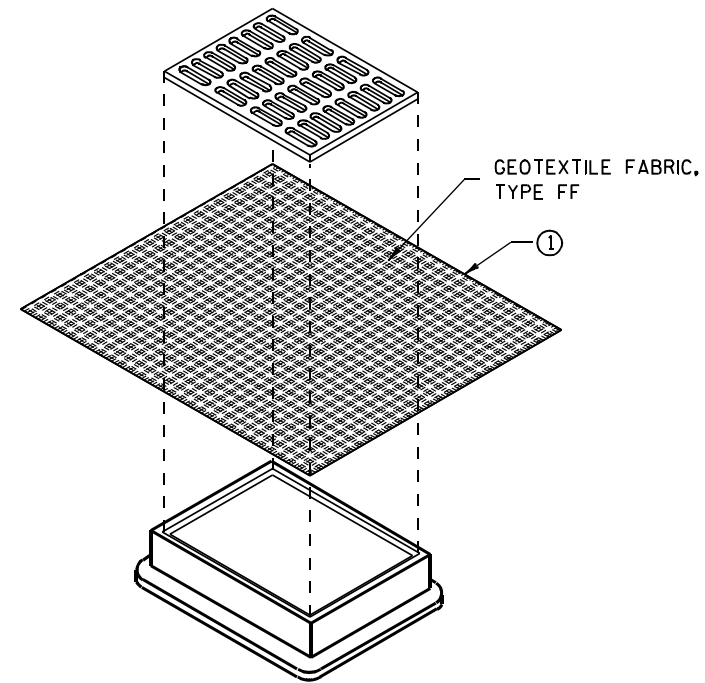
**GENERAL NOTES**

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

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

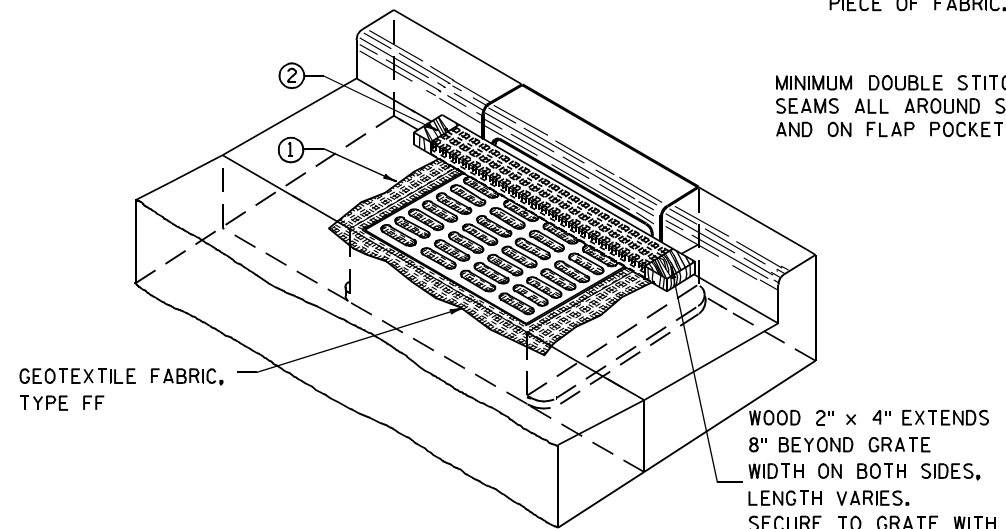
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

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

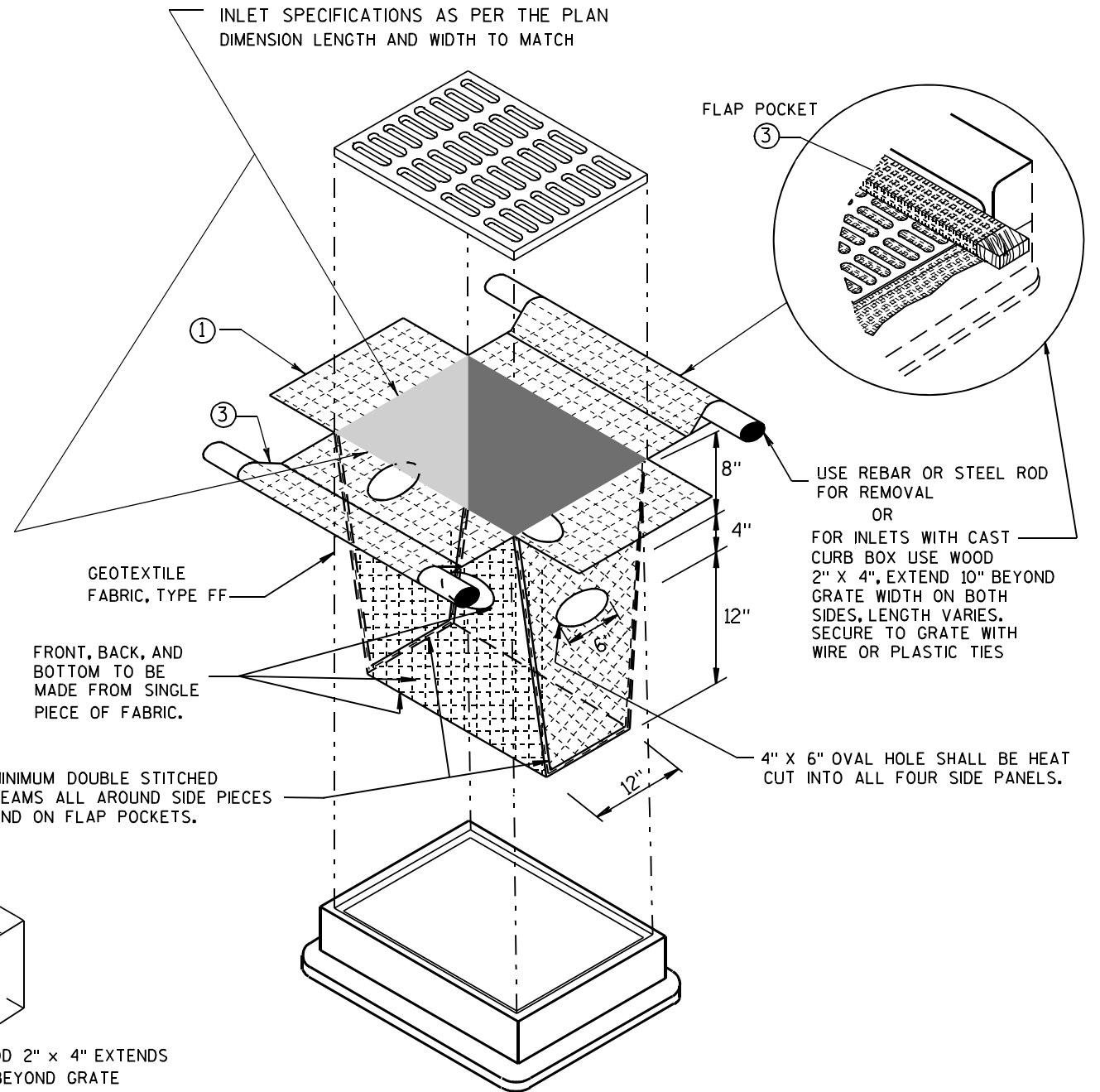
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

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

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

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



**INLET PROTECTION, TYPE D**

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

|  |  |
|--|--|
| <b>INLET PROTECTION<br/>TYPE A, B, C, AND D</b>    |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>10/16/02<br>DATE                       | /s/ Beth Connestra<br>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.

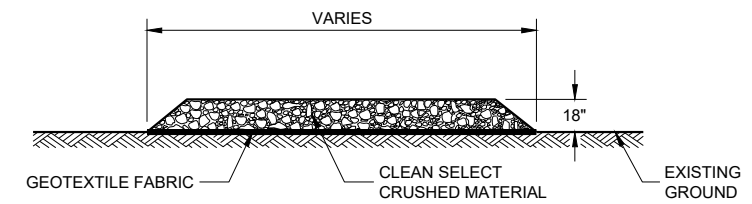
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

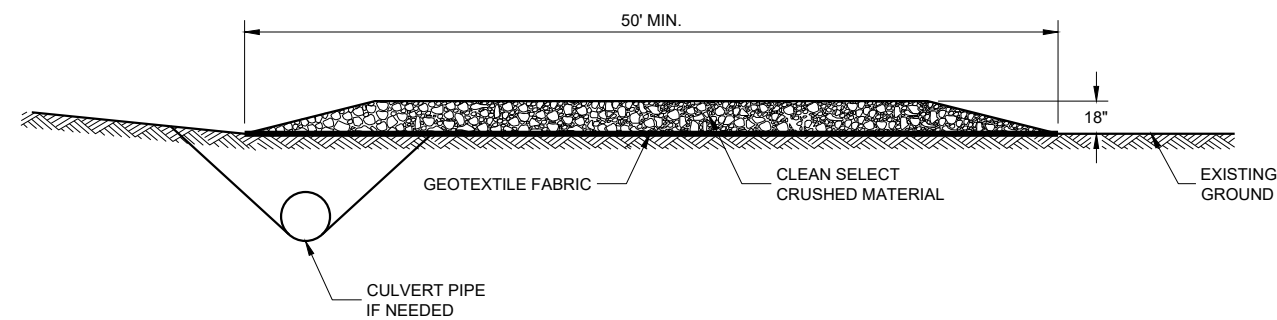
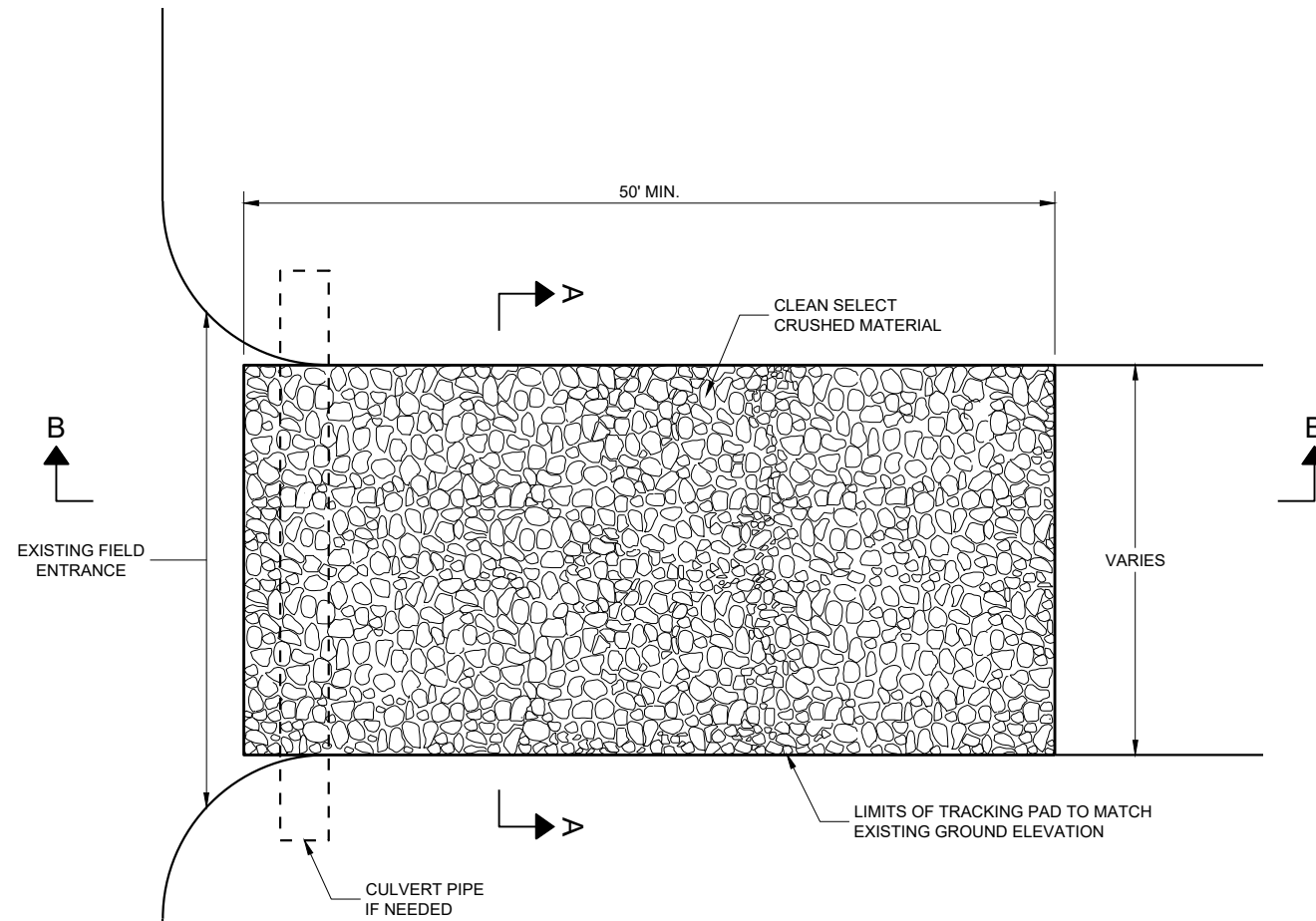
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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**



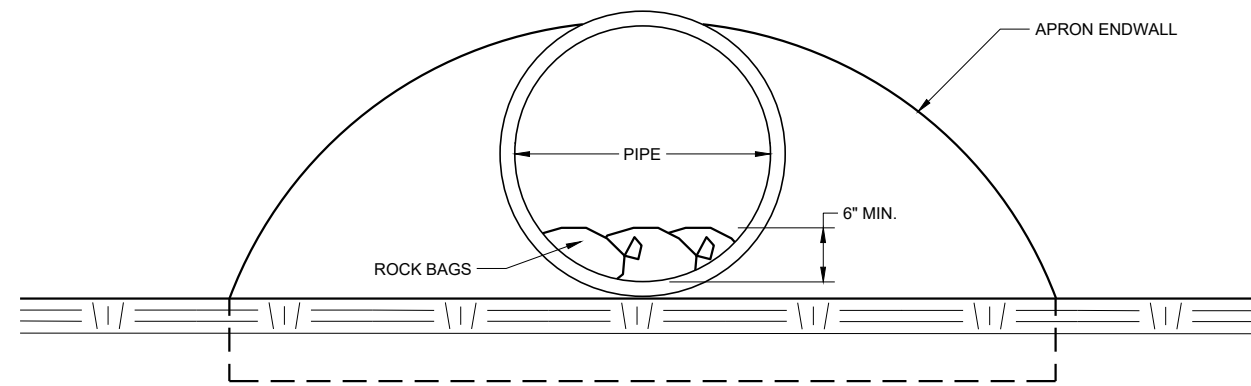
**SECTION B - B**

**TRACKING PAD**

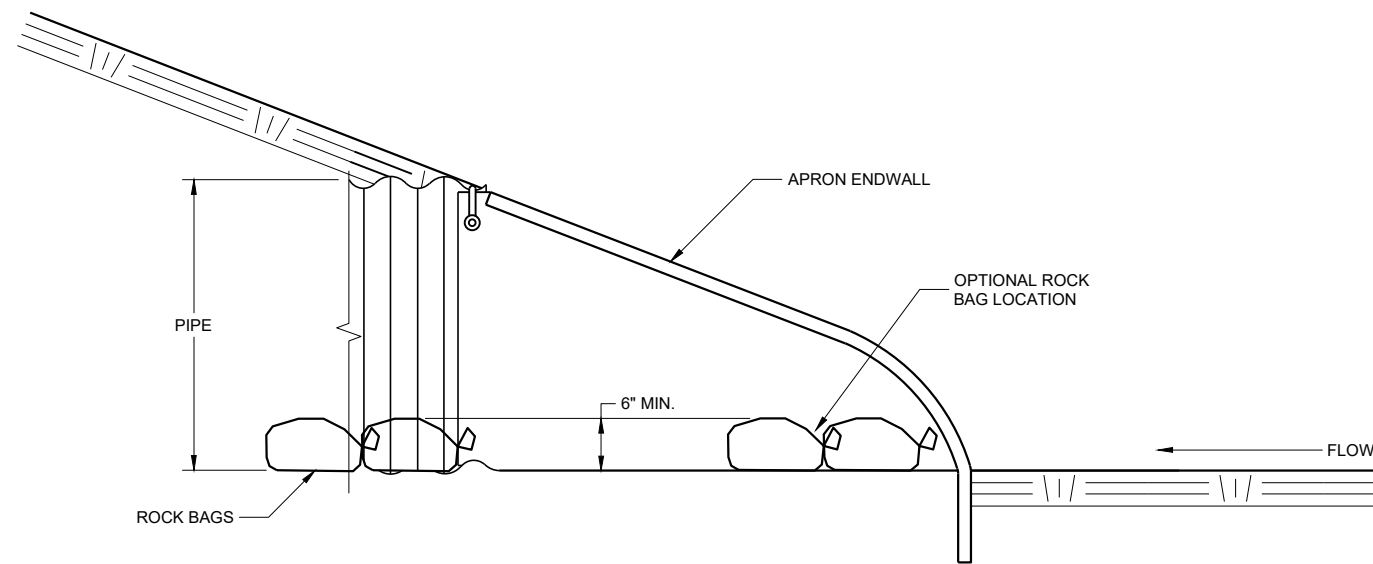
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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)

6

6

SDD 08E15 - 01

SDD 08E15 - 01

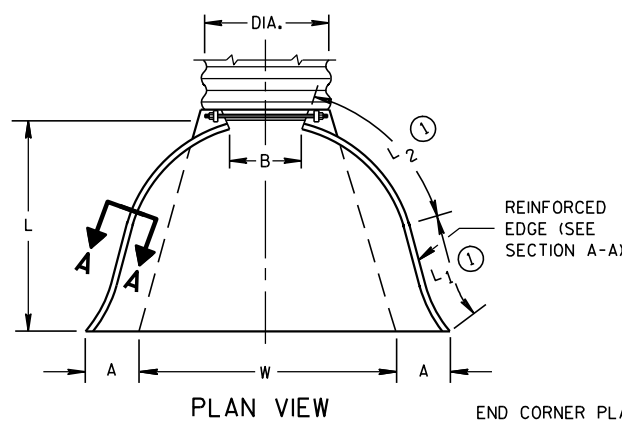
|  |   |
|--|---|
| <b>CULVERT PIPE CHECK</b>                          |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>May 2019<br>DATE                       | /S/ Daniel Schave<br>EROSION CONTROL ENGINEER |
| <small>FHWA</small>                                |   |

| 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. |

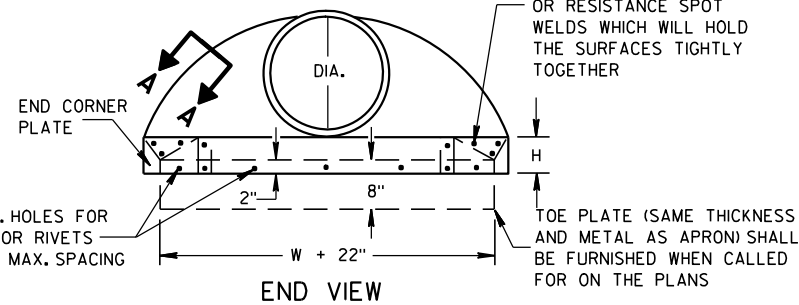
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

| 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    |  |

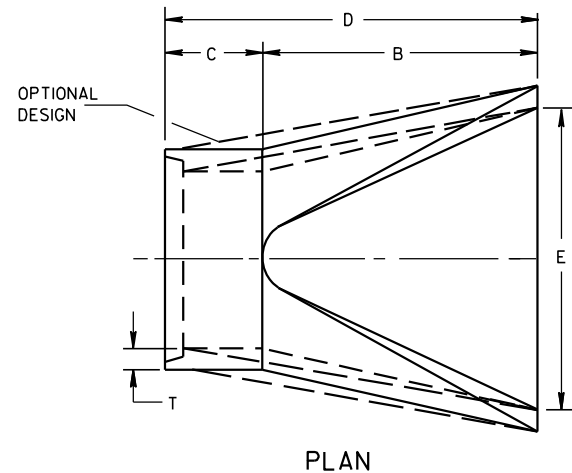
\* MINIMUM  
\*\* MAXIMUM



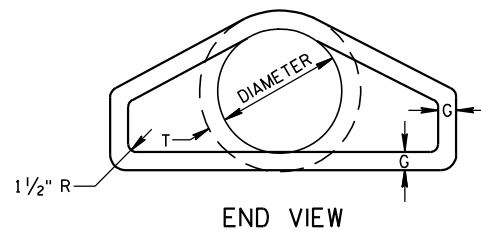
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



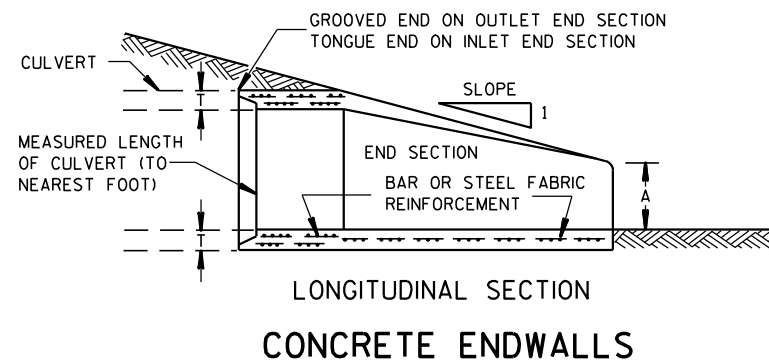
SIDE ELEVATION  
METAL ENDWALLS



PLAN

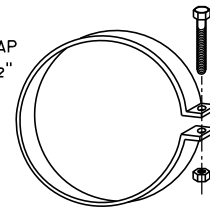


END VIEW

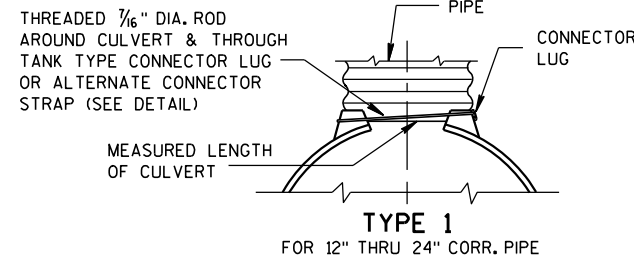


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

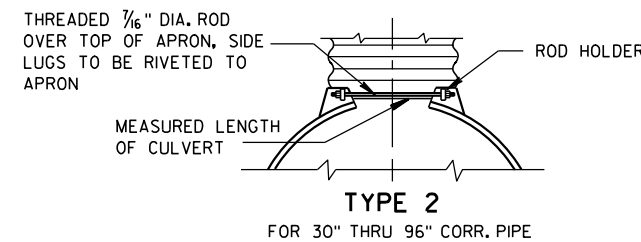
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



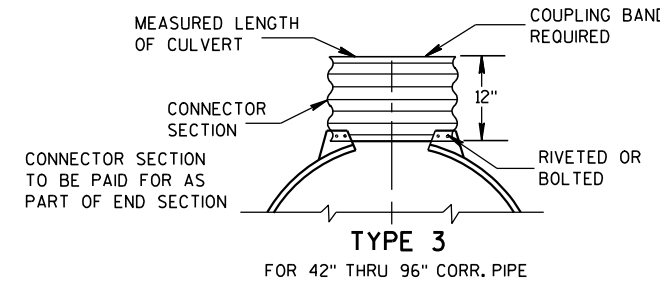
ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



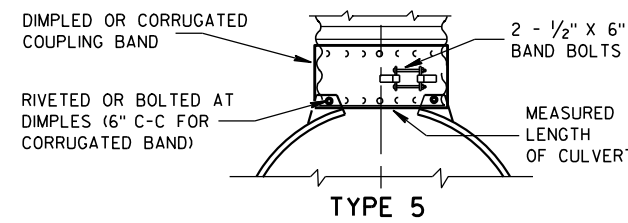
TYPE 1  
FOR 12" THRU 24" CORR. PIPE



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

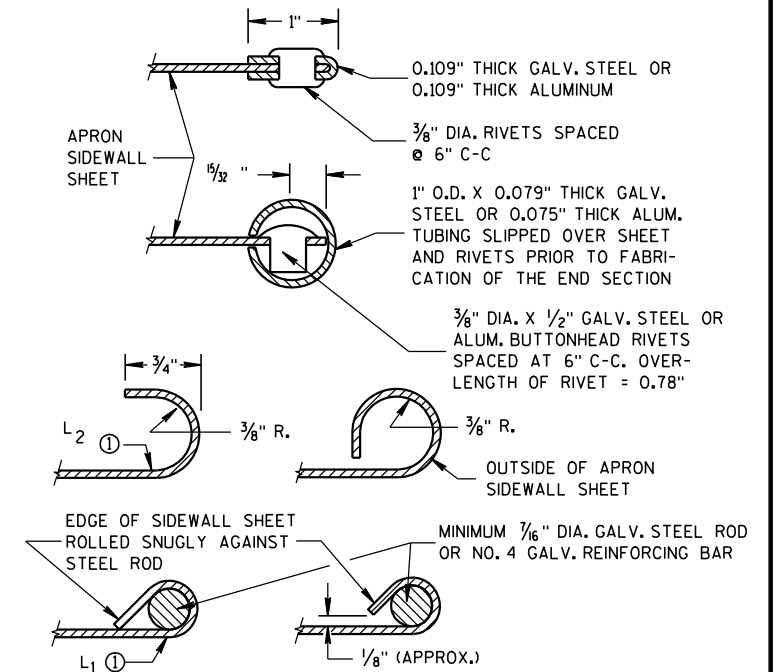
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

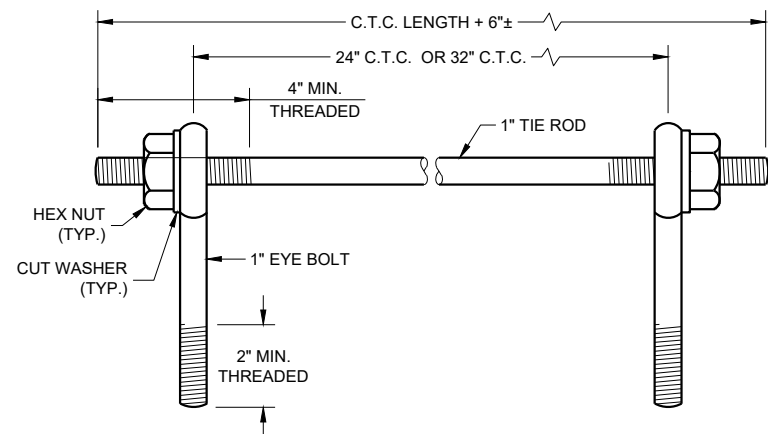
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

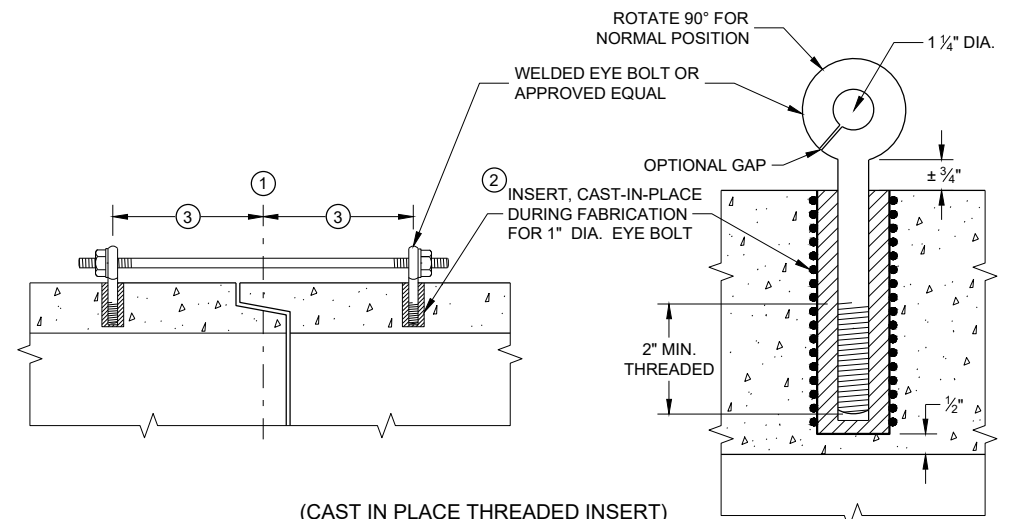
APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA





**EYE BOLTS AND TIE ROD**

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



(CAST IN PLACE THREADED INSERT)  
**LONGITUDINAL SECTIONS**

**GENERAL NOTES**

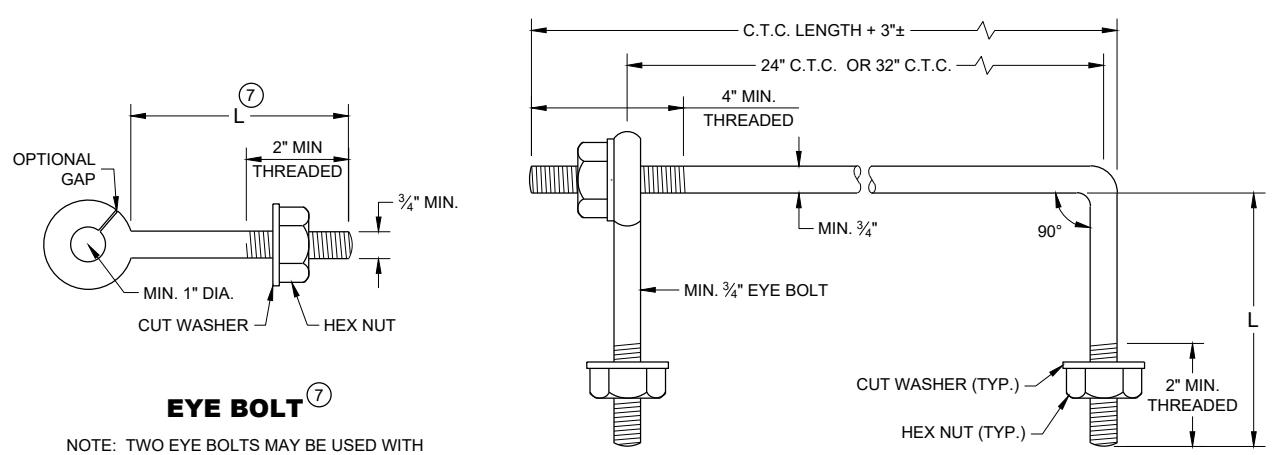
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

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

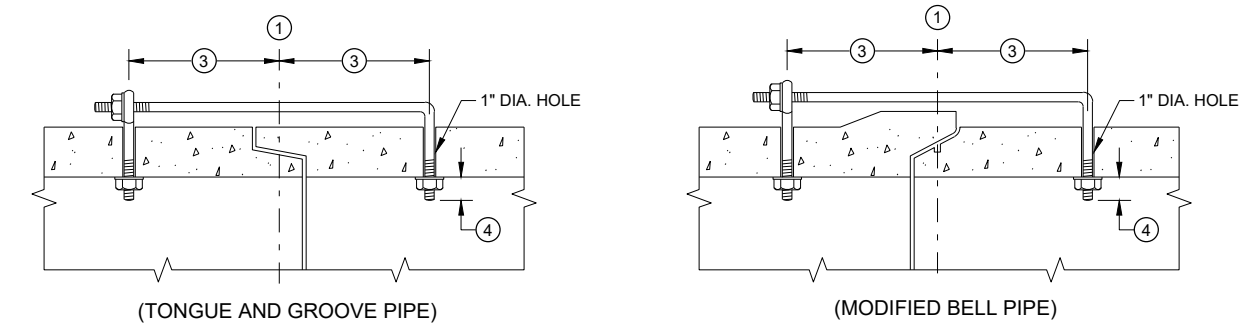
- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- ⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.



**EYE BOLT AND TIE ROD**

**EYE BOLT**

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



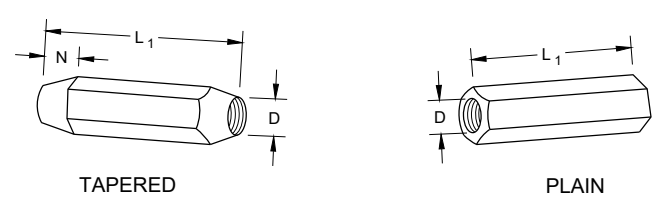
**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)**

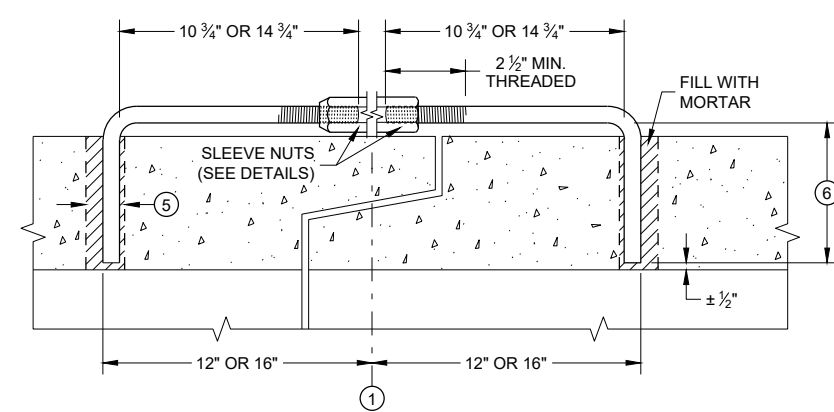
**ADJUSTABLE TIE ROD TABLE**

| PIPE DIAMETER | TIE ROD DIAMETER | D   | L <sub>1</sub> | N      |
|---------------|------------------|-----|----------------|--------|
| 12 - 60       | 5/8              | 5/8 | 5              | 1/2    |
| 66 - 84       | 3/4              | 3/4 | 5              | 1/2    |
| 90 - 144      | 1                | 1   | 7              | 1 7/16 |

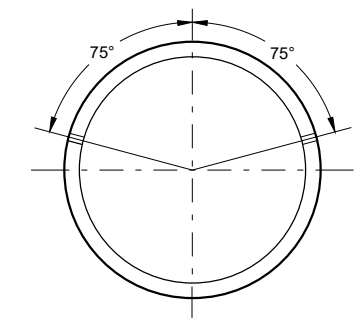
DIMENSIONS SHOWN ARE IN INCHES



**RIGHT AND LEFT THREADS SLEEVE NUTS**

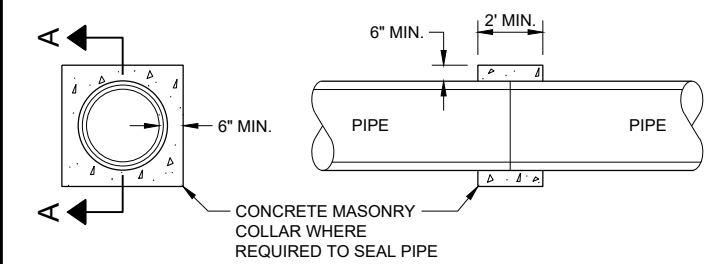


**LONGITUDINAL SECTION**  
**ADJUSTABLE TIE ROD (ALTERNATE NO. 3)**



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

**TRANSVERSE SECTION**



**SECTION A - A**  
**CONCRETE COLLAR DETAIL**

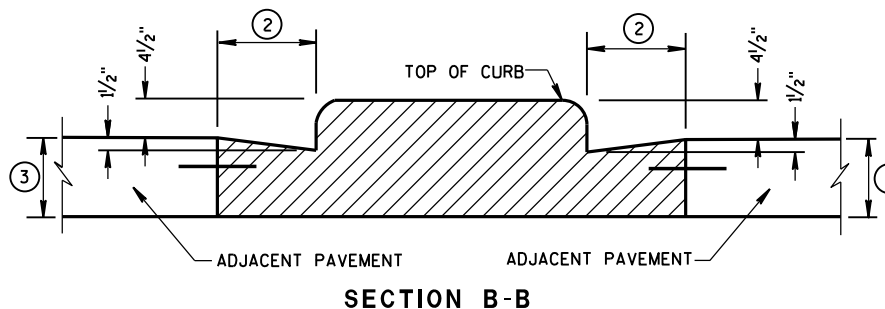
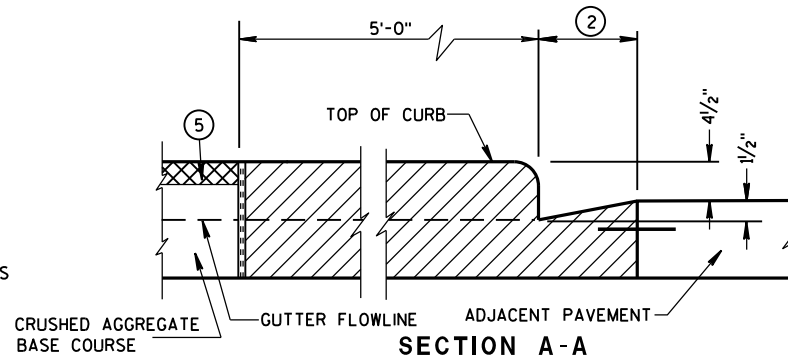
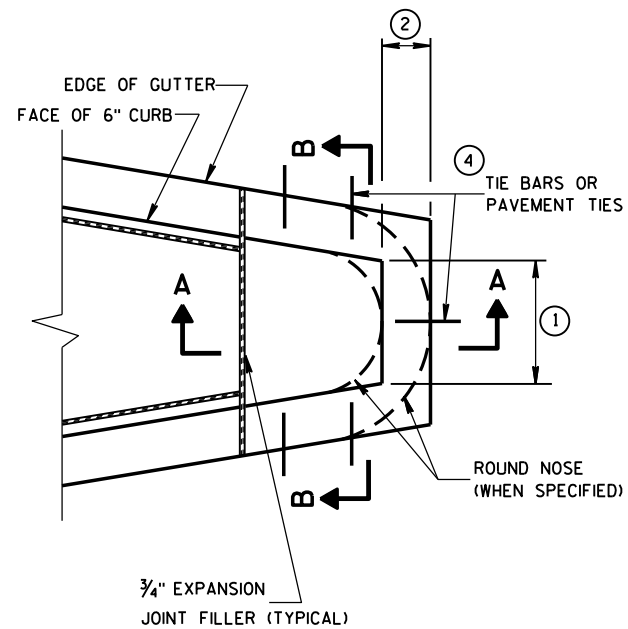
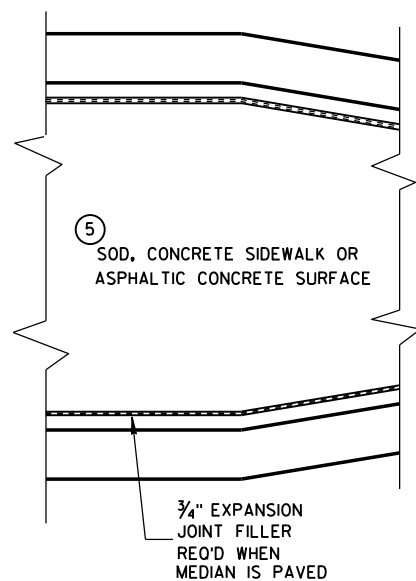
**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

SDD 08F04 - 08

SDD 08F04 - 08

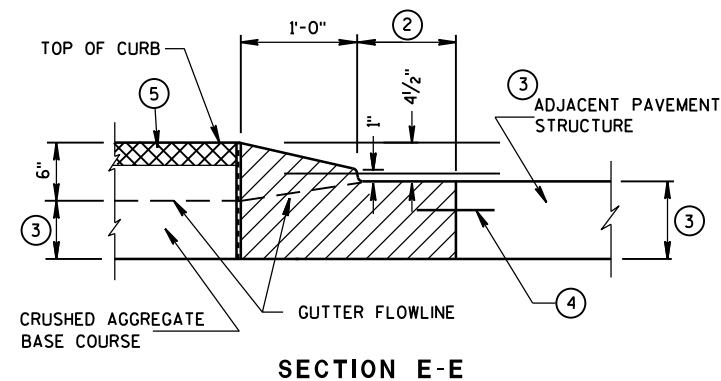
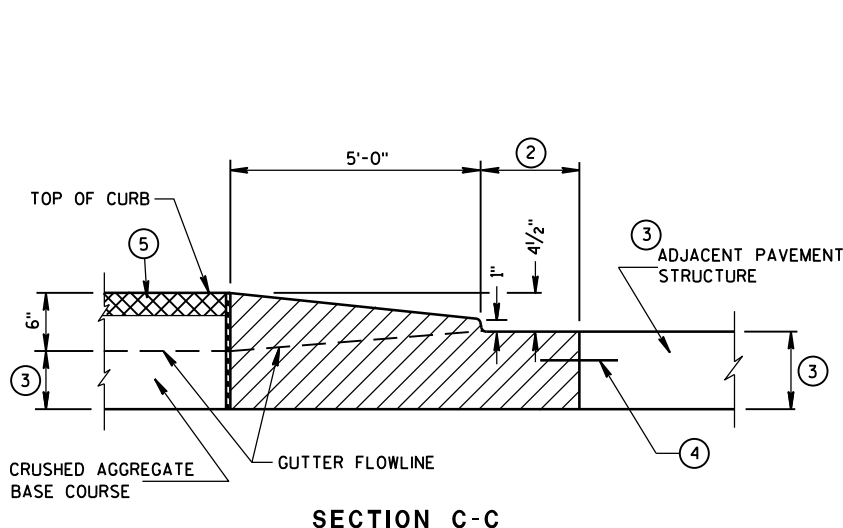
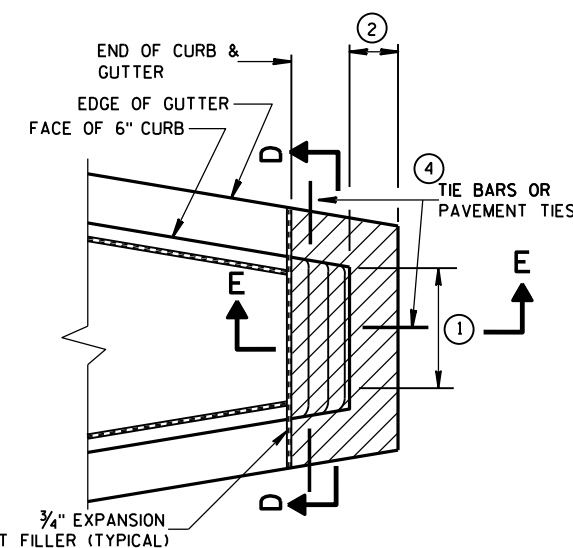


CONCRETE MEDIAN BLUNT NOSE DETAIL

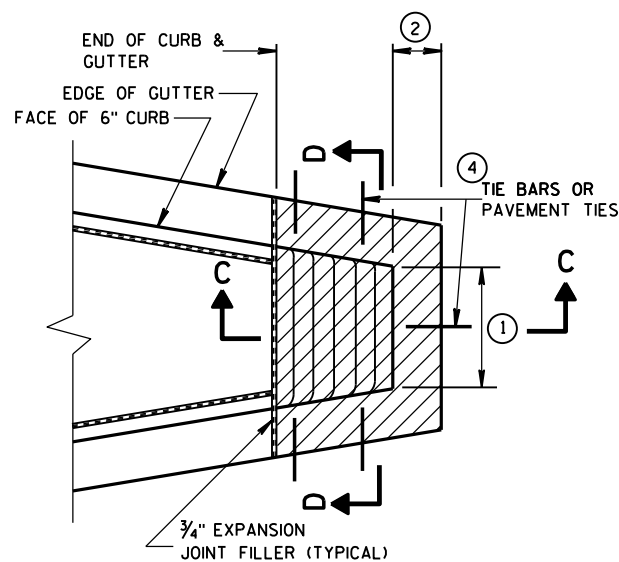
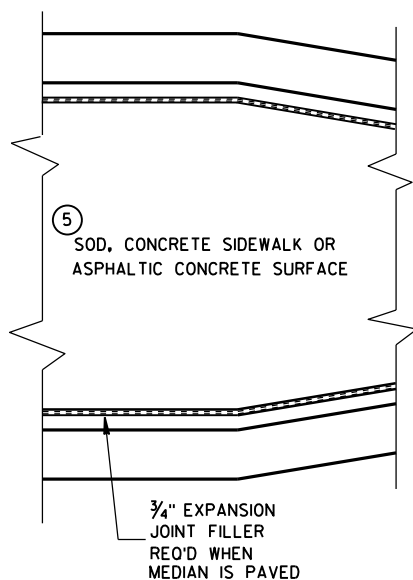
GENERAL NOTES

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.

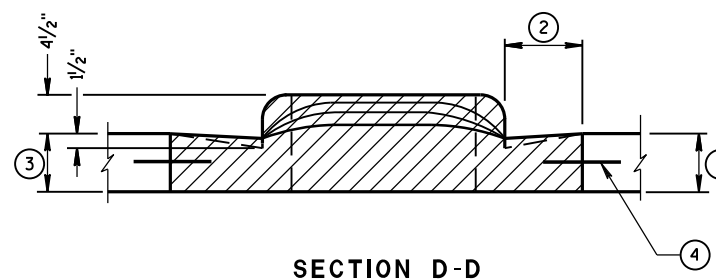
- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
  - (1) NEW OR EXISTING CONCRETE PAVEMENT.
  - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
  - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.
- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.
- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



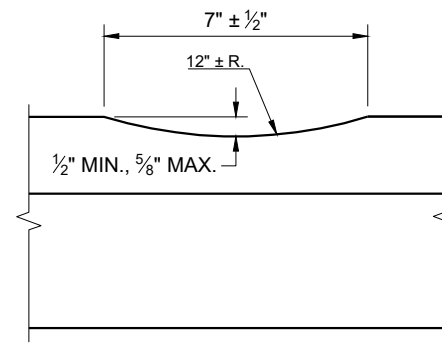
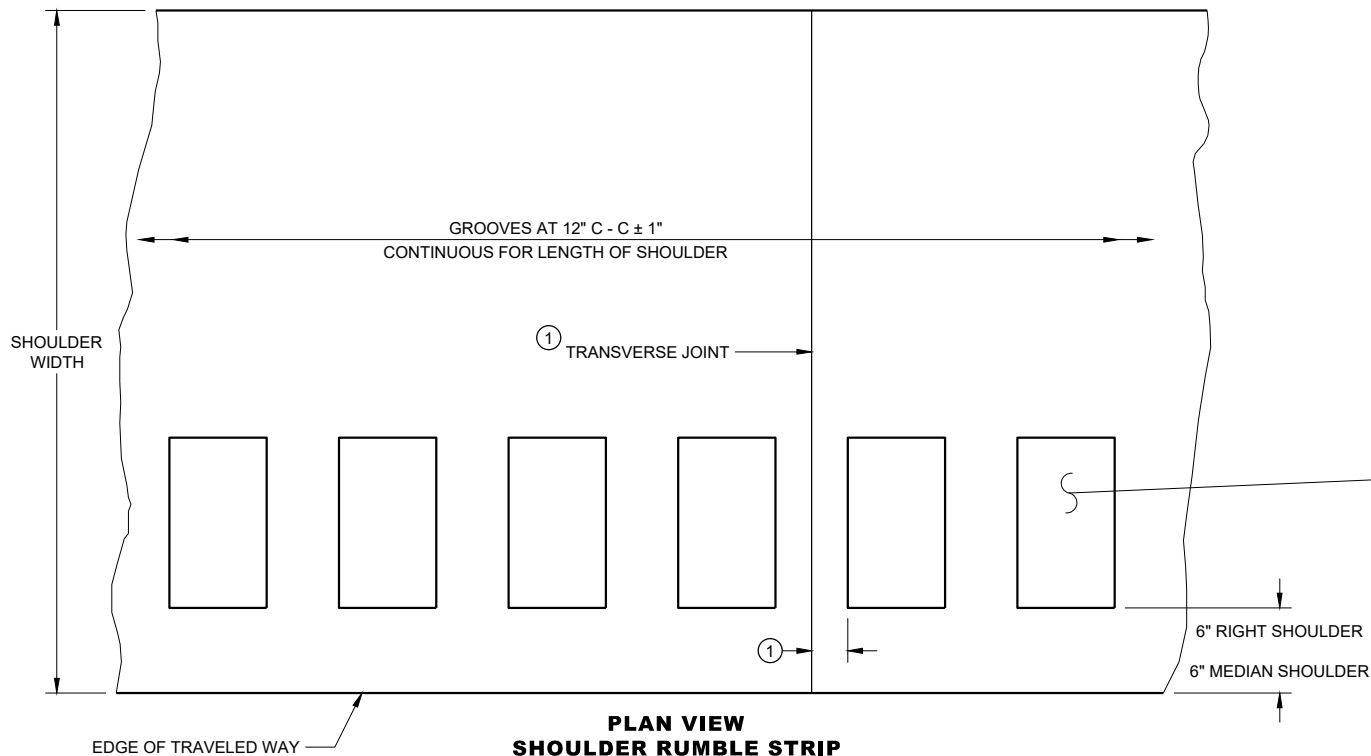
CONCRETE MEDIAN SLOPED NOSE TYPE 2



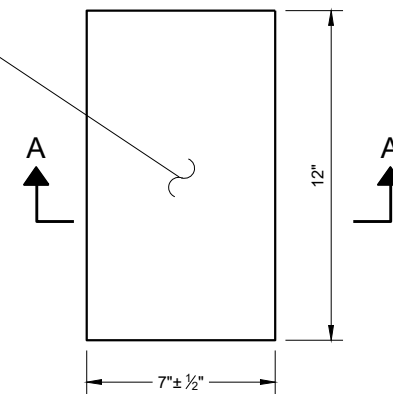
CONCRETE MEDIAN SLOPED NOSE TYPE 1



|  |  |
|--|--|
| CONCRETE MEDIAN NOSE                               |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>6/8/2006<br>DATE                       | /s/ Jerry H. Zogg<br>ROADWAY STANDARDS DEVELOPMENT<br>ENGINEER |
| FHWA   |  |



**SECTION A - A**

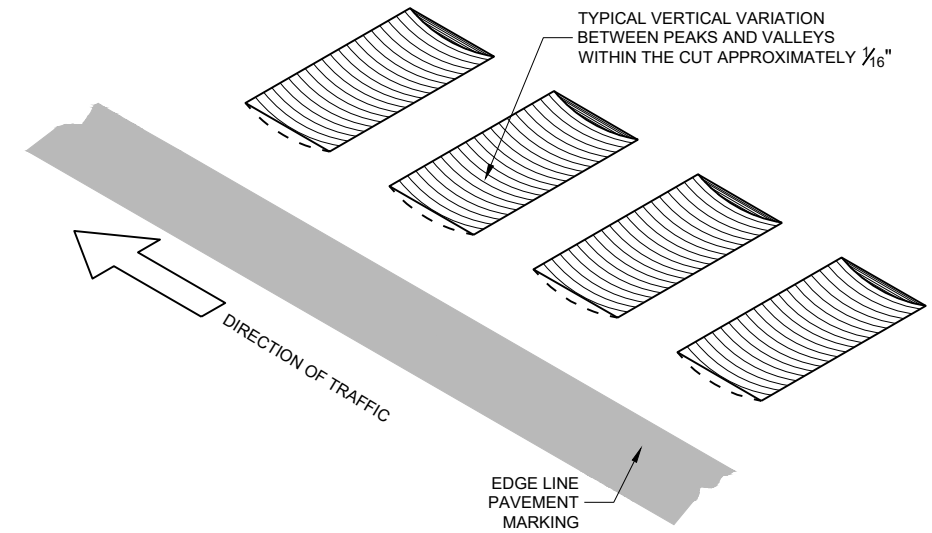


**GENERAL NOTES**

SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

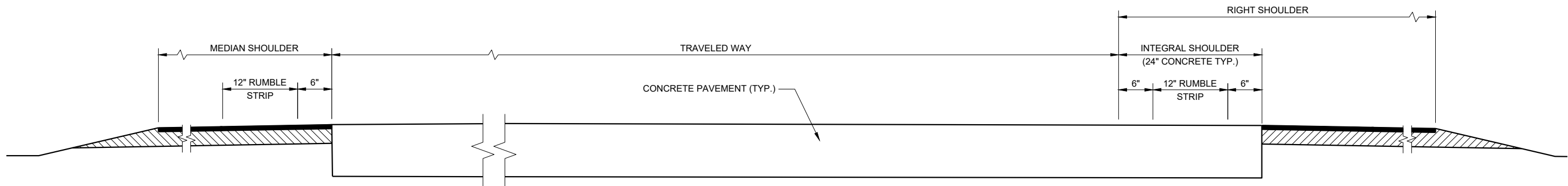
**RUMBLE STRIPS ON EXPRESSWAYS:**  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

- ① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES AWAY FROM TRANSVERSE JOINTS.



**ISOMETRIC**

**PLACEMENT DETAIL FOR RUMBLE STRIP**

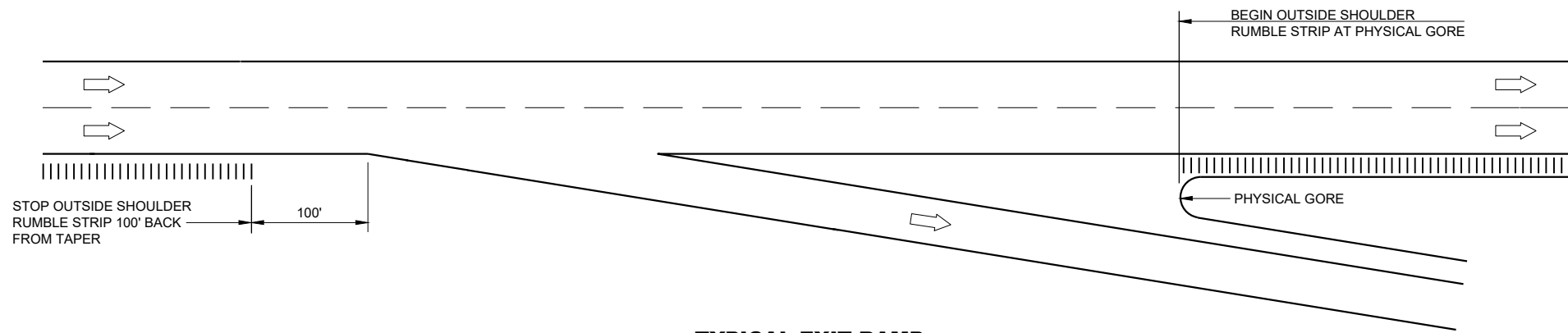


**SECTION VIEW**

**TYPICAL SHOULDER RUMBLE STRIPS  
(ONE ROADWAY IS SHOWN)**

**SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**TYPICAL EXIT RAMP**

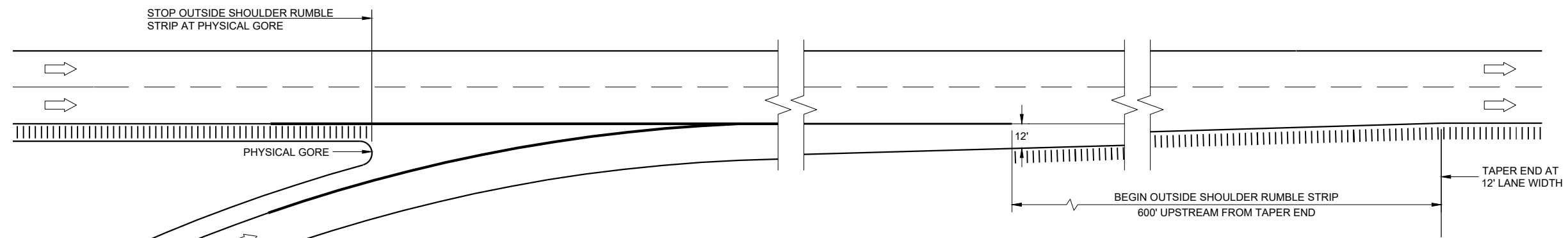
**GENERAL NOTES**

NO RUMBLE STRIP ON EXIT, DIRECTIONAL OR ENTRANCE RAMP, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

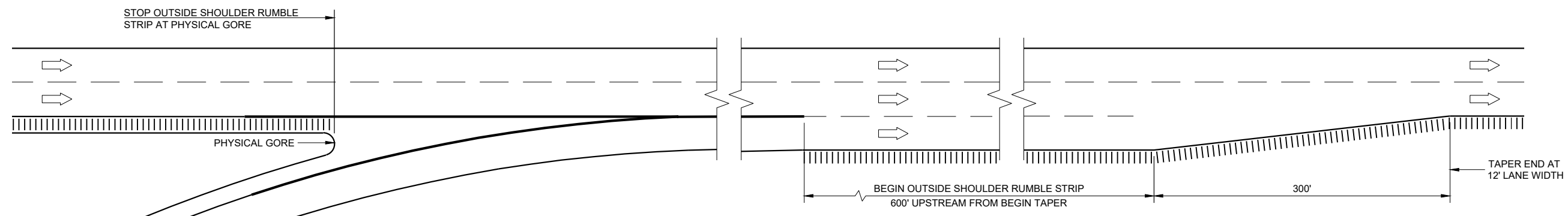
RUMBLE STRIPS ON EXPRESSWAYS:  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

**LEGEND**

➡ DIRECTION OF TRAFFIC



**TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**

6

6

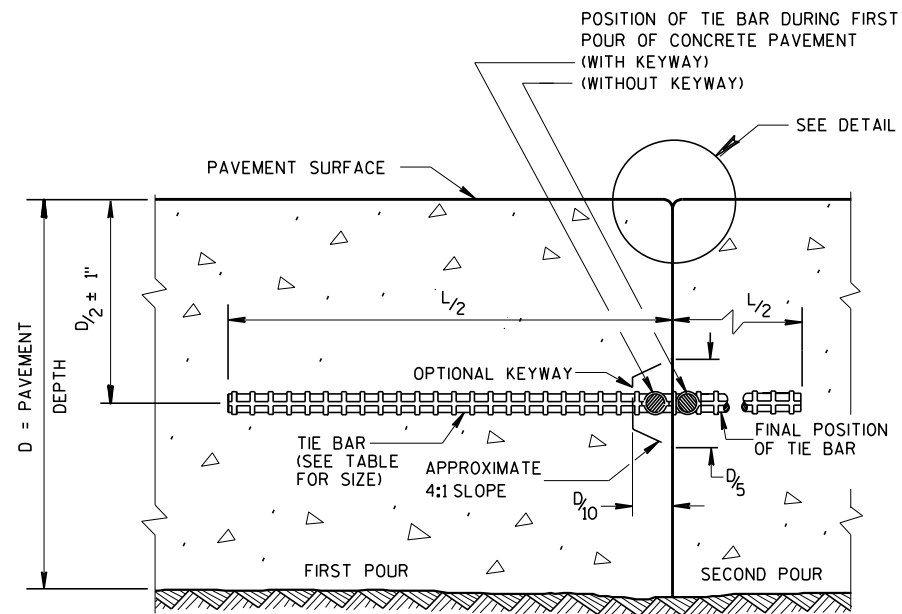
SDD 13A05-06b

SDD 13A05-06b

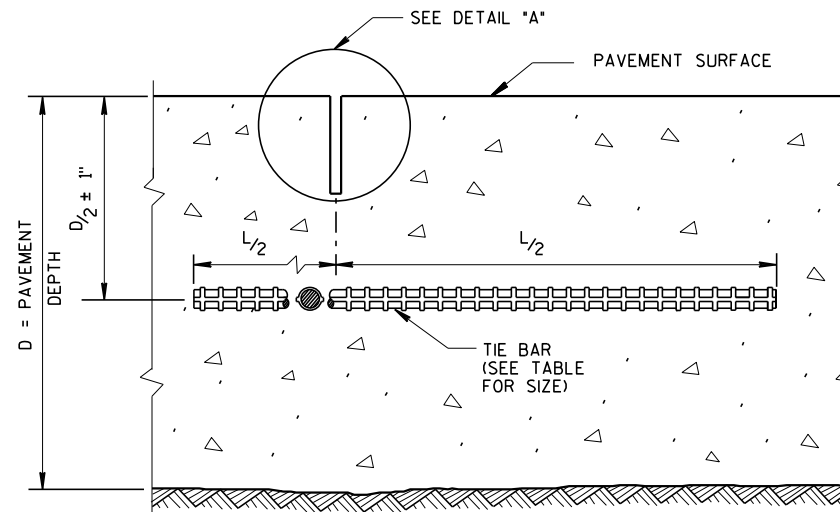
**SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2023 /S/ Rodney Taylor  
UNIT SUPERVISOR  
FHWA



**CONSTRUCTION JOINT**



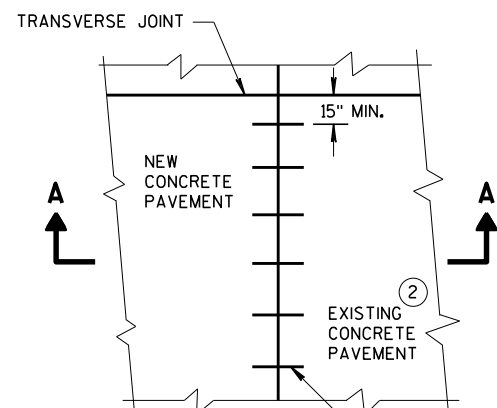
**SAWED JOINT**

**GENERAL NOTES**

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

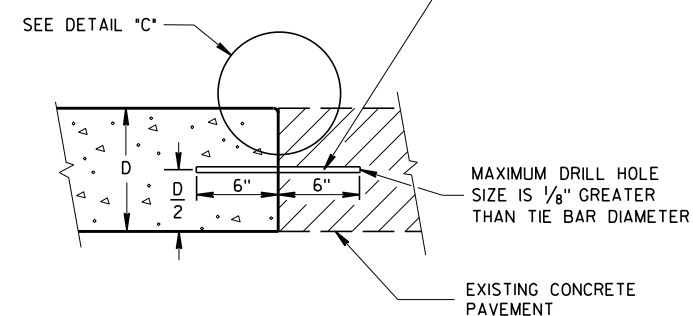
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

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

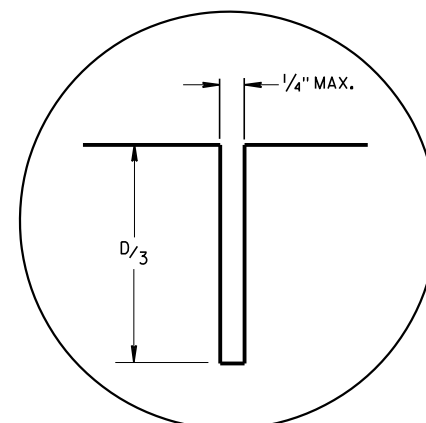


**PLAN VIEW**

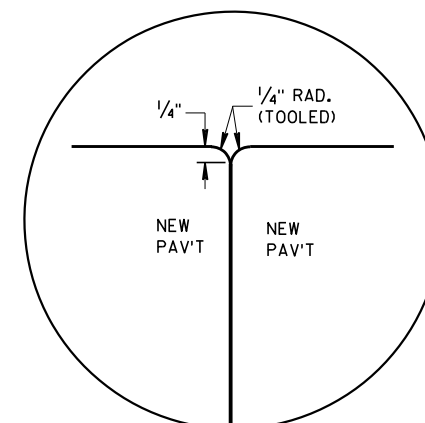
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



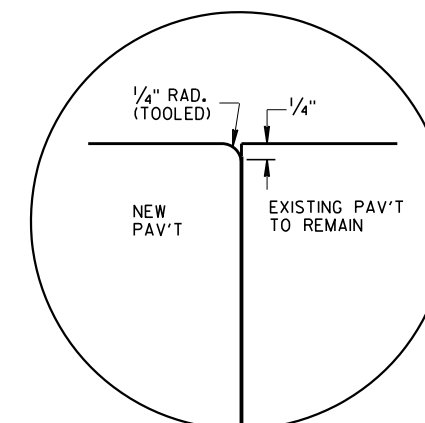
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**



**DETAIL "B"**



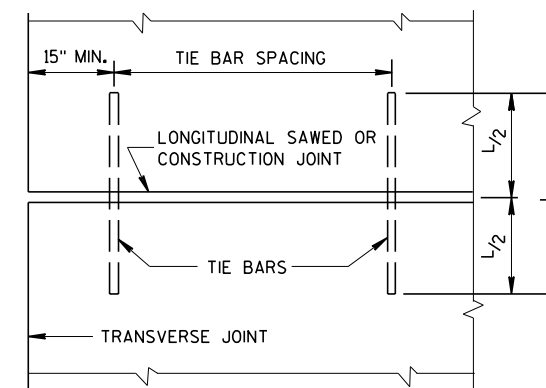
**DETAIL "C"**

**TIE BAR TABLE**

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

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

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

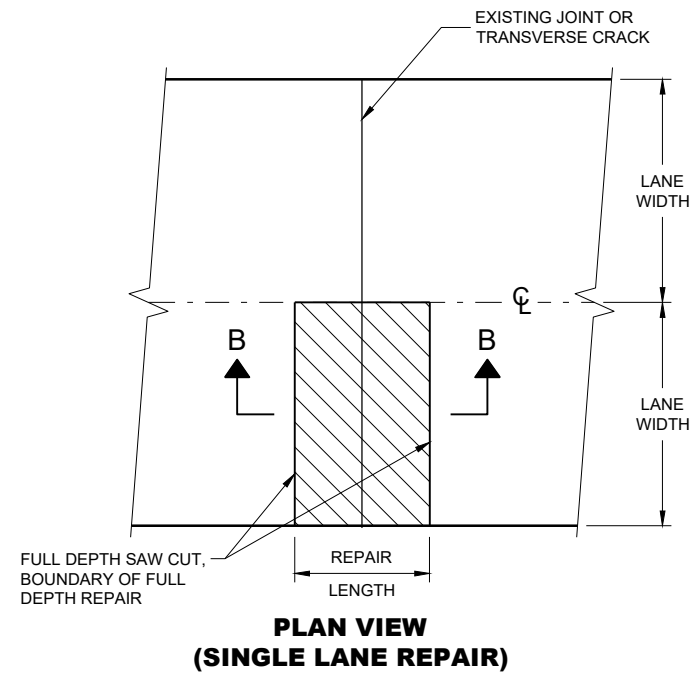
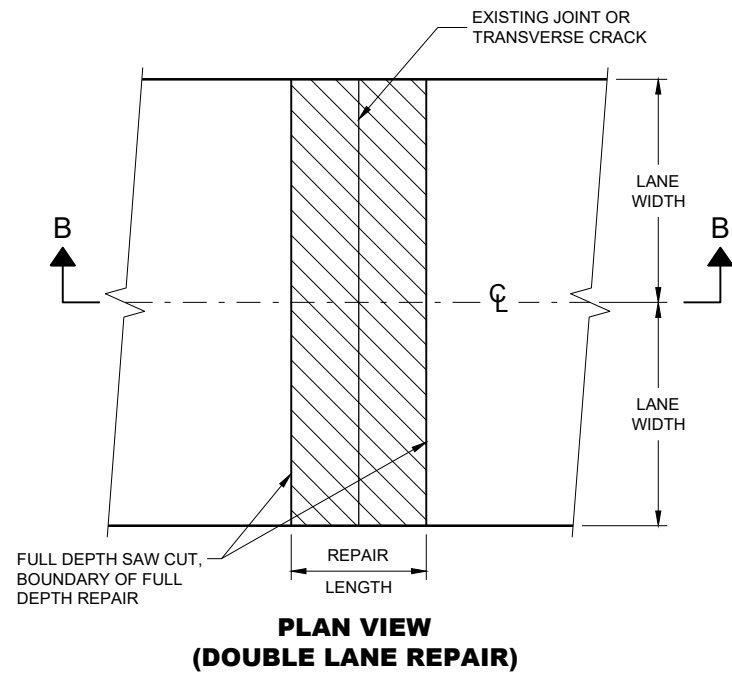


**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

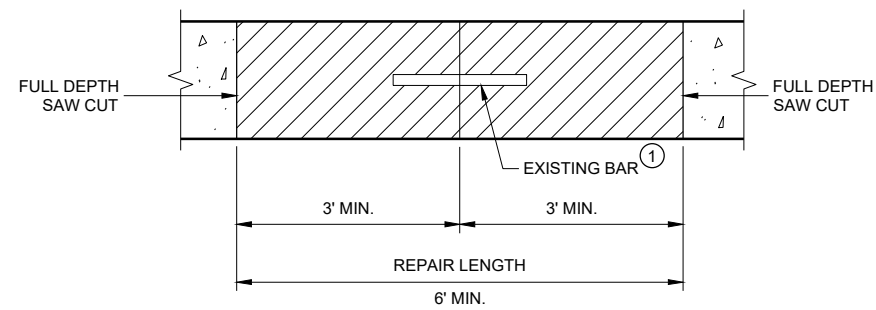
**CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



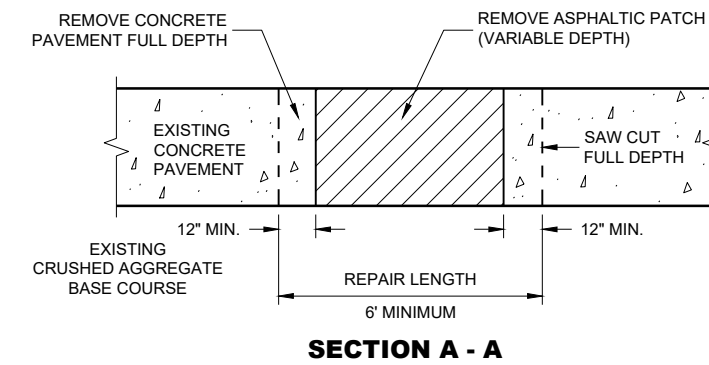
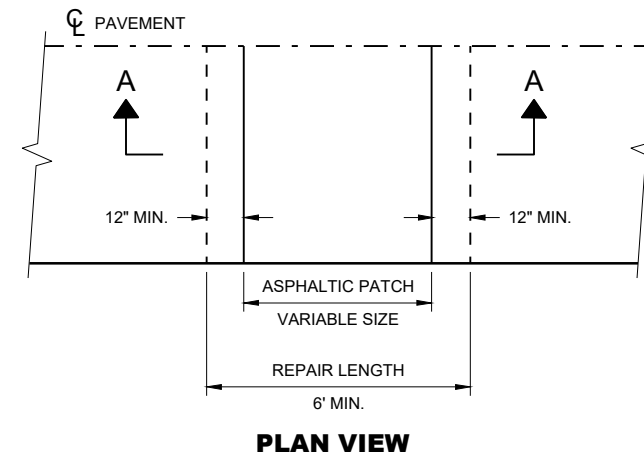
**GENERAL NOTES**

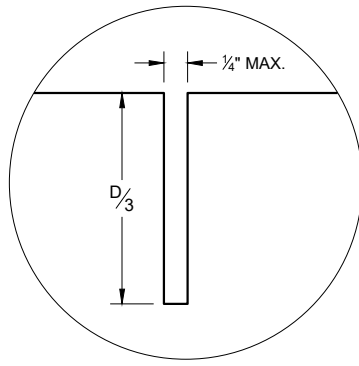
SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

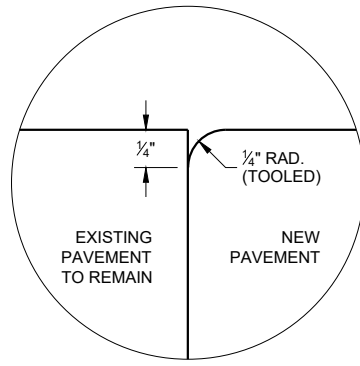
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



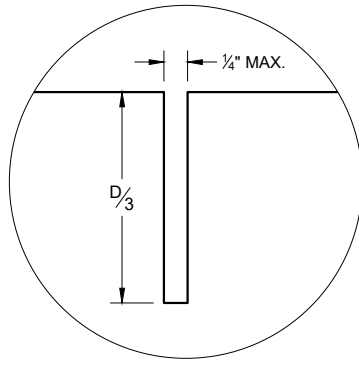


C1

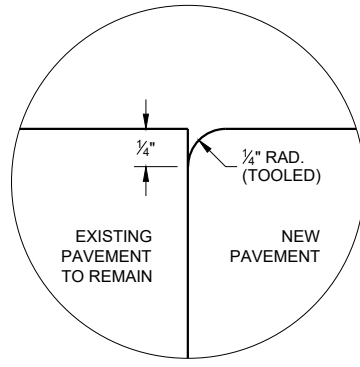


C2

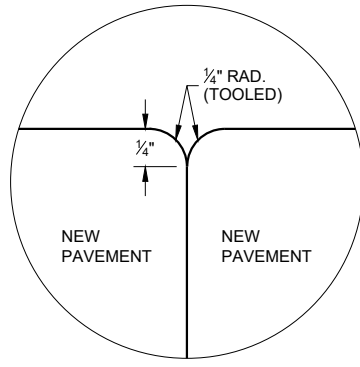
**TRANSVERSE JOINTS**



L1

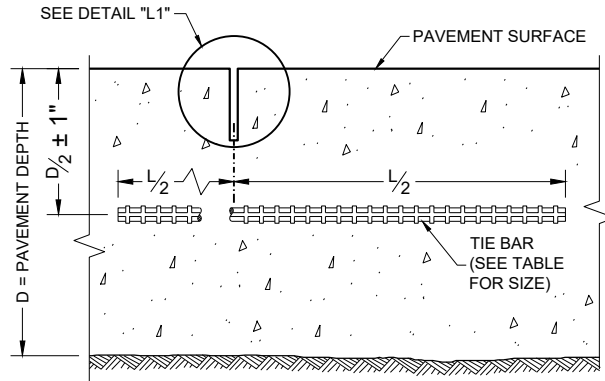


L2

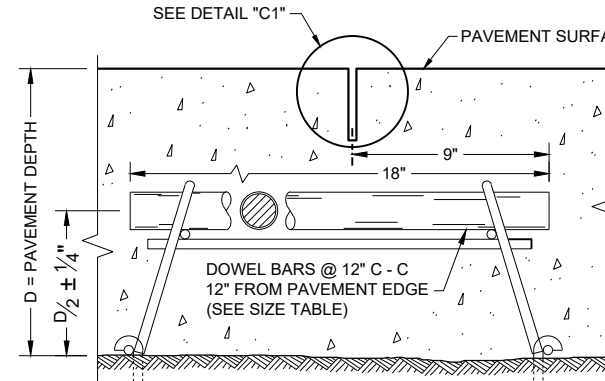


L3

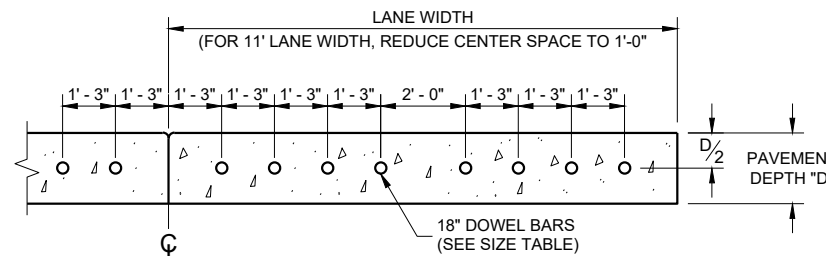
**LONGITUDINAL JOINTS**



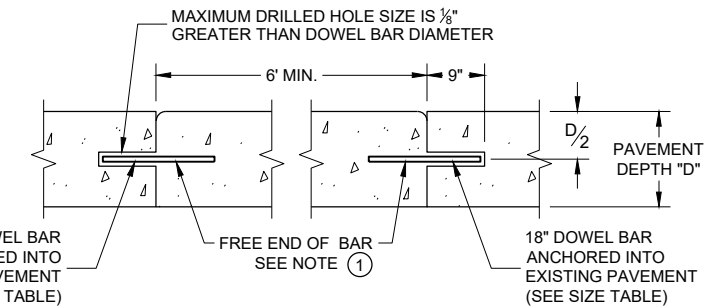
**SECTION C - C  
SAWED LONGITUDINAL JOINT**



**SECTION F - F  
DOWELED CONTRACTION JOINT**



**SECTION E - E  
DRILLED DOWEL BAR CONSTRUCTION JOINT**



**SECTION D - D**

**GENERAL NOTES**

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

**TIE BAR TABLE**

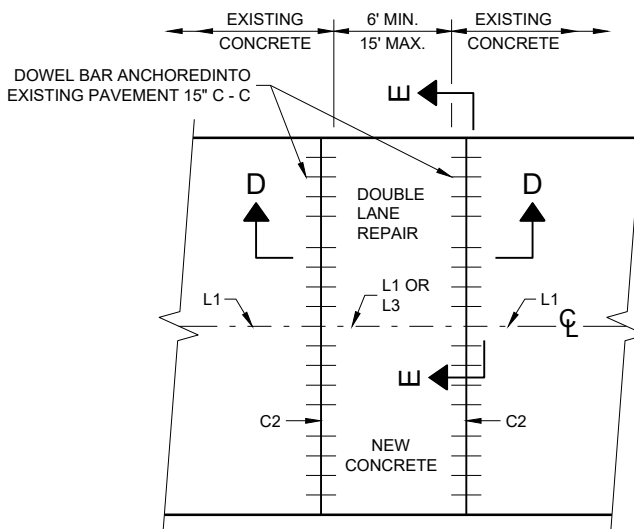
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2"          | NO. 4        | 30"                | 36"                  |
| ≥ 10 1/2"          | NO. 5        | 36"             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

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

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

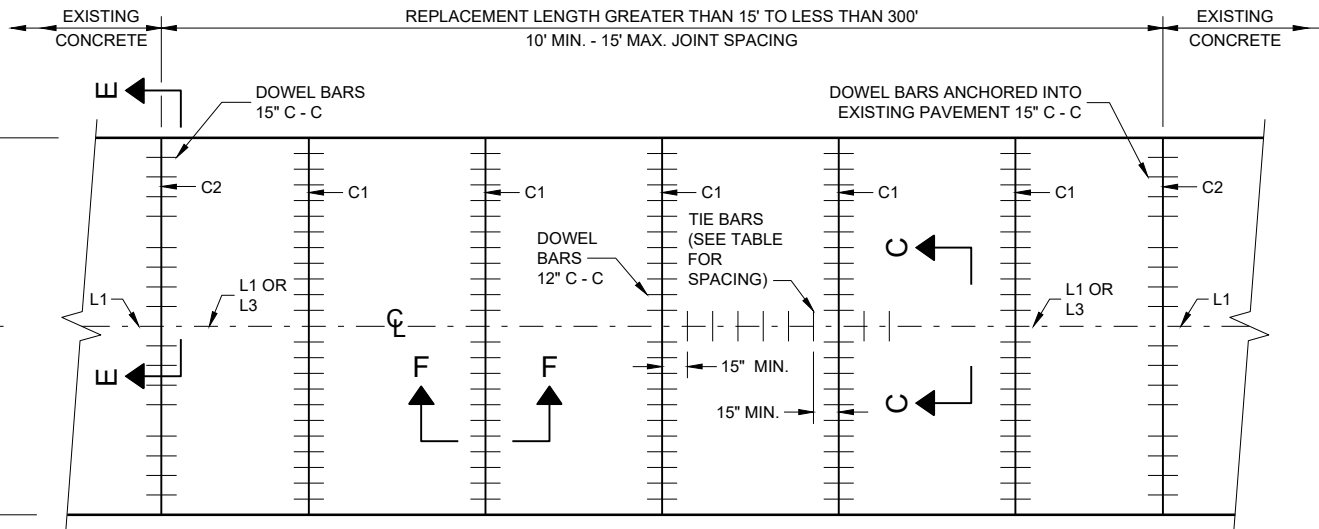
**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

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



**PLAN VIEW**

**MULTILANE CONCRETE PAVEMENT REPAIR**

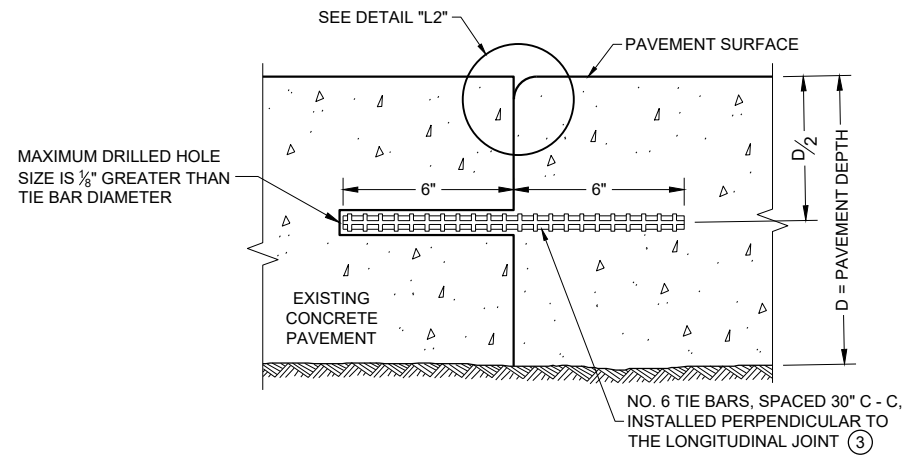


**PLAN VIEW**

**MULTILANE CONCRETE PAVEMENT REPLACEMENT**

**CONCRETE PAVEMENT  
REPAIR AND REPLACEMENT**

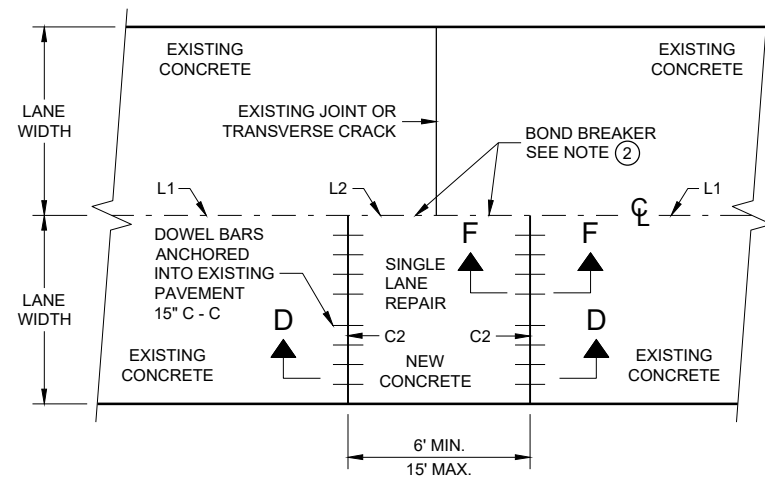
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



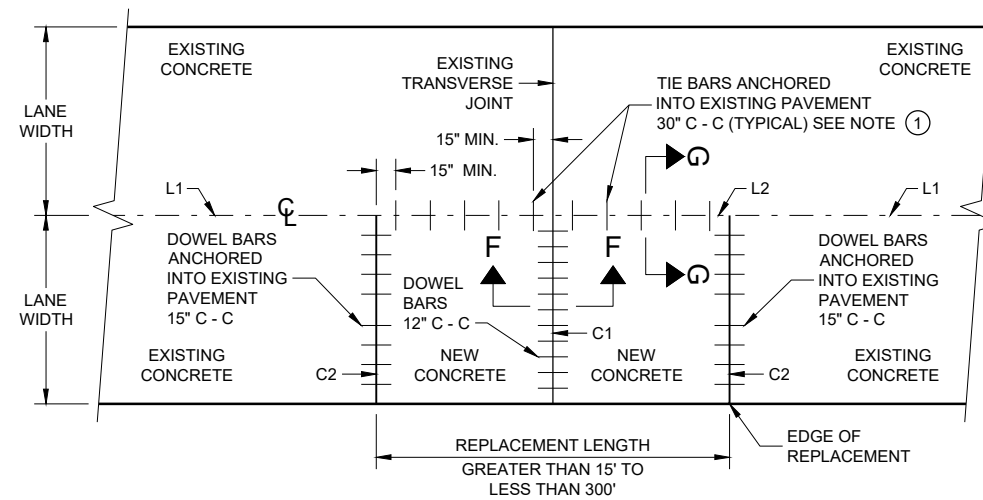
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPAIR**



**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPLACEMENT**

**CONCRETE REPAIR AND REPLACEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

FHWA



**GENERAL NOTES**

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

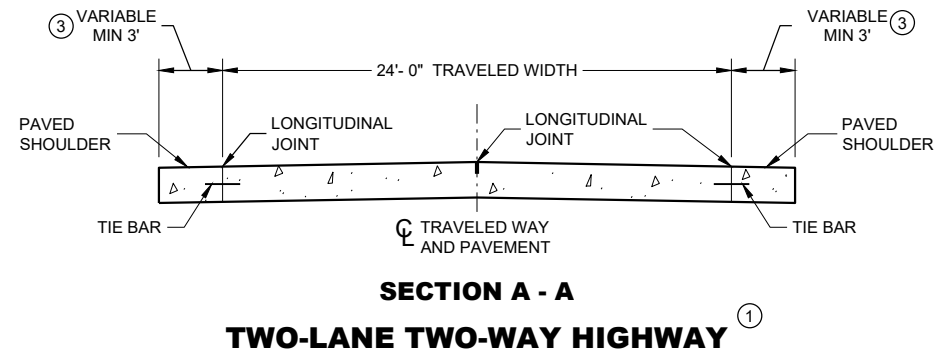
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

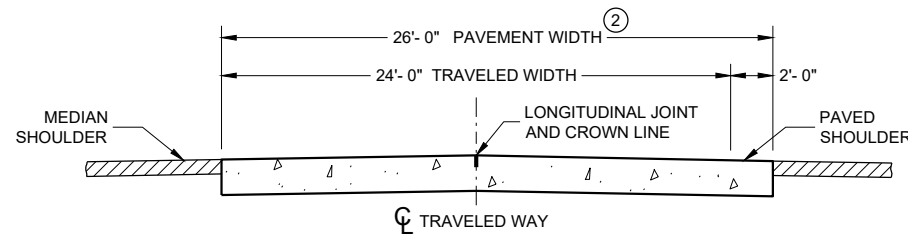
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

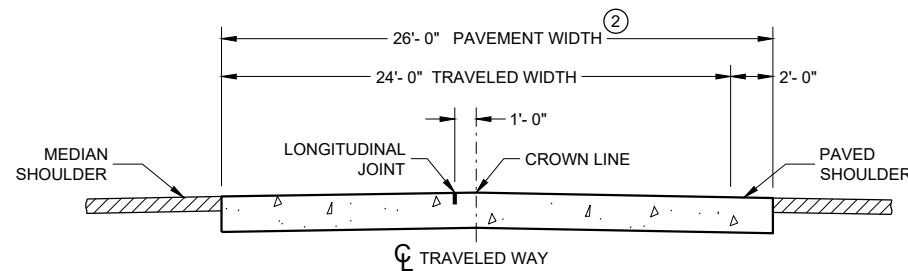
| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|---------------------------|
| 6", 6 1/2"         | NONE               | 12'                       |
| 7", 7 1/2"         | 1"                 | 14'                       |
| 8" & ABOVE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



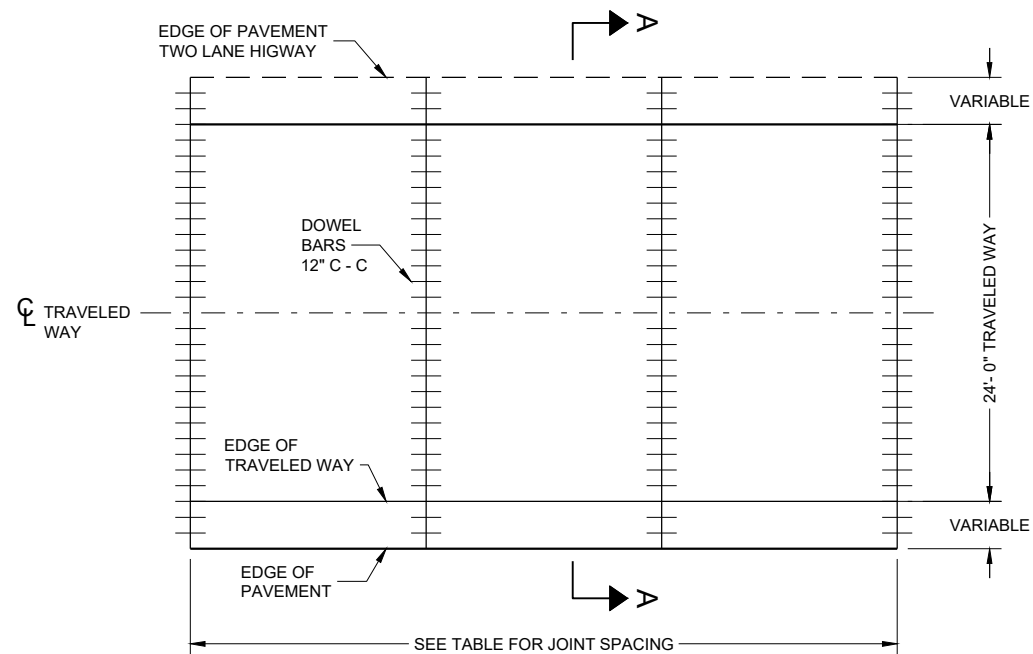
**SECTION A - A  
TWO-LANE TWO-WAY HIGHWAY**



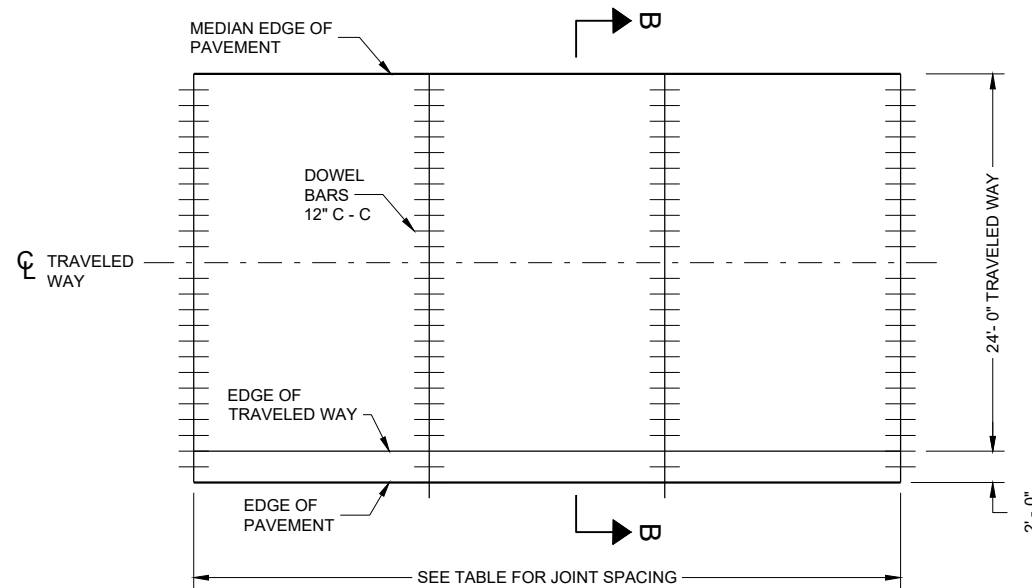
**SECTION B - B**



**ALTERNATIVE SECTION B - B  
DIVIDED HIGHWAY**



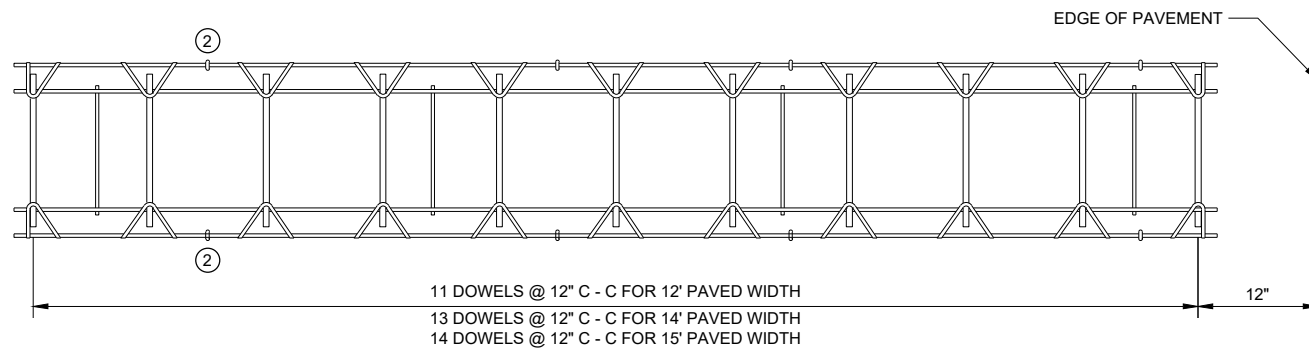
**CONTRACTION JOINT LAYOUT FOR  
TWO-LANE TWO-WAY HIGHWAY**



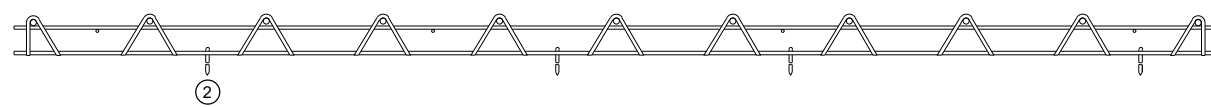
**CONTRACTION JOINT LAYOUT FOR  
DIVIDED HIGHWAY**

**RURAL DOWELED  
CONCRETE PAVEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW**

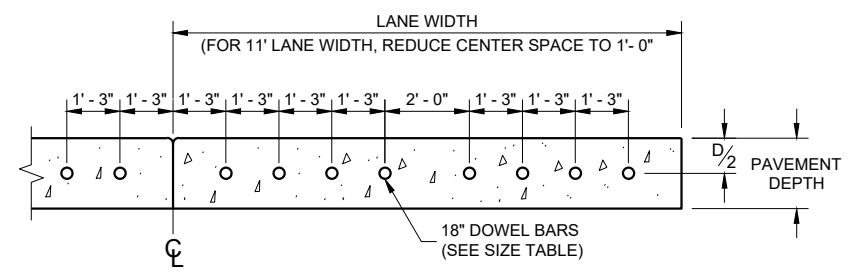


**SIDE VIEW**  
(NORMAL TO CENTERLINE)

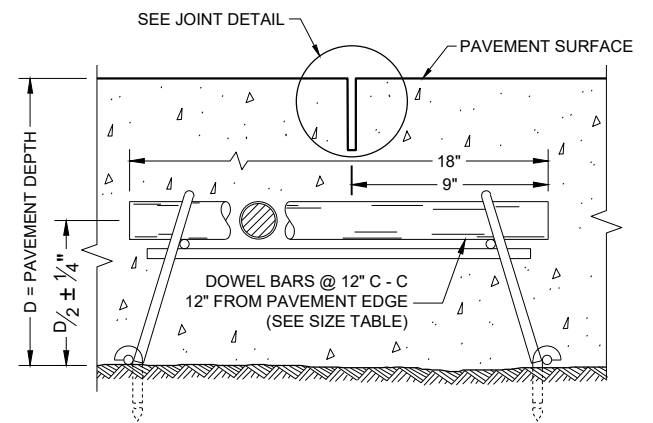
**CONTRACTION JOINT DOWEL ASSEMBLY** ①

**GENERAL NOTES**

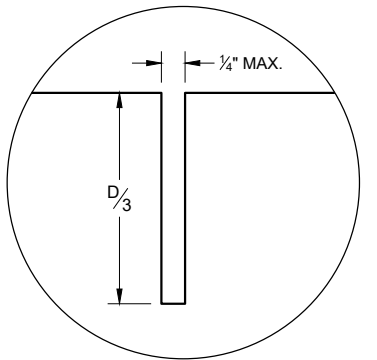
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



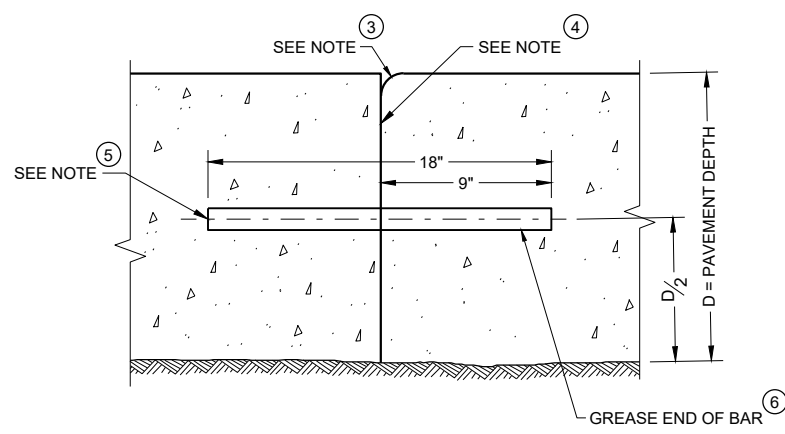
**DRILLED DOWEL BAR CONSTRUCTION JOINT** ⑦



**DOWELED CONTRACTION JOINT**



**JOINT DETAIL**

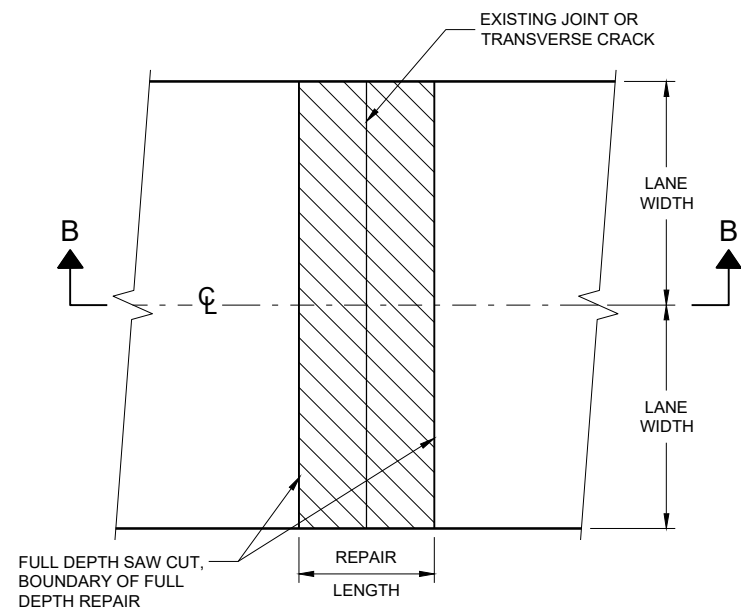


**TRANSVERSE CONSTRUCTION JOINT**

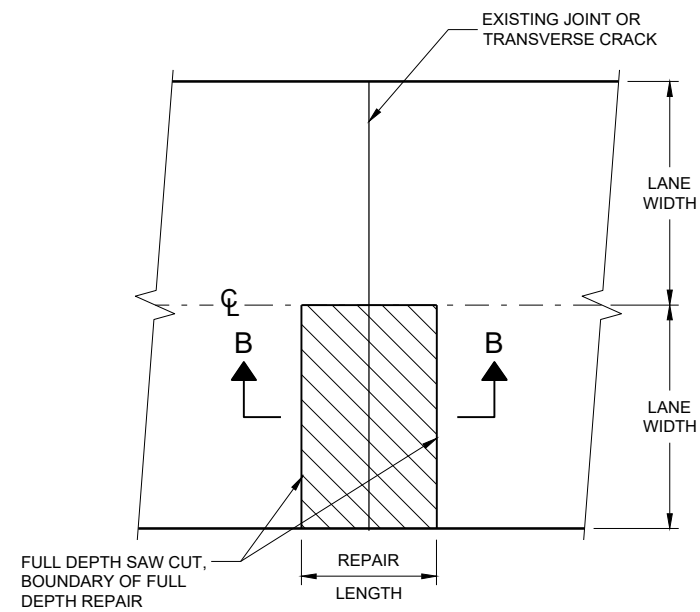
**RURAL DOWELED  
CONCRETE PAVEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

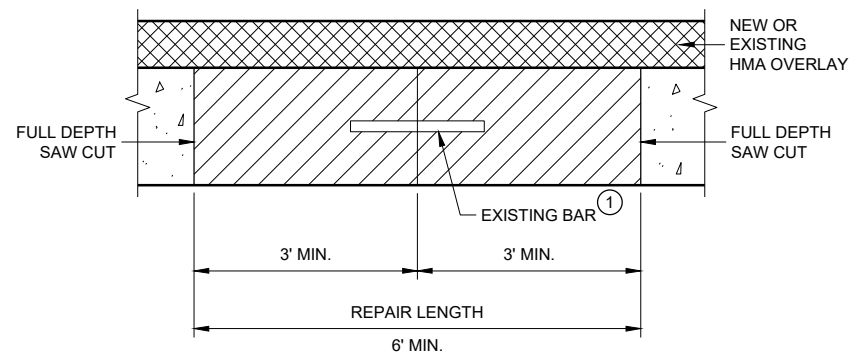


**PLAN VIEW  
DOUBLE LANE REPAIR**



**PLAN VIEW  
SINGLE LANE REPAIR**

**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



**SECTION B - B  
CONCRETE REMOVAL**

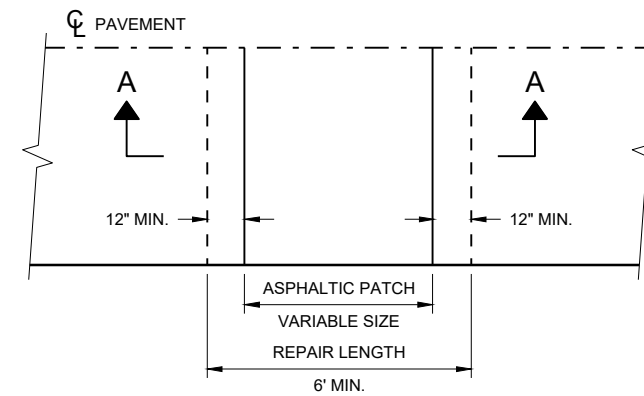
**GENERAL NOTES**

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

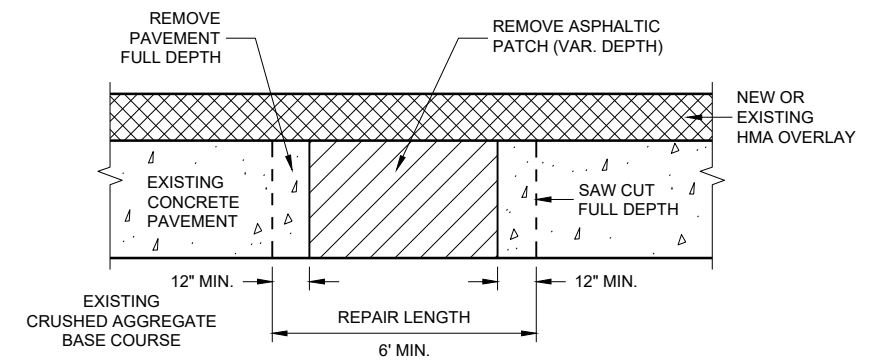
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



**PLAN VIEW**

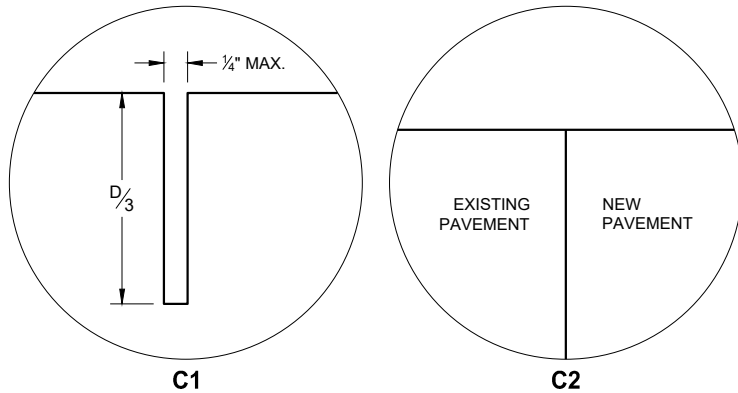


**SECTION A - A**

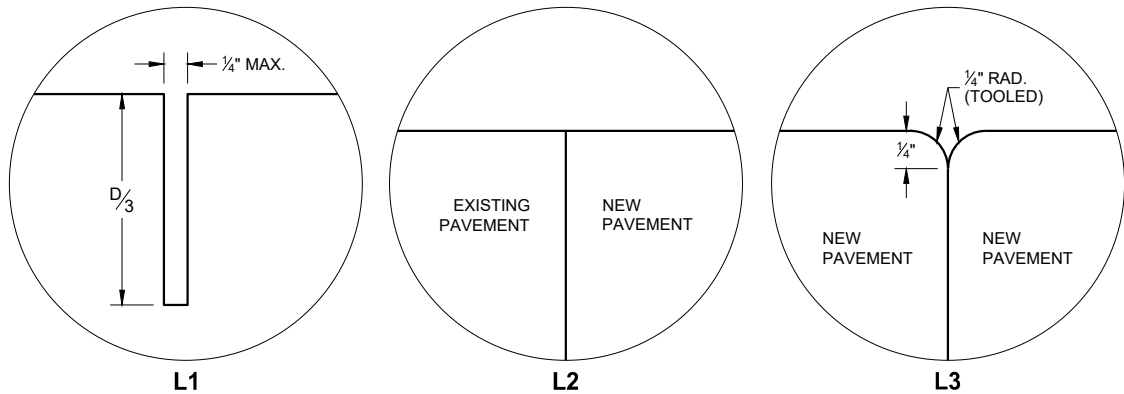
**HMA PATCH REMOVAL**

**BASE PATCHING CONCRETE**

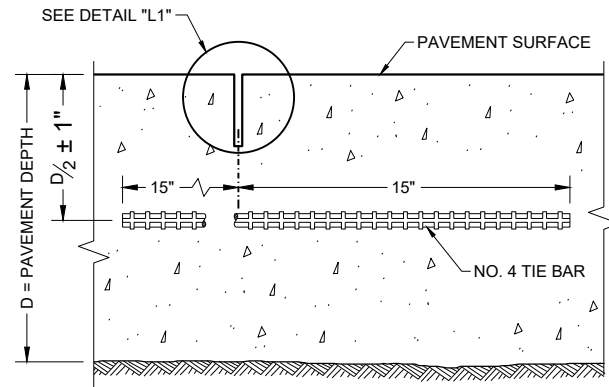
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



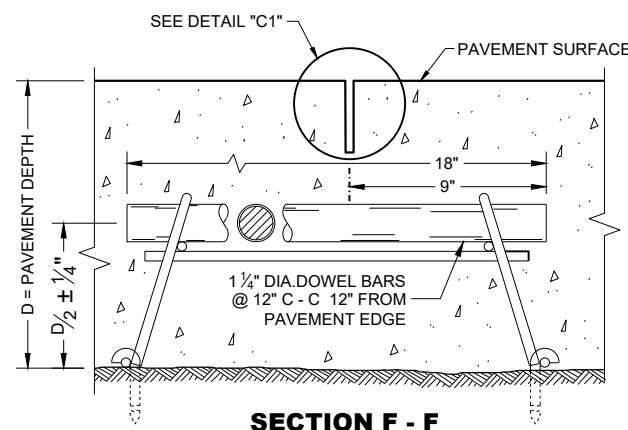
**TRANSVERSE JOINTS**



**LONGITUDINAL JOINTS**



**SECTION C - C  
SAWED LONGITUDINAL JOINT**



**SECTION F - F  
CONTRACTION JOINT**

**GENERAL NOTES**

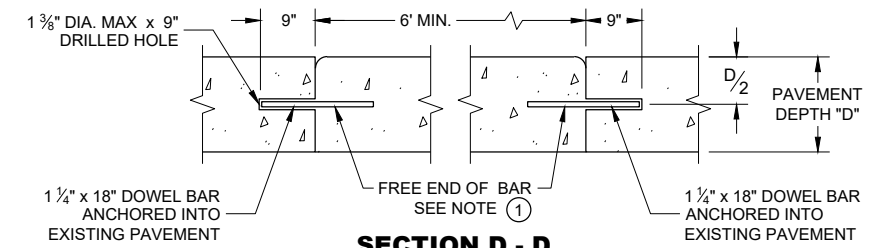
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE BASE PATCHES OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

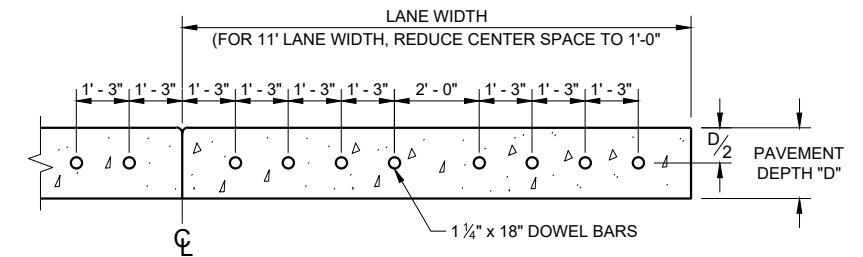
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

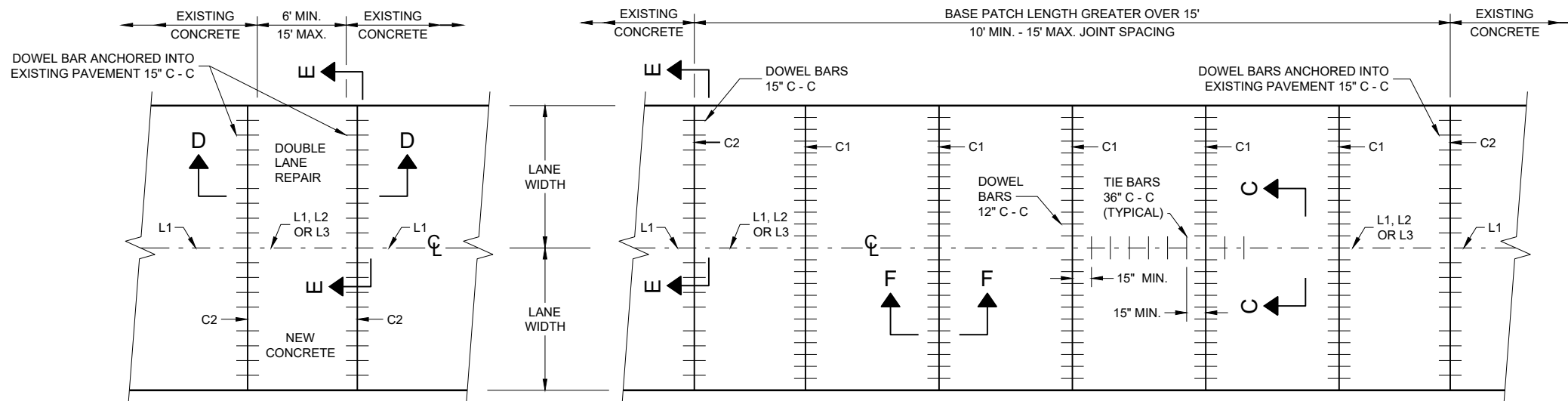
- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



**SECTION D - D**



**SECTION E - E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT**

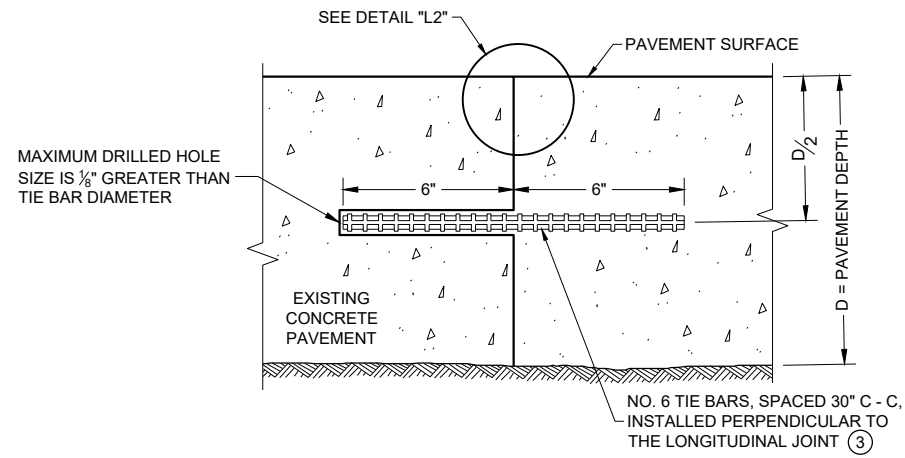


**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH**

**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH**

**BASE PATCHING CONCRETE**

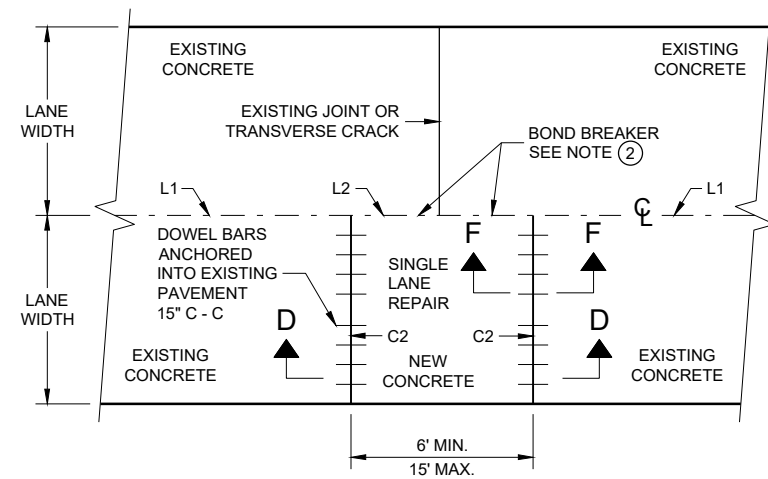
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



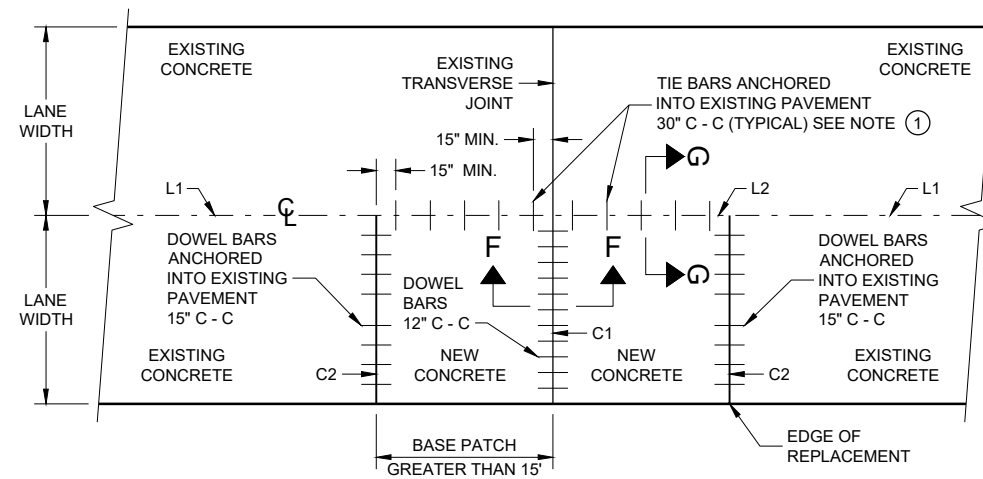
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**15' MAXIMUM LENGTH**



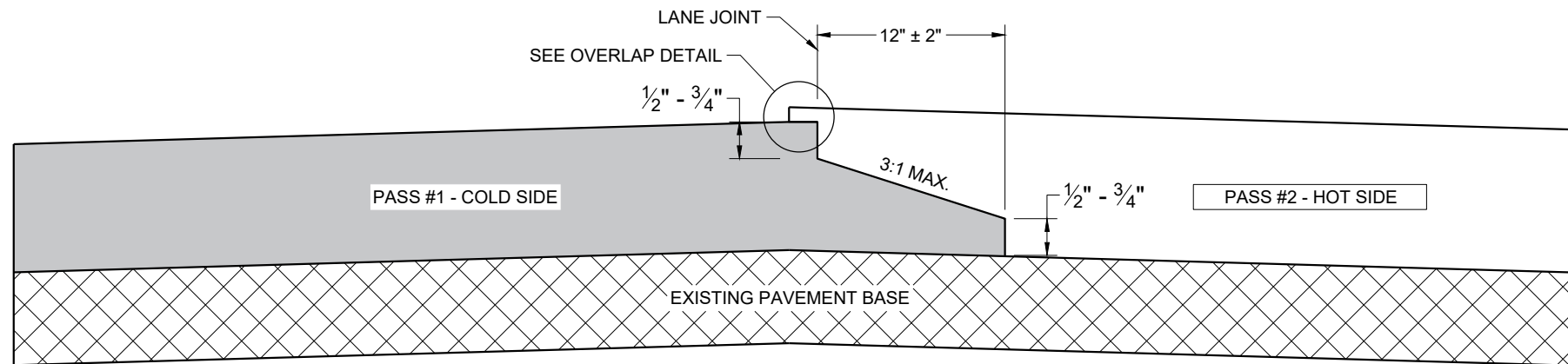
**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**GREATER THAN 15' LENGTH**

**BASE PATCHING CONCRETE**

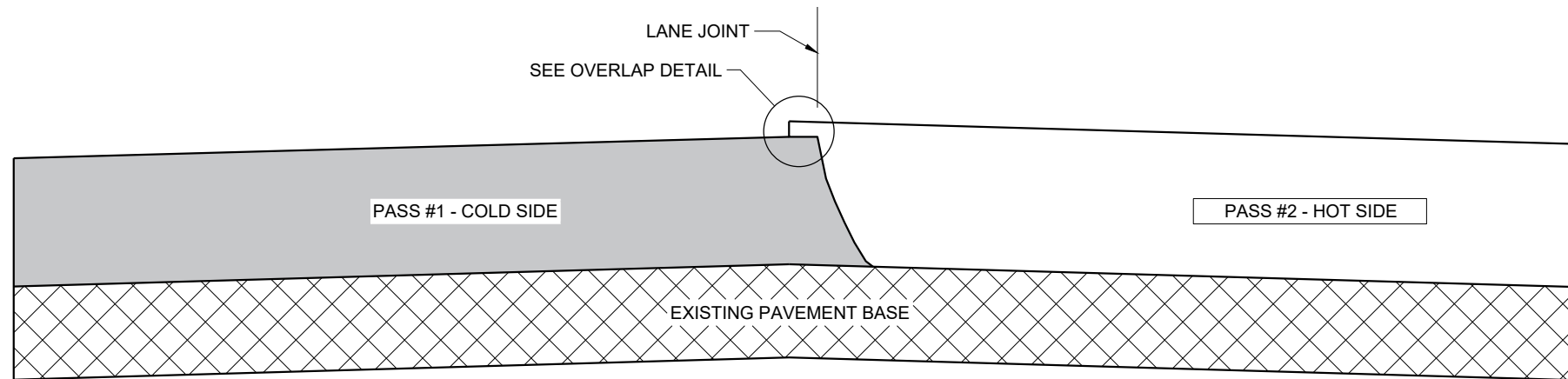
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

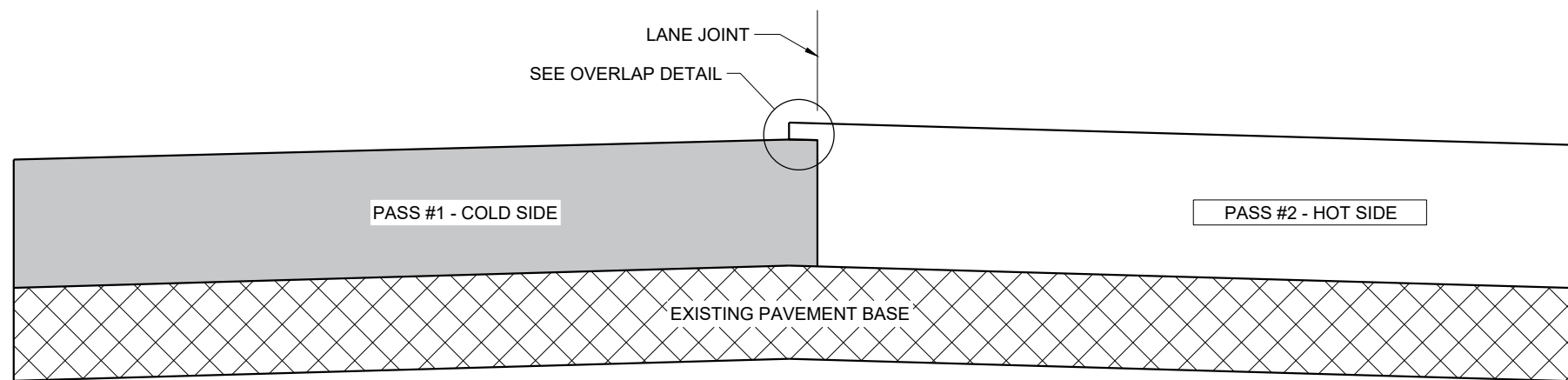
FHWA



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



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

**GENERAL NOTES**

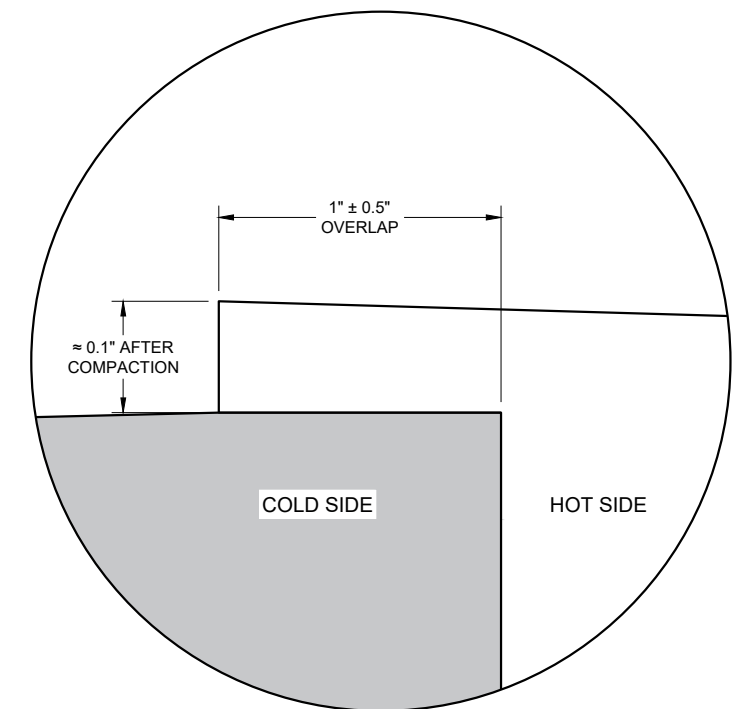
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



**OVERLAP DETAIL (TYPICAL)**

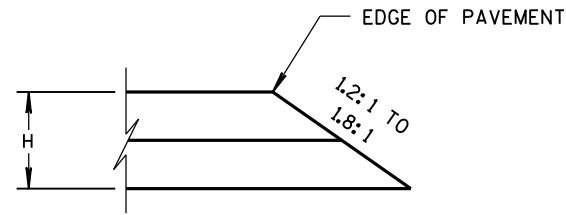
6

6

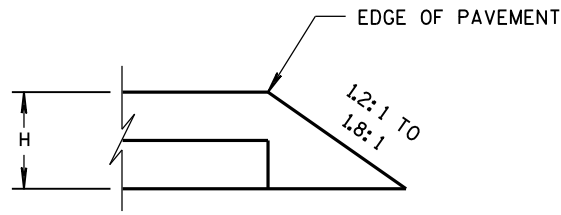
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SDD 13C19 - 03

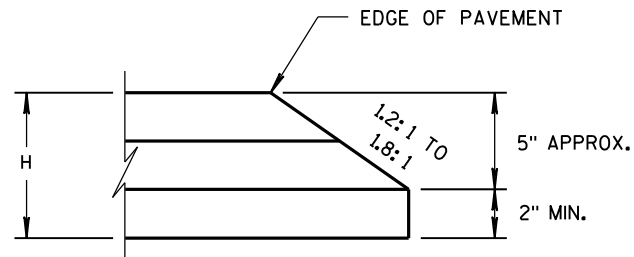
|  |   |
|--|---|
| <b>HMA LONGITUDINAL JOINTS</b>                     |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>November 2020<br>DATE                  | /S/ Steven Hefel<br>HMA PAVEMENT ENGINEER |
| FHWA   |   |



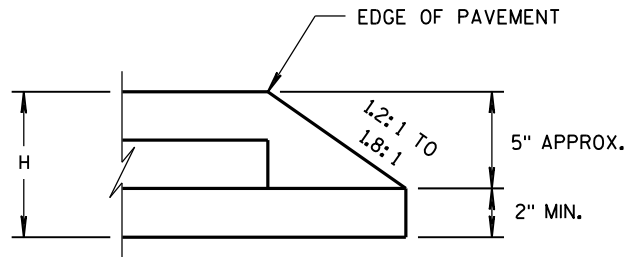
CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER  
FOR H 5" OR LESS

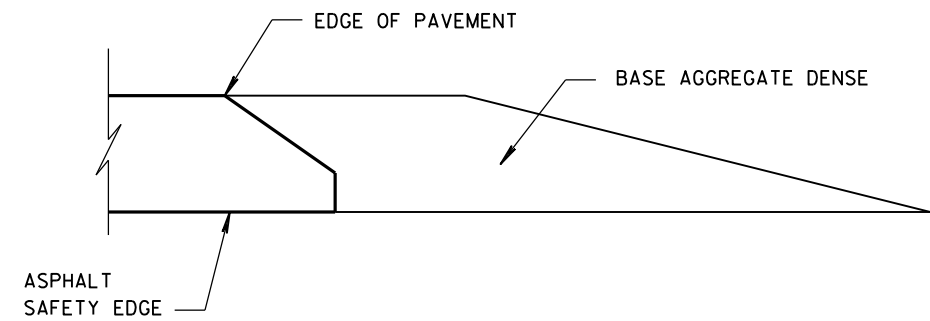


CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER  
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

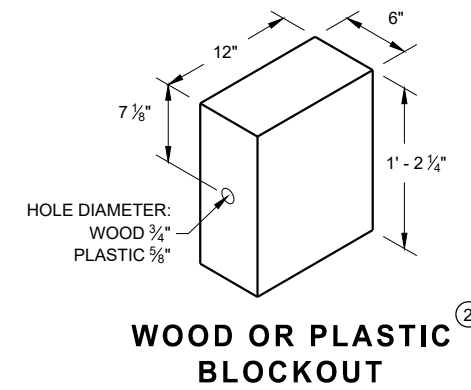
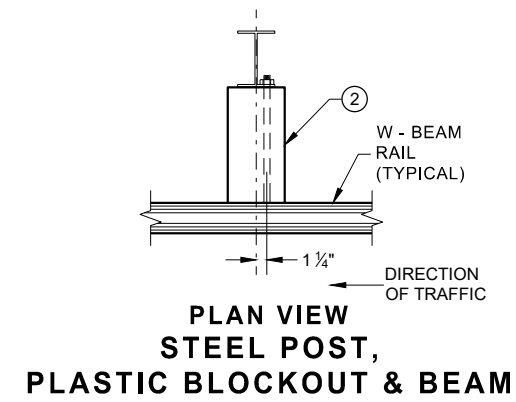
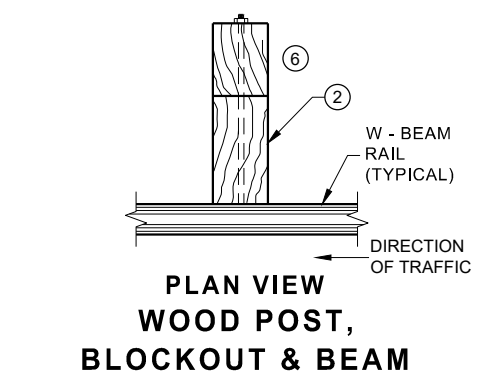
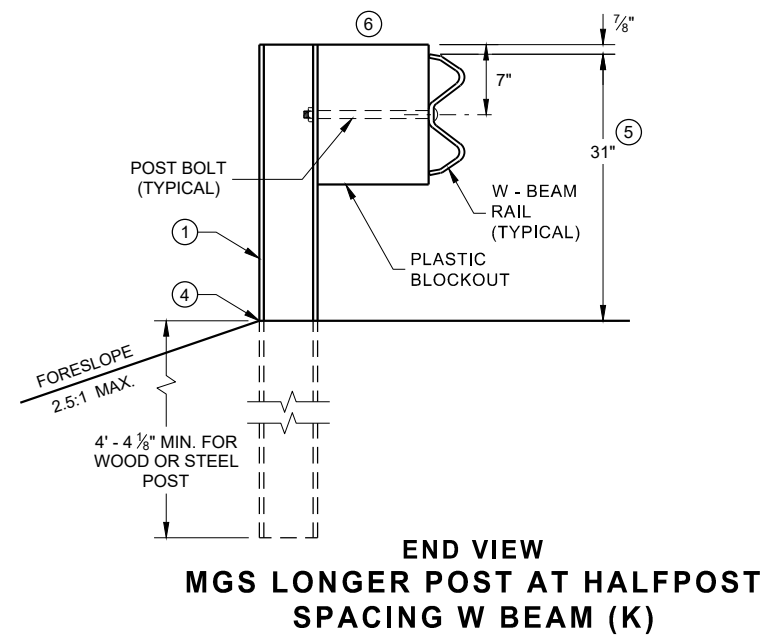
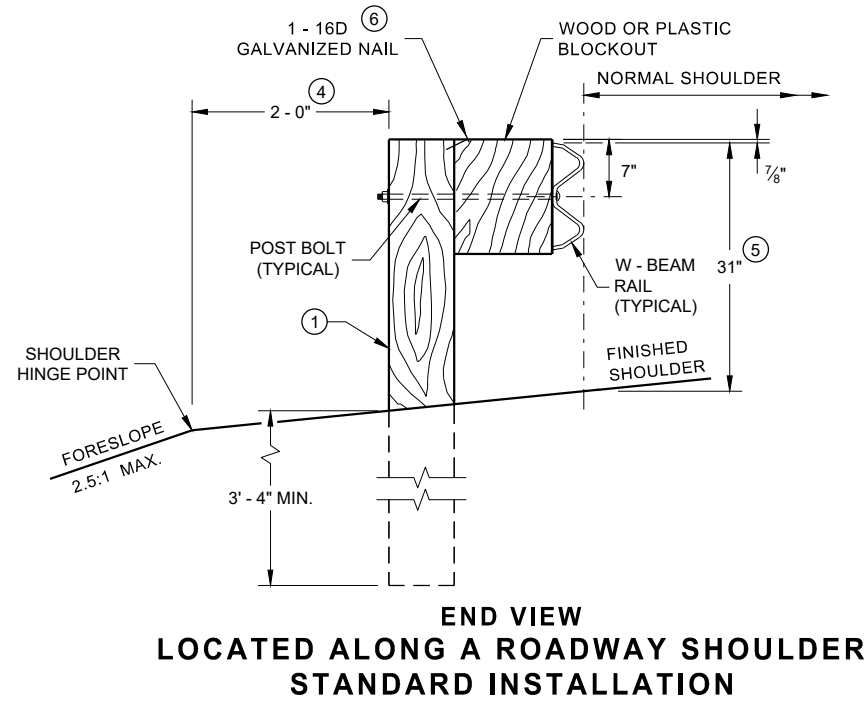
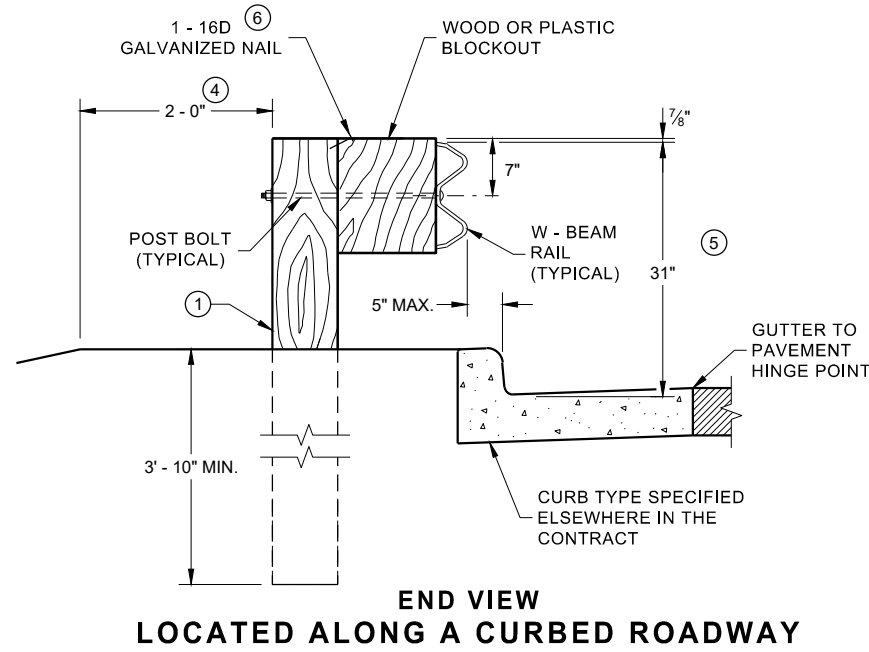
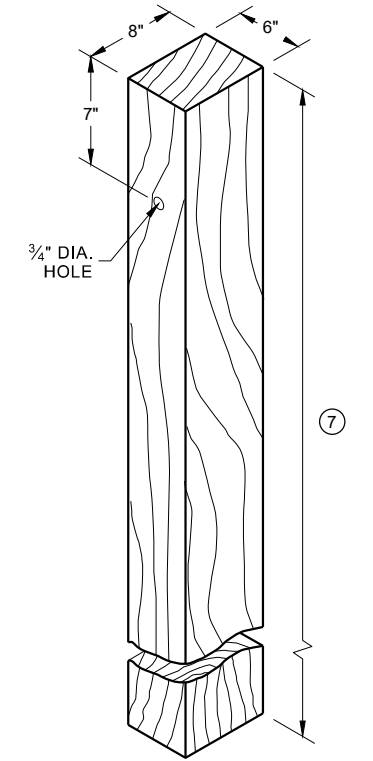
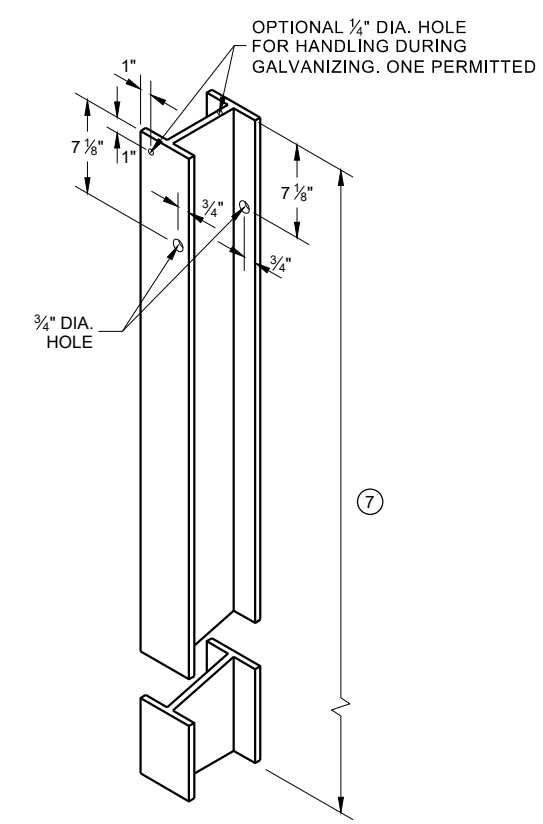
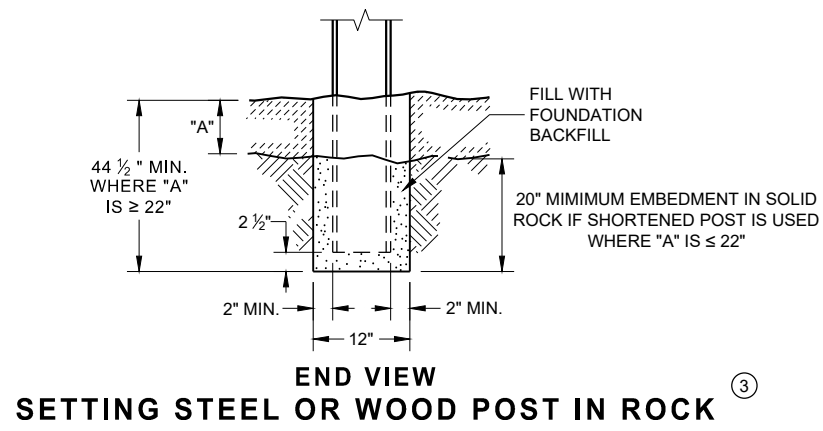
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S.D.D. 14 B 29-1

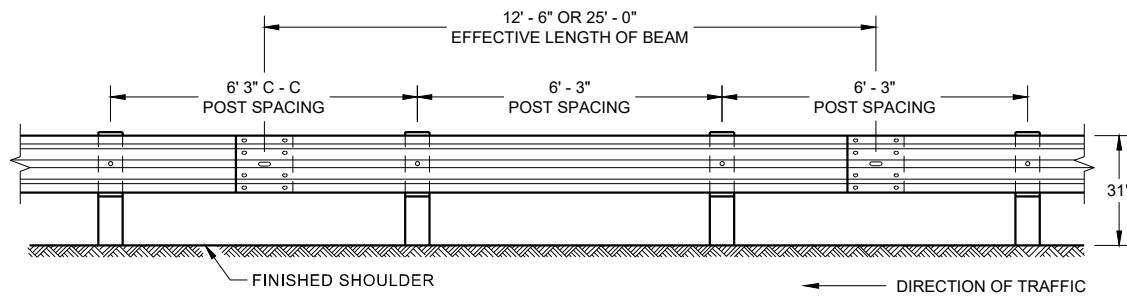
S.D.D. 14 B 29-1

|  |  |
|--|--|
| SAFETY EDGE <sub>SM</sub>                          |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>DATE 11/30/2012                        | /s/ Jerry H. Zogg<br>ROADWAY STANDARDS DEVELOPMENT<br>ENGINEER |
| FHWA   |  |

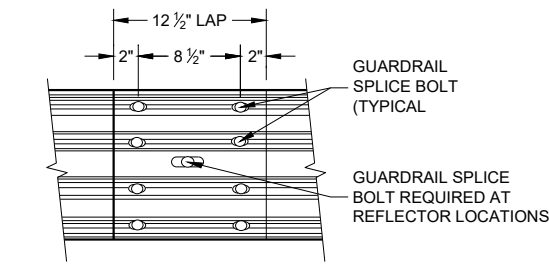
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".







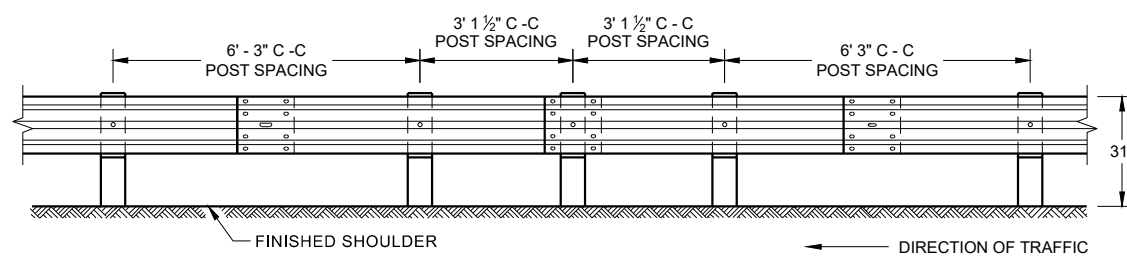
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



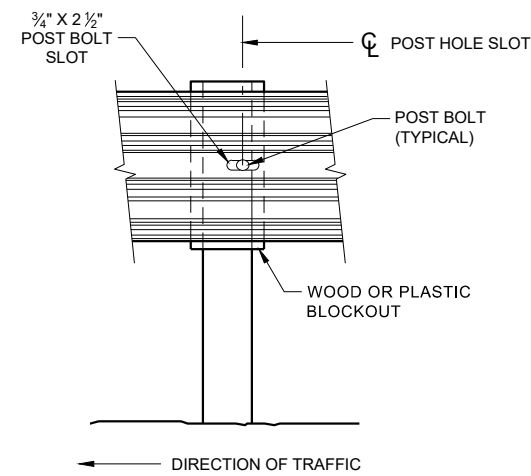
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

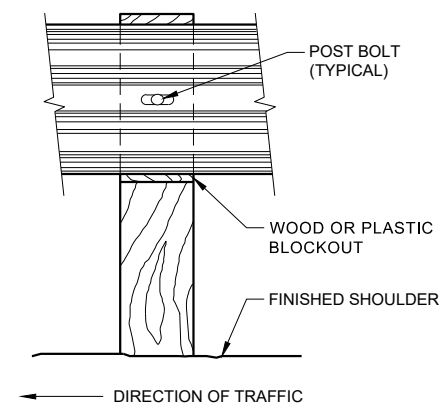
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER 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.



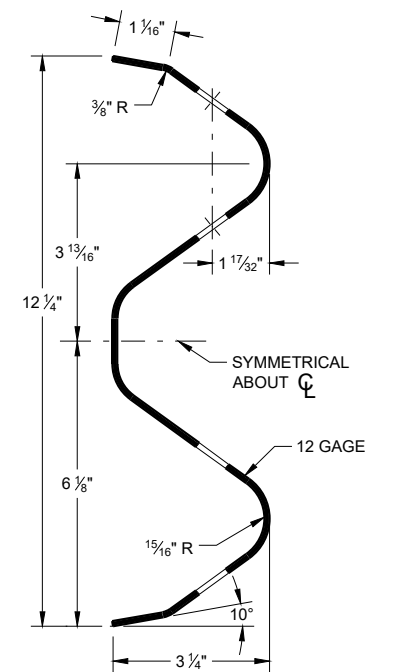
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



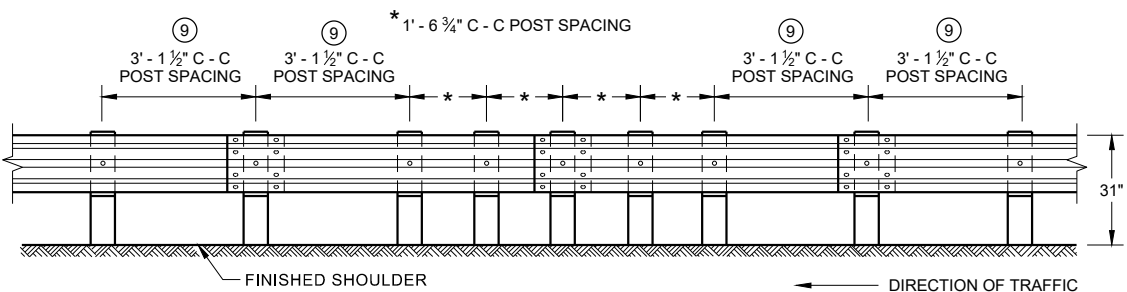
**FRONT VIEW AT STEEL POST**



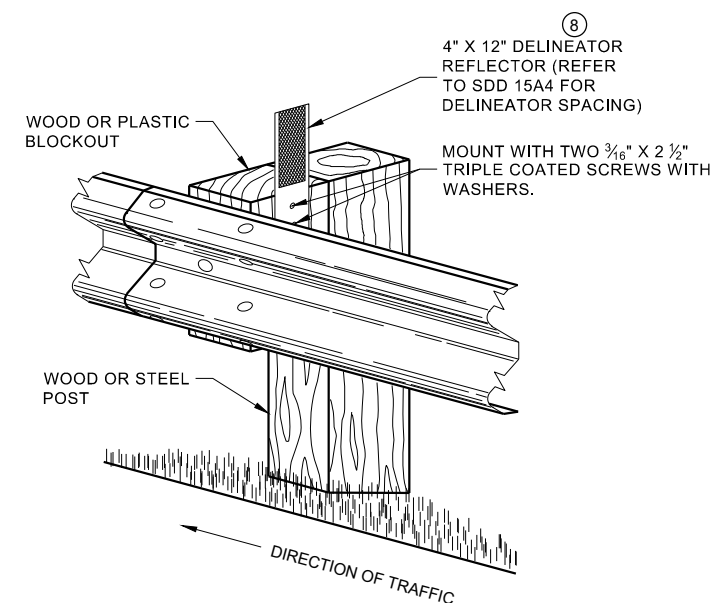
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

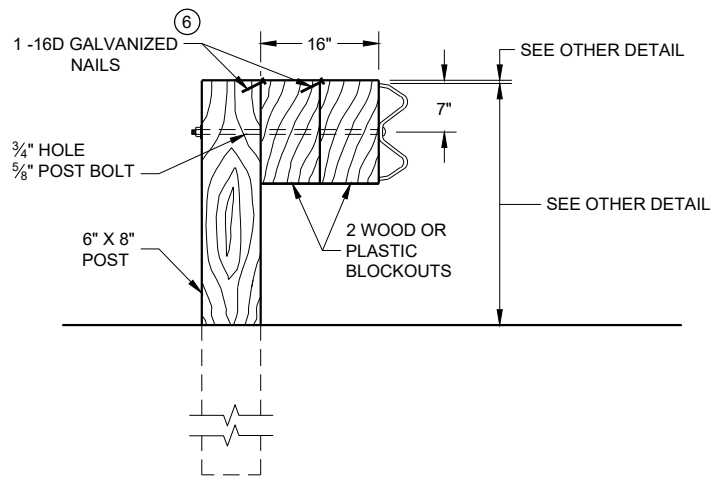
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

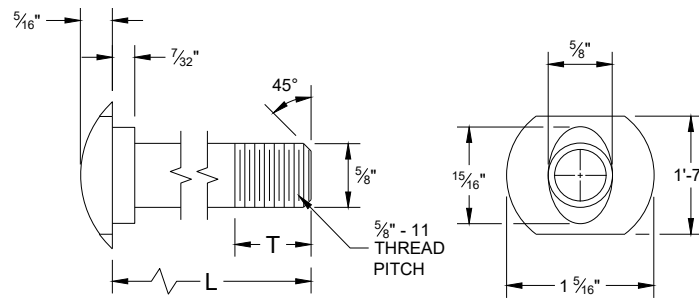


**DETAIL FOR 16" BLOCKOUT DEPTH**

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.

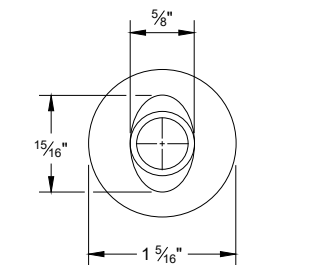
**NOTE:**

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.

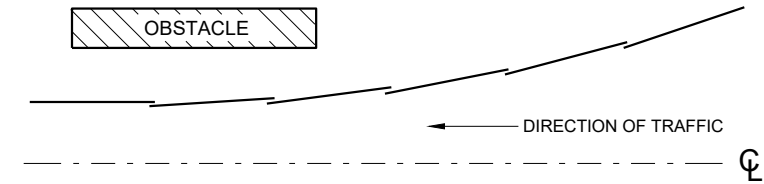


**POST BOLT TABLE**

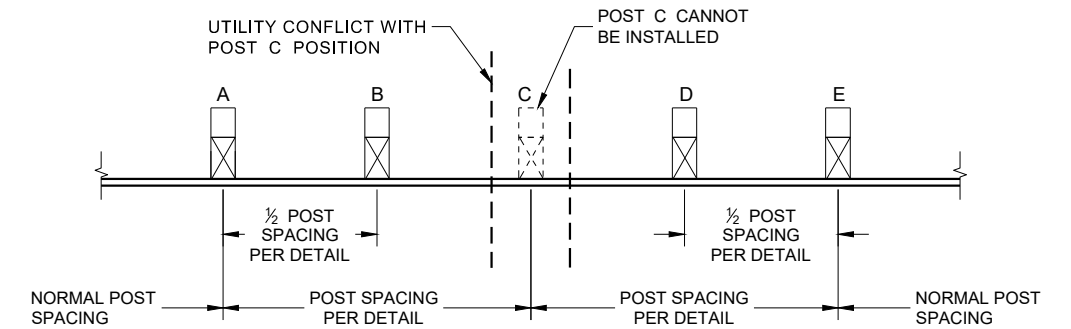
| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |



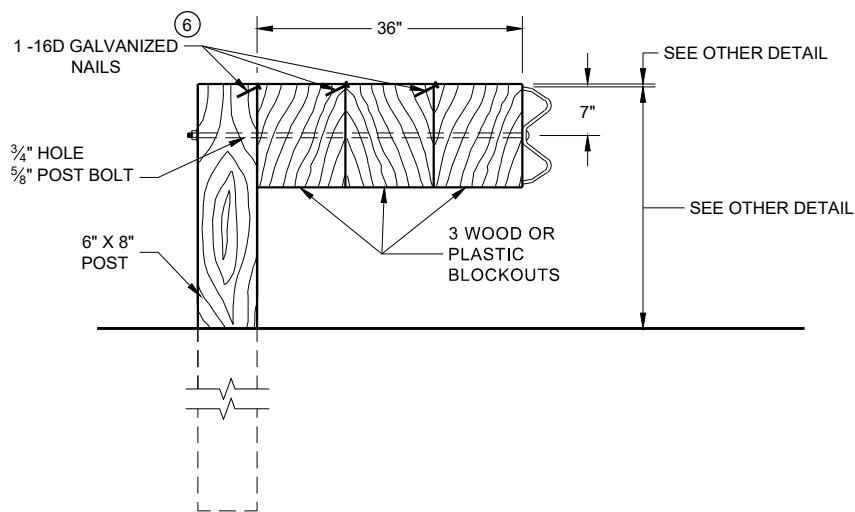
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

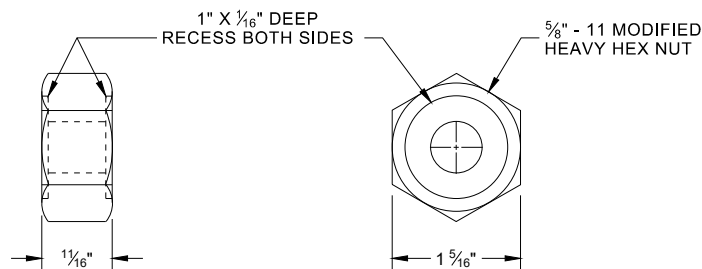


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

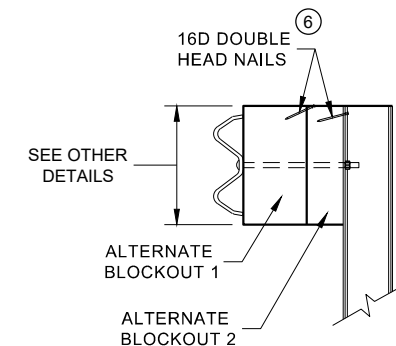


**DETAIL FOR 36" BLOCKOUT DEPTH**

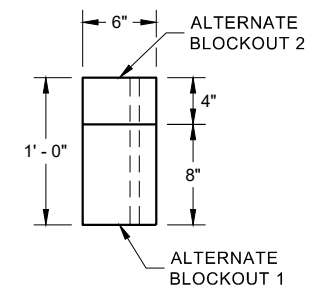
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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



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



**SIDE VIEW**



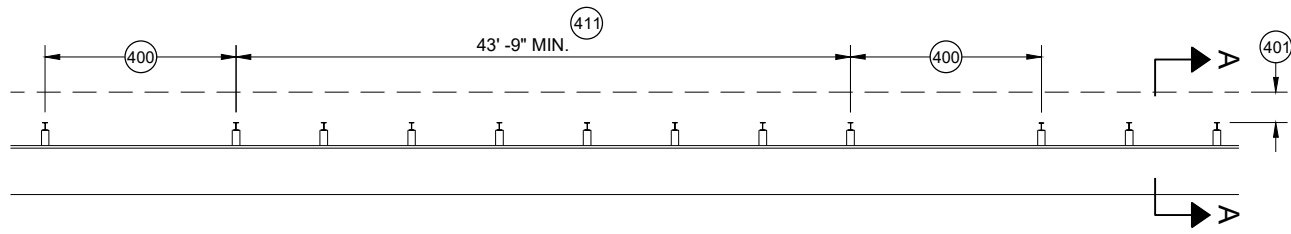
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

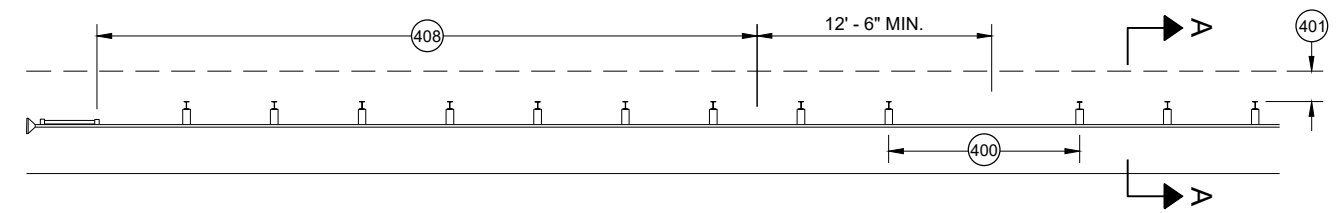
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

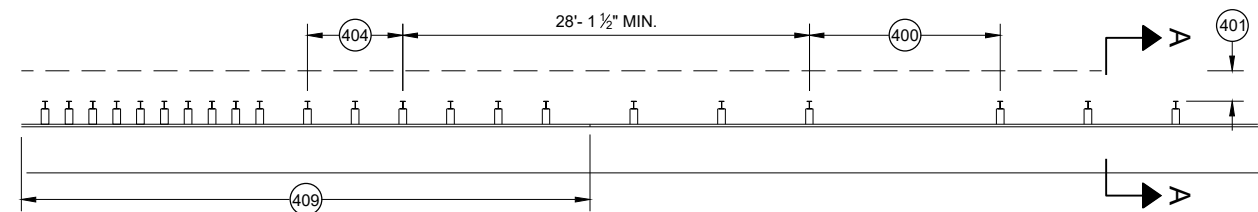
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



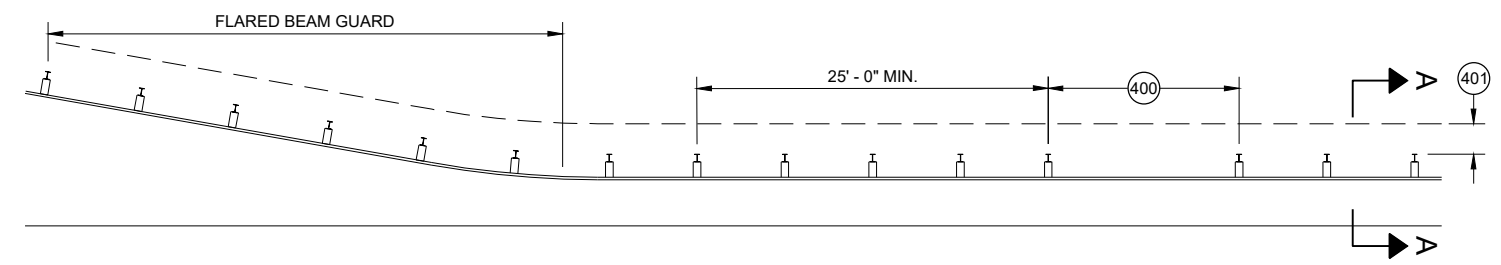
**MISSING POST IN MGS GUARDRAIL**



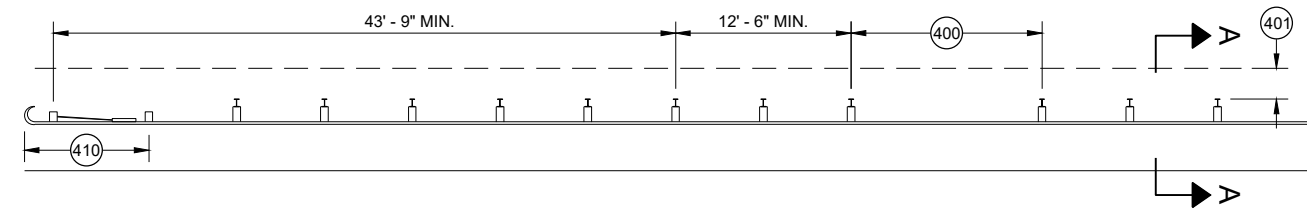
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



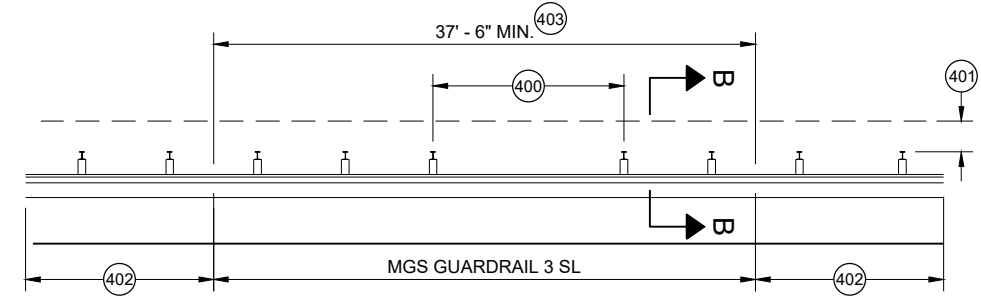
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

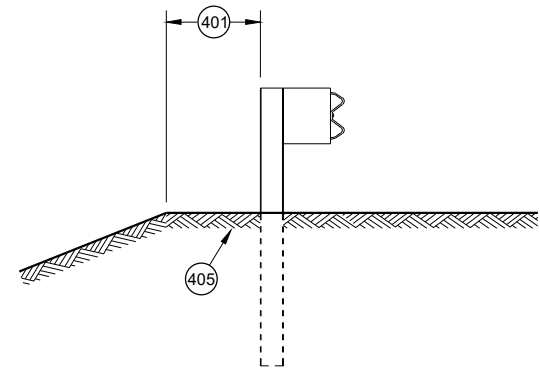


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

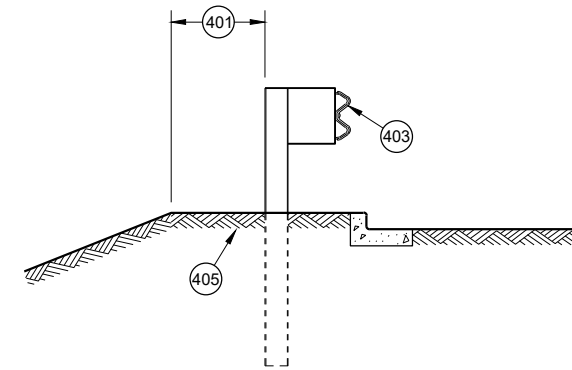


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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

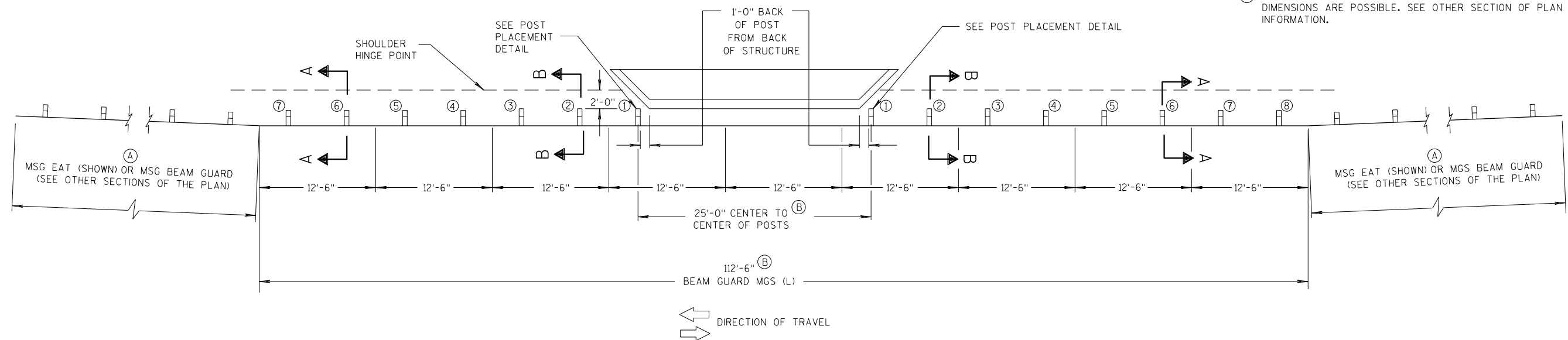
**GENERAL NOTES**

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

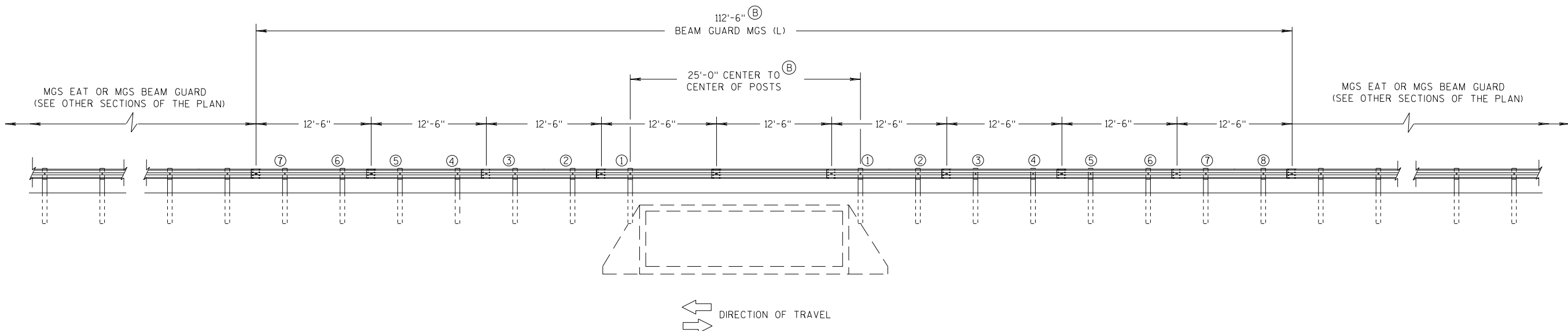
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



**PLAN VIEW**



**ELEVATION VIEW**

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

|  |
|--|
| <p><b>MIDWEST GUARDRAIL SYSTEM<br/>LONG SPAN MGS (L)</b></p> |
| <p>STATE OF WISCONSIN<br/>DEPARTMENT OF TRANSPORTATION</p>   |

6

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S.D.D. 14 B 43-4a

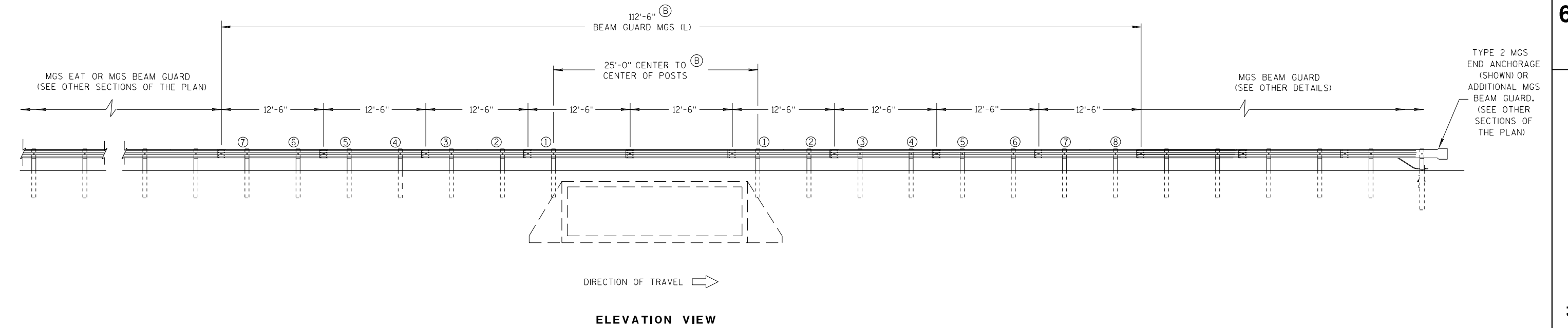
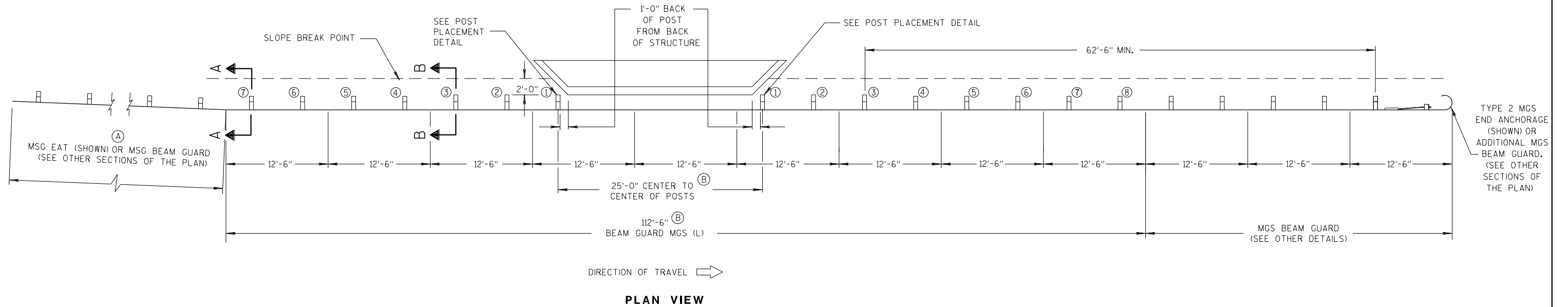
S.D.D. 14 B 43-4a

**GENERAL NOTES**

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

SEE SDD 14 B 42 FOR MORE DETAILS.

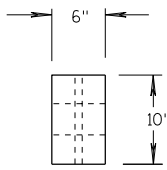
- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



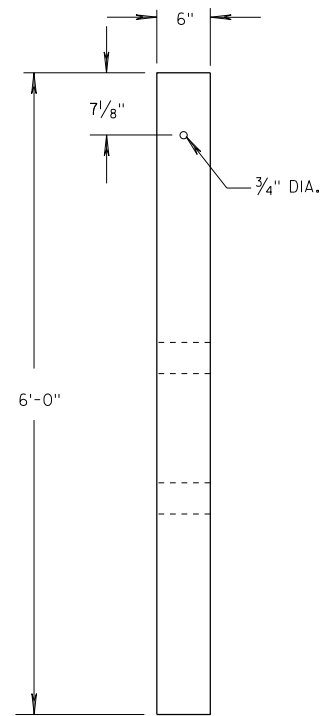
**MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC**

**MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)**

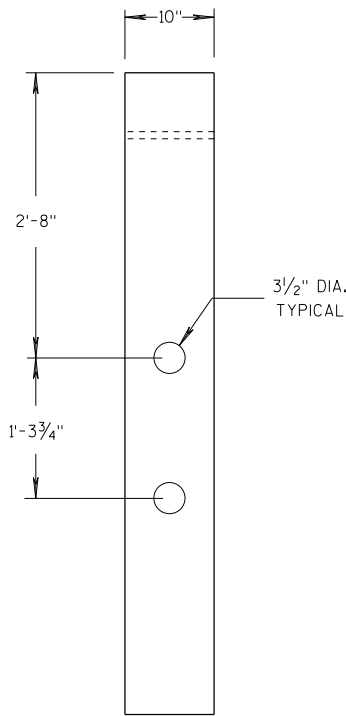
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

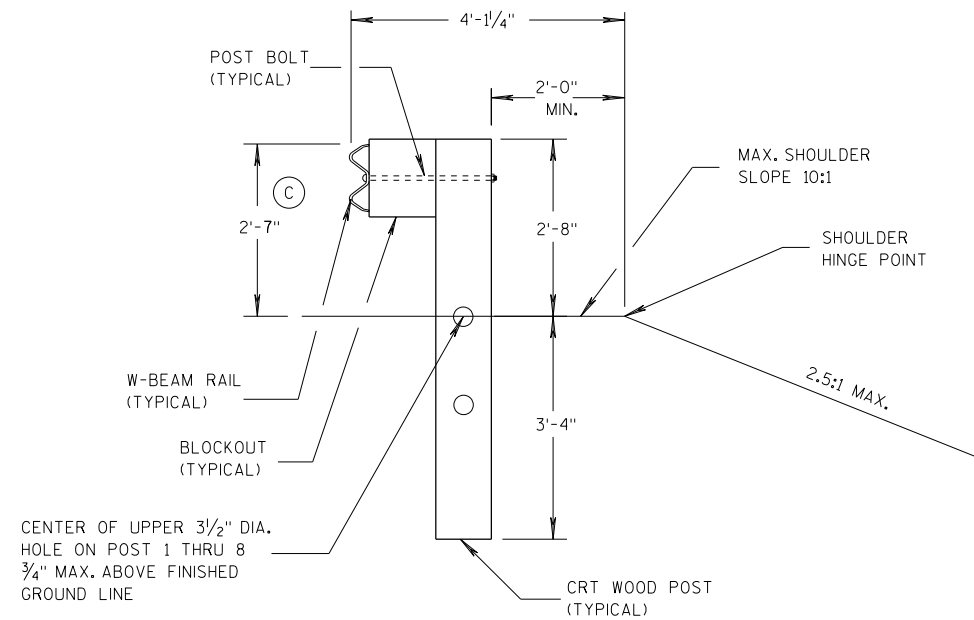


FRONT VIEW

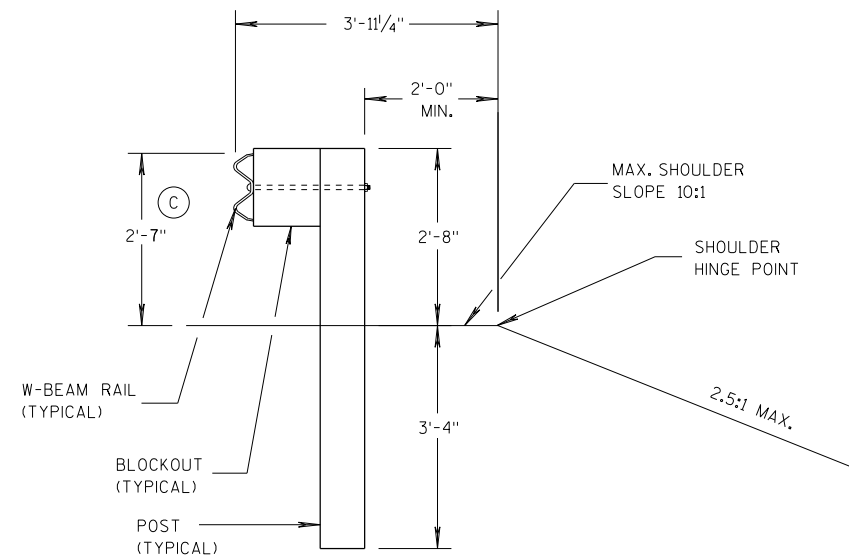


SIDE VIEW

CRT WOOD POST



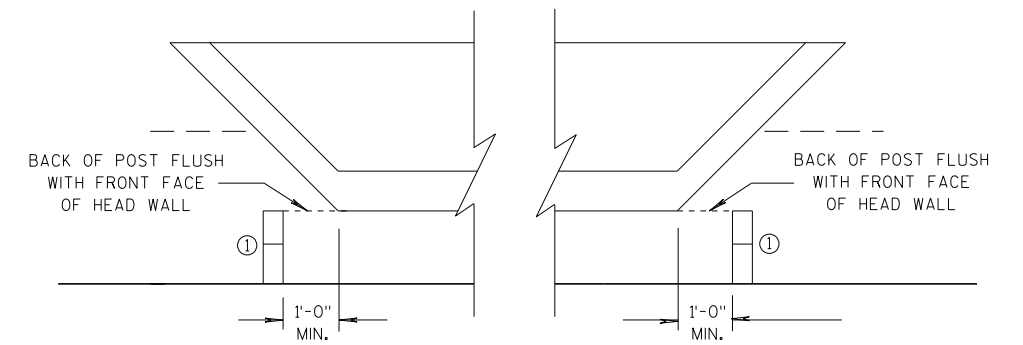
SECTION B-B  
POSTS NO. 1-3  
SEE OTHER DETAILS



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

GENERAL NOTES

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

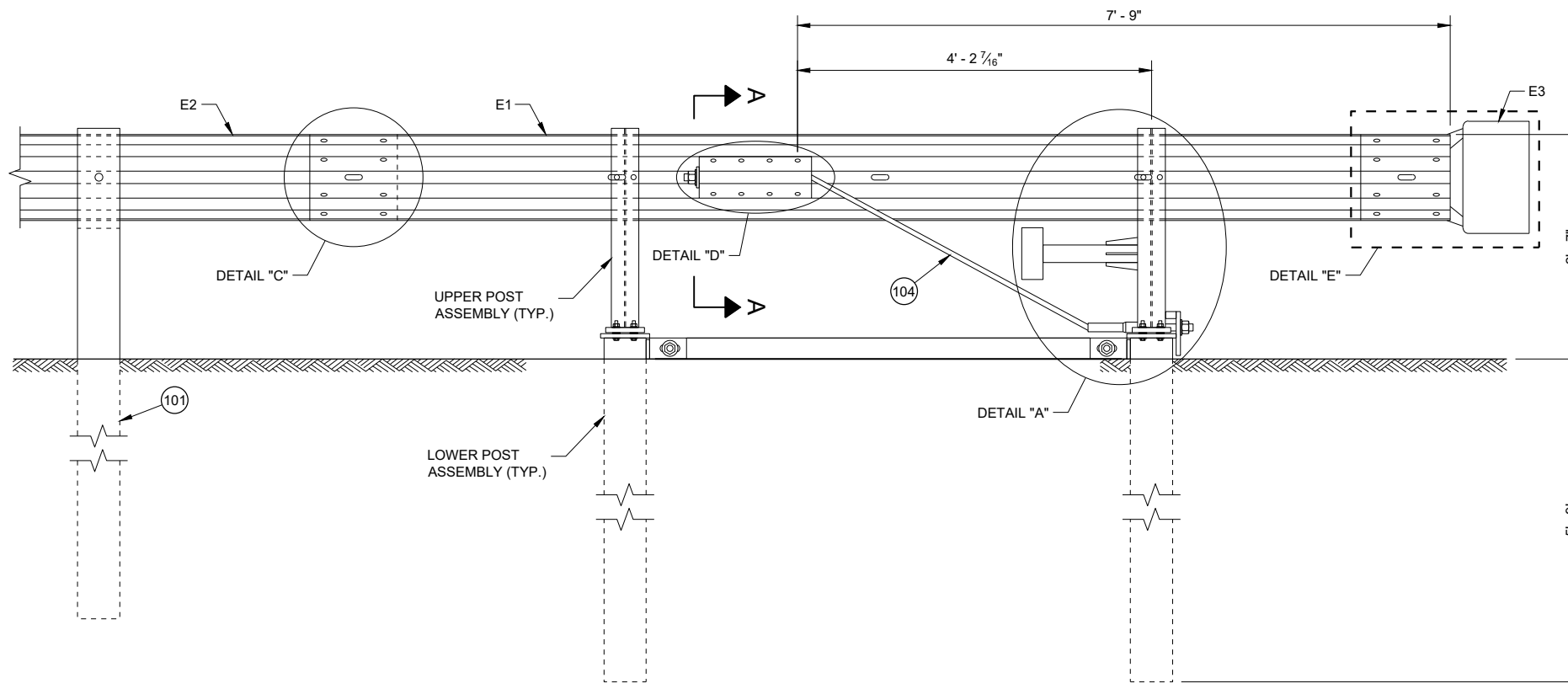


POST PLACEMENT DETAIL

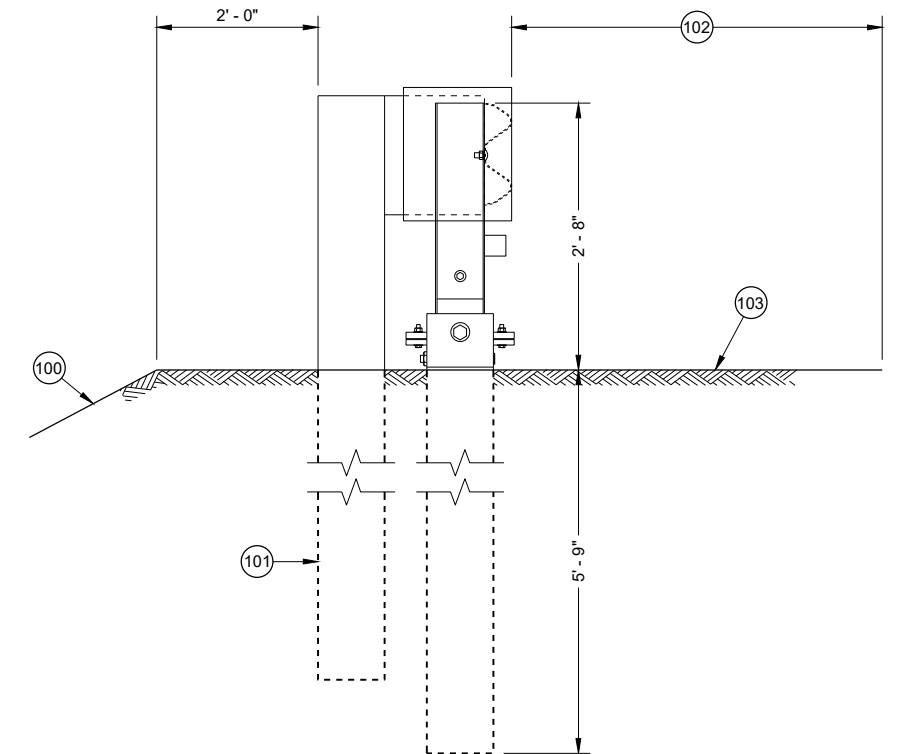
MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

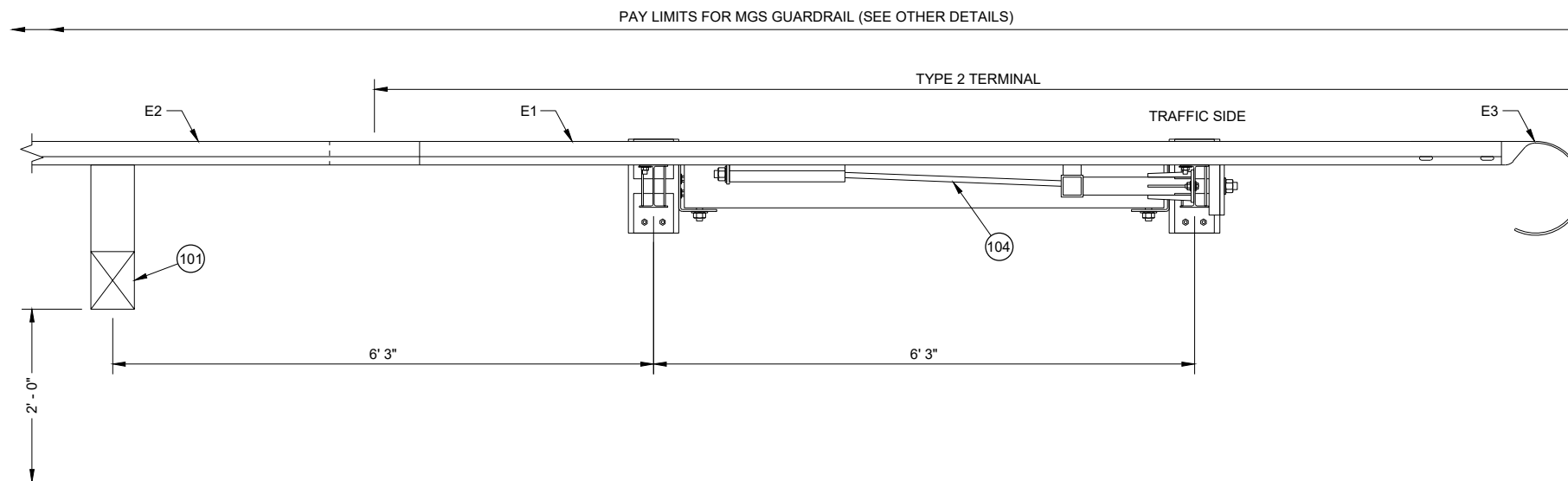
|          |  |
|----------|--|
| APPROVED | /s/ Rodney Taylor                      |
| 07/2018  | DATE                                   |
|          | ROADWAY STANDARDS DEVELOPMENT ENGINEER |
| FHWA     |  |



**BACK VIEW  
TYPE 2 TERMINAL**



**SIDE VIEW  
TYPE 2 TERMINAL**



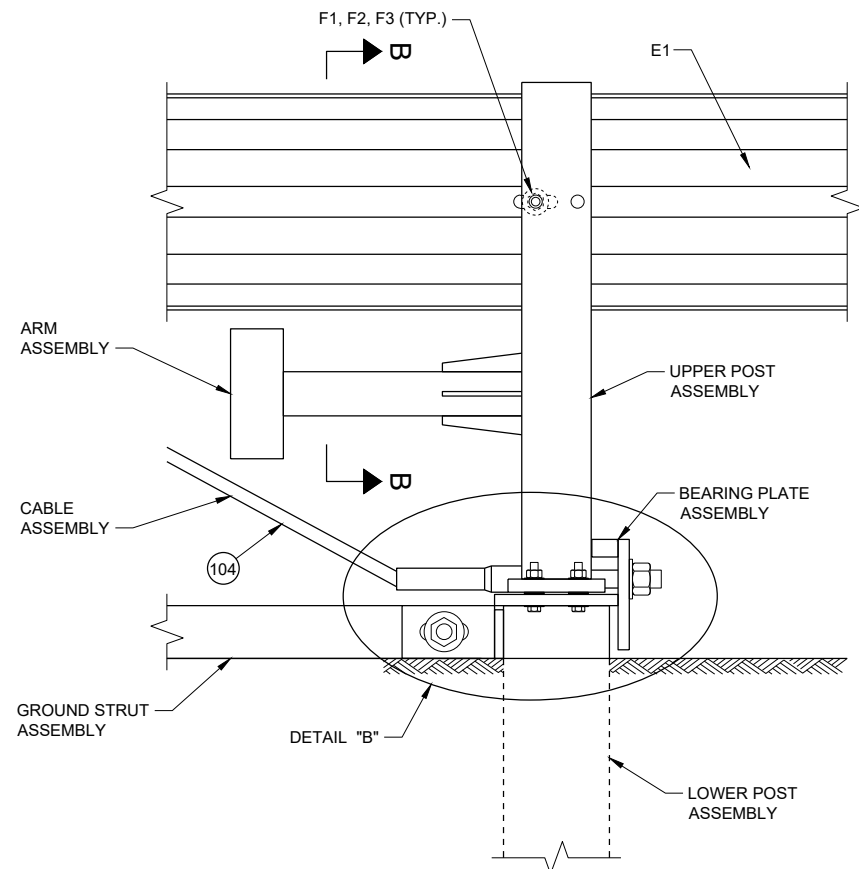
**TOP VIEW  
TYPE 2 TERMINAL**

**GENERAL NOTES**

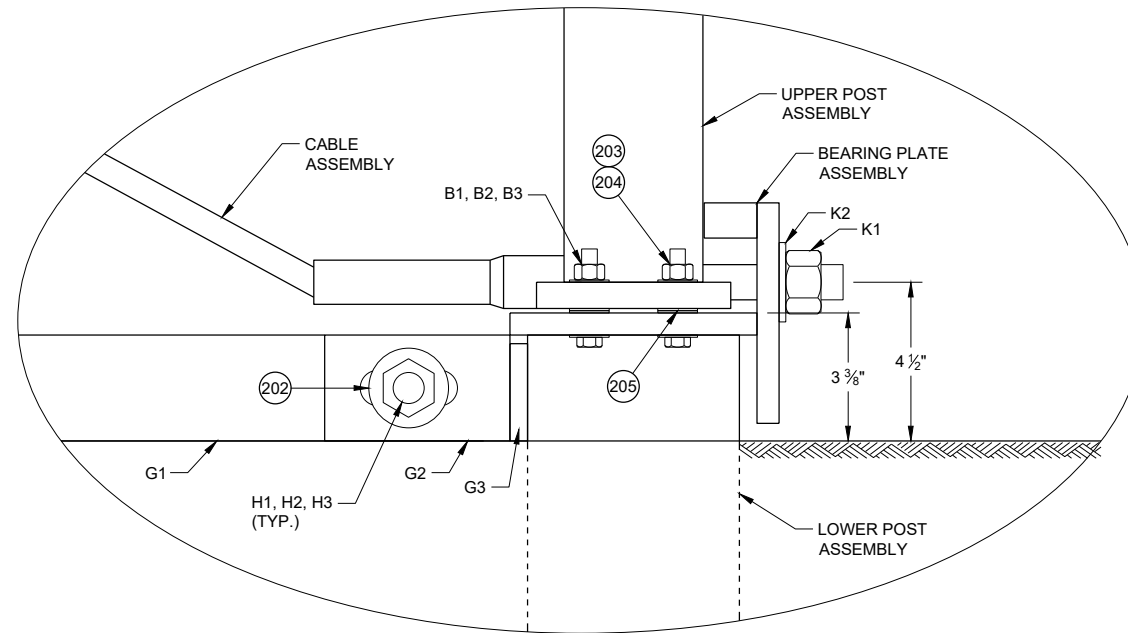
- (100) MAXIMUM SLOPE IS 2.5:1.
- (101) SEE SDD 14B42 FOR MORE INFORMATION.
- (102) SHOULDER
- (103) MAXIMUM SLOPE IS 10:1.
- (104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

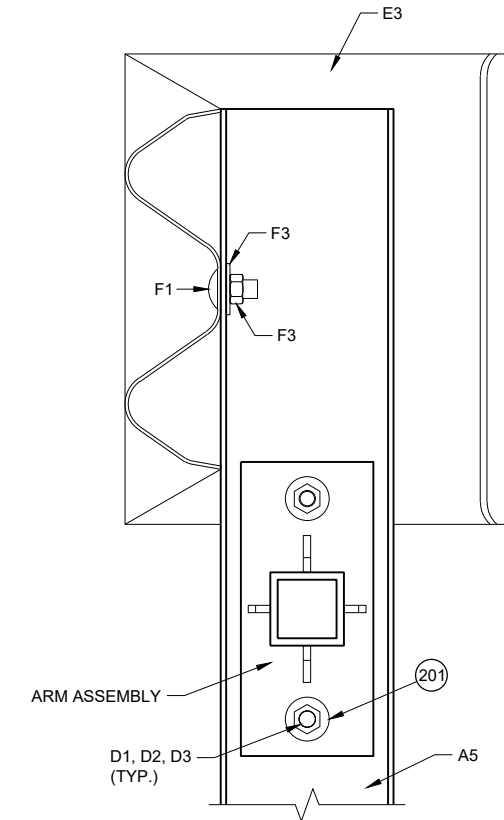
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



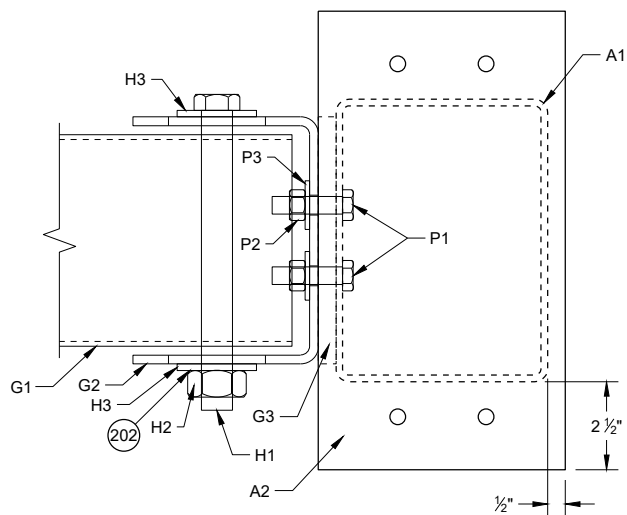
**DETAIL "A"**



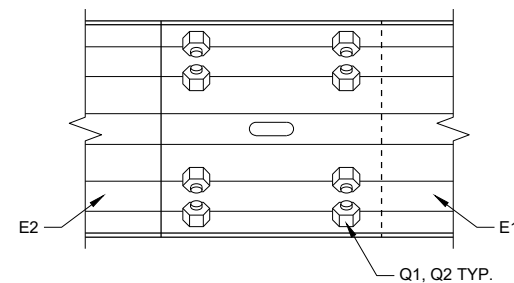
**DETAIL "B"**



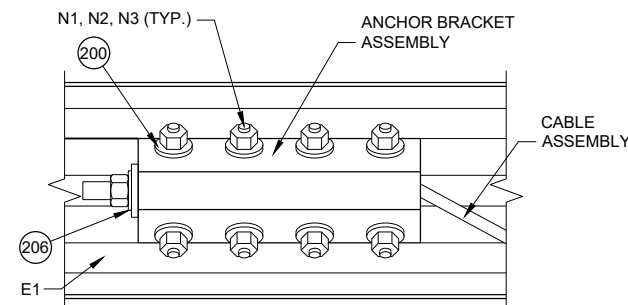
**SECTION B - B**



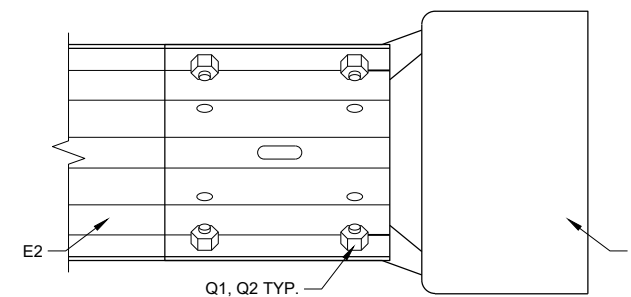
**TOP VIEW  
GROUND STRUT  
CONNECTION DETAIL**



**DETAIL "C"**



**DETAIL "D"**



**DETAIL "E"**

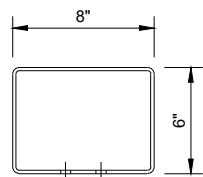
**GENERAL NOTES**

- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- 203 INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- 204 TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- 205 TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- 206 INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

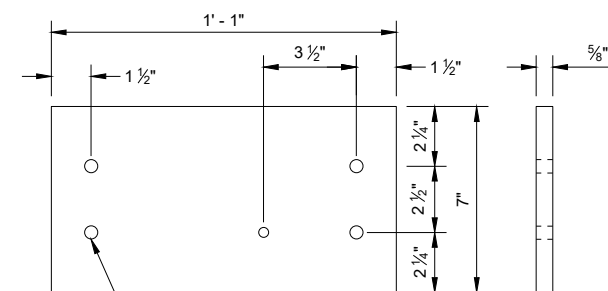
**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

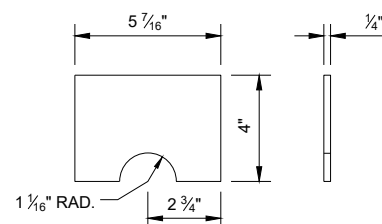




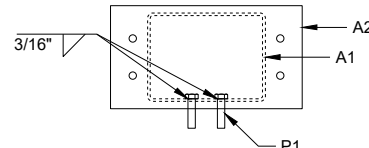
**TOP VIEW**



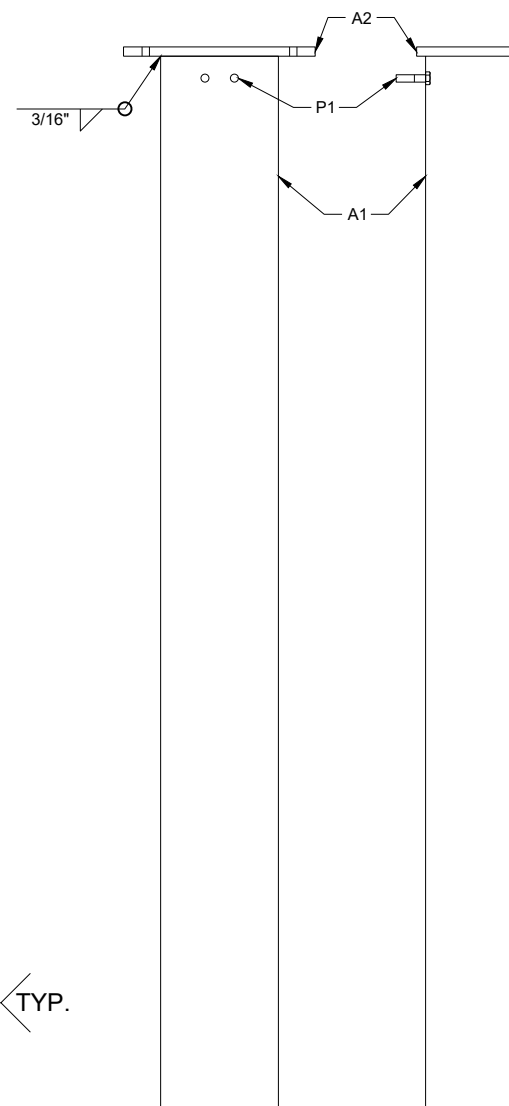
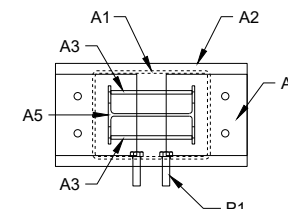
**LOWER PLATE (A2)**



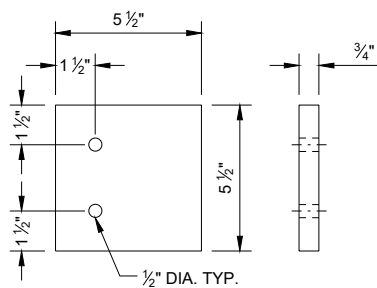
**POST GUSSET (A3)**



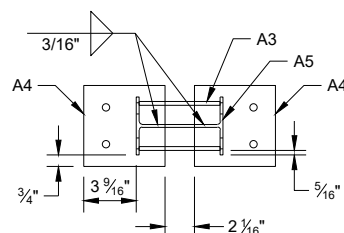
**PLAN VIEW**



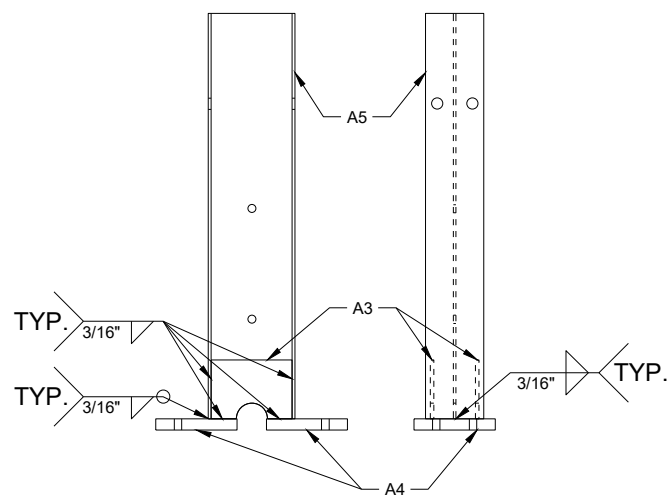
**FRONT VIEW SIDE VIEW**  
**LOWER POST ASSEMBLY**



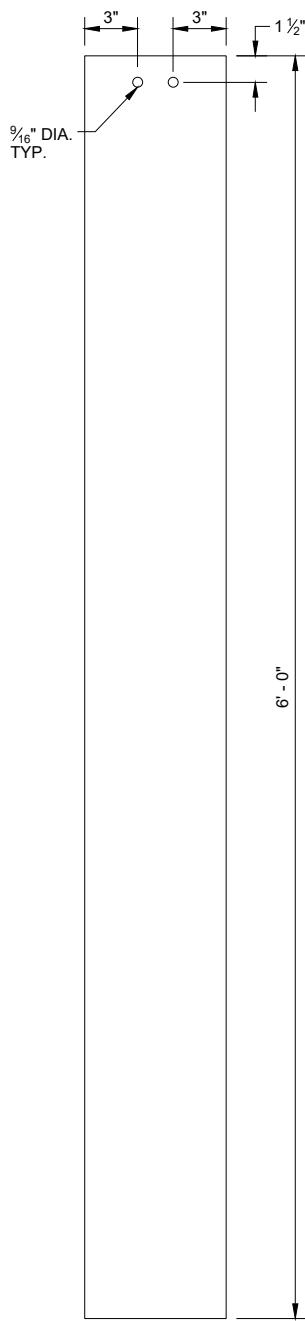
**UPPER PLATE (A4)**



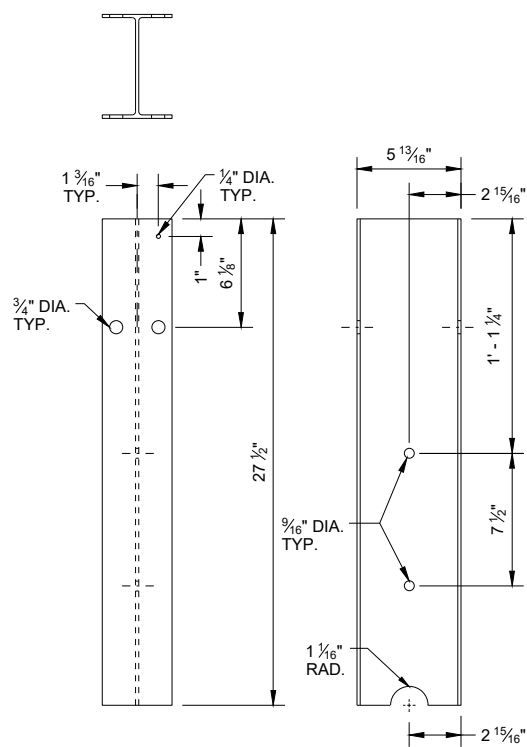
**PLAN VIEW**



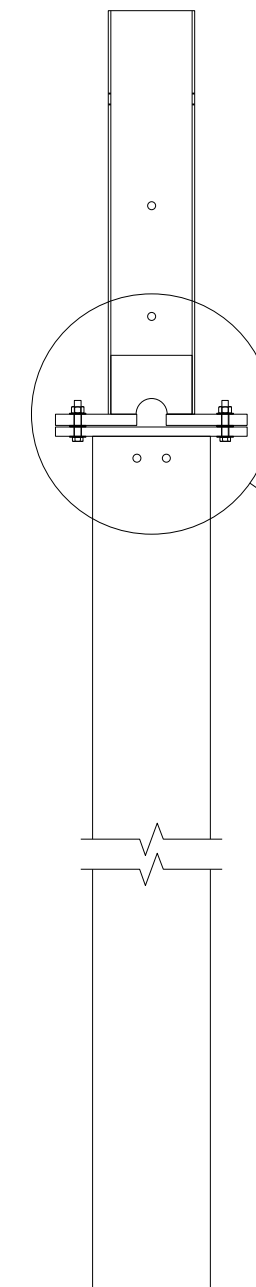
**FRONT VIEW SIDE VIEW**  
**UPPER POST ASSEMBLY**



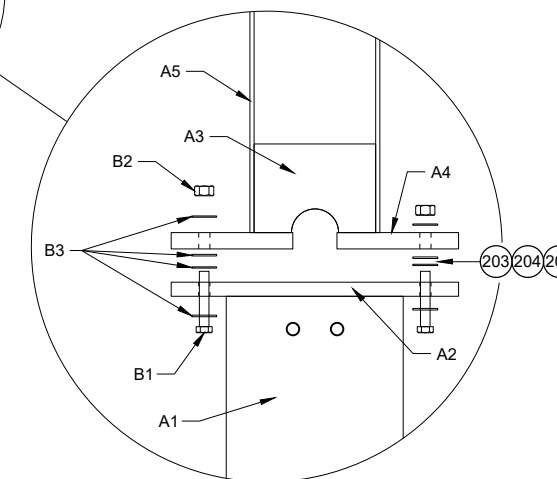
**SIDE VIEW**  
**FOUNDATION TUBE (A1)**



**FRONT VIEW SIDE VIEW**  
**TYPE 2 POST (A5)**



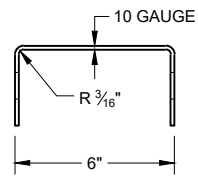
**ASSEMBLED POST**



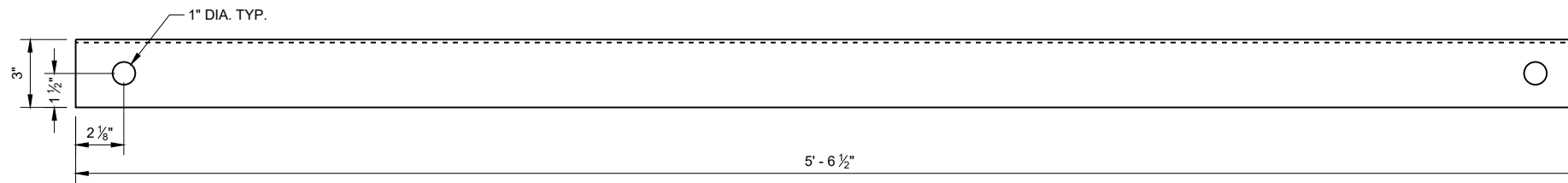
**POST CONNECTION DETAIL**

**MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

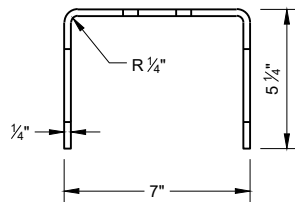


**SIDE VIEW**

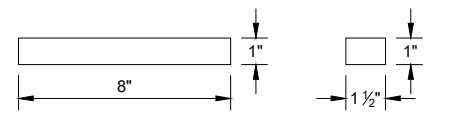


**FRONT VIEW**

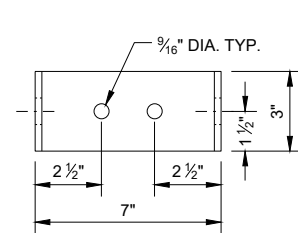
**GROUND STRUT CHANNEL (G1)**



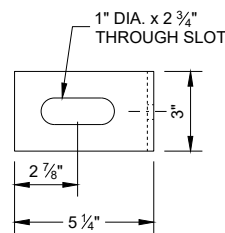
**TOP VIEW**



**BEARING PLATE FLANGE (L2)**

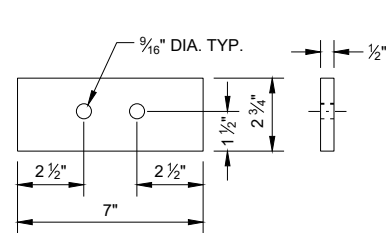


**FRONT VIEW**

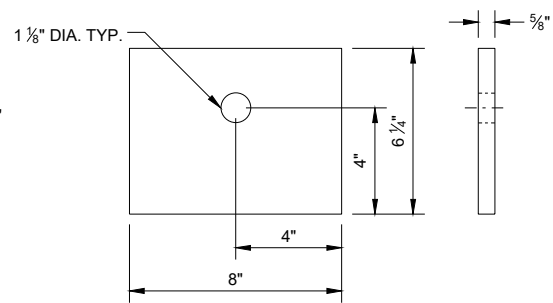


**SIDE VIEW**

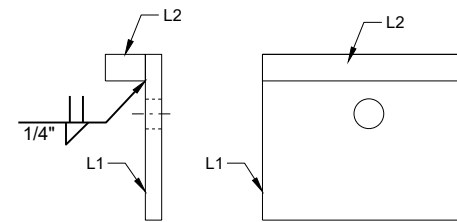
**GROUND STRUT CONNECTOR (G2)**



**GROUND STRUT PLATE (G3)**



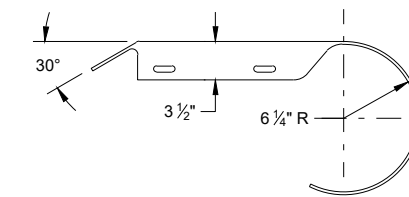
**BEARING PLATE (L1)**



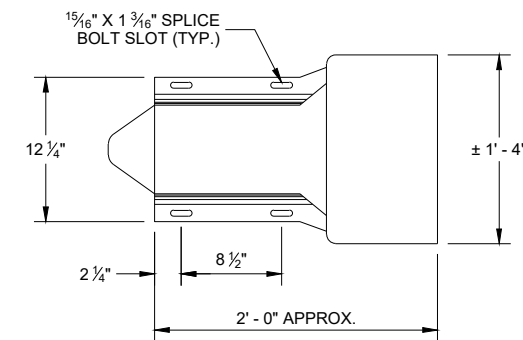
**SIDE VIEW**

**FRONT VIEW**

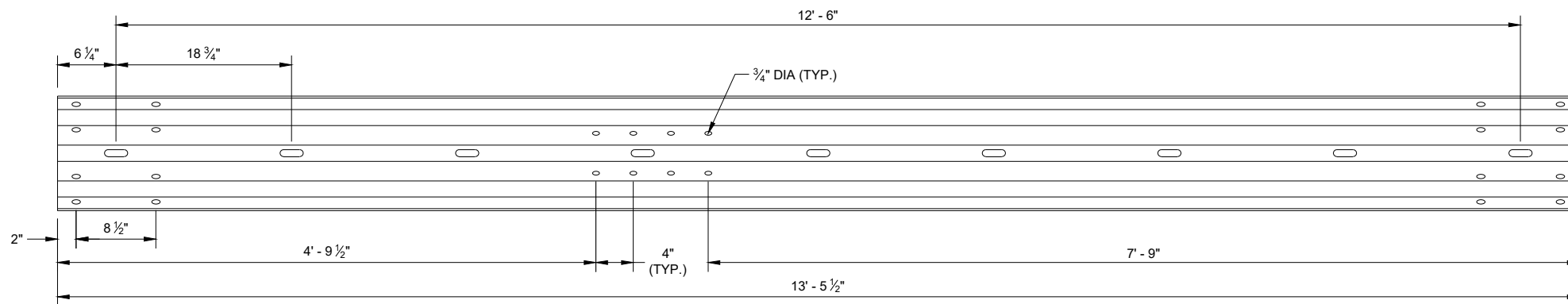
**BEARING PLATE ASSEMBLY**



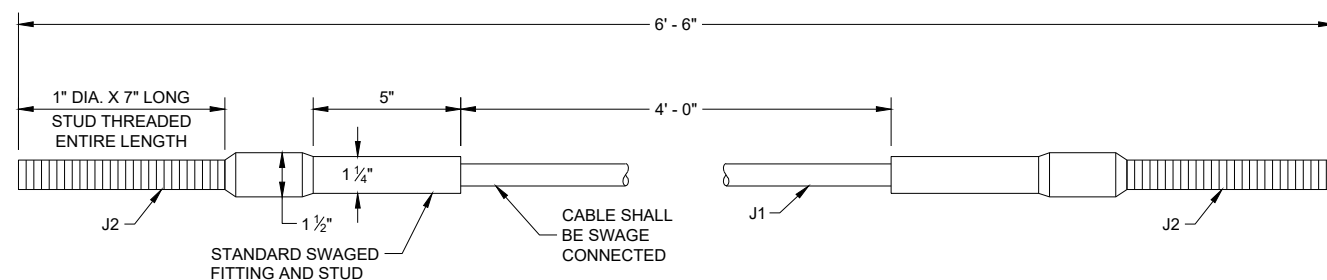
**PLAN VIEW**



**ELEVATION VIEW  
ROUNDED BUFFER END (E3)**



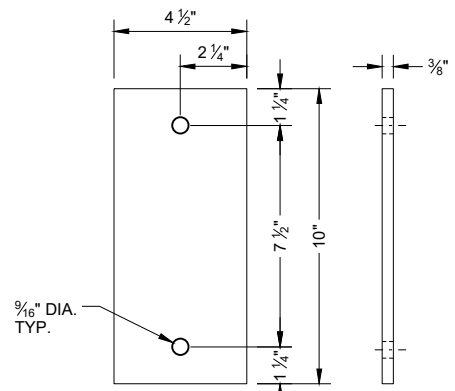
**TYPE 2 GUARDRAIL (E1)**



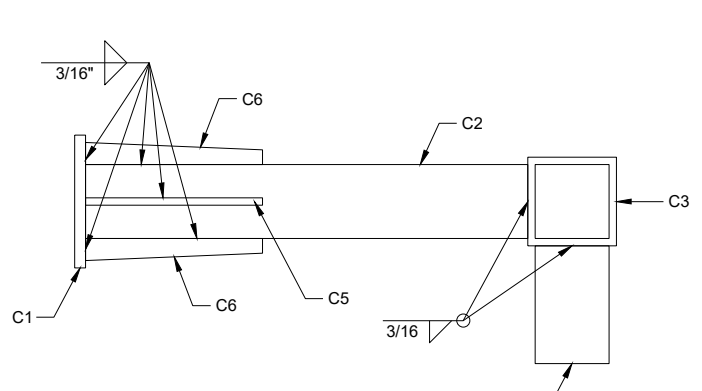
**CABLE ASSEMBLY**

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

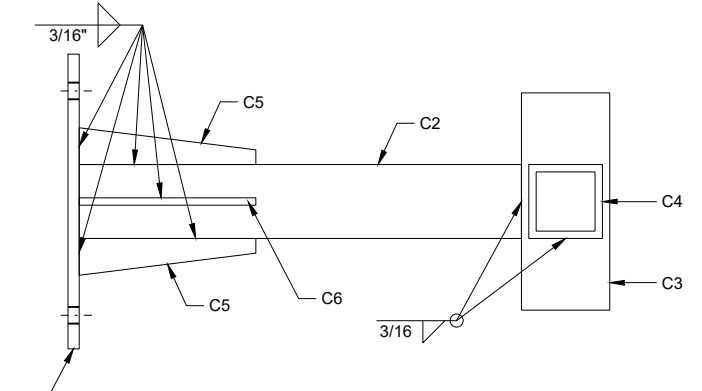
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



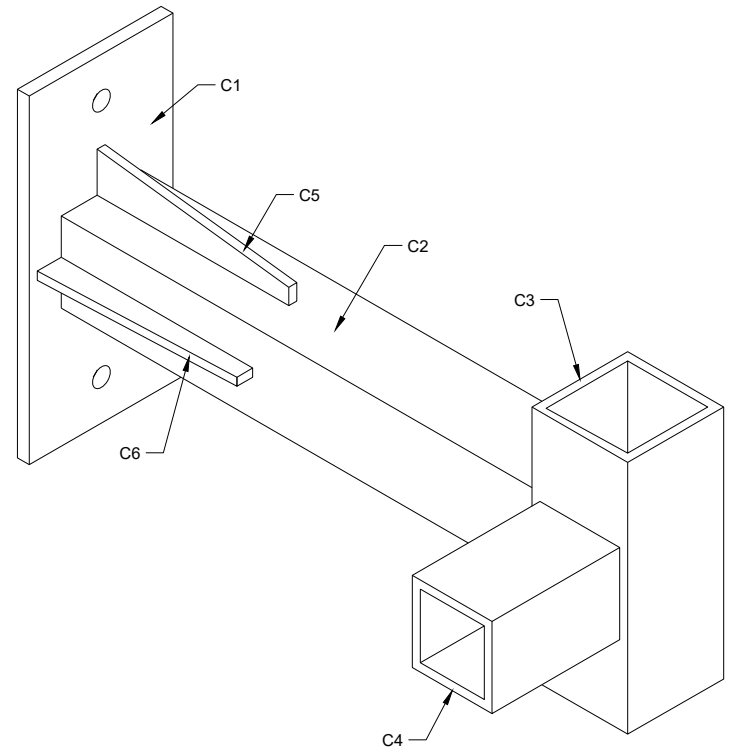
**ARM PLATE (C1)**



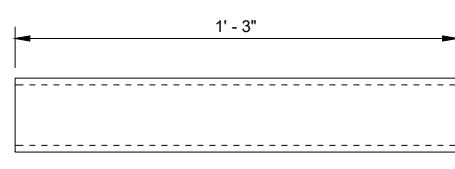
**TOP VIEW  
ARM ASSEMBLY**



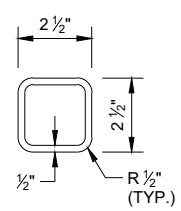
**SIDE VIEW  
ARM ASSEMBLY**



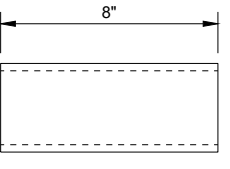
**ISOMETRIC VIEW  
ARM ASSEMBLY**



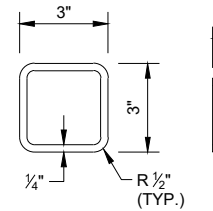
**ARM TUBE 1 (C2)**



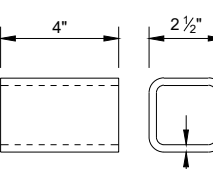
**ARM TUBE 2 (C3)**



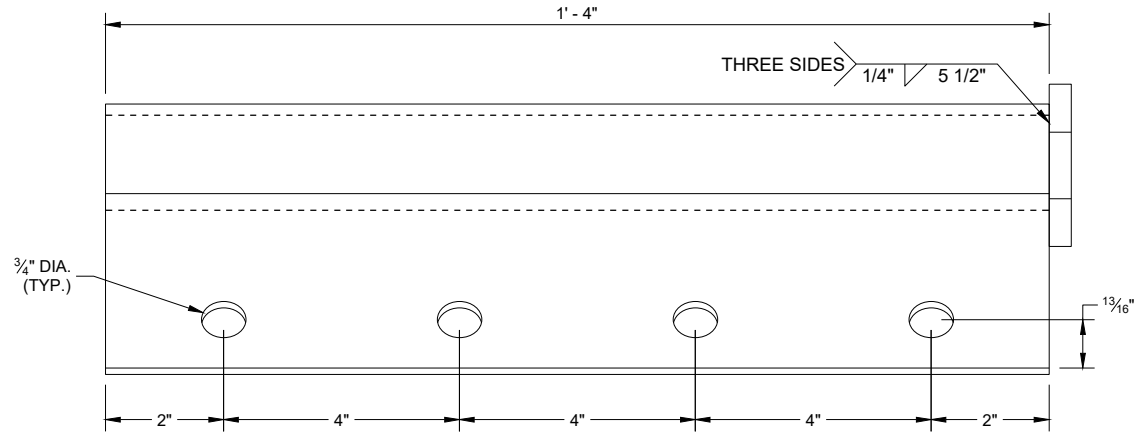
**ARM TUBE 3 (C4)**



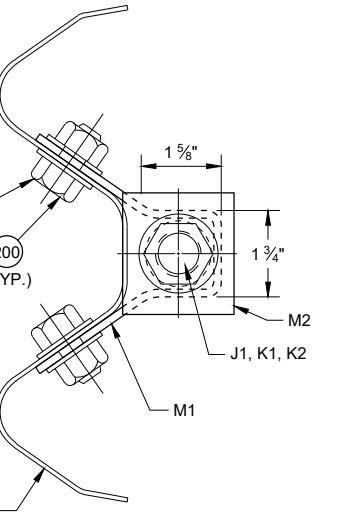
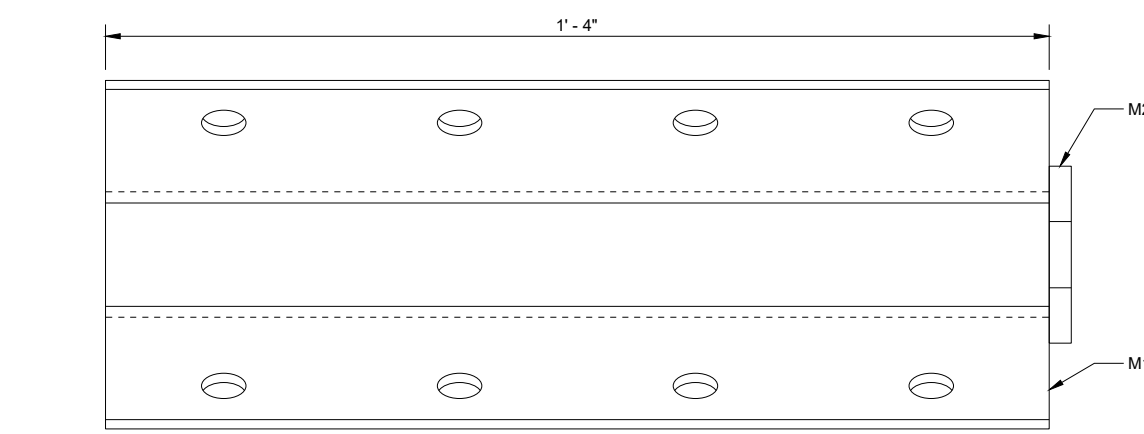
**ARM GUSSET  
PLATE 1 (C5)**



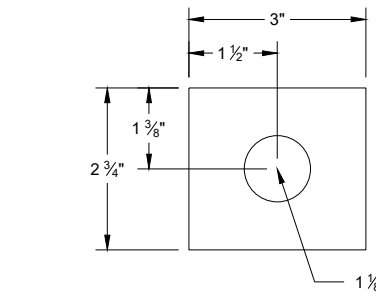
**ARM GUSSET  
PLATE 2 (C6)**



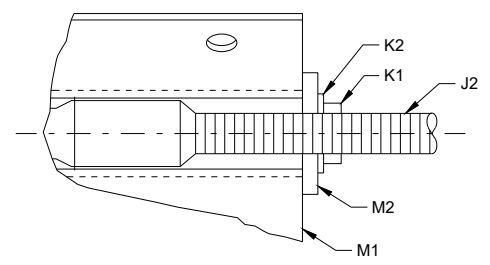
**ANCHOR BRACKET (M1, M2)**



**SECTION A - A**



**ANCHOR BRACKET BEARING PLATE (M2)**



**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

| PART | DESCRIPTION                   | MATERIALS SPECIFICATIONS  | NOTES                     |
|------|-------------------------------|---|---------------------------|
| A1   | TYPE 2 FOUNDATION TUBE        | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 8" x 6" x 3/16"        |
| A2   | LOWER PLATE                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS            |
| A3   | POST GUSSET                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| A4   | UPPER PLATE                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 3/4" THICKNESS            |
| A5   | TYPE 2 POST                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI, w6x9 or w6x8.5  |                           |
| B1   | BREAKAWAY BOLT                | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT. | 7/16" DIA.                |
| B2   | BREAKAWAY BOLT WASHER         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 7/16" DIA.                |
| B3   | BREAKAWAY BOLT NUT            | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   |                           |
| C1   | ARM ASSEMBLY PLATE            | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS            |
| C2   | ARM ASSEMBLY TUBE 1           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 8" x 6" x 3/16"        |
| C3   | ARM ASSEMBLY TUBE 2           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 3" x 3" x 1/4"         |
| C4   | ARM ASSEMBLY TUBE 3           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 2 1/2" x 2 1/2" X 1/4" |
| C5   | ARM ASSEMBLY GUSSET PLATE 1   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| C6   | ARM ASSEMBLY GUSSET PLATE 2   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| D1   | ARM ASSEMBLY BOLT             | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 1/2" DIA.                 |
| D2   | ARM ASSEMBLY WASHER           | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 1/2" DIA.                 |
| D3   | ARM ASSEMBLY NUT              | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1/2" DIA.                 |
| E1   | TYPE 2 GUARD RAIL             | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| E2   | BEAM GUARD RAIL               | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| E3   | BEAM GUARD ROUNDED BUFFER END | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| F1   | POST BOLT                     | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 5/8" DIA.                 |
| F2   | POST BOLT WASHER              | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 5/8" DIA.                 |
| F3   | POST BOLT NUT                 | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5  |                           |
| G1   | GROUND STRUT CHANNEL          | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/2" x 11 3/4" x 10 GAUGE |
| G2   | GROUND STRUT CONNECTOR        | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| G3   | GROUND STRUT PLATE            | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/2" THICKNESS            |

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SDD 14B47 - 04f

SDD 14B47 - 04f

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

| PART | DESCRIPTION                 | MATERIALS SPECIFICATIONS  | NOTES          |
|------|-----------------------------|---|----------------|
| H1   | GROUND STRUT BOLT           | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 7/8" DIA.      |
| H2   | GROUND STRUT BOLT WASHER    | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 7/8" DIA.      |
| H3   | GROUND STRUT BOLT NUT       | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36   |                |
| J1   | BCT CABLE                   | AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS   | 3/4" DIA.      |
| J2   | BCT CABLE                   | UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS." |                |
| K1   | CABLE ASSEMBLY NUT          | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1" DIA.        |
| K2   | CABLE ASSEMBLY WASHER       | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1  | 1" DIA.        |
| L1   | BEARING PLATE               | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS |
| L2   | BEARING PLATE FLANGE        | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1" THICKNESS   |
| M1   | BEAM GUARD ANCHOR BRACKET   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  |                |
| M2   | BEAM GUARD ANCHOR END PLATE | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 3/8" THICKNESS |
| N1   | ANCHOR BRACKET BOLT         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 5/8" DIA.      |
| N2   | ANCHOR BRACKET BOLT WASHER  | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 5/8" DIA.      |
| N3   | ANCHOR BRACKET BOLT NUT     | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   |                |
| P1   | FOUNDATION TUBE BOLT        | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1/2" DIA.      |
| P2   | FOUNDATION TUBE WASHER      | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDENED WASHER ONLY)   | 1/2" DIA.      |
| P3   | FOUNDATION TUBE NUT         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                              |                |
| Q1   | SPLICE BOLT                 | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  |                |
| Q2   | SPLICE NUT                  | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                              | 5/8" DIA.      |

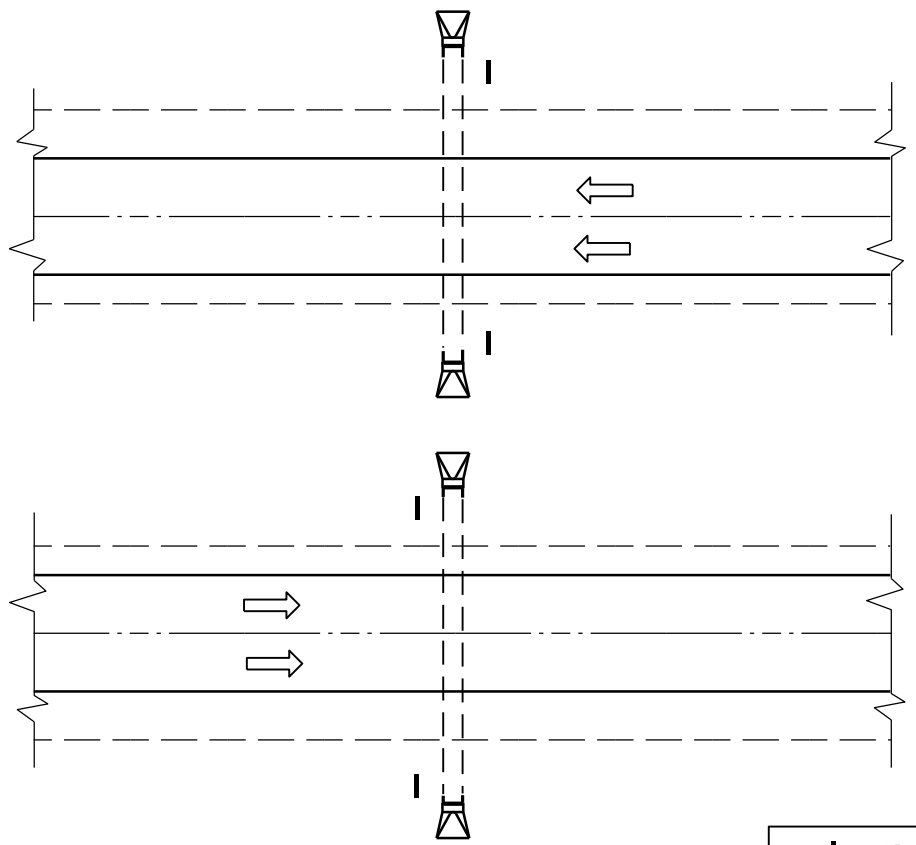
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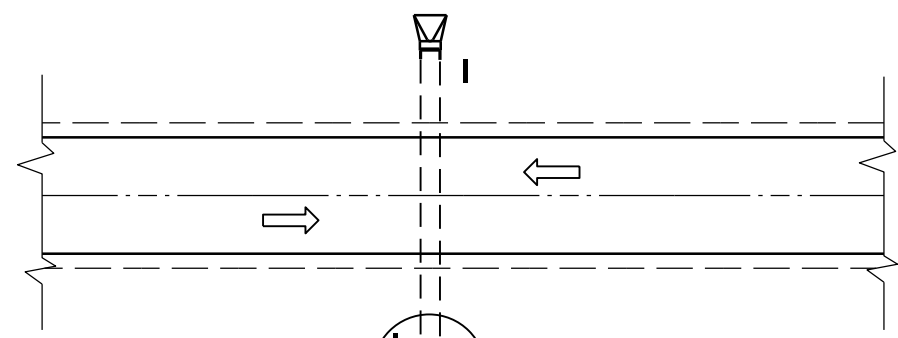
SDD 14B47 - 04g

SDD 14B47 - 04g

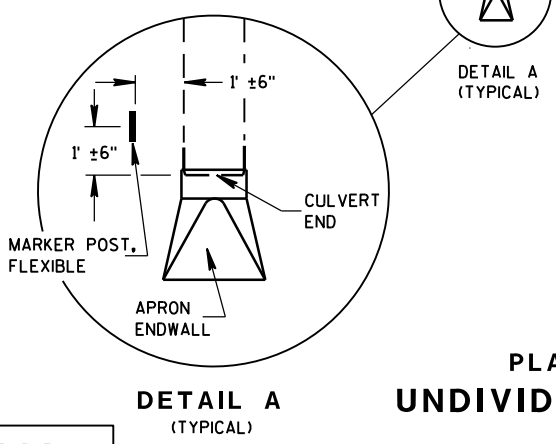
|   |
|---|
| <p><b>MIDWEST GUARDRAIL<br/>SYSTEM (MGS)<br/>TYPE 2 TERMINAL</b></p>                                    |
| <p>STATE OF WISCONSIN<br/>DEPARTMENT OF TRANSPORTATION</p>  |
| <p>APPROVED<br/>February 2023 /S/ Rodney Taylor<br/>DATE ROADWAY STANDARDS DEVELOPMENT<br/>ENGINEER</p> |
| <p>FHWA</p>   |



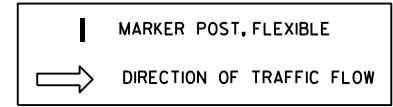
PLAN VIEW  
DIVIDED HIGHWAY



PLAN VIEW  
UNDIVIDED HIGHWAY

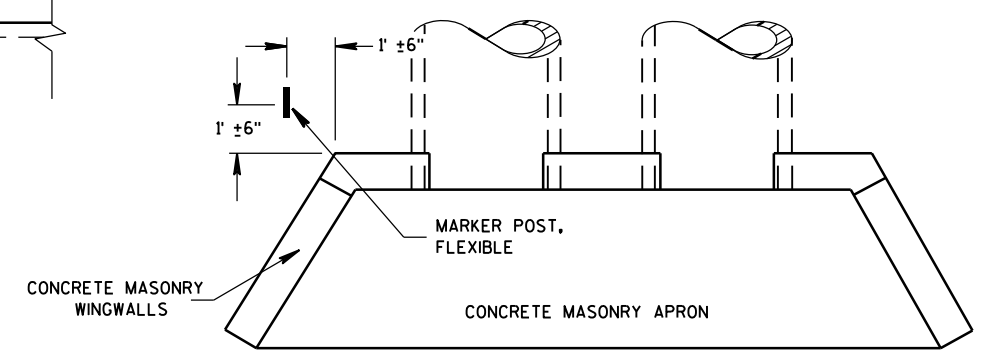


DETAIL A  
(TYPICAL)



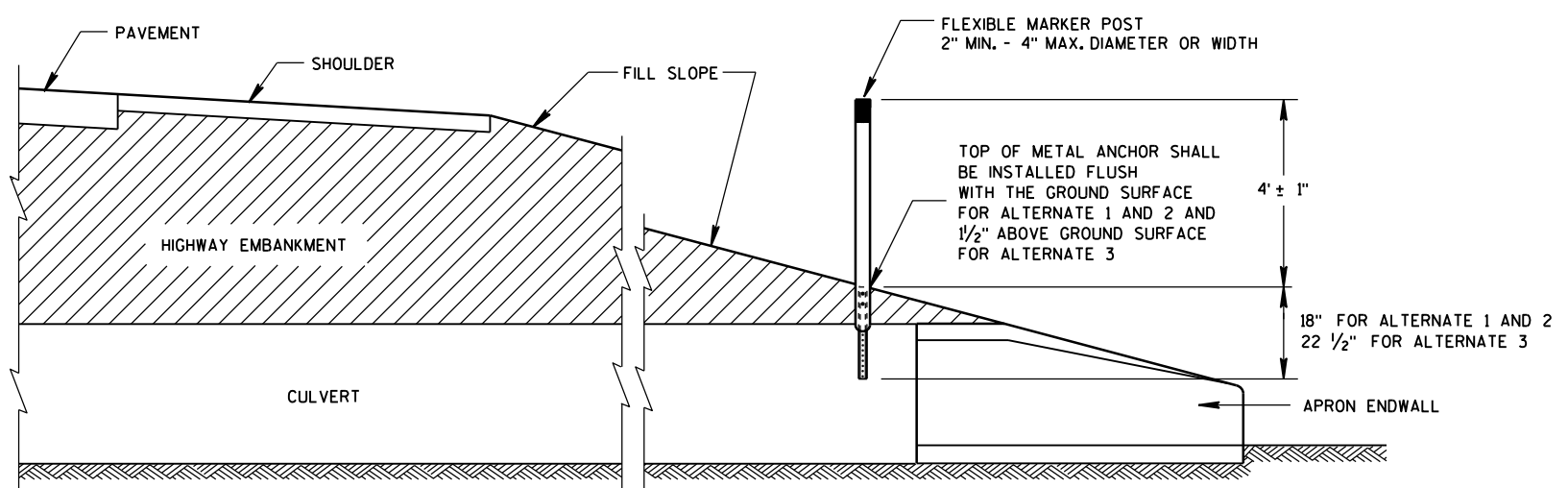
**GENERAL NOTES**

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**

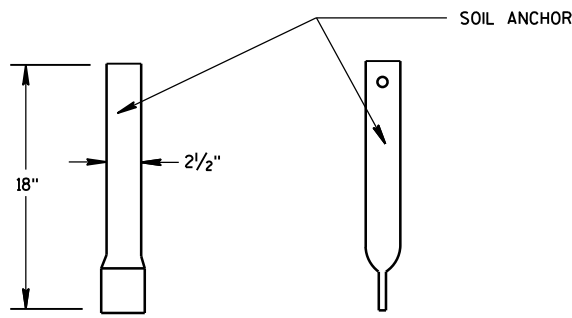
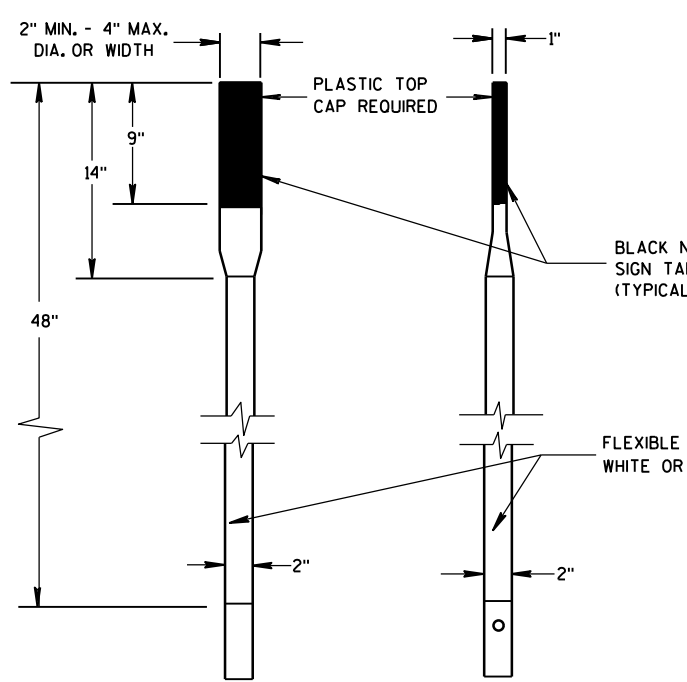
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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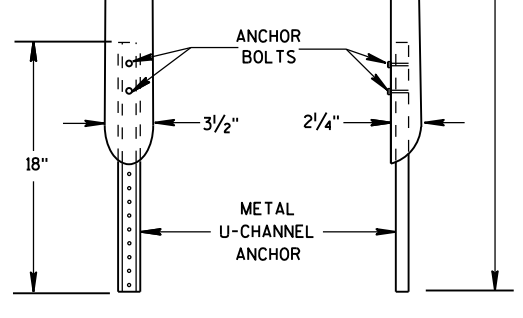
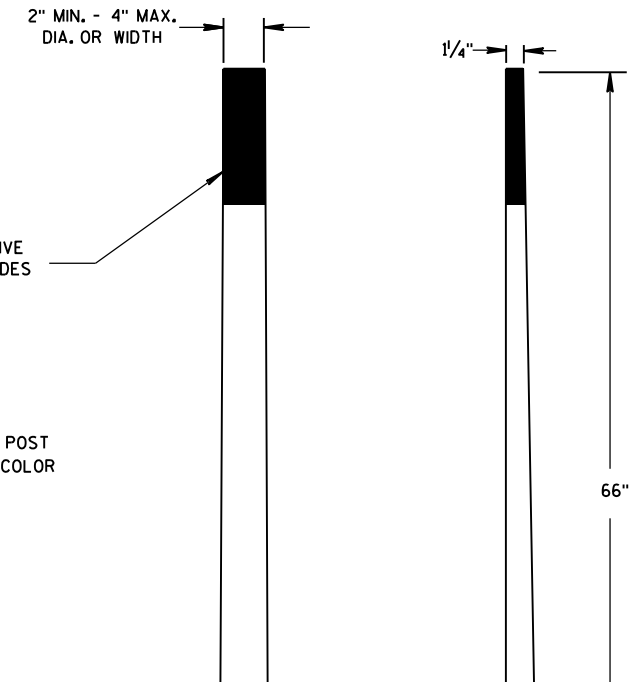
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S.D.D. 15 A 3-2a

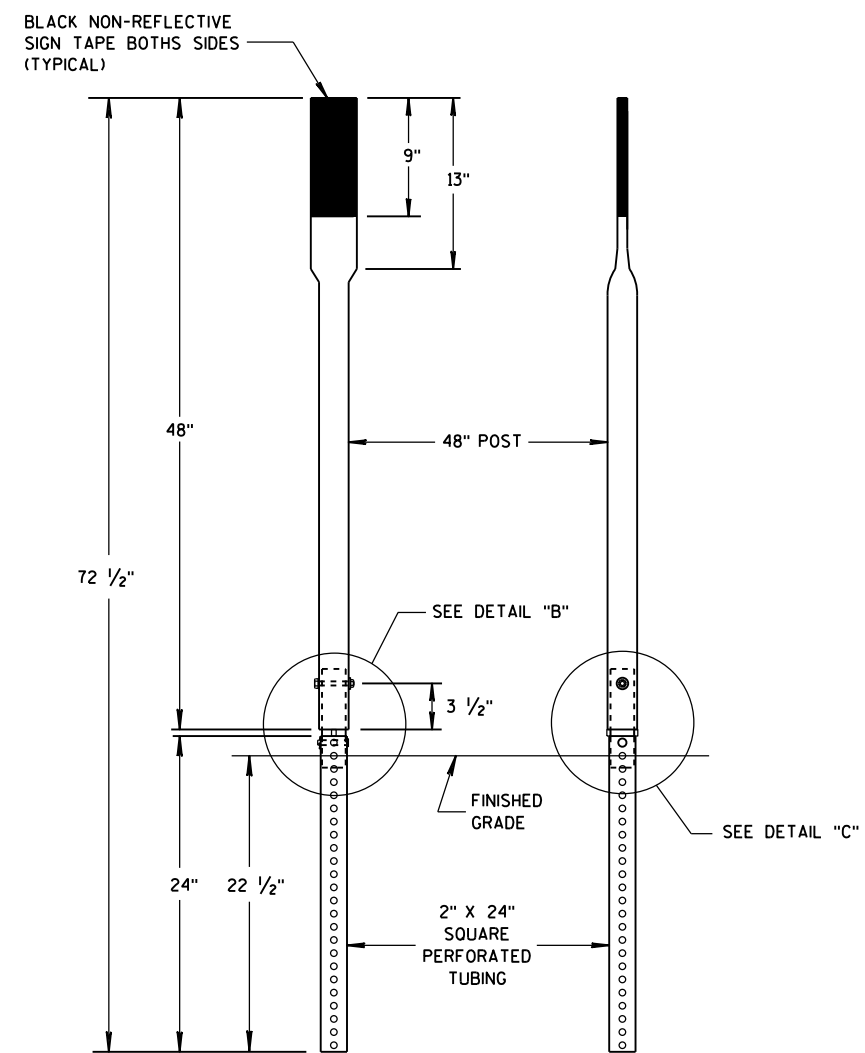
S.D.D. 15 A 3-2a



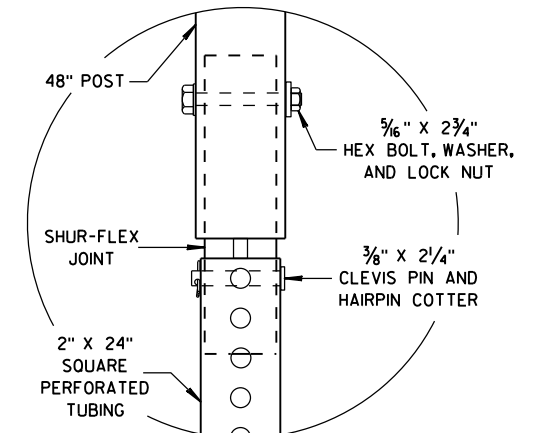
FRONT VIEW SIDE VIEW  
ALTERNATE 1



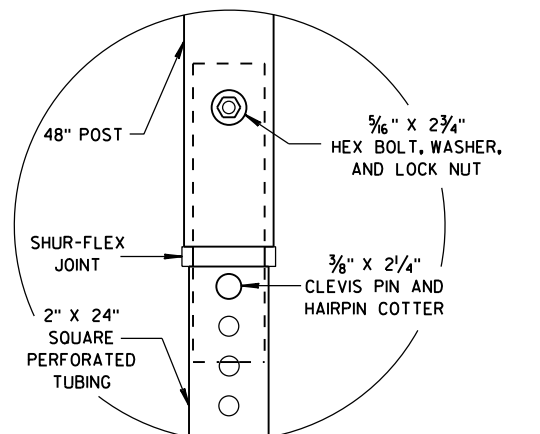
FRONT VIEW SIDE VIEW  
ALTERNATE 2



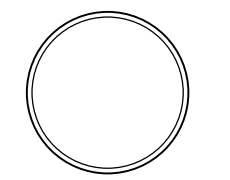
FRONT VIEW SIDE VIEW  
ALTERNATE 3



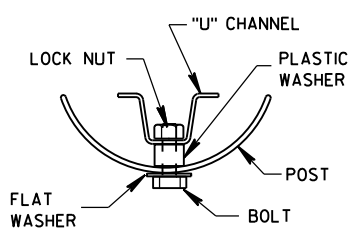
DETAIL B



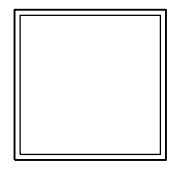
DETAIL C



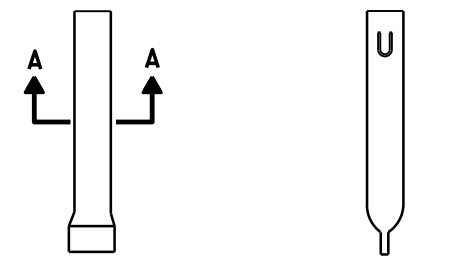
SECTION A-A



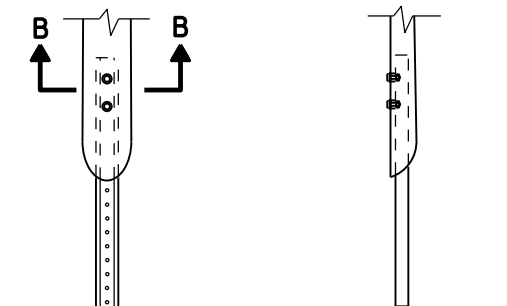
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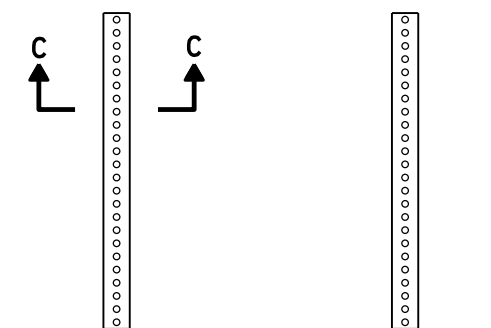
SECTION C-C



FRONT VIEW SIDE VIEW  
ALTERNATE 1



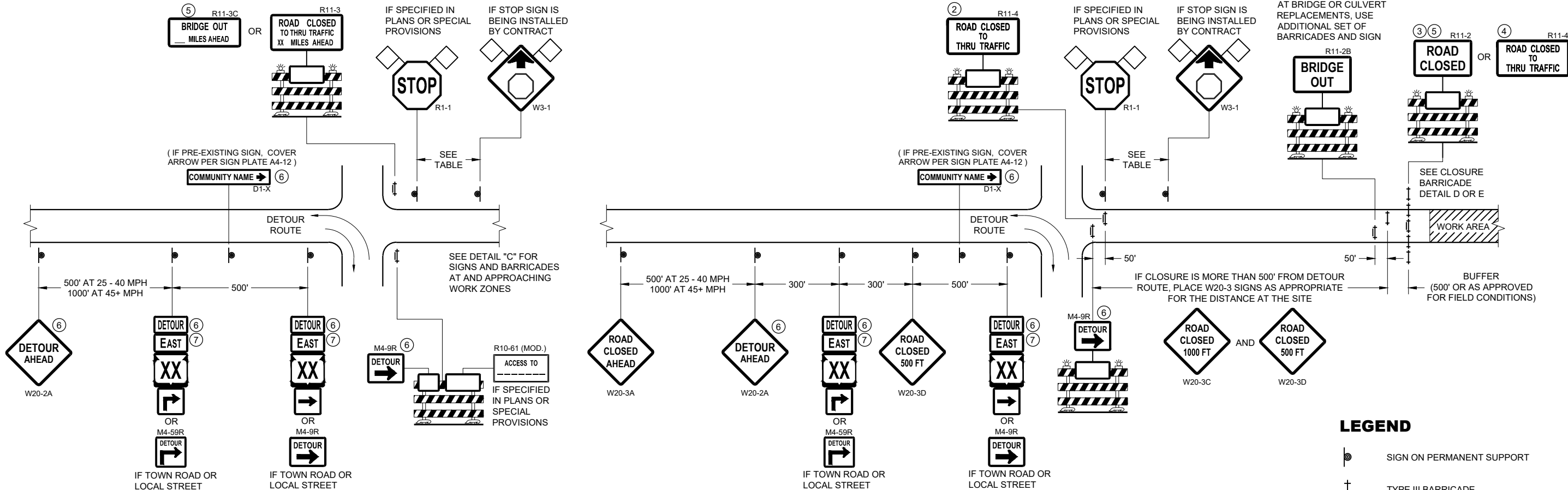
FRONT VIEW SIDE VIEW  
ALTERNATE 2



FRONT VIEW SIDE VIEW  
ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

|  |   |
|--|---|
| <b>FLEXIBLE MARKER POST FOR CULVERT END</b>        |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>10/1/2012<br>DATE                      | /S/ Travis Feltes<br>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**

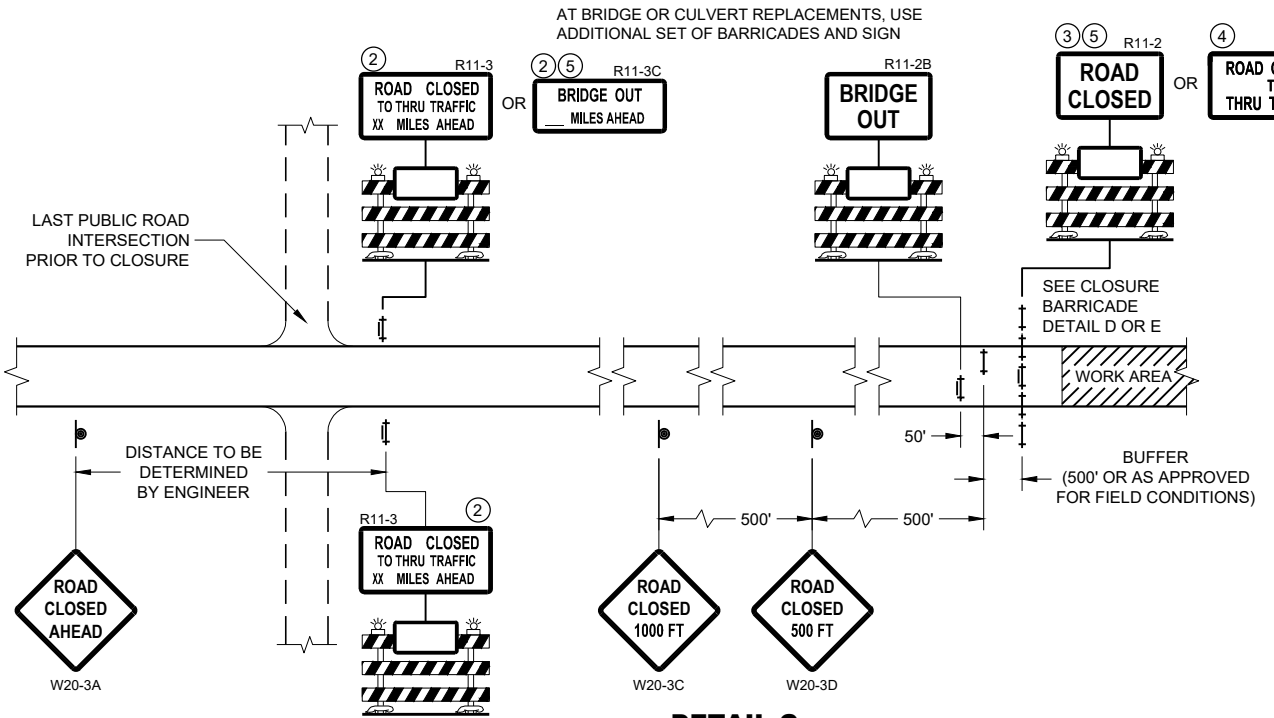
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**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

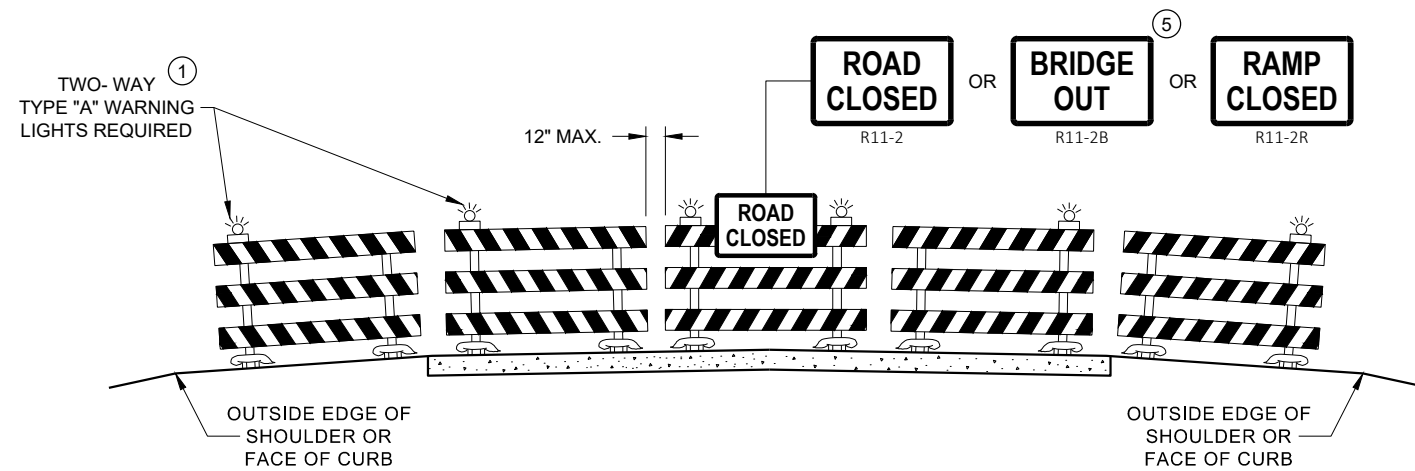
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

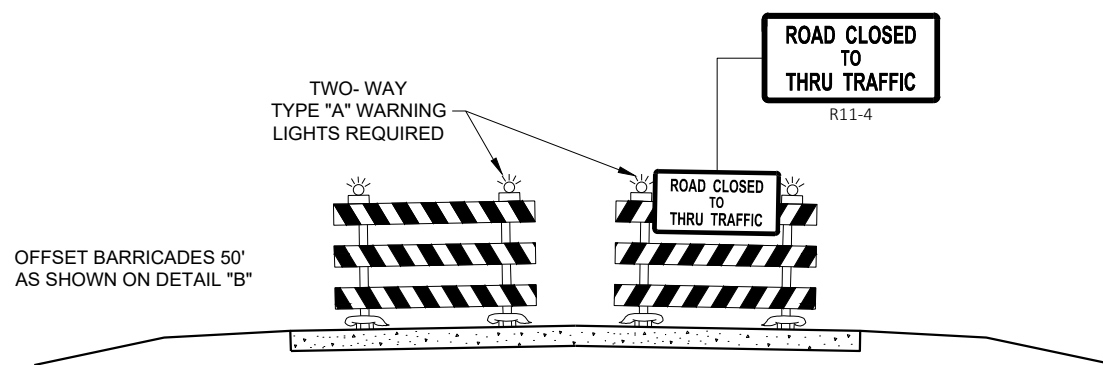
APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE DATE WORK ZONE ENGINEER

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"

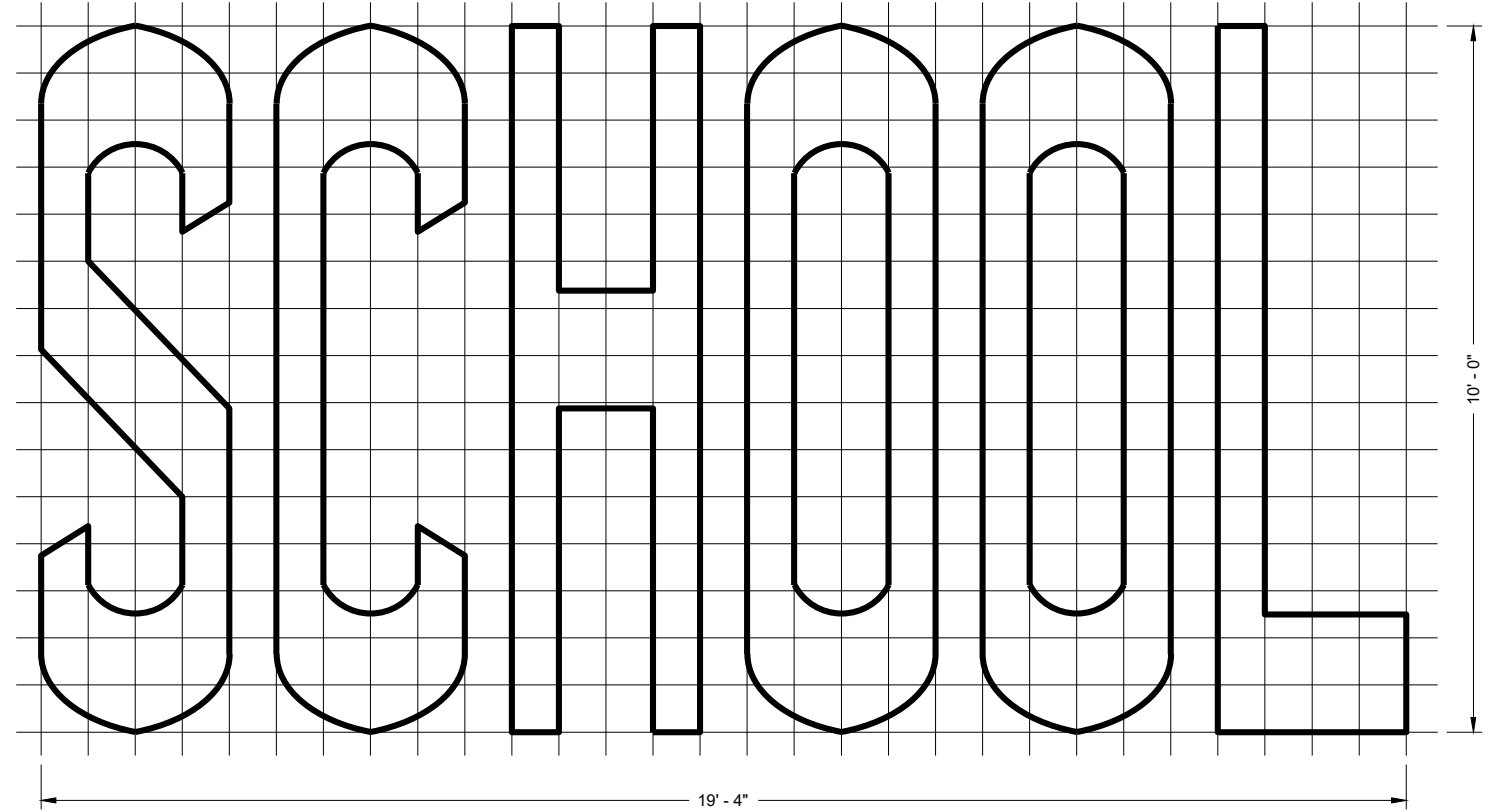
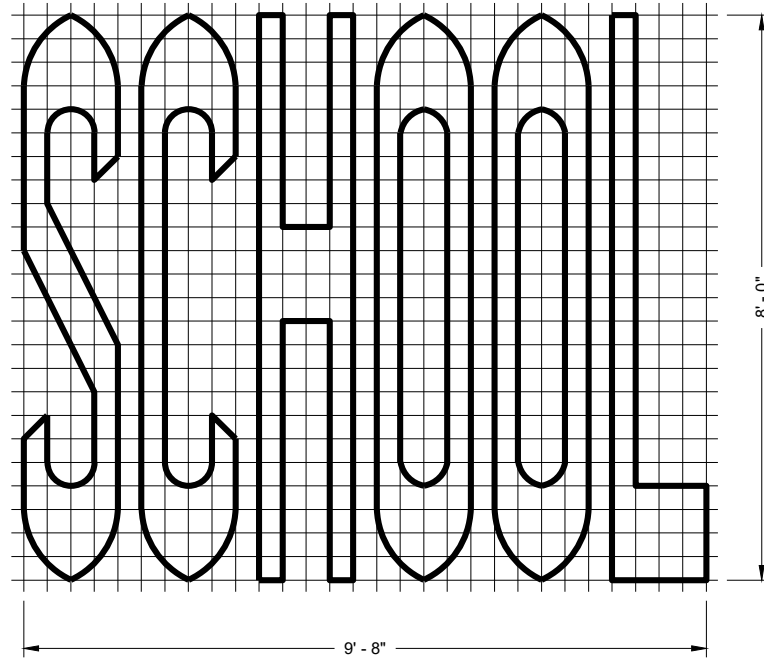
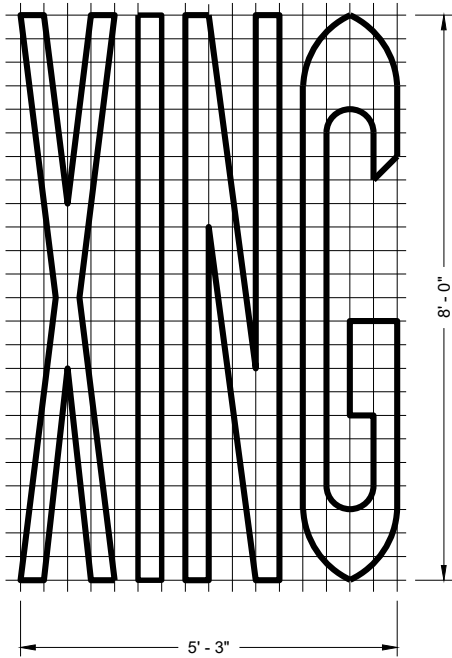
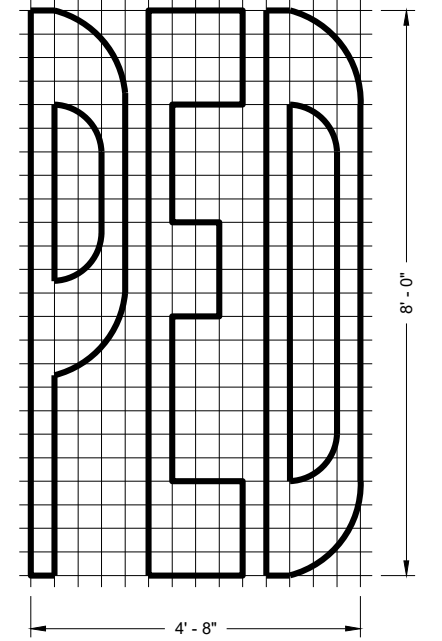
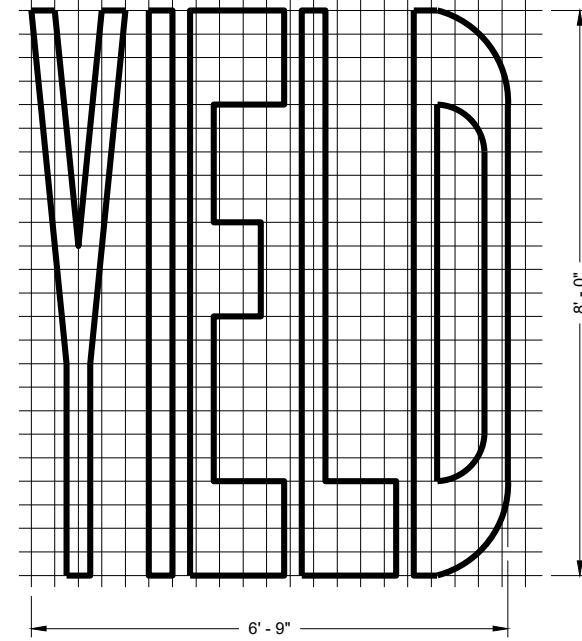
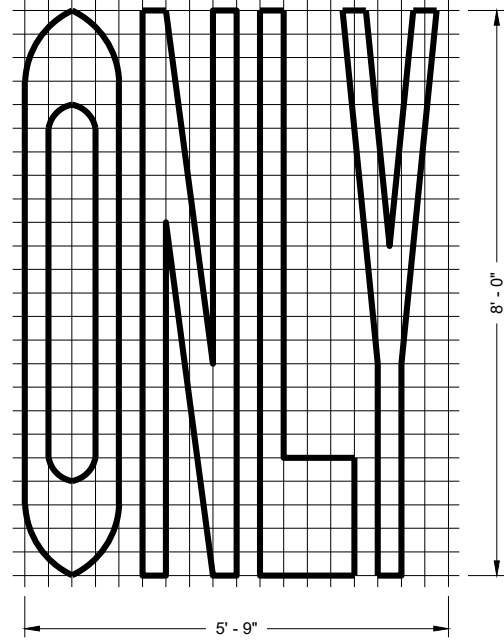
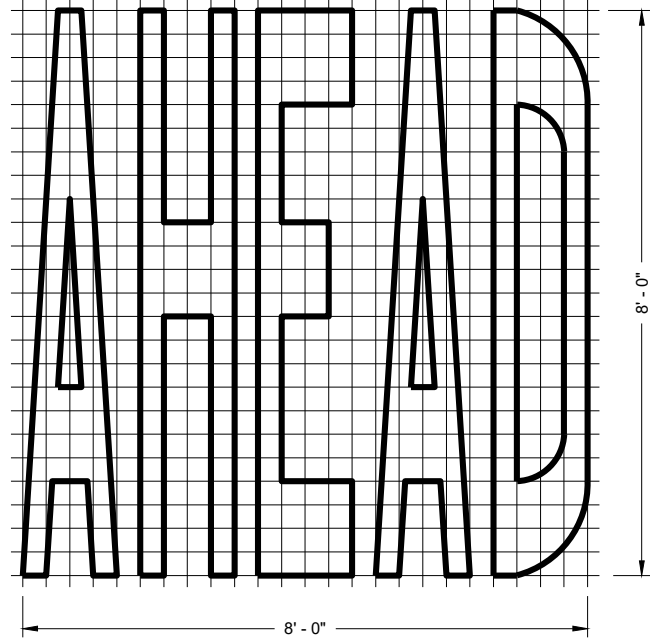
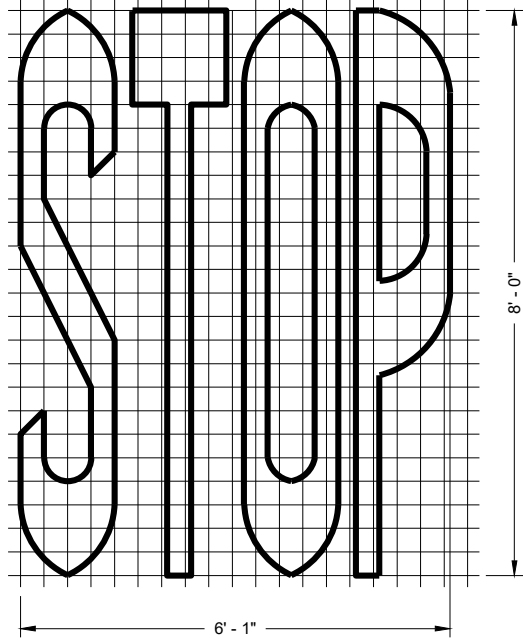
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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



SINGLE LANE

TWO - LANE

**GENERAL NOTES**

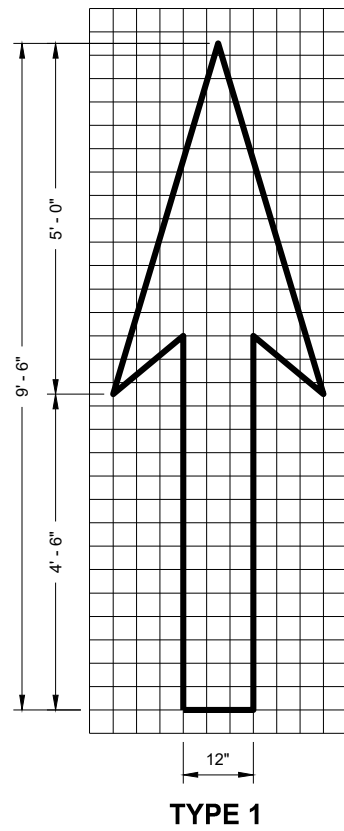
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

**PAVEMENT MARKING WORDS**

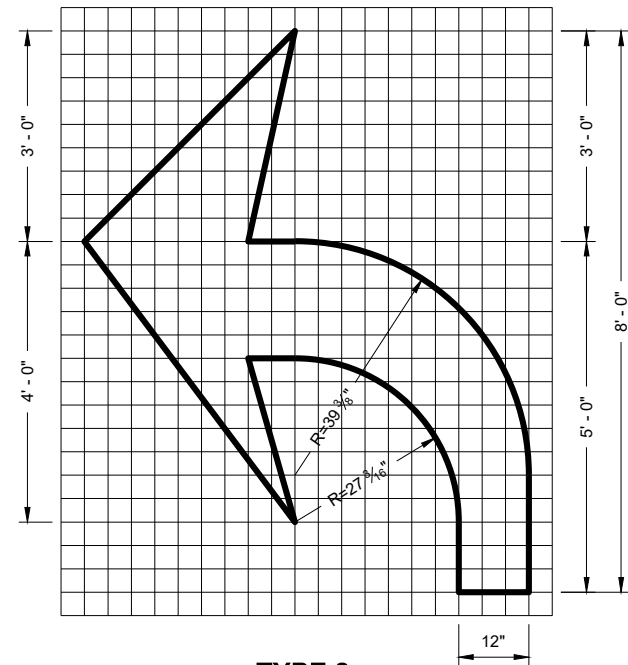
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

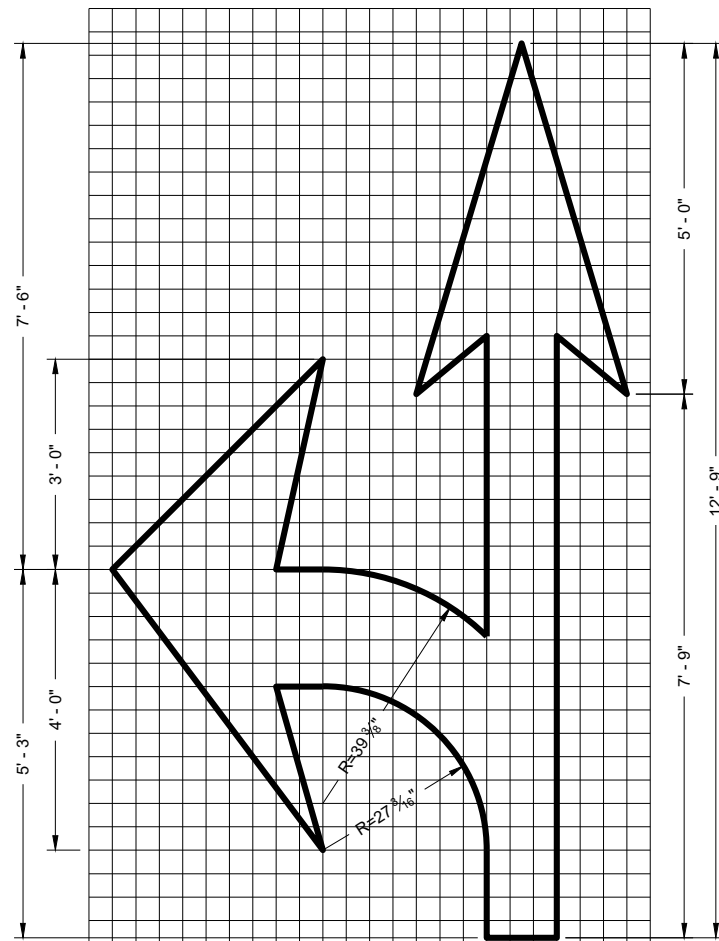
FHWA



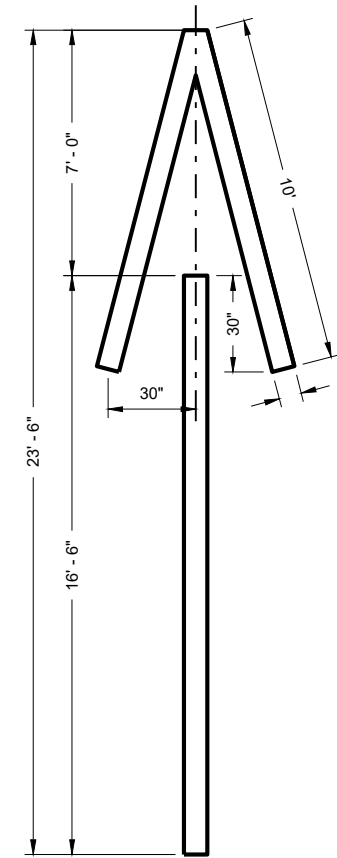
TYPE 1



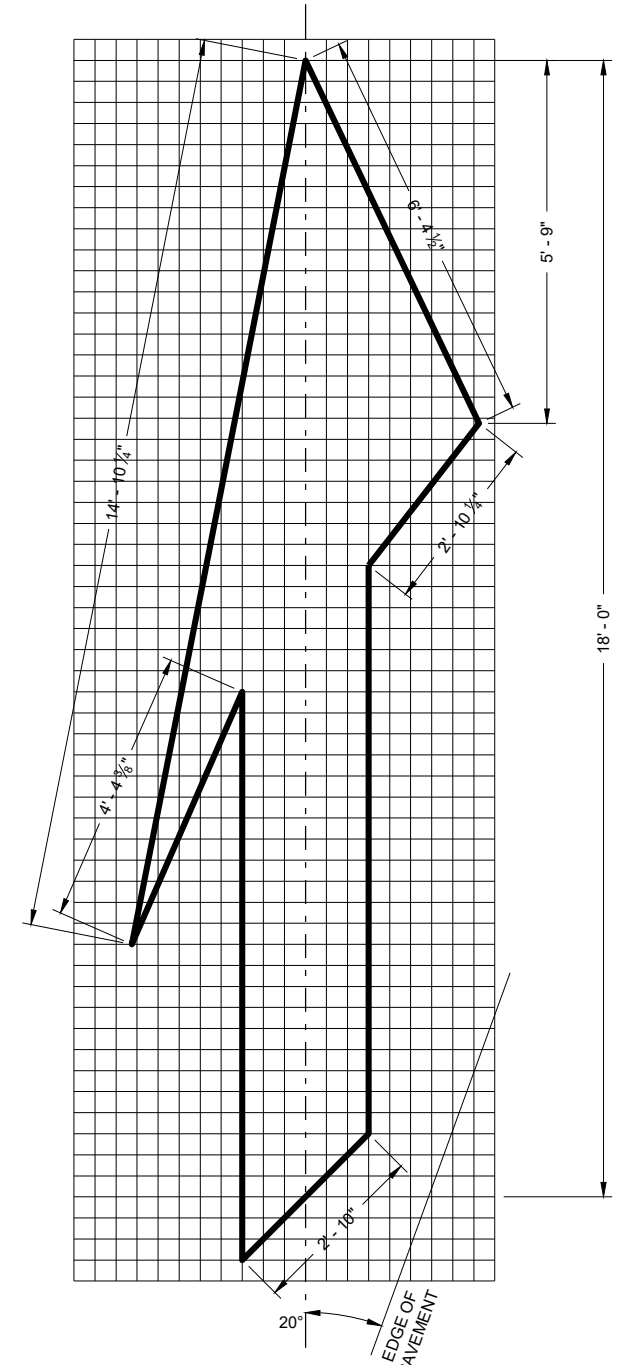
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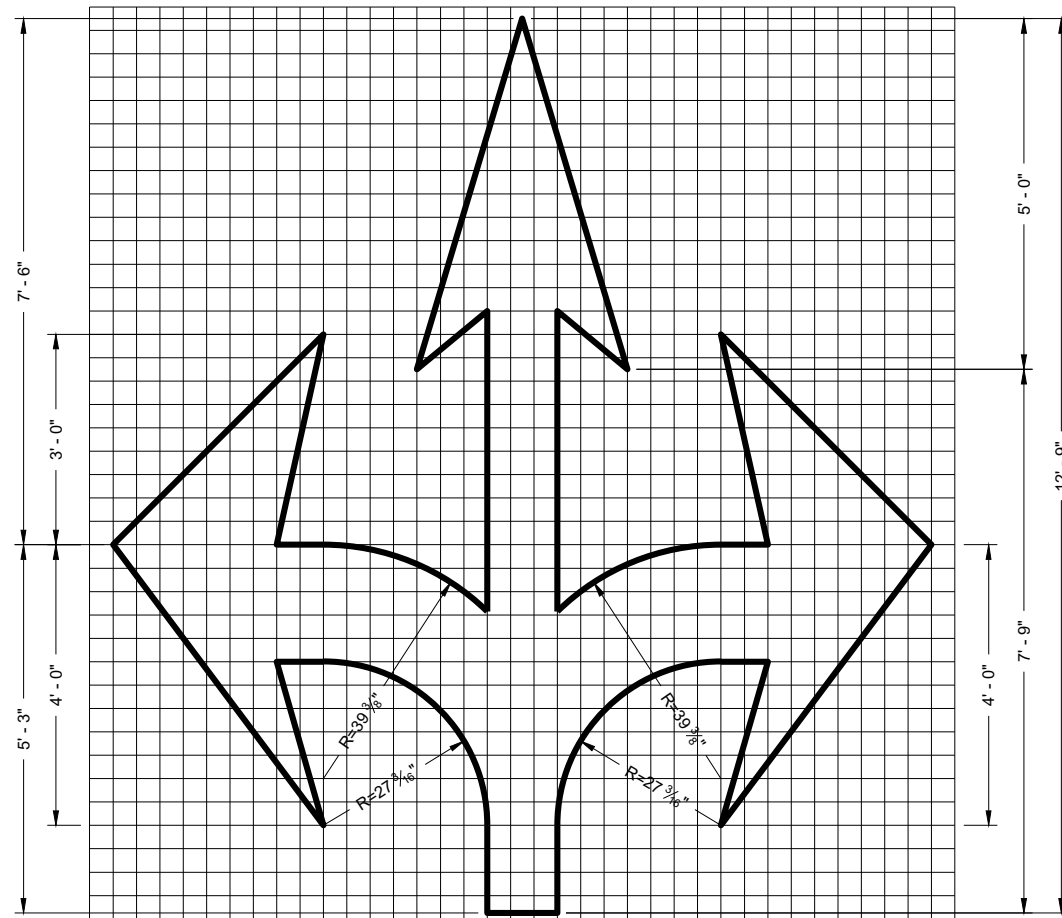
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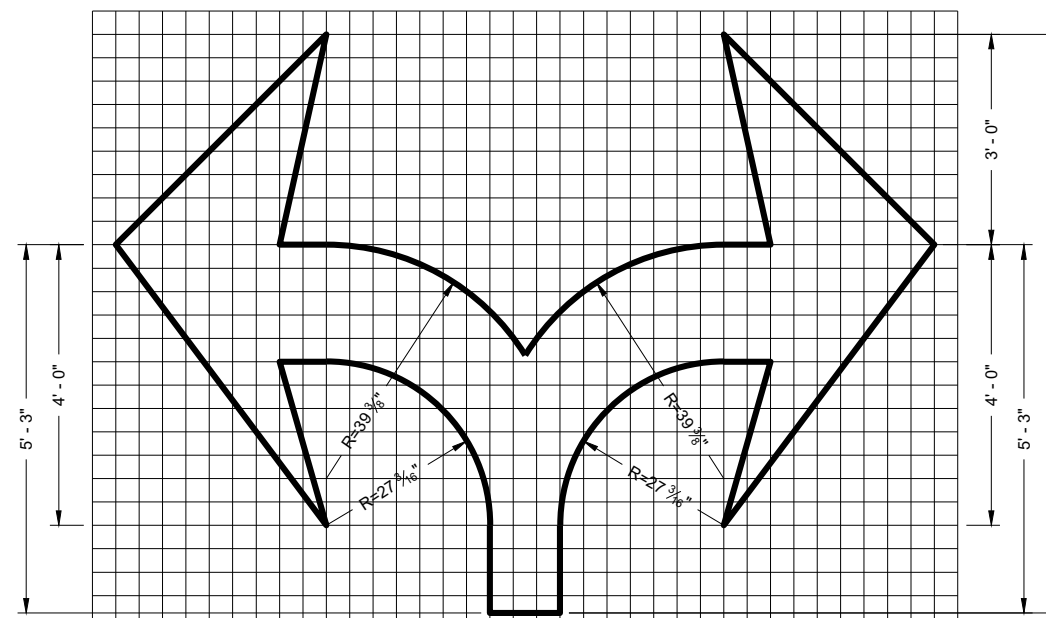
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

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

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

|                                   |  |
|-----------------------------------|--|
| APPROVED<br>November 2019<br>DATE | /s/ Matthew Rauch<br>STATE SIGNING AND MARKING<br>ENGINEER |
|-----------------------------------|--|




FHWA

**GENERAL NOTES**

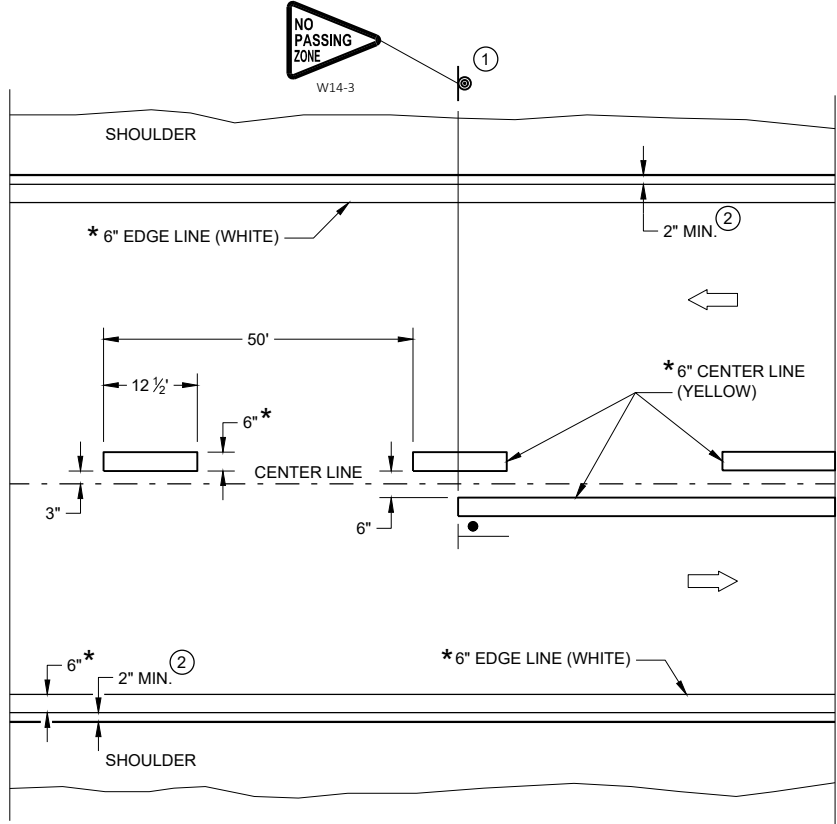
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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.

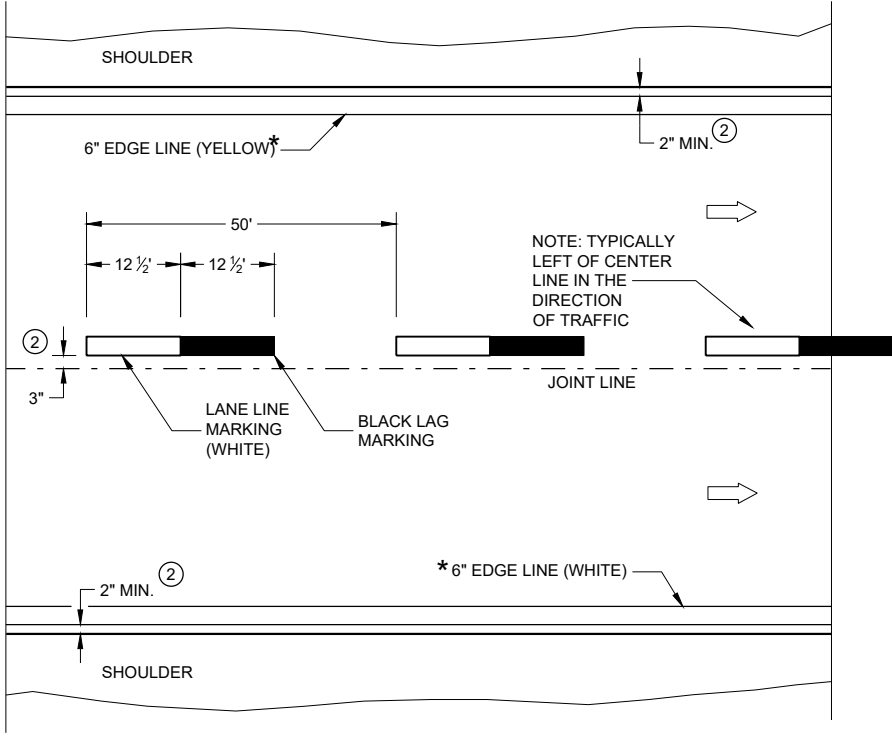
**LEGEND**

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

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**



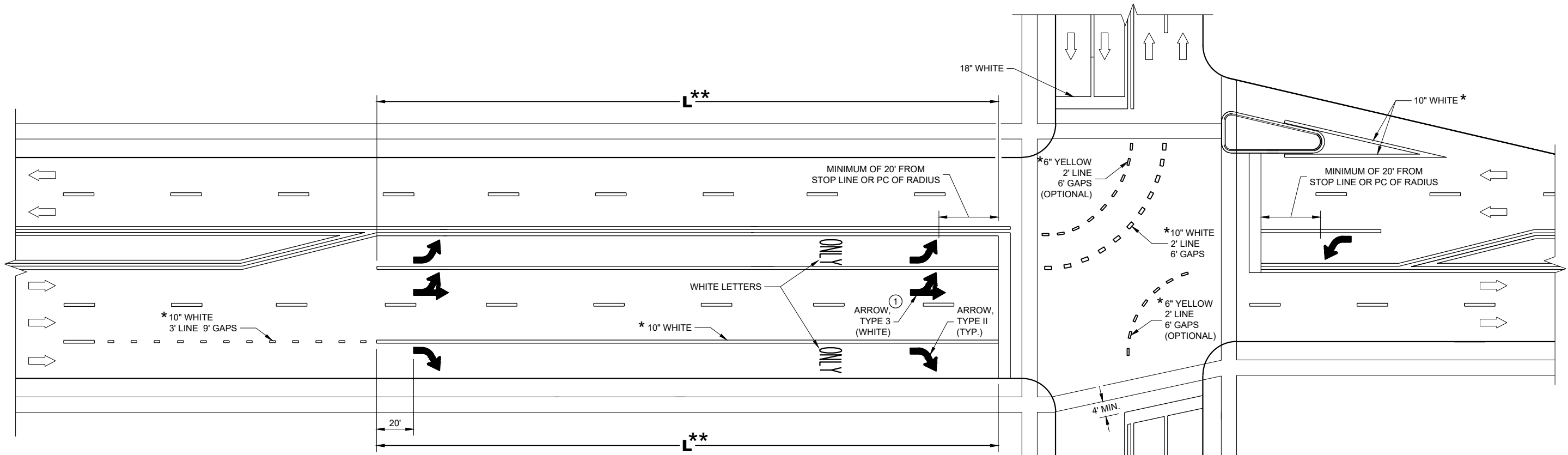
**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**

**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

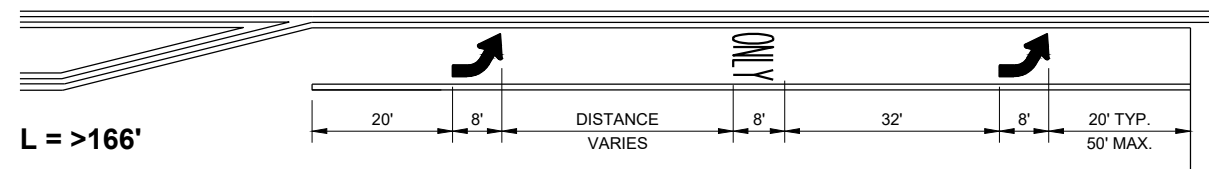
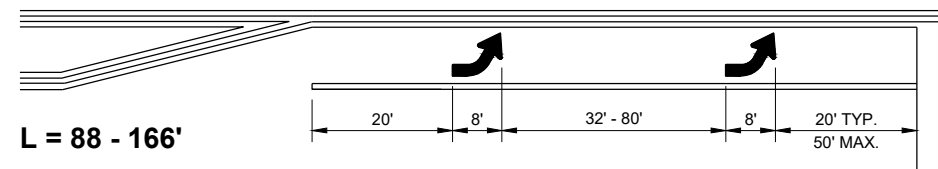
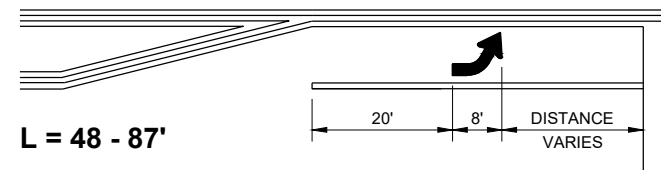
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**TURN LANE OPTIONS**

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



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

**GENERAL NOTES**

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

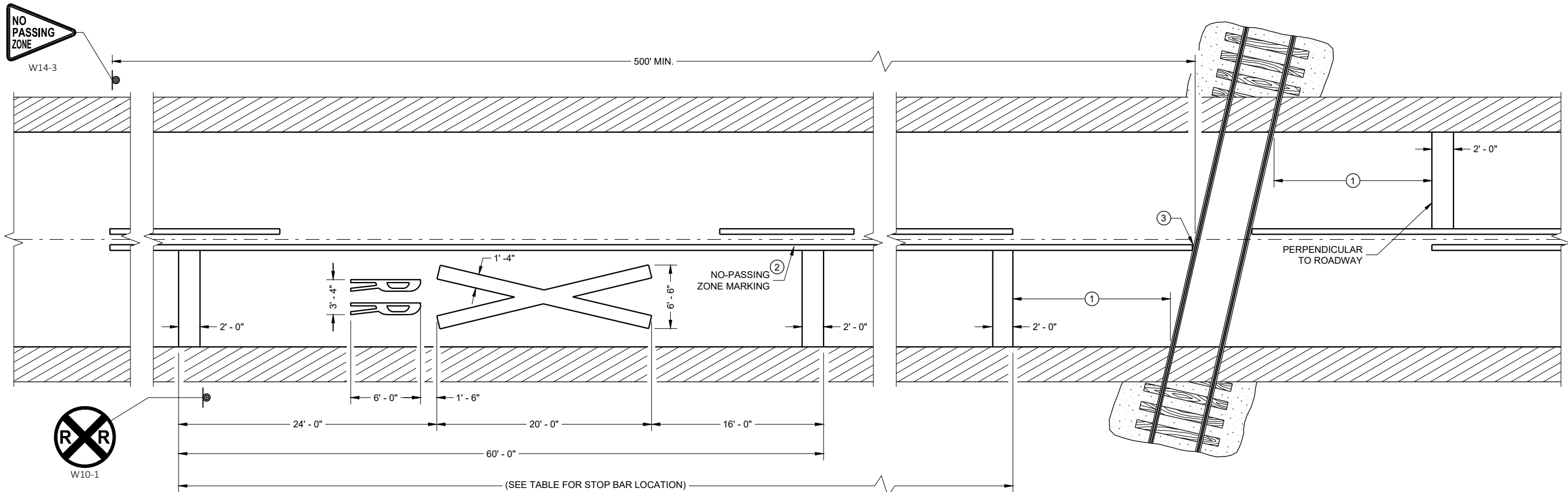
➡ DIRECTION OF TRAFFIC

**L** = LENGTH OF TURN BAY

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

**PAVEMENT MARKING (TURN LANES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**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.

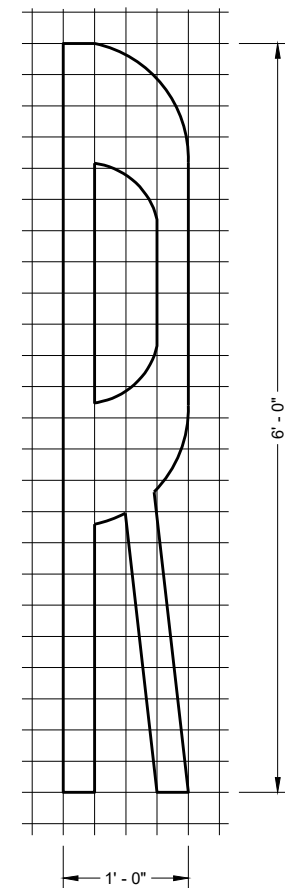
- ① PLACE STOP BAR APPROXIMATELY 8 FEET IN ADVANCE OF THE GATE (IF PRESENT), BUT NO CLOSER THAN 15 FEET IN ADVANCE OF THE NEAREST RAIL. FIELD-FIT STOP BAR TO MAXIMIZE VIEW OF APPROACHING TRAIN.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE 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'          |

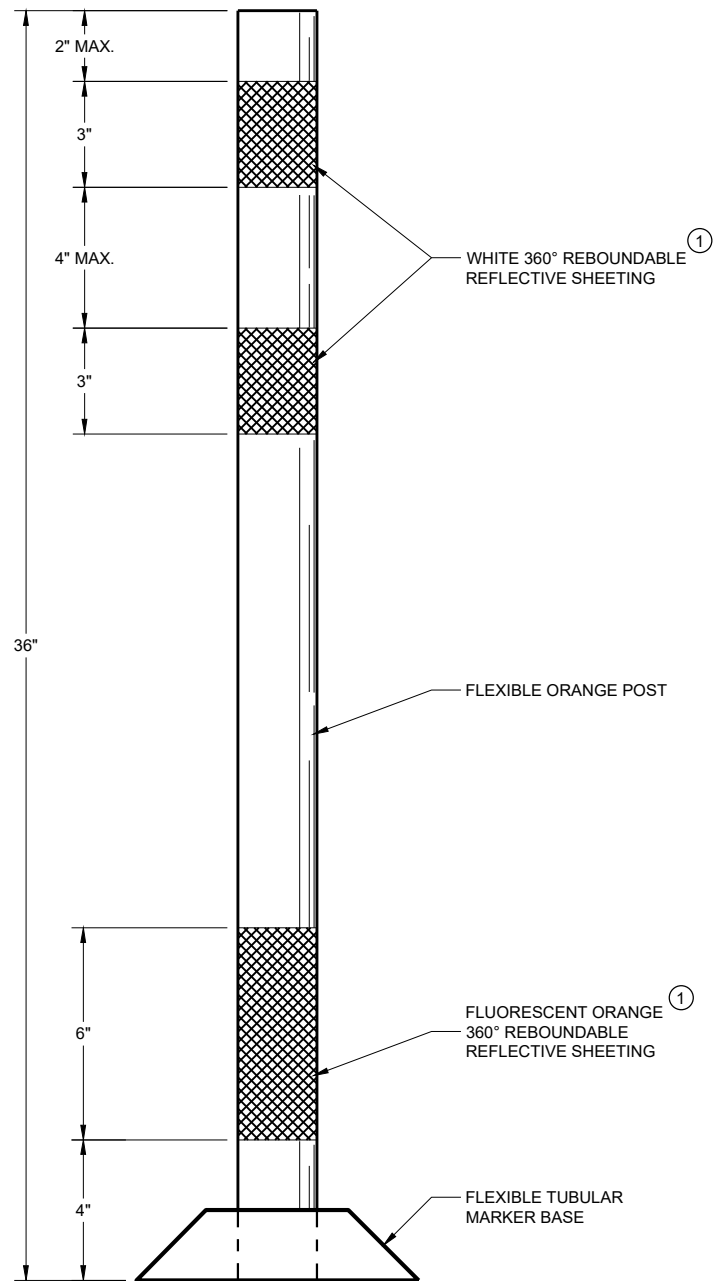
\* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSED PROXIMITY OF DRIVEWAYS, BRIDGES, SIDE ROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.



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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

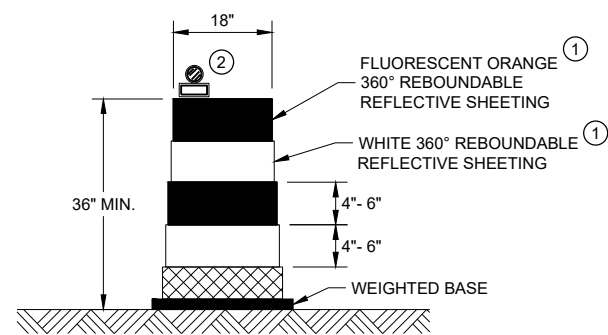
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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

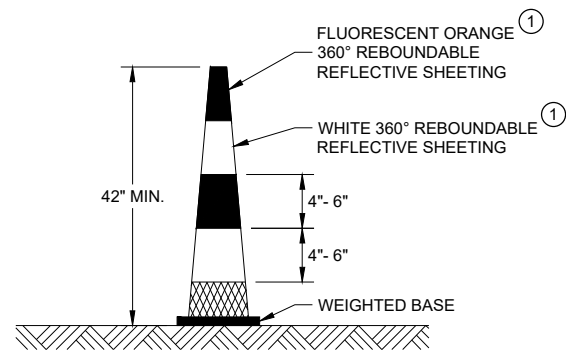
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

|  |  |
|--|--|
| <b>CHANNELIZING DEVICES<br/>FLEXIBLE TUBULAR<br/>MARKER POST</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION               |  |
| APPROVED<br>November 2022<br>DATE                                | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |



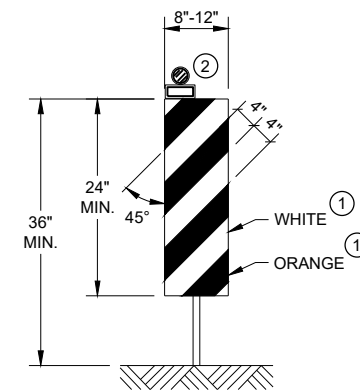
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

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

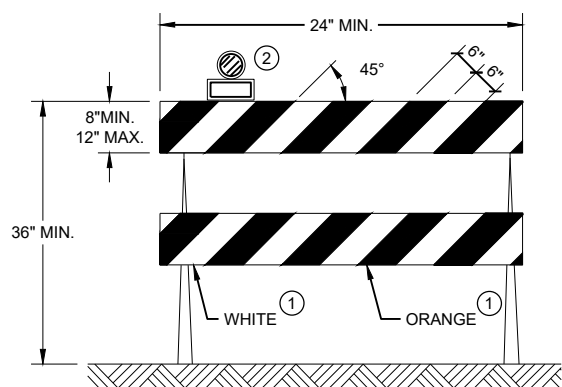


**VERTICAL PANEL**

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

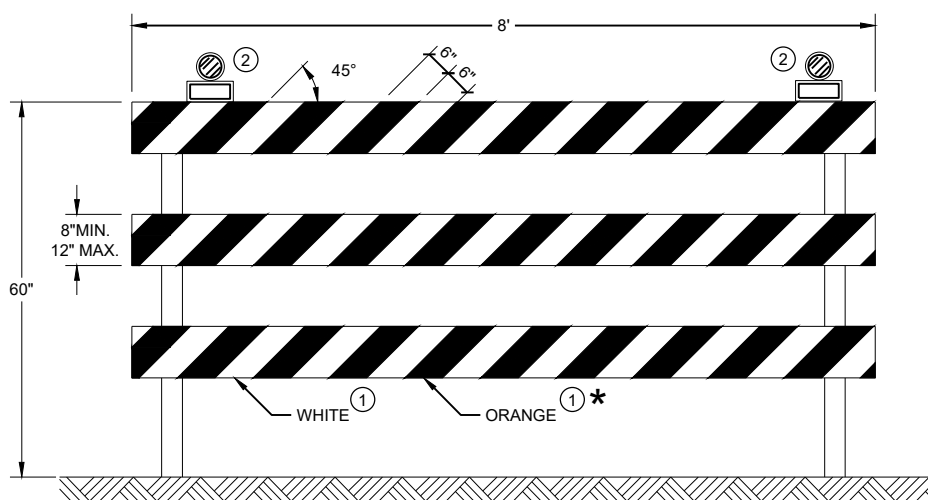
**GENERAL NOTES**

- 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.

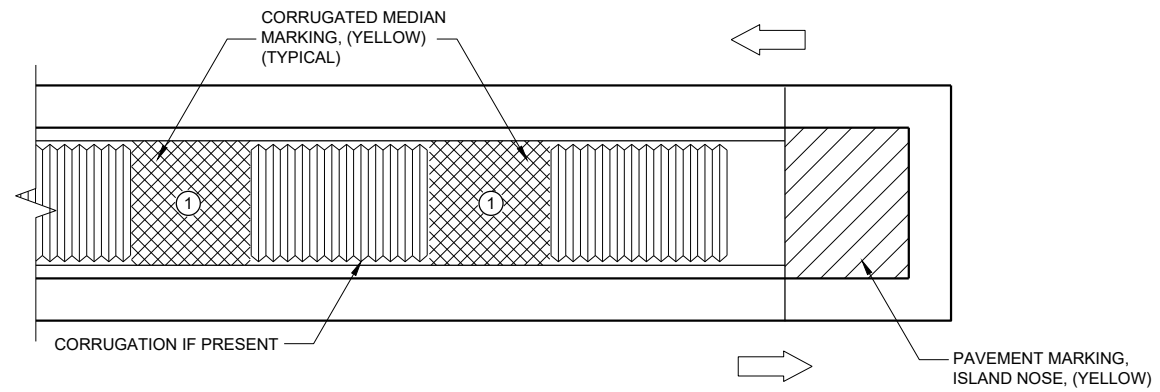
\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

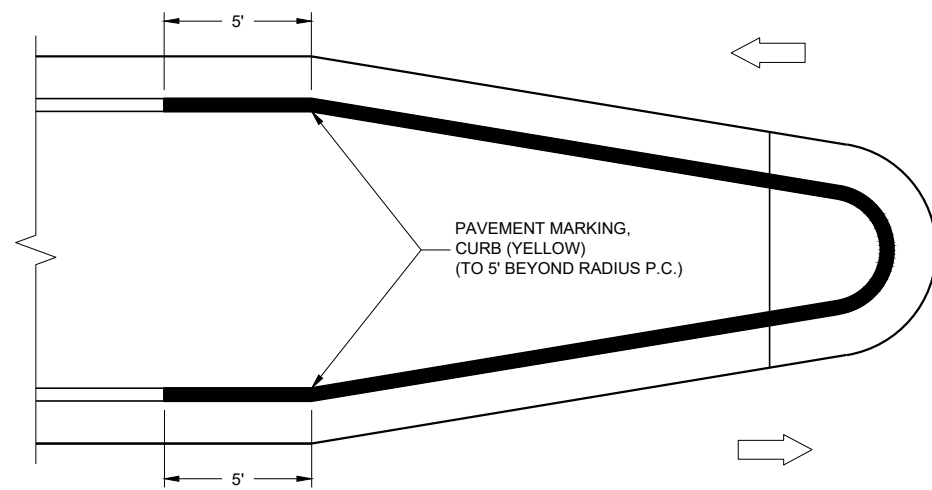
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 November 2022 /S/ Andrew Heidtke  
 DATE WORK ZONE ENGINEER  
 FHWA

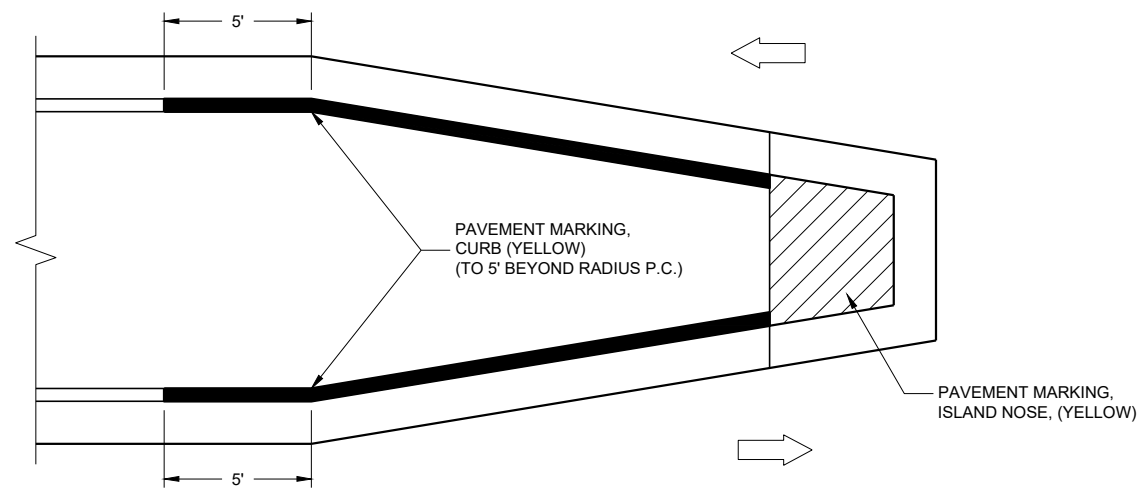




**MEDIAN ISLAND WITH SQUARE BLUNT NOSE**



**MEDIAN ISLAND WITH ROUND BLUNT NOSE**



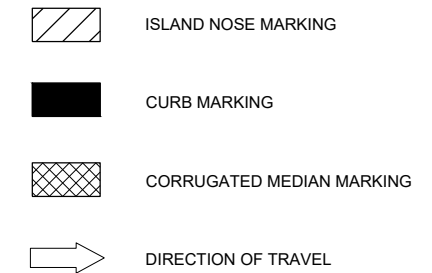
**MEDIAN ISLAND WITH SLOPED NOSE**

**TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS**

**GENERAL NOTES**

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

- ① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.



|  |   |
|--|---|
| <b>PAVEMENT MARKINGS,<br/>MEDIAN ISLAND NOSE</b>   |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>May 2023<br>DATE                       | /S/ Jeannie Silver<br>STATE SIGNING AND MARKING<br>ENGINEER |
| <small>FHWA</small>                                |   |

## GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

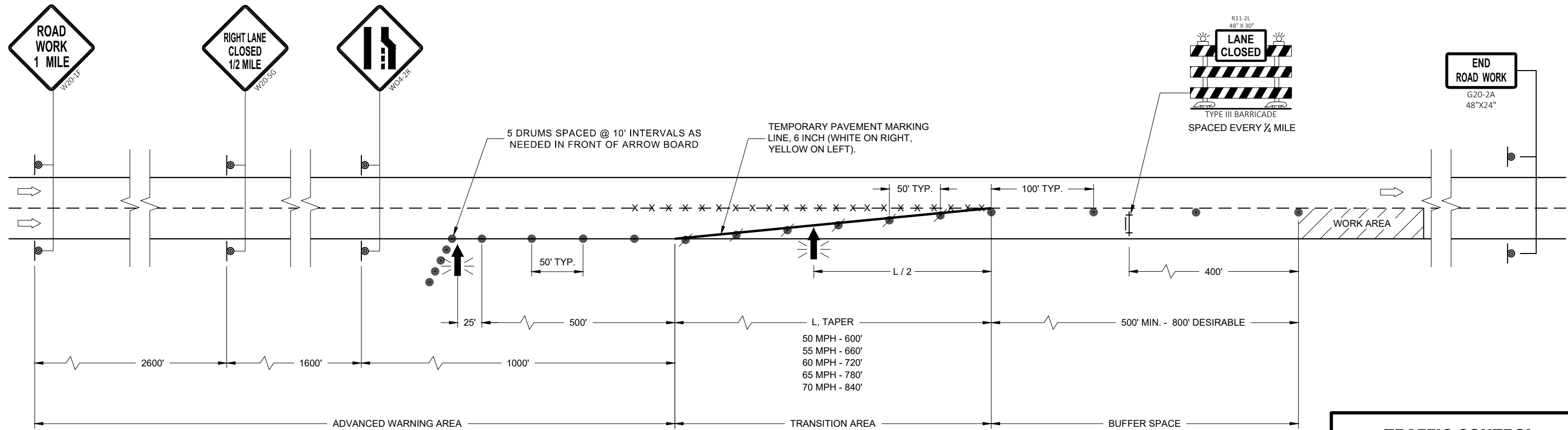
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

## LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 11a



6

SDD 15D12 - 11a

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|--|--|
| <b>TRAFFIC CONTROL<br/>LANE CLOSURE</b>            |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>May 2023<br>DATE                       | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |

### GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

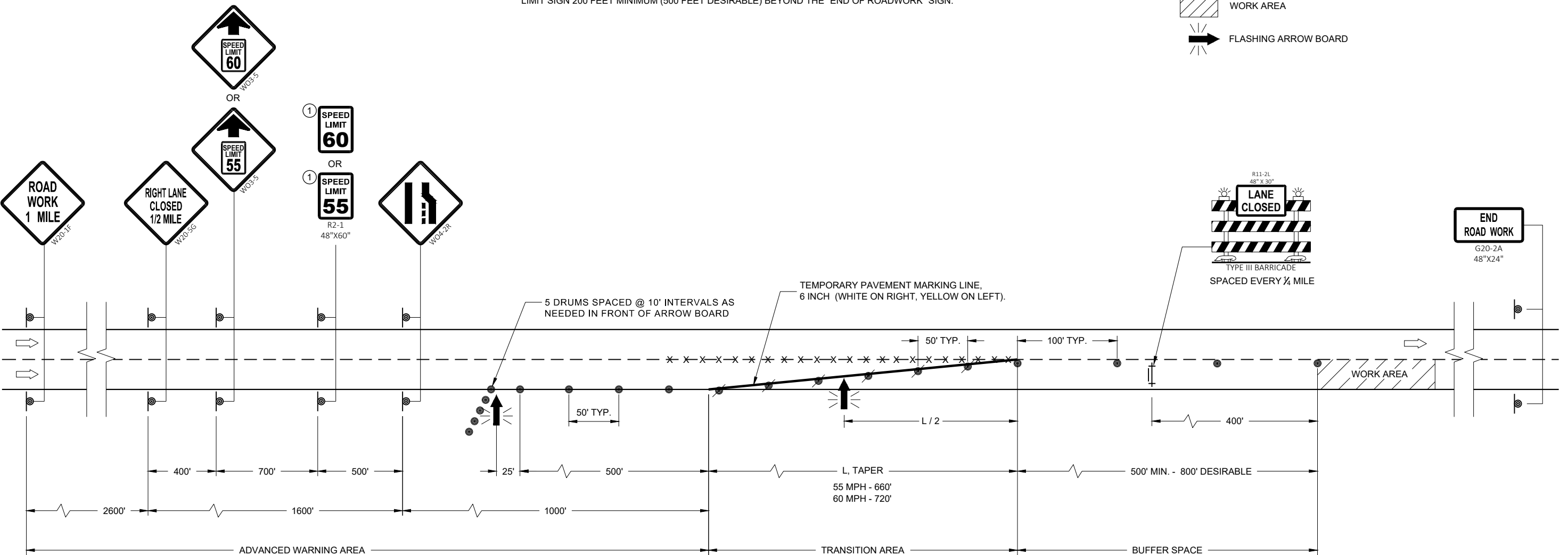
① A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

### LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 11b














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SDD 15D12 - 11b

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|---|--|
| <b>TRAFFIC CONTROL,<br/>LANE CLOSURE,<br/>SPEED REDUCTION</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION            |  |
| APPROVED<br>May 2023<br>DATE                                  | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA  |  |

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD
-  PORTABLE TRAFFIC SENSOR (PTS)
-  FLASHING BEACON SIGN

**GENERAL NOTES**

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS

AND NIGHTS.  
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

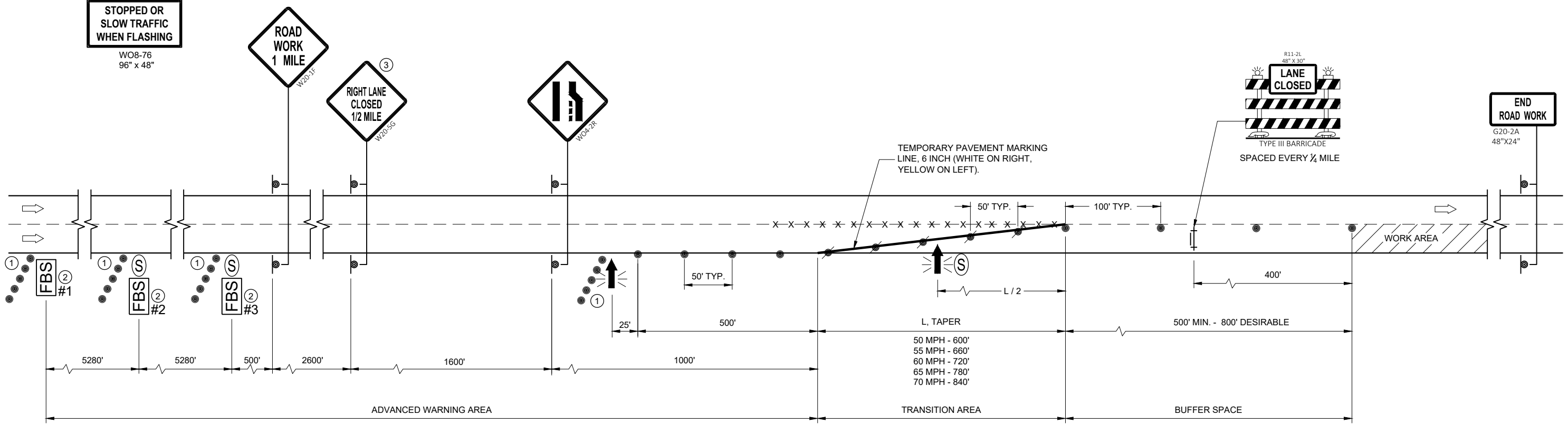
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- ① 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- ② IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- ③ IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.

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SDD 15D12 - 11d

SDD 15D12 - 11d

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| <b>TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                       |  |
| APPROVED<br>May 2023<br>DATE   | /S/ Erin Schwark<br>WORK ZONE ENGINEER |
| FHWA   |  |

**LEGEND**

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊞ SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- ⦿ TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ×-X-X-X REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- ⊞ TYPE III BARRICADE WITH ATTACHED SIGN
- ➡ DIRECTION OF TRAFFIC

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

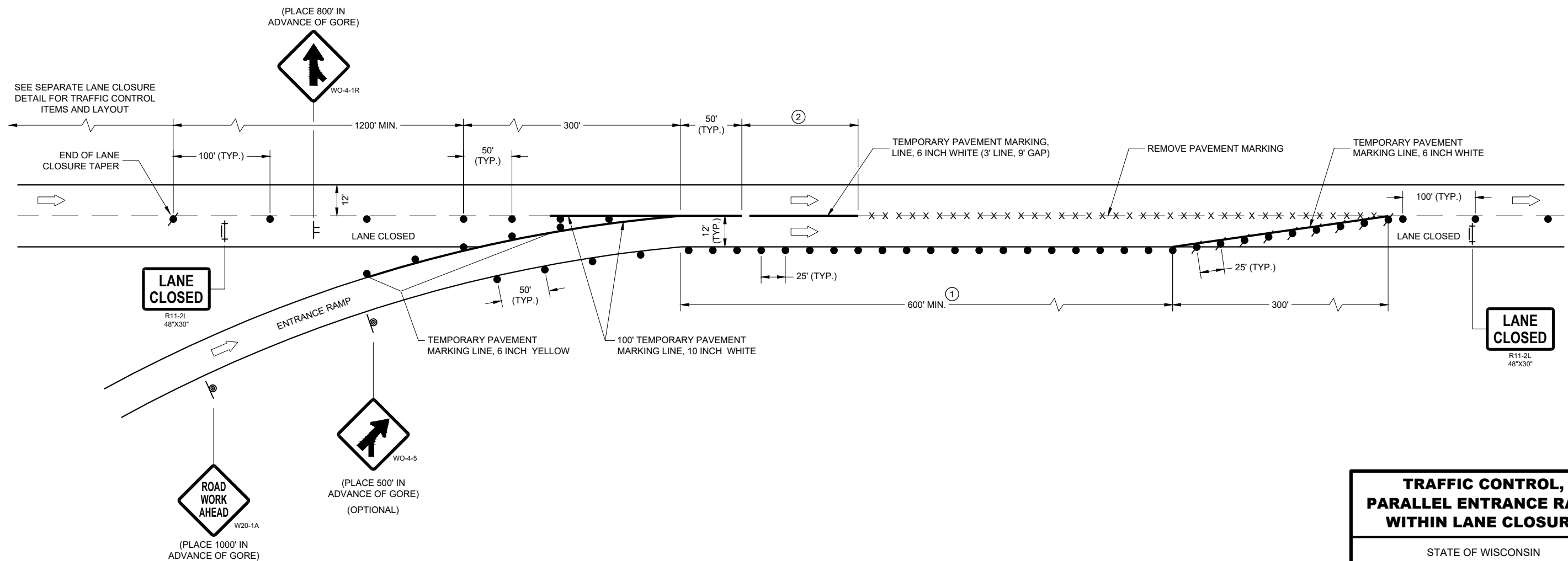
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



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





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SDD 15D15-07a

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| <b>TRAFFIC CONTROL,<br/>PARALLEL ENTRANCE RAMP<br/>WITHIN LANE CLOSURE</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                         |  |
| APPROVED<br>May 2023<br>DATE   | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

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

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

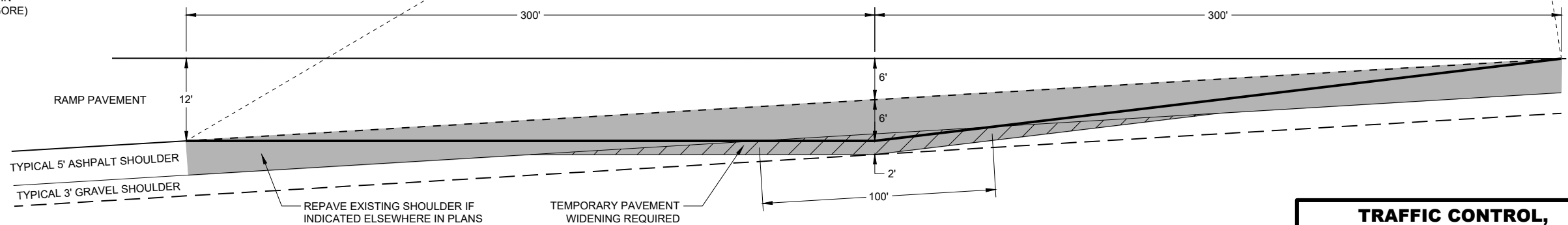
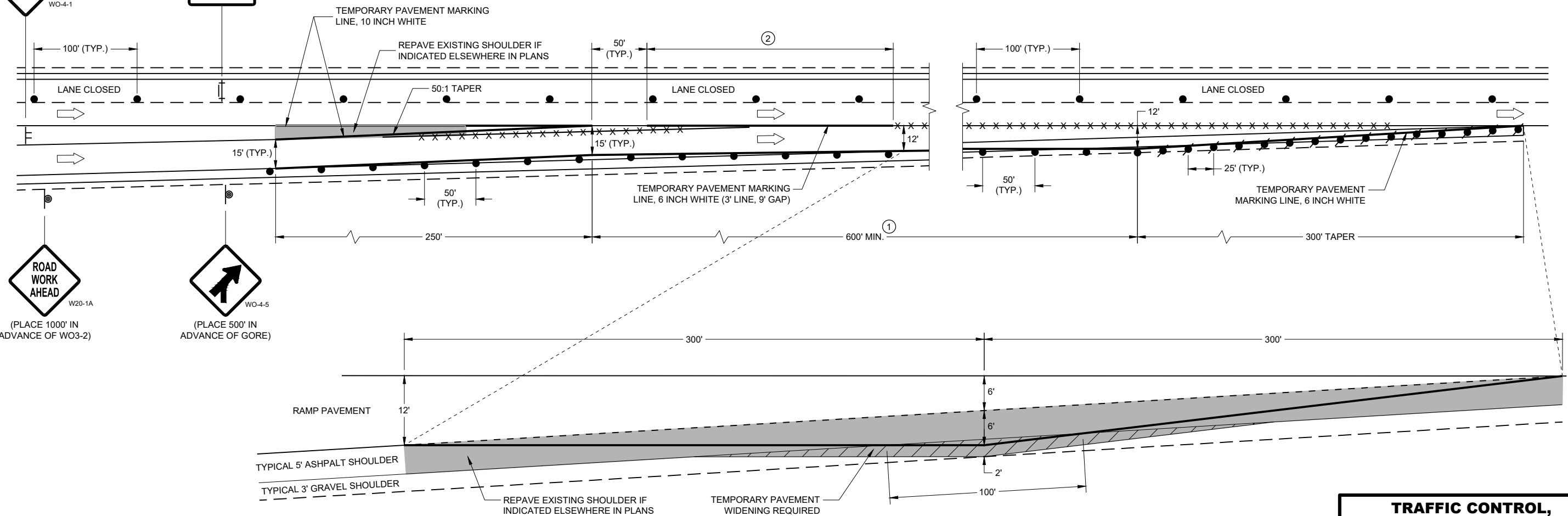
- ① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

(PLACE 800' IN ADVANCE OF GORE)



(PLACE 1000' IN ADVANCE OF WO3-2)

(PLACE 500' IN ADVANCE OF GORE)



**TEMPORARY PAVEMENT DETAIL**  
(EXISTING RAMP DIMENSIONS MAY VARY, ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

**TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION









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

FHWA

SDD 15D15-07b

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**LEGEND**

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

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

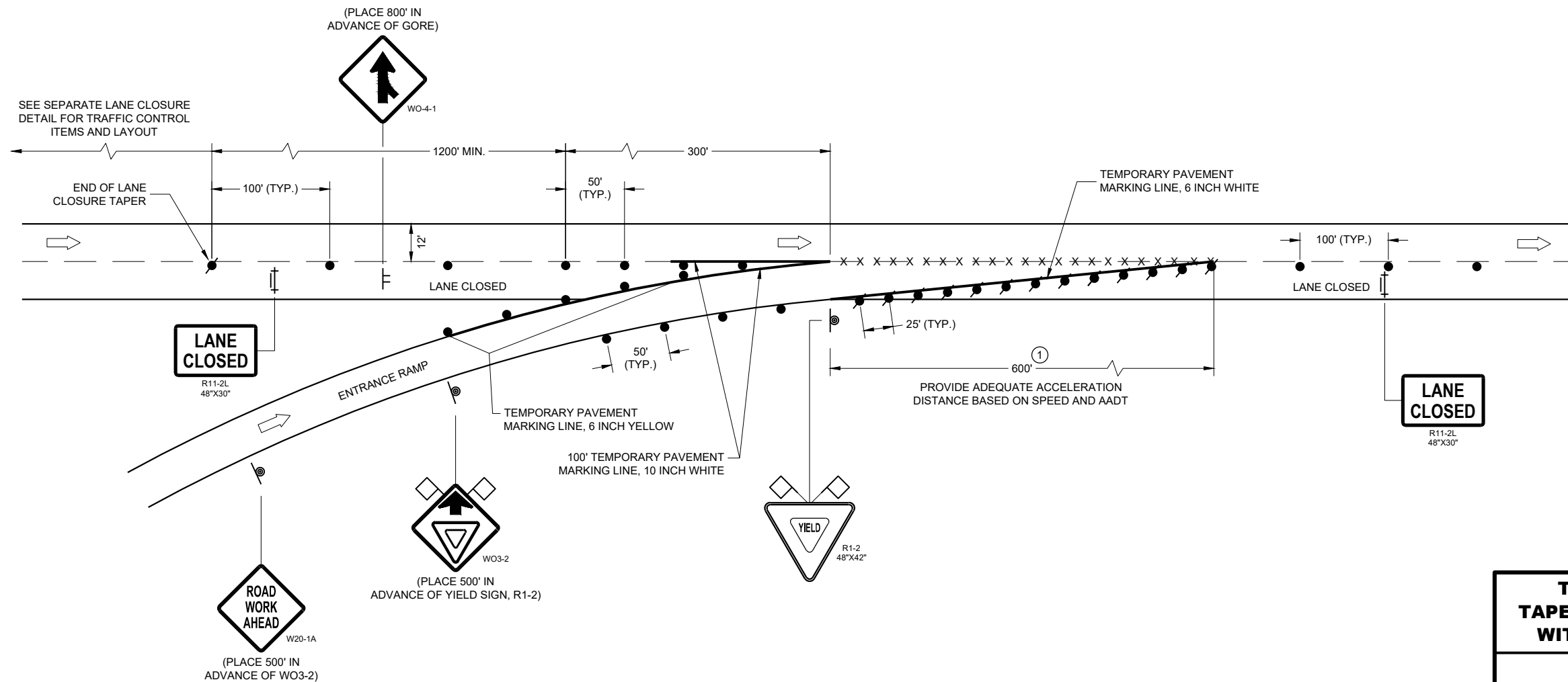
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.



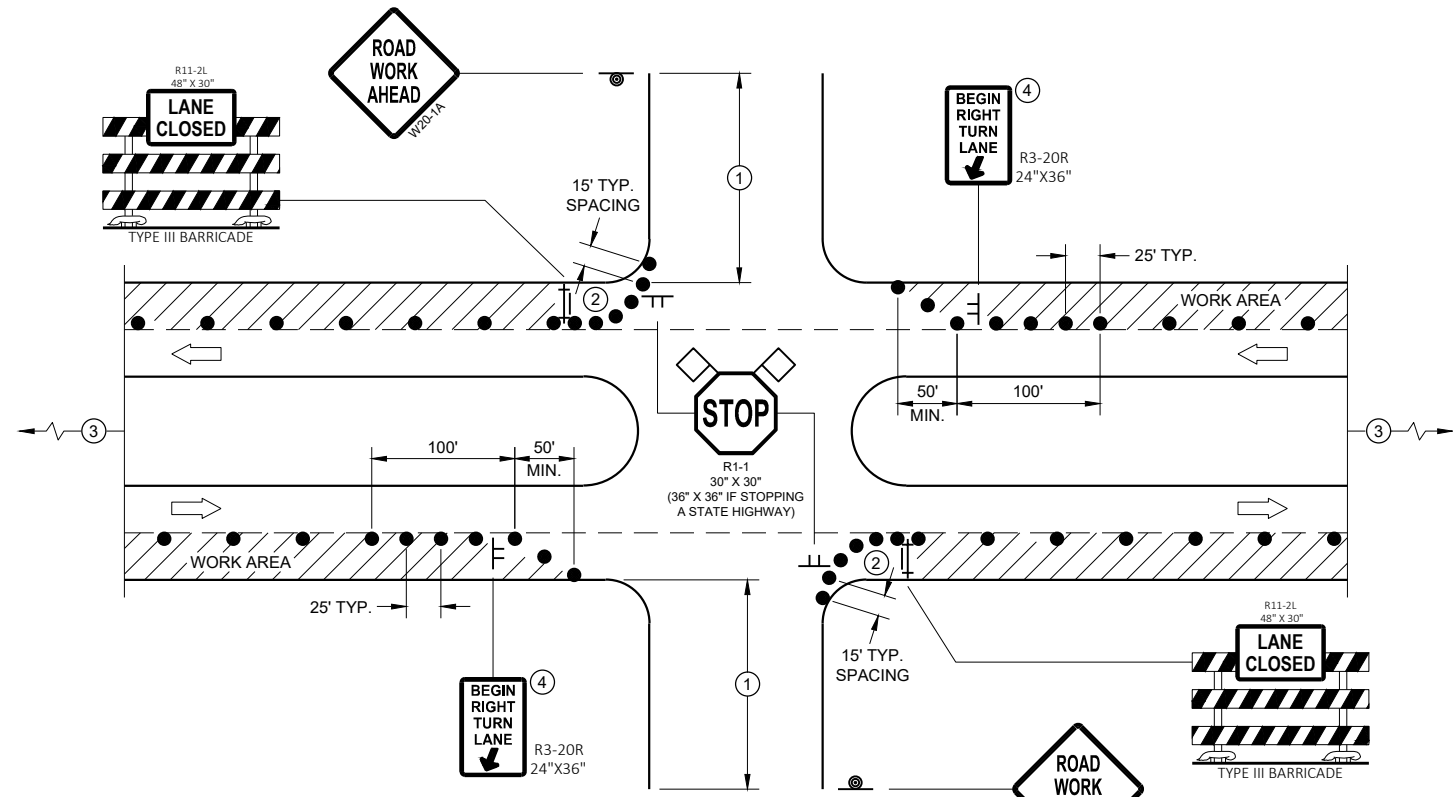
6

6

SDD 15D15-07c

SDD 15D15-07c

|   |  |
|---|--|
| <b>TRAFFIC CONTROL,<br/>TAPERED ENTRANCE RAMP<br/>WITHIN LANE CLOSURE</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                        |  |
| APPROVED<br>May 2023<br>DATE  | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA  |  |



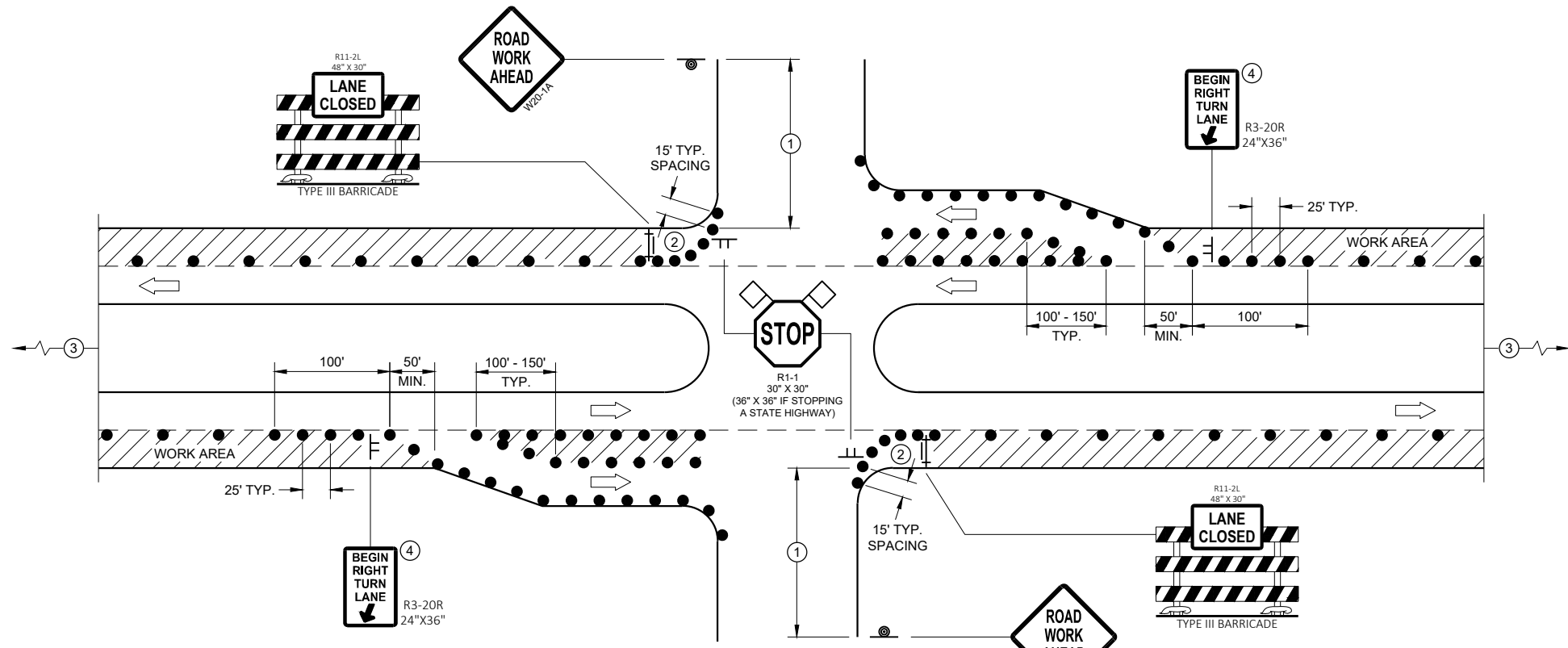
PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR RIGHT LANE CLOSURE AT INTERSECTION**

**GENERAL NOTES**

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.
- SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.
- BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.
- CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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



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

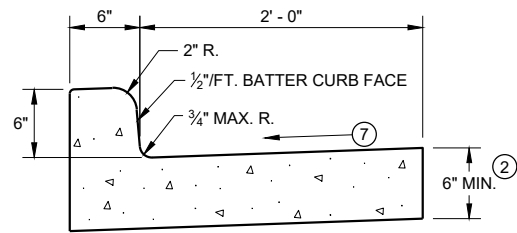
**LEGEND**

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

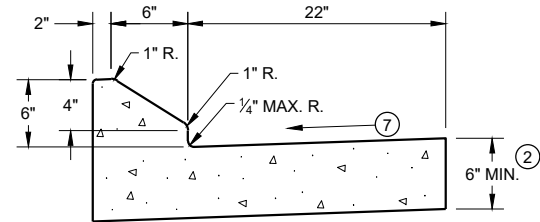
**TRAFFIC CONTROL,  
INTERSECTION WITHIN SINGLE  
RIGHT LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

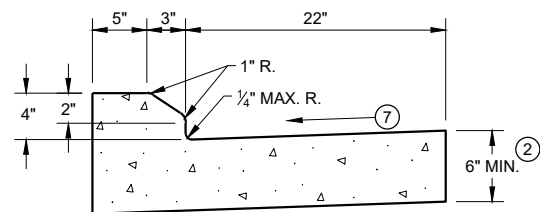




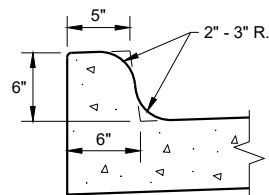
**TYPES A<sup>1</sup> & D**



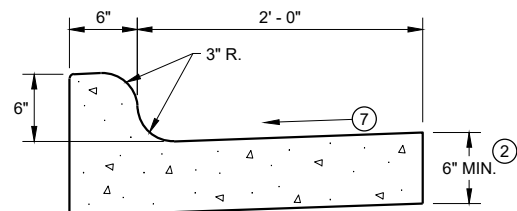
**6" SLOPED CURB TYPES G<sup>1</sup> & J**



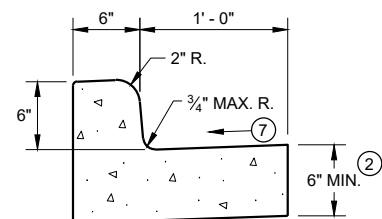
**4" SLOPED CURB TYPES G<sup>1</sup> & J**



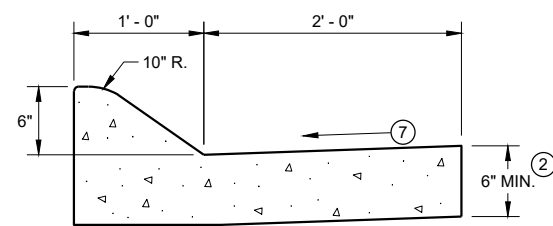
**TYPES K<sup>1</sup> & L**  
(OPTIONAL CURB SHAPE)



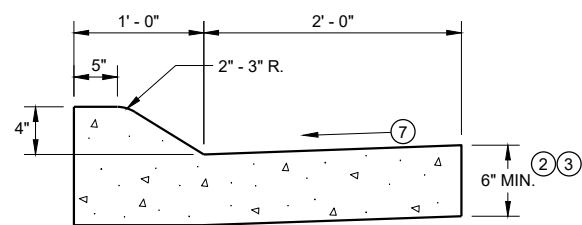
**TYPES K<sup>1</sup> & L**  
**CONCRETE CURB AND GUTTER 30"**



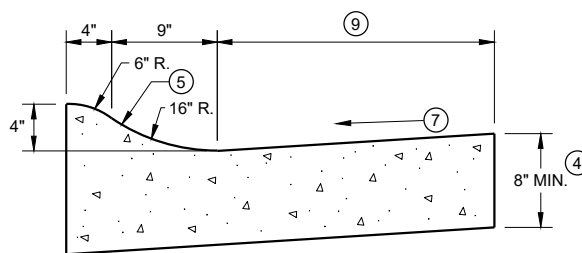
**TYPES A<sup>1</sup> & D**  
**CONCRETE CURB AND GUTTER 18"**



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

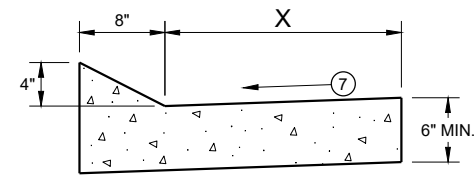


**4" SLOPED CURB TYPES A<sup>1</sup> & D**  
**CONCRETE CURB AND GUTTER 36"**



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

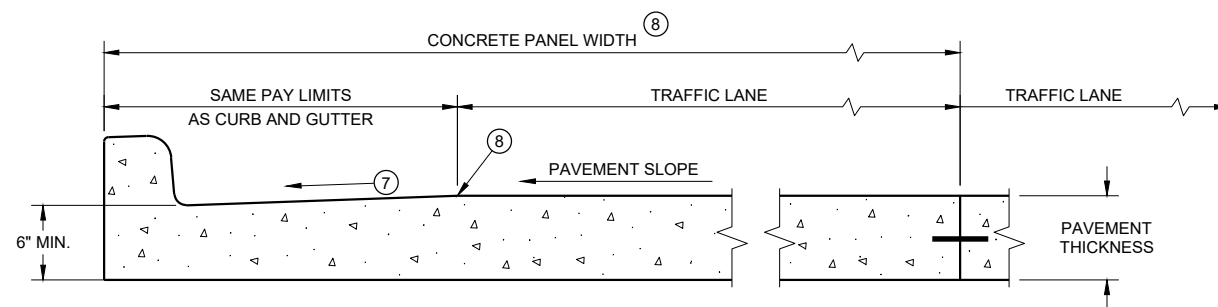
|            |     |
|------------|-----|
| TBT & TBTT | X   |
| 30"        | 22" |
| 36"        | 28" |



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

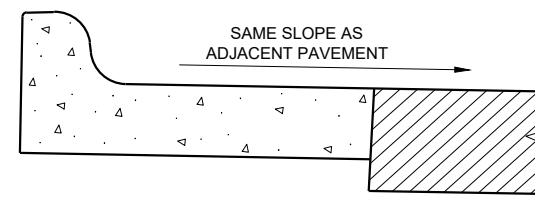
**PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE**

| 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**

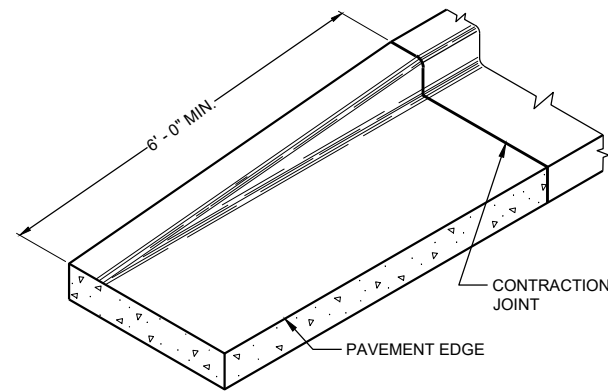
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

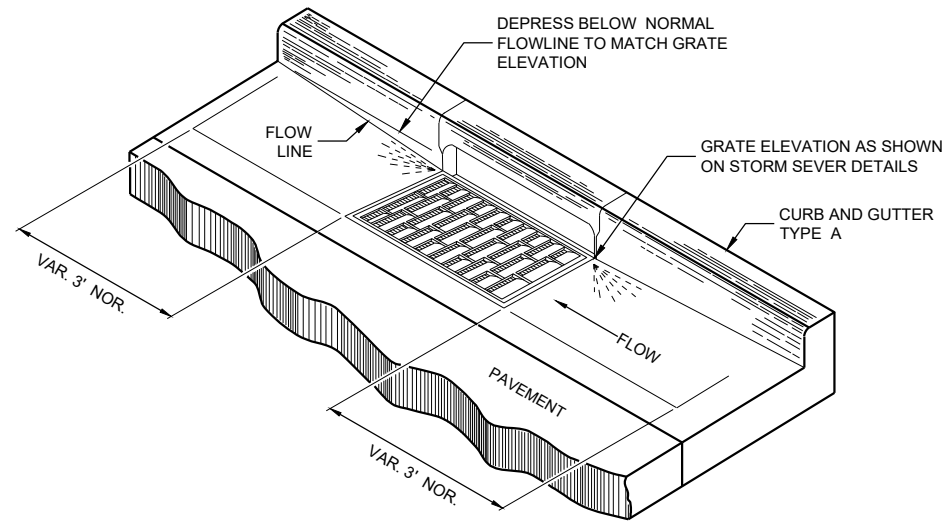
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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)

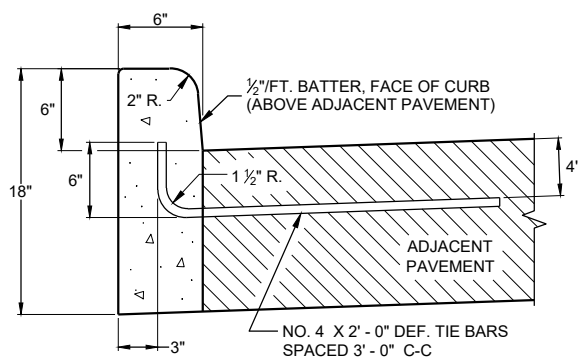
**GENERAL NOTES**

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

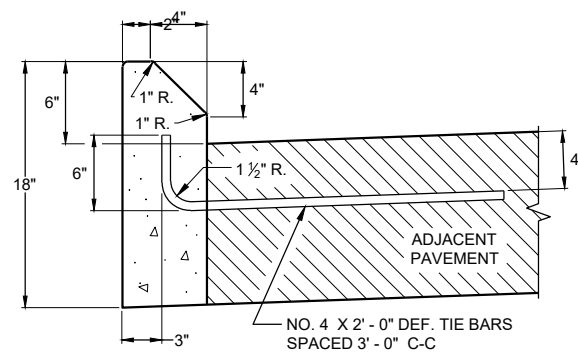
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

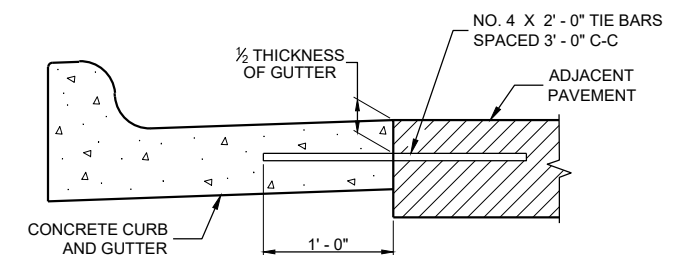
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL 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.



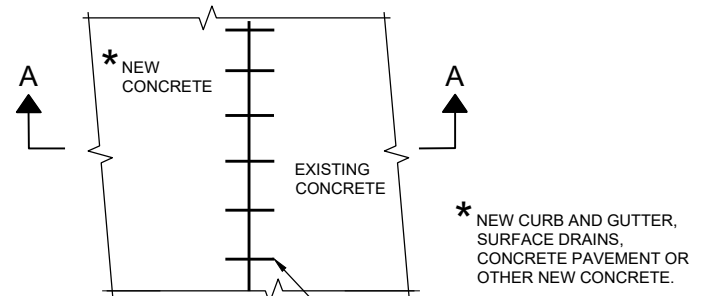
**TYPES A<sup>①</sup> & D**



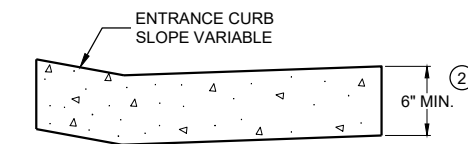
**TYPES G<sup>①</sup> & J  
CONCRETE CURB**



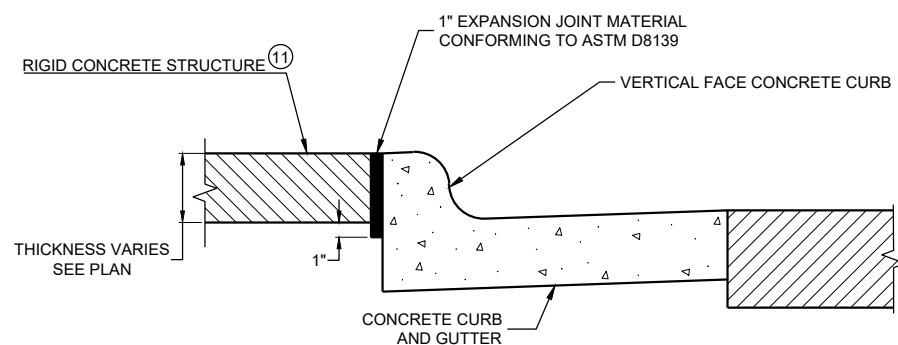
**TYPICAL TIE BAR LOCATION<sup>①</sup>**



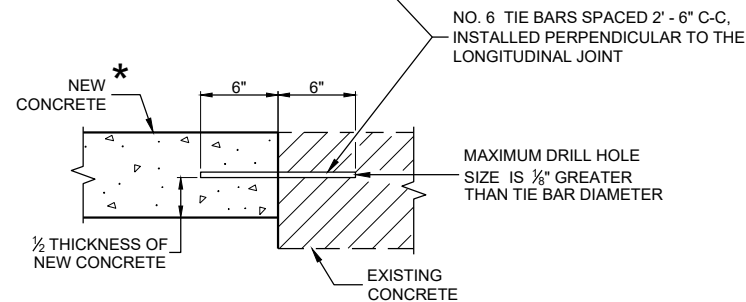
**PLAN VIEW**



**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**

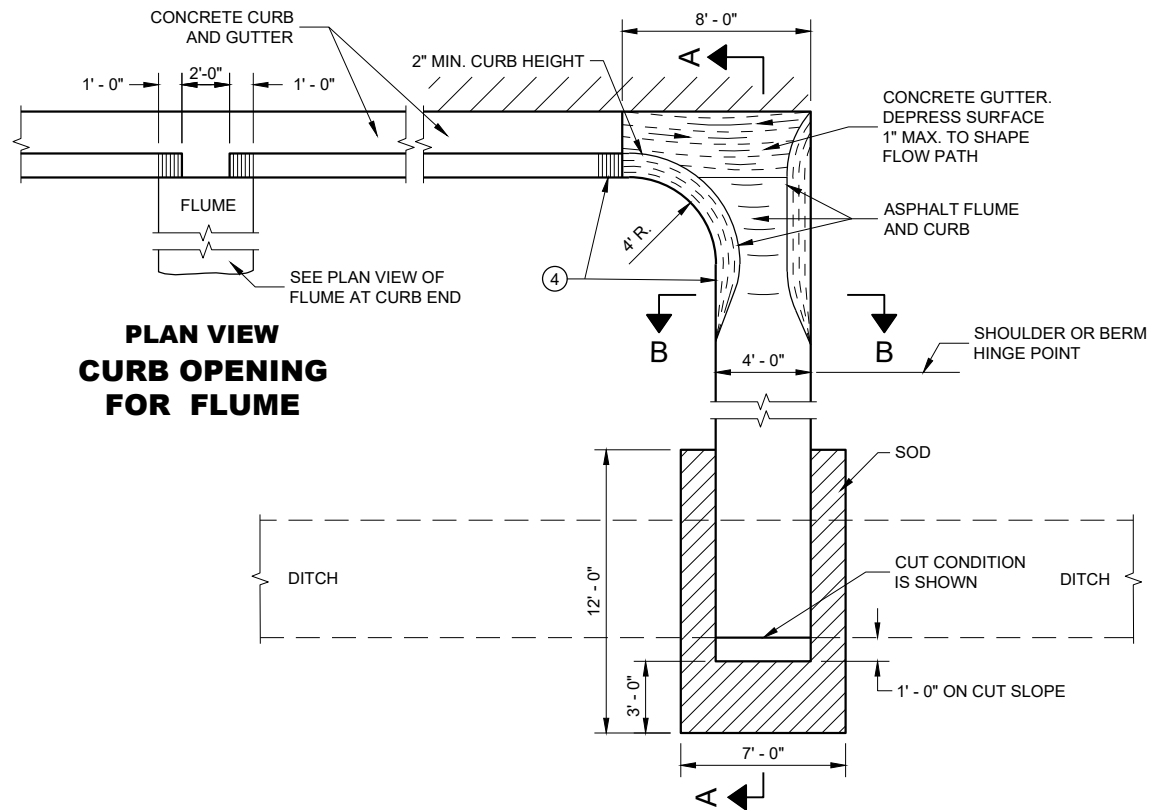
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

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

### ASPHALTIC FLUME



**PLAN VIEW  
CURB OPENING  
FOR FLUME**

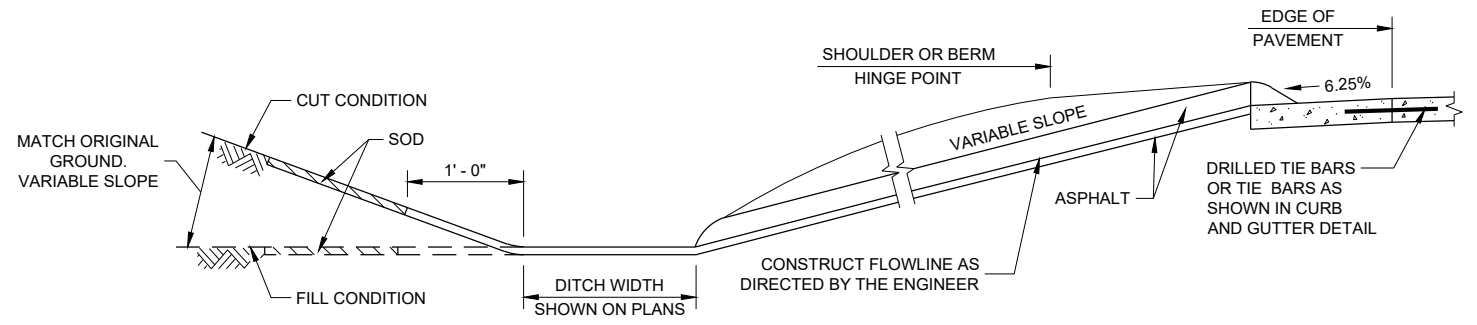
**PLAN VIEW  
FLUME AT CURB END**

### GENERAL NOTES

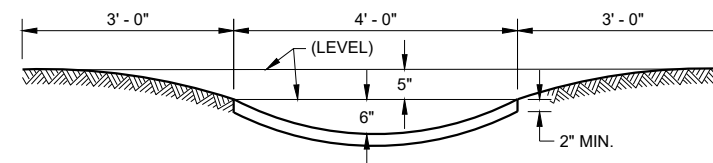
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

4" X 4" - W3.0 X W3.0 CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

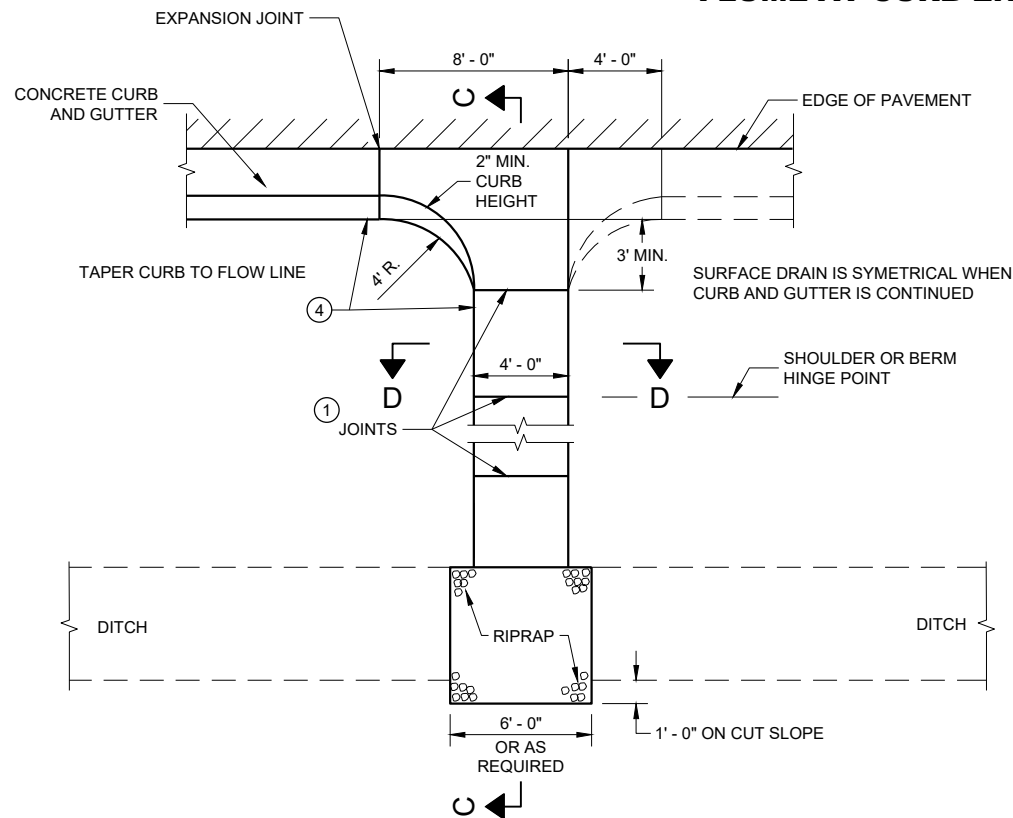
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ④ ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



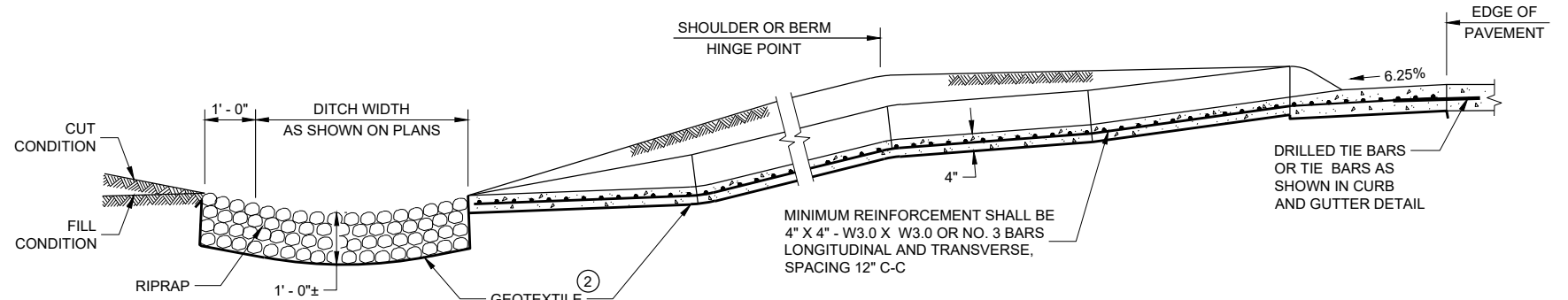
**SECTION A - A**



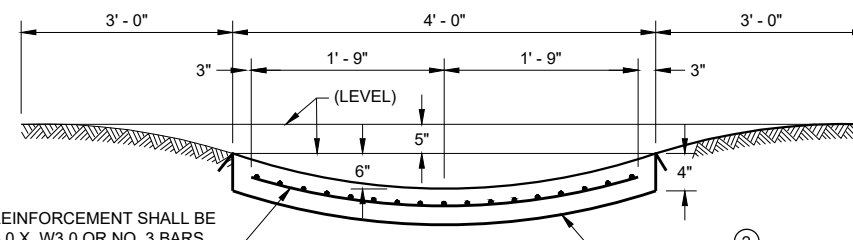
**SECTION B - B**



**PLAN VIEW  
CONCRETE SURFACE DRAIN**



**SECTION C - C**



**SECTION D - D**

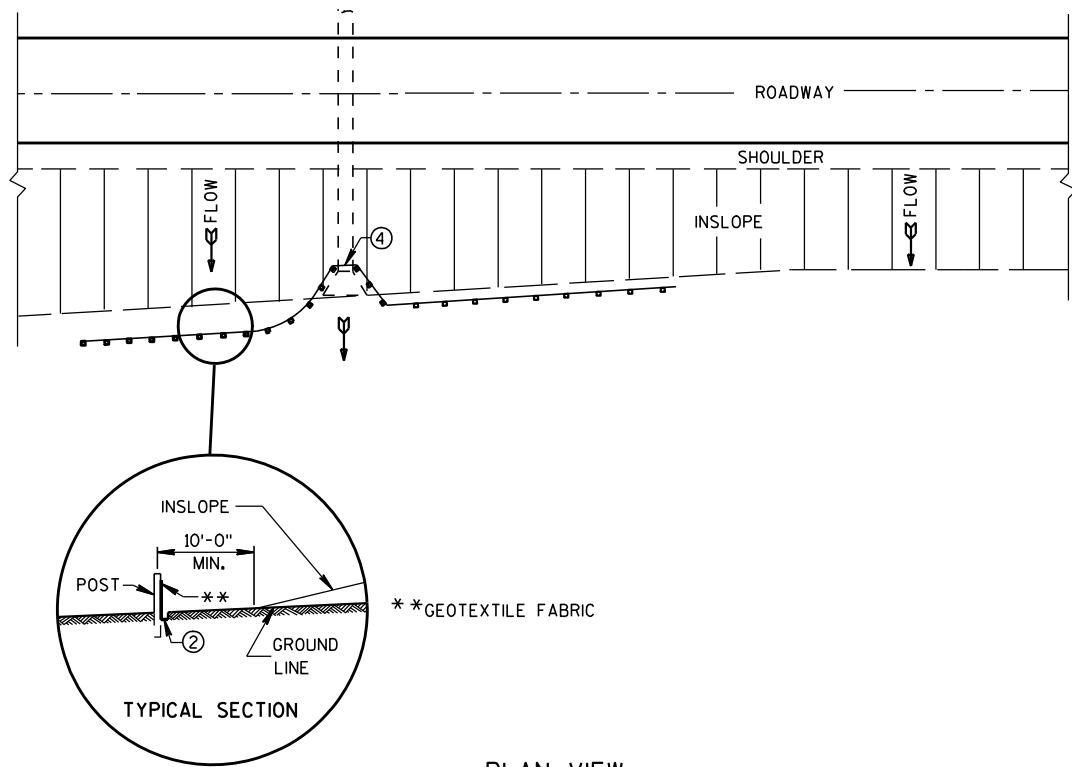
MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

### CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

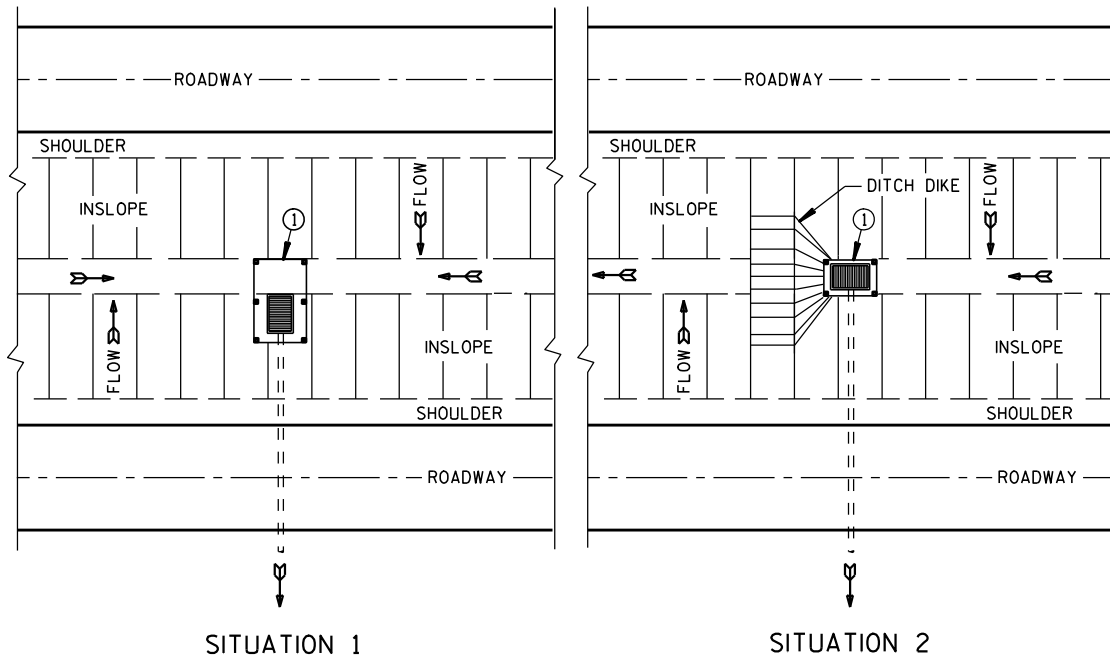
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

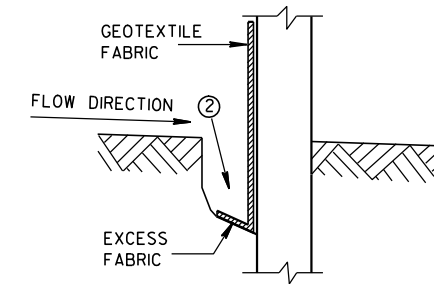


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

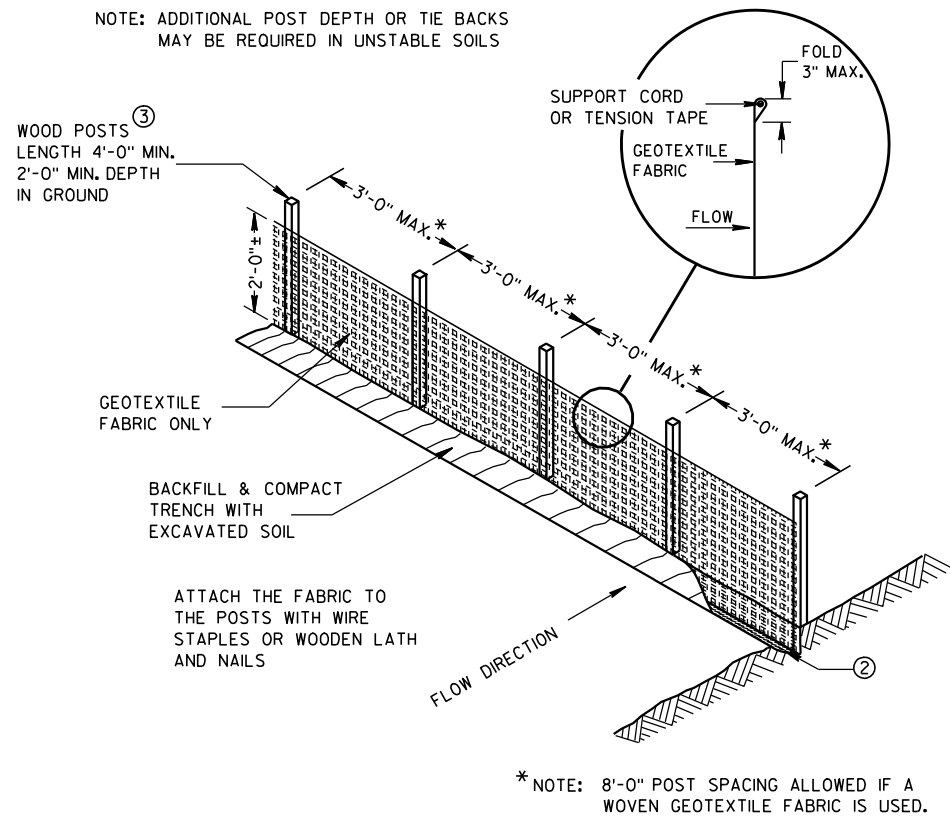
**GENERAL NOTES**

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

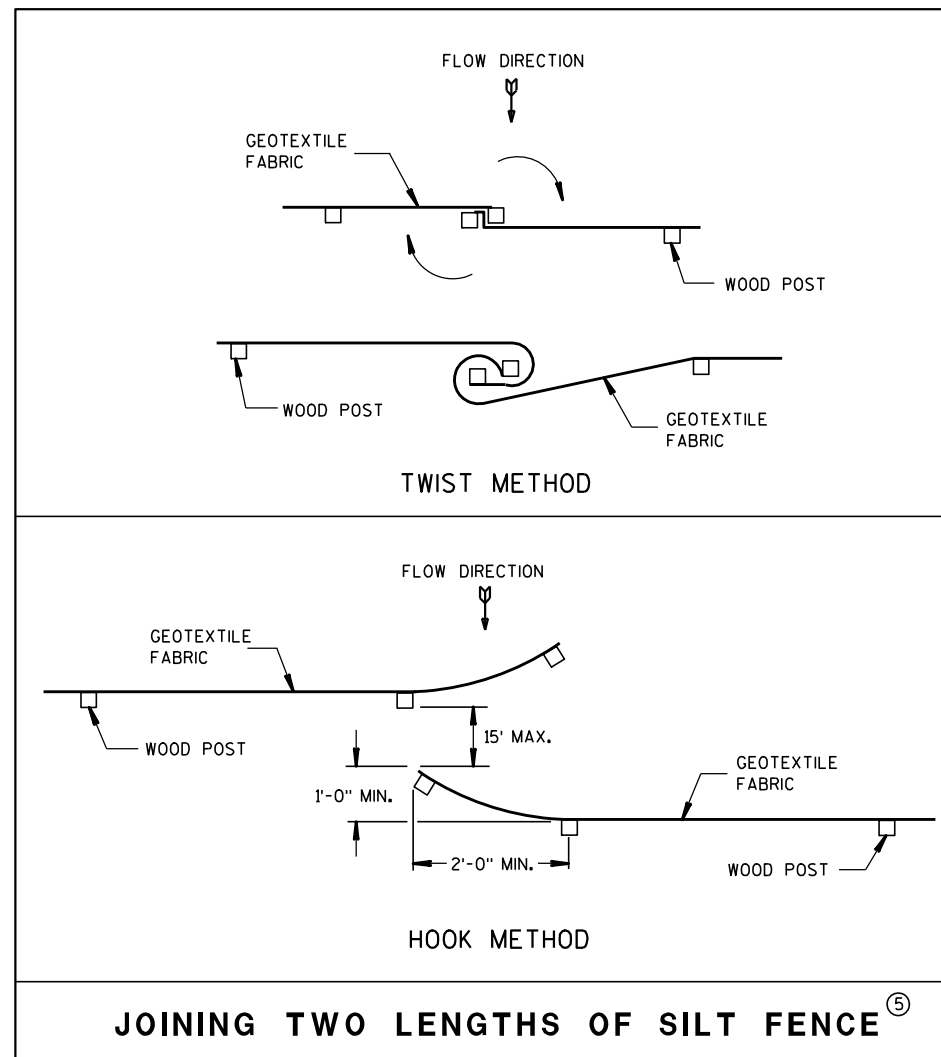
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS 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.



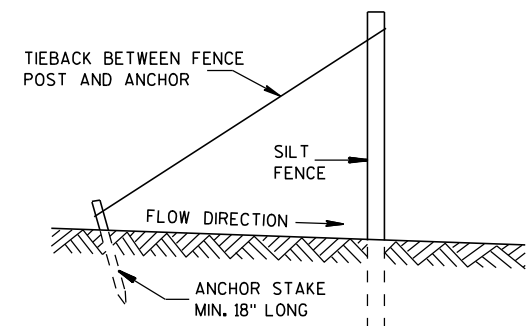
TRENCH DETAIL



SILT FENCE

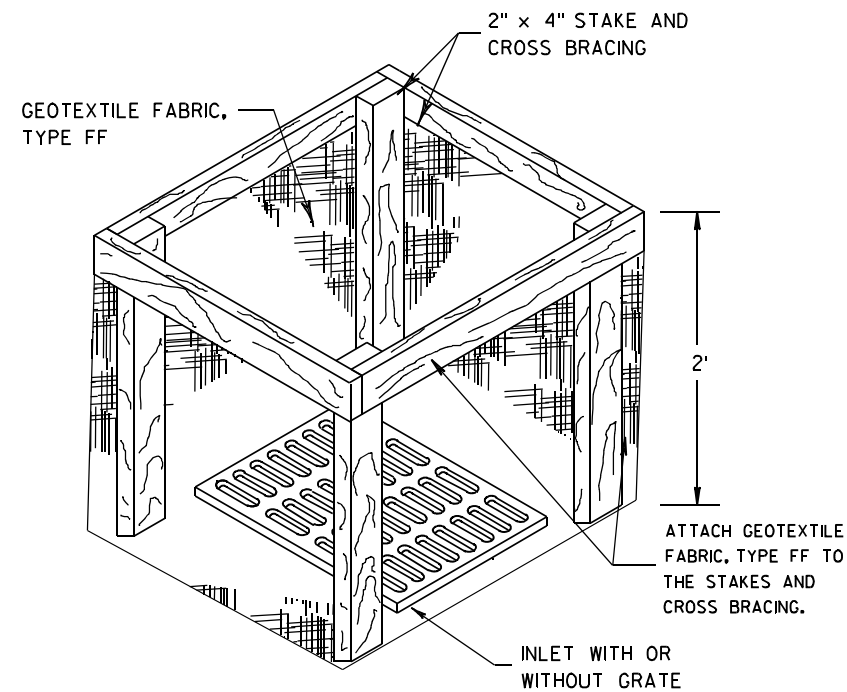
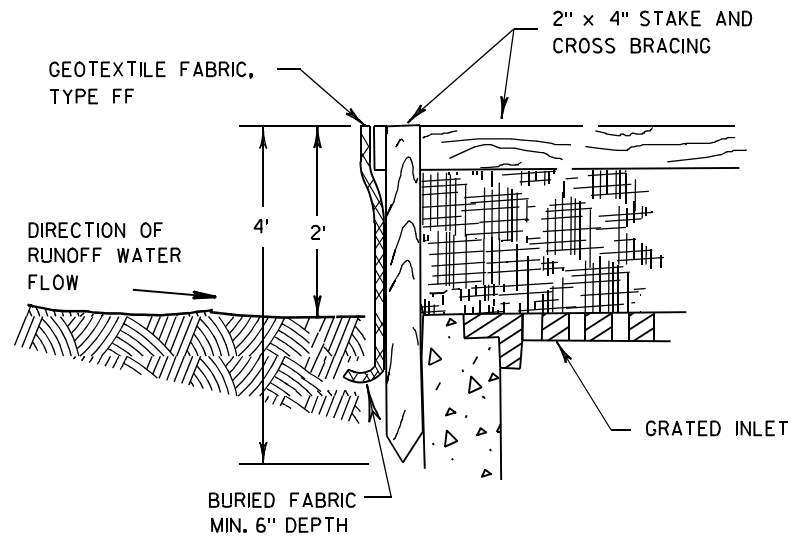


JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

|  |   |
|--|---|
| <b>SILT FENCE</b>                                  |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>4-29-05<br>DATE                        | /S/ Beth Canestra<br>CHIEF ROADWAY DEVELOPMENT ENGINEER |
| FHWA   |   |



**INLET PROTECTION, TYPE A**

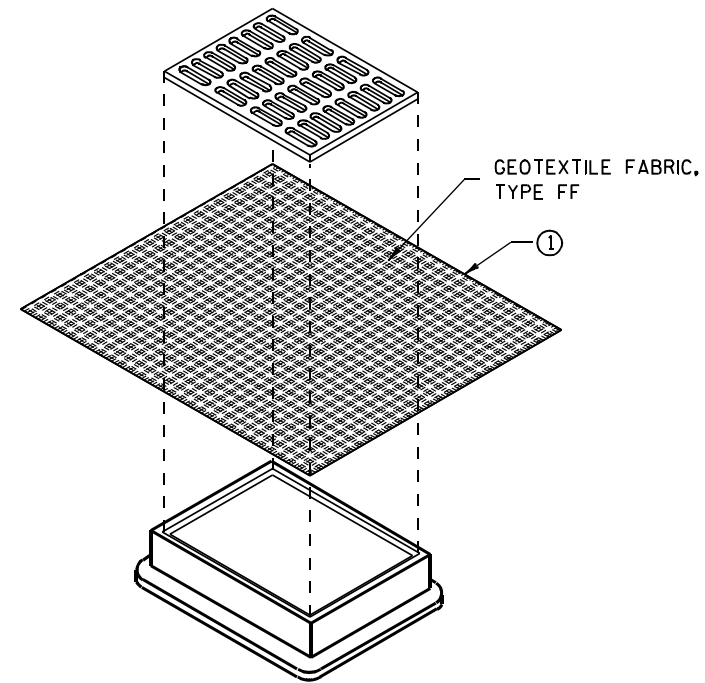
**GENERAL NOTES**

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

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

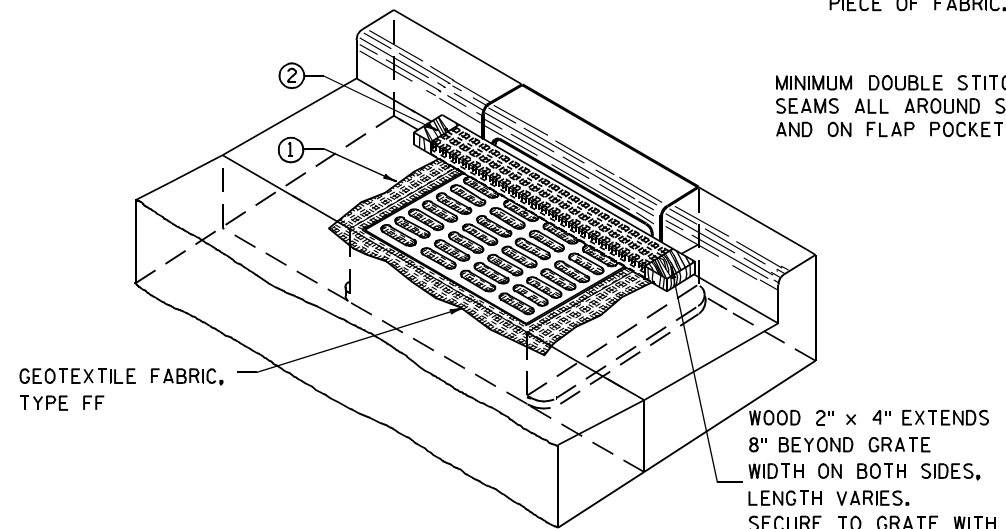
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



**INLET PROTECTION, TYPE C (WITH CURB BOX)**

**INSTALLATION NOTES**

**TYPE B & C**

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

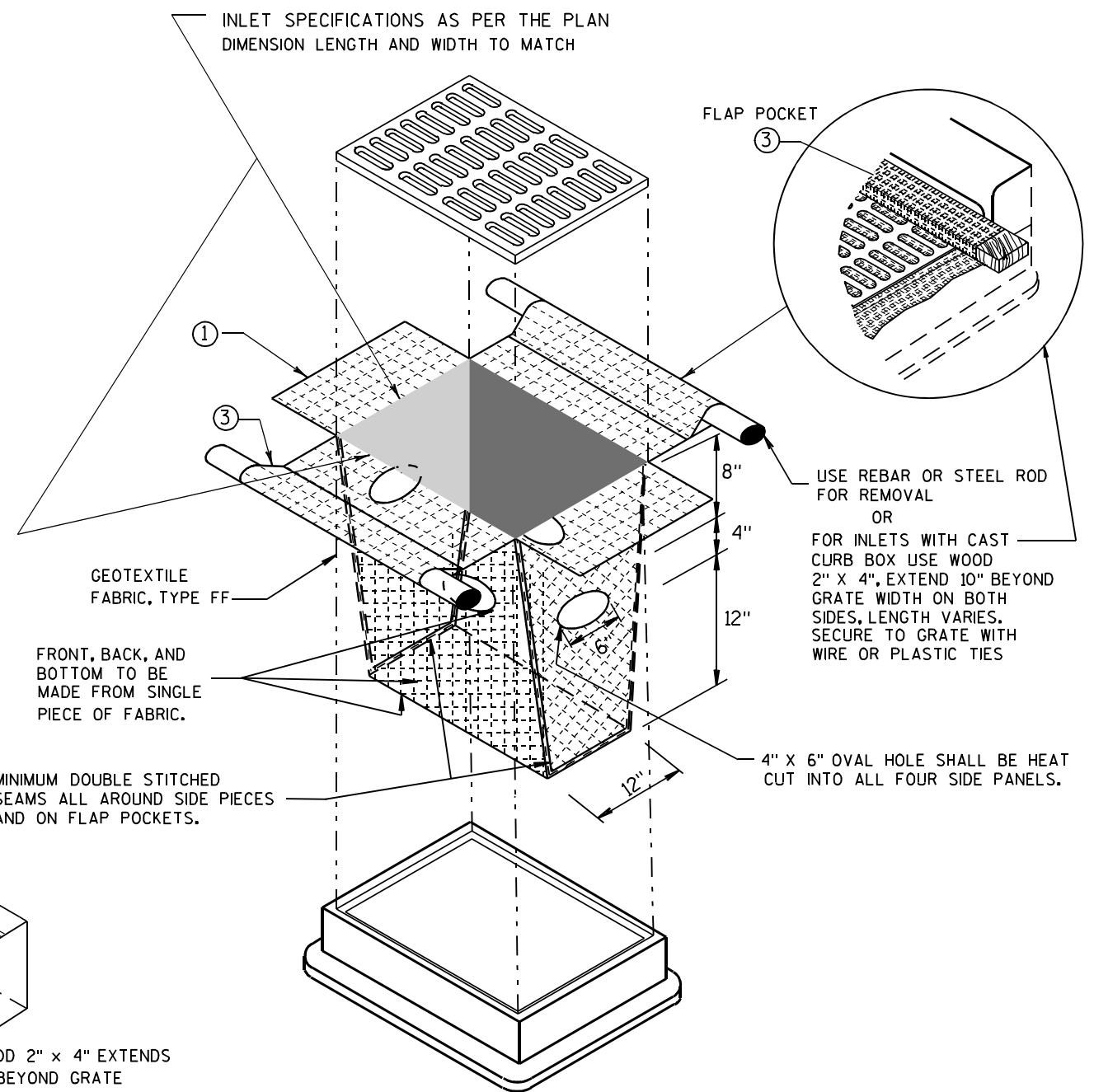
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

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

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

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



**INLET PROTECTION, TYPE D**

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

**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.

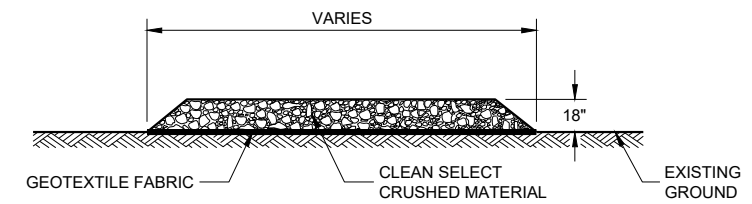
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

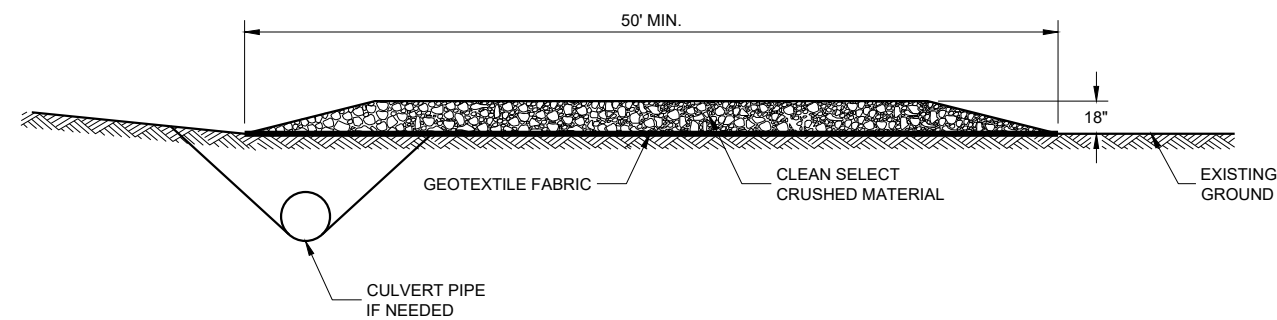
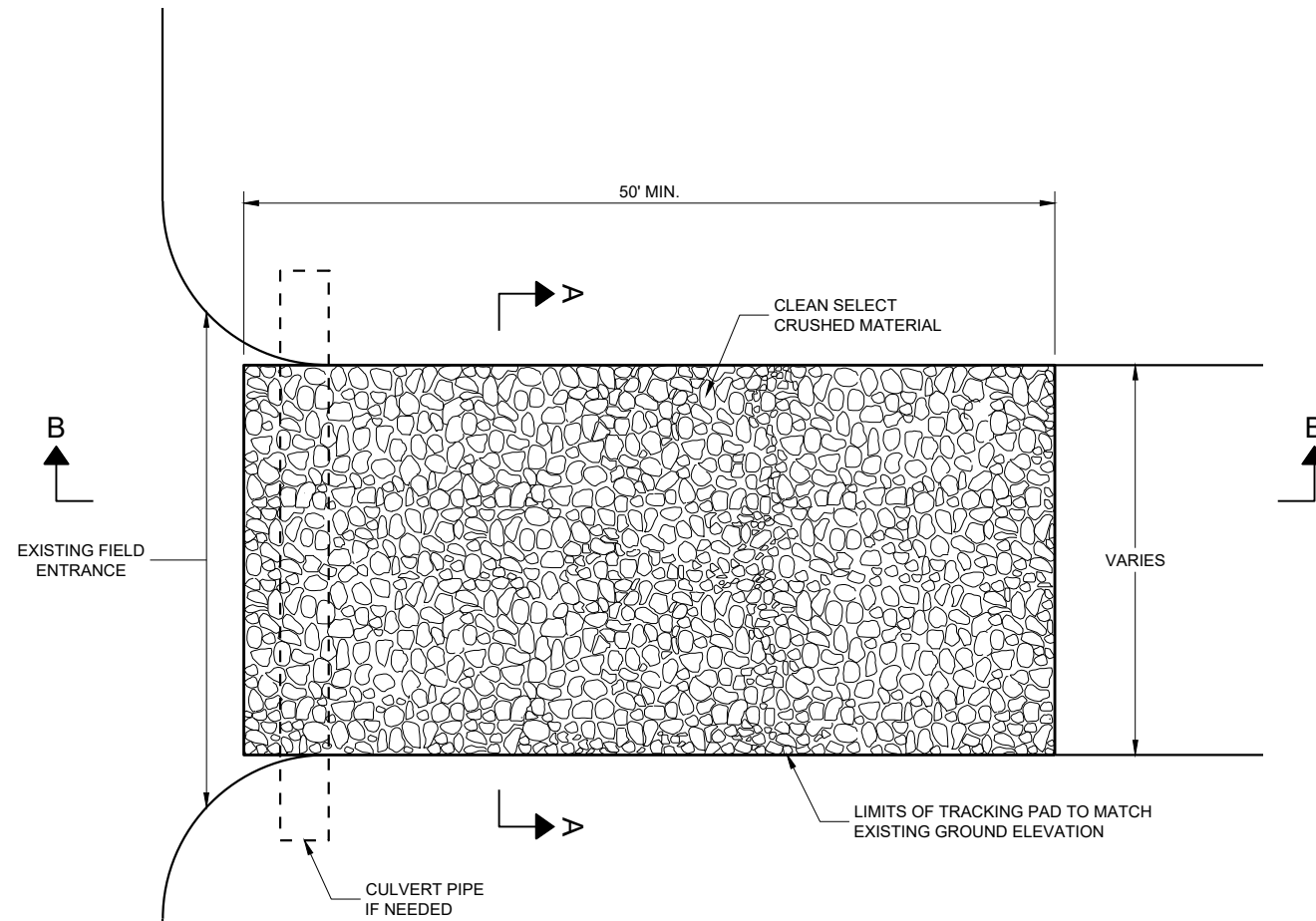
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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**



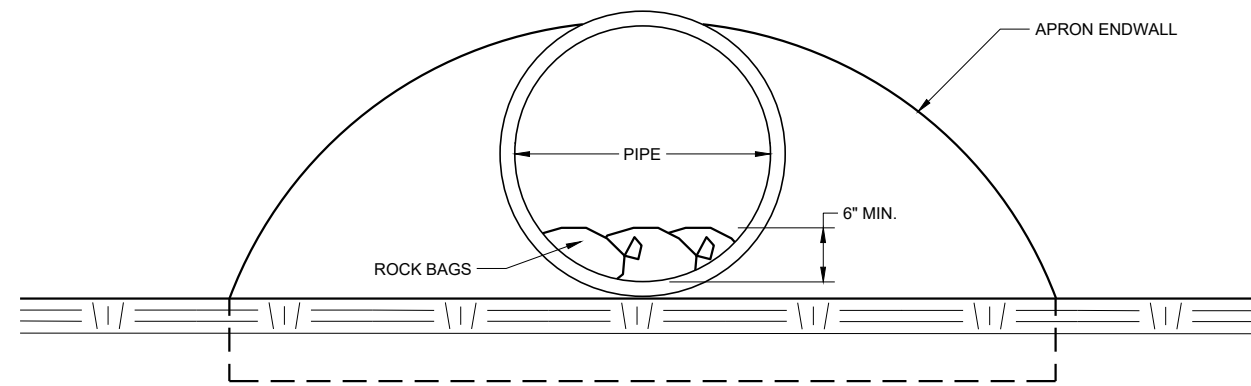
**SECTION B - B**

**TRACKING PAD**

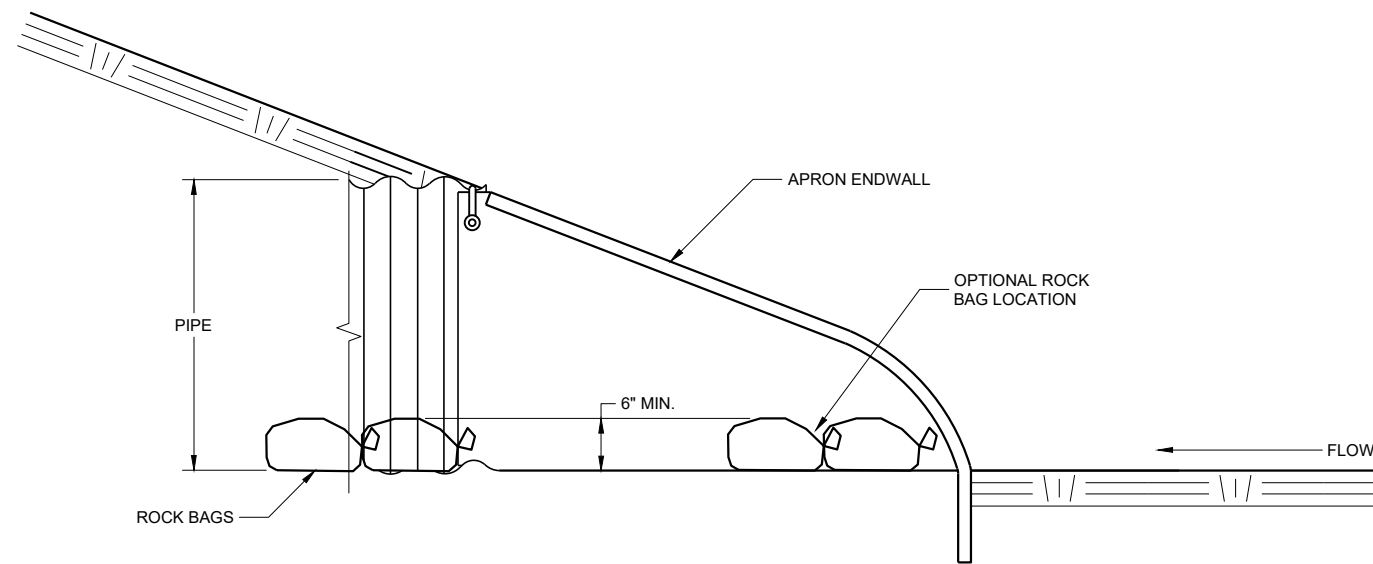
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

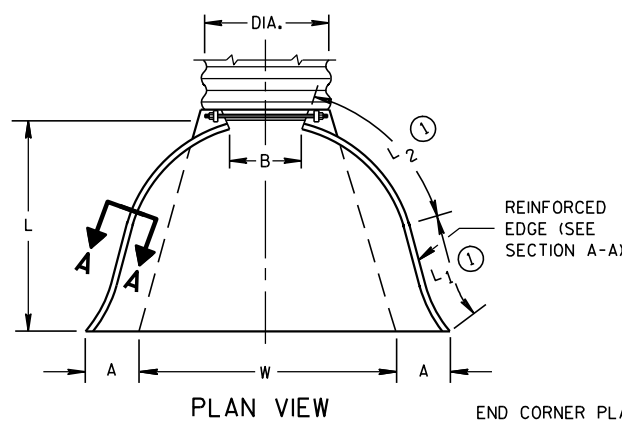
FHWA

| 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. |

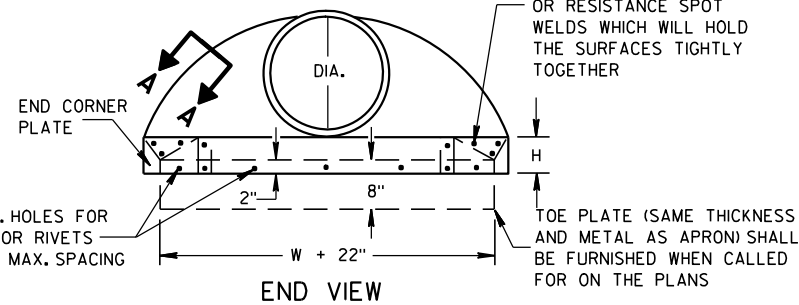
\* EXCEPT CENTER PANEL SEE GENERAL NOTES

| 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    |  |

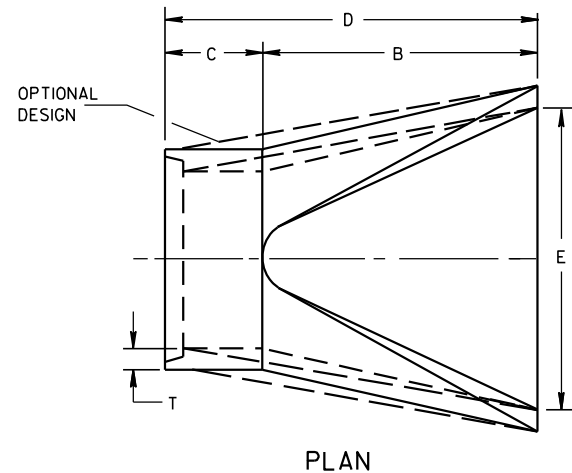
\* MINIMUM  
\*\* MAXIMUM



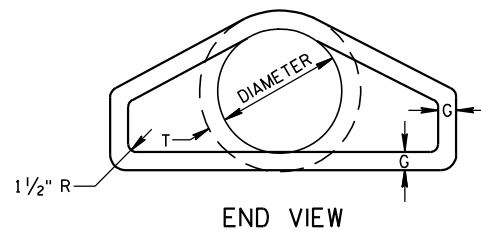
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



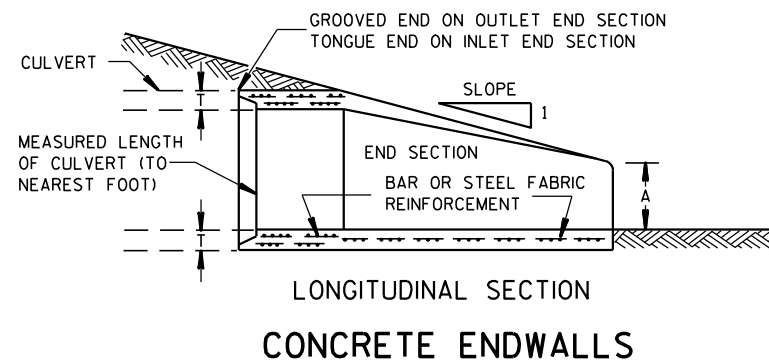
SIDE ELEVATION  
METAL ENDWALLS



PLAN

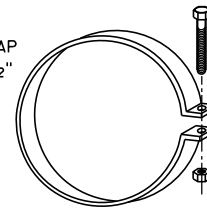


END VIEW

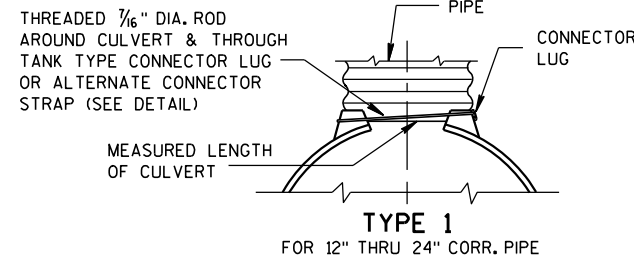


LONGITUDINAL SECTION  
CONCRETE ENDWALLS

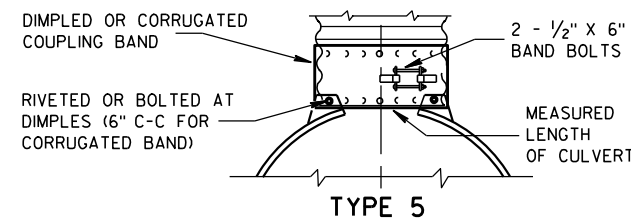
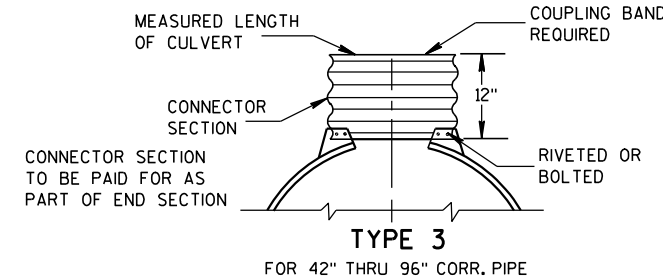
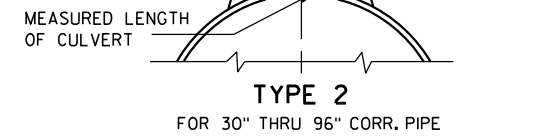
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



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



ALTERNATE FOR:  
ALL SIZES CORRUGATED CIRCULAR PIPE

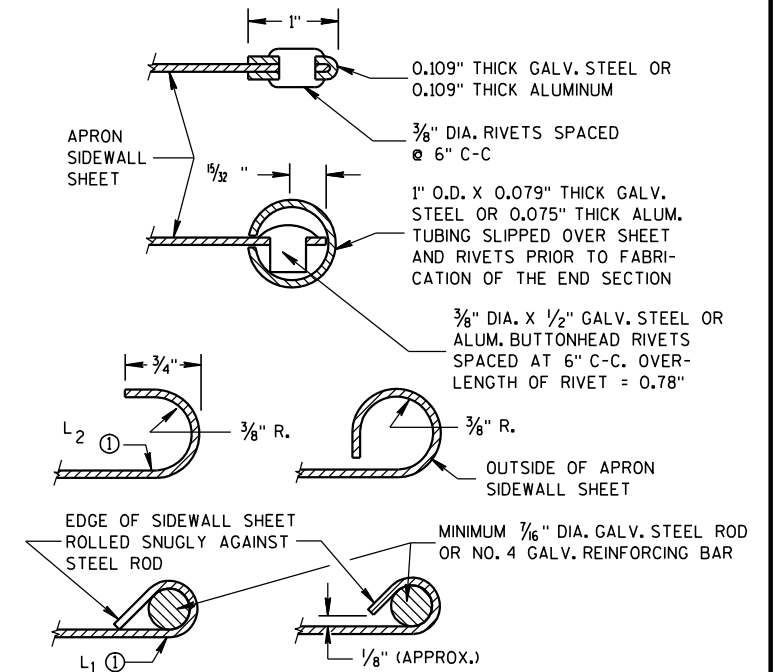
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

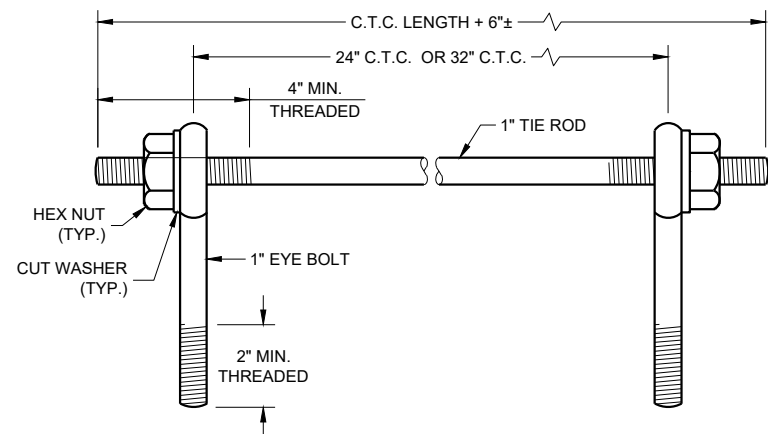
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

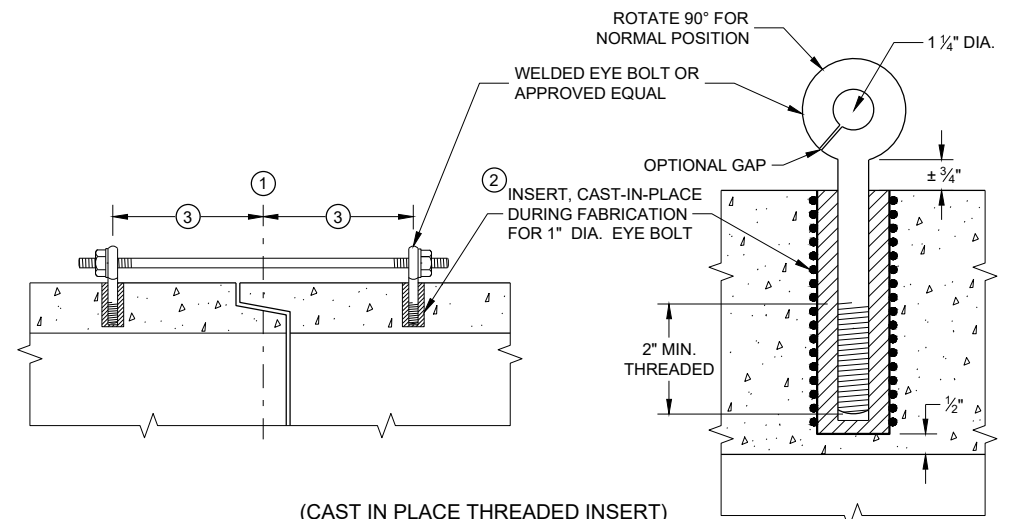
APPROVED  
11/30/94 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA





**EYE BOLTS AND TIE ROD**

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



(CAST IN PLACE THREADED INSERT)  
**LONGITUDINAL SECTIONS**

**GENERAL NOTES**

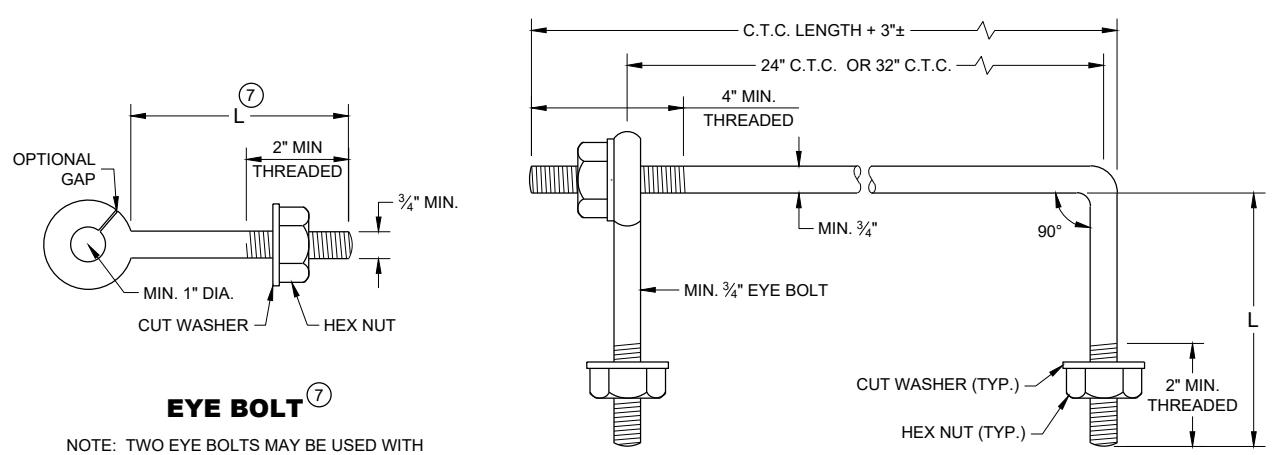
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

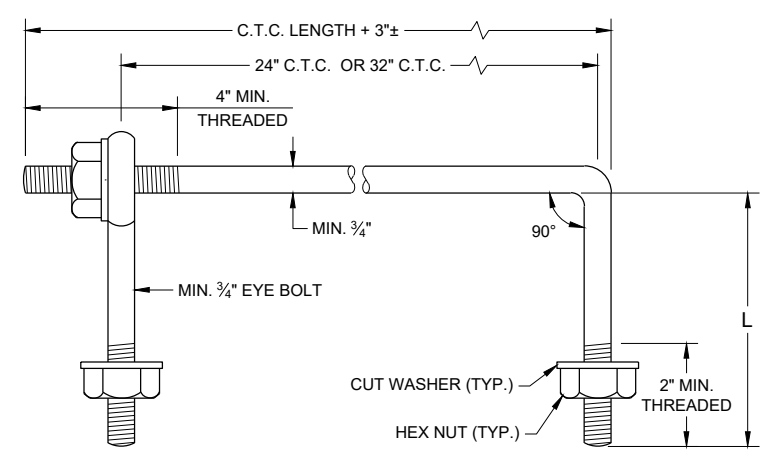
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- ⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

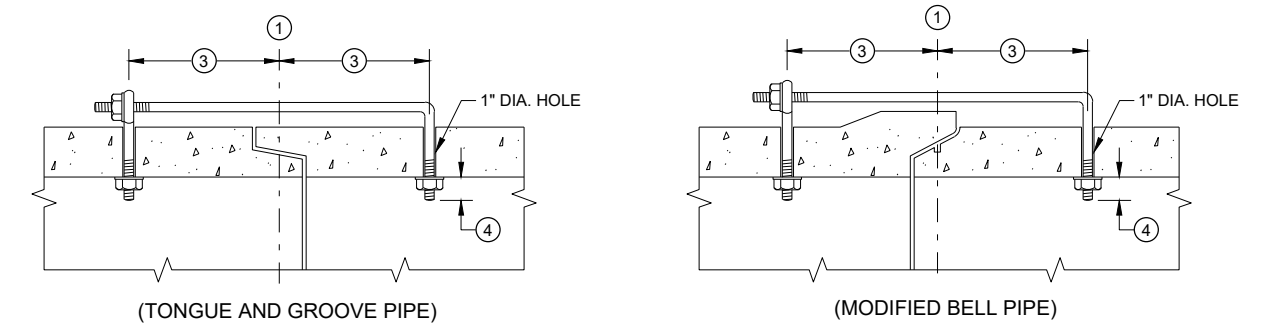


**EYE BOLT**

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



**EYE BOLT AND TIE ROD**



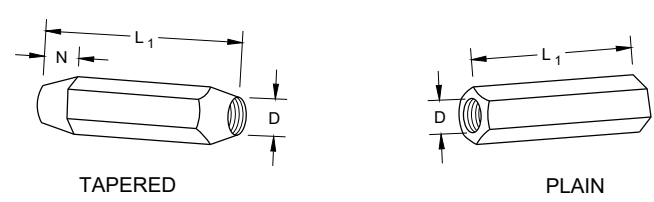
**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)**

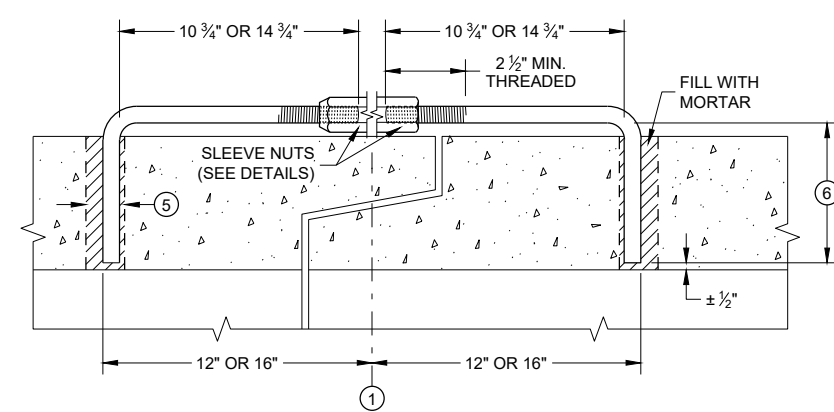
**ADJUSTABLE TIE ROD TABLE**

| PIPE DIAMETER | TIE ROD DIAMETER | D   | L <sub>1</sub> | N      |
|---------------|------------------|-----|----------------|--------|
| 12 - 60       | 5/8              | 5/8 | 5              | 1/2    |
| 66 - 84       | 3/4              | 3/4 | 5              | 1/2    |
| 90 - 144      | 1                | 1   | 7              | 1 7/16 |

DIMENSIONS SHOWN ARE IN INCHES

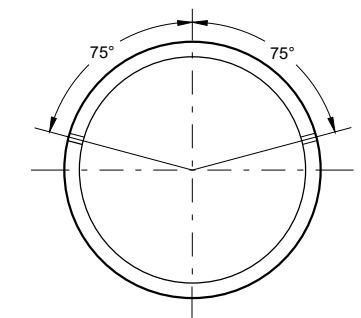


**RIGHT AND LEFT THREADS SLEEVE NUTS**



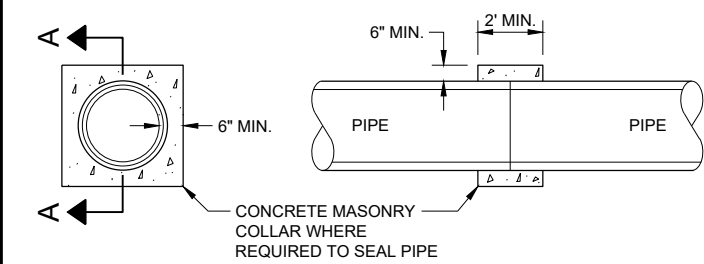
**LONGITUDINAL SECTION**

**ADJUSTABLE TIE ROD (ALTERNATE NO. 3)**



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

**TRANSVERSE SECTION**



**SECTION A - A**  
**CONCRETE COLLAR DETAIL**

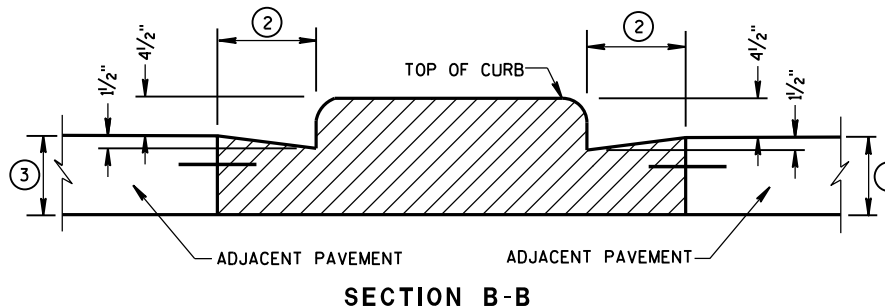
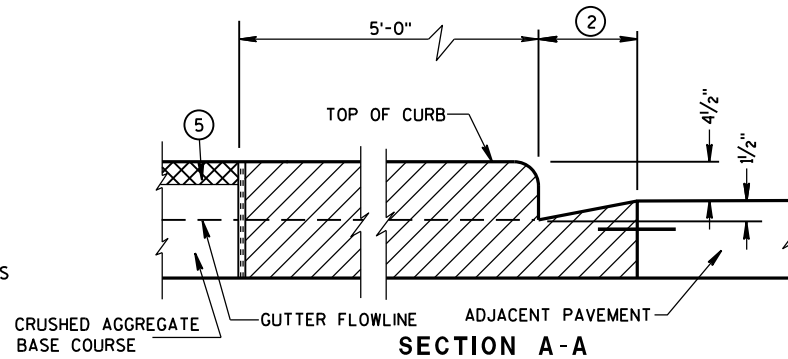
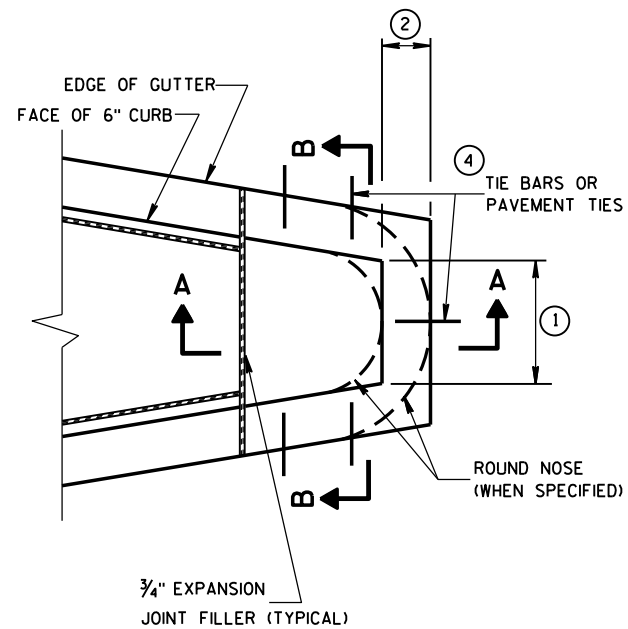
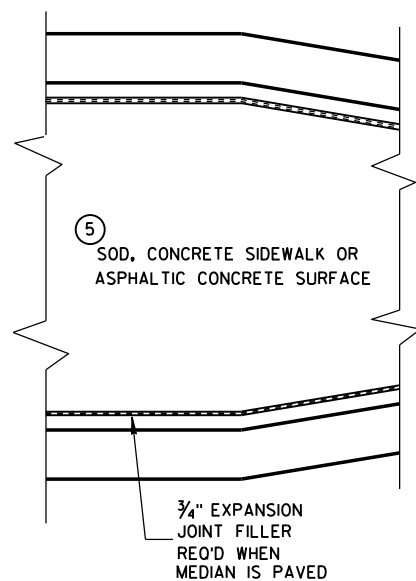
**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

SDD 08F04 - 08

SDD 08F04 - 08

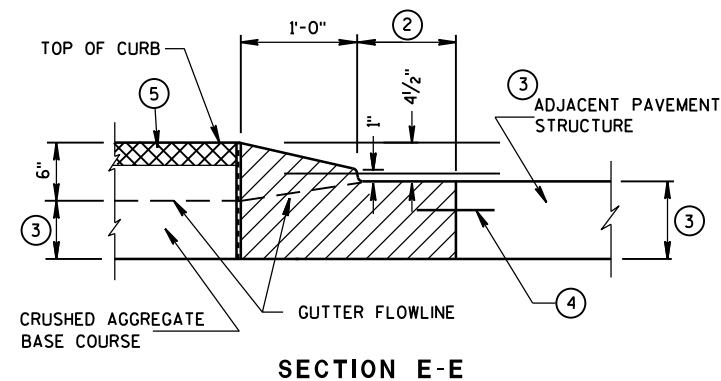
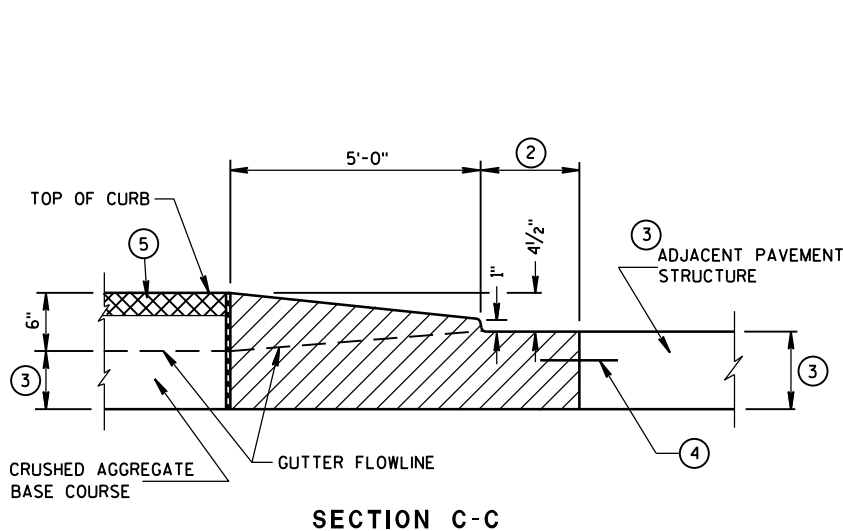
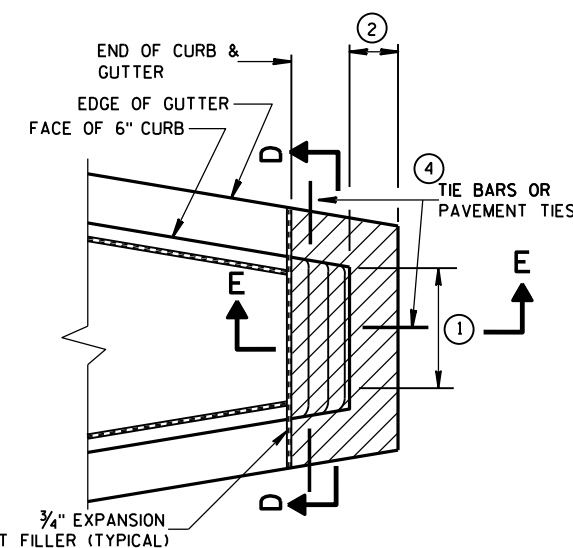


CONCRETE MEDIAN BLUNT NOSE DETAIL

**GENERAL NOTES**

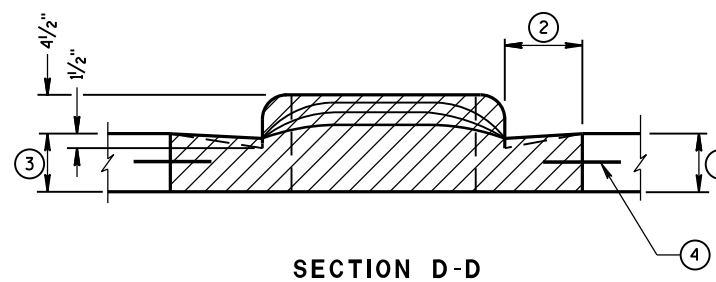
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
  - ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
  - ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
    - (1) NEW OR EXISTING CONCRETE PAVEMENT.
    - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
    - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.
  - ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.
- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



CONCRETE MEDIAN SLOPED NOSE TYPE 2

CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN NOSE

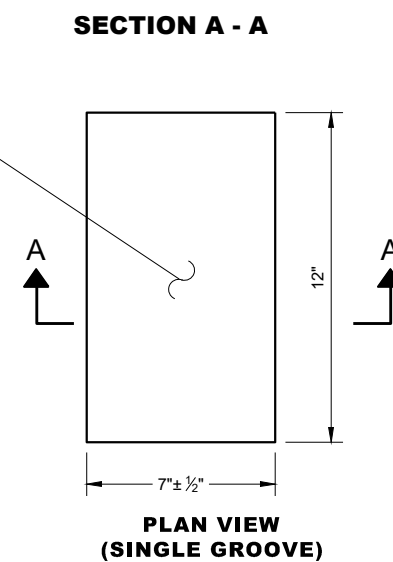
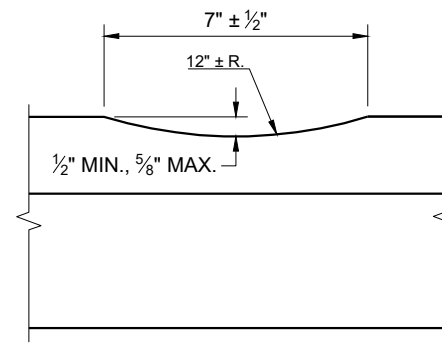
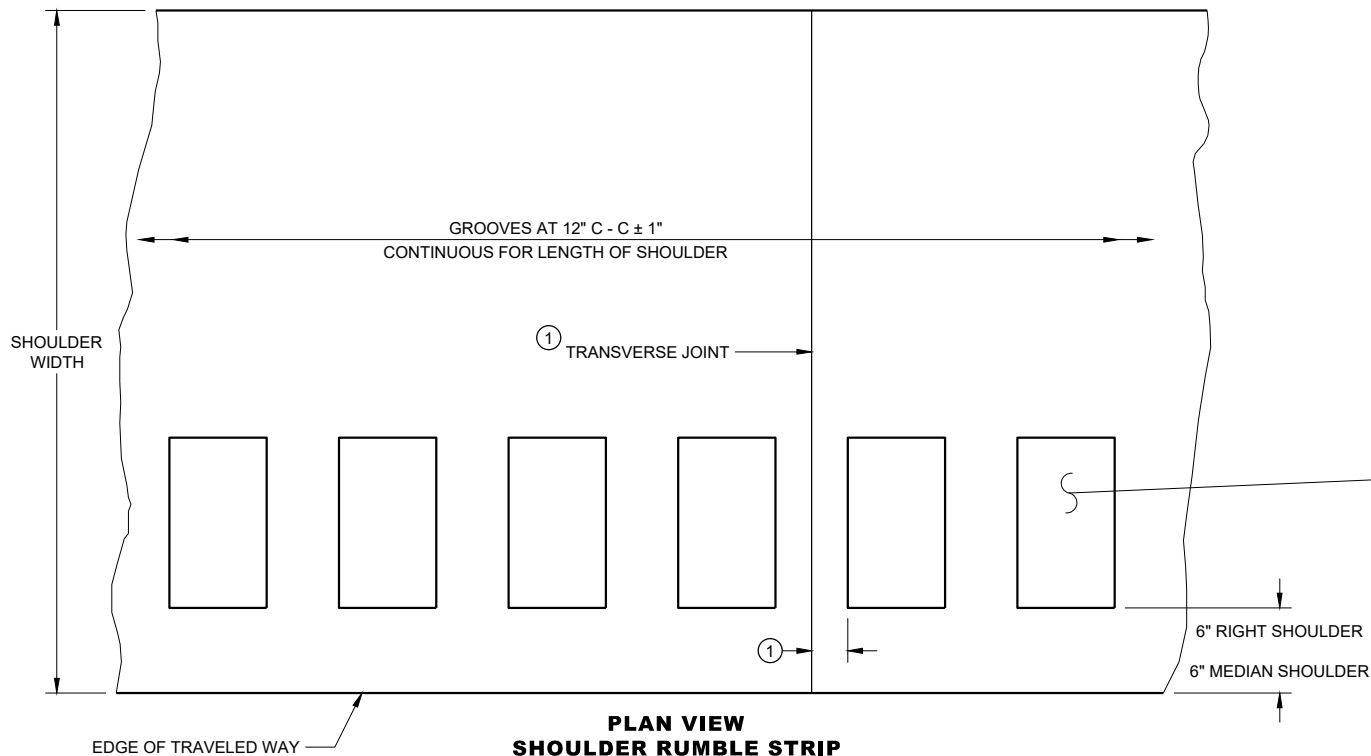
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/8/2006  
DATE

FHWA

/s/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

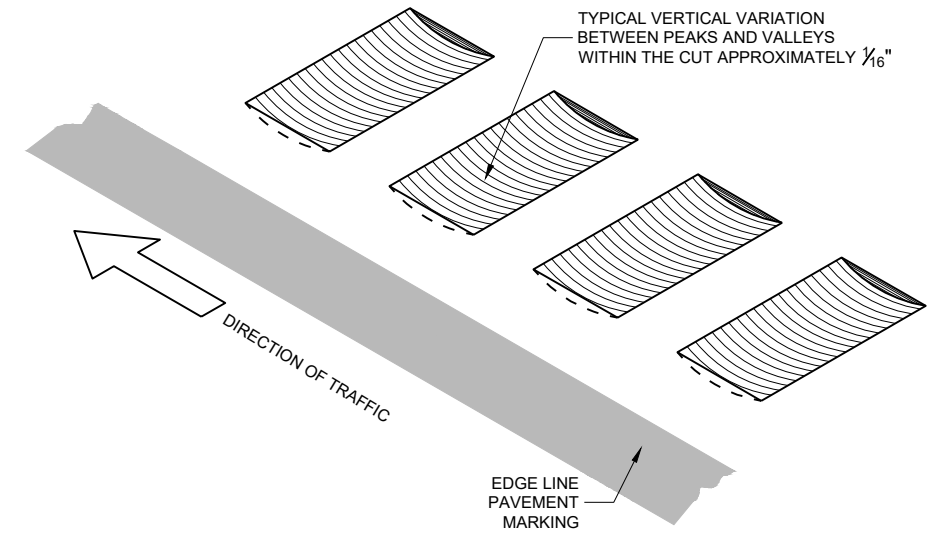


**GENERAL NOTES**

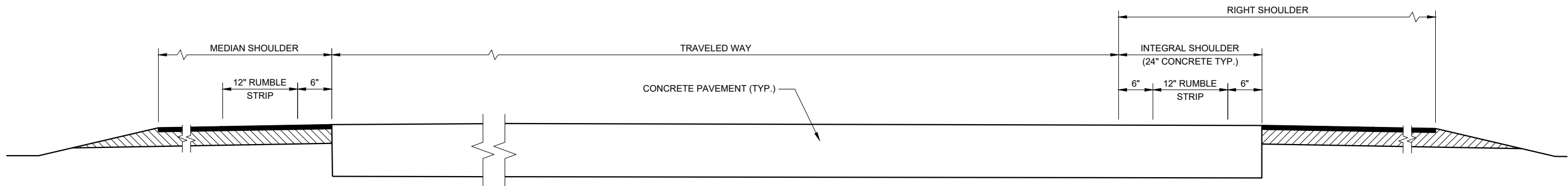
SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

**RUMBLE STRIPS ON EXPRESSWAYS:**  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

- ① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES AWAY FROM TRANSVERSE JOINTS.



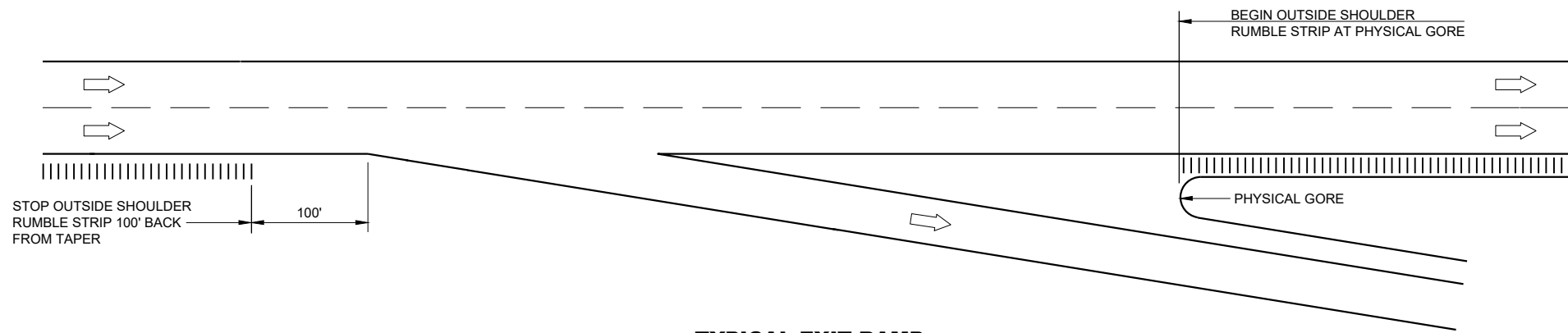
**PLACEMENT DETAIL FOR RUMBLE STRIP**



**TYPICAL SHOULDER RUMBLE STRIPS  
(ONE ROADWAY IS SHOWN)**

**SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**TYPICAL EXIT RAMP**

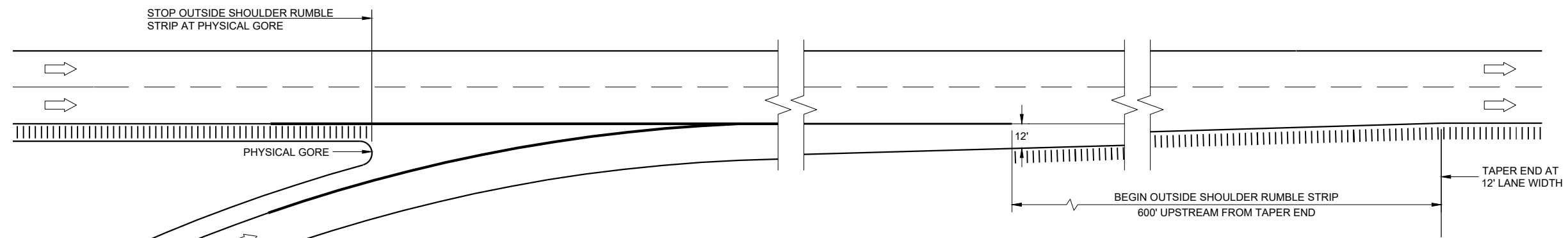
**GENERAL NOTES**

NO RUMBLE STRIP ON EXIT, DIRECTIONAL OR ENTRANCE RAMP, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

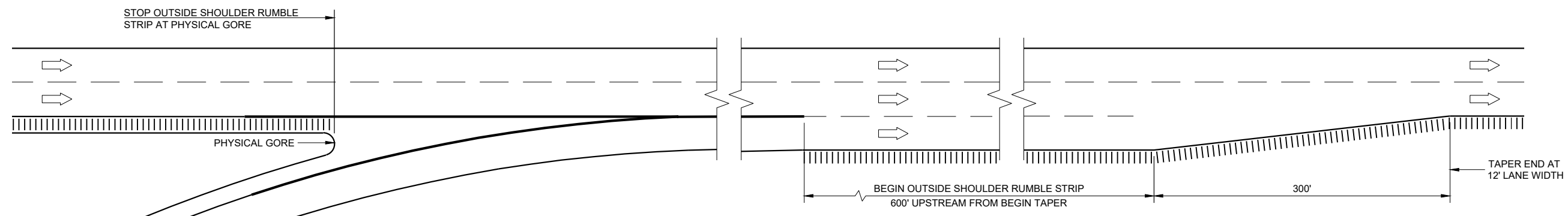
RUMBLE STRIPS ON EXPRESSWAYS:  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

**LEGEND**

➡ DIRECTION OF TRAFFIC



**TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**

6

6

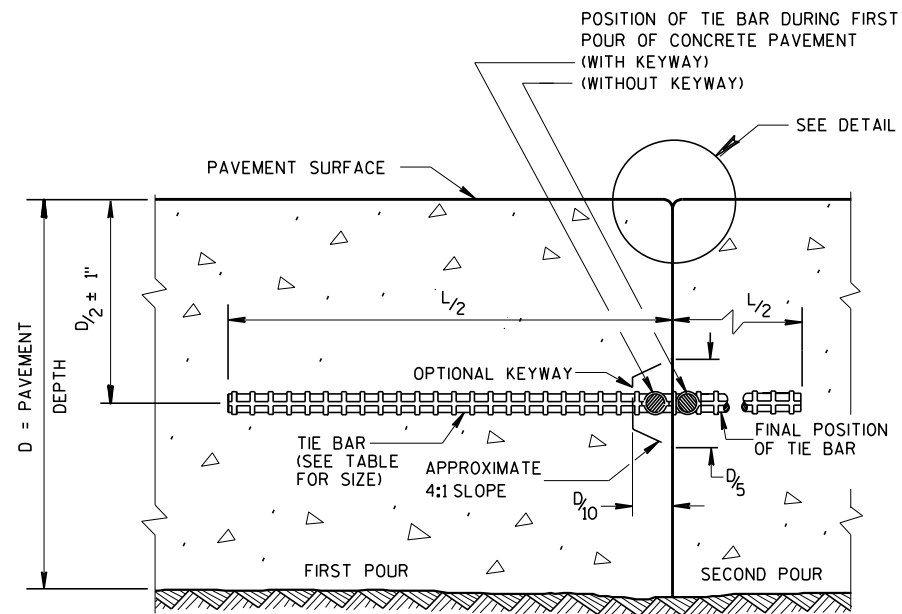
SDD 13A05-06b

SDD 13A05-06b

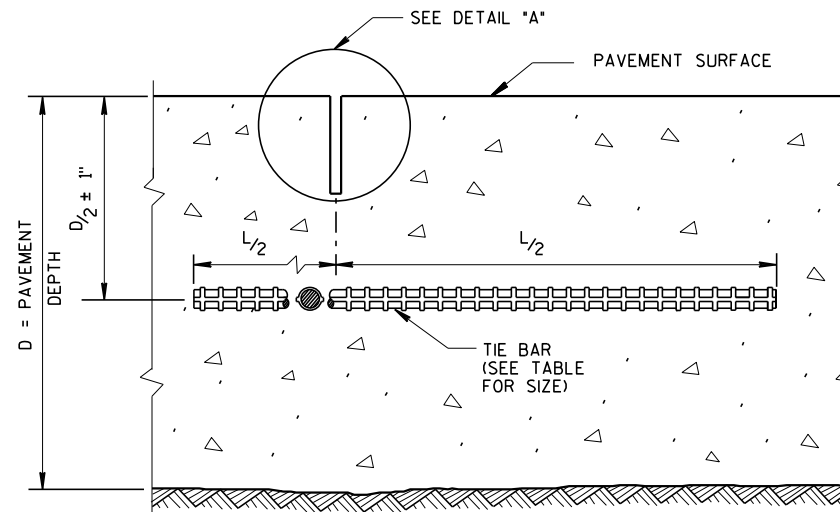
**SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: May 2023 /S/ Rodney Taylor  
ROADWAY DESIGN STANDARDS  
UNIT SUPERVISOR  
FHWA



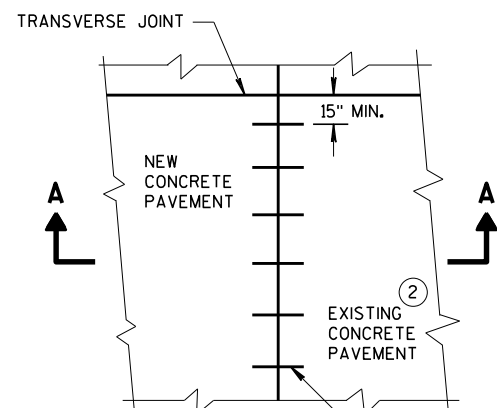
**CONSTRUCTION JOINT**



**SAWED JOINT**

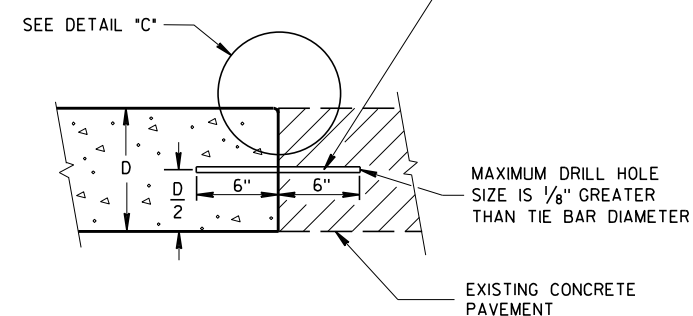
**GENERAL NOTES**

- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

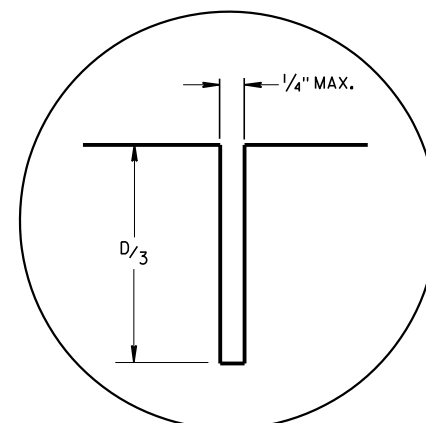


**PLAN VIEW**

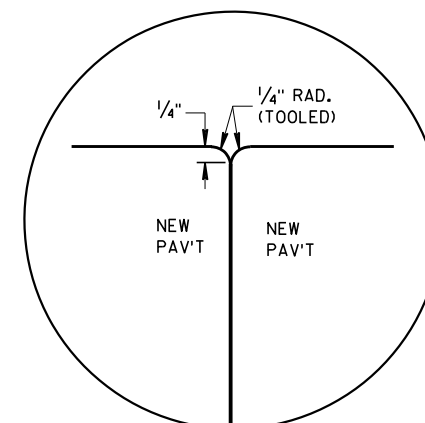
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



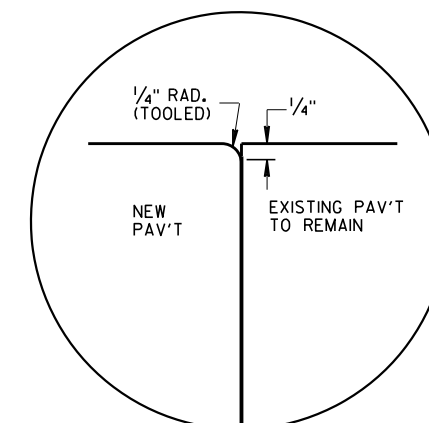
**SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT**



**DETAIL "A"**



**DETAIL "B"**



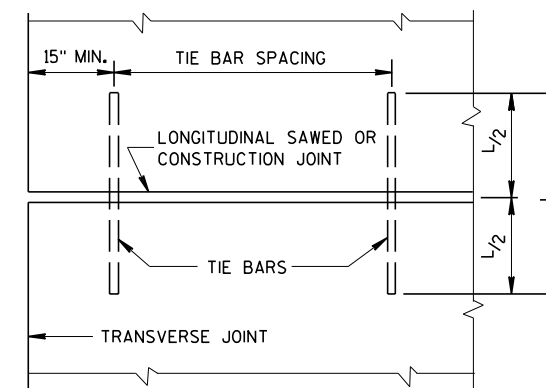
**DETAIL "C"**

**TIE BAR TABLE**

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

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

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

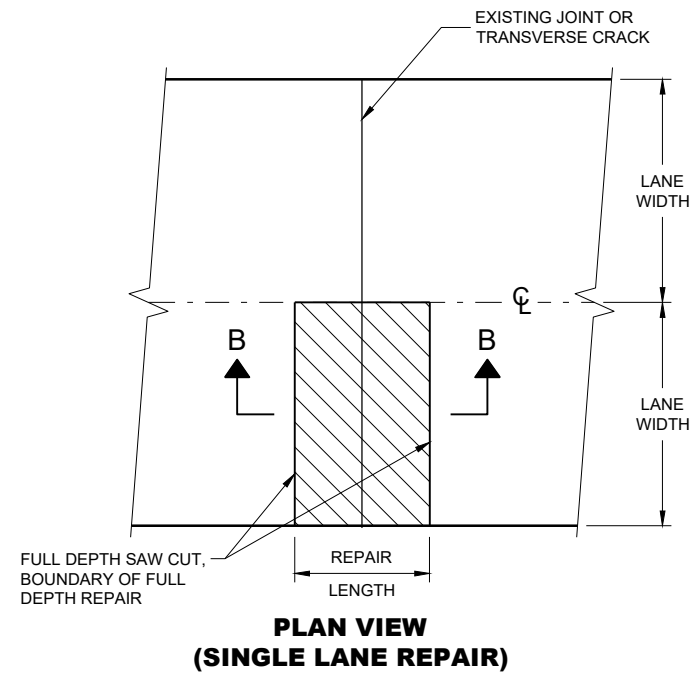
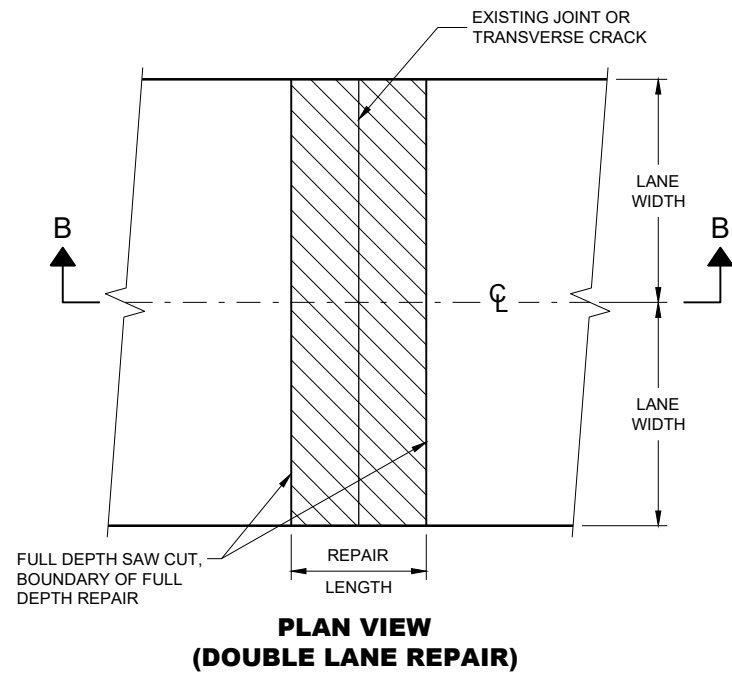


**PLAN VIEW  
SHOWING LOCATION OF TIE BARS**

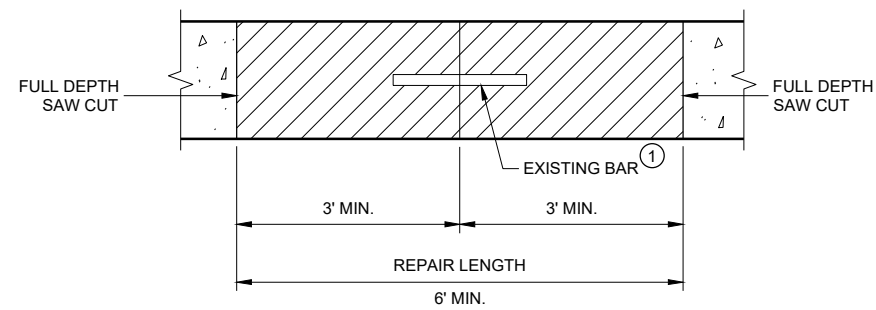
**CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



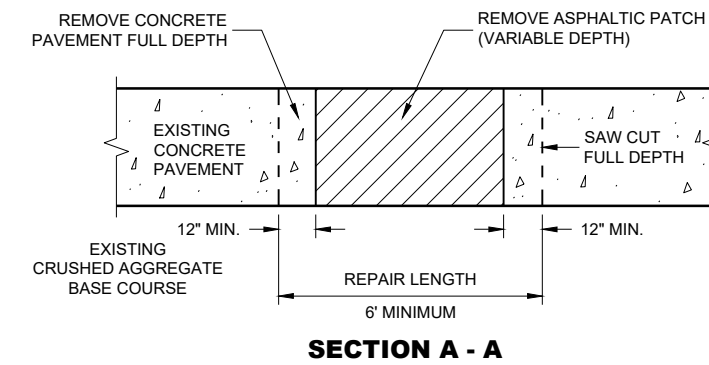
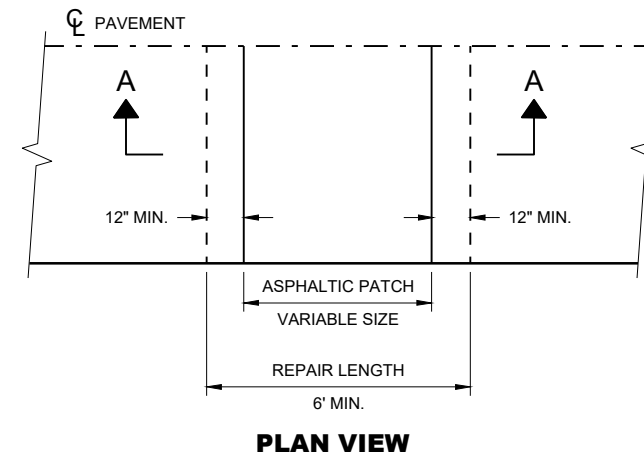
**GENERAL NOTES**

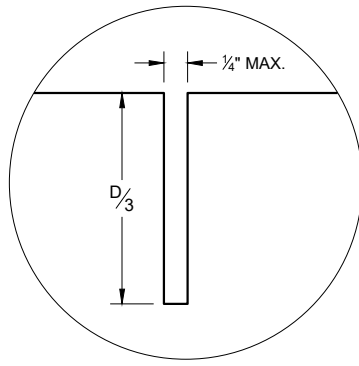
SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

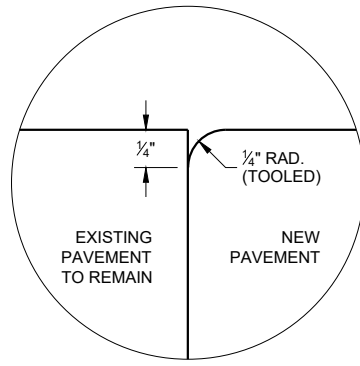
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



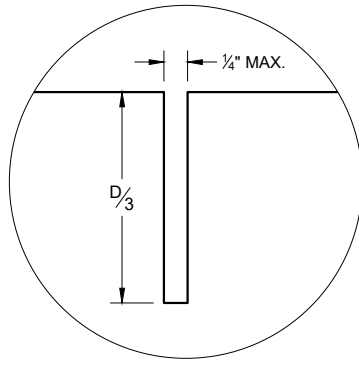


C1

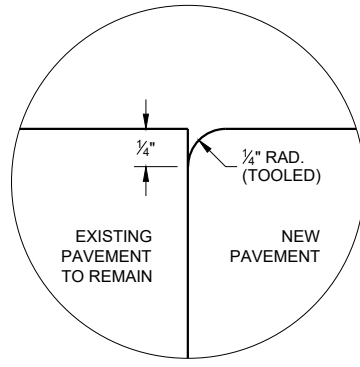


C2

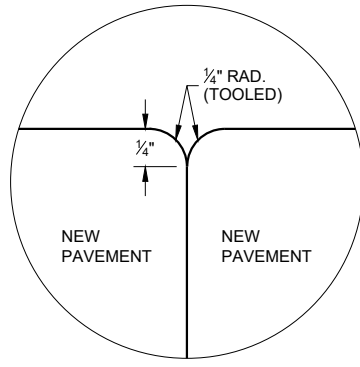
**TRANSVERSE JOINTS**



L1

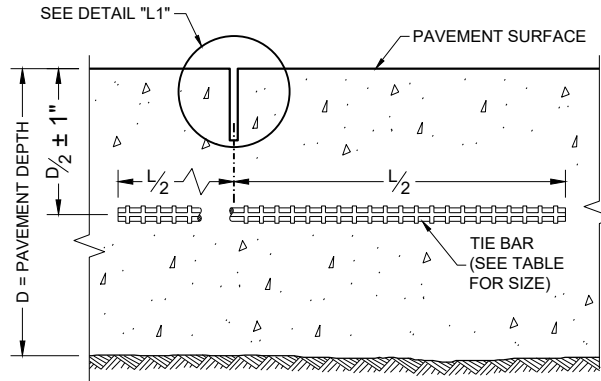


L2

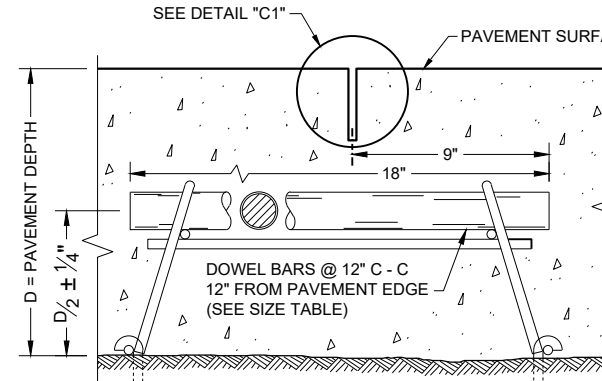


L3

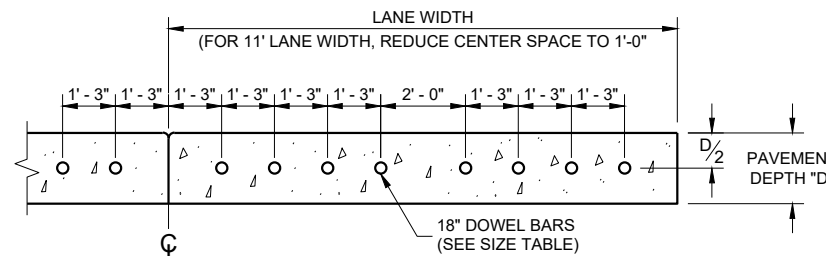
**LONGITUDINAL JOINTS**



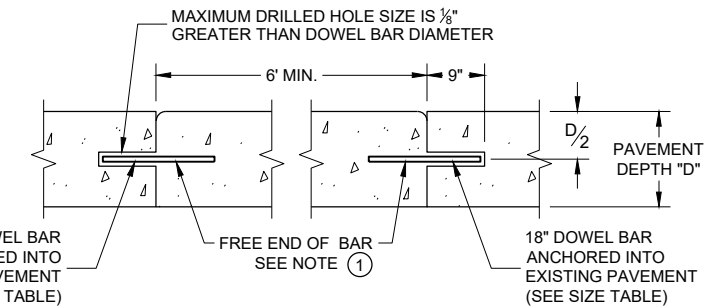
**SECTION C - C  
SAWED LONGITUDINAL JOINT**



**SECTION F - F  
DOWELED CONTRACTION JOINT**



**SECTION E - E  
DRILLED DOWEL BAR CONSTRUCTION JOINT**



**SECTION D - D**

**GENERAL NOTES**

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

**TIE BAR TABLE**

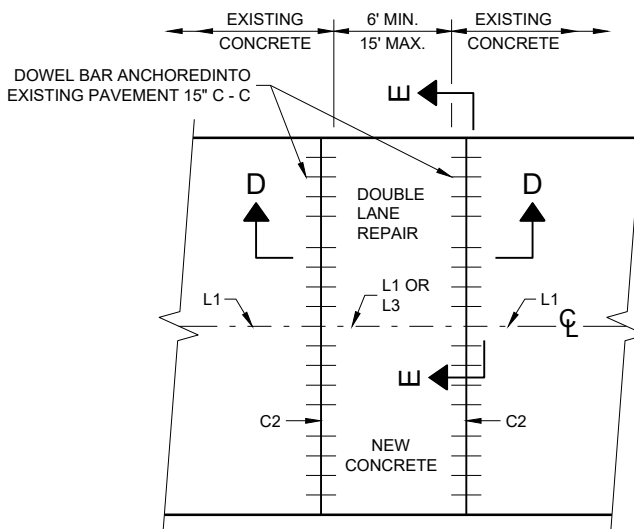
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2"          | NO. 4        | 30"                | 36"                  |
| ≥ 10 1/2"          | NO. 5        | 36"             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

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

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

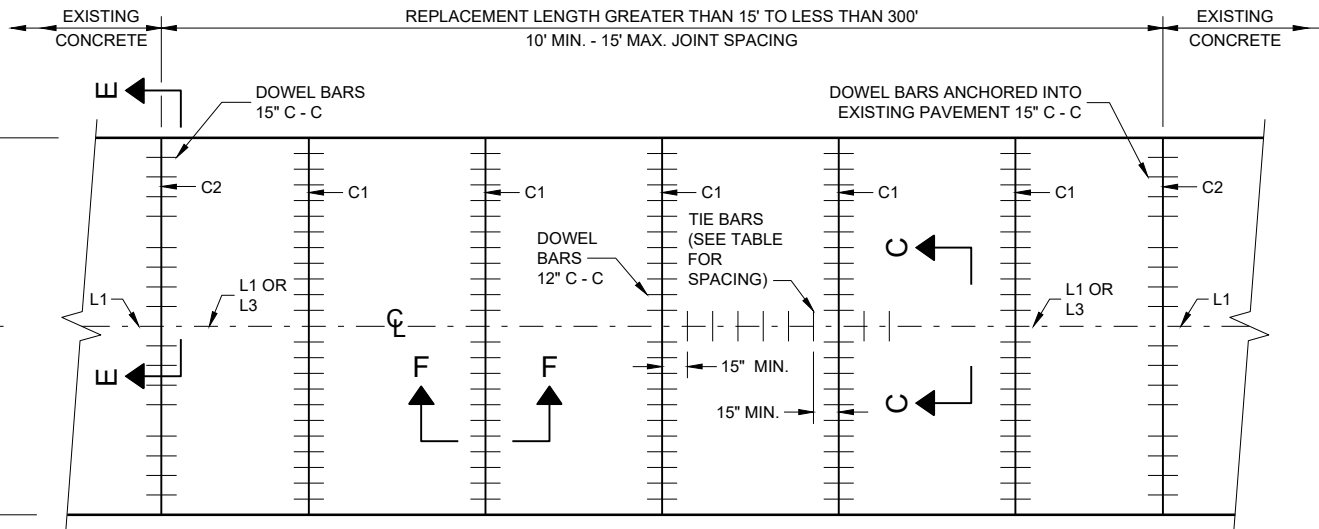
**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

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



**PLAN VIEW**

**MULTILANE CONCRETE PAVEMENT REPAIR**

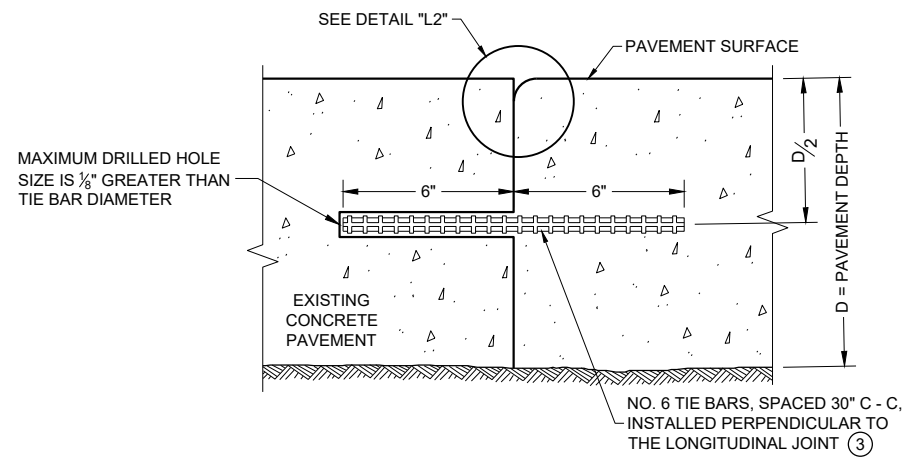


**PLAN VIEW**

**MULTILANE CONCRETE PAVEMENT REPLACEMENT**

**CONCRETE PAVEMENT REPAIR AND REPLACEMENT**

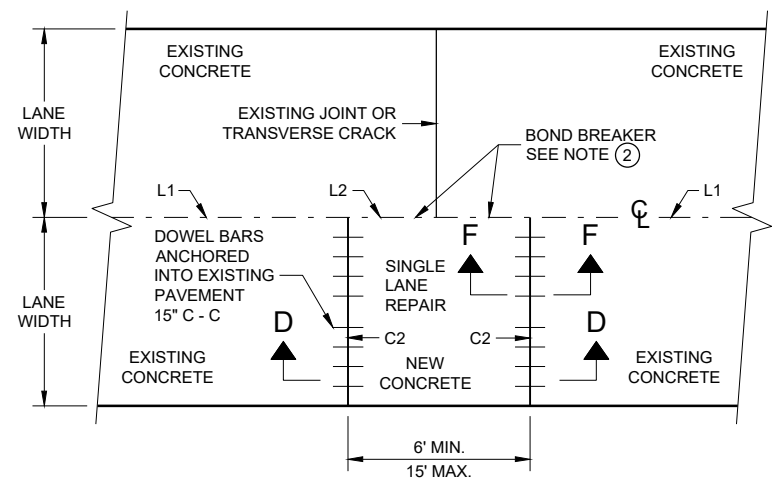
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



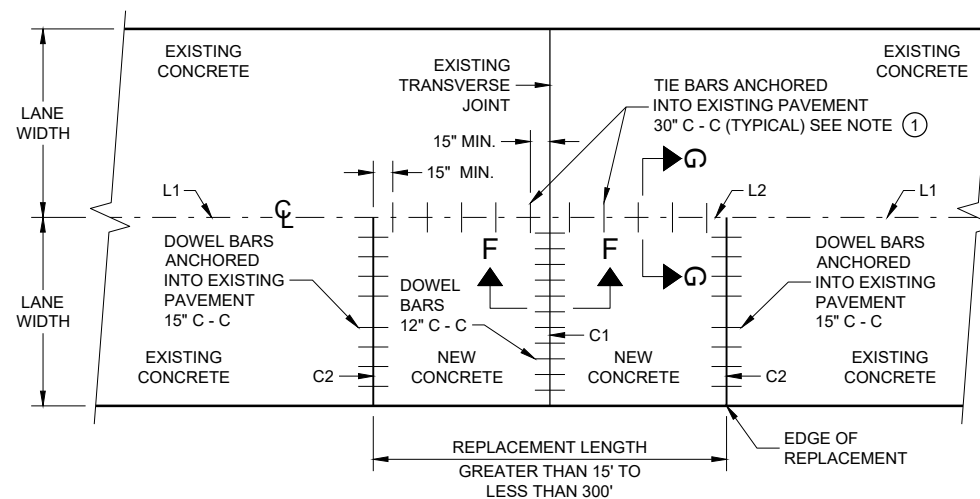
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPAIR**



**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPLACEMENT**

**CONCRETE REPAIR AND REPLACEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

FHWA



**GENERAL NOTES**

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

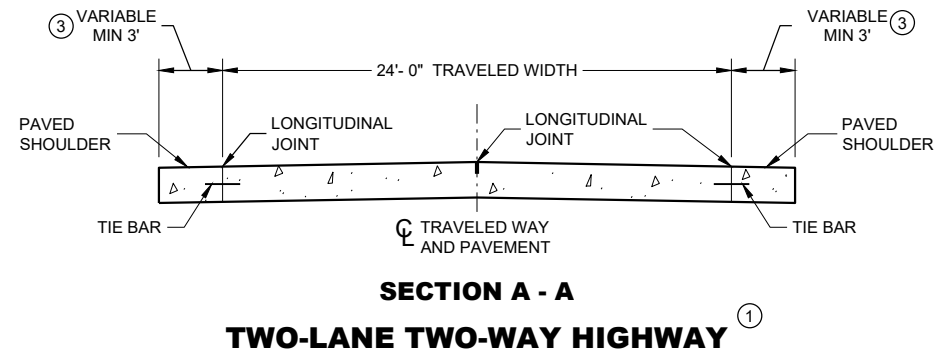
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

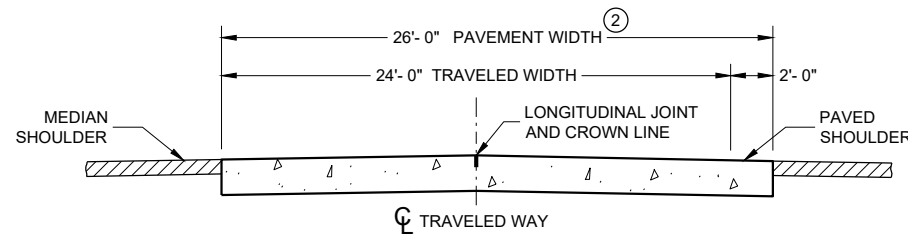
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

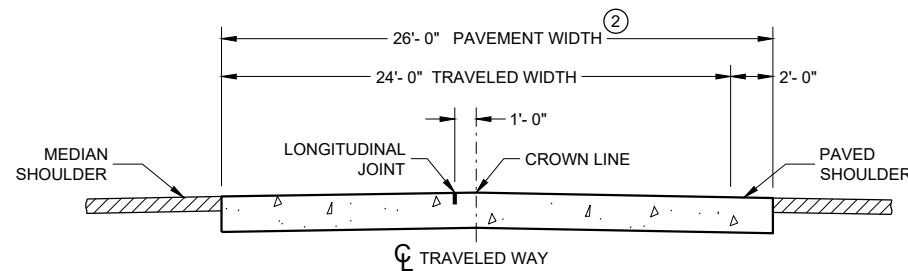
| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|---------------------------|
| 6", 6 1/2"         | NONE               | 12'                       |
| 7", 7 1/2"         | 1"                 | 14'                       |
| 8" & ABOVE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



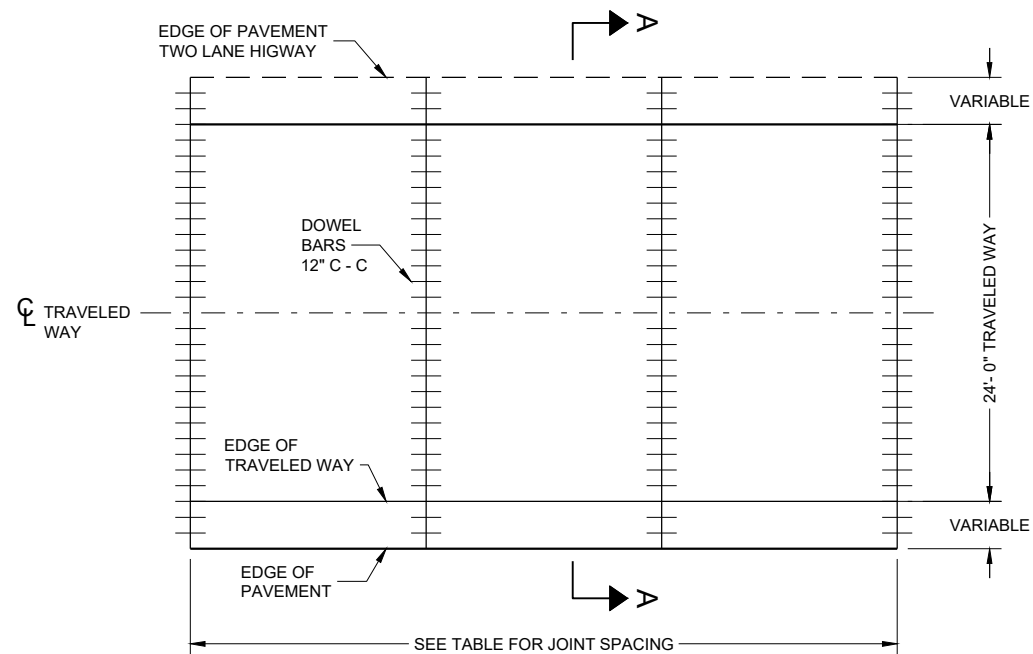
**SECTION A - A  
TWO-LANE TWO-WAY HIGHWAY**



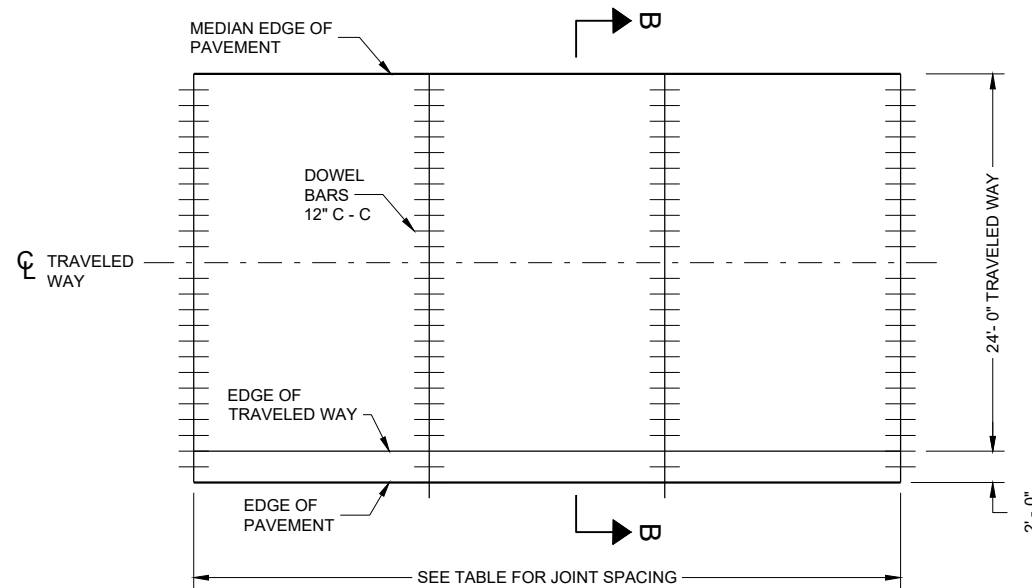
**SECTION B - B**



**ALTERNATIVE SECTION B - B  
DIVIDED HIGHWAY**



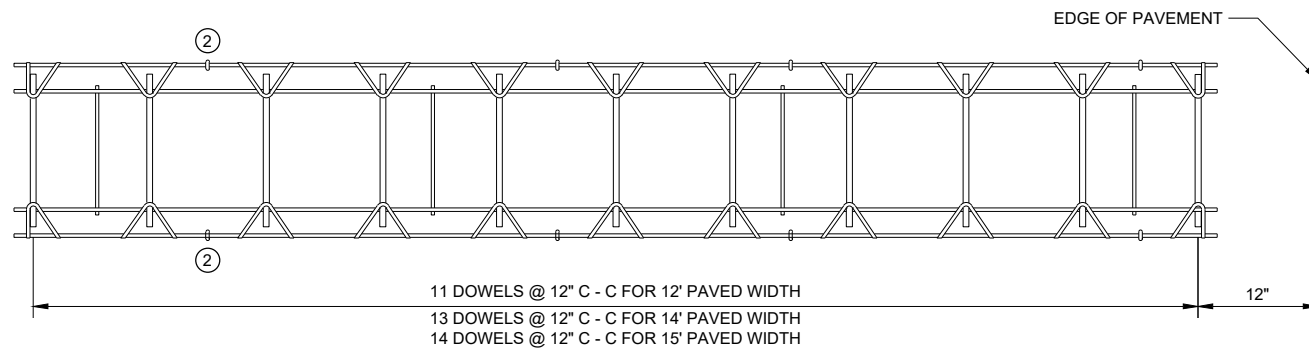
**CONTRACTION JOINT LAYOUT FOR  
TWO-LANE TWO-WAY HIGHWAY**



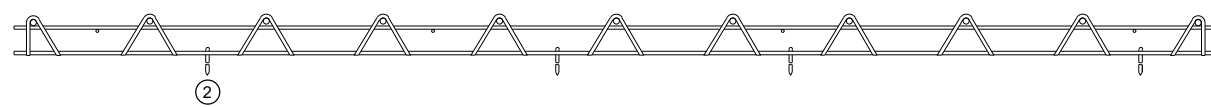
**CONTRACTION JOINT LAYOUT FOR  
DIVIDED HIGHWAY**

**RURAL DOWELED  
CONCRETE PAVEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW**

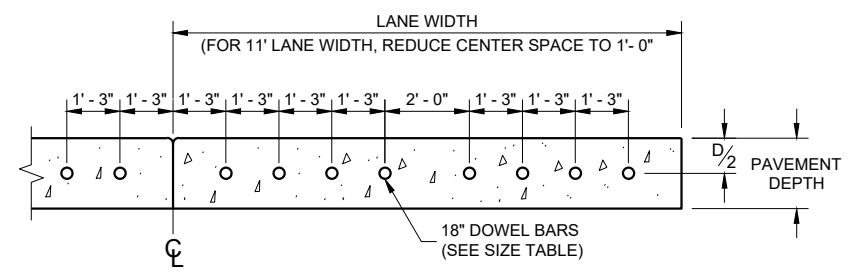


**SIDE VIEW**  
(NORMAL TO CENTERLINE)

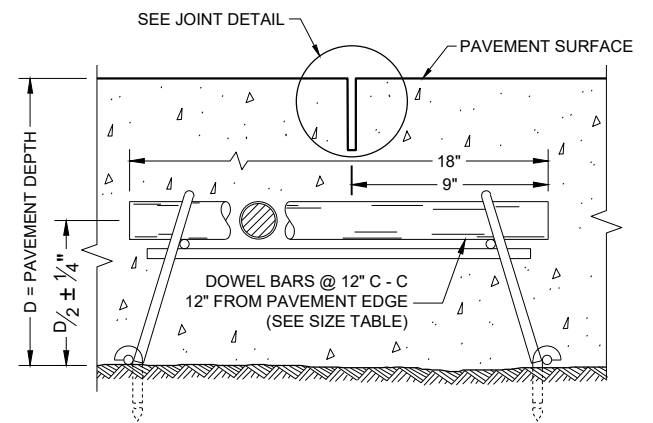
**CONTRACTION JOINT DOWEL ASSEMBLY** ①

**GENERAL NOTES**

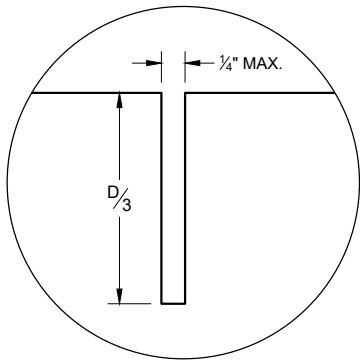
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



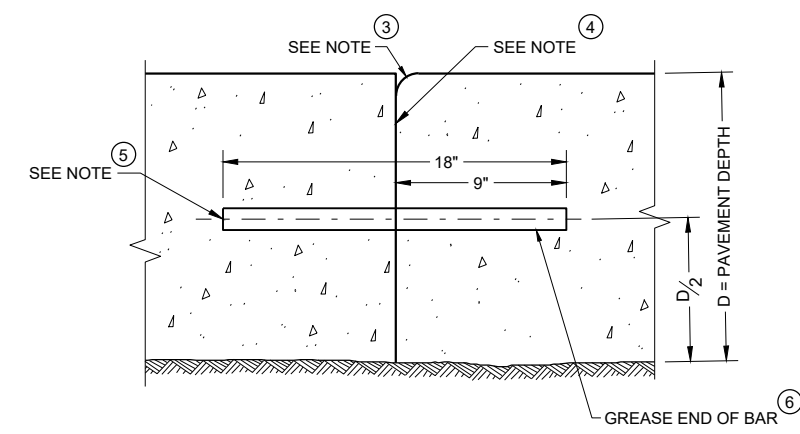
**DRILLED DOWEL BAR CONSTRUCTION JOINT** ⑦



**DOWELED CONTRACTION JOINT**



**JOINT DETAIL**

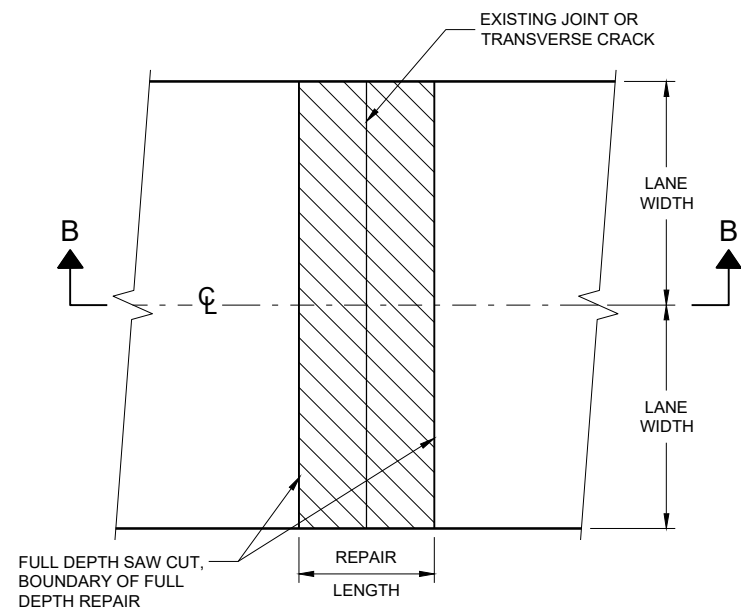


**TRANSVERSE CONSTRUCTION JOINT**

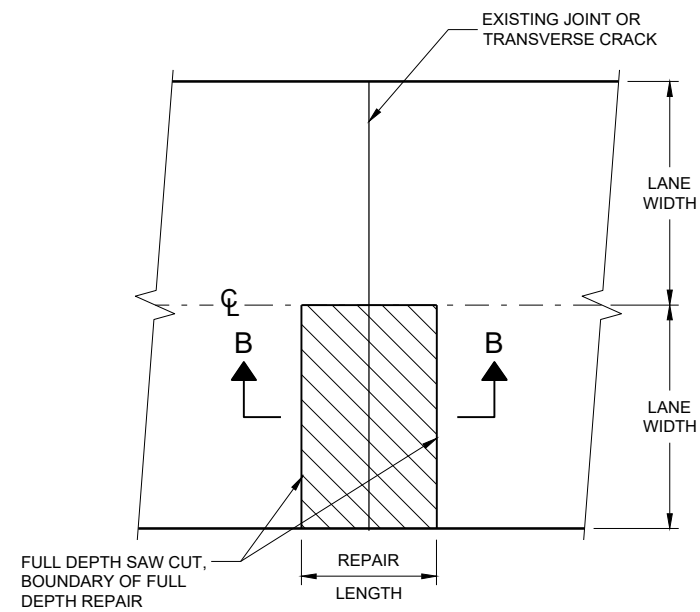
**RURAL DOWELED  
CONCRETE PAVEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR

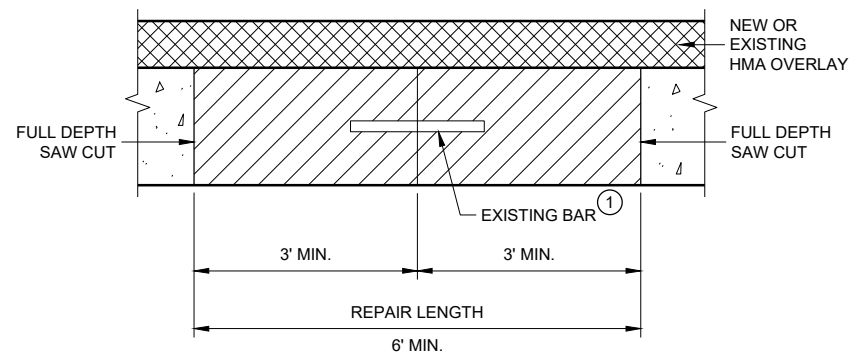


**PLAN VIEW  
DOUBLE LANE REPAIR**



**PLAN VIEW  
SINGLE LANE REPAIR**

**FULL DEPTH CONCRETE PAVEMENT REMOVAL**



**SECTION B - B  
CONCRETE REMOVAL**

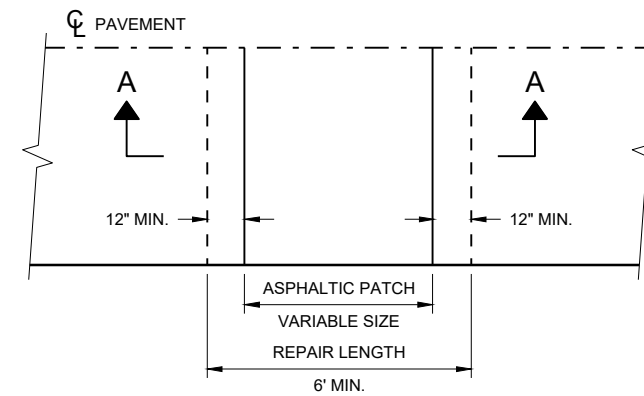
**GENERAL NOTES**

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

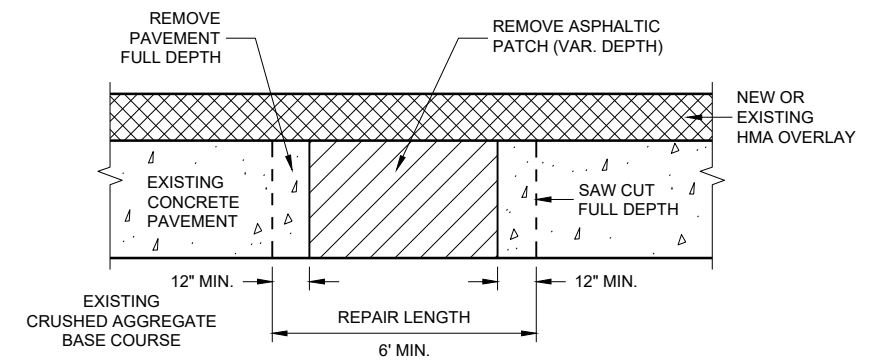
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MAY NOT BE PRESENT.



**PLAN VIEW**

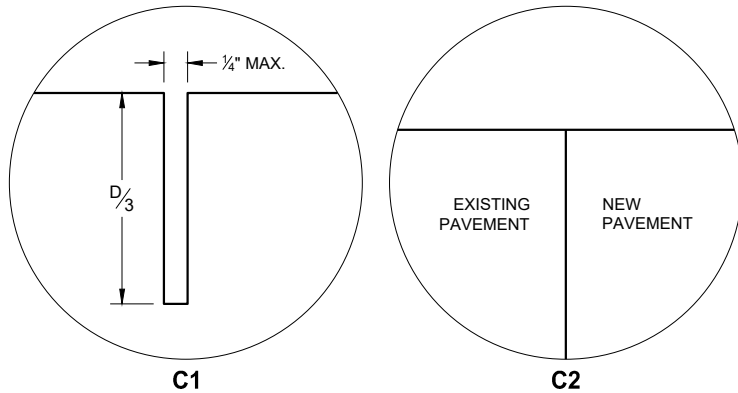


**SECTION A - A**

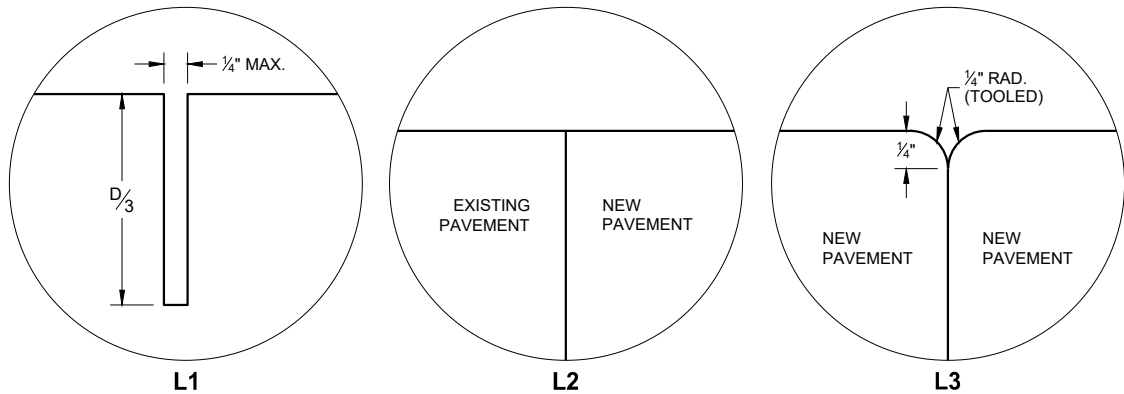
**HMA PATCH REMOVAL**

**BASE PATCHING CONCRETE**

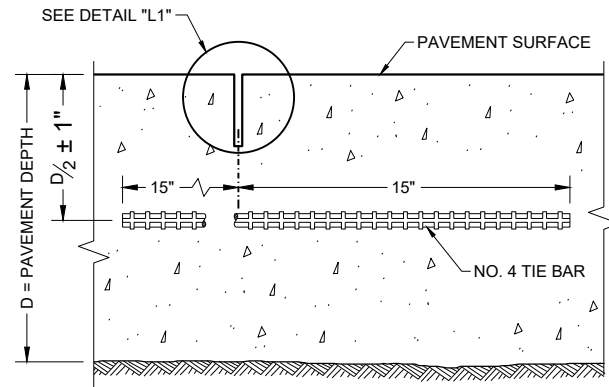
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



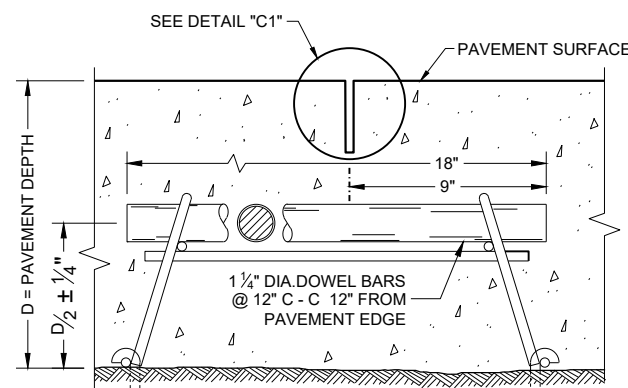
**TRANSVERSE JOINTS**



**LONGITUDINAL JOINTS**



**SECTION C - C  
SAWED LONGITUDINAL JOINT**



**SECTION F - F  
CONTRACTION JOINT**

**GENERAL NOTES**

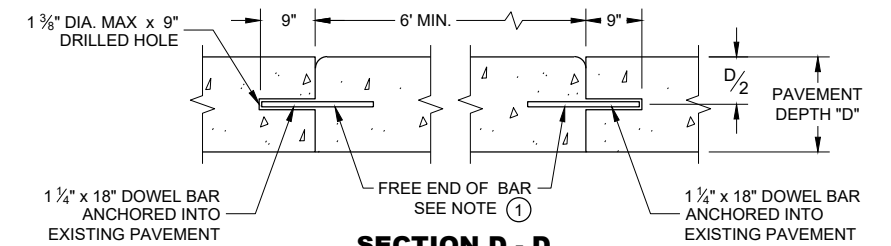
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE BASE PATCHES OF EXISTING NON-DOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

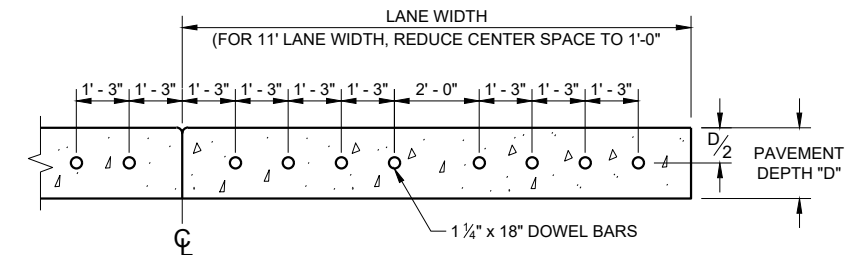
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

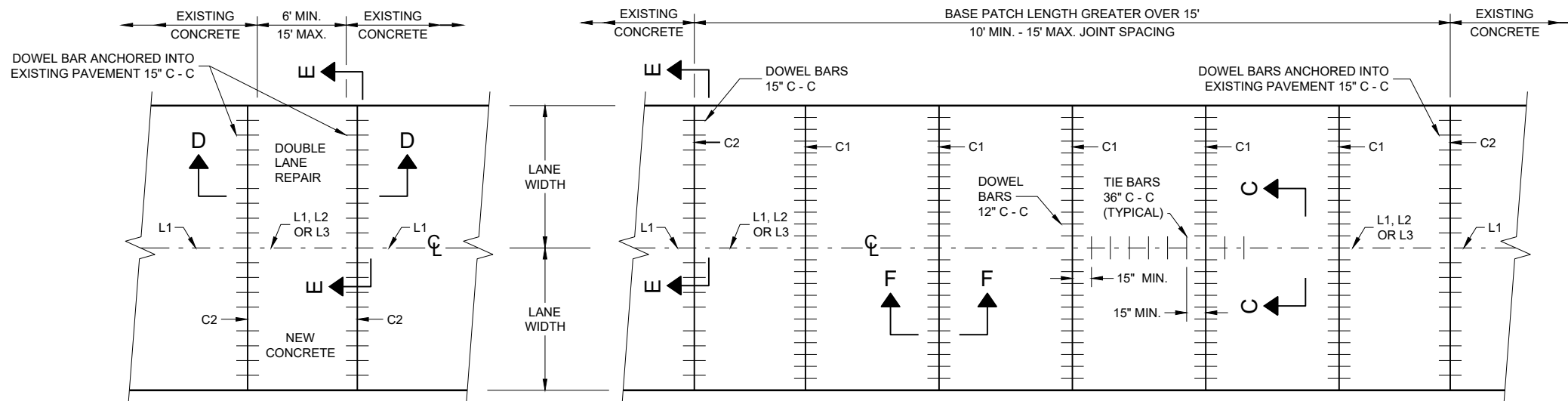
- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



**SECTION D - D**



**SECTION E - E  
SPACING OF DOWEL BARS  
ANCHORED INTO EXISTING PAVEMENT**

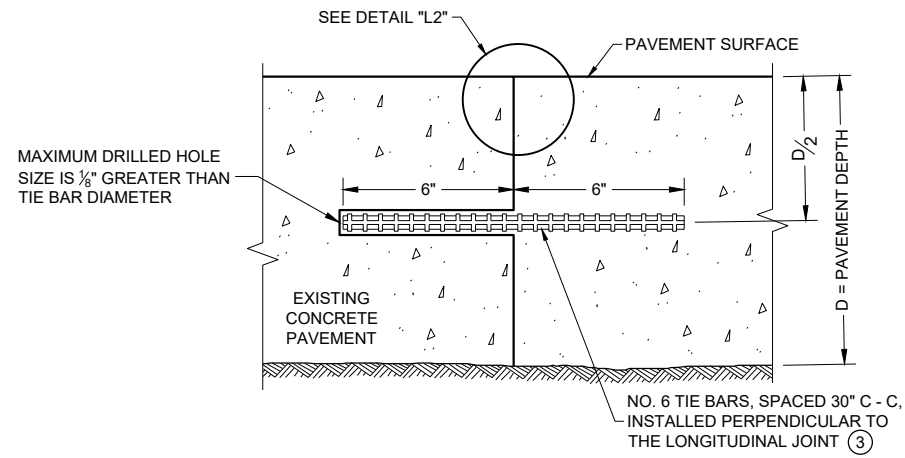


**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
15' MAXIMUM LENGTH**

**PLAN VIEW  
MULTILANE CONCRETE BASE PATCH  
GREATER THAN 15' IN LENGTH**

**BASE PATCHING CONCRETE**

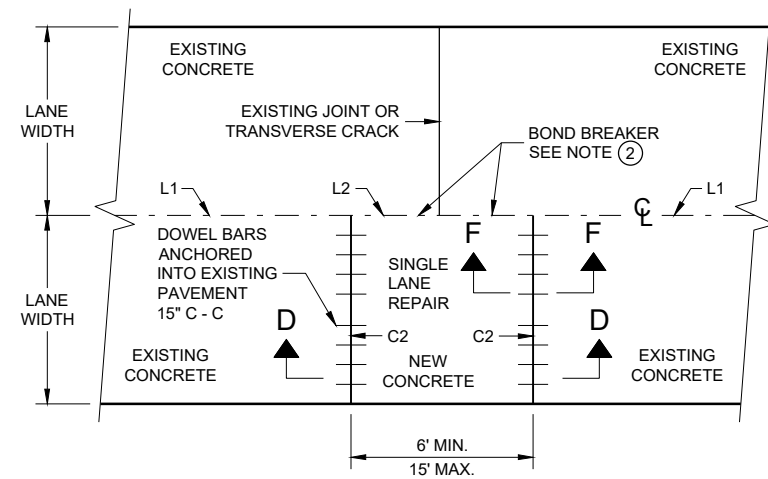
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



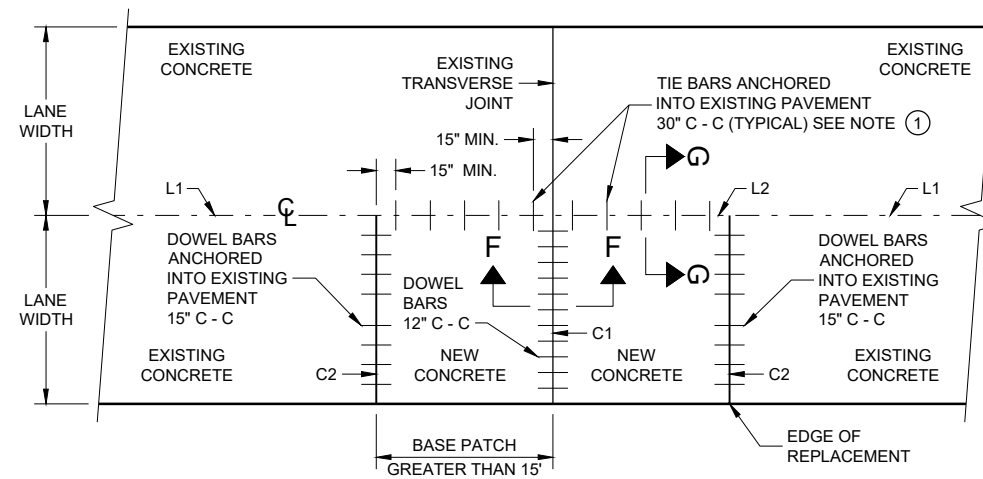
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**15' MAXIMUM LENGTH**



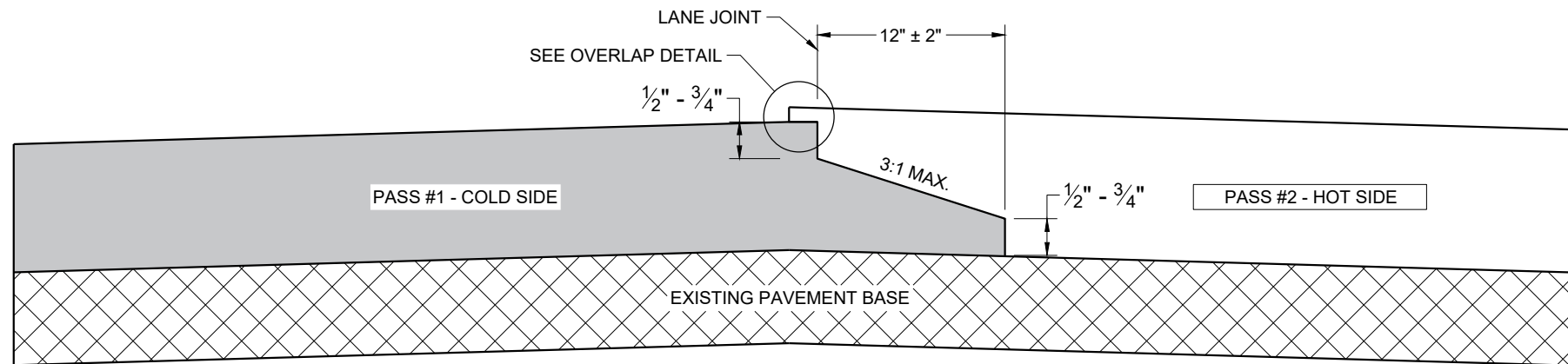
**PLAN VIEW**  
**SINGLE LANE CONCRETE BASE PATCH**  
**GREATER THAN 15' LENGTH**

**BASE PATCHING CONCRETE**

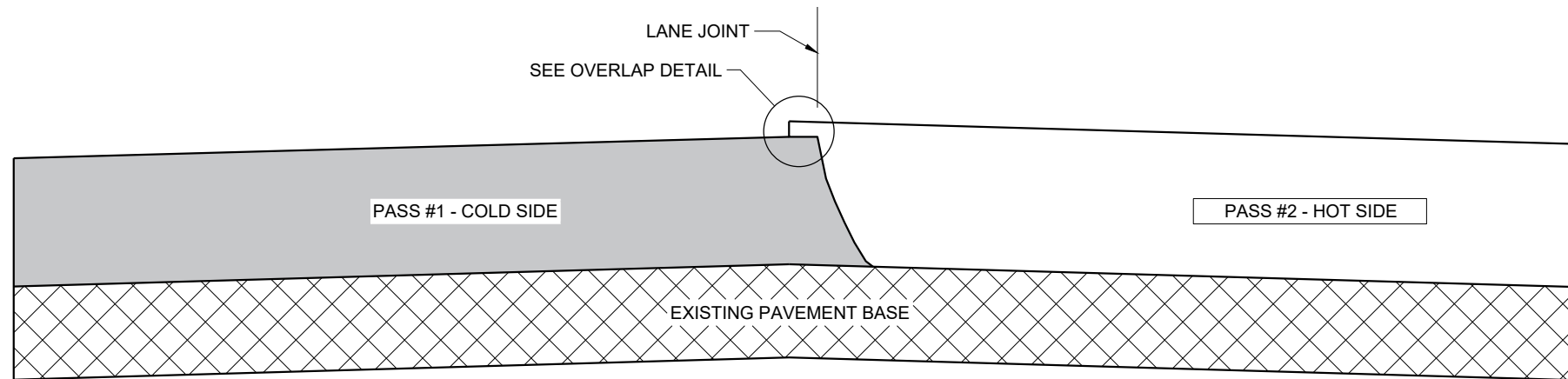
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

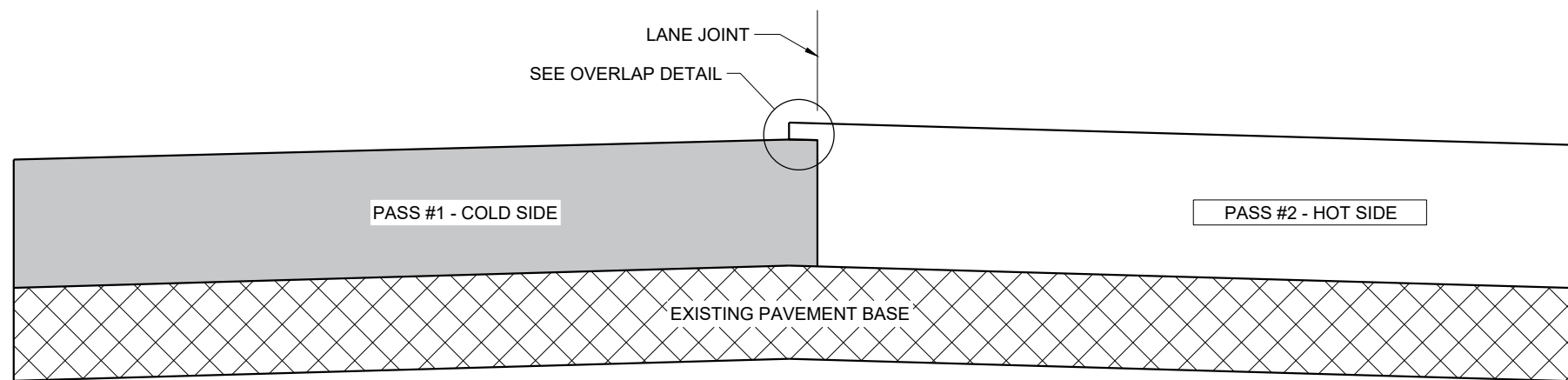
FHWA



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



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

**GENERAL NOTES**

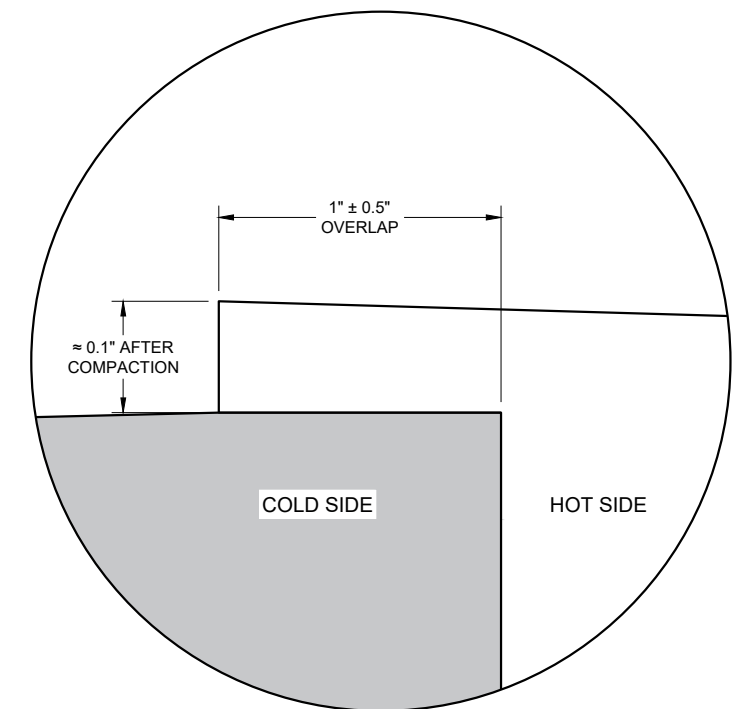
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



**OVERLAP DETAIL (TYPICAL)**

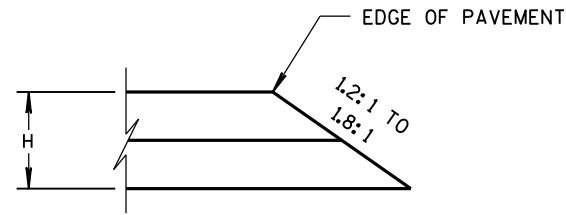
6

6

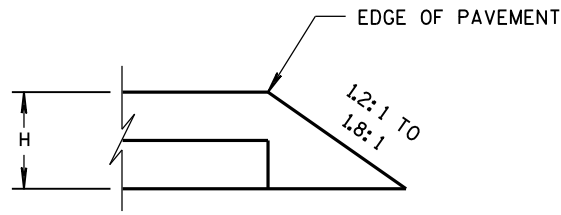
SDD 13C19 - 03

SDD 13C19 - 03

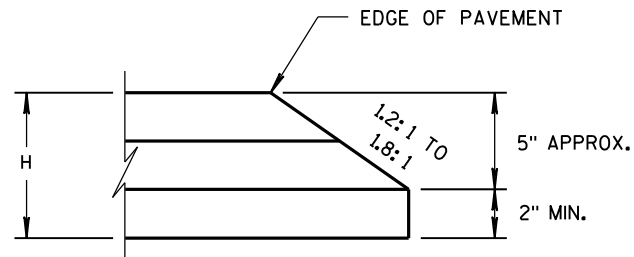
|  |   |
|--|---|
| <b>HMA LONGITUDINAL JOINTS</b>                     |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>November 2020<br>DATE                  | /S/ Steven Hefel<br>HMA PAVEMENT ENGINEER |
| FHWA   |   |



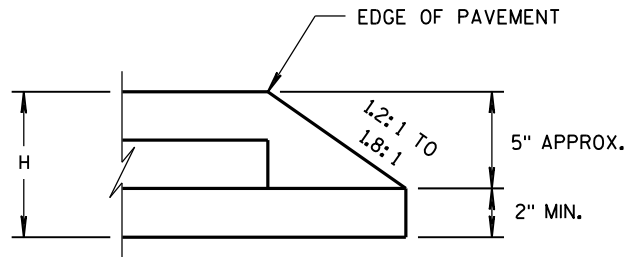
CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER  
FOR H 5" OR LESS

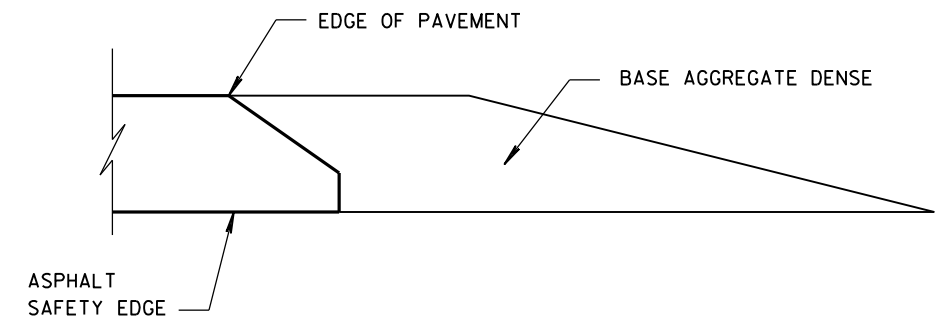


CONSTRUCTED WITH FINAL TWO LAYERS  
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER  
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

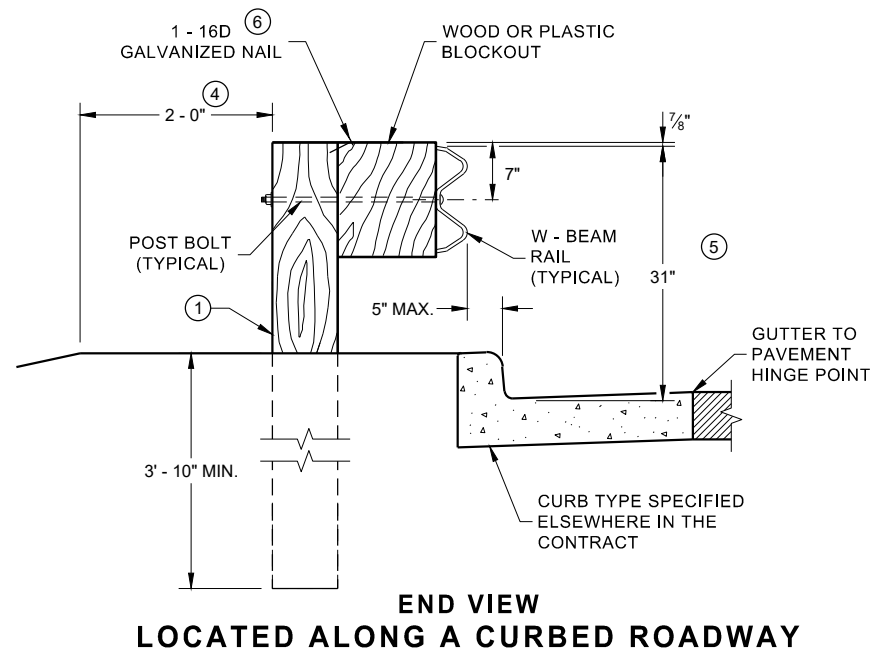
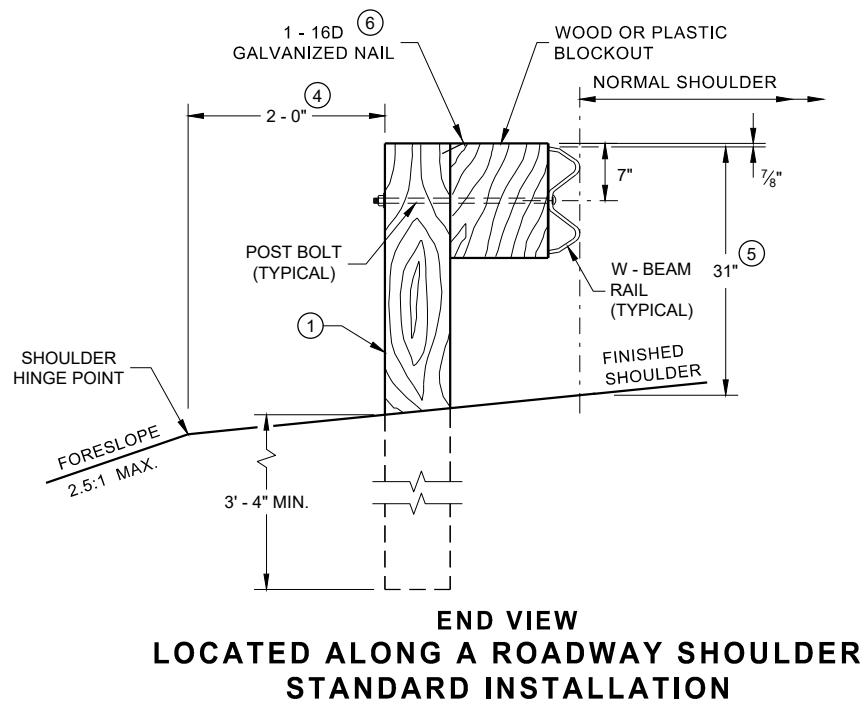
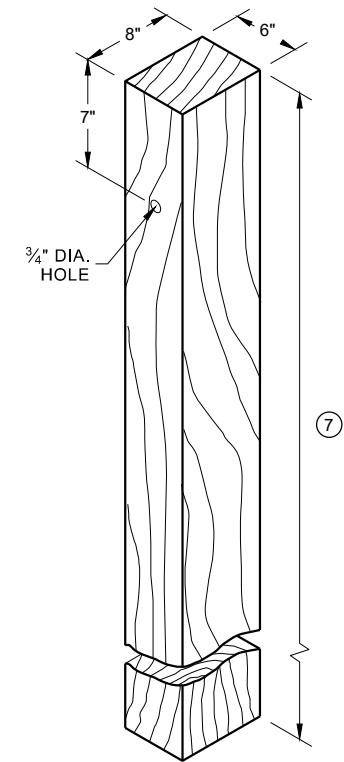
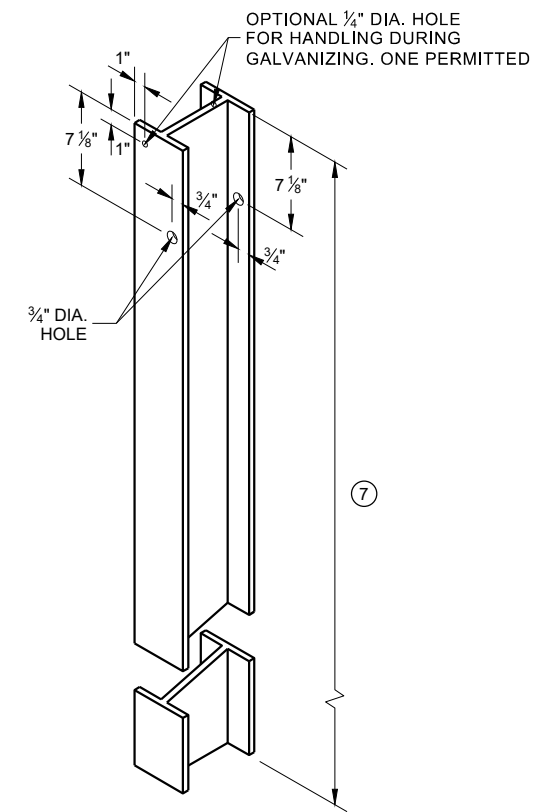
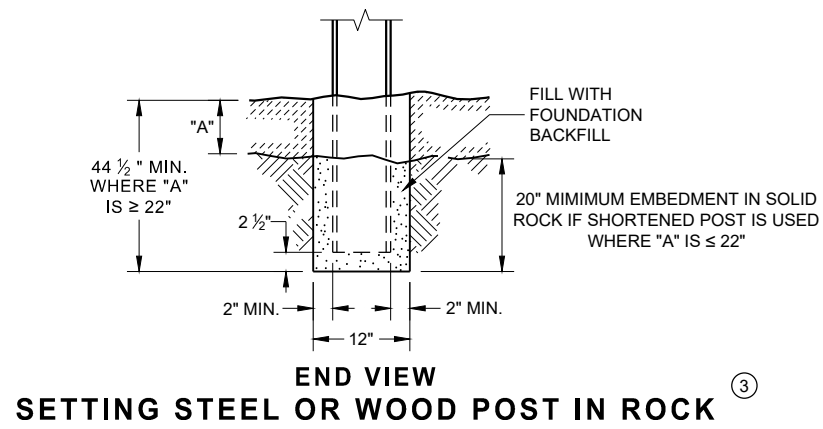
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S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

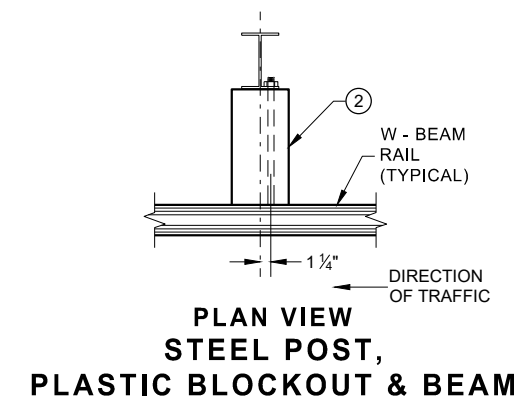
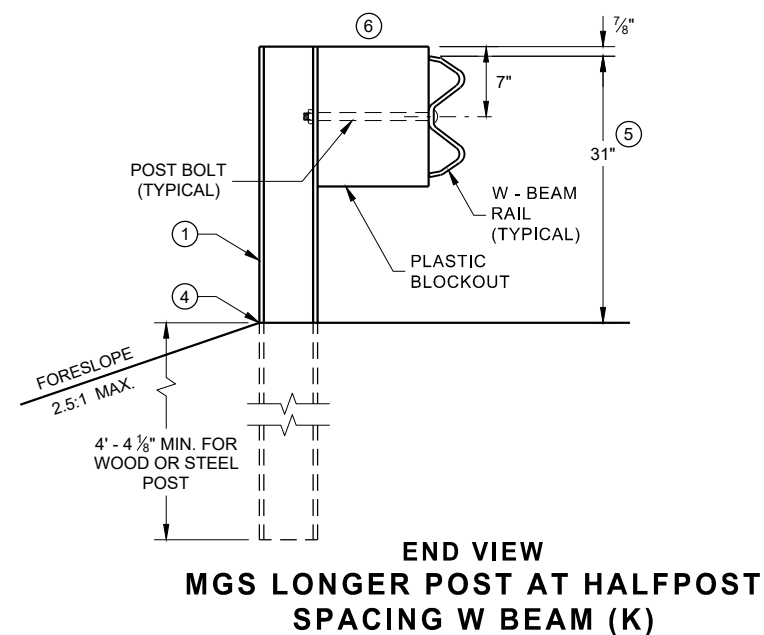
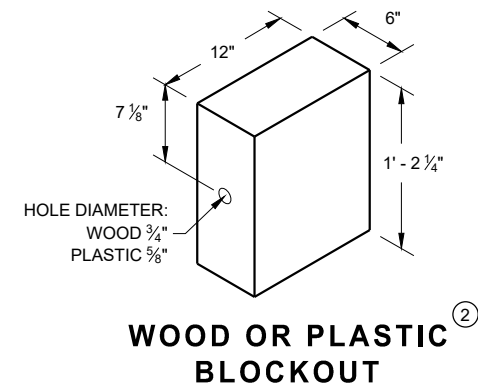
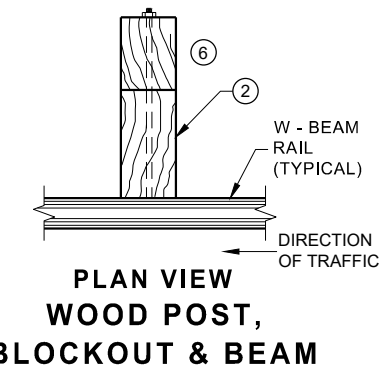
|  |  |
|--|--|
| SAFETY EDGE <sub>SM</sub>                          |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>DATE<br>11/30/2012                     | /s/ Jerry H. Zogg<br>ROADWAY STANDARDS DEVELOPMENT<br>ENGINEER |
| FHWA   |  |

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



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

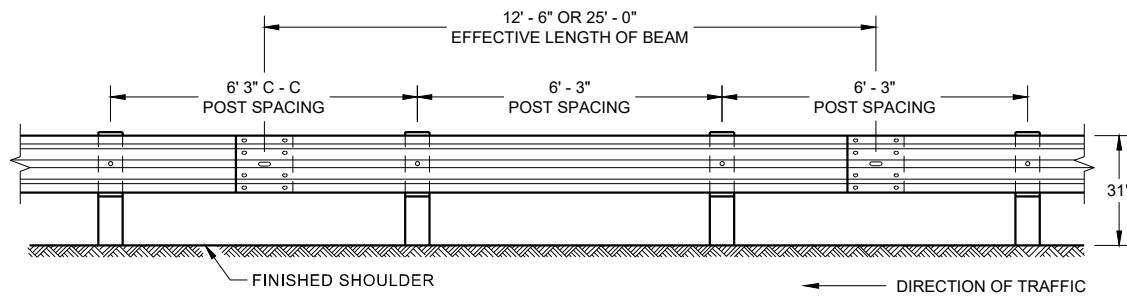
**WOOD POST (6" X 8") NOMINAL**



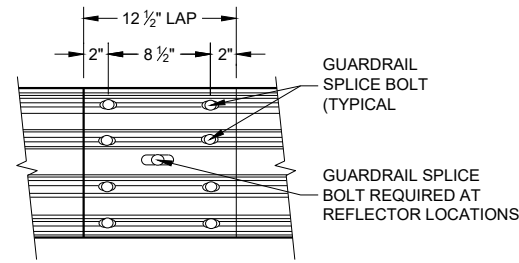
**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





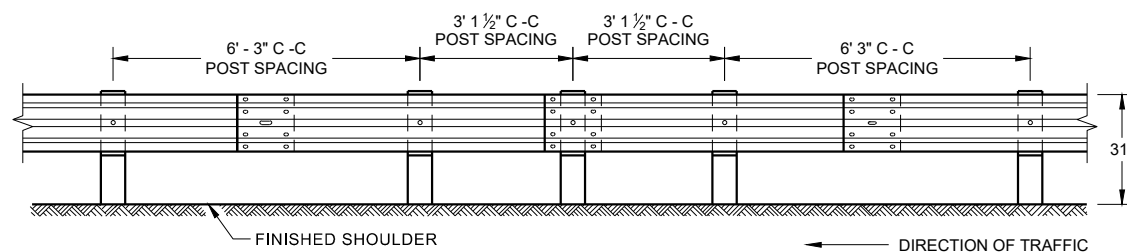
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



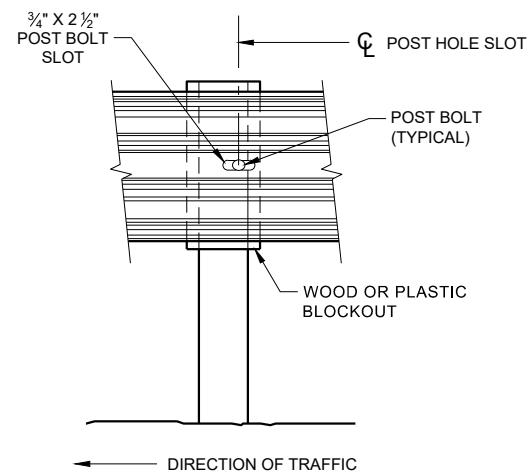
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

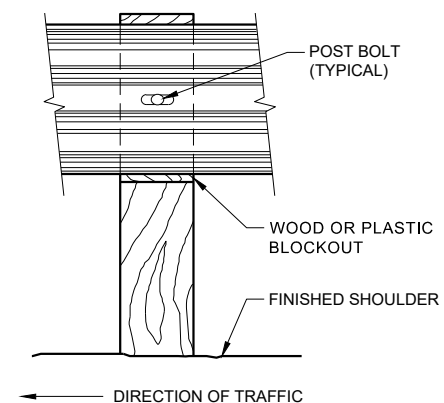
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER 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.



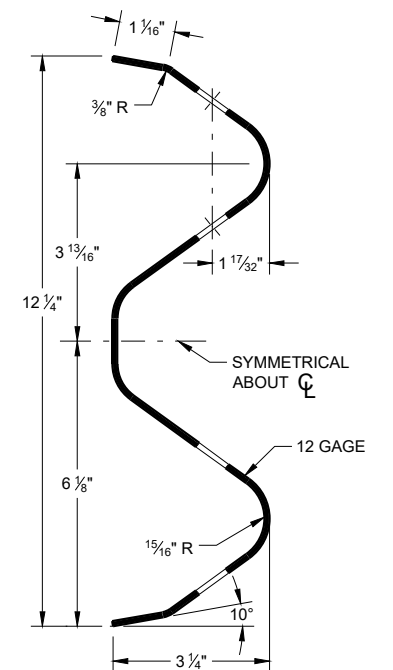
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



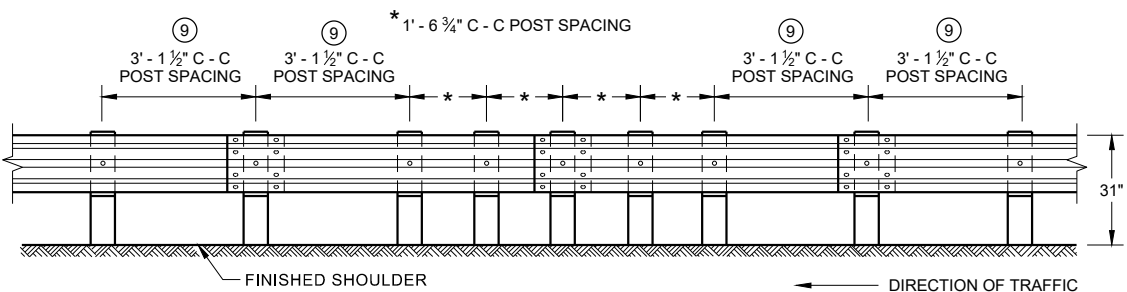
**FRONT VIEW AT STEEL POST**



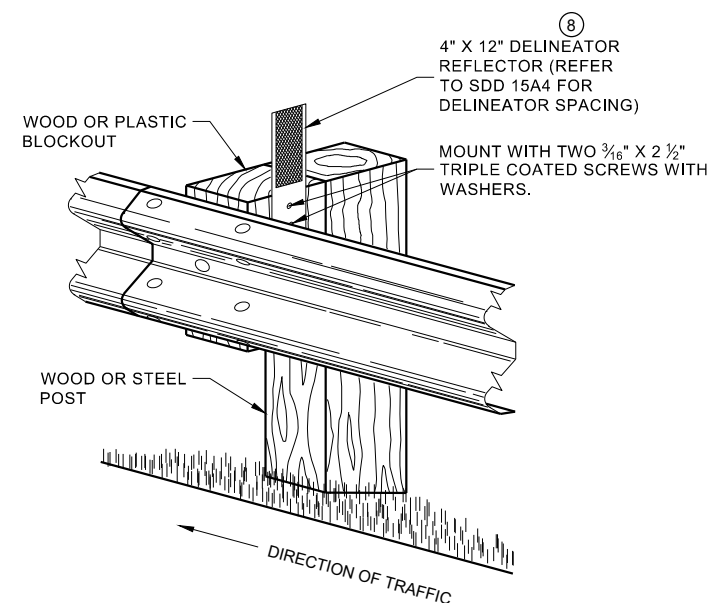
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

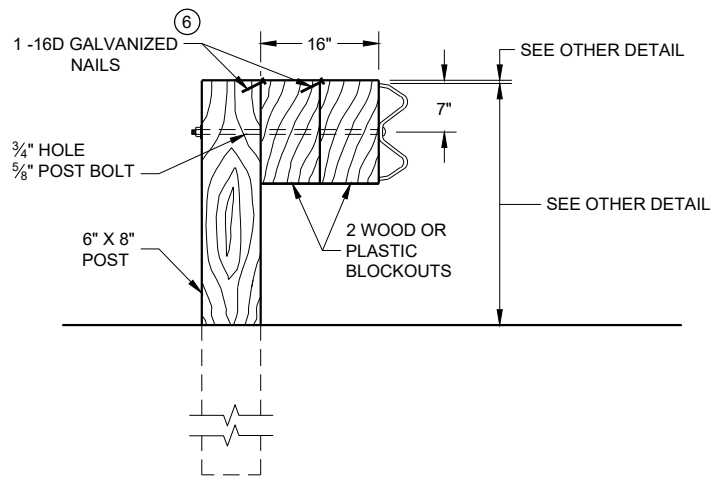
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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SDD 14B42 - 07b

SDD 14B42 - 07b

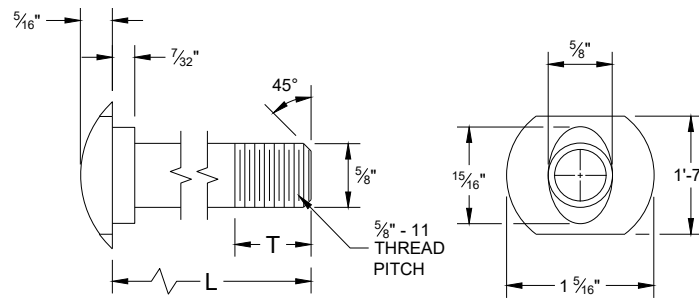


**DETAIL FOR 16" BLOCKOUT DEPTH**

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.

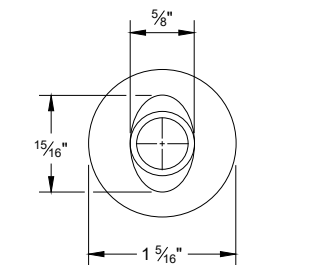
**NOTE:**

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.

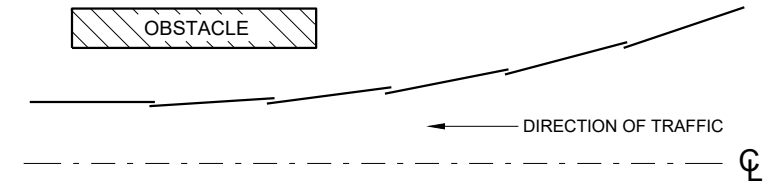


**POST BOLT TABLE**

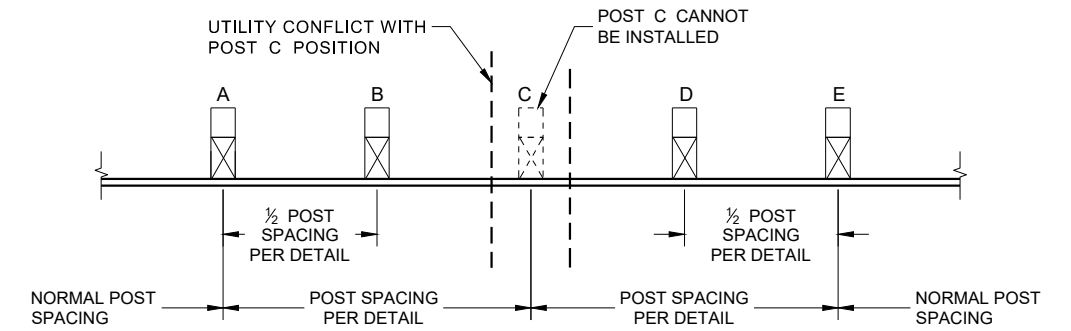
| L      | T (MIN.) |
|--------|----------|
| 1 1/4" | 1 1/8"   |
| 2"     | 1 3/4"   |
| 10"    | 4"       |
| 14"    | 4 1/16"  |
| 18"    | 4"       |
| 21"    | 4 1/16"  |
| 25"    | 4"       |



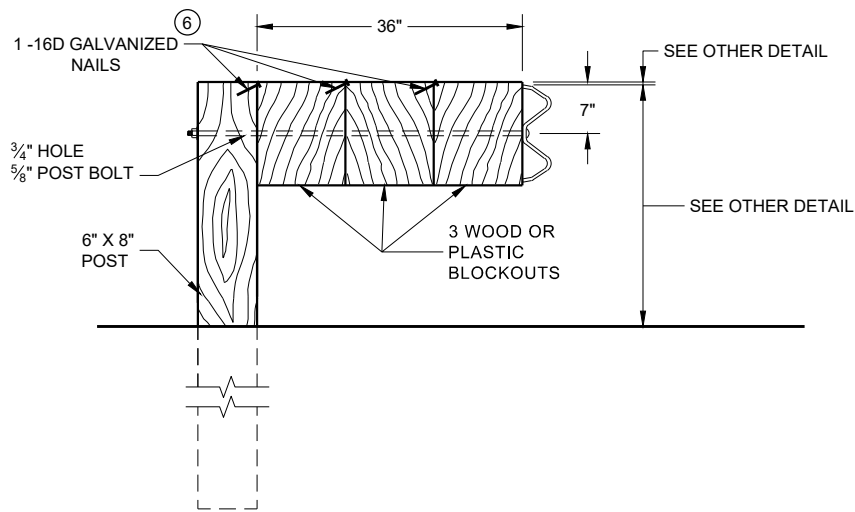
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

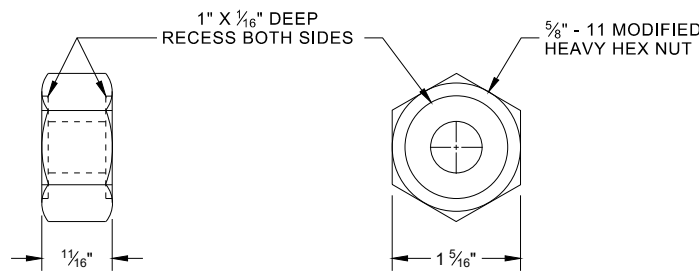


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

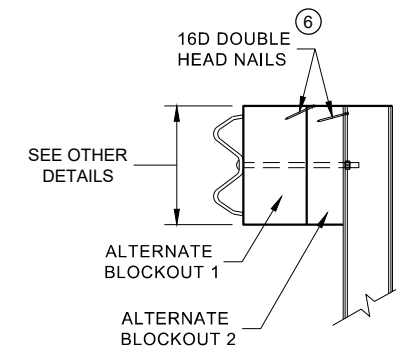


**DETAIL FOR 36" BLOCKOUT DEPTH**

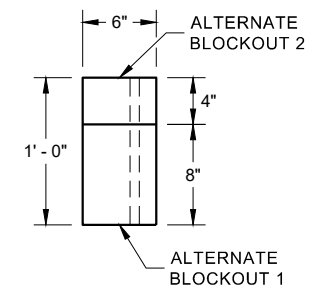
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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



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



**SIDE VIEW**



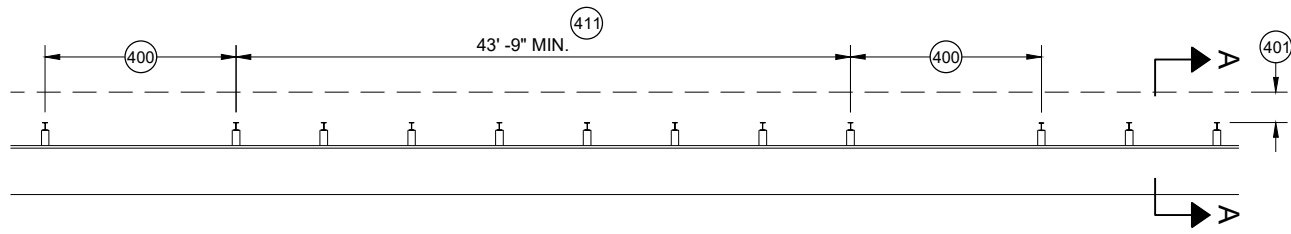
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

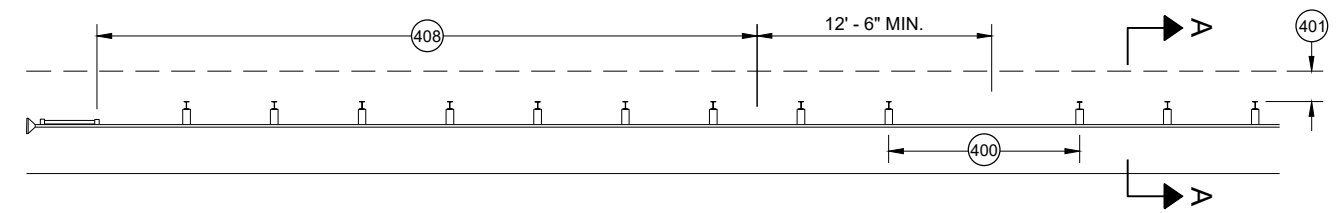
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

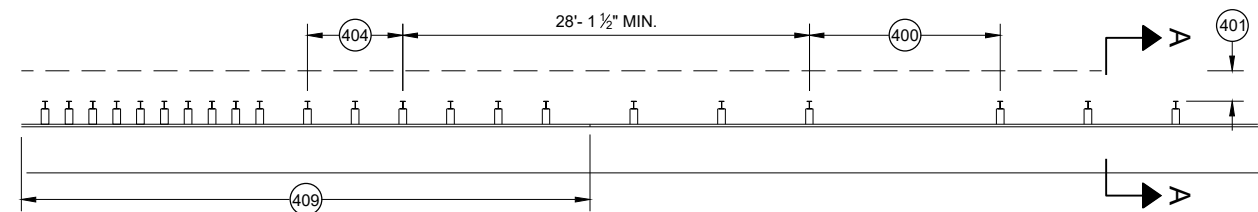
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



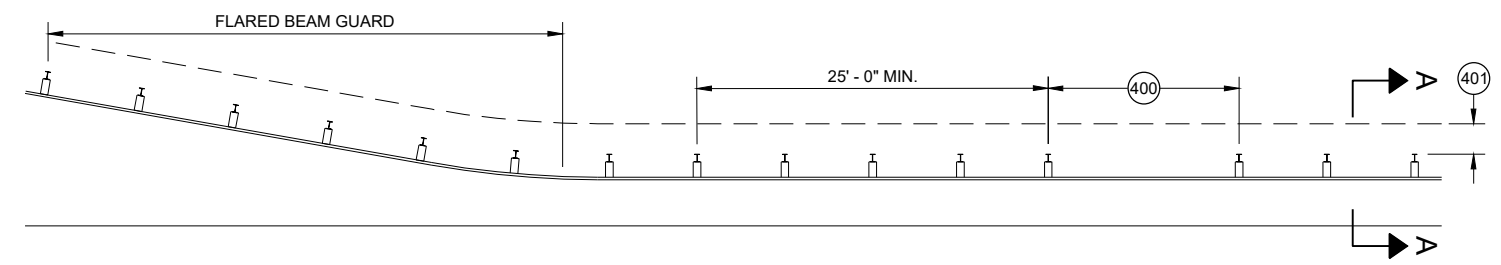
**MISSING POST IN MGS GUARDRAIL**



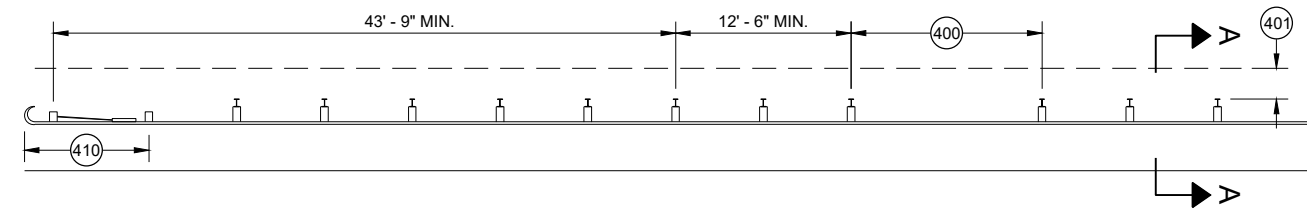
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



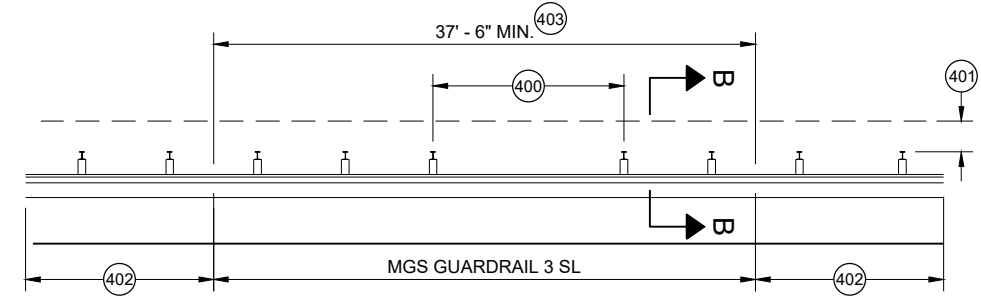
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

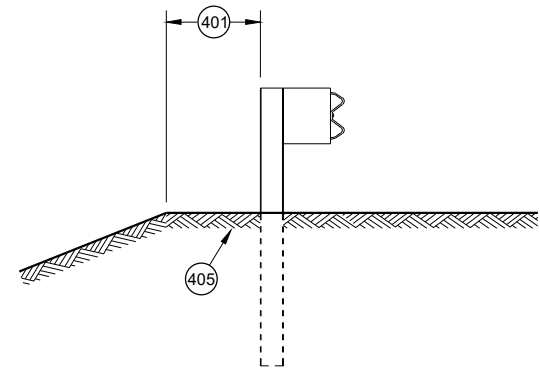


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

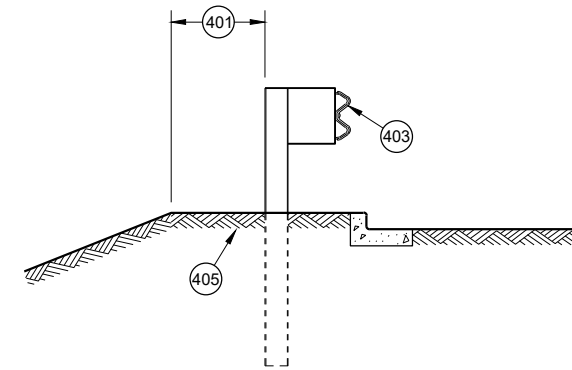


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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

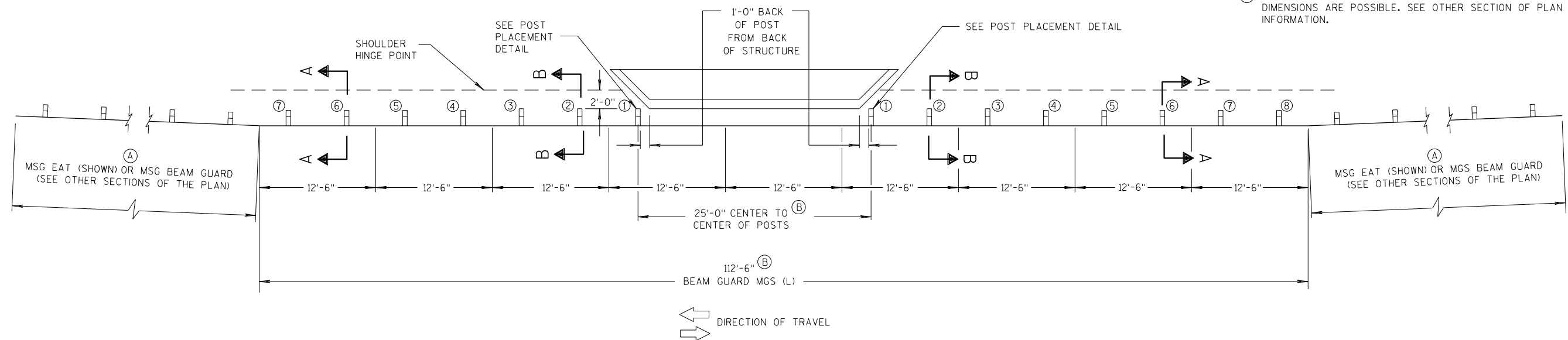
**GENERAL NOTES**

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

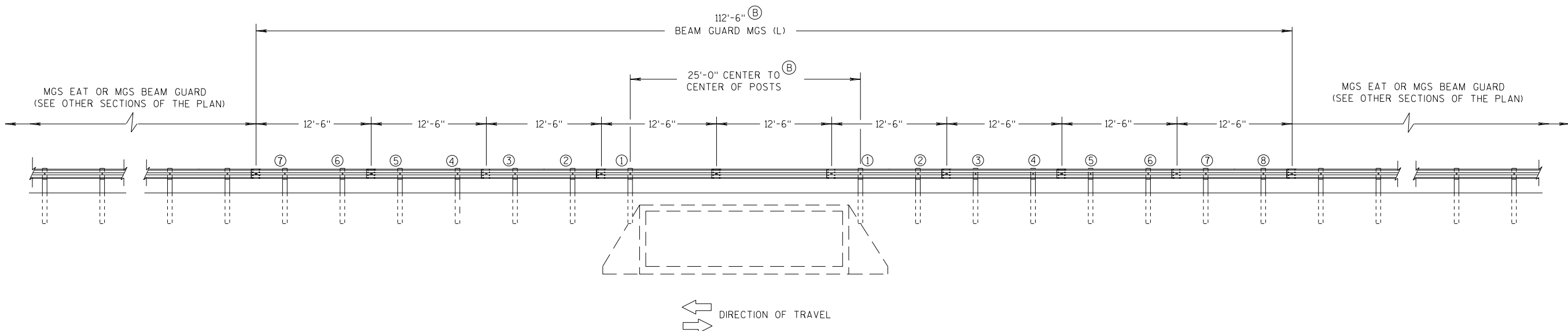
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



**PLAN VIEW**



**ELEVATION VIEW**

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

**MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)**

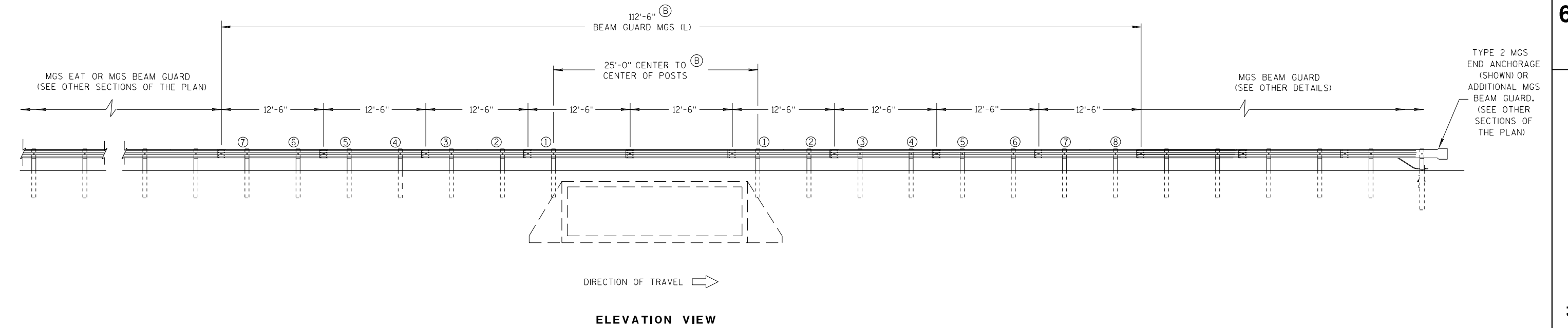
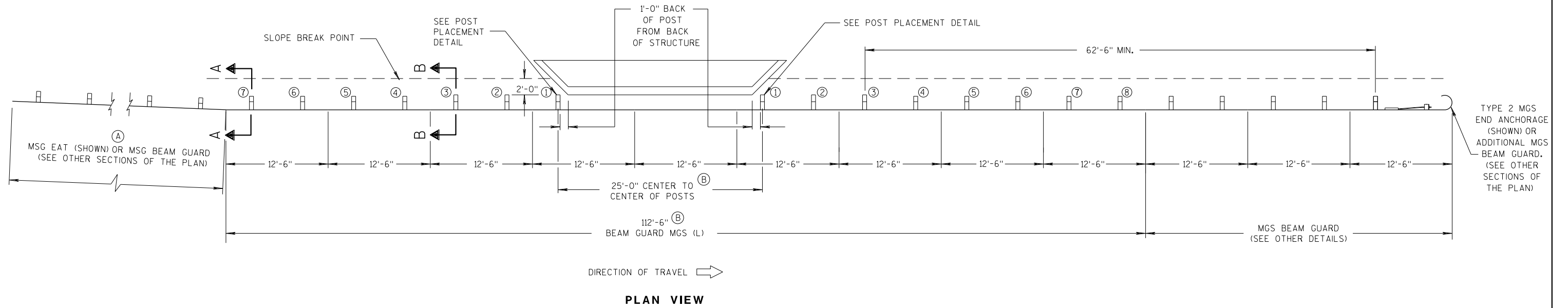
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

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

SEE SDD 14 B 42 FOR MORE DETAILS.

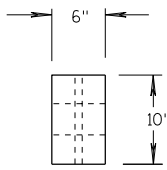
- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



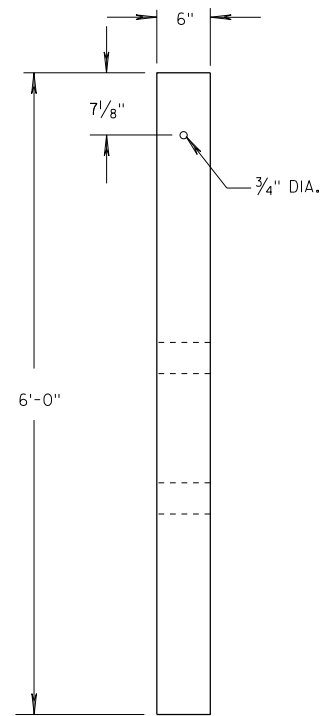
**MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC**

**MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)**

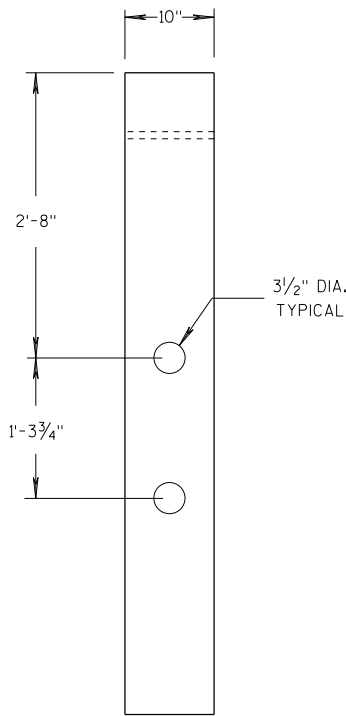
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

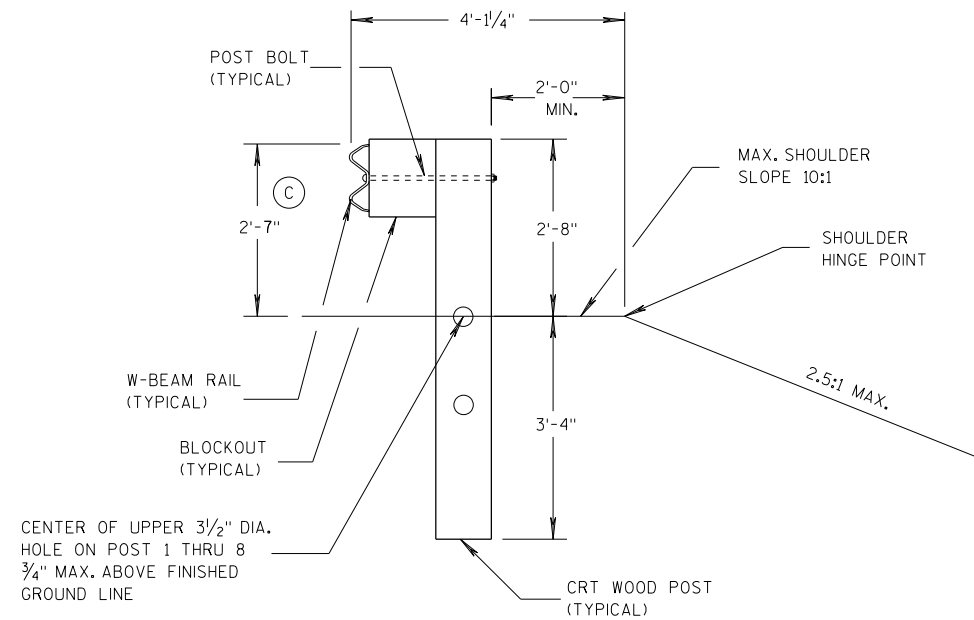


FRONT VIEW

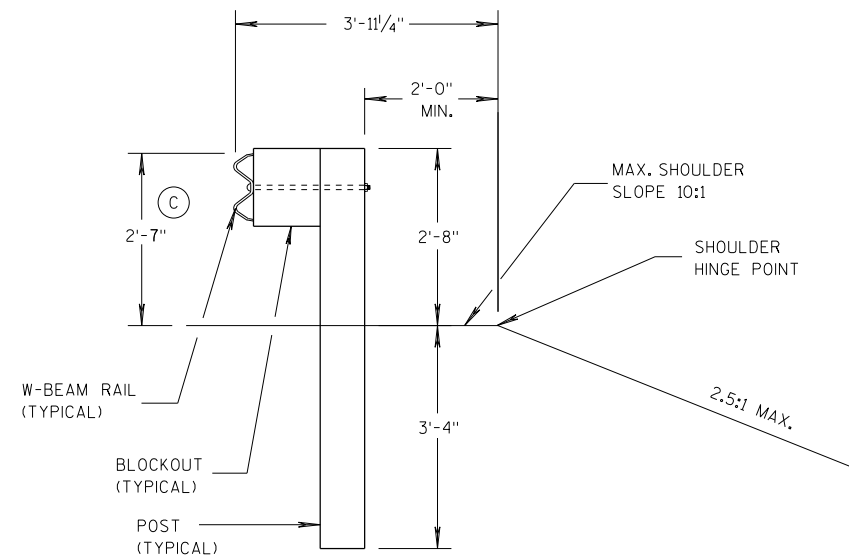


SIDE VIEW

CRT WOOD POST



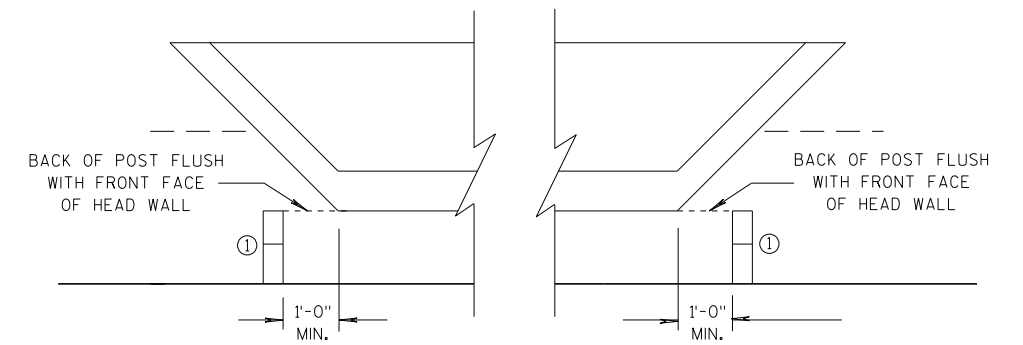
SECTION B-B  
POSTS NO. 1-3  
SEE OTHER DETAILS



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

GENERAL NOTES

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

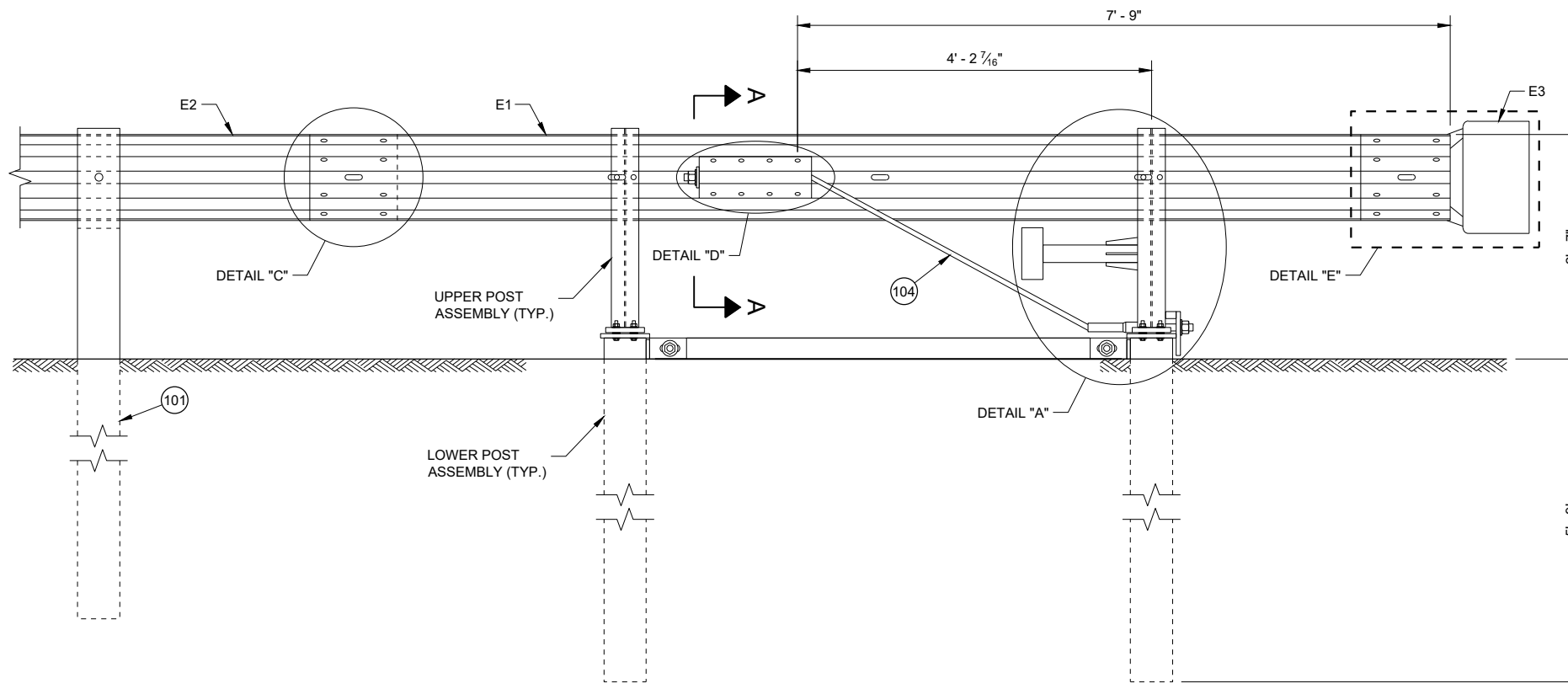


POST PLACEMENT DETAIL

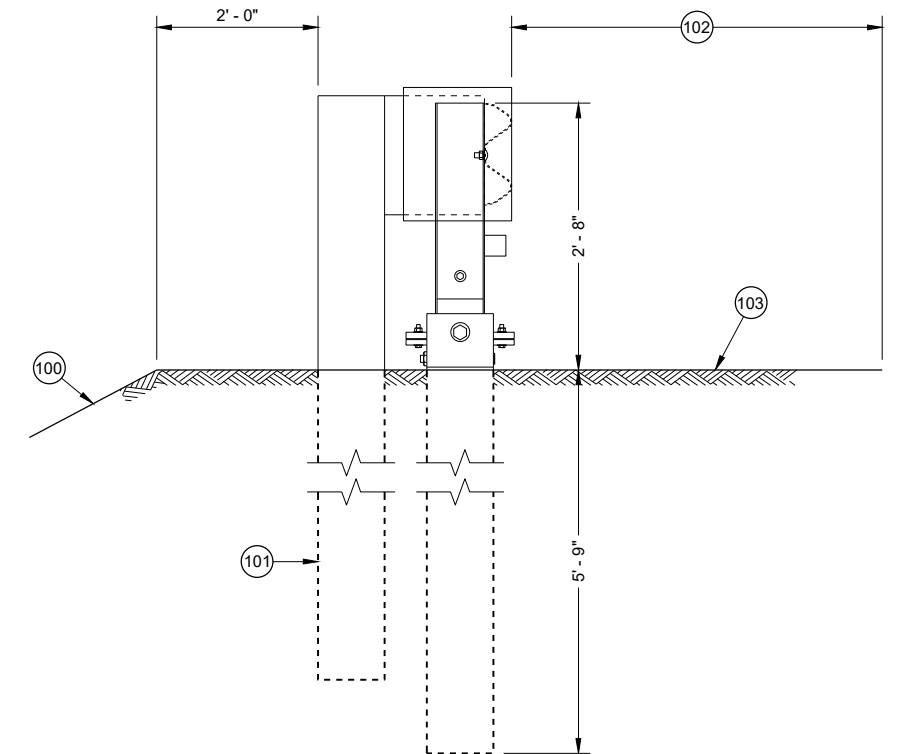
MIDWEST GUARDRAIL SYSTEM  
LONG SPAN MGS (L)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

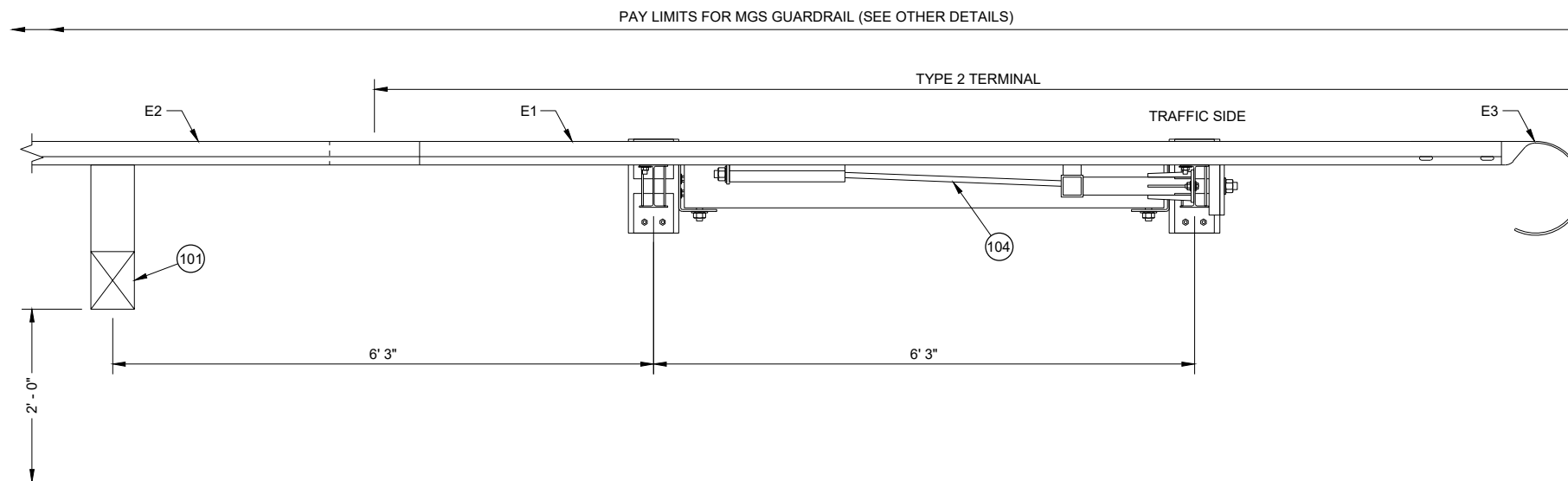
|          |  |
|----------|--|
| APPROVED | /S/ Rodney Taylor                      |
| 07/2018  | DATE                                   |
|          | ROADWAY STANDARDS DEVELOPMENT ENGINEER |
| FHWA     |  |



**BACK VIEW  
TYPE 2 TERMINAL**



**SIDE VIEW  
TYPE 2 TERMINAL**

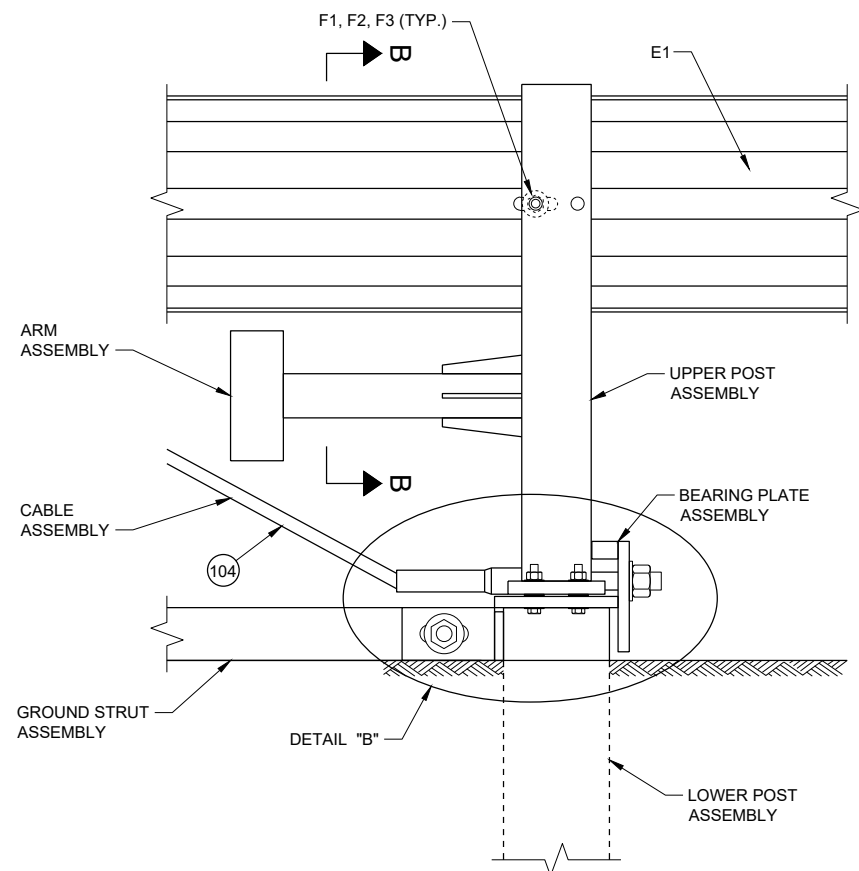


**TOP VIEW  
TYPE 2 TERMINAL**

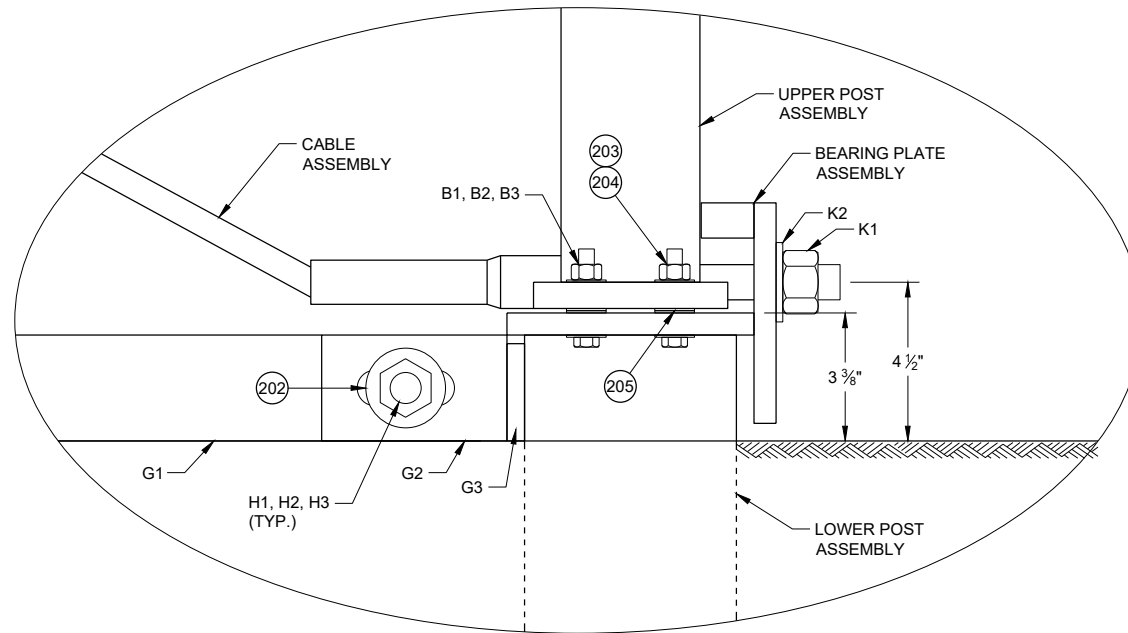
- GENERAL NOTES**
- (100) MAXIMUM SLOPE IS 2.5:1.
  - (101) SEE SDD 14B42 FOR MORE INFORMATION.
  - (102) SHOULDER
  - (103) MAXIMUM SLOPE IS 10:1.
  - (104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

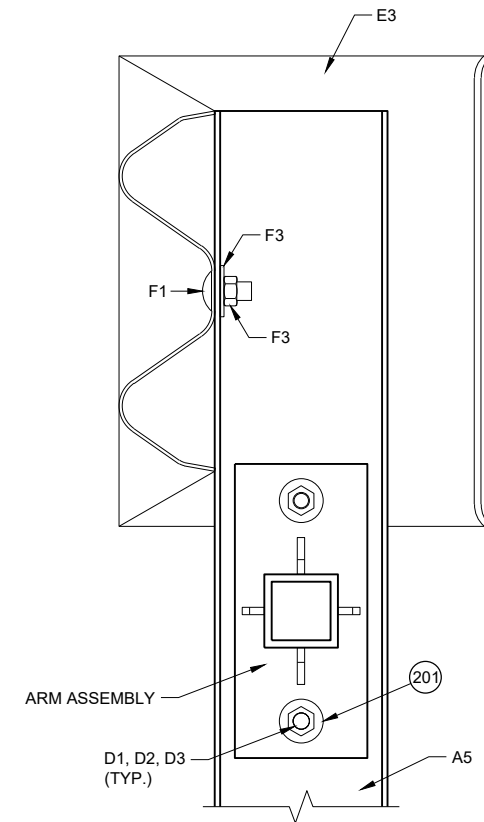
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



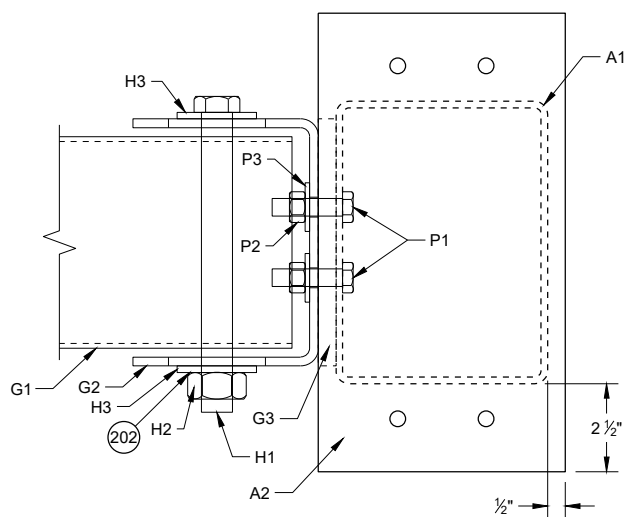
**DETAIL "A"**



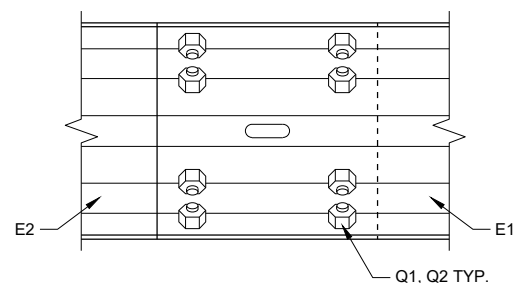
**DETAIL "B"**



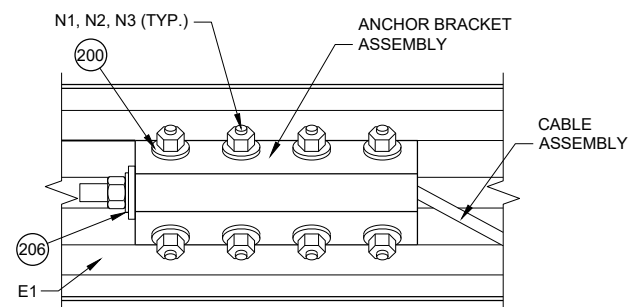
**SECTION B - B**



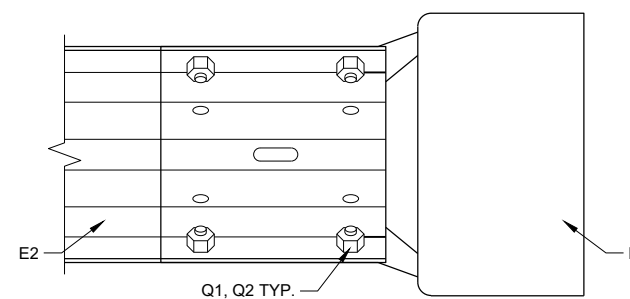
**TOP VIEW  
GROUND STRUT  
CONNECTION DETAIL**



**DETAIL "C"**



**DETAIL "D"**



**DETAIL "E"**

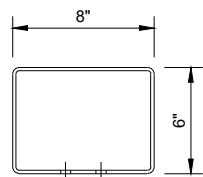
**GENERAL NOTES**

- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- 203 INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- 204 TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- 205 TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- 206 INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

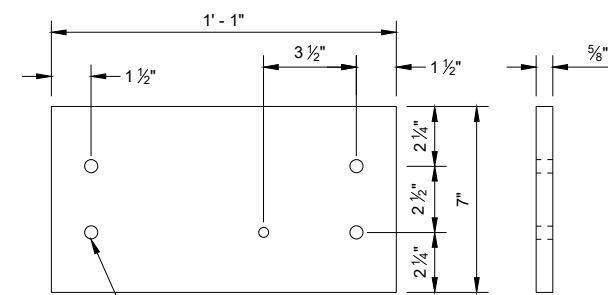
**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

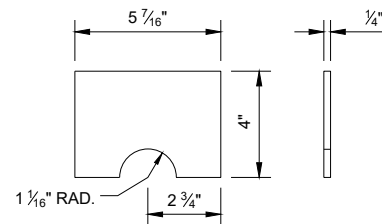




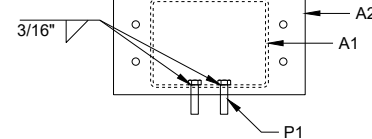
**TOP VIEW**



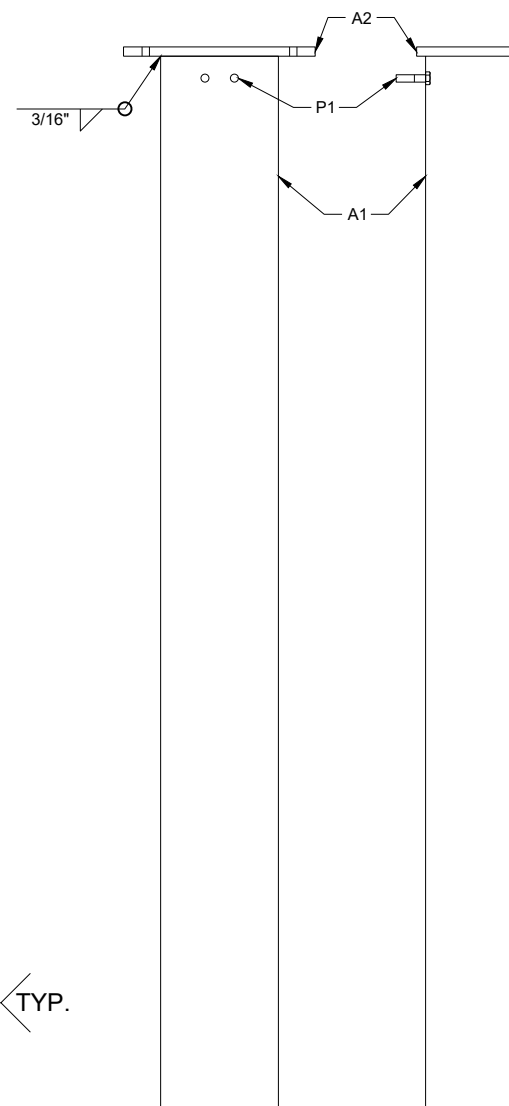
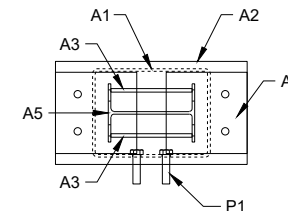
**LOWER PLATE (A2)**



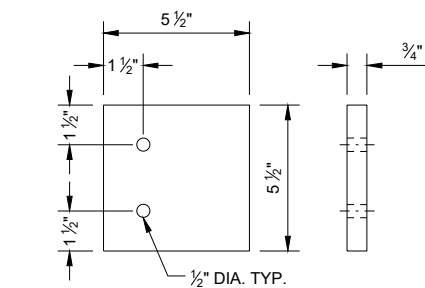
**POST GUSSET (A3)**



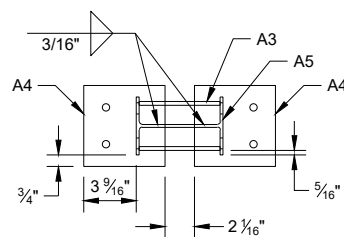
**PLAN VIEW**



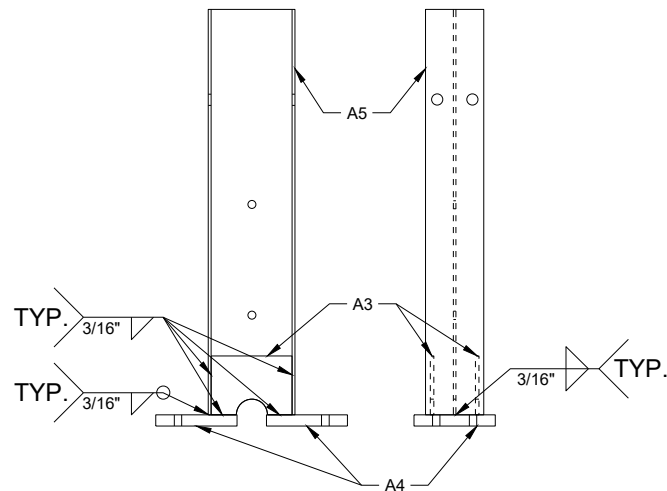
**FRONT VIEW SIDE VIEW**  
**LOWER POST ASSEMBLY**



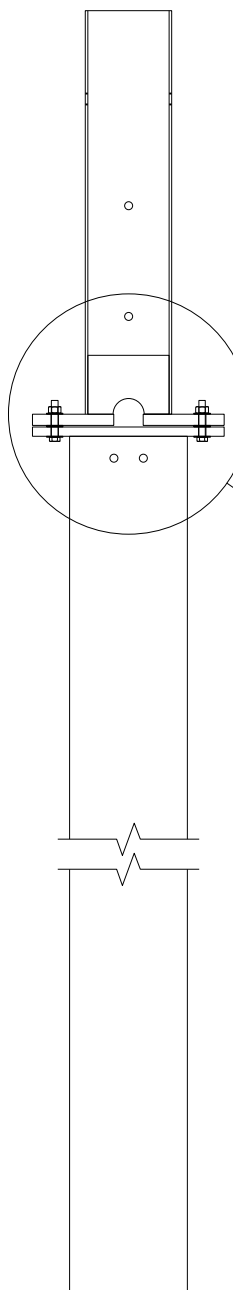
**UPPER PLATE (A4)**



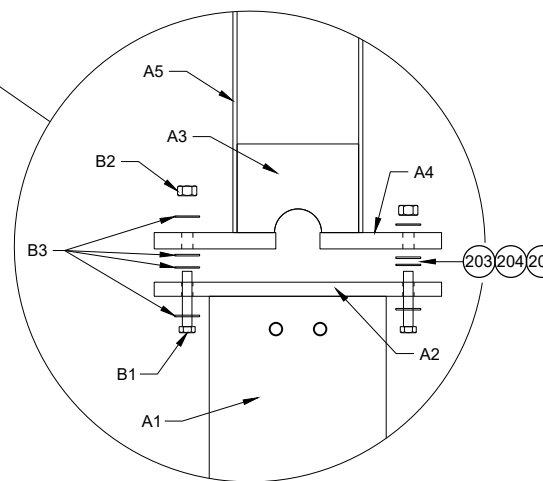
**PLAN VIEW**



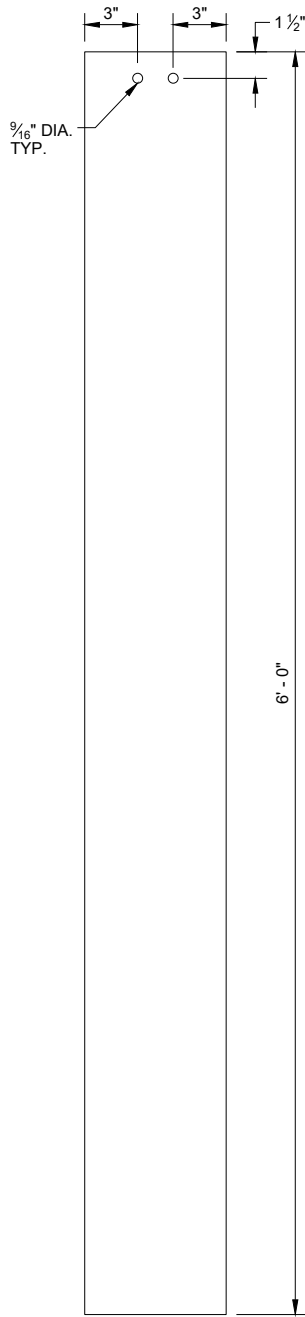
**FRONT VIEW SIDE VIEW**  
**UPPER POST ASSEMBLY**



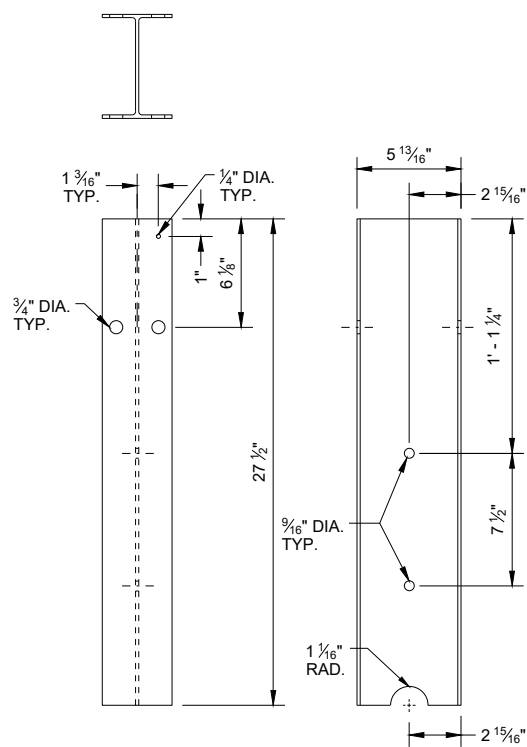
**ASSEMBLED POST**



**POST CONNECTION DETAIL**



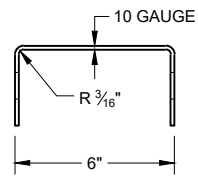
**SIDE VIEW**  
**FOUNDATION TUBE (A1)**



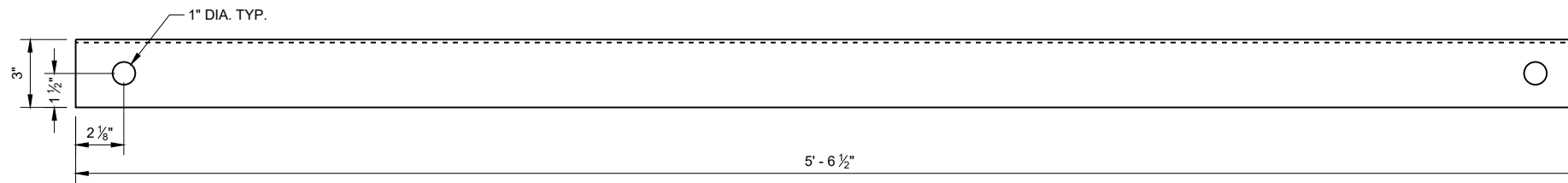
**FRONT VIEW SIDE VIEW**  
**TYPE 2 POST (A5)**

**MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

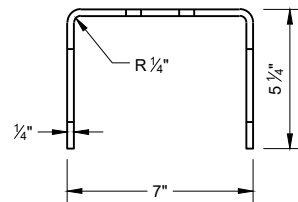


**SIDE VIEW**

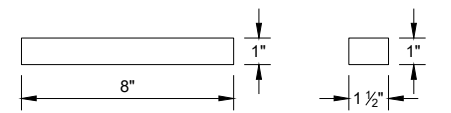


**FRONT VIEW**

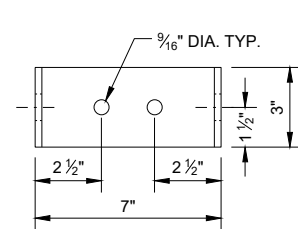
**GROUND STRUT CHANNEL (G1)**



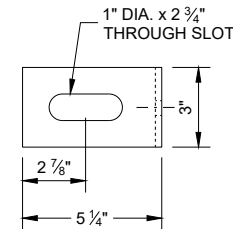
**TOP VIEW**



**BEARING PLATE FLANGE (L2)**

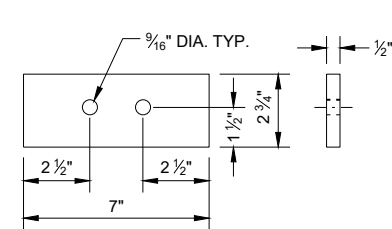


**FRONT VIEW**

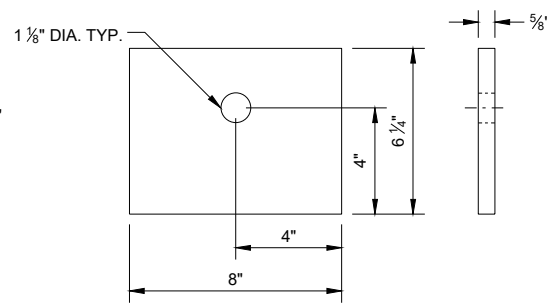


**SIDE VIEW**

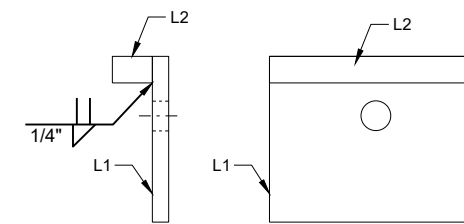
**GROUND STRUT CONNECTOR (G2)**



**GROUND STRUT PLATE (G3)**



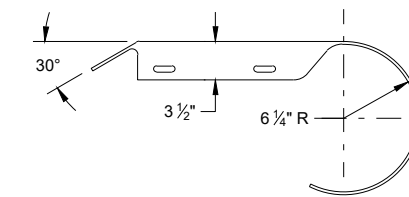
**BEARING PLATE (L1)**



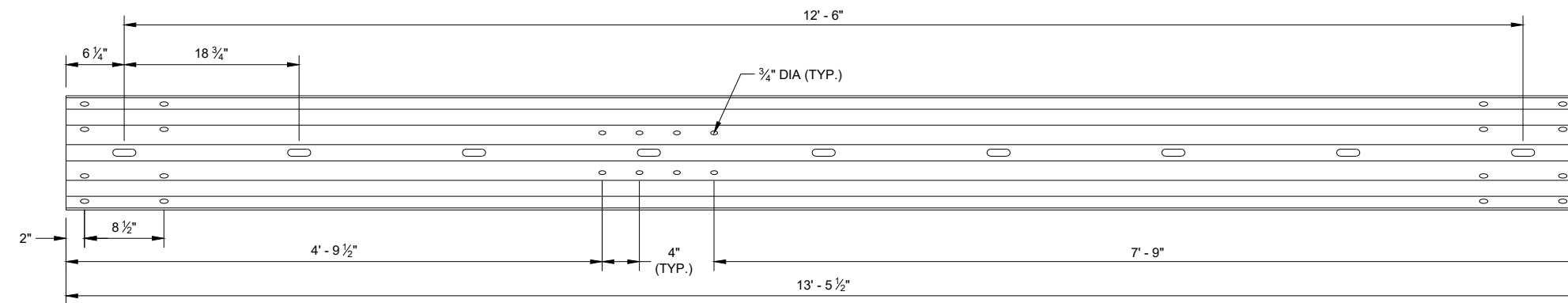
**SIDE VIEW**

**FRONT VIEW**

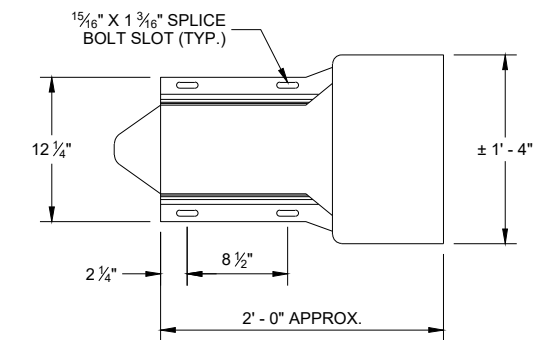
**BEARING PLATE ASSEMBLY**



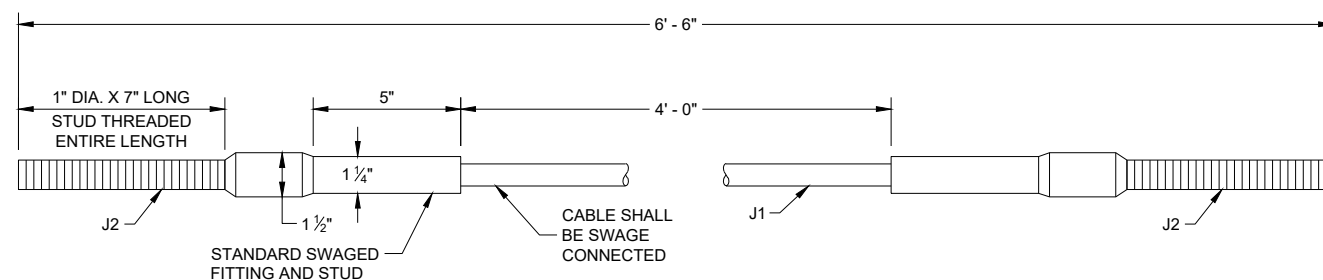
**PLAN VIEW**



**TYPE 2 GUARDRAIL (E1)**



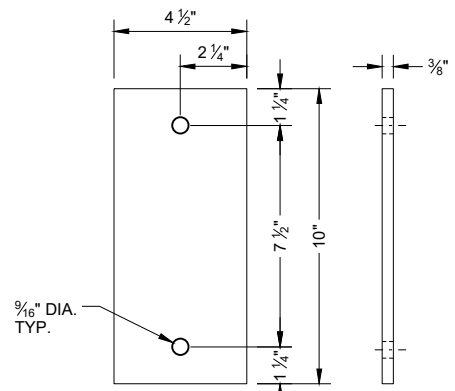
**ELEVATION VIEW  
ROUNDED BUFFER END (E3)**



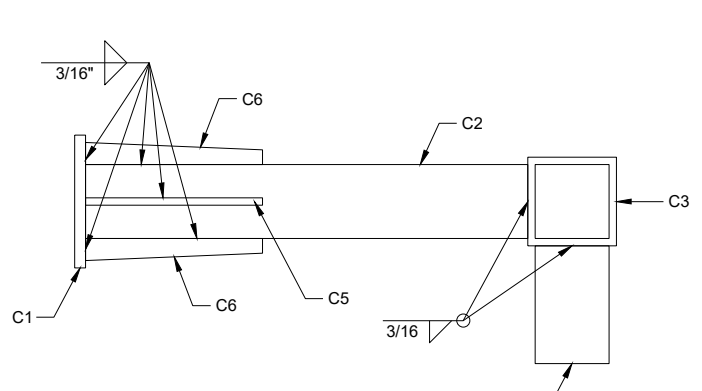
**CABLE ASSEMBLY**

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

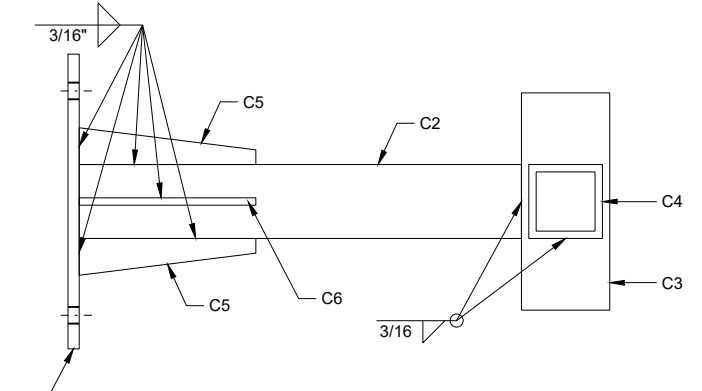
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



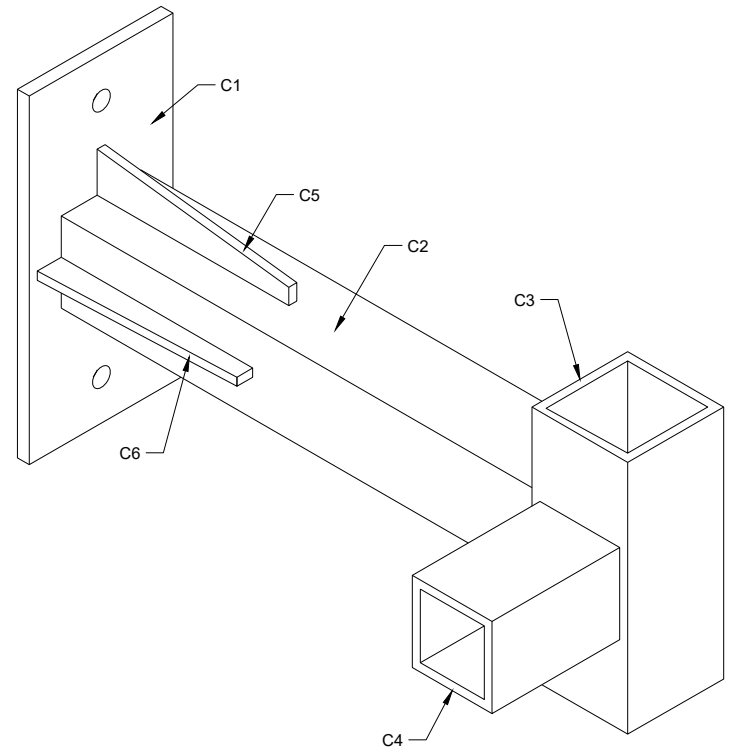
**ARM PLATE (C1)**



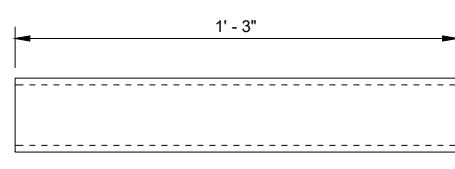
**TOP VIEW  
ARM ASSEMBLY**



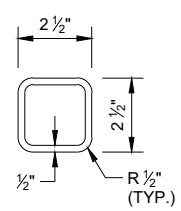
**SIDE VIEW  
ARM ASSEMBLY**



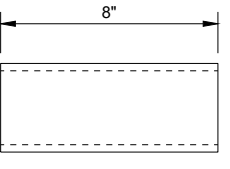
**ISOMETRIC VIEW  
ARM ASSEMBLY**



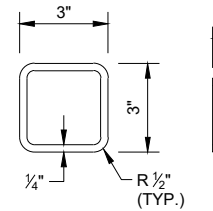
**ARM TUBE 1 (C2)**



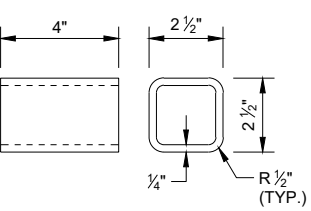
**ARM TUBE 2 (C3)**



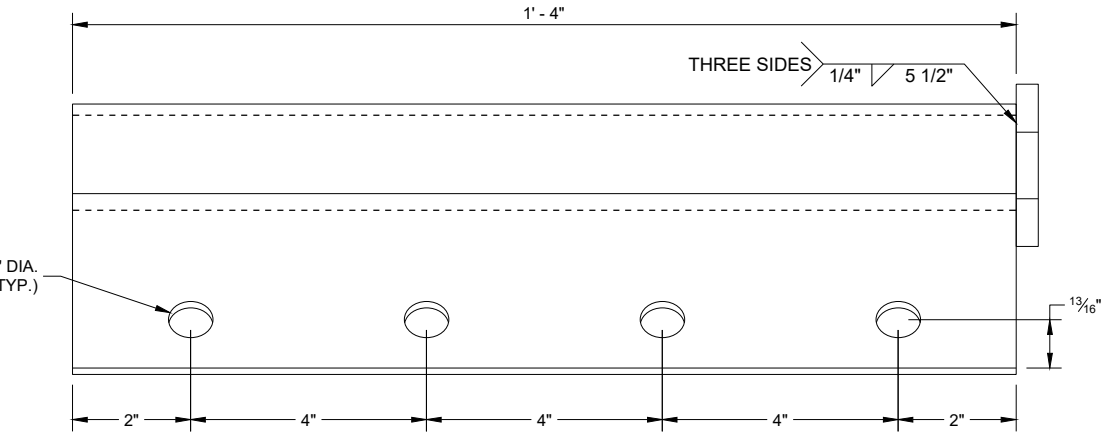
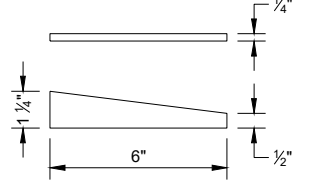
**ARM TUBE 3 (C4)**



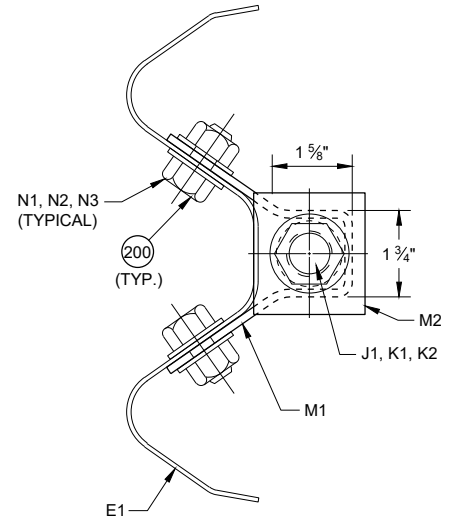
**ARM GUSSET  
PLATE 1 (C5)**



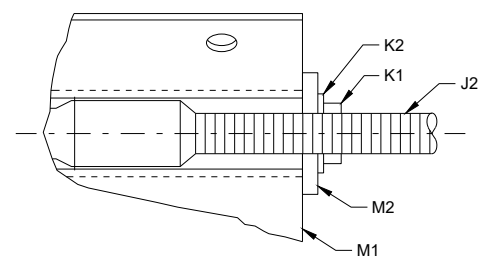
**ARM GUSSET  
PLATE 2 (C6)**



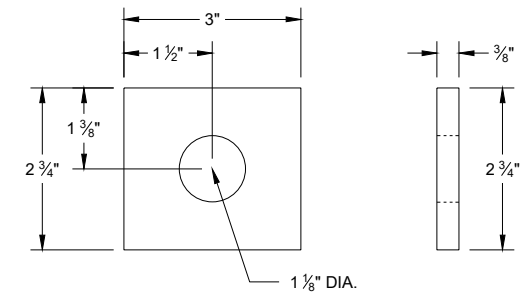
**ANCHOR BRACKET (M1, M2)**



**ANCHOR BRACKET BEARING PLATE (M2)**



**SECTION A - A**



**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

| PART | DESCRIPTION                   | MATERIALS SPECIFICATIONS  | NOTES                     |
|------|-------------------------------|---|---------------------------|
| A1   | TYPE 2 FOUNDATION TUBE        | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 8" x 6" x 3/16"        |
| A2   | LOWER PLATE                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS            |
| A3   | POST GUSSET                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| A4   | UPPER PLATE                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 3/4" THICKNESS            |
| A5   | TYPE 2 POST                   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI, w6x9 or w6x8.5  |                           |
| B1   | BREAKAWAY BOLT                | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT. | 7/16" DIA.                |
| B2   | BREAKAWAY BOLT WASHER         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 7/16" DIA.                |
| B3   | BREAKAWAY BOLT NUT            | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   |                           |
| C1   | ARM ASSEMBLY PLATE            | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS            |
| C2   | ARM ASSEMBLY TUBE 1           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 8" x 6" x 3/16"        |
| C3   | ARM ASSEMBLY TUBE 2           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 3" x 3" x 1/4"         |
| C4   | ARM ASSEMBLY TUBE 3           | AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501   | TS 2 1/2" x 2 1/2" X 1/4" |
| C5   | ARM ASSEMBLY GUSSET PLATE 1   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| C6   | ARM ASSEMBLY GUSSET PLATE 2   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| D1   | ARM ASSEMBLY BOLT             | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 1/2" DIA.                 |
| D2   | ARM ASSEMBLY WASHER           | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 1/2" DIA.                 |
| D3   | ARM ASSEMBLY NUT              | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1/2" DIA.                 |
| E1   | TYPE 2 GUARD RAIL             | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| E2   | BEAM GUARD RAIL               | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| E3   | BEAM GUARD ROUNDED BUFFER END | AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER   |                           |
| F1   | POST BOLT                     | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 5/8" DIA.                 |
| F2   | POST BOLT WASHER              | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 5/8" DIA.                 |
| F3   | POST BOLT NUT                 | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5  |                           |
| G1   | GROUND STRUT CHANNEL          | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/2" x 11 3/4" x 10 GAUGE |
| G2   | GROUND STRUT CONNECTOR        | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/4" THICKNESS            |
| G3   | GROUND STRUT PLATE            | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1/2" THICKNESS            |

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SDD 14B47 - 04f

SDD 14B47 - 04f

**MIDWEST GUARDRAIL  
SYSTEM (MGS)  
TYPE 2 TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)**

| PART | DESCRIPTION                 | MATERIALS SPECIFICATIONS  | NOTES          |
|------|-----------------------------|---|----------------|
| H1   | GROUND STRUT BOLT           | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 7/8" DIA.      |
| H2   | GROUND STRUT BOLT WASHER    | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 7/8" DIA.      |
| H3   | GROUND STRUT BOLT NUT       | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36   |                |
| J1   | BCT CABLE                   | AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS   | 3/4" DIA.      |
| J2   | BCT CABLE                   | UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS." |                |
| K1   | CABLE ASSEMBLY NUT          | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1" DIA.        |
| K2   | CABLE ASSEMBLY WASHER       | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1  | 1" DIA.        |
| L1   | BEARING PLATE               | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 5/8" THICKNESS |
| L2   | BEARING PLATE FLANGE        | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 1" THICKNESS   |
| M1   | BEAM GUARD ANCHOR BRACKET   | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  |                |
| M2   | BEAM GUARD ANCHOR END PLATE | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI  | 3/8" THICKNESS |
| N1   | ANCHOR BRACKET BOLT         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  | 5/8" DIA.      |
| N2   | ANCHOR BRACKET BOLT WASHER  | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)   | 5/8" DIA.      |
| N3   | ANCHOR BRACKET BOLT NUT     | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   |                |
| P1   | FOUNDATION TUBE BOLT        | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5   | 1/2" DIA.      |
| P2   | FOUNDATION TUBE WASHER      | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDENED WASHER ONLY)   | 1/2" DIA.      |
| P3   | FOUNDATION TUBE NUT         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                              |                |
| Q1   | SPLICE BOLT                 | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36  |                |
| Q2   | SPLICE NUT                  | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                              | 5/8" DIA.      |

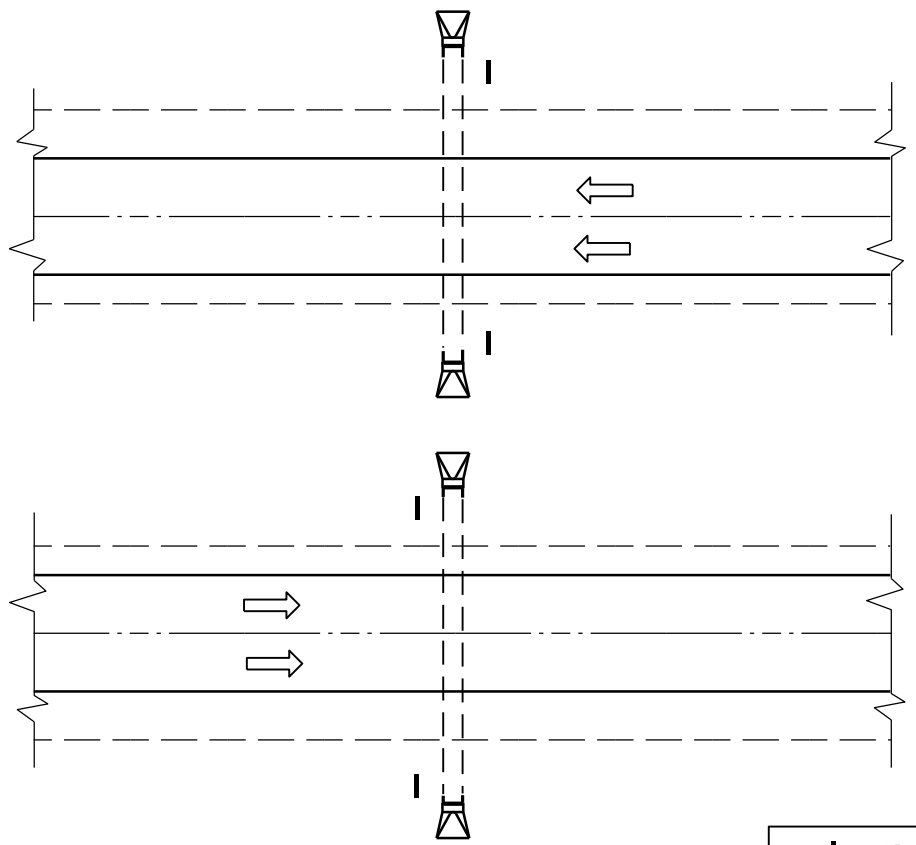
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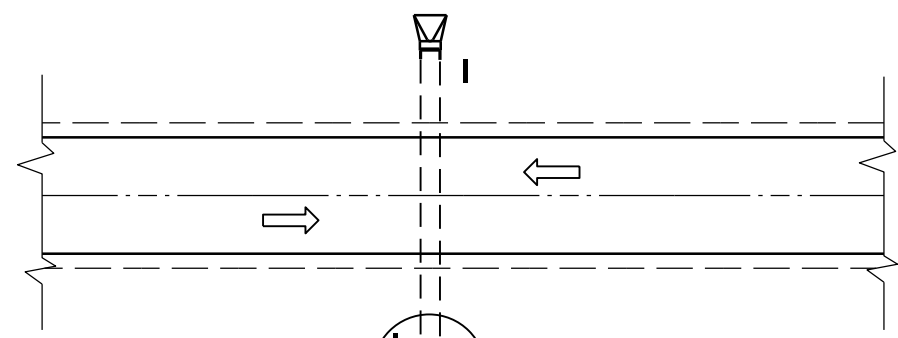
SDD 14B47 - 04g

SDD 14B47 - 04g

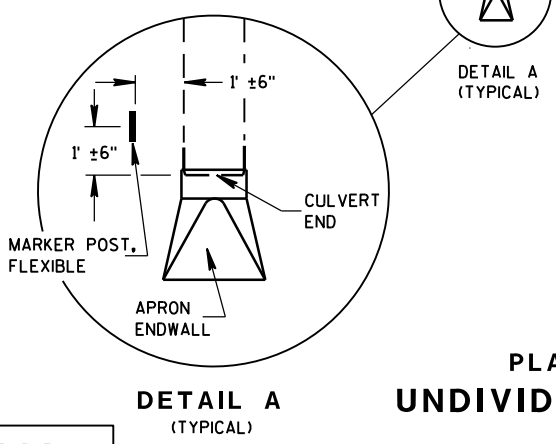
|   |
|---|
| <p><b>MIDWEST GUARDRAIL<br/>SYSTEM (MGS)<br/>TYPE 2 TERMINAL</b></p>                                    |
| <p>STATE OF WISCONSIN<br/>DEPARTMENT OF TRANSPORTATION</p>  |
| <p>APPROVED<br/>February 2023 /S/ Rodney Taylor<br/>DATE ROADWAY STANDARDS DEVELOPMENT<br/>ENGINEER</p> |
| <p>FHWA</p>   |



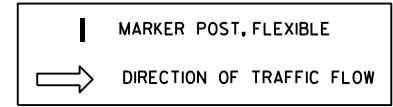
PLAN VIEW  
DIVIDED HIGHWAY



PLAN VIEW  
UNDIVIDED HIGHWAY

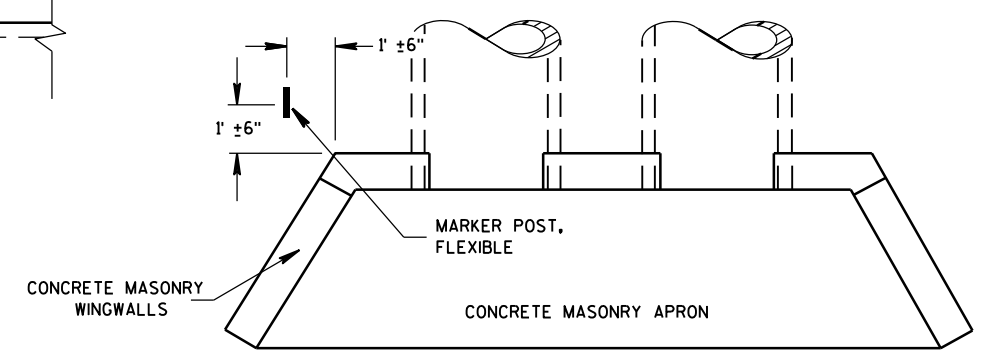


DETAIL A  
(TYPICAL)



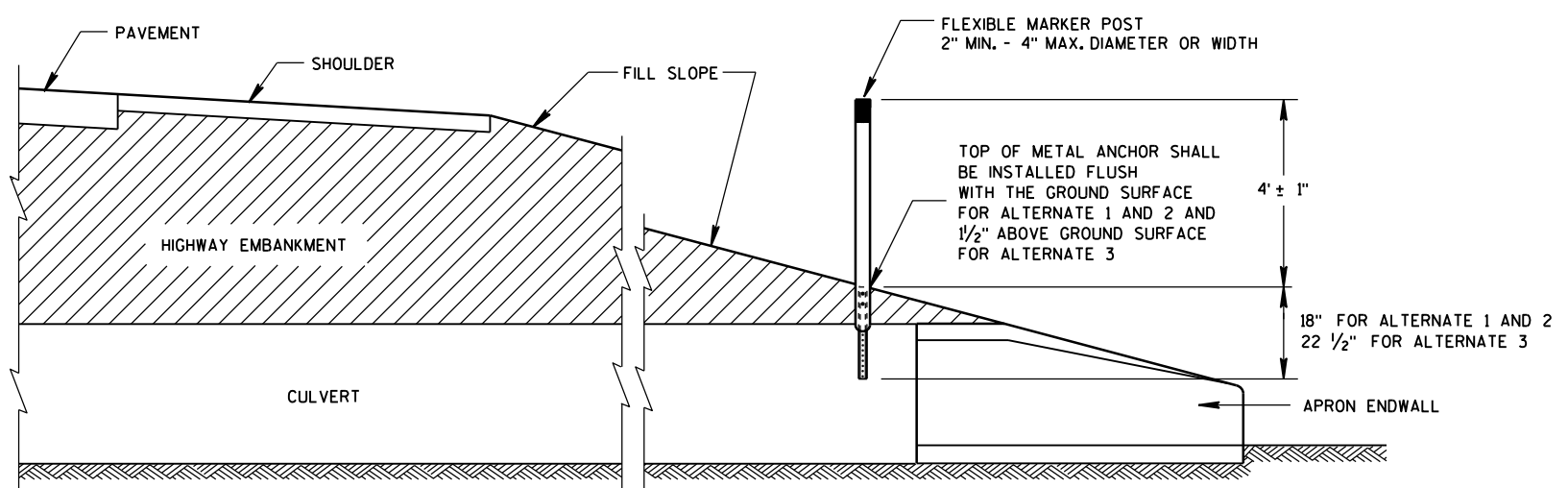
**GENERAL NOTES**

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**

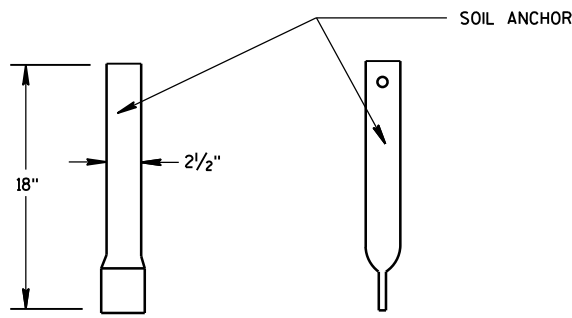
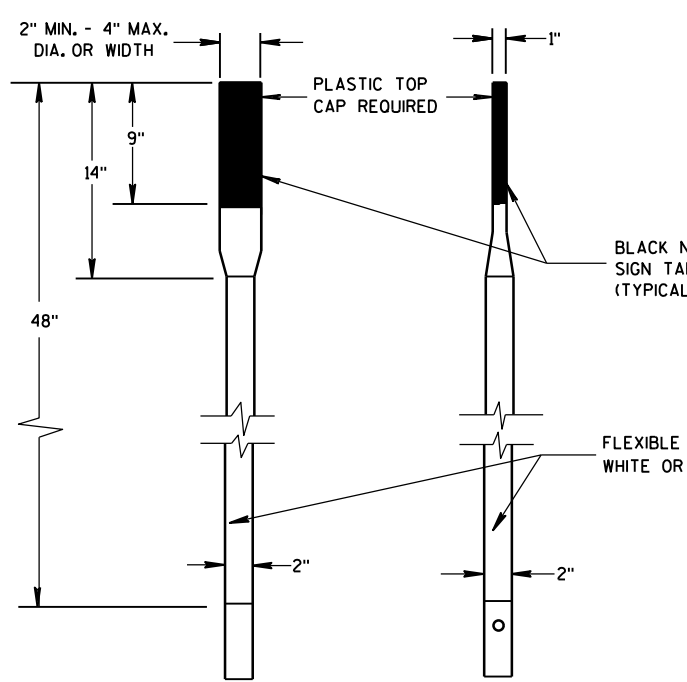
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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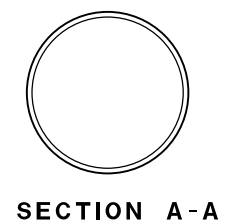
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S.D.D. 15 A 3-2a

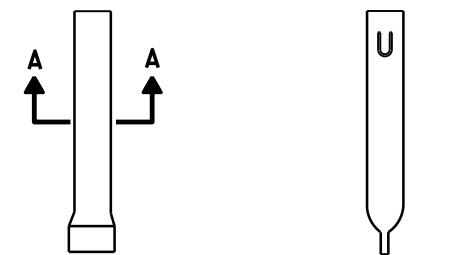
S.D.D. 15 A 3-2a



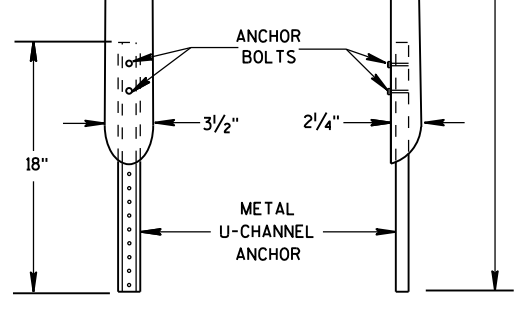
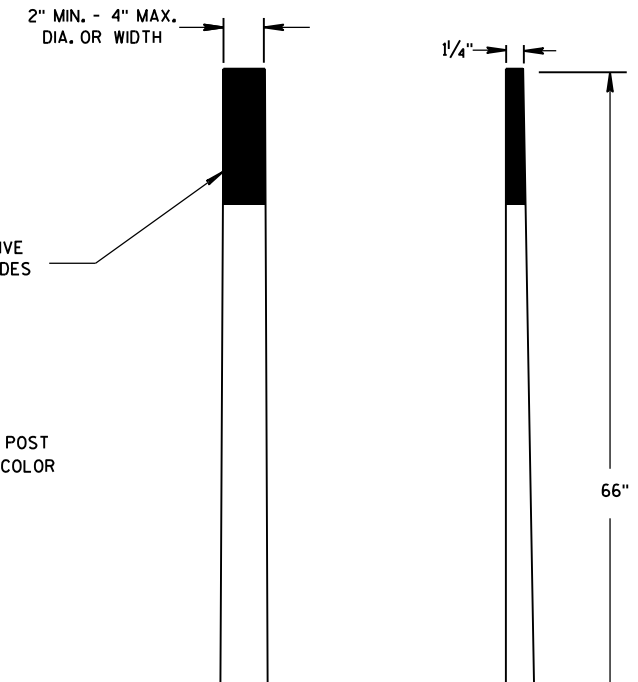
FRONT VIEW SIDE VIEW  
ALTERNATE 1



SECTION A-A

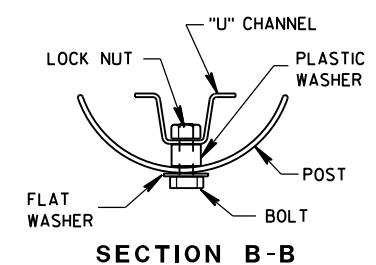


FRONT VIEW SIDE VIEW  
ALTERNATE 1

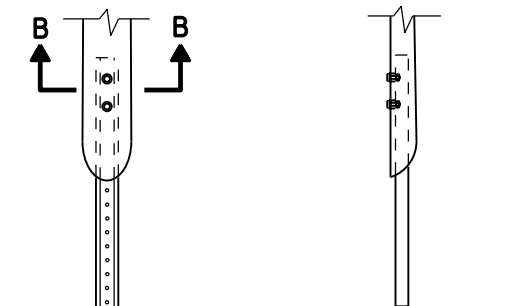


FRONT VIEW SIDE VIEW  
ALTERNATE 2

**FLEXIBLE MARKER POSTS**

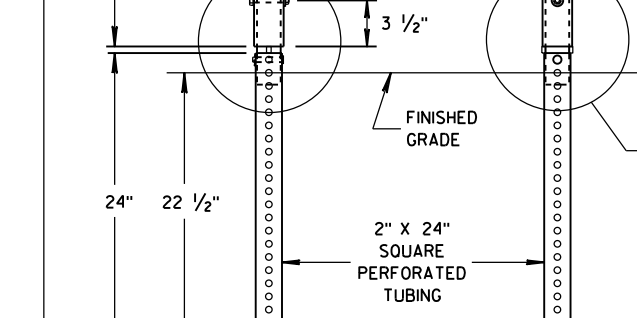
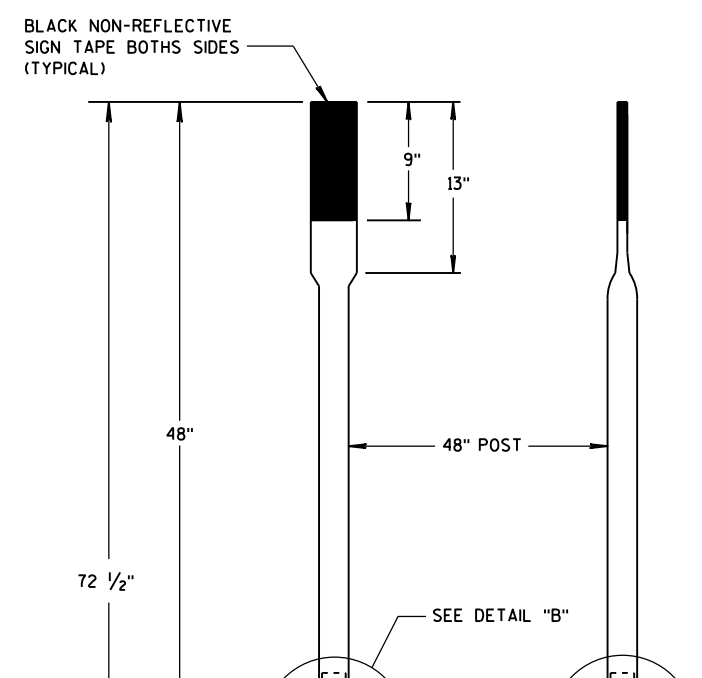


SECTION B-B

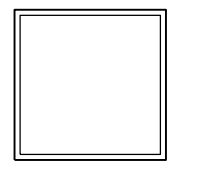


FRONT VIEW SIDE VIEW  
ALTERNATE 2

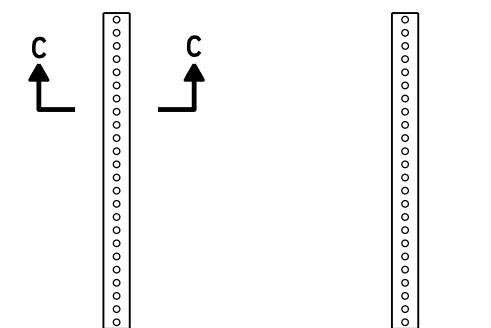
**FLEXIBLE MARKER POST ANCHORS**



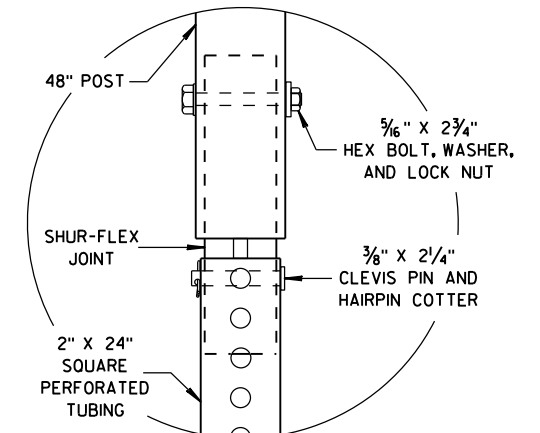
FRONT VIEW SIDE VIEW  
ALTERNATE 3



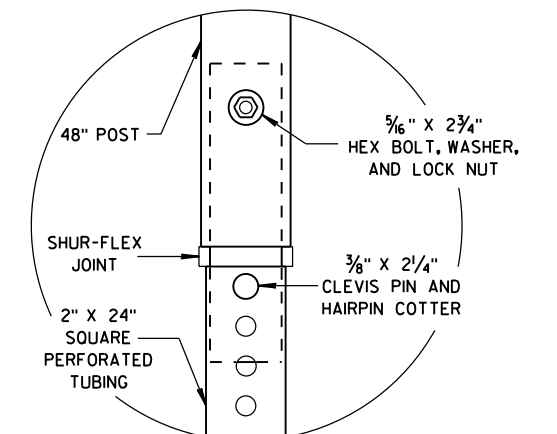
SECTION C-C



FRONT VIEW SIDE VIEW  
ALTERNATE 3



DETAIL B

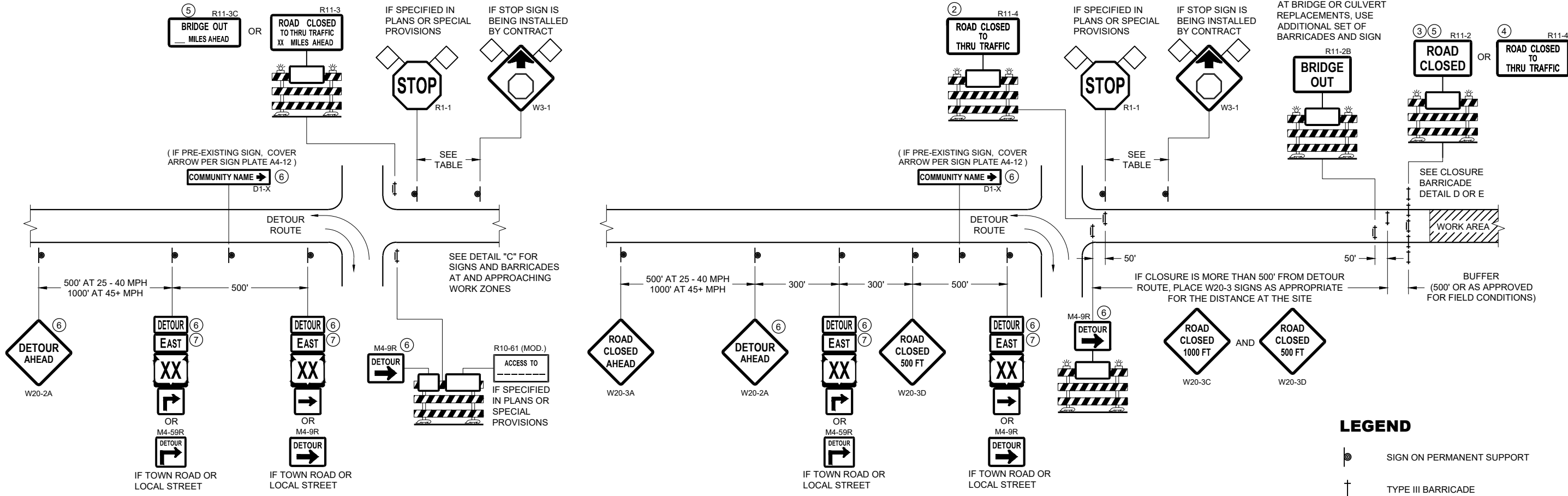


DETAIL C

**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**

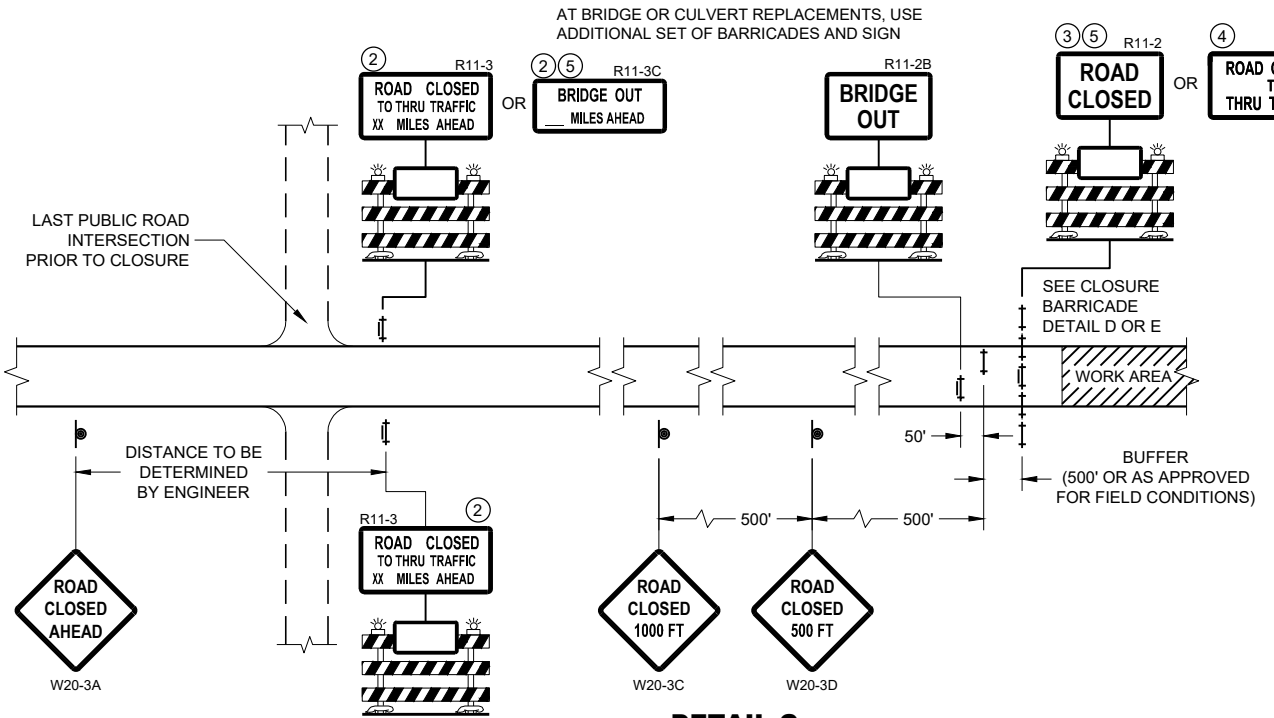
WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**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**

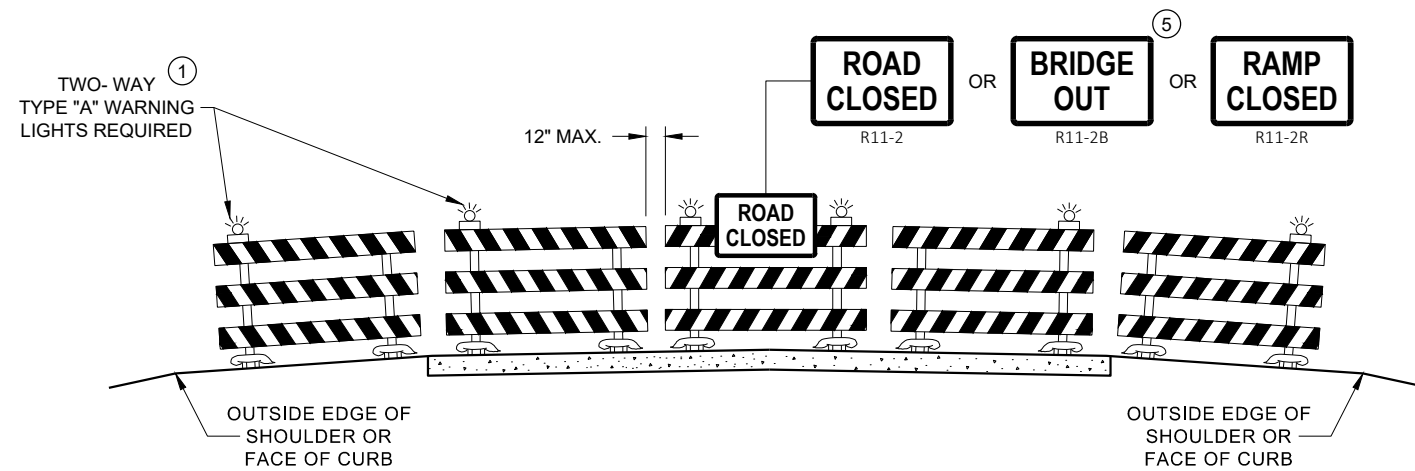
SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

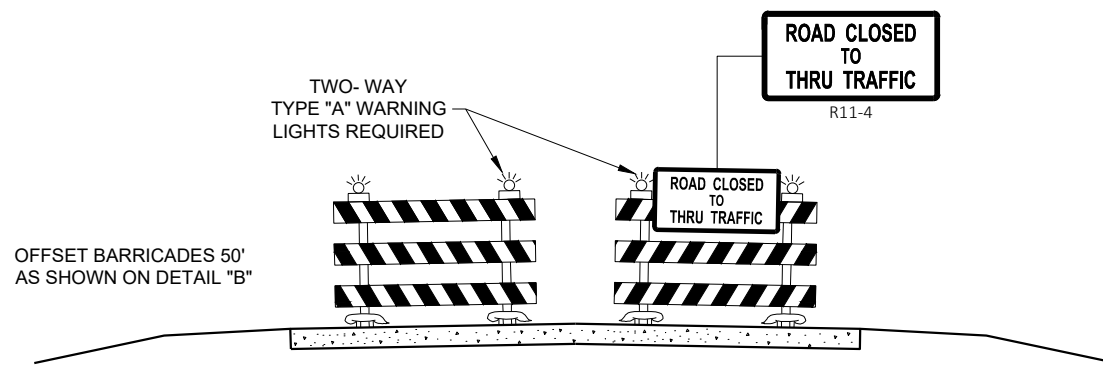
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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"

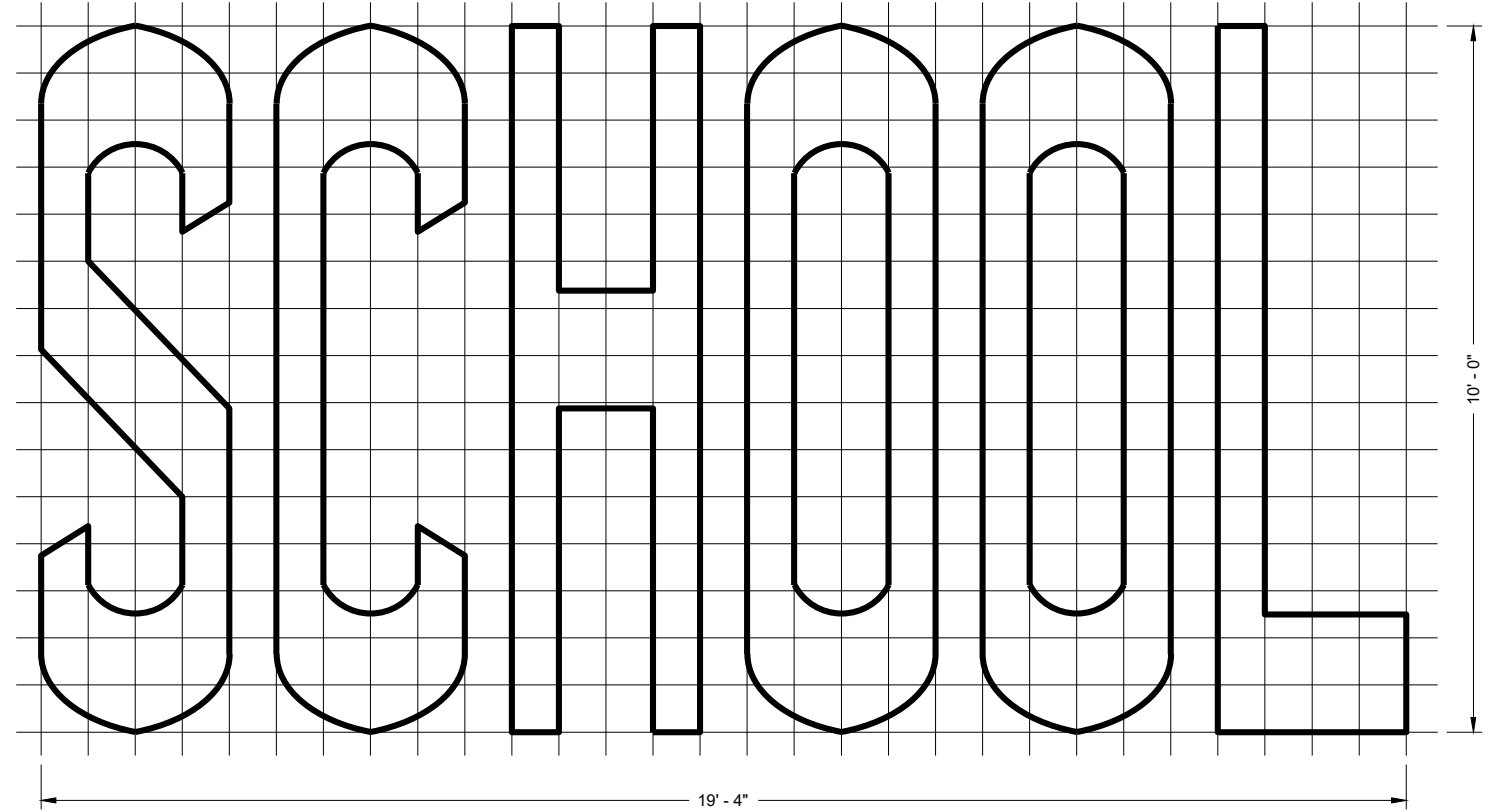
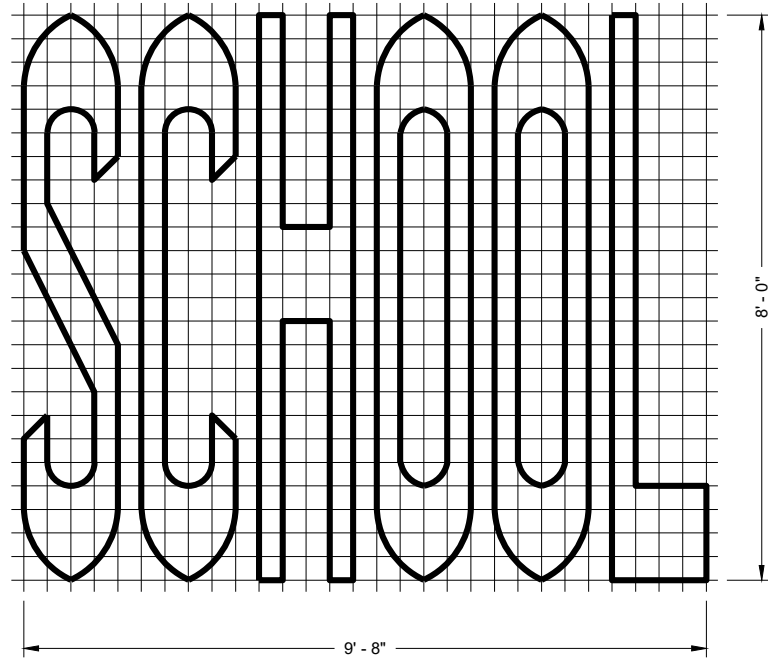
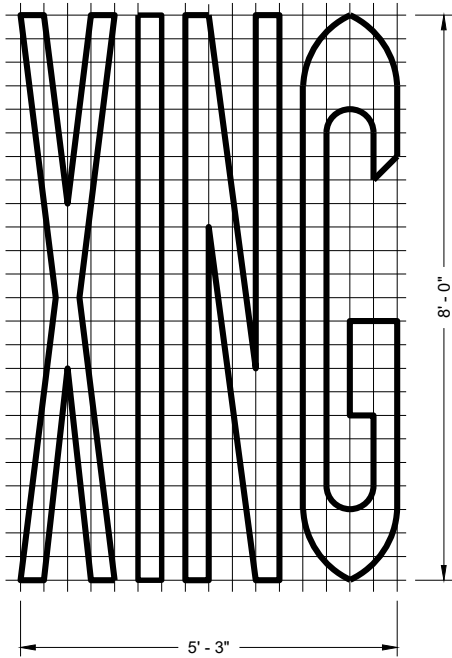
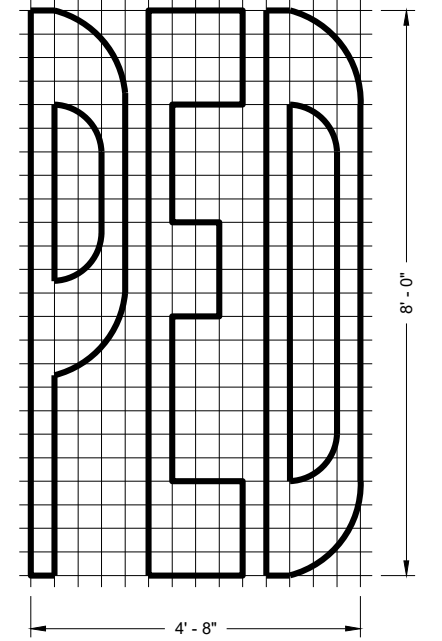
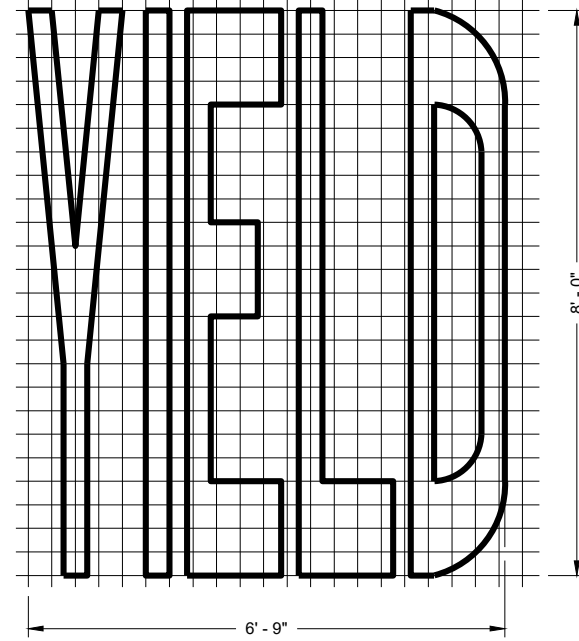
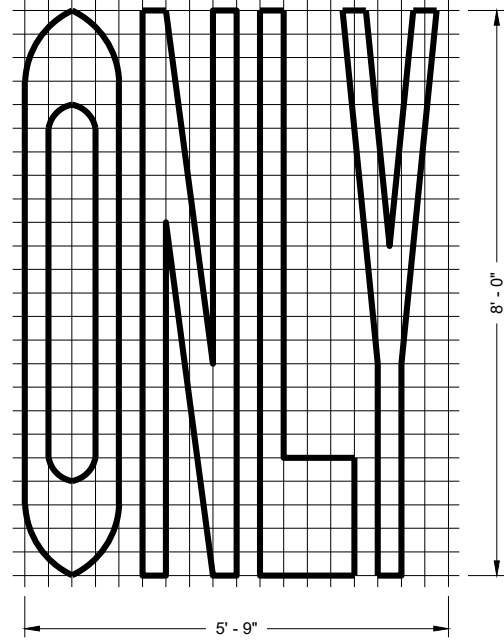
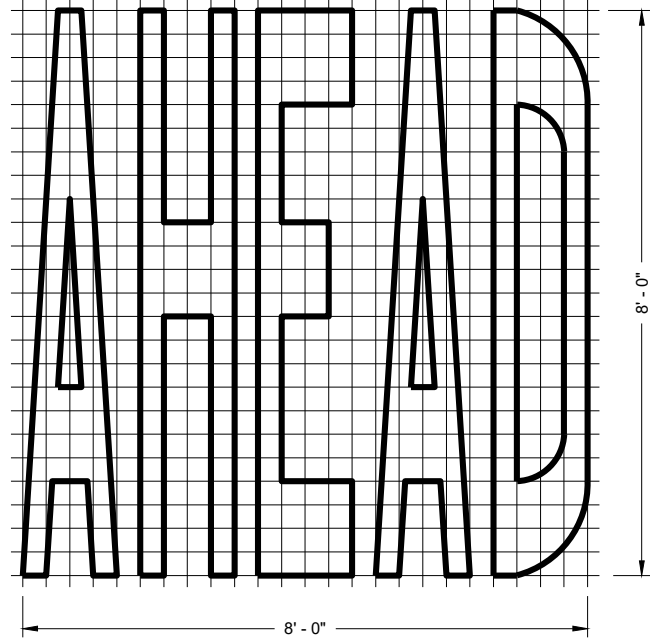
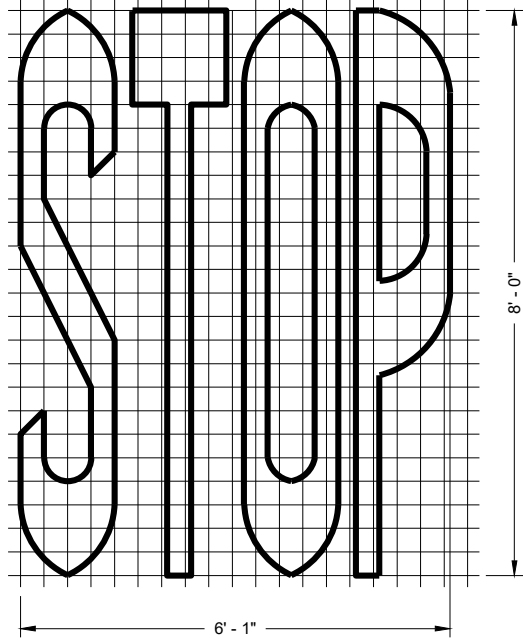
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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



SINGLE LANE

TWO - LANE

**GENERAL NOTES**

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

**PAVEMENT MARKING WORDS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

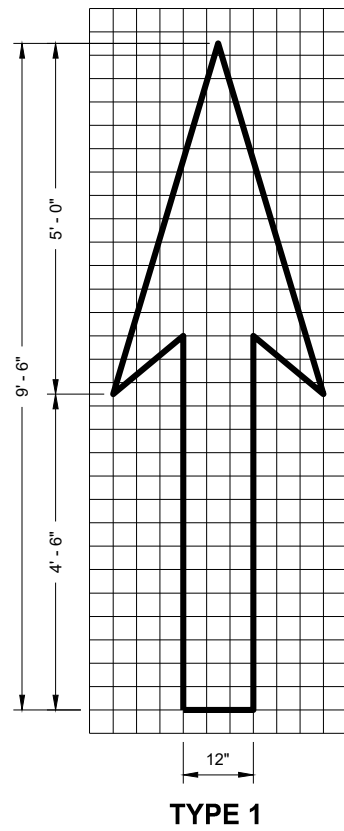
APPROVED

November 2019

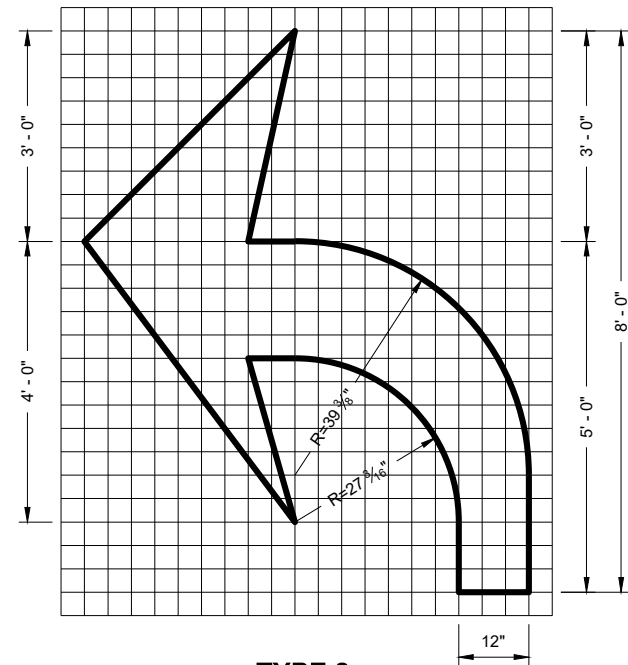
DATE

FHWA

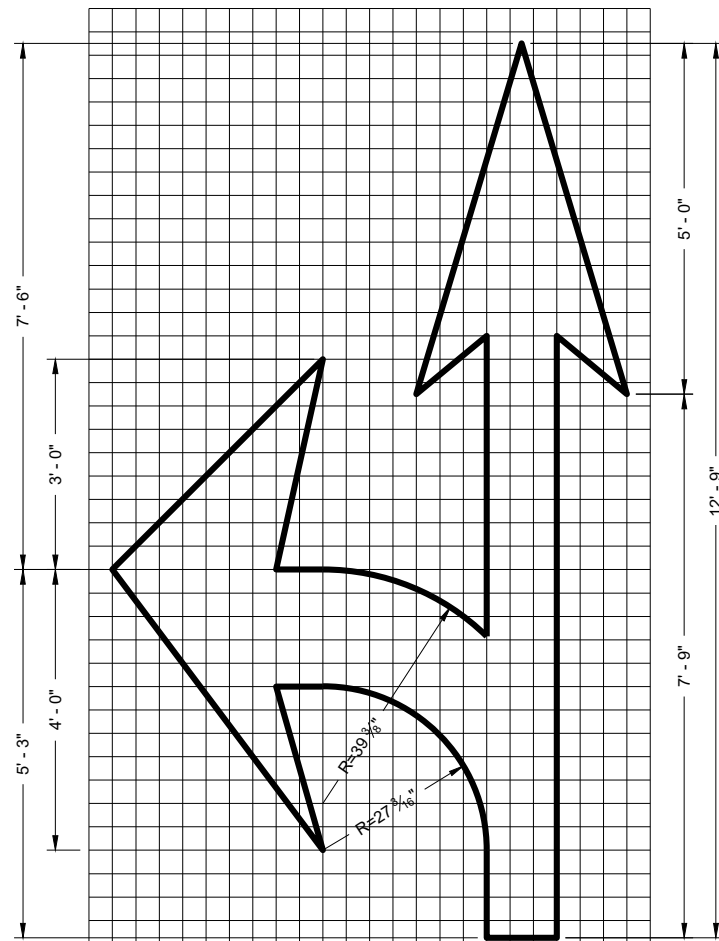
/S/ Matthew Rauch  
STATE SIGNING AND MARKING  
ENGINEER



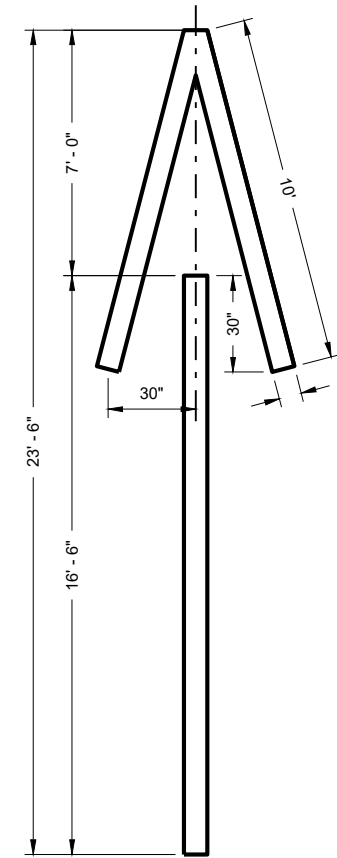
TYPE 1



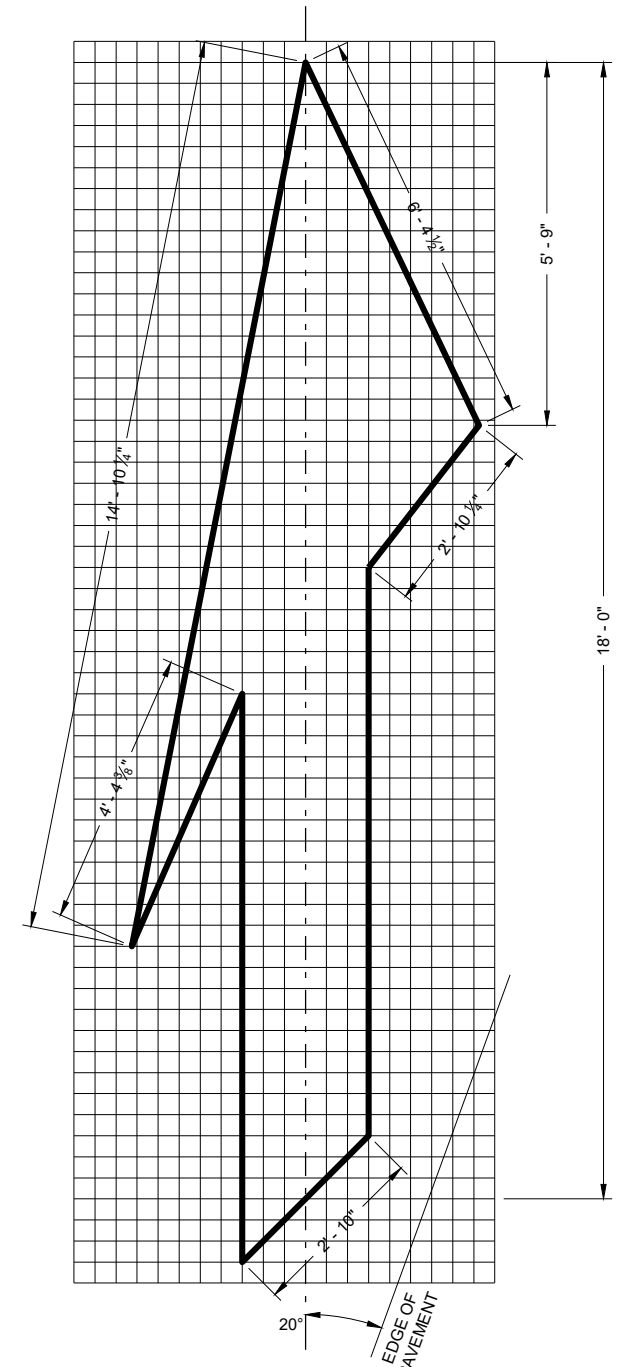
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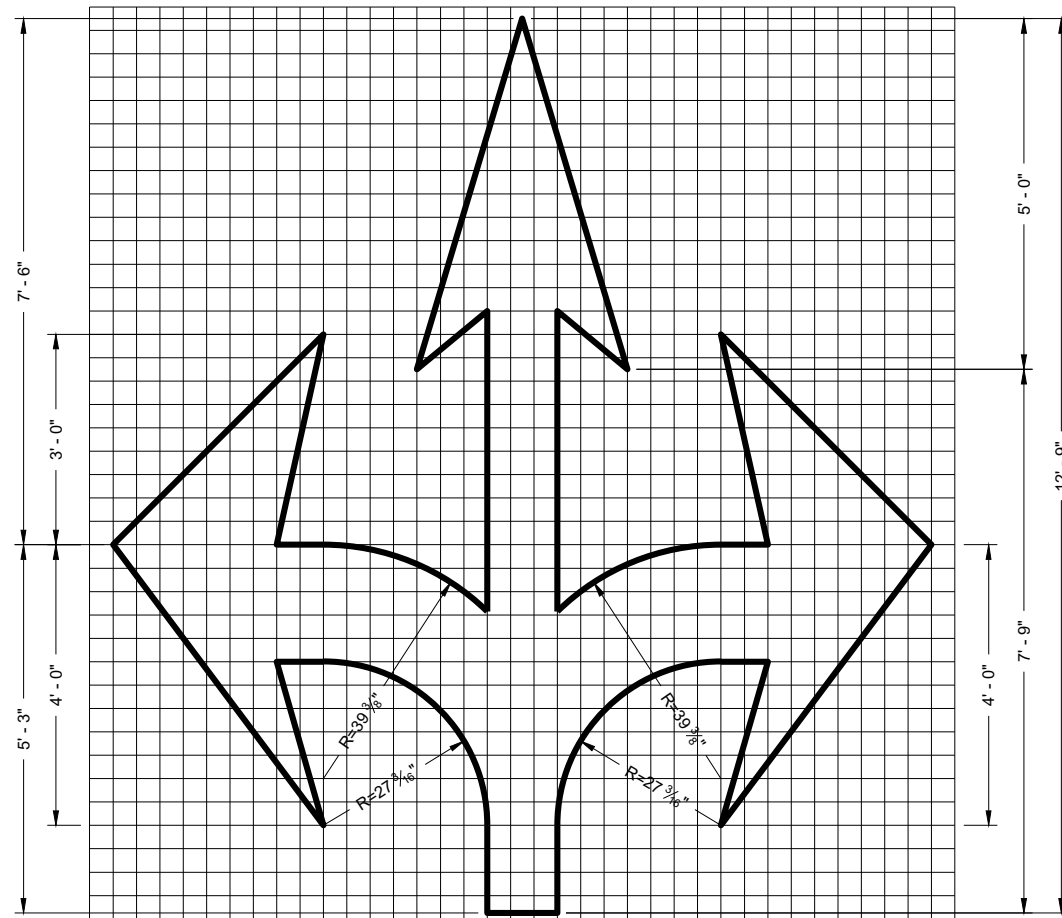
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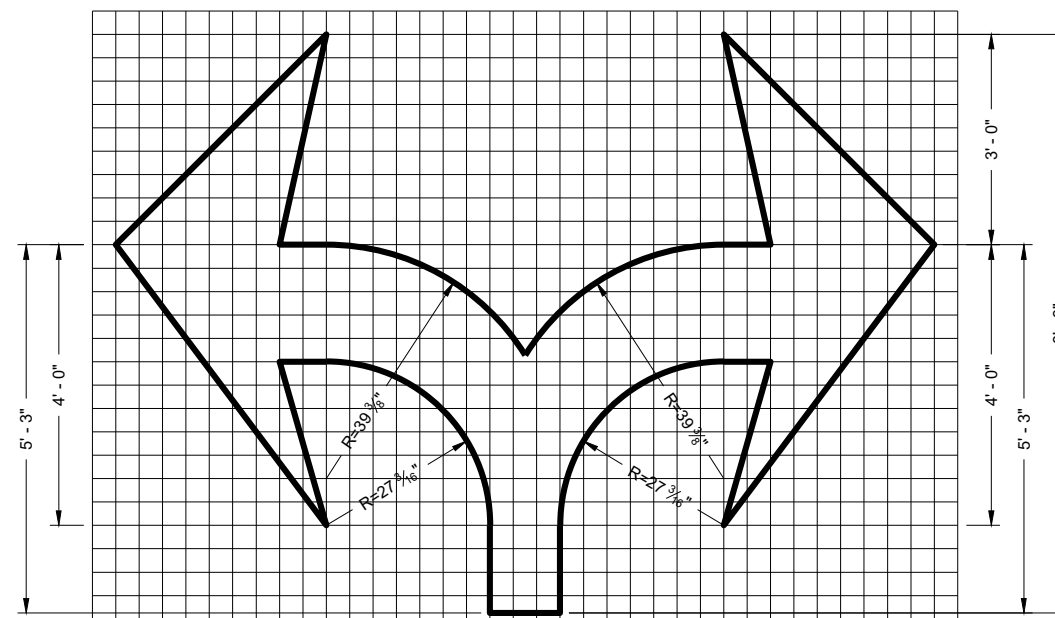
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

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

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

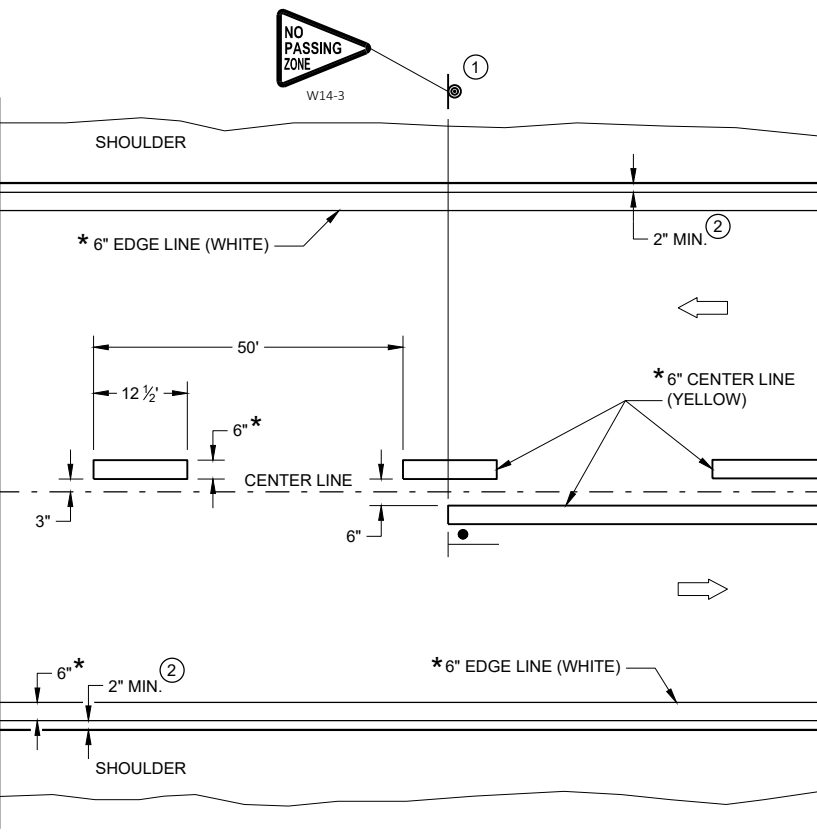
APPROVED

November 2019

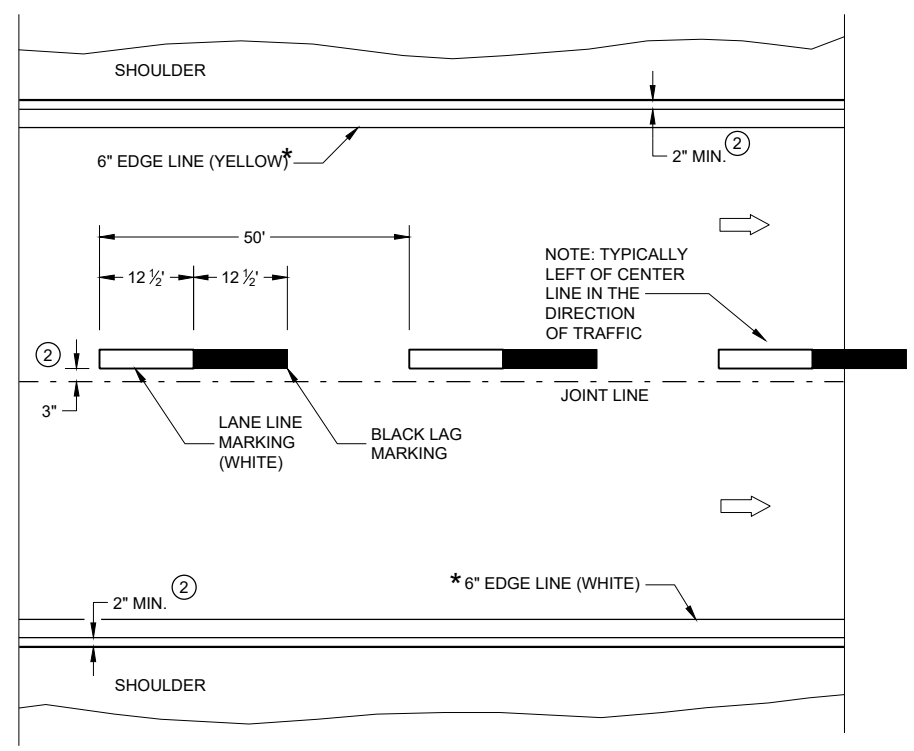
DATE

FHWA

/s/ Matthew Rauch  
STATE SIGNING AND MARKING  
ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

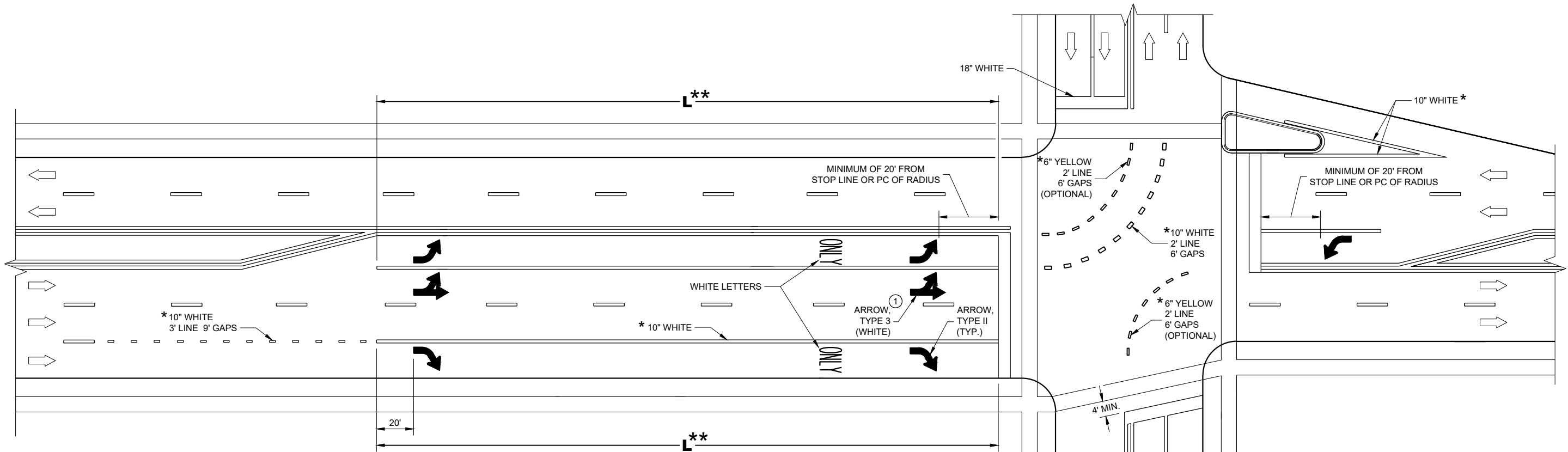
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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

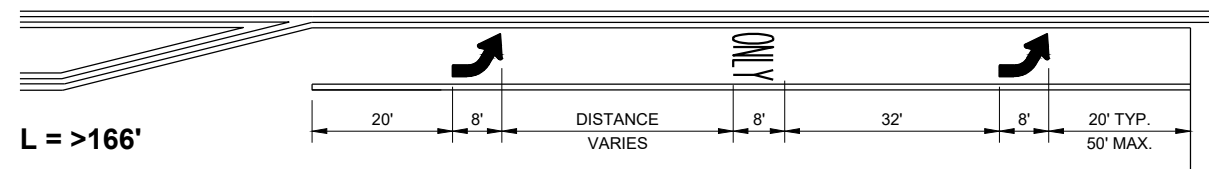
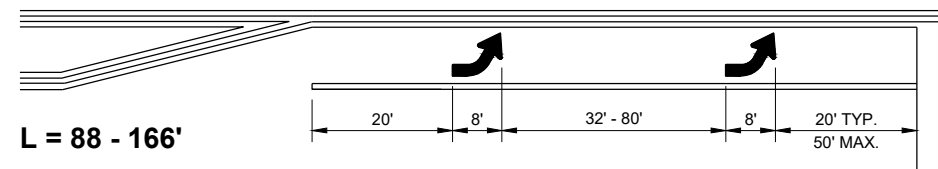
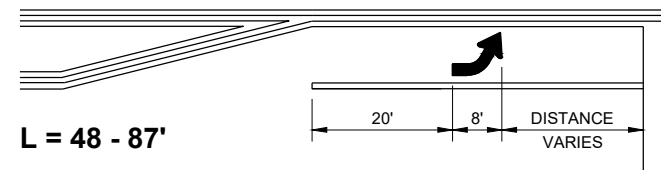
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

| PERMANENT LONGITUDINAL PAVEMENT MARKINGS           |   |
|--|---|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| APPROVED<br>May 2023<br>DATE                       | /S/ Jeannie Silver<br>STATEWIDE SIGNING AND MARKING<br>ENGINEER |
| FHWA   |   |



**TURN LANE OPTIONS**

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



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

**GENERAL NOTES**

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

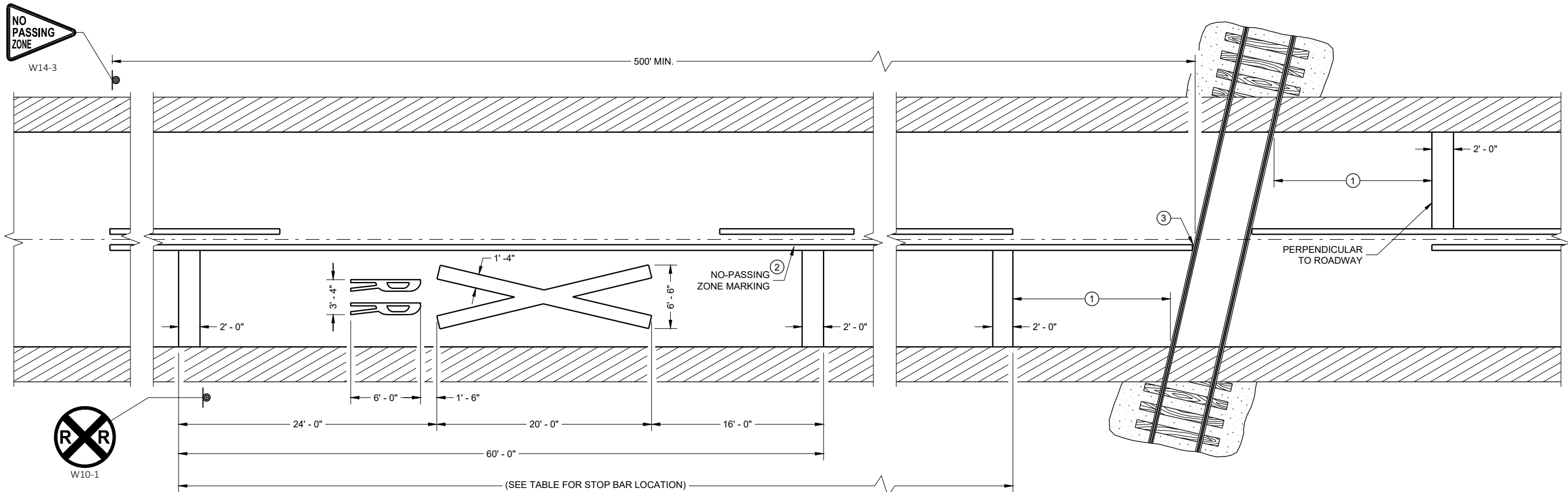
➡ DIRECTION OF TRAFFIC

**L** = LENGTH OF TURN BAY

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

**PAVEMENT MARKING (TURN LANES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**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.

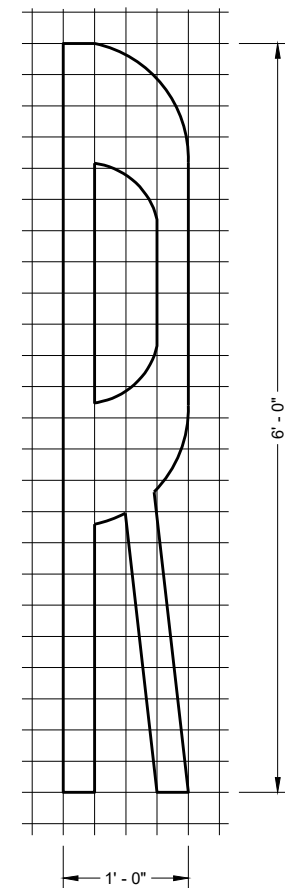
- ① PLACE STOP BAR APPROXIMATELY 8 FEET IN ADVANCE OF THE GATE (IF PRESENT), BUT NO CLOSER THAN 15 FEET IN ADVANCE OF THE NEAREST RAIL. FIELD-FIT STOP BAR TO MAXIMIZE VIEW OF APPROACHING TRAIN.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE 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.

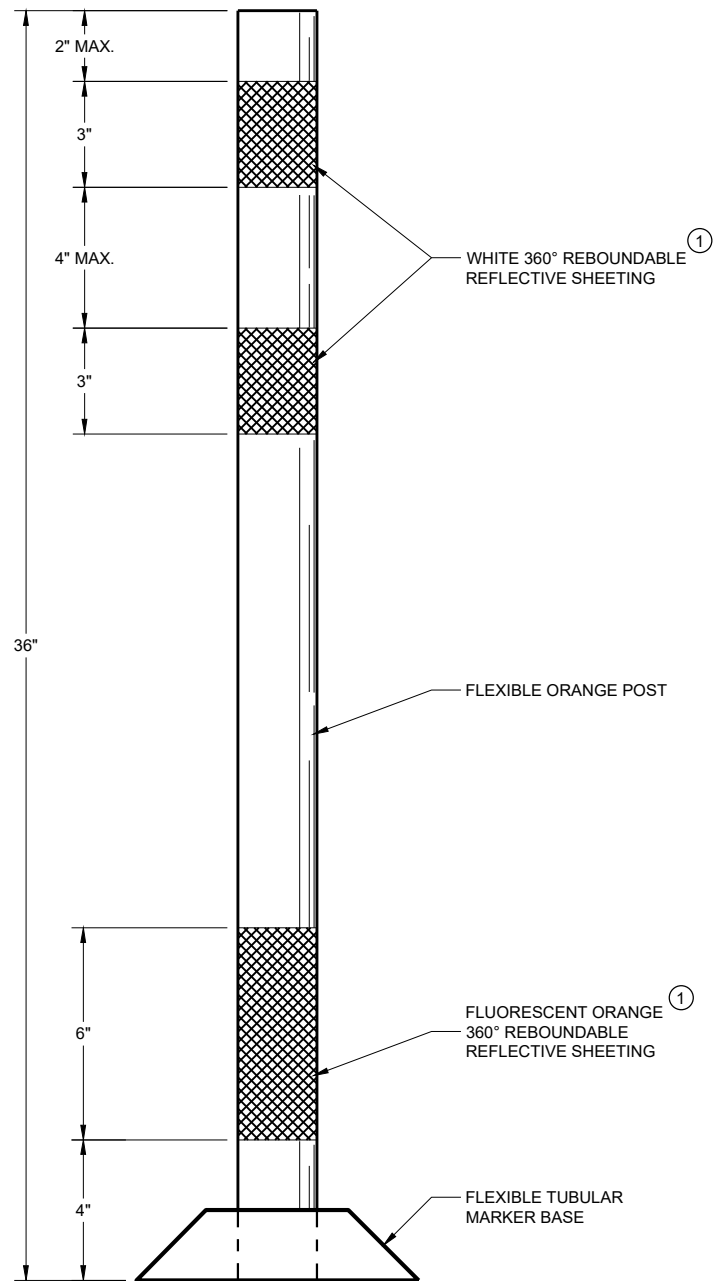


**SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



FLEXIBLE TUBULAR MARKER POST WORK ZONE

**GENERAL NOTES**

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

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

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

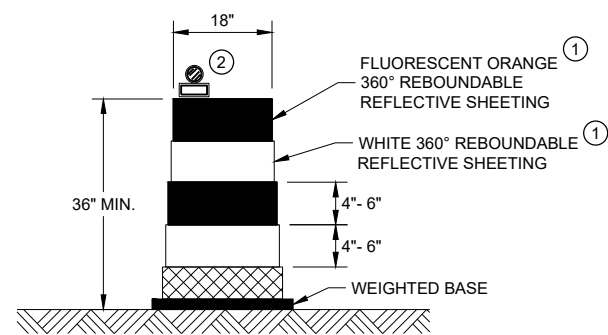
(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

**CHANNELIZING DEVICES  
FLEXIBLE TUBULAR  
MARKER POST**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

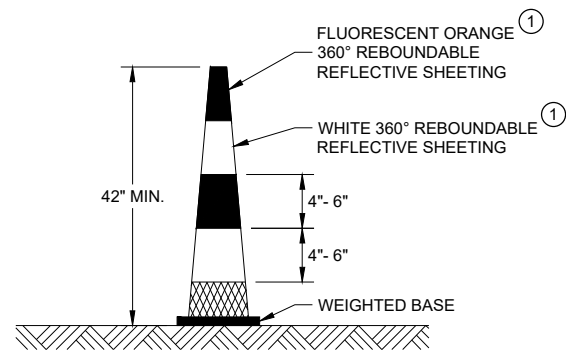
APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



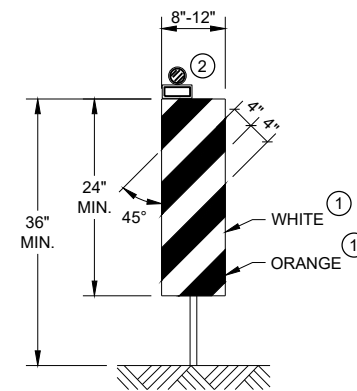
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

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

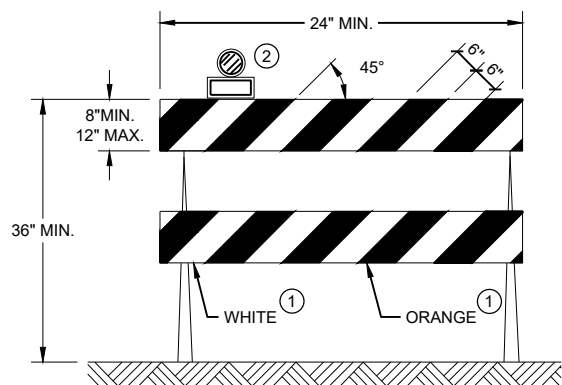


**VERTICAL PANEL**

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

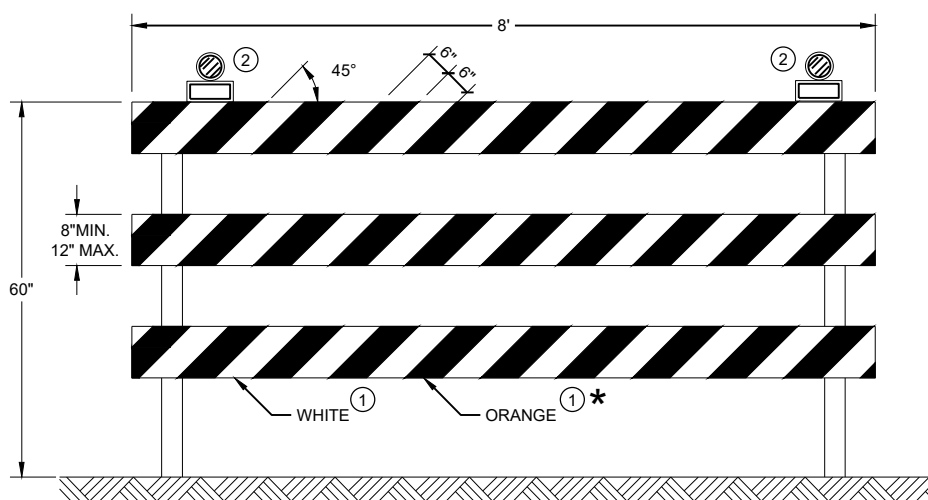
**GENERAL NOTES**

- 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.

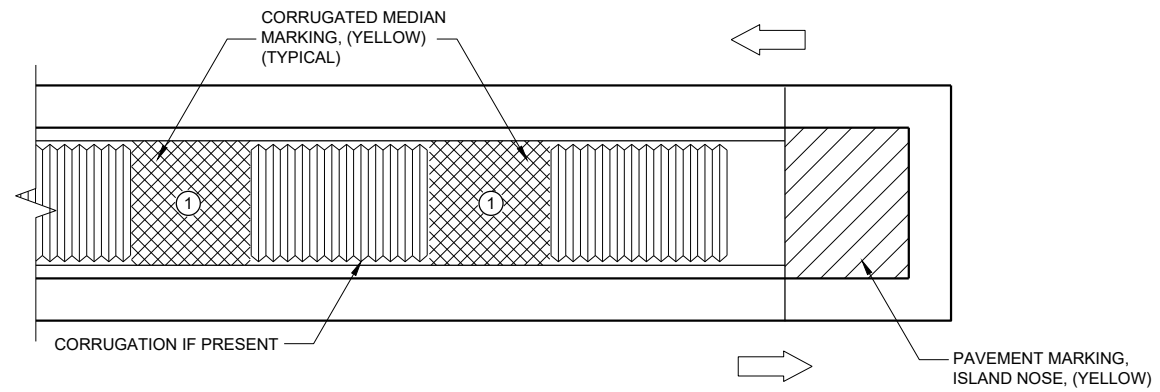
\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

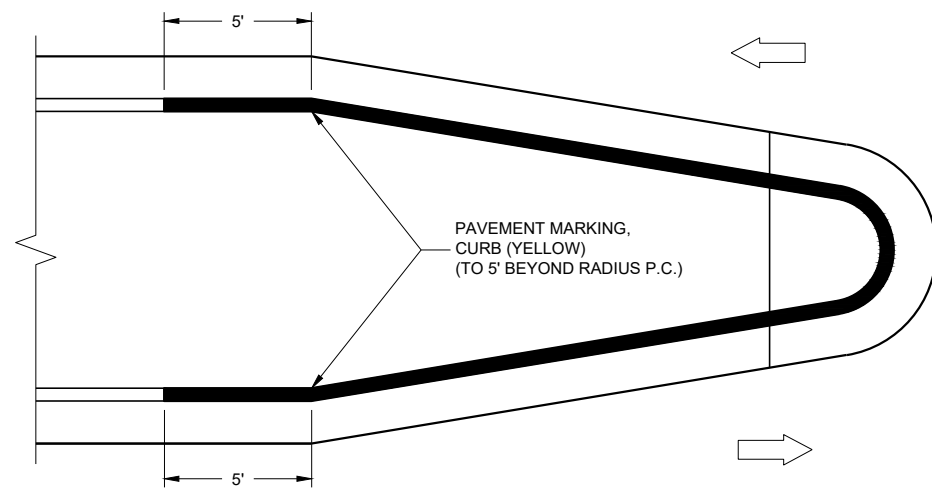
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
 November 2022 /S/ Andrew Heidtke  
 DATE WORK ZONE ENGINEER  
 FHWA

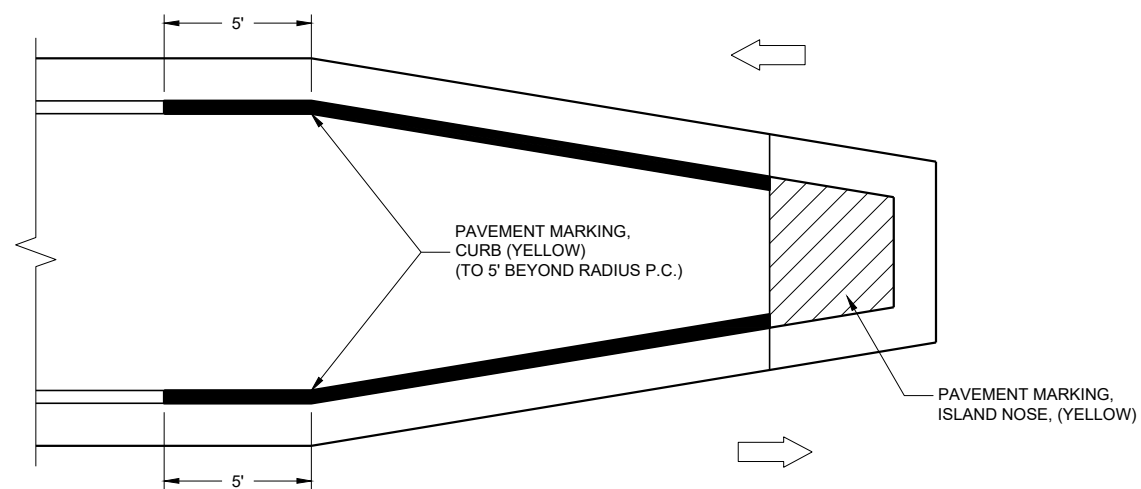




**MEDIAN ISLAND WITH SQUARE BLUNT NOSE**



**MEDIAN ISLAND WITH ROUND BLUNT NOSE**







**MEDIAN ISLAND WITH SLOPED NOSE**

**TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS**

**GENERAL NOTES**

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

- ① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.

-  ISLAND NOSE MARKING
-  CURB MARKING
-  CORRUGATED MEDIAN MARKING
-  DIRECTION OF TRAVEL

**PAVEMENT MARKINGS,  
MEDIAN ISLAND NOSE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

## GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

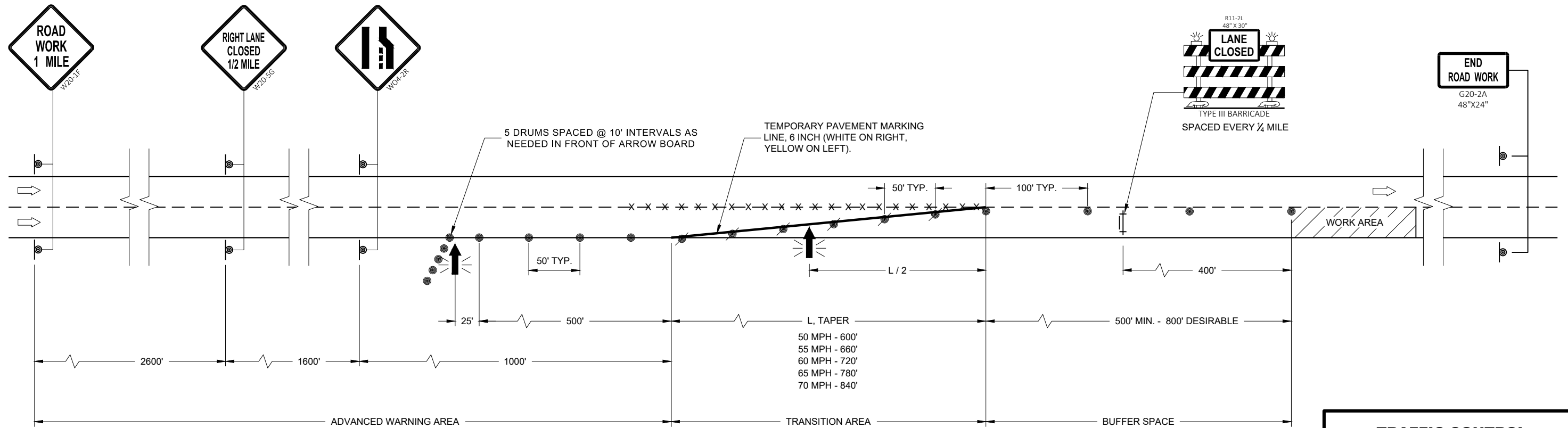
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

## LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 11a



6

SDD 15D12 - 11a

|  |  |
|--|--|
| <b>TRAFFIC CONTROL<br/>LANE CLOSURE</b>            |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |  |
| APPROVED<br>May 2023<br>DATE                       | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |

### GENERAL NOTES

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CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

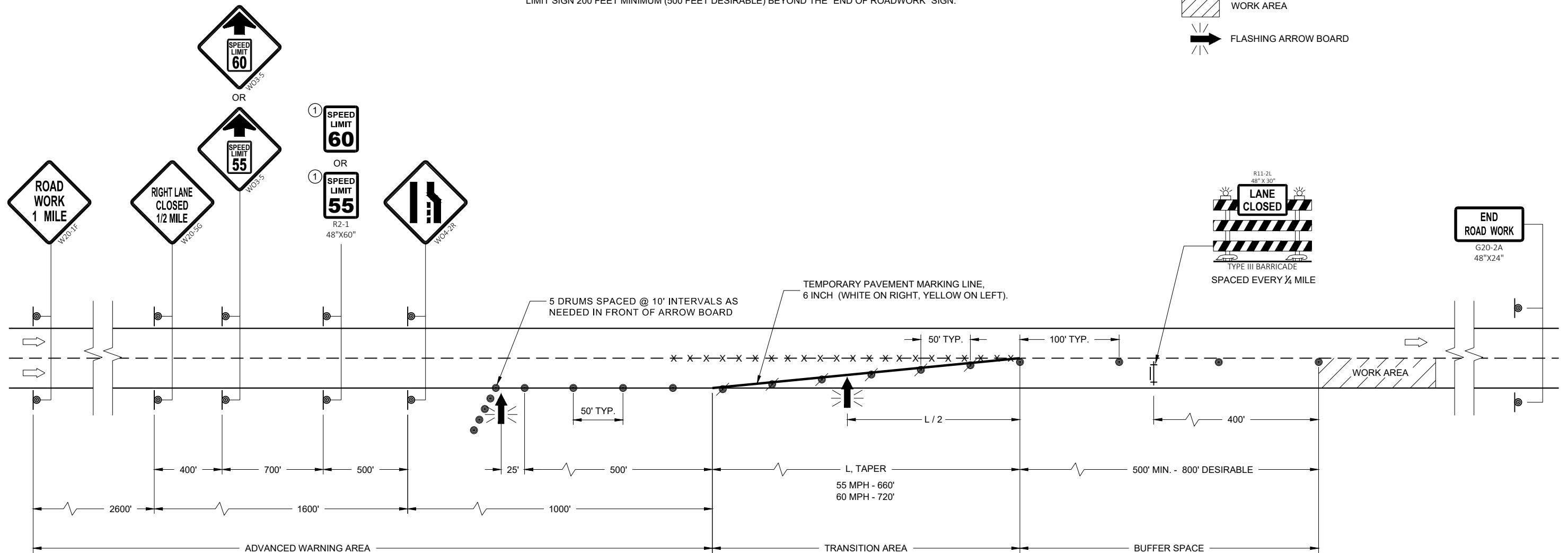
① A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

### LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 11b














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SDD 15D12 - 11b

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|---|--|
| <b>TRAFFIC CONTROL,<br/>LANE CLOSURE,<br/>SPEED REDUCTION</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION            |  |
| APPROVED<br>May 2023<br>DATE                                  | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA  |  |

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD
-  PORTABLE TRAFFIC SENSOR (PTS)
-  FLASHING BEACON SIGN

**GENERAL NOTES**

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS

AND NIGHTS.  
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

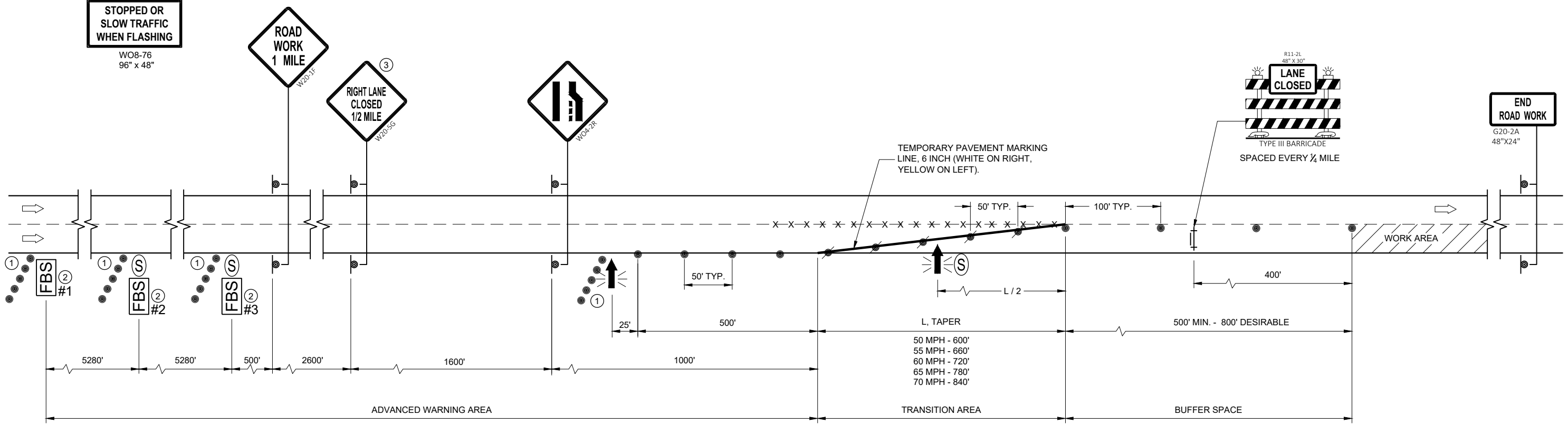
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- ① 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- ② IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- ③ IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.

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6



SDD 15D12 - 11d

SDD 15D12 - 11d

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| <b>TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                       |  |
| APPROVED<br>May 2023<br>DATE   | /S/ Erin Schwark<br>WORK ZONE ENGINEER |
| FHWA   |  |

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

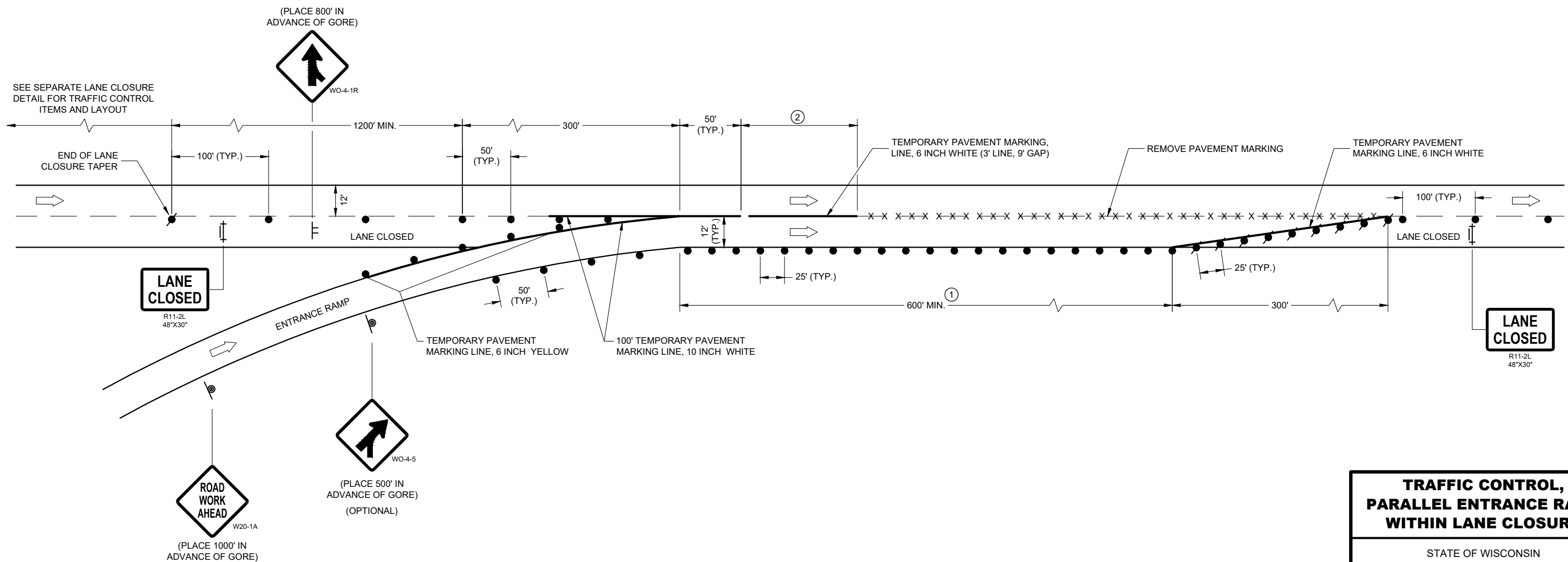
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



6








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SDD 15D15-07a

SDD 15D15-07a

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| <b>TRAFFIC CONTROL,<br/>PARALLEL ENTRANCE RAMP<br/>WITHIN LANE CLOSURE</b> |  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                         |  |
| APPROVED<br>May 2023<br>DATE   | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA   |  |

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

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

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

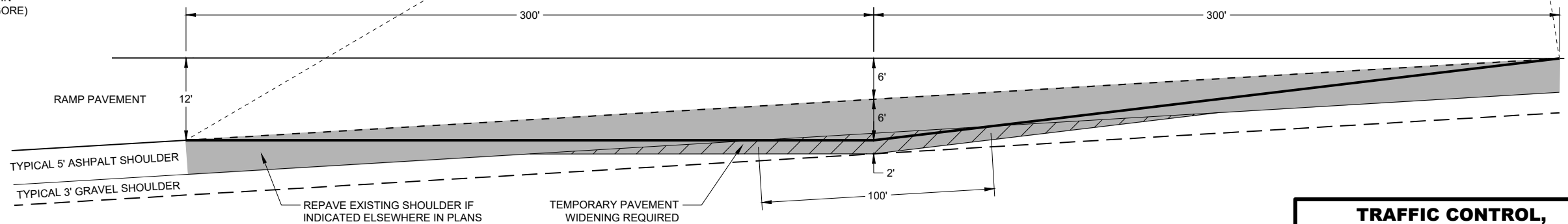
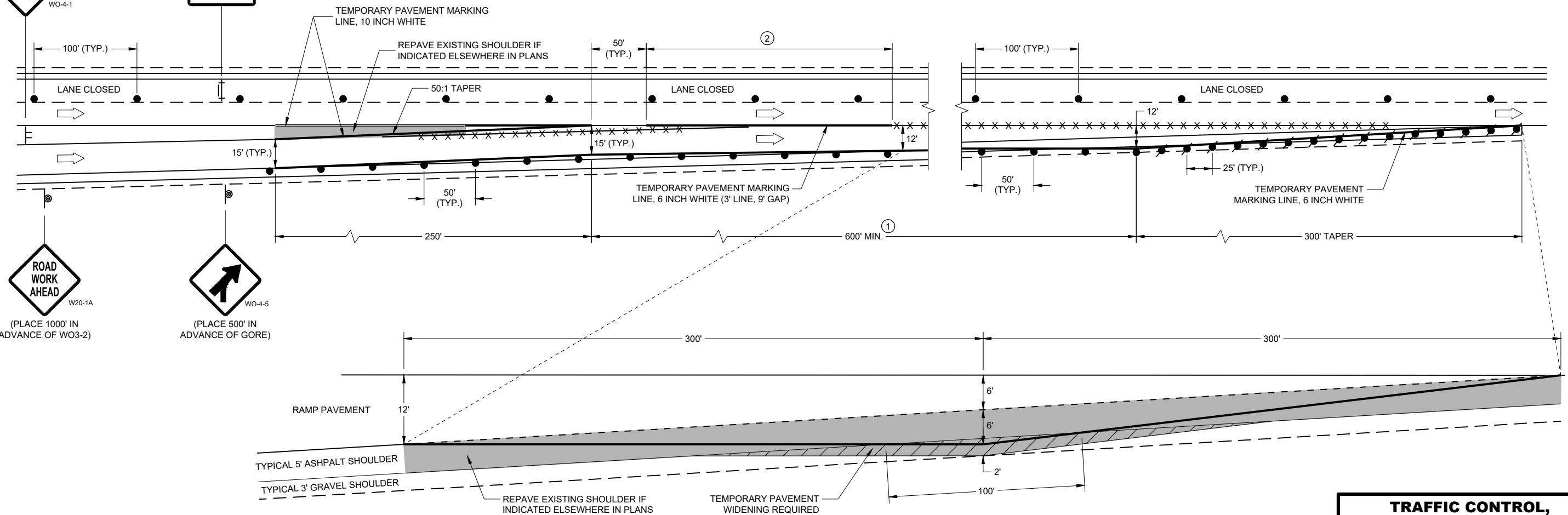
- ① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

(PLACE 800' IN ADVANCE OF GORE)



(PLACE 1000' IN ADVANCE OF WO3-2)

(PLACE 500' IN ADVANCE OF GORE)



**TEMPORARY PAVEMENT DETAIL**  
(EXISTING RAMP DIMENSIONS MAY VARY, ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

**TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION









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

FHWA

SDD 15D15-07b

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**LEGEND**

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

**GENERAL NOTES**

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH 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.

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.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

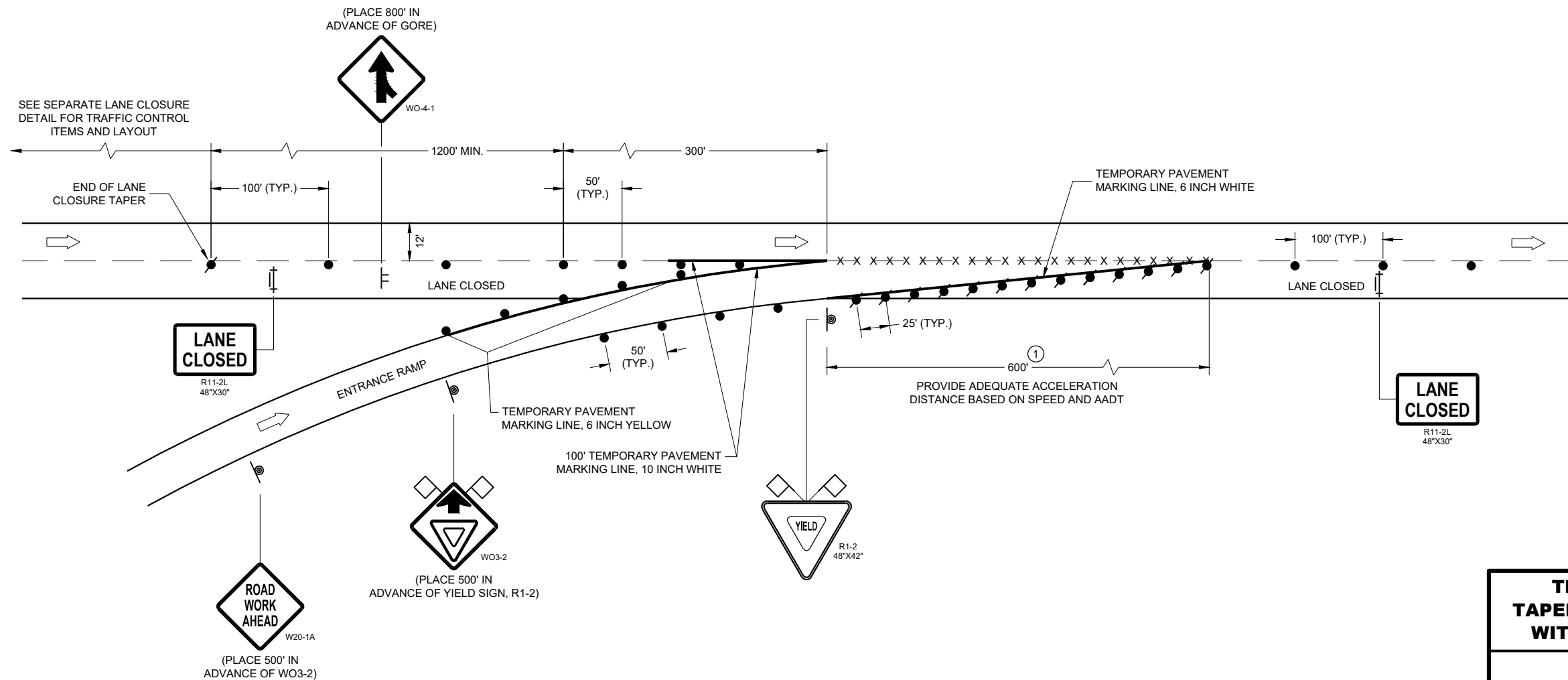
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.

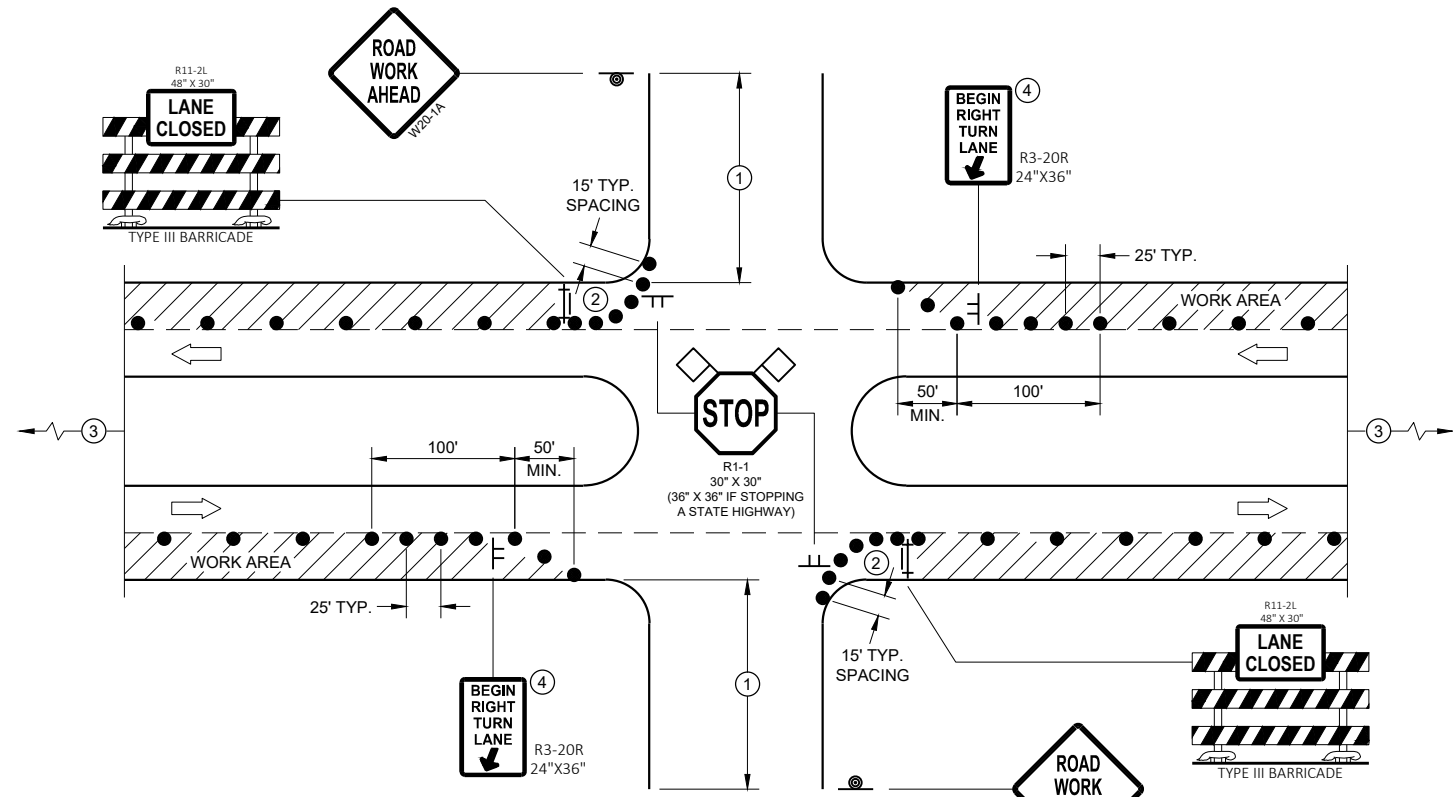


**TRAFFIC CONTROL,  
TAPERED ENTRANCE RAMP  
WITHIN LANE CLOSURE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



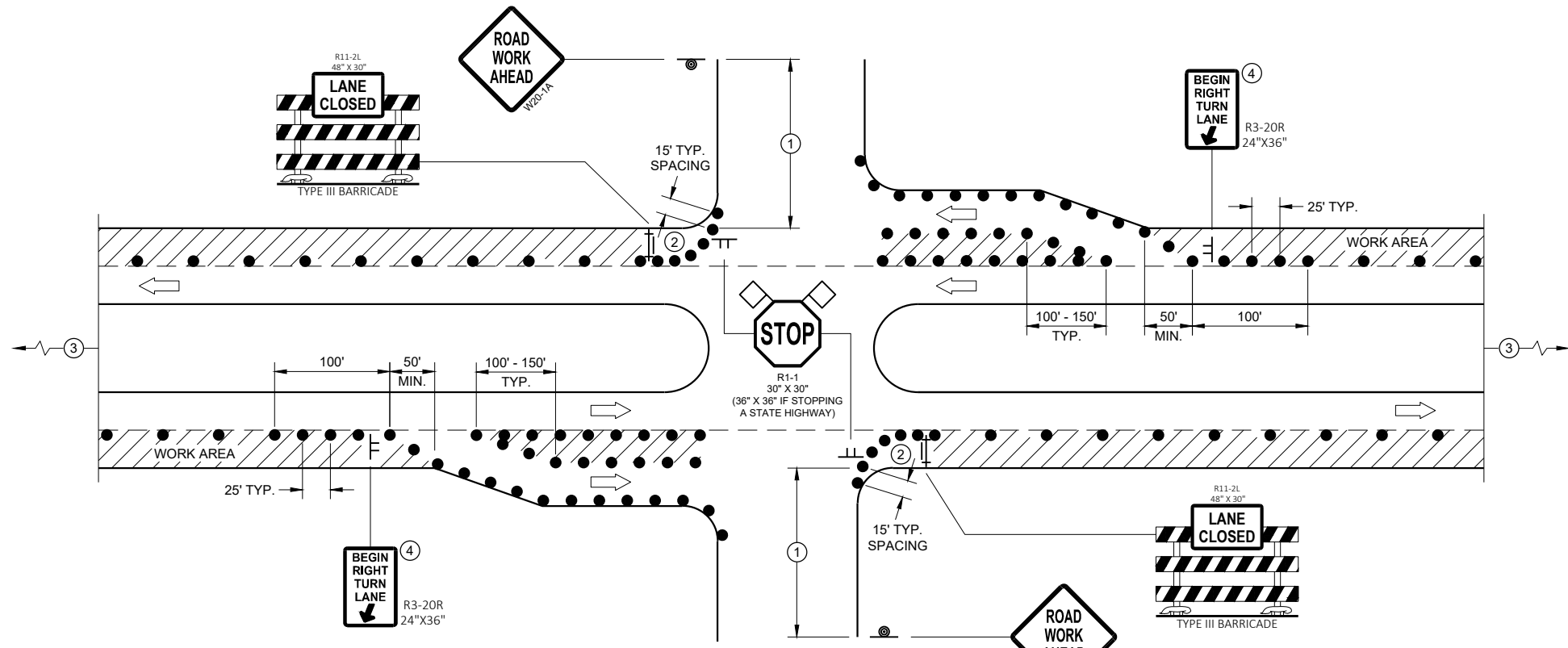
PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR RIGHT LANE CLOSURE AT INTERSECTION**

**GENERAL NOTES**

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.
- SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.
- BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.
- CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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



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

**LEGEND**

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

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

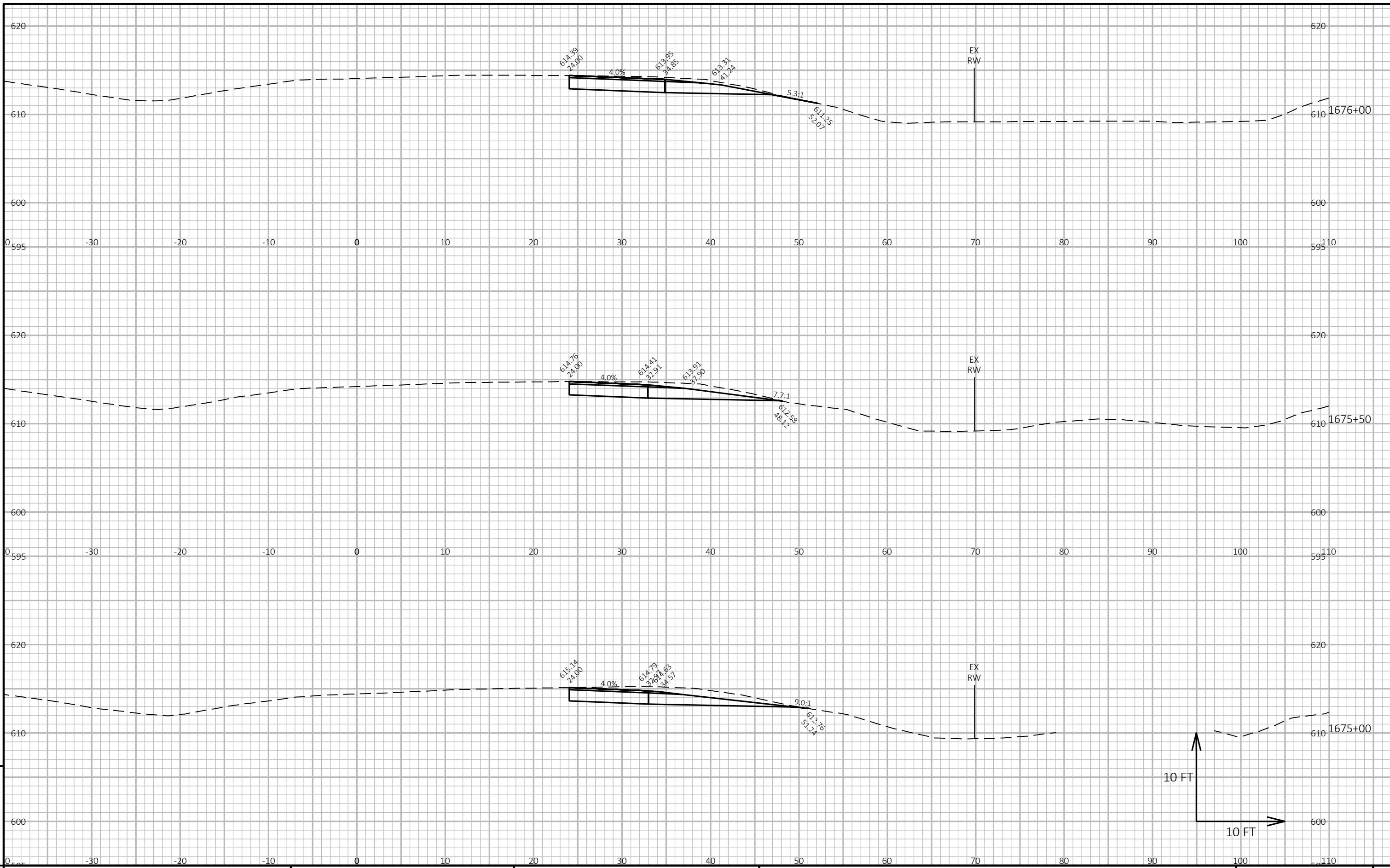
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



| LOCATION      | REFERENCE LINE STATION | EXCAVATION COMMON |                   |                 |                            | BORROW             |                  |  |                  |                           |                                      |  |
|---------------|------------------------|-------------------|-------------------|-----------------|----------------------------|--------------------|------------------|--|------------------|---------------------------|--------------------------------------|--|
|               |                        | DISTANCE (FT)     | END AREA CUT (SF) | VOLUME CUT (CY) | CUMULATIVE VOLUME CUT (CY) | END AREA FILL (SF) | VOLUME FILL (CY) | CUMULATIVE VOLUME UNEXPANDED FILL (CY) | FILL FACTOR 1.25 | EXPANDED VOLUME FILL (CY) | CUMULATIVE VOLUME EXPANDED FILL (CY) |  |
| US 41 NB, RT  | 1674+91                |                   | 38                |                 |                            | 0                  |                  |  |                  |                           |                                      |  |
|               | 1675+50                | 59                | 34                | 78              | 78                         | 0                  | 0                | 0                                      | 1                | 0                         | 0                                    |  |
|               | 1676+00                | 50                | 33                | 61              | 139                        | 0                  | 0                | 0                                      | 1                | 0                         | 0                                    |  |
|               | 1676+10                | 10                | 32                | 12              | 151                        | 1                  | 0                | 0                                      | 1                | 0                         | 0                                    |  |
|               | 1676+35                | 25                | 31                | 29              | 181                        | 0                  | 1                | 1                                      | 1                | 1                         | 1                                    |  |
|               | 1676+50                | 15                | 30                | 17              | 197                        | 1                  | 0                | 1                                      | 1                | 0                         | 1                                    |  |
|               | 1676+60                | 10                | 29                | 11              | 208                        | 3                  | 1                | 2                                      | 1                | 1                         | 2                                    |  |
|               | 1677+00                | 40                | 25                | 40              | 248                        | 3                  | 4                | 6                                      | 1                | 5                         | 7                                    |  |
|               | 1677+61                | 61                | 24                | 56              | 304                        | 1                  | 4                | 10                                     | 1                | 5                         | 13                                   |  |
|               | 1678+11                | 50                | 24                | 45              | 349                        | 0                  | 1                | 11                                     | 1                | 1                         | 14                                   |  |
|               | 1678+61                | 50                | 23                | 44              | 393                        | 7                  | 6                | 17                                     | 1                | 8                         | 22                                   |  |
|               | 1679+11                | 50                | 22                | 42              | 434                        | 0                  | 7                | 24                                     | 1                | 8                         | 30                                   |  |
|               | 1679+61                | 50                | 21                | 40              | 475                        | 1                  | 1                | 26                                     | 1                | 2                         | 32                                   |  |
|               | 1680+47                | 86                | 18                | 62              | 536                        | 0                  | 2                | 27                                     | 1                | 2                         | 34                                   |  |
| USB 41 NB, RT | 208+92                 |                   | 20                |                 |                            | 0                  |                  |  |                  |                           |                                      |  |
|               | 209+00                 | 8                 | 20                | 6               | 6                          | 0                  | 0                | 0                                      | 1                | 0                         | 0                                    |  |
|               | 209+50                 | 50                | 26                | 42              | 48                         | 0                  | 0                | 0                                      | 1                | 0                         | 1                                    |  |
|               | 209+82                 | 32                | 24                | 29              | 78                         | 1                  | 0                | 1                                      | 1                | 1                         | 1                                    |  |
|               | 210+00                 | 18                | 25                | 16              | 94                         | 1                  | 1                | 1                                      | 1                | 1                         | 2                                    |  |
|               | 210+07                 | 7                 | 23                | 6               | 100                        | 1                  | 0                | 2                                      | 1                | 0                         | 2                                    |  |
|               | 210+32                 | 25                | 21                | 20              | 121                        | 3                  | 2                | 4                                      | 1                | 3                         | 5                                    |  |
|               | 210+50                 | 18                | 18                | 13              | 134                        | 3                  | 2                | 6                                      | 1                | 3                         | 7                                    |  |
|               | 211+00                 | 50                | 21                | 36              | 169                        | 0                  | 3                | 9                                      | 1                | 4                         | 11                                   |  |
|               | 211+50                 | 50                | 14                | 33              | 202                        | 10                 | 10               | 19                                     | 1                | 12                        | 24                                   |  |
|               | 212+00                 | 50                | 13                | 26              | 228                        | 0                  | 9                | 28                                     | 1                | 12                        | 35                                   |  |
|               | 212+50                 | 50                | 16                | 27              | 255                        | 2                  | 2                | 30                                     | 1                | 2                         | 37                                   |  |
|               | 213+00                 | 50                | 15                | 29              | 284                        | 5                  | 6                | 36                                     | 1                | 8                         | 45                                   |  |
|               | 213+69                 | 69                | 14                | 37              | 321                        | 1                  | 7                | 43                                     | 1                | 9                         | 54                                   |  |
| USB 41 SB, LT | 133+89                 |                   | 0                 |                 |                            | 0                  |                  |  |                  |                           |                                      |  |
|               | 134+50                 | 61                | 0                 | 0               | 0                          | 0                  | 0                | 0                                      | 1                | 0                         | 0                                    |  |
|               | 135+00                 | 50                | 15                | 14              | 14                         | 15                 | 14               | 14                                     | 1                | 17                        | 17                                   |  |
|               | 135+50                 | 50                | 14                | 27              | 41                         | 16                 | 29               | 43                                     | 1                | 36                        | 53                                   |  |
|               | 136+00                 | 50                | 17                | 29              | 70                         | 8                  | 22               | 65                                     | 1                | 28                        | 81                                   |  |
|               | 136+50                 | 50                | 16                | 31              | 101                        | 1                  | 8                | 73                                     | 1                | 11                        | 92                                   |  |
|               | 137+00                 | 50                | 16                | 30              | 131                        | 4                  | 5                | 78                                     | 1                | 6                         | 97                                   |  |
|               | 137+50                 | 50                | 17                | 30              | 161                        | 2                  | 5                | 83                                     | 1                | 6                         | 104                                  |  |
|               | 137+54                 | 4                 | 19                | 3               | 163                        | 10                 | 1                | 84                                     | 1                | 1                         | 105                                  |  |
|               | 137+79                 | 25                | 19                | 18              | 181                        | 10                 | 9                | 93                                     | 1                | 12                        | 117                                  |  |
|               | 138+00                 | 21                | 20                | 15              | 197                        | 16                 | 10               | 104                                    | 1                | 13                        | 130                                  |  |
|               | 138+04                 | 4                 | 20                | 3               | 199                        | 18                 | 3                | 106                                    | 1                | 3                         | 133                                  |  |
|               | 138+94                 | 90                | 16                | 59              | 259                        | 22                 | 67               | 173                                    | 1                | 83                        | 216                                  |  |

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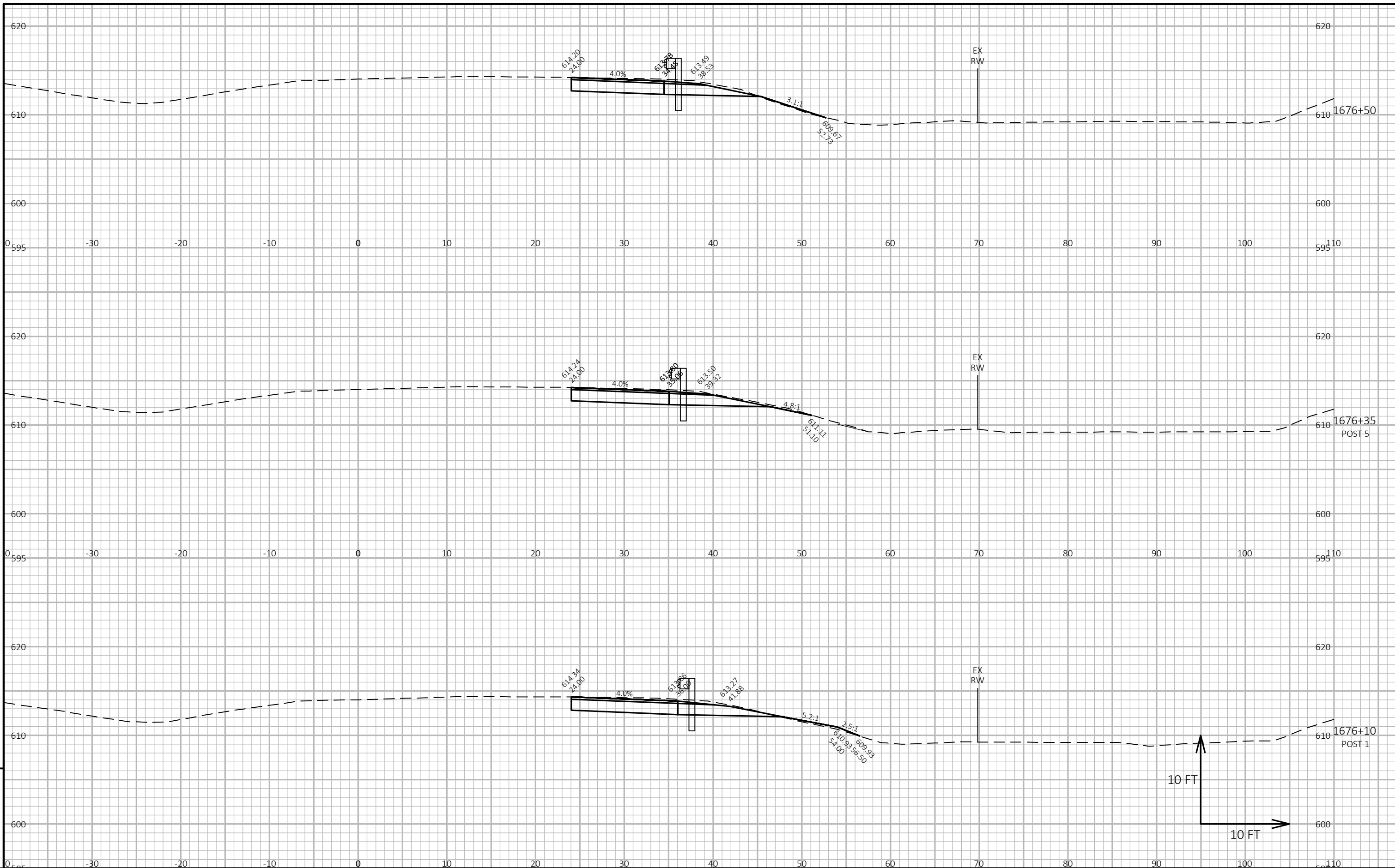
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME: S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE: 11/22/2021 9:30 AM      PLOT BY: MEYER, TERA      PLOT NAME:      PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 01



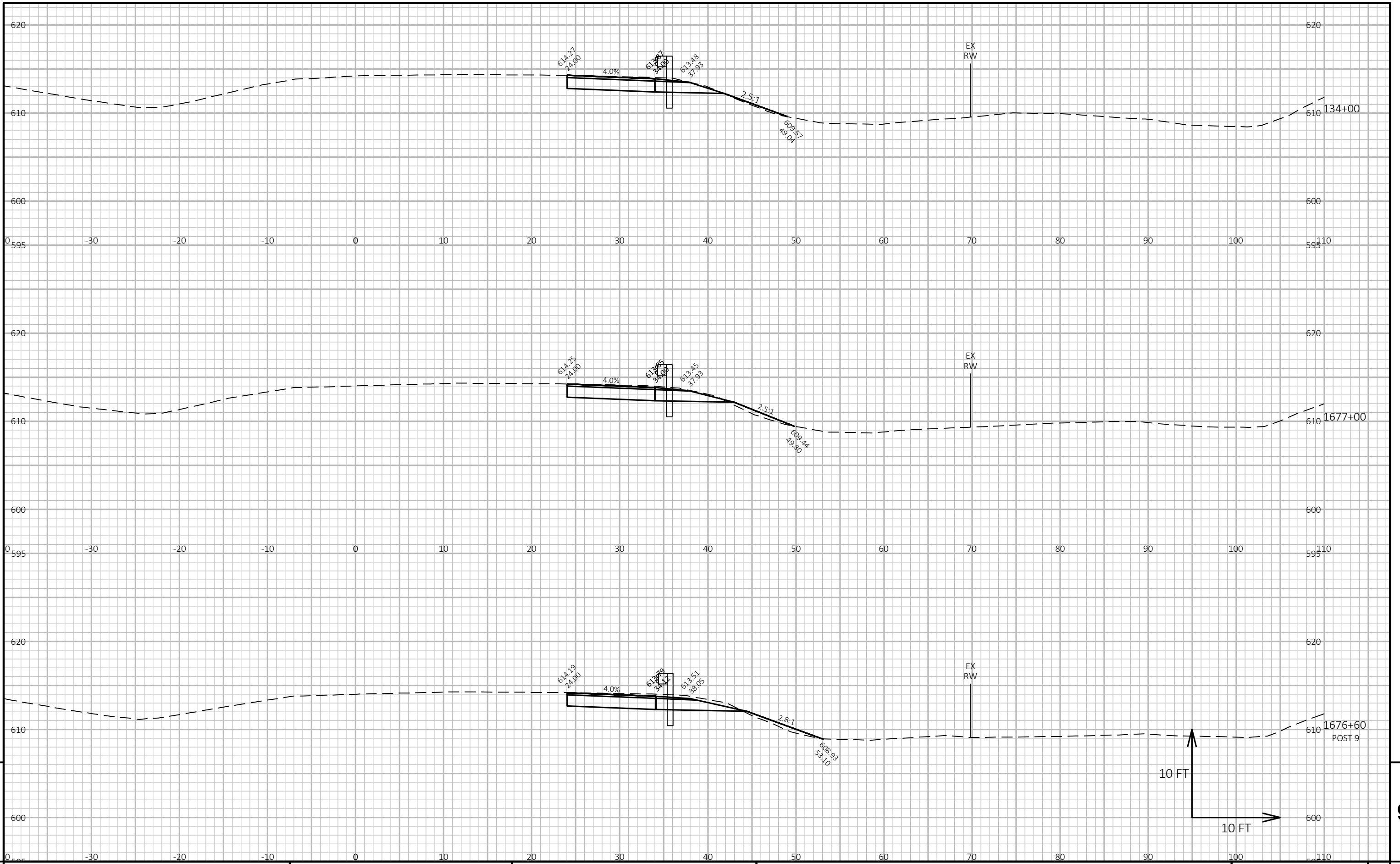
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PROJECT NO: 1150-64-71 HWY: USH 41 COUNTY: MARINETTE CROSS SECTIONS: USH 41 NORTHBOUND SHEET E

FILE NAME: S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG PLOT DATE: 11/22/2021 9:30 AM PLOT BY: MEYER, TERA PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 02



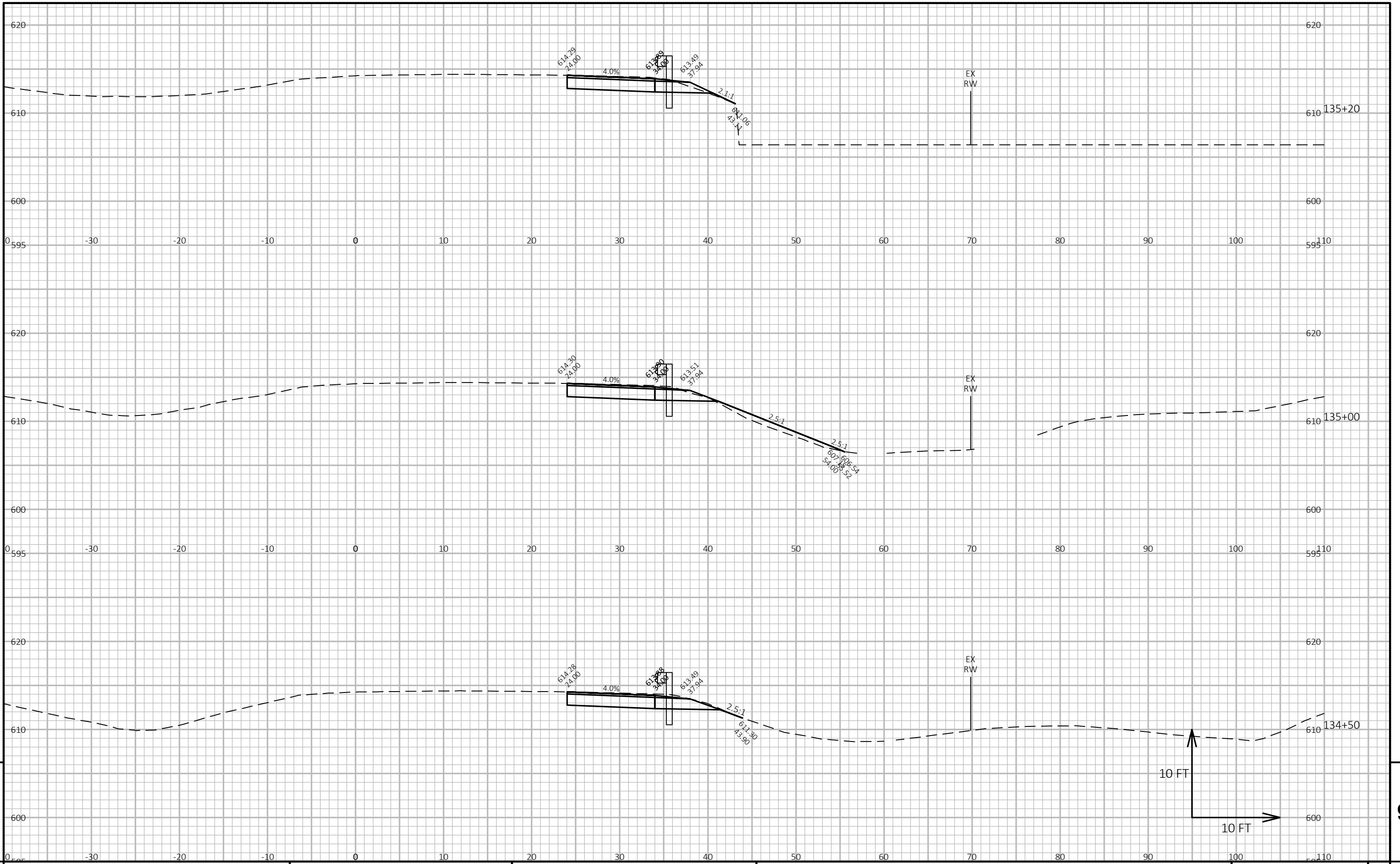
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:31 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 03



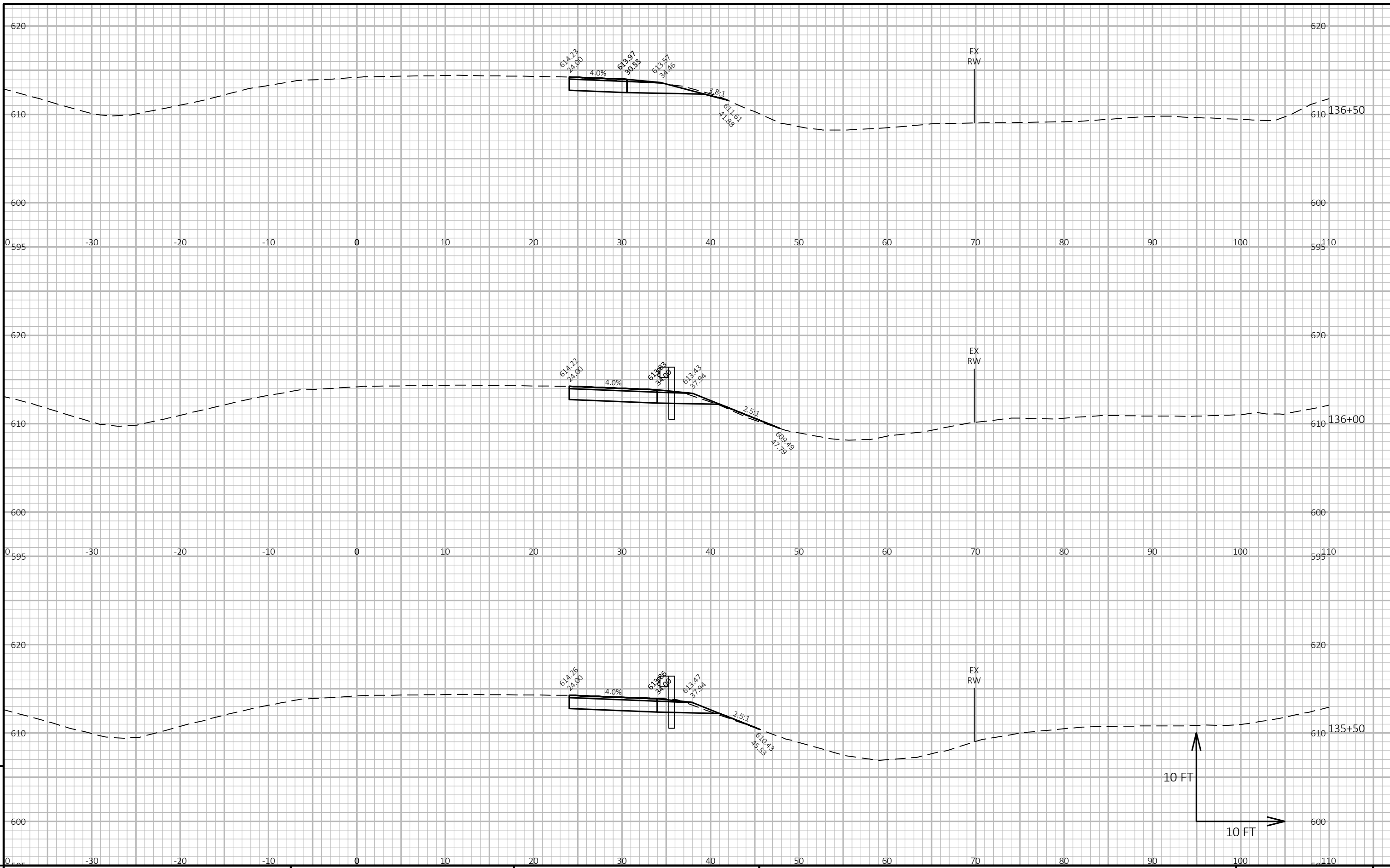
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:31 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 04



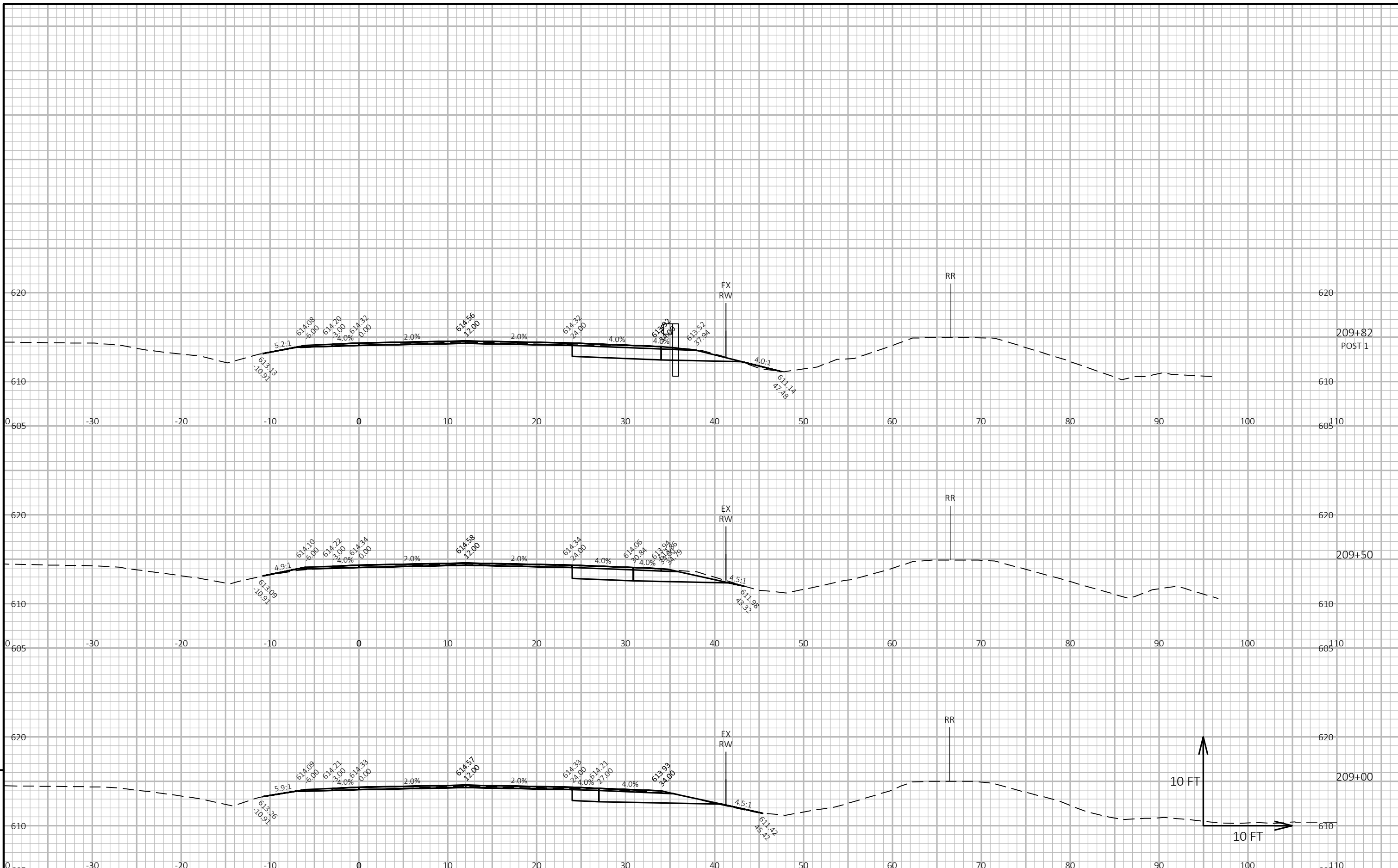
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:31 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 05



PROJECT NO: 1150-64-71

HWY: USH 41

COUNTY: MARINETTE

CROSS SECTIONS: USH 41 NORTHBOUND

SHEET

E



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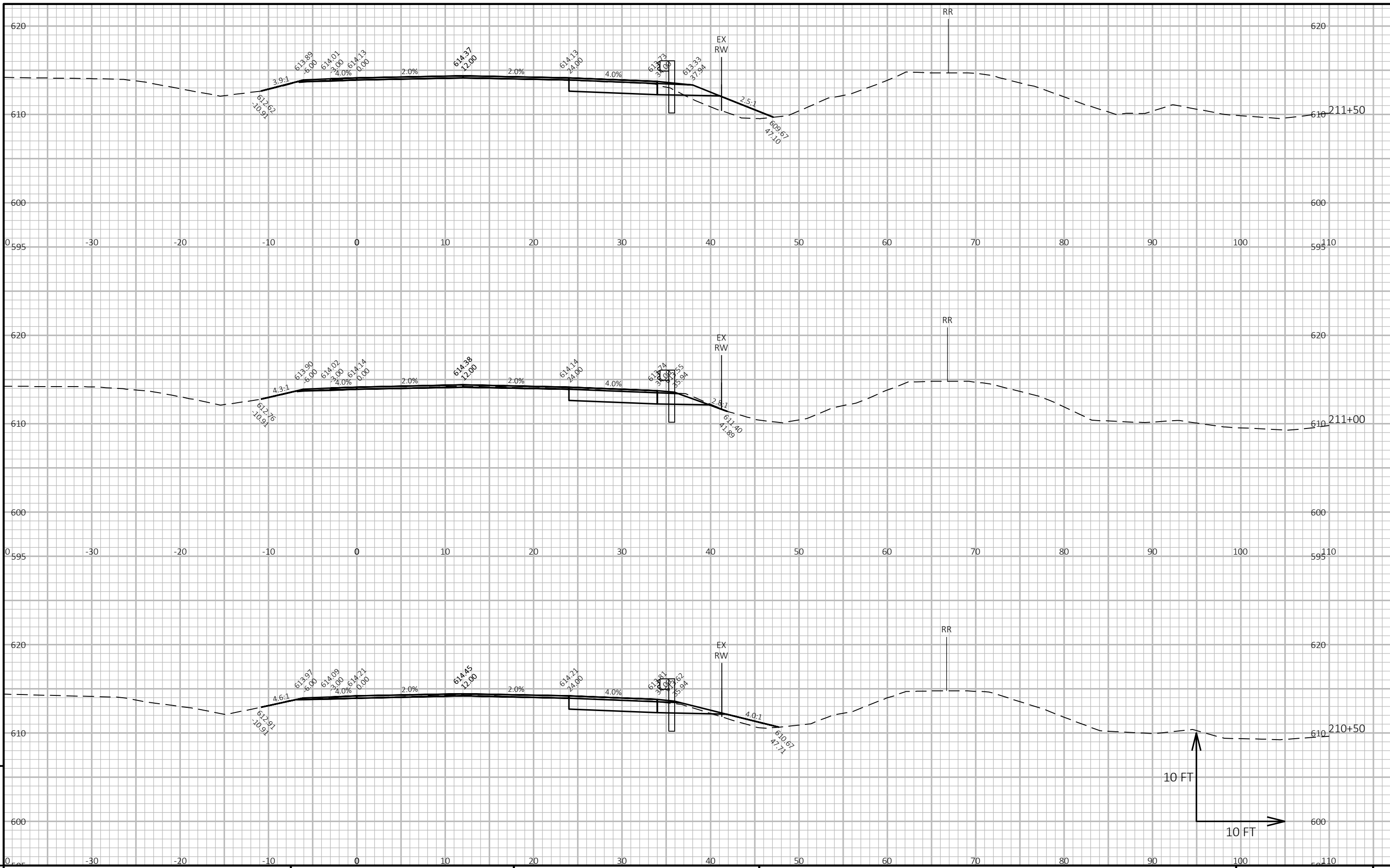
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:32 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 07





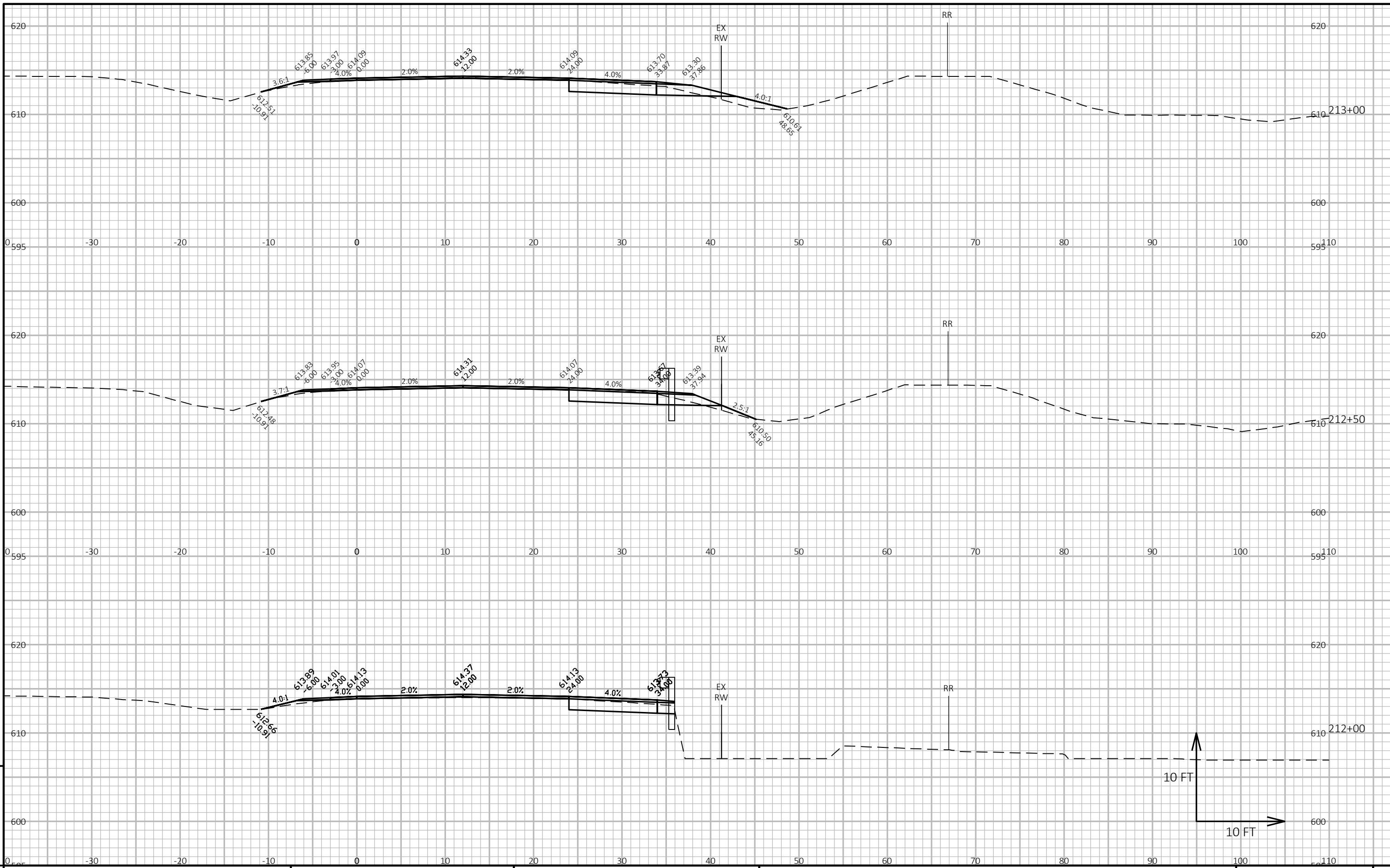
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:32 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 08



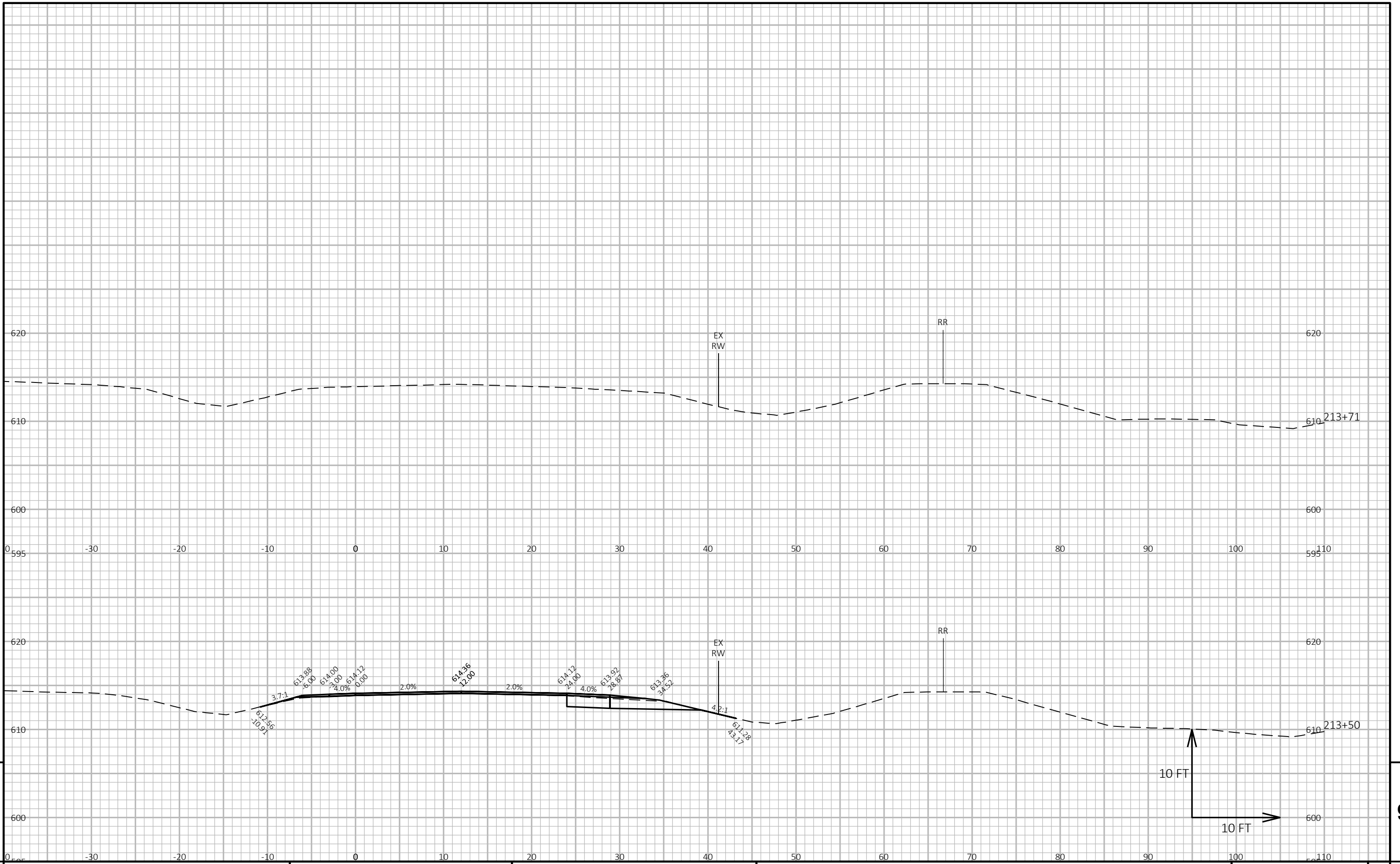
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 11/22/2021 9:32 AM      PLOT BY : MEYER, TERA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 09



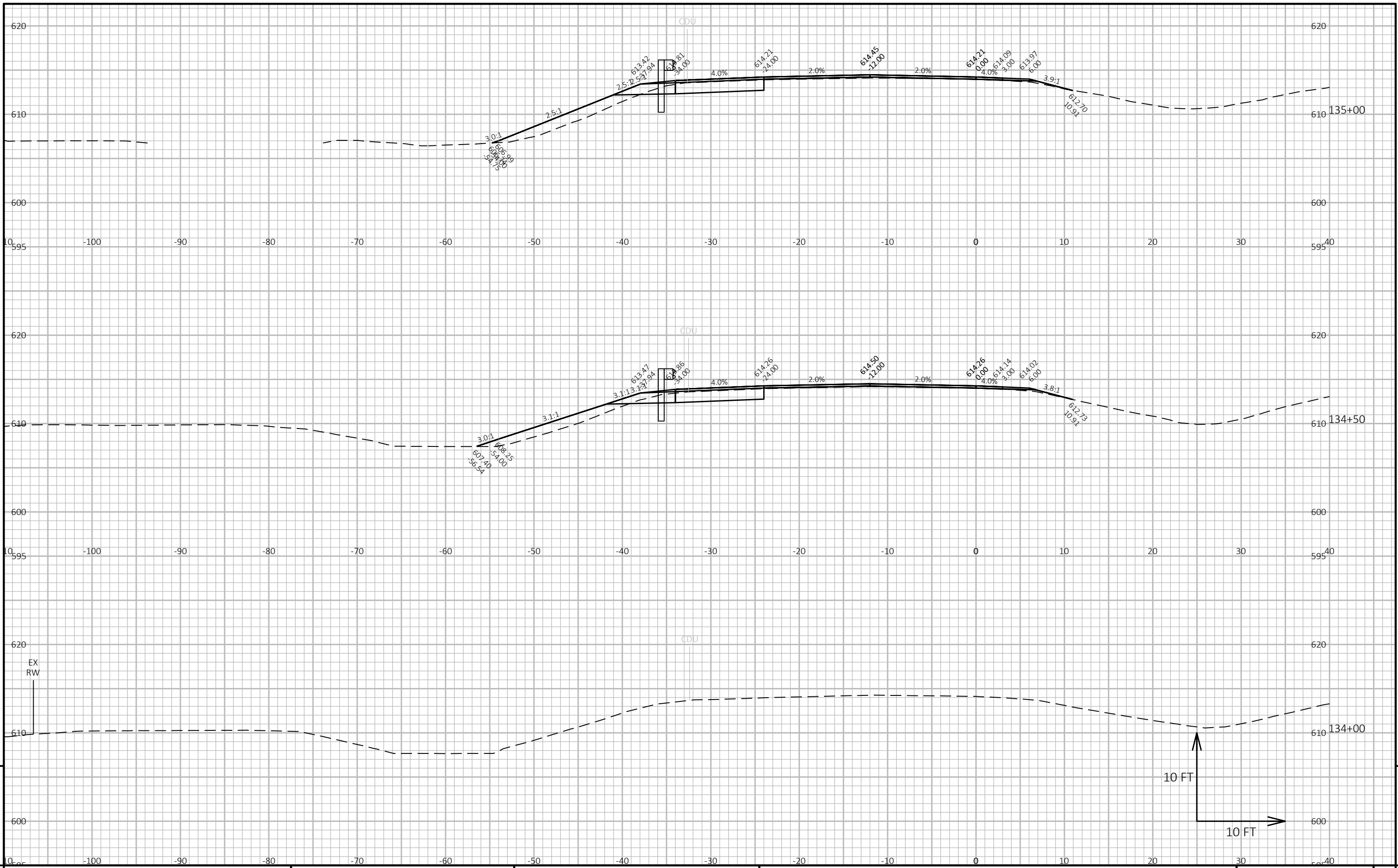
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 NORTHBOUND      SHEET

FILE NAME: S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE: 11/22/2021 9:32 AM      PLOT BY: MEYER, TERA      PLOT NAME:      PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 10



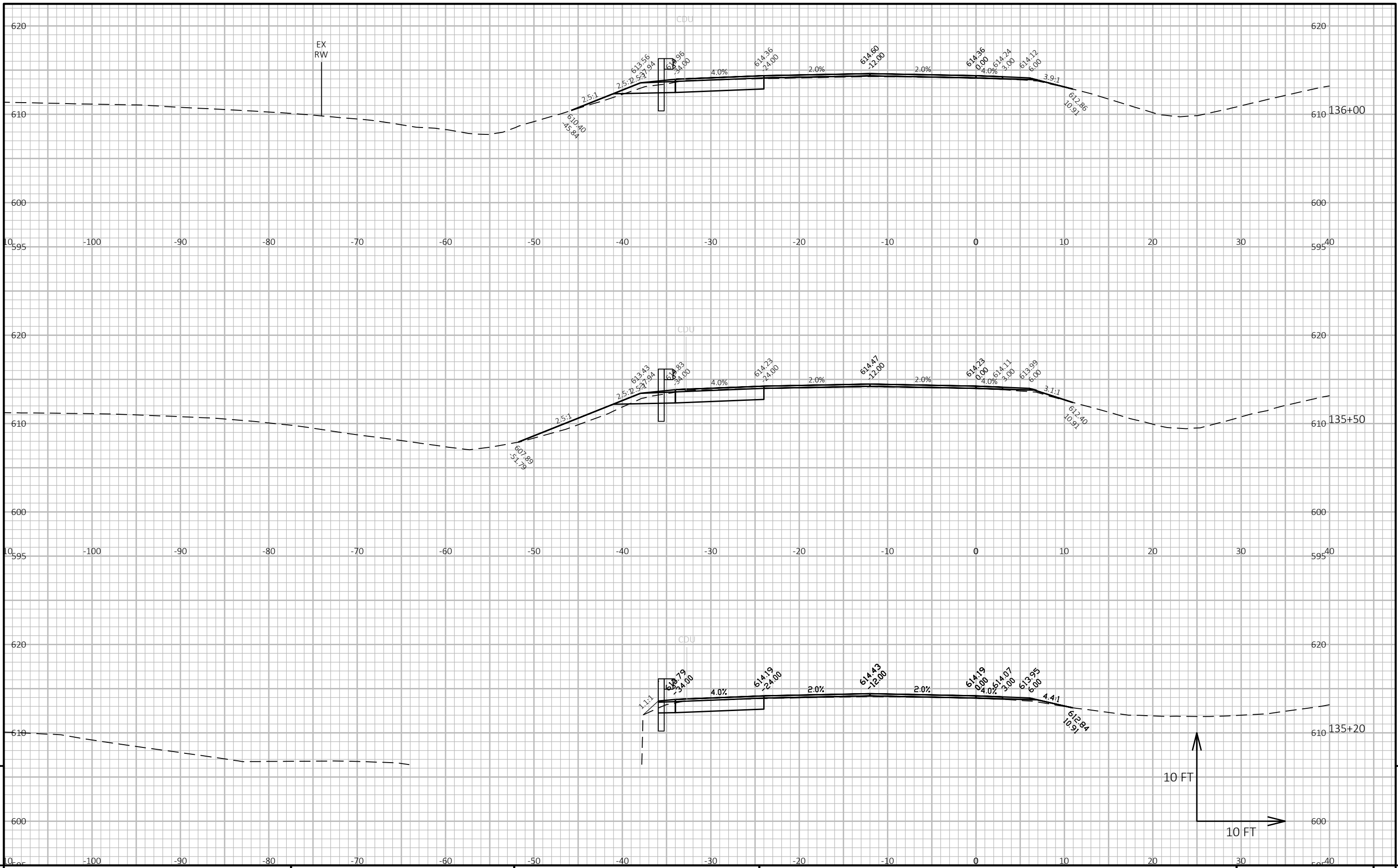
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 SOUTHBOUND      SHEET      E

FILE NAME: S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE: 9/20/2022 10:20 AM      PLOT BY: GRIMME, SARA      PLOT NAME:      PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 11



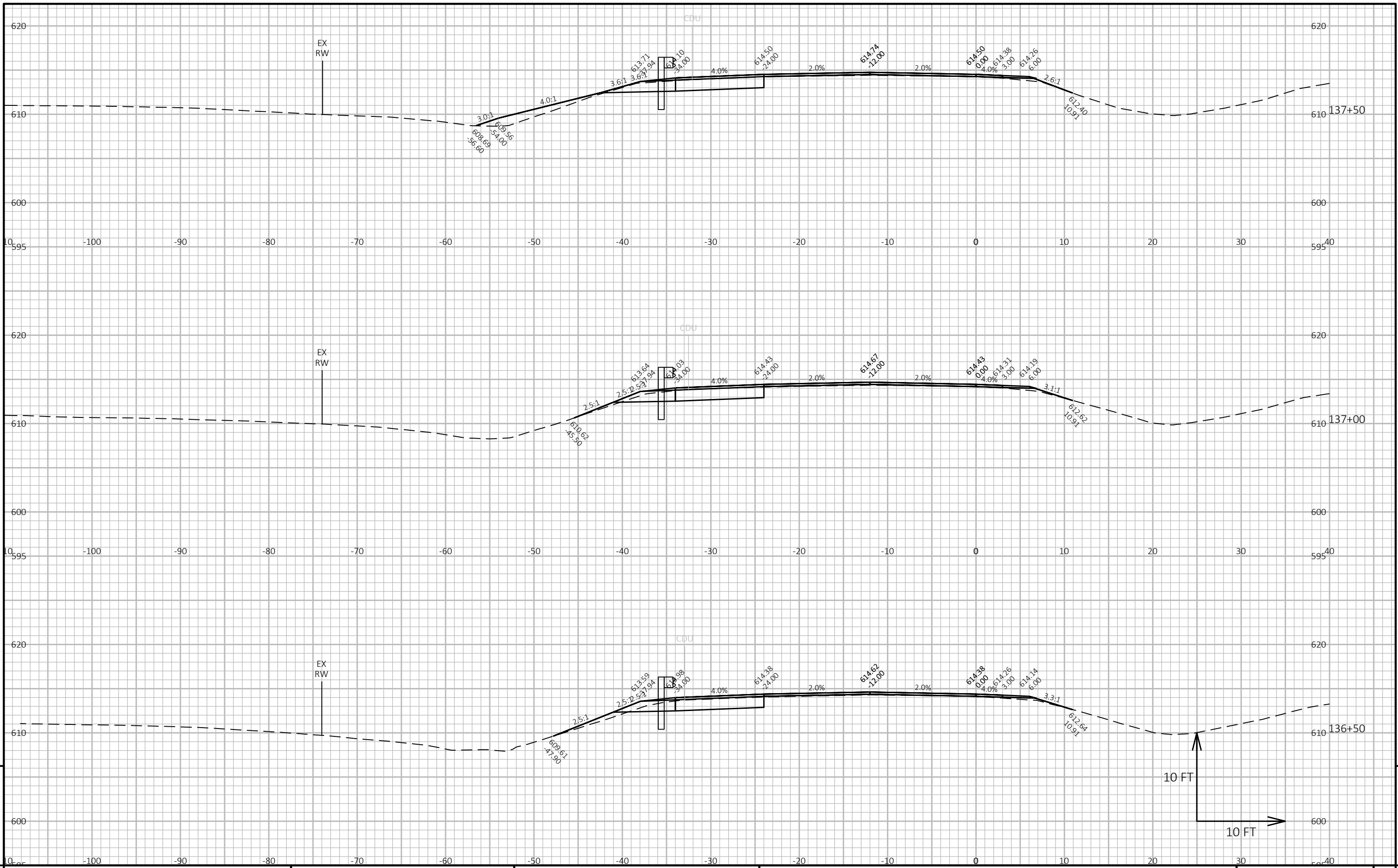
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 SOUTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 9/20/2022 10:23 AM      PLOT BY : GRIMME, SARA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 12



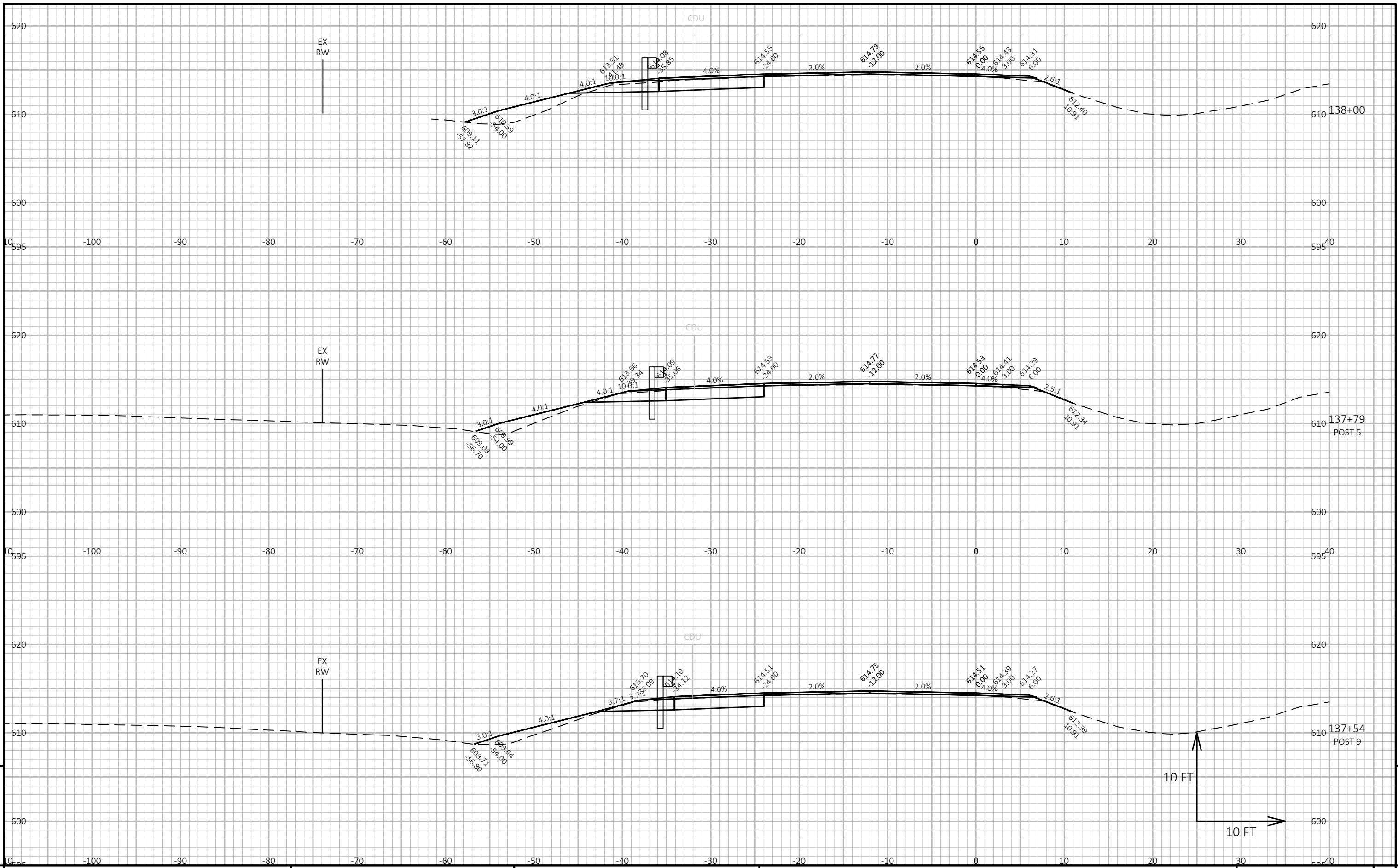
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 SOUTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 9/20/2022 10:25 AM      PLOT BY : GRIMME, SARA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 13



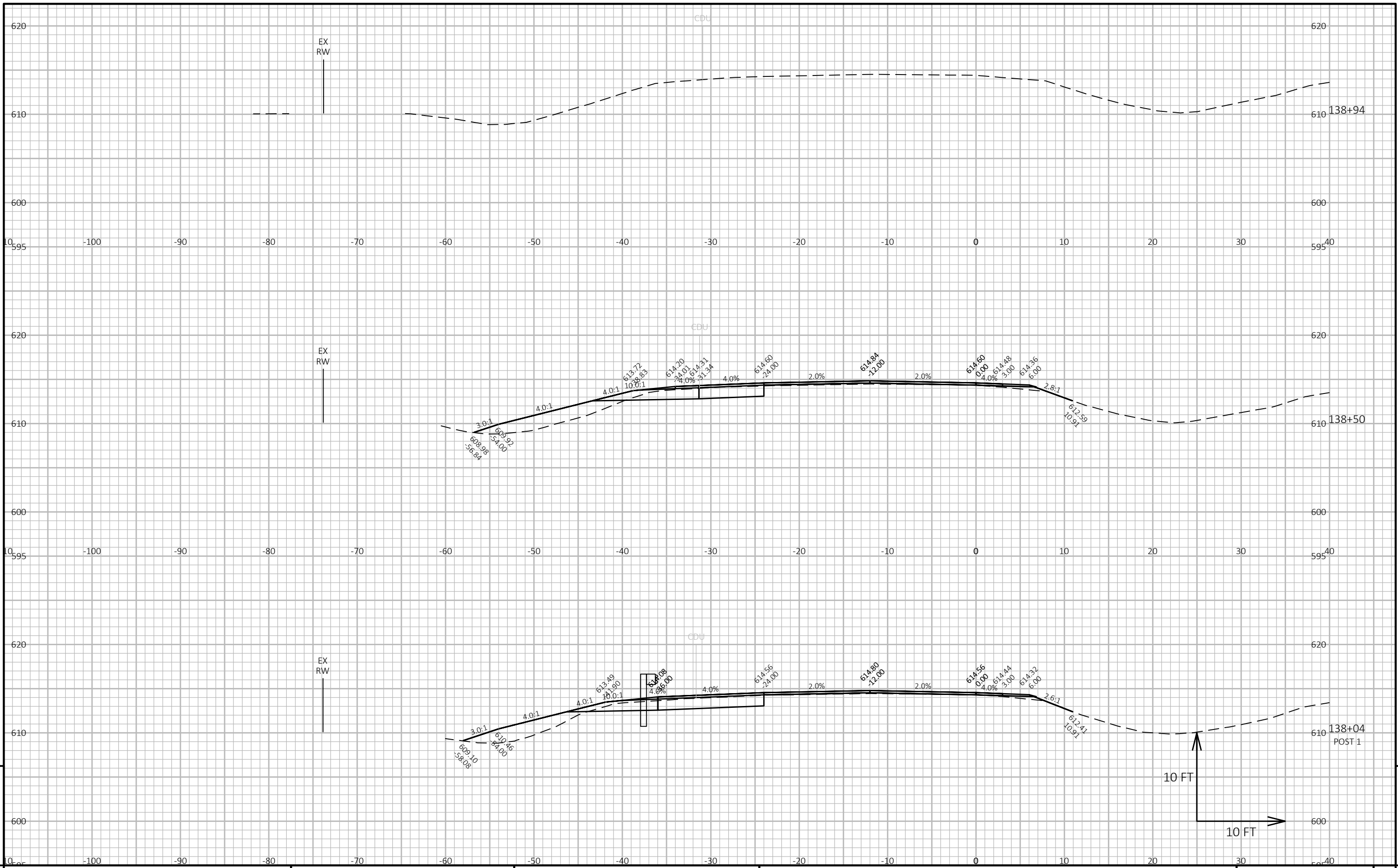
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PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 SOUTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 9/20/2022 10:26 AM      PLOT BY : GRIMME, SARA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 14



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9

PROJECT NO: 1150-64-71      HWY: USH 41      COUNTY: MARINETTE      CROSS SECTIONS: USH 41 SOUTHBOUND      SHEET      E

FILE NAME : S:\MAD\1000-1099\1089\937\DRAWINGS\CAD\11506400\SHEETSPLAN\090201\_XS.DWG      PLOT DATE : 9/20/2022 10:27 AM      PLOT BY : GRIMME, SARA      PLOT NAME :      PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.      WISDOT/CADD SHEET 49

LAYOUT NAME - 15



Notes



## ***Wisconsin Department of Transportation***

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