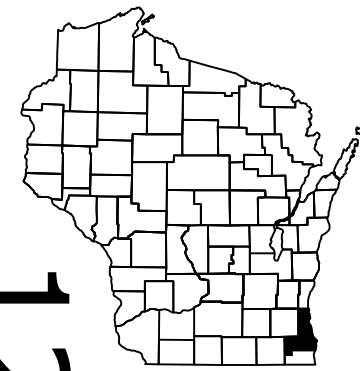


ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Cross Sections

TOTAL SHEETS = 328



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CALEDONIA - OAK CREEK

LINWOOD RD TO E OAKWOOD RD

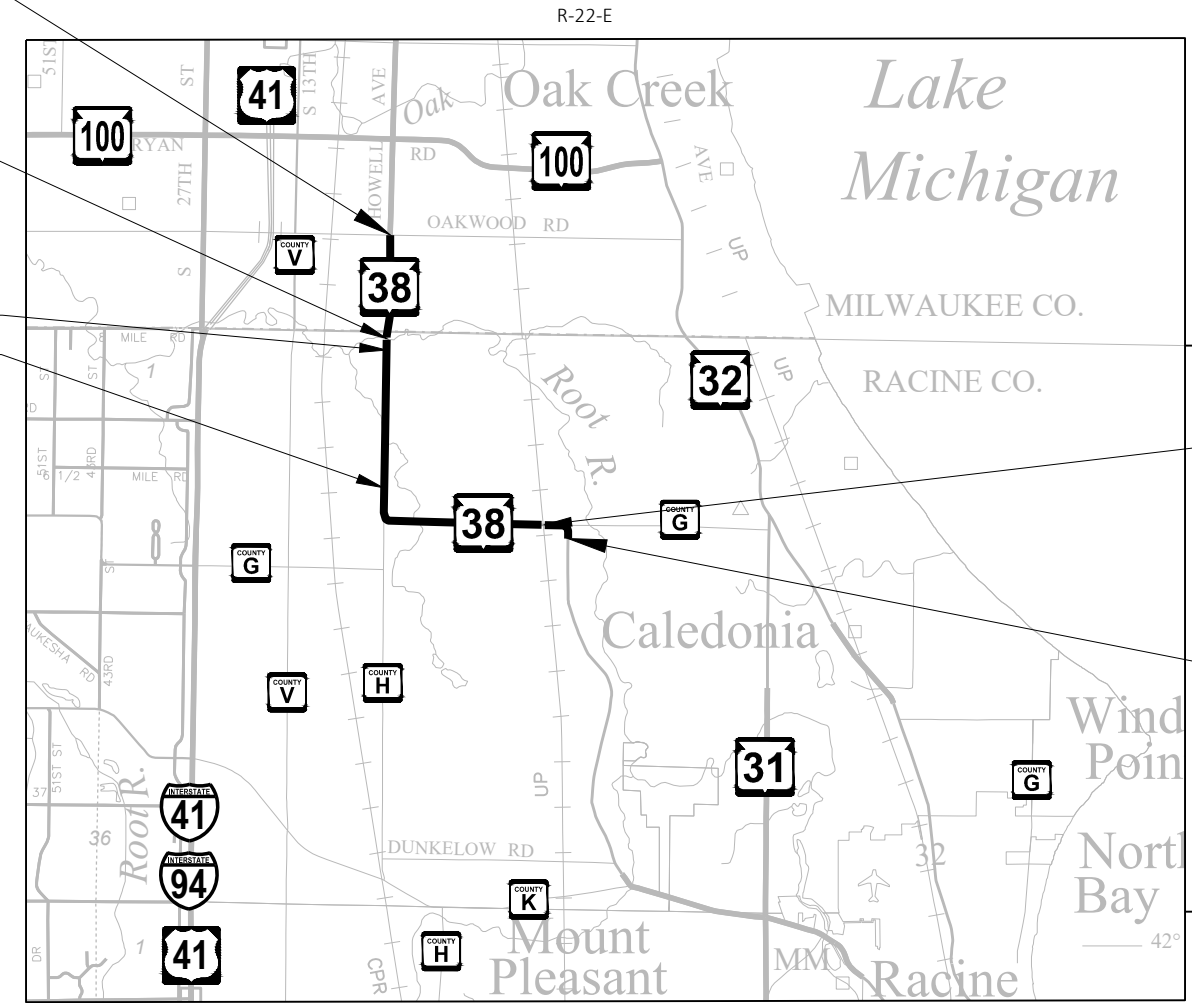
STH 38

RACINE & MILWAUKEE COUNTY

STATE PROJECT NUMBER
2290-24-70

END PROJECT
STA 477+23
Y= 232,938.23
X= 604,941.13

NET EXCEPTION TO CL LENGTH
STA 426+41 - STA 427+62



DESIGN DESIGNATION	STA 220+90 TO 265+00	STA 265+00 TO 293+00	STA 293+00 TO 429+00	STA 429+00 TO 477+23
A.A.D.T. 2021	= 5360	9660	11,430	7360
A.A.D.T. 2045	= 6460	11,800	12,550	8680
D.H.V. 2045	= 633	1156	1230	851
D.D.	= 55/45	55/45	55/45	55/45
T.	= 6.8%	6.8%	6.8%	6.8%
DESIGN SPEED	= 55 MPH	40 MPH	55 MPH	45 MPH
ESALS	= 1,034,250	1,877,750	2,098,250	1,403,500

CONVENTIONAL SYMBOLS

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2290-24-70		

DAAR ENGINEERING, INC.
www.daarcorp.com
Milwaukee, WI 53202
414-225-9817



DATE: 3/6/23 (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	DAAR ENGINEERING INC
Surveyor	DAAR ENGINEERING INC
Designer	JUSTIN SUYDAM, PE
Project Manager	SE REGION
Regional Examiner	JANET CANNON, PE
Regional Supervisor	

APPROVED FOR THE DEPARTMENT
DATE: 3/6/2023 (Signature)

GENERAL NOTES

MISCELLANEOUS

DETAILS OF CONSTRUCTION NOT SHOWN SHALL BE IN ACCORDANCE WITH THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

UNLESS NOTED ON THE PLAN, ALL STATIONS AND OFFSETS ARE BASED OFF OF THE STH 38 REFERENCE LINE.

WITH THE EXCEPTION OF THE RIGHT OF WAY PLAT LOCATIONS, EXISTING RIGHT OF WAY WAS OBTAINED FROM RACINE COUNTY AND MILWAUKEE COUNTY GIS AND SHALL BE CONSIDERED APPROXIMATE.

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

DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND MEASURED IN THE FIELD FOR MATCHING PURPOSES.

THE LOCATION OF EXISTING OR PROPOSED UTILITIES, AS NOTED IN THE PLANS, ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS AND SERVICES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPALITY OR PUBLIC AGENT WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

A SAWED JOINT IS REQUIRED WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION, AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT.

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

PRIOR TO THE PLACEMENT OF STEEL PLATE BEAM GUARD OR MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.

TRAFFIC CONTROL

SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATIONS AND SPACING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO MEET FIELD CONDITIONS.

ALL SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED OR REMOVED AS NEEDED AND/OR AS DIRECTED BY THE ENGINEER. NO "WORKING" LIGHTS SHALL BE VISIBLE ON A COVERED OR LAID DOWN SIGN.

ALL EXISTING CONFLICTING PAVEMENT MARKING SHALL BE REMOVED.

A FLAGGER MAY BE REQUIRED WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE "WORK/CLOSED" AREAS IF WARRANTED BY CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.

EXISTING DRIVEWAYS AND FIELD ENTRANCES SHALL BE RESTORED IN KIND AS DIRECTED BY THE ENGINEER IN THE FIELD AND AT THE LOCATION DETERMINED BY THE ENGINEER.

THE EXACT LOCATION OF PRIVATE ENTRANCES IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES AND PIPES SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER TO FIT EXISTING FIELD CONDITIONS.

VERIFY THE EXISTING STORM SEWER SYSTEM CONNECTION LOCATIONS AND ELEVATIONS BEFORE ORDERING DRAINAGE STRUCTURES AND PIPES. NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE INFORMATION SHOWN ON THE PLANS BEFORE INSTALLING THE PROPOSED STORM SEWER.

EROSION CONTROL

ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY THAT ARE NOT THE RESULT OF CONTRACT ITEMS SHALL BE RESTORED, SEEDED, FERTILIZED, AND EROSION MATTED AT THE CONTRACTOR'S EXPENSE.

EROSION CONTROL DEVICES ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINED THE DEVICE IS NO LONGER REQUIRED.

RESTORE AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND EROSION MAT TOPSOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN FOURTEEN (14) CALENDAR DAYS. SEED THOSE AREAS WITH TEMPORARY SEED.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED MATERIAL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, APPLY TEMPORARY SEED TO THE STOCKPILE.

WHEN PERFORMING ROADWAY CLEANING OPERATIONS, THE CONTRACTOR SHALL USE EQUIPMENT HAVING VACUUM OR WATER SPRAY MECHANISMS TO ELIMINATE THE DISPERSION OF DUST. IF VACUUM EQUIPMENT IS EMPLOYED, IT SHALL HAVE SUITABLE SELF-PARTICULATE COLLECTORS TO PREVENT DISCHARGE FROM THE COLLECTION BIN TO THE ATMOSPHERE.

SEE PROJECT SPECIAL PROVISIONS FOR ADDITIONAL EROSION CONTROL REQUIREMENTS TO BE FOLLOWED

HMA PAVEMENT

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LBS/SY-IN

STANDARD ABBREVIATIONS

AGG	AGGREGATE
ASPH	ASPHALT
CE	COMMERCIAL ENTRANCE
CONC	CONCRETE
PE	PRIVATE ENTRANCE
FE	FIELD ENTRANCE

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES & CONTACTS
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- GUARDRAIL/EROSION CONTROL
- CURB RAMP DETAILS
- DRAINAGE/EROSION CONTROL
- PERMANENT SIGNING
- TRAFFIC SIGNALS
- PAVEMENT MARKING
- TRAFFIC CONTROL
- ALIGNMENT DETAILS
- SURVEY CONTROL

HMA PAVEMENT NOTES

CONSTRUCT HMA PAVEMENT WITH THE FOLLOWING LAYERS

<u>PAVEMENT LOCATIONS (SEE TYPICAL SECTIONS FOR EXACT STATIONS)</u>	<u>ASPHALTIC SURFACE MILLING DEPTH</u>	<u>TOTAL PAVEMENT THICKNESS</u>	<u>TYPE</u>
LINWOOD ROAD TO OAKWOOD ROAD	2"	2" UPPER	4 MT 58-28 S

UTILITIES AND CONTACTS

KEN NINE
AT&T LEGACY
110 N. MAIN STREET
CULVER, IN 46511
(574) 904-6336
knine@jmceainc.com

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39869 LINN ST
CANTON, MI 48147
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dd2579@att.com

NATHAN GIBERT
AT&T WISCONSIN
411 7TH STREET
RACINE, WI 53403
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CALEDONIA STORM SEWER UTILITY COMMISSION -
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abunkelman@caledonia-wi.gov

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8040 S 6TH STREET
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aledger@oakcreekwi.gov

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bjohnston@oakcreekwi.gov

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1320 N DR MARTIN LUTHER KING JR DR
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(414) 908-4863
gerald.schultz@charter.com

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SPRINT COMMUNICATIONS CO LP
1457 COUNTY ROAD 545 S
SKANDIA, MI 49885
(513) 462-7221
Steven.Hughes1@T-Mobile.com

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blui@caledoniawitility.com

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WE ENERGIES - GAS
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JAMES NELSON
WE ENERGIES - ELECTRIC
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(262) 884-6734
James.Nelson@we-energies.com

JOYCE MURPHY
WISCONSIN DOT - TRAFFIC SIGNALS
141 NW BARSTOW STREET
WAKESHA, WI 53188
(262) 548-5933
joyce.murphy@dot.wi.gov

ERIC PEREA
WISCONSIN DOT - STREET LIGHTING
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 574-5422
Eric.Perea@dot.wi.gov

JASON KENNY
TDS METROCOM LLC
16924 W. VICTOR RD
NEW BERLIN, WI 53151
(262) 514-2127
jason.kenny@tdstelcom.com

SEWRPC CONTACT

ROB MERRY
W239 N 1812 ROCKWOOD DRME
PO BOX 1607
WAUKESHA, WI 53187-1607
(262) 953-4289
sewrp@sewrpc.org

WISDNR CONTACT

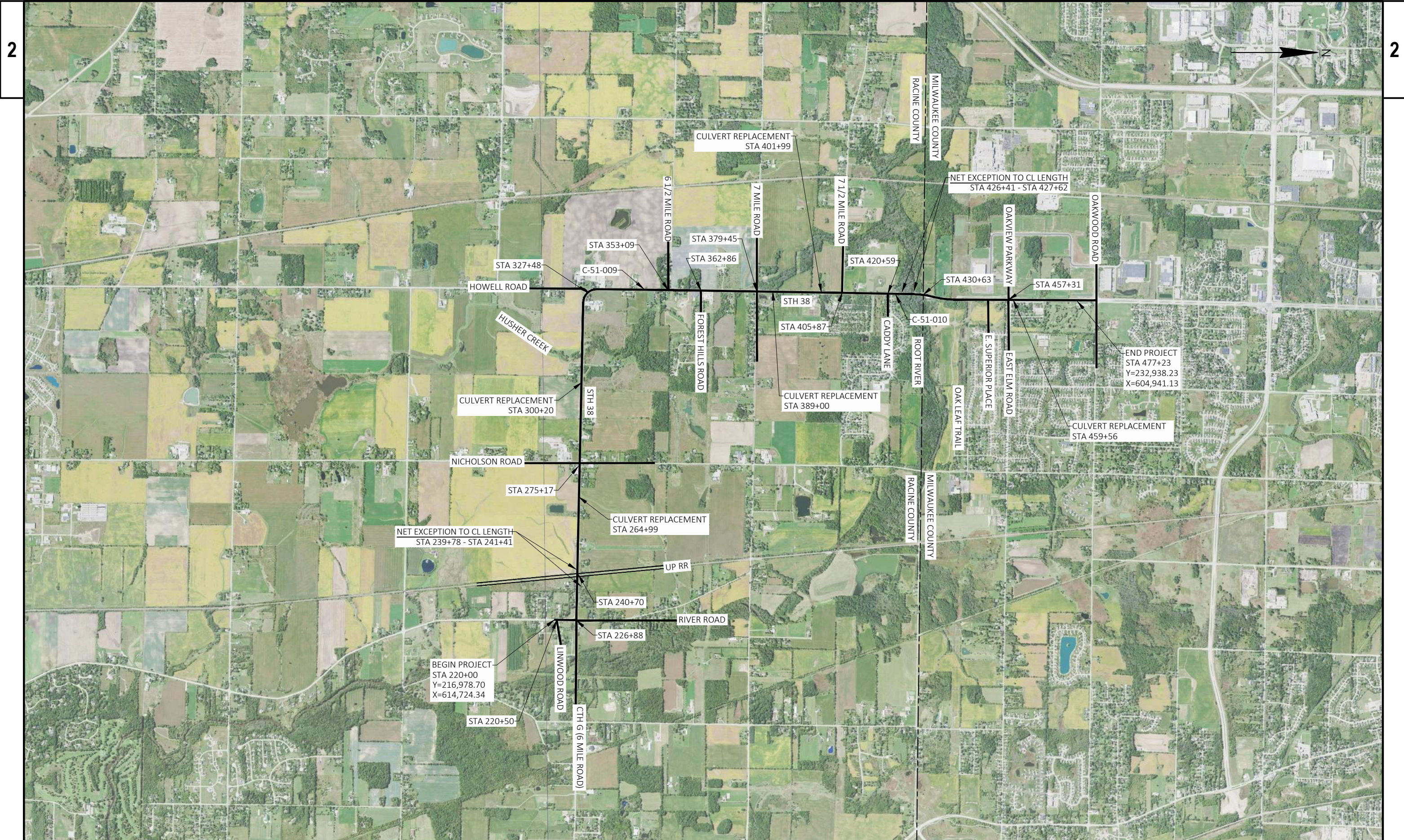
BENTON STELZEL
141 NW BARSTOW STREET, ROOM 180
WAUKESHA, WI 53188
(262) 623-0194
benton.stelzel@wisconsin.gov

OTHER CONTACTS

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justin.suydam@dot.wi.gov

DAAR ENGINEERING, INC
ANDY SMIEJA, PE
(414) 935-4350
andy.smieja@daarcorp.com

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



PROJECT NO: 2290-24-70

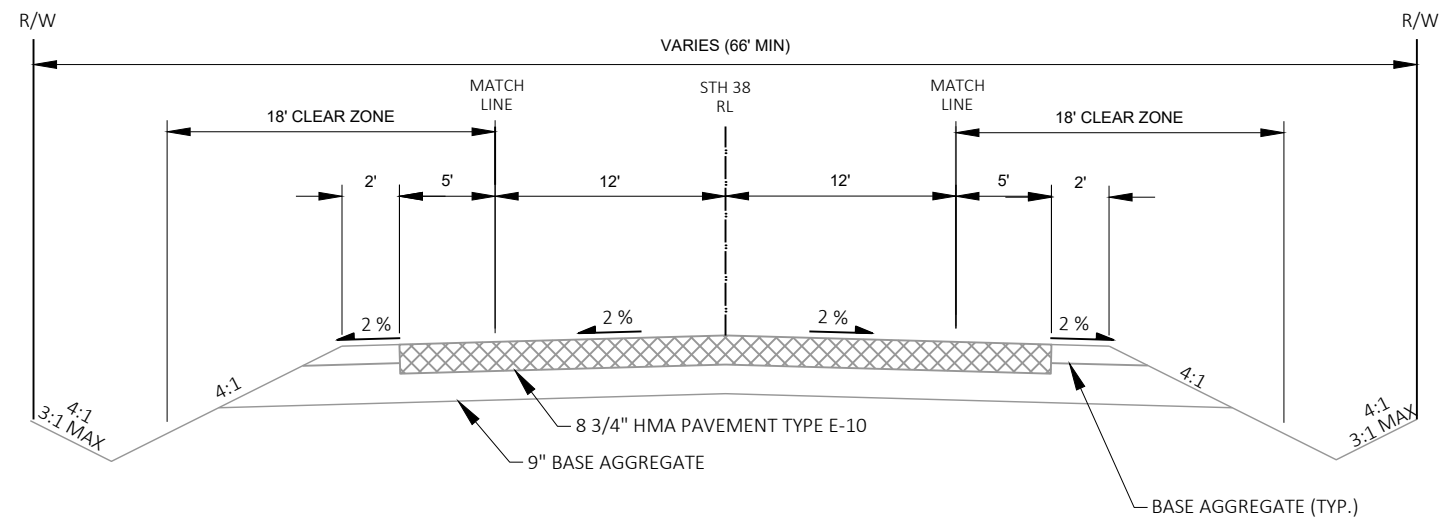
HWY: STH 38

COUNTY: RACINE & MILWAUKEE

PROJECT OVERVIEW

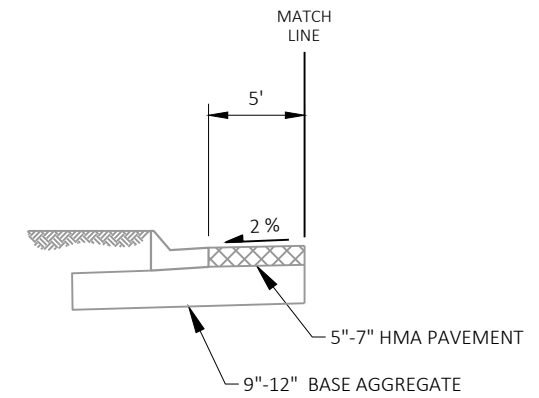
SHEET

E



EXISTING TYPICAL SECTION

STH 38
 STA 220+00 - STA 233+13
 STA 307+78 - STA 310+78
 STA 320+28 - STA 338+28
 STA 369+28 - STA 372+28

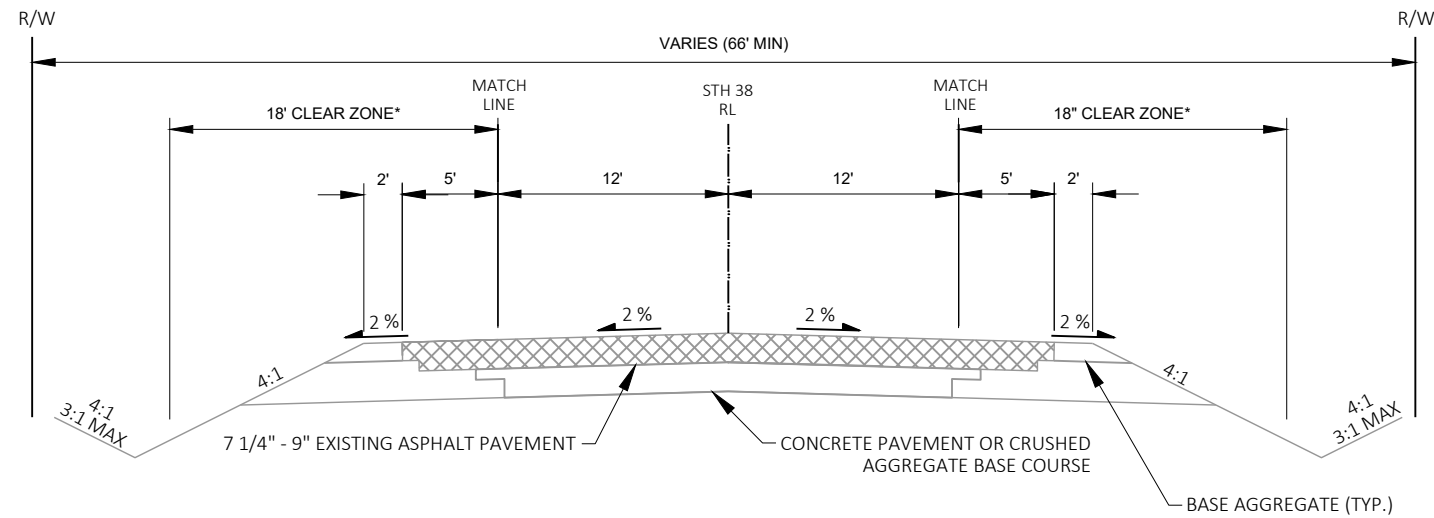


EXISTING TYPICAL CURB & GUTTER

STH 38

LT SHOWN, RT IS MIRROR IMAGE

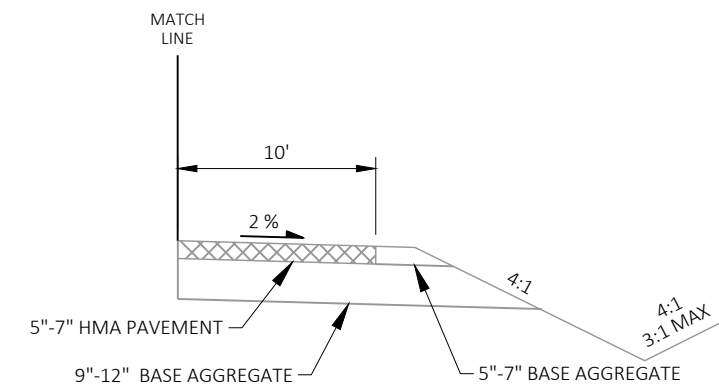
STA 322+27 - STA332+27 RT
 STA 326+82 - STA 331+09 LT
 STA 433+87.5 - STA 444+58 LT



EXISTING TYPICAL SECTION

STH 38
 STA 233+13 - STA 307+78
 STA 310+78 - STA 320+28
 STA 338+28 - STA 369+28
 STA 372+28 - STA 477+23

*CLEAR ZONE = 15' FROM STA 269+00 TO STA 281+00

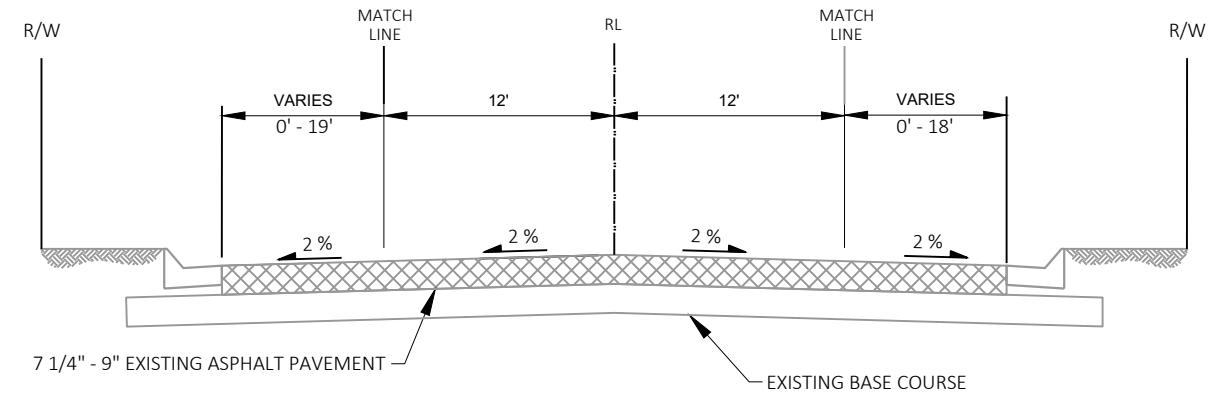


EXISTING TYPICAL BYPASS/TURN/TAPER LANE

STH 38

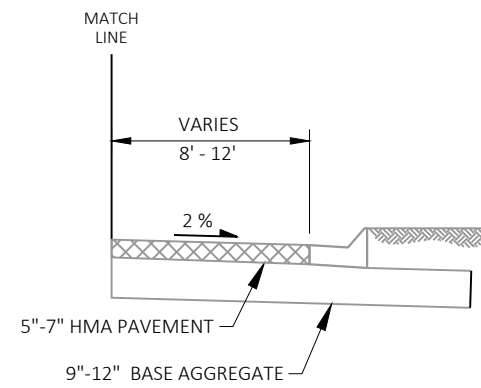
RT SHOWN, LT IS MIRROR IMAGE

STA 267+08 - STA 283+18 RT
 STA 267+98 - STA 282+58 LT
 STA 360+50 - STA 363+98 RT
 STA 403+03 - STA 408+88 RT
 STA 416+66 - STA 421+46 RT
 STA 417+58 - STA 422+92 LT
 STA 464+33 - STA 470+11 LT
 STA 464+99 - STA 468+28 RT



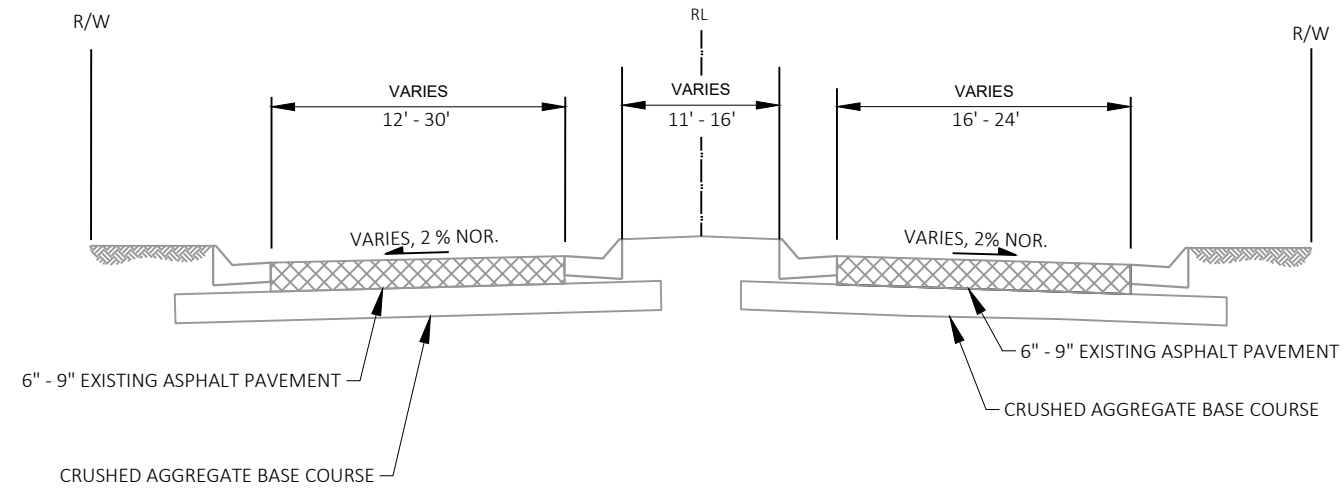
**EXISTING TYPICAL SECTION
SIDE ROAD**

- SIX MILE RD
- RIVER ROAD
- NICHOLSON RD
- SEVEN MILE RD
- FOREST HILLS RD
- CADDY LN
- E. SUPERIOR PLACE
- E ELM RD



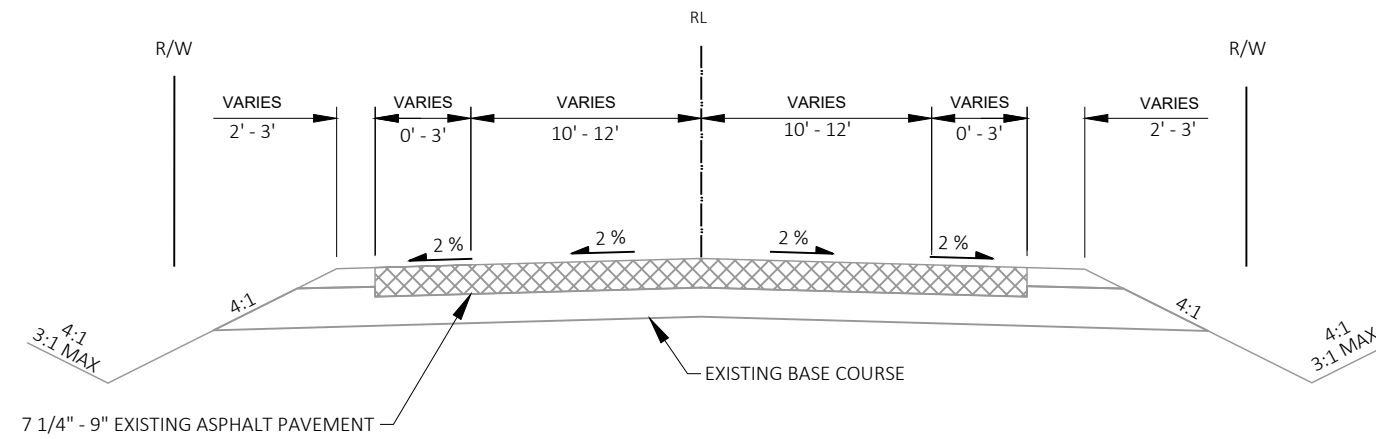
**EXISTING TYPICAL TURN LANE
SIDE ROAD**

- RT SHOWN, LT IS MIRROR IMAGE
- SIX MILE RD
- FOREST HILLS RD
- SEVEN MILE RD
- CADDY LANE
- E ELM RD



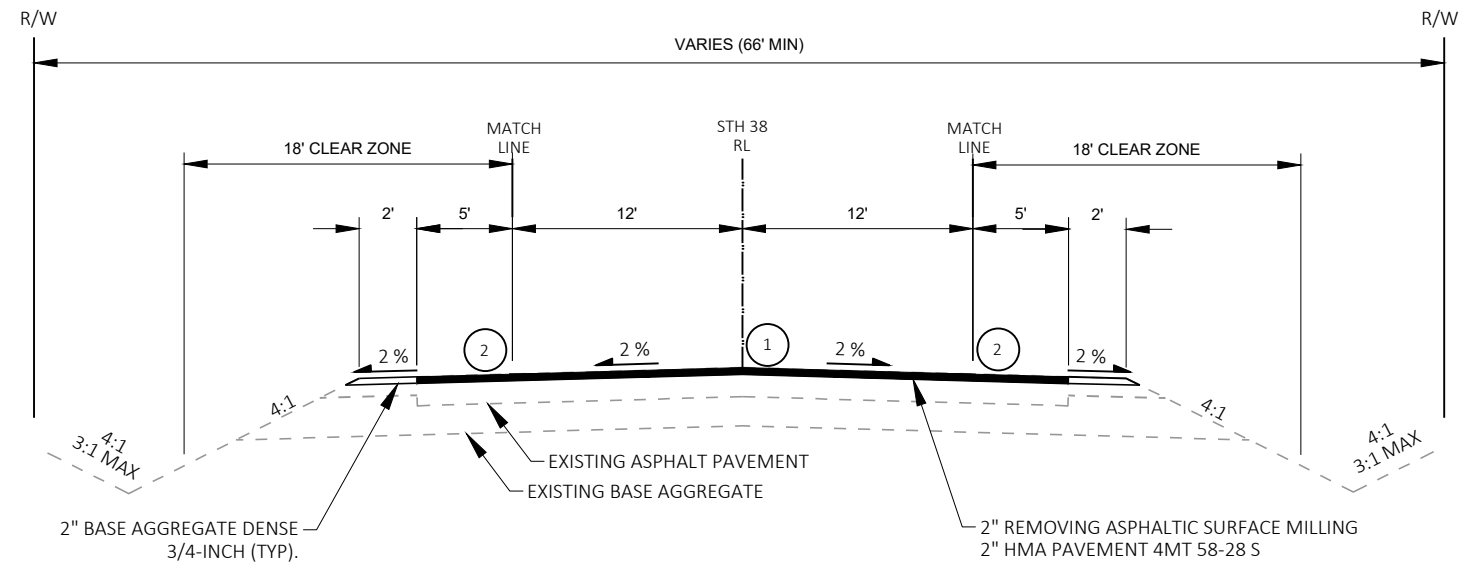
**EXISTING TYPICAL SECTION
SIDE ROAD**

CTH H
OAKVIEW PARKWAY



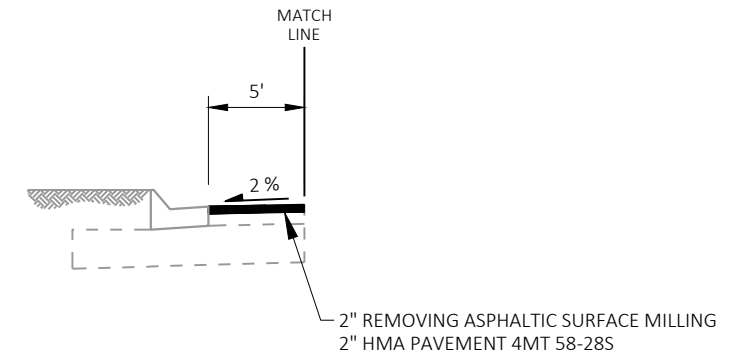
**EXISTING TYPICAL SECTION
SIDE ROAD**

LINWOOD ROAD
SIX AND ONE HALF MILE RD
SEVEN AND ONE HALF MILE RD



FINISHED TYPICAL SECTION
STH 38

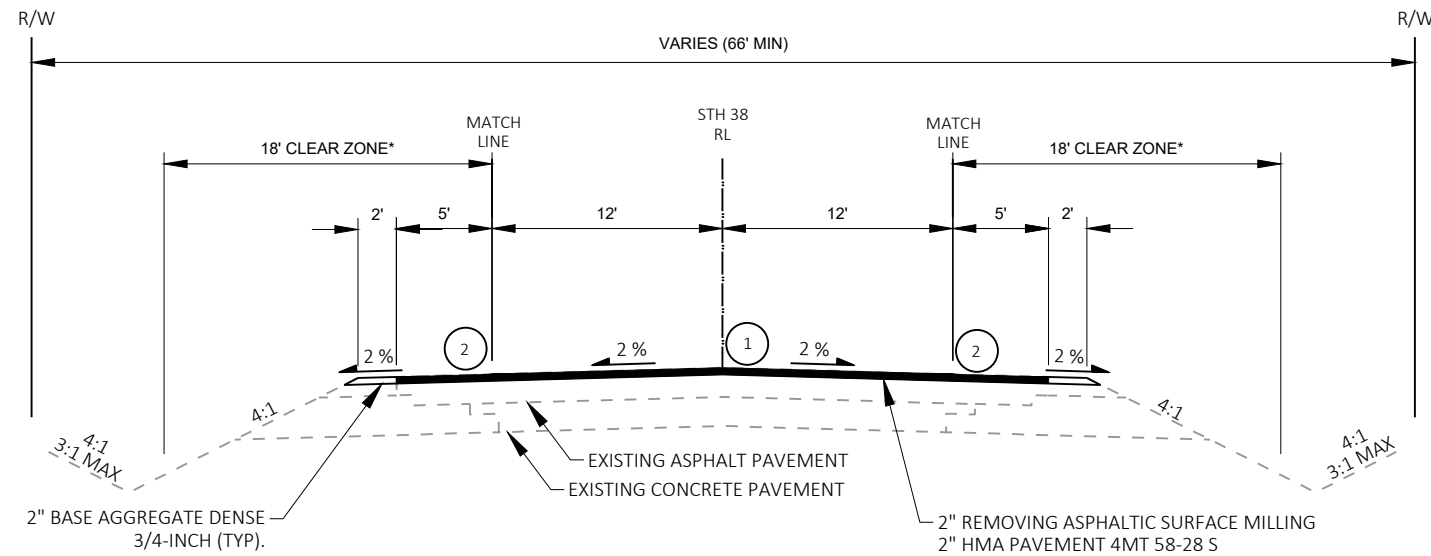
STA 220+00 - STA 233+13
 STA 307+78 - STA 310+78
 STA 320+28 - STA 338+28
 STA 369+28 - STA 372+28



FINISHED TYPICAL CURB & GUTTER
STH 38

LT SHOWN, RT IS MIRROR IMAGE

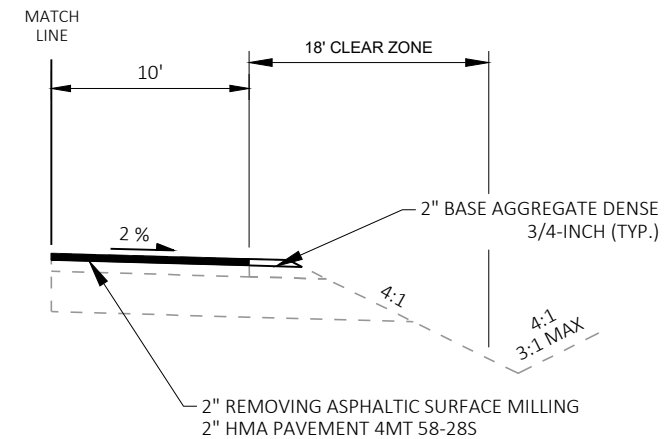
STA 322+27 - STA 332+27 RT
 STA 326+82 - STA 331+09 LT
 STA 433+87.5 - STA 444+58 LT



FINISHED TYPICAL SECTION
STH 38

STA 233+13 - STA 307+78
 STA 310+78 - STA 320+28
 STA 338+28 - STA 369+28
 STA 372+28 - STA 477+23

*CLEAR ZONE = 15' FROM
 STA 269+00 TO STA 281+00



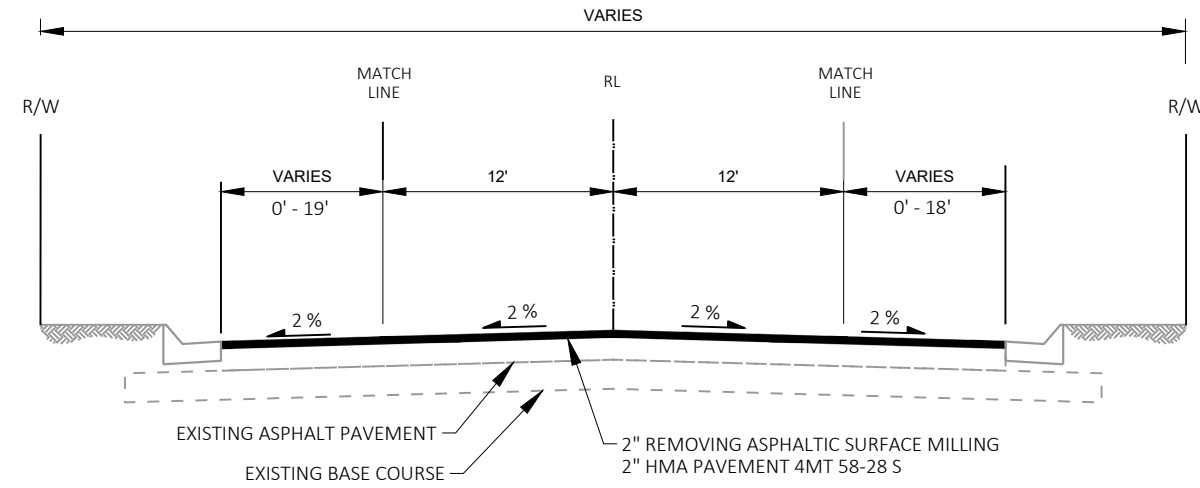
FINISHED TYPICAL BYPASS/TURN/TAPER LANE
STH 38

RT SHOWN, LT IS MIRROR IMAGE

STA 266+81 - STA 283+36 RT
 STA 267+98 - STA 283+36 LT
 STA 360+50 - STA 363+98 RT
 STA 403+03 - STA 408+95 RT
 STA 416+66 - STA 421+52 RT
 STA 417+58 - STA 422+92 LT
 STA 464+33 - STA 470+11 LT
 STA 464+99 - STA 468+28 RT

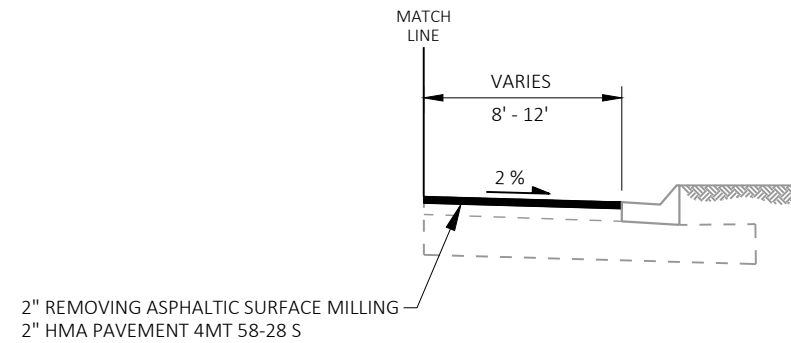
- ① ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL
- ② ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL (TYPE 1)

NOTE: NO ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL AND NO ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL (TYPE 1) IN MILWAUKEE COUNTY. COUNTY LINE STA. 430+63



**FINISHED TYPICAL SECTION
SIDE ROAD**

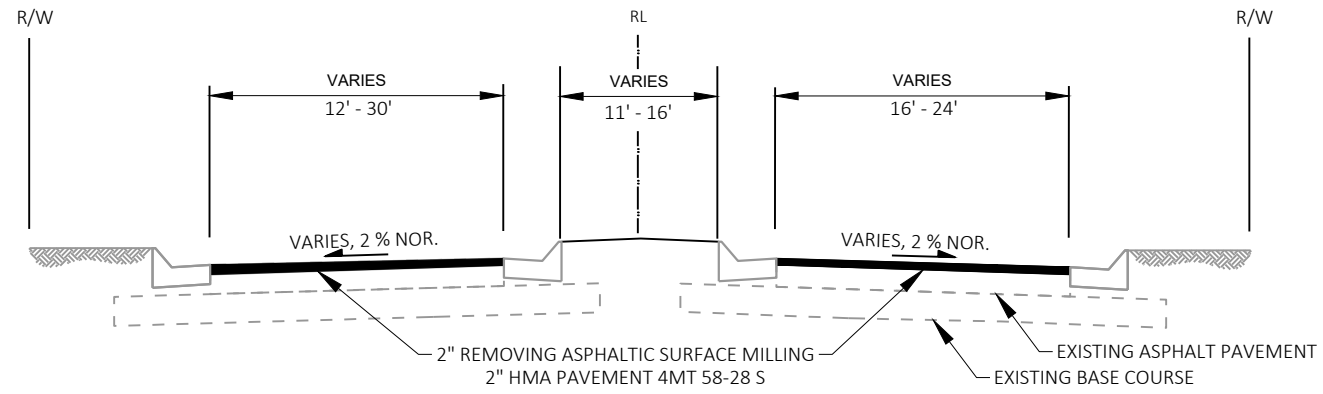
- SIX MILE RD
- RIVER ROAD
- NICHOLSON RD
- SEVEN MILE RD
- FOREST HILLS RD
- CADDY LN
- E. SUPERIOR PLACE
- E ELM RD



**FINISHED TYPICAL TURN LANE
SIDE ROAD**

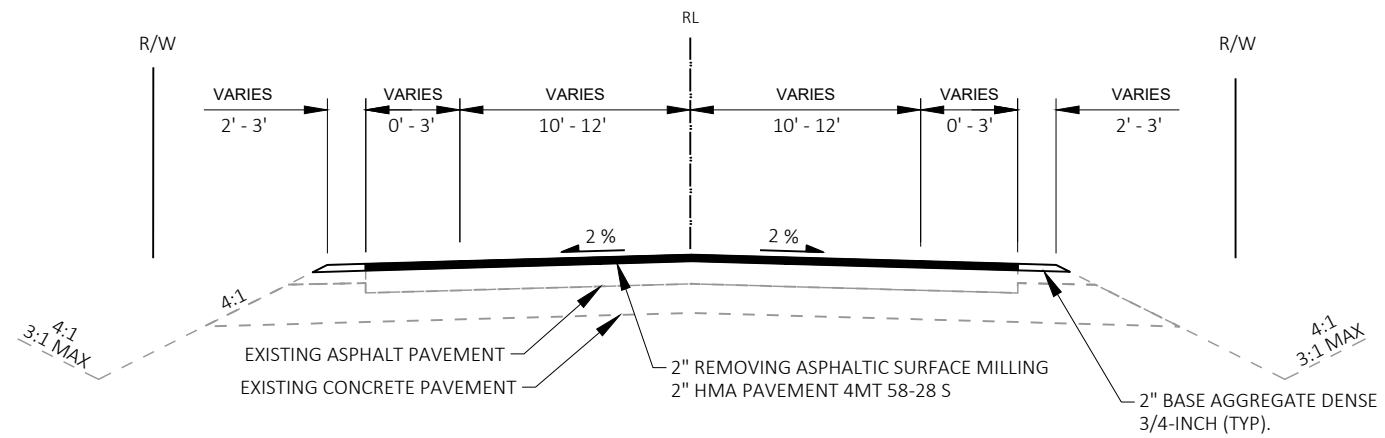
RT SHOWN, LT IS MIRROR IMAGE

- SIX MILE RD
- FOREST HILLS RD
- SEVEN MILE RD
- CADDY LANE
- E ELM RD



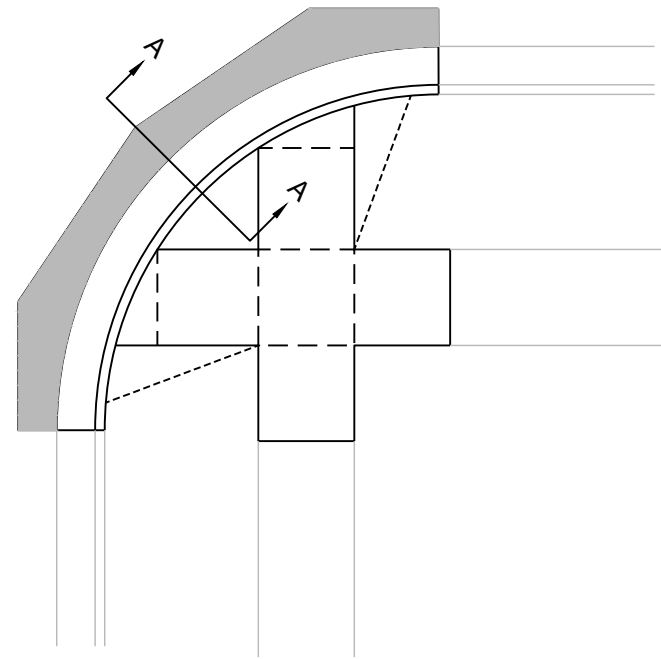
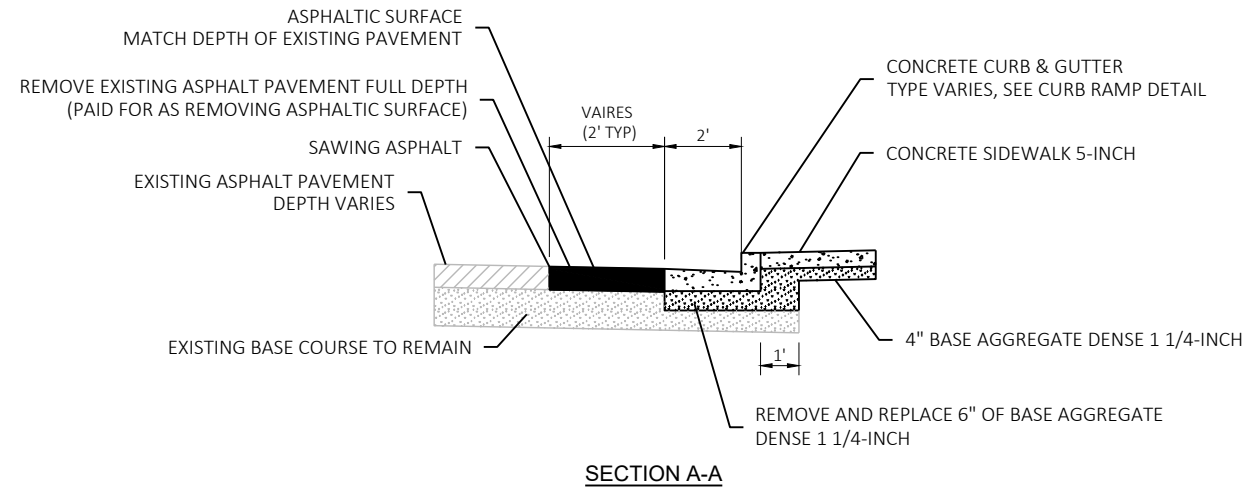
**FINISHED TYPICAL SECTION
SIDE ROAD**

CTH H
OAKVIEW PARKWAY

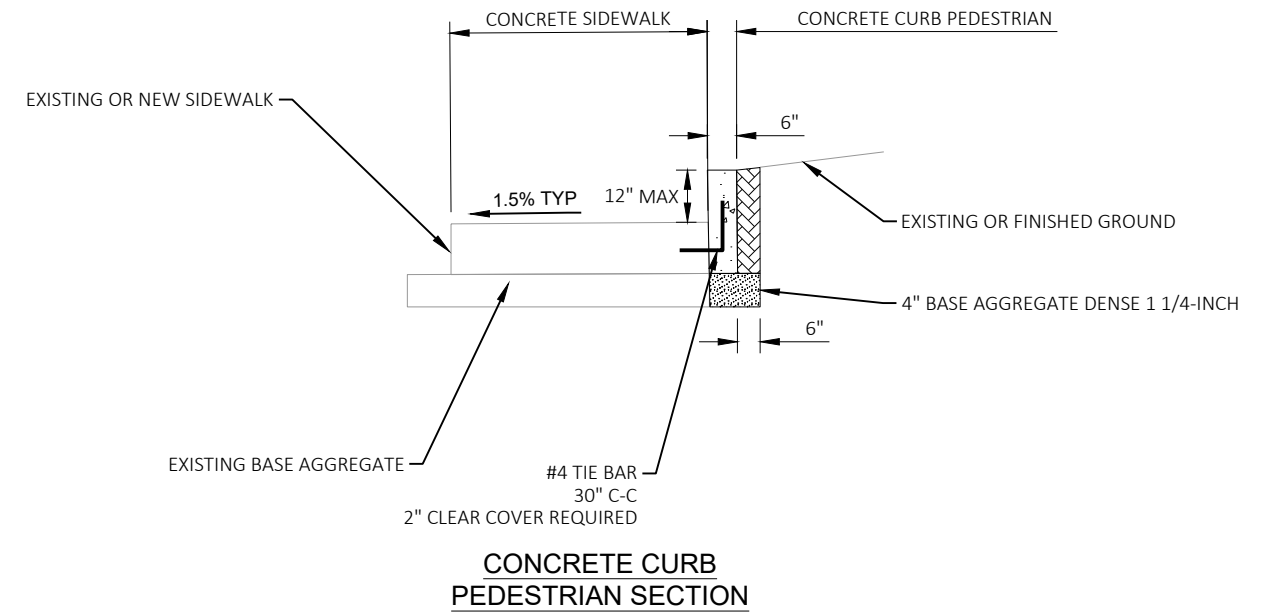
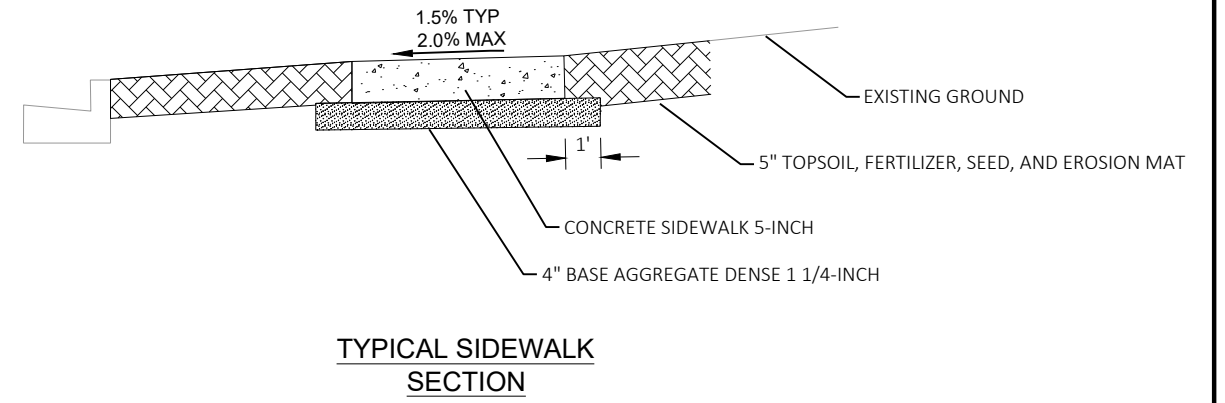


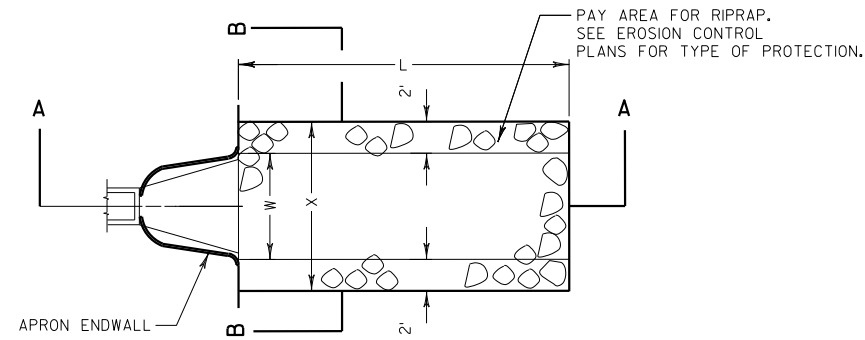
**FINISHED TYPICAL SECTION
SIDE ROAD**

LINWOOD ROAD
SIX AND ONE HALF MILE RD
SEVEN AND ONE HALF MILE RD



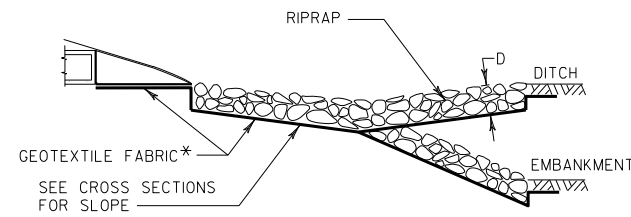
**CURB & GUTTER REPLACEMENT
ADJACENT TO ASPHALT
PAVEMENT**





PLAN VIEW

L = 3 x W (NOR) OR 10' MIN
OR AS INDICATED IN THE PLANS
OR AS DIRECTED BY THE ENGINEER



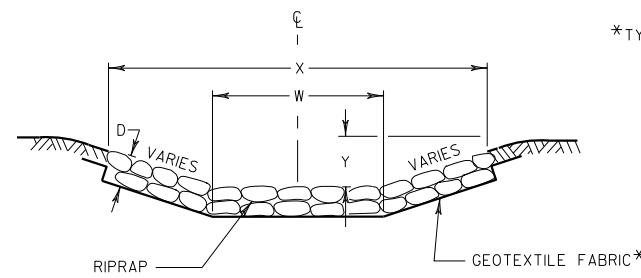
SECTION A-A

D = 18" FOR RIPRAP MEDIUM
24" FOR RIPRAP HEAVY

X = W+4' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
W+6' FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

Y = 0' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
6" FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

*TYPE HR (FOR RIPRAP HEAVY AND MEDIUM ONLY)



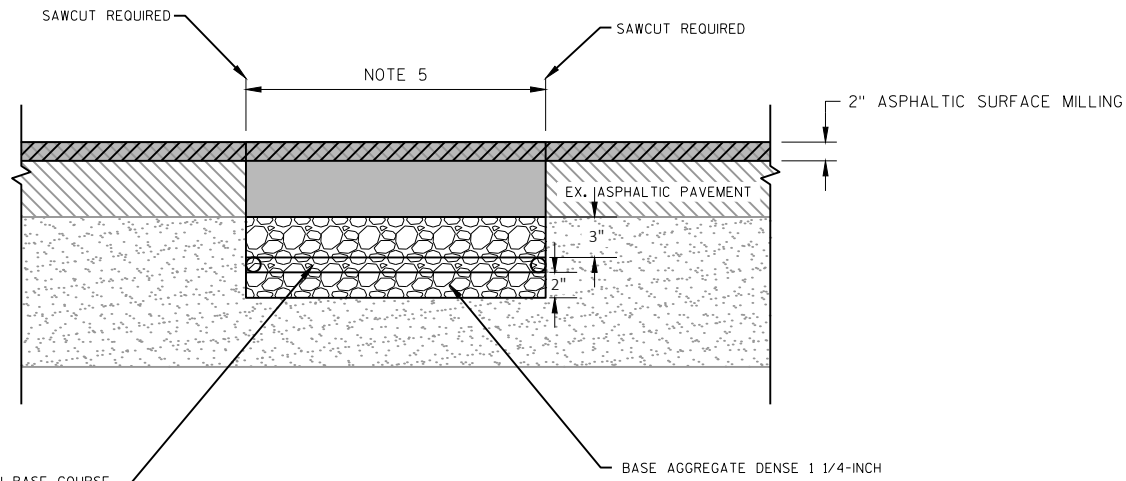
SECTION B-B

CONSTRUCTION NOTES:

1. GEOTEXTILE FABRIC SHALL EXTEND BENEATH THE ENTIRE LENGTH OF THE APRON ENDWALL SECTION. INSTALL ON PREPAVED FOUNDATION. GRADE PRIOR TO END WALL INSTALLATION.
2. COMPLETE GEOTEXTILE FABRIC AND RIPRAP SECTION INSTALLATION PRIOR TO STORM WATER FLOW.

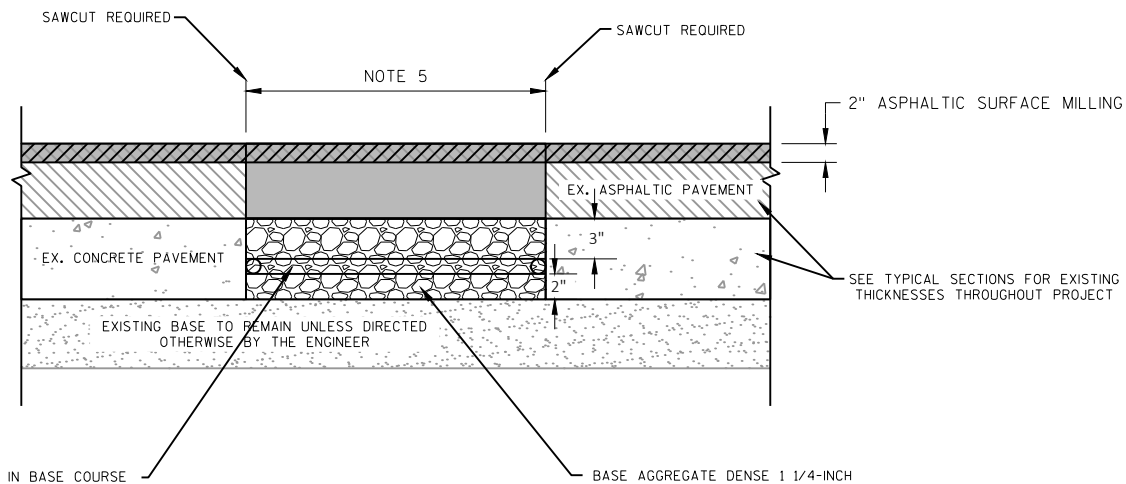
**RIPRAP AND GEOTEXTILE FABRIC DETAIL
AT APRON ENDWALLS**

SEE DRAINAGE/EROSION CONTROL SHEETS FOR
LOCATIONS AND DETAILS ON SIZE/LAYOUT OF RIPRAP



SEE SDD 'LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)'

**BASE PATCHING ASPHALTIC
(WITHOUT CONCRETE BASE)**

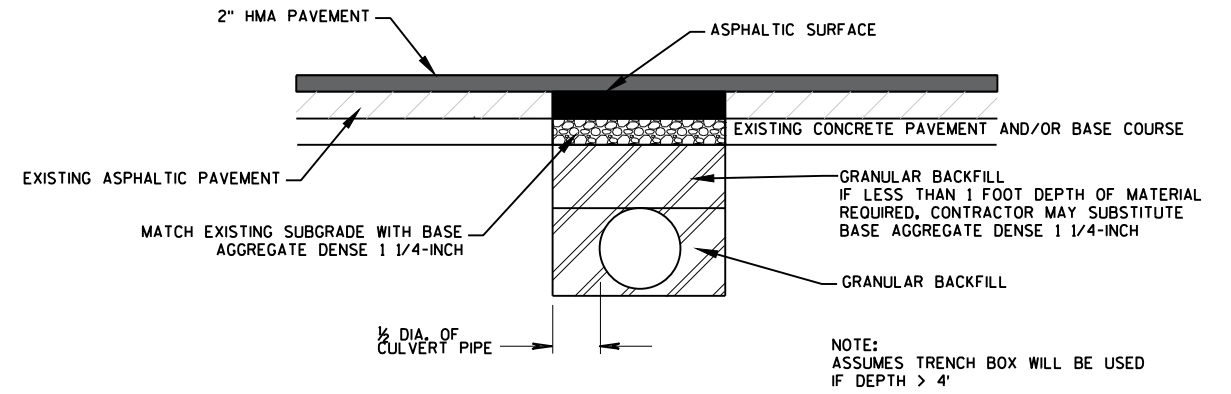


SEE SDD 'LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)'

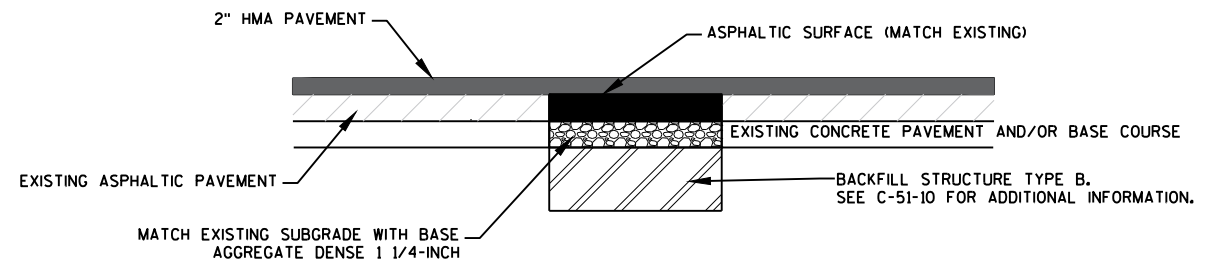
**BASE PATCHING ASPHALTIC
(WITH CONCRETE BASE)**

NOTES:

- 1) BASE PATCH/LOOP INSTALLATION TO BE REMOVED, INSTALLED, AND PAVED IN SAME DAY.
- 2) BASE PATCH/LOOP INSTALLATION CAN BE COMPLETED PRIOR TO OR AFTER MILLING OF EXISTING ASPHALTIC SURFACE. A MILLED SURFACE CANNOT BE OPEN TO TRAFFIC FOR MORE THAN 96 HOURS.
- 3) ASPHALT TO BE PLACED IN 2 LIFTS UP TO THE CURRENT SURFACE.
- 4) PLACE TACK COAT PER THE ASPHALTIC REPAIR DETAIL AND BETWEEN LIFTS.
- 5) BASE PATCHING IS MINIMUM 1' GREATER ON ALL SIDES OF LOOP TO BE INSTALLED. SEE TRAFFIC SIGNAL PLANS FOR SIZES AND LOCATIONS.



**DETAIL FOR CULVERT PIPE INSTALLATION
IN AREAS OF EXISTING PAVEMENT**



C-51-10 PAVEMENT REPLACEMENT DETAIL

LEGEND

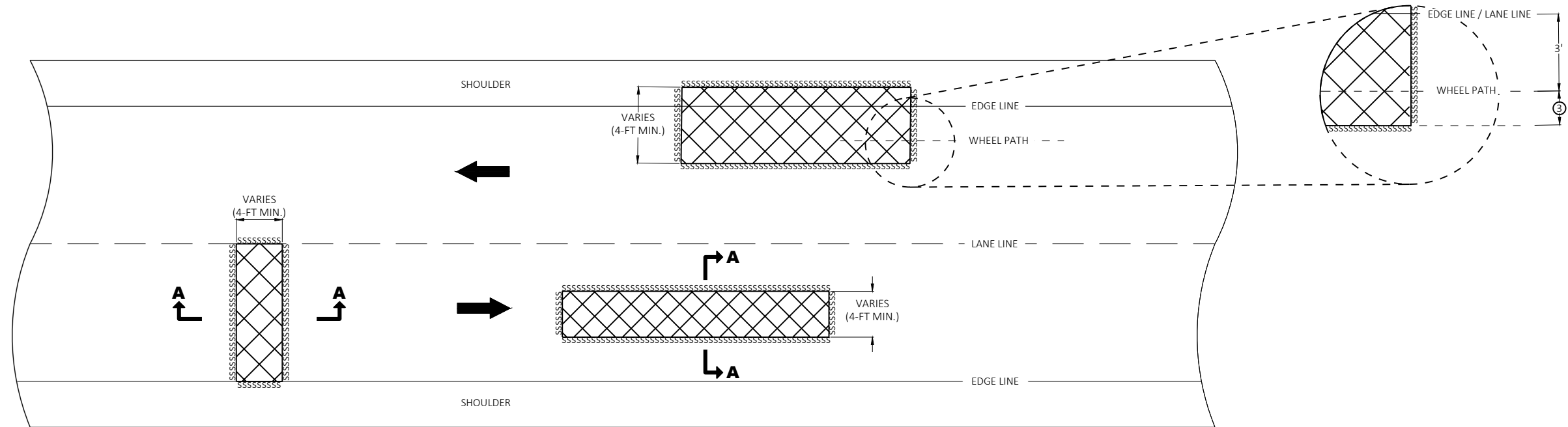
ASPHALTIC REPAIR

VERTICAL MILLED EDGE
SAW CUTTING AT THE CONTRACTORS DISCRETION

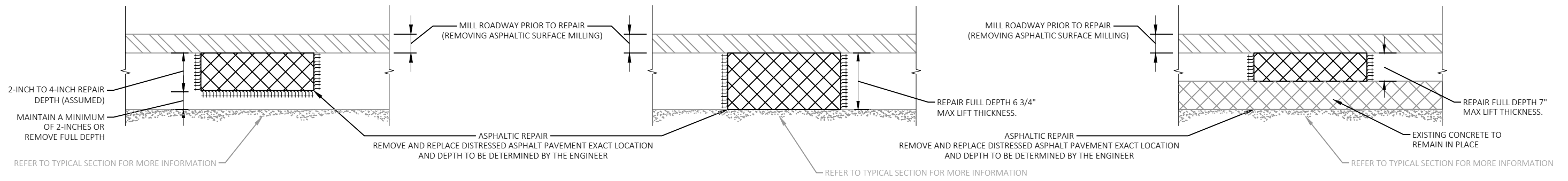
TACK COAT

GENERAL NOTES

- ① EXACT LOCATION, DEPTH AND SIZE OF REPAIR TO BE DETERMINED BY THE ENGINEER IN THE FIELD.
- ② MILL PAVEMENT PER PLAN PRIOR TO MAKING ASPHALTIC REPAIR.
- ③ LOCATE LONGITUDINAL REPAIR JOINTS OUTSIDE OF WHEEL PATH. 12-INCH MINIMUM (24-INCH RECOMMENDED) FROM THE CENTER OF THE WHEEL PATH.
- ④ ASPHALTIC REPAIR PAVING TO BE DONE ON THE SAME DAY AS REMOVAL.



PLAN VIEW



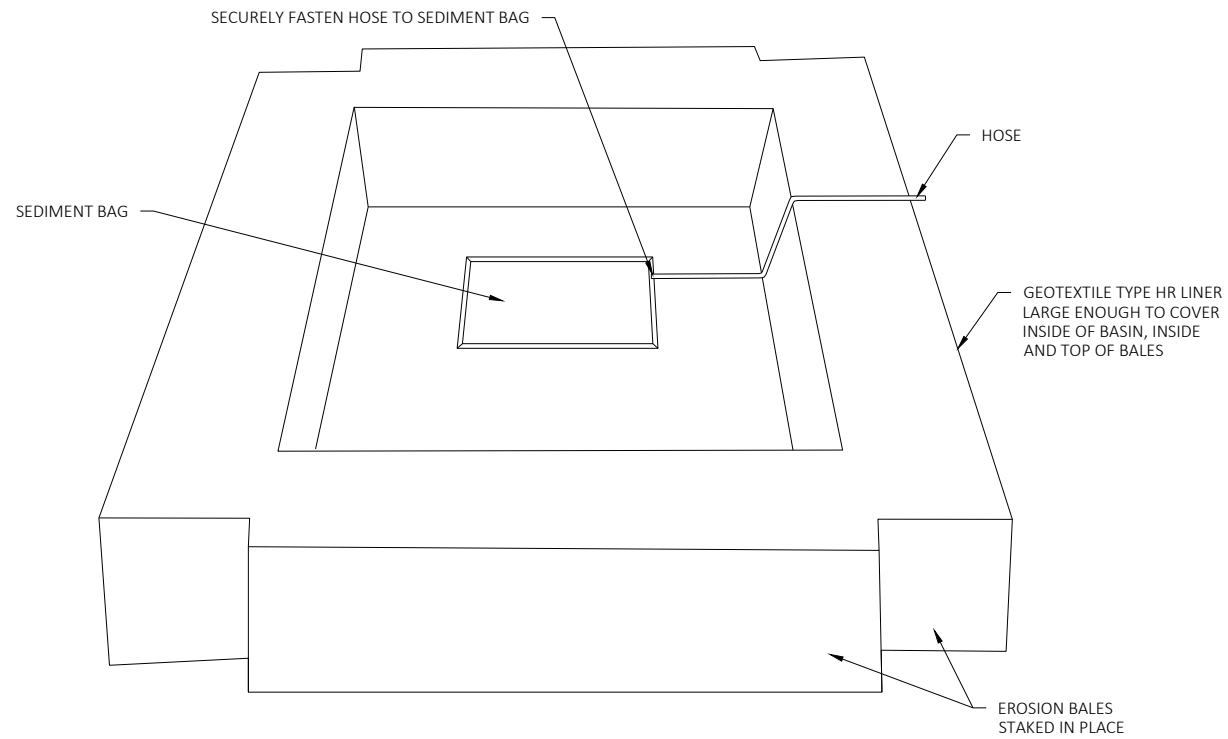
PARTIAL DEPTH WITH OR WITHOUT CONCRETE BASE

FULL DEPTH WITHOUT CONCRETE BASE

FULL DEPTH WITH CONCRETE BASE

SECTION A-A

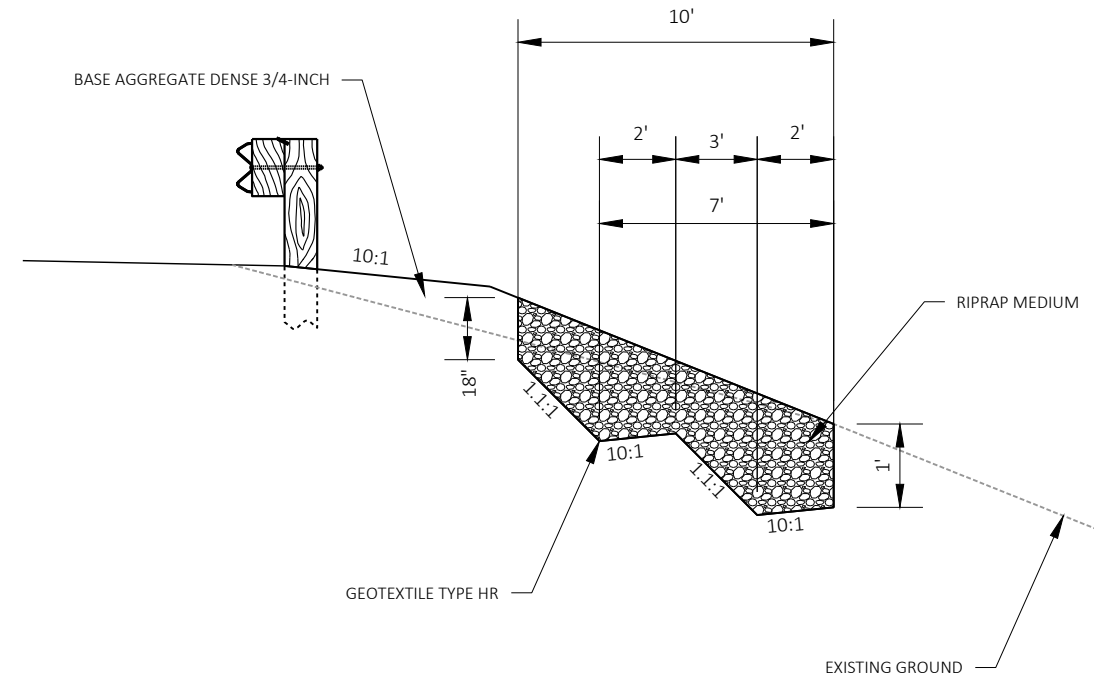
ASPHALTIC REPAIR



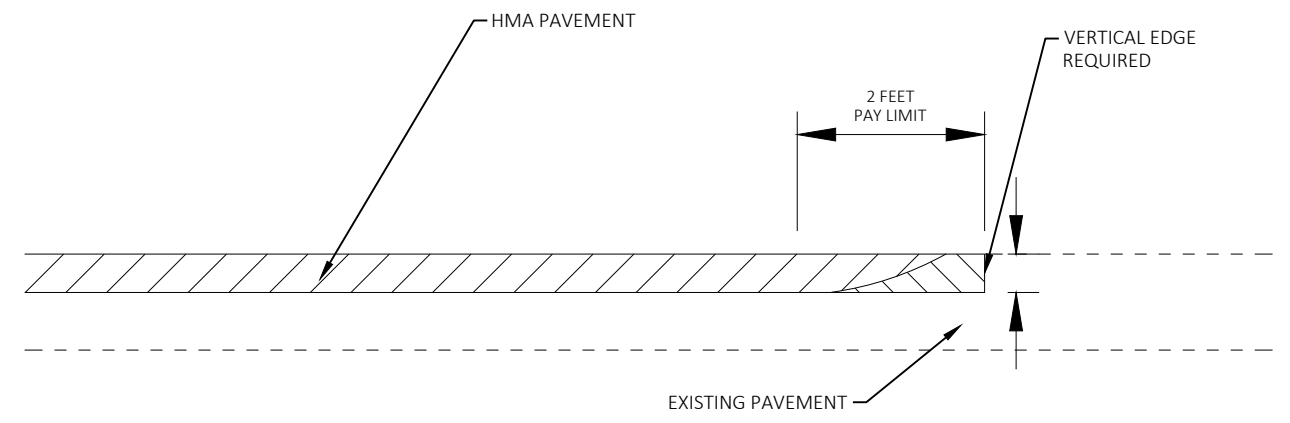
TEMPORARY SETTLING BASIN DETAIL



NOTES

1. CONTRACTOR SHALL PUMP TURBID WATER FROM EXCAVATION TO SEDIMENT BAG PLACED INSIDE FABRIC LINED STAKED BALE ENCLOSURE PRIOR TO DISCHARGING TO DITCHES/INLETS/WETLANDS OR WATERWAYS.
2. SEDIMENT BAG TO BE PLACED IN AN UPLAND VEGETATED AREA OR EQUIVALENT LOCATION APPROVED BY THE ENGINEER.
3. BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF OF THE PROJECT SITE.
4. TEMPORARY SETTLING BASIN AND SEDIMENT BAG TO BE INCIDENTAL TO CONTRACT.
5. SEDIMENT BAG, BALES AND FABRIC TO BE REPLACED AS NECESSARY AND IS INCIDENTAL TO CONTRACT.
6. SIZE TO BE DETERMINED BY THE CONTRACTOR AS PART OF THE ECIP SUBMITTAL.

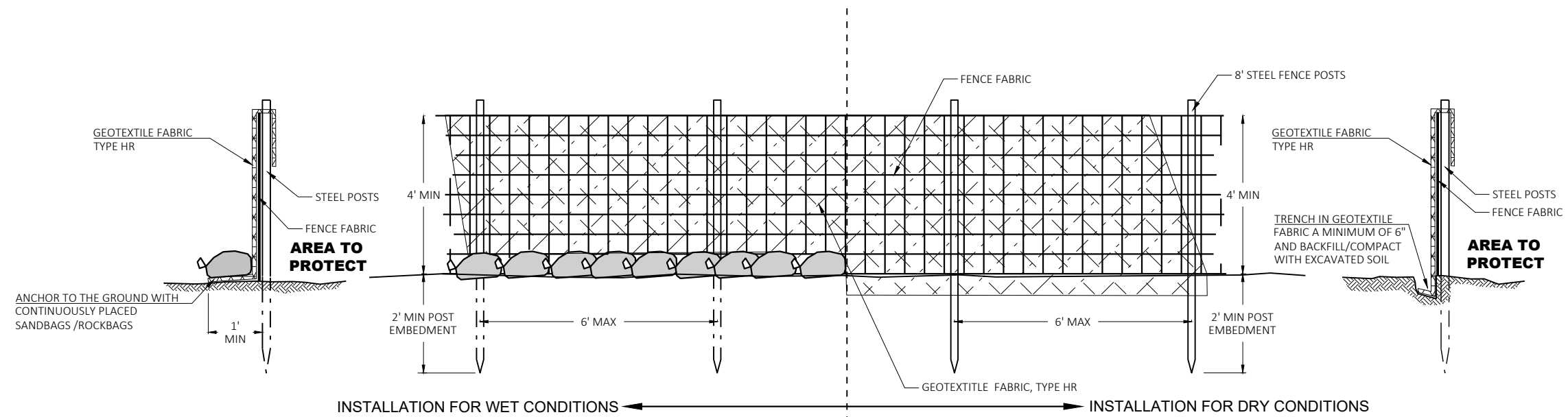


**SLOPE REINFORCEMENT DETAIL
STA 239+64 TO STA 239+93**



-  REMOVE MATERIAL UNDER ITEM 'REMOVING ASPHALTIC SURFACE BUTT JOINT'
-  REMOVING ASPHALTIC SURFACE MILLING

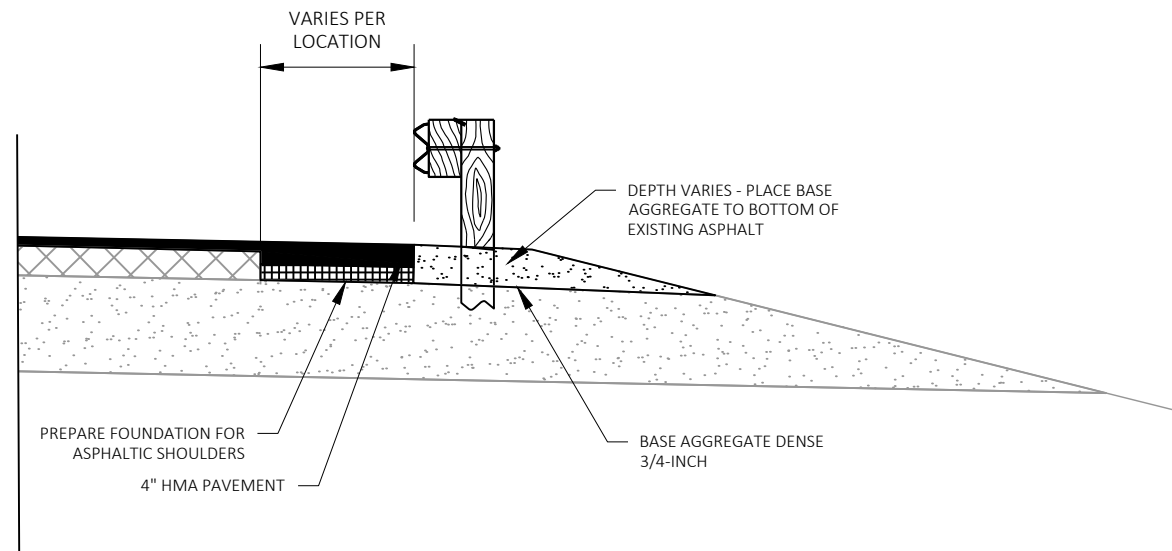
BUTT JOINT - NO CHANGE IN PROFILE



SILT FENCE HEAVY DUTY

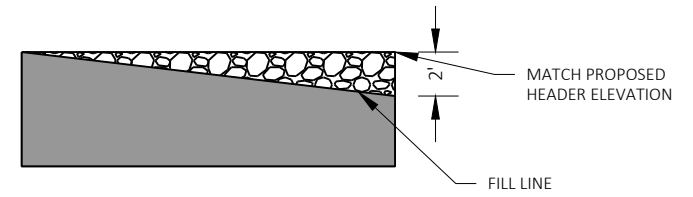
GENERAL NOTES:

1. ATTACH FENCE FABRIC TO POSTS A MINIMUM OF 3 TIES PER POST (TOP, MIDDLE, BOTTOM)
2. ATTACH GEOTEXTILE FABRIC TO FENCE FABRIC AND/OR POSTS AT A MAXIMUM SPACING OF EVERY 2 FEET ALONG THE TOP AND ADDITIONALLY AS NECESSARY TO PREVENT DISPLACEMENT BY WIND AND WAVE ACTIONS.

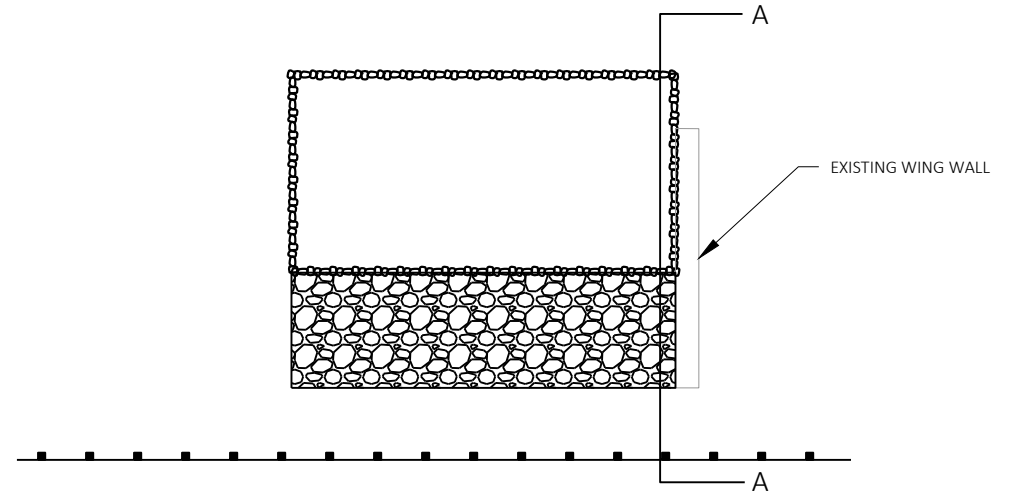


BEAM GUARD PAVING DETAIL

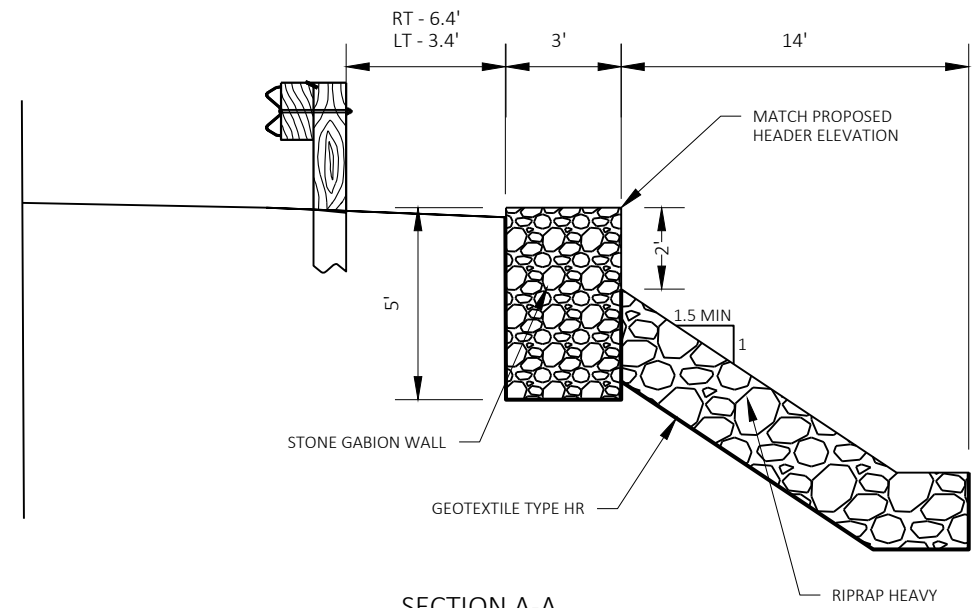
DETAIL APPLIES TO ALL BEAM GUARD LOCATIONS WHERE ROADWAY IS NOT PAVED TO FACE OF RAIL.



SIDE VIEW

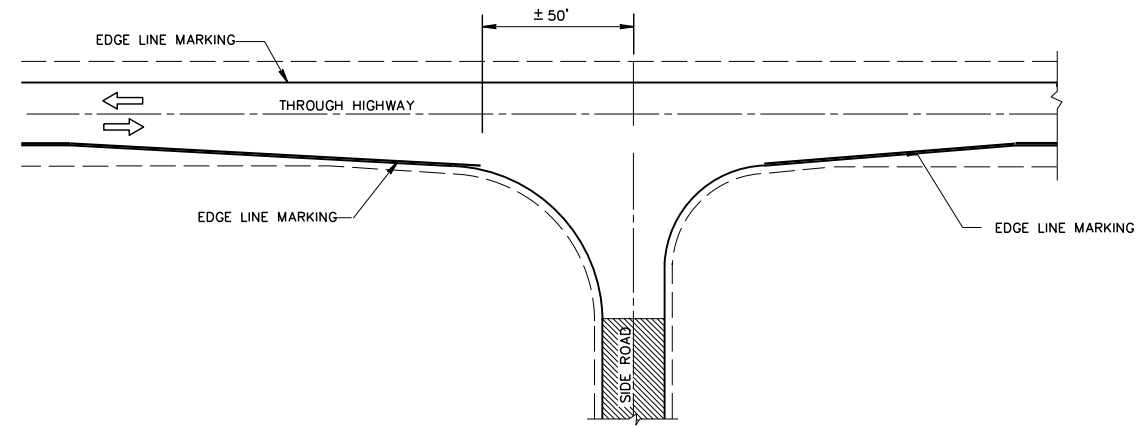


TOP VIEW

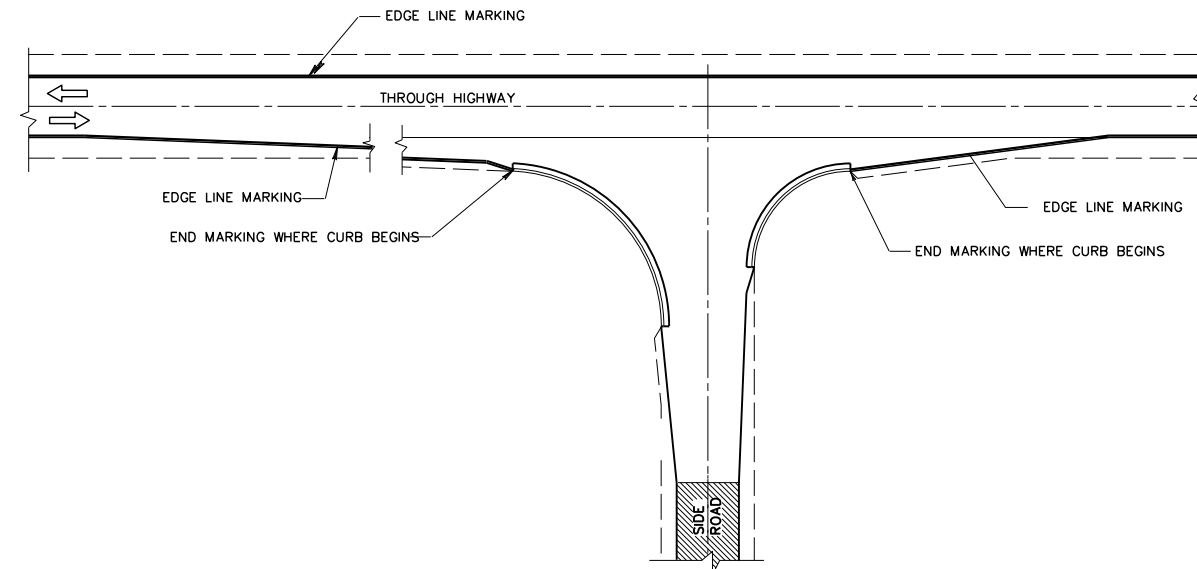


SECTION A-A

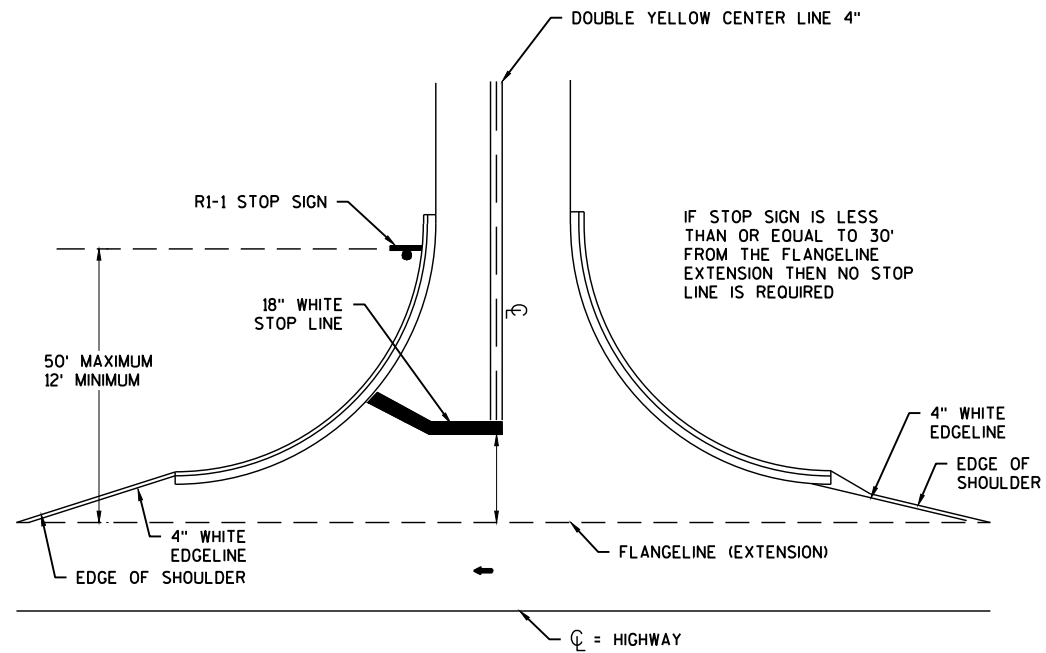
STONE GABION WALL DETAIL



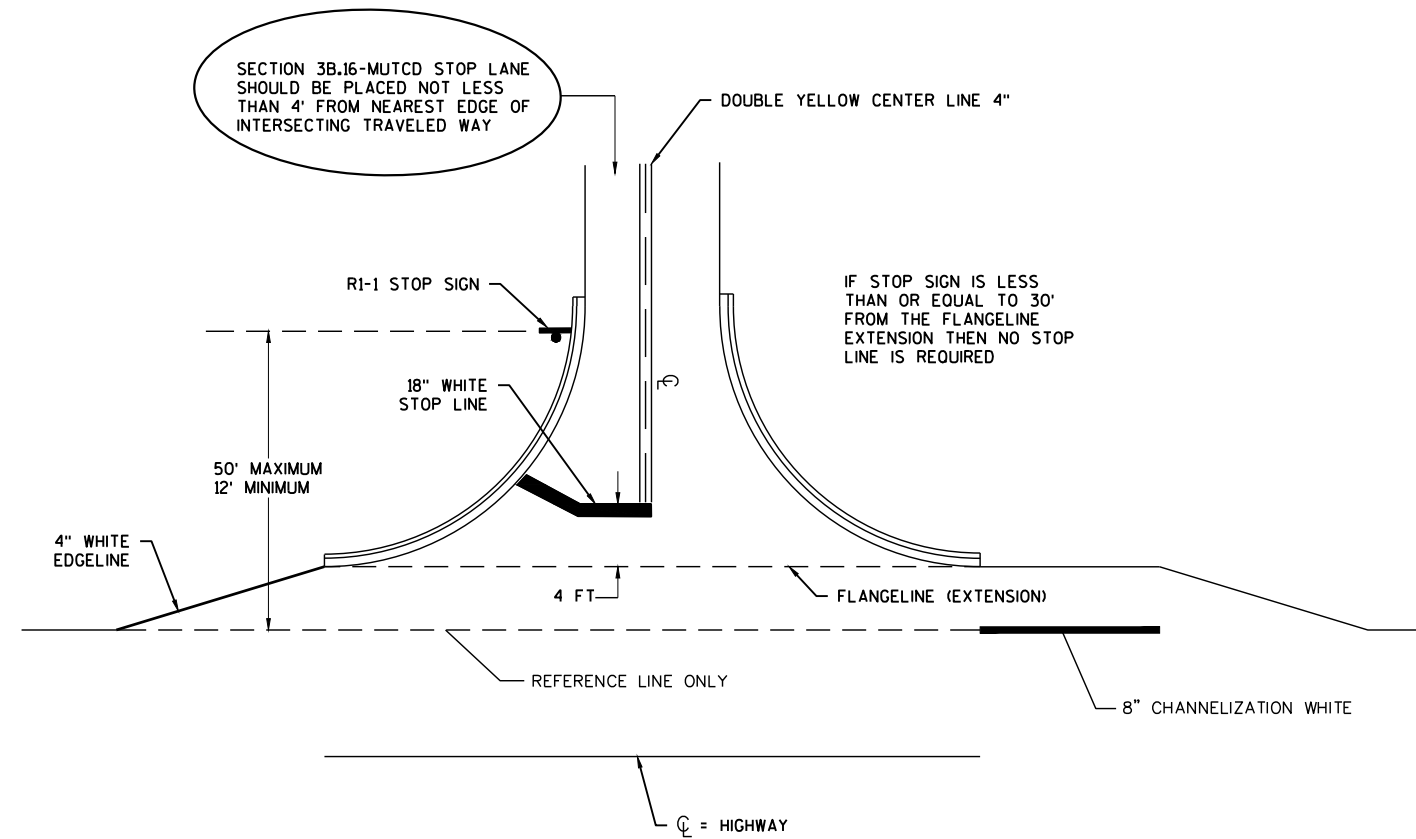
MINOR INTERSECTION WITHOUT CURBS
(TYPICAL MARKING)



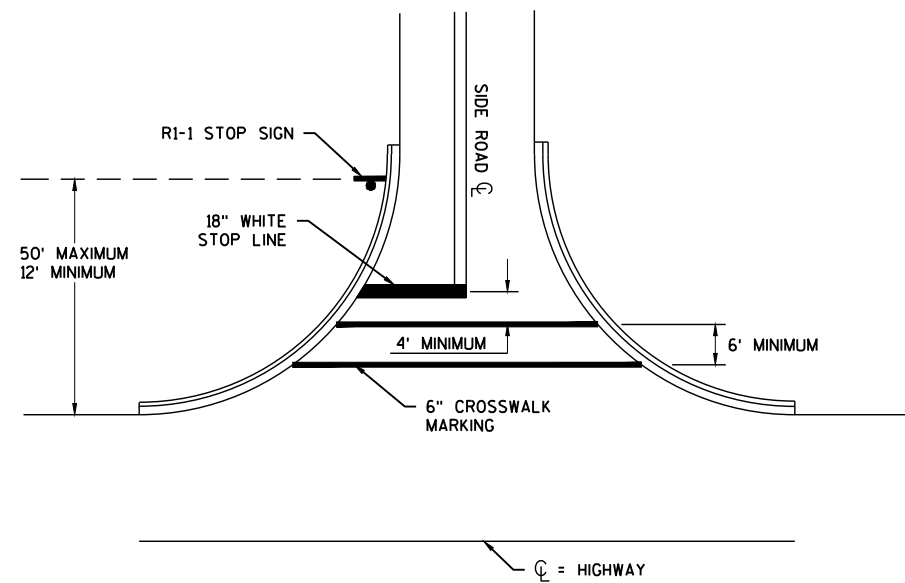
MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



TYPICAL PAVEMENT MARKING FOR SIDEROADS









TYPICAL PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE

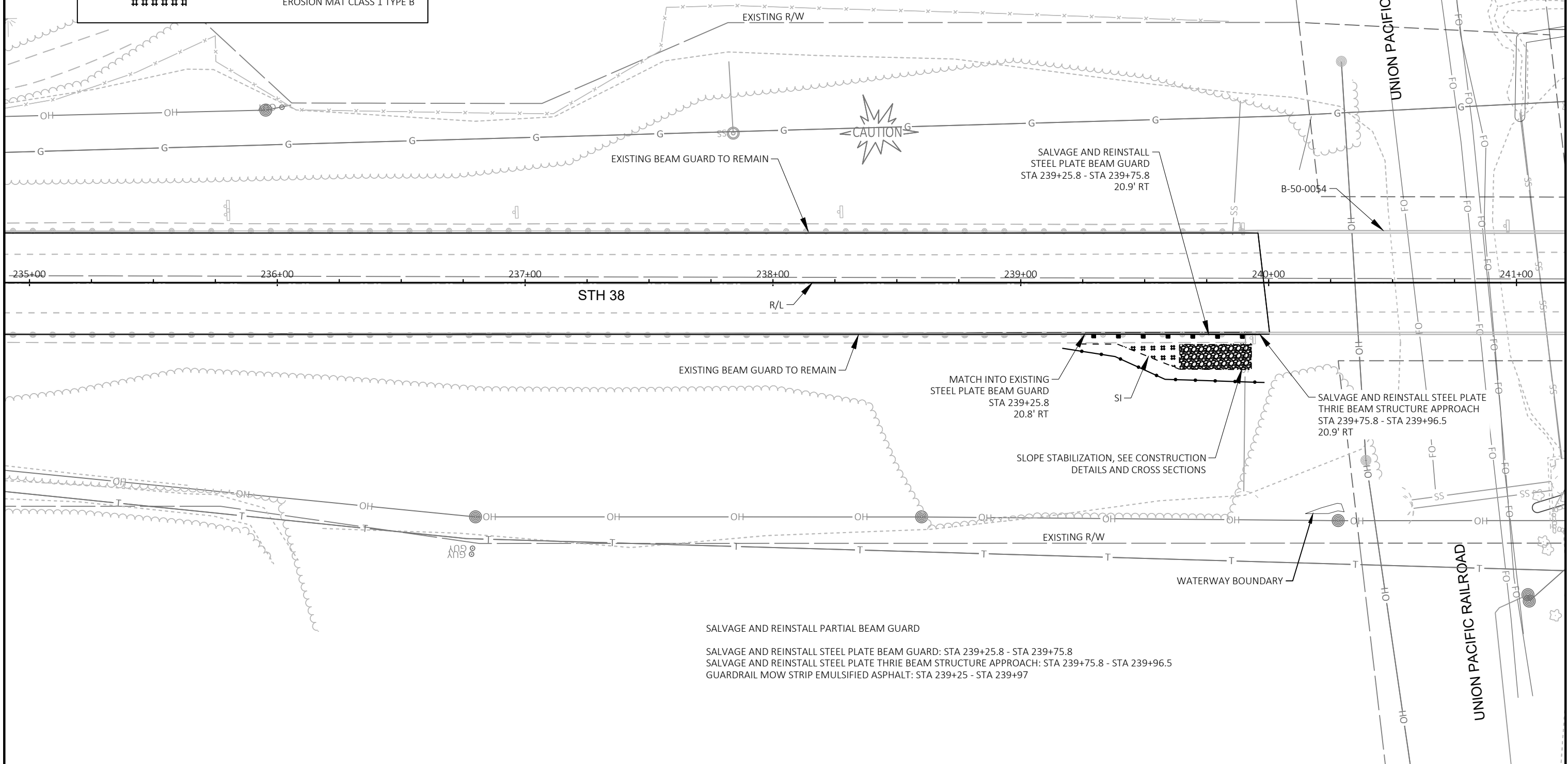


TYPICAL PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING

- NOTES:
 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- STOP LINES REQUIRED WHERE:
- CROSSWALK MARKINGS EXIST OR BEING PROVIDED
 - LARGE RADII
 - OFFSET LEFT TURNS WHERE STOP BAR FOR LEFT TURN IS SET BACK FROM THRU MOVEMENT.

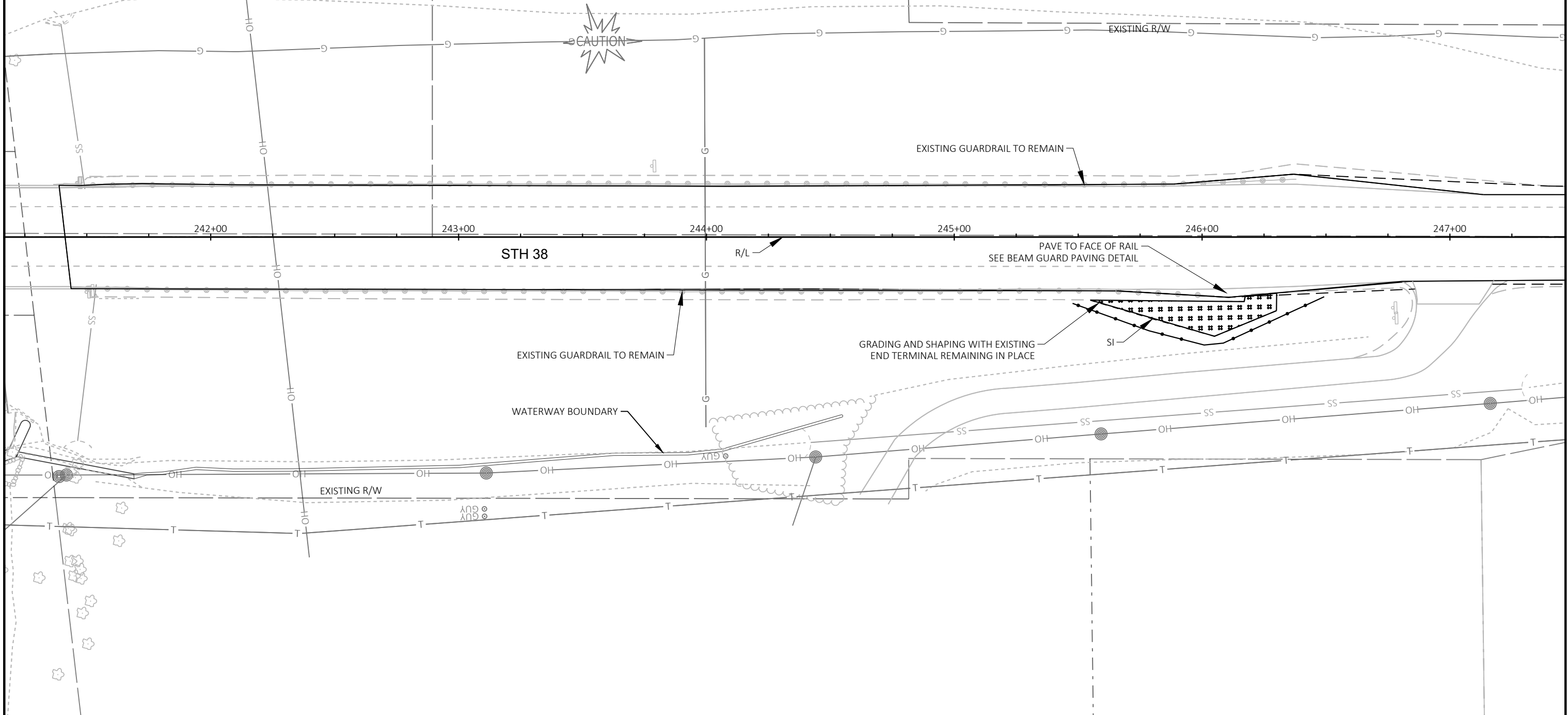
LEGEND

-  SILT FENCE
-  SILT FENCE HEAVY DUTY
-  TEMPORARY DITCH CHECK
-  CULVERT PIPE CHECK
-  DRAINAGE FLOW
-  EROSION MAT CLASS 1 TYPE B









SALVAGE AND REINSTALL PARTIAL BEAM GUARD
 SALVAGE AND REINSTALL STEEL PLATE BEAM GUARD: STA 239+25.8 - STA 239+75.8
 SALVAGE AND REINSTALL STEEL PLATE THREE BEAM STRUCTURE APPROACH: STA 239+75.8 - STA 239+96.5
 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT: STA 239+25 - STA 239+97

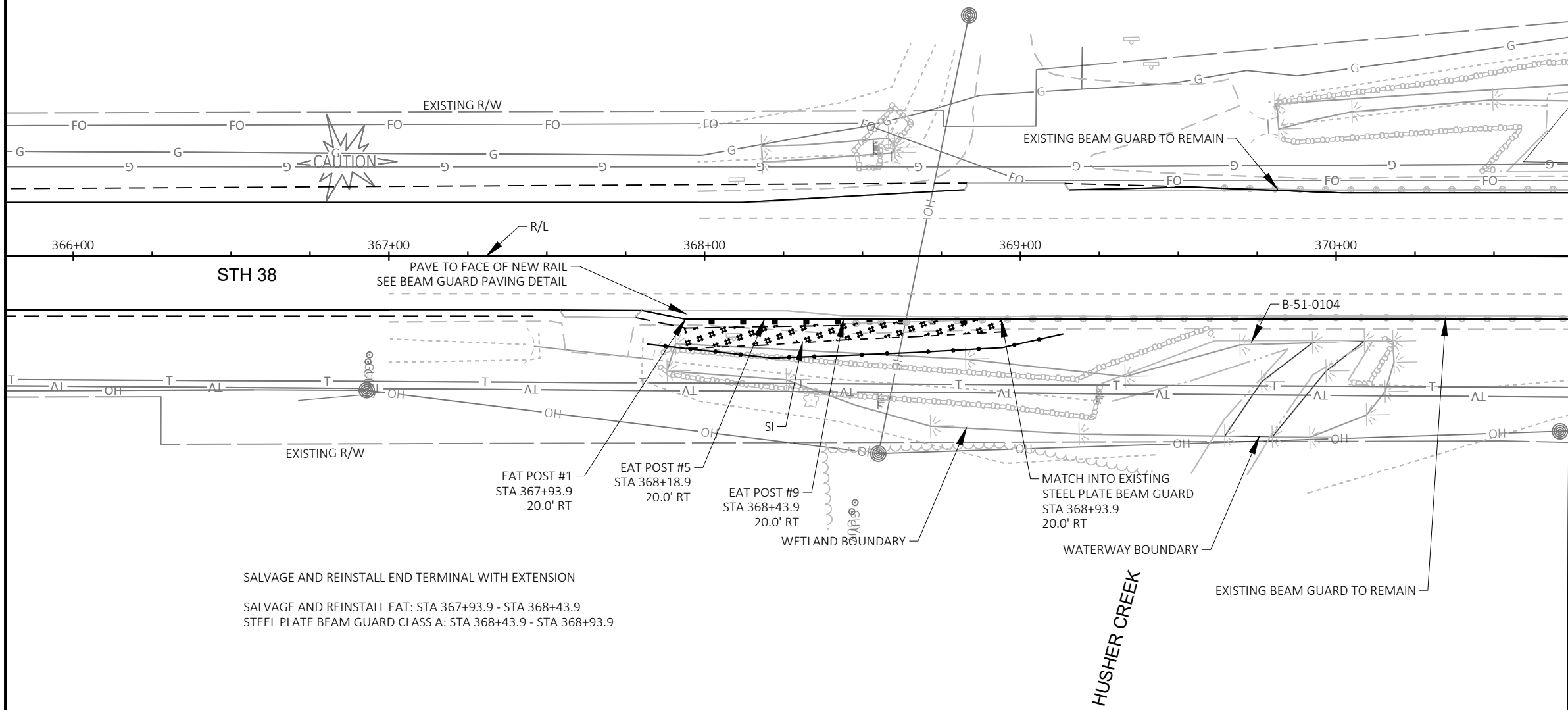
LEGEND	
	SILT FENCE
	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B



PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	GUARDRAIL/EROSION CONTROL DETAILS	SHEET	E
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LEGEND

-  SILT FENCE
-  SILT FENCE HEAVY DUTY
-  TEMPORARY DITCH CHECK
-  CULVERT PIPE CHECK
-  DRAINAGE FLOW
-  EROSION MAT CLASS 1 TYPE B



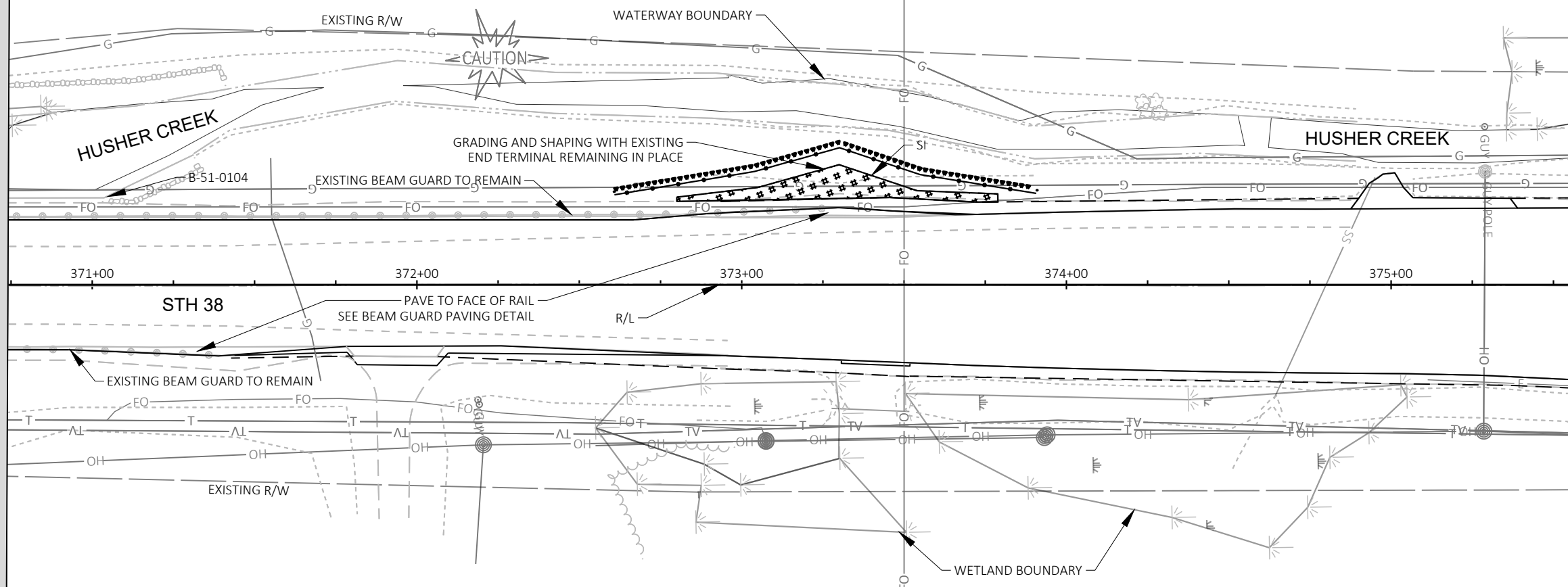
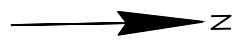
SALVAGE AND REINSTALL END TERMINAL WITH EXTENSION
 SALVAGE AND REINSTALL EAT: STA 367+93.9 - STA 368+43.9
 STEEL PLATE BEAM GUARD CLASS A: STA 368+43.9 - STA 368+93.9

MATCH LINE STA 370+74

MATCH LINE STA 370+74

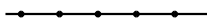





MATCH LINE STA 370+74

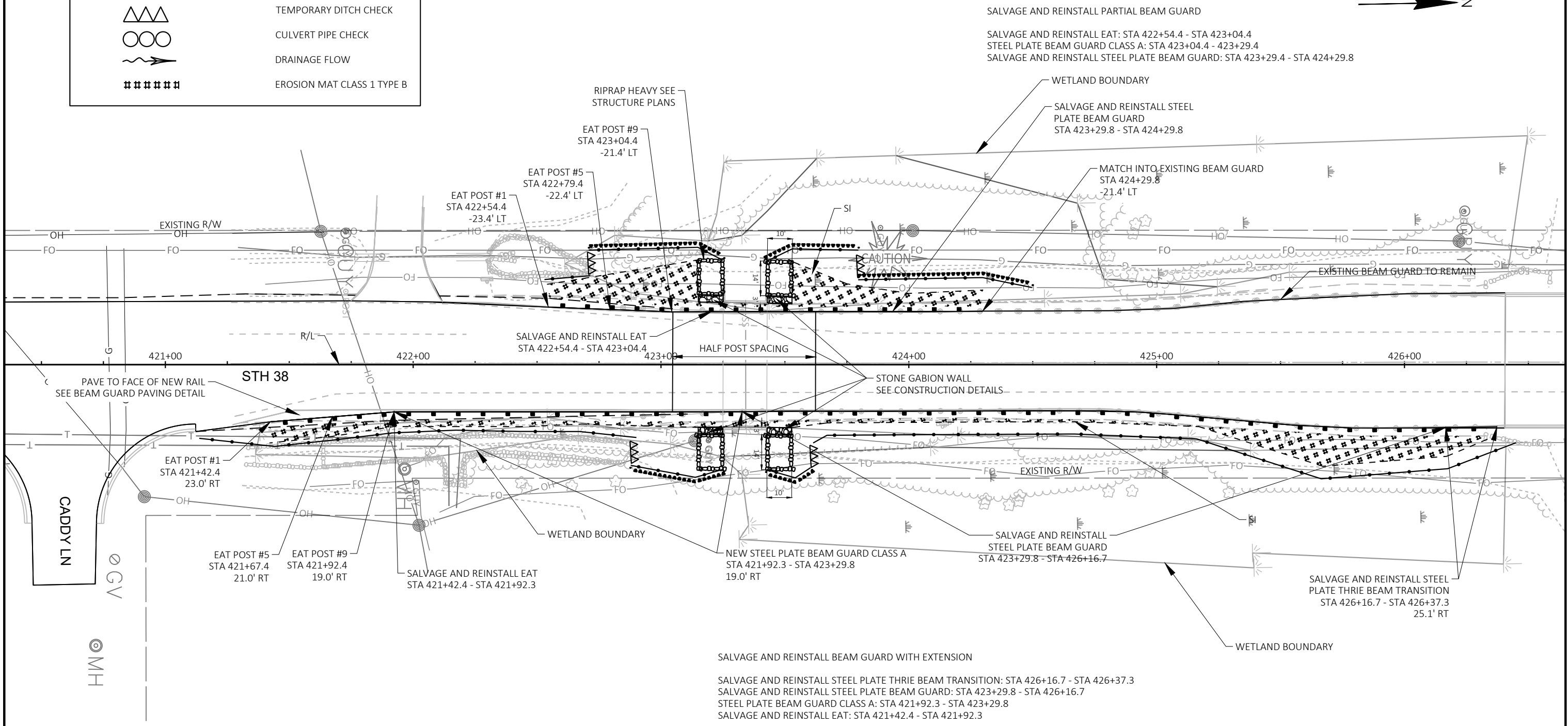
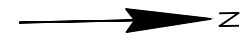
MATCH LINE STA 370+74

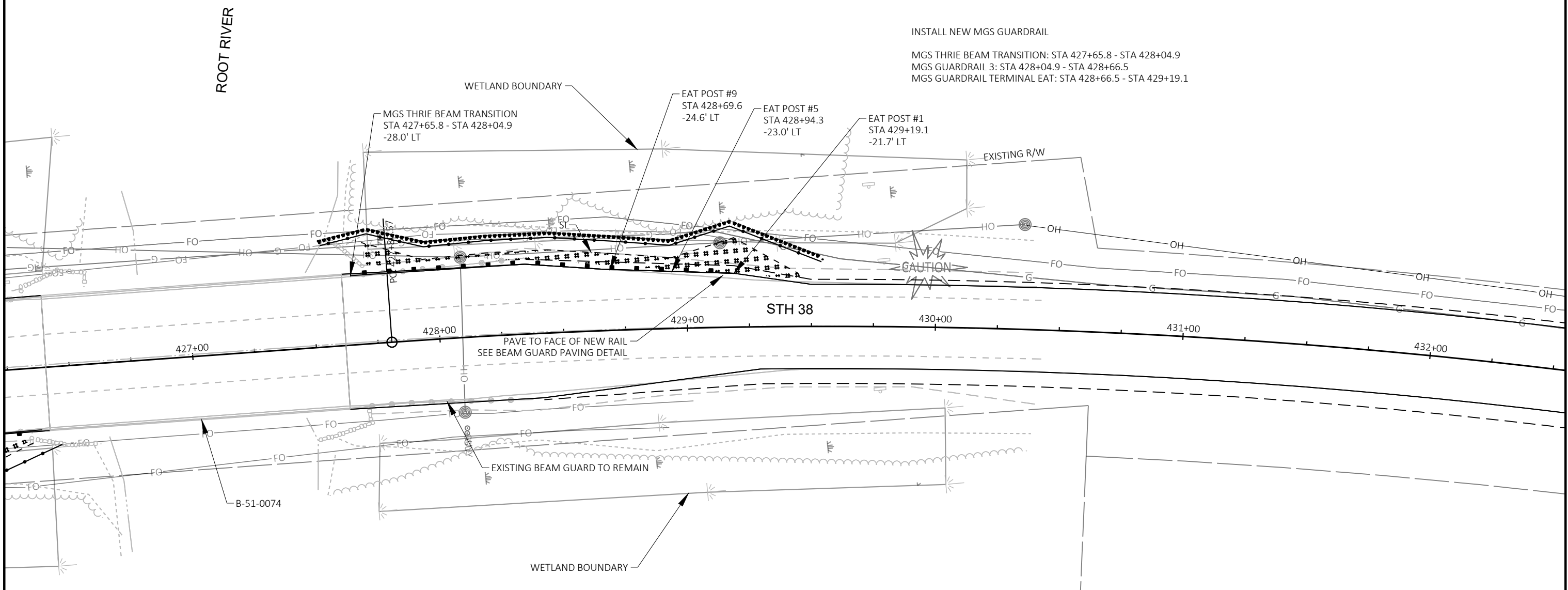


LEGEND	
	SILT FENCE
	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B

LEGEND

-  SILT FENCE
-  SILT FENCE HEAVY DUTY
-  TEMPORARY DITCH CHECK
-  CULVERT PIPE CHECK
-  DRAINAGE FLOW
-  EROSION MAT CLASS 1 TYPE B





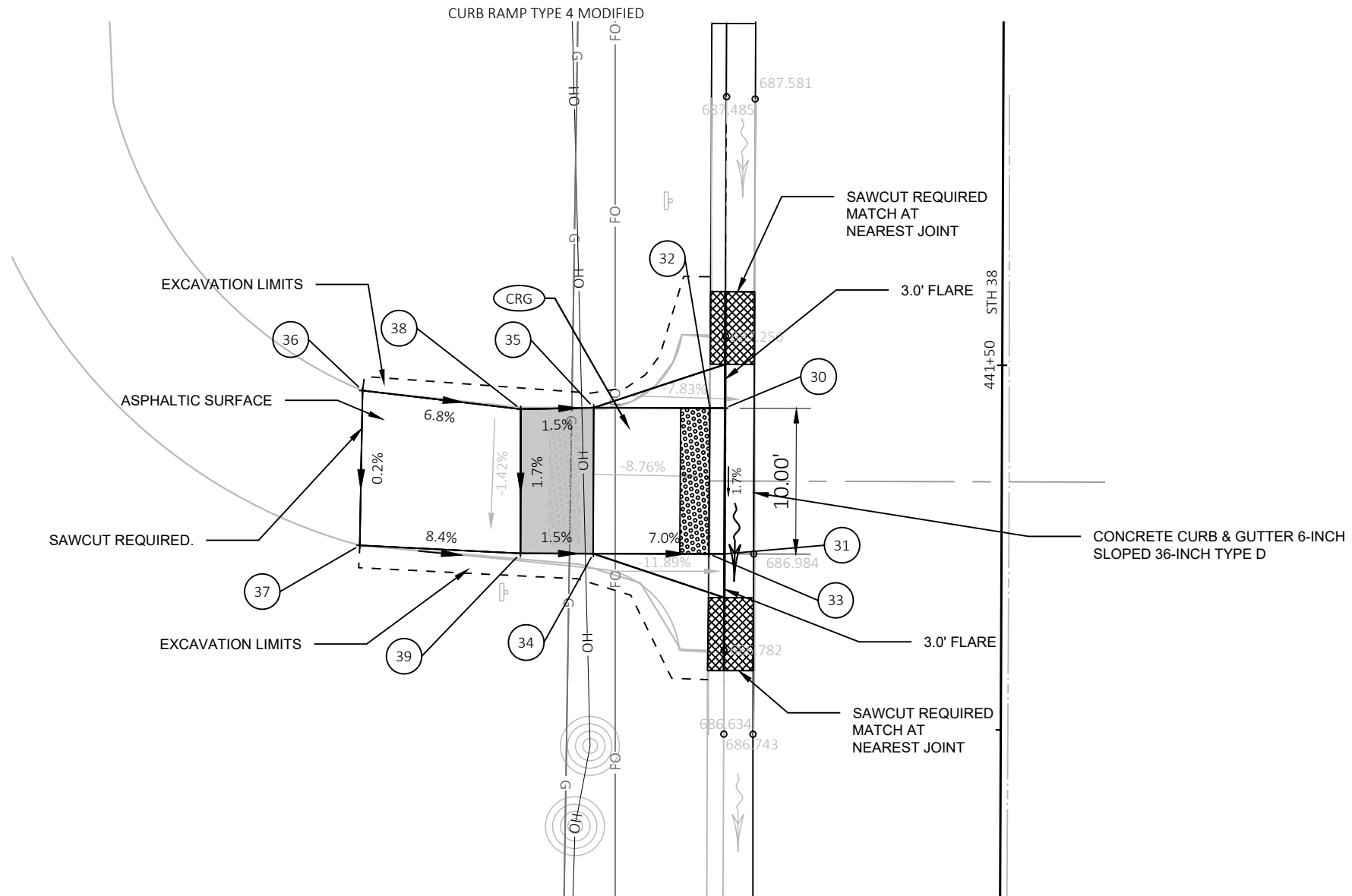
LEGEND	
	SILT FENCE
	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B



LEGEND	
	LANDING
	DETECTABLE WARNING FIELD
	CURB PAN TRANSITION
	SIDEWALK TRANSITION
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
	INLET PROTECTION (TYPE DENOTED)
	CURB RAMP GRADING, SHAPING, AND FINISHING









- NOTES:
1. CONTRACTOR TO FIELD VERIFY ELEVATIONS, GRADES, SLOPES, LENGTHS, AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION.
 2. THE ENGINEER MAY ADJUST CURB RAMP ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE REQUIREMENTS OF THE STANDARD DETAILS.
 3. SIDEWALK AND CURB & GUTTER REPLACEMENT SHOULD BE TO THE NEAREST JOINT. LIMITS ARE APPROXIMATE AND ARE TO BE VERIFIED IN THE FIELD BY THE ENGINEER.
 4. MATCH EXISTING SIDEWALK WIDTH AND CROSS SLOPE AT MATCH POINTS.
 5. THE CONTRACTOR SHALL CONFIRM GRADES ON THE PLANS AND ENSURE POSITIVE DRAINAGE AT THE COMPLETION OF ALL WORK.
 6. MATCH EXISTING CURB & GUTTER ELEVATIONS AT MATCH POINTS.
 7. SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
 8. ALL STATION AND OFFSET INFORMATION REFERENCE STH 38 R/L.
 9. ALL CURB AND GUTTER RADII ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.

POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
30	441+46.99	18.99 LT	229362.344	604904.007	687.15
31	441+46.99	18.99 LT	229352.344	604903.966	686.98
32	441+46.99	20.03 LT	229362.347	604902.970	687.22
33	441+36.99	20.06 LT	229352.347	604902.902	687.05
34	441+36.98	22.06 LT	229352.365	604894.976	687.61
35	441+46.98	22.03 LT	229362.377	604895.003	687.78
36	441+46.97	36.18 LT	229363.548	604879.151	688.59
37	441+36.96	37.61 LT	229352.927	604878.962	688.61
38	441+46.98	28.10 LT	229362.270	604890.005	687.85
39	441+36.97	28.09 LT	229352.377	604889.976	687.68



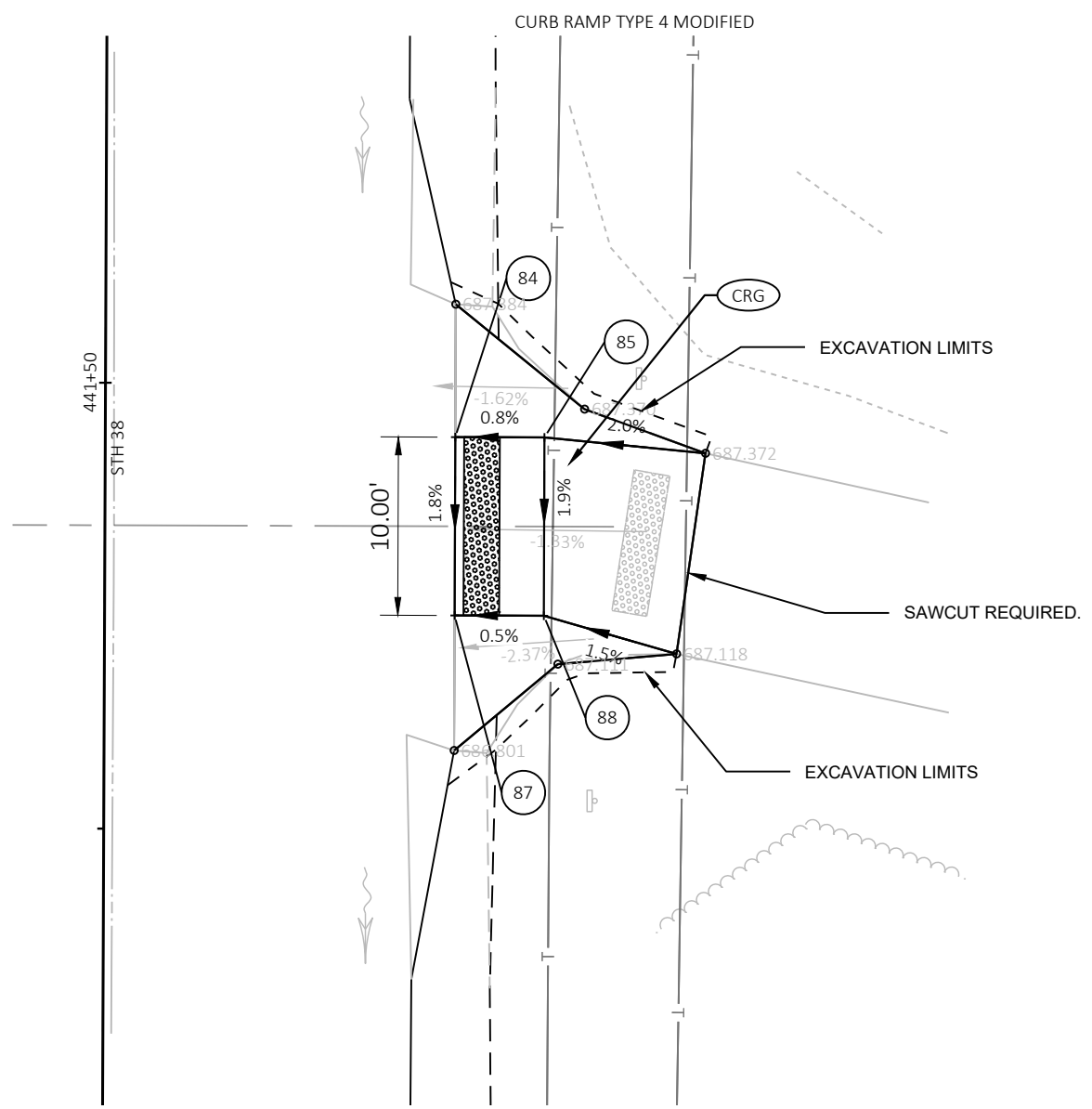


LEGEND

-  LANDING
-  DETECTABLE WARNING FIELD
-  CURB PAN TRANSITION
-  SIDEWALK TRANSITION
-  EXISTING DRAINAGE ARROW
-  PROPOSED DRAINAGE ARROW
-  INLET PROTECTION (TYPE DENOTED)
-  CURB RAMP GRADING, SHAPING, AND FINISHING

- NOTES:**
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 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.

STATION & OFFSET TABLE				
POINT	STATION	OFFSET	Y COORDS	X COORDS
84	441+47.03	19.63 RT	229362.228	604942.631
85	441+47.03	24.63 RT	229362.213	604947.630
87	441+37.03	19.64 RT	229352.228	604942.595
88	441+37.03	24.64 RT	229352.213	604947.595



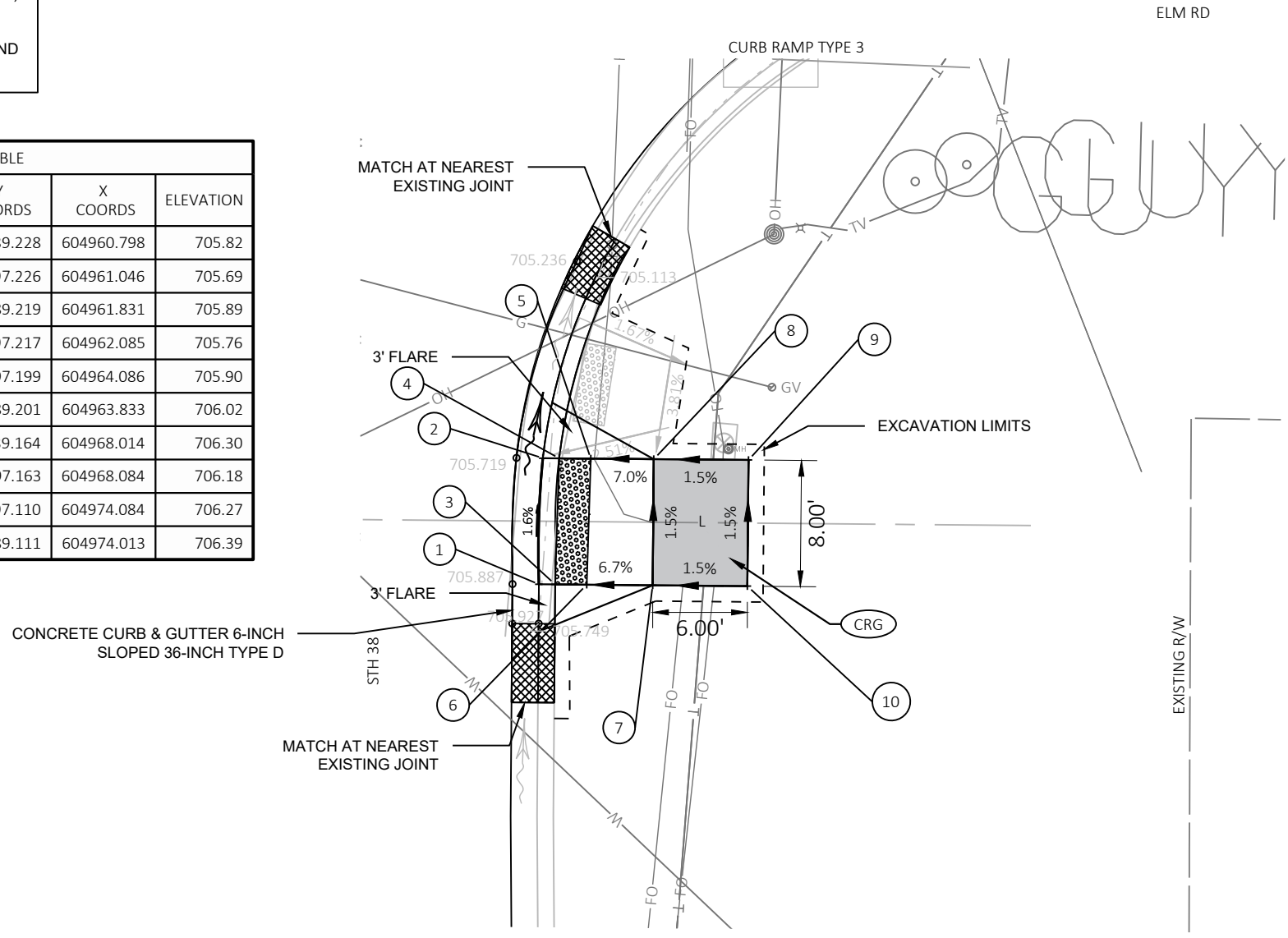


LEGEND









- LANDING
- DETECTABLE WARNING FIELD
- CURB PAN TRANSITION
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 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.

POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
1	456+74.08	31.69 RT	230889.228	604960.798	705.82
2	456+82.08	31.90 RT	230897.226	604961.046	705.69
3	456+74.08	32.73 RT	230889.219	604961.831	705.89
4	456+82.08	32.94 RT	230897.217	604962.085	705.76
5	456+82.07	34.95 RT	230897.199	604964.086	705.90
6	456+74.07	34.73 RT	230889.201	604963.833	706.02
7	456+74.05	38.91 RT	230889.164	604968.014	706.30
8	456+82.05	38.95 RT	230897.163	604968.084	706.18
9	456+82.02	44.95 RT	230897.110	604974.084	706.27
10	456+74.02	44.91 RT	230889.111	604974.013	706.39



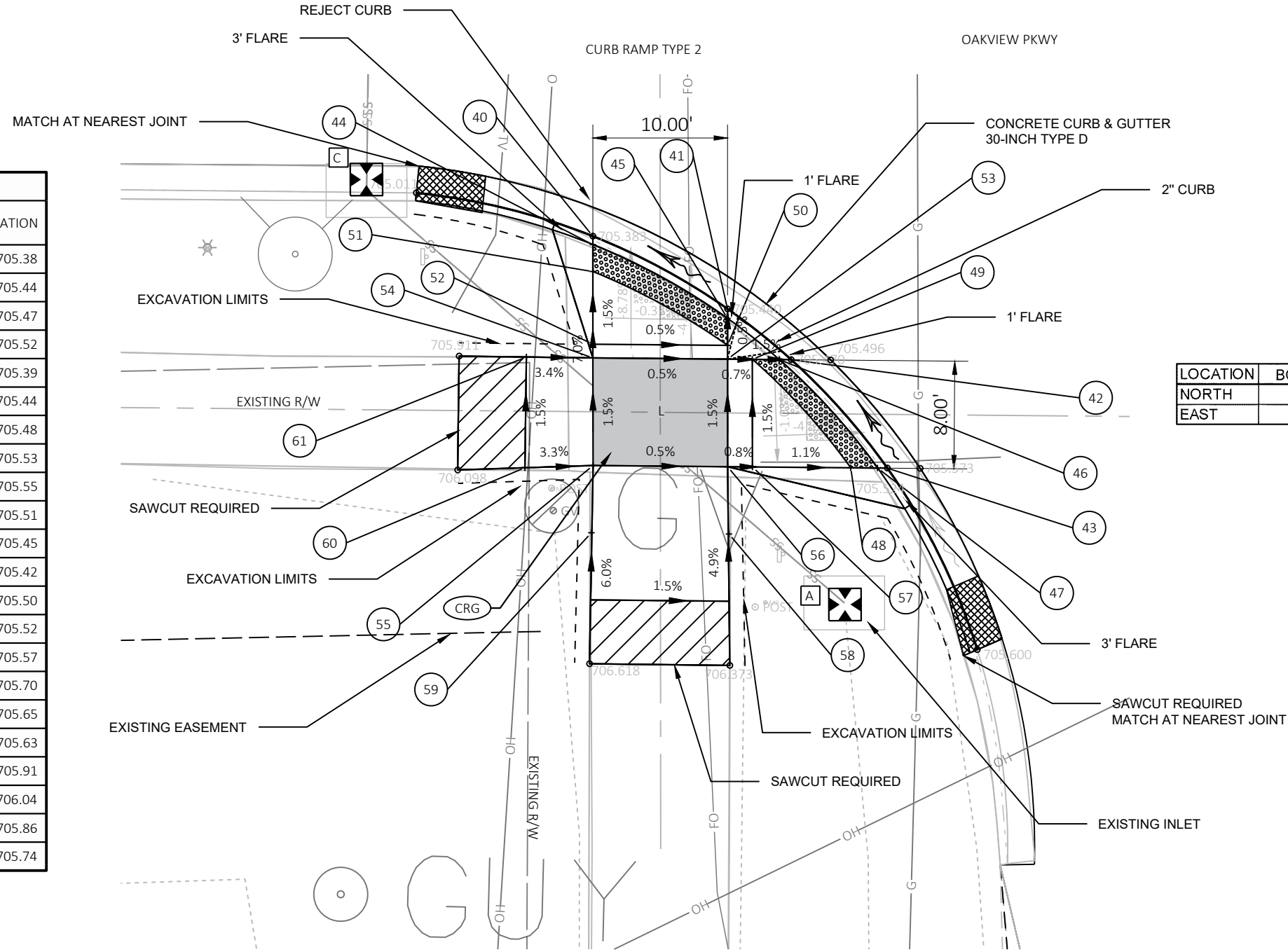
LEGEND

-  LANDING
-  DETECTABLE WARNING FIELD
-  CURB PAN TRANSITION
-  SIDEWALK TRANSITION
-  EXISTING DRAINAGE ARROW
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 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.



POINT TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
40	456+91.64	72.37 LT	230907.199	604856.808	705.38
41	456+86.28	62.34 LT	230901.795	604866.813	705.44
42	456+82.52	57.59 LT	230898.018	604871.547	705.47
43	456+74.48	50.42 LT	230889.955	604878.690	705.52
44	456+91.01	72.36 LT	230906.571	604856.809	705.39
45	456+85.56	62.34 LT	230901.081	604866.814	705.44
46	456+82.52	58.48 LT	230898.026	604870.662	705.48
47	456+74.48	51.14 LT	230889.961	604877.969	705.53
48	456+74.49	53.13 LT	230889.979	604875.970	705.55
49	456+82.53	60.48 LT	230898.044	604868.662	705.51
50	456+83.56	62.33 LT	230899.081	604866.816	705.45
51	456+89.01	72.36 LT	230904.571	604856.808	705.42
52	456+83.61	72.34 LT	230899.170	604856.807	705.50
53	456+82.54	62.32 LT	230898.060	604866.817	705.52
54	456+82.59	72.33 LT	230898.149	604856.807	705.57
55	456+74.59	72.28 LT	230890.148	604856.825	705.70
56	456+74.54	62.28 LT	230890.060	604866.825	705.65
57	456+74.53	60.44 LT	230890.044	604868.670	705.63
58	456+69.54	62.16 LT	230885.059	604866.923	705.91
59	456+69.59	72.39 LT	230885.149	604856.700	706.04
60	456+74.40	77.34 LT	230889.983	604851.761	705.86
61	456+82.84	77.27 LT	230898.215	604851.872	705.74



LOCATION	BOC RAD	XR	AREA	CHORD
NORTH	48.3'	7.4'	20.1 SF	11.4'
EAST	48.3'	9.3'	16 SF	10.9'



LEGEND

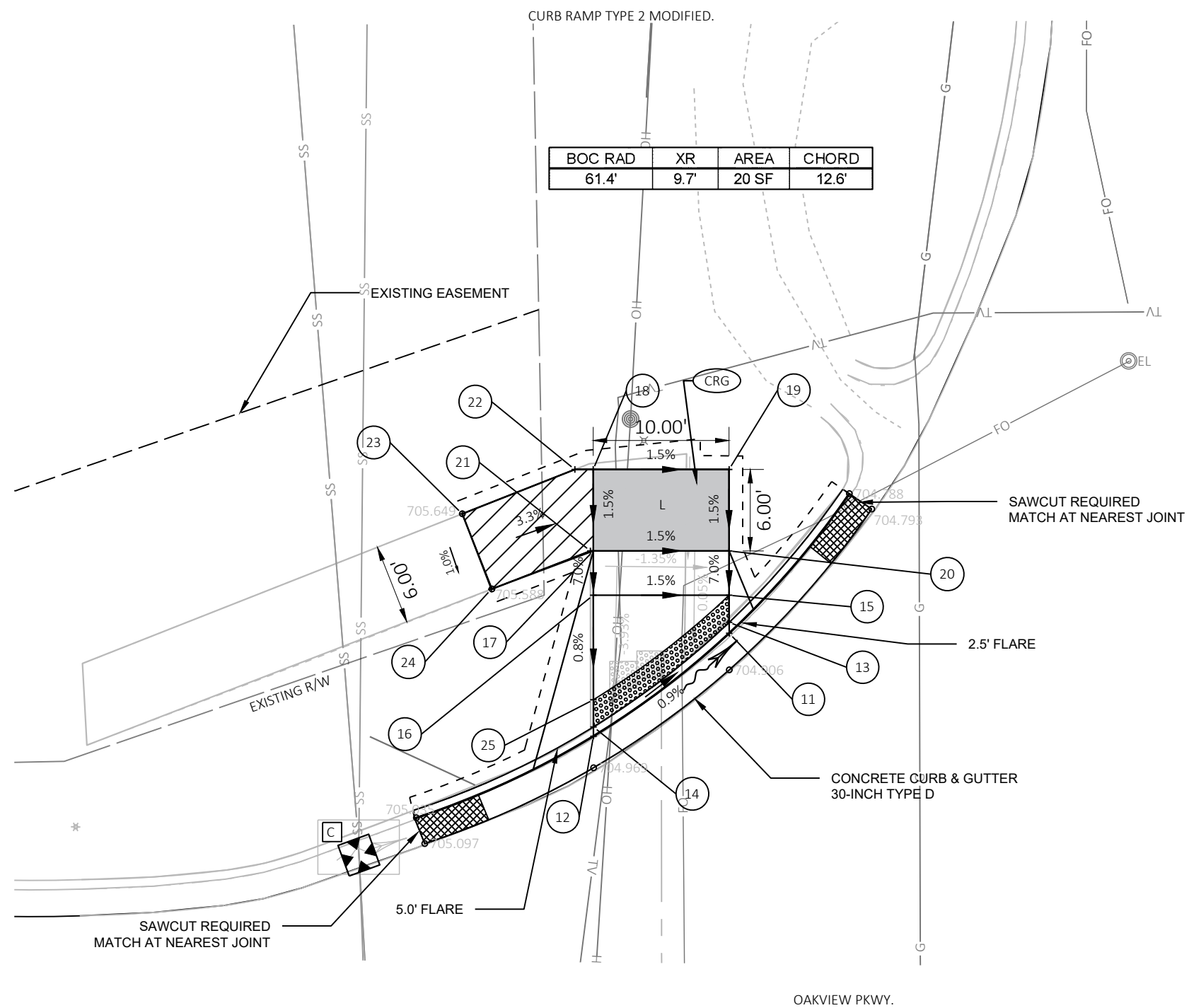
	LANDING
	DETECTABLE WARNING FIELD
	CURB PAN TRANSITION
	SIDEWALK TRANSITION
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
	INLET PROTECTION (TYPE DENOTED)
	CURB RAMP GRADING, SHAPING, AND FINISHING

- NOTES:**
1. CONTRACTOR TO FIELD VERIFY ELEVATIONS, GRADES, SLOPES, LENGTHS, AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION.
 2. THE ENGINEER MAY ADJUST CURB RAMP ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE REQUIREMENTS OF THE STANDARD DETAILS.
 3. SIDEWALK AND CURB & GUTTER REPLACEMENT SHOULD BE TO THE NEAREST JOINT. LIMITS ARE APPROXIMATE AND ARE TO BE VERIFIED IN THE FIELD BY THE ENGINEER.
 4. MATCH EXISTING SIDEWALK WIDTH AND CROSS SLOPE AT MATCH POINTS.
 5. THE CONTRACTOR SHALL CONFIRM GRADES ON THE PLANS AND ENSURE POSITIVE DRAINAGE AT THE COMPLETION OF ALL WORK.
 6. MATCH EXISTING CURB & GUTTER ELEVATIONS AT MATCH POINTS.
 7. SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
 8. ALL STATION AND OFFSET INFORMATION REFERENCE STH 38 R/L.
 9. ALL CURB AND GUTTER RADII ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.

BOC RAD	XR	AREA	CHORD
61.4'	9.7'	20 SF	12.6'

POINT TABLE

POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
11	457+77.86	62.91 LT	230993.498	604866.721	704.86
12	457+70.22	72.86 LT	230985.917	604856.729	704.96
13	457+78.66	62.91 LT	230994.298	604866.720	704.87
14	457+70.90	72.86 LT	230986.601	604856.728	704.97
15	457+80.65	62.92 LT	230996.298	604866.718	704.90
16	457+80.60	72.92 LT	230996.298	604856.718	705.05
17	457+83.86	72.95 LT	230999.558	604856.715	705.28
18	457+89.86	72.99 LT	231005.558	604856.709	705.36
19	457+89.92	62.98 LT	231005.558	604866.715	705.22
20	457+83.92	62.95 LT	230999.558	604866.715	705.12
21	457+83.86	73.16 LT	230999.558	604856.500	705.28
22	457+89.85	74.34 LT	231005.558	604855.356	705.41
23	457+86.54	82.61 LT	231002.292	604847.068	705.65
24	457+81.02	80.40 LT	230996.745	604849.208	705.59
25	457+72.90	72.87 LT	230988.601	604856.726	704.98





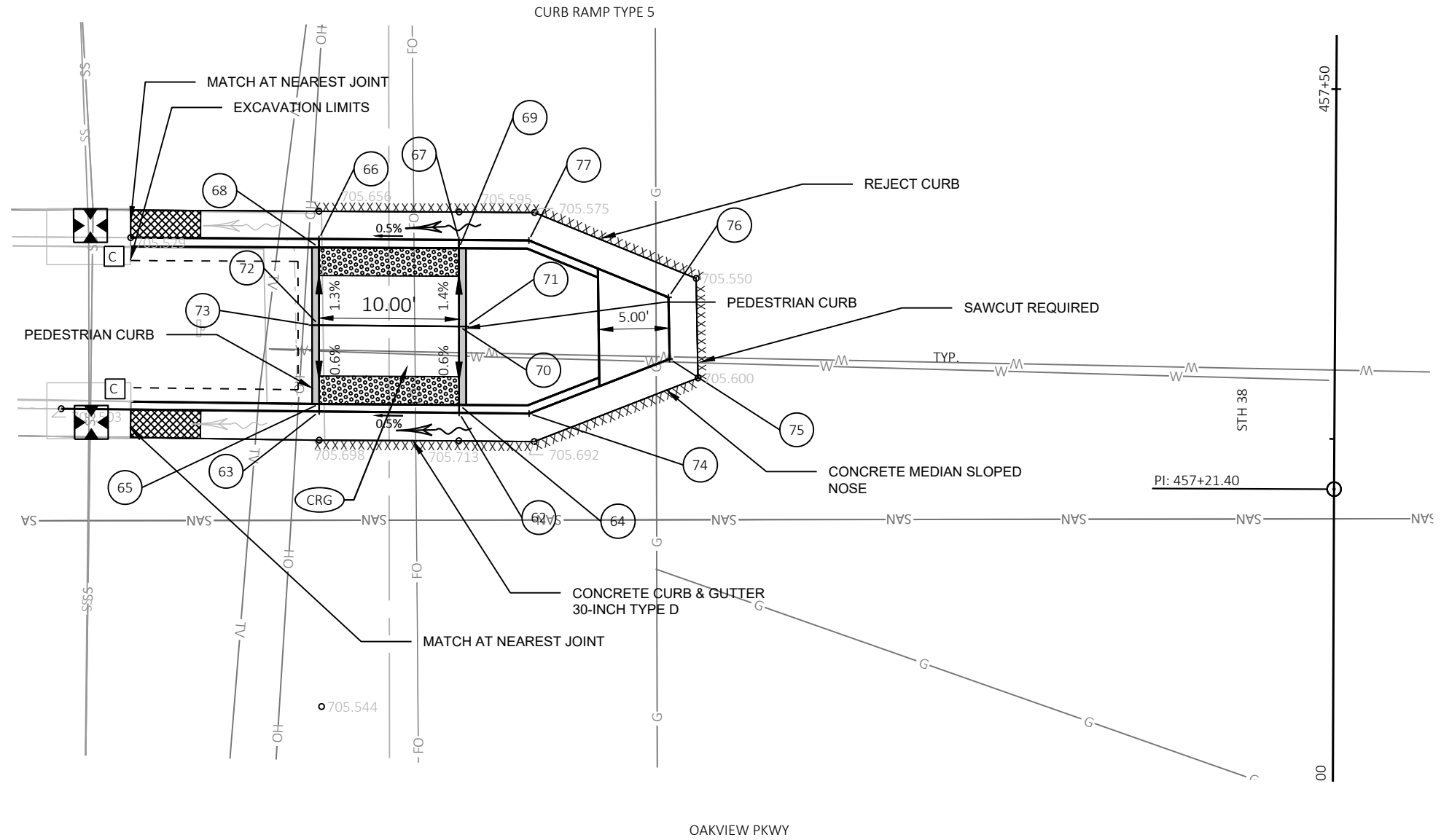
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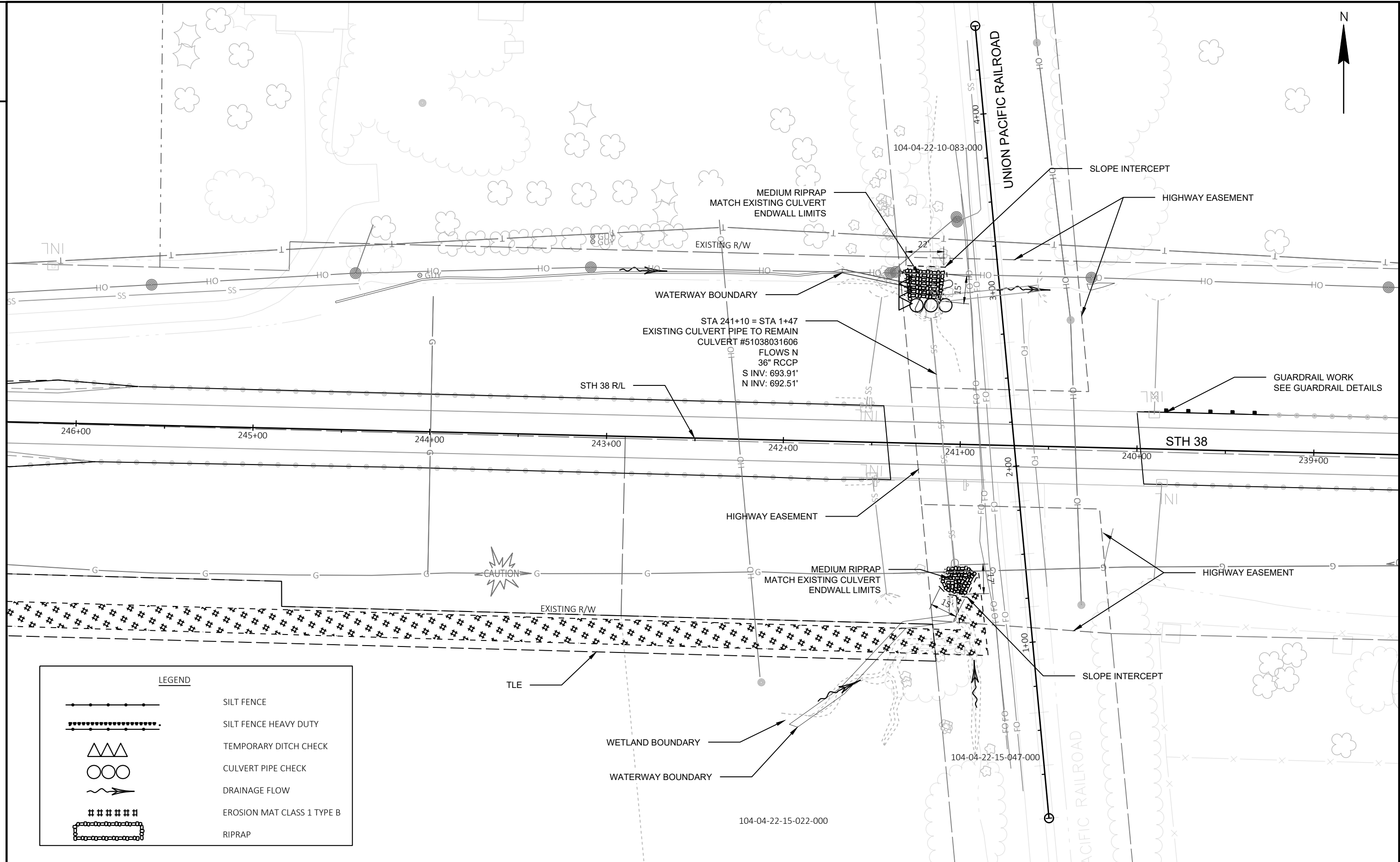
	LANDING
	DETECTABLE WARNING FIELD
	CURB PAN TRANSITION
	SIDEWALK TRANSITION
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
	INLET PROTECTION (TYPE DENOTED)
	CURB RAMP GRADING, SHAPING, AND FINISHING

- NOTES:**
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 6. MATCH EXISTING CURB & GUTTER ELEVATIONS AT MATCH POINTS.
 7. SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS.
 8. ALL STATION AND OFFSET INFORMATION REFERENCE STH 38 R/L.
 9. ALL CURB AND GUTTER RADII ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
 10. SEE FDM 11-46, FIGURE 10.6 FOR NON-CURBED ROADWAY CURB RAMP EXAMPLE.

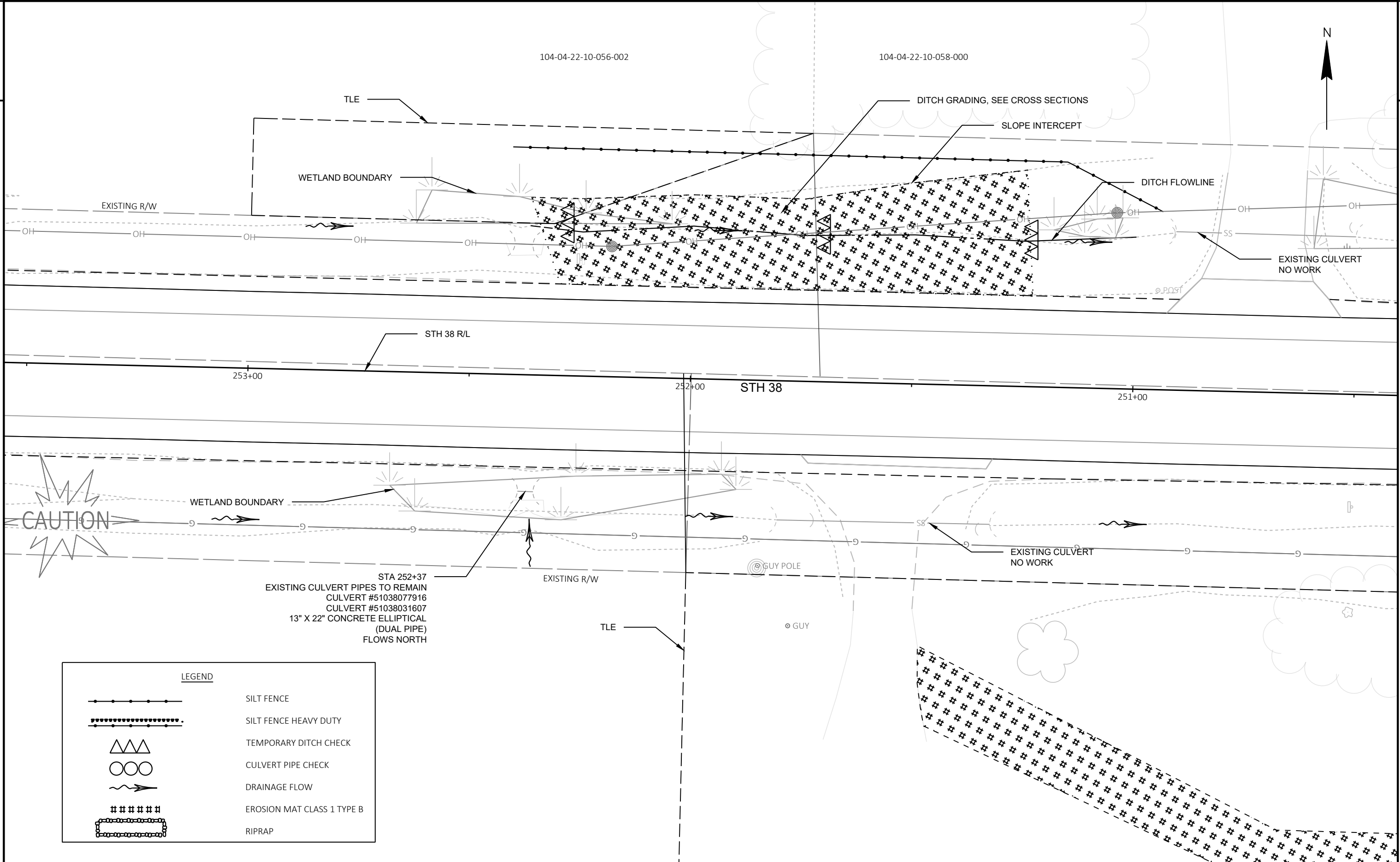
POINT TABLE

POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
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63	457+26.53	72.55 LT	230942.231	604856.773	705.62
64	457+27.07	62.55 LT	230942.713	604866.773	705.67
65	457+27.06	72.56 LT	230942.766	604856.772	705.62
66	457+38.86	72.64 LT	230954.559	604856.760	705.58
67	457+38.85	62.64 LT	230954.487	604866.761	705.63
68	457+38.25	72.63 LT	230953.951	604856.761	705.58
69	457+38.25	62.64 LT	230953.895	604866.757	705.63
70	457+32.66	62.60 LT	230948.308	604866.767	705.71
71	457+32.66	62.10 LT	230948.303	604867.265	705.78
72	457+32.69	72.60 LT	230948.395	604856.767	705.66
73	457+32.69	73.10 LT	230948.400	604856.267	705.13
74	457+26.46	57.55 LT	230942.077	604871.773	705.70
75	457+30.42	47.53 LT	230945.977	604881.815	705.68
76	457+34.83	47.64 LT	230950.385	604881.733	705.63
77	457+38.84	57.64 LT	230954.452	604871.761	705.66





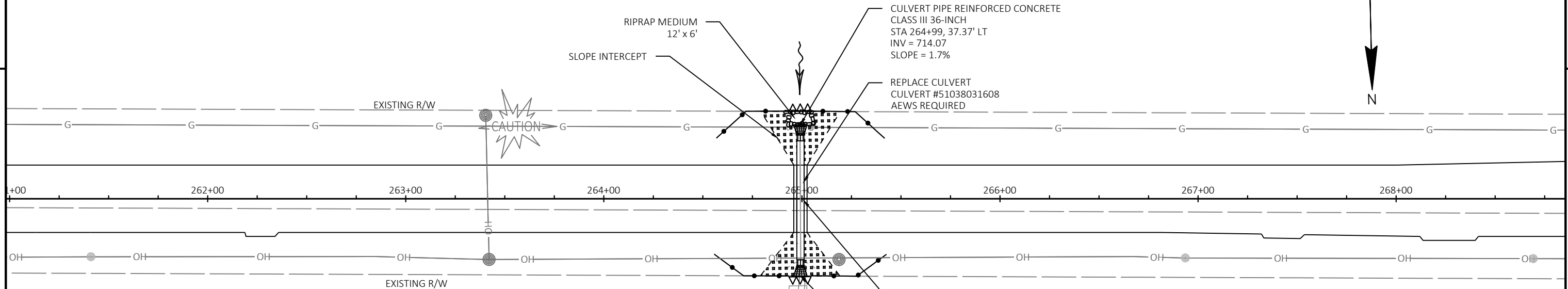
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	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP



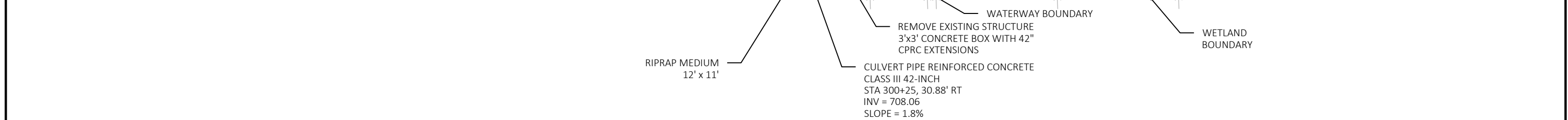
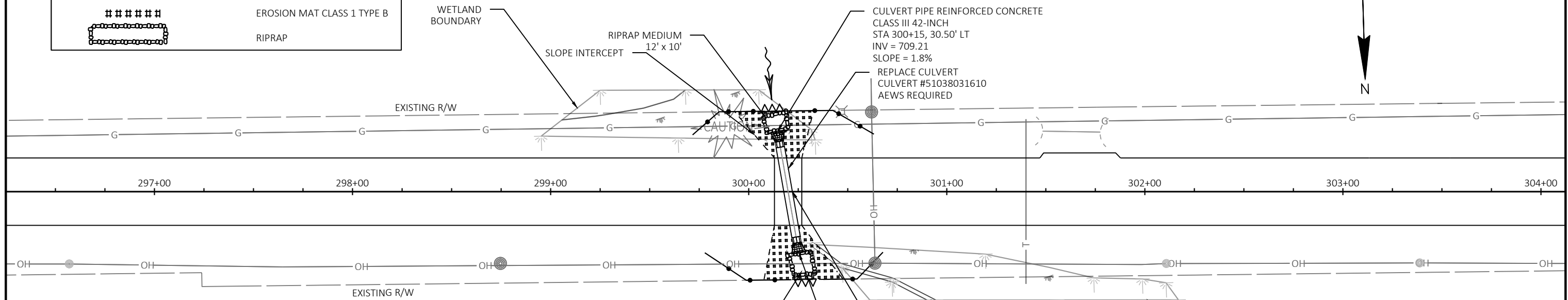
CAUTION

STA 252+37
 EXISTING CULVERT PIPES TO REMAIN
 CULVERT #51038077916
 CULVERT #51038031607
 13" X 22" CONCRETE ELLIPTICAL
 (DUAL PIPE)
 FLOWS NORTH

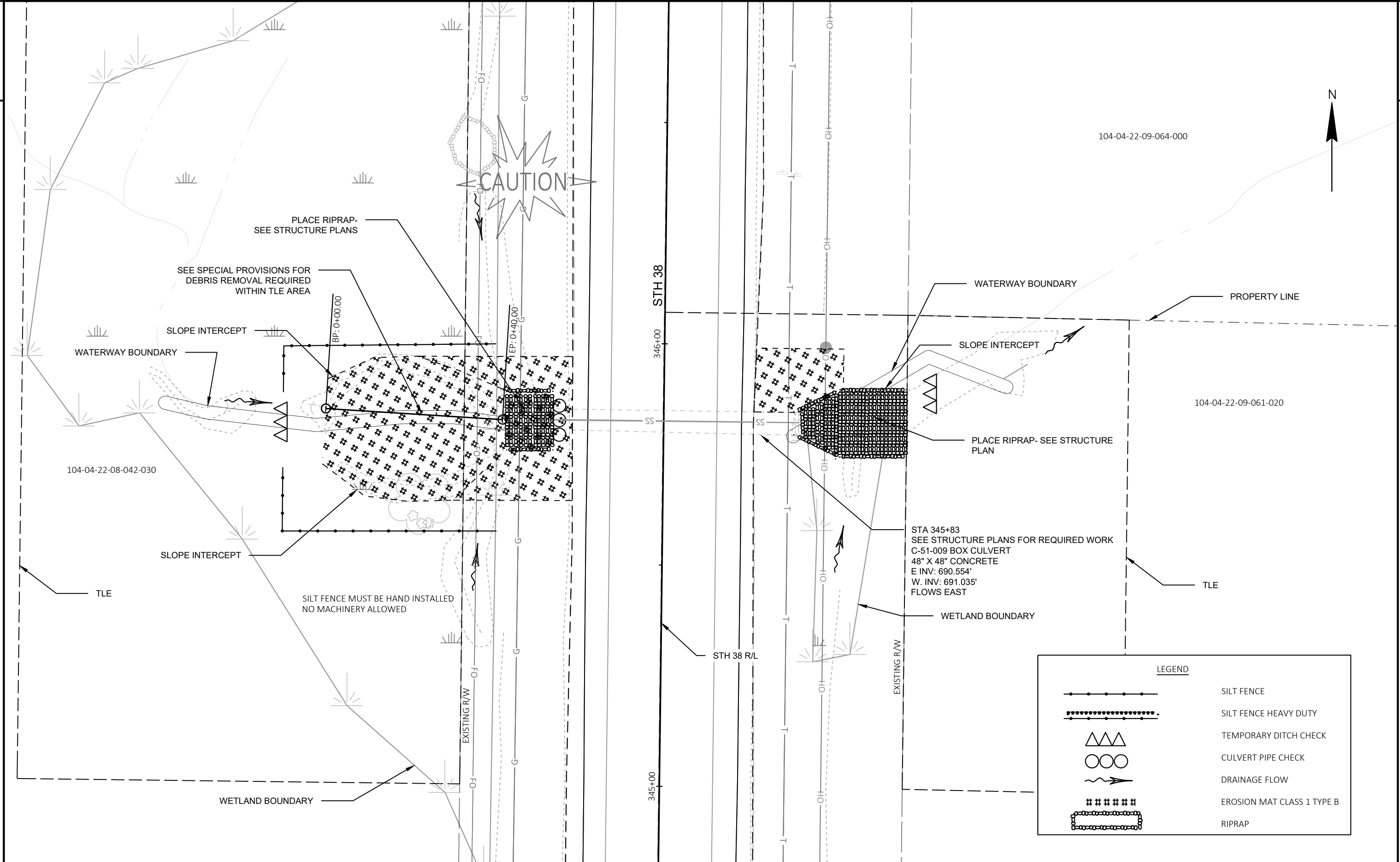
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	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP



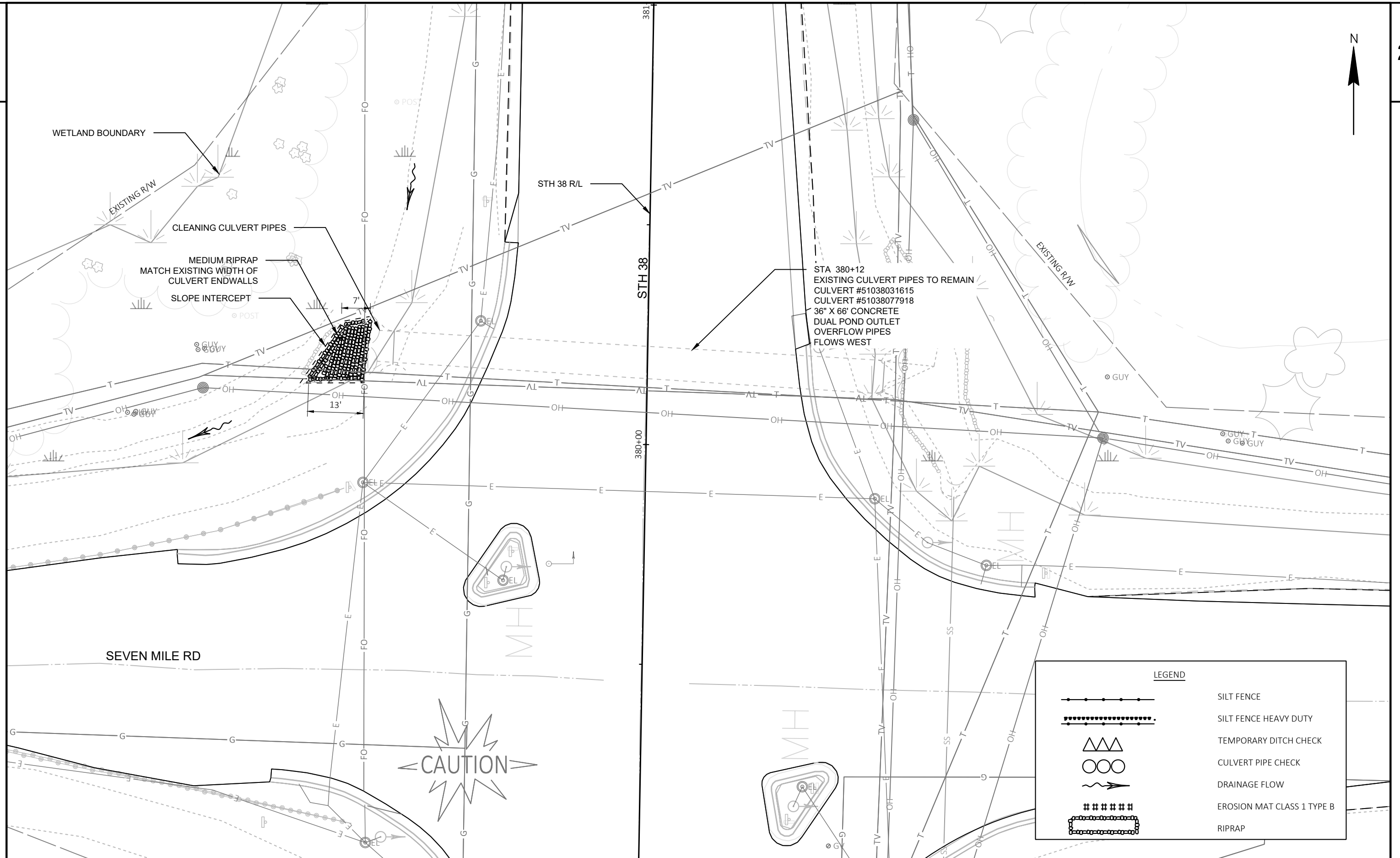
LEGEND	
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	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP



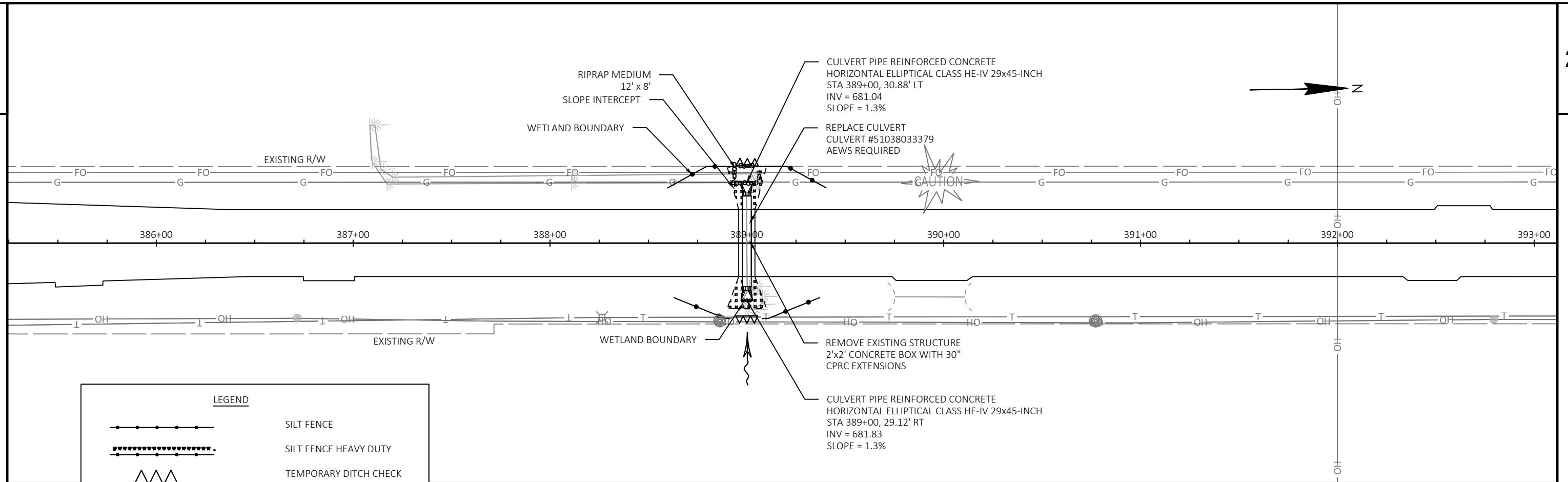
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	DRAINAGE/EROSION CONTROL	SHEET	E
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LEGEND	
	SILT FENCE
	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP

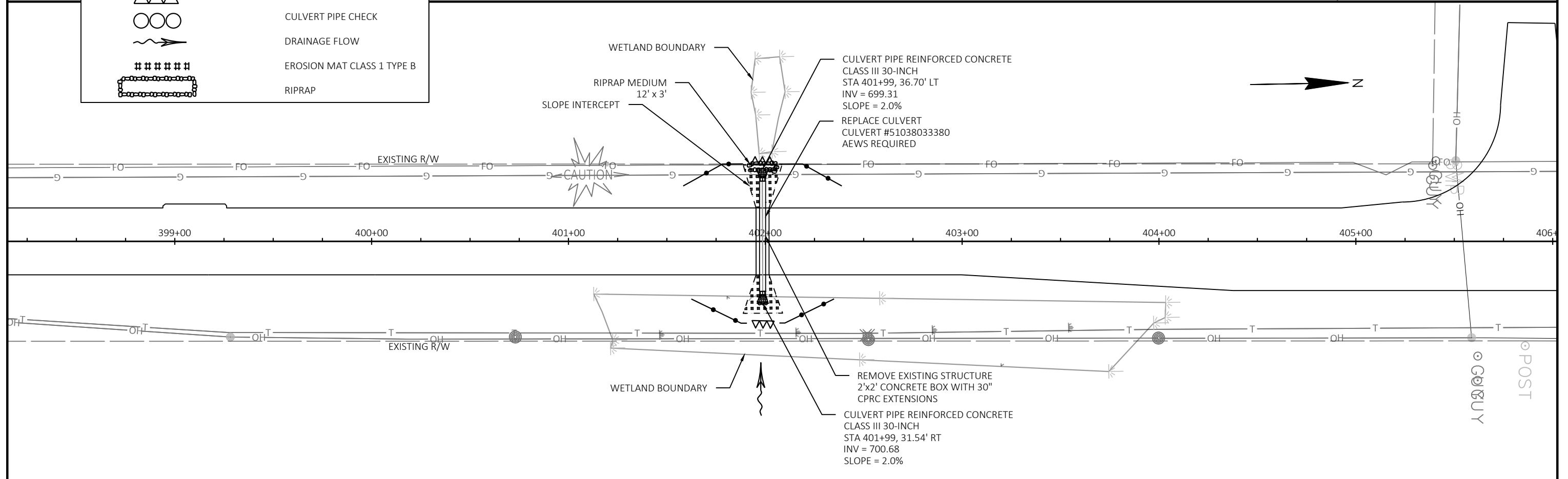


LEGEND	
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	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP

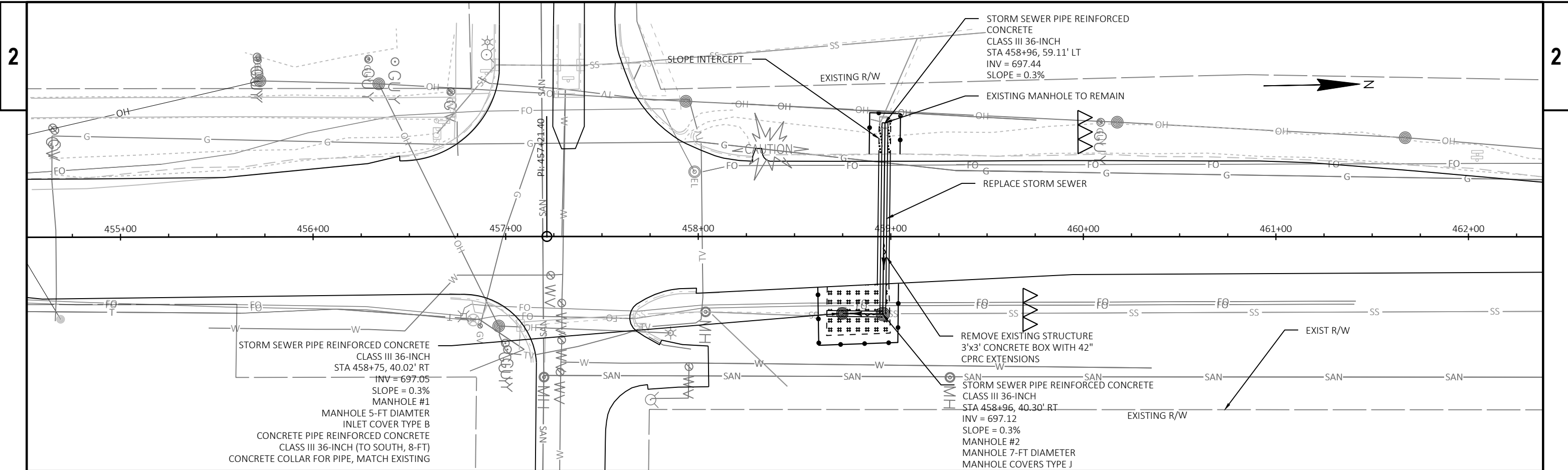


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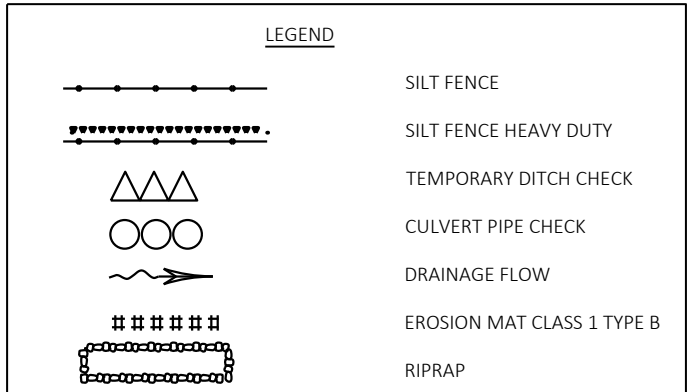
	SILT FENCE
	SILT FENCE HEAVY DUTY
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	DRAINAGE FLOW
	EROSION MAT CLASS 1 TYPE B
	RIPRAP

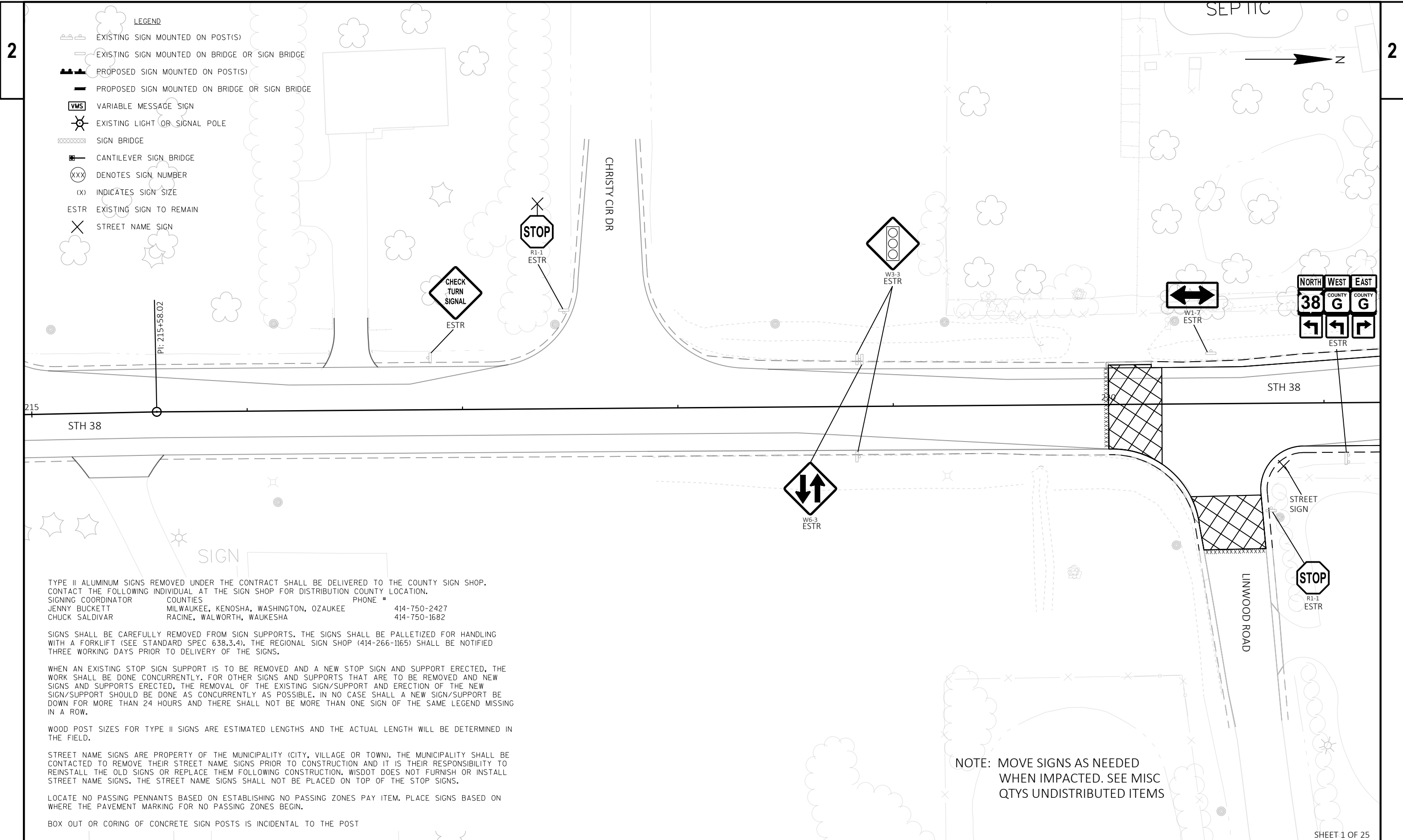


PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	DRAINAGE/EROSION CONTROL	SHEET	E
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MANHOLE #	STATION	OFFSET	STRUCTURE TYPE	RIM ELEVATION	SUMP
1	458+75	40.02' RT	MANHOLE 5-FT DIAMETER	702.3600	697.0500
2	458+96	40.30' RT	MANHOLE 7-FT DIAMETER	702.1100	697.1200





TYPE II ALUMINUM SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE COUNTY SIGN SHOP. CONTACT THE FOLLOWING INDIVIDUAL AT THE SIGN SHOP FOR DISTRIBUTION COUNTY LOCATION.

SIGNING COORDINATOR	COUNTIES	PHONE #
JENNY BUCKETT	MILWAUKEE, KENOSHA, WASHINGTON, OZAUKEE	414-750-2427
CHUCK SALDIVAR	RACINE, WALWORTH, WAUKESHA	414-750-1682

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

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













WOOD POST SIZES FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

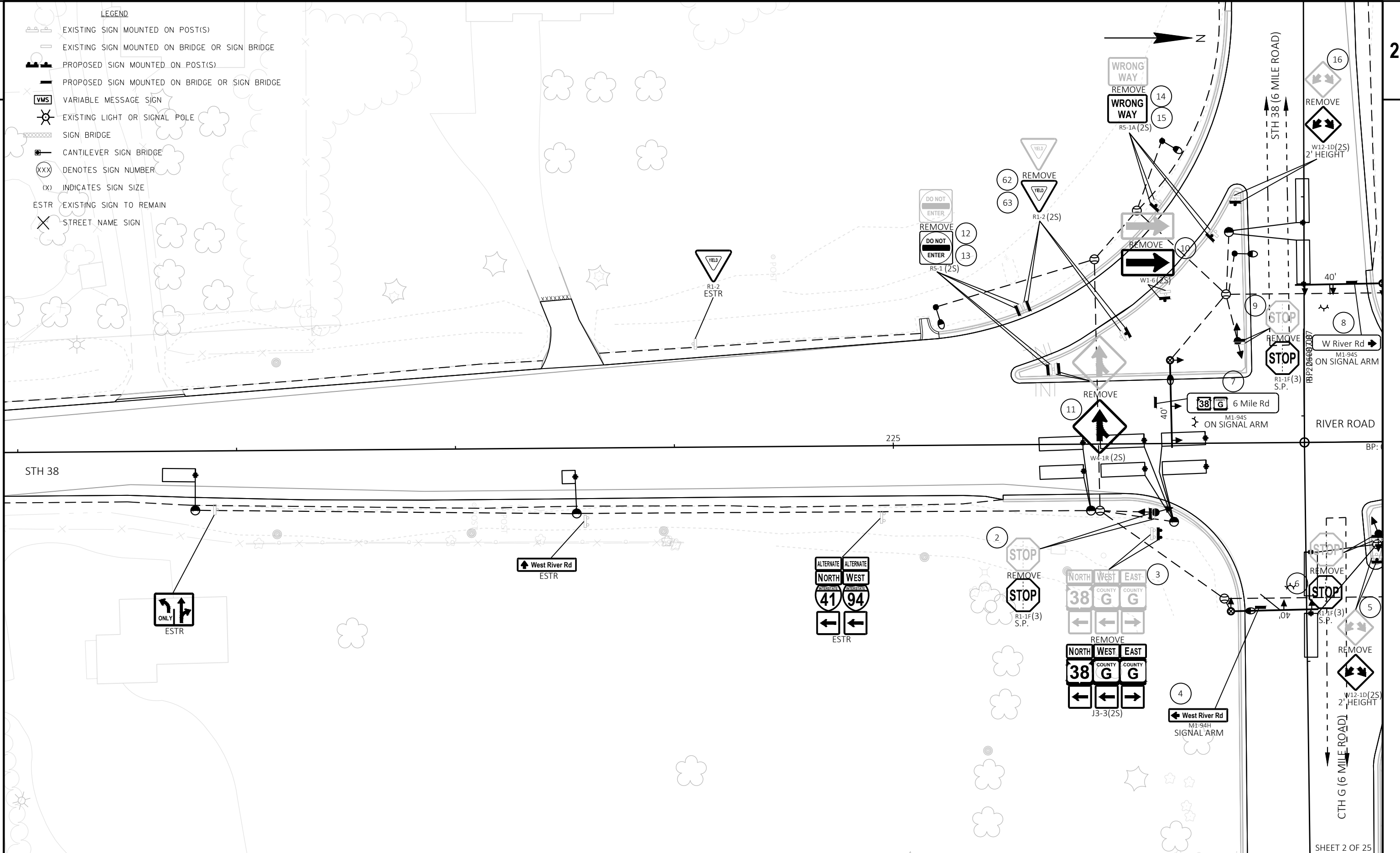
STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

LOCATE NO PASSING PENNANTS BASED ON ESTABLISHING NO PASSING ZONES PAY ITEM. PLACE SIGNS BASED ON WHERE THE PAVEMENT MARKING FOR NO PASSING ZONES BEGIN.

BOX OUT OR CORING OF CONCRETE SIGN POSTS IS INCIDENTAL TO THE POST

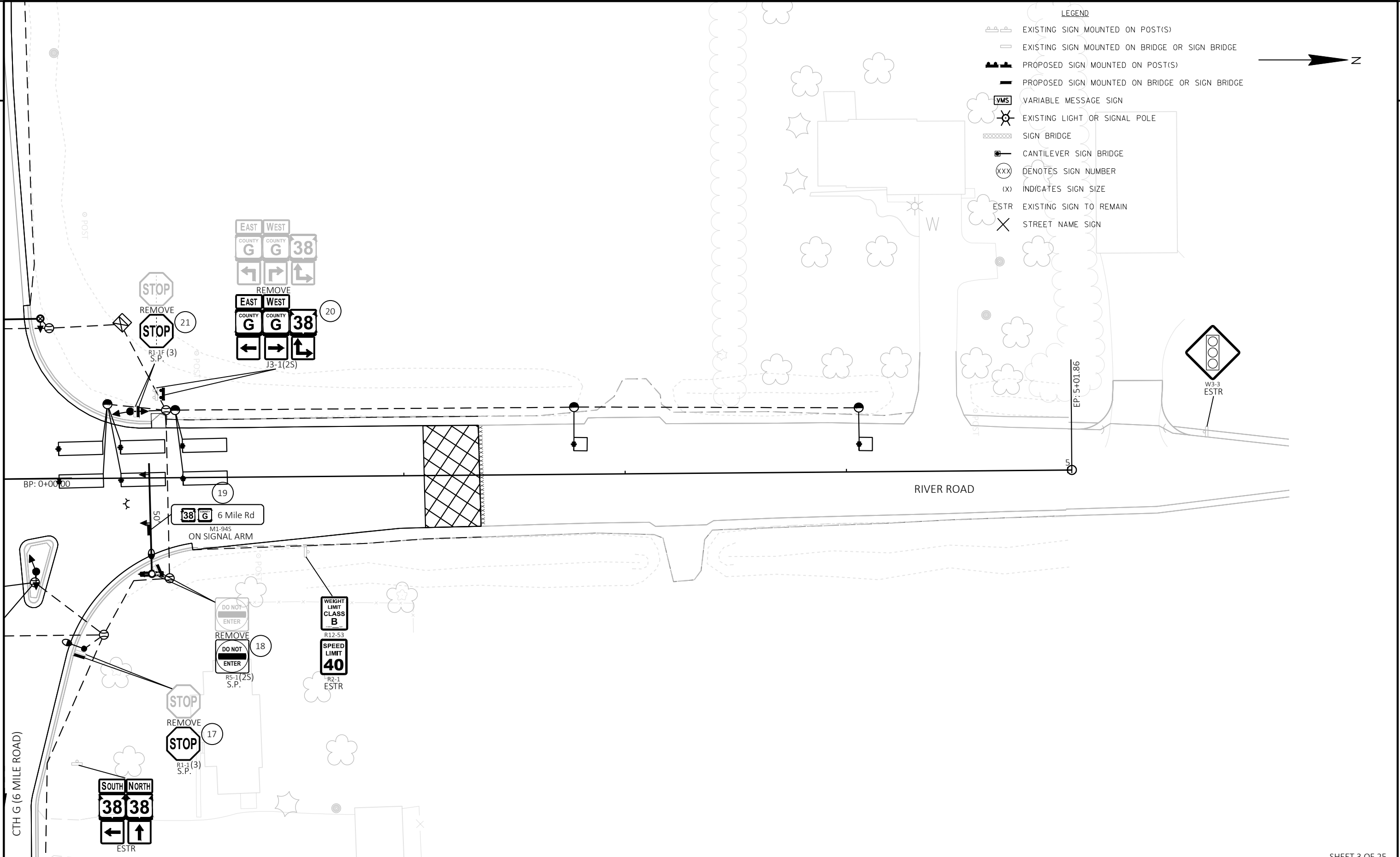
LEGEND

-  EXISTING SIGN MOUNTED ON POST(S)
-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  PROPOSED SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
-  EXISTING SIGN TO REMAIN
-  STREET NAME SIGN















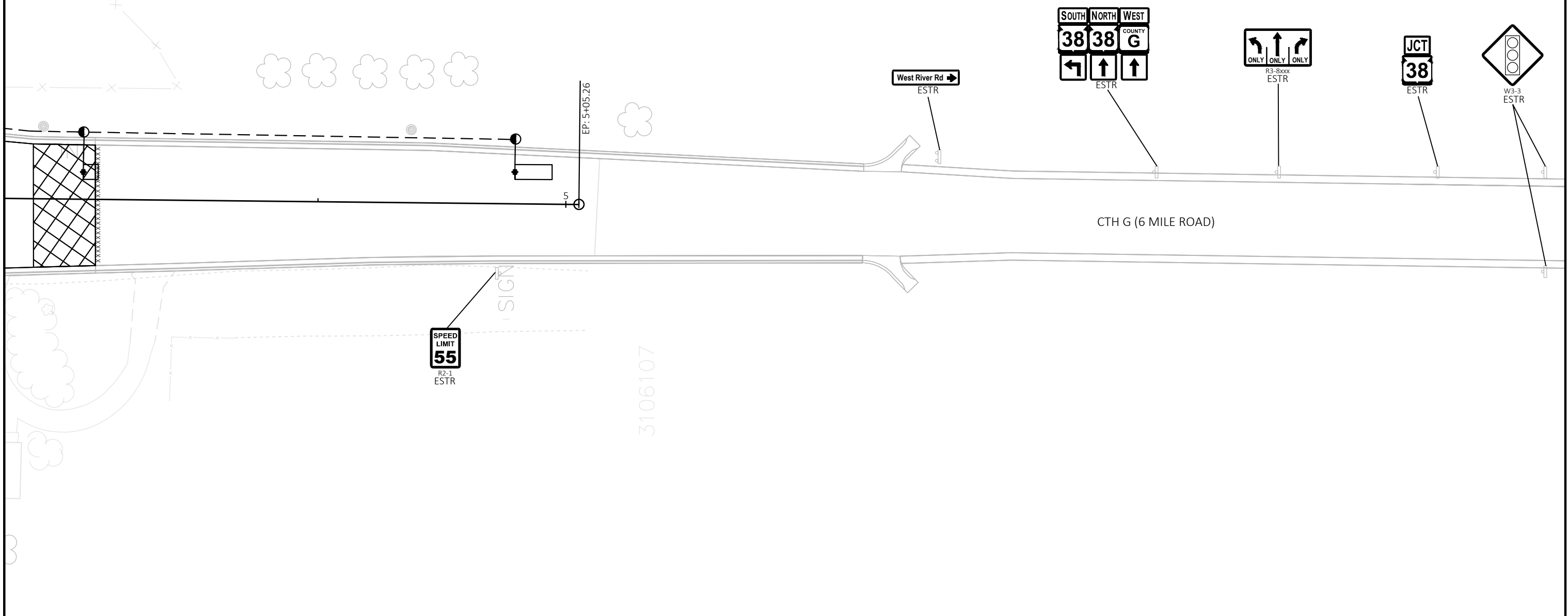
LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- VARIABLE MESSAGE SIGN
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE
- EXISTING SIGN TO REMAIN
- STREET NAME SIGN















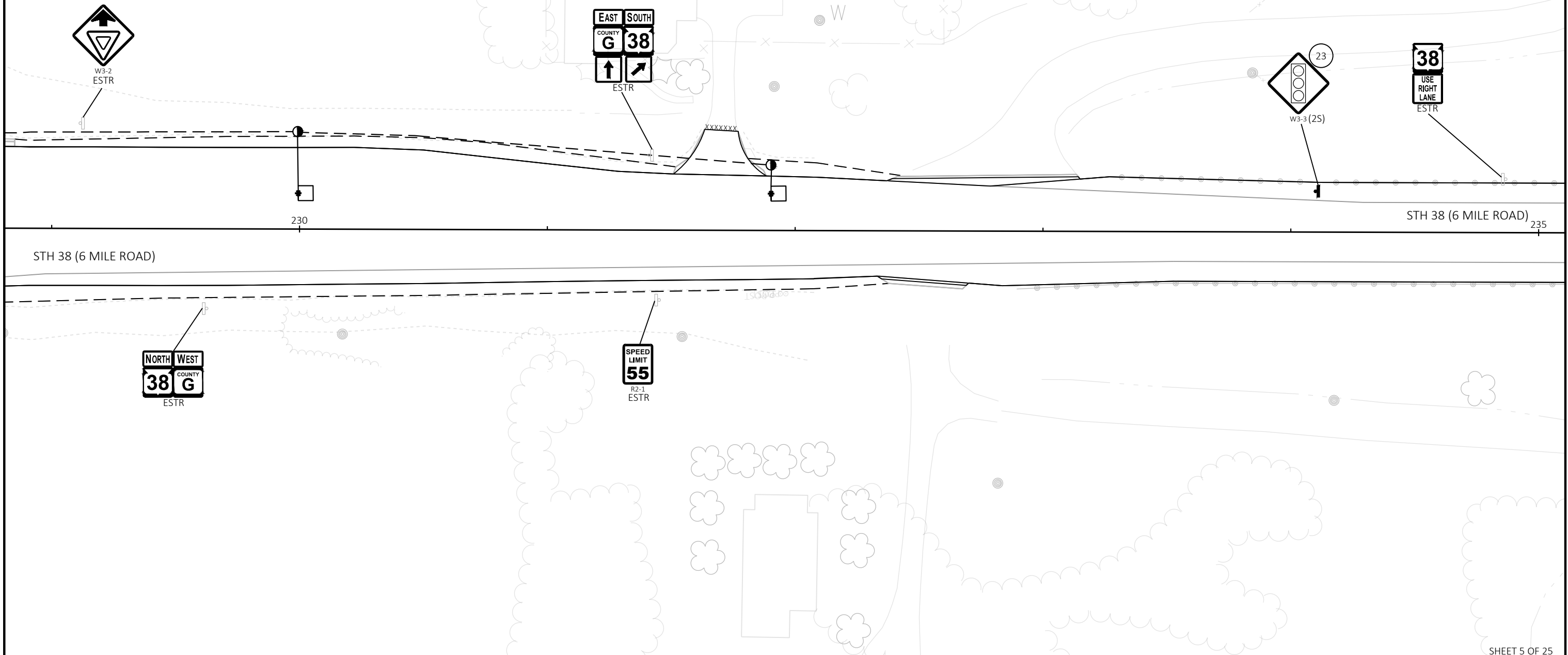
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-  VARIABLE MESSAGE SIGN
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





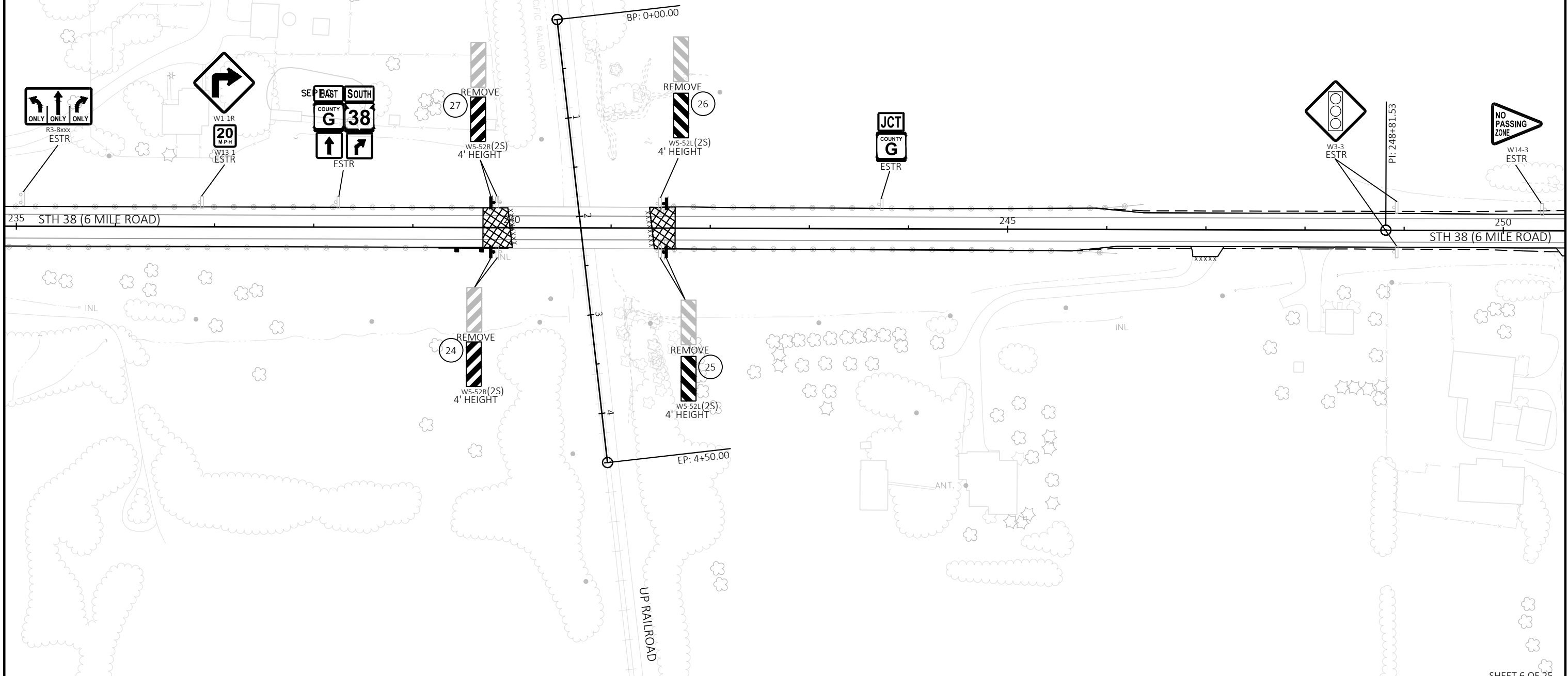
LEGEND

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-  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  PROPOSED SIGN MOUNTED ON POST(S)
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-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
-  EXISTING SIGN TO REMAIN
-  STREET NAME SIGN
















- LEGEND**
-  EXISTING SIGN MOUNTED ON POST(S)
 -  EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
 -  PROPOSED SIGN MOUNTED ON POST(S)
 -  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
 -  VARIABLE MESSAGE SIGN
 -  EXISTING LIGHT OR SIGNAL POLE
 -  SIGN BRIDGE
 -  CANTILEVER SIGN BRIDGE
 -  DENOTES SIGN NUMBER
 -  INDICATES SIGN SIZE
 -  EXISTING SIGN TO REMAIN
 -  STREET NAME SIGN

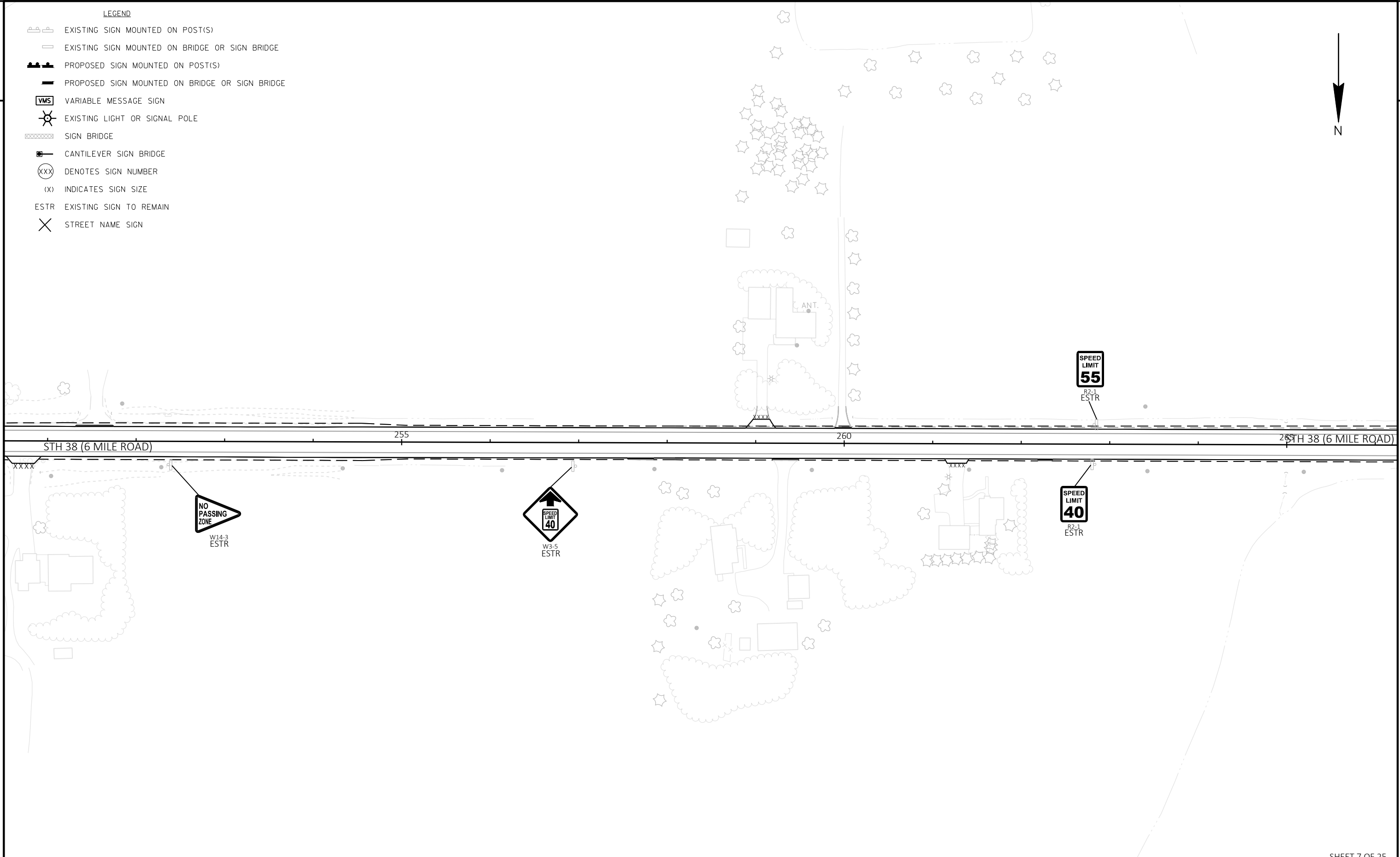


PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN
SHEET			E















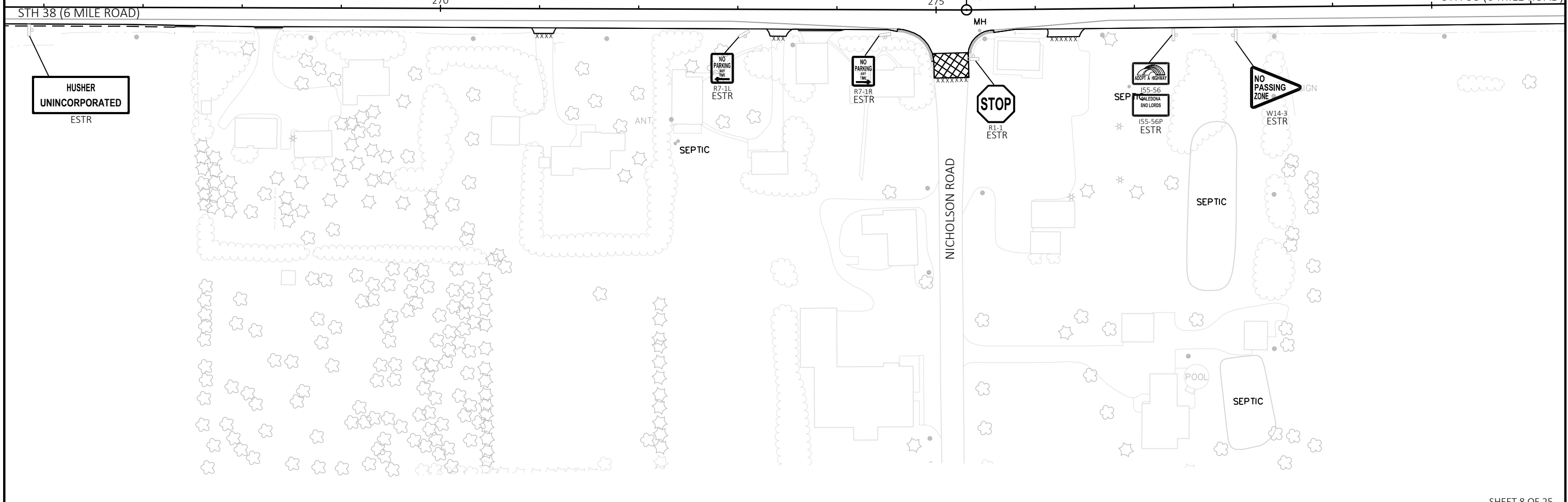
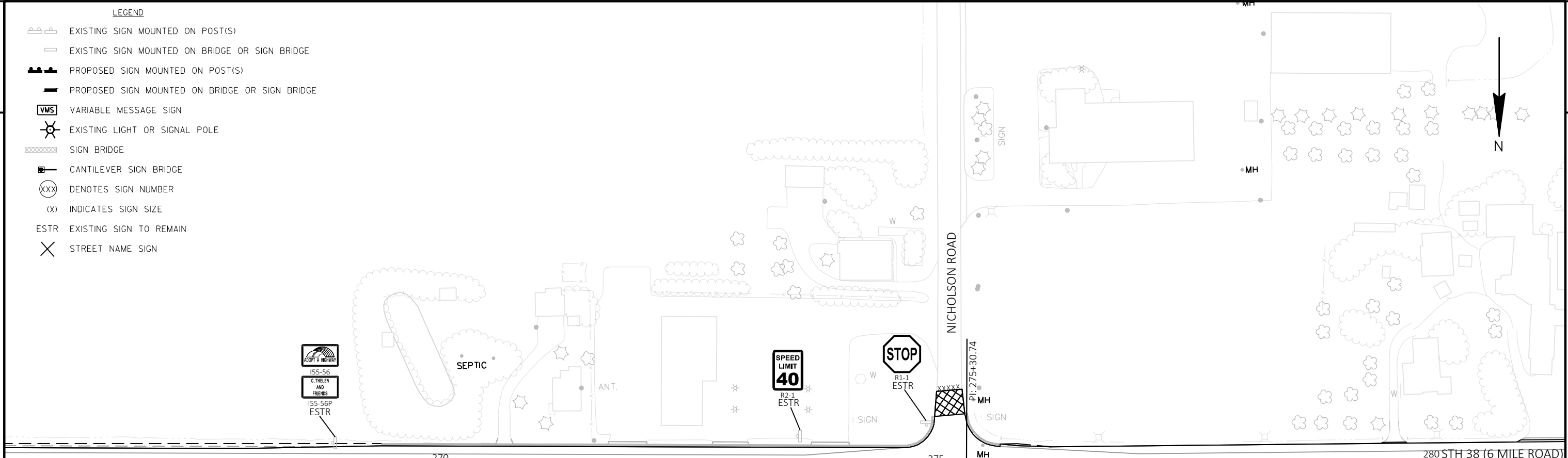
LEGEND

-  EXISTING SIGN MOUNTED ON POST(S)
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-  PROPOSED SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN
-  STREET NAME SIGN



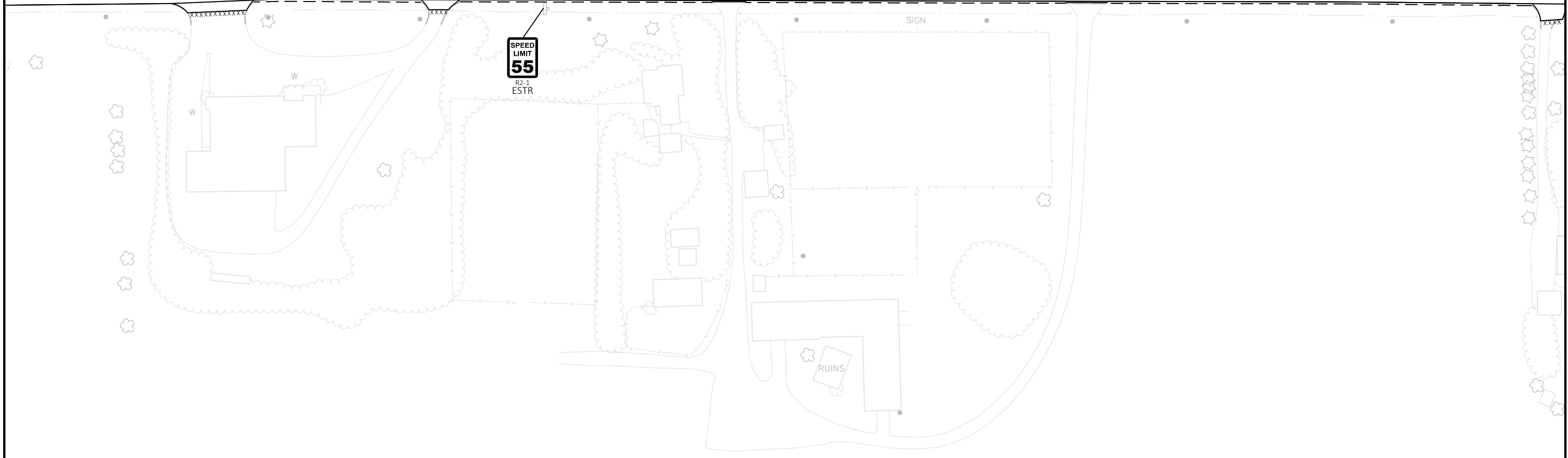
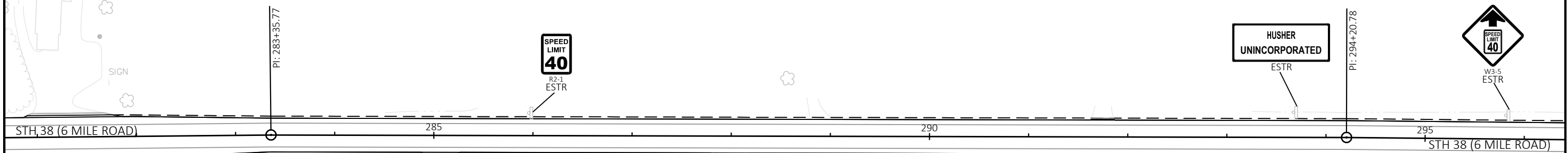
LEGEND

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-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  (X) INDICATES SIGN SIZE
-  ESTR EXISTING SIGN TO REMAIN
-  STREET NAME SIGN















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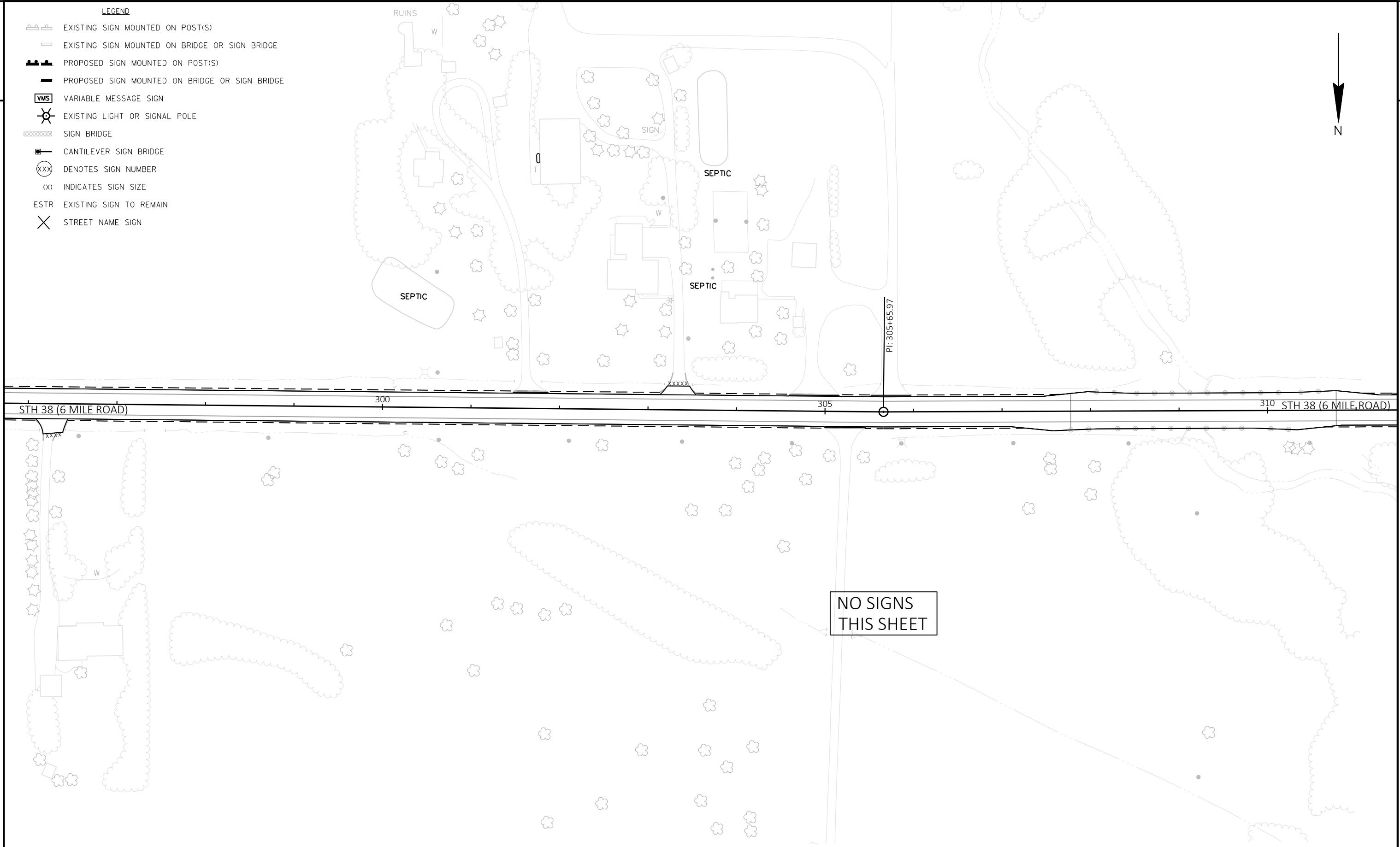
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-  VARIABLE MESSAGE SIGN
-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN
-  STREET NAME SIGN
















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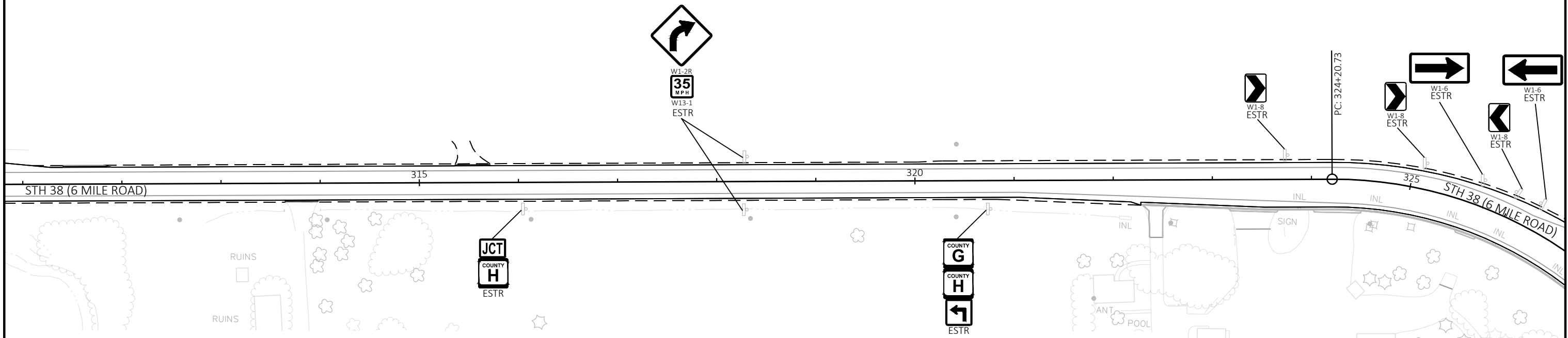
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




PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET 10 OF 25
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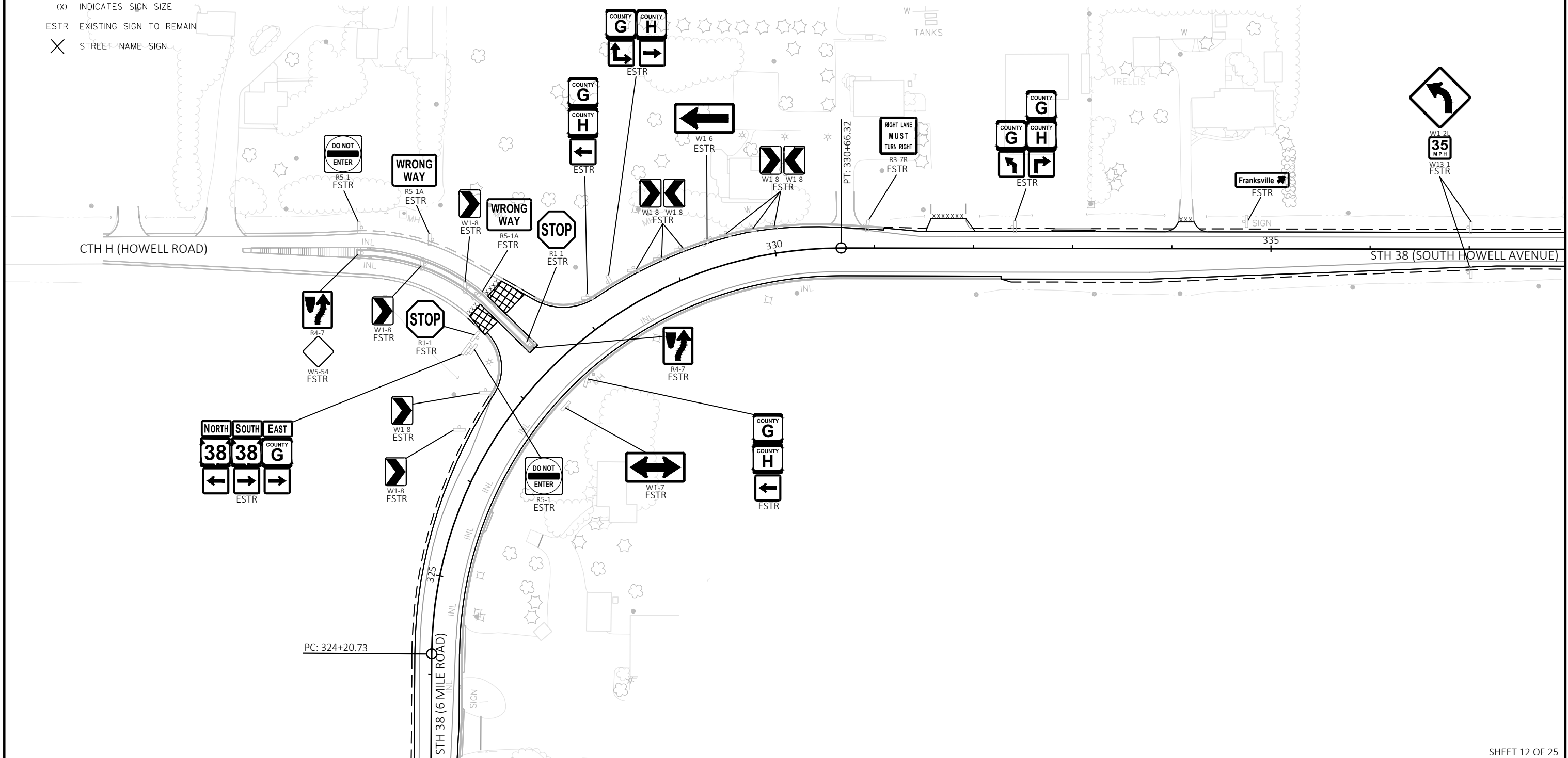


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 -  SIGN BRIDGE
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




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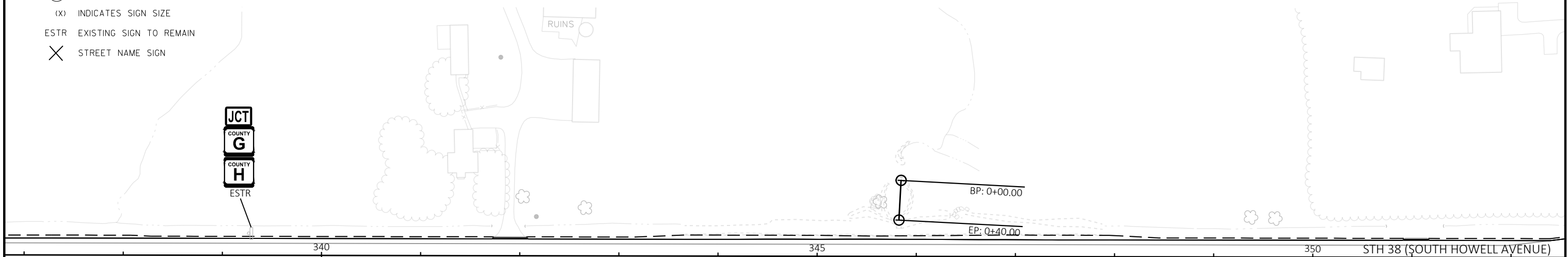
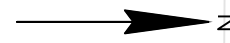
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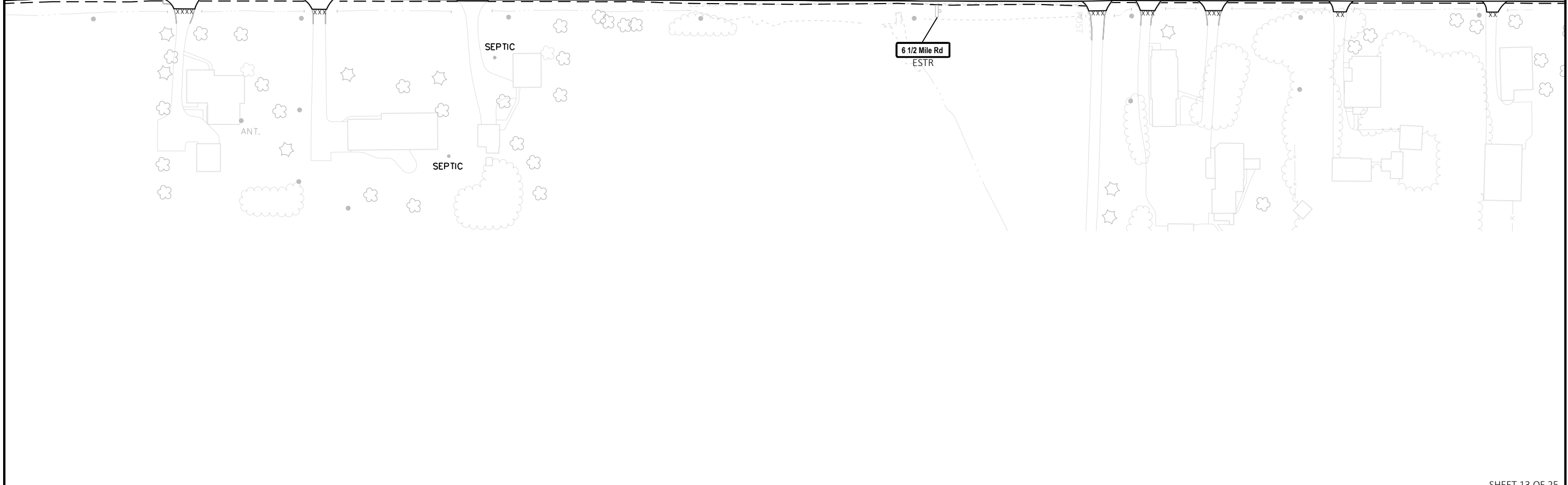
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET E
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LEGEND

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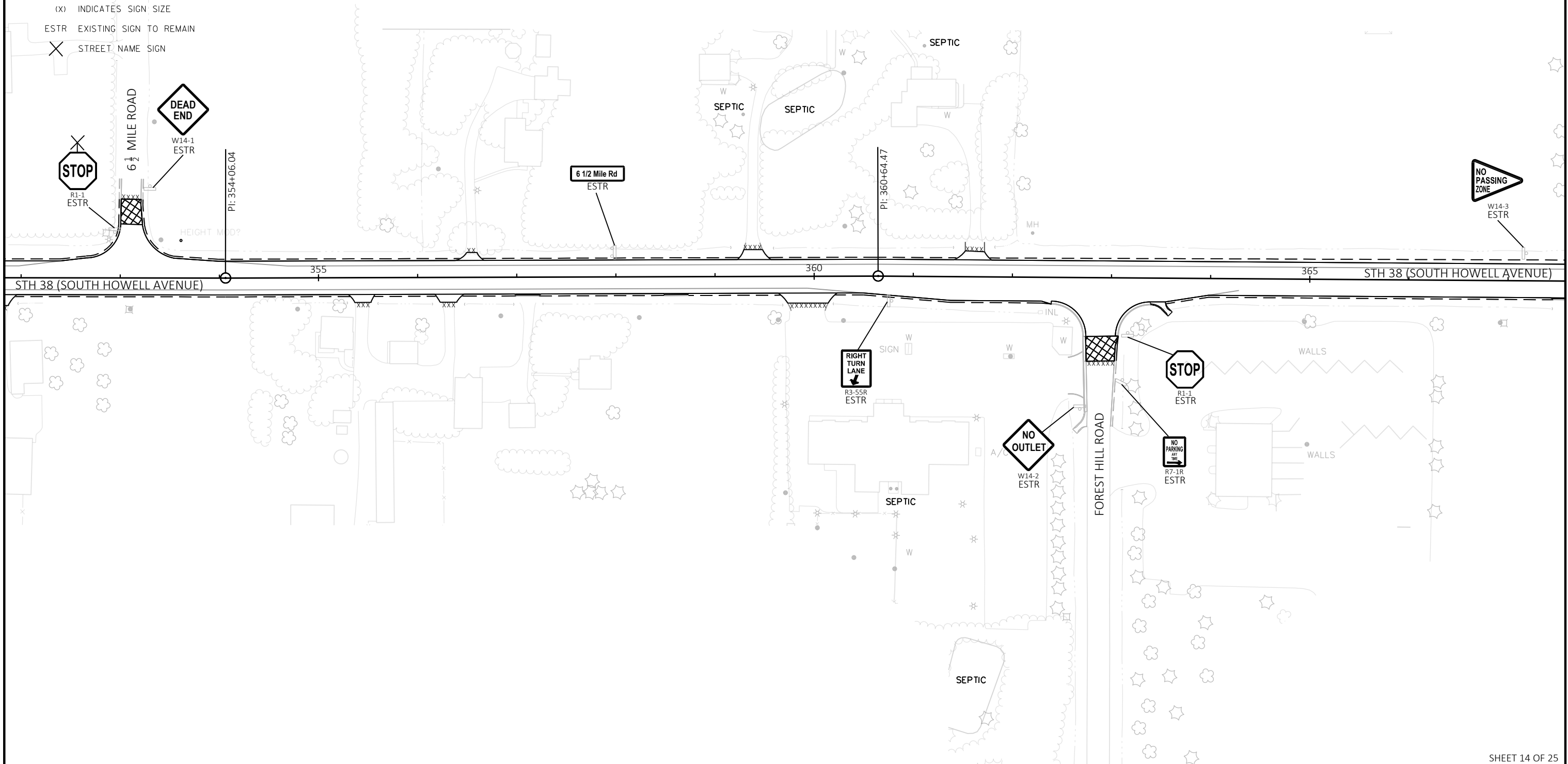


STH 38 (SOUTH HOWELL AVENUE)















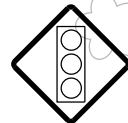
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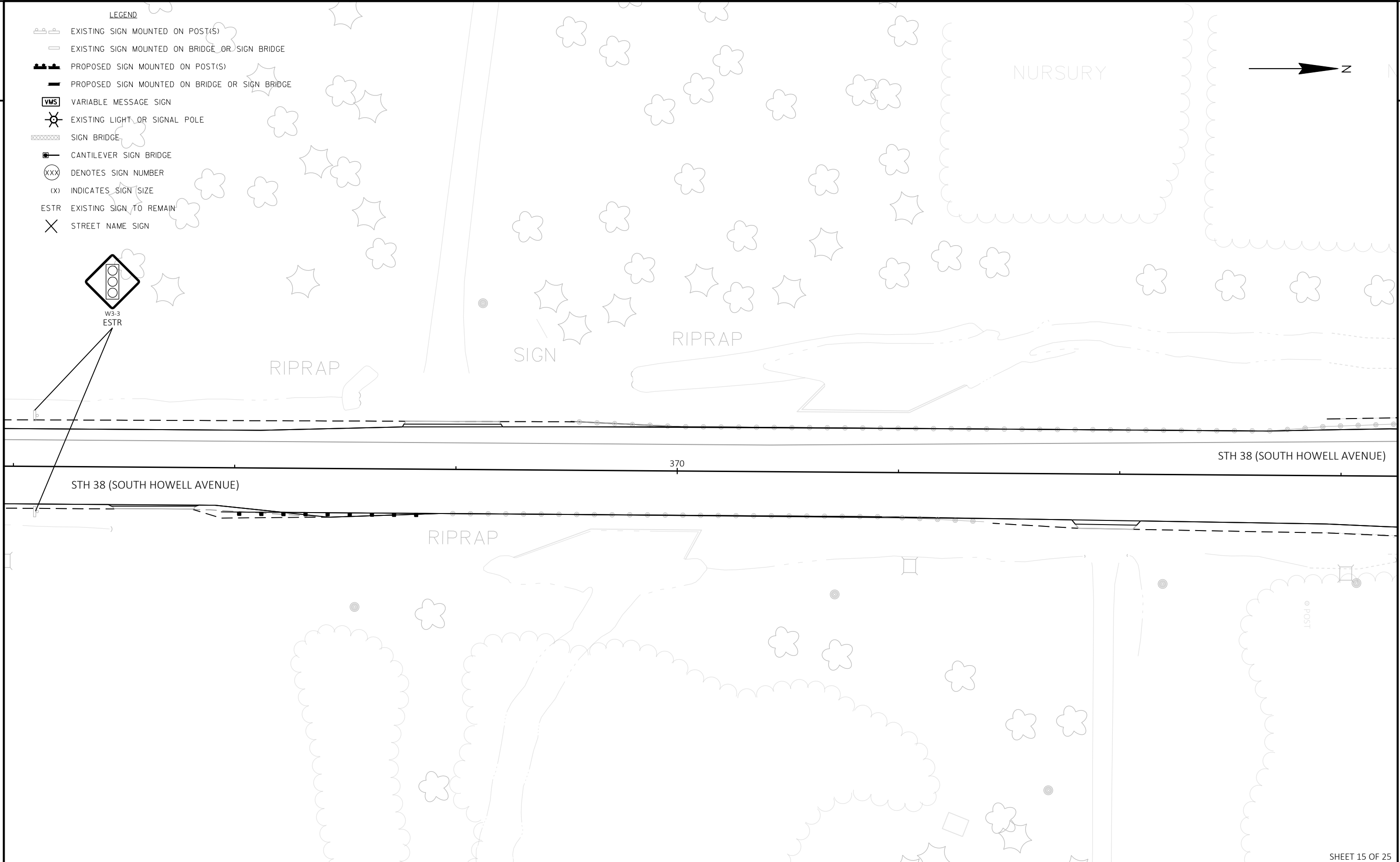


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







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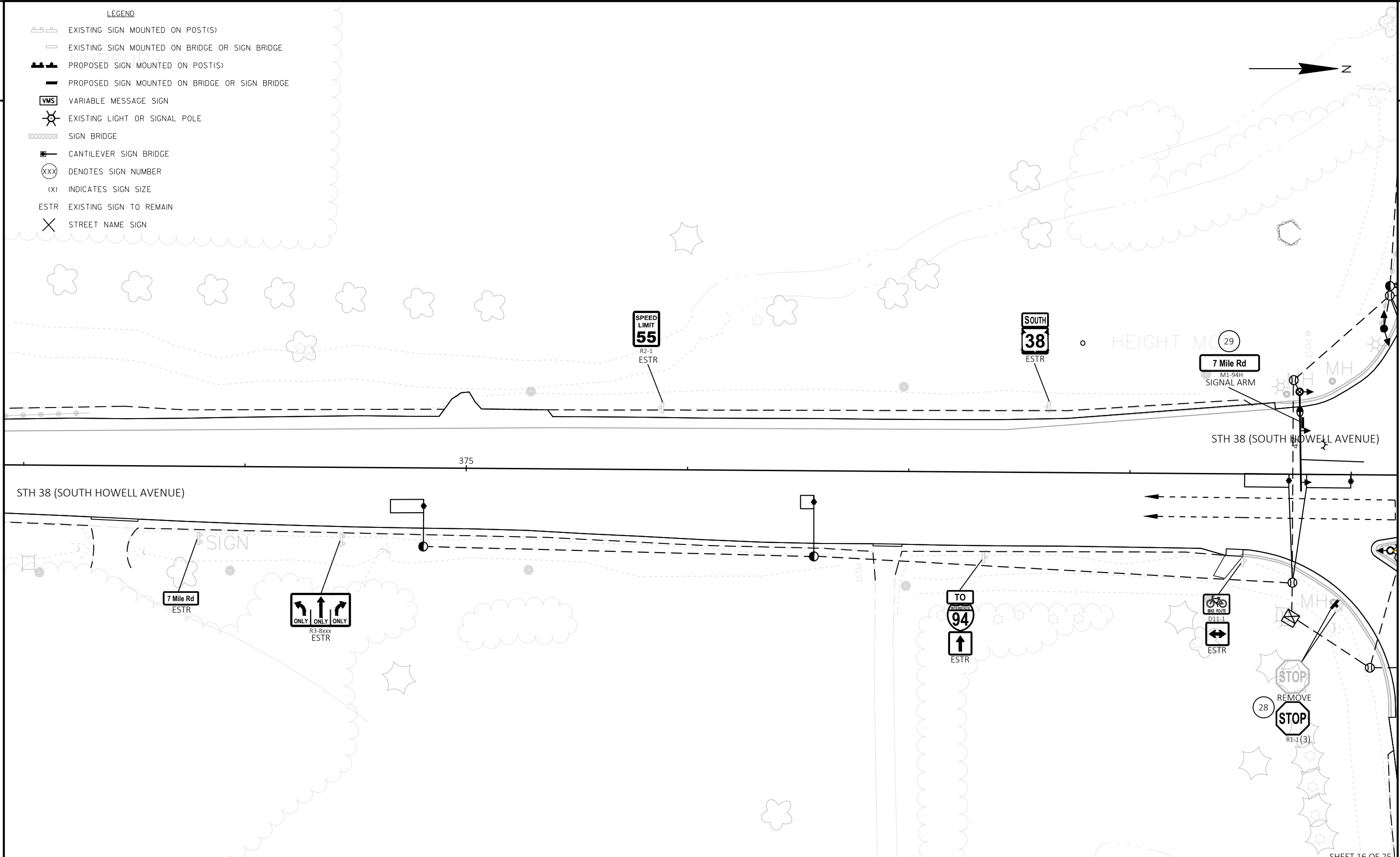


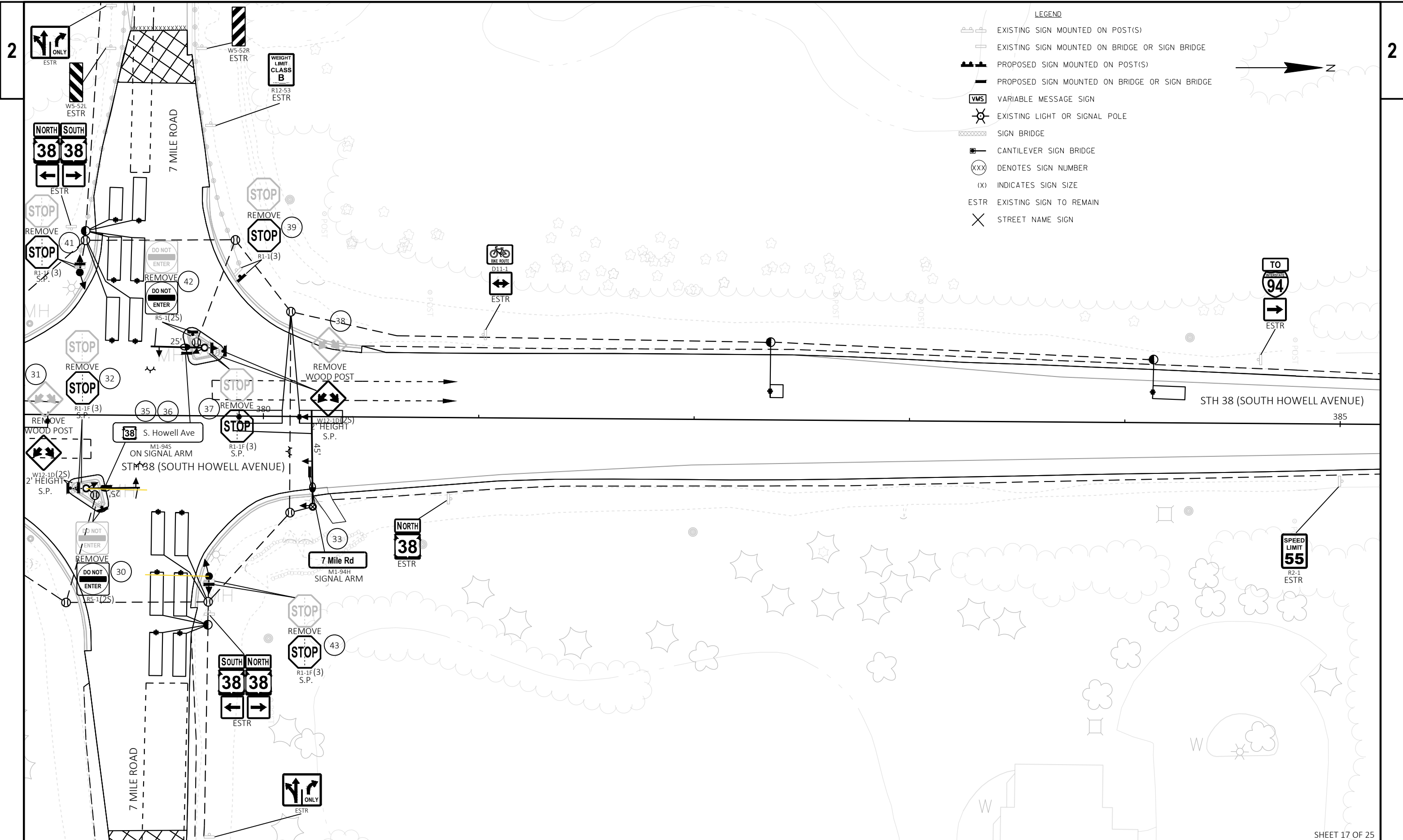
W3-3
ESTR



LEGEND

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-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
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-  INDICATES SIGN SIZE
-  EXISTING SIGN TO REMAIN
-  STREET NAME SIGN





LEGEND

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- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
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- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE
- EXISTING SIGN TO REMAIN
- STREET NAME SIGN

PROJECT NO: 2290-24-70

HWY: STH 38













COUNTY: RACINE/MILWAUKEE

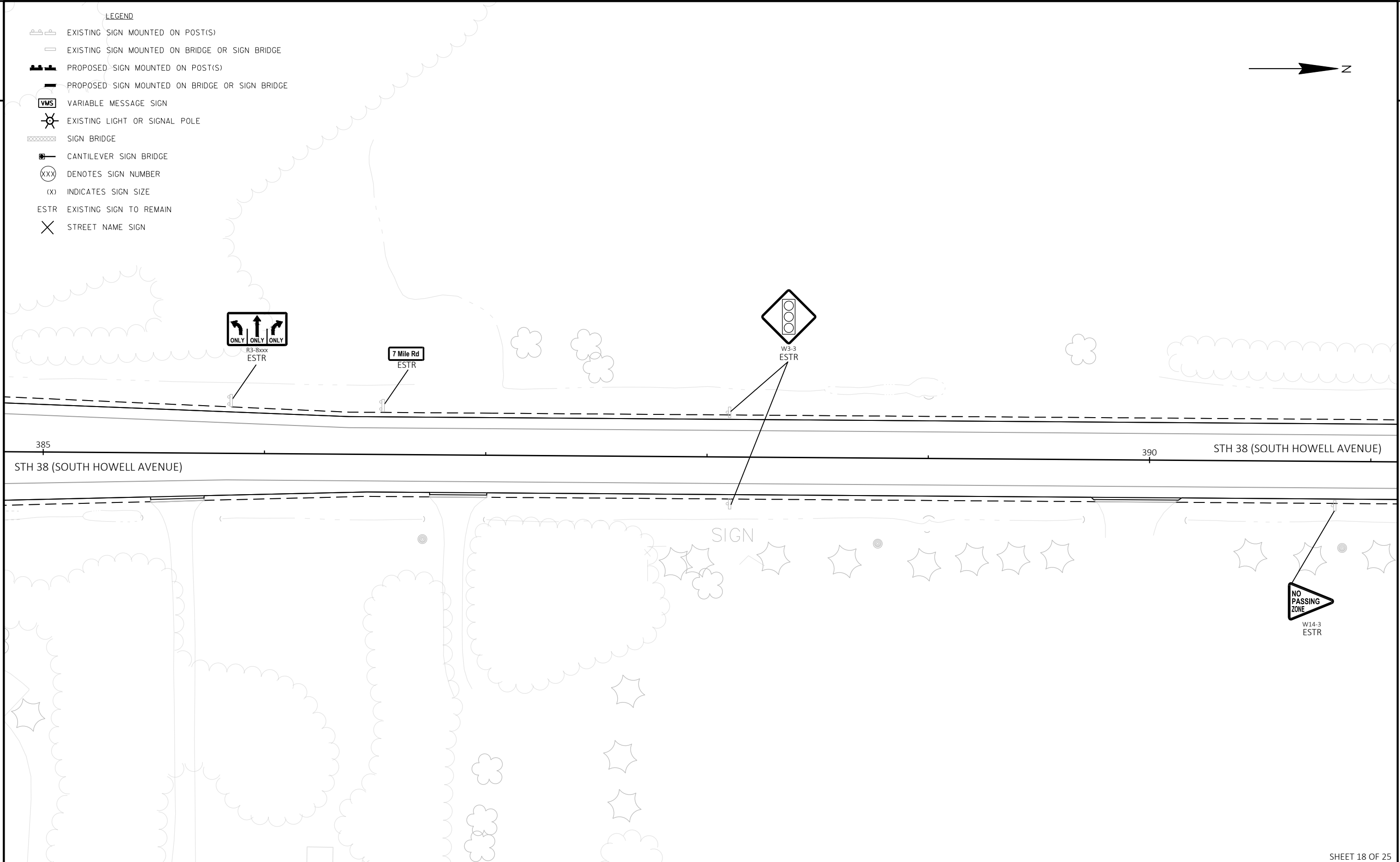
PERMANENT SIGNING PLAN

SHEET

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





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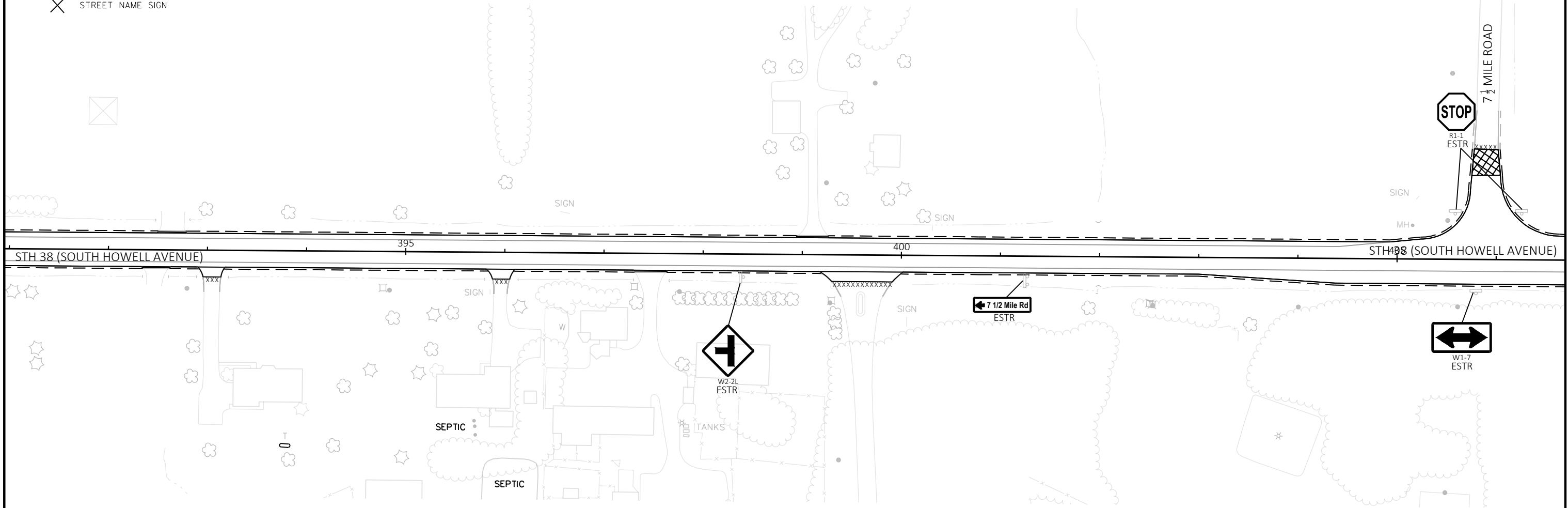
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET E
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LEGEND












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395 400 405

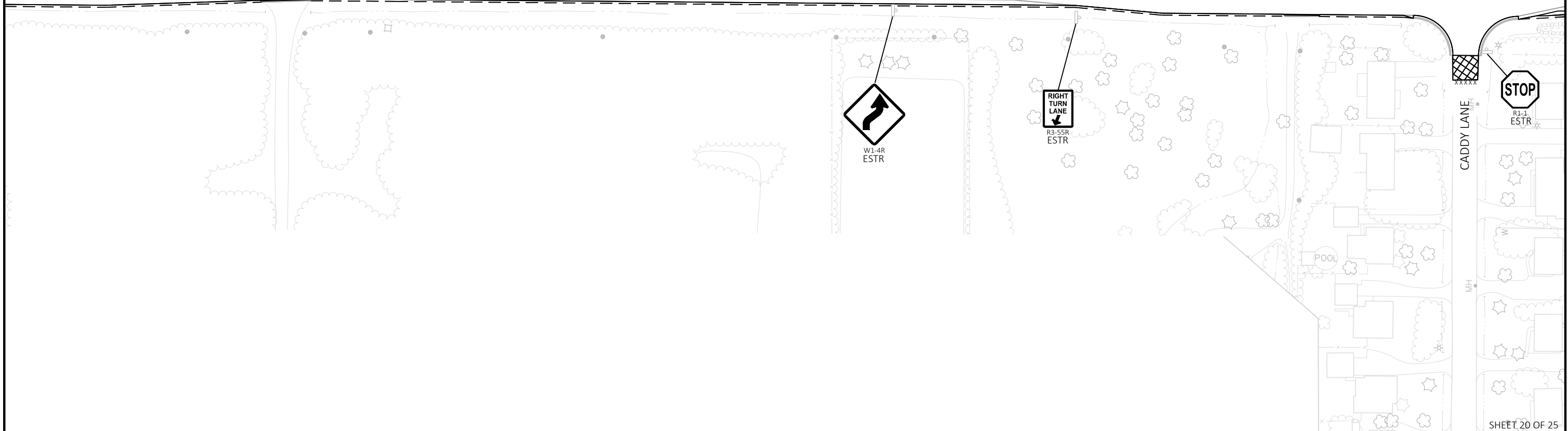
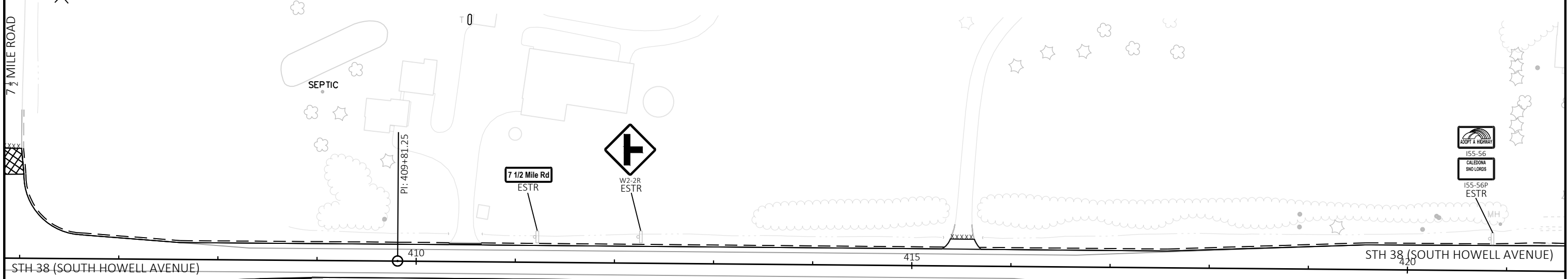
STH 38 (SOUTH HOWELL AVENUE) STH 38 (SOUTH HOWELL AVENUE)

LEGEND

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






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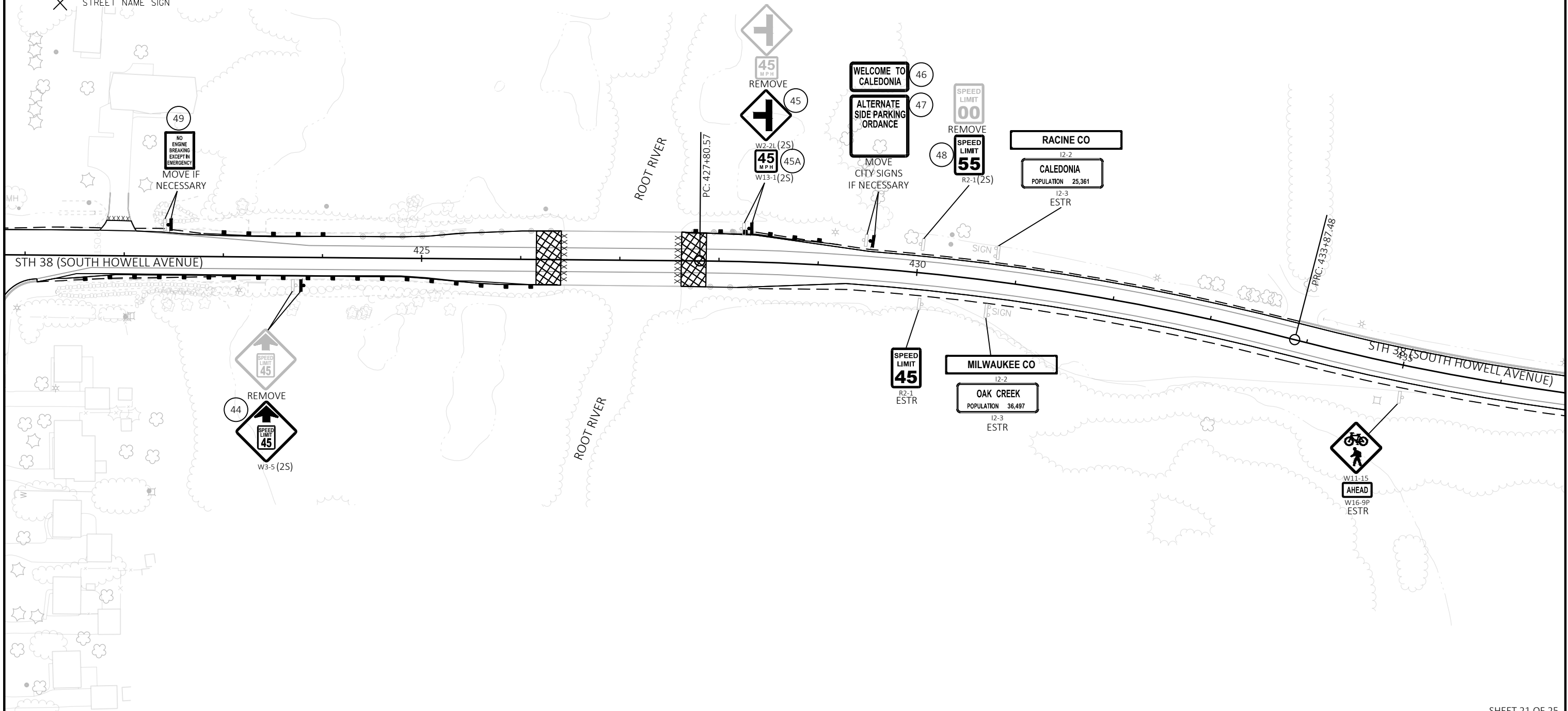


SHEET 20 OF 25

PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET	E
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LEGEND

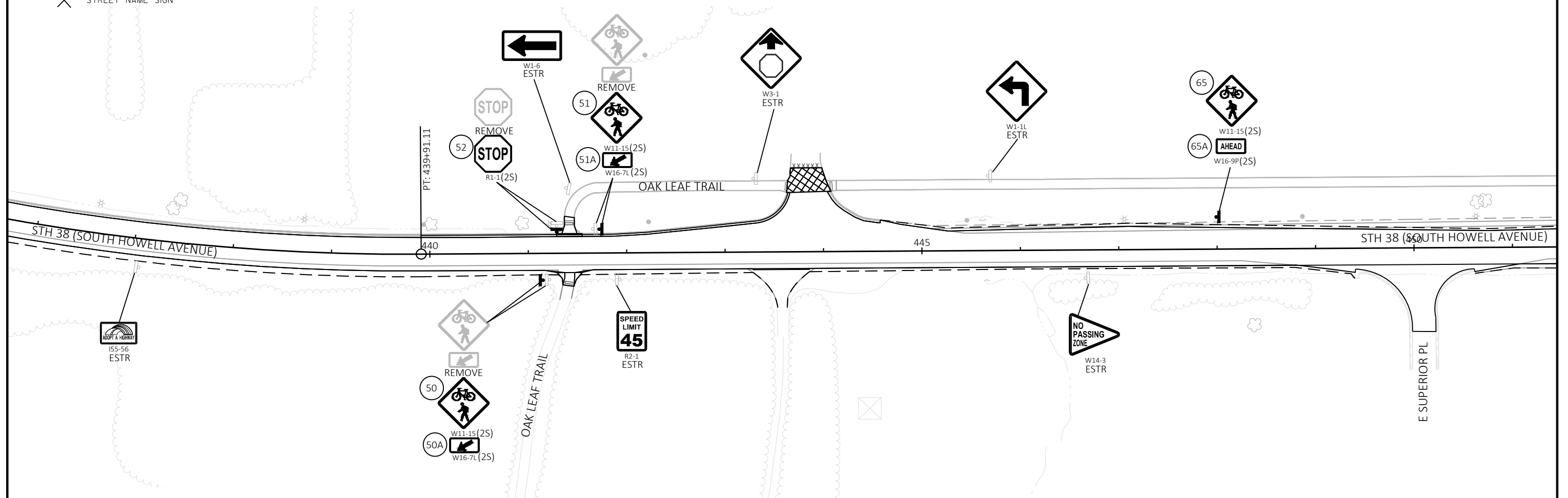
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-  EXISTING LIGHT OR SIGNAL POLE
-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET E
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






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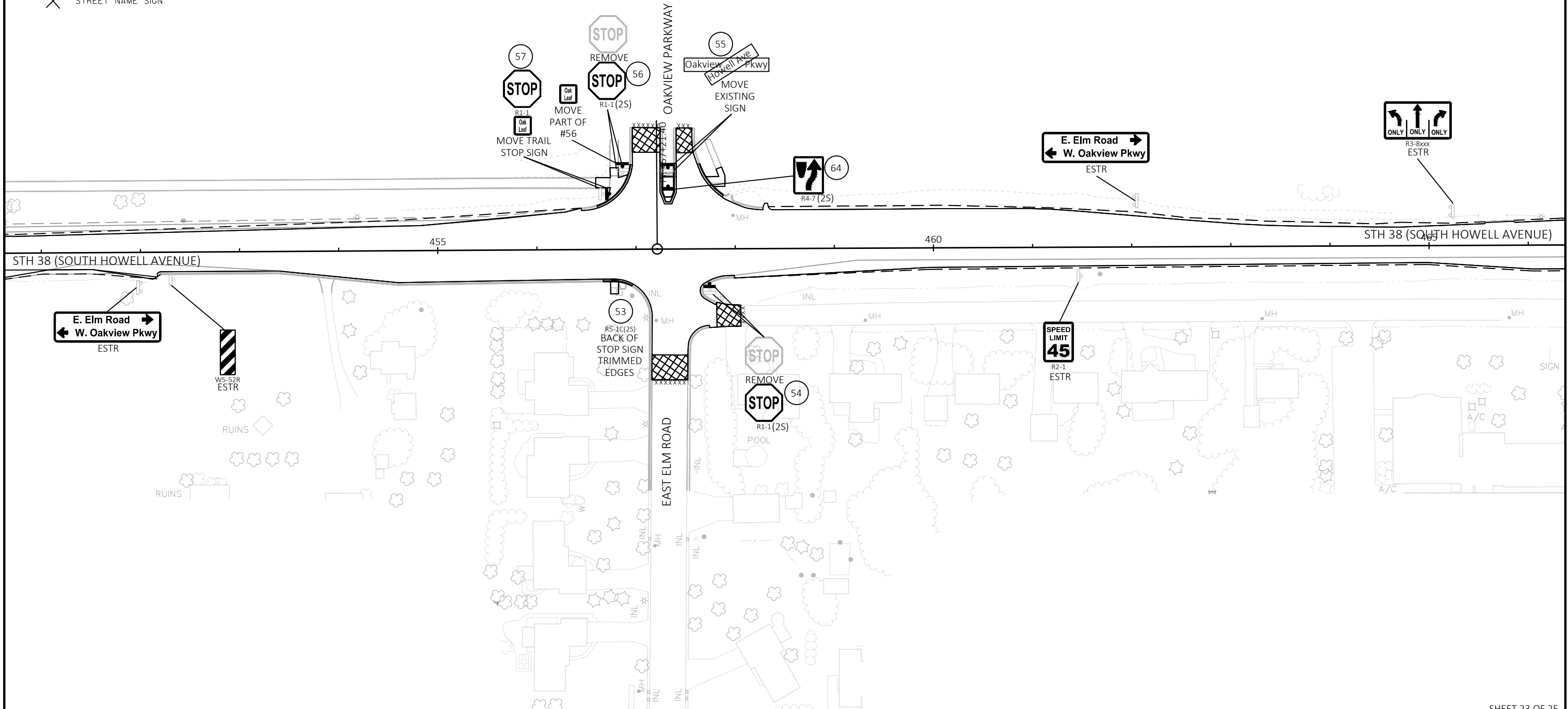
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









PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE/MILWAUKEE	PERMANENT SIGNING PLAN	SHEET E
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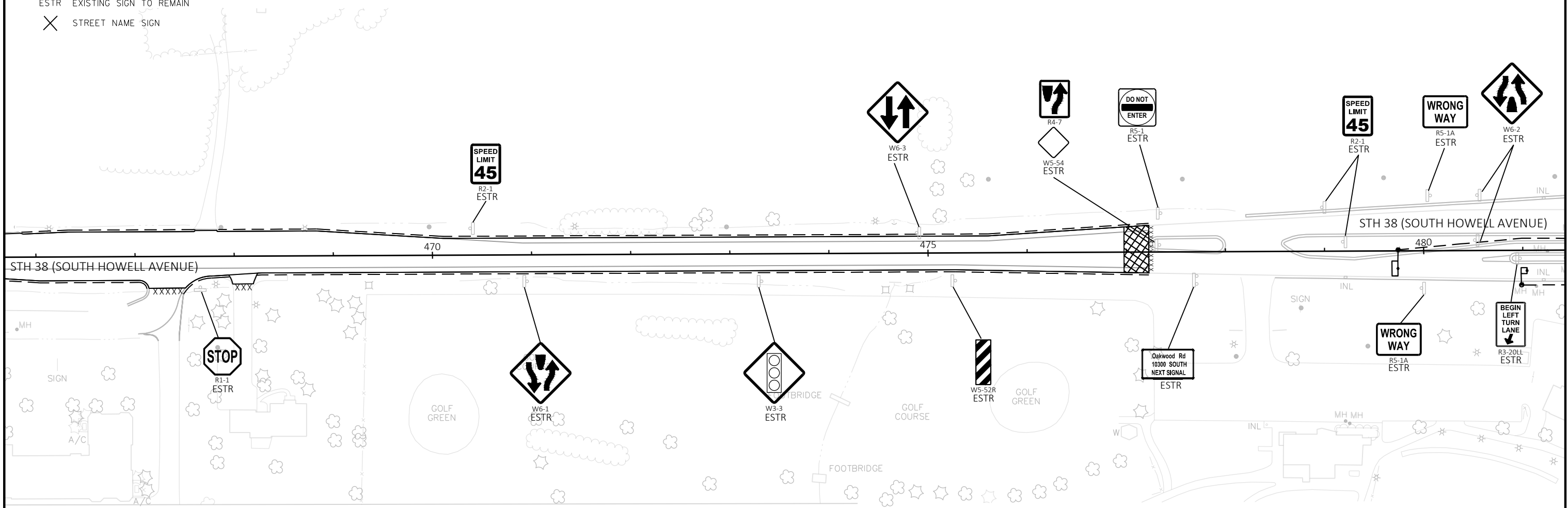
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-  PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
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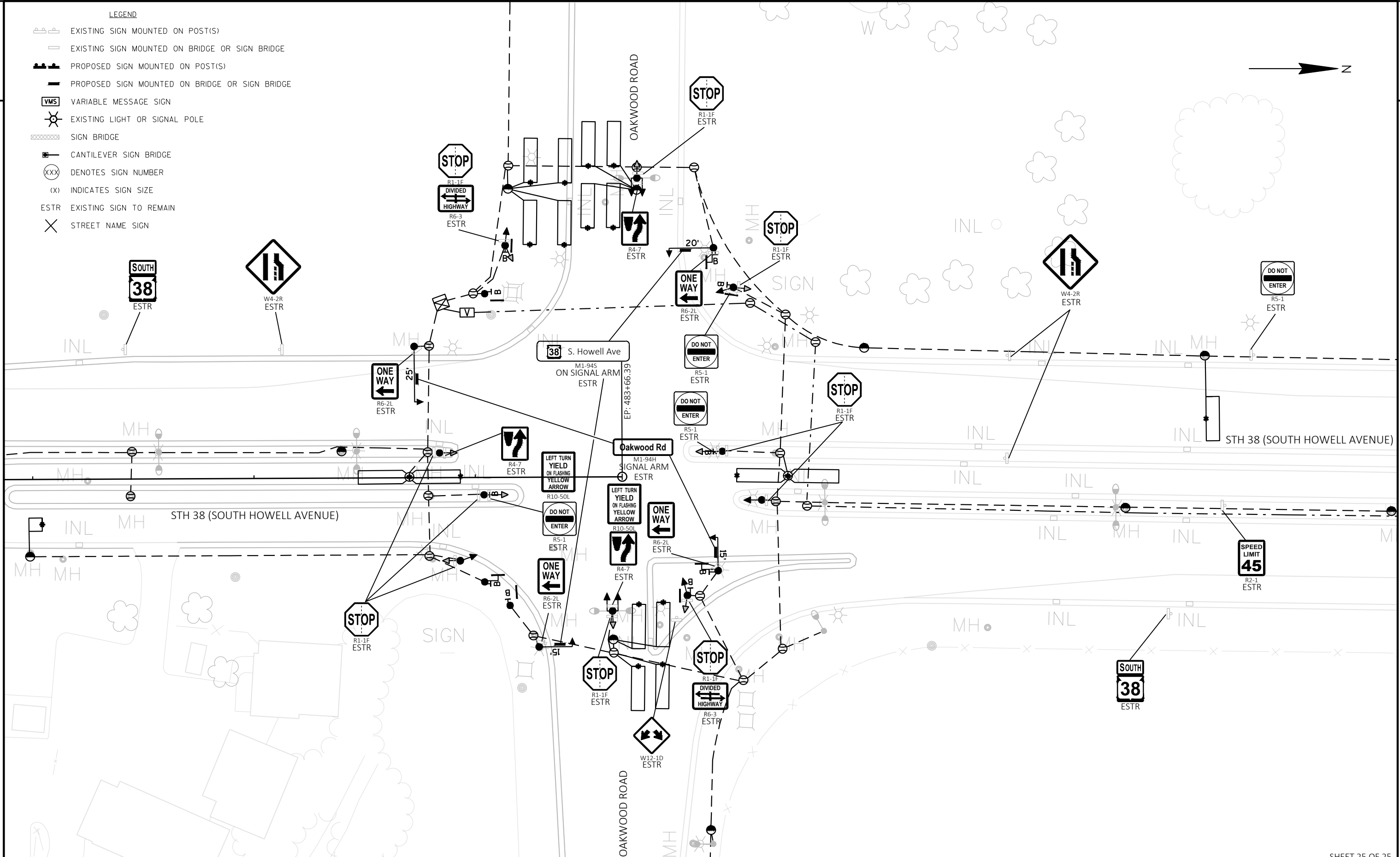
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-  SIGN BRIDGE
-  CANTILEVER SIGN BRIDGE
-  DENOTES SIGN NUMBER
-  (X) INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN
-  STREET NAME SIGN




















LEGEND

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- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
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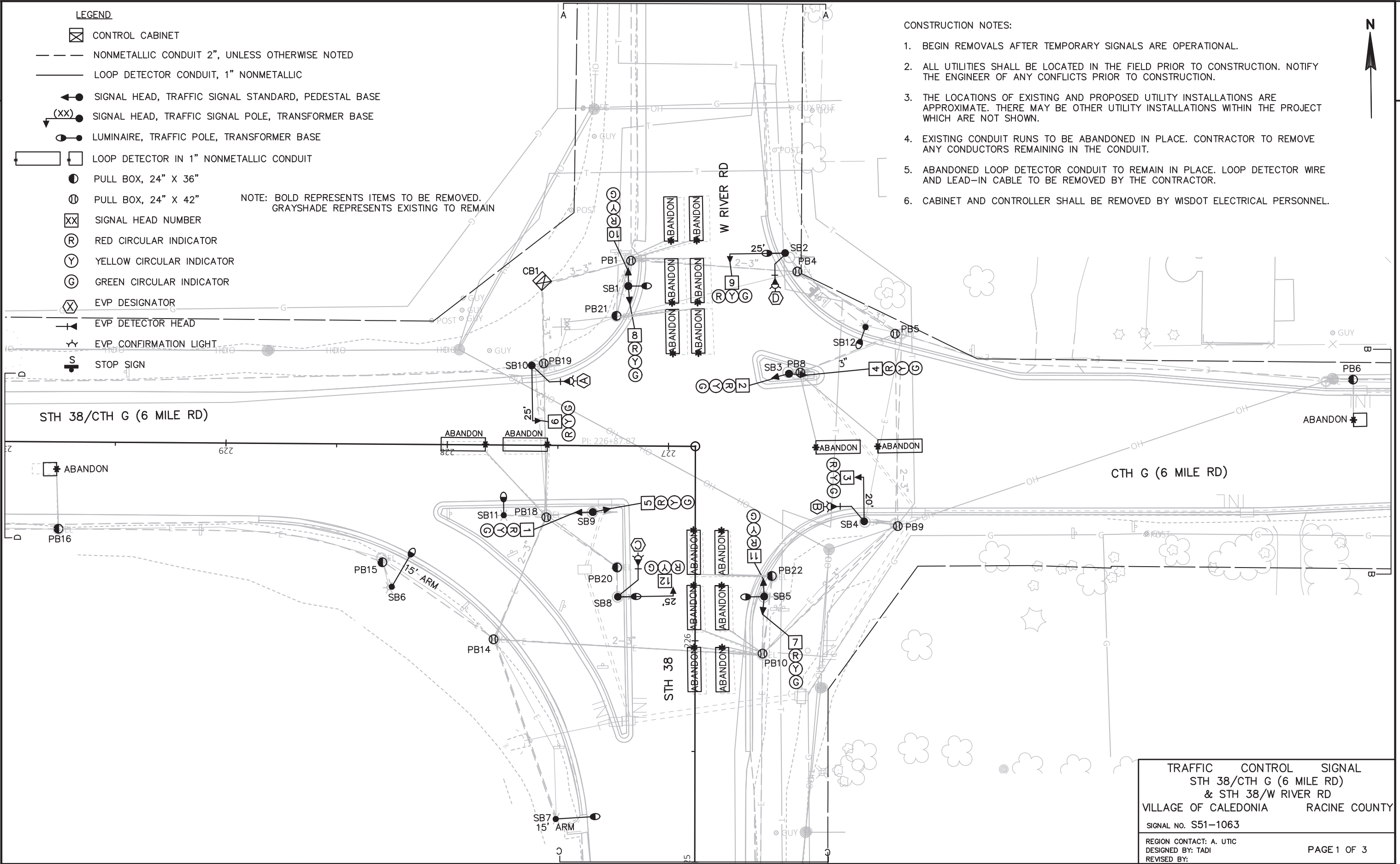


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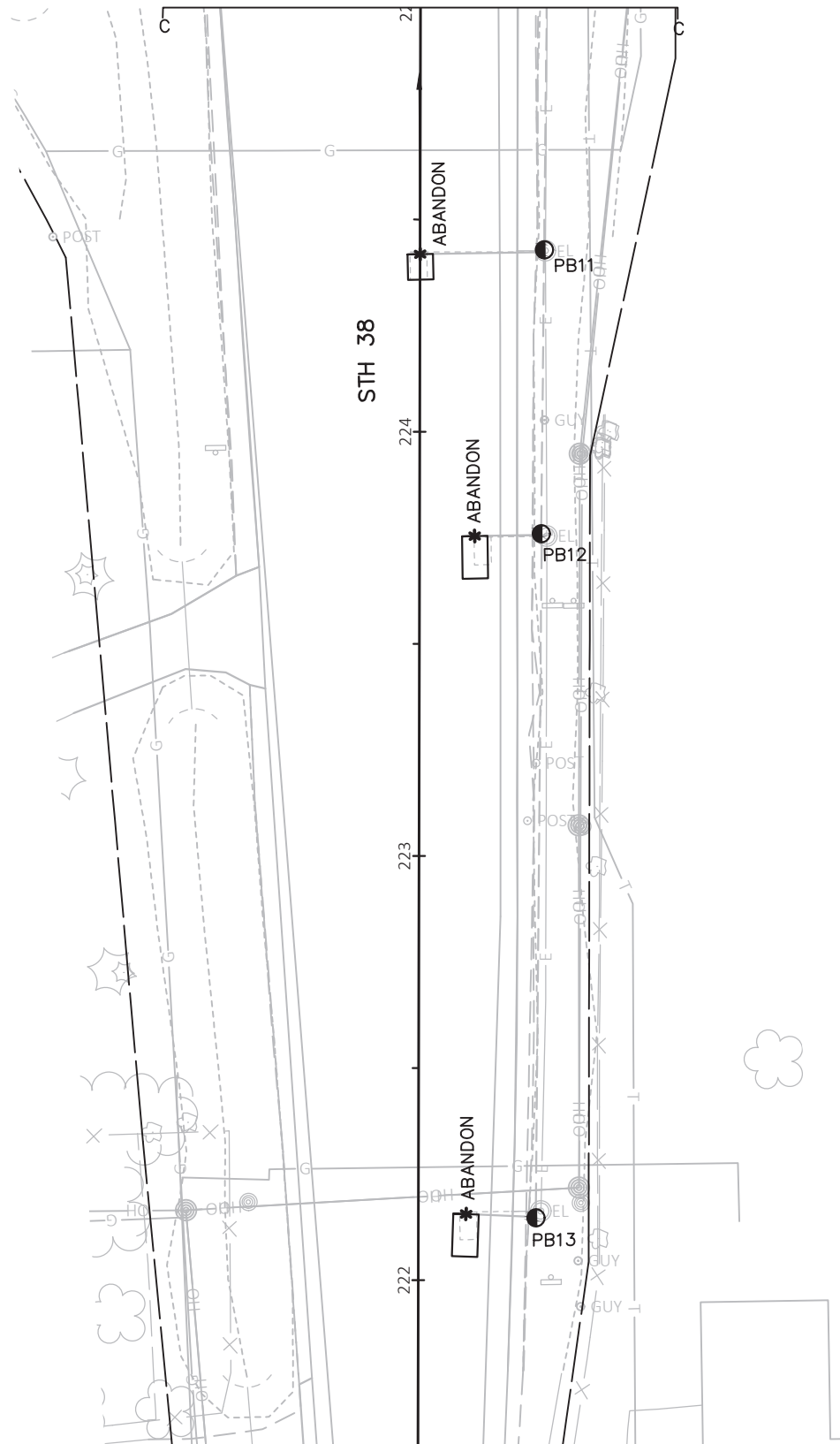
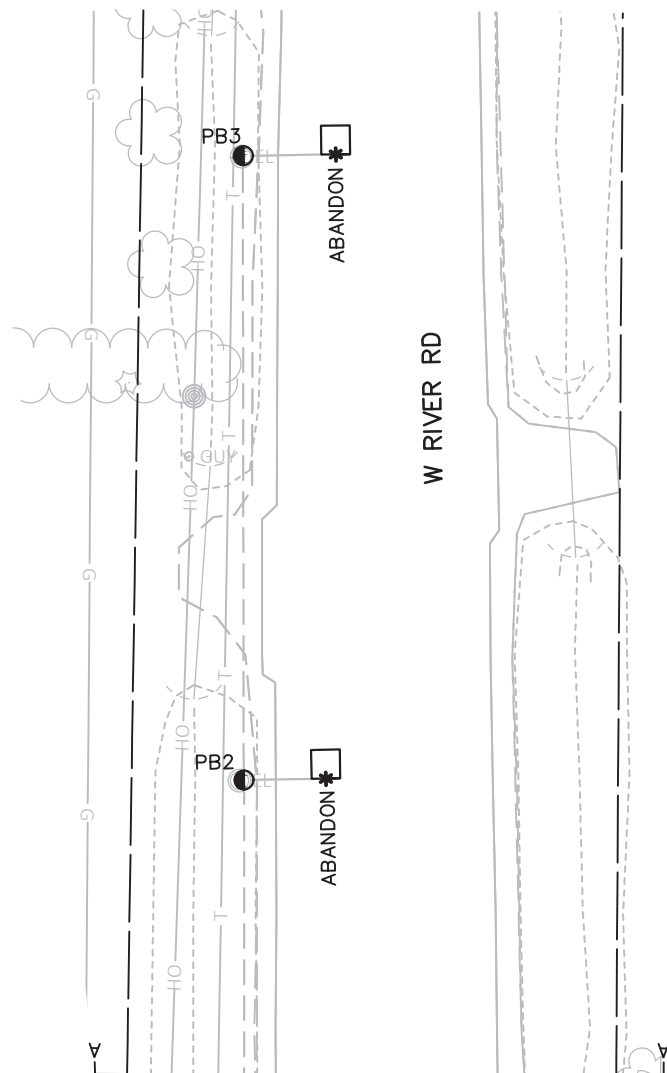
-  CONTROL CABINET
 -  NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
 -  LOOP DETECTOR CONDUIT, 1" NONMETALLIC
 -  SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
 -  SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
 -  LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
 -  LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
 -  PULL BOX, 24" X 36"
 -  PULL BOX, 24" X 42"
 -  SIGNAL HEAD NUMBER
 -  RED CIRCULAR INDICATOR
 -  YELLOW CIRCULAR INDICATOR
 -  GREEN CIRCULAR INDICATOR
 -  EVP DESIGNATOR
 -  EVP DETECTOR HEAD
 -  EVP CONFIRMATION LIGHT
 -  STOP SIGN
- NOTE: BOLD REPRESENTS ITEMS TO BE REMOVED.
GRAYSHADE REPRESENTS EXISTING TO REMAIN

CONSTRUCTION NOTES:

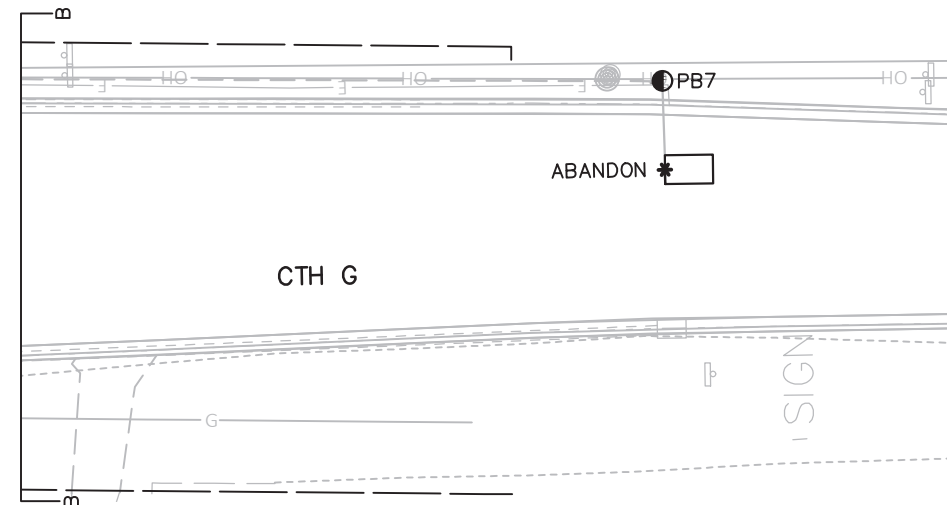
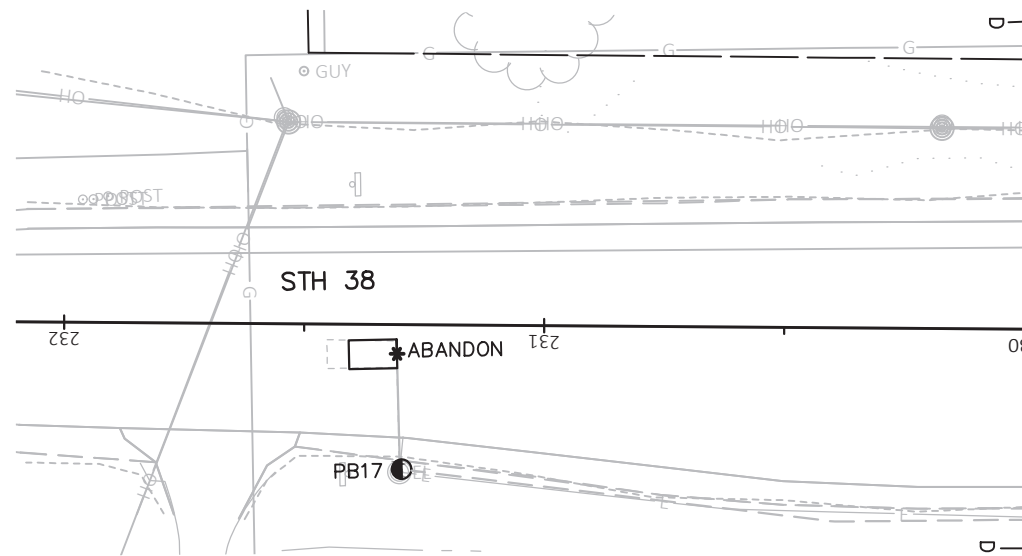
1. BEGIN REMOVALS AFTER TEMPORARY SIGNALS ARE OPERATIONAL.
2. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
4. EXISTING CONDUIT RUNS TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE ANY CONDUCTORS REMAINING IN THE CONDUIT.
5. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP DETECTOR WIRE AND LEAD-IN CABLE TO BE REMOVED BY THE CONTRACTOR.
6. CABINET AND CONTROLLER SHALL BE REMOVED BY WISDOT ELECTRICAL PERSONNEL.



TRAFFIC CONTROL SIGNAL	
STH 38/CTH G (6 MILE RD)	
& STH 38/W RIVER RD	
VILLAGE OF CALEDONIA RACINE COUNTY	
SIGNAL NO. S51-1063	
REGION CONTACT: A. UTIC	PAGE 1 OF 3
DESIGNED BY: TADI	
REVISED BY:	



TRAFFIC CONTROL SIGNAL
 STH 38/CTH G (6 MILE RD)
 & STH 38/W RIVER RD
 VILLAGE OF CALEDONIA RACINE COUNTY
 SIGNAL NO. S51-1063
 REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY: PAGE 2 OF 3

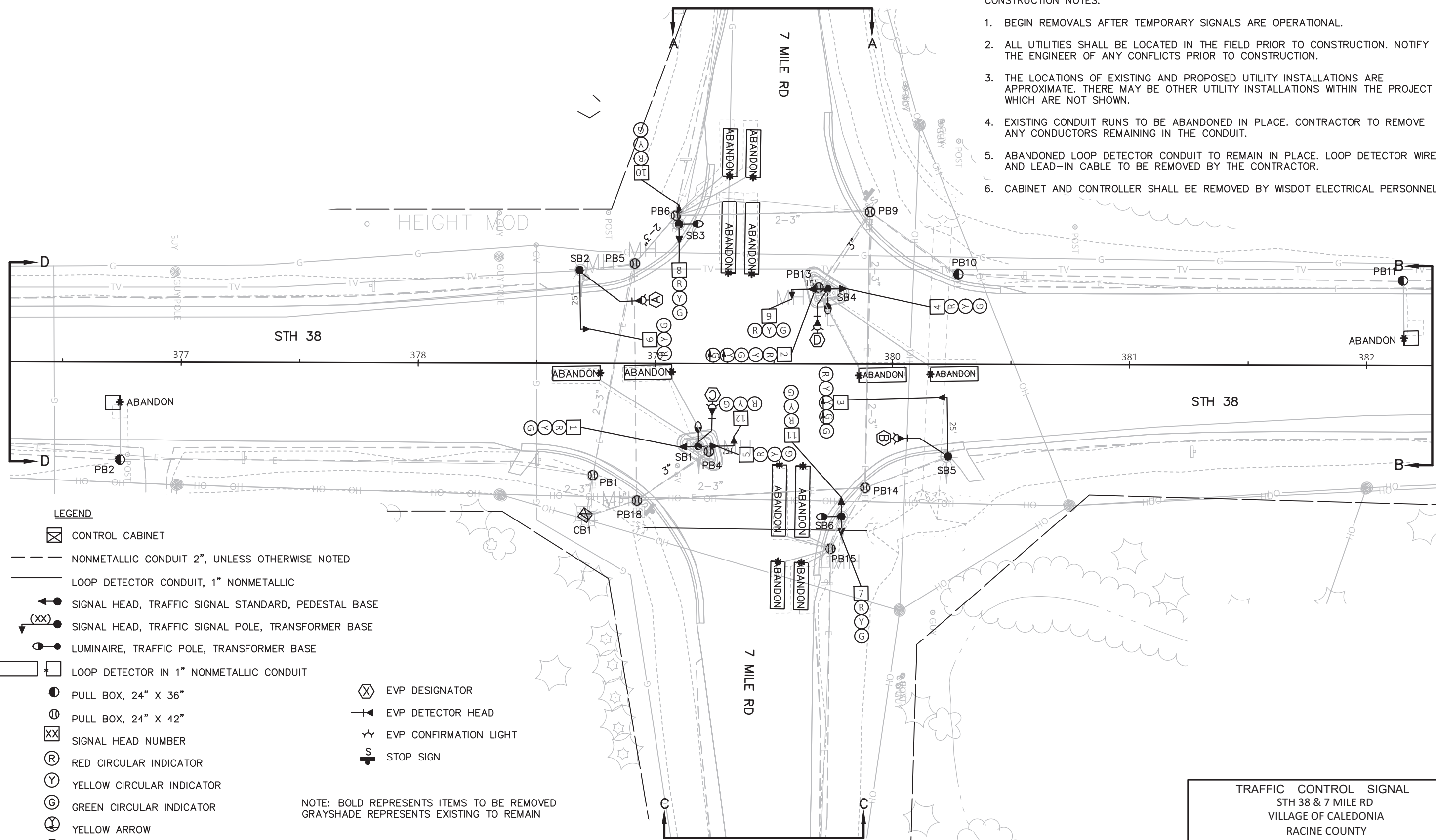


TRAFFIC CONTROL SIGNAL
 STH 38/CTH G (6 MILE RD)
 & STH 38/W RIVER RD
 VILLAGE OF CALEDONIA RACINE COUNTY
 SIGNAL NO. S51-1063
 REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:
 PAGE 3 OF 3



CONSTRUCTION NOTES:

1. BEGIN REMOVALS AFTER TEMPORARY SIGNALS ARE OPERATIONAL.
2. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
4. EXISTING CONDUIT RUNS TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE ANY CONDUCTORS REMAINING IN THE CONDUIT.
5. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP DETECTOR WIRE AND LEAD-IN CABLE TO BE REMOVED BY THE CONTRACTOR.
6. CABINET AND CONTROLLER SHALL BE REMOVED BY WISDOT ELECTRICAL PERSONNEL.



LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- EVP CONFIRMATION LIGHT
- STOP SIGN

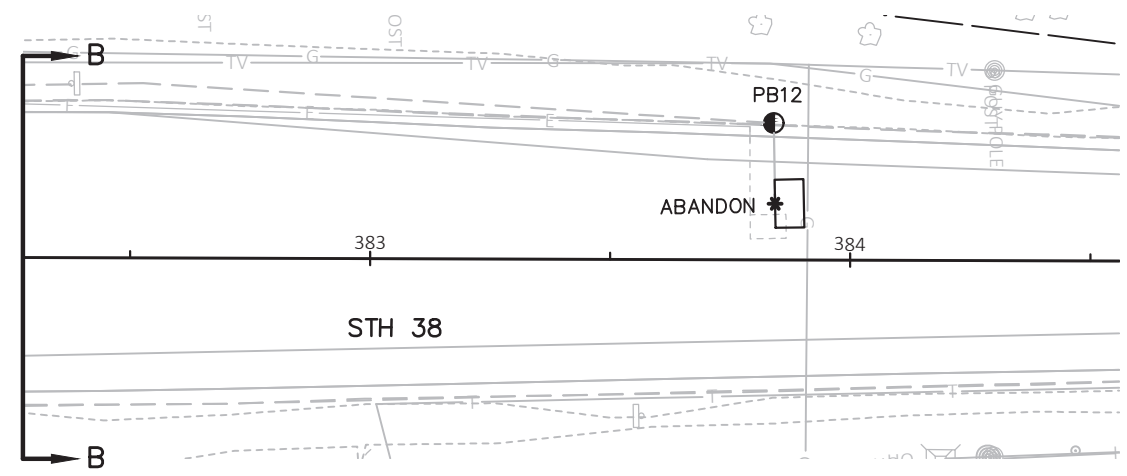
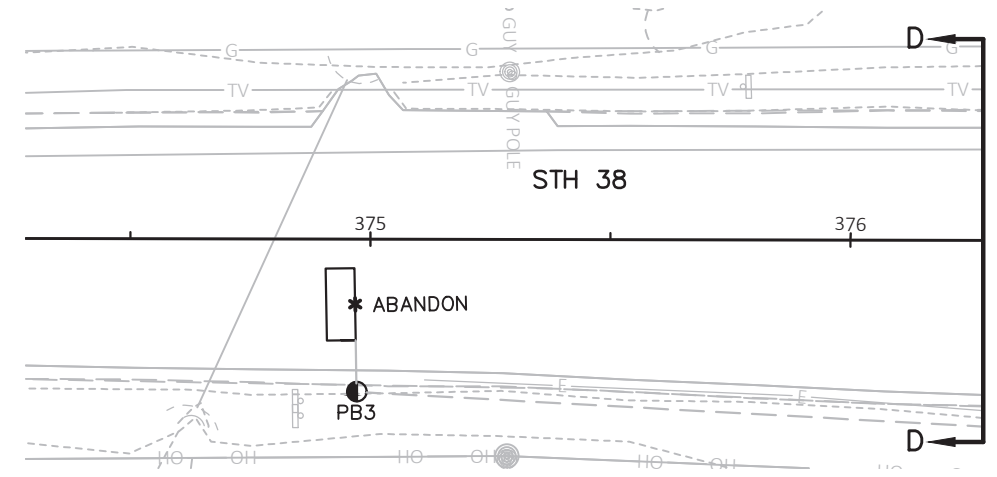
NOTE: BOLD REPRESENTS ITEMS TO BE REMOVED
 GRAYSHADE REPRESENTS EXISTING TO REMAIN

TRAFFIC CONTROL SIGNAL
 STH 38 & 7 MILE RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

SIGNAL NO. S51-1020

REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:

PAGE 1 OF 3

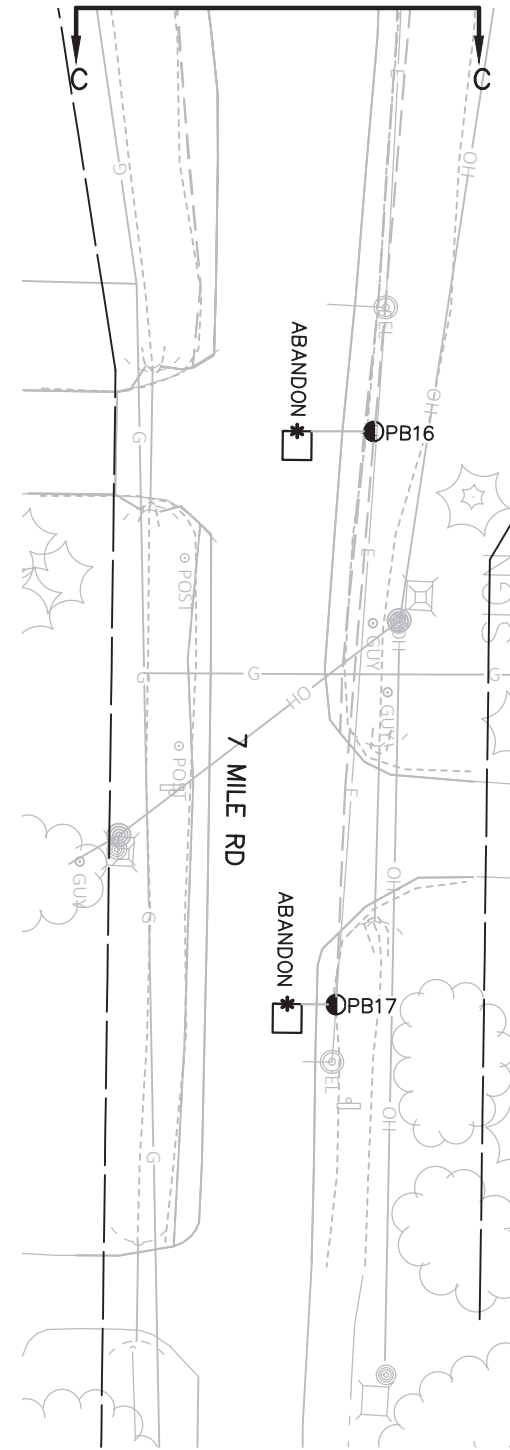
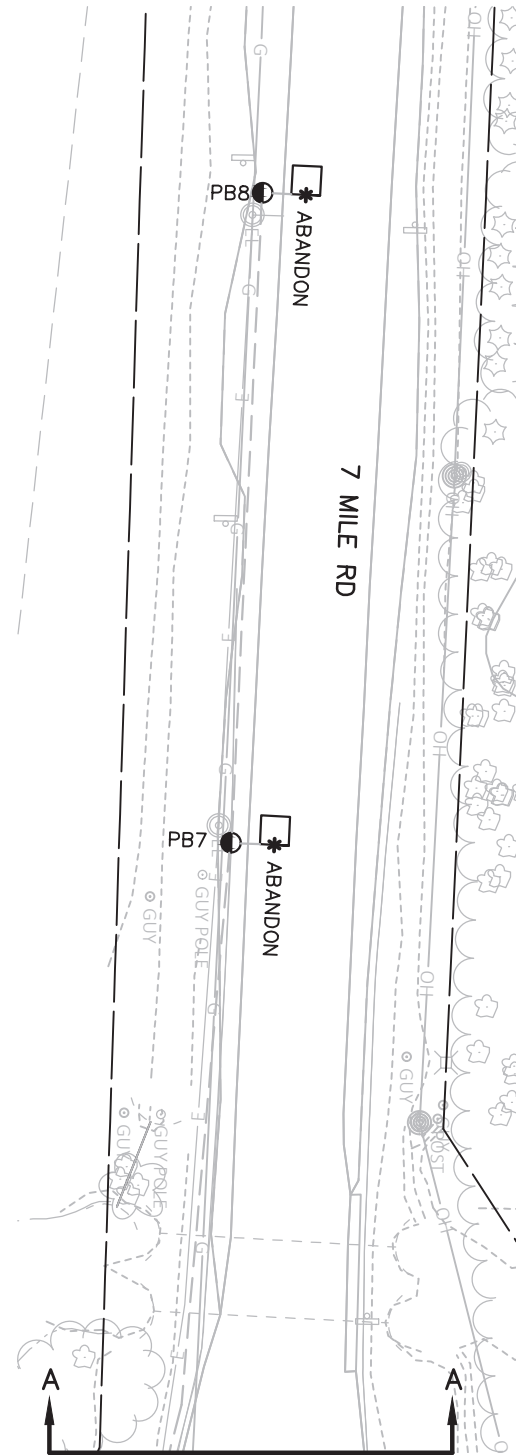


TRAFFIC CONTROL SIGNAL
 STH 38 & 7 MILE RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

SIGNAL NO. S51-1020

REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:

PAGE 2 OF 3



TRAFFIC CONTROL SIGNAL
 STH 38 & 7 MILE RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

SIGNAL NO. S51-1020

REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:

PAGE 3 OF 3

LEGEND

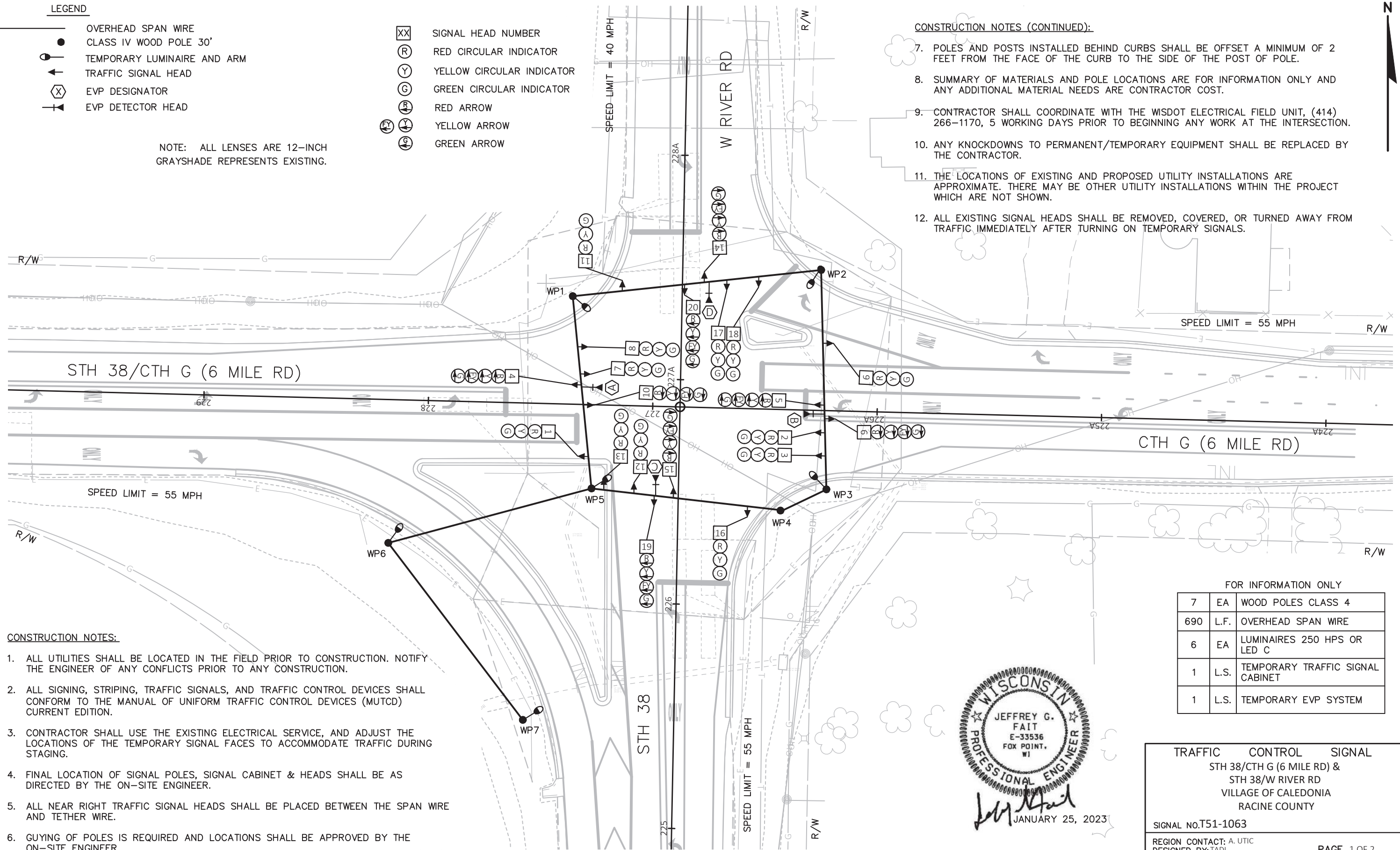
- OVERHEAD SPAN WIRE
- CLASS IV WOOD POLE 30'
- ⊙ TEMPORARY LUMINAIRE AND ARM
- ← TRAFFIC SIGNAL HEAD
- ⊗ EVP DESIGNATOR
- ⊕ EVP DETECTOR HEAD

- XX SIGNAL HEAD NUMBER
- Ⓡ RED CIRCULAR INDICATOR
- Ⓢ YELLOW CIRCULAR INDICATOR
- Ⓣ GREEN CIRCULAR INDICATOR
- Ⓡ RED ARROW
- Ⓢ YELLOW ARROW
- Ⓣ GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING.

CONSTRUCTION NOTES (CONTINUED):

7. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OF POLE.
8. SUMMARY OF MATERIALS AND POLE LOCATIONS ARE FOR INFORMATION ONLY AND ANY ADDITIONAL MATERIAL NEEDS ARE CONTRACTOR COST.
9. CONTRACTOR SHALL COORDINATE WITH THE WISDOT ELECTRICAL FIELD UNIT, (414) 266-1170, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
10. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR.
11. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
12. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS.



CONSTRUCTION NOTES:

1. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO ANY CONSTRUCTION.
2. ALL SIGNING, STRIPING, TRAFFIC SIGNALS, AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION.
3. CONTRACTOR SHALL USE THE EXISTING ELECTRICAL SERVICE, AND ADJUST THE LOCATIONS OF THE TEMPORARY SIGNAL FACES TO ACCOMMODATE TRAFFIC DURING STAGING.
4. FINAL LOCATION OF SIGNAL POLES, SIGNAL CABINET & HEADS SHALL BE AS DIRECTED BY THE ON-SITE ENGINEER.
5. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
6. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ON-SITE ENGINEER.

FOR INFORMATION ONLY

7	EA	WOOD POLES CLASS 4
690	L.F.	OVERHEAD SPAN WIRE
6	EA	LUMINAIRES 250 HPS OR LED C
1	L.S.	TEMPORARY TRAFFIC SIGNAL CABINET
1	L.S.	TEMPORARY EVP SYSTEM



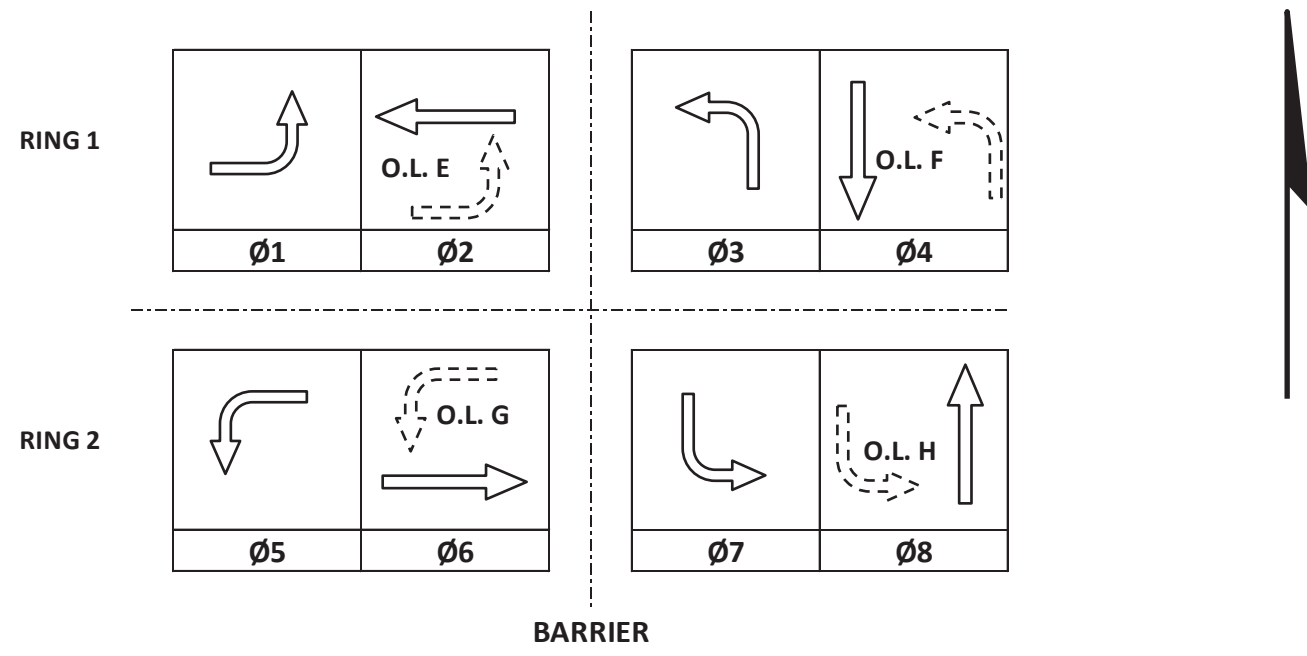
TRAFFIC CONTROL SIGNAL
 STH 38/CTH G (6 MILE RD) &
 STH 38/W RIVER RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

SIGNAL NO.T51-1063

REGION CONTACT: A. UTIC
 DESIGNED BY:TADI
 REVISED BY:

PAGE 1 OF 2

	HEAD NUMBERS	FLASH
Ø1	4,5	R
Ø2	6,7,8	R
Ø3	19,20	R
Ø4	11,12,13	R
Ø5	9,10	R
Ø6	1,2,3	R
Ø7	14,15	R
Ø8	16,17,18	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE	4,5	-
OLF	19,20	-
OLG	9,10	-
OLH	14,15	-



TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MAX	X
3		8		X
4		8	MAX	X
5		2		X
6	X	2	MAX	X
7		4		X
8		4	MAX	X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+7 OR 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

- PHASES 1,3,5, AND 7 ARE OMITTED EXCEPT DURING PREEMPTION.

STH 38/CTH G (6 MILE RD) & STH 38/W RIVER RD VILLAGE OF CALEDONIA RACINE COUNTY	
SIGNAL NO: T51-1063	CABINET TYPE: TEMP
CONTROLLER TYPE: ECONOLITE	
DATE: 1/23	PAGE NUMBER: 2 OF 2

LEGEND

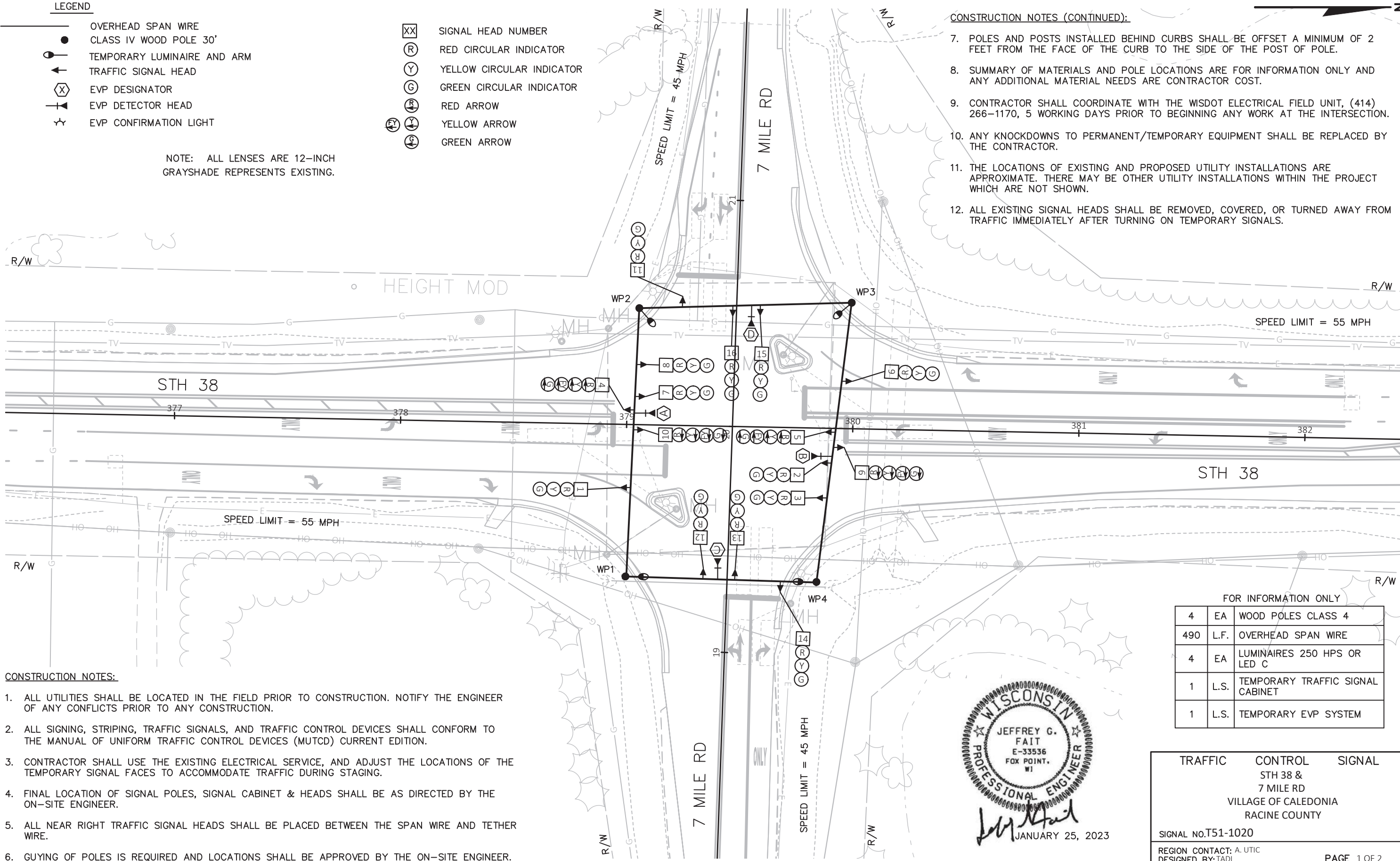
- OVERHEAD SPAN WIRE
- CLASS IV WOOD POLE 30'
- TEMPORARY LUMINAIRE AND ARM
- ← TRAFFIC SIGNAL HEAD
- ⊗ EVP DESIGNATOR
- ⊕ EVP DETECTOR HEAD
- ☆ EVP CONFIRMATION LIGHT

- XX SIGNAL HEAD NUMBER
- Ⓡ RED CIRCULAR INDICATOR
- Ⓢ YELLOW CIRCULAR INDICATOR
- Ⓣ GREEN CIRCULAR INDICATOR
- Ⓡ RED ARROW
- Ⓢ YELLOW ARROW
- Ⓣ GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING.

CONSTRUCTION NOTES (CONTINUED):

7. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OF POLE.
8. SUMMARY OF MATERIALS AND POLE LOCATIONS ARE FOR INFORMATION ONLY AND ANY ADDITIONAL MATERIAL NEEDS ARE CONTRACTOR COST.
9. CONTRACTOR SHALL COORDINATE WITH THE WISDOT ELECTRICAL FIELD UNIT, (414) 266-1170, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
10. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR.
11. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
12. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS.

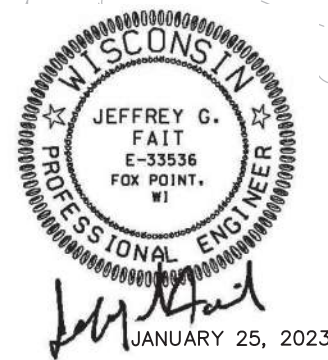


CONSTRUCTION NOTES:

1. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO ANY CONSTRUCTION.
2. ALL SIGNING, STRIPING, TRAFFIC SIGNALS, AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION.
3. CONTRACTOR SHALL USE THE EXISTING ELECTRICAL SERVICE, AND ADJUST THE LOCATIONS OF THE TEMPORARY SIGNAL FACES TO ACCOMMODATE TRAFFIC DURING STAGING.
4. FINAL LOCATION OF SIGNAL POLES, SIGNAL CABINET & HEADS SHALL BE AS DIRECTED BY THE ON-SITE ENGINEER.
5. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
6. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ON-SITE ENGINEER.

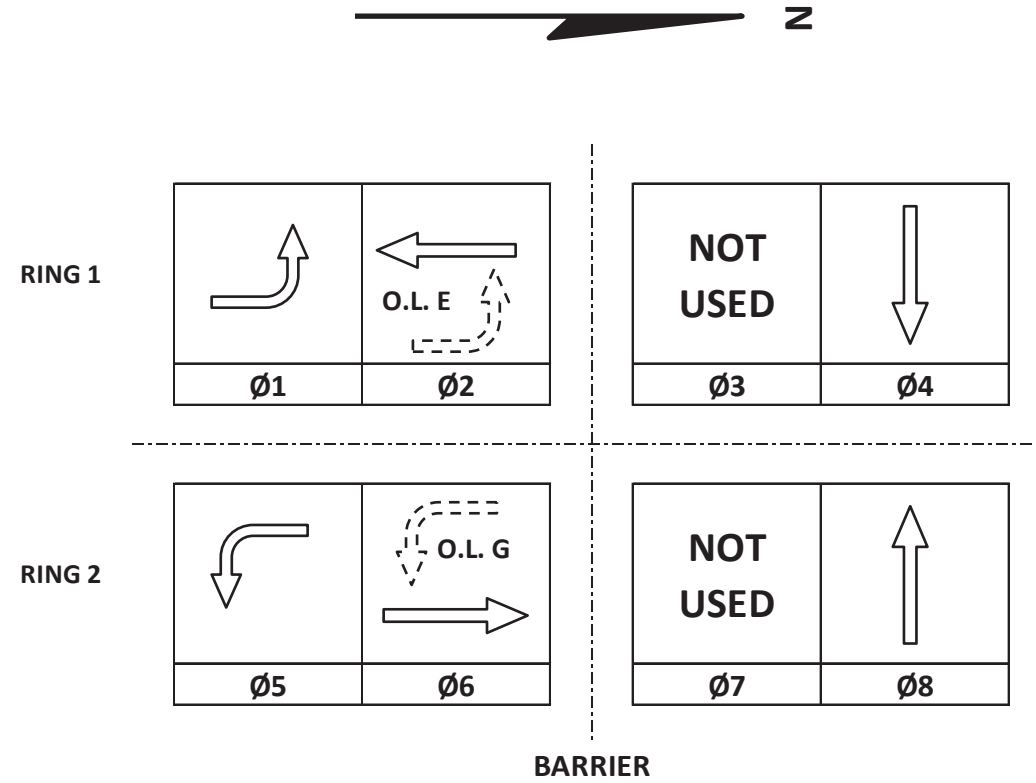
FOR INFORMATION ONLY

4	EA	WOOD POLES CLASS 4
490	L.F.	OVERHEAD SPAN WIRE
4	EA	LUMINAIRES 250 HPS OR LED C
1	L.S.	TEMPORARY TRAFFIC SIGNAL CABINET
1	L.S.	TEMPORARY EVP SYSTEM



TRAFFIC CONTROL SIGNAL
STH 38 & 7 MILE RD
VILLAGE OF CALEDONIA RACINE COUNTY
SIGNAL NO. T51-1020
REGION CONTACT: A. UTIC DESIGNED BY: TADI REVISED BY:
PAGE 1 OF 2

	HEAD NUMBERS	FLASH
Ø1	4,5	R
Ø2	6,7,8	R
Ø3		
Ø4	11,12,13	R
Ø5	9,10	R
Ø6	1,2,3	R
Ø7		
Ø8	14,15,16	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE	4,5	-
OLF		
OLG	9,10	-
OLH		



TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO: S-	
SIGNAL SYSTEM NO: SS-	

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6	MAX	X
2	X	6	MAX	X
3				
4		8	MAX	X
5		2		X
6	X	2	MAX	X
7				
8		4	MAX	X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+8	8+4

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+8 OR 8+4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. PHASE 5 IS OMITTED EXCEPT DURING PREEMPTION.

STH 38 & 7 MILE RD	
VILLAGE OF CALEDONIA	
RACINE COUNTY	
SIGNAL NO: T51-1020	CABINET TYPE: TEMP
CONTROLLER TYPE: ECONOLITE	
DATE: 1/23	PAGE NUMBER: 2 OF 2

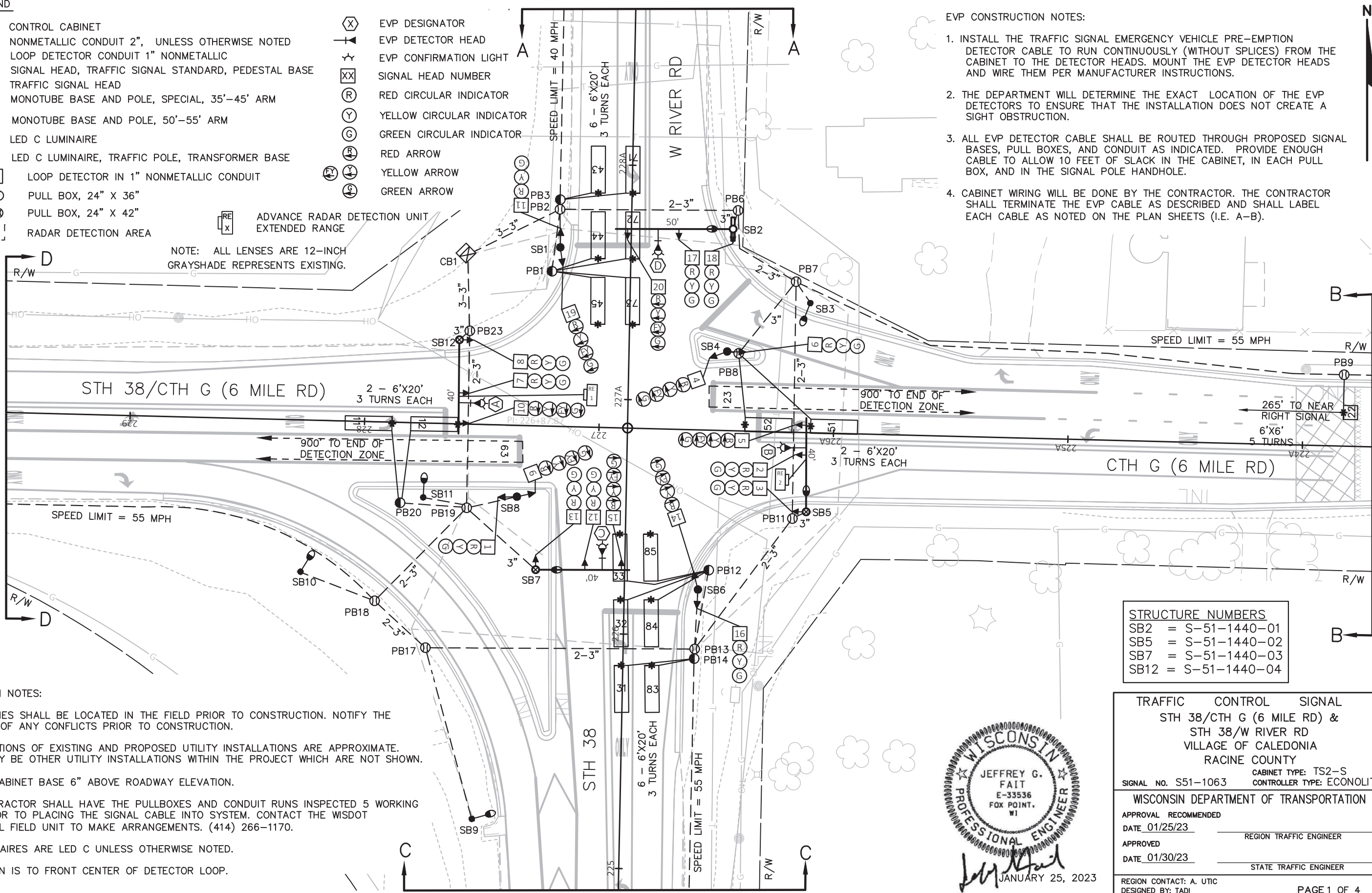
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- TRAFFIC SIGNAL HEAD
- MONOTUBE BASE AND POLE, SPECIAL, 35'-45' ARM
- MONOTUBE BASE AND POLE, 50'-55' ARM
- LED C LUMINAIRE
- LED C LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- RADAR DETECTION AREA
- ADVANCE RADAR DETECTION UNIT EXTENDED RANGE
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- EVP CONFIRMATION LIGHT
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING.

EVP CONSTRUCTION NOTES:

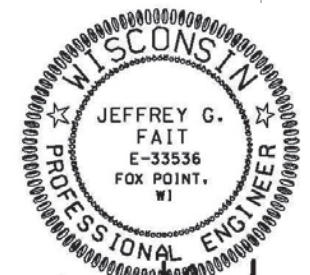
1. INSTALL THE TRAFFIC SIGNAL EMERGENCY VEHICLE PRE-EMPTION DETECTOR CABLE TO RUN CONTINUOUSLY (WITHOUT SPLICES) FROM THE CABINET TO THE DETECTOR HEADS. MOUNT THE EVP DETECTOR HEADS AND WIRE THEM PER MANUFACTURER INSTRUCTIONS.
2. THE DEPARTMENT WILL DETERMINE THE EXACT LOCATION OF THE EVP DETECTORS TO ENSURE THAT THE INSTALLATION DOES NOT CREATE A SIGHT OBSTRUCTION.
3. ALL EVP DETECTOR CABLE SHALL BE ROUTED THROUGH PROPOSED SIGNAL BASES, PULL BOXES, AND CONDUIT AS INDICATED. PROVIDE ENOUGH CABLE TO ALLOW 10 FEET OF SLACK IN THE CABINET, IN EACH PULL BOX, AND IN THE SIGNAL POLE HANDHOLE.
4. CABINET WIRING WILL BE DONE BY THE CONTRACTOR. THE CONTRACTOR SHALL TERMINATE THE EVP CABLE AS DESCRIBED AND SHALL LABEL EACH CABLE AS NOTED ON THE PLAN SHEETS (I.E. A-B).



CONSTRUCTION NOTES:

1. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION.
4. THE CONTRACTOR SHALL HAVE THE PULLBOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING THE SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266-1170.
5. ALL LUMINAIRES ARE LED C UNLESS OTHERWISE NOTED.
7. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.

STRUCTURE NUMBERS	
SB2	= S-51-1440-01
SB5	= S-51-1440-02
SB7	= S-51-1440-03
SB12	= S-51-1440-04



JANUARY 25, 2023

TRAFFIC CONTROL SIGNAL
 STH 38/CTH G (6 MILE RD) &
 STH 38/W RIVER RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

CABINET TYPE: TS2-S
 CONTROLLER TYPE: ECONOLITE

SIGNAL NO. S51-1063

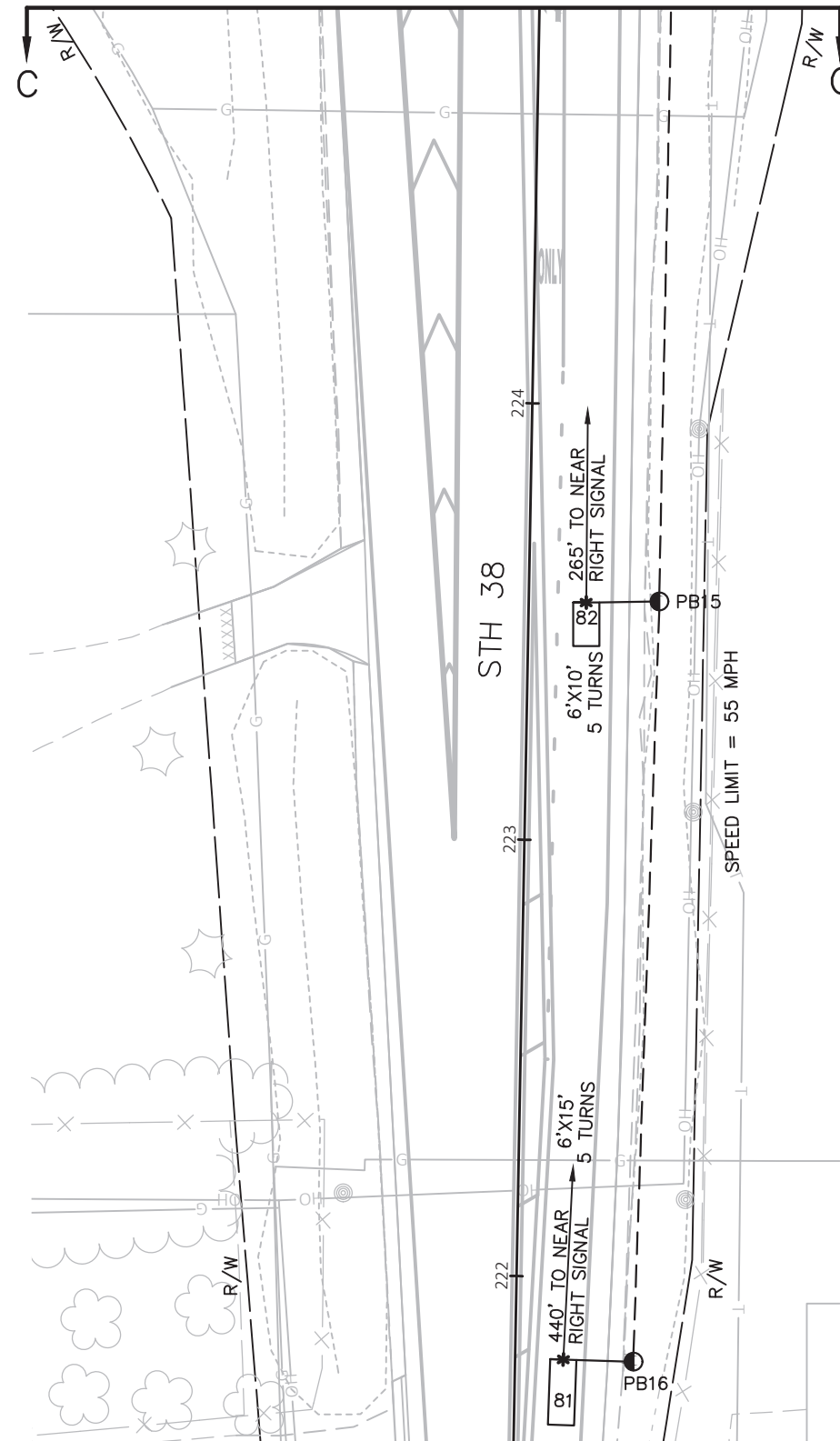
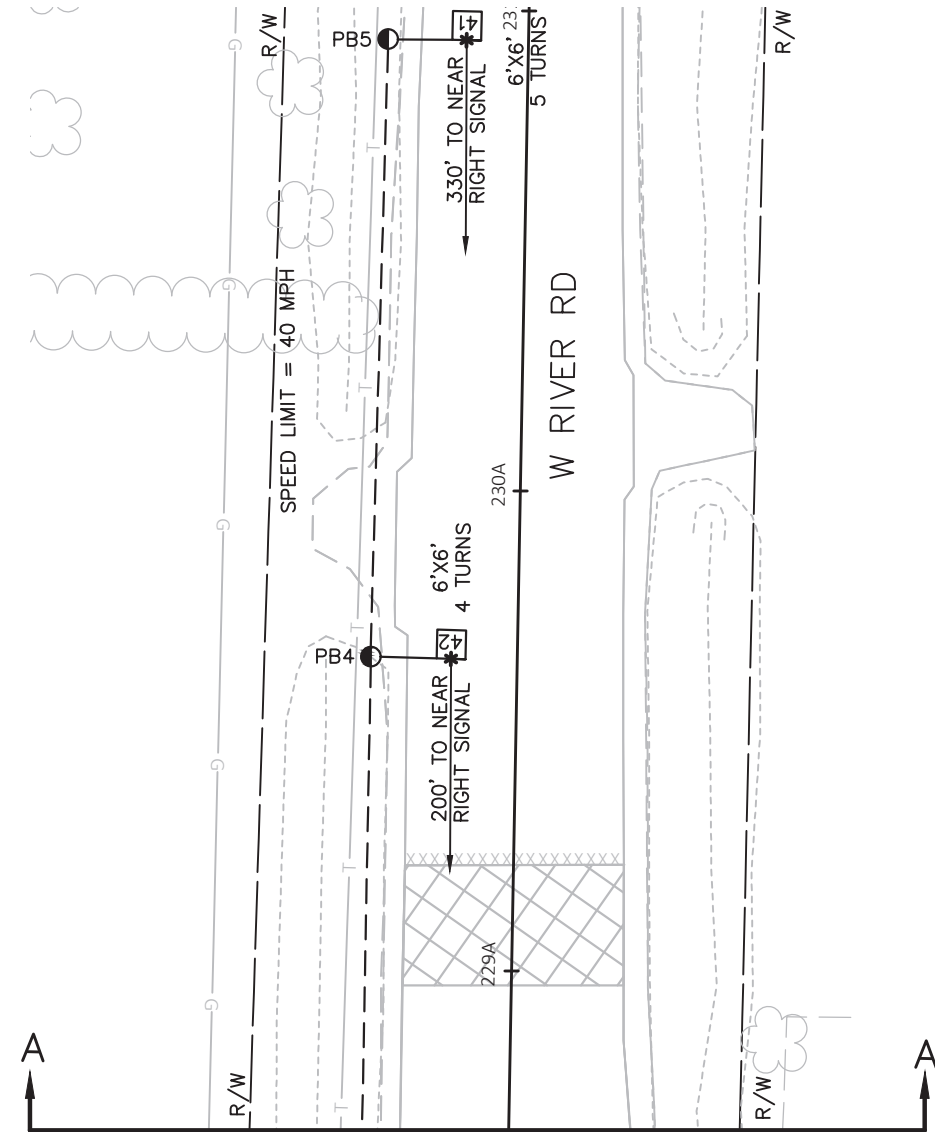
WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
 DATE 01/25/23 REGION TRAFFIC ENGINEER

APPROVED
 DATE 01/30/23 STATE TRAFFIC ENGINEER

REGION CONTACT: A. UTC
 DESIGNED BY: TADI
 REVISED BY:

PAGE 1 OF 4



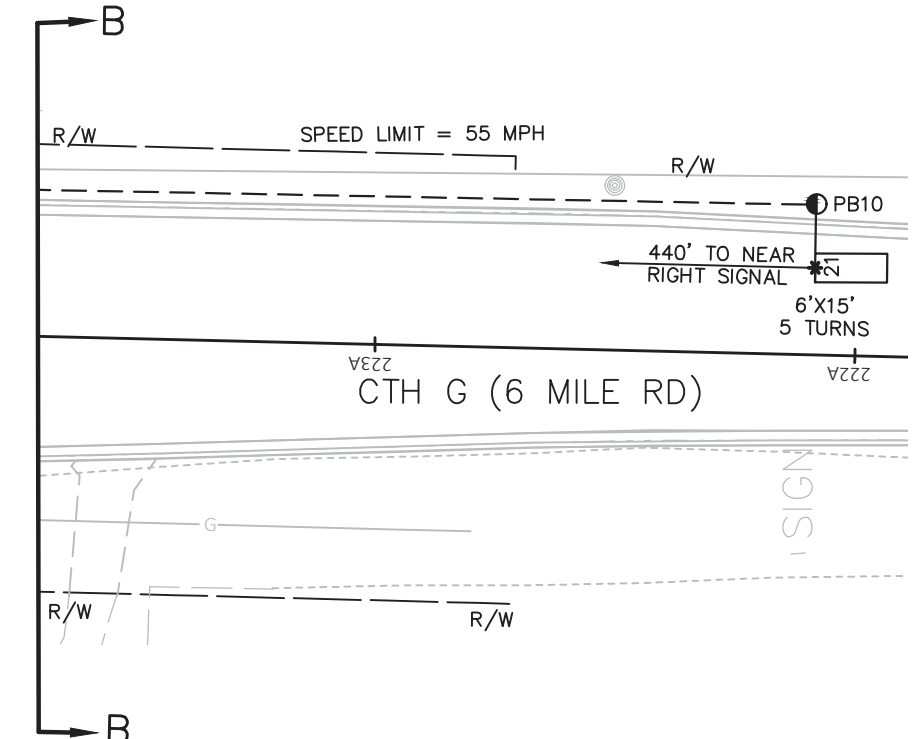
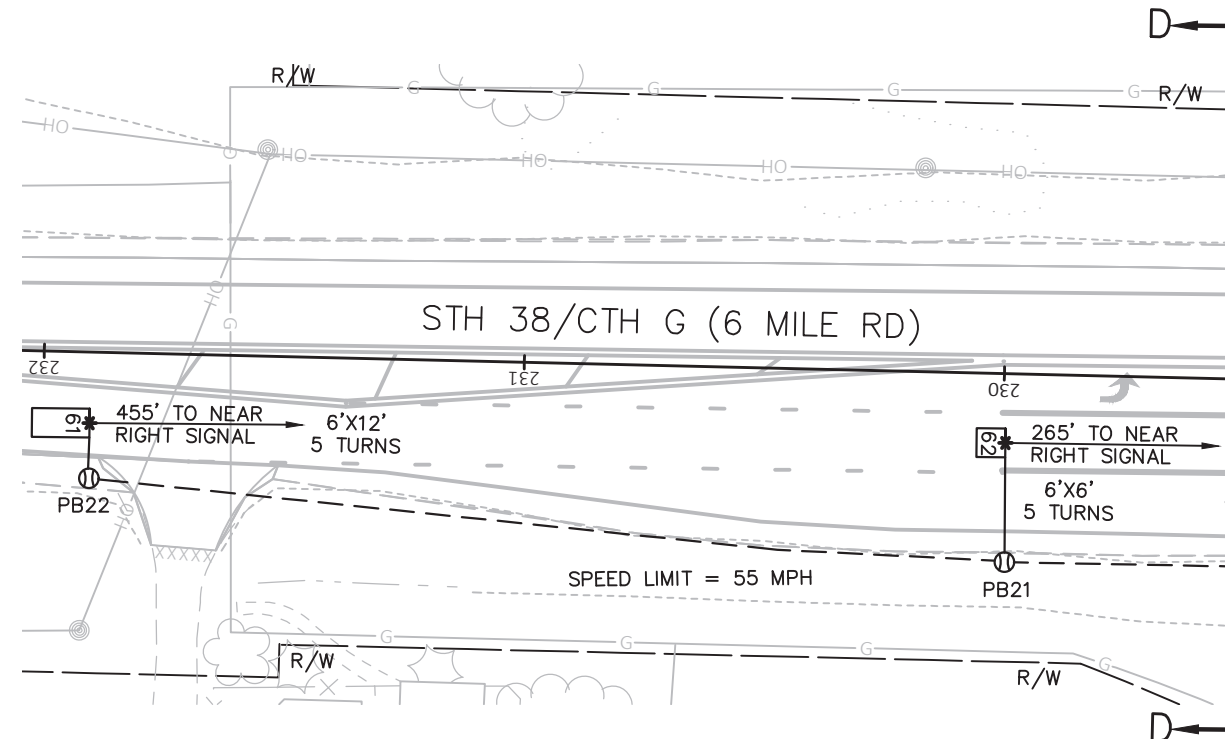
TRAFFIC CONTROL SIGNAL
 STH 38/CTH G (6 MILE RD) &
 STH 38/W RIVER RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY

SIGNAL NO.S51-1063

REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:

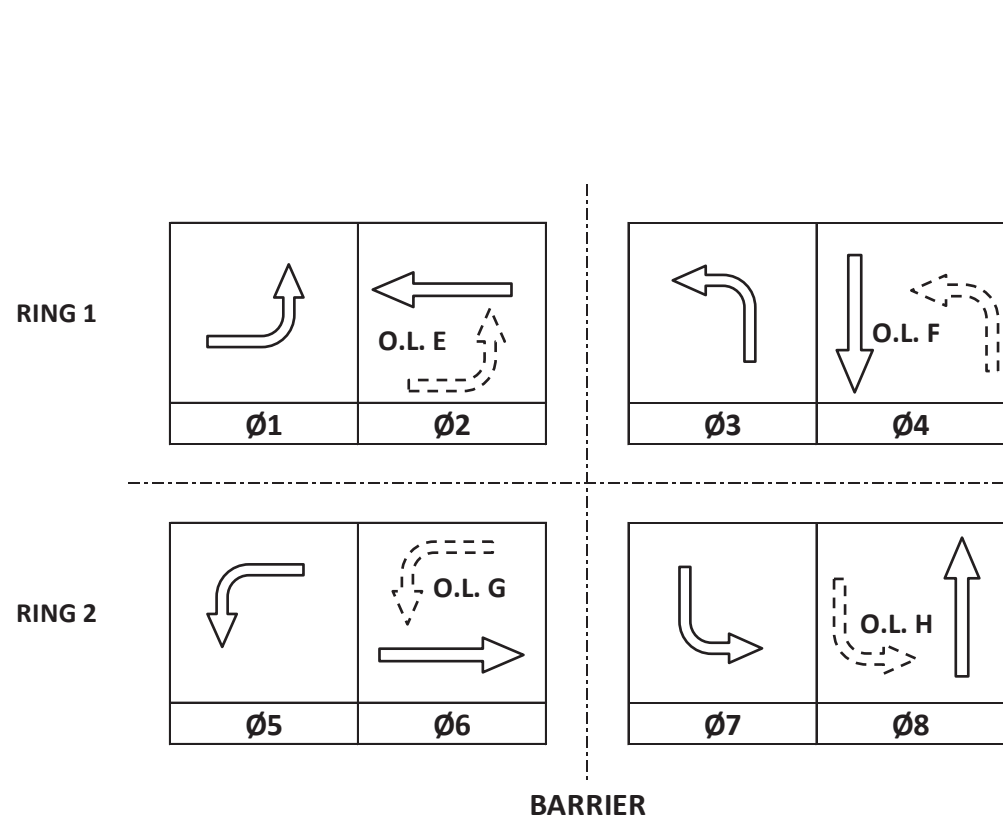
PAGE 2 OF 4





TRAFFIC CONTROL SIGNAL
 STH 38/CTHG (6 MILE RD) &
 STH 38/W RIVER RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY
 SIGNAL NO.S51-1063
 REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:
 PAGE 3 OF 4

HEAD NUMBERS	FLASH
Ø1	4,5
Ø2	6,7,8
Ø3	19,20
Ø4	11,12,13
Ø5	9,10
Ø6	1,2,3
Ø7	14,15
Ø8	16,17,18
Ø2P	
Ø4P	
Ø6P	
Ø8P	
OLE	4,5
OLF	19,20
OLG	9,10
OLH	14,15



GENERAL NOTES:

- PHASES 1,3,5, AND 7 ARE OMITTED EXCEPT DURING PREEMPTION.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3		8		X
4		8		X
5		2		X
6	X	2	MIN	X
7		4		X
8		4		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+7 OR 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWARE	
OTHER	
CONFIRMATION LIGHTS	X
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	21	31	33	42	44	51	61
CALLED PHASE	1	2	3	3	4	4	5	6
CALL OPTION	X	X	X	X		X	X	X
DELAY TIME						X		
EXTENTION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME					X			
USE ADDED INITIAL		X						X
CROSS SWITCH PHASE	2		4	4			6	

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	71	73	82	84				
CALLED PHASE	7	7	8	8				
CALL OPTION	X	X		X				
DELAY TIME				X				
EXTENTION OPTION	X	X	X	X				
EXTEND TIME			X					
USE ADDED INITIAL								
CROSS SWITCH PHASE	8							

DETECTOR INPUT	35	33	39	37	43	41	47	45
PLAN LOOP DETECTOR*(S)	23	63						
CALLED PHASE	2	6						
CALL OPTION								
DELAY TIME								
EXTENTION OPTION	X	X						
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	12	22	32	41	43	45	52	62
CALLED PHASE	1	2	3	4	4	4	5	6
CALL OPTION	X	X	X		X	X	X	X
DELAY TIME					X	X		
EXTENTION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME				X				
USE ADDED INITIAL		X						X
CROSS SWITCH PHASE	2		4				6	

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	72	81	83	85				
CALLED PHASE	7	8	8	8				
CALL OPTION	X		X	X				
DELAY TIME			X	X				
EXTENTION OPTION	X	X	X	X				
EXTEND TIME		X						
USE ADDED INITIAL								
CROSS SWITCH PHASE	8							

DETECTOR INPUT	36	34	40	38	44	42	48	46
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENTION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

STH 38/CTH G (6 MILE RD) & STH 38/W RIVER RD	
VILLAGE OF CALEDONIA	
RACINE COUNTY	
SIGNAL NO: S51-1063	CABINET TYPE: TS2-S
CONTROLLER TYPE: ECONOLITE	
DATE: 1/23	PAGE NUMBER: 4 OF 4

PROJECT ID:	2290-24-70
INTERSECTION:	STH 38/CTH G (6 MILE RD) & STH 38/W RIVER RD

SIGNAL WIRE COLOR CODING	BLK-BLACK	RED-RED	GRN-GREEN
	WHT-WHITE	BLU-BLUE	ORG-ORANGE

CB1 TO	JUMPER	# OF COND. AWG 14	HEAD NO.	SIGNAL INDICATION WIRE COLOR								PED BUTTON	PED BUTTON 2
				RED	YELLOW	GREEN	<RED	<YELLOW>	<FL YELLOW>	<GREEN>	D/WALK		
SB1		12	19				RED	ORG	BLK	GRN			
SB2		12	11	RED/BLK	ORG/BLK	GRN/BLK							
			17	RED	ORG	GRN							
SB4		12	18	RED	ORG	GRN							
			20				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			4				RED	ORG	BLK	GRN			
SB5		12	6	RED/BLK	ORG/BLK	GRN/BLK							
			2	RED	ORG	GRN							
SB6		12	3	RED	ORG	GRN							
			5				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			16	RED	ORG	GRN							
SB7		12	14				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			12	RED	ORG	GRN							
SB8		12	13	RED	ORG	GRN							
			15				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
SB12		12	1	RED	ORG	GRN							
			9				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			7	RED	ORG	GRN							
			8	RED	ORG	GRN							
			10				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB12
SB12	CB1

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
CB1	PB2
SB2	PB6
SB2	PB7
SB4	PB8
SB5	PB11
SB6	PB13
SB7	PB17
SB7	PB18
SB7	PB19
CB1	PB23

LIGHTING UF 12 AWG W/GROUND	
FROM	TO
CB1	SB2
SB2	SB3
SB3	SB5
CB1	SB11
SB11	SB7
SB7	SB10
SB10	SB9

EMERGENCY VEHICLE PREEMPTION	
FROM	TO
CB1	SB12 (HEAD A)
CB1	SB5 (HEAD B)
CB1	SB7 (HEAD C)
CB1	SB2 (HEAD D)

RADAR DETECTION CABLE	
FROM	TO
CB1	SB12 (RE 1)
CB1	SB5 (RE 2)

NOTES:

1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

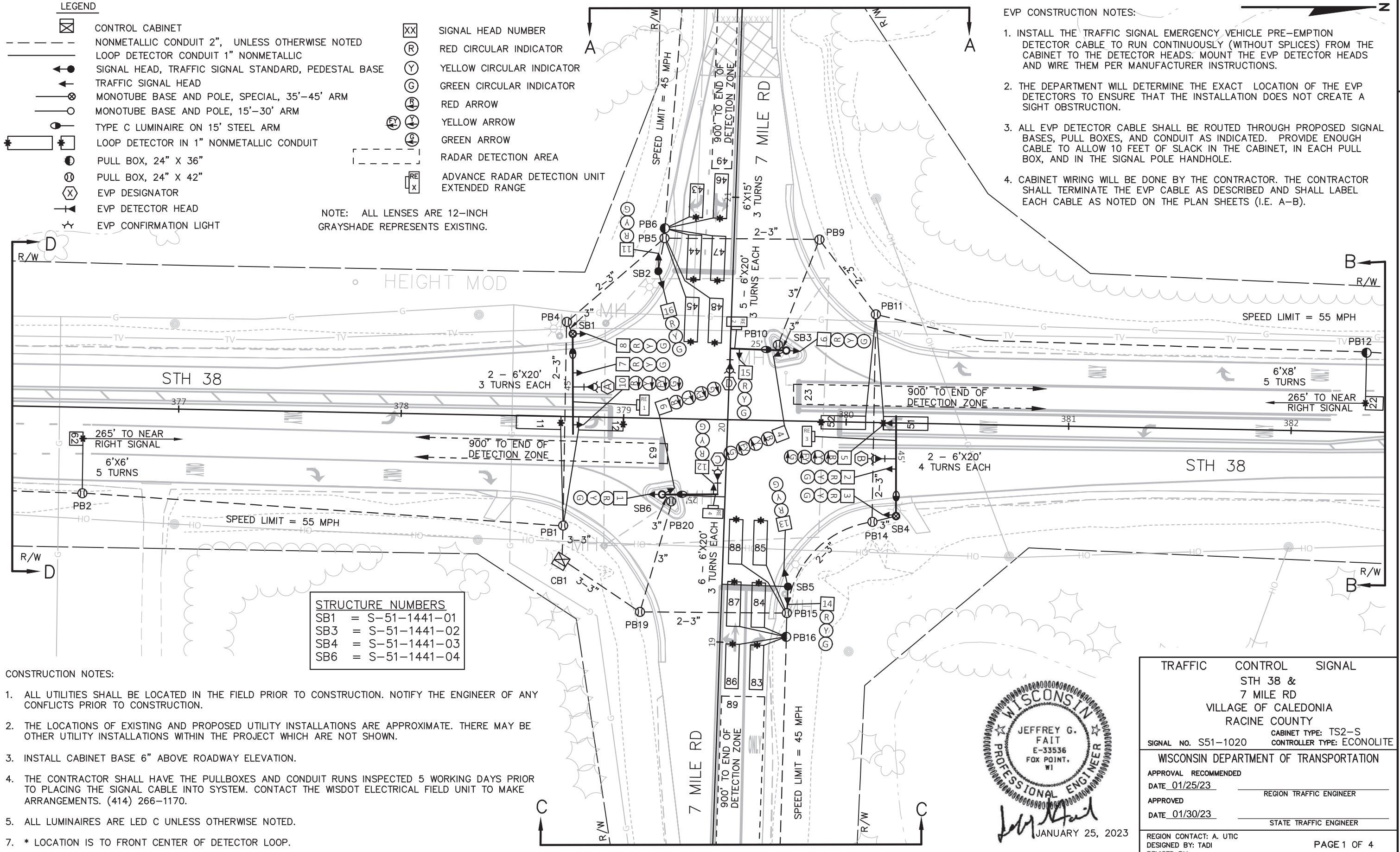
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- TRAFFIC SIGNAL HEAD
- MONOTUBE BASE AND POLE, SPECIAL, 35'-45' ARM
- MONOTUBE BASE AND POLE, 15'-30' ARM
- TYPE C LUMINAIRE ON 15' STEEL ARM
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- EVP CONFIRMATION LIGHT
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- RADAR DETECTION AREA
- ADVANCE RADAR DETECTION UNIT EXTENDED RANGE

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING.

EVP CONSTRUCTION NOTES:

1. INSTALL THE TRAFFIC SIGNAL EMERGENCY VEHICLE PRE-EMPTION DETECTOR CABLE TO RUN CONTINUOUSLY (WITHOUT SPLICES) FROM THE CABINET TO THE DETECTOR HEADS. MOUNT THE EVP DETECTOR HEADS AND WIRE THEM PER MANUFACTURER INSTRUCTIONS.
2. THE DEPARTMENT WILL DETERMINE THE EXACT LOCATION OF THE EVP DETECTORS TO ENSURE THAT THE INSTALLATION DOES NOT CREATE A SIGHT OBSTRUCTION.
3. ALL EVP DETECTOR CABLE SHALL BE ROUTED THROUGH PROPOSED SIGNAL BASES, PULL BOXES, AND CONDUIT AS INDICATED. PROVIDE ENOUGH CABLE TO ALLOW 10 FEET OF SLACK IN THE CABINET, IN EACH PULL BOX, AND IN THE SIGNAL POLE HANDHOLE.
4. CABINET WIRING WILL BE DONE BY THE CONTRACTOR. THE CONTRACTOR SHALL TERMINATE THE EVP CABLE AS DESCRIBED AND SHALL LABEL EACH CABLE AS NOTED ON THE PLAN SHEETS (I.E. A-B).



STRUCTURE NUMBERS	
SB1	= S-51-1441-01
SB3	= S-51-1441-02
SB4	= S-51-1441-03
SB6	= S-51-1441-04

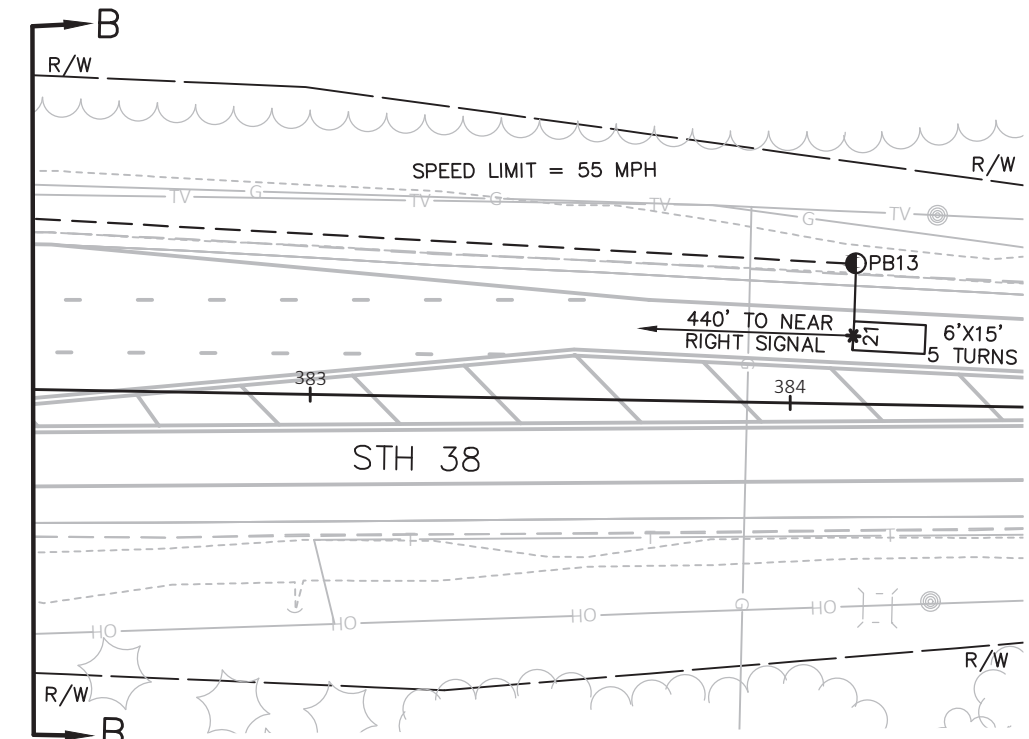
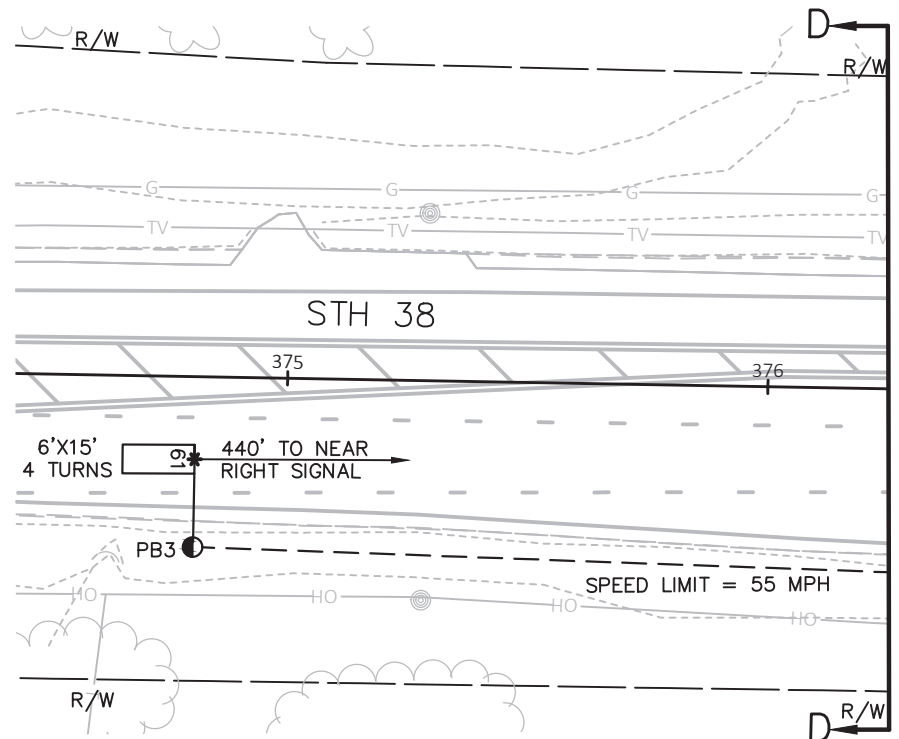
CONSTRUCTION NOTES:

1. ALL UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION.
4. THE CONTRACTOR SHALL HAVE THE PULLBOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING THE SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266-1170.
5. ALL LUMINAIRES ARE LED C UNLESS OTHERWISE NOTED.
7. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.

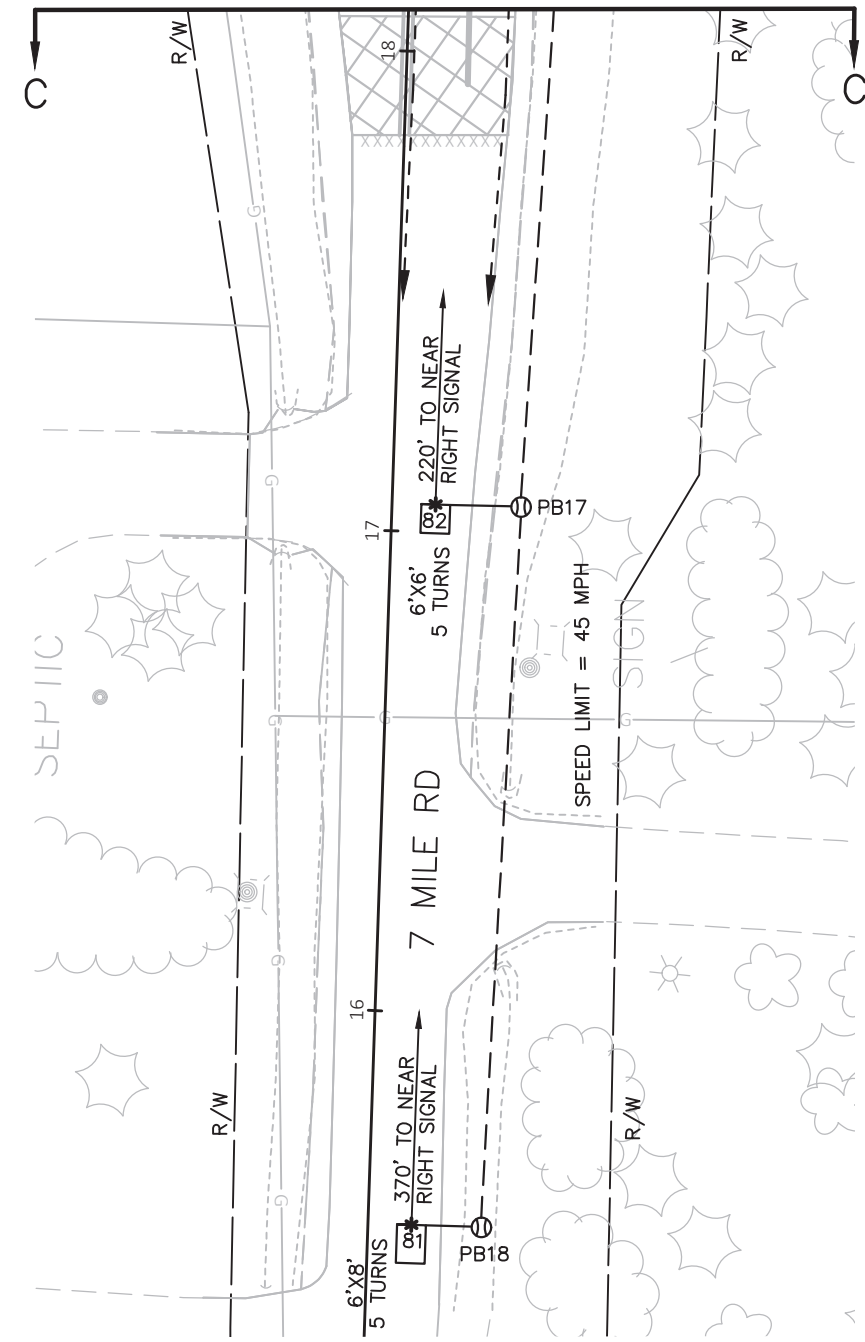
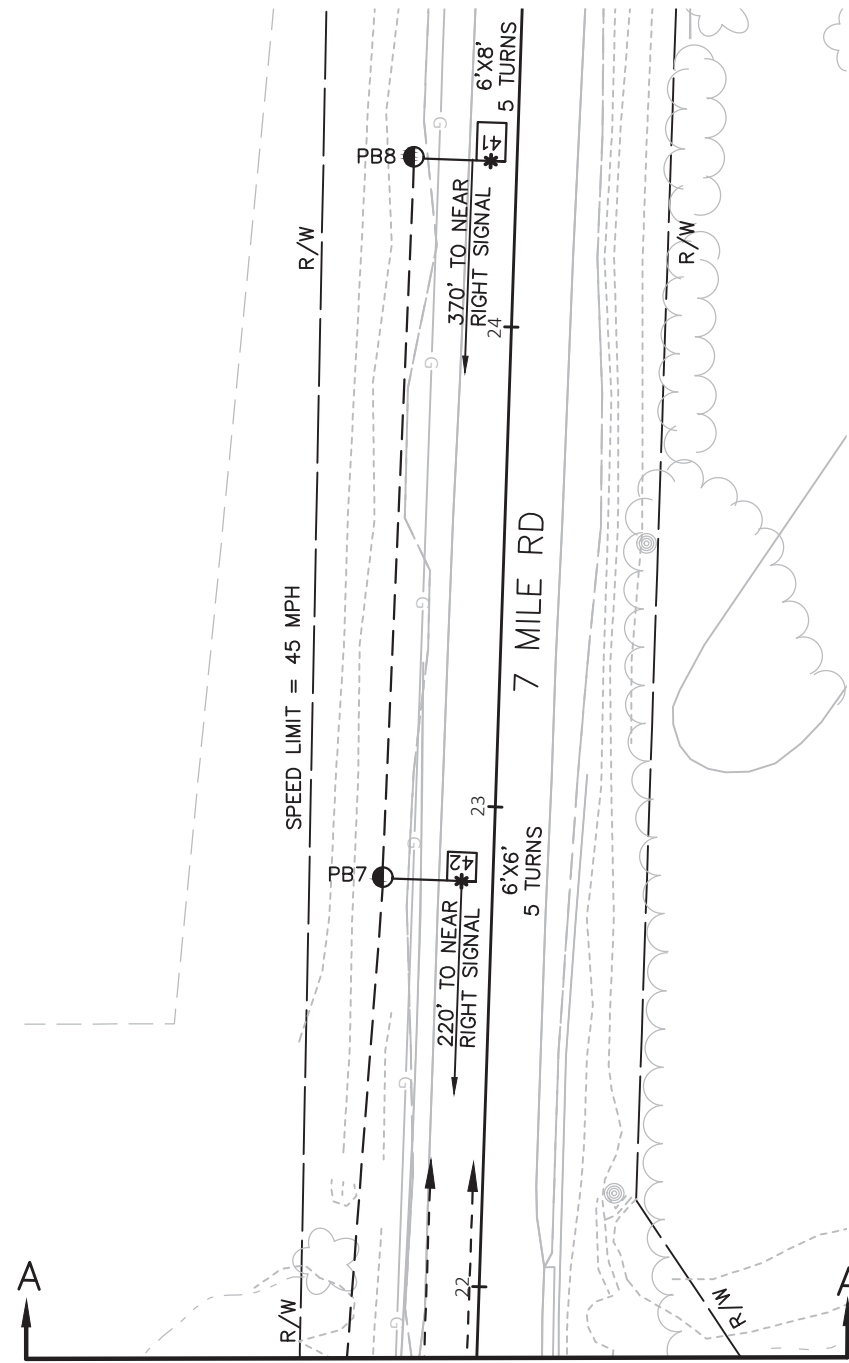


JANUARY 25, 2023

TRAFFIC CONTROL SIGNAL	
STH 38 & 7 MILE RD VILLAGE OF CALEDONIA RACINE COUNTY	
SIGNAL NO. S51-1020	CABINET TYPE: TS2-S CONTROLLER TYPE: ECONOLITE
WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVAL RECOMMENDED	
DATE 01/25/23	REGION TRAFFIC ENGINEER
APPROVED	
DATE 01/30/23	STATE TRAFFIC ENGINEER
REGION CONTACT: A. UTC	
DESIGNED BY: TADI	PAGE 1 OF 4
REVISED BY:	

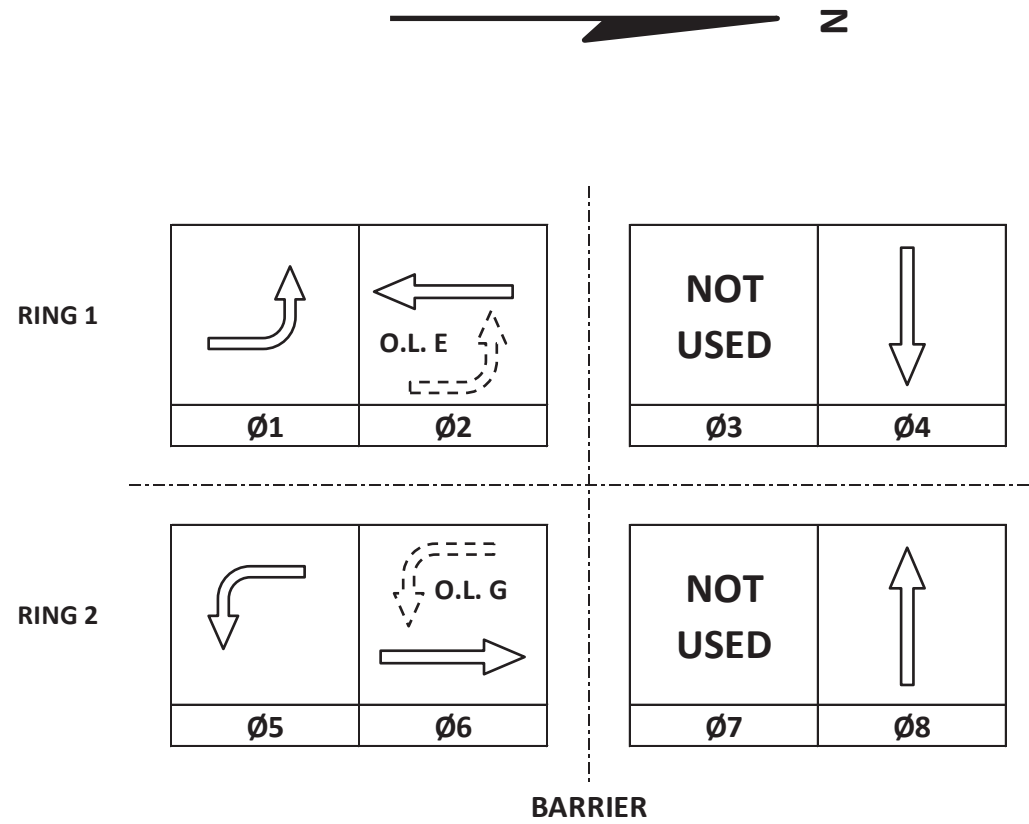


TRAFFIC CONTROL SIGNAL
 STH 38 &
 7 MILE RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY
 SIGNAL NO. S51-1020
 REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY: PAGE 2 OF 4



TRAFFIC CONTROL SIGNAL
 STH 38 &
 7 MILE RD
 VILLAGE OF CALEDONIA
 RACINE COUNTY
 SIGNAL NO.S51-1020
 REGION CONTACT: A. UTIC
 DESIGNED BY: TADI
 REVISED BY:
 PAGE 3 OF 4

	HEAD NUMBERS	FLASH
Ø1	4,5	R
Ø2	6,7,8	R
Ø3		
Ø4	11,12,13	R
Ø5	9,10	R
Ø6	1,2,3	R
Ø7		
Ø8	14,15,16	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE	4,5	-
OLF		
OLG	9,10	-
OLH		



GENERAL NOTES:

1. PHASE 5 IS OMITTED EXCEPT DURING PREEMPTION.

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3				
4		8		X
5		2		X
6	X	2	MIN	X
7				
8		4		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+8	8+4

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+8 OR 8+4, CONTROLLER SHALL RETURN TO PHASES 4+8.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	X
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	X
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	21	41	42	43	45	46	48
CALLED PHASE	1	2	4	4	4	4	4	4
CALL OPTION	X	X			X	X	X	X
DELAY TIME					X	X		
EXTENSION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME			X	X				
USE ADDED INITIAL		X						
CROSS SWITCH PHASE	2							

DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	51	61	81	82	83	85	86	88
CALLED PHASE	5	6	8	8	8	8	8	8
CALL OPTION	X	X			X	X	X	X
DELAY TIME					X	X		
EXTENSION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME			X	X				
USE ADDED INITIAL		X						
CROSS SWITCH PHASE	6							

DETECTOR INPUT	35	33	39	37	43	41	47	45
PLAN LOOP DETECTOR*(S)	23	49	63	89				
CALLED PHASE	2	4	6	8				
CALL OPTION								
DELAY TIME								
EXTENSION OPTION	X	X	X	X				
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	12	22			44		47	
CALLED PHASE	1	2			4		4	
CALL OPTION	X	X			X		X	
DELAY TIME					X			
EXTENSION OPTION	X	X			X		X	
EXTEND TIME								
USE ADDED INITIAL		X						
CROSS SWITCH PHASE	2							

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	52	62			84		87	
CALLED PHASE	5	6			8		8	
CALL OPTION	X	X			X		X	
DELAY TIME					X			
EXTENSION OPTION	X	X			X		X	
EXTEND TIME								
USE ADDED INITIAL		X						
CROSS SWITCH PHASE	6							

DETECTOR INPUT	36	34	40	38	44	42	48	46
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

STH 38 & 7 MILE RD	
VILLAGE OF CALEDONIA	
RACINE COUNTY	
SIGNAL NO: S51-1020	CABINET TYPE: TS2-S
CONTROLLER TYPE: ECONOLITE	
DATE: 1/23	PAGE NUMBER: 4 OF 4

PROJECT ID:	2290-24-70
INTERSECTION:	STH 38 & 7 MILE RD

SIGNAL WIRE COLOR CODING	BLK-BLACK	RED-RED	GRN-GREEN
	WHT-WHITE	BLU-BLUE	ORG-ORANGE

CB1 TO	JUMPER	# OF COND. AWG 14	HEAD NO.	SIGNAL INDICATION WIRE COLOR								PED BUTTON	PED BUTTON 2
				RED	YELLOW	GREEN	<RED	<YELLOW>	<FL YELLOW>	<GREEN>	D/WALK		
SB1		12	7	RED	ORG	GRN							
			8	RED	ORG	GRN							
SB2		12	10				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			11	RED	ORG	GRN							
SB3		12	16	RED/BLK	ORG/BLK	GRN/BLK							
			4				RED	ORG	BLK	GRN			
SB4		12	6	RED/BLK	ORG/BLK	GRN/BLK							
			15	BLU	WHT/BLK	BLU/BLK							
SB5		12	2	RED	ORG	GRN							
			3	RED	ORG	GRN							
SB6		12	5				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			13	RED	ORG	GRN							
SB6		12	14	RED/BLK	ORG/BLK	GRN/BLK							
			1	RED	ORG	GRN							
			9				RED/BLK	ORG/BLK	BLK/WHT	GRN/BLK			
			12	BLU	WHT/BLK	BLU/BLK							

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	CB1

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
CB1	PB1
SB1	PB4
SB2	PB5
SB3	PB9
SB3	PB10
SB4	PB11
SB4	PB14
SB5	PB15
CB1	PB19
SB6	PB20

LIGHTING UF 12 AWG W/GROUND	
FROM	TO
CB1	SB1
SB1	SB3
CB1	SB6
SB6	SB4

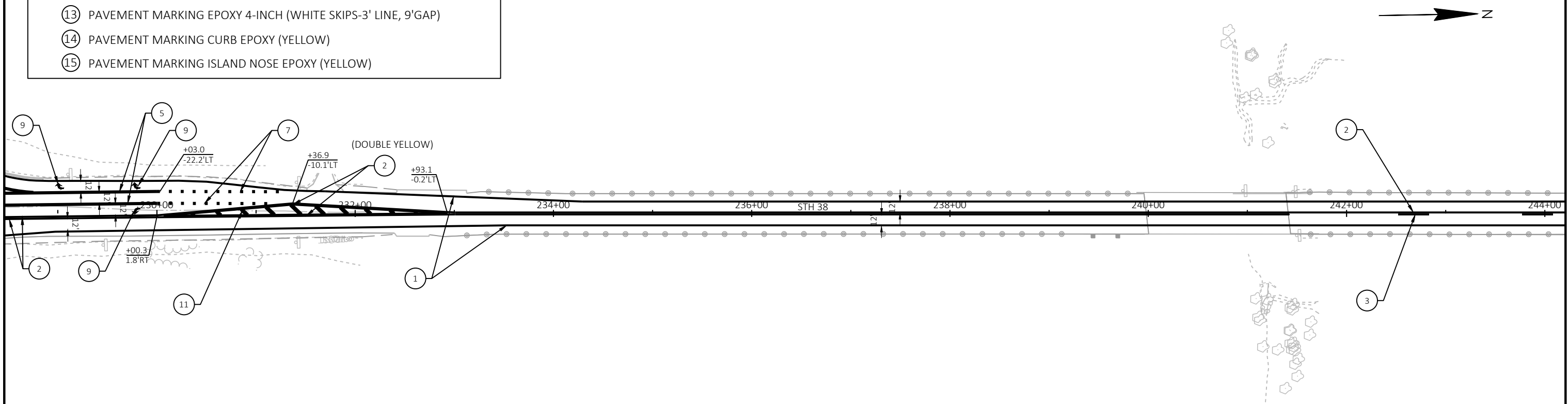
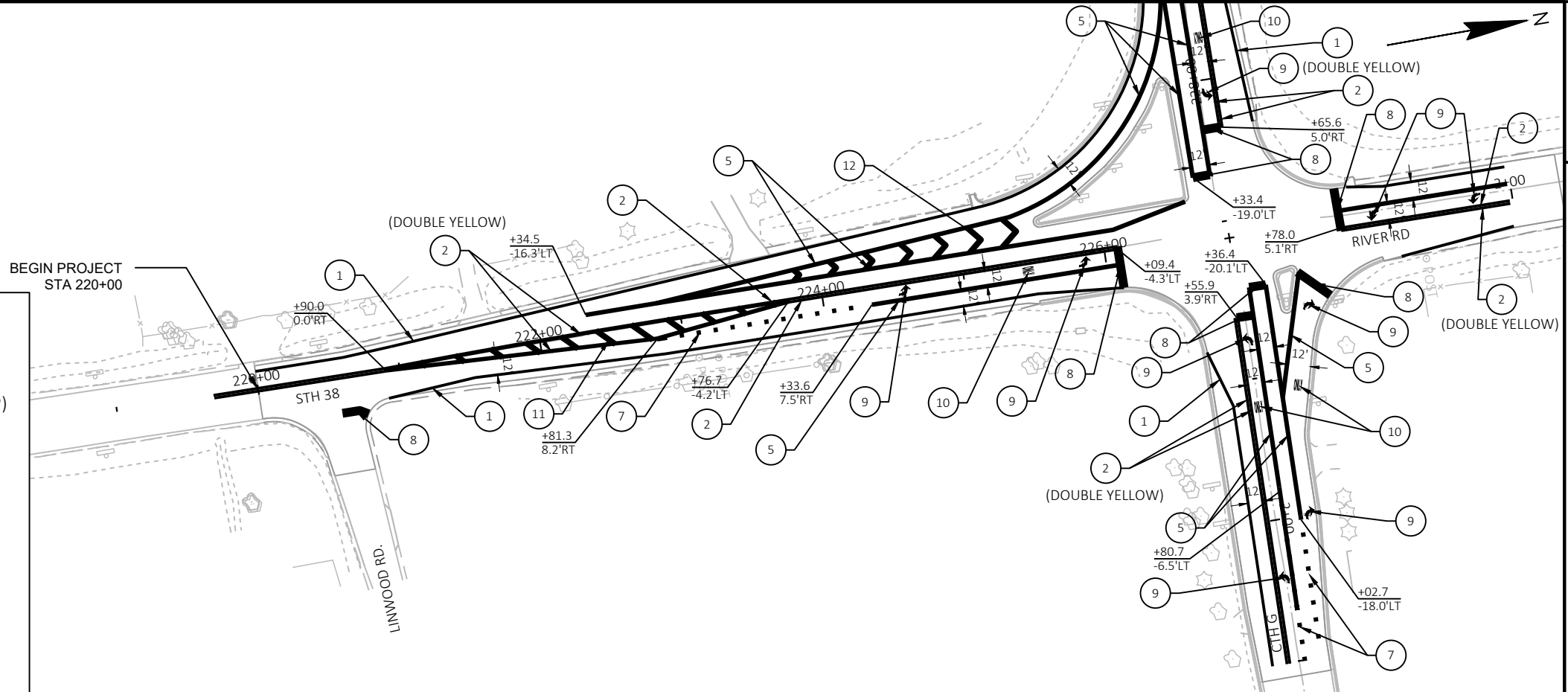
EMERGENCY VEHICLE PREEMPTION	
FROM	TO
CB1	SB1 (HEAD A)
CB1	SB4 (HEAD B)
CB1	SB6 (HEAD C)
CB1	SB3 (HEAD D)

RADAR DETECTION CABLE	
FROM	TO
CB1	SB1 (RE 1)
CB1	SB3 (RE 2)
CB1	SB4 (RE 3)
CB1	SB6 (RE 4)

NOTES:

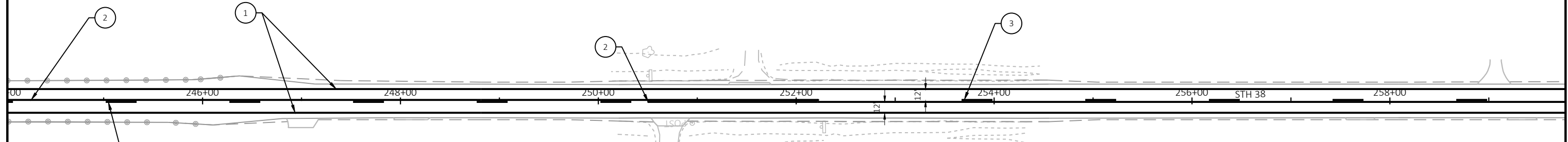
1. USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

- ① PAVEMENT MARKING GROOVED WET REF EPOXY 4-INCH (WHITE)
- ② PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- ③ PAVEMENT MARKING EPOXY 4-INCH (YELLOW SKIPS-12.5' LINE, 37.5' GAP)
- ④ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-12.5' LINE, 37.5' GAP)
- ⑤ PAVEMENT MARKING EPOXY 8-INCH (CHANNELIZING WHITE)
- ⑥ PAVEMENT MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH
- ⑦ PAVEMENT MARKING EPOXY 8-INCH (SKIPS-3' LINE, 9' GAP)
- ⑧ PAVEMENT MARKING STOP LINE EPOXY 18-INCH
- ⑨ PAVEMENT MARKING ARROWS EPOXY
- ⑩ PAVEMENT MARKING WORDS EPOXY
- ⑪ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- ⑫ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (WHITE)
- ⑬ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-3' LINE, 9'GAP)
- ⑭ PAVEMENT MARKING CURB EPOXY (YELLOW)
- ⑮ PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)

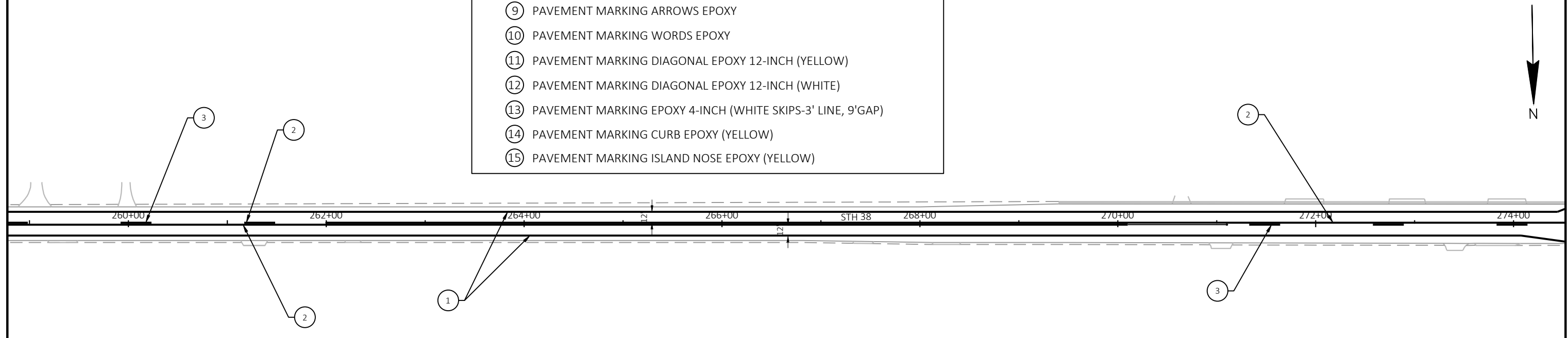


NOTES:
 -ESTABLISH NO PASSING ZONES PER SPEC
 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT

PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PAVEMENT MARKING	SHEET	E
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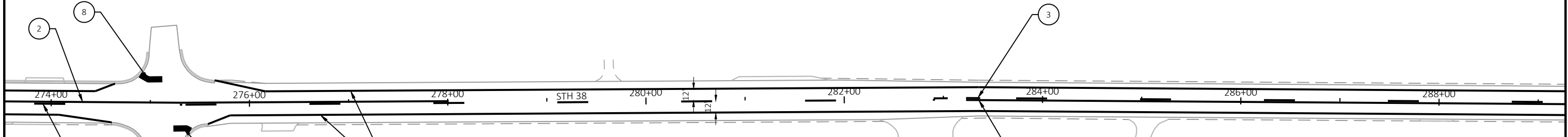


- ① PAVEMENT MARKING GROOVED WET REF EPOXY 4-INCH (WHITE)
- ② PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- ③ PAVEMENT MARKING EPOXY 4-INCH (YELLOW SKIPS-12.5' LINE, 37.5' GAP)
- ④ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-12.5' LINE, 37.5' GAP)
- ⑤ PAVEMENT MARKING EPOXY 8-INCH (CHANNELIZING WHITE)
- ⑥ PAVEMENT MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH
- ⑦ PAVEMENT MARKING EPOXY 8-INCH (SKIPS-3' LINE, 9' GAP)
- ⑧ PAVEMENT MARKING STOP LINE EPOXY 18-INCH
- ⑨ PAVEMENT MARKING ARROWS EPOXY
- ⑩ PAVEMENT MARKING WORDS EPOXY
- ⑪ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- ⑫ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (WHITE)
- ⑬ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-3' LINE, 9' GAP)
- ⑭ PAVEMENT MARKING CURB EPOXY (YELLOW)
- ⑮ PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)

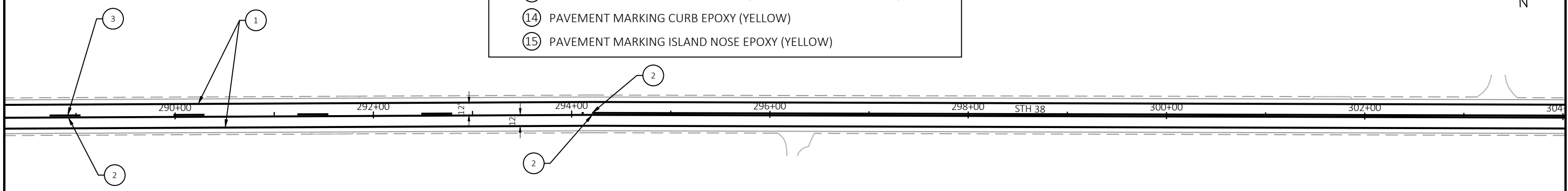


NOTES:
 -ESTABLISH NO PASSING ZONES PER SPEC
 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT

PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PAVEMENT MARKING	SHEET	E
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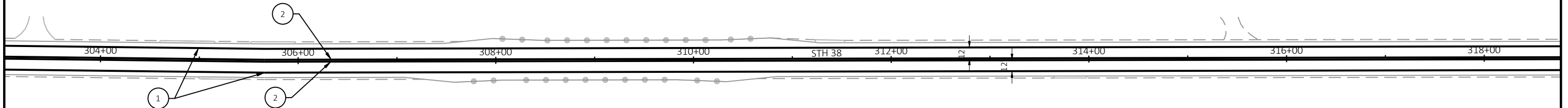
- ① PAVEMENT MARKING GROOVED WET REF EPOXY 4-INCH (WHITE)
- ② PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- ③ PAVEMENT MARKING EPOXY 4-INCH (YELLOW SKIPS-12.5' LINE, 37.5' GAP)
- ④ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-12.5' LINE, 37.5' GAP)
- ⑤ PAVEMENT MARKING EPOXY 8-INCH (CHANNELIZING WHITE)
- ⑥ PAVEMENT MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH
- ⑦ PAVEMENT MARKING EPOXY 8-INCH (SKIPS-3' LINE, 9' GAP)
- ⑧ PAVEMENT MARKING STOP LINE EPOXY 18-INCH
- ⑨ PAVEMENT MARKING ARROWS EPOXY
- ⑩ PAVEMENT MARKING WORDS EPOXY
- ⑪ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- ⑫ PAVEMENT MARKING DIAGONAL EPOXY 12-INCH (WHITE)
- ⑬ PAVEMENT MARKING EPOXY 4-INCH (WHITE SKIPS-3' LINE, 9' GAP)
- ⑭ PAVEMENT MARKING CURB EPOXY (YELLOW)
- ⑮ PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)



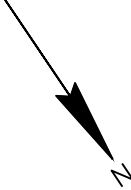
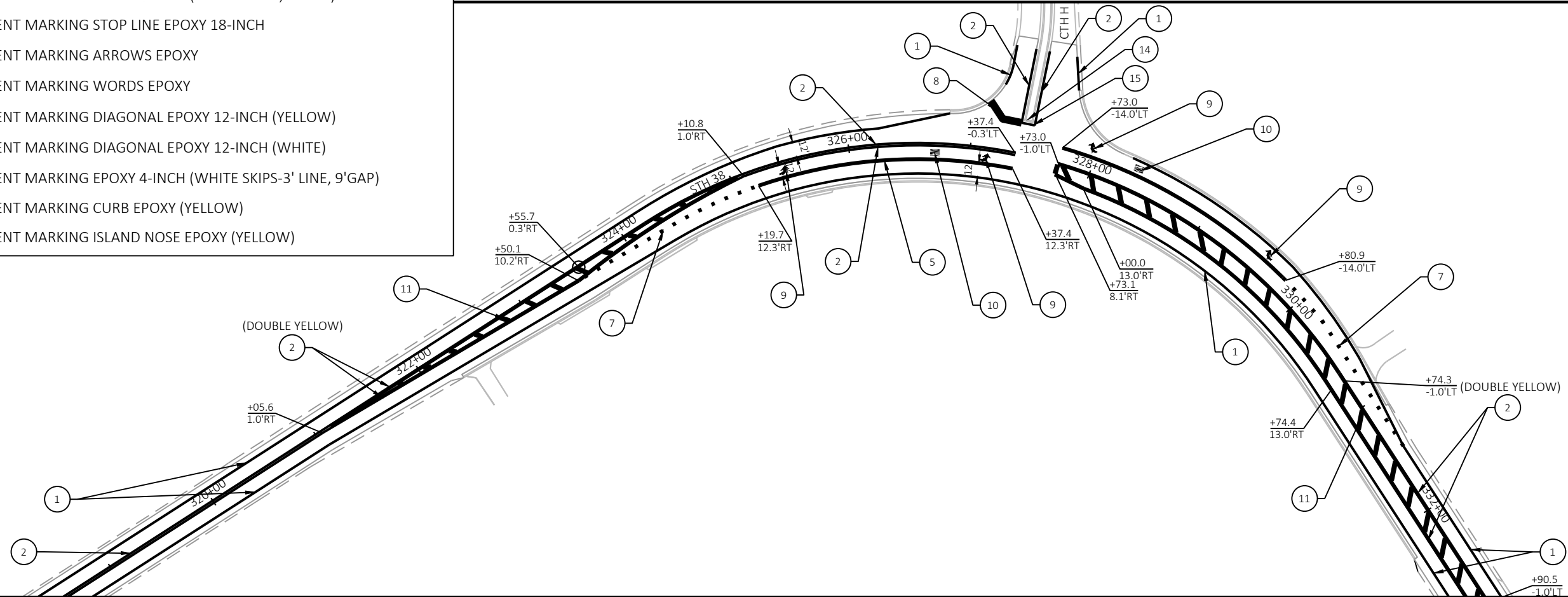
NOTES:
 -ESTABLISH NO PASSING ZONES PER SPEC
 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT

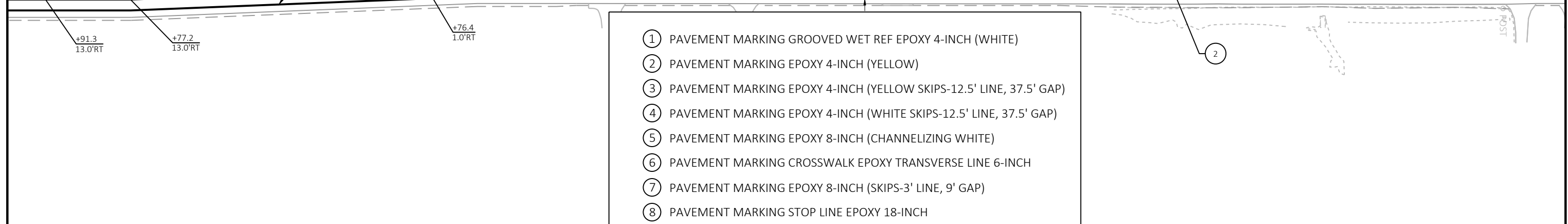
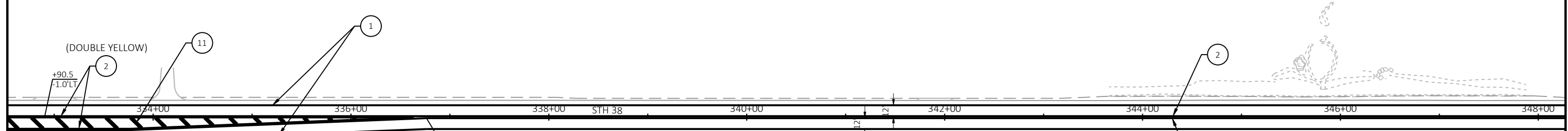
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PAVEMENT MARKING	SHEET	E
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NOTES:
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 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT



- ① PAVEMENT MARKING GROOVED WET REF EPOXY 4-INCH (WHITE)
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SIX AND ONE HALF MILE RD

FOREST HILLS RD

NOTES:
 -ESTABLISH NO PASSING ZONES PER SPEC
 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT

PROJECT NO: 2290-24-70

HWY: STH 38

COUNTY: RACINE & MILWAUKEE

PAVEMENT MARKING

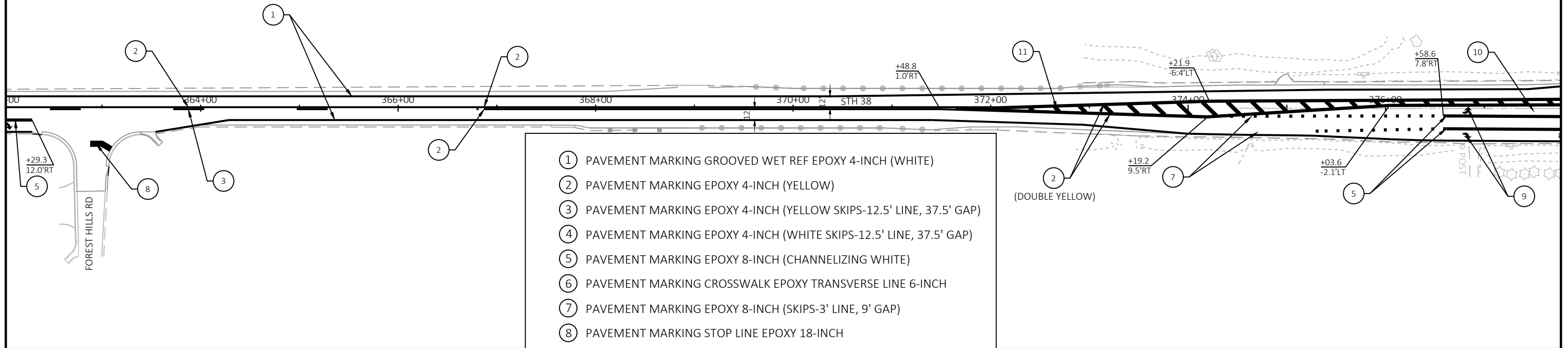
SHEET

E

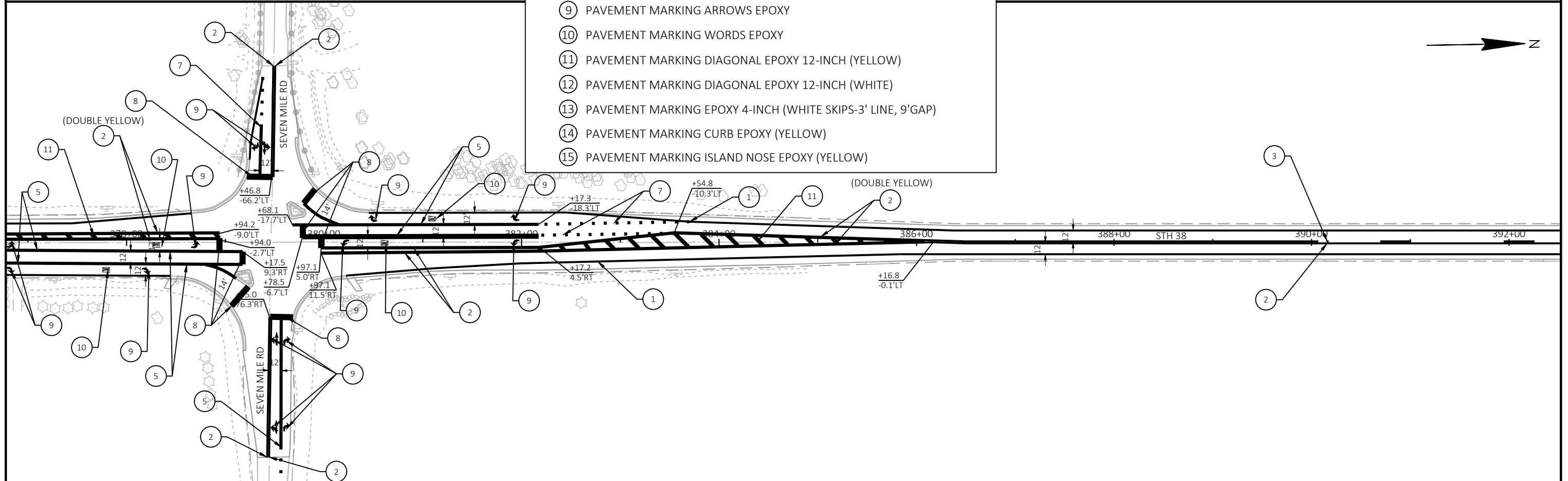
NOTES:
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2

2



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PROJECT NO: 2290-24-70

HWY: STH 38

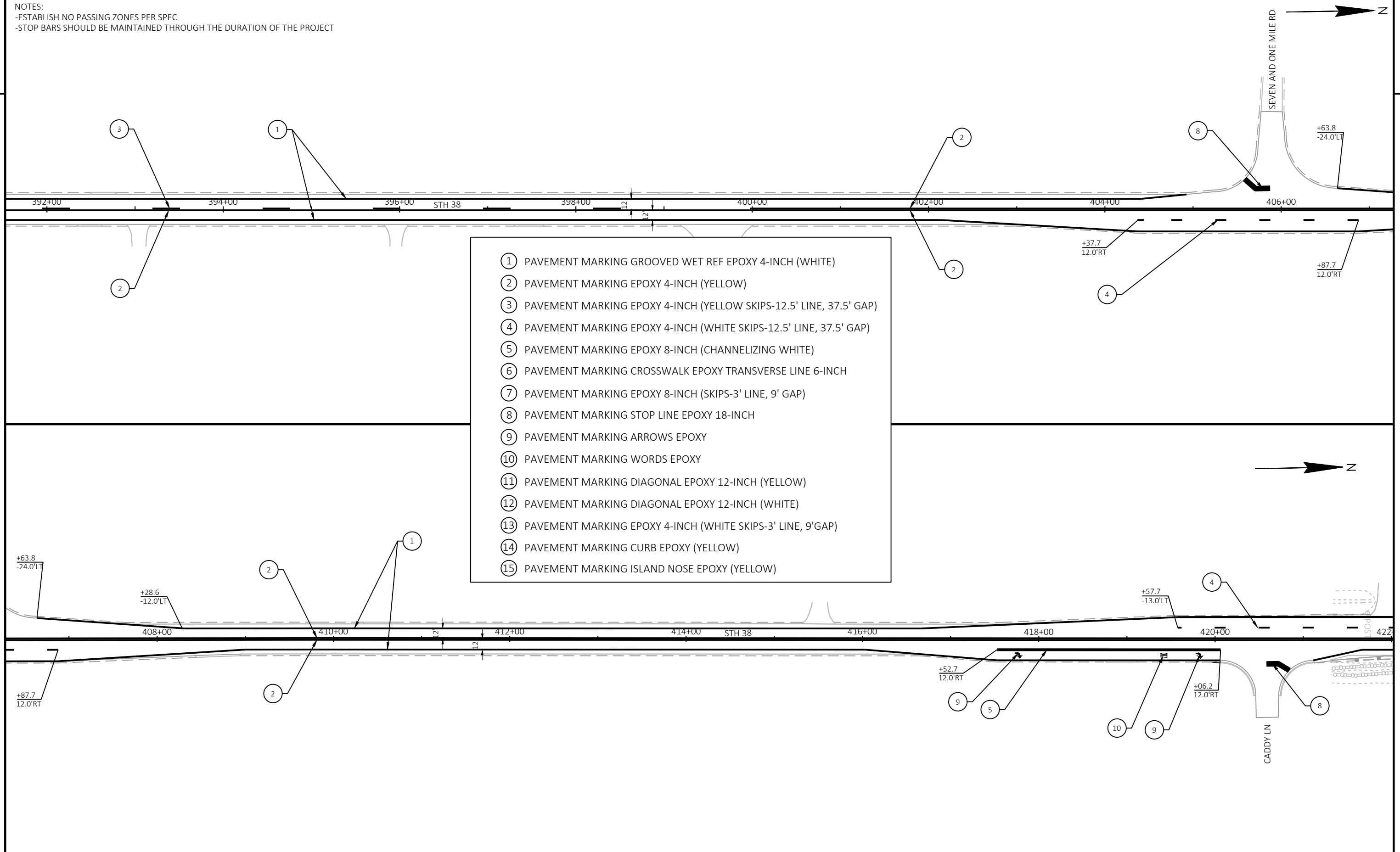
COUNTY: RACINE & MILWAUKEE

PAVEMENT MARKING

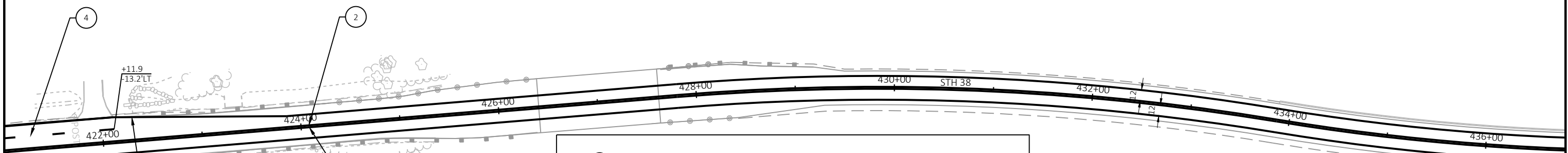
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E

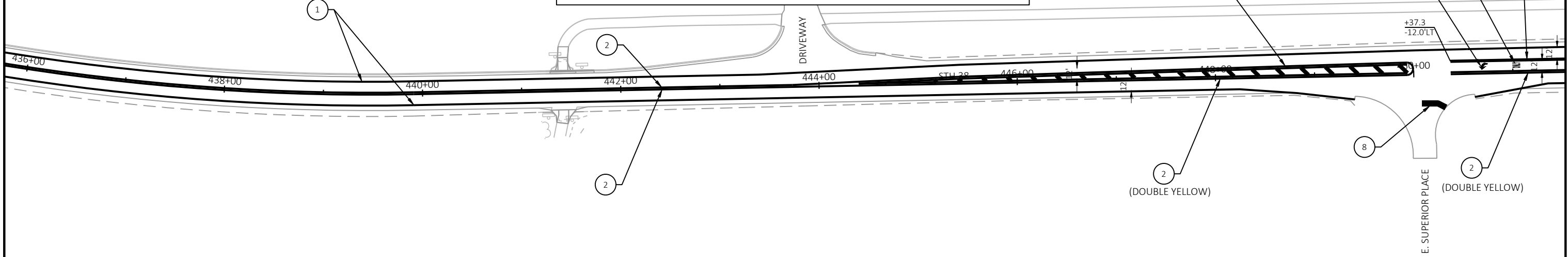
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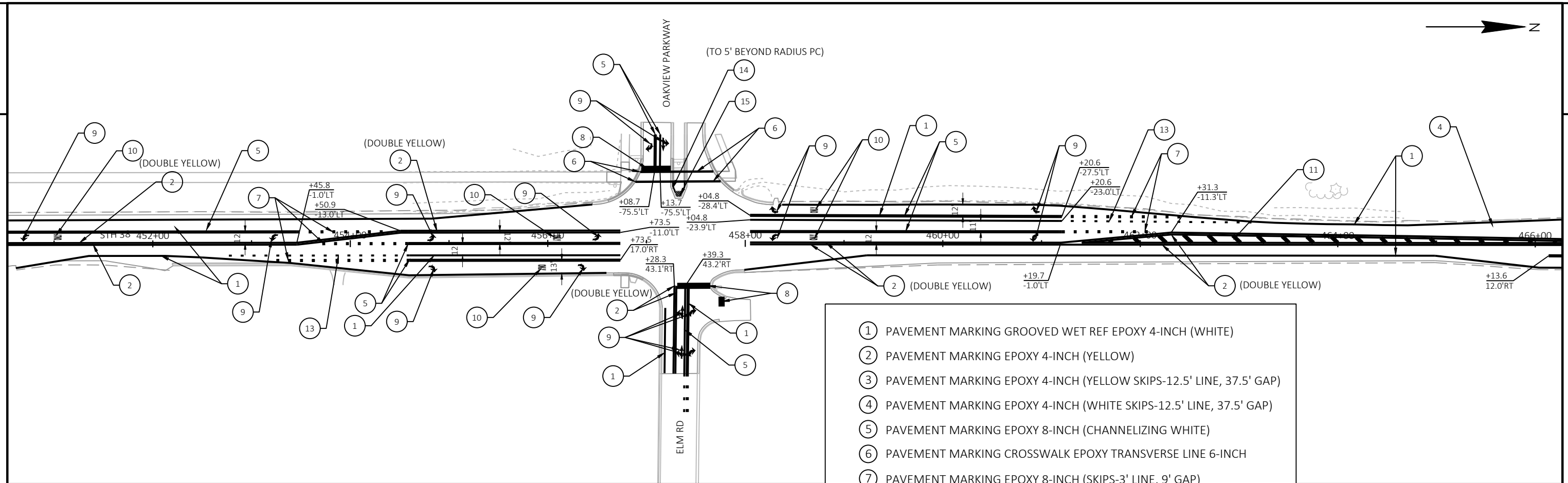


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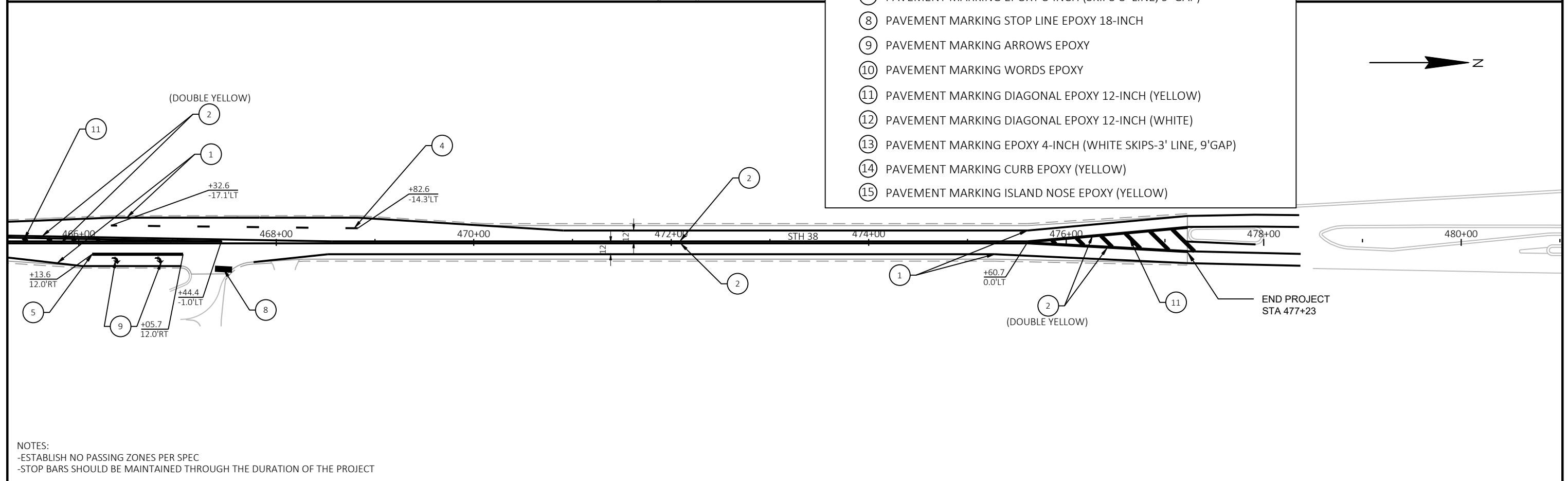


NOTES:
 -ESTABLISH NO PASSING ZONES PER SPEC
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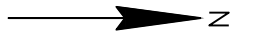
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PAVEMENT MARKING	SHEET	E
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NOTES:
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 -STOP BARS SHOULD BE MAINTAINED THROUGH THE DURATION OF THE PROJECT



STH 38

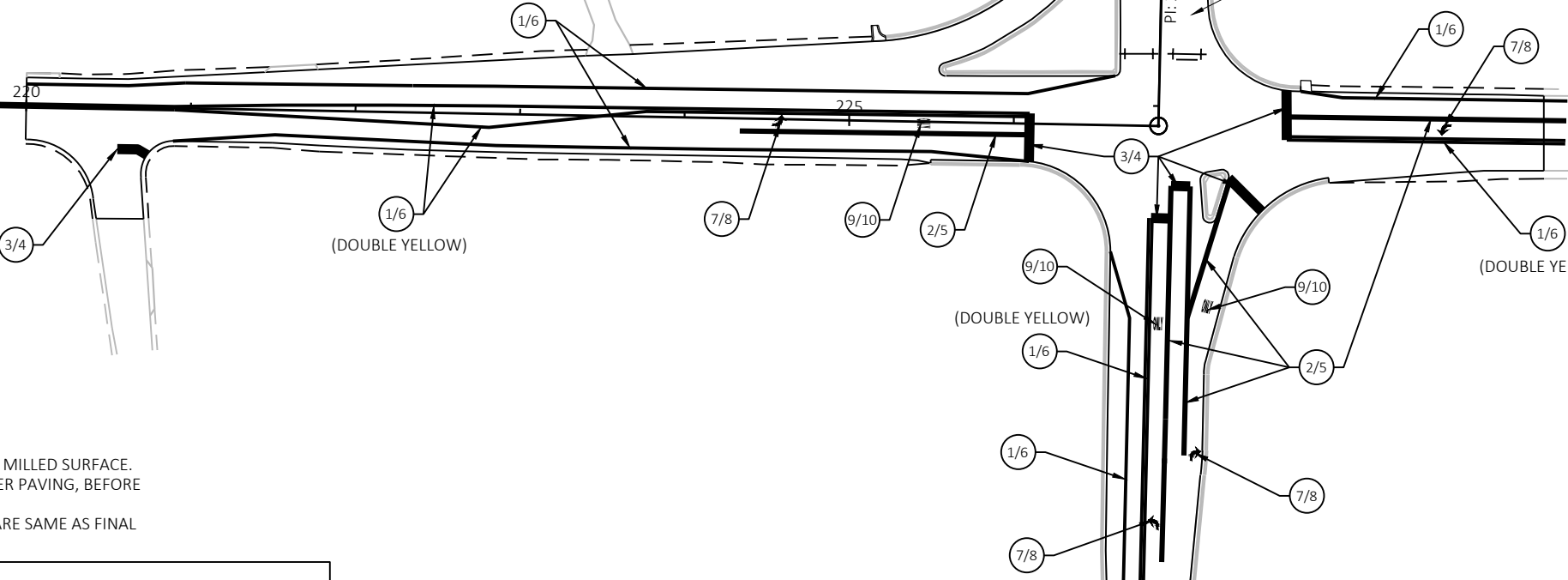
RIVER RD

CTH G

STH 38 NORTH CLOSED, DETOUR IN USE

230

PI: 226+87.87



NOTES:

- 1) TEMPORARY MARKING PAINT TO BE USED ON MILLED SURFACE. TEMPORARY MARKING TAPE TO BE USED AFTER PAVING, BEFORE FINAL MARKINGS ARE APPLIED.
- 2) LOCATIONS OF TEMPORARY MARKING LINES ARE SAME AS FINAL MARKINGS

- ① TEMPORARY MARKING LINE PAINT 4-INCH
- ② TEMPORARY MARKING LINE PAINT 8-INCH
- ③ TEMPORARY MARKING STOP LINE PAINT 18-INCH
- ④ TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH
- ⑤ TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
- ⑥ TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
- ⑦ TEMPORARY MARKING ARROW PAINT
- ⑧ TEMPORARY MARKING ARROW REMOVABLE TAPE
- ⑨ TEMPORARY MARKING WORD PAINT
- ⑩ TEMPORARY MARKING WORD REMOVABLE TAPE

PROJECT NO: 2290-24-70

HWY: STH 38

COUNTY: RACINE & MILWAUKEE

TEMPORARY PAVEMENT MARKING

SHEET

E

LEGEND

2 PROPOSED SIGN ON POST(S)

PROPOSED SIGN ON TYPE III BARRICADE WITH WARNING LIGHTS, TYPE A

TYPE III BARRICADE WITH WARNING LIGHTS, TYPE A

MB PORTABLE CHANGEABLE MESSAGE BOARD

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED

1 ROAD CLOSED AHEAD 500 FT W20-3D

2 ROAD CLOSED 1000 FT W20-3C

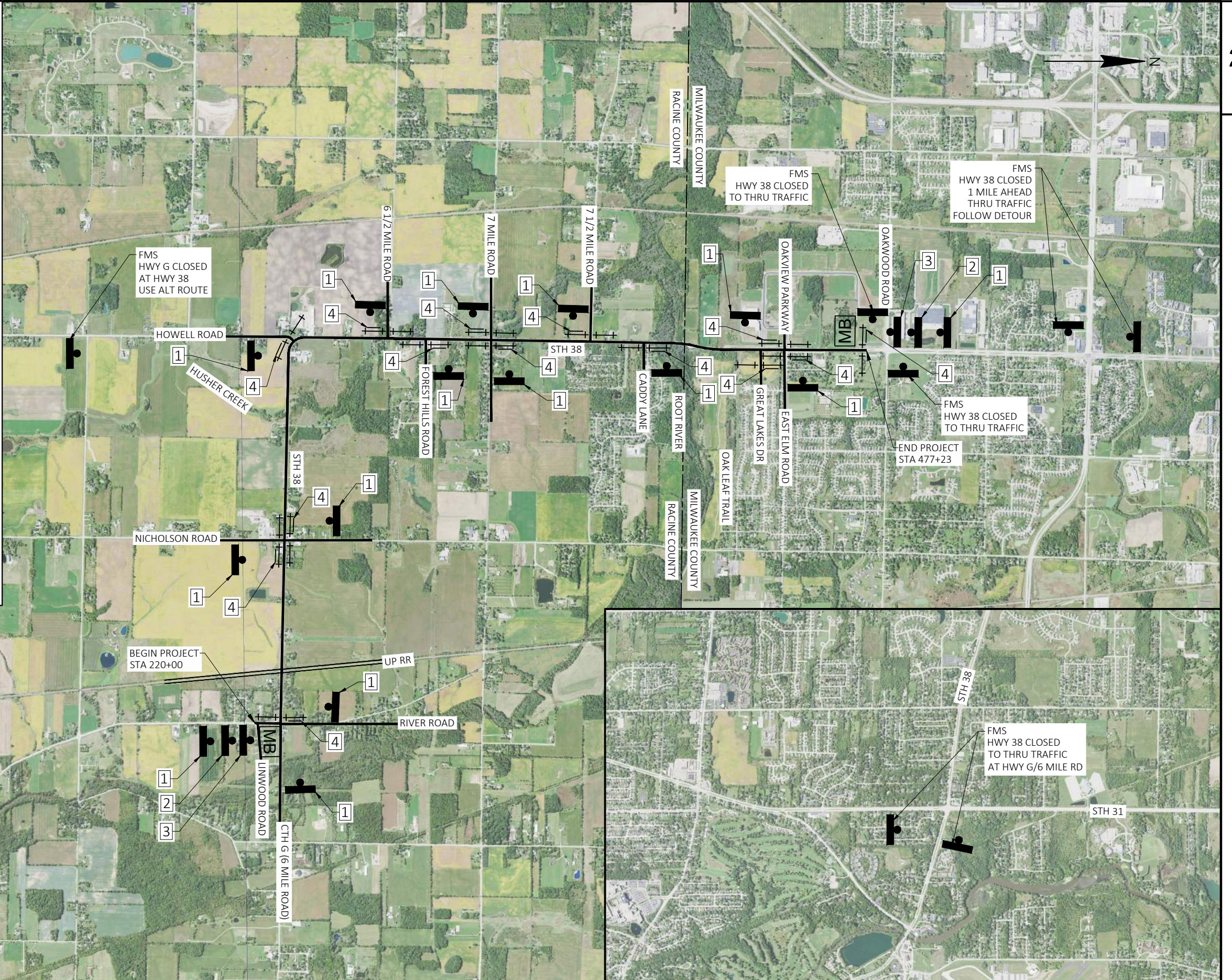
3 ROAD CLOSED 500 FT W20-3D

4 ROAD CLOSED TO THRU TRAFFIC R11-4 60"X30"


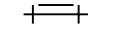
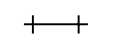
MB

FRAME 1	FRAME 2
HWY 38 CLOSURE STARTS	(DATE) (TIME)

7 CALENDAR DAYS PRIOR TO CONSTRUCTION BEGINNING



LEGEND

-  PROPOSED SIGN ON POST(S)
-  PROPOSED SIGN ON TYPE III BARRICADE WITH WARNING LIGHTS, TYPE A
-  TYPE III BARRICADE WITH WARNING LIGHTS, TYPE A

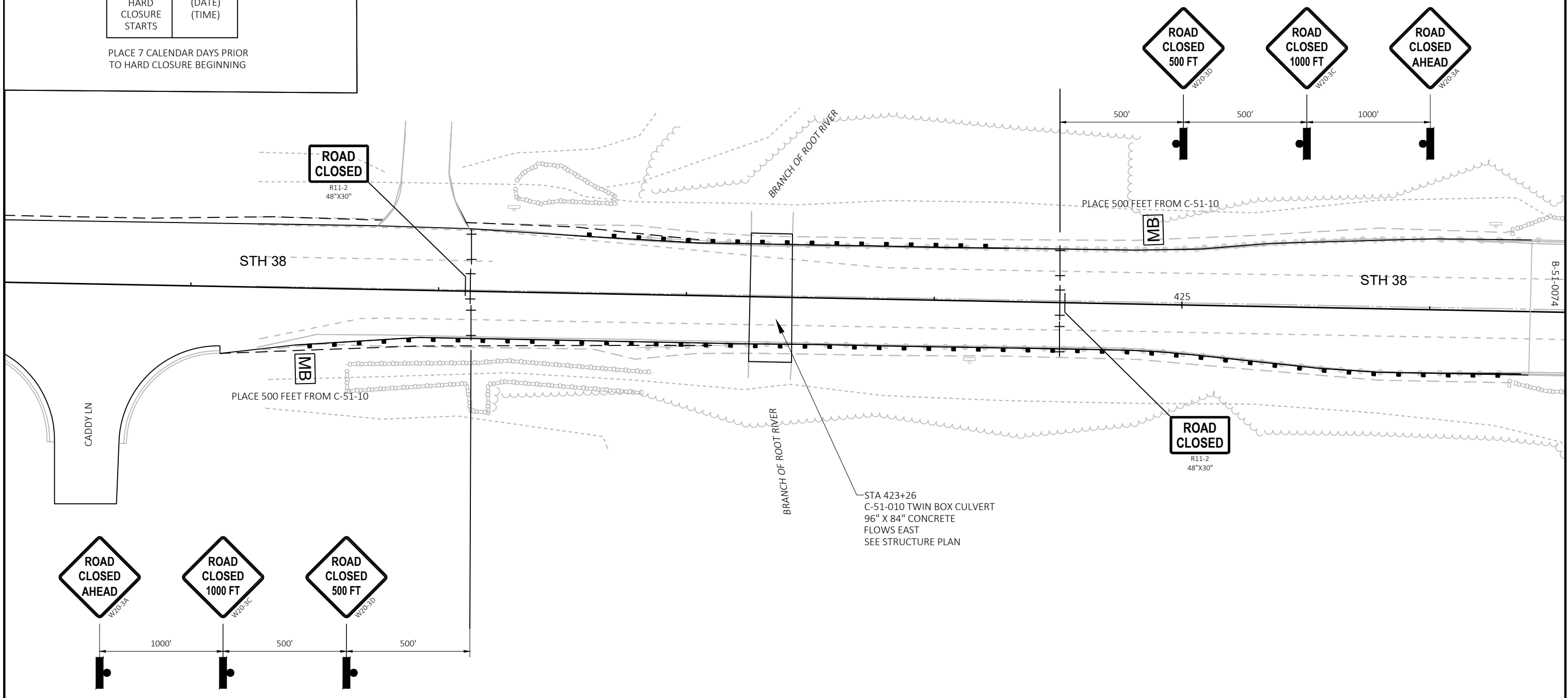
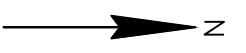
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED

MB

FRAME 1	FRAME 2
HARD CLOSURE STARTS	(DATE) (TIME)

PLACE 7 CALENDAR DAYS PRIOR TO HARD CLOSURE BEGINNING

NOTE: SEE SPECIAL PROVISIONS FOR INTERIM COMPLETION OF WORK LANGUAGE AS WELL AS THE ALLOWABLE DURATION FOR A HARD CLOSURE OF STH 38 FOR C-51-10 STRUCTURE REPAIRS.



OAK LEAF TRAIL

SIDEWALK CLOSED
R9-9
24"X12"

STH 38

442+00

441+00


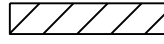
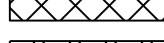
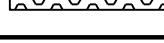
REMOVE CURB & GUTTER
AND RESTORE AFTER CURB
RAMP CONSTRUCTION

SIDEWALK CLOSED
R9-9
24"X12"



NOTES:
CURB AND GUTTER AT TEMPORARY CURB
RAMP LOCATIONS WILL BE POURED SEPARATE
TO THE CURB & GUTTER FOR PROPOSED CURB
RAMPS. THIS ALLOWS TEMPORARY CURB
RAMPS TO NOT BE LOCATED IN DRIVING LANE.

LEGEND

-  TEMPORARY PEDESTRIAN BARRICADE
-  TEMPORARY PEDESTRIAN SURFACE PLATE
-  CURB RAMP CONSTRUCTION
-  TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

PROJECT NO: 2290-24-70

HWY: STH 38

COUNTY: RACINE & MILWAUKEE

TEMPORARY PEDESTRIAN ACCOMMODATIONS

SHEET

E



STH 38

458+00

457+00

TEMPORARY MARKING LINE
PAINT 4-INCH

SIDEWALK CLOSED
R9-9
24"X12"



W011-2
48"X48"
W016-7L
24"X12"

OAKVIEW PKWY

SIDEWALK CLOSED
R9-9
24"X12"

LEGEND

- DETOUR ROUTE
- EXISTING SIGN ON POST(S)
- PROPOSED SIGN ON POST(S)
- EXISTING SIGN
- PROPOSED SIGN
- COVER EXISTING SIGN

SIGN INVENTORY

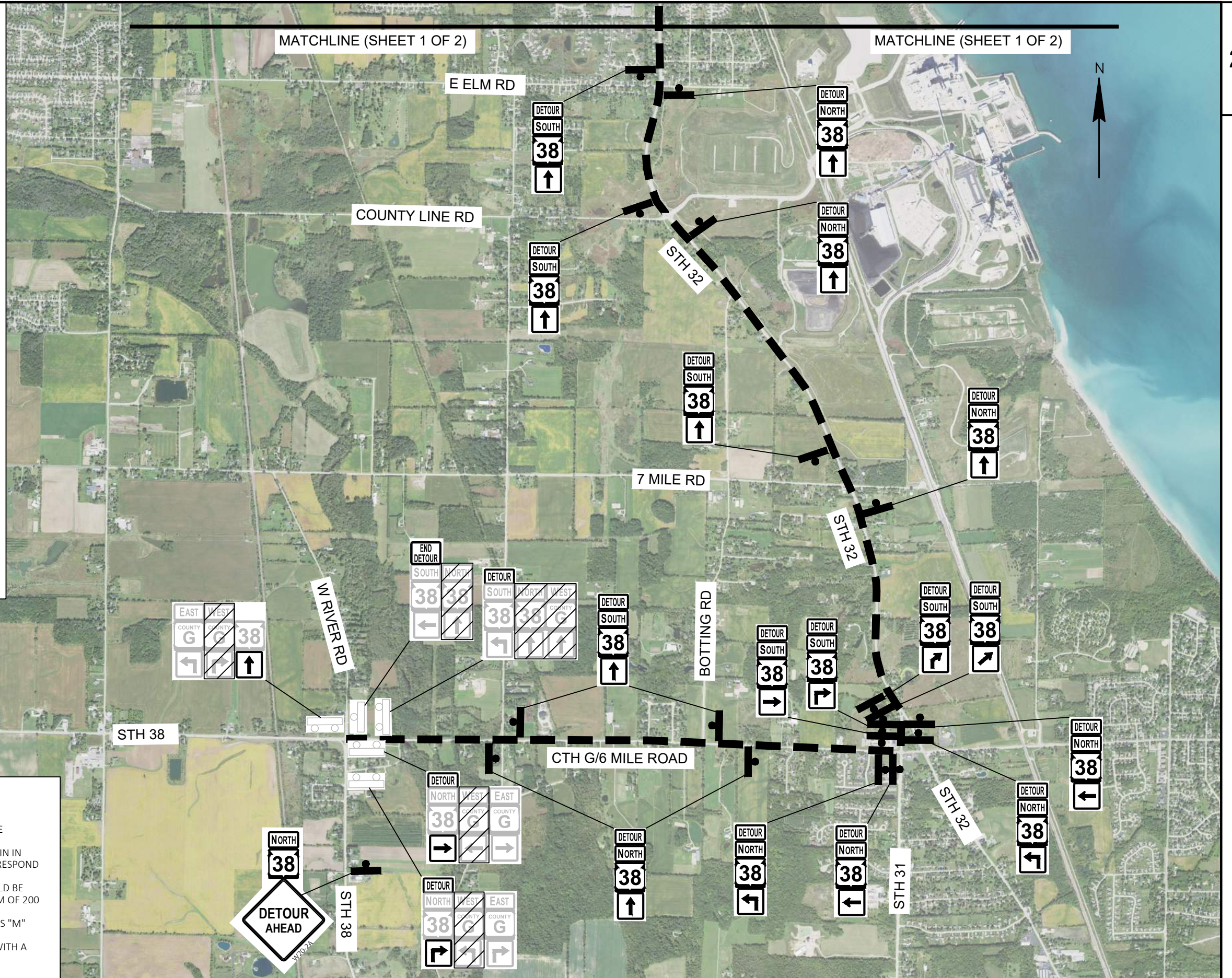
- | | | |
|------------------|-------------------|------------------|
| M1-6
24"x24" | M05-1R
21"x21" | M06-1
21"x21" |
| M3-1
24"x12" | M05-1L
21"x21" | M06-2
21"x21" |
| M3-3
24"x12" | M05-2R
21"x21" | M06-1
21"x21" |
| M4-8
24"x12" | M06-1
21"x21" | |
| M4-8A
24"x18" | | |

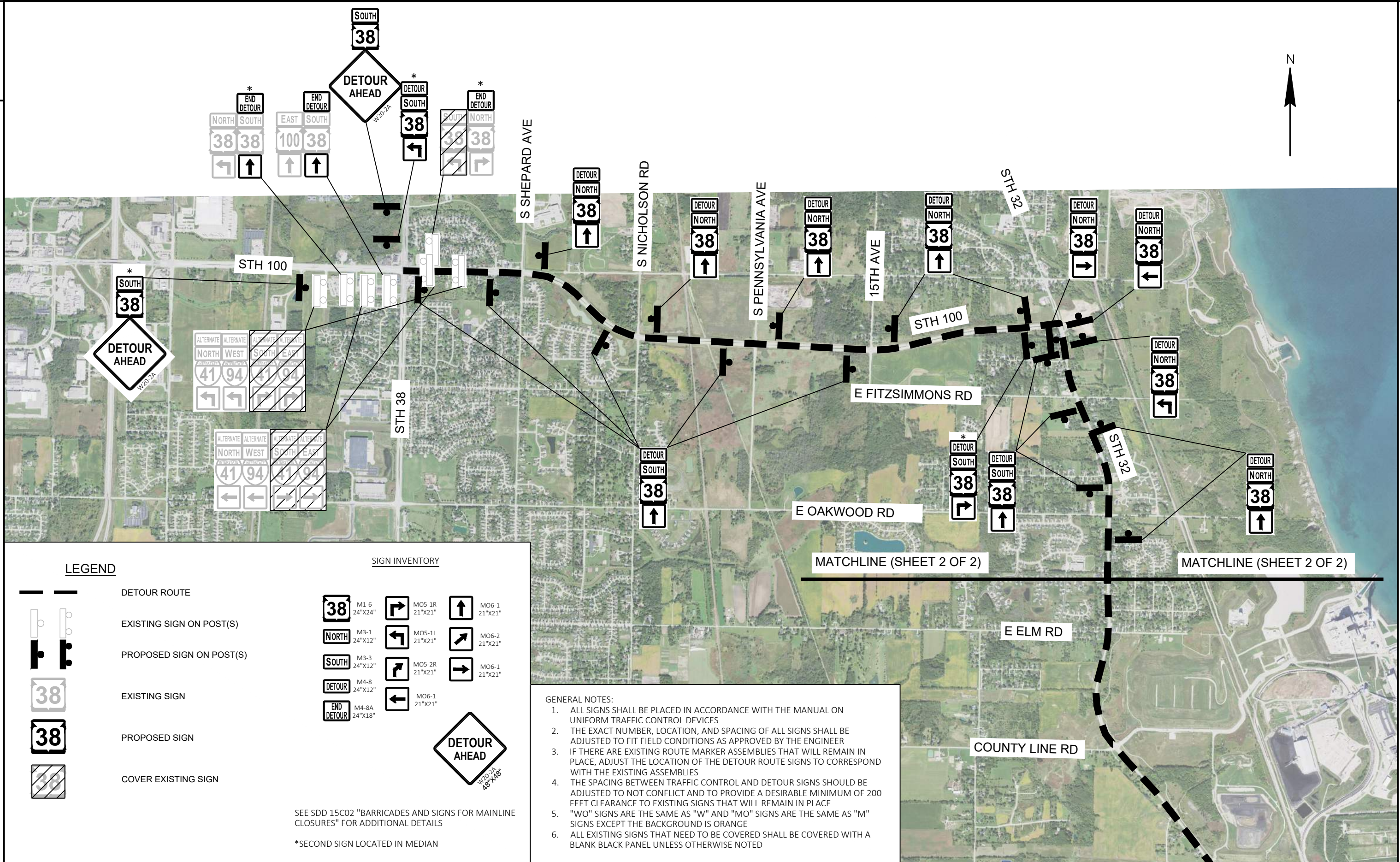
SEE SDD 15C02 "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL DETAILS

*SECOND SIGN LOCATED IN MEDIAN

GENERAL NOTES:

1. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
2. THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER
3. 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
4. THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE
5. "WO" SIGNS ARE THE SAME AS "W" AND "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE
6. ALL EXISTING SIGNS THAT NEED TO BE COVERED SHALL BE COVERED WITH A BLANK BLACK PANEL UNLESS OTHERWISE NOTED





LEGEND

- DETOUR ROUTE
- EXISTING SIGN ON POST(S)
- PROPOSED SIGN ON POST(S)
- EXISTING SIGN
- PROPOSED SIGN
- COVER EXISTING SIGN

SIGN INVENTORY

M1-6 24"x24"	MO5-1R 21"x21"	MO6-1 21"x21"
M3-1 24"x12"	MO5-1L 21"x21"	MO6-2 21"x21"
M3-3 24"x12"	MO5-2R 21"x21"	MO6-1 21"x21"
M4-8 24"x12"	MO6-1 21"x21"	
M4-8A 24"x18"		

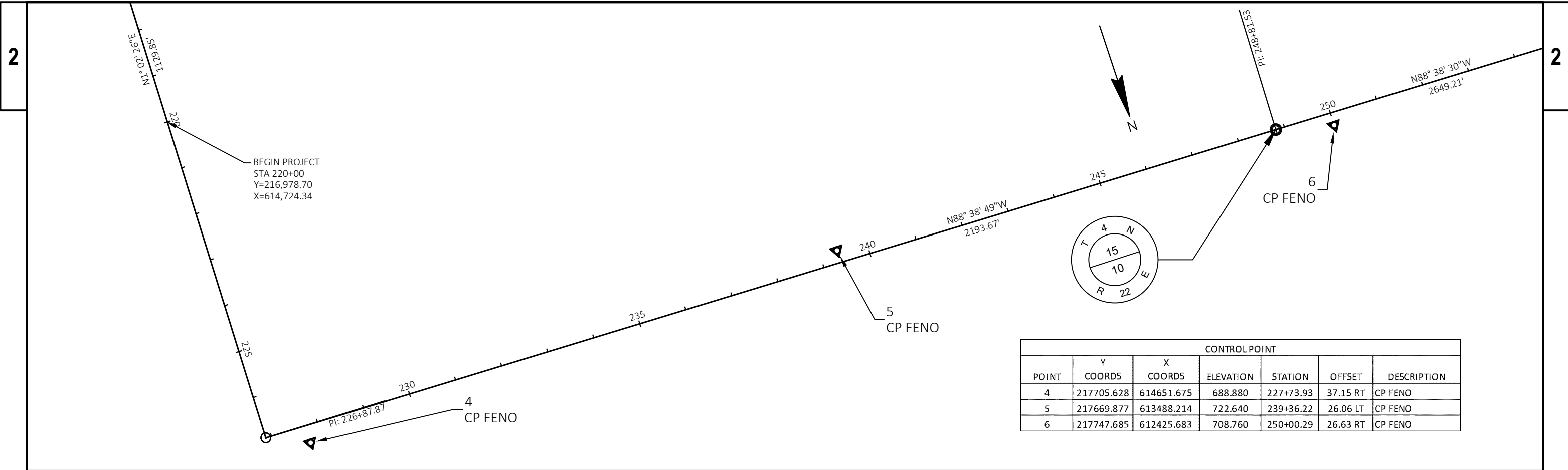


SEE SDD 15C02 "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" FOR ADDITIONAL DETAILS

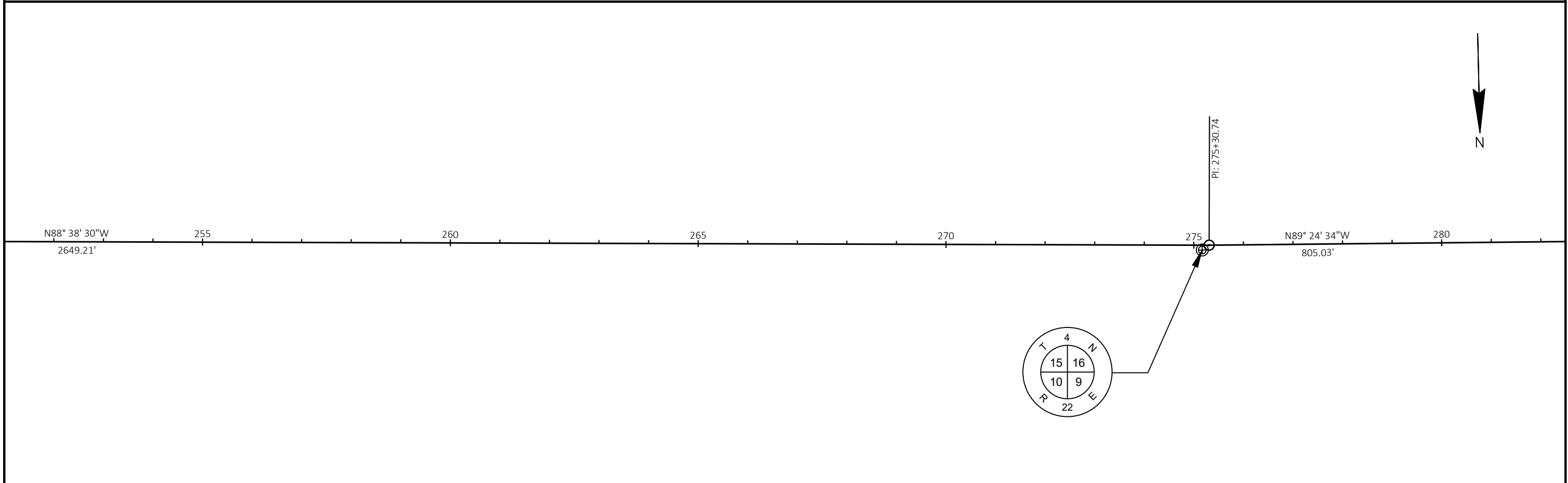
*SECOND SIGN LOCATED IN MEDIAN

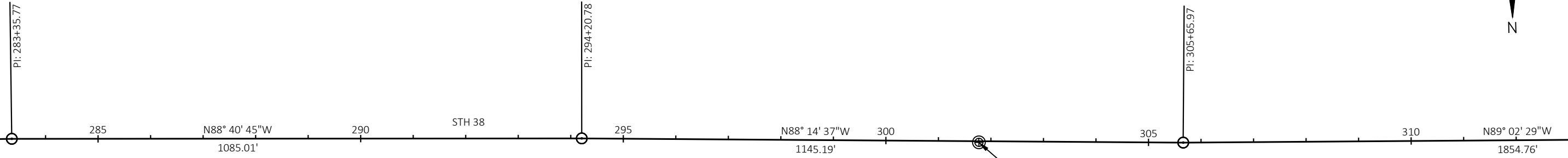
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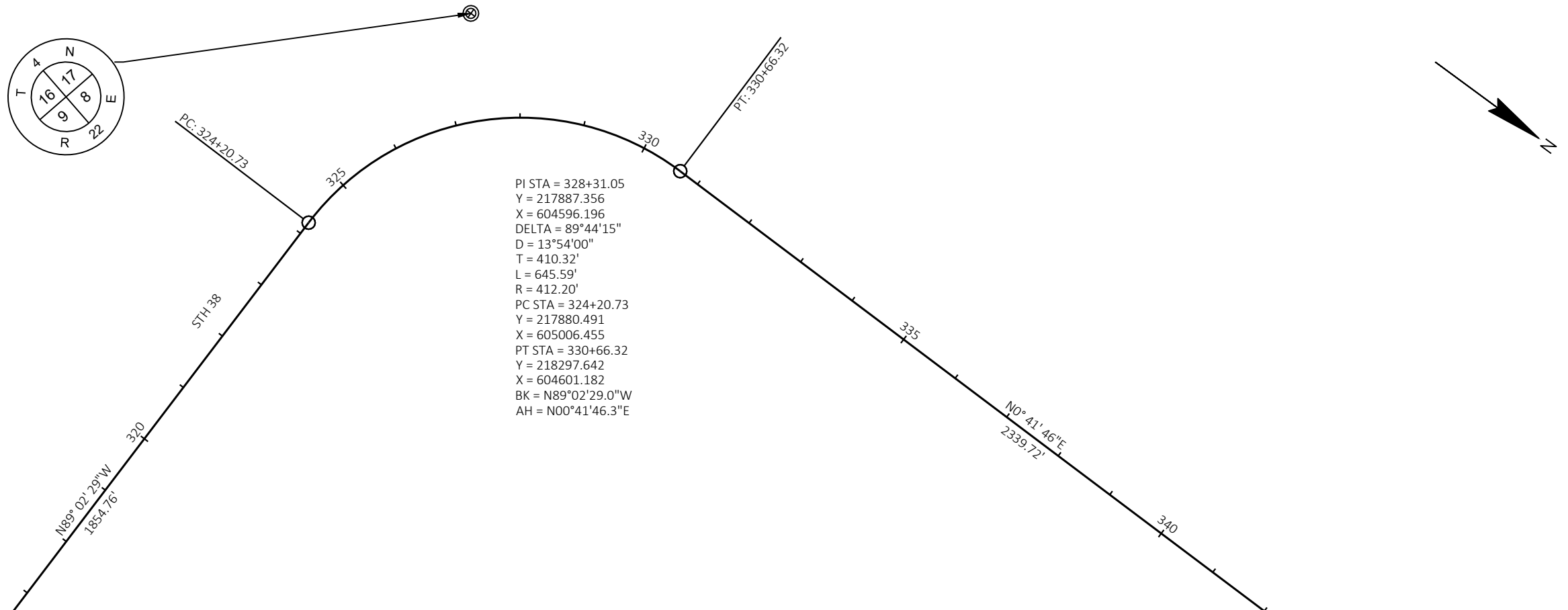
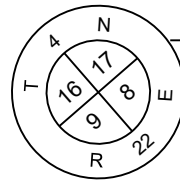
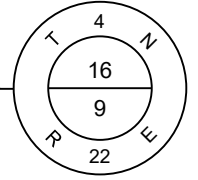
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POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
4	217705.628	614651.675	688.880	227+73.93	37.15 RT	CP FENO
5	217669.877	613488.214	722.640	239+36.22	26.06 LT	CP FENO
6	217747.685	612425.683	708.760	250+00.29	26.63 RT	CP FENO

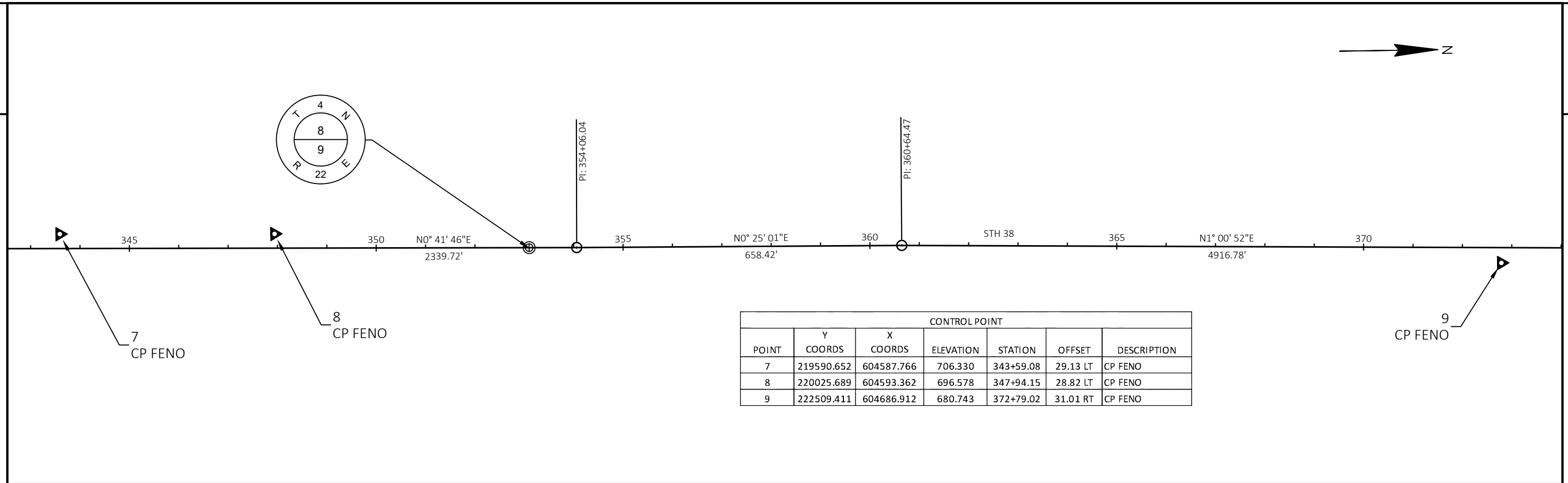




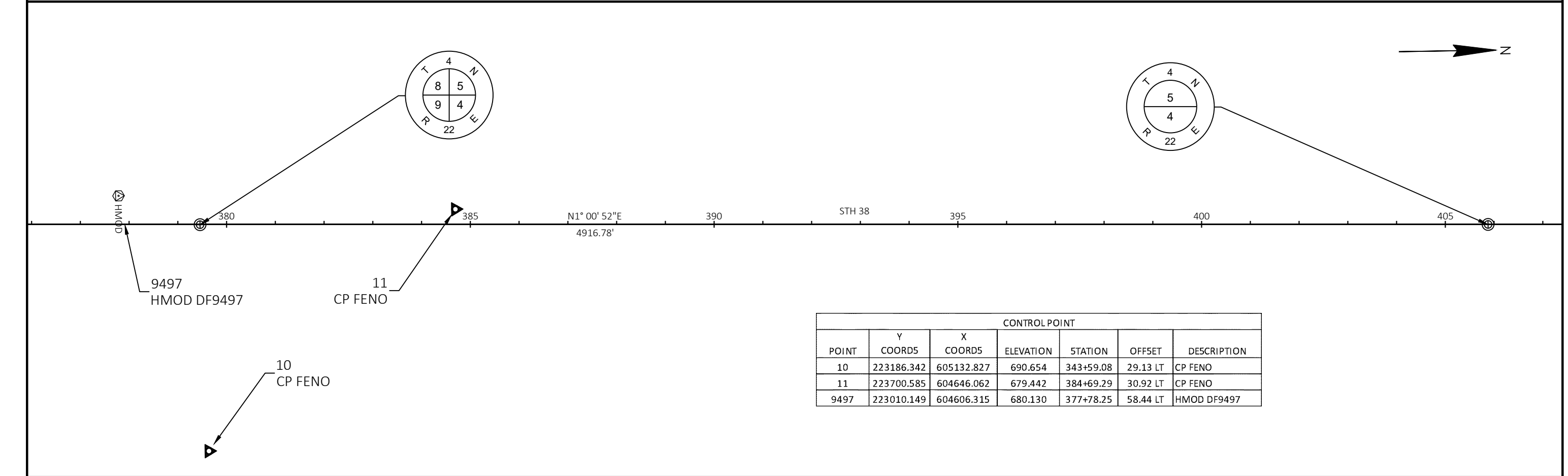
325
HMOD NG0325

CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
325	217941.245	609022.798	751.420	284+07.38	150.29' RT	HMOD NG0325





CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
7	219590.652	604587.766	706.330	343+59.08	29.13 LT	CP FENO
8	220025.689	604593.362	696.578	347+94.15	28.82 LT	CP FENO
9	222509.411	604686.912	680.743	372+79.02	31.01 RT	CP FENO

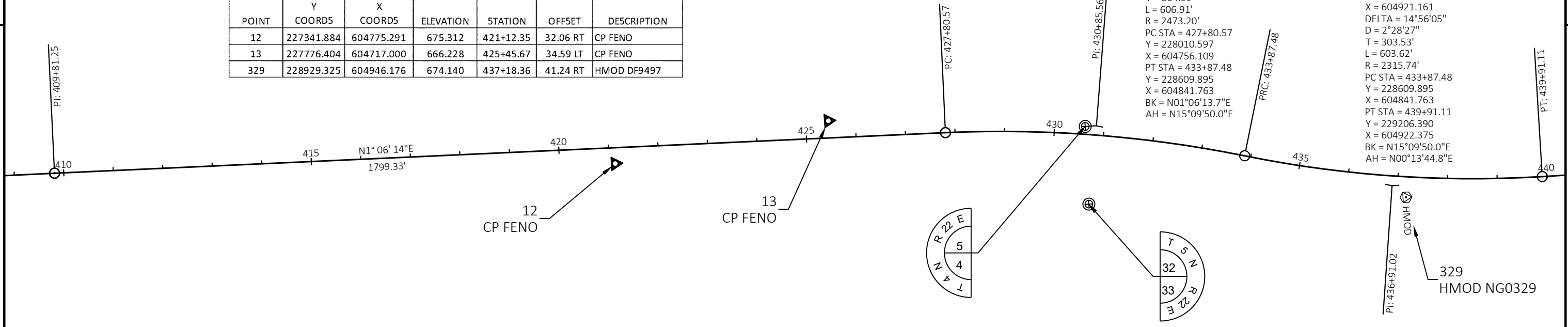


CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
10	223186.342	605132.827	690.654	343+59.08	29.13 LT	CP FENO
11	223700.585	604646.062	679.442	384+69.29	30.92 LT	CP FENO
9497	223010.149	604606.315	680.130	377+78.25	58.44 LT	HMOD DF9497

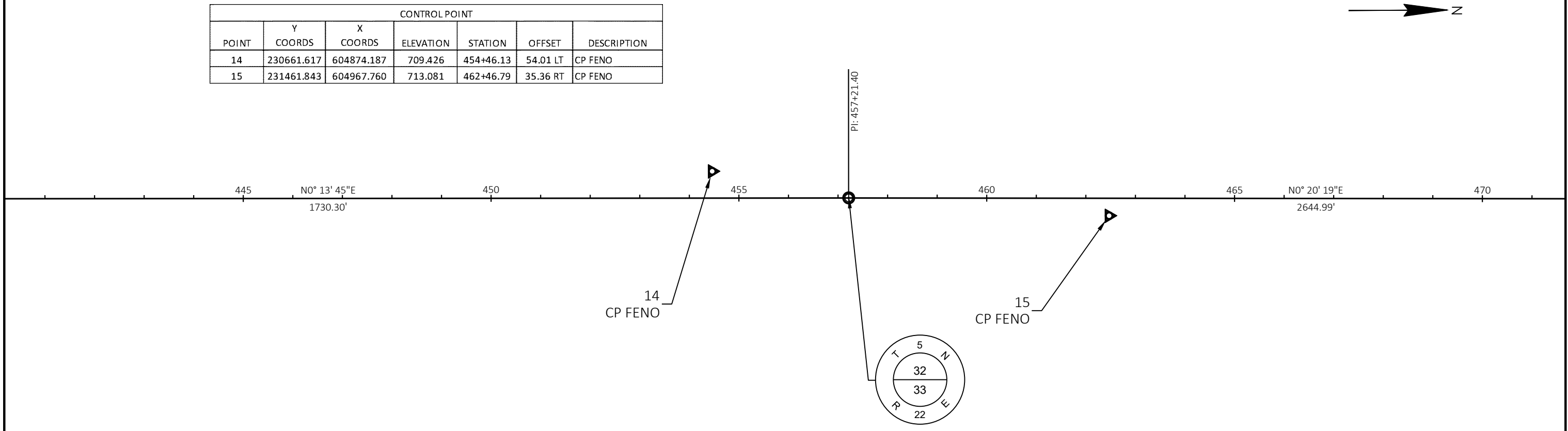
CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
12	227341.884	604775.291	675.312	421+12.35	32.06 RT	CP FENO
13	227776.404	604717.000	666.228	425+45.67	34.59 LT	CP FENO
329	228929.325	604946.176	674.140	437+18.36	41.24 RT	HMOD DF9497

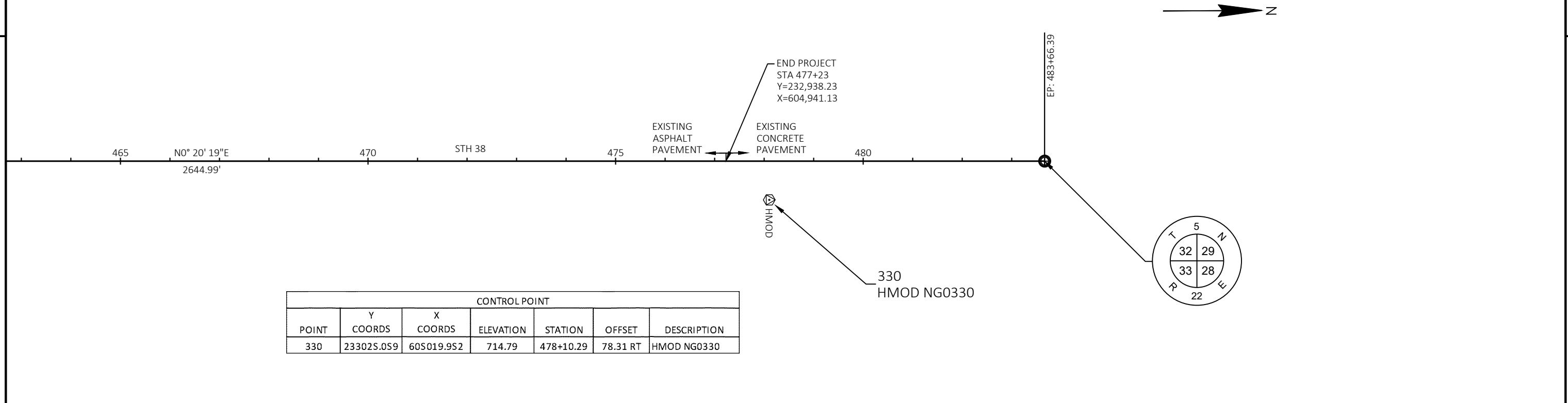
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 Y = 228315.527
 X = 604761.984
 DELTA = 14°03'36"
 D = 2°19'00"
 T = 304.99'
 L = 606.91'
 R = 2473.20'
 PC STA = 427+80.57
 Y = 228010.597
 X = 604756.109
 PT STA = 433+87.48
 Y = 228609.895
 X = 604841.763
 BK = N01°06'13.7"E
 AH = N15°09'50.0"E

PI STA = 436+91.02
 Y = 228902.860
 X = 604921.161
 DELTA = 14°56'05"
 D = 2°28'27"
 T = 303.53'
 L = 603.62'
 R = 2315.74'
 PC STA = 433+87.48
 Y = 228609.895
 X = 604841.763
 PT STA = 439+91.11
 Y = 229206.390
 X = 604922.375
 BK = N15°09'50.0"E
 AH = N00°13'44.8"E



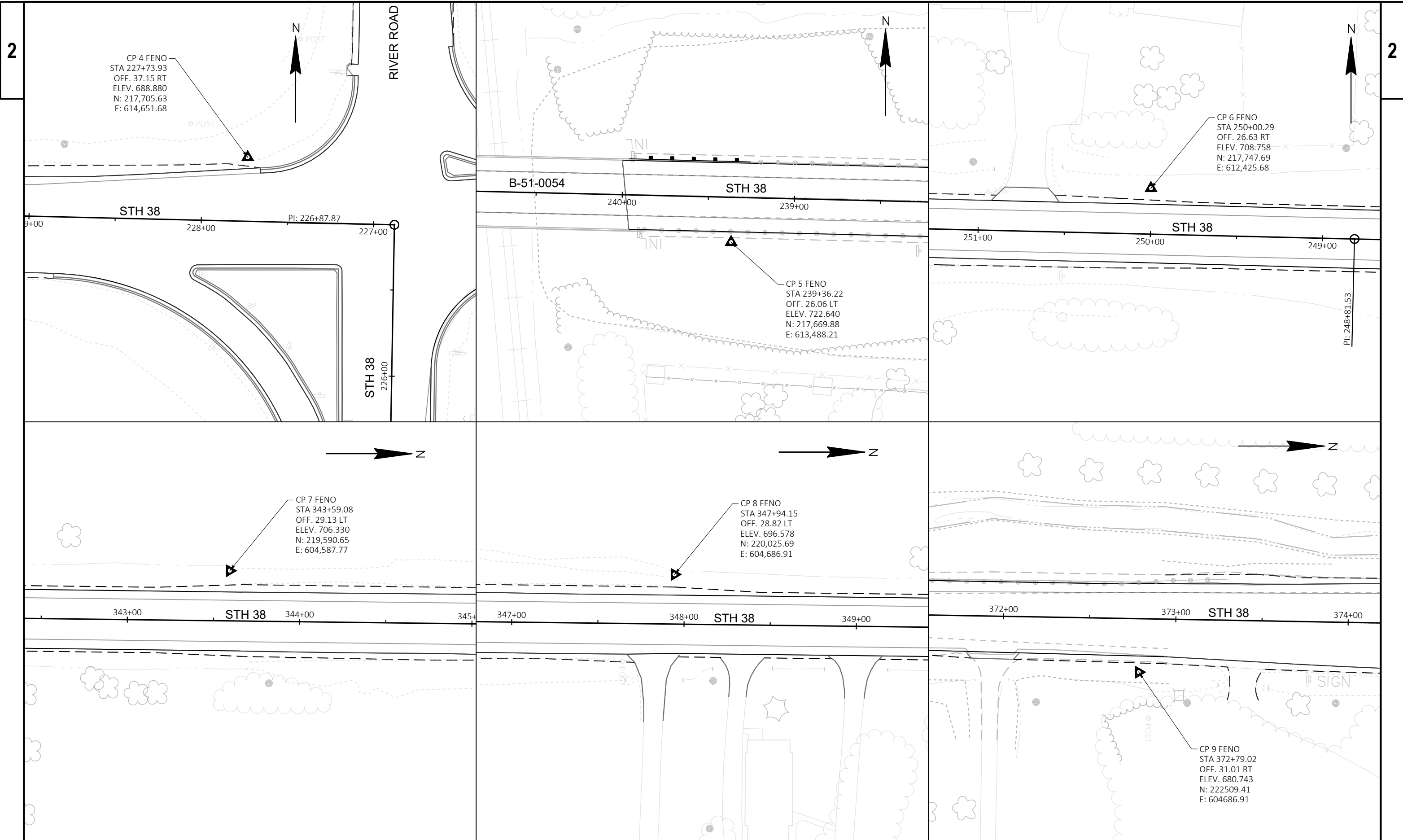
CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
14	230661.617	604874.187	709.426	454+46.13	54.01 LT	CP FENO
15	231461.843	604967.760	713.081	462+46.79	35.36 RT	CP FENO





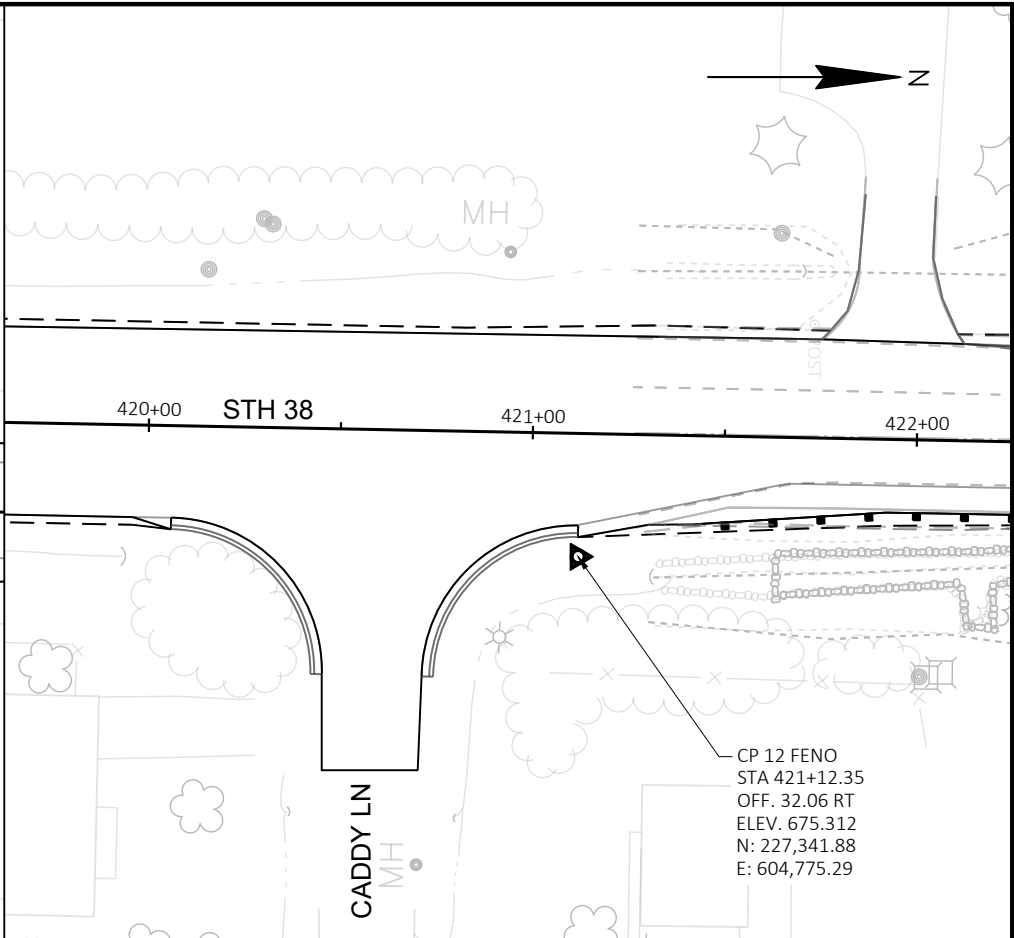
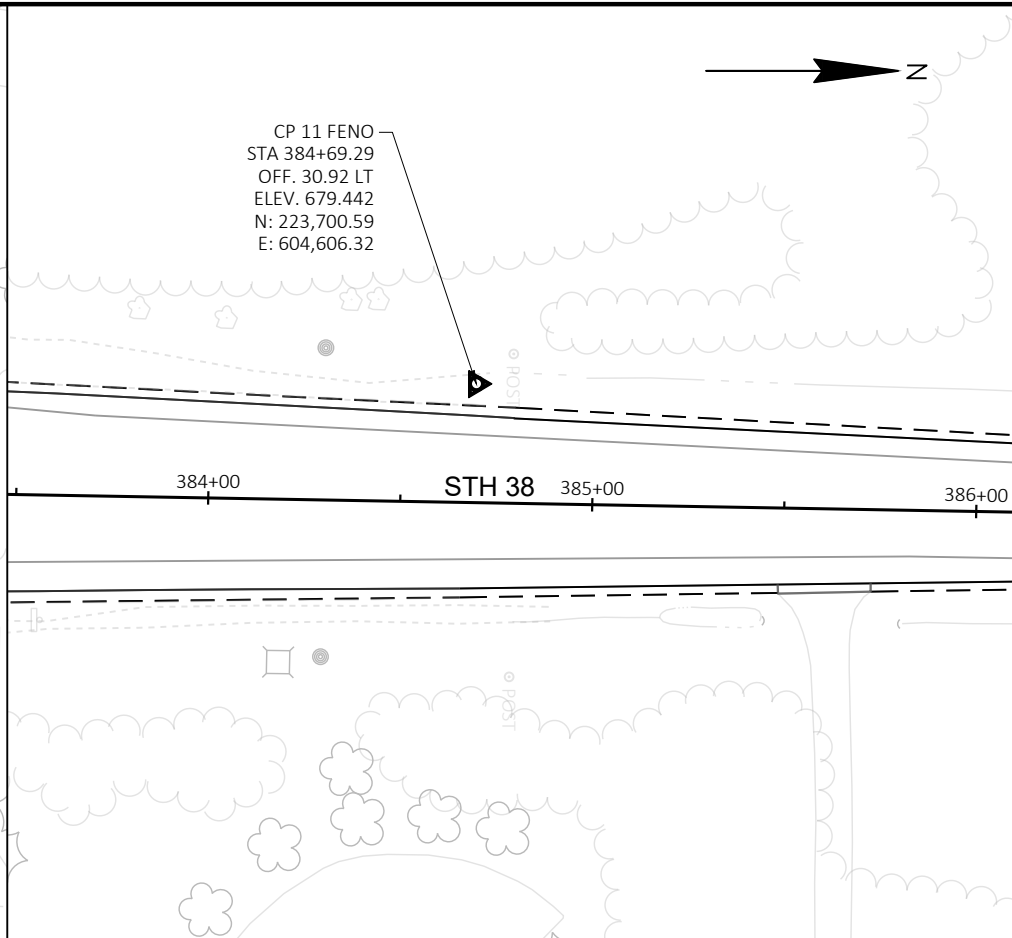
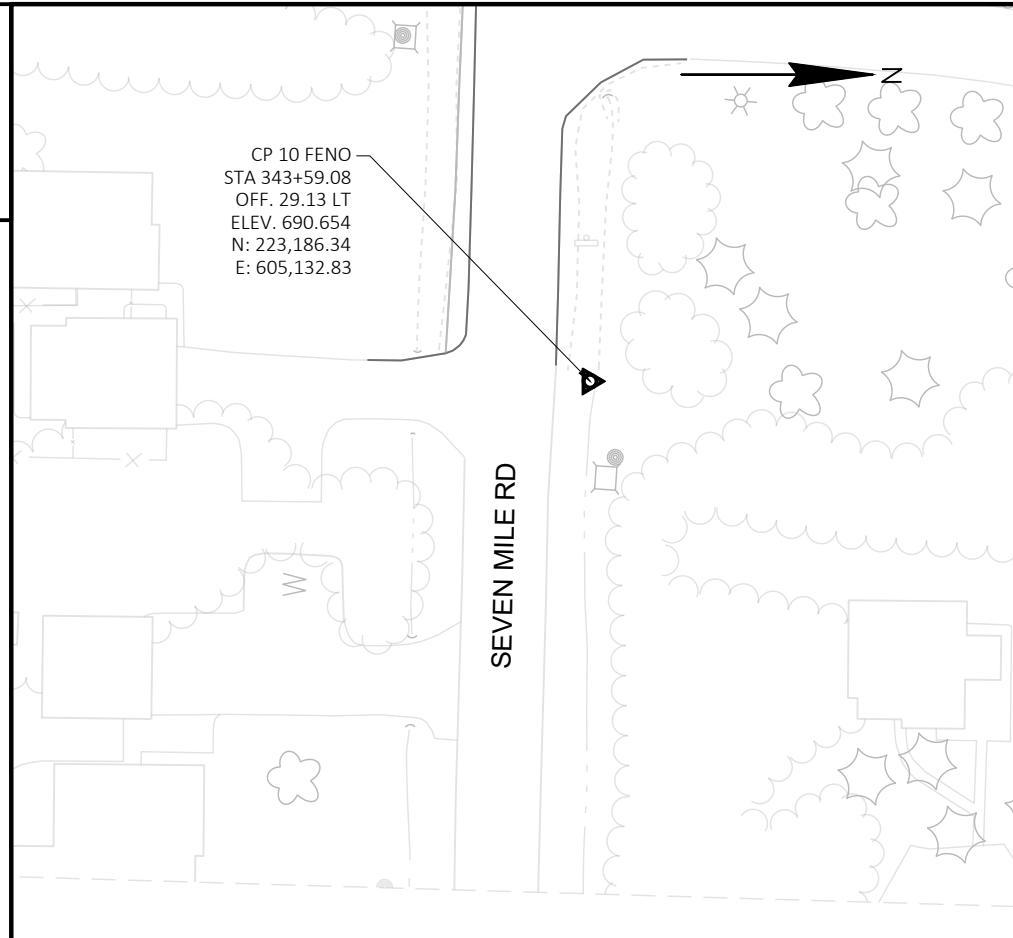
CONTROL POINT						
POINT	Y COORDS	X COORDS	ELEVATION	STATION	OFFSET	DESCRIPTION
330	233025.059	605019.952	714.79	478+10.29	78.31 RT	HMOD NG0330

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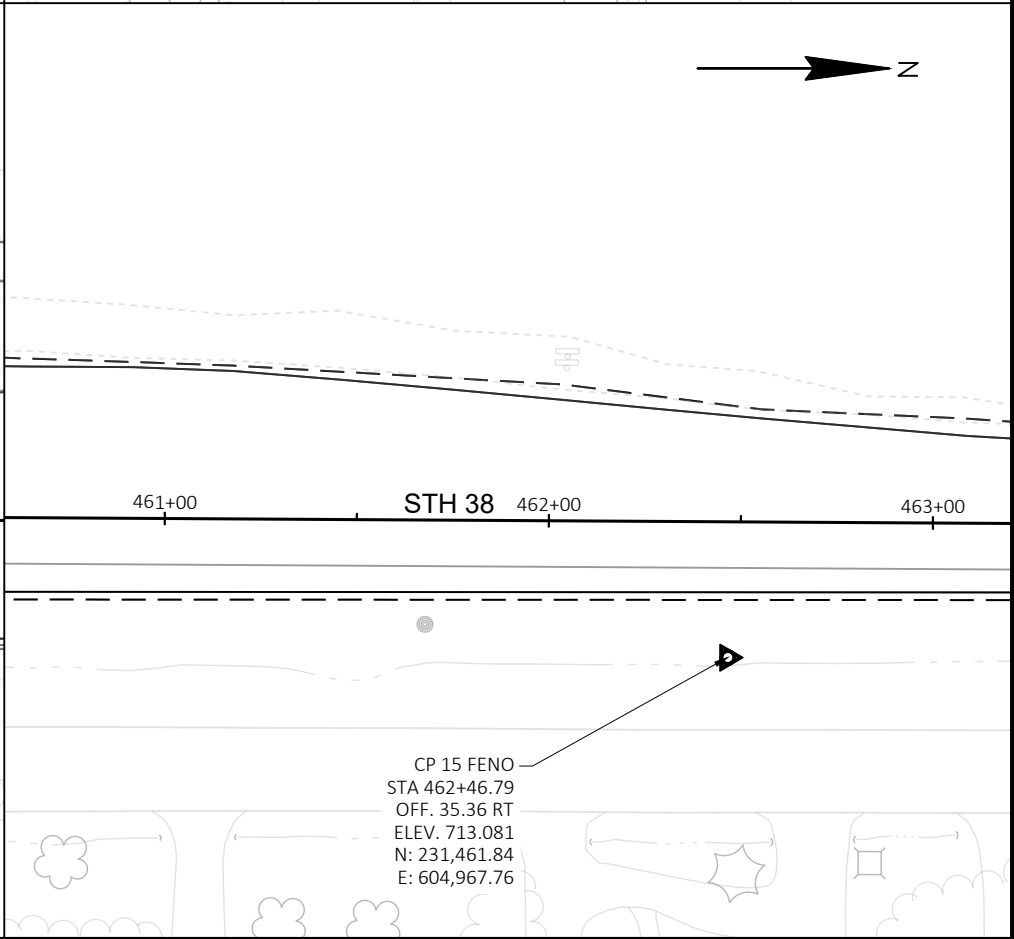
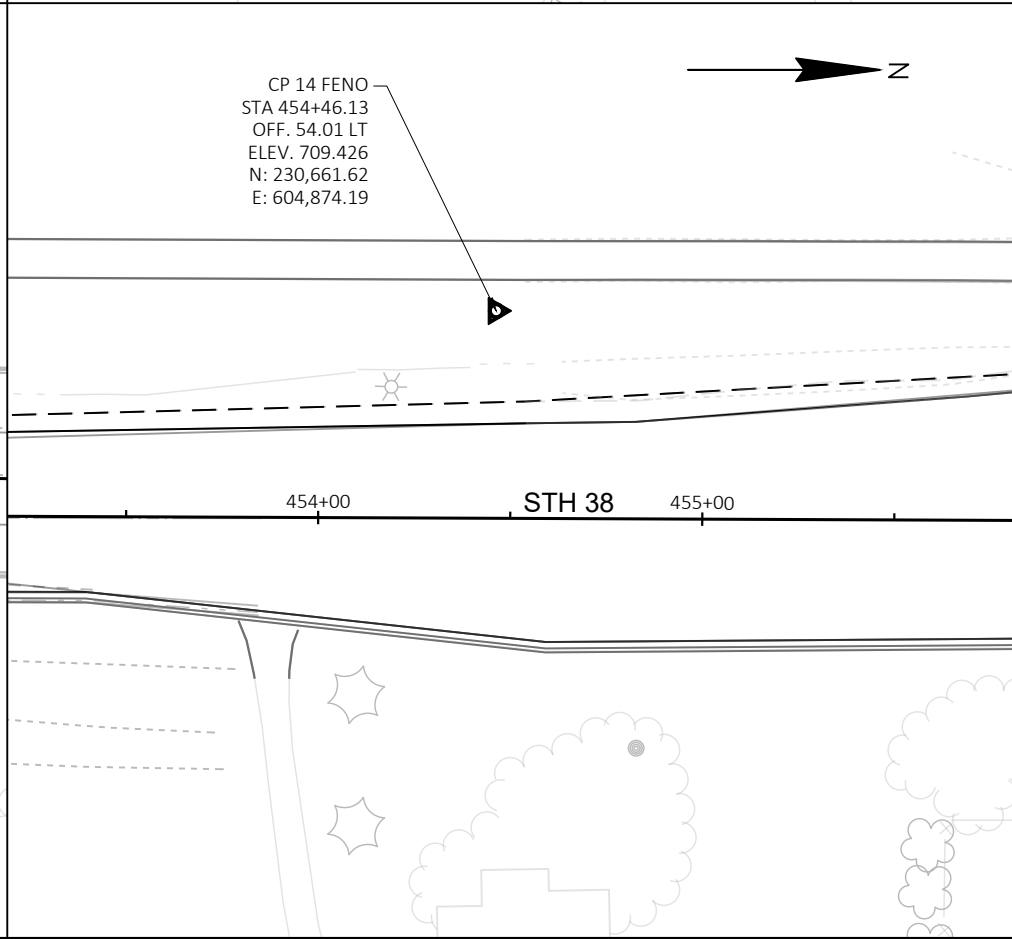
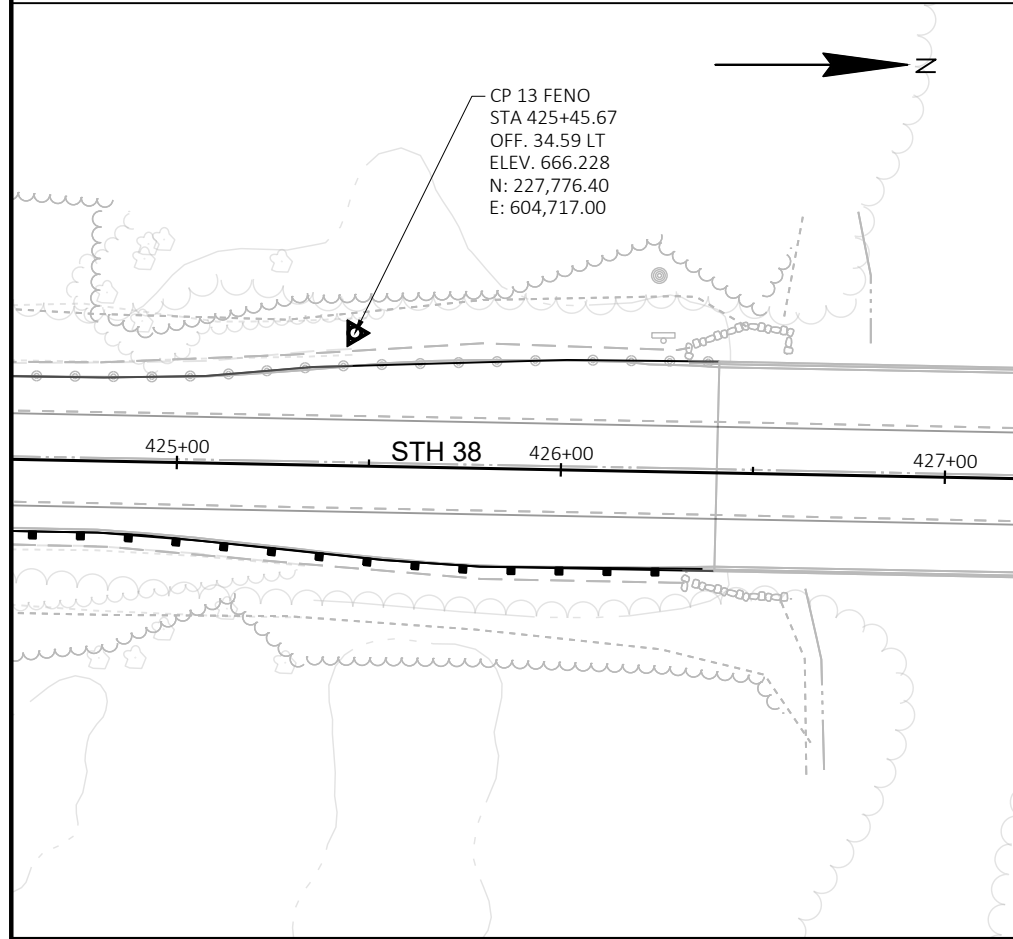


PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	SURVEY CONTROL	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	SURVEY CONTROL	SHEET	E
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Estimate Of Quantities

2290-24-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0210	Grubbing	SY	80.000	80.000
0004	203.0220	Removing Structure (structure) 01. STA 264+99	EACH	1.000	1.000
0006	203.0220	Removing Structure (structure) 02. STA 300+20	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 03. STA 389+00	EACH	1.000	1.000
0010	203.0220	Removing Structure (structure) 04. STA 401+99	EACH	1.000	1.000
0012	203.0220	Removing Structure (structure) 05. STA 458+96	EACH	1.000	1.000
0014	203.0220	Removing Structure (structure) C-51-10	EACH	1.000	1.000
0016	204.0110	Removing Asphaltic Surface	SY	96.000	96.000
0018	204.0115	Removing Asphaltic Surface Butt Joints	SY	459.000	459.000
0020	204.0120	Removing Asphaltic Surface Milling	SY	125,600.000	125,600.000
0022	204.0150	Removing Curb & Gutter	LF	208.000	208.000
0024	204.0155	Removing Concrete Sidewalk	SY	423.000	423.000
0026	204.0165	Removing Guardrail	LF	153.000	153.000
0028	204.0195	Removing Concrete Bases	EACH	20.000	20.000
0030	204.0210	Removing Manholes	EACH	1.000	1.000
0032	204.9060.S	Removing (item description) 01. Traffic Signals STH 38 & 6 Mile RD	EACH	1.000	1.000
0034	204.9060.S	Removing (item description) 02. Traffic Signals STH 38 & 7 Mile RD	EACH	1.000	1.000
0036	204.9060.S	Removing (item description) 03. Loop Detector Wire and Lead-in Cable STH 38 & 6 Mile RD	EACH	1.000	1.000
0038	204.9060.S	Removing (item description) 04. Loop Detector Wire and Lead-in Cable STH 38 & 7 Mile RD	EACH	1.000	1.000
0040	205.0100	Excavation Common	CY	64.000	64.000
0042	206.2001	Excavation for Structures Culverts (structure) C-51-10	EACH	1.000	1.000
0044	206.5001	Cofferdams (structure) C-51-10	EACH	1.000	1.000
0046	209.2100	Backfill Granular Grade 2	CY	320.000	320.000
0048	210.2500	Backfill Structure Type B	TON	310.000	310.000
0050	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 2290-24-70	EACH	1.000	1.000
0052	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	16.000	16.000
0054	213.0100	Finishing Roadway (project) 01. 2290-24-70	EACH	1.000	1.000
0056	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,900.000	1,900.000
0058	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	145.000	145.000
0060	390.0203	Base Patching Asphaltic	SY	1,300.000	1,300.000
0062	455.0605	Tack Coat	GAL	9,510.000	9,510.000
0064	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0066	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0068	460.2005	Incentive Density PWL HMA Pavement	DOL	7,600.000	7,600.000
0070	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	12,720.000	12,720.000
0072	460.2010	Incentive Air Voids HMA Pavement	DOL	14,070.000	14,070.000
0074	460.6224	HMA Pavement 4 MT 58-28 S	TON	14,070.000	14,070.000
0076	465.0105	Asphaltic Surface	TON	160.000	160.000
0078	465.0315	Asphaltic Flumes	SY	49.000	49.000
0080	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	20,450.000	20,450.000
0082	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	10,830.000	10,830.000
0084	502.4204	Adhesive Anchors No. 4 Bar	EACH	82.000	82.000
0086	504.0100	Concrete Masonry Culverts	CY	14.000	14.000
0088	505.0400	Bar Steel Reinforcement HS Structures	LB	2,120.000	2,120.000
0090	509.1500	Concrete Surface Repair	SF	15.000	15.000
0092	516.0500	Rubberized Membrane Waterproofing	SY	4.000	4.000
0094	516.0610.S	Sheet Membrane Waterproofing for Buried Structures	SY	46.000	46.000

Estimate Of Quantities

2290-24-70

Line	Item	Item Description	Unit	Total	Qty
0096	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0098	520.8700	Cleaning Culvert Pipes	EACH	2.000	2.000
0100	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	56.000	56.000
0102	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	60.000	60.000
0104	522.0142	Culvert Pipe Reinforced Concrete Class III 42-Inch	LF	46.000	46.000
0106	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	2.000	2.000
0108	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	2.000	2.000
0110	522.1042	Apron Endwalls for Culvert Pipe Reinforced Concrete 42-Inch	EACH	2.000	2.000
0112	522.2429	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 29x45-Inch	LF	46.000	46.000
0114	522.2629	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 29x45-Inch	EACH	2.000	2.000
0116	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	201.000	201.000
0118	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	70.000	70.000
0120	601.0600	Concrete Curb Pedestrian	LF	22.000	22.000
0122	602.0410	Concrete Sidewalk 5-Inch	SF	1,660.000	1,660.000
0124	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	96.000	96.000
0126	602.0605	Curb Ramp Detectable Warning Field Radial Yellow	SF	56.000	56.000
0128	606.0200	Riprap Medium	CY	83.000	83.000
0130	606.0300	Riprap Heavy	CY	80.000	80.000
0132	608.0336	Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	LF	120.000	120.000
0134	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0136	611.0606	Inlet Covers Type B	EACH	1.000	1.000
0138	611.2005	Manholes 5-FT Diameter	EACH	1.000	1.000
0140	611.2007	Manholes 7-FT Diameter	EACH	1.000	1.000
0142	614.0010	Barrier System Grading Shaping Finishing	EACH	7.000	7.000
0144	614.0305	Steel Plate Beam Guard Class A	LF	213.000	213.000
0146	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	16.000	16.000
0148	614.2300	MGS Guardrail 3	LF	63.000	63.000
0150	614.2500	MGS Thrie Beam Transition	LF	40.000	40.000
0152	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0154	614.8010	Anchor Post Assembly Top Mount	EACH	12.000	12.000
0156	618.0100	Maintenance And Repair of Haul Roads (project) 01. 2290-24-70	EACH	1.000	1.000
0158	619.1000	Mobilization	EACH	1.000	1.000
0160	620.0300	Concrete Median Sloped Nose	SF	32.000	32.000
0162	624.0100	Water	MGAL	50.000	50.000
0164	625.0100	Topsoil	SY	1,000.000	1,000.000
0166	625.0500	Salvaged Topsoil	SY	5,508.000	5,508.000
0168	628.1504	Silt Fence	LF	2,164.000	2,164.000
0170	628.1520	Silt Fence Maintenance	LF	2,164.000	2,164.000
0172	628.1530.S	Silt Fence Heavy Duty	LF	627.000	627.000
0174	628.1535.S	Silt Fence Heavy Duty Maintenance	LF	627.000	627.000
0176	628.2004	Erosion Mat Class I Type B	SY	5,508.000	5,508.000
0178	628.7010	Inlet Protection Type B	EACH	6.000	6.000
0180	628.7504	Temporary Ditch Checks	LF	228.000	228.000
0182	628.7555	Culvert Pipe Checks	EACH	54.000	54.000
0184	628.7560	Tracking Pads	EACH	3.000	3.000
0186	629.0205	Fertilizer Type A	CWT	5.000	5.000
0188	630.0130	Seeding Mixture No. 30	LB	104.000	104.000
0190	630.0200	Seeding Temporary	LB	156.000	156.000
0192	630.0500	Seed Water	MGAL	69.000	69.000

Estimate Of Quantities

2290-24-70

Line	Item	Item Description	Unit	Total	Qty
0194	633.5200	Markers Culvert End	EACH	24.000	24.000
0196	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	38.000	38.000
0198	637.2210	Signs Type II Reflective H	SF	293.870	293.870
0200	637.2215	Signs Type II Reflective H Folding	SF	82.060	82.060
0202	637.2230	Signs Type II Reflective F	SF	156.250	156.250
0204	638.2102	Moving Signs Type II	EACH	16.000	16.000
0206	638.2602	Removing Signs Type II	EACH	45.000	45.000
0208	638.3000	Removing Small Sign Supports	EACH	35.000	35.000
0210	642.5001	Field Office Type B	EACH	1.000	1.000
0212	643.0300	Traffic Control Drums	DAY	1,540.000	1,540.000
0214	643.0420	Traffic Control Barricades Type III	DAY	3,430.000	3,430.000
0216	643.0705	Traffic Control Warning Lights Type A	DAY	6,780.000	6,780.000
0218	643.0900	Traffic Control Signs	DAY	26,053.000	26,053.000
0220	643.0920	Traffic Control Covering Signs Type II	EACH	56.000	56.000
0222	643.1000	Traffic Control Signs Fixed Message	SF	127.000	127.000
0224	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0226	643.3105	Temporary Marking Line Paint 4-Inch	LF	4,100.000	4,100.000
0228	643.3150	Temporary Marking Line Removable Tape 4-Inch	LF	3,840.000	3,840.000
0230	643.3205	Temporary Marking Line Paint 8-Inch	LF	670.000	670.000
0232	643.3250	Temporary Marking Line Removable Tape 8-Inch	LF	670.000	670.000
0234	643.3505	Temporary Marking Arrow Paint	EACH	4.000	4.000
0236	643.3550	Temporary Marking Arrow Removable Tape	EACH	4.000	4.000
0238	643.3605	Temporary Marking Word Paint	EACH	3.000	3.000
0240	643.3650	Temporary Marking Word Removable Tape	EACH	3.000	3.000
0242	643.3770	Temporary Marking Raised Pavement Marker Type II	EACH	520.000	520.000
0244	643.3805	Temporary Marking Stop Line Paint 18-Inch	LF	570.000	570.000
0246	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	570.000	570.000
0248	643.5000	Traffic Control	EACH	1.000	1.000
0250	644.1430	Temporary Pedestrian Surface Plate	SF	910.000	910.000
0252	644.1605	Temporary Pedestrian Detectable Warning Field	SF	64.000	64.000
0254	644.1810	Temporary Pedestrian Barricade	LF	130.000	130.000
0256	645.0120	Geotextile Type HR	SY	358.000	358.000
0258	646.1020	Marking Line Epoxy 4-Inch	LF	57,610.000	57,610.000
0260	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	51,470.000	51,470.000
0262	646.3020	Marking Line Epoxy 8-Inch	LF	7,090.000	7,090.000
0264	646.5020	Marking Arrow Epoxy	EACH	52.000	52.000
0266	646.5120	Marking Word Epoxy	EACH	16.000	16.000
0268	646.5520	Marking Outfall Epoxy	EACH	26.000	26.000
0270	646.6120	Marking Stop Line Epoxy 18-Inch	LF	570.000	570.000
0272	646.7120	Marking Diagonal Epoxy 12-Inch	LF	2,684.000	2,684.000
0274	646.7420	Marking Crosswalk Epoxy Transverse Line 6-Inch	LF	160.000	160.000
0276	646.8120	Marking Curb Epoxy	LF	50.000	50.000
0278	646.8220	Marking Island Nose Epoxy	EACH	2.000	2.000
0280	648.0100	Locating No-Passing Zones	MI	4.820	4.820
0282	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	2,520.000	2,520.000
0284	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	1,070.000	1,070.000
0286	652.0605	Conduit Special 2-Inch	LF	795.000	795.000
0288	652.0615	Conduit Special 3-Inch	LF	1,630.000	1,630.000
0290	652.0800	Conduit Loop Detector	LF	4,326.000	4,326.000

Estimate Of Quantities

2290-24-70

Line	Item	Item Description	Unit	Total	Qty
0292	653.0135	Pull Boxes Steel 24x36-Inch	EACH	17.000	17.000
0294	653.0140	Pull Boxes Steel 24x42-Inch	EACH	26.000	26.000
0296	653.0905	Removing Pull Boxes	EACH	40.000	40.000
0298	654.0101	Concrete Bases Type 1	EACH	6.000	6.000
0300	654.0105	Concrete Bases Type 5	EACH	4.000	4.000
0302	654.0110	Concrete Bases Type 10	EACH	2.000	2.000
0304	654.0113	Concrete Bases Type 13	EACH	1.000	1.000
0306	654.0120	Concrete Bases Type 10-Special	EACH	5.000	5.000
0308	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	2.000	2.000
0310	655.0230	Cable Traffic Signal 5-14 AWG	LF	745.000	745.000
0312	655.0240	Cable Traffic Signal 7-14 AWG	LF	547.000	547.000
0314	655.0260	Cable Traffic Signal 12-14 AWG	LF	3,245.000	3,245.000
0316	655.0305	Cable Type UF 2-12 AWG Grounded	LF	2,140.000	2,140.000
0318	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	3,235.000	3,235.000
0320	655.0610	Electrical Wire Lighting 12 AWG	LF	1,476.000	1,476.000
0322	655.0700	Loop Detector Lead In Cable	LF	14,615.000	14,615.000
0324	655.0800	Loop Detector Wire	LF	14,862.000	14,862.000
0326	655.0900	Traffic Signal EVP Detector Cable	LF	1,800.000	1,800.000
0328	656.0201	Electrical Service Meter Breaker Pedestal (location) 01. STH 38 & 6 Mile RD	EACH	1.000	1.000
0330	656.0201	Electrical Service Meter Breaker Pedestal (location) 02. STH 38 & 7 Mile RD	EACH	1.000	1.000
0332	657.0100	Pedestal Bases	EACH	6.000	6.000
0334	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	4.000	4.000
0336	657.0322	Poles Type 5-Aluminum	EACH	4.000	4.000
0338	657.0420	Traffic Signal Standards Aluminum 13-FT	EACH	2.000	2.000
0340	657.0425	Traffic Signal Standards Aluminum 15-FT	EACH	4.000	4.000
0342	657.0610	Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	EACH	4.000	4.000
0344	658.0173	Traffic Signal Face 3S 12-Inch	EACH	24.000	24.000
0346	658.0174	Traffic Signal Face 4S 12-Inch	EACH	12.000	12.000
0348	658.5070	Signal Mounting Hardware (location) 01. STH 38 & 6 Mile RD	EACH	1.000	1.000
0350	658.5070	Signal Mounting Hardware (location) 02. STH 38 & 7 Mile RD	EACH	1.000	1.000
0352	659.1125	Luminaires Utility LED C	EACH	11.000	11.000
0354	659.5000.S	Lamp, Ballast, LED, Switch Disposal by Contractor	EACH	50.000	50.000
0356	661.0201	Temporary Traffic Signals for Intersections (location) 01. STH 38 & 6 Mile Road	EACH	1.000	1.000
0358	661.0201	Temporary Traffic Signals for Intersections (location) 02. STH 38 & 7 Mile RD	EACH	1.000	1.000
0360	690.0150	Sawing Asphalt	LF	1,280.000	1,280.000
0362	690.0250	Sawing Concrete	LF	1,508.000	1,508.000
0364	SPV.0035	Special 01. Stone Gabion Wall	CY	23.000	23.000
0366	SPV.0060	Special 01. Install Type 9 Special Pole	EACH	1.000	1.000
0368	SPV.0060	Special 02. Install Type 10 Pole	EACH	2.000	2.000
0370	SPV.0060	Special 03. Install Type 10 Special Pole	EACH	4.000	4.000
0372	SPV.0060	Special 04. Install Type 13 Pole	EACH	1.000	1.000
0374	SPV.0060	Special 05. Install Monotube Arms 25-ft	EACH	2.000	2.000
0376	SPV.0060	Special 06. Install Monotube Arms 40-ft Special	EACH	3.000	3.000
0378	SPV.0060	Special 07. Install Monotube Arms 45-ft Special	EACH	2.000	2.000
0380	SPV.0060	Special 08. Install Monotube Arms 50-ft	EACH	1.000	1.000
0382	SPV.0060	Special 09. Install Luminaire Arms Steel 15-ft	EACH	7.000	7.000
0384	SPV.0060	Special 10. Transport and Install State Furnished EVP Detector Heads, 6 Mile Rd	EACH	1.000	1.000
0386	SPV.0060	Special 11. Transport and Install State Furnished EVP Detector Heads, 7 Mile Rd	EACH	1.000	1.000
0388	SPV.0060	Special 12. Transport and Install State Furnished Traffic Signal Cabinet, 6 Mile Rd	EACH	1.000	1.000

Estimate Of Quantities

2290-24-70

Line	Item	Item Description	Unit	Total	Qty
0390	SPV.0060	Special 13. Transport and Install State Furnished Traffic Signal Cabinet, 7 Mile Rd	EACH	1.000	1.000
0392	SPV.0060	Special 14. Transport and Install State Furnished Radar Detection System, 6 Mile Rd	EACH	1.000	1.000
0394	SPV.0060	Special 15. Transport and Install State Furnished Radar Detection System, 7 Mile Rd	EACH	1.000	1.000
0396	SPV.0060	Special 16. Temporary Infrared EVP System, 6 Mile Rd	EACH	1.000	1.000
0398	SPV.0060	Special 17. Temporary Infrared EVP System, 7 Mile Rd	EACH	1.000	1.000
0400	SPV.0060	Special 18. Curb Ramp Grading, Shaping, and Finishing	EACH	6.000	6.000
0402	SPV.0060	Special 19. Salvage and Reinstall Steel Plate Beam Guard Energy Absorbing Terminal	EACH	3.000	3.000
0404	SPV.0060	Special 20. Utility Line Opening	EACH	10.000	10.000
0406	SPV.0060	Special 21. Transport Traffic Signal and Intersection Lighting Materials, 6 Mile Rd	EACH	1.000	1.000
0408	SPV.0060	Special 22. Transport Traffic Signal and Intersection Lighting Materials, 7 Mile Rd	EACH	1.000	1.000
0410	SPV.0060	Special 23. Debris Removal C-51-09	EACH	1.000	1.000
0412	SPV.0060	Special 24. Survey Project 2290-24-70	EACH	1.000	1.000
0414	SPV.0090	Special 01. Salvage and Reinstall Steel Plate Beam Guard	LF	438.000	438.000
0416	SPV.0090	Special 02. Salvage and Reinstall Steel Thrie Beam Structure Approach	LF	42.000	42.000
0418	SPV.0195	Special 01. Asphaltic Repair	TON	1,140.000	1,140.000

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GRUBBING ITEMS

CATEGORY	STATION	TO	LOCATION	201.0210 GRUBBING SY
0010	241+10	-	LT/RT	40
0010	345+83	-	LT/RT	40
TOTAL 0010				80

REMOVAL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	203.0220.01 REMOVING STRUCTURE (STRUCTURE) (01. STA 264+99) EACH	203.0220.02 REMOVING STRUCTURE (STRUCTURE) (02. STA 300+20) EACH	203.0220.03 REMOVING STRUCTURE (STRUCTURE) (03. STA 389+00) EACH	203.0220.04 REMOVING STRUCTURE (STRUCTURE) (04. STA 401+99) EACH	203.0220.05 REMOVING STRUCTURE (STRUCTURE) (05. STA 458+96) EACH	204.0210 REMOVING MANHOLES EACH	REMARKS
0010	220+00	-	477+23	LT/RT	1	1	1	1	1	1	CULVERT REPLACEMENTS
TOTAL 0010					1	1	1	1	1	1	

*REMOVING STRUCTURE INCLUDES 3' X 3' CONCRETE BOX WITH 42" CPRC EXTENSIONS AND CONTINUED PIPE RUNNING SOUTH

REMOVING ASPHALTIC SURFACE

CATEGORY	STATION	TO	STATION	LOCATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	REMARKS
0010	220+00	-	239+98	LT/RT	52	15,100	BEGIN PROJECT TO UPRR
0010	241+41	-	326+82	LT/RT	195	35,700	UPRR TO CTH H
0010	326+82	-	426+41	LT/RT	150	48,800	CTH H TO ROOT RIVER
0010	427+62	-	477+23	LT/RT	62	26,000	ROOT RIVER TO END PROJECT
TOTAL 0010					459	125,600	

EXCAVATION COMMON

						205.0100		
						EXCAVATION		
						COMMON		
CATEGORY	STATION	TO	STATION	LOCATION		CY	REMARKS	
0010	239+26	-	239+97	RT		21	SLOPE STABILIZATION	
0010	251+23	-	252+37	RT		12	DITCH IMPROVEMENTS	
0010	300+15	-	300+25	RT/LT		17	CULVERT IMPROVEMENTS	
0010	345+83	-		LT		14	STRUCTURE C-51-0009	
TOTAL 0010						64		

AGGREGATE ITEMS

											209.2100	211.0400	305.0110	305.0120	624.0100		
											BACKFILL	EOUNDATION	BASE	BASE			
											GRANULAR	EOR ASPHALTIC	AGGREGATE	AGGREGATE			
											GRADE 2	SHOULDERS	DENSE 3/4-INCH	DENSE 1 1/4-	WATER		
CATEGORY	STATION	TO	STATION	LOCATION		CY	STA	TON	INCH	MGAL	REMARKS						
0010	220+00	-	239+98	LT/RT		-	-	130	-	10	BEGIN PROJECT TO UPRR						
0010	241+41	-	326+82	LT/RT		-	-	520	-	10	UPRR TO CTH H						
0010	326+82	-	426+41	LT/RT		-	-	610	-	10	CTH H TO ROOT RIVER						
0010	423+26	-		LT/RT		-	-	-	50	-	C-51-10						
0010	427+62	-	477+23	LT/RT		-	-	310	-	10	ROOT RIVER TO END PROJECT						
0010	220+00	-	477+23	LT/RT		290	-	-	70	-	CULVERT PIPE REPLACEMENTS						
0010	220+00	-	477+23	LT/RT		-	16	150	-	-	GUARDRAIL LOCATIONS						
0010	UNDISTRIBUTED					30	-	180	25	10							
TOTAL 0010						320	16	1,900	145	50							

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ASPHALT ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	390.0203	455.0605	460.6224	465.0105	465.0315	465.0425	465.0475	SPV.0195.01	REMARKS
					BASEPATCHING ASPHALTIC SY	TACK COAT GAL	HMA PAVEMENT 4 MT 58-28 S TON	ASPHALTIC SURFACE TON	ASPHALTIC FLUMES SY	SHOULDER RUMBLE STRIPS 2-LANE RURAL LE	CENTERLINE RUMBLE STRIPS 2-LANE RURAL LE	SPECIAL (01. ASPHALTIC REPAIR) TON	
0010	220+00	-	239+98	LT/RT	-	1,120	1,700	-	12	1,090	580	90	BEGIN PROJECT TO UPRR
0010	241+41	-	326+82	LT/RT	-	2,620	3,990	-	-	9,810	5,330	200	UPRR TO CTH H
0010	326+82	-	426+41	LT/RT	-	3,760	5,470	-	33	9,000	4,650	550	CTH H TO ROOT RIVER
0010	423+26	-		LT/RT	-	-	-	50	-	-	-	-	C-51-10
0010	427+62	-	477+23	LT/RT	-	2,010	2,910	-	4	550	270	300	ROOT RIVER TO END PROJECT
0010	220+00	-	477+23	LT/RT	-	-	-	80	-	-	-	-	CULVERT PIPE REPLACEMENTS
0010	220+00	-	477+23	LT/RT	-	-	-	30	-	-	-	-	CURB RAMP REPLACEMENTS
0010				UNDISTRIBUTED	1,300	-	-	-	-	-	-	-	TRAEIC SIGNAL LOOPS
				TOTAL 0010	1,300	9,510	14,070	160	49	20,450	10,830	1,140	

HMA PAVEMENT PWL QMP MIXTURE ACCEPTANCE TABLE

LOCATION	ROADWAY	STATION	MIXTURE USE:	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
								MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
DRIVING LANES 12-FOOT	STH 38 NB/SB MAINLINE	220+00 TO 477+23	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	7600	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT, 460.2005
5-FOOT SHOULDERS	STH 38 NB/SB MAINLINE	220+00 TO 477+23	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	3200	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	ACCEPTANCE TESTING BY DEPARTMENT, NOT ELIGIBLE FOR INCENTIVE
SIDE ROADS & TURN LANES	STH 38 NB/SB MAINLINE	220+00 to 477+23	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	3270	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT, 460.2010	ACCEPTANCE TESTING BY DEPARTMENT, NOT ELIGIBLE FOR INCENTIVE

PWL TEST STRIP

CATEGORY	STATION	TO	STATION	LOCATION	460.0105.S	460.0110.S
					HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH
0010	220+00	-	477+23		1	1
				TOTAL 0010	1	1

CULVERT PIPE AND STORM SEWER ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	520.8000	520.8700	522.0130	522.0136	522.0142	522.1030	522.1036	522.1042	522.2429	522.2629	608.0336	611.0530	611.0606	MH#1 611.2005	MH#2 611.2007	633.5200	MARKERS CULVERT END	JOINT TIES
					CONCRETE COLLARS FOR PIPE EACH	CLEANING CULVERT PIPES EACH	CULVERT PIPE REINFORCED CONCRETE CLASS III 30-INCH LF	CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH LF	CULVERT PIPE REINFORCED CONCRETE CLASS III 42-INCH LF	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 42-INCH EACH	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 29X45-INCH LF	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 29X45-INCH EACH	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH LF	MANHOLE COVERS TYPE J EACH	INLET COVERS TYPE B EACH	MANHOLES 5-FT DIAMETER EACH	MANHOLES 7-FT DIAMETER EACH	MARKERS CULVERT END EACH		
0010	264+99	-		LT/RT	-	-	-	60	-	-	2	-	-	-	-	-	-	-	-	-	2	12
0010	300+15	-	300+25	LT/RT	-	-	-	-	46	-	-	2	-	-	-	-	-	-	-	-	2	12
0010	380+12	-		LT/RT	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
0010	389+00	-		LT/RT	-	-	-	-	-	-	-	-	46	2	-	-	-	-	-	-	2	12
0010	401+99	-		LT/RT	-	-	56	-	-	2	-	-	-	-	-	-	-	-	-	-	2	12
0010	458+75	-	458+96	LT/RT	1	-	-	-	-	-	-	-	-	-	120	1	1	1	1	-	-	-
0010				UNDISTRIBUTED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-
				TOTAL 0010	1	2	56	60	46	2	2	2	46	2	120	1	1	1	1	24	48	

NOTES
 1) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT ALL CONCRETE APRON ENDWALLS. APRON ENDWALLS SHALL BE TIED FOR THE LAST THREE JOINTS AT PIPE ENDS. THE COST OF THESE TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE.
 2) PIPE STATIONS, OFFSETS, AND ELEVATIONS PROVIDED ARE TO THE APRON END OF APRON ENDWALL.
 3) PIPE LENGTH IS FROM END OF PIPE TO END OF PIPE AND DOES NOT INCLUDE APRON ENDWALL.
 4) TEMPORARY CONNECTIONS BETWEEN NB AND SB STH 38 ROADWAYS ARE INCIDENTAL TO THE COST OF THE CULVERT PIPE.
 5) STORM SEWER STATIONS AND ELEVATIONS PROVIDED ARE TO THE CENTER OF STRUCTURE.

CURB RAMP ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	204.0110	204.0150	204.0155	601.0411	601.0557	601.0600	602.0410	602.0505	602.0605	620.0300	SPV.0060.18 SPECIAL (18. CURB RAMP GRADING, SHAPING, AND FINISHING)	REMARKS
					REMOVING ASPHALTIC SUREACE SY	REMOVING CURB & GUTTER LE	REMOVING CONCRETE SIDEWALK SY	CONCRETE CURB & GUTTER 30- INCH TYPE D LF	CONCRETE CURB & GUTTER 6- INCH SLOPED 36- INCH TYPE D LE	CONCRETE CURB PEDESTRIAN LE	CONCRETE SIDEWALK 5- INCH SE	CURB RAMP DETECTABLE WARNING EIELD YELLOW SE	CURB RAMP DETECTABLE WARNING EIELD RADIAL YELLOW SE	CONCRETE MEDIAN SLOPED NOSE SF	EACH	
0010	441+37	-	441+47	LT	23	44	20	-	44	-	190	20	-	-	1	OAK LEAE TRAIL
0010	441+37	-	441+47	RT	-	-	25	-	-	-	216	20	-	-	1	OAK LEAE TRAIL
0010	456+74	-	456+82	RT	6	26	5	-	26	-	97	16	-	-	1	ELM ROAD
0010	456+69	-	456+92	LT	14	60	29	60	-	-	404	-	36	-	1	OAKVIEW PARKWAY SW
0010	457+70	-	457+90	LT	10	42	20	42	-	-	210	-	20	-	1	OAKVIEW PARKWAY NW
0010	457+26	-	457+39	LT	43	36	-	99	-	22	219	40	-	32	1	OAKVIEW PARKWAY MEDIAN
				TOTAL 0010	96	208	99	201	70	22	1,336	96	56	32	6	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

CONCRETE SIDEWALK

CATEGORY	STATION	204.0155	602.0410	REMARKS
		REMOVING CONCRETE SIDEWALK SY	CONCRETE SIDEWALK 5-INCH SE	
0010	226+88	164	164	STH 38 & 6 MILE RD INTERSECTION
0010	379+50	160	160	STH 38 & 7 MILE RD INTERSECTION
	TOTAL 0010	324	324	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

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RIPRAP ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	606.0200	645.0120	REMARKS
					RIPRAP MEDIUM CY	GEOTEXTILE TYPE HR SY	
0010	239+26	-	239+97	RT	20	34	SLOPE STABILIZATION
0010	241+10	-		LT/RT	30	59	CULVERT PIPE
0010	264+99	-		LT/RT	4	8	CULVERT PIPE
0010	300+15	-	300+25	LT/RT	14	28	CULVERT PIPE
0010	380+12	-		LT	7	14	CULVERT PIPE
0010	389+00	-		RT	6	11	CULVERT PIPE
0010	401+99	-		RT	2	4	CULVERT PIPE
TOTAL 0010					83	158	

GUARDRAIL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	204.0165	614.0010	614.0305	614.0397	614.2300	614.2500	614.2610	614.8010	SPV.0035.01	SPV.0060.19	SPV.0090.01	SPV.0090.02
					REMOVING GUARDRAIL LF	BARRIER SYSTEM GRADING SHAPING FINISHING EACH	STEEL PLATE BEAM GUARD CLASS A LF	GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH	ANCHOR POST ASSEMBLY TOP MOUNT EACH	SPECIAL (01. STONE GABION WALL) CY	SPECIAL (19. SALVAGE AND REINSTALL STEEL PLATE BEAM ENERGY ABSORBING TERMINAL) EACH	SPECIAL (01. SALVAGE AND REINSTALL STEEL PLATE BEAM GUARD) LF	SPECIAL (02. SALVAGE AND REINSTALL STEEL THRIE BEAM STRUCTURE APPROACH) LF
0010	239+26	-	239+97	RT	-	1	-	16	-	-	-	-	-	-	50	21
0010	245+55	-	246+30	RT	-	1	-	-	-	-	-	-	-	-	-	-
0010	367+94	-	368+94	RT	-	1	50	-	-	-	-	-	1	-	-	-
0010	372+80	-	373+79	LT	-	1	-	-	-	-	-	-	-	-	-	-
0010	422+54	-	424+30	LT	-	1	25	-	-	-	-	6	23	1	100	-
0010	421+92	-	426+37	RT	-	1	138	-	-	-	-	6	-	1	288	21
0010	427+66	-	429+19	LT	153	1	-	-	63	40	1	-	-	-	-	-
TOTAL 0010					153	7	213	16	63	40	1	12	23	3	438	42

EROSION CONTROL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	625.0100	625.0500	628.1504	628.1520	628.1530.5	628.1535.5	628.2004	628.7010	628.7504	628.7555	628.7560	629.0205	630.0130	630.0200	630.0500	REMARKS
					TOPSOIL SY	SAVAGED TOPSOIL SY	SILT FENCE LF	SILT FENCE MAINTENANCE LF	SILT FENCE HEAVY DUTY LF	SILT FENCE HEAVY DUTY MAINTENANCE LF	EROSION MAT CLASS I TYPE B SY	NET PROTECTION TYPE B EACH	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	TRACKING PADS EACH	FERTILIZER TYPE A CWI LF	SEEDING MIXTURE NO 30 LB	SEEDING TEMPORARY LB	SEED WATER MGAL	
0010	220+00	-	477+23	LT/RT	-	-	810	810	-	570	-	-	-	-	-	-	-	-	-	GUARDRAIL IMPROVEMENTS
0010	226+88	-		LT/RT	-	1,370	-	-	-	1,370	-	-	-	-	-	1.0	25	37	16	5TH 38 & 6 MILE RD INTERSECTION
0010	241+10	-		LT/RT	-	1,707	-	-	-	1,707	-	-	12	5	-	1.1	31	47	20	CULVERT IMPROVEMENTS
0010	251+23	-	252+37	RT	-	273	150	150	-	273	-	-	36	-	-	0.2	5	8	4	CULVERT IMPROVEMENTS
0010	264+99	-		LT/RT	-	100	100	100	-	100	-	-	24	5	-	0.1	2	3	2	CULVERT REPLACEMENT
0010	300+15	-	300+25	LT/RT	-	112	159	159	-	112	-	-	24	5	-	0.1	5	4	2	CULVERT REPLACEMENT
0010	345+83	-		LT/RT	-	225	127	127	-	225	-	-	12	24	-	0.2	5	7	3	STRUCTURE C-51-09
0010	379+50	-		LT/RT	-	1,060	-	-	-	1,060	-	-	-	-	-	1.0	19	29	12	5TH 38 & 7 MILE RD INTERSECTION
0010	389+00	-		LT/RT	-	36	165	165	-	36	-	-	24	5	-	0.1	2	1	1	CULVERT REPLACEMENT
0010	401+99	-		LT/RT	-	46	165	165	-	46	-	-	24	5	-	0.1	2	1	1	CULVERT REPLACEMENT
0010	438+75	-	458+36	LT/RT	-	80	161	161	-	80	-	-	24	-	-	0.1	2	3	1	STORM SEWER REPLACEMENT
0010				UNDISTRIBUTED	1,000	501	197	197	57	57	501	6	48	-	3	1.0	10	15	70	
TOTAL 0010					1,000	5,508	2,164	2,164	627	627	5,508	6	228	54	3	5.0	104	156	89	

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TRAFFIC CONTROL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	643.0300		643.0420		643.0705		643.0900		643.0920		643.1000		643.1050		REMARKS
					NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	
0010	220+00	-	477+23	STH 38	110	1,540	28	3,276	56	6,552	33	3,861	-	-	-	127	2	14	
0010	422+00	-	425+00	C-51-10	-	-	6	114	12	228	8	152	-	-	-	-	-	14	
0010	220+00	-	477+23	PROJECT	-	-	-	-	-	-	26	1,430	-	-	-	-	-	-	MILLING AND PAVING OPERATIONS
0010				DETOUR	-	-	-	-	-	-	187	20,570	56	1	56	-	-	-	
TOTAL 0010						1,540		3,390		6,780		26,013		56		127		28	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

TEMPORARY PEDESTRIAN ACCOMMODATIONS ITEMS

CATEGORY	STATION	LOCATION	643.0420		643.0900		644.1430		644.1605		644.1810		REMARKS
			NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	
0010	441+75	LT/RT	20	20	730	40	65						
0010	457+00	LT/RT	20	20	180	24	65						
TOTAL 0010			40	40	910	64	130						

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

TEMPORARY PAVEMENT MARKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	643.3105		643.3150		643.3205		643.3250		643.3505		643.3550		643.3605		643.3650		643.3770		643.3805		643.3850			
					LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
0010	220+00	-	239+98	LT/RT	3,840	3,840	670	670	4	4	3	3	40	156	156													
0010	241+41	-	326+82	LT/RT	-	-	-	-	-	-	-	-	180	42	42													
0010	326+82	-	426+41	LT/RT	-	-	-	-	-	-	-	-	200	256	256													
0010	427+62	-	477+23	LT/RT	260	-	-	-	-	-	-	-	100	116	116													
TOTAL 0010					4,100	3,840	670	670	4	4	3	3	520	570	570													

PROJECT NO: 2290-24-70

HWY: STH 38

COUNTY: RACINE & MILWAUKEE

MISCELLANEOUS QUANTITIES

SHEET

E

PERMANENT PAVEMENT MARKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.1040	646.3020	646.5020	646.5120	646.5520	646.6120	646.7120	646.7420	646.8120	646.8220	648.0100	REMARKS
					MARKING LINE EPOXY 4-INCH LF	MARKING LINE GROOVED WET REF EPOXY 4- INCH LF	MARKING LINE EPOXY 8-INCH LF	MARKING ARROW EPOXY EACH	MARKING WORD EPOXY EACH	MARKING OUTFALL EPOXY EACH	MARKING STOP LINE EPOXY 18- INCH LF	MARKING DIAGONAL EPOXY 12-INCH LF	CROSSWALK EPOXY TRANSVERSE LINE 6- INCH LF	MARKING CURB EPOXY LF	MARKING ISLAND NOSE EPOXY EACH	LOCATING NO- PASSING ZONES MI	
0010	220+00	-	239+98		5,630	4,030	2,350	12	4	-	156	348	-	-	-	-	BEGIN PROJECT TO UPRR
0010	241+41	-	326+82		14,610	17,170	200	1	1	-	42	96	-	-	-	-	UPRR TO CTH H
0010	326+82	-	426+41		23,430	19,010	2,310	21	6	-	256	778	-	10	1	-	CTH H TO ROOT RIVER
0010	427+62	-	477+23		12,940	10,260	2,230	18	5	-	116	1,462	160	40	1	-	ROOT RIVER TO END PROJECT
0010				UNDISTRIBUTED	1,000	1,000	-	-	-	26	-	-	-	-	-	4.82	
				TOTAL 0010	57,610	51,470	7,090	52	16	26	570	2,684	160	50	2	4.82	

SAWCUTS

CATEGORY	STATION	TO	STATION	LOCATION	* 690.0150 SAWING		REMARKS
					ASPHALT LF	CONCRETE LF	
0010	264+99	-		LT/RT	-	68	CULVERT REPLACEMENT
0010	300+15	-	300+25	LT/RT	-	68	CULVERT REPLACEMENT
0010	389+00	-		LT/RT	-	68	CULVERT REPLACEMENT
0010	401+99	-		LT/RT	-	68	CULVERT REPLACEMENT
0010	423+26	-			-	68	C-51-10
0010	458+75	-	458+96	LT/RT	-	68	CULVERT REPLACEMENT
0010	441+27	-	458+00	LT/RT	240	60	CURB RAMP REPLACEMENTS
0010				UNDISTRUBUTED	1,040	1,040	TRAFFIC SIGNAL LOOPS
				TOTAL 0010	1,280	1,508	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

UTILITY ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	SPV.0060.20 SPECIAL (20. UTILITY LINE OPENING) EACH
					0010
				TOTAL 0010	10

TYPE II PERMANENT SIGNING

2290-24-70 STH 38

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	637.2215	638.2602	638.3000	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
			W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	SIGNS TYPE II REFLEC TYPE H FOLDING (SF)	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	WOOD POSTS 4"X 6"X18' [EA]	MOVE SIGNS TYPE II [EA]		
1	NOT USED													
2	R1-1F(3)		36	X	36			7.4600	1					
3	J3-3(2S)		72	X	57	28.500			1	2	2		SIGNAL POLE	
	M3-1		24	X	12									
	M1-6	STH 38	24	X	24									
	M6-1		21	X	21									
	M3-4		24	X	12									
	M1-5A	CTH G	24	X	24									
	M6-1		21	X	21									
	M5-1A	CTH G	24	X	24									
	M6-1		21	X	21									
4	M1-94H	W. RIVER RD (ARROW LEFT)	96	X	18	12.000								
5	W12-1D(2S)		24	X	24		4.000		1	1	1		MOUNT ON SIGNAL ARM 2 FOOT MOUNTING HEIGHT	
6	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
7	M1-94S	G - 6 MILE RD	102	X	18	12.750							MOUNT ON SIGNAL ARM	
8	M1-94S	W RIVER RD (ARROW)	96	X	18	12.000							MOUNT ON SIGNAL ARM	
9	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
10	W1-6(2S)		48	X	24		8.000		1	1	1			
11	W4-1R(2S)		36	X	36		9.000		1	1	1			
12	R5-1(2S)		30	X	30	6.250			1	1	1			
13	R5-1(2S)		30	X	30	6.260			1	1	1		DO NOT MOUNT ON BACK OF YIELD SIGN	
14	R5-1A(2S)		36	X	24	6.000			1	1	1			
15	R5-1A(2S)		36	X	24	6.000			1	1	1			
16	W12-1D(2S)		24	X	24		4.000		1	1	1		2 FOOT MOUNTING HEIGHT	
17	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
18	R5-1(2S)		30	X	30	6.250			1				SIGNAL POLE	
19	M1-94S	38 G 6 MILE RD	102	X	18	12.750							MOUNT ON SIGNAL ARM	
20	J3-1(2S)		72	X	57	28.500			1	2	2			
	M3-2		24	X	12									
	M1-5A	CTH G	24	X	24									
	M6-1		21	X	21									
	M3-4		24	X	12									
	M1-5A	CTH G	24	X	24									
	M6-1		21	X	21									
	M1-6	STH 38	24	X	24									
	M6-6		21	X	21									
21	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
22	NOT USED													
23	W3-3(2S)		36	X	36		9.000			1				
24	W5-52R(2S)		12	X	36		3.000		1	1	1		4 FOOT MOUNTING HEIGHT	
25	W5-52L(2S)		12	X	36		3.000		1	1	1		4 FOOT MOUNTING HEIGHT	
26	W5-52R(2S)		12	X	36		3.000		1	1	1		4 FOOT MOUNTING HEIGHT	

TYPE II PERMANENT SIGNING

2290-24-70 STH 38

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	637.2215	638.2602	638.3000	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
			W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	SIGNS TYPE ii REFLEC TYPE H FOLDING (SF)	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	WOOD POSTS 4"X 6"X18' [EA]	MOVE SIGNS TYPE II [EA]		
27	W5-52L(2S)		12	X	36		3.000		1	1	1		4 FOOT MOUNTING HEIGHT	
28	R1-1F(3)		36	X	36			7.4600	1	1	1			
29	M1-94H	7 MILE RD	72	X	18	9.000							MOUNT ON SIGNAL ARM	
30	R5-1(2S)		30	X	30	6.250			1	1	1			
31	W12-1D(2S)		24	X	24		4.000		1	1			MOUNT NEW SIGN ON SIGNAL POLE 2 FOOT HEIGHT	
32	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
33	M1-94H	7 MILE RD	72	X	18	9.000							MOUNT ON SIGNAL ARM	
34	NOT USED													
35	M1-94S	38 S HOWELL AVE	102	X	18	12.750							MOUNT ON SIGNAL ARM	
36	M1-94S	38 S HOWELL AVE	102	X	18	12.750							MOUNT ON SIGNAL ARM	
37	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
38	W12-1D(2S)		24	X	24		4.000		1	1			MOUNT NEW SIGN ON SIGNAL POLE 2' HEIGHT 2 FOOT HEIGHT	
39	R1-1F(3)		36	X	36			7.4600	1	1	1			
40	NOT USED													
41	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
42	R5-1(2S)		30	X	30	6.250			1	1	1			
43	R1-1F(3)		36	X	36			7.4600	1				SIGNAL POLE	
44	W3-5(2S)	45 MPH	36	X	36		9.000		1	1	1			
45	W2-2L(2S)		30	X	30		6.250		1	1	1			
45A	W13-1(2S)		18	X	18		2.250					45		
46	NONE	CITY SIGN								1	1	1		
47	NONE	CITY SIGN									1			
48	R2-1(2S)	55 MPH	24	X	30	5.000			1	1	1			
49	NONE	ENGINE BRAKING SIGN- CITY SIGN									1			
50	W11-15(2S)		30	X	30		6.250		1	1	1			
50A	W16-7L(2S)		24	X	12		2.000					50		
51	W11-15(2S)		30	X	30		6.250		1	1	1			

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TYPE II PERMANENT SIGNING

2290-24-70 STH 38

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	637.2215	638.2602	638.3000	634.0618	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
			W [IN.]	x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	SIGNS TYPE ii REFLEC TYPE H FOLDING (SF)	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	WOOD POSTS 4"X 6"X18' [EA]	MOVE SIGNS TYPE II [EA]		
51A	W16-7L(2S)		24	X	12		2.000					51		
52	R1-1(2S)		30	X	30	5.180			1	1	1			
53	R5-1C(2S)		30	X	30	6.250			1			56	TRIM TO OCTAGON SHAPE	
54	R1-1(2S)		30	X	30	5.180			1	1	1			
55	NONE										1			
56	R1-1(2S)		30	X	30	6.250			1	1	1		MOVE OAK LEAF TRAIL SIGN TO NEW POST UNDER STOP SIGN	
57	R1-1										1		TRAIL STOP SIGN	
58	NOT USED													
59	NOT USED													
60	NOT USED													
61	NOT USED													
62	R1-2(2S)		36	X	31	3.875			1		1		DO NOT MOUNT ON BACK OF DO NOT ENTER SIGN. SHEET 2	
63	R1-2(2S)		36	X	31	3.875			1		1		SHEET 2	
64	R4-7(2S)		24	X	30	5.000					1		SHEET 23	
65	W11-15(2S)		30	X	30		6.250				1		SHEET 22	
65A	W16-9P(2S)		24	X	12		2.000					65	SHEET 22	
	UNDISTRIBUTED					60.000	60.000		4	4	4	10		
TOTALS						293.870	156.250	82.0600	45	35	38	16		

STATE FURNISHED MATERIALS SUMMARY - FOR INFORMATION ONLY

EACH	DESCRIPTION
1	TRAFFIC SIGNAL CONTROLLER AND CABINET
1	POLES TYPE 9 SPECIAL
2	POLES TYPE 10 SPECIAL
1	POLES TYPE 13
3	MONOTUBE ARMS 40-FT SPECIAL
1	MONOTUBE ARMS 50-FT
3	LUMINAIRE ARMS STEEL 15-FT
1	EVP DETECTOR HEADS AND CONFIRMATION LIGHTS
1	RADAR VEHICLE DETECTION SYSTEM
1	CELL MODEM

LAMP, BALLAST, LED, SWITCH DISPOSAL

659.5000.S*
LAMP, BALLAST,
SWITCH DISPOSAL
BY CONTRACTOR

FIXTURE TYPE	EACH
TRAFFIC SIGNAL, THREE SECTION	12
HIGH PRESSURE SODIUM LAMP	8
MERCURY SWITCHES	1
BALLASTS	8
TOTAL	29

* QUANTITY SHOWN ELSEWHERE ON PLAN

REMOVING CONCRETE BASES

204.0195*
REMOVING
CONCRETE

SIGNAL BASE NO.	BASES EACH
SB1	1
SB2	1
SB3	1
SB4	1
SB5	1
SB6	1
SB7	1
SB8	1
SB9	1
SB10	1
SB11	1
SB12	1
CB1	1
TOTAL	13

LAMP, BALLAST, LED, SWITCH DISPOSAL (FOR INFORMATION ONLY)

LOCATION	TRAFFIC	HIGH	MERCURY	BALLASTS
	SIGNAL	PRESSURE	SWITCHES	
	THREE SECTION	SODIUM LAMP		
	EACH	EACH	EACH	EACH
CB1	--	--	1	--
SB1	2	1	--	1
SB2	1	1	--	1
SB3	2	--	--	--
SB4	1	--	--	--
SB5	2	1	--	1
SB6	--	1	--	1
SB7	--	1	--	1
SB8	1	1	--	1
SB9	2	--	--	--
SB10	1	--	--	--
SB11	--	1	--	1
SB12	--	1	--	1
TOTAL	12	8	1	8

TEMPORARY TRAFFIC SIGNALS

661.0201.01
TEMPORARY TRAFFIC
SIGNALS FOR
INTERSECTIONS

LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

REMOVING TRAFFIC SIGNALS

204.9060.S.01
REMOVING
TRAFFIC SIGNALS

LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

REMOVING WIRE

204.9060.S.03
REMOVING
LOOP DETECTOR WIRE
AND LEAD-IN CABLE

LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

STH 38/CTH G (6 MILE RD) & STH 38/W RIVER RD

TEMPORARY EMERGENCY VEHICLE PREEMPTION

SPV.0060.16
TEMPORARY
INFRARED
EVP SYSTEM

LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

PULL BOXES

653.0135* 653.0140*
PULL BOXES PULL BOXES
STEEL STEEL

REMOVE PULL BOXES

653.0905*
REMOVING
PULL BOXES

PULL BOX NO.	EACH
PB1	1
PB2	1
PB3	1
PB4	1
PB5	1
PB6	1
PB7	1
PB8	1
PB9	1
PB10	1
PB11	1
PB12	1
PB13	1
PB14	1
PB15	1
PB16	1
PB17	1
PB18	1
PB19	1
PB20	1
PB21	1
PB22	1
TOTAL	22

PULL BOX NO.	LOCATION STA	OFFSET	24x36-INCH EACH	24x42-INCH EACH
PB1	227+21.4	66.2 RT	1	--
PB2	227+18.4	92.7 RT	--	1
PB3	227+18.4	96.8 RT	1	--
PB4	229A+64.9	30.5 LT	1	--
PB5	230A+93.6	29.3 LT	1	--
PB6	226A+43.0	94.0 RT	--	1
PB7	226A+17.6	64.4 RT	--	1
PB8	226A+41.3	33.0 RT	--	1
PB9	223A+83.0	30.4 RT	--	1
PB10	222A+08.7	31.4 RT	1	--
PB11	226A+16.6	36.8 LT	--	1
PB12	226A+51.7	59.7 LT	1	--
PB13	226A+56.9	93.5 LT	--	1
PB14	226A+56.9	97.5 LT	1	--
PB15	223+55.1	29.9 RT	1	--
PB16	221+81.6	26.8 RT	1	--
PB17	227+71.7	95.8 LT	--	1
PB18	227+93.4	76.4 LT	--	1
PB19	227+55.6	35.8 LT	--	1
PB20	227+84.0	34.3 LT	--	1
PB21	229+99.1	39.3 LT	--	1
PB22	231+90.1	26.3 LT	1	--
PB23	227+55.9	40.1 RT	--	1
TOTAL		TOTAL	10	13

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

CONDUIT

FROM	TO	652.0225* CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH L.F.	652.0235* CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH L.F.	652.0605* CONDUIT SPECIAL 2-INCH L.F.	652.0615* CONDUIT SPECIAL 3-INCH L.F.
CB1	PB2	--	135	--	--
PB2	SB1	15	--	--	--
PB2	PB1	25	--	--	--
PB2	PB3	5	--	--	--
PB3	PB4	180	--	--	--
PB4	PB5	130	--	--	--
PB2	PB6	--	--	--	150
PB6	SB2	--	10	--	--
PB6	PB7	--	90	--	--
PB7	SB3	10	--	--	--
PB7	PB8	--	--	--	40
PB8	SB4	5	--	--	--
PB7	PB9	--	--	240	--
PB9	PB10	175	--	--	--
PB7	PB11	--	--	--	200
PB11	SB5	--	5	--	--
PB11	PB13	--	140	--	--
PB13	SB6	25	--	--	--
PB13	PB12	35	--	--	--
PB13	PB14	5	--	--	--
PB14	PB15	235	--	--	--
PB15	PB16	175	--	--	--
PB13	PB17	--	--	--	230
PB17	SB9	75	--	--	--
PB17	PB18	--	60	--	--
PB18	SB10	35	--	--	--
PB18	PB21	160	--	--	--
PB21	PB22	--	--	190	--
PB18	PB19	--	--	--	120
PB19	PB20	30	--	--	--
PB19	SB11	20	--	--	--
PB19	SB7	--	40	--	--
PB19	SB8	20	--	--	--
PB19	PB23	--	--	--	150
PB23	SB12	--	5	--	--
PB23	CB1	--	90	--	--
TOTAL		1360	575	430	890

* QUANTITY SHOWN ELSEWHERE ON PLAN

CONCRETE BASES

SIGNAL BASE NO.	LOCATION		654.0101* CONCRETE BASES TYPE 1 EACH	654.0105 CONCRETE BASES TYPE 5 EACH	654.0113 CONCRETE BASES TYPE 13 EACH	654.0120* CONCRETE BASES TYPE 10 SPECIAL EACH	654.0217* CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL EACH
	STA	OFFSET					
CB1	227+57.8	72.0 RT	--	--	--	--	1
SB1	227+18.0	76.5 RT	1	--	--	--	--
SB2	226A+45.0	86.0 RT	--	--	1	--	--
SB3	226A+11.3	55.7 RT	--	1	--	--	--
SB4	226A+46.2	33.7 RT	1	--	--	--	--
SB5	226A+10.8	33.8 LT	--	--	--	1	--
SB6	226A+45.3	68.1 LT	1	--	--	--	--
SB7	227+25.5	61.4 LT	--	--	--	1	--
SB8	227+34.3	30.5 LT	1	--	--	--	--
SB9	225+20.1	62.4 LT	--	1	--	--	--
SB10	228+25.4	64.3 LT	--	1	--	--	--
SB11	227+73.9	31.9 LT	--	1	--	--	--
SB12	227+60.5	35.8 RT	--	--	--	1	--
TOTAL			4	4	1	3	1

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL CABLE AND WIRE

FROM	TO	655.0260* CABLE TRAFFIC SIGNAL 12-14 AWG L.F.
CB1	SB1	110
CB1	SB2	205
CB1	SB4	285
CB1	SB5	345
CB1	SB6	435
CB1	SB7	195
CB1	SB8	175
CB1	SB12	85
TOTAL		1835

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL CABLE AND WIRE

FROM	TO	655.0305* CABLE TYPE UF 2-12 AWG GROUNDED L.F.	655.0610* ELECTRICAL WIRE LIGHTING 12 AWG L.F.
		CB1	SB2
SB2	LUMINAIRE 1	--	144
SB2	SB3	140	--
SB3	LUMINAIRE 1	--	117
SB3	SB5	190	--
SB5	LUMINAIRE 1	--	144
CB1	SB11	200	--
SB11	LUMINAIRE 1	--	117
SB11	SB7	135	--
SB7	LUMINAIRE 1	--	144
SB7	SB10	210	--
SB10	LUMINAIRE 1	--	117
SB10	SB9	185	--
SB9	LUMINAIRE1	--	117
TOTAL		1265	900

* QUANTITY SHOWN ELSEWHERE ON PLAN

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3

TRAFFIC DETECTOR LOOPS

LOOP NO.	HOME RUN PB	LOCATION** STA	OFFSET	SIZE (FT) X (FT)	NO. OF TURNS	PAVEMENT TYPE	SDD INSTALLATION REFERENCE	652.0800*	655.0700*	655.0800*
								CONDUIT LOOP DETECTOR L.F.	LOOP DETECTOR LEAD IN CABLE L.F.	LOOP DETECTOR WIRE L.F.
11	PB20	227+88.2	0.6 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	112	185	353
12	PB20	227+60.2	0.2 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	112	185	353
21	PB10	222A+08.7	18.1 RT	6 X 15	5	ASPHALT	9F15-4B OPTION 2	58	630	305
22	PB9	223A+82.8	14.3 RT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	46	455	242
31	PB14	225+87.1	0.7 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	102	365	321
32	PB12	226+14.6	1.5 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	122	395	384
33	PB12	226+42.6	2.3 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	122	395	384
41	PB5	230A+93.6	12.9 LT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	48	405	252
42	PB4	229A+64.9	13.8 LT	6 X 6	4	ASPHALT	9F15-4B OPTION 2	48	275	202
43	PB3	227A+87.8	14.4 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	76	100	239
44	PB1	227A+59.8	14.0 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	84	120	265
45	PB1	227A+31.8	13.5 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	80	120	252
51	PB8	226A+09.8	3.0 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	132	255	416
52	PB8	226A+37.8	3.0 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	122	255	384
61	PB22	231+90.1	14.8 LT	6 X 12	5	ASPHALT	9F15-4B OPTION 2	52	565	273
62	PB21	229+99.1	14.5 LT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	64	375	336
71	PB3	227A+87.8	0.2 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	104	100	328
72	PB1	227A+59.8	0.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	112	120	353
73	PB1	227A+31.8	1.3 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	112	120	353
81	PB16	221+81.6	11.1 RT	6 X 15	5	ASPHALT	9F15-4B OPTION 2	64	770	336
82	PB15	223+55.1	13.2 RT	6 X 10	5	ASPHALT	9F15-4B OPTION 2	56	595	294
83	PB14	225+87.1	12.4 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	80	365	252
84	PB13	226+14.6	11.5 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	80	360	252
85	PB12	226+42.6	10.7 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	92	395	290
TOTAL								2164	7905	7417

TRAFFIC SIGNAL CABLE AND WIRE

		655.0515*
		ELECTRICAL
		WIRE TRAFFIC
		SIGNALS
		10 AWG
FROM	TO	L.F.
CB1	SB1	85
SB1	SB2	125
SB2	SB4	125
SB4	SB5	175
SB5	SB6	125
SB6	SB7	295
SB7	SB8	85
SB8	SB12	150
SB12	CB1	60
CB1	PB2	60
SB2	PB6	25
SB2	PB7	70
SB4	PB8	20
SB5	PB11	20
SB6	PB13	40
SB7	PB17	145
SB7	PB18	115
SB7	PB19	55
CB1	PB23	45
TOTAL		1820

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

TRAFFIC SIGNAL CABLE AND WIRE			
		655.0230*	655.0240*
	TO	CABLE	CABLE
	SIGNAL	TRAFFIC SIGNAL	TRAFFIC SIGNAL
	HEAD	5-14 AWG	7-14 AWG
FROM	NUMBER	L.F.	L.F.
SB1	19	--	22
SB1	11	20	--
SB2	17	75	--
SB2	18	20	--
SB2	20	--	80
SB4	6	20	--
SB4	4	--	22
SB5	2	50	--
SB5	3	20	--
SB5	5	--	65
SB6	16	20	--
SB6	14	--	22
SB7	12	50	--
SB7	13	20	--
SB7	15	--	65
SB8	9	--	22
SB8	1	20	--
SB12	7	50	--
SB12	8	20	--
SB12	10	--	65
TOTAL		385	363

* QUANTITY SHOWN ELSEWHERE ON PLAN

FACES			
		658.0173*	658.0174*
		TRAFFIC	TRAFFIC
		SIGNAL FACE	SIGNAL FACE
		3S-12 INCH	4S-12 INCH
SIGNAL	SIGNAL	EACH	EACH
BASE NO.	HEAD NO.		
SB1	19	--	1
SB1	11	1	--
SB2	17	1	--
SB2	18	1	--
SB2	20	--	1
SB4	6	1	--
SB4	4	--	1
SB5	2	1	--
SB5	3	1	--
SB5	5	--	1
SB6	16	1	--
SB6	14	--	1
SB7	12	1	--
SB7	13	1	--
SB7	15	--	1
SB8	9	--	1
SB8	1	1	--
SB12	7	1	--
SB12	8	1	--
SB12	10	--	1
TOTAL		12	8

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL MOUNTING HARDWARE	
	658.5070.01
	SIGNAL
	MOUNTING
	HARDWARE
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

EMERGENCY VEHICLE PREEMPTION	
	SPV.0060.10
	TRANSPORT AND INSTALL
	STATE FURNISHED EVP
	DETECTOR HEADS
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

TRAFFIC SIGNAL CABINET	
	SPV.0060.12
	TRANSPORT AND
	INSTALL STATE
	FURNISHED TRAFFIC
	SIGNAL CABINET
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

TRAFFIC SIGNAL EVP DETECTOR CABLE		
		655.0900*
		TRAFFIC SIGNAL
		EVP DETECTOR
		CABLE
FROM	TO	L.F.
CB1	SB12 (HEAD A)	85
CB1	SB5 (HEAD B)	345
CB1	SB7 (HEAD C)	195
CB1	SB2 (HEAD D)	205
TOTAL		830

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

SIGNAL BASE NO.	POLES											
	657.0100* TRANSFORMER BASES BREAKAWAY PEDESTAL BOLTS EACH	657.0255 11 1/2-INCH BOLT CIRCLE EACH	657.0322 POLES TYPE 5 ALUMINUM EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH	657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT EACH	SPV.0060.01 INSTALL TYPE 9 SPECIAL POLE EACH	SPV.0060.03* INSTALL TYPE 10 SPECIAL POLE EACH	SPV.0060.04 INSTALL TYPE 13 POLE EACH	SPV.0060.06 INSTALL MONOTUBE ARMS 40-FT SPECIAL EACH	SPV.0060.08 INSTALL MONOTUBE ARMS 50-FT EACH	SPV.0060.09* INSTALL LUMINAIRE ARMS STEEL 15-FT EACH	659.1125* LUMINAIRE UTILITY LED C EACH
SB1	1	--	--	1	--	--	--	--	--	--	--	--
SB2	--	--	--	--	--	--	--	1	--	1	1	1
SB3	--	1	1	--	1	--	--	--	--	--	--	1
SB4	1	--	--	1	--	--	--	--	--	--	--	--
SB5	--	--	--	--	--	--	1	--	1	--	1	1
SB6	1	--	--	1	--	--	--	--	--	--	--	--
SB7	--	--	--	--	--	--	1	--	1	--	1	1
SB8	1	--	--	1	--	--	--	--	--	--	--	--
SB9	--	1	1	--	1	--	--	--	--	--	--	1
SB10	--	1	1	--	1	--	--	--	--	--	--	1
SB11	--	1	1	--	1	--	--	--	--	--	--	1
SB12	--	--	--	--	--	1	--	--	1	--	--	--
TOTAL	4	4	4	4	4	1	2	1	3	1	3	7

* QUANTITY SHOWN ELSEWHERE ON PLAN

RADAR VEHICLE DETECTION SYSTEM	
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

ELECTRICAL SERVICE METER BREAKER PEDESTAL	
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

TRANSPORTING MATERIALS	
LOCATION	EACH
STH 38 & 6 MILE RD	1
TOTAL	1

STATE FURNISHED MATERIALS SUMMARY - FOR INFORMATION ONLY

STH 38 & 7 MILE RD

EACH	DESCRIPTION
1	TRAFFIC SIGNAL CONTROLLER AND CABINET
2	POLES TYPE 10
2	POLES TYPE 10 SPECIAL
2	MONOTUBE ARMS 25-FT
2	MONOTUBE ARMS 45-FT SPECIAL
4	LUMINAIRE ARMS STEEL 15-FT
1	EVP DETECTOR HEADS AND CONFIRMATION LIGHTS
1	RADAR VEHICLE DETECTION SYSTEM
1	CELL MODEM

LOCATION	LAMP, BALLAST, LED, SWITCH DISPOSAL (FOR INFORMATION ONLY)				
	TRAFFIC SIGNAL THREE SECTION	TRAFFIC SIGNAL FIVE SECTION	HIGH PRESSURE SODIUM LAMP	MERCURY SWITCHES	BALLASTS
	EACH	EACH	EACH	EACH	EACH
CB1	--	--	--	1	--
SB1	3	--	1	--	1
SB2	1	--	--	--	--
SB3	2	--	1	--	1
SB4	2	1	1	--	1
SB5	--	1	--	--	--
SB6	2	--	1	--	1
	10	2	4	1	4

REMOVING CONCRETE BASES	
SIGNAL BASE NO.	204.0195* REMOVING CONCRETE BASES EACH
SB1	1
SB2	1
SB3	1
SB4	1
SB5	1
SB6	1
CB1	1
TOTAL	7

LAMP, BALLAST, LED, SWITCH DISPOSAL	
FIXTURE TYPE	EACH
TRAFFIC SIGNAL, THREE SECTION	10
TRAFFIC SIGNAL, FIVE SECTION	2
HIGH PRESSURE SODIUM LAMP	4
MERCURY SWITCHES	1
BALLASTS	4
TOTAL	21

* QUANTITY SHOWN ELSEWHERE ON PLAN

TEMPORARY TRAFFIC SIGNALS	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

TEMPORARY EMERGENCY VEHICLE PREEMPTION	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

REMOVING TRAFFIC SIGNALS	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

REMOVING WIRE	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

REMOVE PULL BOXES	
PULL BOX NO.	653.0905* REMOVING PULL BOXES EACH
PB1	1
PB2	1
PB3	1
PB4	1
PB5	1
PB6	1
PB7	1
PB8	1
PB9	1
PB10	1
PB11	1
PB12	1
PB13	1
PB14	1
PB15	1
PB16	1
PB17	1
PB18	1
TOTAL	18

* QUANTITY SHOWN ELSEWHERE ON PLAN

PULL BOXES				
PULL BOX NO.	LOCATION STA	OFFSET	653.0135* PULL BOXES STEEL 24x36-INCH EACH	653.0140* PULL BOXES STEEL 24x42-INCH EACH
PB1	379+73.6	49.0 RT	--	1
PB2	376+57.3	38.7 RT	--	1
PB3	374+80.8	35.5 RT	1	--
PB4	378+73.6	42.5 LT	--	1
PB5	20+80.5	31.3 LT	--	1
PB6	20+85.0	31.3 LT	1	--
PB7	22+84.5	22.9 LT	1	--
PB8	24+34.8	21.5 LT	1	--
PB9	20+82.3	38.3 RT	--	1
PB10	20+34.4	21.3 RT	--	1
PB11	380+12.4	48.6 LT	--	1
PB12	382+35.3	36.0 LT	1	--
PB13	384+13.2	29.3 LT	1	--
PB14	380+12.7	44.7 RT	--	1
PB15	19+14.1	29.6 RT	--	1
PB16	19+03.4	29.6 RT	1	--
PB17	17+05.8	26.8 RT	--	1
PB18	15+55.6	23.6 RT	--	1
PB19	19+12.2	36.4 LT	--	1
PB20	19+62.4	24.2 LT	--	1
TOTAL	TOTAL		7	13

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

CONDUIT					
		652.0225*	652.0235*	652.0605*	652.0615*
		CONDUIT RIGID	CONDUIT RIGID	CONDUIT	CONDUIT
		NONMETALLIC	NONMETALLIC	SPECIAL	SPECIAL
		SCHEDULE 40	SCHEDULE 40	2-INCH	3-INCH
		2-INCH	3-INCH		
FROM	TO	L.F.	L.F.	L.F.	L.F.
CB1	PB1	--	30	--	--
PB1	PB2	--	--	215	--
PB2	PB3	175	--	--	--
PB1	PB4	--	--	--	180
PB4	SB1	--	5	--	--
PB4	PB5	--	120	--	--
PB5	SB2	15	--	--	--
PB5	PB6	5	--	--	--
PB6	PB7	200	--	--	--
PB7	PB8	150	--	--	--
PB5	PB9	--	--	--	140
PB9	PB10	--	--	--	50
PB10	SB3	--	5	--	--
PB9	PB11	--	90	--	--
PB11	PB12	225	--	--	--
PB12	PB13	175	--	--	--
PB11	PB14	--	--	--	190
PB14	SB4	--	10	--	--
PB14	PB15	--	110	--	--
PB15	SB5	10	--	--	--
PB15	PB16	10	--	--	--
PB16	PB17	195	--	--	--
PB17	PB18	--	--	150	--
PB15	PB19	--	--	--	130
PB19	PB20	--	--	--	50
PB20	SB6	--	5	--	--
PB19	CB1	--	120	--	--
TOTAL		1160	495	365	740

* QUANTITY SHOWN ELSEWHERE ON PLAN

CONCRETE BASES						
			654.0101*	654.0110	654.0120*	654.0217*
			CONCRETE	CONCRETE	CONCRETE BASES	CONCRETE CONTROL
			BASES	BASES	TYPE 10	CABINET BASES
			TYPE 1	TYPE 10	SPECIAL	TYPE 9 SPECIAL
SIGNAL	LOCATION	OFFSET	EACH	EACH	EACH	EACH
BASE NO.	STA					
CB1	378+73.5	64.2 RT	--	--	--	1
SB1	378+76.3	37.3 LT	--	--	1	--
SB2	20+65.6	33.6 LT	1	--	--	--
SB3	20+32.0	25.3 RT	--	1	--	--
SB4	380+23.1	41.9 RT	--	--	1	--
SB5	19+26.0	29.7 RT	1	--	--	--
SB6	19+65.3	28.2 LT	--	1	--	--
TOTAL		TOTAL	2	2	2	1

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL CABLE AND WIRE		
655.0260*		
CABLE		
TRAFFIC SIGNAL		
12-14 AWG		
FROM	TO	L.F.
CB1	SB1	180
CB1	SB2	250
CB1	SB3	375
CB1	SB4	245
CB1	SB5	190
CB1	SB6	170
TOTAL		1410

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL CABLE AND WIRE			
		655.0305*	655.0610*
		CABLE TYPE UF	ELECTRICAL
		2-12 AWG	WIRE
		GROUNDING	LIGHTING
			12 AWG
FROM	TO	L.F.	L.F.
CB1	SB1	180	--
SB1	LUMINAIRE 1	--	144
SB1	SB3	265	--
SB3	LUMINAIRE 1	--	144
CB1	SB6	170	--
SB6	LUMINAIRE 1	--	144
SB6	SB4	260	--
SB4	LUMINAIRE 1	--	144
TOTAL		875	576

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

TRAFFIC DETECTOR LOOPS

LOOP NO.	HOME RUN PB	LOCATION**		SIZE (FT) X (FT)	NO. OF TURNS	PAVEMENT TYPE	SDD INSTALLATION REFERENCE	652.0800*	655.0700*	655.0800*
		STA	OFFSET					CONDUIT LOOP DETECTOR L.F.	LOOP DETECTOR LEAD IN CABLE L.F.	LOOP DETECTOR WIRE L.F.
11	PB1	378+72.00	3.0 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	138	35	435
12	PB1	379+00.0	3.0 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	138	35	435
21	PB13	384+13.2	14.2 LT	6 X 15	5	ASPHALT	9F15-4B OPTION 2	66	705	347
22	PB12	382+35.3	13.3 LT	6 X 8	5	ASPHALT	9F15-4B OPTION 2	64	530	336
41	PB8	24+34.8	5.4 RT	6 X 8	5	ASPHALT	9F15-4B OPTION 2	52	560	273
42	PB7	22+84.5	6.5 RT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	48	410	252
43	PB6	20+90.4	17.9 LT	6 X 15	3	ASPHALT	9F15-4B OPTION 2	66	215	208
44	PB6	20+62.4	17.9 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	70	215	221
45	PB5	20+34.4	17.9 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	104	210	328
46	PB6	20+90.4	7.1 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	94	215	296
47	PB6	20+62.4	7.1 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	92	215	290
48	PB5	20+34.4	7.1 LT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	112	210	353
51	PB11	380+17.0	0.0 CL	6 X 20	3	ASPHALT	9F15-4B OPTION 2	138	305	435
52	PB11	379+89.0	0.0 CL	6 X 20	3	ASPHALT	9F15-4B OPTION 2	138	305	435
61	PB3	374+80.8	17.2 RT	6 X 15	4	ASPHALT	9F15-4B OPTION 2	68	450	286
62	PB2	376+57.3	14.1 RT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	64	275	336
81	PB18	15+55.6	9.1 RT	6 X 8	5	ASPHALT	9F15-4B OPTION 2	48	500	252
82	PB17	17+05.8	9.1 RT	6 X 6	5	ASPHALT	9F15-4B OPTION 2	52	350	273
83	PB16	18+99.2	16.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	70	165	221
84	PB15	19+27.2	16.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	70	165	221
85	PB15	19+55.2	16.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	94	155	296
86	PB16	18+99.2	5.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	92	165	290
87	PB16	19+27.2	5.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	92	165	290
88	PB15	19+55.2	5.8 RT	6 X 20	3	ASPHALT	9F15-4B OPTION 2	108	155	340
TOTAL								2162	6710	7445

** LOCATION IS TO FRONT CENTER OF DETECTOR LOOP

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL CABLE AND WIRE

		655.0515*
		ELECTRICAL WIRE TRAFFIC SIGNALS
		10 AWG
FROM	TO	L.F.
CB1	SB1	130
SB1	SB2	105
SB2	SB3	165
SB3	SB4	230
SB4	SB5	100
SB5	SB6	155
SB6	CB1	120
CB1	PB1	25
SB1	PB4	20
SB2	PB5	30
SB3	PB9	70
SB3	PB10	20
SB4	PB11	120
SB4	PB14	25
SB5	PB15	25
CB1	PB19	55
SB6	PB20	20
TOTAL		1415

* QUANTITY SHOWN ELSEWHERE ON PLAN

3

3

TRAFFIC SIGNAL CABLE AND WIRE			
		655.0230*	655.0240*
	TO	CABLE	CABLE
	SIGNAL	TRAFFIC SIGNAL	TRAFFIC SIGNAL
	HEAD	5-14 AWG	7-14 AWG
FROM	NUMBER	L.F.	L.F.
SB1	7	50	--
SB1	8	20	--
SB1	10	--	70
SB2	11	20	--
SB2	16	20	--
SB3	4	--	22
SB3	6	20	--
SB3	15	50	--
SB4	2	50	--
SB4	3	20	--
SB4	5	--	70
SB5	13	20	--
SB5	14	20	--
SB6	1	20	--
SB6	9	--	22
SB6	12	50	--
TOTAL		360	184

* QUANTITY SHOWN ELSEWHERE ON PLAN

FACES			
		658.0173*	658.0174*
	TRAFFIC	TRAFFIC	
	SIGNAL FACE	SIGNAL FACE	
	3S-12 INCH	4S-12 INCH	
SIGNAL	SIGNAL	EACH	EACH
BASE NO.	HEAD NO.		
SB1	7	1	--
SB1	8	1	--
SB1	10	--	1
SB2	11	1	--
SB2	16	1	--
SB3	4	--	1
SB3	6	1	--
SB3	15	1	--
SB4	2	1	--
SB4	3	1	--
SB4	5	--	1
SB5	13	1	--
SB5	14	1	--
SB6	1	1	--
SB6	9	--	1
SB6	12	1	--
TOTAL		12	4

* QUANTITY SHOWN ELSEWHERE ON PLAN

TRAFFIC SIGNAL MOUNTING HARDWARE	
	658.5070.02
	SIGNAL
	MOUNTING
	HARDWARE
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL 1	

EMERGENCY VEHICLE PREEMPTION	
	SPV.0060.11
	TRANSPORT AND INSTALL
	STATE FURNISHED EVP
	DETECTOR HEADS
	AND CONFIRMATION LIGHTS
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL 1	

TRAFFIC SIGNAL CABINET	
	SPV.0060.13
	TRANSPORT AND
	INSTALL STATE
	FURNISHED TRAFFIC
	SIGNAL CABINET
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL 1	

TRAFFIC SIGNAL EVP DETECTOR CABLE		
		655.0900*
		TRAFFIC SIGNAL
		EVP DETECTOR
		CABLE
FROM	TO	L.F.
CB1	SB1 (HEAD A)	180
CB1	SB4 (HEAD B)	245
CB1	SB6 (HEAD C)	170
CB1	SB3 (HEAD D)	375
TOTAL		970

* QUANTITY SHOWN ELSEWHERE ON PLAN

STH 38 & 7 MILE RD

3

3

POLES								
	657.0100*	657.0420	SPV.0060.02	SPV.0060.03*	SPV.0060.05	SPV.0060.07	SPV.0060.09*	659.1125*
	TRAFFIC SIGNAL STANDARDS		INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	LUMINAIRES
	PEDESTAL	ALUMINUM	TYPE 10	TYPE 10 SPECIAL	MONOTUBE ARMS	MONOTUBE ARMS	LUMINAIRE ARMS	UTILITY
SIGNAL	BASES	13-FT	POLE	POLE	25-FT	45-FT SPECIAL	STEEL 15-FT	LED C
BASE NO.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
SB1	--	--	--	1	--	1	1	1
SB2	1	1	--	--	--	--	--	--
SB3	--	--	1	--	1	--	1	1
SB4	--	--	--	1	--	1	1	1
SB5	1	1	--	--	--	--	--	--
SB6	--	--	1	--	1	--	1	1
TOTAL	2	2	2	2	2	2	4	4

* QUANTITY SHOWN ELSEWHERE ON PLAN

RADAR VEHICLE DETECTION SYSTEM	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

ELECTRICAL SERVICE METER BREAKER PEDESTAL	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

TRANSPORTING MATERIALS	
LOCATION	EACH
STH 38 & 7 MILE RD	1
TOTAL	1

PAGE 5 OF 5

PROJECT NO: 2290-24-70

HWY: STH 38

COUNTY: RACINE

MISCELLANEOUS QUANTITIES

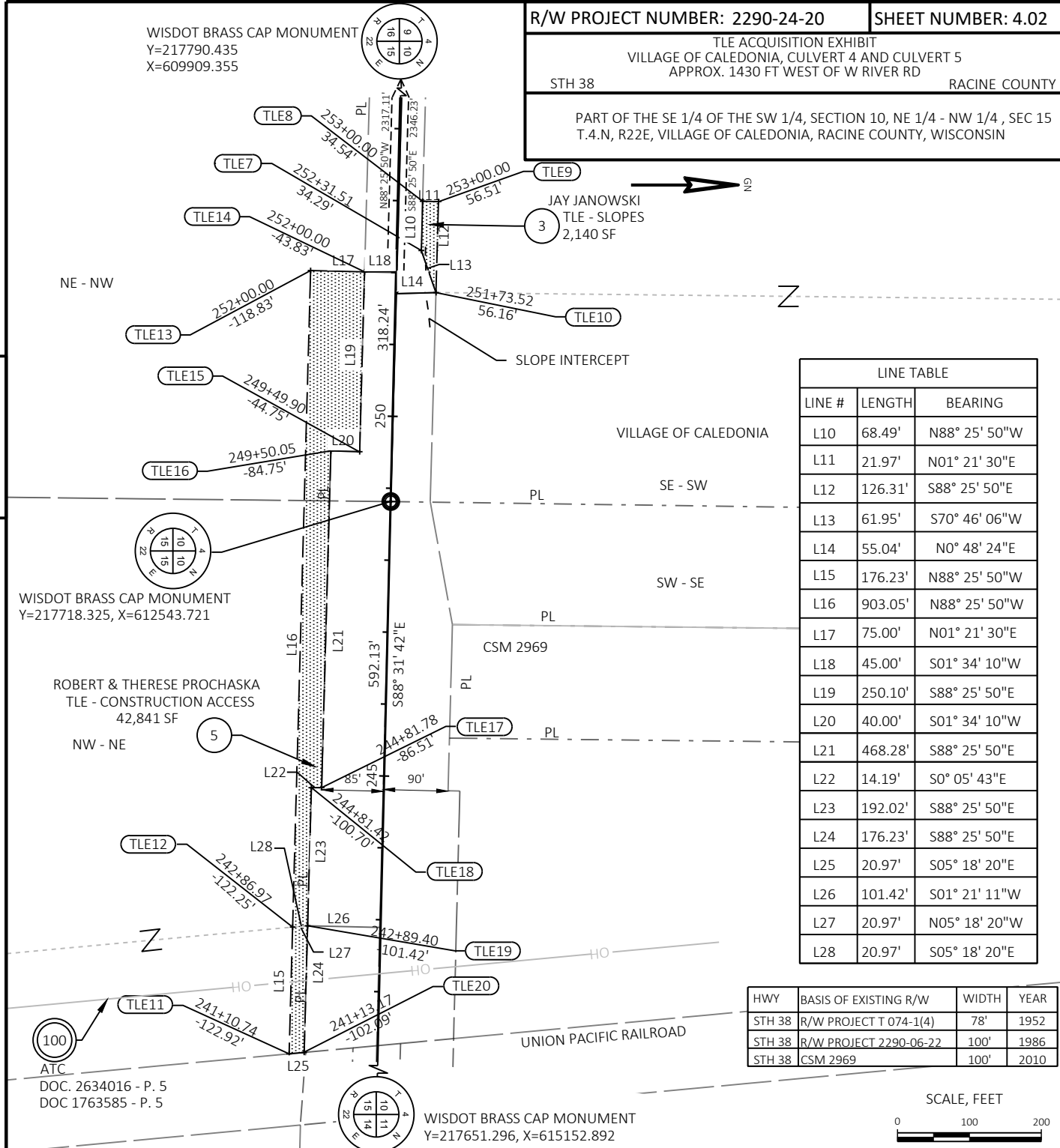
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PLOT DATE : 1/25/2023 1:56:54 PM

PLOT BY : JGF

R/W PROJECT NUMBER: 2290-24-20 SHEET NUMBER: 4.02
 TLE ACQUISITION EXHIBIT
 VILLAGE OF CALEDONIA, CULVERT 4 AND CULVERT 5
 APPROX. 1430 FT WEST OF W RIVER RD
 STH 38 RACINE COUNTY
 PART OF THE SE 1/4 OF THE SW 1/4, SECTION 10, NE 1/4 - NW 1/4, SEC 15
 T.4.N, R22E, VILLAGE OF CALEDONIA, RACINE COUNTY, WISCONSIN



SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
3	JAY MATTHEW JANOWSKI	TLE	2,140
4(3)	ELIMINATED	TLE	0
5(3)	ROBERT A PROCHESKA & THERESA A PROCHASKA REVOCABLE TRUST	TLE	42,841

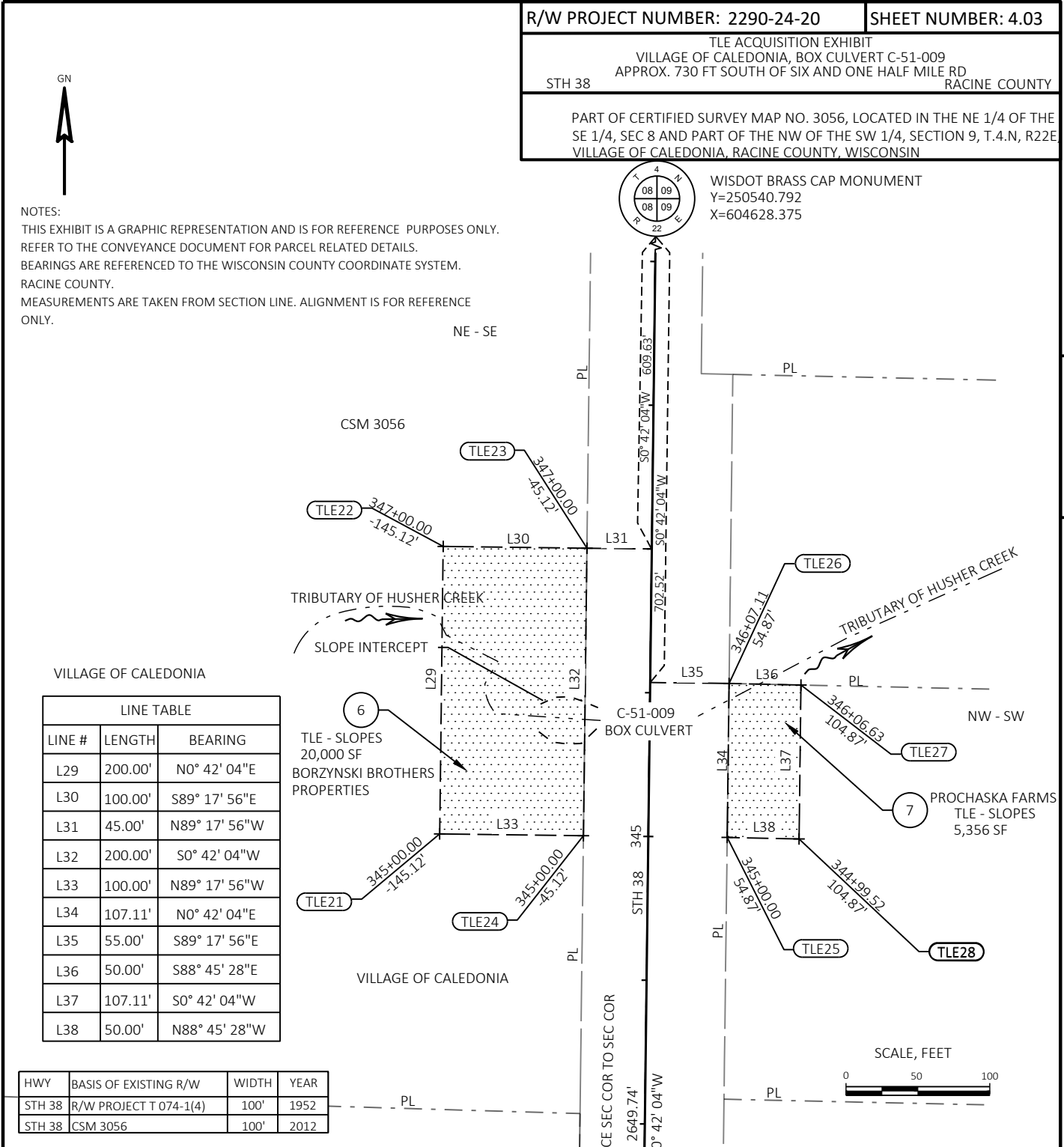
UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
100	ATC	ROR

NOTES:
 THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS. BEARINGS ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, RACINE COUNTY. MEASUREMENTS ARE TAKEN FROM SECTION LINE. ALIGNMENT IS FOR REFERENCE ONLY.
 REVISION DATE: 5-11-2022 (2)
 8-23-2022 (3)

THIS MAP IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION
 SOUTHEAST - WAUKESHA REGION OFFICE
 SIGNATURE: _____ DATE: _____
 PRINT NAME: ROBERT DUFFECK

R/W PROJECT NUMBER: 2290-24-20 SHEET NUMBER: 4.03
 TLE ACQUISITION EXHIBIT
 VILLAGE OF CALEDONIA, BOX CULVERT C-51-009
 APPROX. 730 FT SOUTH OF SIX AND ONE HALF MILE RD
 STH 38 RACINE COUNTY
 PART OF CERTIFIED SURVEY MAP NO. 3056, LOCATED IN THE NE 1/4 OF THE SE 1/4, SEC 8 AND PART OF THE NW 1/4 OF THE SW 1/4, SECTION 9, T.4.N, R22E
 VILLAGE OF CALEDONIA, RACINE COUNTY, WISCONSIN



SCHEDULE OF LANDS & INTERESTS REQUIRED

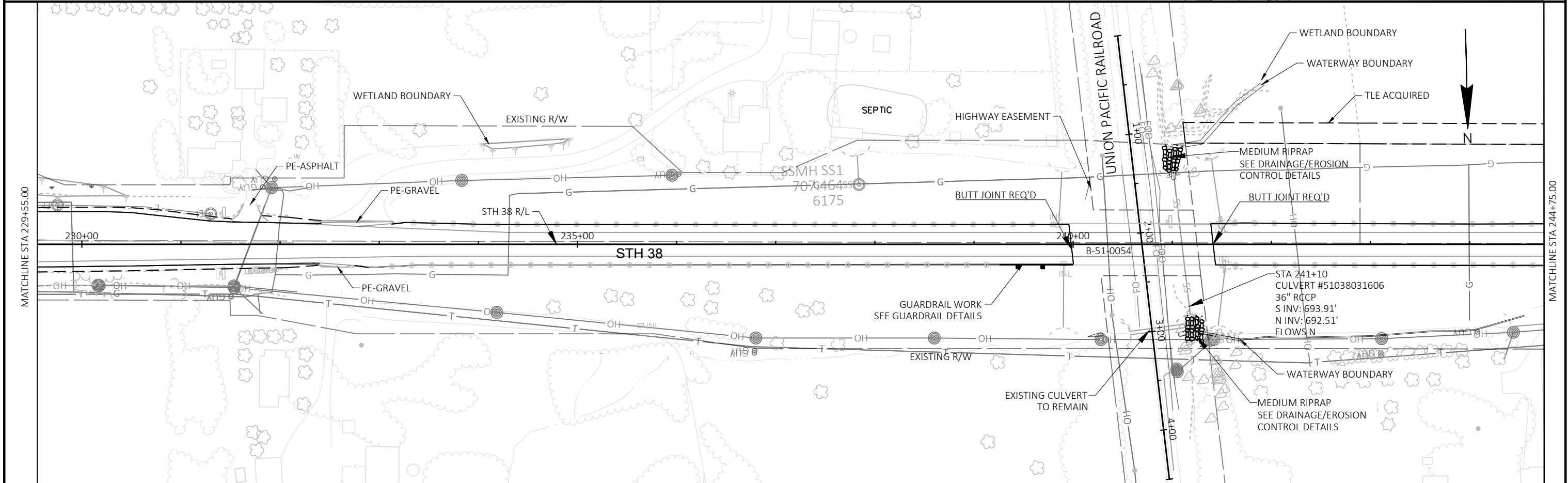
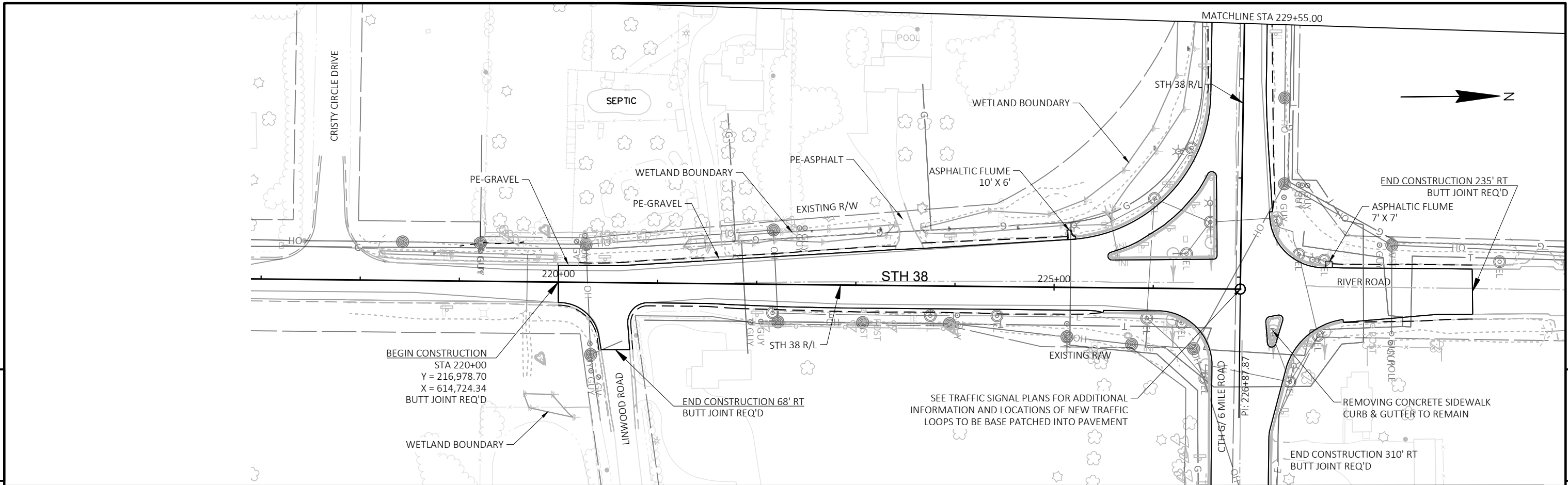
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
6	BORZYNSKI BROTHERS PROPERTIES	TLE	20,000
7	PROCHASKA FARMS	TLE	5,356

UTILITY INTERESTS REQUIRED

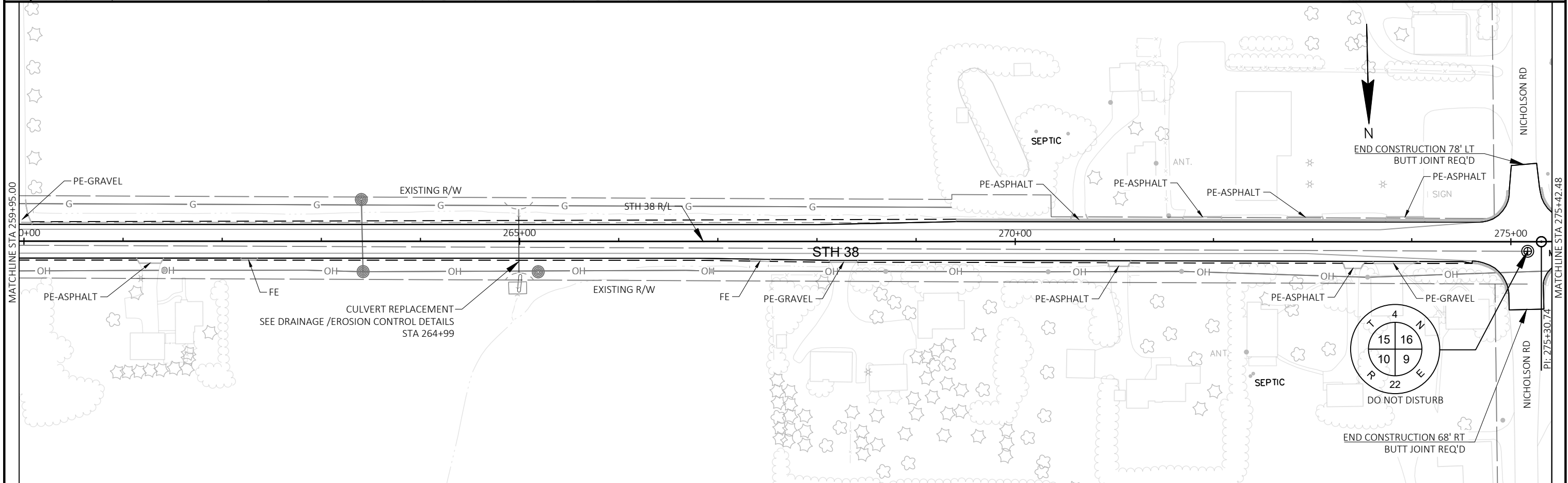
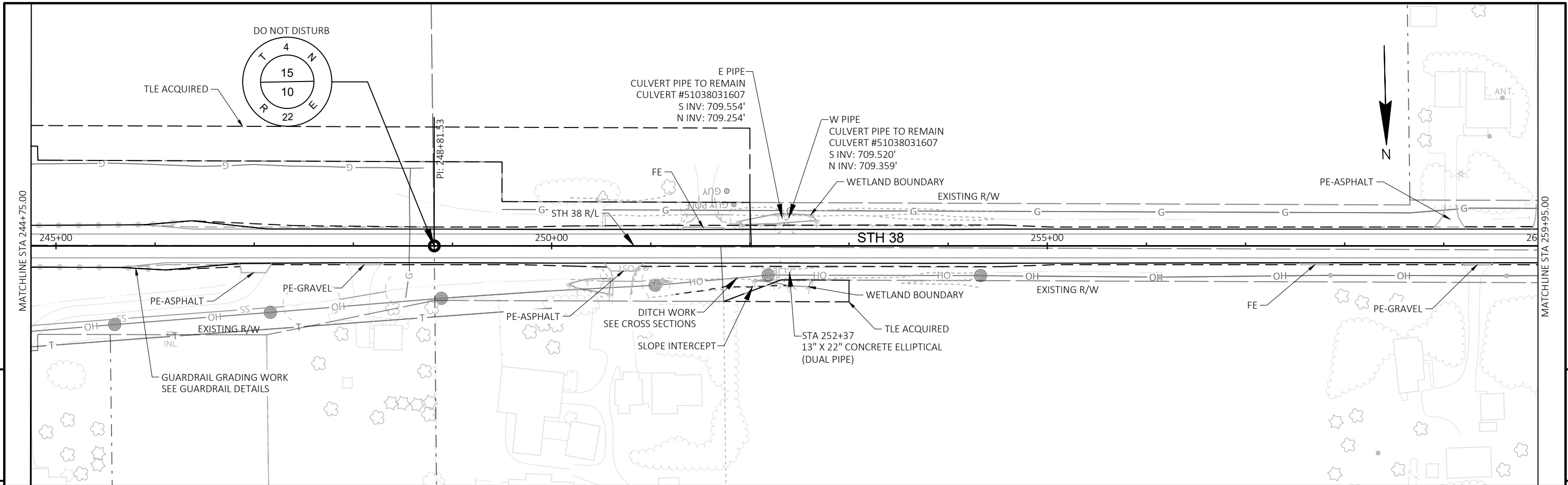
UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
N/A	N/A	N/A

NOTES:
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 REVISION DATE: 5-11-2022 (2)
 8-23-2022 (3)

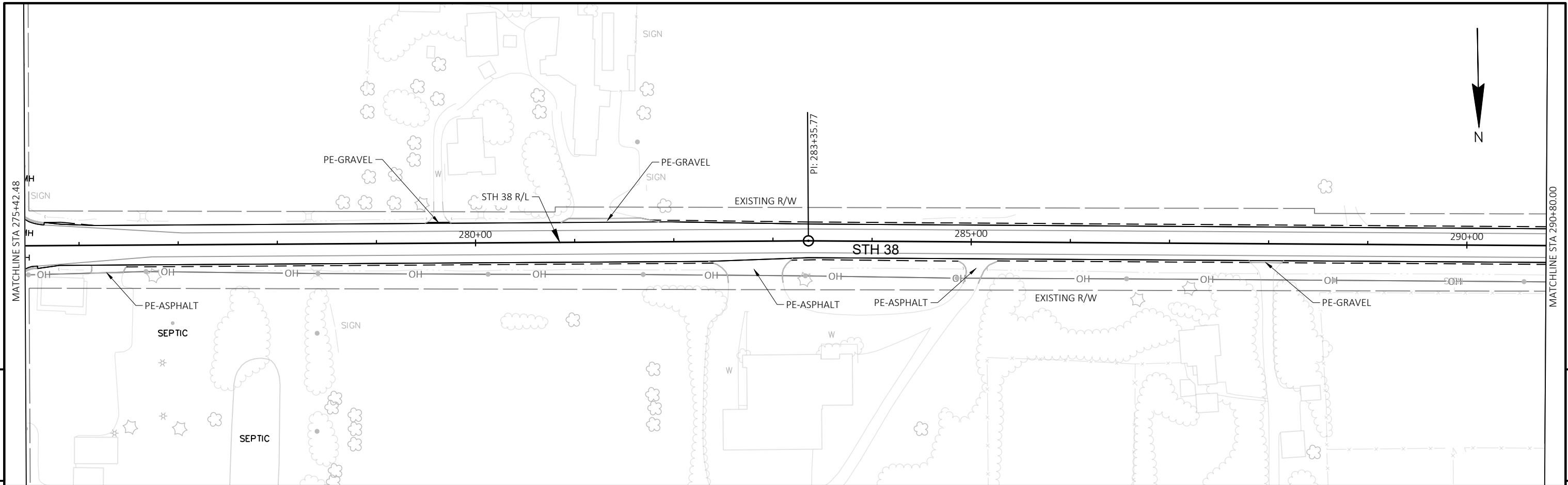
THIS MAP IS APPROVED FOR THE DEPARTMENT OF TRANSPORTATION
 SOUTHEAST - WAUKESHA REGION OFFICE
 SIGNATURE: _____ DATE: _____
 PRINT NAME: ROBERT DUFFECK



PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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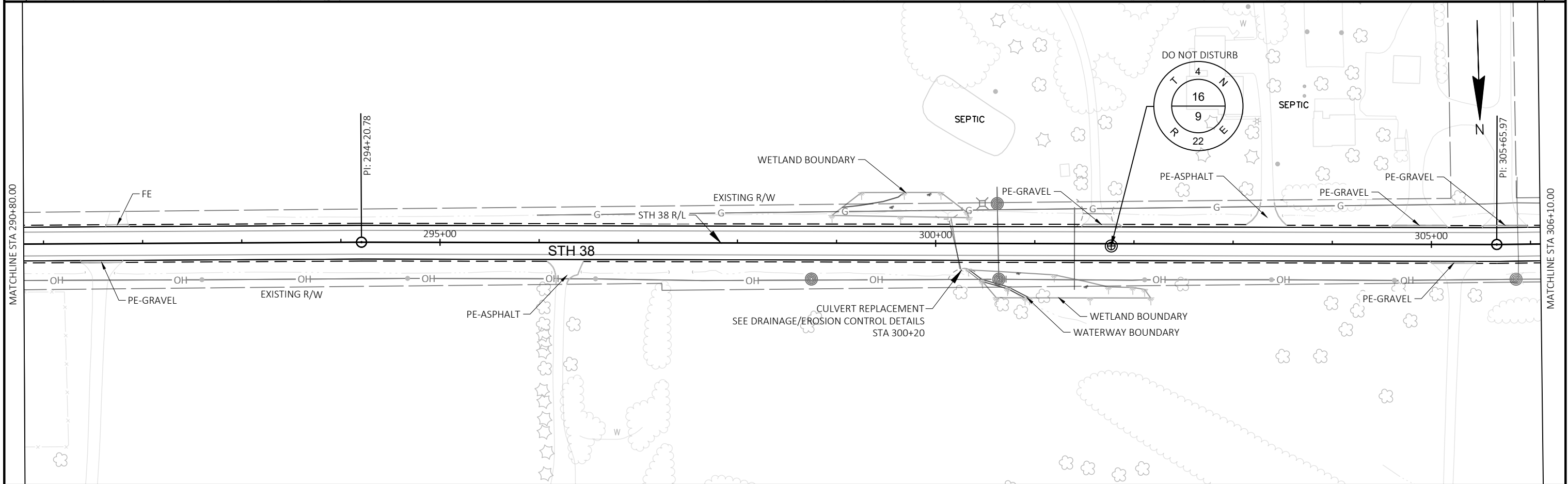


PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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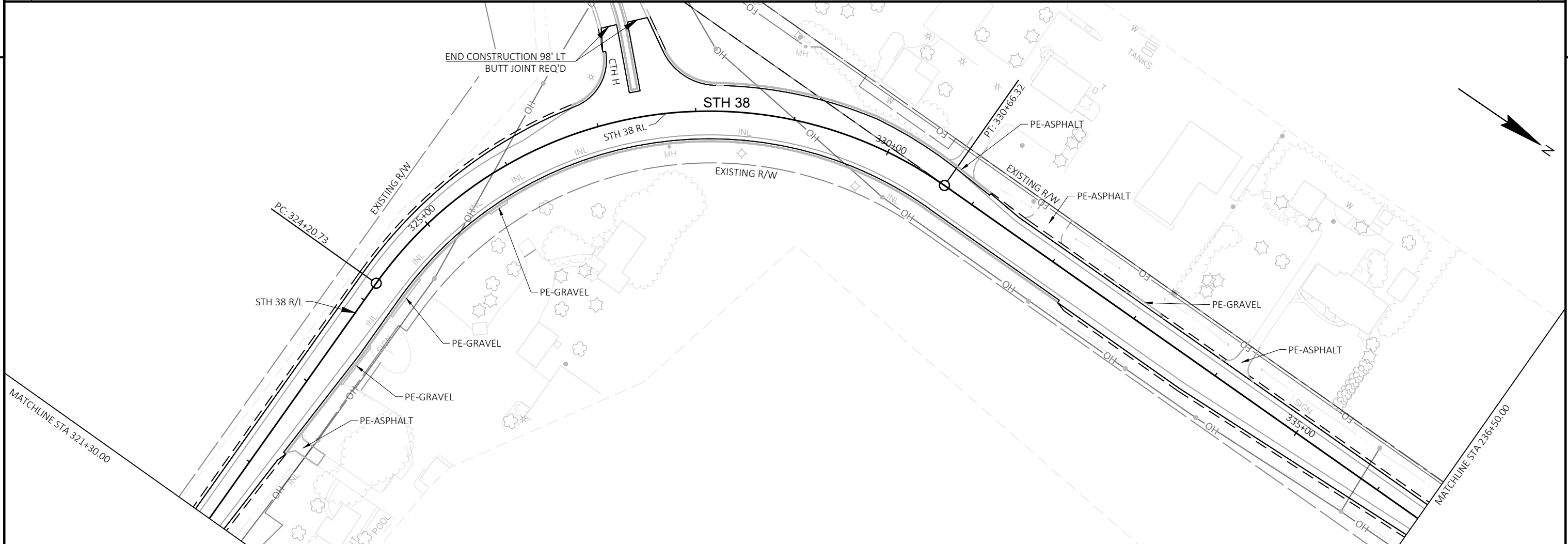
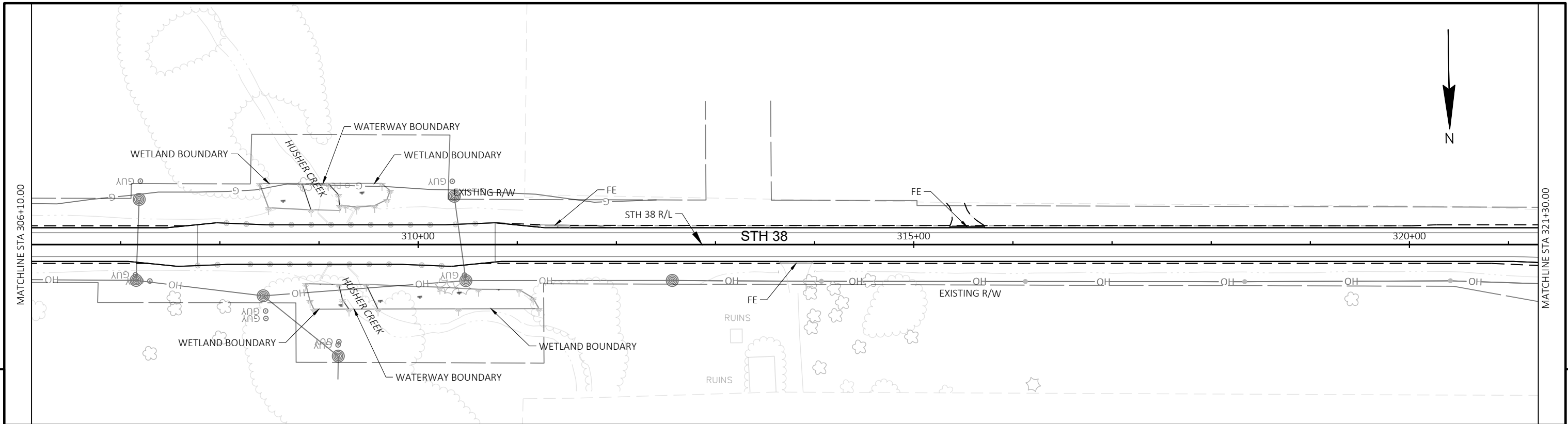


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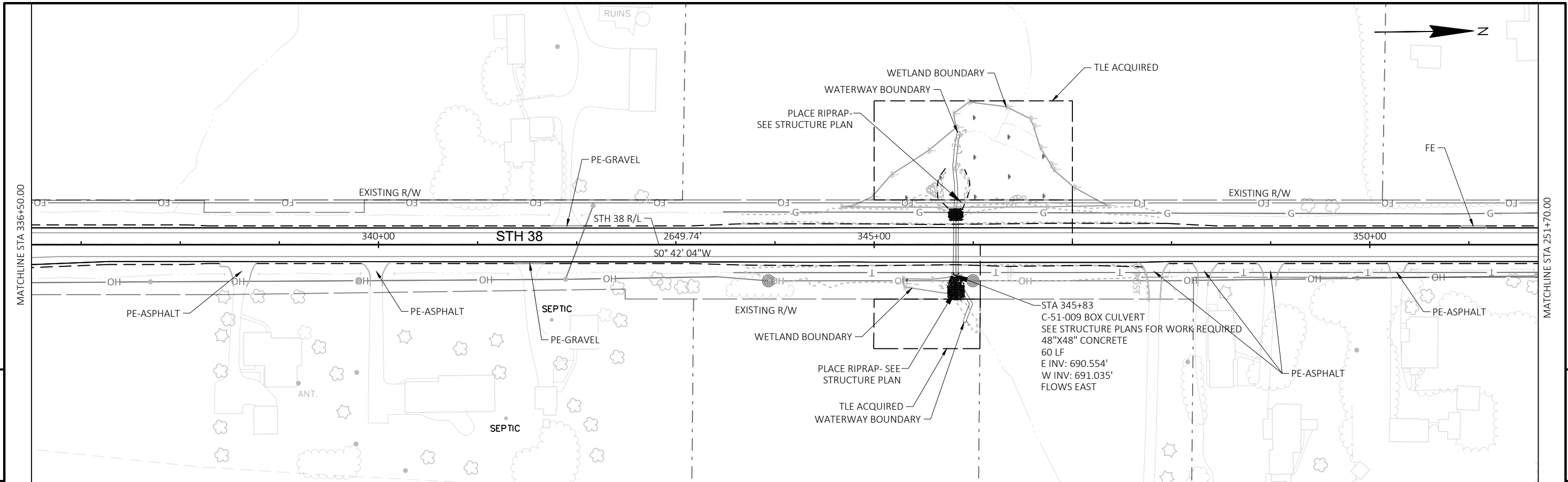
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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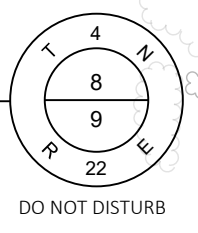
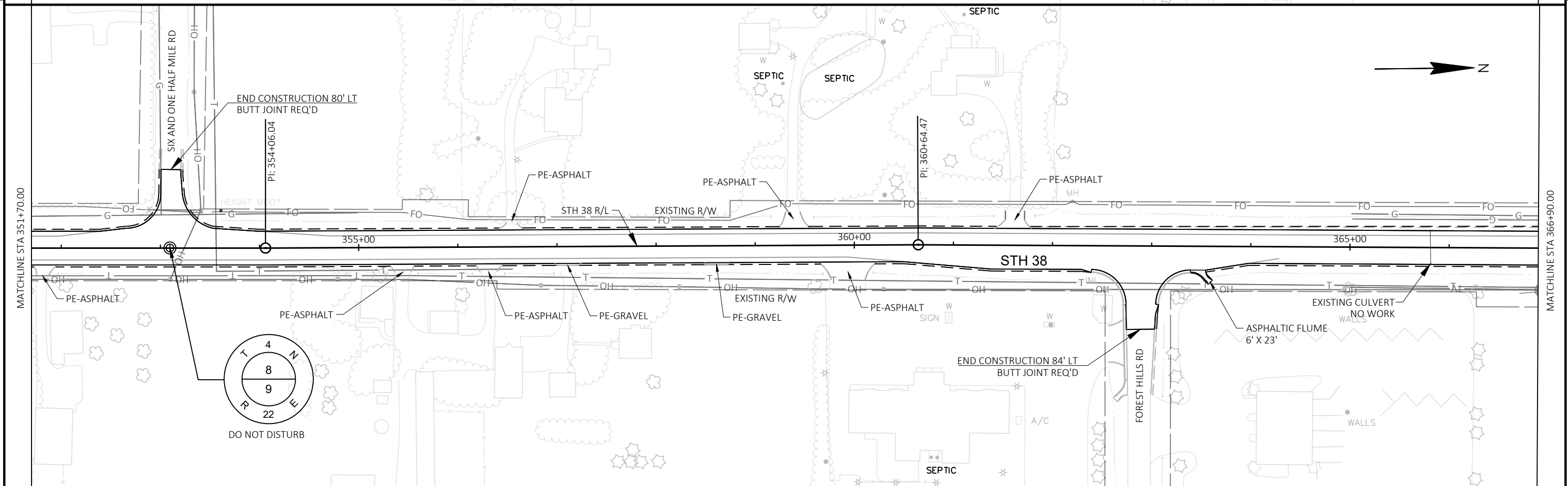


PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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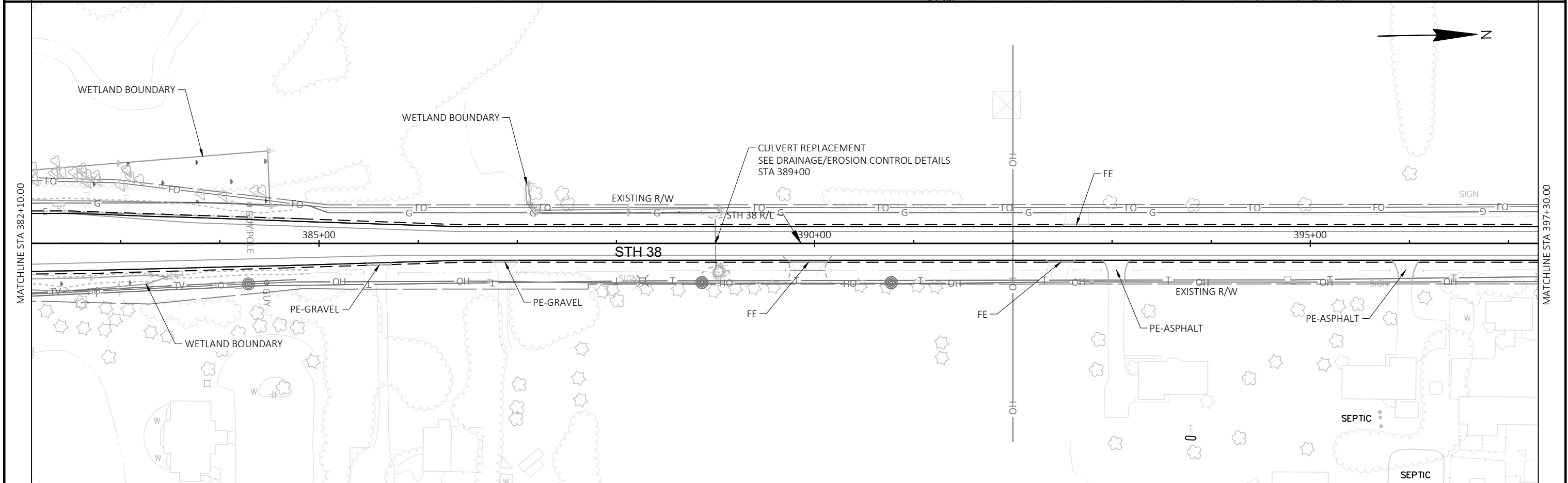
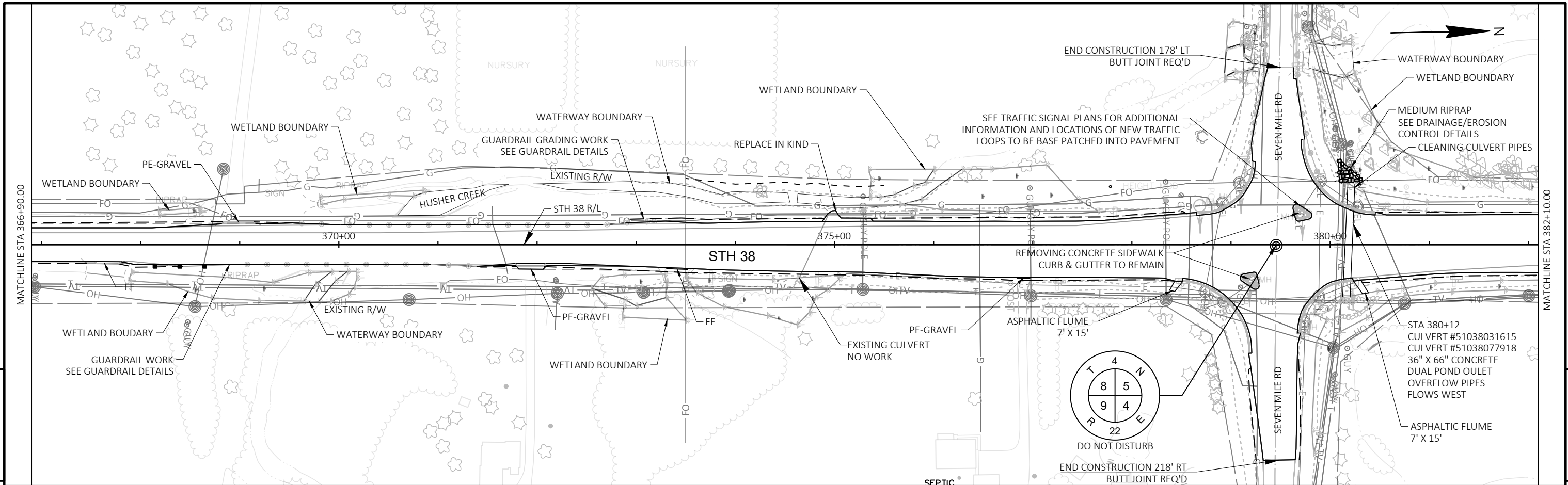


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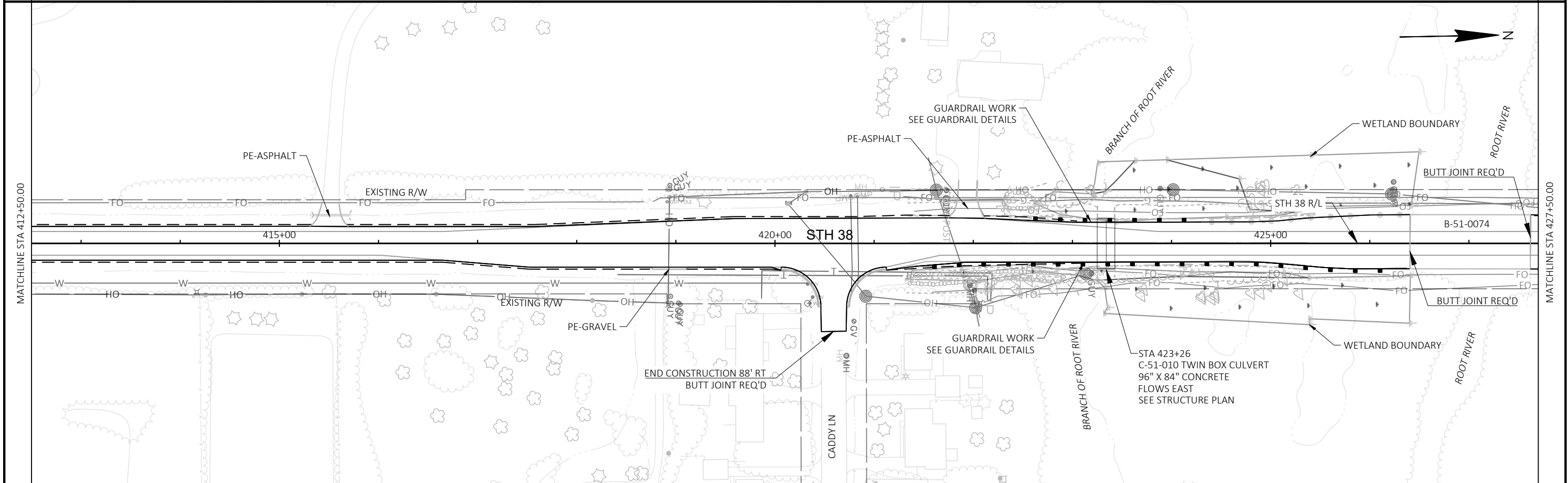
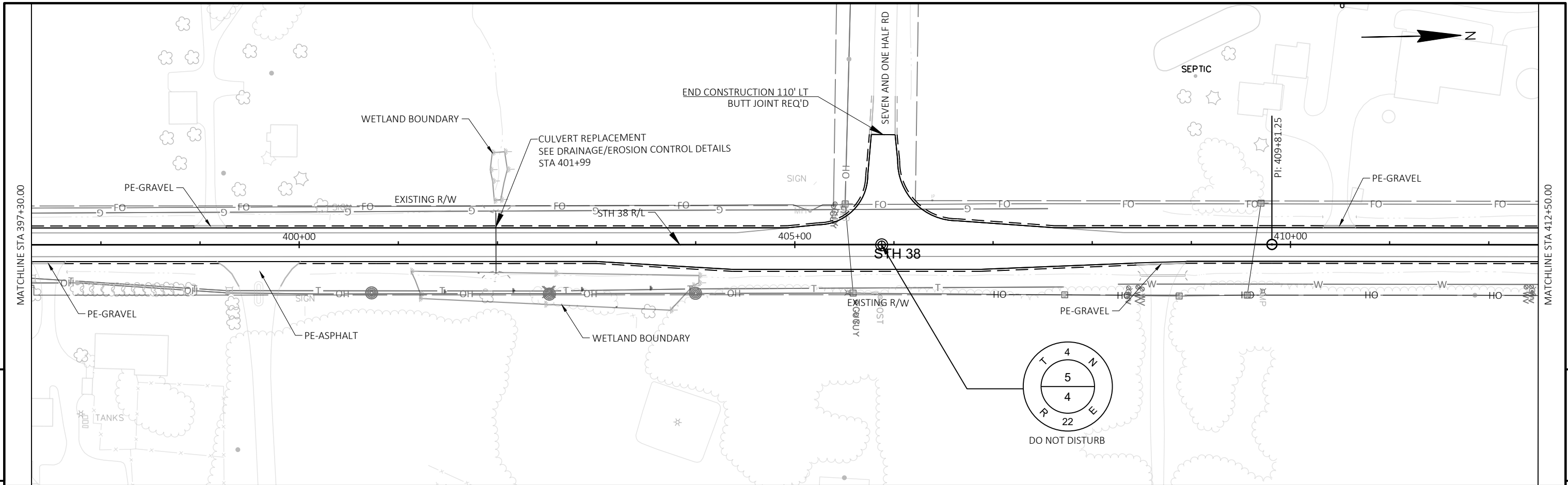
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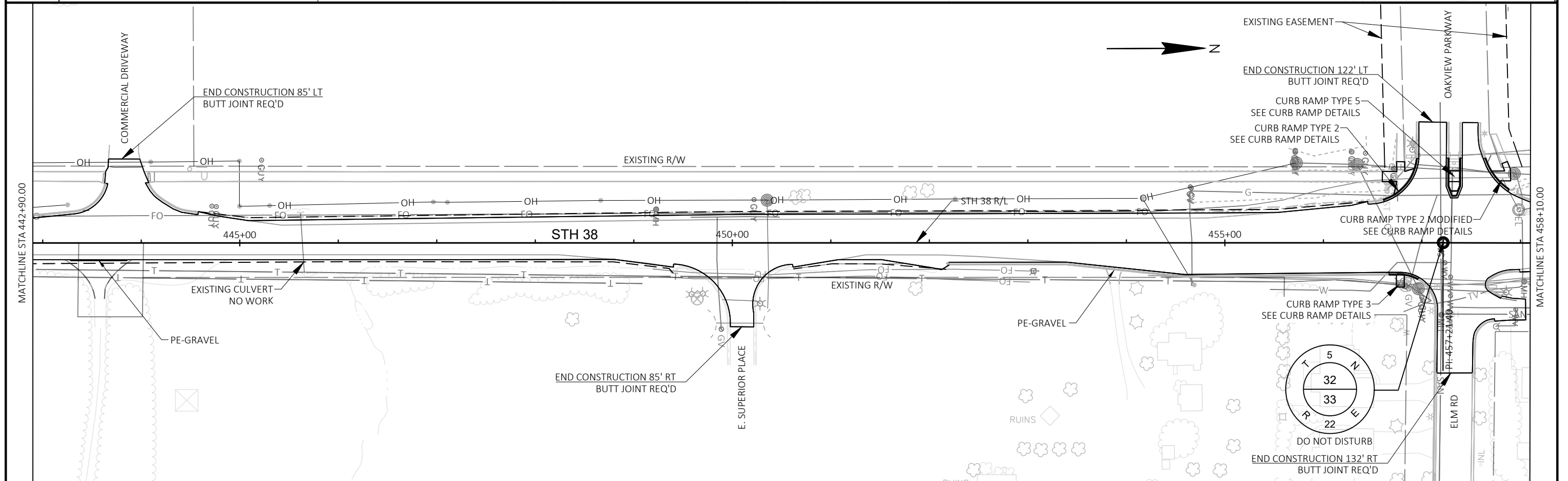
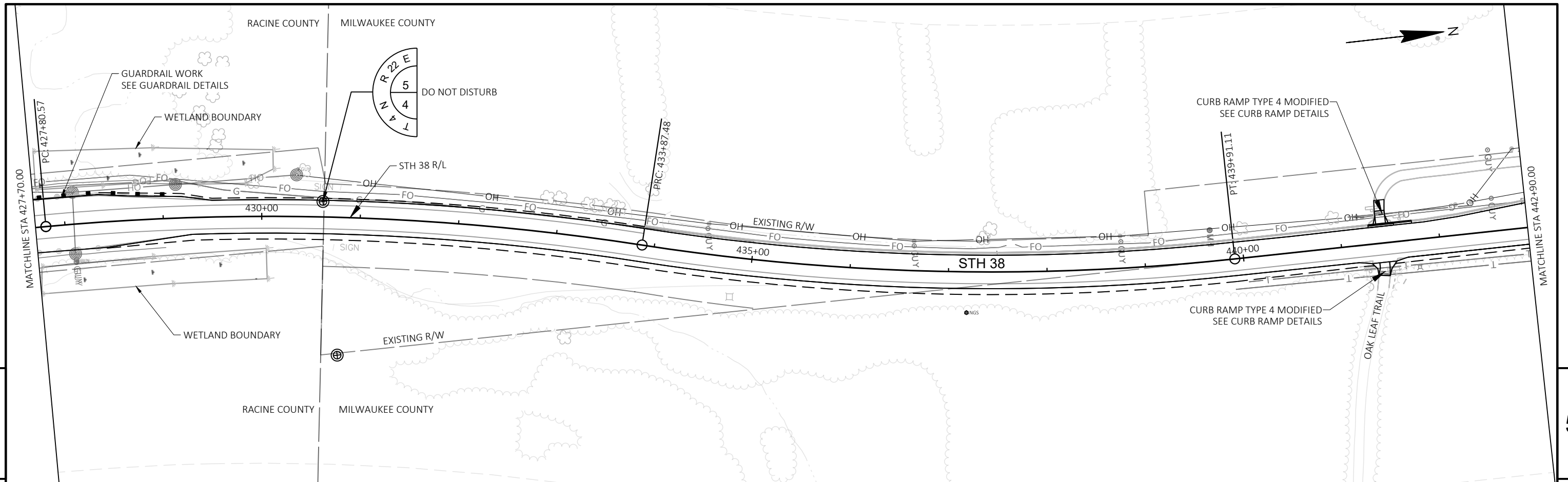
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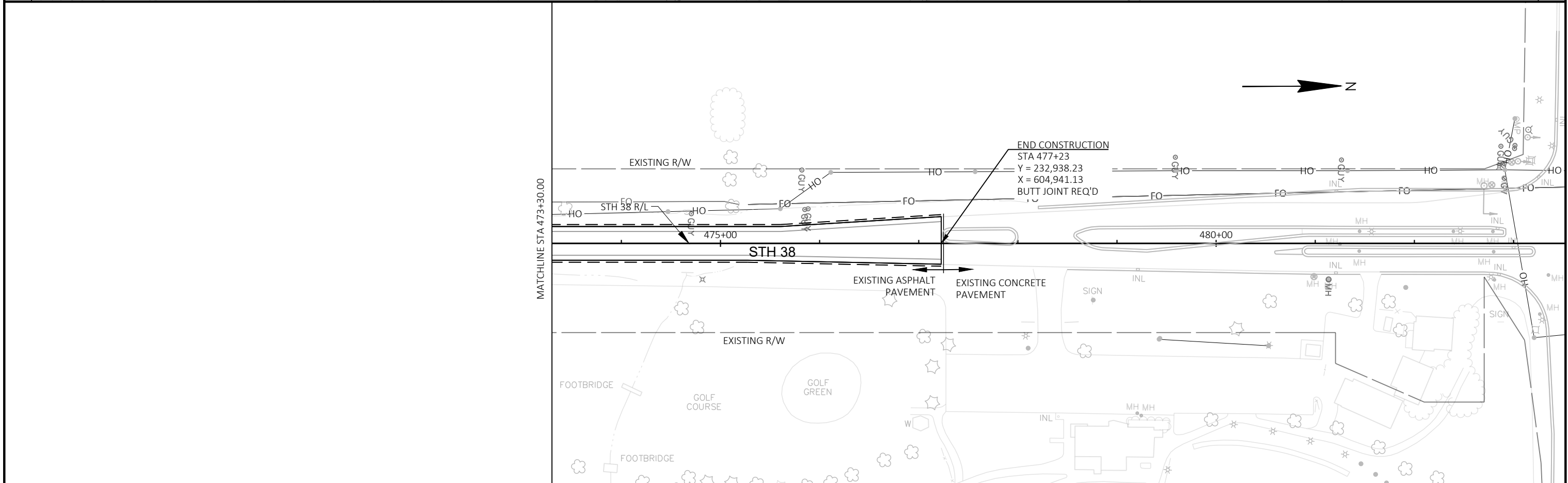
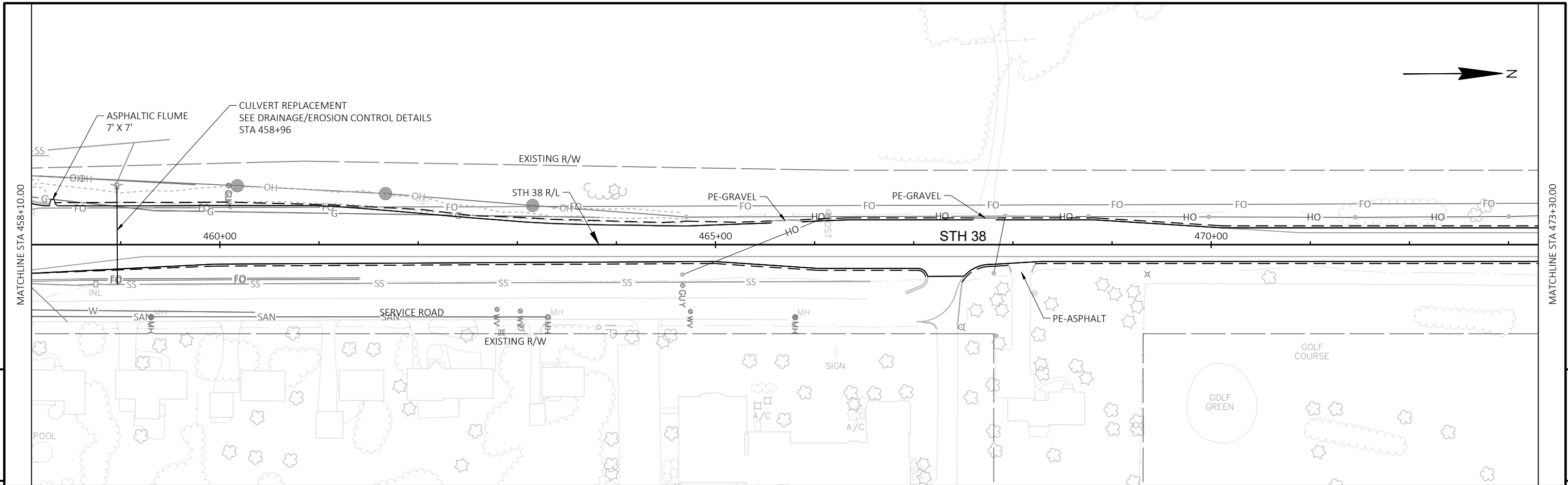
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	PLAN	SHEET	E
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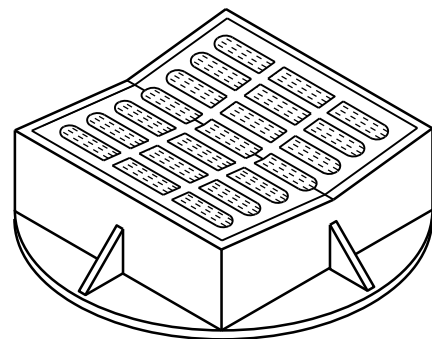
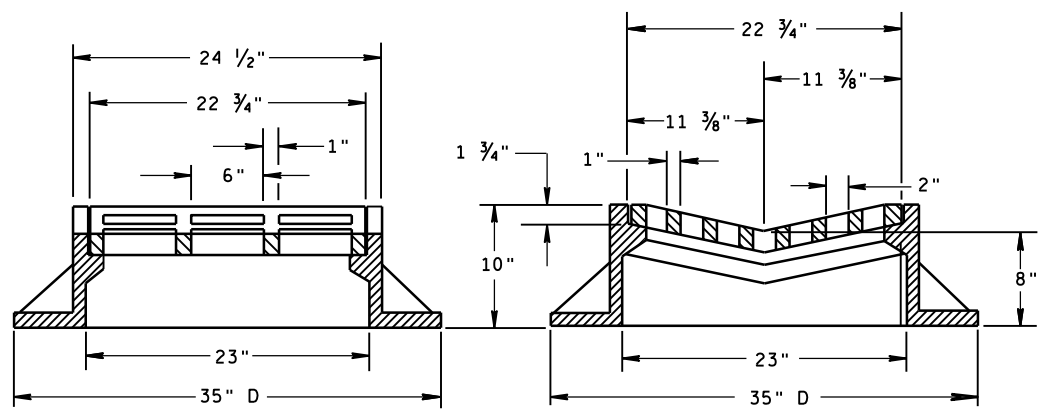
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Standard Detail Drawing List

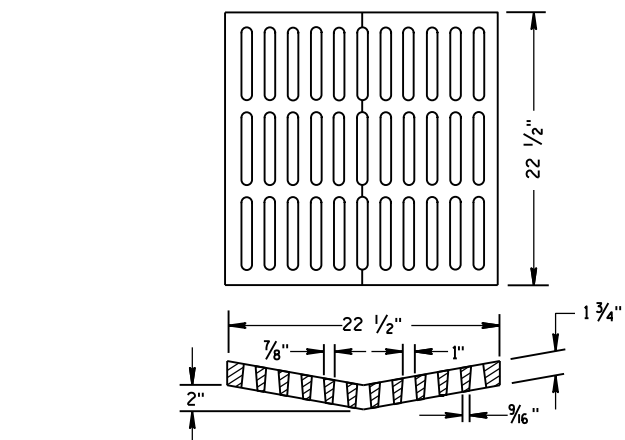
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-03	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-06	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-20A	CURB RAMPS TYPES 1 AND 1-A
08D05-20B	CURB RAMPS TYPES 2 AND 3
08D05-20C	CURB RAMPS TYPES 4A AND 4A1
08D05-20D	CURB RAMPS TYPE 4B AND 4B1
08D05-20E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-20F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-20G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-10	CONDUIT
09B04-12	PULL BOX
09C02-09	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C06-07	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09C11-10	CONCRETE BASE TYPE 10
09C12-09A	CONCRETE BASE TYPE 13
09C12-09B	CONCRETE BASE TYPE 13
09C15-01	CONCRETE BASE TYPE 10 SPECIAL
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D02-03	SIGNAL CONTROL CABINET
09E01-15D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-15G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-06	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E08-09C	TYPE 9 SPECIAL POLE 40' MONOTUBE ARM
09E08-09E	TYPE 10 POLE 15' -30' MONOTUBE ARM
09E08-09G	TYPE 10 SPECIAL POLE 40' MONOTUBE ARM
09E08-09H	TYPE 10 SPECIAL POLE 45' MONOTUBE ARM
09E08-09J	TYPE 13 POLE 35' -55' MONOTUBE ARM
09E08-09K	GENERAL NOTES, HARDWARE DETAILS FOR TYPE 9/10, 9/10 SPECIAL, 12 & 13 POLES W/MONOTUBE ARMS
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
09G01-04A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04B	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04C	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
11B02-02	CONCRETE MEDIUM NOSE
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-02D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-03B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-12A	STEEL THREE BEAM STRUCTURE APPROACH
14B20-12D	STEEL THREE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-12G	STEEL THREE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B28-04A	GUARDRAIL MOW STRIP

Standard Detail Drawing List

14B28-04B	GUARDRAIL MOW STRIP
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
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B51-02A	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-02B	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-02C	ANCHOR POST ASSEMBLY TOP-MOUNTED
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-15B	PAVEMENT MARKING WORDS
15C07-15C	PAVEMENT MARKING ARROWS
15C08-22A	LONGITUDINAL MARKING (MAINLINE)
15C08-22B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-22C	PAVEMENT MARKING (TURN LANES)
15C08-22D	PAVEMENT MARKING (TURN LANES)
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-07C	MEDIAN PAVEMENT MARKINGS DOUBLE ARROW WARNING SIGN PLACEMENT
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C34-03	STANDARD APPLICATION FOR TEMPORARY RAISED PAVEMENT MARKER, TYPE 2
15C35-05A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-08A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-08C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08H	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-08J	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

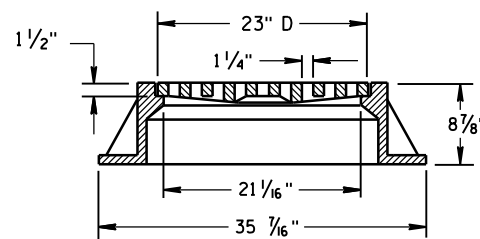
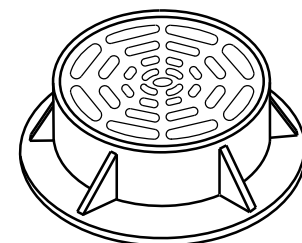
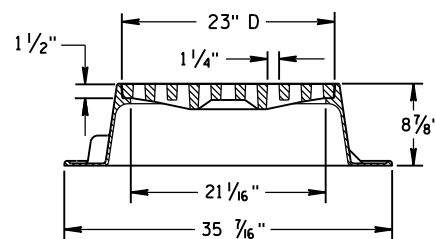
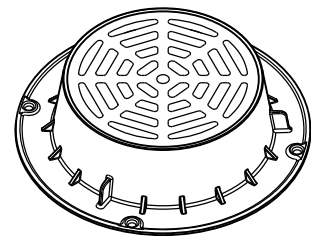


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

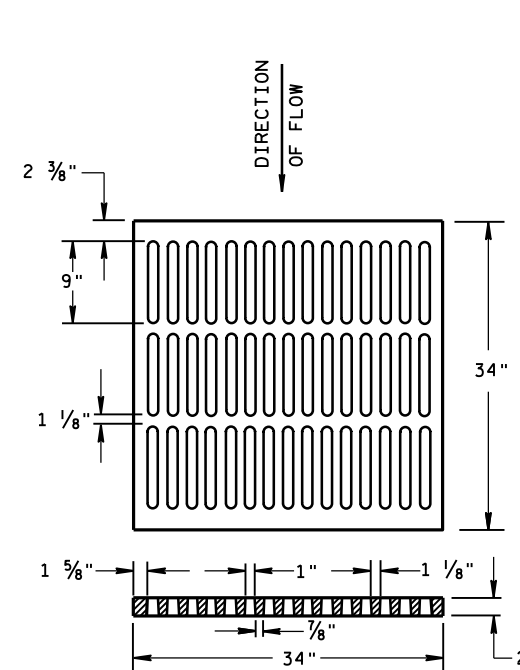
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

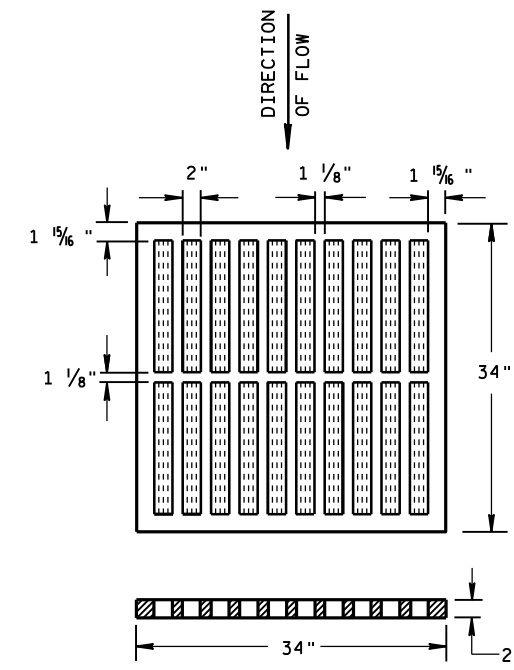
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



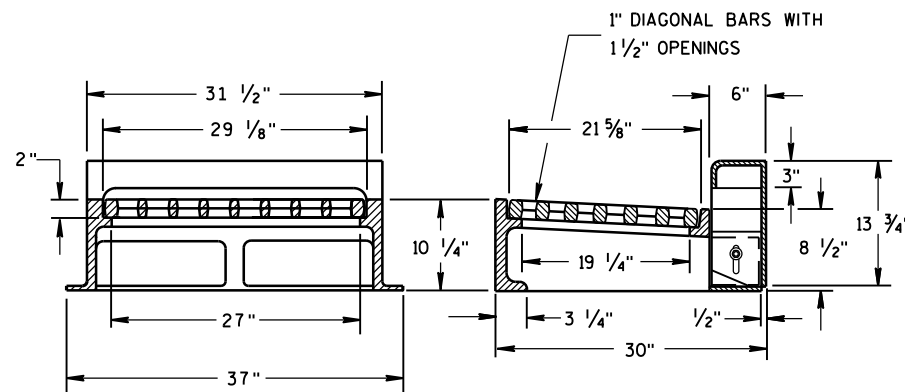
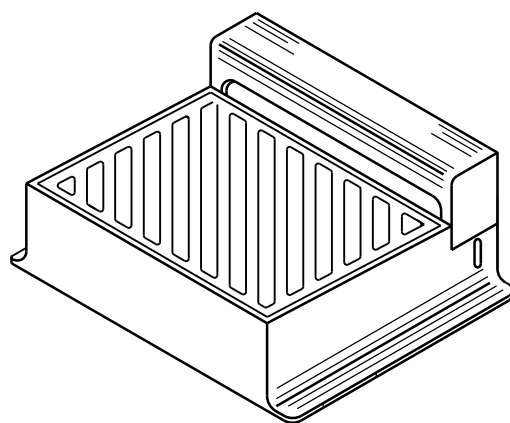
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

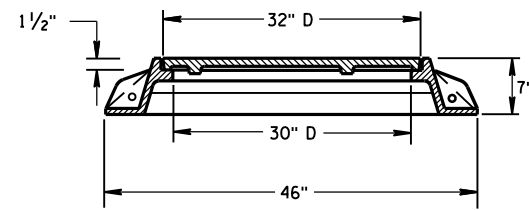
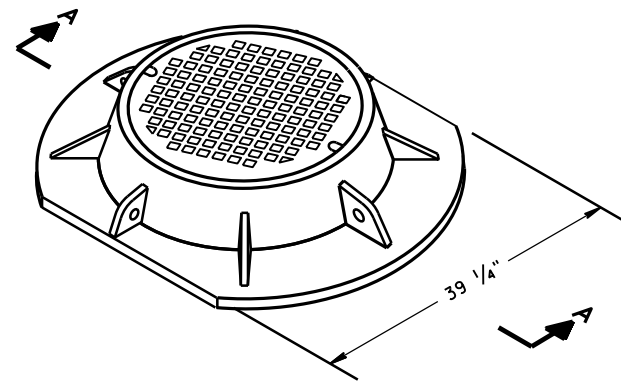
DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION OF FLOW

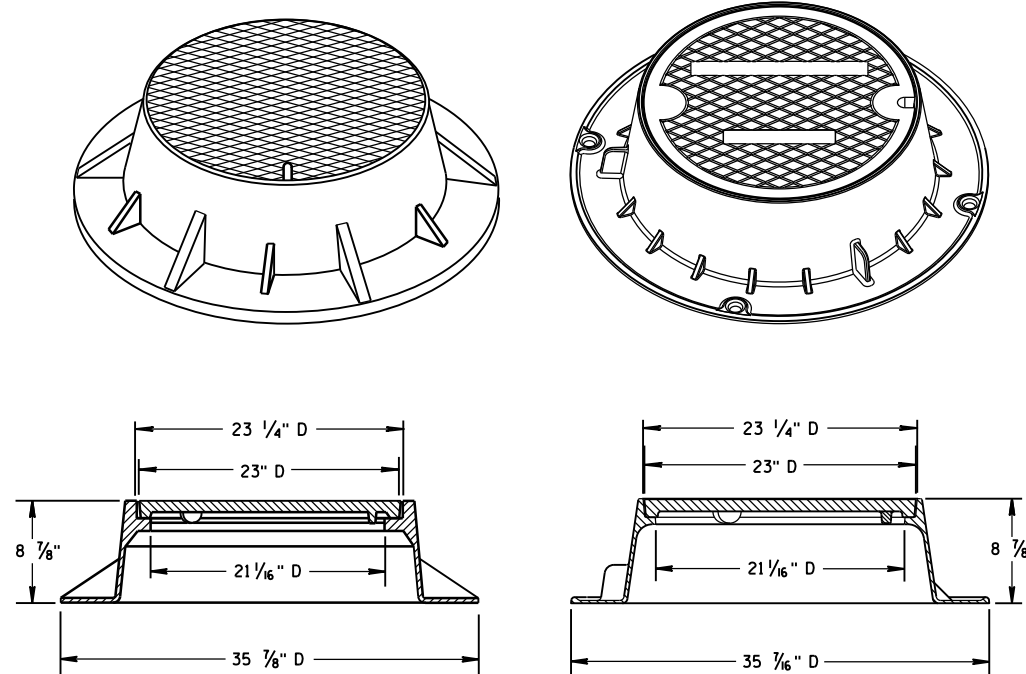
**INLET COVERS
TYPE B, B-A, C,
MS, MS-A, & WM**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 11/27/2013 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

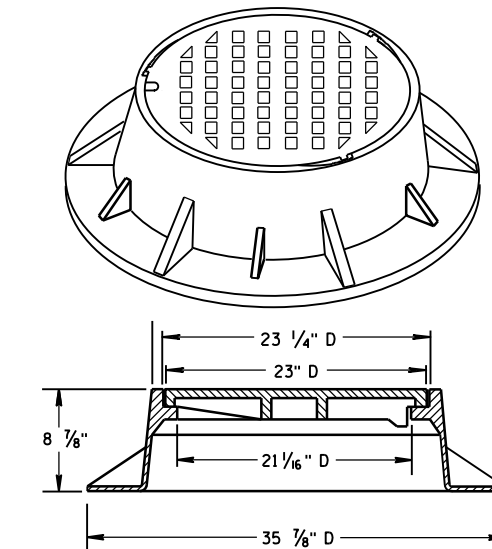
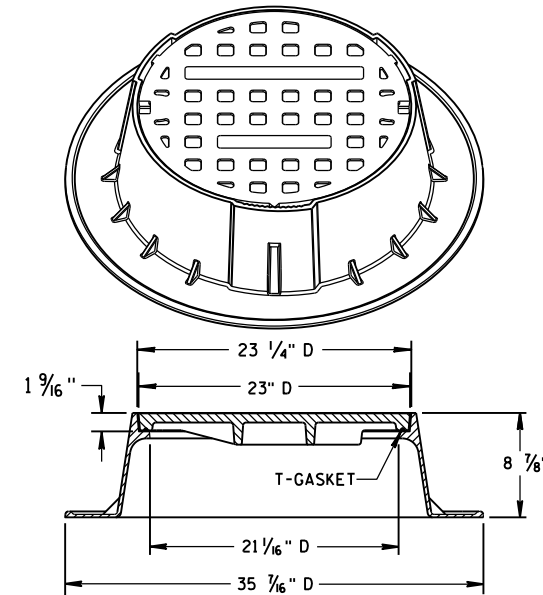


SECTION A-A
TYPE "K"

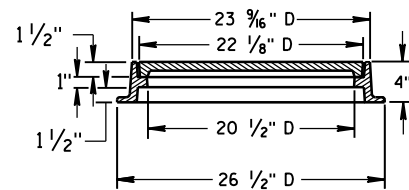
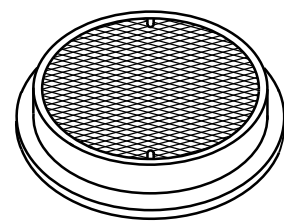


TYPE "J"

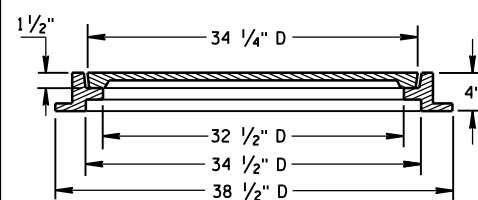
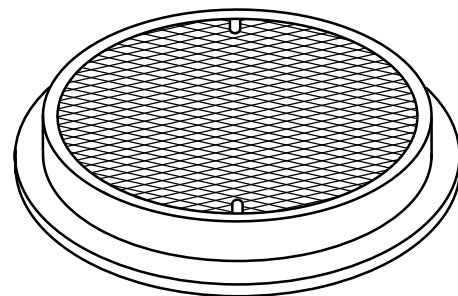
NOTE: EITHER CASTING IS ACCEPTABLE



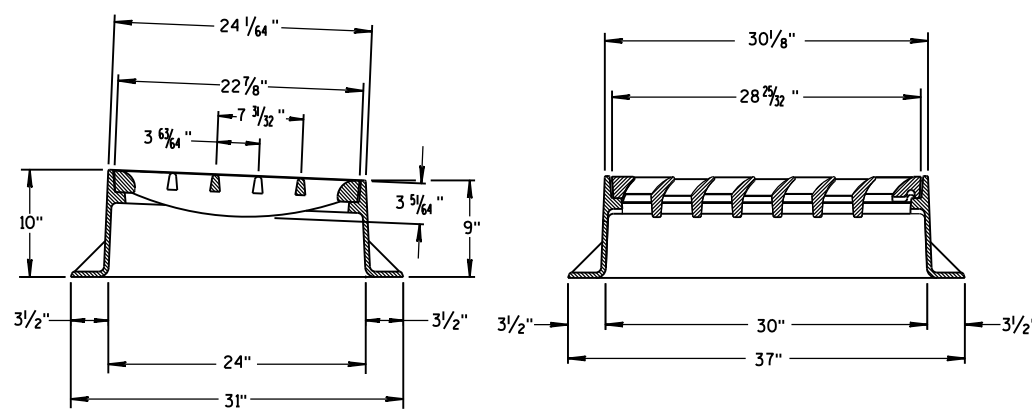
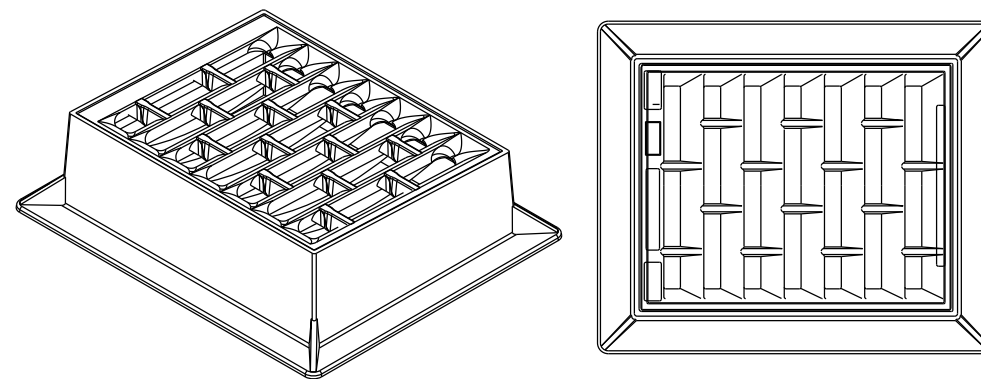
TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

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

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

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

6

6

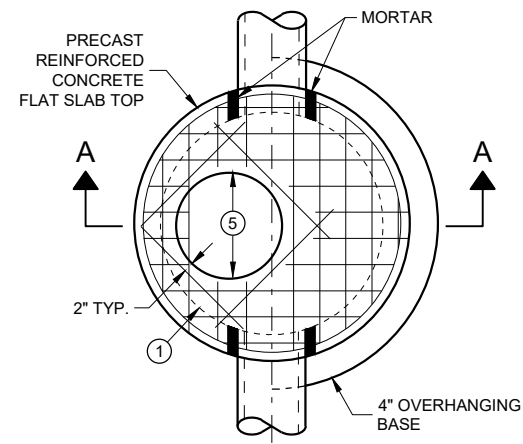
S.D.D. 8 A 5-19d

S.D.D. 8 A 5-19d

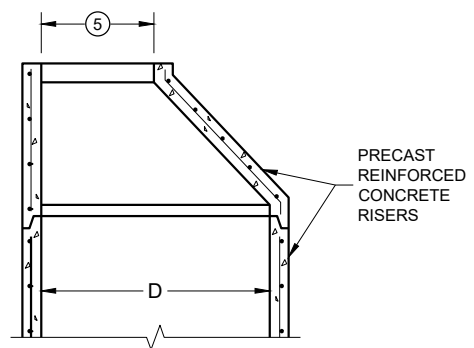
INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

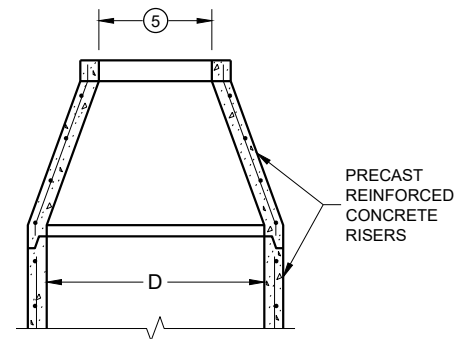
APPROVED
11/27/2013 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



**PLAN VIEW
CIRCULAR OPENING**



**OPTIONAL PRECAST
REINFORCED CONCRETE
ECCENTRIC TOP**



**OPTIONAL PRECAST
REINFORCED CONCRETE
CONCENTRIC TOP**

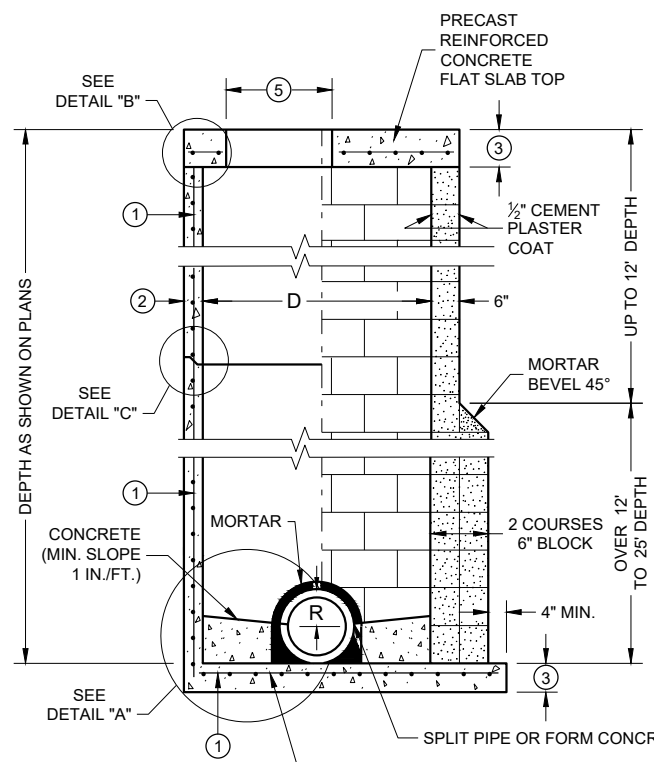
MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE OPENING SIZE (FT.)	C	ALL J'S	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42*	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

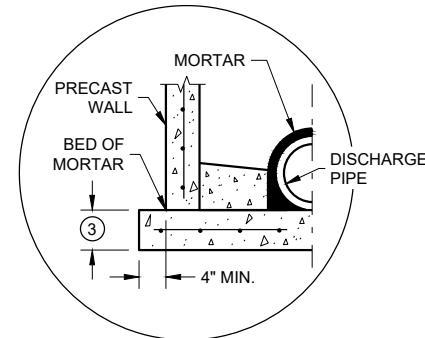
*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



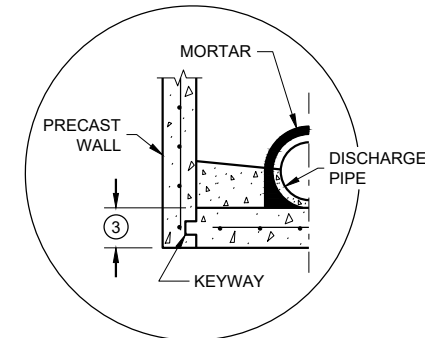
SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ①

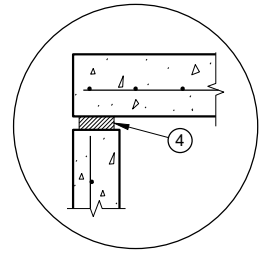


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

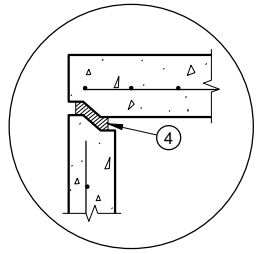


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

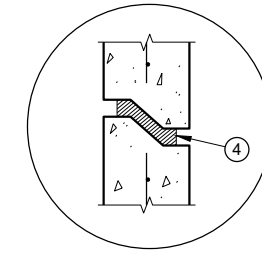
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

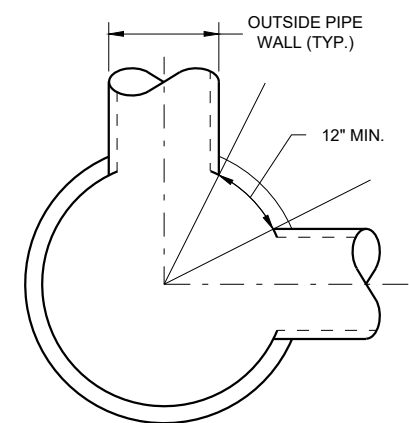
PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- ① FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ② SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- ③ SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- ④ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP.).
- ⑤ SEE MANHOLE COVER OPENING MATRIX.



MINIMUM HORIZONTAL PIPE SEPARATION

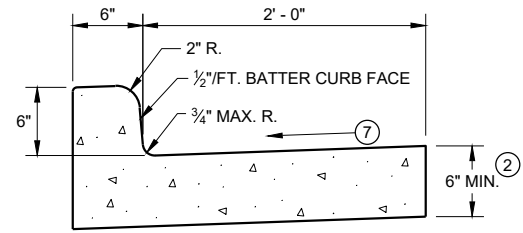
**MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER**

STATE OF WISCONSIN
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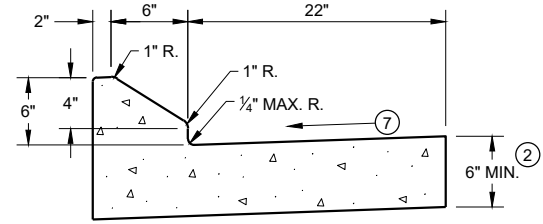
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November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

SDD 08B09 - 03

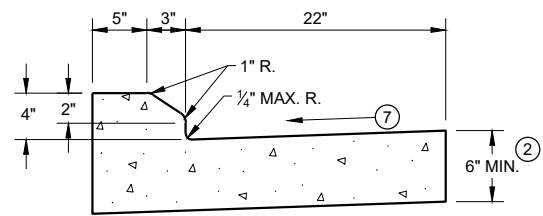
SDD 08B09 - 03



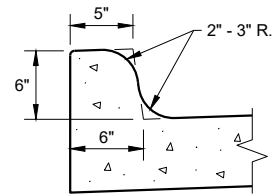
TYPES A^① & D



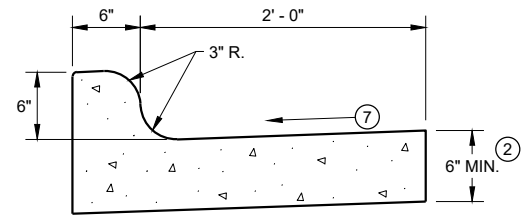
6" SLOPED CURB TYPES G^① & J



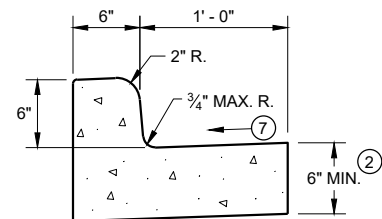
4" SLOPED CURB TYPES G^① & J



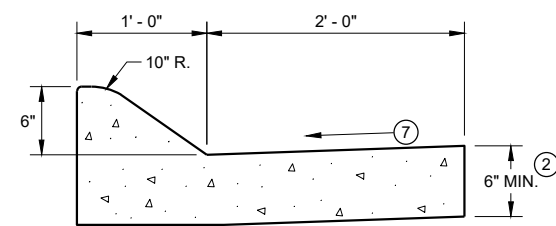
TYPES K^① & L
(OPTIONAL CURB SHAPE)



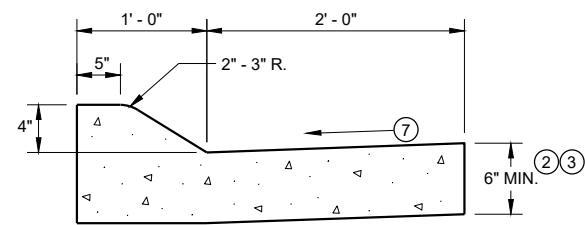
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



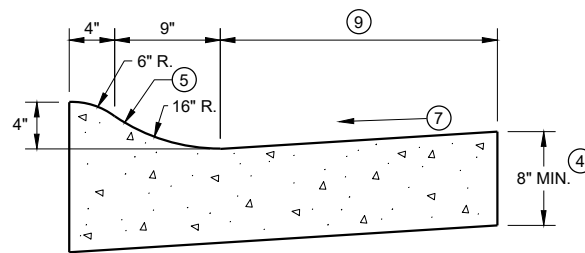
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

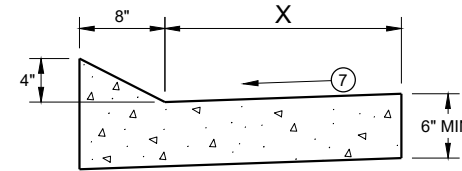


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

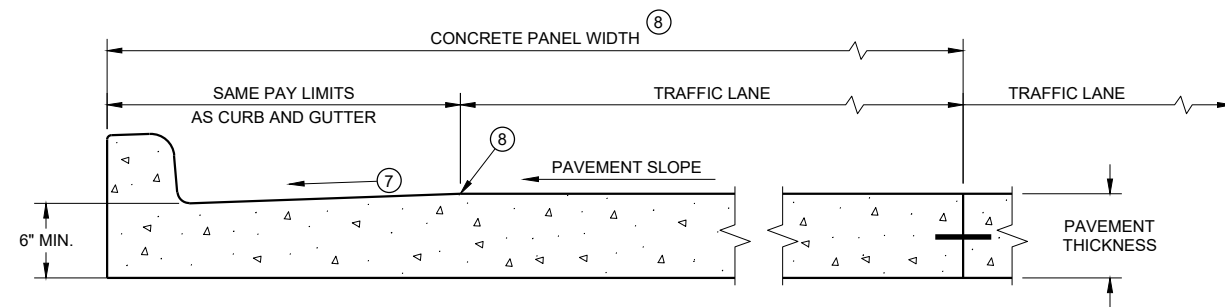
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

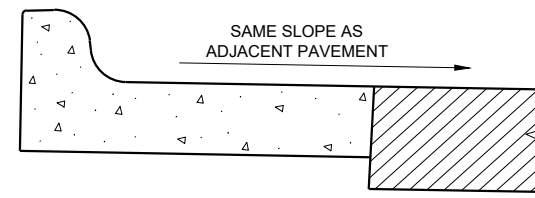
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

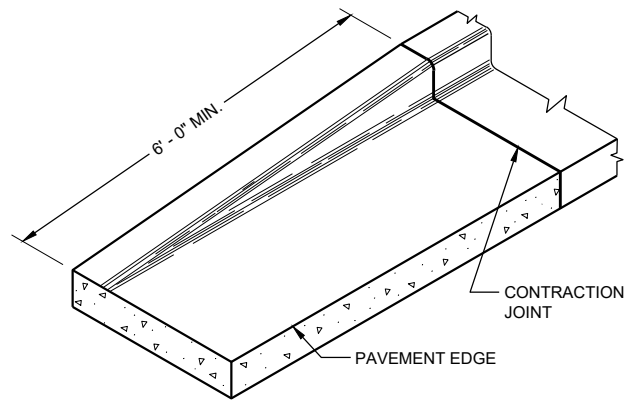
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

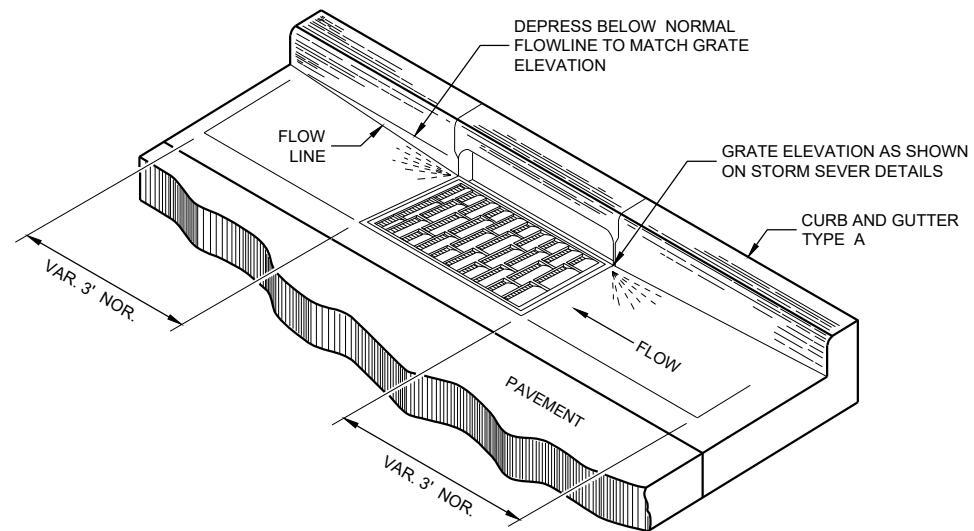
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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



END SECTION CURB AND GUTTER



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

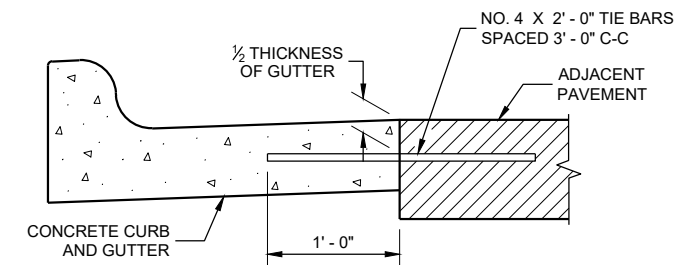
GENERAL NOTES

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

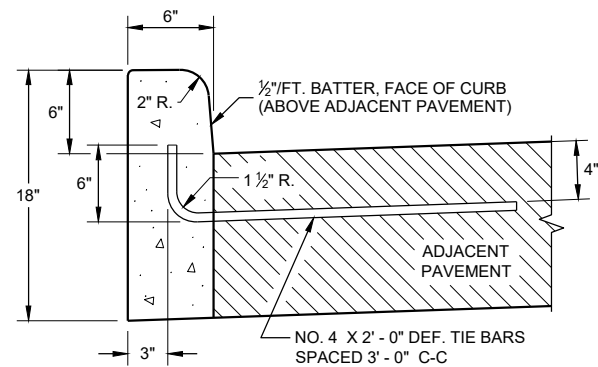
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

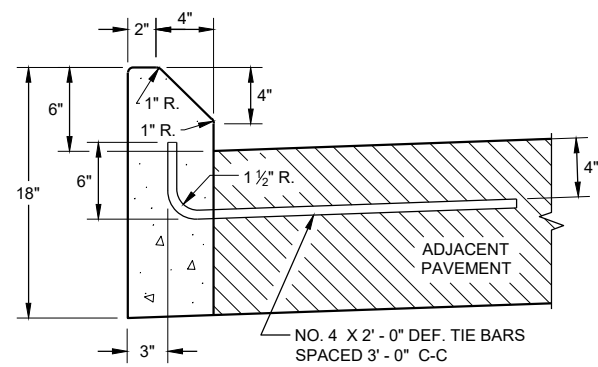
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL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



TYPICAL TIE BAR LOCATION ①

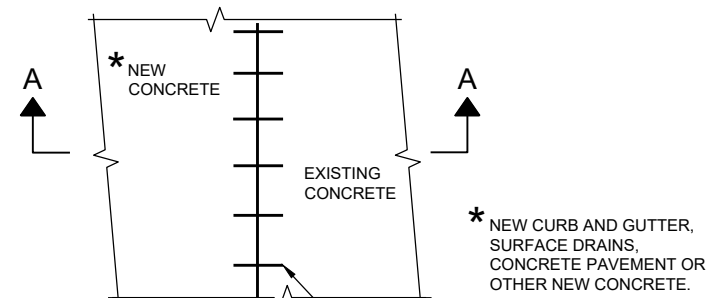


TYPES A ① & D

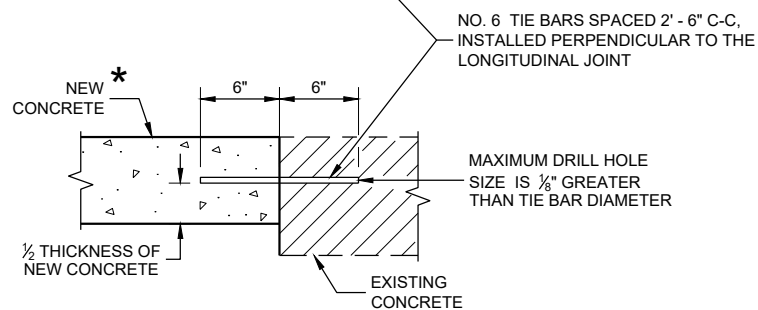


TYPES G ① & J

CONCRETE CURB

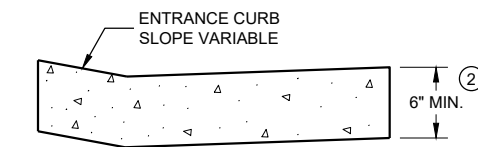


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

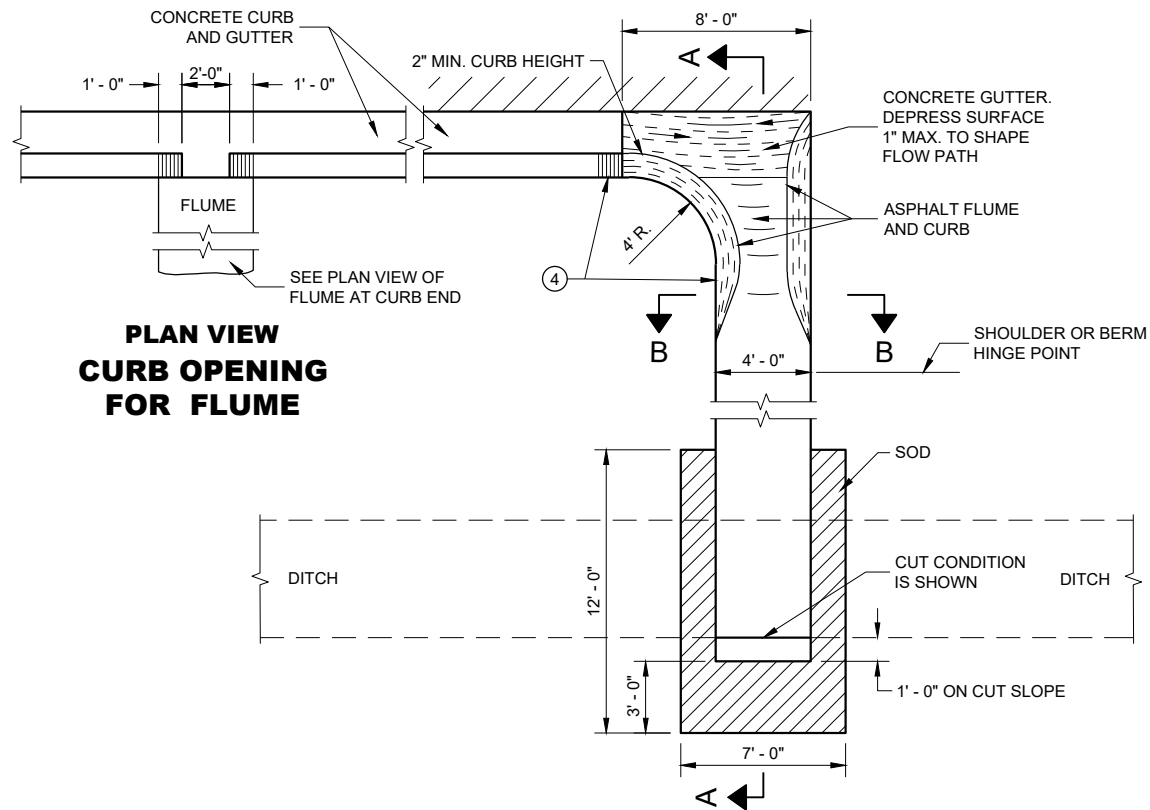
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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

ASPHALTIC FLUME



**PLAN VIEW
CURB OPENING
FOR FLUME**

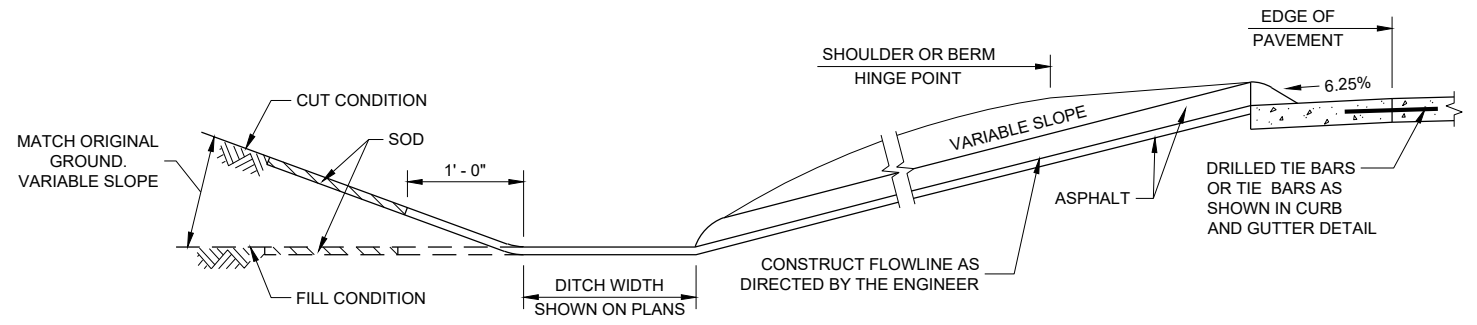
**PLAN VIEW
FLUME AT CURB END**

GENERAL NOTES

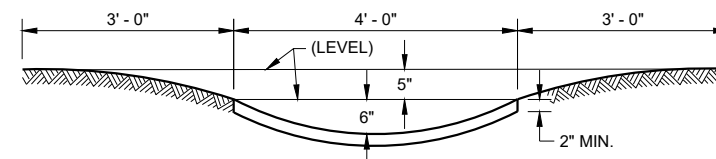
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

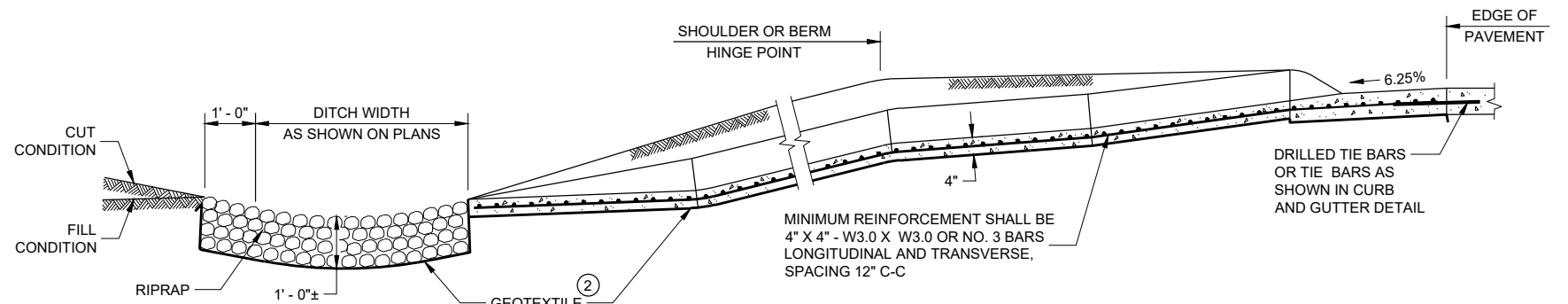
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



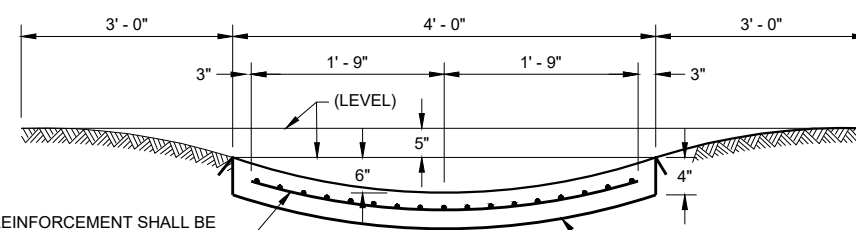
SECTION A - A



SECTION B - B

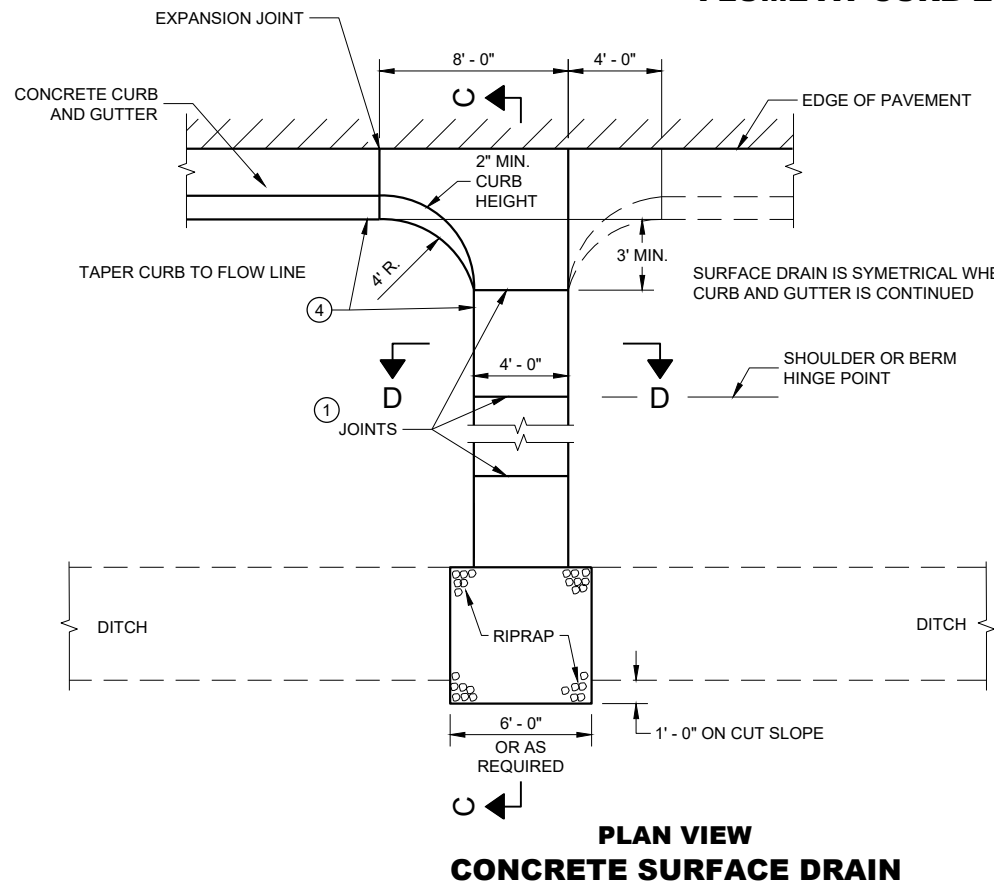


SECTION C - C



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



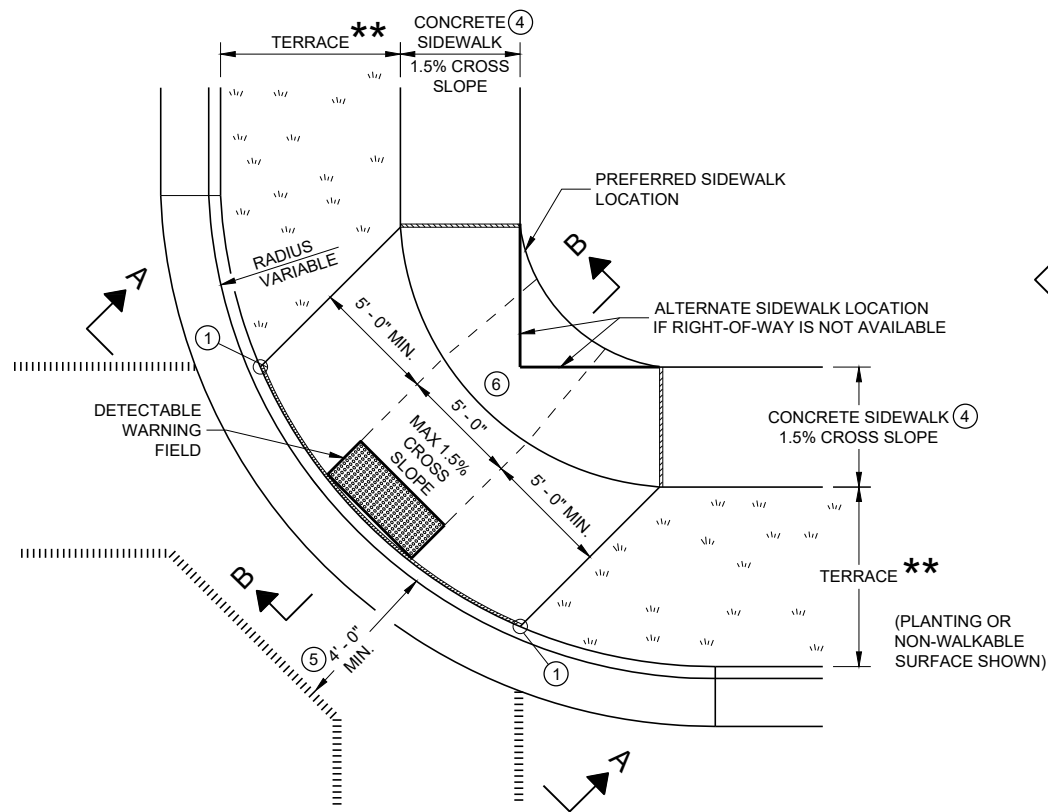
**PLAN VIEW
CONCRETE SURFACE DRAIN**

CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

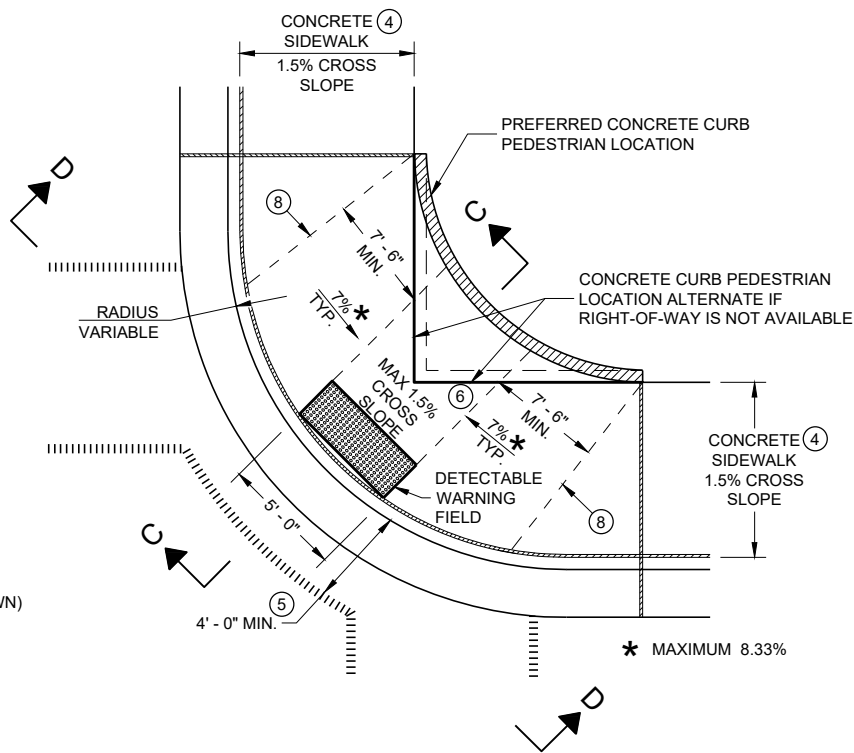
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ENGINEER

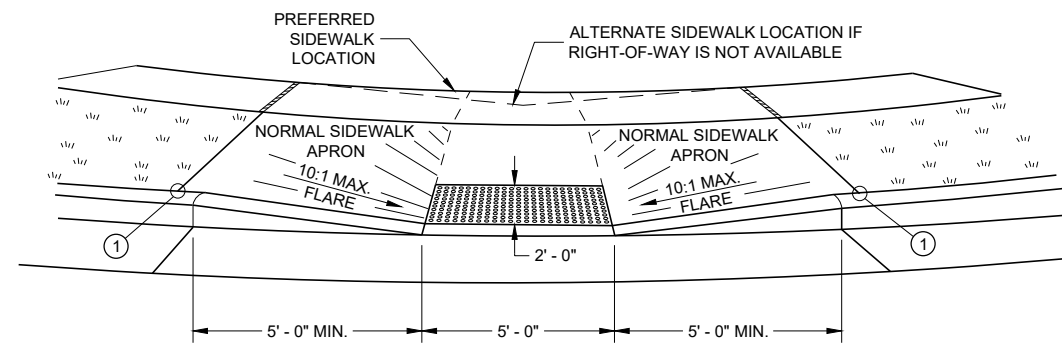
FHWA



**PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)**

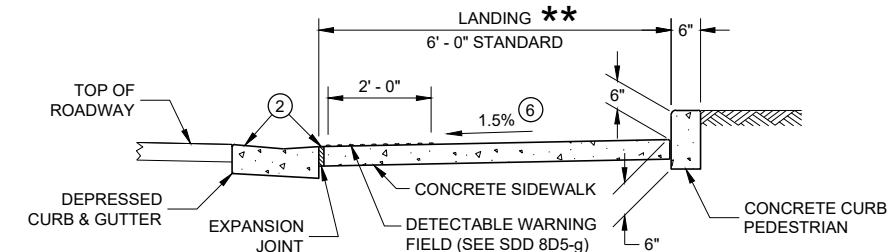


**PLAN VIEW
CURB RAMP TYPE 1 - A
(NO TERRACE)**

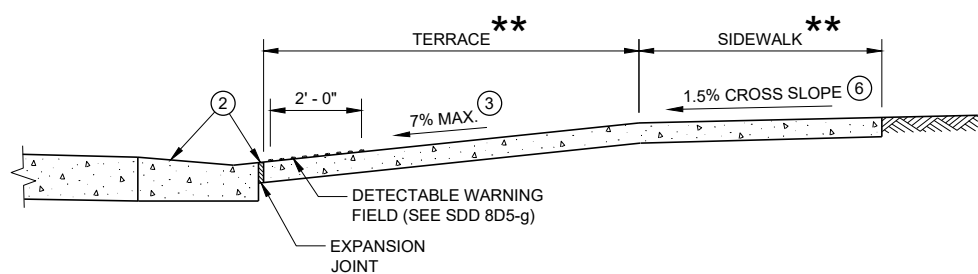


VIEW A - A FOR TYPE 1

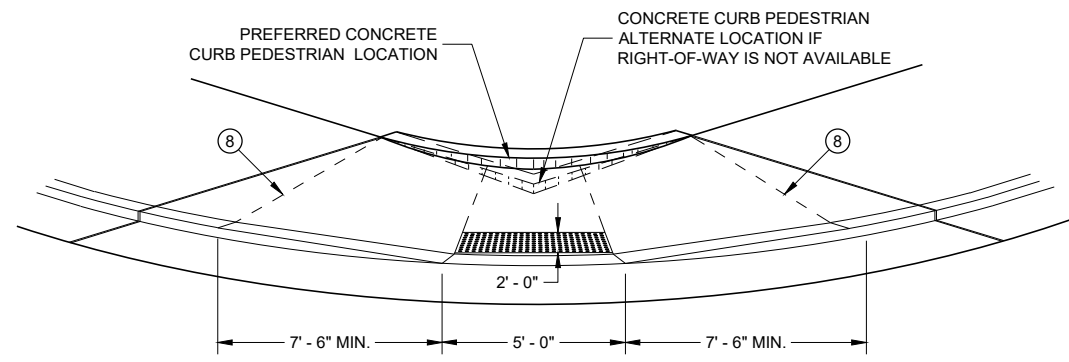
** WIDTH SHOWN ELSEWHERE
IN THE PLANS



SECTION C - C FOR TYPE 1 - A



SECTION B - B FOR TYPE 1



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

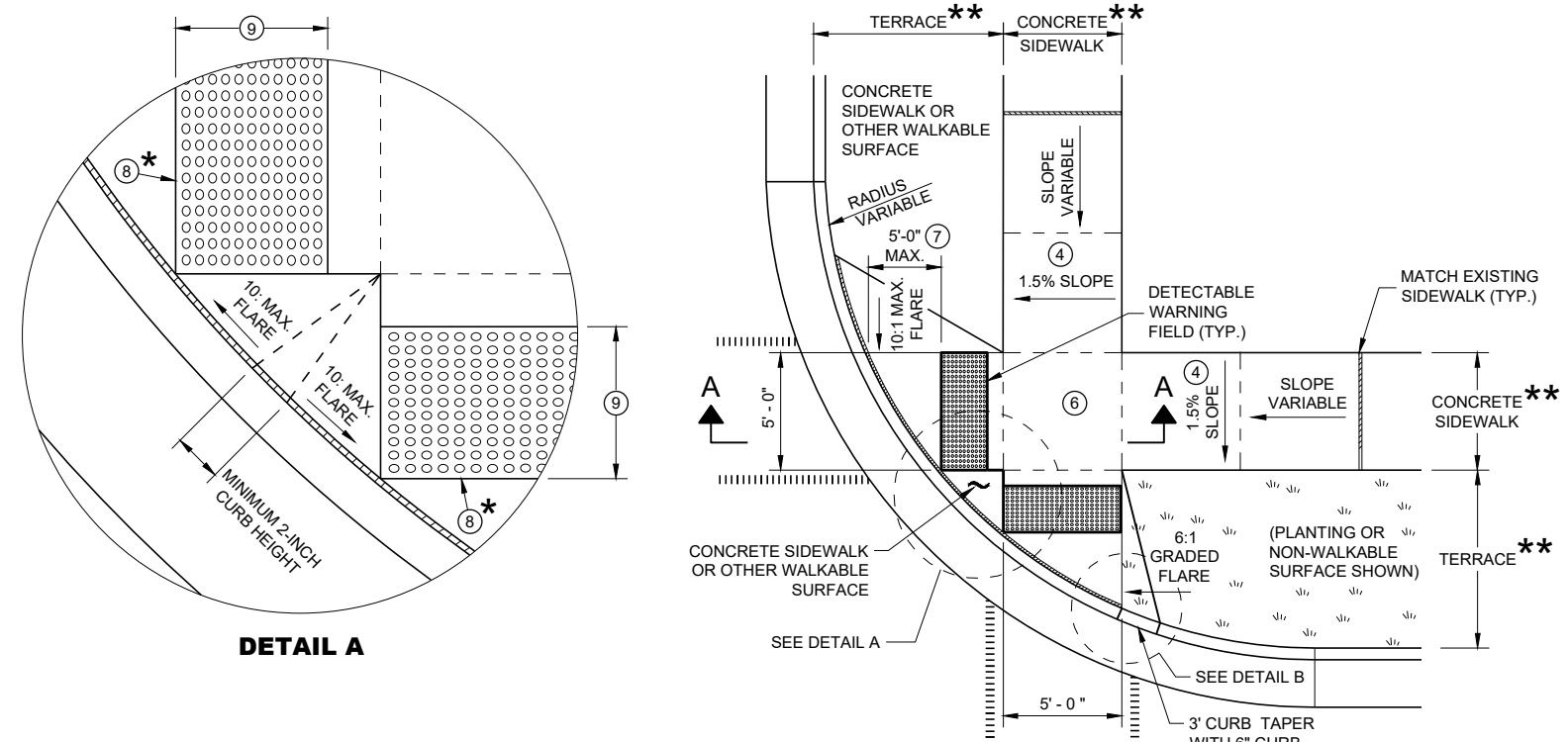
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
- WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.
- TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.
- DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.
- SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

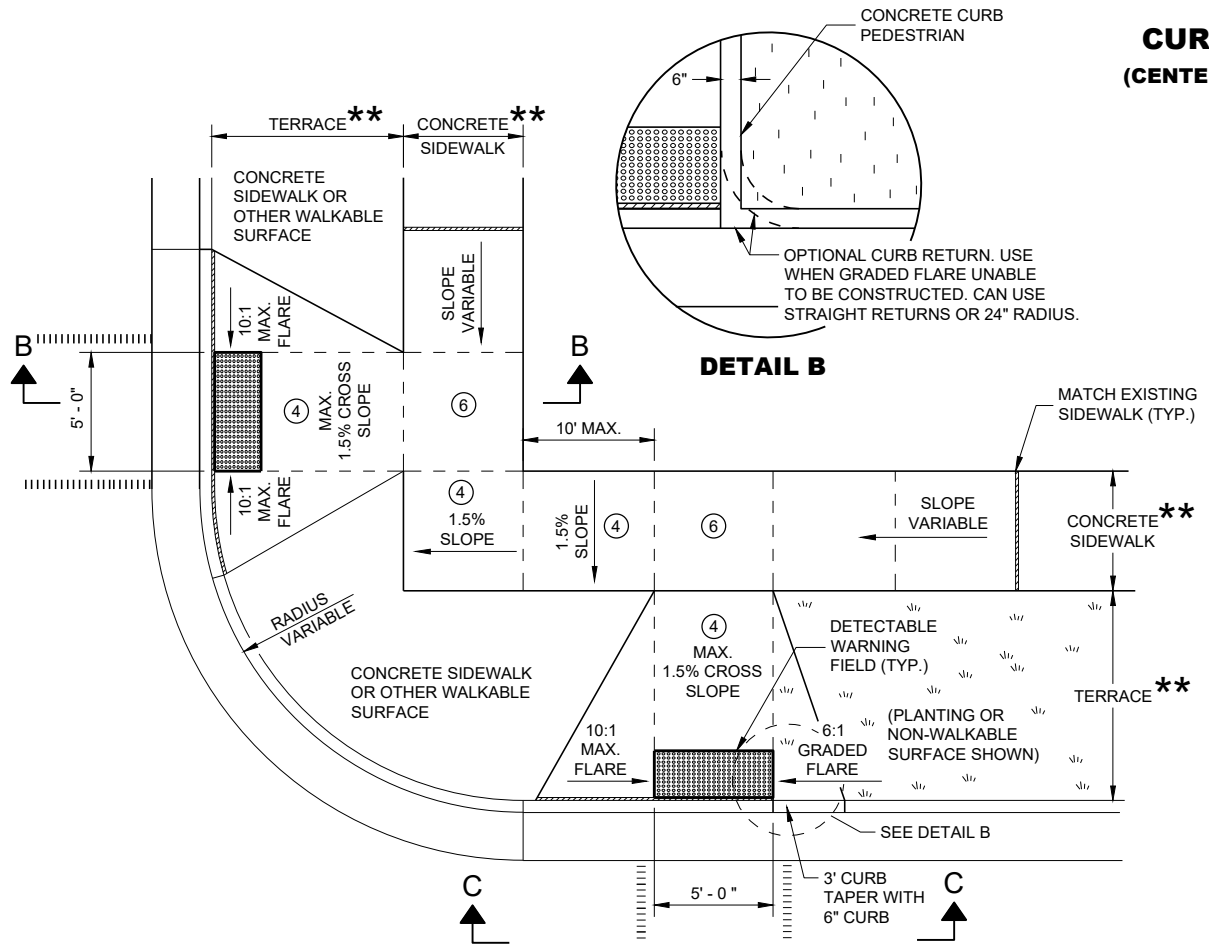
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS
TYPE 1 AND 1-A**

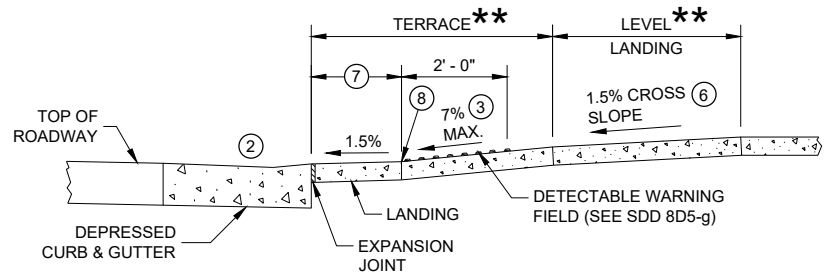
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



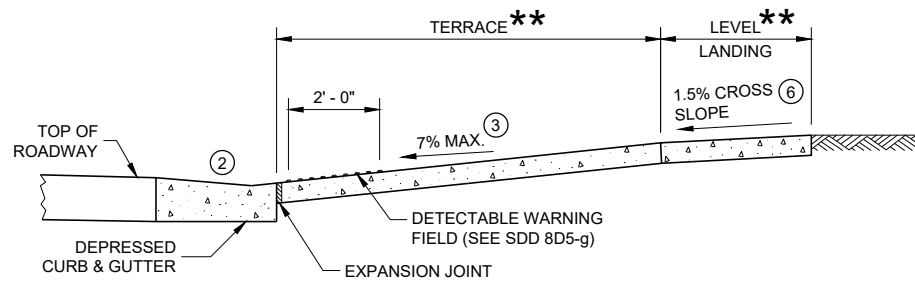
PLAN VIEW CURB RAMP TYPE 2 (CENTER OF CORNER RADIUS)



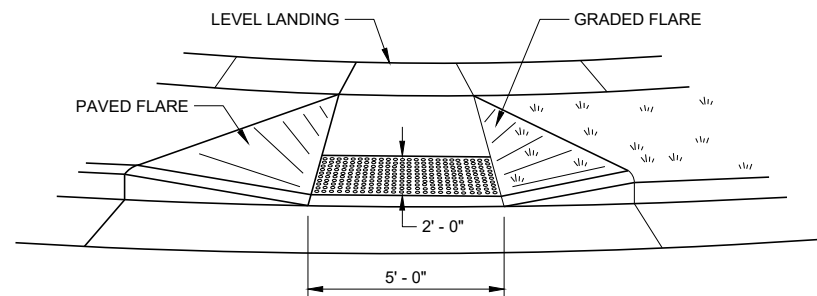
PLAN VIEW CURB RAMP TYPE 3 (OUTSIDE OF CROSSWALK AREA)



SECTION A - A FOR TYPE 2



SECTION B - B FOR TYPE 3



VIEW C - C FOR TYPE 3

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE (2.67% OR LESS) AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN DISTANCE IS LESS THAN 6' - 0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

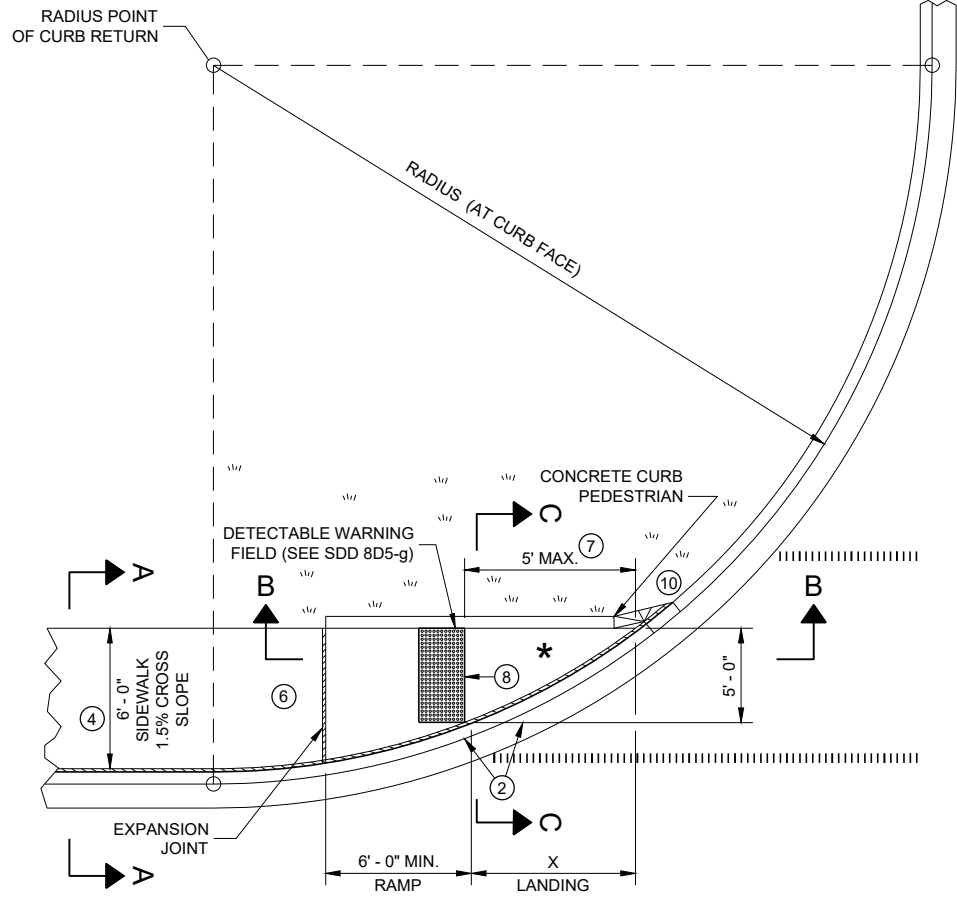
** WIDTH SHOWN ELSEWHERE IN THE PLANS

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPE 2 AND 3

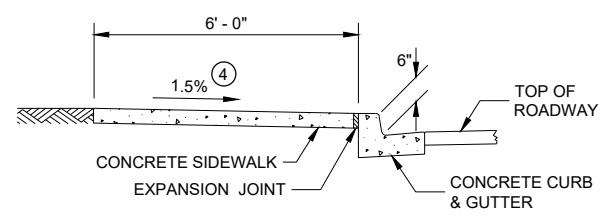
STATE OF WISCONSIN
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PLAN VIEW CURB RAMP TYPE 4A

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"
15 FEET	6' - 5 1/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



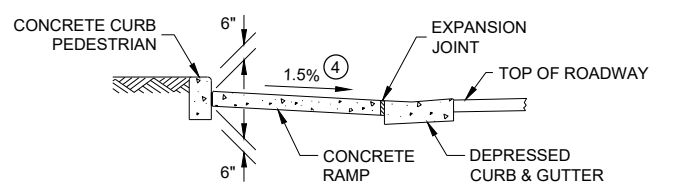
SECTION A - A FOR TYPE 4A

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

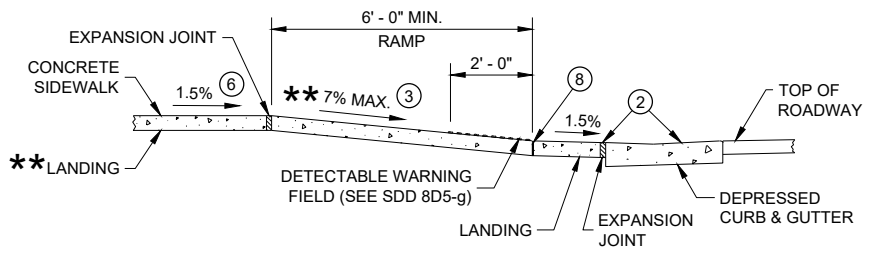
LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- - - CONTRACTION JOINT SIDEWALK
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)



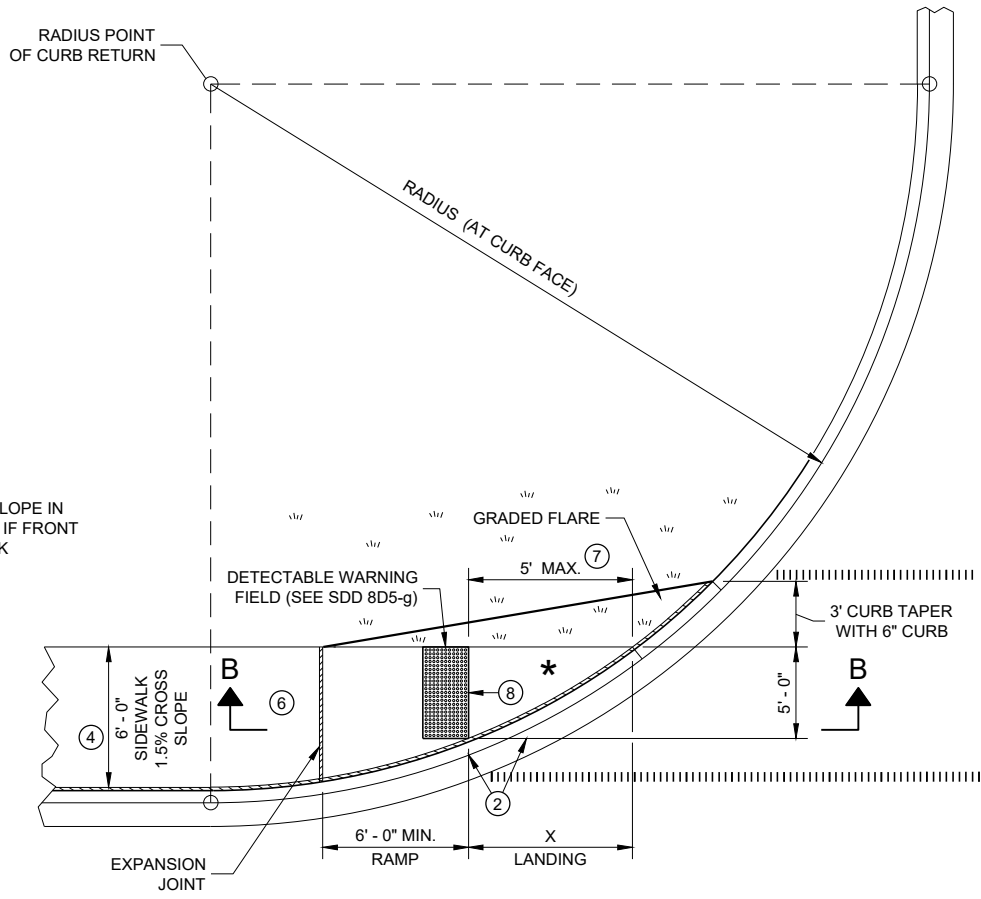
SECTION C - C FOR TYPE 4A

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

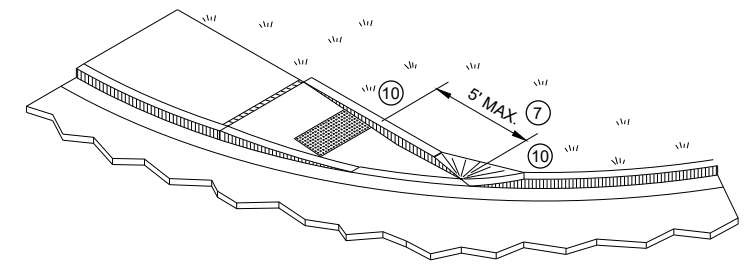


SECTION B - B FOR TYPE 4A AND TYPE 4A1

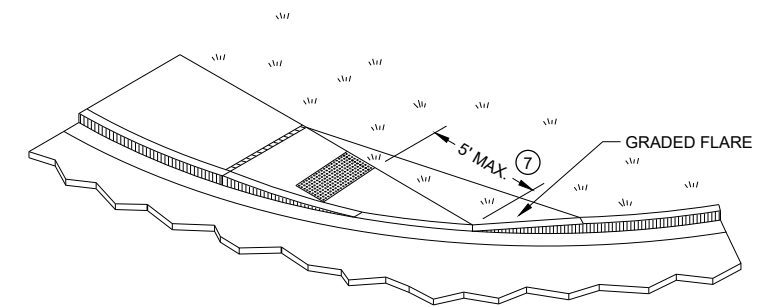
** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED



PLAN VIEW CURB RAMP TYPE 4A1



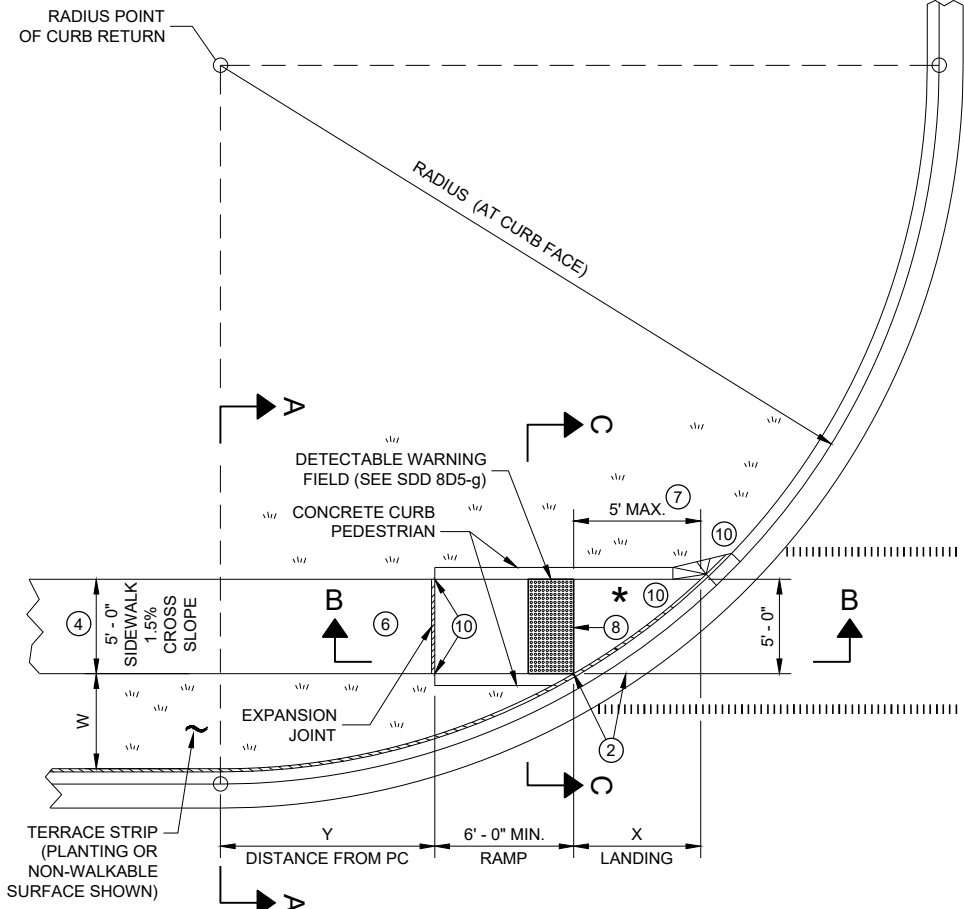
ISOMETRIC VIEW FOR TYPE 4A



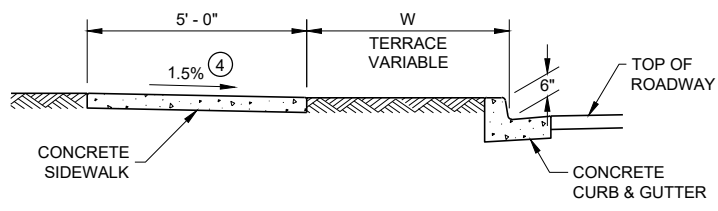
ISOMETRIC VIEW FOR TYPE 4A1

**CURB RAMPS
TYPE 4A AND 4A1**

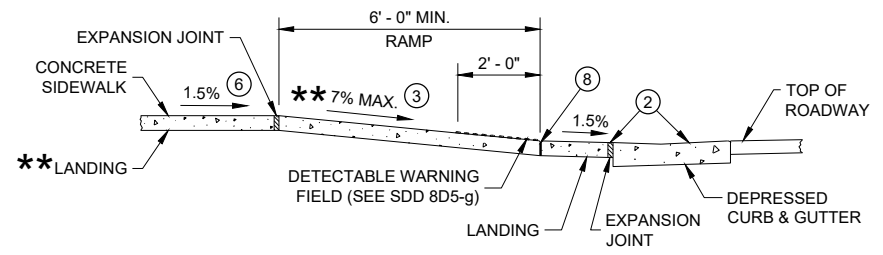
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**PLAN VIEW
CURB RAMP TYPE 4B**



SECTION A - A FOR TYPE 4B

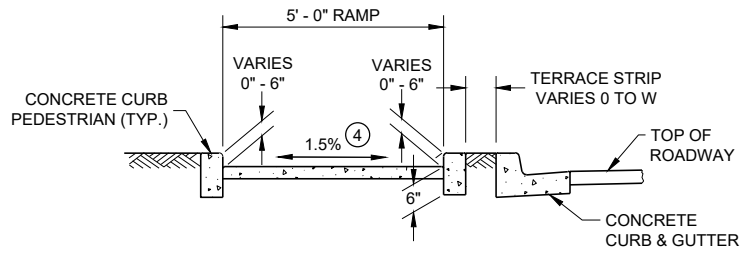


**SECTION B - B FOR
TYPE 4B AND TYPE 4B1**

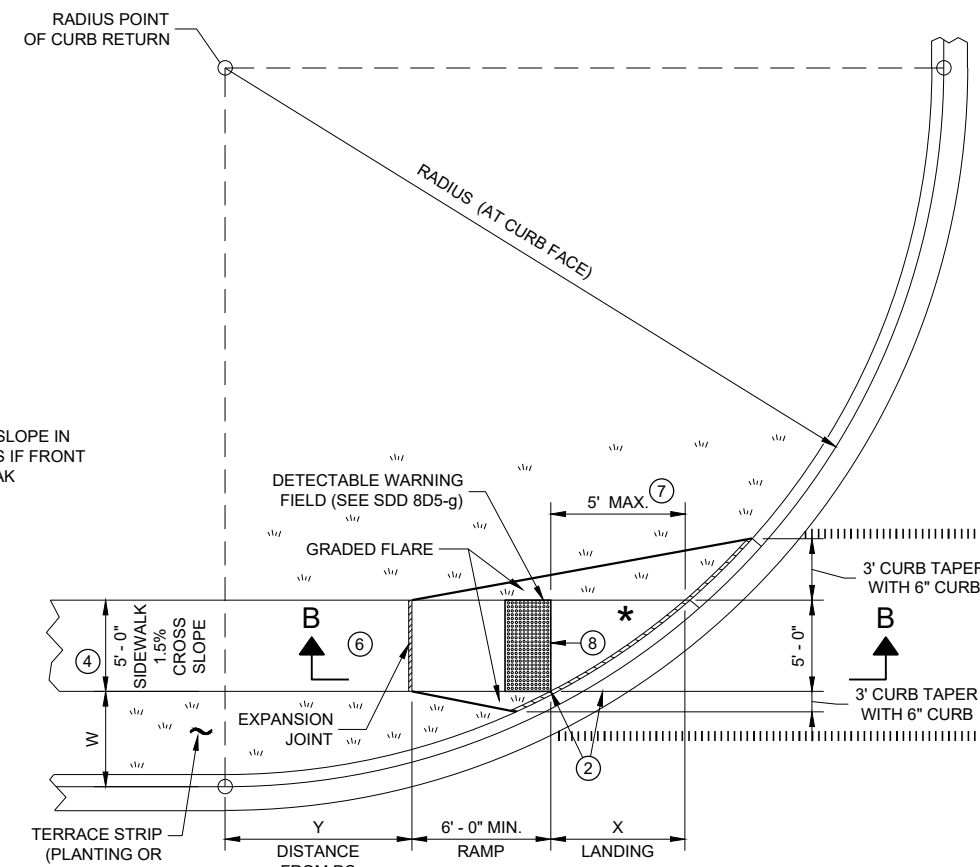
** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2' - 10 1/4"	0' - 5"	2' - 1"	1' - 4 1/2"	1' - 5"	2' - 1"	0' - 10"	2' - 7 1/2"	0' - 3 1/4"	3' - 0 1/4"						
15 FEET	4' - 6 3/4"	2' - 1 3/4"	3' - 9"	3' - 5 3/4"	3' - 1 1/4"	4' - 6"	2' - 6 3/4"	5' - 4 1/2"	2' - 1"	6' - 1"	1' - 8"	6' - 8 1/2"	1' - 3 1/4"	7' - 2 1/2"	0' - 10 3/4"	7' - 7 1/4"
20 FEET	5' - 9 3/4"	3' - 6 1/2"	4' - 11 1/2"	5' - 1 3/4"	4' - 3 3/4"	6' - 5 1/2"	3' - 8 3/4"	7' - 7"	3' - 3"	8' - 6 1/2"	2' - 10"	9' - 4 1/2"	2' - 5 1/2"	10' - 1 1/4"	2' - 1 1/4"	10' - 9"
30 FEET			6' - 9 1/4"	7' - 11 1/4"	6' - 0 1/4"	9' - 8"	5' - 5"	11' - 1 3/4"	4' - 10 3/4"	12' - 5 3/4"	4' - 5 1/2"	13' - 7 3/4"	4' - 0 3/4"	14' - 8 1/2"	3' - 8 1/2"	15' - 8 1/4"
40 FEET									6' - 1 3/4"	15' - 8 1/2"	5' - 8"	17' - 2"	5' - 3"	18' - 5 3/4"	4' - 10 3/4"	19' - 8 1/4"
50 FEET															5' - 10 1/4"	23' - 2"

INTERMEDIATE RADII CAN BE INTERPOLATED
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH



SECTION C - C FOR TYPE 4B



**PLAN VIEW
CURB RAMP TYPE 4B1**

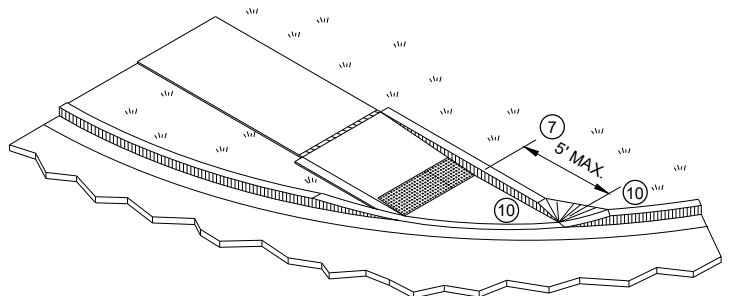
* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

LEGEND

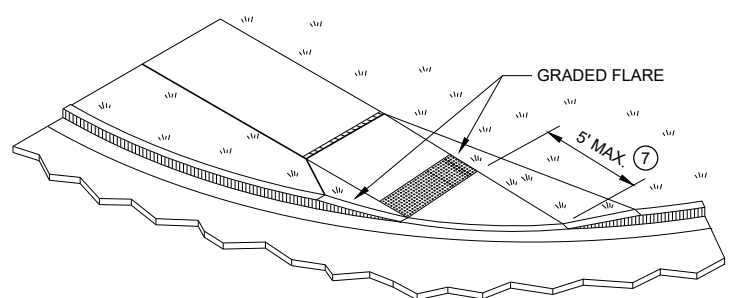
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/8" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



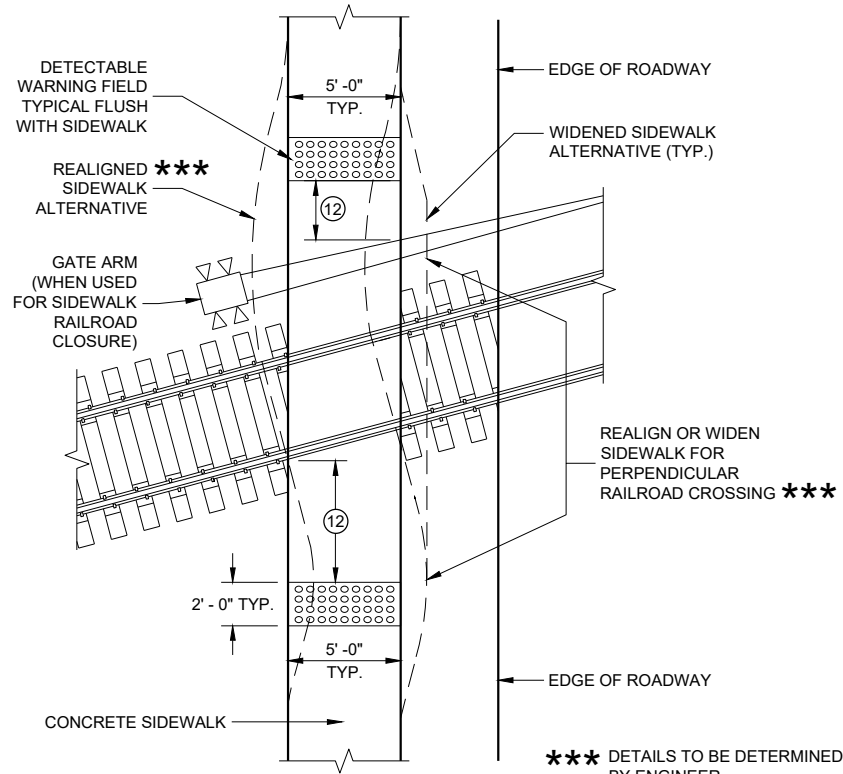
ISOMETRIC VIEW FOR TYPE 4B



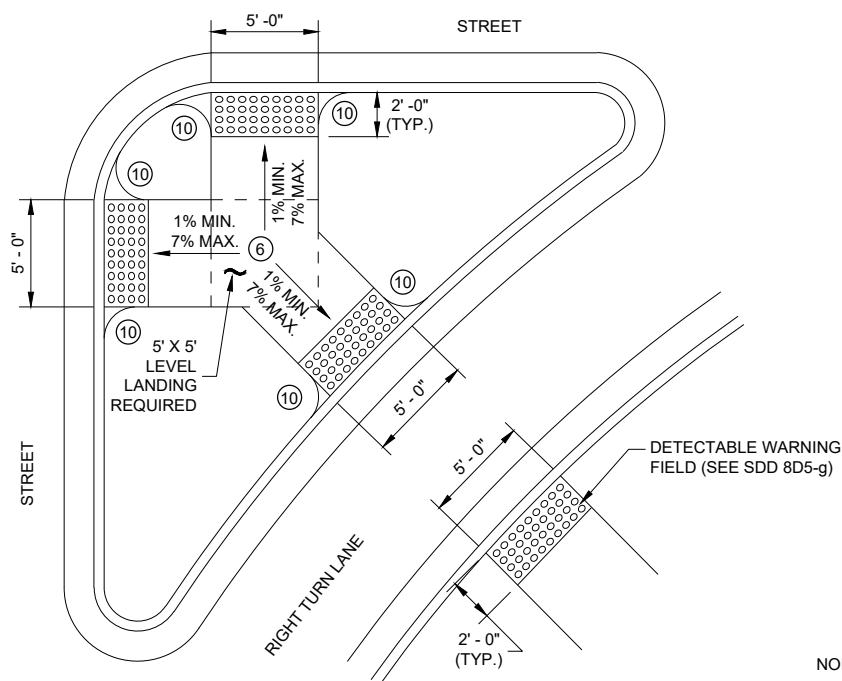
ISOMETRIC VIEW FOR TYPE 4B1

**CURB RAMPS
TYPE 4B AND 4B1**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

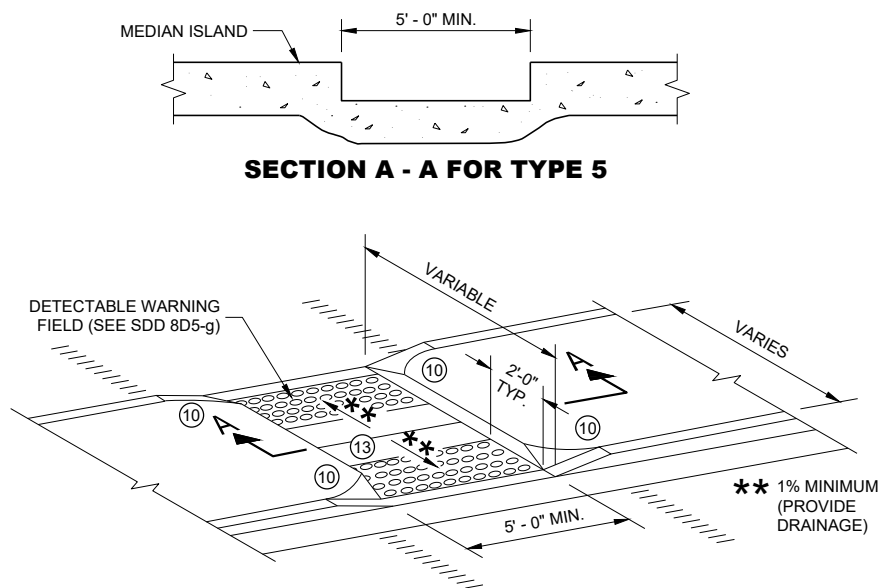


CURB RAMP TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING

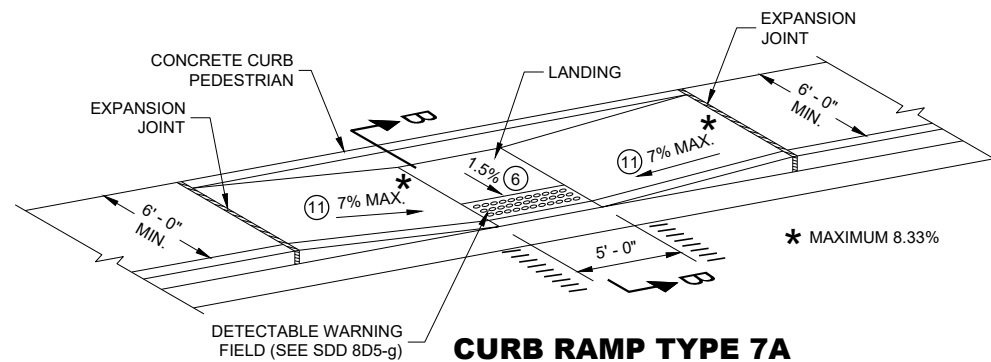


CURB RAMP TYPE 6
DETECTABLE WARNING AT ISLANDS

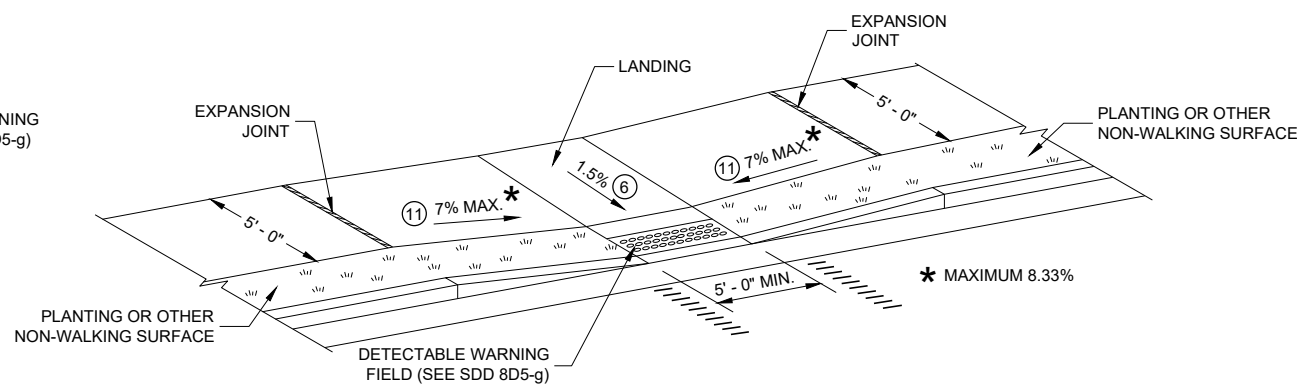
REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



CURB RAMP TYPE 5
MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A
MID BLOCK CROSSING



CURB RAMP TYPE 7B
MID BLOCK CROSSING

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

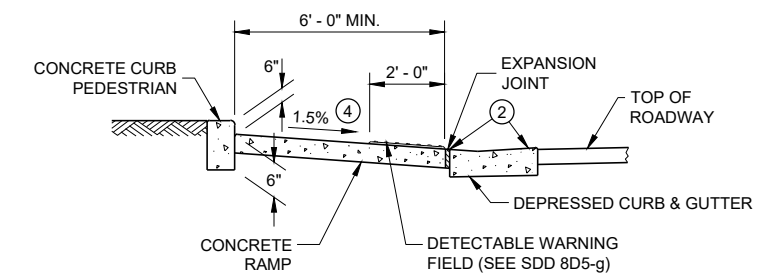
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- (2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- (3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- (4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- (6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- (10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- (11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- (12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- (13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

LEGEND

- ===== 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

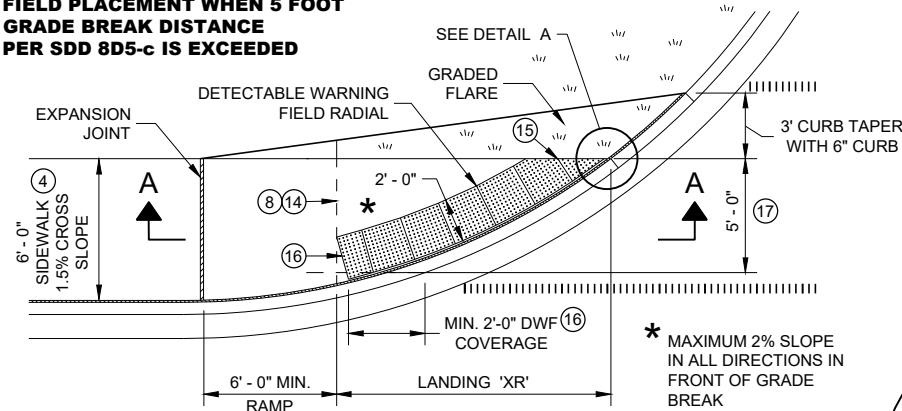


SECTION B - B FOR TYPE 7A

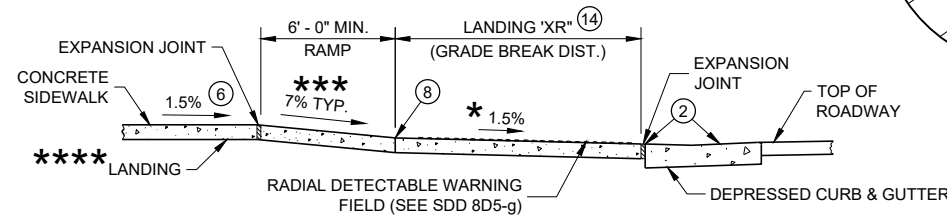
CURB RAMPS
TYPE 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-c IS EXCEEDED



PLAN VIEW CURB RAMP TYPE 4A1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)



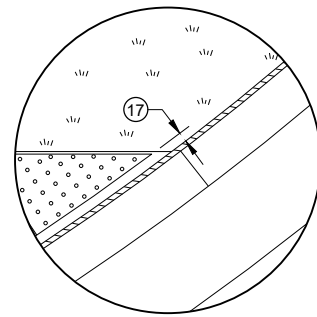
SECTION A - A FOR TYPE 4A1

**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT SIDEWALK
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

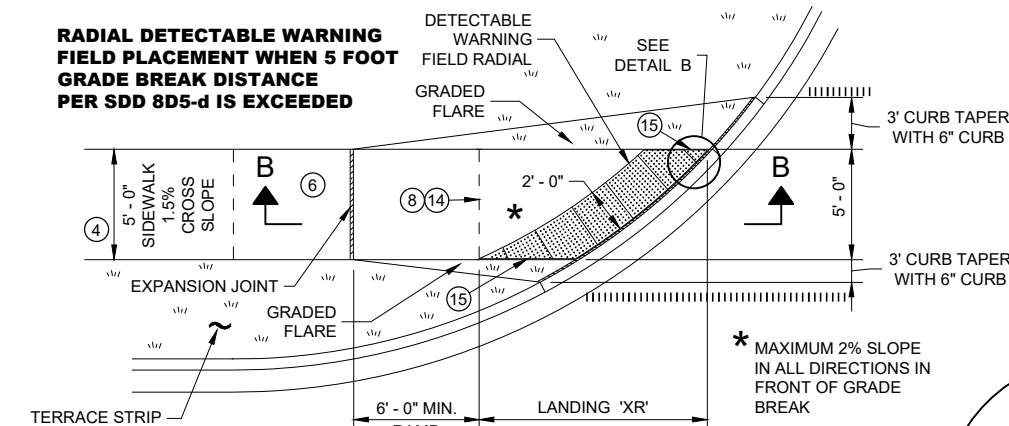


DETAIL A

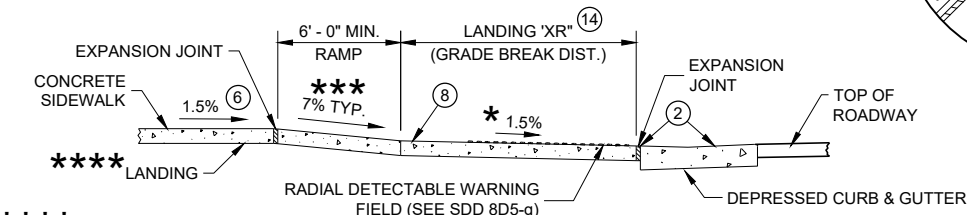
GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B RAMPS ARE NOT SHOWN.
- REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.
- FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.
- DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.
- 2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- 4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
- 8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- 14) CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
- 15) FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
- 16) USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
- 17) A MAXIMUM 3 INCH CONCRETE BORDER WITH IS ALLOWABLE IN FROM OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-d IS EXCEEDED



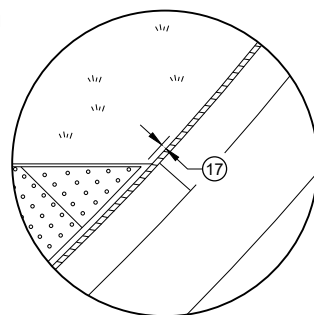
PLAN VIEW CURB RAMP TYPE 4B1 (GRADE BREAK DISTANCE GREATER THAN 5 FEET)



SECTION B - B FOR TYPE 4B1

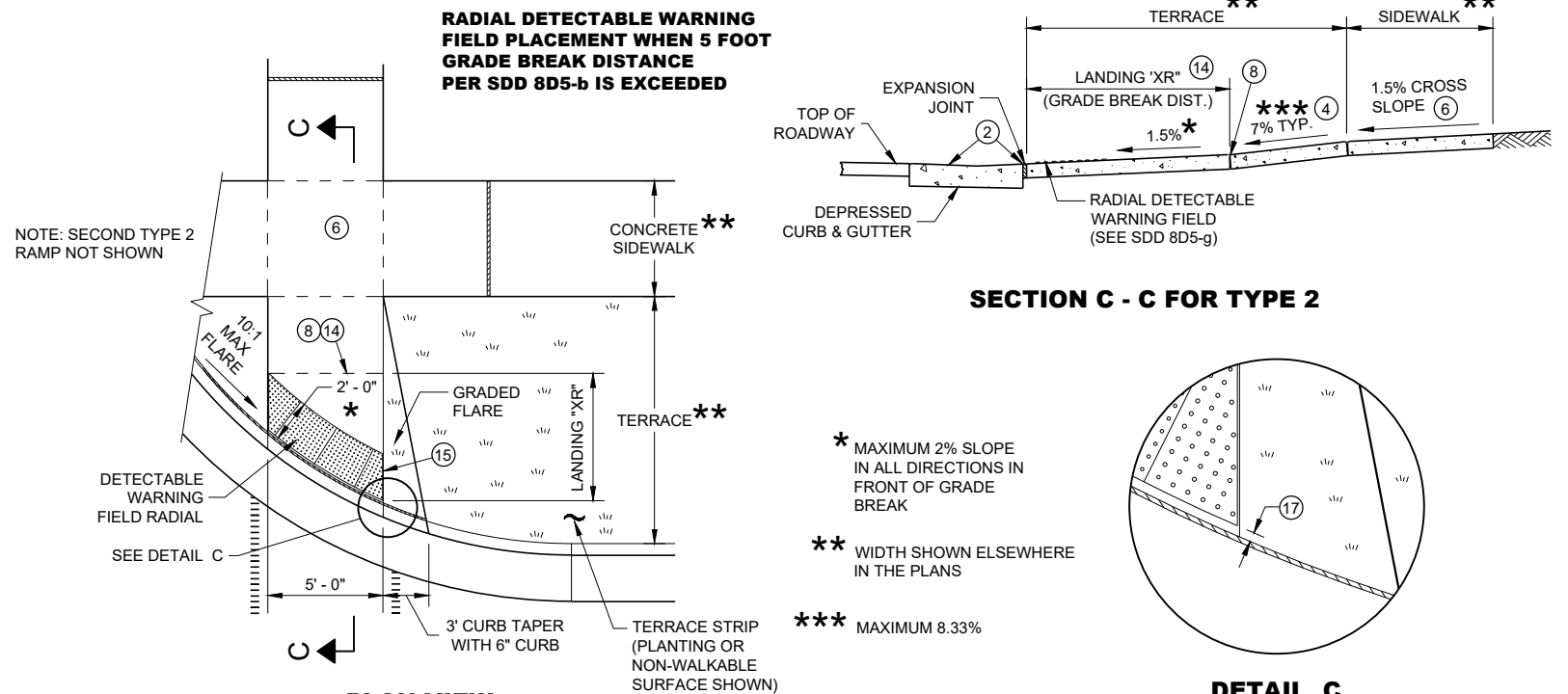
**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

*** MAXIMUM 8.33%



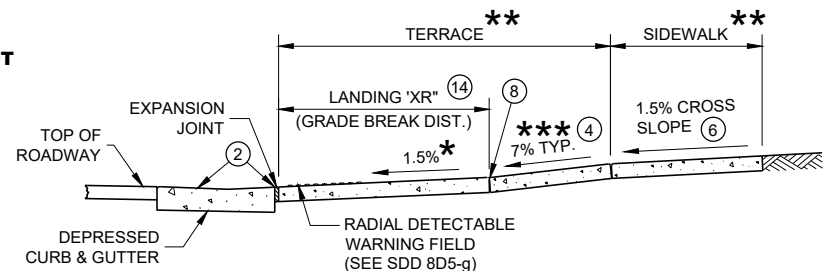
DETAIL B

RADIAL DETECTABLE WARNING FIELD PLACEMENT WHEN 5 FOOT GRADE BREAK DISTANCE PER SDD 8D5-b IS EXCEEDED



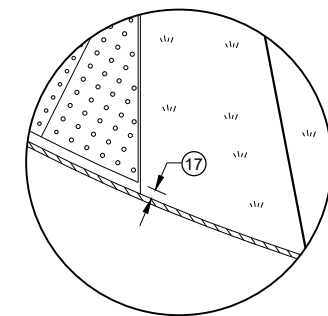
PLAN VIEW CURB RAMP TYPE 2 (GRADE BREAK DISTANCE GREATER THAN 5 FEET) (ON LINE WITH SIDEWALK)

NOTE: SECOND TYPE 2 RAMP NOT SHOWN



SECTION C - C FOR TYPE 2

- * MAXIMUM 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS
- *** MAXIMUM 8.33%



DETAIL C

CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS

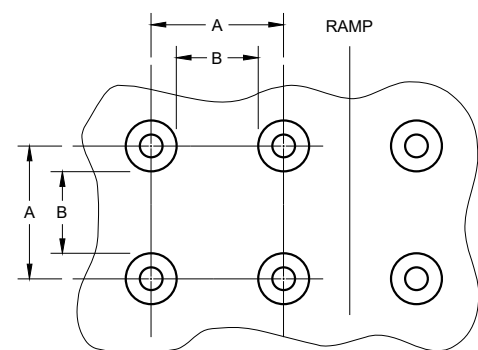
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

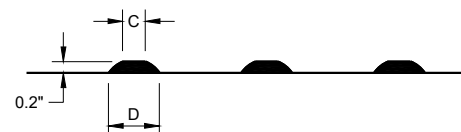
6

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

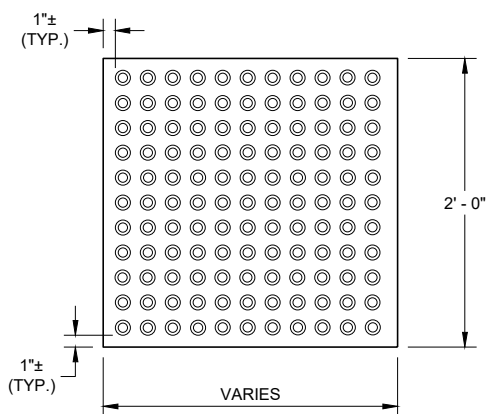


PLAN VIEW

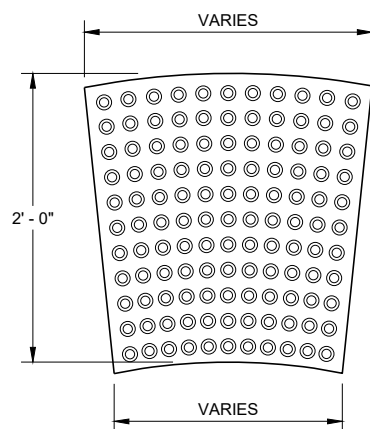


ELEVATION VIEW

**TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL**

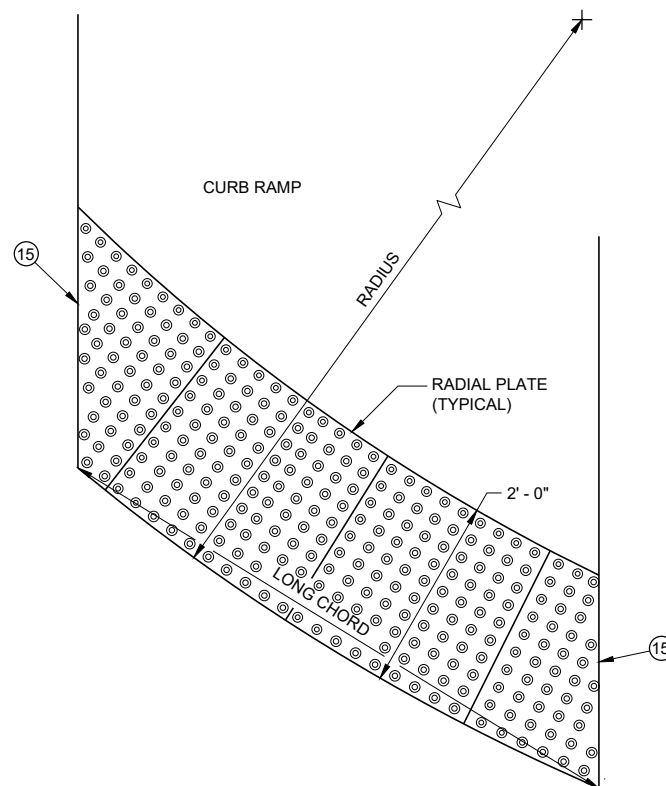


**RECTANGULAR
PLATES**

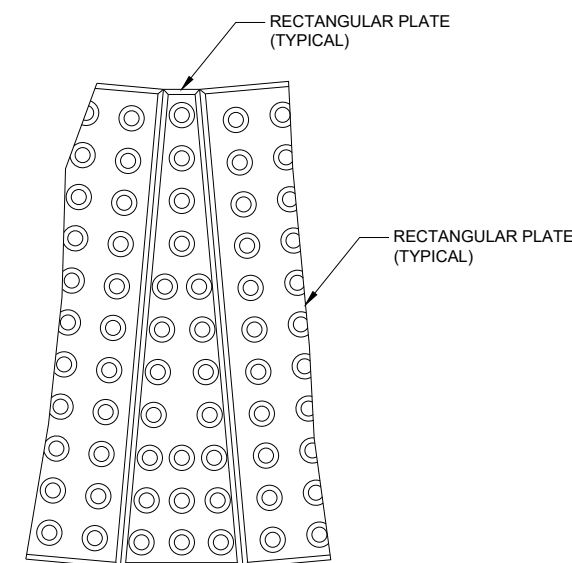


**RADIAL
PLATES**

**PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)**



**PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES**



**PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL**

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

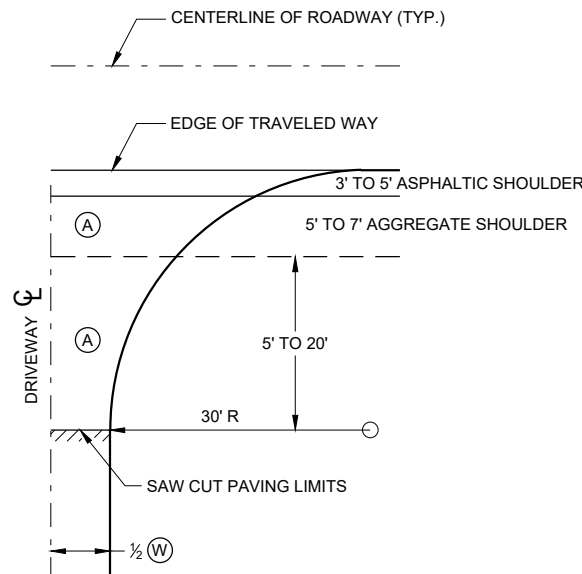
DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

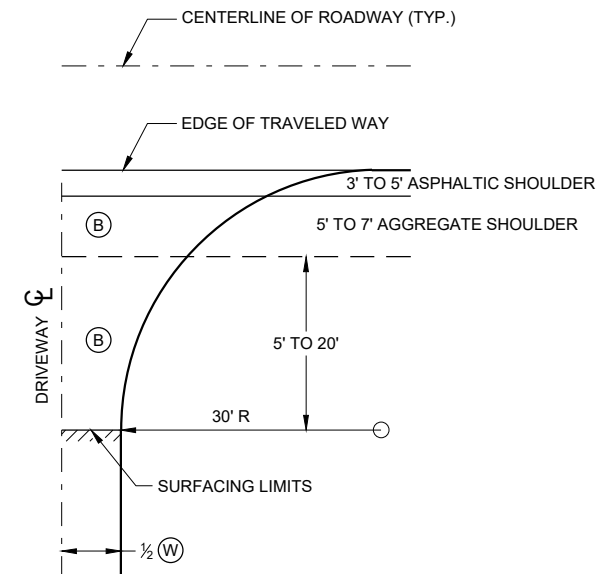
GENERAL NOTES

- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

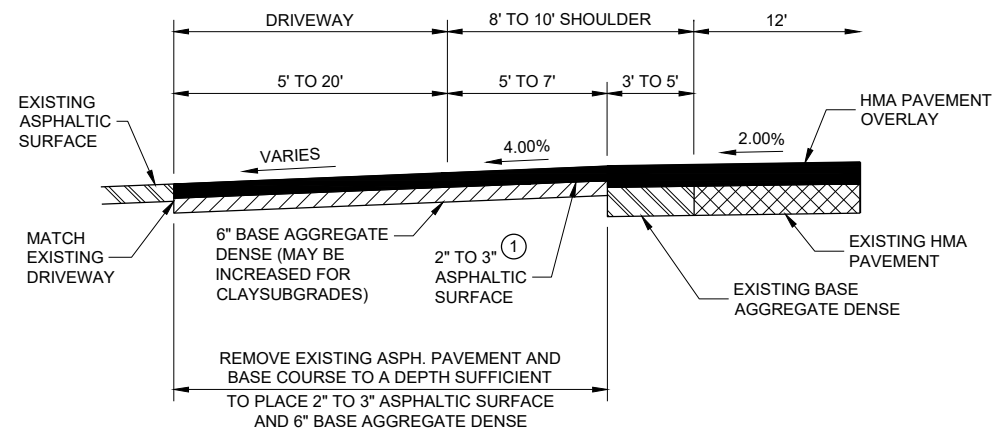


- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTH 16' MIN. - 24' MAX.

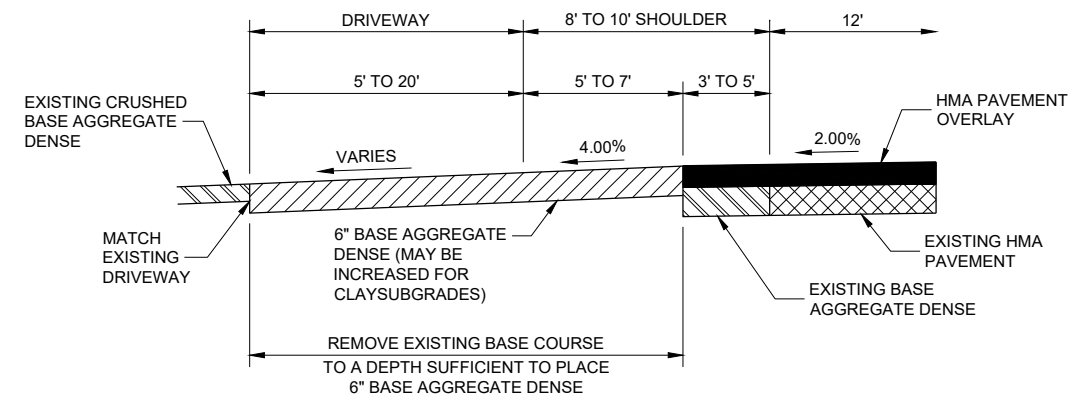
**PLAN VIEW
HALF SECTION**



**PLAN VIEW
HALF SECTION**



**PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS**



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

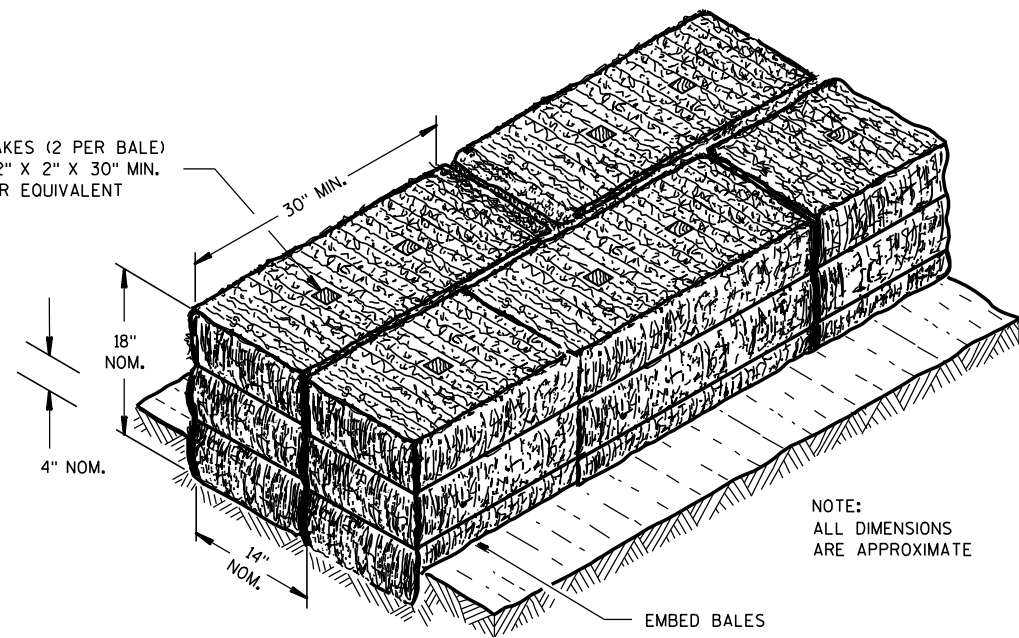
**DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

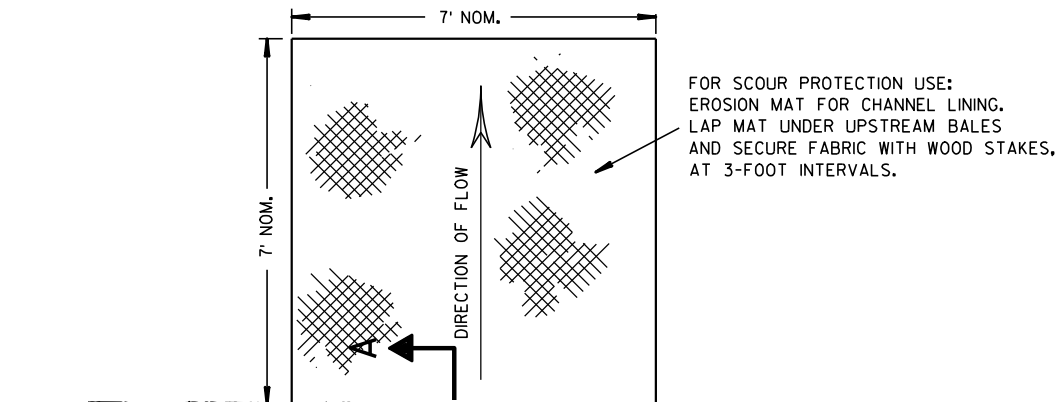
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



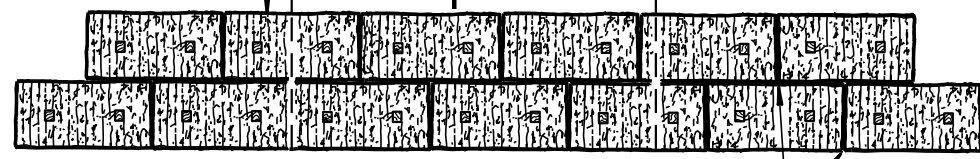
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A



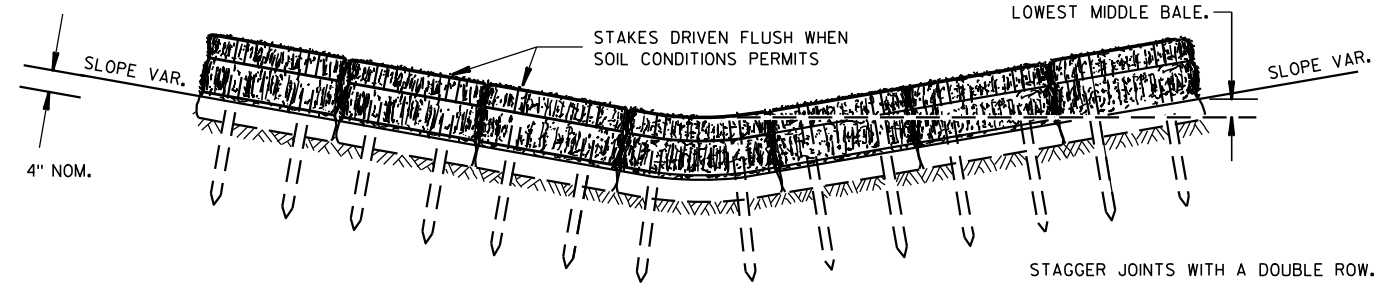
FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.



STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

PLAN VIEW

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



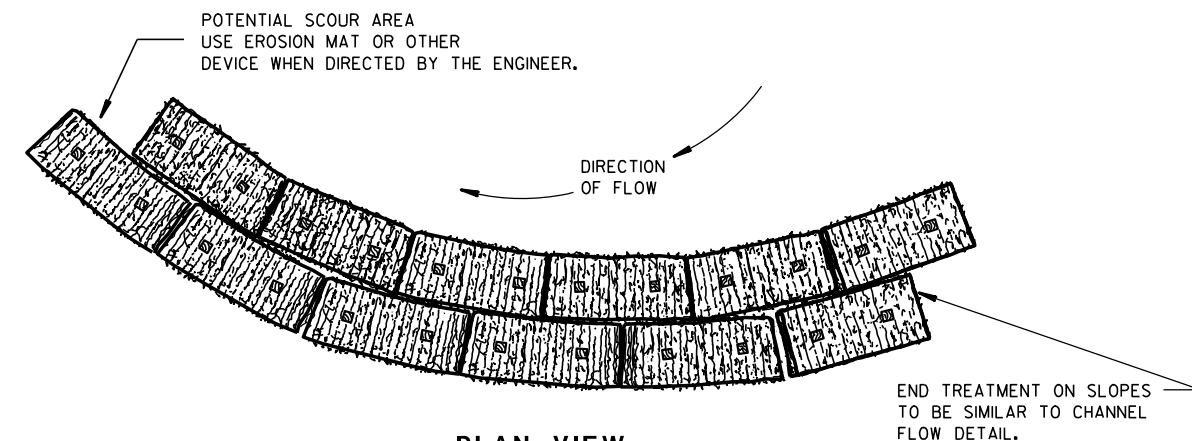
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

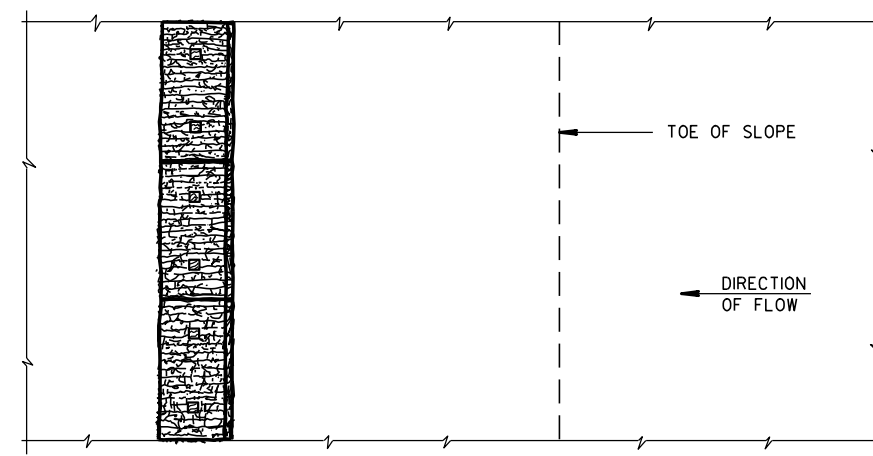
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

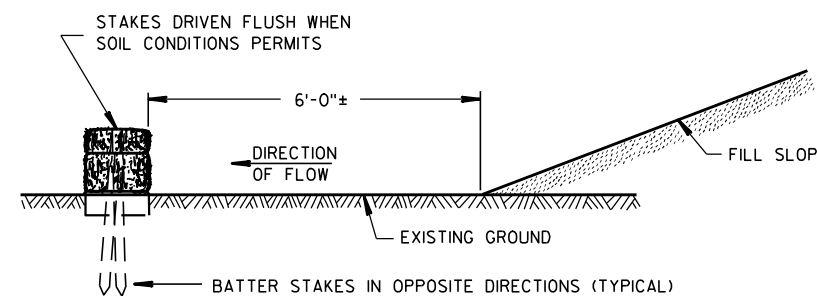


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

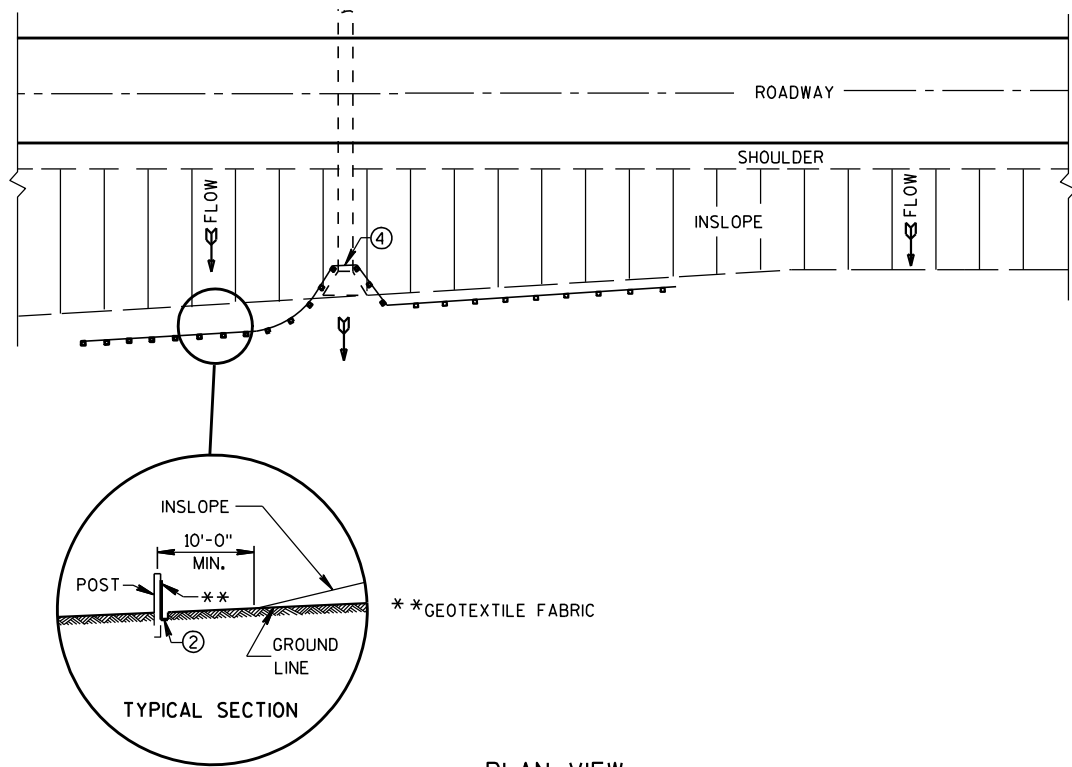
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

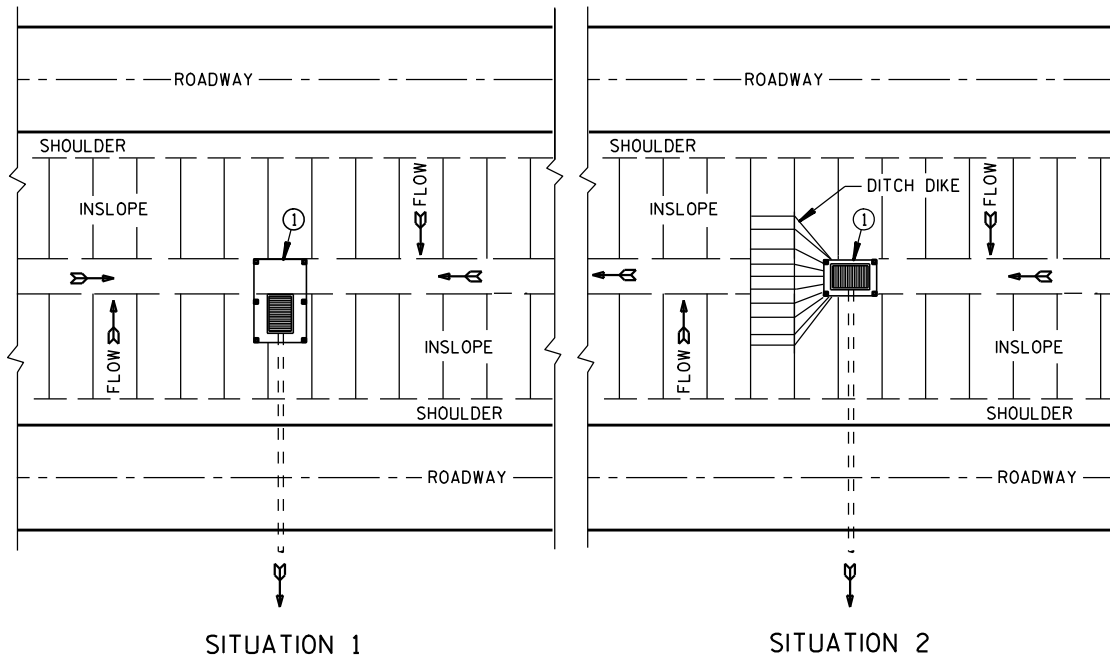
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

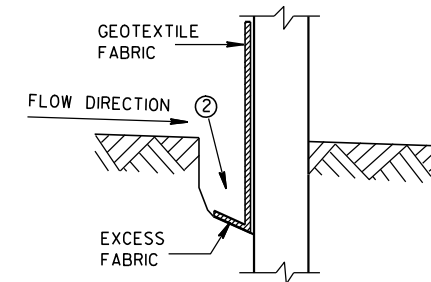


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

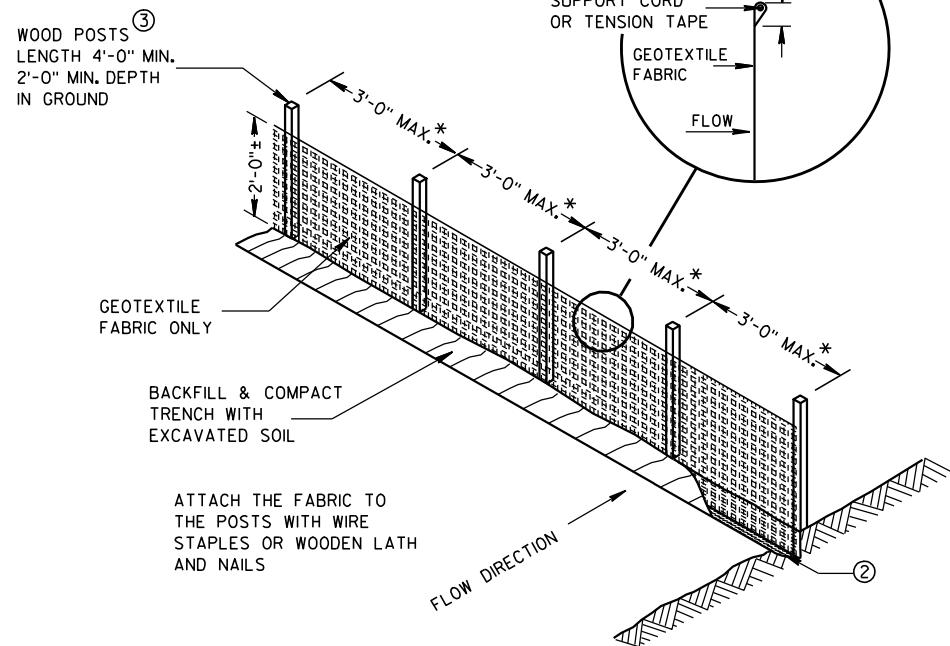
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

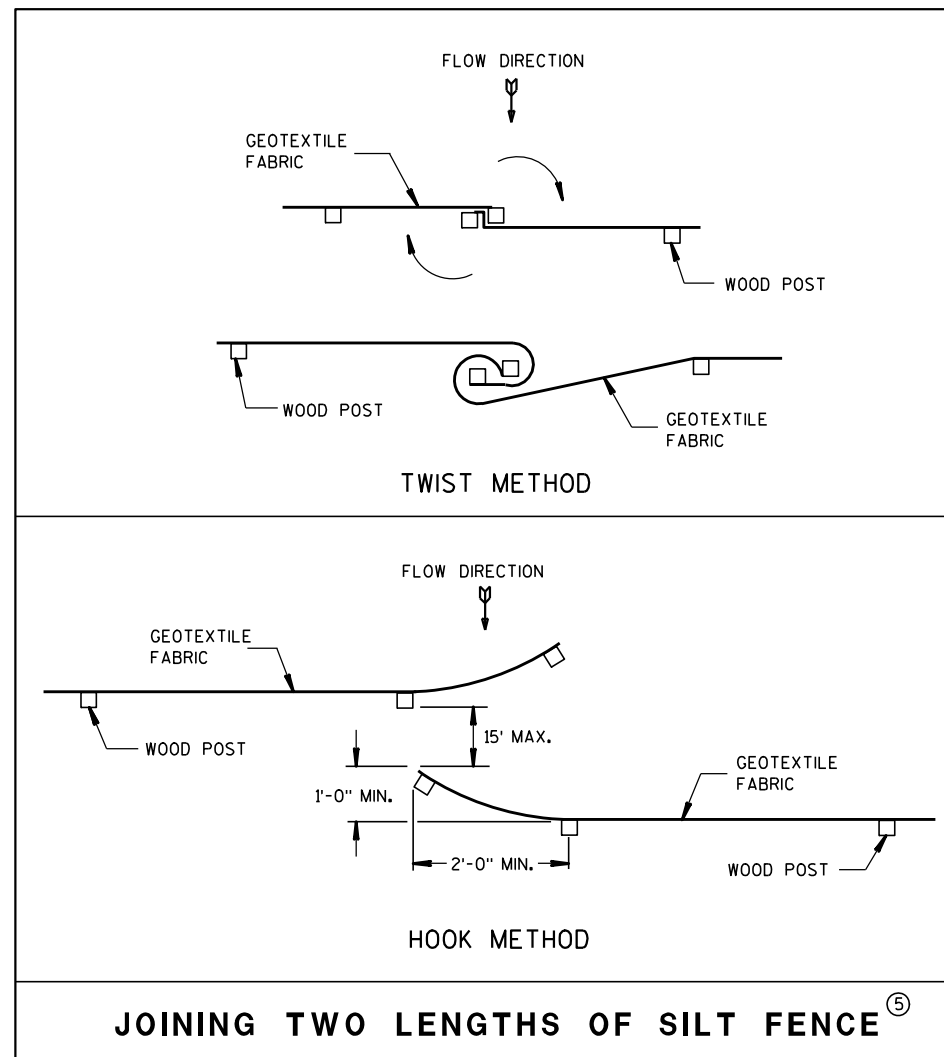


TRENCH DETAIL

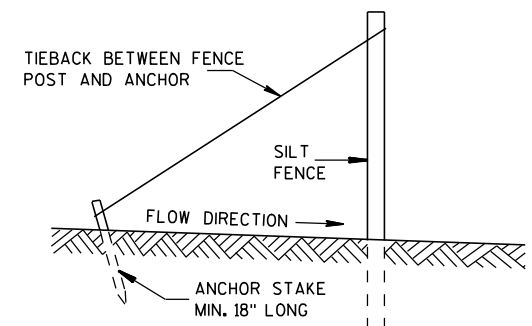
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

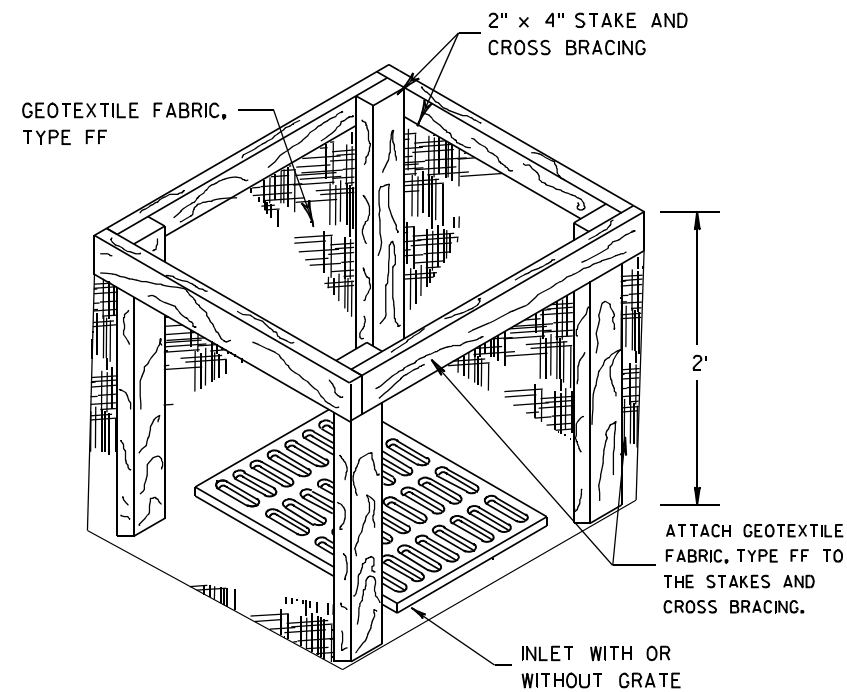
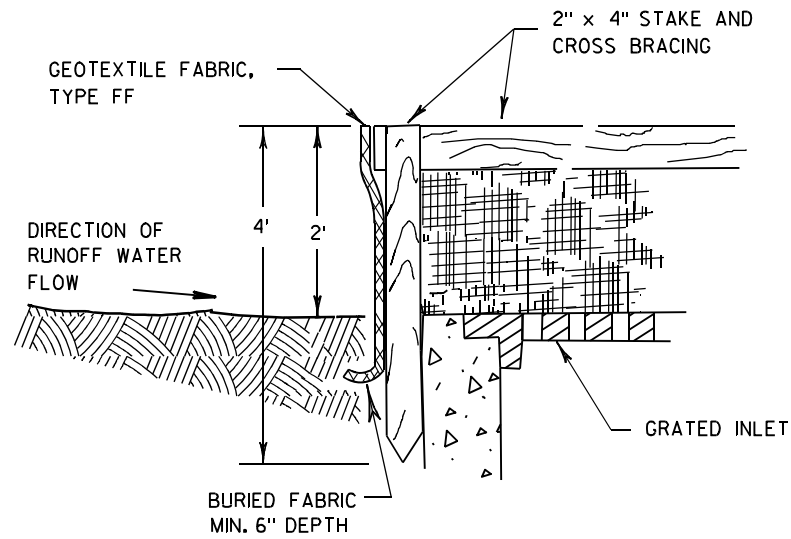


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



INLET PROTECTION, TYPE A

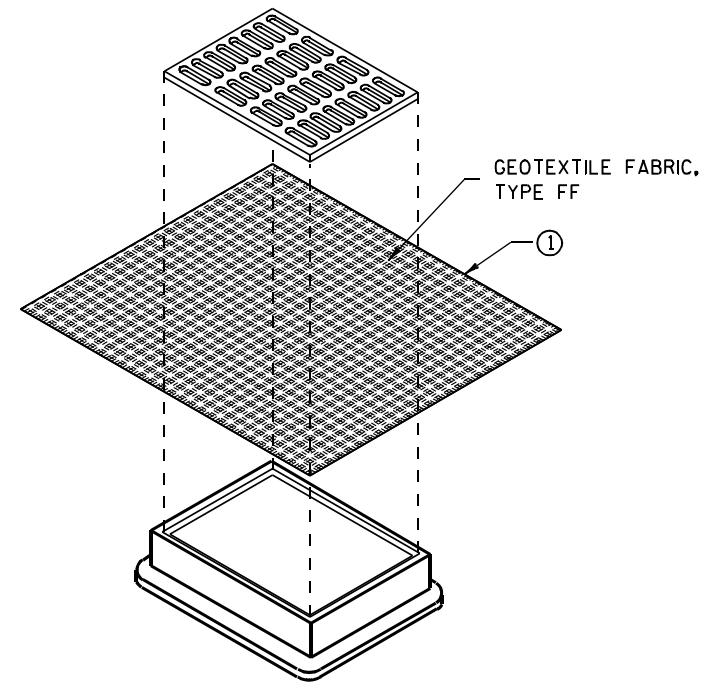
GENERAL NOTES

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

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

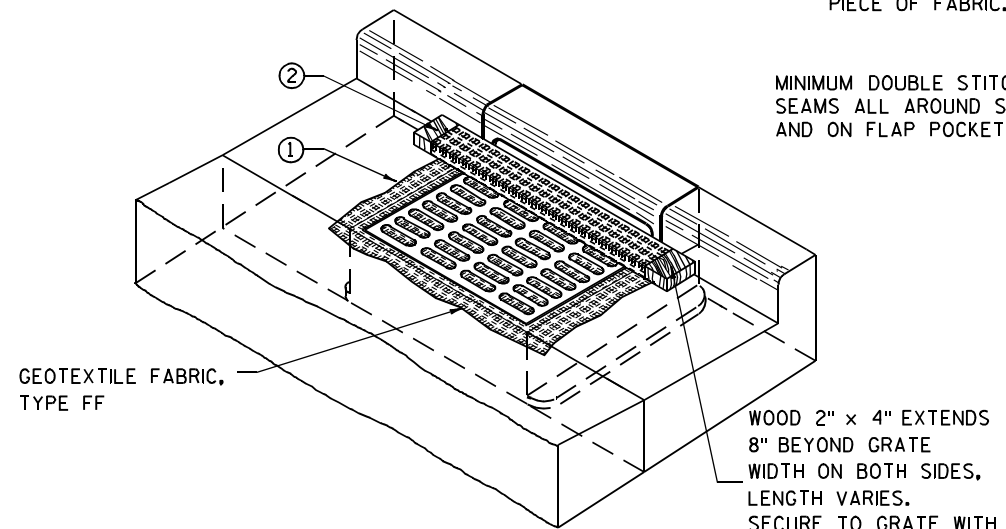
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

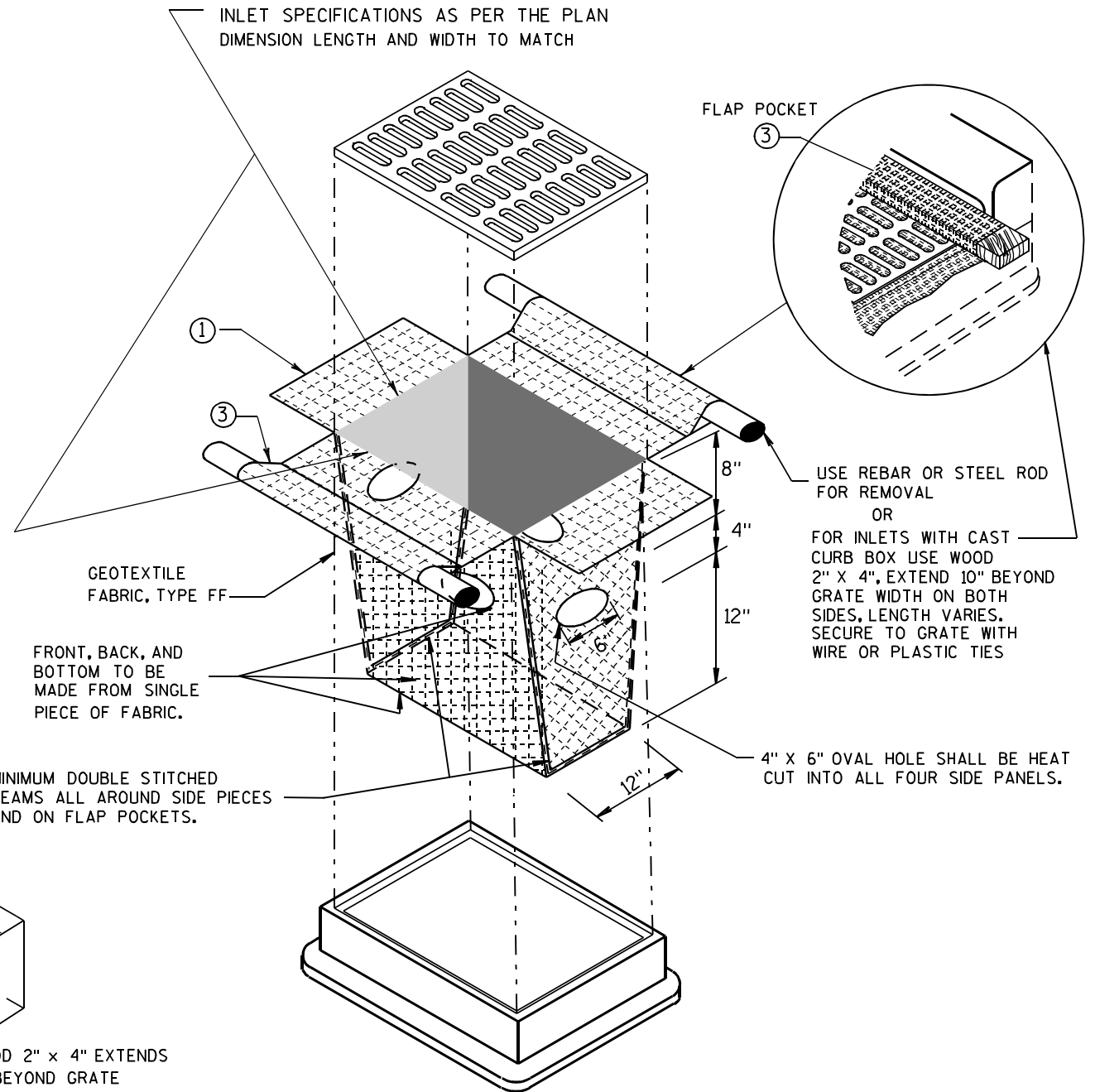
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

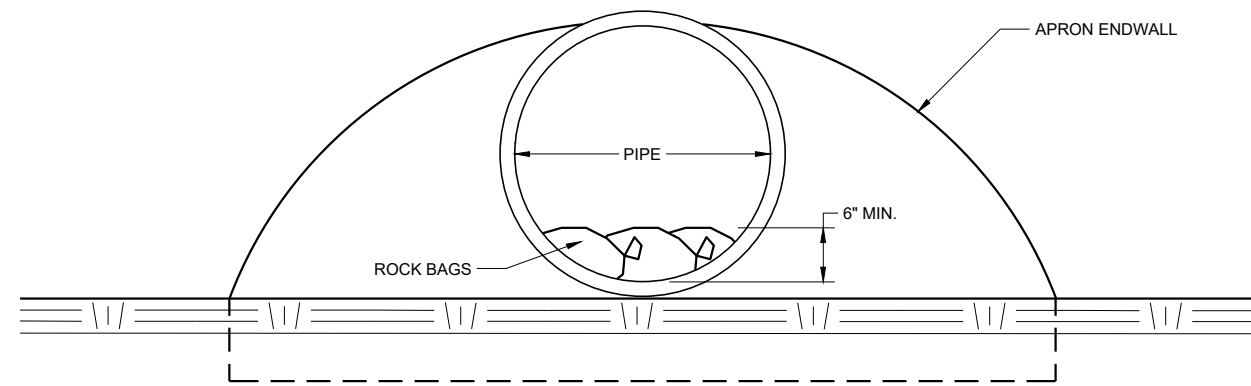
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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



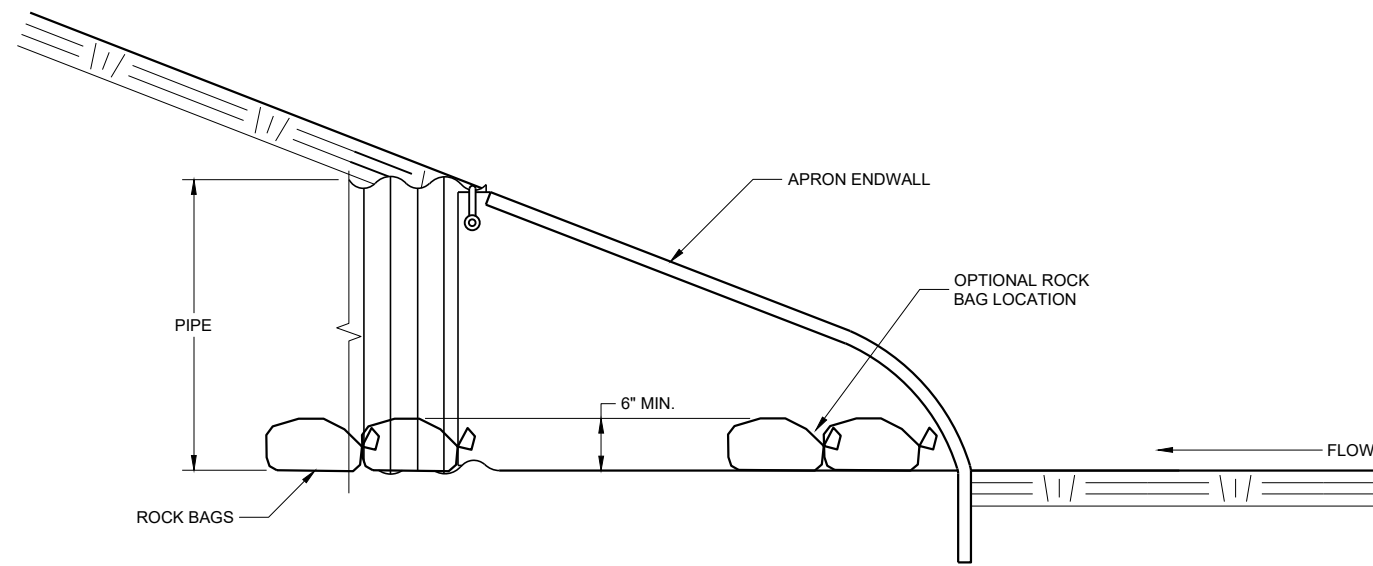
INLET PROTECTION, TYPE D

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

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

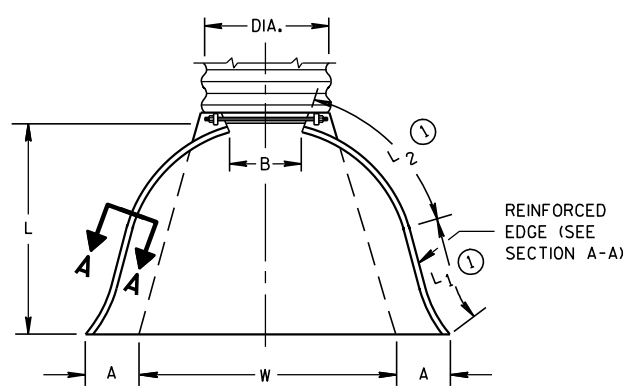
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1/2")	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

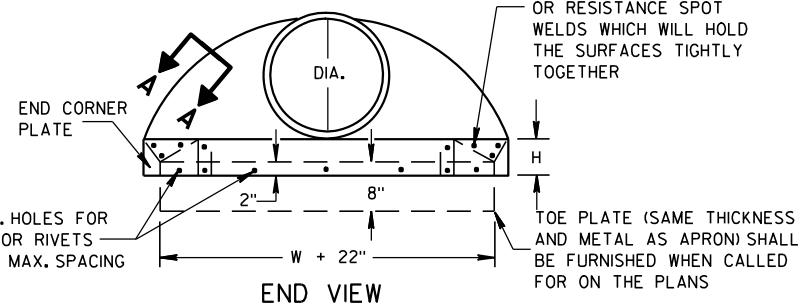
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	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



PLAN VIEW

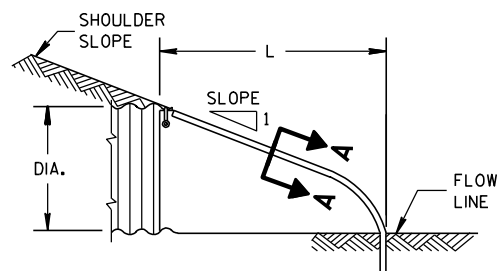
REINFORCED EDGE (SEE SECTION A-A)
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



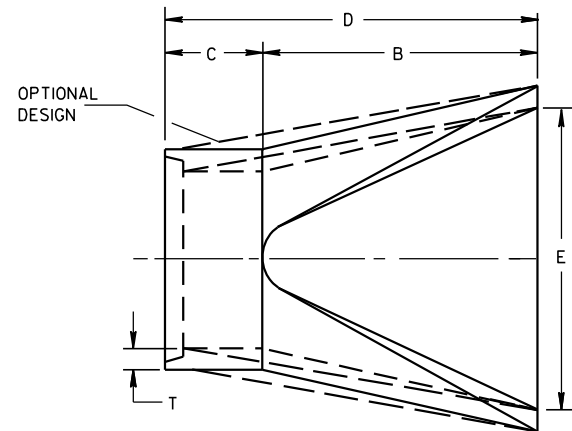
END VIEW

7/16" DIA. HOLES FOR BOLTS OR RIVETS 12" C-C MAX. SPACING

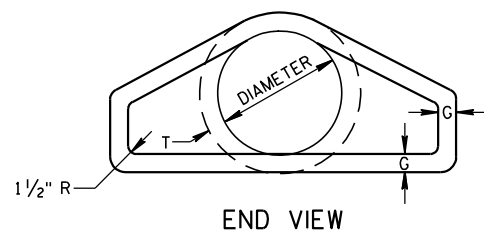
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



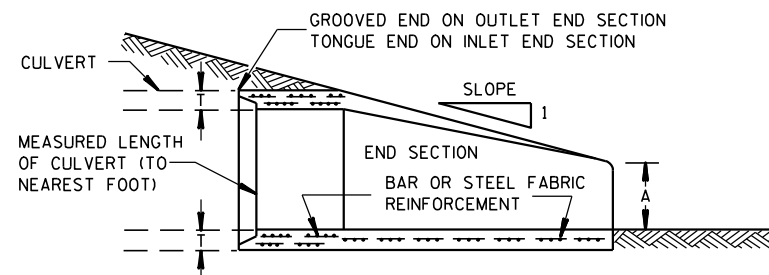
SIDE ELEVATION
METAL ENDWALLS



PLAN

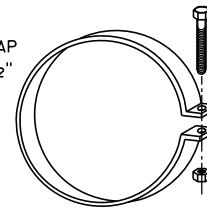


END VIEW



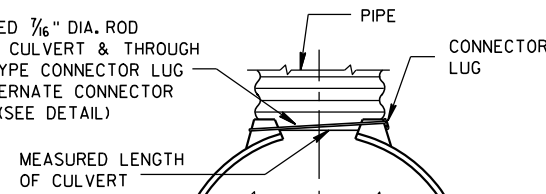
LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



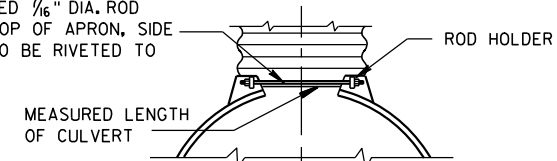
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP

THREADED 7/16" DIA. ROD AROUND CULVERT & THROUGH TANK TYPE CONNECTOR LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL)



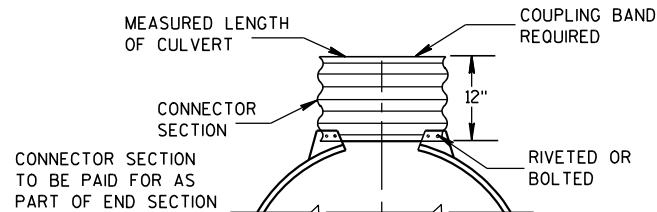
TYPE 1
FOR 12" THRU 24" CORR. PIPE

THREADED 7/16" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



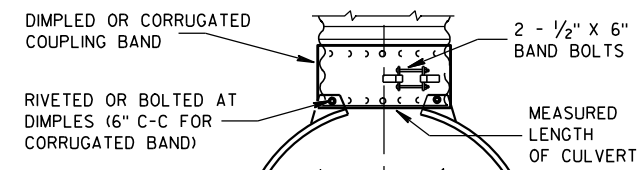
TYPE 2
FOR 30" THRU 96" CORR. PIPE

MEASURED LENGTH OF CULVERT
CONNECTOR SECTION TO BE PAID FOR AS PART OF END SECTION



TYPE 3
FOR 42" THRU 96" CORR. PIPE

DIMPLED OR CORRUGATED COUPLING BAND
RIVETED OR BOLTED AT DIMPLES (6" C-C FOR CORRUGATED BAND)



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

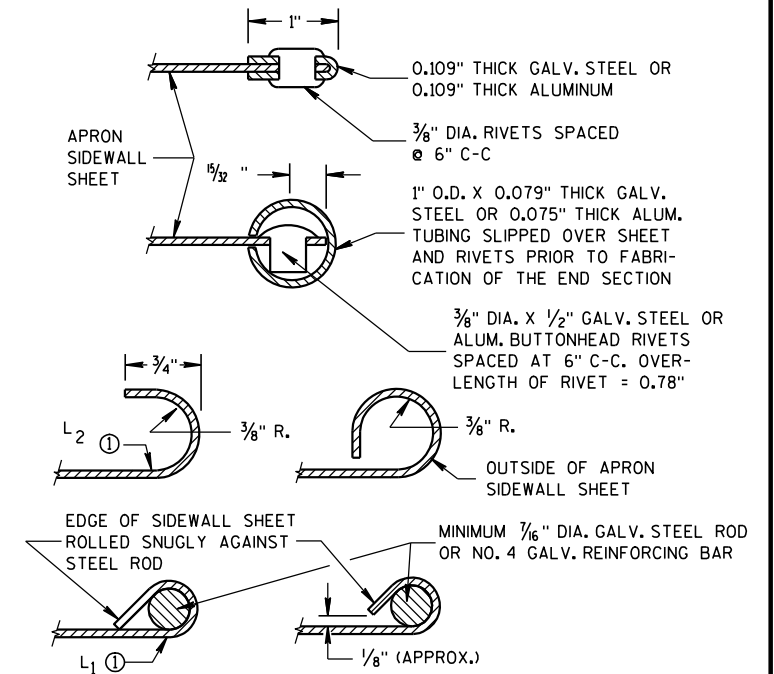
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

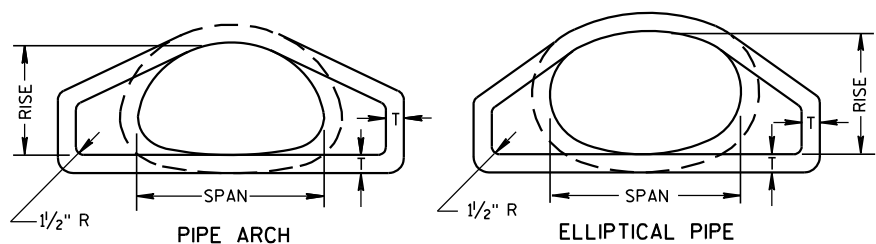
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

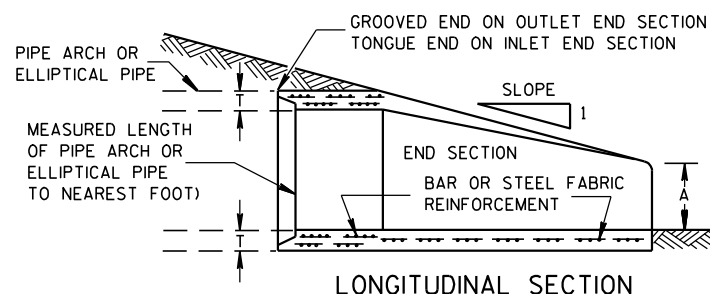
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

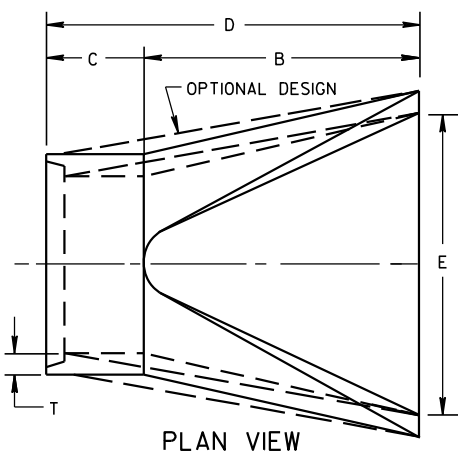


END VIEW

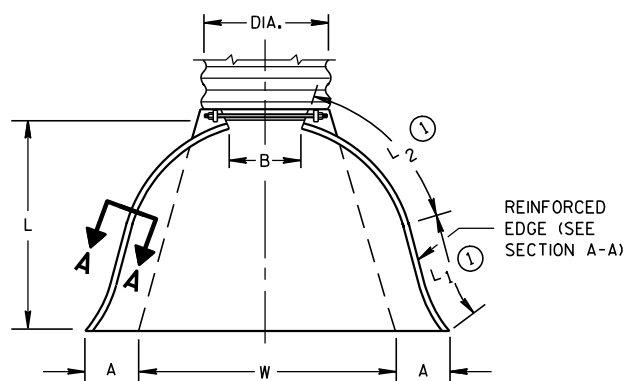


LONGITUDINAL SECTION

CONCRETE ENDWALLS

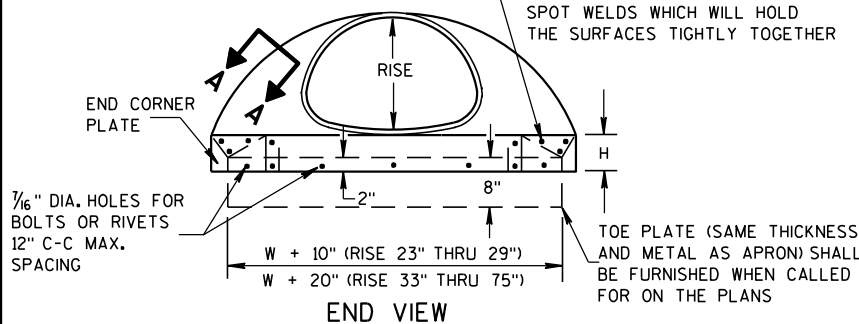


PLAN VIEW

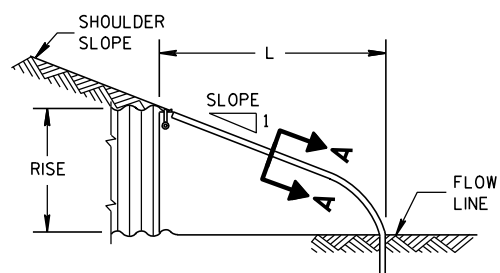


PLAN VIEW

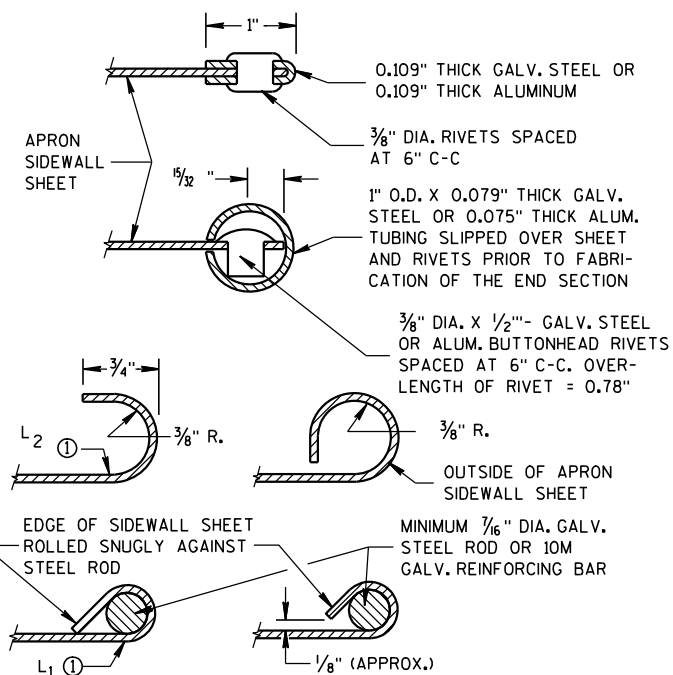
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW



SIDE ELEVATION
METAL ENDWALLS



SECTION A-A

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

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

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

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

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

**NOMINAL SIZE

GENERAL NOTES

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

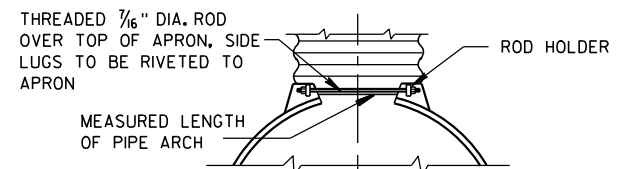
CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

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

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

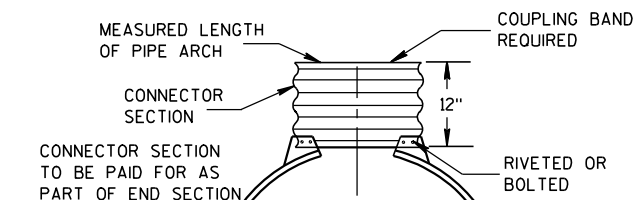
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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



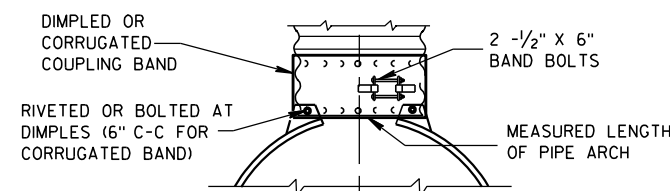
TYPE 2

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



TYPE 3

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



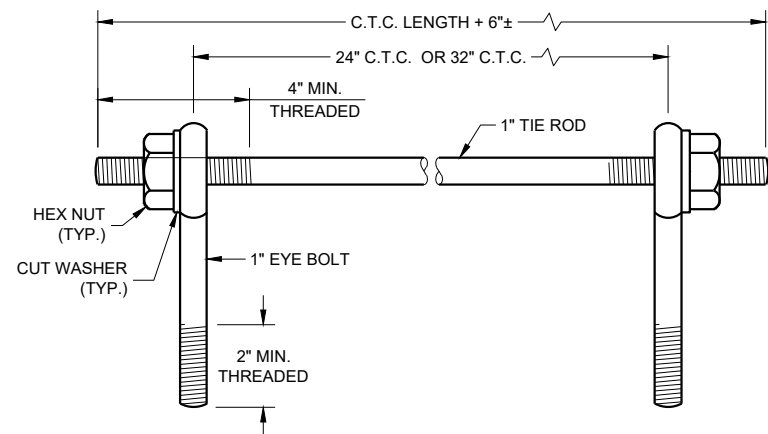
TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

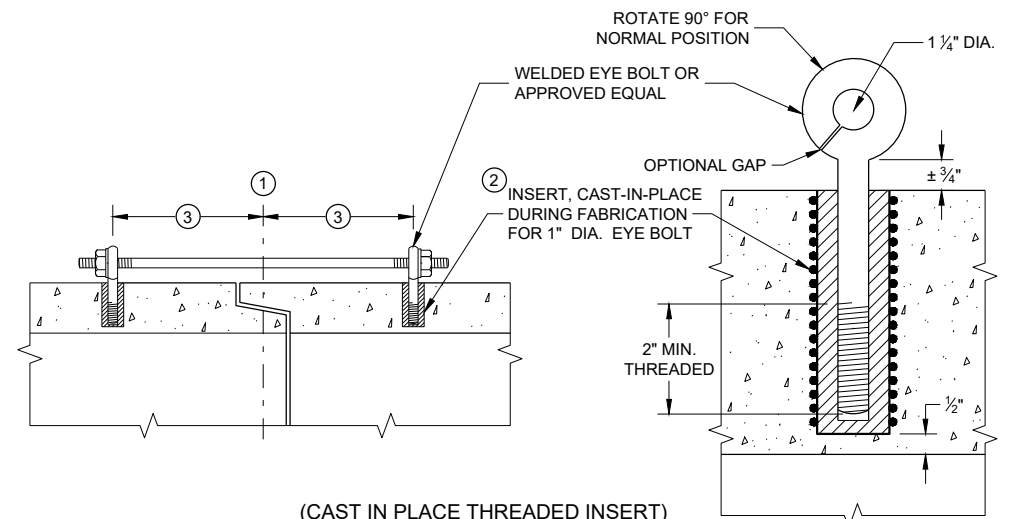
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 11/30/94 DATE	/s/ Rory L. Rhinesmith 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

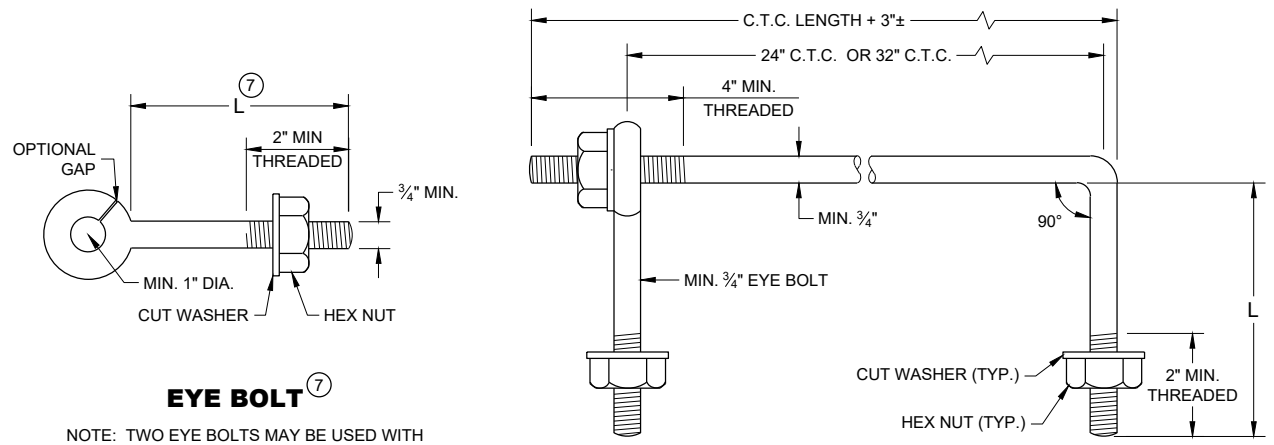
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

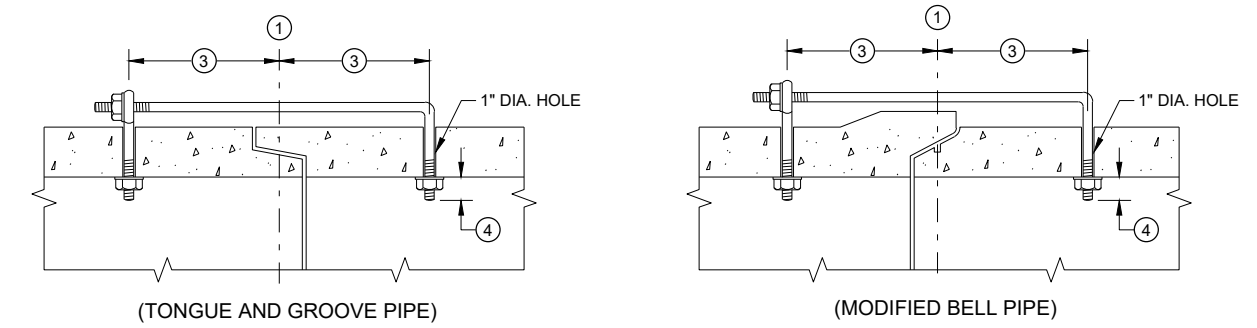
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.



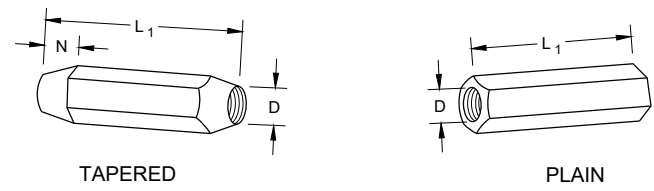
LONGITUDINAL SECTION
 (JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

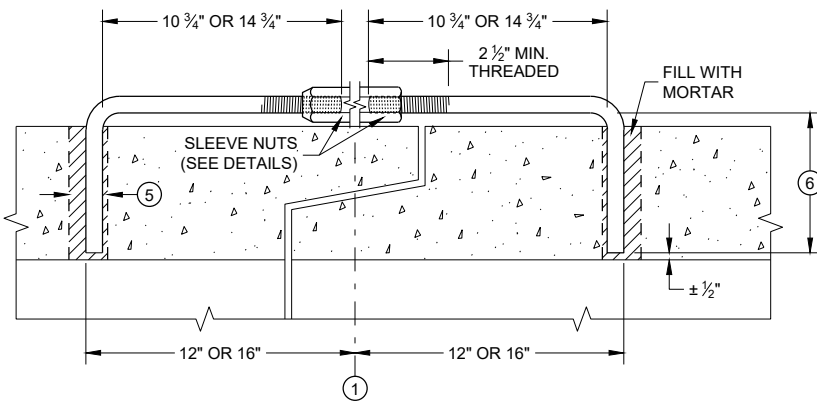
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	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

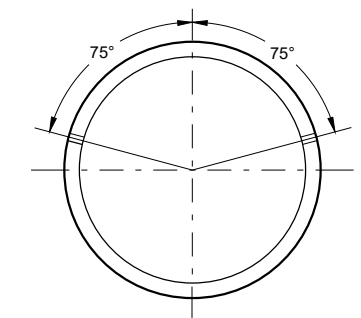
DIMENSIONS SHOWN ARE IN INCHES



RIGHT AND LEFT THREADS
SLEEVE NUTS

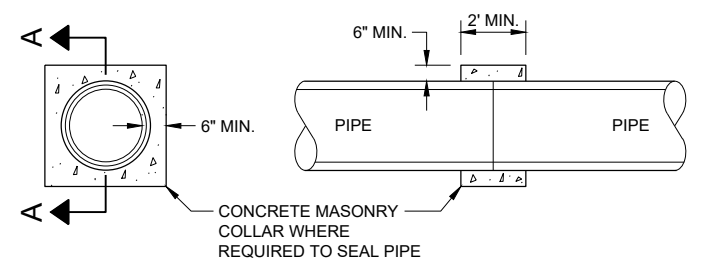


LONGITUDINAL SECTION
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION

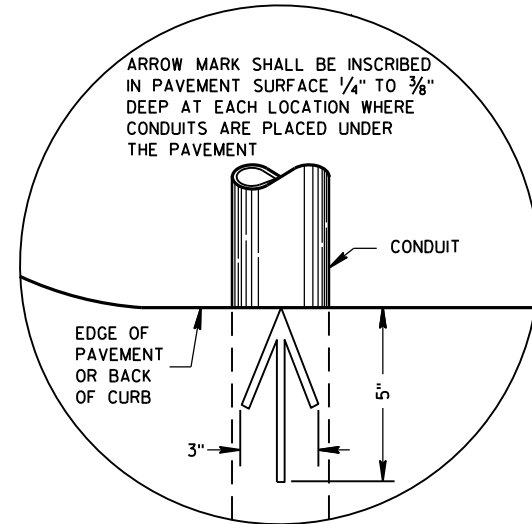


SECTION A - A
CONCRETE COLLAR DETAIL

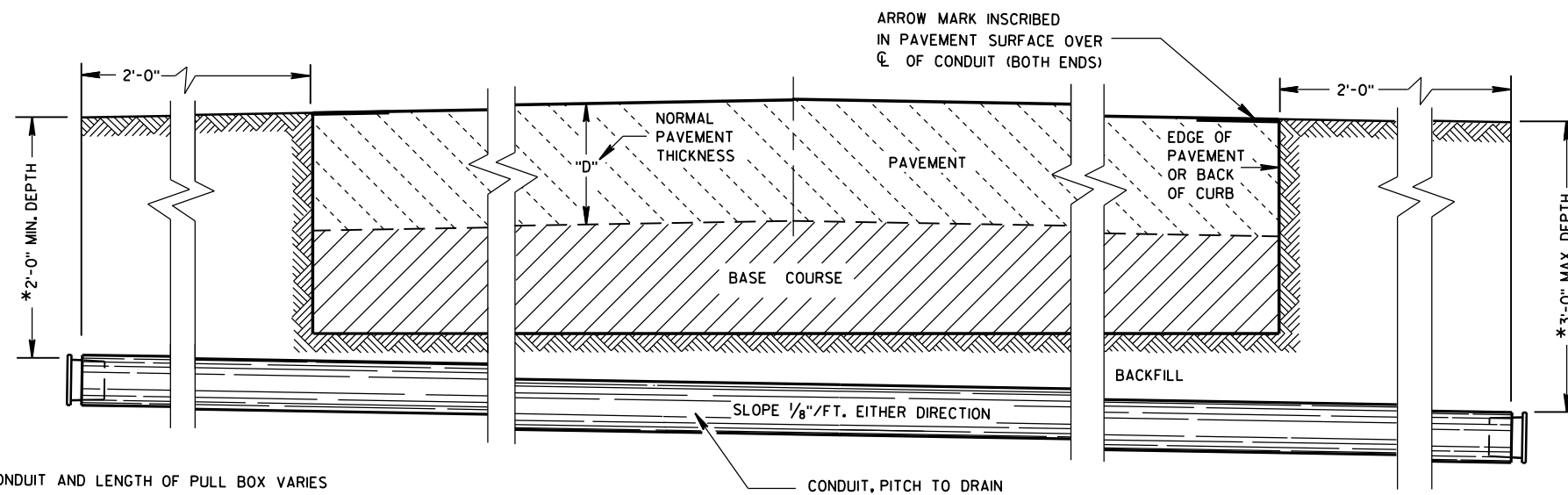
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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



**PLAN VIEW
ARROW MARK**



**SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.

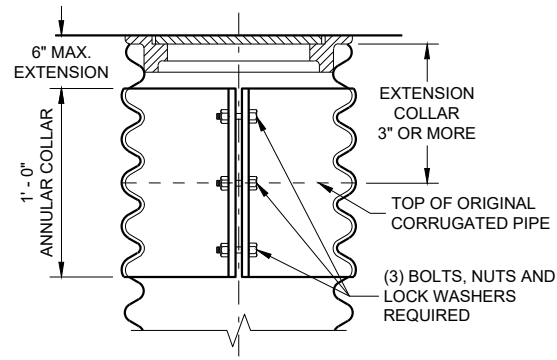
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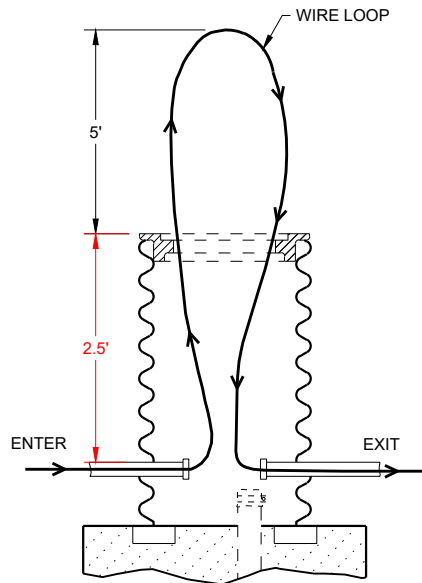
S.D.D. 9 B 2-10

S.D.D. 9 B 2-10

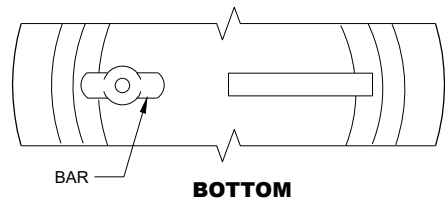
CONDUIT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March, 2017 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	



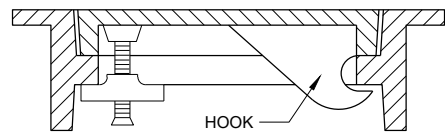
CORRUGATED PIPE EXTENDER



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



BOTTOM



SECTION

**ALTERNATE COVER (LOCKING)
TIGHTENING BAR TYPE**

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

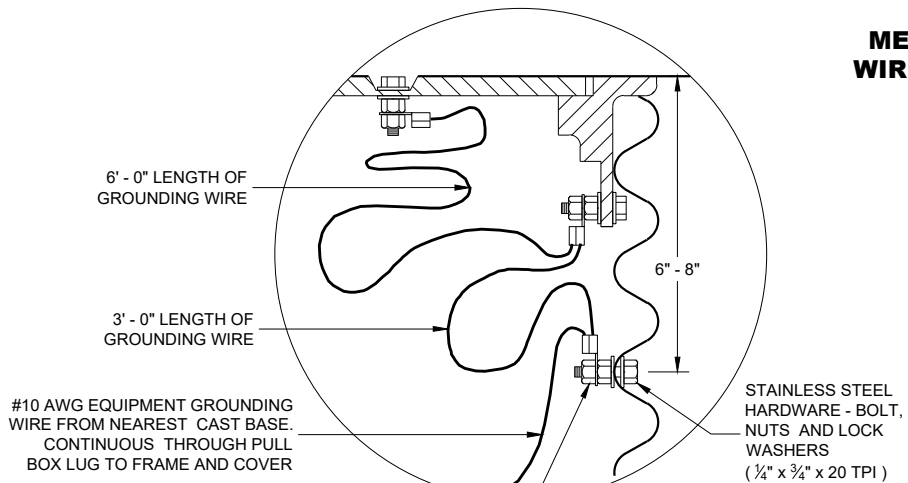
WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

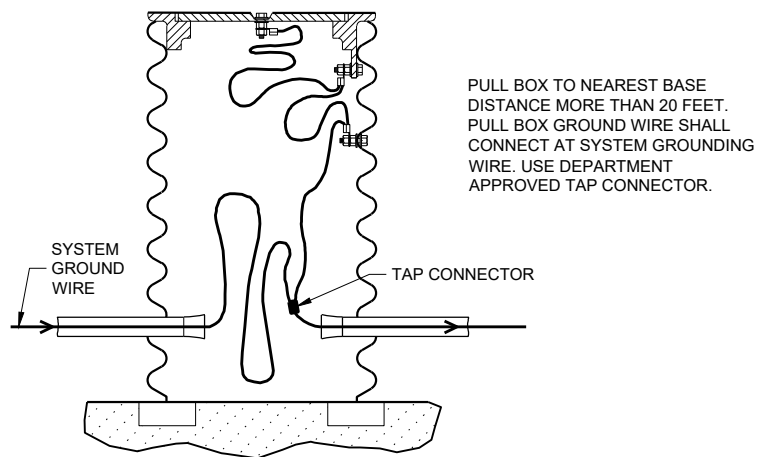
DIMENSION IN INCHES	CORRUGATED STEEL PIPE									
	PIPE DIAMETER (INSIDE)	12	12	12	18	18	18	24	24	24
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH**	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS*										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

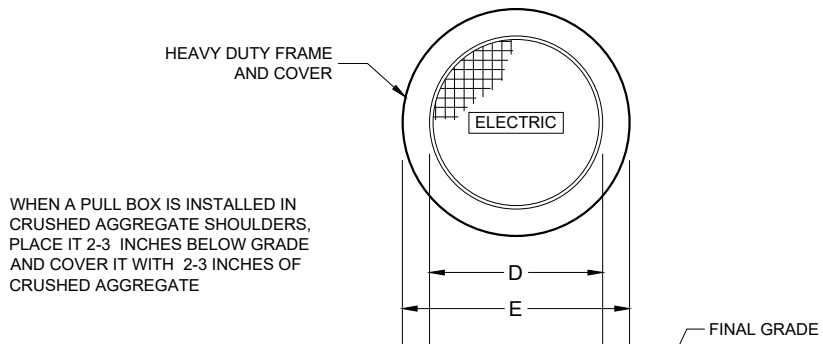
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



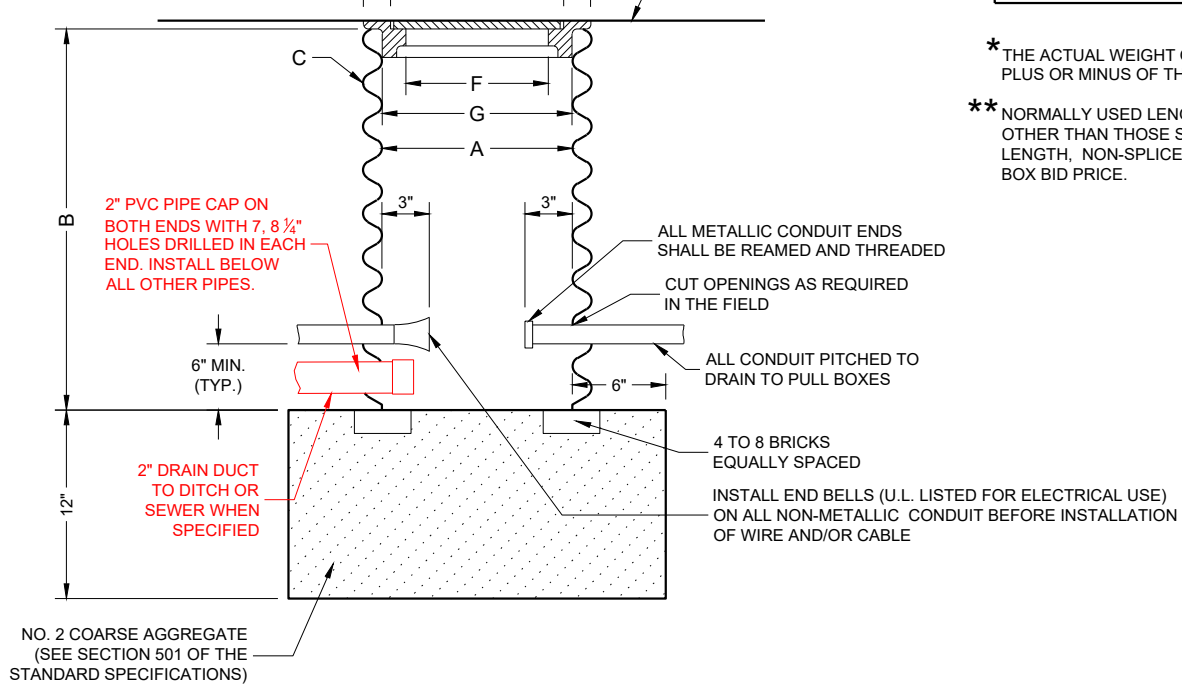
EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE



PULL BOX

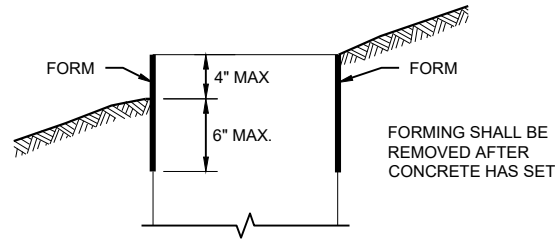
PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER

FHWA

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2, TYPE 5 AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER ALL BASE TYPES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

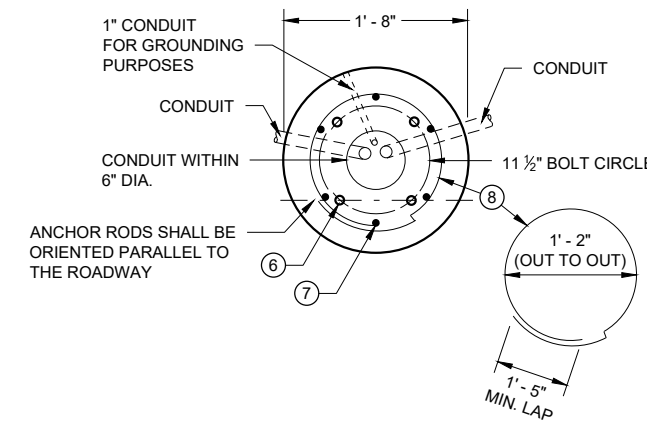
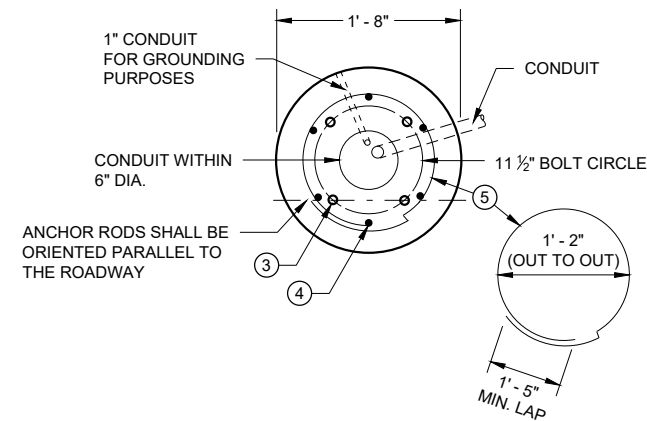
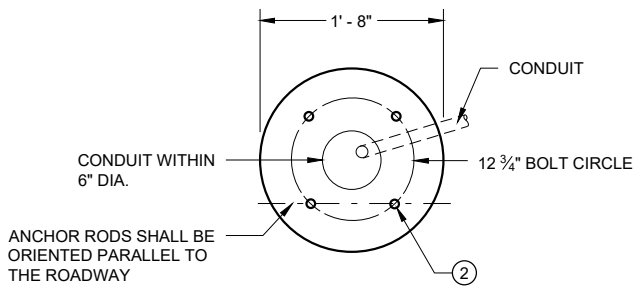
WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4 INCH "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

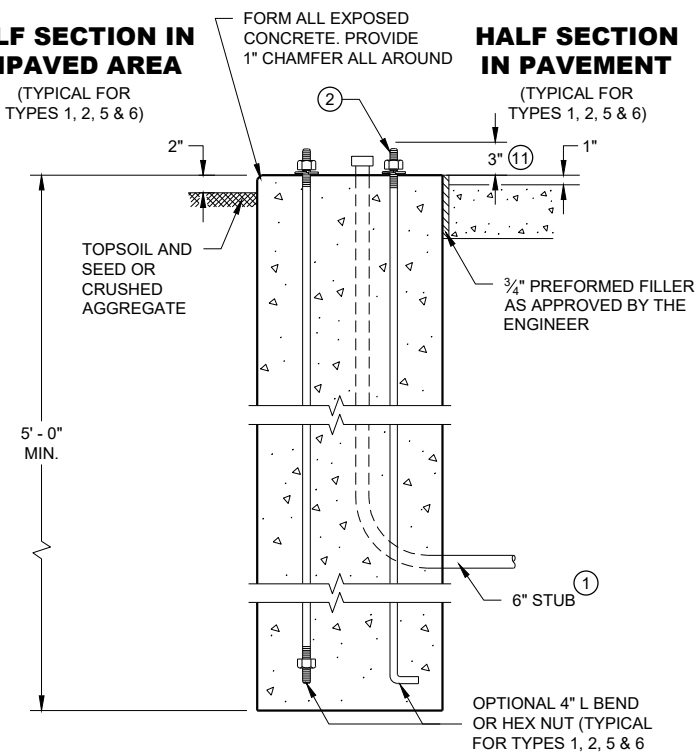
WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

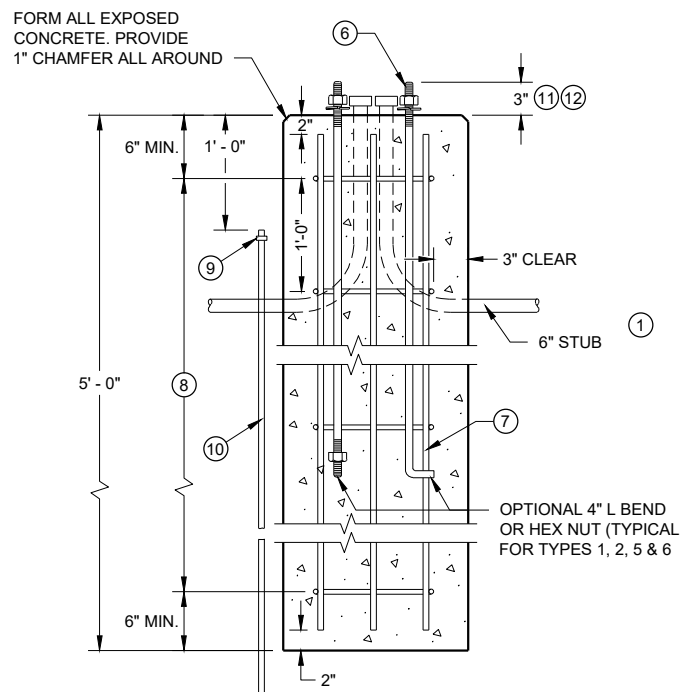
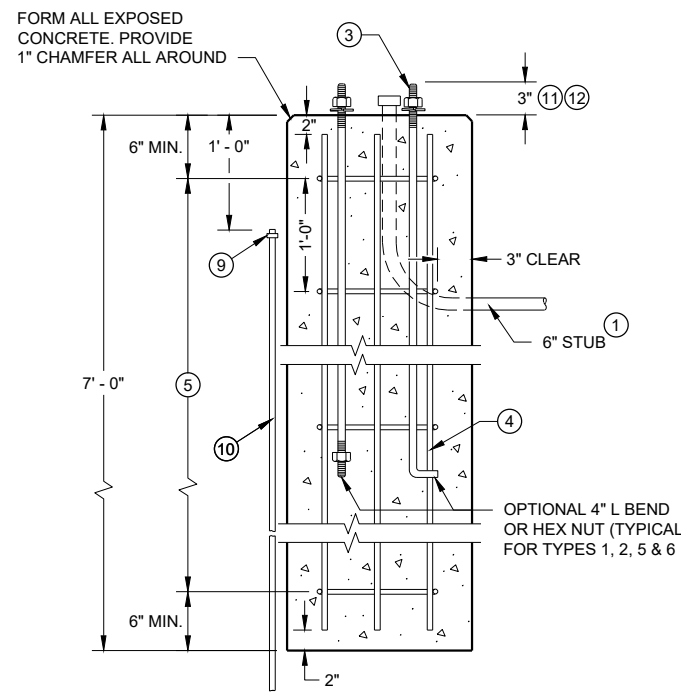
- ① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.
- ② (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- ③ (4) 1" DIA. X 5' - 0" ANCHOR RODS.
- ④ (6) NO. 6 X 6' - 8" BAR STEEL REINFORCEMENT.
- ⑤ (7) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- ⑥ (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- ⑦ (6) NO. 4 X 4' - 8" BAR STEEL REINFORCEMENT.
- ⑧ (5) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- ⑨ EXOTHERMIC CONNECTION TO EQUIPMENT GROUNDING CONDUCTOR
- ⑩ 5/8" DIA. X 8' - 0" COPPERCLAD EQUIPMENT GROUNDING ELECTRODE REQUIRED
- ⑪ ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.
- ⑫ FOR NON - BREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.



HALF SECTION IN UNPAVED AREA



HALF SECTION IN PAVEMENT



CONCRETE BASES

**CONCRETE BASES
TYPES 1, 2, 5, & 6**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGINEER

FHWA

GENERAL NOTES

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATIONS.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

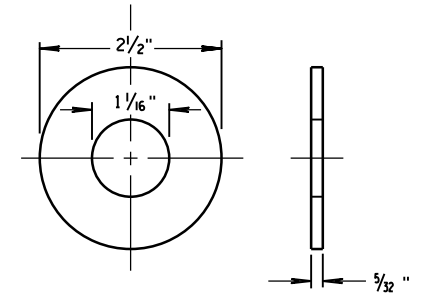
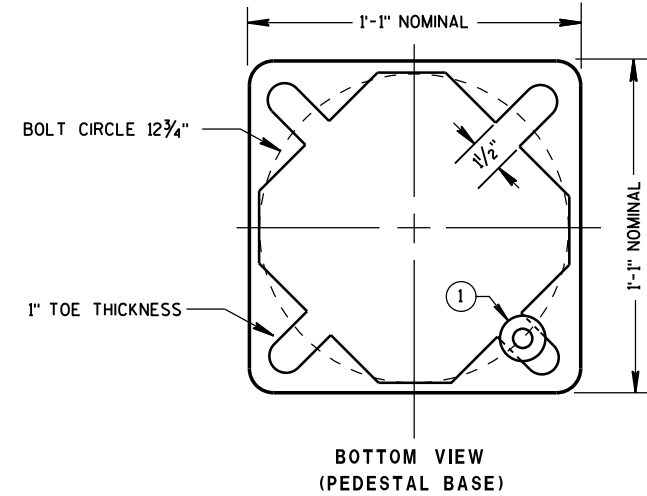
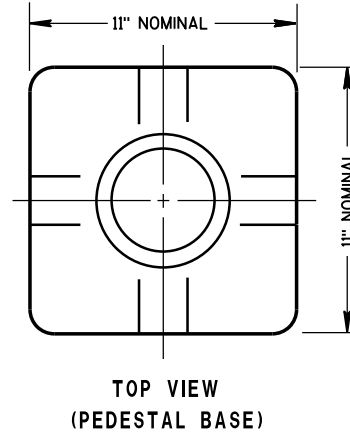
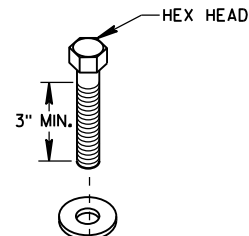
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

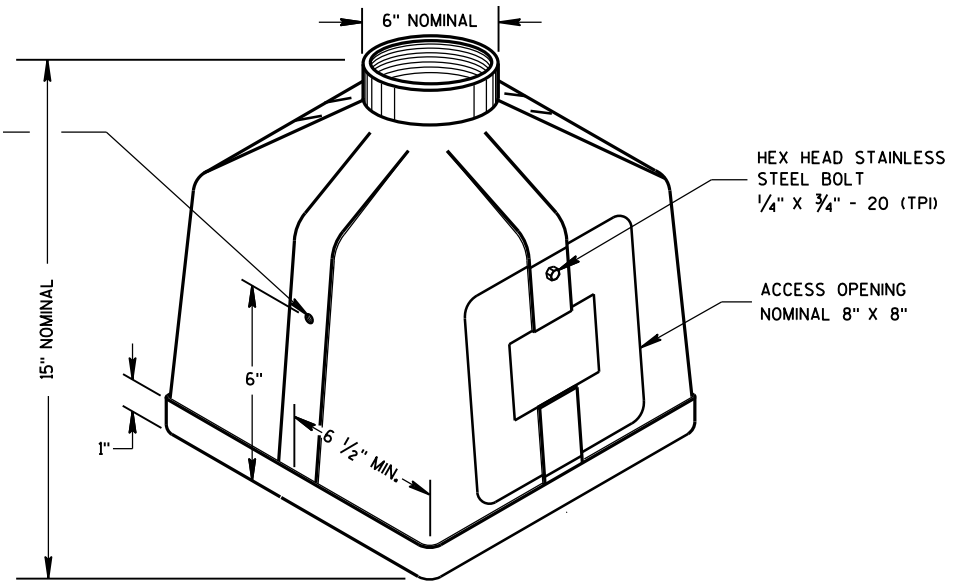
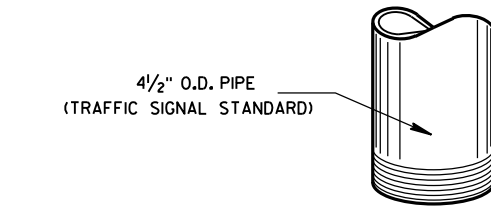
PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

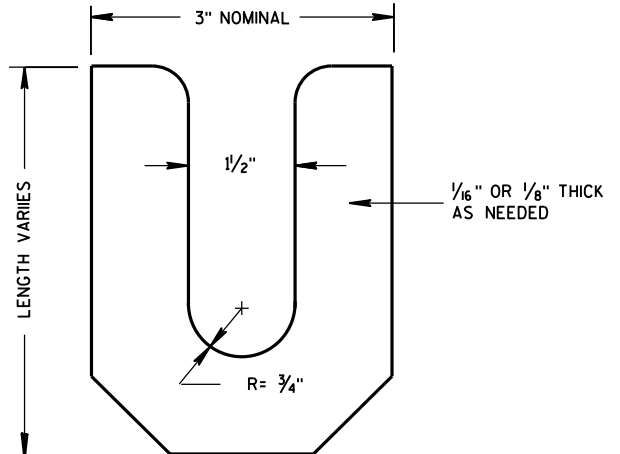
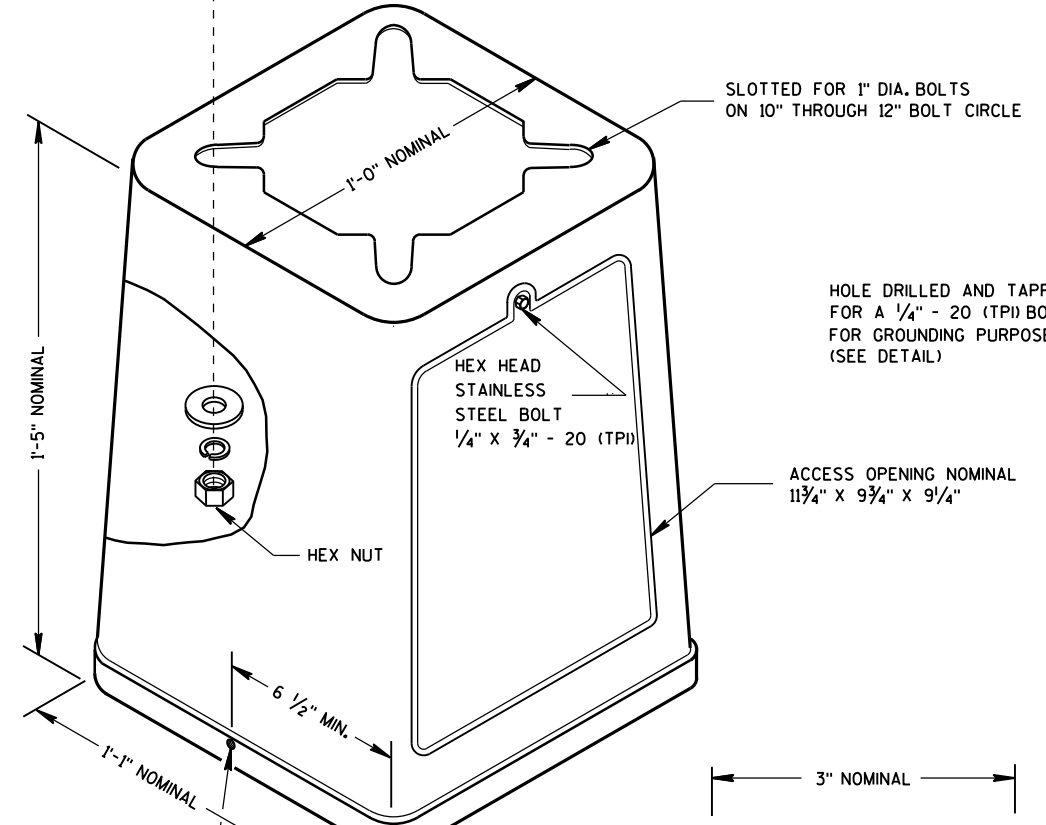
THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



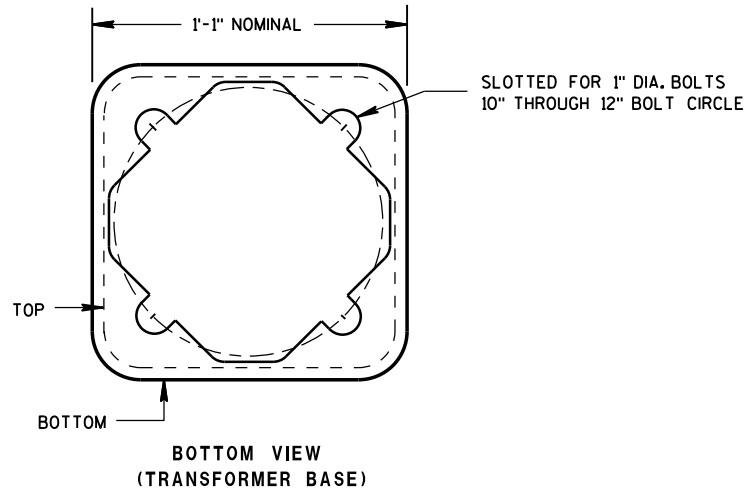
ZINC COATED STEEL WASHER TO BE PROVIDED BY THE CONTRACTOR
PEDESTAL BASE WASHER ①



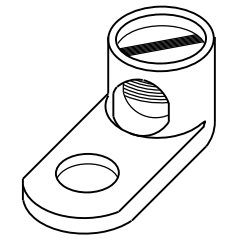
ISOMETRIC VIEW PEDESTAL BASE



LEVELING SHIM



BOTTOM VIEW (TRANSFORMER BASE)



TYPICAL MECHANICAL CONNECTOR LUG
TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

HOLE DRILLED AND TAPPED FOR A 1/4" - 20 (TPI) BOLT FOR GROUNDING PURPOSES (SEE DETAIL)

HOLE DRILLED AND TAPPED FOR A 1/4" - 20 (TPI) BOLT FOR GROUNDING PURPOSES (SEE DETAIL)

ACCESS OPENING NOMINAL 11 3/4" X 9 3/4" X 9 1/4"

HEX HEAD STAINLESS STEEL BOLT 1/4" X 3/4" - 20 (TPI)

ACCESS OPENING NOMINAL 8" X 8"

6

6

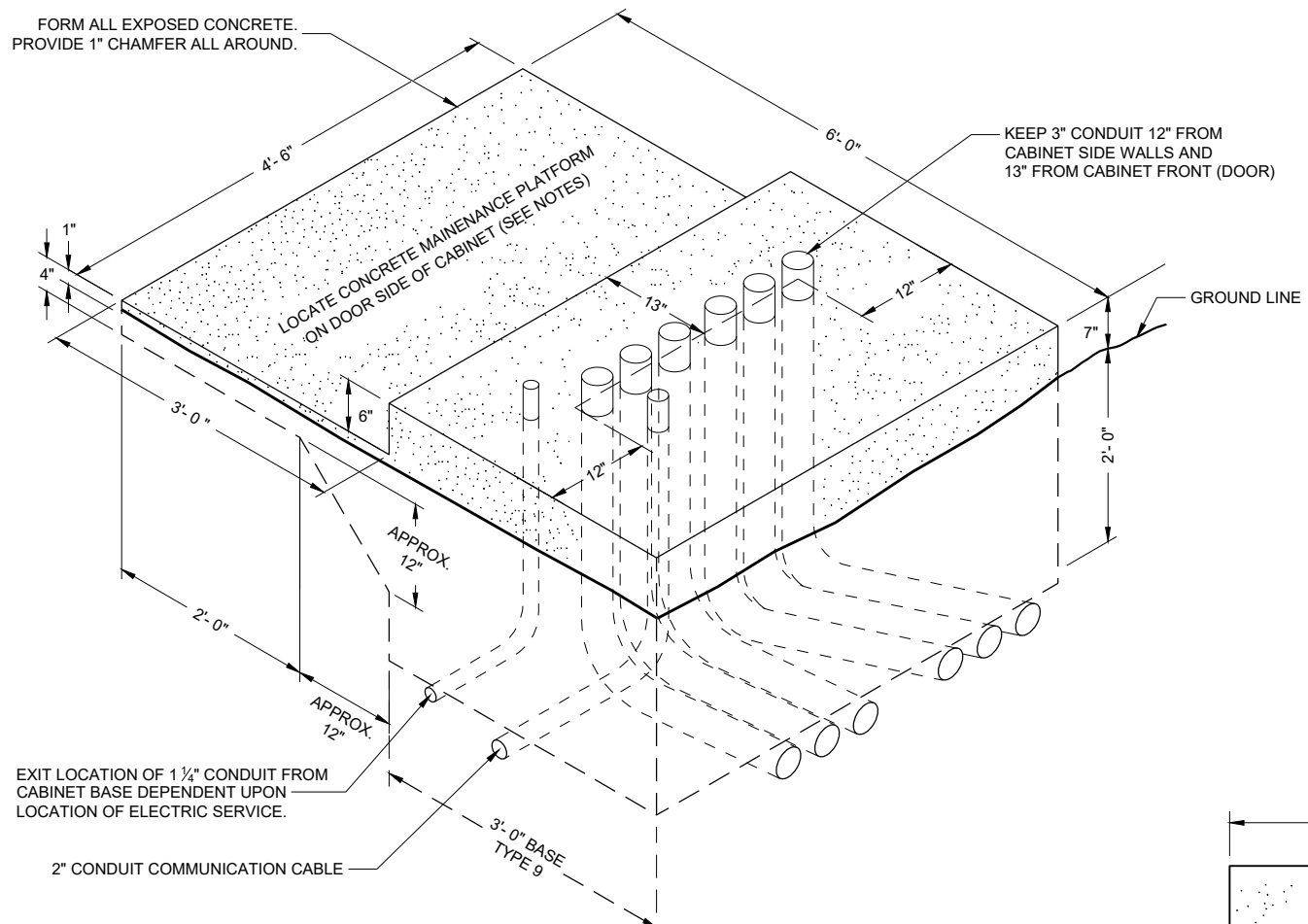
S.D.D. 9 C 3-4

S.D.D. 9 C 3-4

TRANSFORMER/PEDESTAL BASES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

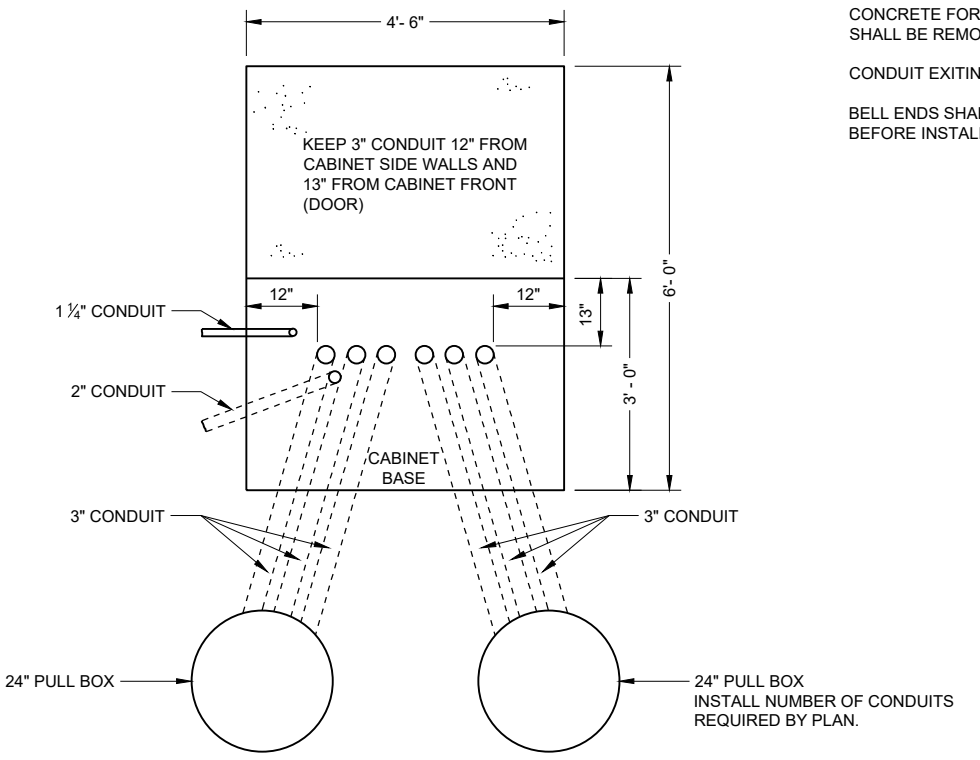


SDD 09C06 Concrete Control Cabinet Base, Type 9, Special



**ISOMETRIC VIEW
TYPE 9 SPECIAL**

(C.Y. CONCRETE = APPROX. 1.56)



**PLAN VIEW
CONCRETE CONTROL CABINET BASE,
TYPE 9 SPECIAL**

GENERAL NOTES

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- INSTALL FOUR INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.
- WHEN REQUIRED TO CONNECT NON - METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U. L. LISTED FOR ELECTRICAL USE, SHALL BE USED.
- CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.
- DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.
- ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.
- MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND LEVEL.
- MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.
- MINIMUM BENDING RADIUS OF CONDUIT EQUALS 6 TIMES THE DIAMETER.
- ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.
- CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- PLUG ALL BELOW GRADE NON - METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
- ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON - METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.
- CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCHES MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
- CONDUIT EXITING THE CONCRETE BASE (SIX 3") SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.
- BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

6

6

SDD 09C06 - 07

SDD 09C06 - 07

CONCRETE CONTROL CABINET BASE TYPE 9, SPECIAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE September 2014	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

GENERAL NOTES

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

BASES (SHAFT) SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING. A STEEL CASING OR CORRUGATED METAL PIPE IS ALLOWED TO REMAIN. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BASE IN LAYERS OF ONE FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 TIMES THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 4" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NON-METALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES (GREATER THAN 36 INCHES IF INSTALLED IN BREAKER RUN) EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.

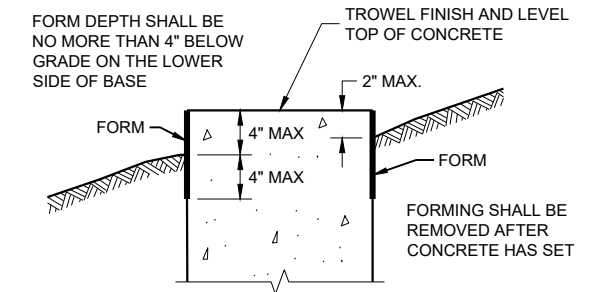
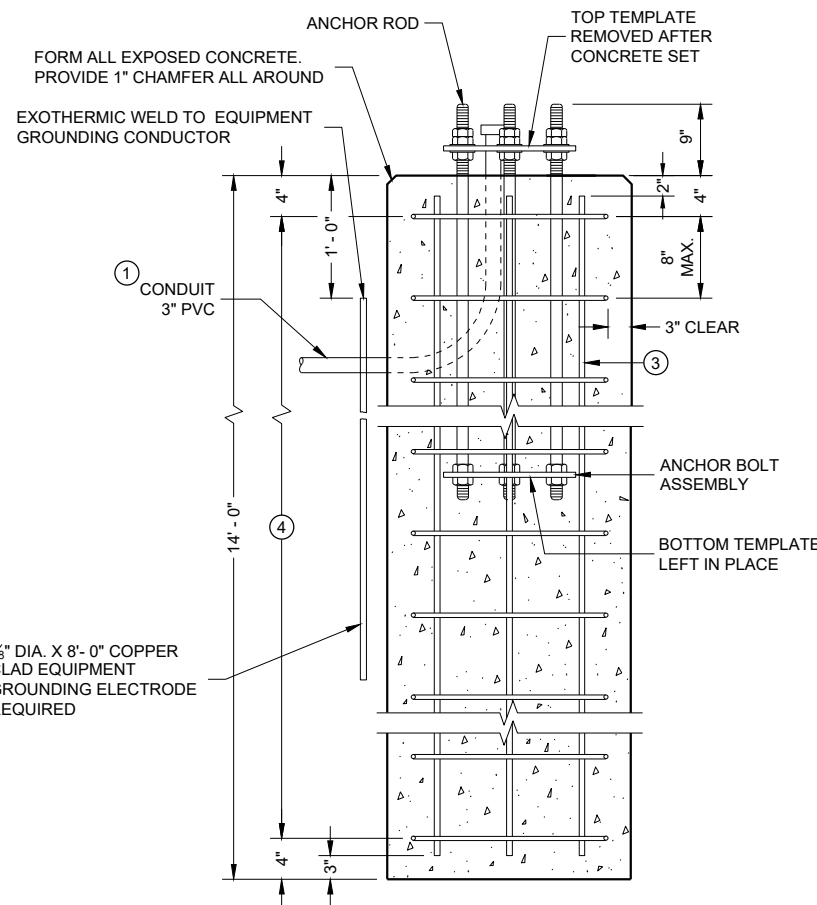
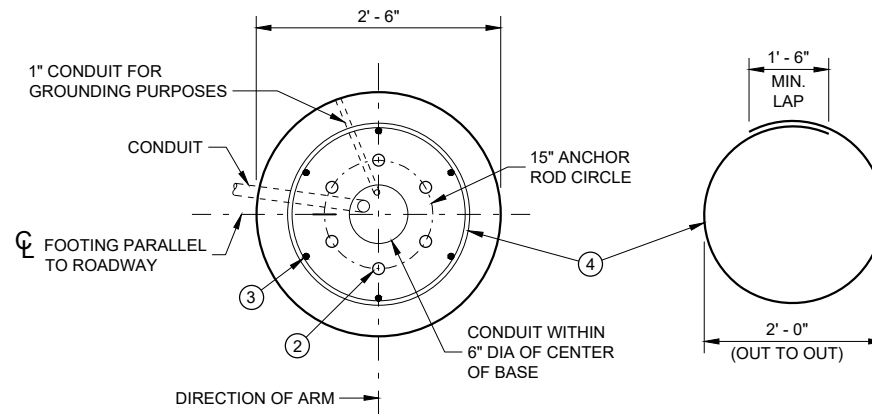
② (6) 1 1/2" DIA. X 4' - 4" ANCHOR RODS

③ (6) NO. 6 X 13' - 7" BAR STEEL REINFORCEMENT.

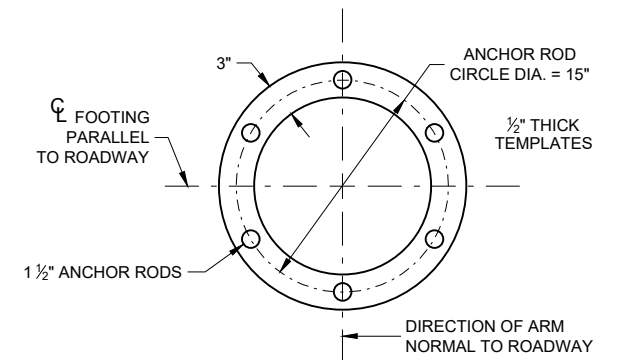
④ (21) NO. 5 X 7'-10" BAR STEEL REINFORCEMENT @ 8" MAX. C-C.

CONCRETE MASONRY.....fc = 3,500 p.s.i.
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 p.s.i.
 ANCHOR RODS, ASTM F1554 GRADE 55 (IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATION).....fy = 55,000 p.s.i.
 TEMPLATES, ASTM A709, GRADE 36.....fy = 36,000 p.s.i.

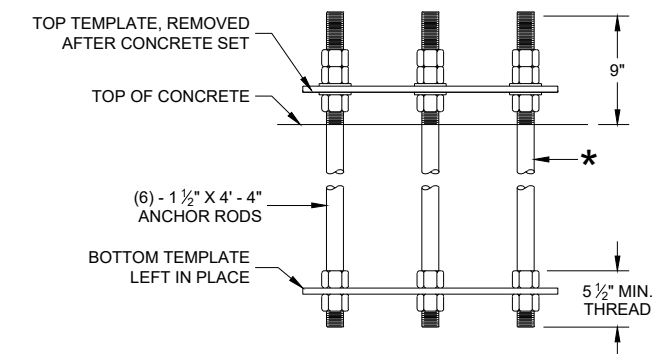
QUANTITY REQUIREMENTS	
APPROX. CUBIC YARDS OF CONCRETE	2.5
LBS. OF HOOP BAR STEEL	172
LBS. OF VERTICAL BAR STEEL	122



FORMING DETAIL



TOP AND BOTTOM TEMPLATE



ANCHOR ROD ASSEMBLY DETAILS

* THREAD TOP 10" OF ANCHOR ROD FOR 3 NUTS AND 2 WASHERS AND BOTTOM 5 1/2" FOR 2 NUTS PER ANCHOR ROD. HOT DIP GALVANIZE THE ENTIRE LENGTH OF THE ANCHOR ROD (ASTM A123) AND HOT DIP NUTS AND WASHERS (ASTM A153). USE ZINC COATED NUTS MANUFACTURED WITH SUFFICIENT ALLOWANCE TO ALLOW NUTS TO RUN FREELY ON THE THREADS.

CONCRETE BASE, TYPE 10 (FOR TYPE 9, TYPE 10 AND OVER HEIGHT (OH) POLES)

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION. SEE SDD 9C13 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.

CONCRETE BASE TYPE 10

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2017 /S/ Ahmet Demerbilek
DATE WIND LOADED STRUCTURES PROGRAM LEADER

FHWA

GENERAL NOTES

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

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

CONDUIT SIZE AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4 1/2" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1-INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4-FOOT COIL OF WIRE ABOVE THE CONCRETE BASE, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL WAY SHALL BE 24-INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18-INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36-INCHES, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

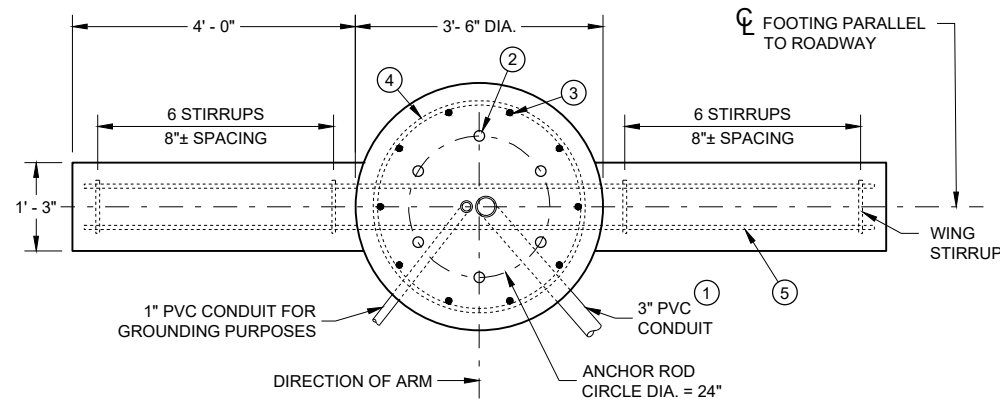
② (6) 1 3/4" DIA. X 7' - 2" ANCHOR RODS

③ (10) NO. 6 X 14' - 1" BAR STEEL VERTICAL REINFORCEMENT.

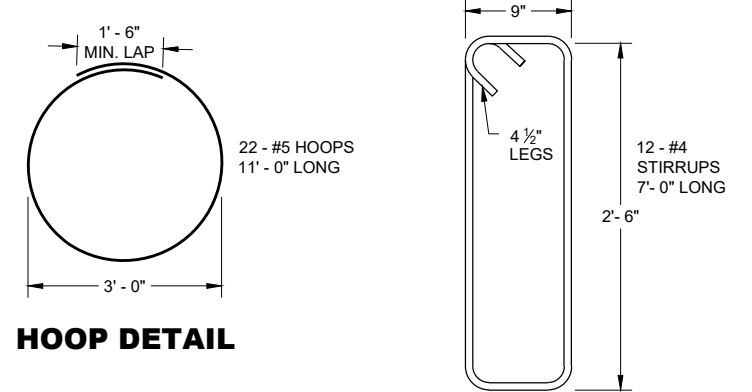
④ (22) NO. 5 X 11' - 0" BAR STEEL REINFORCEMENT @ 8" MAX. C-C.

⑤ (10) NO. 5 X 11' - 0" BAR STEEL HORIZONTAL REINFORCEMENT

CONCRETE MASONRY.....fc = 3,500 p.s.i.
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 p.s.i.
 ANCHOR RODS, ASTM F1554 GRADE 55 (IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATION).....fy = 55,000 p.s.i.
 TEMPLATES, ASTM A709, GRADE 36.....fy = 36,000 p.s.i.

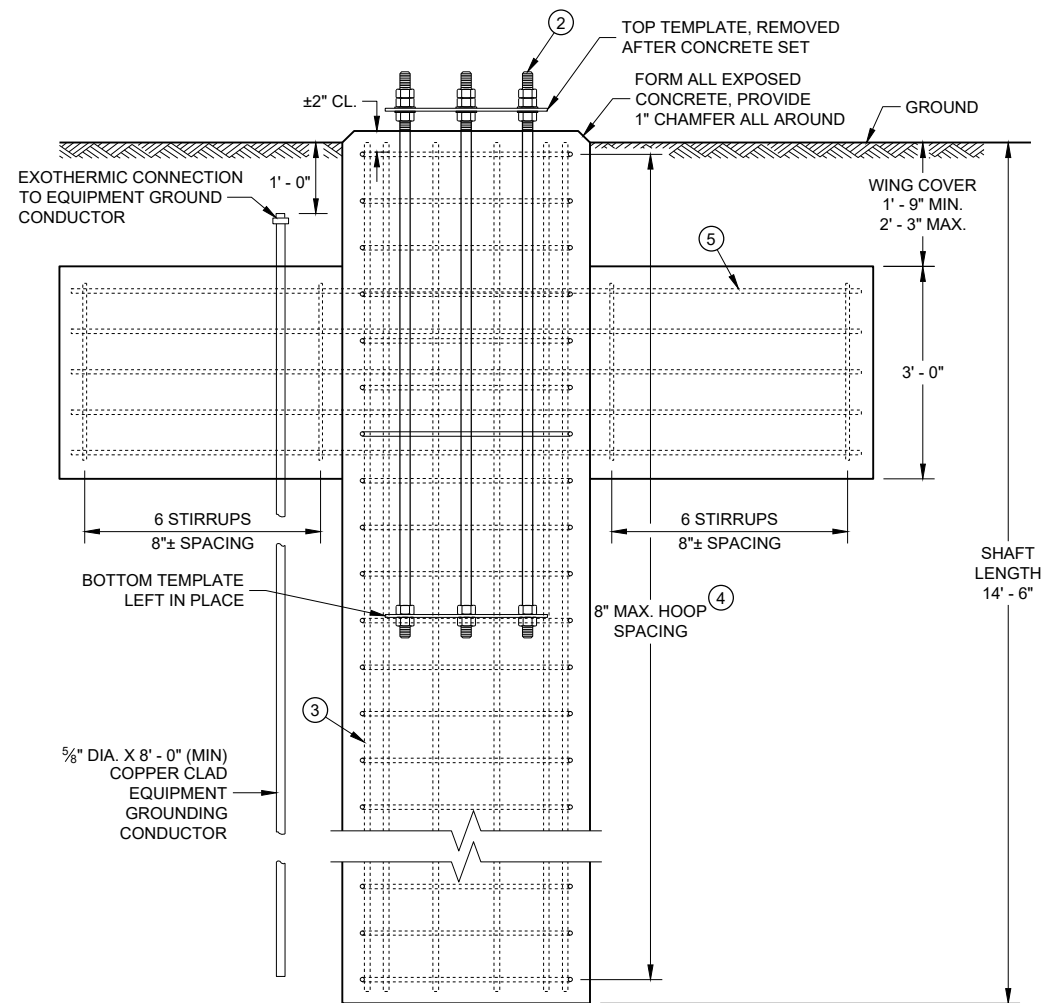


PLAN VIEW

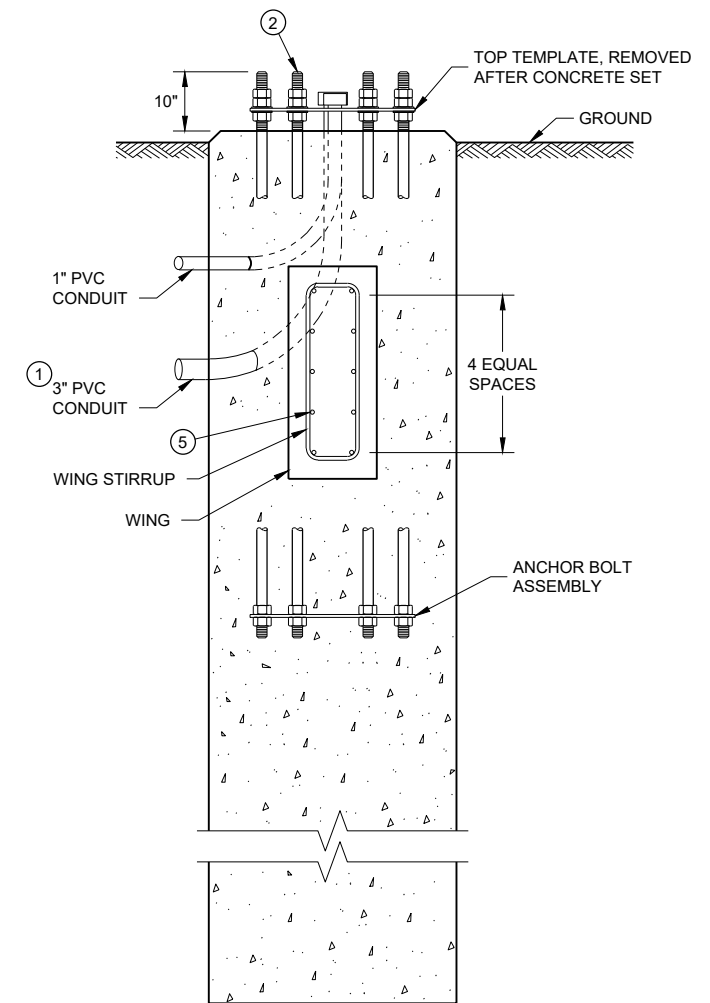


HOOP DETAIL

WING STIRRUP DETAIL



ELEVATION VIEW
(CONDUITS NOT SHOWN ON THIS VIEW FOR CLARITY)



(HOOPS AND VERTICAL SHAFT REINFORCEMENT NOT SHOWN ON THIS VIEW FOR CLARITY)

CONCRETE BASE, TYPE 13
(FOR TYPE 12, TYPE 13 AND OVER HEIGHT (OH) POLES)

CONCRETE = 6.3 CUBIC YARD
 H.S. REINFORCEMENT = 635 LBS.

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION. SEE 9C13 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION

CONCRETE BASE TYPE 13

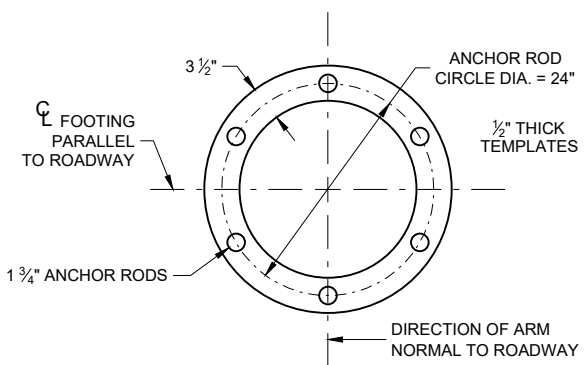
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

6

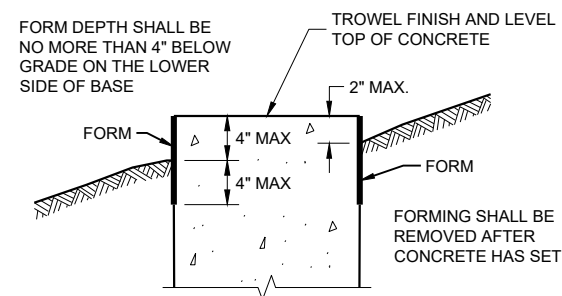
6

SDD 09C12 - 09a

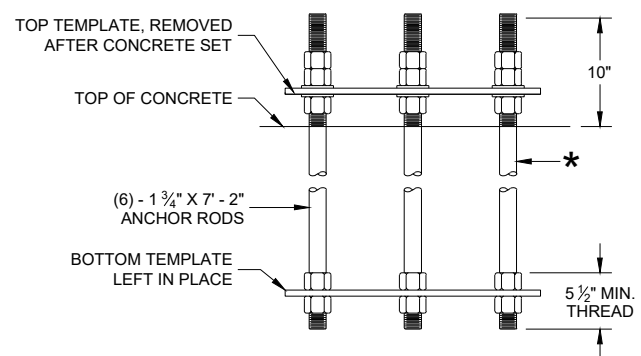
SDD 09C12 - 09a



TOP AND BOTTOM TEMPLATE



FORMING DETAIL



**ANCHOR ROD
ASSEMBLY DETAILS**

* THREAD TOP 11" OF ANCHOR ROD FOR 3 NUTS AND 2 WASHERS AND BOTTOM 5 1/2" FOR 2 NUTS PER ANCHOR ROD. HOT DIP GALVANIZE THE ENTIRE LENGTH OF THE ANCHOR ROD (ASTM A123) AND HOT DIP NUTS AND WASHERS (ASTM A153. USE ZINC COATED NUTS MANUFACTURED WITH SUFFICIENT ALLOWANCE TO ALLOW NUTS TO RUN FREELY ON THE THREADS.

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2017
DATE

FHWA

/S/ Ahmet Demirelek
WIND LOADED STRUCTURES
PROGRAM LEADER

GENERAL NOTES

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

THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

BASES (SHAFT) SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING. A STEEL CASING OR CORRUGATED METAL PIPE IS ALLOWED TO REMAIN. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BASE IN LAYERS OF ONE FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

ANY DAMAGE TO THE CONCRETE BASE AND ANCHOR RODS DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.

THE REINFORCEMENT AND ANCHOR RODS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR RODS STICK OUT ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

FORM ALL EXPOSED CONCRETE CORNERS WITH 1" CHAMFER ALL AROUND. TOP OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 TIMES THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 4 1/2" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NON-METALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

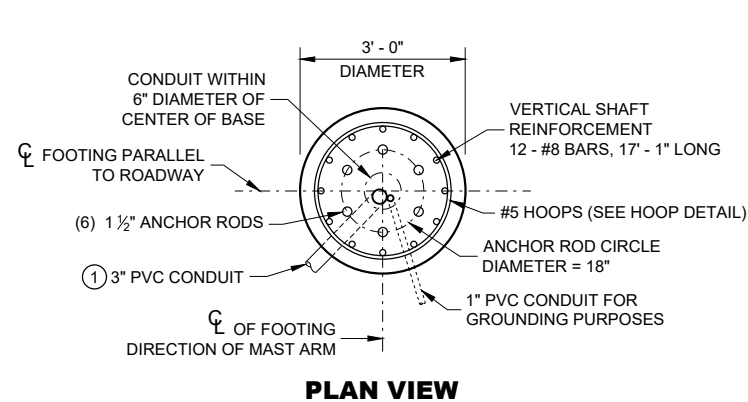
A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

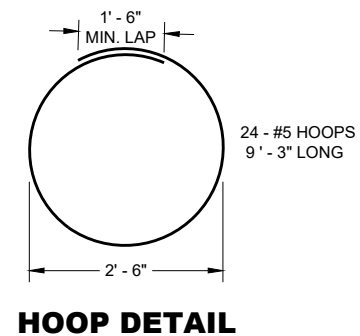
THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN A THE ENTRANCE OF THE BASE.

① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES (GREATER THAN 36 INCHES IF INSTALLED IN BREAKER RUN) EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.

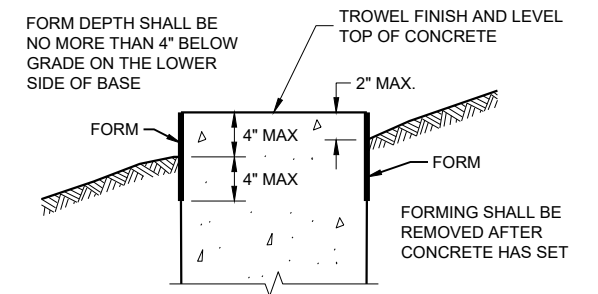
CONCRETE MASONRY.....fc = 3,500 p.s.i.
 HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60.....fy = 60,000 p.s.i.
 ANCHOR RODS, ASTM F1554 GRADE 55 (IN ACCORDANCE WITH SECTION 531.2.2 OF THE STANDARD SPECIFICATION).....fy = 55,000 p.s.i.
 TEMPLATES, ASTM A709, GRADE 36.....fy = 36,000 p.s.i.



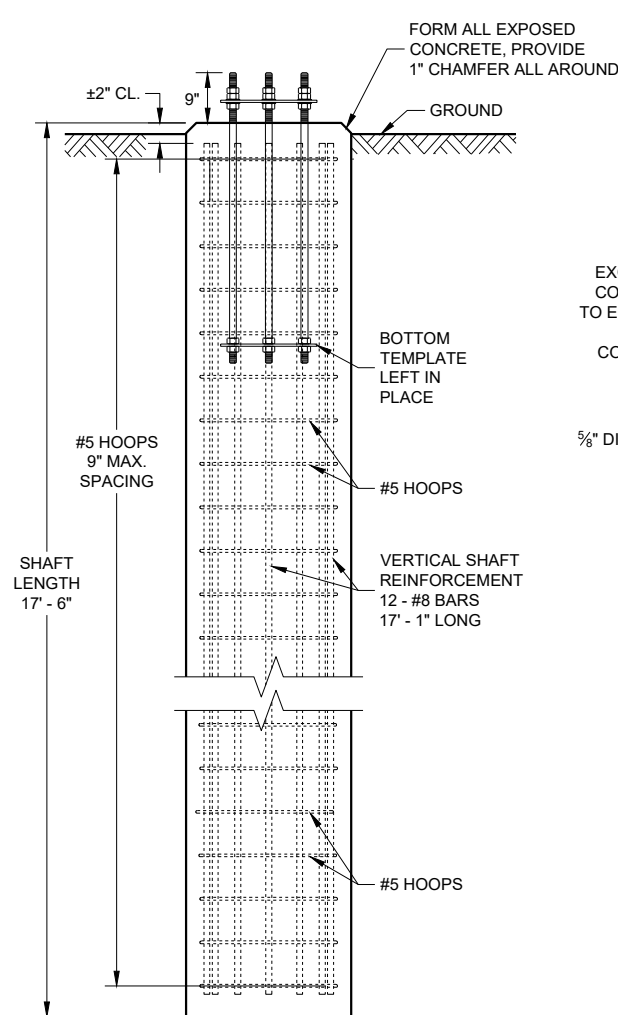
PLAN VIEW



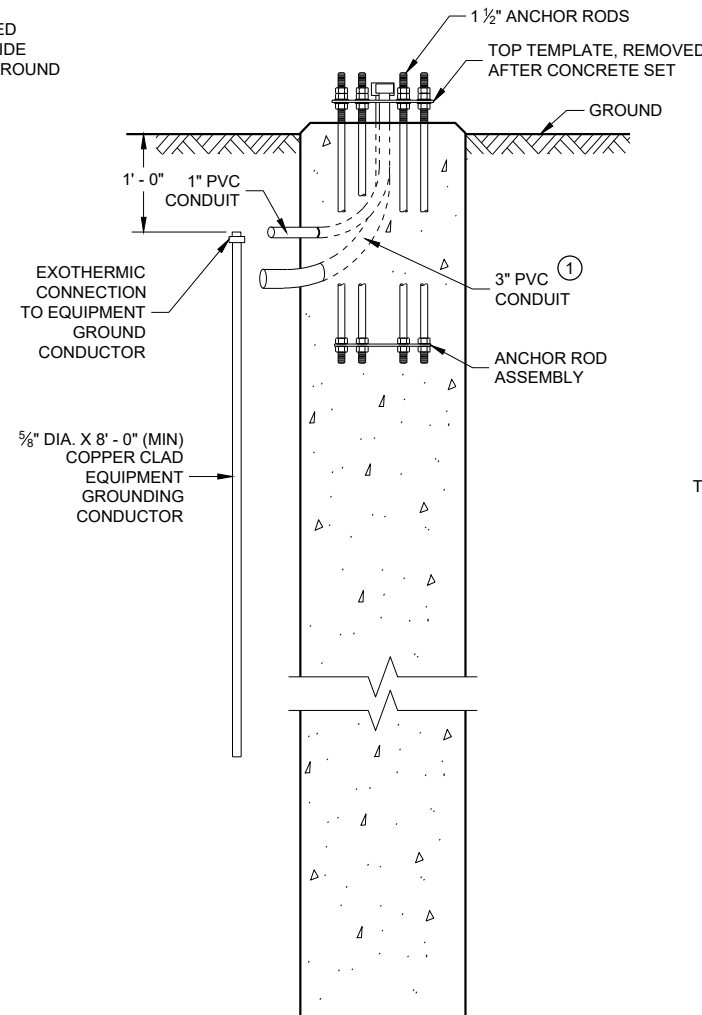
HOOP DETAIL



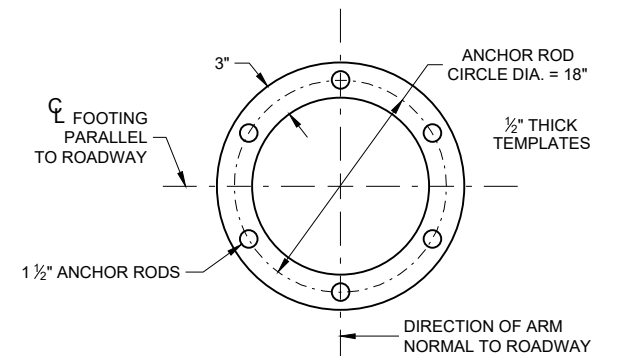
FORMING DETAIL



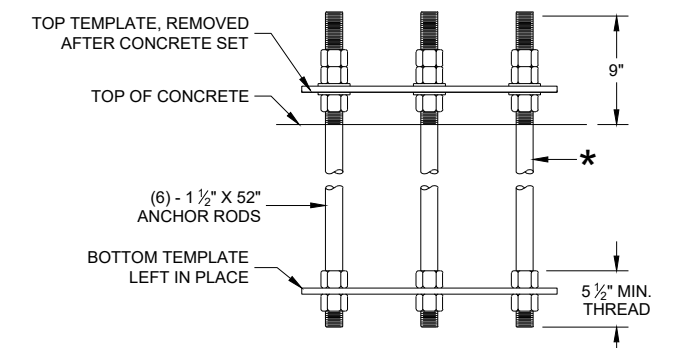
ELEVATION VIEW
(CONDUITS NOT SHOWN ON THIS VIEW FOR CLARITY)



SIDE VIEW
(HOOPS AND VERTICAL SHAFT REINFORCEMENT NOT SHOWN ON THIS VIEW FOR CLARITY)



TOP AND BOTTOM TEMPLATE



ANCHOR ROD ASSEMBLY DETAILS

* THREAD TOP 10" OF ANCHOR ROD FOR 3 NUTS AND 2 WASHERS AND BOTTOM 5 1/2" FOR 2 NUTS PER ANCHOR ROD. HOT DIP GALVANIZE THE ENTIRE LENGTH OF THE ANCHOR ROD (ASTM A123) AND HOT DIP NUTS AND WASHERS (ASTM A153. USE ZINC COATED NUTS MANUFACTURED WITH SUFFICIENT ALLOWANCE TO ALLOW NUTS TO RUN FREELY ON THE THREADS.

**CONCRETE BASE, TYPE 10 SPECIAL
(FOR TYPE 9 SPECIAL AND TYPE 10 SPECIAL POLES)**

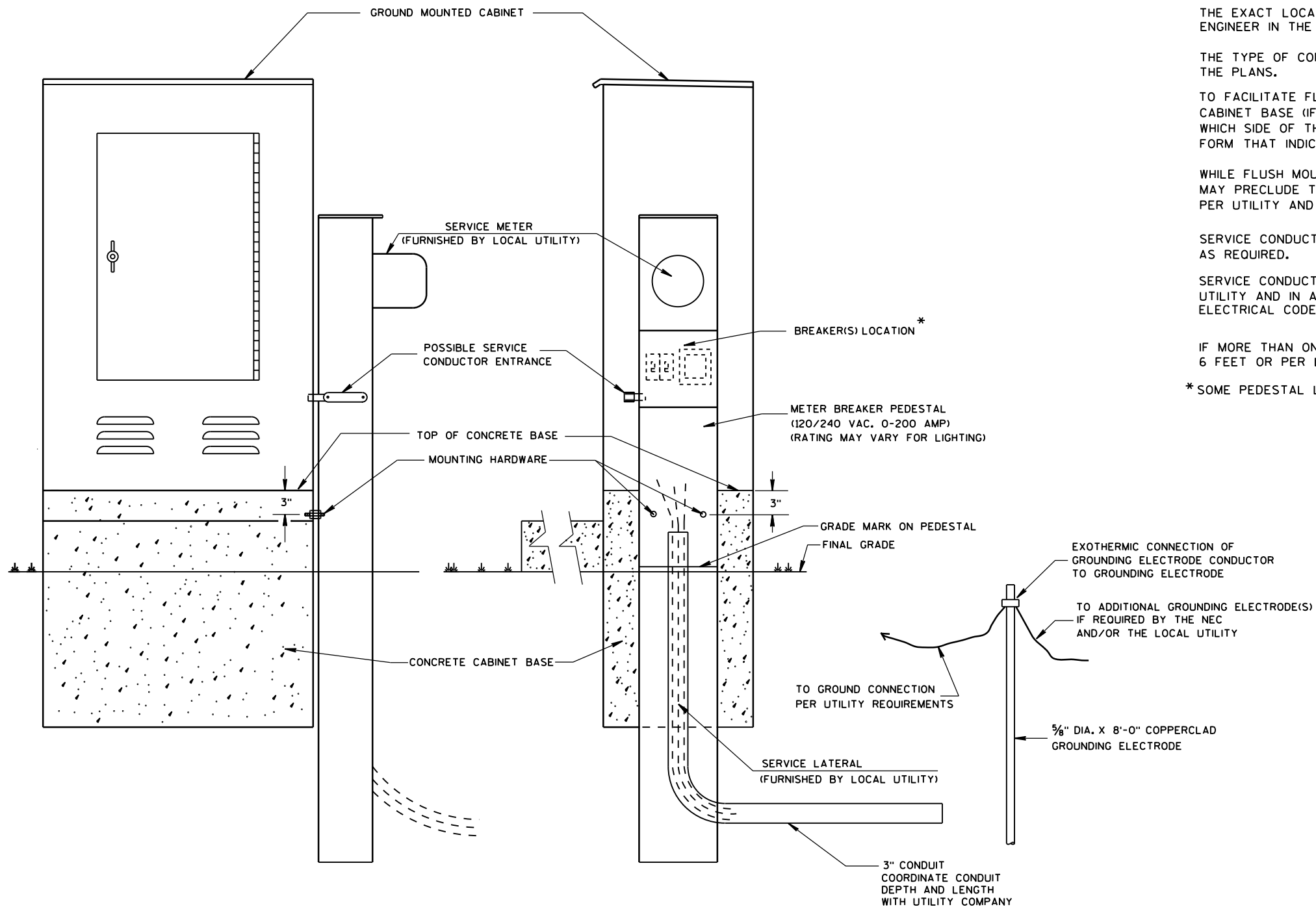
CONCRETE = 4.6 CUBIC YARD
 H.S. REINFORCEMENT = 779 LBS.

FOR USE WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.

**CONCRETE BASE
TYPE 10 SPECIAL**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 August 2020 DATE /S/ Alex Crabtree
 WIND LOADED STRUCTURES PROGRAM LEADER
 FHWA



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

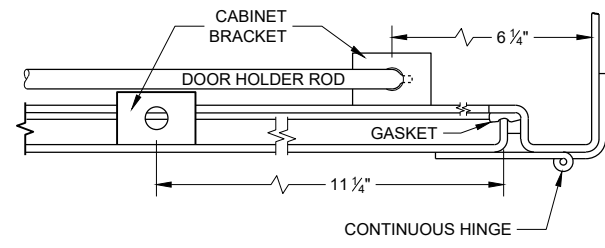
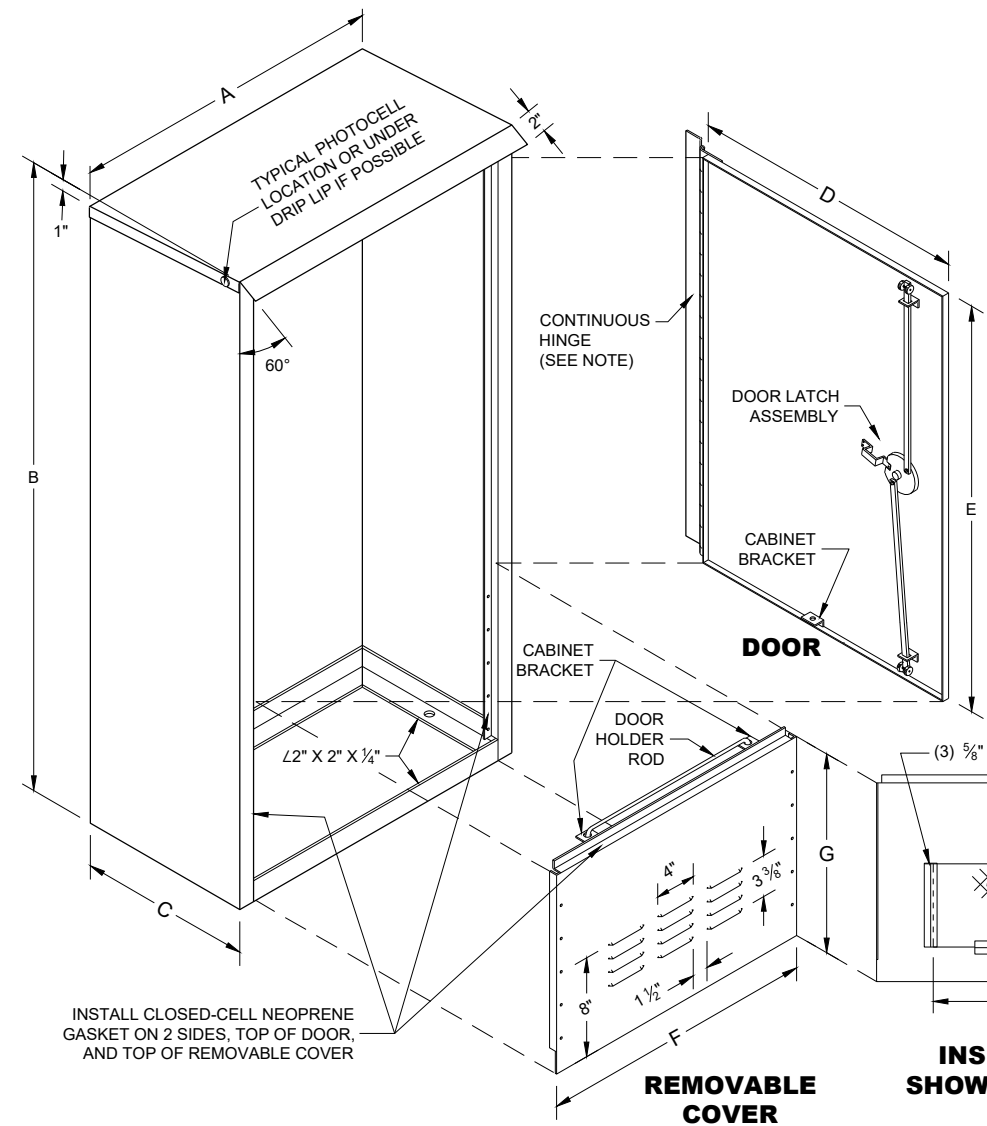
SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

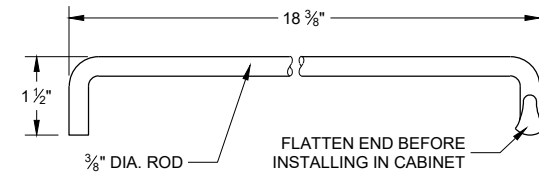
IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

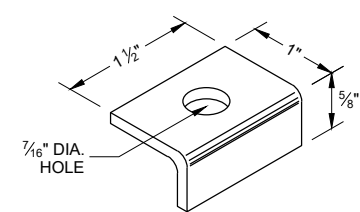
CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER



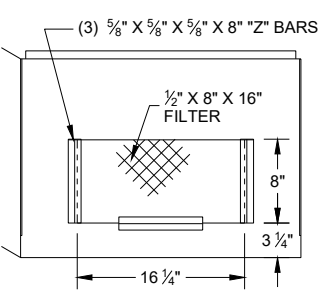
HINGE AND DOOR HOLDER



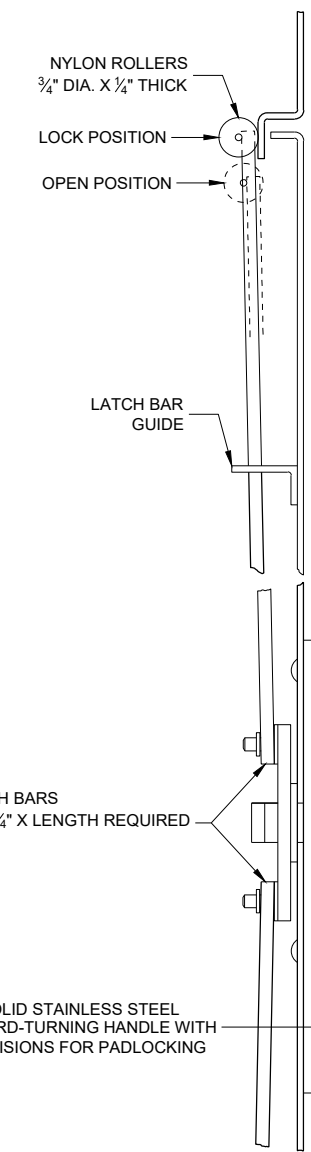
HOLDER ROD



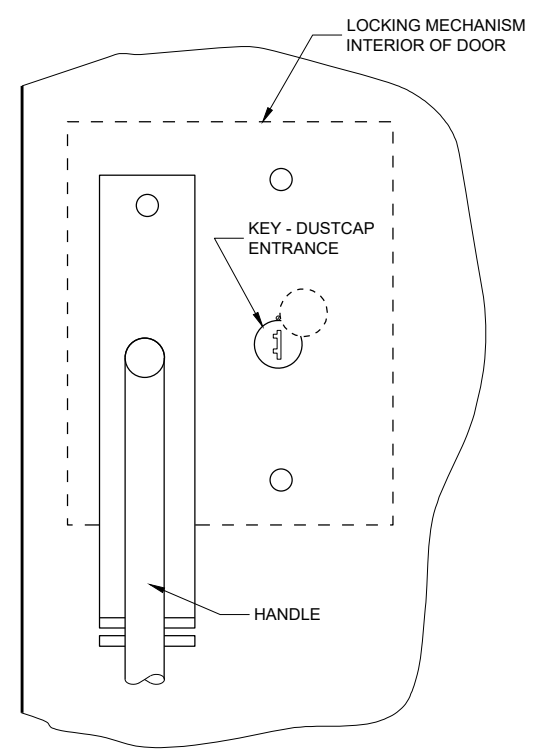
CABINET BRACKET



INSIDE VIEW SHOWING FILTER

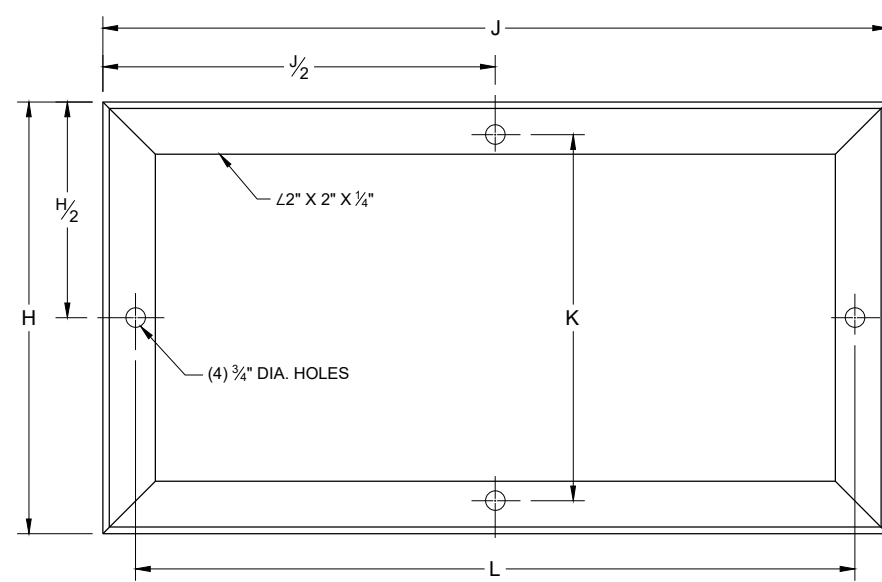


SIDE VIEW



FRONT VIEW

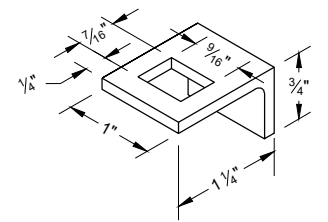
LATCH ASSEMBLY



MOUNTING BASE

TABLE OF DIMENSIONS (INCHES)

MARK	CABINET TYPE		
	3060	3860	3866
A	30	38	38
B	60	60	66
C	16 1/2	16 1/2	24
D	26 1/2	34 3/4	33 3/4
E	38 3/4	38 3/4	38 3/4
F	26 1/2	34 3/4	33 3/4
G	19	19	25
H	16 1/2	16 1/2	24
H/2	8 3/4	8 3/4	12
J	30	38	38
J/2	15	19	19
K	13 3/4	13 3/4	21 1/4
L	27 1/2	35 1/2	35 1/2



LATCH BAR GUIDE

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.

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/2" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/2" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH - NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.

6

6

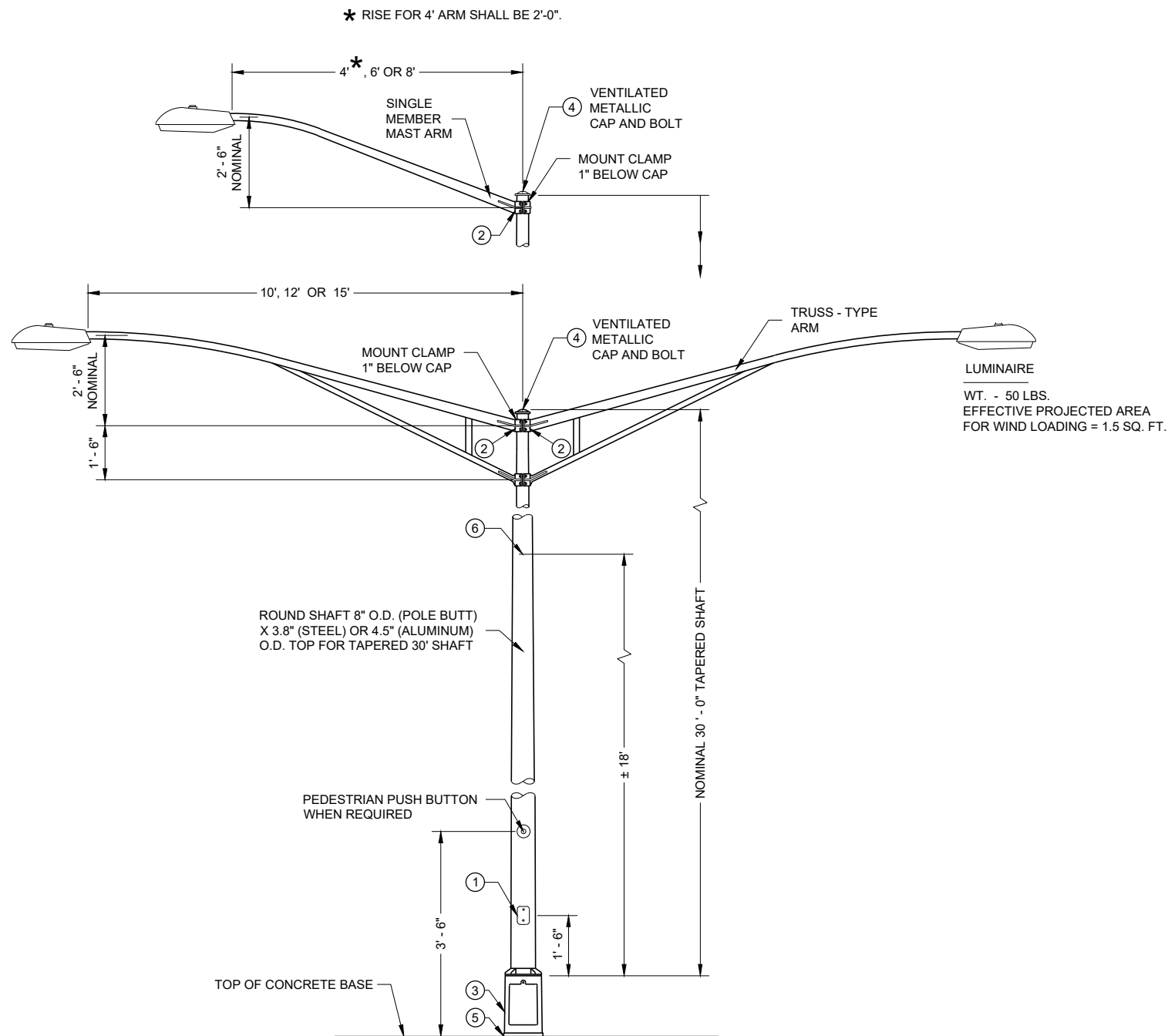
SDD 09D02 - 03

SDD 09D02 - 03

SIGNAL CONTROL CABINET

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demerbilek
DATE STATE ELECTRICAL ENGINEER
FHWA



**TYPE 5 POLE MOUNTING CONFIGURATION
(MAXIMUM LOAD)
LIGHTING ONLY**

GENERAL NOTES

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

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063 - T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

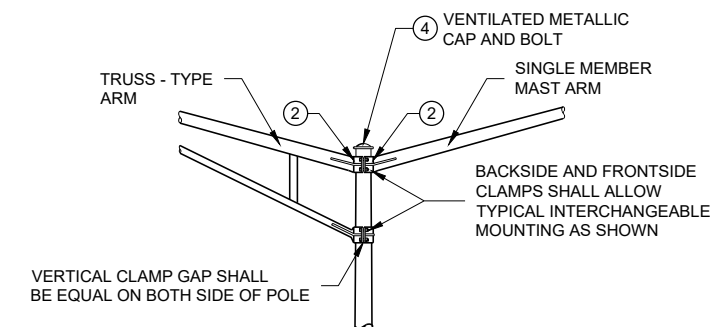
TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.1888".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (0.1196").

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8 INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

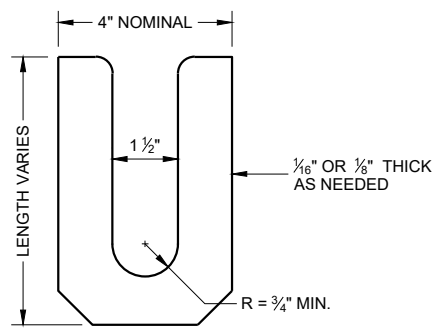
- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 1/4" X 3/4" - 20 TPI, STAINLESS STEEL, HEX HEAD BOLTS.
- ② GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ④ FURNISH AND INSTALL VENTILATED, CAST METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑤ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
- ⑥ INTERNAL DUMBBELL - TYPE VIBRATION DAMPER.



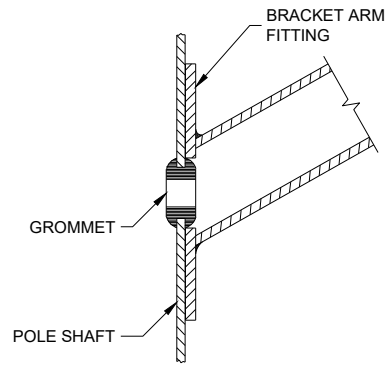
INTERCHANGEABLE MOUNTING DETAIL

**POLE MOUNTINGS FOR
LIGHTING UNITS, TYPE 5
(30 FEET)**

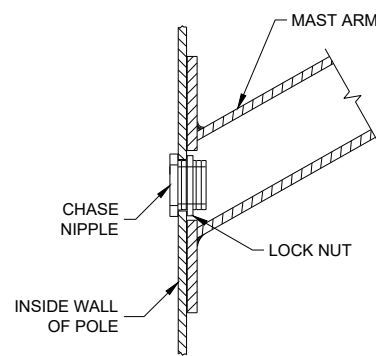
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



LEVELING SHIM
SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



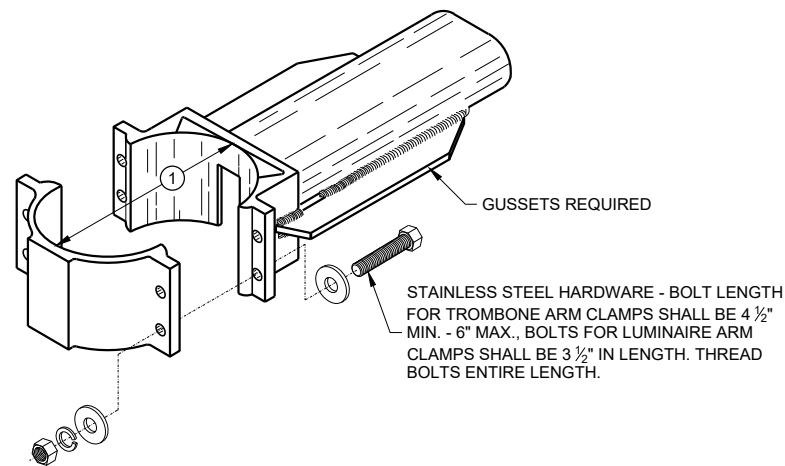
TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

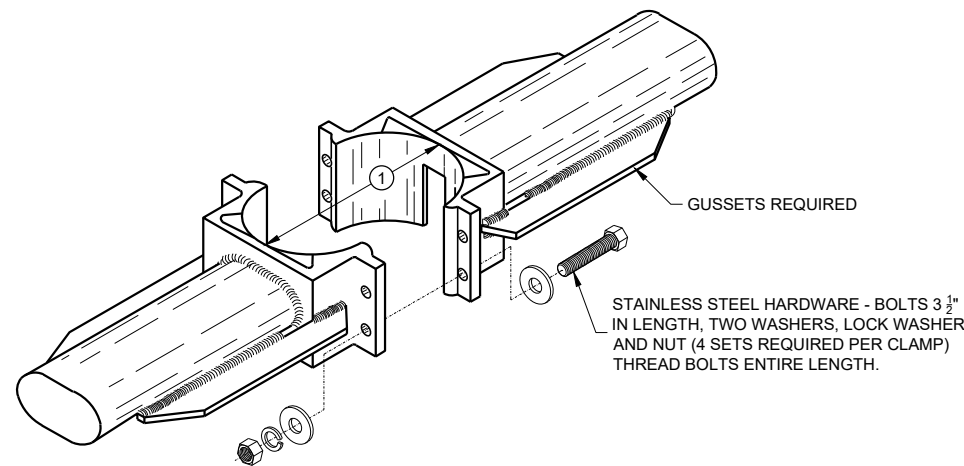
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- ① 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP. 6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- ② INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
- ③ BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
- ④ LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

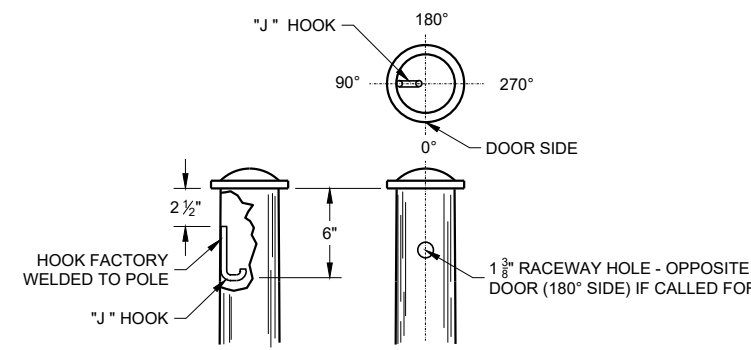
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



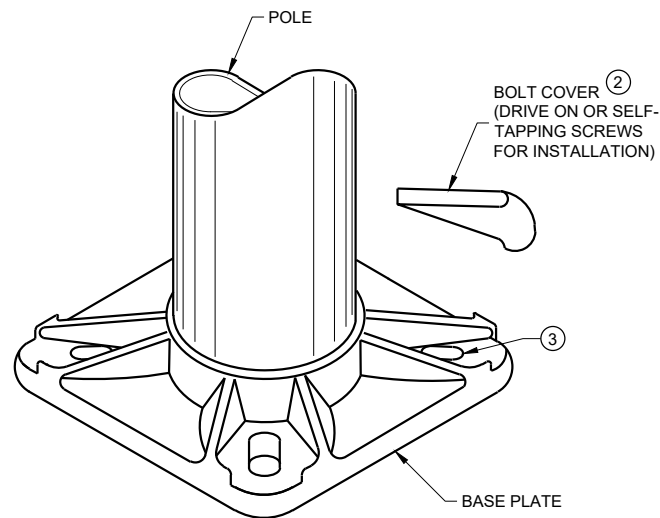
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



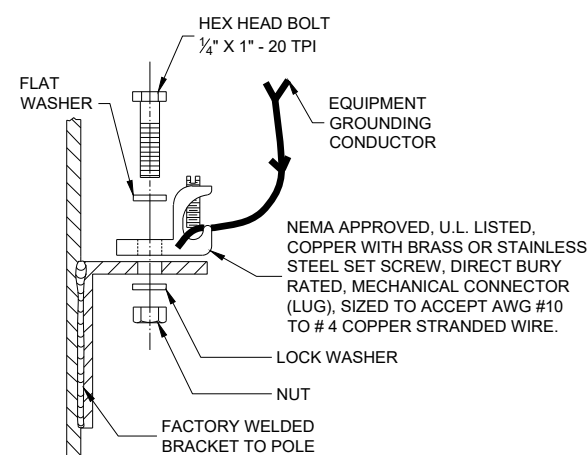
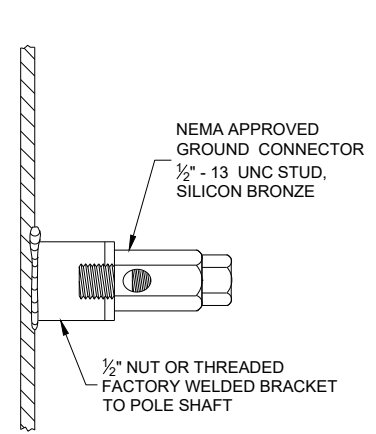
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS



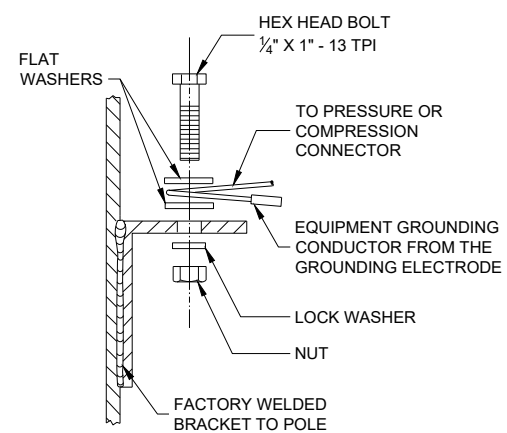
TYPICAL "J" HOOK LOCATION



BASE PLATE



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



HARDWARE DETAILS FOR POLE MOUNTING

STATE OF WISCONSIN
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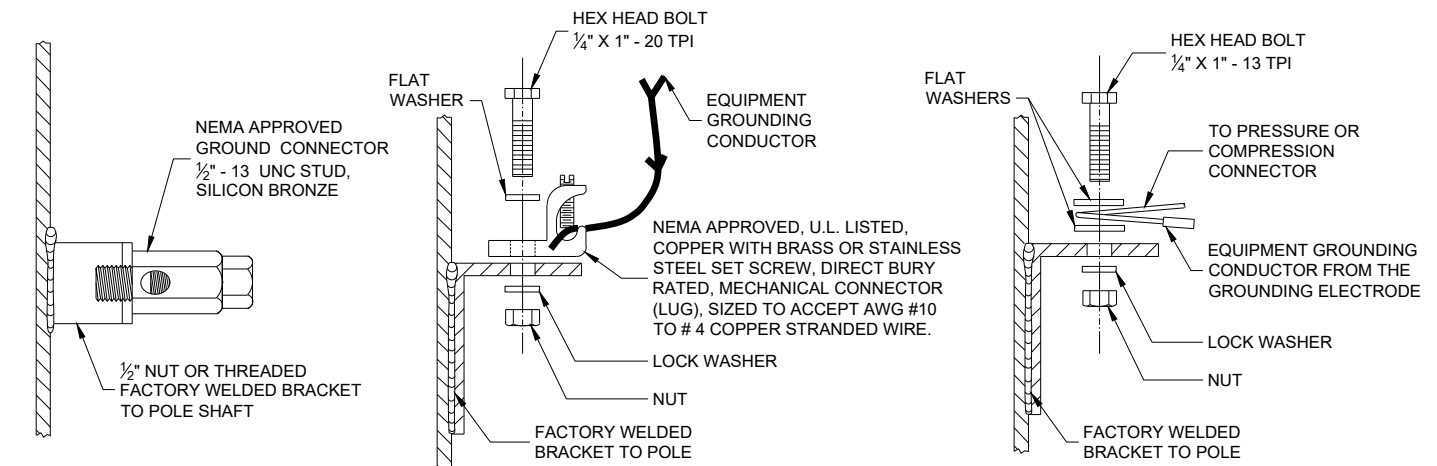
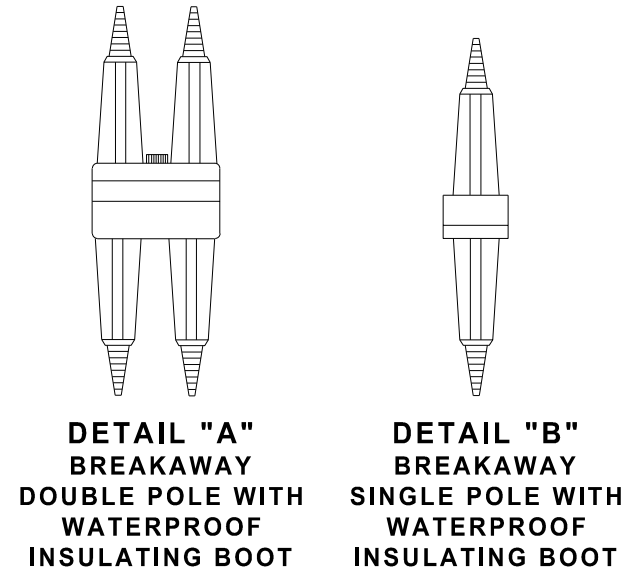
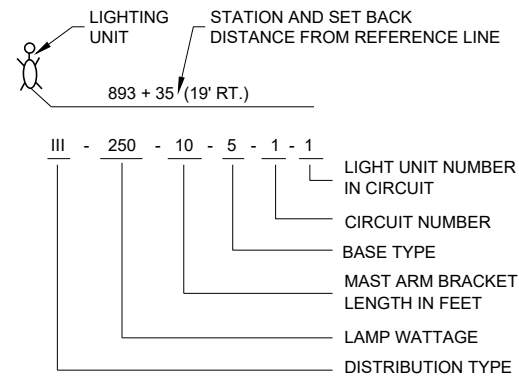
APPROVED
November 2018 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER
FHWA

GENERAL NOTES

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

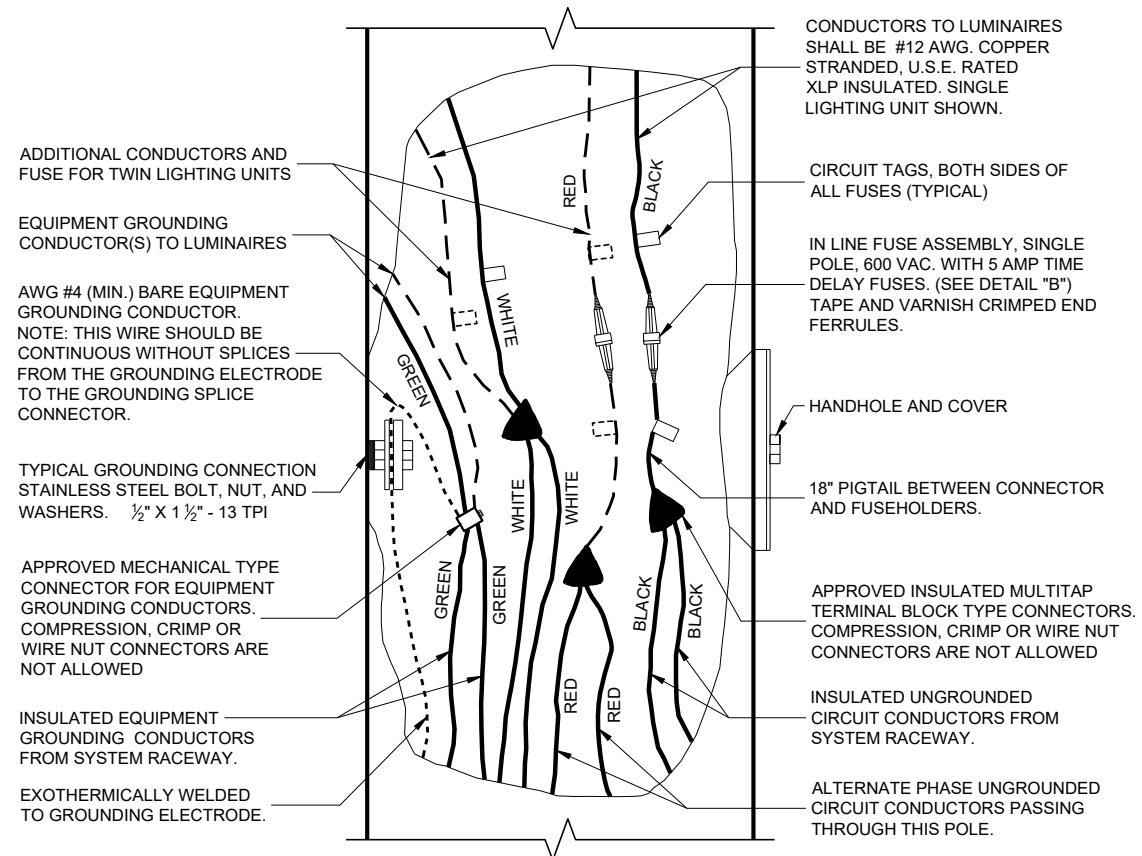
THE EQUIPMENT GROUND CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

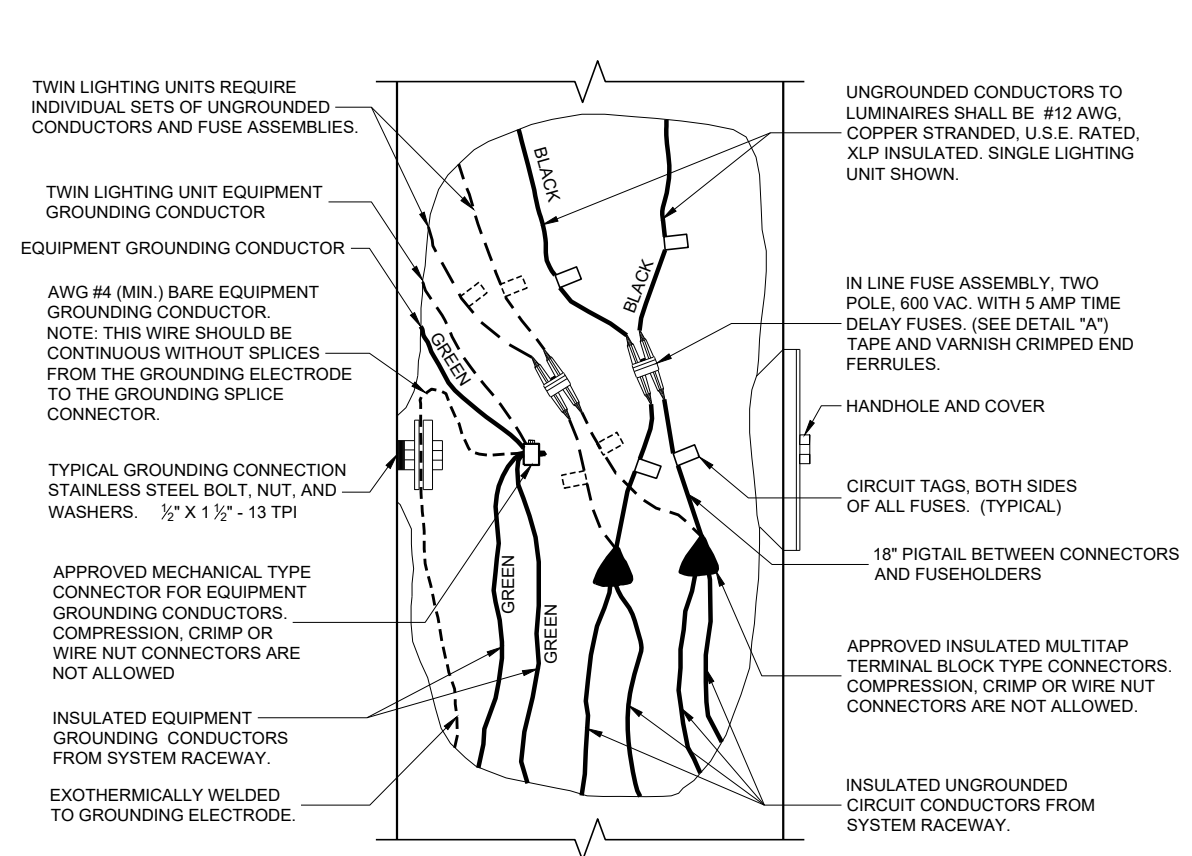


TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

LIGHTING UNIT CODE (TYPICAL)



3 WIRE - 120, 240 OR 480 VAC (UNGROUNDING CONDUCTORS) WITH GROUNDING CONDUCTOR AND EQUIPMENT GROUNDING CONDUCTOR



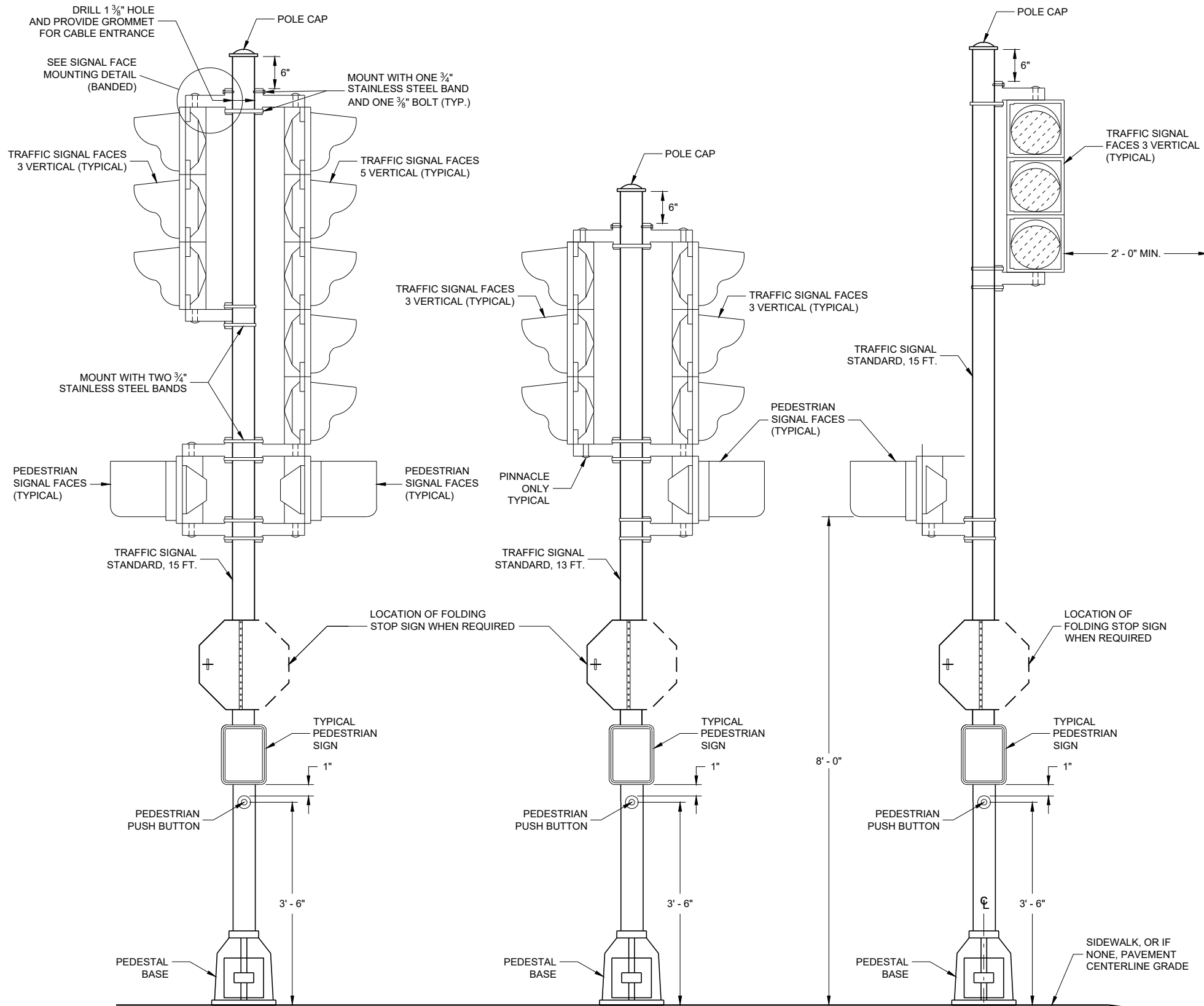
2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR

NON - FREEWAY LIGHTING UNIT POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE STATE ELECTRICAL ENGINEER

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TRAFFIC SIGNAL STANDARD - 15 FT.

TRAFFIC SIGNAL STANDARD - 13 FT.

TRAFFIC SIGNAL STANDARD - 15 FT. 3M MOUNTING (TYPICAL)

GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

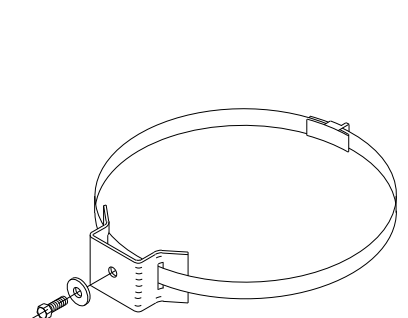
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

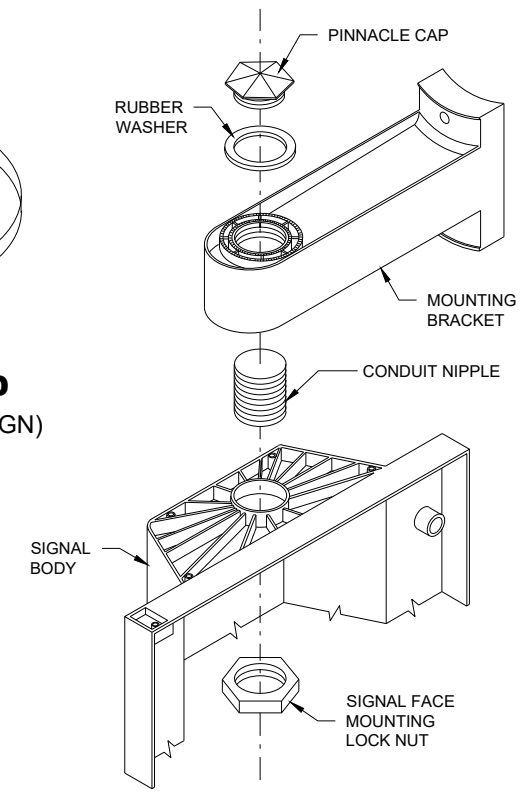
FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



TYPICAL SIGN MOUNTING BAND (TOP AND BOTTOM OF SIGN)



SIGNAL FACE MOUNTING DETAIL (BANDED)

TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.

STATE OF WISCONSIN
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2/28/2013 DATE /S/ Ahmet Demirelek
STATE ELECTRICAL ENGINEER

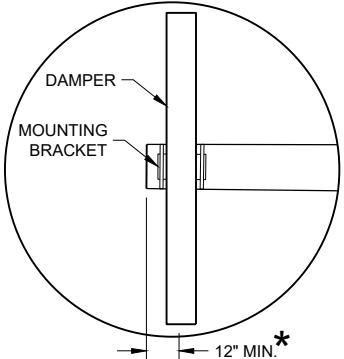
FHWA

6

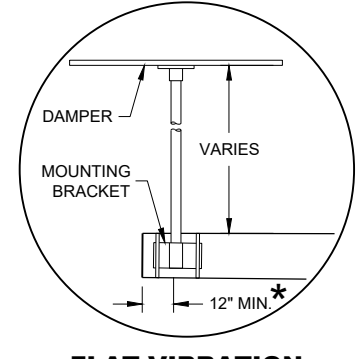
6

SDD 09E06 - 05

SDD 09E06 - 05

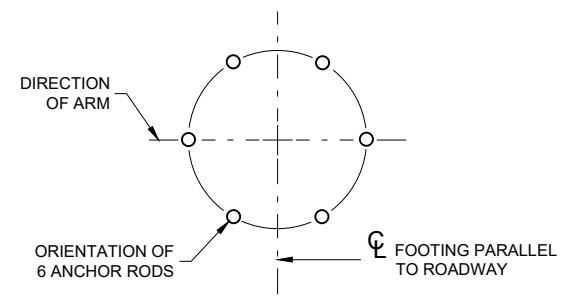


DUMBBELL VIBRATION DAMPER

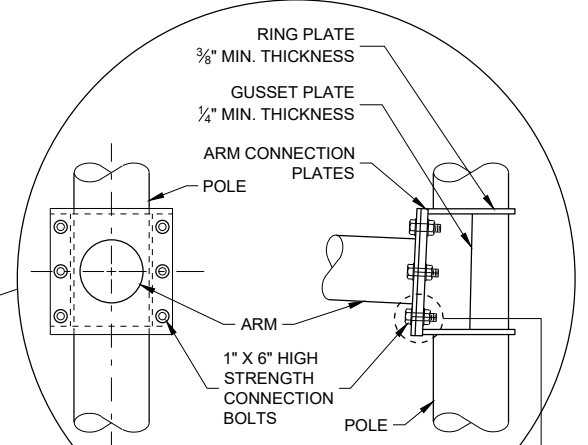


FLAT VIBRATION DAMPER

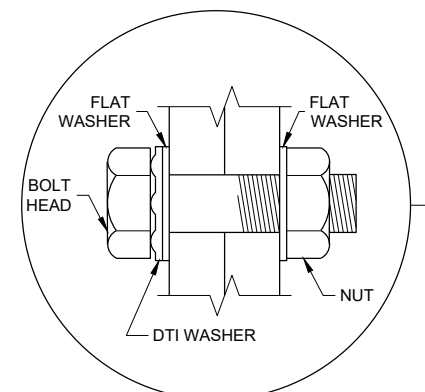
* MOUNT AS CLOSE TO END OF MAST ARM FOR MAXIMUM DAMPING PER MANUFACTURER'S RECOMMENDATIONS.



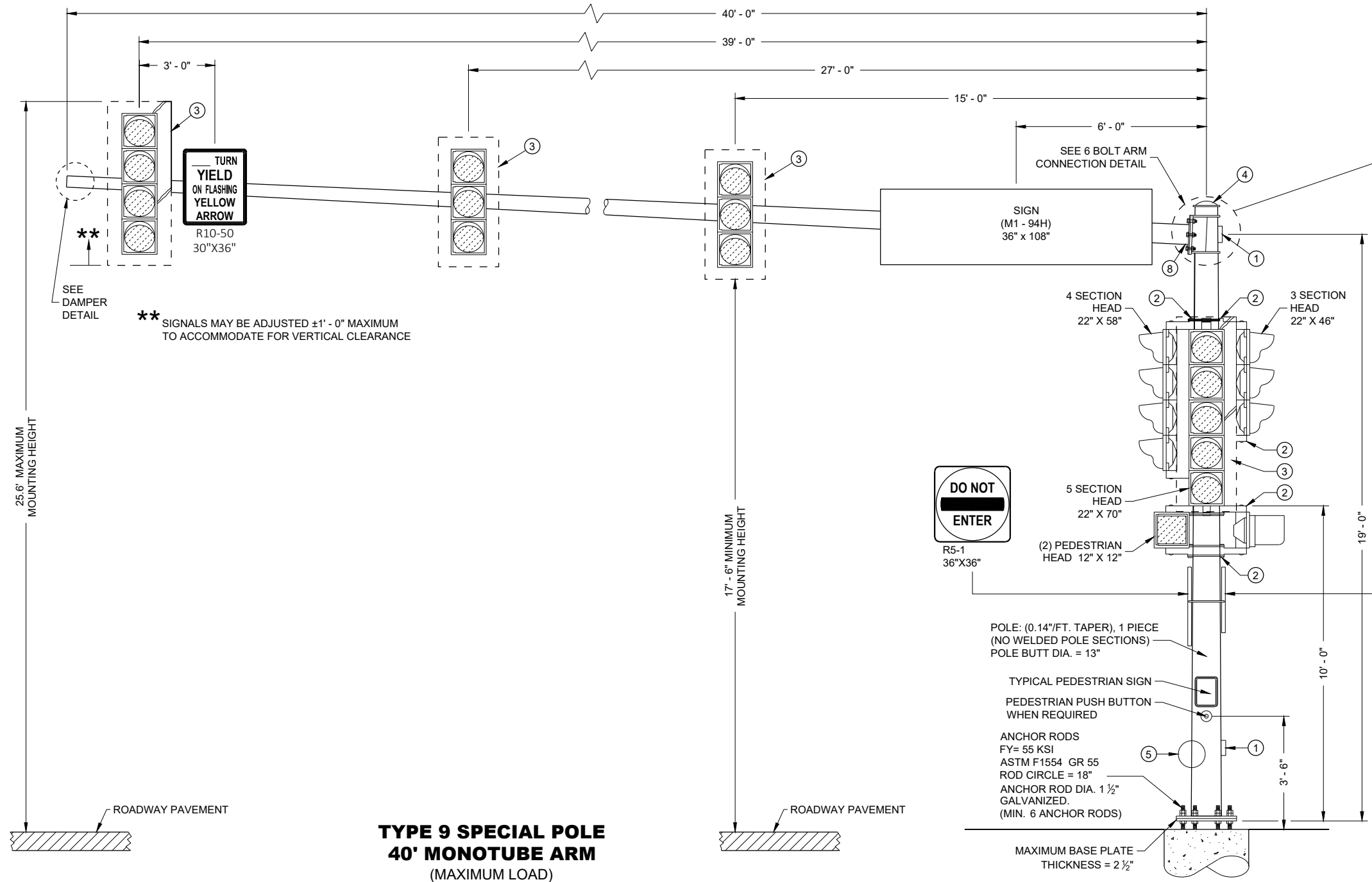
ANCHOR ROD LOCATION



6 BOLT ARM CONNECTION DETAIL



RECOMMENDED BOLT ASSEMBLY DETAIL

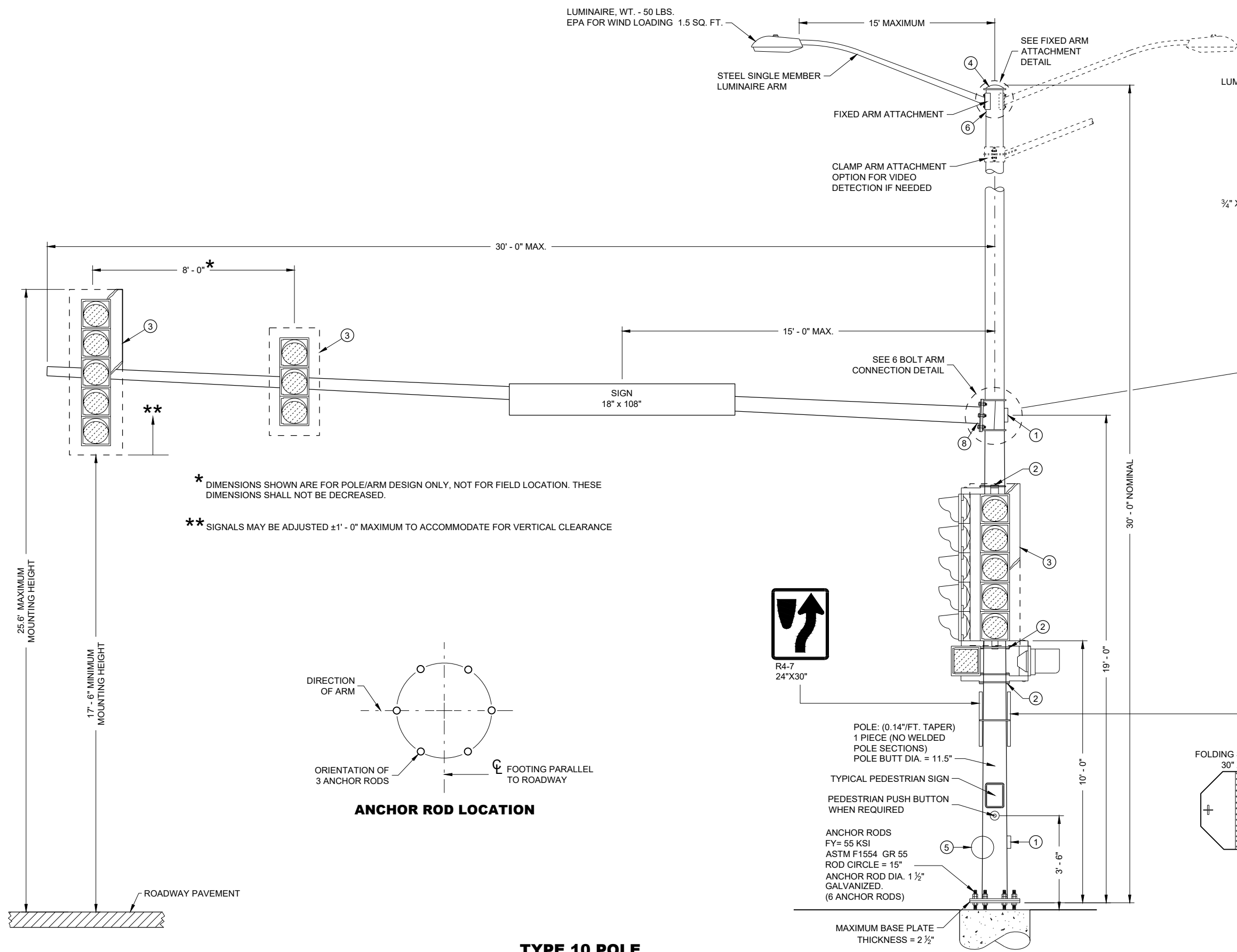


**TYPE 9 SPECIAL POLE
40' MONOTUBE ARM
(MAXIMUM LOAD)**

TYPE 9 SPECIAL POLE 40' MONOTUBE ARM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/s/ Ahmet Demirelek STATE ELECTRICAL ENGINEER
FHWA	

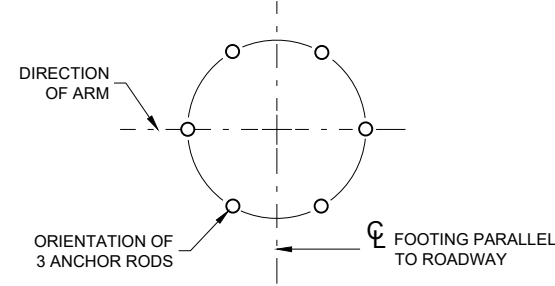
SDD 09E08 - 09C

SDD 09E08 - 09C



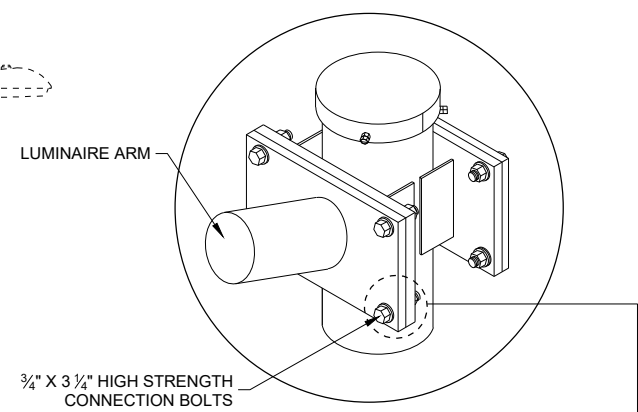
* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ±1' - 0" MAXIMUM TO ACCOMMODATE FOR VERTICAL CLEARANCE

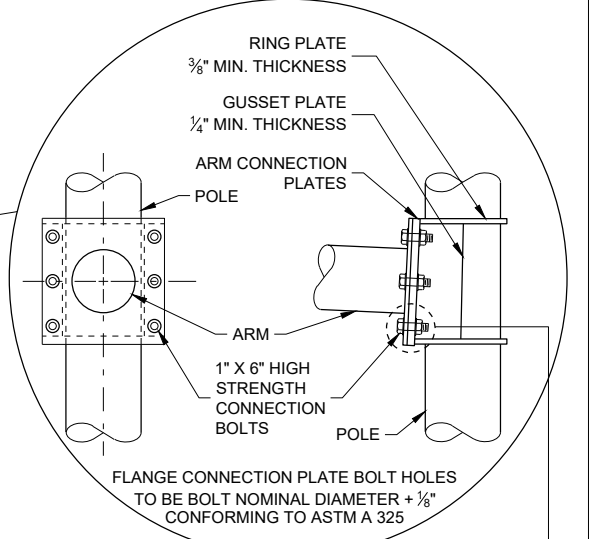


ANCHOR ROD LOCATION

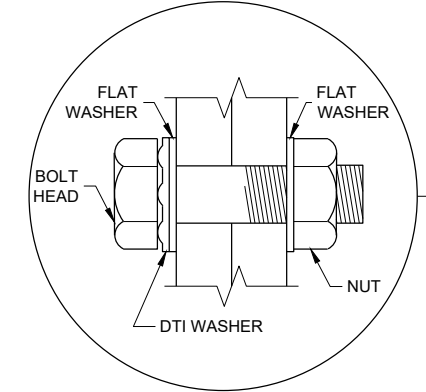
**TYPE 10 POLE
15' - 30' MONOTUBE ARM
(MAXIMUM LOAD)**



FIXED ARM ATTACHMENT DETAIL

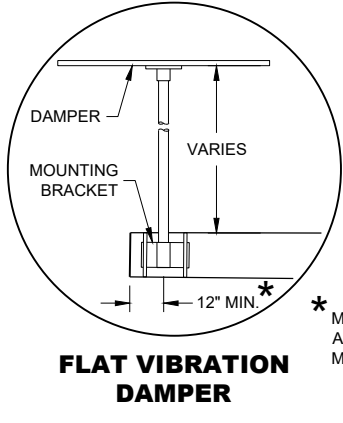
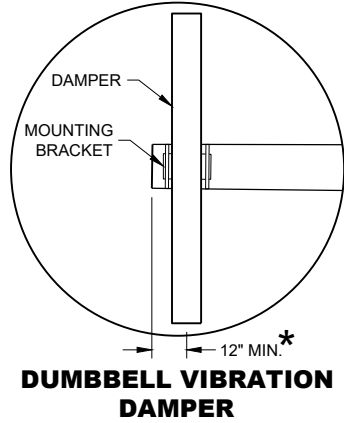


6 BOLT ARM CONNECTION DETAIL



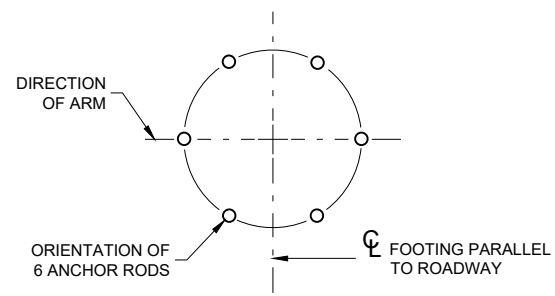
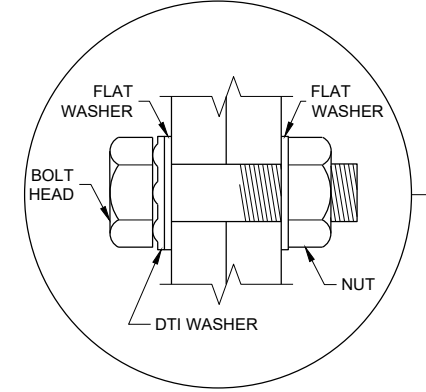
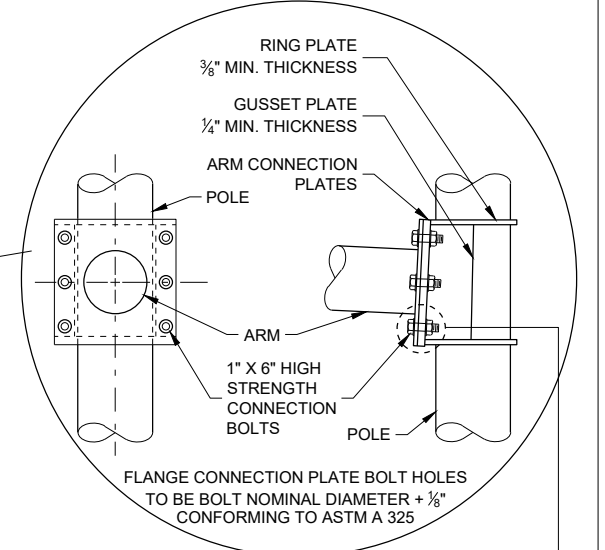
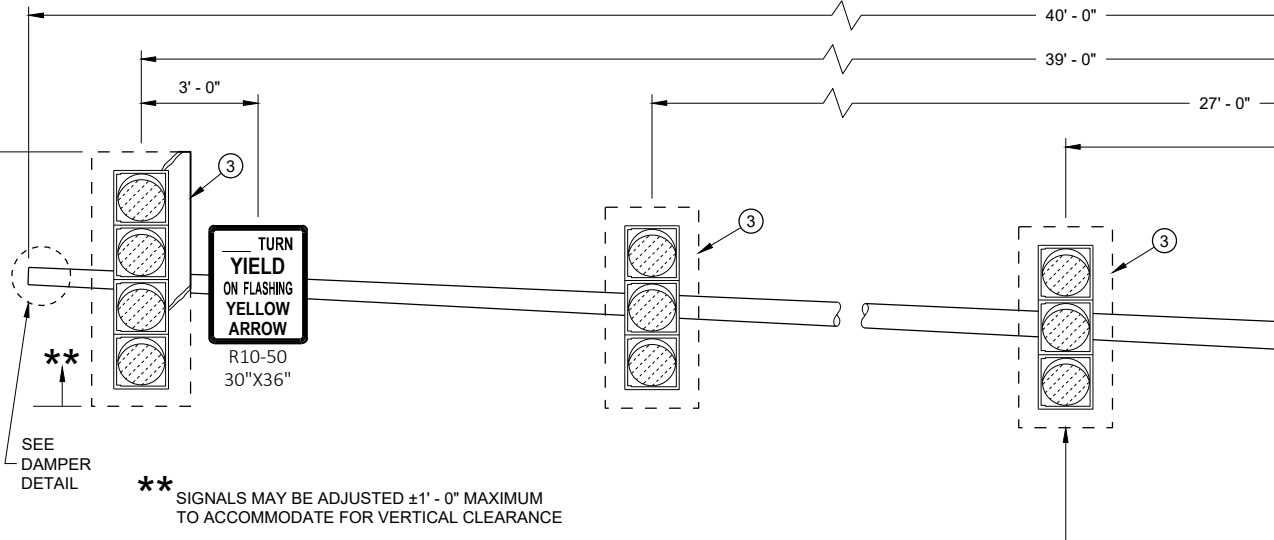
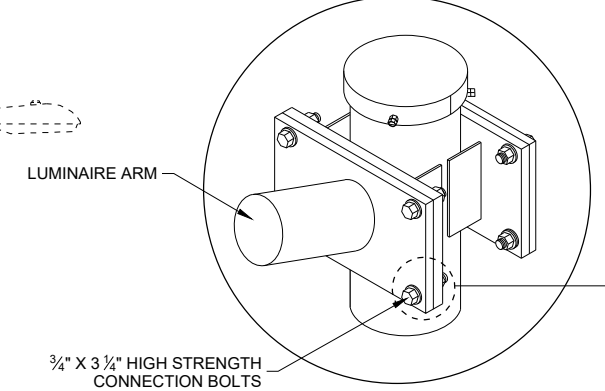
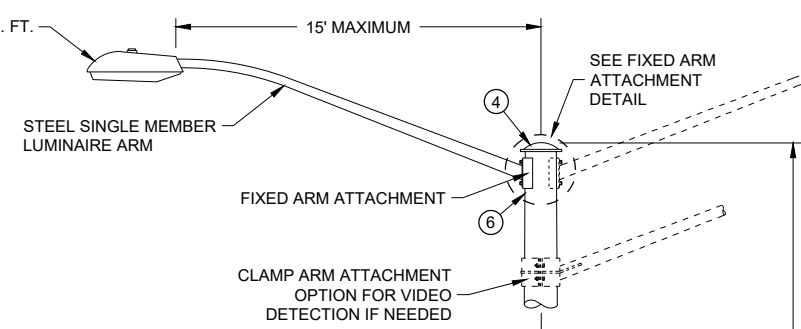
RECOMMENDED BOLT ASSEMBLY DETAIL

TYPE 10 POLE 15' - 30' MONOTUBE ARM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL ENGINEER
FHWA	



* MOUNT AS CLOSE TO END OF MAST ARM FOR MAXIMUM DAMPING PER MANUFACTURER'S RECOMMENDATIONS.

LUMINAIRE, WT. - 50 LBS.
EPA FOR WIND LOADING 1.5 SQ. FT.

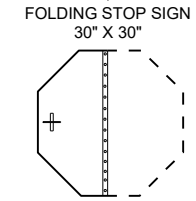


POLE: (0.14"/FT. TAPER), 1 PIECE (NO WELDED POLE SECTIONS) POLE BUTT DIA. = 13"

TYPICAL PEDESTRIAN SIGN
PEDESTRIAN PUSH BUTTON WHEN REQUIRED

ANCHOR RODS
FY= 55 KSI
ASTM F1554 GR 55
ROD CIRCLE = 18"
ANCHOR ROD DIA. 1 1/2" GALVANIZED.
(MIN. 6 ANCHOR RODS)

MAXIMUM BASE PLATE THICKNESS = 2 1/2"



TYPE 10 SPECIAL POLE 40' MONOTUBE ARM (MAXIMUM LOAD)

TYPE 10 SPECIAL POLE 40' MONOTUBE ARM

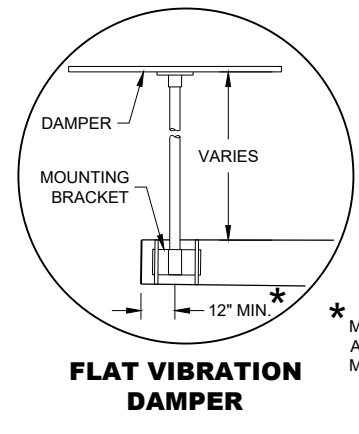
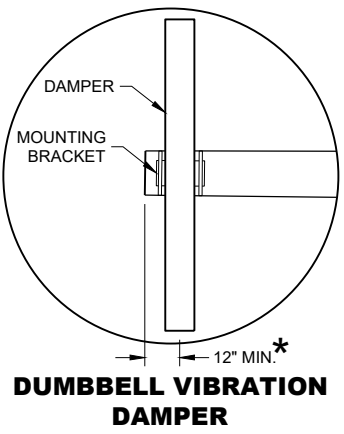
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 DATE /S/ Ahmet Demirelek
STATE ELECTRICAL ENGINEER

FHWA

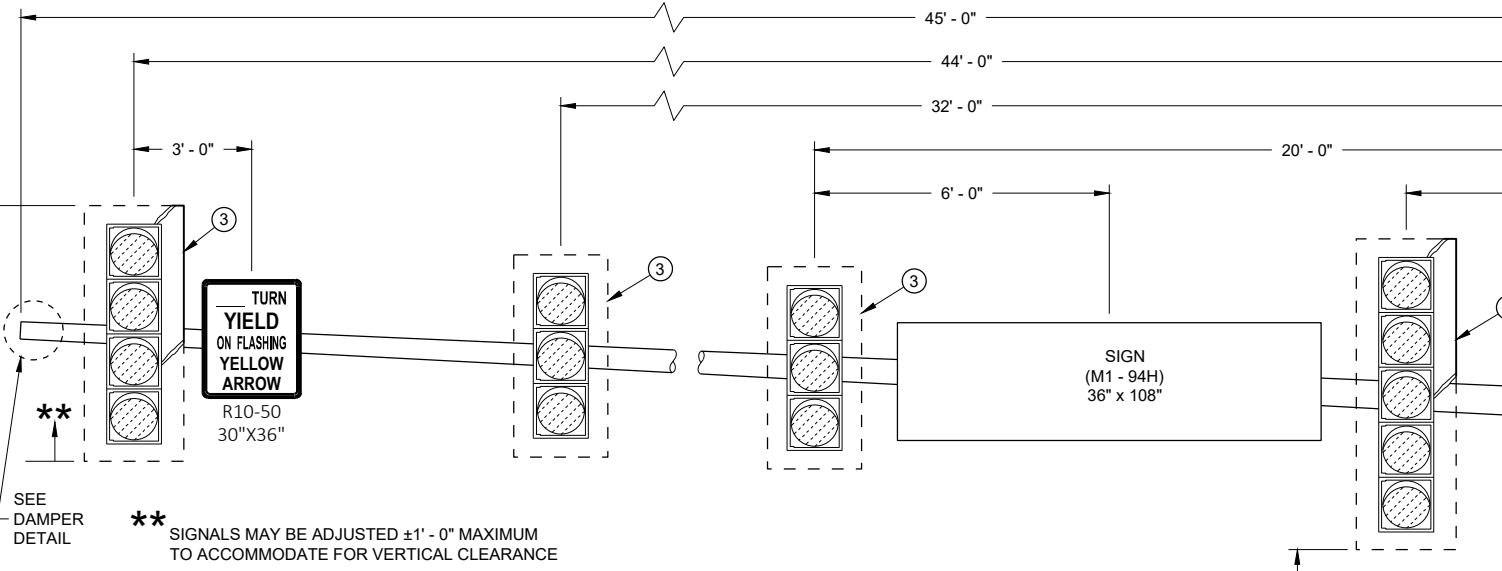
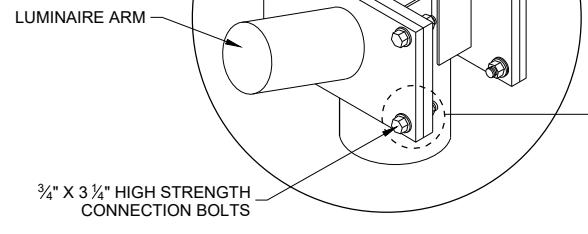
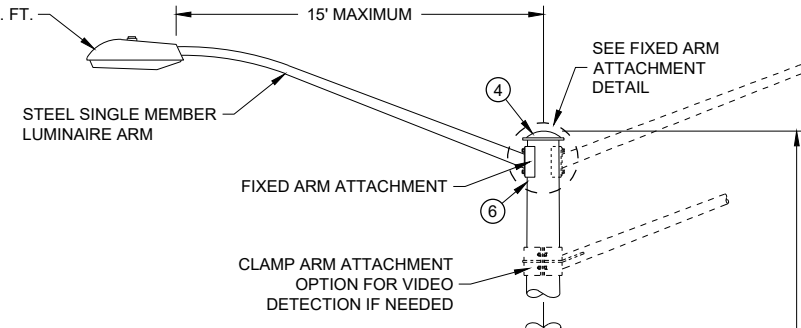
SDD 09E08 - 09g

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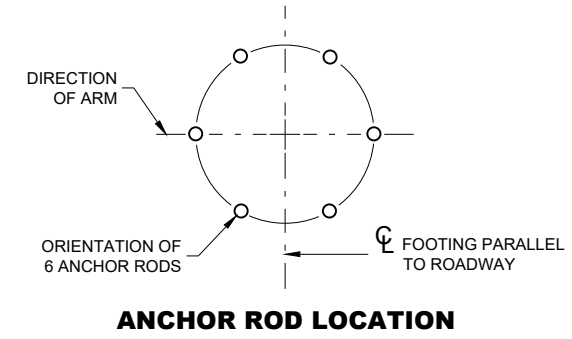
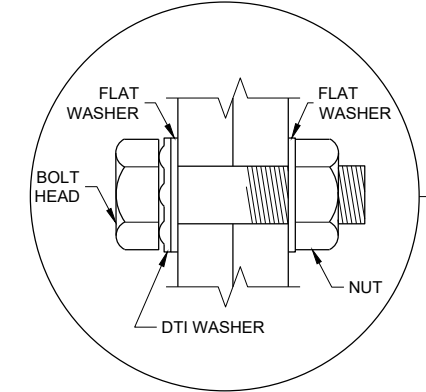
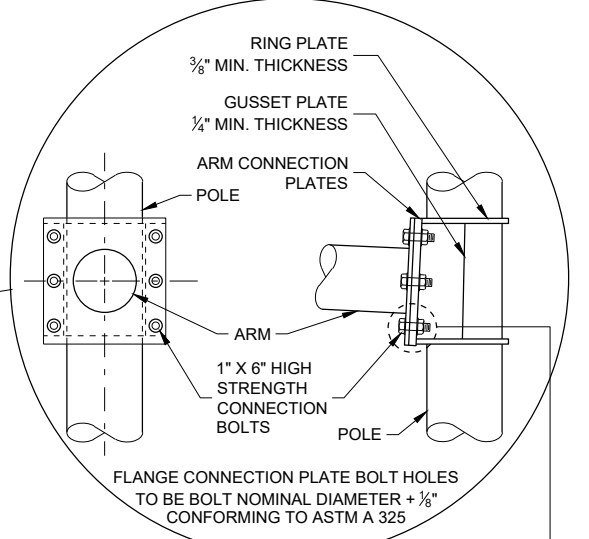


* MOUNT AS CLOSE TO END OF MAST ARM FOR MAXIMUM DAMPING PER MANUFACTURER'S RECOMMENDATIONS.

LUMINAIRE, WT. - 50 LBS.
EPA FOR WIND LOADING 1.5 SQ. FT.



** SIGNALS MAY BE ADJUSTED ±1' - 0" MAXIMUM TO ACCOMMODATE FOR VERTICAL CLEARANCE



- POLE: (0.14"/FT. TAPER), 1 PIECE (NO WELDED POLE SECTIONS) POLE BUTT DIA. = 13"
- TYPICAL PEDESTRIAN SIGN
- PEDESTRIAN PUSH BUTTON WHEN REQUIRED
- ANCHOR RODS
FY= 55 KSI
ASTM F1554 GR 55
ROD CIRCLE = 18"
ANCHOR ROD DIA. 1 1/2"
GALVANIZED.
(MIN. 6 ANCHOR RODS)
- FOLDING STOP SIGN 30" X 30"
- MAXIMUM BASE PLATE THICKNESS = 2 1/2"

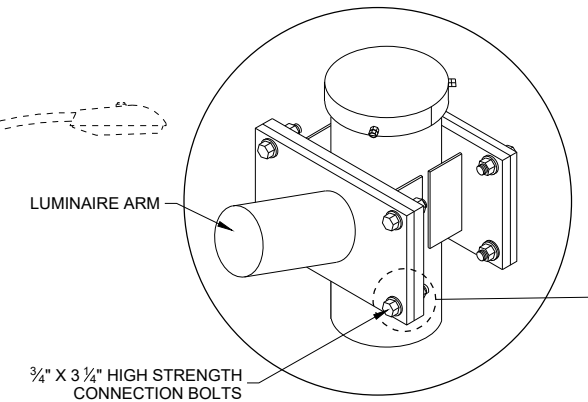
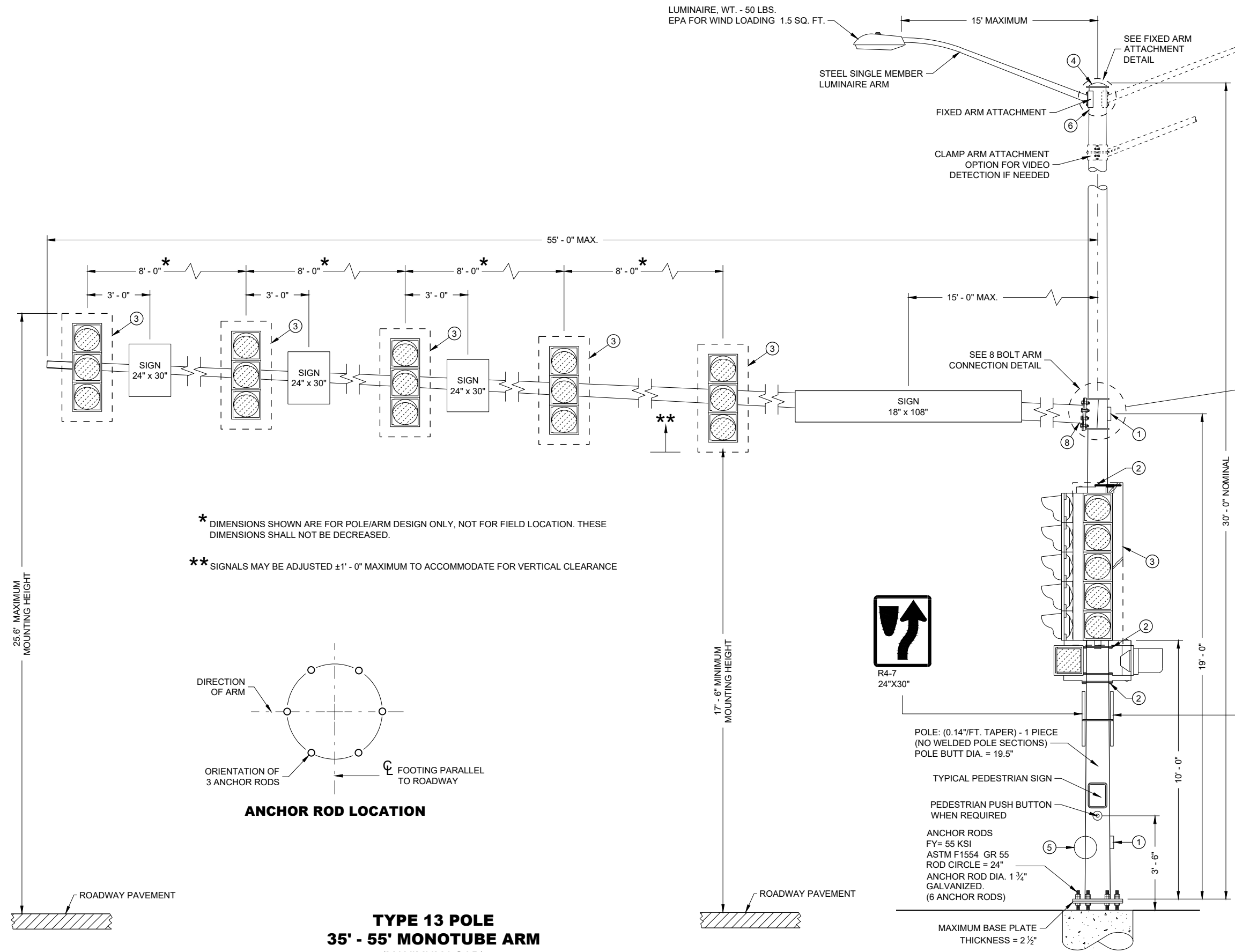
**TYPE 10 SPECIAL POLE
45' MONOTUBE ARM
(MAXIMUM LOAD)**

TYPE 10 SPECIAL POLE 45' MONTUBE ARM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL ENGINEER

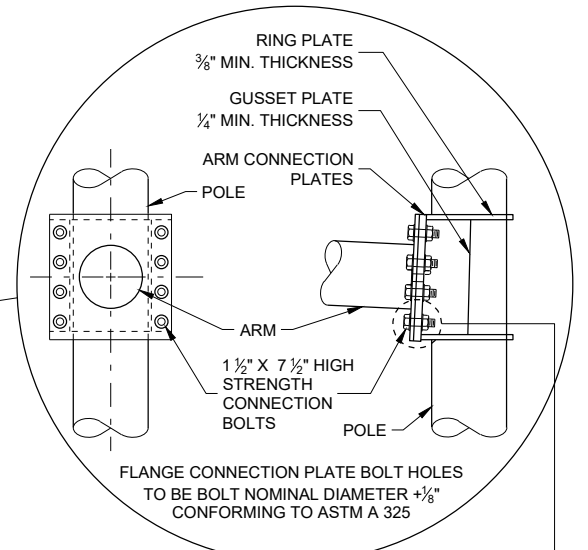
SDD 09E08 - 08h

SDD 09E08 - 08h

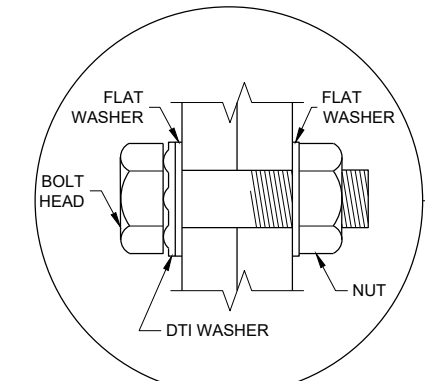
LUMINAIRE, WT. - 50 LBS.
EPA FOR WIND LOADING 1.5 SQ. FT.



FIXED ARM ATTACHMENT DETAIL



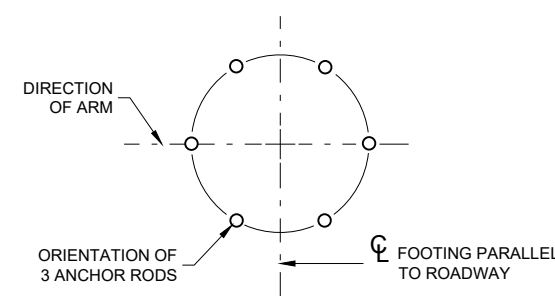
8 BOLT ARM CONNECTION DETAIL



RECOMMENDED BOLT ASSEMBLY DETAIL

* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ±1' - 0" MAXIMUM TO ACCOMMODATE FOR VERTICAL CLEARANCE



ANCHOR ROD LOCATION

**TYPE 13 POLE
35' - 55' MONOTUBE ARM
(MAXIMUM LOAD)**



R4-7
24"X30"

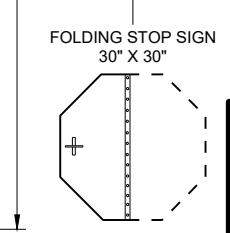
POLE: (0.14"/FT. TAPER) - 1 PIECE
(NO WELDED POLE SECTIONS)
POLE BUTT DIA. = 19.5"

TYPICAL PEDESTRIAN SIGN

PEDESTRIAN PUSH BUTTON
WHEN REQUIRED

ANCHOR RODS
FY= 55 KSI
ASTM F1554 GR 55
ROD CIRCLE = 24"
ANCHOR ROD DIA. 1 3/4"
GALVANIZED.
(6 ANCHOR RODS)

MAXIMUM BASE PLATE
THICKNESS = 2 1/2"



FOLDING STOP SIGN
30" X 30"

TYPE 13 POLE 35' - 55' MONOTUBE ARM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL ENGINEER
FHWA	

GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15 FOOT TO 30 FOOT.

POLE TYPES 9 SPECIAL AND 10 SPECIAL ARE FOR ARM LENGTHS 35 FOOT, 40 FOOT, AND 45 FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35 FOOT TO 55 FOOT.

MONOTUBE POLES AND ARMS SHALL BE GALVANIZED STEEL.

RING STIFFENED BUILT UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3% ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATION SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNAL 2015 1ST EDITION (INCLUDING INTERIM REVISIONS)" AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR THE LIGHTING STRUCTURES AS FOLLOWS:

CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.

CATEGORY II FATIGUE LOADS OF TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 SPECIAL AND TYPE 10 SPECIAL STRUCTURES. IN LIEU OF DESIGNING FOR GALLOPING, A VIBRATION DAMPER MITIGATION DEVICE IS REQUIRED TO BE SUPPLIED AND INSTALLED AT THE END OF THE MAST ARM.

CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.

115 MPH (700 YEAR MRI BASIC WIND SPEED).

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH 3/4" STAINLESS STEEL BANDING AROUND THE LEVELING NUTS.

INDENT PRINT (NOMINAL 1/2" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEAD AT SAME ELEVATION.

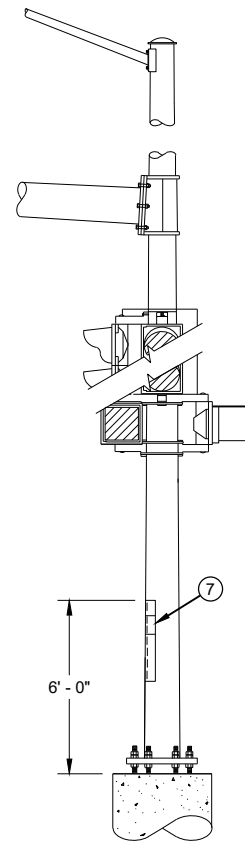
SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

- ① DESIGN FOR MAXIMUM ALLOWABLE HAND HOLE WITH COVER ASSEMBLY WITH TWO 1/4" X 3/4" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.
- ② SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING (SEE SPECIFICATION SECTION 658).
- ③ SECURELY MOUNT BACK PLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.
- ④ THE TOP OF THE POLE SHAFT AND THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.
- ⑤ FACTORY WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HAND HOLD, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR 1/4" X 3/4" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.
- ⑥ FACTORY WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.
- ⑦ INSTALL STRUCTURAL IDENTIFICATION PLAQUES.

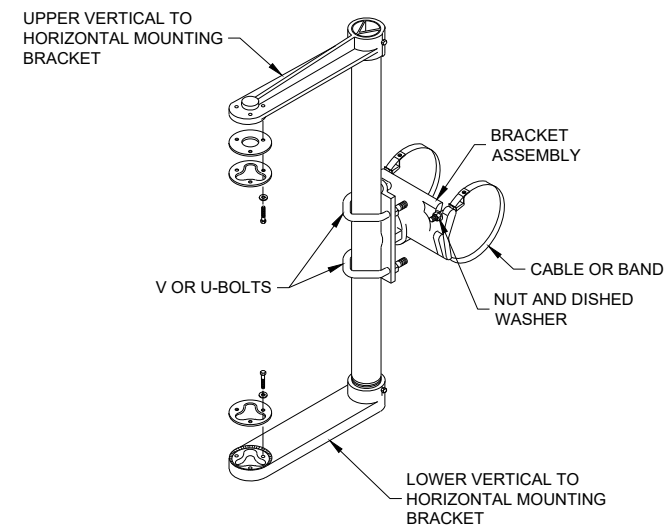
STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

MOUNTING HEIGHT SHALL BE 6' - 0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

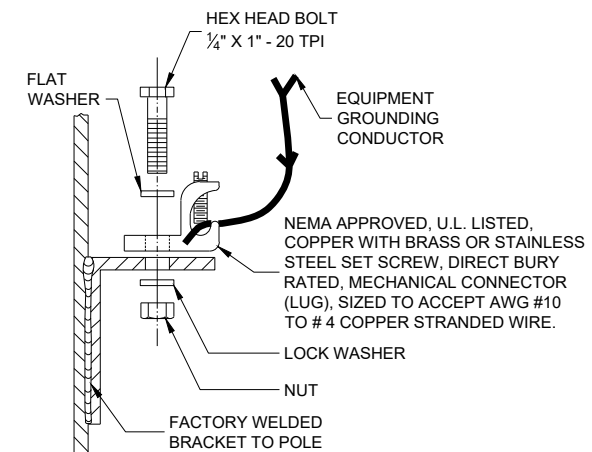
- ⑧ FACTORY DRILLED 1/2" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.



**STRUCTURAL IDENTIFICATION
PLAQUE PLACEMENT**

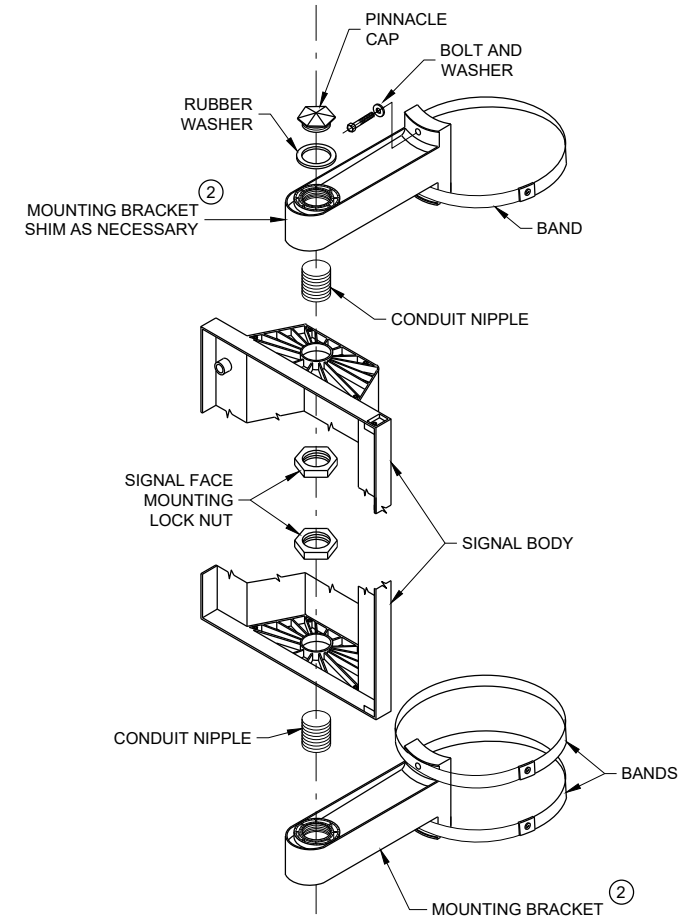


**SIGNAL FACE MOUNTING BRACKET
DETAIL FOR MONOTUBE ARM**
(MOUNT PER MANUFACTURER'S RECOMMENDATION)

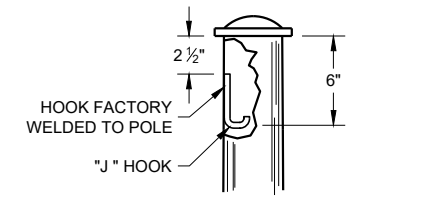


**TYPICAL GROUNDING
CONNECTIONS**

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



**SIGNAL FACE VERTICAL
MOUNTING DETAIL**



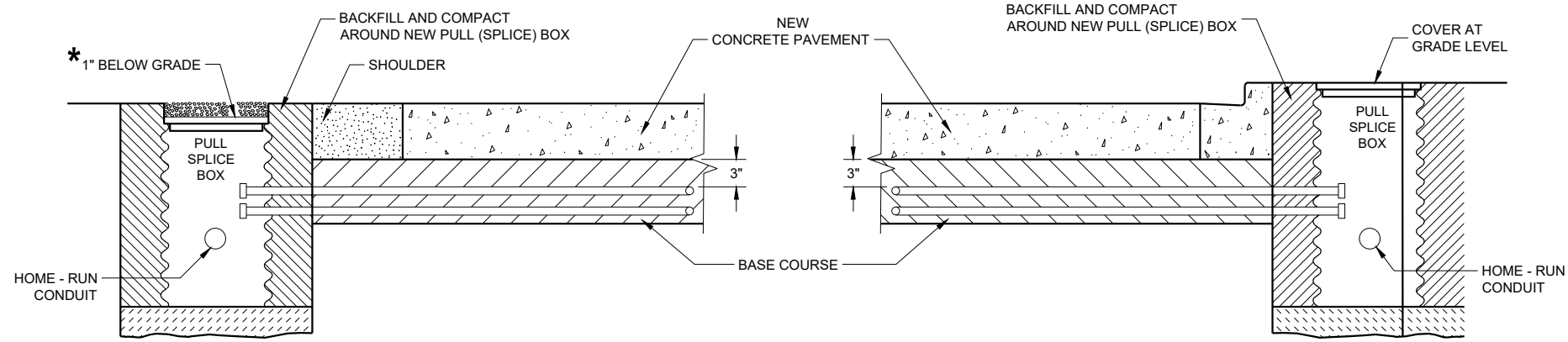
**TYPICAL "J" HOOK
WIRE SUPPORT**

**GENERAL NOTES AND
HARDWARE FOR TYPES 9,10,
9/10 SPECIAL, 12 AND 13
POLES WITH MONOTUBE ARMS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 DATE /S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER

FHWA



**SECTION A - A
NO CURB AND GUTTER**

**SECTION B - B
CURB AND GUTTER**

* RECESS PULL (SPLICE) BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPLICE) BOX.

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READING TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

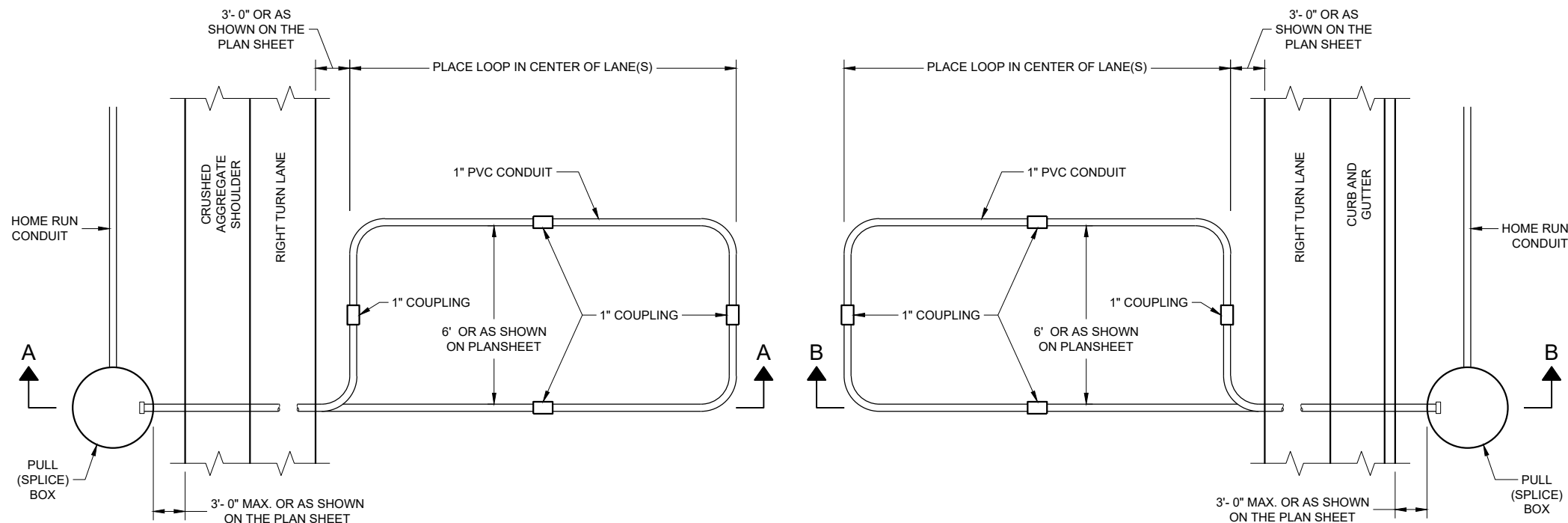
THE #12 AWG LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPLICE) BOXES AT THE SIDE OF THE ROAD.

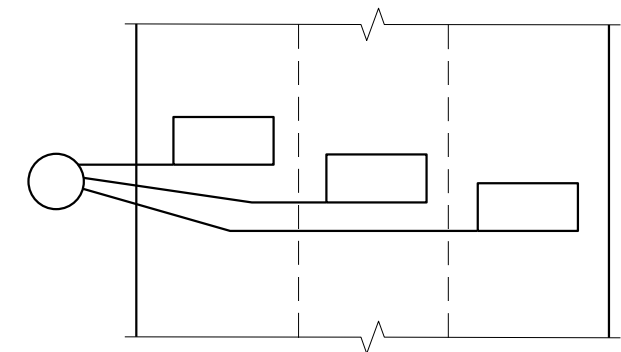
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE NON-SPLICED, CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT IN THE BASE COURSE SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.



**TYPICAL PLAN LOOP DETECTOR
WITH 24" PULL (SPLICE) BOX**



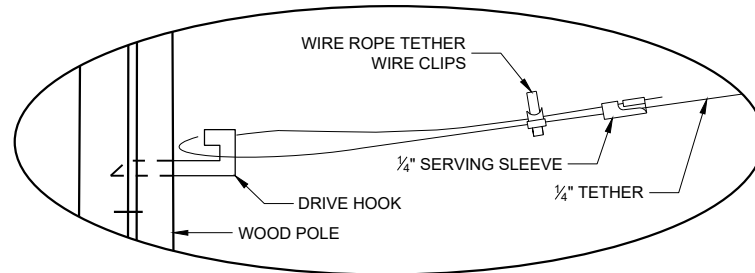
**MULTI-LANE
INSTALLATION**

**LOOP DETECTOR INSTALLED
IN BASE COURSE WITH
PULL (SPLICE) BOX OFF
ROADWAY (OPTION 2)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGINEER
FHWA

MINIMUM POLE LENGTHS	POLE BURIAL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

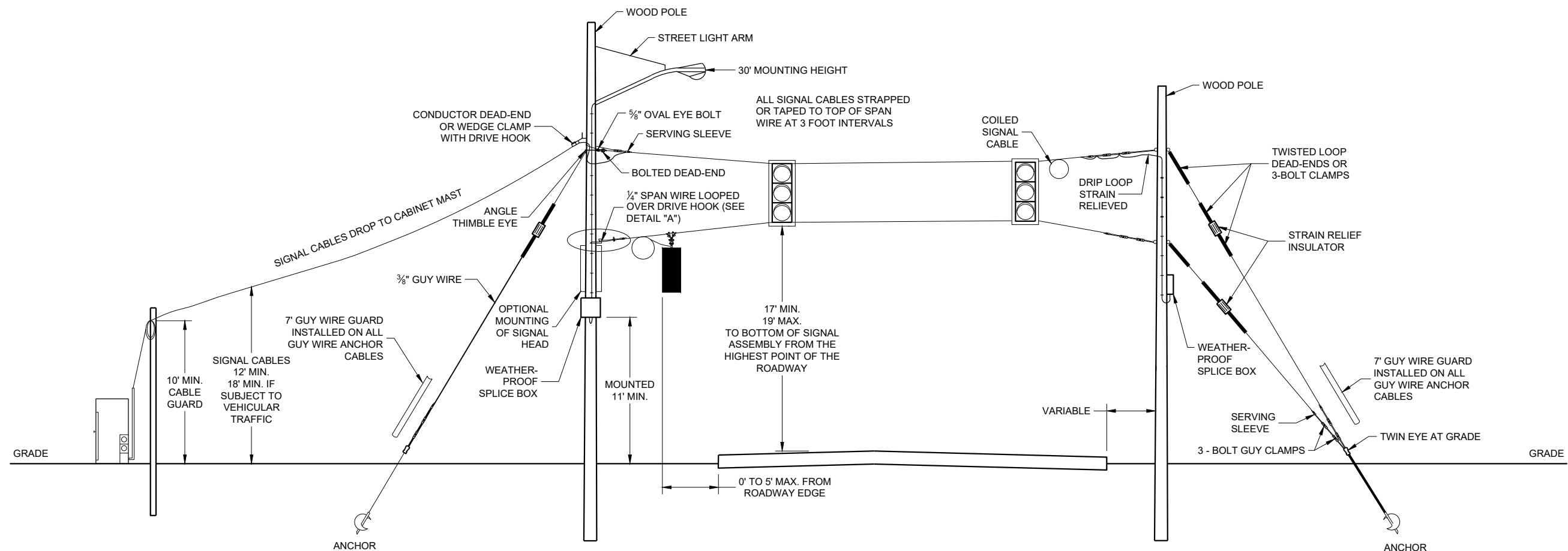


DETAIL "A"

GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
2. SIGNAL FACES:
 - A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 - B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 - C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 - D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
3. SPAN WIRE:
 - A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
 - B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



SPAN WIRE TEMPORARY SIGNALS

SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

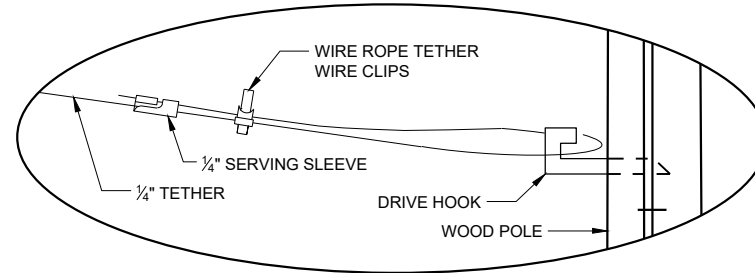
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SDD09G01 - 04a

SDD09G01 - 04a

MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

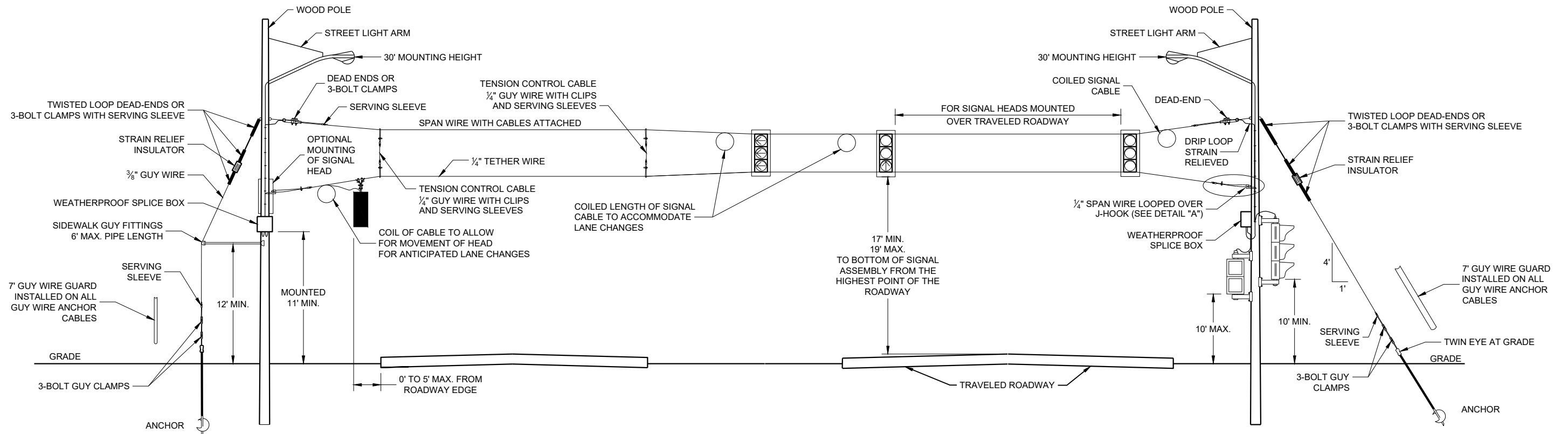


DETAIL "A"

GENERAL NOTES

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 - C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 - D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
 - E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
3. SPAN WIRE:
 - A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
 - B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



**SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS**

**SPAN WIRE TEMPORARY
TRAFFIC SIGNAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

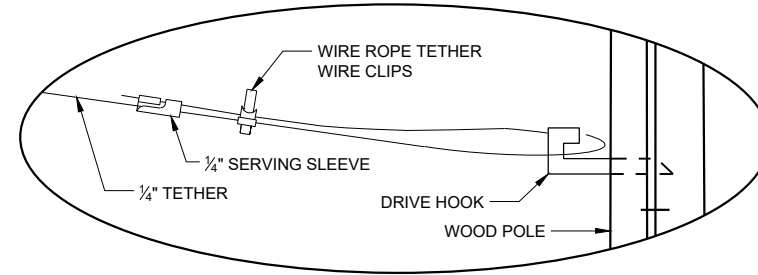
APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE STATE ELECTRICAL ENGINEER

FHWA

SDD09G01 - 04b

SDD09G01 - 04b

MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

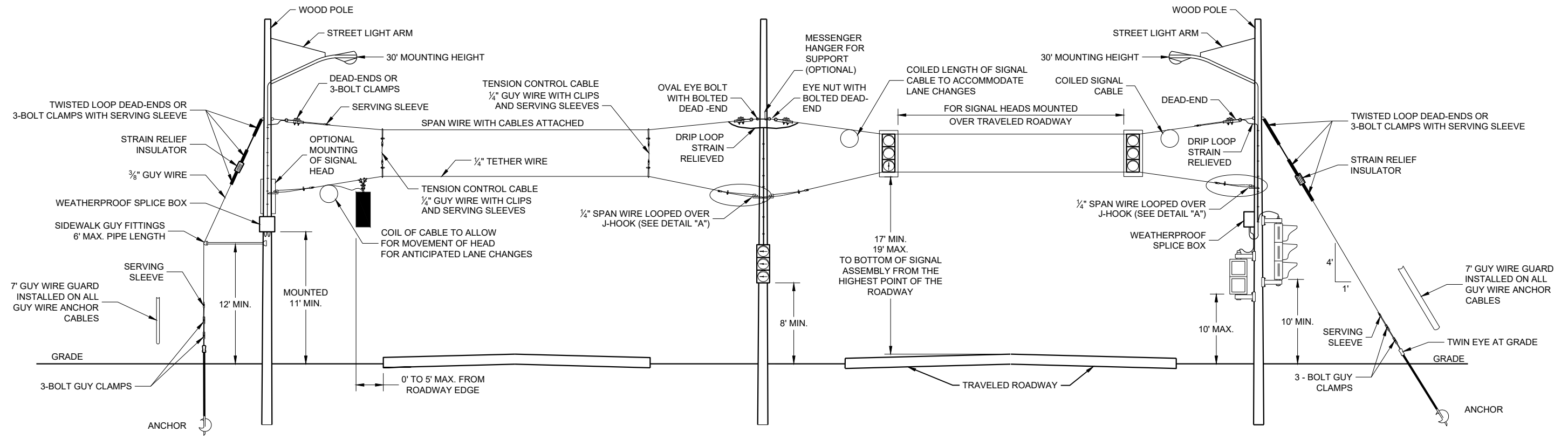


DETAIL "A"

GENERAL NOTES

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

- WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
- SIGNAL FACES:
 - ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 - EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 - EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 - NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
 - FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
- SPAN WIRE:
 - EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
 - SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

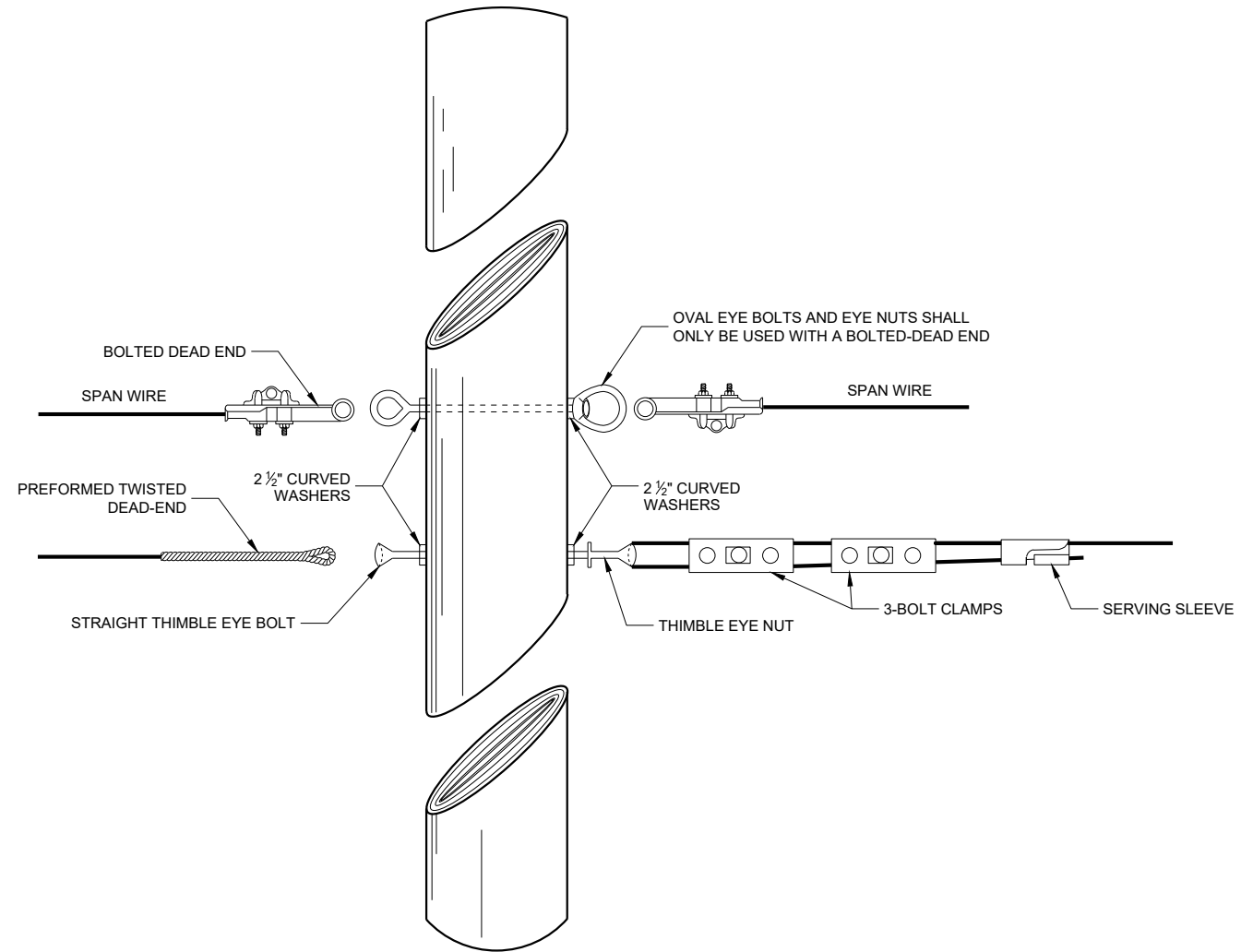
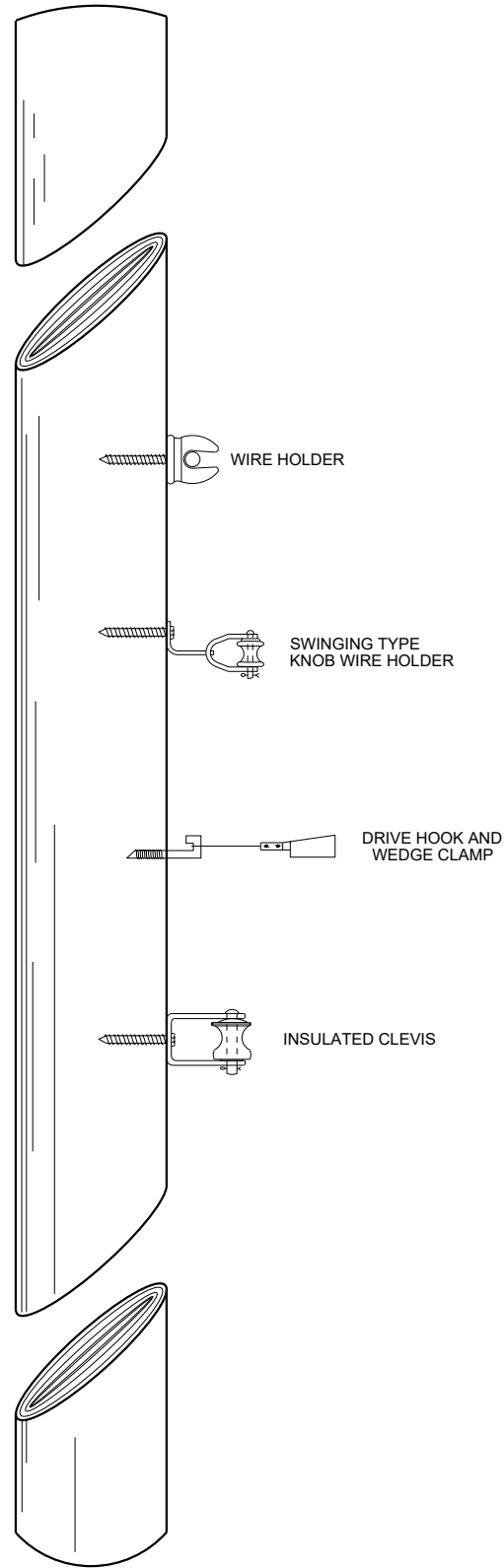


**SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS**

SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

SDD09G01 - 04c

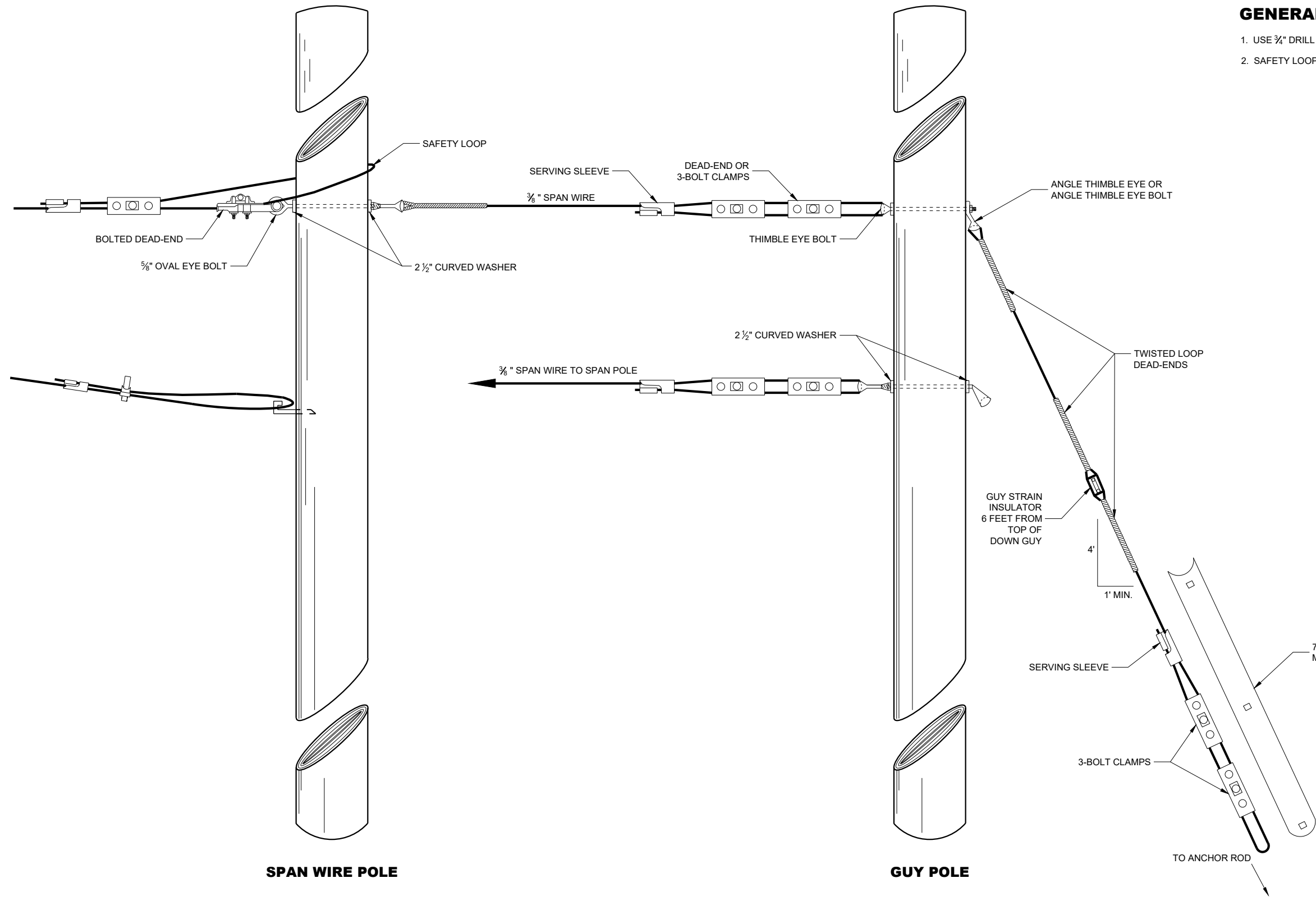
SDD09G01 - 04c



SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER



GENERAL NOTES

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 3/8" BOLTS.
2. SAFETY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

SPAN WIRE POLE

GUY POLE

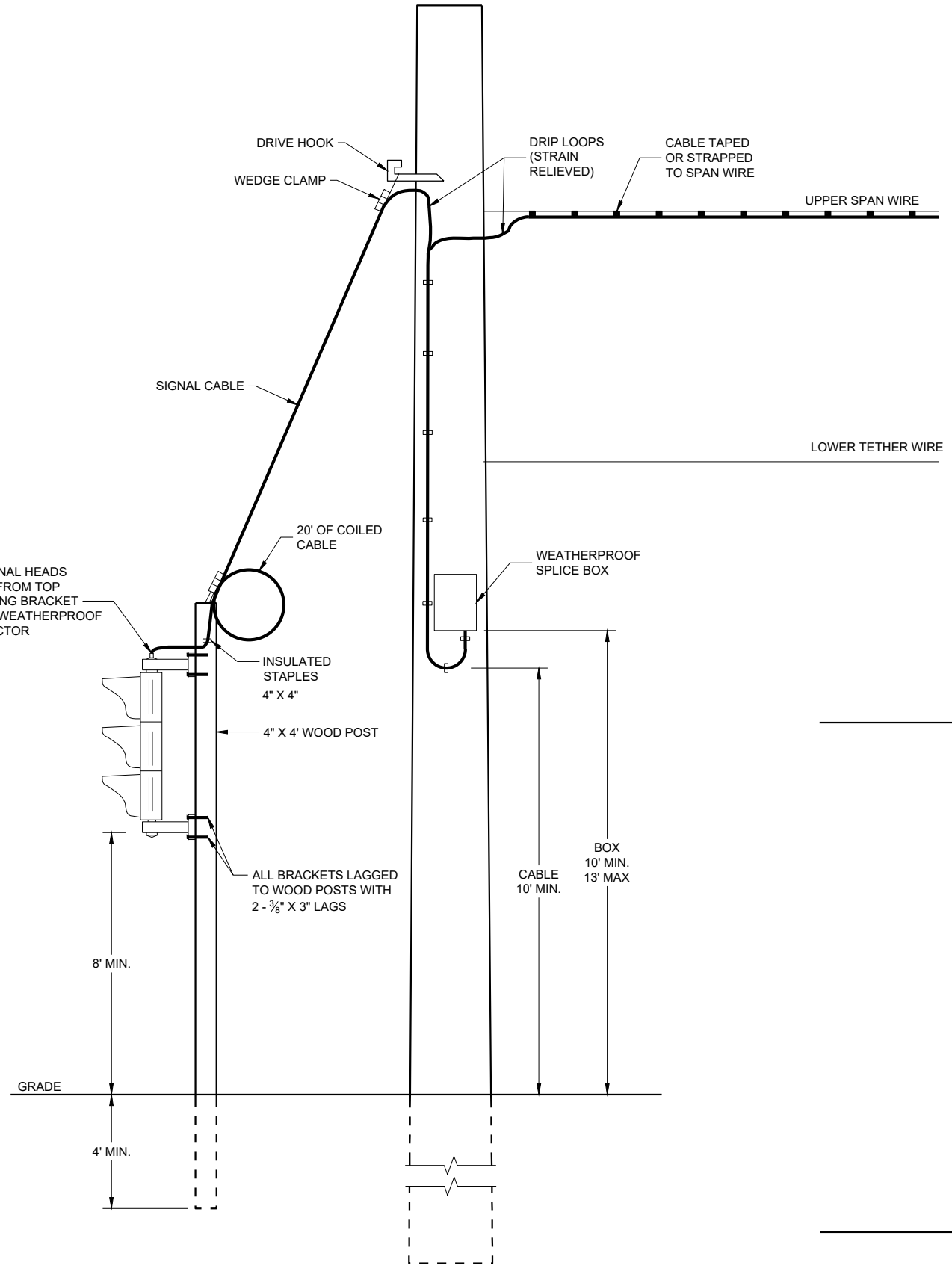
TYPICAL DEAD-ENDINGS OR GUYING

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

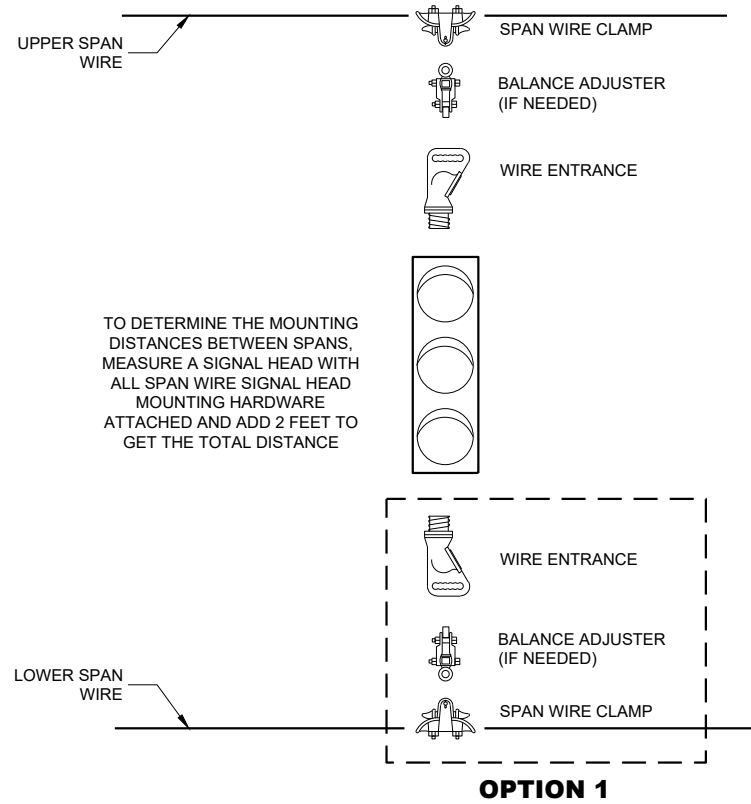
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 /S/ Ahmet Demerbilek
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

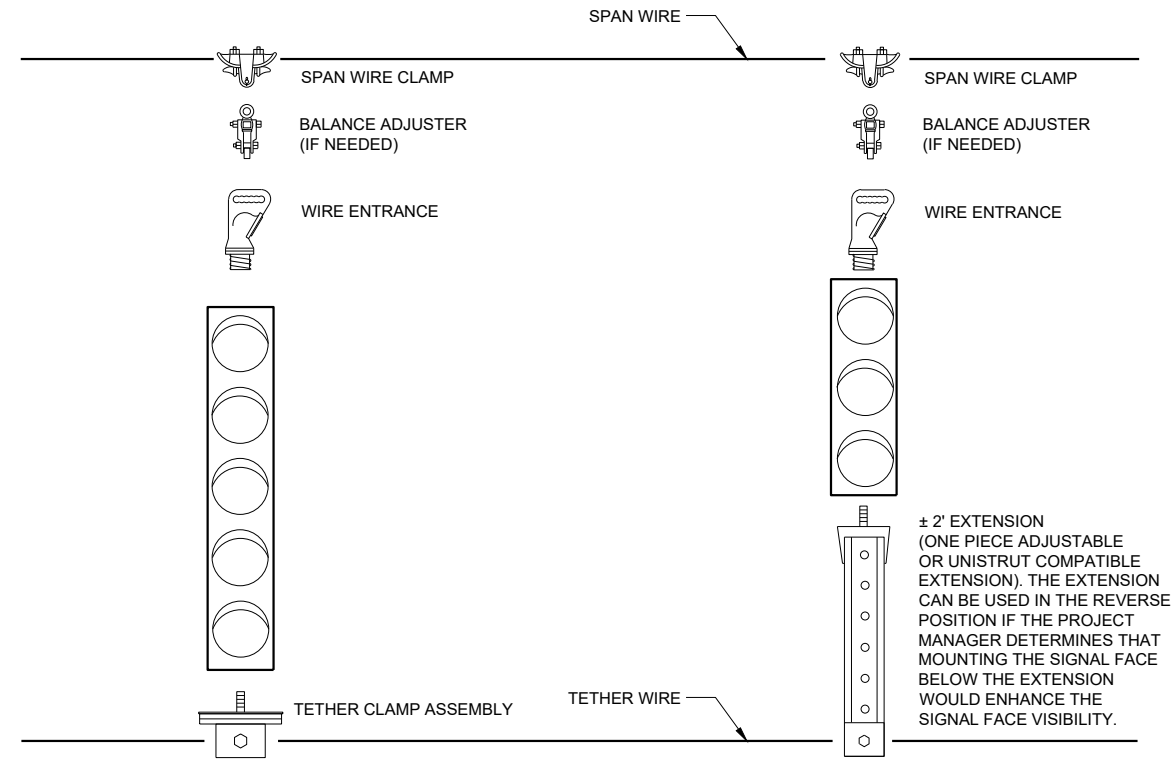
FHWA



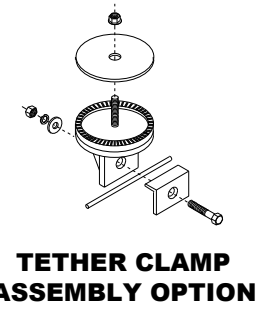
TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



TYPICAL SPAN WIRE MOUNTING HARDWARE

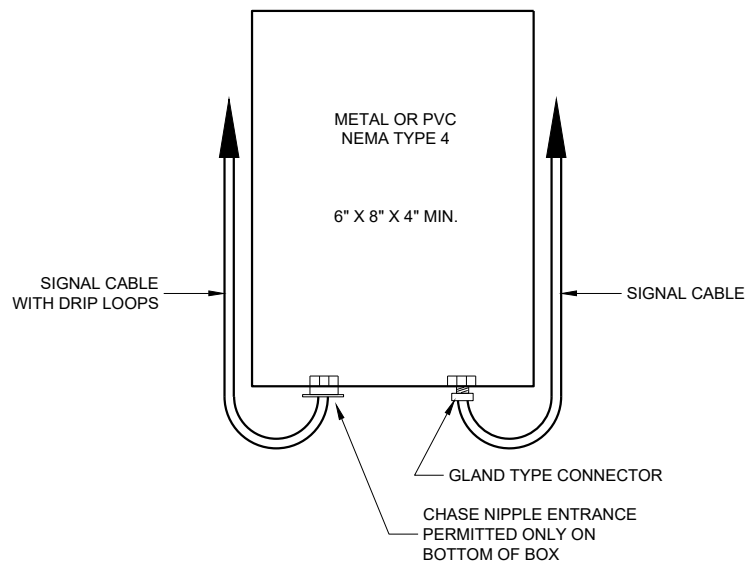
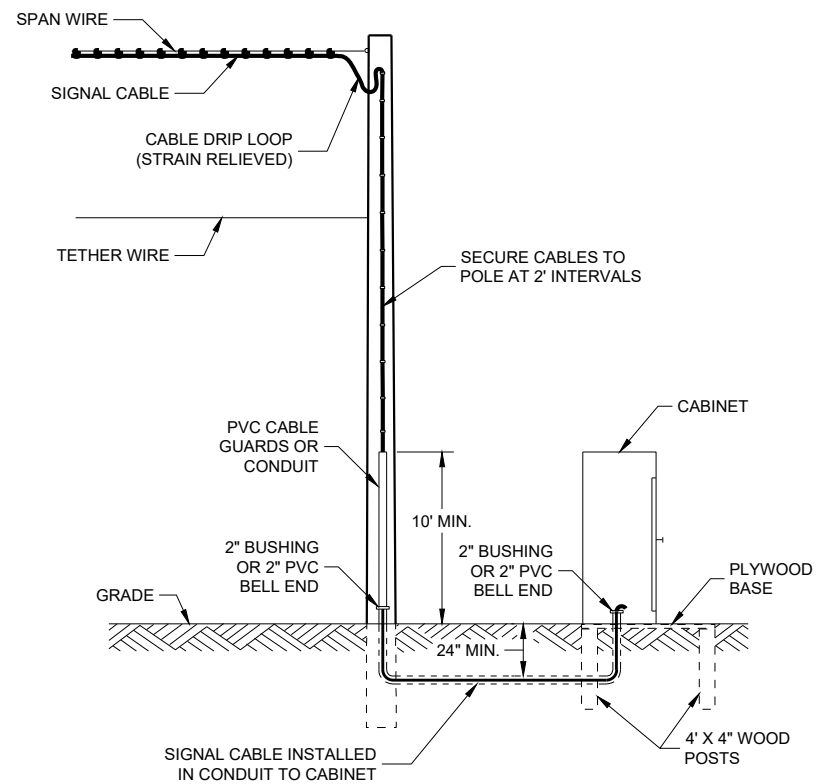


5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

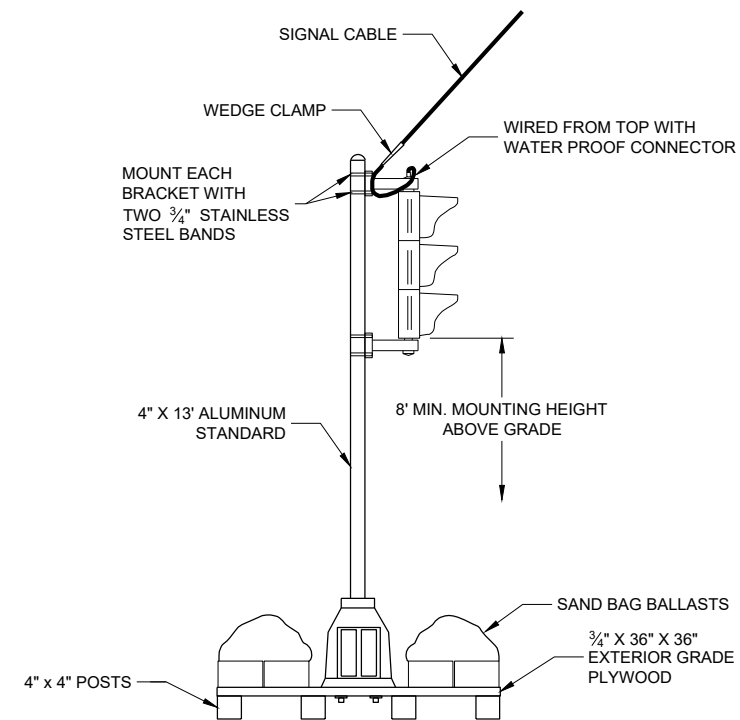


TETHER CLAMP ASSEMBLY OPTION

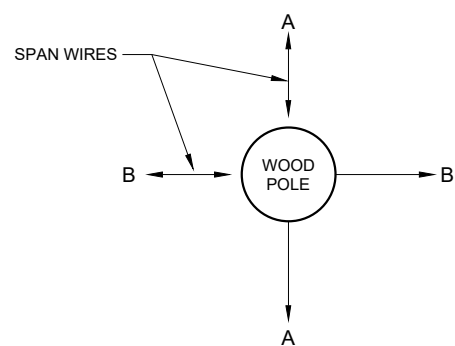
SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



SPLICE BOX

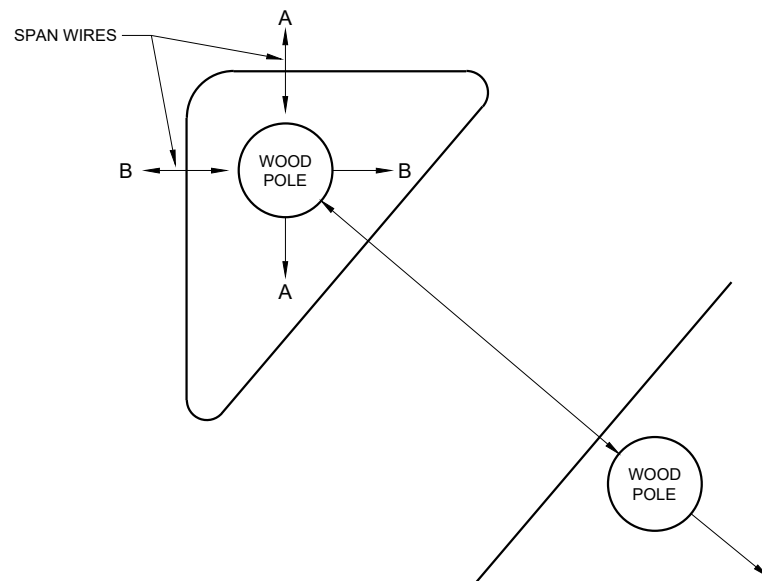


TYPICAL SKID TYPE TEMPORARY

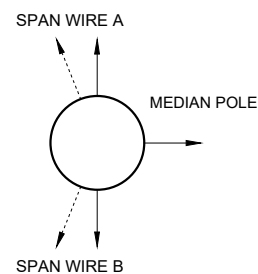


CORNER POLES

ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE



ISLAND POLES



MEDIAN POLES

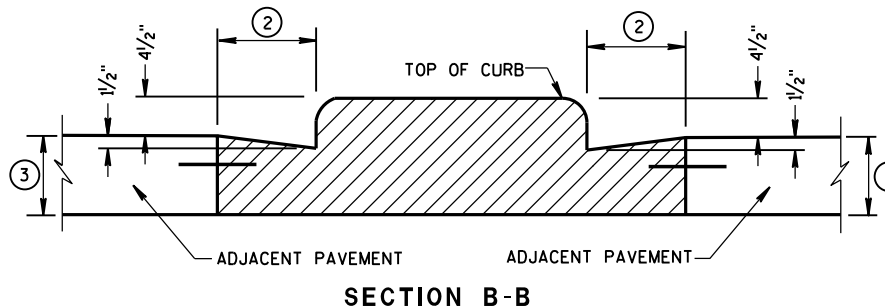
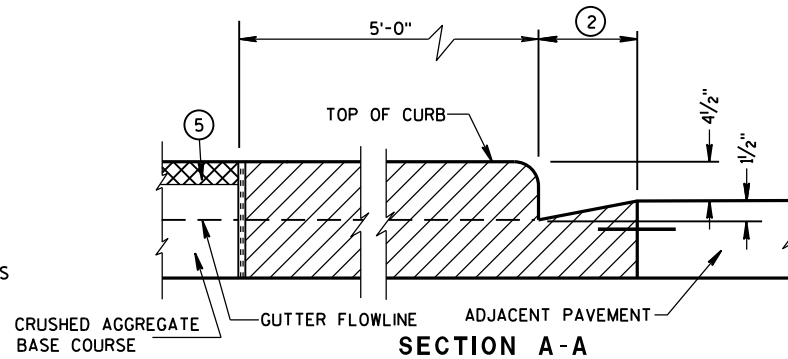
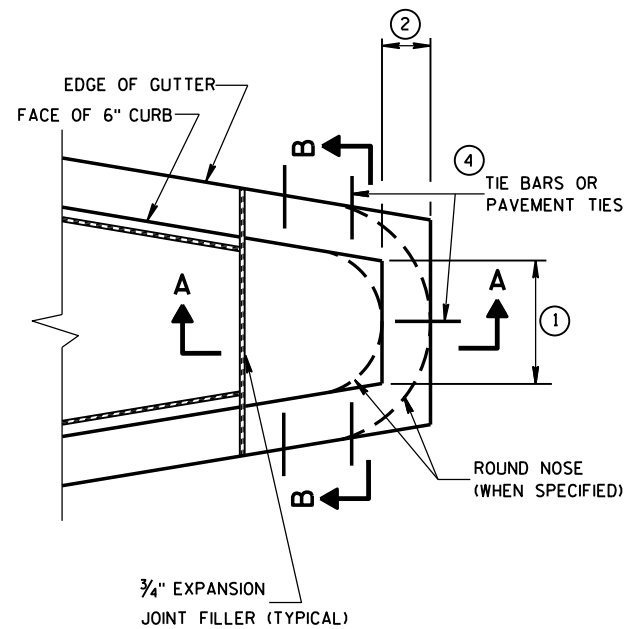
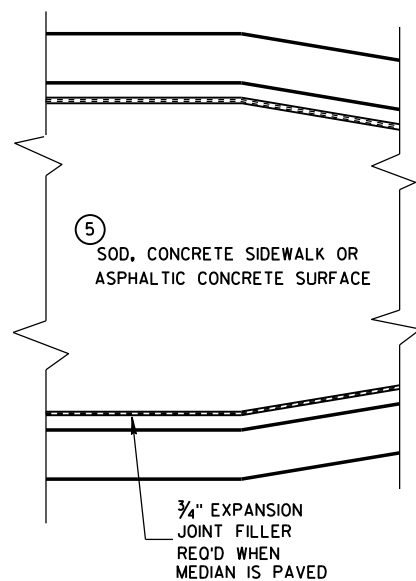
GUY AWAY FROM INTERSECTION OR IN OPPOSITE DIRECTION OF THE SPAN LOADING

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015 DATE /S/ Ahmet Demerbilek
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

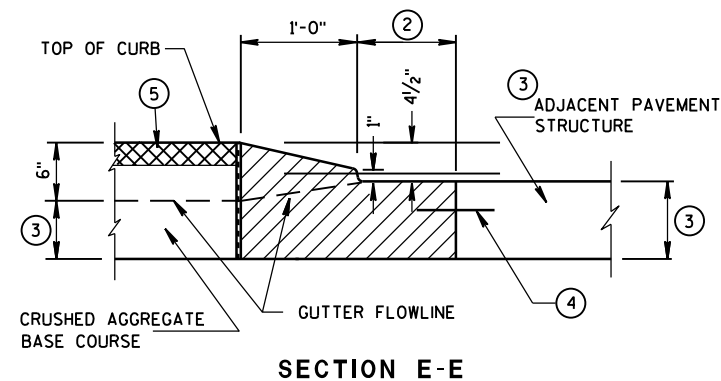
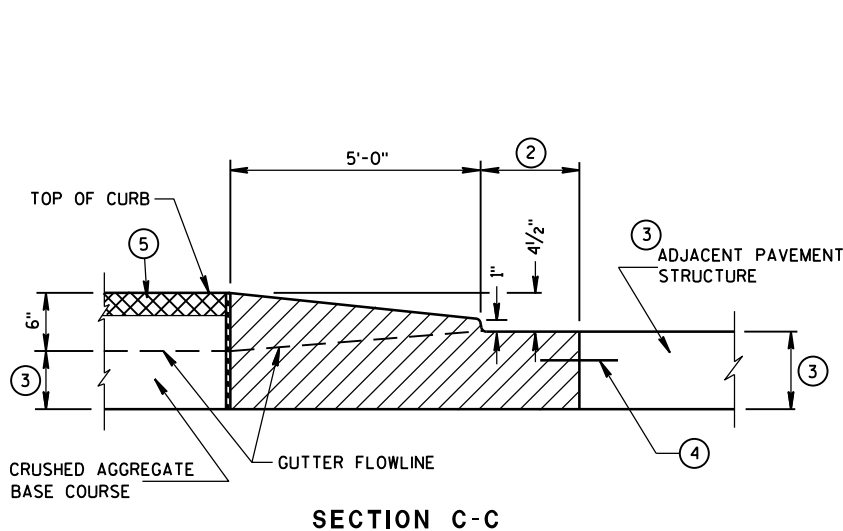
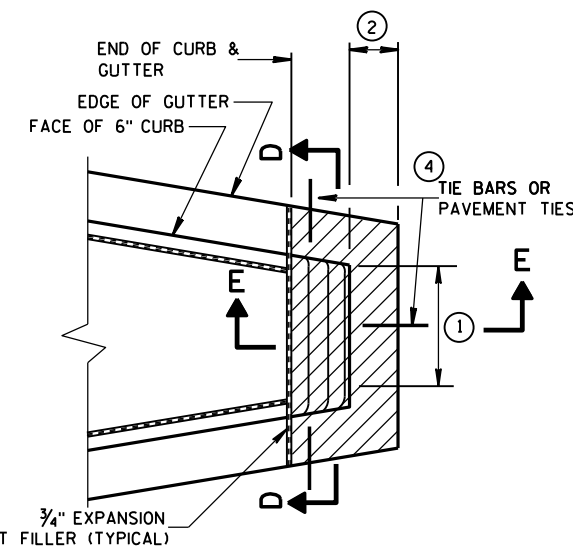


CONCRETE MEDIAN BLUNT NOSE DETAIL

GENERAL NOTES

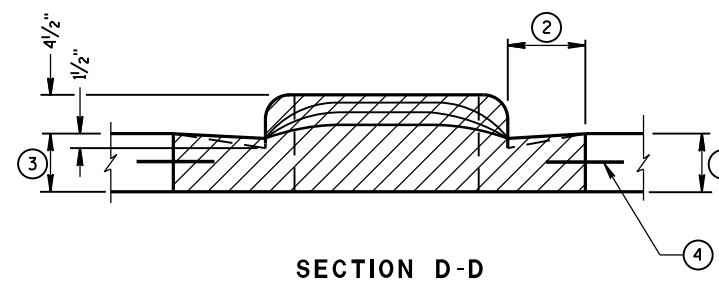
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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



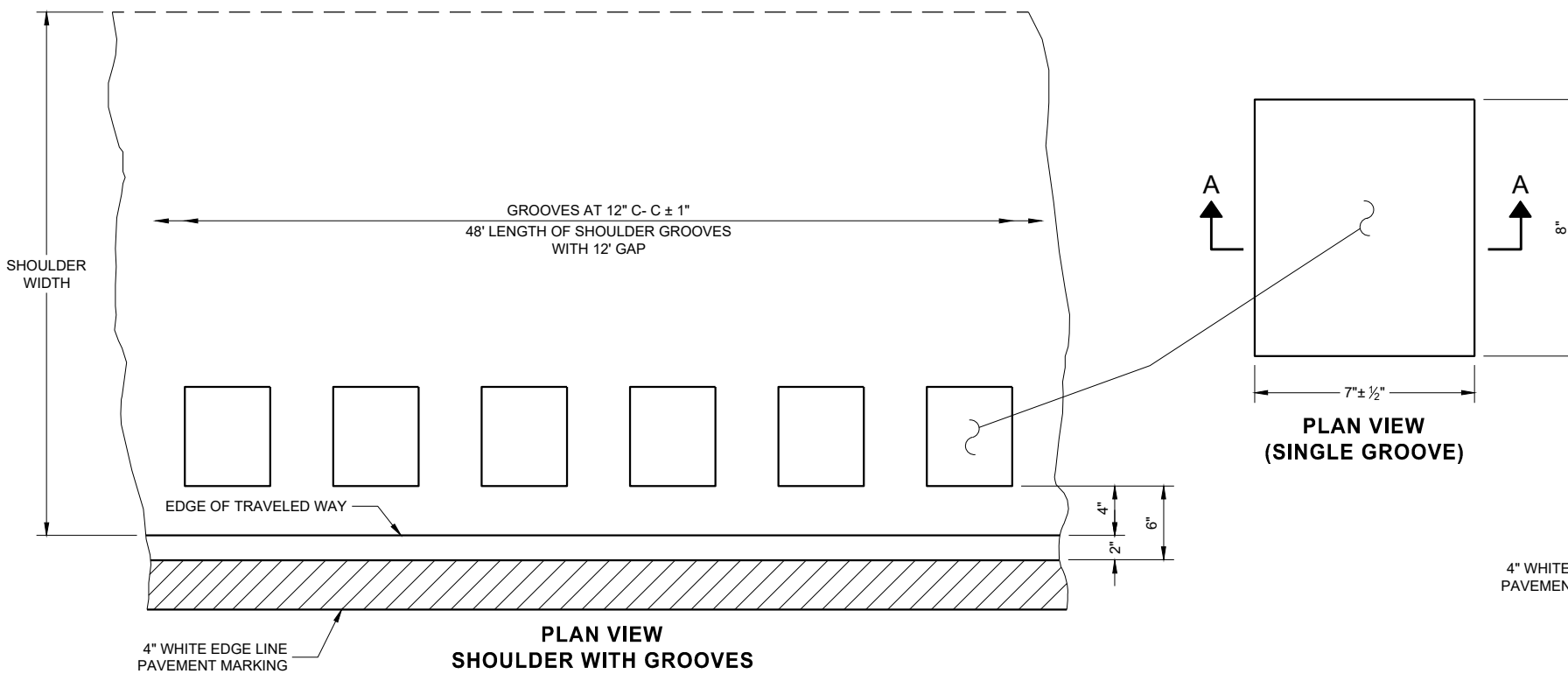
CONCRETE MEDIAN NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/8/2006 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

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S.D.D. 11 B 2-2

S.D.D. 11 B 2-2



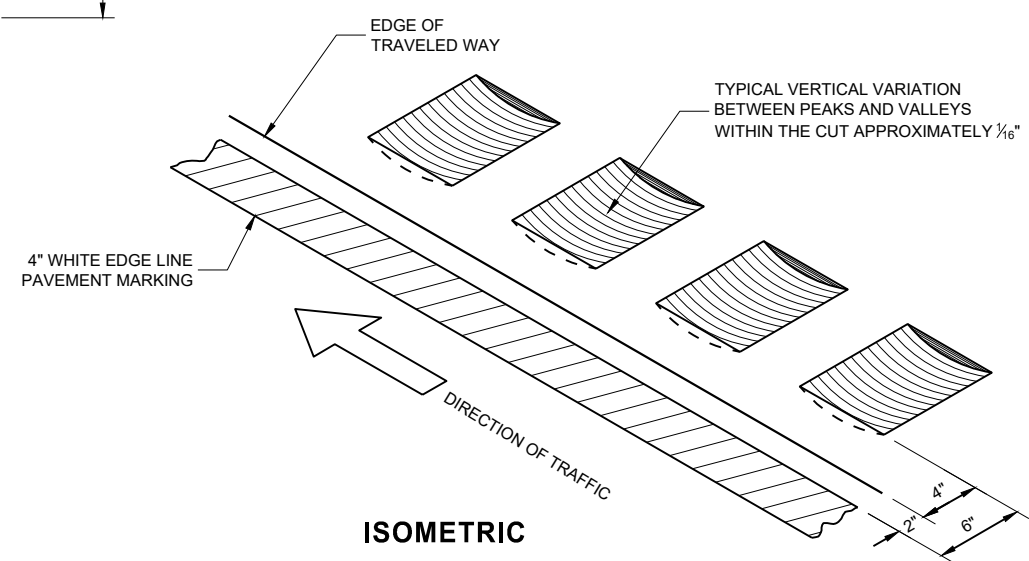
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

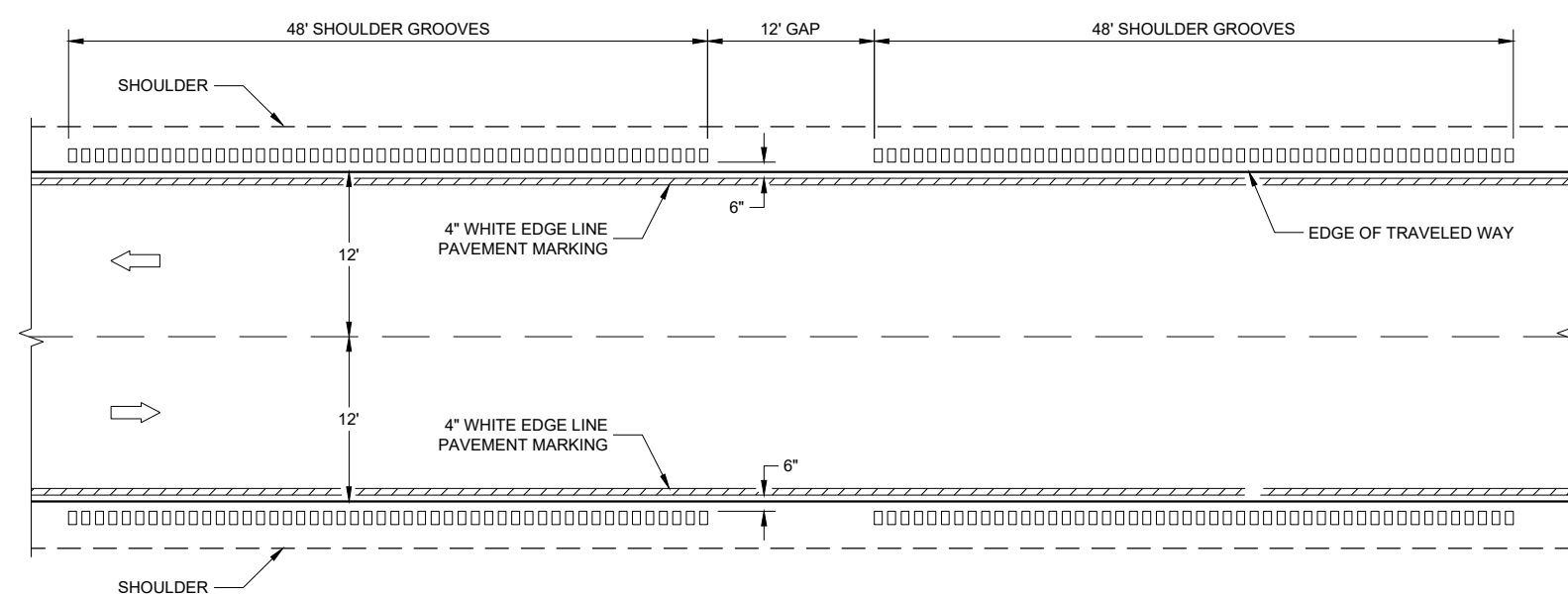
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

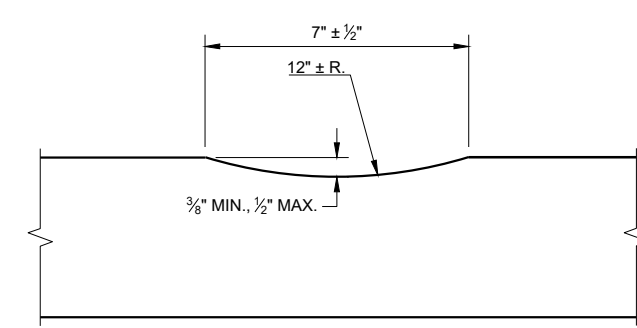
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



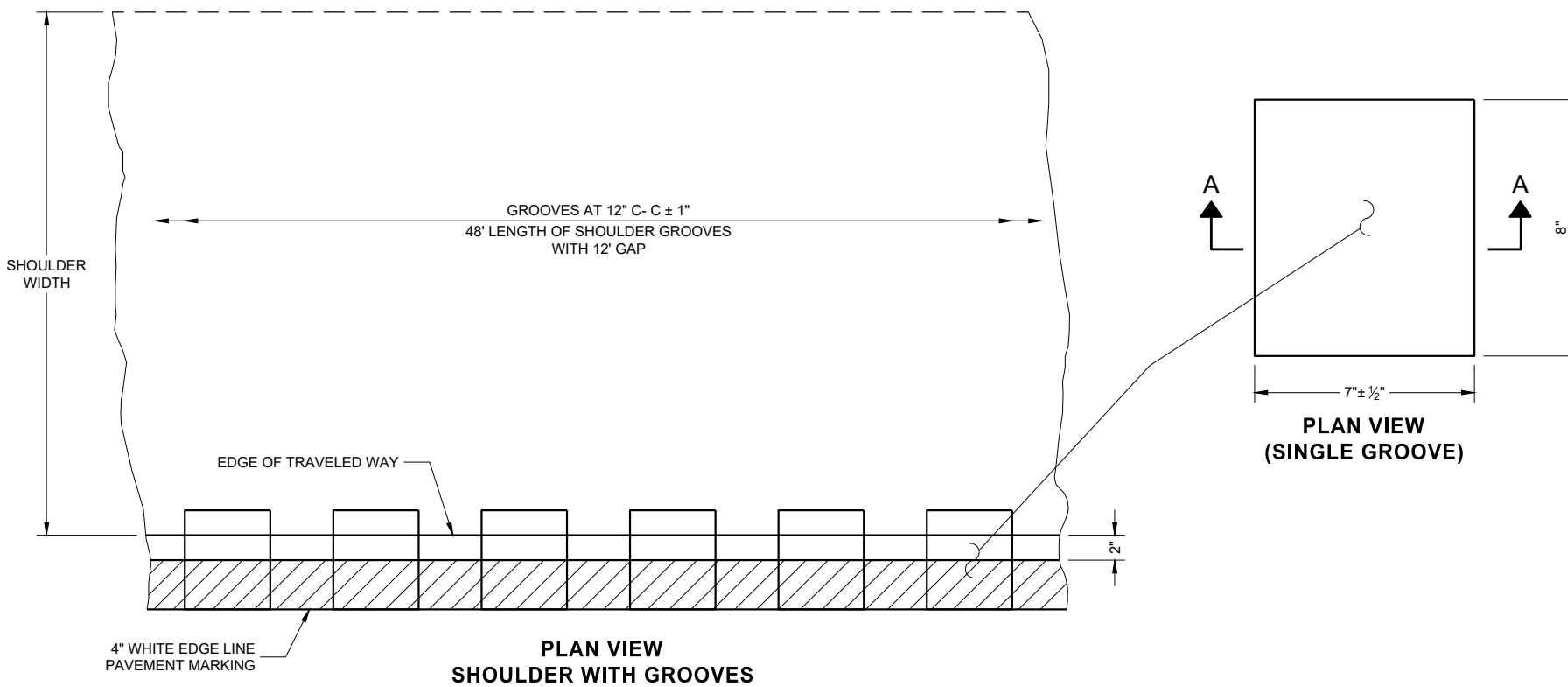
TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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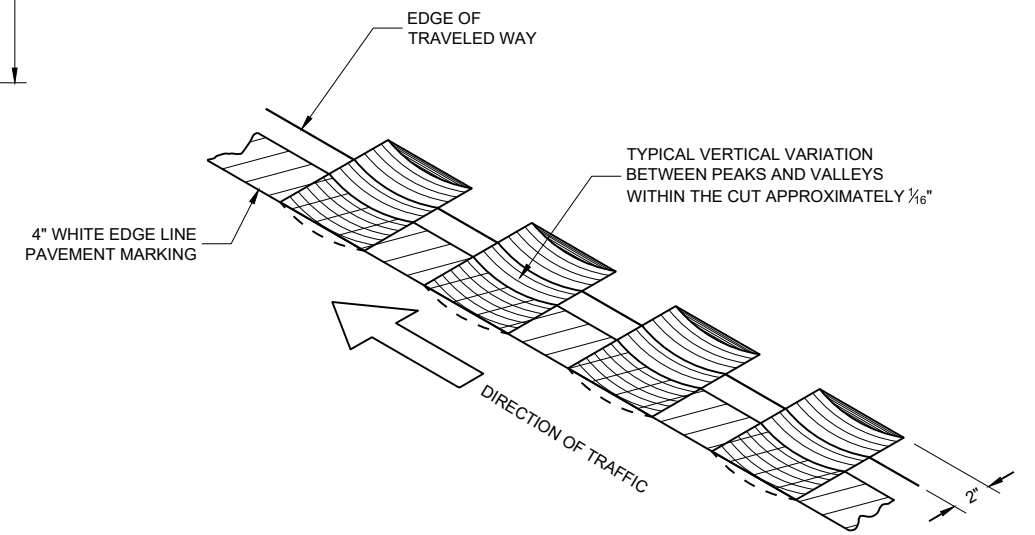
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

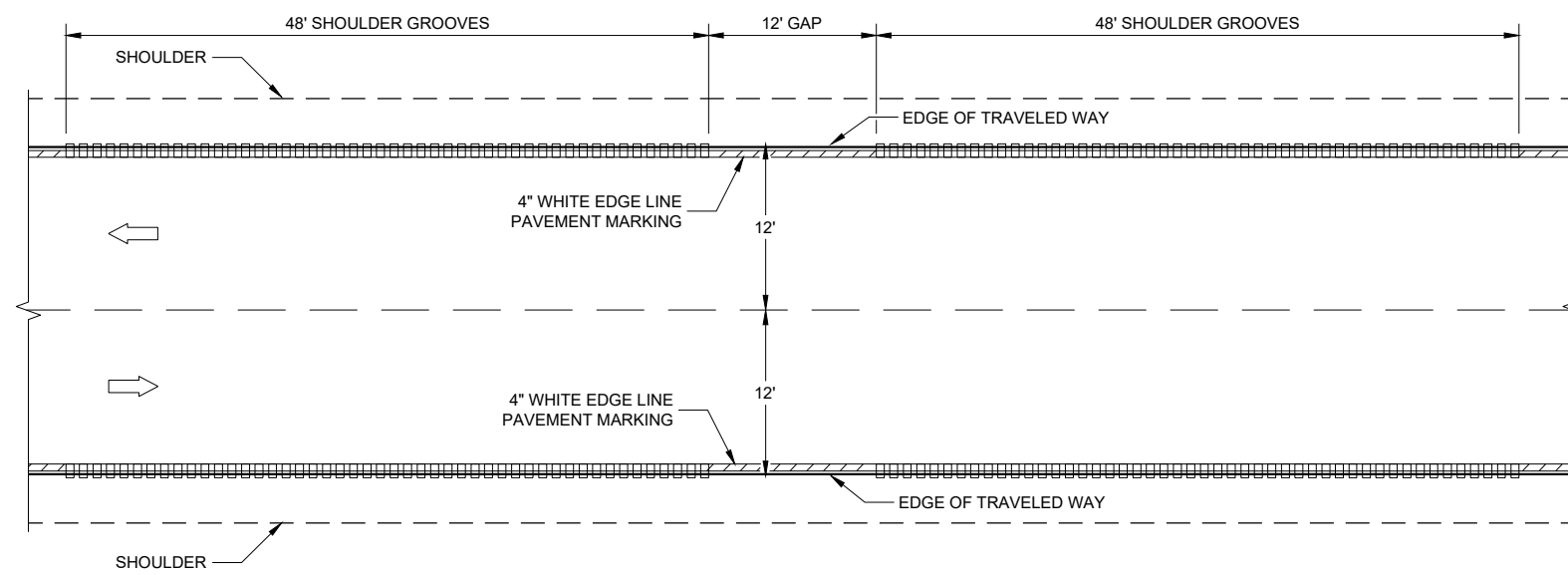
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

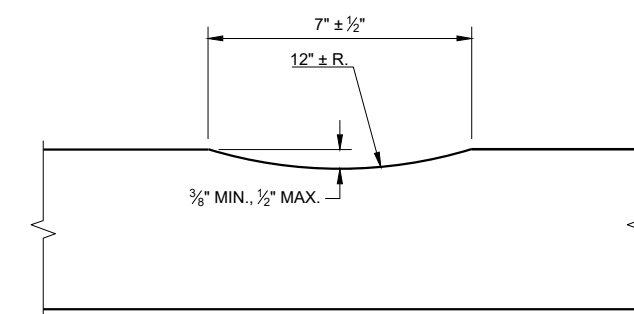
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



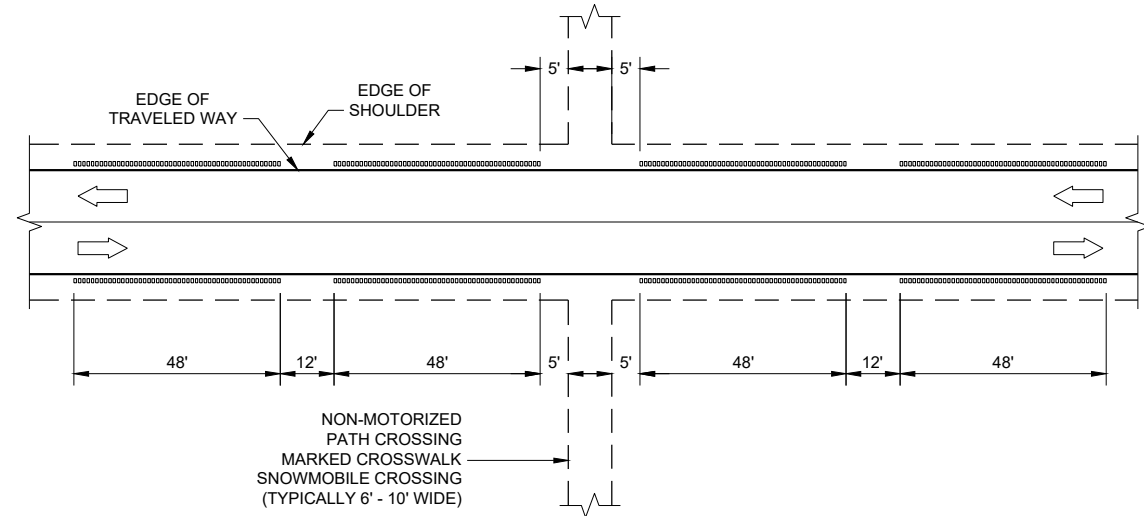
TYPE 2
2 - LANE SHOULDER RUMBLE STRIP



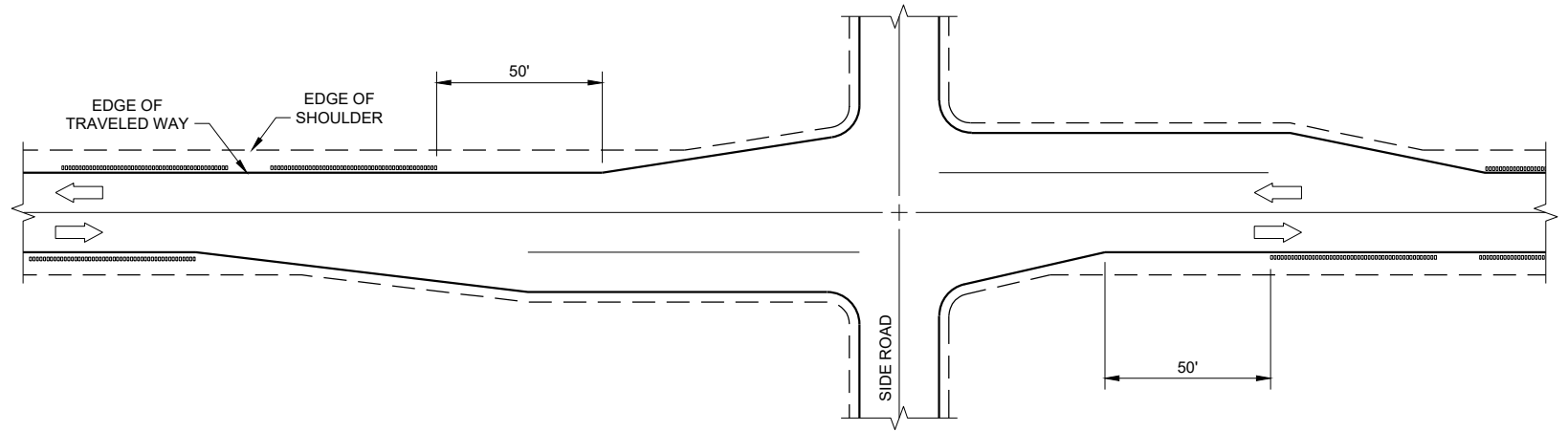
SECTION A - A

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

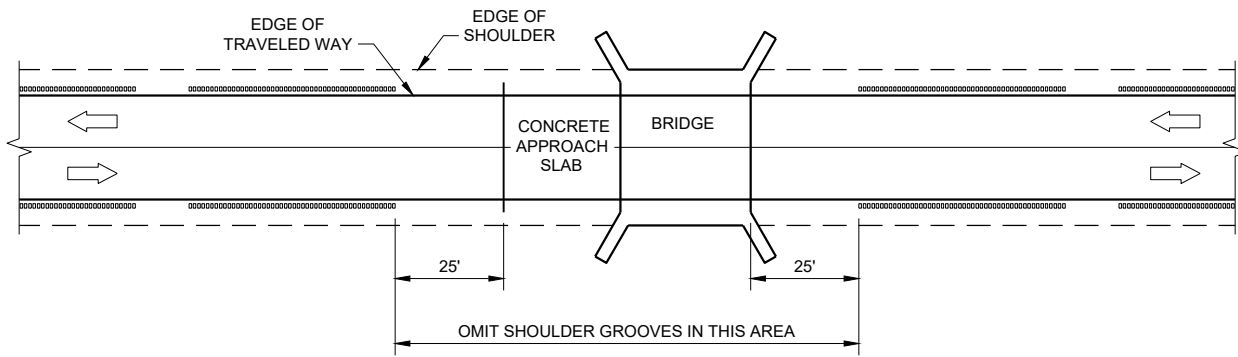
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



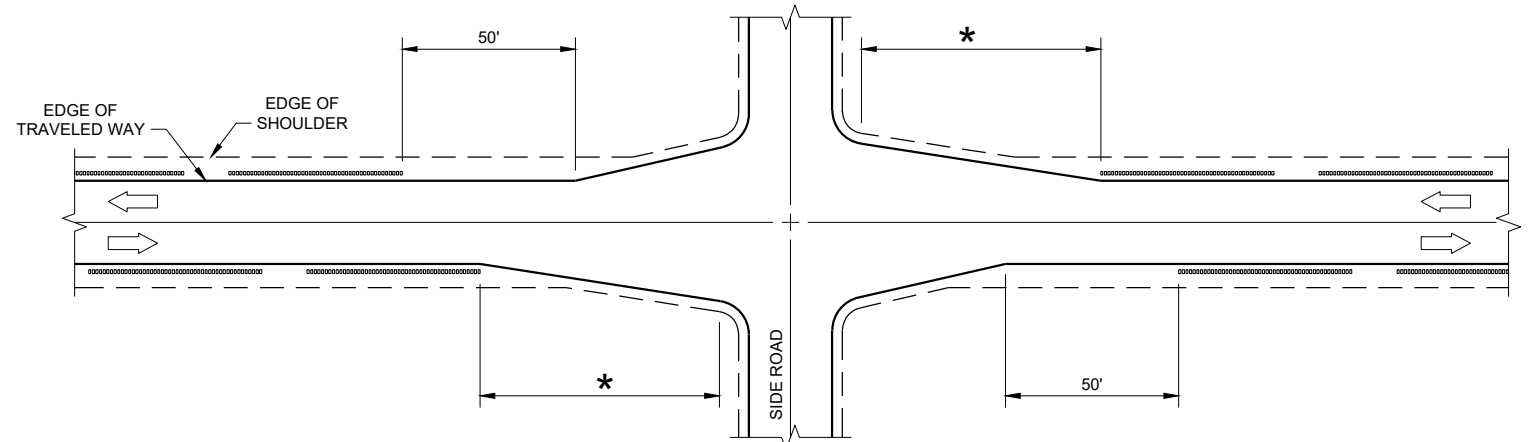
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



SHOULDER GROOVES AT RIGHT TURN LANE

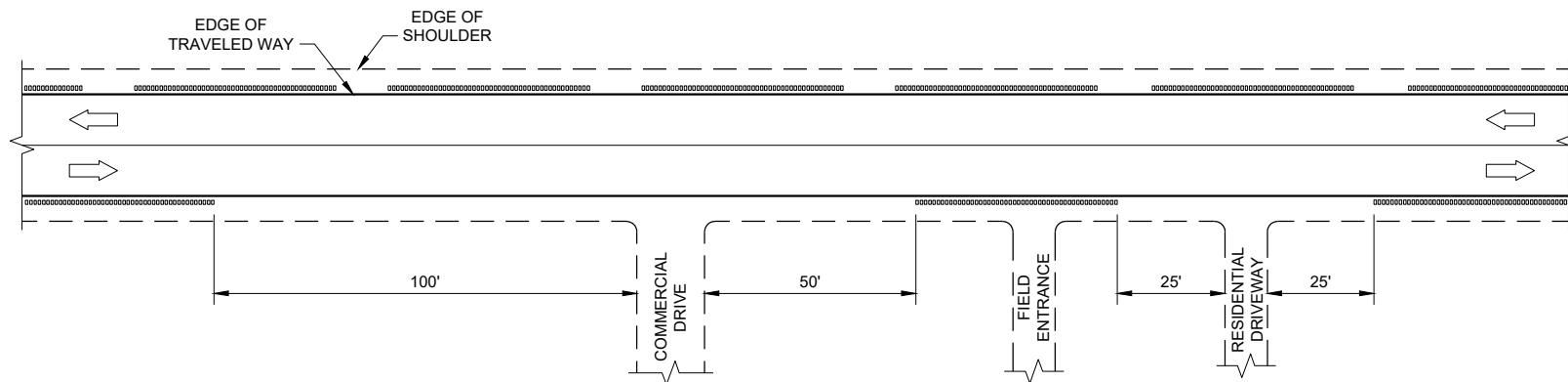


SHOULDER GROOVES AT BRIDGES



* GREATER OF 100' OR APPROACH TAPER LENGTH

SHOULDER GROOVES AT INTERSECTIONS WITH APPROACH TAPER



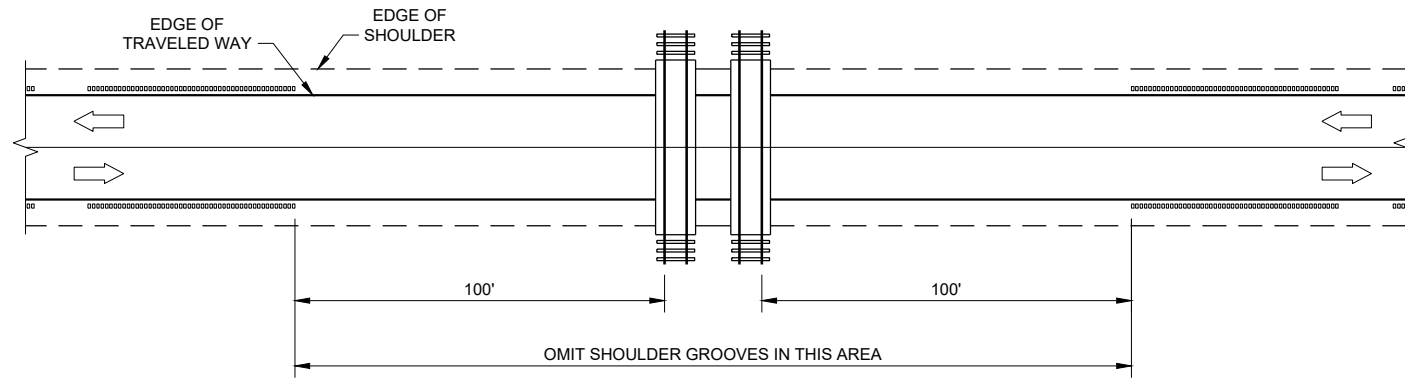
SHOULDER GROOVES AT DRIVEWAYS^①

GENERAL NOTES

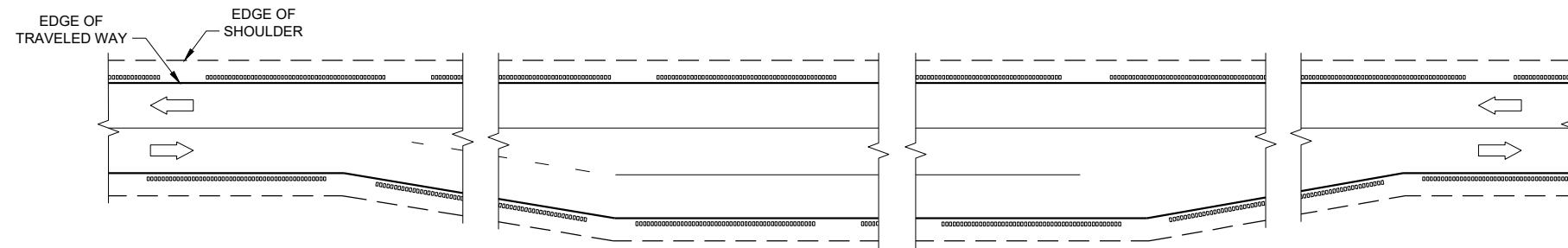
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

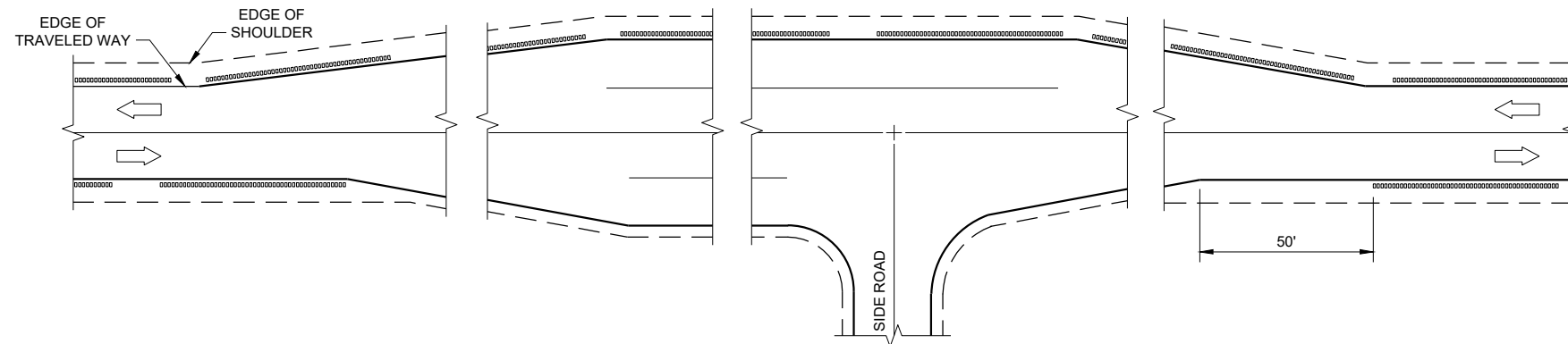
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

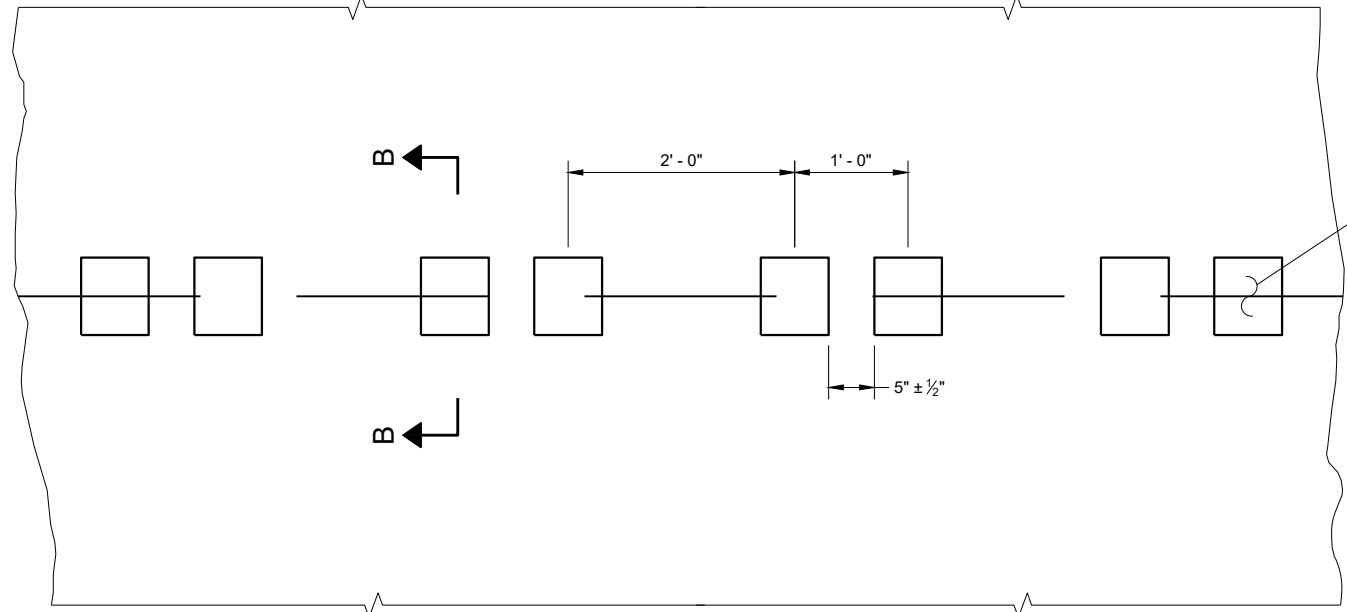
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

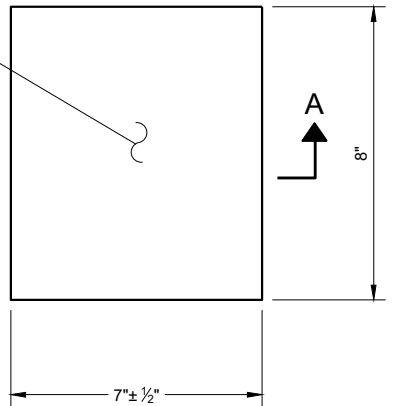
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

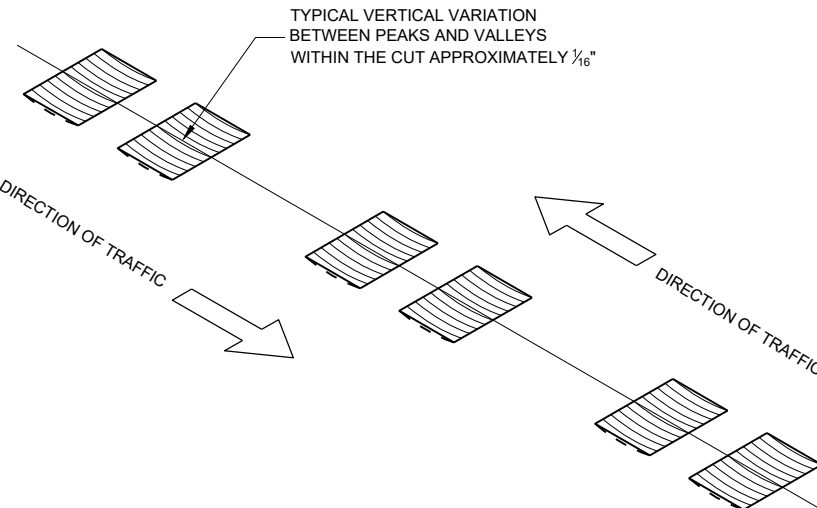
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



**PLAN VIEW
SHOULDER WITH GROOVES**

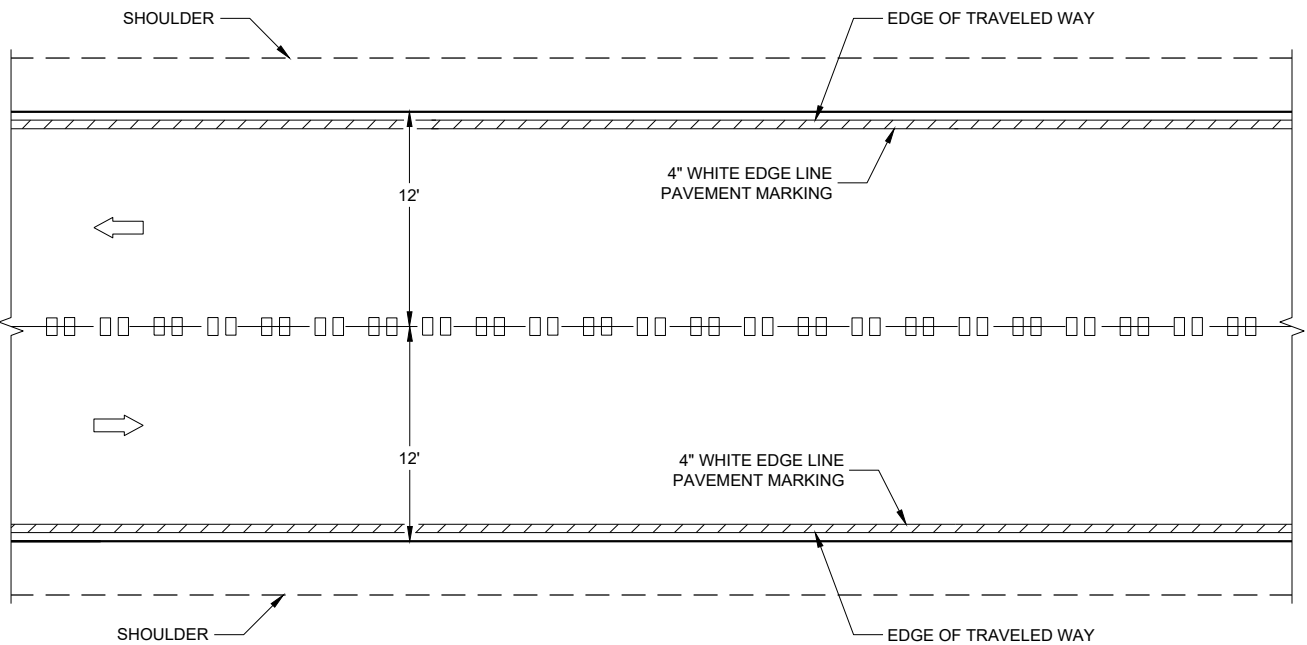


**PLAN VIEW
(SINGLE GROOVE)**

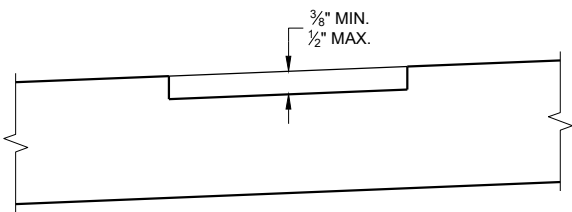


ISOMETRIC

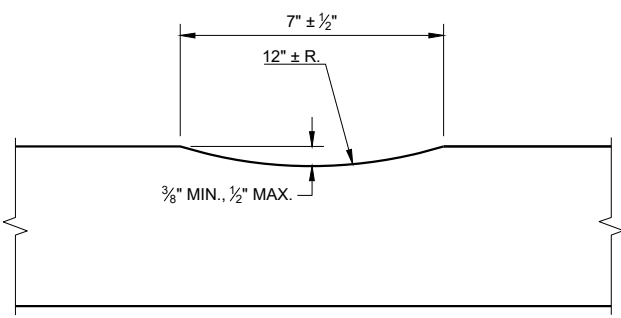
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



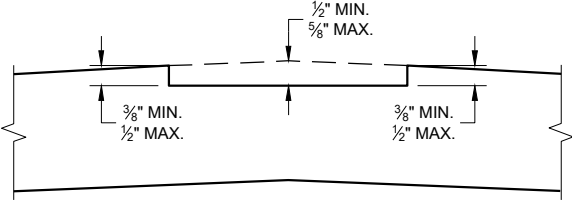
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



**SECTION B - B
SUPERELEVATED ROADWAY**



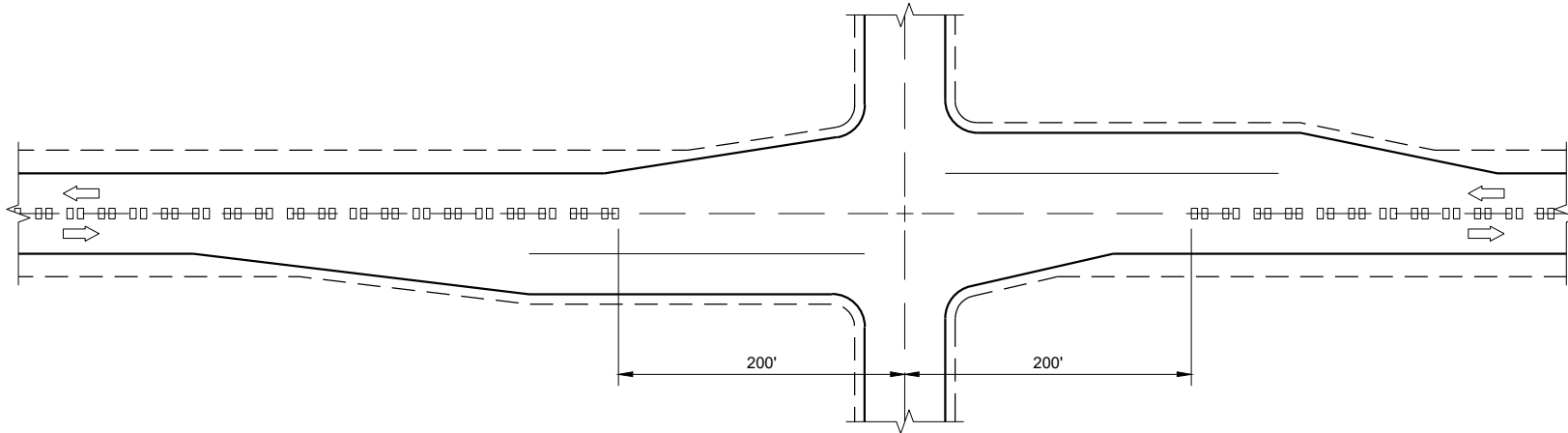
SECTION A - A



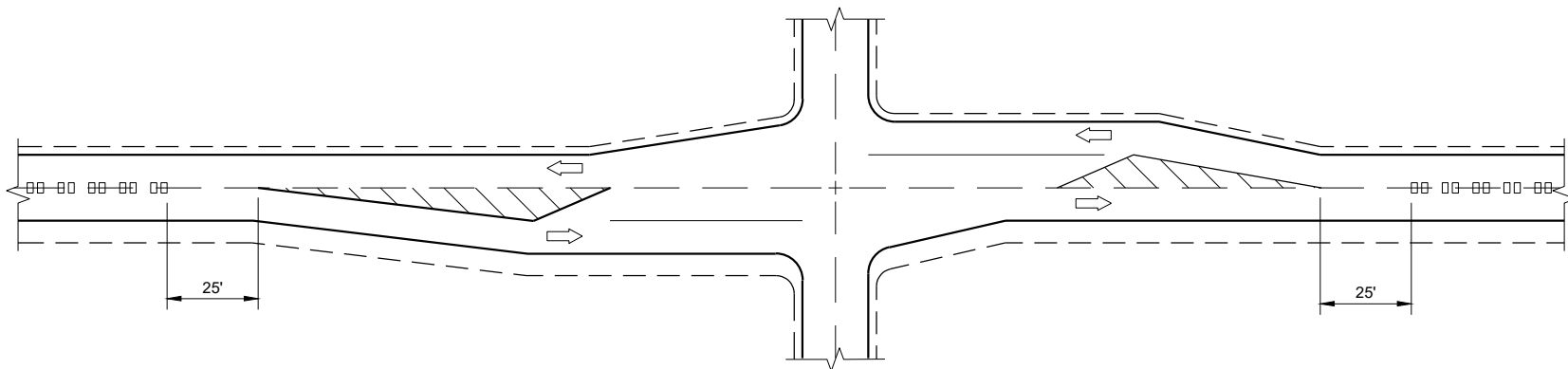
**SECTION B - B
CROWNED ROADWAY**

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

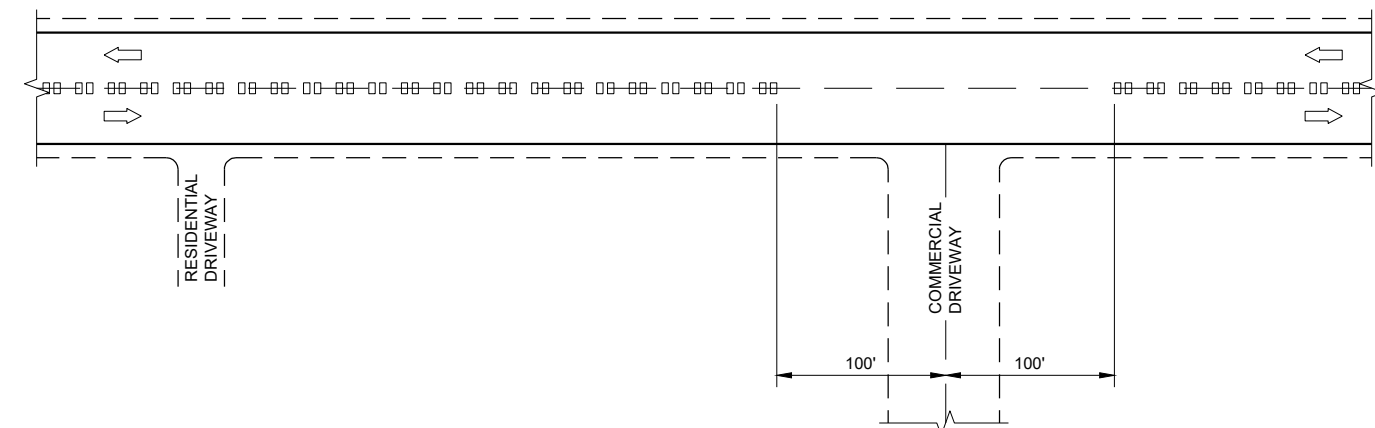
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



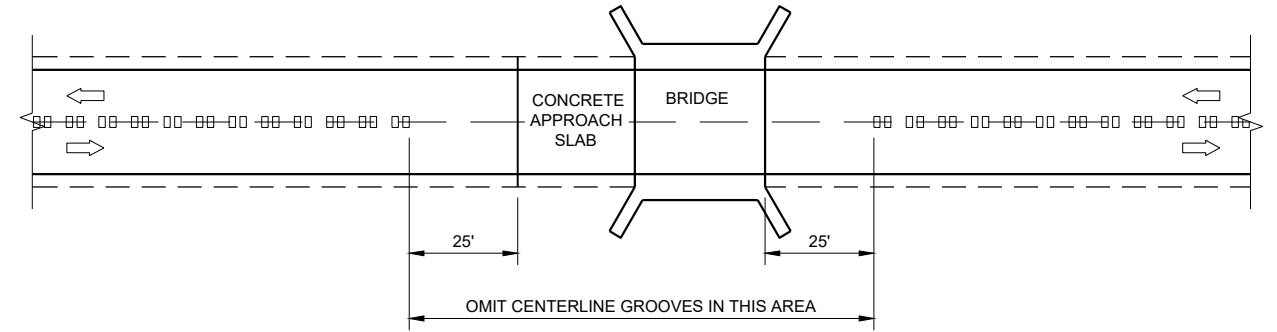
**CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)**



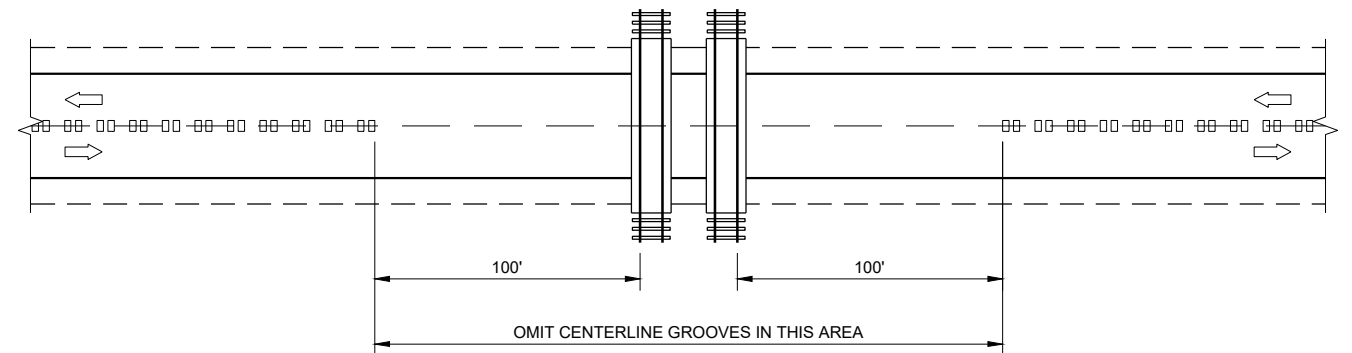
CENTERLINE GROOVES AT DRIVEWAYS ①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

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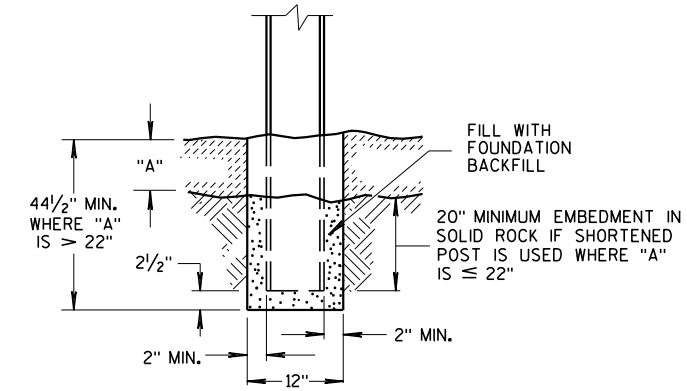
SDD 13A11 - 03b

SDD 13A11 - 03b

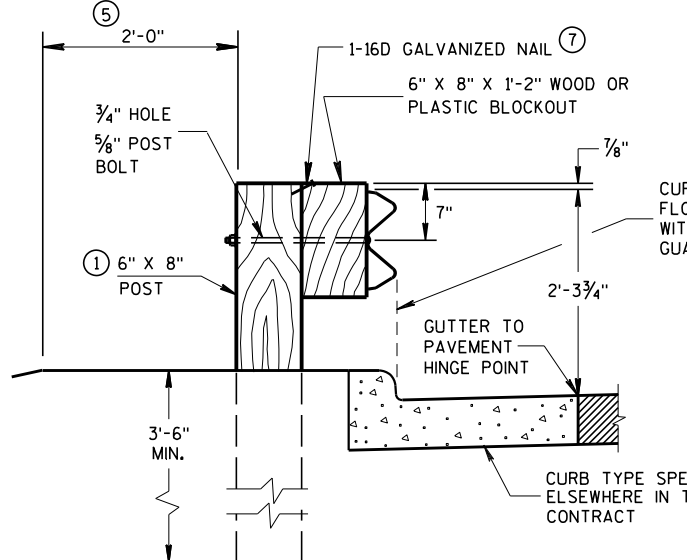
2-LANE RURAL CENTERLINE RUMBLE STRIP, MILLING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

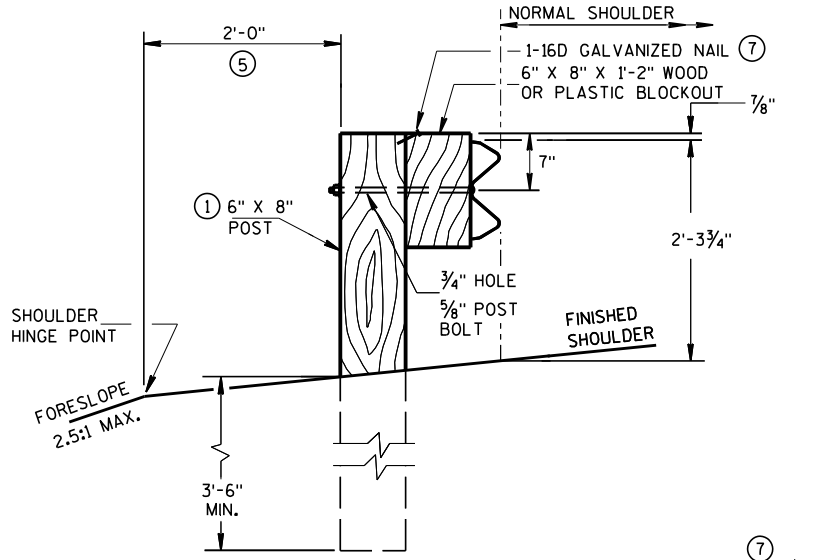
- W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
 - USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
 - INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
 - USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
 - IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
 - IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
 - WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



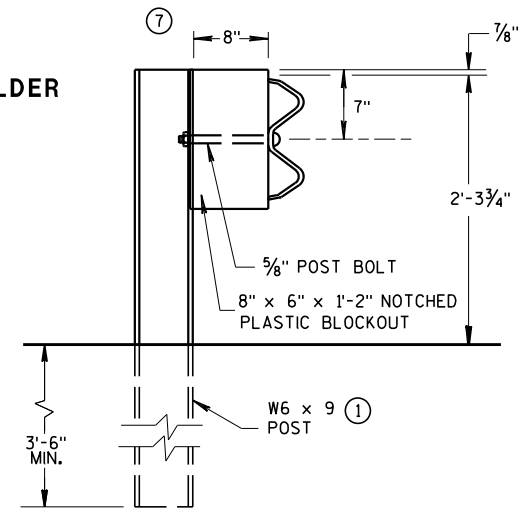
END VIEW SETTING STEEL OR WOOD POST IN ROCK ⑥



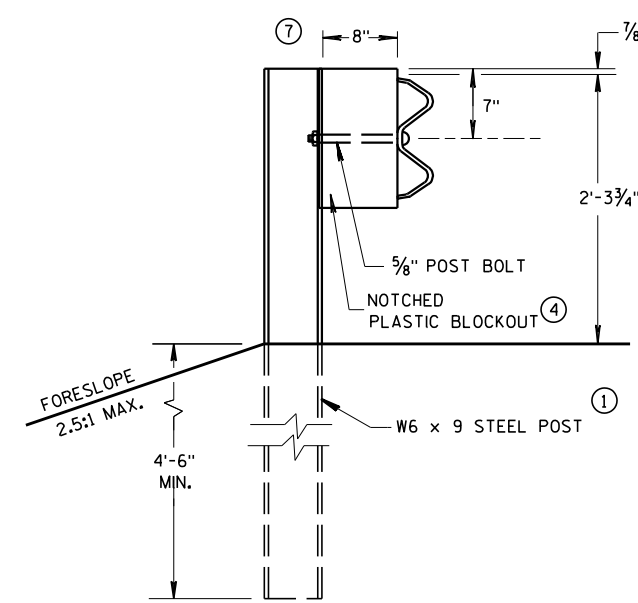
END VIEW LOCATED ALONG A CURBED ROADWAY



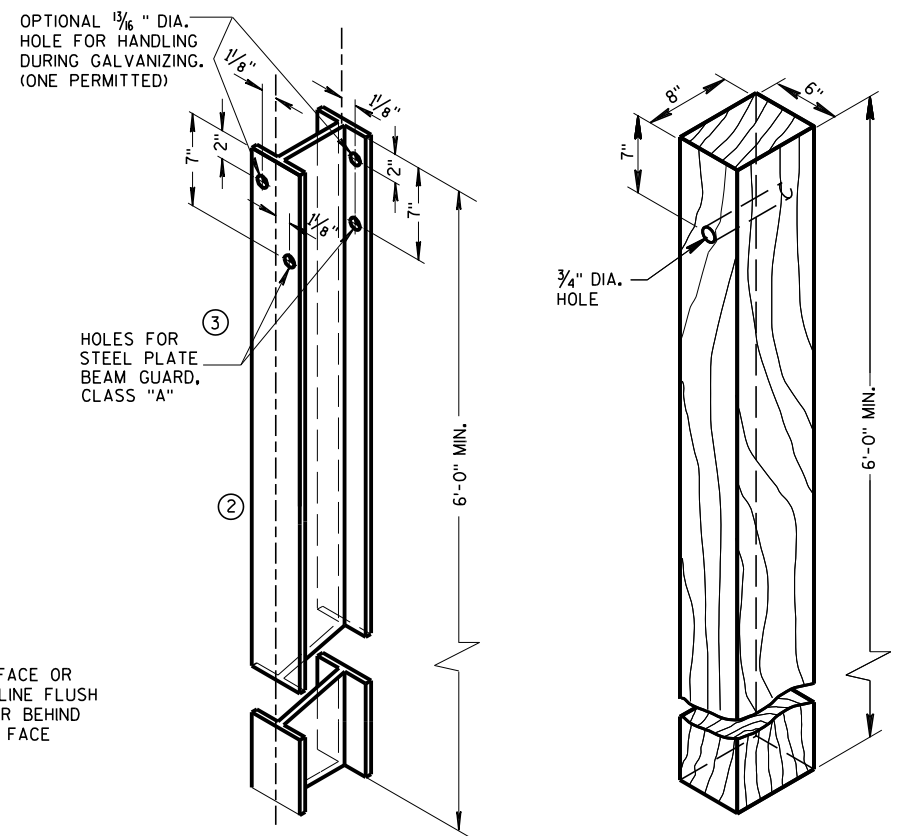
END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION

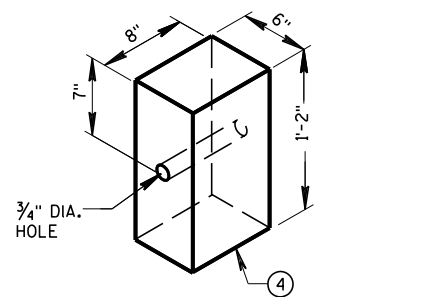


END VIEW LONGER POST AT HALF POST SPACING W BEAM (LHW)

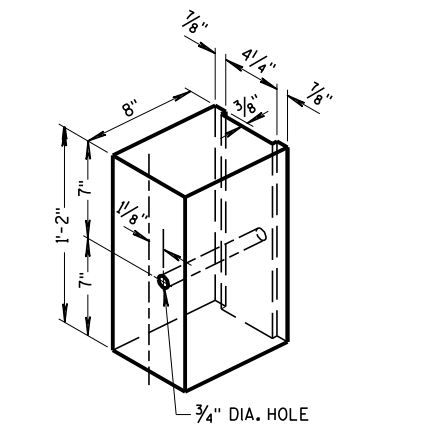


STEEL POST & HOLE PUNCHING DETAIL (W6 X 9) ①
ALL HOLES 1/8" DIAMETER EXCEPT AS NOTED

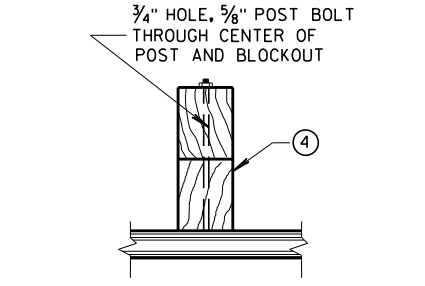
WOOD POST (6" X 8") NOMINAL



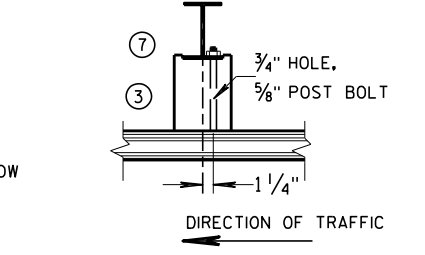
WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS



TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS ①



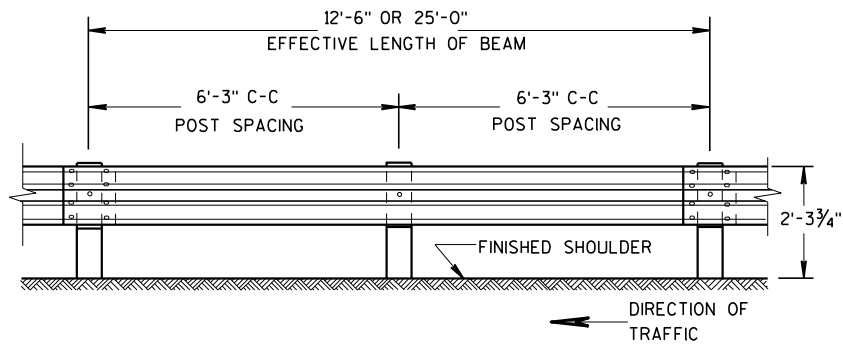
PLAN VIEW WOOD POST, BLOCKOUT & BEAM



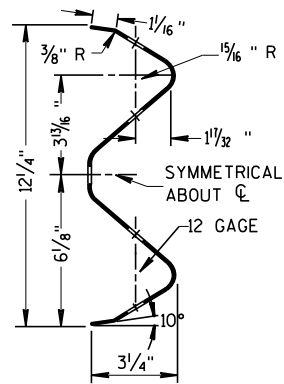
PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM

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

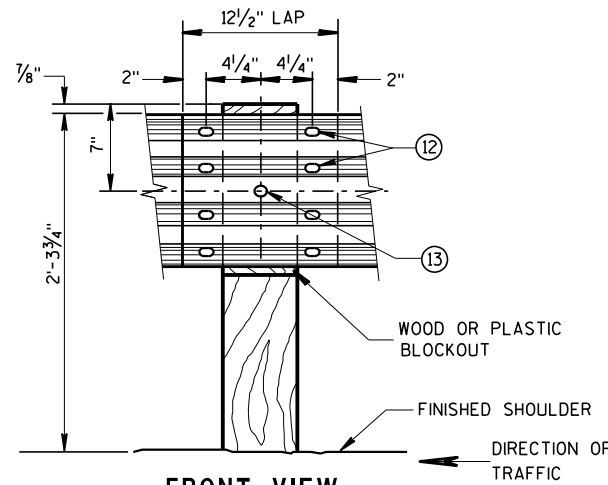
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



SECTION THRU W BEAM

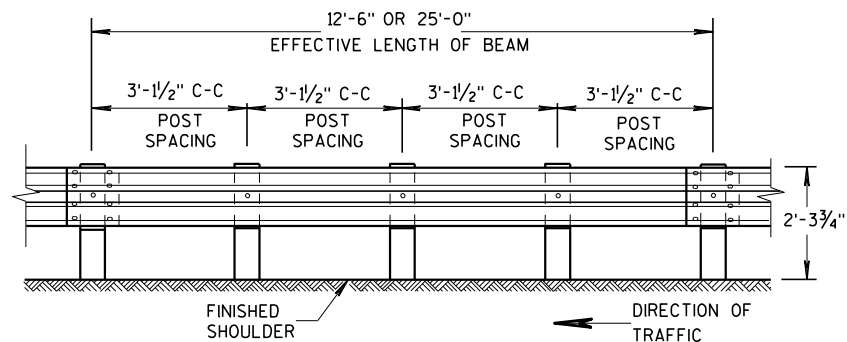


**FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL**

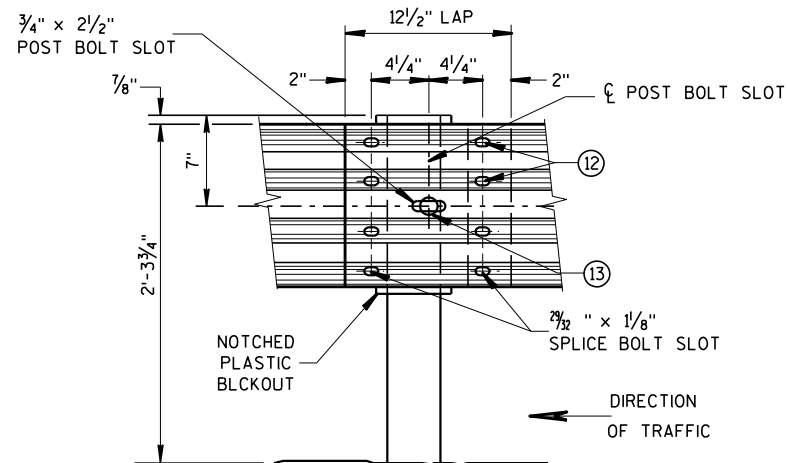
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

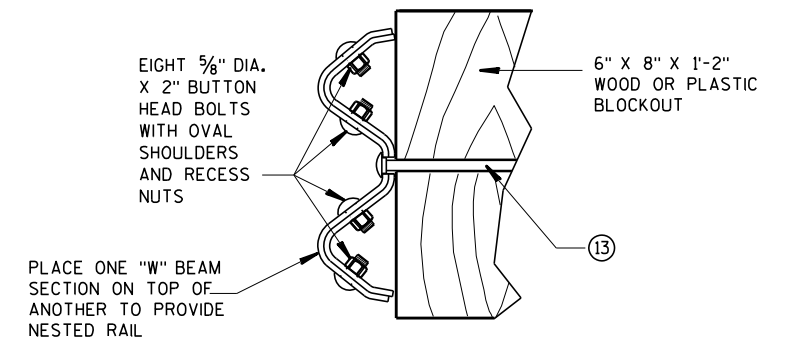
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.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



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



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

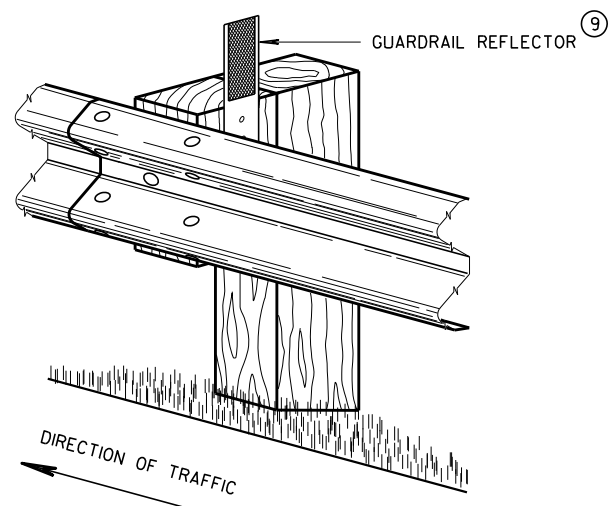


NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

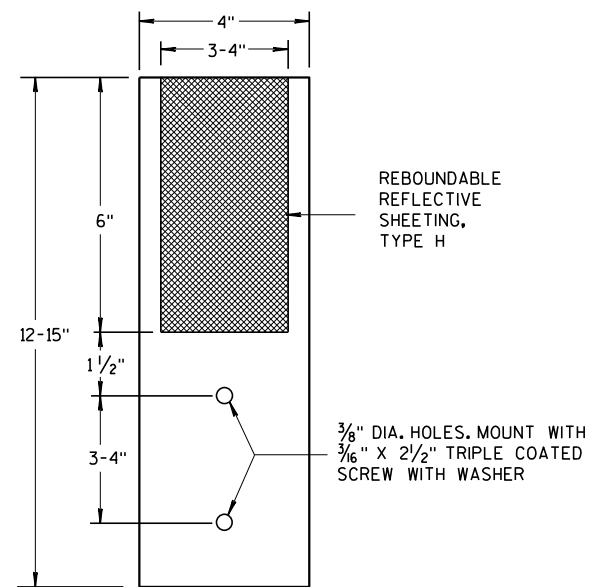
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* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



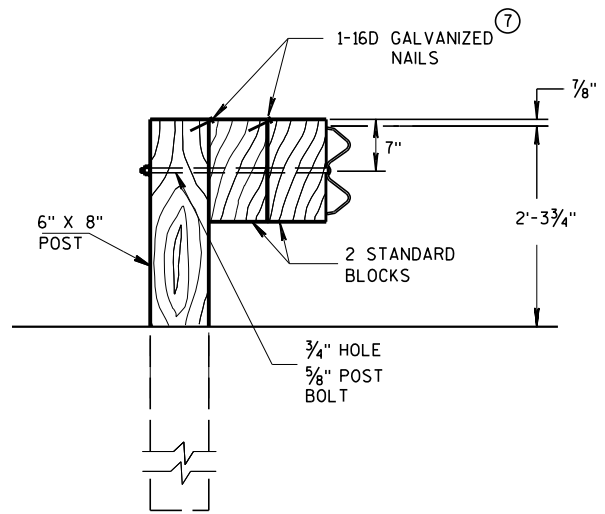
**4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION ***



4" x 12" GUARDRAIL REFLECTOR

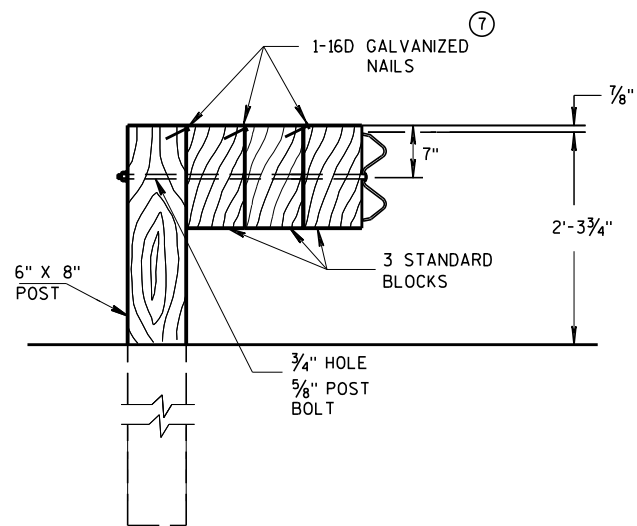
**STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

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

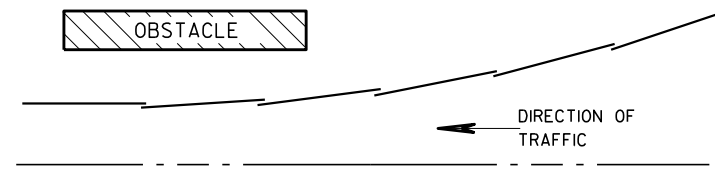


DETAIL FOR TRIPLE BLOCKS

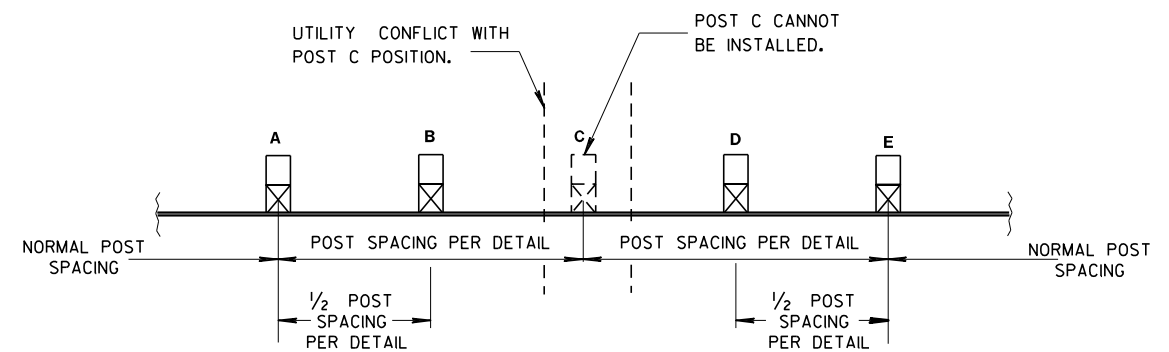
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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

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



**PLAN VIEW
BEAM LAPPING DETAIL**



**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

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

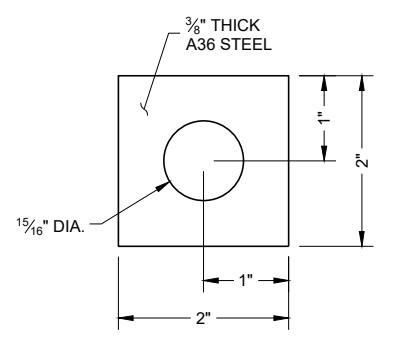
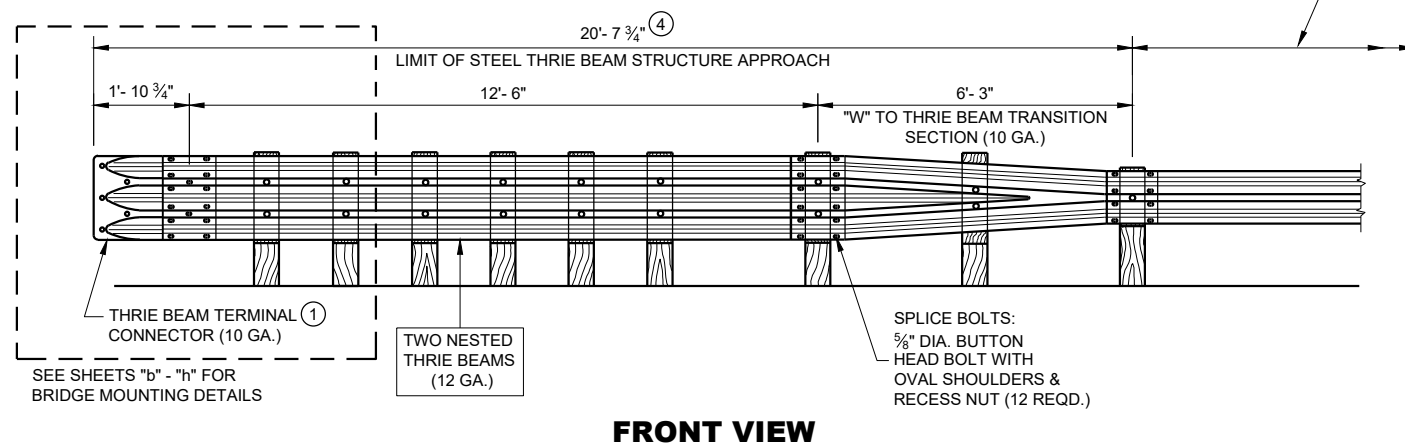
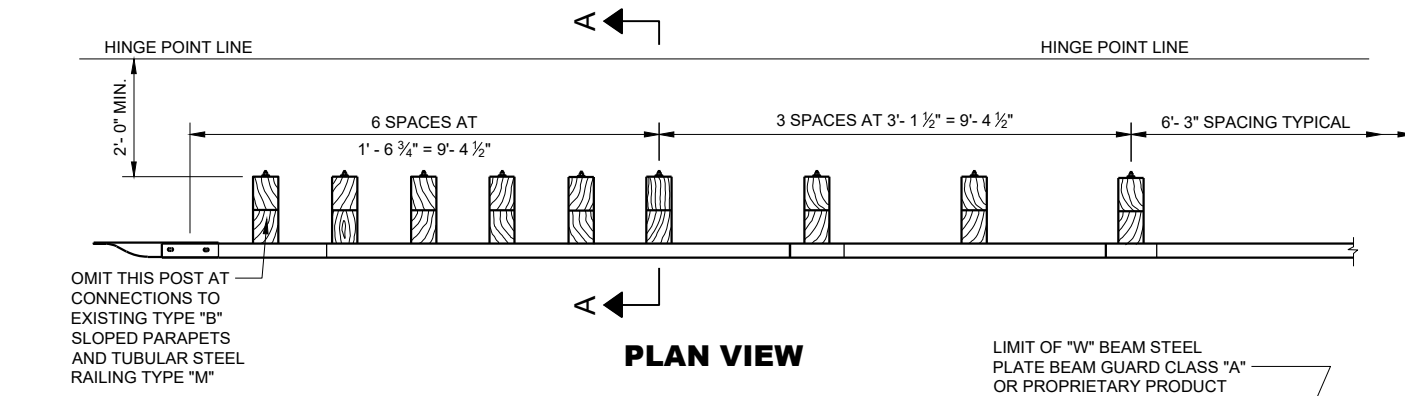


PLATE WASHER DETAIL

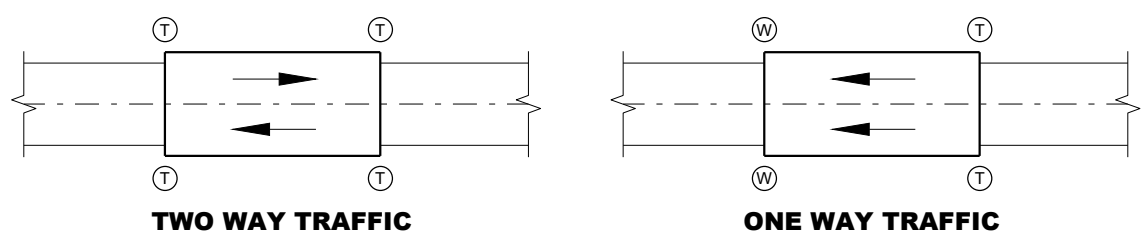
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

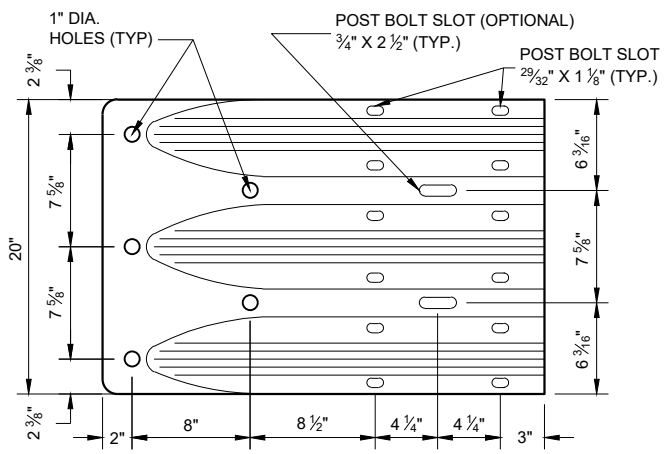
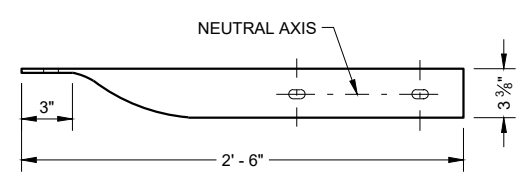
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0".
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.

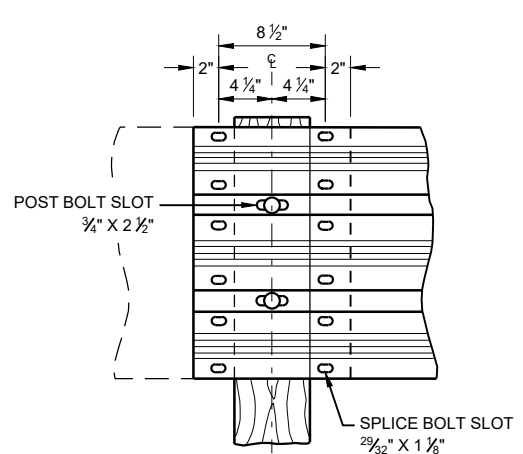


(T) THRIE BEAM CONNECTION
(W) W-BEAM CONNECTION WHEN REQUIRED

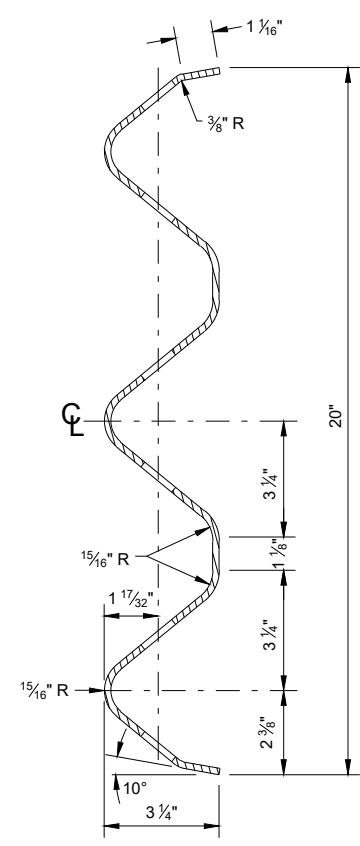
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



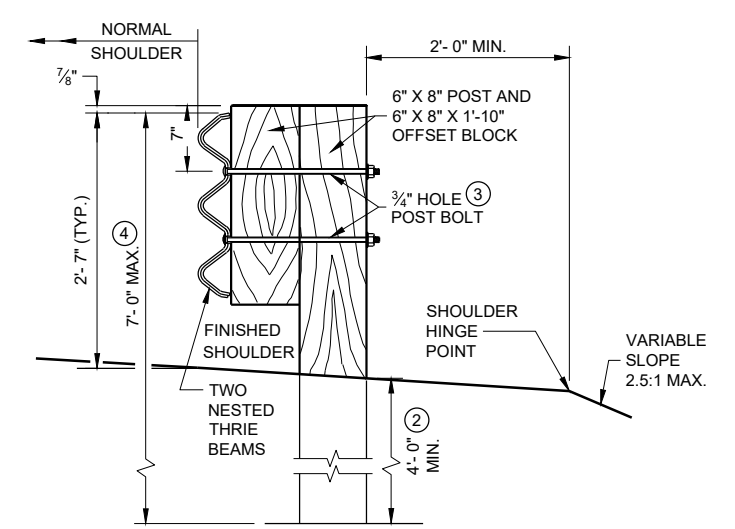
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



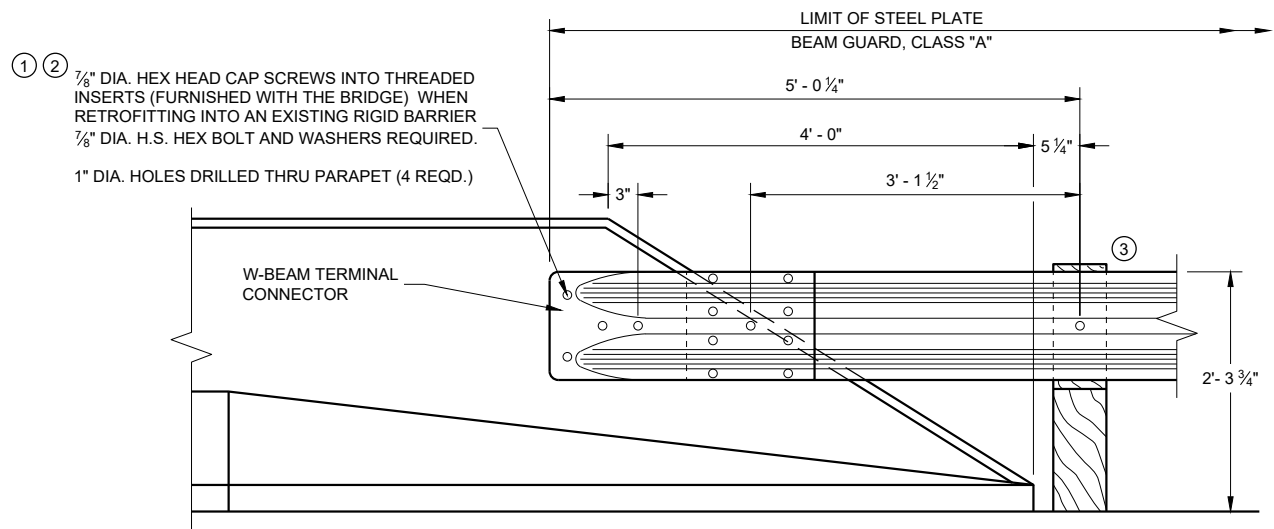
SECTION THRU BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

ONE WAY TRAFFIC →



FRONT VIEW

W BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

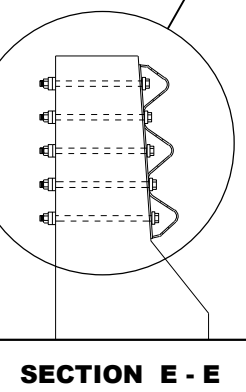
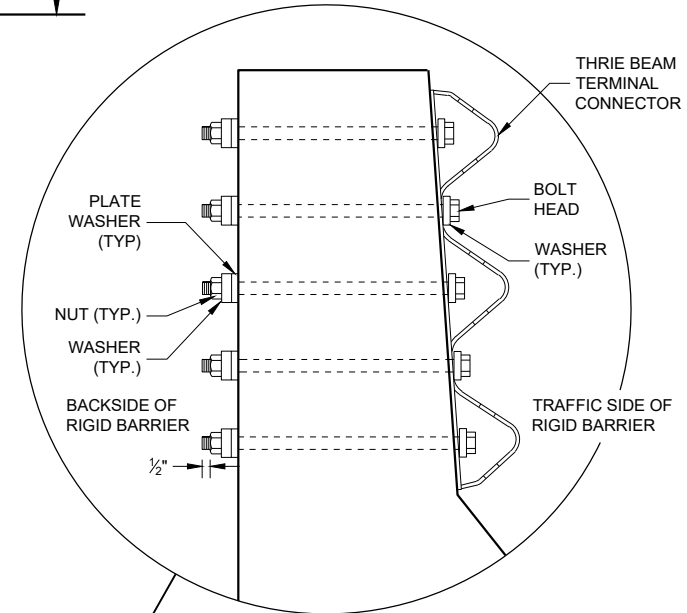
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

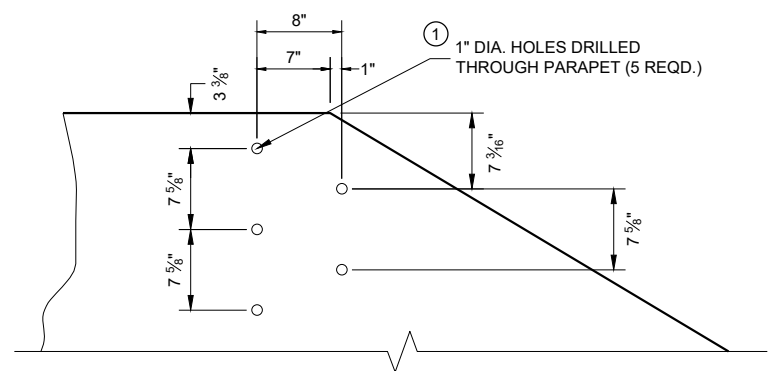
BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

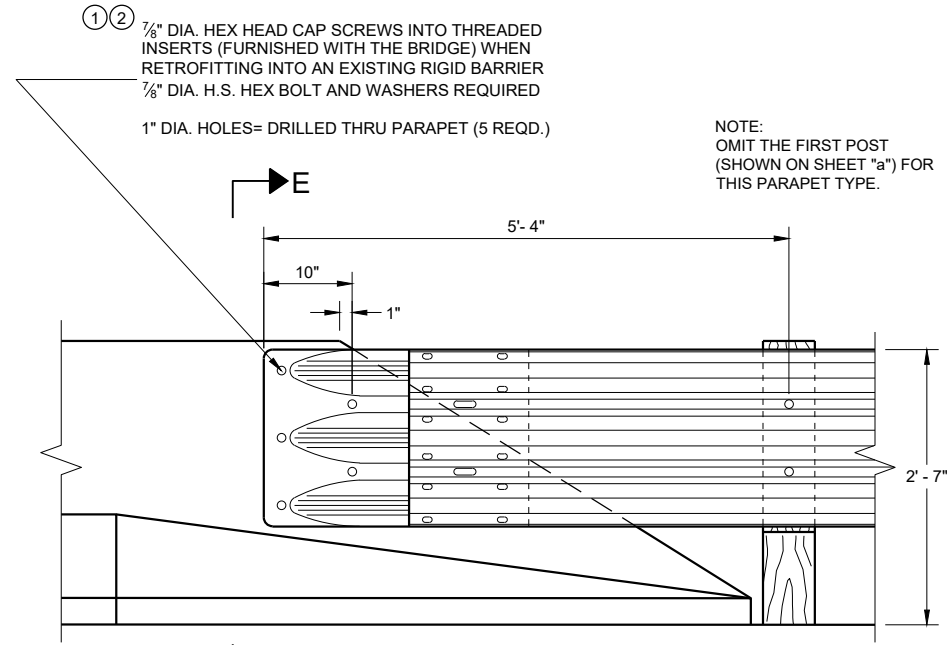
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



SECTION E - E



DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

NOTE:
OMIT THE FIRST POST (SHOWN ON SHEET "a") FOR THIS PARAPET TYPE.

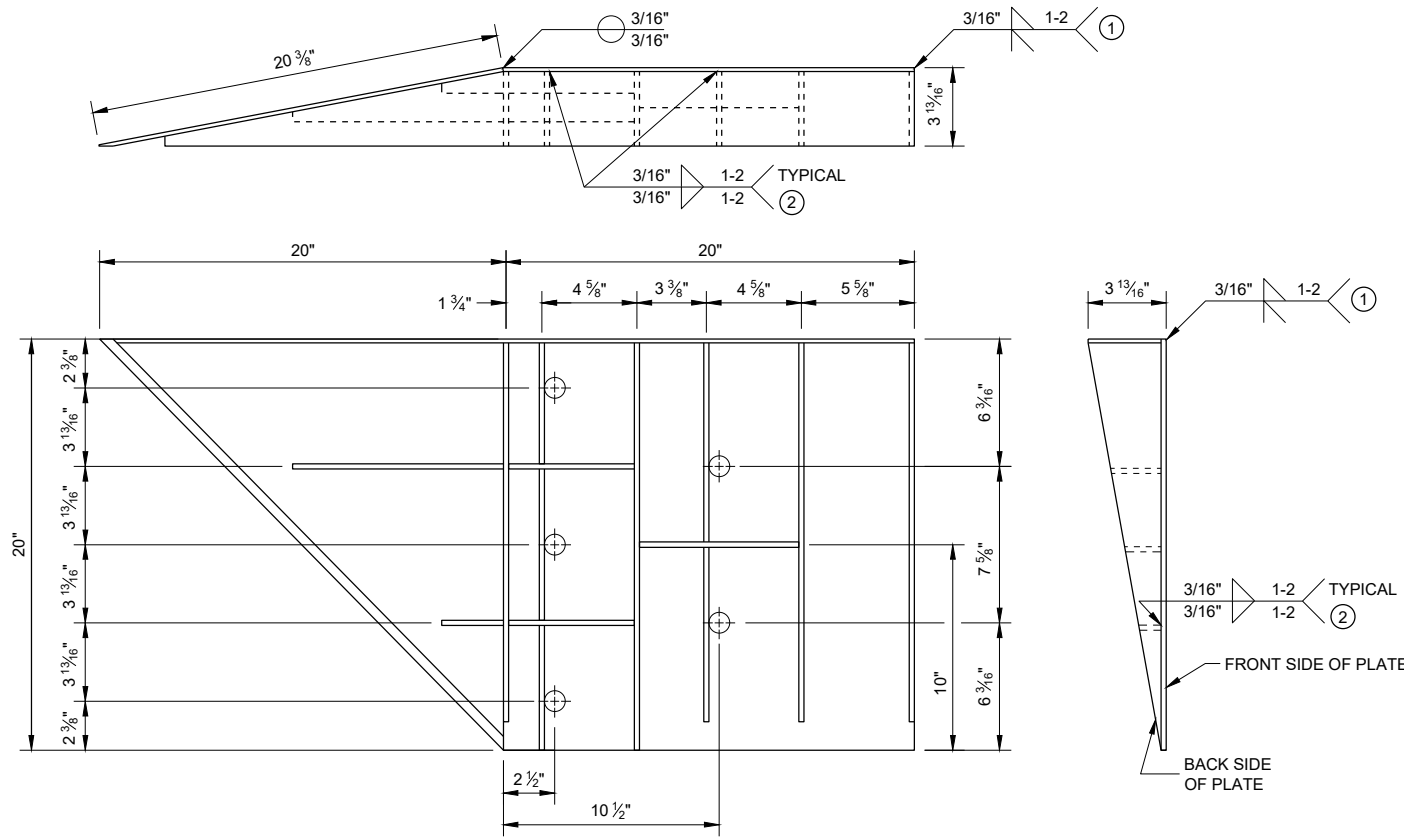
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6

SDD 14B20 - 12d

SDD 14B20 - 12d

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

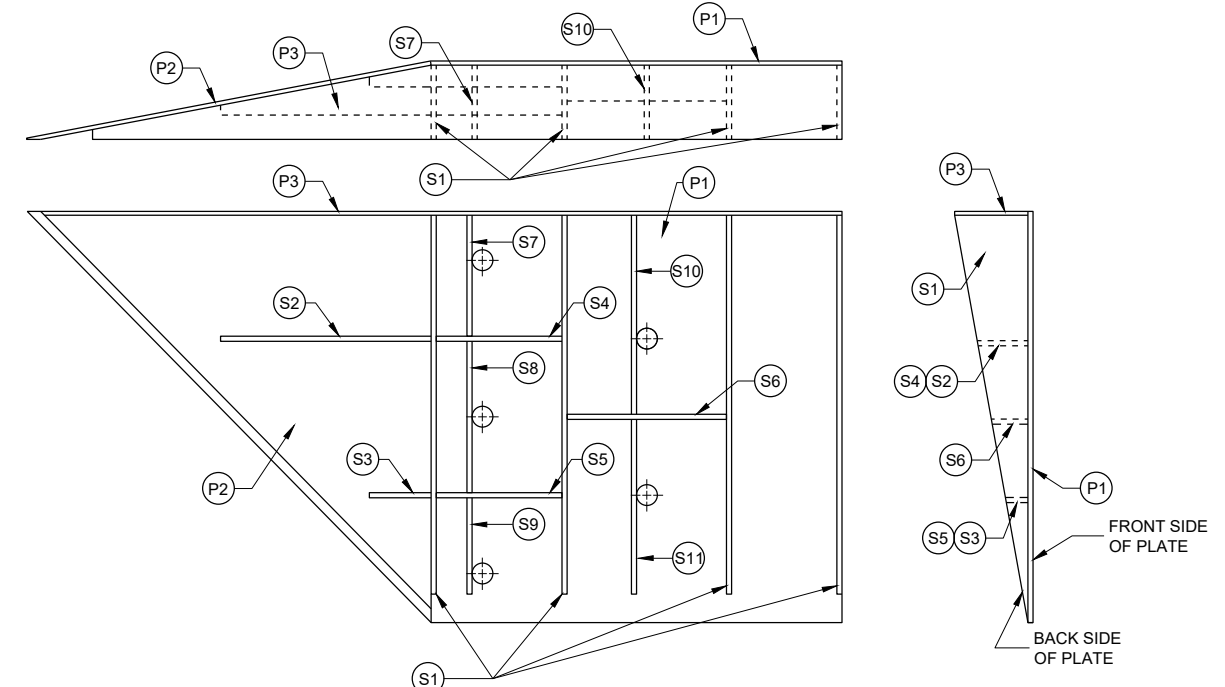


GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.
 ALL STIFFENERS ARE 1/4" THICK
 CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
 FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
 ALL HOLE DIAMETERS SHALL BE 1".
 FOR OPPOSITE SIDE INSTALLATION, MIRROR DRAWINGS.

- ① STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
 SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- ② STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
 3/16" FILLET WELD BY 1" LONG SPACED AT 2".

**WELDING INSTRUCTION
 (VIEWED FROM BACK SIDE OF PLATE)**



**PLATE AND STIFFENER IDENTIFICATION
 (VIEWED FROM BACK SIDE OF PLATE)**

CONNECTOR PLATED DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

**STEEL THRIE BEAM
 STRUCTURE APPROACH,
 CONNECTOR PLATE DETAIL**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 November 2022 DATE /S/ Rodney Taylor
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER

FHWA

BILL OF MATERIALS

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

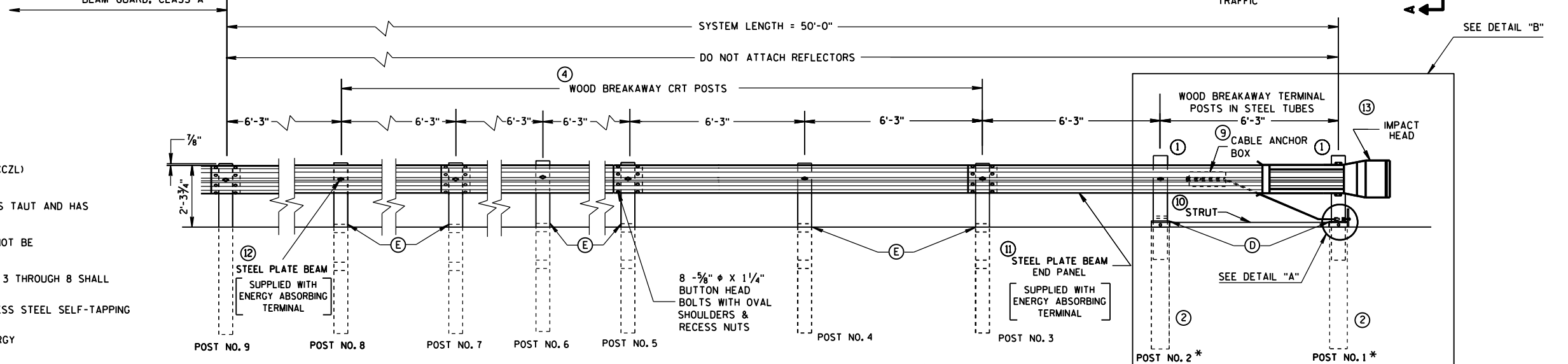
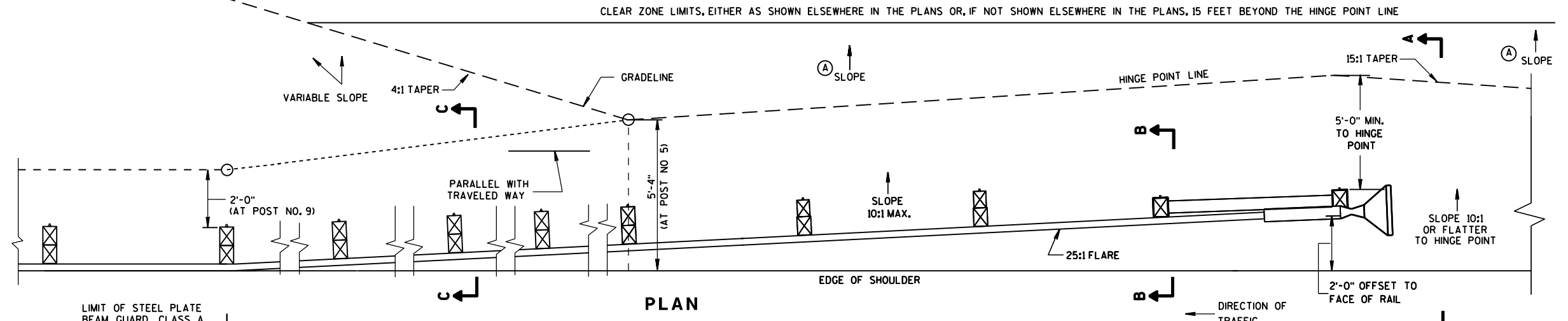
GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

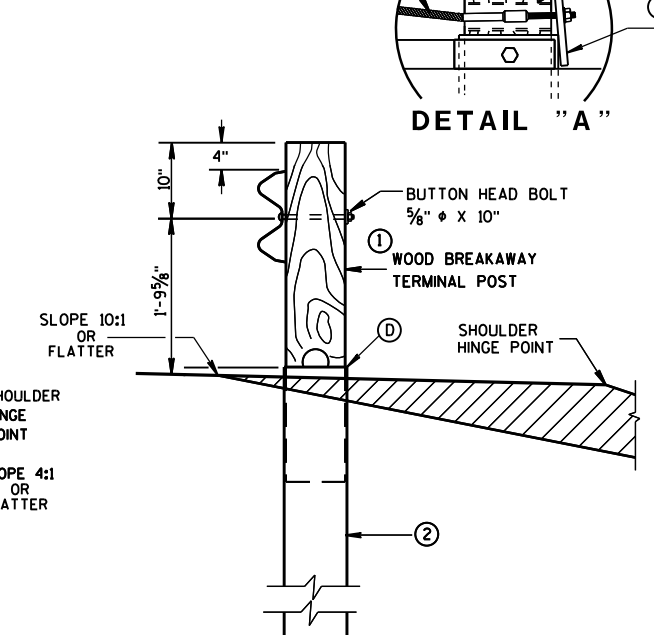
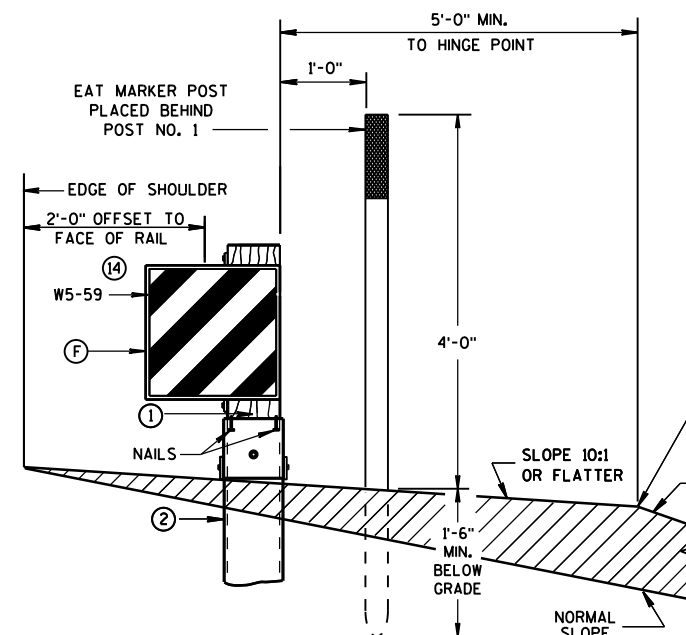
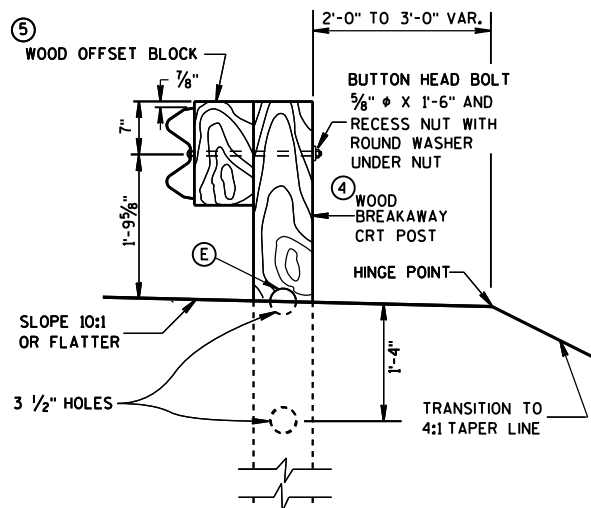
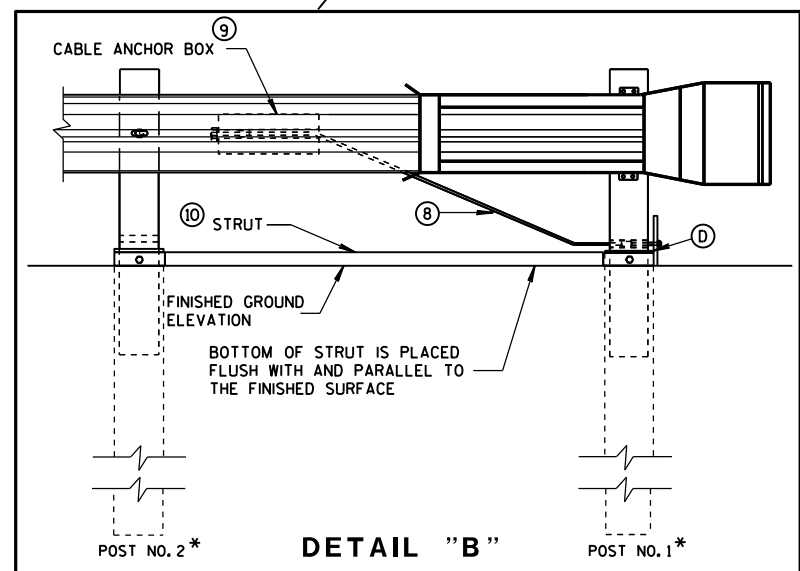
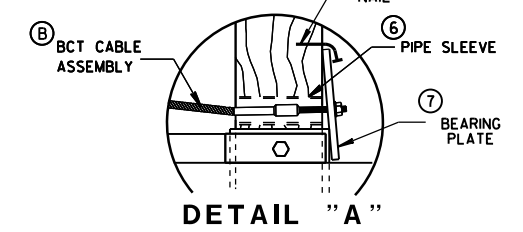
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE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

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

*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



ELEVATION



**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

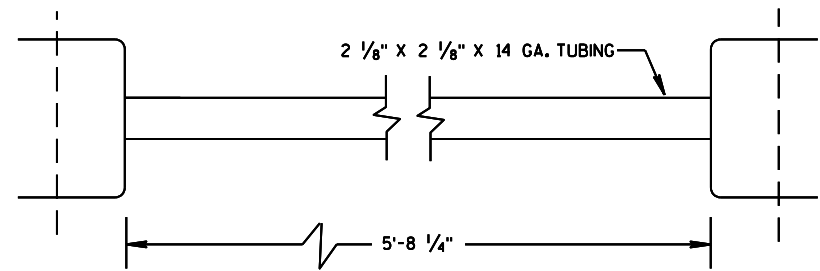
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

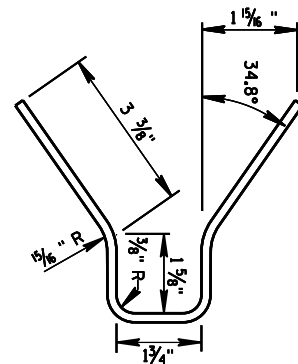
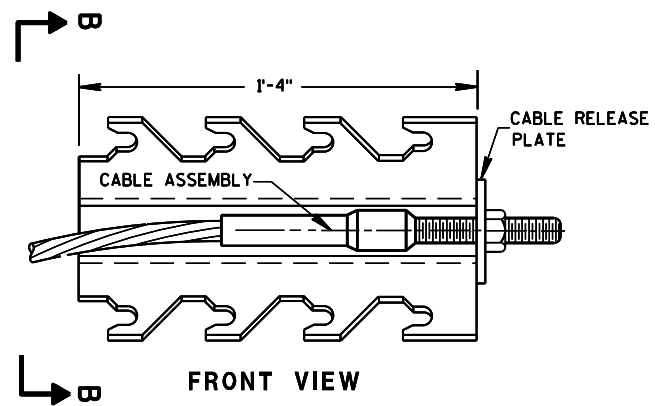
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S.D.D. 14 B 24-9a

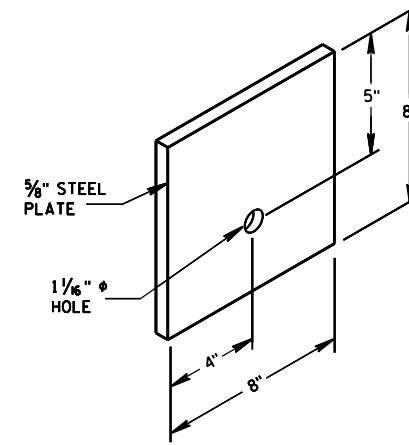
S.D.D. 14 B 24-9a



⑩ STRUT DETAIL



⑨ CABLE ANCHOR BOX



⑦ STEEL BEARING PLATE

6

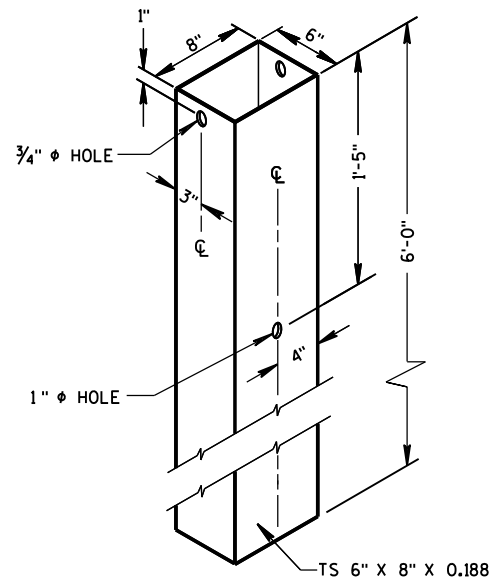
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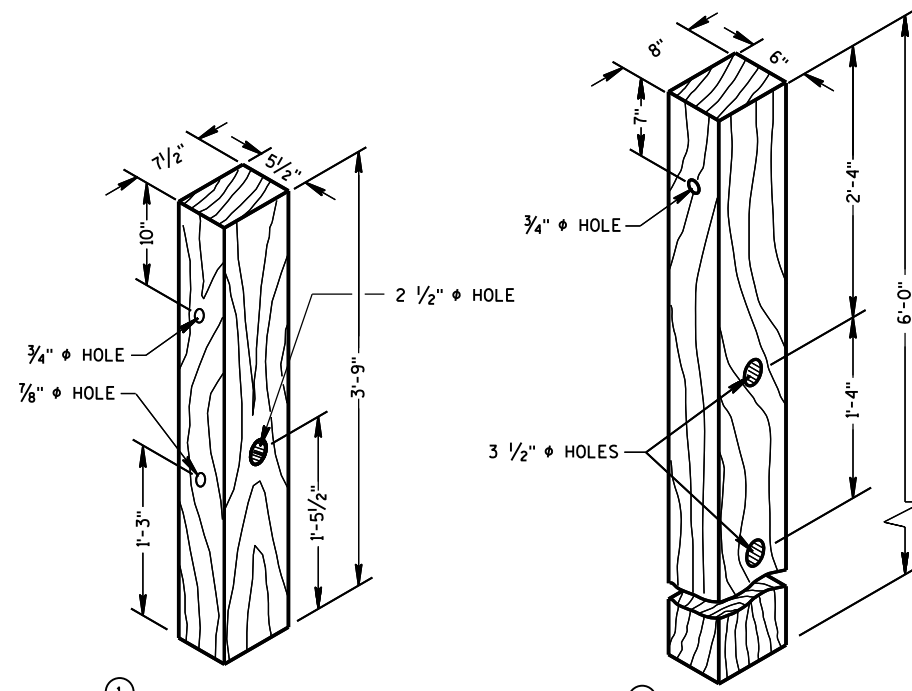
S.D.D. 14 B 24-9b

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



② 72" STEEL TUBE
(POSTS NO. 1-2)



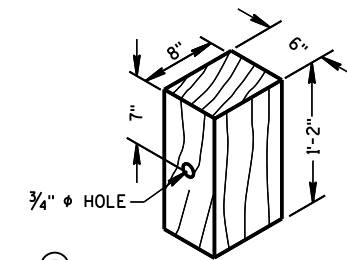
① TERMINAL POST

④ CRT POST
(POSTS NO'S 5-8)

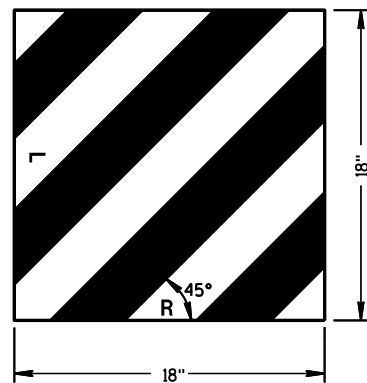
WOOD BREAKAWAY POSTS

GENERAL NOTES

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

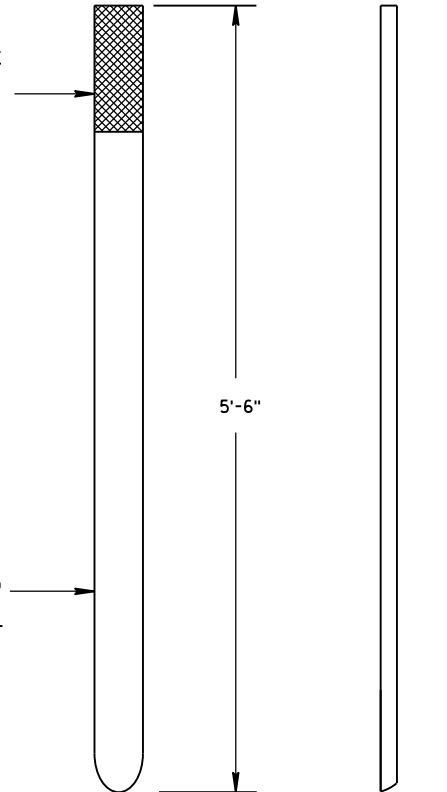


⑤ WOOD OFFSET BLOCK
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ REFLECTIVE SHEETING DETAILS

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



FRONT VIEW SIDE VIEW

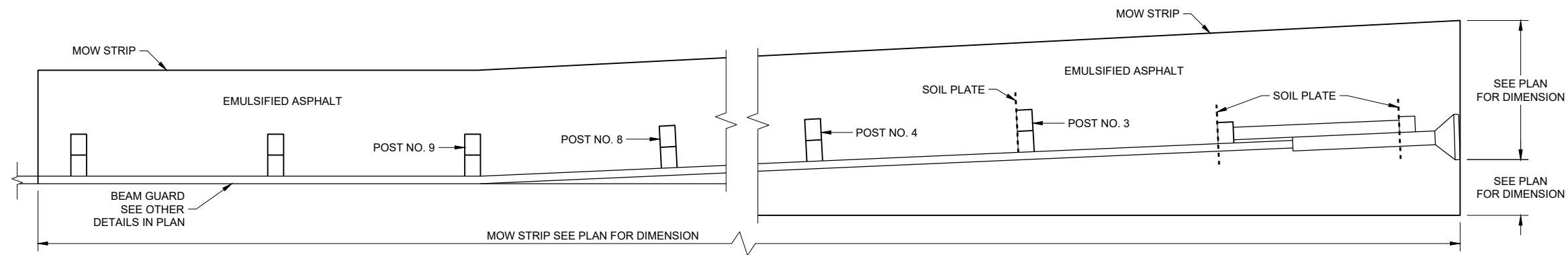
E.A.T. MARKER POST

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

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

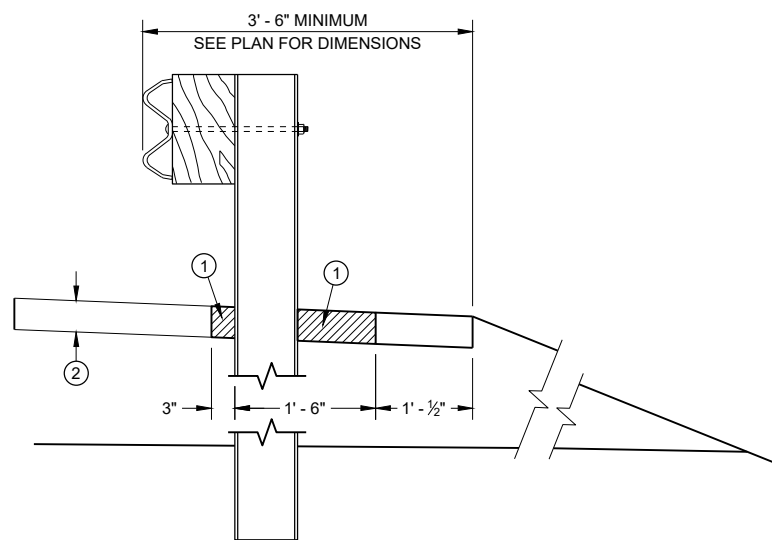


PLAN VIEW
MOW STRIP LAYOUT FOR ENERGY ABSORBING TERMINAL

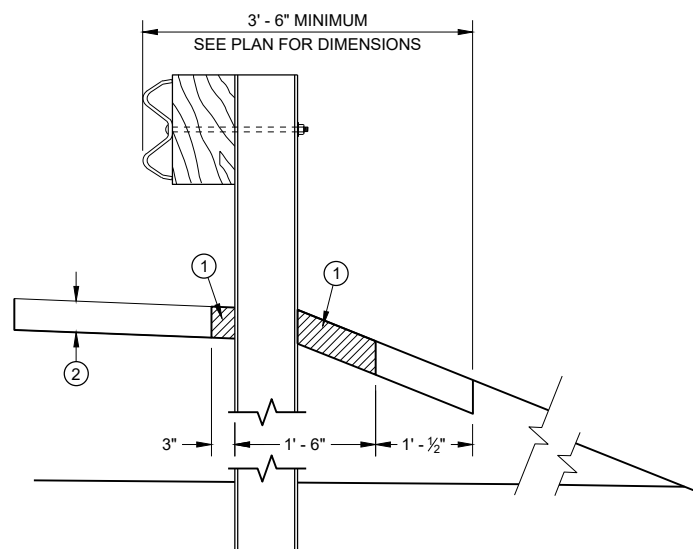
GENERAL NOTES

ONLY USE STEEL POSTS IN CONCRETE AND ASPHALT MOW STRIPS.

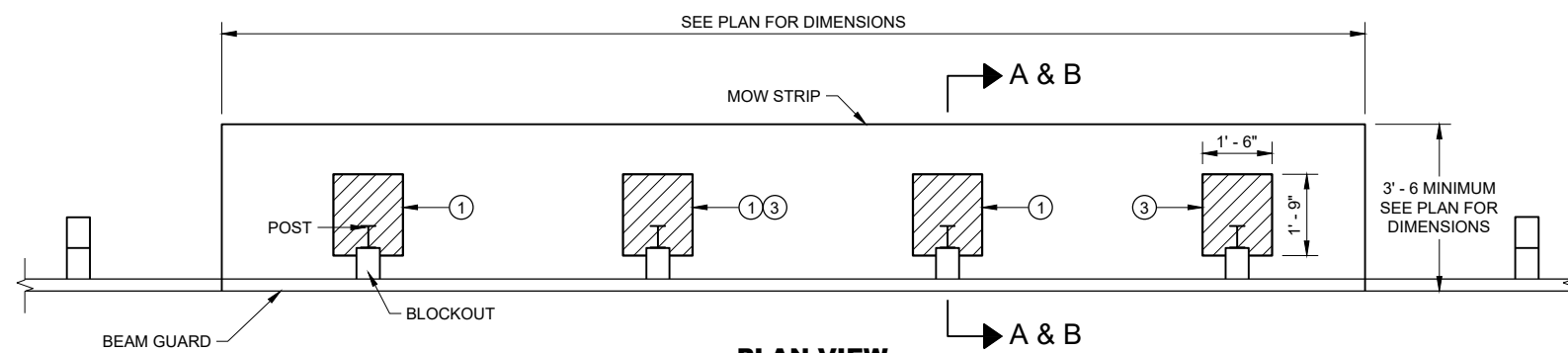
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT, MOW STRIP STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS)



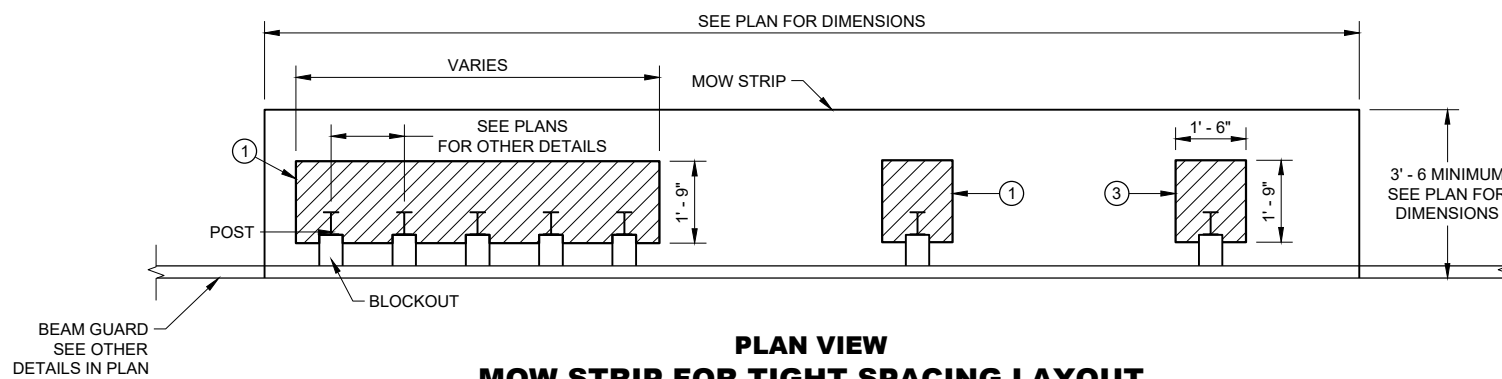
SECTION A - A



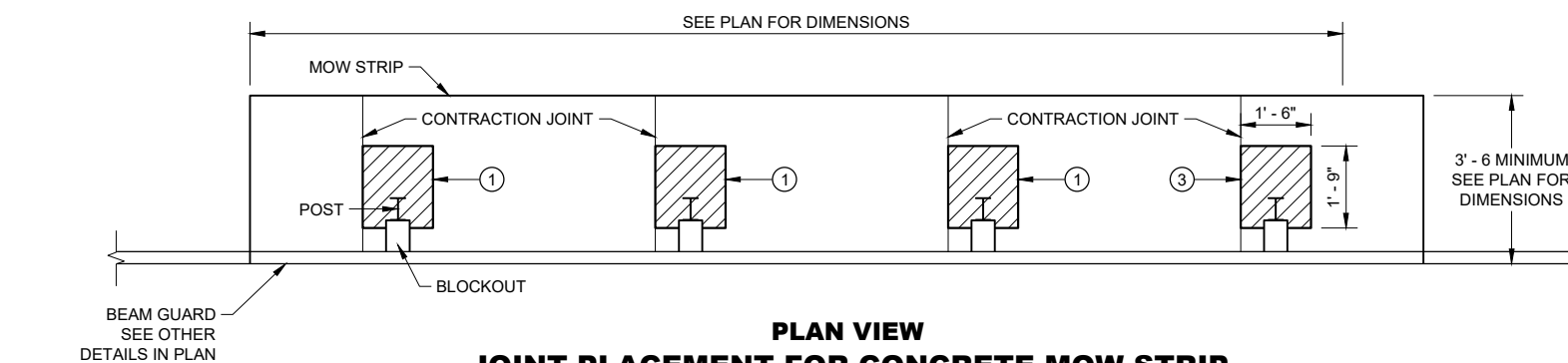
SECTION B - B



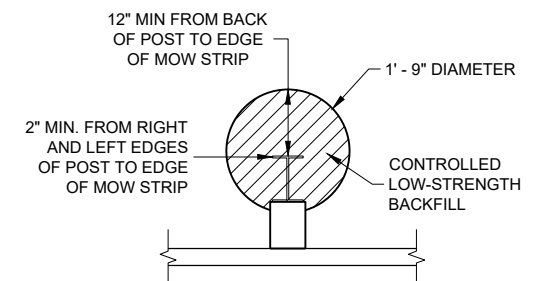
PLAN VIEW
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



PLAN VIEW
MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW
JOINT PLACEMENT FOR CONCRETE MOW STRIP



ALTERNATIVE HMA
MOW STRIP DESIGN

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

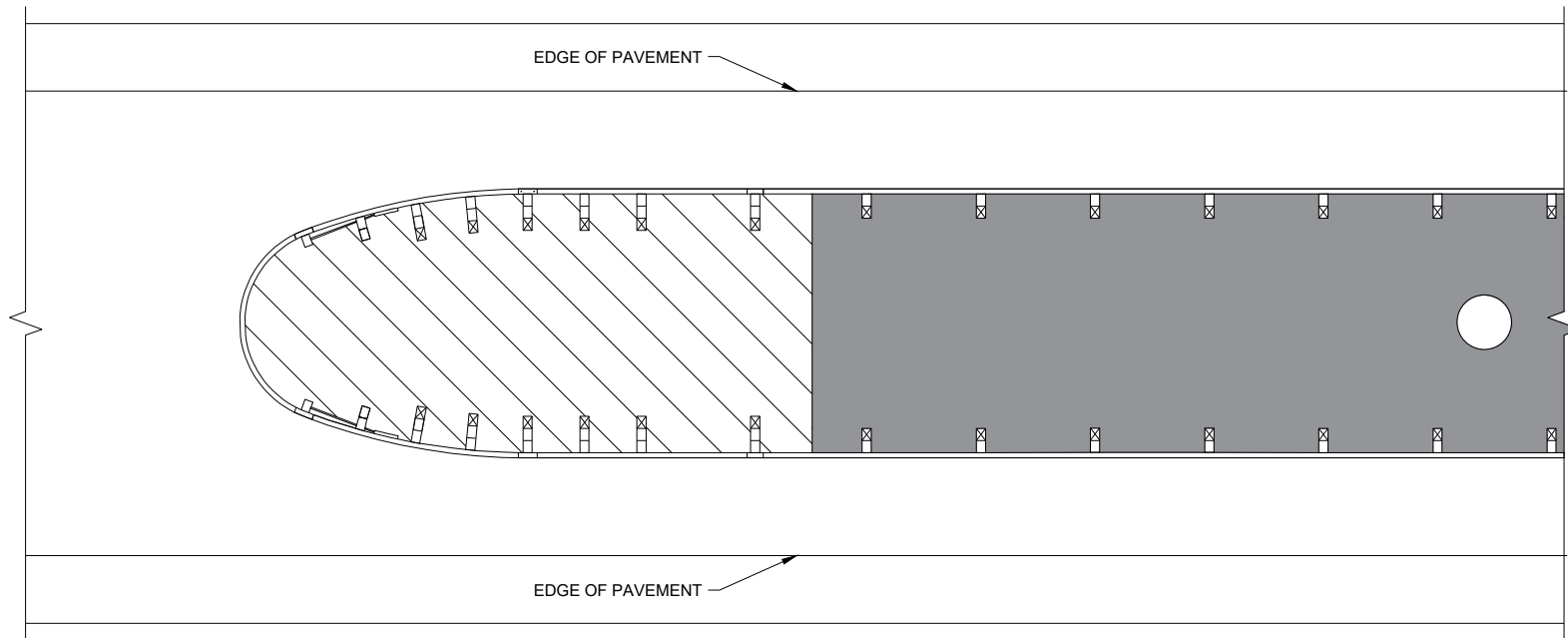
LEGEND

 CONCRETE, ASPHALT, OR EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)

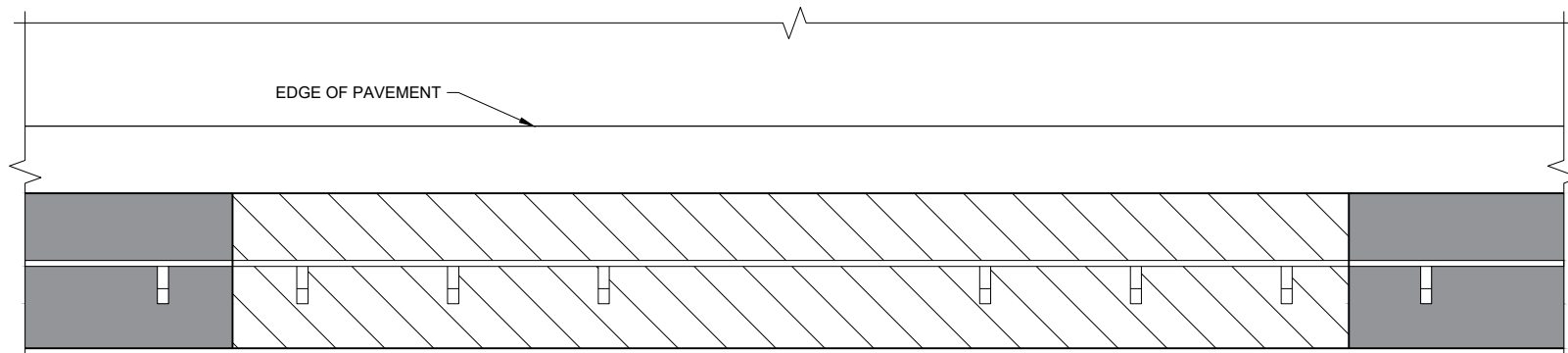
 EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)

GENERAL NOTES

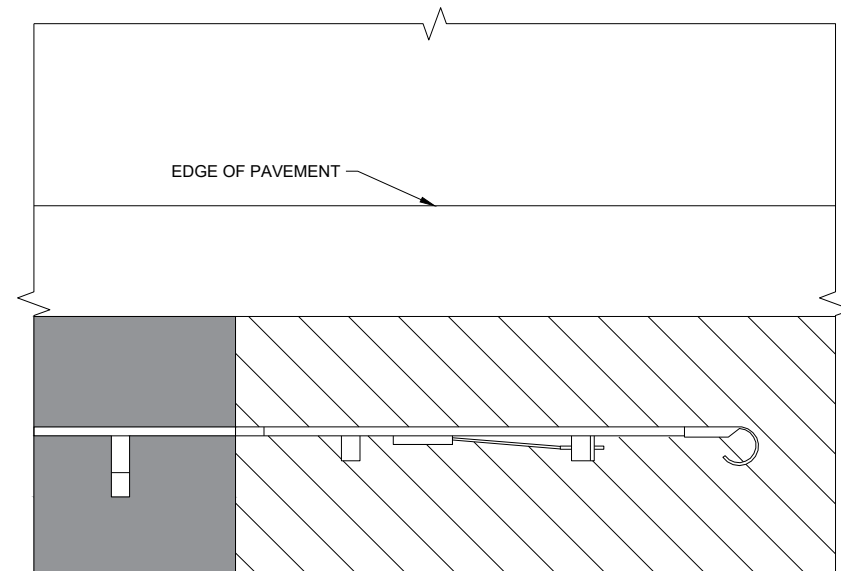
EXISTING THRIE BEAM BULLNOSES MAY HAVE WOOD POSTS. NEW THRIE BEAM BULLNOSE WILL HAVE STEEL POSTS.



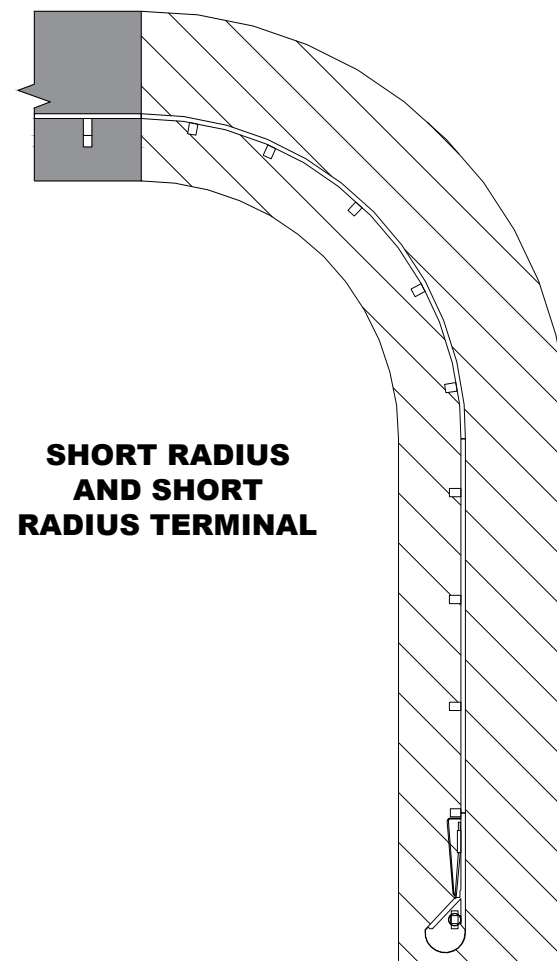
THRIE BEAM BULLNOSE



LONG - SPAN



TYPE 2 TERMINAL



**SHORT RADIUS
AND SHORT
RADIUS TERMINAL**

6

6

SDD 14B28 - 04b

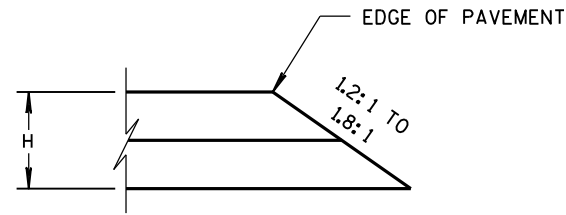
SDD 14B28 - 04b

GUARDRAIL MOW STRIP

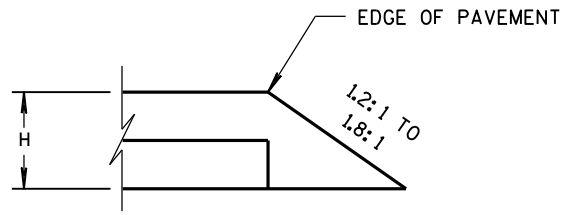
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

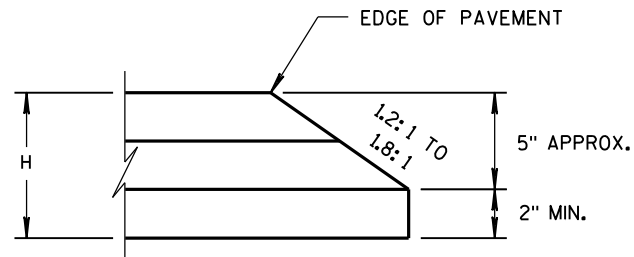
FHWA



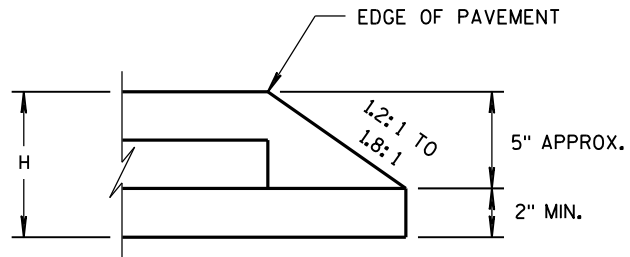
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

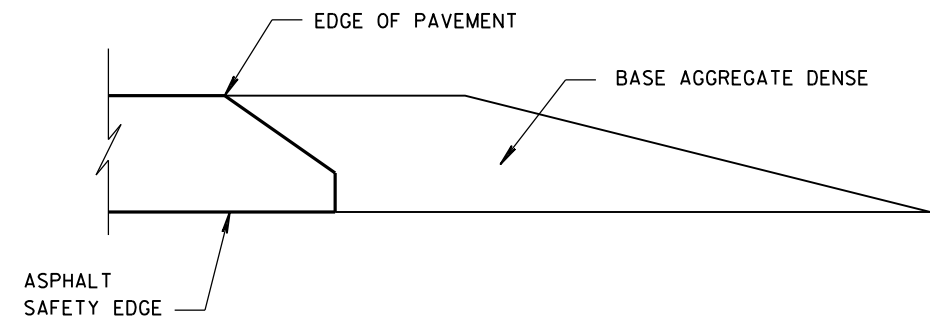


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

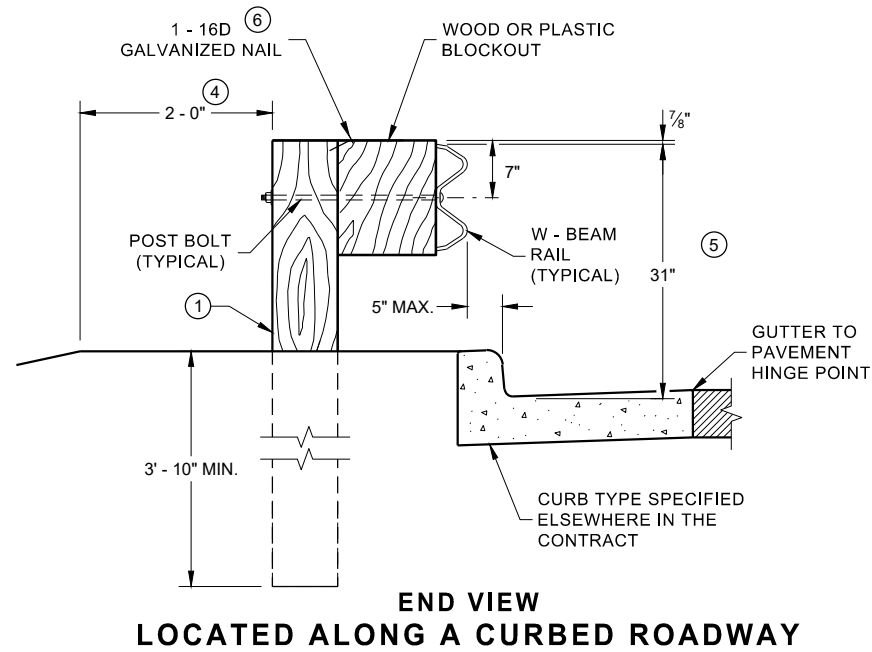
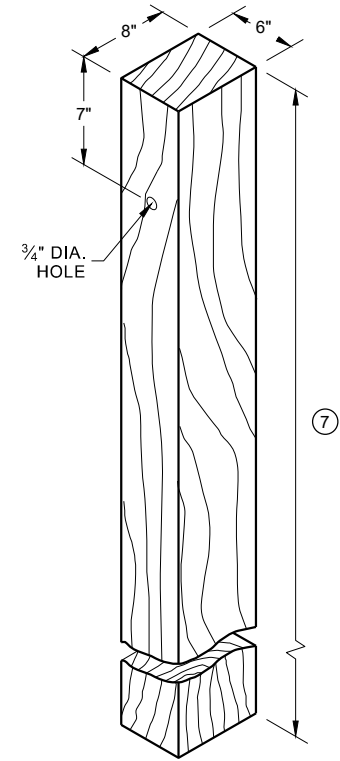
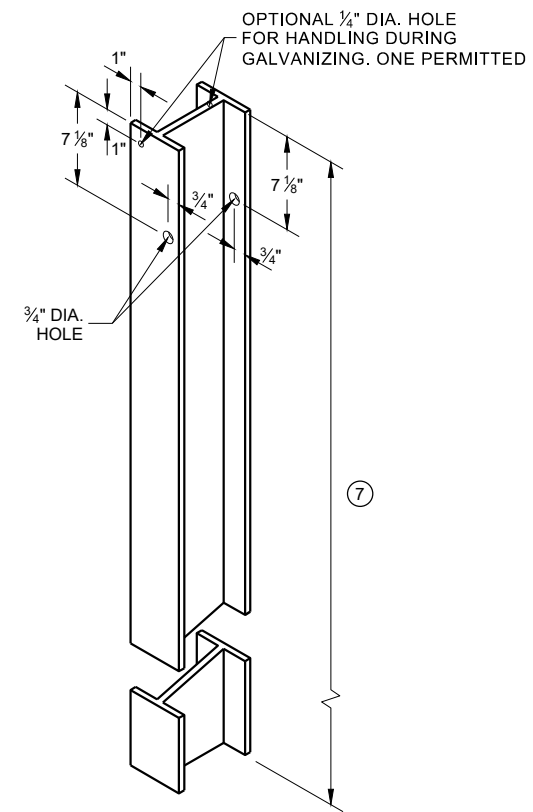
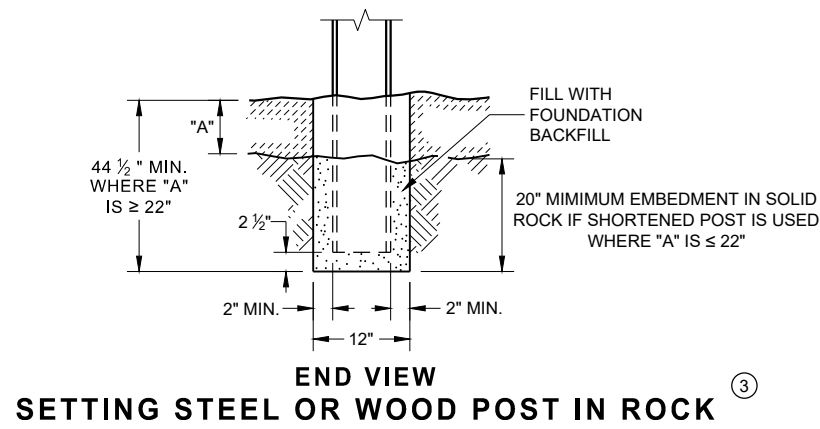
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S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

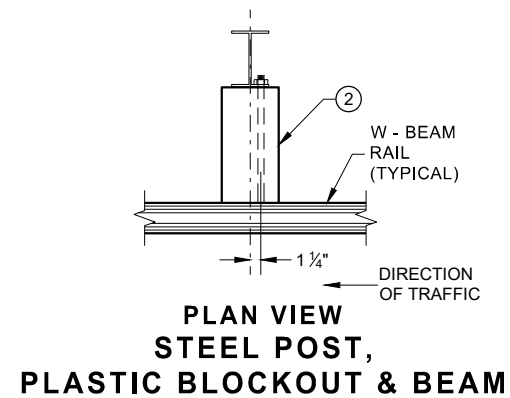
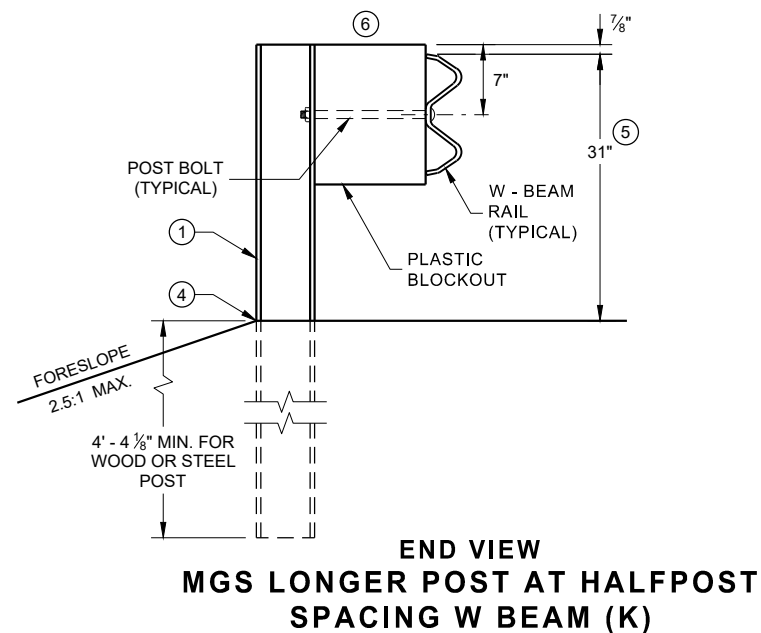
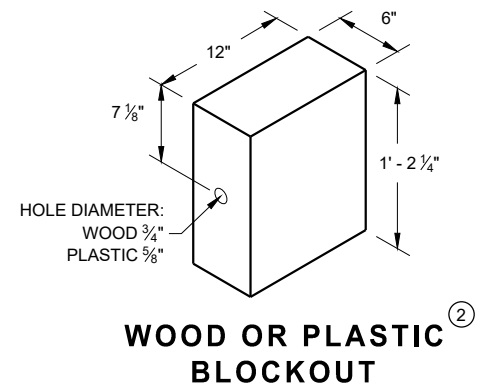
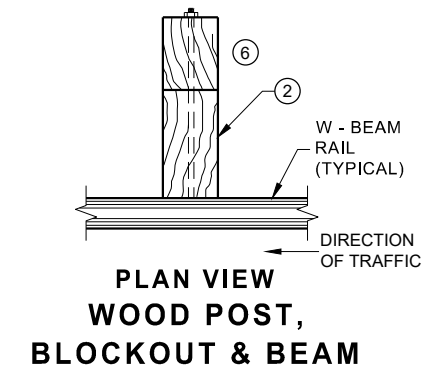
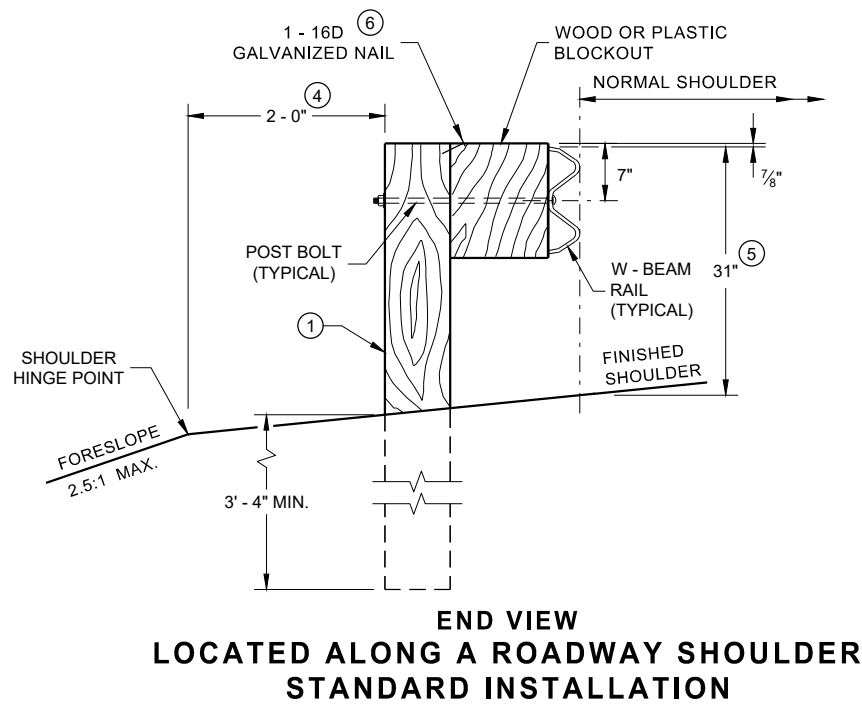
SAFETY EDGE _{SM}	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

- 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".



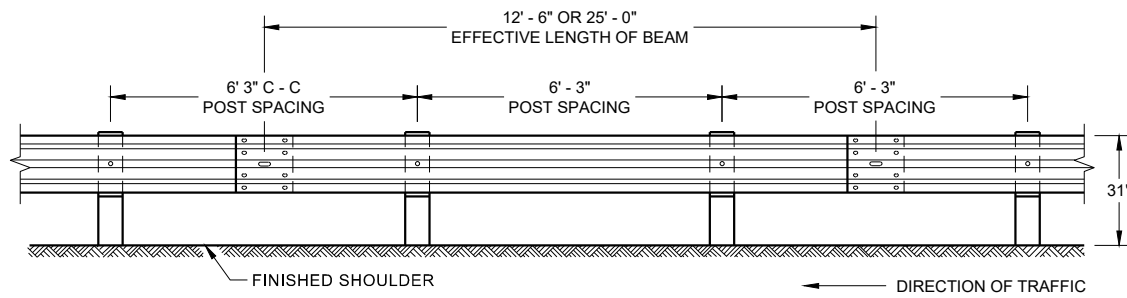
STEEL POST & HOLE PUNCHING DETAIL ①
(W 6 X 9) ①

WOOD POST (6" X 8") NOMINAL ①

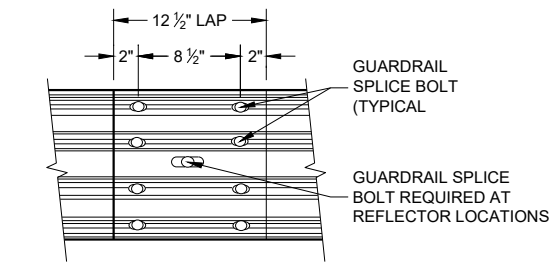


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



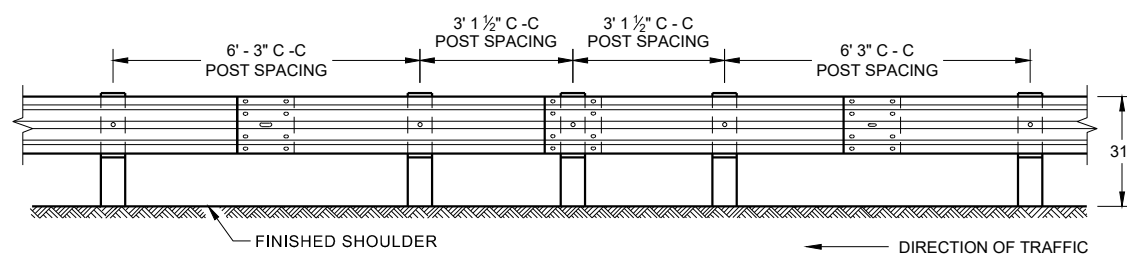
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



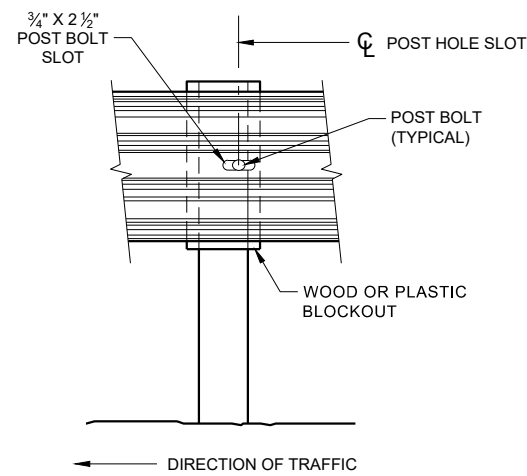
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

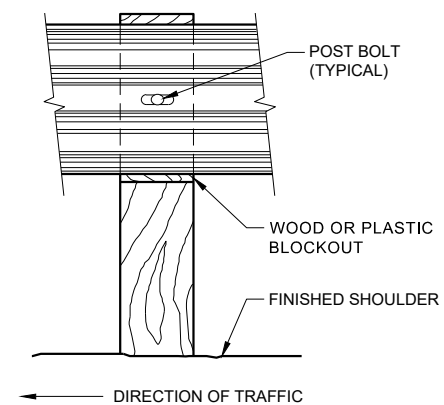
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



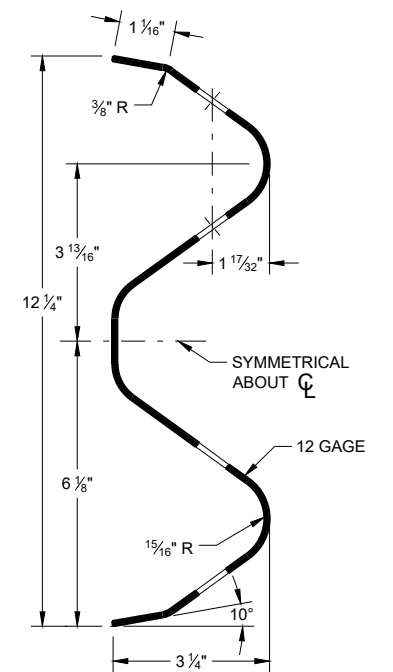
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



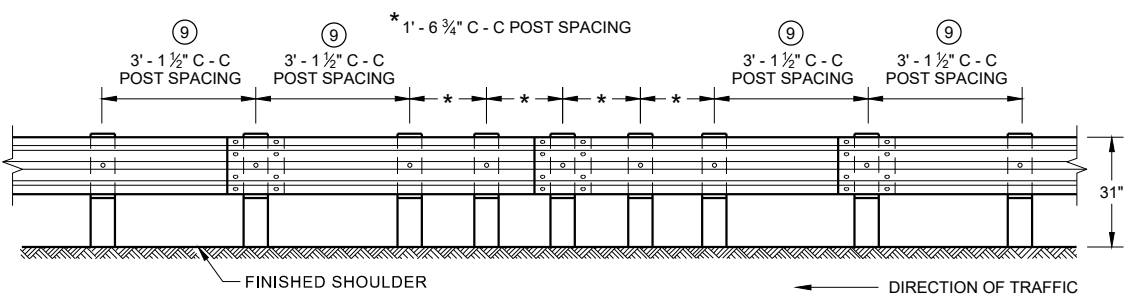
FRONT VIEW AT STEEL POST



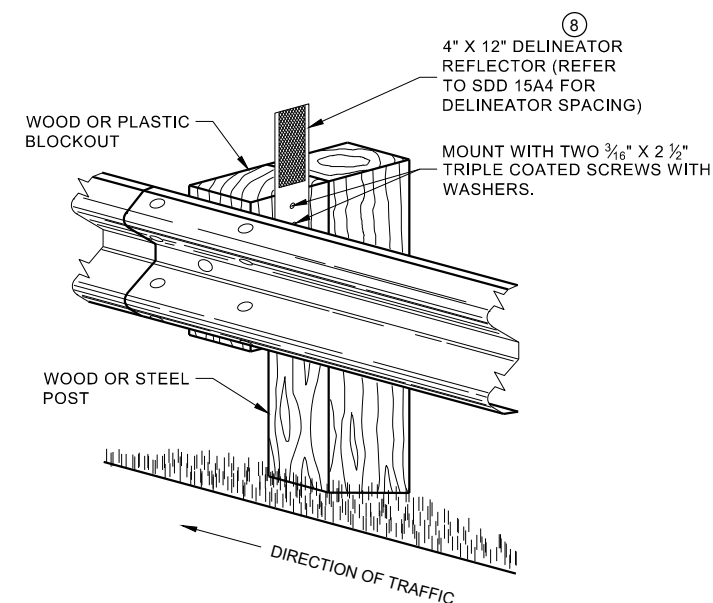
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

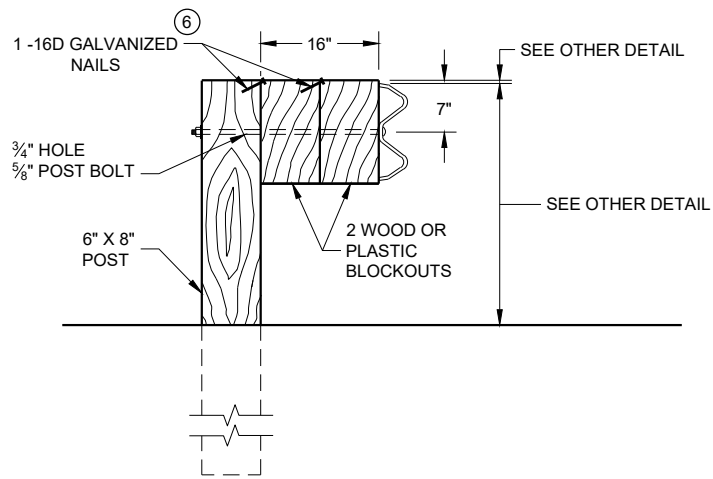
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

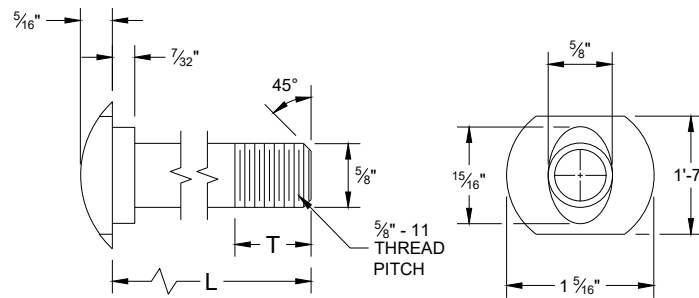


DETAIL FOR 16" BLOCKOUT DEPTH

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.

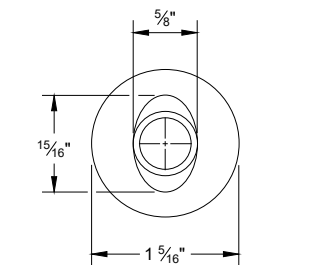
NOTE:

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.

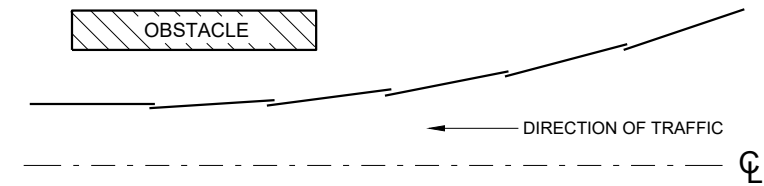


POST BOLT TABLE

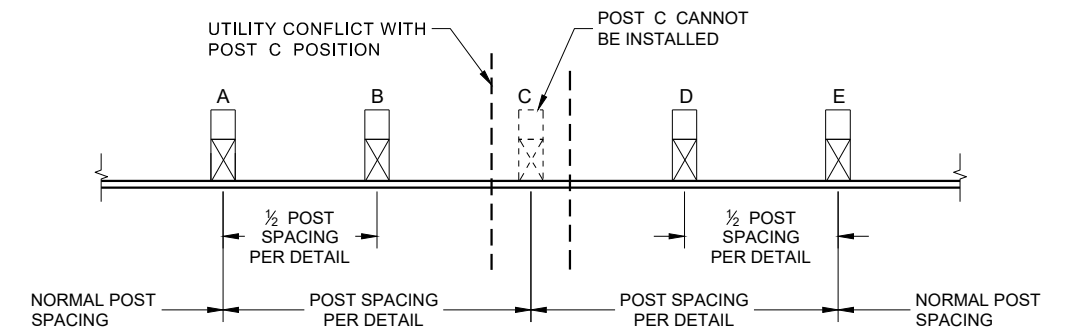
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



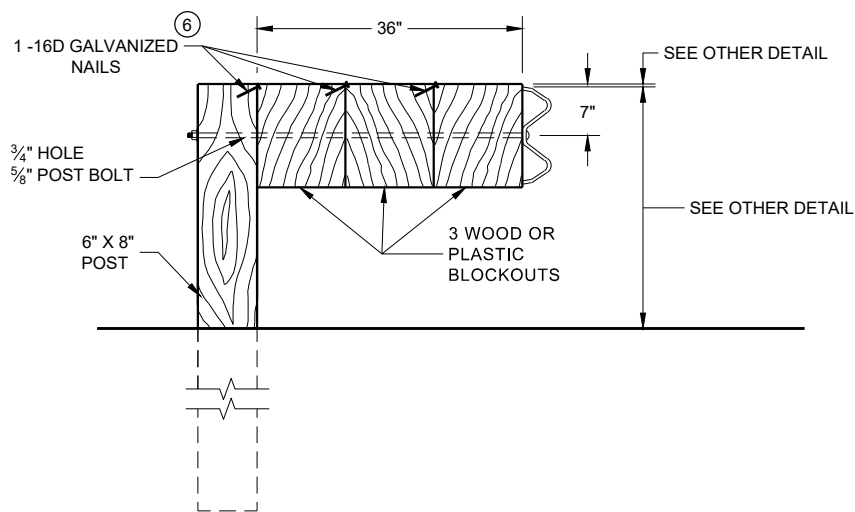
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

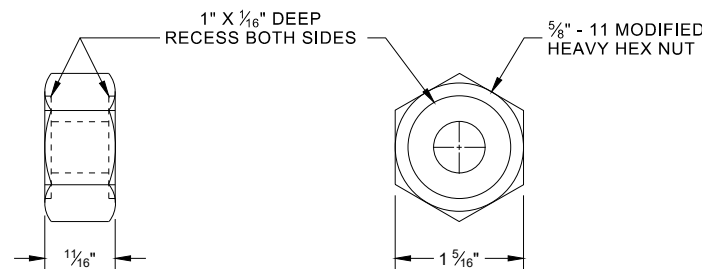


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

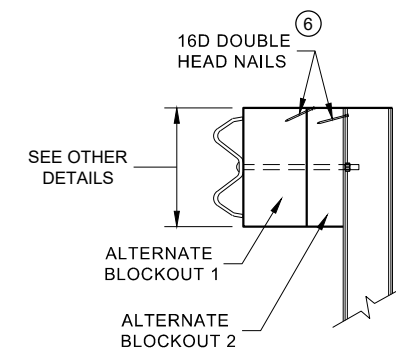


DETAIL FOR 36" BLOCKOUT DEPTH

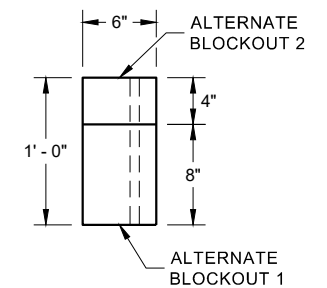
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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



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



SIDE VIEW



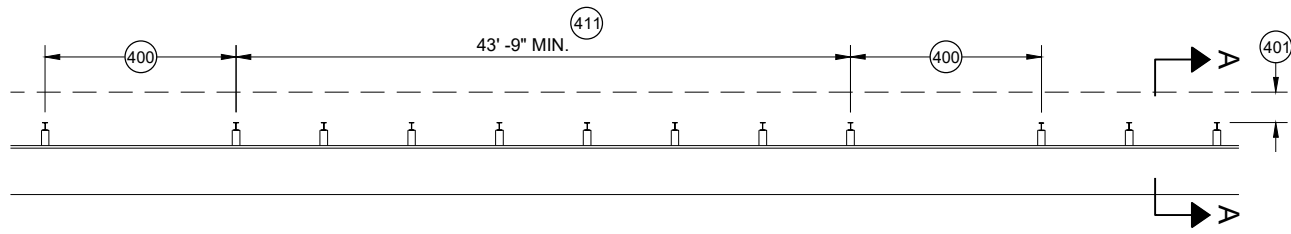
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

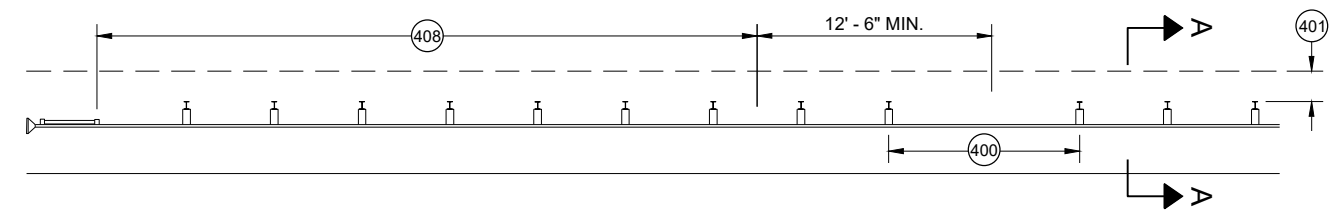
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

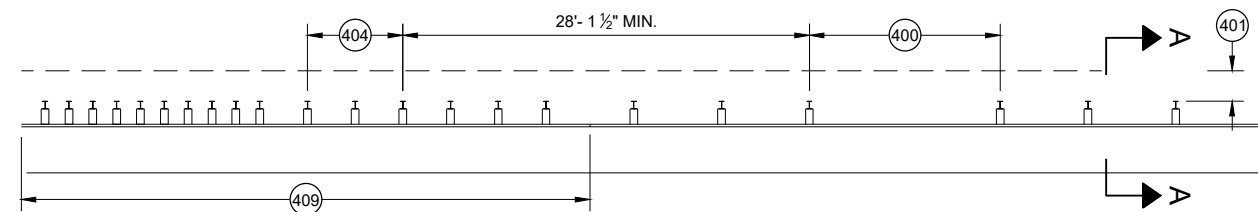
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



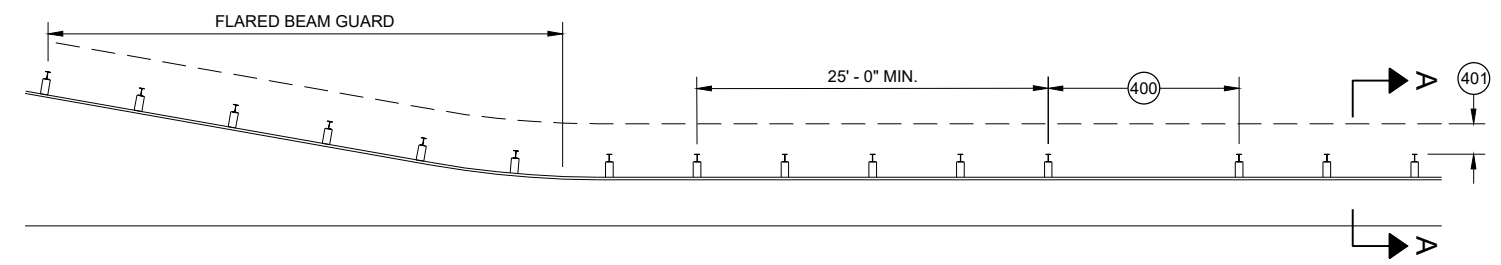
MISSING POST IN MGS GUARDRAIL



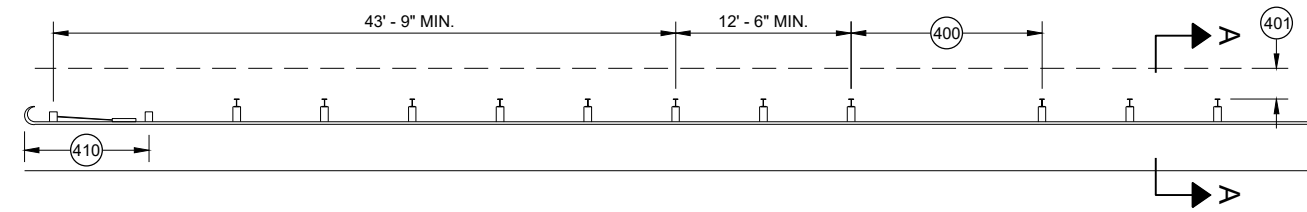
MISSING POST IN MGS GUARDRAIL NEAR EAT



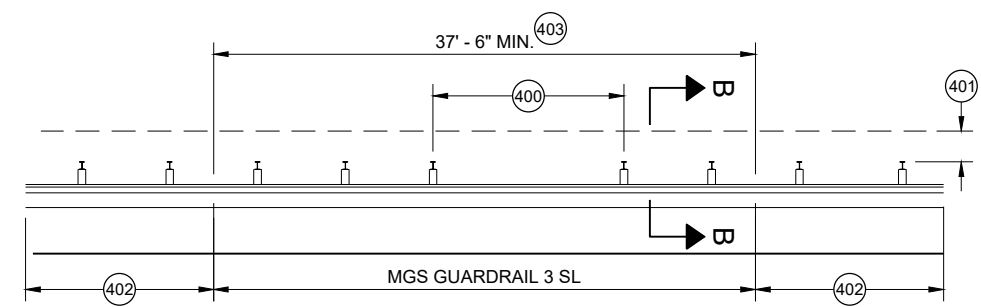
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

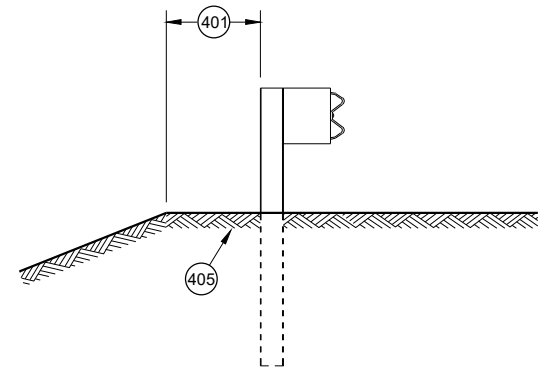


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

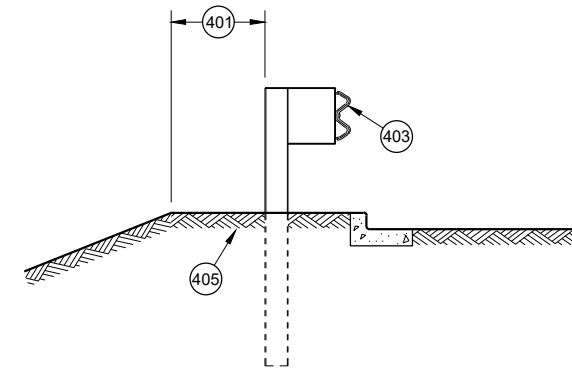


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- 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

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

GENERAL NOTES

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

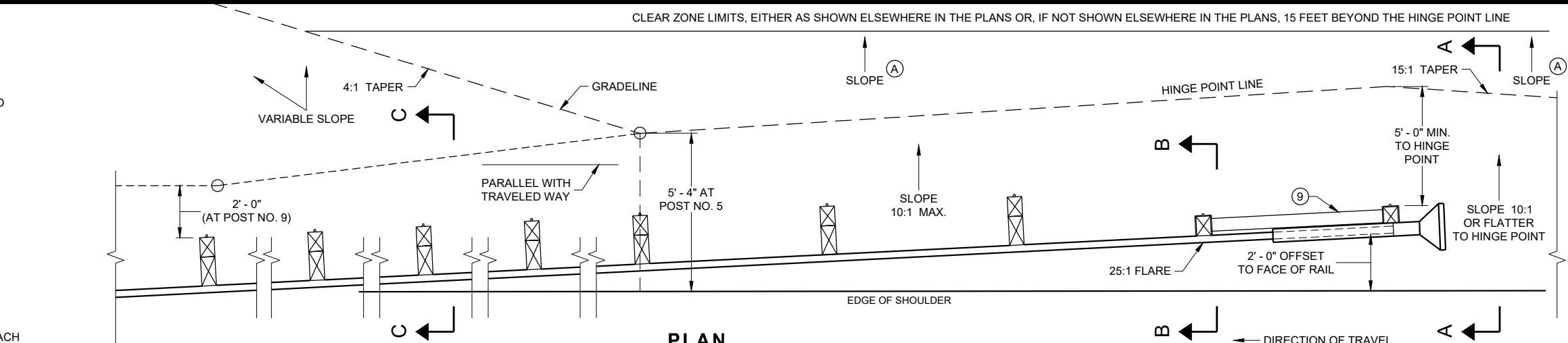
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

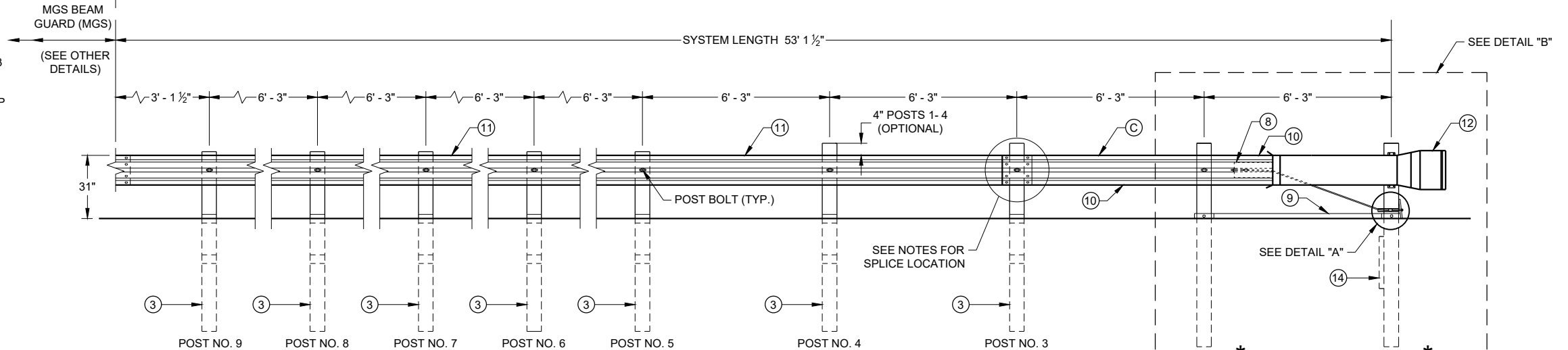
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

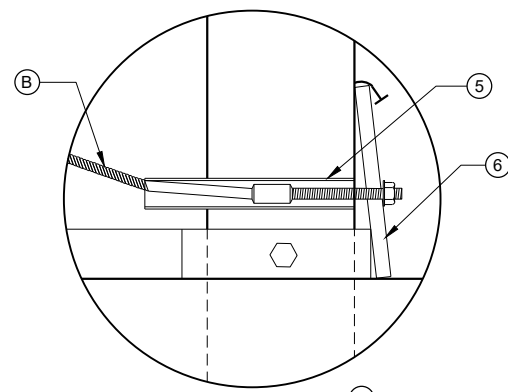
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



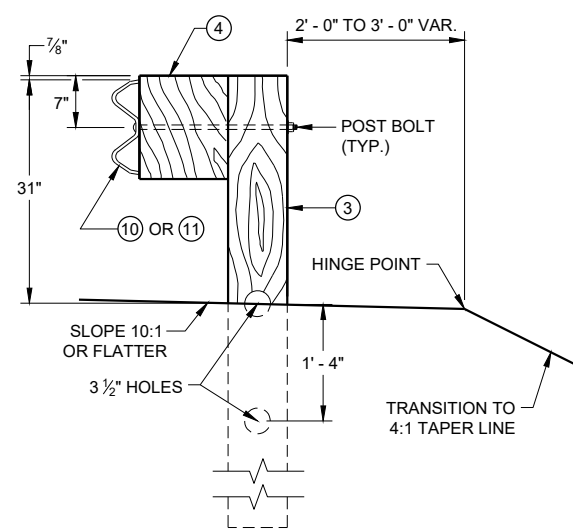
PLAN



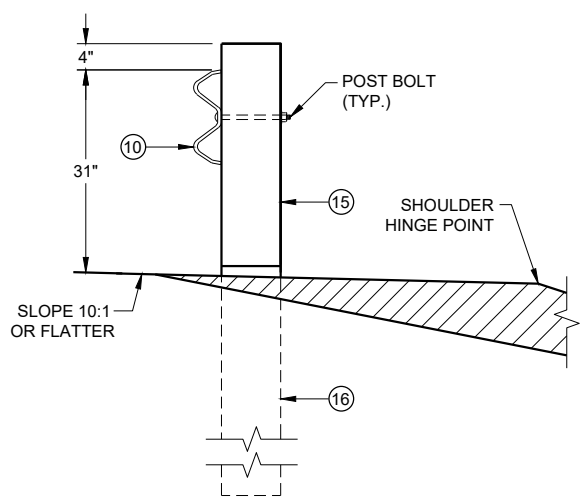
ELEVATION



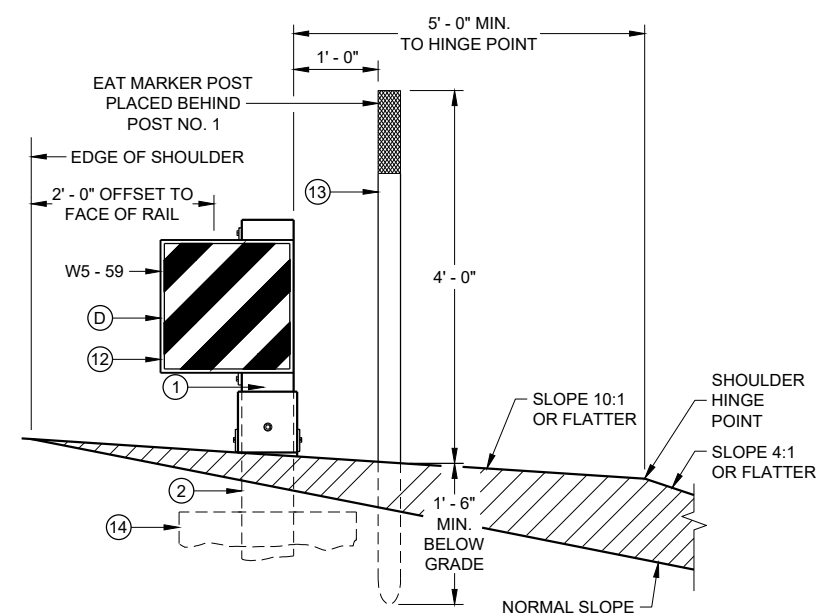
DETAIL "A"



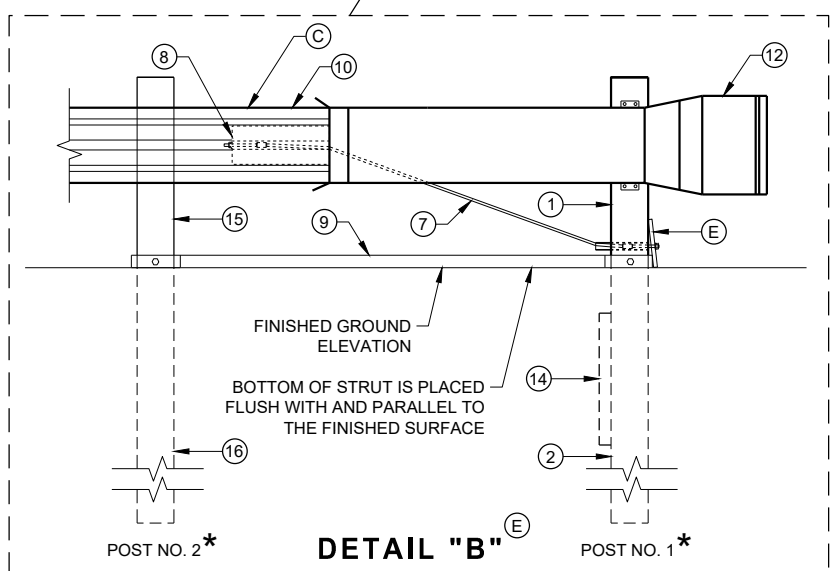
**SECTION C - C
TYPICAL AT POST NOS. 3 - 9**



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



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



DETAIL "B"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

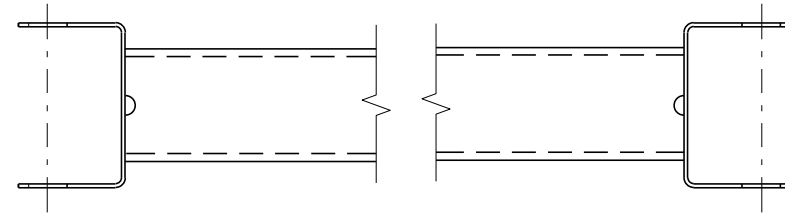
6

SDD 14B44 - 04a

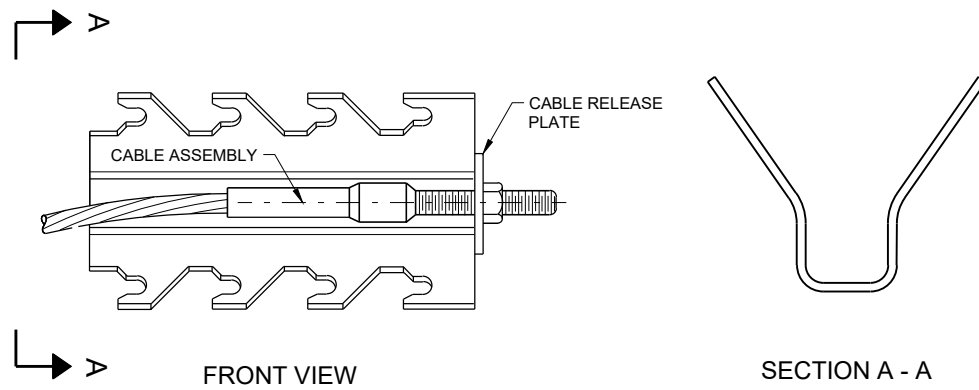
SDD 14B44 - 04a

BILL OF MATERIALS

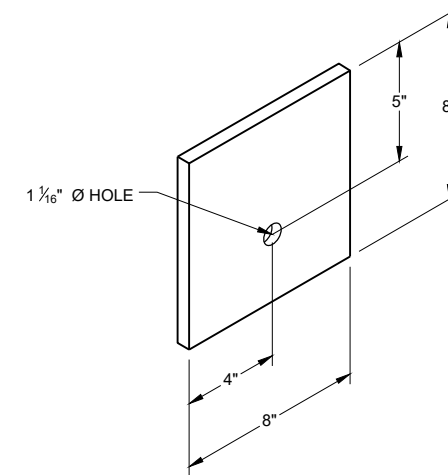
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



GENERIC GROUND STRUT ⑨ ⑤



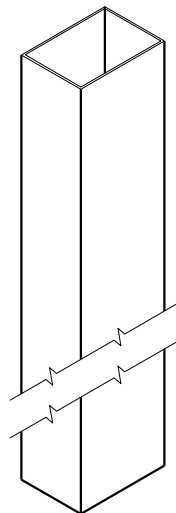
GENERIC ANCHOR CABLE BOX ⑨ ⑤



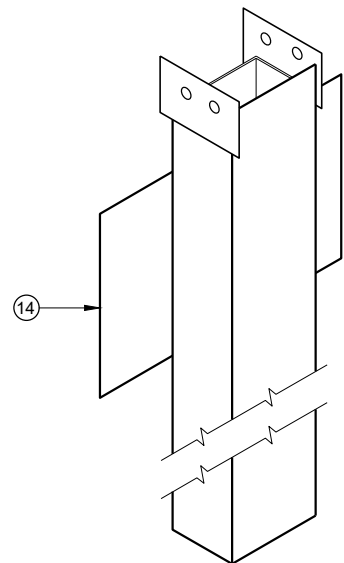
BEARING PLATE ⑥ ⑤

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

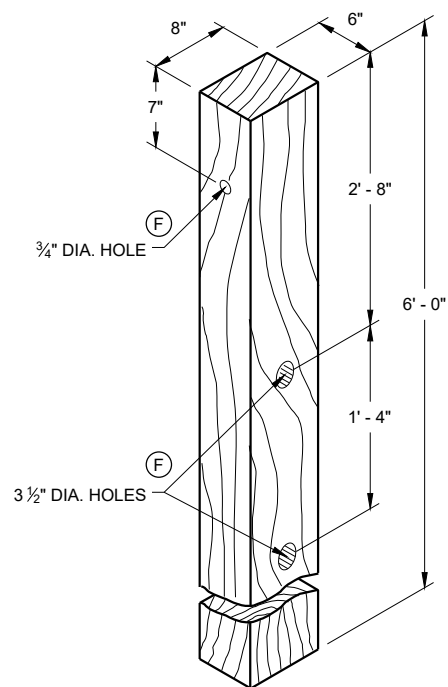
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



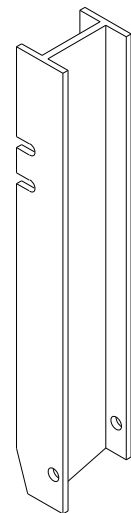
UPPER POST NO. 1 ⁽¹⁾ (E)



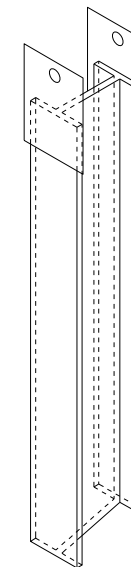
LOWER POST NO. 1 ⁽²⁾ (E)



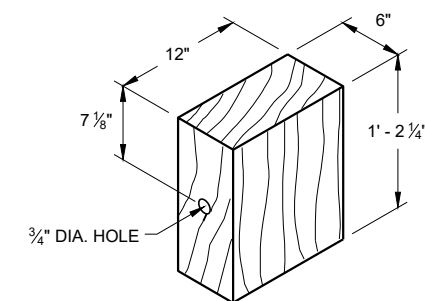
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

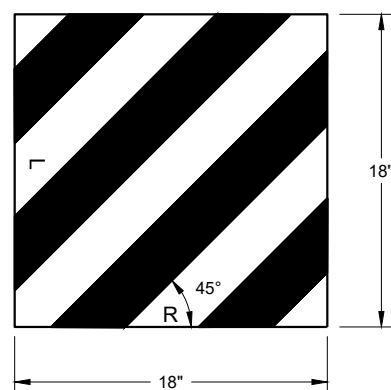


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

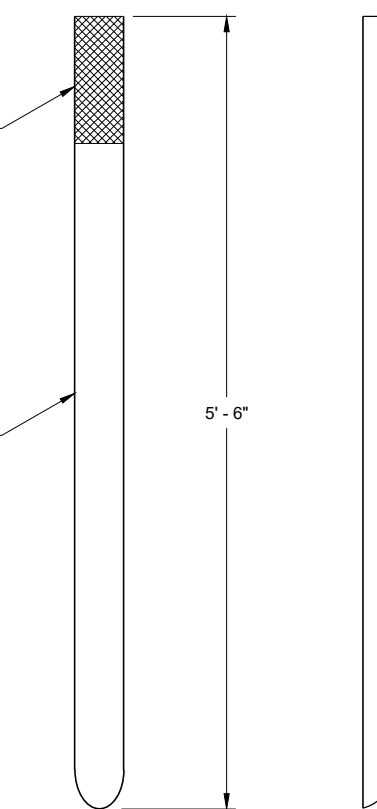
6



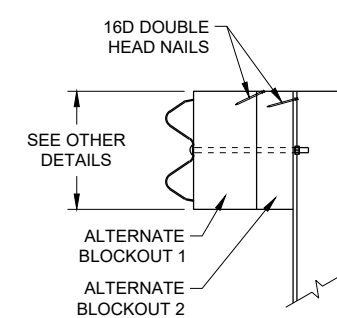
REFLECTIVE SHEETING DETAIL ^(E)

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

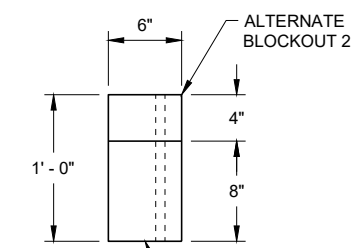
E.A.T. MARKER
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

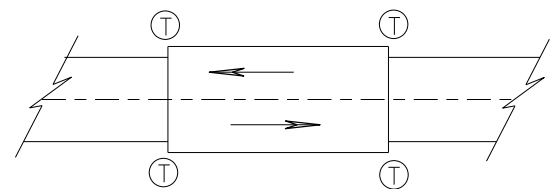
SDD 14B44 - 04c

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

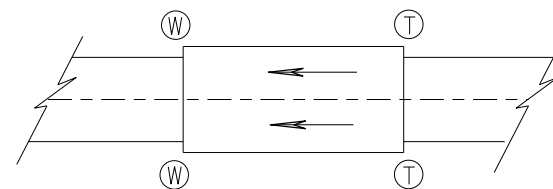
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

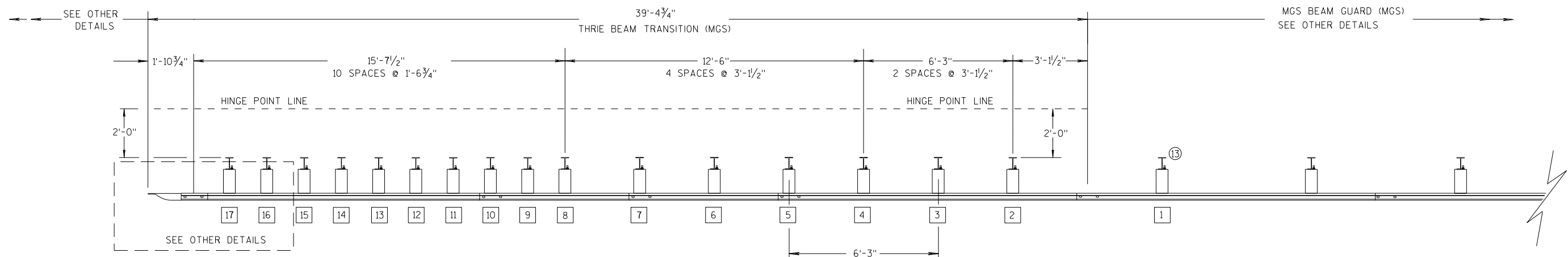
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

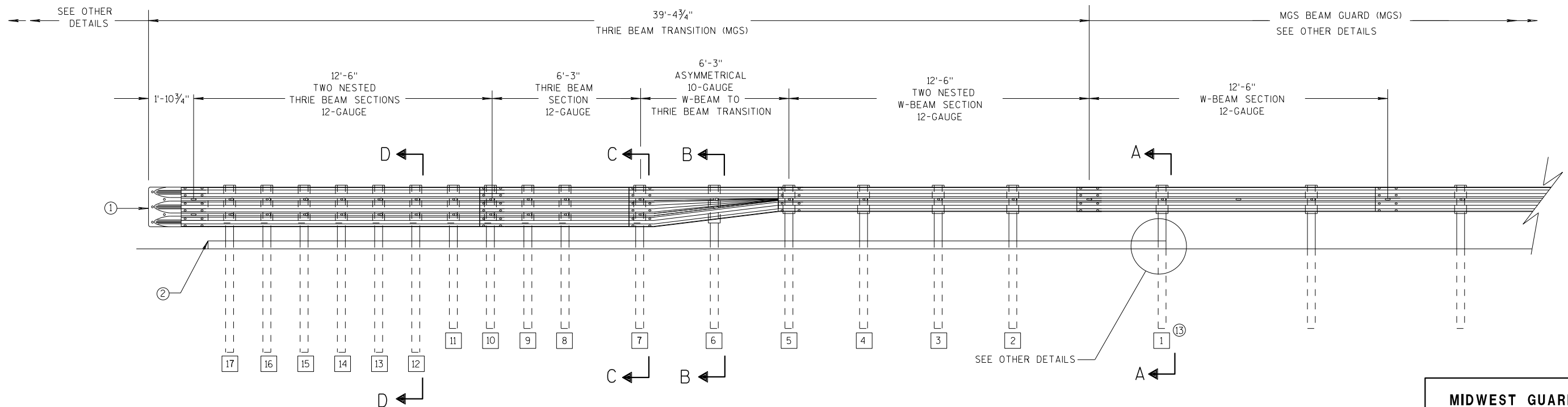
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

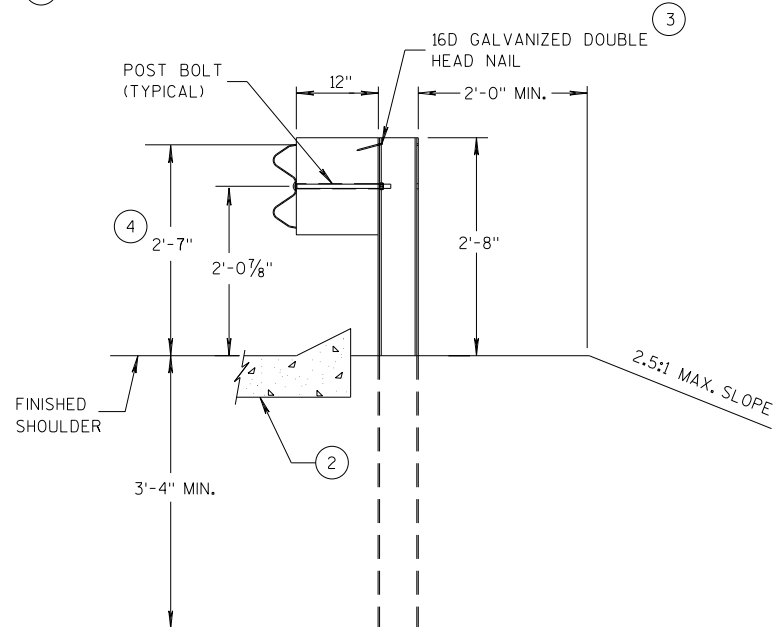
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

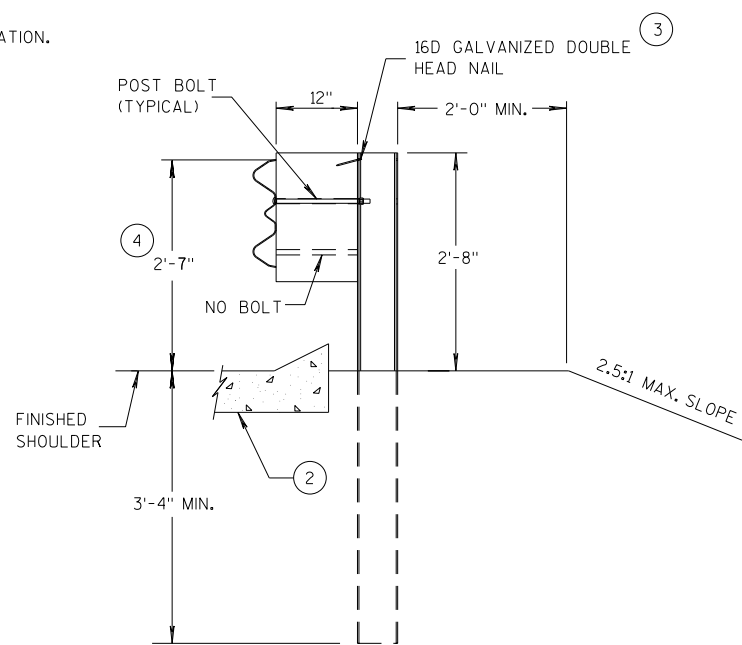
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

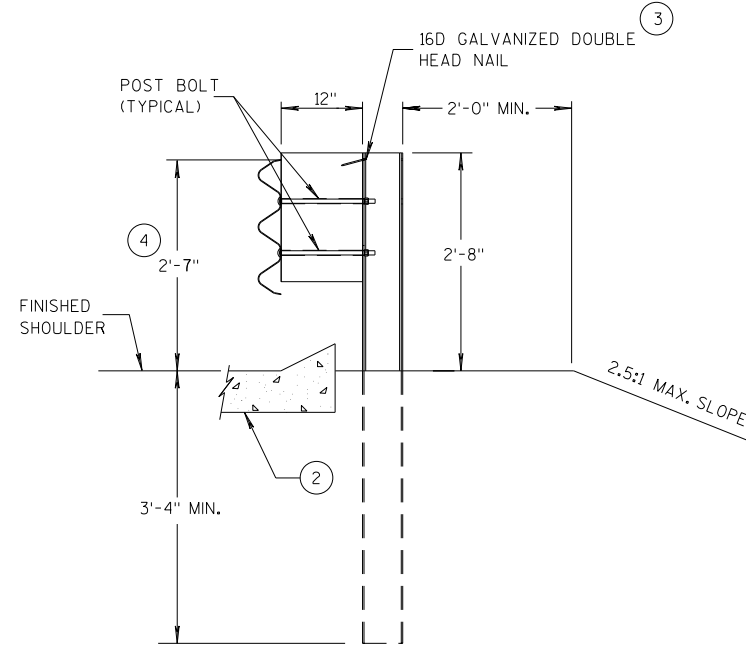
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



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



**SECTION B-B
POST 6**



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

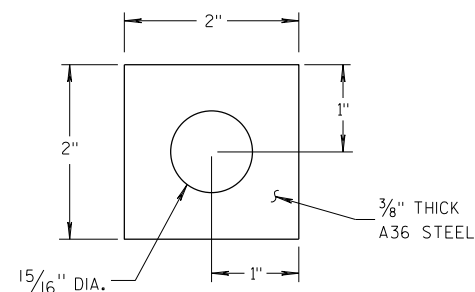
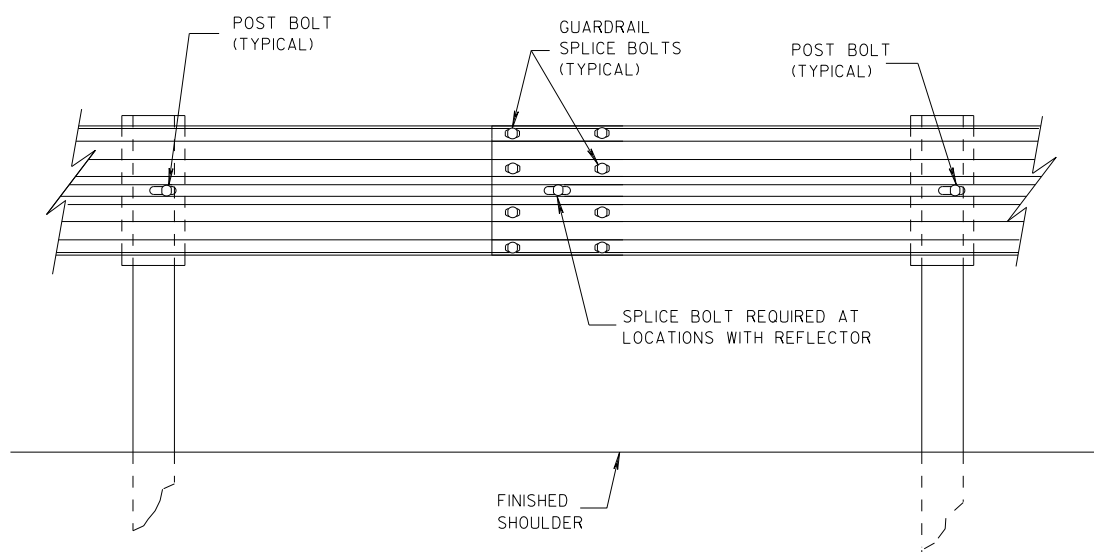
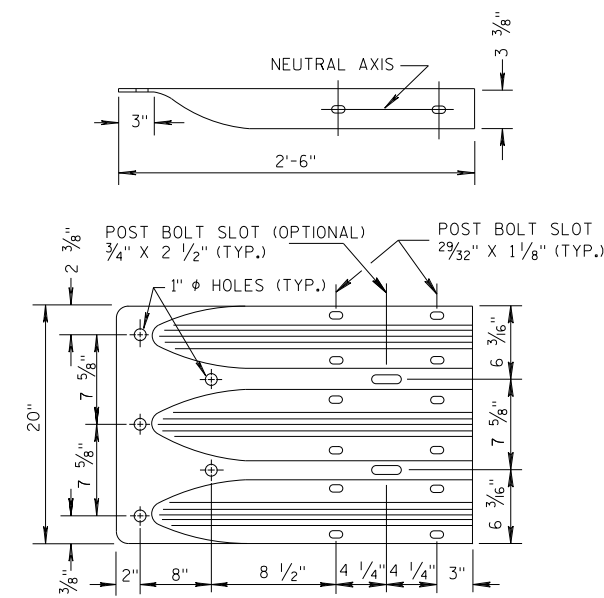


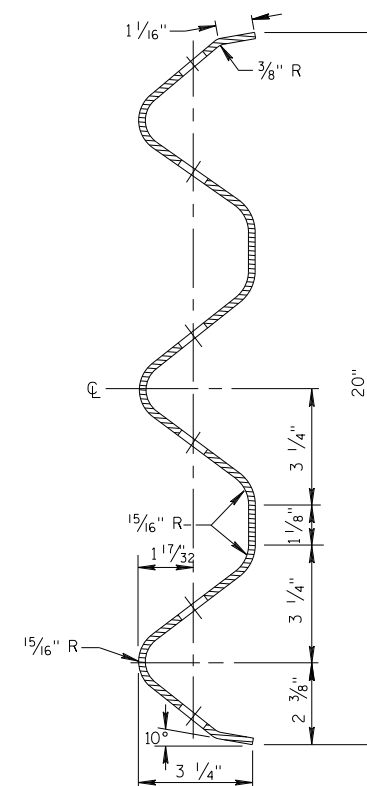
PLATE WASHER DETAIL



SPLICE DETAIL



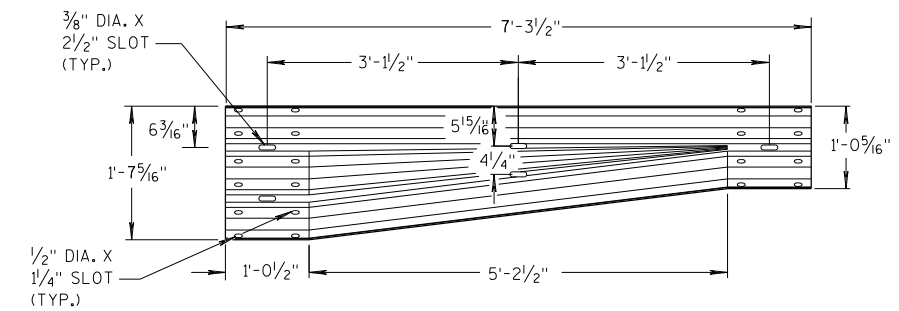
**THRIE BEAM
TERMINAL CONNECTOR**



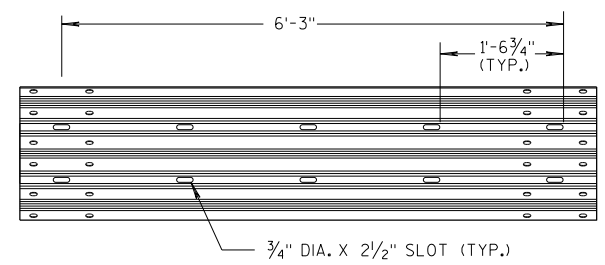
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

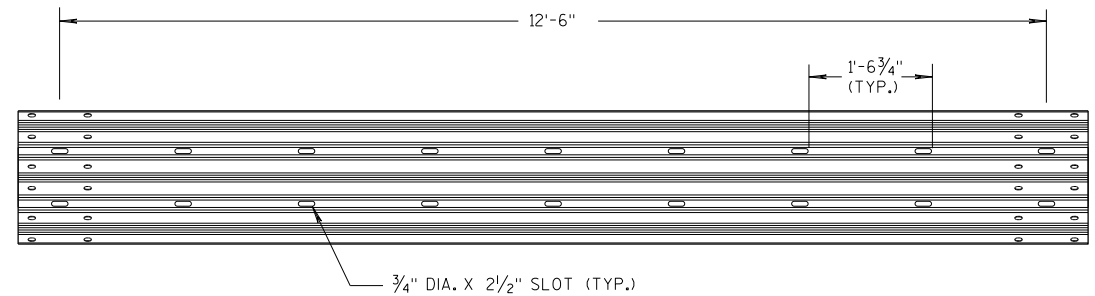
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



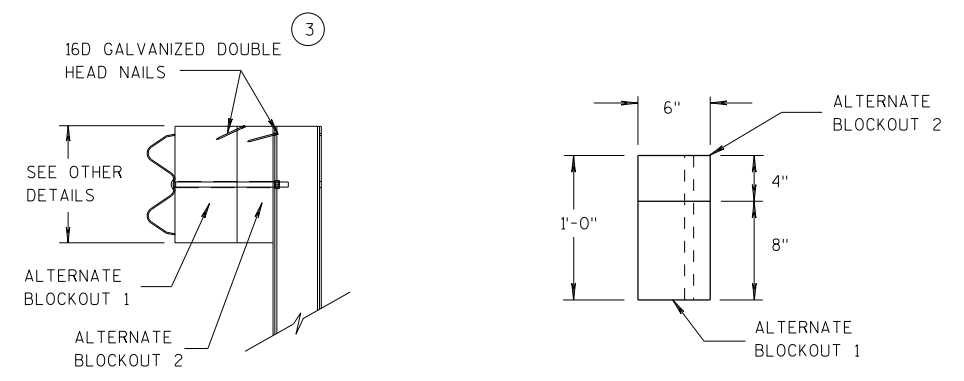
W-BEAM TO THRIE BEAM TRANSITION SECTION



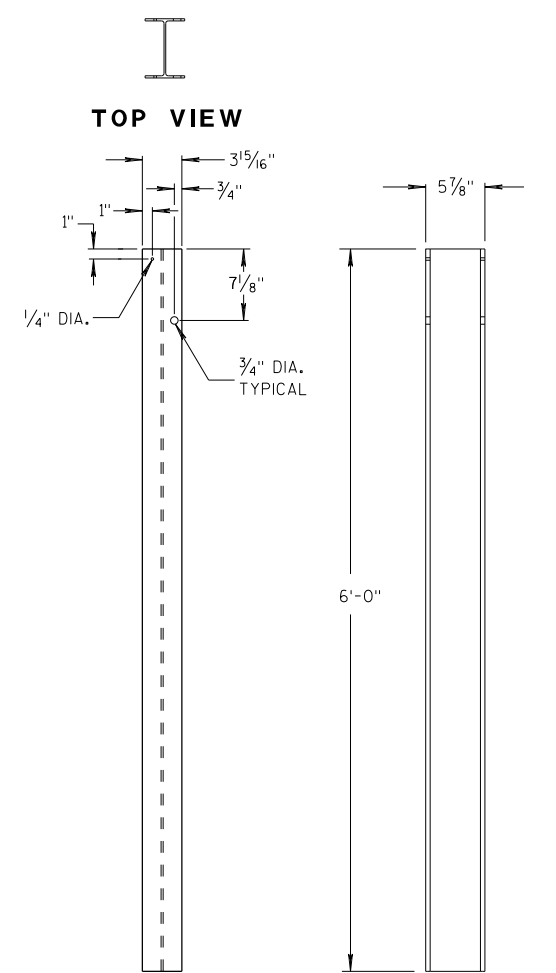
6'-3\"/>



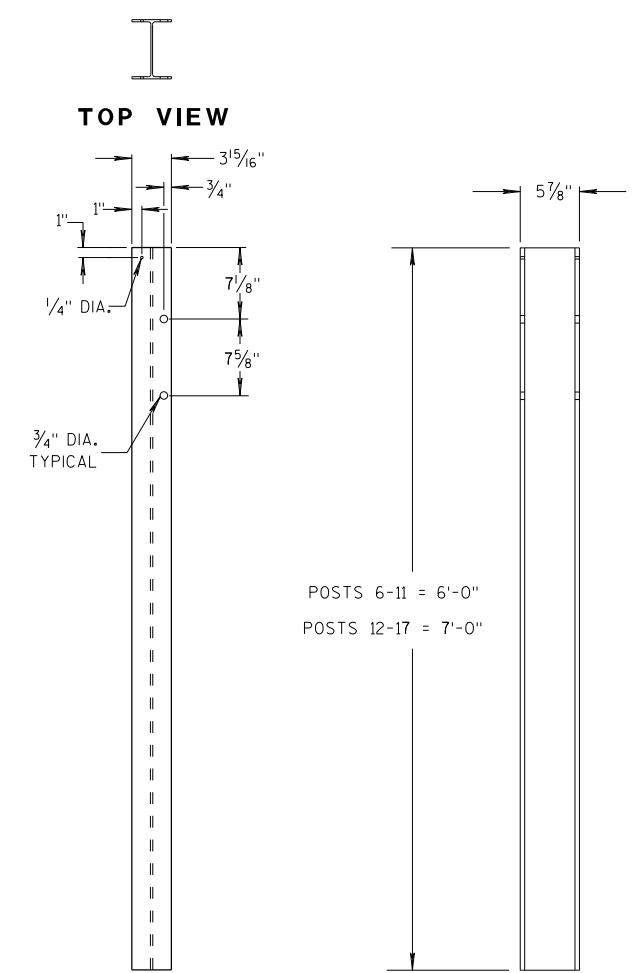
12'-6\"/>



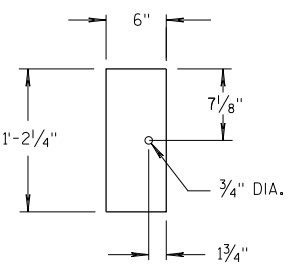
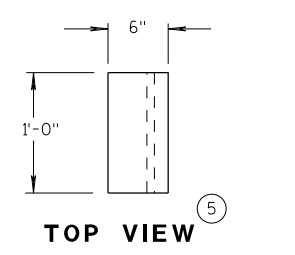
ALTERNATE WOOD BLOCKOUT DETAIL



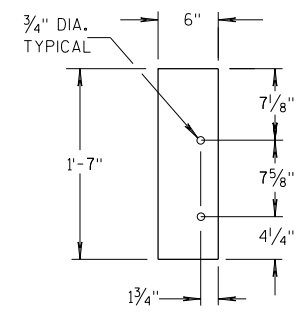
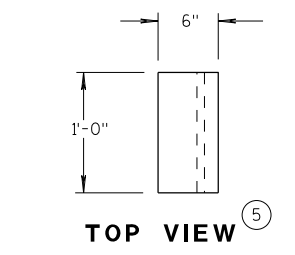
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

GENERAL NOTES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

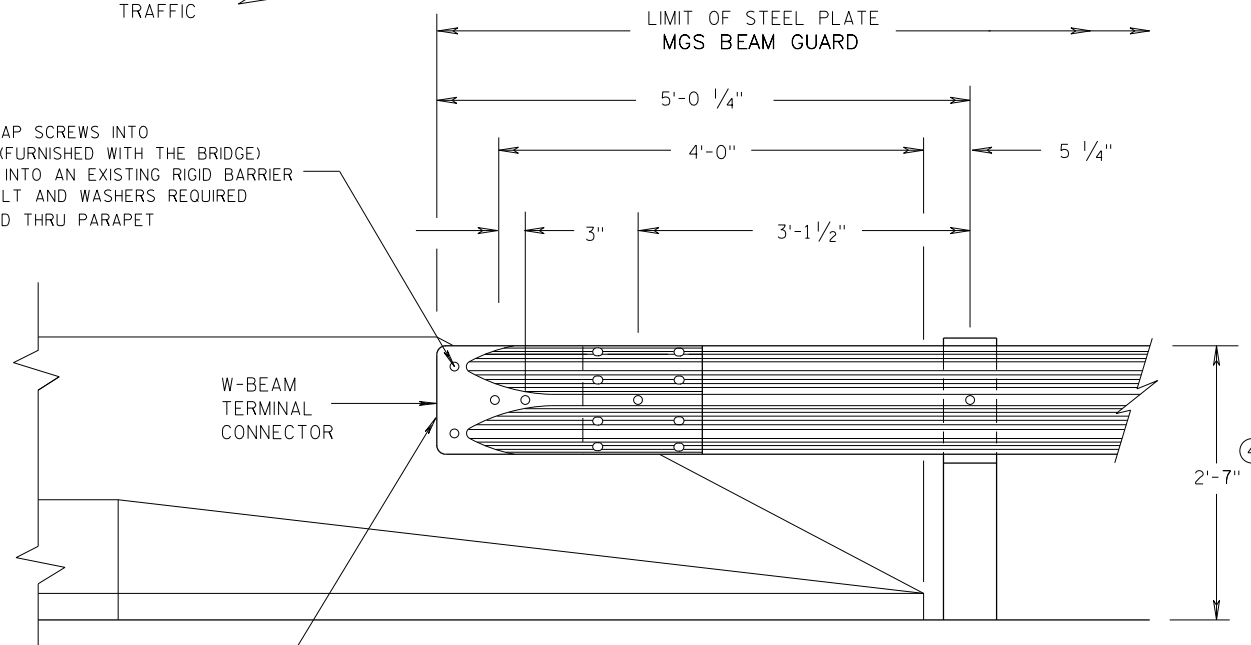
6

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

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

ONE WAY
TRAFFIC

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(4 REQ'D.)



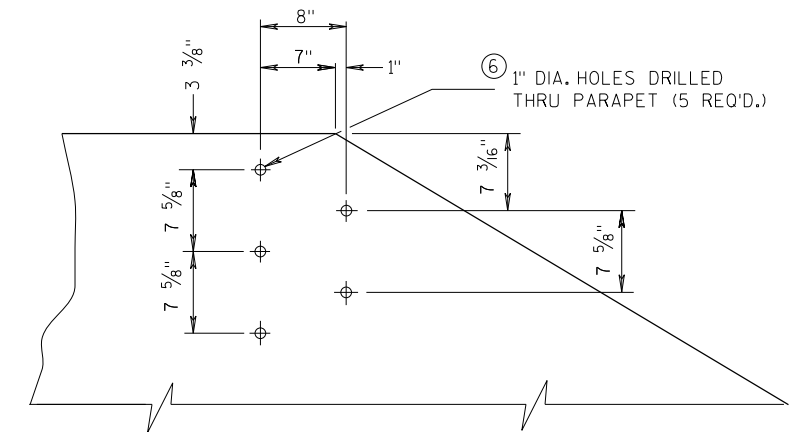
FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

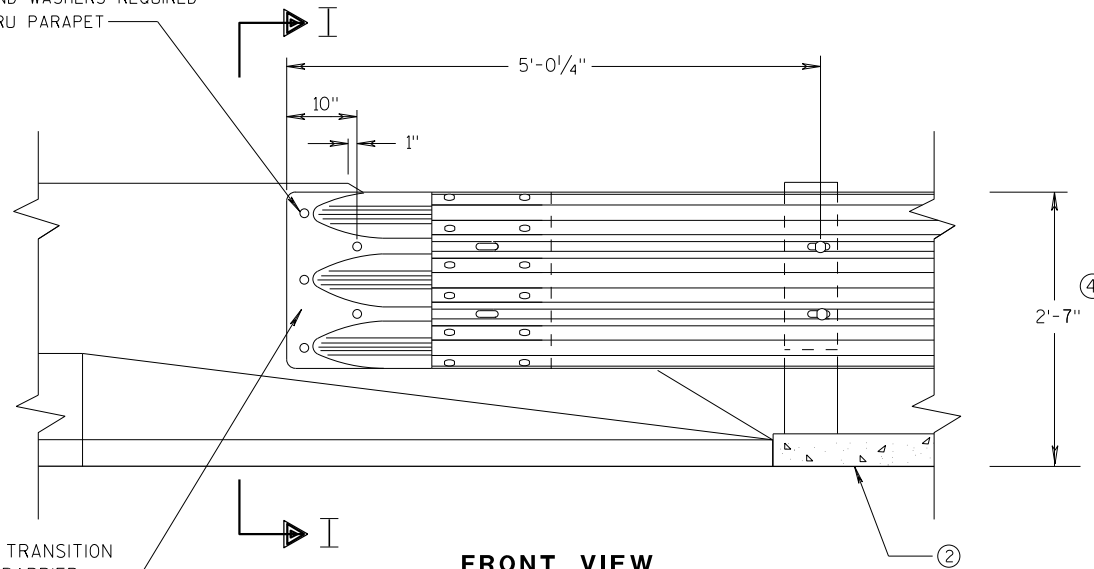
GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



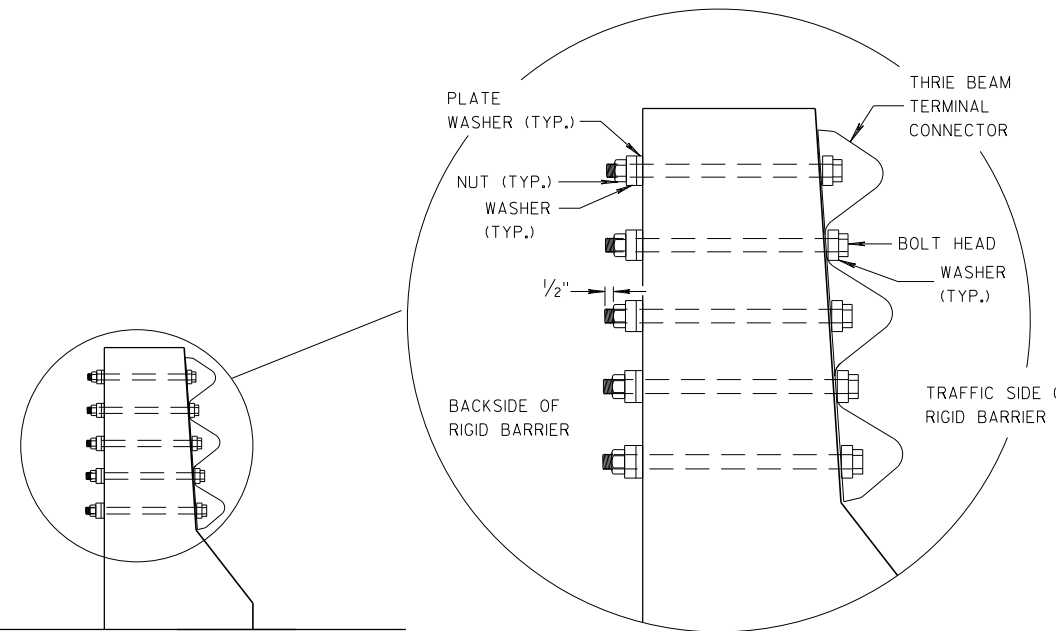
**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



SECTION I-I

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

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

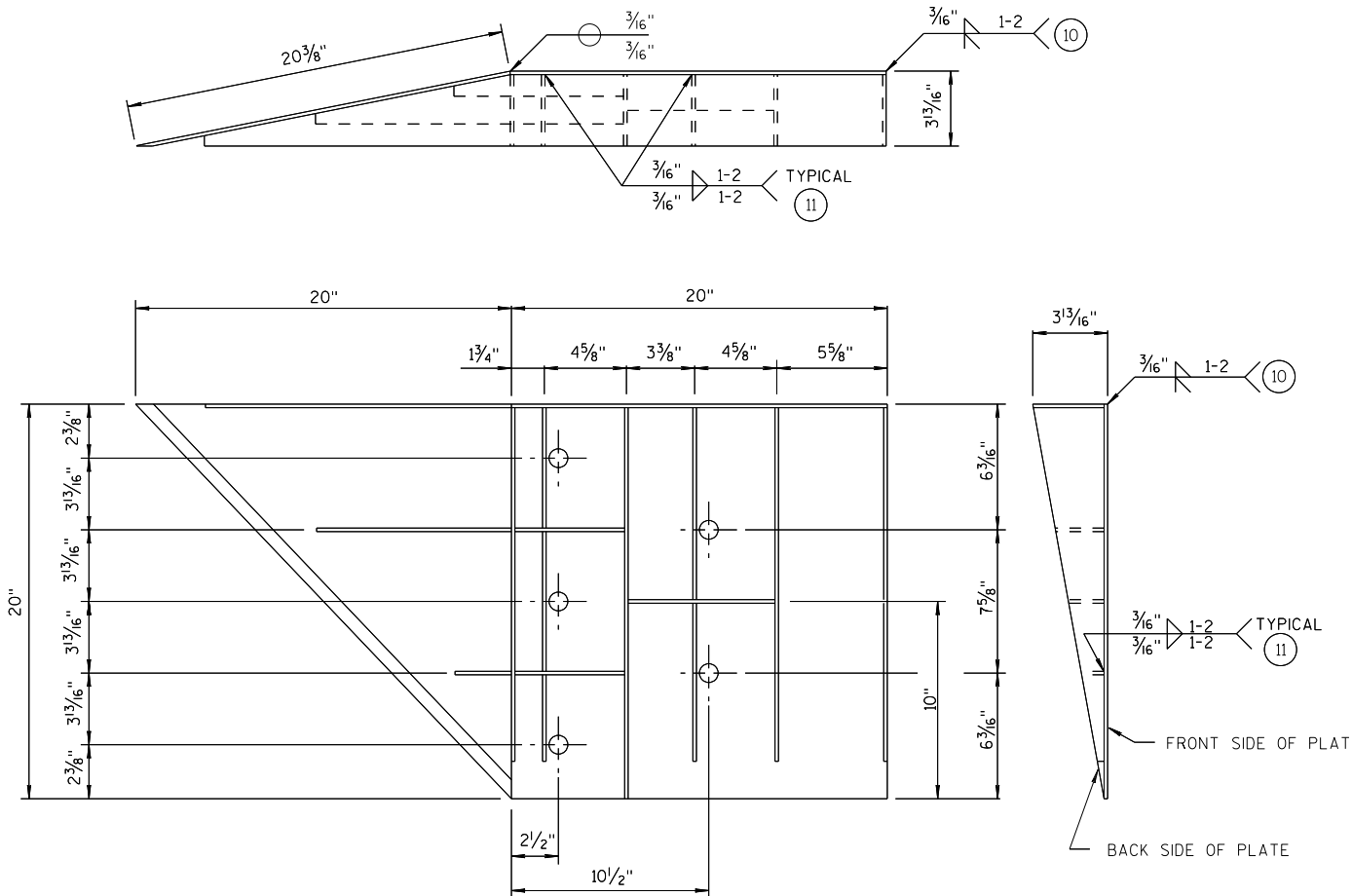
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

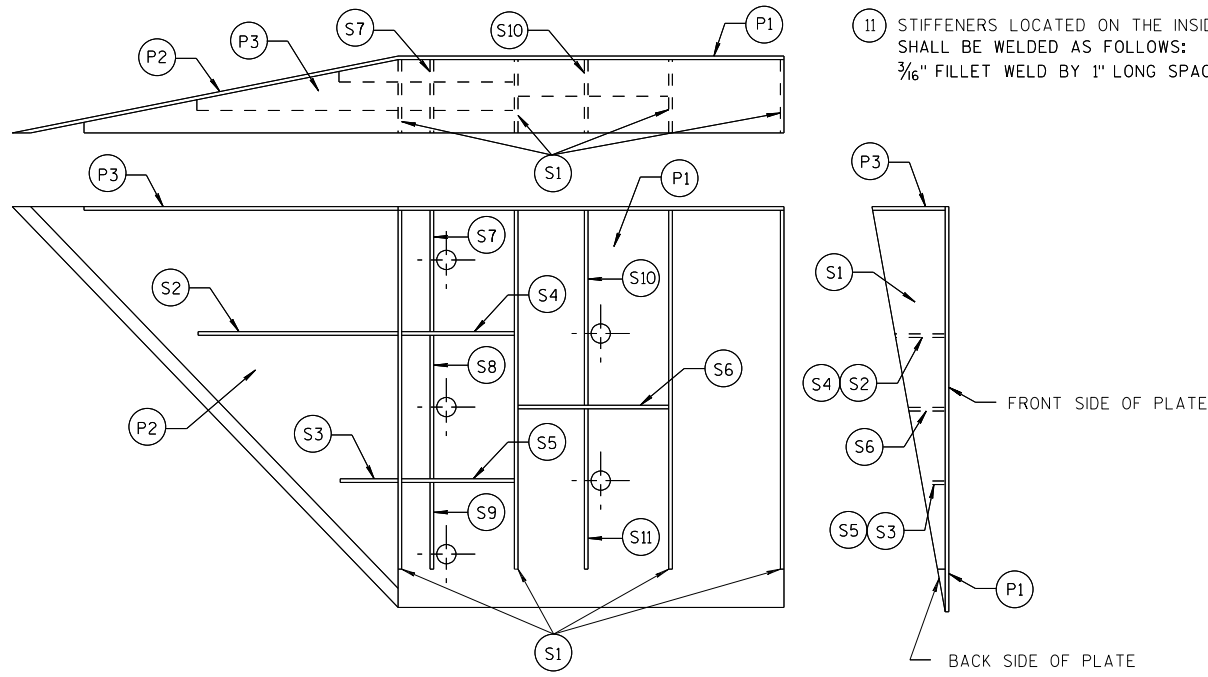


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 1/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 3/8" x 9 1 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

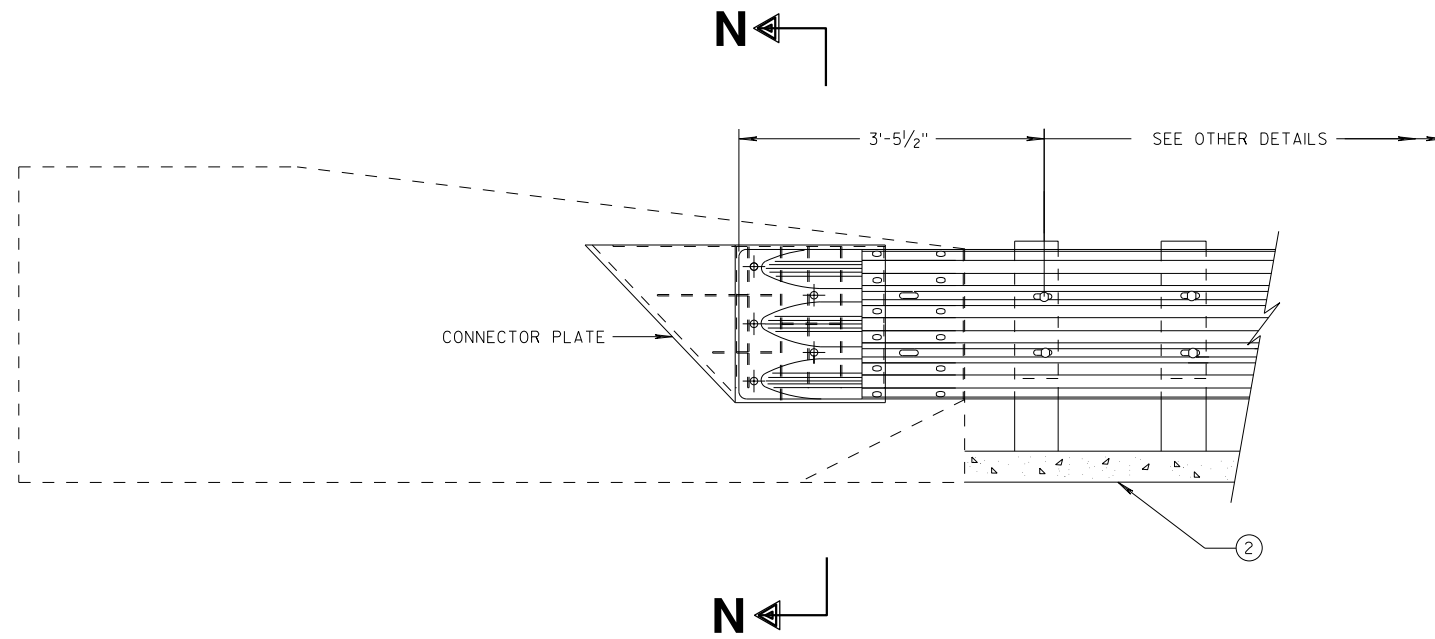
APPROVED: _____ /S/ Rodney Taylor
DATE: 7/2018 ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

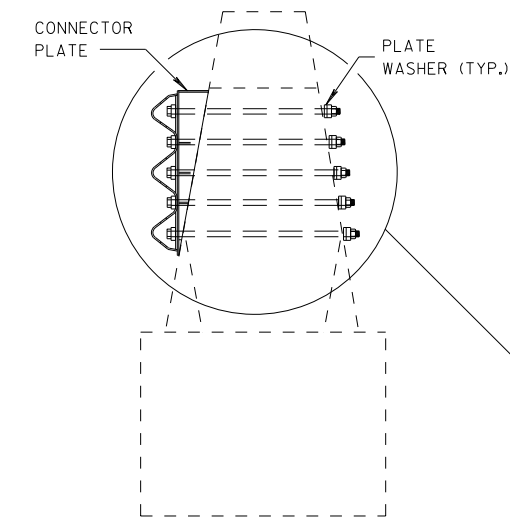
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

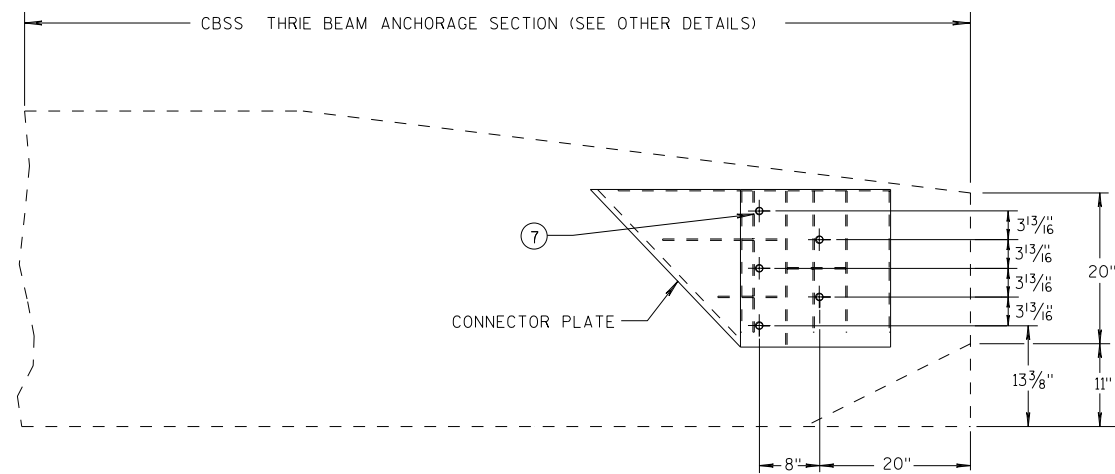
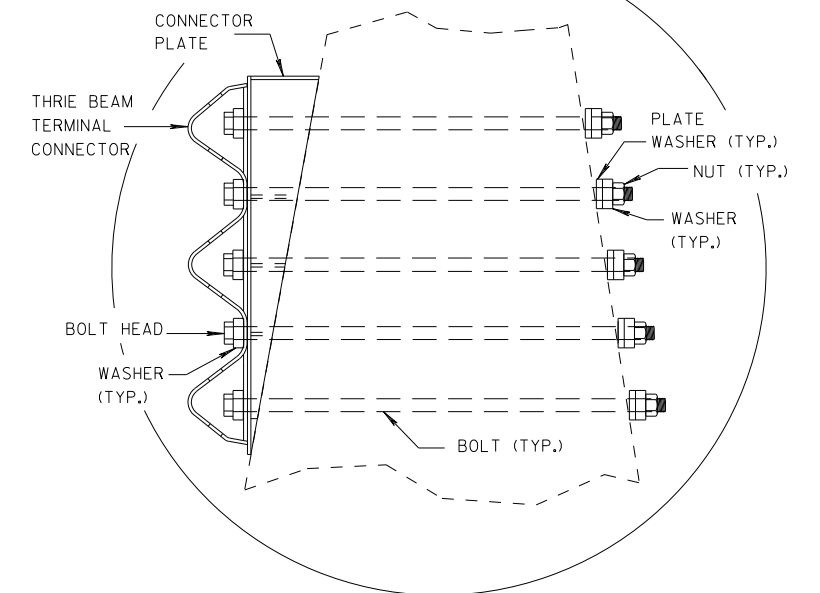
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

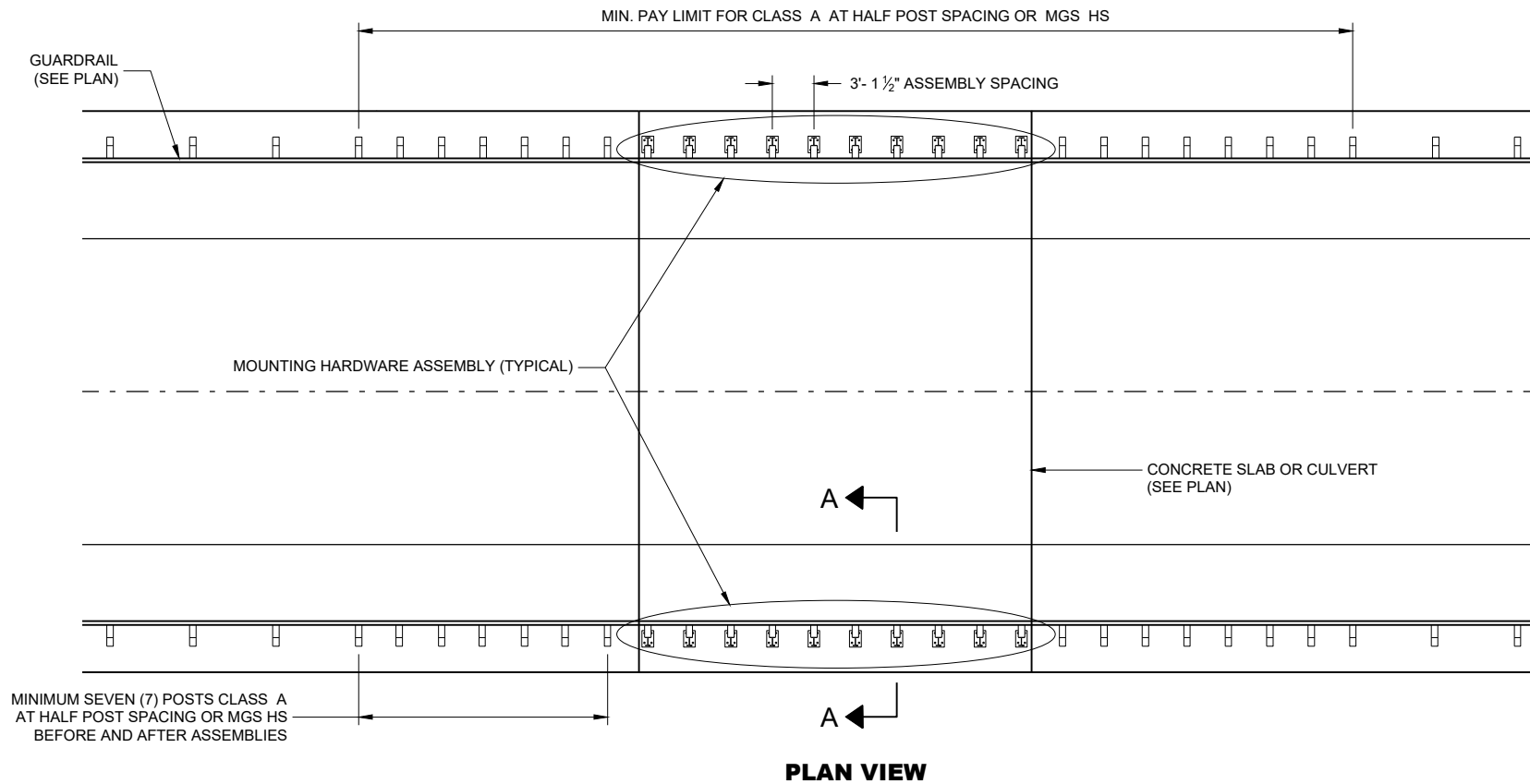


SINGLE SLOPE CONNECTION PLATE PLACEMENT

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

HOLES DRILLED INTO CONCRETE SLAB OR CULVERT ARE 1 1/8" DIAMETER.

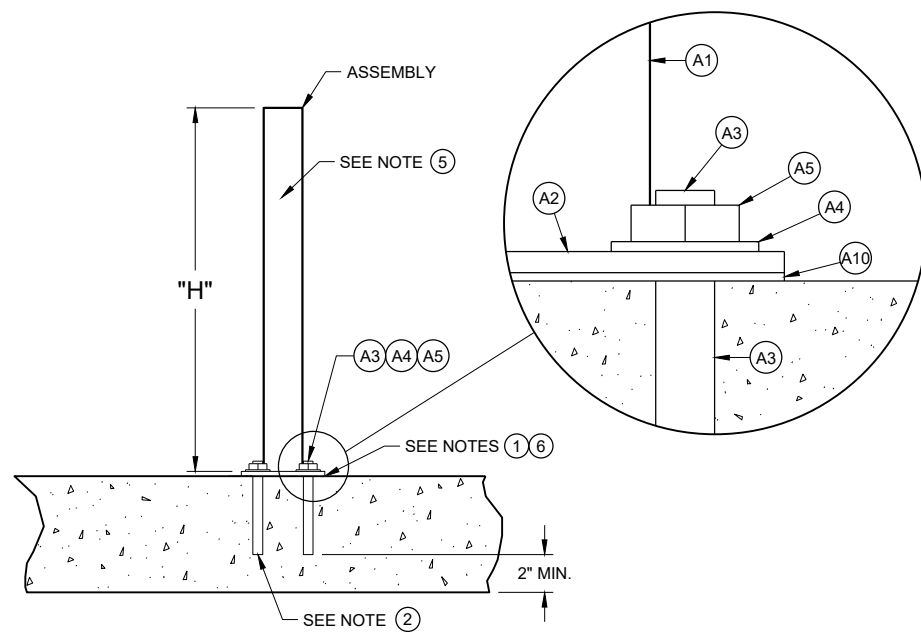
POST BASE PLATE (AND BOTTOM PLATES IF USED) SHALL BE FLAT WITH ALL SURFACES SMOOTH, AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS. CUT BOTTOM OF POST SO THAT POST WILL BE VERTICAL WHEN POST ASSEMBLY IS PLACED ON TOP OF CONCRETE. HEX BOLTS AND THREADED RODS ARE TO BE PLACED PERPENDICULAR TO THE BASE PLATE.

"H" DIMENSION WILL VARY. SEE PLAN FOR "H" DIMENSION. CONTRACTOR HAS OPTION OF INSTALLING POSTS THAT ARE TALLER THAN "H" DIMENSION AND CUT POSTS TO PROPER "H" DIMENSION IN THE FIELD. IF ELECTING TO FIELD CUT POSTS, DRILL HOLES AT APPROPRIATE LOCATIONS AND APPLY GALVANIZATION.

GALVANIZE STEEL COMPONENTS AFTER FABRICATION PER SECTION 614 OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

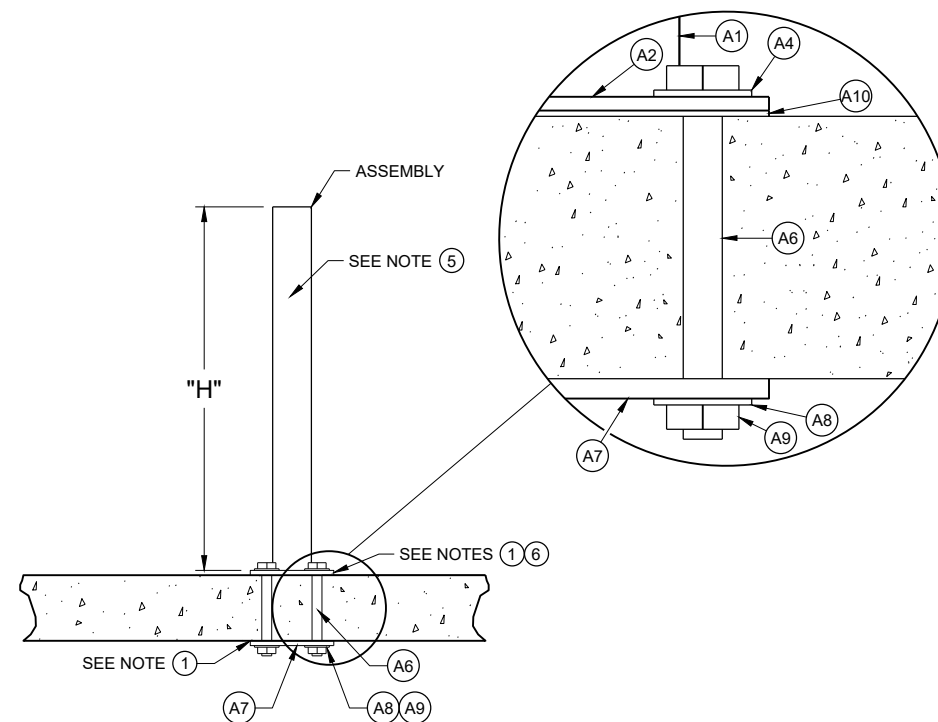
INSTALL 1 NUT AND 1 WASHER WHERE APPLICABLE. PROVIDE SUFFICIENT LENGTH OF BOLT OR THREADED ROD TO ALLOW FOR 1/4" TO 1/2" OF THREAD TO BEYOND THE NUT.

- ① PLACE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER ON THE BOTTOM (A2) AND IN DRILL HOLES FOR BOLT THROUGH OPTION.
- ② BOND STRENGTH OF ADHESIVE IS 1,305 PSI OR GREATER WITH A MINIMUM EMBEDMENT DEPTH OF 8-INCHES. IF MINIMUM EMBEDMENT CANNOT BE ACHIEVED, BOLT THROUGH STRUCTURE.
- ③ USE GAS-METAL ARC WELDING (GMAW) PROCESS WITH ER70S-3 WELDING WIRE AND ARGON-OXYGEN OR CO₂ COVER GAS.
- ④ OTHER COMPONENT OF BARRIER SYSTEM NOT SHOWN. SEE SDD 14B15 OR SDD 14B42 FOR MORE DETAILS.
- ⑤ HOLES TO MOUNT BEAM GUARD AND BLOCK NOT SHOWN ON DRAWINGS. SEE SDD 14B15 OR SDD 14B42 FOR MORE DETAILS.
- ⑥ ADD AND ADJUST SHIM PLATES AS NECESSARY TO INSTALL POST PLUMB. SEE (A10) FOR DETAIL.



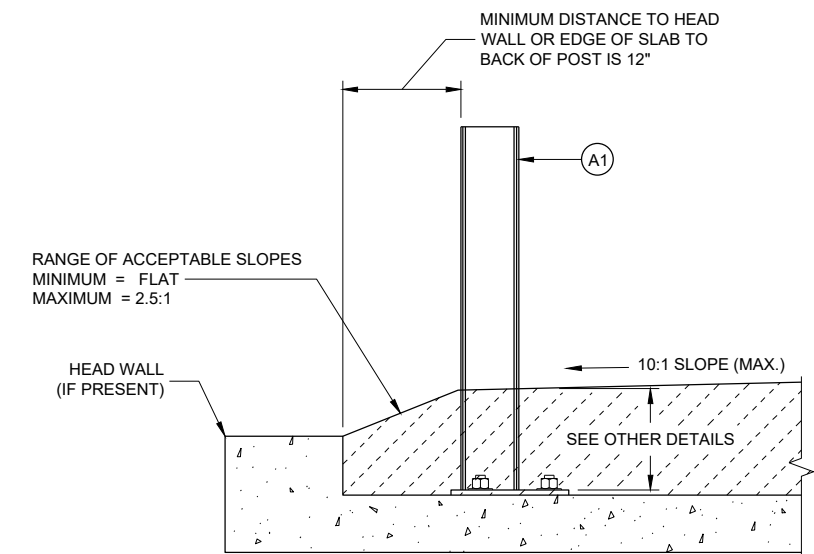
ADHESIVE ANCHOR DETAIL

SEE NOTE ④



BOLT THROUGH DETAIL

SEE NOTE ④

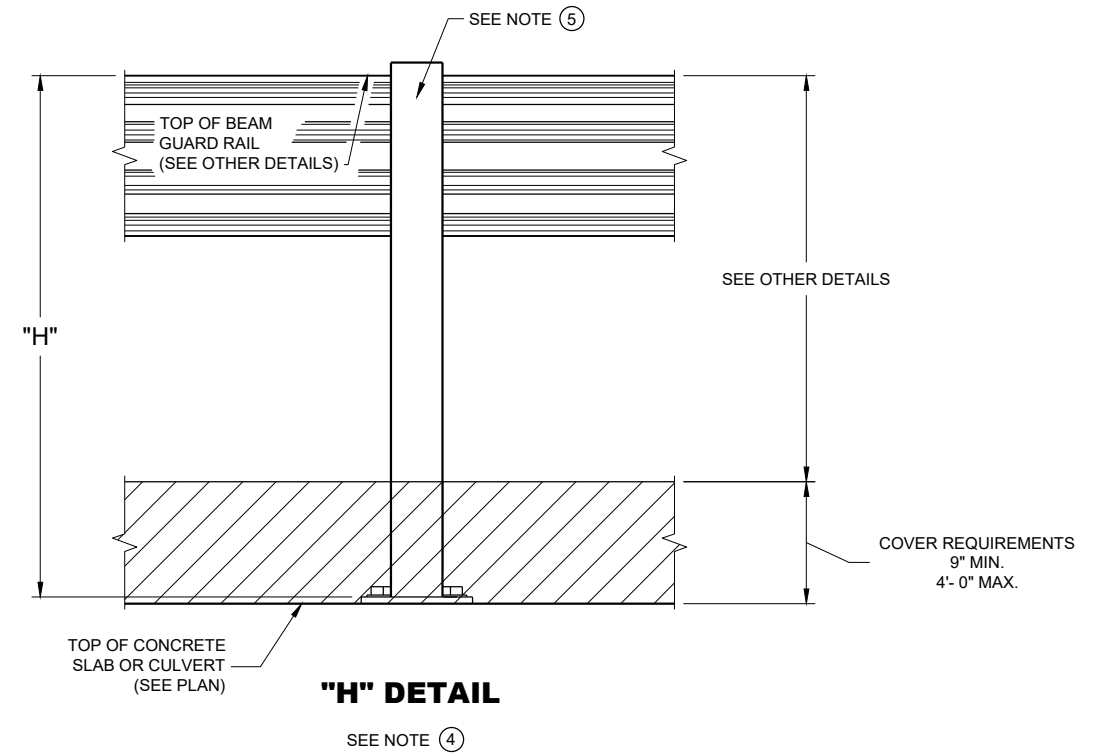
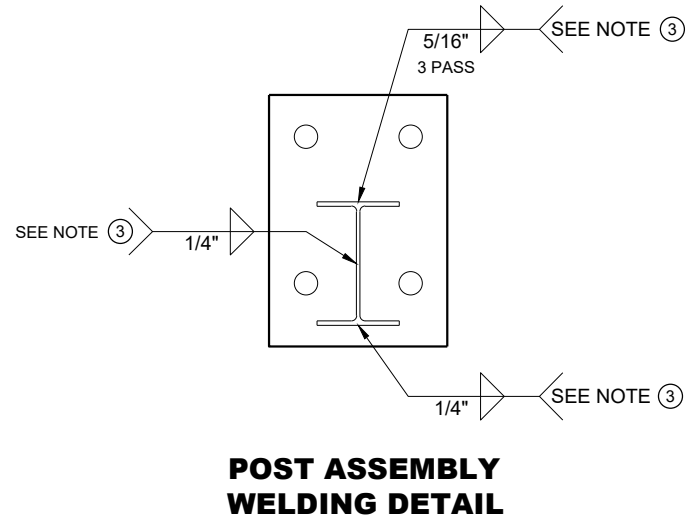
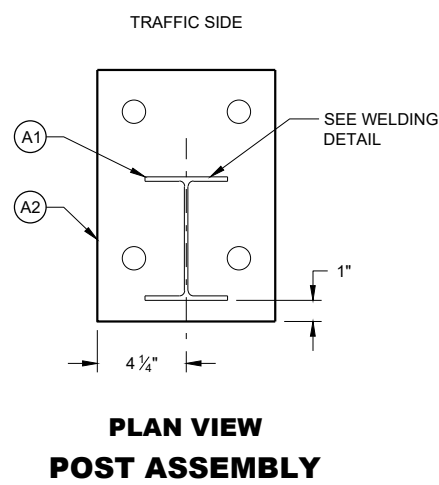
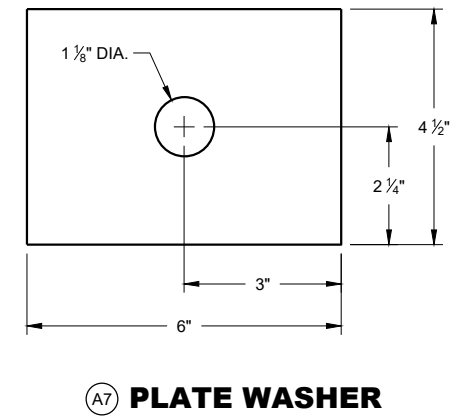
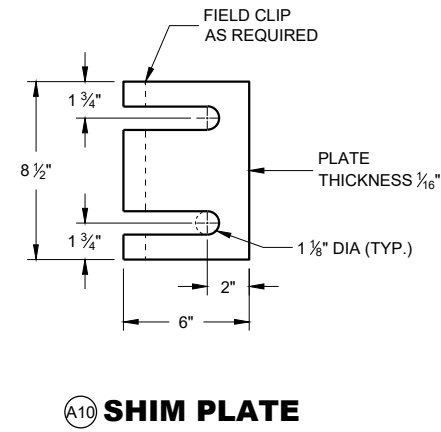
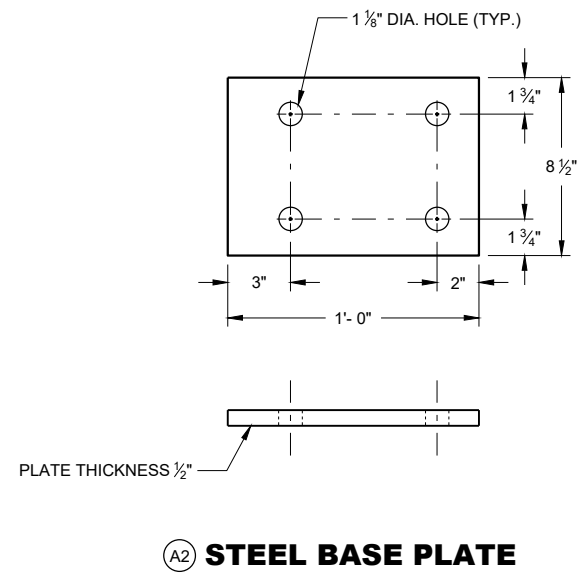
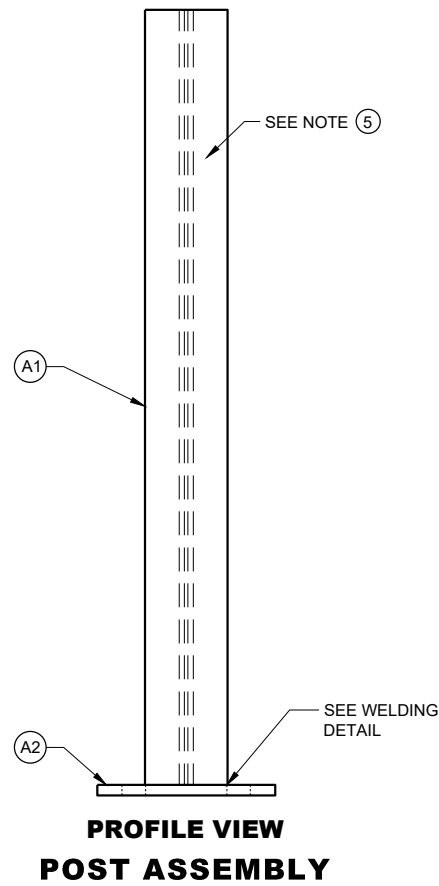


SECTION A - A

SEE NOTE ④

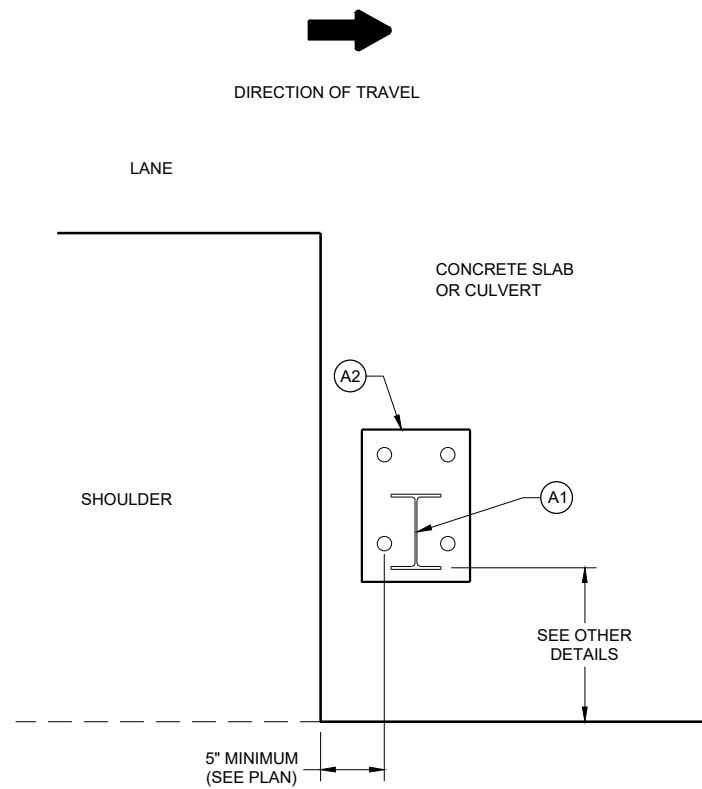
**ANCHOR POST ASSEMBLY
TOP MOUNTED**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



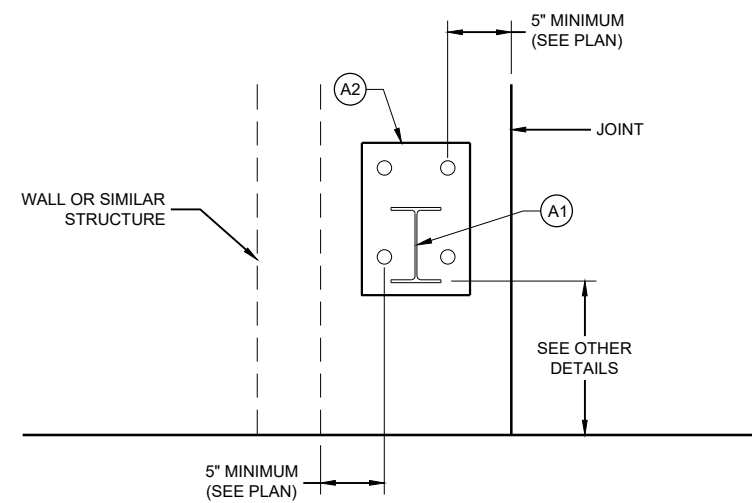
**ANCHOR POST ASSEMBLY
TOP MOUNTED**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



EDGE PLACEMENT

SEE NOTE ④



OBSTRUCTION AND JOINT PLACEMENT

SEE NOTE ④

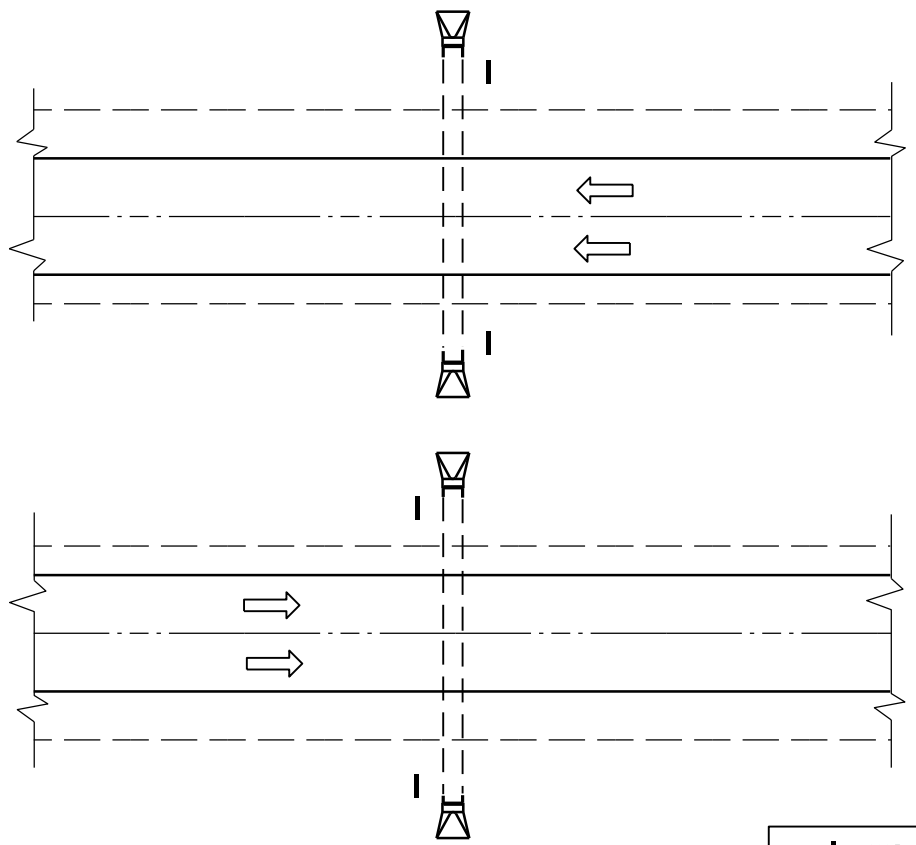
BILL OF MATERIALS LIST

ITEM	DESCRIPTION	MATERIAL SPECIFICATIONS	NOTES
(A1)	W6x9 or W6x8.5	ASTM A992 50 KSI MIN., ASTM A709 GRADE 50, OR ASTM A36	SEE SDD 14B15 OR 14B42 LENGTH WILL VARY
(A2)	STEEL BASE PLATE	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	
(A3)	1" DIA. THREADED ROD	SAE J429 GRADE 2, ASTM A307 GRADE C, OR ASTM F1554 GRADE 36	LENGTH WILL VARY
(A4)	1" DIA. FLAT WASHER	ASTM F844	
(A5)	1" HEX NUT	ASTM A563A	
(A6)	1" DIA. HEX BOLT	ASTM A307	LENGTH WILL VARY
(A7)	PLATE WASHER	ASTM A992 50 KSI MIN., ASTM A529 GRADE 50, ASTM A572 GRADE 50, OR ASTM A36	
(A8)	1" DIA. FLAT WASHER	ASTM F844	
(A9)	1" DIA. HEX NUT	ASTM A563A	
(A10)	SHIM PLATE	SEE (A2)	4 MAX PER POST

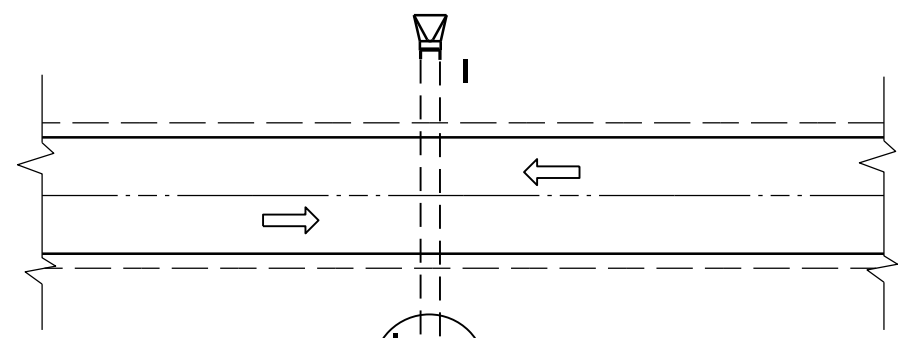
**ANCHOR POST ASSEMBLY
TOP MOUNTED**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

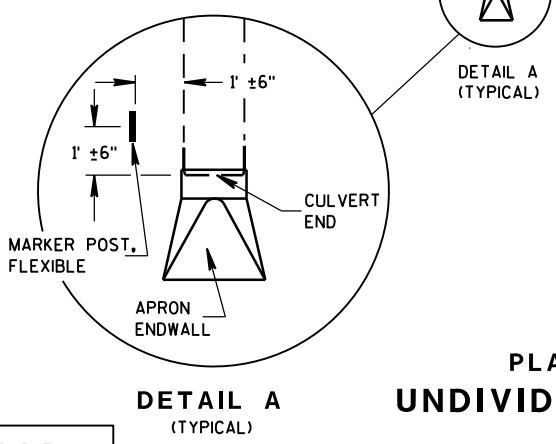
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER



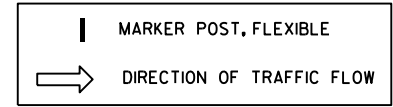
PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

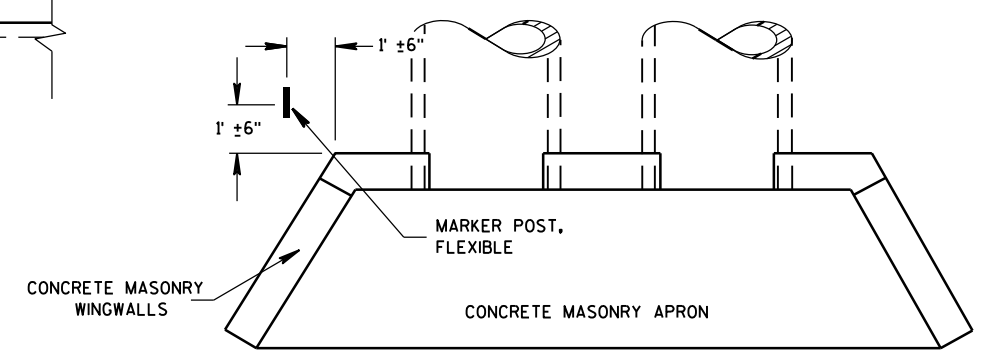


DETAIL A
(TYPICAL)



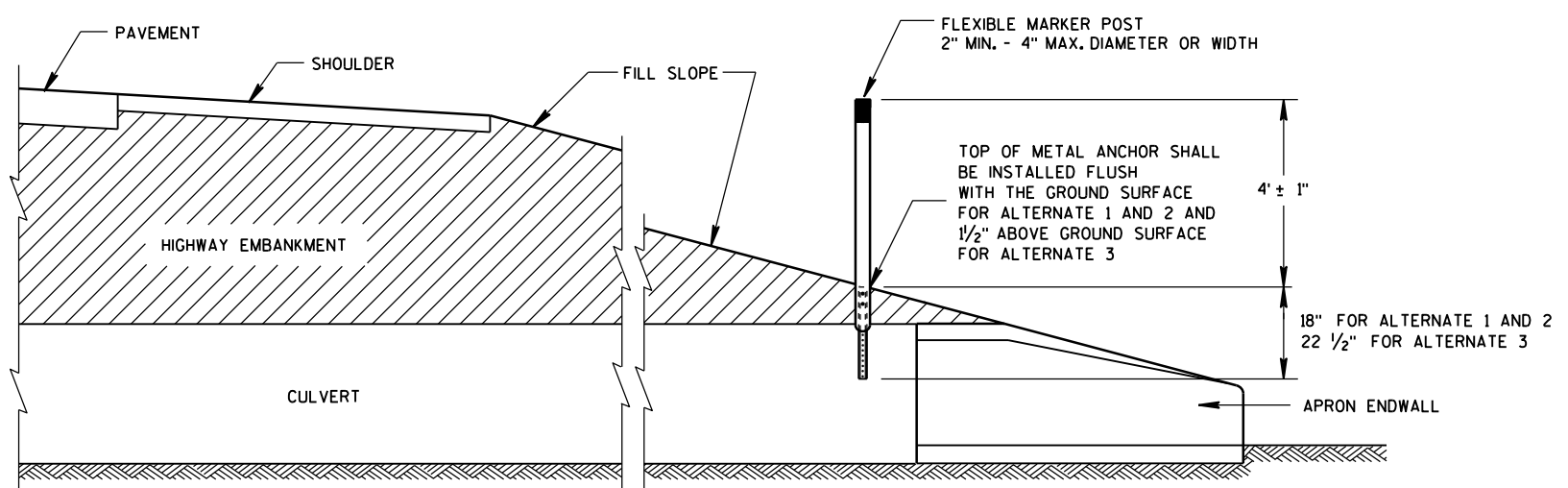
GENERAL NOTES

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**

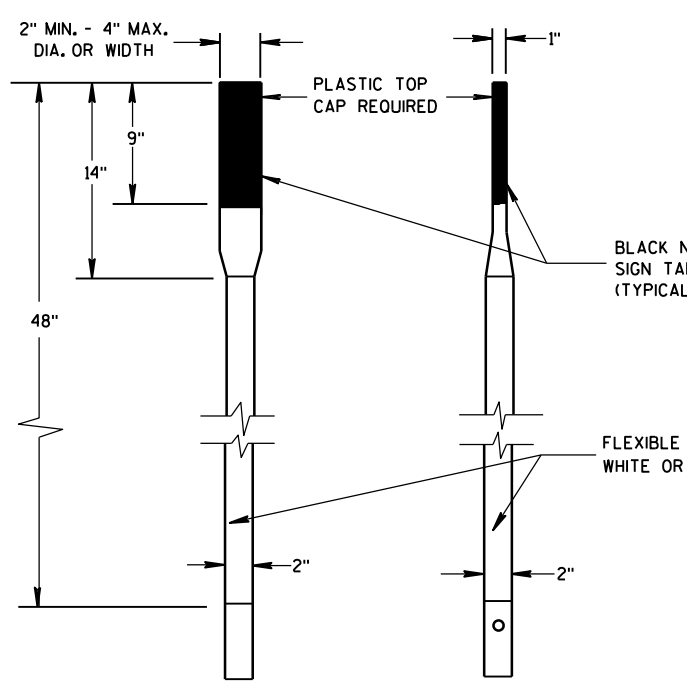
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

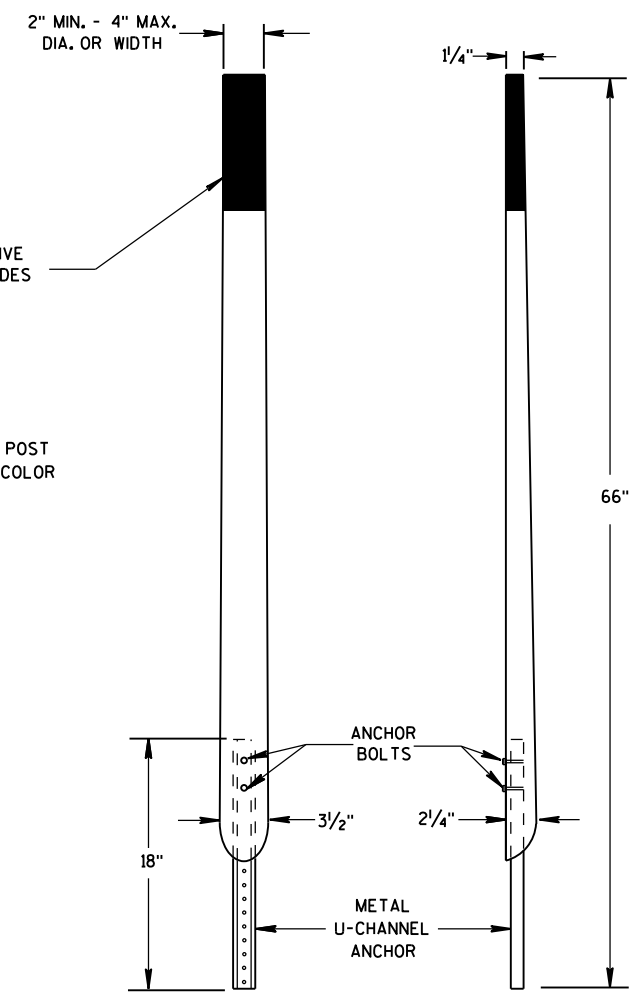
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S.D.D. 15 A 3-2a

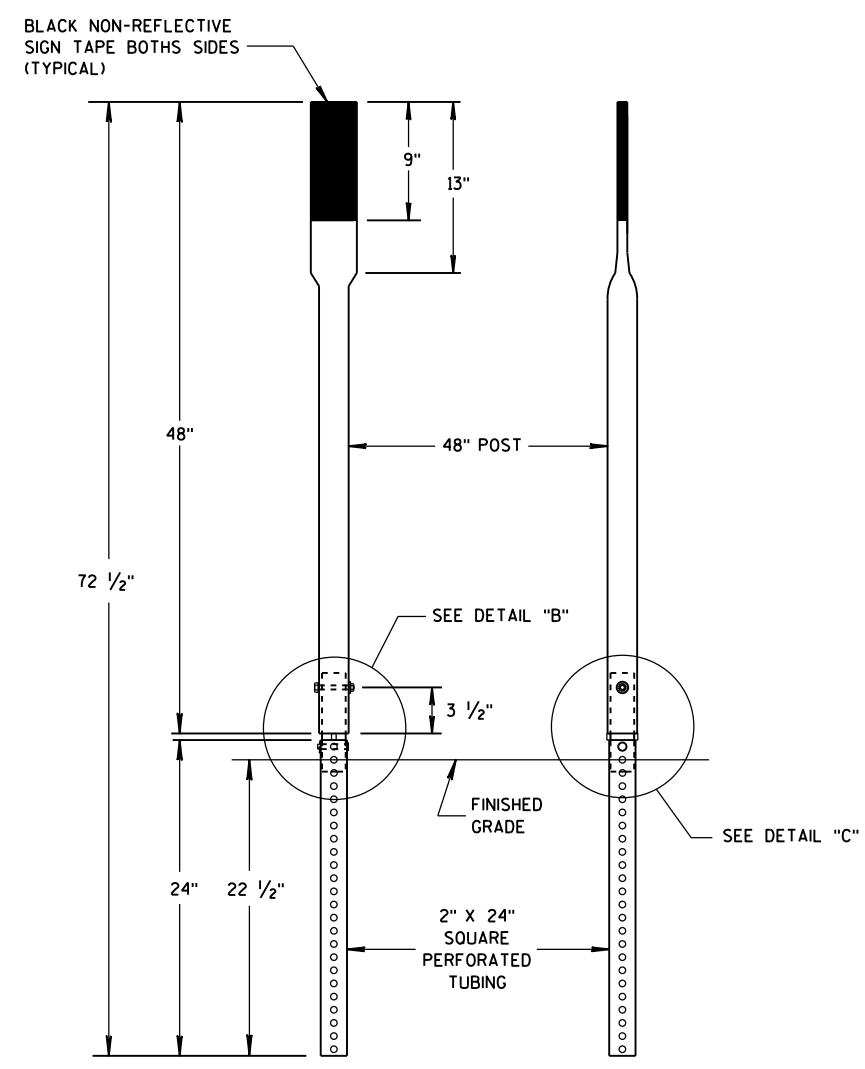
S.D.D. 15 A 3-2a



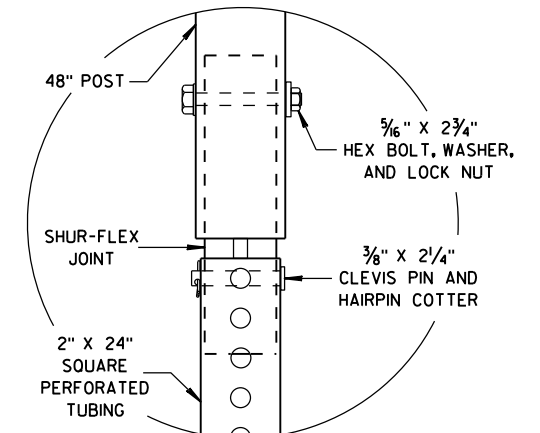
FRONT VIEW SIDE VIEW
ALTERNATE 1



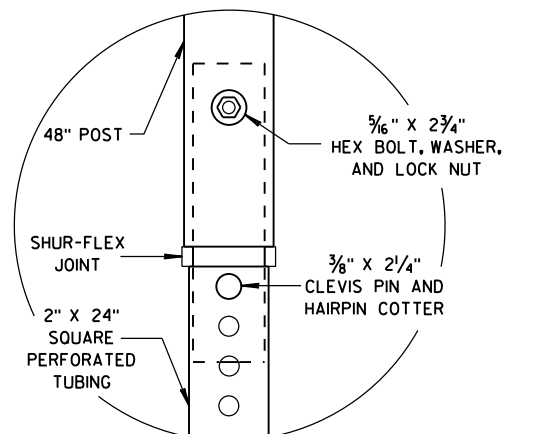
FRONT VIEW SIDE VIEW
ALTERNATE 2



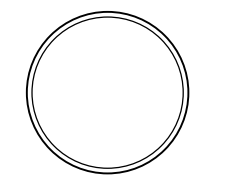
FRONT VIEW SIDE VIEW
ALTERNATE 3



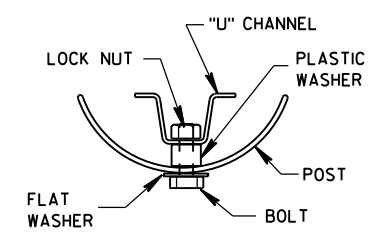
DETAIL B



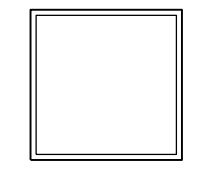
DETAIL C



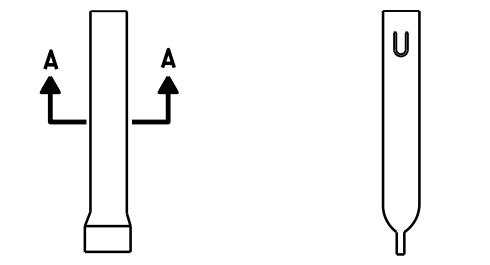
SECTION A-A



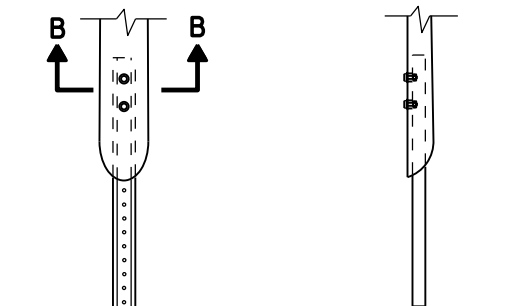
SECTION B-B



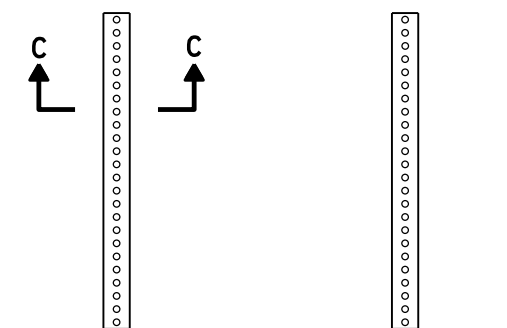
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 1



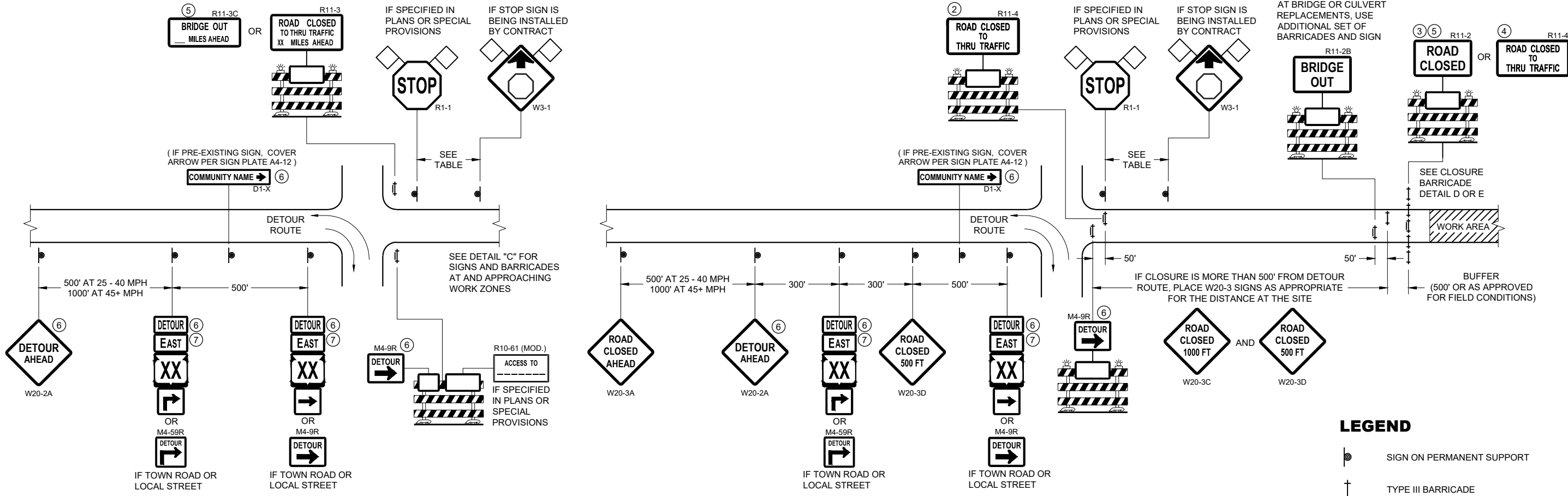
FRONT VIEW SIDE VIEW
ALTERNATE 2



FRONT VIEW SIDE VIEW
ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

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**

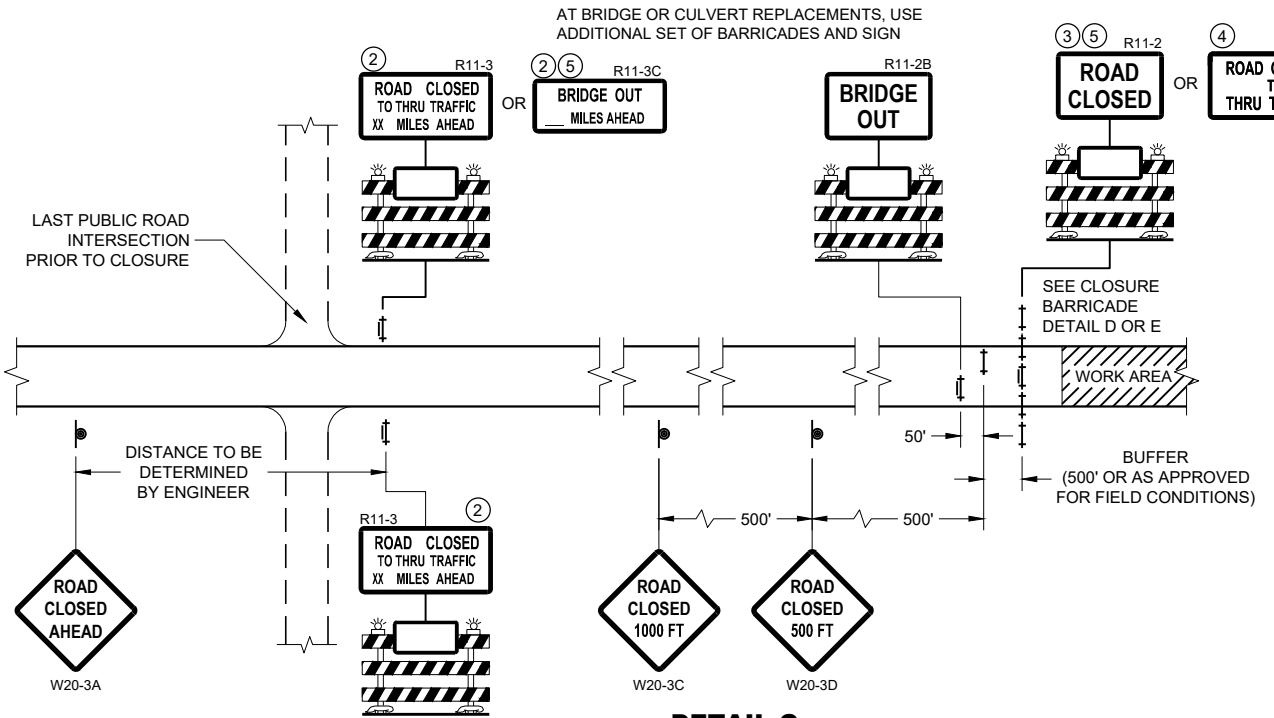
WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**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)
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
- M05 - 1 OR M06 - 1



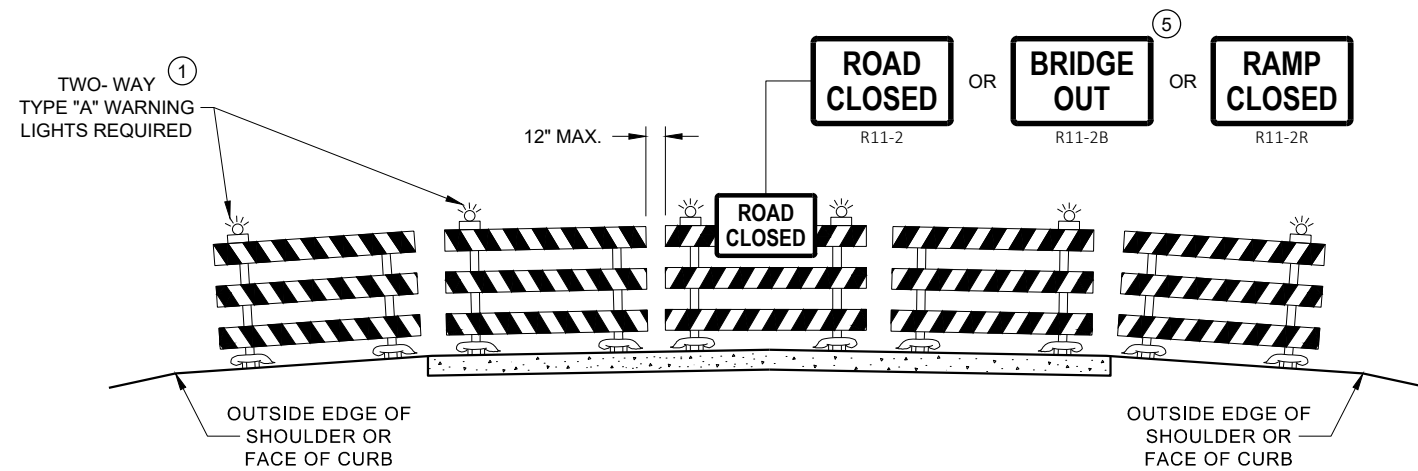
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

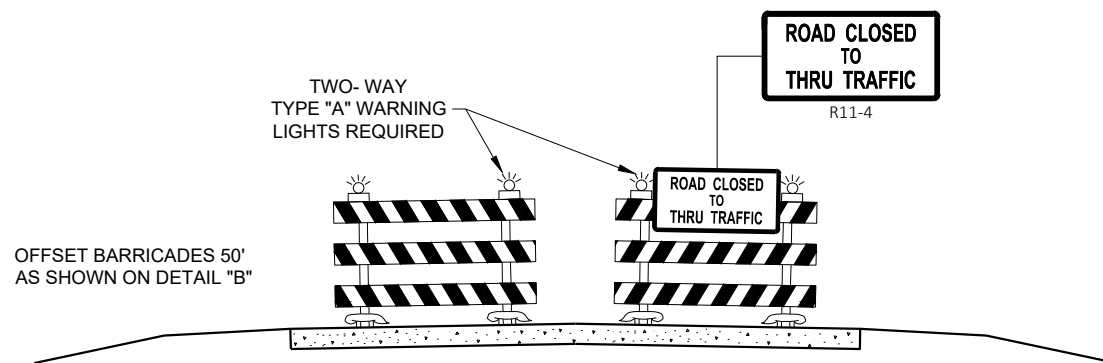
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
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"

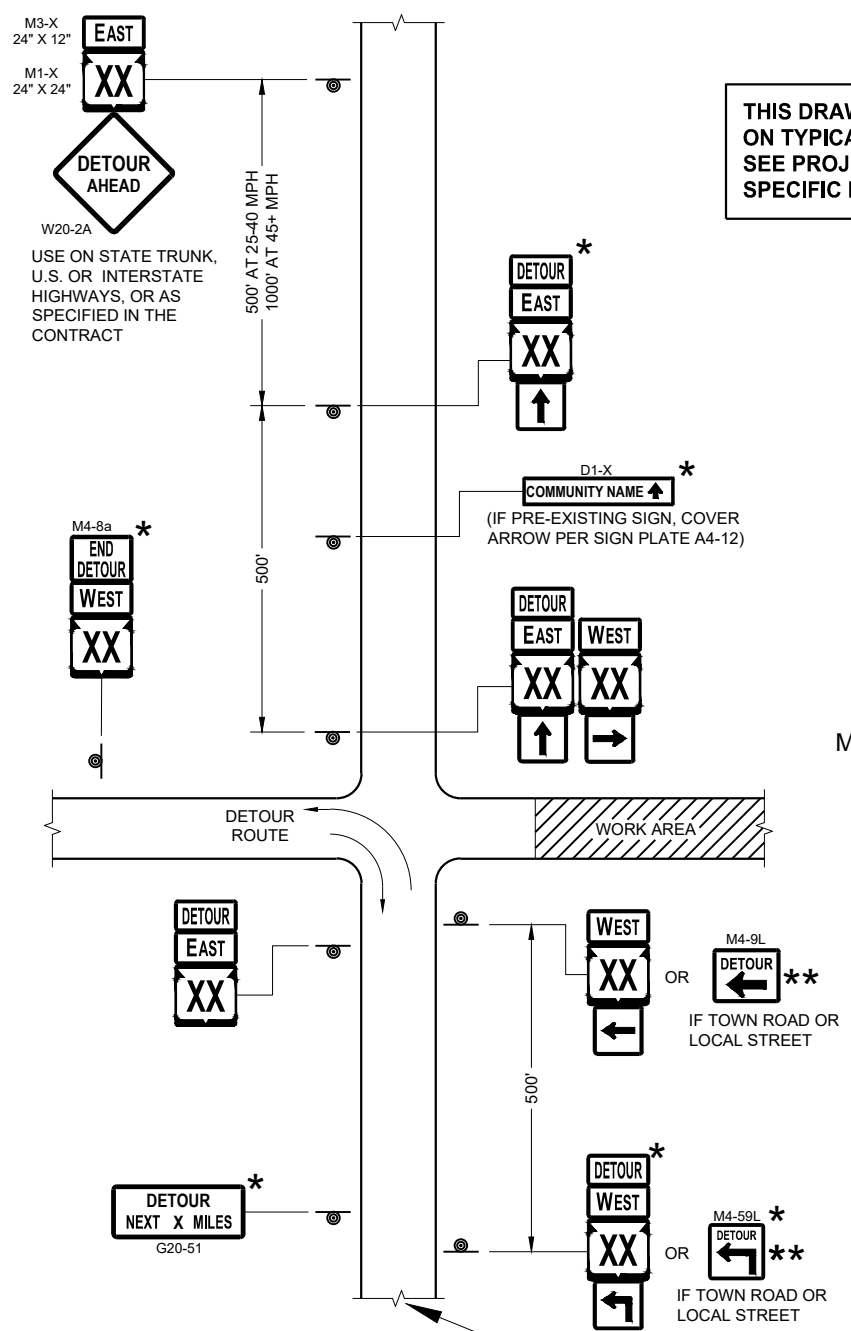
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



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

LEGEND

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

GENERAL NOTES

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

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

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

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

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

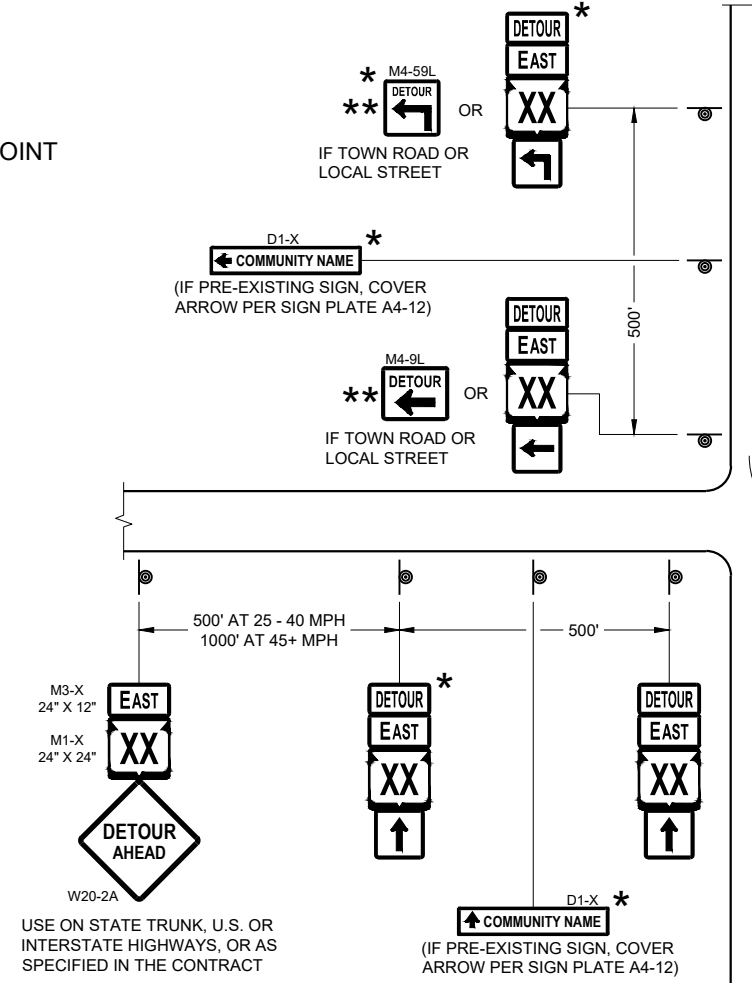
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

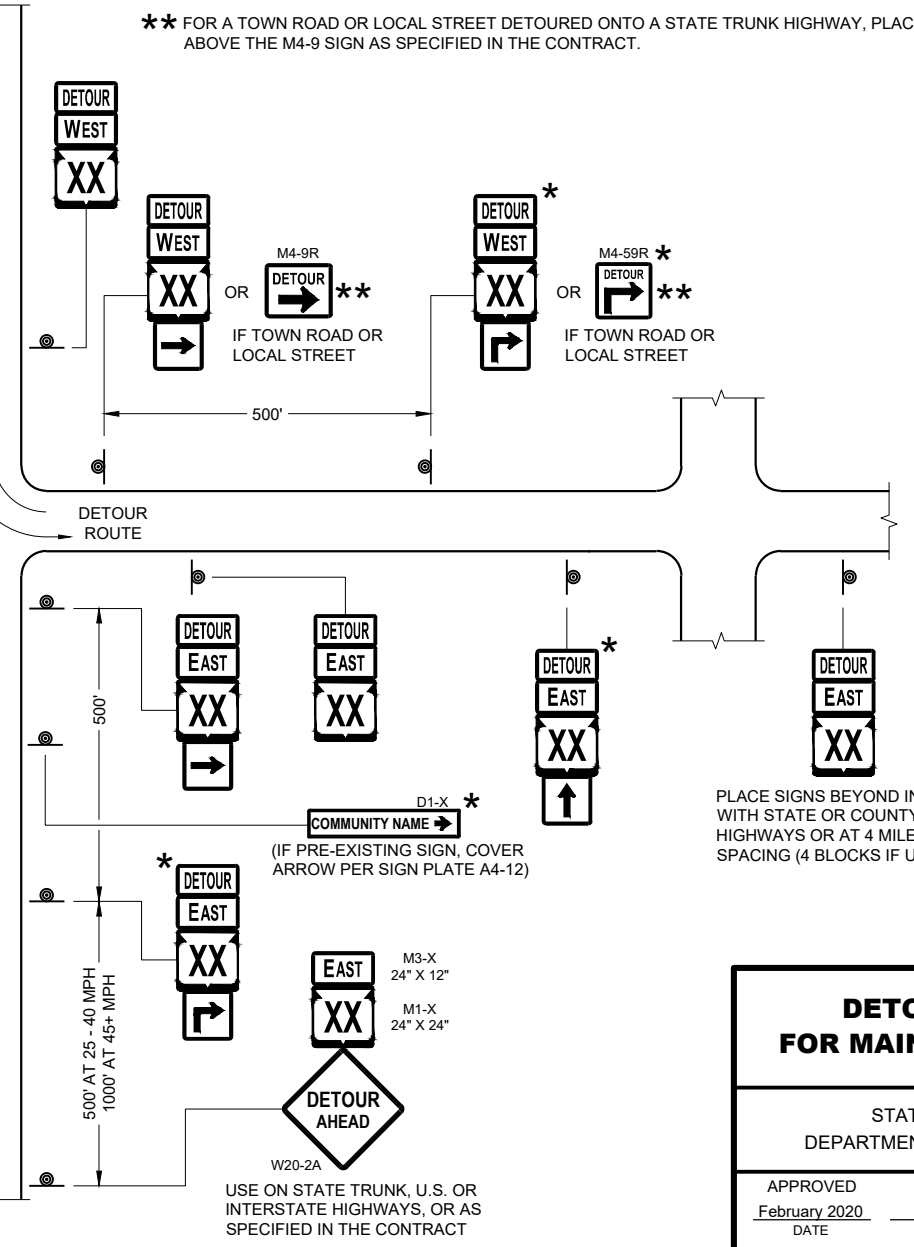
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

MATCH POINT



**DETAIL F
DETOUR SIGNING**

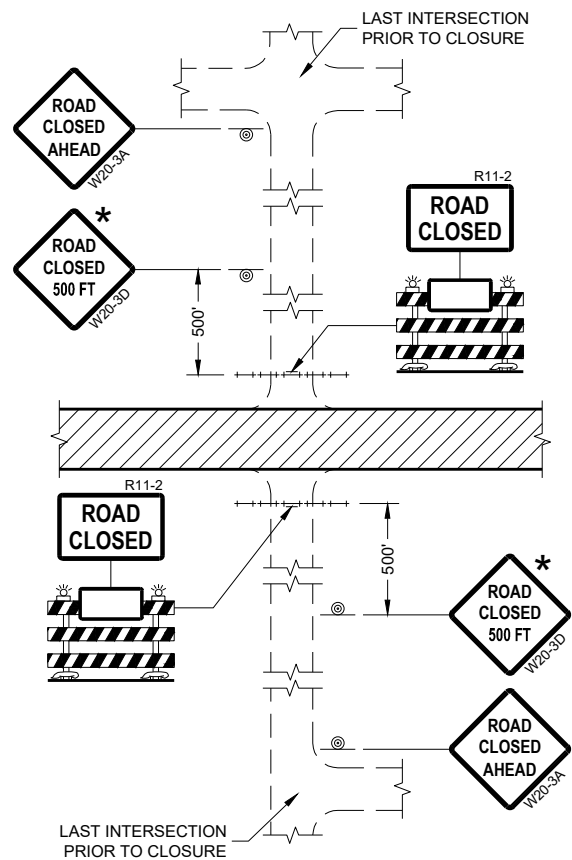


**DETOUR SIGNING
FOR MAINLINE CLOSURES**

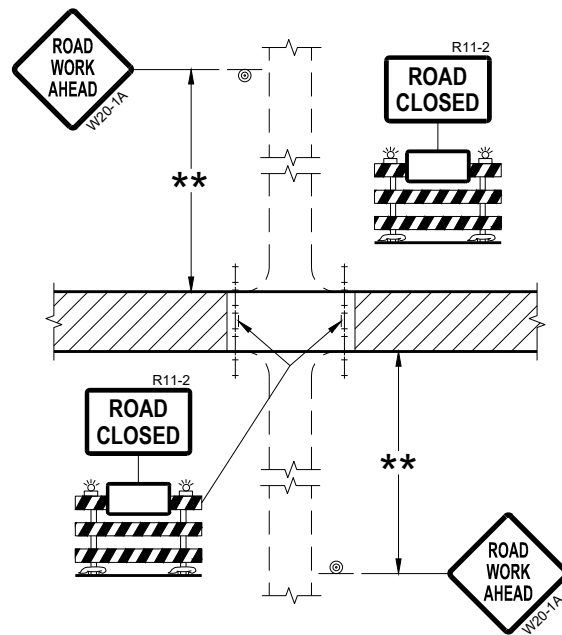
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

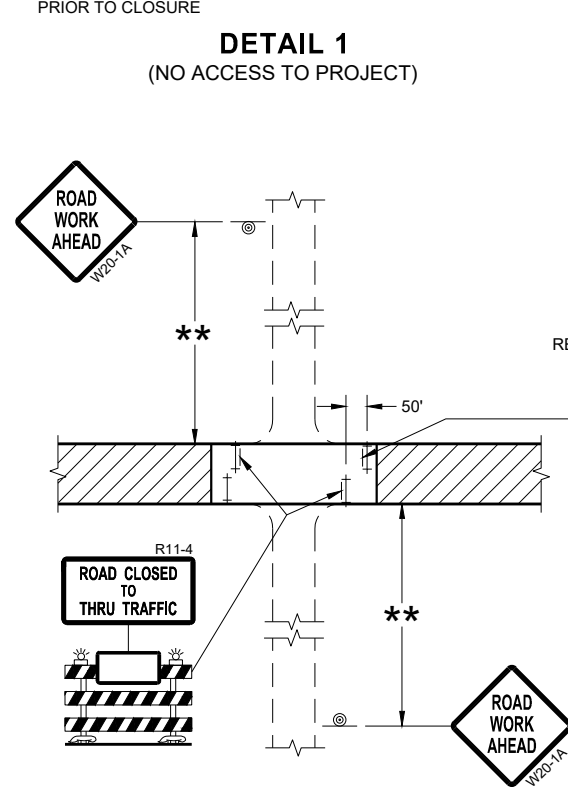
FHWA



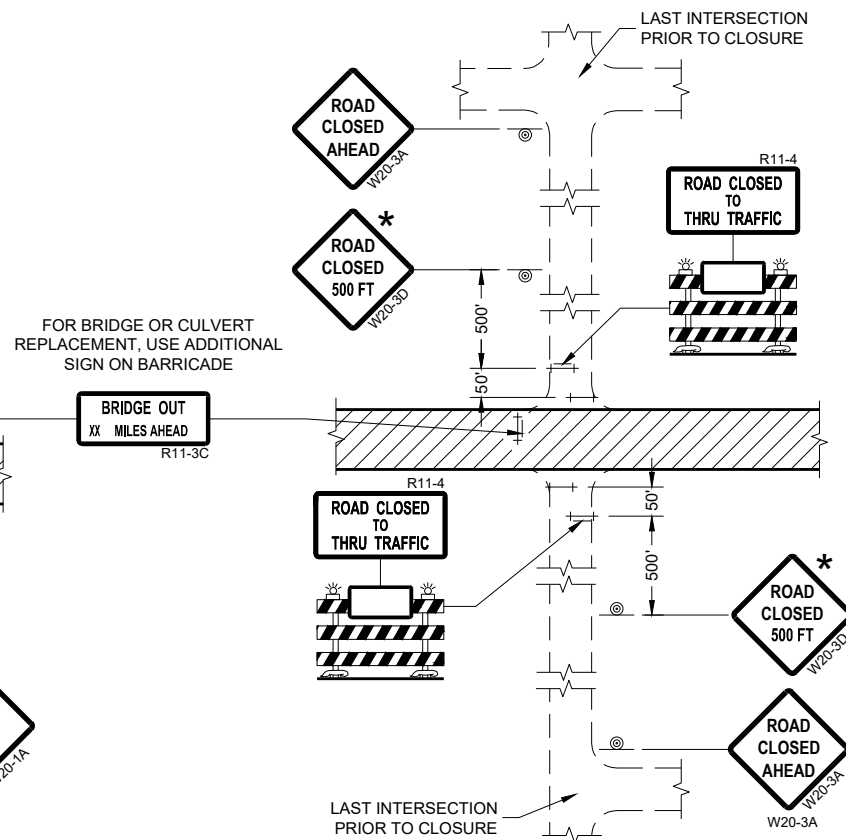
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

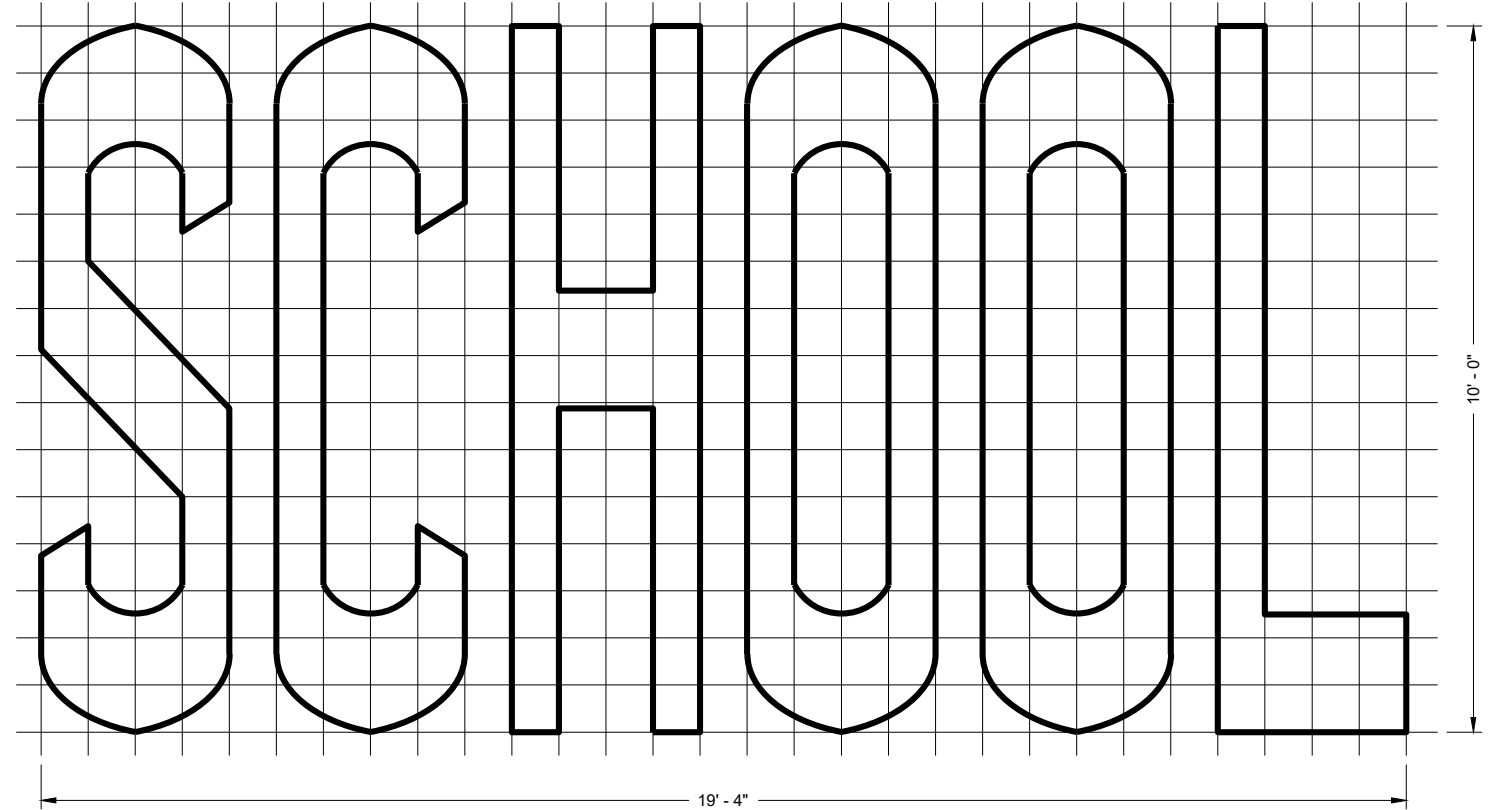
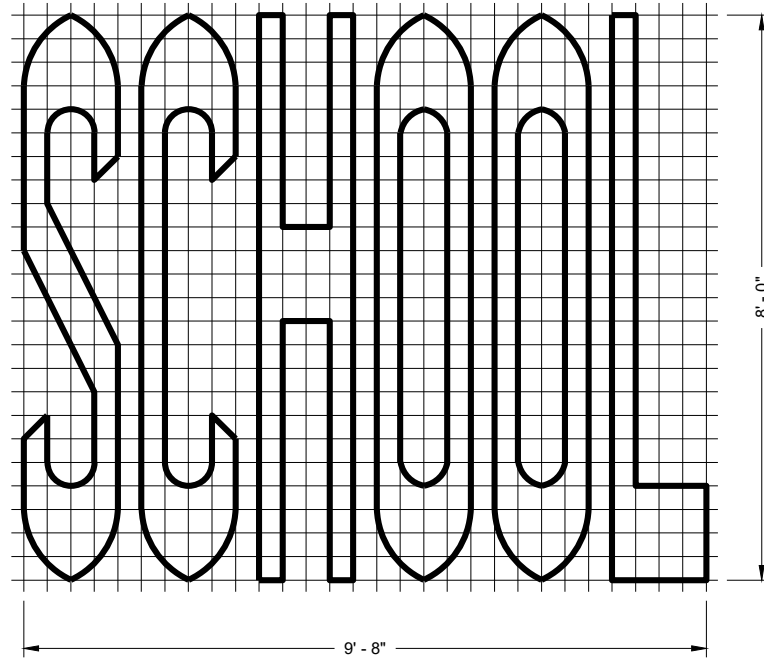
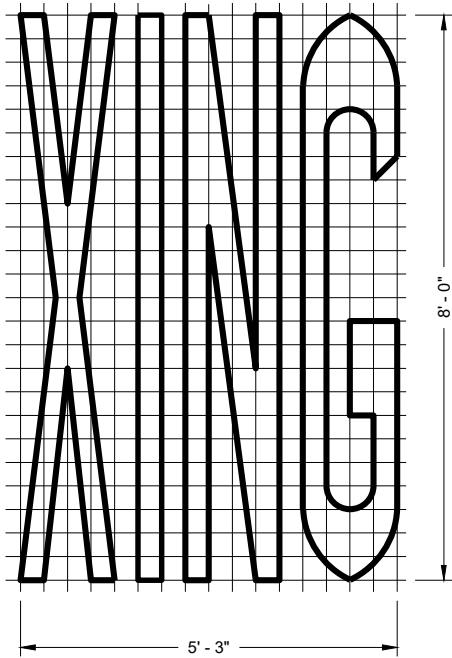
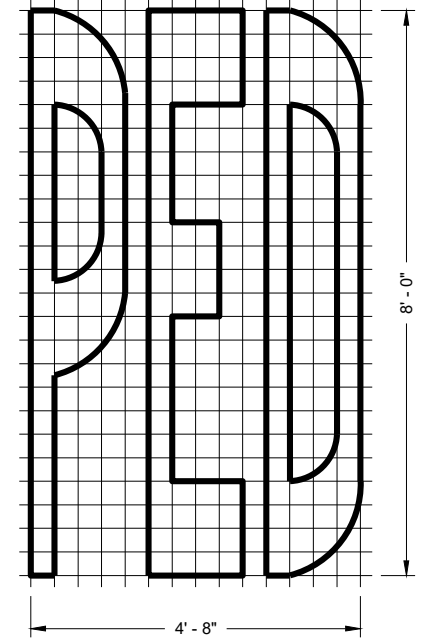
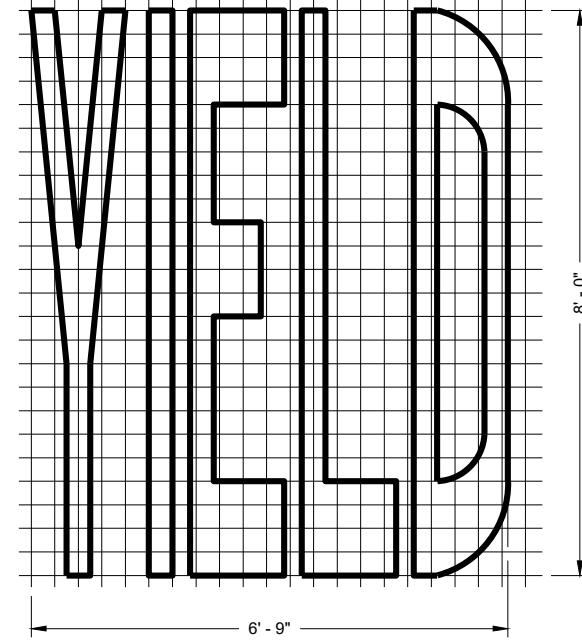
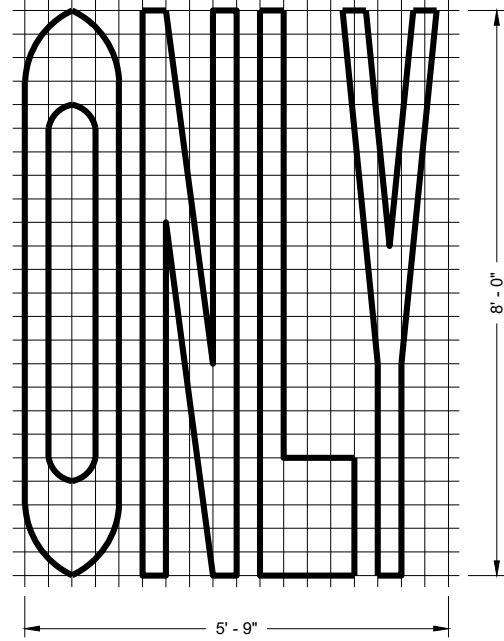
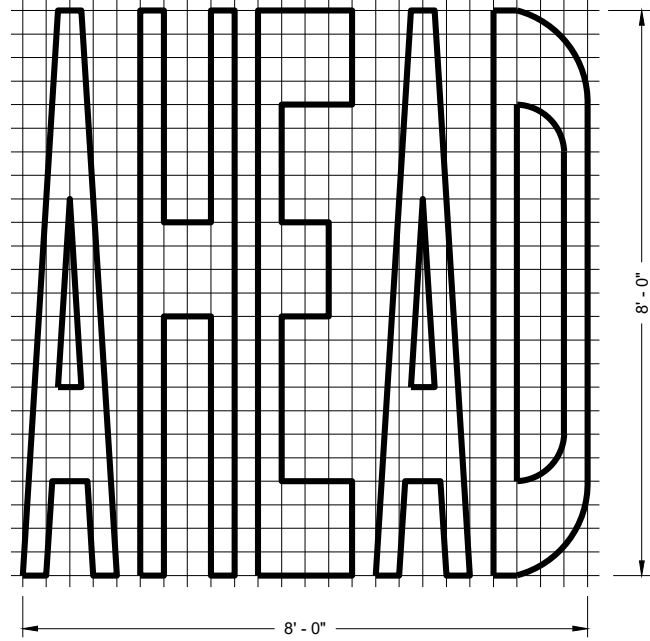
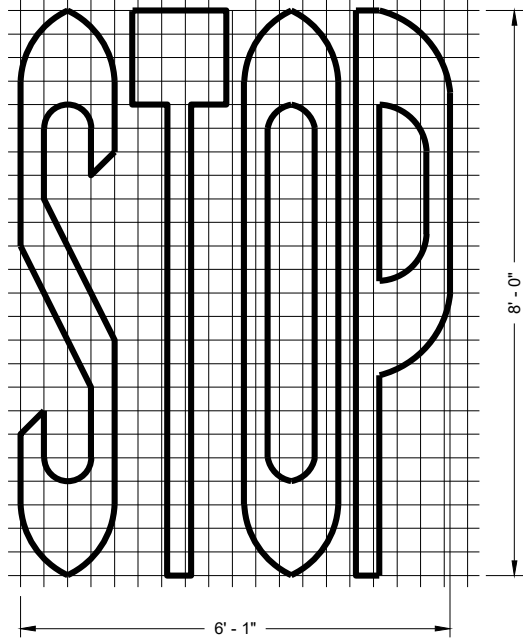
LEGEND

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

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SINGLE LANE

TWO - LANE

GENERAL NOTES

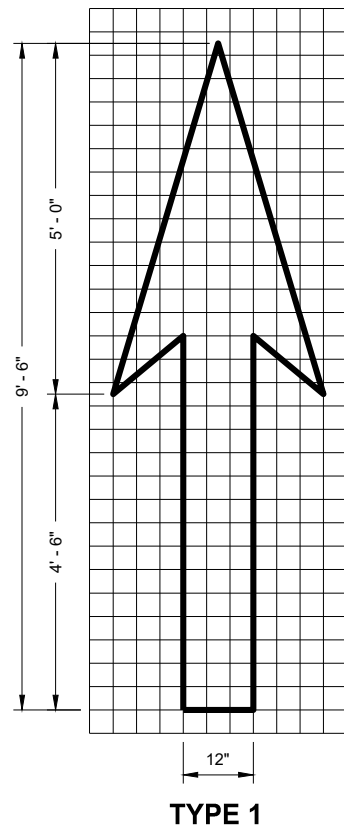
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PAVEMENT MARKING WORDS

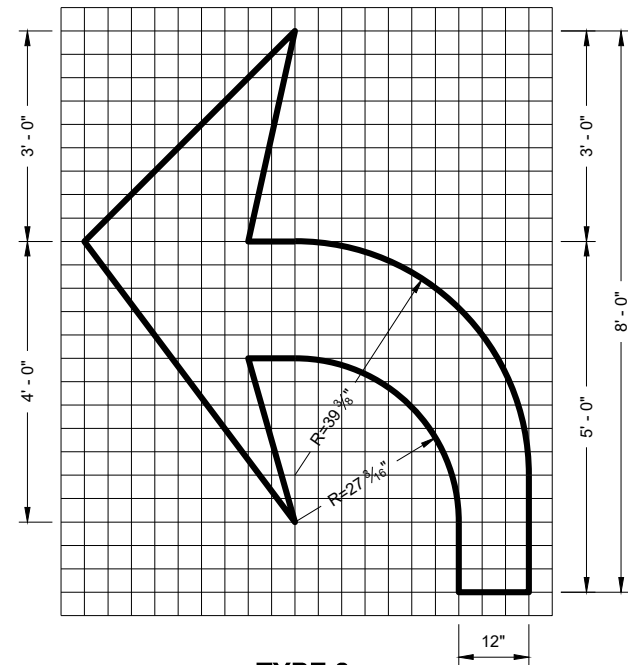
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

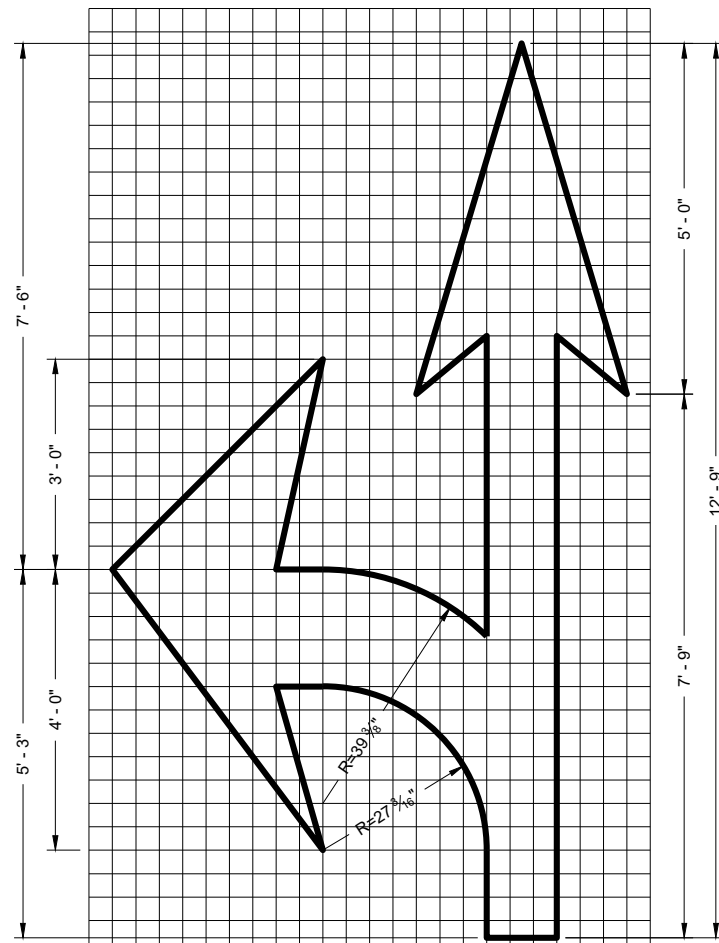
FHWA



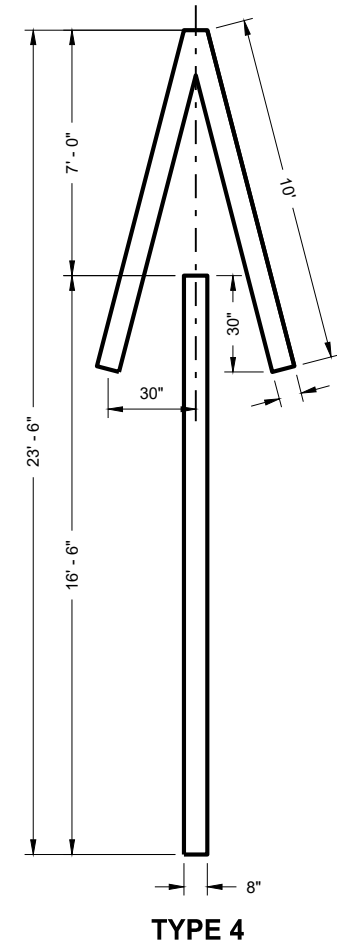
TYPE 1



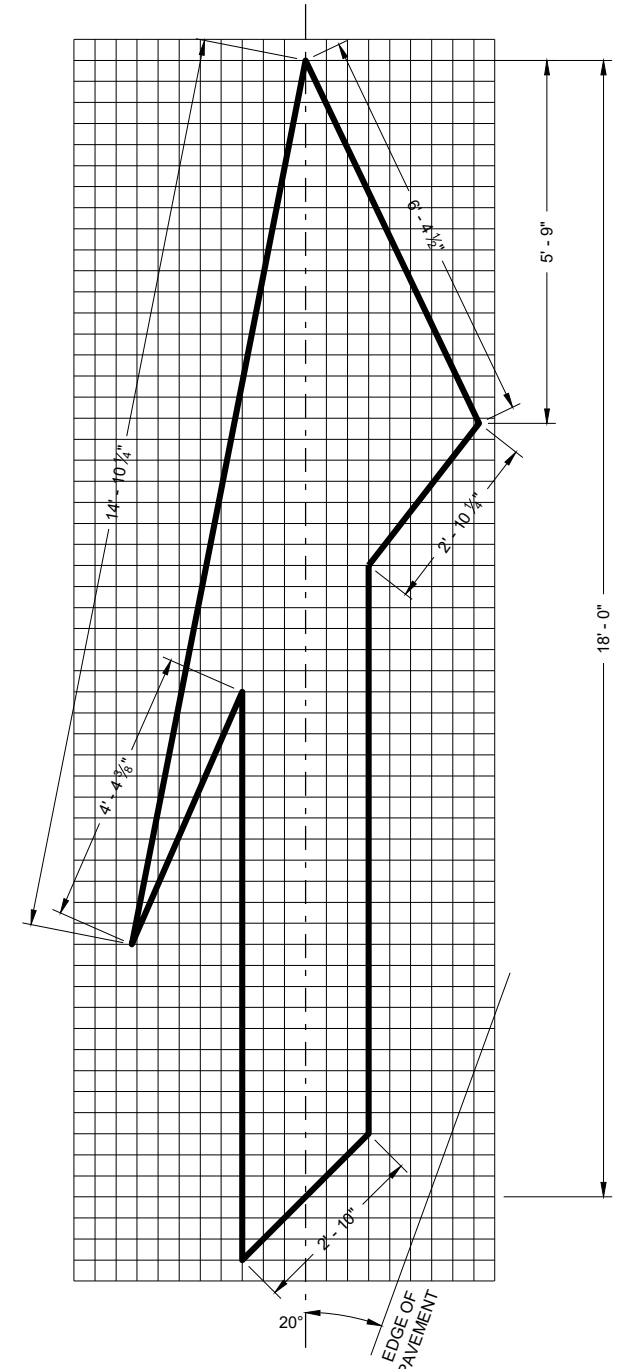
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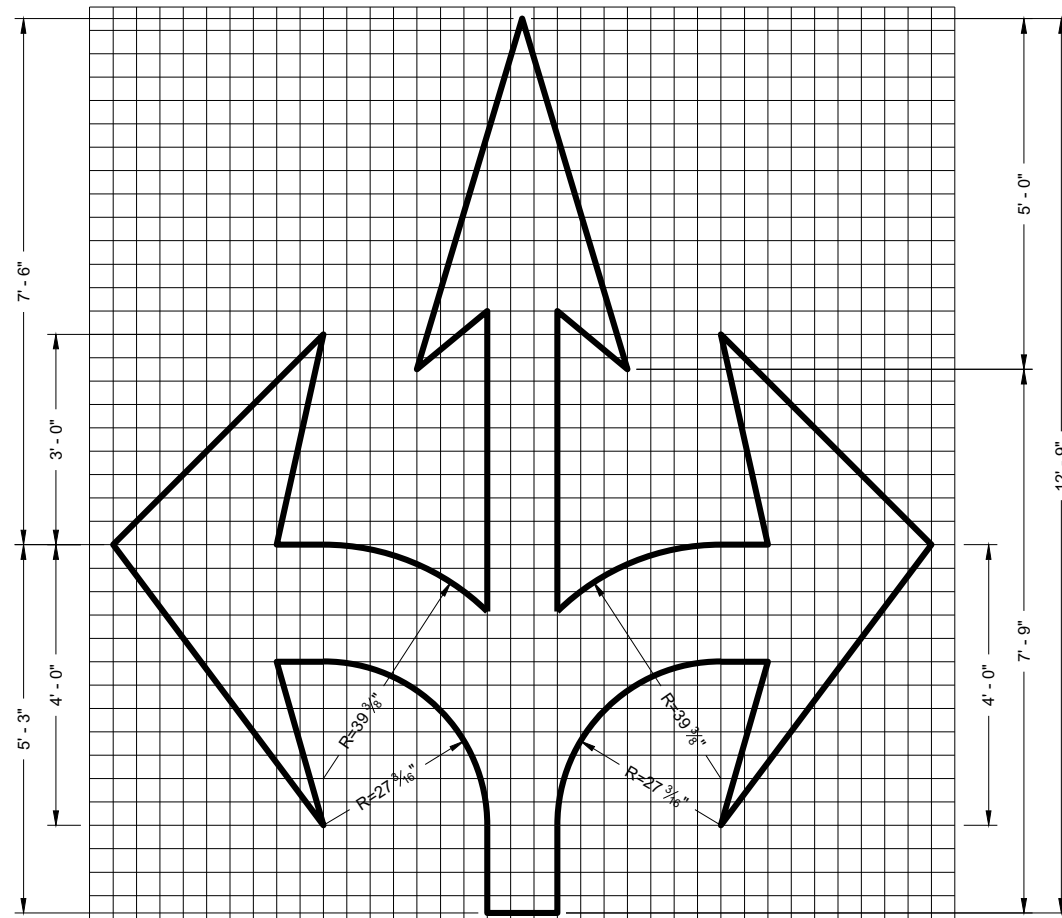
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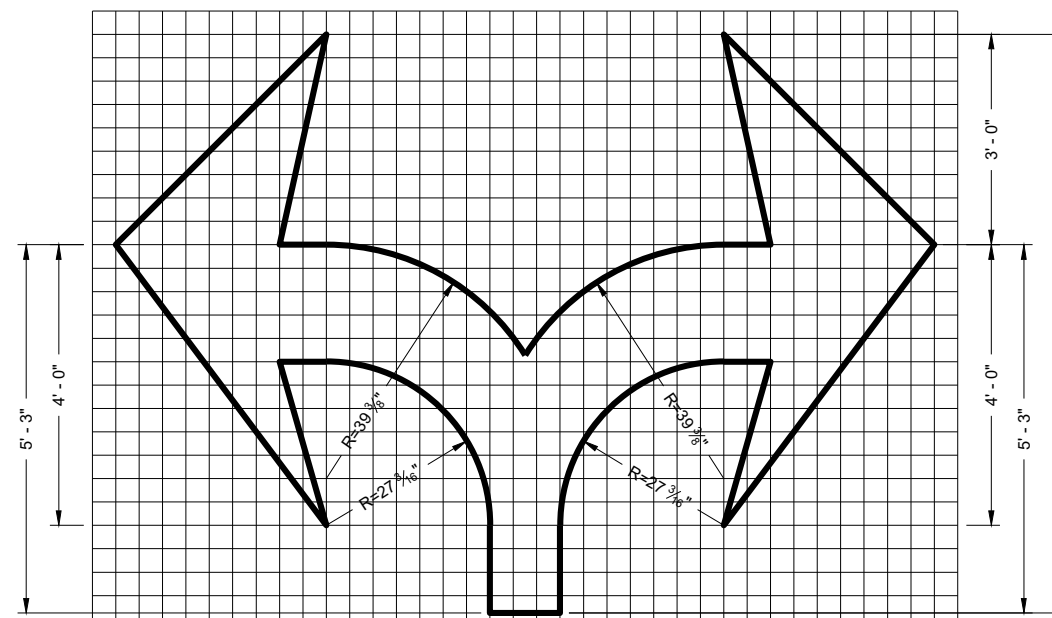
TYPE 4



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

November 2019

DATE

FHWA




/s/ Matthew Rauch
STATE SIGNING AND MARKING
ENGINEER

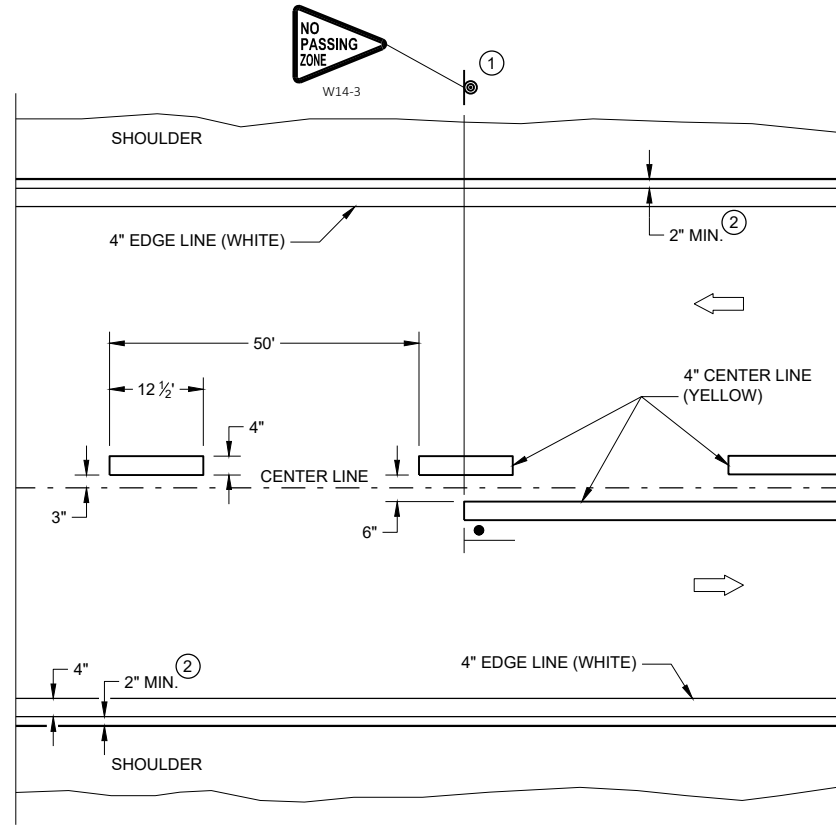
GENERAL NOTES

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

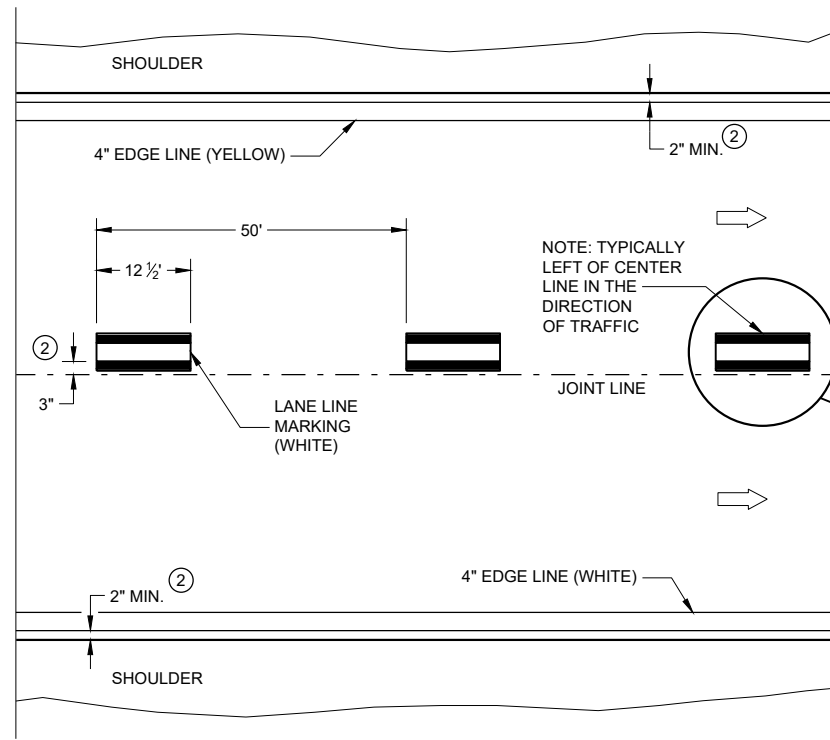
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

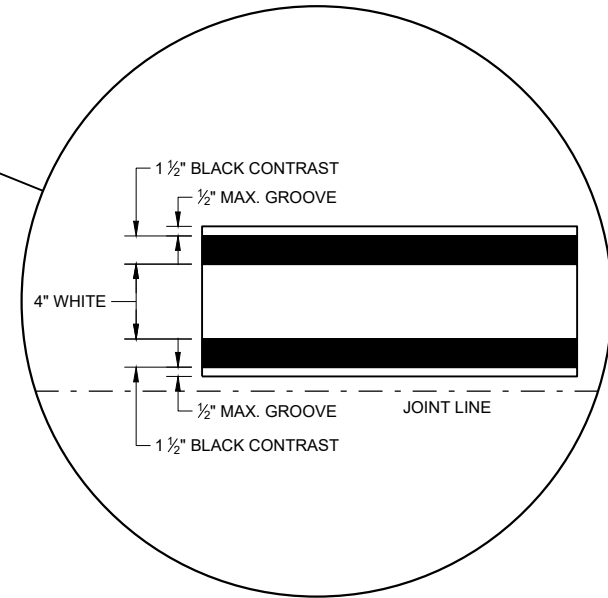


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



6

6

SDD 15C08 - 22a

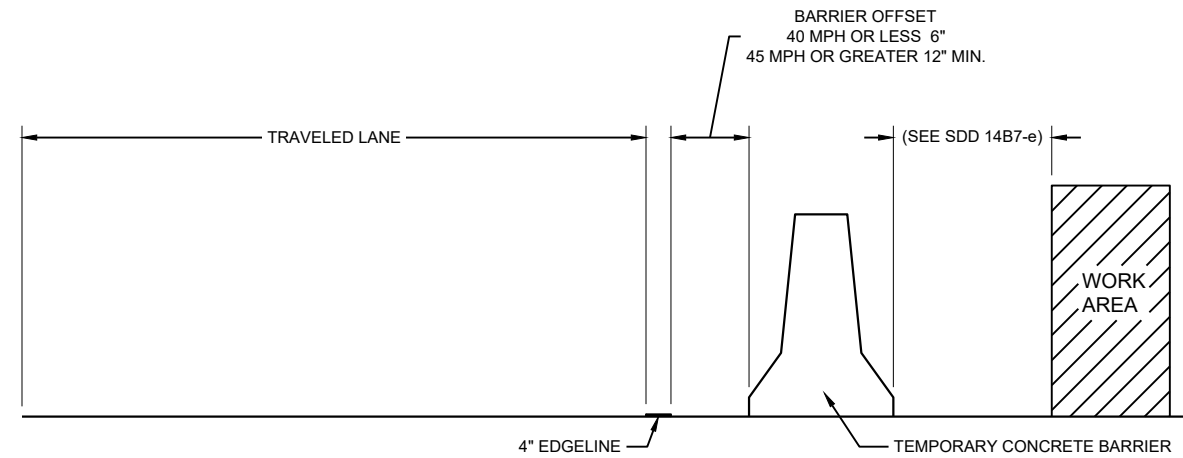
SDD 15C08 - 22a

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



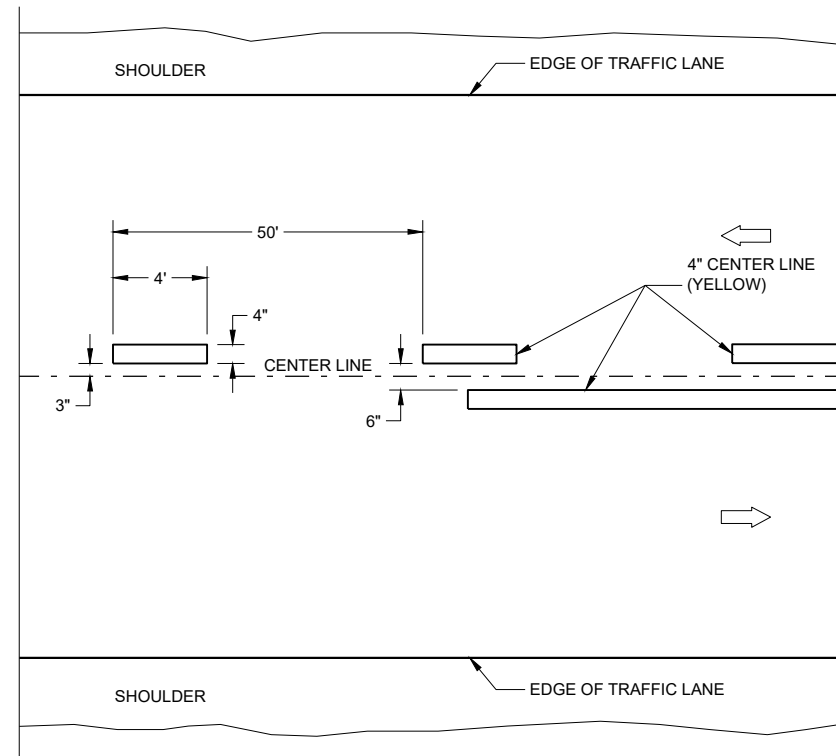
TEMPORARY BARRIER OFFSET FROM EDGELINE

GENERAL NOTES

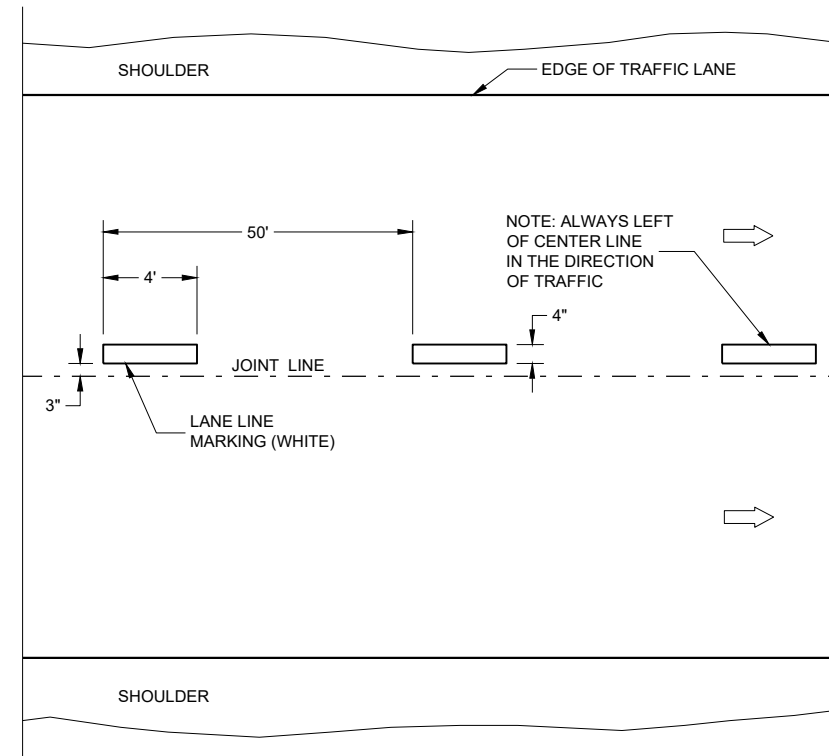
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

LEGEND

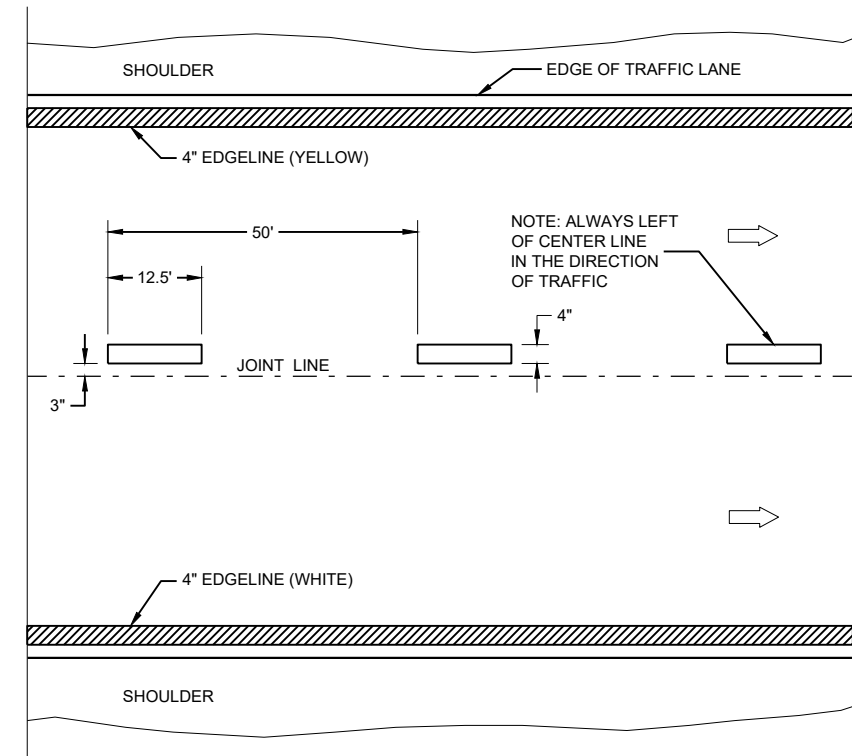
➡ DIRECTION OF TRAFFIC



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

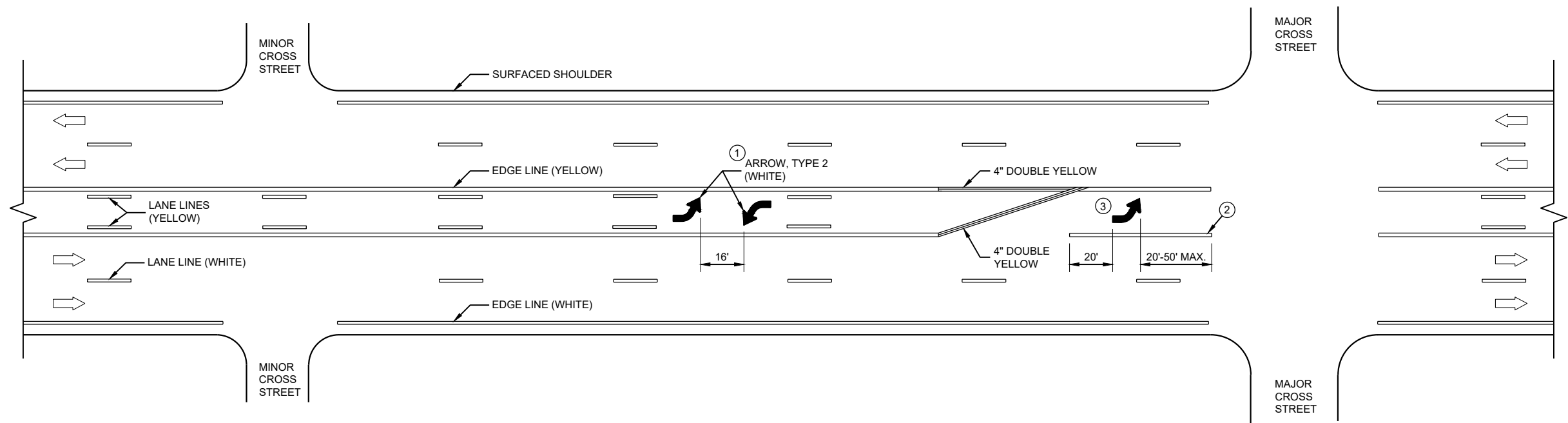
APPROVED
May 2022 DATE /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA

GENERAL NOTES

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

➡ DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

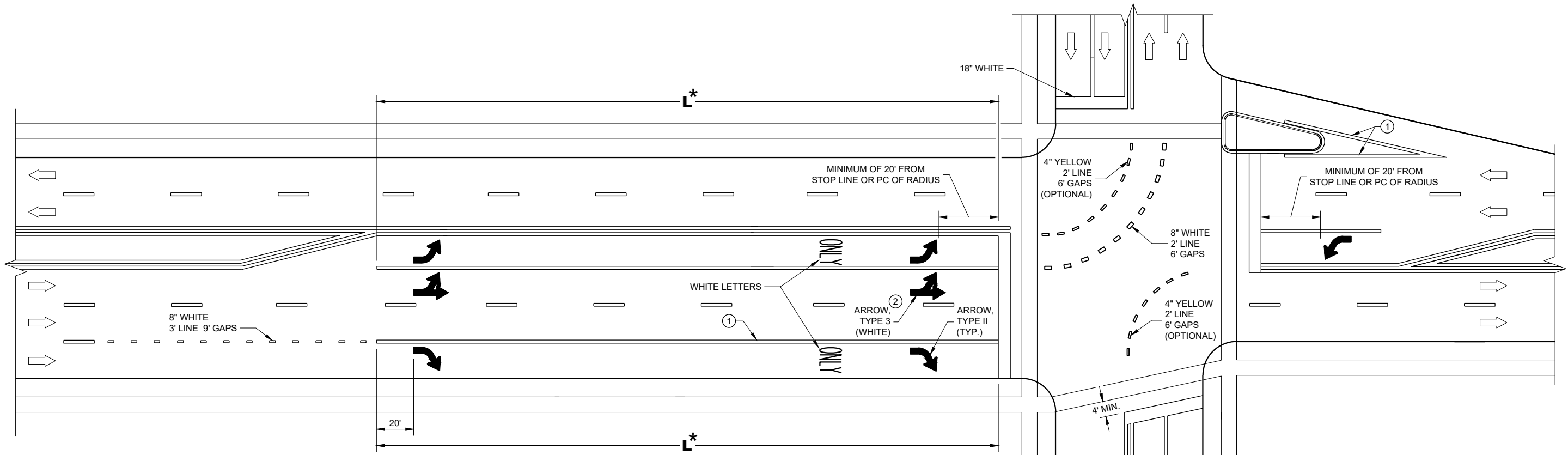
6

6

SDD 15C08 - 22c

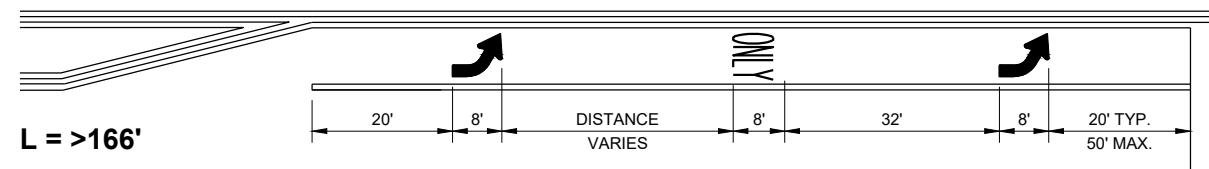
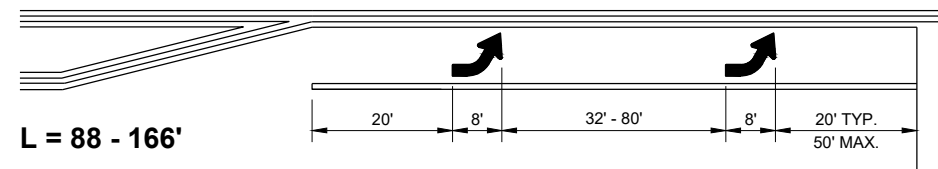
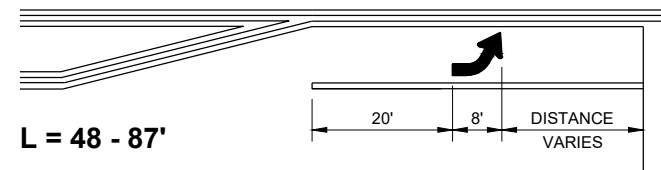
SDD 15C08 - 22c

<p>PAVEMENT MARKING (TURN LANES)</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>



TURN LANE OPTIONS

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



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

GENERAL NOTES

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






➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

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

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

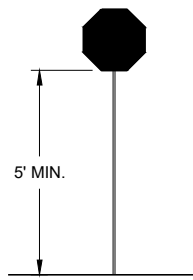
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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



STOP/SLOW PADDLE ON SUPPORT STAFF

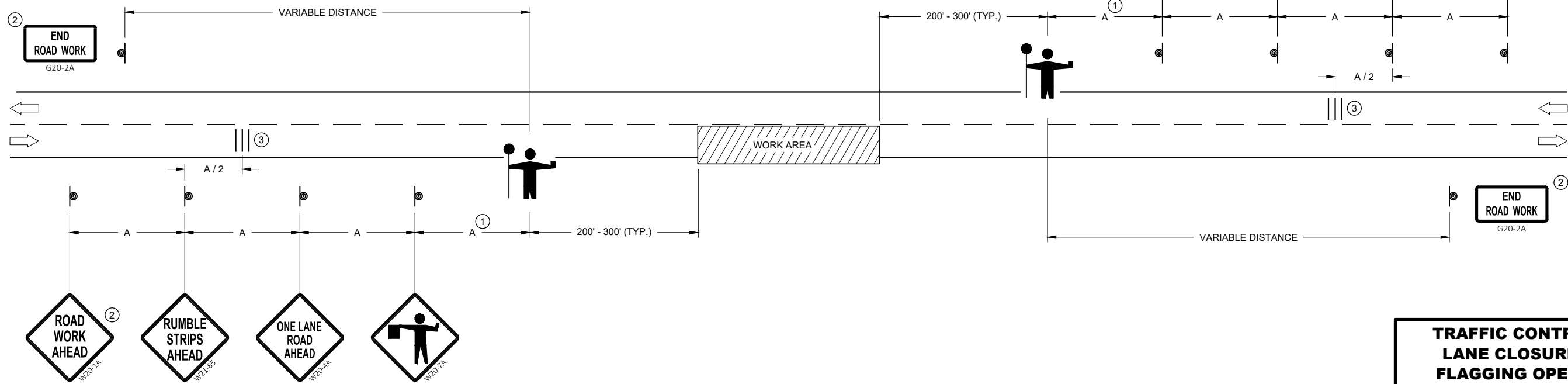
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



W03-4

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



6

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SDD 15C12 - 09a

SDD 15C12 - 09a

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

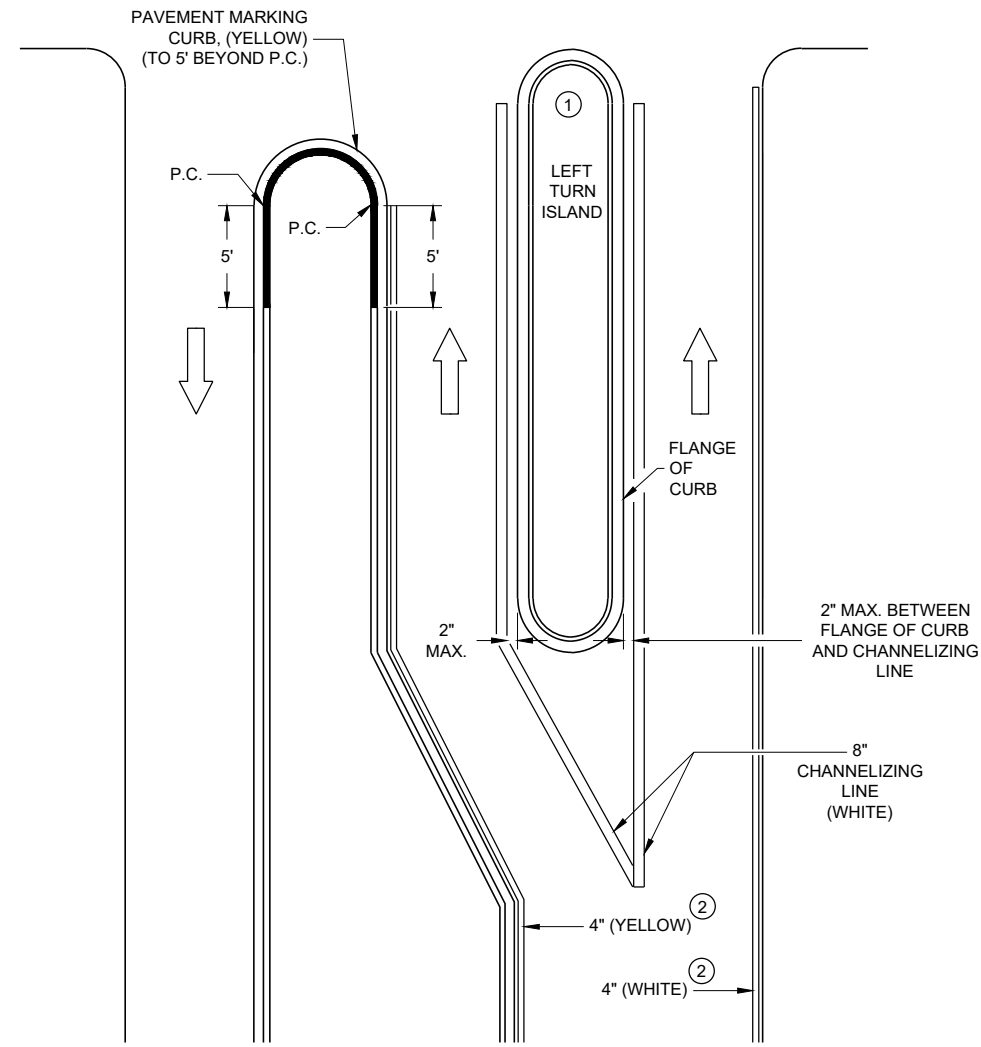
REQUIREMENTS FOR EDGE LINES		
POSTED SPEED	IS THERE CONTINUOUS LIGHTING?	
	YES	NO
≤ 30 MPH	NO	OPTIONAL
35 OR 40 MPH	OPTIONAL	RECOMMENDED
≥ 45 MPH	RECOMMENDED	REQUIRED

GENERAL NOTES

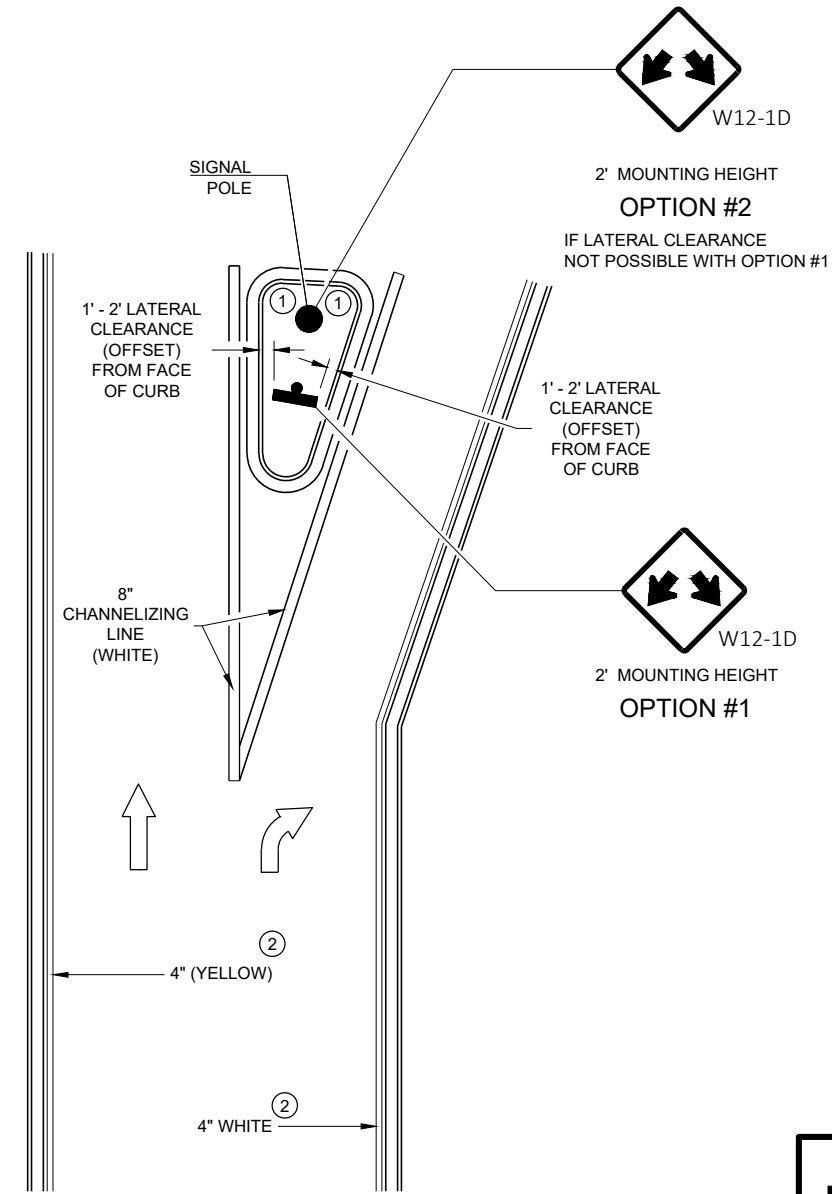
APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.

SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

- ① MARK CURB NOSES YELLOW.
- ② MARK ACCORDING TO TABLE.



LEFT TURN & MEDIAN ISLAND



RIGHT TURN ISLAND

6

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SDD 15C18 - 07C

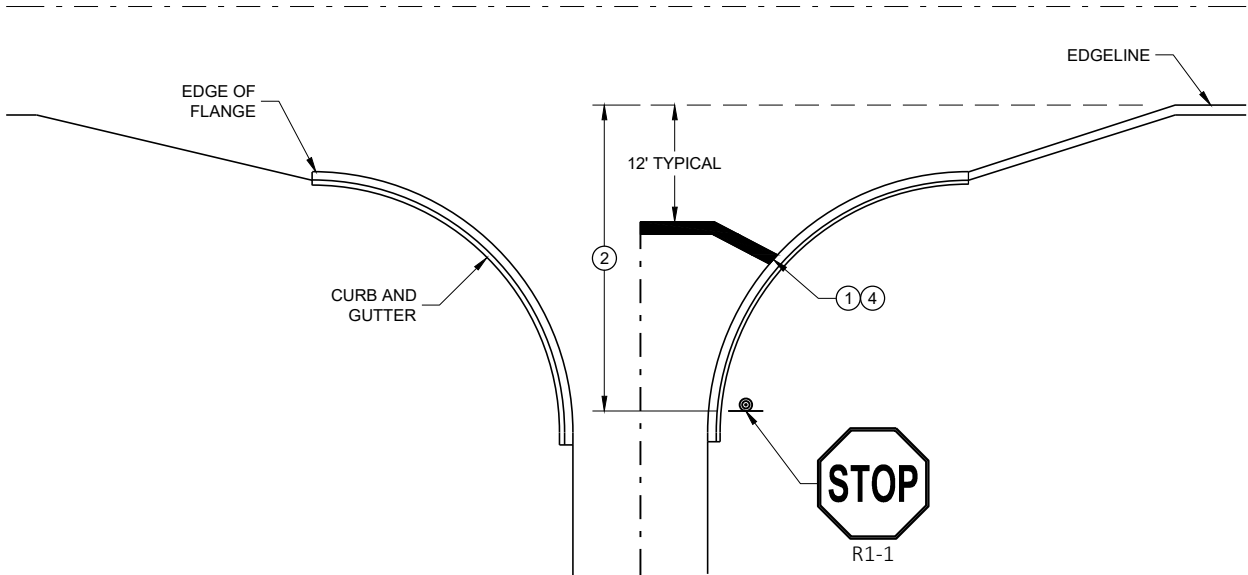
SDD 15C18 - 07C

MEDIAN PAVEMENT MARKINGS, DOUBLE ARROW WARNING SIGN PLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	

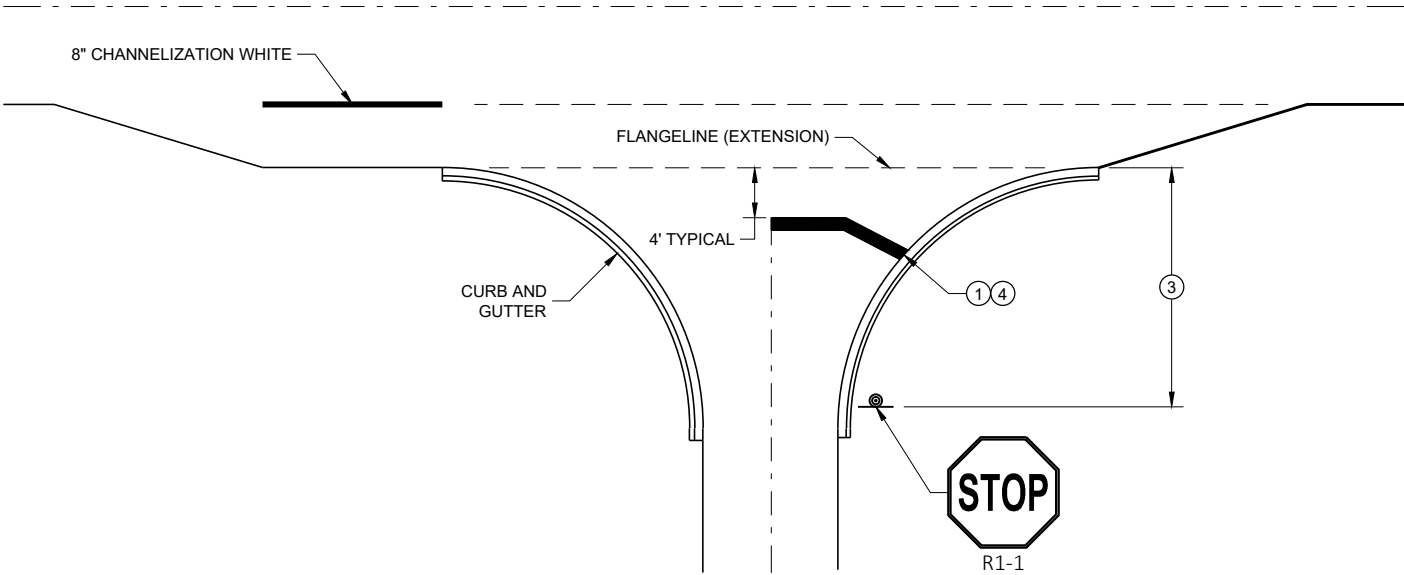
GENERAL NOTES

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

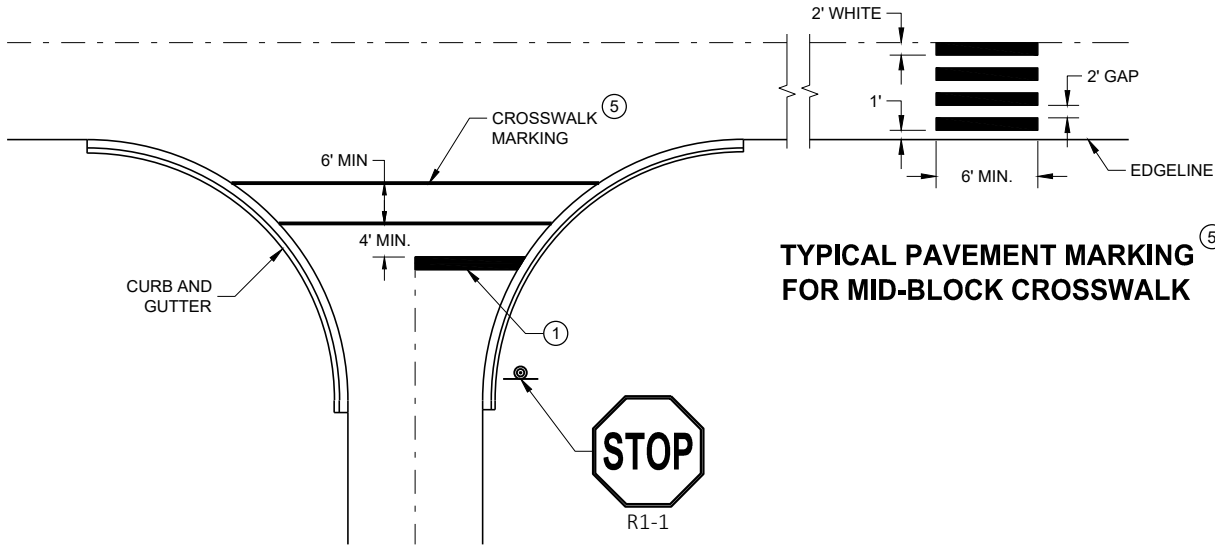
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE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



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

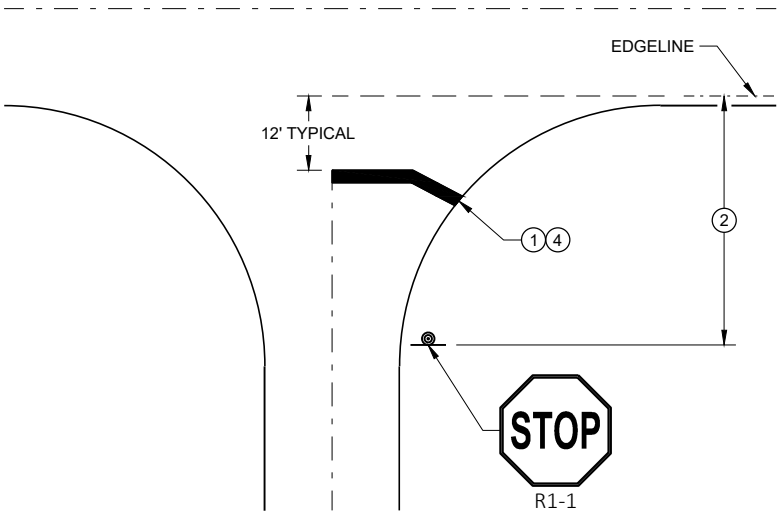


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING

TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK



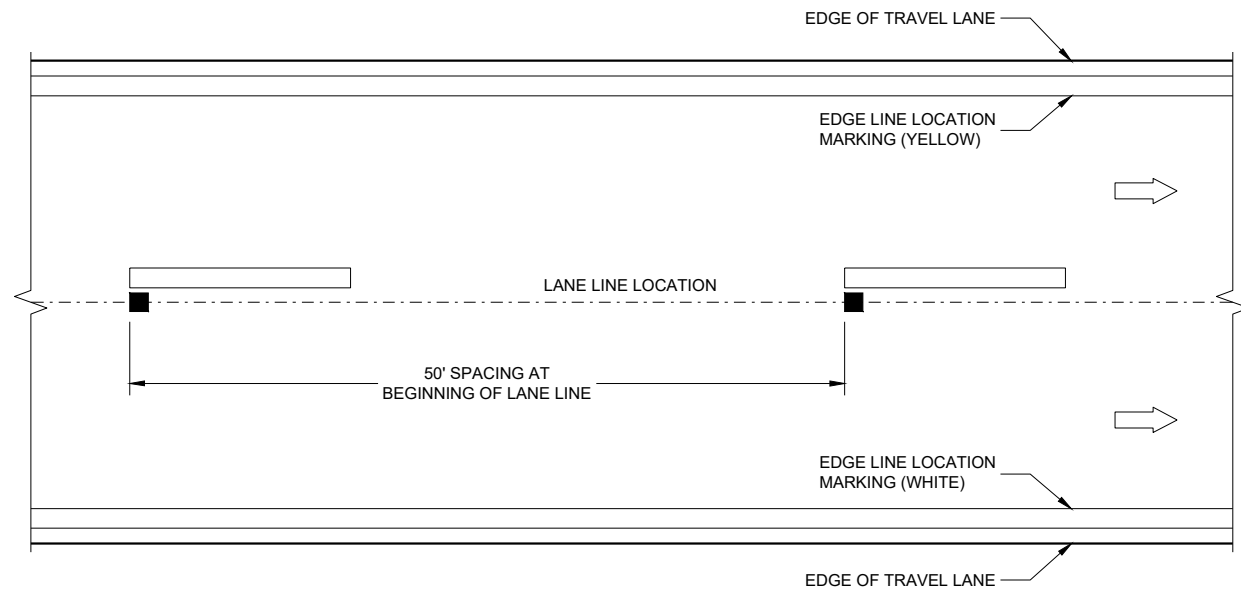
TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

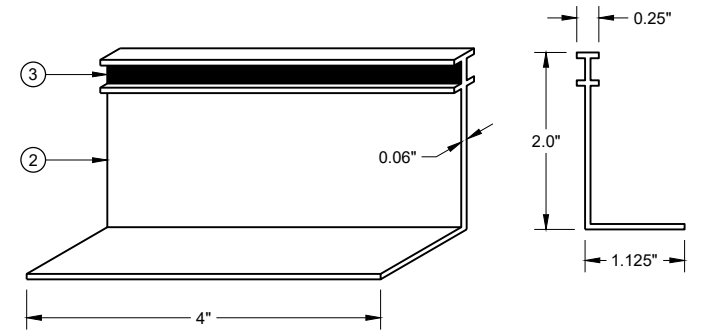
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



LONGITUDINAL PLACEMENT 4 - INCH LANE LINE



TEMPORARY RAISED PAVEMENT MARKER, TYPE II

GENERAL NOTES

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

COLOR OF TEMPORARY RAISED PAVEMENT MARKERS, TYPE II, SHALL MATCH THE COLOR OF THE MARKING THEY SUPPLEMENT.

PLACEMENT OF TEMPORARY RAISED PAVEMENT MARKERS ON EDGE LINES IS OPTIONAL. IF PLACED ON EDGE LINES, MAXIMUM SPACING SHALL BE 50 FEET.

PROVIDE SINGLE OR MULTI-COVER TEMPORARY RAISED PAVEMENT MARKERS AS SHOWN ON PLAN.

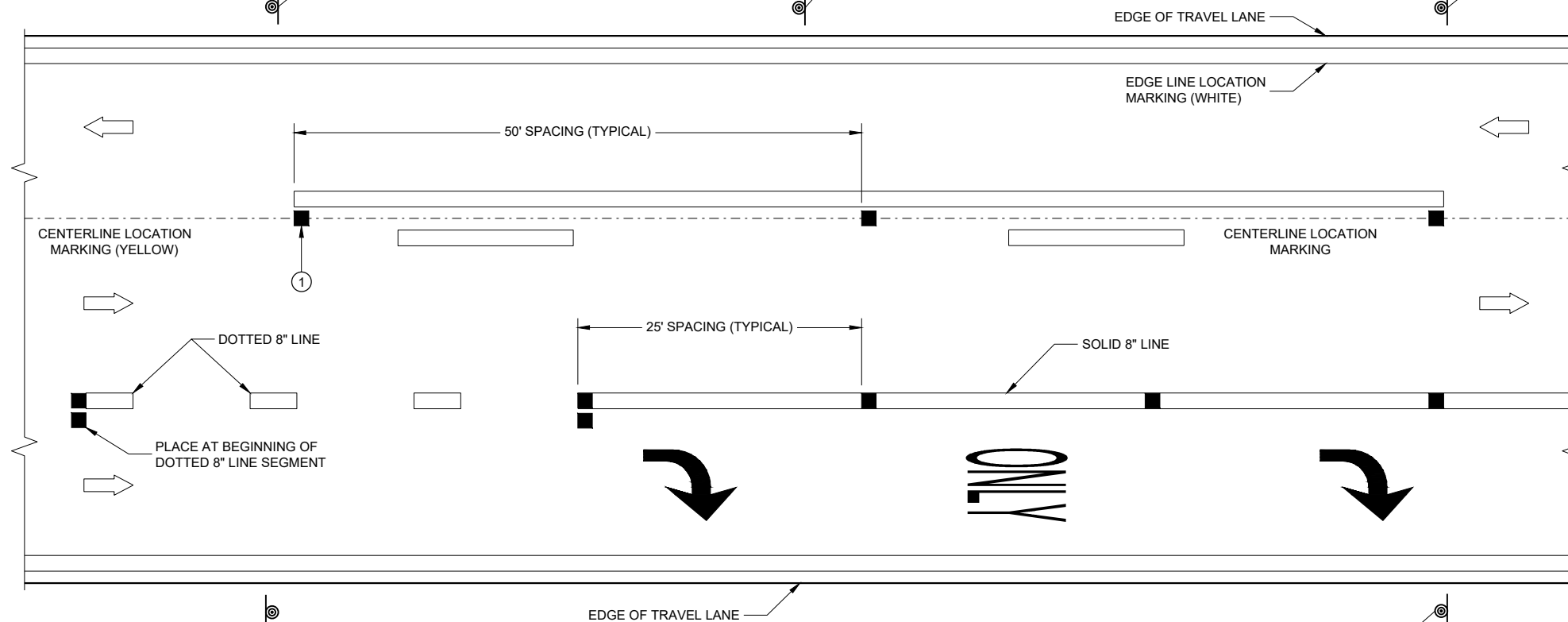
MARK "T"s ON PAVEMENT FOR REESTABLISHING NO PASSING ZONES.

SAME DAY TEMPORARY PAVEMENT MARKING MAY BE USED IN LIEU OF TEMPORARY RAISED PAVEMENT MARKERS, TYPE II.

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

IF TEMPORARY SAME DAY PAVEMENT MARKING IS USED, ENSURE PROPOSED PAVEMENT MARKING ARE PLACED IN THE EXACT LOCATIONS AS THE EXISTING MARKINGS, USING A MINIMAL AMOUNT OF TEMPORARY RAISED MARKERS, TYPE II OR OTHER METHODS AS APPROVED BY THE ENGINEER.

IF ROADWAY IS DETOURED DURING CONSTRUCTION, THE "DO NOT PASS," "PASS WITH CARE" AND "NO CENTERLINE" SIGNS MAY BE OMITTED, PROVIDING A LIQUID MARKING IS INSTALLED BEFORE THE ROADWAY IS REOPENED TO TRAFFIC.



LONGITUDINAL PLACEMENT 4 - INCH LANE LINE AND 8 - INCH CHANNEL LINE

- ① FOR DOUBLE SOLID YELLOW, PLACE THE MARKERS BETWEEN THE LINES.
- ② MARKERS SHALL BE OF POLYURETHANE MATERIAL.
- ③ MARKERS SHALL HAVE A MINIMUM SIZE REFLECTIVE SURFACE OF 4 INCH WIDTH X 0.25 INCH HEIGHT.
- ④ "NO CENTER LINE" SIGNS SHALL BE PLACED AT THE BEGINNING OF PROJECT, AT TWO MILE INTERVALS AND AFTER STATE AND COUNTY HIGHWAY INTERSECTIONS.
- ⑤ "DO NOT PASS" SIGNS SHALL BE INSTALLED AT THE BEGINNING OF NO PASSING ZONES. ADDITIONAL "DO NOT PASS" SIGNS SHALL BE INSTALLED AT ONE MILE INTERVALS AND AFTER STATE AND COUNTY HIGHWAY INTERSECTIONS WITHIN THE NO PASSING ZONE.
- ⑥ "PASS WITH CARE" SIGNS SHALL BE PLACED AT THE DOWNSTREAM END OF NO PASSING ZONES.

LEGEND

- TEMPORARY RAISED PAVEMENT MARKER, TYPE II
- ⊙ SIGN ON PORTABLE OR PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC.

STANDARD APPLICATION FOR TEMPORARY RAISED PAVEMENT MARKERS, TYPE II

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/2017 DATE /S/ Matthew Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

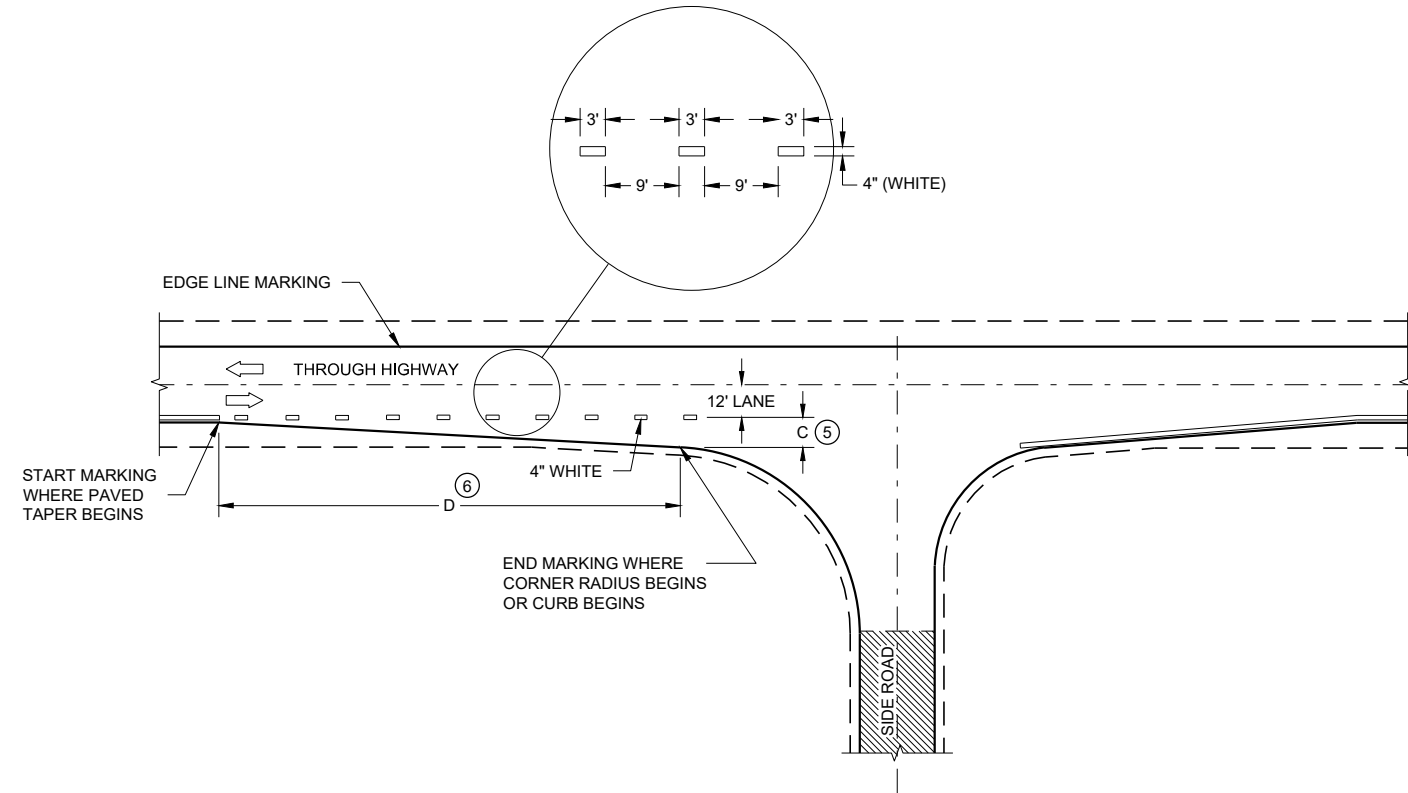
GENERAL NOTES

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

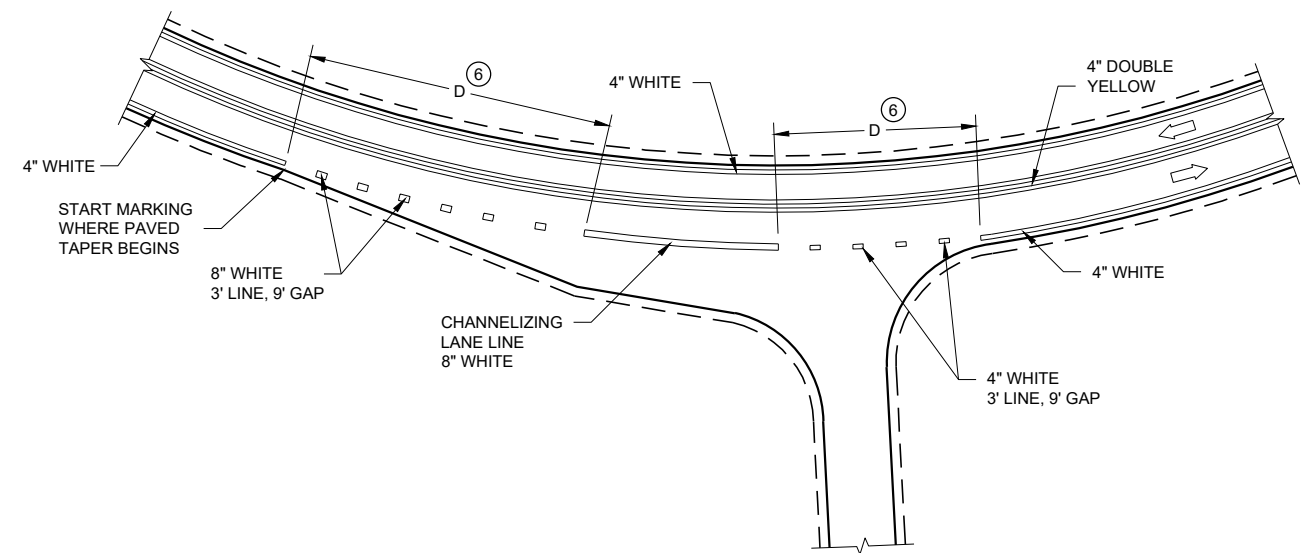
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4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

LEGEND

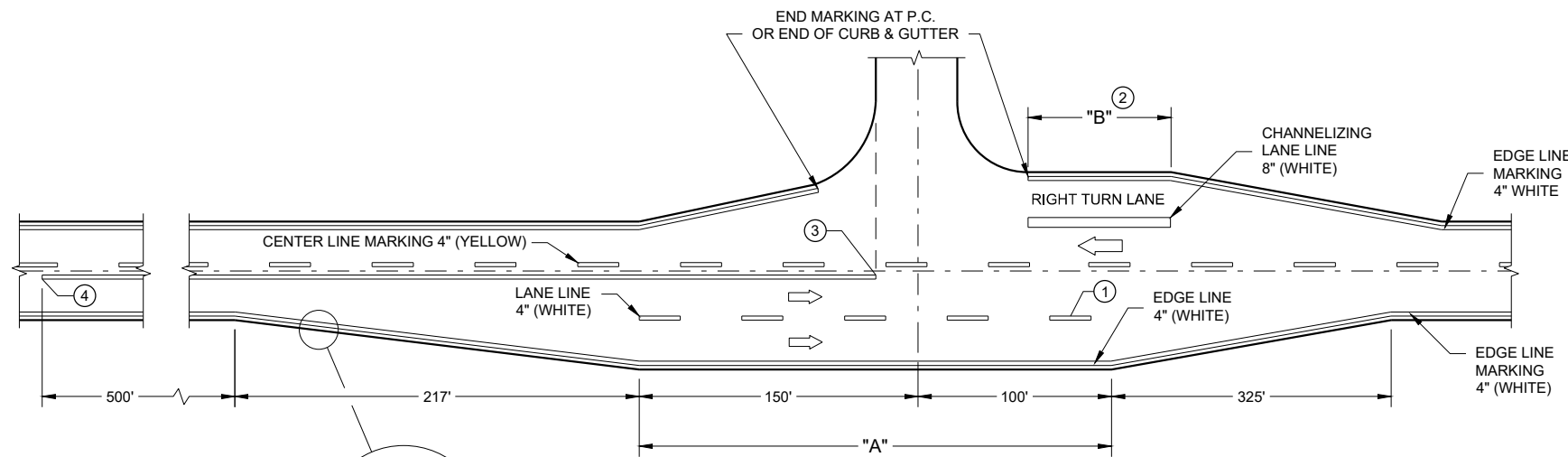
➡ DIRECTION OF TRAVEL



MINOR INTERSECTION

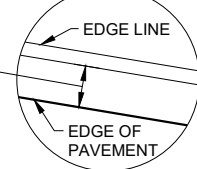


INTERSECTION ON OUTSIDE OF CURVE



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





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



**PAVEMENT MARKING
(INTERSECTIONS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

GENERAL NOTES

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

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

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

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

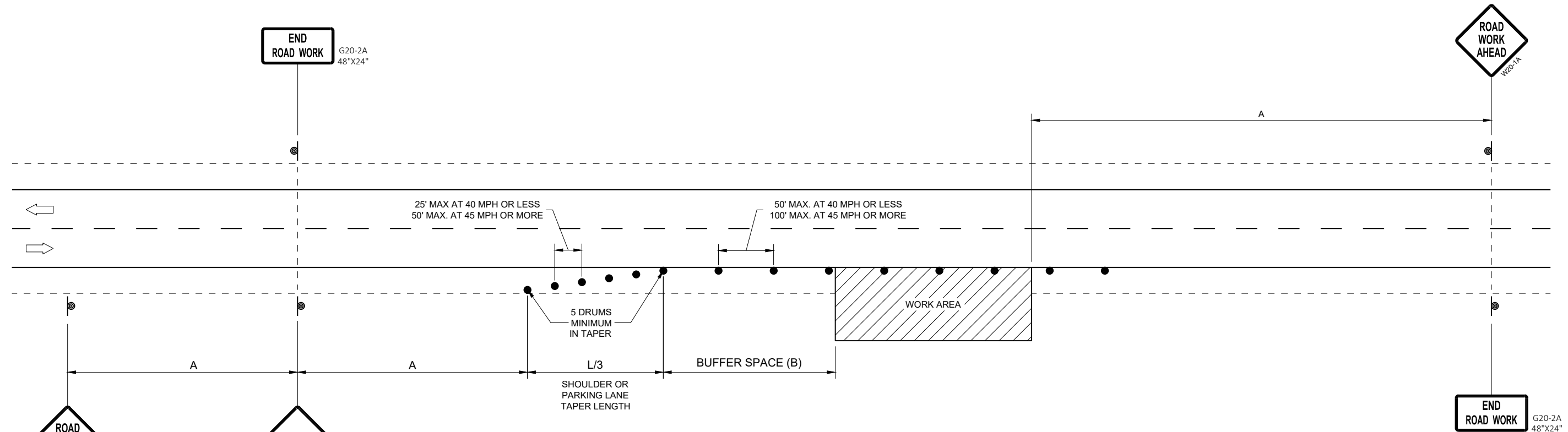
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



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

OR
IF TRAFFIC CONTROL DEVICES
ENCROACH ONTO TRAVELED WAY, USE



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

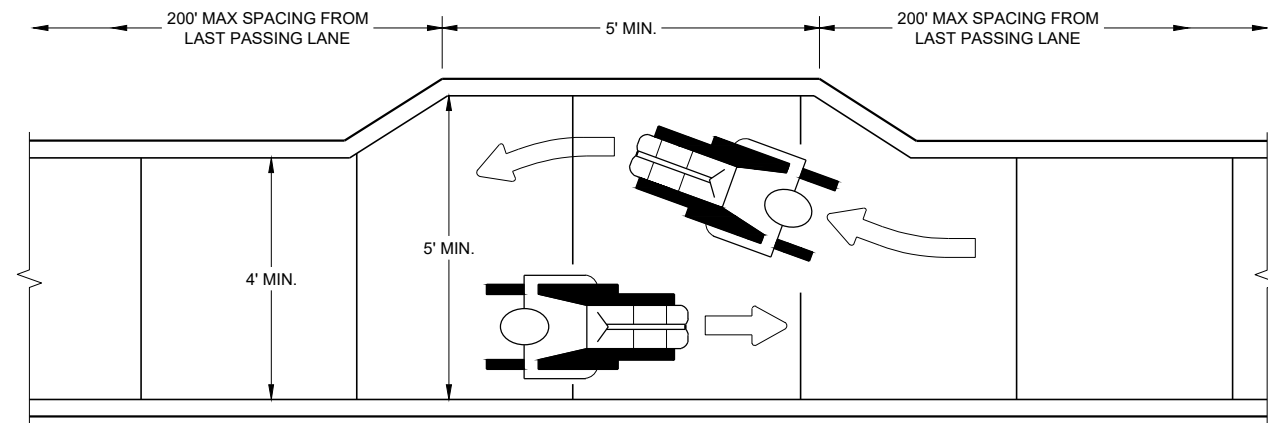
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

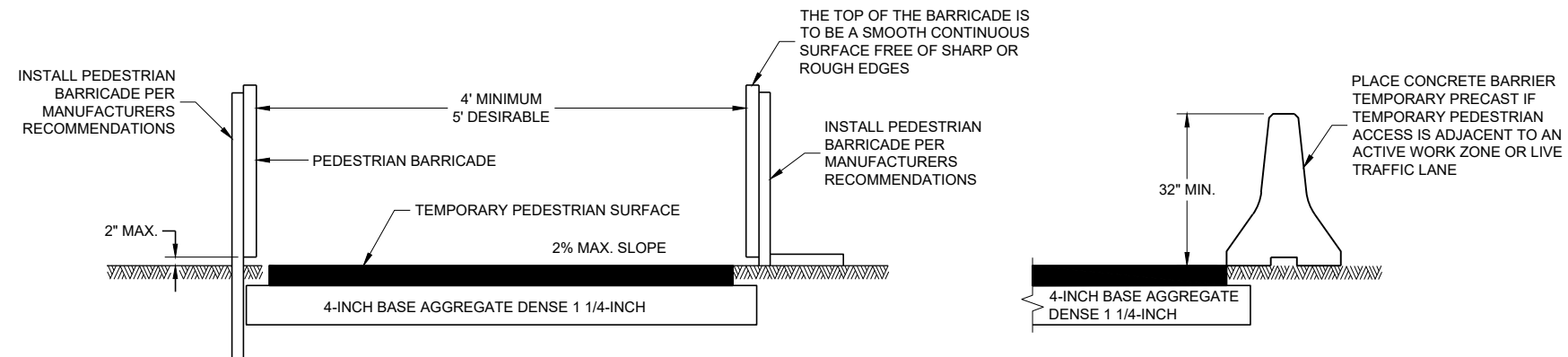
FHWA

SDD 15D28 - 04

SDD 15D28 - 04



NARROW SIDEWALK PASSING DETAIL



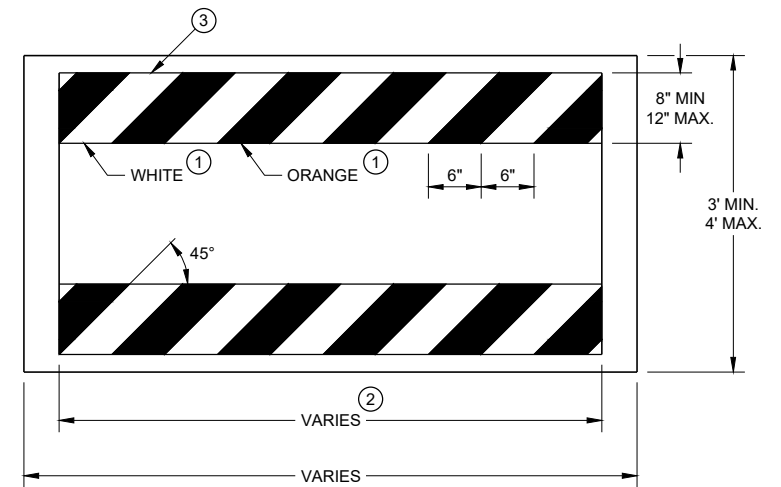
TEMPORARY PEDESTRIAN ACCESS

GENERAL NOTES

BARRICADE DEVICE SELECTED FROM APPROVED PRODUCT LIST

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.
- ③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.

* USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.



TEMPORARY PEDESTRIAN BARRICADE*

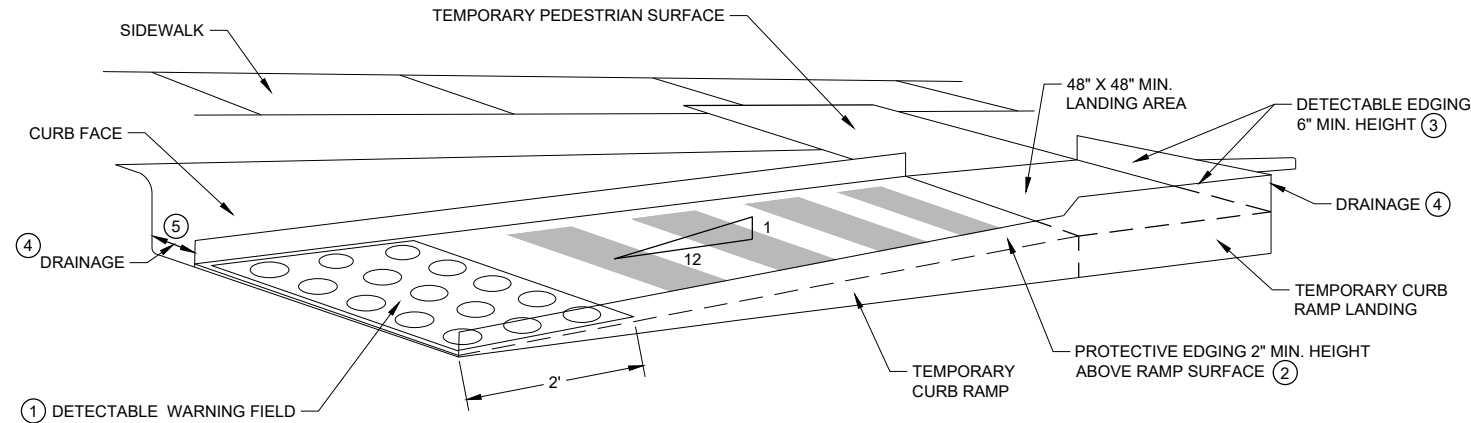
**TRAFFIC CONTROL,
PEDESTRIAN
ACCOMMODATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

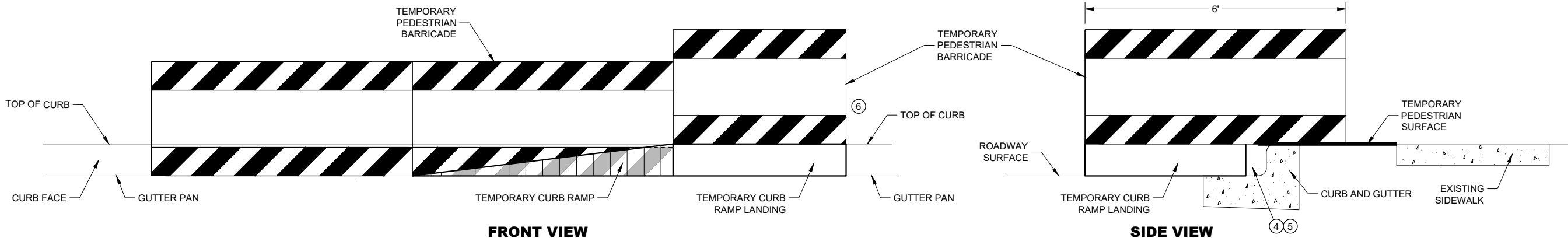
GENERAL NOTES

CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.
 CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.
 CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
 LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
 CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS.
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑤ ENSURE CURB RAMP IS OUT OF THE GUTTER PAN.
- ⑥ IF ONLY PART OF THE END PANEL OF TEMPORARY PEDESTRIAN BARRICADE PANEL IS NEEDED, EXTEND EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL HERE.



PERSPECTIVE VIEW

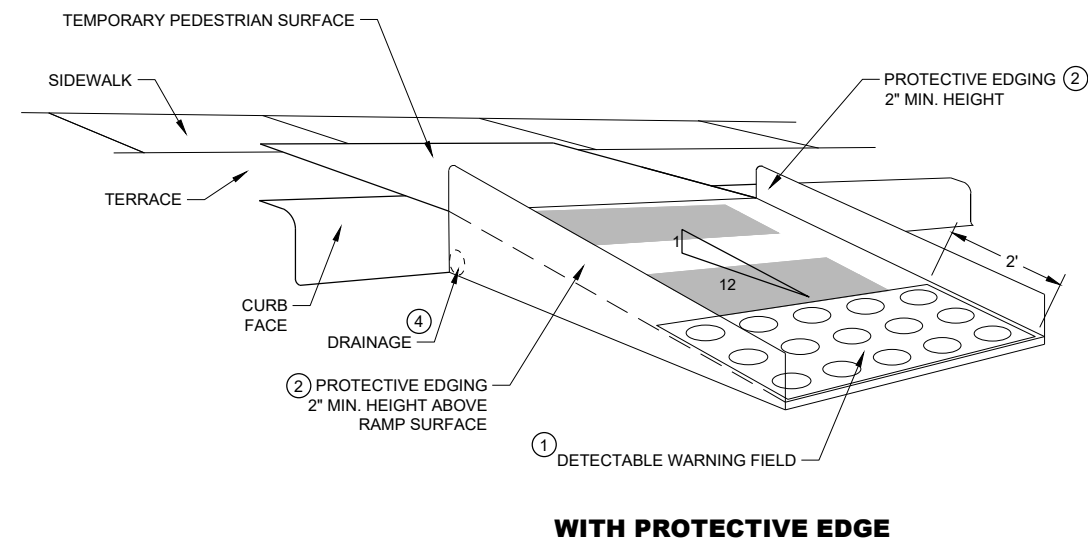
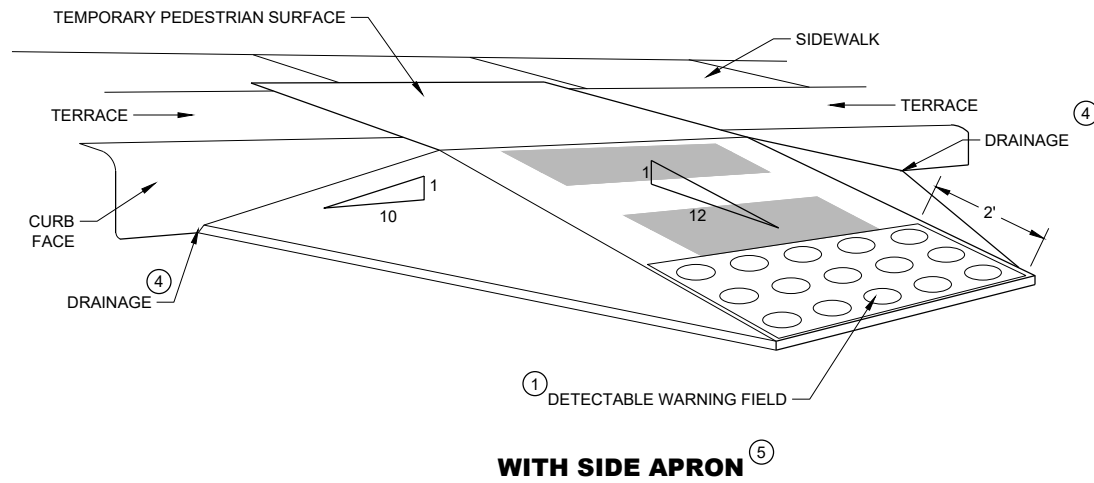


FRONT VIEW

SIDE VIEW

TEMPORARY CURB RAMP PARALLEL TO CURB

<p>TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>



TEMPORARY CURB RAMP PERPENDICULAR TO CURB

GENERAL NOTES

CURB RAMPS SHALL BE 48" MINIMUM WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.










CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES MAY BE VERTICAL UP TO 1/4" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

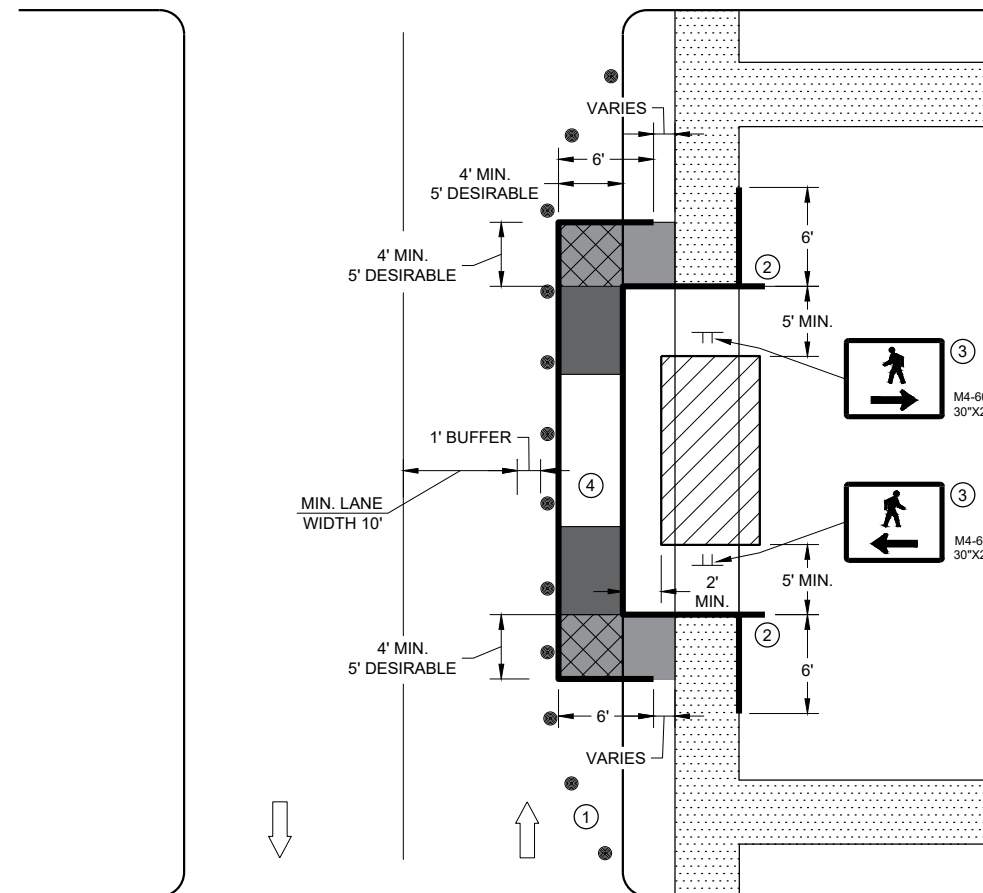
- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- ③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- ④ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ⑤ CAN ONLY BE USED FOR RAMPS WITH 6" OR LESS OF VERTICAL CHANGE.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  WORK AREA
-  UNDER PEDESTRIAN TRAFFIC
-  TEMPORARY CURB RAMP
-  TEMPORARY PEDESTRIAN SURFACE "A"
-  TEMPORARY PEDESTRIAN SURFACE "B"
-  TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC

GENERAL NOTES

- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.
- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND BUFFER SPACE REQUIRED.
 - ② PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL PAST THE SIDEWALK ON THE SIDE AWAY FROM THE ROAD.
 - ③ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.
 - ④ USE EXISTING PAVEMENT SURFACE. IF EXISTING PAVEMENT SURFACE HAS BEEN REMOVED, USE A TEMPORARY PEDESTRIAN SURFACE.



SIDEWALK DIVERSION, SINGLE SIDE

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

6

SDD 15D30 - 08h

SDD 15D30 - 08h

GENERAL NOTES

IF PEDESTRIAN PUSH BUTTONS ARE PRESENT ON THE EXISTING FACILITY, ENSURE THEY ARE MAINTAINED/ACCESSIBLE FOR PEDESTRIAN USE THROUGHOUT THE TEMPORARY PEDESTRIAN ACCOMMODATIONS.











SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISCONSIN STANDARD SIGN PLATES.

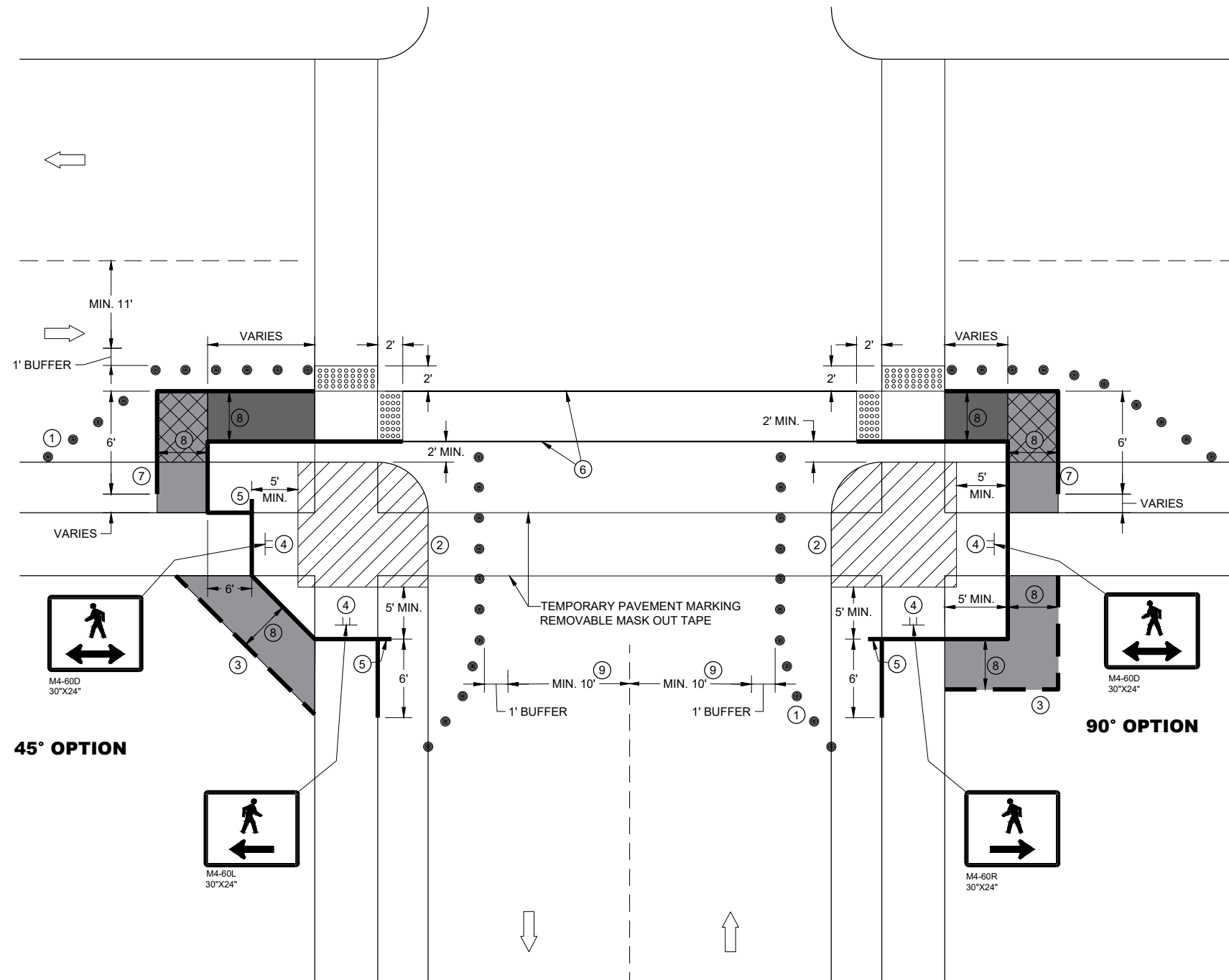
TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG

WHEN TEMPORARY PEDESTRIAN BARRICADE RUNS PARALLEL ALONG THE SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
- ② PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
- ③ USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ④ MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE TO BOTTOM OF SIGN.
- ⑤ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL IN THE SIDEWALK TERRACE.
- ⑥ WHITE 6" TEMPORARY PAVEMENT MARKING
- ⑦ IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
- ⑧ 4 FEET MINIMUM, 5 FEET DESIRABLE
- ⑨ IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, CURB RAMPS MAY NEED TO BE CONSTRUCTED AT SEPARATE TIMES.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  WORK AREA
-  TEMPORARY CURB RAMP
-  TEMPORARY PEDESTRIAN SURFACE "A"
-  TEMPORARY PEDESTRIAN SURFACE "B"
-  TEMPORARY DETECTABLE WARNING FIELD
-  TEMPORARY PEDESTRIAN BARRICADE
-  OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC

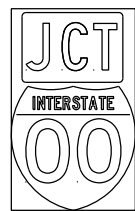


CURB RAMP PEDESTRIAN TRAFFIC CONTROL

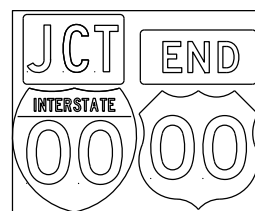
**TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

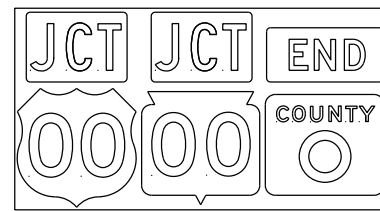
TYPICAL ASSEMBLIES



J1-1



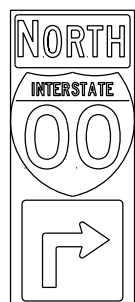
J1-2



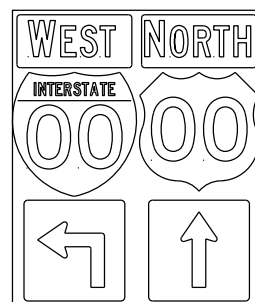
J1-3



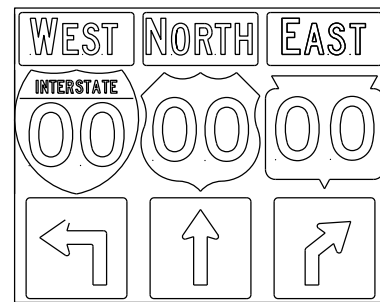
JR1-1



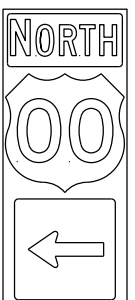
J2-1



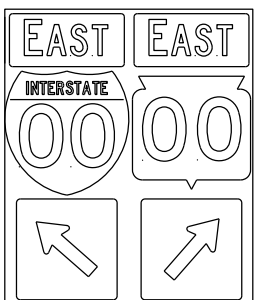
J2-2



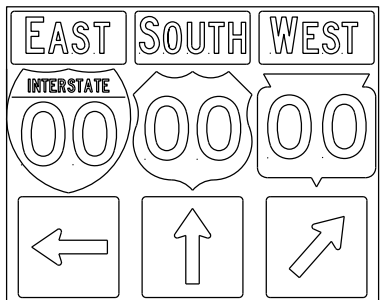
J2-3



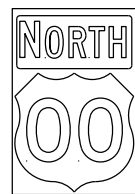
J3-1



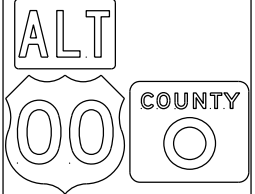
J3-2



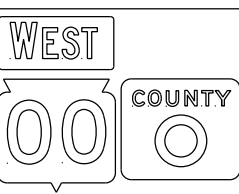
J3-3



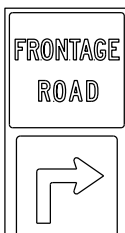
J4-1



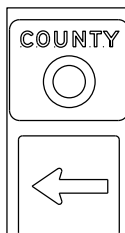
J4-2



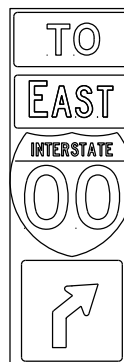
J4-2



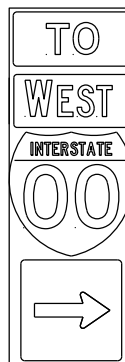
J12-1



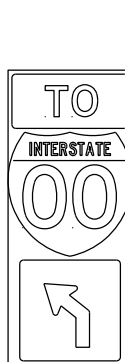
J13-1



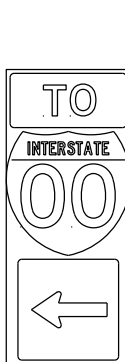
J32-1



J33-1



J22-1



J23-1



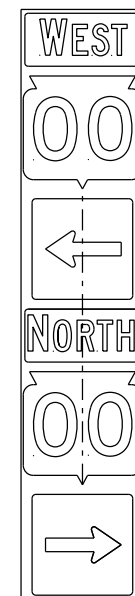
JR13-1



JR23-1

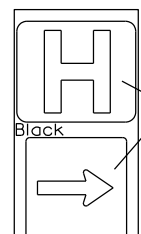


JR99-1



JV

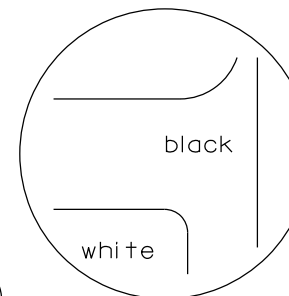
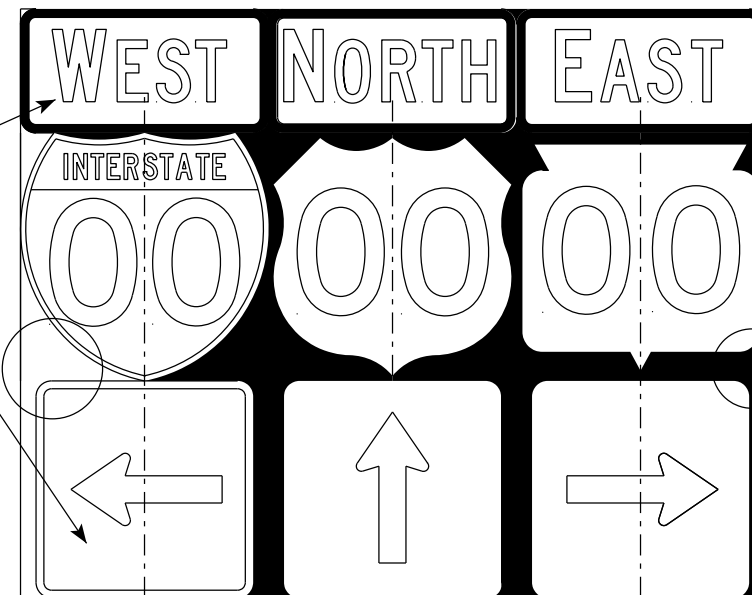
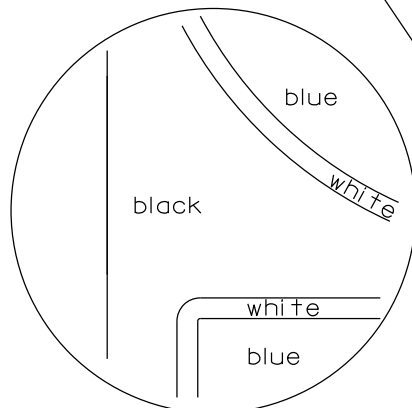
(Typical Vertical J-Assembly See Note 10 and 11)



JH-1

Blue Background

blue background with interstate



black background

NOTES

- Signs are Type II - Type H Reflective
- Color:
 - Background - Black Non-reflective
 - Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an MI-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 3/18/21

PLATE NO. A2-1S.9

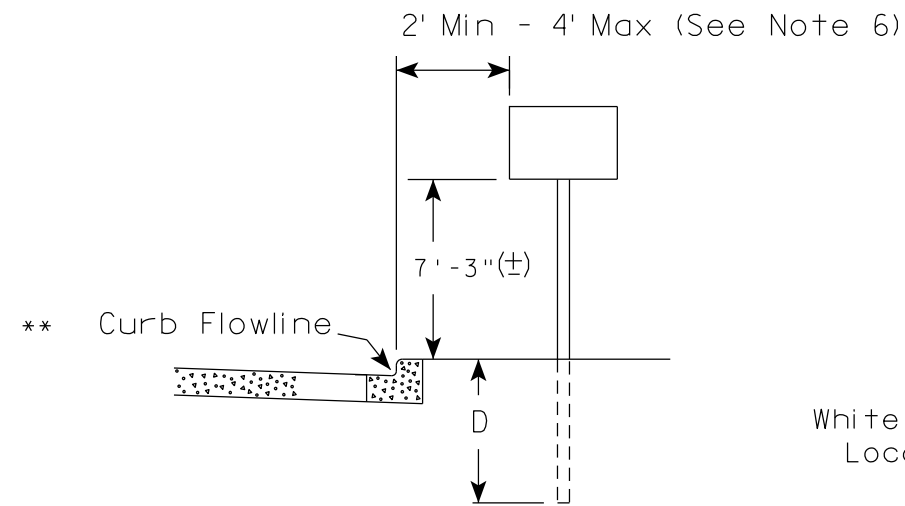
PROJECT NO:

SHEET NO:

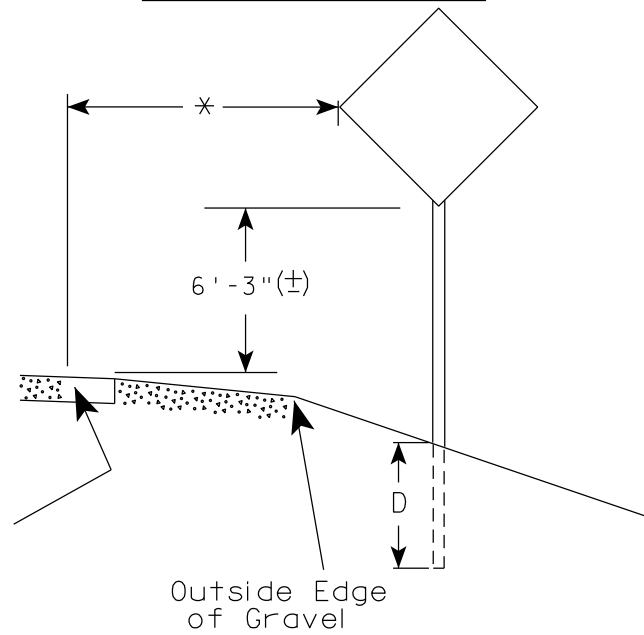
E

URBAN AREA

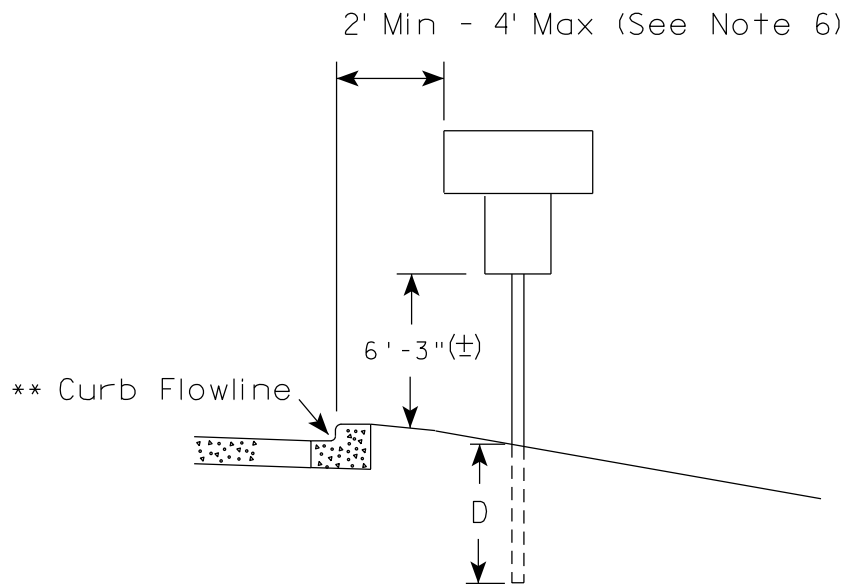
RURAL AREA (See Note 2)



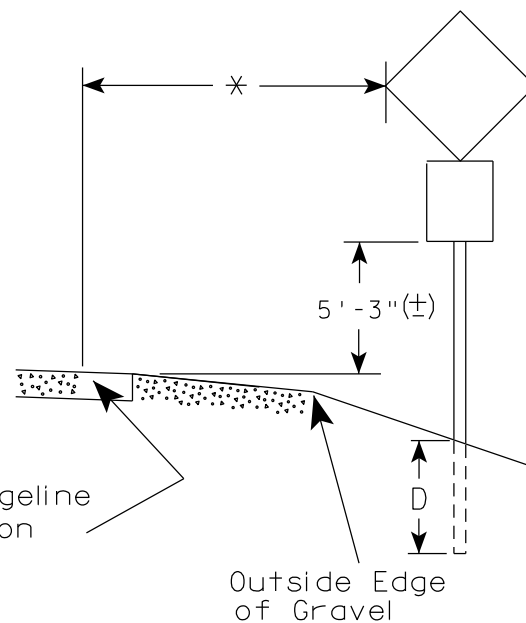
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

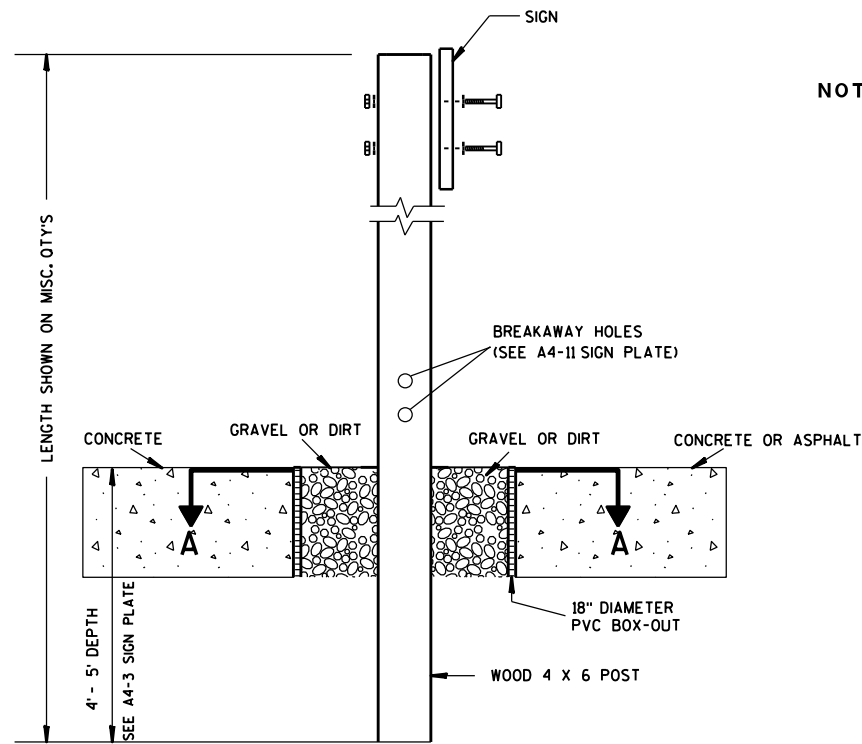
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

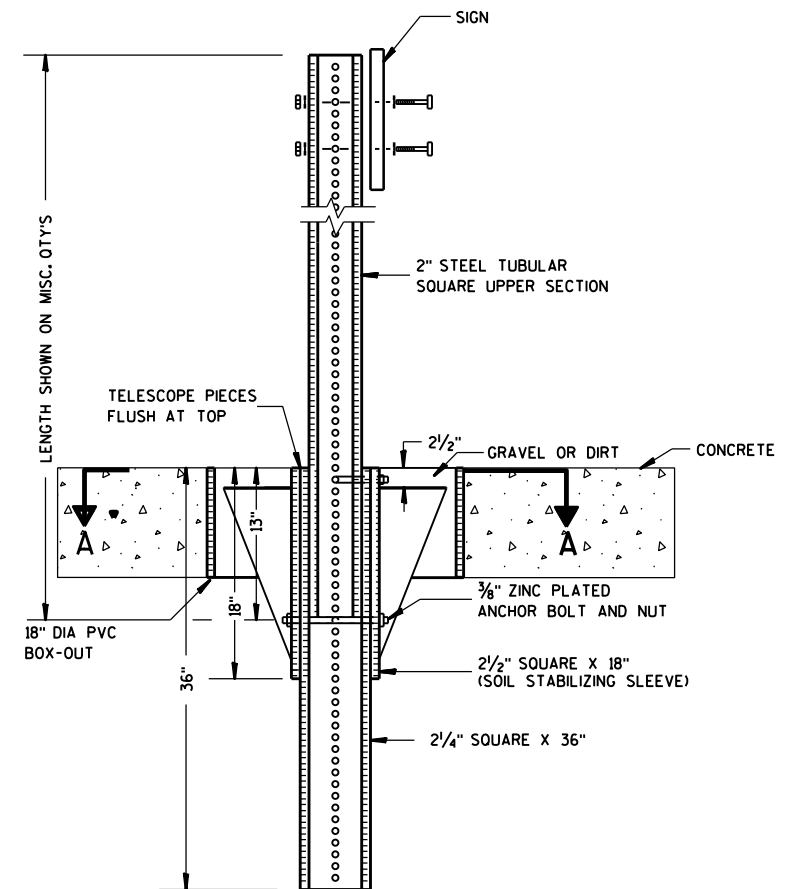
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

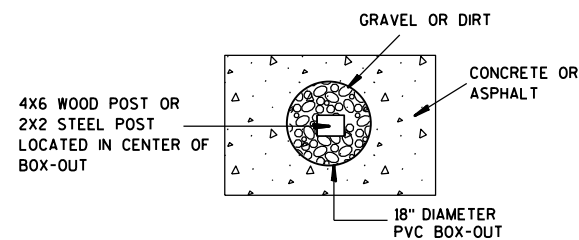
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

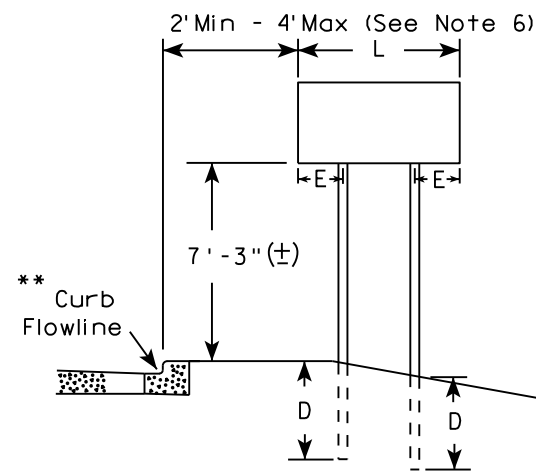
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

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

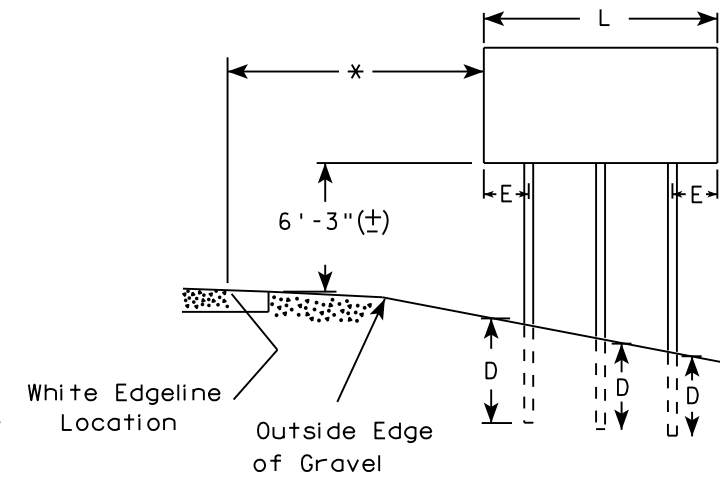
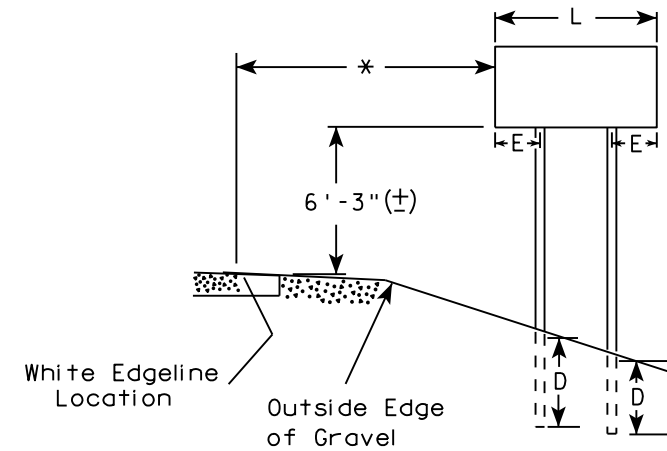
GENERAL NOTES

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

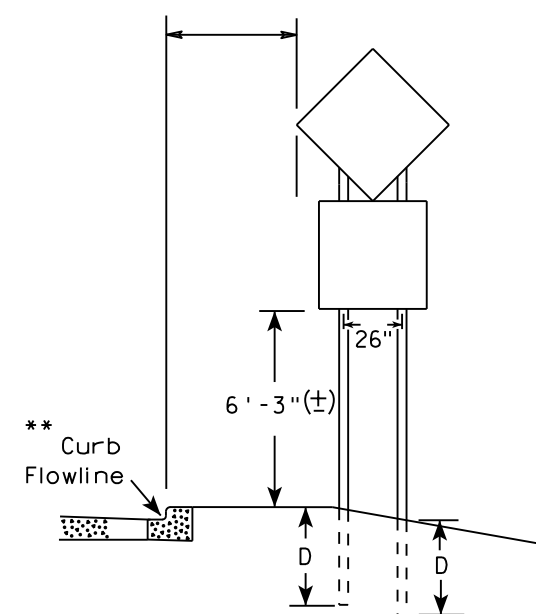
URBAN AREA



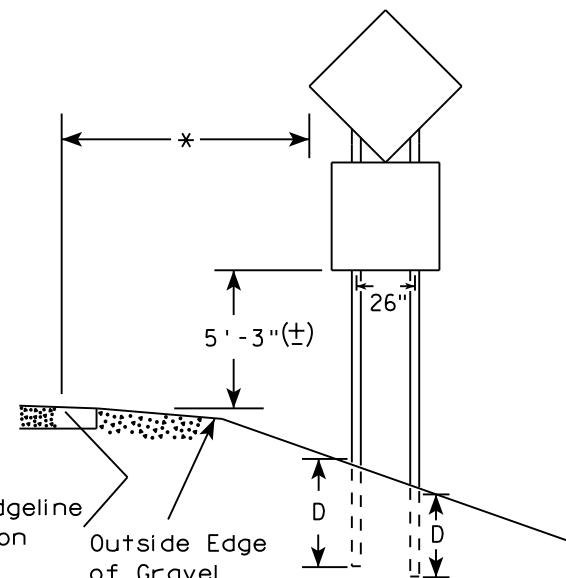
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

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

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

POST EMBEDMENT DEPTH

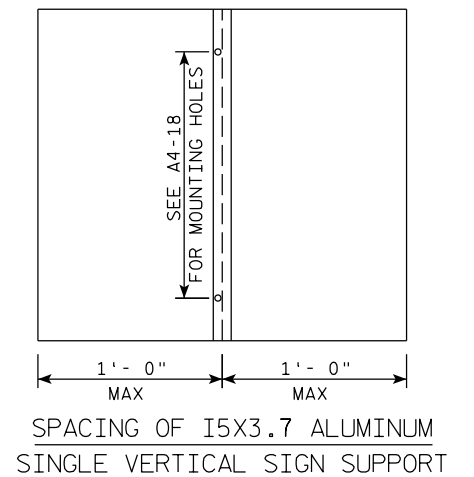
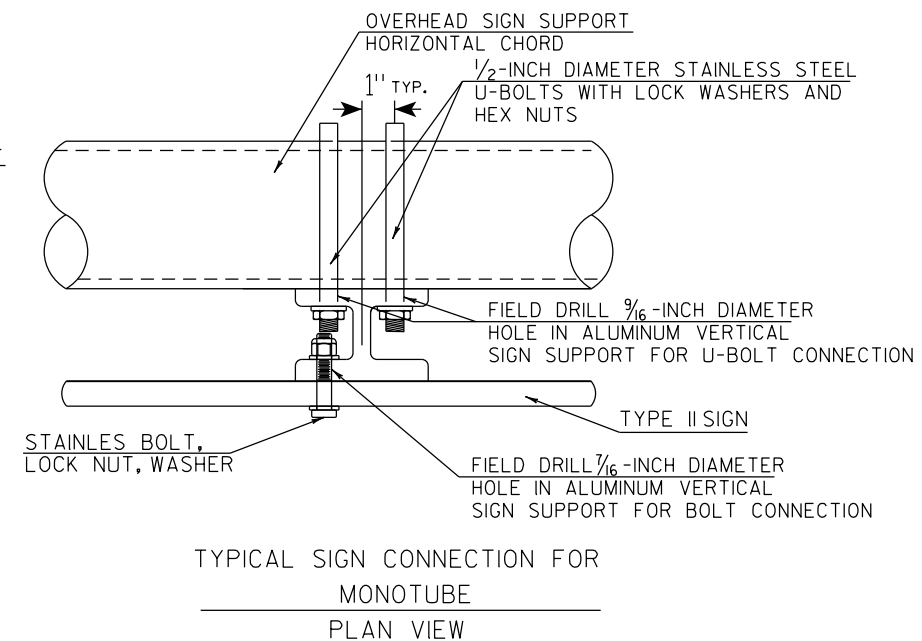
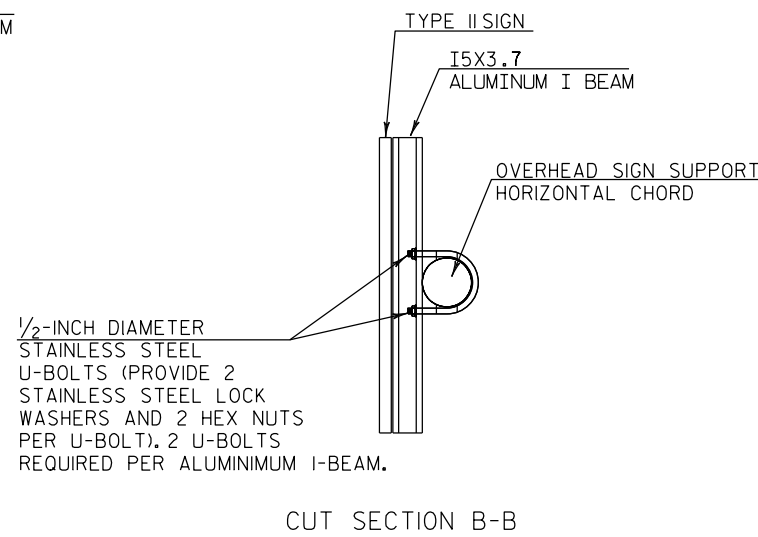
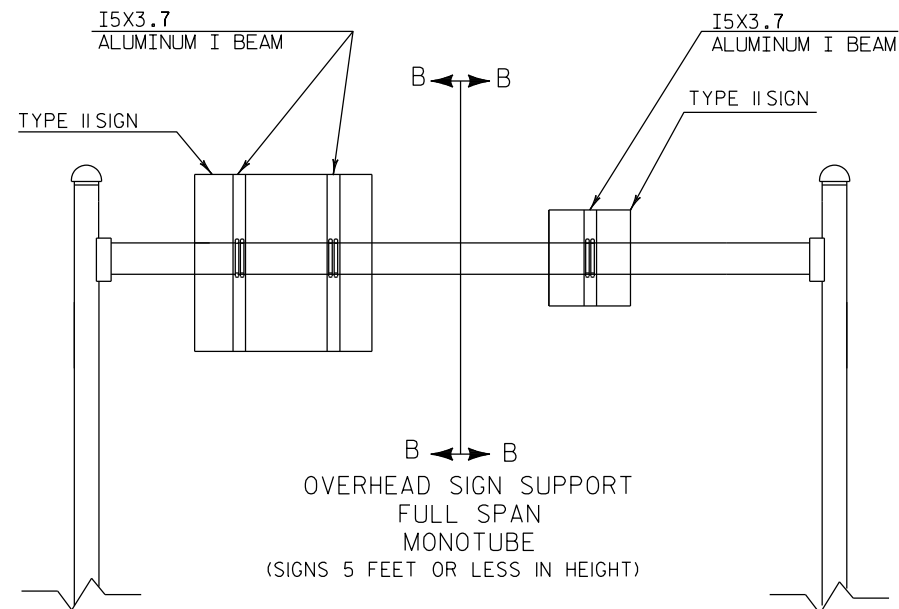
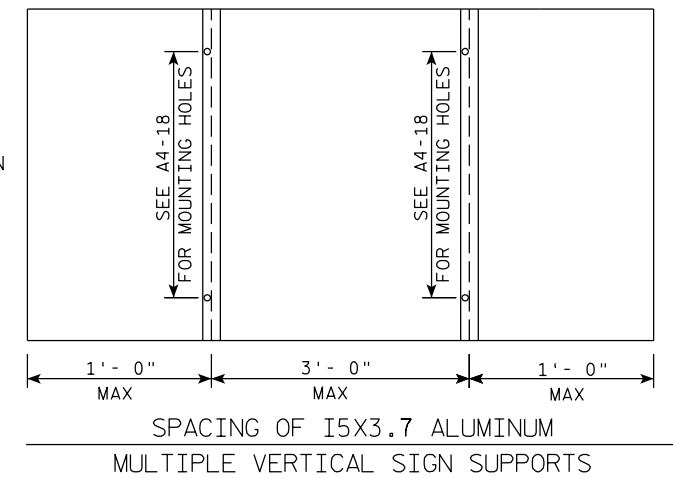
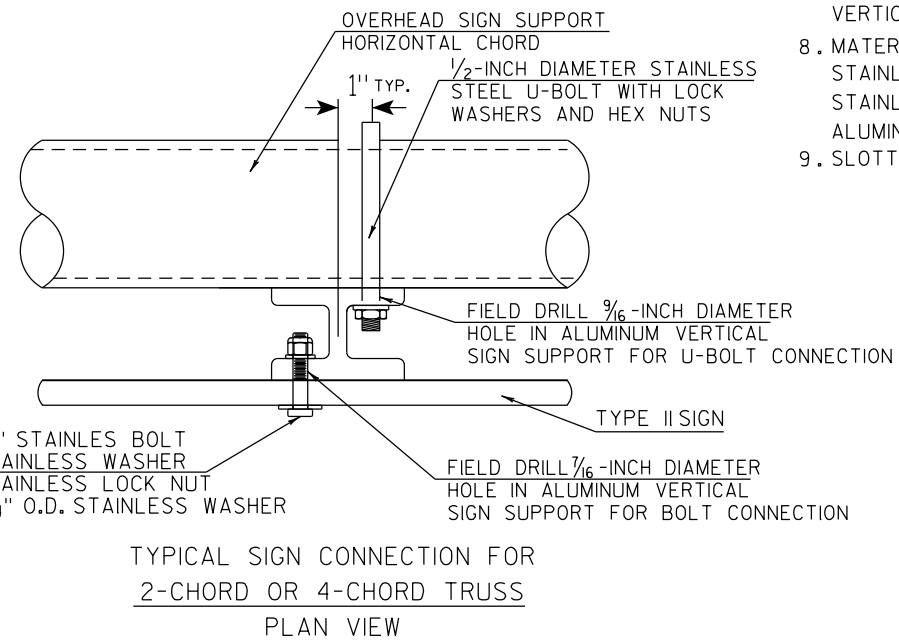
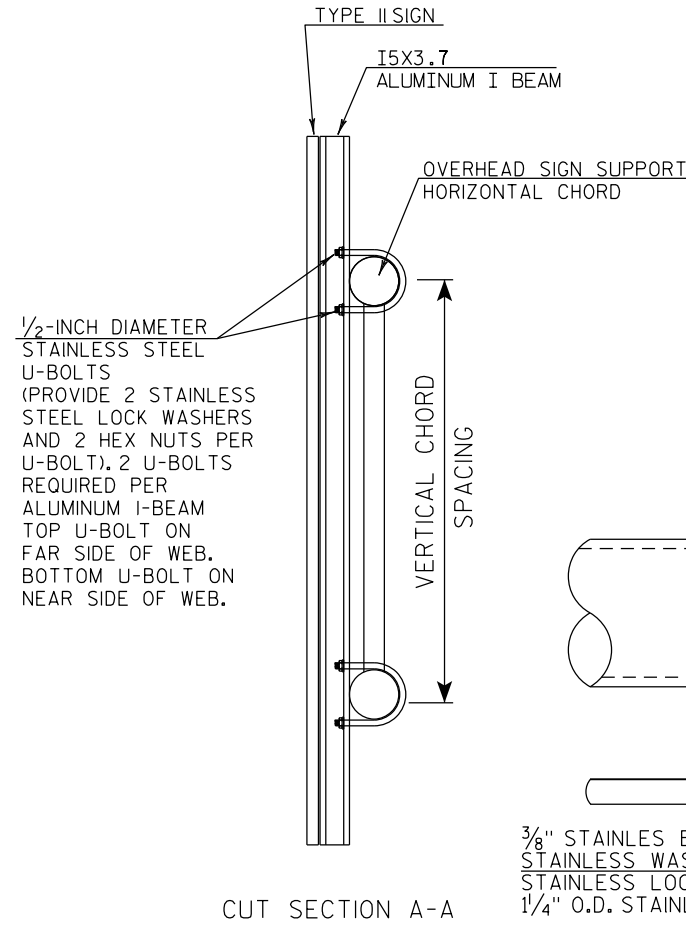
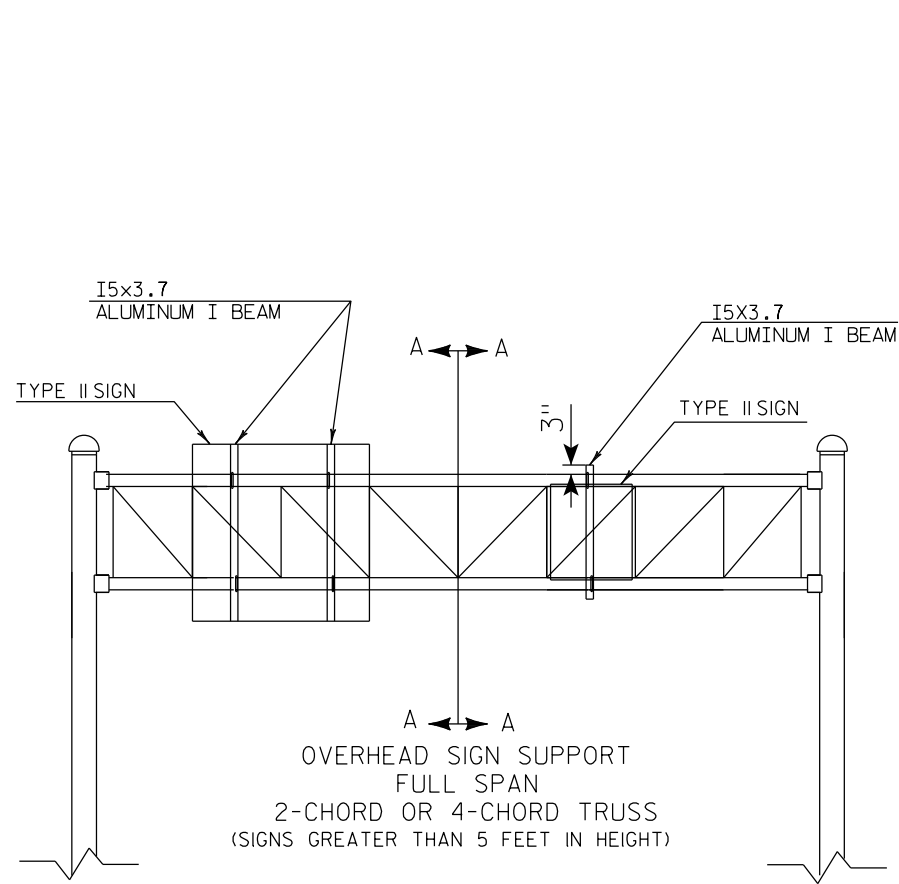
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

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

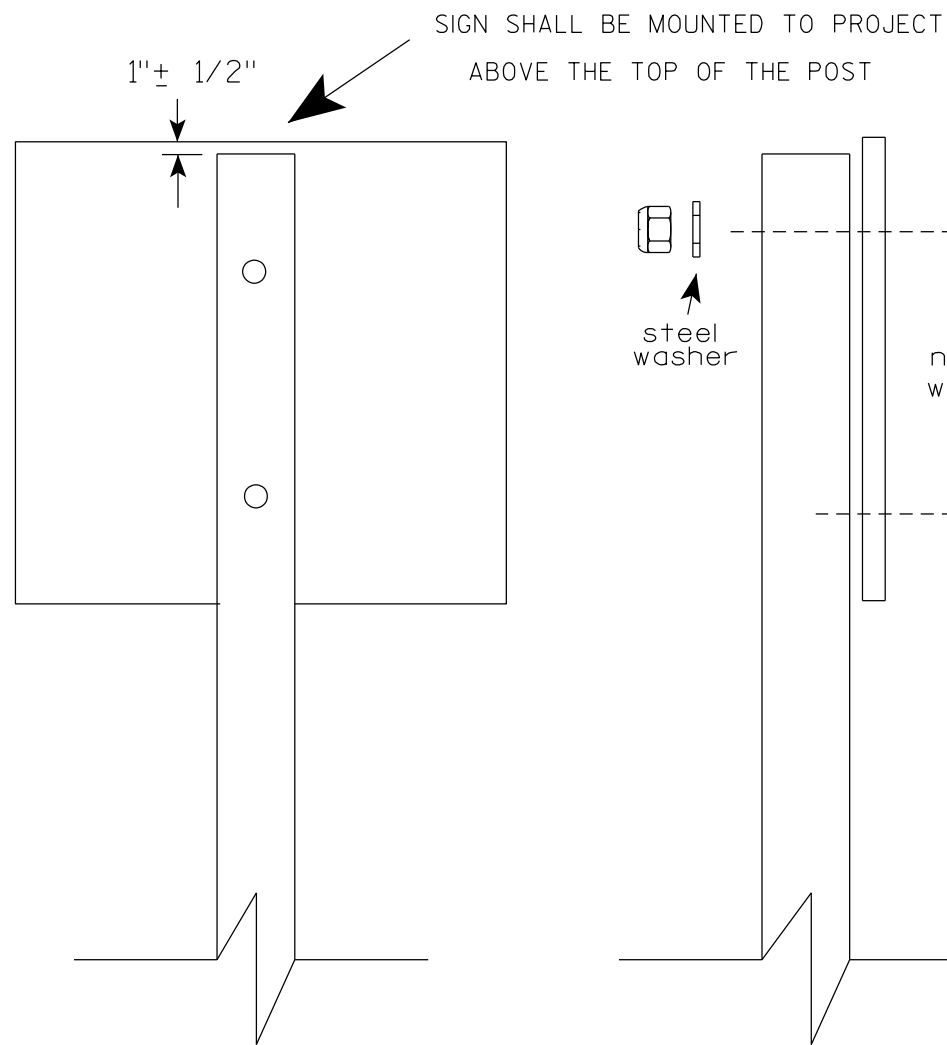
GENERAL NOTES

1. USE STAINLESS STEEL U-BOLTS, WASHERS, AND NUTS.
2. USE STAINLESS BOLTS AT BOLT HOLES IN SIGN PANEL PER SIGN PLATE A4-18.
3. USE ALUMINUM VERTICAL SIGN SUPPORT BEAMS HAVING A 5 INCH BEAM DEPTH AND WEIGHT OF 3.7 LBS PER FOOT.
4. U-BOLTS SHALL BE STAINLESS STEEL AND MANUFACTURED TO THE PROPER SIZE TO FIT THE CHORDS OF THE OVERHEAD SIGN STRUCTURE.
5. DIAMETER OF U-BOLTS SHALL BE AS SHOWN.
6. THE LENGTH OF THE ALUMINUM VERTICAL SIGN SUPPORT BEAMS SHALL BE THE SAME AS THE HEIGHT OF THE SIGN THEY ARE SUPPORTING. BEAM LENGTHS MAY BE LONGER FOR PROPER ATTACHMENT TO CHORDS.
7. SEE DETAIL BELOW FOR SPACING OF ALUMINUM VERTICAL SIGN SUPPORTS
8. MATERIAL NOTES:
STAINLESS STEEL U-BOLTS, BOLTS, AND LOCKWASHERS ASTM 304.
STAINLESS STEEL HEX NUTS ASTM A276.
ALUMINUM I-BEAMS ARE 6061-T6.
9. SLOTTED HOLES IN I-BEAMS ARE NOT ALLOWED



TYPE II SIGN CONNECTION
TO OVERHEAD SIGN SUPPORT

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 1/07/20 PLATE NO. A4-7B.1



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

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

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

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

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

ATTACHMENT OF SIGNS
TO POSTS

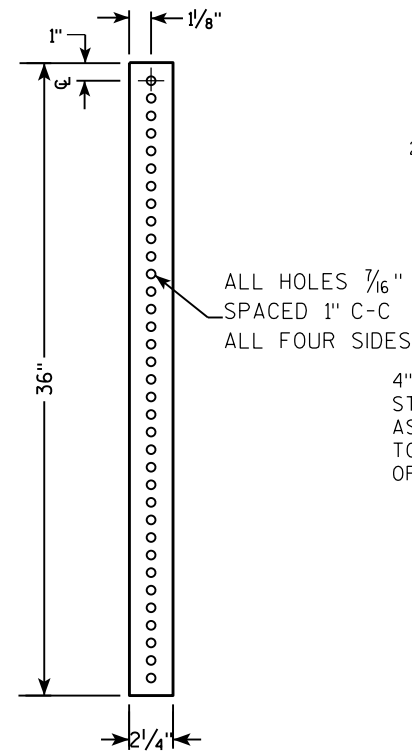
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

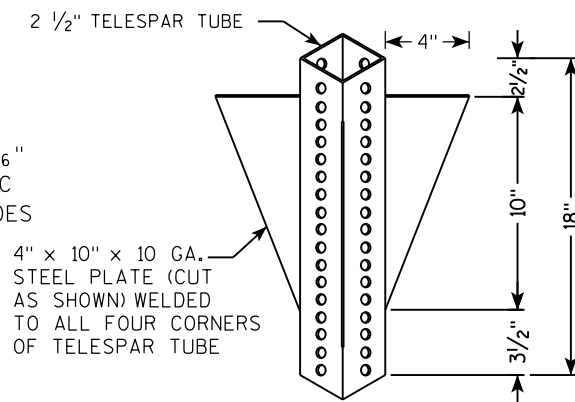
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

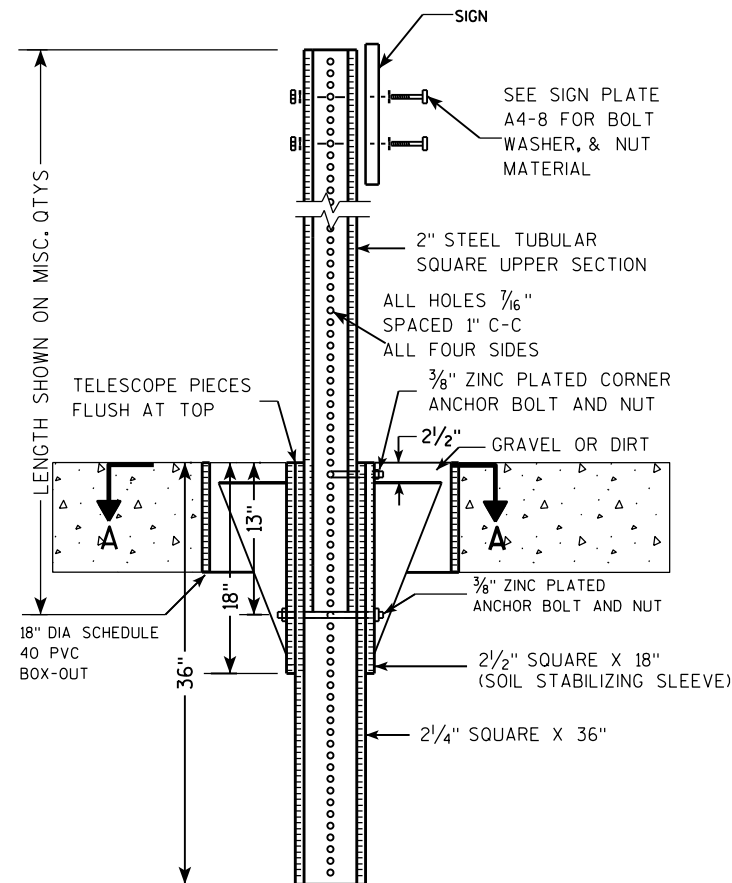
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



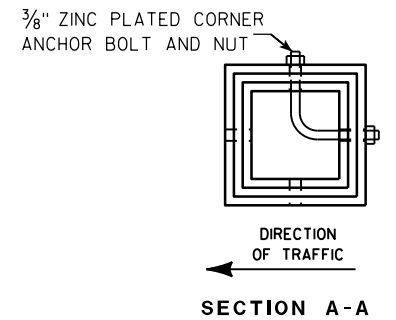
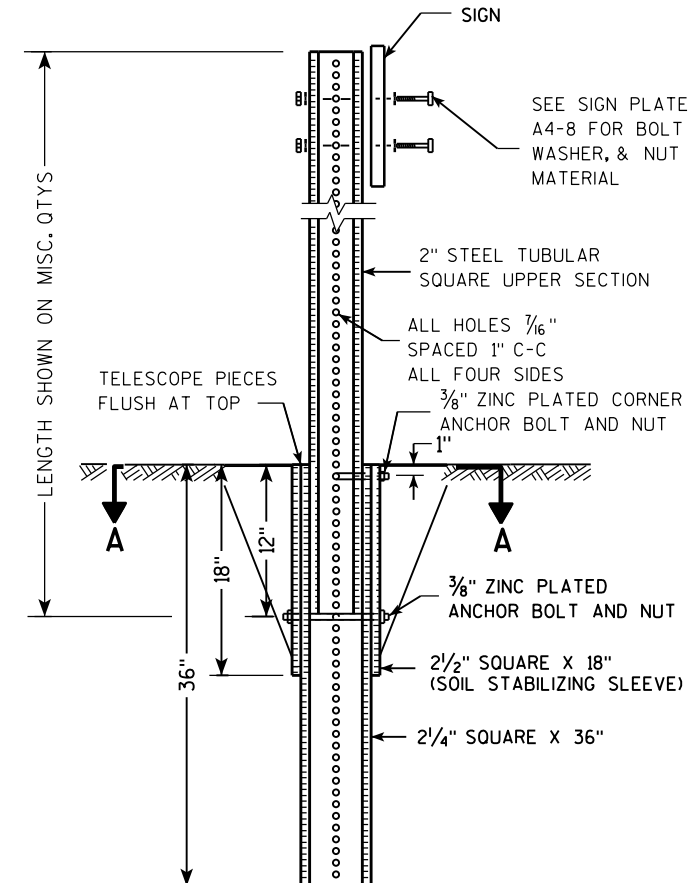
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

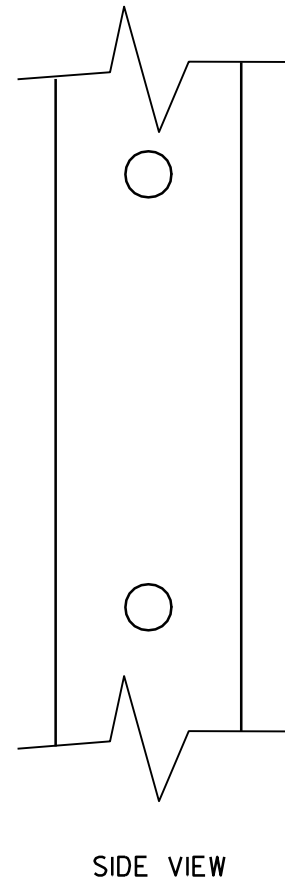
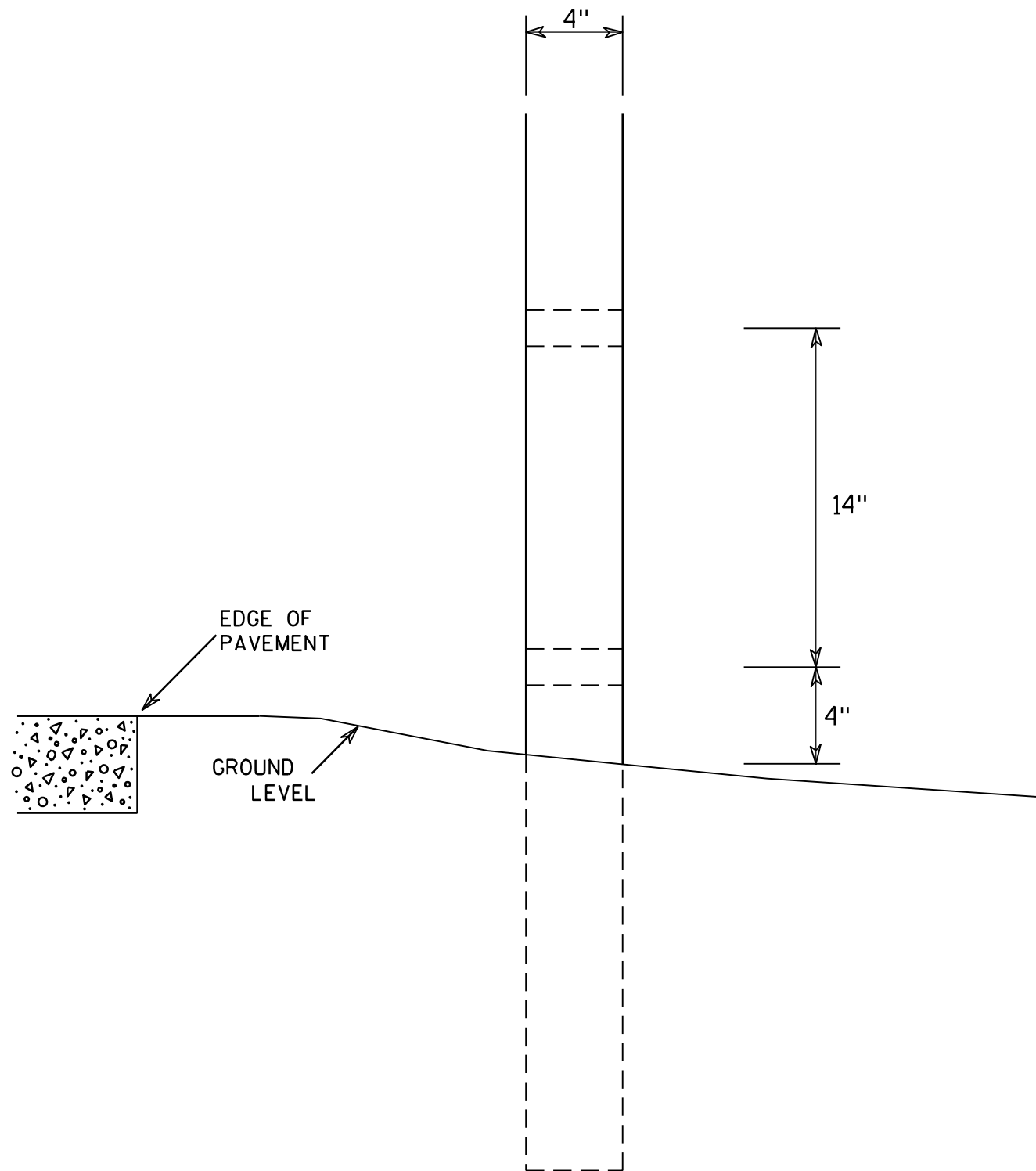
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



GENERAL NOTES

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

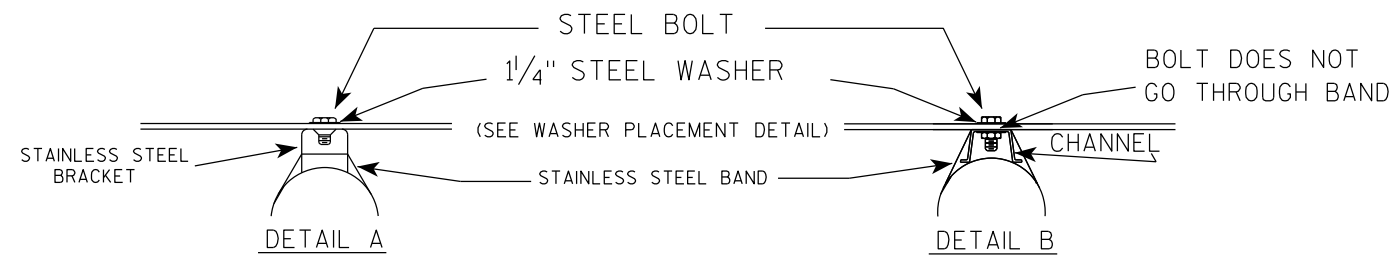
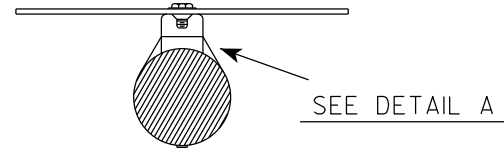
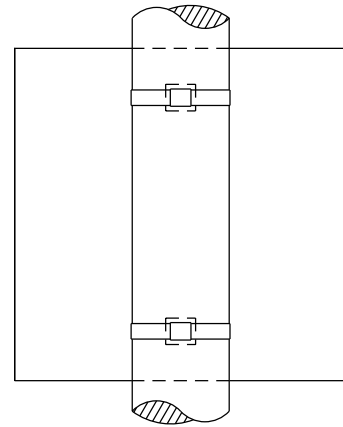
7

7

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

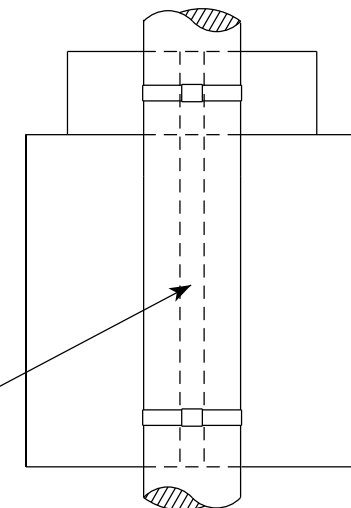
BANDING

SINGLE SIGN

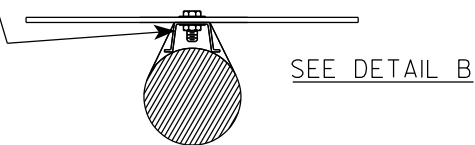


- GENERAL NOTES
1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
 2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
 3. Banding and assembly bracket shall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

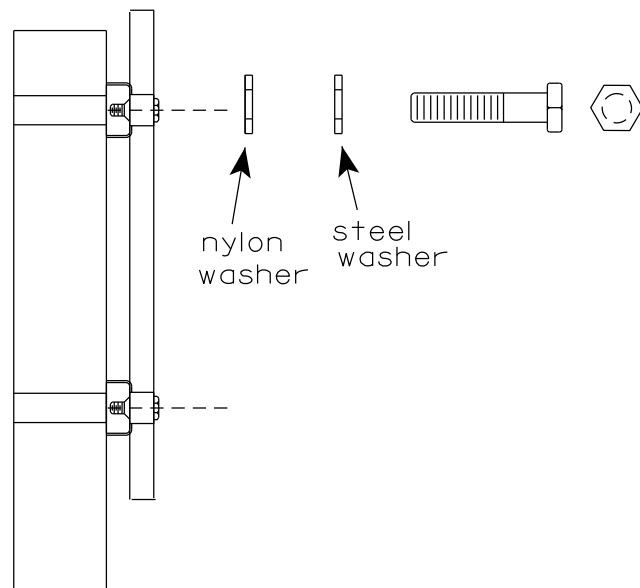
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

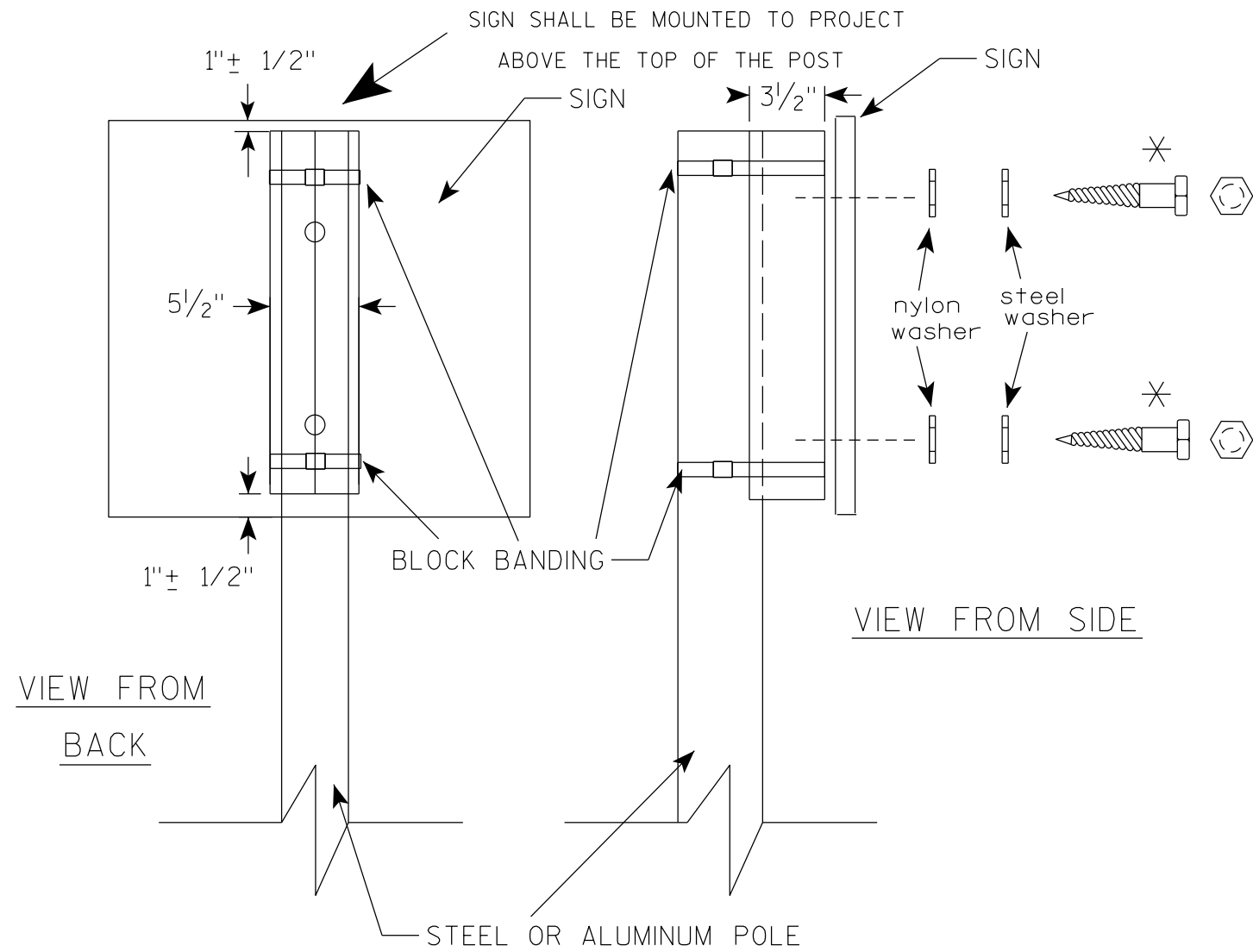


WASHER PLACEMENT



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

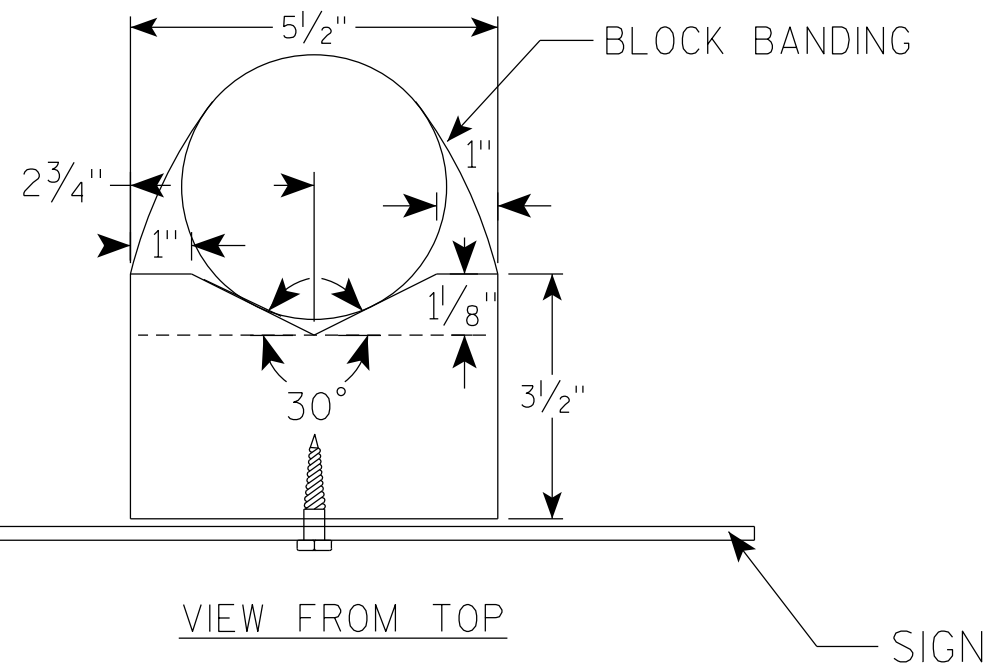
STANDARD SIGN SIGN BANDING DETAILS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-9.4



GENERAL NOTES

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

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL
(V-BLOCK OPTION)

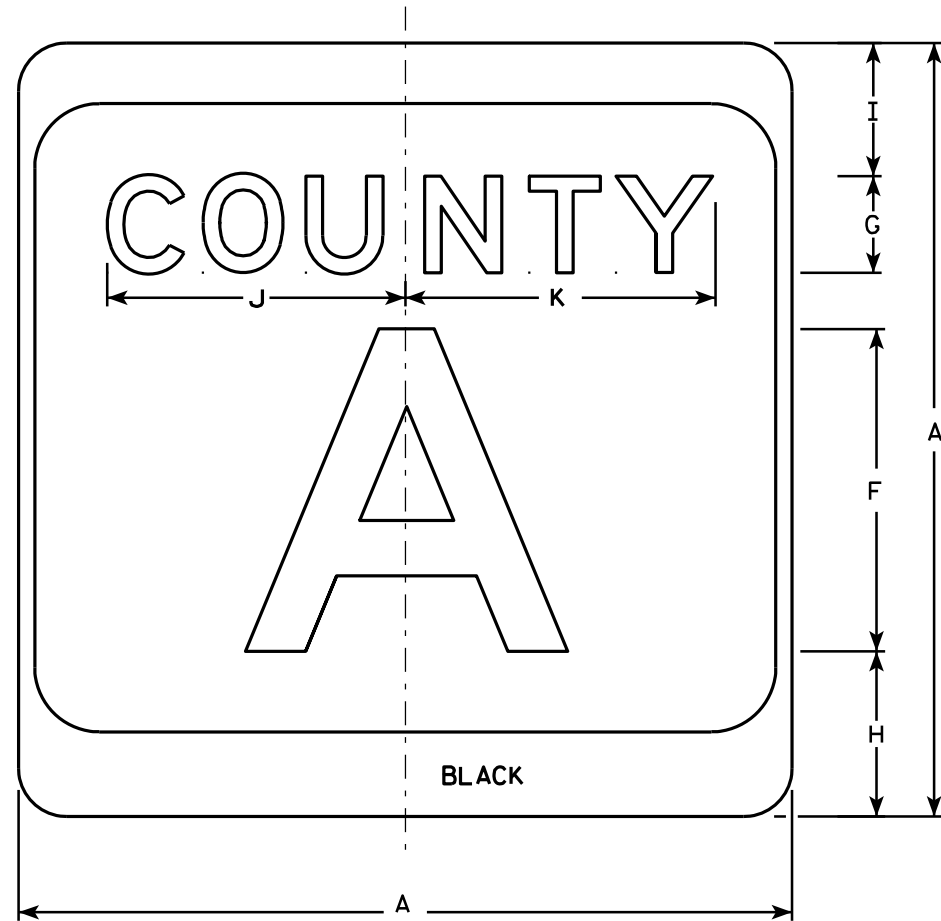
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

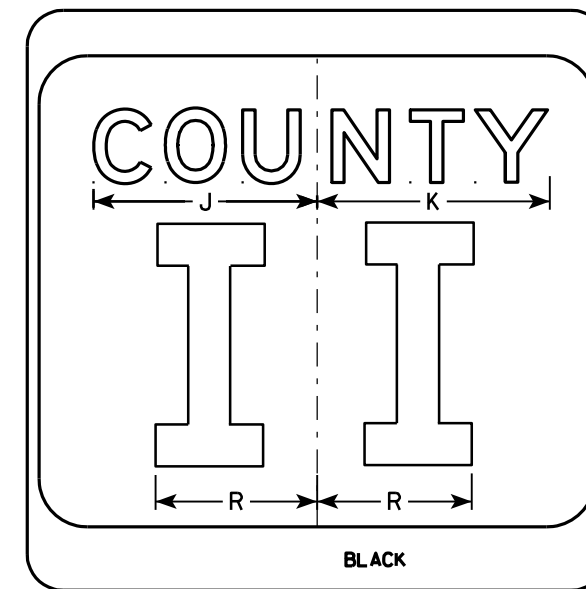
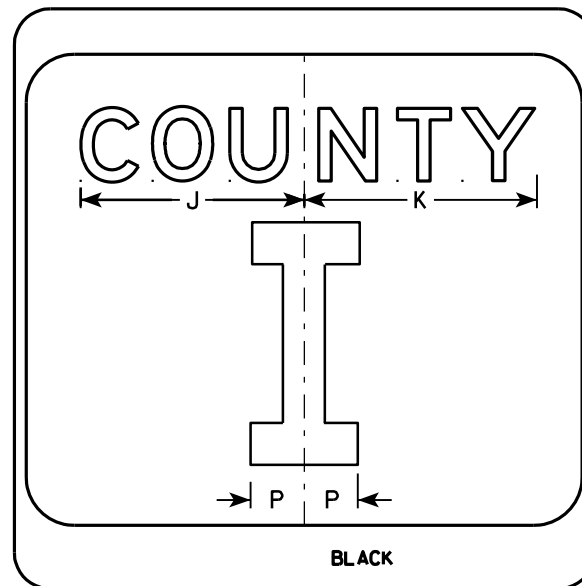
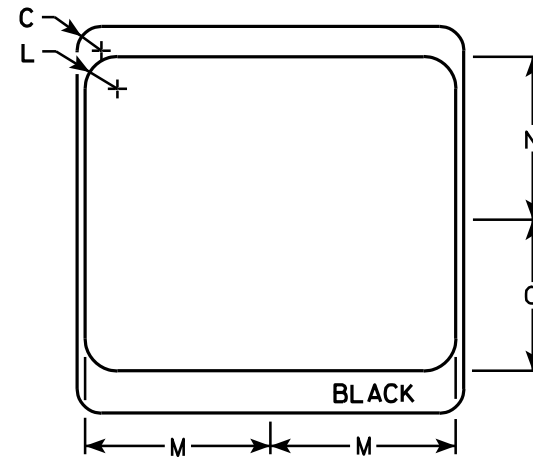
DATE 4/19/2022 PLATE NO. A5-10.3

NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



M1-5A



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

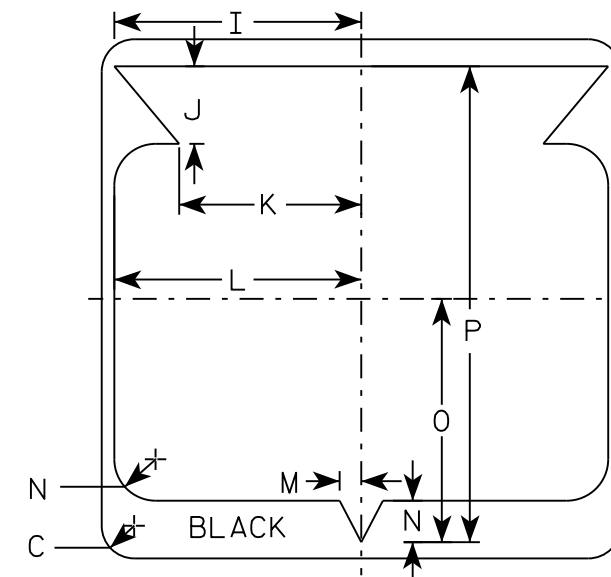
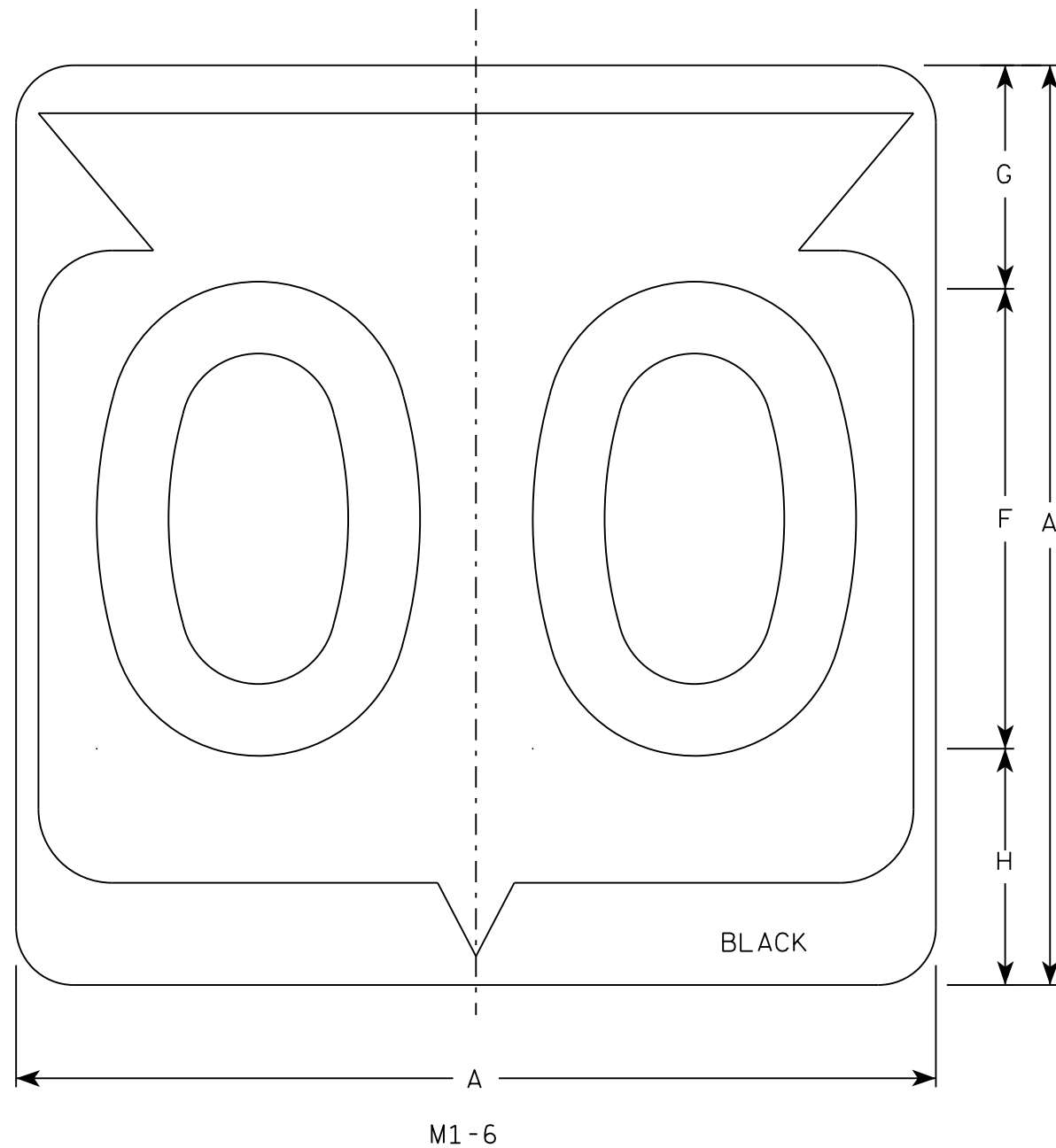
APPROVED *Matthew R. Raub*
For State Traffic Engineer

DATE 9/27/11 PLATE NO. MI-5A.8

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

NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-6.10

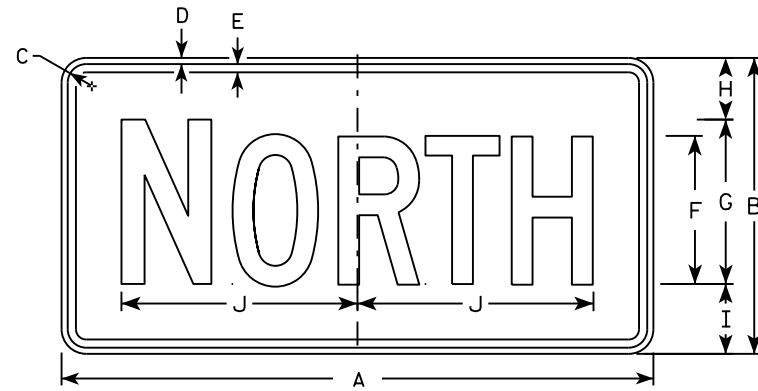
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

7

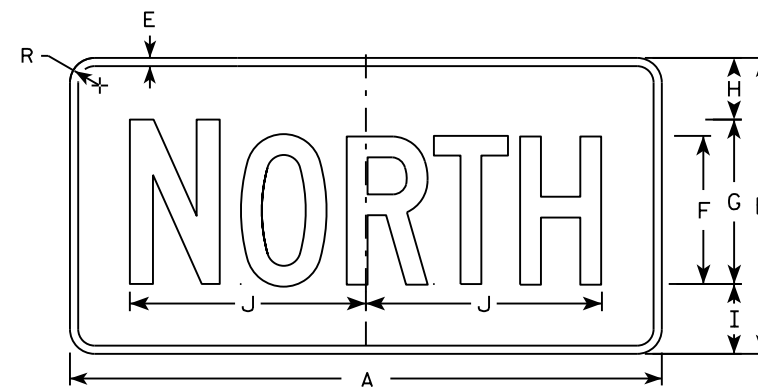
7

NOTES

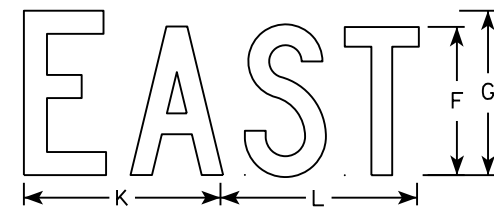
- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
 Message - Black
 MB3-1 thru MB3-4 Background - Blue
 Message - White
 MK3-1 thru MK3-4 Background - Green
 Message - White
 MM3-1 thru MM3-4 Background - White
 Message - Green
 MN3-1 thru MN3-4 Background - Brown
 Message - White
 MP3-1 thru MP3-4 Background - White
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



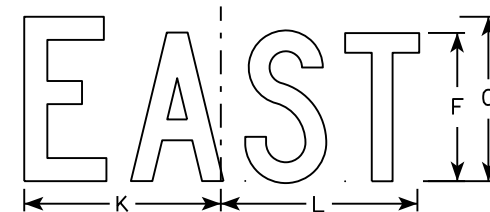
M3-1
MM3-1
MP3-1



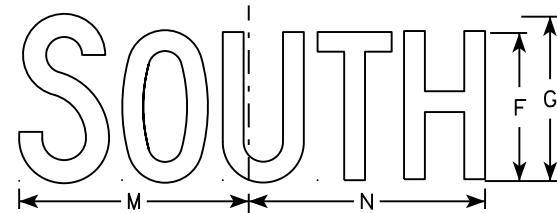
MB3-1
MK3-1
MN3-1



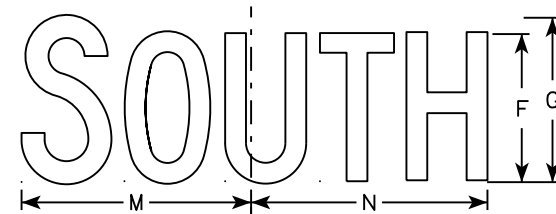
M3-2
MM3-2
MP3-2



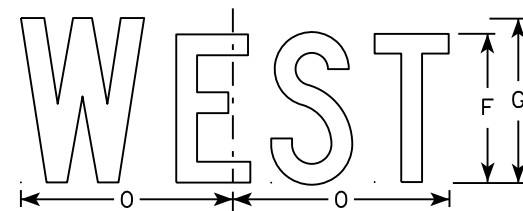
MB3-2
MK3-2
MN3-2



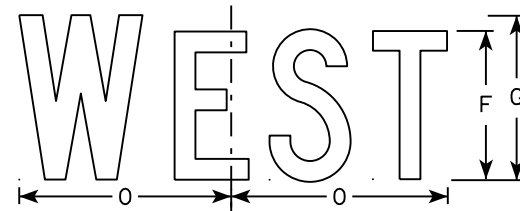
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

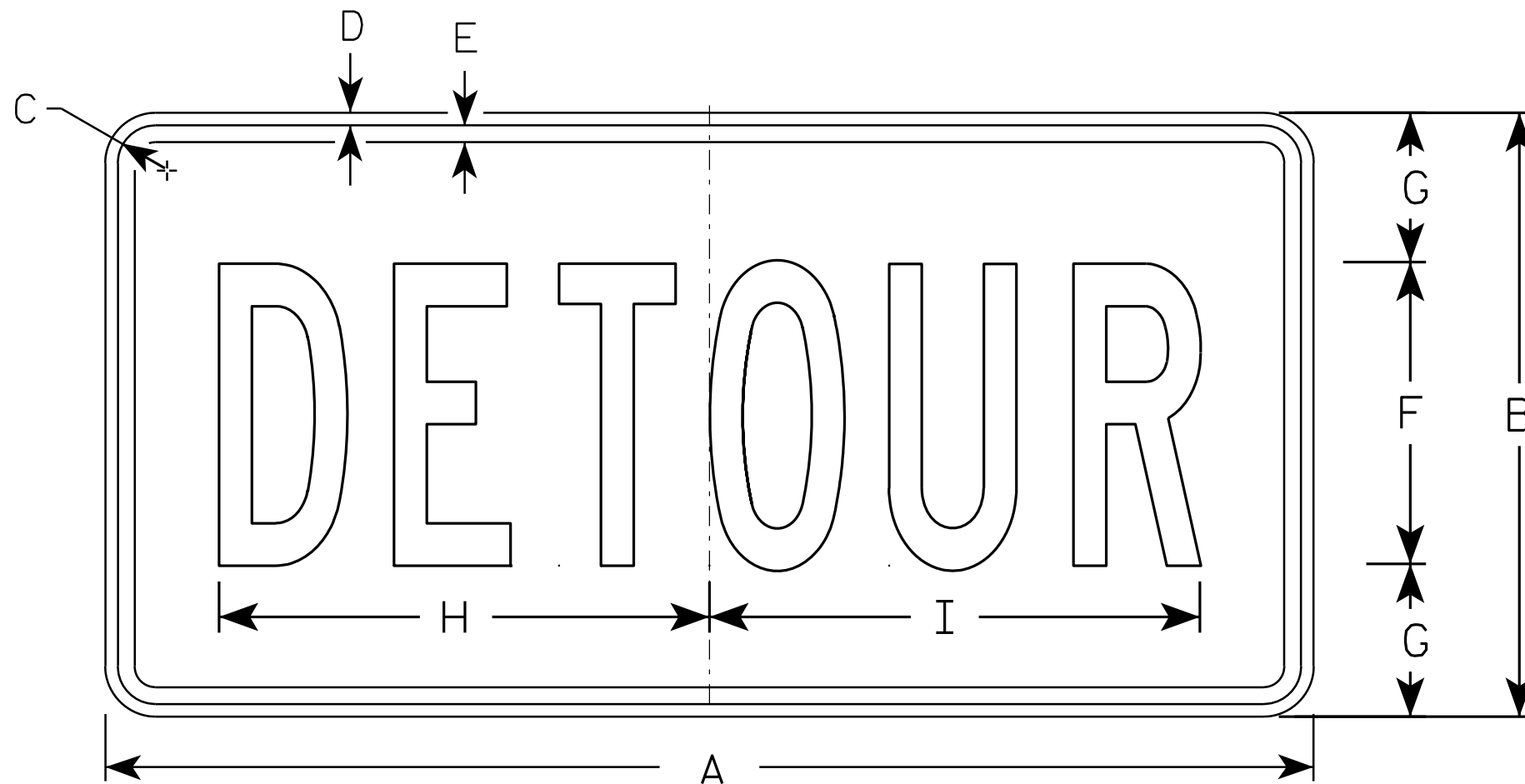
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

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



M4-8

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

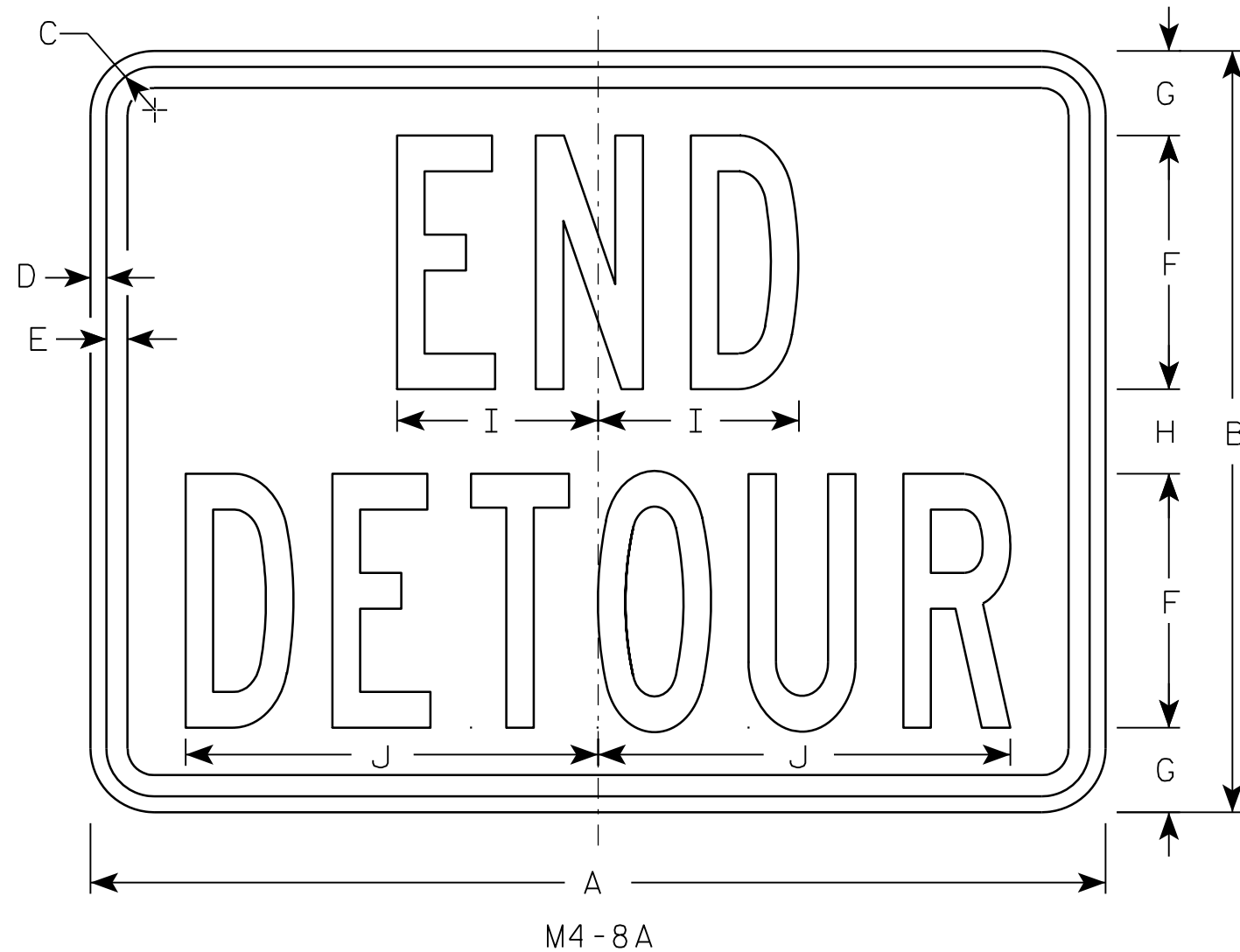
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

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

NOTES

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



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

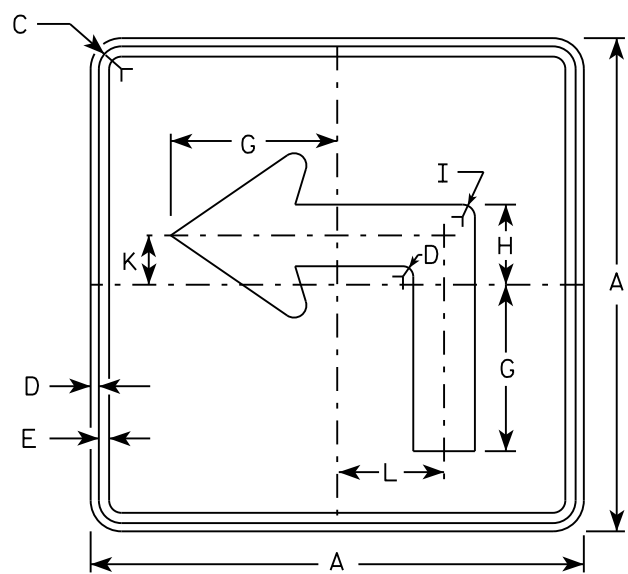
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

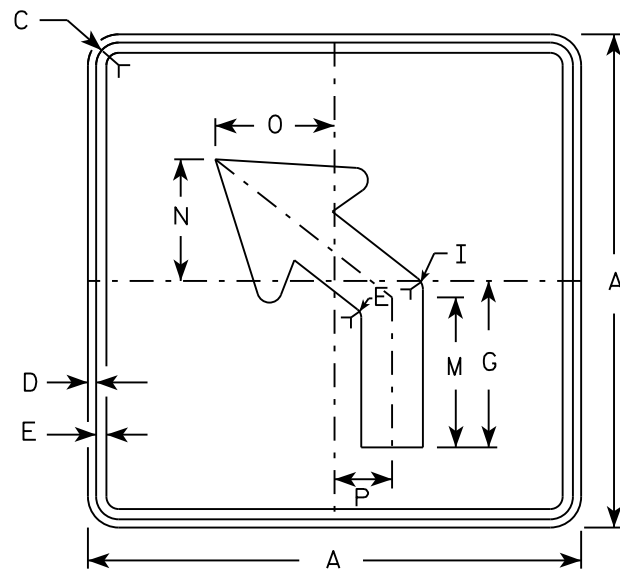
APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

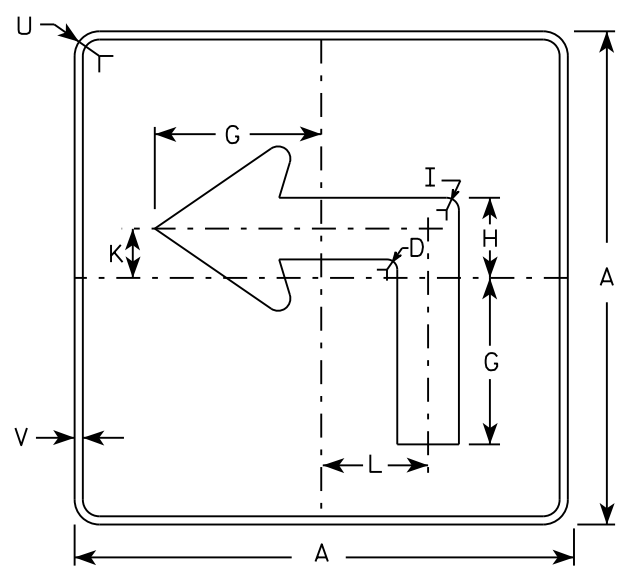
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



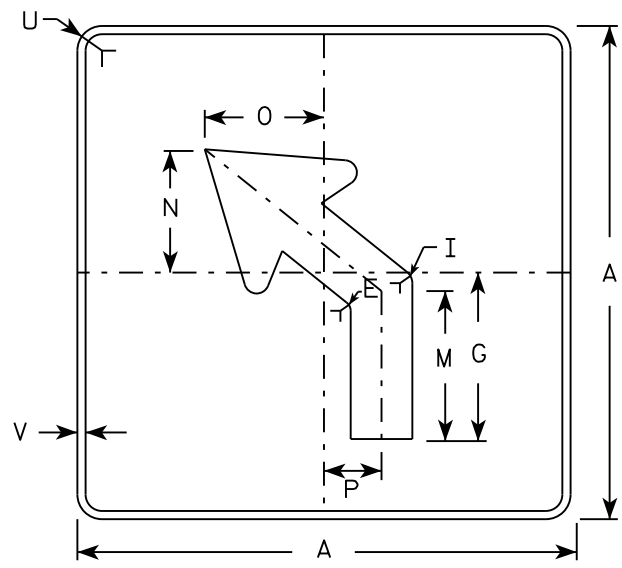
M5-1L
MM5-1L
M05-1L
MP5-1L



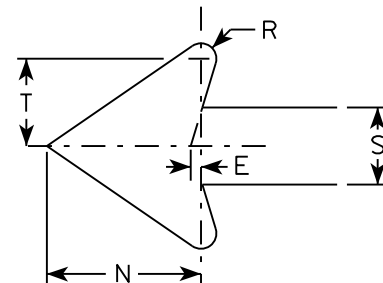
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|
| M5-1 and M5-2 | Background - White |
| | Message - Black |
| MB5-1 and MB5-2 | Background - Blue |
| | Message - White |
| MK5-1 and MK5-2 | Background - Green |
| | Message - White |
| MM5-1 and MM5-2 | Background - White |
| | Message - Green |
| MN5-1 and MN5-2 | Background - Brown |
| | Message - White |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
| | Message - Black |
| MP5-1 and MP5-2 | Background - White - Type H Reflective |
| | Message - Blue |
| MR5-1 and MR5-2 | Background - Brown |
| | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

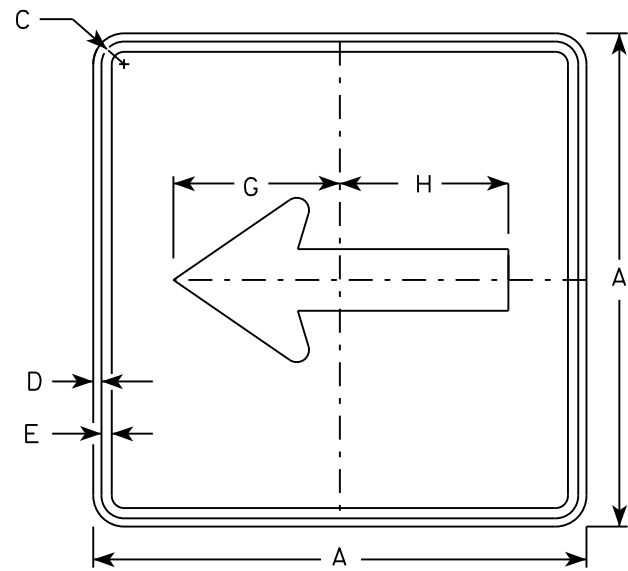
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

STANDARD SIGN
M5-1 & M5-2

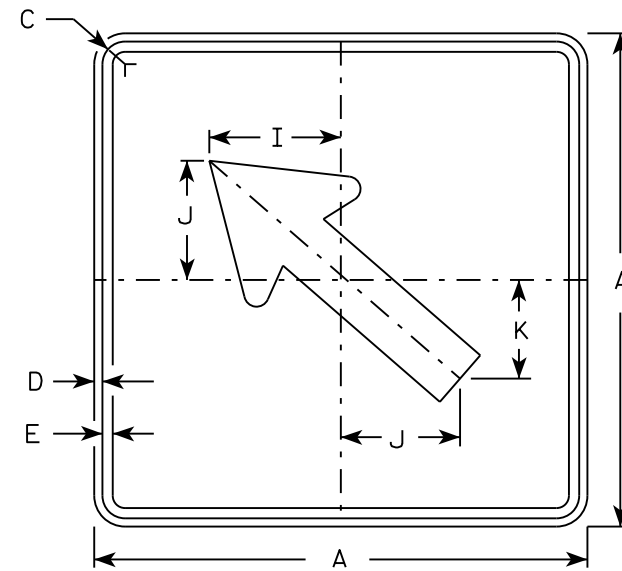
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

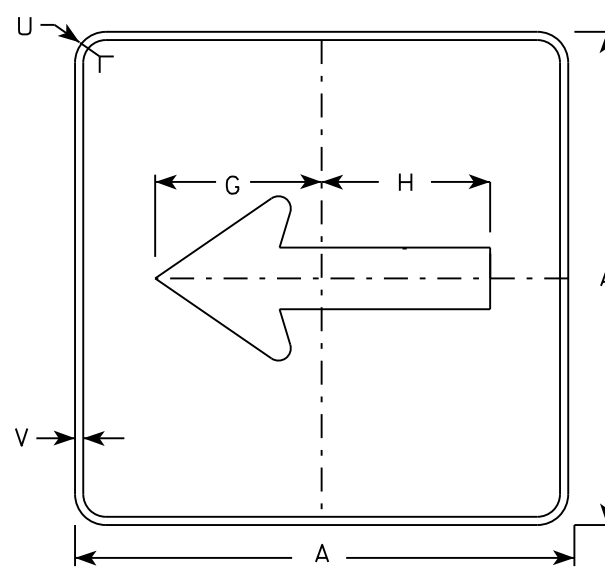
DATE 10/15/15 PLATE NO. M5-1.13



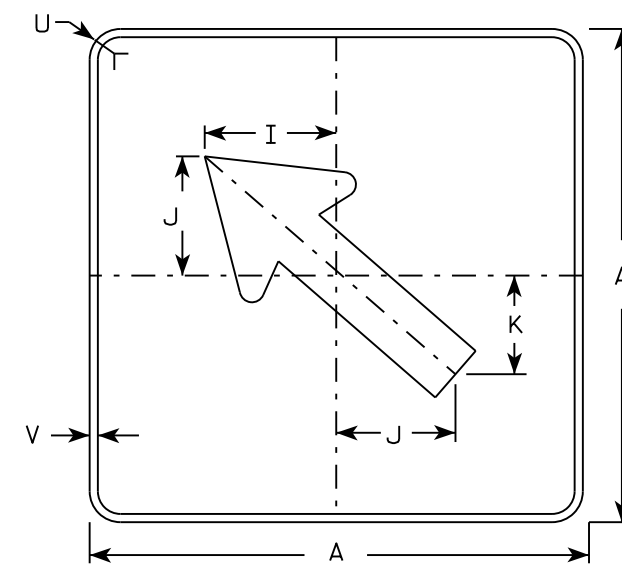
M6-1
MM6-1
M06-1
MP6-1



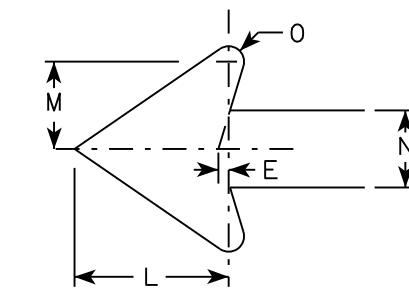
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

7

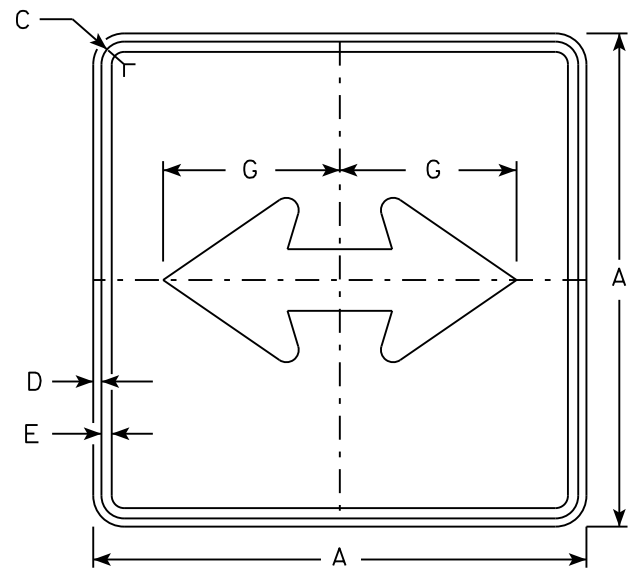
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6-1 & M6-2
SERIES

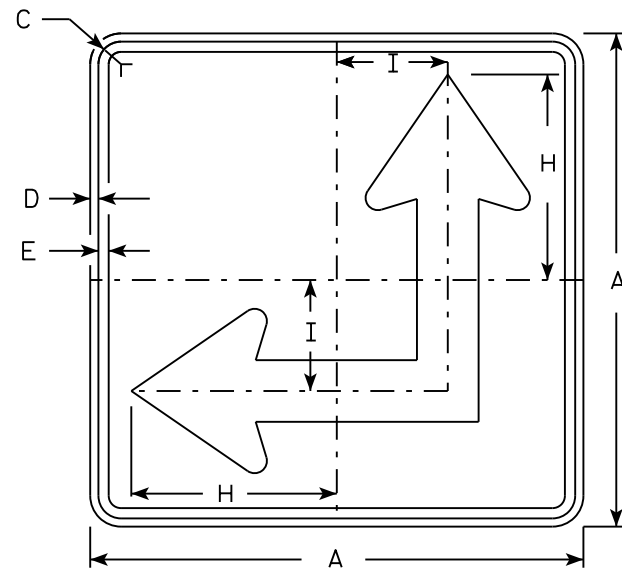
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

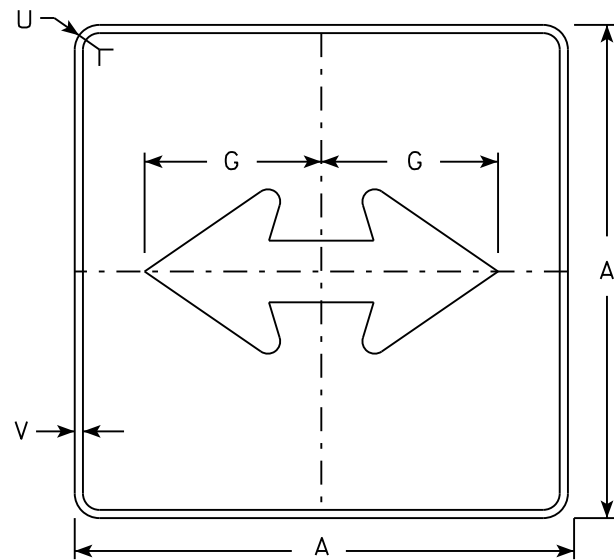
DATE 10/15/15 PLATE NO. M6-1.15



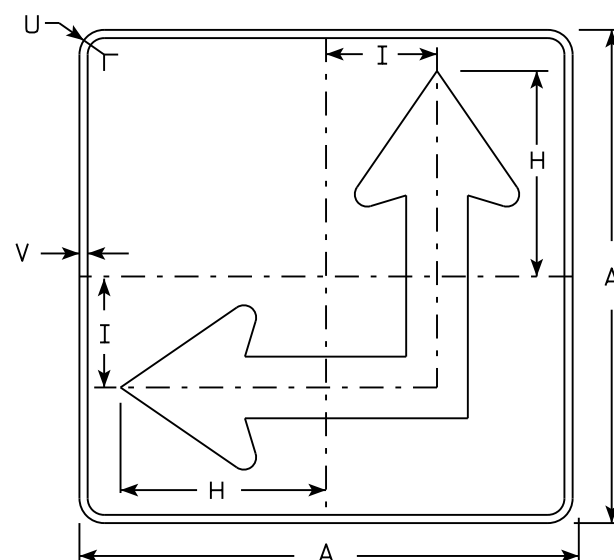
M6-4
MM6-4
M06-4
MP6-4



M6-6
MM6-6
M06-6
MP6-6



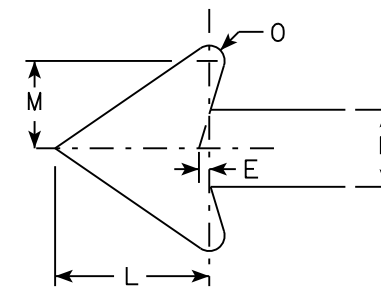
MB6-4
MK6-4
MN6-4
MR6-4



MB6-6
MK6-6
MN6-6
MR6-6

NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6-4 & M6-6
SERIES

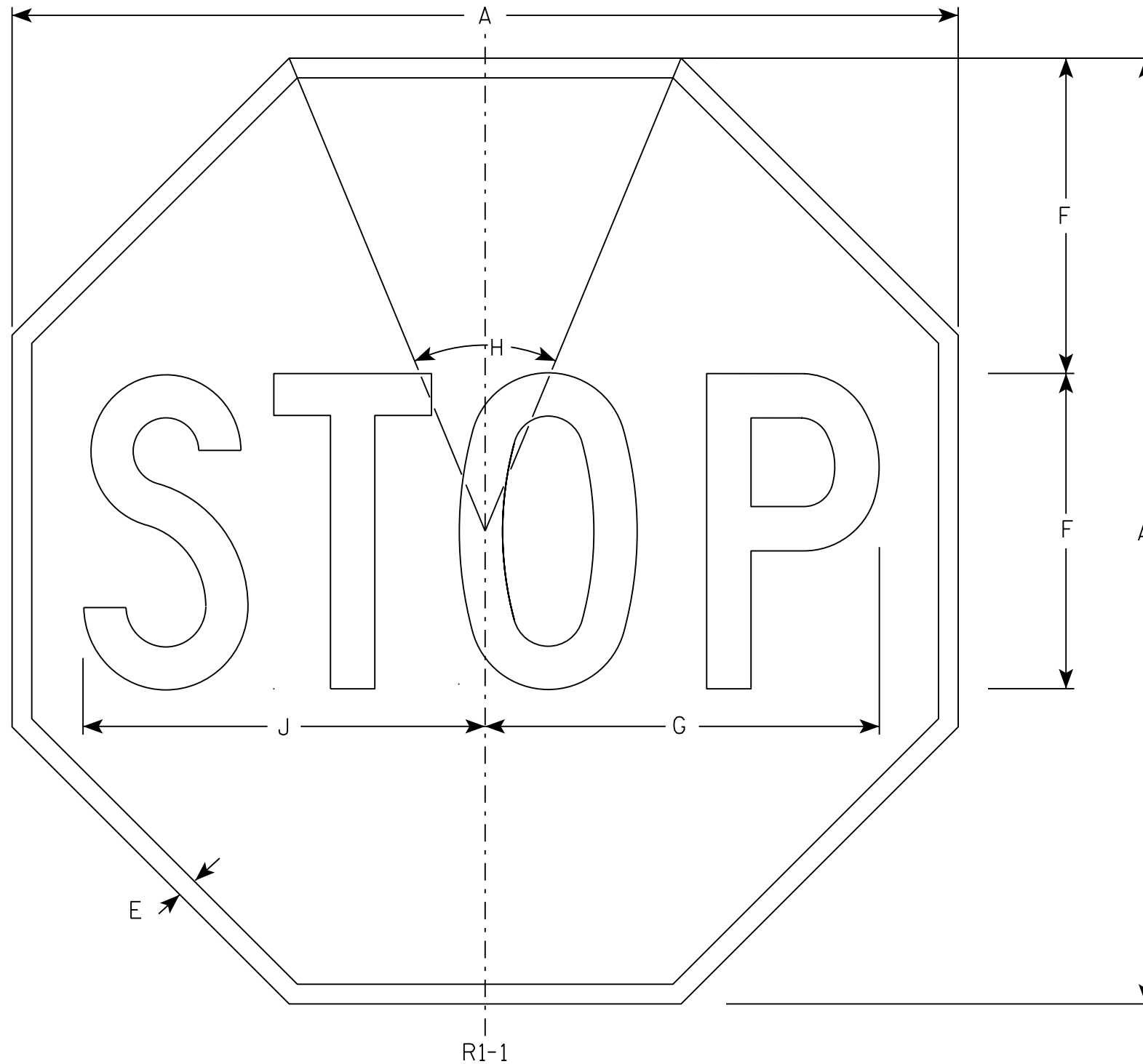
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-4.10

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Red
Message - White
3. Message Series - C



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

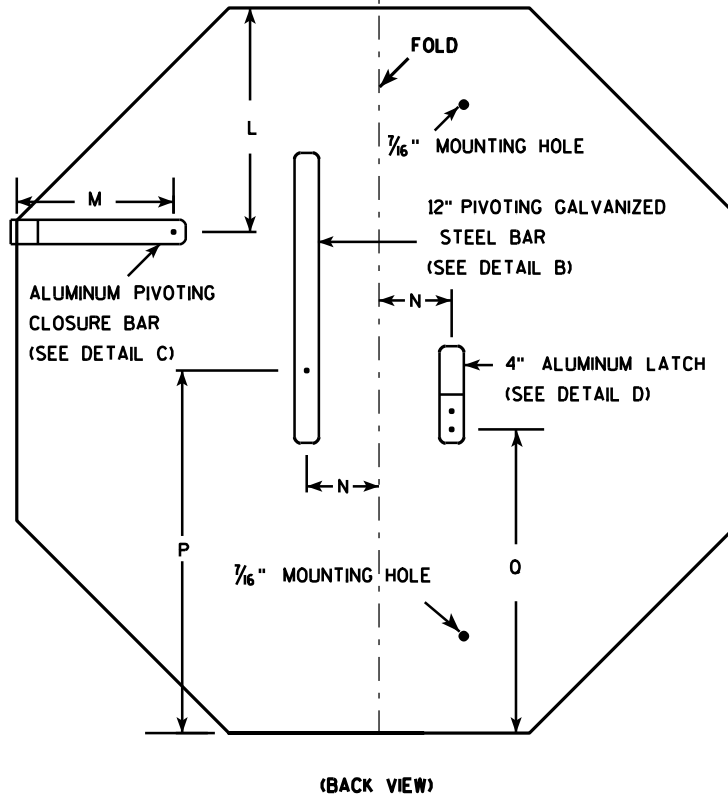
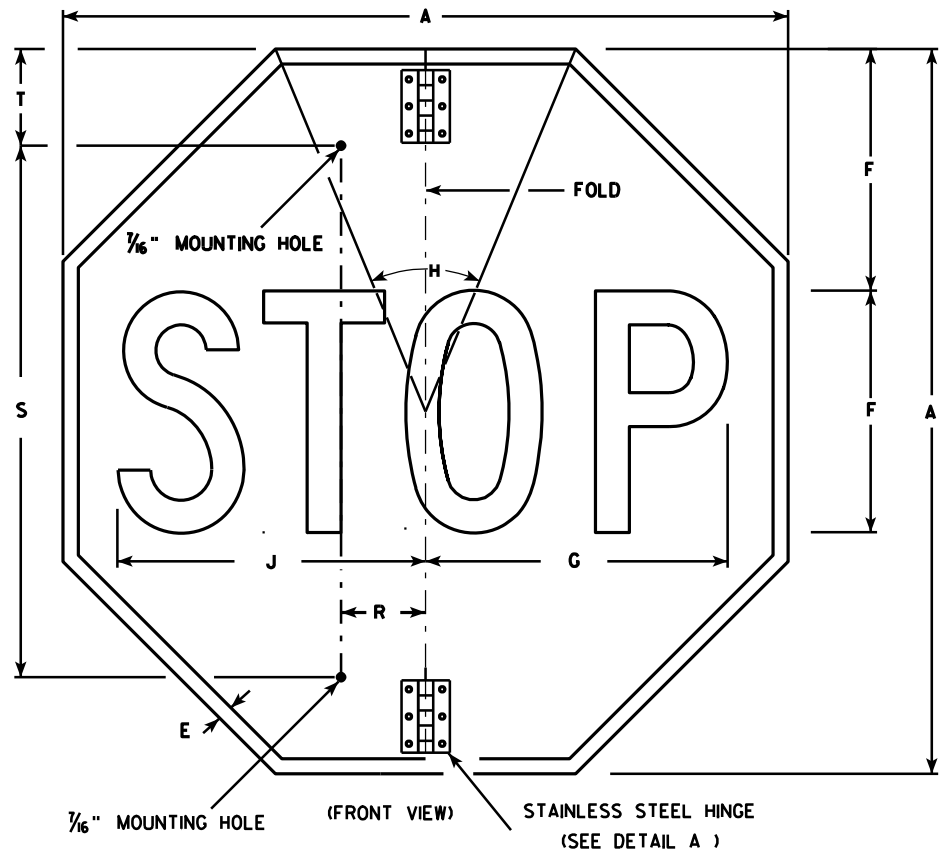
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

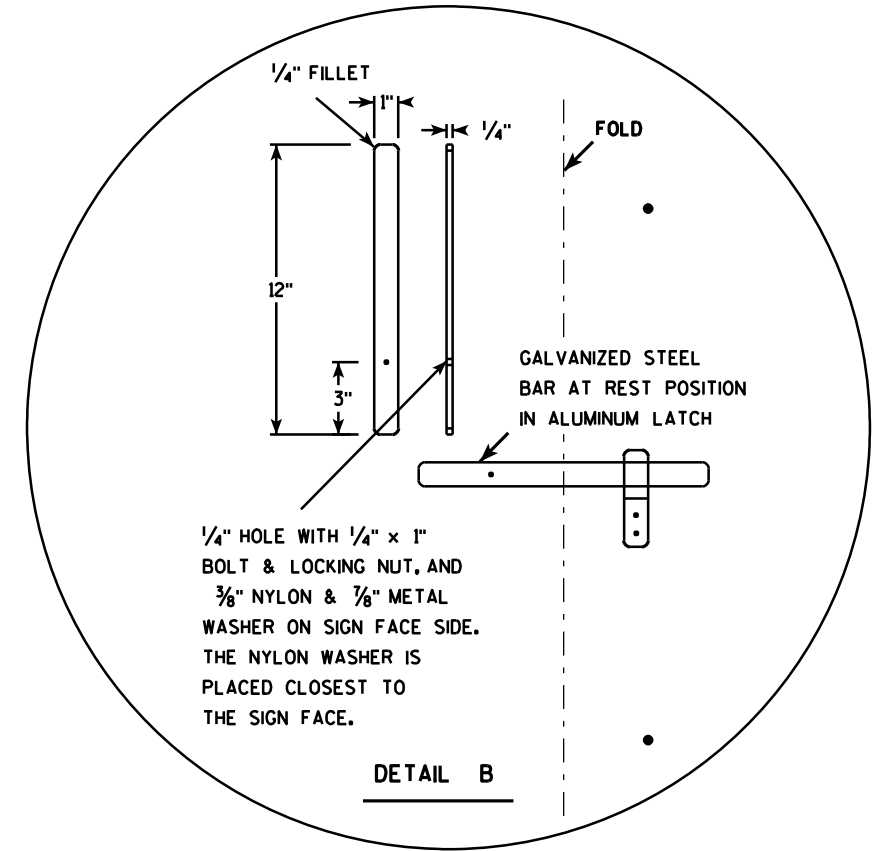
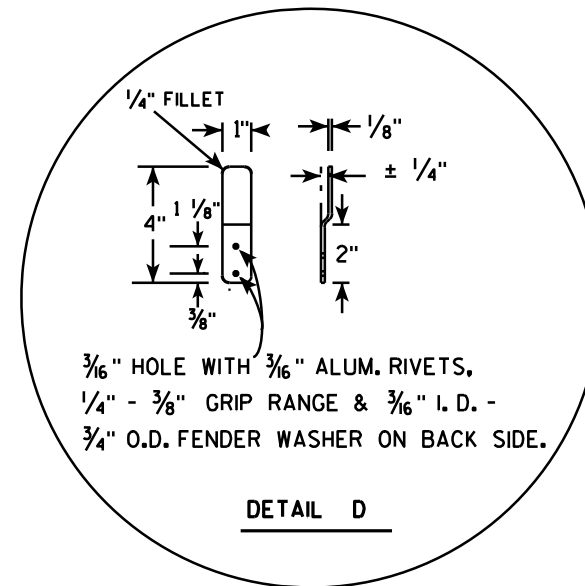
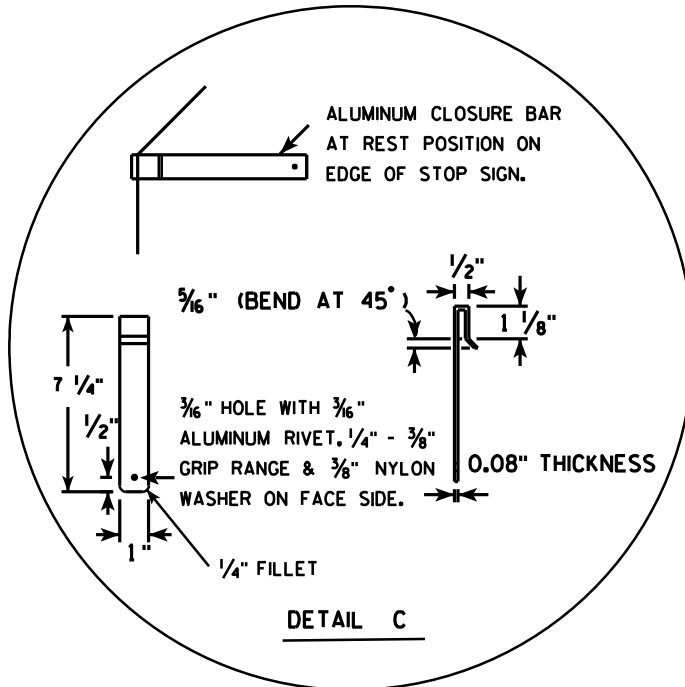
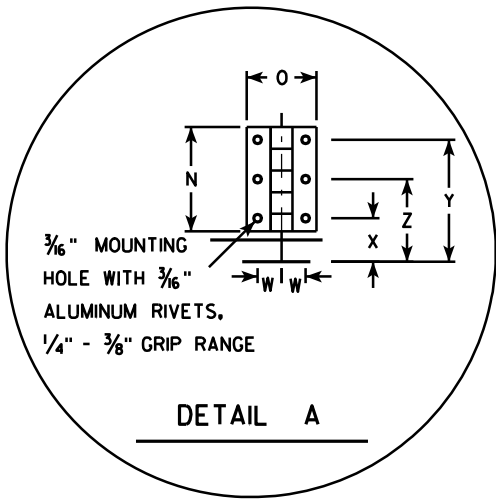
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

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



- NOTES**
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
 2. Color:
Background - Red
Message - White
 3. Message Series - C
 4. All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30				5/8	10	12 1/2	45		12 3/4		9 1/4	6 1/2	3	2	15	12 3/8	2 1/2	22	5			1 1/8	1 1/4	3 1/2	2 3/8	5.18
2M	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			1 1/8	1 1/4	3 1/2	2 3/8	7.46
3	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			1 1/8	1 1/4	3 1/2	2 3/8	7.46
4																											
5																											

STANDARD SIGN
R1-1F

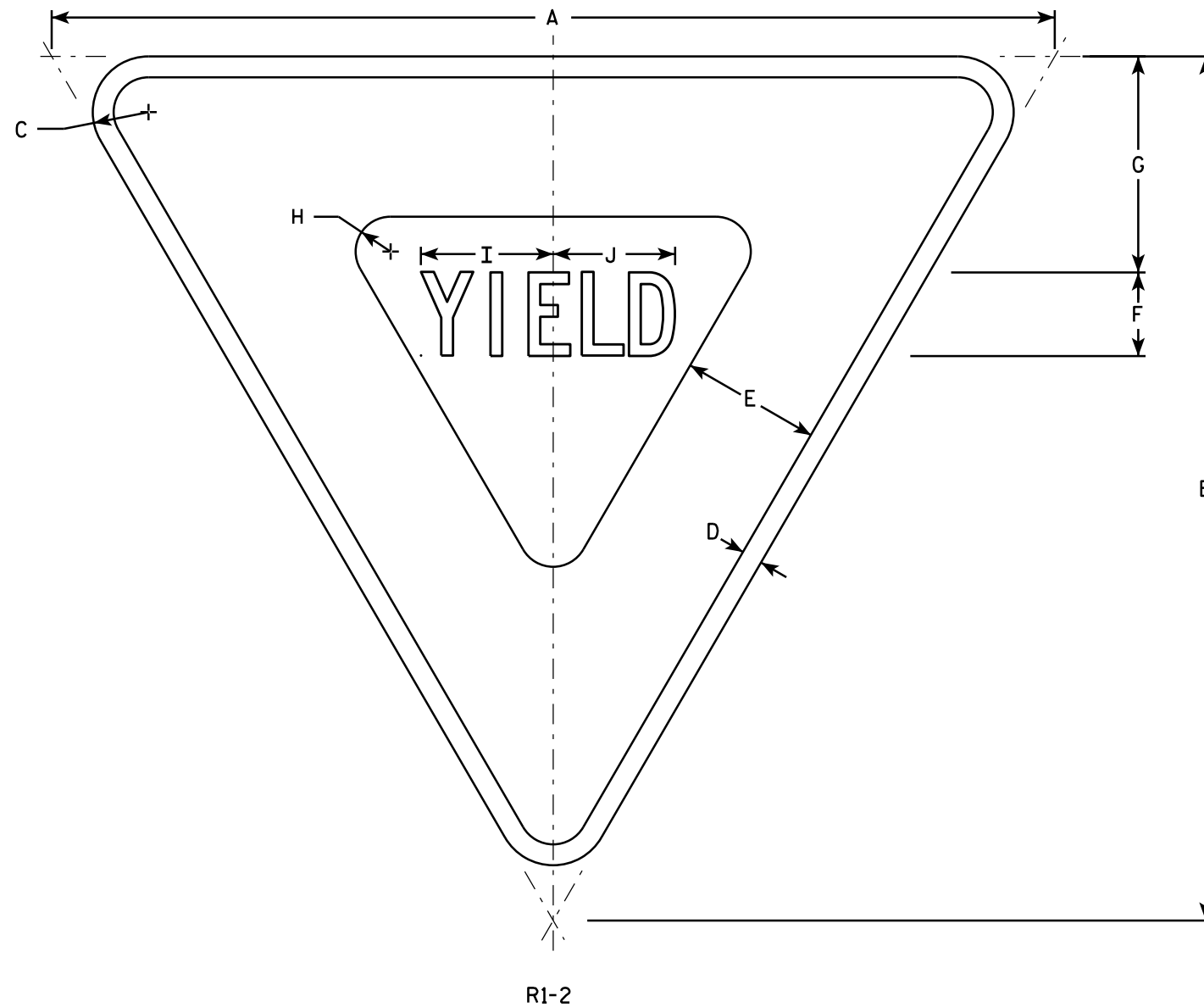
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The border strip and word message are reflectorized red.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

STANDARD SIGN
R1-2

WISCONSIN DEPT OF TRANSPORTATION

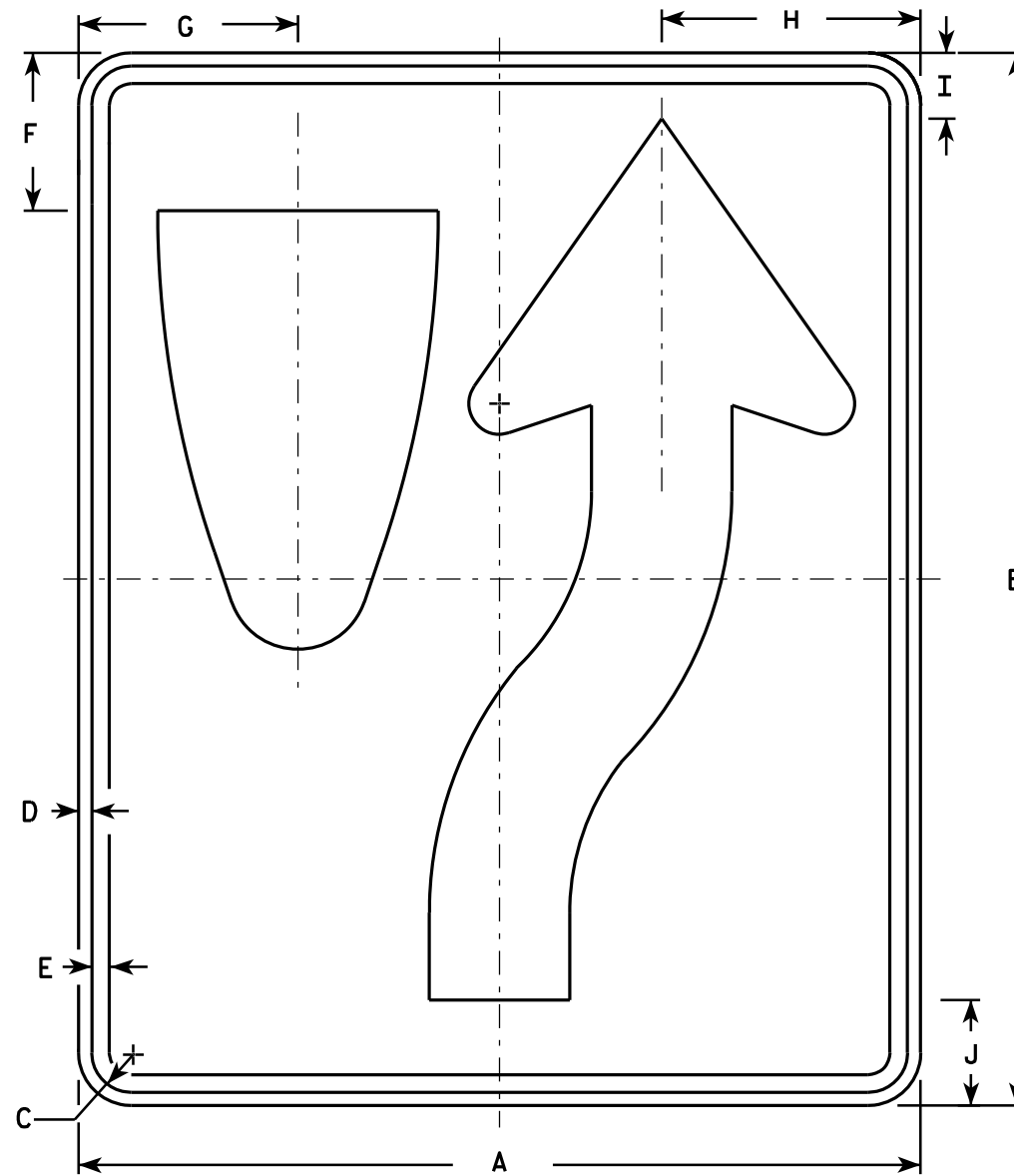
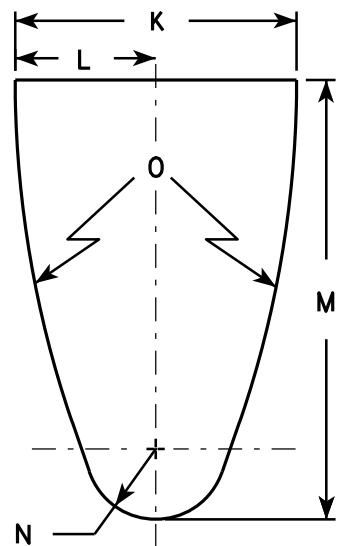
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE NO. R1-2.12

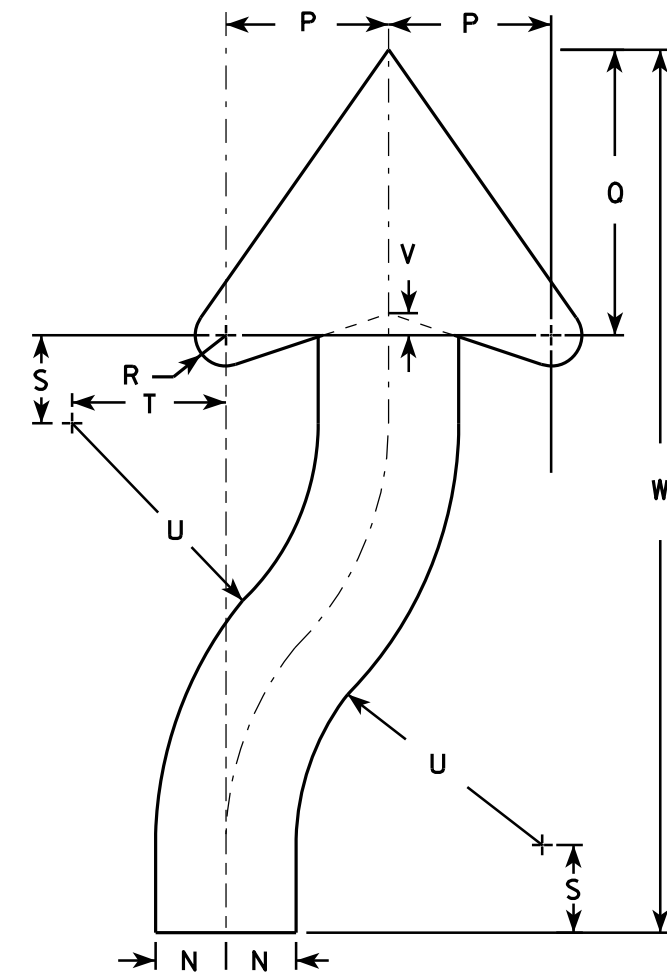
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
Background - White
Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.



R4-7



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

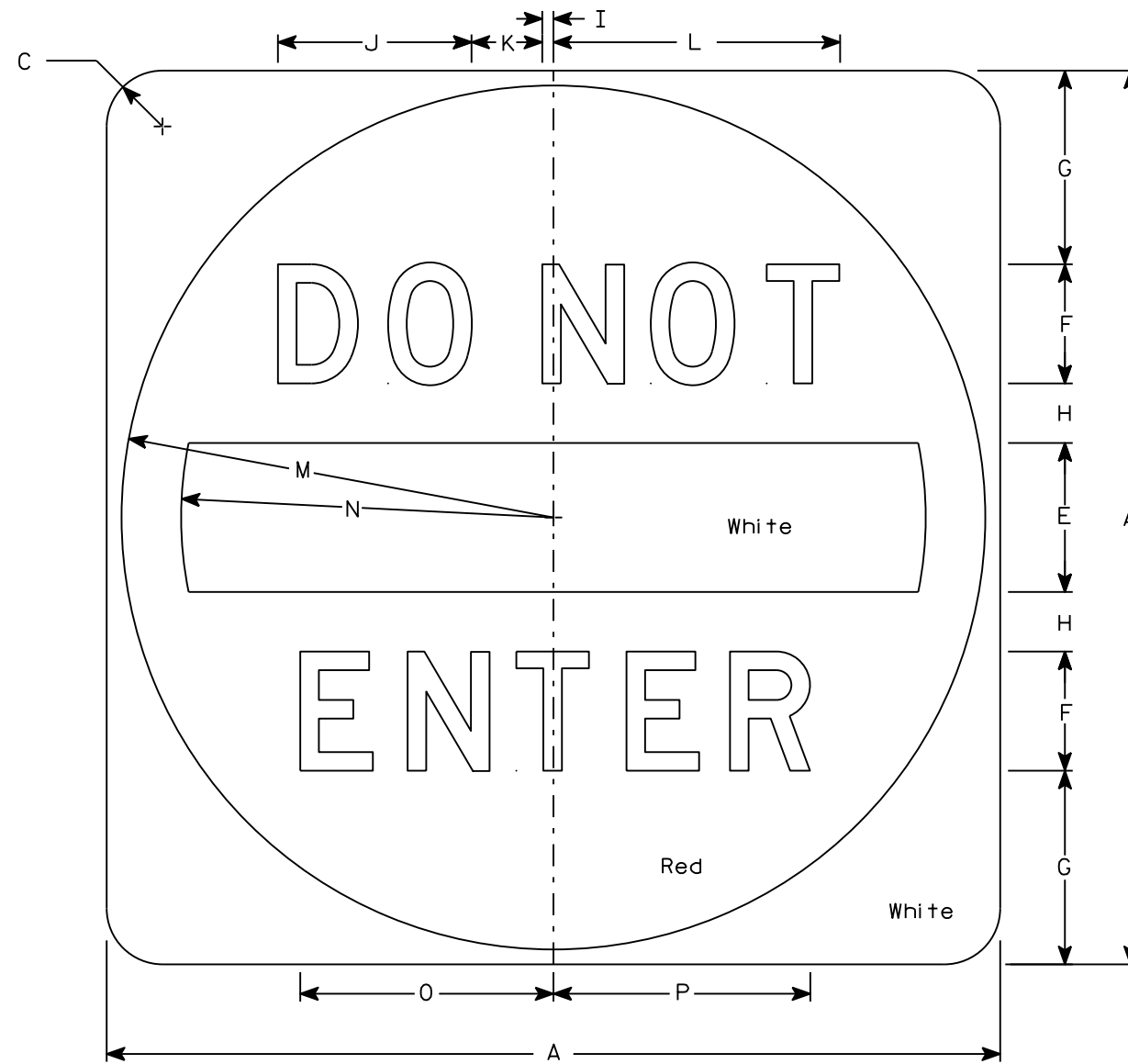
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

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

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See detail
Message - White
3. Message Series - D



R5-1

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.25
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

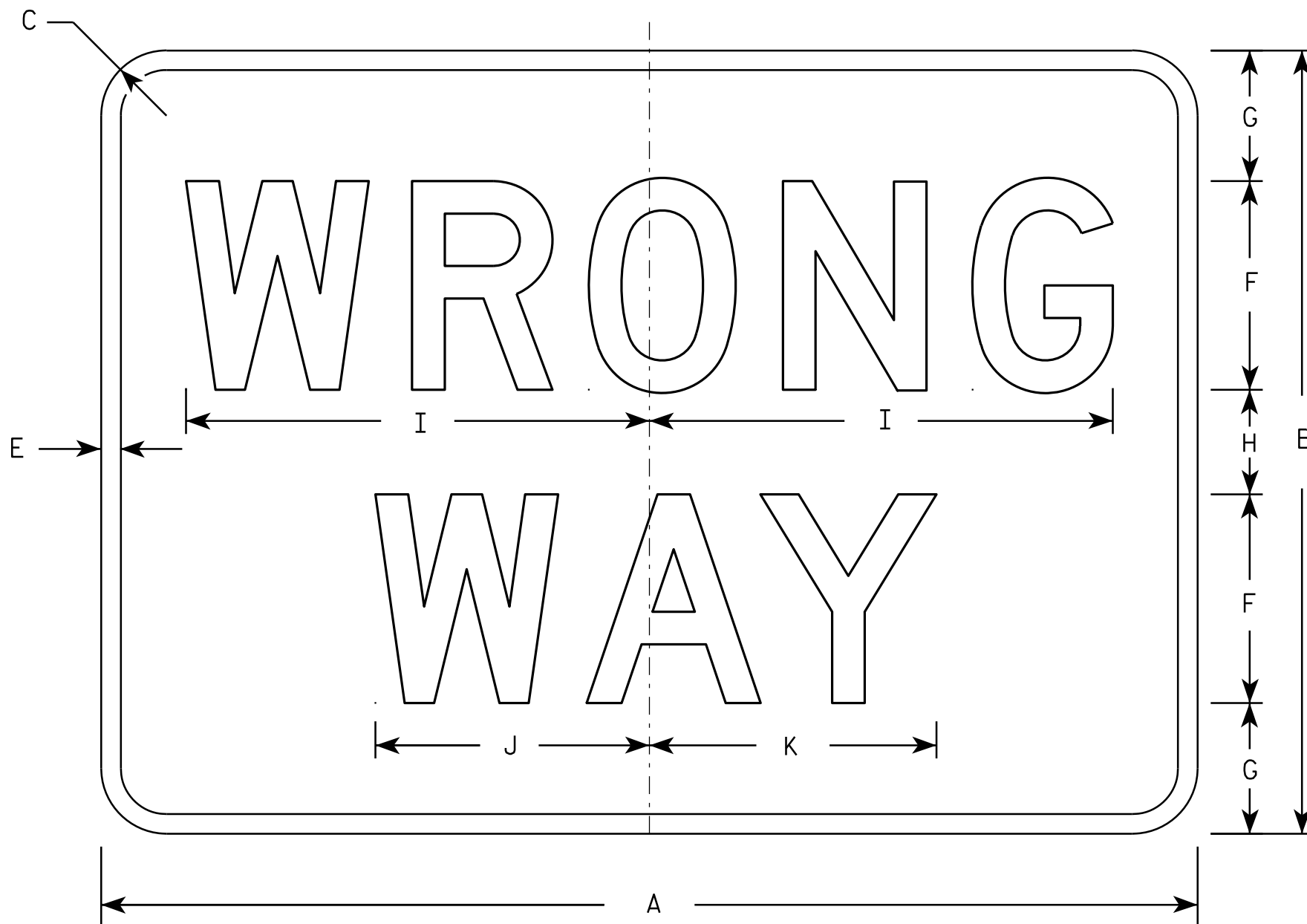
STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/15/18 PLATE NO. R5-1.16

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



NOTES

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

7

7

R5-1A

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

STANDARD SIGN
R5-1A

WISCONSIN DEPT OF TRANSPORTATION

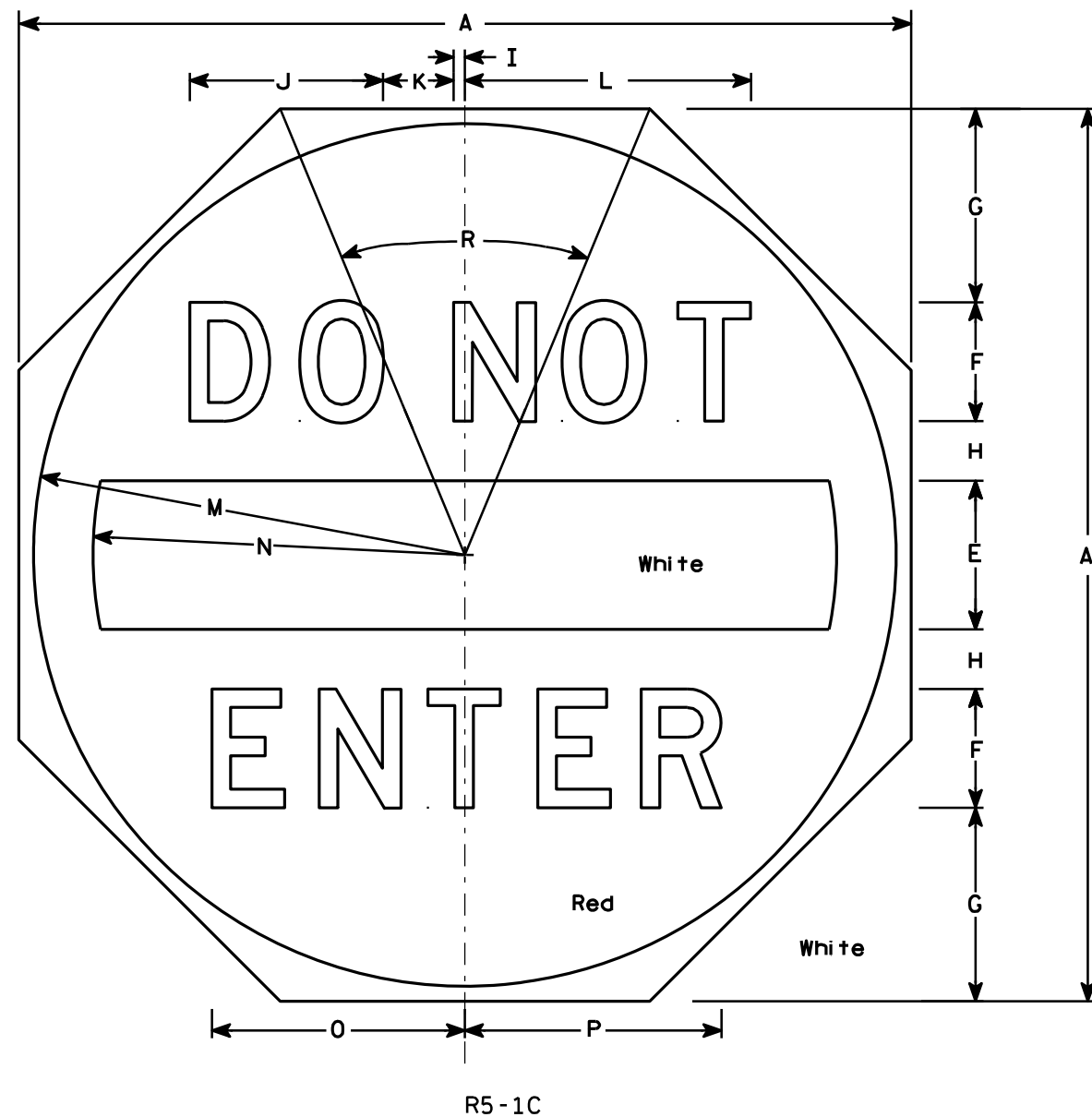
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

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

NOTES

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



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8		45°									5.18
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4		45°									7.46
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4		45°									7.46
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4		45°									13.25
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8		45°									13.25

STANDARD SIGN
R5-1C

WISCONSIN DEPT OF TRANSPORTATION

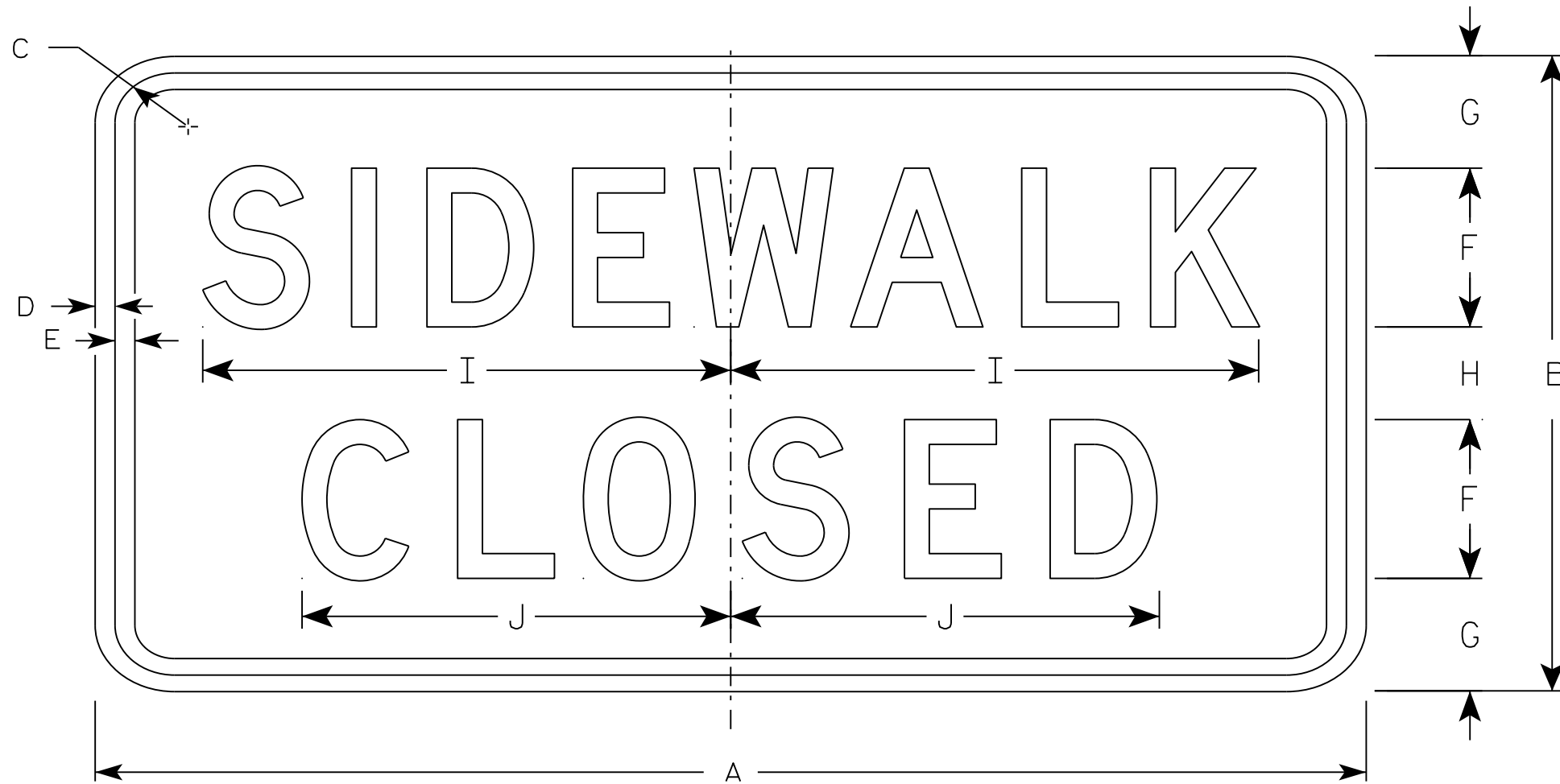
APPROVED _____
State Traffic Engineer

DATE 3/23/11 PLATE NO. R5-1C.1

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

NOTES

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



R9-9

7

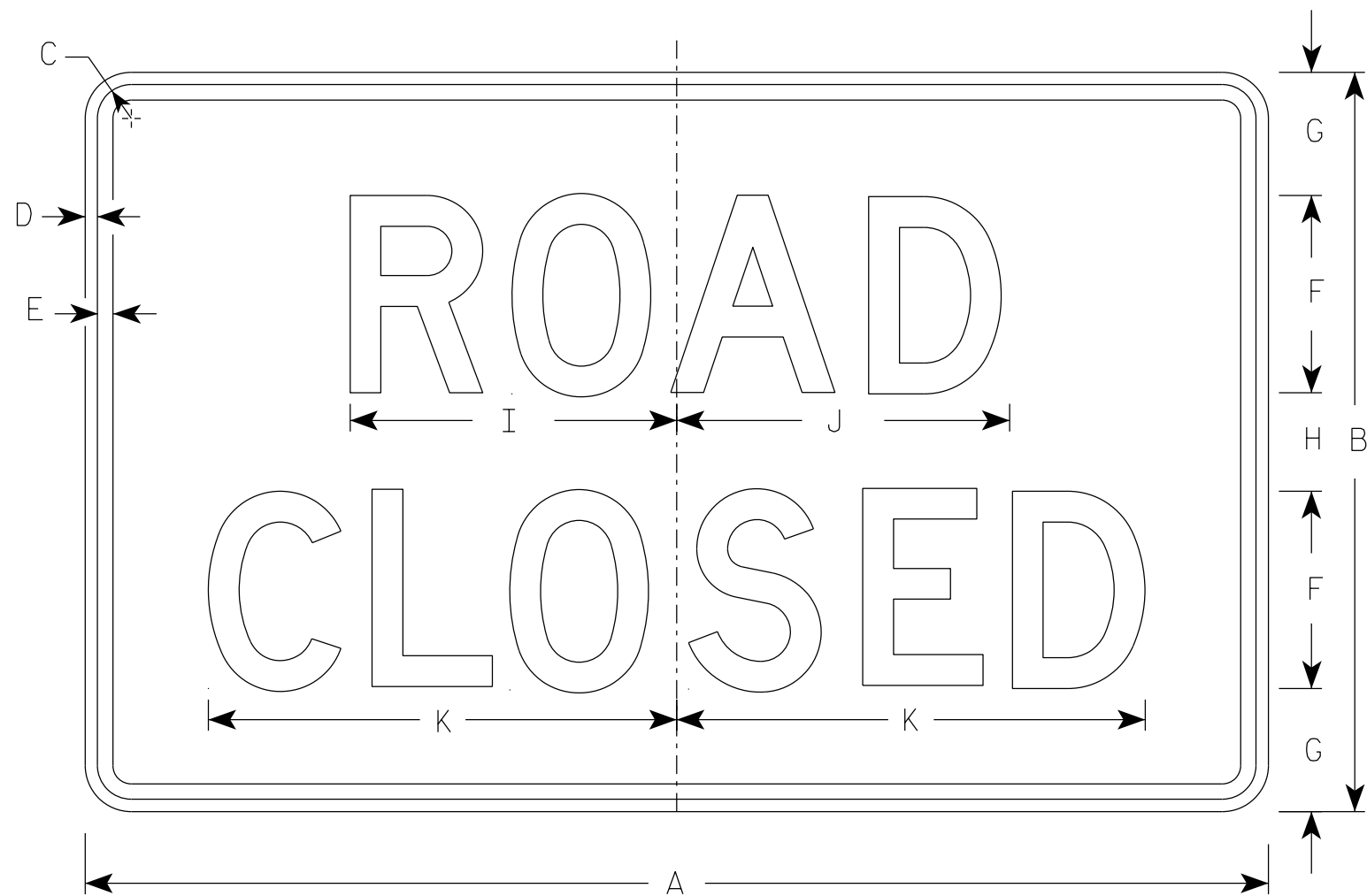
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
2M	24	12	1 3/4	1/2	1/2	3	2 1/8	1 3/4	10	8 1/8																	2.0
3	30	18	1 3/4	1/2	1/2	4	3 1/2	3	12 1/2	10 1/4																	3.75
4																											
5																											

STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

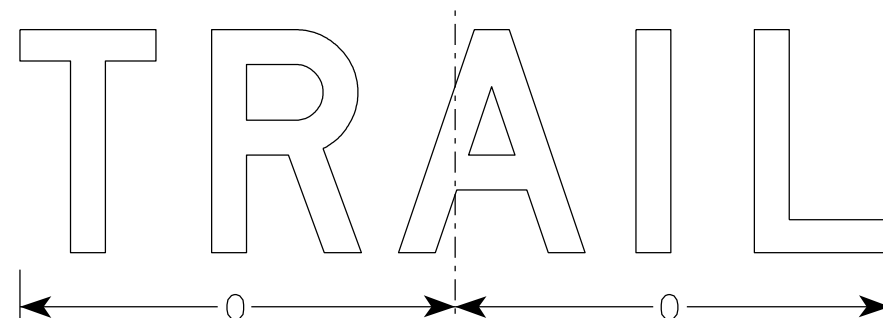
DATE 8/11/16 PLATE NO. R9-9.6



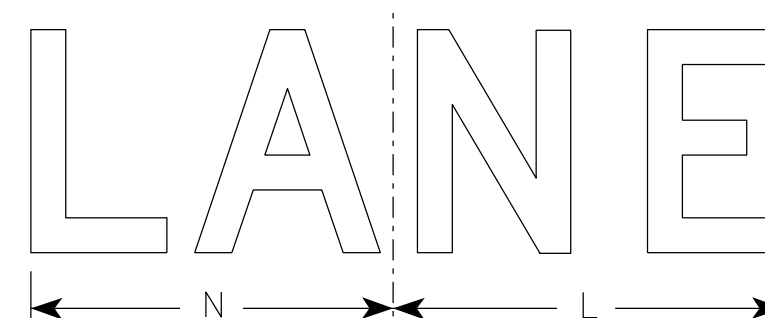
R11-2



R11-2R



R11-2T



R11-2L

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

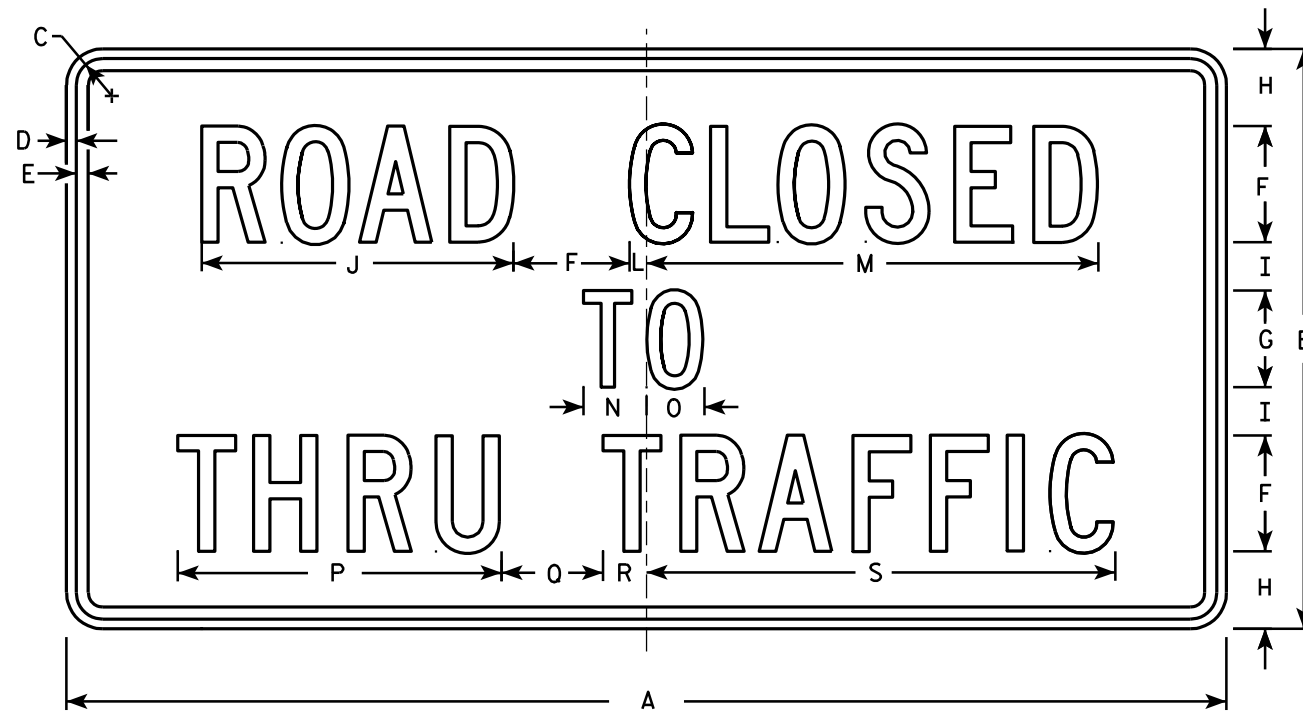
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

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

NOTES

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



R11-4

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

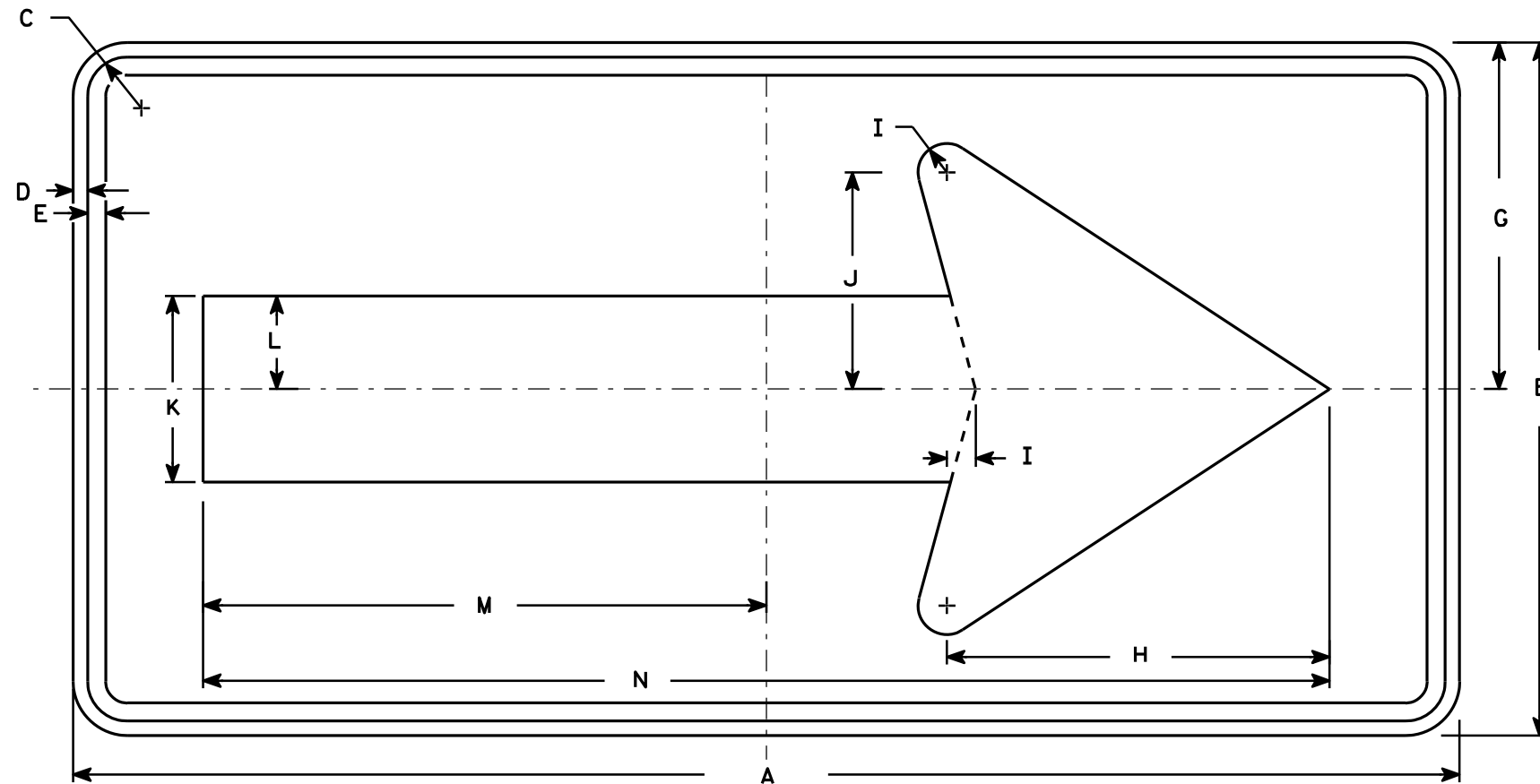
APPROVED *Matthew R. Raush*
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

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

NOTES

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



W1-6

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	3/8		9	10	3/4	5 5/8	4 3/4	2 3/8	14 5/8	29 1/4													4.5
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	96	48	2 1/4	3/4	1		24	26 1/2	2	15	13	6 1/2	39	78													32.0

STANDARD SIGN
W1-6

WISCONSIN DEPT OF TRANSPORTATION

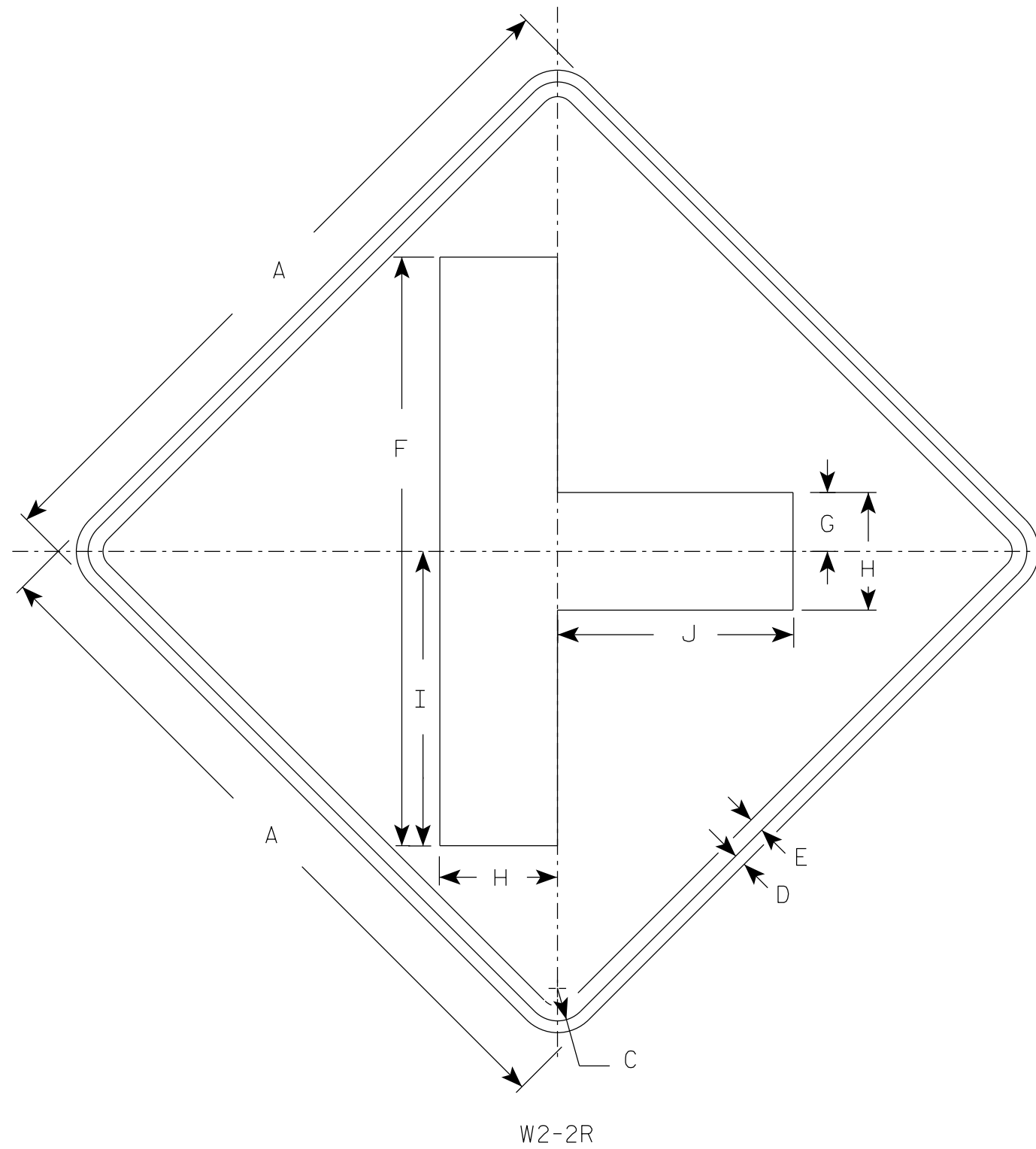
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-6.8

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. W2-2L same as W2-2R but is rotated 180° when mounted.



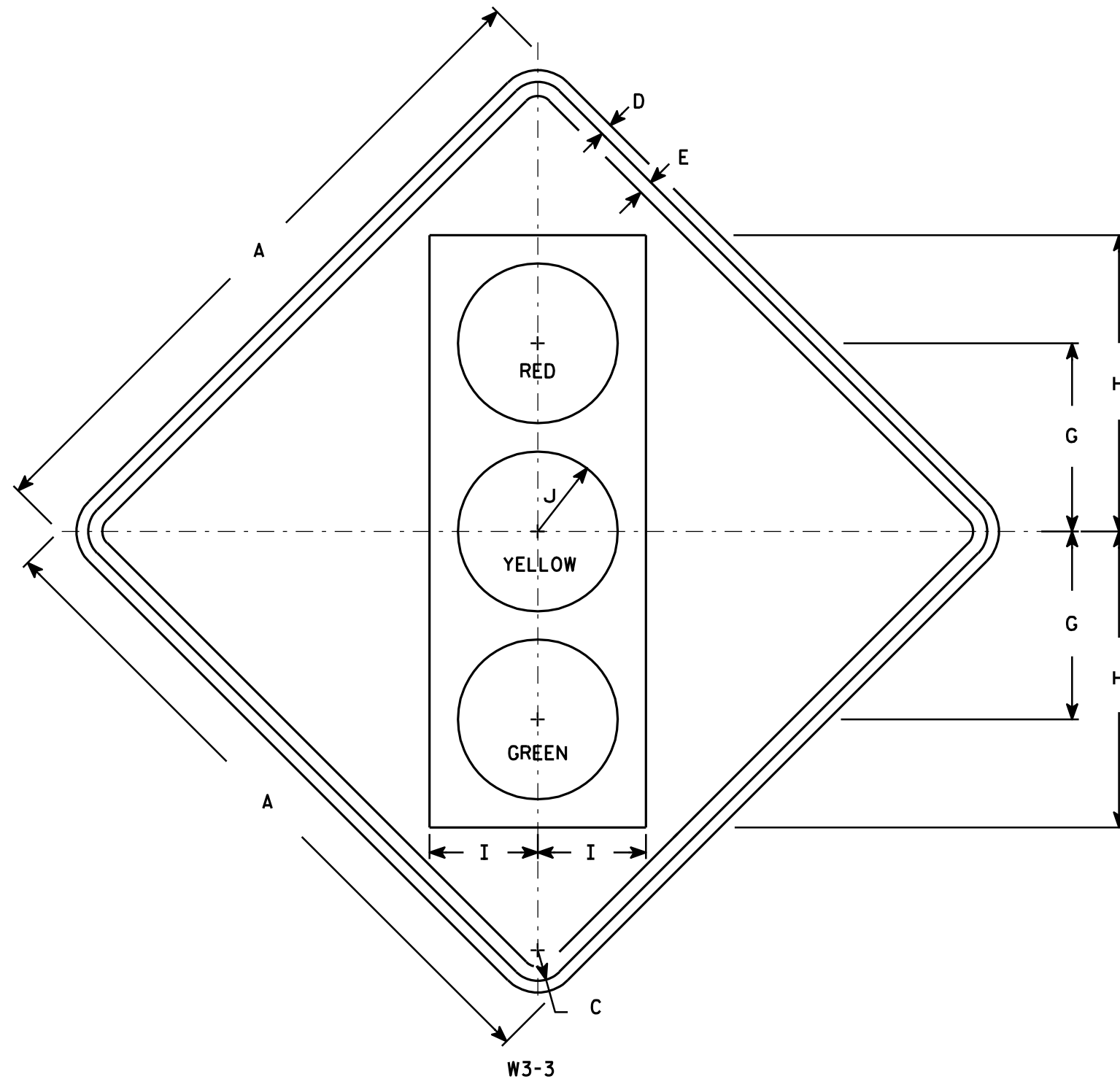
W2-2R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	20	2	4	10	8																	4.0
2S	30		1 3/8	1/2	5/8	25	2 1/2	5	12 1/2	10																	6.25
2M	30		1 3/8	1/2	5/8	25	2 1/2	5	12 1/2	10																	6.25
3	36		1 5/8	5/8	3/4	30	3	6	15	12																	9.0
4	48		2 1/4	3/4	1	40	4	8	20	16																	16.0
5																											

STANDARD SIGN
W2-2 L&R

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R Rauch*
 for State Traffic Engineer
 DATE 11/18/2021 PLATE NO. W2-2.7

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



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Symbol and border are non-reflective black.
Top circle - Type H ReflectORIZED Red
Center circle - Same as background
Bottom circle - Type H ReflectORIZED Green

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		8 3/4	13 3/4	5	3 3/4																	6.25
2S	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
2M	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
3	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
4	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
5	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0

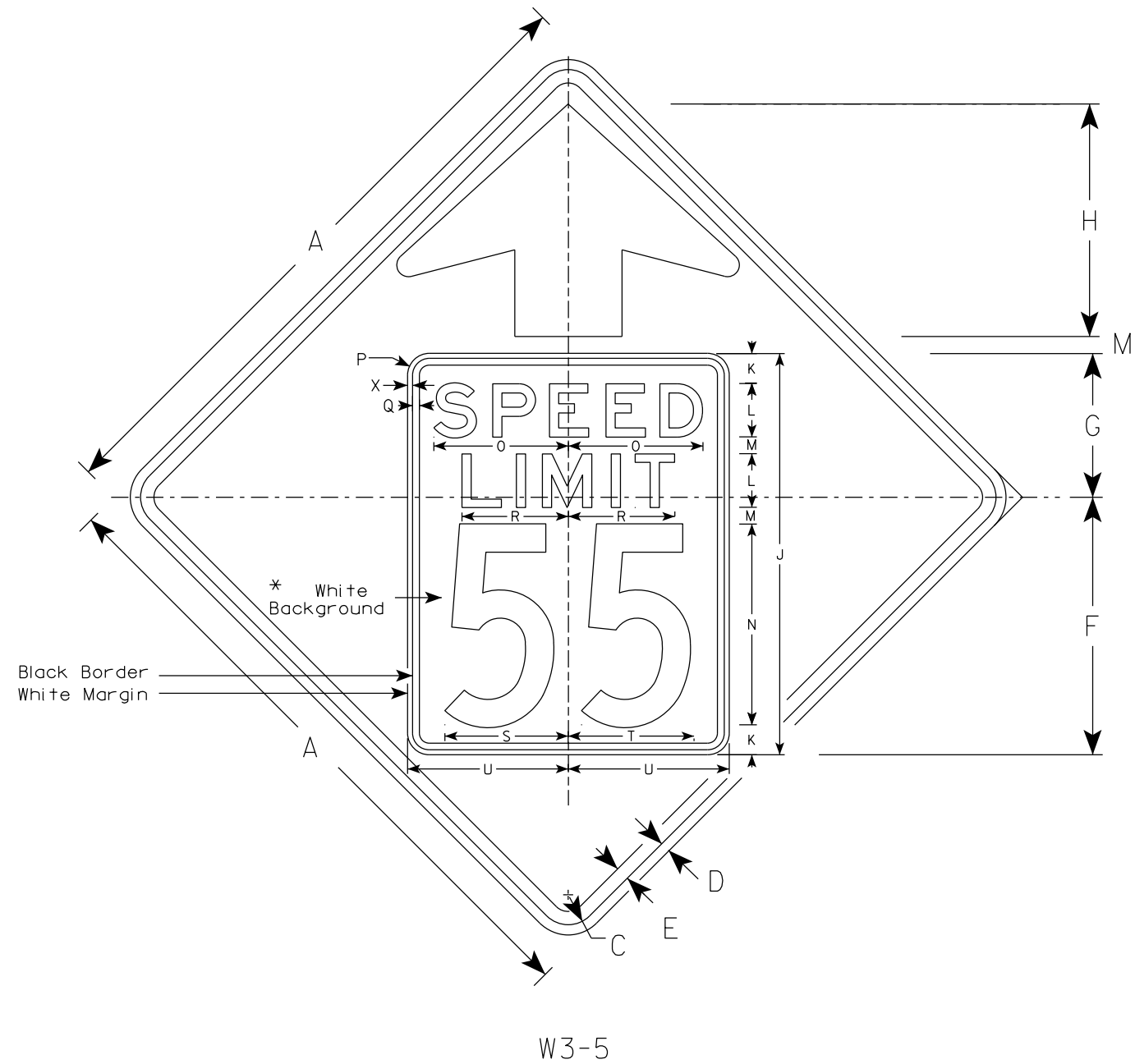
STANDARD SIGN
W3-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W3-3.11

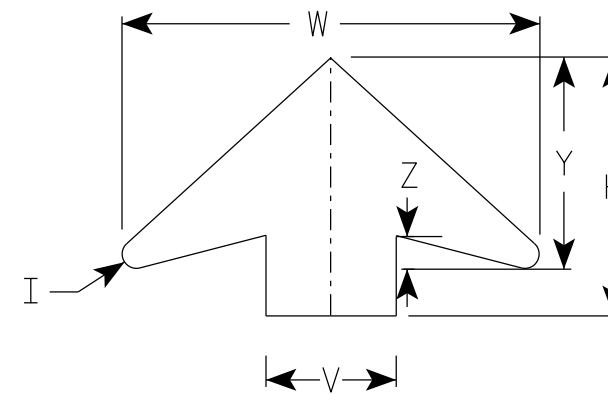
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

1. Sign is Type II - See Note 2 for Sheeting Type
2. Color: *
Background - Yellow* (Type F Reflective)
Message - Black
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background with black message (Type SH Reflective)



ARROW DETAIL

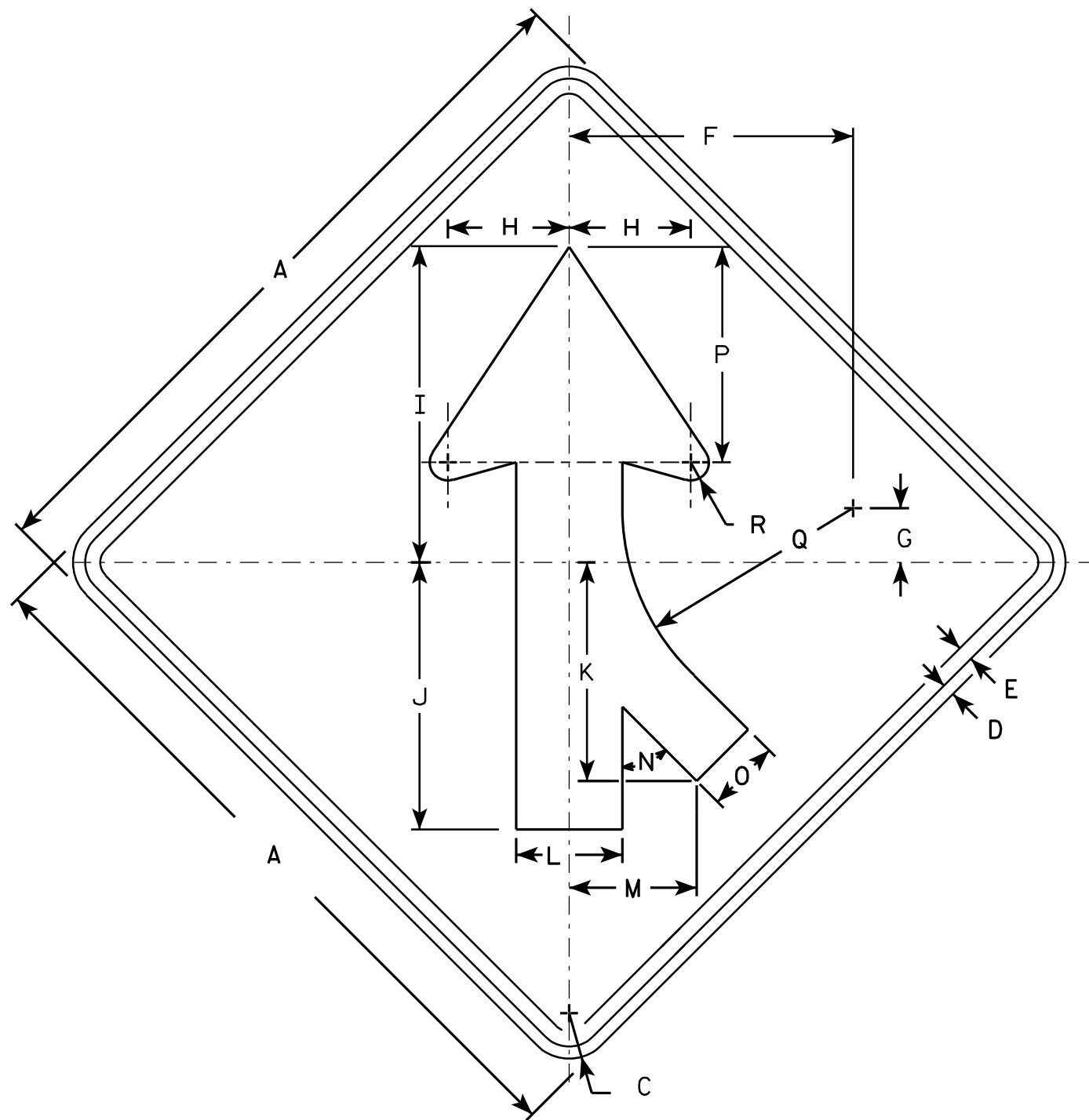
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2M	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
3	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN
W3-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/27/2020 PLATE NO. W3-5.6



W4-1R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W4-1L is the same as W4-1R except the arrow is reversed along the vertical centerline.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	11 5/8	2 1/2	5	13	11	9	4 3/8	5 1/4	45°	3	8 7/8	9 1/2	3/4									6.25
2S	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
2M	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
3	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
4	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

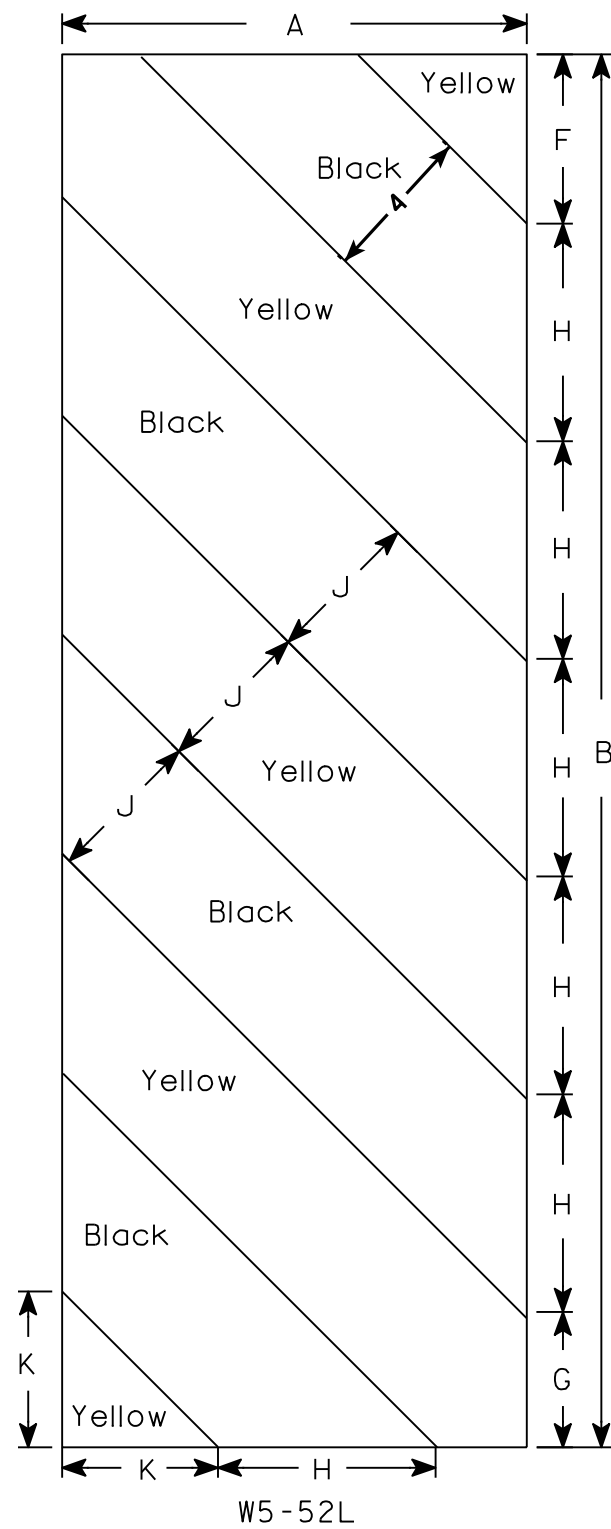
STANDARD SIGN
W4-1

WISCONSIN DEPT OF TRANSPORTATION

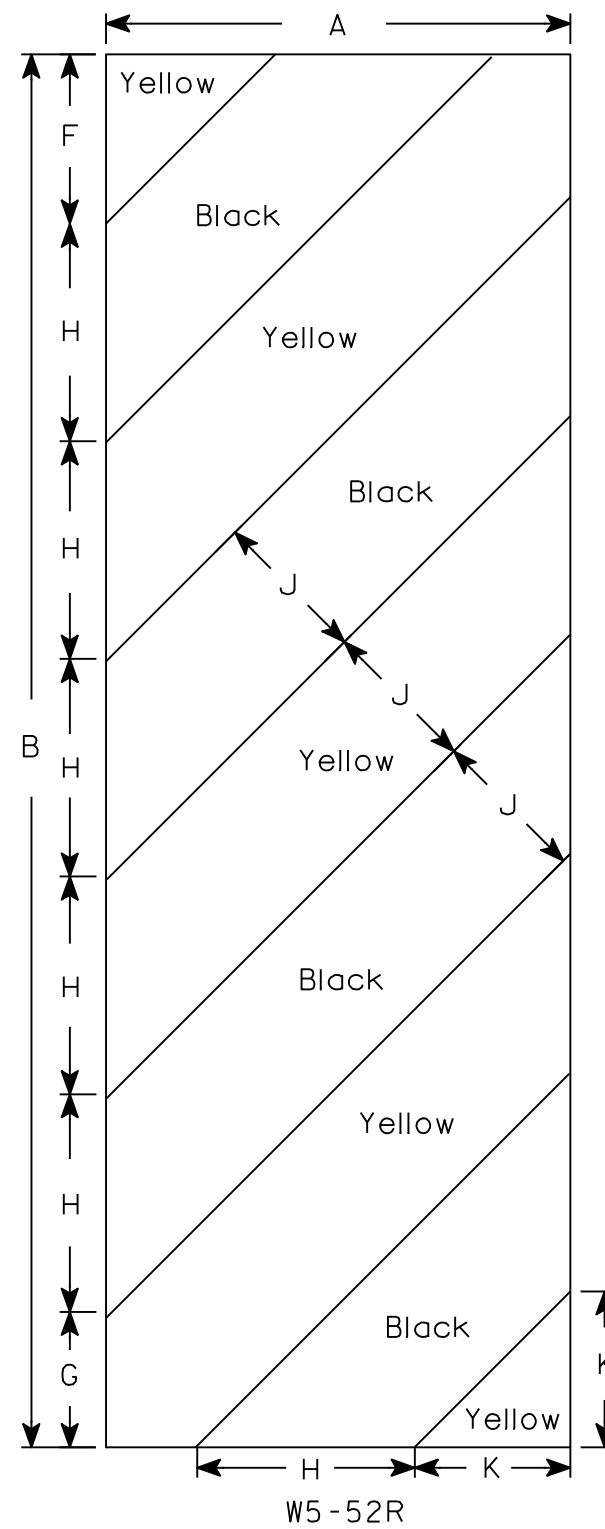
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-1.14

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



W5-52L



W5-52R

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

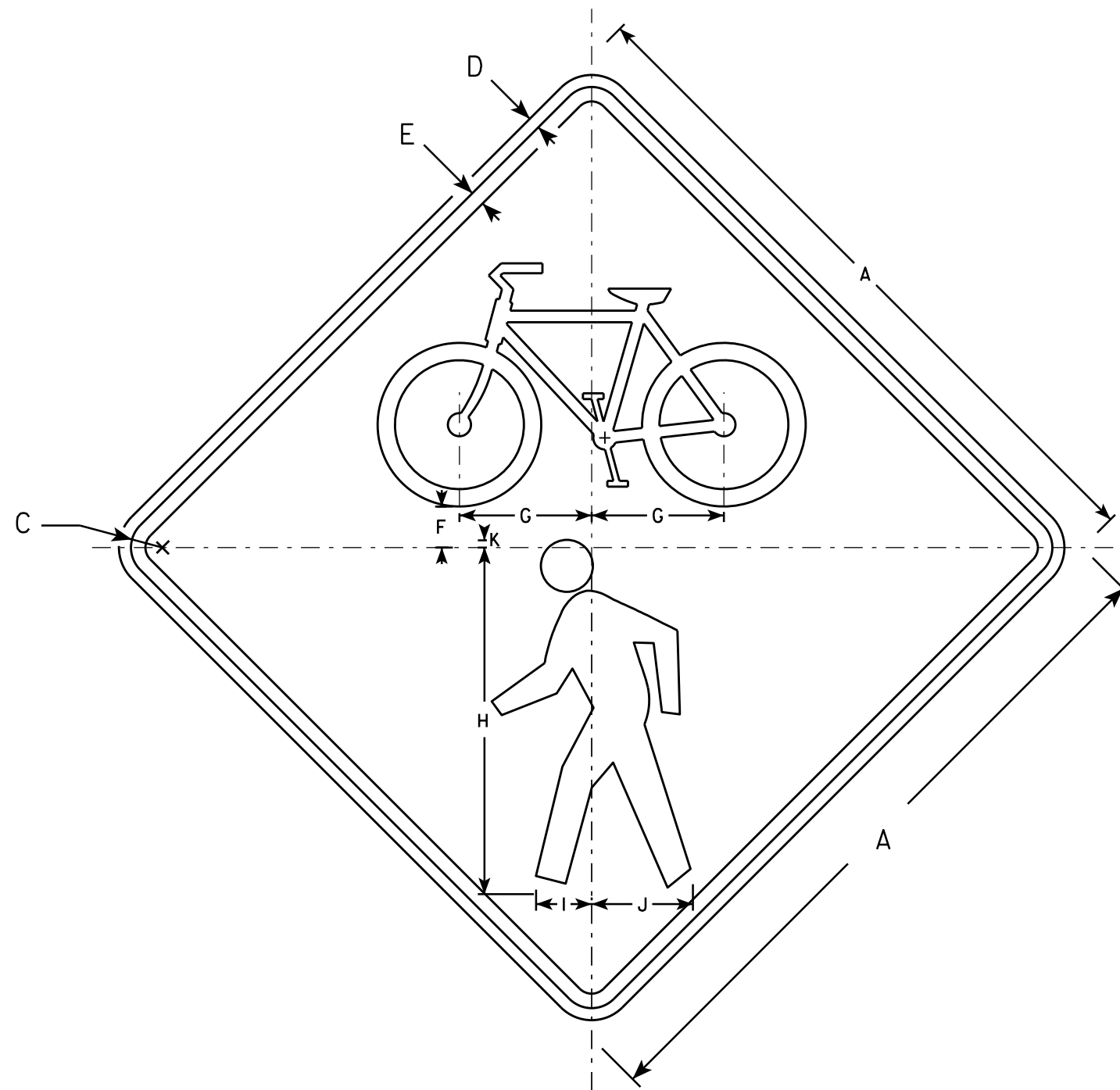
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

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



W11-15

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	1 3/8	4 5/8	12	1 7/8	3 1/2	1/4																4.0
2S	30		1 3/8	1/2	5/8	1 3/4	5 3/4	15	2 3/8	4 3/8	3/8																6.25
2M	36		1 5/8	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																9.0
3	36		1 5/8	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																16.0
4	48		2 1/4	3/4	1	2 7/8	9 1/8	24	3 7/8	7	1/2																16.0
5																											

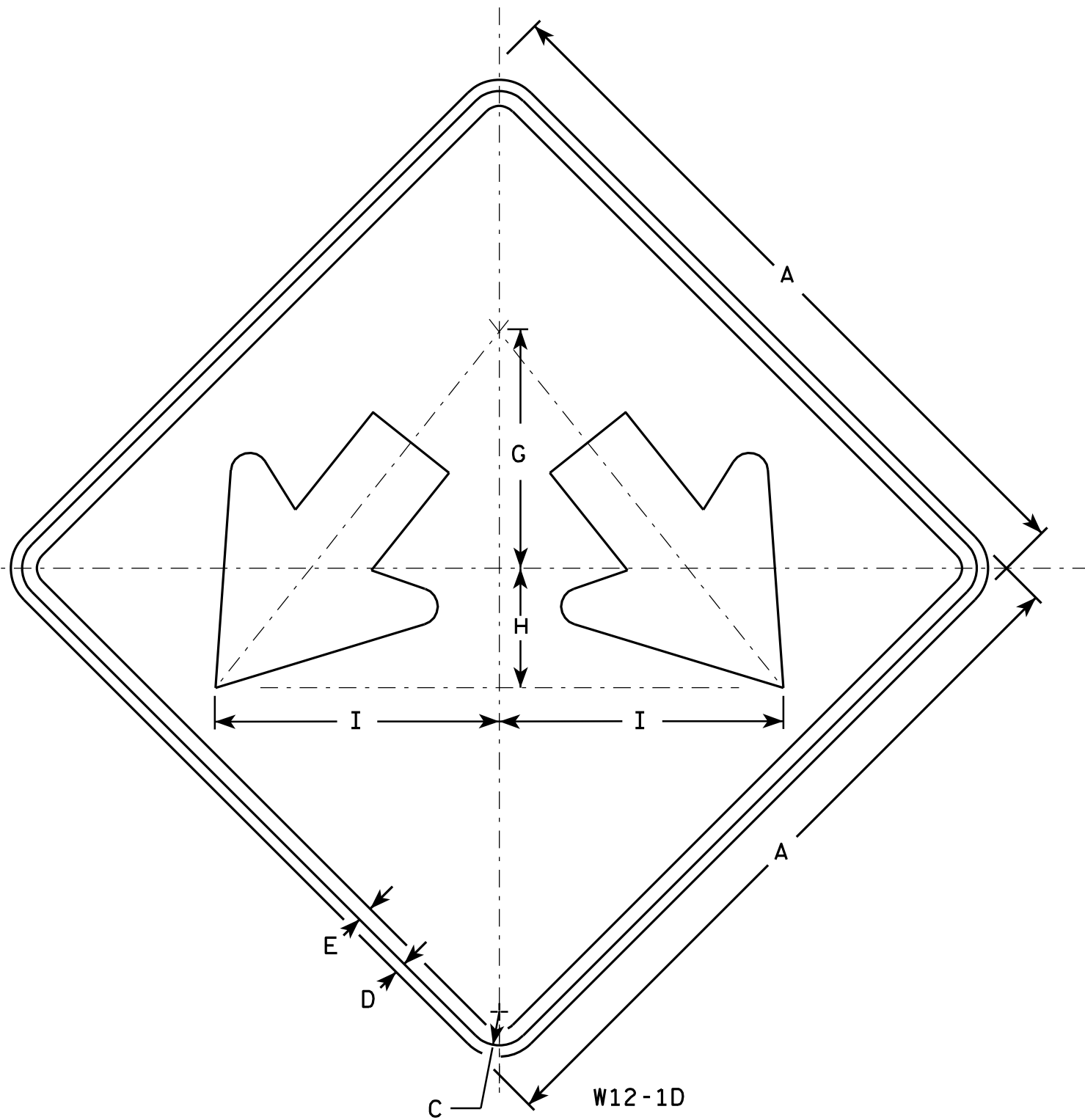
STANDARD SIGN
W11-15

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

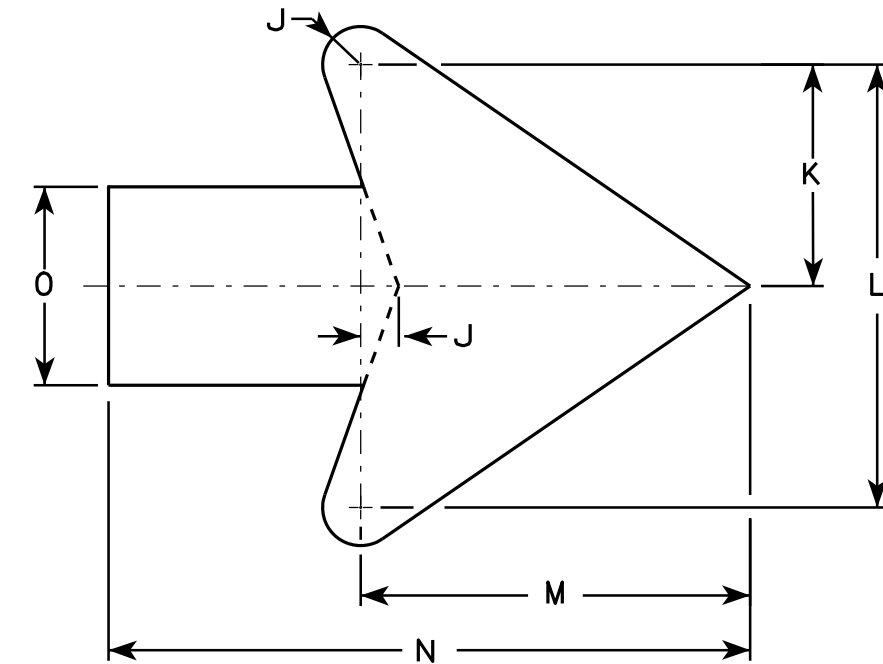
DATE 2/13/14 PLATE NO. W11-15.4

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



NOTES

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



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

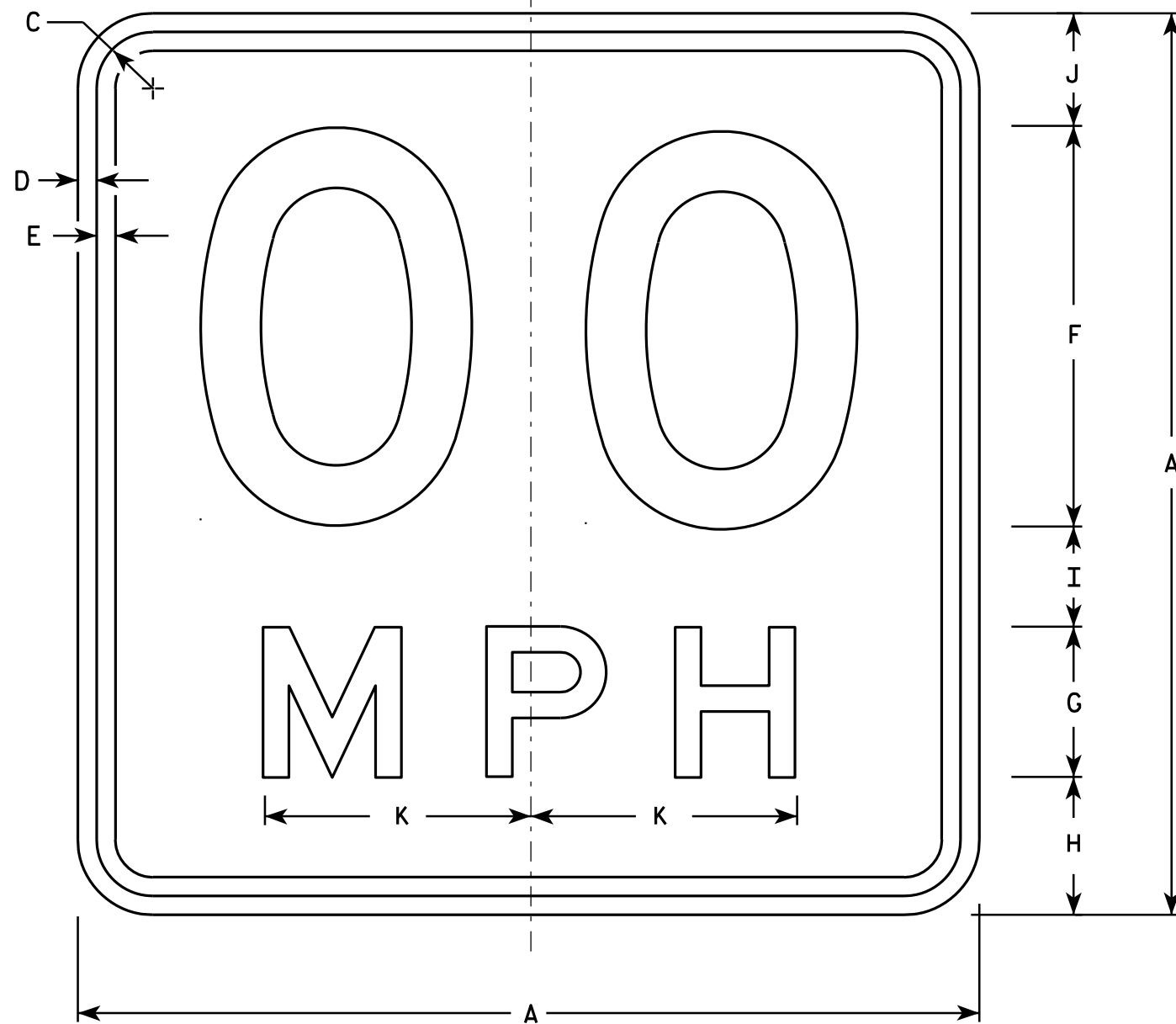
STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W12-1D.15

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



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
Line 2 is Series E

W13-1

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN

W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/31/12 PLATE NO. W13-1.16

PROJECT NO:

HWY:

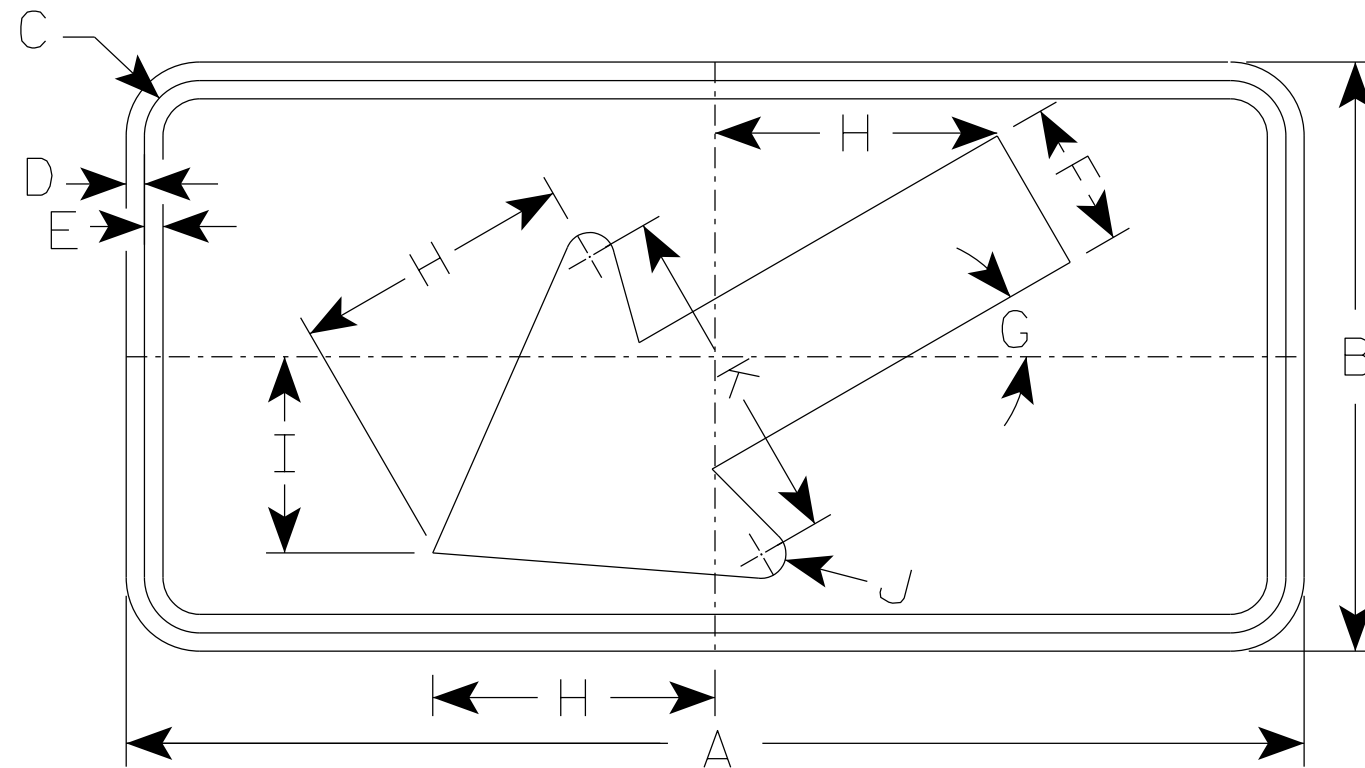
COUNTY:

SHEET NO:

E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. W16-7R is the same as W16-7L
except the arrow is reversed along
the vertical centerline.



W16-7L

- * For 36" x 36" Warning Signs, use 30" x 18" W16-7L signs.
- * For 48" x 48" Warning Signs, use 48" x 24" W16-7L signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	3	30°	5 3/4	4	1/2	7																2.0
* 2M	30	18	1 1/8	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
* 3	30	18	1 1/8	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
* 4	48	24	1 3/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
5																											

STANDARD SIGN
W16-7

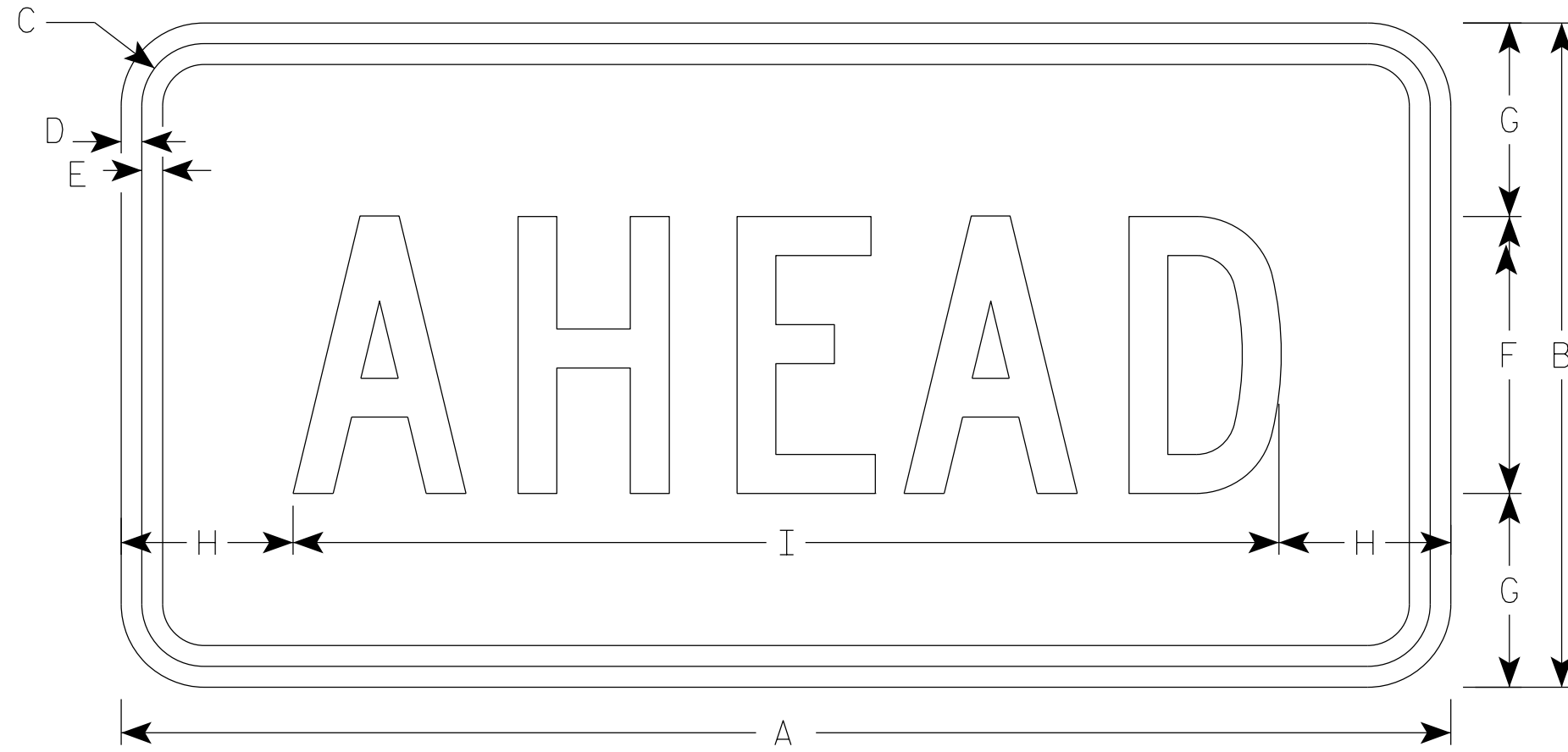
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/2021 PLATE NO. W16-7.8

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - C



W16-9P

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	5	3 1/2	3 1/8	17 3/4																		2.0
2M	30	18	1 1/8	3/8	1/2	7	5 1/2	2 3/4	24 1/2																		3.75
3	30	18	1 1/8	3/8	1/2	7	3 1/2	2 3/4	24 1/2																		3.75
4	48	24	1 3/8	1/2	5/8	10	7	6 1/8	35 3/4																		8.0
5																											

STANDARD SIGN

W16-9P

WISCONSIN DEPT OF TRANSPORTATION

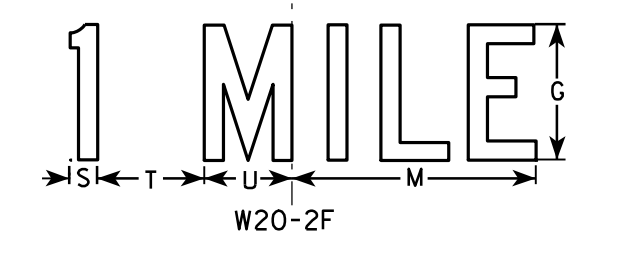
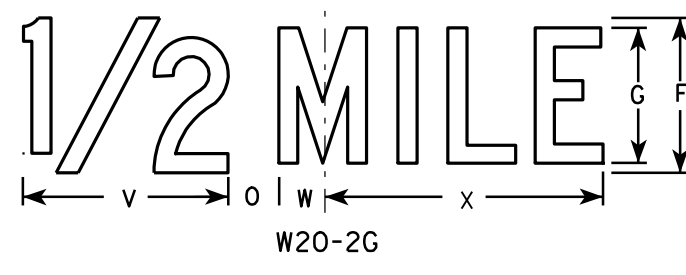
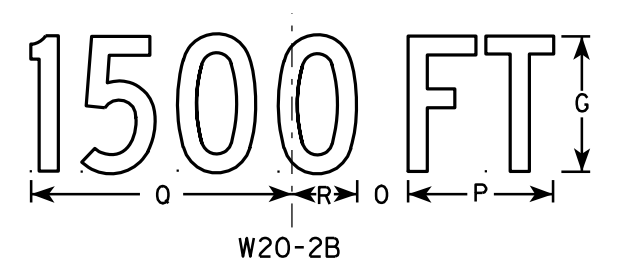
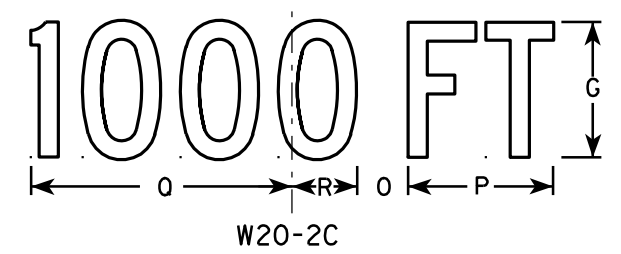
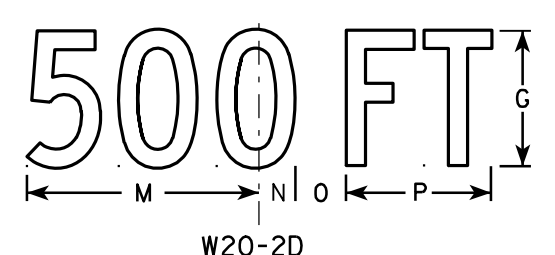
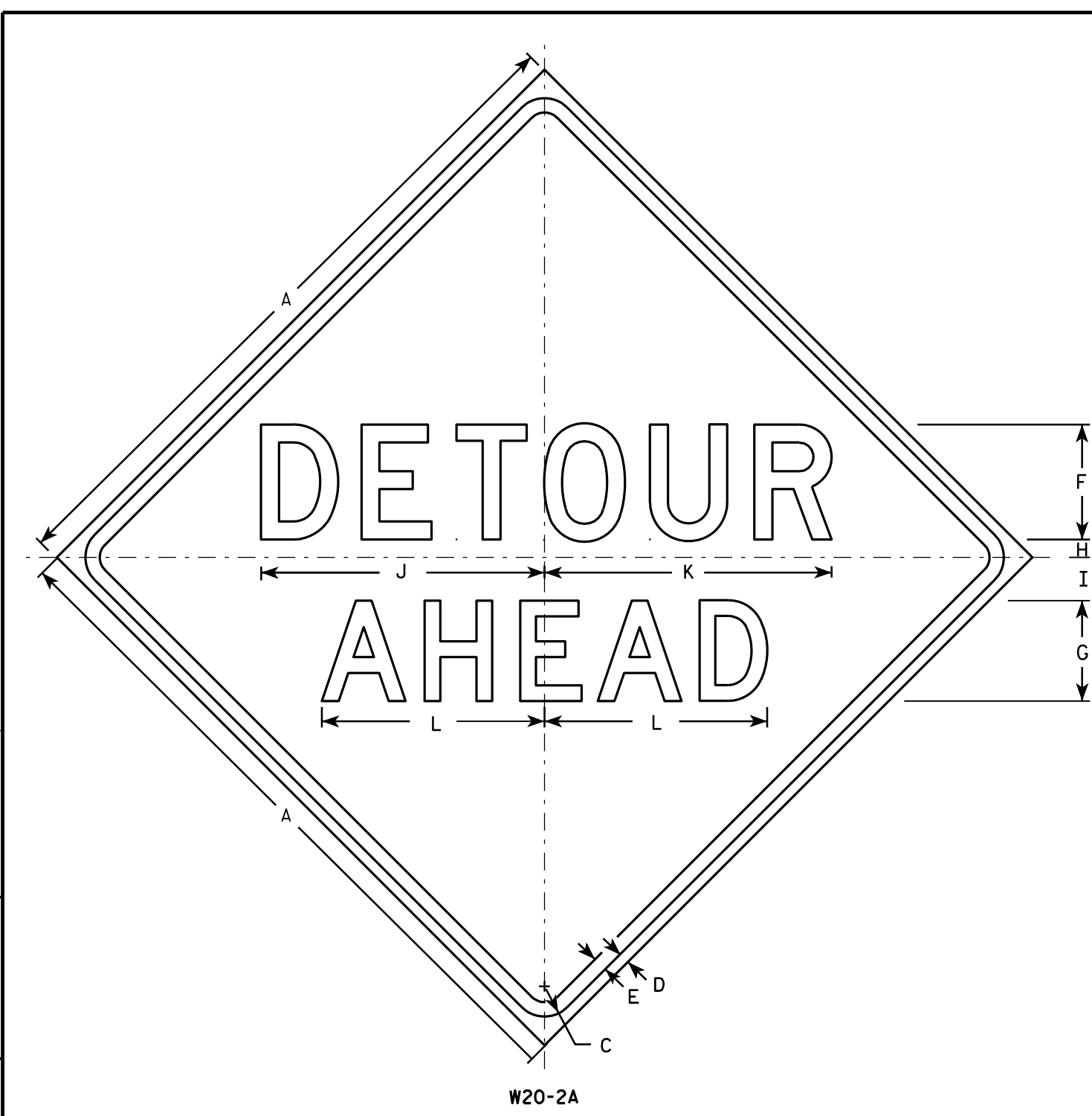
APPROVED *Matthew R. Rauch*
State Traffic Engineer

DATE 3/7/19 PLATE NO. W16-9P.7

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

7

7



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

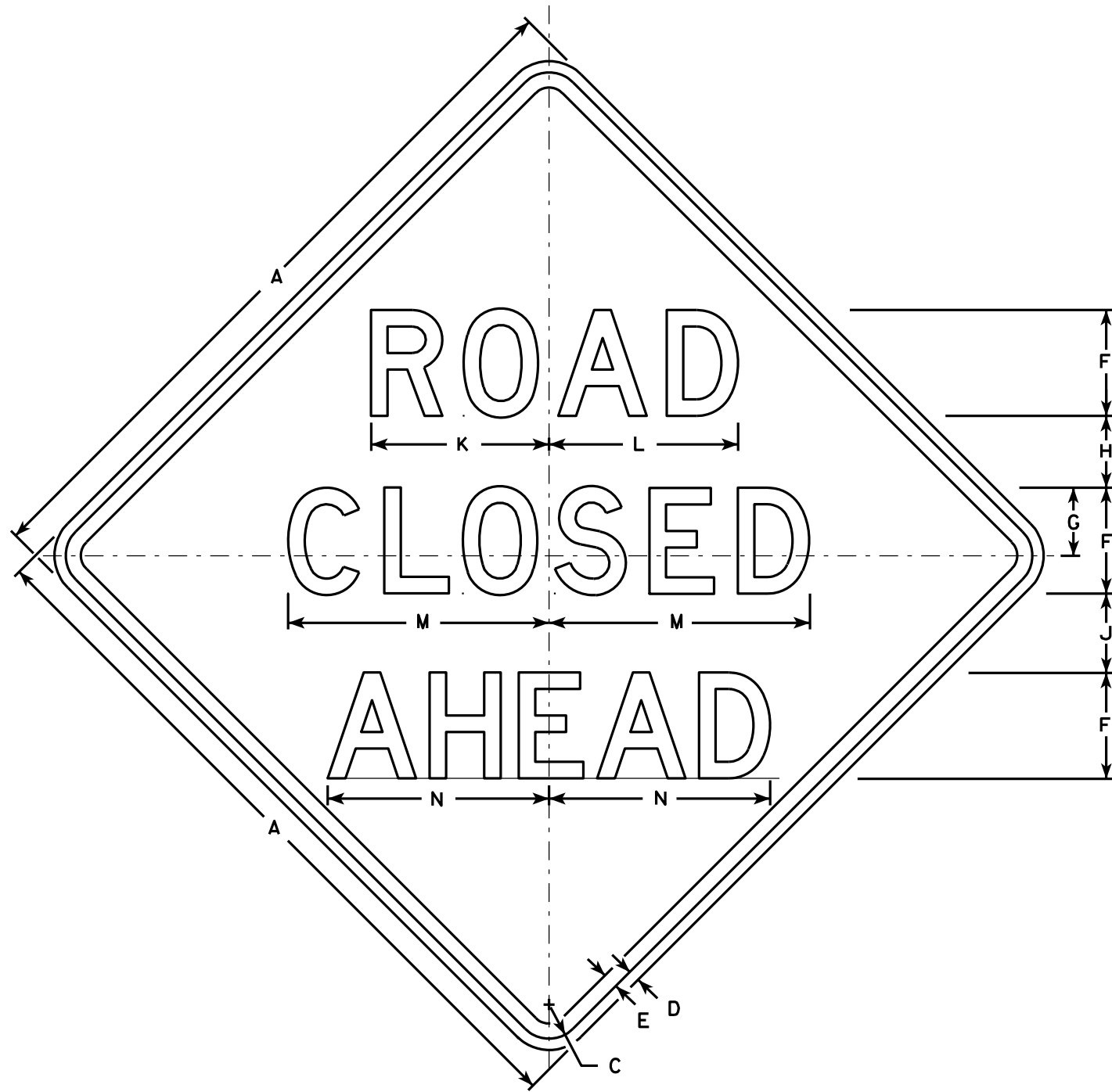
STANDARD SIGN
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

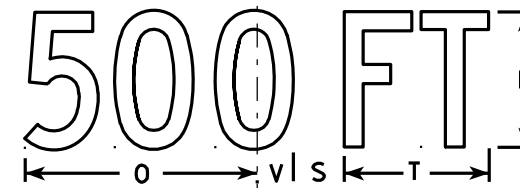
APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

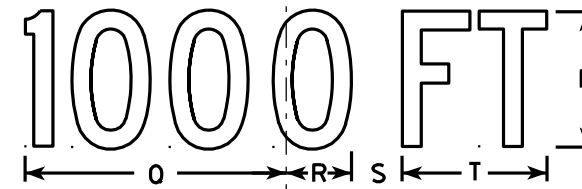
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



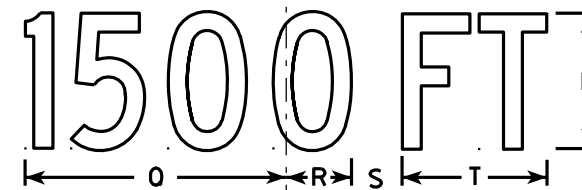
W20-3A



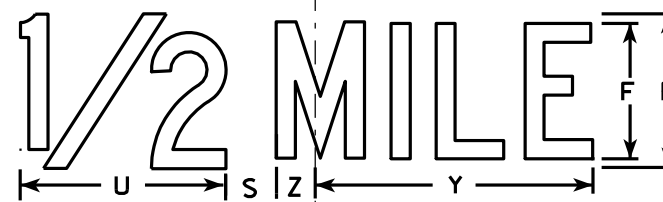
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

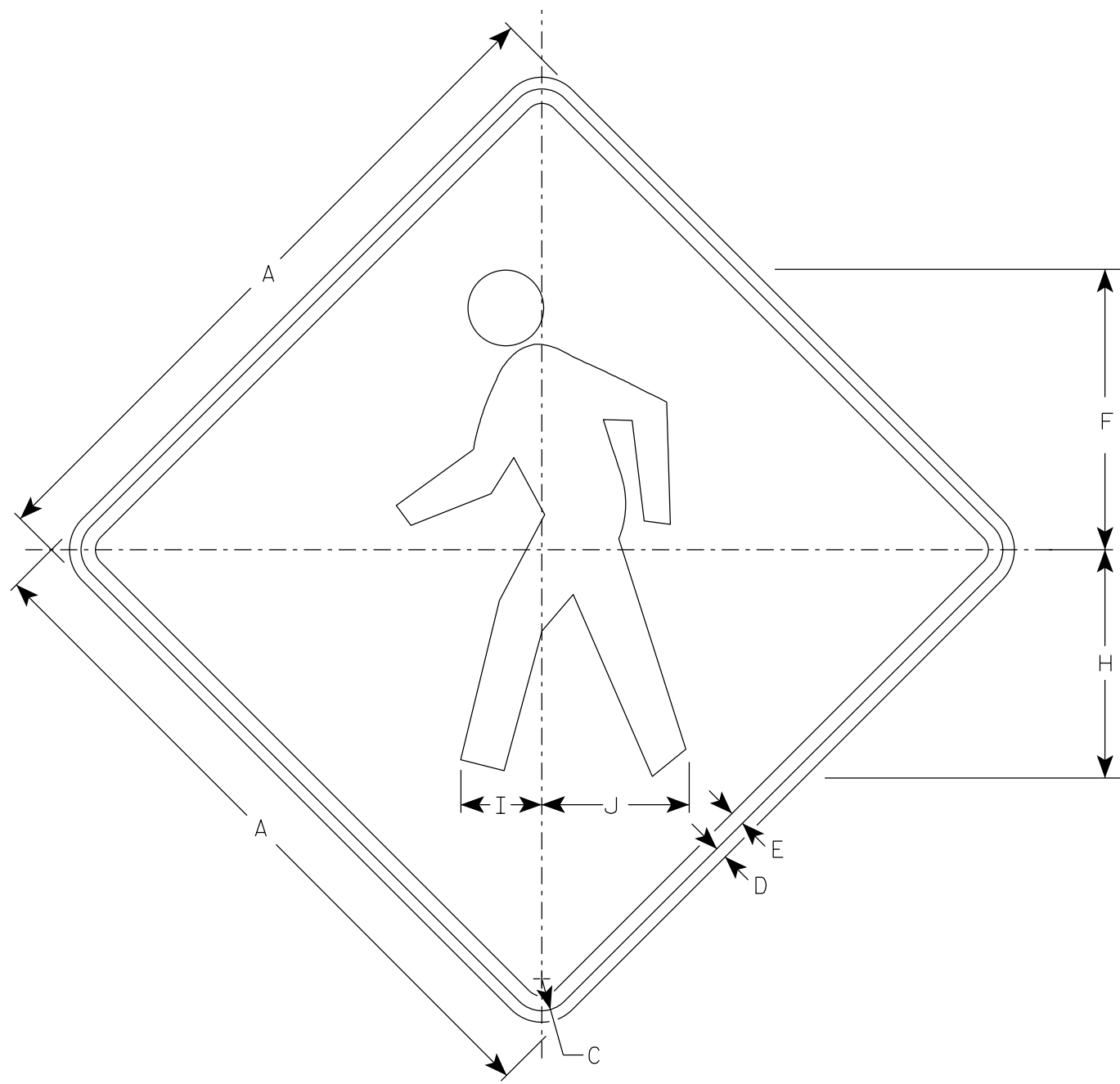
STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

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



W011-2

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
2S	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
2M	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
3	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
4	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

STANDARD SIGN
W011-2

WISCONSIN DEPT OF TRANSPORTATION

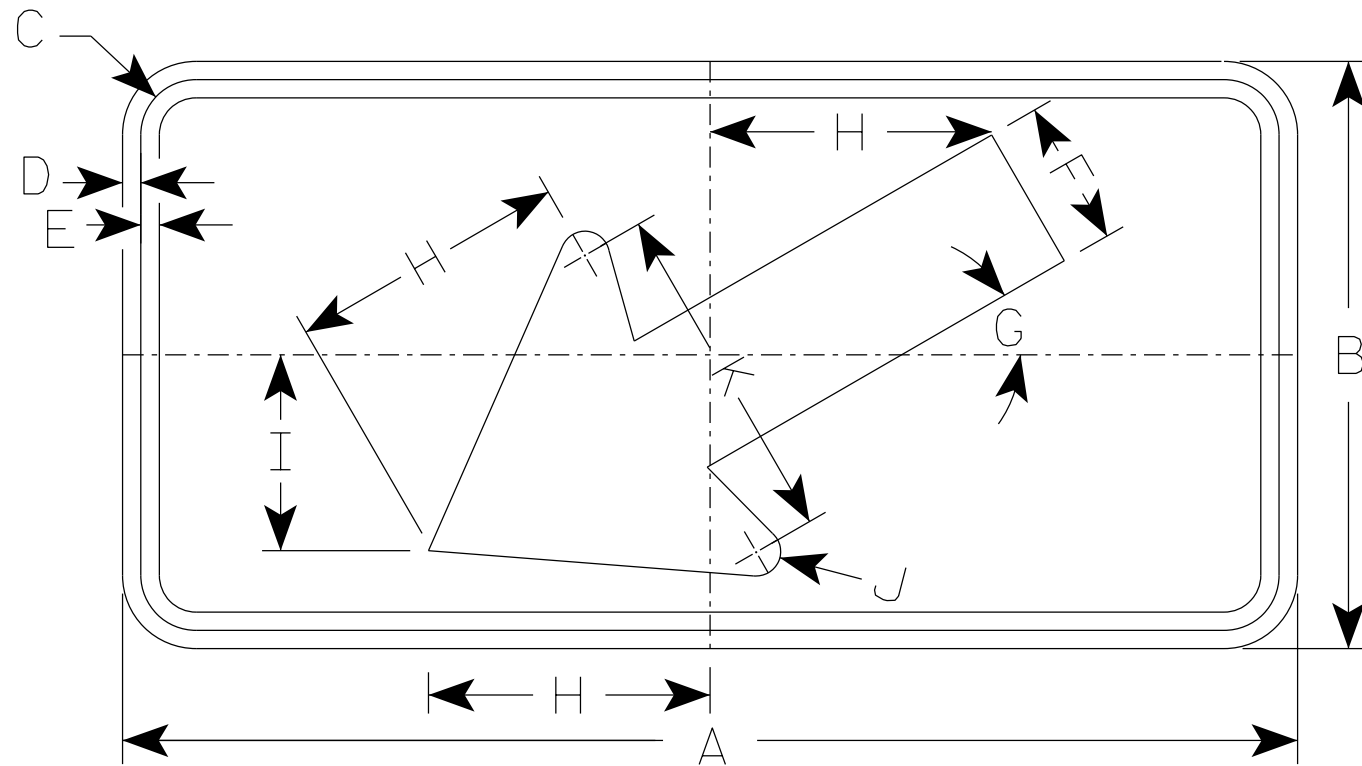
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/8/2020 PLATE NO. W011-2.1

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

NOTES

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



W016-7L

7

7

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

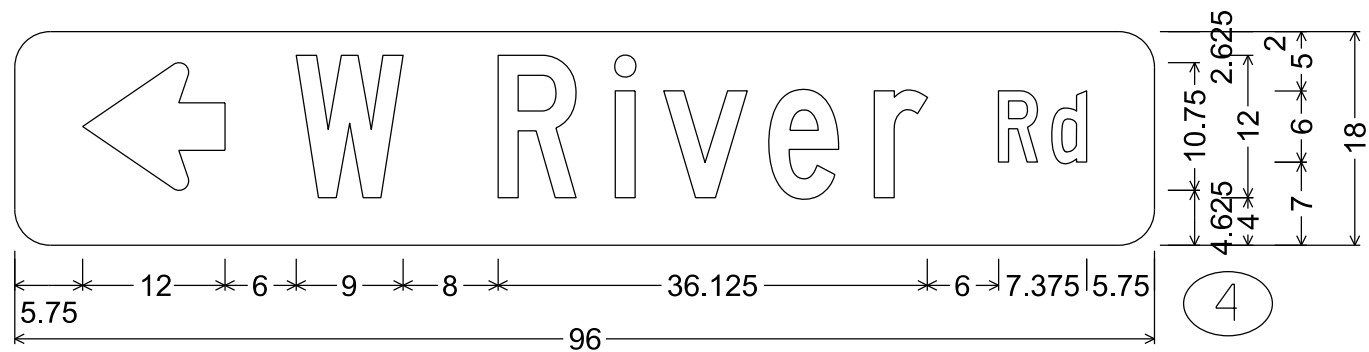
STANDARD SIGN
W016-7

WISCONSIN DEPT OF TRANSPORTATION

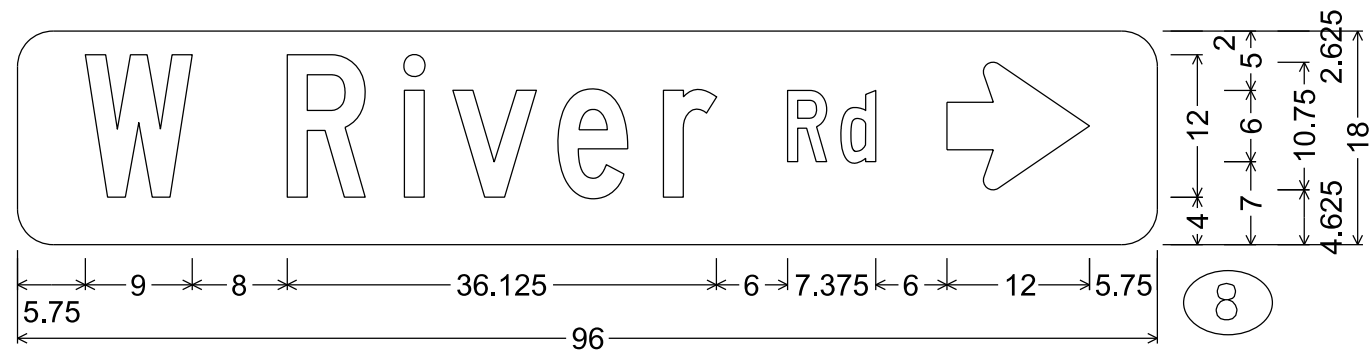
APPROVED *Matthew R Rauch*
for State Traffic Engineer

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

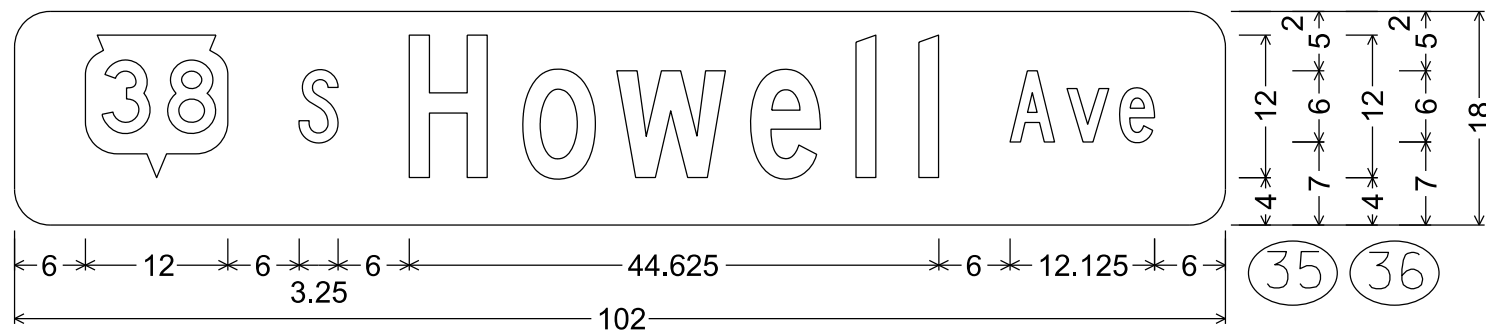
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**



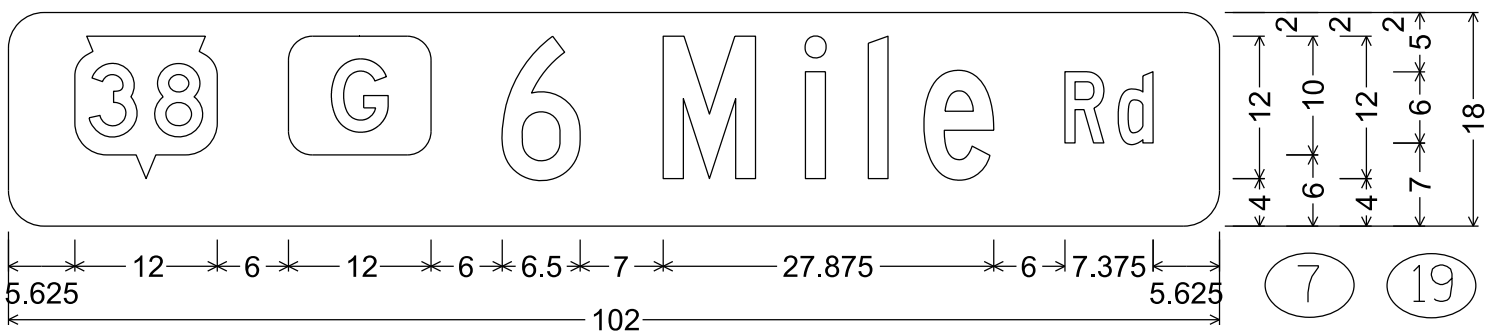
M1-94S; 3.000" Radius, No border



M1-94S; 3.000" Radius, No border



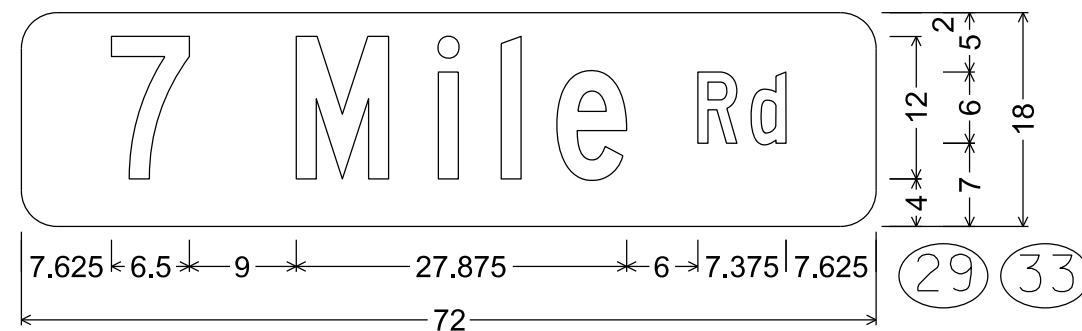
M1-94S; 3.000" Radius, No border



M1-94S; 3.000" Radius, No border

NOTES

1. Signs are Type II - Type H Reflective
2. Color:
Background - Green
Message - White
3. Message Series - E except as noted



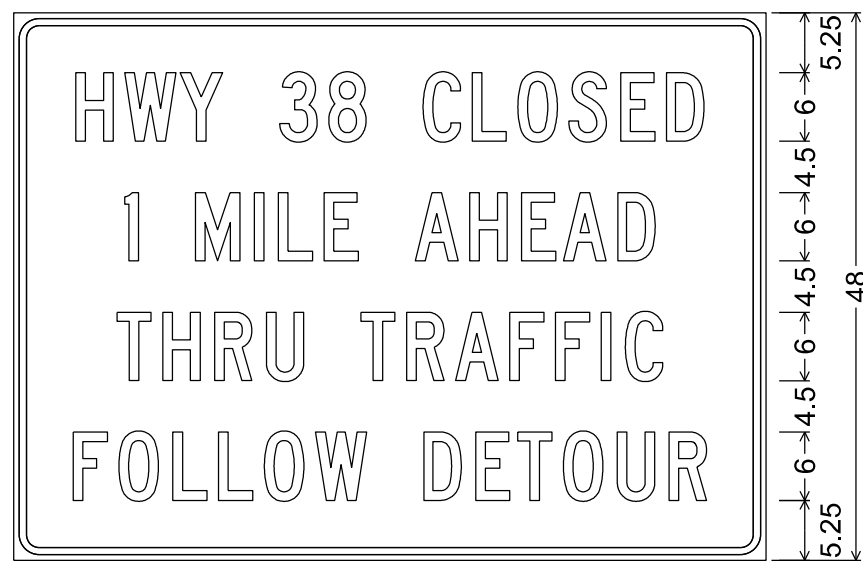
M1-94H; 3.000" Radius, No border

7

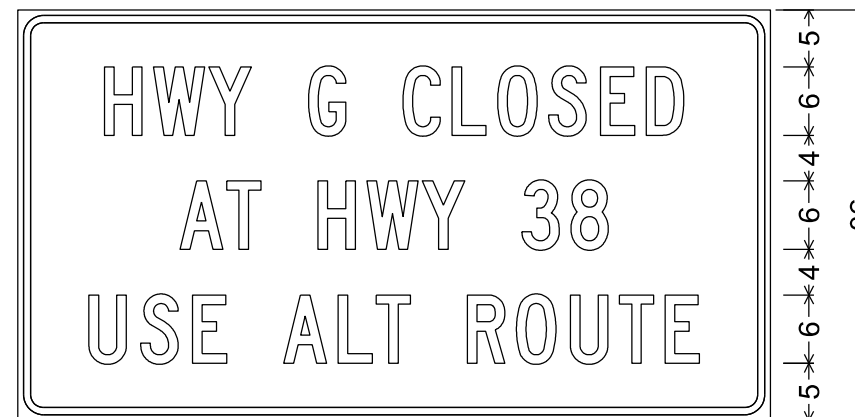
7

NOTES

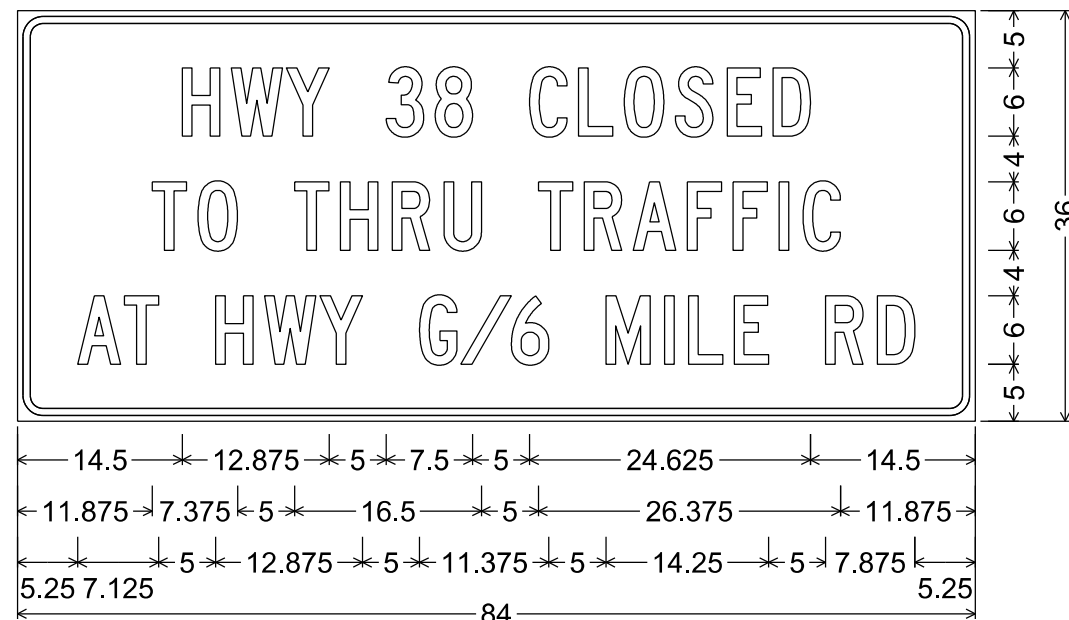
1. Fixed Message Signs Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C



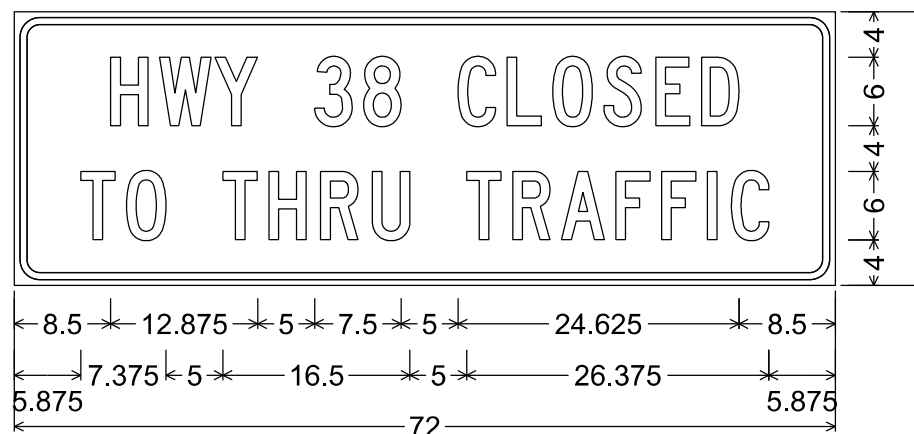
2.250" Radius, 0.625" Border, 0.500" Indent



2.250" Radius, 0.625" Border, 0.500" Indent



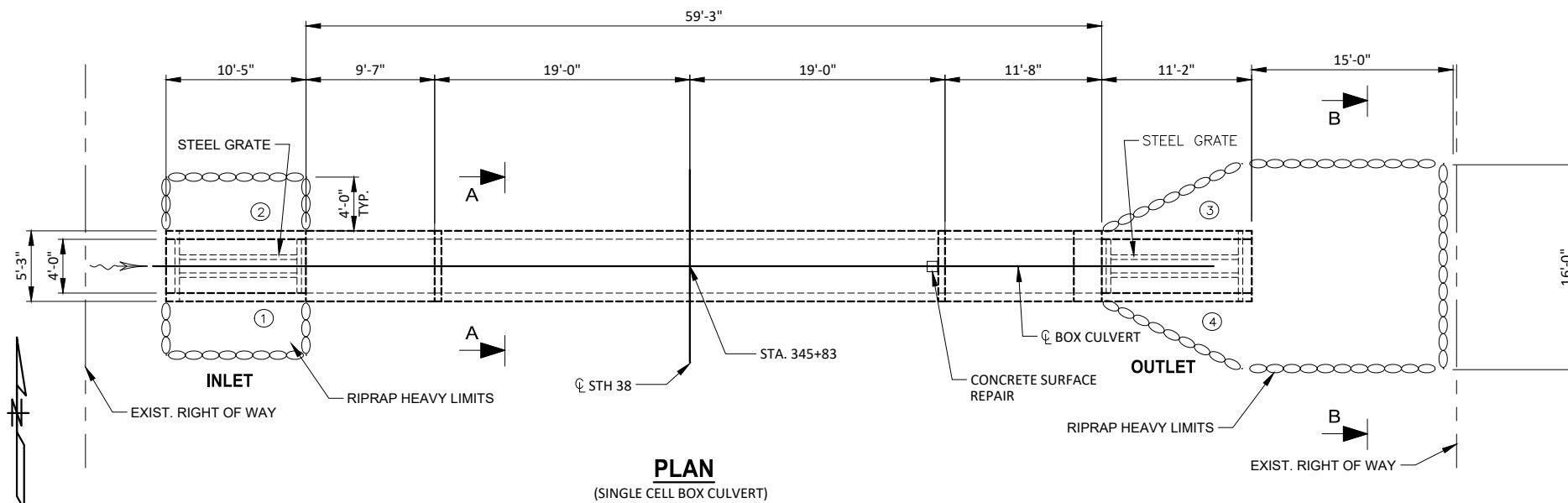
2.250" Radius, 0.625" Border, 0.500" Indent



2.250" Radius, 0.625" Border, 0.500" Indent

7

7



PLAN
(SINGLE CELL BOX CULVERT)

LIVELOAD:

INVENTORY RATING FACTOR: 1.0
 OPERATING RATING FACTOR: 1.67
 WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV): 190 kips
 LOAD RATINGS PER WBM 45.8.2.1

MATERIAL PROPERTIES:

CONCRETE MASONRY $f_c = 3,500$ PSI

GENERAL NOTES

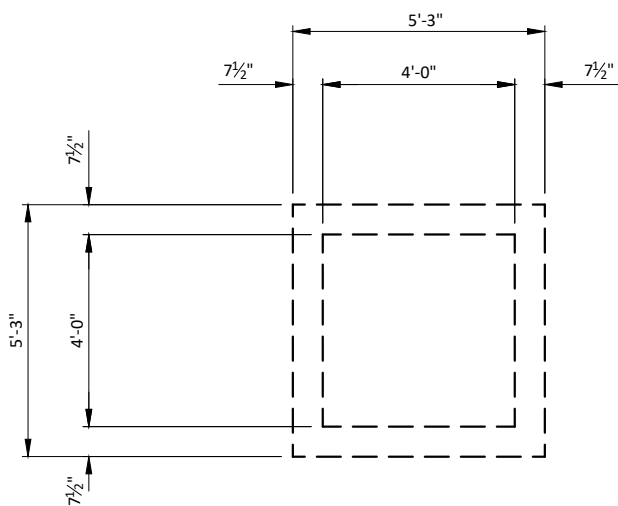
- DRAWINGS SHALL NOT BE SCALED.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- THE PROPOSED REHABILITATION INCLUDES CONCRETE SURFACE REPAIR AND RIPRAP HEAVY.
- "CONCRETE SURFACE REPAIR" QUANTITIES ARE AN ESTIMATE ONLY. QUANTITIES TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1/2-INCH SAW CUT UNLESS SPECIFIED OTHERWISE.
- GEOTEXTILE FABRIC TYPE HR SHALL LINE THE ENTIRE STILL BASIN WHERE RIPRAP IS TO BE PLACED.

TRAFFIC DATA

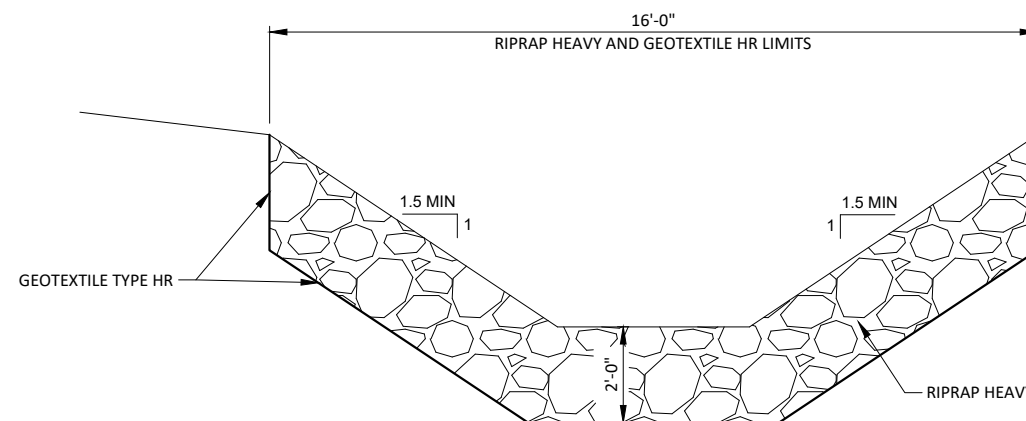
STH 38
 AADT (2045) 12,550
 DESIGN SPEED 55 MPH

LIST OF DRAWINGS:

- 1. GENERAL PLAN



SECTION A-A



SECTION B-B

TOTAL ESTIMATED QUANTITIES			
ITEM NUMBER	BID ITEM	UNIT	TOTAL
509.1500	CONCRETE SURFACE REPAIR	SF	5
606.0300	RIPRAP HEAVY	CY	30
645.0120	GEOTEXTILE TYPE HR	SY	80



DESIGN CONSULTANT
 TOM ROMENESKO, PE
 (608) 566-1370

BRIDGE OFFICE CONTACT
 AARON BONK, PE
 (608) 261-0261

NO.	DATE	REVISION	BY
 www.daarcorp.com Milwaukee, WI 53202 414-225-9817			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			ACCEPTED CHIEF STRUCTURES DESIGN ENGINEER
			02/20/23 DATE
STRUCTURE C-51-9			
STH 38 OVER TRIBUTARY OF HUSHER CREEK			
COUNTY	RACINE	TOWNSHIP/VILLAGE	CALEDONIA
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	MC	DESIGN CK'D. TR	DRAWN BY MC PLANS CK'D. TR
GENERAL PLAN			SHEET 1 OF 1

LIVELOAD:

INVENTORY RATING FACTOR: 1.0
 OPERATING RATING FACTOR: 1.67
 WISCONSIN STANDARD PERMIT VEHICLE (Wis-SPV): 190 kips
 LOAD RATINGS PER WBM 45.8.2.1

MATERIAL PROPERTIES:

CONCRETE MASONRY $f_c = 3,500$ PSI
 HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 $f_y = 60,000$ PSI

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
- THE PROPOSED REHABILITATION INCLUDES CONCRETE SURFACE REPAIR, CONCRETE MASONRY CULVERTS, AND RUBBERIZED MEMBRANE WATERPROOFING.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-50-10" SHALL BE THE EXISTING GROUNDLINE.
- THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

"COFFERDAMS C-51-10" SHALL INCLUDE SANDBAGS OR OTHER METHOD APPROVED BY THE ENGINEER FOR ALL DEWATERING NEEDED FOR RECONSTRUCTION OF WING 3, RECONSTRUCTION OF THE TOP SLAB AND HEADERS, AND CONCRETE SURFACE REPAIR.

■ "CONCRETE SURFACE REPAIR" QUANTITIES ARE AN ESTIMATE ONLY. QUANTITIES TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

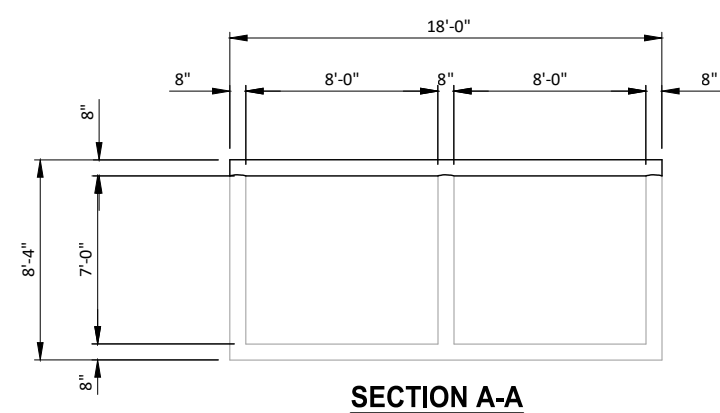
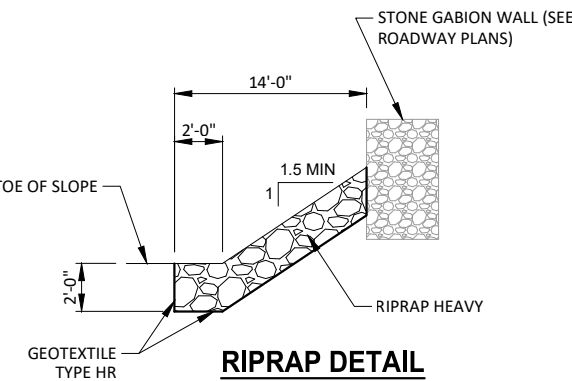
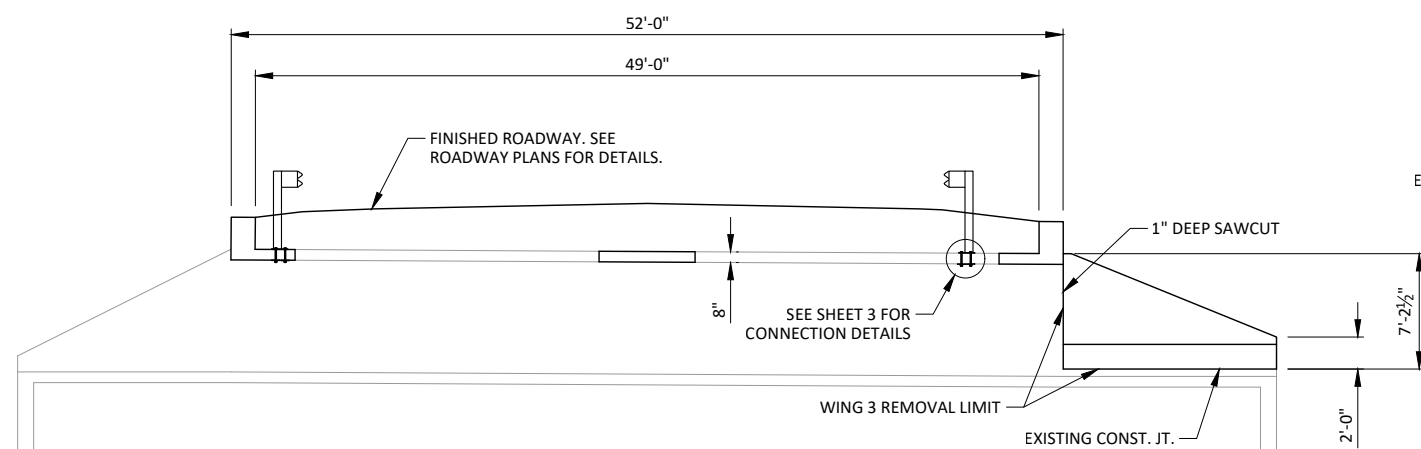
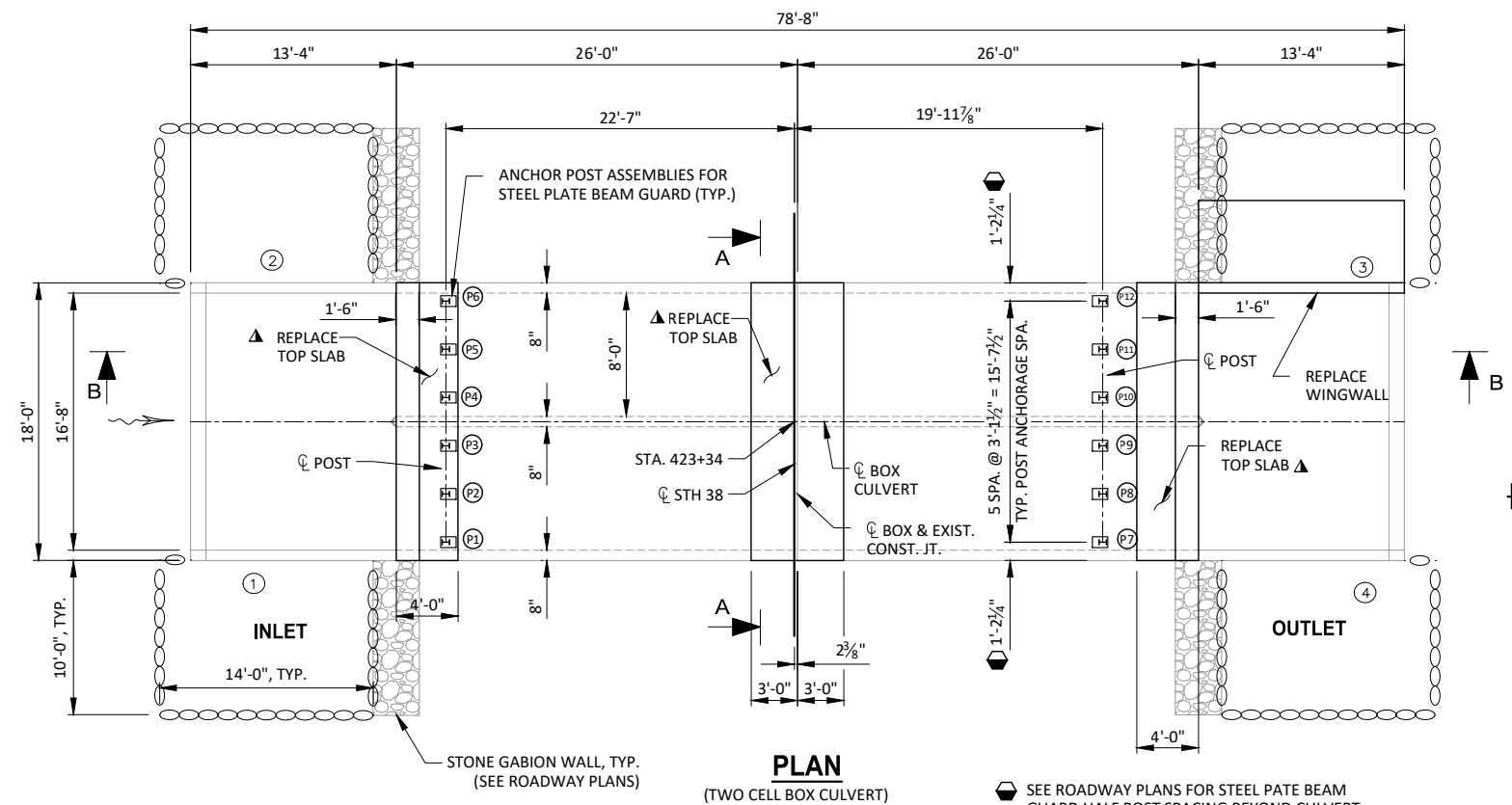
▲ TOP SLAB REMOVAL DEFINED BY 1" SAW CUT ON TOP AND BOTTOM OF SLAB.

TRAFFIC DATA

STH 38
 AADT (2045) 12,550
 DESIGN SPEED 55 MPH

LIST OF DRAWINGS:

- GENERAL PLAN
- DETAILS
- GUARDRAIL POST ANCHORAGE



TOTAL ESTIMATED QUANTITIES			
ITEM NUMBER	BID ITEM	UNIT	TOTAL
203.0220	REMOVING STRUCTURE C-51-10	EA	1
206.2001	EXCAVATION FOR STRUCTURES CULVERTS C-51-10	EA	1
206.5001	COFFERDAMS C-51-10	EA	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	310
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EA	82
504.0100	CONCRETE MASONRY CULVERTS	CY	14
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,120
509.1500	CONCRETE SURFACE REPAIR	SF	10
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
516.0610.S	SHEET MEMBRANE WATERPROOFING FOR BURIED STRUCTURES	SY	46
606.0300	RIPRAP HEAVY	CY	50
645.0120	GEOTEXTILE TYPE HR	SY	120



DESIGN CONSULTANT
 TOM ROMENESKO, PE
 (608) 566-1370

BRIDGE OFFICE CONTACT
 AARON BONK, PE
 (608) 261-0261

NO.	DATE	REVISION	BY

DAAR ENGINEERING, INC.
 www.daarcorp.com
 Milwaukee, WI 53202
 414-225-9817

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR **02/20/23**
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-51-10
 STH 38 OVER BRANCH OF ROOT RIVER

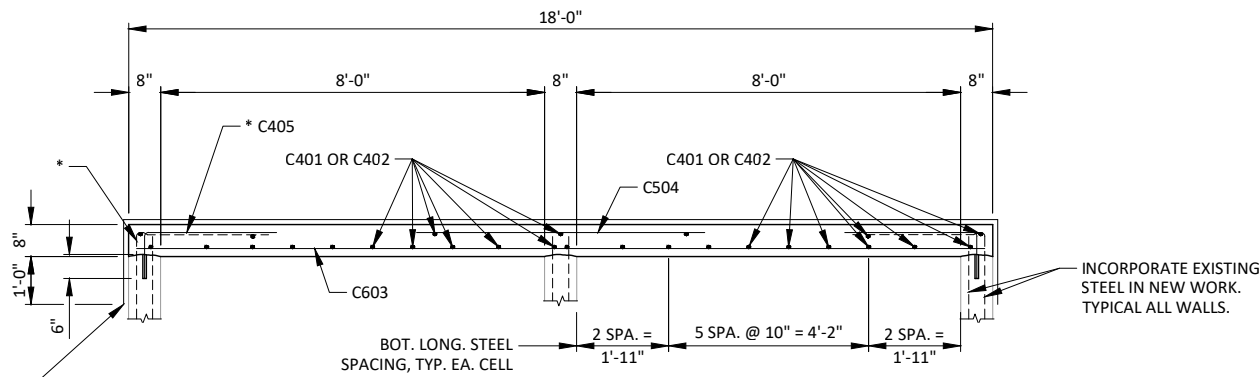
COUNTY RACINE TOWN/VILLAGE CALEDONIA

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	MC	DESIGN CK'D.	TR	DRAWN BY	MC	PLANS CK'D.	TR
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GENERAL PLAN

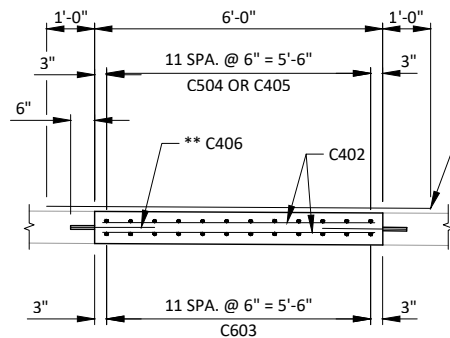
SHEET 1 OF 3



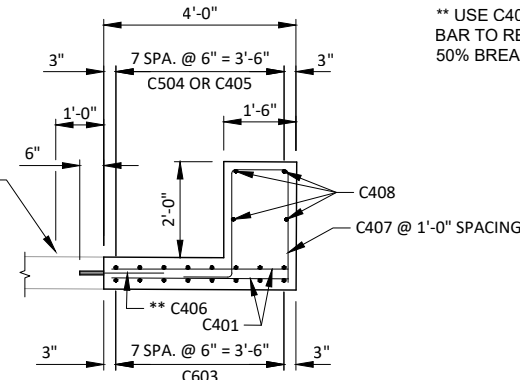
BOX CULVERT SECTION
(LOOKING THRU TOP SLAB REPLACEMENT AREAS)

* USE C405 BAR WITH ADHESIVE ANCHOR NO. 4 BAR TO REPLACE BROKEN EXISTING BARS. 50% BREAKAGE ASSUMED.

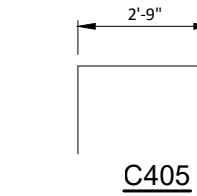
** USE C406 BAR WITH ADHESIVE ANCHORS NO. 4 BAR TO REPLACE BROKEN LONGITUDINAL BARS. 50% BREAKAGE ASSUMED.



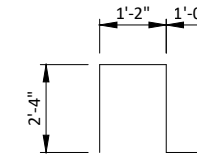
TOP SLAB MIDDLE SECTION



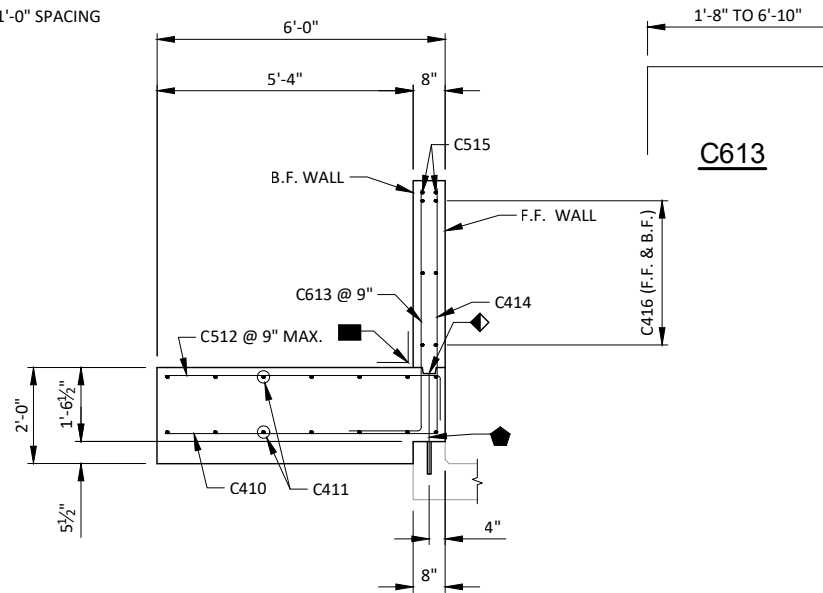
TOP SLAB HEADER SECTION



C405



C407



WING 3 TYPICAL SECTION

BILL OF BARS

MARK	NUMBER	LENGTH	BENT	BAR SERIES	LOCATION
C401	54	3-8			BOX CULVERT - TOP SLAB - LONGIT.
C402	27	5-8			BOX CULVERT - TOP SLAB - LONGIT.
C603	28	17-8			BOX CULVERT - BOT. OF TOP SLAB - TRANS.
C504	28	6-0			BOX CULVERT - TOP OF TOP SLAB - TRANS.
C405	28	3-8	X		BOX CULVERT - TOP OF TOP SLAB - TRANS.
C406	54	1-6			BOX CULVERT DOWEL - TOP SLAB - LONGIT.
C407	36	6-8	X		BOX CULVERT HEADER STIRRUP
C408	8	17-8			BOX CULVERT HEADER - TOP - TRANS.
C409	15	2-0			WING 3 - HORIZ. CONST. JOINT DOWEL
C410	15	5-8			WING 3 - FOOTING BOT. - TRANS.
C411	14	13-0			WING 3 - FOOTING TOP & BOT. - LONGIT.
C512	18	6-5	X		WING 3 - FOOTING TOP - TRANS.
C613	18	5-4	X	*	WING 3 - B.F. - VERT.
C414	18	4-2		*	WING 3 - F.F. - VERT.
C515	2	13-8			WING 3 - TOP
C416	10	6-8		*	WING 3 - B.F. & F.F. - HORIZ.

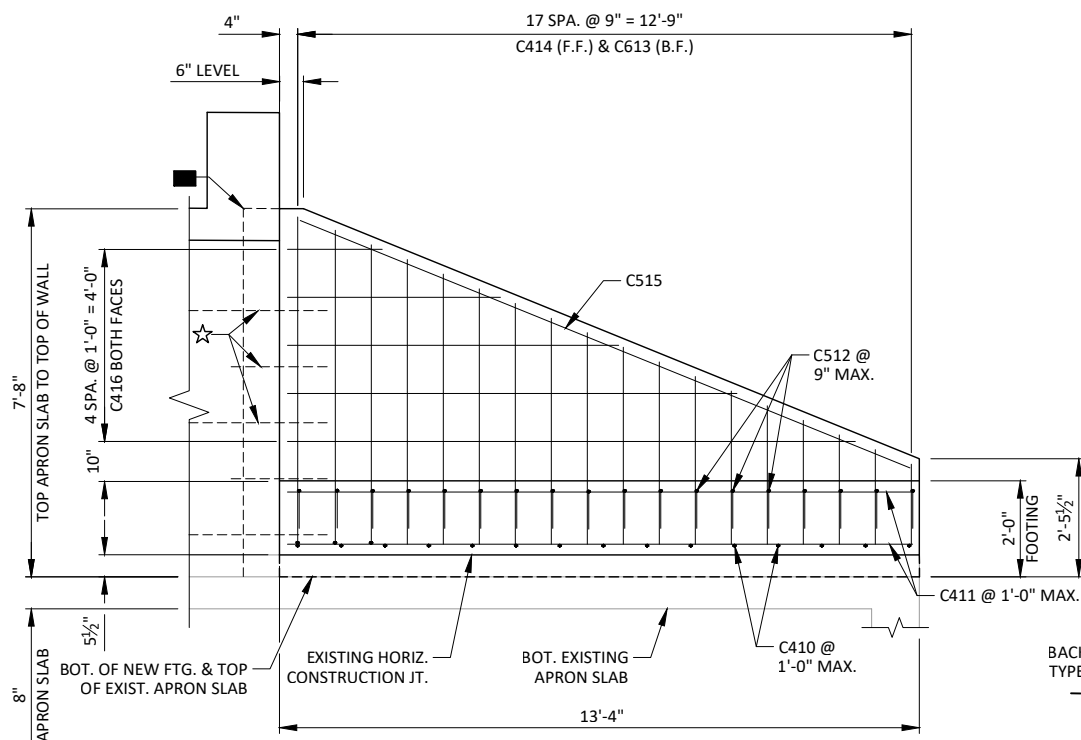
* LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATION. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

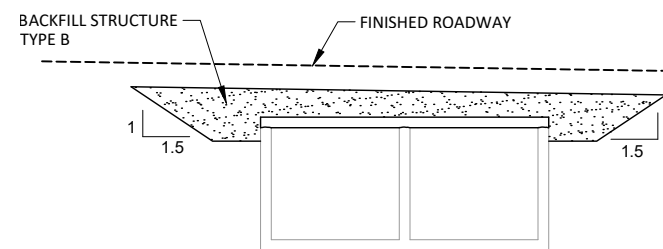
MARK	NO. REQUIRED	LENGTH
C613	1 SERIES OF 18	2-6 TO 8-2
C414	1 SERIES OF 18	1-8 TO 6-8
C416	2 SERIES OF 5	2-0 TO 11-10

LEGEND

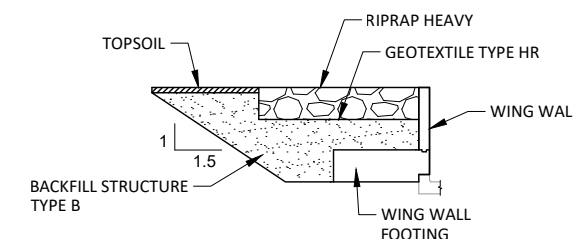
- - INDICATES WING NUMBER
- F.F. - FRONT FACE
- B.F. - BACK FACE
- E.F. - EACH FACE
- CL. - CLEAR
- O.C. - ON CENTER
- 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING ALONG HORIZ. AND VERT. CONSTR. JT. IN WING
- ◆ HORIZ. CONST. JOINT WITH KEYWAY USING BEVELED 2x4.
- ◆ C409 ADHESIVE ANCHORS. EMBED 9" INTO SOUND CONCRETE & SPACE 1'-0" O.C. MAX. PAID FOR UNDER BID ITEM "ADHESIVE ANCHORS NO. 4 BAR".
- ☆ CLEAN AND RE-USE HORIZONTAL STEEL EXTENDING INTO WING FROM BOX SECTION.



WINGWALL 3 ELEVATION
(LOOKING NORTH AT F.F. OF WING WALL)



BOX CULVERT BACKFILL DETAIL



WING 3 BACKFILL DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-51-10			
DRAWN BY MC		PLANS CK'D. TR	
DETAILS			SHEET 2 OF 2

GENERAL NOTES

DETAILS SHOWN FOR POSTS, PLATES, ANCHORAGE SYSTEM AND INSTALLATION, BLOCKS, AND GUARDRAIL ARE NOT PART OF THE STRUCTURE CONTRACT, BUT ARE BID PER THE ROADWAY DESIGN PLANS.

POST BASE PLATES AND BOTTOM PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

CUT BOTTOM OF POST SO THAT POST WILL BE VERTICAL WHEN POST ASSEMBLY IS PLACED ON TOP OF THE CULVERT. ALONG THE ROADWAY THE POST WILL BE NORMAL TO GRADE LINE. HEX BOLTS AND THREADED RODS ARE TO BE PLACED PERPENDICULAR TO THE BASE PLATE.

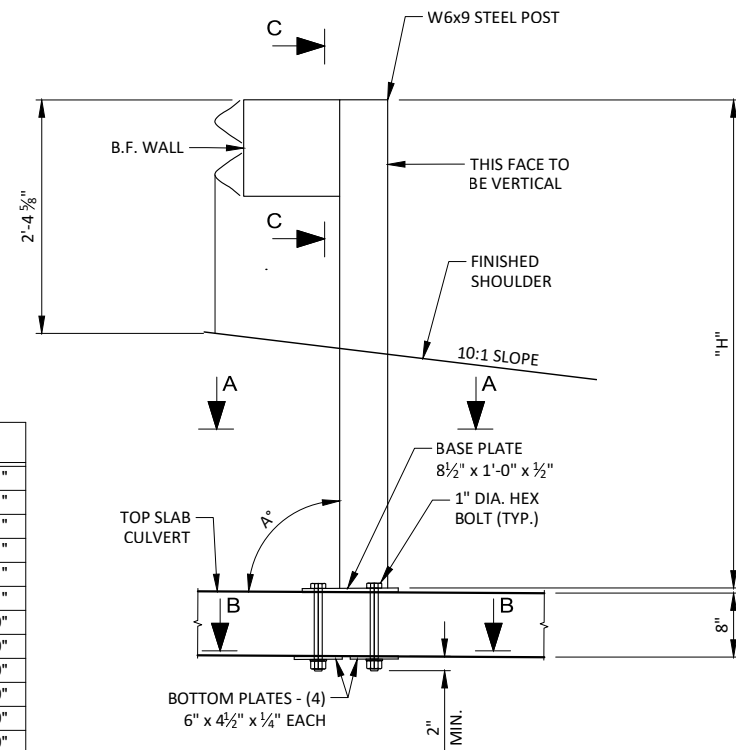
POST, BASE PLATE AND BOTTOM PLATE, AND SHIMS SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL POSTS AND PLATES SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECS.

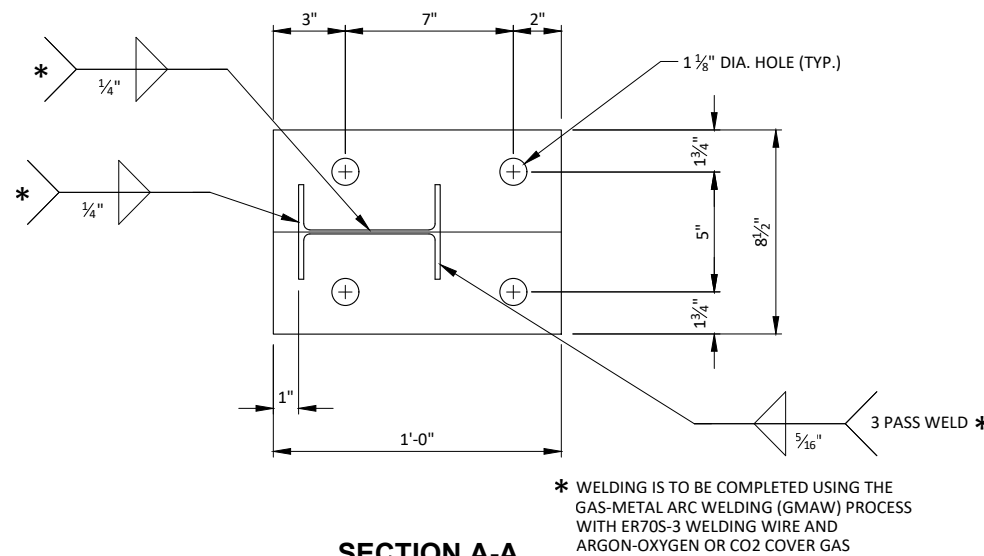
ALL MATERIAL USED IN POSTS AND PLATES SHALL BE MADE FROM MATERIAL CONFORMING TO ASTM DESIGNATION A709 GRADE 50 OR 50S.

HEX BOLTS, THREADED RODS, HEX NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554 GRADE 36, AND SHALL BE GALVANIZED. RODS ARE TO BE FULLY THREADED AND BOLTS TO BE THREADED 3". CHAMFER TOP OF BOLTS AND RODS BEFORE THREADING. FOR ALIGNMENT.

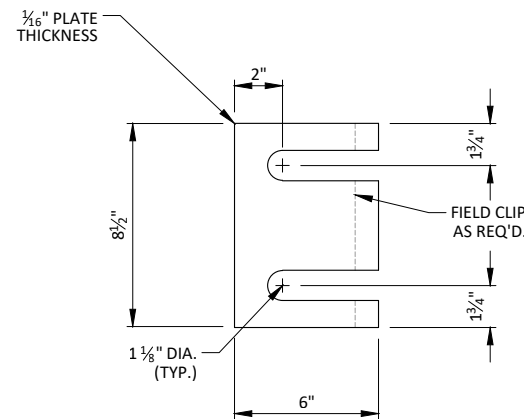
POST NO.	"H"	"A"
P1	4'-7"	90° 18' 31"
P2	4'-6 ³ / ₄ "	90° 18' 31"
P3	4'-6 ¹ / ₂ "	90° 18' 31"
P4	4'-6"	90° 18' 31"
P5	4'-5 ¹ / ₂ "	90° 18' 31"
P6	4'-5"	90° 18' 31"
P7	4'-10"	89° 41' 29"
P8	4'-9 ¹ / ₂ "	89° 41' 29"
P9	4'-9 ¹ / ₄ "	89° 41' 29"
P10	4'-8 ³ / ₄ "	89° 41' 29"
P11	4'-8 ¹ / ₄ "	89° 41' 29"
P12	4'-8"	89° 41' 29"



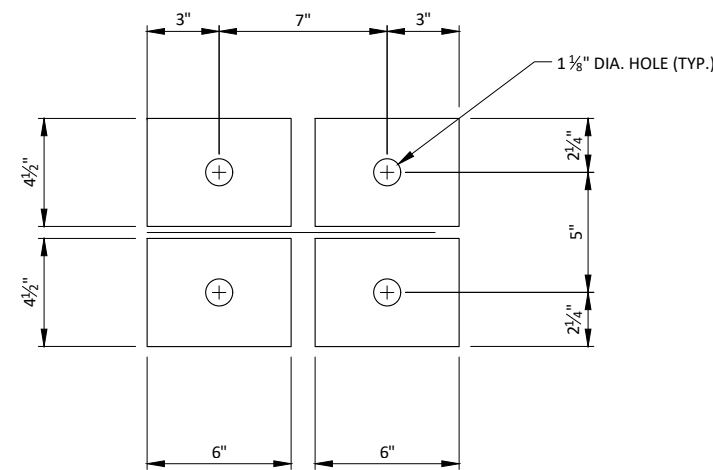
GUARDRAIL POST ANCHOR
(ELEVATION VIEW)



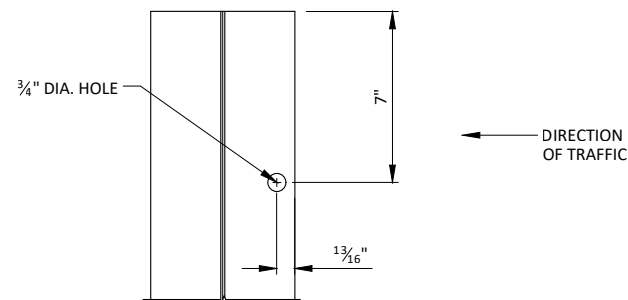
SECTION A-A
POST & BASE PLATE



STEEL SHIM DETAIL
4 PER POST

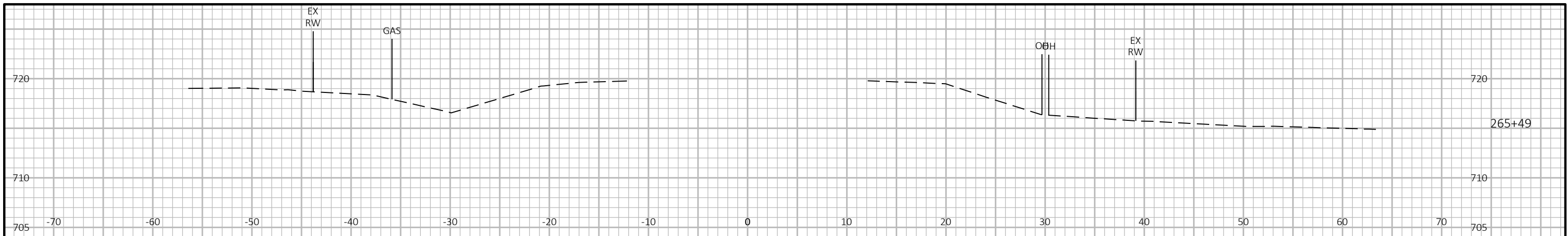


SECTION B-B
(4) BOTTOM PLATES PER POST

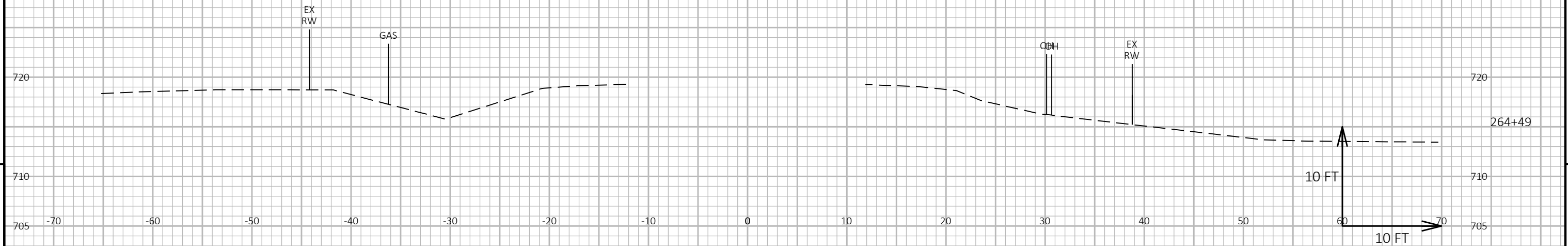
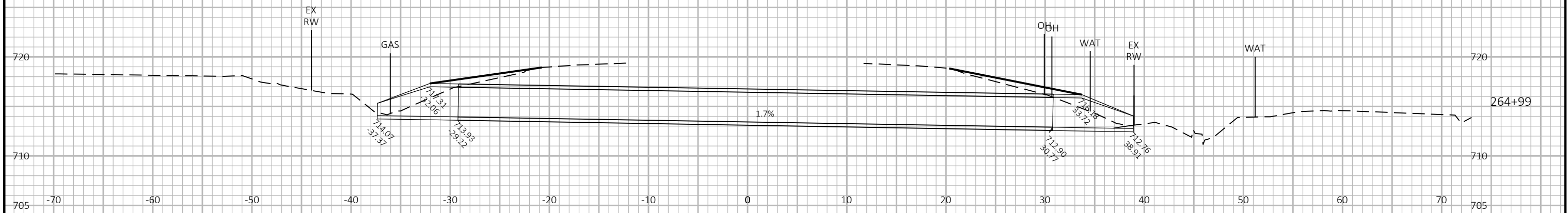


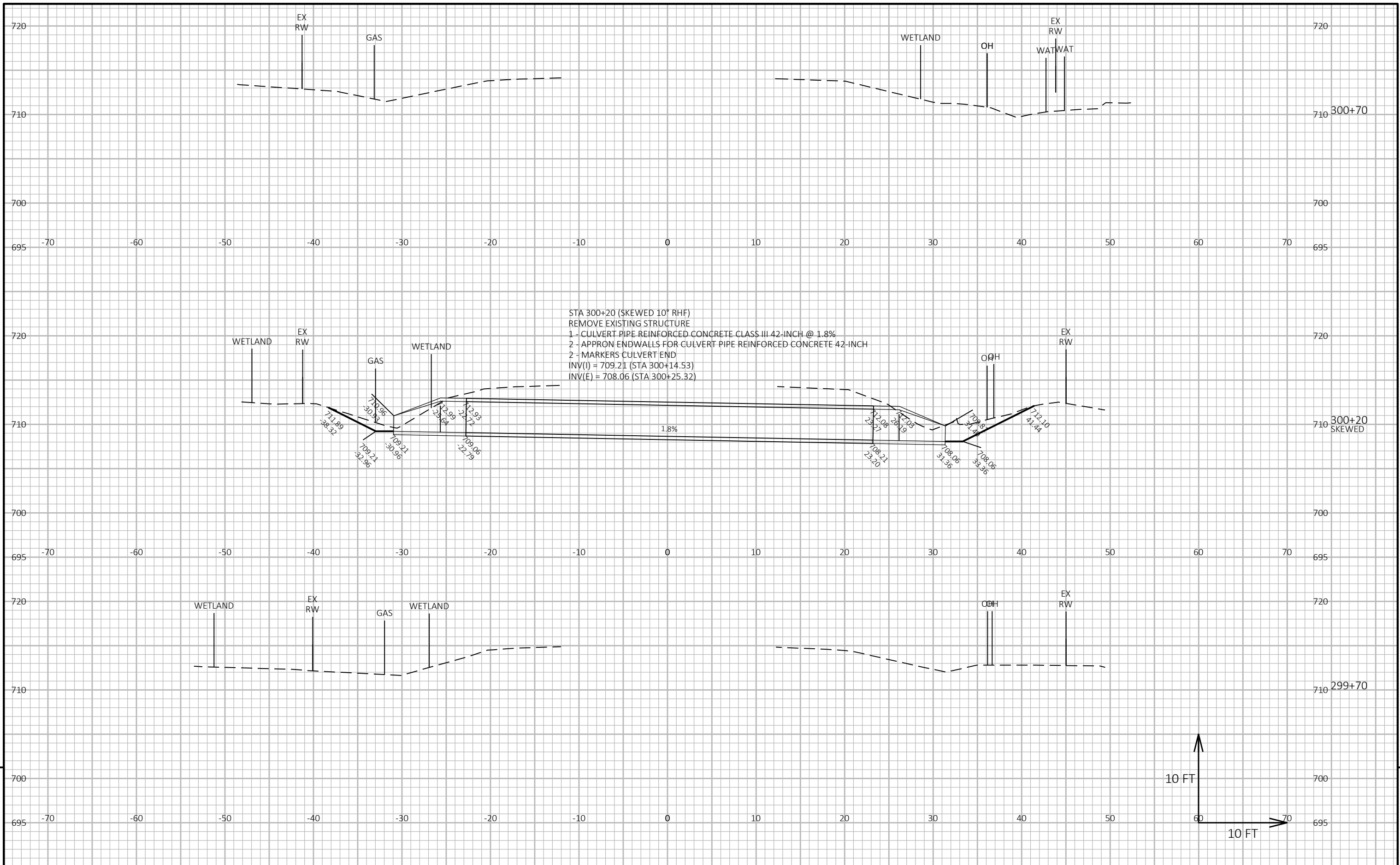
SECTION C-C
HOLE IN POST FLANGES ON
APPROACHING TRAFFIC SIDE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-51-10			
DRAWN BY MC		PLANS CK'D. TR	
GUARDRAIL POST ANCHORAGE			SHEET 3 OF 2

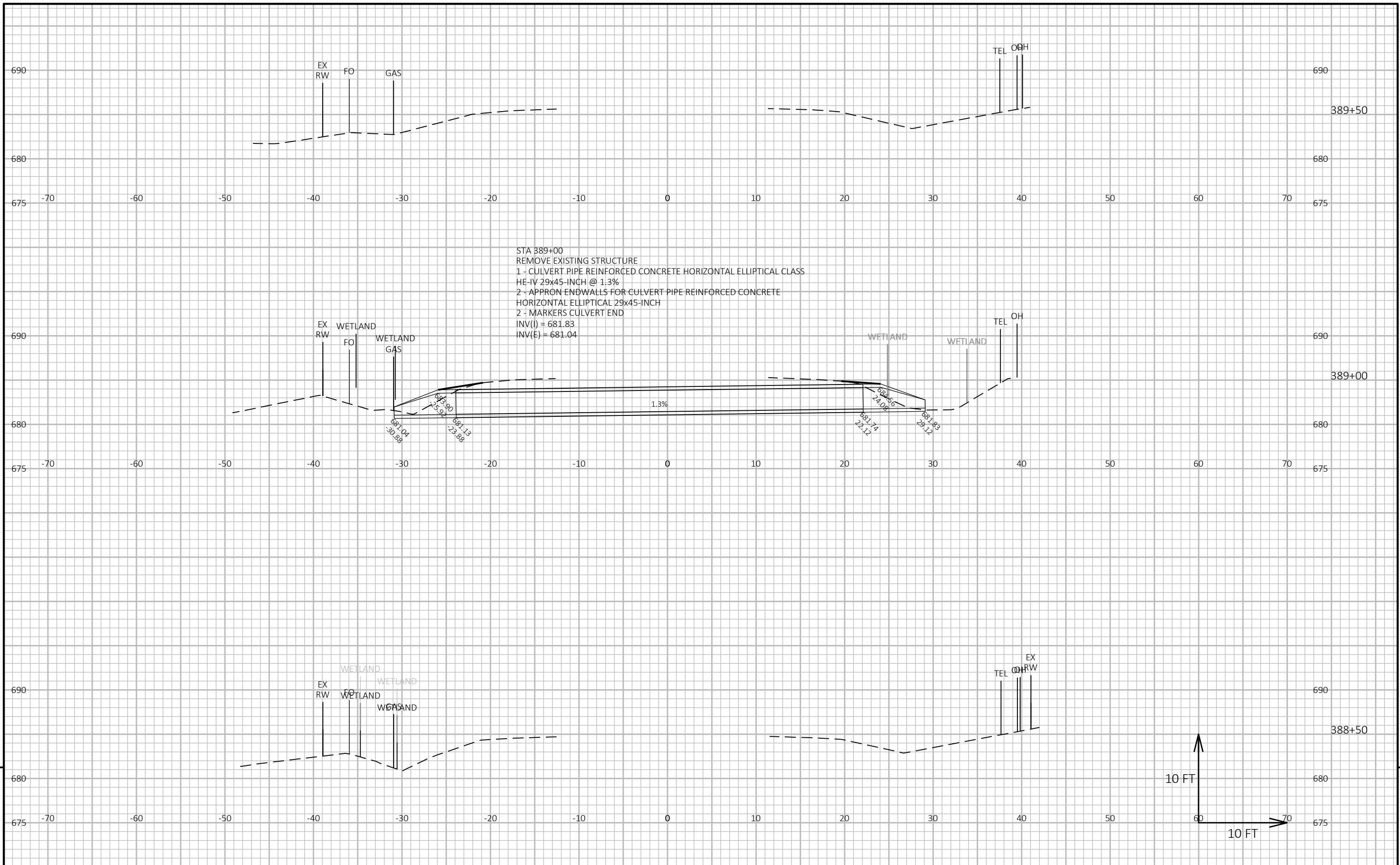


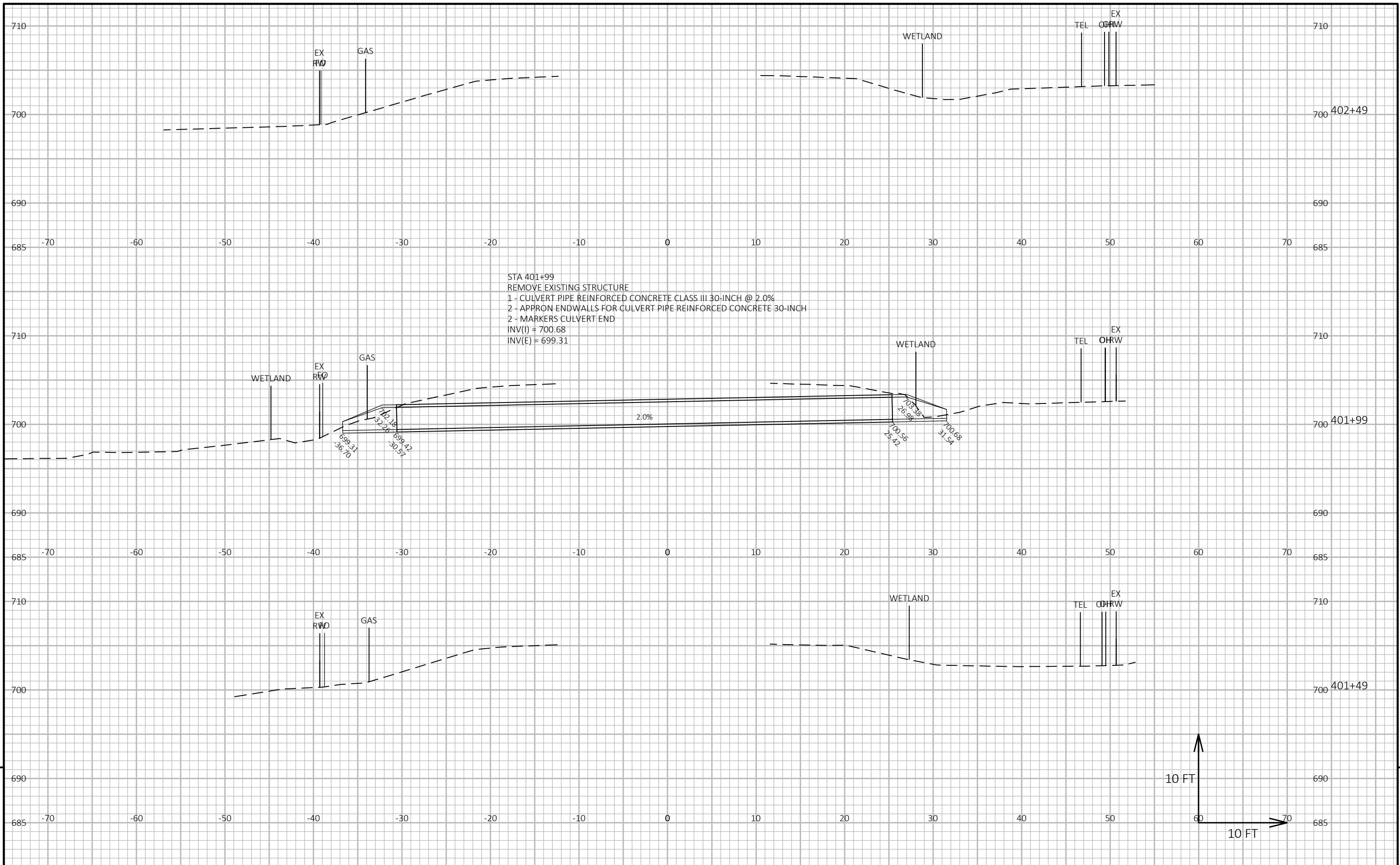
STA 264+99
 REMOVE EXISTING STRUCTURE
 1 - CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH @ 1.7%
 2 - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH
 2 - MARKERS CULVERT END
 INV(I) = 714.07
 INV(E) = 712.76

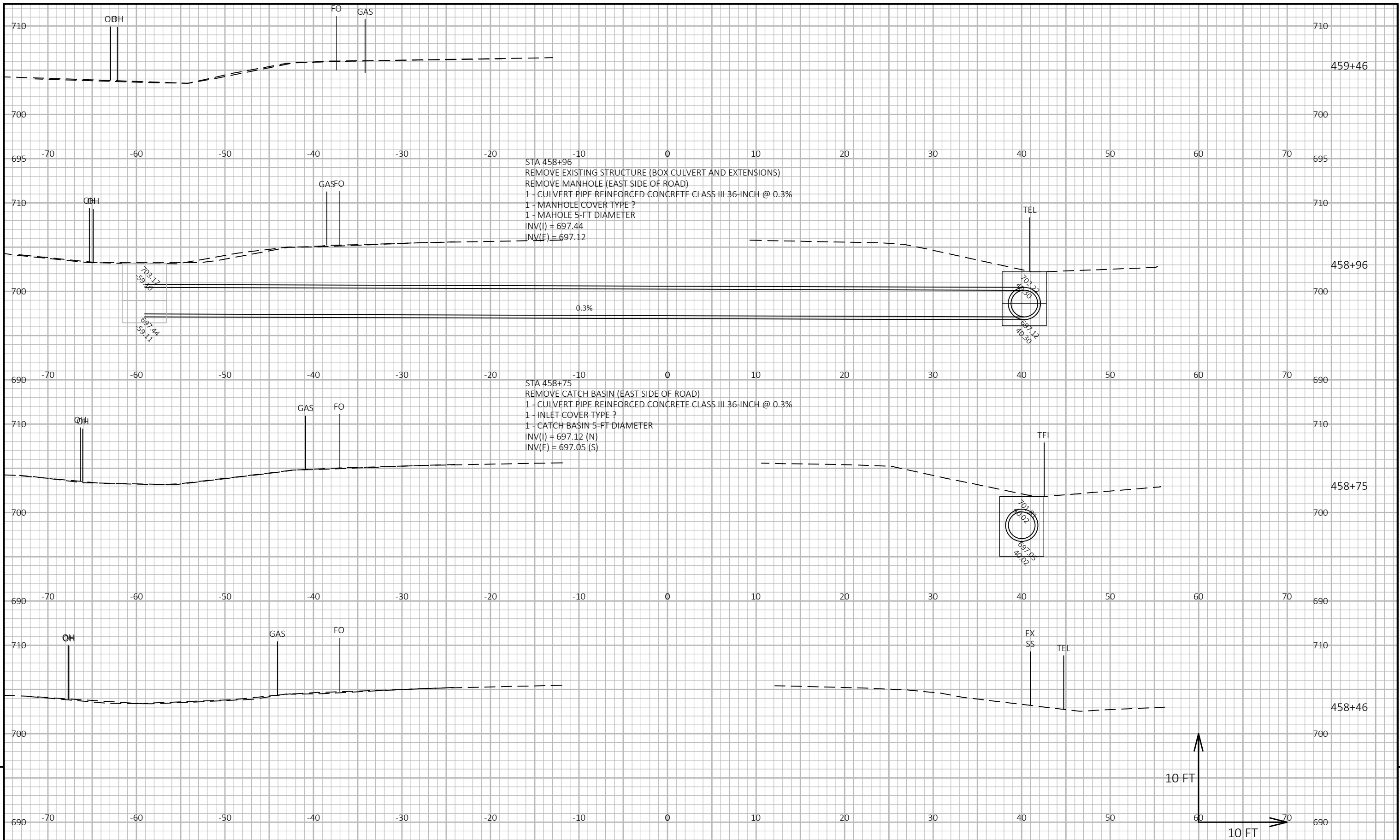




PROJECT NO: 2290-24-70 HWY: STH 38 COUNTY: RACINE & MILWAUKEE CROSS SECTIONS: CROSS SECTIONS - CULVERTS SHEET: 9







PROJECT NO: 2290-24-70

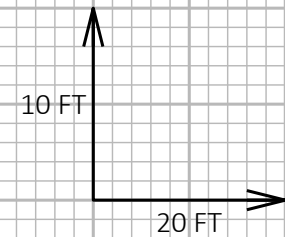
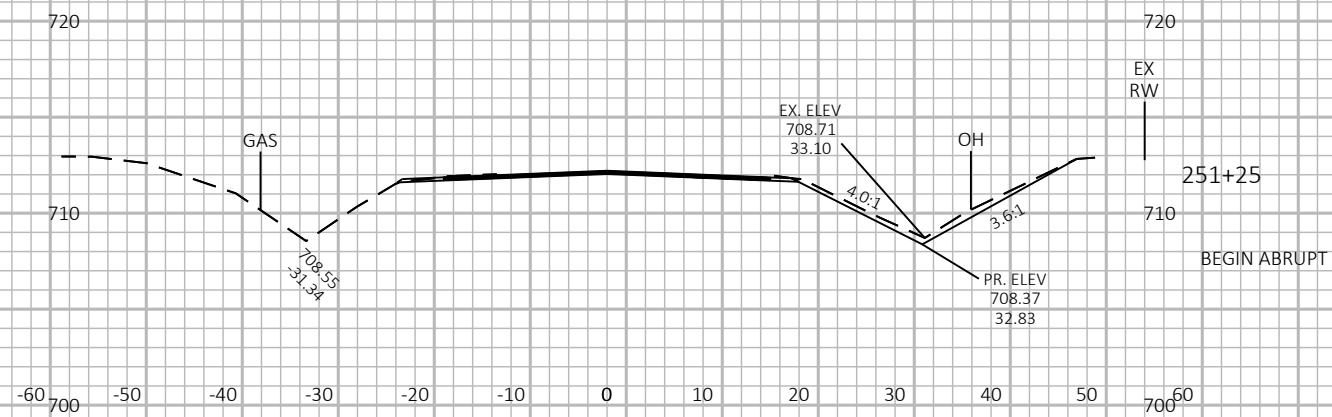
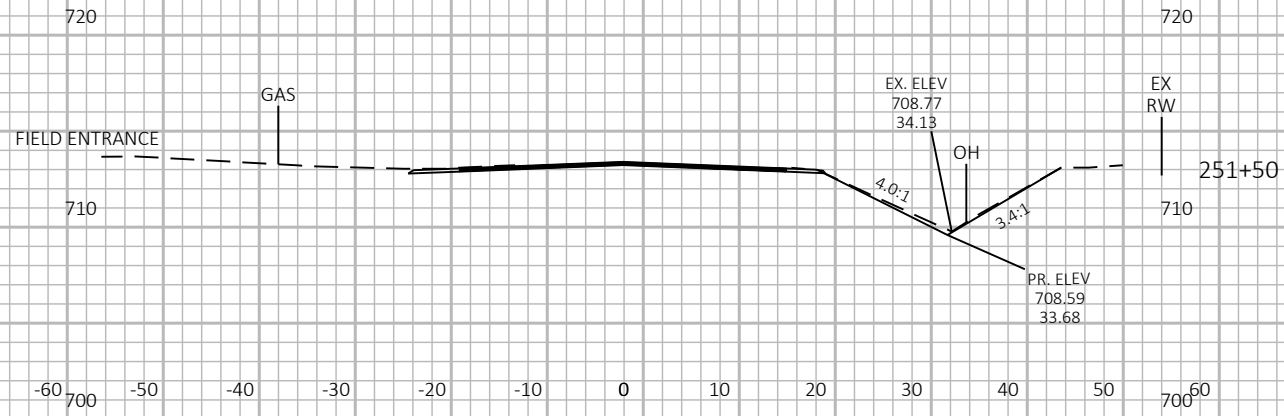
HWY: STH 38

COUNTY: RACINE & MILWAUKEE

CROSS SECTIONS: CROSS SECTIONS - CULVERTS

SHEET

E



9

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PROJECT NO: 2290-24-70

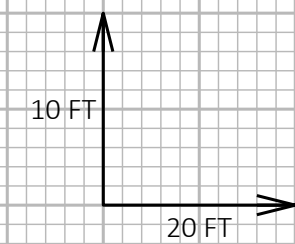
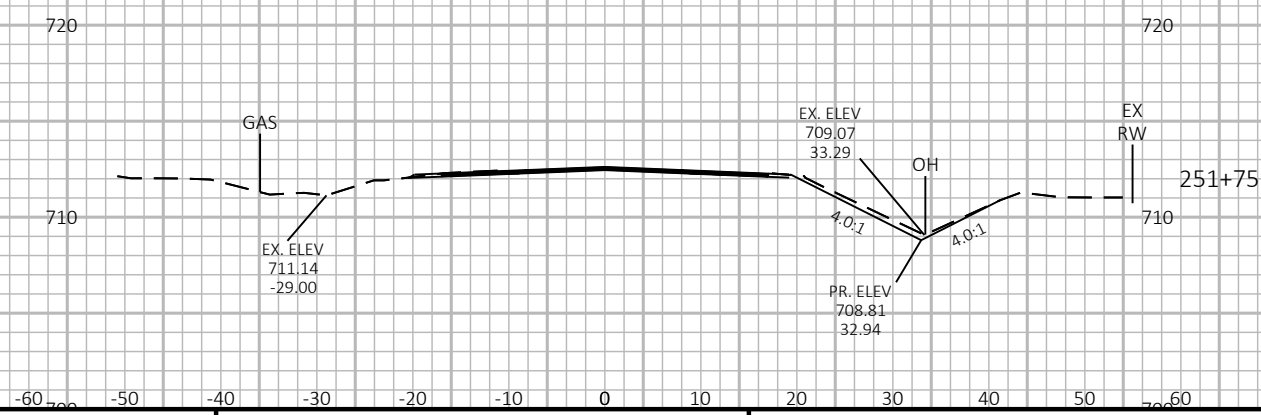
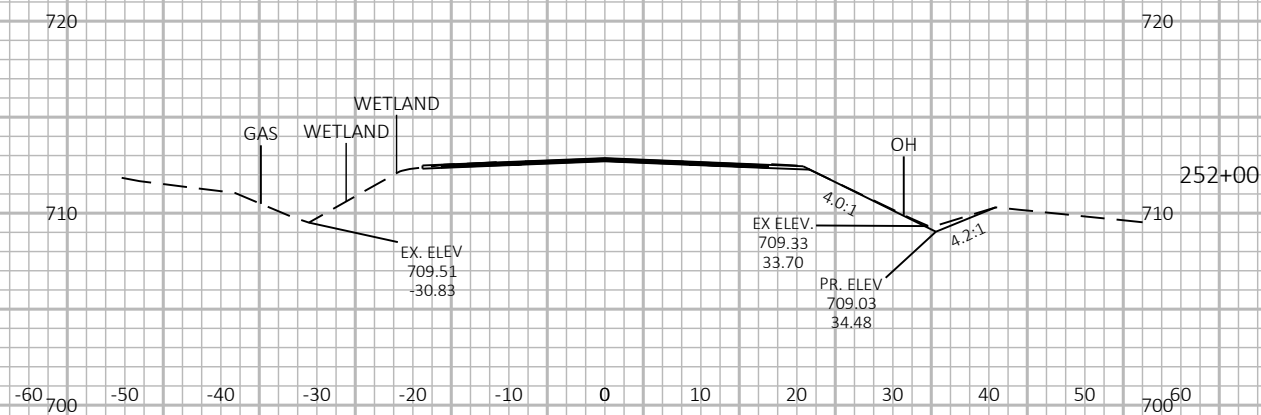
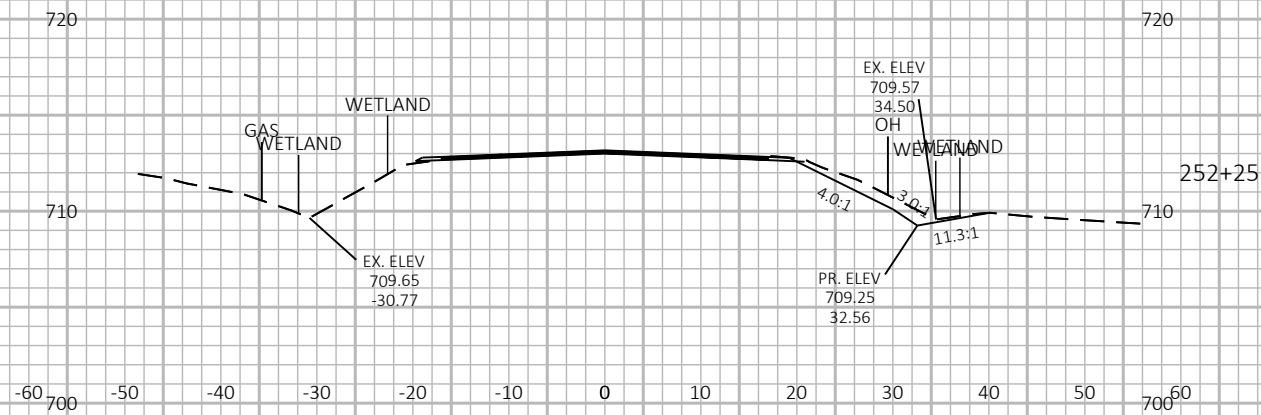
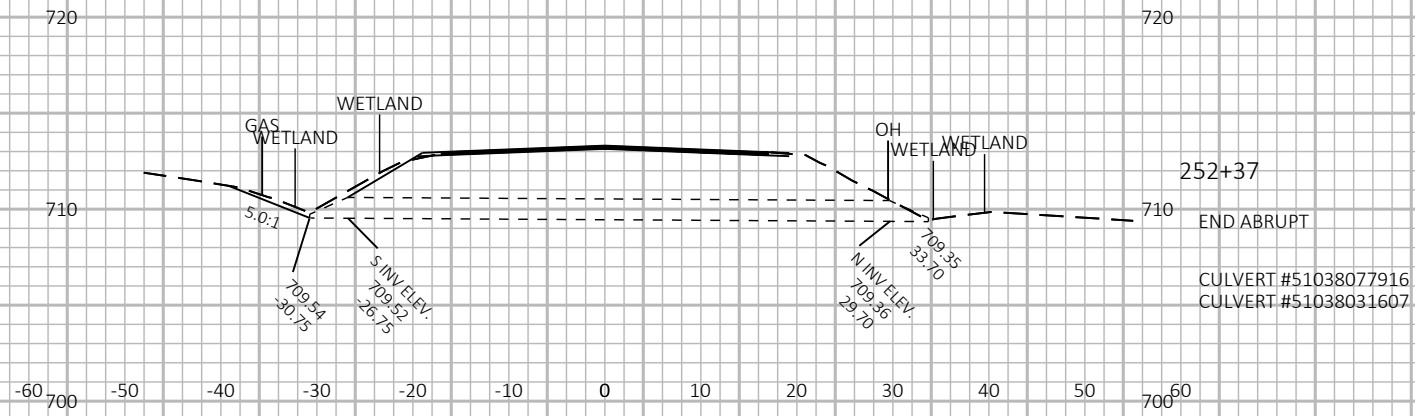
HWY: STH 38

COUNTY: RACINE & MILWAUKEE

CROSS SECTIONS: CULVERT PIPES

SHEET

E



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PROJECT NO: 2290-24-70

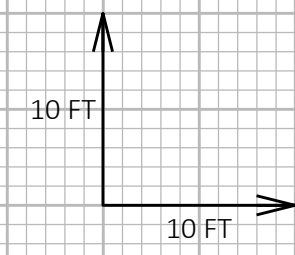
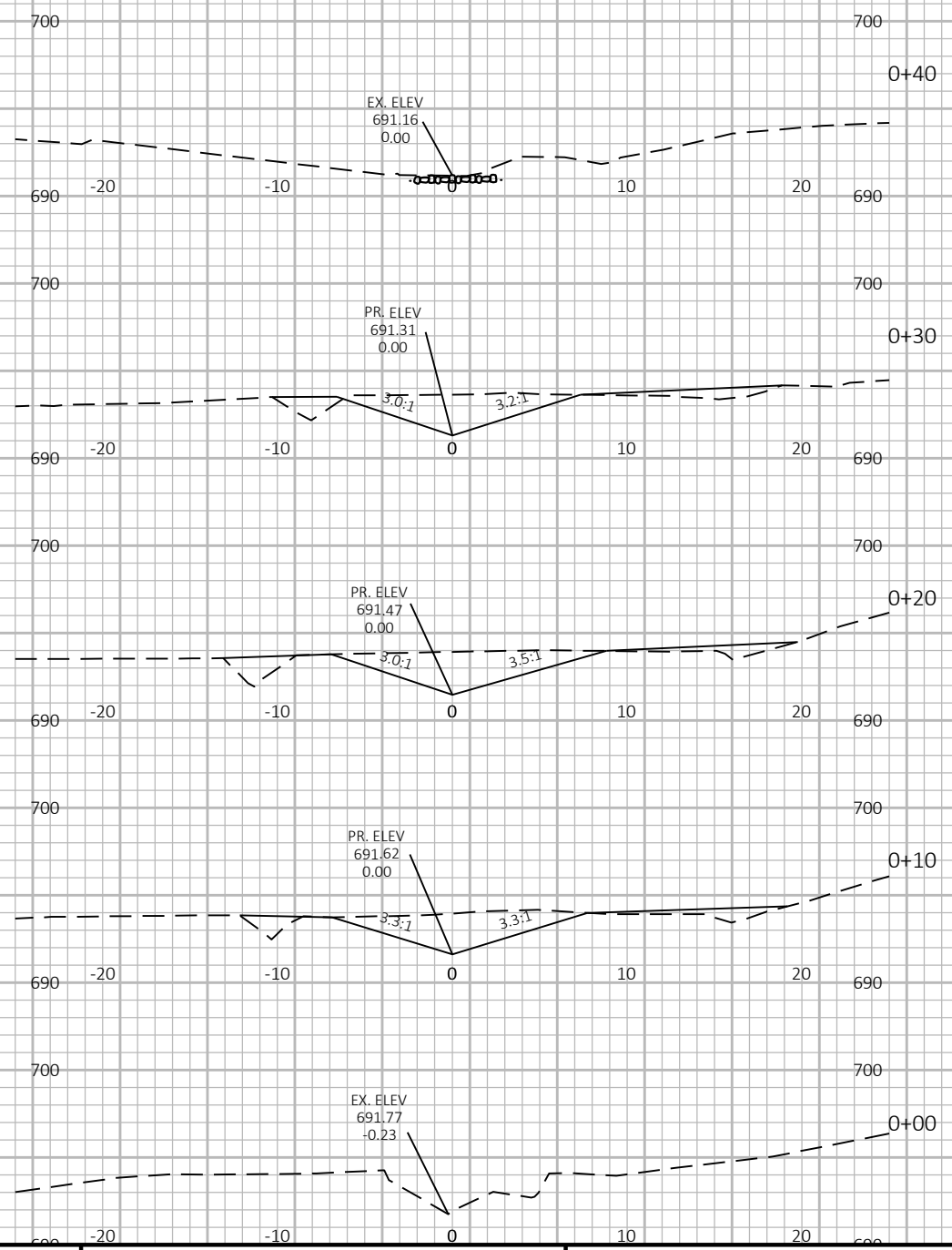
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COUNTY: RACINE & MILWAUKEE

CROSS SECTIONS: CULVERT PIPES

SHEET

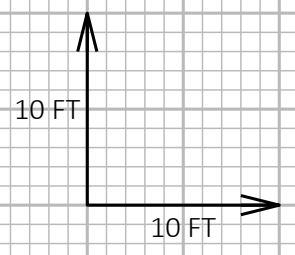
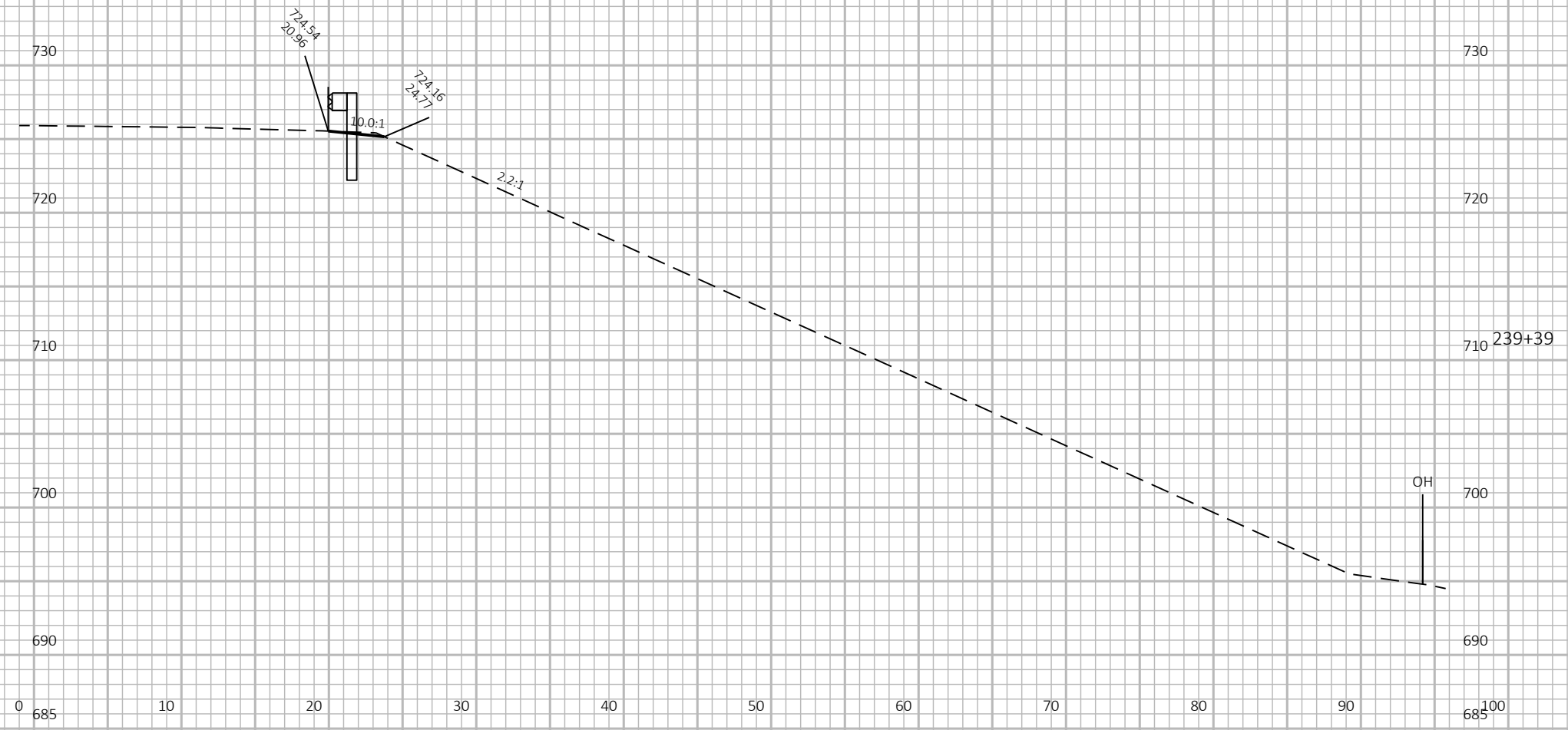
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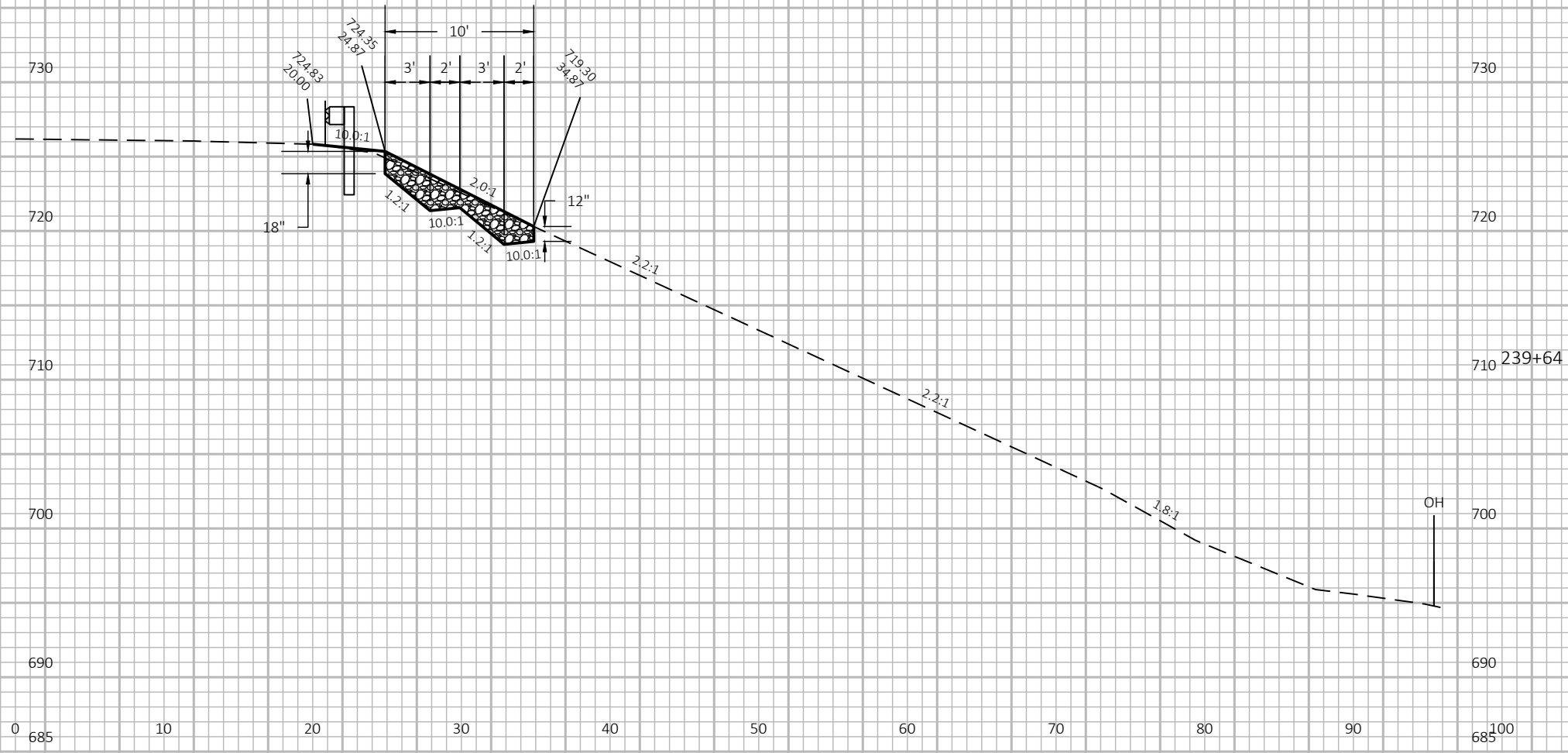
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: C-51-009	SHEET E
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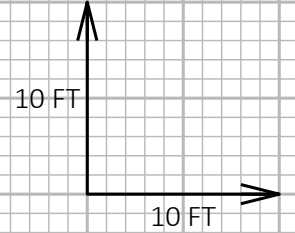
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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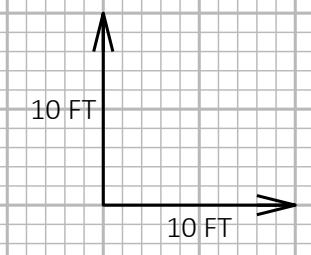
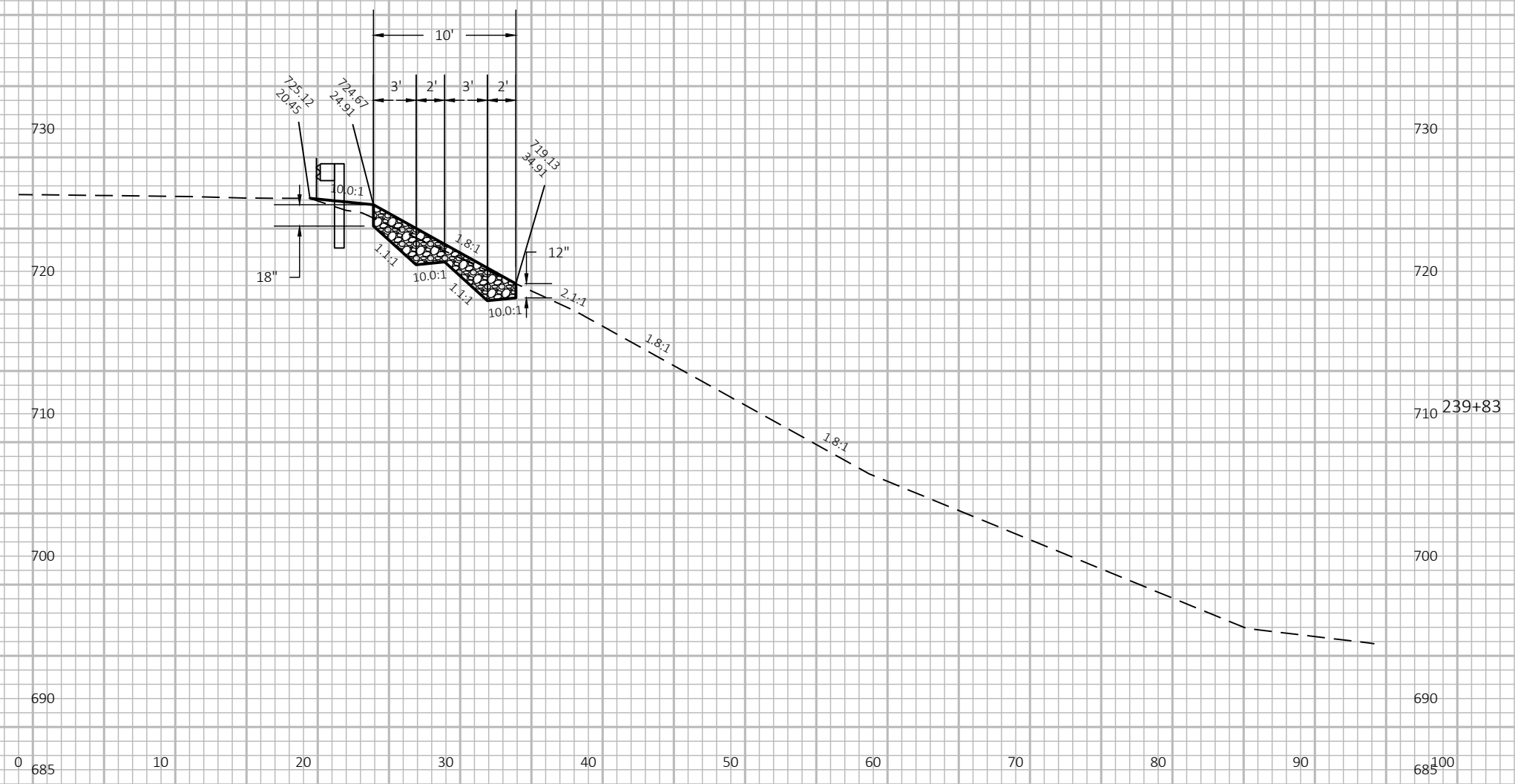
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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FILE NAME : C:\USERS\JAMES.GOLDEN\ONEDRIVE - DAAR CORPORATION\DOCUMENTS-SE-DESIGN\2290-24-00_STH_38_RACINE\C3D\22902400\SHEETSPLAN\090204-XS-GUARDRAIL.DWG PLOT DATE : 1/26/2023 9:55 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

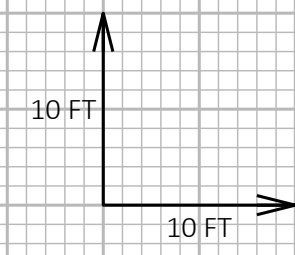
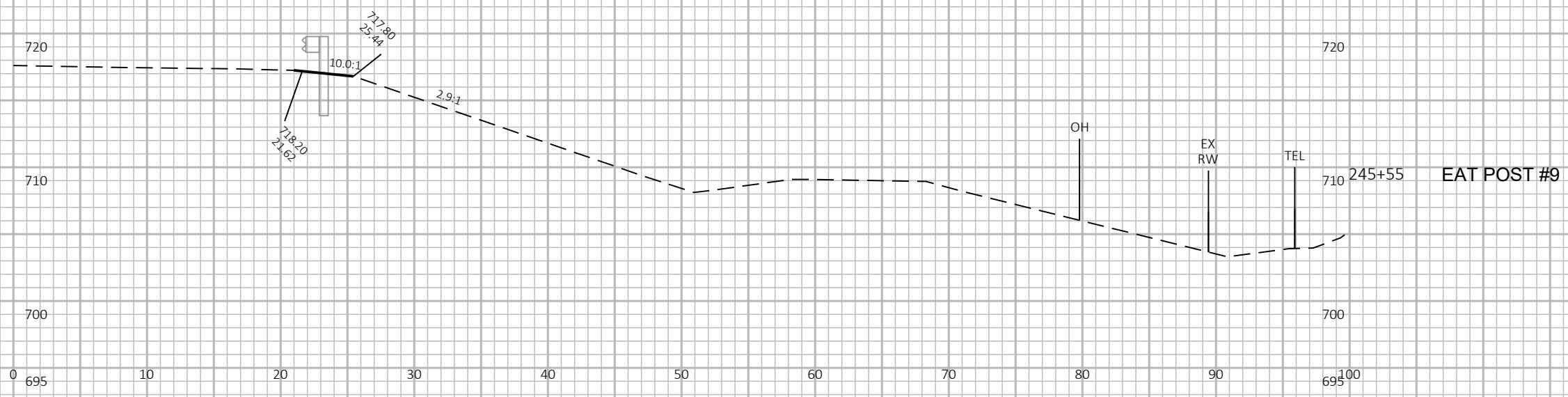
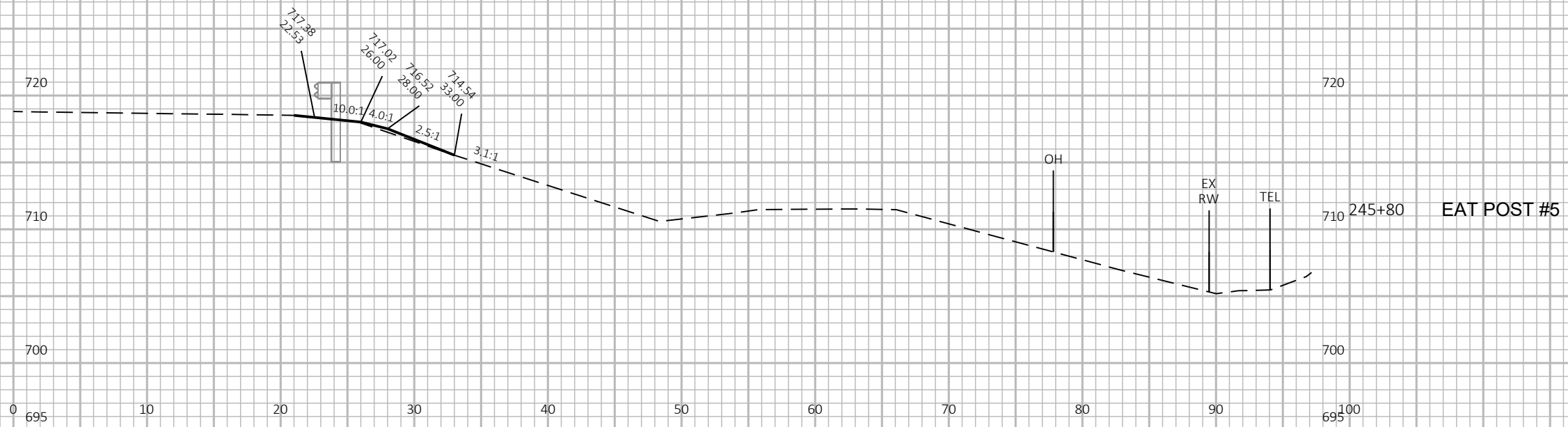
LAYOUT NAME - 02



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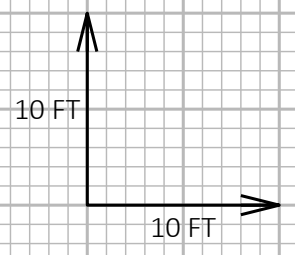
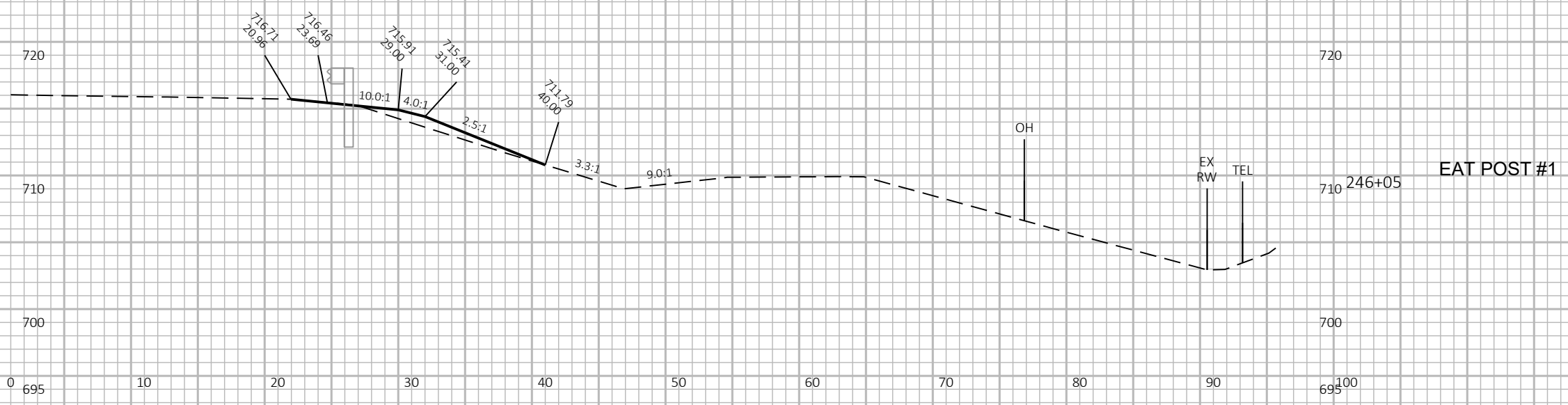
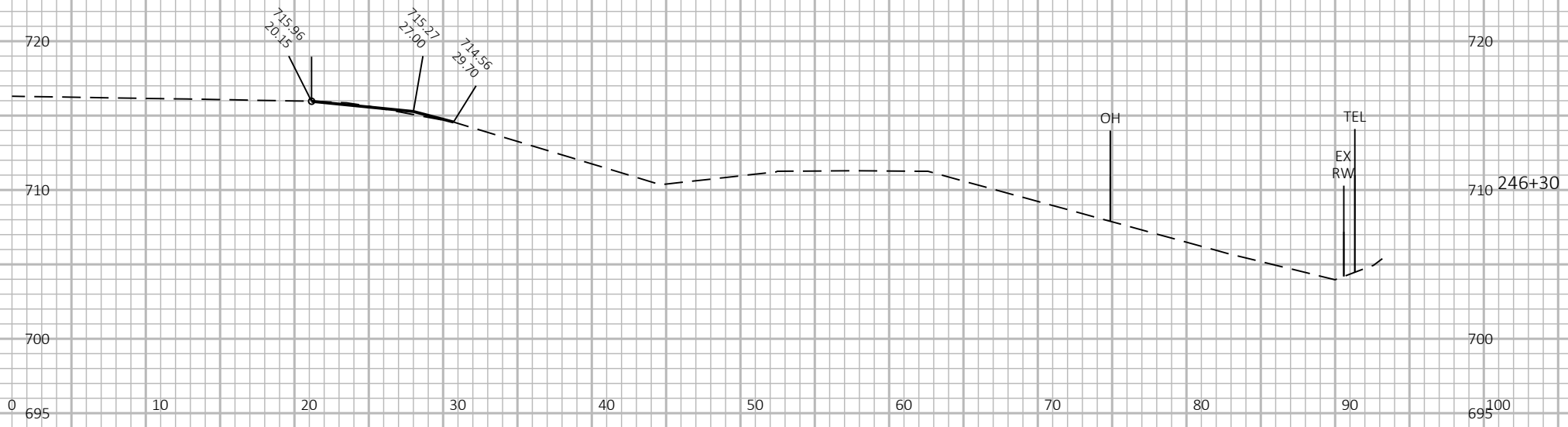
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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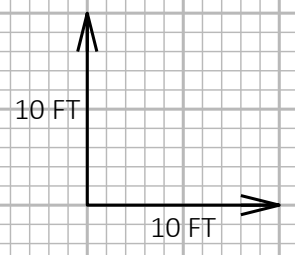
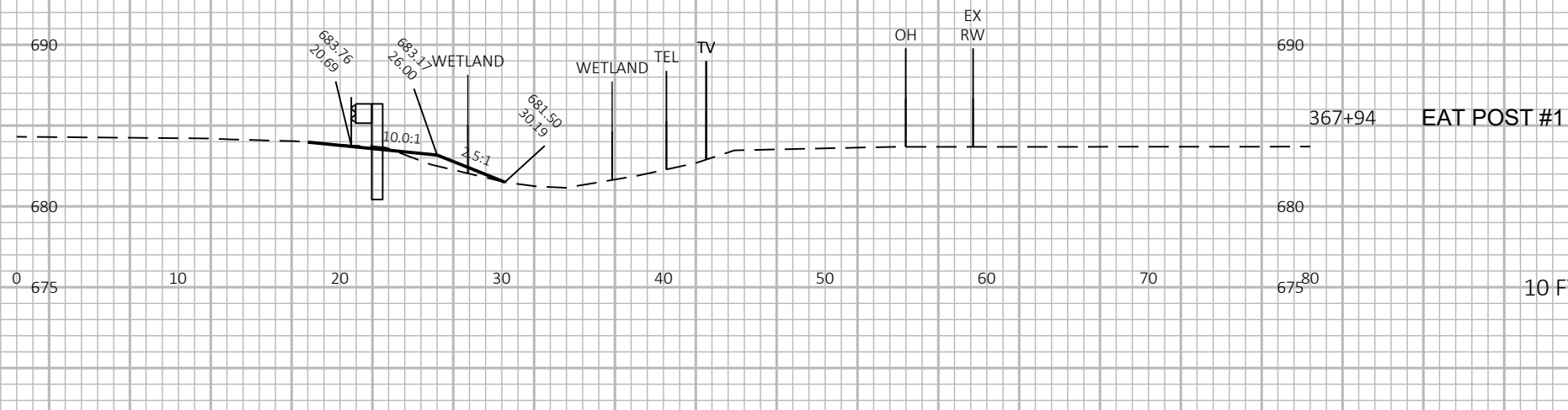
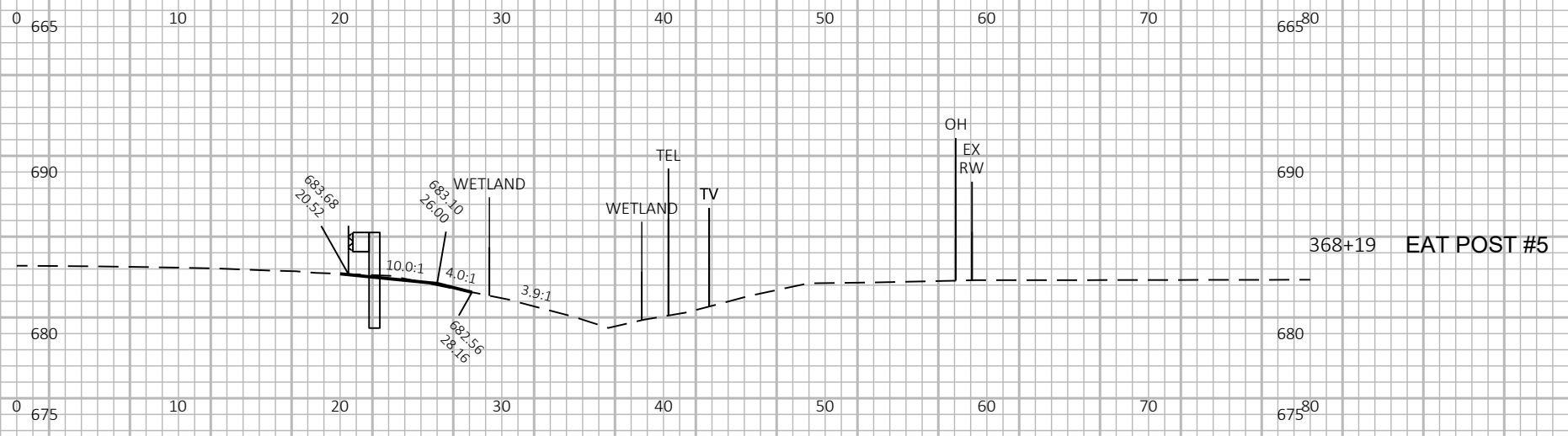
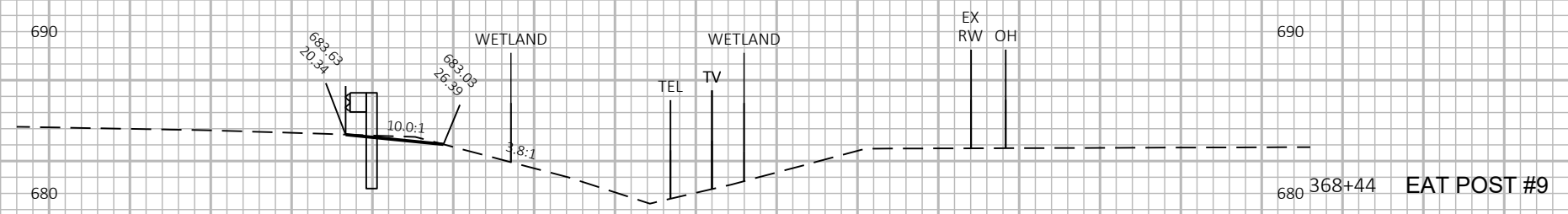
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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FILE NAME : C:\USERS\JAMES.GOLDEN\ONEDRIVE - DAAR CORPORATION\DOCUMENTS-SE-DESIGN\2290-24-00_STH_38_RACINE\C3D\22902400\SHEETSPLAN\090204-XS-GUARDRAIL.DWG PLOT DATE : 1/26/2023 9:55 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 05



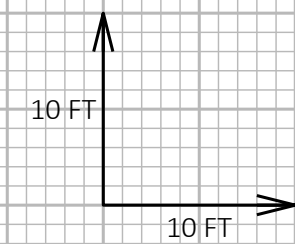
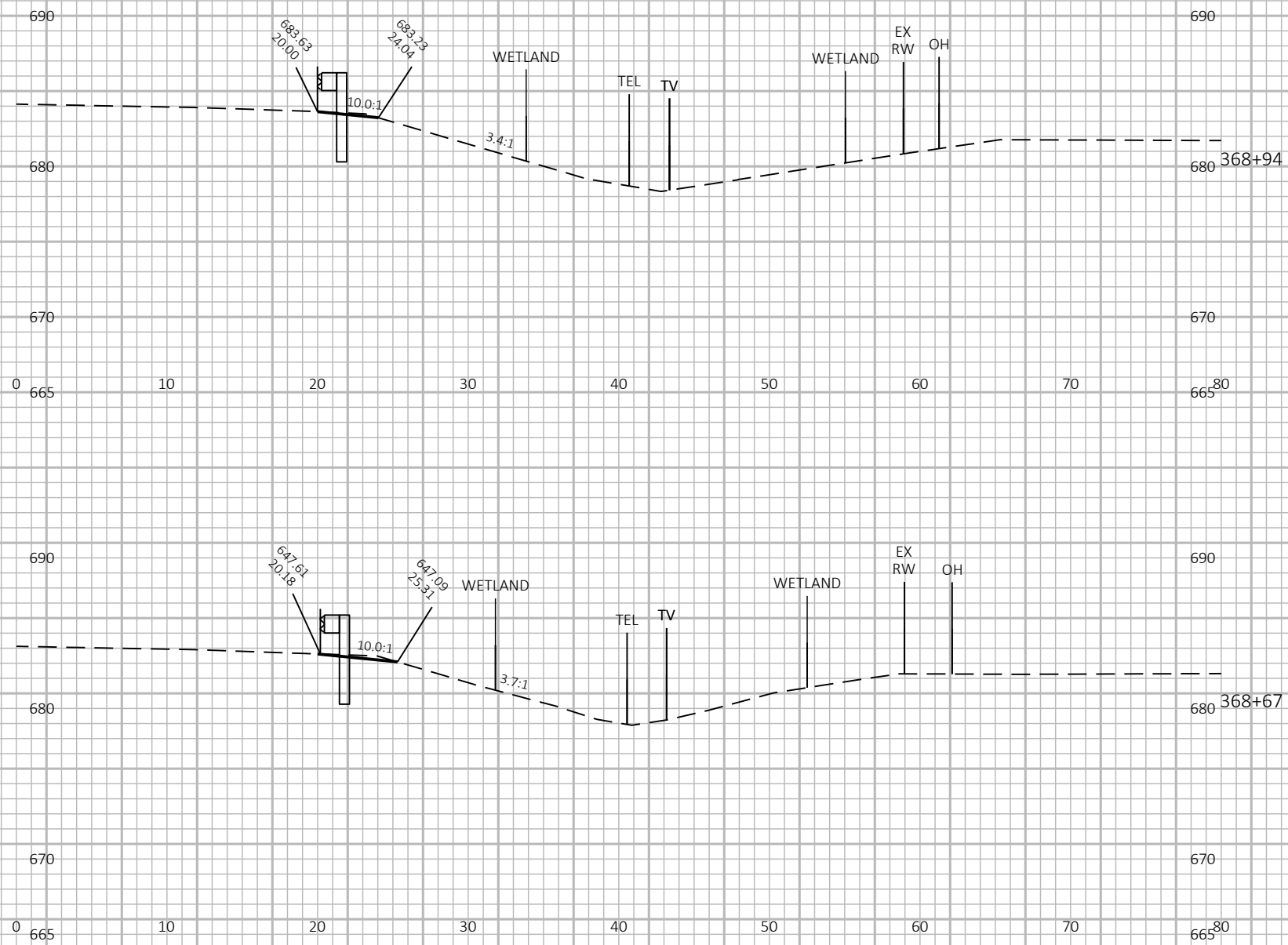
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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FILE NAME : C:\USERS\JAMES.GOLDEN\ONEDRIVE - DAAR CORPORATION\DOCUMENTS-SE-DESIGN\2290-24-00_STH_38_RACINE\C3D\22902400\SHEETSPLAN\090204-XS-GUARDRAIL.DWG PLOT DATE : 1/26/2023 9:55 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

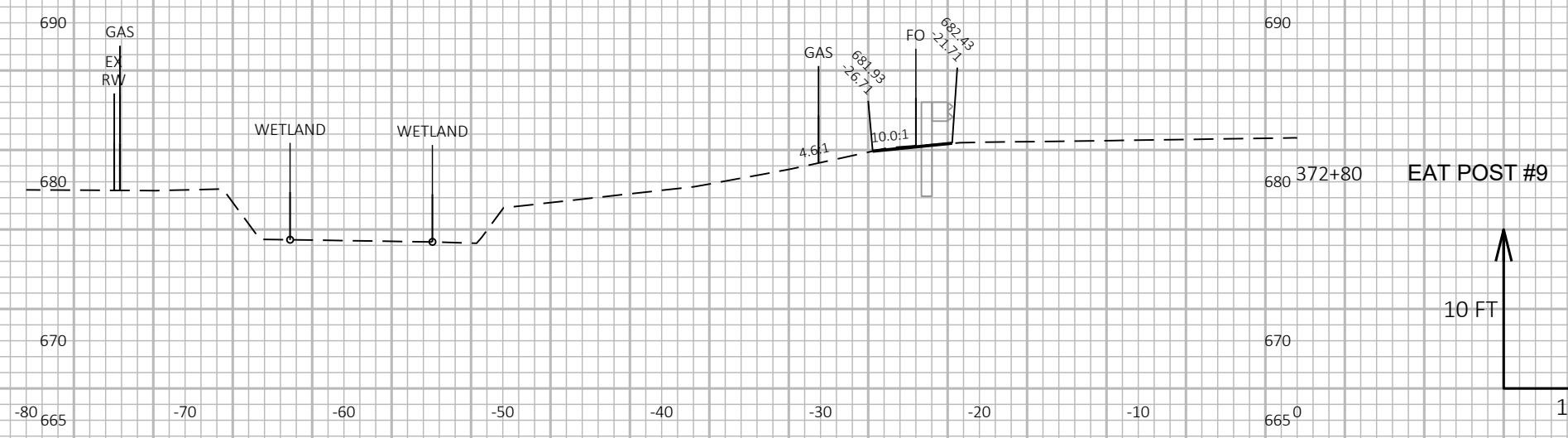
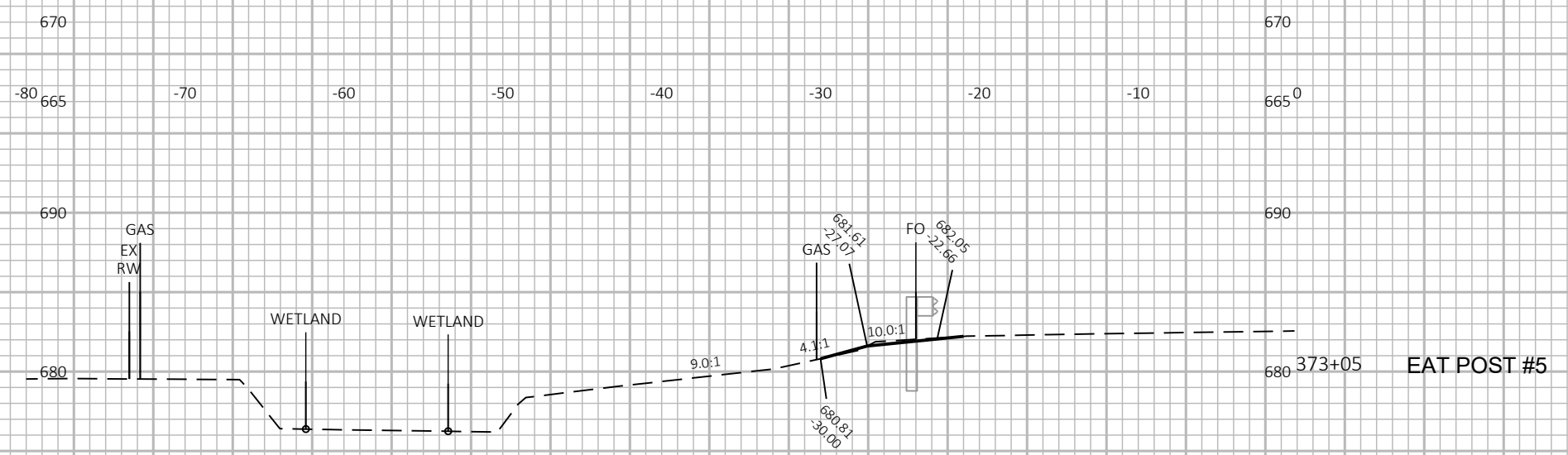
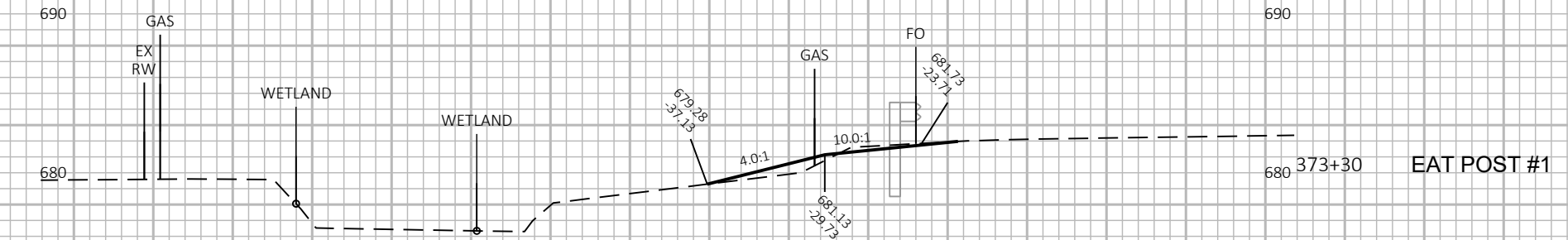
LAYOUT NAME - 06



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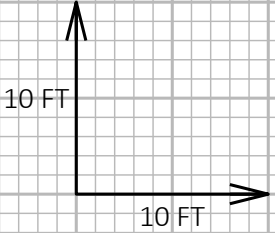
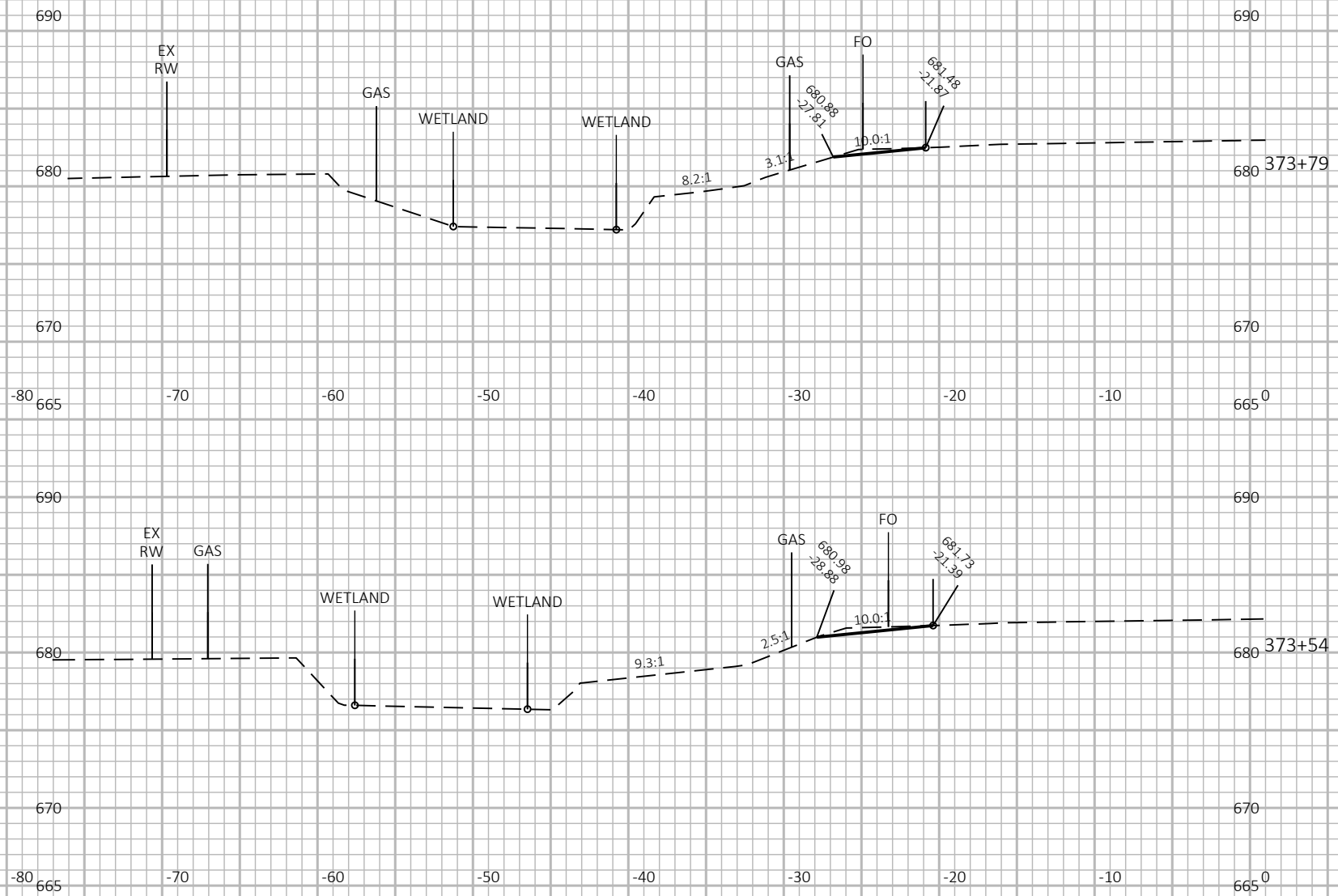
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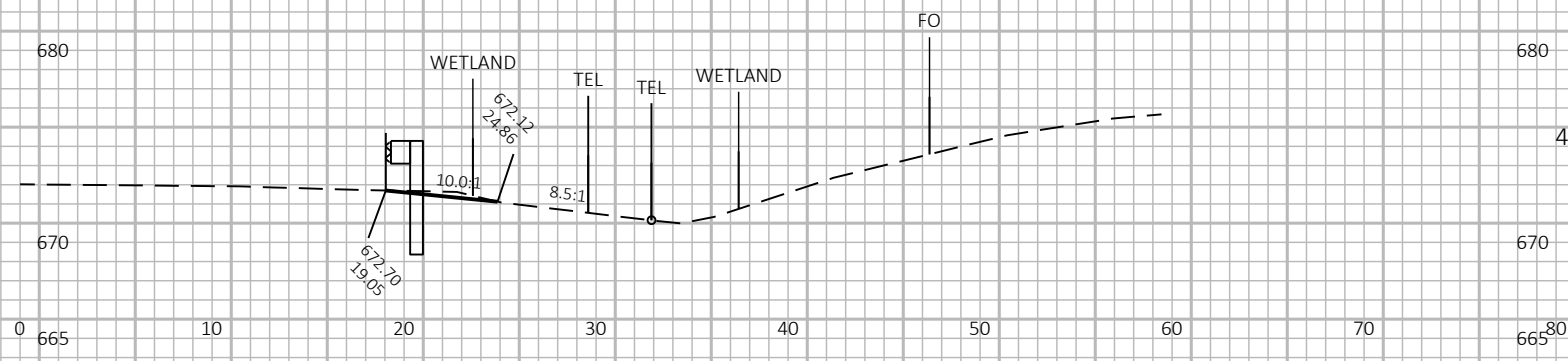
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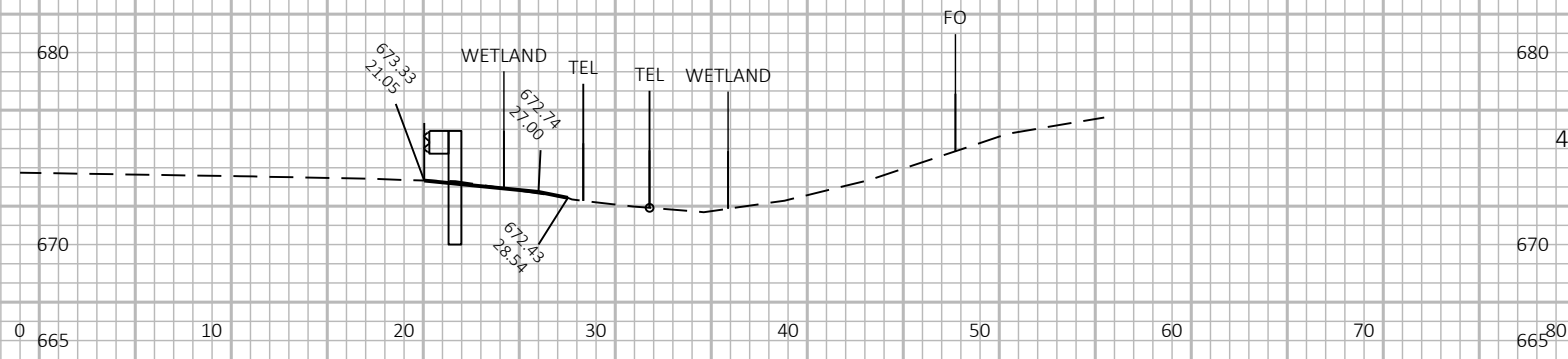
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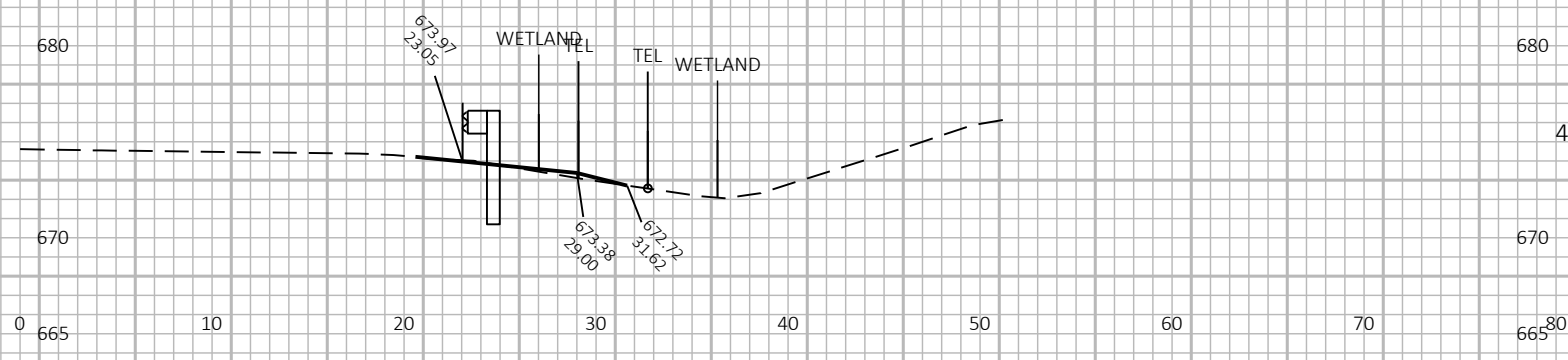
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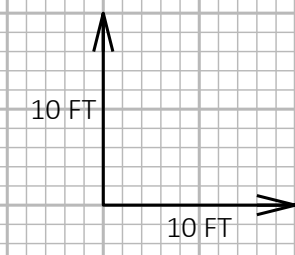
421+92 EAT POST #9



421+67 EAT POST #5



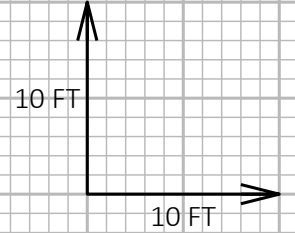
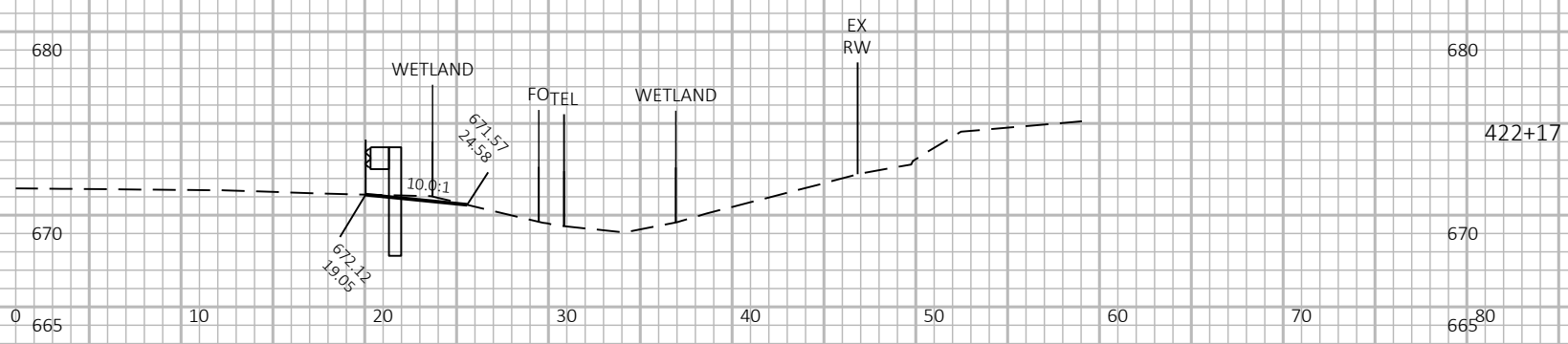
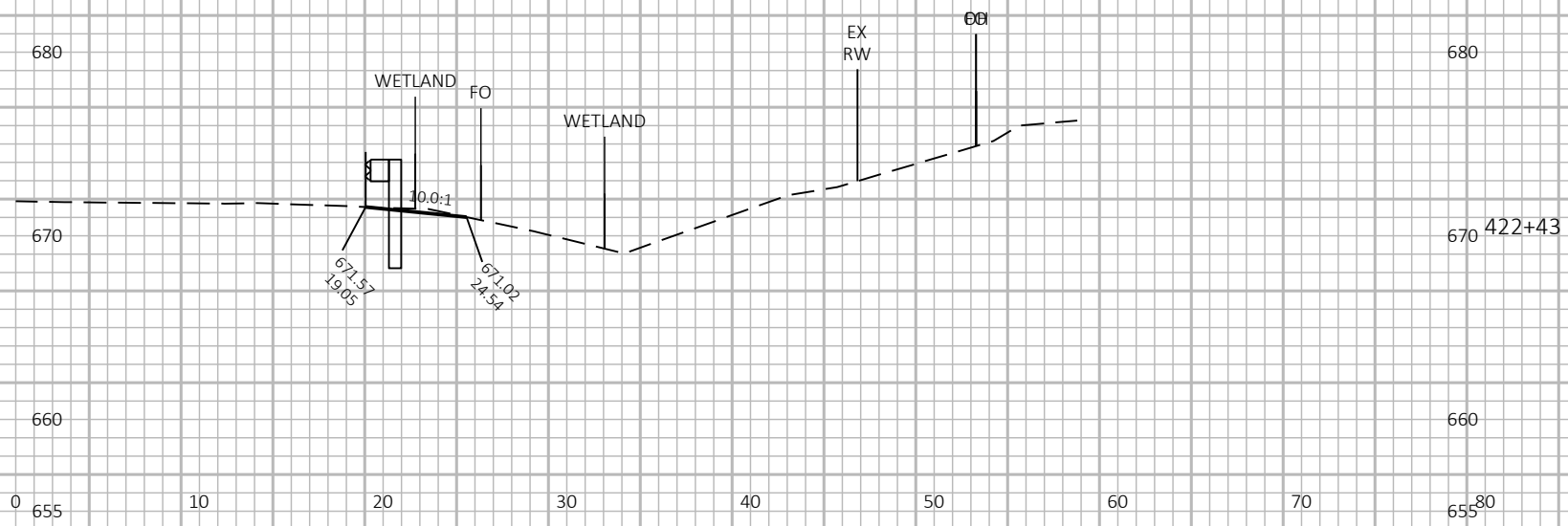
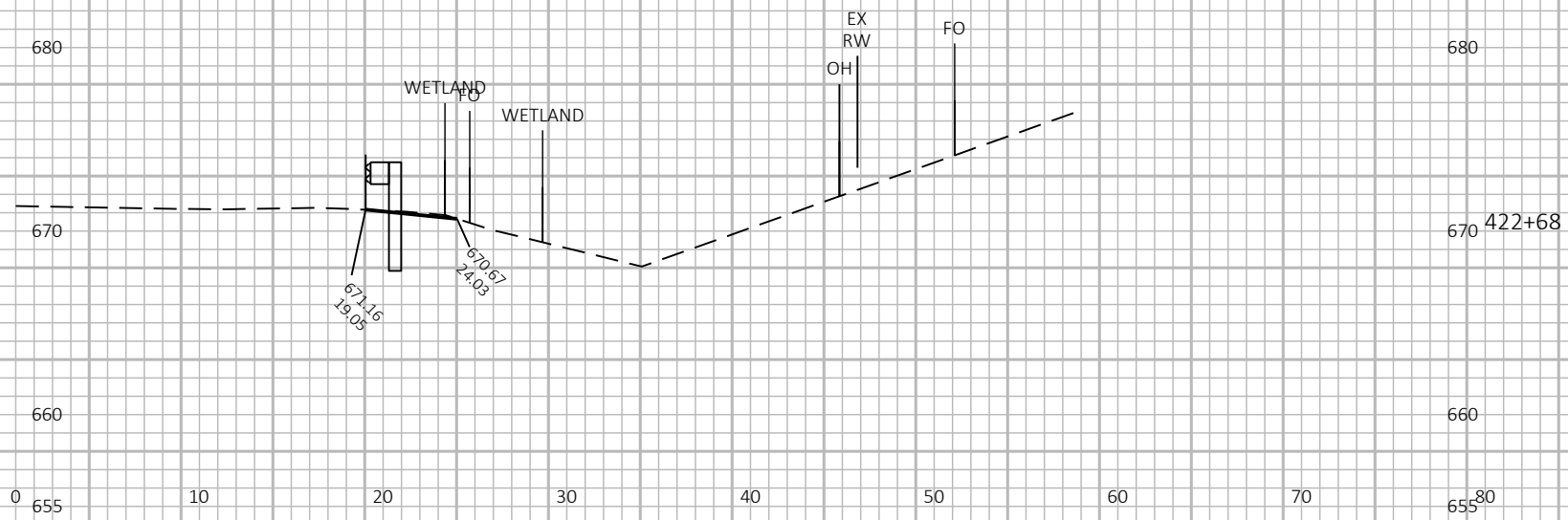
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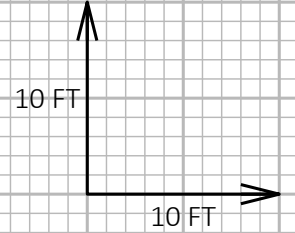
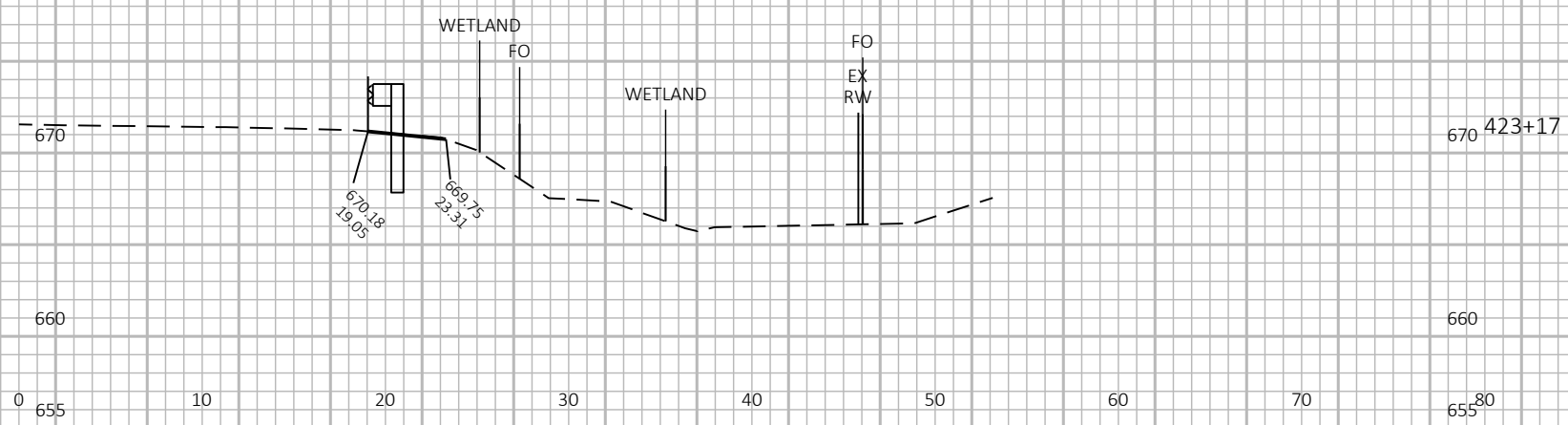
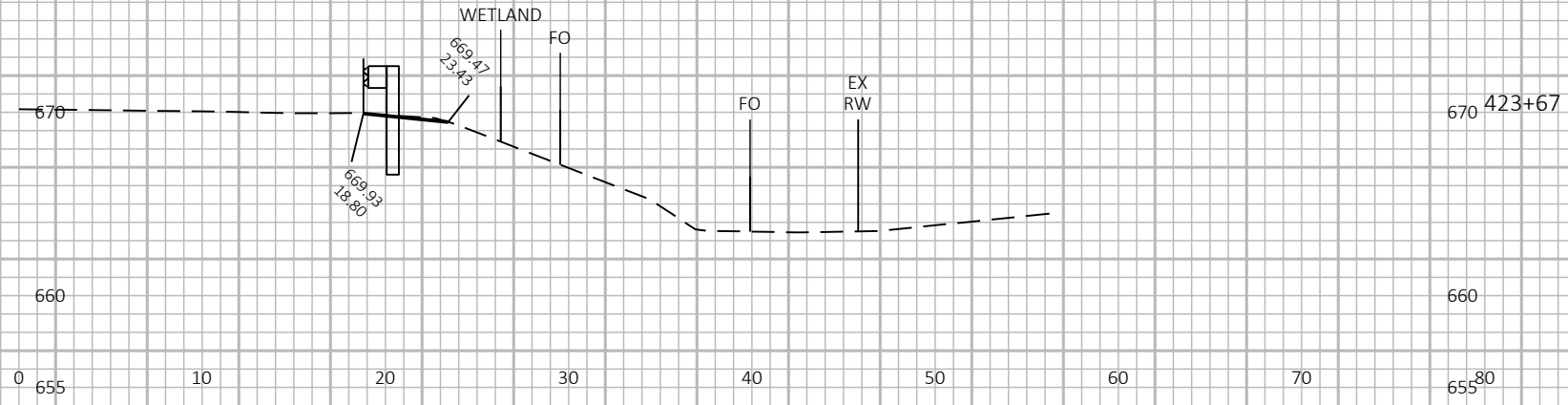
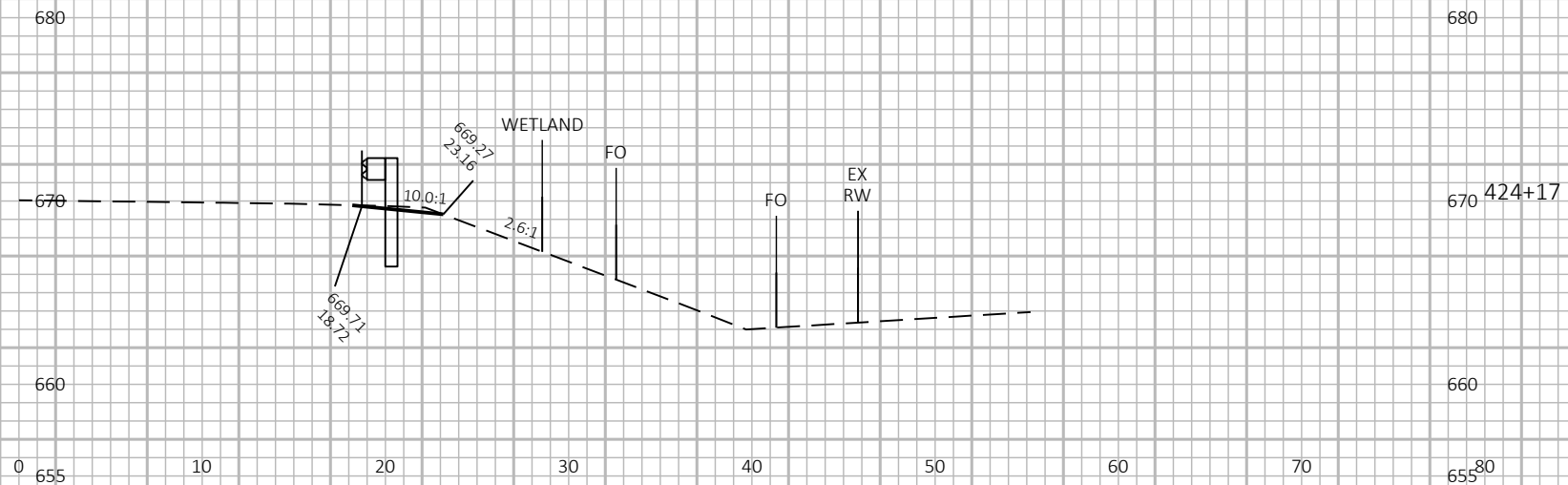
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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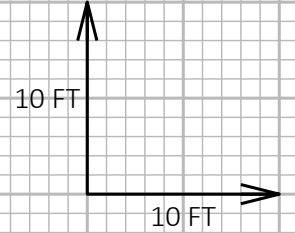
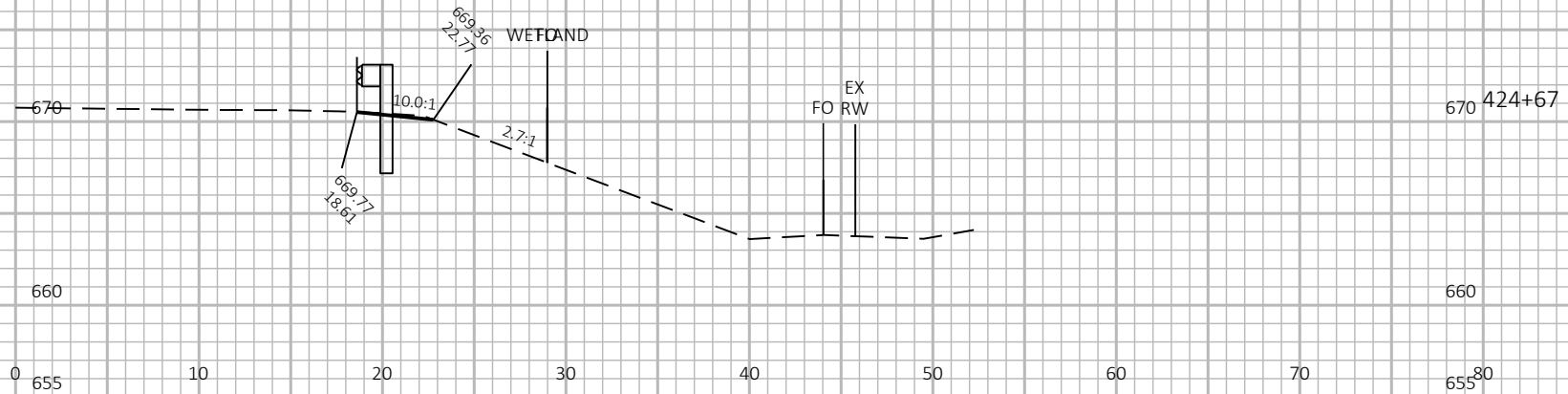
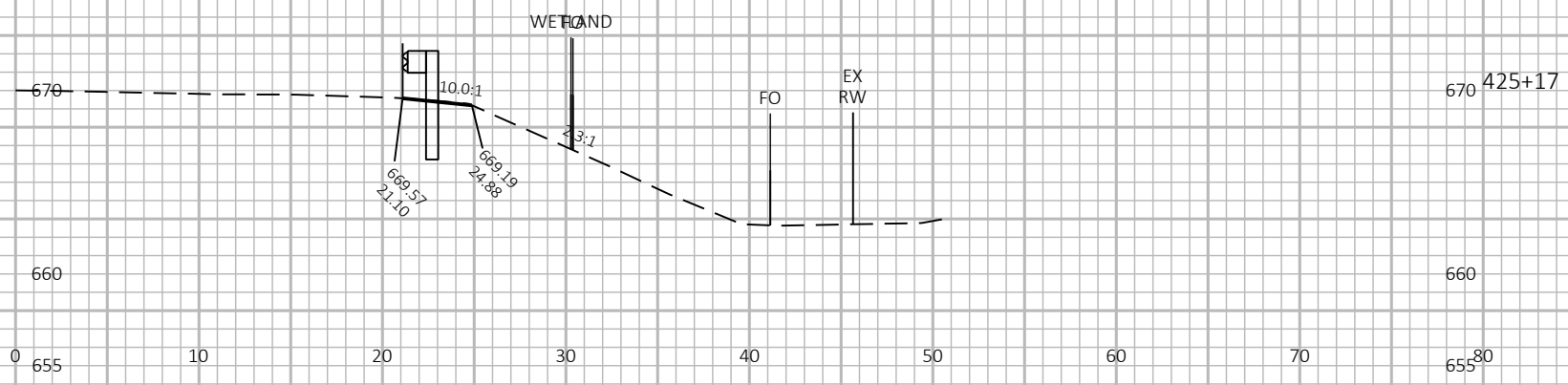
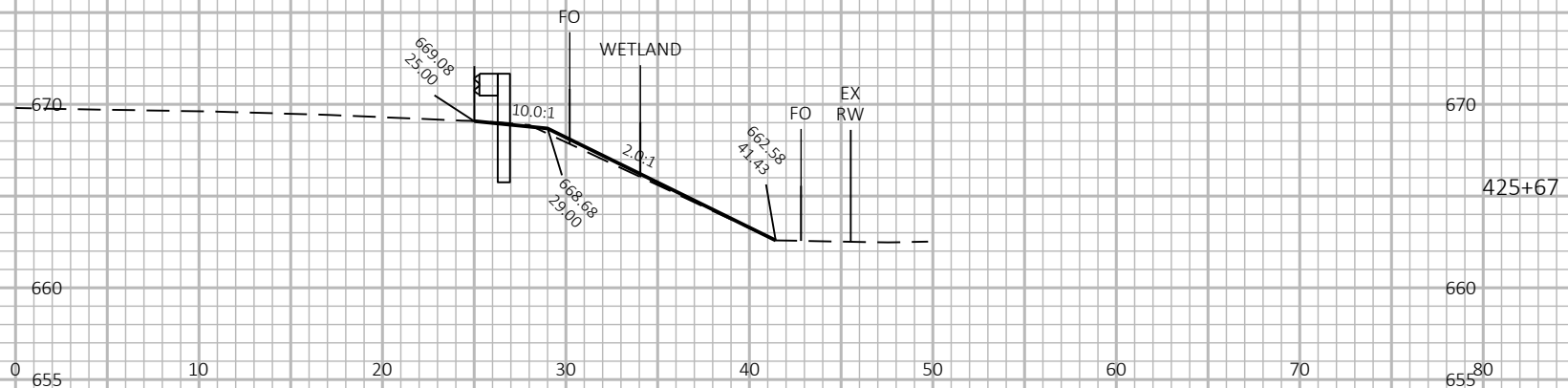
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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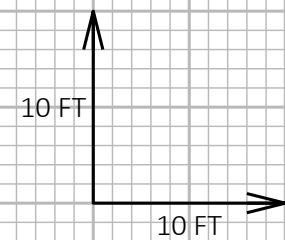
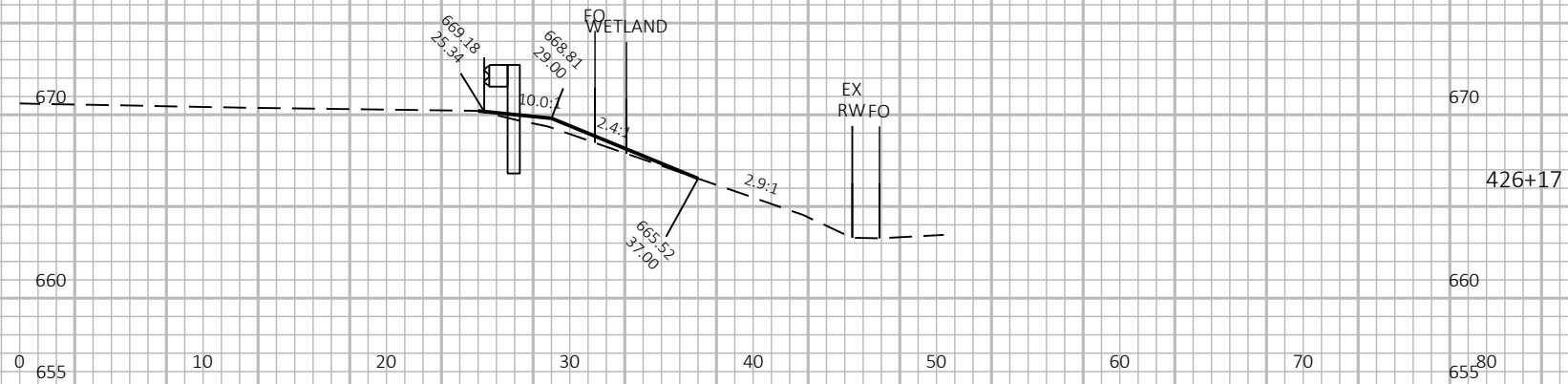
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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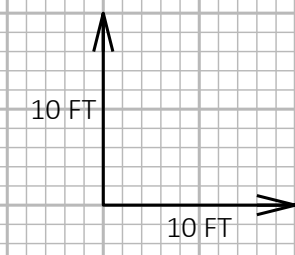
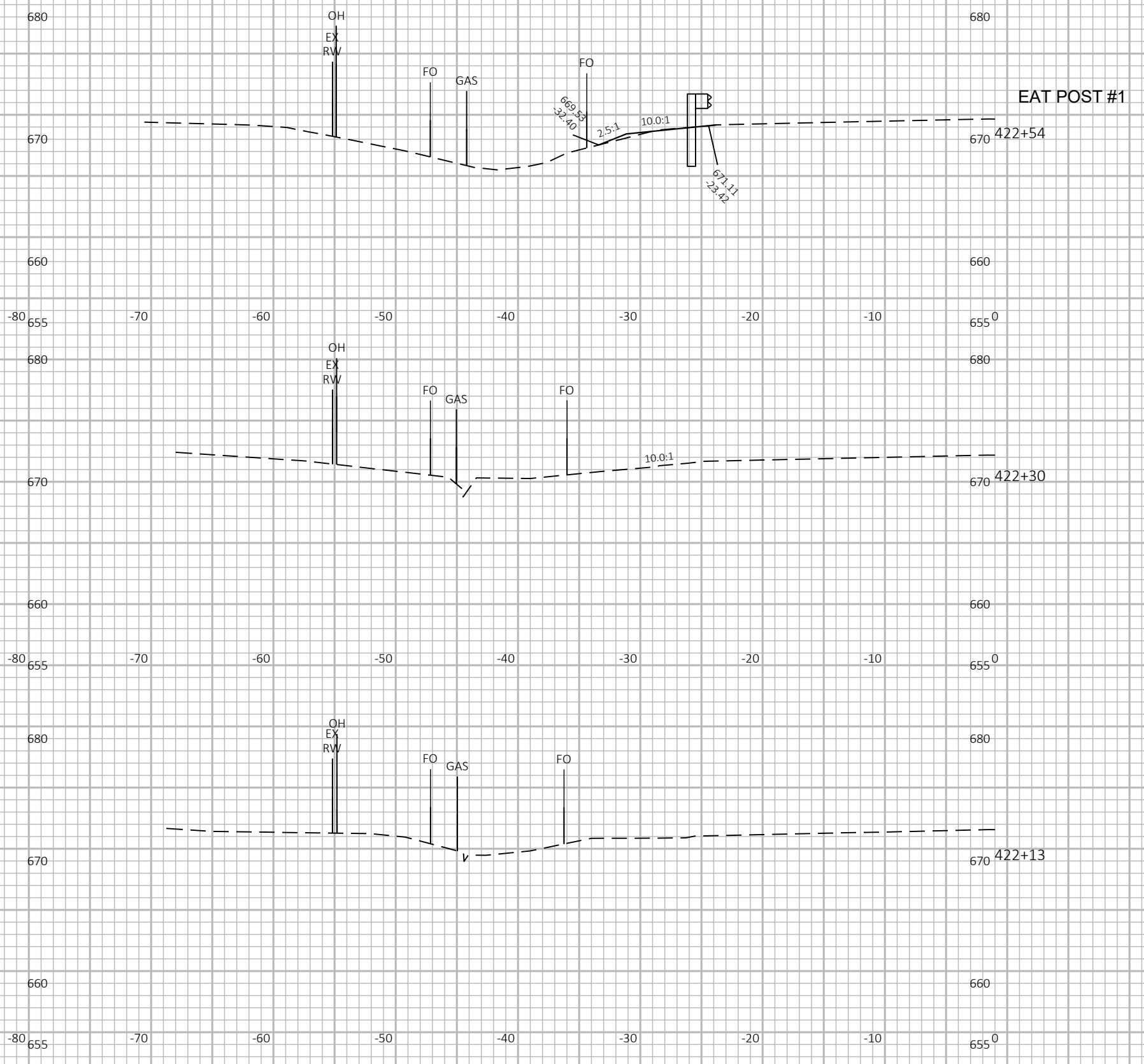
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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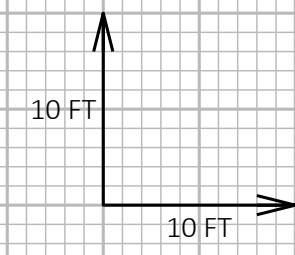
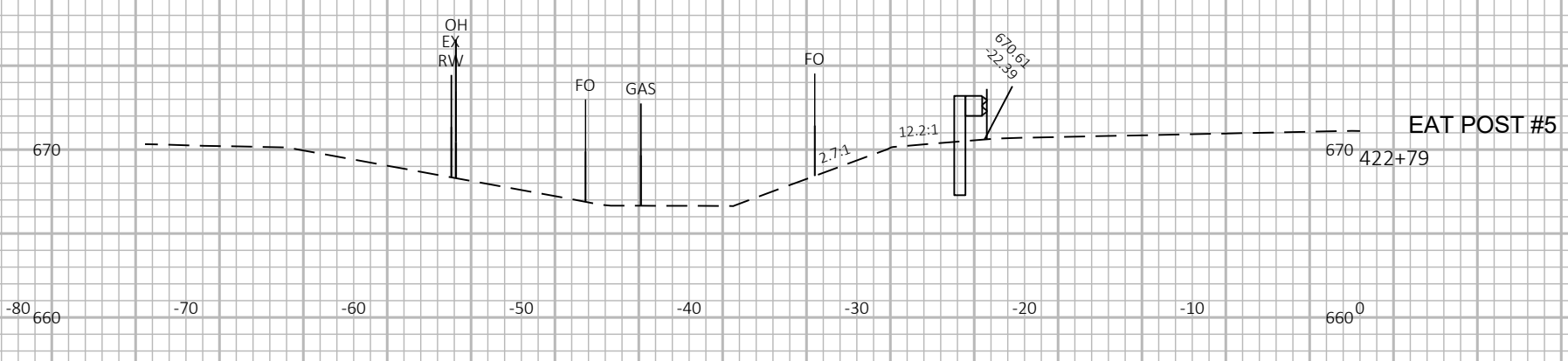
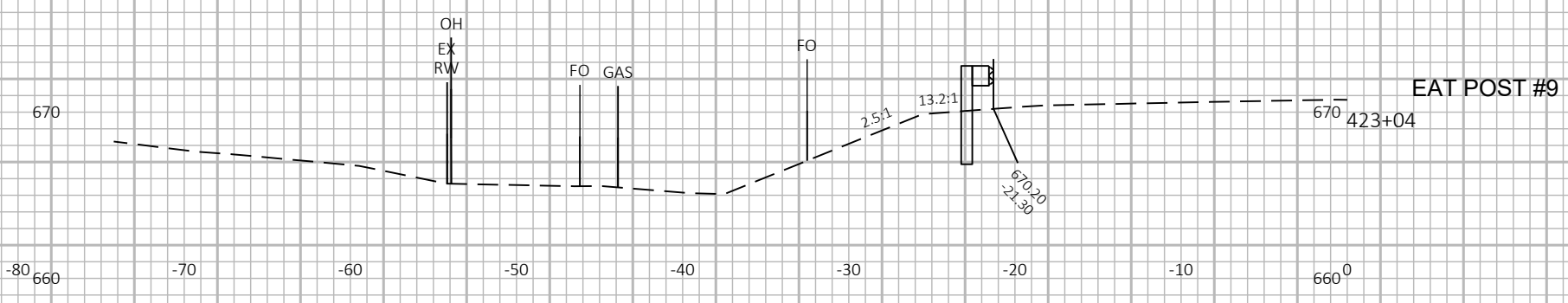
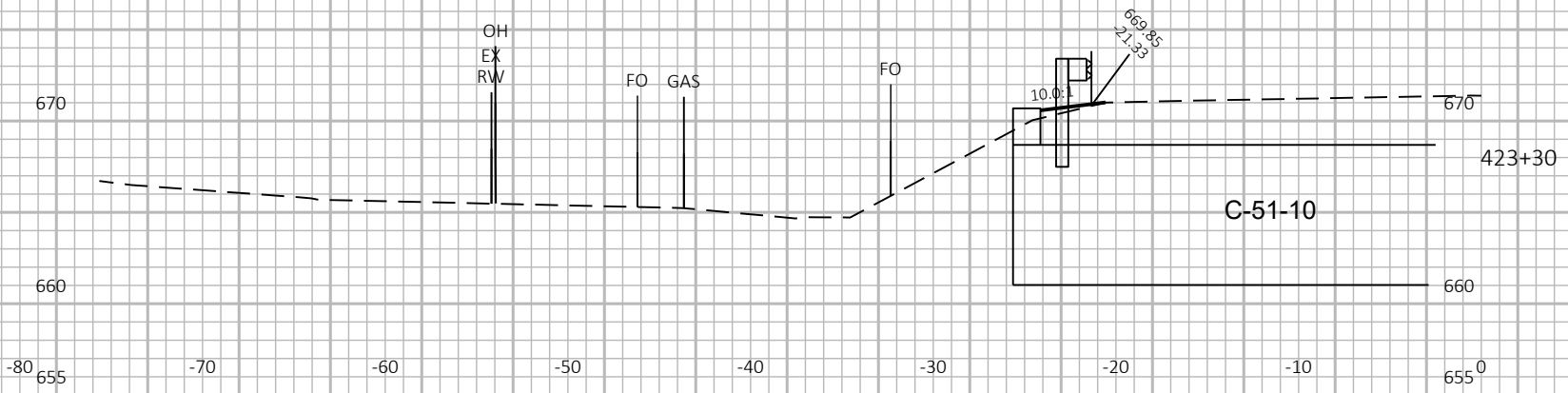
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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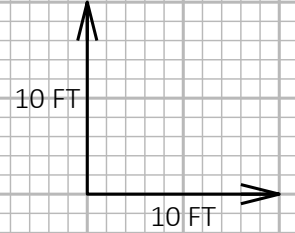
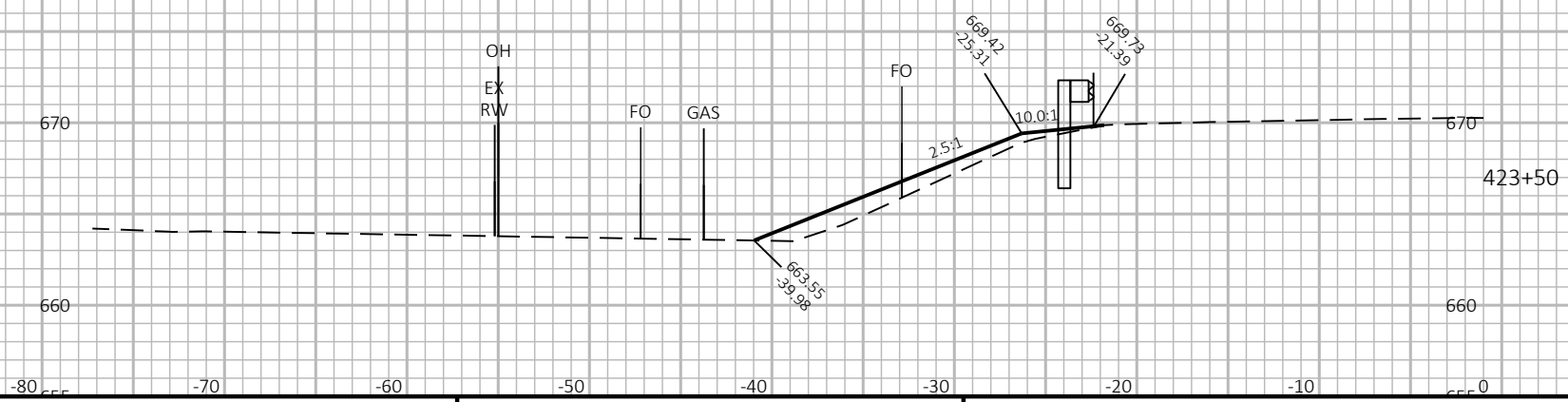
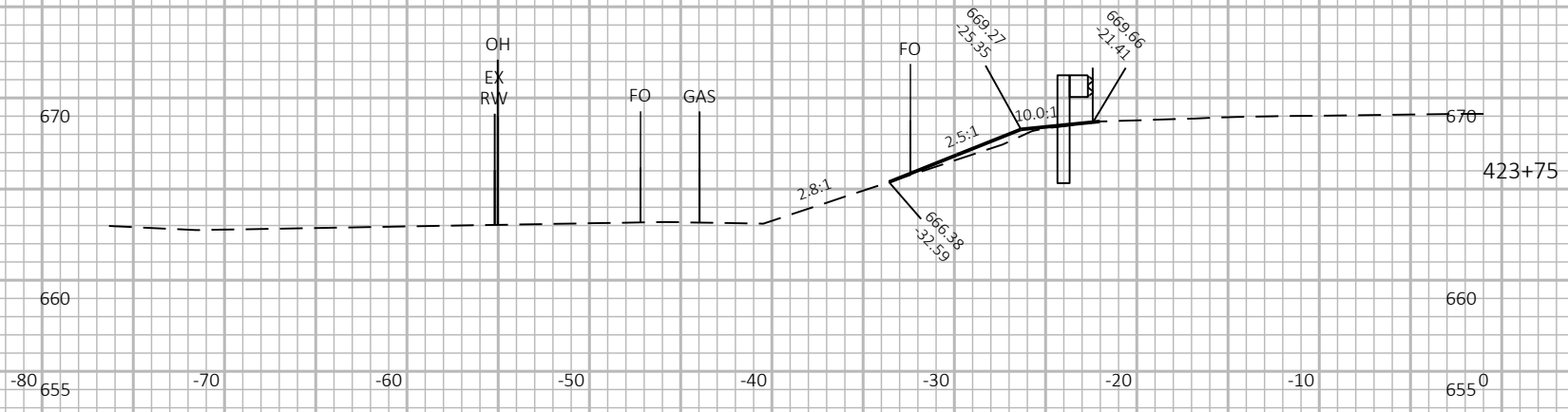
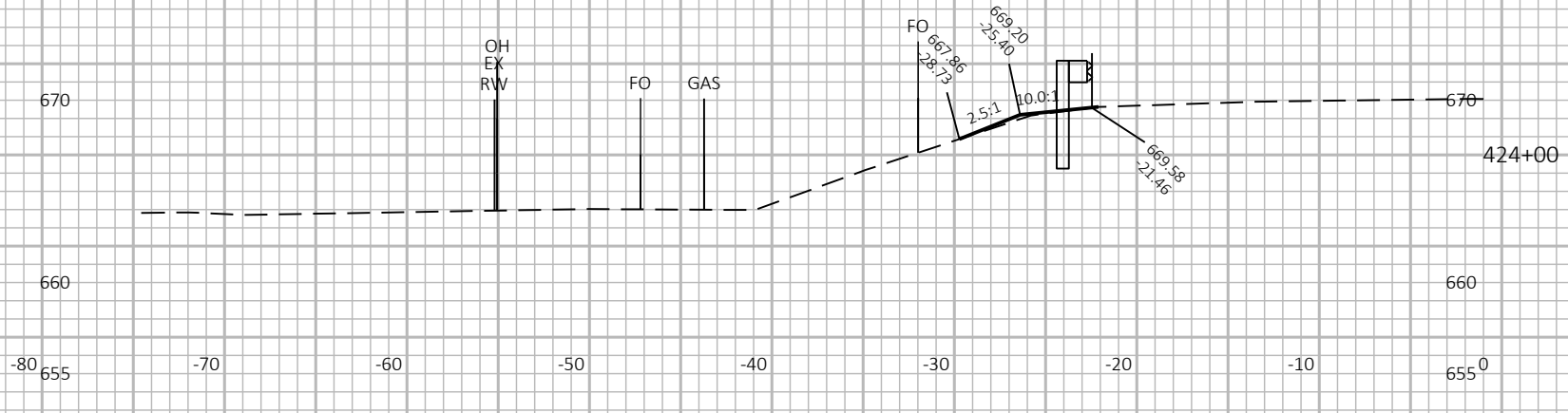
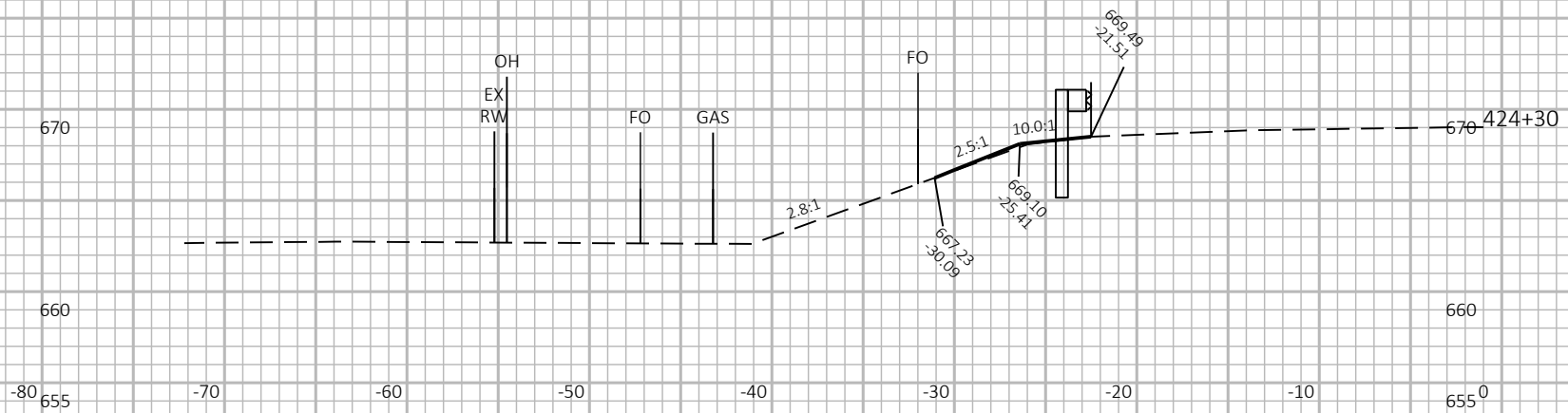
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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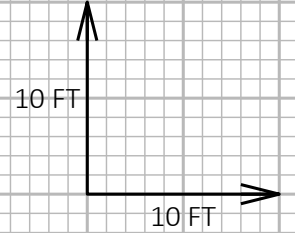
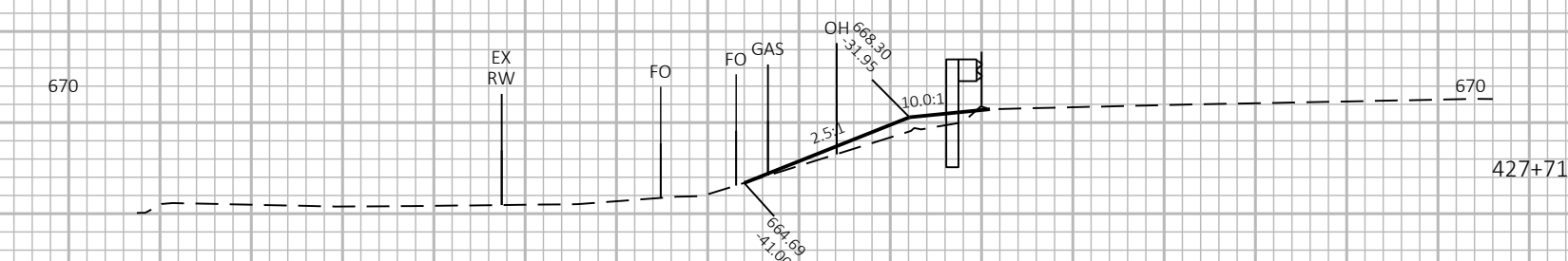
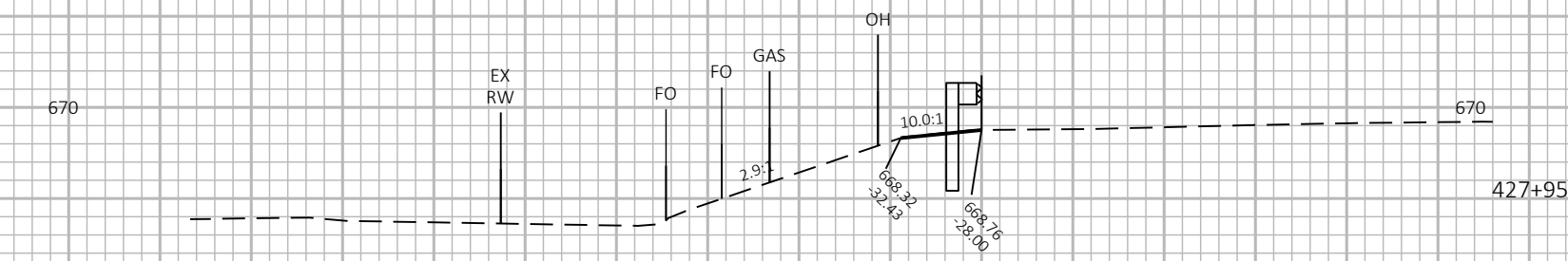
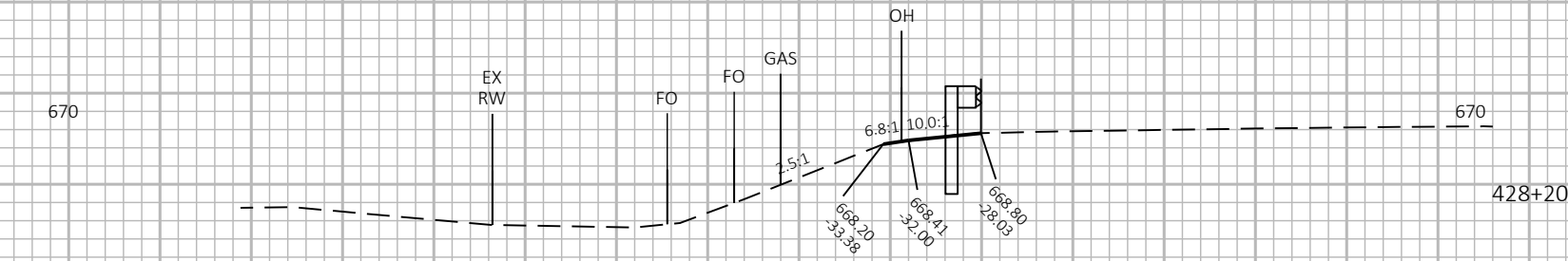
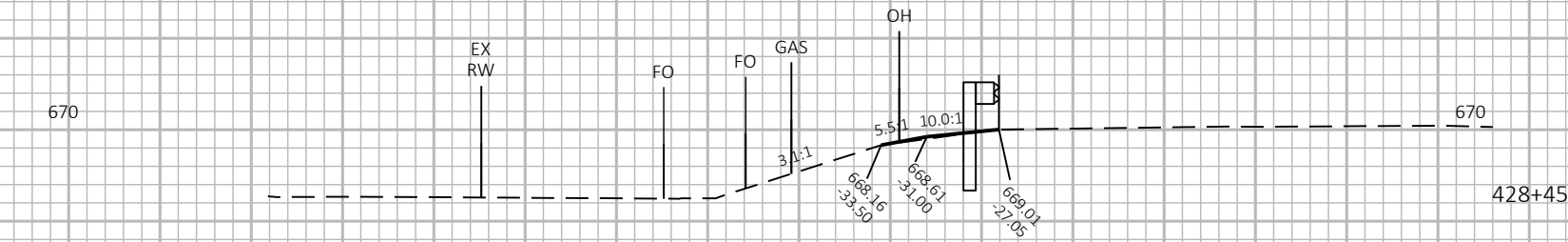
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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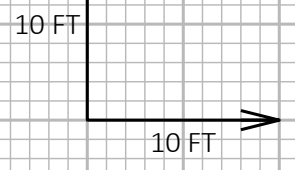
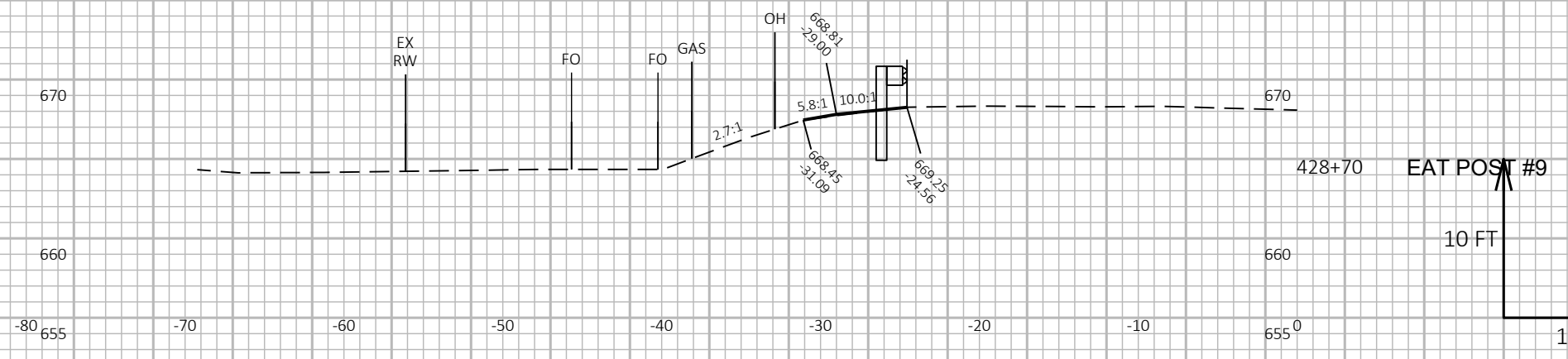
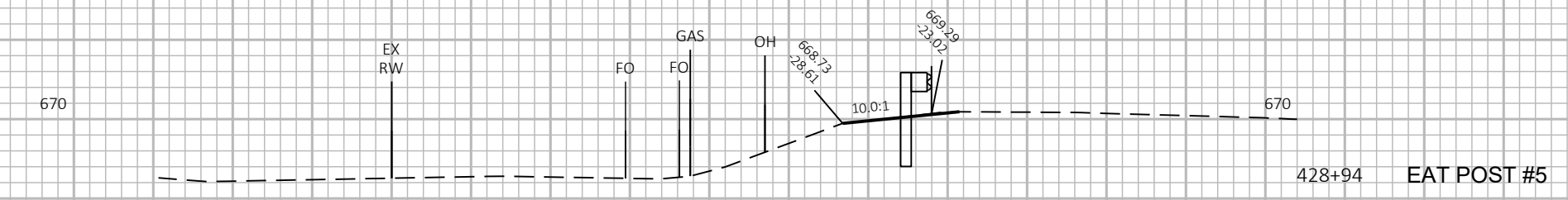
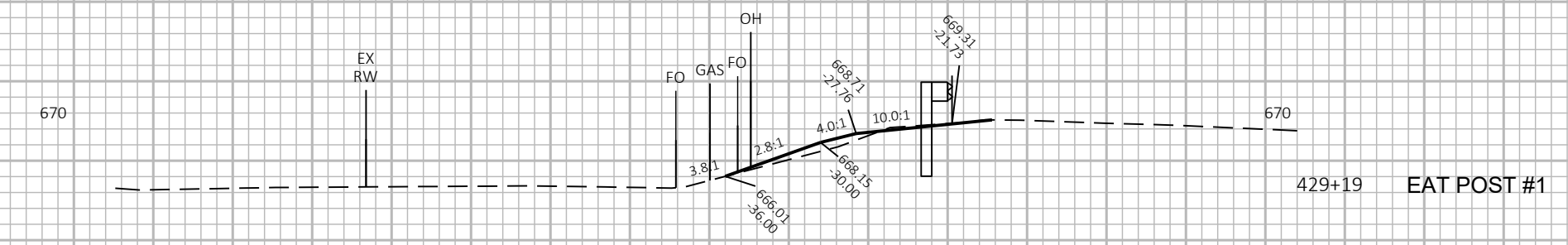
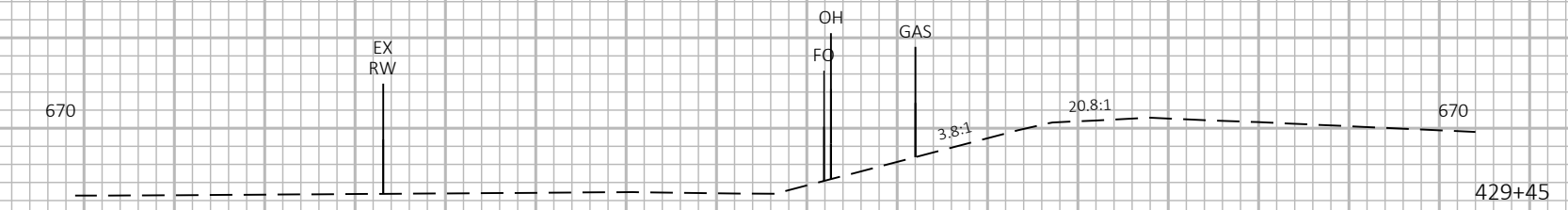
LAYOUT NAME - 17



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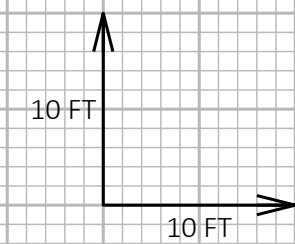
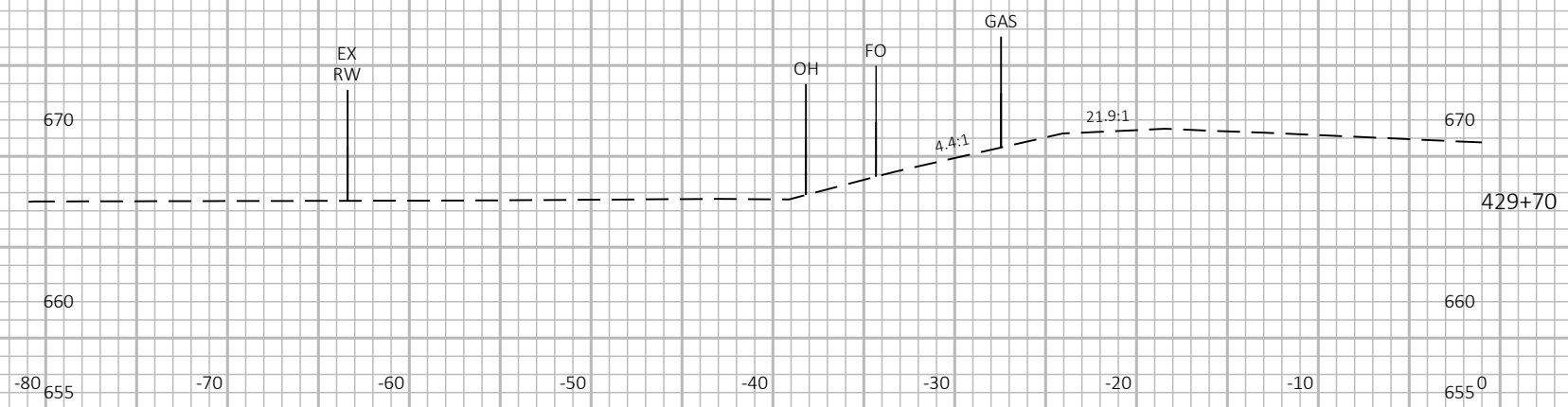
PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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PROJECT NO: 2290-24-70	HWY: STH 38	COUNTY: RACINE & MILWAUKEE	CROSS SECTIONS: GUARDRAIL	SHEET	E
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Wisconsin Department of Transportation

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