

GRE

PROJECT ID:
WITH: N/A

1500-49-60/61

COUNTY:

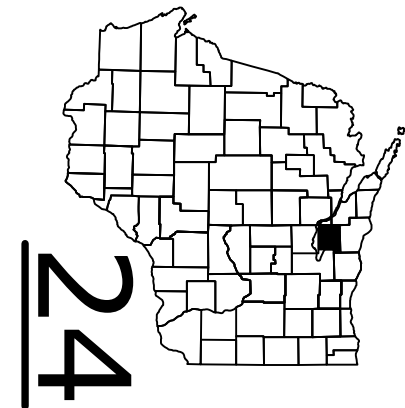
CALUMET

FEBRUARY 2026

ORDER OF SHEETS

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

TOTAL SHEETS = 404



DESIGN DESIGNATION 1500-49-30

A.A.D.T. (2027)	=	13,980
A.A.D.T. (2047)	=	15,580
D.H.V. (2047)	=	7.5
D.D.	=	60/40
T.	=	8.9%
DESIGN SPEED	=	35 MPH - 55 MPH
ESALS	=	4,700,000

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

	ROCK
	LABEL
	95.36
	E
	FO
	G
	SAN
	SS
	T
	W

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

MENASHA - HARRISON

STH 114 • FIRE LANE 7

USH 10
CALUMET COUNTY

STATE PROJECT NUMBER
1500-49-60

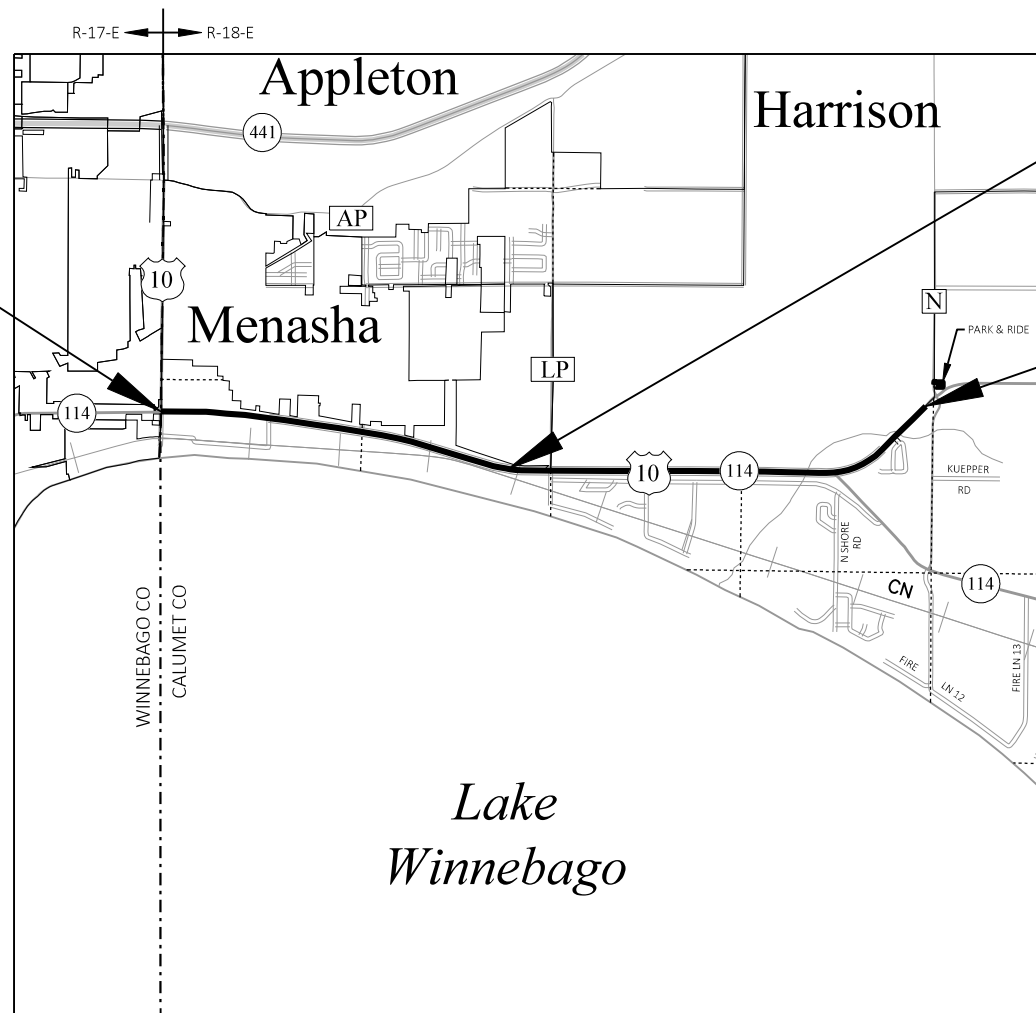
HARRISON - FOREST JUNCTION

FIRE LANE 7 • CTH N

USH 10
CALUMET COUNTY

STATE PROJECT NUMBER
1500-49-61

BEGIN PROJECT 1500-49-60
STA 814+93 'EB'
Y=544,096.61
X=827,967.75



END PROJECT 1500-49-60
BEGIN PROJECT 1500-49-61
STA 912+38 'EB'
Y=542,527.41
X=837,540.93

END PROJECT 1500-49-61
STA 1030+30 'EB'



TOTAL NET LENGTH OF CENTERLINE (1500-49-60) = 1.846 MI
TOTAL NET LENGTH OF CENTERLINE (1500-49-61) = 2.233 MI
TOTAL NET LENGTH OF CENTERLINE = 4.079 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), CALUMET COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE PROJECT

1500-49-60

1500-49-61

FEDERAL PROJECT

PROJECT

CONTRACT



327 N 17th Avenue, Suite 304
Wausau, WI 54401
Phone: 715-845-1081
Fax: 414-347-1347



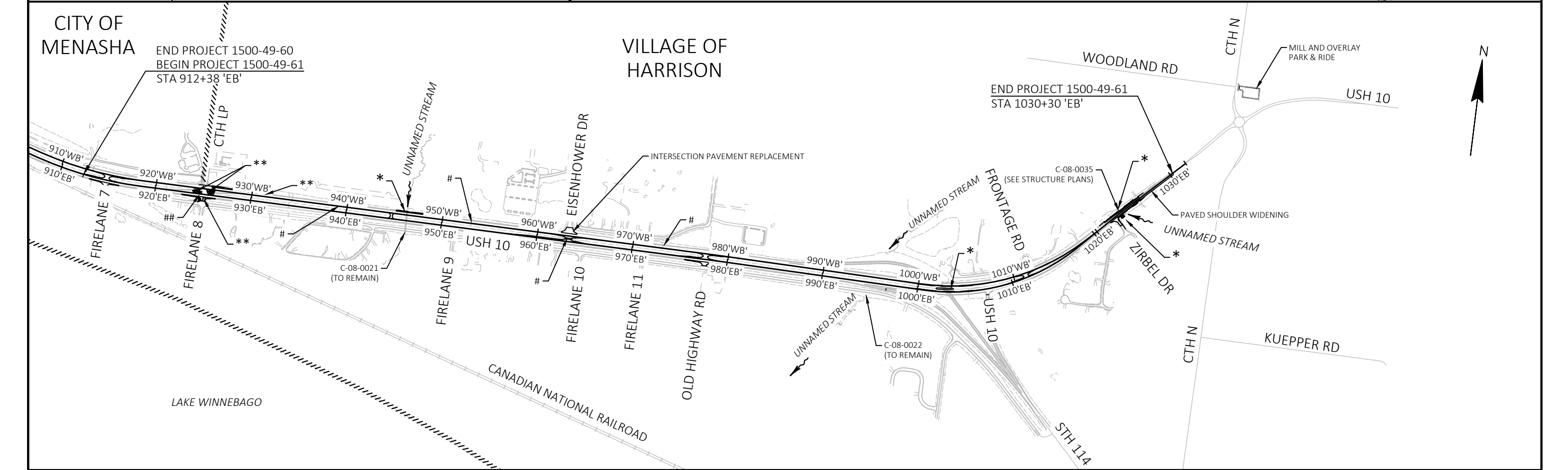
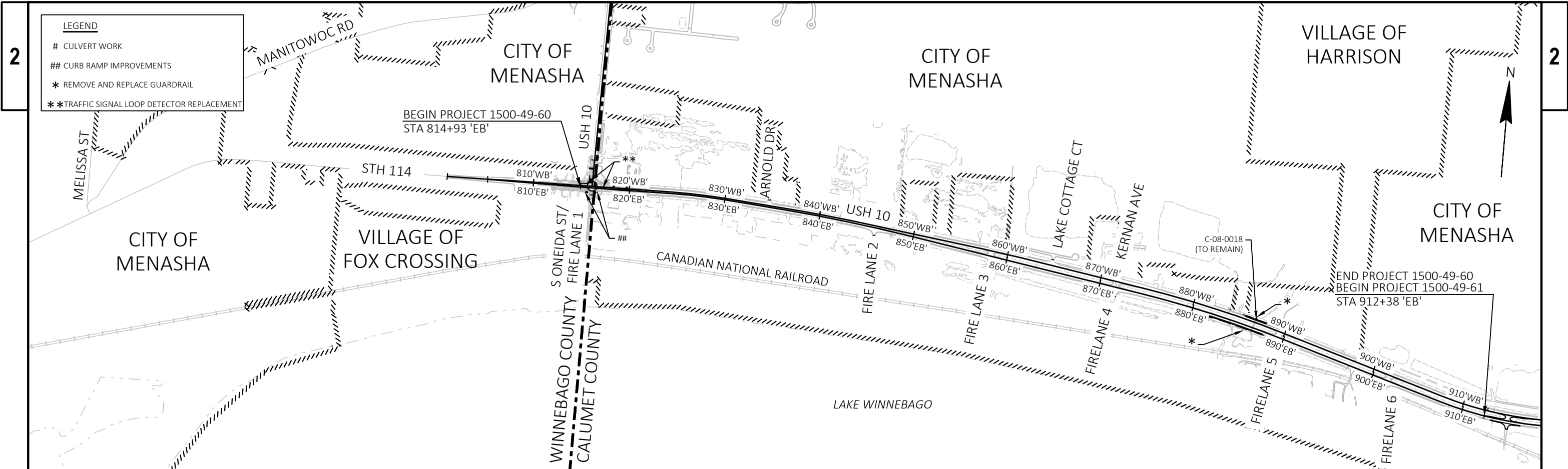
10/24/2025 Erik M. Oleson
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	NORTHEAST REGION
Surveyor	EMCS, INC.
Designer	KRISTEN BERG
Project Manager	JILL HILBERT
Regional Examiner	DANIEL SEGERSTROM
Regional Supervisor	

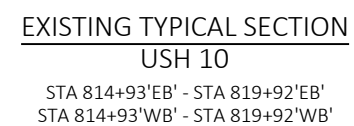
APPROVED FOR THE DEPARTMENT
DATE: 10/24/2025 [Signature]

E

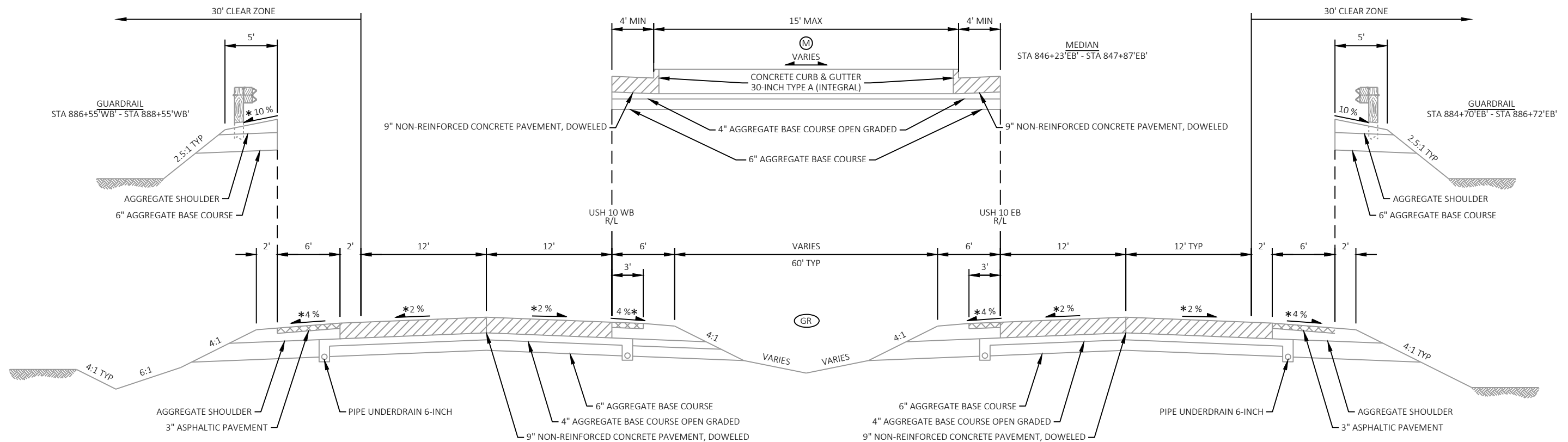
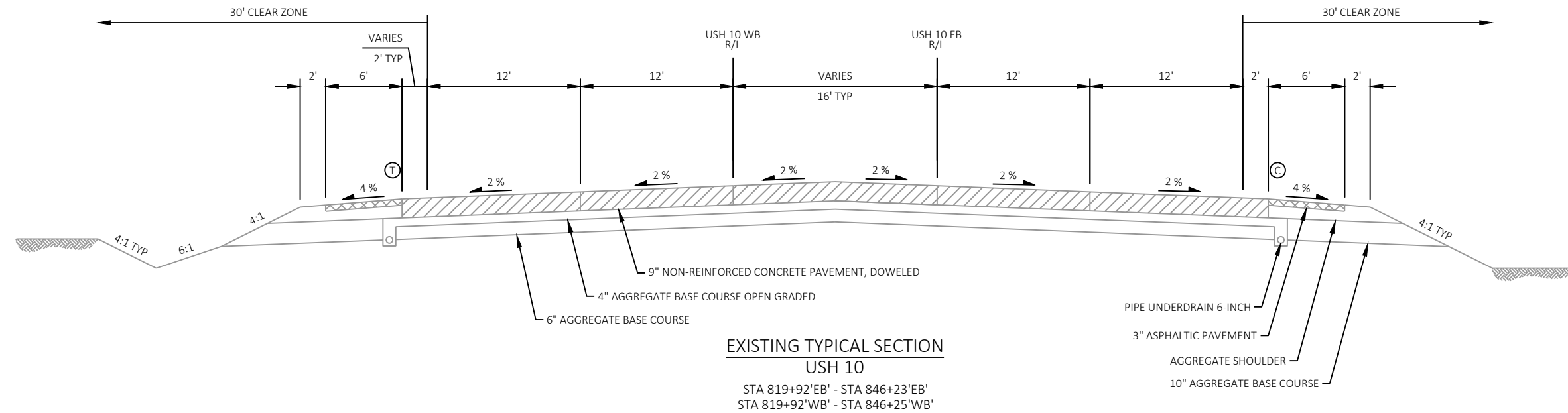


PROJECT NO: 1500-49-60/61	HWY: USH 10	COUNTY: CALUMET	PROJECT OVERVIEW	SHEET 3	E

2



PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY.



NOTES

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES.

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY.

* CROSS SLOPES VARY DUE TO SUPER ELEVATION. SEE SECTION 5 PLANS FOR SUPERELEVATION INFORMATION.

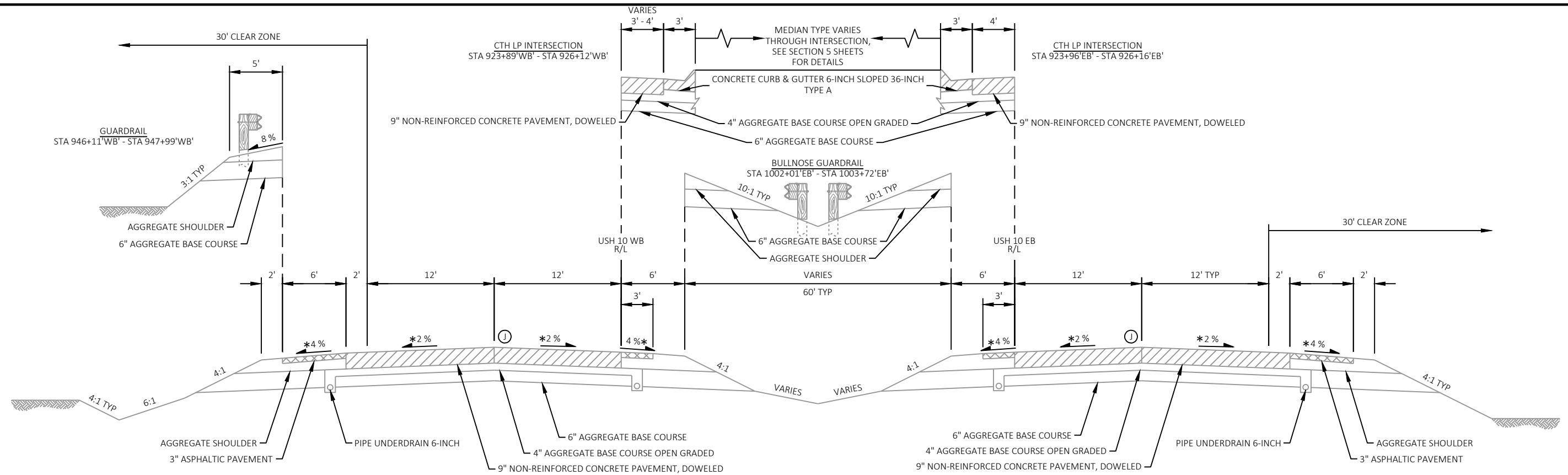
Ⓣ CONCRETE CURB & GUTTER 30-INCH TYPE A AND TURN LANE: STA 819+92'WB' - STA 820+15'WB', LT

Ⓢ CONCRETE CURB & GUTTER 30-INCH TYPE A: STA 819+92'EB' - STA 820+49'EB', RT

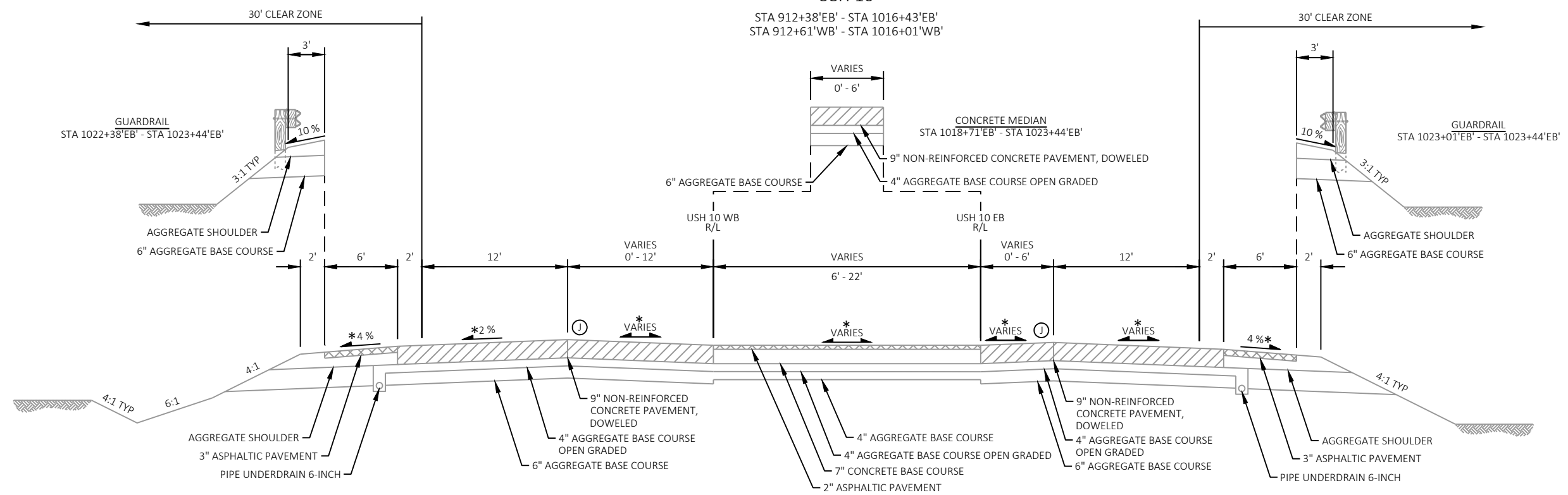
Ⓜ THE EXISTING SURFACING OF THE RAISED MEDIAN IS 5' WIDE CONCRETE PAVED MEDIAN: STA 846+23'EB' - STA 847+15'EB' OTHER AREAS ARE GRASS.

2

2 |



EXISTING TYPICAL SECTION
USH 10



EXISTING TYPICAL SECTION
USH 10

STA 1016+43'EB' - STA 1023+44'EB'
STA 1016+01'WB' - STA 1019+92'WB'

NOTES

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES AND RAMPS.

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY.

* CROSS SLOPES VARY DUE TO SUPER ELEVATION. SEE SECTION 5 PLANS FOR SUPERELEVATION INFORMATION.

(J) CONCRETE PANEL WIDTHS AND JOINT LOCATIONS VARY THROUGH THE TRANSITION FROM FOUR LANE DIVIDED TO TWO LANE SEGMENT: STA 1012+65'EB' - STA 1025+14'EB'

PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

TYPICAL SECTIONS

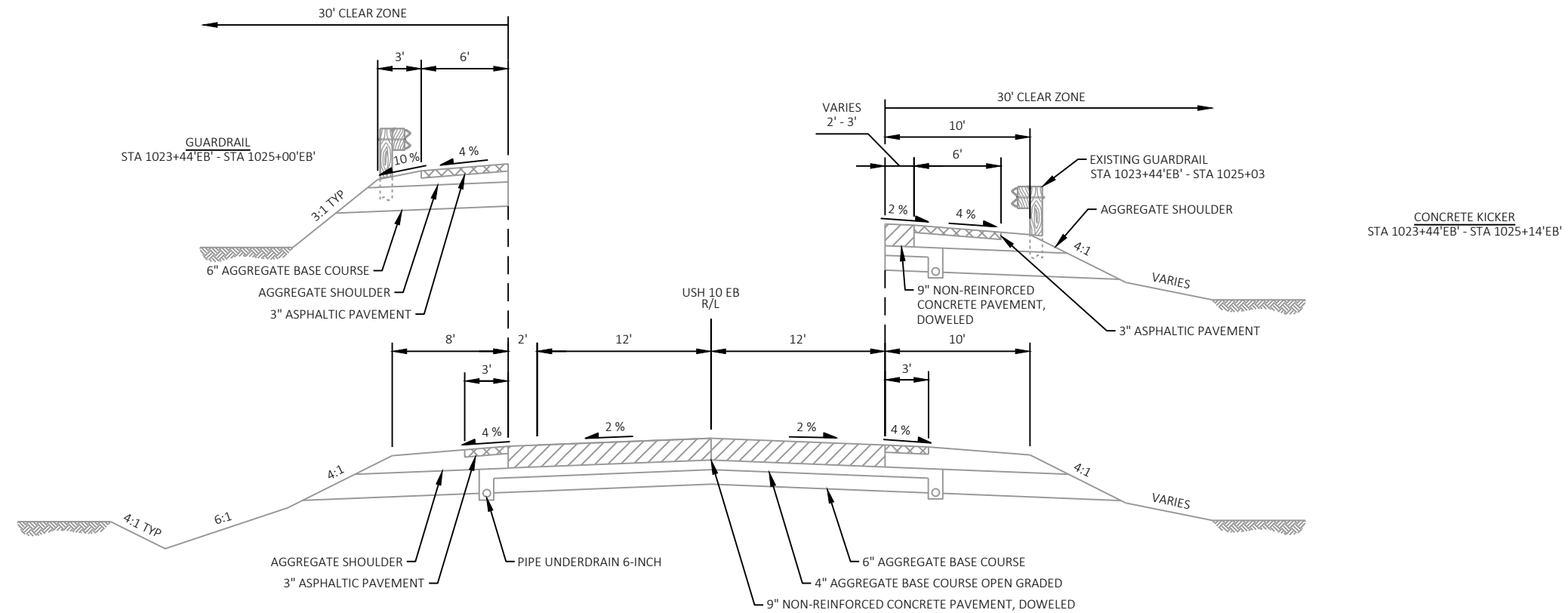
SHEET

6

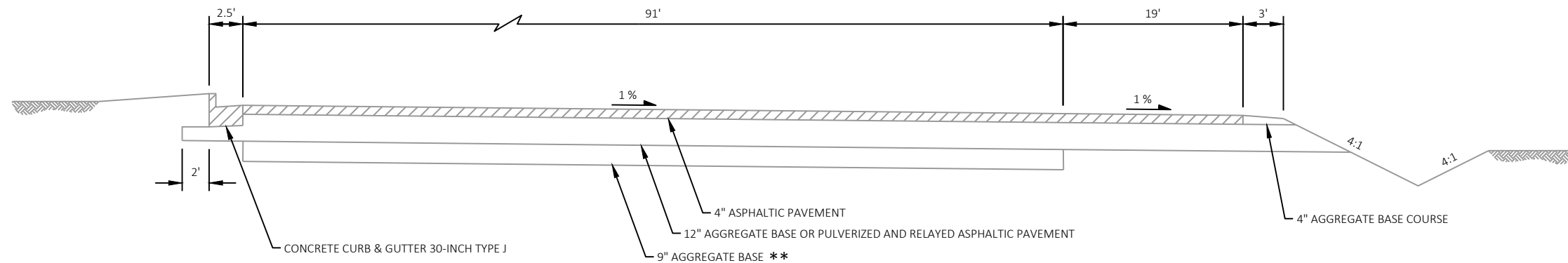
11

2

2 |



EXISTING TYPICAL SECTION
USH 10
STA 1023+44'EB' - STA 1030+30'EB'



EXISTING TYPICAL SECTION
PARK AND RIDE (CTH N)
LOOKING EAST

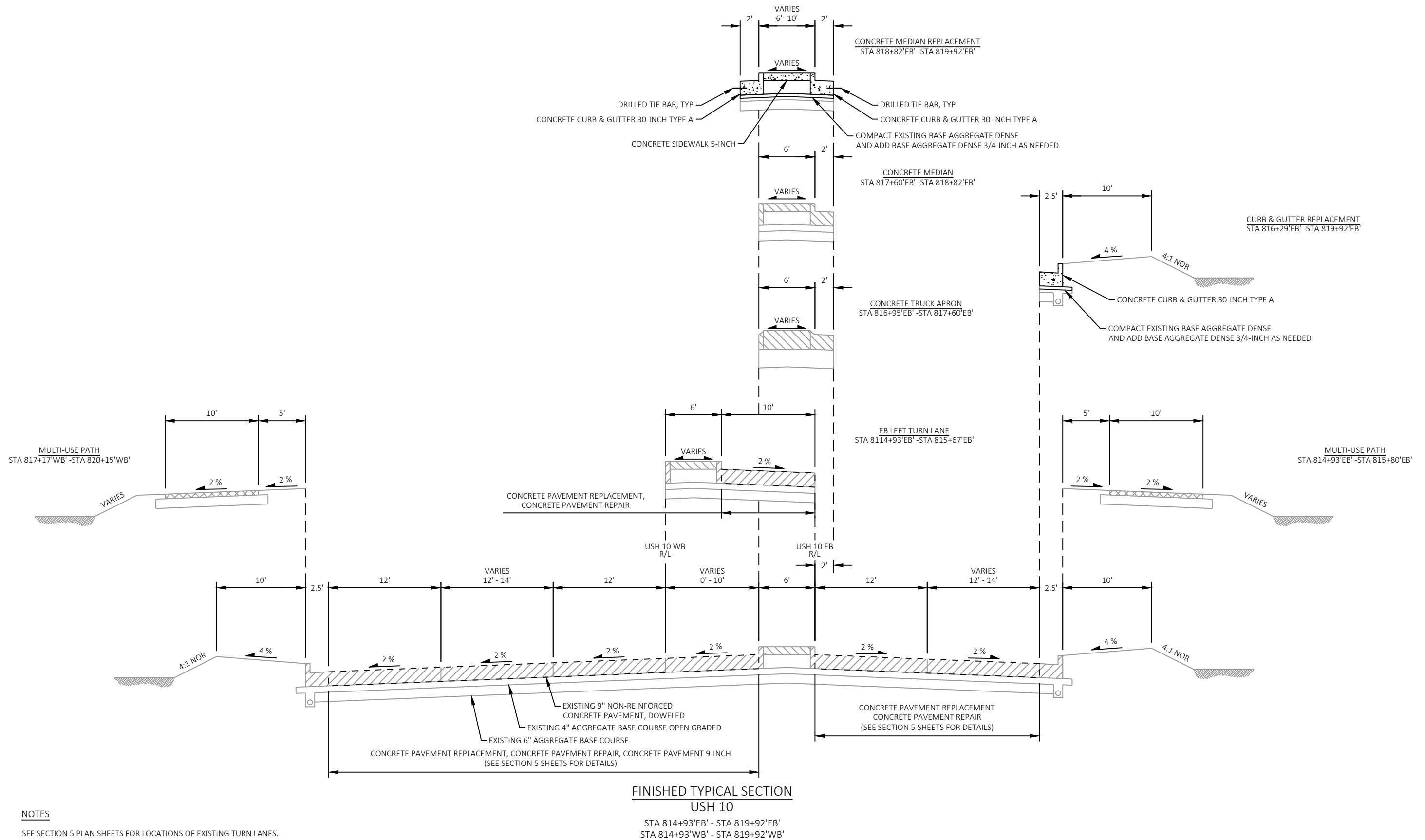
NOTES

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY.

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES AND RAMPS.

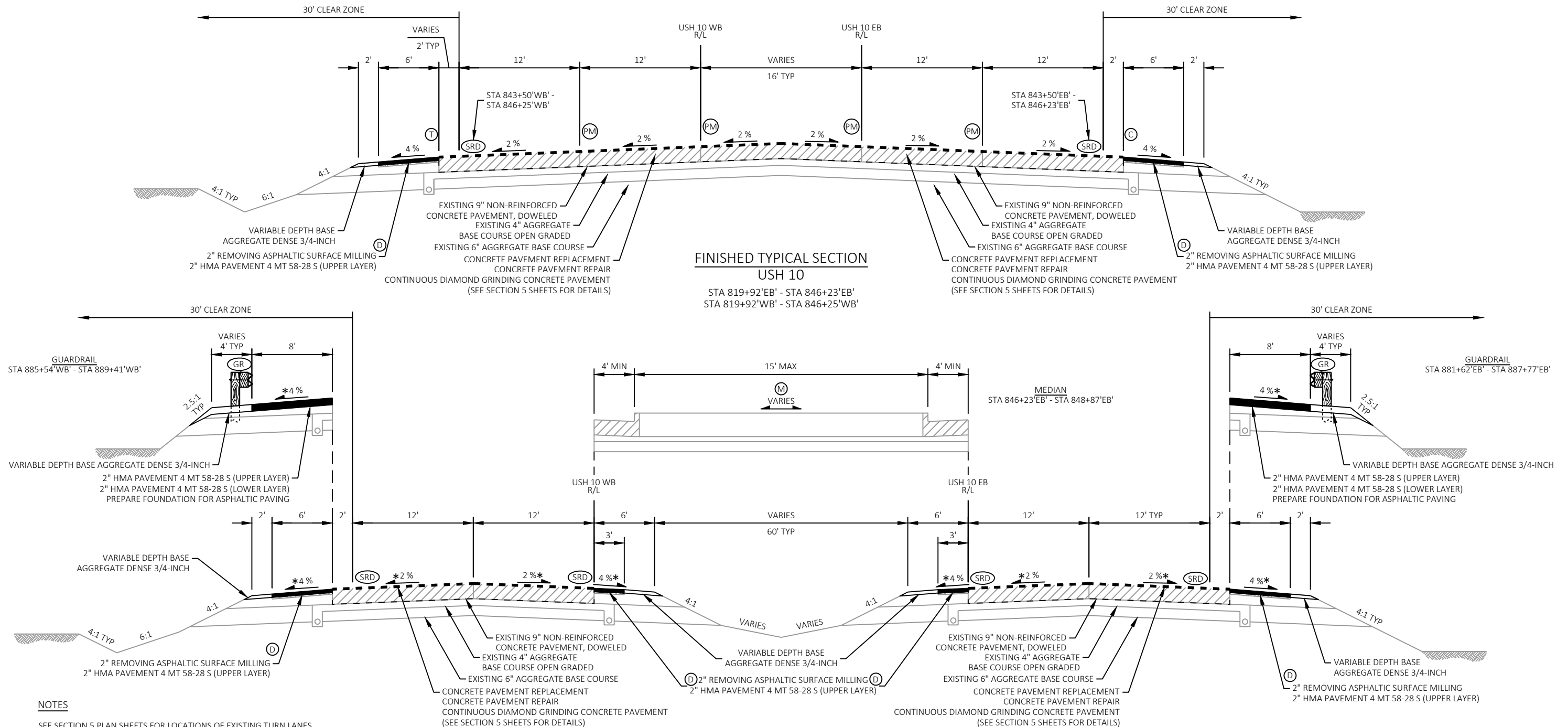
** BASE AGGREGATE IS ONLY PRESENT ON THE EAST SIDE OF THE PARK AND RIDE.

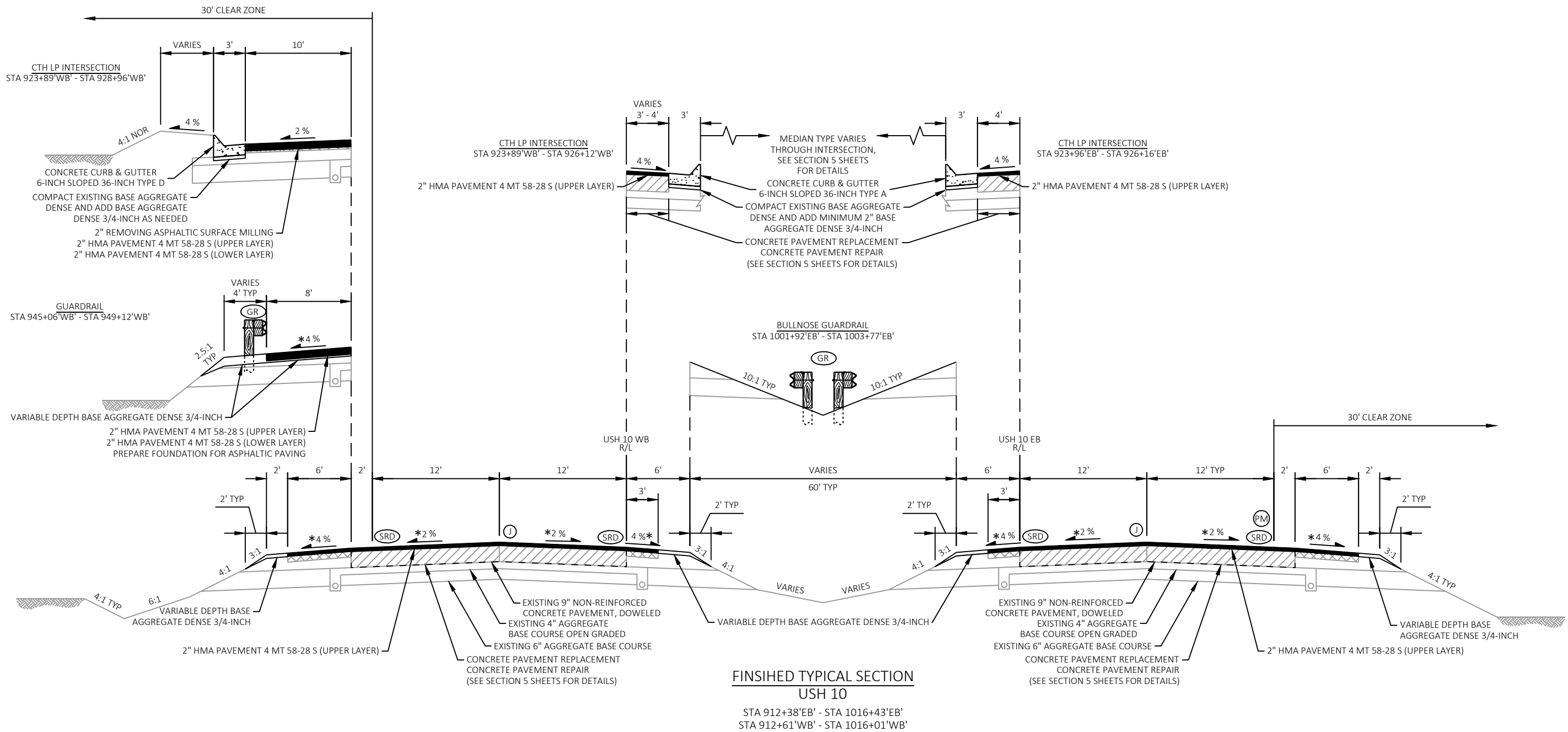
GR SEE CONSTRUCTION DETAILS - GUARDRAIL FOR LOCATIONS OF EXISTING GUARDRAIL.

**NOTES**

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES.

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY. MATCH EXISTING PAVEMENT CROSS SLOPES.



**NOTES**

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES.

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY. MATCH EXISTING PAVEMENT CROSS SLOPES.

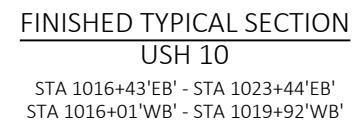
* CROSS SLOPES VARY DUE TO SUPER ELEVATION. SEE SECTION 5 PLANS FOR SUPERELEVATION INFORMATION.

(GR) SEE CONSTRUCTION DETAILS - GUARDRAIL FOR LOCATIONS OF PROPOSED GUARDRAIL.

(J) CONCRETE PANEL WIDTHS AND JOINT LOCATIONS VARY THROUGH THE TRANSITION FROM FOUR LANE DIVIDED TO TWO LANE SEGMENT: STA 1012+65'EB' - STA 1025+14'EB'

(PM) EXISTING RAISED PAVEMENT MARKERS TO BE REMOVED, SEE MISCELLANEOUS QUANTITIES FOR MORE INFORMATION

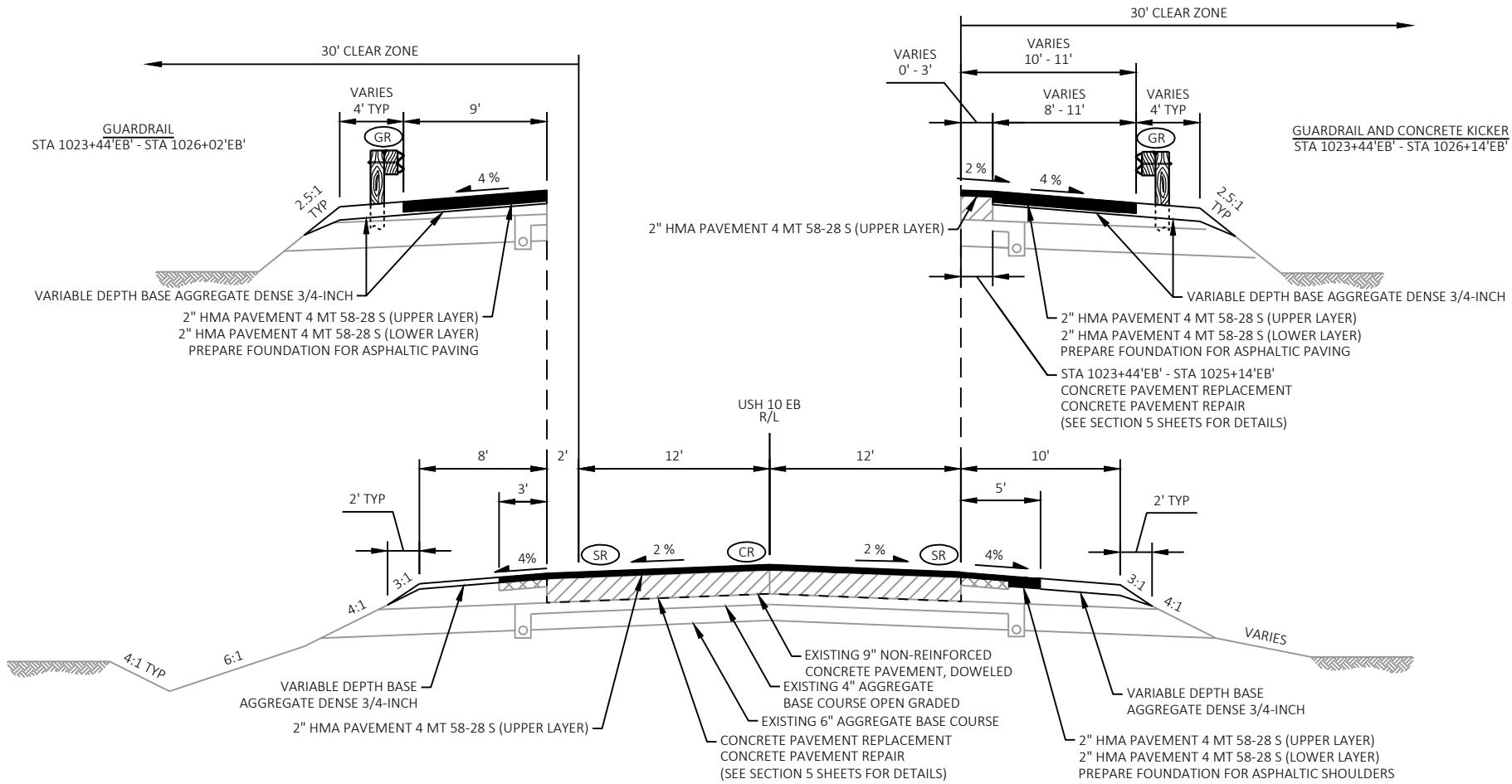
(SRD) ASPHALTIC SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY, SEE SDD FOR "SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY" FOR ADDITIONAL INFORMATION.



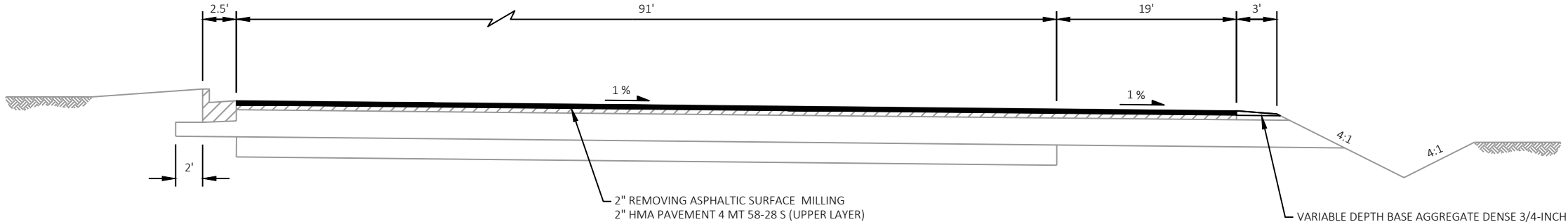
(SRD) ASPHALTIC SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY, SEE SDD FOR "SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY" FOR ADDITIONAL INFORMATION.

2

2



FINISHED TYPICAL SECTION
USH 10
STA 1023+44'EB' - STA 1030+30'EB'



NOTES

SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF EXISTING TURN LANES AND RAMPS.

PAVEMENT CROSS SLOPES SHOWN ARE BASED ON ASBUILT PLANS, ACTUAL CROSS SLOPES VARY. MATCH EXISTING PAVEMENT CROSS SLOPES.

GR SEE CONSTRUCTION DETAILS - GUARDRAIL FOR LOCATIONS OF PROPOSED GUARDRAIL.

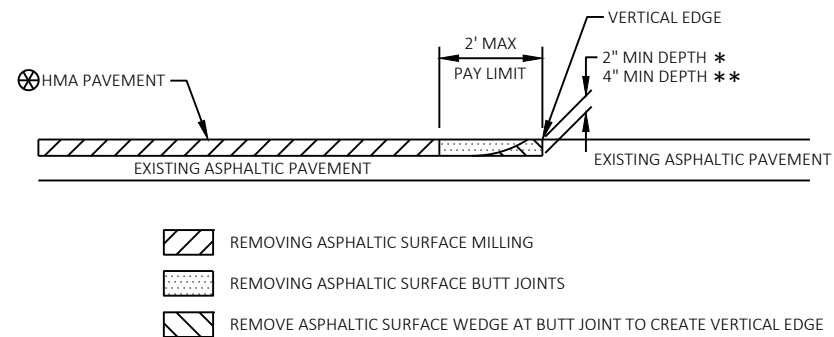
(SR) ASPHALTIC RUMBLE STRIPS, SHOULDER, SEE SDD FOR "SHOULDER RUMBLE STRIPS ASPHALT" FOR ADDITIONAL INFORMATION.

(CR) ASPHALTIC RUMBLE STRIPS, CENTERLINE, SEE SDD FOR "CENTERLINE RUMBLE STRIPS - ASPHALT" FOR ADDITIONAL INFORMATION.

PROPOSED TYPICAL SECTION

PARK AND RIDE (CTH N)

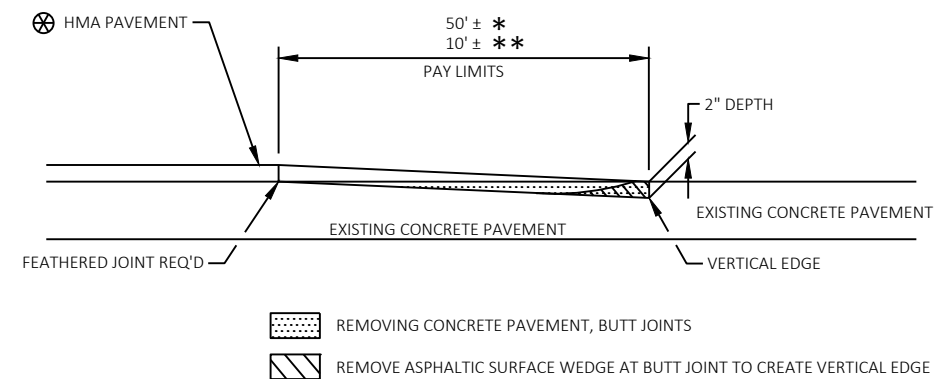
LOOKING EAST



BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)

ARNOLD DRIVE, LT *
FIRE LANE 2, RT *
FIRE LANE 3, RT *
LAKE COTTAGE COURT, LT *
KERNAN AVENUE, LT *
FIRE LANE 4, RT *
FIRE LANE 5, RT *
FIRE LANE 6, RT *
FIRE LANE 7, RT **
FIRE LANE 8, RT **
OLD HIGHWAY ROAD, RT **
FRONTAGE ROAD, LT **

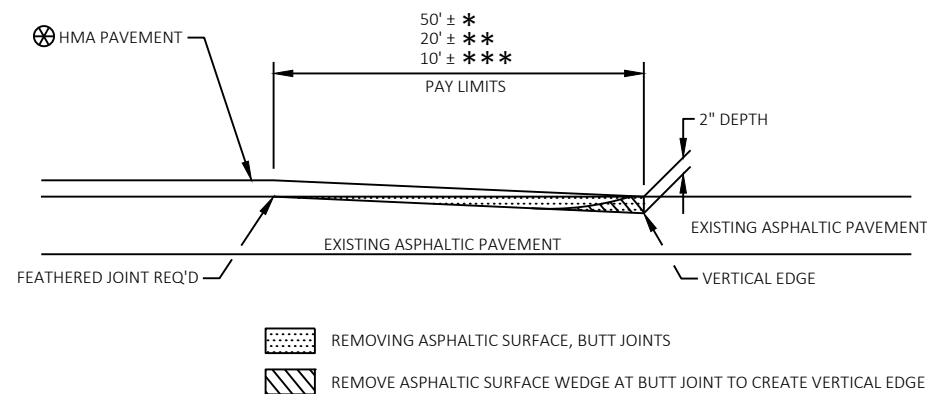
NOTE
SEE TYPICAL SECTION FOR
PAVEMENT TYPE AND THICKNESS
OF INDIVIDUAL LAYERS



BUTT JOINT DETAIL FOR CONCRETE PAVEMENTS (PROFILE CHANGE)

* STA 912+38 'EB' (BEGIN PROJECT 1500-49-61)
* STA 912+61 'WB' (BEGIN CONSTRUCTION 1500-49-61)
** STA 926+04 'WB' (CTH LP)
* STA 1030+30 'EB' (END PROJECT 1500-49-61)

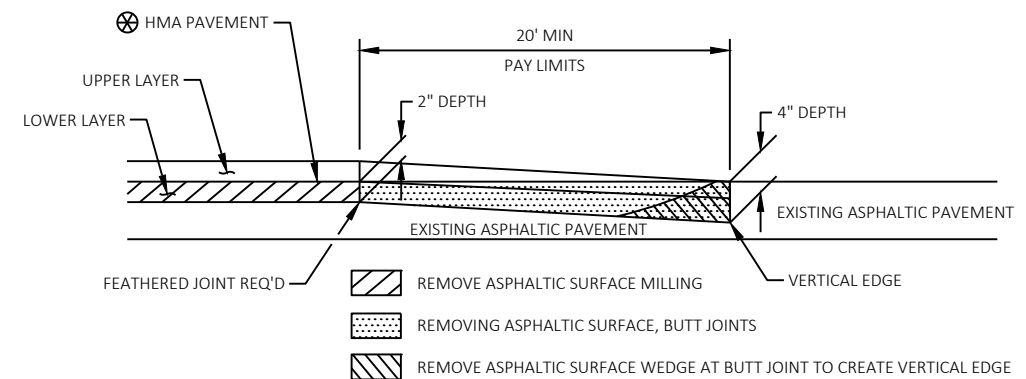
NOTE
SEE TYPICAL SECTION FOR
PAVEMENT TYPE AND THICKNESS
OF INDIVIDUAL LAYERS



BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (PROFILE CHANGE)

* STA 989+17 'WB' (USH 10/STH 114 WB ENTRANCE RAMP)
* STA 996+76 'EB' (USH 10/STH 114 EB EXIT RAMP)
** STA 1007+23 'EB' (STH 114 WB EXIT/USH 10 EB ENTRANCE)
*** PRIVATE ENTRANCES

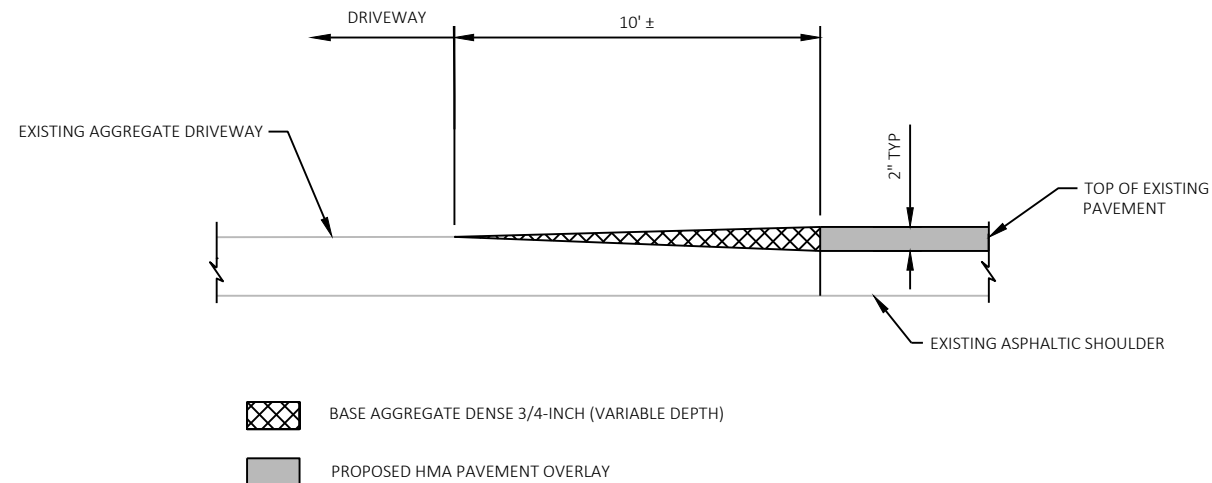
NOTE
SEE TYPICAL SECTION FOR
PAVEMENT TYPE AND THICKNESS
OF INDIVIDUAL LAYERS



BUTT JOINT DETAIL FOR MILLED ASPHALTIC PAVEMENTS (PROFILE CHANGE)

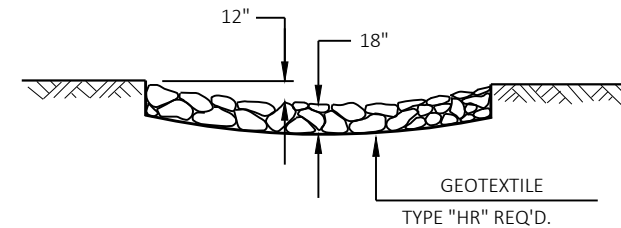
STA 10+90 (ZIRBEL DRIVE)

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



AGGREGATE DRIVEWAY PROFILE MATCH DETAIL

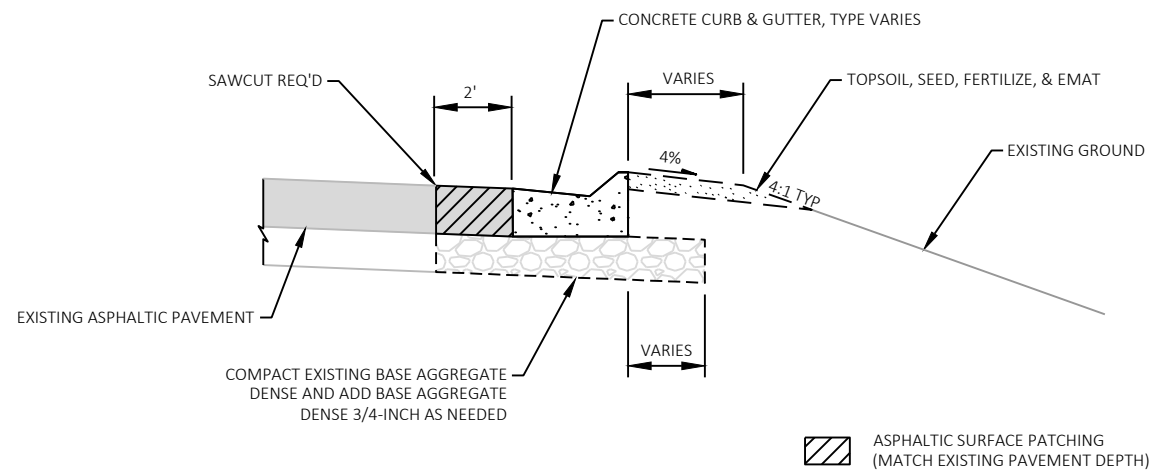
SEE SECTION 5 PLAN SHEETS FOR LOCATIONS
PROJECT 1500+49-61



RIPRAP MEDIUM TREATMENT DETAIL

NOTE

SEE CONSTRUCTION DETAILS - GUARDRAIL FOR LOCATIONS



DETAIL OF CURB & GUTTER ADJACENT TO ASPHALTIC PAVEMENT

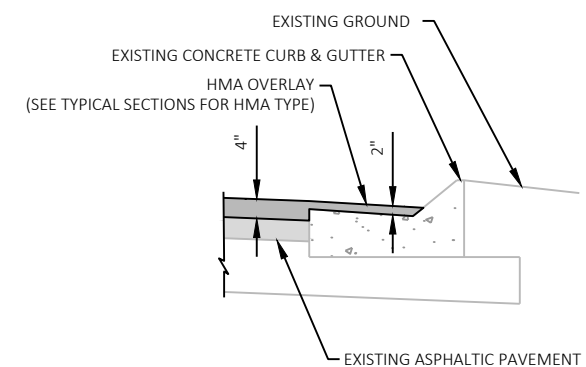
FIRELANE 8
EISENHOWER DRIVE MEDIAN
CTH LP

NOTES

COMPLETE CURB & GUTTER REPLACEMENTS AND ASPHALTIC SURFACE PATCHING TO MATCH THE EXISTING SURFACE PRIOR TO THE MILL AND OVERLAY

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB AND GUTTER" AND SDD "CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS"

SEE INTERSECTION DETAILS, CURB RAMP DETAILS, MISCELLANEOUS QUANTITIES, AND SECTION 5 PLAN SHEETS FOR ADDITIONAL INFORMATION



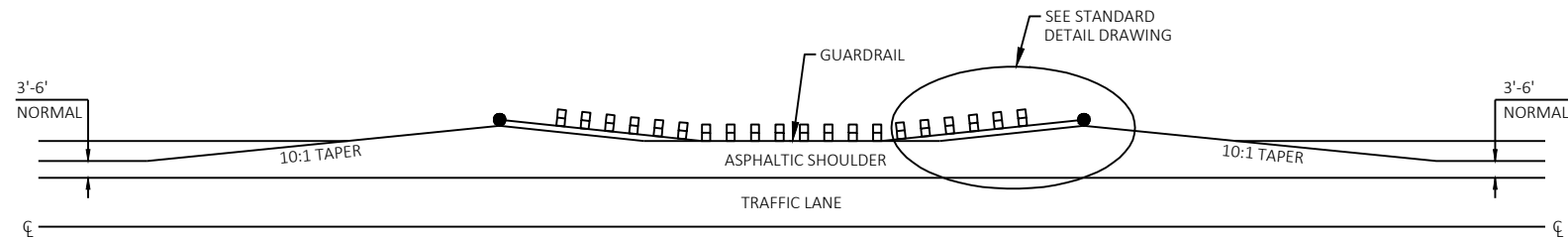
CURB & GUTTER HMA OVERLAY DETAIL

PROJECT 1500-49-61 MEDIANS (EXCEPT AS SHOWN ON PAVING DETAILS)
ZIRBEL DRIVE, RT

NOTES

SEE TYPICAL SECTIONS FOR PAVEMENT STRUCTURE, HMA TYPE AND MEDIAN LOCATION.

MAXIMUM ALLOWABLE USH 10 SHOULDER CROSS SLOPE IS 6%. ADDITIONAL LOCATIONS OF GUTTER OVERLAY MAY BE DETERMINED IN THE FIELD BY THE ENGINEER.

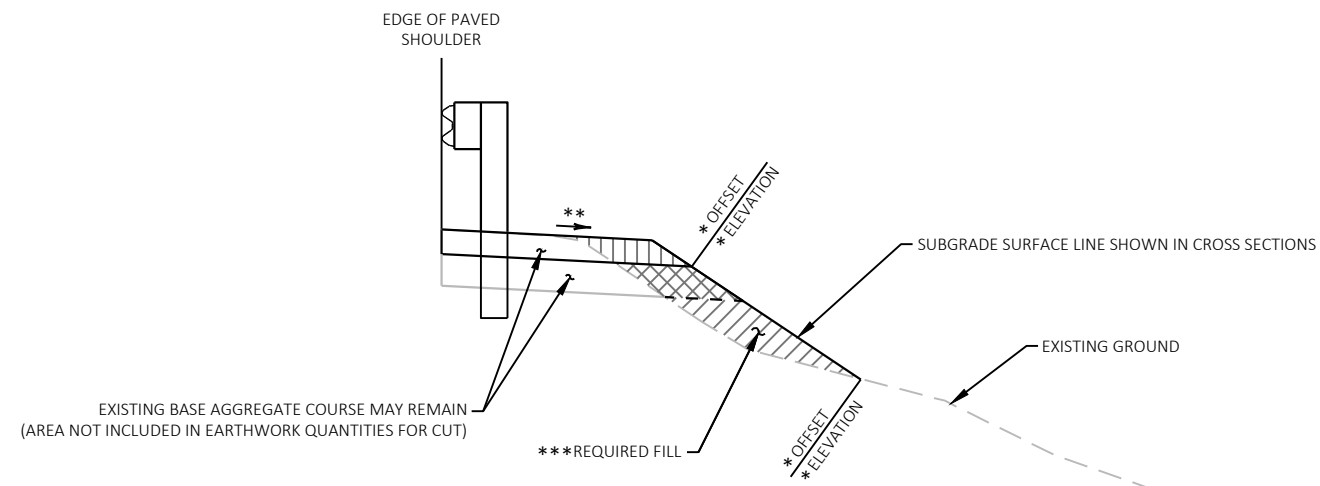


DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL

SEE CONSTRUCTION DETAILS - GUARDRAIL SHEETS FOR LOCATIONS

NOTE

SEE TYPICAL SECTIONS FOR SHOULDER PAVING DEPTHS AND TYPES.



SHOULDER WIDENING EARTHWORK & BASE AGGREGATE FOR GUARDRAIL DETAIL

SEE CONSTRUCTION DETAILS - GUARDRAIL SHEETS, SECTION 5 PLAN SHEETS, CROSS SECTIONS, AND TYPICAL SECTIONS FOR LOCATIONS

NOTES

BENCH FILL AS REQUIRED PER STANDARD SPECIFICATION 205.3.2(4)

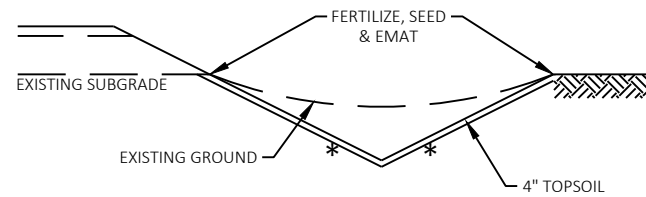
* OFFSET AND ELEVATION PROVIDED TO THESE POINTS ON THE CROSS SECTIONS

** SHOULDER SLOPE PROVIDED ON CROSS SECTIONS

*** PAID FOR UNDER THE BARRIER SYSTEM GRADING SHAPING FINISHING ITEM

LEGEND

	NEW BASE AGGREGATE DENSE 3/4-INCH
	NEW BASE AGGREGATE DENSE 1 1/4-INCH (15" MIN)
	FILL

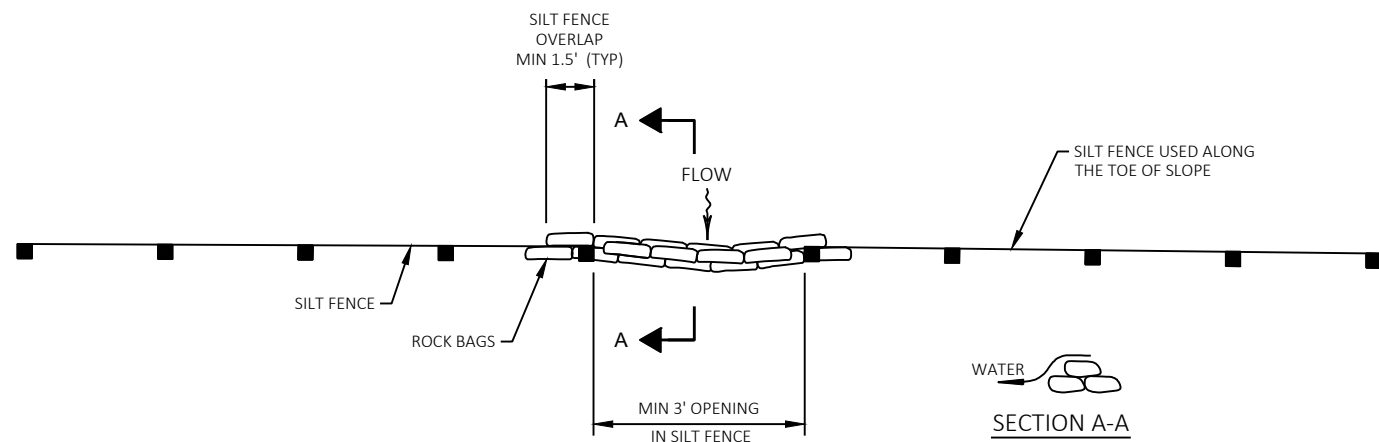


DITCH CLEANING DETAIL

STA 945+65 'EB' - STA 946+85 'EB'
STA 961+85 'EB' - STA 962+55 'EB'
STA 963+75 'EB' - STA 964+10 'EB'

NOTE

* SLOPES VARY, 4:1 MAX



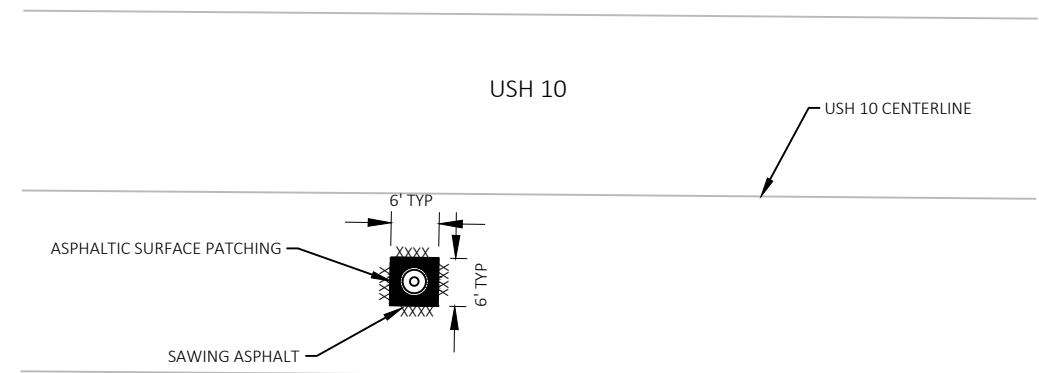
TOP VIEW

ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

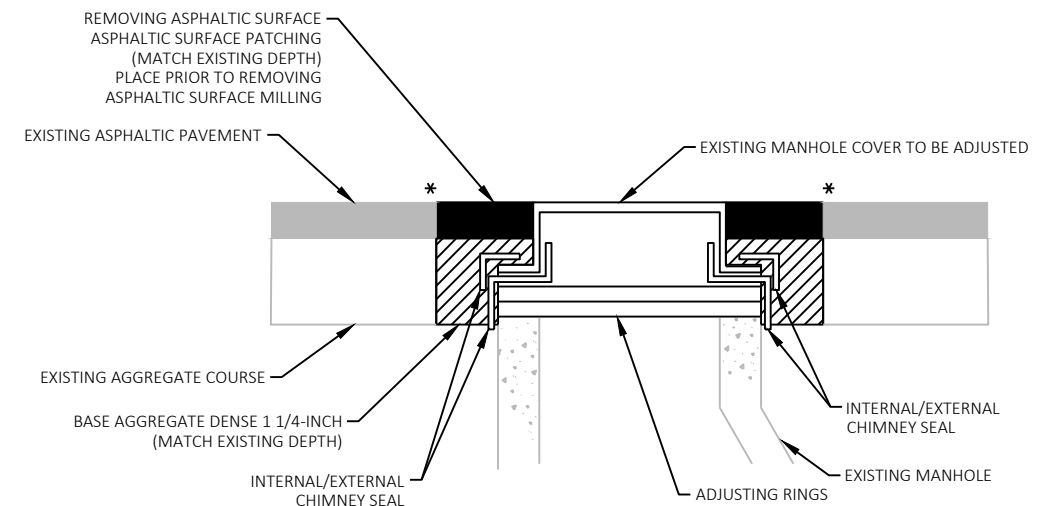
NOTES

PLACE AT LOW POINT OF SILT FENCE AS DIRECTED BY THE ENGINEER.

17 BAGS MINIMUM PER 8' OPENING.



PLAN VIEW



SECTION VIEW

ADJUSTING MANHOLE COVERS AND ADJUSTING SANITARY SEWER MANHOLE COVERS DETAIL

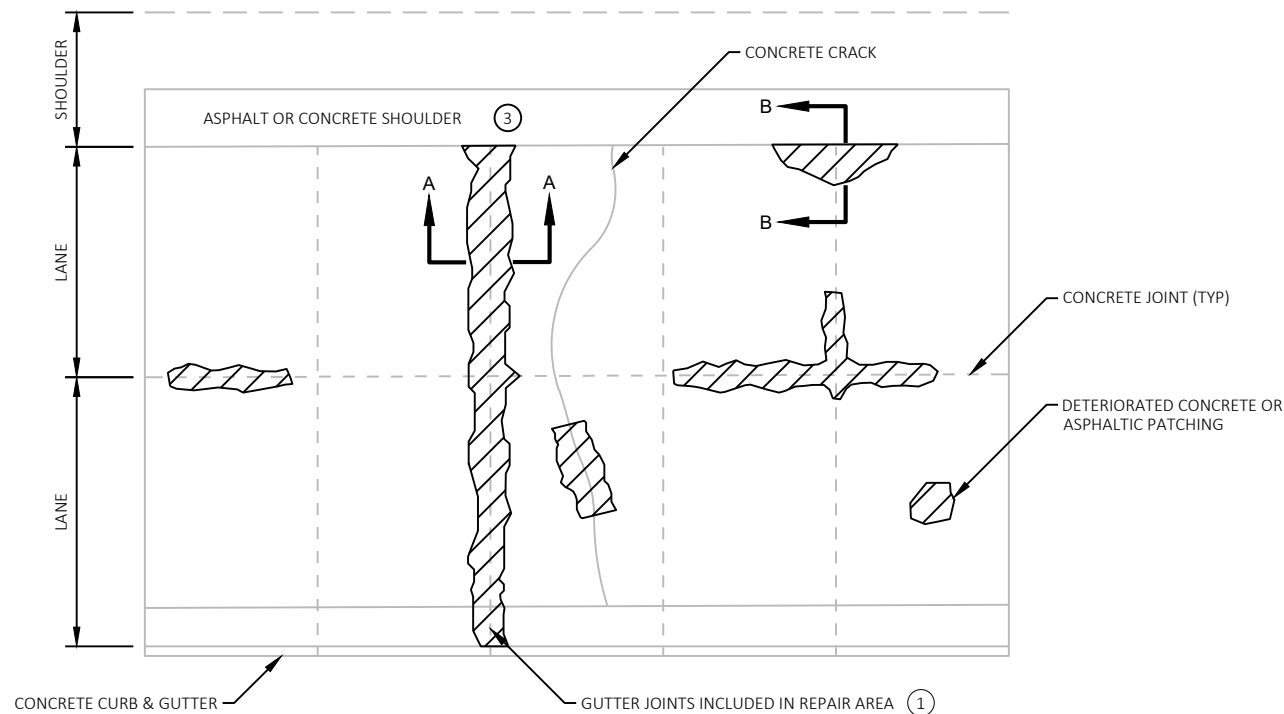
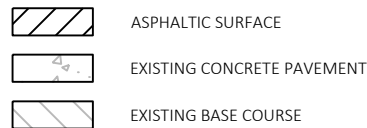
SEE SECTION 5 PLAN SHEETS FOR LOCATIONS

NOTE

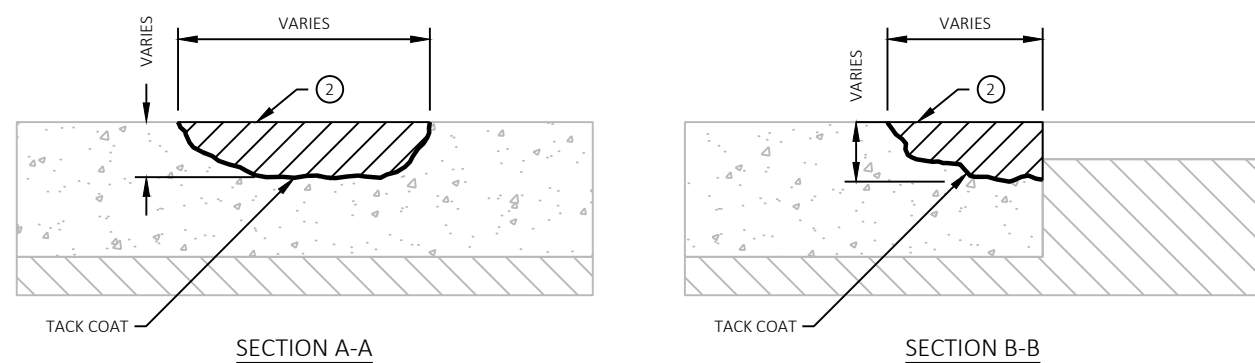
* SAWCUT REQ'D

NOTES

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



PLAN VIEW

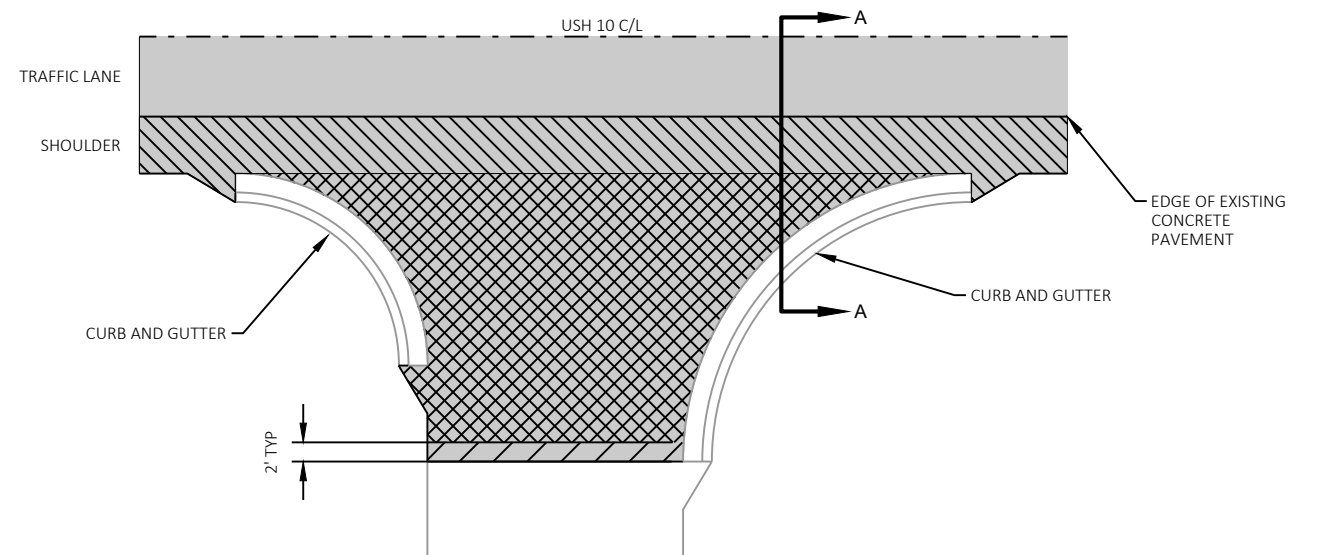


SECTION A-A

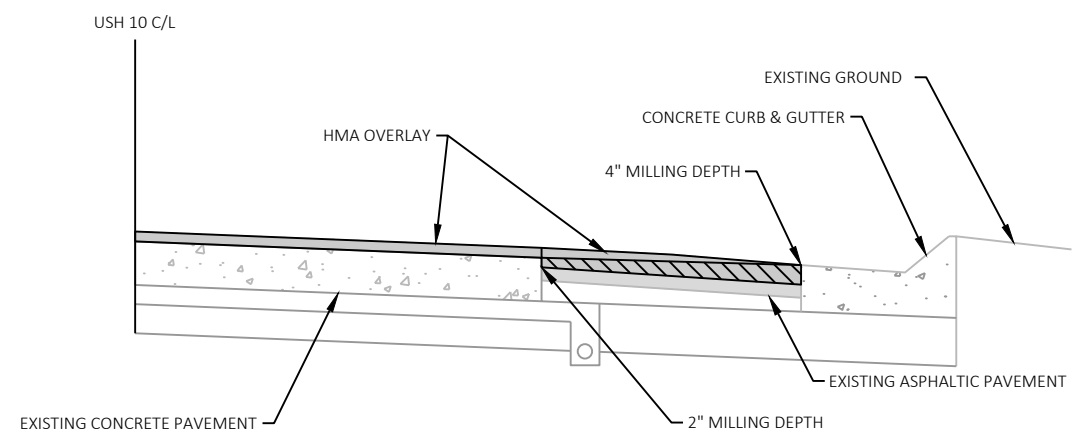
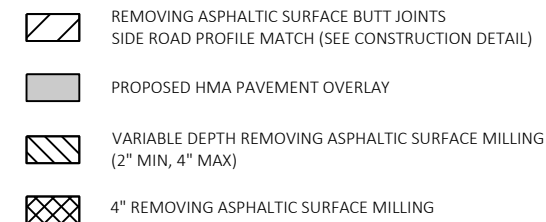
SECTION B-B

CONCRETE JOINT AND CRACK CLEANING AND REPAIR

PROJECT 1500-49-61
SEE MISCELLANEOUS QUANTITIES AND SECTION 5 SHEETS FOR LOCATIONS



PLAN VIEW



SECTION A-A

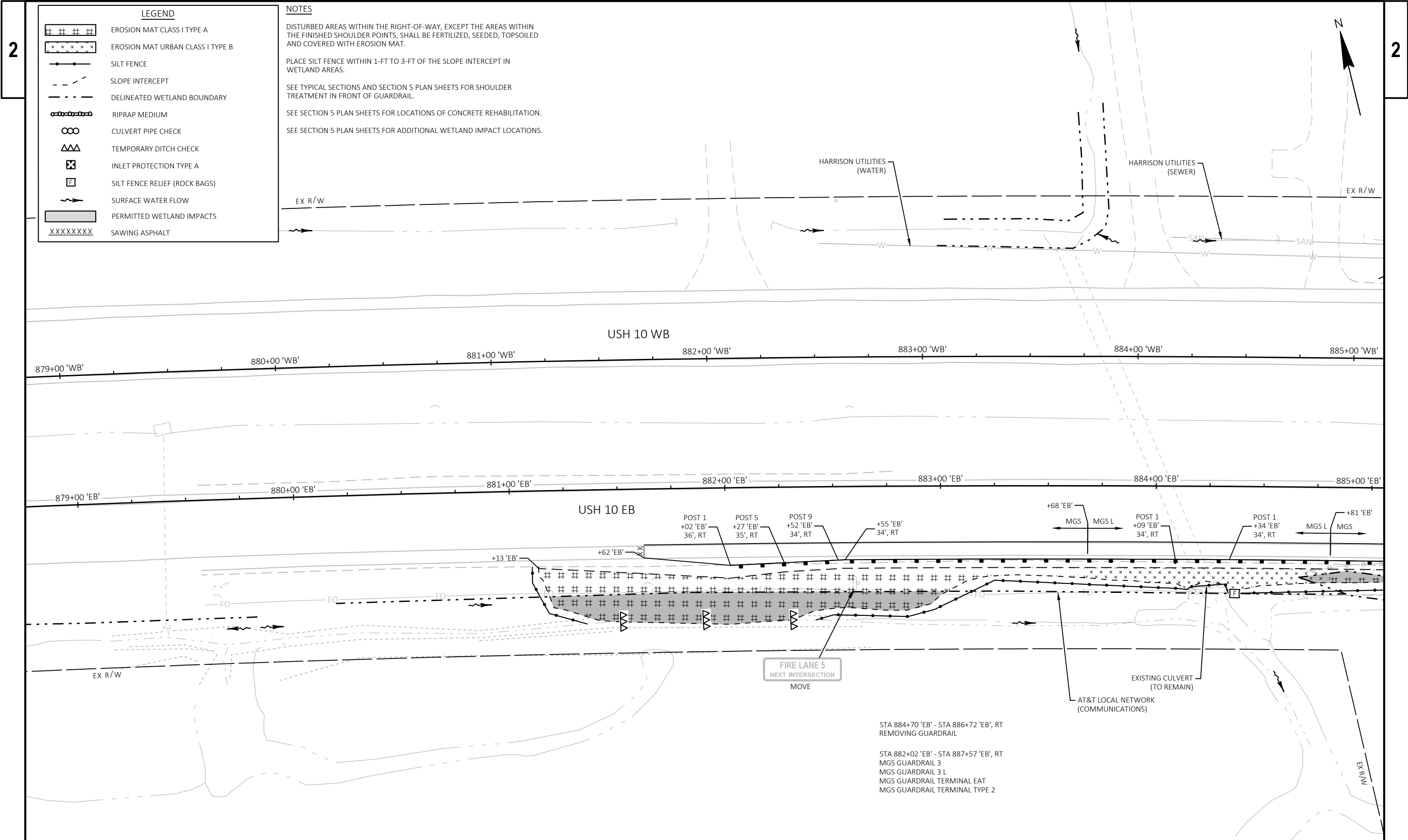
OUTSIDE RURAL INTERSECTION CURB & GUTTER HMA OVERLAY DETAIL

PROJECT 1500-49-61
FIRE LANE 7, RT
FIRE LANE 8, RT
CTH LP (STA 925+74 WB - STA 930+61 WB), LT
OLD HIGHWAY ROAD, RT
FRONTAGE ROAD, LT

NOTES

SEE TYPICAL SECTIONS FOR PAVEMENT STRUCTURE AND HMA TYPE.

MAXIMUM ALLOWANCE USH 10 SHOULDER CROSS SLOPE IS 6%.



LEGEND

- EROSION MAT CLASS I TYPE A
- EROSION MAT URBAN CLASS I TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- DELINEATED WETLAND BOUNDARY
- RIPRAP MEDIUM
- CULVERT PIPE CHECK
- TEMPORARY DITCH CHECK
- INLET PROTECTION TYPE A
- SILT FENCE RELIEF (ROCK BAGS)
- SURFACE WATER FLOW
- PERMITTED WETLAND IMPACTS
- SAWING ASPHALT

NOTES

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

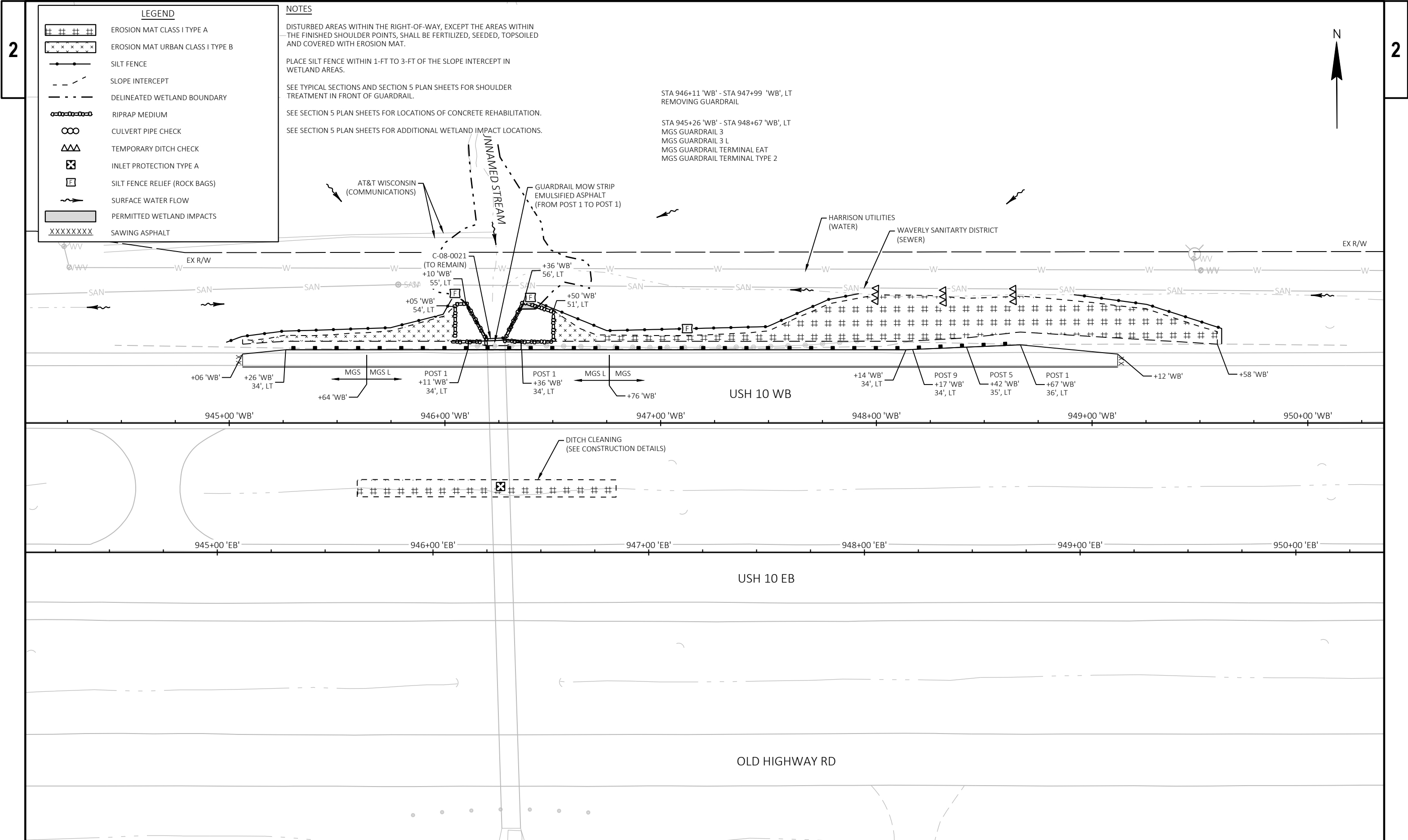
PLACE SILT FENCE WITHIN 1-FT TO 3-FT OF THE SLOPE INTERCEPT IN WETLAND AREAS.

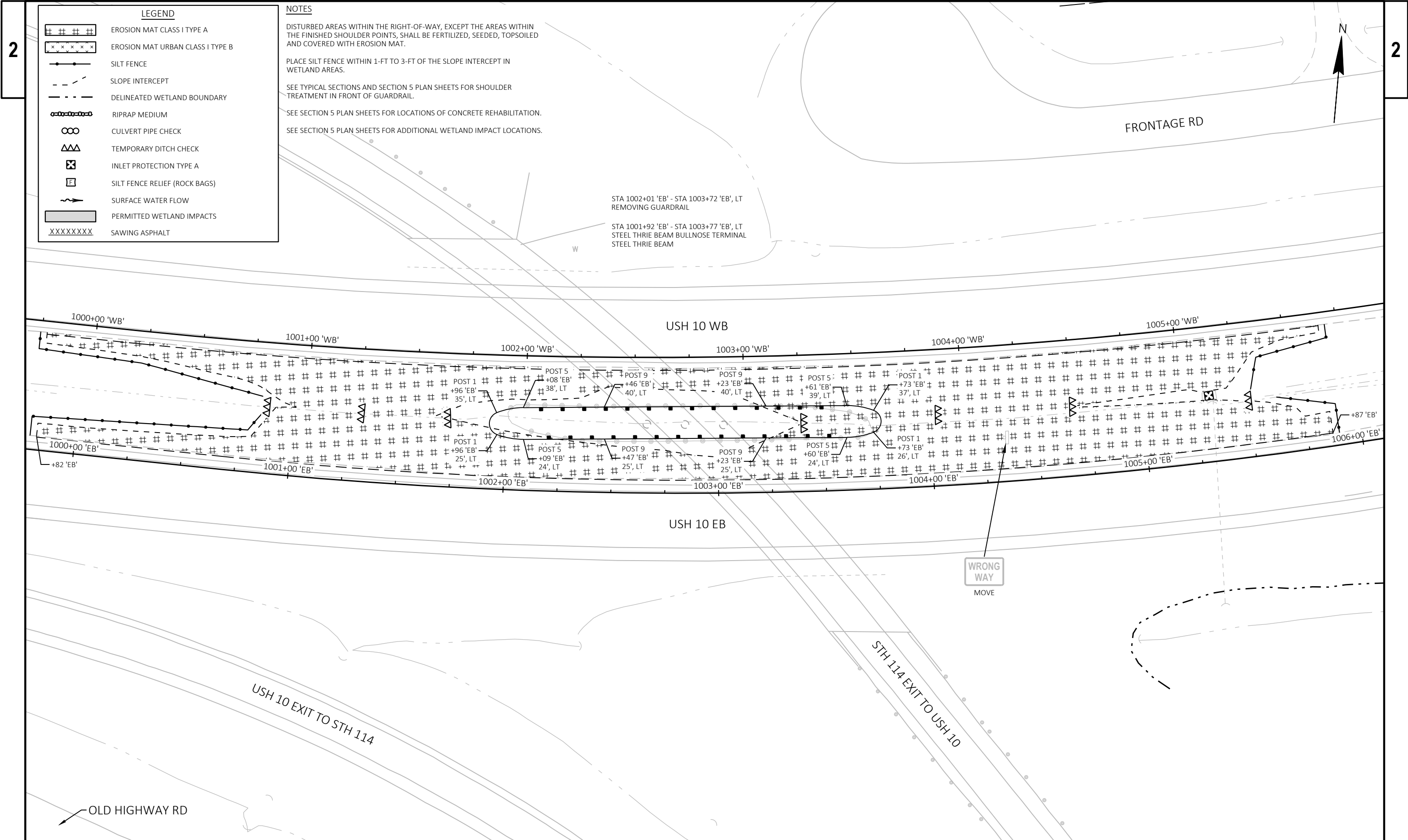
SEE TYPICAL SECTIONS AND SECTION 5 PLAN SHEETS FOR SHOULDER TREATMENT IN FRONT OF GUARDRAIL.

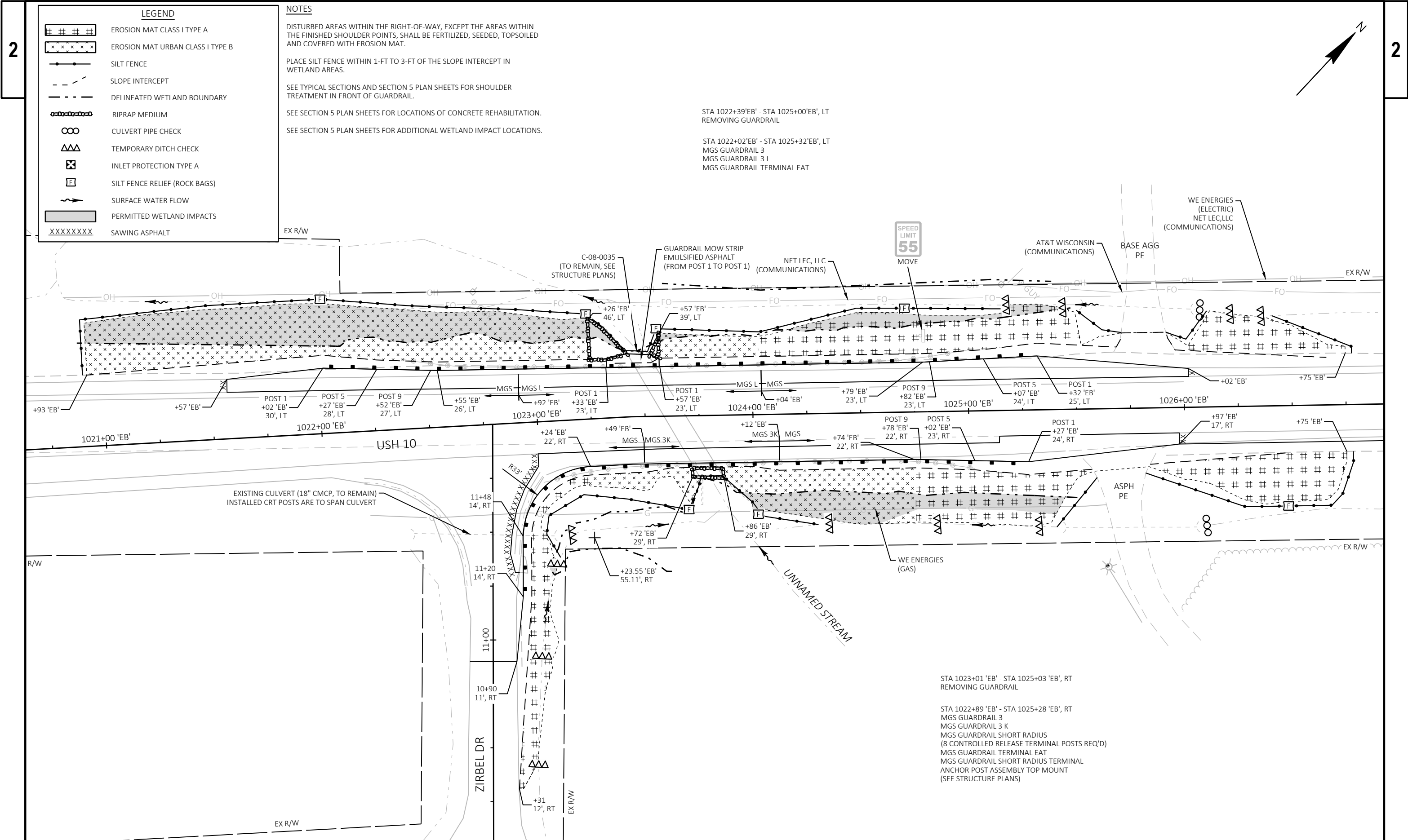
SEE SECTION 5 PLAN SHEETS FOR LOCATIONS OF CONCRETE REHABILITATION.

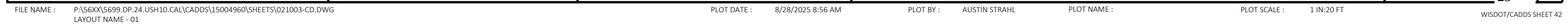
SEE SECTION 5 PLAN SHEETS FOR ADDITIONAL WETLAND IMPACT LOCATIONS.

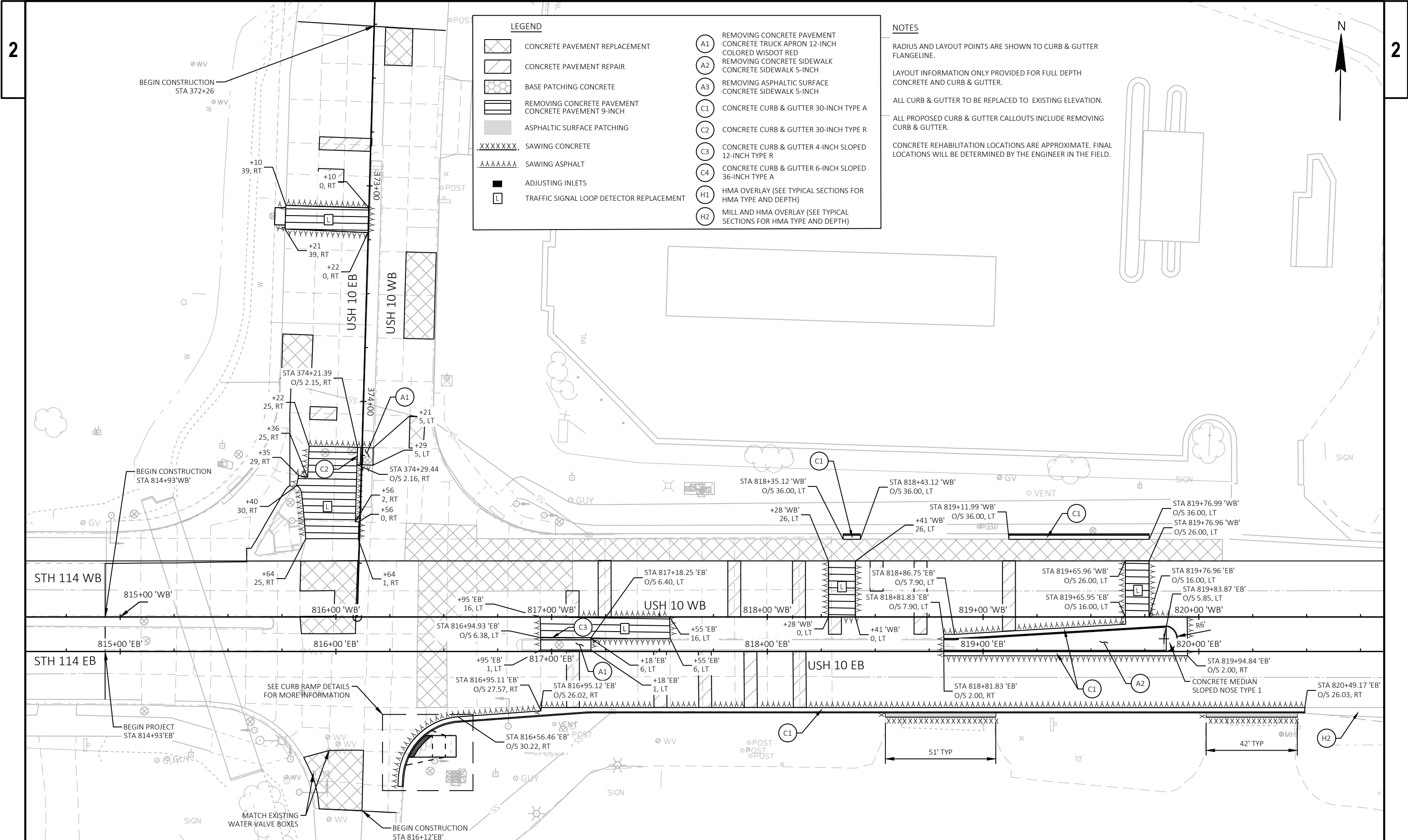












LEGEND

	CONCRETE PAVEMENT REPLACEMENT
	CONCRETE PAVEMENT REPAIR
	BASE PATCHING CONCRETE
	REMOVING CONCRETE PAVEMENT CONCRETE PAVEMENT 9-INCH
	ASPHALTIC SURFACE PATCHING
	SAWING CONCRETE
	SAWING ASPHALT
	ADJUSTING INLETS
	TRAFFIC SIGNAL LOOP DETECTOR REPLACEMENT

NOTES

RADIUS AND LAYOUT POINTS ARE SHOWN TO CURB & GUTTER FLANGELINE.

LAYOUT INFORMATION ONLY PROVIDED FOR FULL DEPTH CONCRETE AND CURB & GUTTER.

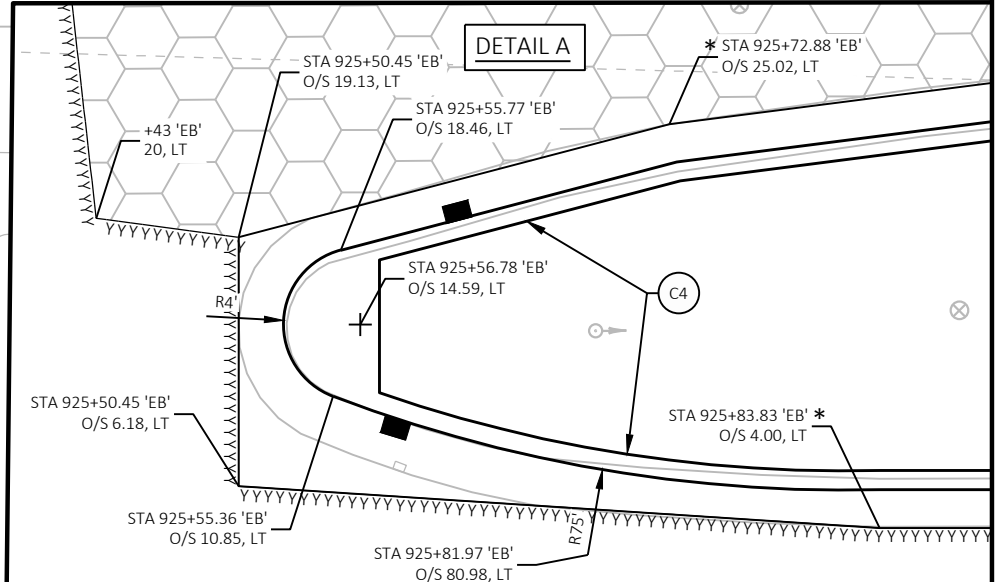
ALL CURB & GUTTER TO BE REPLACED TO EXISTING ELEVATION.

ALL PROPOSED CURB & GUTTER CALLOUTS INCLUDE REMOVING CURB & GUTTER.

CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

Legend Details:

A1	REMOVING CONCRETE PAVEMENT CONCRETE TRUCK APRON 12-INCH COLORED WISDOT RED
A2	REMOVING CONCRETE SIDEWALK CONCRETE SIDEWALK 5-INCH
A3	REMOVING ASPHALTIC SURFACE CONCRETE SIDEWALK 5-INCH
C1	CONCRETE CURB & GUTTER 30-INCH TYPE A
C2	CONCRETE CURB & GUTTER 30-INCH TYPE R
C3	CONCRETE CURB & GUTTER 4-INCH SLOPED 12-INCH TYPE R
C4	CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
H1	HMA OVERLAY (SEE TYPICAL SECTIONS FOR HMA TYPE AND DEPTH)
H2	MILL AND HMA OVERLAY (SEE TYPICAL SECTIONS FOR HMA TYPE AND DEPTH)



NOTES

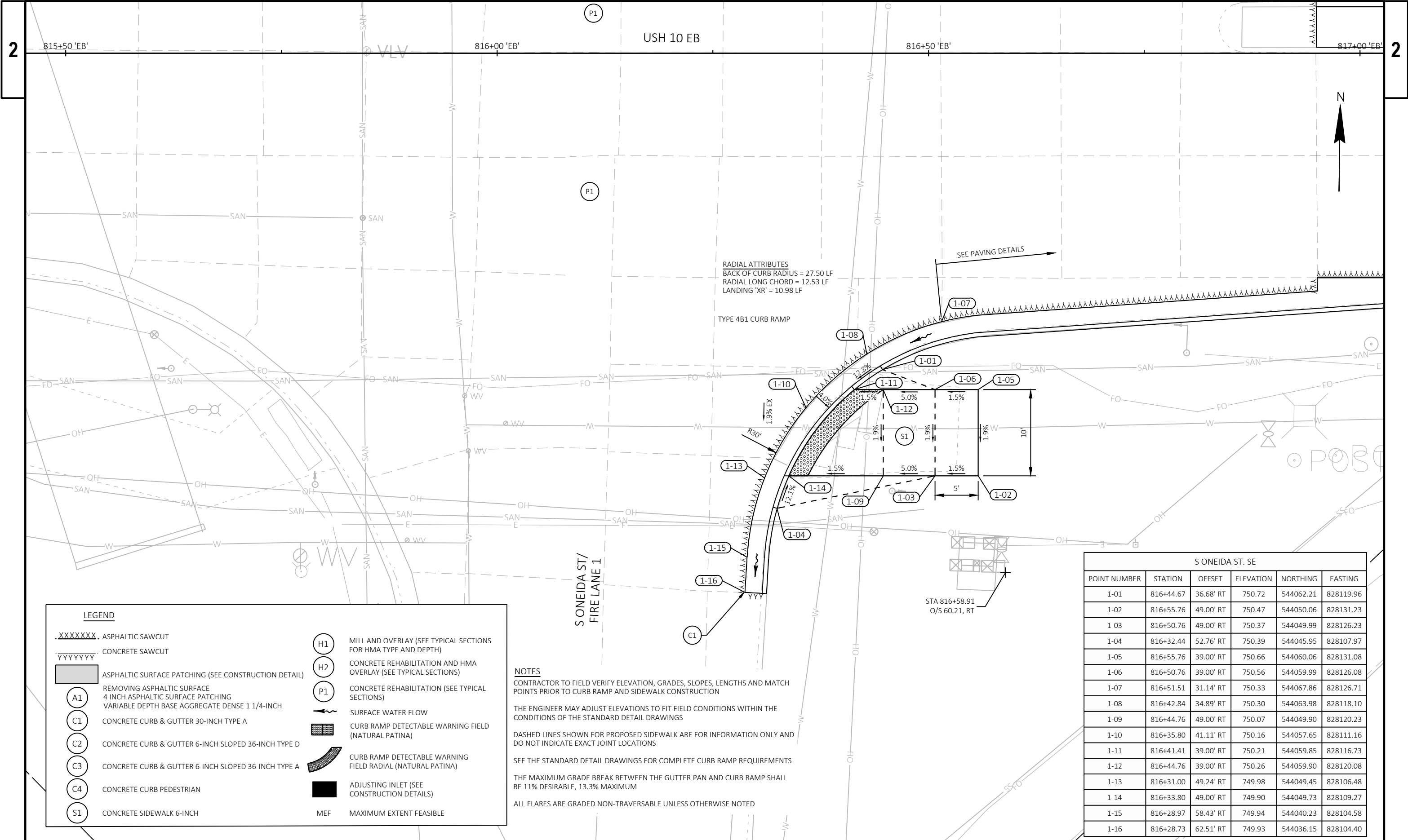
RADIUS AND LAYOUT POINTS ARE SHOWN TO CURB & GUTTER FLANGELINE.

LAYOUT INFORMATION ONLY PROVIDED FOR FULL DEPTH CONCRETE AND CURB & GUTTER.

* ALL CURB & GUTTER IN THE CTH LP MEDIAN ARE TO BE REPLACED TO 2 INCHES ABOVE EXISTING ELEVATION TO ACCOMMODATE HMA OVERLAY.

ALL PROPOSED CURB & GUTTER CALLOUTS INCLUDE REMOVING CURB & GUTTER.

CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.



LEGEND

XXXXXXX ASPHALTIC SAWCUT

YYYYYYY CONCRETE SAWCUT

ASPHALTIC SURFACE PATCHING (SEE CONSTRUCTION DETAIL)

REMOVING ASPHALTIC SURFACE

4 INCH ASPHALTIC SURFACE PATCHING

VARIABLE DEPTH BASE AGGREGATE DENSE 1 1/4-INCH

CONCRETE CURB & GUTTER 30-INCH TYPE A

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A

CONCRETE CURB PEDESTRIAN

CONCRETE SIDEWALK 6-INCH

MILL AND OVERLAY (SEE TYPICAL SECTIONS FOR HMA TYPE AND DEPTH)

CONCRETE REHABILITATION AND HMA OVERLAY (SEE TYPICAL SECTIONS)

CONCRETE REHABILITATION (SEE TYPICAL SECTIONS)

SURFACE WATER FLOW

CURB RAMP DETECTABLE WARNING FIELD (NATURAL PATINA)

CURB RAMP DETECTABLE WARNING FIELD RADIAL (NATURAL PATINA)

ADJUSTING INLET (SEE CONSTRUCTION DETAILS)

MEF MAXIMUM EXTENT FEASIBLE

NOTES

CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION

THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE CONDITIONS OF THE STANDARD DETAIL DRAWINGS

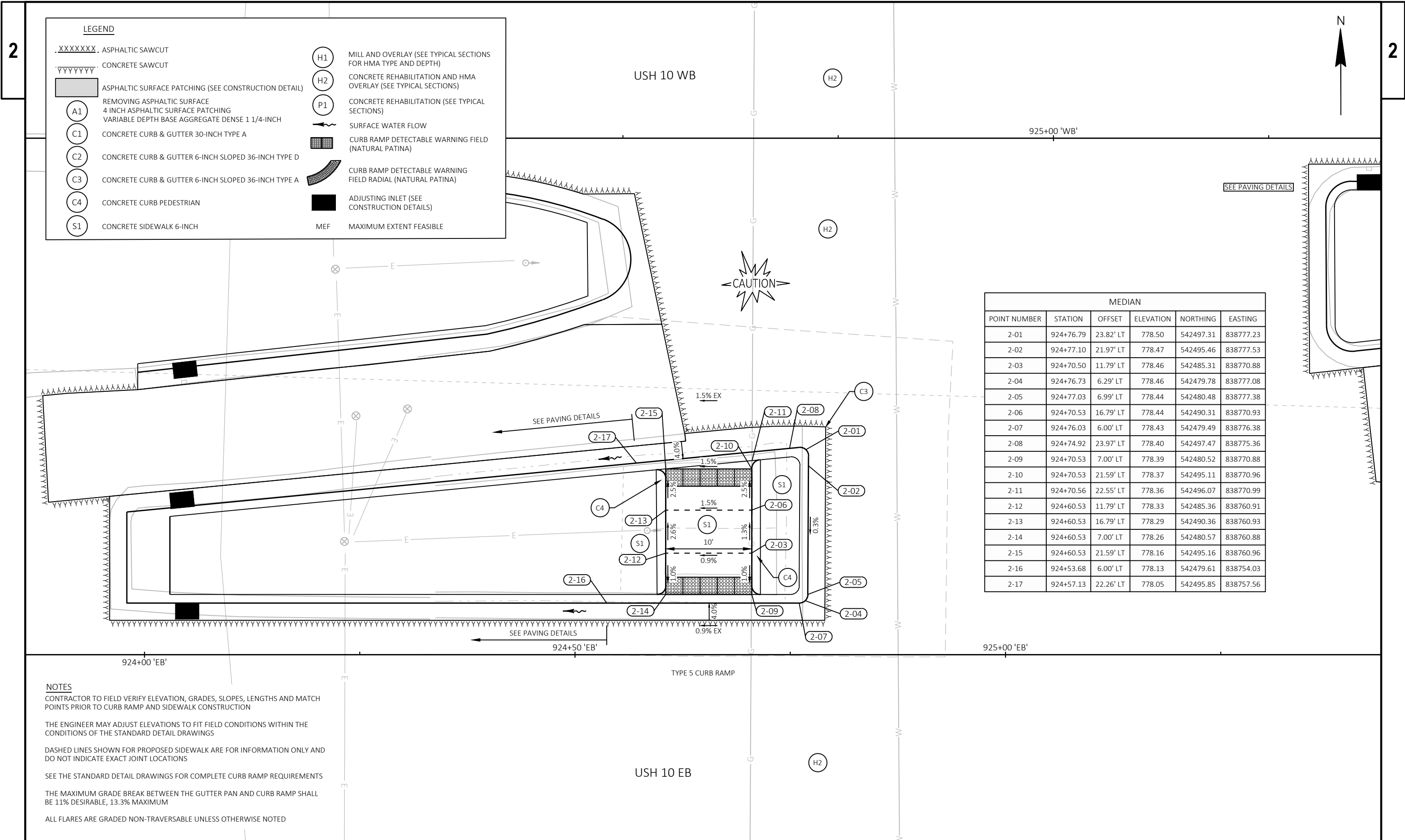
DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS

SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS

THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 11% DESIRABLE, 13.3% MAXIMUM

ALL FLARES ARE GRADED NON-TRAVERSABLE UNLESS OTHERWISE NOTED

S ONEIDA ST. SE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1-01	816+44.67	36.68' RT	750.72	544062.21	828119.96
1-02	816+55.76	49.00' RT	750.47	544050.06	828131.23
1-03	816+50.76	49.00' RT	750.37	544049.99	828126.23
1-04	816+32.44	52.76' RT	750.39	544045.95	828107.97
1-05	816+55.76	39.00' RT	750.66	544060.06	828131.08
1-06	816+50.76	39.00' RT	750.56	544059.99	828126.08
1-07	816+51.51	31.14' RT	750.33	544067.86	828126.71
1-08	816+42.84	34.89' RT	750.30	544063.98	828118.10
1-09	816+44.76	49.00' RT	750.07	544049.90	828120.23
1-10	816+35.80	41.11' RT	750.16	544057.65	828111.16
1-11	816+41.41	39.00' RT	750.21	544059.85	828116.73
1-12	816+44.76	39.00' RT	750.26	544059.90	828120.08
1-13	816+31.00	49.24' RT	749.98	544049.45	828106.48
1-14	816+33.80	49.00' RT	749.90	544049.73	828109.27
1-15	816+28.97	58.43' RT	749.94	544040.23	828104.58
1-16	816+28.73	62.51' RT	749.93	544036.15	828104.40



LEGEND

.XXXXXX.

ASPHALTIC SAWCUT

YYYYYY

CONCRETE SAWCUT

ASPHALTIC SURFACE PATCHING (SEE CONSTRUCTION DETAIL)

A1

REMOVING ASPHALTIC SURFACE

C1

4 INCH ASPHALTIC SURFACE PATCHING

C2

VARIABLE DEPTH BASE AGGREGATE DENSE 1 1/4-INCH

C3

CONCRETE CURB & GUTTER 30-INCH TYPE A

C2

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

C3

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A

C4

CONCRETE CURB PEDESTRIAN

S1

CONCRETE SIDEWALK 6-INCH

H1

MILL AND OVERLAY (SEE TYPICAL SECTIONS FOR HMA TYPE AND DEPTH)

H2

CONCRETE REHABILITATION AND HMA OVERLAY (SEE TYPICAL SECTIONS)

P1

CONCRETE REHABILITATION (SEE TYPICAL SECTIONS)

SURFACE WATER FLOW

CURB RAMP DETECTABLE WARNING FIELD (NATURAL PATINA)

CURB RAMP DETECTABLE WARNING FIELD RADIAL (NATURAL PATINA)

ADJUSTING INLET (SEE CONSTRUCTION DETAILS)

MEF

MAXIMUM EXTENT FEASIBLE

MEDIAN					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
2-01	924+76.79	23.82' LT	778.50	542497.31	838777.23
2-02	924+77.10	21.97' LT	778.47	542495.46	838777.53
2-03	924+70.50	11.79' LT	778.46	542485.31	838770.88
2-04	924+76.73	6.29' LT	778.46	542479.78	838777.08
2-05	924+77.03	6.99' LT	778.44	542480.48	838777.38
2-06	924+70.53	16.79' LT	778.44	542490.31	838770.93
2-07	924+76.03	6.00' LT	778.43	542479.49	838776.38
2-08	924+74.92	23.97' LT	778.40	542497.47	838775.36
2-09	924+70.53	7.00' LT	778.39	542480.52	838770.88
2-10	924+70.53	21.59' LT	778.37	542495.11	838770.96
2-11	924+70.56	22.55' LT	778.36	542496.07	838770.99
2-12	924+60.53	11.79' LT	778.33	542485.36	838760.91
2-13	924+60.53	16.79' LT	778.29	542490.36	838760.93
2-14	924+60.53	7.00' LT	778.26	542480.57	838760.88
2-15	924+60.53	21.59' LT	778.16	542495.16	838760.96
2-16	924+53.68	6.00' LT	778.13	542479.61	838754.03
2-17	924+57.13	22.26' LT	778.05	542495.85	838757.56

NOTES

CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION

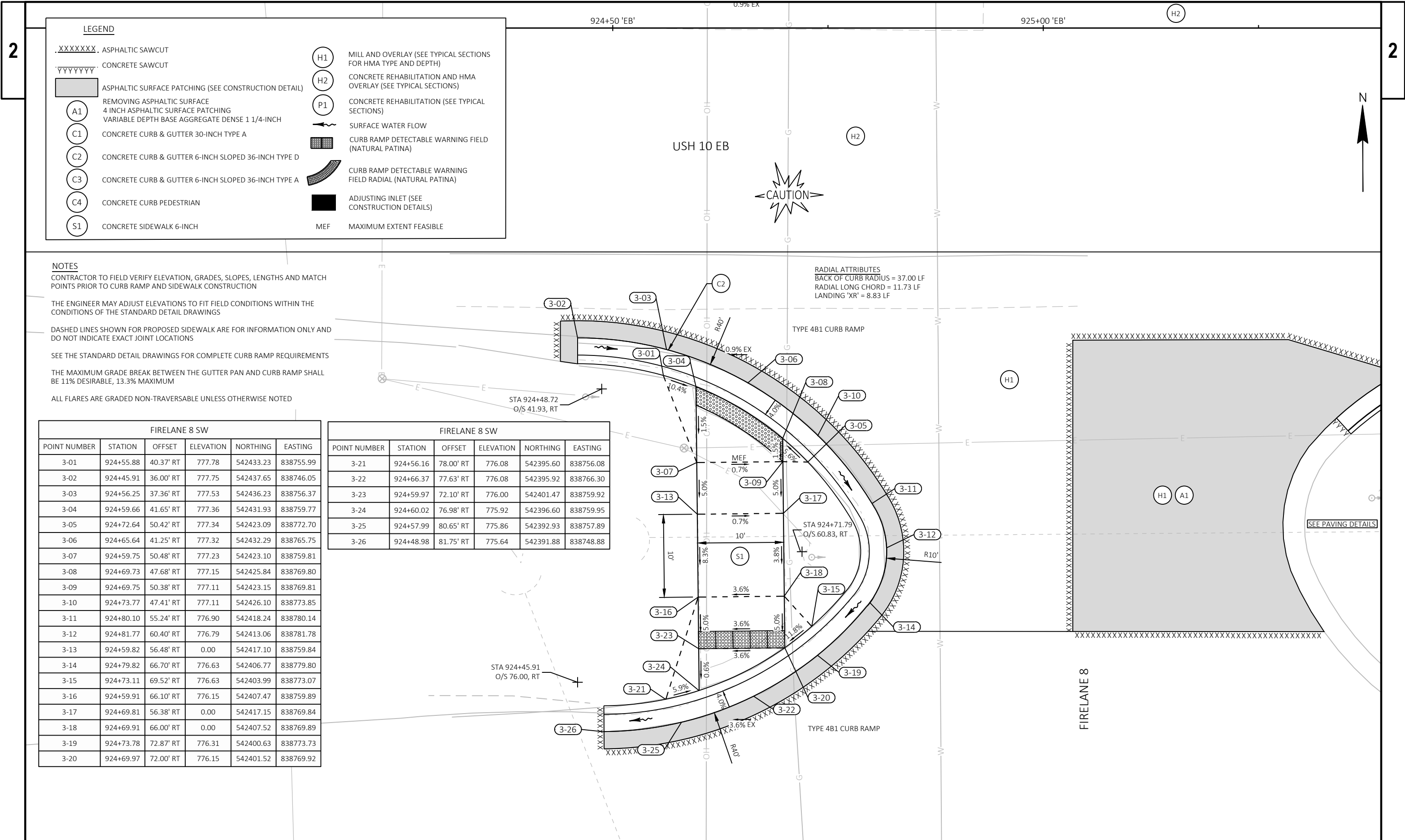
THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS WITHIN THE CONDITIONS OF THE STANDARD DETAIL DRAWINGS

DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS

SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS

THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 11% DESIRABLE, 13.3% MAXIMUM

ALL FLARES ARE GRADED NON-TRAVERSABLE UNLESS OTHERWISE NOTED



LEGEND

.XXXXXXX

ASPHALTIC SAWCUT

YYYYYYY

CONCRETE SAWCUT

ASPHALTIC SURFACE PATCHING (SEE CONSTRUCTION DETAIL)

A1

REMOVING ASPHALTIC SURFACE

C1

4 INCH ASPHALTIC SURFACE PATCHING

C2

VARIABLE DEPTH BASE AGGREGATE DENSE 1 1/4-INCH

C3

CONCRETE CURB & GUTTER 30-INCH TYPE A

C4

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D

C5

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A

C6

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A

C7

CONCRETE CURB PEDESTRIAN

S1

CONCRETE SIDEWALK 6-INCH

H1

MILL AND OVERLAY (SEE TYPICAL SECTIONS FOR HMA TYPE AND DEPTH)

H2

CONCRETE REHABILITATION AND HMA OVERLAY (SEE TYPICAL SECTIONS)

P1

CONCRETE REHABILITATION (SEE TYPICAL SECTIONS)

SURFACE WATER FLOW

CURB RAMP DETECTABLE WARNING FIELD (NATURAL PATINA)

CURB RAMP DETECTABLE WARNING FIELD RADIAL (NATURAL PATINA)

ADJUSTING INLET (SEE CONSTRUCTION DETAILS)

MEF

MAXIMUM EXTENT FEASIBLE

NOTES

CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION

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DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE EXACT JOINT LOCATIONS

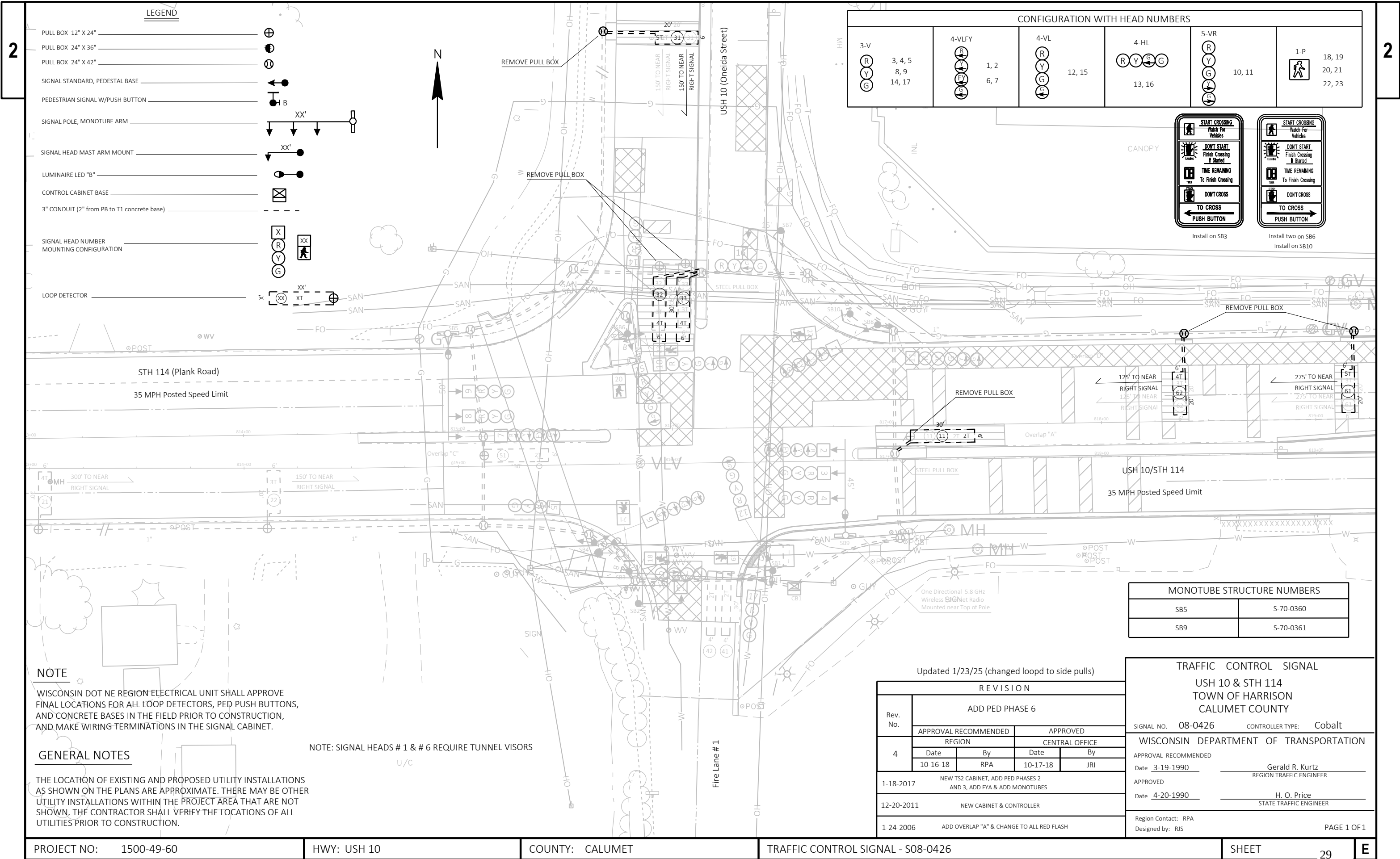
SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS

THE MAXIMUM GRADE BREAK BETWEEN THE GUTTER PAN AND CURB RAMP SHALL BE 11% DESIRABLE, 13.3% MAXIMUM

ALL FLARES ARE GRADED NON-TRAVERSABLE UNLESS OTHERWISE NOTED

FIRELANE 8 SW					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
3-01	924+55.88	40.37' RT	777.78	542433.23	838755.99
3-02	924+45.91	36.00' RT	777.75	542437.65	838746.05
3-03	924+56.25	37.36' RT	777.53	542436.23	838756.37
3-04	924+59.66	41.65' RT	777.36	542431.93	838759.77
3-05	924+72.64	50.42' RT	777.34	542423.09	838772.70
3-06	924+65.64	41.25' RT	777.32	542432.29	838765.75
3-07	924+59.75	50.48' RT	777.23	542423.10	838759.81
3-08	924+69.73	47.68' RT	777.15	542425.84	838769.80
3-09	924+69.75	50.38' RT	777.11	542423.15	838769.81
3-10	924+73.77	47.41' RT	777.11	542426.10	838773.85
3-11	924+80.10	55.24' RT	776.90	542418.24	838780.14
3-12	924+81.77	60.40' RT	776.79	542413.06	838781.78
3-13	924+59.82	56.48' RT	0.00	542417.10	838759.84
3-14	924+79.82	66.70' RT	776.63	542406.77	838779.80
3-15	924+73.11	69.52' RT	776.63	542403.99	838773.07
3-16	924+59.91	66.10' RT	776.15	542407.47	838759.89
3-17	924+69.81	56.38' RT	0.00	542417.15	838769.84
3-18	924+69.91	66.00' RT	0.00	542407.52	838769.89
3-19	924+73.78	72.87' RT	776.31	542400.63	838773.73
3-20	924+69.97	72.00' RT	776.15	542401.52	838769.92

FIRELANE 8 SW					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
3-21	924+56.16	78.00' RT	776.08	542395.60	838756.08
3-22	924+66.37	77.63' RT	776.08	542395.92	838766.30
3-23	924+59.97	72.10' RT	776.00	542401.47	838759.92
3-24	924+60.02	76.98' RT	775.92	542396.60	838759.95
3-25	924+57.99	80.65' RT	775.86	542392.93	838757.89
3-26	924+48.98	81.75' RT	775.64	542391.88	838748.88

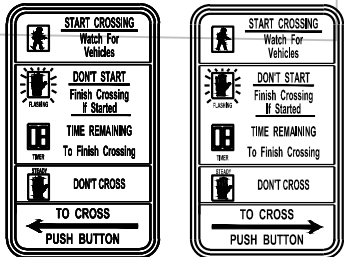


LEGEND

- PULL BOX 12" X 24"
- PULL BOX 24" X 36"
- PULL BOX 24" X 42"
- SIGNAL STANDARD, PEDESTAL BASE
- PEDESTRIAN SIGNAL W/PUSH BUTTON
- SIGNAL POLE, MONOTUBE ARM
- SIGNAL HEAD MAST-ARM MOUNT
- LUMINAIRE LED "B"
- CONTROL CABINET BASE
- 3" CONDUIT (2" from PB to T1 concrete base)
- SIGNAL HEAD NUMBER MOUNTING CONFIGURATION
- LOOP DETECTOR

CONFIGURATION WITH HEAD NUMBERS

3-V R Y G 3, 4, 5 8, 9 14, 17	4-VLFY R Y G 1, 2 6, 7	4-VL R Y G 12, 15	4-HL R Y G 13, 16	5-VR R Y G 10, 11	1-P 18, 19 20, 21 22, 23



Install on SB3

Install two on SB6
Install on SB10

NOTE

WISCONSIN DOT NE REGION ELECTRICAL UNIT SHALL APPROVE FINAL LOCATIONS FOR ALL LOOP DETECTORS, PED PUSH BUTTONS, AND CONCRETE BASES IN THE FIELD PRIOR TO CONSTRUCTION, AND MAKE WIRING TERMINATIONS IN THE SIGNAL CABINET.

GENERAL NOTES

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

NOTE: SIGNAL HEADS # 1 & # 6 REQUIRE TUNNEL VISORS

Updated 1/23/25 (changed loop to side pulls)

REVISION				
Rev. No.	ADD PED PHASE 6			
	APPROVAL RECOMMENDED		APPROVED	
4	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	10-16-18	RPA	10-17-18	JRI
1-18-2017	NEW TS2 CABINET, ADD PED PHASES 2 AND 3, ADD FYA & ADD MONOTUBES			
12-20-2011	NEW CABINET & CONTROLLER			
1-24-2006	ADD OVERLAP "A" & CHANGE TO ALL RED FLASH			

TRAFFIC CONTROL SIGNAL

USH 10 & STH 114
TOWN OF HARRISON
CALUMET COUNTY

SIGNAL NO. 08-0426 CONTROLLER TYPE: Cobalt

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 3-19-1990
Gerald R. Kurtz
REGION TRAFFIC ENGINEER

APPROVED
Date 4-20-1990
H. O. Price
STATE TRAFFIC ENGINEER

Region Contact: RPA
Designed by: RJS
PAGE 1 OF 1

PROJECT NO: 1500-49-60

HWY: USH 10

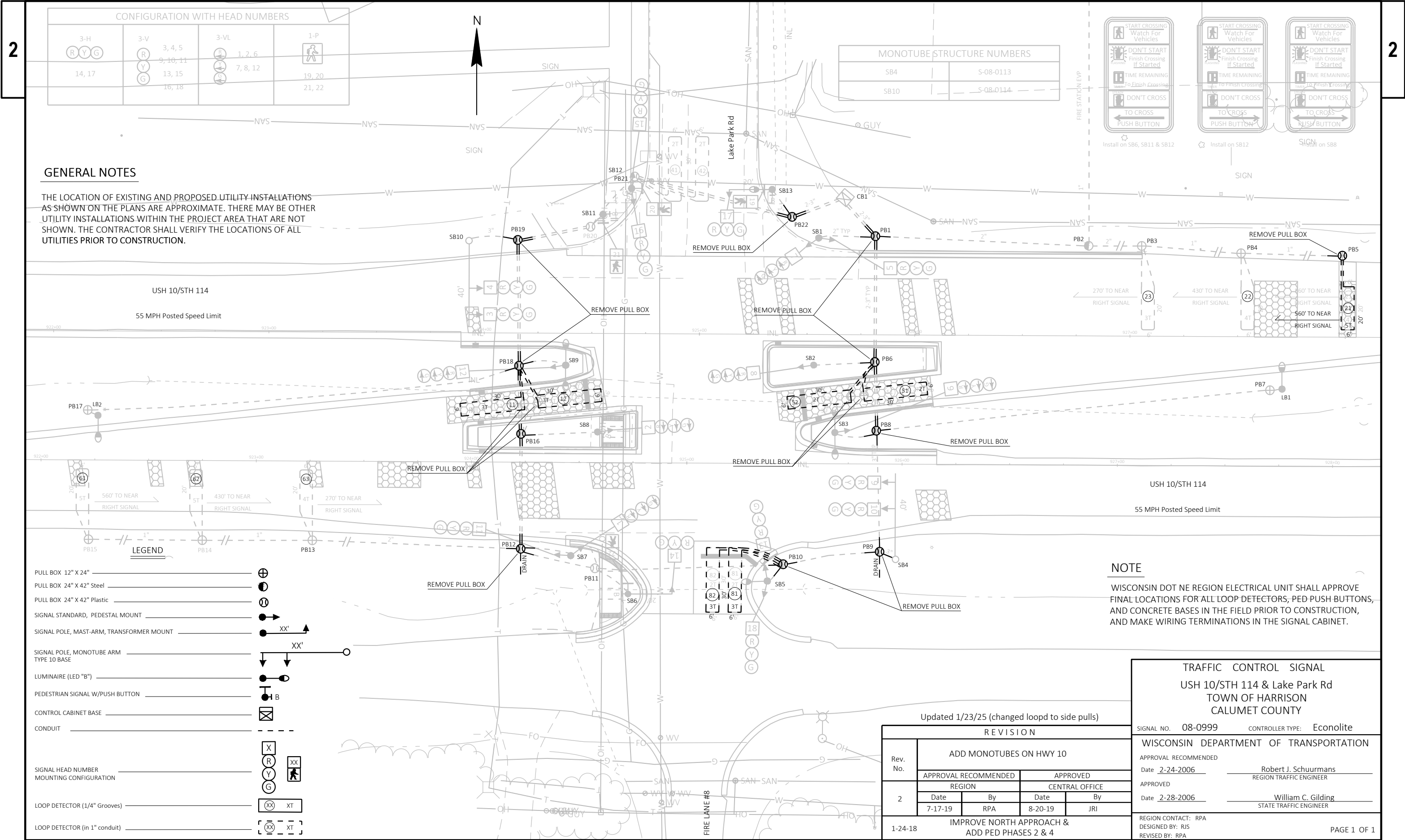
COUNTY: CALUMET

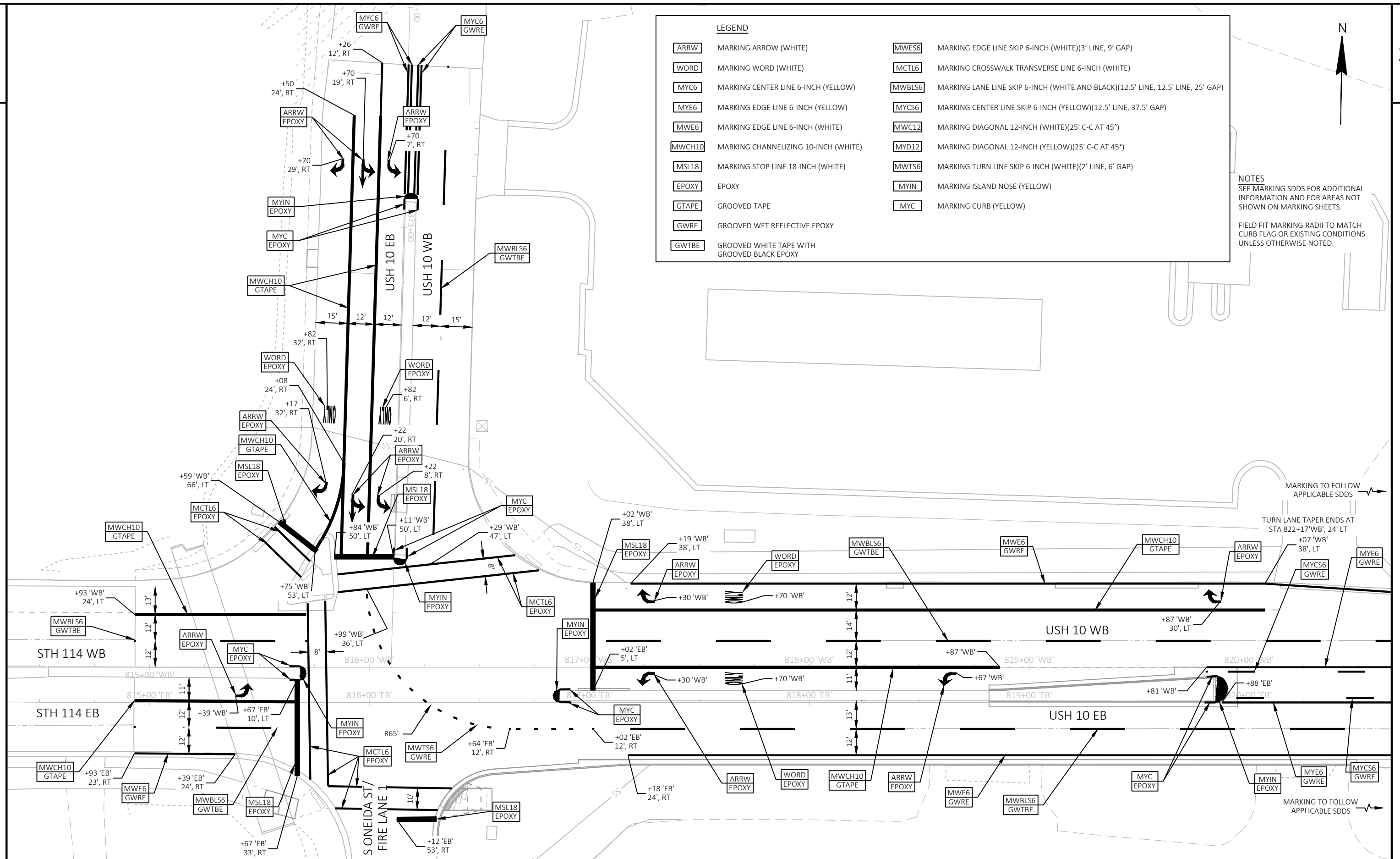
TRAFFIC CONTROL SIGNAL - S08-0426

SHEET

29

E



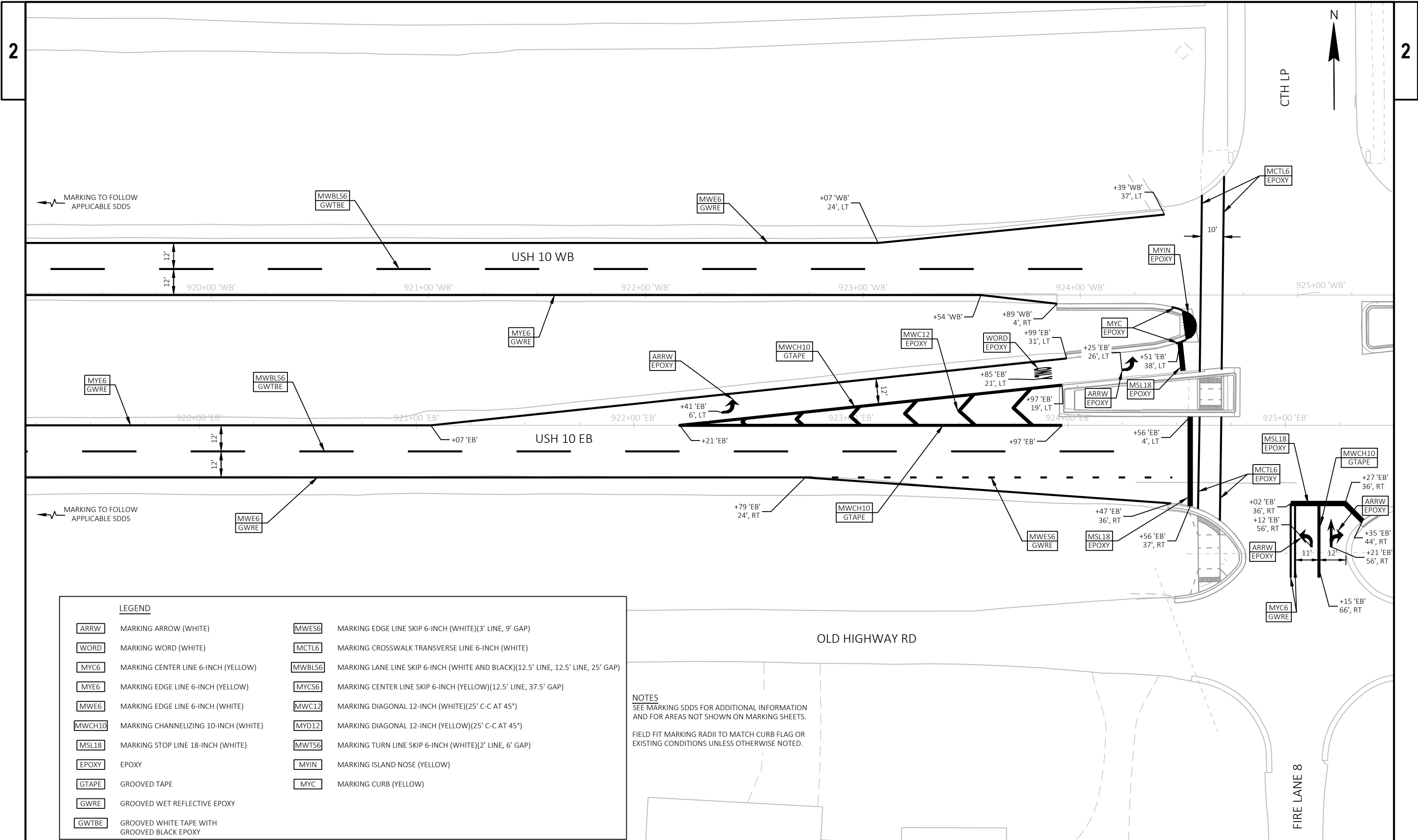


LEGEND

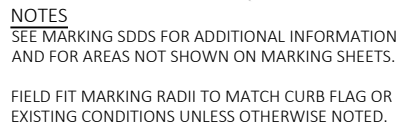
ARRW	MARKING ARROW (WHITE)	MWES6	MARKING EDGE LINE SKIP 6-INCH (WHITE)(3' LINE, 9' GAP)
WORD	MARKING WORD (WHITE)	MCTL6	MARKING CROSSWALK TRANSVERSE LINE 6-INCH (WHITE)
MYC6	MARKING CENTER LINE 6-INCH (YELLOW)	MWBL6	MARKING LANE LINE SKIP 6-INCH (WHITE AND BLACK)(12.5' LINE, 12.5' LINE, 25' GAP)
MYE6	MARKING EDGE LINE 6-INCH (YELLOW)	MYCS6	MARKING CENTER LINE SKIP 6-INCH (YELLOW)(12.5' LINE, 37.5' GAP)
MWE6	MARKING EDGE LINE 6-INCH (WHITE)	MWC12	MARKING DIAGONAL 12-INCH (WHITE)(25' C-C AT 45°)
MWCH10	MARKING CHANNELIZING 10-INCH (WHITE)	MYD12	MARKING DIAGONAL 12-INCH (YELLOW)(25' C-C AT 45°)
MSL18	MARKING STOP LINE 18-INCH (WHITE)	MWTS6	MARKING TURN LINE SKIP 6-INCH (WHITE)(2' LINE, 6' GAP)
EPOXY	EPOXY	MYIN	MARKING ISLAND NOSE (YELLOW)
GTAPE	GROOVED TAPE	MYC	MARKING CURB (YELLOW)
GWRE	GROOVED WET REFLECTIVE EPOXY		
GWTBE	GROOVED WHITE TAPE WITH GROOVED BLACK EPOXY		

NOTES
SEE MARKING SDDS FOR ADDITIONAL
INFORMATION AND FOR AREAS NOT
SHOWN ON MARKING SHEETS.

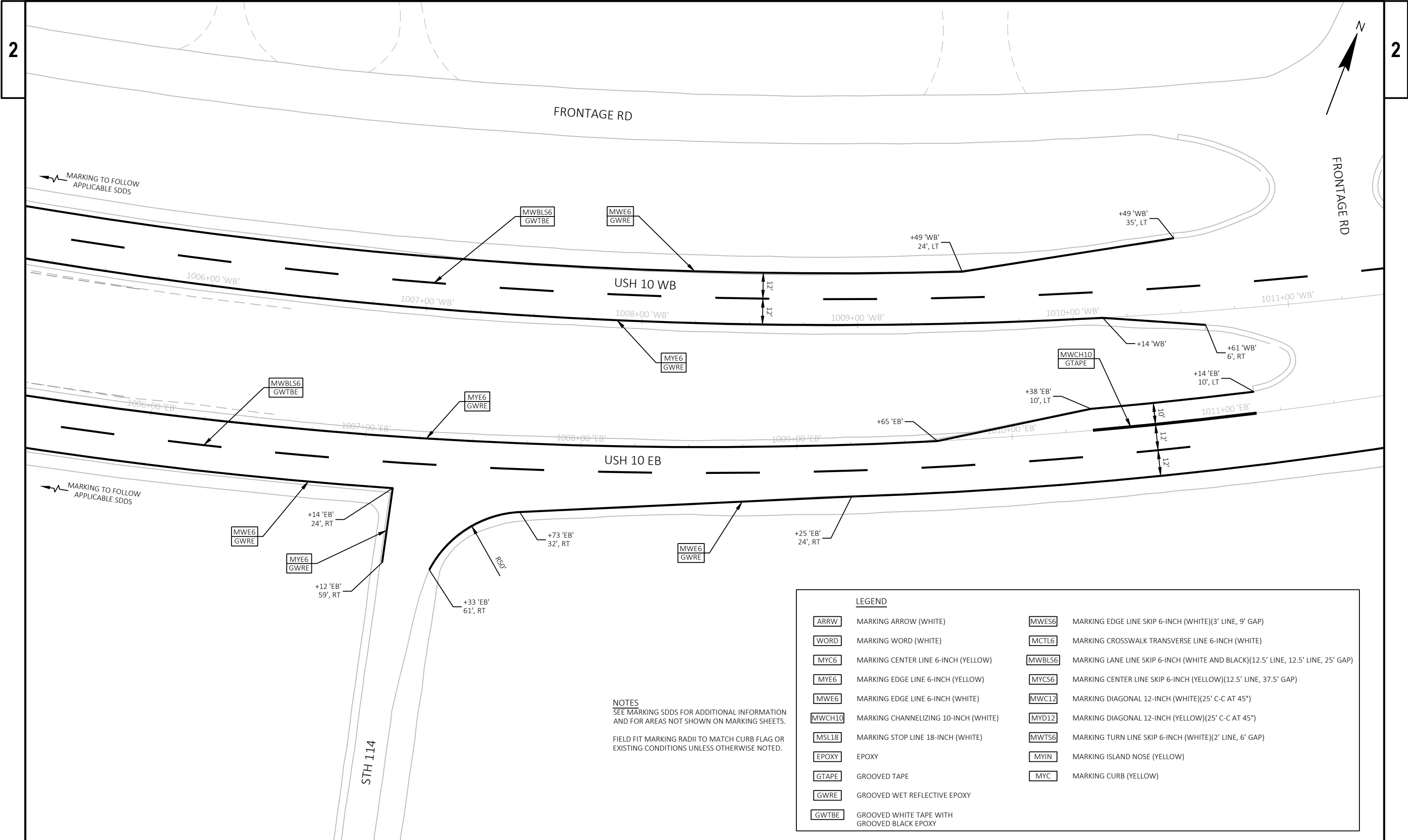
FIELD FIT MARKING RADII TO MATCH
CURB FLAG OR EXISTING CONDITIONS
UNLESS OTHERWISE NOTED.



FIRE LANE 8



LEGEND			
ARRW	MARKING ARROW (WHITE)	MWES6	MARKING EDGE LINE SKIP 6-INCH (WHITE)(3' LINE, 9' GAP)
WORD	MARKING WORD (WHITE)	MCTL6	MARKING CROSSWALK TRANSVERSE LINE 6-INCH (WHITE)
MYC6	MARKING CENTER LINE 6-INCH (YELLOW)	MWBSL6	MARKING LANE LINE SKIP 6-INCH (WHITE AND BLACK)(12.5' LINE, 12.5' LINE, 25' GAP)
MYE6	MARKING EDGE LINE 6-INCH (YELLOW)	MYCS6	MARKING CENTER LINE SKIP 6-INCH (YELLOW)(12.5' LINE, 37.5' GAP)
MWE6	MARKING EDGE LINE 6-INCH (WHITE)	MWC12	MARKING DIAGONAL 12-INCH (WHITE)(25' C-C AT 45°)
MWCH10	MARKING CHANNELIZING 10-INCH (WHITE)	MYD12	MARKING DIAGONAL 12-INCH (YELLOW)(25' C-C AT 45°)
MSL18	MARKING STOP LINE 18-INCH (WHITE)	MWTS6	MARKING TURN LINE SKIP 6-INCH (WHITE)(2' LINE, 6' GAP)
EPOXY	EPOXY	MYIN	MARKING ISLAND NOSE (YELLOW)
GTAPE	GROOVED TAPE	MYC	MARKING CURB (YELLOW)
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GWTBE	GROOVED WHITE TAPE WITH GROOVED BLACK EPOXY		



NOTES
SEE MARKING SDDS FOR ADDITIONAL INFORMATION
AND FOR AREAS NOT SHOWN ON MARKING SHEETS.

FIELD FIT MARKING RADII TO MATCH CURB FLAG OR
EXISTING CONDITIONS UNLESS OTHERWISE NOTED.

LEGEND			
ARRW	MARKING ARROW (WHITE)	MWES6	MARKING EDGE LINE SKIP 6-INCH (WHITE)(3' LINE, 9' GAP)
WORD	MARKING WORD (WHITE)	MCTL6	MARKING CROSSWALK TRANSVERSE LINE 6-INCH (WHITE)
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MYE6	MARKING EDGE LINE 6-INCH (YELLOW)	MYCS6	MARKING CENTER LINE SKIP 6-INCH (YELLOW)(12.5' LINE, 37.5' GAP)
MWE6	MARKING EDGE LINE 6-INCH (WHITE)	MWC12	MARKING DIAGONAL 12-INCH (WHITE)(25' C-C AT 45°)
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EPOXY	EPOXY	MYIN	MARKING ISLAND NOSE (YELLOW)
GTAPE	GROOVED TAPE	MYC	MARKING CURB (YELLOW)
GWRE	GROOVED WET REFLECTIVE EPOXY		
GWTBE	GROOVED WHITE TAPE WITH GROOVED BLACK EPOXY		



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MYC6	MARKING CENTER LINE 6-INCH (YELLOW)	MWBL56	MARKING LANE LINE SKIP 6-INCH (WHITE AND BLACK)(12.5' LINE, 12.5' LINE, 25' GAP)
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MWE6	MARKING EDGE LINE 6-INCH (WHITE)	MWC12	MARKING DIAGONAL 12-INCH (WHITE)(25' C-C AT 45°)
MWCH10	MARKING CHANNELIZING 10-INCH (WHITE)	MYD12	MARKING DIAGONAL 12-INCH (YELLOW)(25' C-C AT 45°)
MSL18	MARKING STOP LINE 18-INCH (WHITE)	MWTS6	MARKING TURN LINE SKIP 6-INCH (WHITE)(2' LINE, 6' GAP)
EPOXY	EPOXY	MYIN	MARKING ISLAND NOSE (YELLOW)
GTAPE	GROOVED TAPE	MYC	MARKING CURB (YELLOW)
GWRE	GROOVED WET REFLECTIVE EPOXY		
GWTBE	GROOVED WHITE TAPE WITH GROOVED BLACK EPOXY		

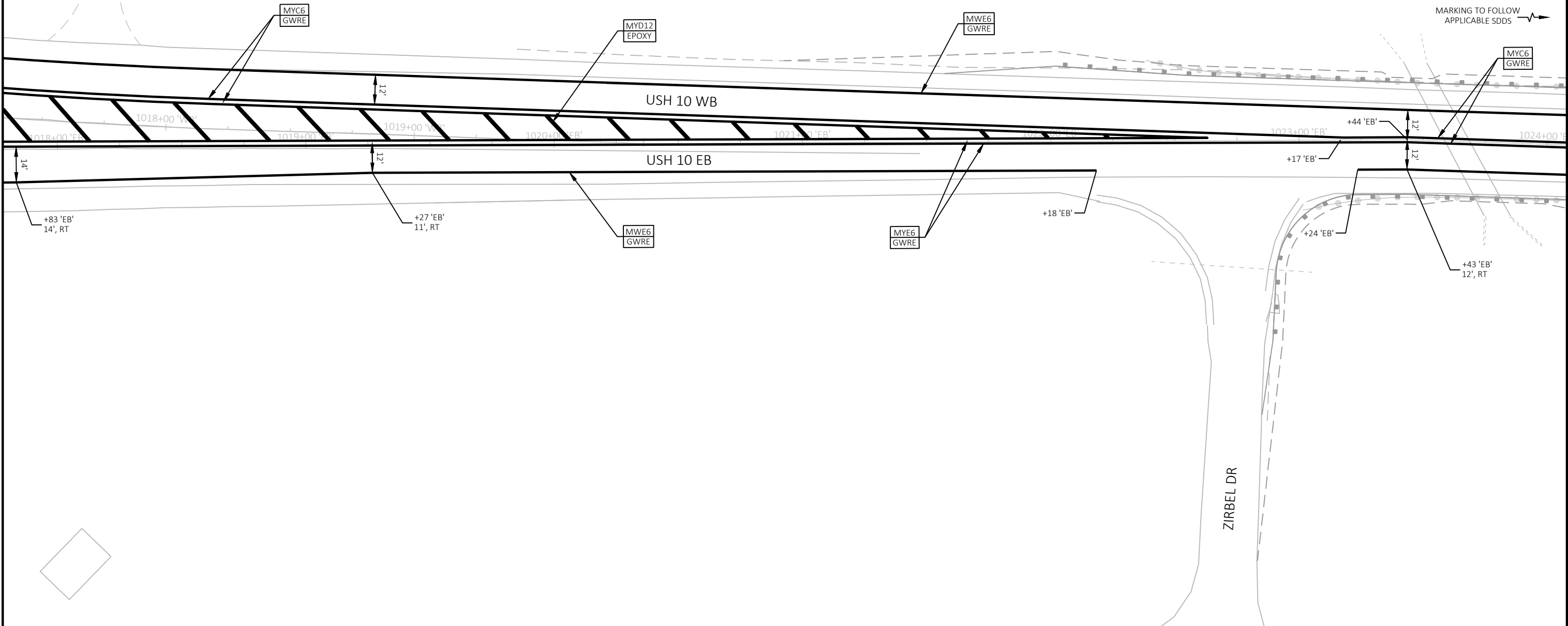
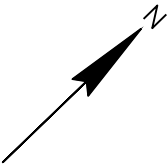
11

LEGEND

ARRW	MARKING ARROW (WHITE)	MWES6	MARKING EDGE LINE SKIP 6-INCH (WHITE)(3' LINE, 9' GAP)
WORD	MARKING WORD (WHITE)	MCTL6	MARKING CROSSWALK TRANSVERSE LINE 6-INCH (WHITE)
MYC6	MARKING CENTER LINE 6-INCH (YELLOW)	MWBLS6	MARKING LANE LINE SKIP 6-INCH (WHITE AND BLACK)(12.5' LINE, 12.5' LINE, 25' GAP)
MYE6	MARKING EDGE LINE 6-INCH (YELLOW)	MYCS6	MARKING CENTER LINE SKIP 6-INCH (YELLOW)(12.5' LINE, 37.5' GAP)
MWE6	MARKING EDGE LINE 6-INCH (WHITE)	MWC12	MARKING DIAGONAL 12-INCH (WHITE)(25' C-C AT 45°)
MWCH10	MARKING CHANNELIZING 10-INCH (WHITE)	MYD12	MARKING DIAGONAL 12-INCH (YELLOW)(25' C-C AT 45°)
MSL18	MARKING STOP LINE 18-INCH (WHITE)	MWTS6	MARKING TURN LINE SKIP 6-INCH (WHITE)(2' LINE, 6' GAP)
EPOXY	EPOXY	MYIN	MARKING ISLAND NOSE (YELLOW)
GTAPE	GROOVED TAPE	MYC	MARKING CURB (YELLOW)
GWRE	GROOVED WET REFLECTIVE EPOXY		
GWTBE	GROOVED WHITE TAPE WITH GROOVED BLACK EPOXY		

NOTES
SEE MARKING SDDS FOR ADDITIONAL INFORMATION
AND FOR AREAS NOT SHOWN ON MARKING SHEETS.

FIELD FIT MARKING RADII TO MATCH CURB FLAG OR
EXISTING CONDITIONS UNLESS OTHERWISE NOTED.

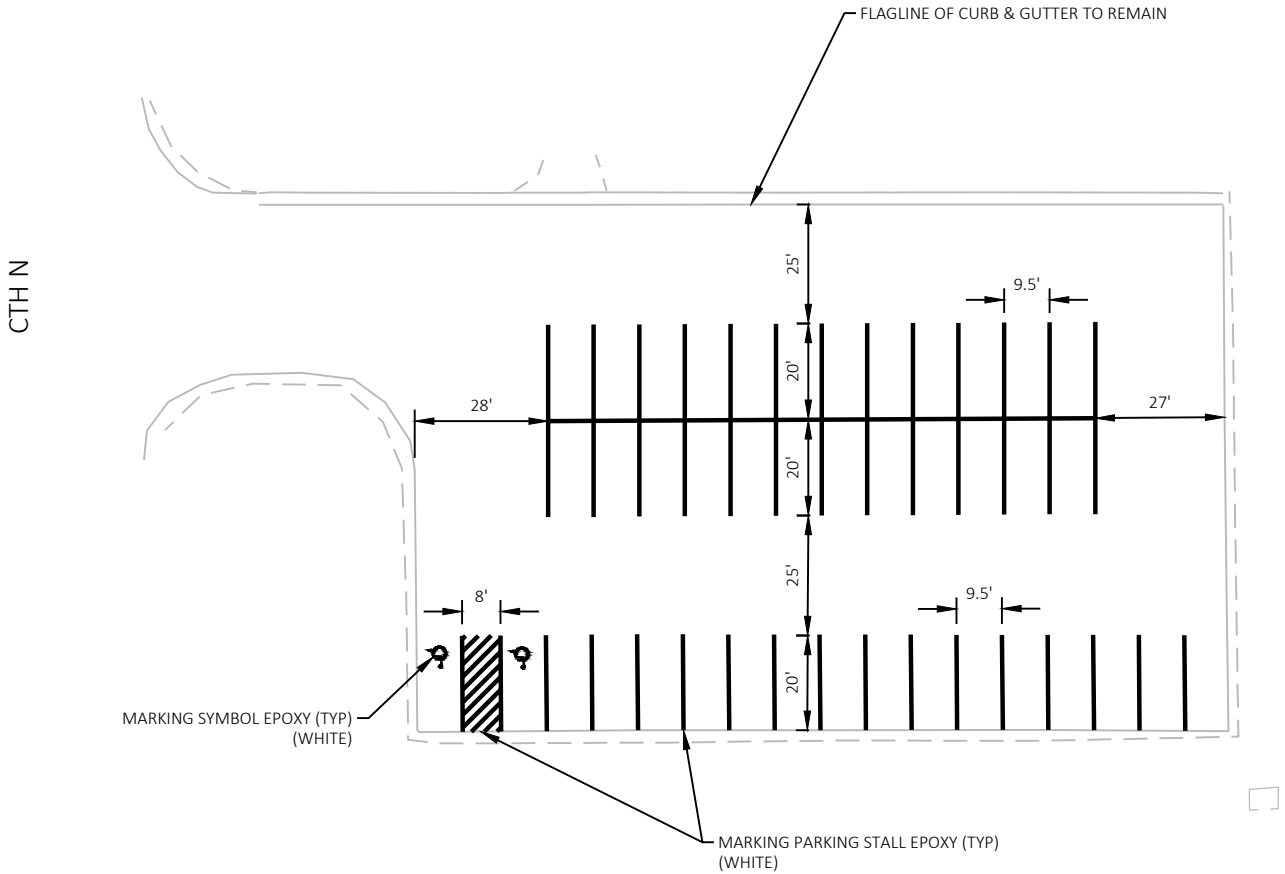


NOTES
CTH N PARK AND RIDE IS LOCATED NORTH OF THE USH 10/CTH N INTERSECTION. SEE PROJECT OVERVIEW FOR LOCATION.

SEE TRAFFIC CONTROL OVERVIEW FOR STAGING REQUIREMENTS.

SEE MARKING SDD'S FOR ADDITIONAL MARKING INFORMATION AND FOR AREAS NOT SHOWN ON MARKING SHEETS.

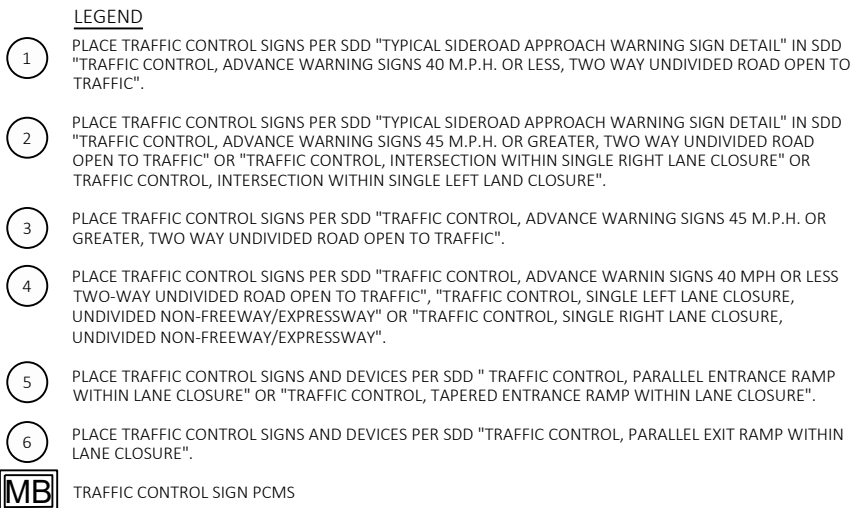
SEE SECTION 5 PLAN SHEETS FOR PROPOSED WORK AT THE PARK AND RIDE.



2

1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING LIGHTS) PER SDD'S.
4. FOR USH 10 SHOULDER CLOSURES SEE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H."
5. DELINEATE PRIVATE ACCESS WITH TRAFFIC CONTROL DRUMS, WHERE REQUIRED.
6. PLACE LOW SHOULDER AND UNEVEN LANES SIGNS DURING THE MILLING AND PAVING OPERATIONS. SEE SDD "TRAFFIC CONTROL, DROP-OFF SIGNING" FOR ADDITIONAL INFORMATION.
7. AFTER PLACEMENT OF TRAFFIC CONTROL DEVICES INCLUDING PCMS, VERIFY VISION CORNERS ARE NOT OBSTRUCTED
8. DO NOT PLACE ANY SIGNING OR TRAFFIC CONTROL DEVICES WITHIN 25' OF THE RAILROAD.

2. TYPICAL SECTION
3. ONEIDA STREET - STAGING (INCLUDES PEDESTRIAN STAGING)
4. DETAIL - CTH LP (INCLUDES PEDESTRIAN STAGING)
5. DETAIL - 4-LANE TO 2-LANE TRANSITION
6. WIDTH RESTRICTION
7. DETOUR

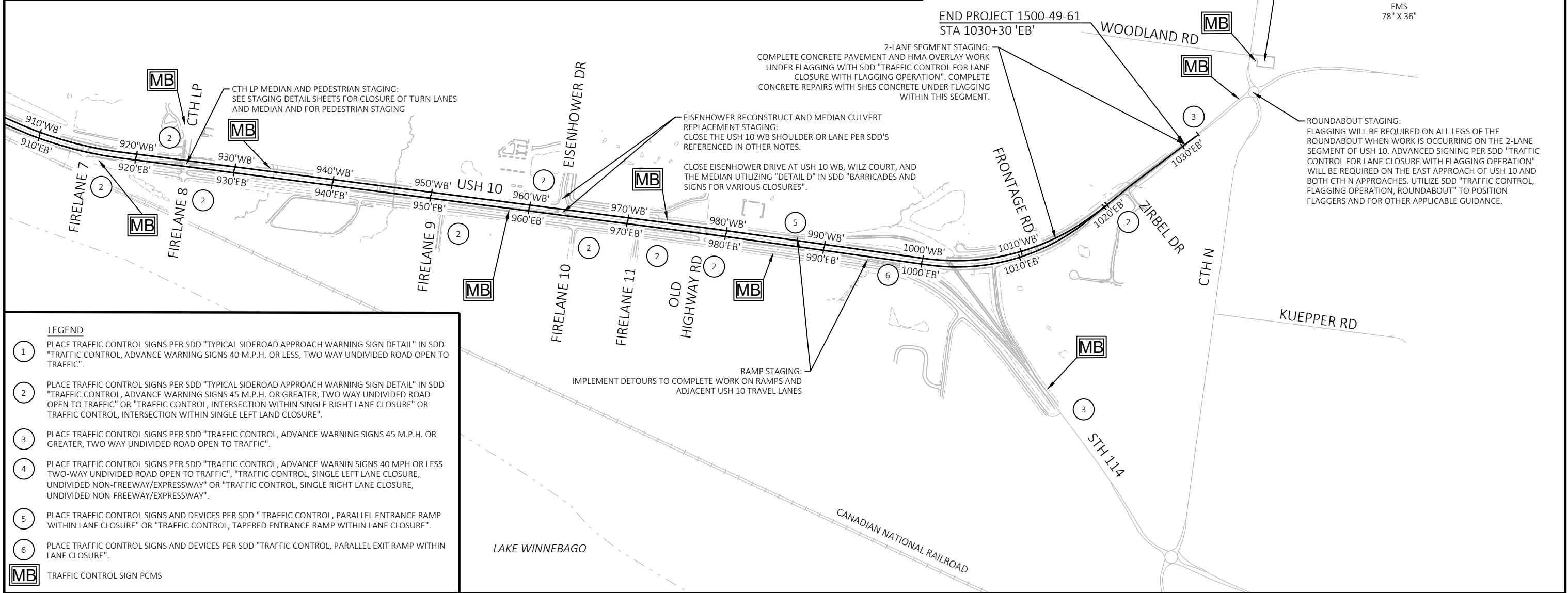


2

PROJECT NO: 1500-49-60/61	HWY: USH 10	COUNTY: CALUMET	TRAFFIC CONTROL OVERVIEW	SHEET 38	E

TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING LIGHTS) PER SDD'S.
4. FOR USH 10 SHOULDER CLOSURES SEE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.PH."
5. DELINEATE PRIVATE ACCESS WITH TRAFFIC CONTROL DRUMS, WHERE REQUIRED.
6. PLACE LOW SHOULDER AND UNEVEN LANES SIGNS DURING THE MILLING AND PAVING OPERATIONS. SEE SDD "TRAFFIC CONTROL, DROP-OFF SIGNING" FOR ADDITIONAL INFORMATION.
7. AFTER PLACEMENT OF TRAFFIC CONTROL DEVICES INCLUDING PCMS, VERIFY VISION CORNERS ARE NOT OBSTRUCTED
8. DO NOT PLACE ANY SIGNING OR TRAFFIC CONTROL DEVICES WITHIN 25' OF THE RAILROAD.





The diagram illustrates a two-lane road construction zone with the following dimensions and features:

- Overall Dimensions:** The total length of the construction zone is 16'. The total width of the road is 22'.
- Lane Shifts:** The lane shifts are indicated by a 12' shift on the left and a 12' shift on the right. The total shift is 24'.
- Travel Lane:** The travel lane is 12' wide.
- Work Zone:** The work zone is 16' wide.
- USH 10 WB R/L:** The work zone is marked with USH 10 WB R/L (Right/Left) and USH 10 EB R/L (Right/Left).
- Temporary Lane Line (White):** The temporary lane line is shown as a dashed line.
- Temporary Edge Line (Yellow):** The temporary edge line is shown as a solid line.
- Traffic Control Cones:** Traffic control cones are shown at the entrance and exit of the work zone.
- Existing Features:** Existing rumble strips and edge lines are shown as dashed lines.
- Dimensions:** The diagram includes various dimensions such as 8', 2', 12', 1', 6', 0.5', and 22'.

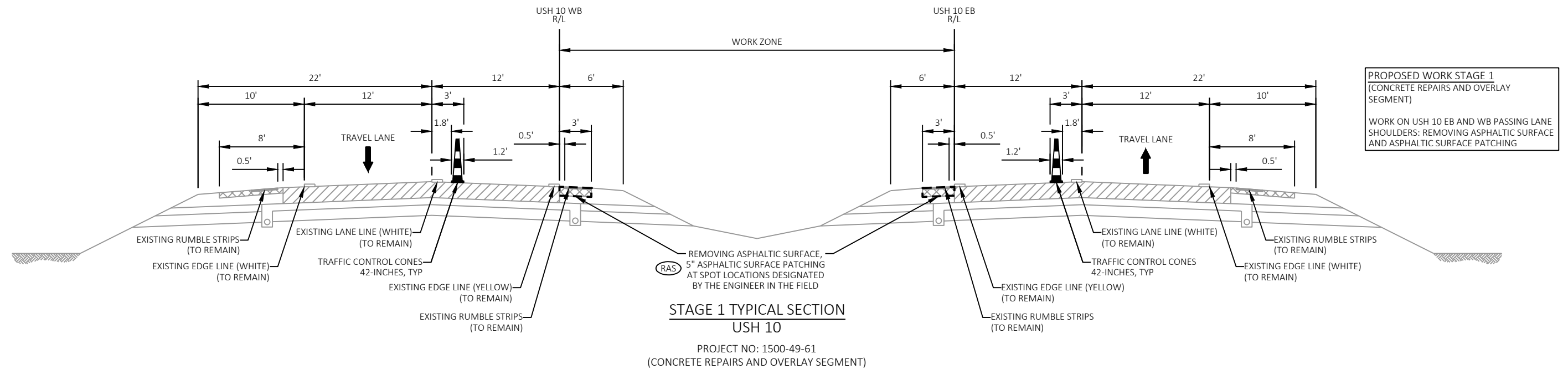
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E

LEGEND



TRAFFIC CONTROL CONES 42-INCH



NOTES

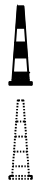
SEE TYPICAL SECTIONS FOR ADDITIONAL USH 10 CONFIGURATIONS.

MINIMIZE THE DURATION TRAFFIC IS SHIFTED ON THE ASPHALT SHOULDERS.

(RAS) PARTIAL REMOVAL OF EXISTING BASE AGGREGATE TO ACHIEVE 5" ASPHALTIC SURFACE PATCHING IS INCIDENTAL THE REMOVING ASPHALTIC SURFACE BID ITEM.

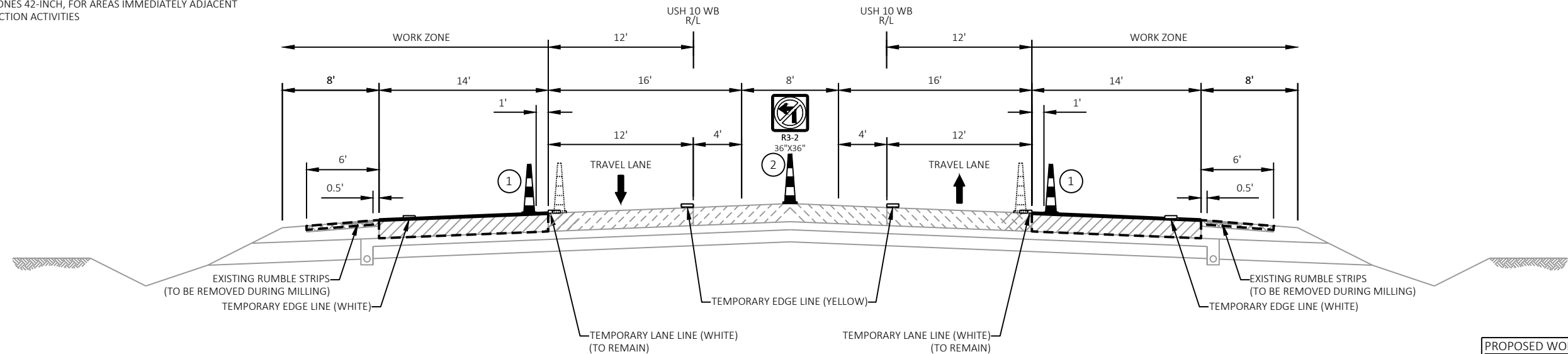
SEE MISCELLANEOUS QUANTITIES FOR TEMPORARY AND PERMANENT PAVEMENT MARKING TYPES AND SIZES.

LEGEND



TRAFFIC CONTROL CONES 42-INCH, IN AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS

TRAFFIC CONTROL CONES 42-INCH, FOR AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES



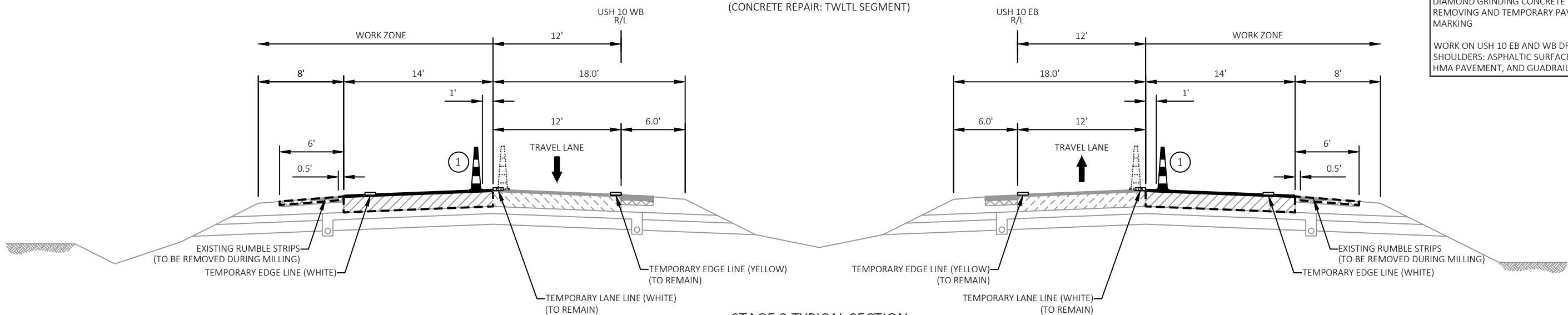
STAGE 2 TYPICAL SECTION
USH 10

PROJECT NO: 1500-49-60
(CONCRETE REPAIR: TWLTL SEGMENT)

PROPOSED WORK STAGE 2
(CONCRETE REPAIR SEGMENTS)

WORK ON USH 10 EB AND WB DRIVING LANE:
CONCRETE PAVEMENT REPAIR, CONCRETE
PAVEMENT REPLACEMENT, CONTINUOUS
DIAMOND GRINDING CONCRETE PAVEMENT,
REMOVING AND TEMPORARY PAVEMENT
MARKING

WORK ON USH 10 EB AND WB DRIVING LANE
SHOULDERS: ASPHALTIC SURFACE MILLING,
HMA PAVEMENT, AND GUADRAIL



STAGE 2 TYPICAL SECTION
USH 10

PROJECT NO: 1500-49-60
(CONCRETE REPAIR: DIVIDED SEGMENT)

NOTES

SEE TYPICAL SECTIONS FOR ADDITIONAL USH 10 CONFIGURATIONS.

- 1 CONE LOCATION SHOWN FOR AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS, CONES MAY BE SHIFTED PAST LANE LINE INTO THE TRAVEL LANE IN AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES.

MINIMIZE THE DURATION TRAFFIC IS SHIFTED ON TO THE ASPHALT SHOULDERS.

SEE MISCELLANEOUS QUANTITIES FOR TEMPORARY AND PERMANENT PAVEMENT MARKING TYPES AND SIZES.

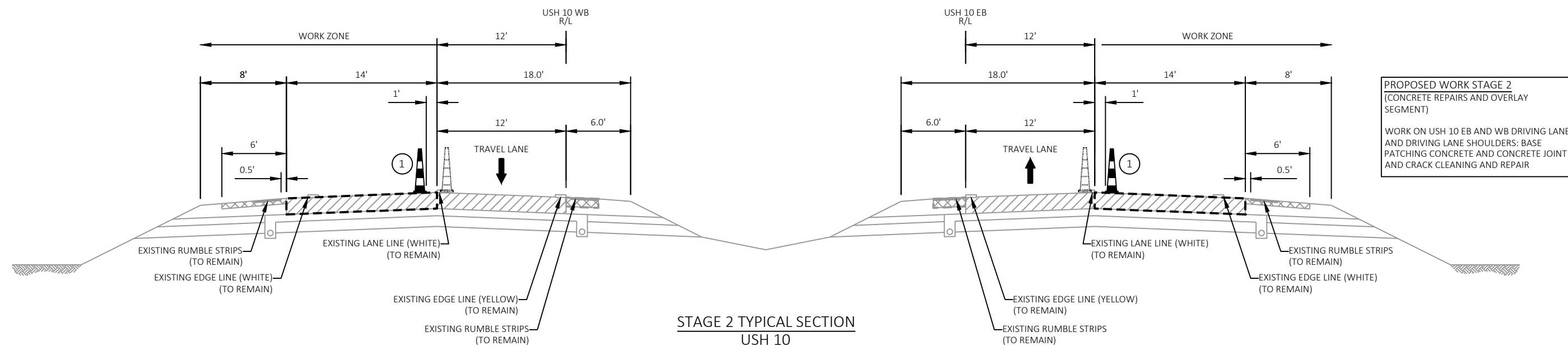
- 2 PLACE THE R3-2 SIGN AT THE BEGINNING AND END OF THE TWLTL AND EVERY 500 FEET WITHIN THE TWLTL FOR BOTH DIRECTIONS OF TRAVEL. PLACE CONES AT 25' SPACING WITHIN THE TWLTL.

LEGEND



TRAFFIC CONTROL CONES 42-INCH, IN AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS

TRAFFIC CONTROL CONES 42-INCH, FOR AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES



STAGE 2 TYPICAL SECTION
USH 10
PROJECT NO: 1500-49-61
(CONCRETE REPAIRS AND OVERLAY SEGMENT)

NOTES

SEE TYPICAL SECTIONS FOR ADDITIONAL USH 10 CONFIGURATIONS.

- ① CONE LOCATION SHOWN FOR AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS, CONES MAY BE SHIFTED PAST LANE LINE INTO THE TRAVEL LANE IN AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES.

MINIMIZE THE DURATION TRAFFIC IS SHIFTED ON THE ASPHALT SHOULDERS.

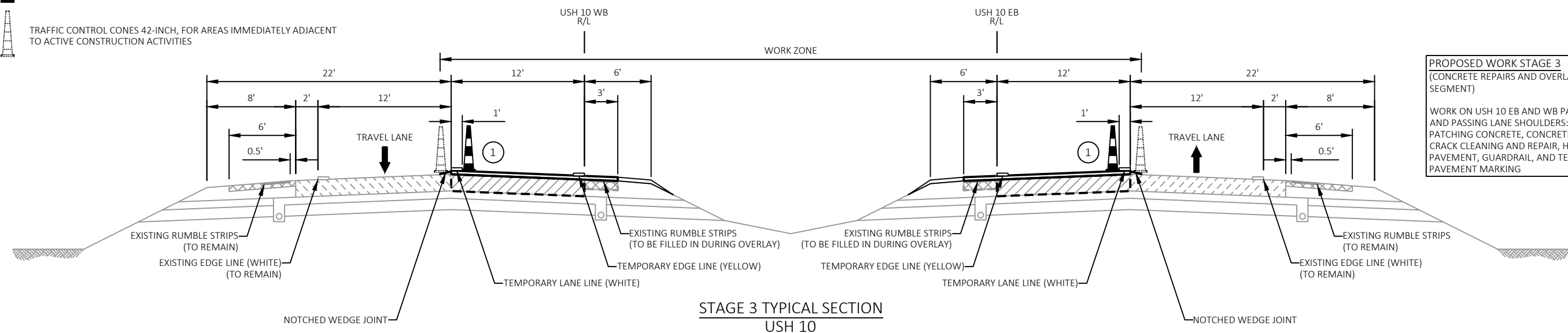
SEE MISCELLANEOUS QUANTITIES FOR TEMPORARY AND PERMANENT PAVEMENT MARKING TYPES AND SIZES.

LEGEND



TRAFFIC CONTROL CONES 42-INCH, IN AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS

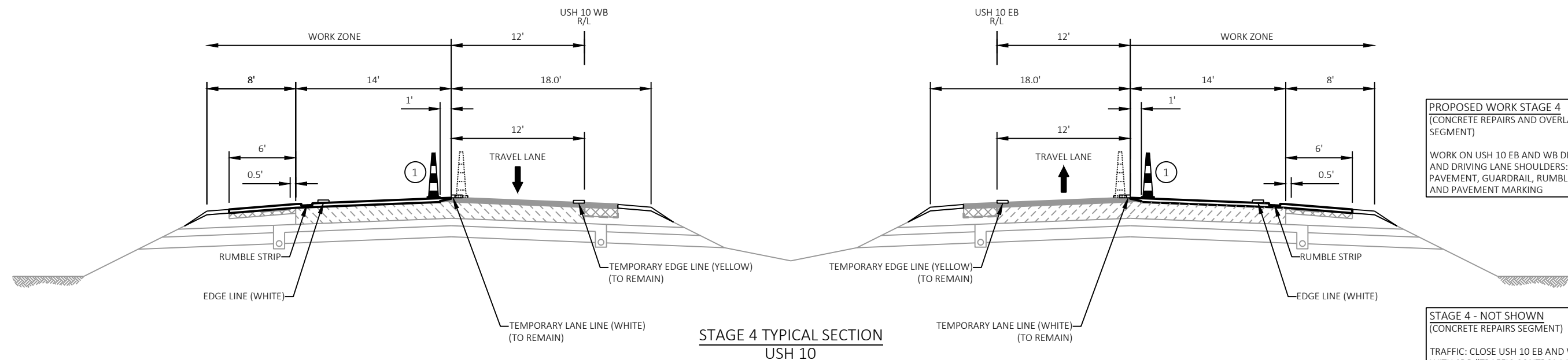
TRAFFIC CONTROL CONES 42-INCH, FOR AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES



STAGE 3 TYPICAL SECTION
USH 10
PROJECT NO: 1500-49-61
(CONCRETE REPAIRS AND OVERLAY SEGMENT)

PROPOSED WORK STAGE 3
(CONCRETE REPAIRS AND OVERLAY SEGMENT)

WORK ON USH 10 EB AND WB PASSING LANE AND PASSING LANE SHOULDERS: BASE PATCHING CONCRETE, CONCRETE JOINT AND CRACK CLEANING AND REPAIR, HMA PAVEMENT, GUARDRAIL, AND TEMPORARY PAVEMENT MARKING



STAGE 4 TYPICAL SECTION
USH 10
PROJECT NO: 1500-49-61
(CONCRETE REPAIRS AND OVERLAY SEGMENT)

PROPOSED WORK STAGE 4
(CONCRETE REPAIRS AND OVERLAY SEGMENT)

WORK ON USH 10 EB AND WB DRIVING LANE AND DRIVING LANE SHOULDERS: HMA PAVEMENT, GUARDRAIL, RUMBLE STRIPS, AND PAVEMENT MARKING

STAGE 4 - NOT SHOWN
(CONCRETE REPAIRS SEGMENT)

TRAFFIC: CLOSE USH 10 EB AND WB DRIVING LANE WITH SDD "TRAFFIC CONTROL LANE CLOSURE"

WORK ON USH 10 EB AND WB DRIVING LANE AND DRIVING LANE SHOULDERS: RUMBLE STRIPS AND PAVEMENT MARKING

STAGE 5 - NOT SHOWN
(ENTIRE PROJECT)

TRAFFIC: CLOSE USH 10 EB AND WB PASSING LANE WITH SDD "TRAFFIC CONTROL LANE CLOSURE"

WORK ON USH 10 EB AND WB PASSING LANE AND DRIVING LANE SHOULDERS: RUMBLE STRIPS AND PAVEMENT MARKING

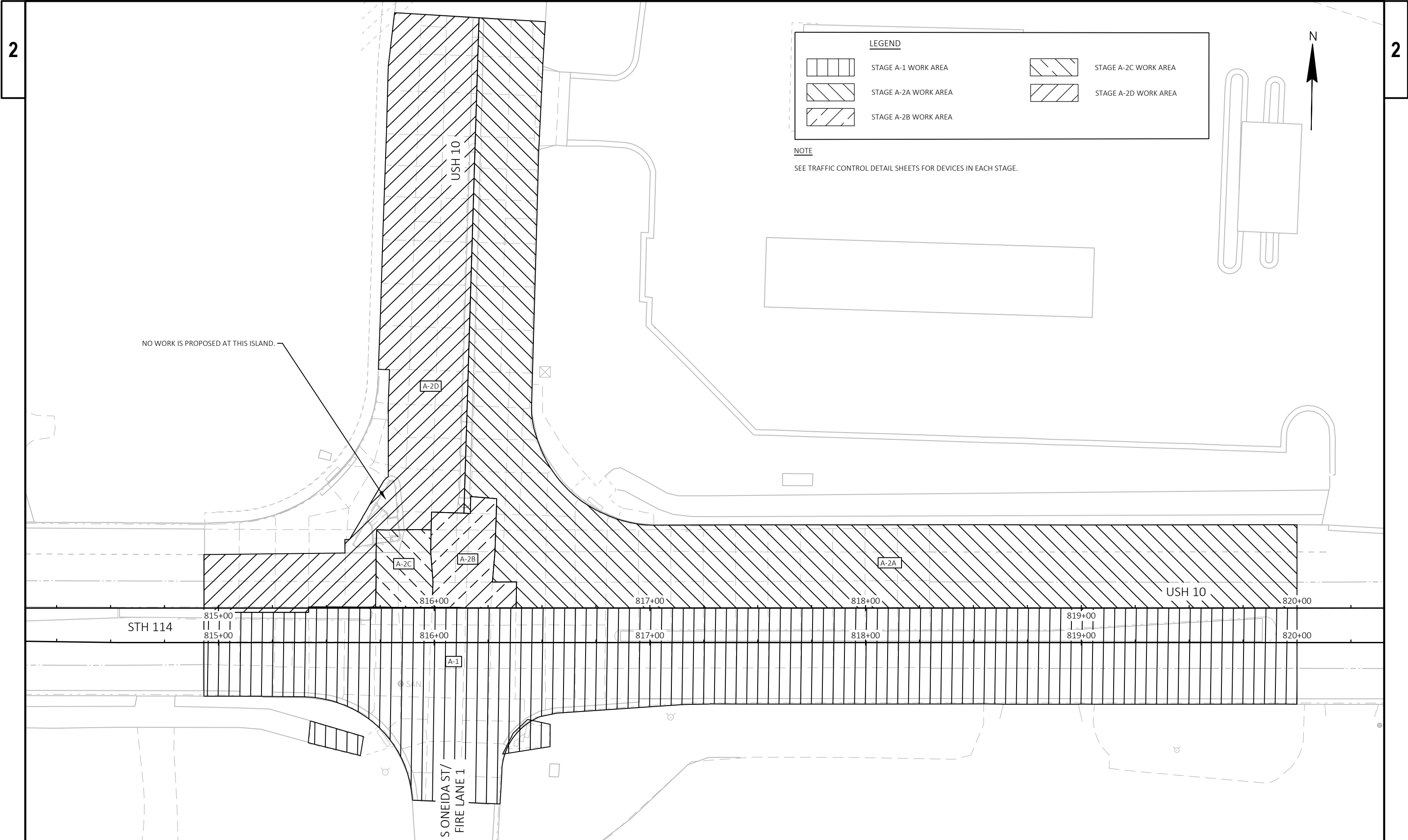
NOTES

SEE TYPICAL SECTIONS FOR ADDITIONAL USH 10 CONFIGURATIONS.

- 1 CONE LOCATION SHOWN FOR AREAS WITH NO ACTIVE CONSTRUCTION ACTIVITIES AND DURING NON-WORKING HOURS, CONES MAY BE SHIFTED PAST LANE LINE INTO THE TRAVEL LANE IN AREAS IMMEDIATELY ADJACENT TO ACTIVE CONSTRUCTION ACTIVITIES.

MINIMIZE THE DURATION TRAFFIC IS SHIFTED ON THE ASPHALT SHOULDERS.

SEE MISCELLANEOUS QUANTITIES FOR TEMPORARY AND PERMANENT PAVEMENT MARKING TYPES AND SIZES.



LEGEND

WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

FLEXIBLE TUBULAR MARKERS

TEMPORARY AUDIBLE MESSAGE DEVICE

TRAFFIC CONTROL CONNECTED ARROW BOARDS

SIGN ON TEMPORARY SUPPORT

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

×

×

REM

MARKING REMOVAL LINE 6-INCH

×

×

TMW

TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)

TTY

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

TTW

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

TXW

TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

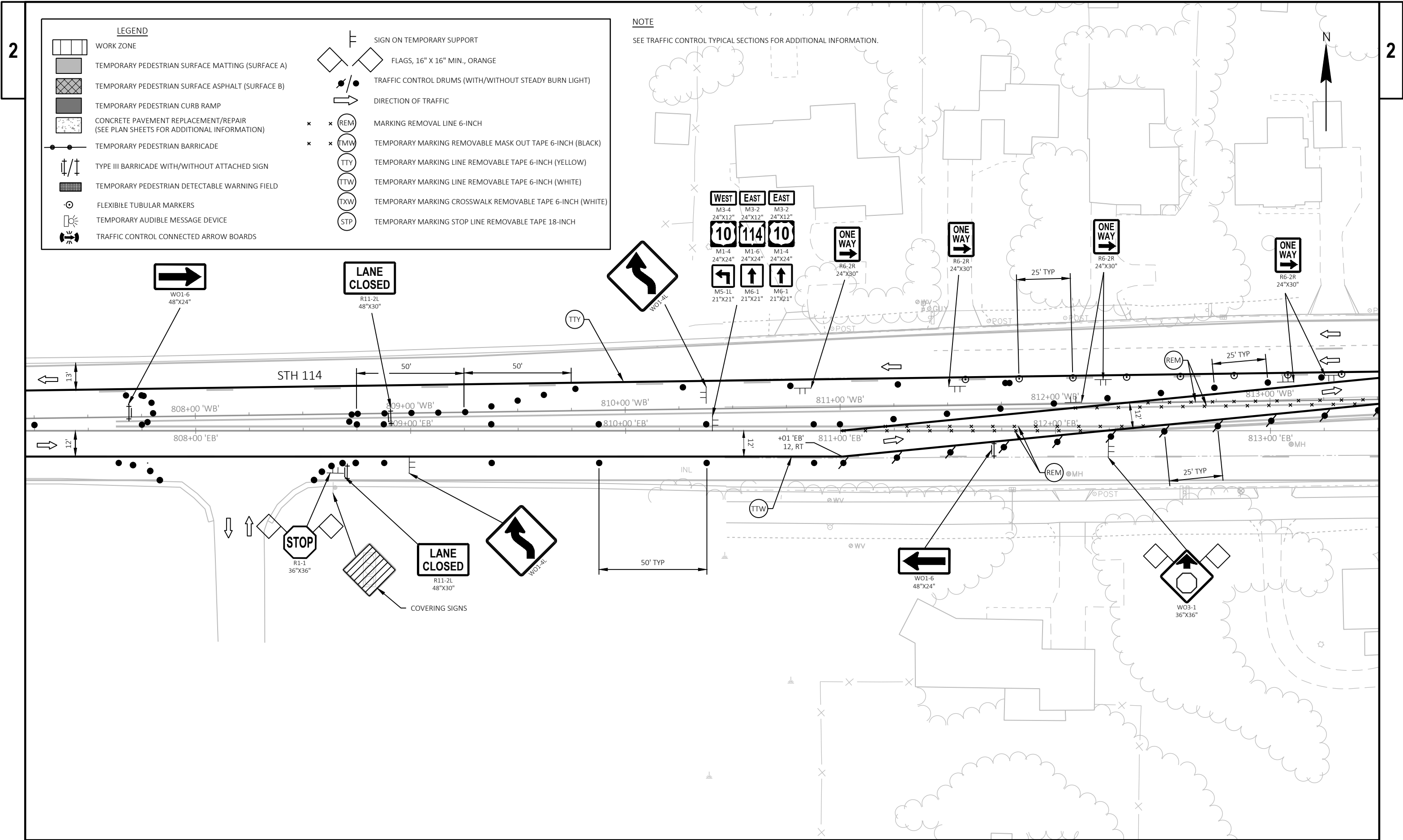
STP

TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH

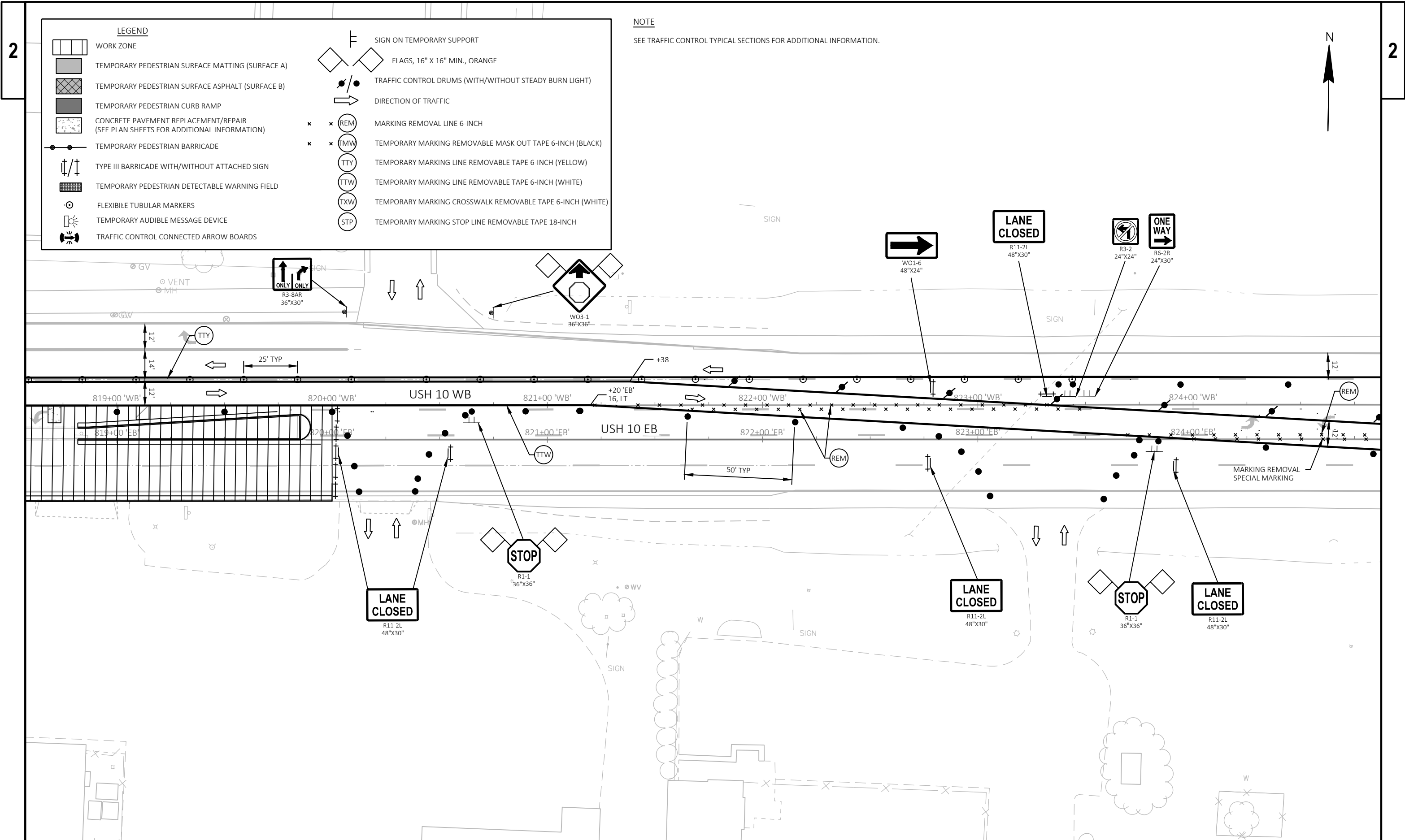
NOTE

SEE SDD "TRAFFIC CONTROL, INTERSECTION WITHIN TWO RIGHT LANE CLOSURE" AND "TRAFFIC CONTROL, INTERSECTION WITHIN TWO LEFT LANE CLOSURE".

PROJECT NO: 1500-49-61	HWY: USH 10	COUNTY: CALUMET	TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-1	SHEET 46	E
FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\025103-TC.DWG LAYOUT NAME - 01		PLOT DATE : 10/31/2025 1:39 PM		PLOT BY : PARKER TISCHAUSER PLOT NAME : PLOT SCALE : 1 IN=40 FT	
WISDOT/CADD SHEET 42					







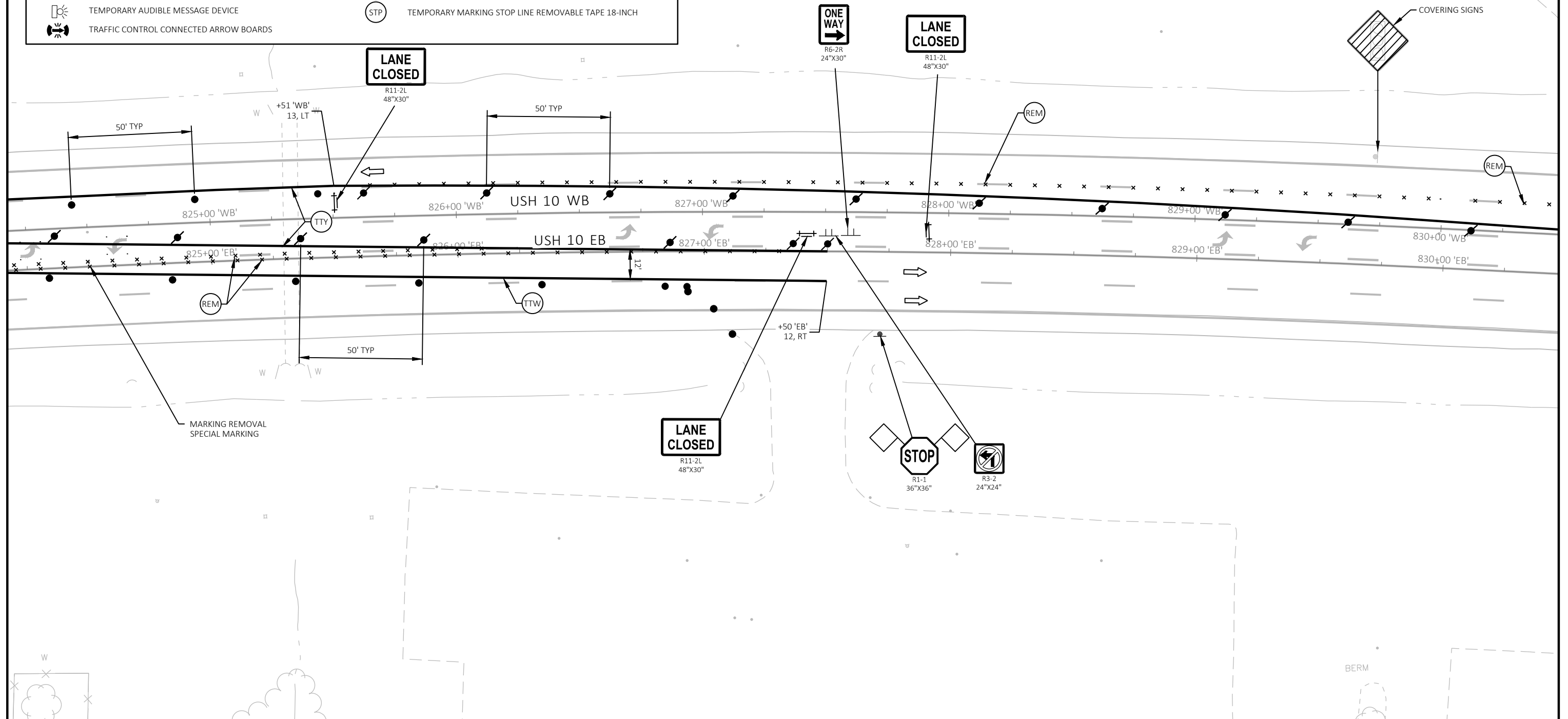
NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

LEGEND

	WORK ZONE		SIGN ON TEMPORARY SUPPORT
	TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)		FLAGS, 16" X 16" MIN., ORANGE
	TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)		TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)
	TEMPORARY PEDESTRIAN CURB RAMP		DIRECTION OF TRAFFIC
	CONCRETE PAVEMENT REPLACEMENT/REPAIR (SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)		MARKING REMOVAL LINE 6-INCH
	TEMPORARY PEDESTRIAN BARRICADE		TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)
	TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)
	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)
	FLEXIBLE TUBULAR MARKERS		TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)
	TEMPORARY AUDIBLE MESSAGE DEVICE		TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH
	TRAFFIC CONTROL CONNECTED ARROW BOARDS		

NOTE

SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.



LEGEND

WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

FLEXIBLE TUBULAR MARKERS

TEMPORARY AUDIBLE MESSAGE DEVICE

TRAFFIC CONTROL CONNECTED ARROW BOARDS

SIGN ON TEMPORARY SUPPORT

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

MARKING REMOVAL LINE 6-INCH

TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH

NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

The diagram illustrates a traffic control plan for a single-lane closure on USH 10. It shows two main travel directions: Westbound (WB) and Eastbound (EB). Stationing is marked along the lanes, ranging from 830+00 to 835+00. Key features include:

- Work Zone:** Indicated by a hatched area on the left side of the plan.
- Signage:** A 'ONE WAY' sign (R6-2R, 24"x30") is shown pointing right, indicating traffic flow during the closure.
- Markings:** Various temporary markings are shown, including removal lines (REM), marking removal tapes (TMW, TTY, TTW, TXW, STP), and a 50' typical distance for certain measures.
- Drums:** Traffic control drums are positioned at the closure point.
- Other Features:** A 'COVERING SIGNS' note points to a specific area, and a 'SEE SDD "TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY"' note provides a reference to standard details. A 'BERM' is also labeled on the left side.

PROJECT NO: 1500-49-61	HWY: USH 10	COUNTY: CALUMET	TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-1	SHEET 51	E
FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\SHEETS\025103-TC.DWG LAYOUT NAME - 06		PLOT DATE : 10/31/2025 1:39 PM		PLOT BY : PARKER TISCHAUER PLOT NAME : PLOT SCALE : 1 IN:40 FT	

WISDOT/CADD SHEET 42



WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

FLEXIBLE TUBULAR MARKERS

TEMPORARY AUDIBLE MESSAGE DEVICE

TRAFFIC CONTROL CONNECTED ARROW BOARDS

SIGN ON TEMPORARY SUPPORT

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

x

x

(REM)

MARKING REMOVAL LINE 6-INCH

x

x

(TMW)

TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)

(TTY)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

(TTW)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

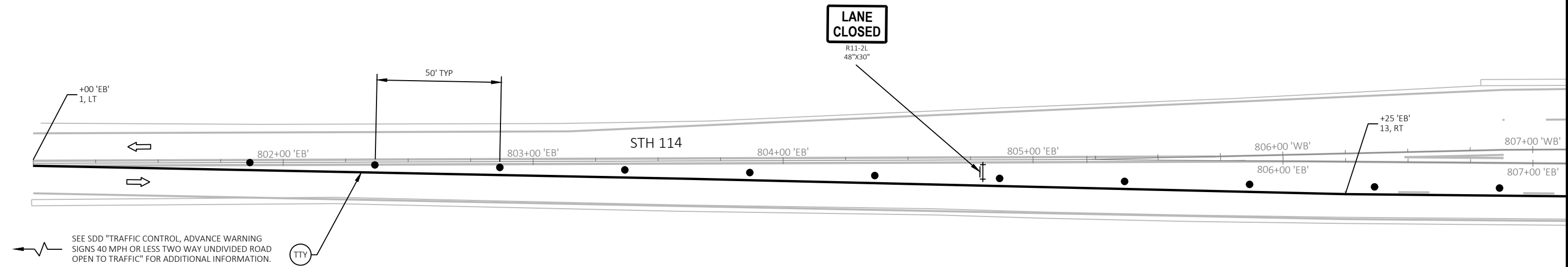
(TXW)

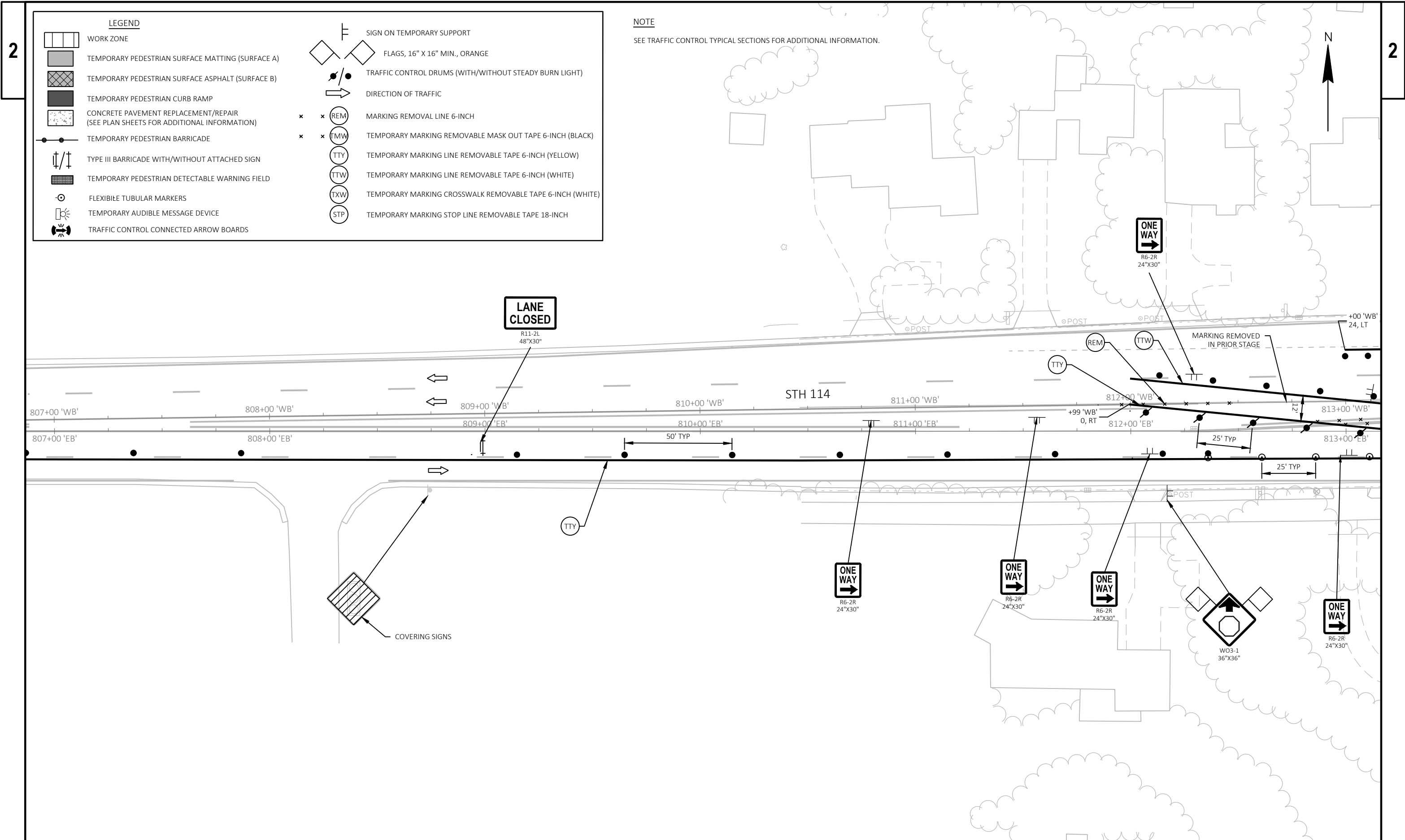
TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

(STP)

TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH

NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.









LEGEND

WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

FLEXIBLE TUBULAR MARKERS

TEMPORARY AUDIBLE MESSAGE DEVICE

TRAFFIC CONTROL CONNECTED ARROW BOARDS

SIGN ON TEMPORARY SUPPORT

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

MARKING REMOVAL LINE 6-INCH

TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH

NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

The diagram illustrates a traffic control plan for a single-lane closure on USH 10. It shows two main travel directions: Westbound (WB) and Eastbound (EB). Stationing is marked along the lanes, ranging from 830+00 to 835+00. Key features include: a 'LANE CLOSED' sign (R11-2L) and a 'ONE WAY' sign (W01-4L) for the WB lane; a 'MARKING REMOVAL LINE' (REM) indicated by a circle with 'x' marks; a 'MARKING REMOVABLE MASK OUT TAPE' (TMW) indicated by a circle with 'x' marks; a 'MARKING LINE REMOVABLE TAPE' (TTY) indicated by a circle with 'x' marks; a 'MARKING CROSSWALK REMOVABLE TAPE' (TXW) indicated by a circle with 'x' marks; a 'MARKING STOP LINE REMOVABLE TAPE' (STP) indicated by a circle with 'x' marks; a 'COVERING SIGN' indicated by a circle with 'x' marks; a 'TYPE III BARRICADE' indicated by a circle with 'x' marks; a 'TEMPORARY PEDESTRIAN BARRICADE' indicated by a circle with 'x' marks; a 'TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD' indicated by a circle with 'x' marks; a 'TEMPORARY PEDESTRIAN CURB RAMP' indicated by a circle with 'x' marks; a 'TEMPORARY PEDESTRIAN SURFACE ASPHALT' indicated by a circle with 'x' marks; a 'TEMPORARY PEDESTRIAN SURFACE MATTING' indicated by a circle with 'x' marks; a 'WORK ZONE' indicated by a circle with 'x' marks. A north arrow is located in the upper right corner. A note in the upper right corner states: 'SEE SDD "TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY"'. A scale bar at the bottom indicates '50' TYP'.

PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-2A

SHEET 58

E

FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\SHEETS\025104-TC.DWG
LAYOUT NAME - 06

PLOT DATE : 10/31/2025 1:41 PM

PLOT BY : PARKER TISCHAUSER

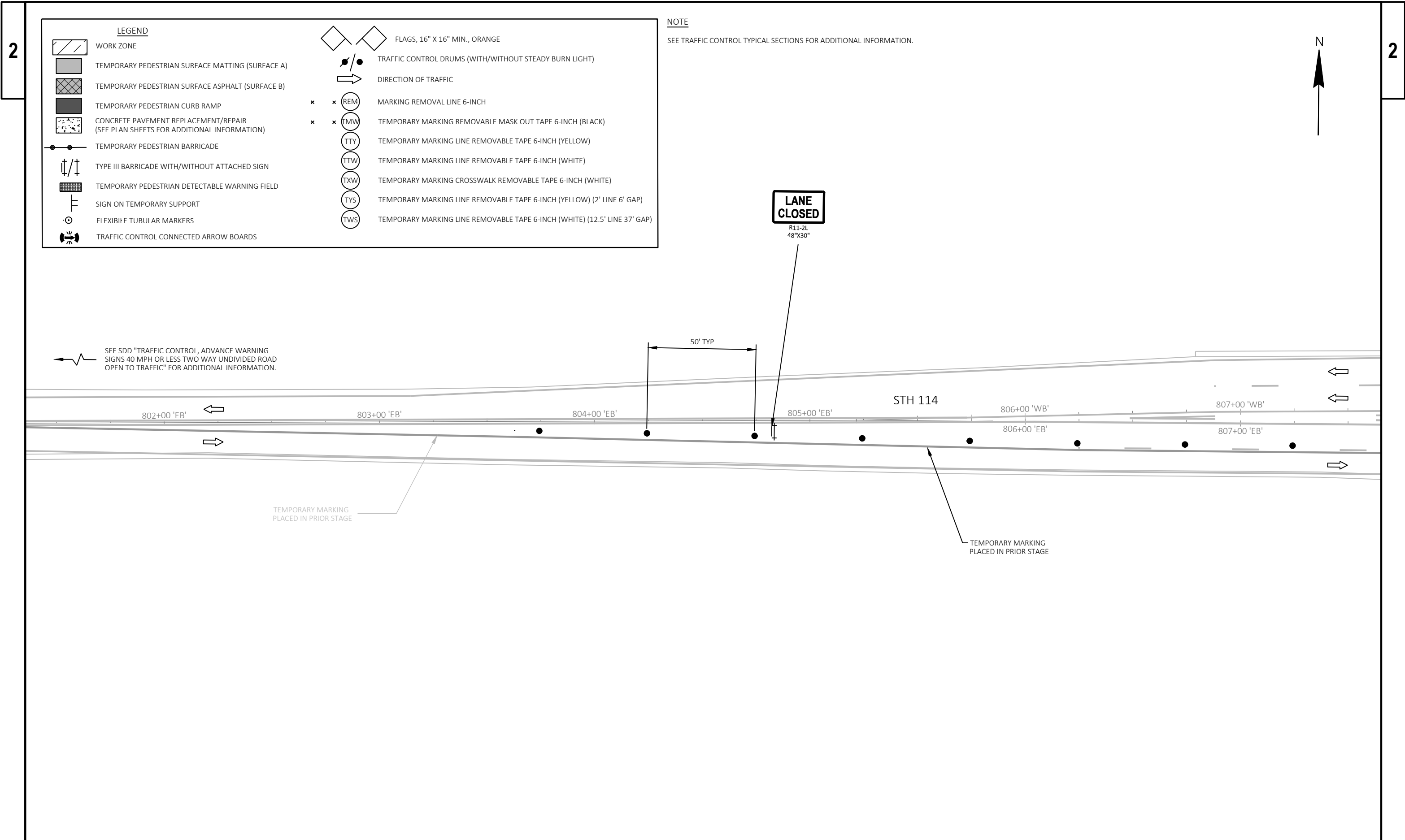
PLOT NAME :

PLOT SCALE : 1 IN=40 FT

WISDOT/CADD SHEET 42







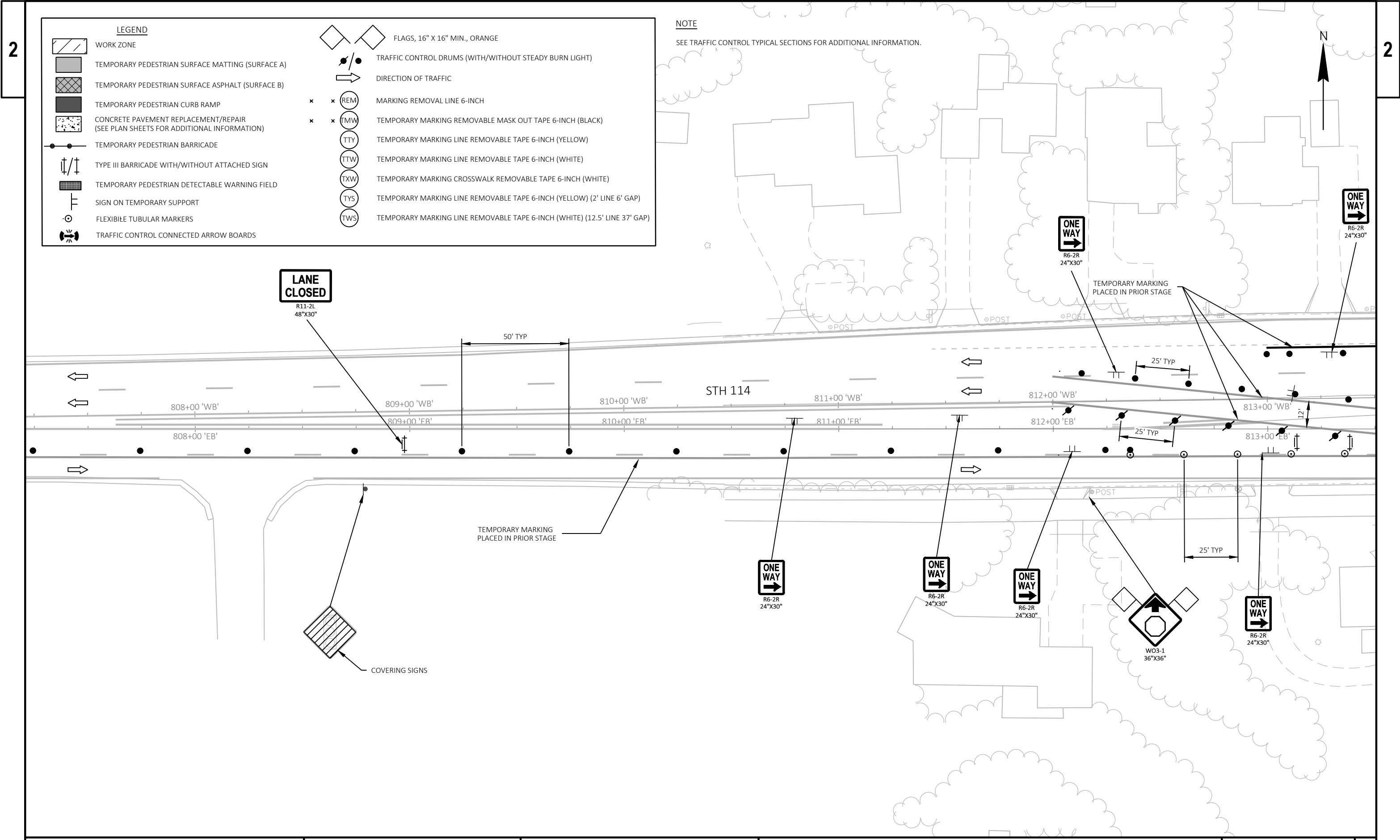
LEGEND	
	WORK ZONE
	TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)
	TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)
	TEMPORARY PEDESTRIAN CURB RAMP
	CONCRETE PAVEMENT REPLACEMENT/REPAIR (SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)
	TEMPORARY PEDESTRIAN BARRICADE
	TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN
	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD
	SIGN ON TEMPORARY SUPPORT
	FLEXIBLE TUBULAR MARKERS
	TRAFFIC CONTROL CONNECTED ARROW BOARDS
	FLAGS, 16" X 16" MIN., ORANGE
	TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)
	DIRECTION OF TRAFFIC
	MARKING REMOVAL LINE 6-INCH
	TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH (BLACK)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)
	TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW) (2' LINE 6' GAP)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE) (12.5' LINE 37' GAP)

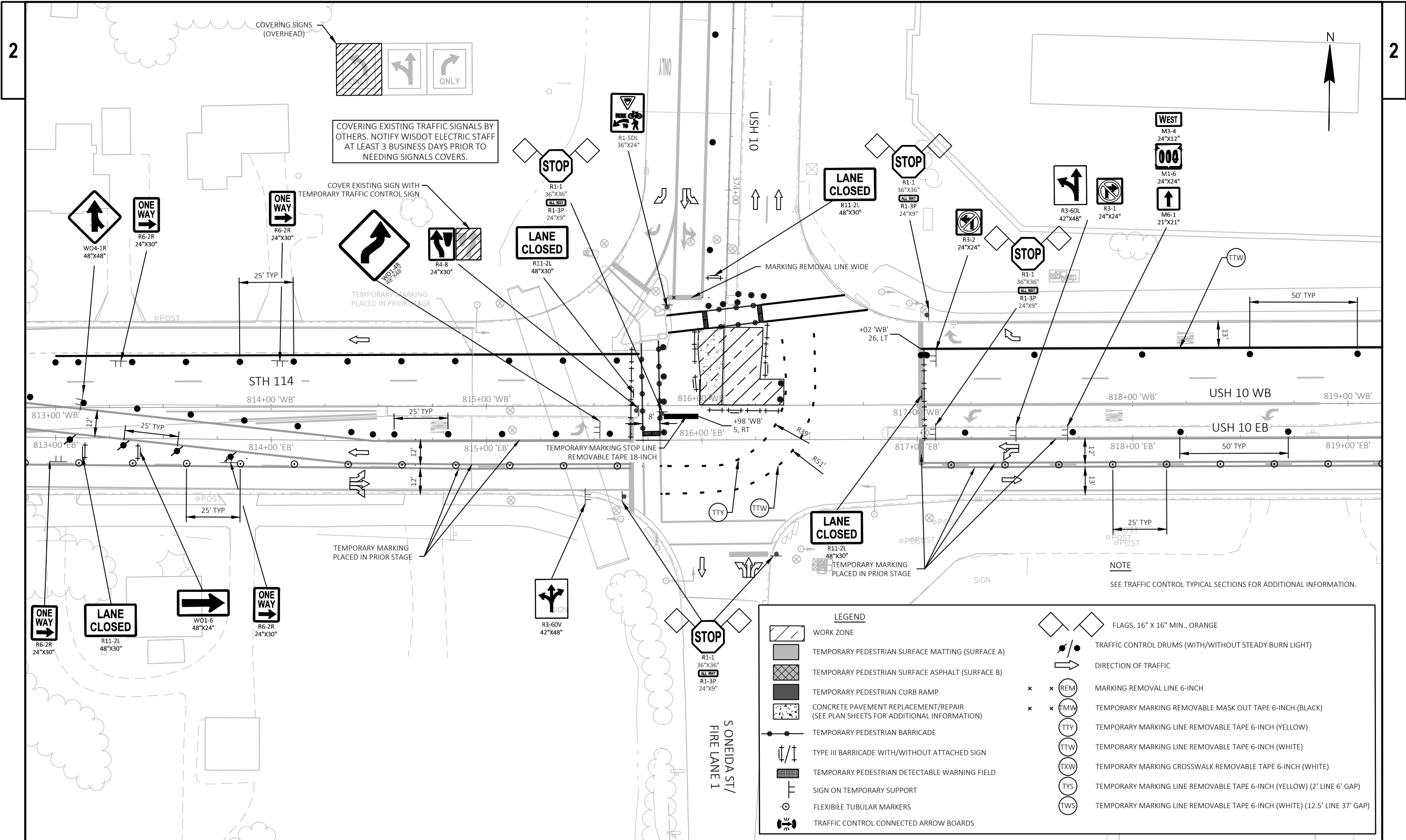
NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

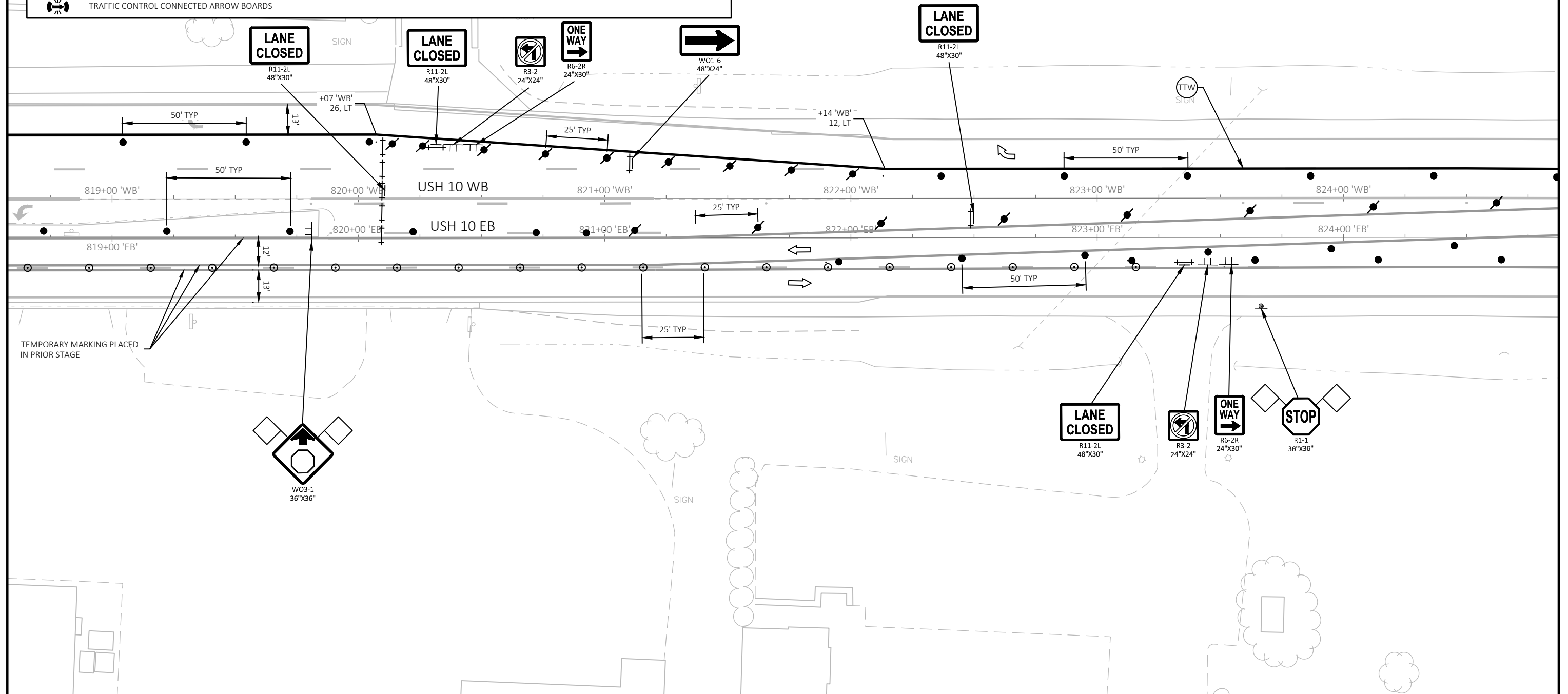
SEE SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 MPH OR LESS TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC" FOR ADDITIONAL INFORMATION.

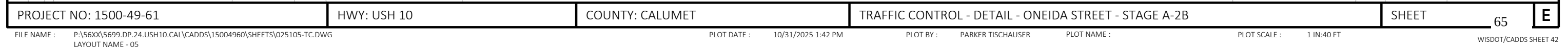
TEMPORARY MARKING
PLACED IN PRIOR STAGE

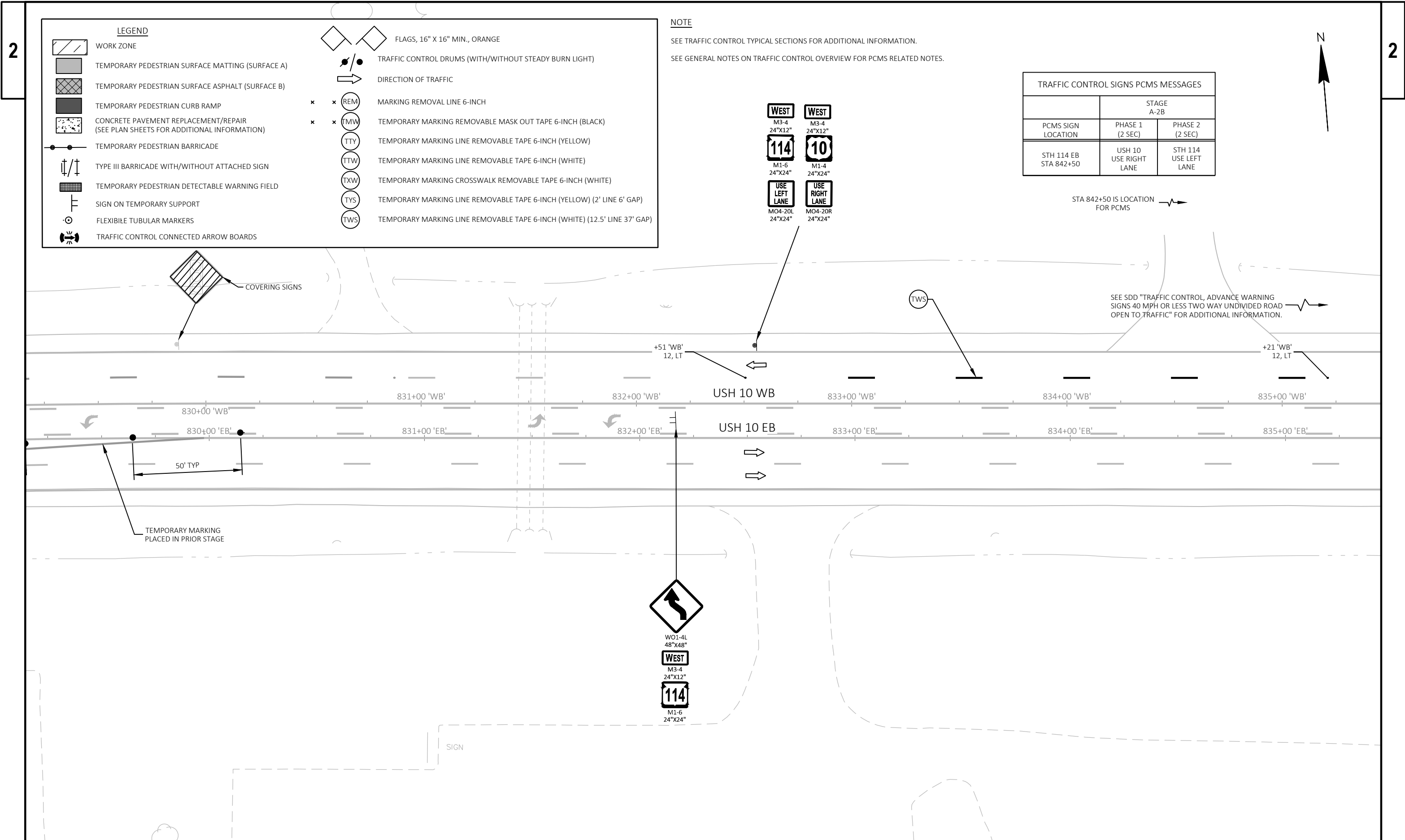
TEMPORARY MARKING
PLACED IN PRIOR STAGE



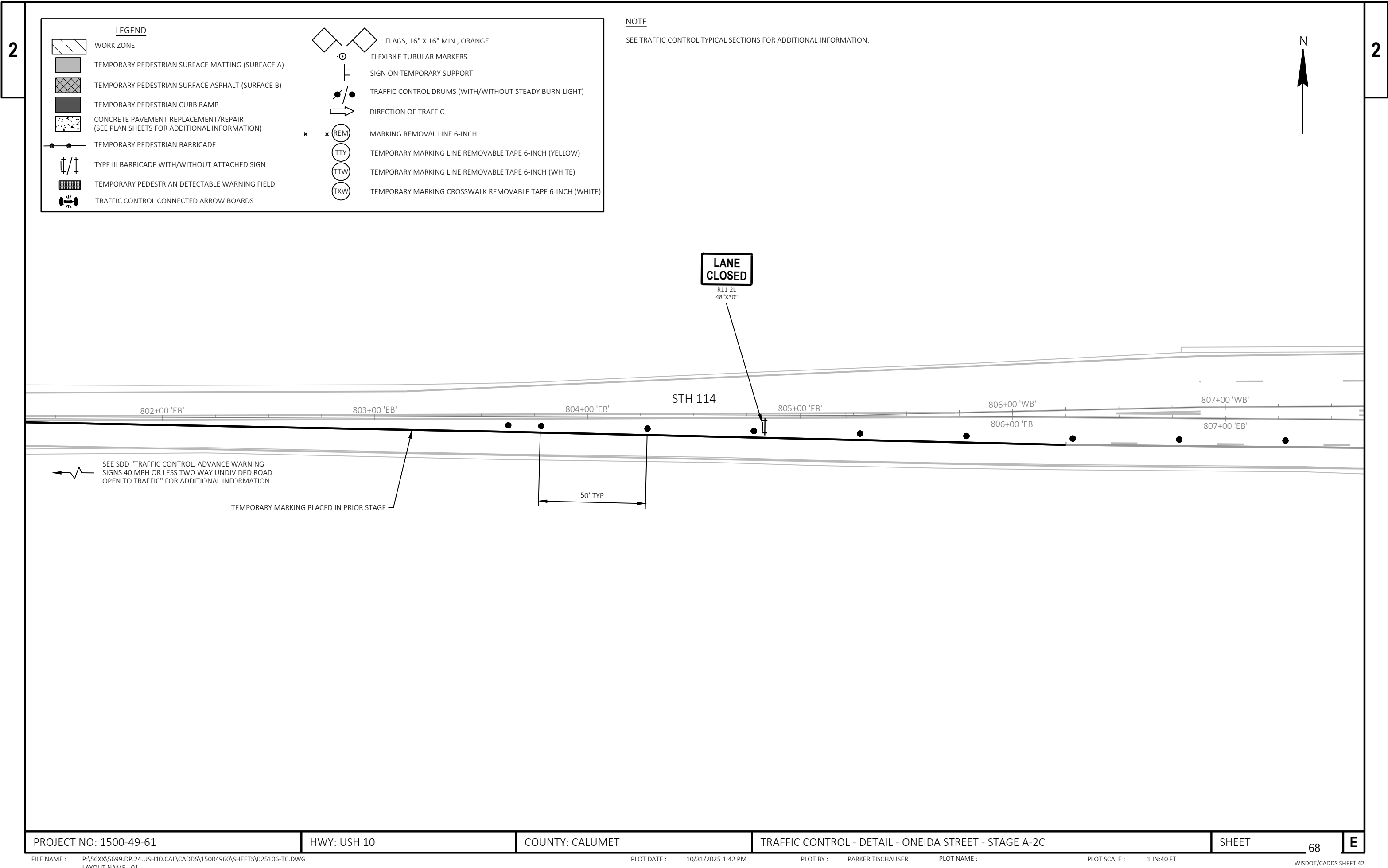


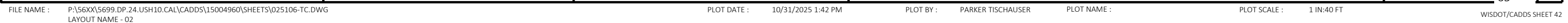


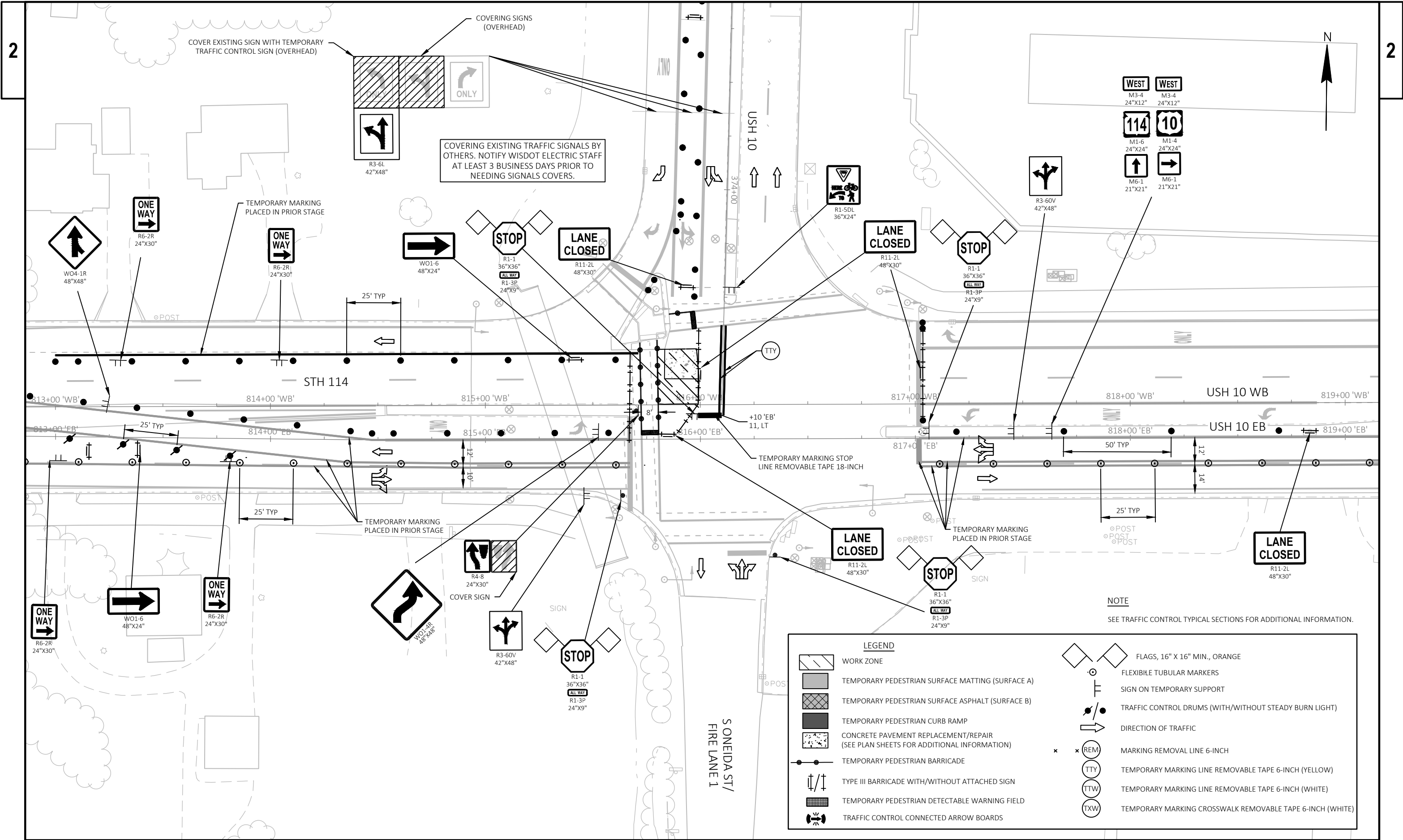


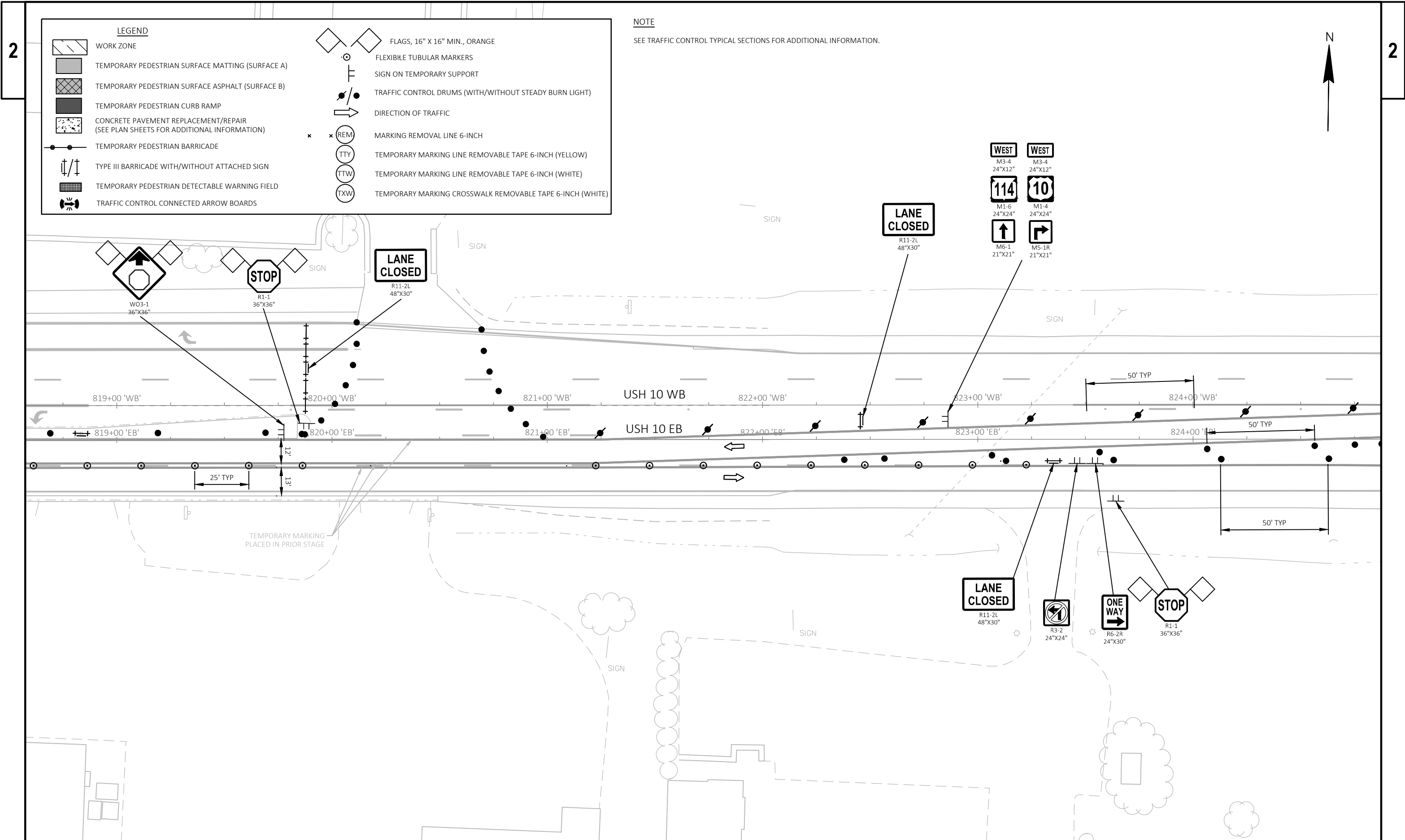








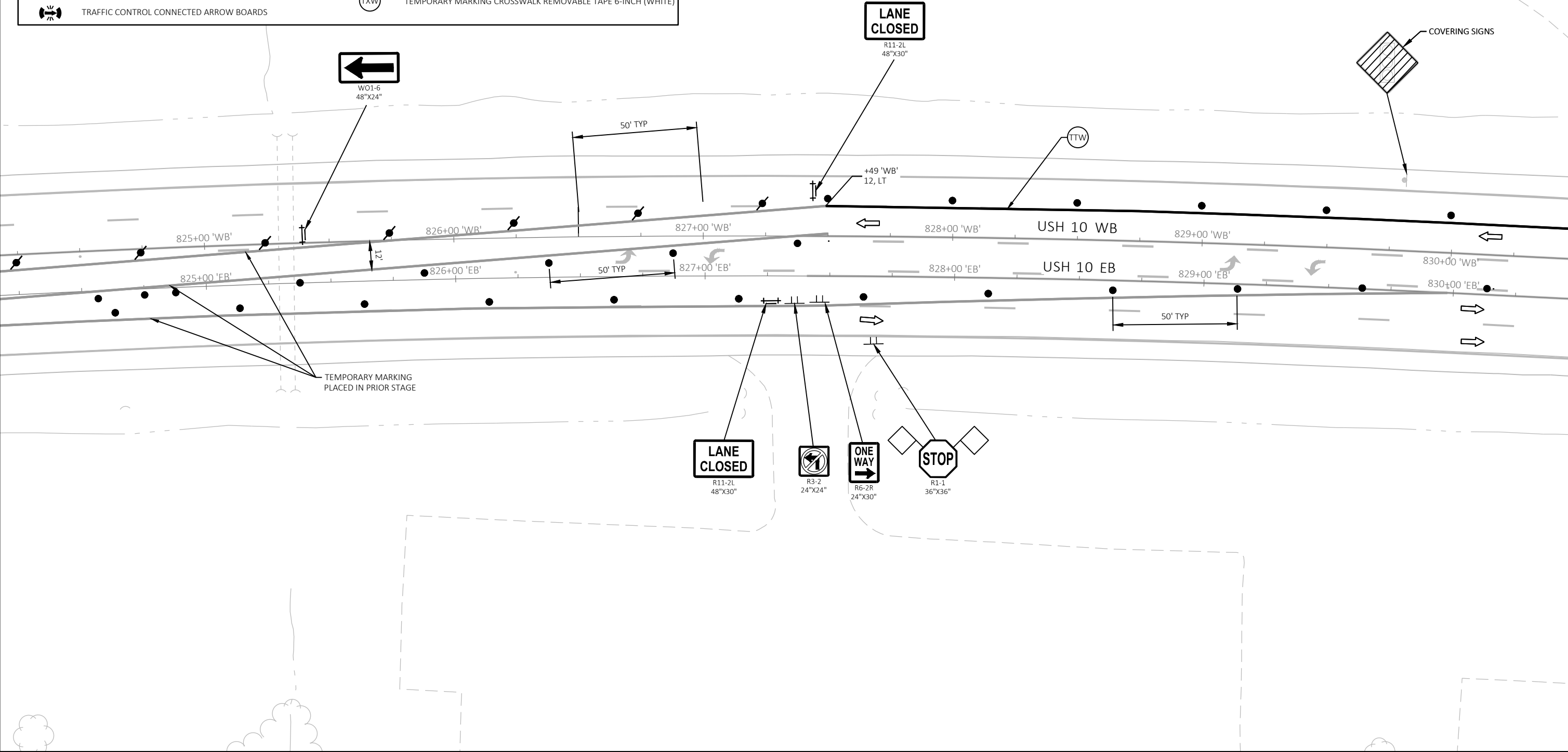


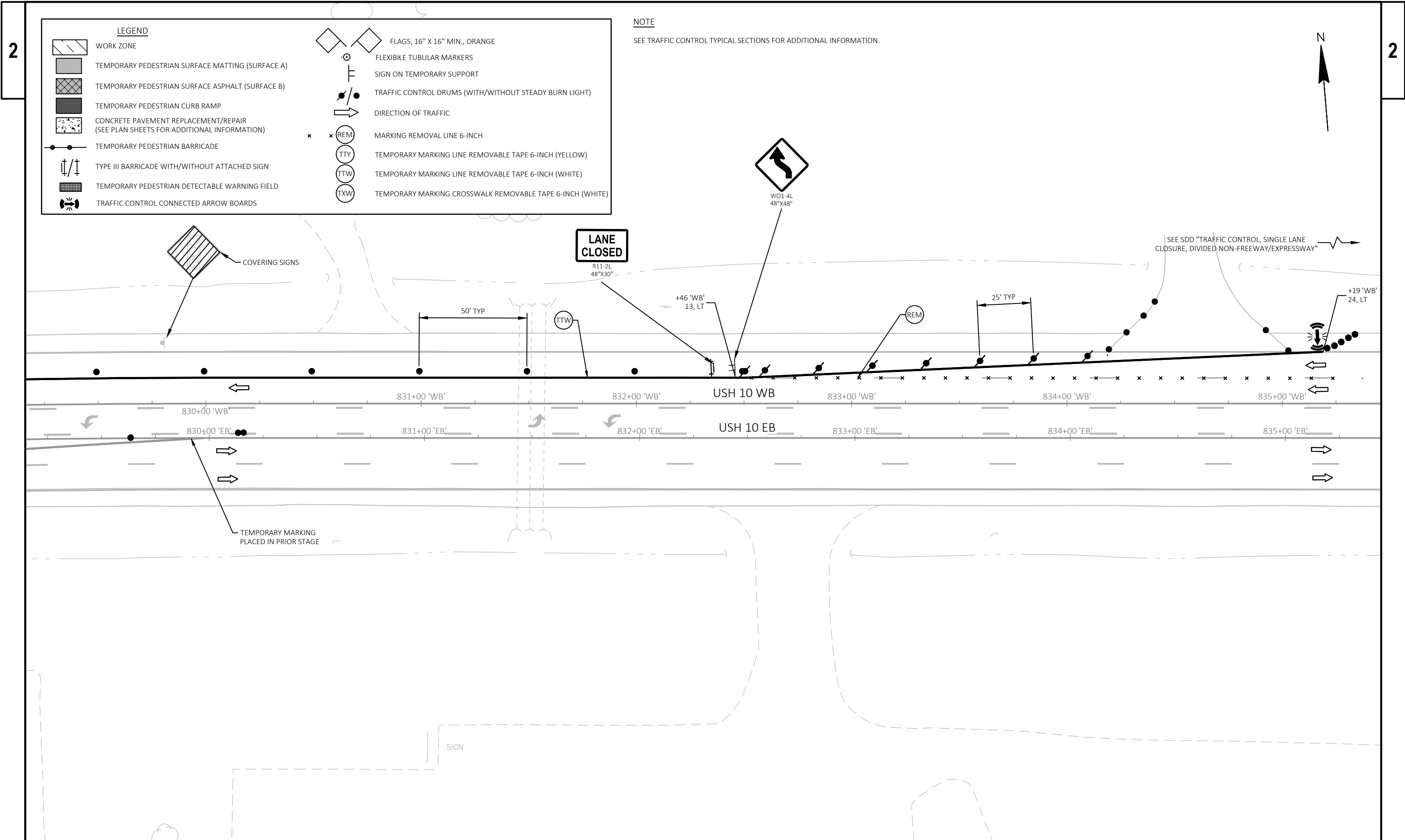


LEGEND

	WORK ZONE		FLAGS, 16" X 16" MIN., ORANGE
	TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)		FLEXIBLE TUBULAR MARKERS
	TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)		SIGN ON TEMPORARY SUPPORT
	TEMPORARY PEDESTRIAN CURB RAMP		TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)
	CONCRETE PAVEMENT REPLACEMENT/REPAIR (SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)		DIRECTION OF TRAFFIC
	TEMPORARY PEDESTRIAN BARRICADE		MARKING REMOVAL LINE 6-INCH
	TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)
	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)
	TRAFFIC CONTROL CONNECTED ARROW BOARDS		TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

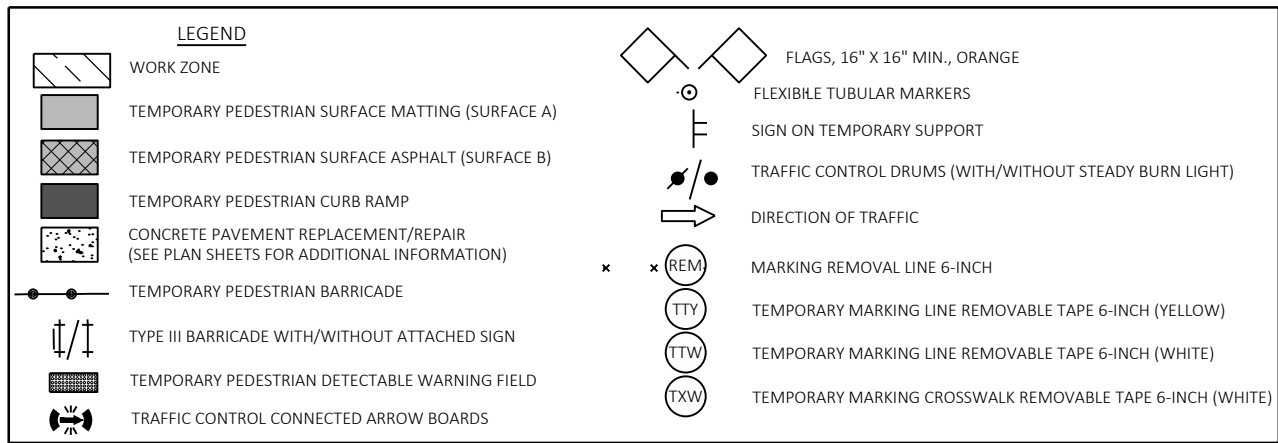
NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.





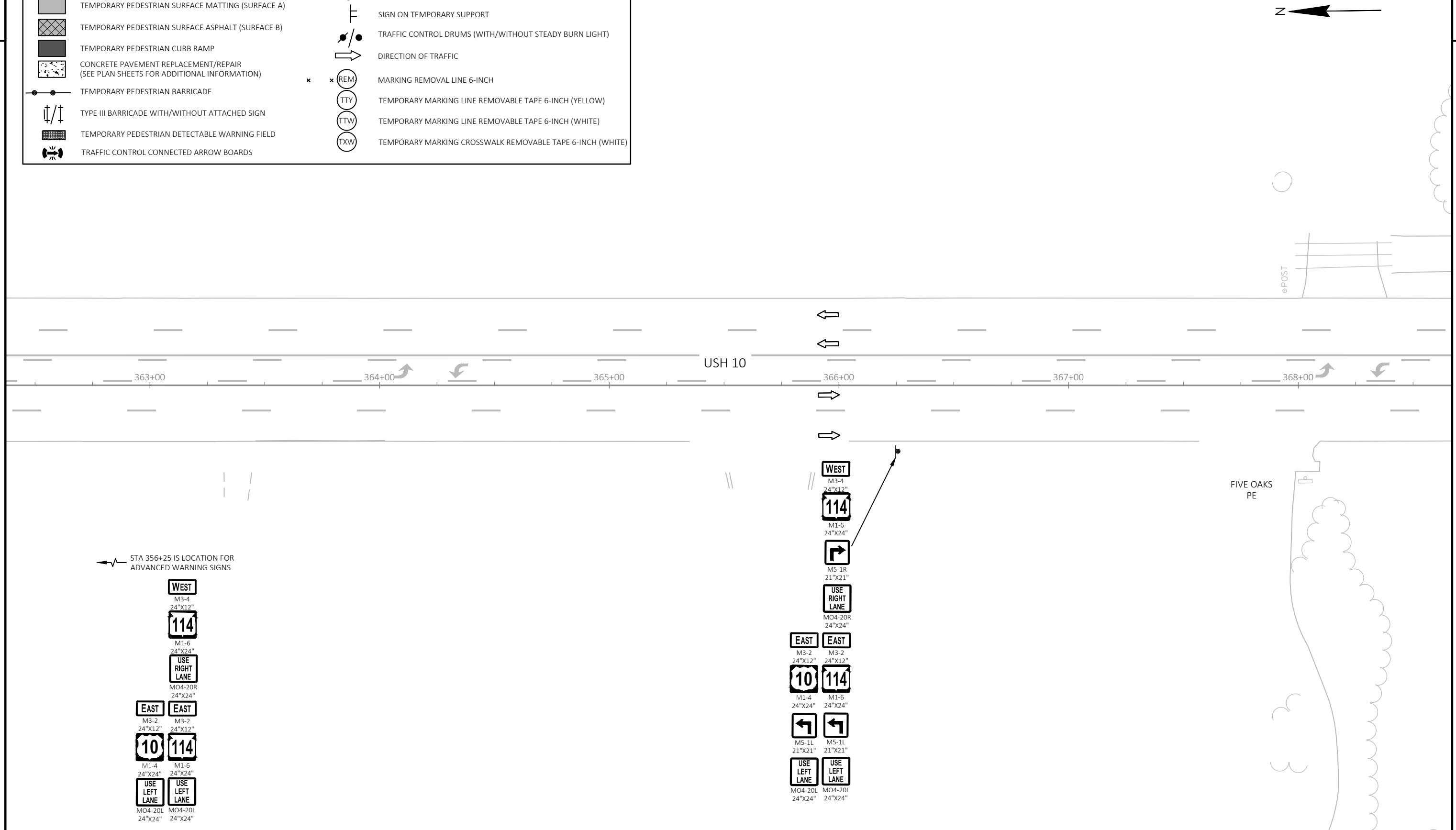
2

2



NOTE

SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.



PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

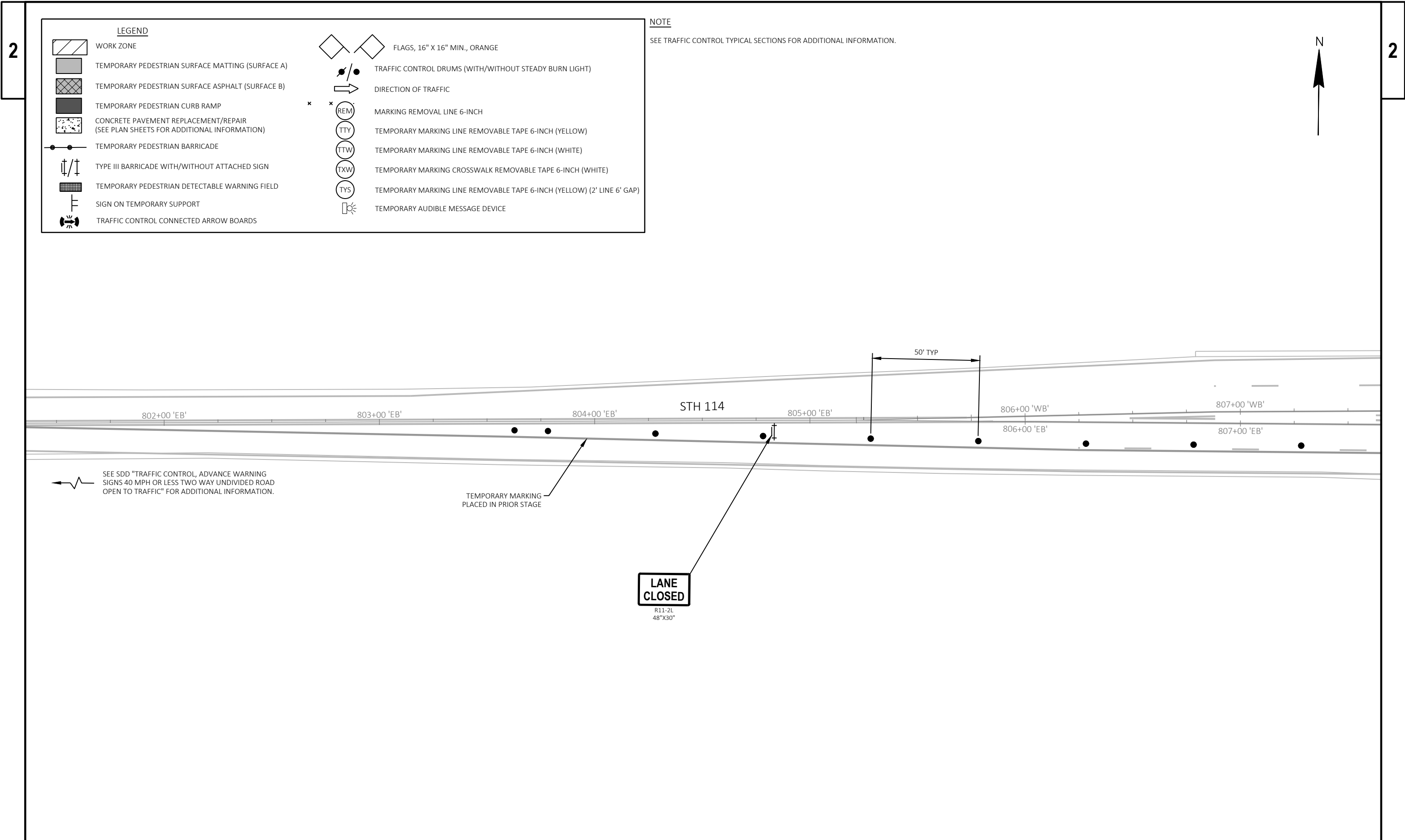
TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-2C

SHEET

74

11









LEGEND

WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

SIGN ON TEMPORARY SUPPORT

TRAFFIC CONTROL CONNECTED ARROW BOARDS

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

MARKING REMOVAL LINE 6-INCH

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW) (2' LINE 6' GAP)

TEMPORARY AUDIBLE MESSAGE DEVICE

NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-2D

SHEET 79

E

FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\SHEETS\025107-TC.DWG

LAYOUT NAME - 04

PLOT DATE : 10/31/2025 1:44 PM

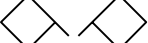
PLOT BY : PARKER TISCHAUSER

PLOT NAME :

PLOT SCALE : 1 IN=40 FT

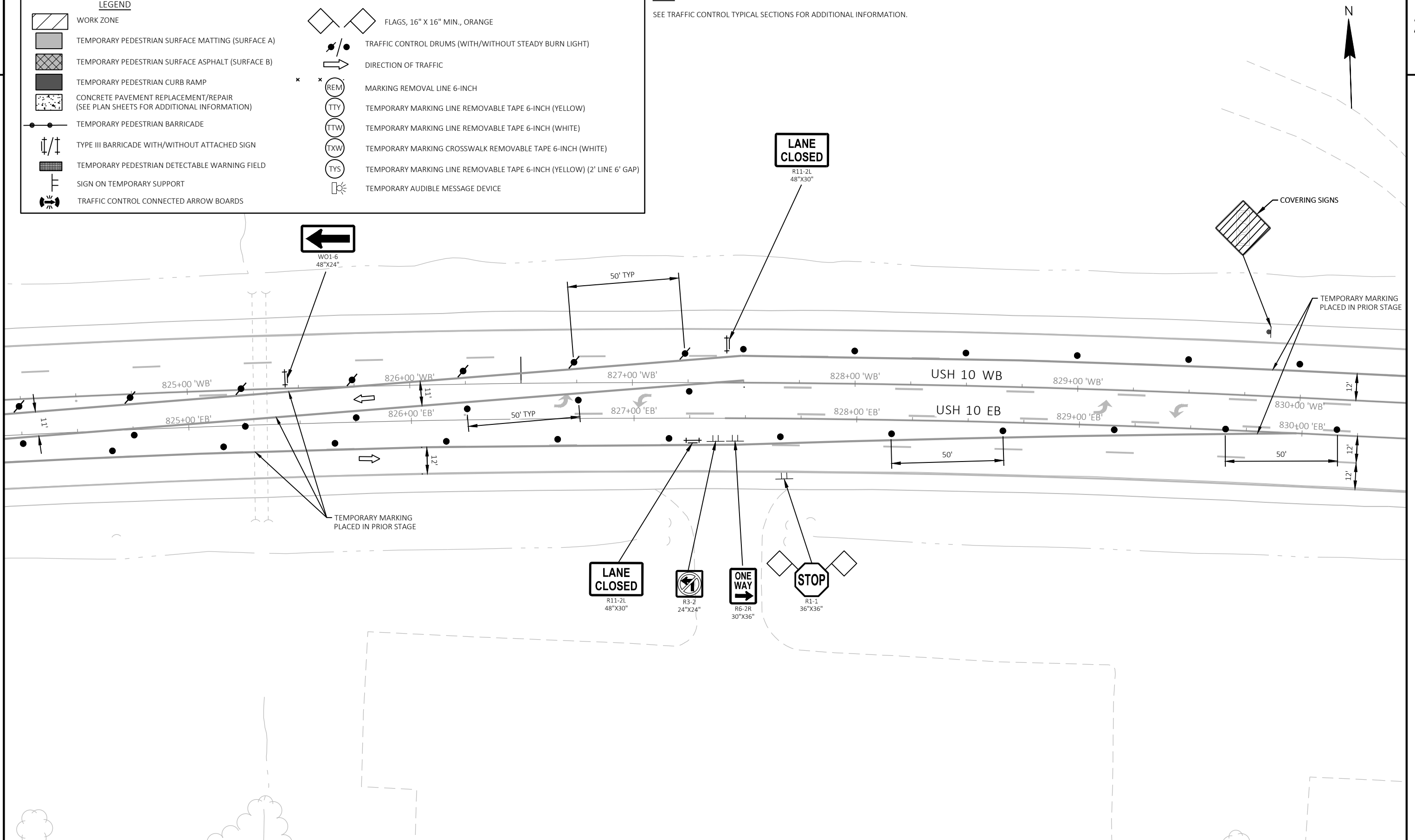
WISDOT/CADD SHEET 42

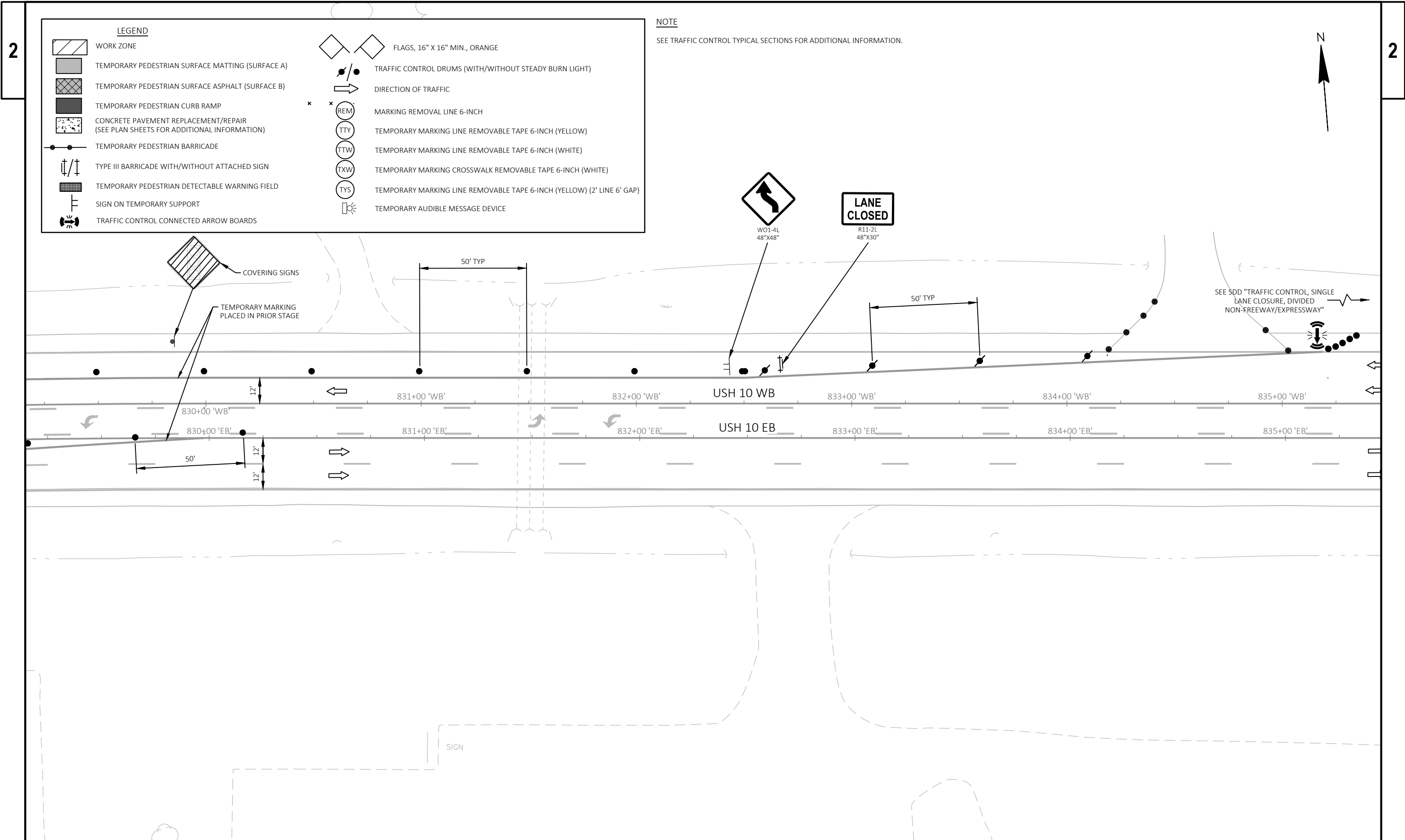
LEGEND

	WORK ZONE		FLAGS, 16" X 16" MIN., ORANGE
	TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)		TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)
	TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)		DIRECTION OF TRAFFIC
	TEMPORARY PEDESTRIAN CURB RAMP		MARKING REMOVAL LINE 6-INCH
	CONCRETE PAVEMENT REPLACEMENT/REPAIR (SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)
	TEMPORARY PEDESTRIAN BARRICADE		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)
	TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN		TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)
	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD		TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW) (2' LINE 6' GAP)
	SIGN ON TEMPORARY SUPPORT		TEMPORARY AUDIBLE MESSAGE DEVICE
	TRAFFIC CONTROL CONNECTED ARROW BOARDS		

NOTE

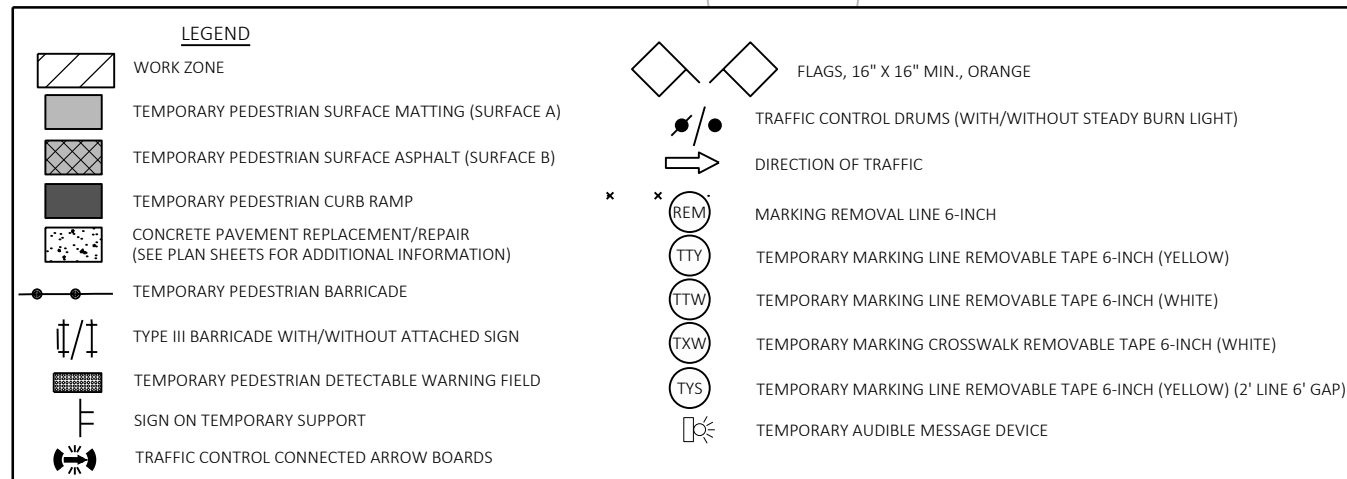
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.





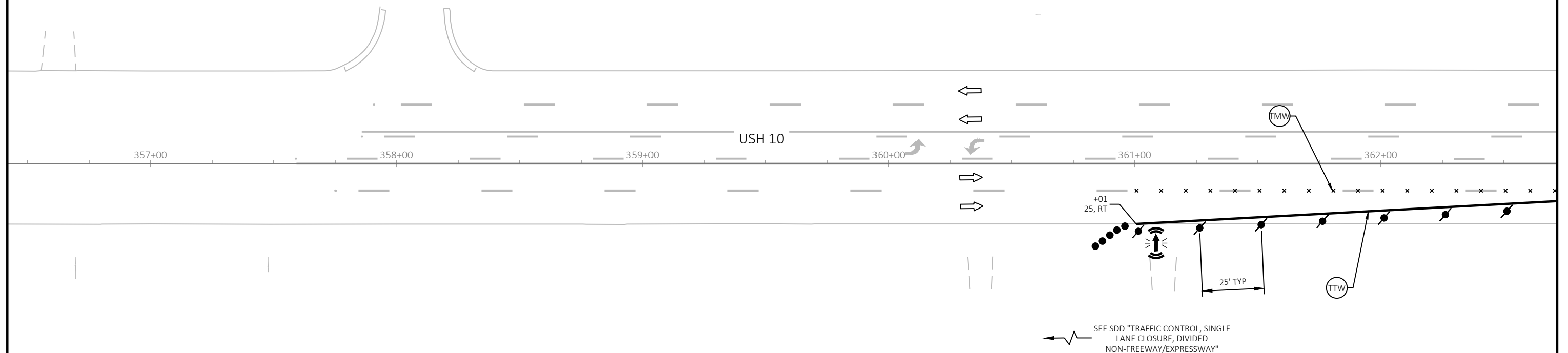
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2 |



NOTE

SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.



PROJECT NO: 1500-49-61

HWY: USH 10

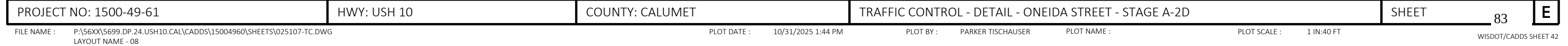
COUNTY: CALUMET

TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-2D

SHEET

32

11



LEGEND

WORK ZONE

TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)

TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)

TEMPORARY PEDESTRIAN CURB RAMP

CONCRETE PAVEMENT REPLACEMENT/REPAIR
(SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)

TEMPORARY PEDESTRIAN BARRICADE

TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN

TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD

SIGN ON TEMPORARY SUPPORT

TRAFFIC CONTROL CONNECTED ARROW BOARDS

FLAGS, 16" X 16" MIN., ORANGE

TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)

DIRECTION OF TRAFFIC

MARKING REMOVAL LINE 6-INCH

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)

TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW) (2' LINE 6' GAP)

TEMPORARY AUDIBLE MESSAGE DEVICE

NOTE
SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

The diagram illustrates a traffic control plan for USH 10, showing a lane closure on the right side of the road. Key features include:
 - Lane closure area marked with hatching and labeled 'LANE CLOSED' with sign R11-2L 48"x30".
 - Various traffic control signs: 'LANE CLOSED' (R11-2L), 'COVERING SIGN' (R11-2L), and directional signs for USH 10 and USH 114 (East and West).
 - Markings: 'MARKING REMOVAL SPECIAL MARKING - "LEFT TURN ARROW"', 'MARKING REMOVAL LINE 6-INCH', and 'TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)'.
 - Dimensions: 25' TYP, 50' TYP, 12', 15', 3' TYP, 13' TYP.
 - Stationing: 368+00, 369+00, 370+00, 371+00, 372+00, 373+00.
 - Other labels: 'FIVE OAKS PE', 'USH 10', 'USH 114', 'COVERING SIGNS', 'WO3-1 36"x36"', 'SIGN', 'POST', 'TYPE III BARRICADE WITH/WITHOUT ATTACHED SIGN', 'TEMPORARY PEDESTRIAN BARRICADE', 'TEMPORARY PEDESTRIAN SURFACE MATTING (SURFACE A)', 'TEMPORARY PEDESTRIAN SURFACE ASPHALT (SURFACE B)', 'TEMPORARY PEDESTRIAN CURB RAMP', 'CONCRETE PAVEMENT REPLACEMENT/REPAIR', 'TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD', 'SIGN ON TEMPORARY SUPPORT', 'TRAFFIC CONTROL CONNECTED ARROW BOARDS', 'TRAFFIC CONTROL DRUMS (WITH/WITHOUT STEADY BURN LIGHT)', 'DIRECTION OF TRAFFIC', 'MARKING REMOVAL LINE 6-INCH', 'TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW)', 'TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE)', 'TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH (WHITE)', 'TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW) (2' LINE 6' GAP)', 'TEMPORARY AUDIBLE MESSAGE DEVICE'.

PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

TRAFFIC CONTROL - DETAIL - ONEIDA STREET - STAGE A-2D

SHEET 84

E

FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\15004960\025107-TC.DWG

LAYOUT NAME : 09

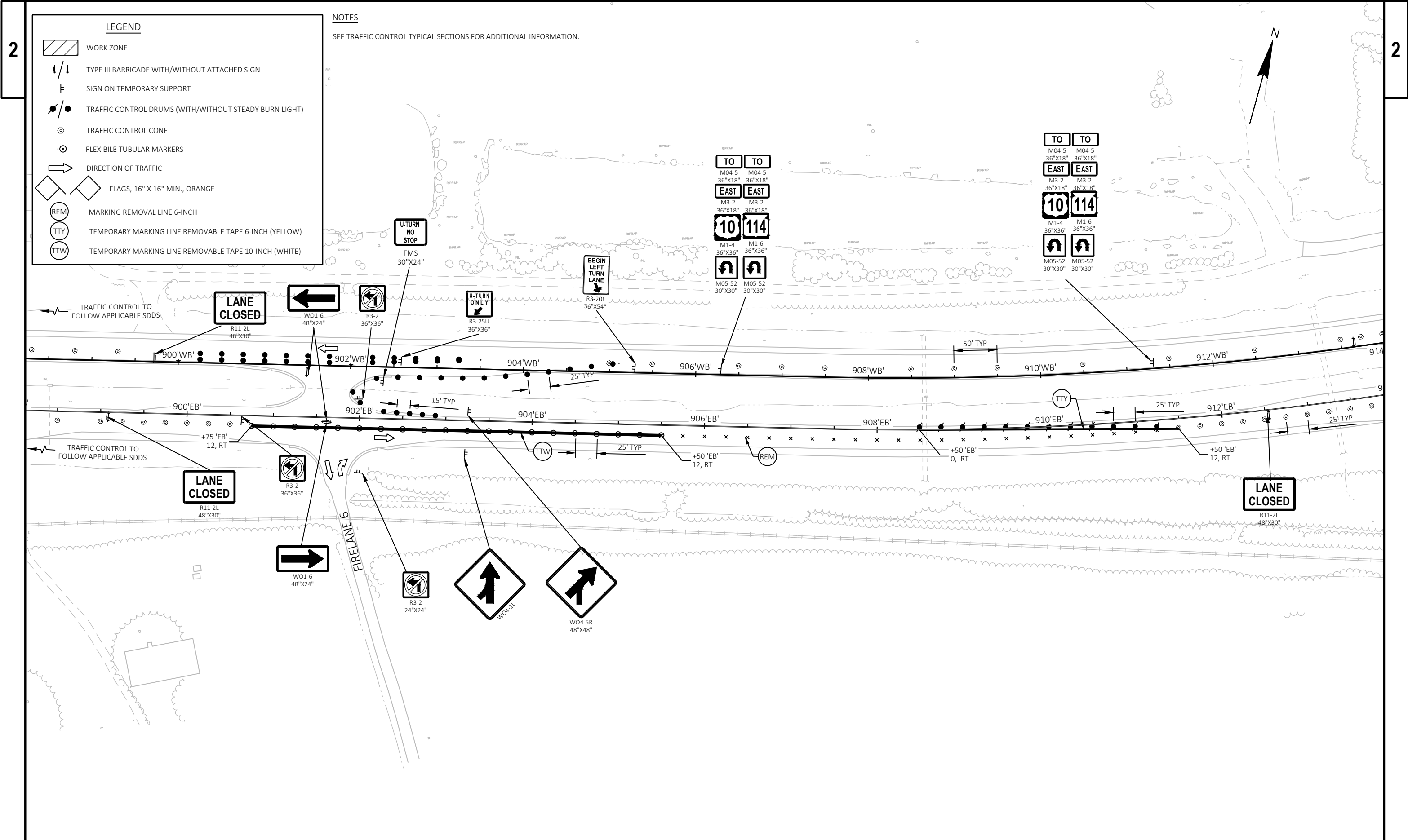
PLOT DATE : 10/31/2025 1:45 PM

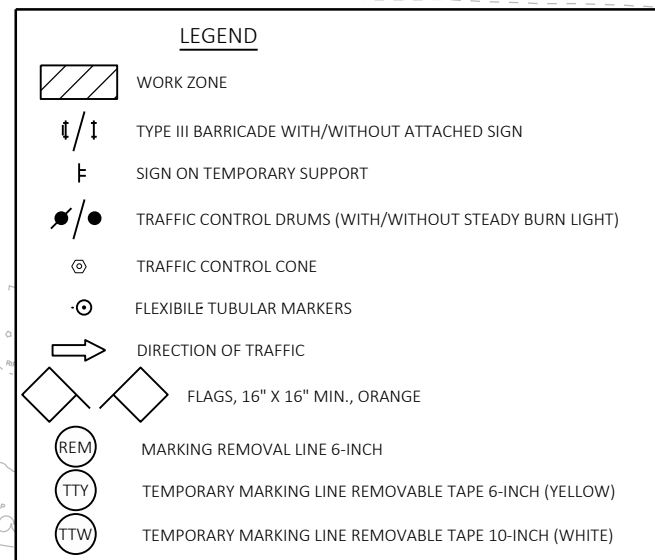
PLOT BY : PARKER TISCHAUSER

PLOT NAME :

PLOT SCALE : 1 IN=40 FT

WISDOT/CADD SHEET 42





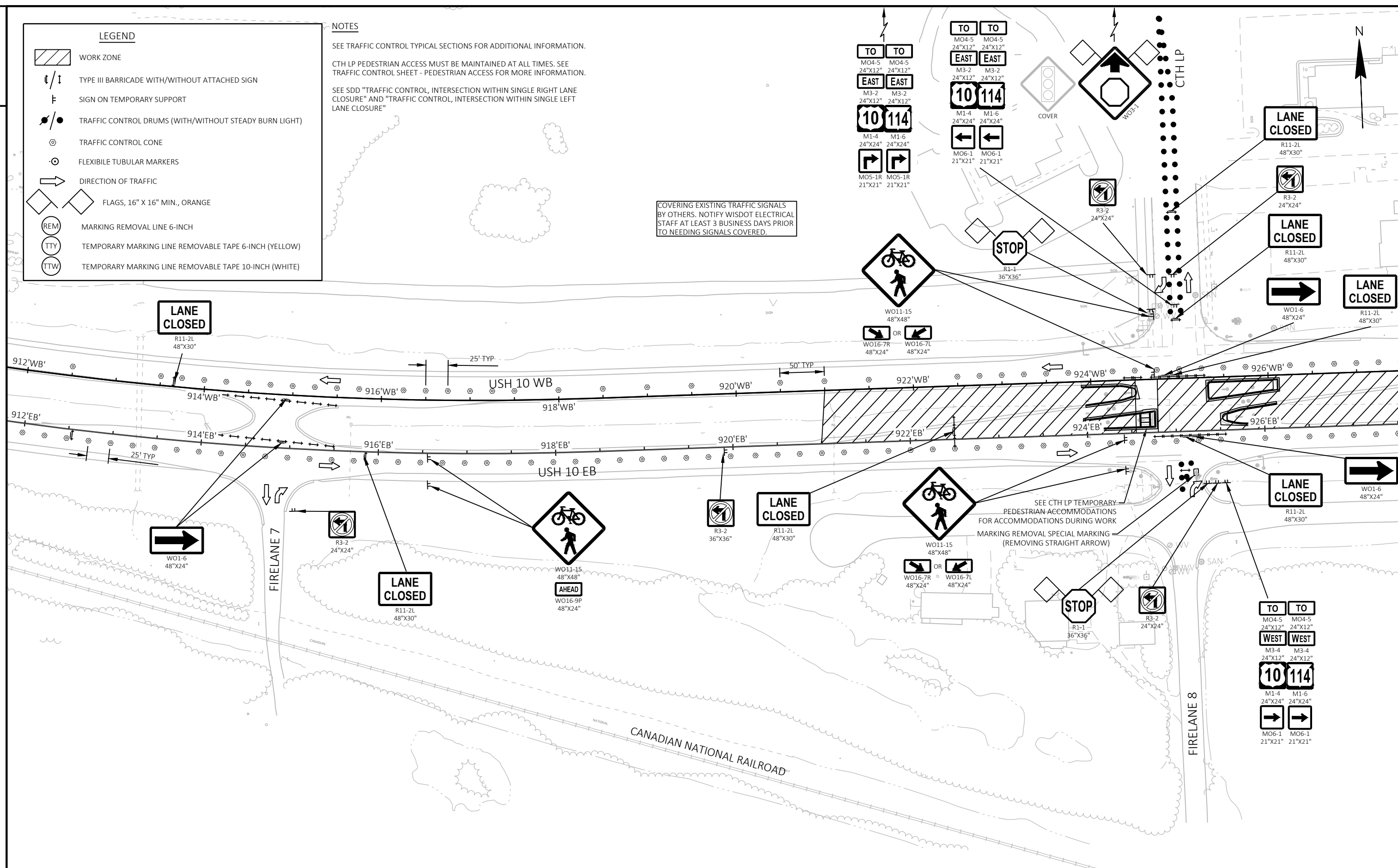
NOTES

SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

CTH LP PEDESTRIAN ACCESS MUST BE MAINTAINED AT ALL TIMES. SEE TRAFFIC CONTROL SHEET - PEDESTRIAN ACCESS FOR MORE INFORMATION.

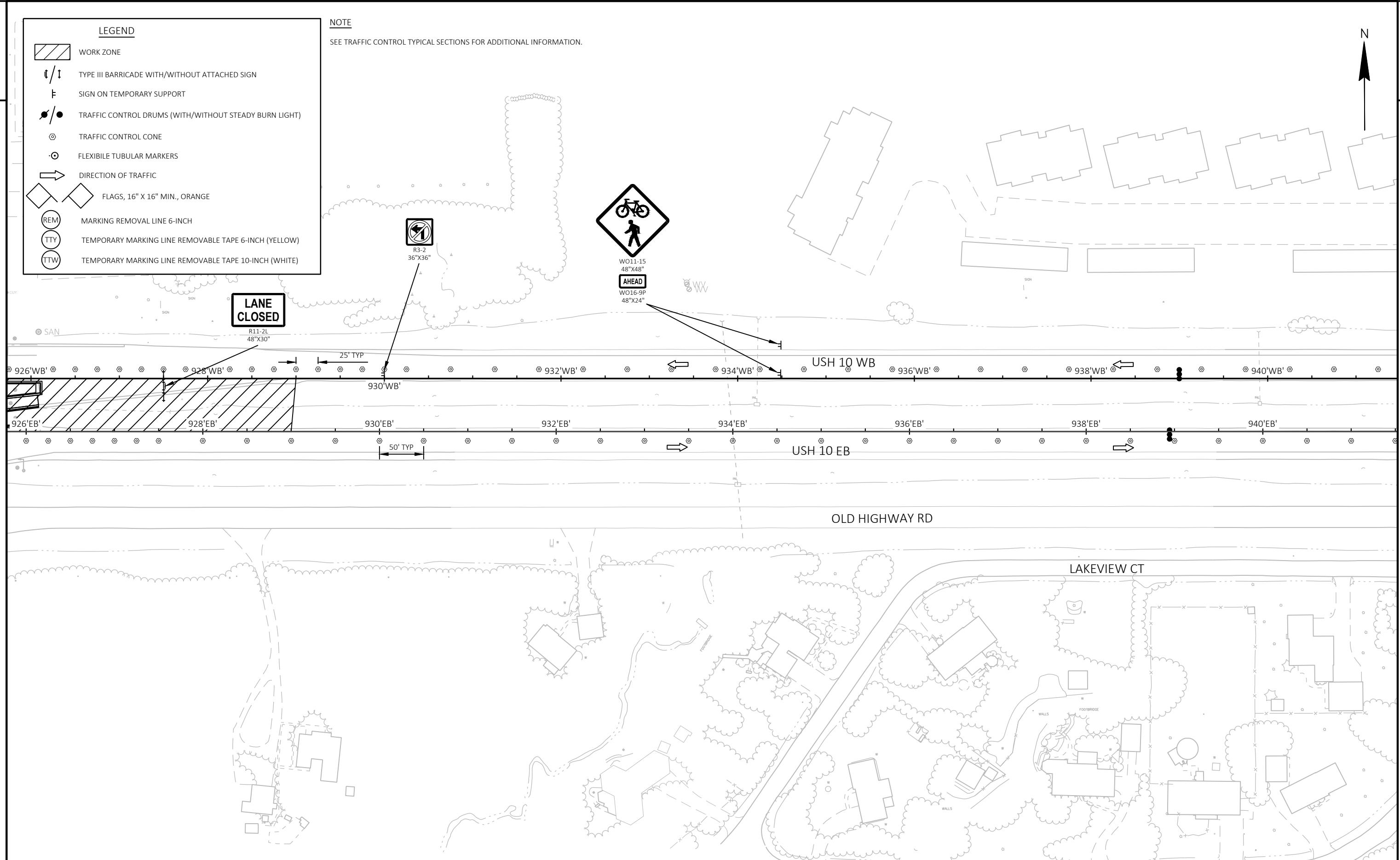
SEE SDD "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE" AND "TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE"

COVERING EXISTING TRAFFIC SIGNALS
BY OTHERS. NOTIFY WISDOT ELECTRICAL
STAFF AT LEAST 3 BUSINESS DAYS PRIOR
TO NEEDING SIGNALS COVERED.



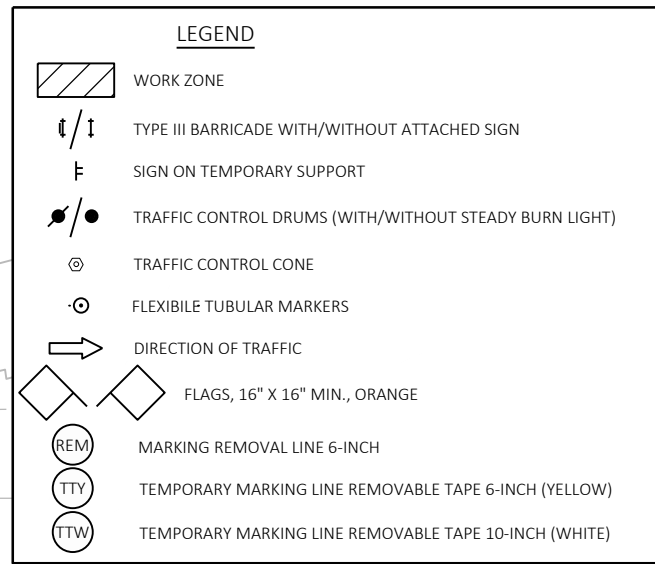
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2



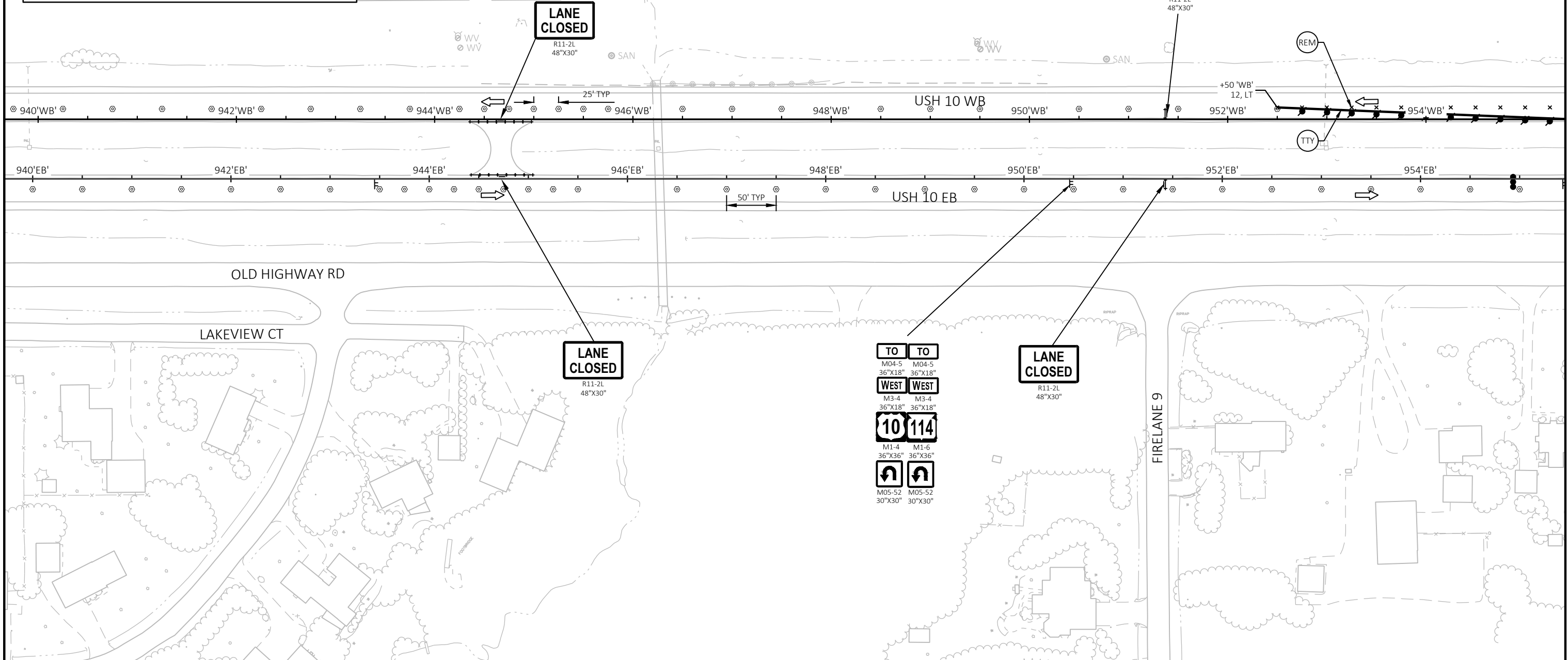
2

2



NOTE

SEE TRAFFIC CONTROL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.



PROJECT NO: 1500-49-61

HWY: USH 10

COUNTY: CALUMET

TRAFFIC CONTROL - DETAIL - CTH LP MEDIAN

SHEET

8

1

FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\SHEETS\025108-TC.DWG
LAYOUT NAME - 04

PLOT DATE : 10/30/2025 2:41 PM

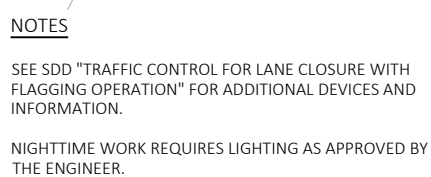
PLOT BY : PARKER TISCHAUSER

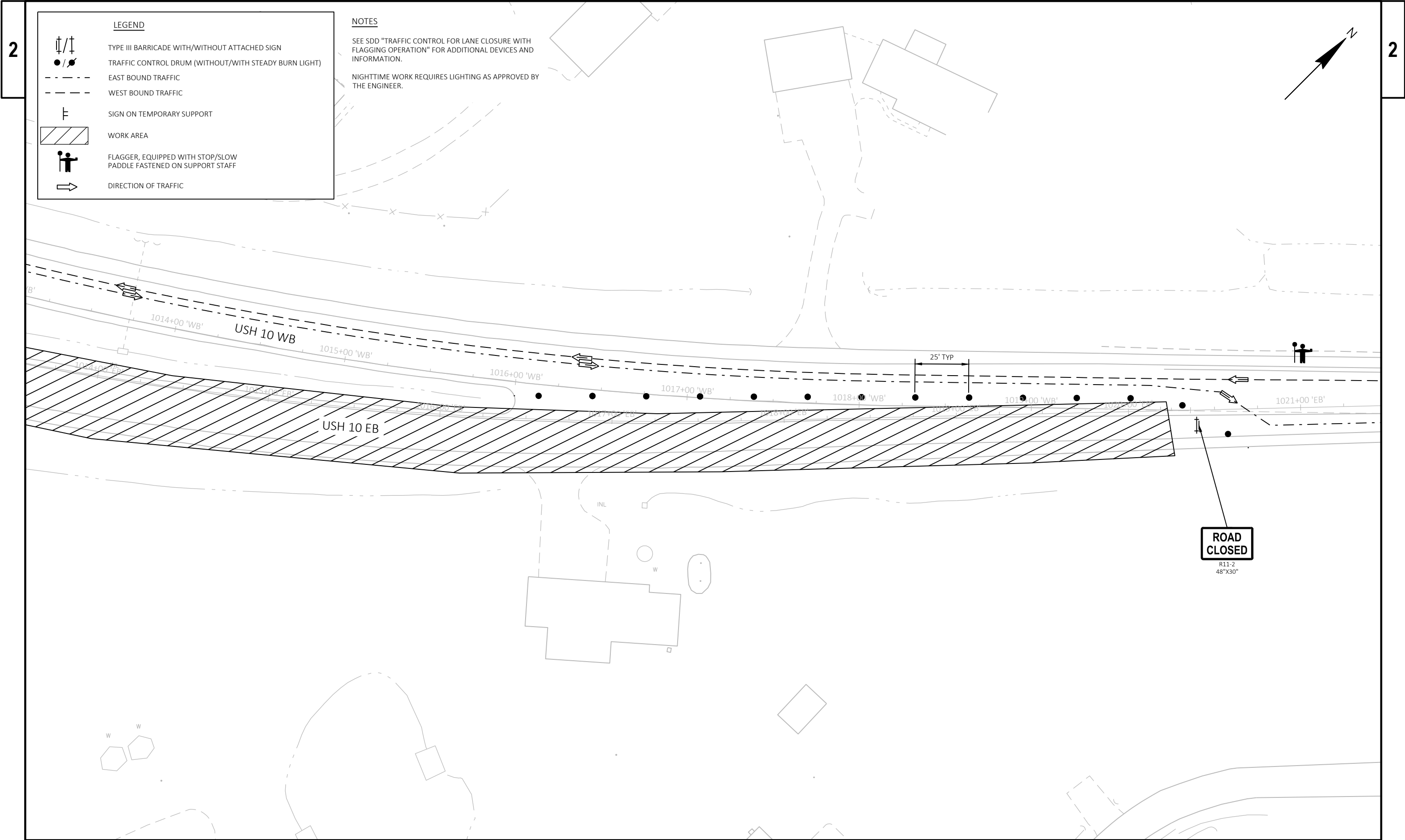
PLOT NAME :

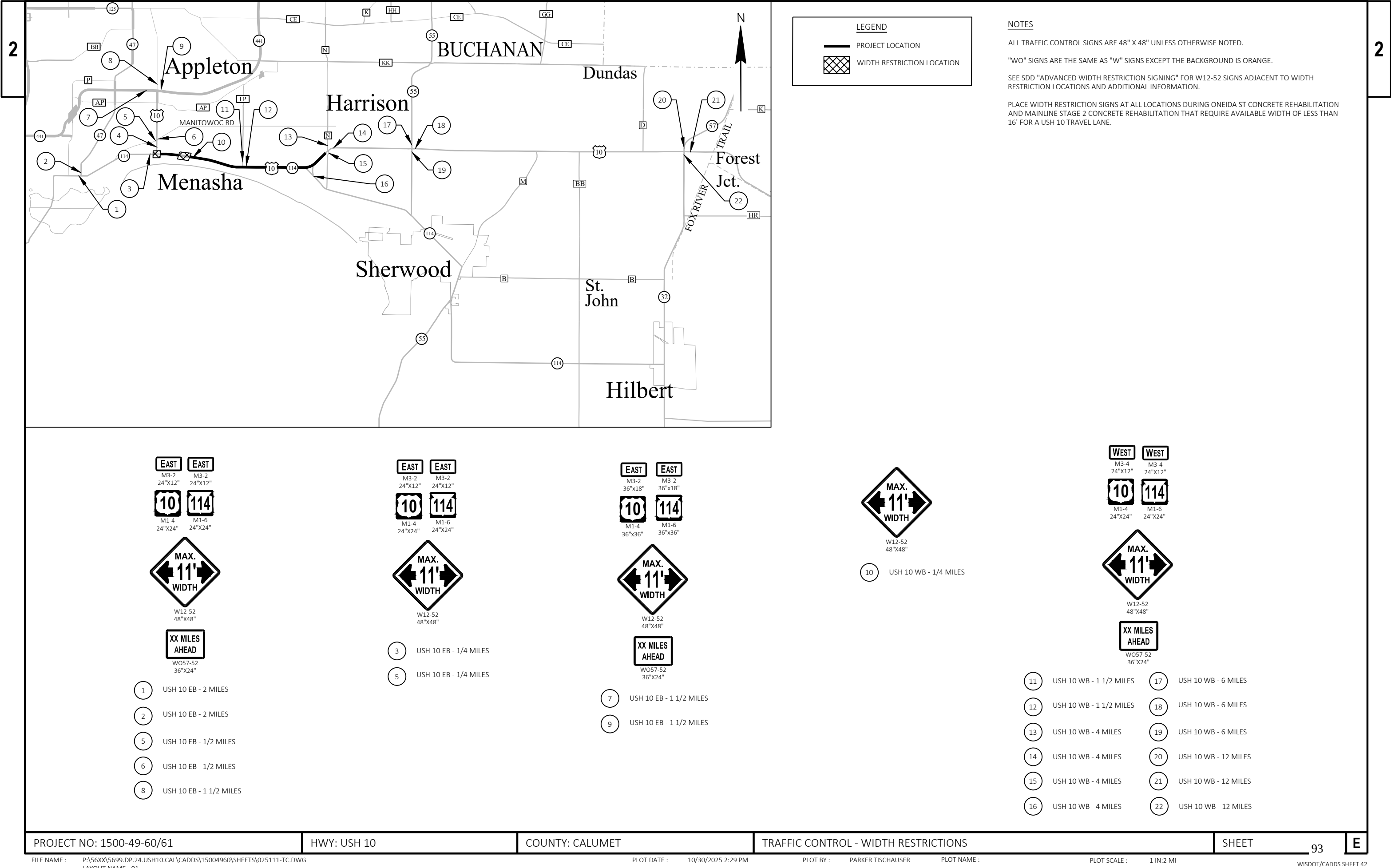
PLOT SCALE : 1 IN:100 FT

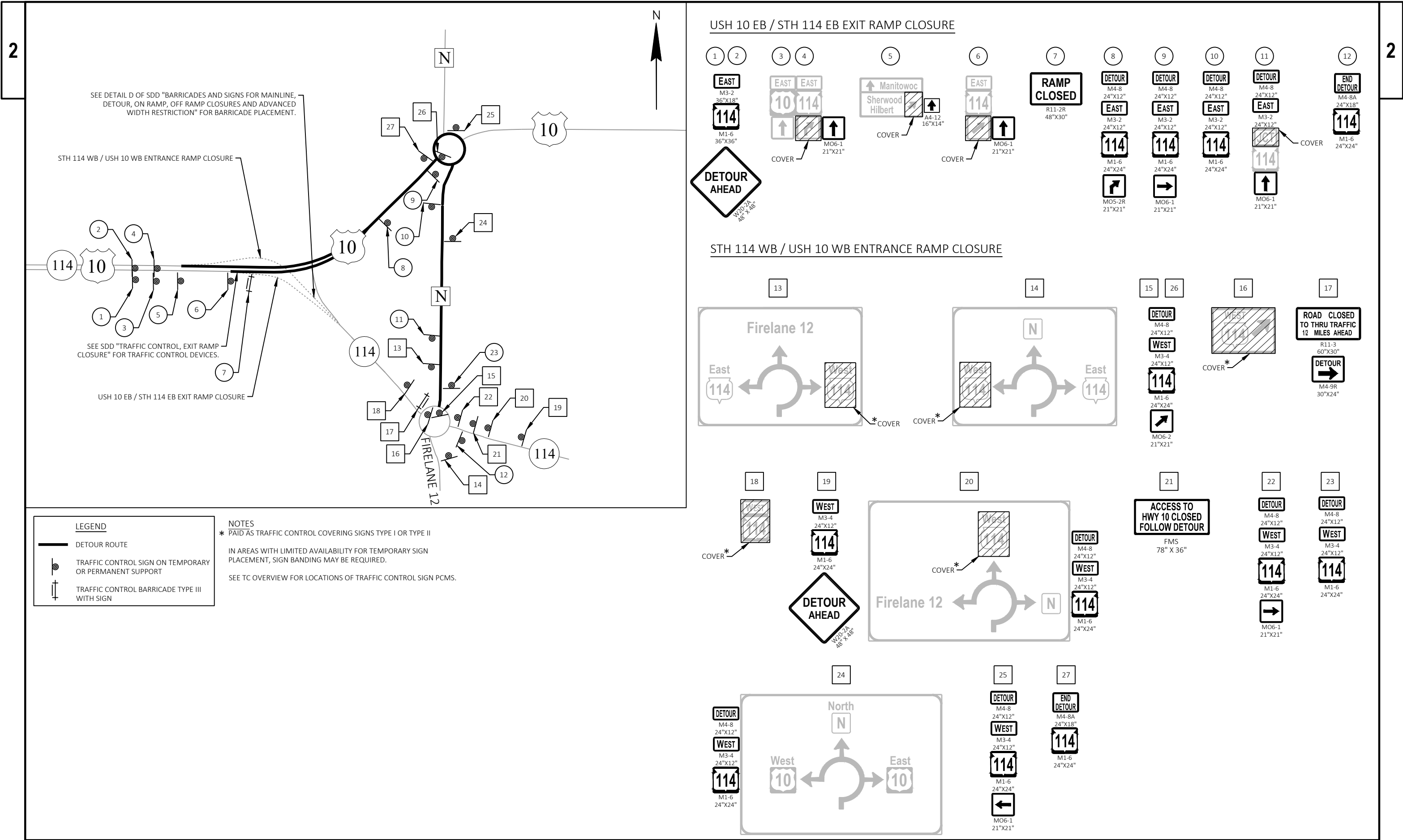
WISDOT/CADDS SHEET 42











Estimate Of Quantities

				1500-49-60	1500-49-61
Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0004	204.0100	Removing Concrete Pavement	SY	1,025.000	320.000
0006	204.0105	Removing Concrete Pavement Butt Joints	SY	520.000	520.000
0008	204.0110	Removing Asphaltic Surface	SY	3,667.000	1,112.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	445.000	50.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	30,635.000	21,360.000
0014	204.0150	Removing Curb & Gutter	LF	1,595.000	717.000
0016	204.0155	Removing Concrete Sidewalk	SY	90.000	25.000
0018	204.0165	Removing Guardrail	LF	1,405.000	400.000
0020	204.0180	Removing Delineators and Markers	EACH	3.000	3.000
0022	204.9060.S	Removing (item description) 01. Apron Endwalls	EACH	3.000	3.000
0024	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 1500-49-60	EACH	1.000	1.000
0026	211.0101	Prepare Foundation for Asphaltic Paving (project) 02. 1500-49-61	EACH	1.000	1.000
0028	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	5.000	5.000
0030	213.0100	Finishing Roadway (project) 01. 1500-49-60	EACH	1.000	1.000
0032	213.0100	Finishing Roadway (project) 02. 1500-49-61	EACH	1.000	1.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	3,210.000	697.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,339.000	431.000
0038	390.0100	Removing Pavement for Base Patching	CY	670.000	670.000
0040	390.0305	Base Patching Concrete HES	CY	595.000	595.000
0042	390.0405	Base Patching Concrete SHES	CY	75.000	75.000
0044	405.0100	Coloring Concrete WisDOT Red	CY	6.000	6.000
0046	415.0090	Concrete Pavement 9-Inch	SY	300.000	300.000
0048	415.0120	Concrete Pavement 12-Inch	SY	18.000	18.000
0050	416.0610	Drilled Tie Bars	EACH	1,690.000	1,107.000
0052	416.0620	Drilled Dowel Bars	EACH	5,095.000	2,265.000
0054	416.1710	Concrete Pavement Repair	SY	585.000	585.000
0056	416.1720	Concrete Pavement Replacement	SY	2,050.000	2,050.000
0058	420.1000	Continuous Diamond Grinding Concrete Pavement	SY	58,780.000	58,780.000
0060	450.4000	HMA Cold Weather Paving	TON	1,555.000	270.000
0062	455.0605	Tack Coat	GAL	9,085.000	1,605.000
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	6,548.000	6,548.000
0070	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	4,710.000	4,710.000
0072	460.2010	Incentive Air Voids HMA Pavement	DOL	15,005.000	2,605.000
0074	460.6224	HMA Pavement 4 MT 58-28 S	TON	15,005.000	2,605.000
0076	465.0110	Asphaltic Surface Patching	TON	503.000	63.000
0078	465.0315	Asphaltic Flumes	SY	15.000	15.000
0080	465.0510	Asphaltic Rumble Strips, Shoulder Divided Roadway	LF	43,645.000	10,050.000
0082	465.0520	Asphaltic Rumble Strips, Shoulder	LF	1,825.000	1,825.000
0084	465.0560	Asphaltic Rumble Strips, Centerline	LF	600.000	600.000
0086	520.8700	Cleaning Culvert Pipes	EACH	35.000	30.000
0088	521.1618	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 10 to 1	EACH	2.000	2.000
0090	522.0418	Culvert Pipe Reinforced Concrete Class IV 18-Inch	LF	70.000	70.000
0092	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	2.000	2.000
0094	522.2619	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	EACH	1.000	1.000
0096	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	755.000	755.000
0098	601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF	670.000	670.000

Estimate Of Quantities

				1500-49-60	1500-49-61	
Line	Item	Item Description	Unit	Total	Qty	Qty
0100	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	270.000		270.000
0102	601.0581	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type R	LF	32.000	32.000	
0104	601.0600	Concrete Curb Pedestrian	LF	30.000		30.000
0106	602.0410	Concrete Sidewalk 5-Inch	SF	2,615.000	795.000	1,820.000
0108	602.0415	Concrete Sidewalk 6-Inch	SF	760.000	230.000	530.000
0110	602.0515	Curb Ramp Detectable Warning Field Natural Patina	SF	60.000		60.000
0112	602.0615	Curb Ramp Detectable Warning Field Radial Natural Patina	SF	50.000	26.000	24.000
0114	602.3210	Concrete Rumble Strips, Shoulder Divided Roadway	LF	10,320.000	10,320.000	
0116	606.0200	Riprap Medium	CY	60.000	19.000	41.000
0118	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000	
0120	611.8115	Adjusting Inlet Covers	EACH	8.000	1.000	7.000
0122	612.0106	Pipe Underdrain 6-Inch	LF	12.000	12.000	
0124	614.0010	Barrier System Grading Shaping Finishing	EACH	6.000	2.000	4.000
0126	614.0220	Steel Thrie Beam Bullnose Terminal	EACH	2.000		2.000
0128	614.0230	Steel Thrie Beam	LF	150.000		150.000
0130	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	50.000	24.000	26.000
0132	614.2300	MGS Guardrail 3	LF	803.100	437.500	365.600
0134	614.2330	MGS Guardrail 3 K	LF	62.500		62.500
0136	614.2340	MGS Guardrail 3 L	LF	562.500	337.500	225.000
0138	614.2350	MGS Guardrail Short Radius	LF	50.000		50.000
0140	614.2610	MGS Guardrail Terminal EAT	EACH	6.000	2.000	4.000
0142	614.2620	MGS Guardrail Terminal Type 2	EACH	3.000	2.000	1.000
0144	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000		1.000
0146	614.8010	Anchor Post Assembly Top Mount	EACH	3.000		3.000
0148	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1500-49-60	EACH	1.000	1.000	
0150	618.0100	Maintenance and Repair of Haul Roads (project) 02. 1500-49-61	EACH	1.000		1.000
0152	619.1000	Mobilization	EACH	1.000	0.400	0.600
0154	620.0300	Concrete Median Sloped Nose	SF	535.000	180.000	355.000
0156	624.0100	Water	MGAL	15.000	5.000	10.000
0158	625.0100	Topsoil	SY	730.000	163.000	567.000
0160	628.1504	Silt Fence	LF	3,200.000	1,190.000	2,010.000
0162	628.1520	Silt Fence Maintenance	LF	3,200.000	1,190.000	2,010.000
0164	628.1905	Mobilizations Erosion Control	EACH	5.000	2.000	3.000
0166	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	1.000	2.000
0168	628.2002	Erosion Mat Class I Type A	SY	730.000	163.000	567.000
0170	628.7005	Inlet Protection Type A	EACH	3.000		3.000
0172	628.7015	Inlet Protection Type C	EACH	11.000	2.000	9.000
0174	628.7504	Temporary Ditch Checks	LF	400.000	90.000	310.000
0176	628.7555	Culvert Pipe Checks	EACH	12.000		12.000
0178	628.7570	Rock Bags	EACH	300.000	110.000	190.000
0180	629.0210	Fertilizer Type B	CWT	1.100	0.300	0.800
0182	630.0130	Seeding Mixture No. 30	LB	10.000		10.000
0184	630.0140	Seeding Mixture No. 40	LB	7.000	3.000	4.000
0186	630.0500	Seed Water	MGAL	22.000	5.000	17.000
0188	633.5200	Markers Culvert End	EACH	13.000	7.000	6.000
0190	638.2102	Moving Signs Type II	EACH	6.000	4.000	2.000
0192	642.5001	Field Office Type B	EACH	1.000	0.400	0.600
0194	643.0300	Traffic Control Drums	DAY	64,120.000	35,533.000	28,587.000
0196	643.0420	Traffic Control Barricades Type III	DAY	5,675.000	3,002.000	2,673.000

Estimate Of Quantities

				1500-49-60	1500-49-61	
Line	Item	Item Description	Unit	Total	Qty	Qty
0198	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	282.000	242.000	40.000
0200	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	282.000	242.000	40.000
0202	643.0705	Traffic Control Warning Lights Type A	DAY	5,678.000	3,320.000	2,358.000
0204	643.0715	Traffic Control Warning Lights Type C	DAY	6,510.000	3,237.000	3,273.000
0206	643.0810	Traffic Control Connected Arrow Boards	DAY	309.000	244.000	65.000
0208	643.0900	Traffic Control Signs	DAY	16,852.000	8,950.000	7,902.000
0210	643.0910	Traffic Control Covering Signs Type I	EACH	3.000		3.000
0212	643.0920	Traffic Control Covering Signs Type II	EACH	11.000	9.000	2.000
0214	643.1000	Traffic Control Signs Fixed Message	SF	49.000		49.000
0216	643.1050	Traffic Control Signs PCMS	DAY	306.000	161.000	145.000
0218	643.1070	Traffic Control Cones 42-Inch	DAY	65,110.000	31,600.000	33,510.000
0220	643.1220	Traffic Control Connected Work Zone Start and End Location Markers	DAY	309.000	244.000	65.000
0222	643.3165	Temporary Marking Line Paint 6-Inch	LF	67,770.000	40,603.000	27,167.000
0224	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	26,940.000	23,410.000	3,530.000
0226	643.3280	Temporary Marking Line Removable Tape 10-Inch	LF	975.000		975.000
0228	643.3350	Temporary Marking Crosswalk Removable Tape 6-inch	LF	360.000	260.000	100.000
0230	643.3550	Temporary Marking Arrow Removable Tape	EACH	3.000	2.000	1.000
0232	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	52.000	52.000	
0234	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	982.000	982.000	
0236	643.5000	Traffic Control	EACH	1.000	0.500	0.500
0238	644.1410	Temporary Pedestrian Surface Asphalt	SF	1,230.000	1,050.000	180.000
0240	644.1440	Temporary Pedestrian Surface Matting	SF	80.000	80.000	
0242	644.1601	Temporary Pedestrian Curb Ramp	DAY	7.000	7.000	
0244	644.1605	Temporary Pedestrian Detectable Warning Field	SF	248.000	168.000	80.000
0246	644.1810	Temporary Pedestrian Barricade	LF	1,035.000	825.000	210.000
0248	644.1900.S	Temporary Audible Message Devices	DAY	21.000	21.000	
0250	645.0120	Geotextile Type HR	SY	185.000	65.000	120.000
0252	646.2025	Marking Line Grooved Black Epoxy 6-Inch	LF	9,970.000	4,950.000	5,020.000
0254	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	83,930.000	37,411.000	46,519.000
0256	646.2050	Marking Line Grooved Permanent Tape 6-Inch	LF	9,970.000	4,950.000	5,020.000
0258	646.4040	Marking Line Grooved Wet Ref Epoxy 10-Inch	LF	30.000	30.000	
0260	646.4050	Marking Line Grooved Permanent Tape 10-Inch	LF	5,450.000	2,092.000	3,358.000
0262	646.5020	Marking Arrow Epoxy	EACH	29.000	21.000	8.000
0264	646.5120	Marking Word Epoxy	EACH	6.000	4.000	2.000
0266	646.5220	Marking Symbol Epoxy	EACH	2.000		2.000
0268	646.5520	Marking Outfall Epoxy	EACH	250.000	90.000	160.000
0270	646.6120	Marking Stop Line Epoxy 18-Inch	LF	304.000	161.000	143.000
0272	646.6466	Cold Weather Marking Epoxy 6-Inch	LF	10,405.000	4,750.000	5,655.000
0274	646.6470	Cold Weather Marking Epoxy 10-Inch	LF	550.000	215.000	335.000
0276	646.7120	Marking Diagonal Epoxy 12-Inch	LF	750.000		750.000
0278	646.7420	Marking Crosswalk Epoxy Transverse Line 6-Inch	LF	755.000	495.000	260.000
0280	646.8120	Marking Curb Epoxy	LF	90.000	70.000	20.000
0282	646.8220	Marking Island Nose Epoxy	EACH	7.000	5.000	2.000
0284	646.8320	Marking Parking Stall Epoxy	LF	1,060.000		1,060.000
0286	646.9000	Marking Removal Line 4-Inch	LF	3,097.000	2,347.000	750.000
0288	646.9002	Marking Removal Line 6-Inch	LF	90.000		90.000
0290	646.9200	Marking Removal Line Wide	LF	40.000	28.000	12.000
0292	646.9300	Marking Removal Special Marking	EACH	7.000	7.000	
0294	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,702.000	762.000	940.000

Estimate Of Quantities

				1500-49-60	1500-49-61	
Line	Item	Item Description	Unit	Total	Qty	Qty
0296	650.6000	Construction Staking Pipe Culverts	EACH	1.000		1.000
0298	650.8000	Construction Staking Resurfacing Reference	LF	42,036.000	19,513.000	22,523.000
0300	650.9000	Construction Staking Curb Ramps	EACH	5.000	1.000	4.000
0302	650.9500	Construction Staking Sidewalk (project) 01. 1500-49-60	EACH	1.000	1.000	
0304	650.9500	Construction Staking Sidewalk (project) 02. 1500-49-61	EACH	1.000		1.000
0306	650.9911	Construction Staking Supplemental Control (project) 01.1500-49-60	EACH	1.000	1.000	
0308	650.9911	Construction Staking Supplemental Control (project) 02. 1500-49-61	EACH	1.000		1.000
0310	652.0210	Conduit Rigid Nonmetallic Schedule 40 1-Inch	LF	5.000		5.000
0312	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	80.000		80.000
0314	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	180.000		180.000
0316	652.0800	Conduit Loop Detector	LF	1,386.000	582.000	804.000
0318	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	14.000	3.000	11.000
0320	653.0905	Removing Pull Boxes	EACH	21.000	6.000	15.000
0322	655.0230	Cable Traffic Signal 5-14 AWG	LF	1,979.000		1,979.000
0324	655.0240	Cable Traffic Signal 7-14 AWG	LF	1,147.000		1,147.000
0326	655.0260	Cable Traffic Signal 12-14 AWG	LF	1,057.000		1,057.000
0328	655.0305	Cable Type UF 2-12 AWG Grounded	LF	1,929.000		1,929.000
0330	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	1,813.000		1,813.000
0332	655.0700	Loop Detector Lead In Cable	LF	6,679.000	1,883.000	4,796.000
0334	655.0800	Loop Detector Wire	LF	4,844.000	2,386.000	2,458.000
0336	690.0150	Sawing Asphalt	LF	4,186.000	1,301.000	2,885.000
0338	690.0250	Sawing Concrete	LF	12,496.000	6,646.000	5,850.000
0340	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000	
0342	740.0440	Incentive IRI Ride	DOL	62,900.000	29,300.000	33,600.000
0344	SPV.0060	Special 01. Removing Raised Pavement Markers Without Overlay	EACH	180.000	180.000	
0346	SPV.0060	Special 02. Removing Raised Pavement Markers With Overlay	EACH	90.000		90.000
0348	SPV.0060	Special 03. Adjusting Sanitary Manhole Covers	EACH	2.000	2.000	
0350	SPV.0060	Special 04. Salvage and Reinstall Apron Endwall for Underdrain	EACH	2.000	2.000	
0352	SPV.0060	Special 05. Remove Traffic Signal (USH10/STH114/Oneida Street)	EACH	1.000	1.000	
0354	SPV.0060	Special 06. Remove Traffic Signal (USH 10/STH 114/CTH LP)	EACH	1.000		1.000
0356	SPV.0090	Special 01. Concrete Joint and Crack Cleaning and Repiar	LF	1,083.000		1,083.000
0358	SPV.0090	Special 02. Ditch Cleaning	LF	255.000		255.000

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PREPARE FOUNDATION ITEMS							
				211.0101.01 PREPARE FOUNDATION FOR ASPHALTIC PAVING (1500-49-60) EACH	211.0101.02 PREPARE FOUNDATION FOR ASPHALTIC PAVING (1500-49-61) EACH	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	COMMENTS
PROJECT	STATION	TO	STATION	OFFSET			
1500-49-60							
	PROJECT			--	1	--	--
1500-49-60 TOTALS					1	--	--
1500-49-61							
	1026+00	-	1030+30	RT	--	--	5
	PROJECT			--	--	1	--
1500-49-61 TOTALS					--	1	5
TOTALS					1	1	5

BASE AGGREGATE ITEMS						
			305.0110	305.0120*		
			BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON		
PROJECT	STATION	TO	STATION	OFFSET	COMMENTS	
1500-49-60						
	814+93'EB'	-	819+92'EB'	LT & RT	5	--
	819+92'EB'	-	912+38'EB'	LT & RT	261	--
	819+92'WB'	-	912+61'WB'	LT & RT	272	--
	881+62'EB'	-	887+76'EB'	RT	91	227
	885+54'WB'	-	889+41'WB'	LT	68	195
1500-49-60 TOTALS					697	422
1500-49-61						
	912+38'EB'	-	1030+30'EB'	LT & RT	1,178	--
	912+61'WB'	-	1016+01'WB'	LT & RT	1,098	--
	923+95'EB'	-	925+98'EB'	LT & RT	10	--
	945+06'WB'	-	949+12'WB'	LT	66	193
	962+43'WB'	-	964+09'WB'	LT & RT	--	261
	1021+57'EB'	-	1026+02'EB'	LT	86	256
	1022+84'EB'	-	1025+97'EB'	LT	70	198
	CTH N		--		5	--
1500-49-61 TOTALS					2,513	908
TOTALS					3,210	1,330

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

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					CONCRETE PAVEMENT ITEMS															
					204.0110*	390.0100	390.0305	390.0405	405.0100	415.0090	415.0120	416.1710	416.1720	420.1000	465.0110*	690.0150*	690.0250*	SPV.0090.01		
					REMOVING ASPHALTIC SURFACE	REMOVING PAVEMENT FOR BASE PATCHING	BASE PATCHING CONCRETE HES	BASE PATCHING CONCRETE SHES	COLORING CONCRETE WISDOT RED	CONCRETE PAVEMENT 9-INCH	CONCRETE PAVEMENT 12-INCH	CONCRETE PAVEMENT REPAIR	CONCRETE PAVEMENT REPLACEMENT	CONTINUOUS DIAMOND GRINDING CONCRETE PAVEMENT	ASPHALTIC SURFACE PATCHING	SAWING ASPHALT	SAWING CONCRETE	CONCRETE JOINT AND CRACK CLEANING AND REPAIR		
PROJECT	STATION	TO	STATION	OFFSET	SY	CY	CY	CY	CY	SY	SY	SY	SY	SY	TON	LF	LF	LF	COMMENTS	
1500-49-60	814+93'EB'	-	819+92'EB'	RT	5	--	--	--	--	--	--	47	91	--	2	24	294	--	EB DRIVING LANE / S ONEIDA STREET	
	814+93'EB'	-	819+92'EB'	LT	--	--	--	--	4	--	13	40	65	--	--	--	588	--	EB PASSING LANE / LT TURN LANE	
	814+93'WB'	-	819+92'WB'	LT	--	--	--	--	--	37	--	47	601	--	--	--	1,128	--	WB DRIVING LANE / RT TURN LANE	
	814+93'WB'	-	819+92'WB'	RT	--	--	--	--	--	98	--	61	73	--	--	--	499	--	WB PASSING LANE / LT TURN LANE	
	819+92'EB'	-	912+38'EB'	RT	49	--	--	--	--	--	--	148	183	14,392	14	250	755	--	EB DRIVING LANE	
	819+92'EB'	-	912+38'EB'	RT	37	--	--	--	--	--	--	22	267	12,294	10	239	550	--	EB PASSING LANE	
	819+92'EB'	-	847+88'EB'	LT	--	--	--	--	--	--	--	--	--	5,164	--	--	--	--	MEDIAN	
	819+92'WB'	-	912+61'WB'	LT	80	--	--	--	--	--	--	160	398	12,358	24	440	949	--	WB DRIVING LANE	
	819+92'WB'	-	912+61'WB'	LT	29	--	--	--	--	--	--	27	242	14,572	8	147	489	--	WB PASSING LANE	
	372+26	-	374+64	LT	--	--	--	--	--	165	--	33	32	--	--	--	462	--	SB ONEIDA STREET	
372+26	-	374+64	RT	--	--	--	--	2	--	5	--	98	--	--	--	211	--	NB ONEIDA STREET		
1500-49-60 TOTALS					200	--	--	--	6	300	18	585	2,050	58,780	58	1,100	5,925	--		
1500-49-61																				
912+38'EB' - 1012+32'EB'					RT	88	154	154	--	--	--	--	--	--	26	507	1,189	--	EB DRIVING LANE	
912+38'EB' - 1012+32'EB'					RT	34	82	82	--	--	--	--	--	--	10	203	891	--	EB PASSING LANE	
912+61'WB' - 1019+92'WB'					LT	106	199	199	--	--	--	--	--	--	30	643	1,900	--	WB DRIVING LANE	
912+61'WB' - 1019+92'WB'					LT	59	109	109	--	--	--	--	--	--	17	323	915	--	WB PASSING LANE	
923+88'EB' - 926+14'EB'					LT	--	51	51	--	--	--	--	--	--	--	--	78	--	CTH LP MEDIAN	
978+50'WB' - 986+83'WB'					LT	--	--	--	--	--	--	--	--	--	--	--	--	--	833	STH 114 WB / USH 10 WB ENTRANCE RAMP LANE
1012+32'EB' - 1030+30'EB					RT	15	45	--	45	--	--	--	--	--	5	95	301	--	EB MAINLINE	
1012+32'EB' - 1030+30'EB					LT	14	30	--	30	--	--	--	--	--	4	84	266	--	WB MAINLINE	
1020+50'EB' - 1023+00'EB'					RT	--	--	--	--	--	--	--	--	--	--	--	--	250	EB DRIVING LANE	
1500-49-61 TOTALS					315	670	595	75	--	--	--	--	--	--	92	1,855	5,540	1,083		
TOTALS					515	670	595	75	6	300	18	585	2,050	58,780	150	2,955	11,465	1,083		

NOTES:
REMOVING ASPHALTIC SURFACE, ASPHALTIC SURFACE PATCHING, AND SAWING ASPHALT BID ITEMS ACCOUNT FOR 2-FOOT WIDE PATCHES OF THE ASPHALT SHOULDER ADJACENT TO CONCRETE PAVEMENT REPAIR, CONCRETE PAVEMENT REPLACEMENT, AND BASE PATCHING CONCRETE AREAS.
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

PROJECT NO: 1500-49-60/61

HWY: USH 10

COUNTY: CALUMET

MISCELLANEOUS QUANTITIES

SHEET

100

E

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ASPHALTIC ITEMS

PROJECT	STATION	TO	STATION	OFFSET	450.4000	455.0605	460.6224	460.0105.S	460.0110.S	465.0110*	465.0315	690.0150*	COMMENTS
					HMA COLD WEATHER PAVING TON	TACK COAT GAL	HMA PAVEMENT 4 MT 58-28 S TON	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH	ASPHALTIC SURFACE PATCHING TON	ASPHALTIC FLUMES SY	SAWING ASPHALT LF	
1500-49-60													
	819+92'	EB'	-	912+38'	EB'	RT	--	469	751	--	--	--	EB DRIVING LANE / INTERSECTIONS
	819+92'	EB'	-	912+38'	EB'	LT	--	364	586	--	--	--	EB PASSING LANE / MEDIANS
	819+92'	WB'	-	912+61'	WB'	LT	--	498	798	--	--	--	WB DRIVING LANE / INTERSECTIONS
	819+92'	WB'	-	912+61'	WB'	RT	--	166	269	--	--	--	WB PASSING LANE
	881+62'	EB'	-	887+77'	EB'	RT	--	66	123	--	--	12	GUARDRAIL REPLACEMENT
	885+54'	WB'	-	889+41'	WB'	LT	--	42	78	--	--	12	GUARDRAIL REPLACEMENT
UNDISTRIBUTED					--	270	--	--	--	--	--	--	
1500-49-60 TOTALS						270	1,605	2,605	--	--	--	24	
1500-49-61													
	912+38'	EB'	-	1030+30'	EB'	LT & RT	--	1,863	2,995	--	--	--	EB DRIVING LANE
	912+38'	EB'	-	1012+32'	EB'	LT & RT	--	1,280	2,053	--	--	--	EB PASSING LANE
	912+38'	EB'	-	917+54'	EB'	LT & RT	--	172	322	--	--	--	FIRELANE 7 / MEDIAN
	912+61'	WB'	-	1030+30'	WB'	LT	--	1,965	3,141	--	--	--	WB DRIVING LANE
	912+61'	WB'	-	1019+92'	WB'	LT & RT	--	1,195	1,917	--	--	--	WB PASSING LANE
	922+79'	EB'	-	930+61'	EB'	LT&RT	--	124	232	--	--	--	CTH LP / FIRELANE 8
	944+41'	EB'	-	945+06'	EB'	LT	--	28	52	--	--	--	MAINTENANCE CROSSOVER
	945+06'	WB'	-	949+12'	WB'	LT	--	44	82	--	--	12	GUARDRAIL REPLACEMENT
	957+02'	EB'	-	964+89'	EB'	LT	--	175	335	--	--	140	EISENHOWER DR MEDIAN
	962+43'	WB'	-	964+09'	WB'	LT	--	35	197	--	--	68	EISENHOWER DR
	974+96'	EB'	-	980+28'	EB'	LT & RT	--	185	345	--	--	--	OLD HWY RD / MEDIAN
	1009+26'	WB'	-	1012+32'	WB'	LT & RT	--	129	240	--	--	--	FRONTAGE RD / MEDIAN
	1021+57'	EB'	-	1026+02'	EB'	LT	--	51	95	--	--	10	GUARDRAIL REPLACEMENT
	1022+03'	EB'	-	1023+00'	EB'	RT	--	43	80	--	--	--	ZIRBEL DR
	1022+84'	EB'	-	1025+98'	EB'	RT	--	34	63	--	--	65	GUARDRAIL REPLACEMENT
CTH N					--	--	157	251	--	--	5	--	PARK AND RIDE
PROJECT / UNDISTIBUTED					--	1,285	--	--	1	1	300	--	250
1500-49-61 TOTALS						1,285	7,480	12,400	1	1	305	15	545
TOTALS						1,555	9,085	15,005	1	1	305	15	569

UNDISTRIBUTED ASPHALTIC SURFACE PATCHING AND SAWING ASPHALT USED FOR MISCELLANEOUS REPAIRS IN MEDIAN SHOULDER DESIGNATED BY THE ENGINEER
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

465.0520	465.0560	465.0510	602.3210

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

ASPHALTIC MATERIAL/HMA ACCEPTANCE TABLE

PROJECT	LOCATION	STA	TO	STA	MIXTURE USE	UNDERLYING		TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
						SURFACE	BID ITEM			MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
1500-49-60											
	OUTSIDE SHOULDER / INTERSECTIONS	820+49'EB' - 820+15'WB'	-	912+38'EB' - 912+61'WB'	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	1,549	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	MEDIAN SHOULDER / MEDIAN OPENINGS	846+23'EB' - 846+25'WB'	-	912+38'EB' - 912+61'WB'	UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	855	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	GUARDRAIL	881+62'EB' - 885+54'WB'	-	887+77'EB' - 889+41'WB'	LOWER LAYER	BASE AGGREGATE	HMA PAVEMENT 4 MT 58-28 S	100	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	GUARDRAIL	881+62'EB' - 885+54'WB'	-	887+77'EB' - 889+41'WB'	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	101	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	VARIOUS PATCHES	814+93'EB' - 814+93'WB'	-	912+38'EB' - 912+61'WB'	PATCHING AFTER IMPROVEMENTS / SHOULDER REPAIRS	BASE AGGREGATE	ASPHALTIC SURFACE PATCHING	65	VARIES	(SS 465)	ORDIANRY COMPACTION (SS 450.3.2.6.2)
1500-49-61											
	12 FOOT DRIVING LANE	912+38'EB' - 912+61'WB'	-	1026+14'EB' - 1019+92'WB'	UPPER LAYER	EXISTING CONCRETE SURFACE	HMA PAVEMENT 4 MT 58-28 S	3,512	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
	12 FOOT PASSING LANE	912+38'EB' - 912+61'WB'	-	1012+65'EB' - 1015+65'WB'	UPPER LAYER	EXISTING CONCRETE SURFACE	HMA PAVEMENT 4 MT 58-28 S	3,036	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
	OUTSIDE / MEDIAN SHOULDER	912+38'EB' - 912+61'WB'	-	1030+30'EB' - 1019+92'WB'	UPPER LAYER	EXISITNG ASPAHLT SURFACE*	HMA PAVEMENT 4 MT 58-28 S	3,148	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	INTERSECTIONS / MEDIAN OPENINGS	912+38'EB' - 913+73'WB'	-	1023+00'EB' - 1012+20'WB'	LOWER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	803	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	INTERSECTIONS / MEDIAN OPENINGS	912+38'EB' - 913+73'WB'	-	1023+00'EB' - 1012+20'WB'	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	803	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	CTH LP INTERSECTION	921+07'EB' - 923+89'WB'	-	926+16'EB' - 928+96'WB'	UPPER LAYER	EXISTING CONCRETE SURFACE	HMA PAVEMENT 4 MT 58-28 S	410	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	GUARDRAIL	945+06'WB' - 1020+93'EB' - 1023+44'EB'	-	949+12'WB' - 1026+02'EB' - 1026+14'EB'	LOWER LAYER	BASE AGGREGATE	HMA PAVEMENT 4 MT 58-28 S	120	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	GUARDRAIL	945+06'WB' - 1020+93'EB' - 1023+44'EB'	-	949+12'WB' - 1026+02'EB' - 1026+14'EB'	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	120	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	EISENHOWER DR	962+43'WB'	-	964+09'WB'	LOWER LAYER	BASE AGGREGATE	HMA PAVEMENT 4 MT 58-28 S	118	3"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	EISENHOWER DR	962+43'WB'	-	964+09'WB'	UPPER LAYER	4 MT 58-28 S	HMA PAVEMENT 4 MT 58-28 S	79	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	PARK & RIDE (CTH N)	N/A			UPPER LAYER	MILLED EXISTING HMA SURFACE	HMA PAVEMENT 4 MT 58-28 S	251	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	DEPARTMENT ACCEPTANCE (SS 460.3.3.2) *NOT ELIGIBLE FOR INCENTIVE
	VARIOUS PATCHES	912+38'EB' - 912+61'WB'	-	1030+30'EB' - 1019+92'WB'	PATCHING AFTER IMPROVEMENTS / SHOULDER REPAIRS	BASE AGGREGATE	ASPHALTIC SURFACE PATCHING	440	VARIES	(SS 465)	ORDIANRY COMPACTION (SS 450.3.2.6.2)

NOTE:
*THE DRIVING LANE CONCRETE PANEL EXTENDS 2-FEET INTO THE OUTSIDE SHOULDER.

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CULVERT MAINTENANCE ITEMS

PROJECT	STATION	TO	STATION	OFFSET	520.8700	633.5200*	SPV.0090.02	COMMENTS
					CLEANING CULVERT PIPES EACH	MARKERS CULVERT END EACH	DITCH CLEANING LF	
1500-49-60								
	825+33'	WB'	LT		2	--	--	2-24"x30" CPRCHE; NORTH AEW ONLY
	831+51'	WB'	LT		3	--	--	3-34"x53" CPRCHE; NORTH AEW ONLY
	842+18'	WB'	LT		2	1	--	2-34"x53" CPRCHE; NORTH AEW ONLY
	847+68'	WB'	LT		2	--	--	2-34"x53" CPRCHE; NORTH AEW ONLY
	855+88'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	859+46'	EB'	LT & RT		1	1	--	29"x45" CPRCHE; NORTH & SOUTH AEW ONLY
	863+15'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	866+50'	EB'	LT & RT		1	2	--	24"x38" CPRCHE; NORTH & SOUTH AEW ONLY
	871+85'	EB'	RT		2	--	--	2-30" CPRCHE; SOUTH AEW ONLY
	879+40'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	884+08'	EB'	RT		2	1	--	2-33"x49" CPRCHE; SOUTH AEW ONLY
	886+58'	EB'	RT		1	1	--	4"x12" BOX CULVERT; SOUTH AEW ONLY
	891+16'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	897+40'	EB'	LT & RT		6	--	--	3-29"x45" CPRCHE; NORTH & SOUTH AEW ONLY
	898+41'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	901+62'	EB'	LT		1	1	--	18" CPRC; NORTH AEW ONLY
	908+55'	EB'	LT & RT		2	--	--	2-19"x30" CPRCHE; NORTH & SOUTH AEW ONLY
1500-49-60 TOTALS					30	7	--	
1500-49-61								
	913+32'	EB'	LT & RT		2	--	--	24" CPRC; NORTH & SOUTH AEW ONLY
	945+65'	EB'	LT		--	--	120	
	961+85'	EB'	LT		--	--	100	
	963+75'	EB'	LT		--	--	35	
	988+53'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	1005+31'	EB'	RT		1	--	--	18" CPRC; SOUTH AEW ONLY
	1013+73'	WB'	LT		1	1	--	18" CPRC; NORTH AEW ONLY
1500-49-61 TOTALS					5	1	255	
TOTALS					35	8	255	

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CULVERT PIPE ITEMS

PROJECT		STATION	OFFSET	521.1618 APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 10 TO 1 EACH	522.0418 CULVERT PIPE REINFORCED CONCRETE CLASS IV 18-INCH LF	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH EACH	522.2619 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 19X30-INCH EACH	633.5200* MARKERS CULVERT END EACH
1500-49-61								
		939+91'WB'	LT	--	--	1	--	1
		952+99'WB'	LT	--	--	--	1	1
		963+10'WB'	RT	2	70	--	--	2
		973+06'WB'	LT	--	--	1	--	1
1500-49-61 TOTALS				2	70	2	1	5

NOTES:
CULVERT PIPE INVERTS ARE SHOWN ON PLANS
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CONCRETE CURB & GUTTER ITEMS

				465.0110* ASPHALTIC SURFACE PATCHING TON	601.0409 CONCRETE CURB & GUTTER 30-INCH TYPE A LF	601.0581 CONCRETE CURB & GUTTER 4-INCH TYPED 30-INCH TYPE R LF	601.0555 CONCRETE CURB & GUTTER 6-INCH TYPED 36-INCH TYPE A LF	601.0557 CONCRETE CURB & GUTTER 6-INCH TYPED 36-INCH TYPE D LF	601.0600 CONCRETE CURB PEDESTRIAN LF	620.0300 CONCRETE MEDIAN SLOPED NOSE SF	690.0150* SAWING ASPHALT LF	690.0250* SAWING CONCRETE LF		
PROJECT	STATION	TO	STATION	OFFSET										COMMENTS
1500-49-60														
	814+93'EB'	-	820+49'EB'	LT & RT	2	680	--	--	--	--	180	105	665	EB MAINLINE / MEDIAN WB MAINLINE SB ONEIDA ST
	814+93'WB'	-	819+52'WB'	LT	--	75	24	--	--	--	--	--	--	
	814+93'WB'	-	816+13'WB'	LT	--	--	8	--	--	--	--	--	--	
1500-49-60 TOTALS					2	755	32	--	--	--	180	105	665	
1500-49-61														
	923+88'EB'	-	927+11'EB'	LT	--	--	--	670	132	30	355	138	292	CTH LP INTERSECTION FIRELANE 8 EISENHOWER DR / MEDIAN
	924+44'EB'	-	925+43'EB'	RT	29	--	--	--	99	--	--	208	6	
	962+90'WB'	-	963+60'WB'	LT & RT	14	--	--	--	39	--	--	139	12	
1500-49-61 TOTALS					43	--	--	670	270	30	355	485	310	
TOTALS					45	755	32	670	270	30	535	590	975	

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

PROJECT NO: 1500-49-60/61

HWY: USH 10

COUNTY: CALUMET

MISCELLANEOUS QUANTITIES

SHEET

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					602.0410 CONCRETE SIDEWALK 5-INCH SF	602.0415 CONCRETE SIDEWALK 6-INCH SF	602.0515 CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA SF	602.0615 CURB RAMP DETECTABLE WARNING FIELD RADIAL NATURAL PATINA SF	690.0250* SAWING CONCRETE LF
PROJECT	STATION	TO	STATION	OFFSET					
1500-49-60									
	815+50'EB'	-	816+56'EB'	RT	--	190	--	26	20
	815+72'WB'	-	815+77'WB'	LT	--	40	--	--	18
	818+82'EB'	-	819+85'EB'	LT	795	--	--	--	18
1500-49-60 TOTALS					795	230	--	26	56
1500-49-61									
	923+95'EB'	-	925+98'EB'	LT & RT	--	530	60	24	--
	923+97'EB'	-	926+18'EB'	LT	1,820	--	--	--	--
1500-49-61 TOTALS					1,820	530	60	24	--
TOTALS					2,615	760	60	50	56

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT	STATION	TO	STATION	OFFSET	606.0200	645.0120
					RIPRAP MEDIUM CY	GEOTEXTILE TYPE HR SY
1500-49-60						
	886+40'	WB'	- 886+90'	WB'	14	46
	886+48'	EB'	- 886+72'	EB'	5	19
1500-49-60 TOTALS					19	65
1500-49-61						
	946+05'	WB'	- 946+50'	WB'	25	69
	1023+26'	EB'	- 1023+57'	EB'	11	36
	1023+74'	EB'	- 1023+87'	EB'	5	15
1500-49-61 TOTALS					41	120
TOTALS					60	185

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				204.0110*	305.0120* BASE AGGREGATE DENSE 1 1/4-INCH TON	465.0110* ASPHALTIC SURFACE PATCHING TON	611.8110 ADJUSTING MANHOLE COVERS EACH	611.8115 ADJUSTING INLET COVERS EACH	690.0150* SAWING ASPHALT LF	SPV.0060.03 ADJUSTING SANITARY MANHOLE COVERS EACH
PROJECT	CATEGORY	STATION	OFFSET	SY	TON	TON	EACH	EACH	LF	EACH
1500-49-60	0010	817+28'EB'	RT	--	--	--	--	1	--	--
		871+66'WB'	LT	4	3	1	1	--	24	--
1500-49-60 CAT 0010 TOTALS				4	3	1	1	1	24	--
1500-49-60	0020	834+62'WB'	LT	4	3	1	--	--	24	1
		871+78'WB'	LT	4	3	1	--	--	24	1
1500-49-60 CAT 0020 TOTALS				8	6	2	--	--	48	2
1500-49-60 TOTALS				12	9	3	1	1	72	2
1500-49-61	0010	923+96'WB'	RT	--	--	--	--	1	--	--
		924+05'EB'	LT	--	--	--	--	3	--	--
		925+37'WB'	RT	--	--	--	--	1	--	--
		925+59'EB'	LT	--	--	--	--	1	--	--
		925+62'EB'	LT	--	--	--	--	1	--	--
		1500-49-61 CAT 0010 TOTALS				--	--	--	7	--
1500-49-61 TOTALS				--	--	--	7	--	--	
TOTALS				12	9	3	1	8	72	2

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT	STATION	OFFSET	612.0106 PIPE UNDERDRAIN 6-INCH LF	SPV.0060.04 SALVAGE AND REINSTALL APRON ENDWALL FOR UNDERDRAIN EACH
1500-49-60				
	881+65'EB'	RT	6	1
	889+61'WB'	LT	6	1
1500-49-60 TOTALS			12	2

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10 UNLESS OTHERWISE NOTED.

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BARRIER SYSTEM GRADING SHAPING FINISHING ITEMS																	
					614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	** EXCAVATION COMMON CY	** FILL CY	** BORROW CY	** TOPSOIL SY	** EROSION MAT CLASS I TYPE A SY	** EROSION MAT URBAN CLASS I TYPE B SY	** FERTILIZER TYPE B CWT	** SEEDING MIXTURE NO. 30 LB	** SEED WATER MGAL	** CONSTRUCTION STAKING SUBGRADE LF	** CONSTRUCTION STAKING BASE LF	** CONSTRUCTION STAKING SLOPE STAKES LF
PROJECT	STATION	TO	STATION	OFFSET													
1500-49-60	881+13'EB'	-	887+91'EB'	RT	1	--	149	149	735	537	198	0.5	13	17	678	678	678
	885+21'WB'	-	890+13'WB'	LT	1	--	151	151	465	368	97	0.3	8	10	492	492	492
1500-49-60 TOTALS					2	--	300	300	1,200	905	295	0.8	21	27	1,170	1,170	1,170
1500-49-61	945+06'WB'	-	949+58"WB'	LT	1	--	104	104	463	392	71	0.3	8	10	452	452	452
	999+82'EB'	-	1005+87'EB'	LT	1	--	415	415	2,453	2,453	--	1.5	44	55	605	605	605
	1020+93'EB'	-	1026+75'EB'	LT	1	--	406	406	1,046	378	668	0.7	19	24	573	573	573
	1022+89'EB'	-	1026+75'EB'	RT	1	--	240	240	738	490	248	0.5	13	17	385	385	385
	1500-49-61 TOTALS					4	--	1,165	1,165	4,700	3,713	987	3.0	84	106	2,015	2,015
TOTALS					6	--	1,465	1,465	5,900	4,618	1,282	3.8	105	132	3,185	3,185	3,185

****NON-BID ITEM, ITEMS AND QUANTITIES LISTED FOR BID INFORMATION ONLY. ITEMS INCIDENTAL TO BARRIER SYSTEM GRADING SHAPING FINISHING.**

					GUARDRAIL ITEMS										
					614.0220 STEEL THRIE BEAM BULLNOSE TERMINAL EACH	614.0230 STEEL THRIE BEAM LF	614.0397 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2330 MGS GUARDRAIL 3 K LF	614.2340 MGS GUARDRAIL 3 L LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	614.8010 ANCHOR POST ASSEMBLY TOP MOUNT EACH
PROJECT	STATION	TO	STATION	OFFSET											
1500-49-60															
	882+02'EB'	-	887+57'EB'	RT	--	--	10	275.0	--	225.0	--	1	1	--	--
	885+74'WB'	-	889+01'WB'	LT	--	--	14	162.5	--	112.5	--	1	1	--	--
1500-49-60 TOTALS					--	--	24	437.5	--	337.5	--	2	2	--	--
1500-49-61															
	945+26'WB'	-	949+67'WB'	LT	--	--	11	137.5	--	112.5	--	1	1	--	--
	1001+92'EB'	-	1003+77'EB'	LT	2	150	--	--	--	--	--	--	--	--	--
	1022+02'EB'	-	1025+32'EB'	LT	--	--	15	112.5	--	112.5	--	2	--	--	--
	1022+89'EB'	-	1025+28'EB'	RT	--	--	--	115.6	62.5	--	50	1	--	1	3
1500-49-61 TOTALS					2	150	26	365.6	62.5	225.0	50	4	1	1	3
TOTALS					2	150	50	803.1	62.5	562.5	50	6	3	1	3

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

WATER		
PROJECT	LOCATION	624.0100 MGAL
1500-49-60	PROJECT	5
1500-49-60 TOTAL		5
1500-49-61	PROJECT	10
1500-49-61 TOTAL		10
TOTAL		15

RESTORATION ITEMS											
PROJECT	STATION	TO	STATION	OFFSET	625.0100	628.2002	629.0210	630.0130	630.0140	630.0500	COMMENTS
					TOPSOIL SY	EROSION MAT CLASS I TYPE A SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEEDING MIXTURE NO. 40 LB	SEED WATER MGAL	
1500-49-60											
	814+93'EB'	-	820+49'EB'	RT	105	105	0.1	--	2	3	CURB RAMPS & CURB AND GUTTER REPLACEMENTS
	814+93'WB'	-	819+92'WB'	LT	25	25	0.1	--	1	1	CURB RAMPS & CURB AND GUTTER REPLACEMENTS
UNDISTRIBUTED					--	33	33	0.1	--	1	1
1500-49-60 TOTALS						163	163	0.3	--	3	5
1500-49-61											
	923+90'EB'	-	926+15'EB'	LT & RT	114	114	0.1	--	3	3	CURB RAMPS & CURB AND GUTTER REPLACEMENTS
	939+80'WB'	-	940+10'WB'	LT	23	23	0.1	1	--	1	APRON ENDWALL REPLACEMENT
	945+60'WB'	-	946+77'WB'	RT	107	107	0.1	2	--	3	DITCH CLEANING
	952+90'WB'	-	953+10'WB'	LT	23	23	0.1	1	--	1	APRON ENDWALL REPLACEMENT
	961+85'EB'	-	964+10'EB'	LT	163	163	0.2	3	--	4	DITCH CLEANING
	972+90'WB'	-	973+10'WB'	LT	23	23	0.1	1	--	1	APRON ENDWALL REPLACEMENT
UNDISTRIBUTED						114	114	0.1	2	1	3
1500-49-61 TOTALS						567	567	0.8	10	4	17
TOTALS						730	730	1.1	10	7	22

EROSION CONTROL ITEMS

PROJECT	STATION	TO	STATION	OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7005 INLET PROTECTION TYPE A EACH	628.7015 INLET PROTECTION TYPE C EACH	628.7570 ROCK BAGS EACH
1500-49-60											
	881+13'EB'	-	887+91'EB'	RT	590	590	36	--	--	1	45
	885+21'WB'	-	890+13'WB'	LT	360	360	36	--	--	--	45
UNDISTRIBUTED					--	240	240	18	--	1	20
1500-49-60 TOTALS					1,190	1,190	90	--	--	2	110
1500-49-61											
	923+88'EB'	-	926+14'EB'	LT	--	--	--	--	--	7	--
	945+06'WB'	-	949+58'WB'	LT	400	400	24	--	--	--	45
	945+60'WB'	-	946+77'WB'	RT	--	--	--	--	1	--	--
	961+85'EB'	-	964+10'EB'	LT	--	--	12	3	--	--	--
	999+82'EB'	-	1005+87'EB'	LT	330	330	84	--	1	--	--
	1020+93'EB'	-	1026+75'EB'	LT	560	560	48	3	--	--	60
	1022+89'EB'	-	1026+75'EB'	RT	320	320	84	3	--	--	45
UNDISTRIBUTED					--	400	58	3	1	2	40
1500-49-61 TOTALS					2,010	2,010	310	12	3	9	190
TOTALS					3,200	3,200	400	12	3	11	300

EROSION CONTROL MOBILIZATION

PROJECT	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
1500-49-60	PROJECT	2	1
1500-49-60 TOTALS		2	1
1500-49-61	PROJECT	3	2
1500-49-61 TOTALS		3	2
TOTALS		5	3

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

MOVING SIGNS ITEM

638.2102 MOVING SIGNS TYPE II EACH			
PROJECT	STATION	OFFSET	
1500-49-60	816+99'EB'	LT	1
	882+58'EB'	RT	1
	888+13'WB'	LT	1
	889+50'WB'	LT	1
1500-49-60 TOTAL			4
1500-49-61	1004+30'EB'	LT	1
	1024+79'EB'	LT	1
1500-49-61 TOTAL			2
TOTAL			6

TRAFFIC CONTROL ITEMS

				643.0300		643.0420		643.0500		643.0600		643.0705		643.0715		643.0810		643.1220		643.0900		643.1050		643.1070		
PROJECT	STAGE	LOCATION	STAGE	TRAFFIC		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL CONNECTED		TRAFFIC		TRAFFIC		TRAFFIC		
			DURATION	CONTROL	DRUMS	BARRICADES	TYPE III	FLEXIBLE TUBULAR	MARKER POSTS	FLEXIBLE TUBULAR	MARKER BASES	WARNING LIGHTS	TYPE A	WARNING LIGHTS	TYPE C	CONNECTED ARROW	WORK ZONE START AND END	LOCATION MARKERS	CONTROL SIGNS	CONTROL SIGNS	PCMS	CONTROL CONES	42-INCH			
			DAYS	NO.	DAY	NO.	DAY	EACH	EACH	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	
1500-49-60																										
	--	PRIOR TO PROJECT	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--	
	1	PASSING LANES / TWTL / MEDIAN SHOULDERS	40	367	14,699	16	640	--	--	10	400	15	600	2	80	2	80	52	2,080	--	--	350	14,000			
	A-1	USH 10 / ONEIDA ST REPAIRS	7	169	1,183	35	245	44	44	54	378	42	294	2	14	2	14	90	630	3	21	--	--			
STAGE 1 SUBTOTALS				15,952		885		44	44	778		894		94		94		2,710		35		14,000				
	--	PRIOR TO STAGE 2	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	2	DRIVING LANES / OUTSIDE SHOULDERS	40	292	11,699	16	640	--	--	10	400	15	600	2	80	2	80	58	2,320	--	--	440	17,600			
	A-2A	USH 10 / ONEIDA ST REPAIRS	14	202	2,828	37	518	58	58	50	700	51	714	2	28	2	28	80	1,120	4	28	--	--			
	A-2B	USH 10 / ONEIDA ST REPAIRS	7	189	1,323	31	217	41	41	46	322	37	259	1	7	1	7	83	581	4	28	--	--			
	A-2C	USH 10 / ONEIDA ST REPAIRS	7	157	1,099	36	252	38	38	52	364	28	196	1	7	1	7	115	805	4	28	--	--			
	A-2D	USH 10 / ONEIDA ST REPAIRS	14	183	2,562	35	490	62	62	54	756	41	574	2	28	2	28	101	1,414	4	28	--	--			
STAGE 2 SUBTOTALS				19,581		2,117		198	198	2,542		2,343		150		150		6,240		126		17,600				
1500-49-60 TOTALS				35,533		3,002		242	242	3,320		3,237		244		244		8,950		161		31,600				
1500-49-61																										
	--	PRIOR TO PROJECT	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	1	MEDIAN SHOULDER REPAIRS	5	316	1,579	29	145	--	--	22	110	37	185	1	5	1	5	61	305	--	--	390	1,950			
STAGE 1 SUBTOTALS				1,649		145		--	--	110		185		5		5		305		14		1,950				
	--	PRIOR TO STAGE 2	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	2	DRIVING LANE REPAIRS	20	312	6,236	17	340	--	--	14	280	33	660	1	20	1	20	60	1,200	--	--	390	7,800			
STAGE 2 SUBTOTALS				6,306		340		--	--	280		660		20		20		1,200		14		7,800				
	--	PRIOR TO STAGE 3	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	3	PASSING LANES / MEDIAN SHOULDERS	20	316	6,316	29	580	--	--	22	440	37	740	1	20	1	20	61	1,220	--	--	390	7,800			
	--	PRIOR TO EISENHOWER DR CLOSURE	7	20	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	--	PRIOR / AFTER CTH LP CLOSURE	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	42	--	--			
	3	CTH LP CLOSURE	12	63	756	41	492	40	40	48	576	--	--	--	--	--	--	55	660	1	12	30	360			
	--	PRIOR TO PARK AND RIDE CLOSURE	7	5	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	7	--	--			
	3	PARK AND RIDE	5	--	--	8	40	--	--	8	40	--	--	--	--	--	--	1	5	--	--	--	--			
STAGE 3 SUBTOTALS				7,317		1,112		40	40	1,056		740		20		20		1,885		89		8,160				
	--	PRIOR TO STAGE 4	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	4	DRIVING LANES / OUTSIDE SHOULDERS	20	312	6,236	17	340	--	--	14	280	33	660	1	20	1	20	122	2,440	--	--	390	7,800			
	4	PRIOR TO RAMP CLOSURE	7	10	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	14	--	--			
	4	USH 10/STH 114 RAMP DETOUR	12	52	624	13	156	--	--	16	192	24	288	--	--	--	--	71	852	--	--	--	--			
STAGE 4 SUBTOTALS				7,000		496		--	--	472		948		20		20		3,292		28		7,800				
	5	PASSING LANES / MEDIAN SHOULDERS	20	316	6,316	29	580	--	--	22	440	37	740	--	--	--	--	61	1,220	--	--	390	7,800			
STAGE 5 SUBTOTALS				6,316		580		--	--	440		740		--		--		1,220		--		7,800				
1500-49-61 TOTALS				28,587		2,673		40	40	2,358		3,273		65		65		7,902		145		33,510				
TOTALS				64,120		5,675		282	282	5,678		6,510		309		309		16,852		306		65,110				

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

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TRAFFIC CONTROL COVERING SIGNS									
PROJECT	STAGE	LOCATION	NUMBER OF CYCLES	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I		643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		COMMENTS	
				NO.	EACH	NO.	EACH		
1500-49-60	A-1 (A-2A, A-2B, A-2C, A-2D)		1	--	--	1	1	TRAFFIC SIGNAL AHEAD	
	A-1 (A-2A, A-2B, A-2C, A-2D)		1	--	--	1	1	TRAFFIC SIGNAL AHEAD	
	A-1 (A-2A, A-2B)		1	--	--	1	1	LT LANE CONTROL	
	A-2A (A-2B, A-2C)		1	--	--	1	1	LT LANE CONTROL	
	A-2C		1	--	--	1	1	MIDDLE LANE CONTROL	
	A-2D		1	--	--	1	1	CENTER LANE LEFT TURN ONLY	
	A-2D		1	--	--	1	1	LT LANE CONTROL / MIDDLE LANE CONTROL / RT LANE CONTROL	
	A-2D		1	--	--	1	1	KEEP RIGHT	
	A-2D		1	--	--	1	1	LT LANE CONTROL / MIDDLE LANE CONTROL / RT LANE CONTROL	
1500-49-60 TOTALS					--		9		
1500-49-61									
	4	STH 114 WB / USH 10 WB ENTRANCE RAMP CLOSURE	1	1	1	--	--	SIGN 13	
	4	STH 114 WB / USH 10 WB ENTRANCE RAMP CLOSURE	1	1	1	--	--	SIGN 14	
	4	STH 114 WB / USH 10 WB ENTRANCE RAMP CLOSURE	1	--	--	1	1	SIGN 16	
	4	STH 114 WB / USH 10 WB ENTRANCE RAMP CLOSURE	1	--	--	1	1	SIGN 18	
	4	STH 114 WB / USH 10 WB ENTRANCE RAMP CLOSURE	1	1	1	--	--	SIGN 20	
1500-49-61 TOTALS					3		2		
TOTALS					3		11		

TRAFFIC CONTROL SIGNS FIXED MESSAGE				
PROJECT	LOCATION	SIGN SIZE W X H IN X IN	643.1000	
			SF	SIGN MESSAGE
1500-49-61	USH 10 WB / FIRE LANE 6	30" X 24"	5.00	U-TURN / NO / STOP
	USH 10 EB / EISENHOWER DR	30" X 24"	5.00	U-TURN / NO / STOP
	DETOUR SIGN 21	78" X 36"	19.50	ACCESS TO / HWY 10 CLOSED / FOLLOW DETOUR
	CTH N PARK AND RIDE	78" X 36"	19.50	PARK AND RIDE / CLOSED / XXX-XX TO XXX-XX
	1500-49-61 TOTAL		49.00	

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

PROJECT NO: 1500-49-60/61

HWY: USH 10

COUNTY: CALUMET

MISCELLANEOUS QUANTITIES

SHEET

E

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TEMPORARY PAVEMENT MARKING ITEMS

							643.3165			643.3180			643.3280	643.3850	643.3960	646.9000*	646.9200*	646.9300*		
							TEMPORARY MARKING LINE PAINT 6-INCH			TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH			TEMPORARY MARKING LINE REMOVABLE TAPE 10-INCH	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH	TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH	MARKING REMOVAL LINE 4-INCH	MARKING REMOVAL LINE WIDE	MARKING REMOVAL SPECIAL MARKING		
PROJECT	STAGE	LOCATION	STATION	TO	STATION	OFFSET	12.5' LINE 37.5' SKIP WHITE LF	SOLID WHITE LF	SOLID YELLOW LF	2' LINE 6' SKIP WHITE LF	2' LINE 6' SKIP YELLOW LF	12.5' LINE 37.5' SKIP WHITE LF	SOLID WHITE LF	SOLID YELLOW LF	LF	LF	LF	LF	LF	
1500-49-60																				
	1	EB PASSING LANES / TWTL / MEDIAN SHOULDERS	814+53'EB'	-	912+38'EB'	RT	2,413	--	8,707	--	--	--	--	400	--	--	--	--	--	
	1	WB PASSING LANES / TWTL / MEDIAN SHOULDERS	814+53'WB'	-	912+61'WB'	LT	2,475	--	8,643	--	--	--	--	245	--	--	--	80	--	
	A-1	USH 10 / ONEIDA ST REPAIRS	801+00'EB'	-	836+27'EB'	LT & RT	--	--	--	--	--	--	2,658	4,755	--	12	60	1,370	--	
STAGE 1 SUBTOTALS							4,888		17,350	--	--	--	2,658	5,400		--	12	60	1,450	--
								22,238				8,058								2
	2	EB DRIVING LANES / OUTSIDE SHOULDERS	814+53'EB'	-	912+38'EB'	RT	--	8,950	--	--	--	--	400	--	--	--	--	--	--	
	2	WB DRIVING LANES / OUTSIDE SHOULDERS	814+53'WB'	-	912+61'WB'	LT	--	9,415	--	--	--	--	--	--	--	--	--	--	--	
	A-2A	USH 10 / ONEIDA ST REPAIRS	801+00'EB'	-	836+27'EB'	LT & RT	--	--	--	--	39	--	2,805	5,765	--	12	463	817	12	
	A-2B	USH 10 / ONEIDA ST REPAIRS	801+00'EB'	-	836+27'EB'	LT & RT	--	--	--	45	36	140	1,170	627	--	12	--	--	16	
	A-2C	USH 10 / ONEIDA ST REPAIRS	801+00'EB'	-	836+27'EB'	LT & RT	--	--	--	--	--	107	1,014	75	--	--	--	80	--	
	A-2D	USH 10 / ONEIDA ST REPAIRS	801+00'EB'	-	836+27'EB'	LT & RT	--	--	--	--	60	--	1,319	1,750	--	16	460	--	--	
STAGE 2 SUBTOTALS							--	18,365	--	45	135	247	6,708	8,217		--	40	922	898	28
								18,365				15,352								5
PROJECT 1500-49-60 TOTALS								40,603				23,410			--	--	52	982	2,347	28
1500-49-61																				
	1	WB MEDIAN SHOULDERS	912+61'WB'	-	1023+43'WB'	LT	--	--	--	--	--	--	--	660	--	--	--	690	--	
STAGE 1 SUBTOTALS							--	--	--	--	--	--	--	660		--	--	--	690	--
	2	WB DRIVING LANES	912+61'WB'	-	1023+43'WB'	LT	--	--	--	--	--	--	660	--	--	--	--	--	--	
STAGE 2 SUBTOTALS							--	--	--	--	--	--	660	--		--	--	--	--	--
	3	EB PASSING LANES / MEDIAN SHOULDERS	912+38'EB'	-	1030+30'EB'	RT	2,470	--	11,147	--	--	--	--	300	475	--	--	--	--	
	3	WB PASSING LANES / MEDIAN SHOULDERS	912+61'WB'	-	1023+43'WB'	LT	2,550	--	11,000	--	--	--	--	960	500	--	--	--	--	
STAGE 3 SUBTOTALS							5,020	--	22,147	--	--	--	--	1,260	975	--	--	--	--	--
								27,167				1,260								
	4	WB DRIVING LANES / OUTSIDE SHOULDERS	912+61'WB'	-	1023+43'WB'	LT	--	--	--	--	--	--	660	--	--	--	--	--	--	
	4	USH 10/STH 114 RAMP DETOUR	992+50'EB'	-	996+75'EB'	RT	--	--	--	--	--	--	200	--	--	--	--	--	--	
STAGE 4 SUBTOTALS							--	--	--	--	--	--	860	--		--	--	--	--	--
								--				--								
PROJECT 1500-49-61 TOTALS								27,167				3,440			975	--	--	690	--	--
TOTALS								67,770				26,850			975	52	982	3,037	28	7

NOTE:
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

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TEMPORARY PEDESTRIAN FACILITIES																		
						643.3180*	643.3350		643.3550	644.1410	644.1440	644.1601	644.1605	644.1810	644.1900.S	646.9000*	646.9002	646.9200*
						TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH		TEMPORARY MARKING CROSSWALK REMOVABLE TAPE 6-INCH	TEMPORARY MARKING ARROW REMOVABLE TAPE EACH	TEMPORARY PEDESTRIAN SURFACE ASPHALT SF	TEMPORARY PEDESTRIAN SURFACE MATTING SF	TEMPORARY PEDESTRIAN CURB RAMP DAY	TEMPORARY PEDESTRIAN DETECTABLE WARNING FIELD SF	TEMPORARY PEDESTRIAN BARRICADE LF	TEMPORARY AUDIBLE MESSAGE DEVICES DAY	MARKING REMOVAL LINE 4-INCH LF	MARKING REMOVAL LINE 6-INCH LF	MARKING REMOVAL LINE WIDE LF
PROJECT	STAGE	STATION	TO	STATION	OFFSET	STAGE DURATION DAYS	SOLID WHITE LF	SOLID YELLOW LF										
1500-49-60	A-1	815+25'EB'	-	816+75'EB'	LT & RT	7	--	--	--	--	480	80	7	8	200	7	--	--
STAGE 1 SUBTOTALS							--	--	--	--	480	80	7	8	200	7	--	--
	A-2A	815+25'EB'	-	816+75'EB'	LT & RT	14	--	--	--	--	370	--	--	32	220	--	--	--
	A-2B	815+25'EB'	-	816+75'EB'	LT & RT	7	--	--	120	--	--	--	64	150	--	--	--	--
	A-2C	815+25'EB'	-	816+75'EB'	LT & RT	7	--	--	--	2	--	--	32	135	--	--	--	--
	A-2D	815+25'EB'	-	816+75'EB'	LT & RT	14	--	--	140	--	200	--	--	32	120	14	--	--
STAGE 2 SUBTOTALS							--	--	260	2	570	--	--	160	625	14	--	--
1500-49-60 TOTALS							--		260	2	1,050	80	7	168	825	21	--	--
1500-49-61	3	924+50'EB'	-	925+50'EB'	LT & RT	12	30	60	100	1	180	--	--	80	210	--	60	90
1500-49-61 TOTALS							30	60	100	1	180	--	--	80	210	--	60	90
							90											
TOTALS							90		360	3	1,230	80	7	248	1,035	21	60	90
NOTE:																		
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE																		

LONG LINE PAVEMENT MARKING ITEMS																
					646.2025 MARKING LINE GROOVED BLACK EPOXY 6-INCH	646.2040				646.2050		646.4040 MARKING LINE GROOVED WET REF EPOXY 10-INCH	646.4050 MARKING LINE GROOVED PERMANENT TAPE 10-INCH	646.6466	646.6470	
					12.5' LINE 37.5' SKIP BLACK	MARKING LINE GROOVED WET REF EPOXY 6-INCH				12.5' LINE 37.5' SKIP WHITE	2' LINE 6' SKIP WHITE	SOLID WHITE	COLD WEATHER MARKING EPOXY 6-INCH	COLD WEATHER MARKING EPOXY 10-INCH		
PROJECT	STATION	TO	STATION	OFFSET	LF	LF	SOLID YELLOW LF	3' LINE 9' SKIP WHITE LF	SOLID WHITE LF	LF	LF	LF	LF	LF	LF	COMMENTS
1500-49-60																
	814+93'EB'	-	912+38'EB'	LT & RT	2,413	650	8,707	147	8,950	2,413	--	429	--	--	--	EB MAINLINE
	814+93'WB'	-	912+61'WB'	LT & RT	2,475	663	8,643	--	9,415	2,475	--	1,220	--	--	--	WB MAINLINE
	814+93'WB'	-	816+13'WB'	LT	--	--	118	--	--	--	30	443	--	--	--	SB ONEIDA STREET
	816+13'WB'	-	817+02'WB'	LT	63	--	118	--	--	63	--	--	--	--	--	NB ONEIDA STREET
UNDISTRIBUTED					--	--	--	--	--	--	--	--	--	4,750	215	
1500-49-60 TOTALS					4,950	1,313	17,586	147	18,365	4,950	30	2,092	4,750	215		
37,411																
1500-49-61																
	912+38'EB'	-	924+56'EB'	LT & RT	313	--	1,026	72	1,110	313	--	456	--	--	--	EB MAINLINE
	912+61'WB'	-	924+56'WB'	LT & RT	300	--	994	--	1,174	300	--	102	--	--	--	WB MAINLINE
	925+57'EB'	-	1023+43'EB'	LT & RT	2,157	--	10,121	84	9,638	2,157	--	1,096	--	--	--	WB MAINLINE
	925+66'WB'	-	1023+43'EB'	LT & RT	2,250	--	10,008	171	9,391	2,250	--	1,704	--	--	--	WB MAINLINE
	1023+43'EB'	-	1030+30'EB'	LT & RT	--	--	1,365	--	1,365	--	--	--	--	--	--	EB AND WB (UNDIVIDED)
UNDISTRIBUTED					--	--	--	--	--	--	--	--	--	5,655	335	
1500-49-61 TOTALS					5,020	--	23,514	327	22,678	5,020	--	3,358	5,655	335		
46,519																
TOTALS					9,970		83,930			9,970	30	5,450	10,405	550		

NOTE

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

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PROJECT	STATION	TO	STATION	OFFSET	646.5020	646.5120	646.5220	646.5520	646.6120	646.7120	646.7420	646.8120	646.8220	646.8320	COMMENTS
					MARKING ARROW EPOXY	MARKING WORD EPOXY	MARKING SYMBOL EPOXY	MARKING OUTFALL EPOXY	MARKING STOP LINE EPOXY 18-INCH	MARKING DIAGONAL EPOXY 12-INCH	MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH	MARKING CURB EPOXY	MARKING ISLAND NOSE EPOXY	MARKING PARKING STALL EPOXY	
					EACH	EACH	EACH	EACH	LF	LF	LF	LF	EACH	LF	
1500-49-60															
	814+53'EB'	-	820+25'EB'	LT & RT	1	--	--	--	44	--	100	10	1	--	EB MAINLINE
	814+53'WB'	-	820+25'WB'	LT & RT	4	2	--	--	49	--	70	20	2	--	WB MAINLINE
	815+81'EB'	-	816+38'EB'	RT	--	--	--	--	19	--	105	--	--	--	S ONEIDA STREET
	814+53'WB'	-	820+25'WB'	LT	6	2	--	--	49	--	100	20	2	--	SB ONEIDA STREET
	814+53'WB'	-	820+25'WB'	LT	--	--	--	--	--	--	120	--	--	--	NB ONEIDA STREET
	820+25'EB	-	846+50'EB'	LT	10	--	--	--	--	--	--	20	--	--	EB / WB TWTL
	PROJECT				--	--	--	90	--	--	--	--	--	--	
1500-49-60 TOTALS					21	4	--	90	161	--	495	70	5	--	
1500-49-61															
	912+38'EB'	-	924+56'EB'		2	1	--	--	54	90	120	10	1	--	EB MAINLINE
	912+61'WB'	-	924+56'WB'		--	--	--	--	--	--	140	10	1	--	WB MAINLINE
	925+00'EB'	-	1023+43'EB'		2	--	--	--	36	574	--	--	--	--	EB MAINLINE
	925+45'WB'	-	1023+43'WB'		4	1	--	--	53	86	--	--	--	--	WB MAINLINE
	CTH N				--	--	2	--	--	--	--	--	--	1,060	PARK AND RIDE
	PROJECT				--	--	--	160	--	--	--	--	--	--	
1500-49-61 TOTALS					8	2	2	160	143	750	260	20	2	1,060	
TOTALS					29	6	2	250	304	750	755	90	7	1,060	

PROJECT	STATION	TO	STATION	OFFSET	650.5500	650.6000	650.8000	650.9000	650.9500.01	650.9500.02	650.9911.01	650.9911.02	COMMENTS
					CONSTRUCTION STAKING CURB & GUTTER LF	CONSTRUCTION STAKING PIPE CULVERTS EACH	CONSTRUCTION STAKING RESURFACING REFERENCE LF	CONSTRUCTION STAKING CURB RAMPS EACH	CONSTRUCTION STAKING SIDEWALK (1500-49-60) EACH	CONSTRUCTION STAKING SIDEWALK (1500-49-61) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1500-49-60) EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1500-49-61) EACH	
1500-49-60													
	814+93'EB'	-	912+38'EB'	LT & RT	680	--	9,745	1	--	--	--	--	EB MAINLINE WB MAINLINE
	814+93'WB'	-	912+61'WB'	LT & RT	82	--	9,768	--	--	--	--	--	
PROJECT					--	--	--	--	1	--	1	--	
1500-49-60 TOTALS					762	--	19,513	1	1	--	1	--	
1500-49-61													
	912+38'EB'	-	1030+30'EB'	LT & RT	--	--	11,792	--	--	--	--	--	EB MAINLINE WB MAINLINE
	912+61'WB'	-	1019+92'WB'	LT & RT	--	--	10,731	--	--	--	--	--	
	923+88'EB	-	926+14'EB'	LT	802	--	--	2	--	--	--	--	CTH LP MEDIAN FIRELANE 8
	924+44'EB'	-	925+43'EB'	RT	99	--	--	2	--	--	--	--	
	962+69'EB'	-	963+63'EB'	LT	39	1	--	--	--	--	--	--	CULVERT REPLACEMENT
PROJECT					--	--	--	--	--	1	--	1	
1500-49-61 TOTALS					940	1	22,523	4	--	1	--	1	
TOTALS					1,702	1	42,036	5	1	1	1	1	

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10.

LOOP DETECTOR ITEMS					
LOCATION	LOOP NO.	# OF TURNS	652.0800 *	655.0700 *	655.0800 *
			CONDUIT LOOP DETECTOR LF	LOOP DETECTOR LEAD IN CABLE LF	LOOP DETECTOR WIRE LF
S08-0426 (10 & 114)	11	2	92	118	192
	31	5	102	453	518
	32	4	112	278	456
	33	4	92	278	376
	61	5	92	453	468
	62	4	92	303	376
TOTALS			582	1,883	2,386

PULL BOXES NON-CONDUCTIVE 24X42INCH	
LOCATION	653.0164 * EACH
S08-0426 (10 & 114)	3
TOTAL	3

REMOVE TRAFFIC SIGNAL (USH10/STH114/ONEIDA STREET)	
LOCATION	SPV.0060.05 EACH
S08-0426 (10 & 114)	1
TOTAL	1

REMOVING PULL BOXES	
LOCATION	653.0905 * EACH
S08-0426 (10 & 114)	6
TOTAL	6

NOTES

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10 FOR PROJECT ID 1500-49-60.

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE.

MISCELLANEOUS QUANTITIES PROVIDED BY WisDOT - NE REGION

CONDUIT RIGID NONMETALLIC SCHEDULE 40

LOCATION S08-0999 (10-114 & LAKE PARK)		652.0210 CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH
FROM	TO	LF	LF	LF
PB1	SPLICE TOWARDS CB1			5
PB1	SPLICE TOWARDS CB1			5
PB1	SPLICE TOWARDS PB2		5	
PB1	SPLICE TOWARDS PB6			5
PB1	SPLICE TOWARDS PB6			5
PB1	SPLICE TOWARDS SB1		5	
PB5	SPLICE TOWARDS PB4	5		
PB6	SPLICE TOWARDS PB1			5
PB6	SPLICE TOWARDS PB1			5
PB6	SPLICE TOWARDS PB8			5
PB6	SPLICE TOWARDS PB8			5
PB6	SPLICE TOWARDS SB2		5	
PB8	SPLICE TOWARDS PB6			5
PB8	SPLICE TOWARDS PB6			5
PB8	SPLICE TOWARDS PB7		5	
PB8	SPLICE TOWARDS PB9			5
PB8	SPLICE TOWARDS SB3		5	
PB9	SPLICE TOWARDS PB8			5
PB9	SPLICE TOWARDS SB4			5
PB9	DRAIN		10	
PB9	SPLICE TOWARDS PB10			5
PB10	SPLICE TOWARDS PB9			5
PB10	SPLICE TOWARDS SB5		5	
PB10	SPLICE TOWARDS PB11			5
PB12	SPLICE TOWARDS SB7		5	
PB12	SPLICE TOWARDS PB11			5
PB12	DRAIN		10	
PB12	SPLICE TOWARDS PB13		5	
PB12	SPLICE TOWARDS PB16			5
PB12	SPLICE TOWARDS PB16			5
PB16	SPLICE TOWARDS SB8		5	
PB16	SPLICE TOWARDS PB12			5
PB16	SPLICE TOWARDS PB12			5
PB16	SPLICE TOWARDS PB18			5
PB16	SPLICE TOWARDS PB18			5
PB18	SPLICE TOWARDS SB9		5	
PB18	SPLICE TOWARDS PB16			5
PB18	SPLICE TOWARDS PB16			5
PB18	SPLICE TOWARDS PB17		5	
PB18	SPLICE TOWARDS PB19			5
PB18	SPLICE TOWARDS PB19			5
PB19	SPLICE TOWARDS PB18			5
PB19	SPLICE TOWARDS PB18			5
PB19	SPLICE TOWARDS SB10			5
PB19	SPLICE TOWARDS PB20			5
PB19	SPLICE TOWARDS PB20			5
PB22	SPLICE TOWARDS PB21			5
PB22	SPLICE TOWARDS PB21			5
PB22	SPLICE TOWARDS SB13		5	
PB22	SPLICE TOWARDS CB1			5
PB22	SPLICE TOWARDS CB1			5
TOTALS		5	80	180

NOTES

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10 FOR PROJECT ID 1500-49-61.

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE.

MISCELLANEOUS QUANTITIES PROVIDED BY WisDOT - NE REGION

LOOP DETECTOR ITEMS

LOCATION LOOP DETECTORS	LOOP NO.	# OF TURNS	652.0800 * CONDUIT LOOP DETECTOR	655.0700 * LOOP DETECTOR LEAD IN CABLE	655.0800 * LOOP DETECTOR WIRE
			LF	LF	LF
	11	3	112	253	344
	12	3	112	253	344
	21	5	102	583	518
	22		USE EXISTING	453	USE EXISTING
	23		USE EXISTING	318	USE EXISTING
	51	2	102	108	212
	52	2	112	108	232
	61		USE EXISTING	878	USE EXISTING
	62		USE EXISTING	748	USE EXISTING
	63		USE EXISTING	588	USE EXISTING
	81	3	122	253	374
	82	3	142	253	434
TOTALS			804	4,796	2,458

PULL BOXES NON-CONDUCTIVE 24X42-INCH

LOCATION	653.0164 * EACH
S08-0999 (10-114 & Lake Park)	11
TOTALS	11

REMOVE TRAFFIC SIGNAL (USH 10/STH 114/CTH LP)

LOCATION	SPV.0060.06 EACH
S08-0999 (10-114 & LAKE PARK)	1
TOTAL	1

REMOVING PULL BOXES

LOCATION	653.0905 * EACH
S08-0999 (10-114 & Lake Park)	15
TOTALS	15

3

LOCATION	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG		FOR INFORMATION ONLY CABLE TRAFFIC SIGNAL 5-14 AWG	CABLE TRAFFIC SIGNAL 7-14 AWG
S08-0999 (10-114 & LAKE PARK) FROM CB1 TO	LF	LF	LF	HEAD NO.	LF	LF
SB1			88	5	USE EXISTING	
				7		USE EXISTING
SB2		168		8		USE EXISTING
SB3		208		6		USE EXISTING
SB4	273			9	USE EXISTING	
				10	USE EXISTING	
SB5			338	13	USE EXISTING	
				18	USE EXISTING	
SB6	453			14	USE EXISTING	
	453			22	USE EXISTING	
SB7			473	1		USE EXISTING
				11	USE EXISTING	
SB8		413		2		USE EXISTING
SB9		358		12		USE EXISTING
SB10	273			3	USE EXISTING	
				4	USE EXISTING	
SB11	213			21	USE EXISTING	
SB12			158	15	USE EXISTING	
				16	USE EXISTING	
	158			20	USE EXISTING	
SB13	78			17	USE EXISTING	
	78			19	USE EXISTING	
SUB TOTALS	1,979	1,147	1,057		0	0
TOTALS	1,979	1,147	1,057			

<u>SIGNAL INDICATION</u>		<u>CONDUCTOR COLOR</u>
RED	=	RED
YELLOW	=	ORANGE
GREEN	=	GREEN
RED ARROW	=	RED W/BLACK TRACER
YELLOW ARROW	=	BLACK W/WHITE
YELLOW FLASHING ARROW	=	WHITE W/BLACK
GREEN ARROW	=	BLUE W/BLACK
 <u>PEDS</u>		
WALK	=	GREEN
DON'T WALK	=	RED
BUTTON	=	BLACK & ORANGE

CABLE TYPE UF 2-12 AWG GROUNDED		
LOCATION		
508-0999 (10-114 & LAKE PARK)		655.0305
FROM	TO	LF
CB1	LB1	396
CB1	SB3	208
CB1	SB5	338
CB1	LB2	551
CB1	SB9	358
CB1	SB13	78
TOTAL		1929

NOTES

ALL QUANTITIES FOR THIS SHEET ARE PART OF CATEGORY 10 FOR PROJECT ID 1500-49-61.

MISCELLANEOUS QUANTITIES PROVIDED BY WisDOT - NE REGION

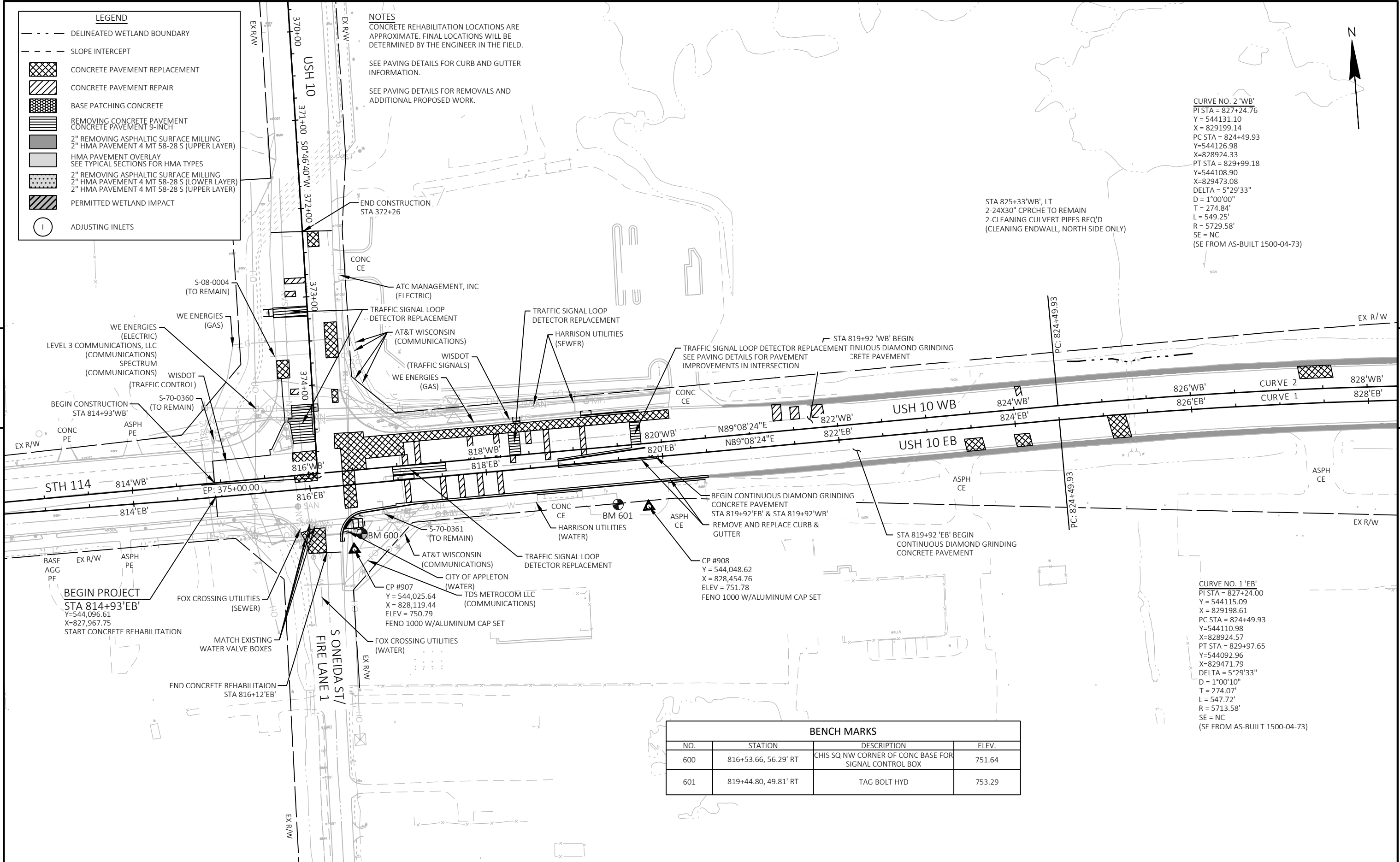
ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG

LOCATION	655.0515
508-0999 (10-114 & LAKE PARK)	
(EQUIPMENT GROUNDING CONDUCTOR	
(GREEN)	
FROM	TO LF
CB1	SB1 88
SB1	SB2 161
SB2	SB3 131
SB3	SB4 136
SB4	SB5 116
SB5	SB6 166
SB6	SB7 126
SB7	SB8 161
SB8	SB9 146
SB9	SB10 156
SB10	SB11 111
SB11	SB12 96
SB12	SB13 141
SB13	CB1 78
TOTAL	1,813

3

ELECTRICAL WIRE LIGHTING 12 AWG

LOCATION		
S08-0999 (10-114 & LAKE PARK)		
120 VOLT SYSTEM		FOR INFORMATION ONLY
FROM	TO	LF
LB1	LUMINAIRE	USE EXISTING
SB3	LUMINAIRES	USE EXISTING
SB5	LUMINAIRE	USE EXISTING
LB2	LUMINAIRE	USE EXISTING
SB9	LUMINAIRES	USE EXISTING
SB13	LUMINAIRE	USE EXISTING
TOTAL		0



NOTES
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEE PAVING DETAILS FOR CURB AND GUTTER INFORMATION.

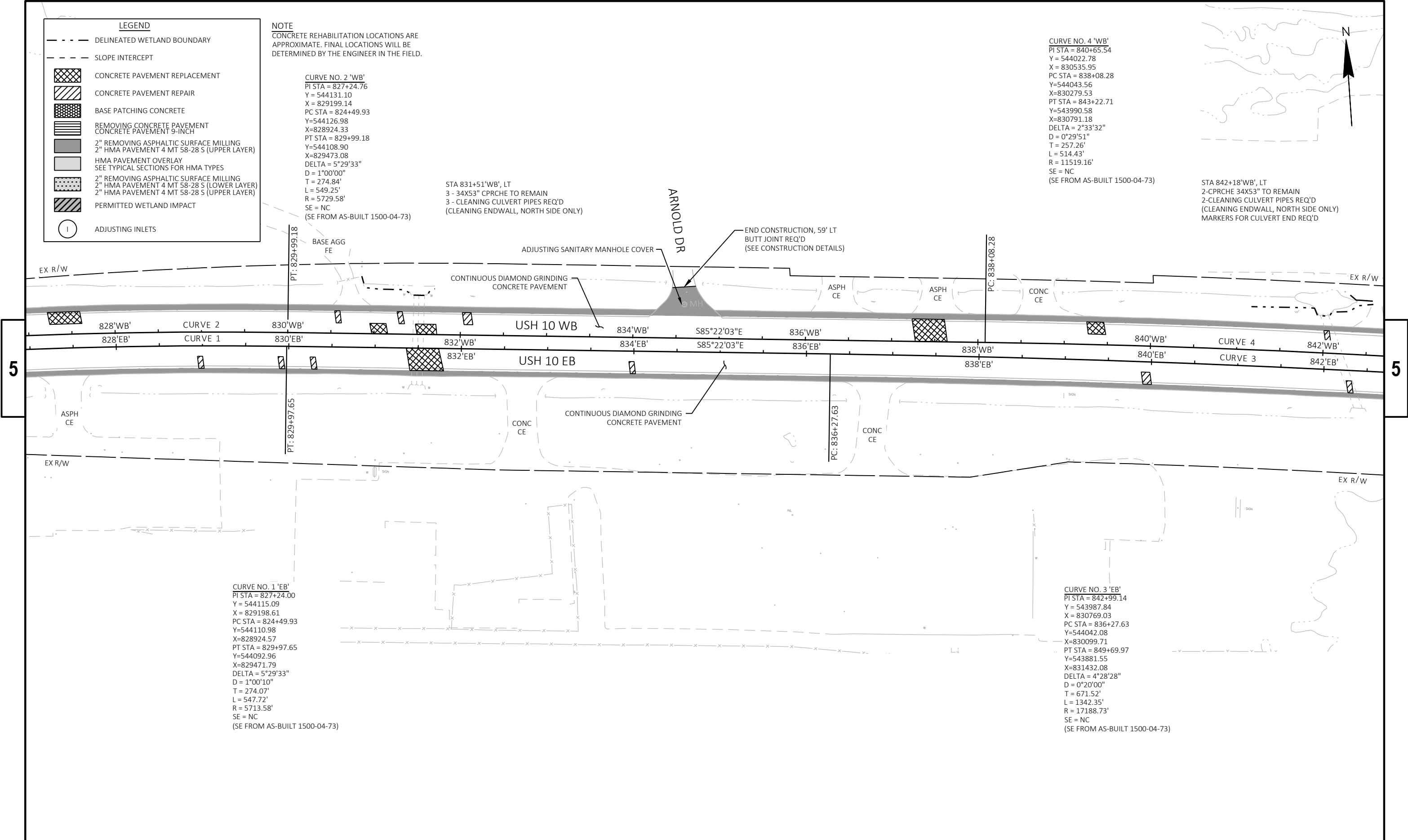
SEE PAVING DETAILS FOR REMOVALS AND ADDITIONAL PROPOSED WORK.

CURVE NO. 2 'WB'
PI STA = 827+24.76
Y = 544131.10
X = 829199.14
PC STA = 824+49.93
Y=544126.98
X=828924.33
PT STA = 829+99.18
Y=544108.90
X=829473.08
DELTA = 5°29'33"
D = 1°00'00"
T = 274.84'
L = 549.25'
R = 5729.58'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

STA 825+33'WB', LT
2-24X30" C/P RCH TO REMAIN
2-CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, NORTH SIDE ONLY)

CURVE NO. 1 'EB'
PI STA = 827+24.00
Y = 544115.09
X = 829198.61
PC STA = 824+49.93
Y=544110.98
X=828924.57
PT STA = 829+97.65
Y=544092.96
X=829471.79
DELTA = 5°29'33"
D = 1°00'10"
T = 274.07'
L = 547.72'
R = 5713.58'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
600	816+53.66, 56.29' RT	CHIS SQ NW CORNER OF CONC BASE FOR SIGNAL CONTROL BOX	751.64
601	819+44.80, 49.81' RT	TAG BOLT HYD	753.29



LEGEND

- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- [Cross-hatch] CONCRETE PAVEMENT REPLACEMENT
- [Diagonal lines] CONCRETE PAVEMENT REPAIR
- [Dotted] BASE PATCHING CONCRETE
- [Horizontal lines] REMOVING CONCRETE PAVEMENT CONCRETE PAVEMENT 9-INCH
- [Dark grey] 2" REMOVING ASPHALTIC SURFACE MILLING 2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Light grey] HMA PAVEMENT OVERLAY SEE TYPICAL SECTIONS FOR HMA TYPES
- [Dotted] 2" REMOVING ASPHALTIC SURFACE MILLING 2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER) 2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Diagonal lines] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

CURVE NO. 2 'WB'
PI STA = 827+24.76
Y = 544131.10
X = 829199.14
PC STA = 824+49.93
Y=544126.98
X=828924.33
PT STA = 829+99.18
Y=544108.90
X=829473.08
DELTA = 5°29'33"
D = 1°00'00"
T = 274.84'
L = 549.25'
R = 5729.58'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

CURVE NO. 4 'WB'
PI STA = 840+65.54
Y = 544022.78
X = 830535.95
PC STA = 838+08.28
Y=544043.56
X=830279.53
PT STA = 843+22.71
Y=543990.58
X=830791.18
DELTA = 2°33'32"
D = 0°29'51"
T = 257.26'
L = 514.43'
R = 11519.16'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

STA 842+18'WB', LT
2-CPRCHE 34X53" TO REMAIN
2-CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, NORTH SIDE ONLY)
MARKERS FOR CULVERT END REQ'D

STA 831+51'WB', LT
3 - 34X53" CPRCHE TO REMAIN
3 - CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, NORTH SIDE ONLY)

CURVE NO. 1 'EB'
PI STA = 827+24.00
Y = 544115.09
X = 829198.61
PC STA = 824+49.93
Y=544110.98
X=828924.57
PT STA = 829+97.65
Y=544092.96
X=829471.79
DELTA = 5°29'33"
D = 1°00'10"
T = 274.07'
L = 547.72'
R = 5713.58'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

CURVE NO. 3 'EB'
PI STA = 842+99.14
Y = 543987.84
X = 830769.03
PC STA = 836+27.63
Y=544042.08
X=830099.71
PT STA = 849+69.97
Y=543881.55
X=831432.08
DELTA = 4°28'28"
D = 0°20'00"
T = 671.52'
L = 1342.35'
R = 17188.73'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

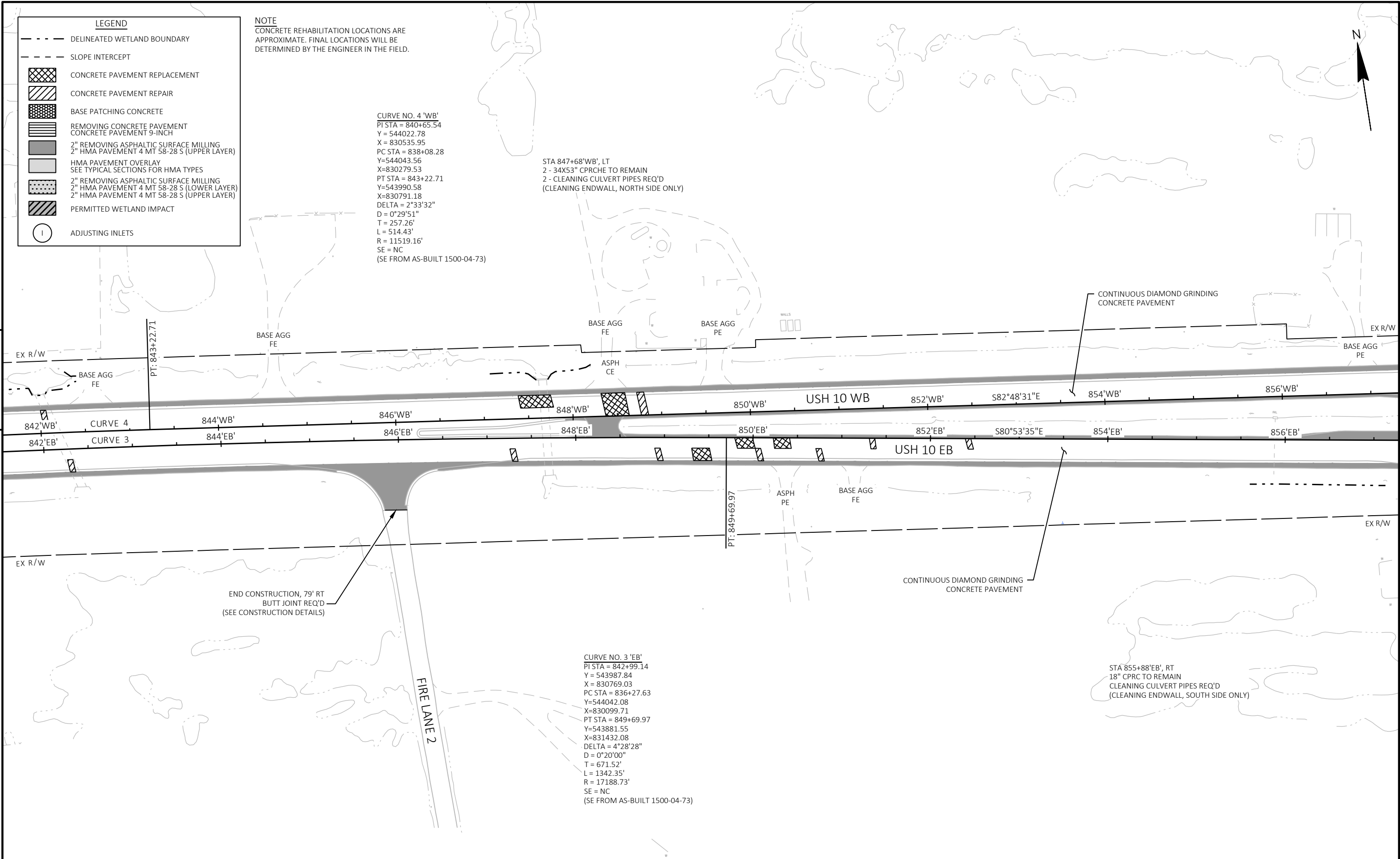
LEGEND

- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- CONCRETE PAVEMENT REPLACEMENT
- CONCRETE PAVEMENT REPAIR
- BASE PATCHING CONCRETE
- REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- PERMITTED WETLAND IMPACT
- ADJUSTING INLETS

NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

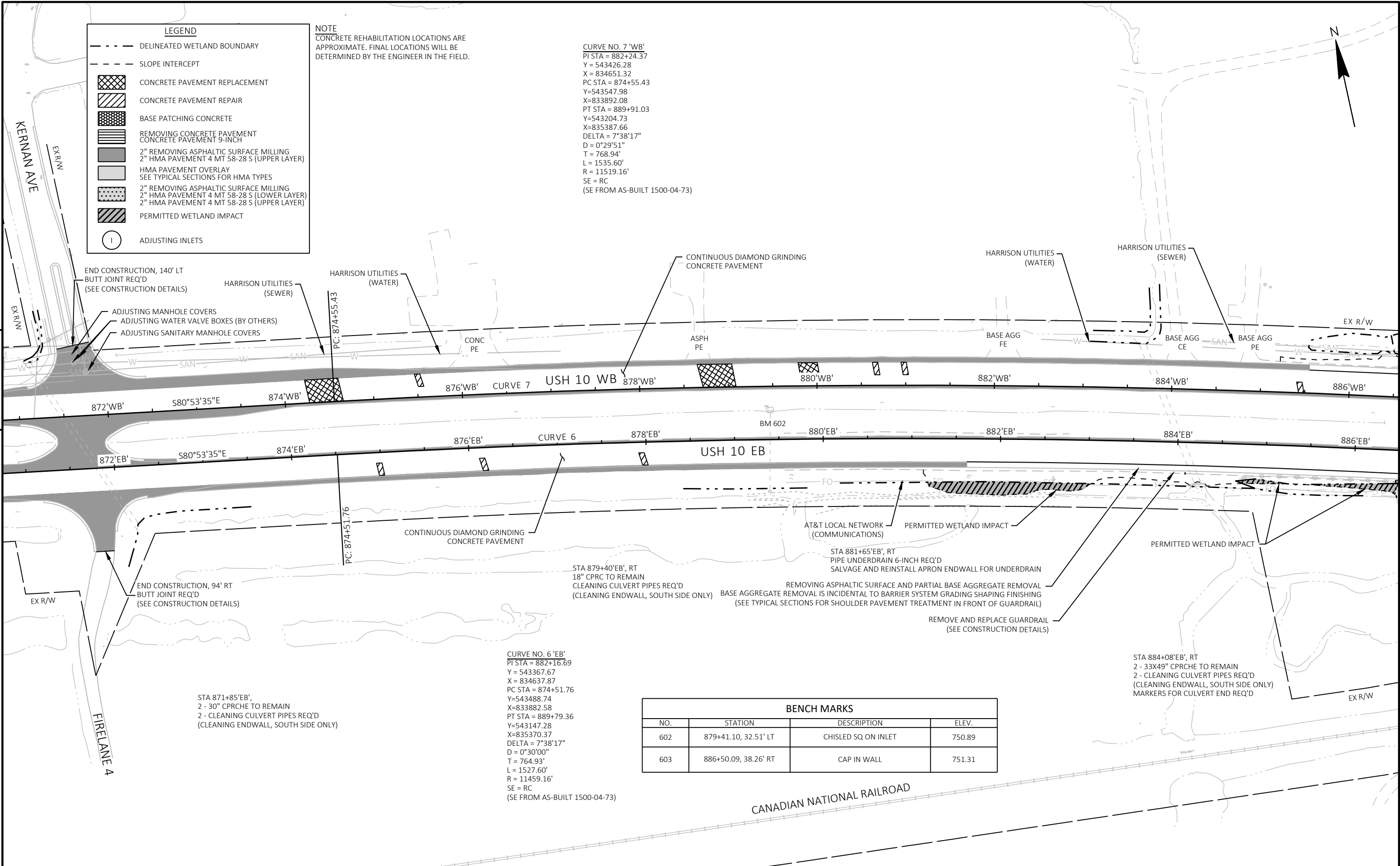
CURVE NO. 4 'WB'
PI STA = 840+65.54
Y = 544022.78
X = 830535.95
PC STA = 838+08.28
Y = 544043.56
X = 830279.53
PT STA = 843+22.71
Y = 543990.58
X = 830791.18
DELTA = 2°33'32"
D = 0°29'51"
T = 257.26'
L = 514.43'
R = 11519.16'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

STA 847+68'WB', LT
2 - 34X53" CPRCHE TO REMAIN
2 - CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, NORTH SIDE ONLY)



CURVE NO. 3 'EB'
PI STA = 842+99.14
Y = 543987.84
X = 830769.03
PC STA = 836+27.63
Y = 544042.08
X = 830099.71
PT STA = 849+69.97
Y = 543881.55
X = 831432.08
DELTA = 4°28'28"
D = 0°20'00"
T = 671.52'
L = 1342.35'
R = 17188.73'
SE = NC
(SE FROM AS-BUILT 1500-04-73)

STA 855+88'EB', RT
18" CPRC TO REMAIN
CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, SOUTH SIDE ONLY)



NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

CURVE NO. 7 'WB'
PI STA = 882+24.37
Y = 543426.28
X = 834651.32
PC STA = 874+55.43
Y=543547.98
X=833892.08
PT STA = 889+91.03
Y=543204.73
X=835387.66
DELTA = 7°38'17"
D = 0°29'51"
T = 768.94'
L = 1535.60'
R = 11519.16'
SE = RC
(SE FROM AS-BUILT 1500-04-73)

LEGEND

- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- [Cross-hatch] CONCRETE PAVEMENT REPLACEMENT
- [Diagonal lines] CONCRETE PAVEMENT REPAIR
- [Grid] BASE PATCHING CONCRETE
- [Horizontal lines] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Dark gray] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Light gray] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Dotted] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Diagonal lines] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
602	879+41.10, 32.51' LT	CHISLED SQ ON INLET	750.89
603	886+50.09, 38.26' RT	CAP IN WALL	751.31

PROJECT NO: 1500-49-60

HWY: USH 10

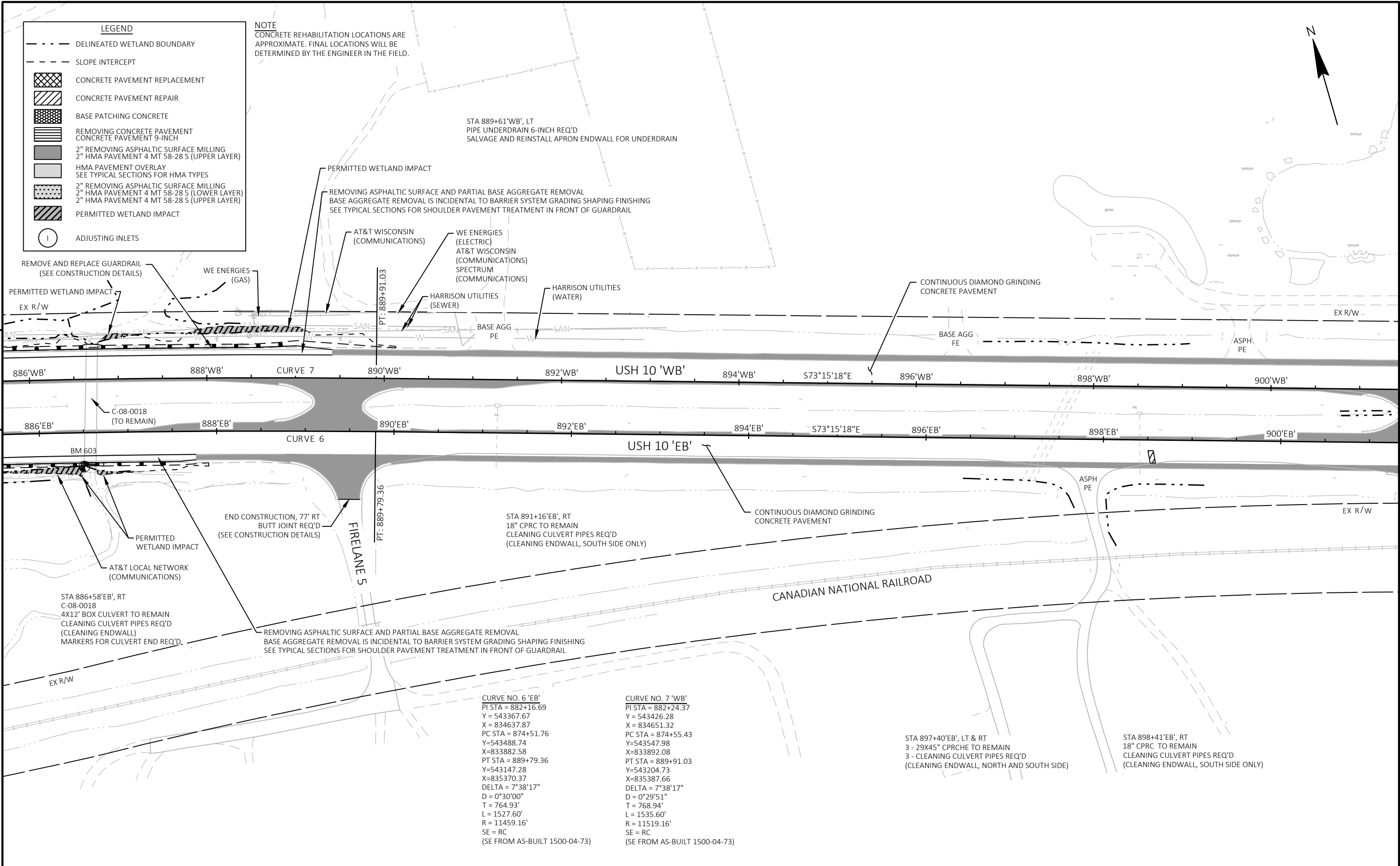
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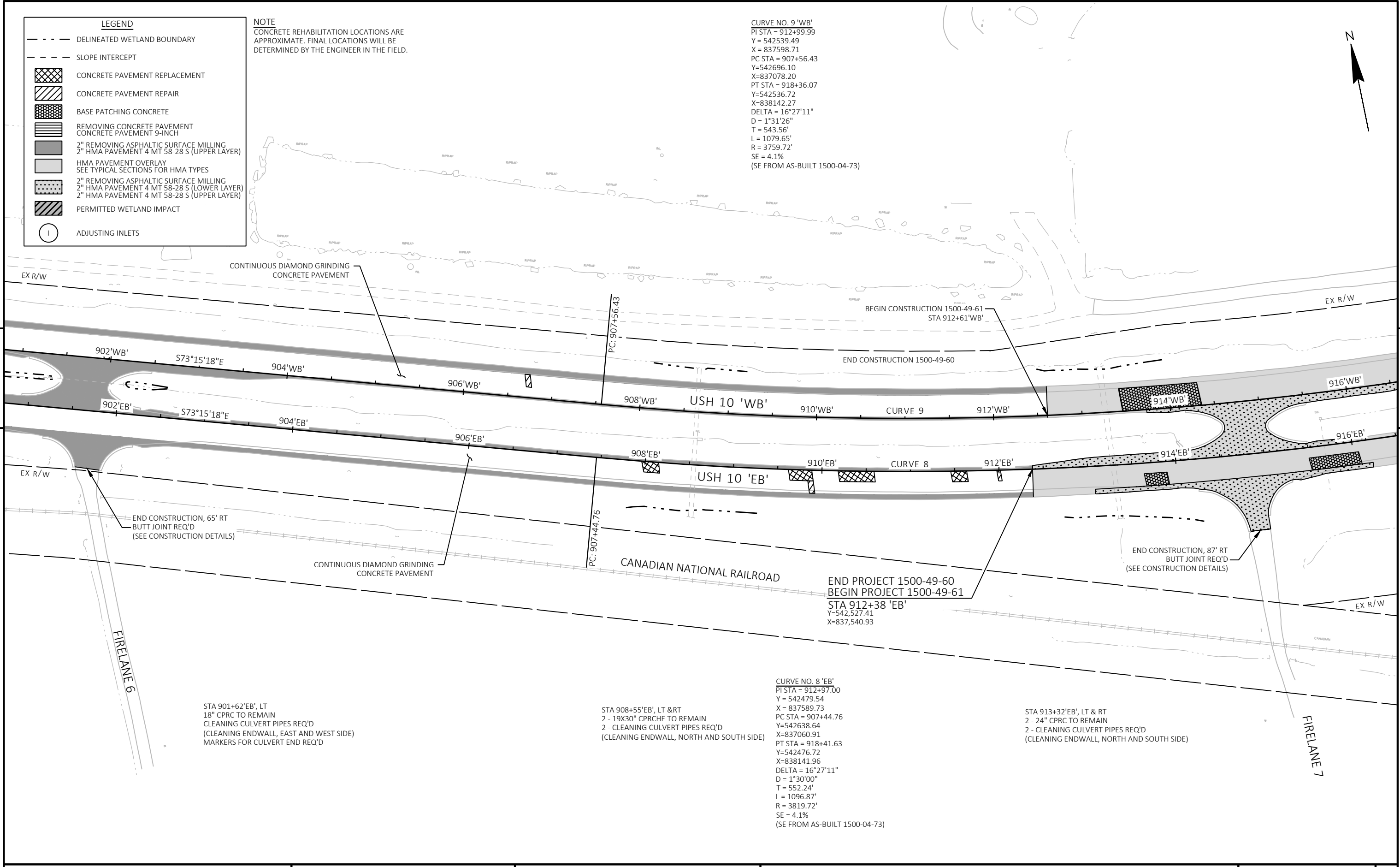
PLAN

SHEET

119

E





LEGEND

- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- [Pattern] CONCRETE PAVEMENT REPLACEMENT
- [Pattern] CONCRETE PAVEMENT REPAIR
- [Pattern] BASE PATCHING CONCRETE
- [Pattern] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Pattern] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Pattern] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Pattern] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
- [Pattern] 2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Pattern] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

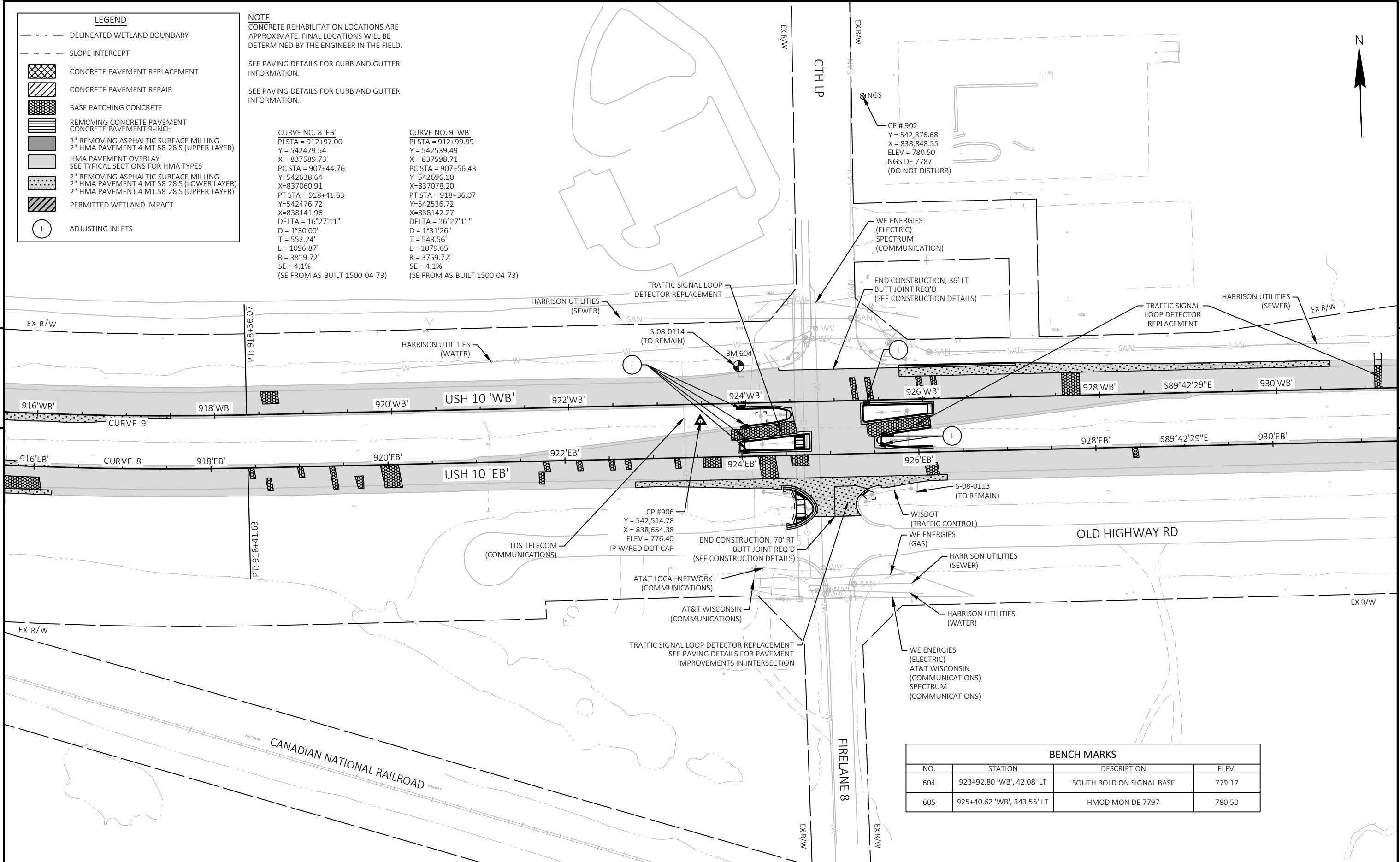
NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEE PAVING DETAILS FOR CURB AND GUTTER INFORMATION.

SEE PAVING DETAILS FOR CURB AND GUTTER INFORMATION.

CURVE NO. 8 'EB'
PI STA = 912+97.00
Y = 542479.54
X = 837589.73
PC STA = 907+44.76
Y = 542638.64
X = 837060.91
PT STA = 918+41.63
Y = 542476.72
X = 838141.96
DELTA = 16°27'11"
D = 1°30'00"
T = 552.24'
L = 1096.87'
R = 3819.72'
SE = 4.1%
(SE FROM AS-BUILT 1500-04-73)

CURVE NO. 9 'WB'
PI STA = 912+99.99
Y = 542539.49
X = 837598.71
PC STA = 907+56.43
Y = 542696.10
X = 837078.20
PT STA = 918+36.07
Y = 542536.72
X = 838142.27
DELTA = 16°27'11"
D = 1°31'26"
T = 543.56'
L = 1079.65'
R = 3759.72'
SE = 4.1%
(SE FROM AS-BUILT 1500-04-73)



BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
604	923+92.80 'WB', 42.08' LT	SOUTH BOLD ON SIGNAL BASE	779.17
605	925+40.62 'WB', 343.55' LT	HMOD MON DE 7797	780.50

LEGEND

- DELINEATED WETLAND BOUNDARY
- - - SLOPE INTERCEPT
- [Cross-hatch] CONCRETE PAVEMENT REPLACEMENT
- [Diagonal lines] CONCRETE PAVEMENT REPAIR
- [Dotted] BASE PATCHING CONCRETE
- [Horizontal lines] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Dark grey] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Light grey] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Dark grey with dots] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Diagonal lines with dots] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

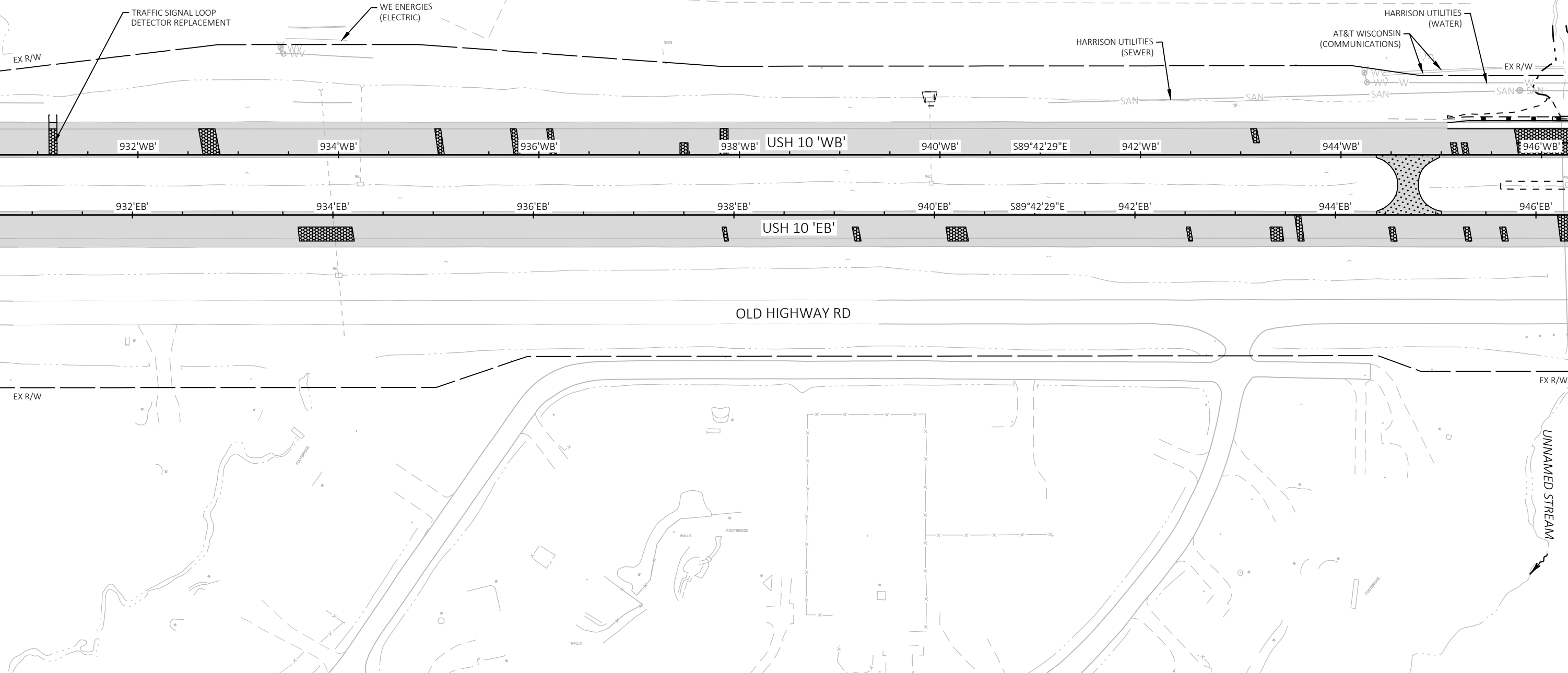
NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

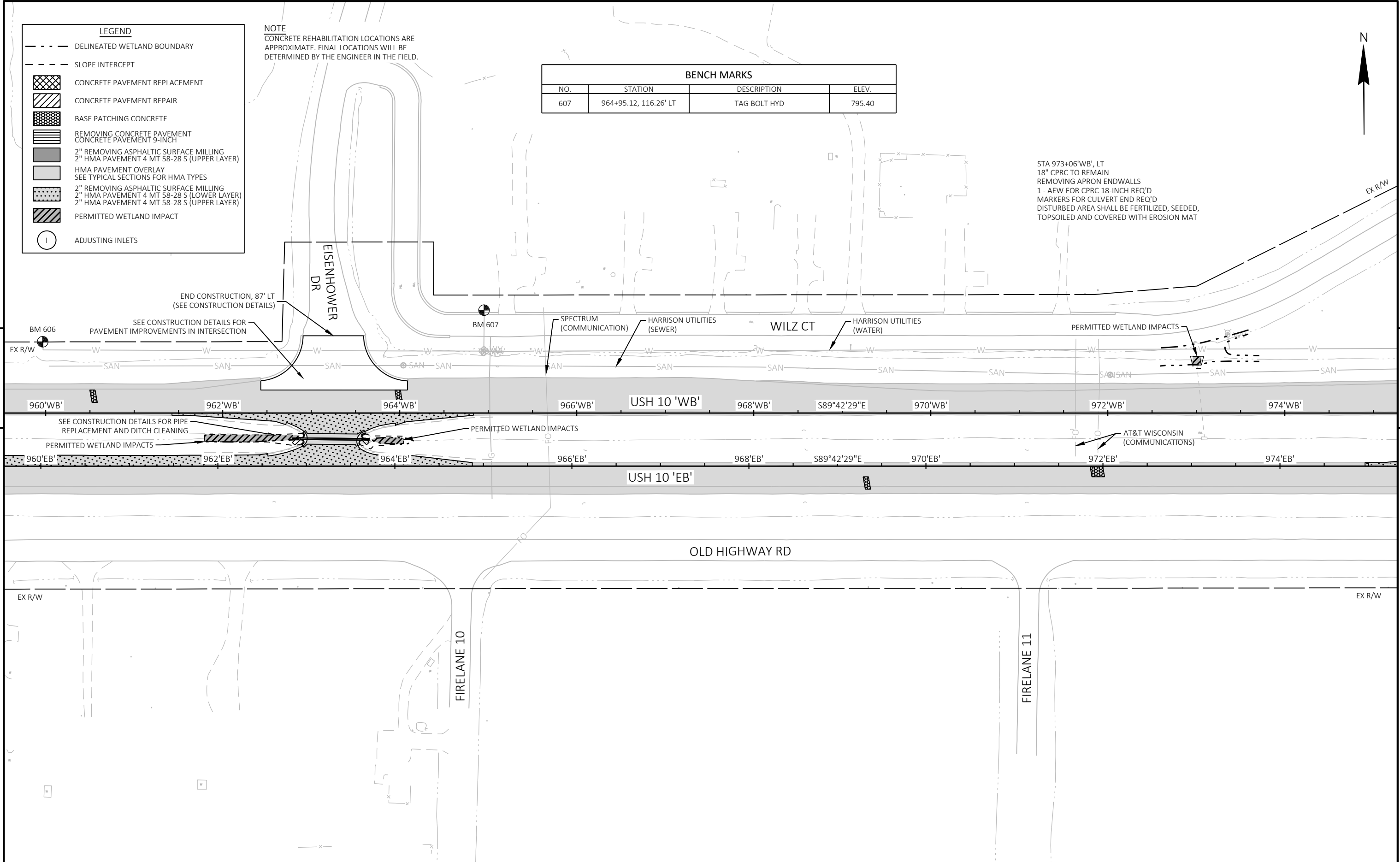


STA 939+91'WB', LT
18" CPRC TO REMAIN
REMOVING APRON ENDWALLS
1 - AEW FOR CPRC 18-INCH REQ'D
MARKERS FOR CULVERT END REQ'D
DISTURBED AREA SHALL BE FERTILIZED, SEEDED,
TOPSOILED AND COVERED WITH EROSION MAT

5

5





LEGEND

- DELINEATED WETLAND BOUNDARY
- - - SLOPE INTERCEPT
- [Cross-hatch] CONCRETE PAVEMENT REPLACEMENT
- [Diagonal lines] CONCRETE PAVEMENT REPAIR
- [Dotted] BASE PATCHING CONCRETE
- [Horizontal lines] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Dark grey] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Light grey] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Dark grey with dots] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
- [Dark grey with dots] 2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Diagonal lines] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

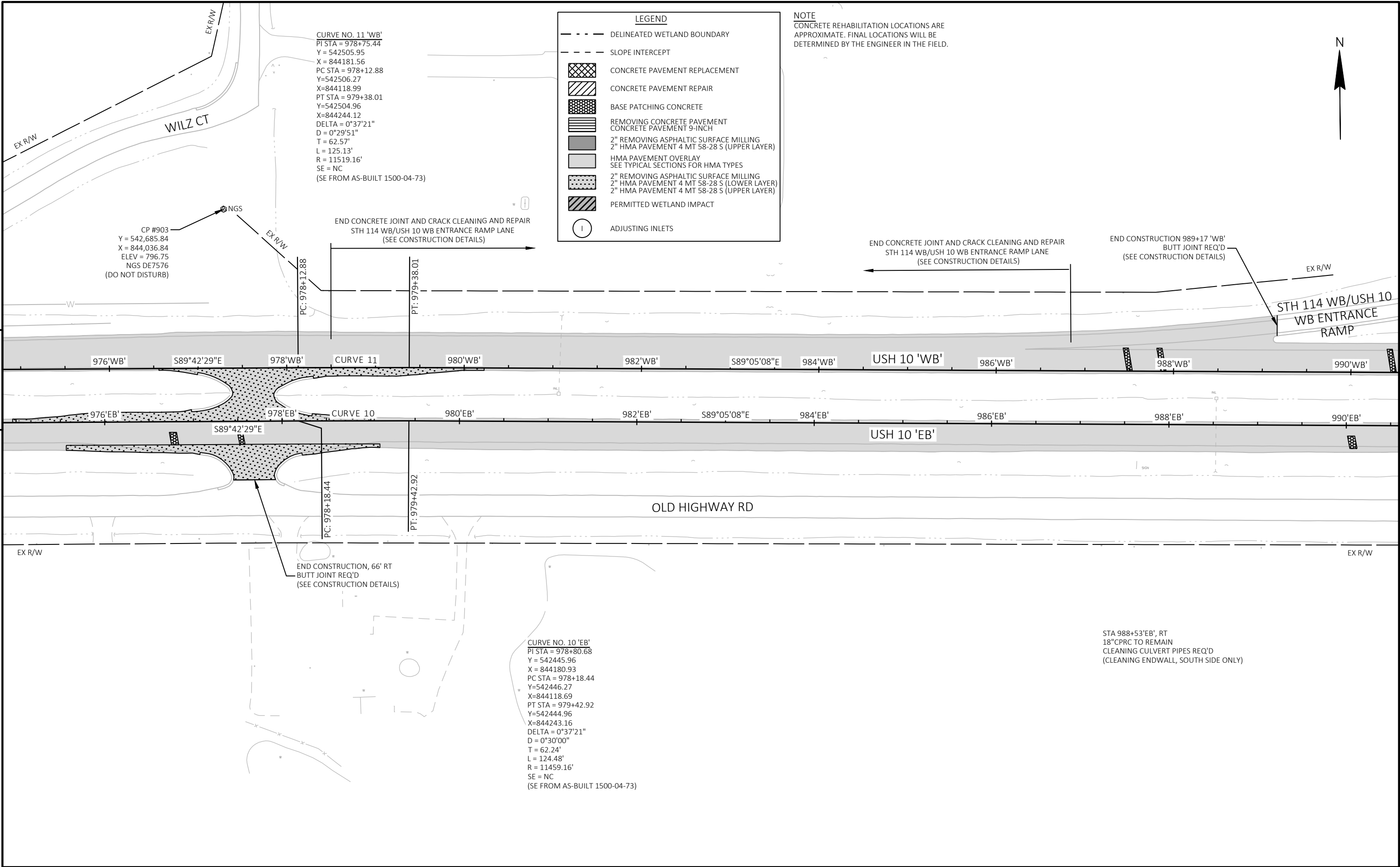
NOTE
CONCRETE REHABILITATION LOCATIONS ARE
APPROXIMATE. FINAL LOCATIONS WILL BE
DETERMINED BY THE ENGINEER IN THE FIELD.

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
607	964+95.12, 116.26' LT	TAG BOLT HYD	795.40

STA 973+06'WB', LT
18" CPRC TO REMAIN
REMOVING APRON ENDWALLS
1 - AEW FOR CPRC 18-INCH REQ'D
MARKERS FOR CULVERT END REQ'D
DISTURBED AREA SHALL BE FERTILIZED, SEEDED,
TOPSOILED AND COVERED WITH EROSION MAT

5

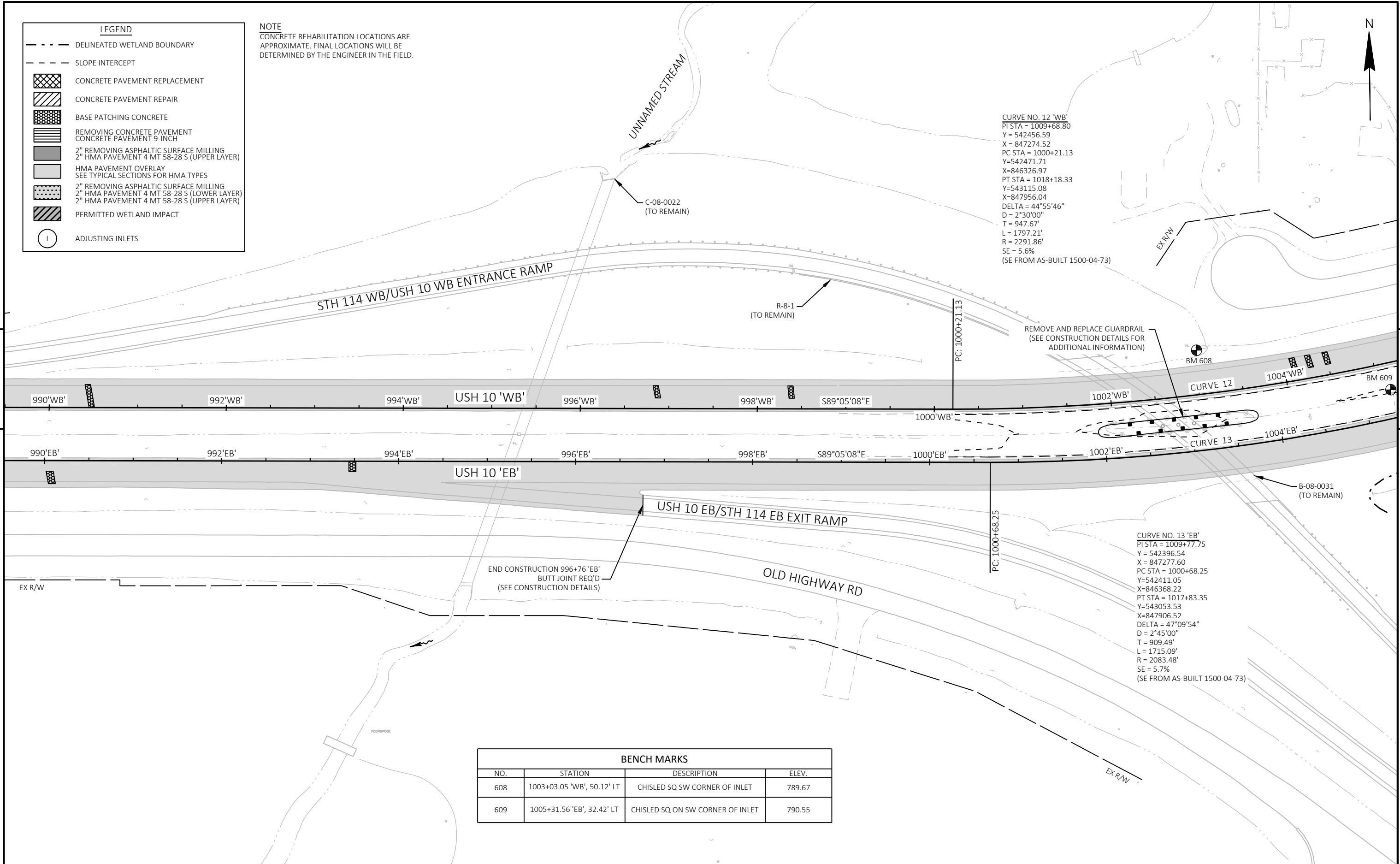
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LEGEND

- DELINEATED WETLAND BOUNDARY
- - - SLOPE INTERCEPT
- [Cross-hatch] CONCRETE PAVEMENT REPLACEMENT
- [Diagonal lines] CONCRETE PAVEMENT REPAIR
- [Grid] BASE PATCHING CONCRETE
- [Horizontal lines] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Dark gray] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Light gray] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Dotted] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Diagonal lines] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.



BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
608	1003+03.05 'WB', 50.12' LT	CHISLED SQ SW CORNER OF INLET	789.67
609	1005+31.56 'EB', 32.42' LT	CHISLED SQ ON SW CORNER OF INLET	790.55

LEGEND

- DELINEATED WETLAND BOUNDARY
- SLOPE INTERCEPT
- [Pattern] CONCRETE PAVEMENT REPLACEMENT
- [Pattern] CONCRETE PAVEMENT REPAIR
- [Pattern] BASE PATCHING CONCRETE
- [Pattern] REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH
- [Pattern] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Pattern] HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES
- [Pattern] 2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)
- [Pattern] PERMITTED WETLAND IMPACT
- (I) ADJUSTING INLETS

NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS OF BASE PATCHING CONCRETE SHES.

CURVE NO. 12 'WB'
PI STA = 1009+68.80
Y = 542456.59
X = 847274.52
PC STA = 1000+21.13
Y=542471.71
X=846326.97
PT STA = 1018+18.33
Y=543115.08
X=847956.04
DELTA = 44°55'46"
D = 2°30'00"
T = 947.67'
L = 1797.21'
R = 2291.86'
SE = 5.6%
(SE FROM AS-BUILT 1500-04-73)

END CONSTRUCTION, 113' LT
BUTT JOINT REQ'D
(SEE CONSTRUCTION DETAILS)

STA 1013+73'WB', LT
18" CPRC TO REMAIN
CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, NORTH SIDE ONLY)
MARKERS FOR CULVERT END REQ'D

STA 1005+31'EB', RT
18" CPRC TO REMAIN
CLEANING CULVERT PIPES REQ'D
(CLEANING ENDWALL, SOUTH SIDE)

END CONSTRUCTION, 60' RT
BUTT JOINT REQ'D
(SEE CONSTRUCTION DETAILS)

CURVE NO. 13 'EB'
PI STA = 1009+77.75
Y = 542396.54
X = 847277.60
PC STA = 1000+68.25
Y=542411.05
X=846368.22
PT STA = 1017+83.35
Y=543053.53
X=847906.52
DELTA = 47°09'54"
D = 2°45'00"
T = 909.49'
L = 1715.09'
R = 2083.48'
SE = 5.7%
(SE FROM AS-BUILT 1500-04-73)

STH 114 WB EXIT/USH 10
EB ENTRANCE RAMP

LEGEND

DELINEATED WETLAND BOUNDARY

SLOPE INTERCEPT

CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR

BASE PATCHING CONCRETE

REMOVING CONCRETE PAVEMENT
CONCRETE PAVEMENT 9-INCH

2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)

HMA PAVEMENT OVERLAY
SEE TYPICAL SECTIONS FOR HMA TYPES

2" REMOVING ASPHALTIC SURFACE MILLING
2" HMA PAVEMENT 4 MT 58-28 S (LOWER LAYER)
2" HMA PAVEMENT 4 MT 58-28 S (UPPER LAYER)

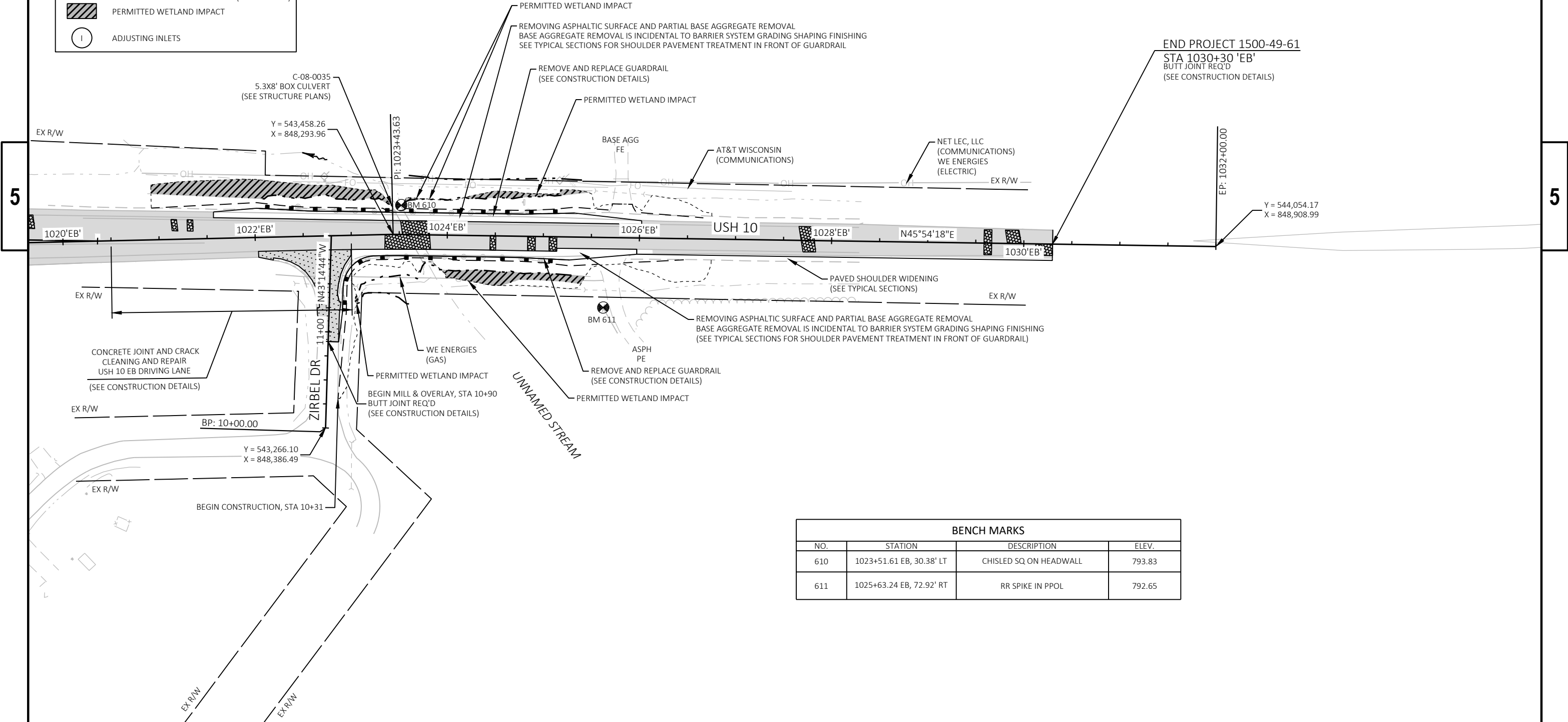
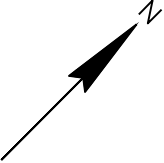
PERMITTED WETLAND IMPACT

I

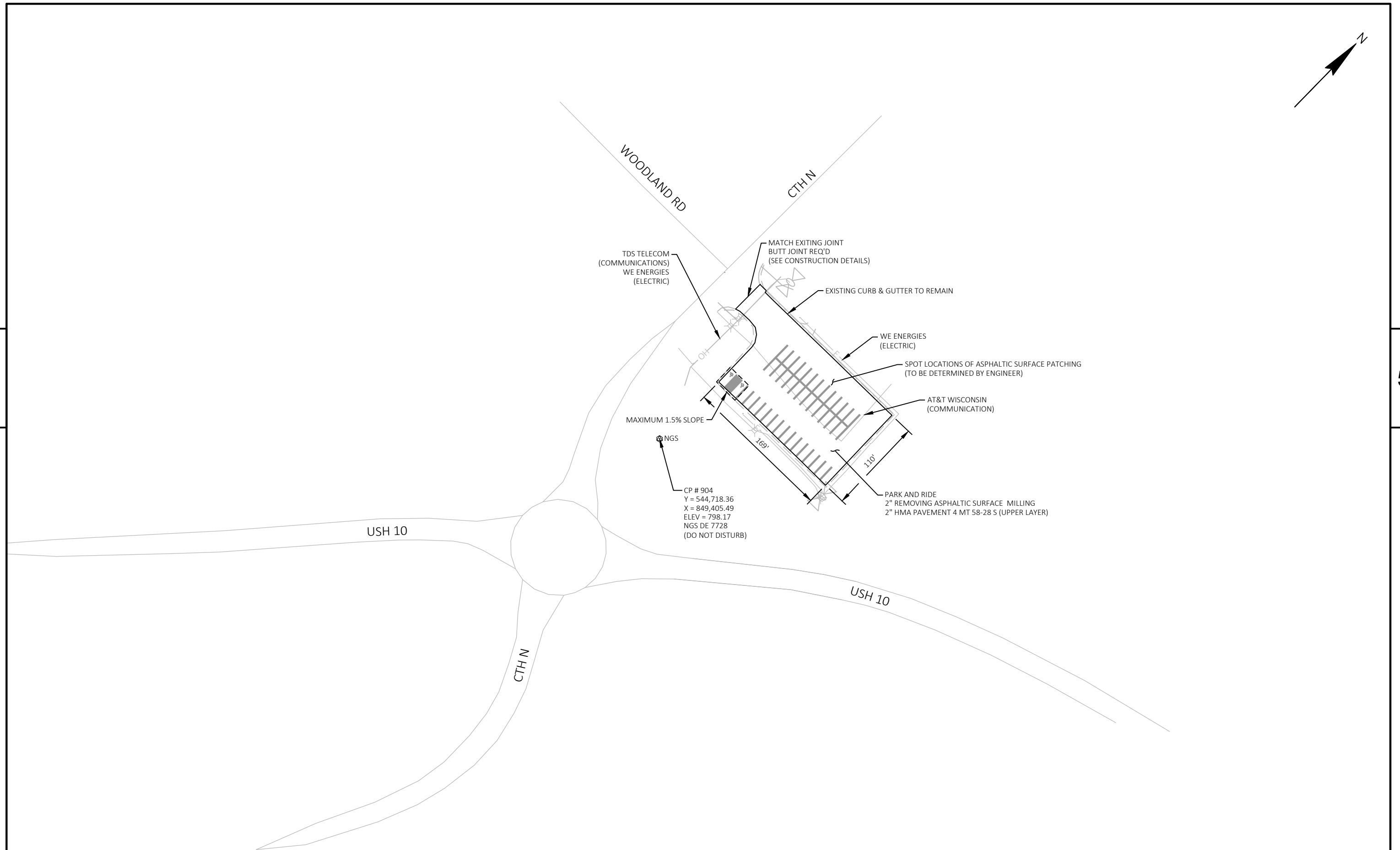
ADJUSTING INLETS

NOTE
CONCRETE REHABILITATION LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS OF BASE PATCHING CONCRETE SHES.



BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
610	1023+51.61 EB, 30.38' LT	CHISLED SQ ON HEADWALL	793.83
611	1025+63.24 EB, 72.92' RT	RR SPIKE IN PPOL	792.65



Standard Detail Drawing List

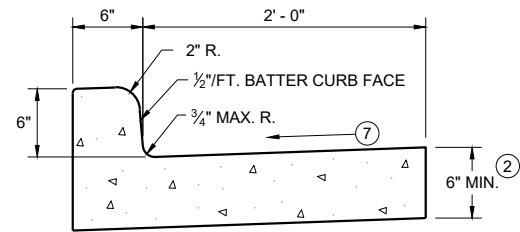
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-22A	CURB RAMPS TYPES 1 AND 1-A
08D05-22B	CURB RAMPS TYPES 2 AND 3
08D05-22C	CURB RAMPS TYPES 4A AND 4A1
08D05-22D	CURB RAMPS TYPES 4B AND 4B1
08D05-22E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-22F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-22G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D15-05A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-05B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
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
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
09B02-10	CONDUIT
09B04-13	PULL BOX
09B16-03	PULL BOX NON-CONDUCTIVE
09F04-05	LOOP DETECTOR INSTALLED IN NEW CONCRETE PAVEMENT ROUND CSCP PULLBOX
09F07-05	LOOP DETECTOR INSTALLED IN NEW CONCRETE BASE WITH NEW ASPHALTIC OVERLAY ROUND CSCP PULLBOX
09F08-04	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)
09F09-05	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW CONCRETE PAVEMENT)
09F10-04	LOOP DETECTOR INSTALLED IN EXISTING OR NEW ASPHALTIC PAVEMENT WITH NEW ASPHALTIC OVERLAY
09F11-04	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT WITH NEW ASPHALTIC OVERLAY
09F12-04	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
09F13-04	LOOP DETECTOR INSTALLED IN EXISTING ASPHALTIC PAVEMENT
09F14-03	LOOP DETECTOR INSTALLED IN NEW CONCRETE PAVEMENT ROUND CSCP PULL BOX 45 DEGREE ELBOWS TO PULL BOX
09F15-04A	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
09F16-02	TWO LOOP DETECTORS INSTALLED IN NEW CONCRETE PAVEMENT ROUND CSCP PULL BOX 45 DEGREE ELBOWS TO PULL BOX
11B02-02	CONCRETE MEDIAN NOSE
13A05-06A	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A05-06B	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A10-03A	SHOULDER RUMBLE STRIPS - ASPHALT
13A10-03B	SHOULDER RUMBLE STRIPS - CONCRETE
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C09-17A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-17B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-17C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C11-14A	RURAL DOWELED CONCRETE PAVEMENT
13C11-14B	RURAL DOWELED CONCRETE PAVEMENT
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C14-07A	BASE PATCHING CONCRETE
13C14-07B	BASE PATCHING CONCRETE
13C14-07C	BASE PATCHING CONCRETE
13C18-08A	CONCRETE PAVEMENT JOINTING
13C18-08B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-08C	CONCRETE PAVEMENT JOINT TYPES
13C18-08D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
13C18-08F	CONCRETE PAVEMENT INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER
13C19-03	HMA LONGITUDINAL JOINTS
14B26-05A	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05B	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05C	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05D	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05E	STEEL THRIE BEAM BULLNOSE TERMINAL

Standard Detail Drawing List

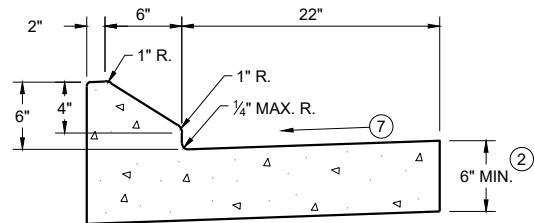
14B26-05F	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05G	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-05H	STEEL THRIE BEAM BULLNOSE TERMINAL
14B28-04A	GUARDRAIL MOW STRIP
14B28-04B	GUARDRAIL MOW STRIP
14B29-01	SAFETY EDGE
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B43-04A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
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)
14B47-06A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B51-04A	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-04B	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B51-04C	ANCHOR POST ASSEMBLY TOP-MOUNTED
14B53-03A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C02-09D	ON RAMP LANE CLOSURE
15C02-09E	OFF RAMP LANE CLOSURE
15C02-09F	ADVANCED WIDTH RESTRICTION SIGNING
15C02-09H	MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-16A	PAVEMENT MARKING SYMBOLS
15C07-16B	PAVEMENT MARKING WORDS
15C07-16C	PAVEMENT MARKING ARROWS
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-24C	PAVEMENT MARKING (TURN LANES)
15C08-24D	PAVEMENT MARKING (TURN LANES)
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C18-09A	MEDIAN ISLAND PAVEMENT MARKINGS
15C18-09B	PAVEMENT MARKINGS, MEDIAN ISLAND NOSE
15C19-10A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C19-10B	MOVING PAVEMENT MARKING OPERATION MULTI-LANE UNDIVIDED ROADWAY
15C19-10C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C21-11	SIGNING AND MARKING FOR TWO LANE TO FOUR LANE DIVIDED TRANSITIONS
15C31-08A	PAVEMENT MARKING EXIT RAMP AND PARALLEL EXIT RAMP
15C31-08C	PAVEMENT MARKING ENTRANCE RAMP AND PARALLEL ENTRANCE RAMP

Standard Detail Drawing List

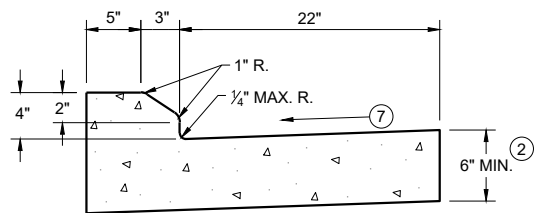
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15C36-01	PARKING STALL MARKING
15D06-06	TRAFFIC CONTROL, TWO LANE TWO WAY OPERATION
15D12-15A	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD
15D15-08A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-08B	TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-08C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-08D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-08E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D16-06	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D20-10A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
15D20-10B	TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D20-10C	TRAFFIC CONTROL, SINGLE LEFT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-04	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-11A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11B	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11D	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11E	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11F	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11G	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11H	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11I	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11J	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11K	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-11L	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D31-05	TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY
15D39-03	TRAFFIC CONTROL, DROP-OFF SIGNING
15D40-06A	TRAFFIC CONTROL, FULL LANE SHIFT NON-FREEWAY/EXPRESSWAY OR MULTILANE DIVIDED 45 MPH AND UNDER
15D40-06B	TRAFFIC CONTROL, FULL LANE SHIFT MULTILANE DIVIDED 50 MPH AND OVER
15D40-06C	TRAFFIC CONTROL, PARTIAL LANE SHIFT NON-FREEWAY/EXPRESSWAY OR MULTILANE DIVIDED 45 MPH AND UNDER
15D40-06D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER
15D43-02	TRAFFIC CONTROL, SHORT DURATION MOBILE OPERATIONS
15D46-01	TRAFFIC CONTROL, ONE - WAY SIGNING
15D50-04A	TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
15D50-04B	TRAFFIC CONTROL, ADDED LANE CLOSURE WITH LANE SHIFT
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



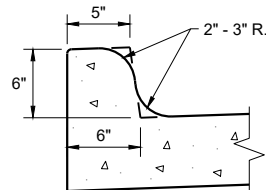
TYPES A^① & D



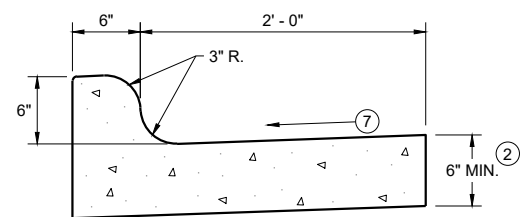
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

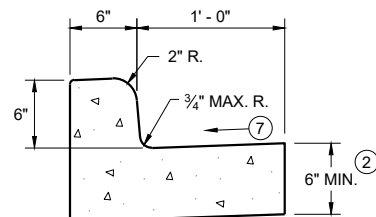


TYPES K^① & L
(OPTIONAL CURB SHAPE)



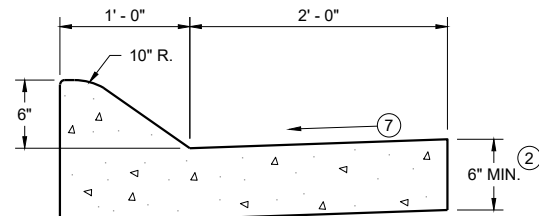
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

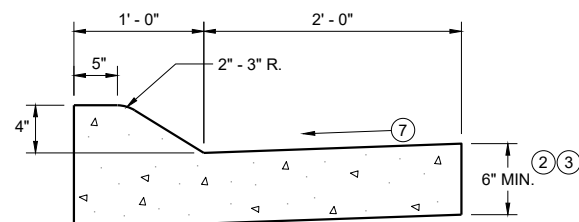


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

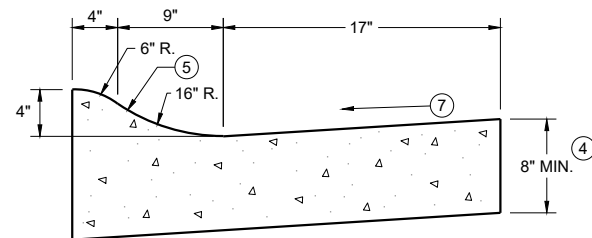


6" SLOPED CURB TYPES A^① & D



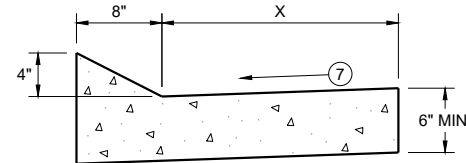
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

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

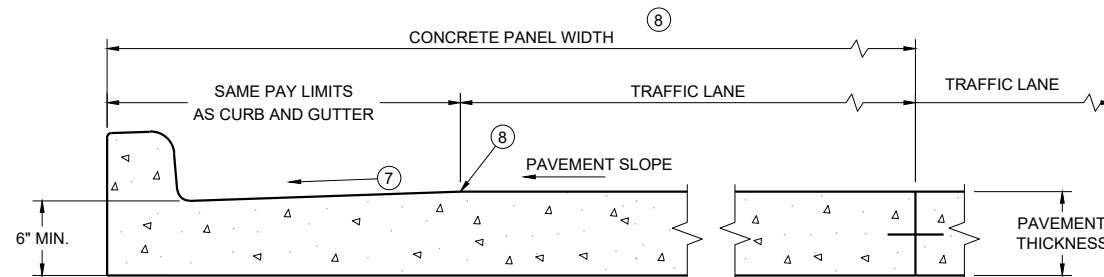


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

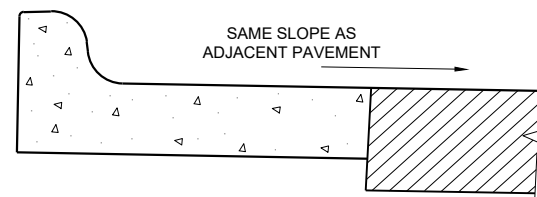
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

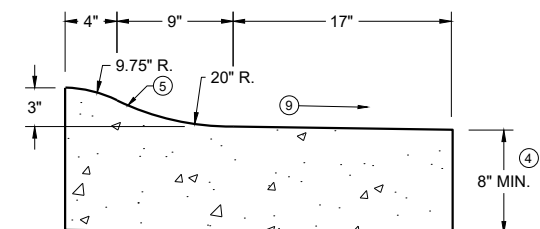


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

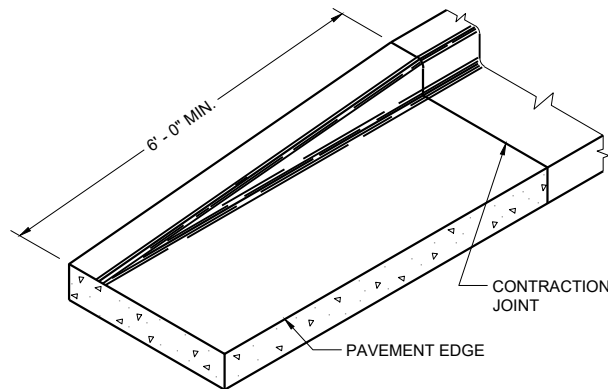
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

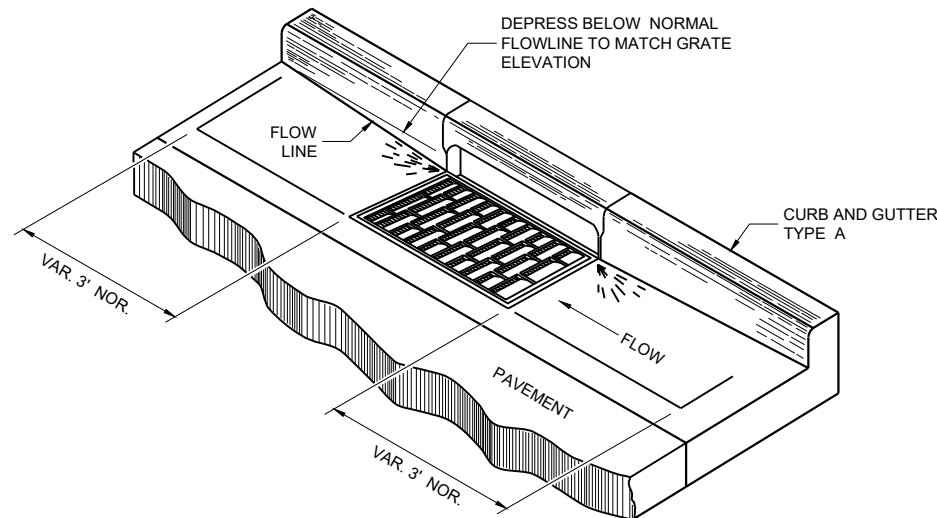
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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 SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

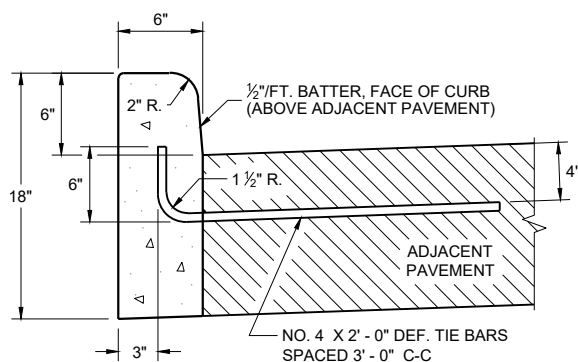


END SECTION CURB AND GUTTER

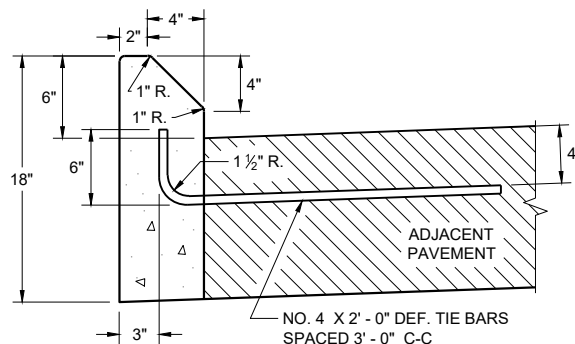


DETAIL OF CURB AND GUTTER AT INLETS

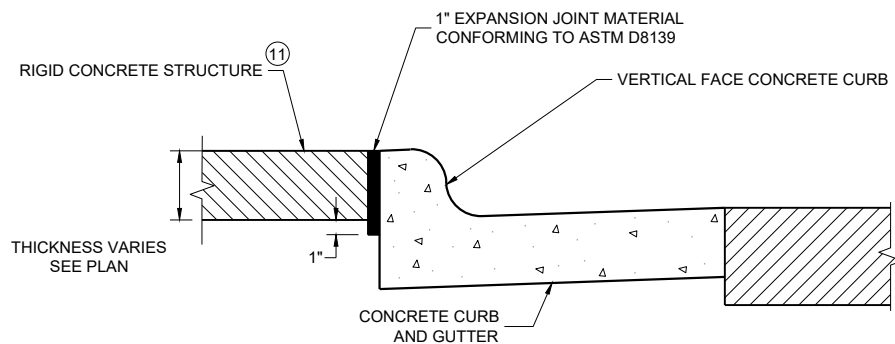
(TYPICAL H INLET COVER SHOWN)



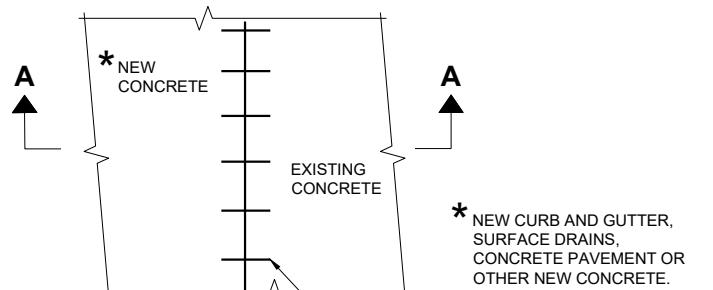
TYPES A^① & D



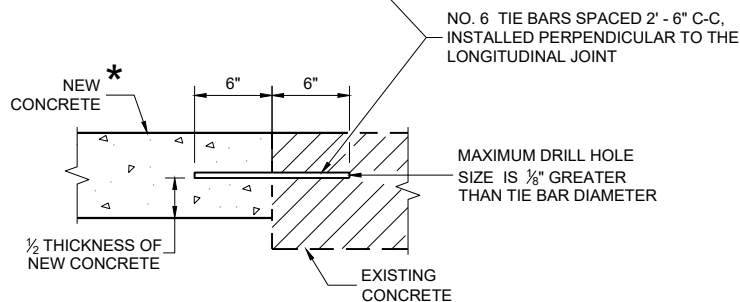
**TYPES G^① & J
CONCRETE CURB**



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



PLAN VIEW



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

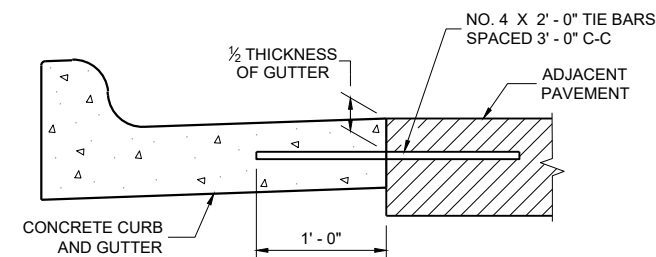
GENERAL NOTES

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

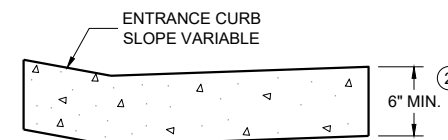
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



**DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)**

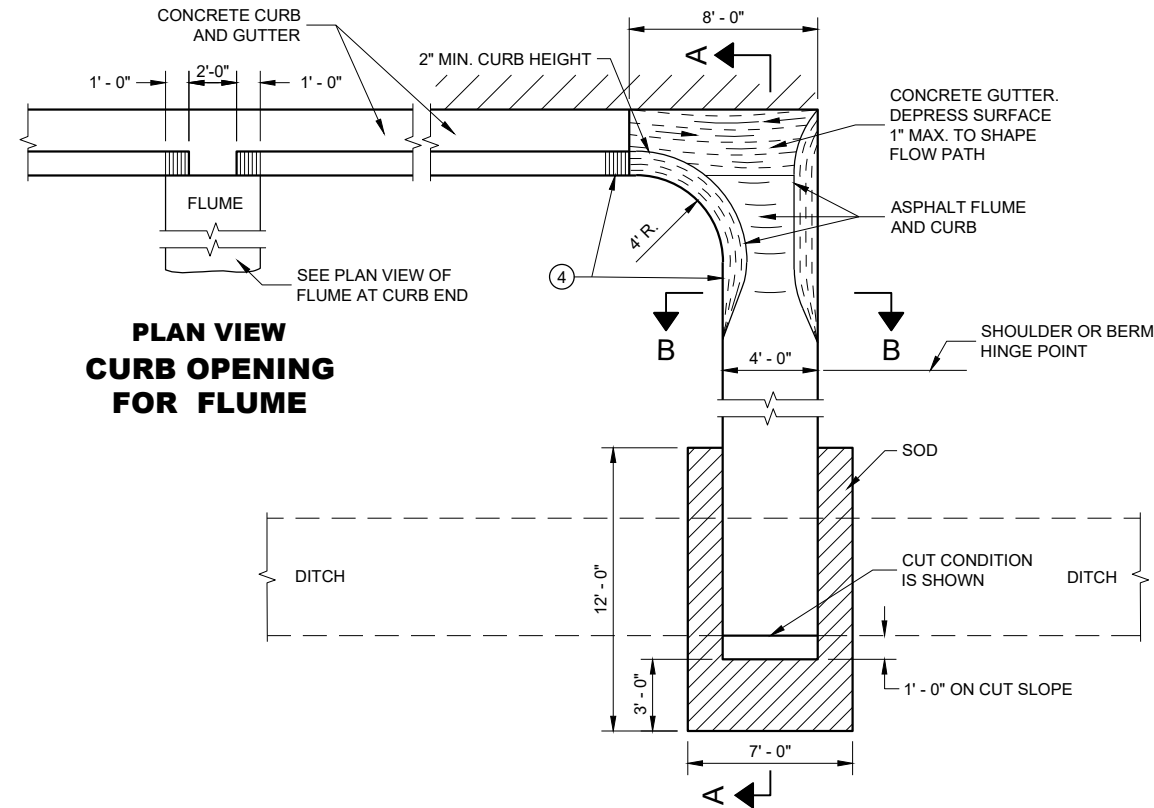
**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

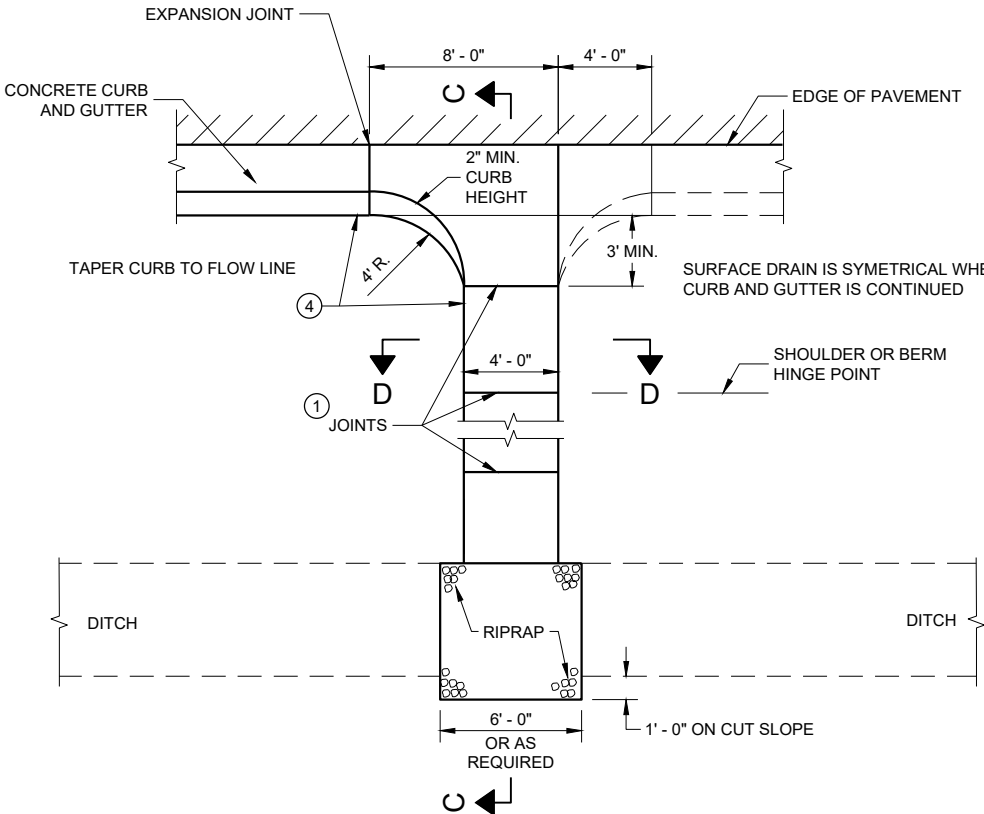
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



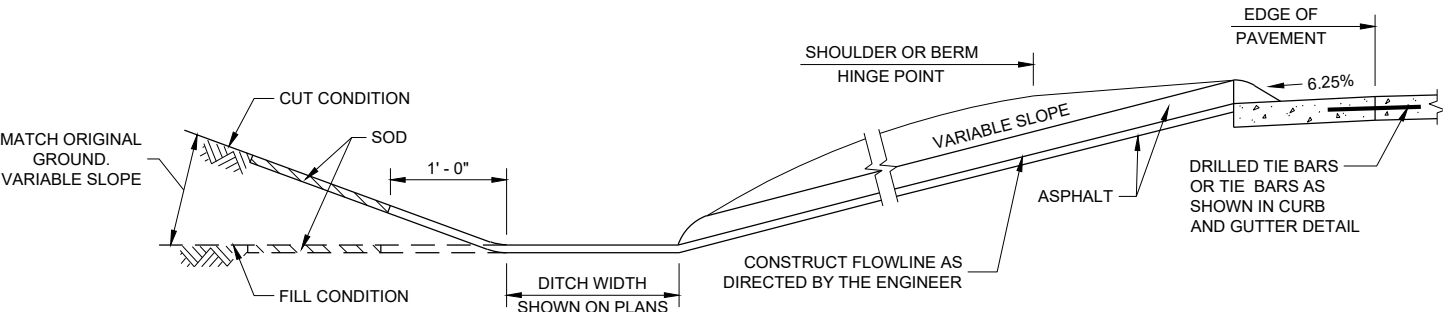
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

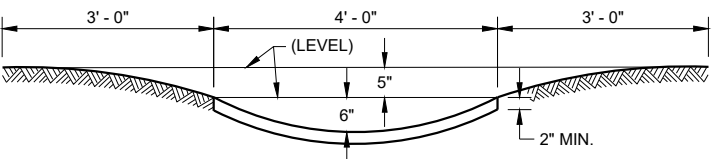
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

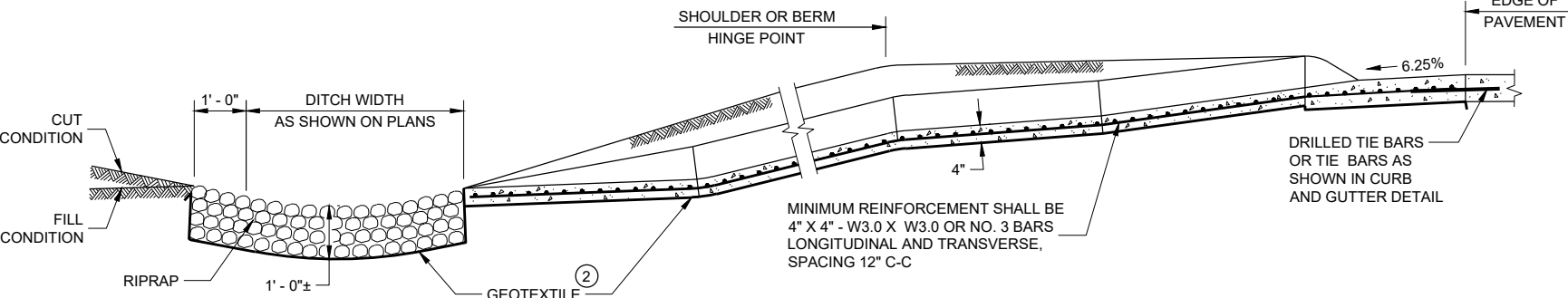
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



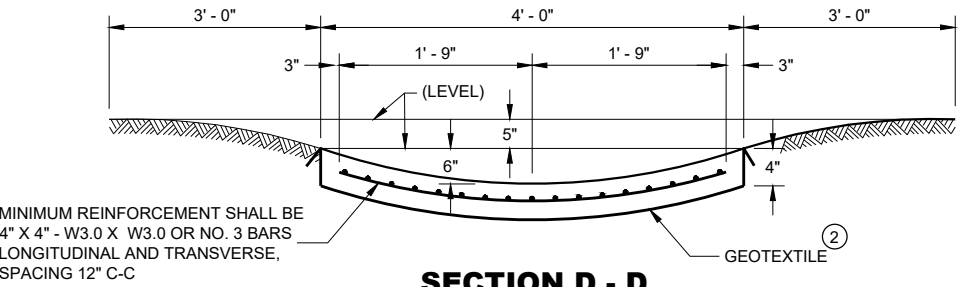
SECTION A - A



SECTION B - B



SECTION C - C



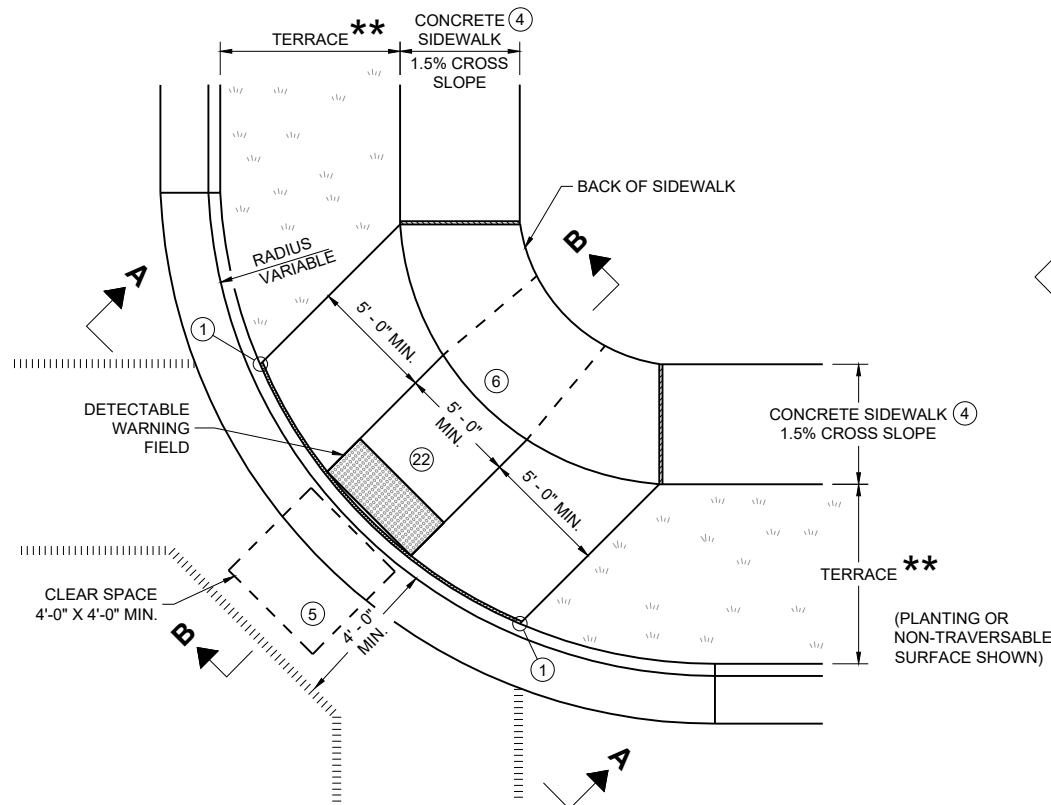
SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

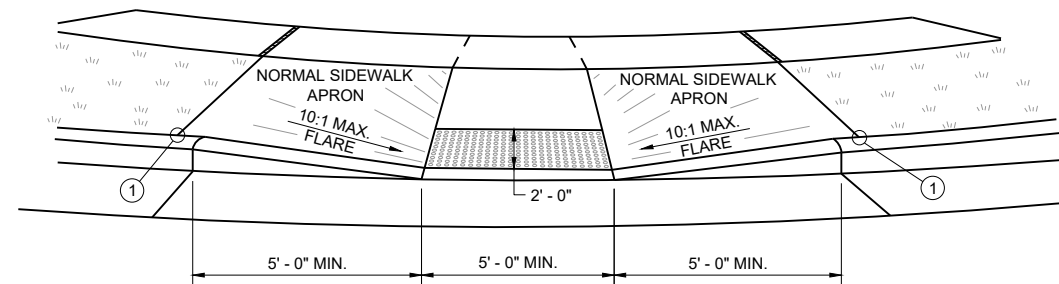
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
136

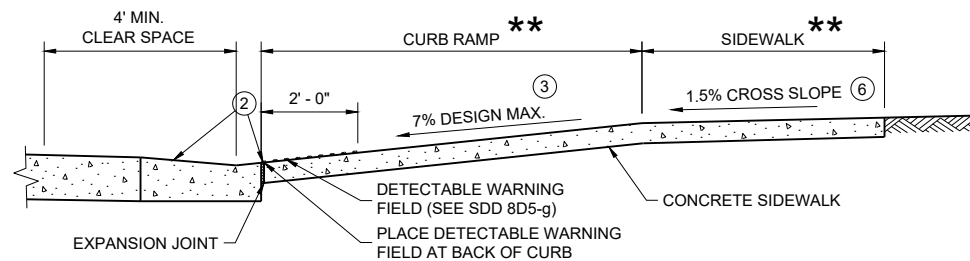
FHWA



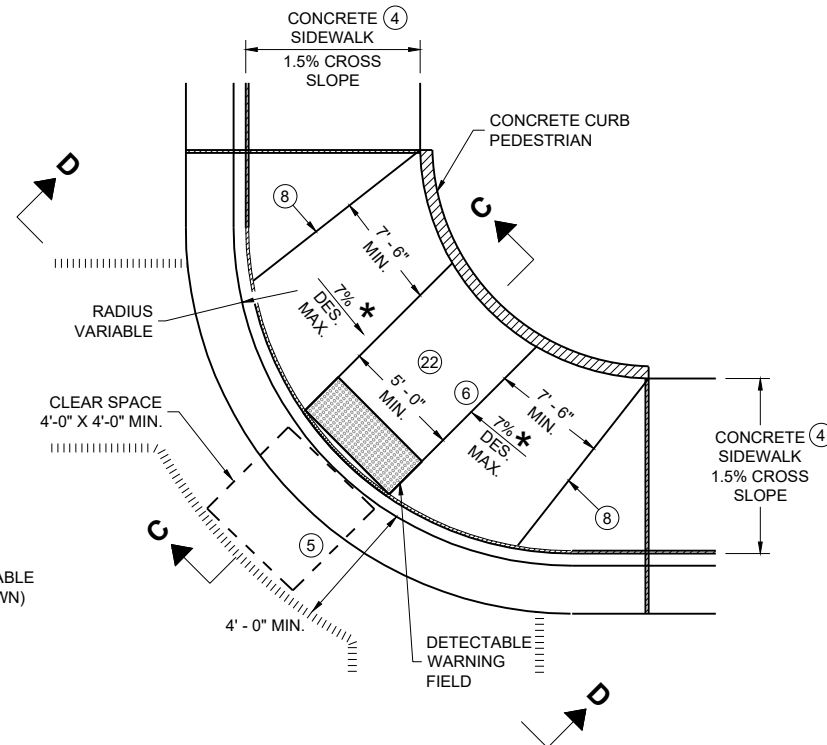
PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)



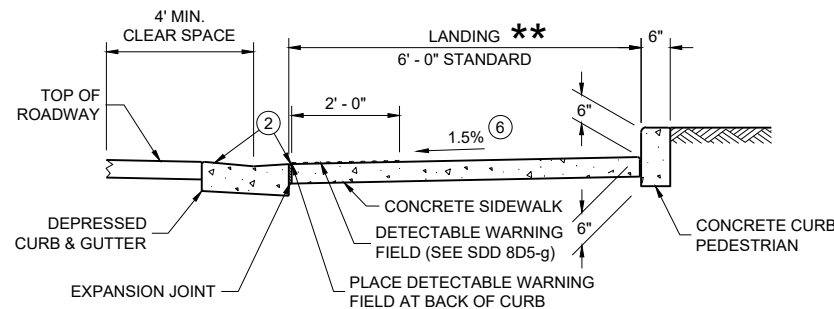
VIEW A - A FOR TYPE 1



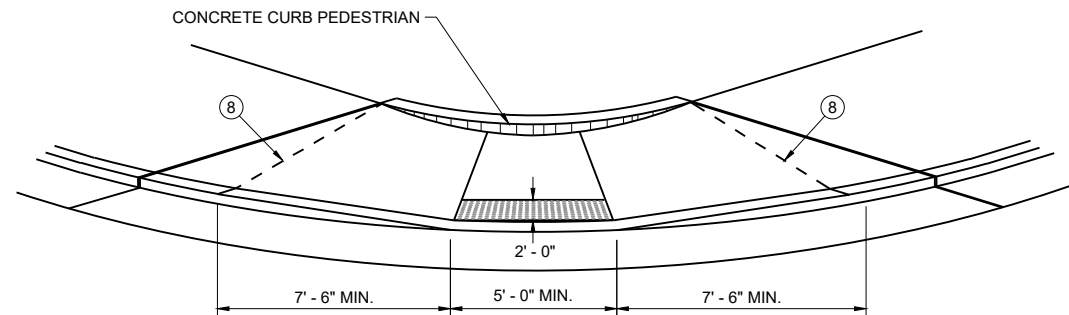
SECTION B - B FOR TYPE 1



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



SECTION C - C FOR TYPE 1 - A



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

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

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF CURB 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 CURB RAMP.

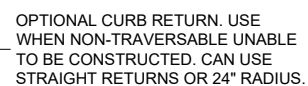
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A CLEAR SPACE IN THE STREET AND GUTTER AREA. WHEN THE GUTTER CROSS SLOPE EXCEEDS 2.1%, CONSTRUCT THE CLEAR SPACE IN THE STREET AREA AND THE 4 FOOT WIDTH IS MEASURED FROM THE FLANGE LINE. FOR RECONSTRUCTION AND MODERNIZATION PROJECTS THE CLEAR SPACE SLOPE PARALLEL TO THE CURBLINE SHOULD BE 2.1% MAX FOR CROSSINGS THAT ARE STOP AND YIELD CONTROLLED, AND 5% MAX FOR THOSE THAT ARE SIGNAL CONTROLLED. FOR PERPETUATION AND REHABILITATION PROJECTS THE SLOPE OF THE CLEAR SPACE PARALLEL TO THE CURBLINE WILL MATCH THE ROADWAY LONGITUDINAL SLOPE. THE SLOPE OF THE CLEAR SPACE PERPENDICULAR TO THE CURBLINE WILL MATCH THE ROADWAY CROSS SLOPE BUT SHOULD NOT EXCEED 5% UNLESS THE ROADWAY IS SUPERELEVATED (WHEN SUPERELEVATED THE ROADWAY CROSS SLOPE SHOULD MATCH THE SUPERELEVATION).
- ⑥ PROVIDE A 5 FOOT BY 5 FOOT LANDING. SLOPE PERPENDICULAR TO CURB SHALL BE 2.1% MAXIMUM. SLOPE PARALLEL TO CURB SHALL MATCH THE CURB AND GUTTER LONGITUDINAL SLOPE.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑪ A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- ⑫ THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- * MAXIMUM 8.3%
- ** WIDTH SHOWN ELSEWHERE IN THE PLANS

CURB RAMPS
TYPE 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



LEGEND

	1/2" EXPANSION JOINT SIDEWALK
	CONTRACTION JOINT SIDEWALK
	PAVEMENT MARKING CROSSWALK (WHITE)
	MAXIMUM 2.1% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK
	WIDTH SHOWN ELSEWHERE IN THE PLANS
	CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

CURB RAMPS TYPE 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

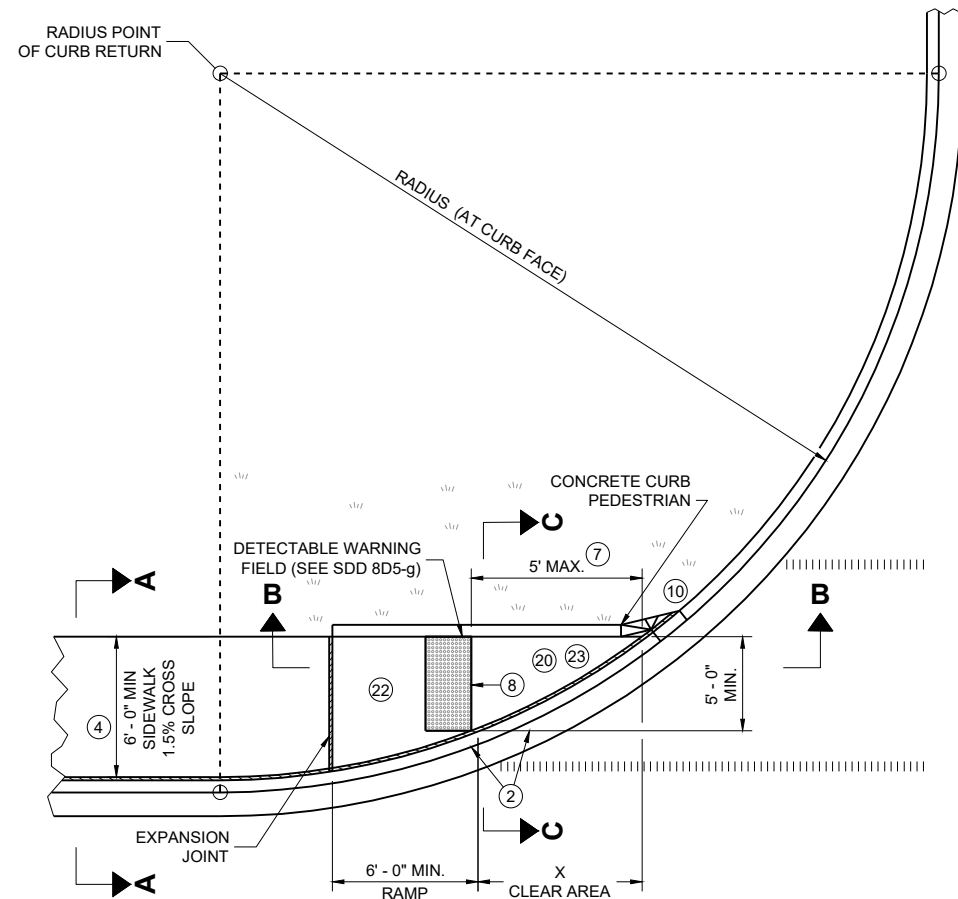
GENERAL NOTES

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

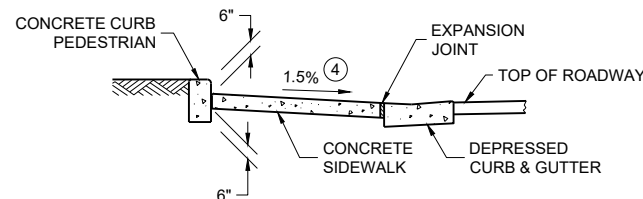
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

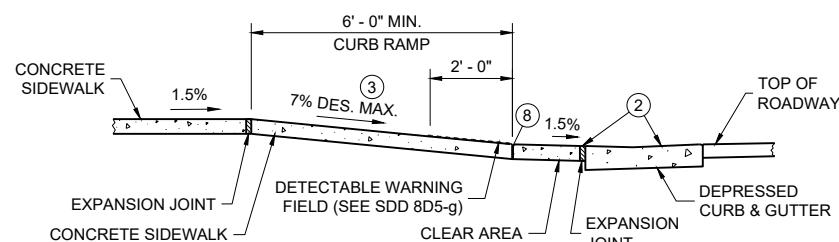
- ② GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 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% DESIGN MAXIMUM SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% DESIGN MAXIMUM SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.
- ⑰ A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- ⑲ WHERE A LANDING SERVES TWO CURB RAMPS, THE LANDING SLOPE SHALL NOT EXCEED THE CROSS SLOPE AT THE BOTTOM OF THE RAMP OR WITHIN THE CROSSWALK PARALLEL TO THE DIRECTION OF TRAVEL.
- ⑳ PROVIDE A LANDING WITH A SLOPE PARALLEL TO ROADWAY THAT MATCHES SLOPE AT THE BOTTOM OF THE ADJACENT RAMP. SLOPE PERPENDICULAR TO ROADWAY SHALL BE 2.1% MAXIMUM. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
- ㉒ THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- ㉔ THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.



PLAN VIEW
CURB RAMP TYPE 4A



SECTION C - C FOR TYPE 4A



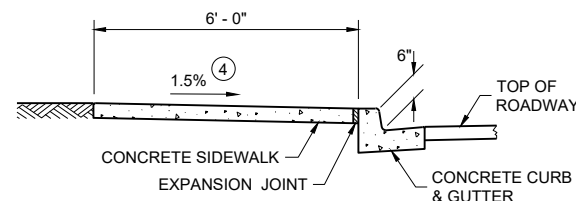
SECTION B - B FOR
TYPE 4A AND TYPE 4A1

LEGEND

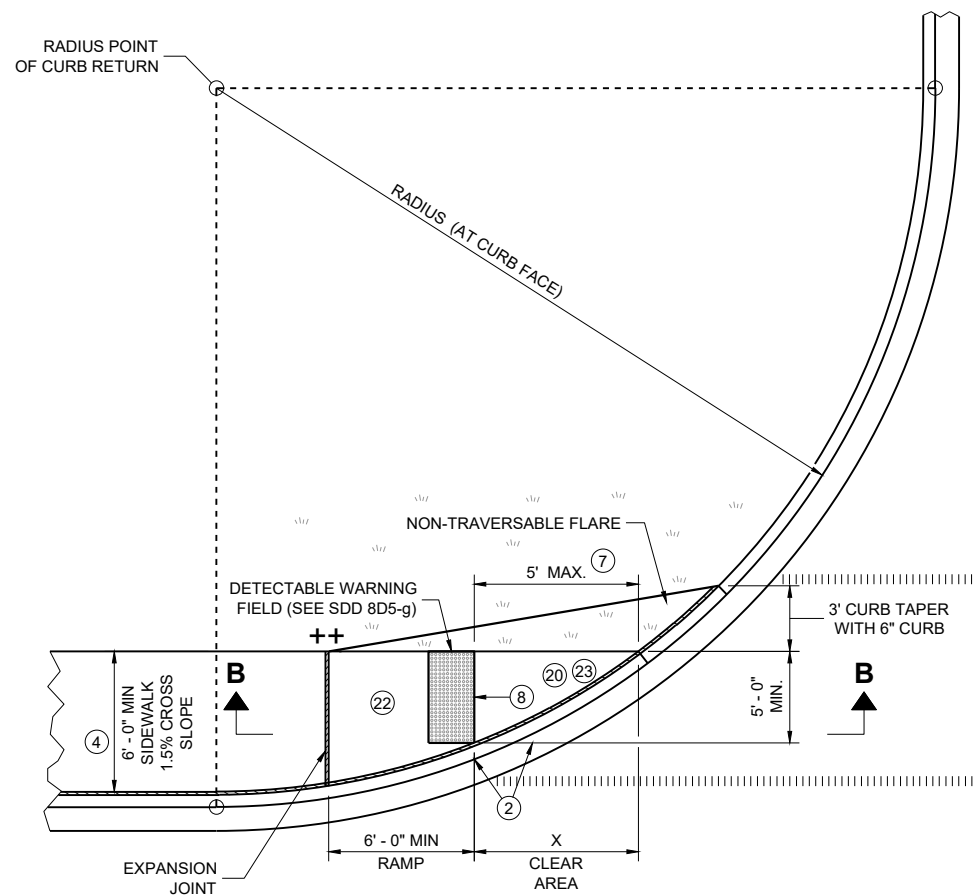
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)
- ++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"

INTERMEDIATE RADII CAN BE INTERPOLATED



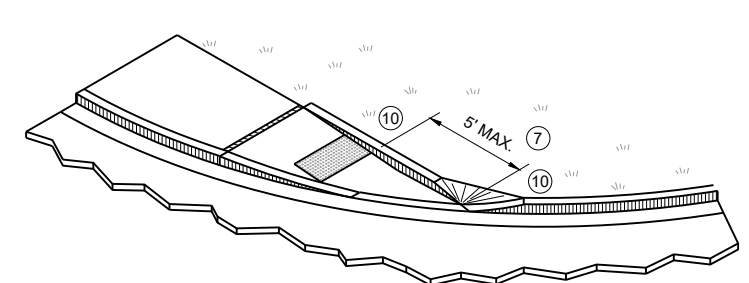
SECTION A - A FOR TYPE 4A



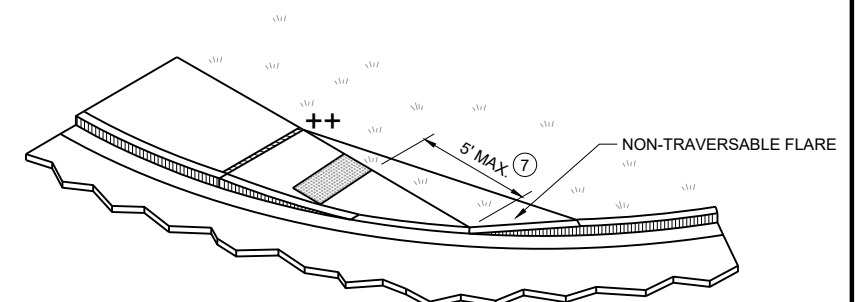
PLAN VIEW
CURB RAMP TYPE 4A1

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB 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.
- GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- MAXIMUM 1.5% DESIGN MAXIMUM AND 2.1% PROWAG MAXIMUM RUNNING SLOPE ON CLEAR AREA. CROSS SLOPE OF CLEAR AREA SHALL MATCH THE CROSS SLOPE OF THE ADJACENT CROSSWALK.
- THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.



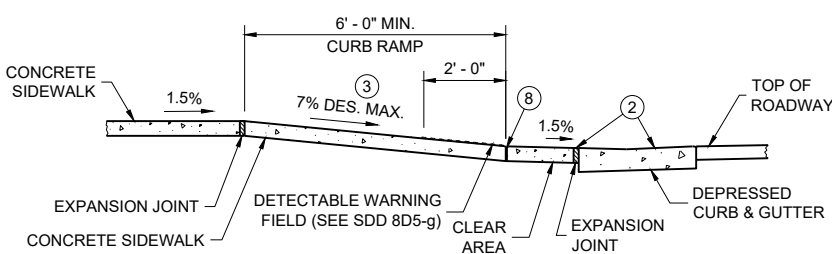
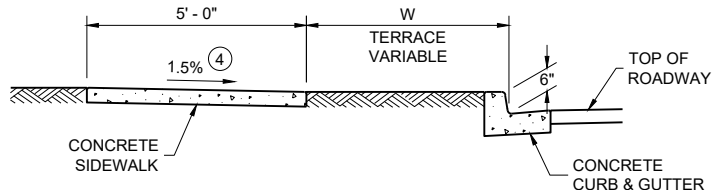
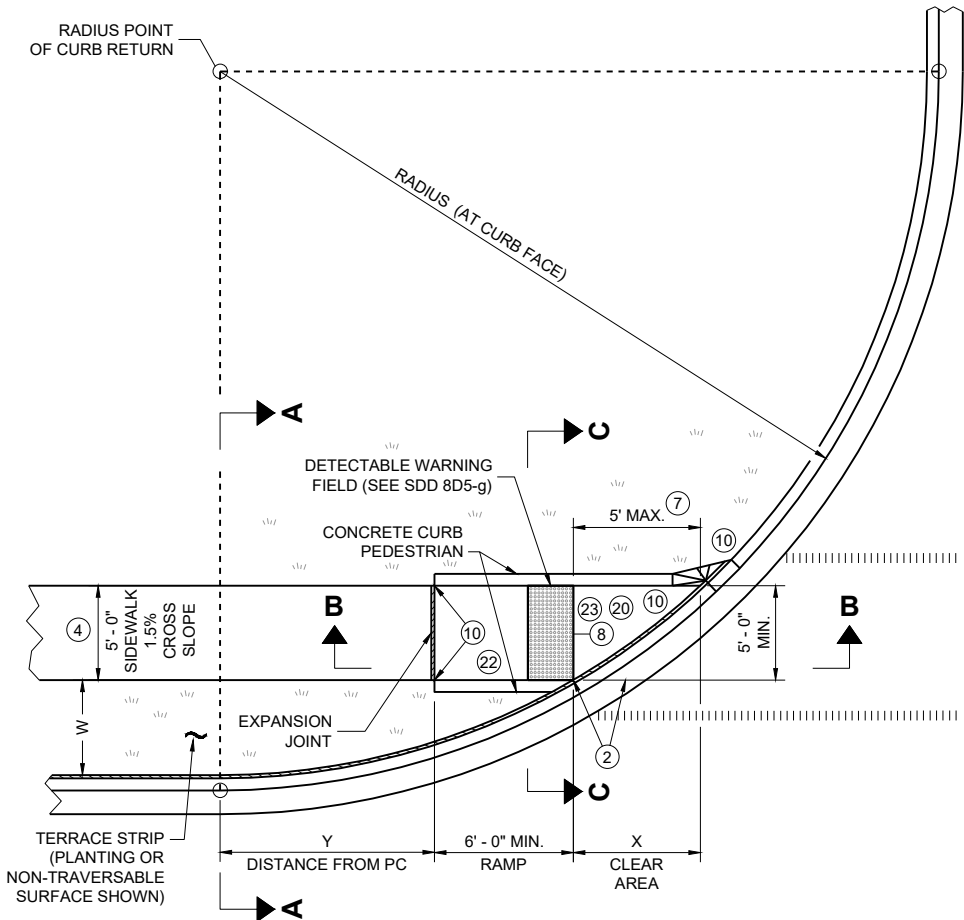
ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

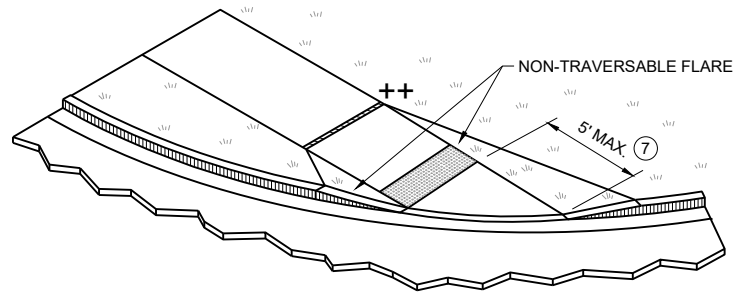
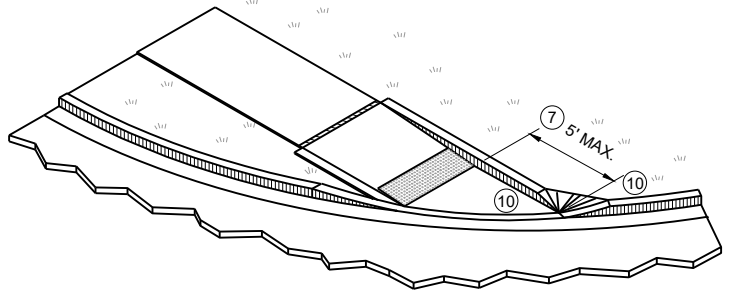
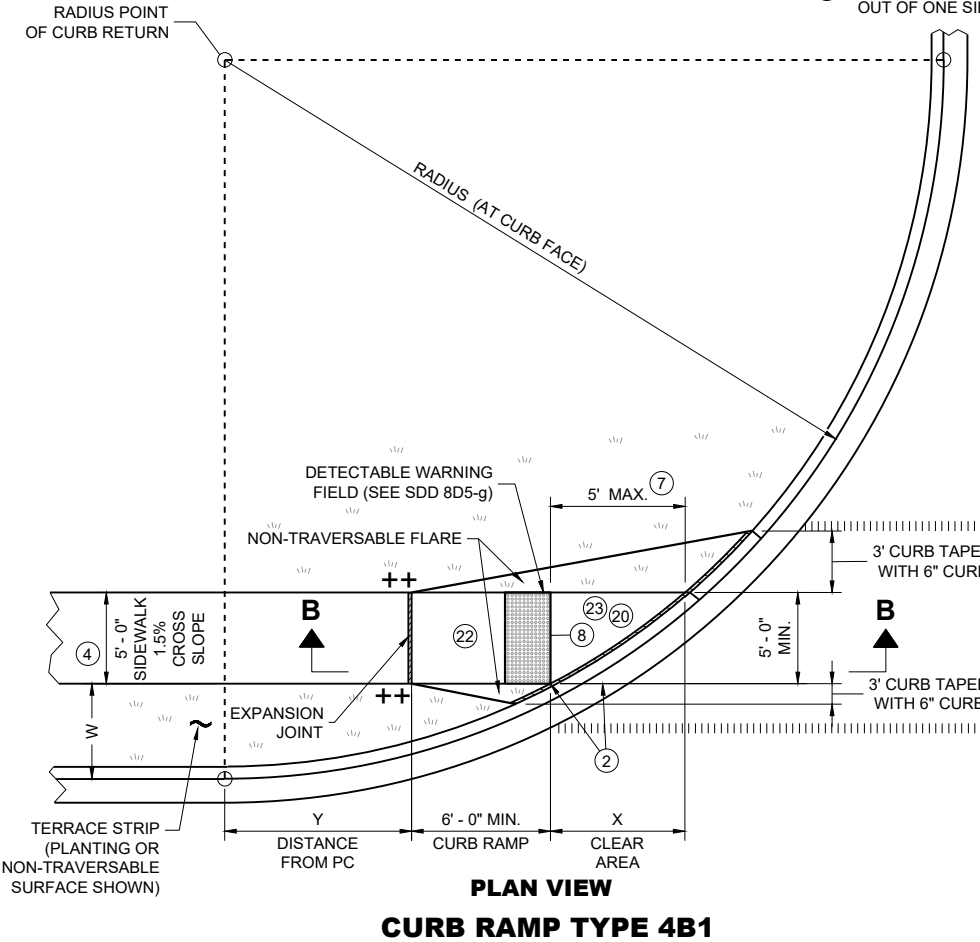
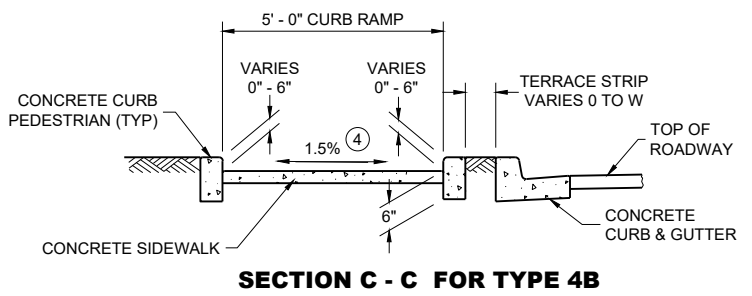
CURB RAMPS
TYPE 4A AND 4A1

STATE OF WISCONSIN
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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			4' - 11 1/2"	5' - 1 3/4"	4' - 3 1/4"	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									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															4' - 10 3/4"	19' - 8 1/4"

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

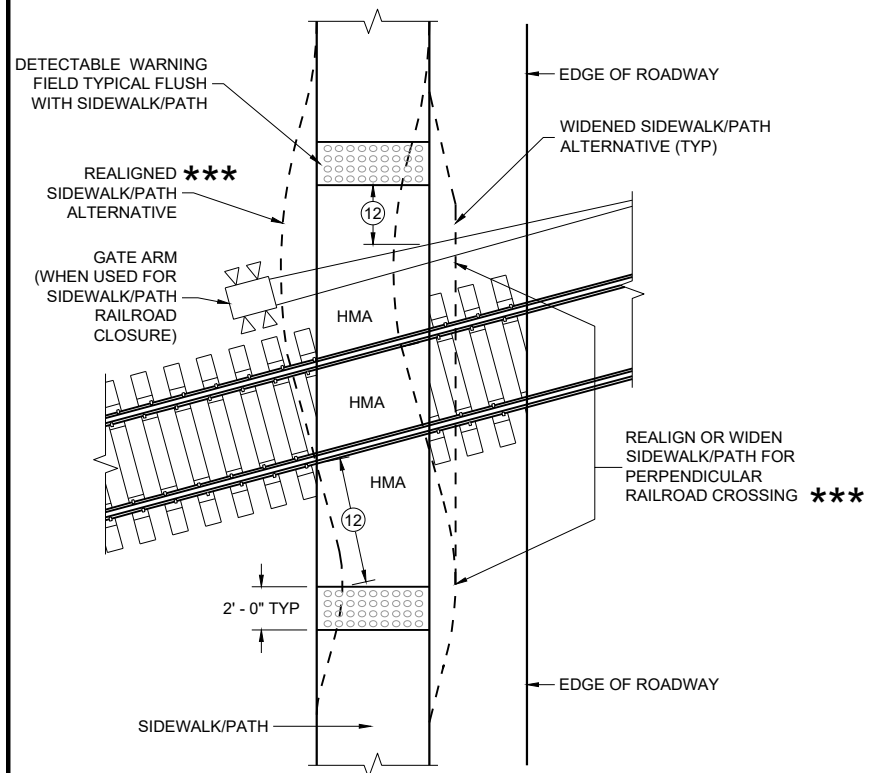


- LEGEND**
- 1/2" EXPANSION JOINT SIDEWALK
 - CONTRACTION JOINT SIDEWALK
 - PAVEMENT MARKING CROSSWALK (WHITE)
 - * MAXIMUM 2.1% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK
 - ++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

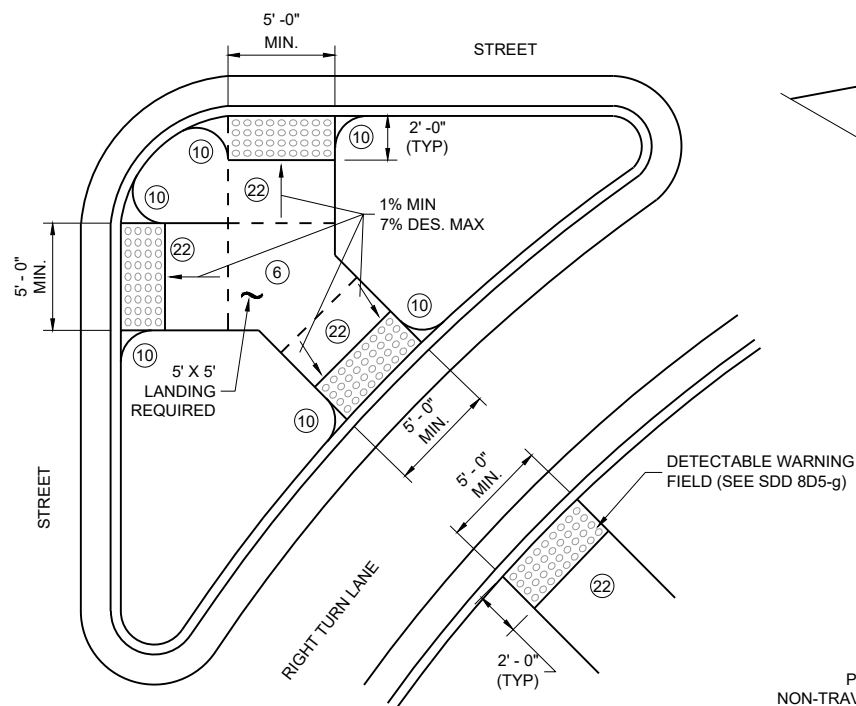
- GENERAL NOTES**
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB RAMP ACCESS AREAS.
- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE 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 COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 3 MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 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.
- 17 A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- 20 MAXIMUM 1.5% DESIGN MAXIMUM AND 2.1% PROWAG MAXIMUM RUNNING SLOPE ON CLEAR AREA. CROSS SLOPE OF CLEAR AREA SHALL MATCH THE CROSS SLOPE OF THE ADJACENT CROSSWALK.
- 22 THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.
- 23 THE CLEAR AREA BETWEEN THE BOTTOM OF RAMP AND BACK OF CURB SHALL BE SLOPED SO THAT WATER DRAINS OUT OF ONE SIDE OR BOTH SIDES OF THE CURB OPENING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

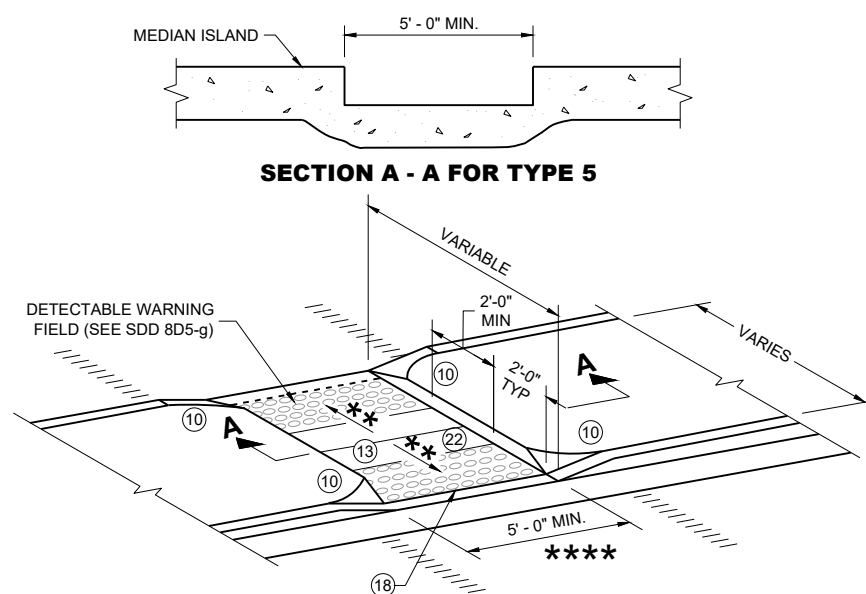


CURB RAMP TYPE 8
DETECTABLE WARNINGS
FOR SIDEWALKS OR SHARED USE PATHS
AT RAILROAD CROSSINGS

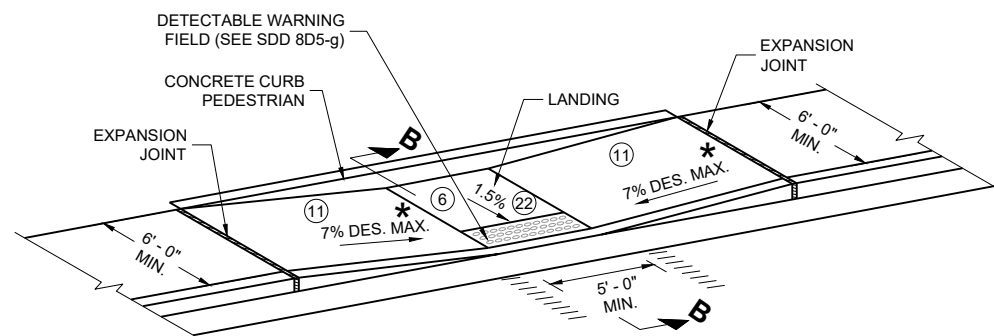


CURB RAMP TYPE 6
DETECTABLE WARNING AT ISLANDS

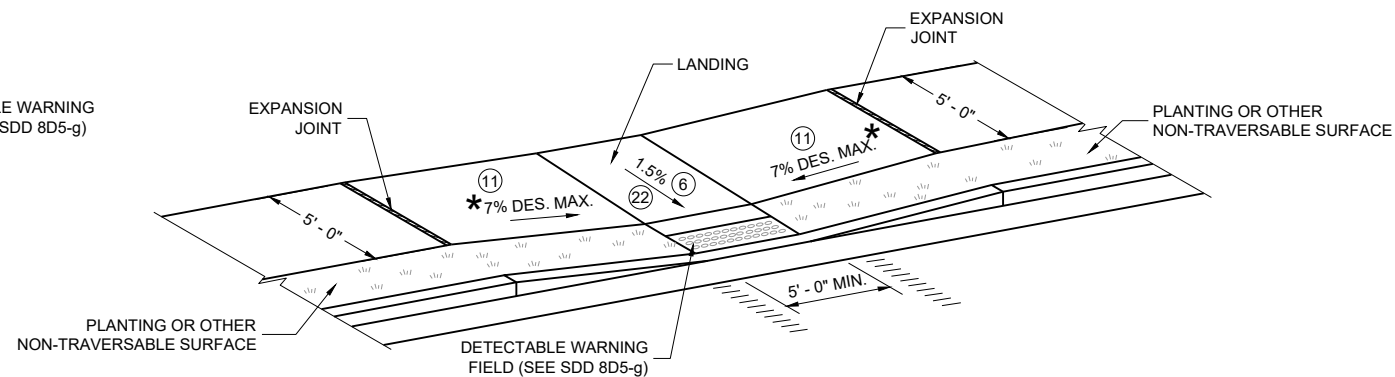
REFER TO GENERAL NOTES ② AND ③
FOR ALL ISLAND CURB RAMPS



CURB RAMP TYPE 5
MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS



CURB RAMP TYPE 7B
FOR INTERSECTIONS AND
MID BLOCK CROSSINGS

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF CURB 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.

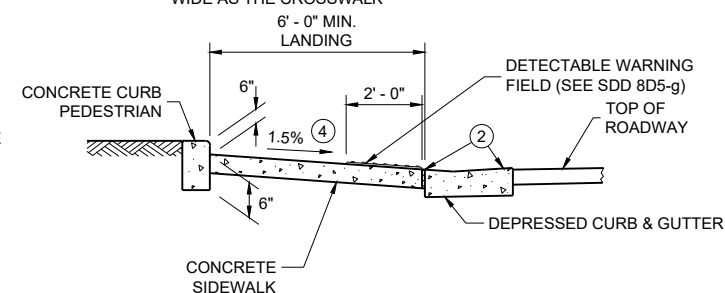
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1%.

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

- ② GRADE CHANGE BETWEEN GUTTER COUNTER SLOPE AND THE CURB RAMP SLOPE IS DESIRABLY 11% OR LESS AND SHALL NOT EXCEED 13.3%. TYPICAL GUTTER COUNTER SLOPE IS 4% BUT MAY BE MODIFIED TO FIT FIELD CONDITIONS. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5%, DESIRABLY 7% OR LESS, AND SHALL NOT EXCEED A MAXIMUM OF 8.3%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.3% CURB RAMP SLOPE IS ALLOWABLE WITH GUTTER COUNTER SLOPE OF 5% MAXIMUM AND A 13.3% MAXIMUM GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2.1% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A 5 FOOT BY 5 FOOT LANDING. SLOPE PERPENDICULAR TO CURB SHALL BE 2.1% MAXIMUM. SLOPE PARALLEL TO CURB SHALL MATCH THE CURB AND GUTTER LONGITUDINAL SLOPE.
- 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 $\pm 0.1'$ FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK/PATH. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD TRACK IS 15 FEET MAXIMUM AND 12 FEET MINIMUM, 15 FEET TYPICAL FROM THE NEAREST RAIL.
- ⑬ DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STEET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.
- ⑰ A MAXIMUM 2-INCH CONCRETE BORDER IS PERMITTED ALONG ALL SIDES OF THE DETECTABLE WARNING FIELD SURFACE.
- ⑱ WHEN THE DISTANCE BETWEEN THE BACK OF CURBS IS LESS THAN 6 FEET BUT THE FACE OF CURB TO FACE OF CURB DISTANCE IS 6 FEET OR GREATER THEN THE DETECTABLE WARNING FIELDS MAY BE MOVED SO THAT THE EDGE OF THE WARNING FIELD IS PLACED AT THE GUTTER FLOWLINE. MAINTAIN A MINIMUM OF TWO FEET BETWEEN DETECTABLE WARNING FIELD PANELS.
- ⑳ THE ENTIRE RAMP SHALL BE A PLANAR SURFACE. DO NOT WARP THE RUNNING SLOPE OR CROSS SLOPE OF THE RAMP. WARPING OF THE SIDEWALK CROSS SLOPE SHALL TAKE PLACE BETWEEN THE LANDING AND MATCH POINT.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- MAXIMUM 8.3%
- 1% MINIMUM (PROVIDE DRAINAGE)
- DETAILS TO BE DETERMINED BY ENGINEER
- FOR SHARED USE PATHS, WIDTH MUST BE AS WIDE AS THE CROSSWALK

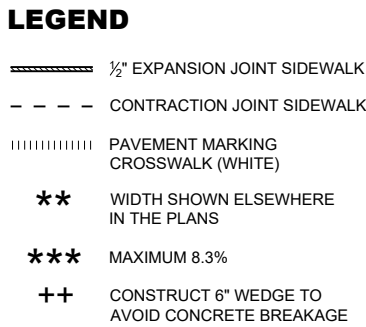


SECTION B - B FOR TYPE 7A

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6



6



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

NOTE: SECOND TYPE 2 RAMP NOT SHOWN

Diagram illustrating the radial detectable warning field placement when the 5-foot grade break distance per SDD 8D5-b is exceeded. The diagram shows a cross-section of a curb and ramp area with various dimensions and labels.

Key components and dimensions:

- Concrete Sidewalk**: Located above the ramp.
- SLOPE 'A'**: Indicated on the ramp and the area adjacent to the curb.
- 10:1 TRAVERSABLE FLARE**: The sloped area leading up to the ramp.
- DETECTABLE WARNING FIELD RADIAL**: The area containing the detectable warning field.
- SEE DETAIL C**: Reference to a detail view of the curb and ramp.
- 5' - 0" MIN.**: Minimum distance from the curb to the detectable warning field.
- 3' CURB TAPER WITH 6" CURB**: The tapered curb area.
- NON-TRAVERSABLE FLARE**: The area between the curb and the ramp.
- CLEAR AREA "X" TERRACE****: The area between the ramp and the sidewalk.
- TERRACE STRIP (PLANTING OR NON-TRAVERSABLE SURFACE SHOWN)**: The strip of land between the ramp and the sidewalk.
- CONCRETE SIDEWALK**: Located below the ramp.

Dimensions and labels within the diagram include:

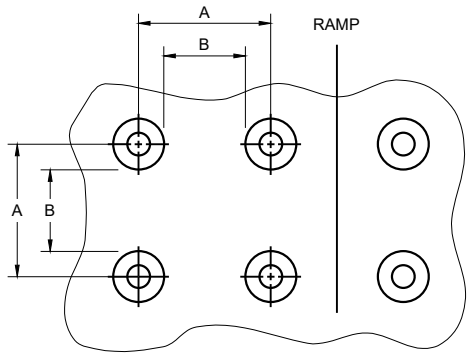
- 2' - 0"
- 8 (14)
- 20 (23)
- 15
- 19
- 22

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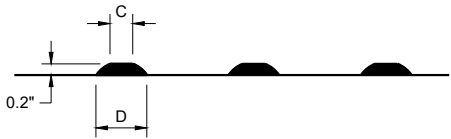
SDD 08D05-22f

	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.

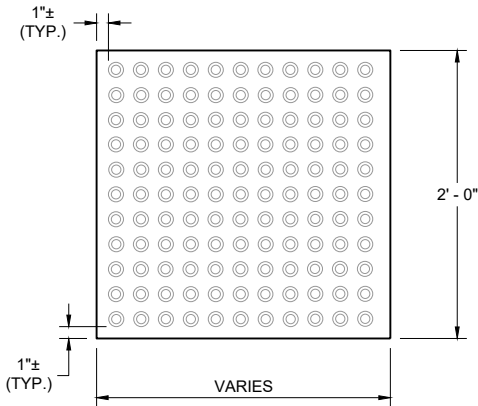


PLAN VIEW

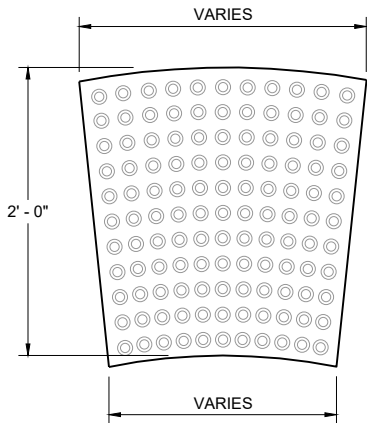


ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

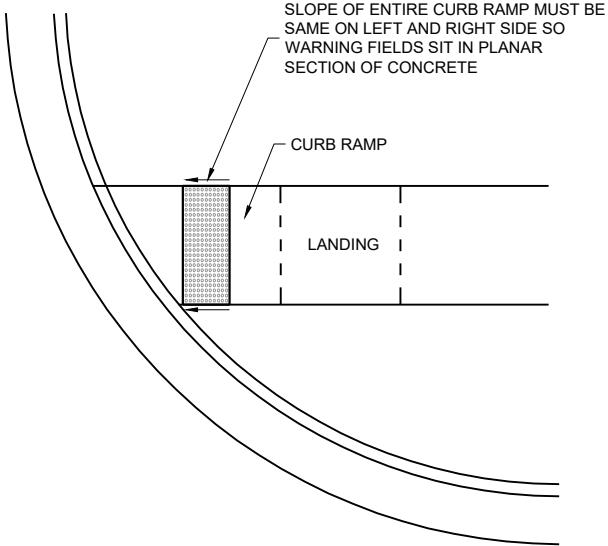


RECTANGULAR
PLATES

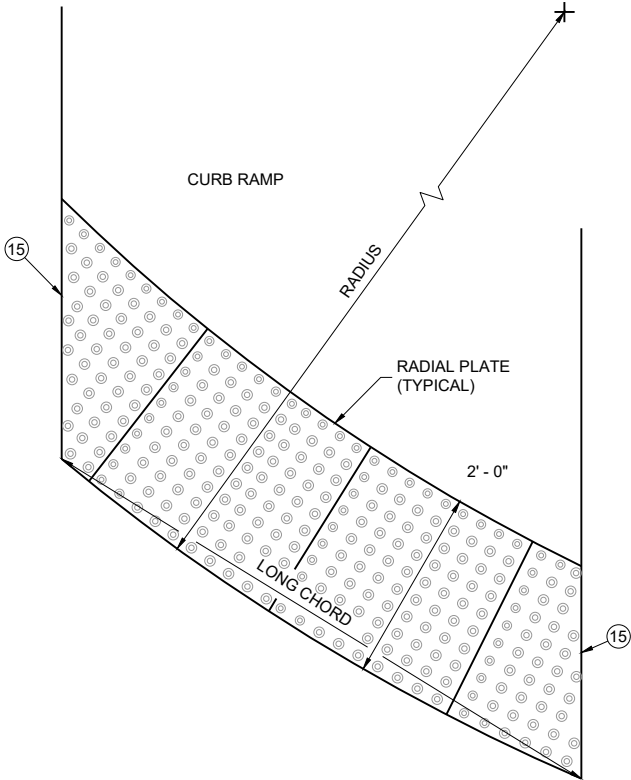


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



DETECTABLE WARNING FIELD
PLANAR INSTALLATION



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES

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 FILED ARE PROHIBITED.

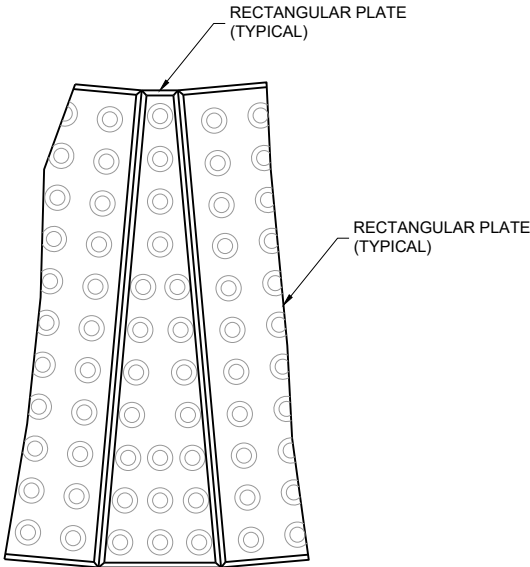
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

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.



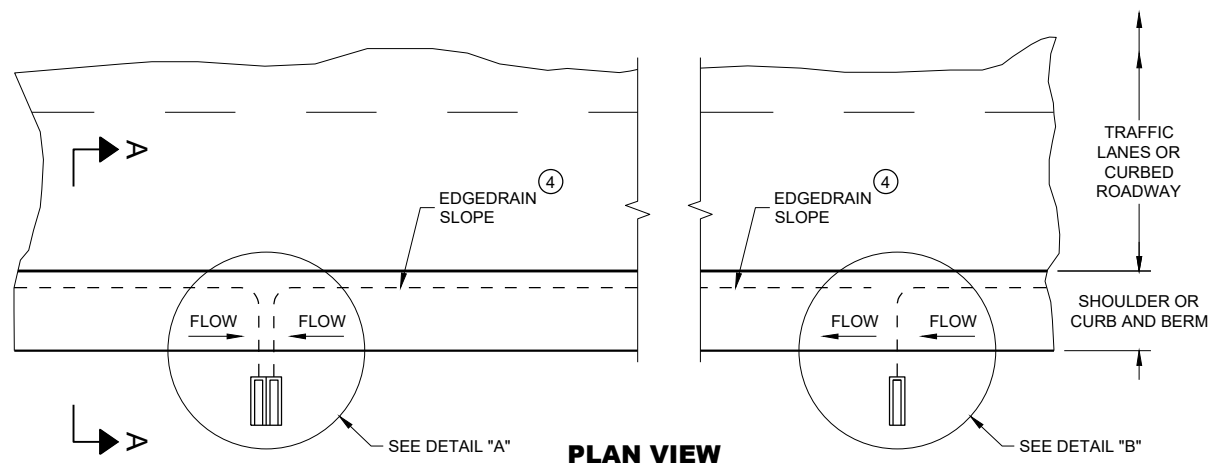
PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

CURB RAMPS
RECTANGULAR AND RADIAL
DETECTABLE WARNING PLATES

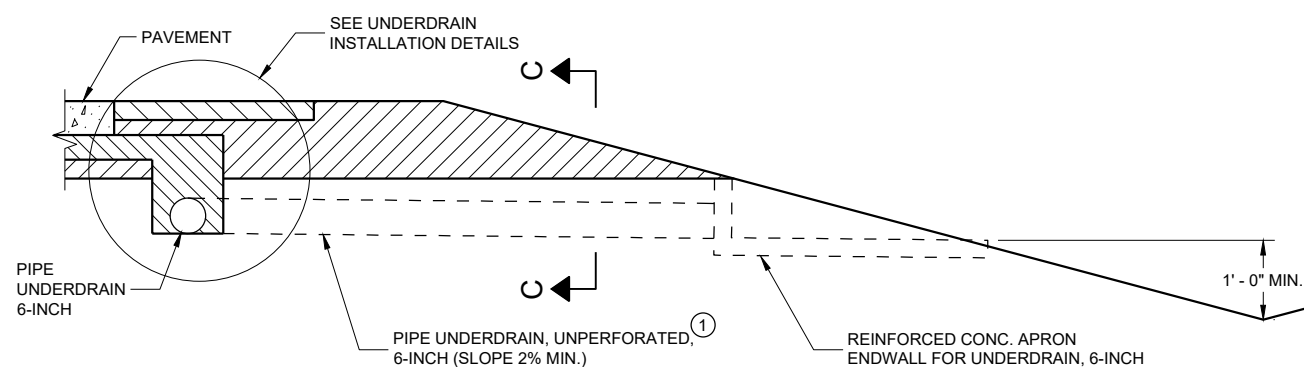
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE <position>

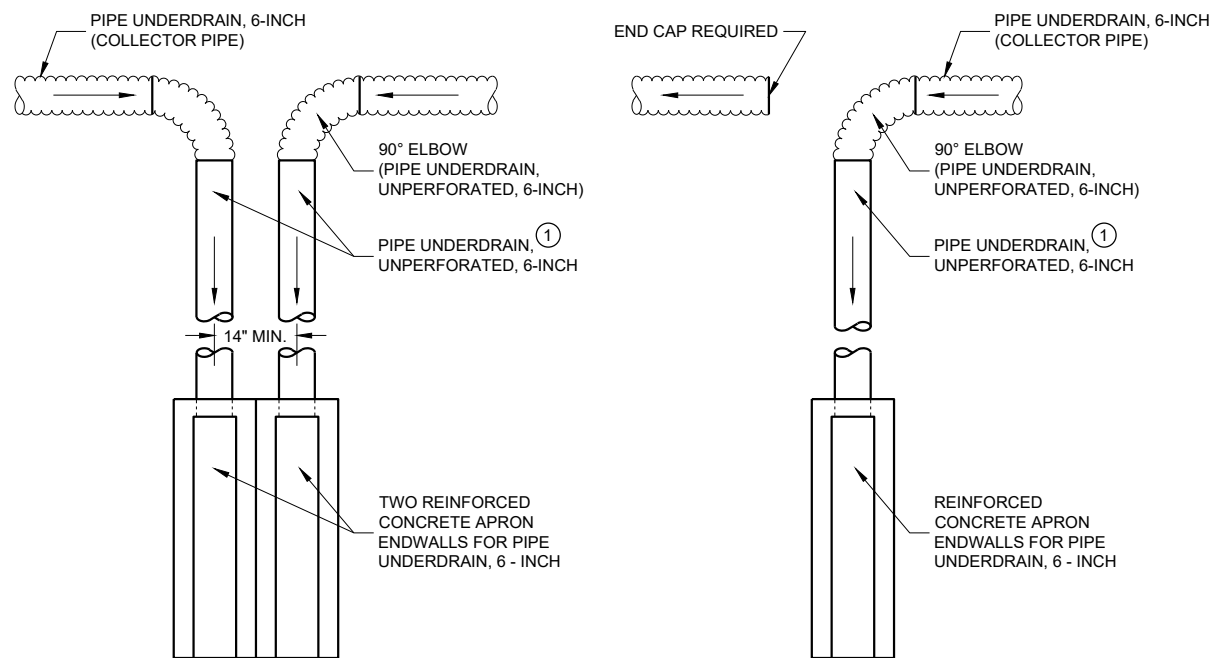
FHWA 143



**ROADWAY WITH SHOULDERS OR CURBS
(EDGEDRAIN CONNECTS TO ROADSIDE) ②**



**SECTION A - A
RURAL CROSS SECTION**



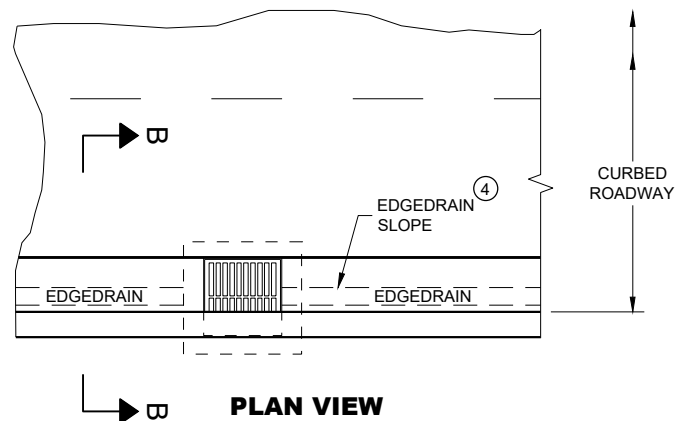
DETAIL "A"

TO BE USED AT LOW POINT LOCATIONS

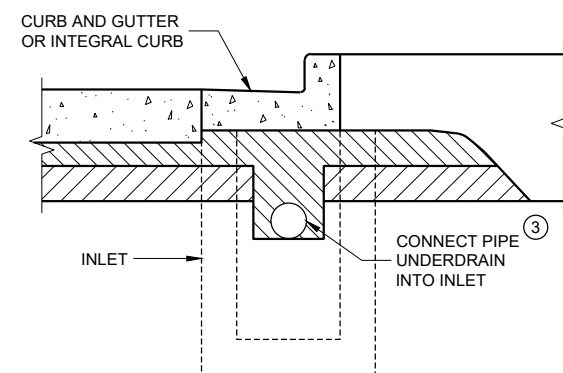
DETAIL "B"

TO BE USED AT INTERMEDIATE LOCATIONS

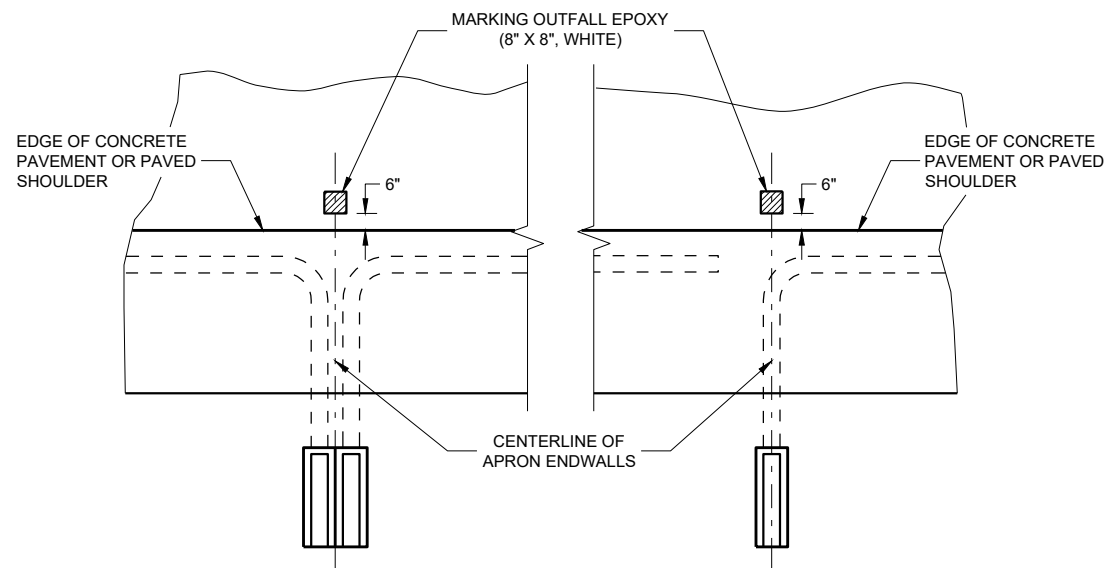
TYPICAL DRAIN OUT DETAILS



**ROADWAY WITH CURBS
(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)**



**SECTION B - B
URBAN CROSS SECTION**



PAVEMENT MARKINGS FOR OFFFALL MARKERS

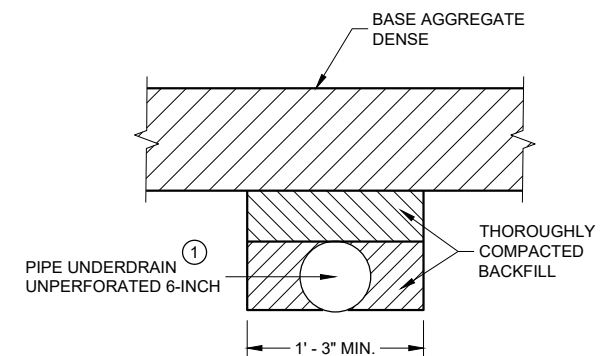
GENERAL NOTES

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 UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OFFFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:

POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

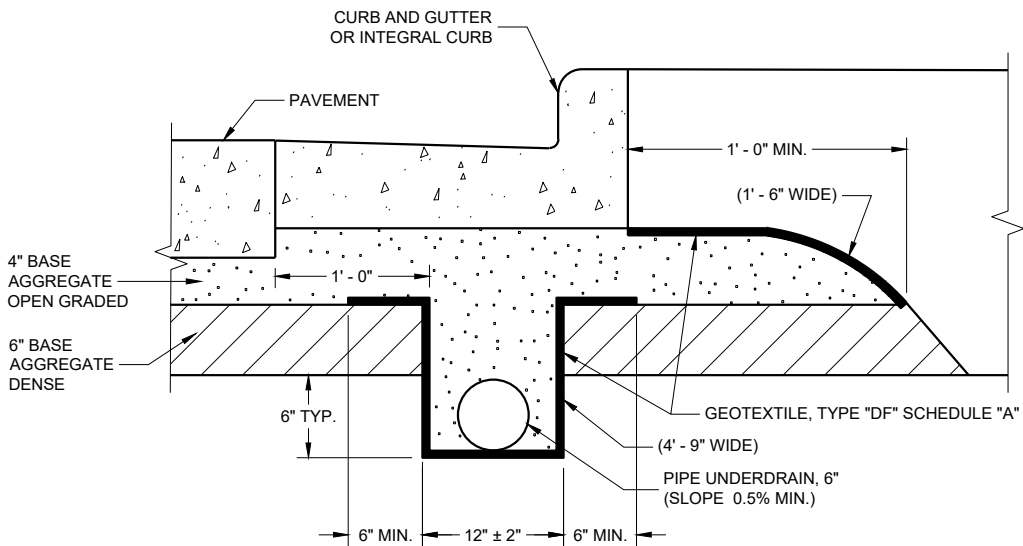
TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



**SECTION C - C
TRENCH FOR OFFFALL PIPE**

**EDGEDRAIN OUTLET
AND OFFFALL MARKERS**

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DEPARTMENT OF TRANSPORTATION 144



EDGEDRAIN IN URBAN ROADWAY

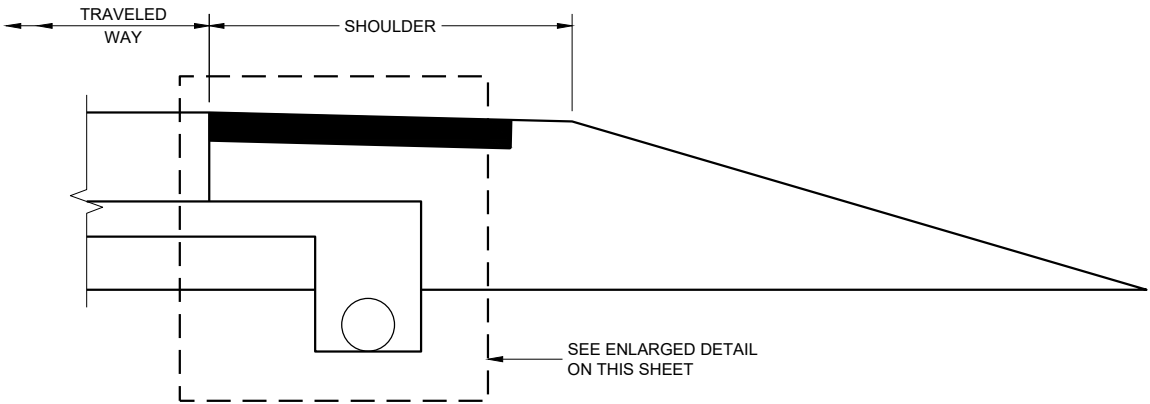
②

GENERAL NOTES

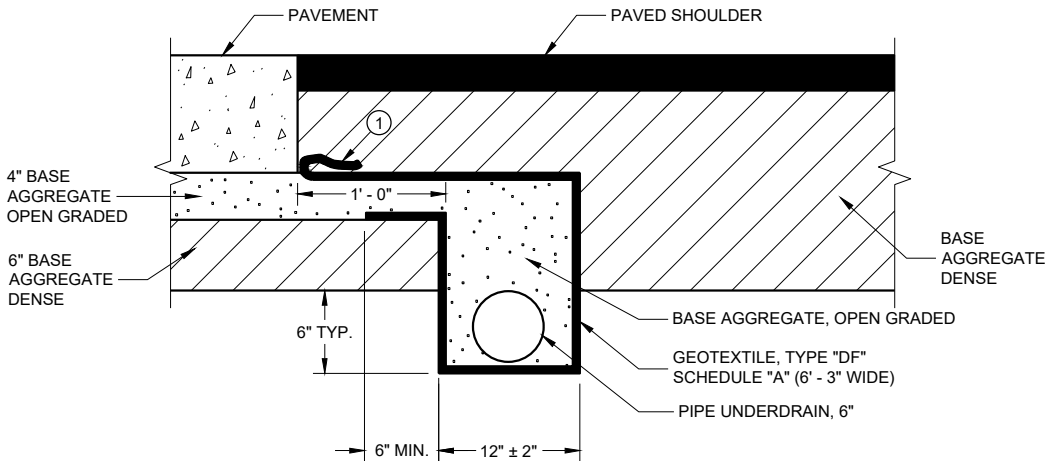
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

- ① FOLD OVER EXCESS GEOTEXTILE AT THIS LOCATION.
- ② TOTAL GEOTEXTILE WIDTH IS 6'-3" FOR PAYMENT.

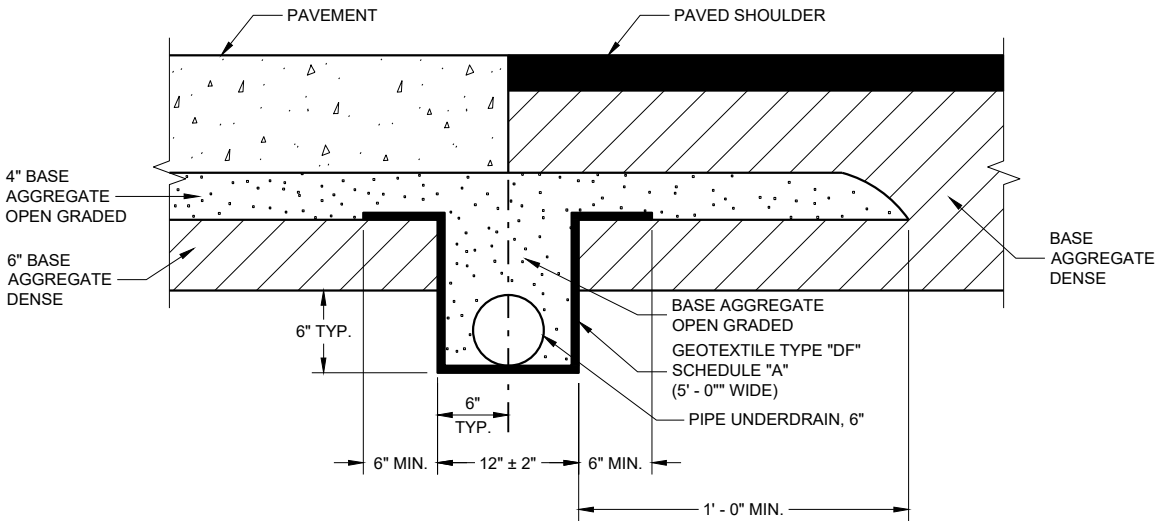


RURAL CROSS SECTION



POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)

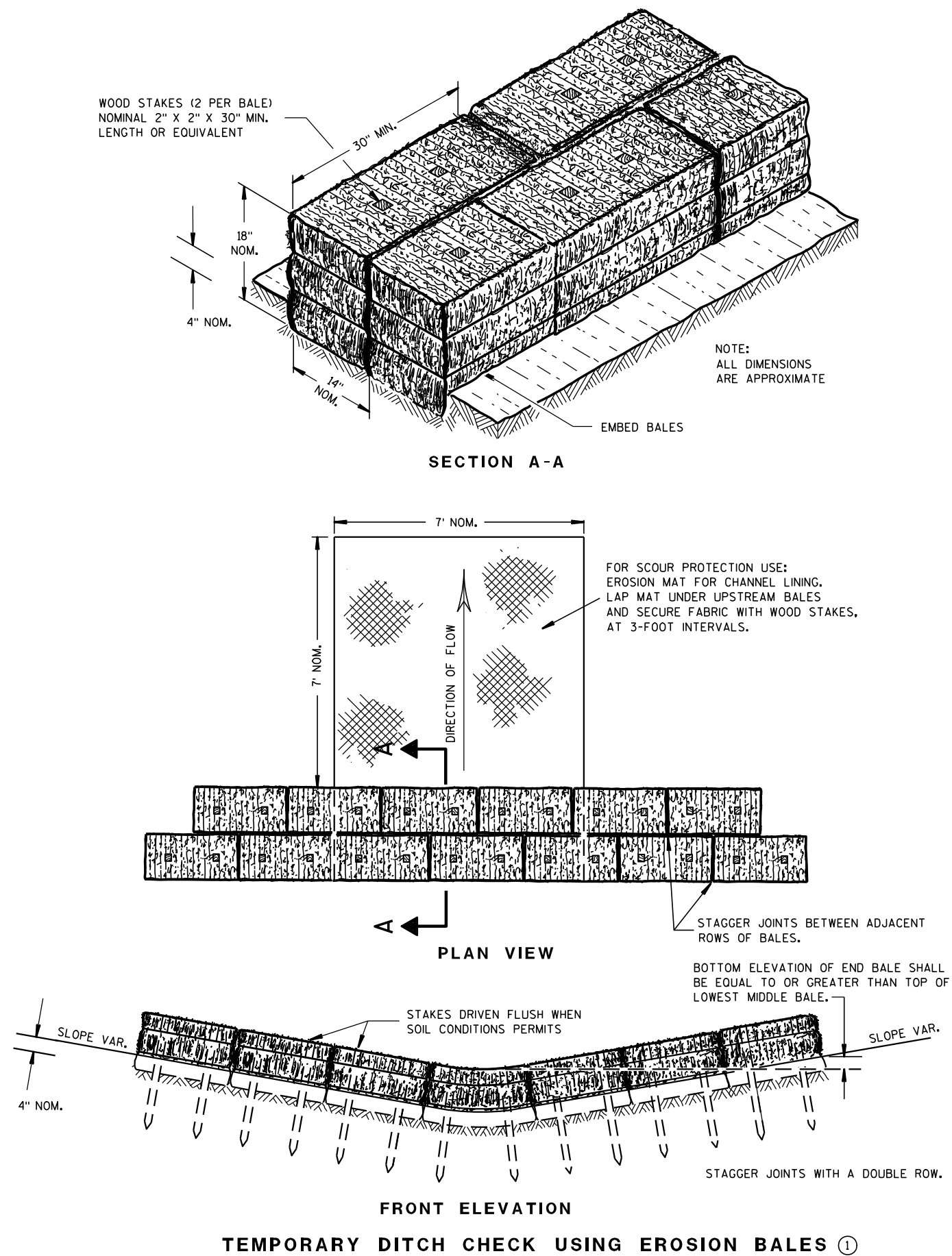
EDGEDRAIN IN RURAL ROADWAY



PRE-PAVING INSTALLATION ALTERNATIVE

EGEDRAIN AND BASE
AGGREGATE OPEN GRADED

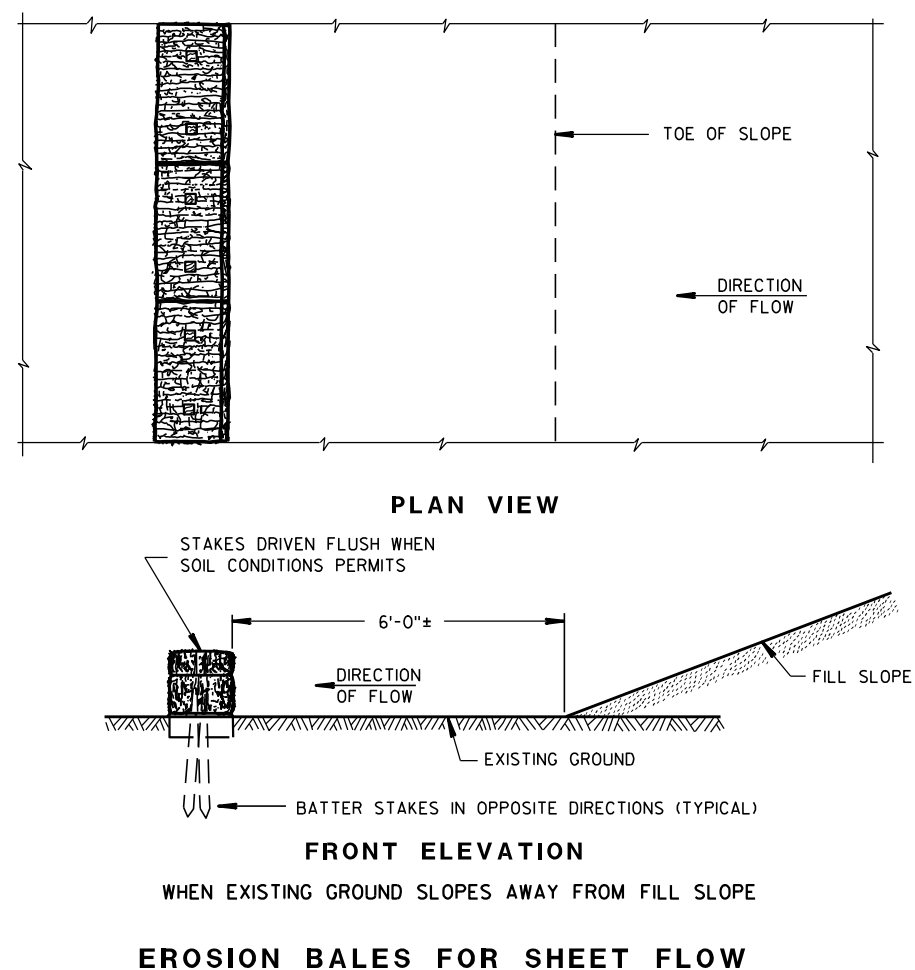
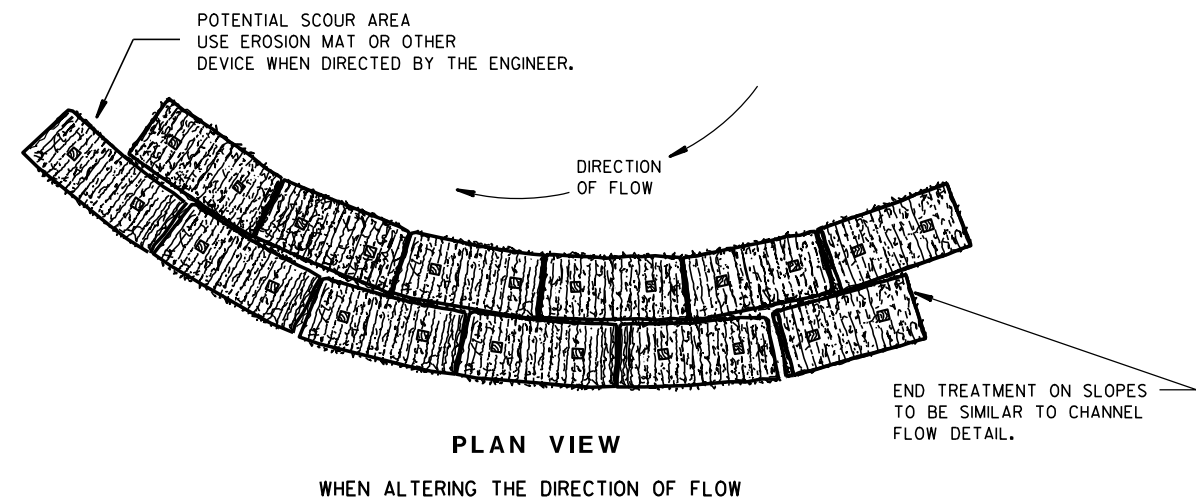
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 145



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.

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

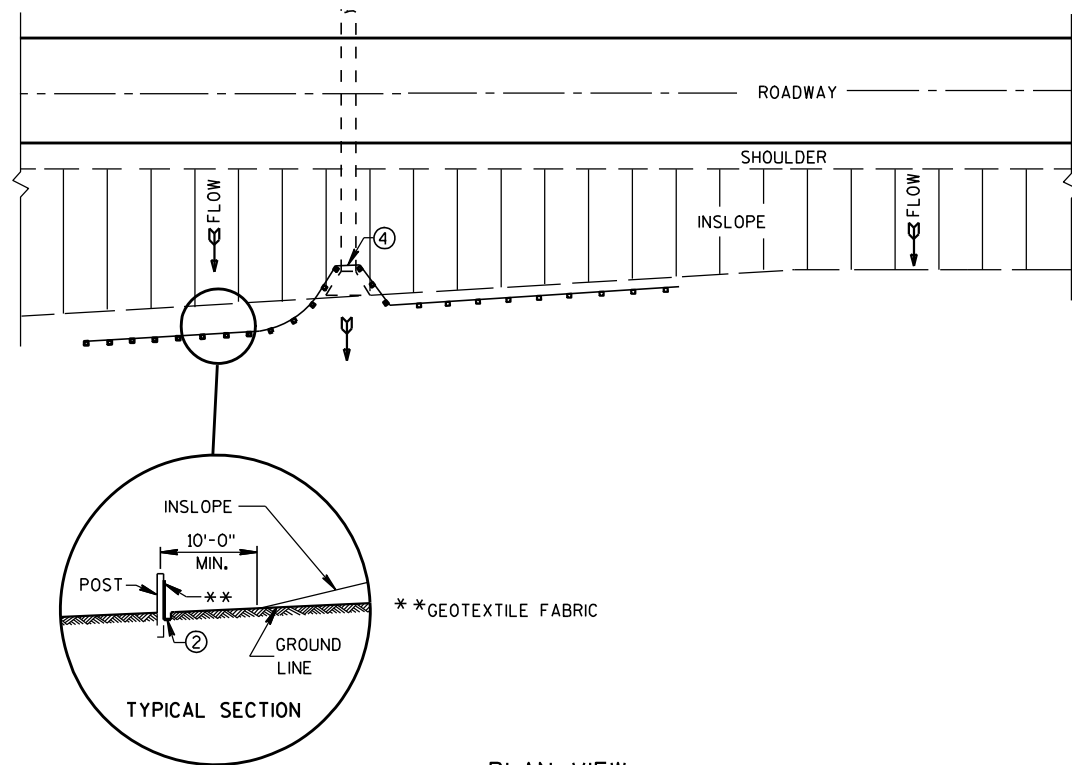
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

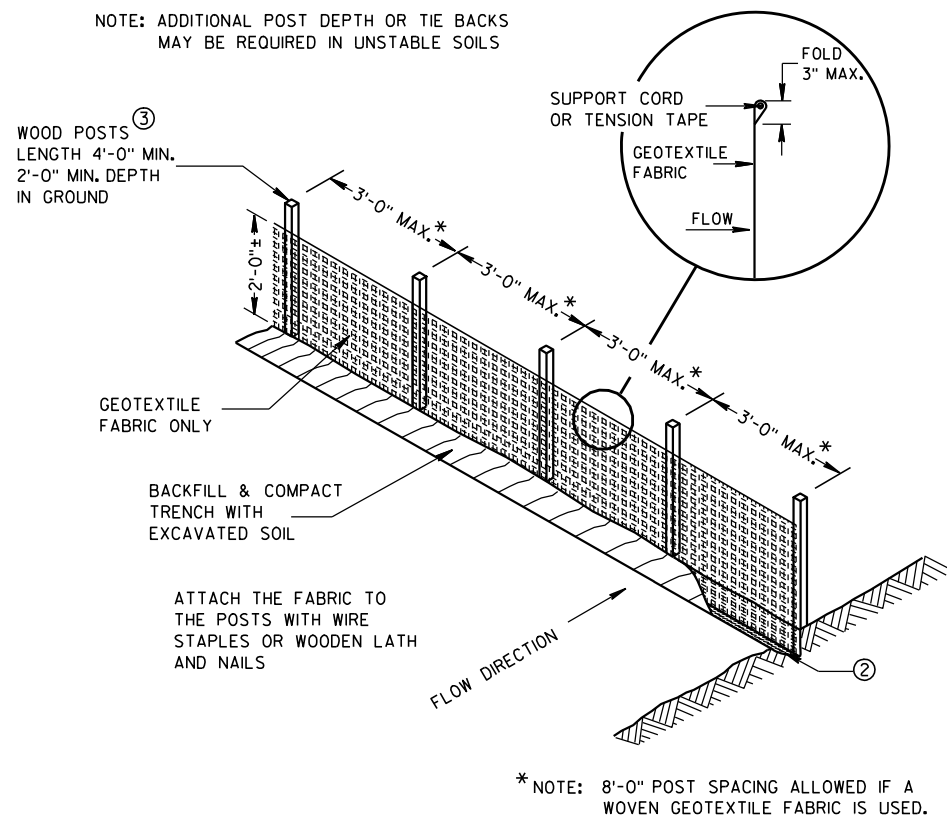
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 146 ENGINEER

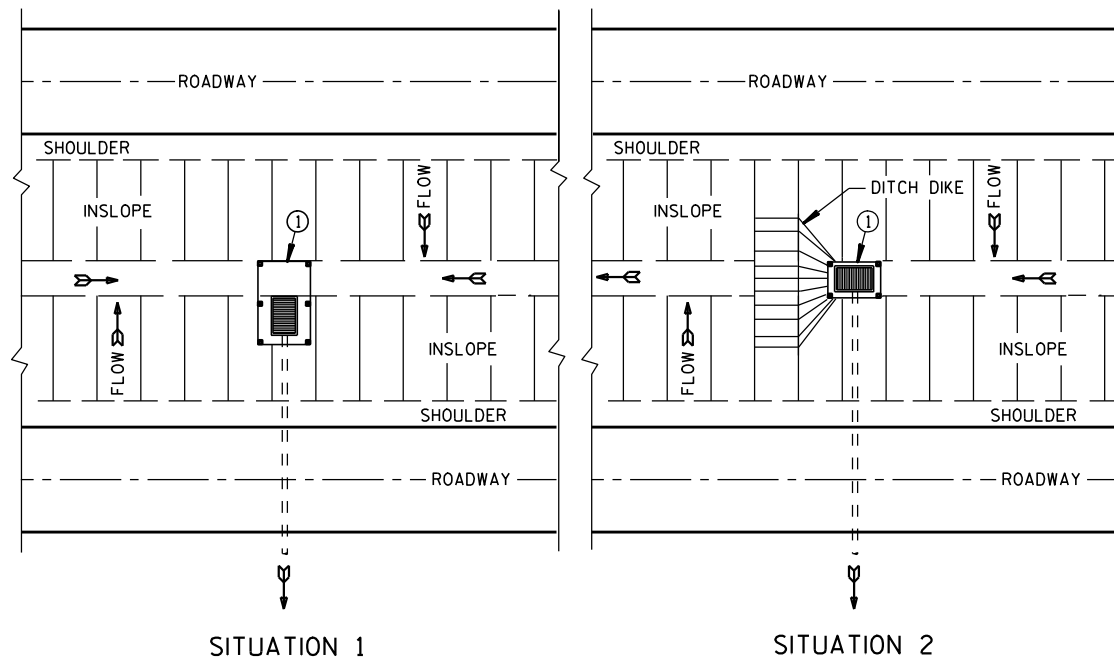
FHWA



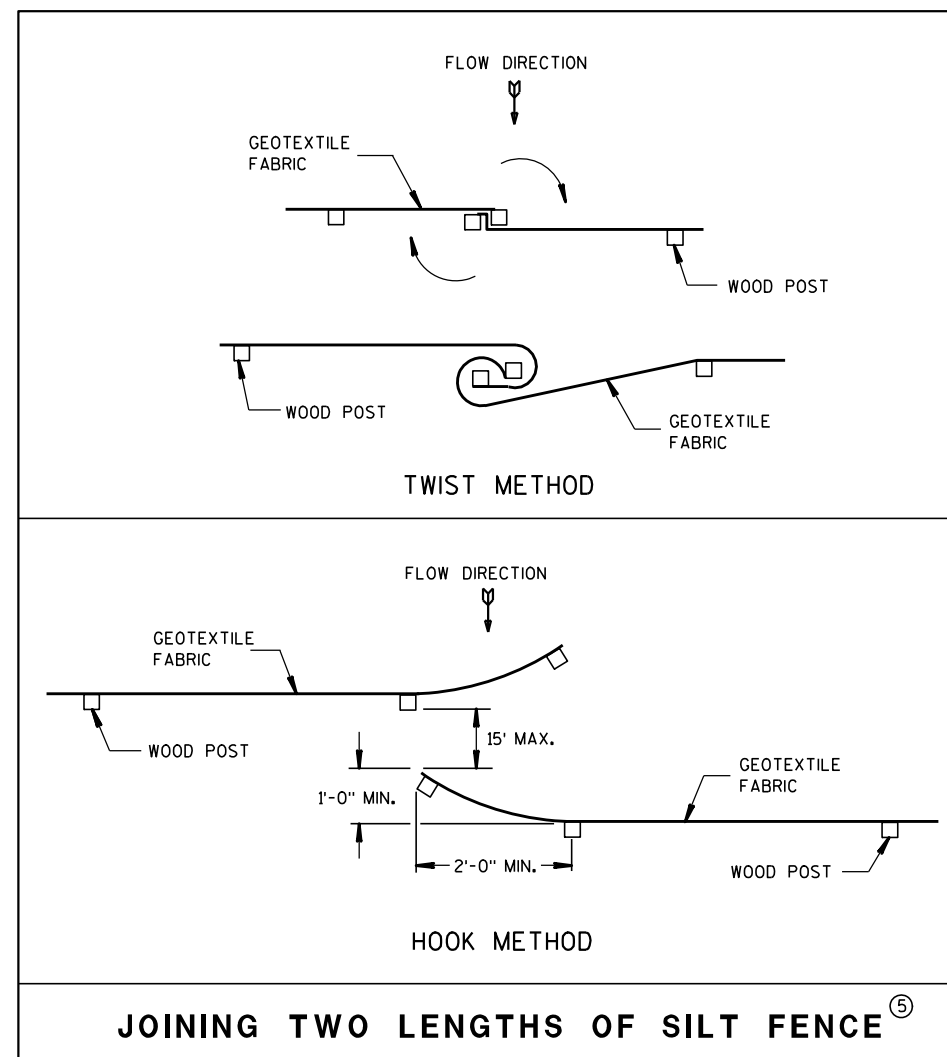
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



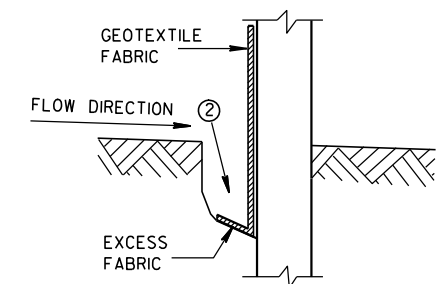
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS



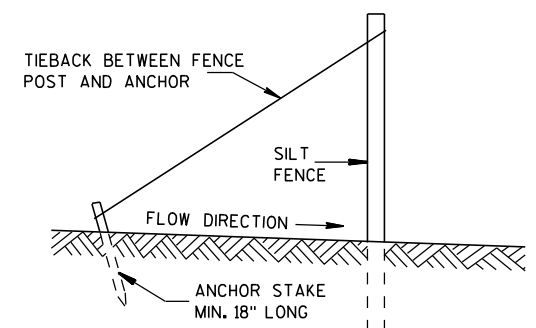
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

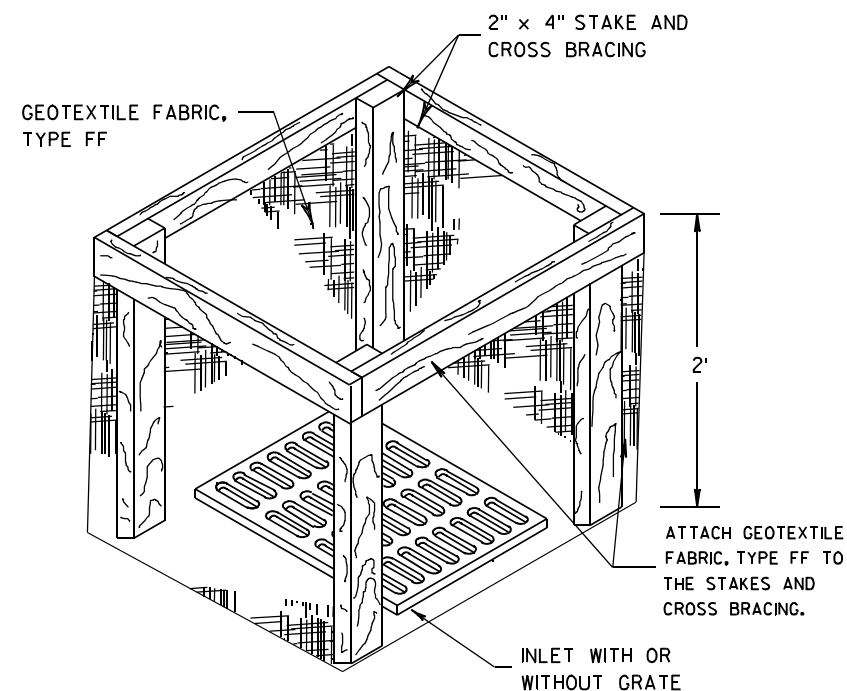
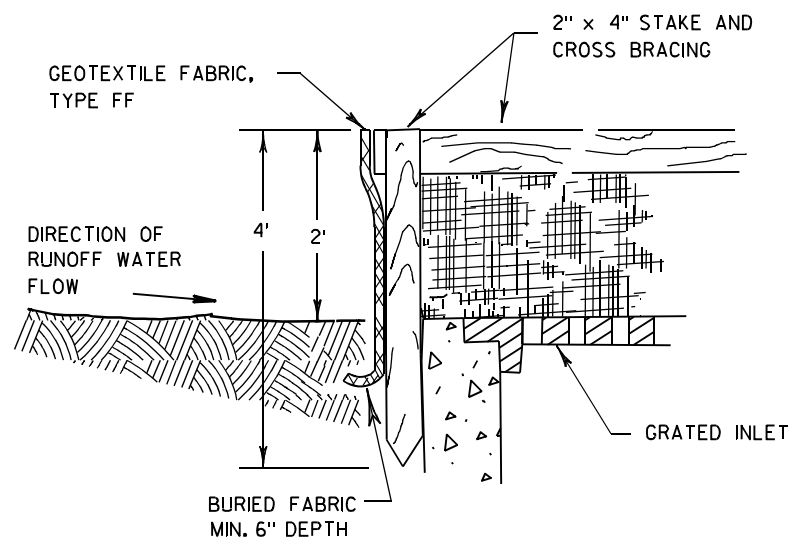
4-29-05

DATE

FHWA

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER



INLET PROTECTION, TYPE A

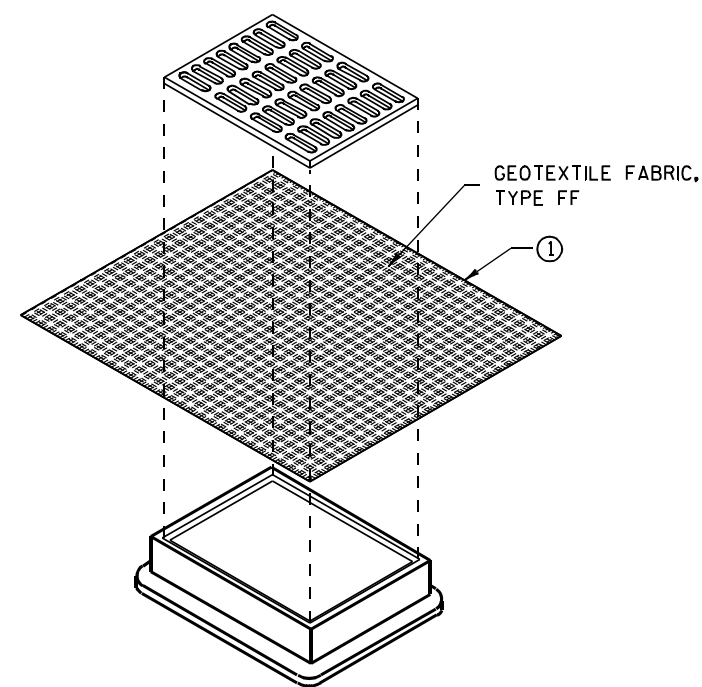
GENERAL NOTES

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

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

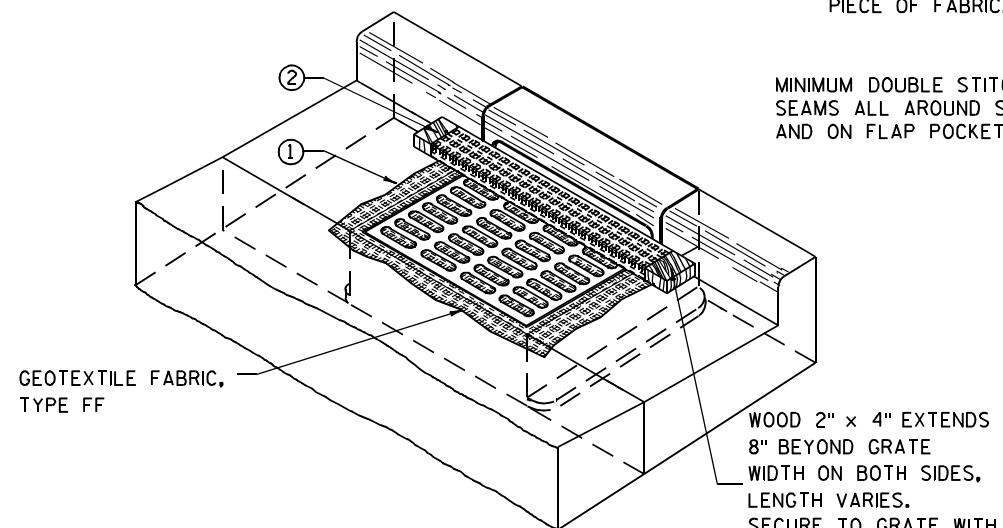
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

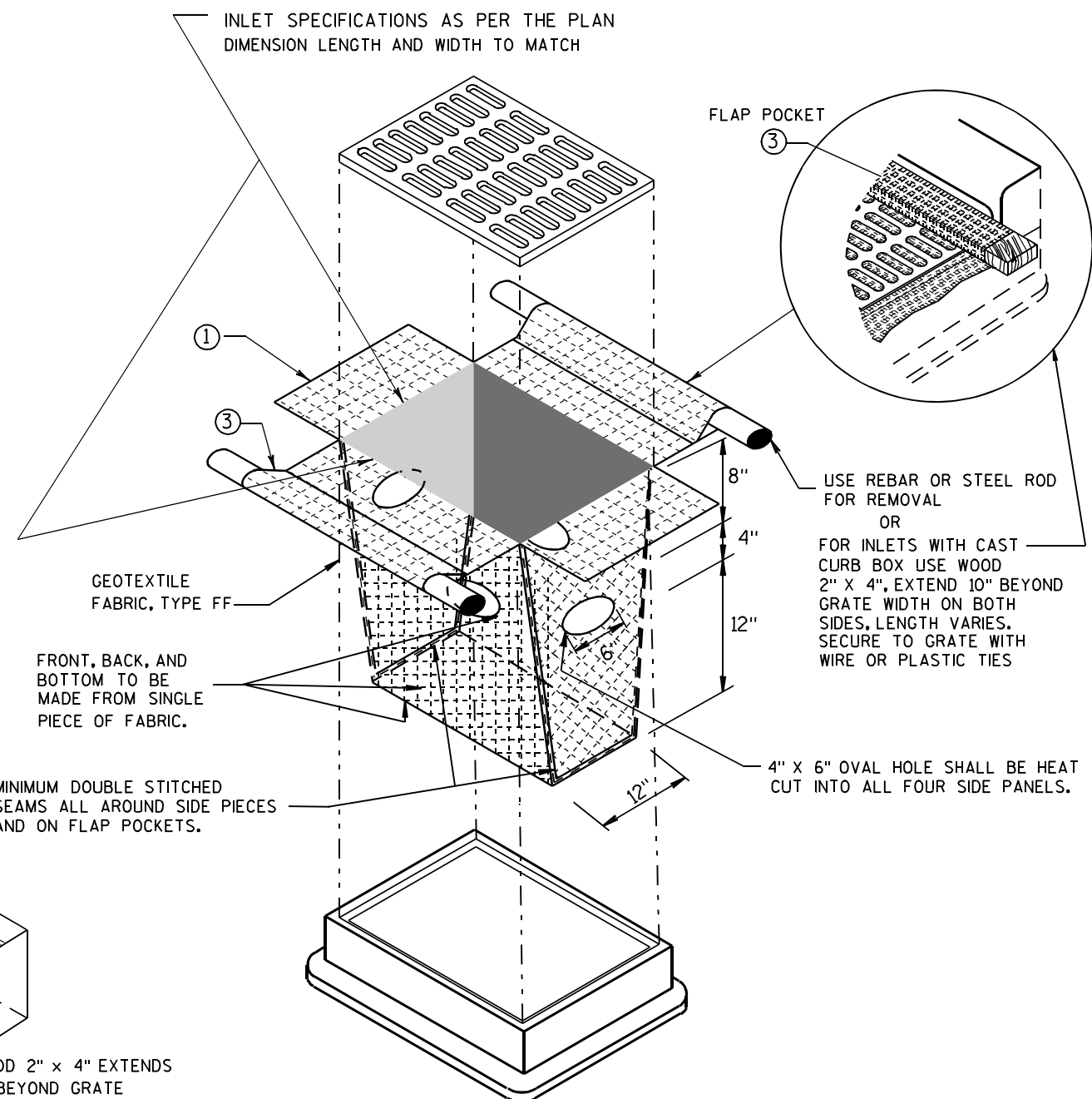
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



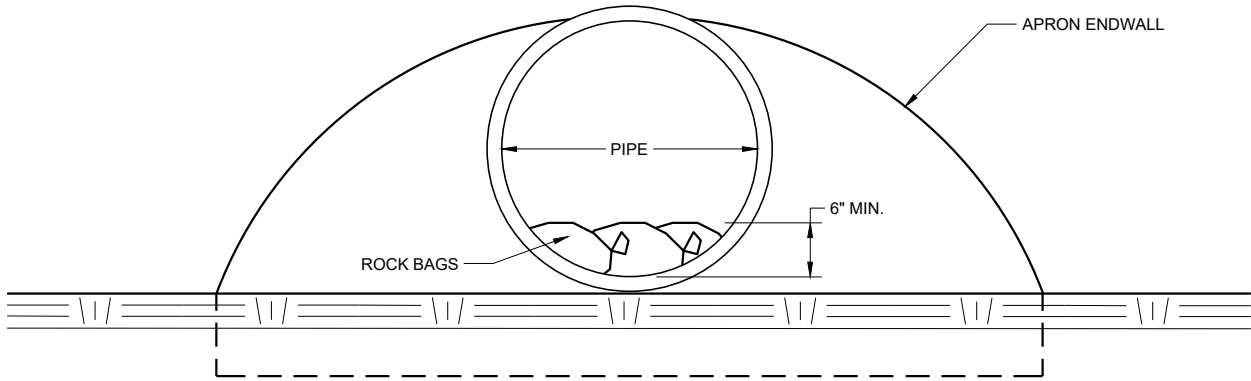
INLET PROTECTION, TYPE D

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

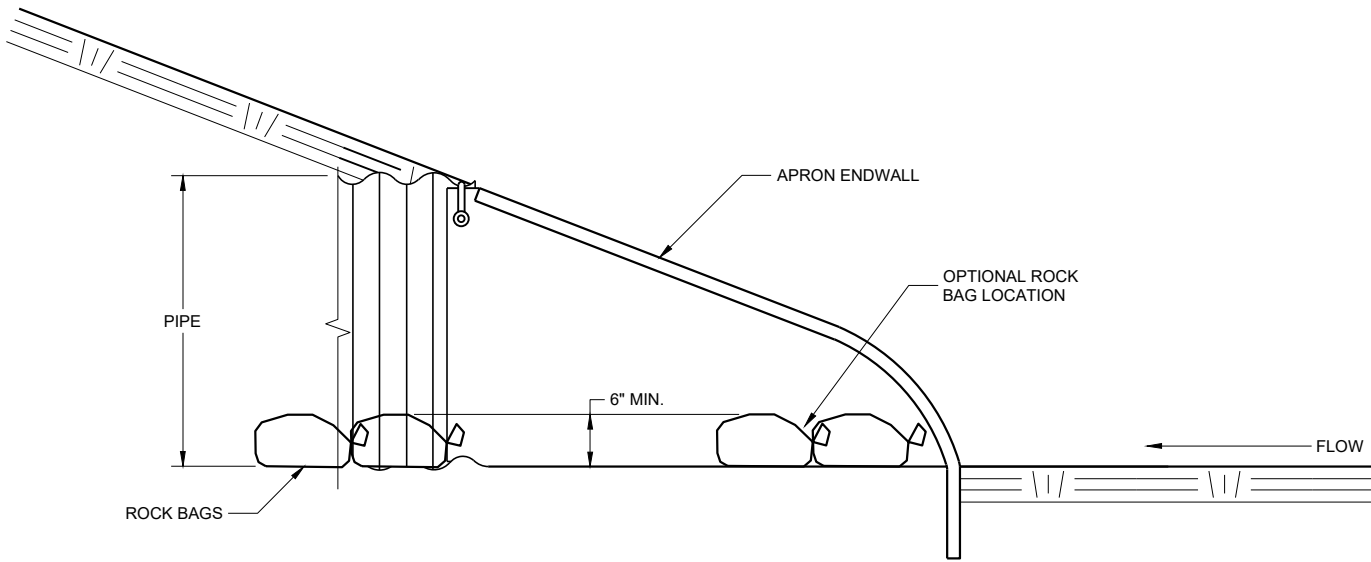
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 148
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



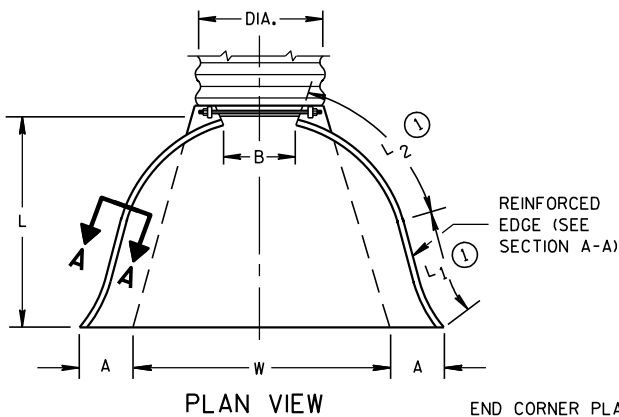
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

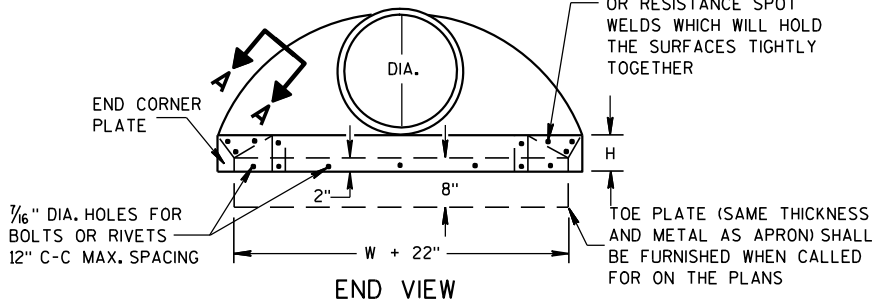
CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 149
FHWA	

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

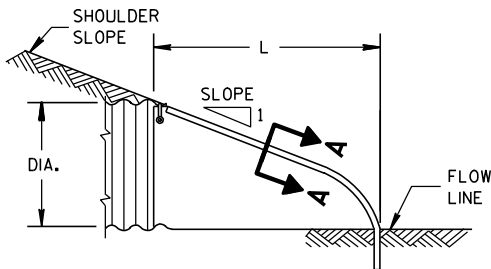
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)

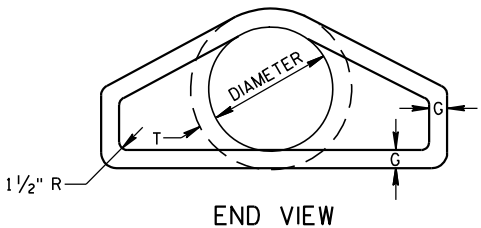
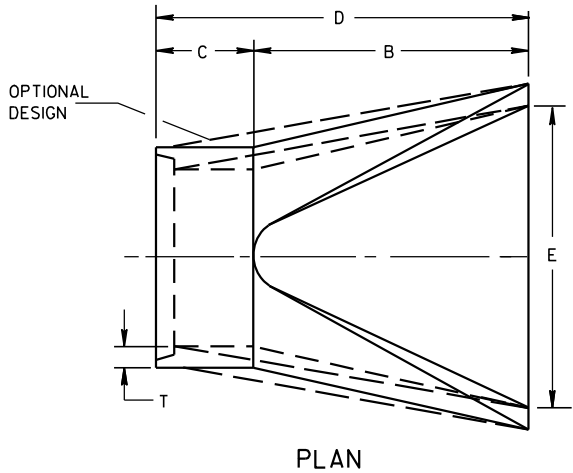


SIDE ELEVATION
METAL ENDWALLS

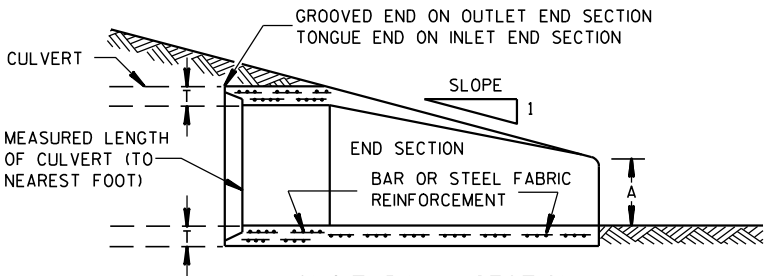


REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ¹ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 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

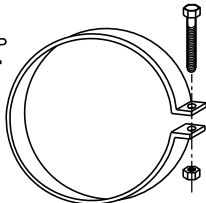
*MINIMUM
**MAXIMUM



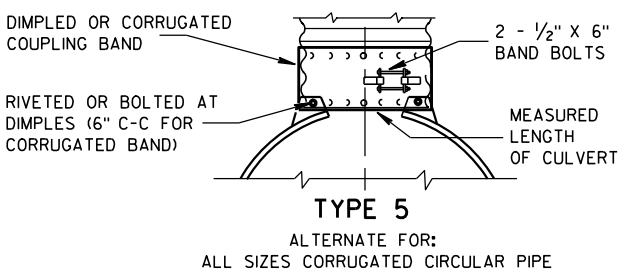
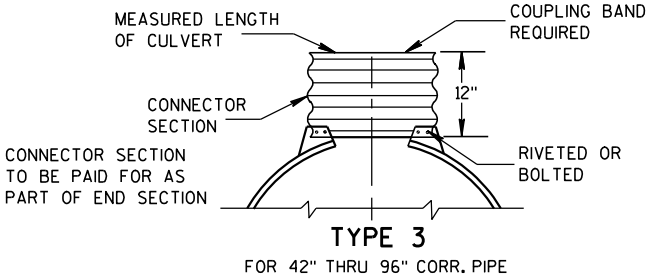
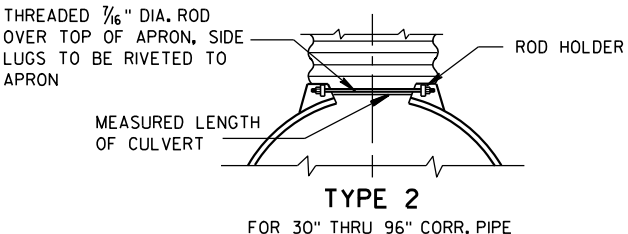
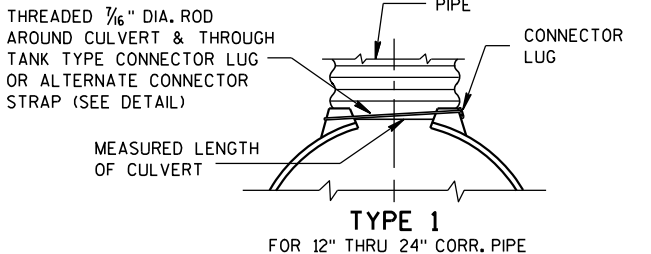
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



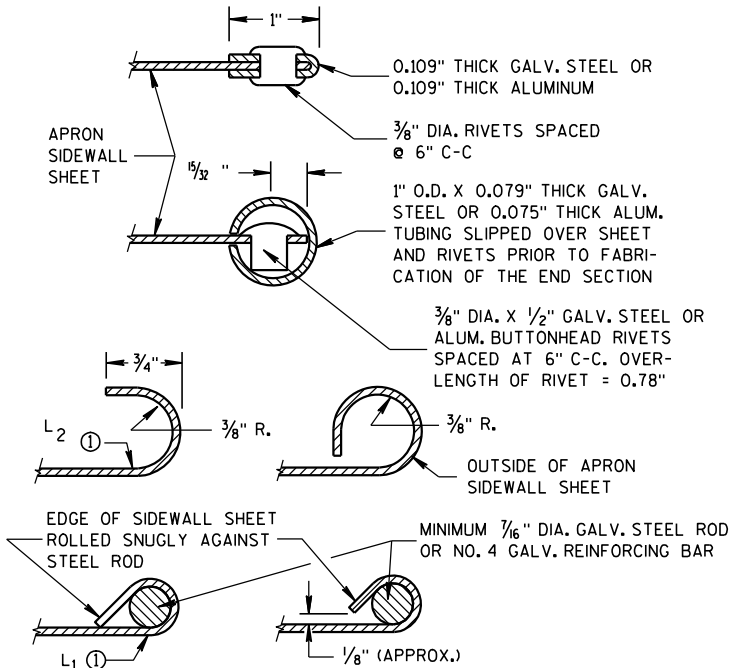
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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 VISE VERSA. GALVANIZED STEEL OR
ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE
OF THE SAME METAL.

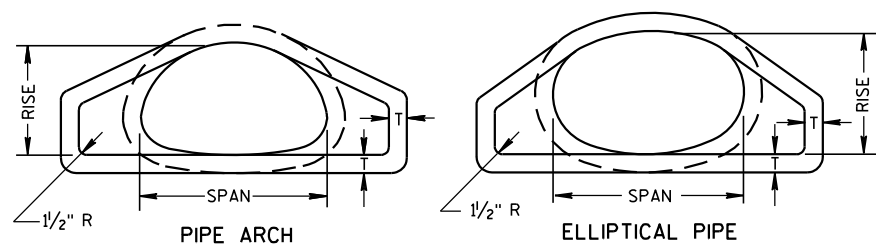
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

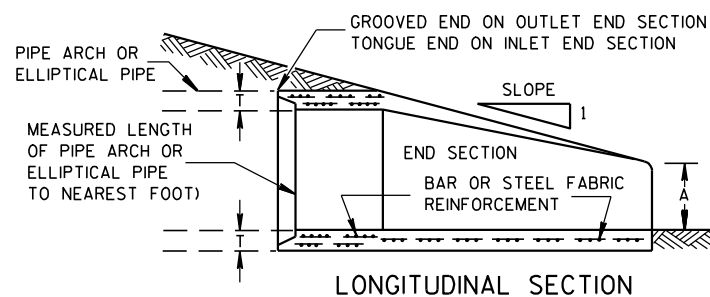
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	150	NEER
FHWA			

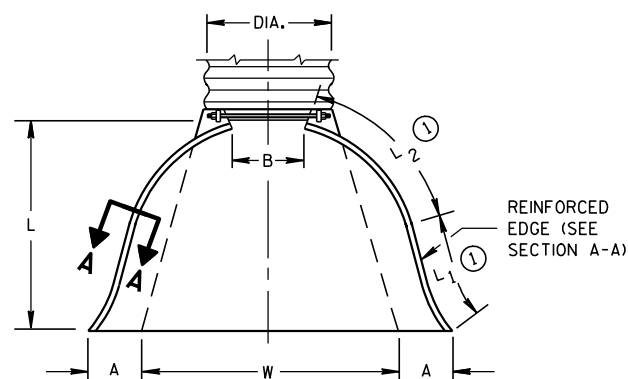


END VIEW



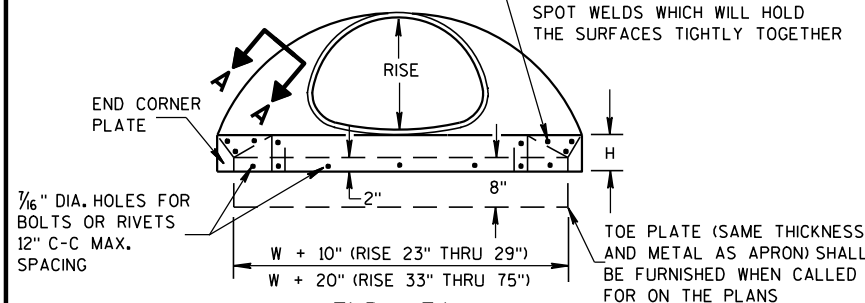
LONGITUDINAL SECTION

CONCRETE ENDWALLS

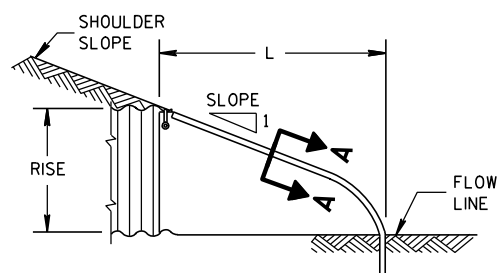
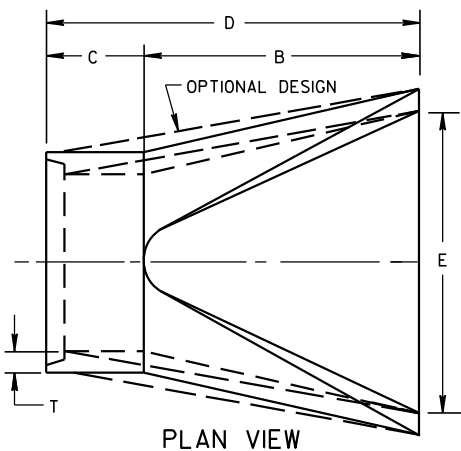


PLAN VIEW

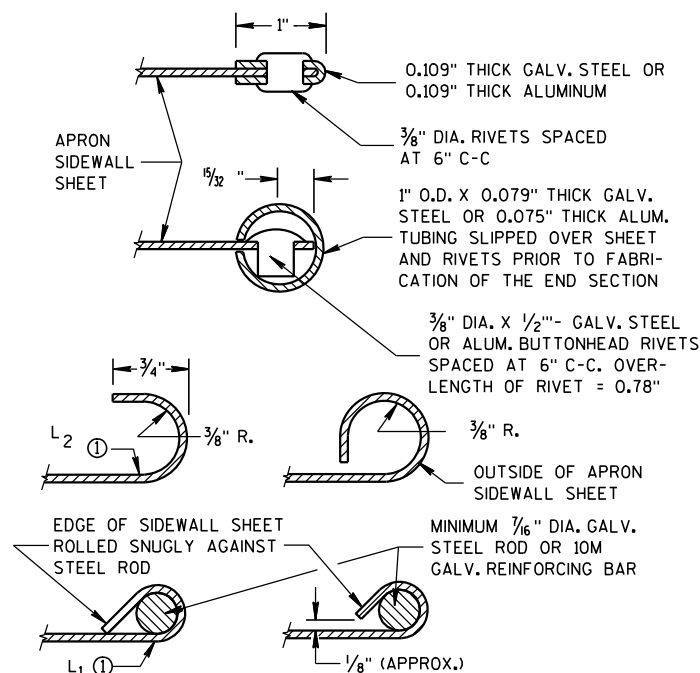
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW

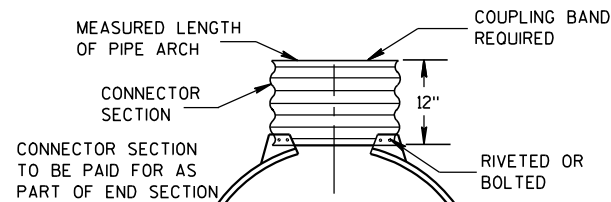


SECTION A-A



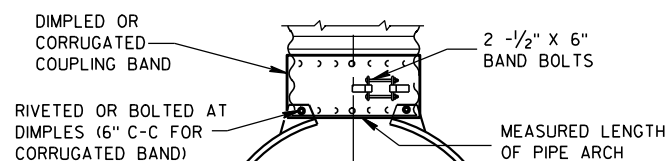
TYPE 2

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



TYPE 3

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



TYPE 5

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

CONNECTION DETAILS

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

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

3" X 1" CORRUGATIONS

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

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

REINFORCED CONCRETE PIPE ARCH

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

REINFORCED CONCRETE ELLIPTICAL PIPE

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

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

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

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

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

APPROVED

11/30/94

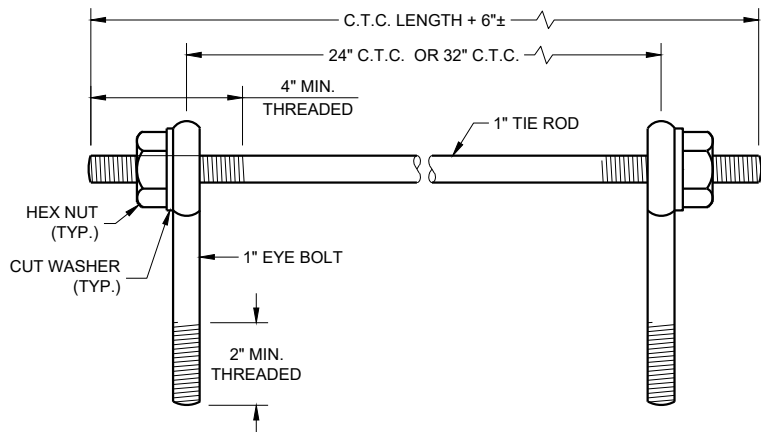
DATE

/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

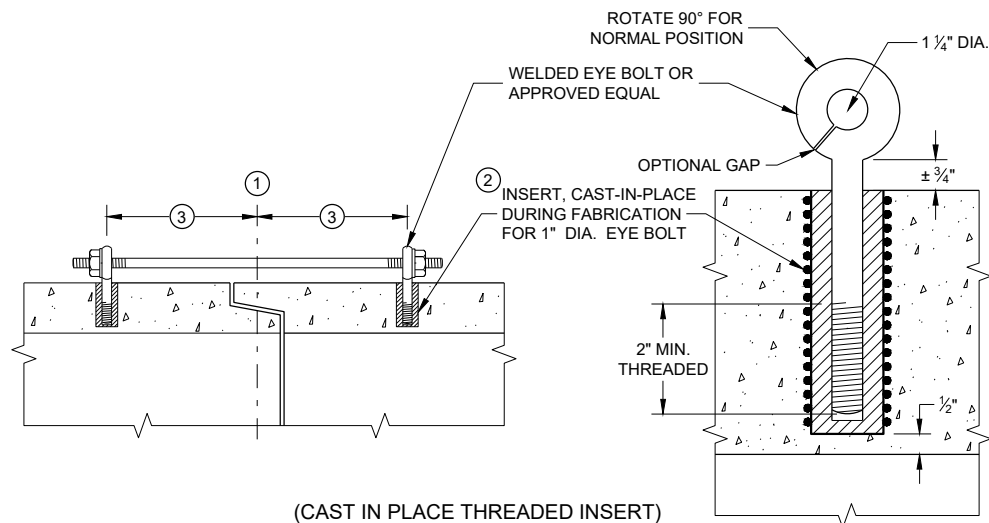
FHWA

ENGINEER



Eye Bolts and Tie Rod

Eye Bolt and Tie Rod Assembly (Alternate No. 1)



(Cast in Place Threaded Insert)

Longitudinal Sections

GENERAL NOTES

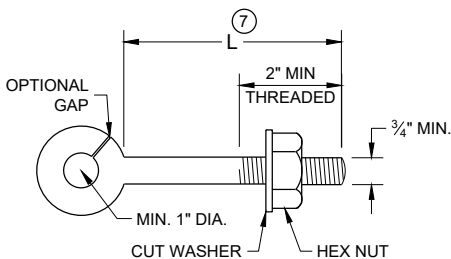
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

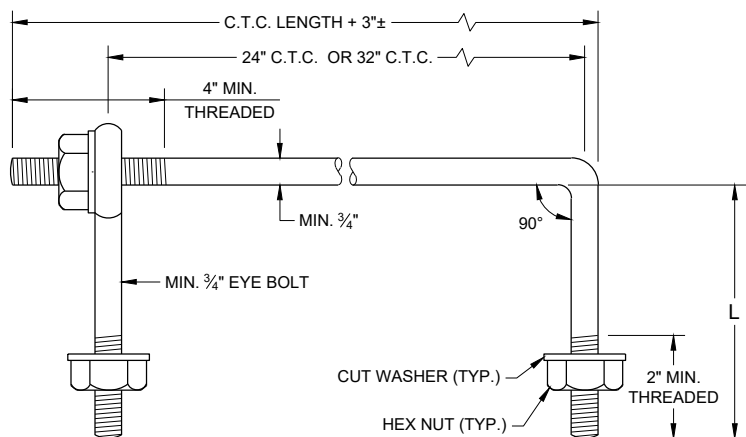
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

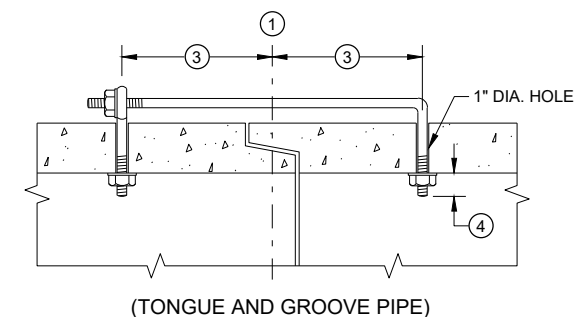


Eye Bolt 7

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



Eye Bolt and Tie Rod

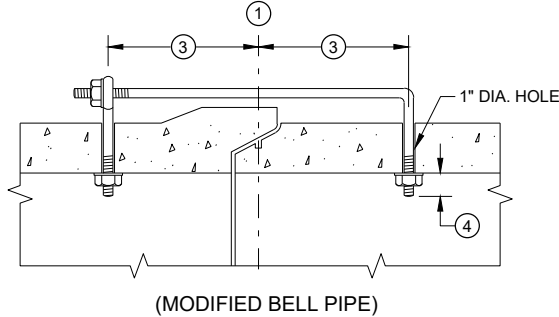


(Tongue and Groove Pipe)

Longitudinal Section

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

Eye Bolt and Tie Rod Assembly (Alternate No. 2)

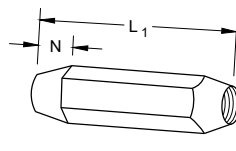


(Modified Bell Pipe)

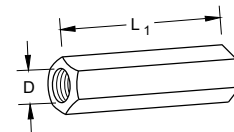
Adjustable Tie Rod Table

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 1/16

DIMENSIONS SHOWN ARE IN INCHES

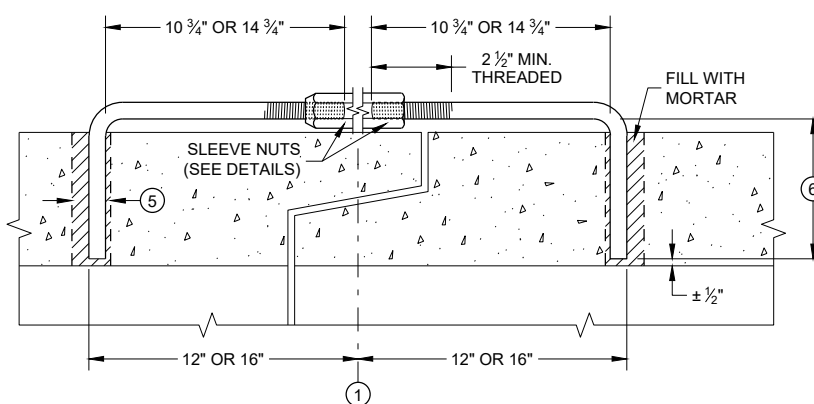


TAPERED



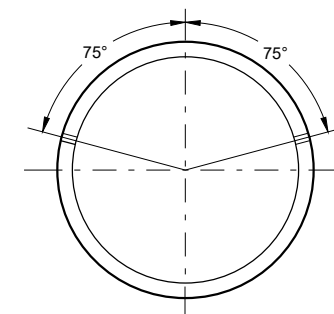
PLAIN

Right and Left Threads
Sleeve Nuts



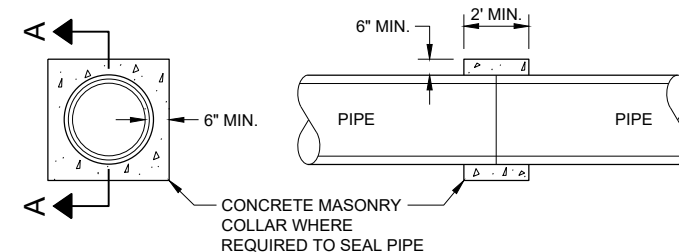
Longitudinal Section

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

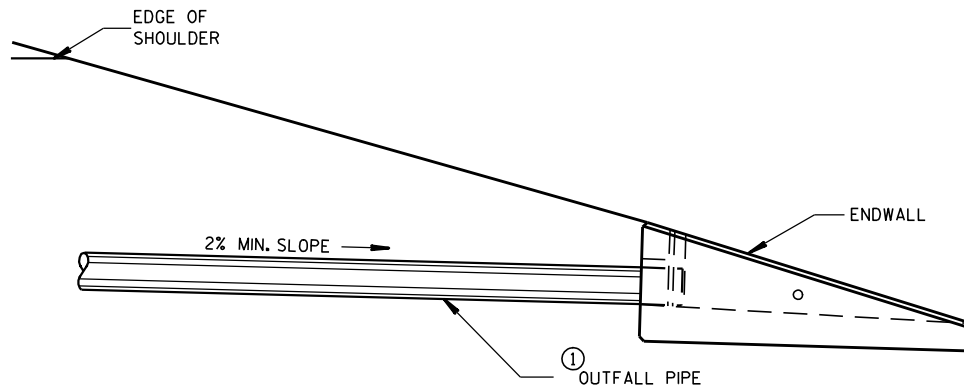
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

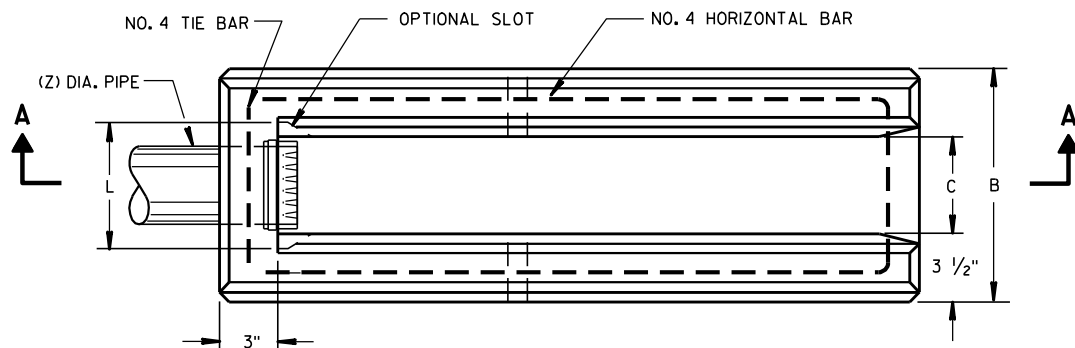
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 152

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

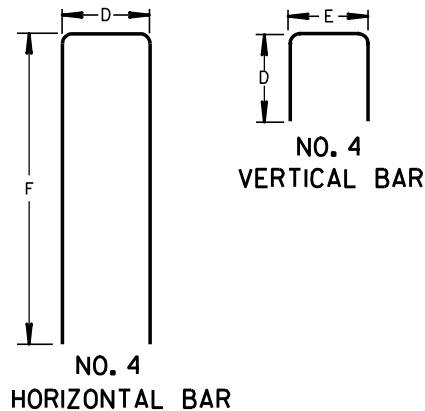
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



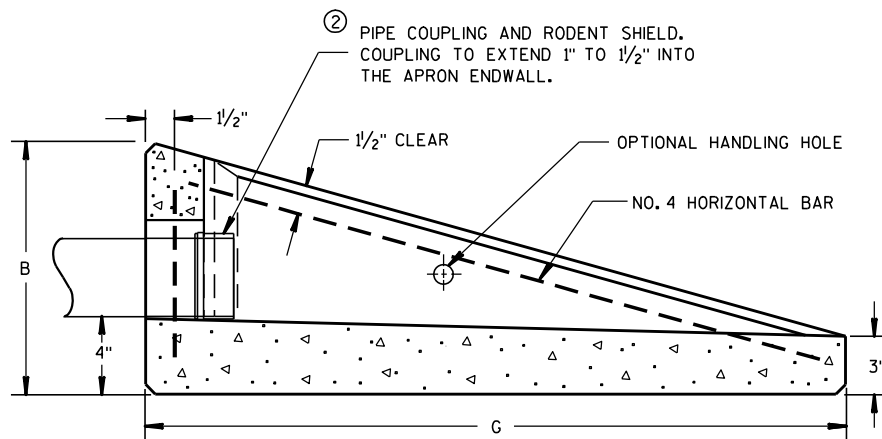
INSTALLATION DETAIL



PLAN VIEW

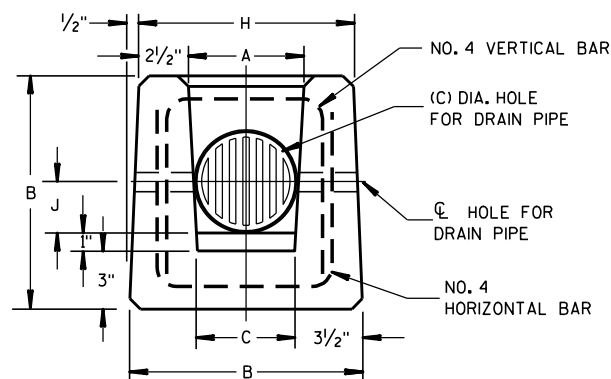


BAR STEEL REINFORCEMENT DETAILS



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN



END VIEW

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

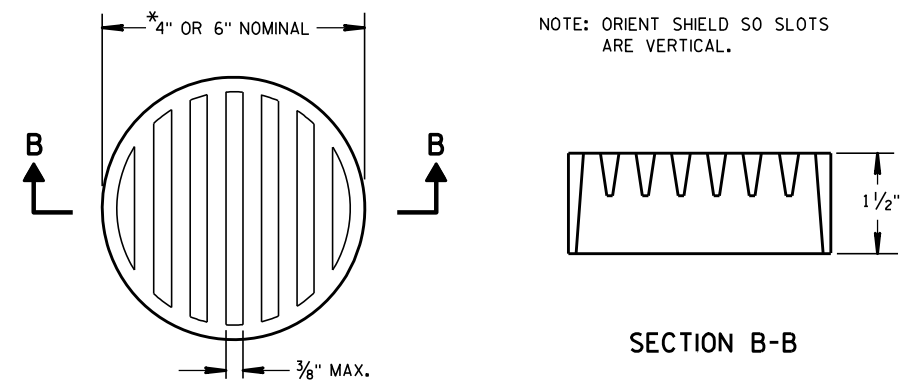
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

- ① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

- ② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.



② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

**REINFORCED
CONCRETE APRON ENDWALL
FOR PIPE UNDERDRAIN**

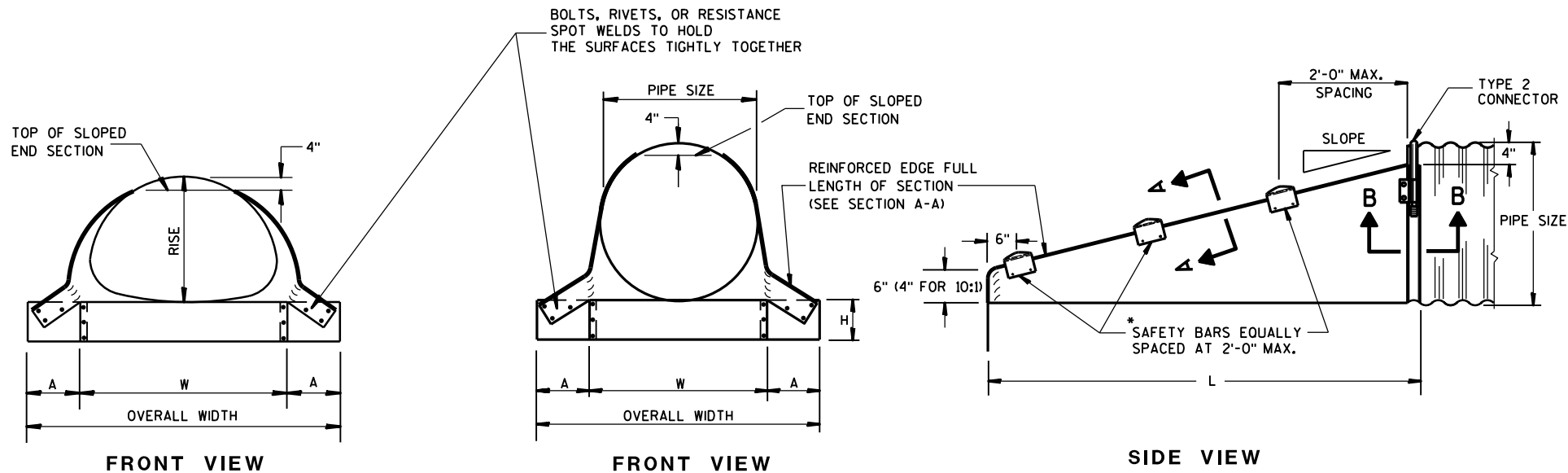
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/10/98
DATE

/S/ Rory L. Rhin...
CHIEF ROADWAY DEVELOPER

FHWA



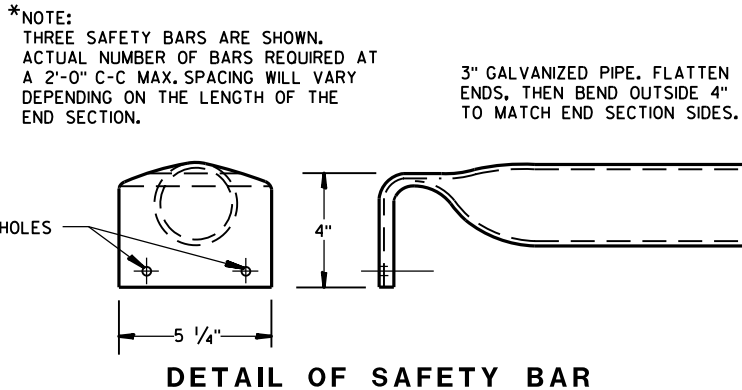
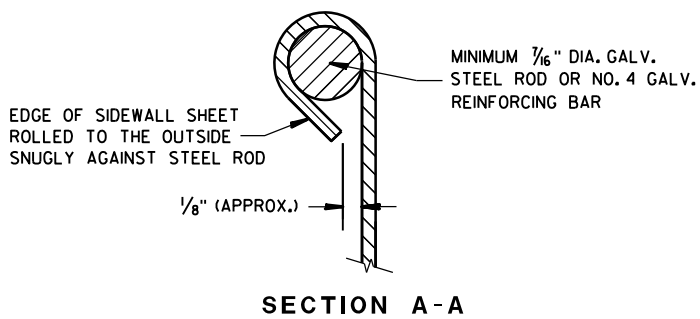
GENERAL NOTES

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

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

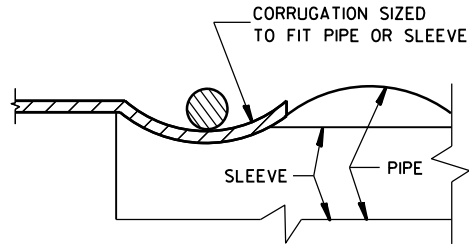
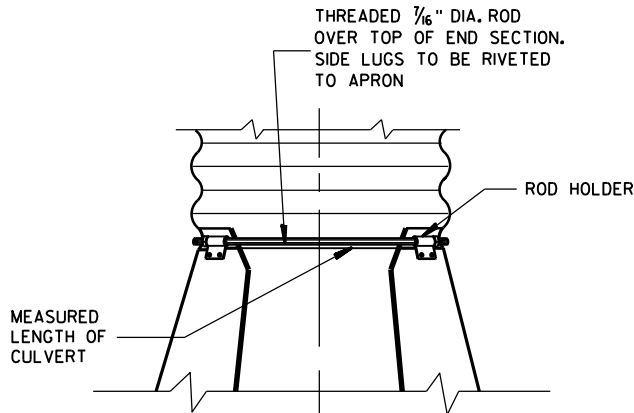
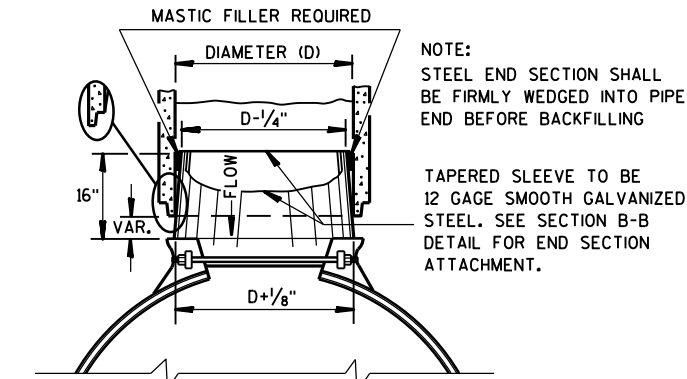
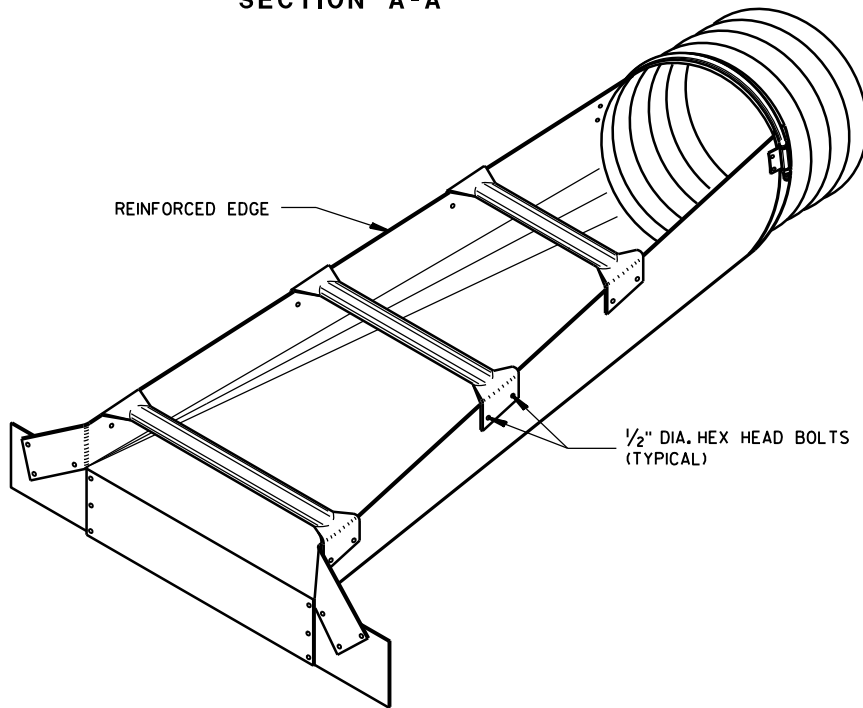
SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

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



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

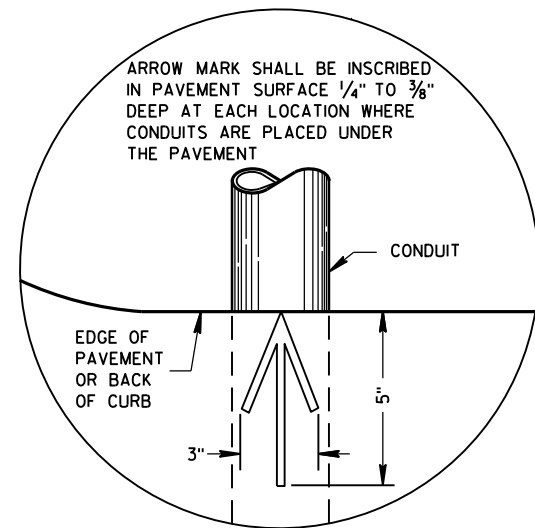
① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
② ACTUAL SLOPE GREATER THAN 10:1.



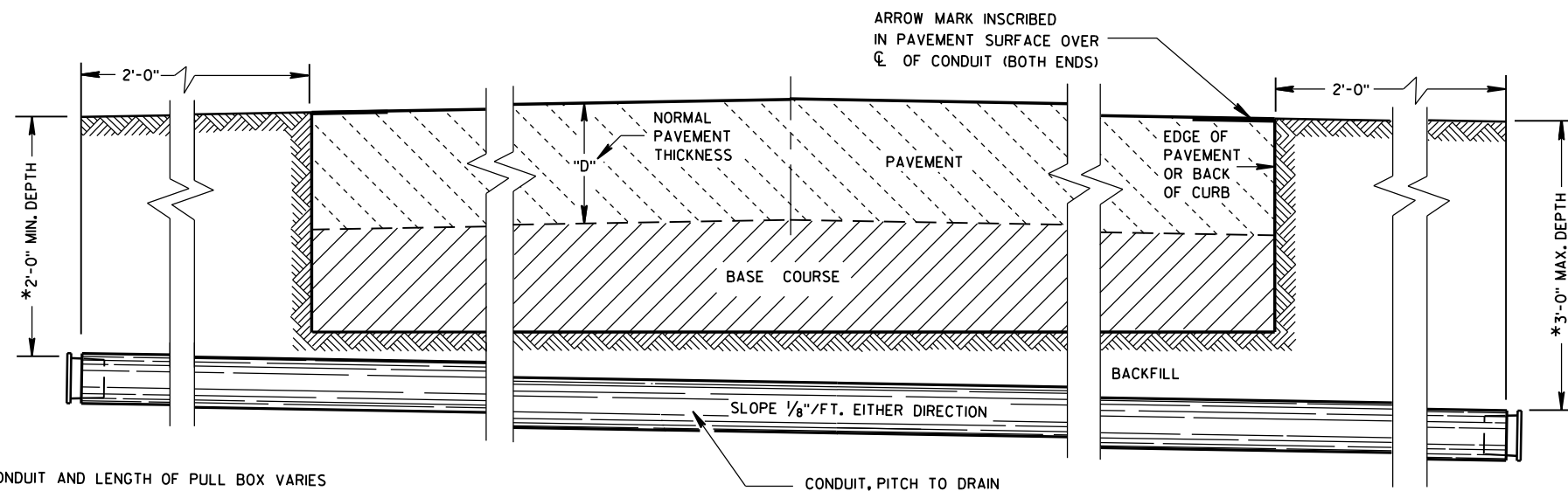
STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zoog
ROADWAY STANDARDS ENGINEER
154
NT
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.

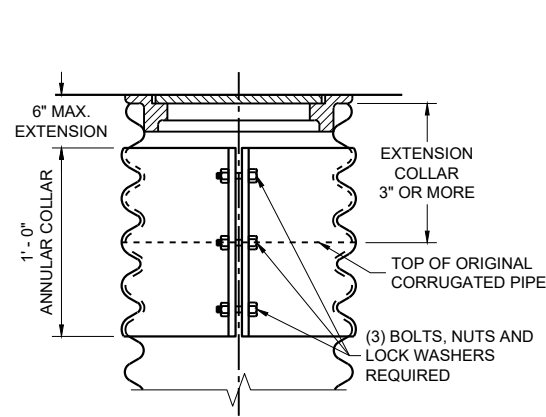
ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.

CONDUIT

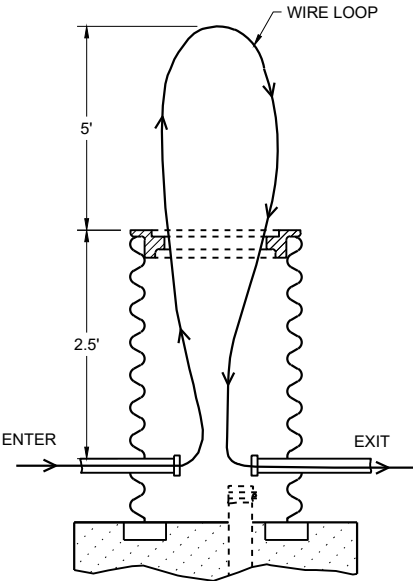
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March, 2017 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 155
FHWA

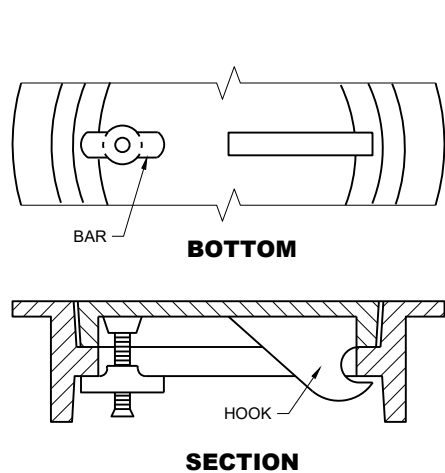
CORRUGATED PIPE EXTENDER



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



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.

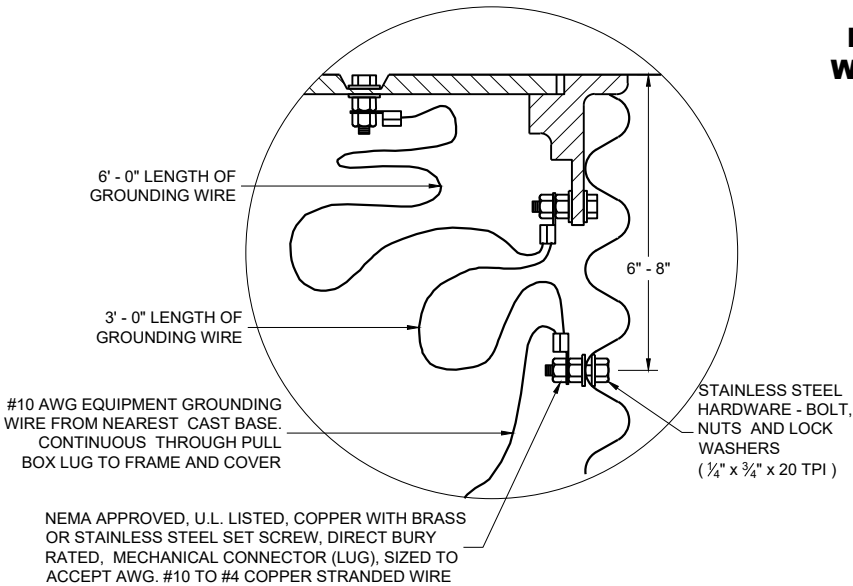
TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
		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

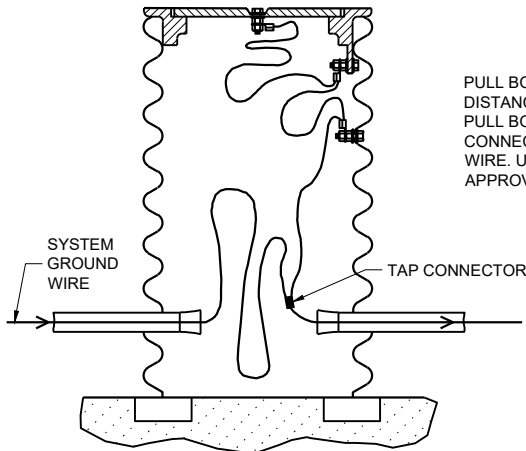
*THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** 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

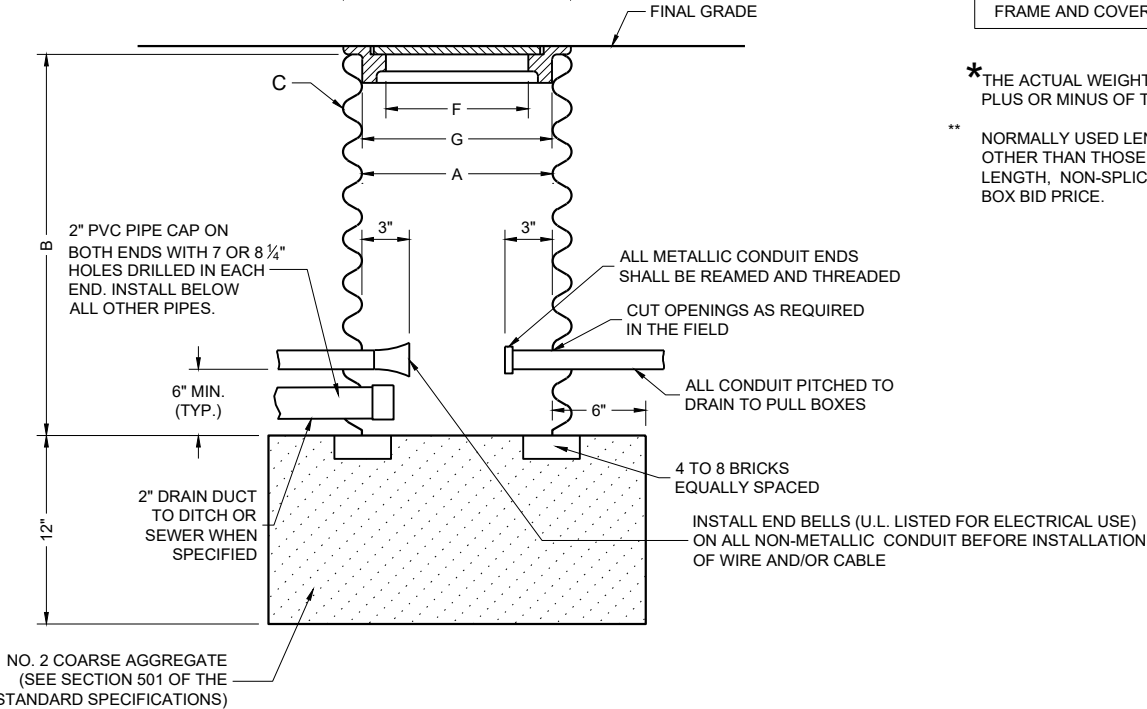


EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

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

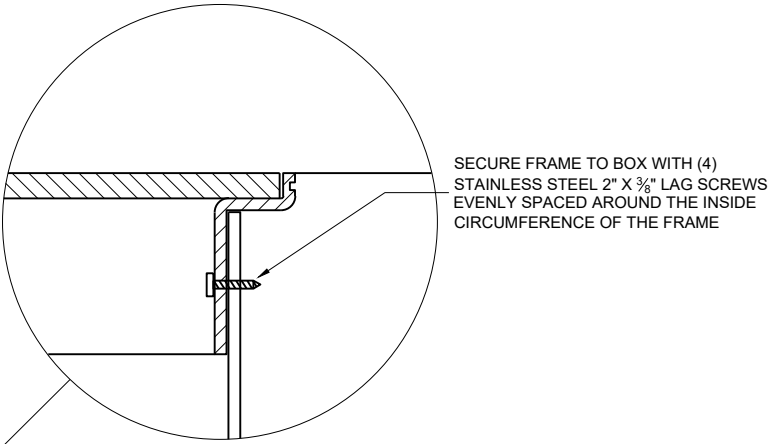
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER

FHWA

DIMENSION IN INCHES		NON- CONDUCTIVE PULL BOX	
BOX DIAMETER ** (INSIDE)	A	24	24
BOX OVERALL OUTSIDE DIAMETER	B	27	27
BOX LENGTH	C	36	42
FRAME OPENING	D	22 ½	22 ½
WEIGHT IN POUNDS *			
COVER		50	50
BOX ONLY		75	85

DIAMETER VARIES FROM TOP TO BOTTOM WITH THE
DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST
HEAVE.



NOTCH FOR PAVEMENT ADHESION

DO NOT SECURE FRAME TO BOX.
ALLOW FRAME ADHESION TO SIDEWALK
FOR UNIFORM COVER/PAVEMENT
VERTICAL MOVEMENT.

12" MAX. EXTENSION

EXTENSION RING

TOP OF ORIGINAL BOX

SECURE EXTENSION TO BOX WITH (4) STAINLESS STEEL 2" X $\frac{3}{8}$ " LAG SCREWS EVENLY SPACED AROUND THE INSIDE CIRCUMFERENCE OF THE OVERLAP

NON-CONDUCTIVE FRAME AND COVER

ELECTRIC

B

FINAL GRADE

D

A

3"

6" MIN. (TYP.)

6"

2" PVC PIPE CAP ON BOTH ENDS WITH 7 OR 8 1/4" HOLES DRILLED IN EACH END. INSTALL BELOW ALL OTHER PIPES.

INSTALL ELECTRICAL END BELLS ON ALL NON-METALLIC CONDUIT BEFORE INSTALLATION OF WIRE AND/OR CABLE. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CUT OPENINGS AS REQUIRED IN THE FIELD

ALL CONDUIT PITCHED TO DRAIN TO PULL BOXES

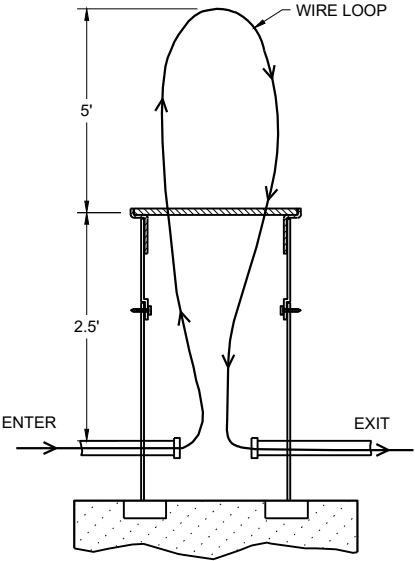
2" DRAIN DUCT TO DITCH OR SEWER WHEN SPECIFIED

12"

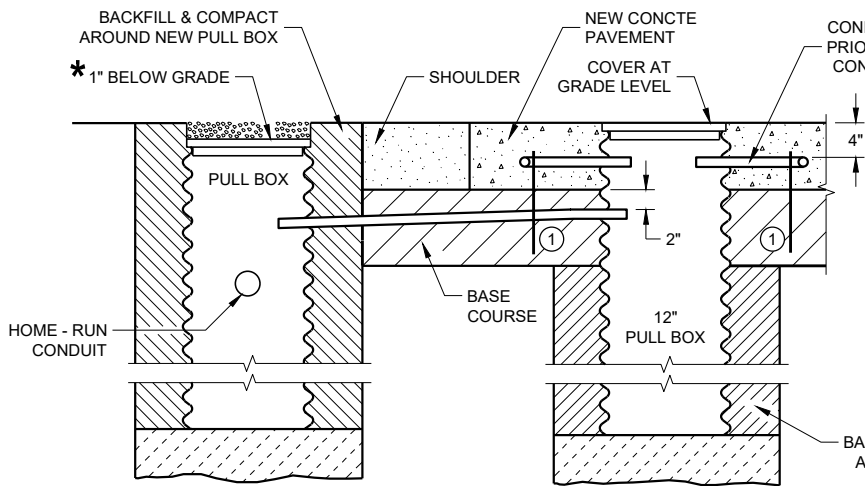
NO. 2 COARSE AGGREGATE (SEE SECTION 501 OF THE STANDARD SPECIFICATIONS)

NO. 2 COARSE AGGREGATE
(SEE SECTION 501 OF THE
STANDARD SPECIFICATIONS)

LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL AND LIGHTING SYSTEMS,
"WISDOT ITS" FOR COMMUNICATIONS AND ITS EQUIPMENT SYSTEMS.

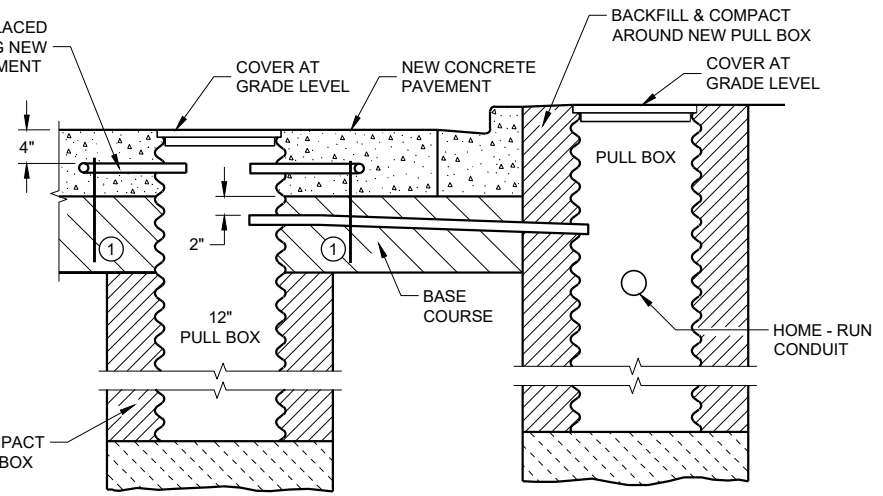


PULL BOXES NON-CONDUCTIVE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>November 2024</u> DATE	<u>/S/ Ahmet Demirbilek</u> STATE ELECTRICAL ENGINEER



SECTION A - A
NO CURB AND GUTTER
LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.



SECTION B - B
CURB AND GUTTER
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 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.

ANY PVC LEADOUT CONDUIT CONTAINING MORE THAN ONE TWISTED PAIR OF LOOP LEAD WIRE SHALL BE 2".

THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

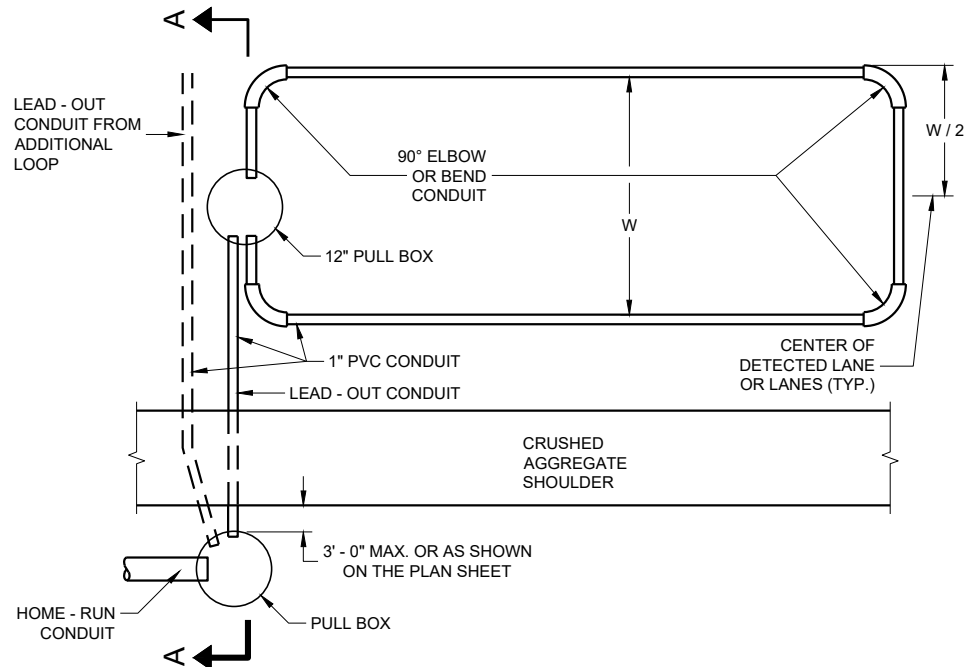
SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, INTO THE PULL BOX IN THE PAVEMENT, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE NON-SPLICED CONTINUOUS LENGTH.

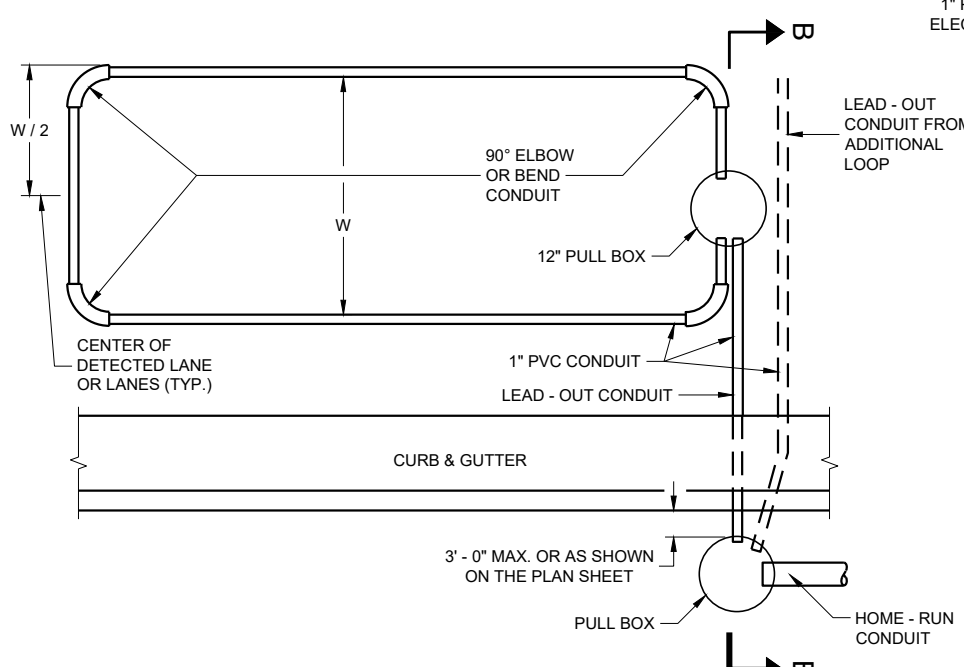
PROTECTION OF THE PULL BOX IN THE BASE COURSE, AND THE RELATED CONDUITS SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED.

12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.

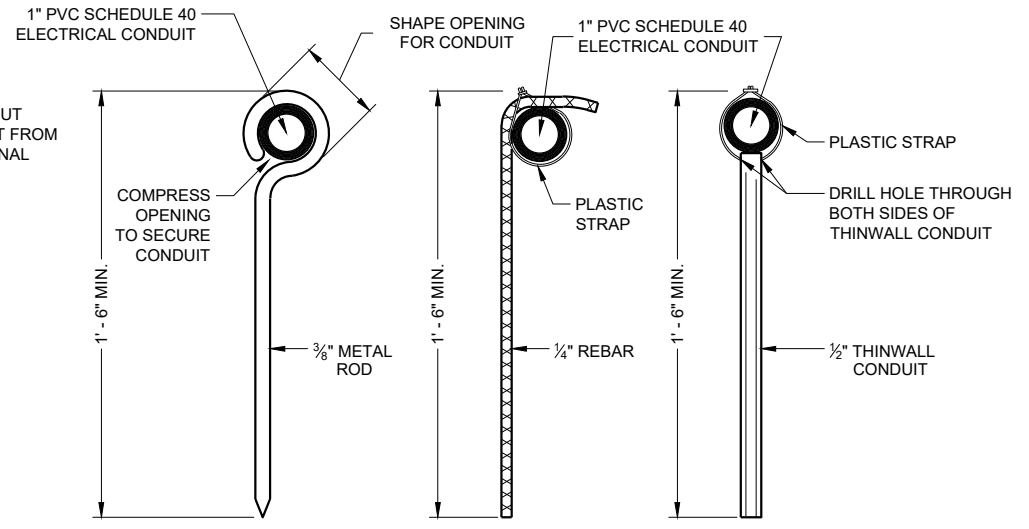
① HOLD DOWN PINS TO HOLD CONDUIT DURING POUR.



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX

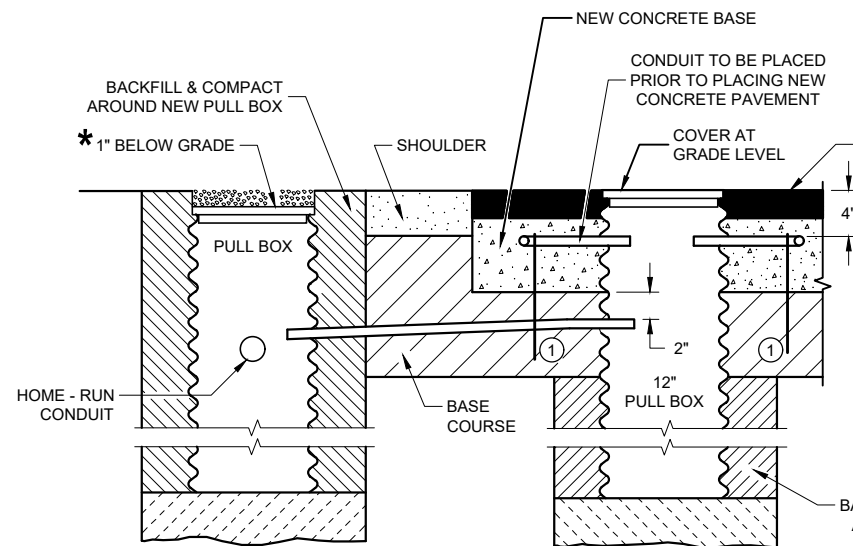


TYPICAL DETAILS FOR HOLD DOWN PINS ①

LOOP DETECTOR INSTALLED
IN NEW CONCRETE PAVEMENT
ROUND CSCP PULLBOX

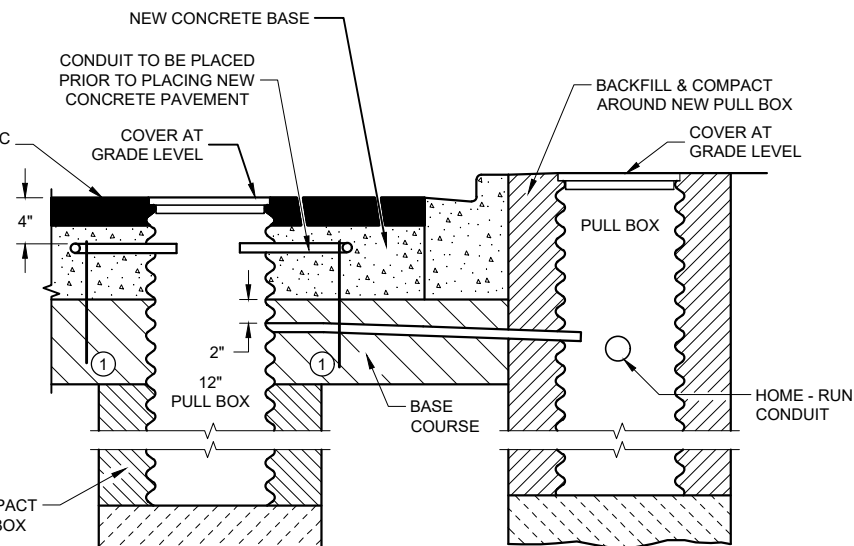
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Ahmet Demirebilek
DATE STATE ELECTRICAL ENGI 158
FHWA



SECTION A - A
NO CURB AND GUTTER
LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.



SECTION B - B
CURB AND GUTTER
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 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.

VERIFY THICKNESS OF NEW ASPHALTIC OVERLAY BEFORE INSTALLING PULL BOX AND RELATED CONDUIT.

CONDUIT SHALL BE FULLY ENCASED IN NEW CONCRETE BASE (2" MINIMUM COVERAGE.)

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.

ANY PVC LEADOUT CONDUIT CONTAINING MORE THAN ONE TWISTED PAIR OF LOOP LEAD WIRE SHALL BE 2".

THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

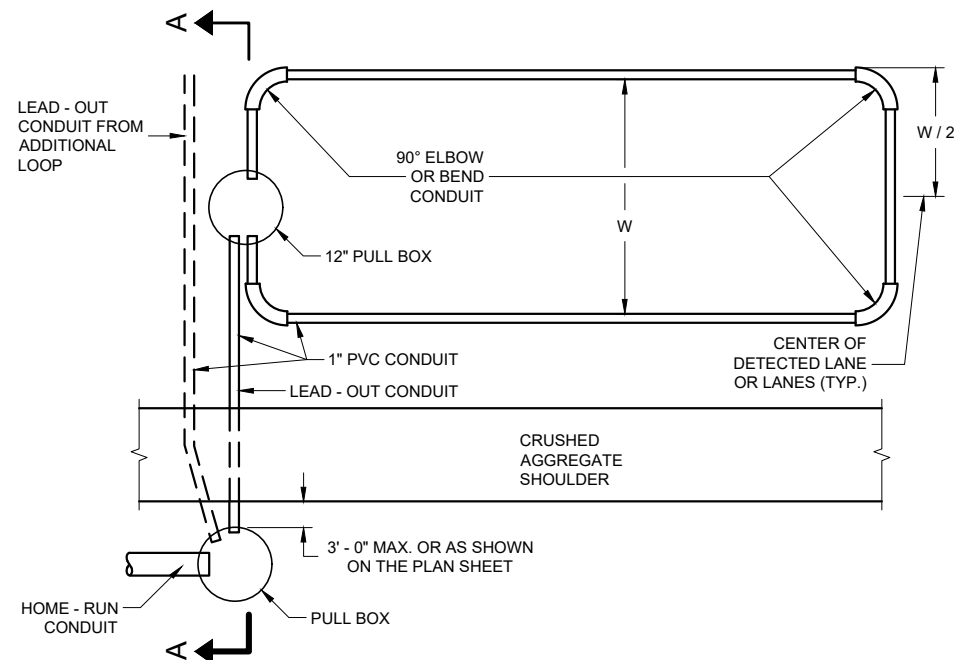
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PROTECTION OF THE PULL BOX IN THE BASE COURSE, AND THE RELATED CONDUITS SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED.

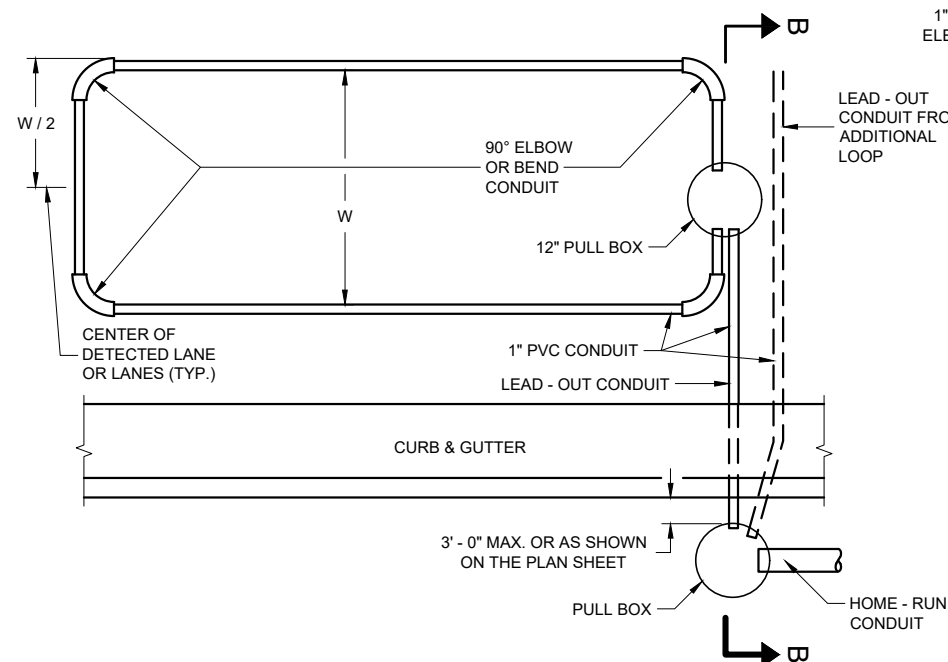
PROTECTION OF THE PULL BOX SHALL BE REQUIRED AFTER THE NEW CONCRETE BASE IS POURED AND BEFORE THE NEW ASPHALTIC OVERLAY IS REPLACED.

12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.

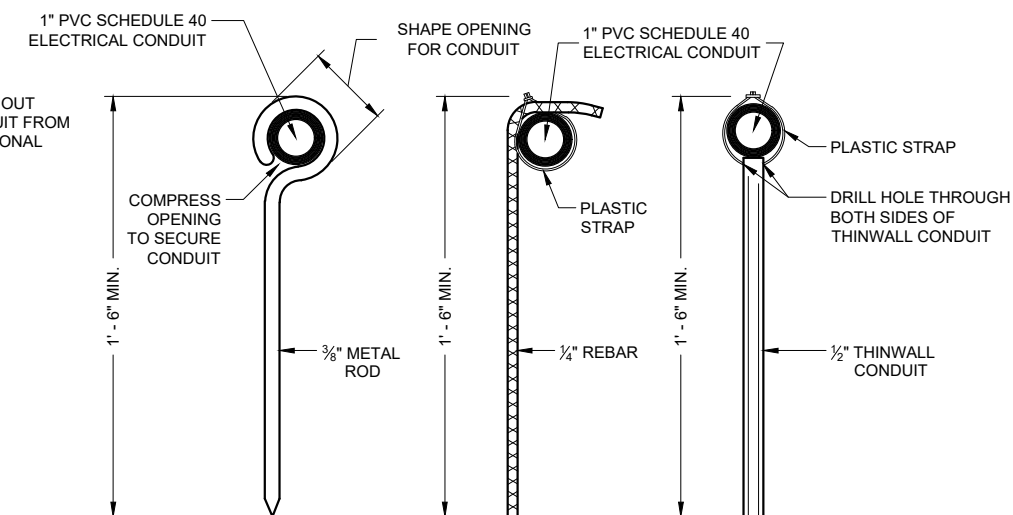
① HOLD DOWN PINS TO HOLD CONDUIT DURING POUR.



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX

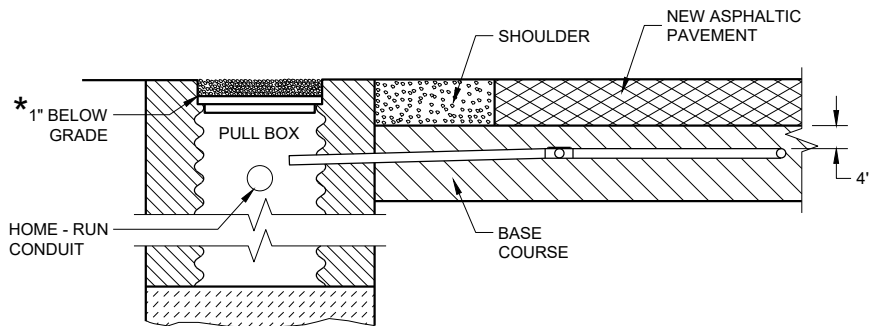


TYPICAL DETAILS FOR HOLD DOWN PINS ①

LOOP DETECTOR INSTALLED
IN NEW CONCRETE BASE
WITH NEW ASPHALTIC OVERLAY
ROUND CSCP PULLBOX

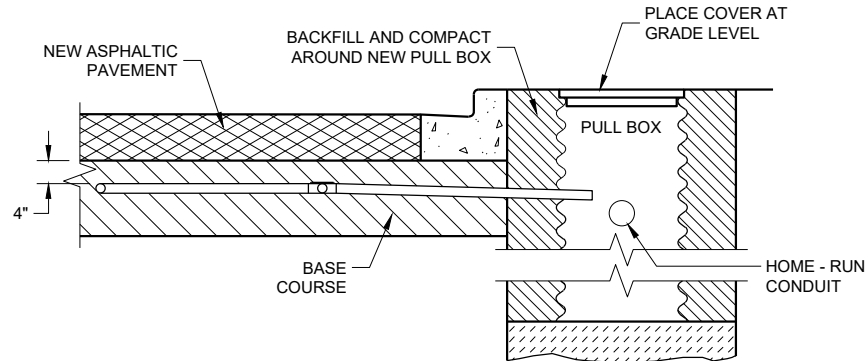
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENG 159
FHWA



SECTION A - A
NO CURB AND GUTTER
LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.



SECTION B - B
CURB AND GUTTER
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 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 FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

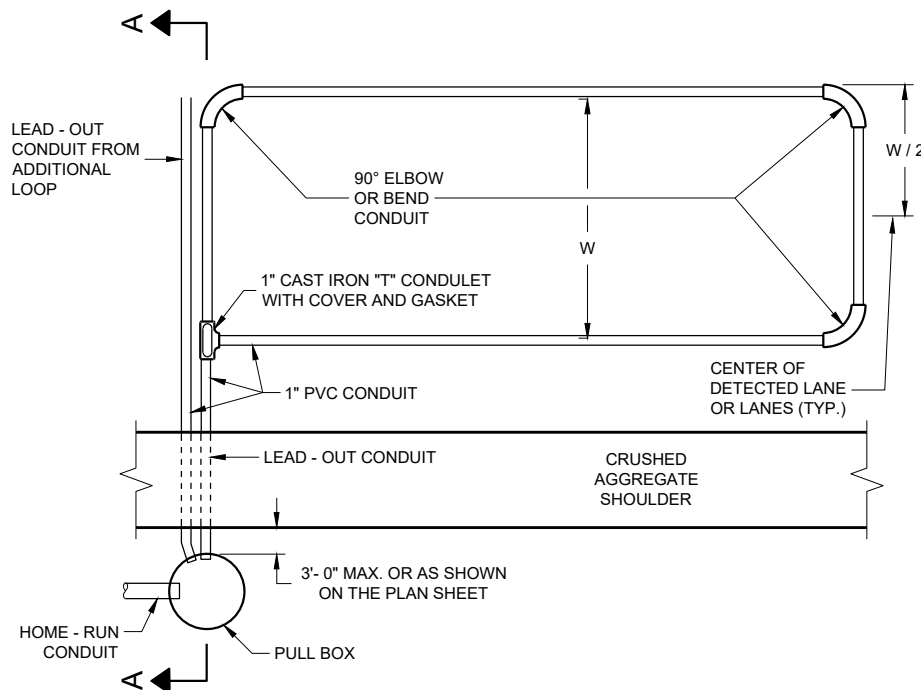
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PROTECTION OF THE PULL BOX IN THE BASE COURSE, AND THE RELATED CONDUITS SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED.

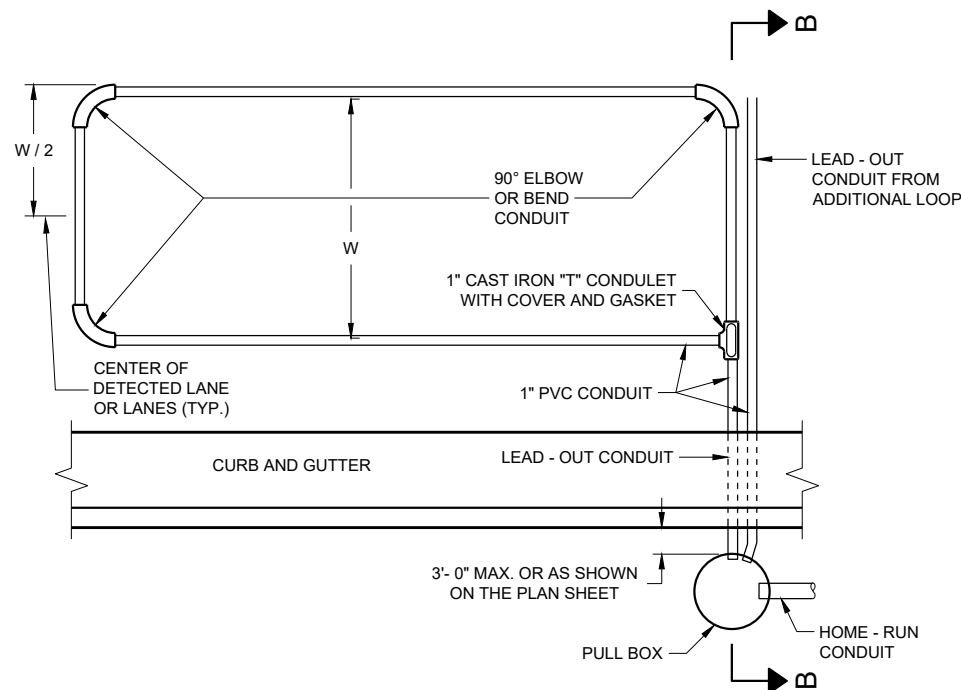
PROTECTION OF THE PULL BOX AND CONDUIT SHALL BE REQUIRED AFTER THE ASPHALTIC PAVEMENT IS PLACED.

WHEN MULTIPLE LAYERS OF ASPHALTIC PAVEMENT ARE TO BE PLACED, LOOPS MAY BE INSTALLED BY SAWING A TWO INCH WIDE SLOT IN THE FIRST LAYER, DIG OUT THE ASPHALTIC MATERIAL AND BASE COURSE, PLACE THE LOOP, FILL THE SLOT WITH BASE COURSE MATERIAL AND NEW ASPHALTIC MATERIAL AND TAMP THE ASPHALTIC MATERIAL IN PLACE.

SHOULD TRAFFIC BE ALLOWED TO USE THE AREA OF ROADWAY WITH THE NEWLY INSTALLED LOOP BEFORE THE PLACEMENT OF THE NEXT LAYER OF ASPHALTIC PAVEMENT, THE SLOT/PAVEMENT OPENING SHALL BE SEALED WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".



TYPICAL PLAN OF LOOP DETECTOR

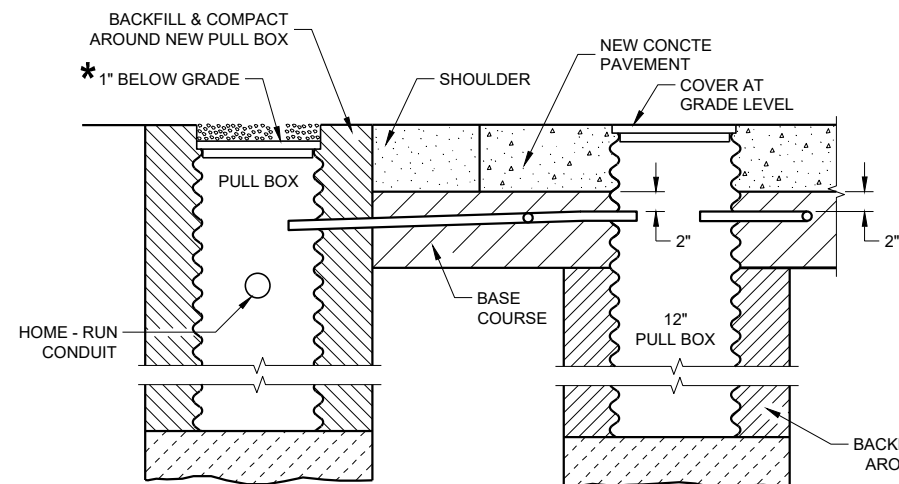


TYPICAL PLAN OF LOOP DETECTOR

LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW ASPHALTIC PAVEMENT)

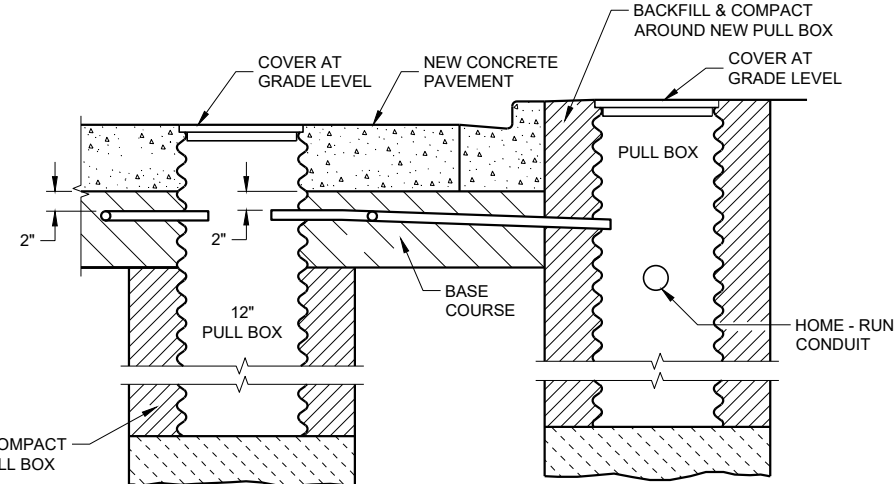
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGI 160
FHWA



SECTION A - A
NO CURB AND GUTTER
LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.



SECTION B - B
CURB AND GUTTER
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 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.

ANY PVC LEADOUT CONDUIT CONTAINING MORE THAN ONE TWISTED PAIR OF LOOP LEAD WIRE SHALL BE 2".

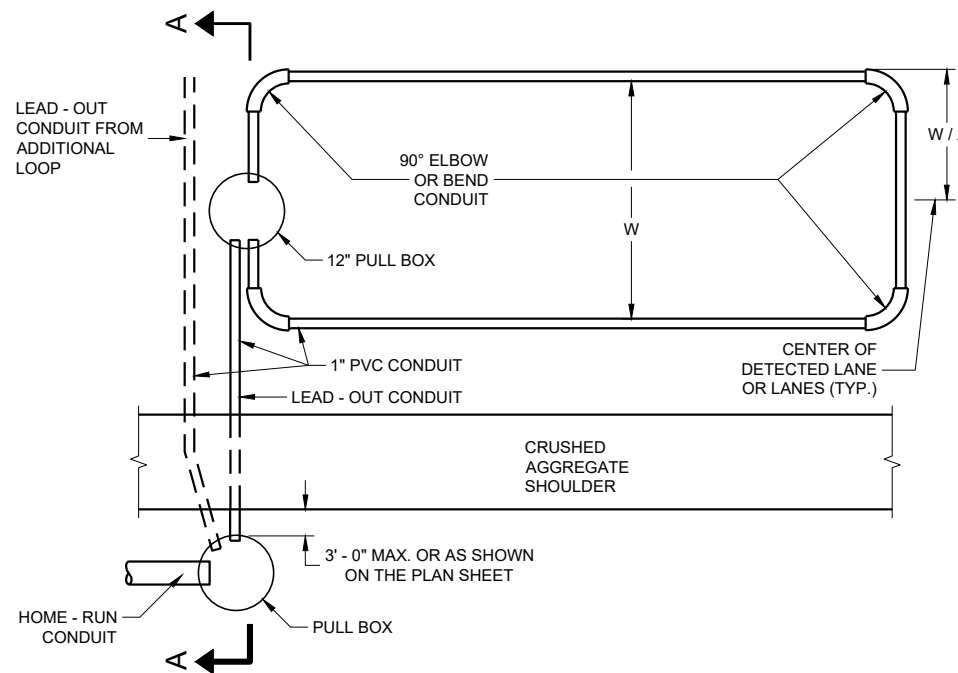
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

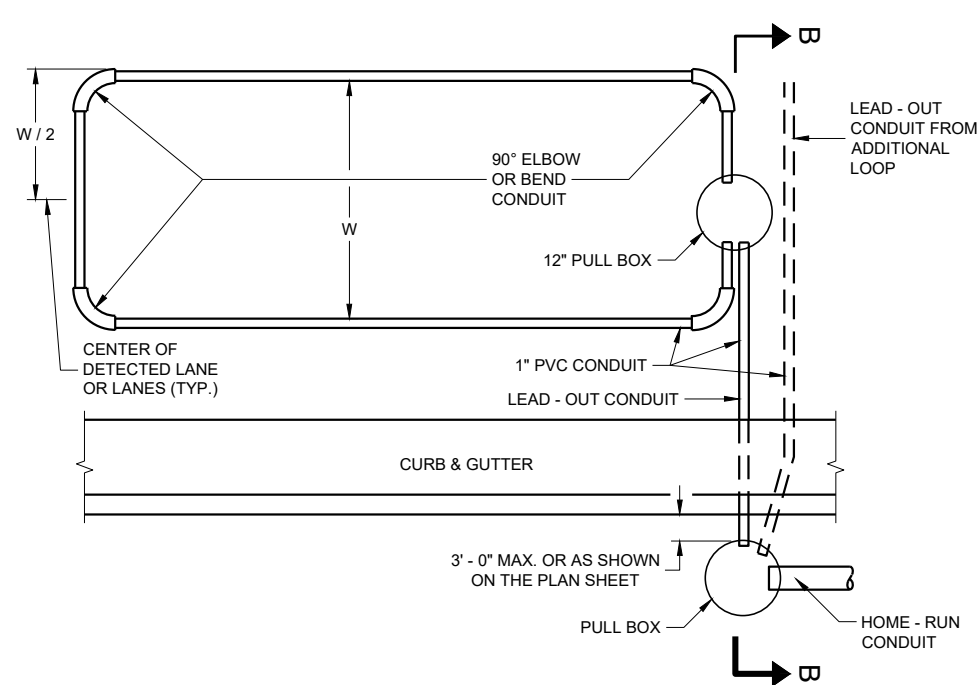
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PROTECTION OF THE CONDUIT, CONDULET, PULL BOX SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED.

12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX

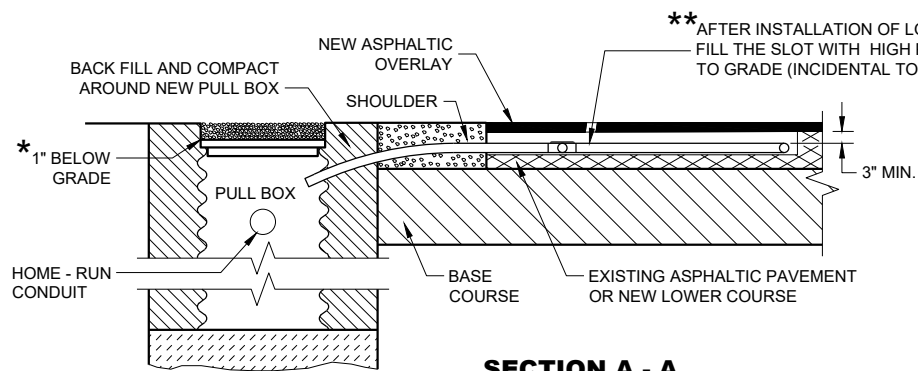


TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX

**LOOP DETECTOR PLACED IN
CRUSHED AGGREGATE BASE
(NEW CONCRETE PAVEMENT)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

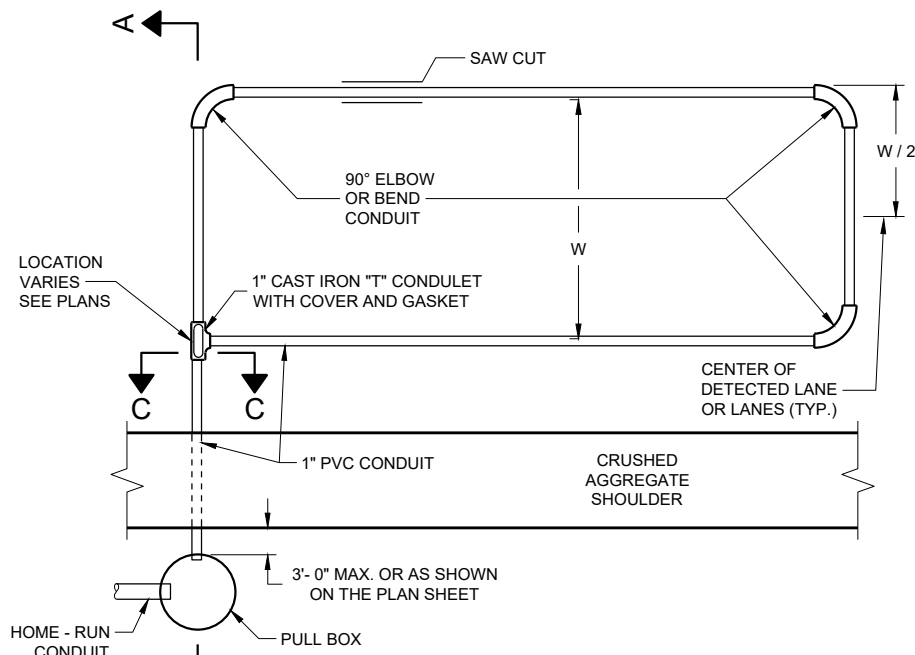
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DATE STATE ELECTRICAL ENGI 161
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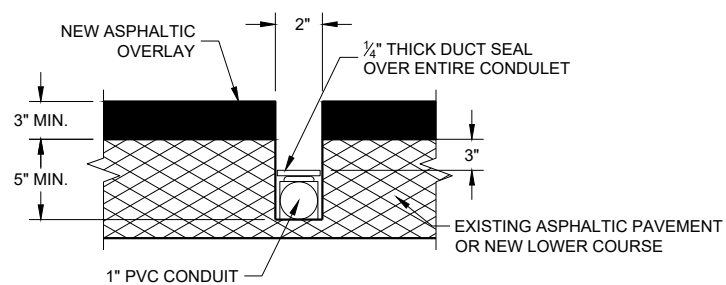
**SECTION A - A
NO CURB AND GUTTER**

LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.

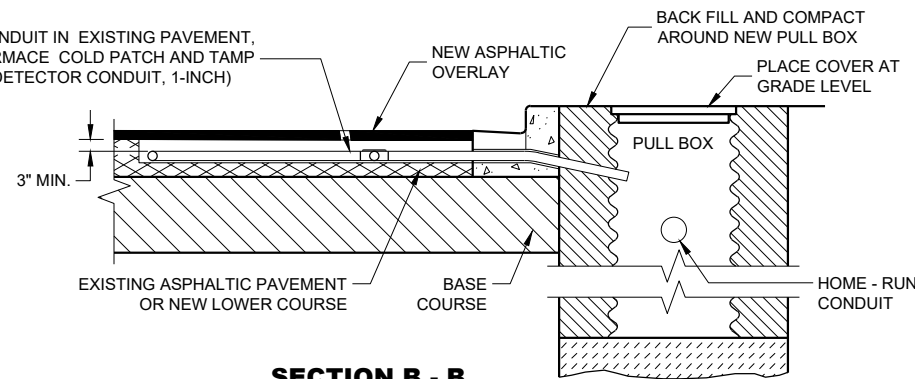


TYPICAL PLAN OF LOOP DETECTOR



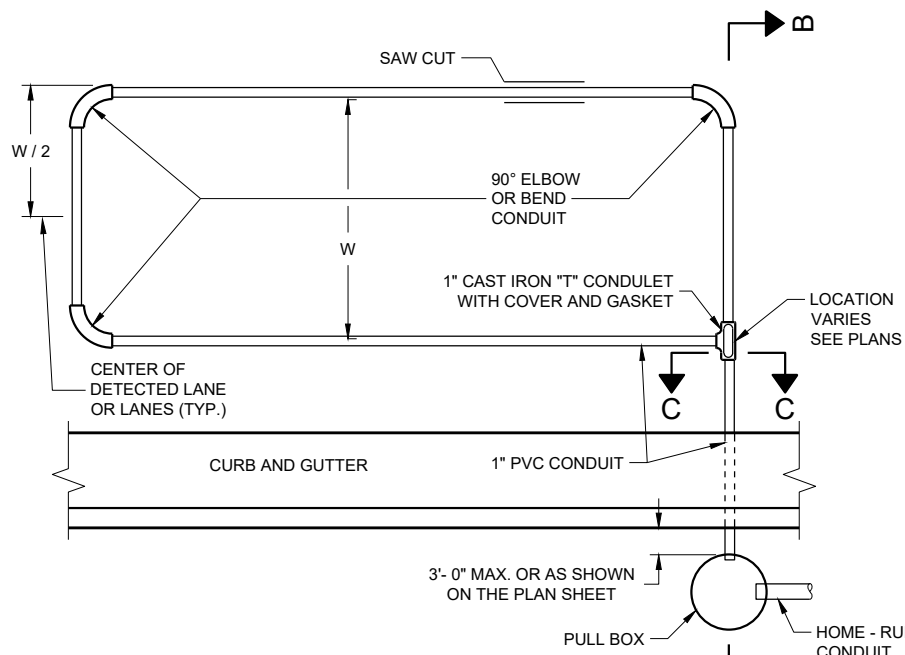
**SIDE VIEW
SECTION C - C
LOOP DETECTOR SLOT DETAIL**

IF PAVEMENT IS LESS THAN 4 INCHES THICK, CONDUIT SHALL BE PLACED IN BASE COURSE.

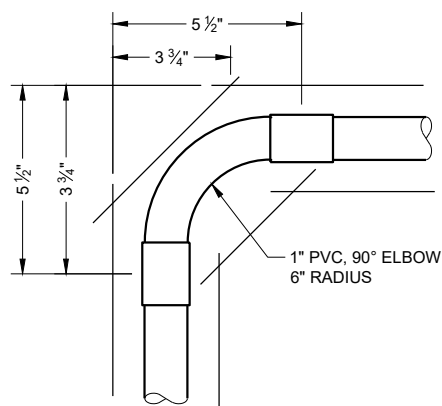


**SECTION B - B
CURB AND GUTTER**

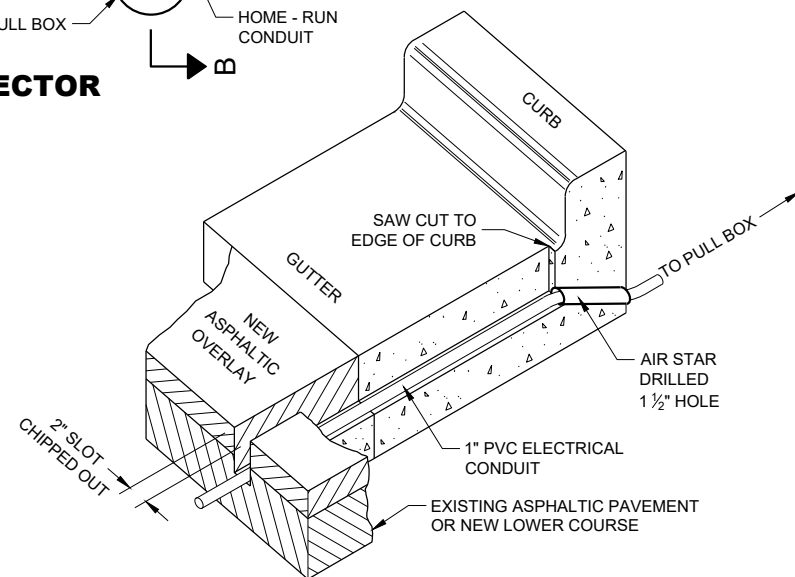
LOOP DETECTOR INSTALLATION DETAIL



TYPICAL PLAN OF LOOP DETECTOR



**TOP VIEW
CORNER SAW SLOT DETAIL**



**ISOMETRIC VIEW
TYPICAL SAW CUT DETAIL
FOR LEAD-IN CONDUIT**

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 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 FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE NON-SPLICED, CONTINUOUS LENGTH.

BEFORE PLACING THE 1 INCH CONDUIT IN THE CLEANED OUT SLOT, PLACE SOME OF THE TAR OR EPOXY SEALANT IN THE SLOT TO A DEPTH OF APPROXIMATELY 1/2 INCH. IF THE CONDUIT MUST BE PLACED IN THE BASE COURSE, DO NOT PLACE THE TAR OR EPOXY SEALANT IN THE SLOT.

ONCE THE 2" LOOP SLOT HAS BEEN CHIPPED OUT, THE LOOP INSTALLATION SHALL BE COMPLETED PRIOR TO OPENING THE LANE(S) TO TRAFFIC.

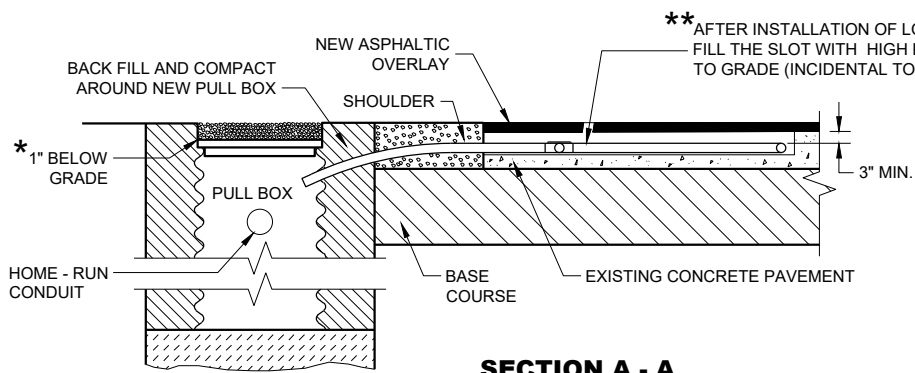
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**LOOP DETECTOR INSTALLED
IN EXISTING OR NEW
ASPHALTIC PAVEMENT WITH
NEW ASPHALTIC OVERLAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

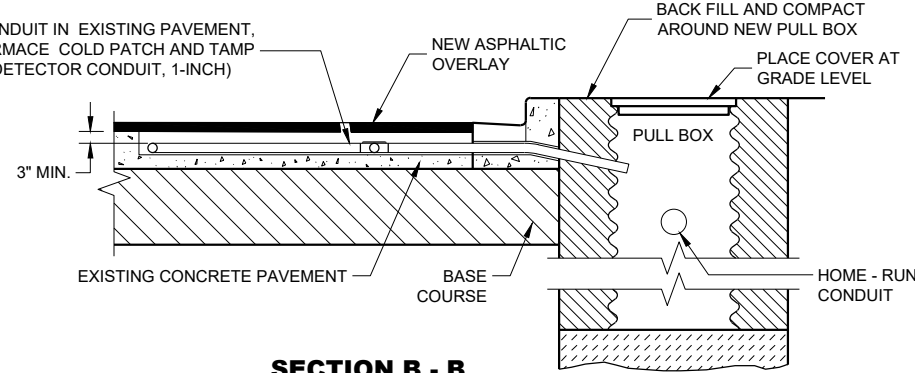
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DATE STATE ELECTRICAL ENGI 162
FHWA



**SECTION A - A
NO CURB AND GUTTER**

LOOP DETECTOR INSTALLATION DETAIL

* RECESS PULL 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.



**SECTION B - B
CURB AND GUTTER**

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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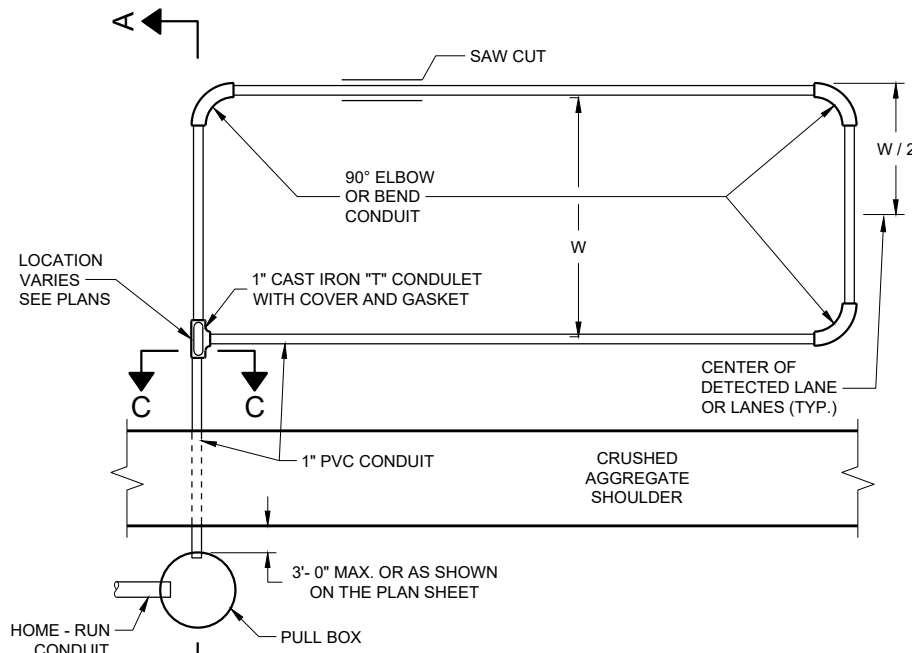
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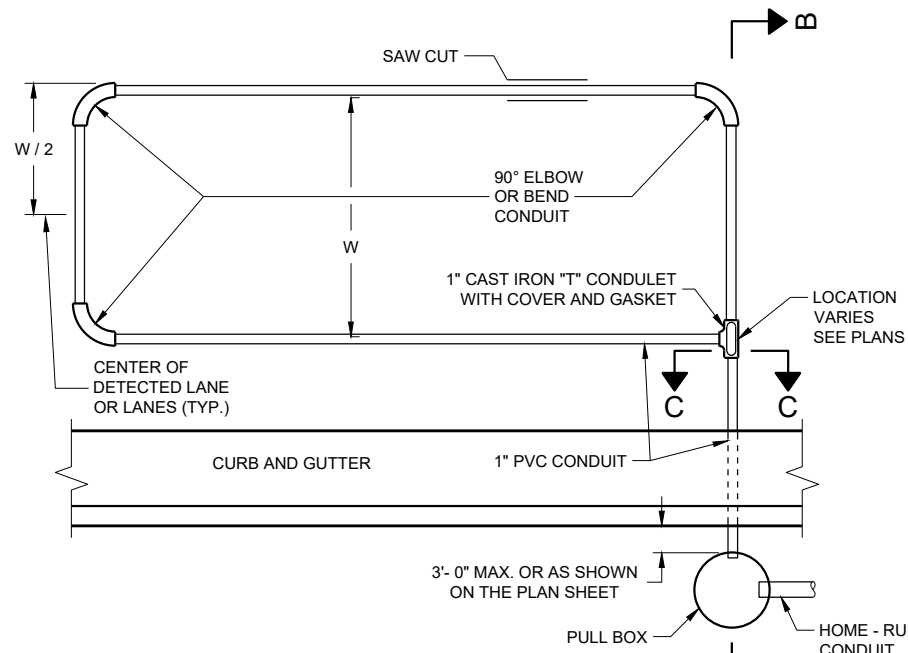
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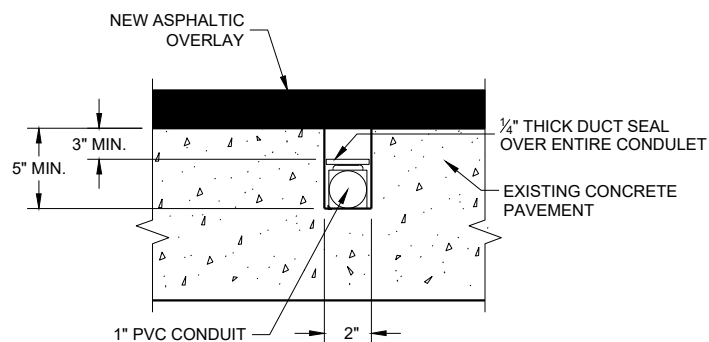
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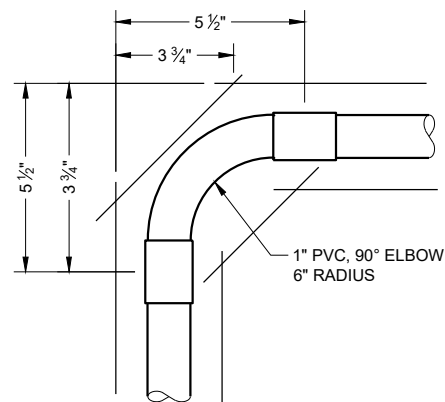
TYPICAL PLAN OF LOOP DETECTOR



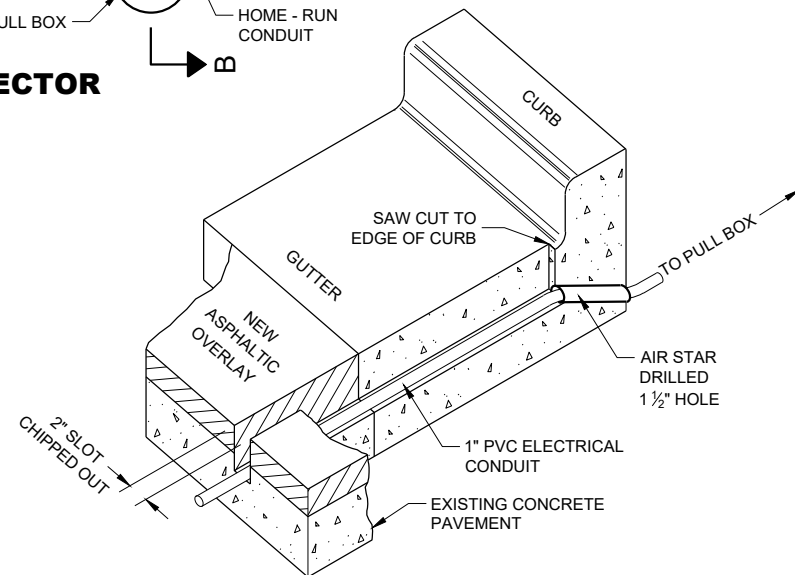
TYPICAL PLAN OF LOOP DETECTOR



**SIDE VIEW
SECTION C - C
LOOP DETECTOR SLOT DETAIL**



**TOP VIEW
CORNER SAW SLOT DETAIL**



**ISOMETRIC VIEW
TYPICAL SAW CUT DETAIL
FOR LEAD-IN CONDUIT**

**LOOP DETECTOR INSTALLED
IN EXISTING CONCRETE
PAVEMENT WITH
NEW ASPHALTIC OVERLAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGI 163
FHWA

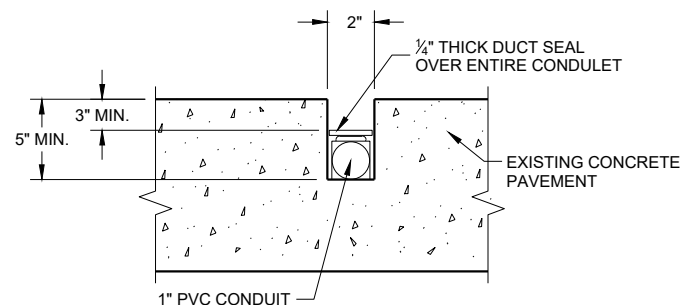


LOOP DETECTOR INSTALLATION DETAIL

Diagram illustrating the components and dimensions of a rectangular manhole assembly:

- SAW CUT**: Indicated at the top edge of the manhole frame.
- 90° ELBOW OR BEND CONDUIT**: Located at the top corner of the manhole frame.
- 1" CAST IRON "T" CONDULET WITH COVER AND GASKET**: Located at the bottom corner of the manhole frame.
- 1" PVC CONDUIT**: Located at the bottom of the manhole frame.
- CRUSHED AGGREGATE SHOULDER**: Located at the bottom of the manhole frame.
- PULL BOX**: Located at the bottom of the manhole frame.
- HOME - RUN CONDUIT**: Located at the bottom of the manhole frame.
- LOCATION VARIES SEE PLANS**: Indicated near the bottom left corner.
- CENTER OF DETECTED LANE OR LANES (TYP.)**: Indicated near the bottom right corner.
- Dimensions**:
 - W**: Width of the manhole frame.
 - W / 2**: Half the width of the manhole frame.
 - C**: Distance from the center of the detected lane to the center of the manhole frame.
 - 3'- 0" MAX. OR AS SHOWN ON THE PLAN SHEET**: Maximum distance from the center of the detected lane to the center of the manhole frame.

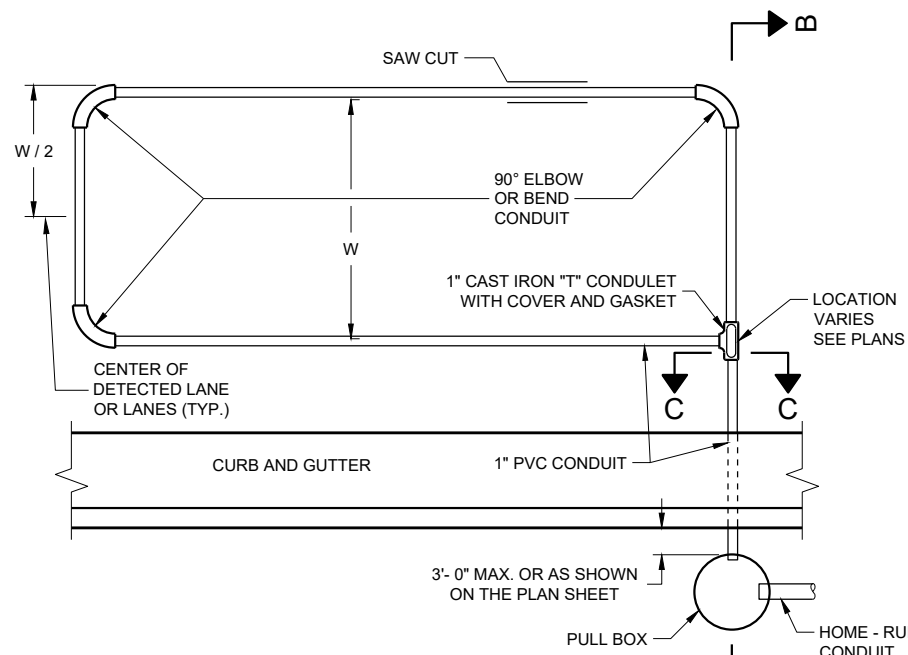
TYPICAL PLAN OF LOOP DETECTOR



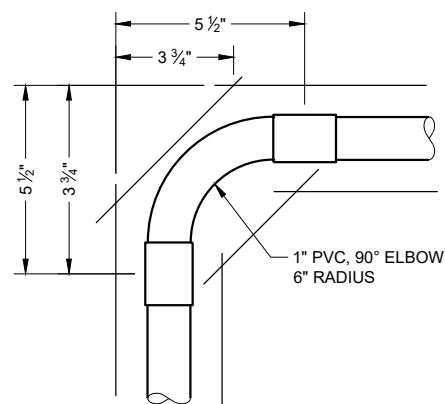
**SIDE VIEW
SECTION C - C
LOOP DETECTOR SLOT DETAIL**



LOOP DETECTOR INSTALLATION DETAIL

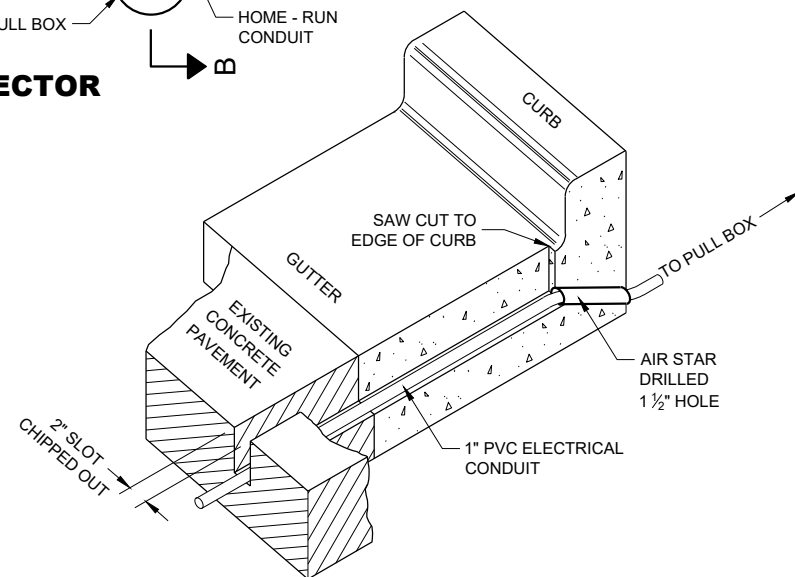


TYPICAL PLAN OF LOOP DETECTOR



TOP VIEW

CORNER SAW SLOT DETAIL



ISOMETRIC VIEW
TYPICAL SAW CUT DETAIL
FOR LEAD-IN CONDUIT

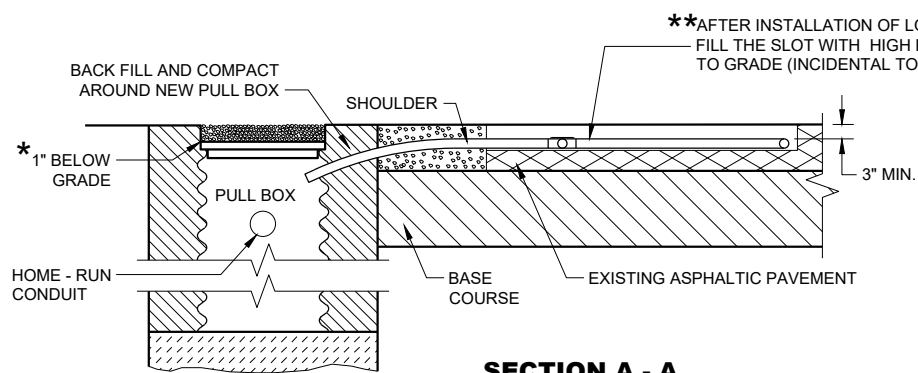
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**LOOP DETECTOR
INSTALLED IN EXISTING
CONCRETE PAVEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 _____ /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGI 164

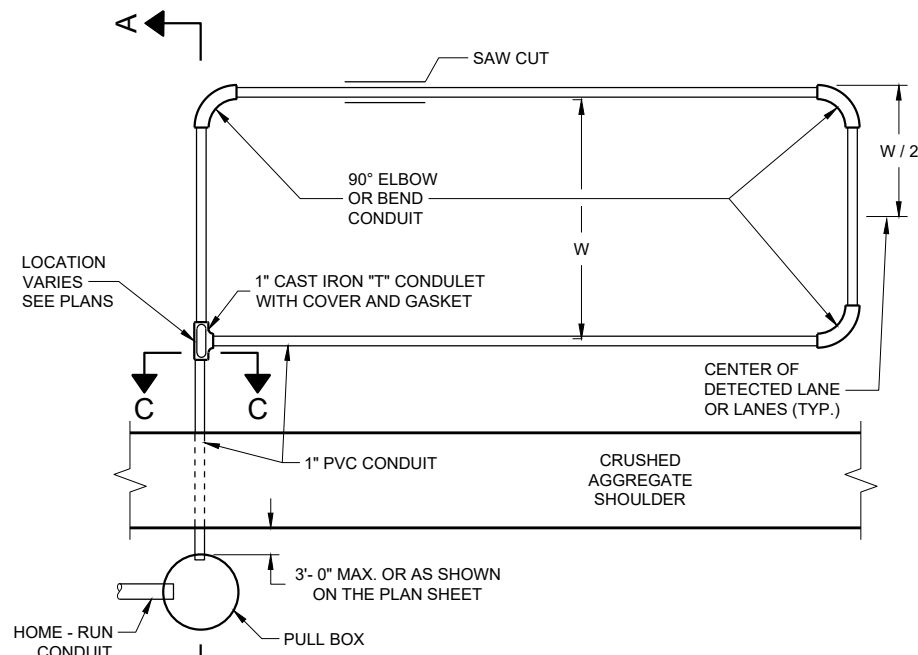
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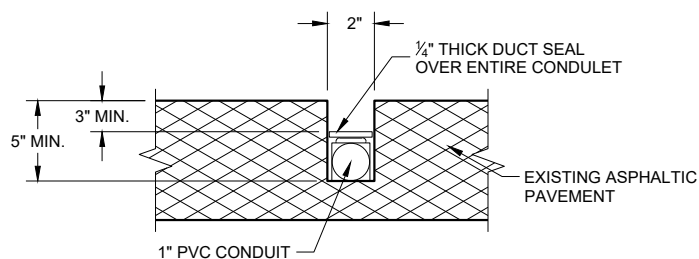
**SECTION A - A
NO CURB AND GUTTER**

LOOP DETECTOR INSTALLATION DETAIL

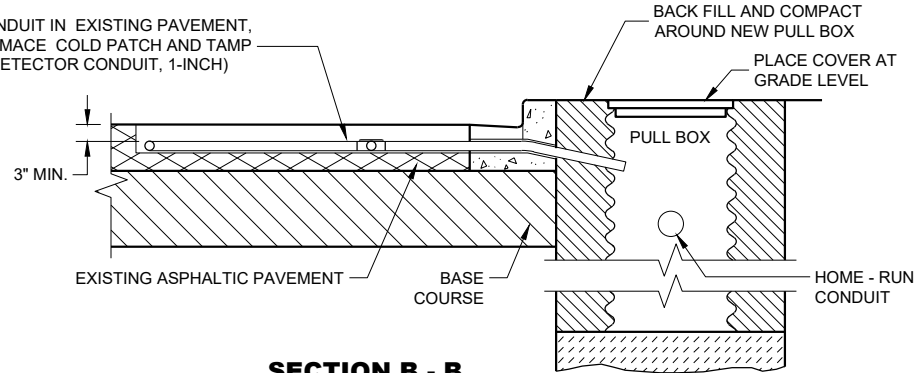
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TYPICAL PLAN OF LOOP DETECTOR

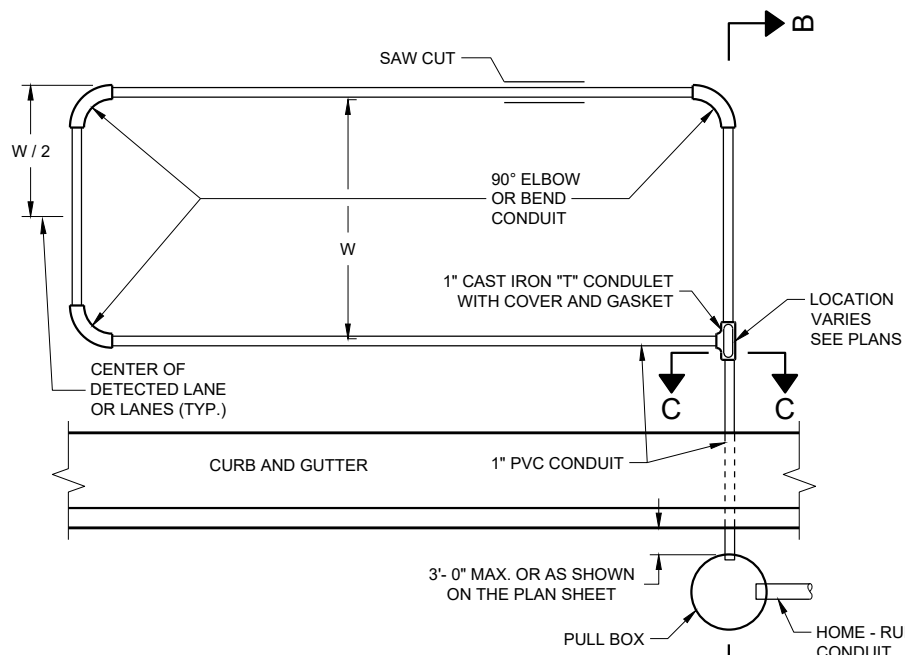


**SIDE VIEW
SECTION C - C
LOOP DETECTOR SLOT DETAIL**

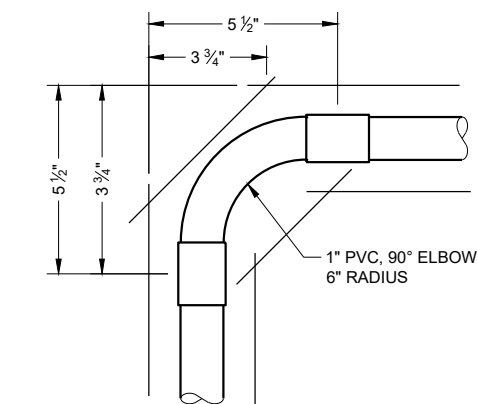


**SECTION B - B
CURB AND GUTTER**

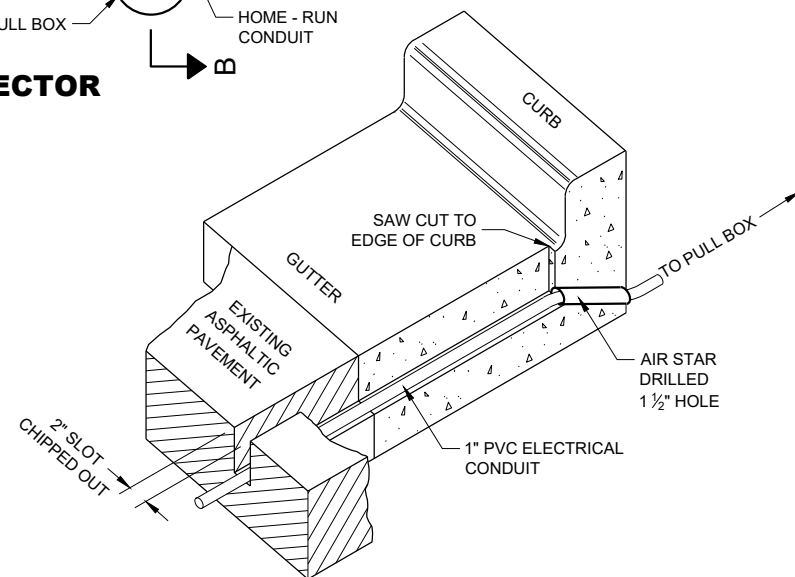
LOOP DETECTOR INSTALLATION DETAIL



TYPICAL PLAN OF LOOP DETECTOR



**TOP VIEW
CORNER SAW SLOT DETAIL**



**ISOMETRIC VIEW
TYPICAL SAW CUT DETAIL
FOR LEAD-IN CONDUIT**

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 BOX.

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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.

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IN THE EVENT THAT THE EXISTING PAVEMENT IS MORE THAT 5 INCHES THICK, THE 1 INCH CONDUIT DOES NOT REQUIRE INSTALLATION BELOW THE PAVEMENT INTO THE BASE COURSE. PLACE SOME OF THE TAR OR EPOXY SEALANT IN THE SLOT TO A DEPTH OF APPROXIMATELY 1/2 INCH BEFORE INSTALLATION OF THE CONDUIT. IF THE CONDUIT MUST BE PLACED IN THE BASE COURSE, DO NOT PLACE THE TAR OR EPOXY SEALANT IN THE SLOT.

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** AFTER THE HIGH PERFORMANCE COLD PATCH HAS BEEN TAMPED, SEAL THE SLOT/HIGH PERFORMANCE COLD PATCH/PAVEMENT OPENING WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

IN THE EVENT HIGH PERFORMANCE COLD PATCH IS NOT AVAILABLE, AND FLEXIBLE TYPE EPOXY IS USED AS A LOOP SLOT FILLER, THE 2 INCH SLOT SHALL BE TOTALLY CLEAN AND DRY BEFORE ITS INSTALLATION. EPOXY USE SHALL BE APPROVED BY THE DISTRICT ENGINEER AND THE FURNISHED EPOXY SHALL BE INSTALLED AFTER WRITTEN APPROVAL BY THE PROJECT ENGINEER.

**LOOP DETECTOR
INSTALLED IN EXISTING
ASPHALTIC PAVEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirebilek
DATE STATE ELECTRICAL ENGI 165
FHWA

GENERAL NOTES

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ANY PVC LEAD-OUT CONDUIT CONTAINING MORE THAN TWO TWISTED PAIR OF LOOP LEAD-IN WIRE SHALL BE 2".

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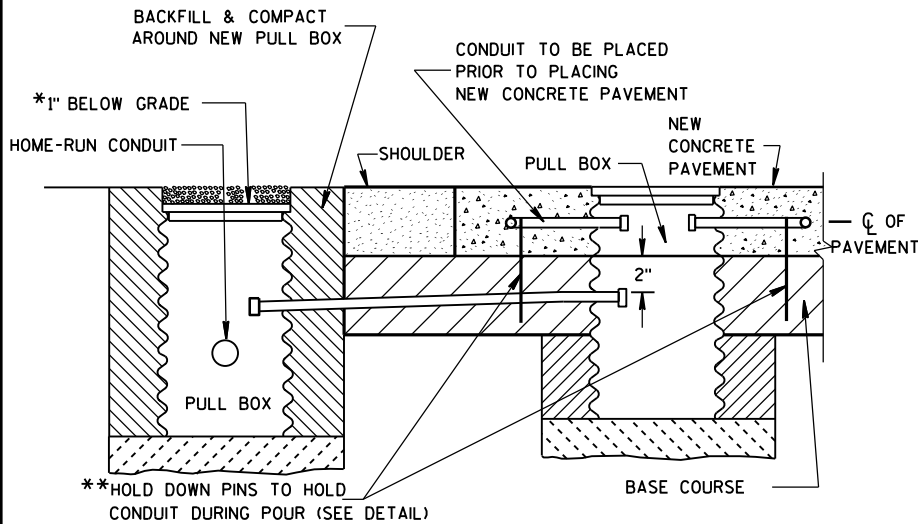
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PROTECTION OF THE PULL BOX IN THE BASE COURSE, AND THE RELATED CONDUITS SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED. ANY DAMAGE THAT OCCURS DUE TO FAILURE TO PROTECT THE INSTALLATION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

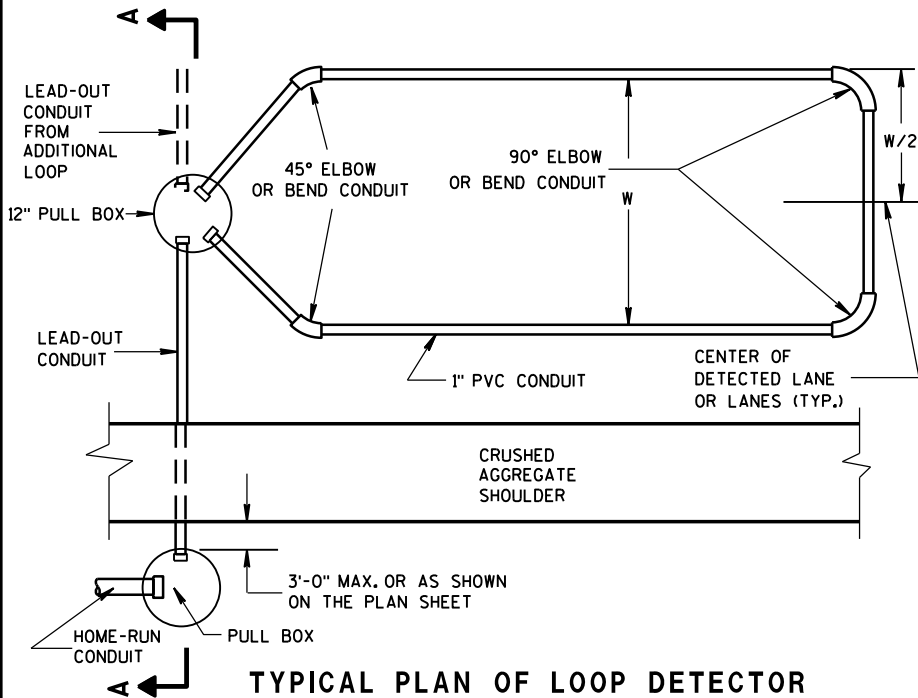
SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE ACCOMPLISHED UNDER THE DIRECTION OF THE PROJECT ENGINEER.

12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.

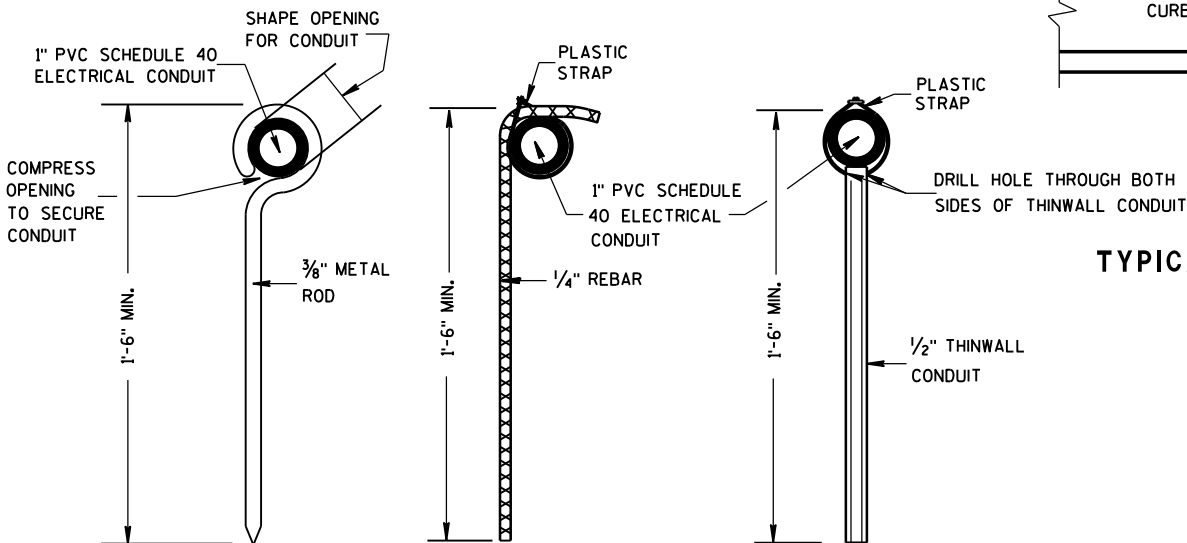


SECTION A-A
NO CURB & GUTTER
LOOP DETECTOR INSTALLATION DETAIL

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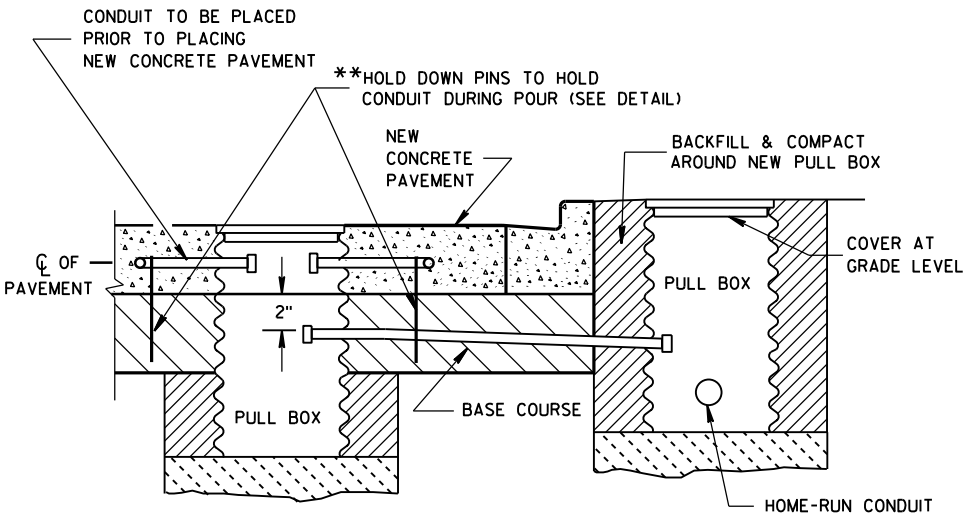


TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULL BOX

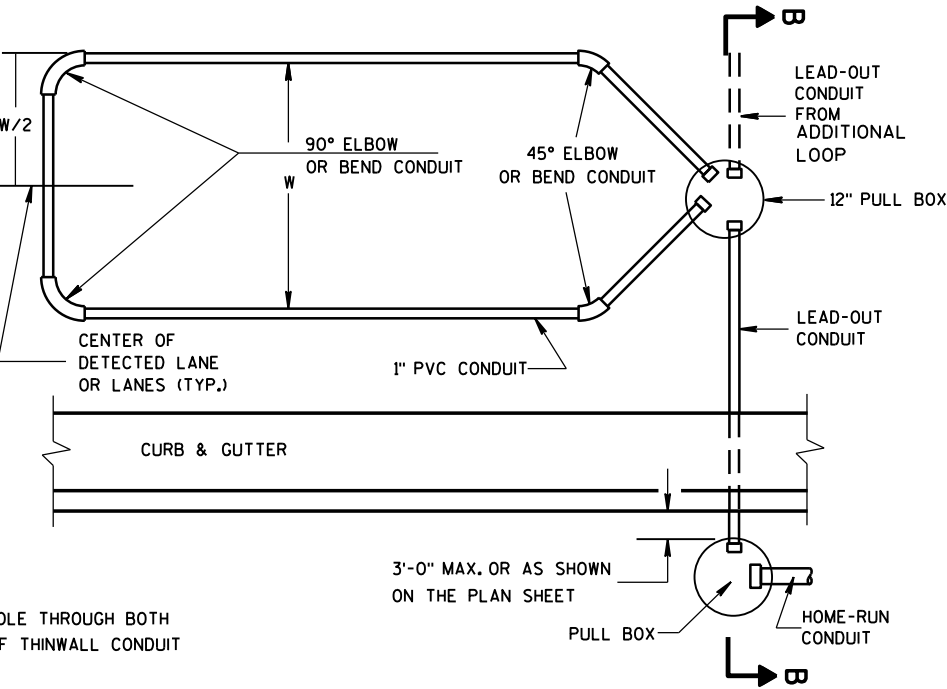


TYPICAL DETAILS FOR HOLD DOWN PINS

**HOLD DOWN PINS ARE REQUIRED TO STABILIZE THE LOOP TO MEET THE DIMENSIONAL AND PHYSICAL CONSTRUCTION REQUIREMENTS OF THE PLANS. THE NUMBER OF HOLD DOWN PINS SHALL BE DETERMINED IN THE FIELD, BY THE PROJECT ENGINEER.



SECTION B-B
CURB & GUTTER
LOOP DETECTOR INSTALLATION DETAIL

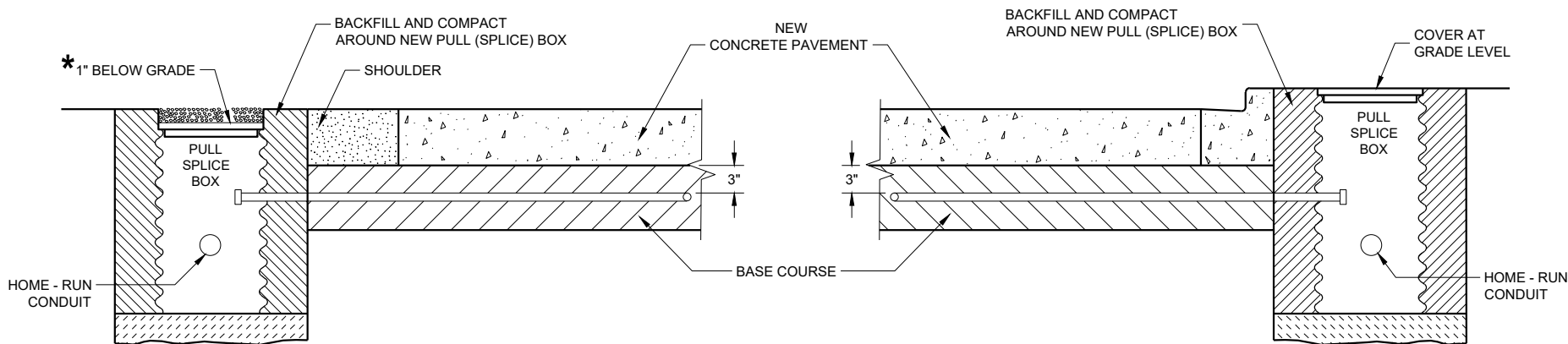


TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULL BOX

LOOP DETECTOR INSTALLED IN
NEW CONCRETE PAVEMENT
ROUND CSCP PULL BOX
45 DEGREE ELBOWS TO PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 166
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.

SPICES SHALL BE INSTALLED BY USING CAST IN PLACE SPICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPICE 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.

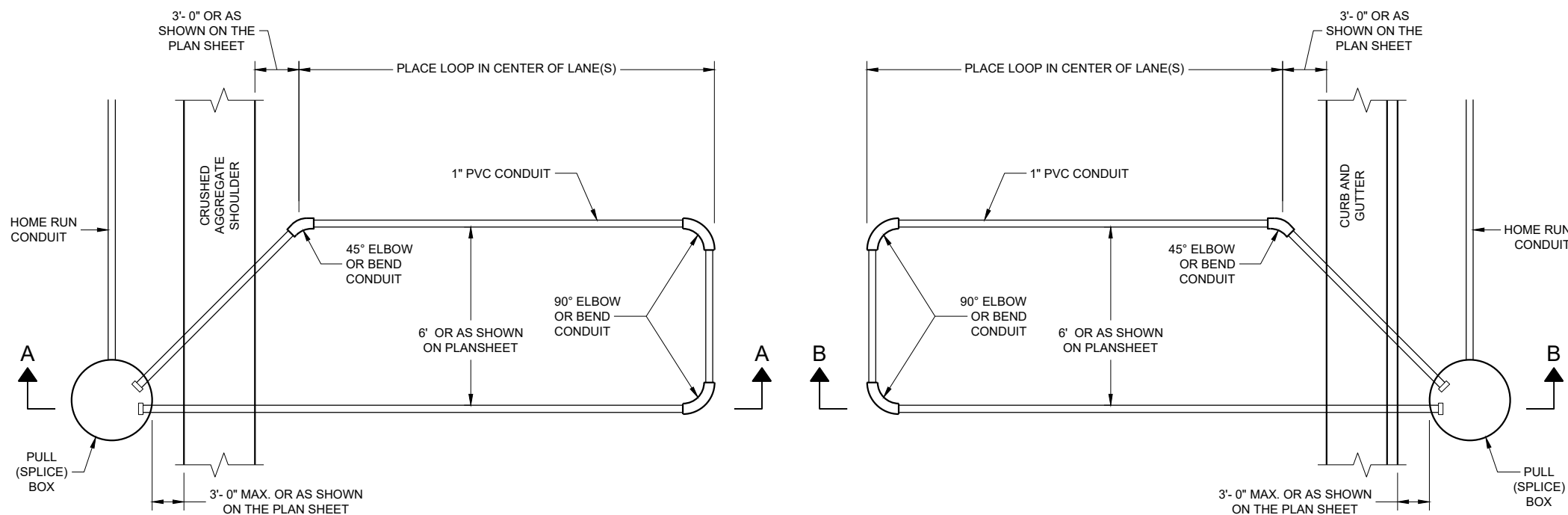
THE #12 AWG LOOP WIRE IN THE ROADSIDE PULL (SPlice) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPliced TO THE LOOP LEAD-IN CABLE.

SPICES 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.

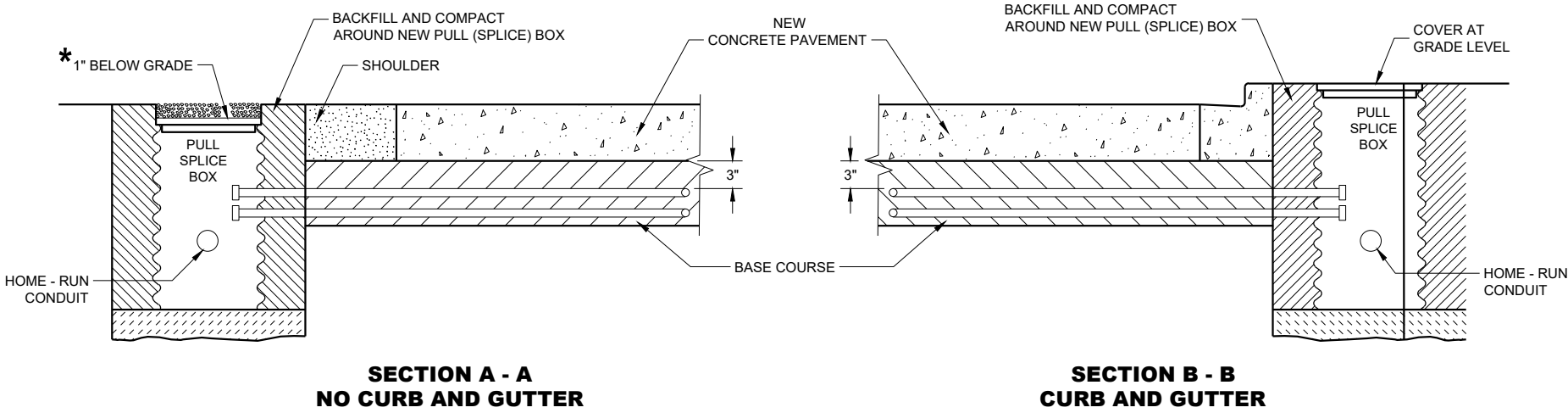


**TYPICAL PLAN LOOP DETECTOR
WITH 18" OR 24" PULL (SPlice) BOX**

**LOOP DETECTOR INSTALLED
IN BASE COURSE WITH
PULL (SPlice) BOX OFF
ROADWAY (OPTION 1)**

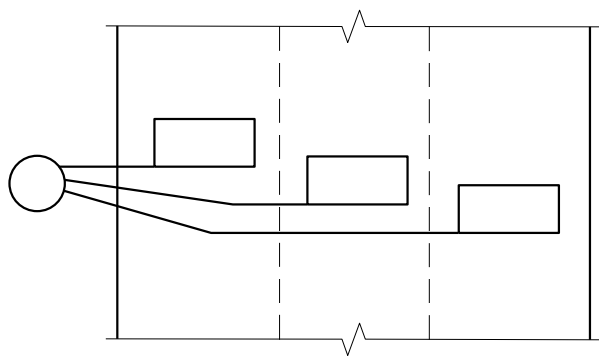
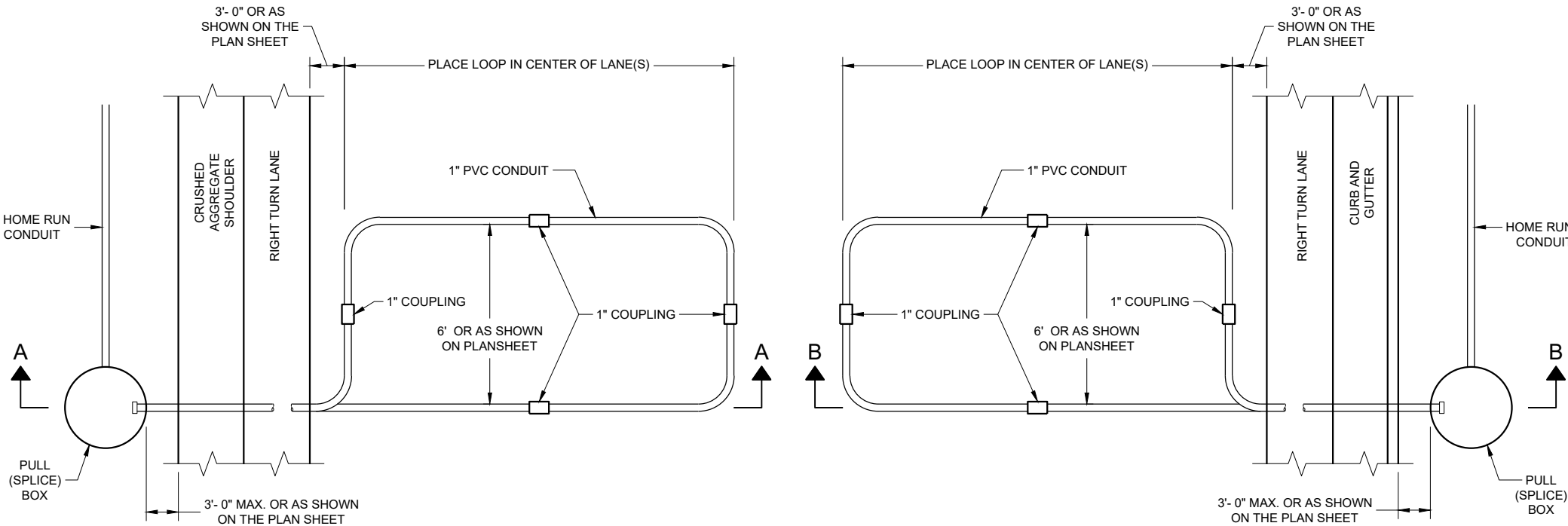
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGI 167
FHWA



* 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



**MULTI-LANE
INSTALLATION**

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.

SPICES 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 SPICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPICES 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.

SPICES 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.

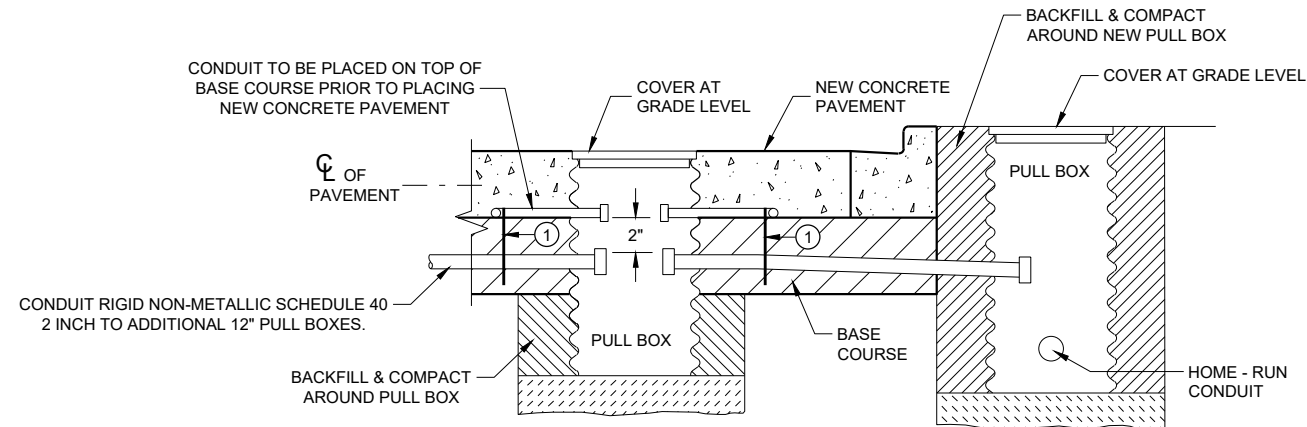
SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.

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

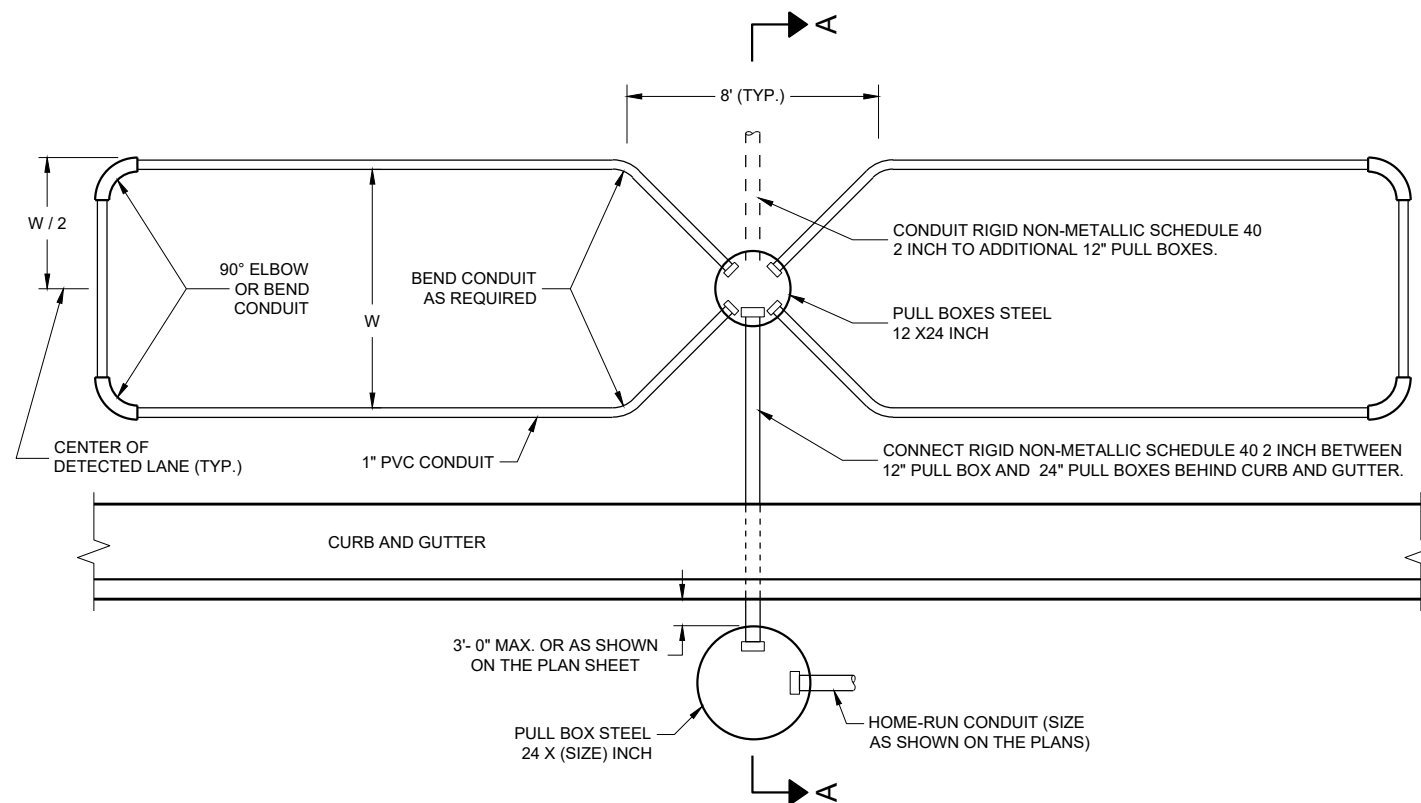
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
September 2014 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGI 168

FHWA



**SECTION A - A
CURB AND GUTTER
LOOP DETECTOR INSTALLATION DETAIL**



**TYPICAL PLAN OF LOOP DETECTOR
WITH 12\"/>**

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 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.

THE GROUND RESISTANCE READING OF THE LOOP SHALL READ "INFINITY" TO GROUND ON AN OHMMETER USING A MULTIPLIER SCALE OF 1 MEGOHM AND AN INPUT RESISTANCE OF 11 MEGOHMS MINIMUM BEFORE SPLICING THE LOOP TO THE LEAD-IN CABLE.

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 FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, INTO THE PULL BOX IN THE PAVEMENT, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE NON-SPLICED CONTINUOUS LENGTH.

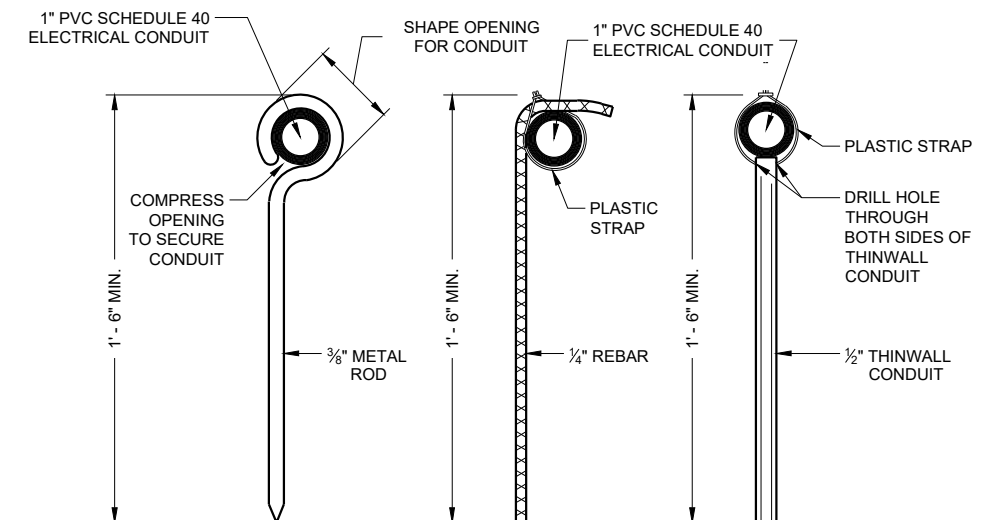
ANY PVC LEAD-OUT CONDUIT CONTAINING LOOP LEAD-IN CABLES SHALL BE 2 INCHES.

PROTECTION OF THE PULL BOX IN THE BASE COURSE AND THE RELATED CONDUITS SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW CONCRETE PAVEMENT IS POURED. ANY DAMAGE THAT OCCURS DUE TO FAILURE TO PROTECT THE INSTALLATION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE ACCOMPLISHED UNDER THE DIRECTION OF THE PROJECT ENGINEER.

12 INCH PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.

- ① HOLD DOWN PINS TO HOLD CONDUIT DURING POUR. HOLD DOWN PINS ARE REQUIRED TO STABILIZE THE LOOP TO MEET THE DIMENSIONAL CONSTRUCTION REQUIREMENTS OF THE PLANS. THE NUMBER OF HOLD DOWN PINS SHALL BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER.

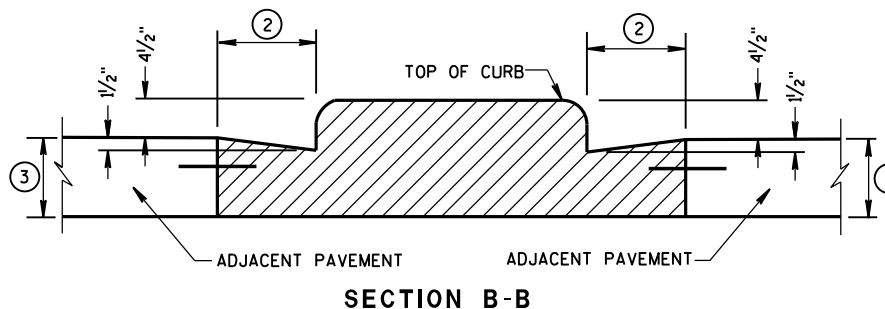
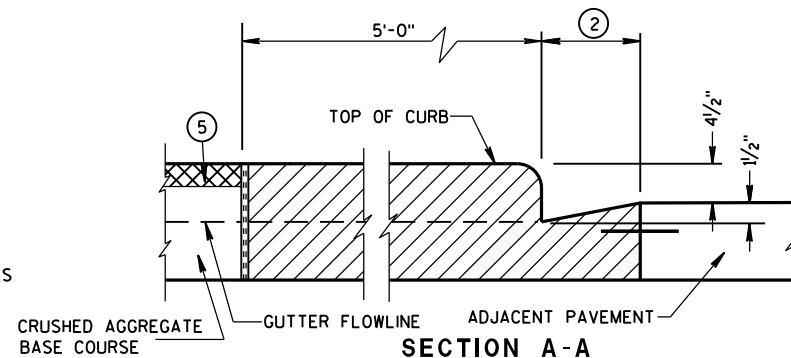
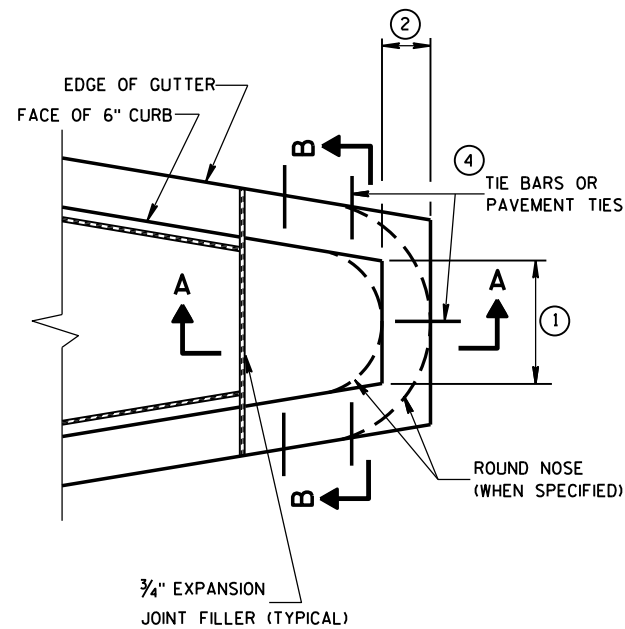
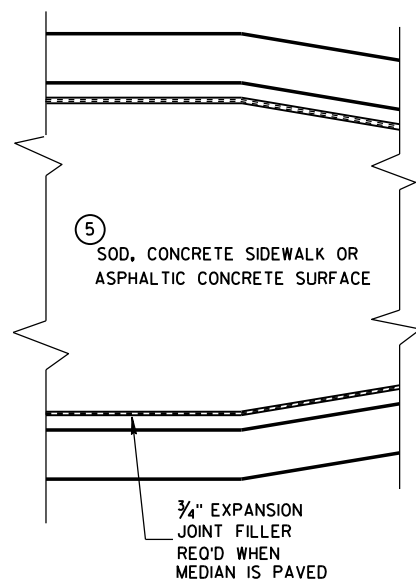


TYPICAL DETAILS FOR HOLD DOWN PINS ①

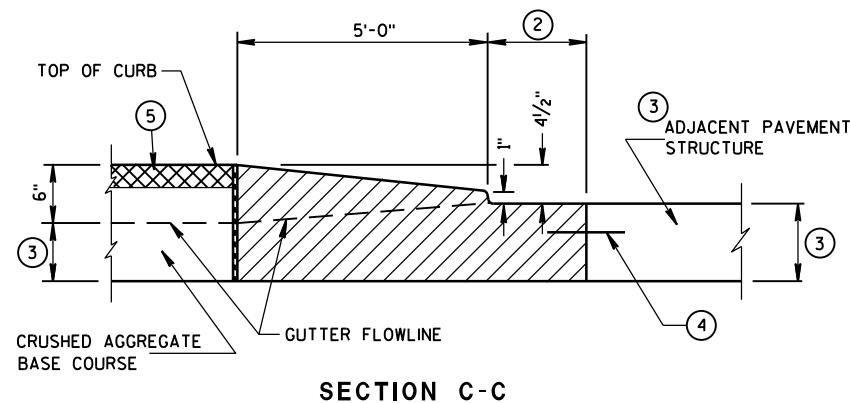
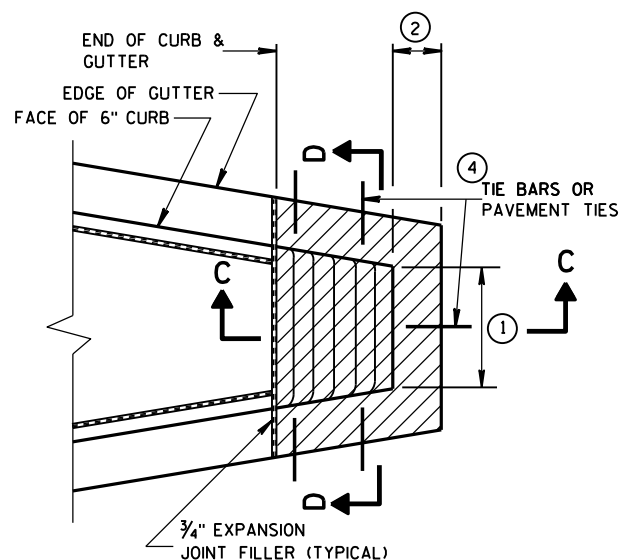
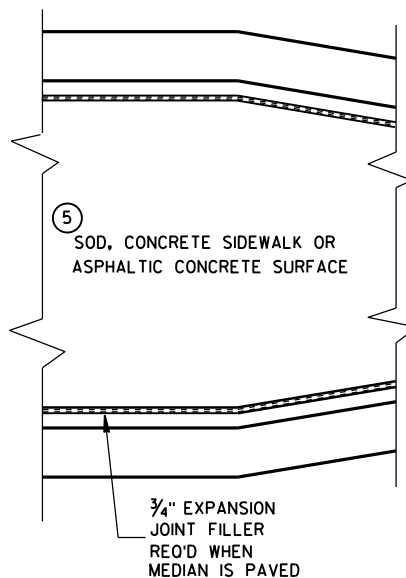
**TWO LOOP DETECTORS
INSTALLED IN NEW CONCRETE
PAVEMENT ROUND CSCP PULL
BOX 45° ELBOWS TO PULL BOX**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

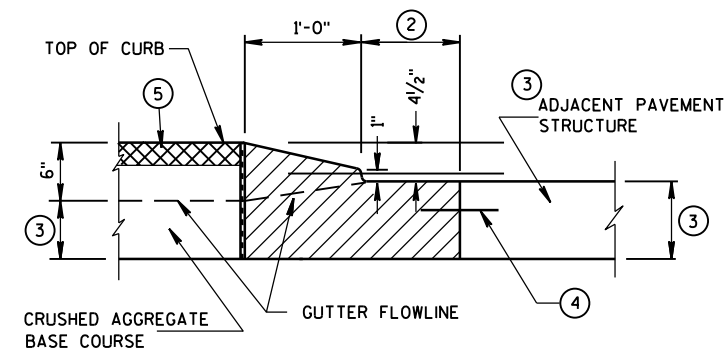
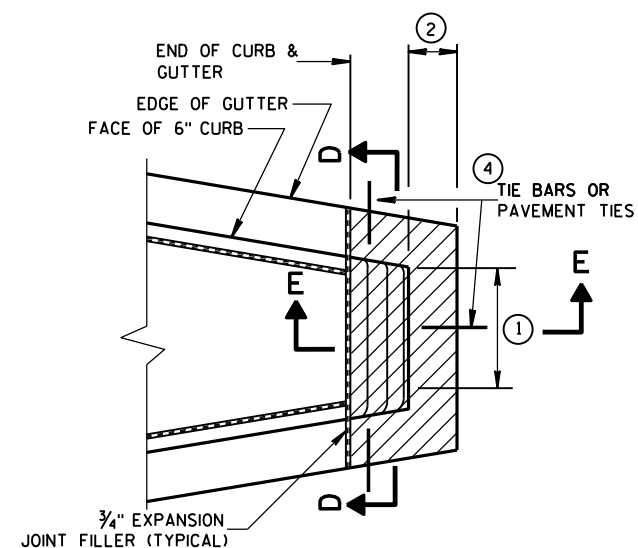
APPROVED
September 2014 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGI 169
FHWA



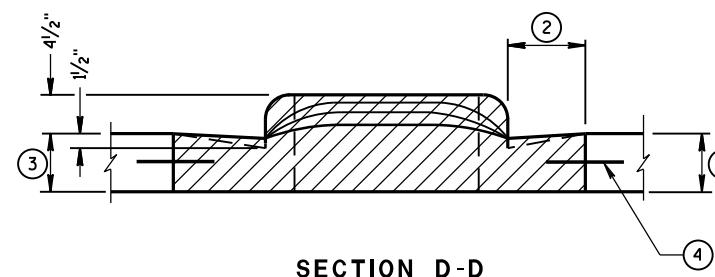
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

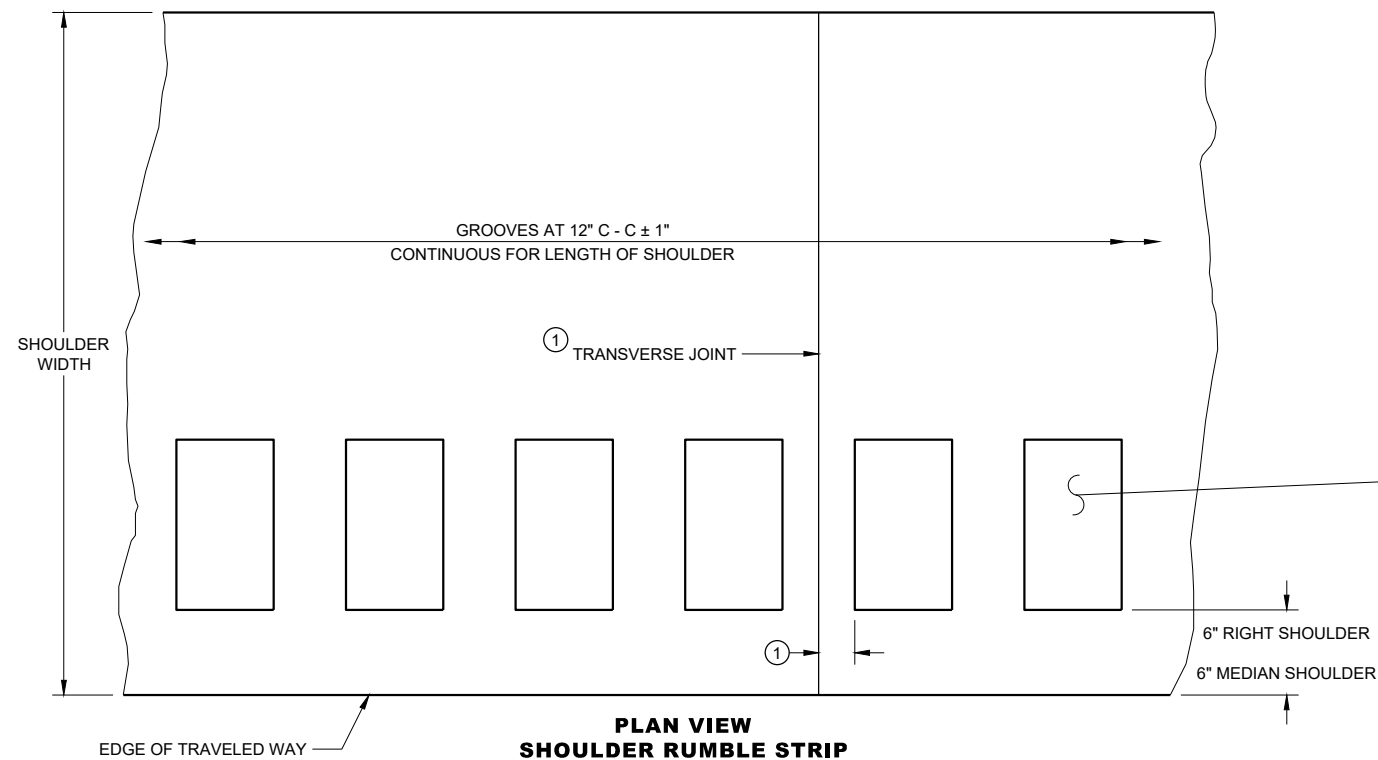
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DATE

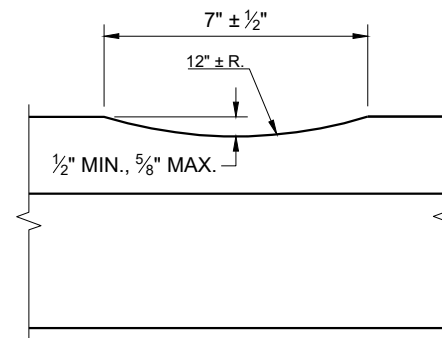
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS & 170
ENGINEER

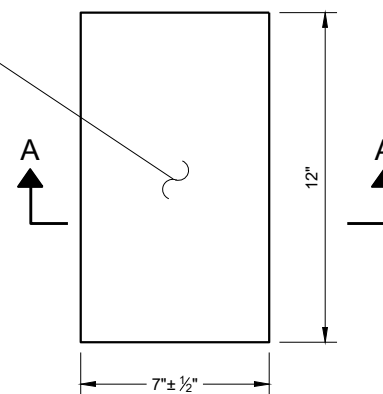
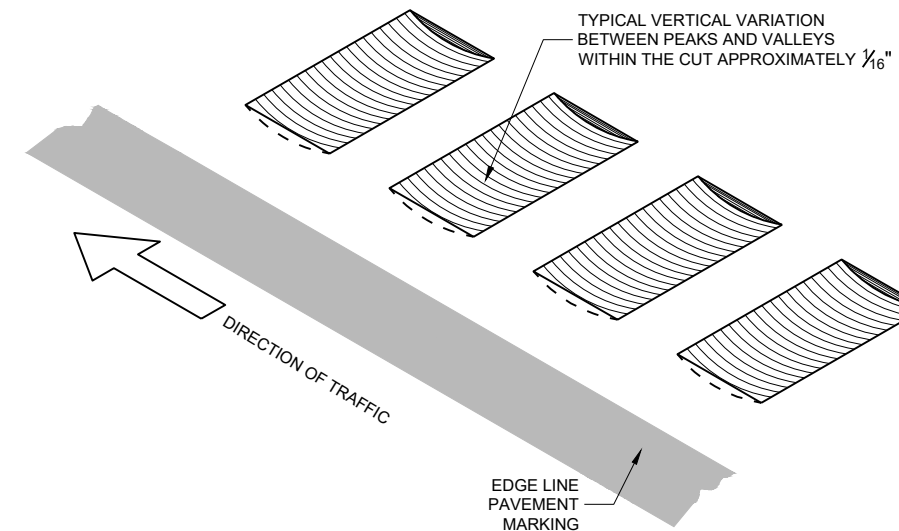
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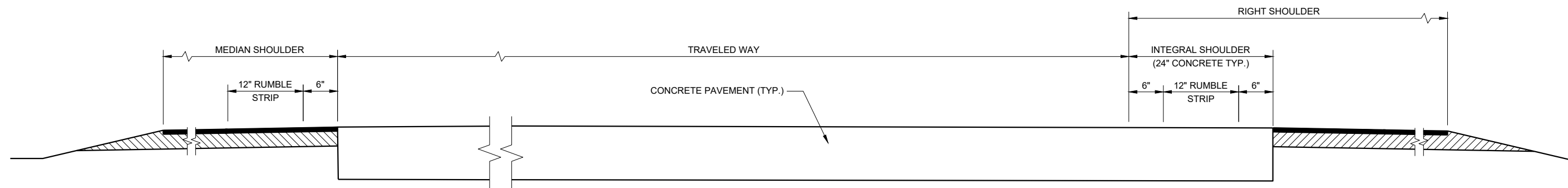
PLACEMENT DETAIL FOR RUMBLE STRIP



SECTION A - A

PLAN VIEW
(SINGLE GROOVE)

ISOMETRIC



SECTION VIEW

TYPICAL SHOULDER RUMBLE STRIPS
(ONE ROADWAY IS SHOWN)

GENERAL NOTES

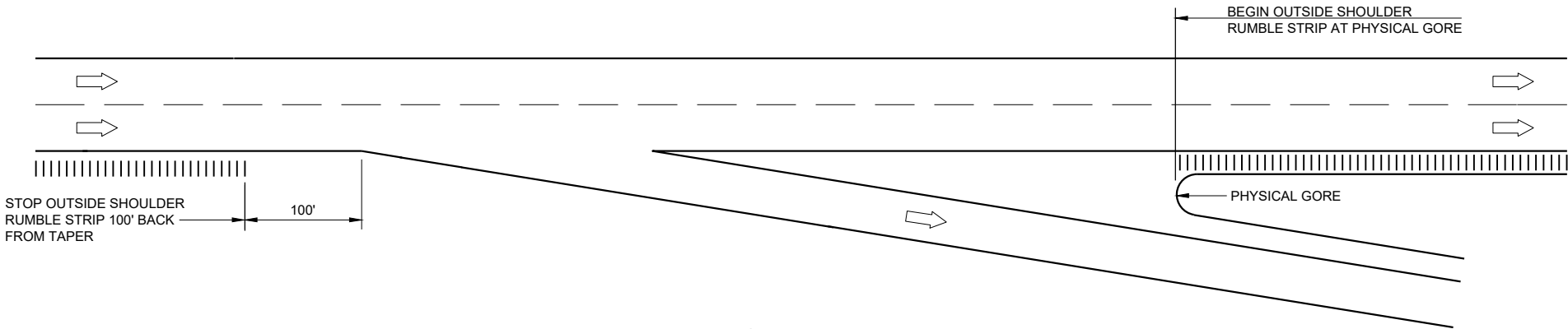
SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

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

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

SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 171



TYPICAL EXIT RAMP

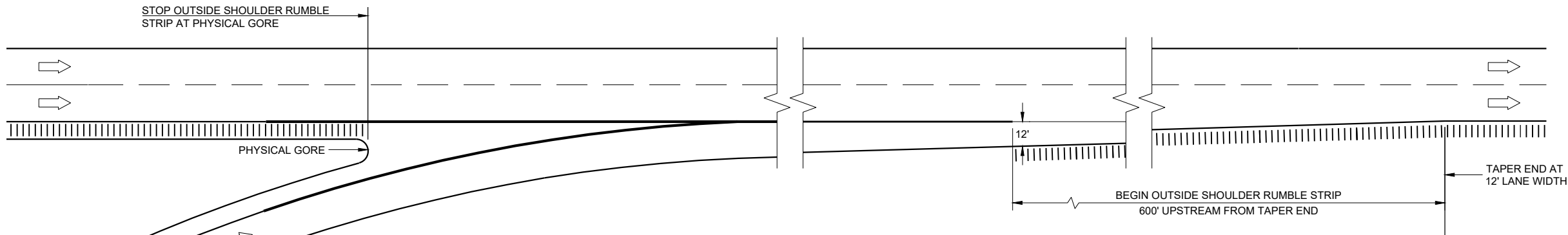
GENERAL NOTES

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

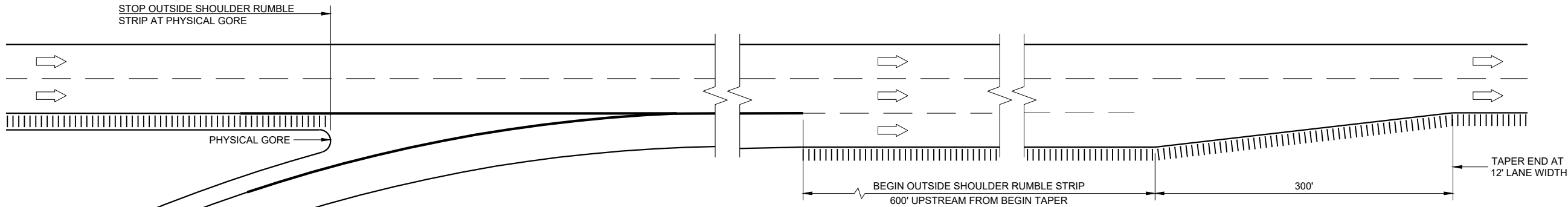
RUMBLE STRIPS ON EXPRESSWAYS:
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD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

LEGEND

➡ DIRECTION OF TRAFFIC



TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS

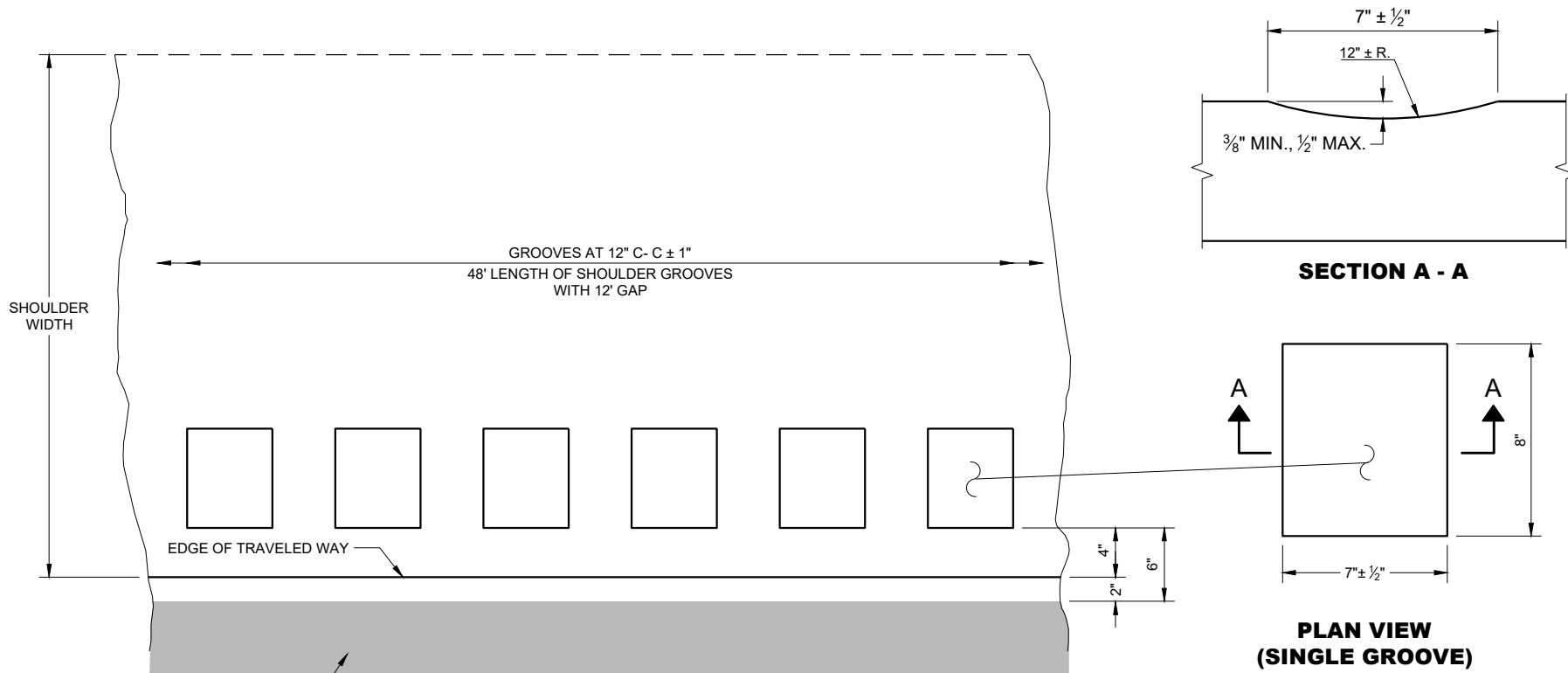


TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS

SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

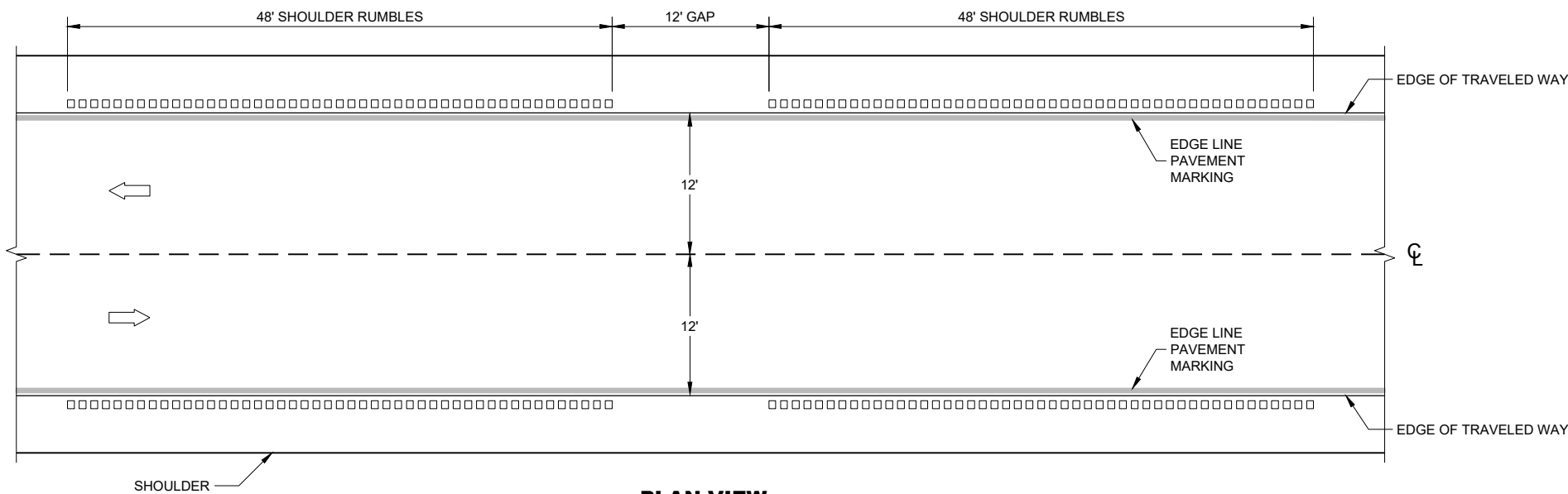
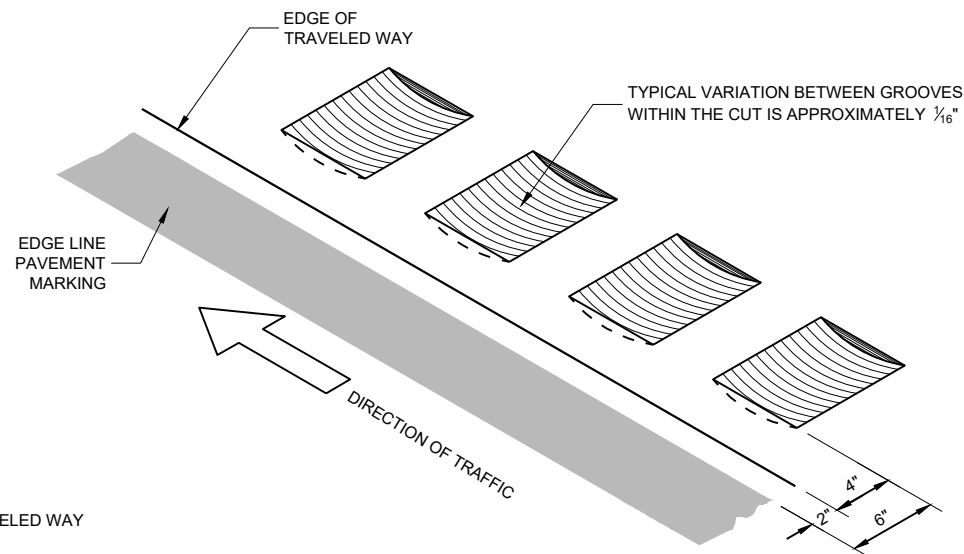


PLAN DETAIL VIEW
SHOULDER WITH GROOVES

GENERAL NOTES

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

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

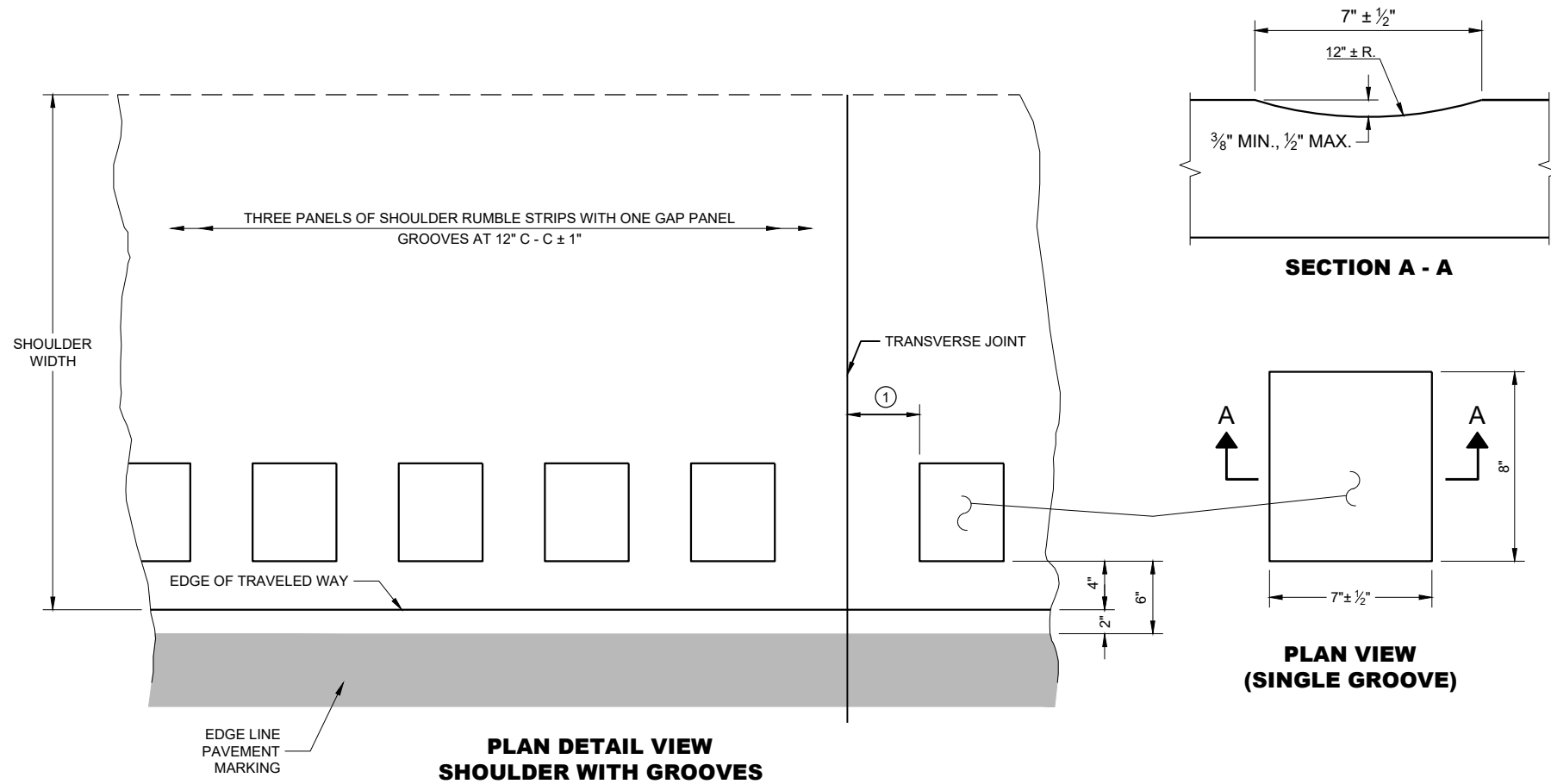


PLAN VIEW

SHOULDER RUMBLE STRIPS - ASPHALT

**SHOULDER RUMBLE
STRIPS ASPHALT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 173

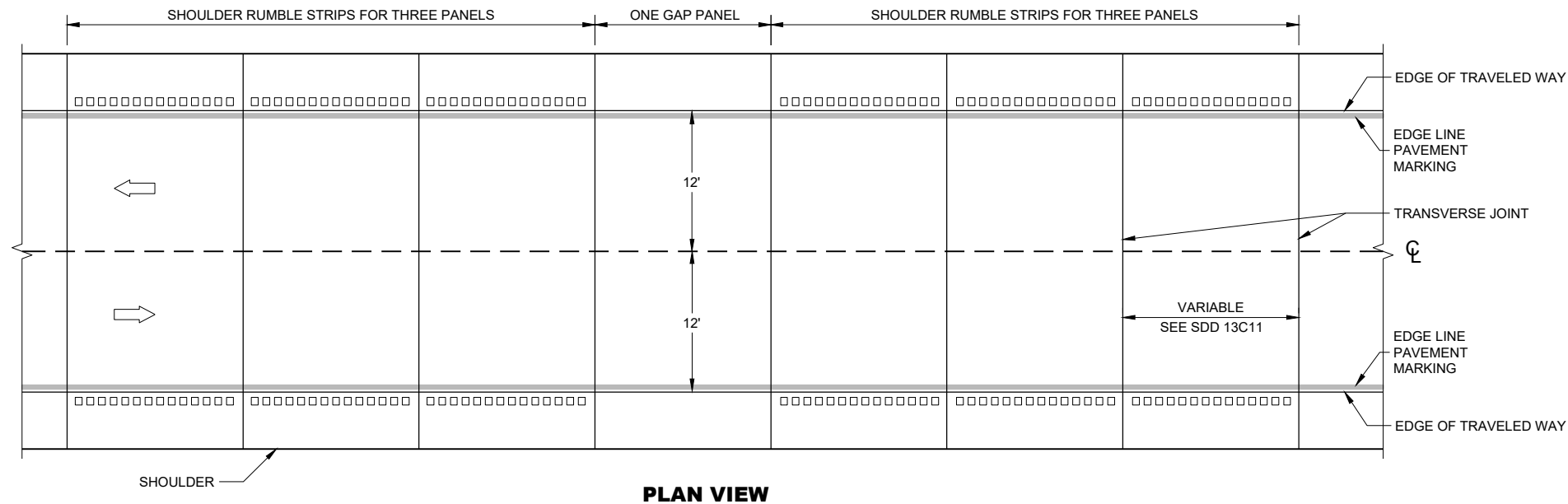
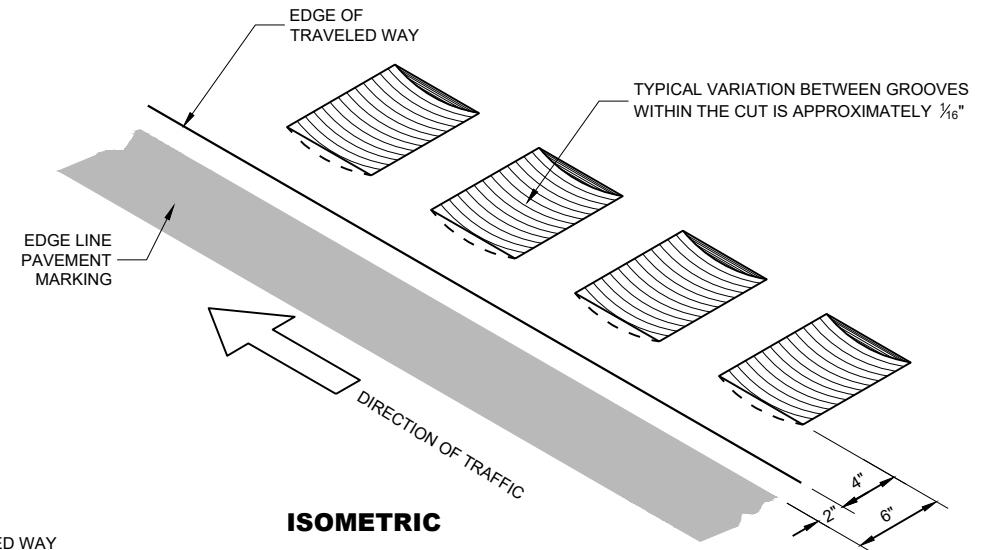


GENERAL NOTES

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

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

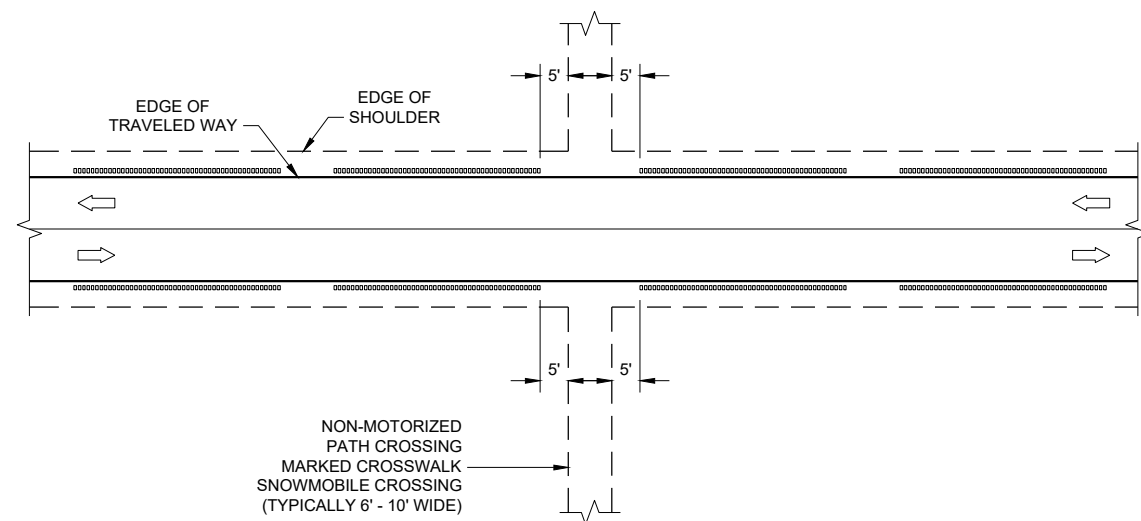
- ① FOR CONCRETE PAVEMENTS, RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES FROM TRANSVERSE JOINTS.



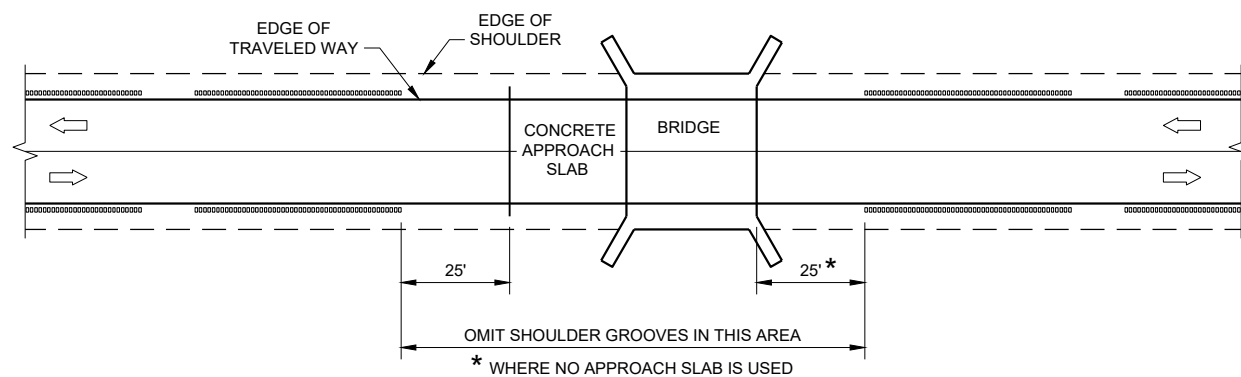
SHOULDER RUMBLE STRIPS - CONCRETE

SHOULDER RUMBLE STRIPS - CONCRETE

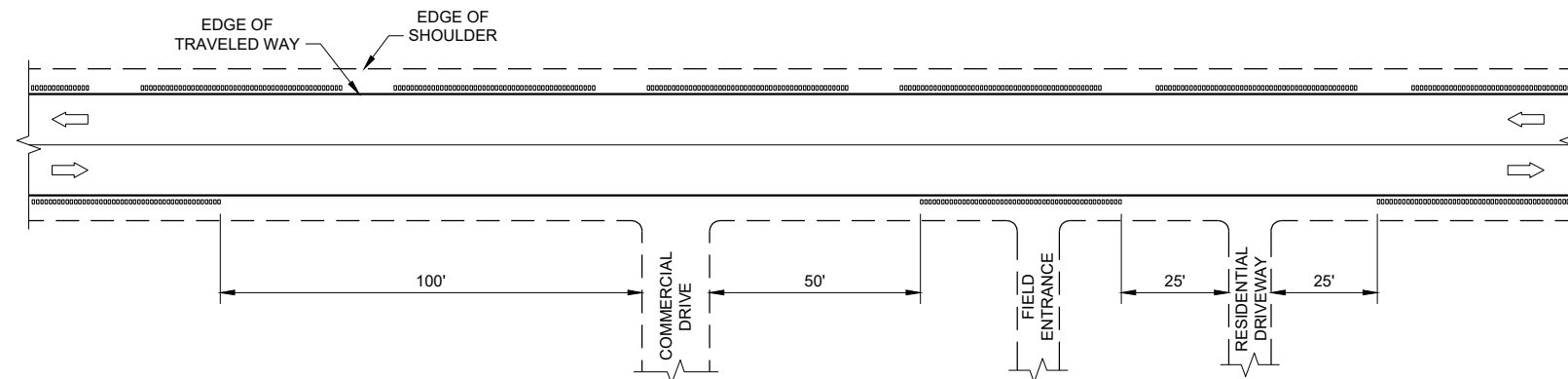
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 174



GROOVES AT MISCELLANEOUS CROSSINGS

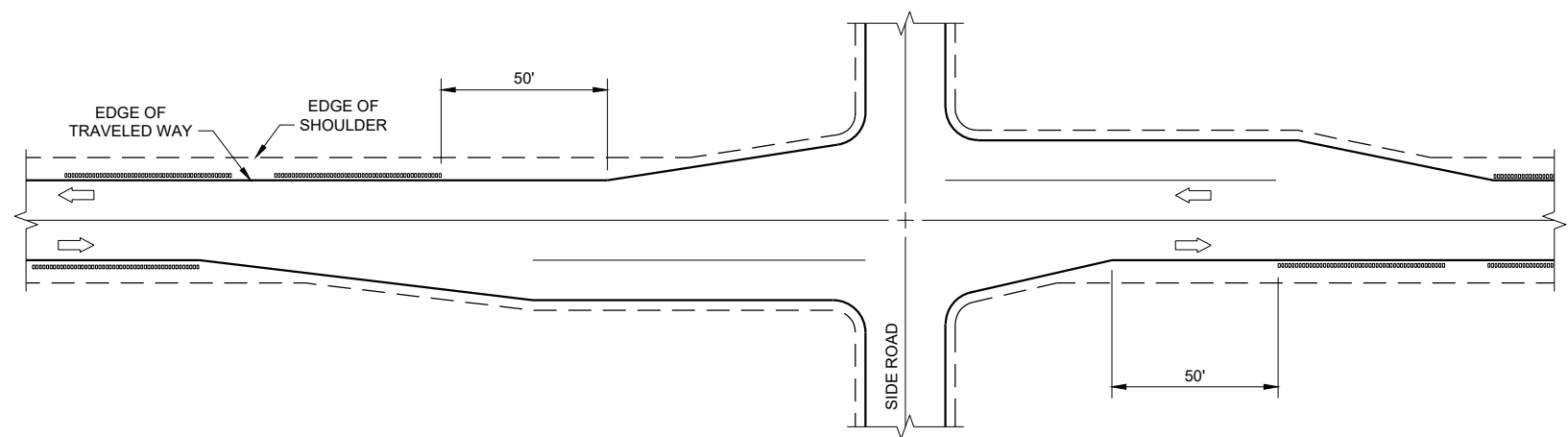


GROOVES AT BRIDGES

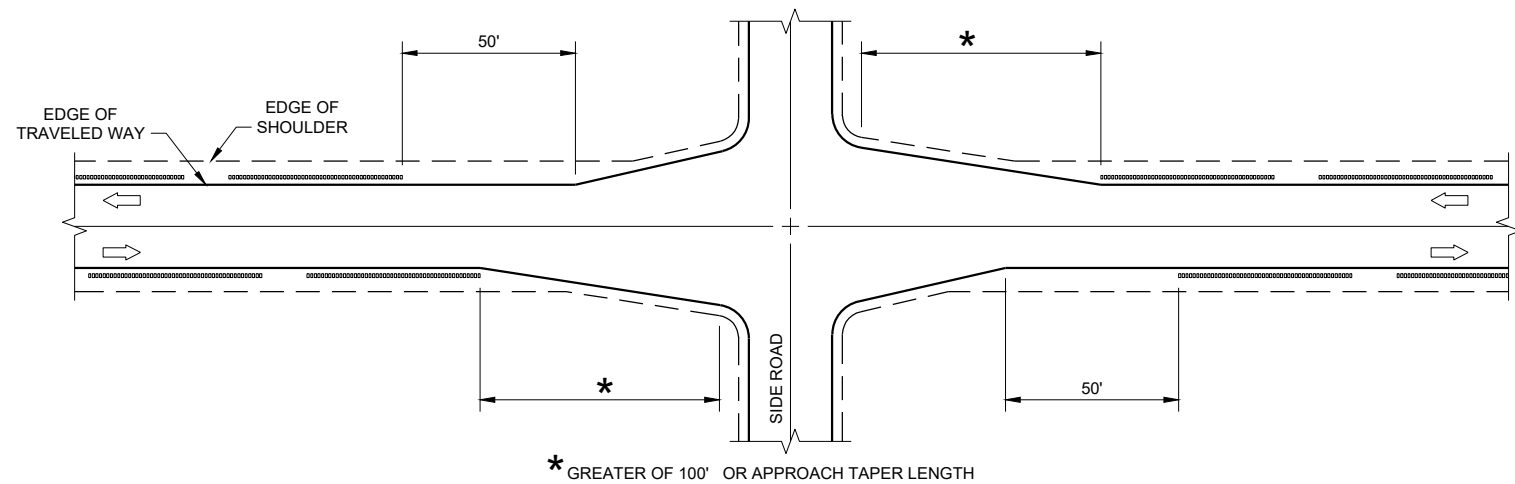


GROOVES AT DRIVEWAYS

①



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER

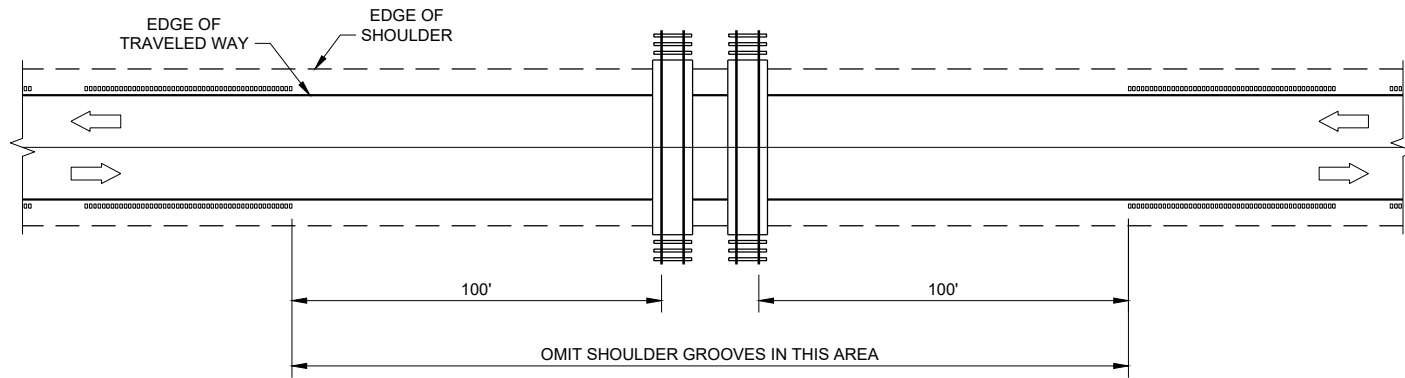
* GREATER OF 100' OR APPROACH TAPER LENGTH

GENERAL NOTES

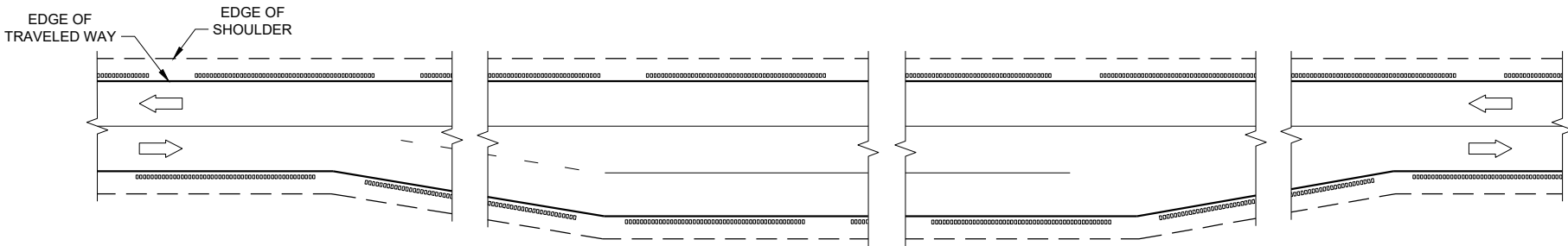
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

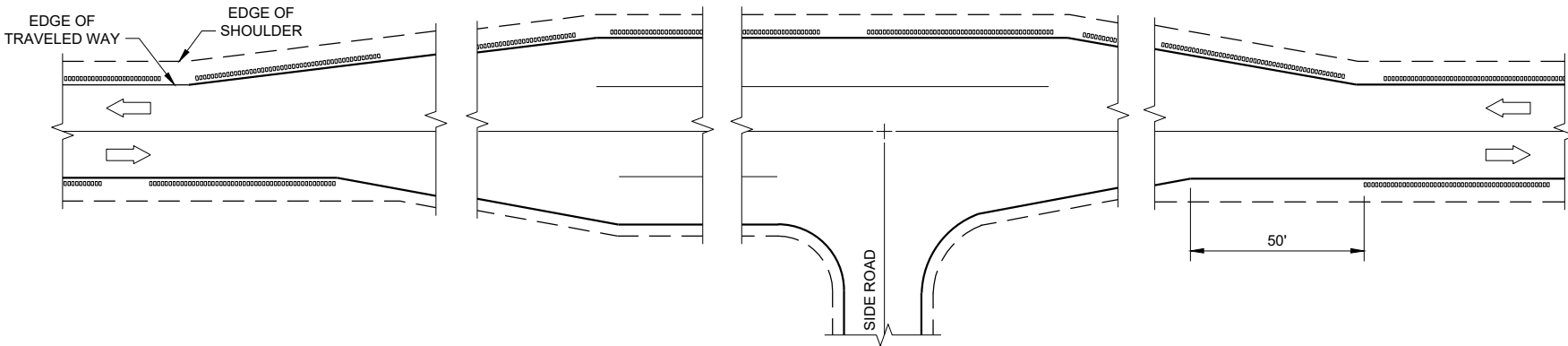
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 175



GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES

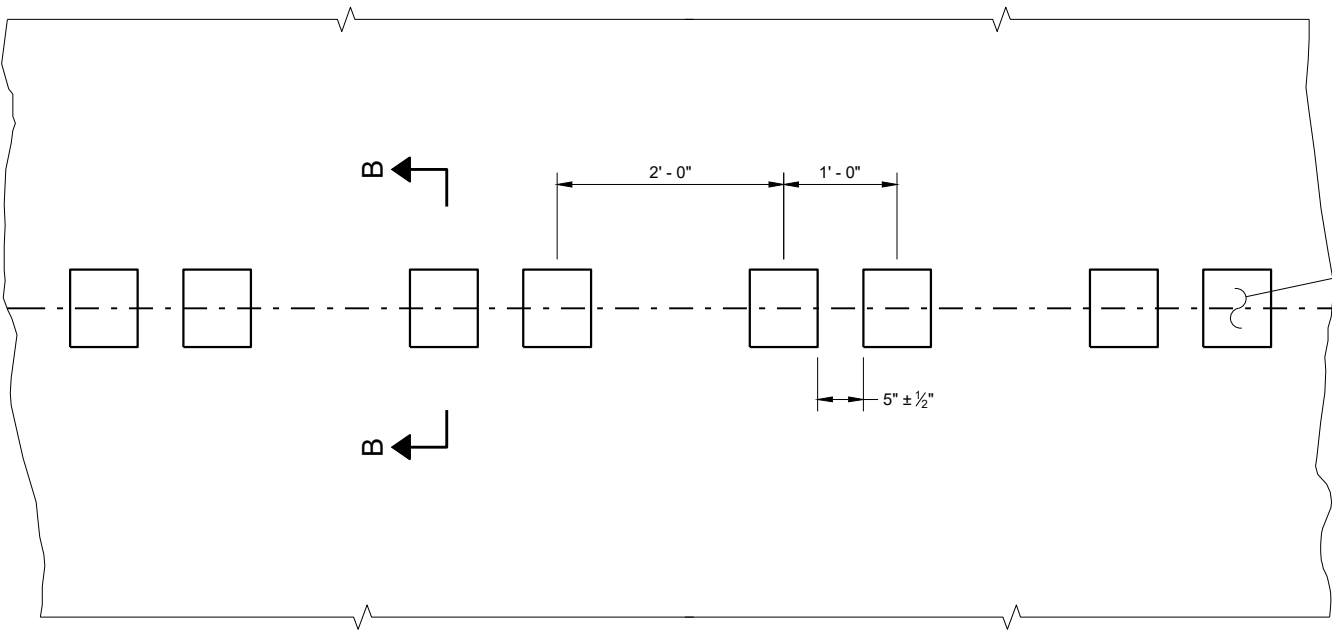


GROOVES AT BYPASS LANES

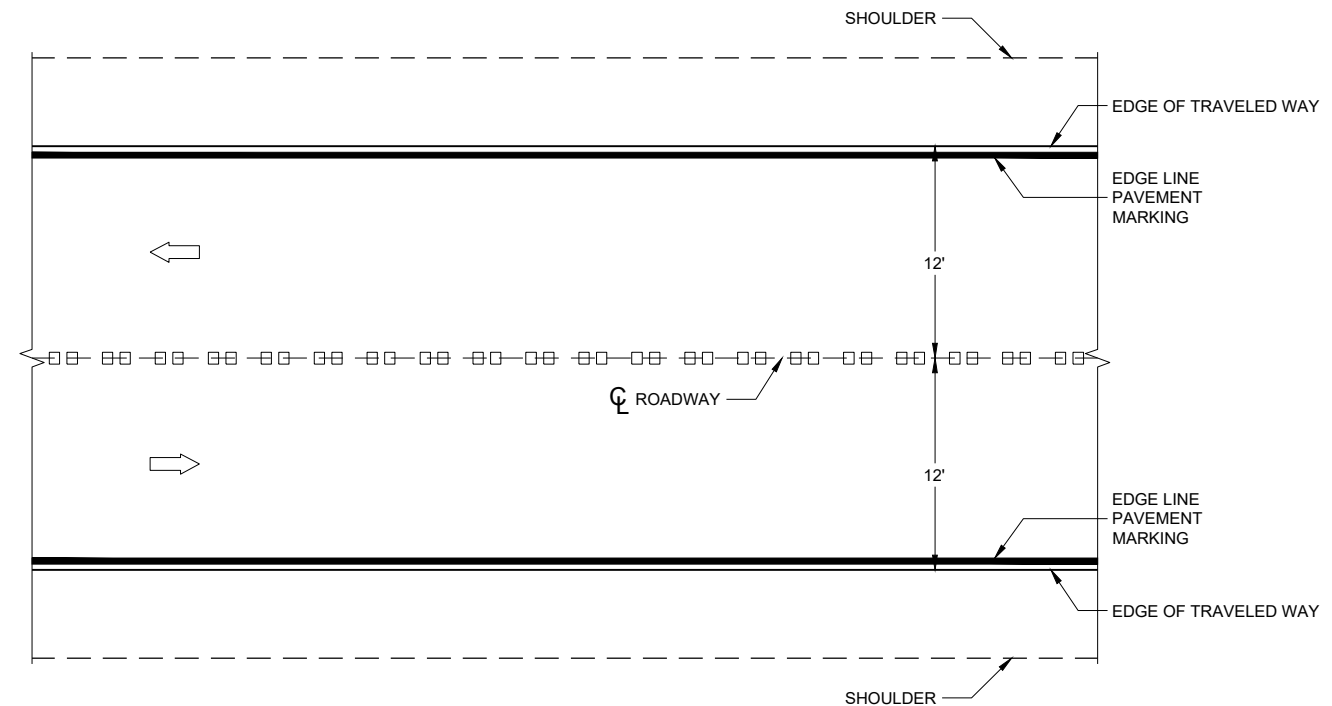
**SHOULDER AND EDGE LINE
RUMBLE STRIPS -
RAILROAD, PASSING,
CLIMBING AND BYPASS LANES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 176
FHWA

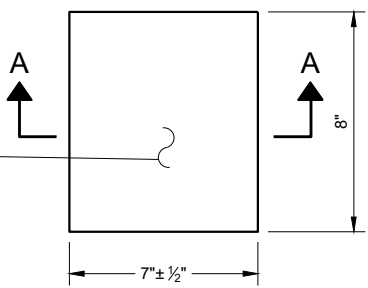


PLAN DETAIL VIEW

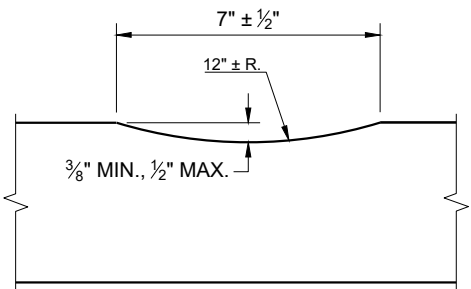


PLAN VIEW

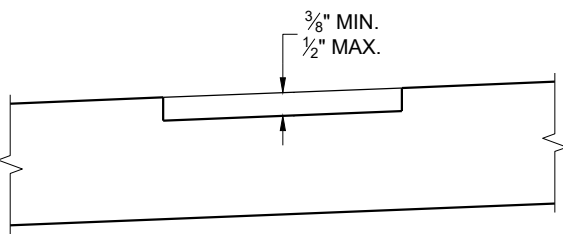
CENTERLINE RUMBLE STRIPS - ASPHALT



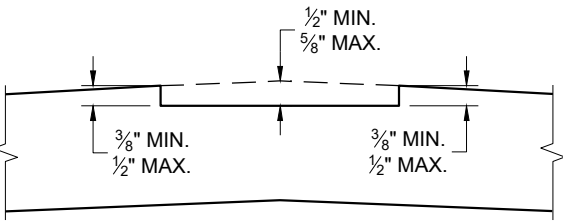
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

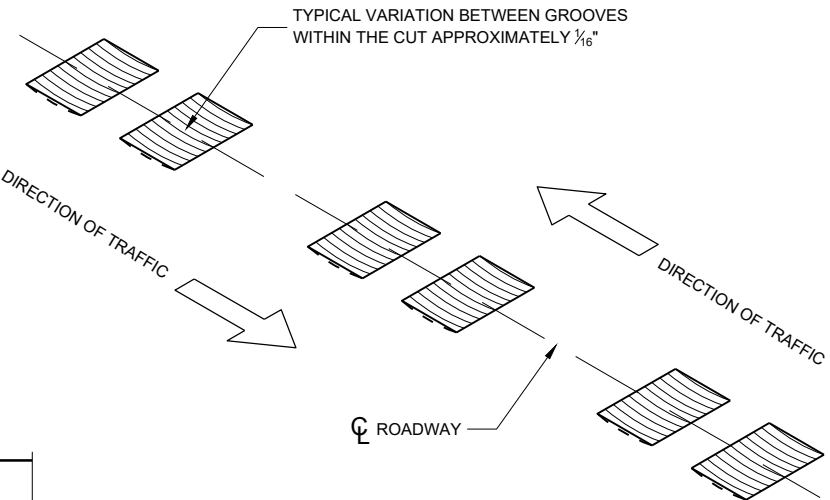


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

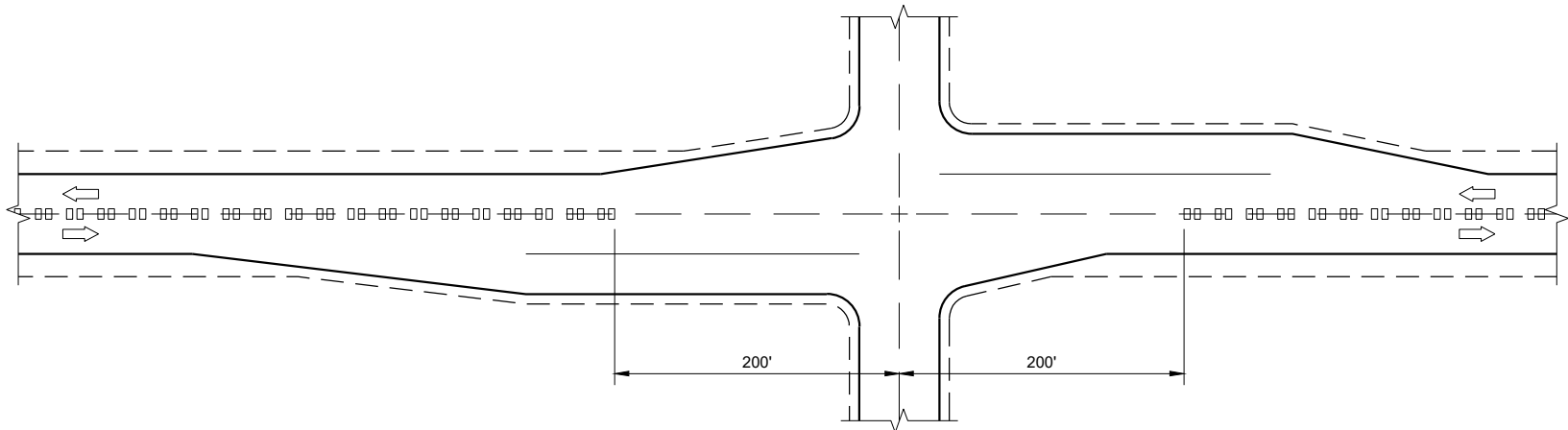
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

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

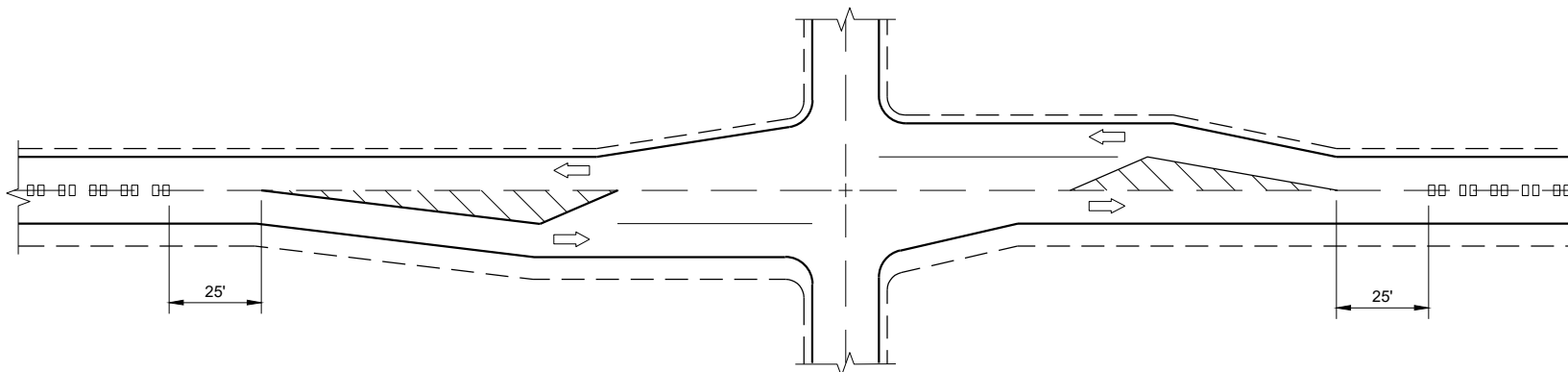


CENTERLINE RUMBLE STRIPS - ASPHALT

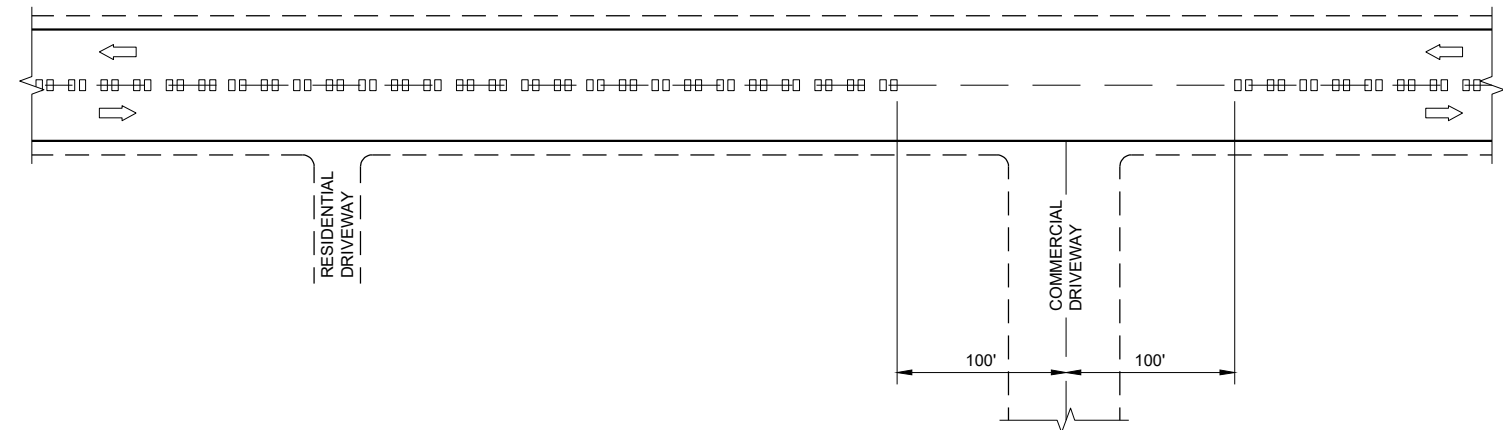
STATE OF WISCONSIN
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CENTERLINE GROOVES AT INTERSECTIONS



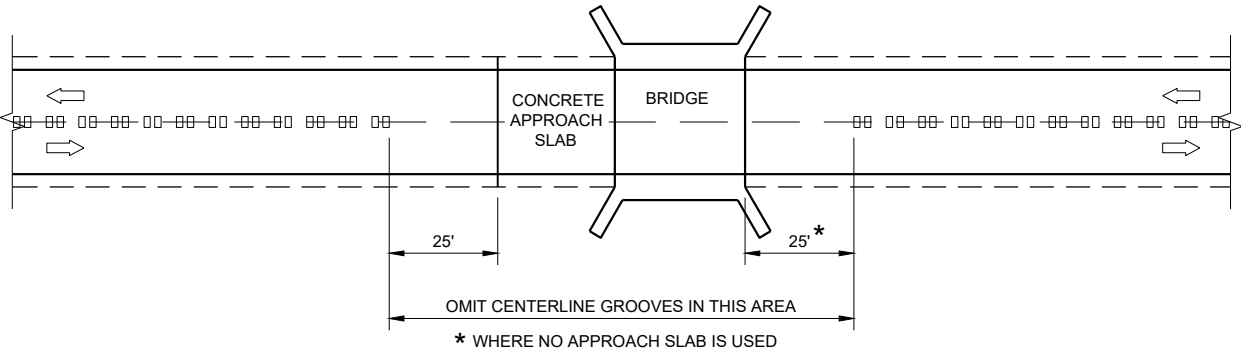
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



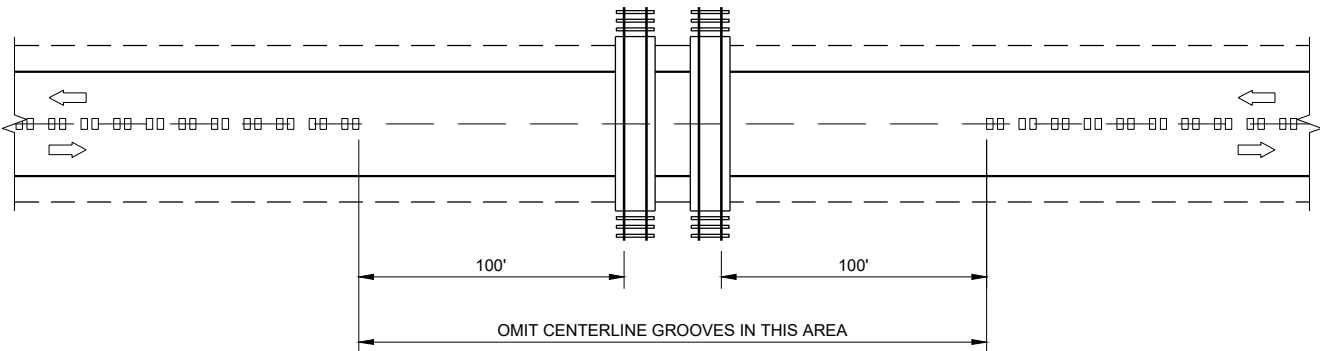
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



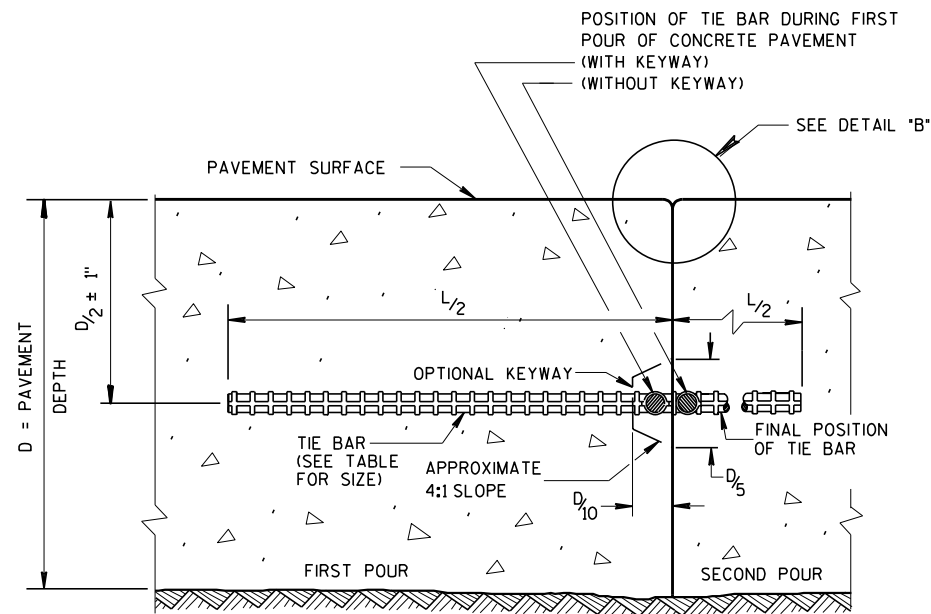
CENTERLINE GROOVES AT RAILROADS

CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

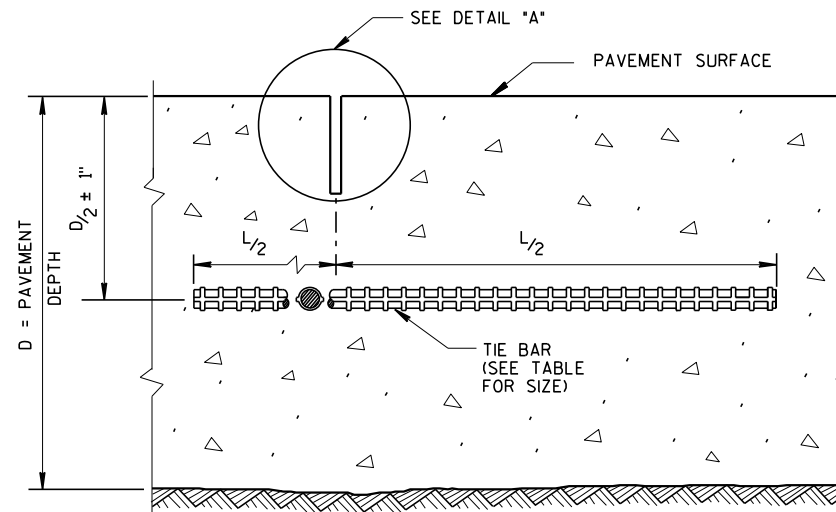
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



CONSTRUCTION JOINT



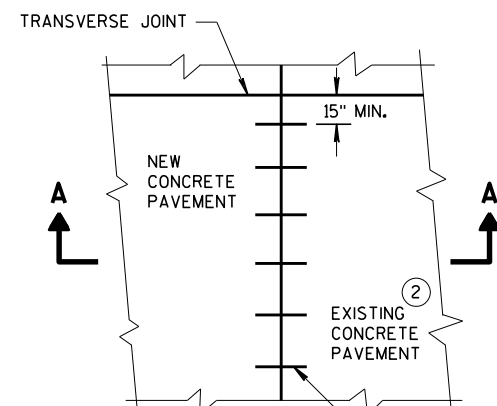
SAWED JOINT

GENERAL NOTES

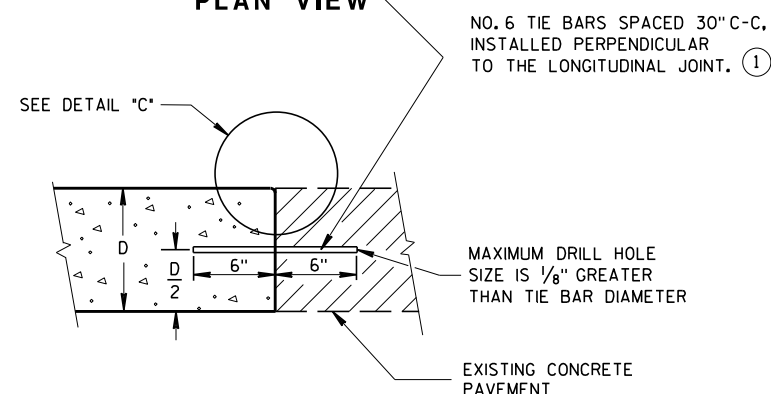
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

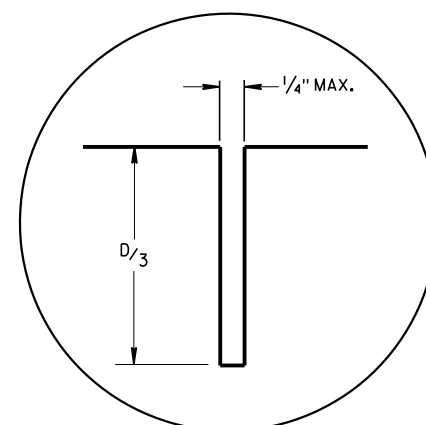
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



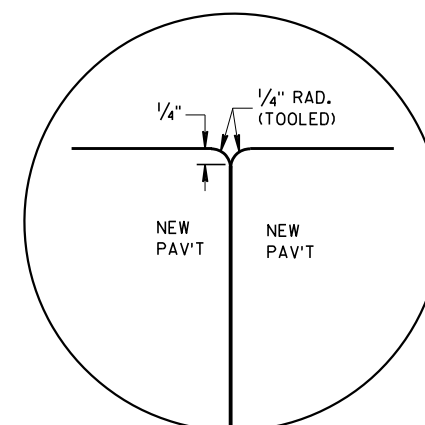
PLAN VIEW



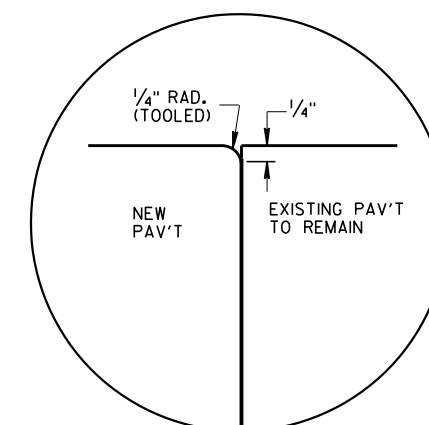
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



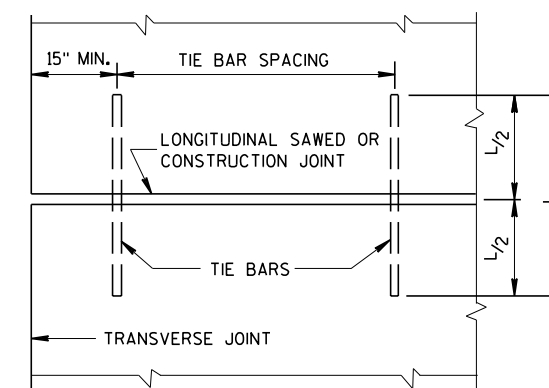
DETAIL "C"

TIE BAR TABLE

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

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

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

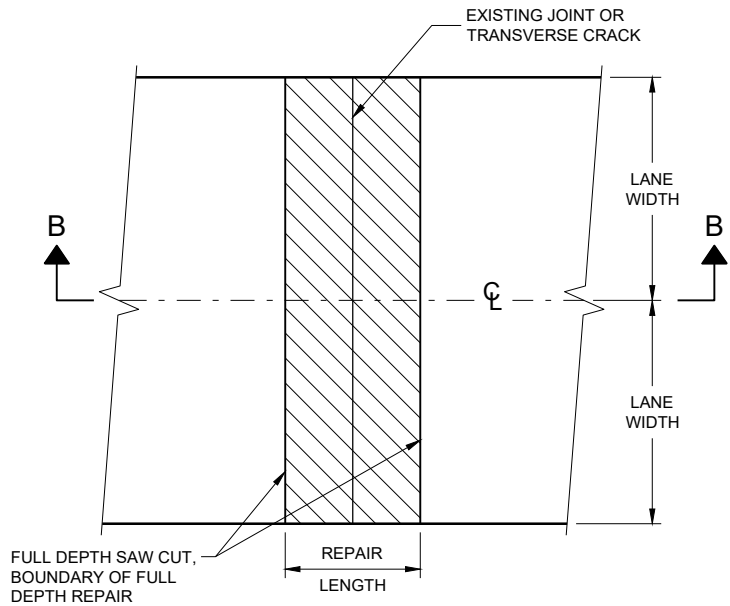


PLAN VIEW
SHOWING LOCATION OF TIE BARS

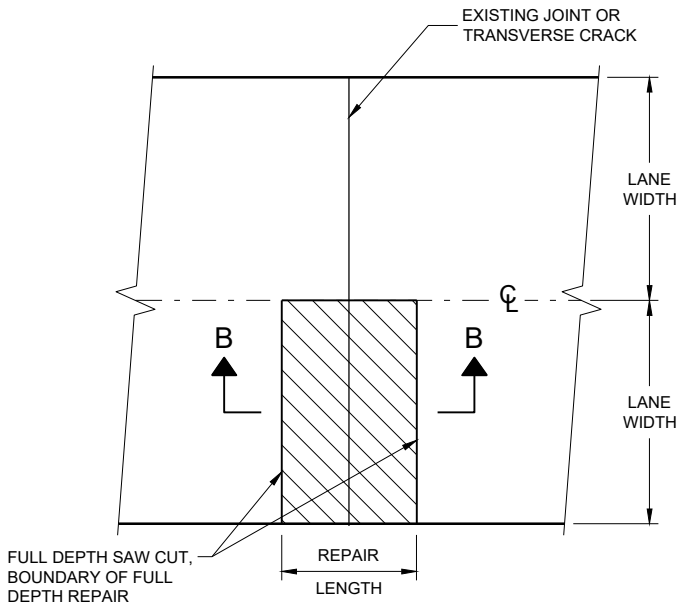
CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kern
DATE PAVEMENT SUPE 179
FHWA

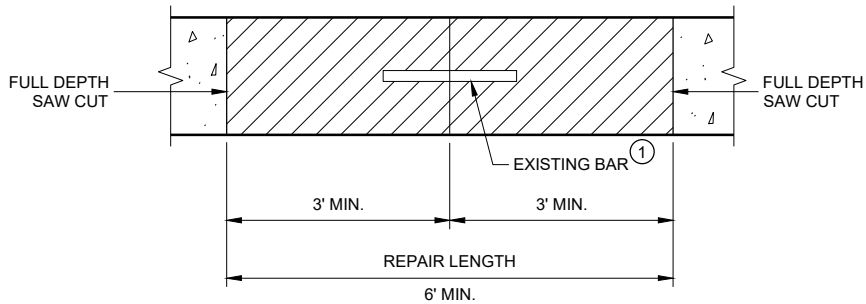


**PLAN VIEW
(DOUBLE LANE REPAIR)**



**PLAN VIEW
(SINGLE LANE REPAIR)**

FULL DEPTH CONCRETE PAVEMENT REMOVAL



**SECTION B - B
CONCRETE REMOVAL**

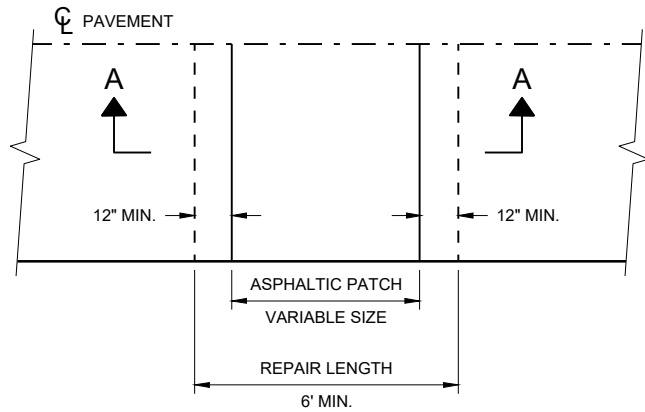
GENERAL NOTES

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

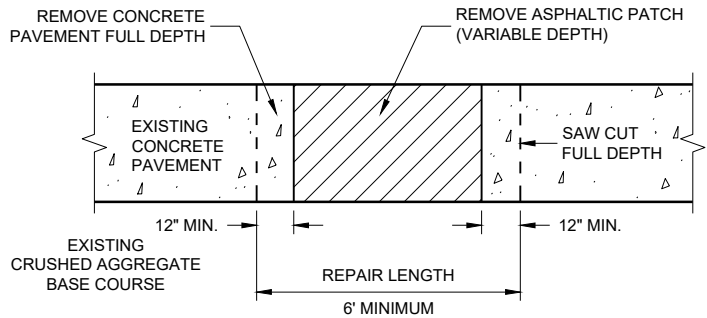
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

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

① DOWEL BARS MAY NOT BE PRESENT.



PLAN VIEW

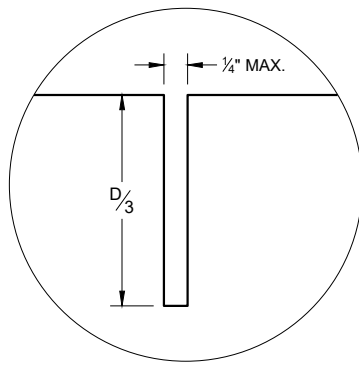


SECTION A - A

HMA PATCH REMOVAL

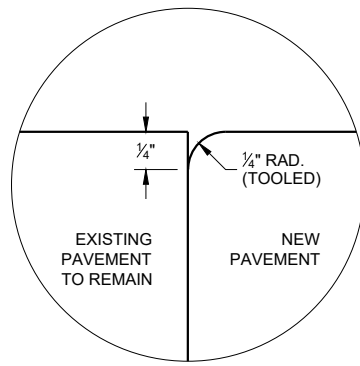
**CONCRETE PAVEMENT
REPAIR AND REPLACEMENT**

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DEPARTMENT OF TRANSPORTATION 180

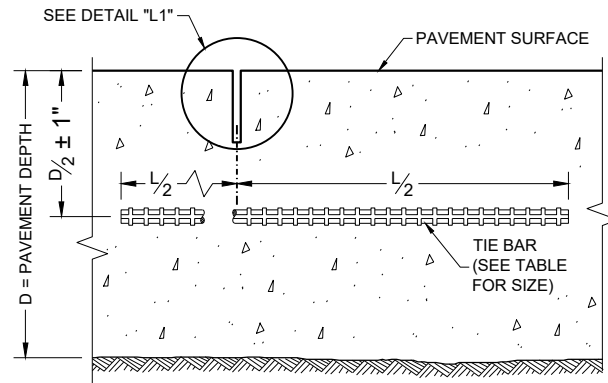


C1

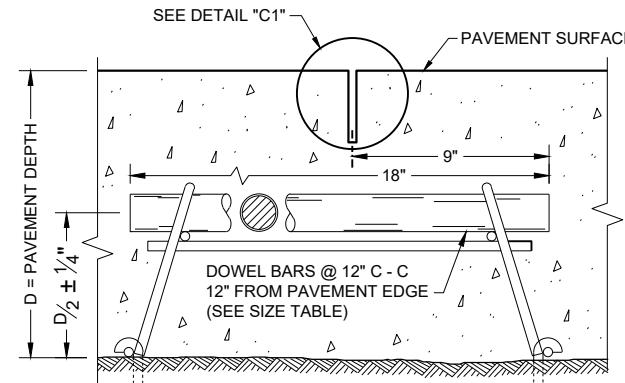
TRANSVERSE JOINTS



C2



**SECTION C - C
SAWED LONGITUDINAL JOINT**



**SECTION F - F
DOWELED CONTRACTION JOINT**

GENERAL NOTES

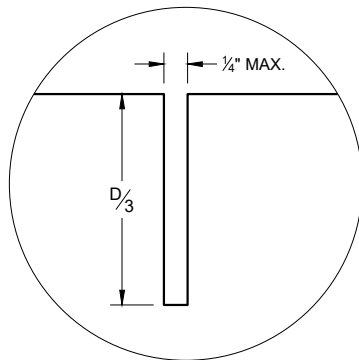
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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

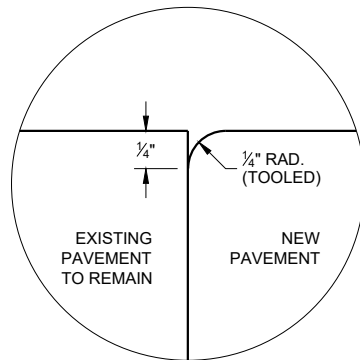
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

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

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

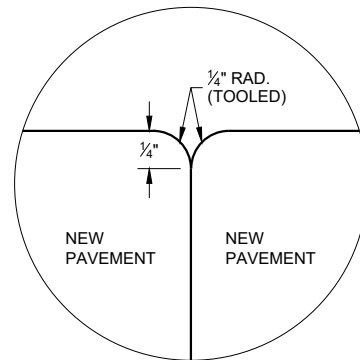


L1

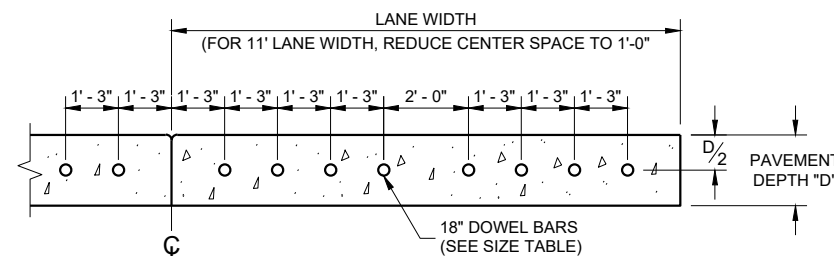


L2

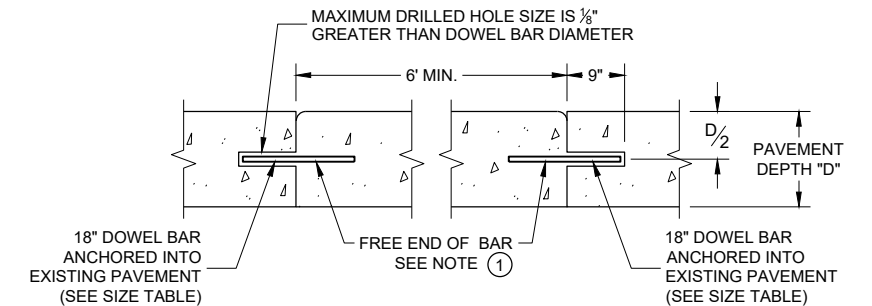
LONGITUDINAL JOINTS



L3



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



SECTION D - D

TIE BAR TABLE

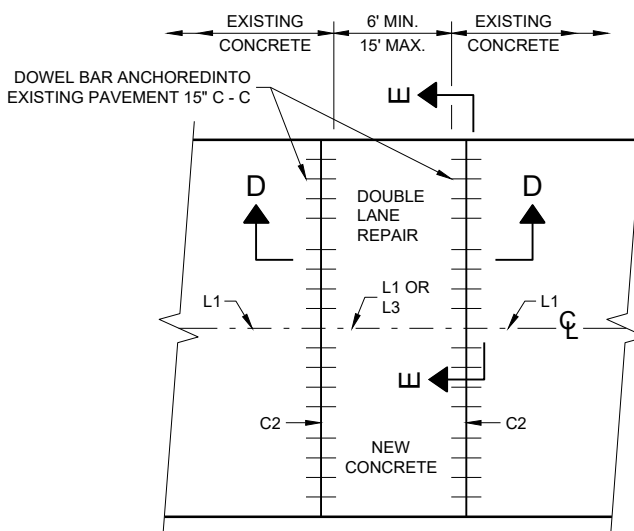
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

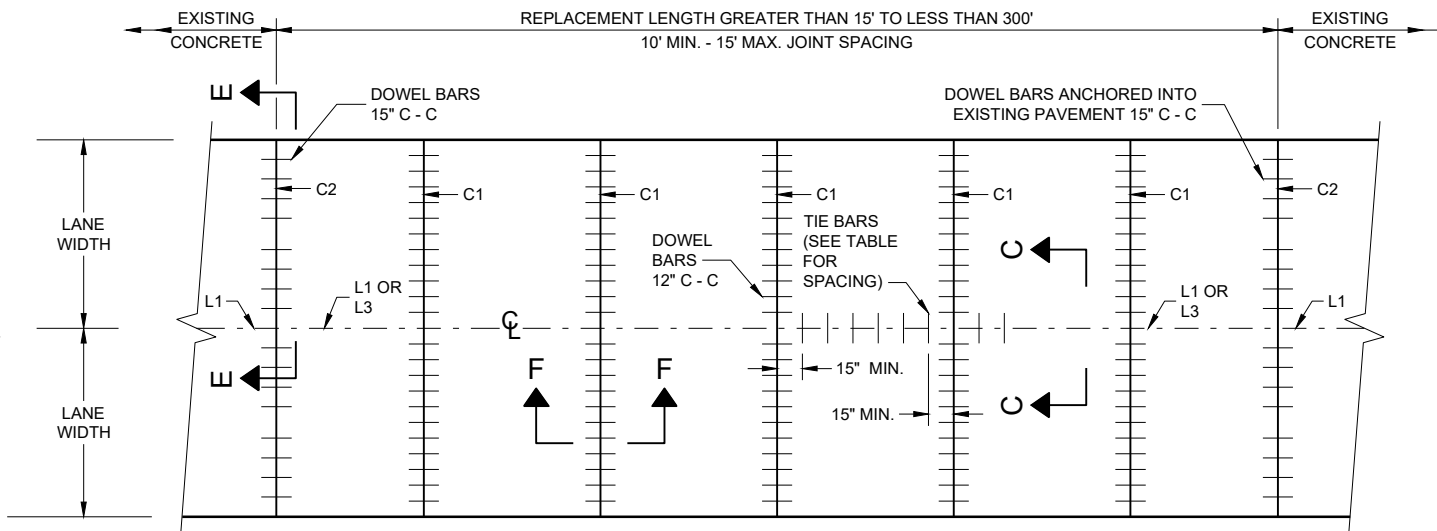
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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



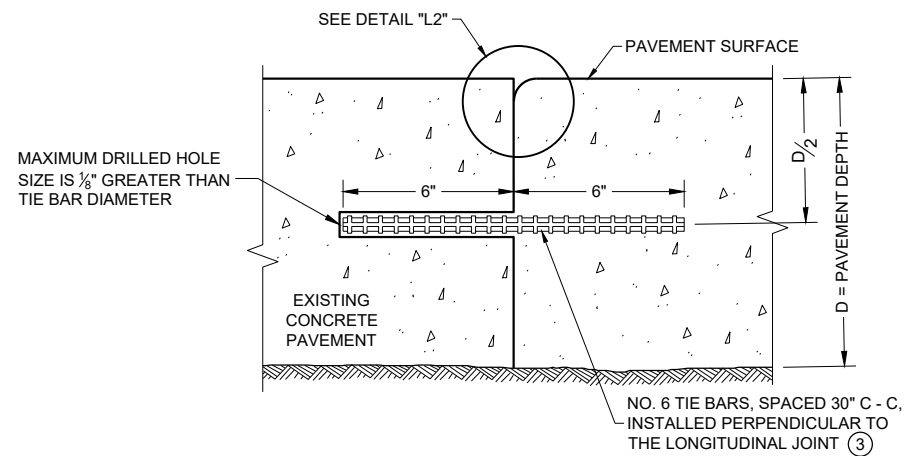
**PLAN VIEW
MULTILANE CONCRETE PAVEMENT REPAIR**



**PLAN VIEW
MULTILANE CONCRETE PAVEMENT REPLACEMENT**

**CONCRETE PAVEMENT
REPAIR AND REPLACEMENT**

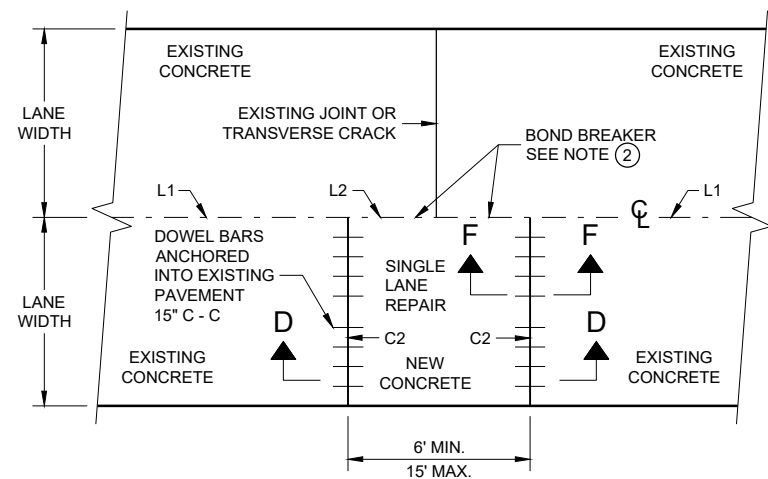
STATE OF WISCONSIN
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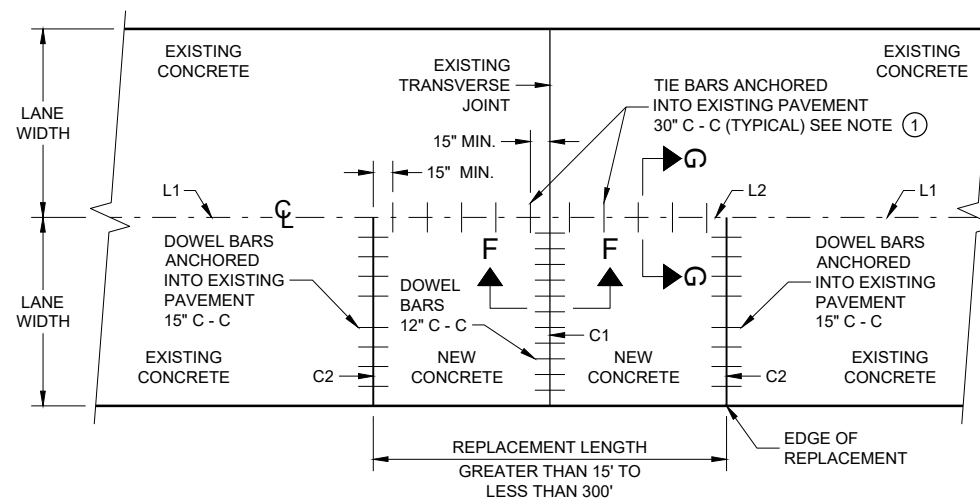
SECTION G - G
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

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



PLAN VIEW
SINGLE LANE CONCRETE PAVEMENT REPAIR



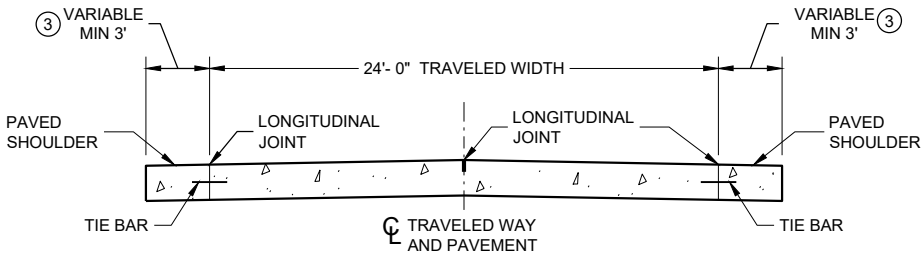
PLAN VIEW
SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE REPAIR AND REPLACEMENT

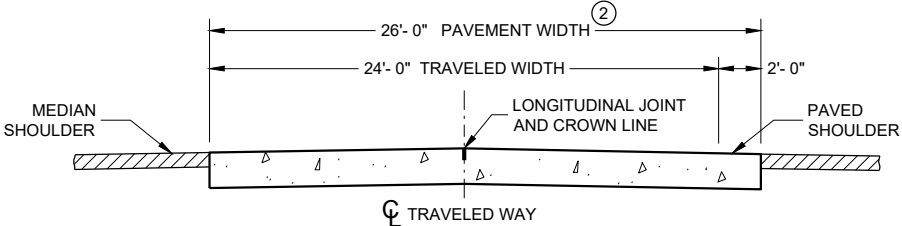
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 182

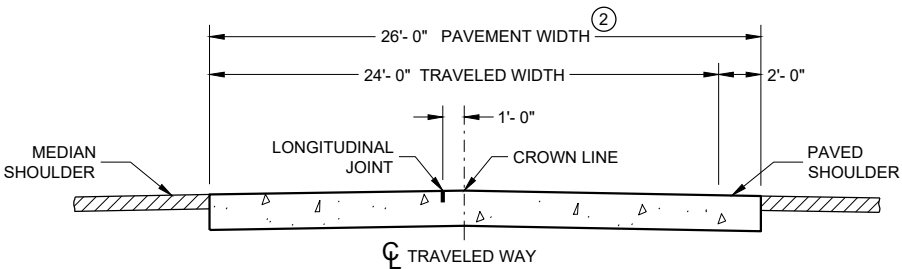
FHWA



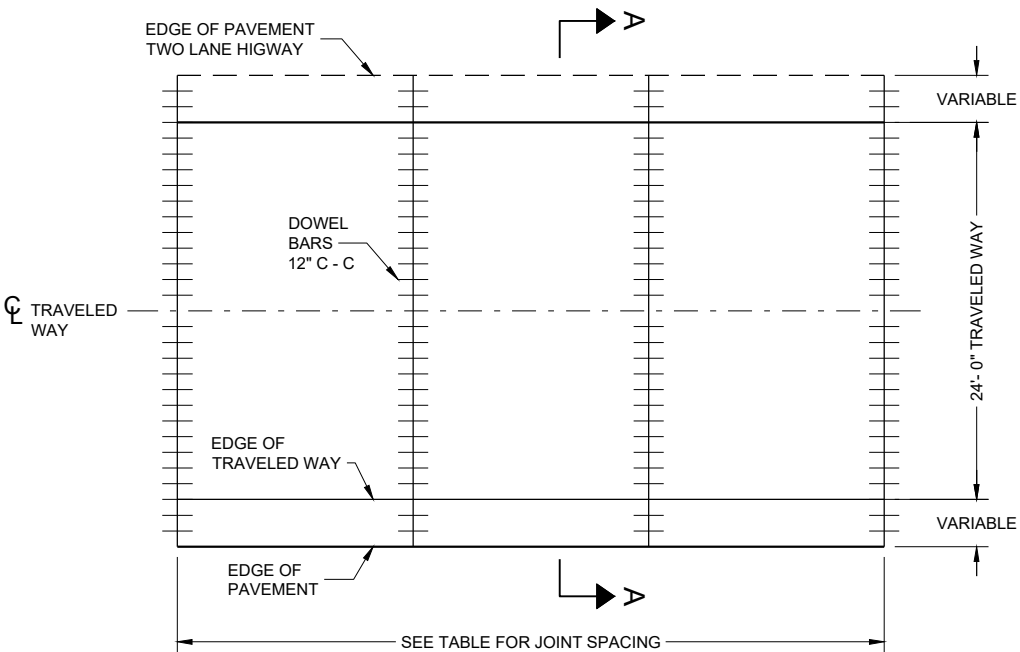
SECTION A - A
TWO-LANE TWO-WAY HIGHWAY ①



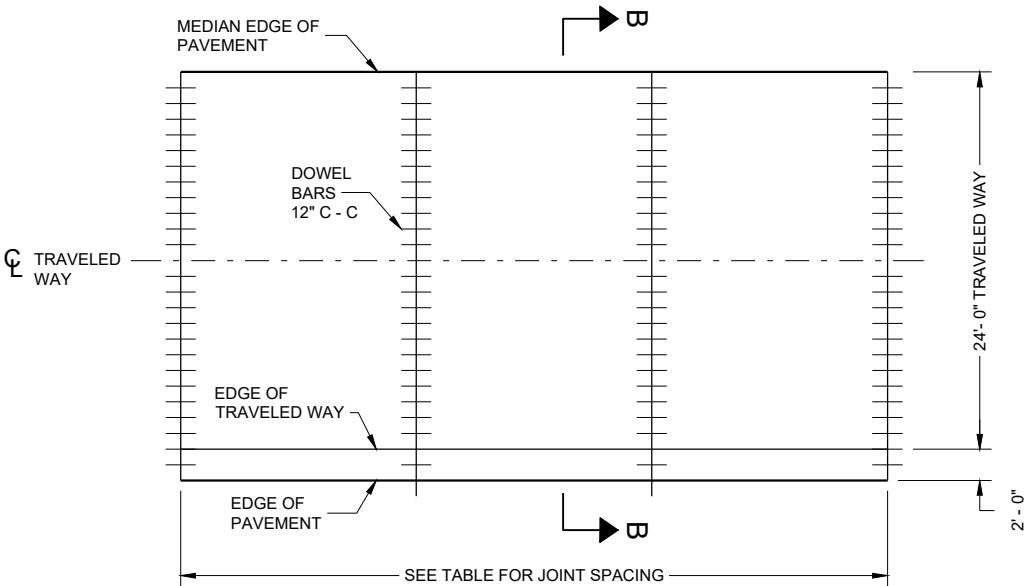
SECTION B - B



ALTERNATIVE SECTION B - B
DIVIDED HIGHWAY ①



CONTRACTION JOINT LAYOUT FOR
TWO-LANE TWO-WAY HIGHWAY



CONTRACTION JOINT LAYOUT FOR
DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

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

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

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

CONSTRUCTION JOINTS

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

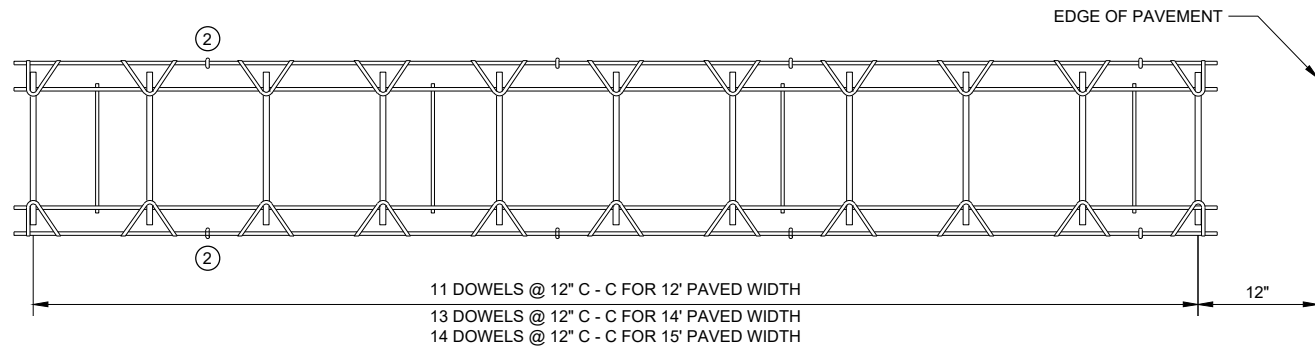
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

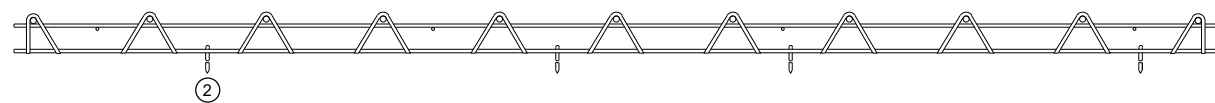
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8" & ABOVE	1 ¼"	15'

RURAL DOWELED
CONCRETE PAVEMENT

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DEPARTMENT OF TRANSPORTATION 183

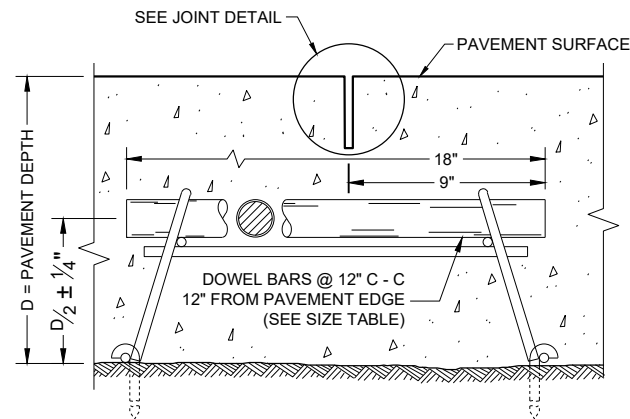


PLAN VIEW

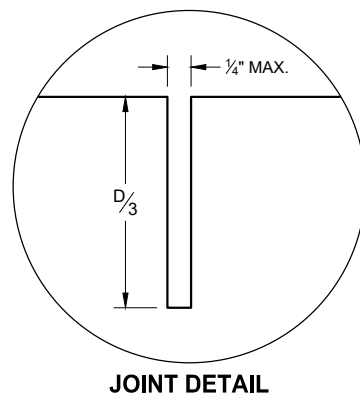


SIDE VIEW
(NORMAL TO CENTERLINE)

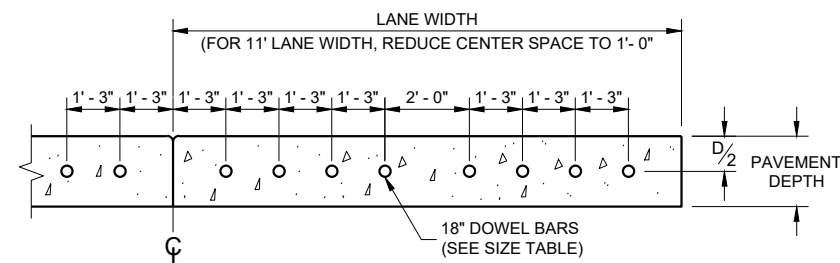
CONTRACTION JOINT DOWEL ASSEMBLY ①



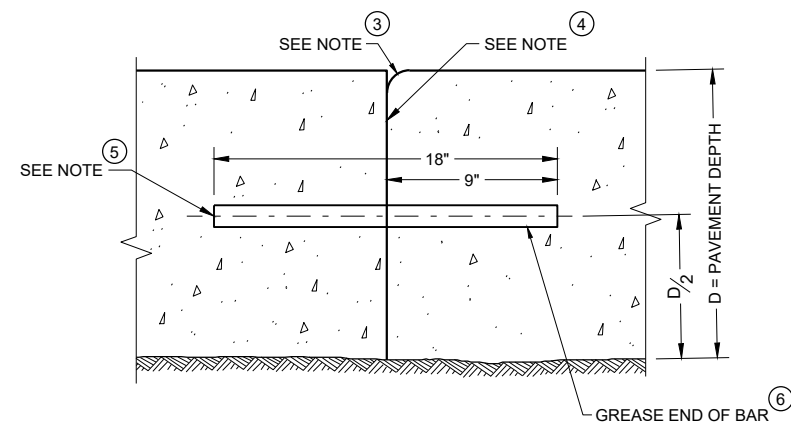
DOWELED CONTRACTION JOINT



JOINT DETAIL



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



TRANSVERSE CONSTRUCTION JOINT

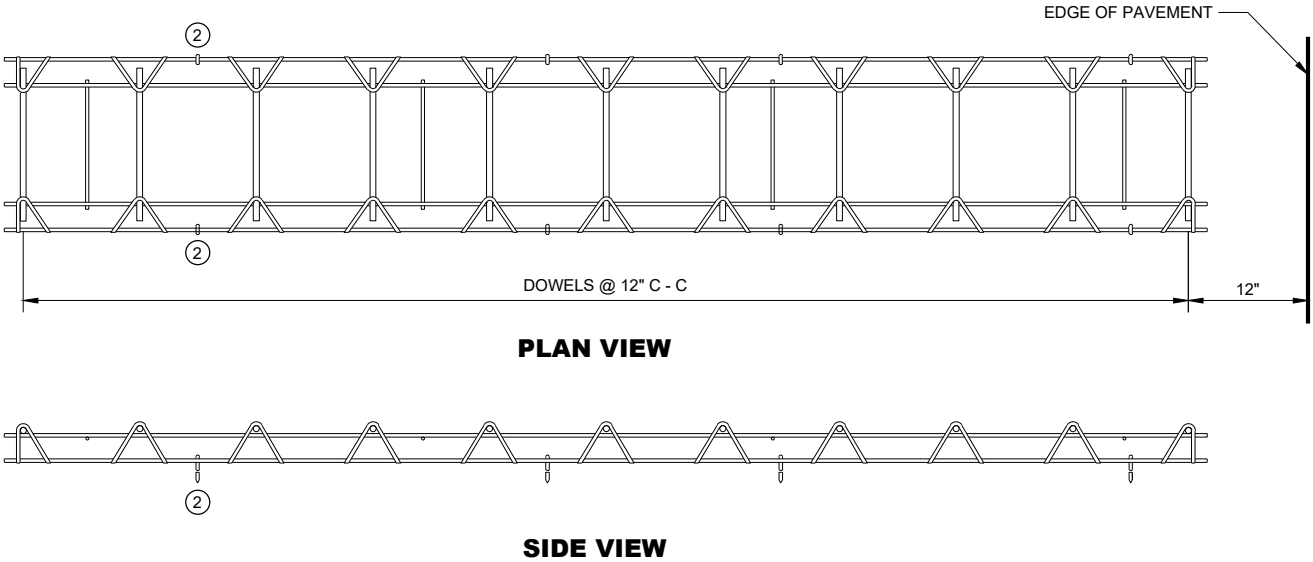
GENERAL NOTES

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

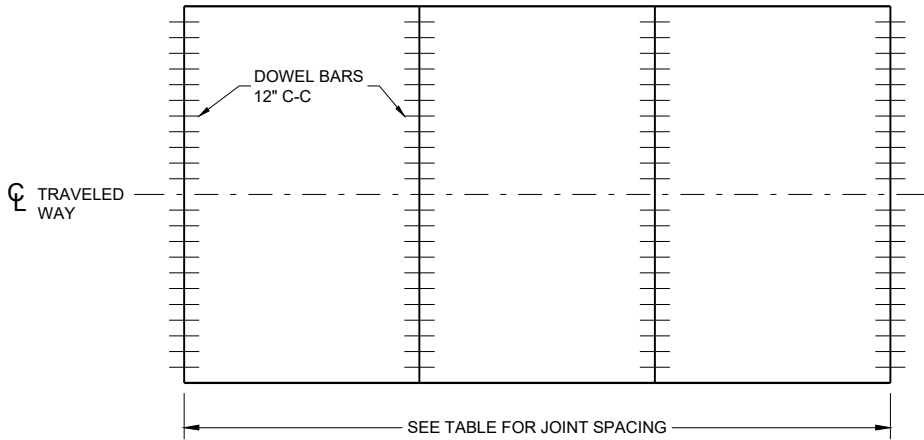
RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

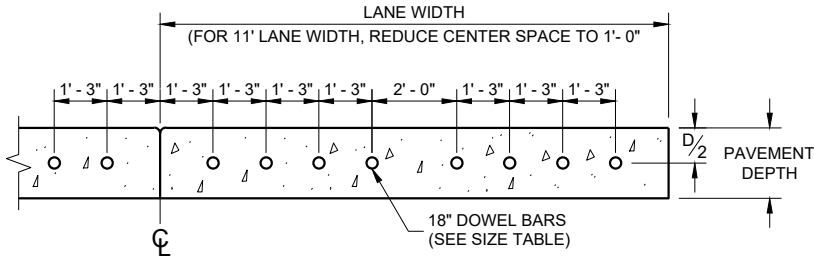
APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 184
FHWA



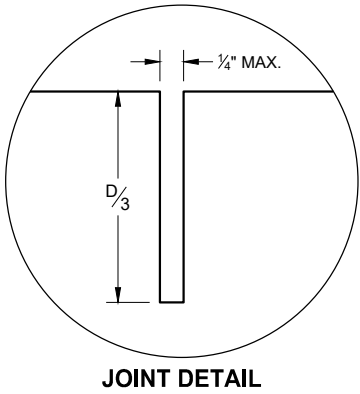
CONTRACTION JOINT DOWEL ASSEMBLY 1



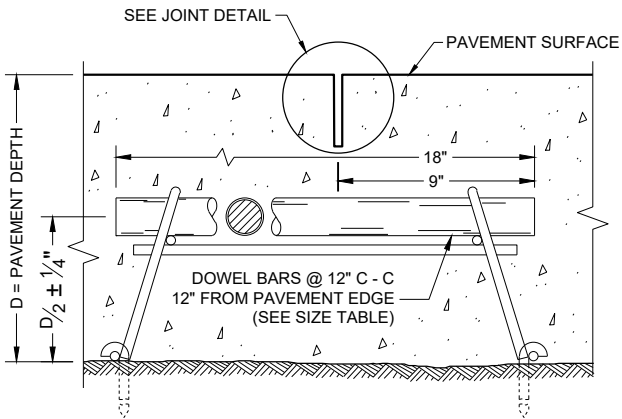
CONTRACTION JOINT LOCATIONS



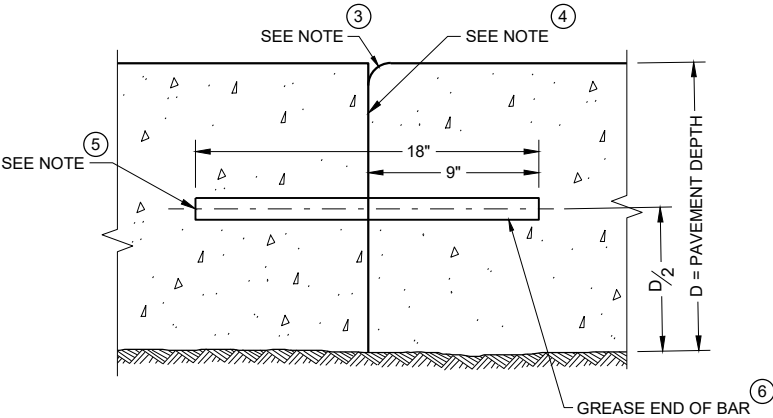
DRILLED DOWEL BAR CONSTRUCTION JOINT 7



JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

GENERAL NOTES

CONTRACTION JOINTS

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

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

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

CONSTRUCTION JOINTS

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

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

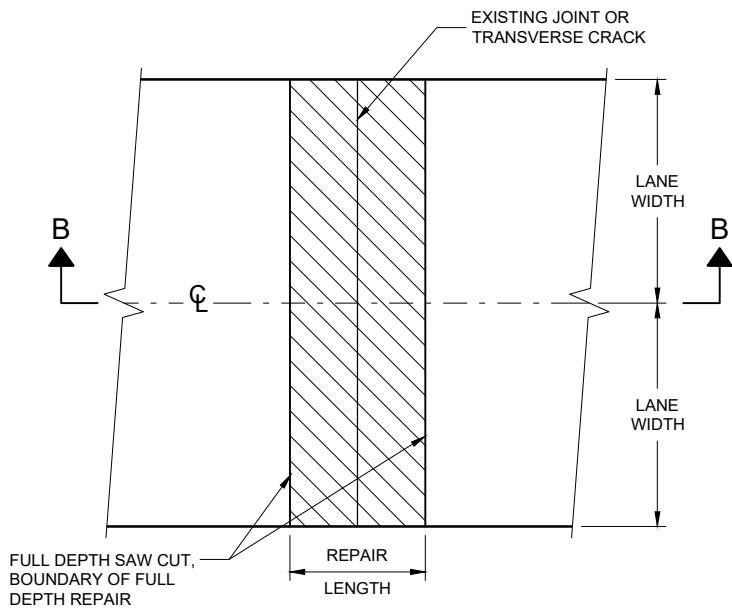
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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

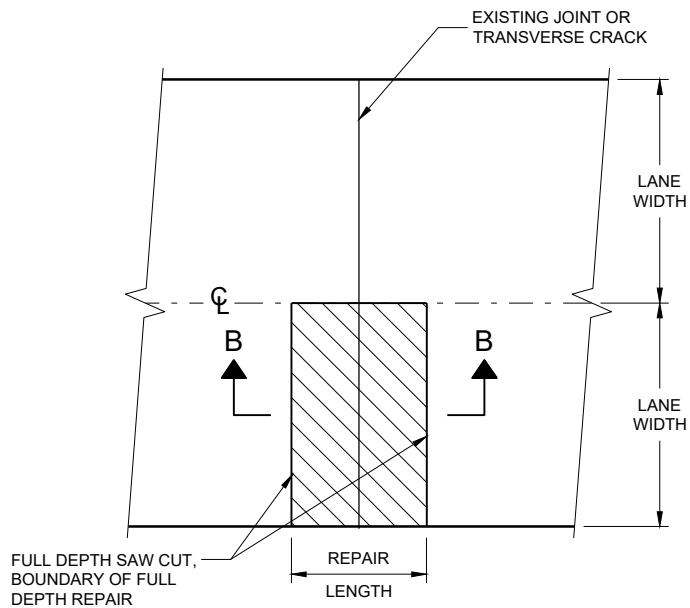
URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 185
FHWA

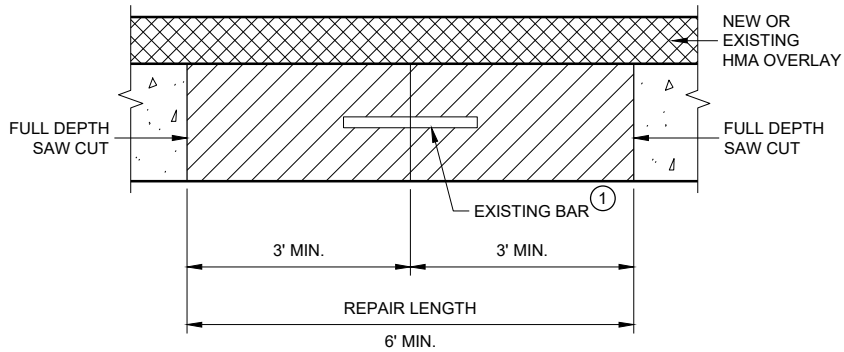


**PLAN VIEW
DOUBLE LANE REPAIR**



**PLAN VIEW
SINGLE LANE REPAIR**

FULL DEPTH CONCRETE PAVEMENT REMOVAL



**SECTION B - B
CONCRETE REMOVAL**

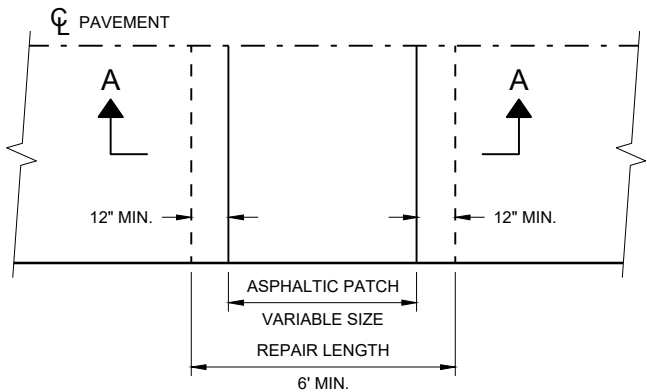
GENERAL NOTES

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

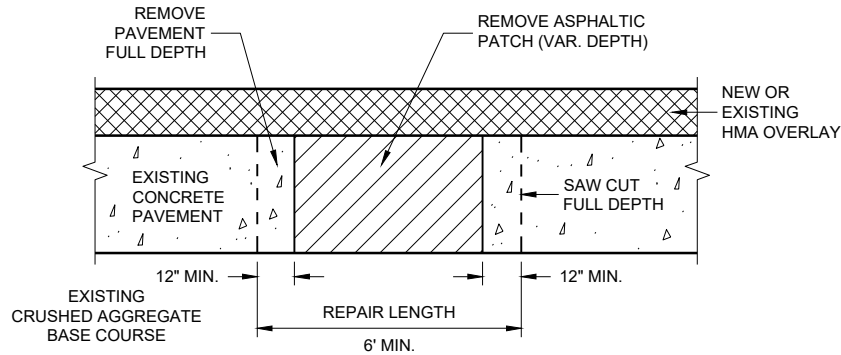
PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

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

① DOWEL BARS MAY NOT BE PRESENT.



PLAN VIEW

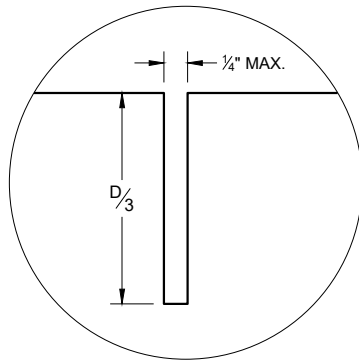


SECTION A - A

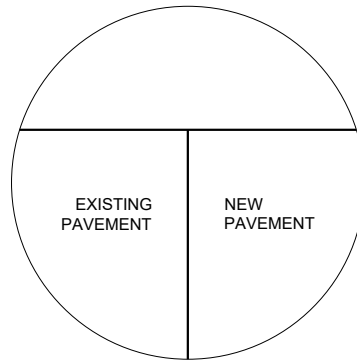
HMA PATCH REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN
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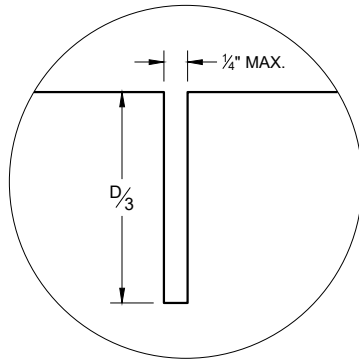


C1

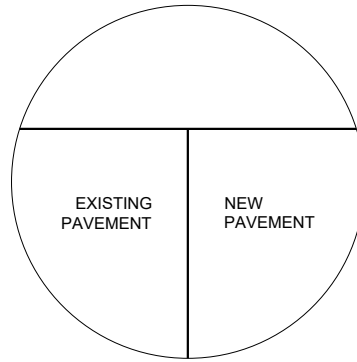


C2

TRANSVERSE JOINTS

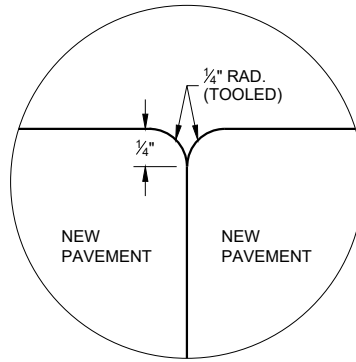


L1

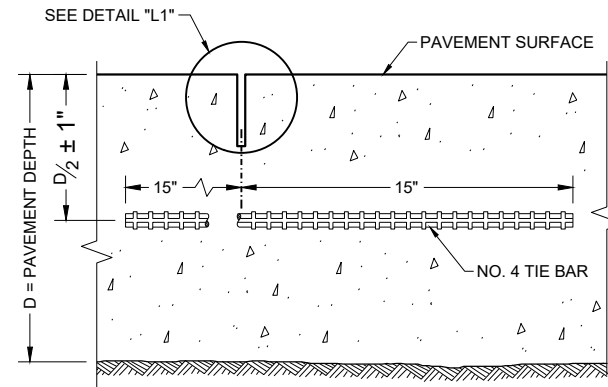


L2

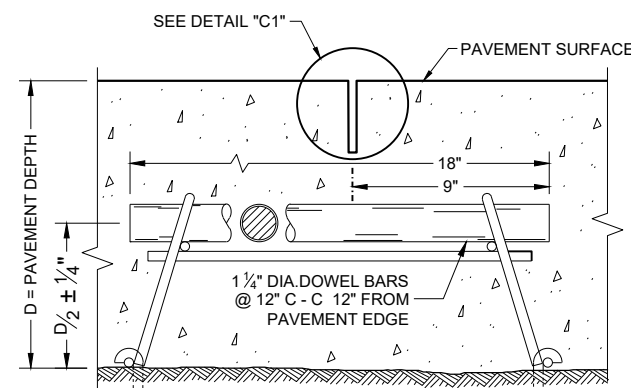
LONGITUDINAL JOINTS



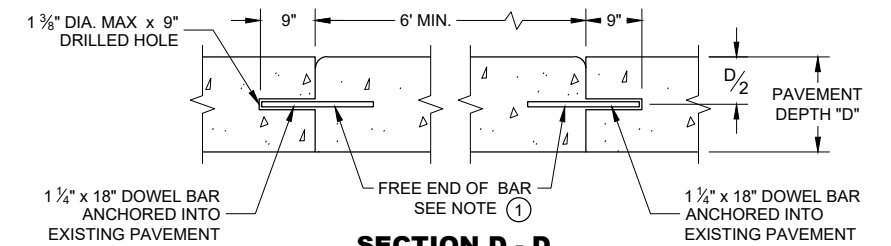
L3



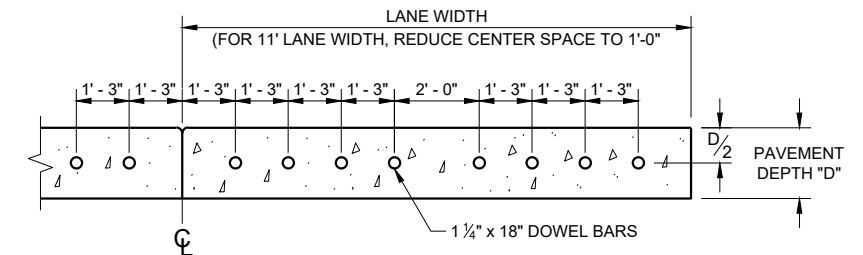
**SECTION C - C
SAWED LONGITUDINAL JOINT**



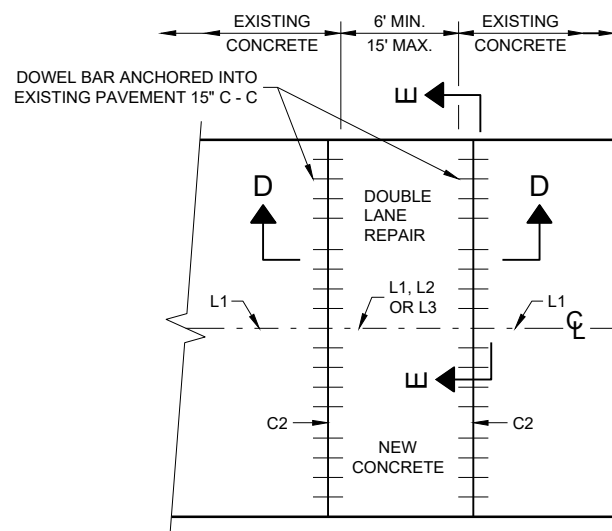
**SECTION F - F
CONTRACTION JOINT**



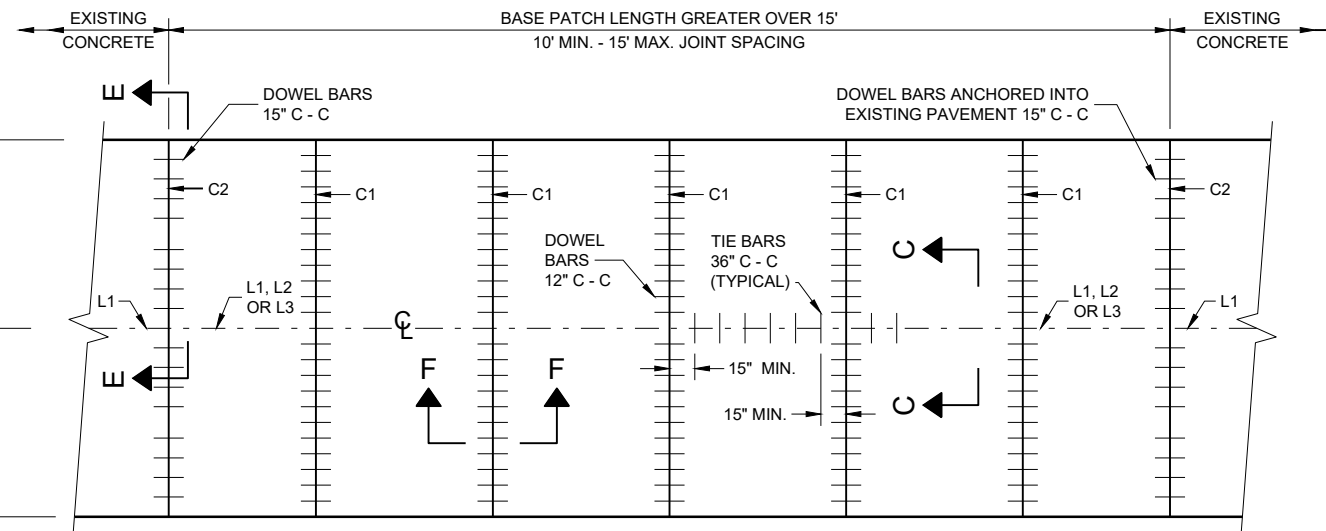
SECTION D - D



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



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



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

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

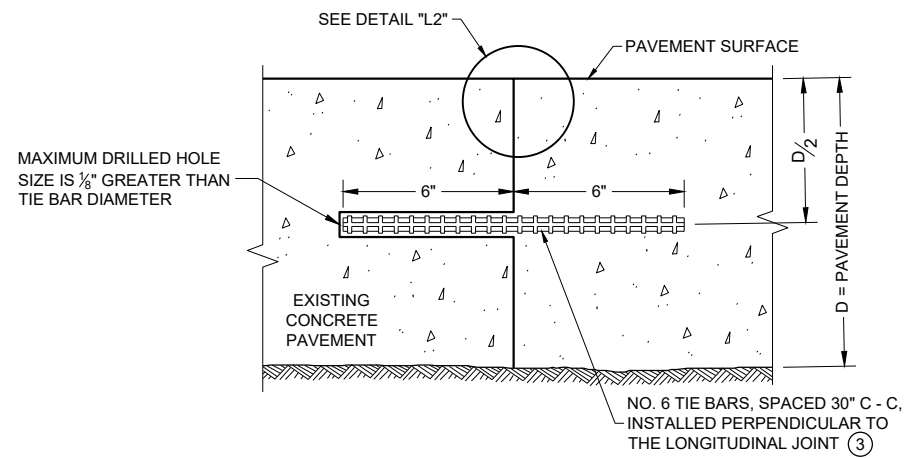
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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

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

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

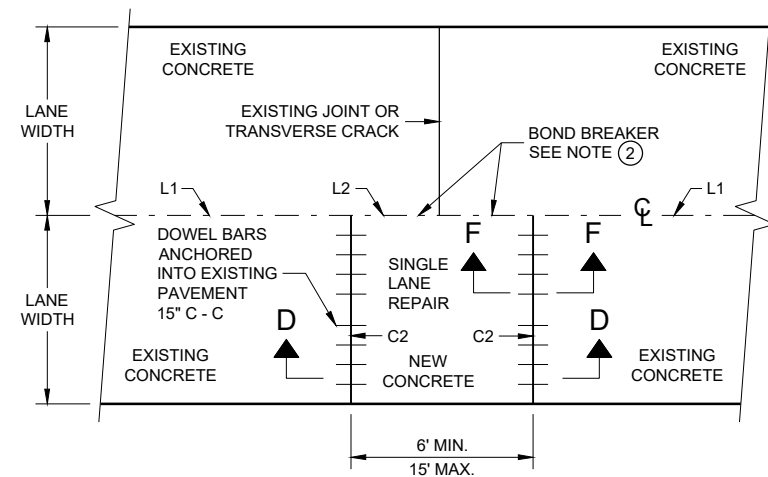
- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



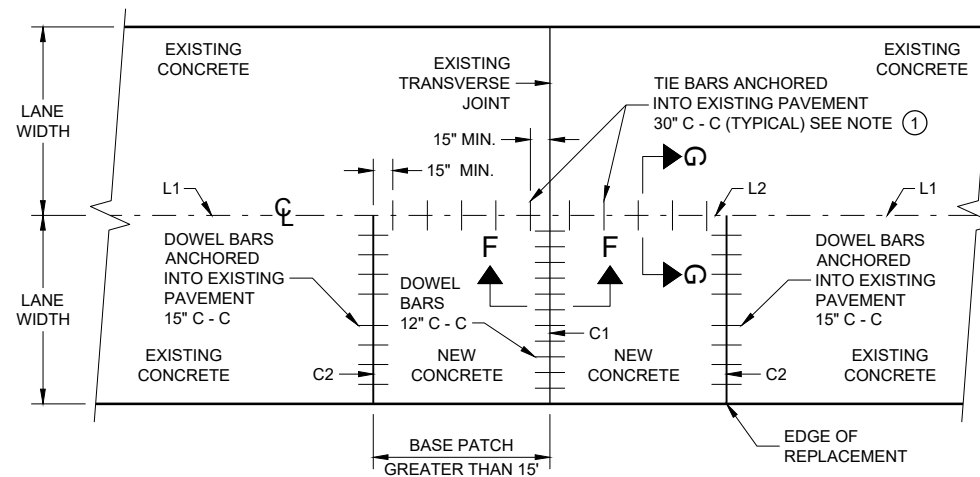
SECTION G - G
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

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



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



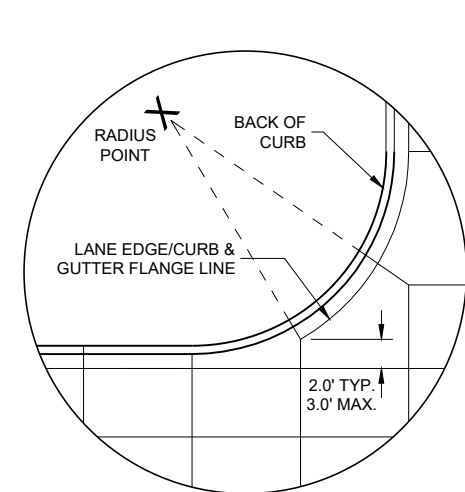
PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
GREATER THAN 15' LENGTH

BASE PATCHING CONCRETE

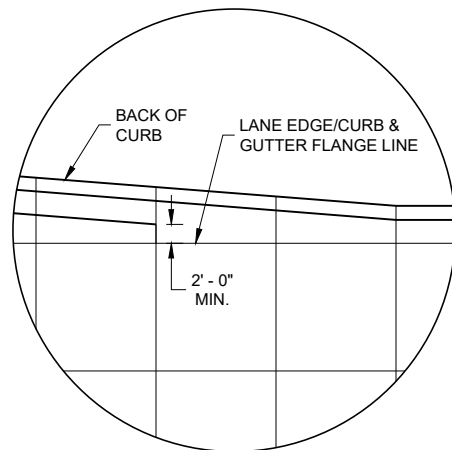
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 188

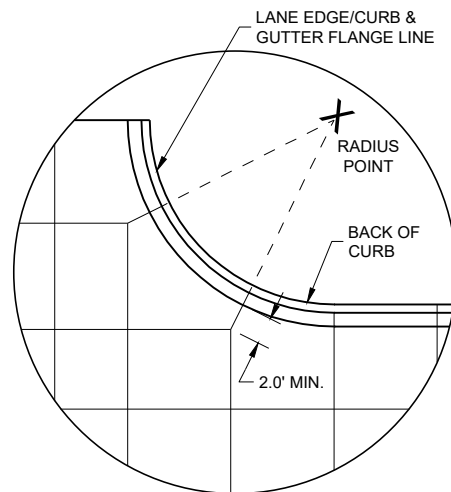
FHWA



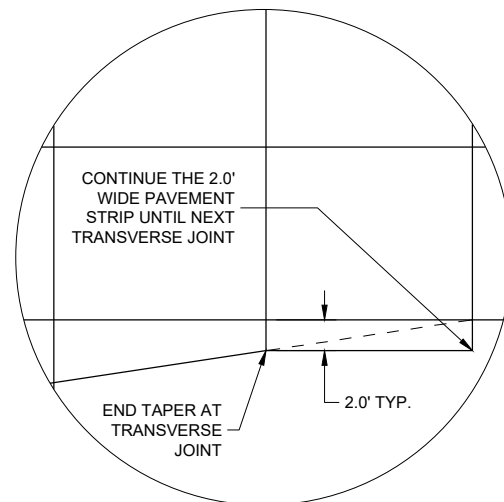
DETAIL "A"



DETAIL "B"



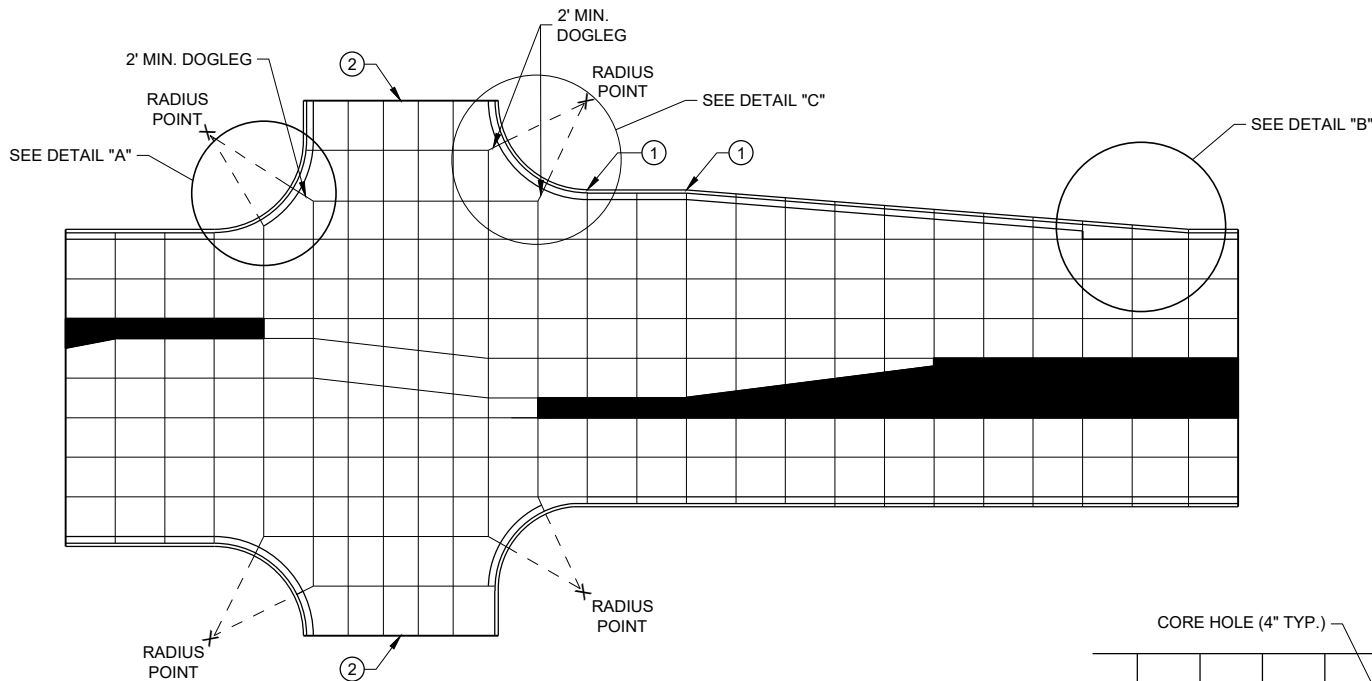
DETAIL "C"



DETAIL "D"

GENERAL NOTES

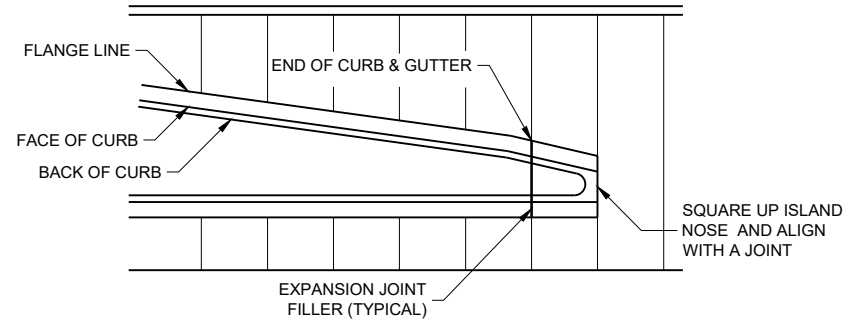
- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- 1 PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
 - 2 CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
 - 3 THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



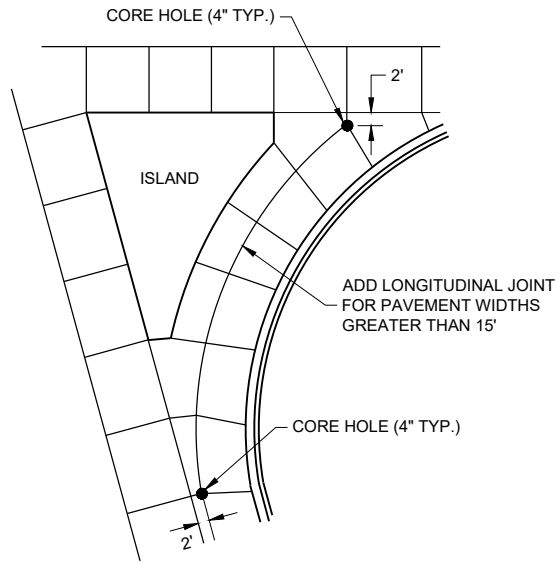
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

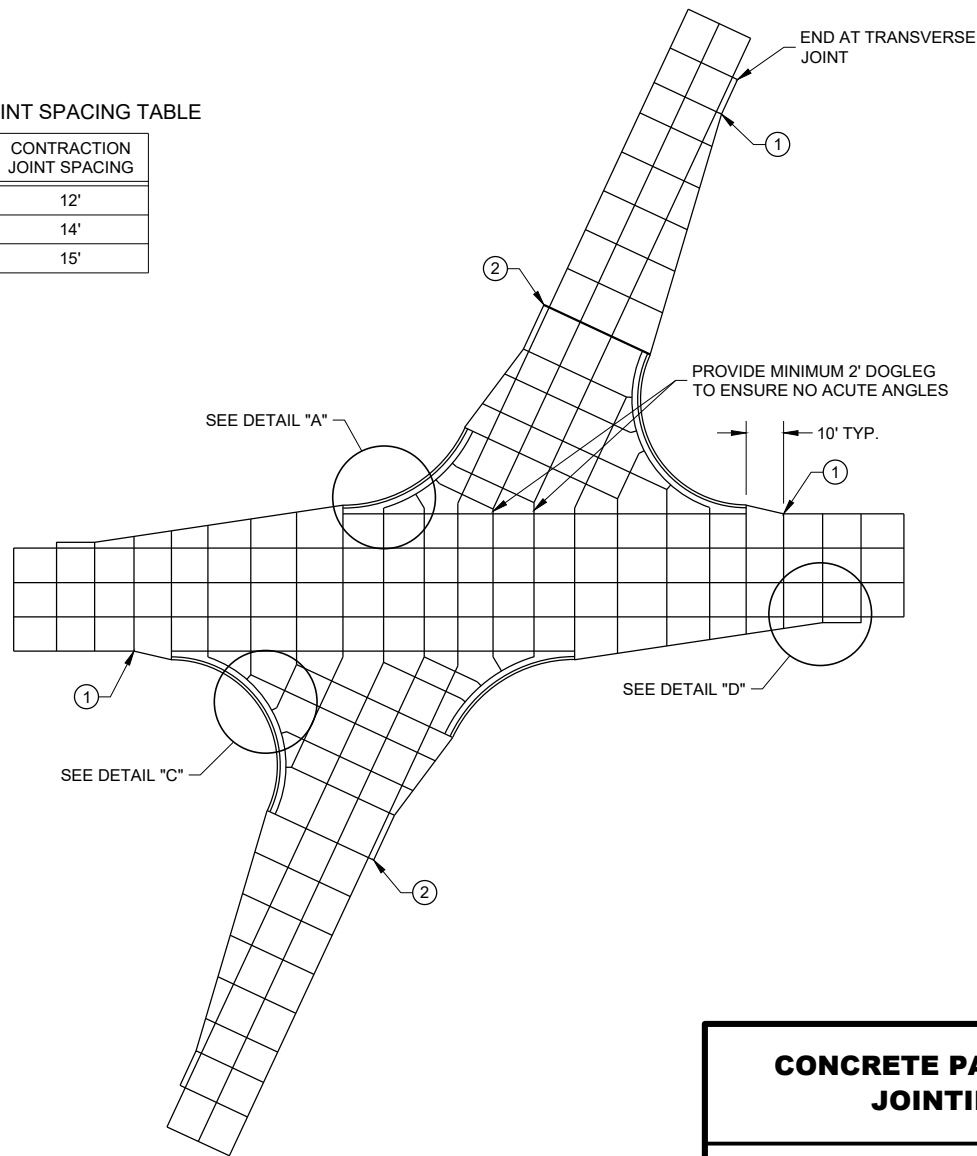
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



APPROACH TO MEDIAN



LARGE RIGHT TURN



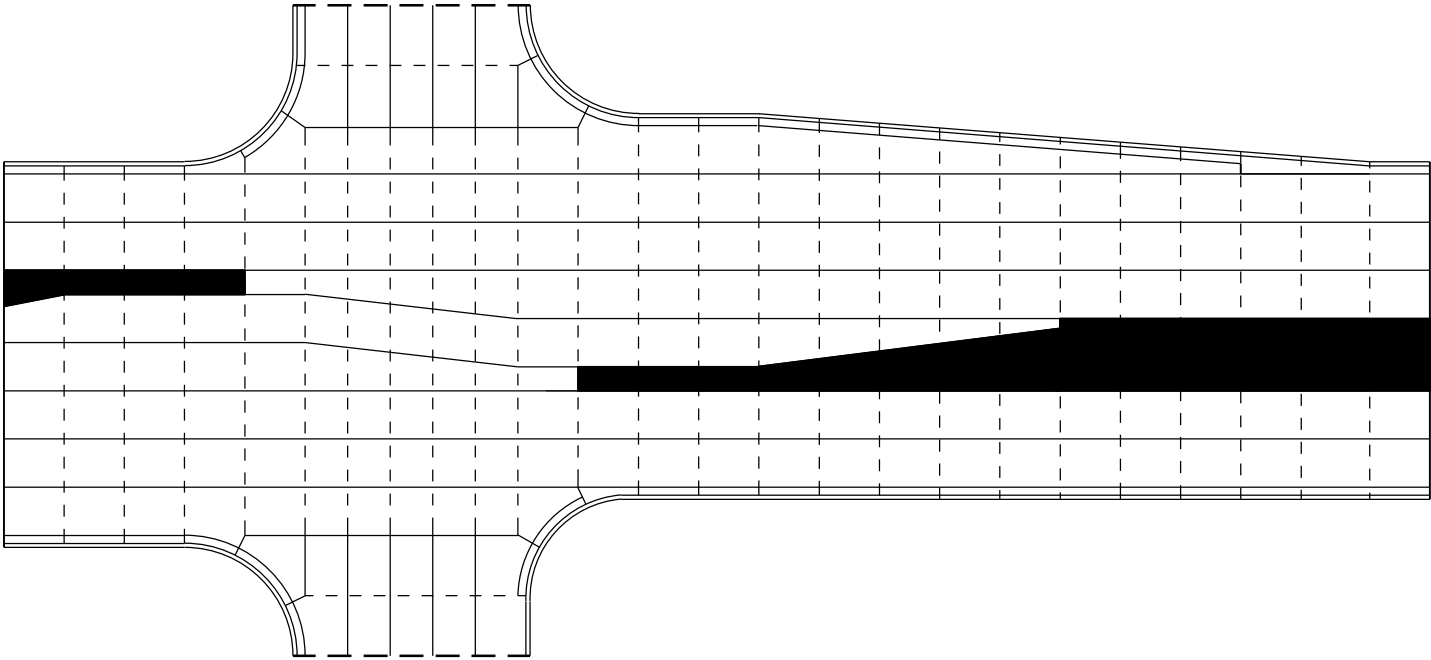
SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

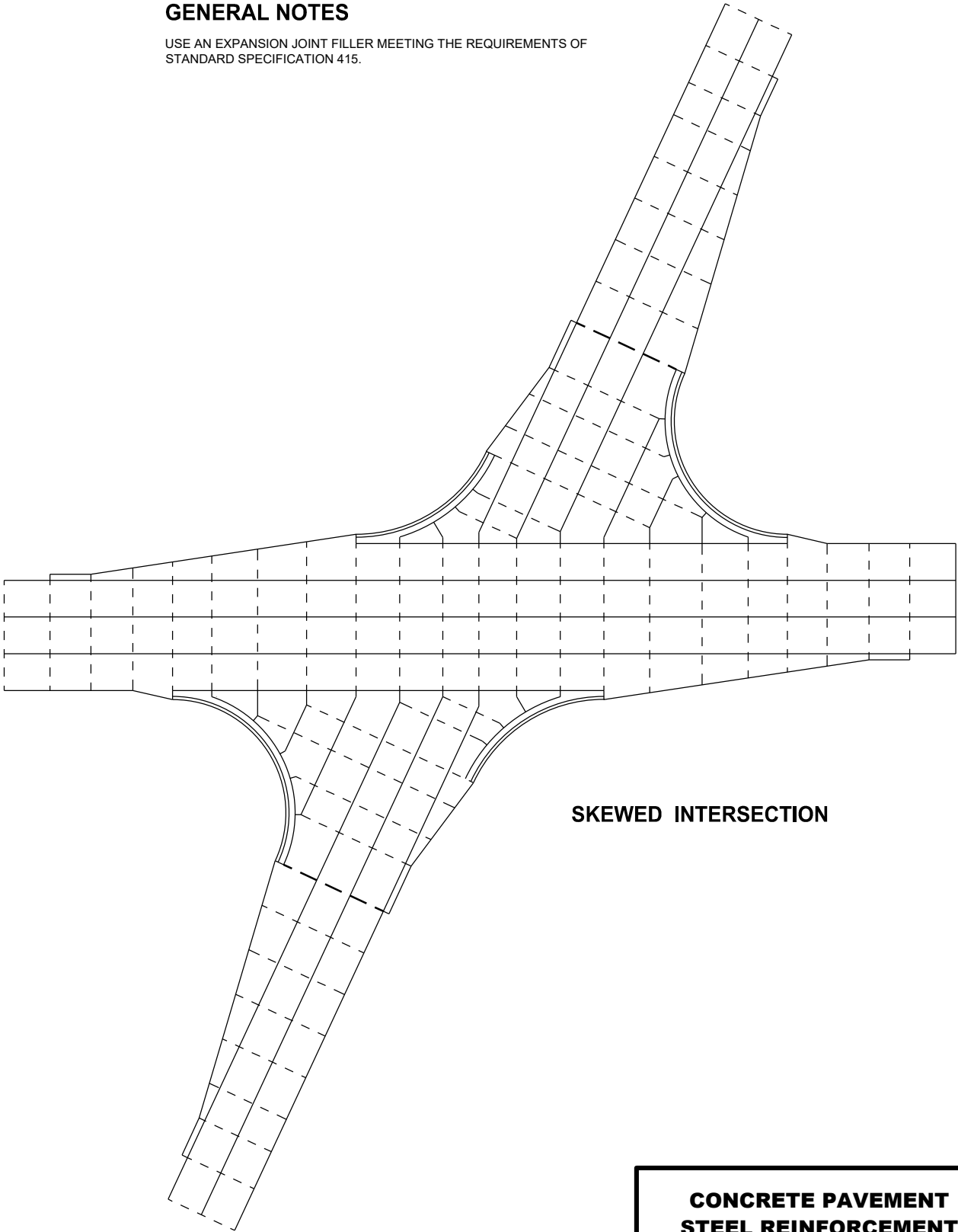
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

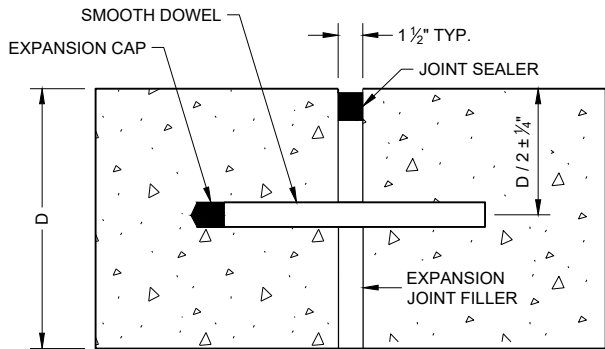
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



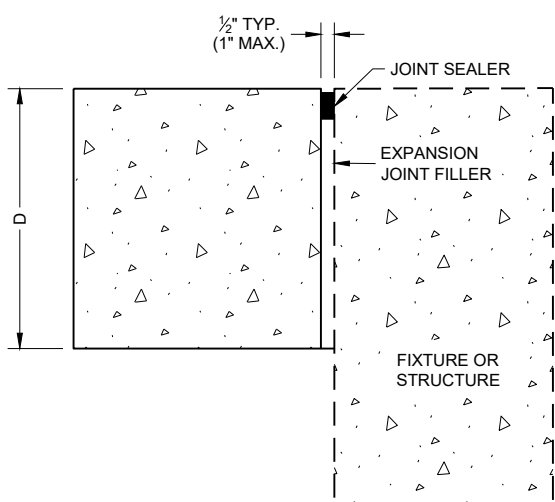
SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

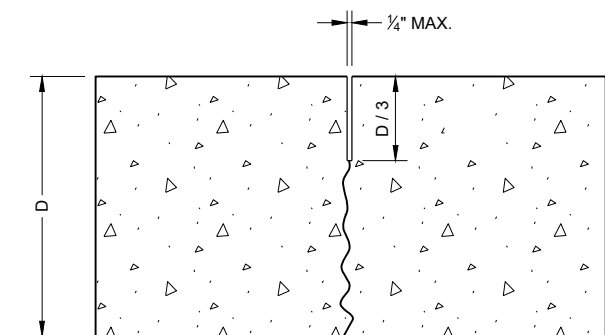


DOWELED TRANSVERSE ①

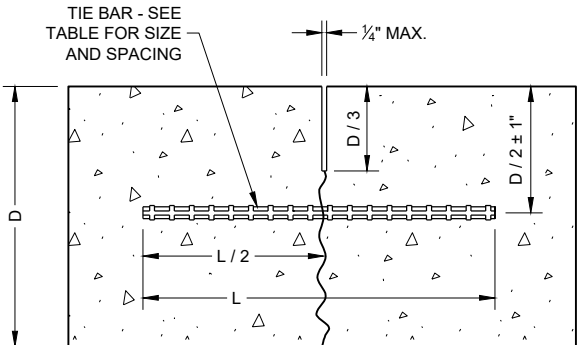


UNTIED - LONGITUDINAL

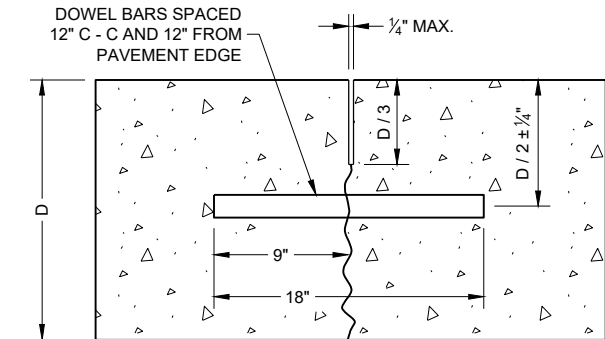
EXPANSION JOINTS



UNDOWELED TRANSVERSE



TIED LONGITUDINAL



DOWELED TRANSVERSE

CONTRACTION JOINTS ②

TIE BAR TABLE

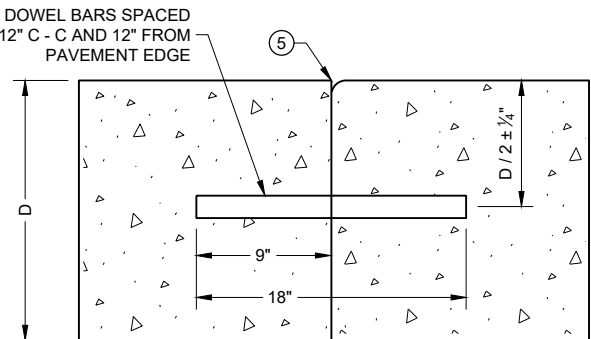
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

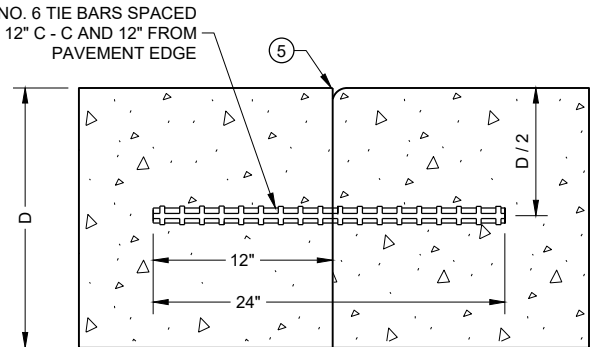
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

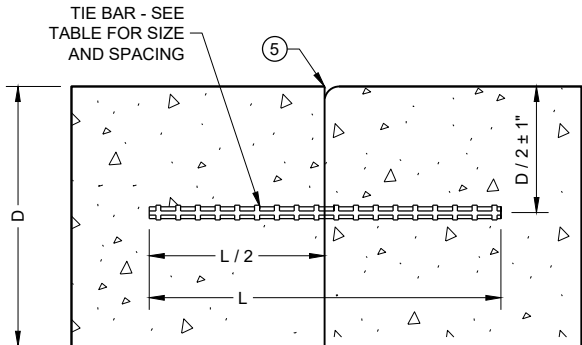
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



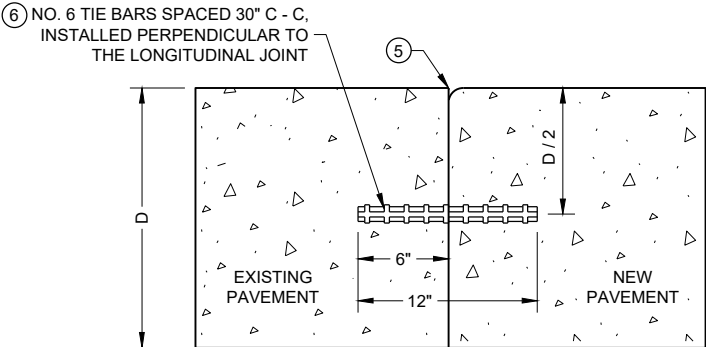
DOWELED TRANSVERSE ③



TIED TRANSVERSE ③
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL

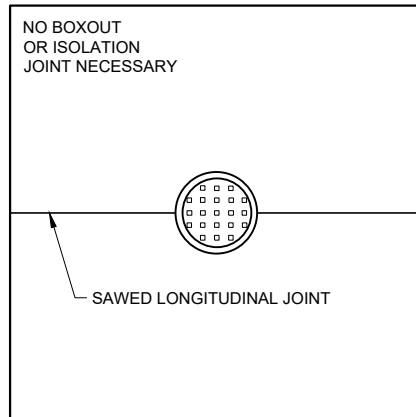


TIED LONGITUDINAL TO EXISTING

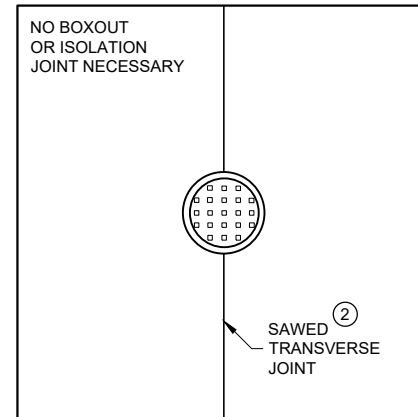
CONSTRUCTION JOINTS ④

**CONCRETE PAVEMENT
JOINT TYPES**

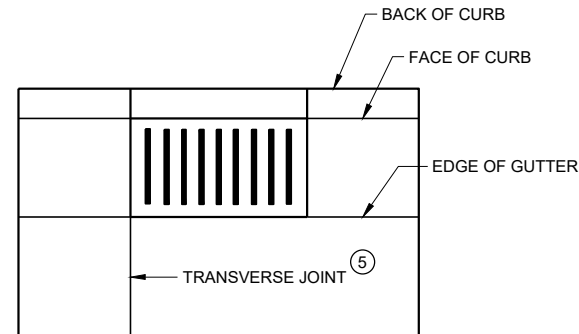
STATE OF WISCONSIN
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**MANHOLE WITH
LONGITUDINAL JOINT**



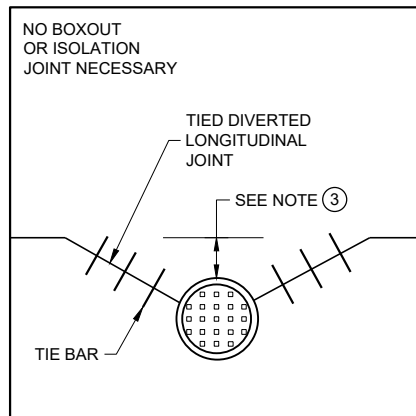
**MANHOLE WITH
TRANSVERSE JOINT**



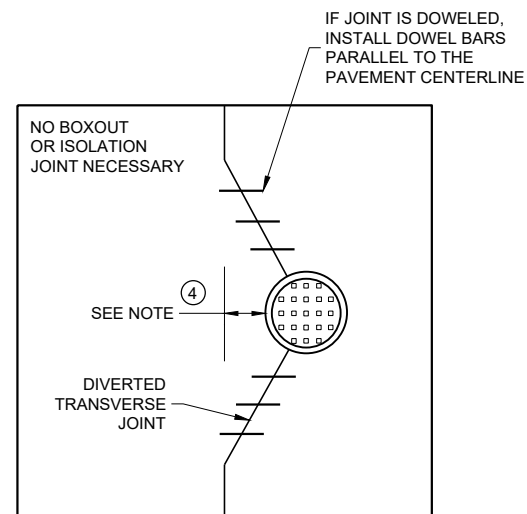
**INLET WITH
TRANSVERSE JOINT**

GENERAL NOTES

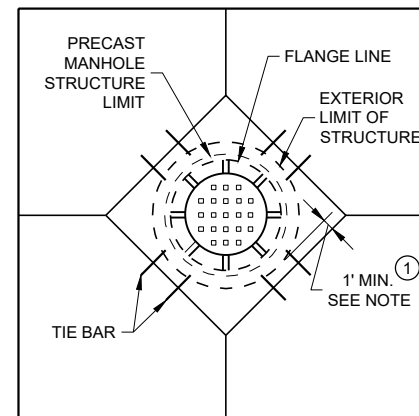
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**



**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 192
FHWA

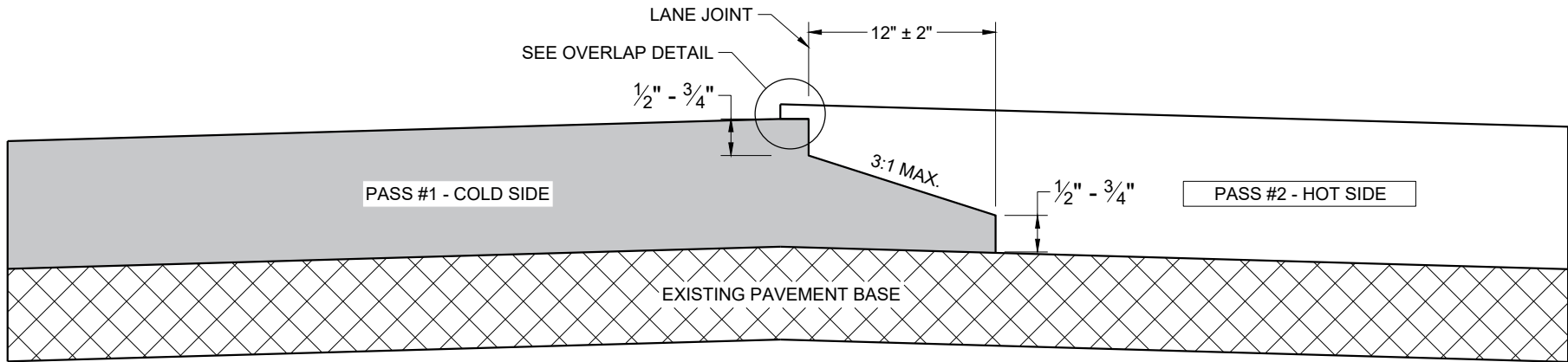
-----	DOWELED JOINT
————	TIED JOINT
	EXPANSION JOINT
— — —	POTENTIAL DOWELED EXPANSION JOINT
←	DIRECTION OF TRAFFIC

- ① CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH THE EDGE OF RADIUS.
- ② PROVIDE TIED JOINT AT THE FLANGE OF SCAB ON CURB IF SCAB ON CURB AND GUTTER IS USE.

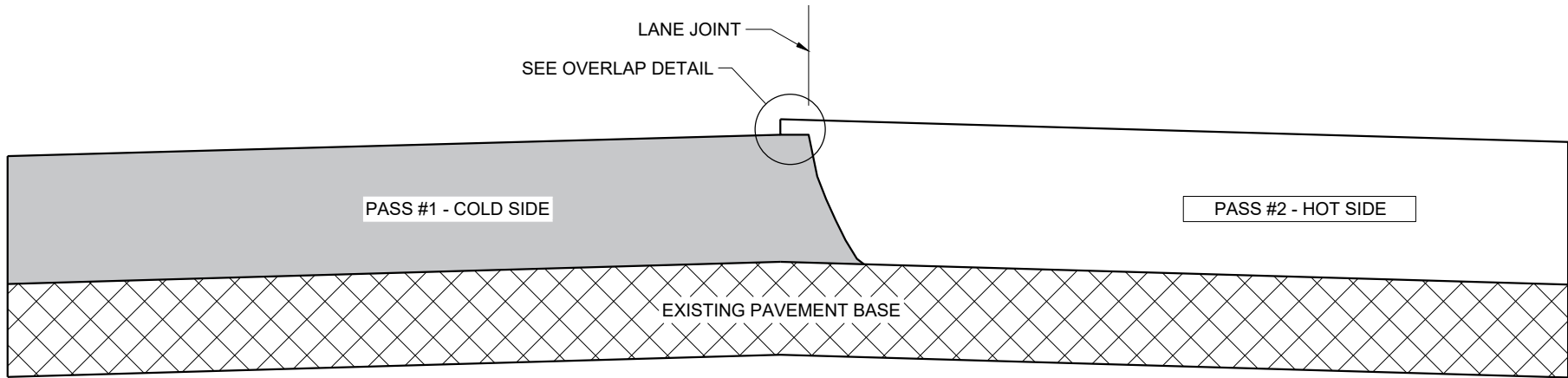


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 DATE PAVEMENT SUPERVISOR: 193

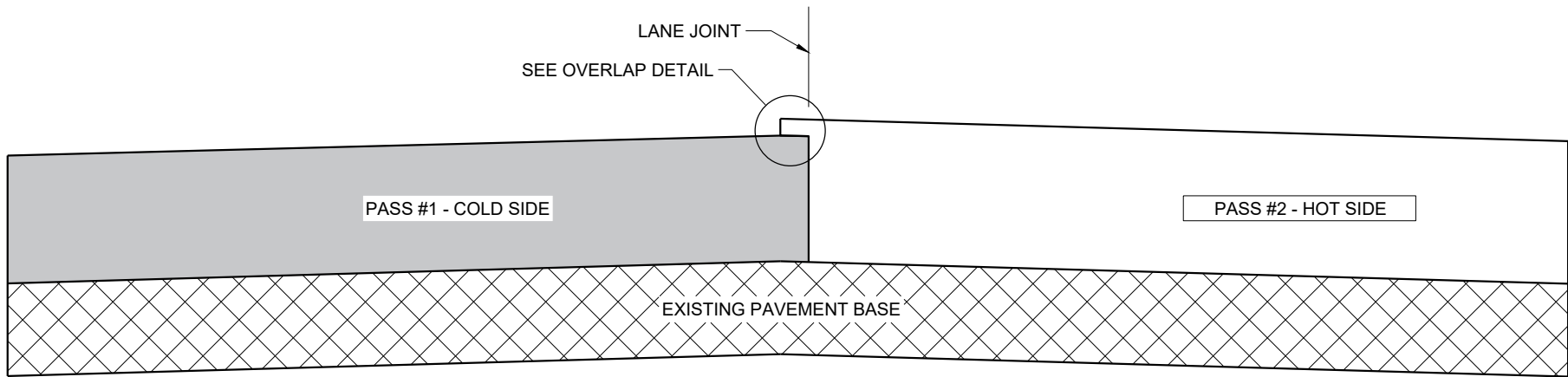
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

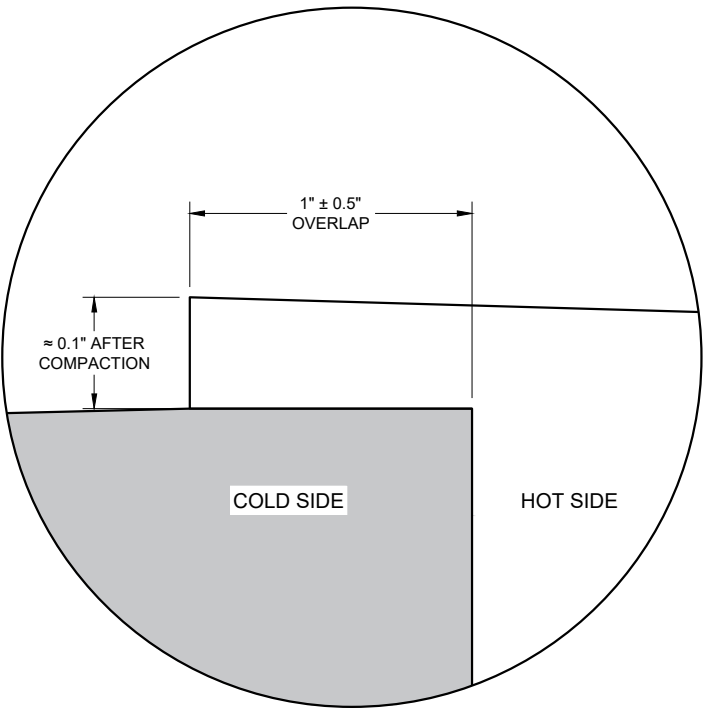
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



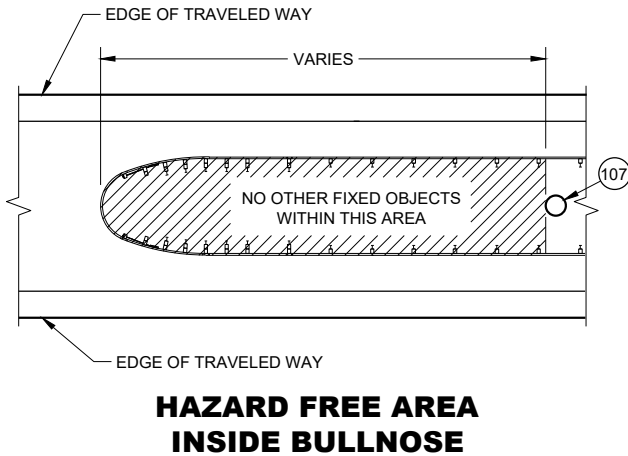
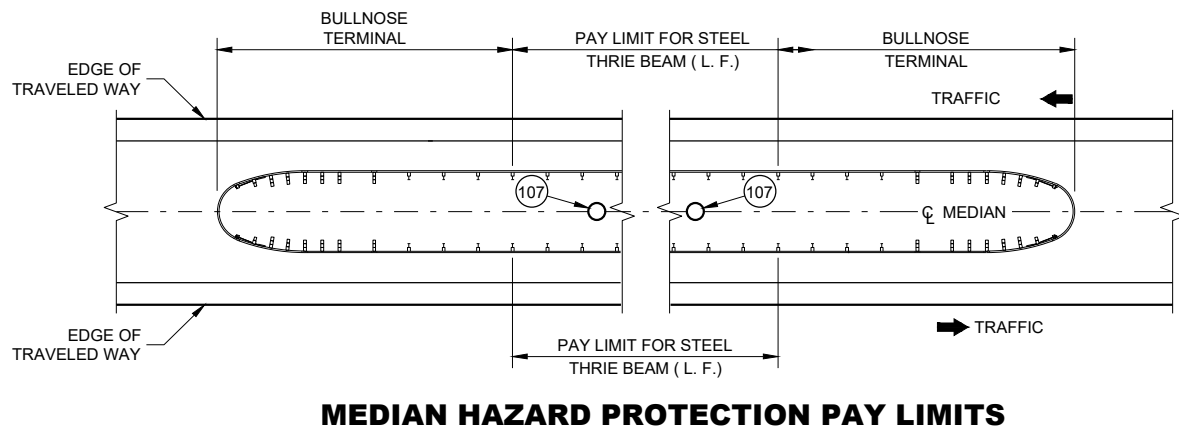
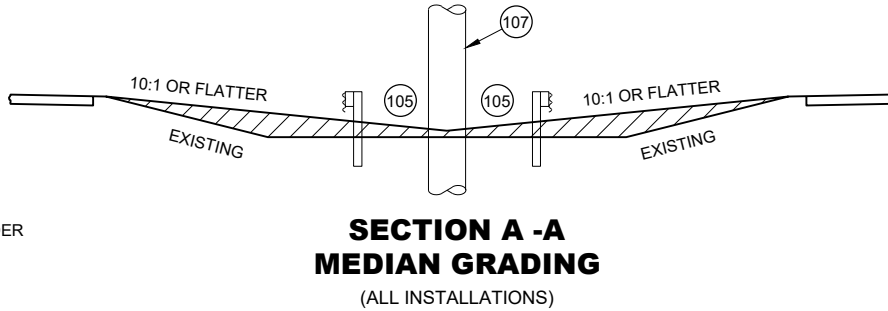
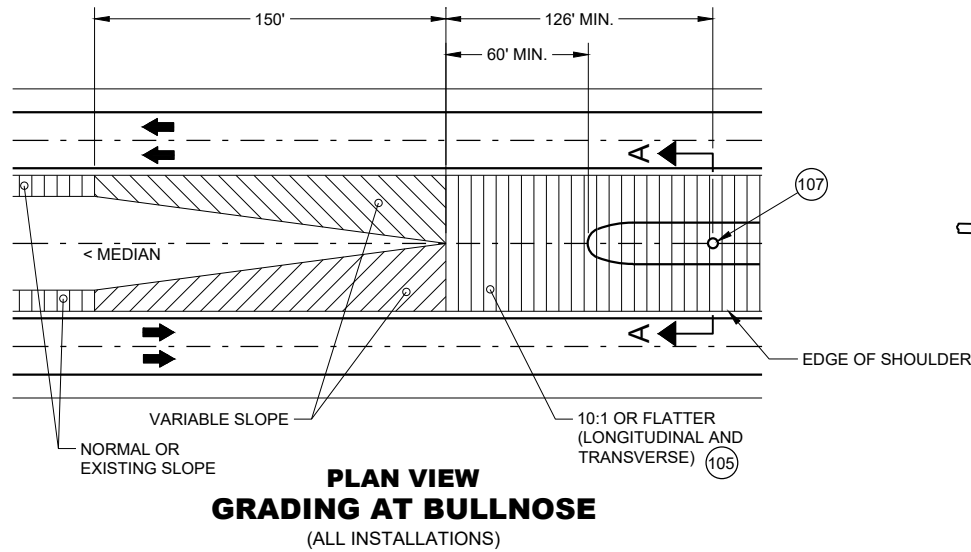
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 194

FHWA



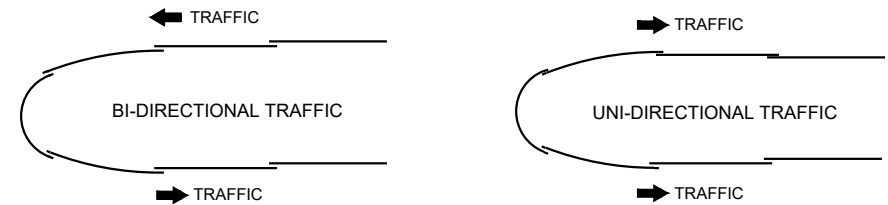
GENERAL NOTES

THRIE BEAM RAILS MAY NEED TO BE FIELD BENT TO FIT THE LOCATION.

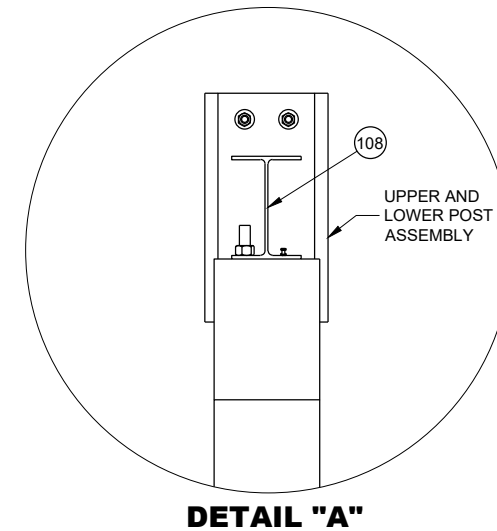
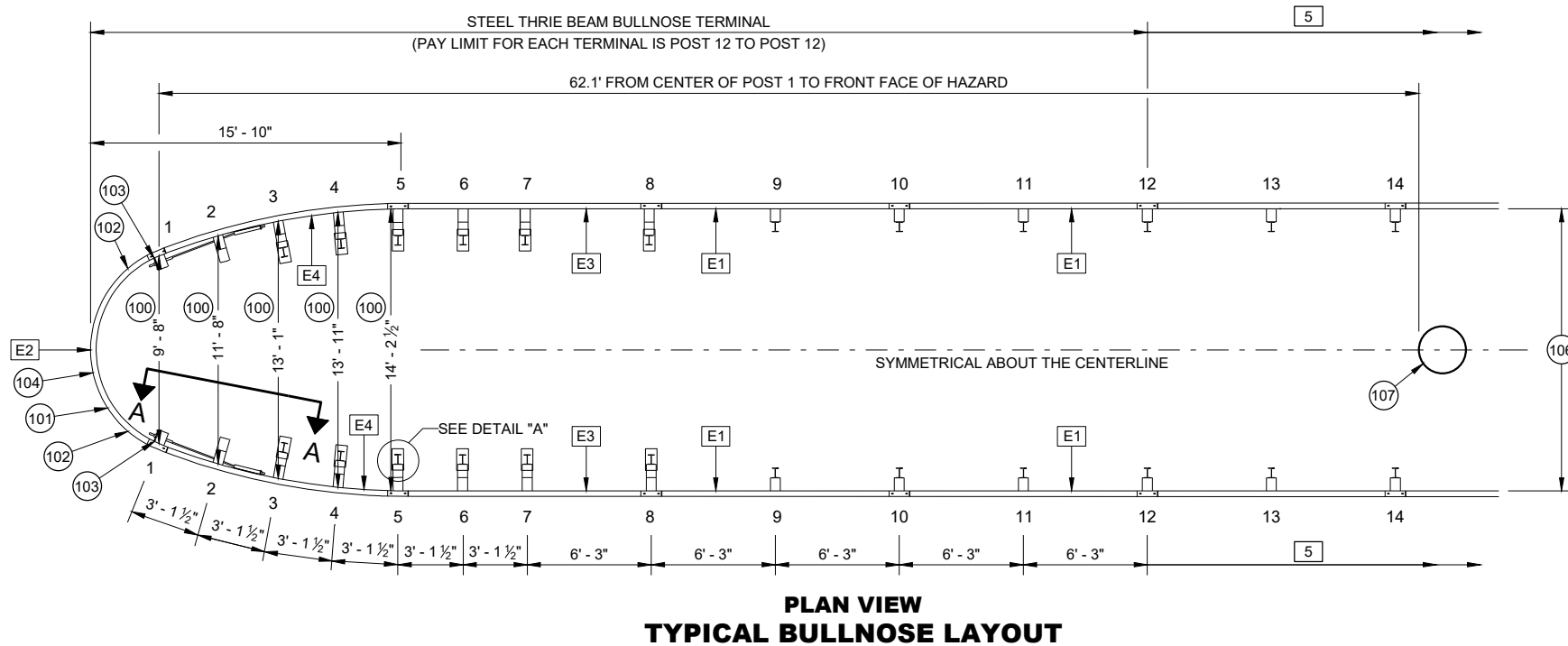
SEE STANDARD DETAIL DRAWINGS 14B26 SHEETS a-h.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2". MINIMUM DIAMETER OF THE ROCK REMOVAL IS 12" DIAMETER

- [E1] UNBENT STANDARD THRIE BEAM RAIL B1 (POST 8 TO POST 10 AND POST 10 TO POST 12)
- [E2] SLOTTED THRIE BEAM RAIL E1 (POST 1 TO POST 1)
- [E3] SLOTTED THRIE BEAM RAIL B3 (POST 5 TO POST 8)
- [E4] SLOTTED THRIE BEAM RAIL E4 (POST 1 TO POST 5)
- [5] BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO. 5.
- (100) DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST OR BLOCK.
- (101) U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- (102) NOSE CABLE WITH SWAGGED END BUTTONS.
- (103) NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- (104) THE SLACK IN THE NOSE CABLES SHALL BE EVENLY DISTRIBUTED BETWEEN THE CABLE CLIP FASTENERS AND POST NO. 1 ON EITHER SIDE OF THE NOSE.
- (105) MINIMUM WORKING WIDTH 4' - 2".
- (106) MAX. WIDTH OF SYSTEM IS 14' - 2 1/2" MEASURED FROM THE BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.
- (107) FIXED OBJECT OR OTHER HAZARD.
- (108) PLAN IS TO PROVIDE STATION OFFSET TO CENTER OF POST 5 IN PLANS.

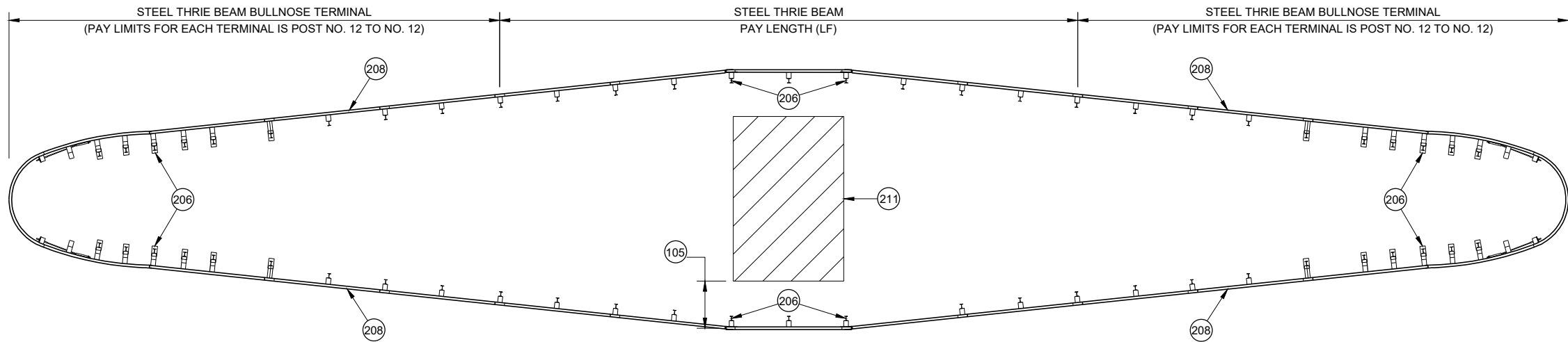


LAPPING DETAIL

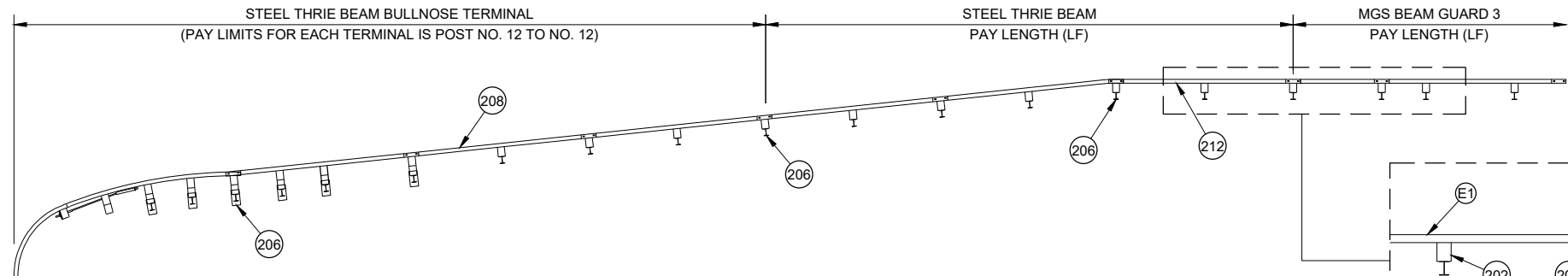


STEEL THRIE BEAM BULLNOSE TERMINAL

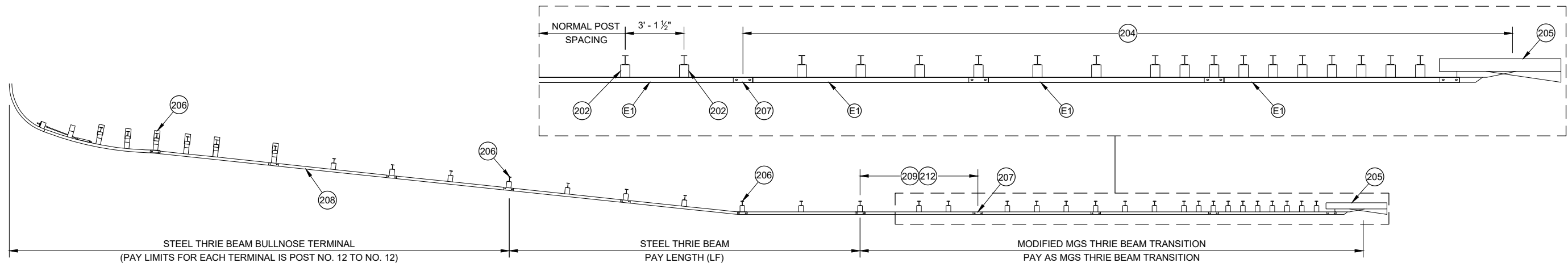
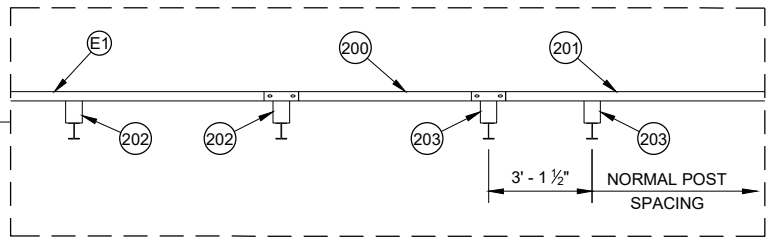
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



VARIABLE WIDTH BULLNOSE



**1/2 PLAN VIEW
VARIABLE WIDTH BULLNOSE
WITH CONNECTION TO MGS BEAM GUARD**



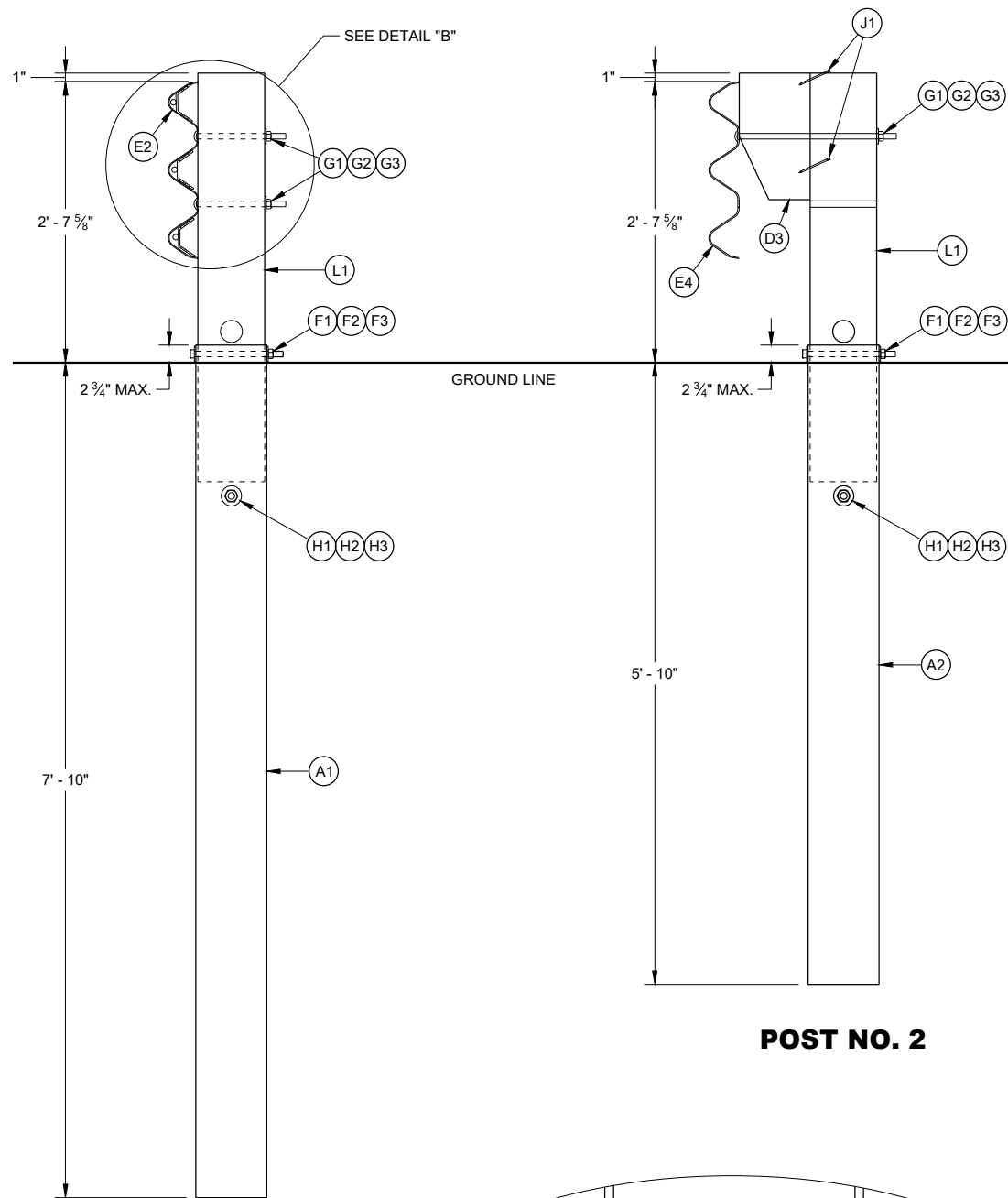
**1/2 PLAN VIEW
VARIABLE WIDTH BULLNOSE
WITH CONNECTION TO RIGID BARRIER**

GENERAL NOTES

- 200 6' - 3" ASYMMETRICAL 10-GAUGE W-BEAM TO THRIE BEAM GUARD TRANSITION. SEE SDD 14B45 FOR MORE INFORMATION.
- 201 W-BEAM RAIL. SEE SDD 14B42 FOR MORE INFORMATION.
- 202 SEE POST NO. 9 AND ALL STEEL THRIE BEAM POST BEYOND DETAIL.
- 203 SEE SDD 14B42 FOR INSTALLATION INFORMATION.
- 204 SEE SDD 14B45 FOR INSTALLATION DETAILS. REPLACE ASYMMETRICAL W-BEAM TO THRIE BEAM TRANSITION AND W-BEAM RAIL WITH E1. PAY FOR MODIFIED THRIE BEAM TRANSITION.
- 205 CONCRETE BARRIER OR BRIDGE RAIL.
- 206 SEE PLAN FOR STATION AND OFFSET TO CENTER OF POST.
- 207 SEE PLAN FOR STATION AND OFFSET TO CENTER OF SPLICE.
- 208 SEE PLAN FOR FLARE RATE.
- 209 A MINIMUM OF 25 FT OF THRIE BEAM TANGENT BEFORE TRANSITIONING TO BEAM GUARD OR THRIE BEAM TRANSITION.
- 210 NOT ALL BULLNOSE HARDWARE SHOWN. SEE OTHER SHEETS IN 14B26.
- 211 WIDER HAZARD TO BE SHIELDED.
- 212 TRANSITION RAIL HEIGHT TO 31" OVER THE LENGTH OF A 12' - 6" BEAM SECTION.

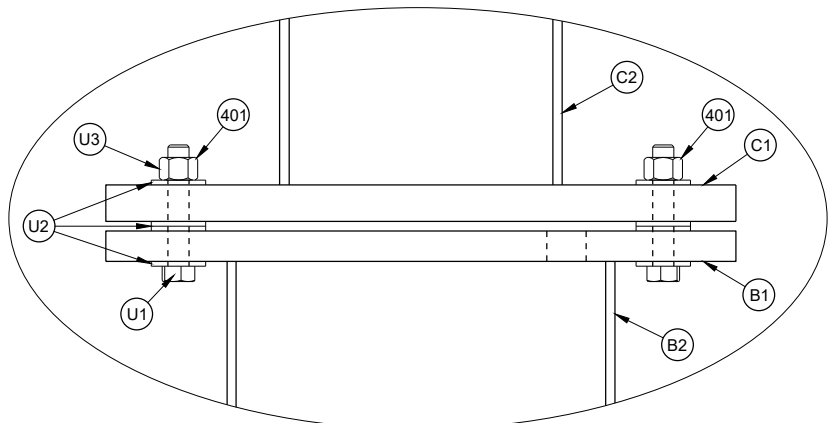
**STEEL THRIE BEAM
BULLNOSE TERMINAL**

STATE OF WISCONSIN
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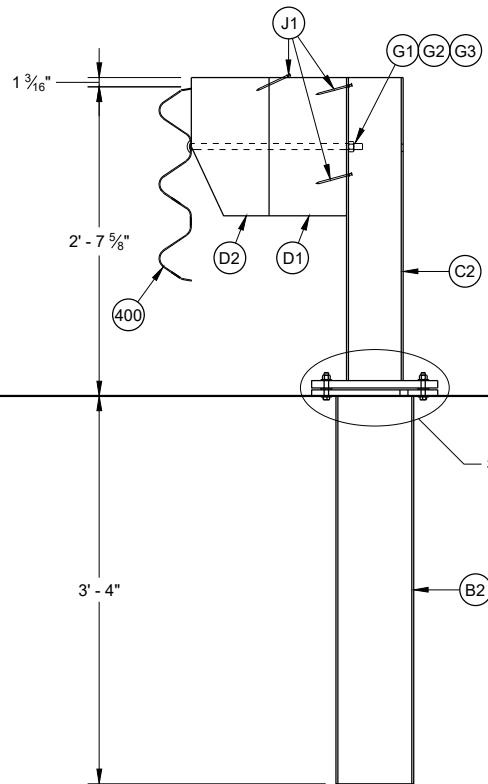


POST NO. 1

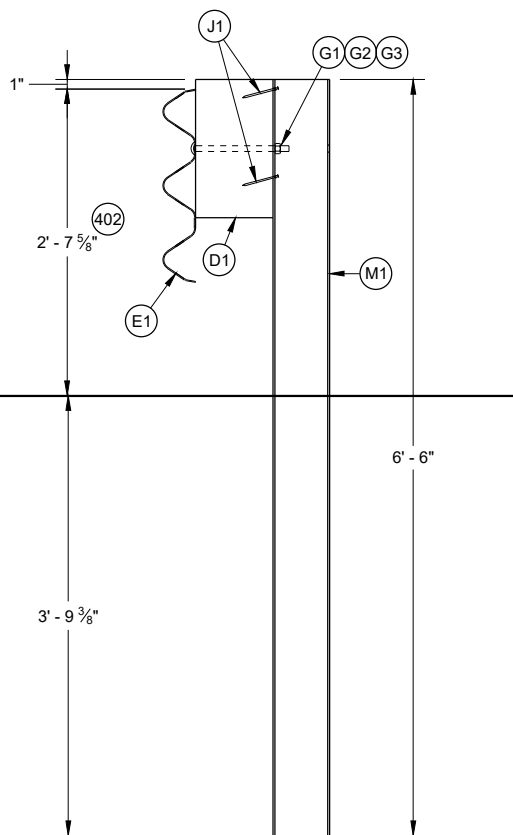
POST NO. 2



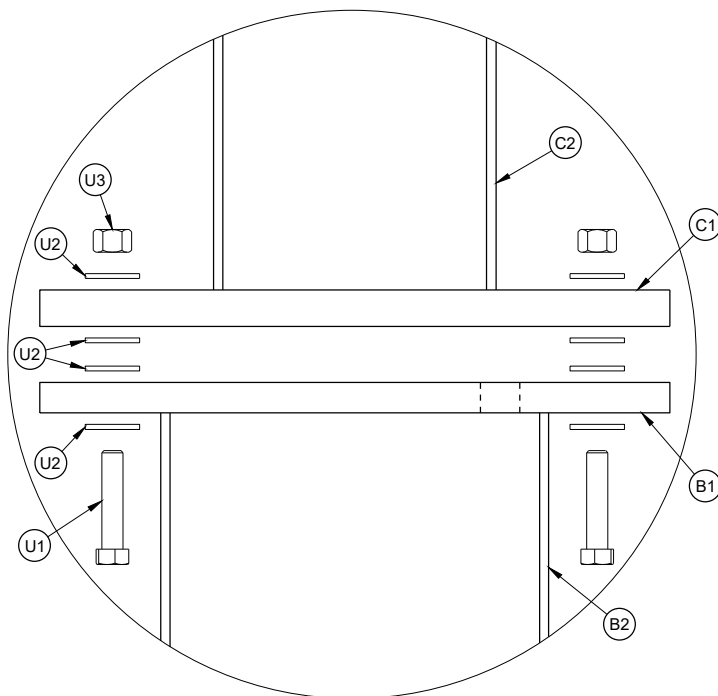
DETAIL "A"



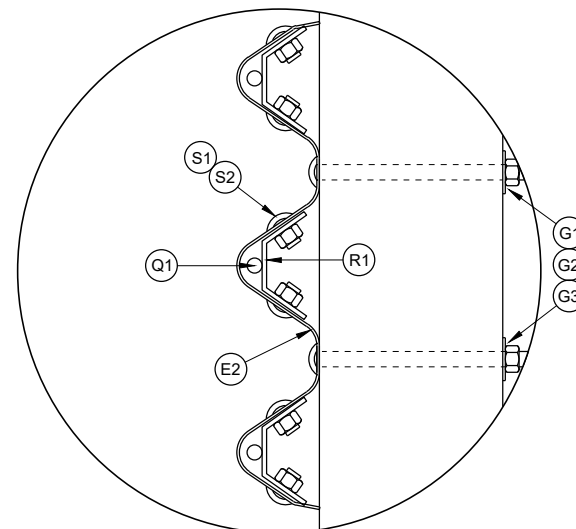
POST NOS. 3-8



POST NOS. 9 AND ALL STEEL
THRIE BEAM POSTS BEYOND



EXPLODED VIEW
DETAIL "A"



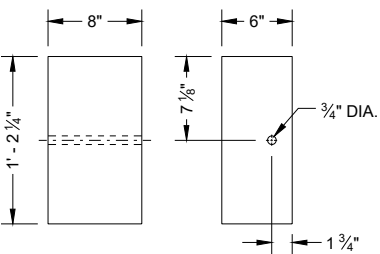
DETAIL "B"

GENERAL NOTES

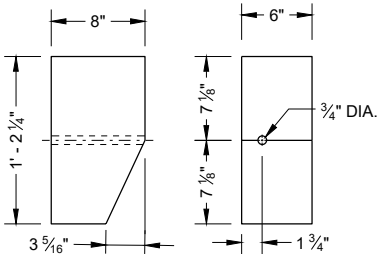
- 400 RAIL CAN BE E3 OR E4 DEPENDING ON POST LOCATION.
- 401 TORQUE BOLD BETWEEN 60-75 FT-LB
- 402 HEIGHT WILL VARY WITHIN HEIGHT TRANSITION TO OTHER HARDWARE. SEE NOTE 213, SHEET "b".

STEEL THRIE BEAM
BULLNOSE TERMINAL

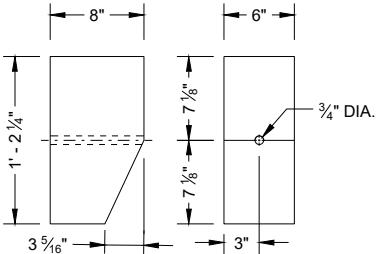
STATE OF WISCONSIN
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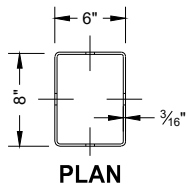
ELEVATION PROFILE
BLOCKOUT (D1)



ELEVATION PROFILE
BLOCKOUT (D2)

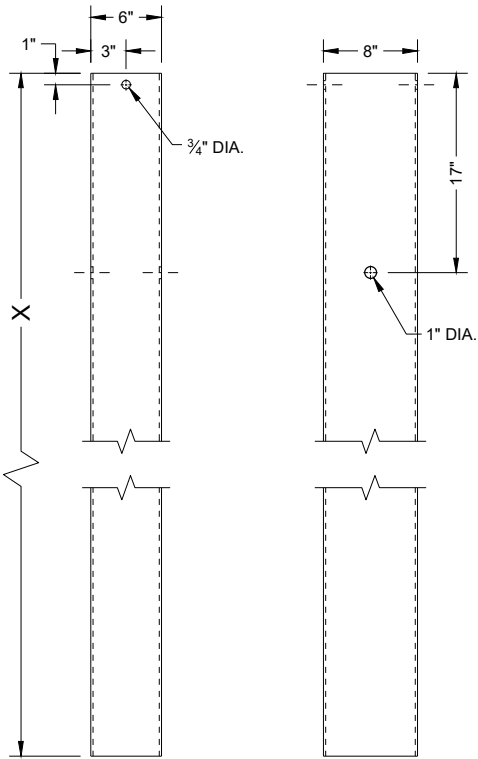


ELEVATION PROFILE
BLOCKOUT (D3)

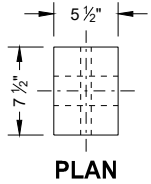


PLAN

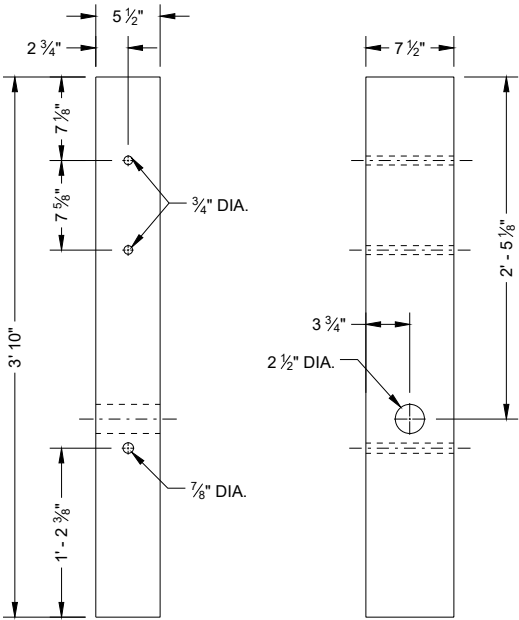
PART	LENGTH "X"
A1	8' - 0"
A2	6' - 0"
B2	3' - 4"



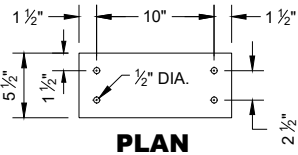
ELEVATION PROFILE
FOUNDATION TUBE



PLAN



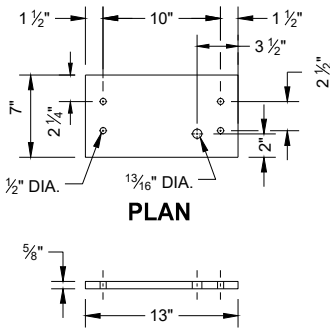
ELEVATION PROFILE
BCT POST (L1)



PLAN

PROFILE

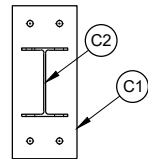
UPPER SHEAR PLATE (C1)



PLAN

PROFILE

LOWER SHEAR PLATE (B1)

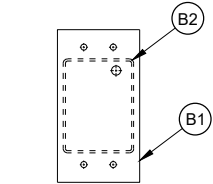


PLAN

ELEVATION

PROFILE

UPPER POST ASSEMBLY

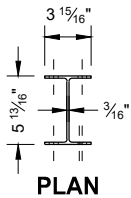


PLAN

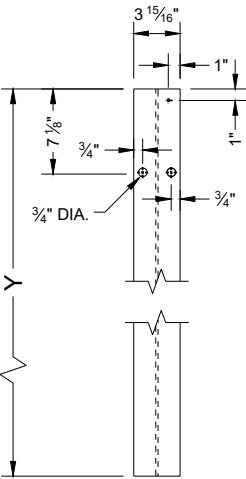
ELEVATION

PROFILE

LOWER POST ASSEMBLY



PLAN

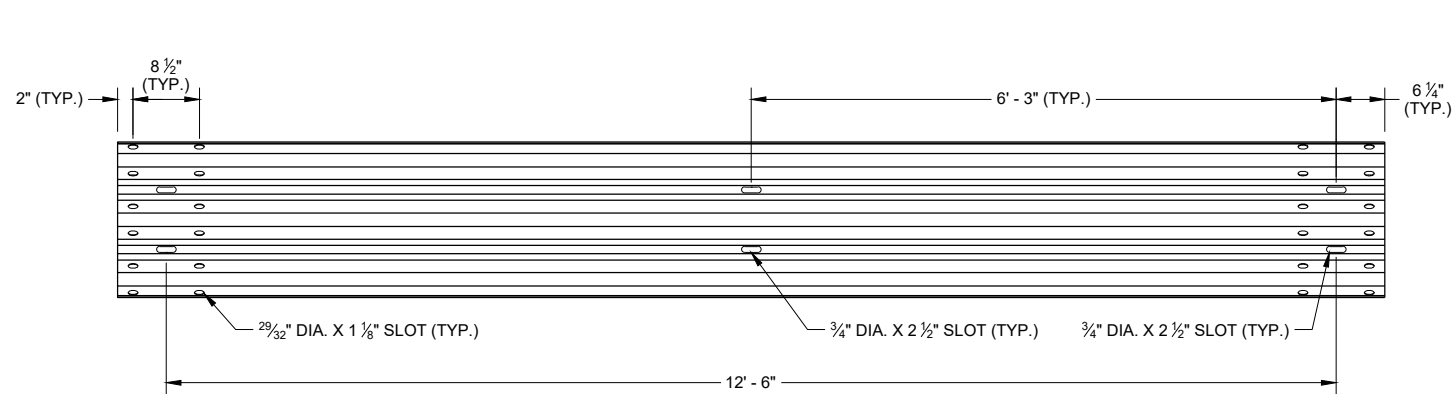


ELEVATION
POST

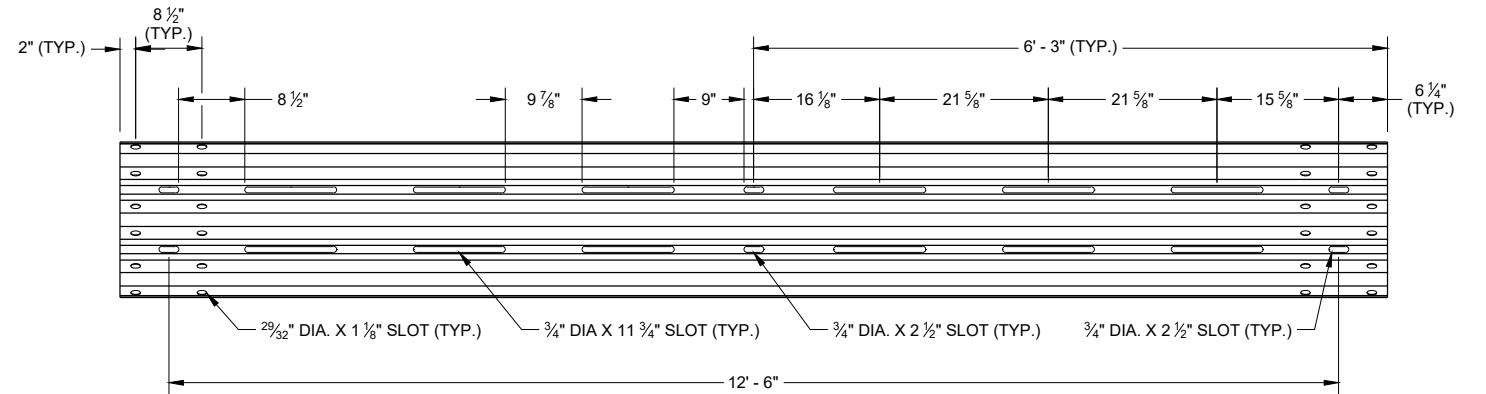
PART	LENGTH "Y"
M1	6' - 6"
M2	5' - 8 5/8"
C2	2' - 7 5/8"

STEEL THRIE BEAM
BULLNOSE TERMINAL

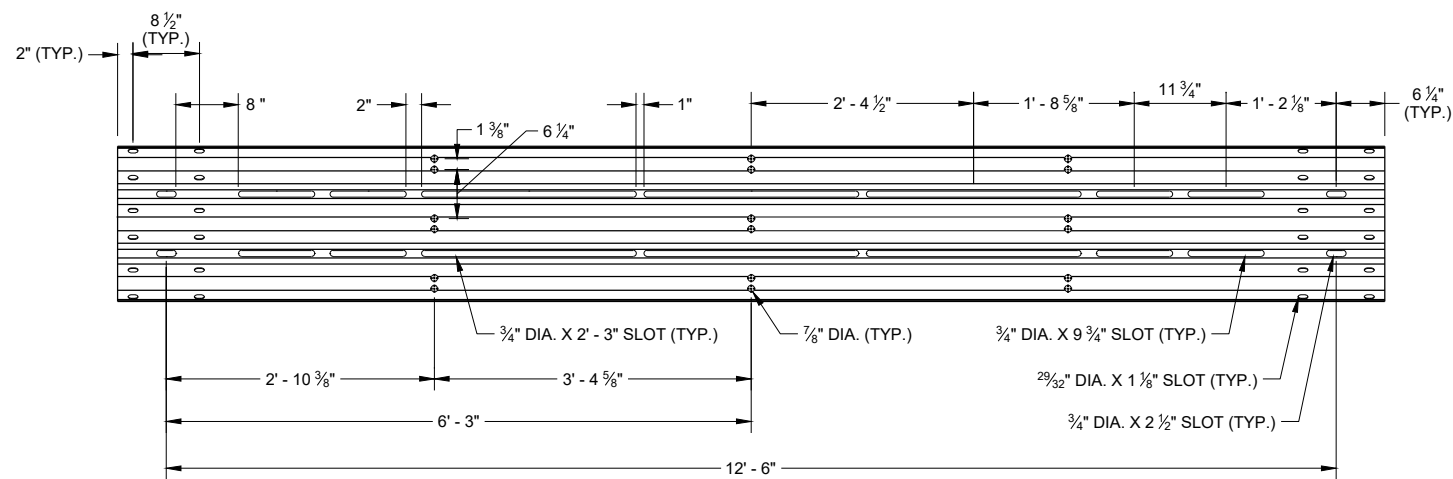
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 199



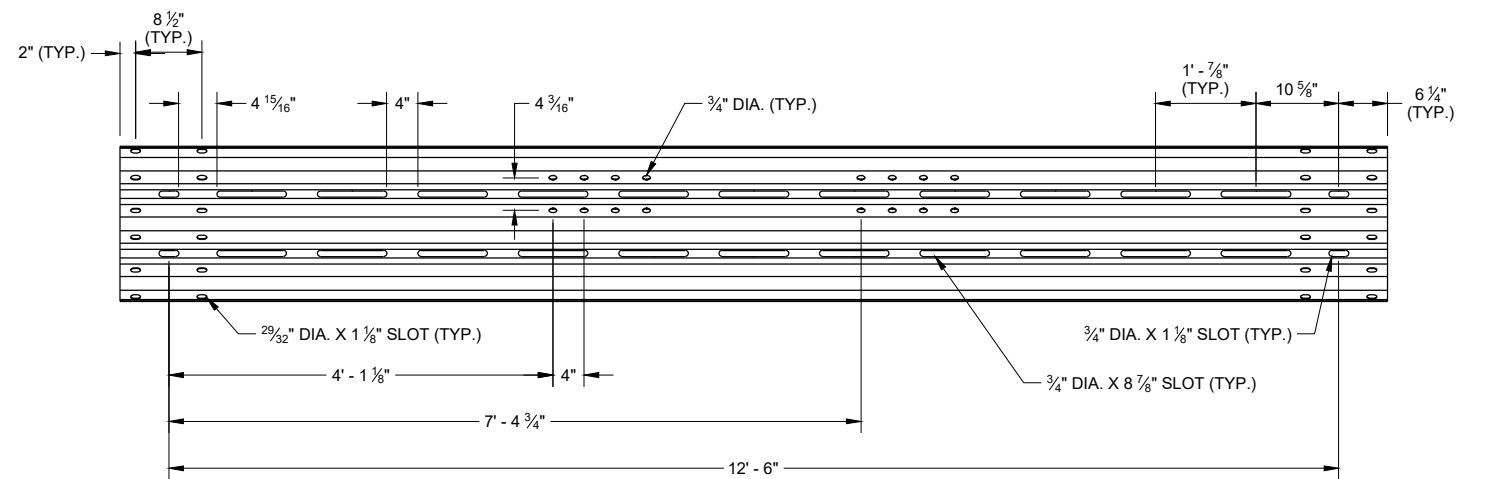
SLOTTED THRIE BEAM RAIL E1



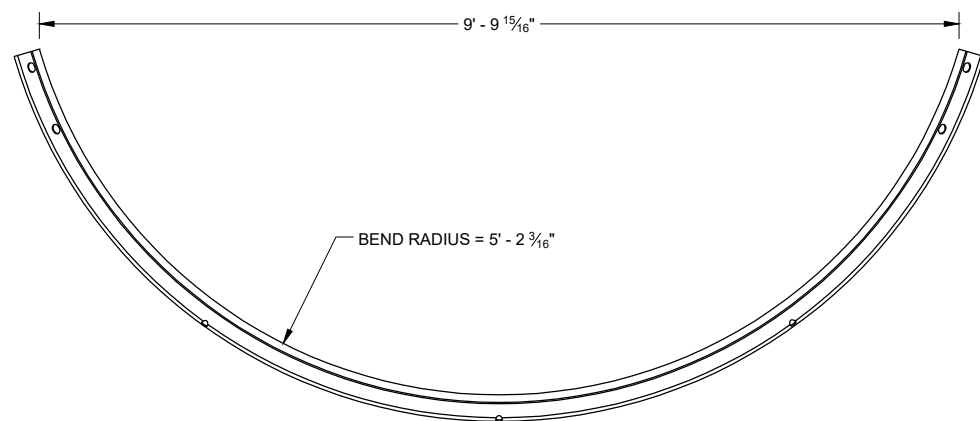
SLOTTED THRIE BEAM RAIL E3



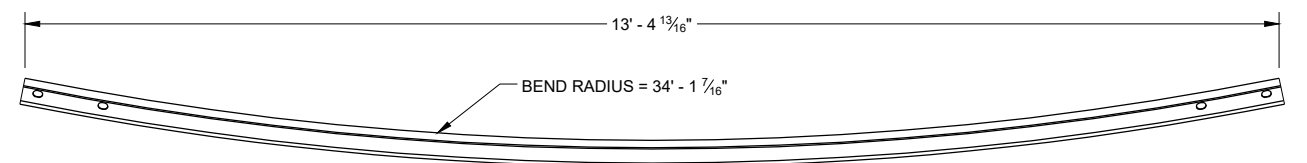
**ELEVATION VIEW NON - RADIUSED
SLOTTED THRIE BEAM RAIL E2**



**ELEVATION VIEW NON - RADIUSED
SLOTTED THRIE BEAM RAIL E4**



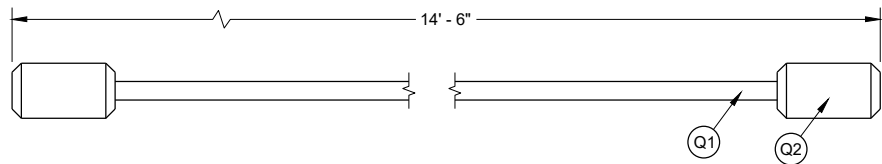
**PLAN VIEW
SLOTTED THRIE BEAM RAIL E2**



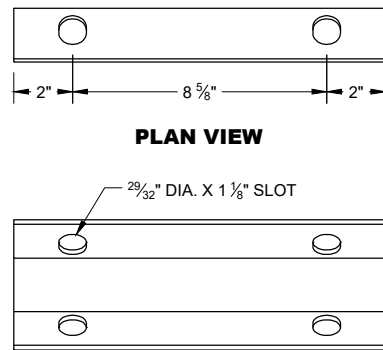
**PLAN VIEW
SLOTTED THRIE BEAM RAIL E4**

**STEEL THRIE BEAM
BULLNOSE TERMINAL**

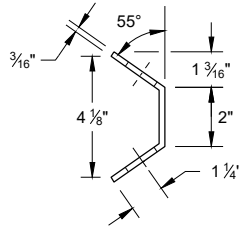
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



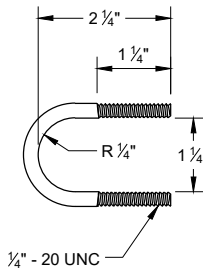
NOSE CABLE AND SWAGE BUTTON



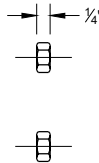
ELEVATION VIEW
NOSE CABLE ANCHOR (R1)



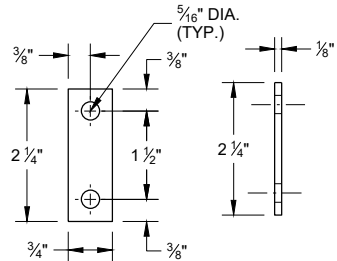
PROFILE VIEW



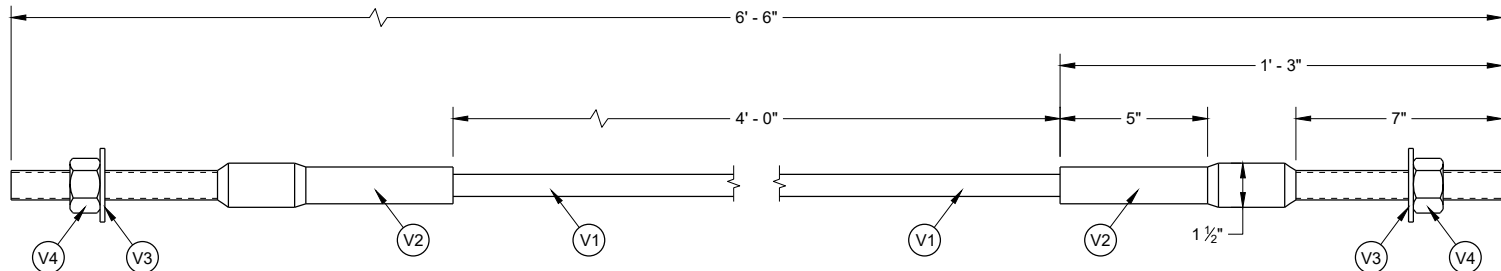
U - BOLT
(T1)



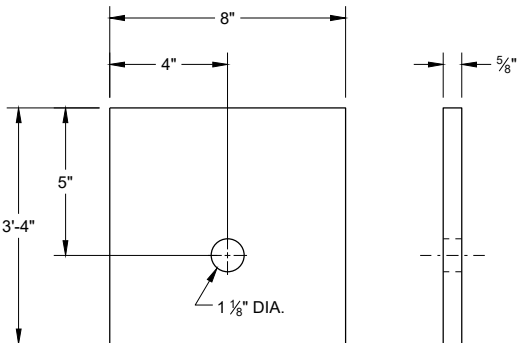
U - BOLT
NUT (T3)



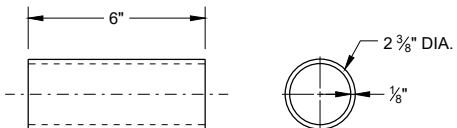
ELEVATION VIEW PROFILE VIEW
U - BOLT
PLATE WASHER (T2)



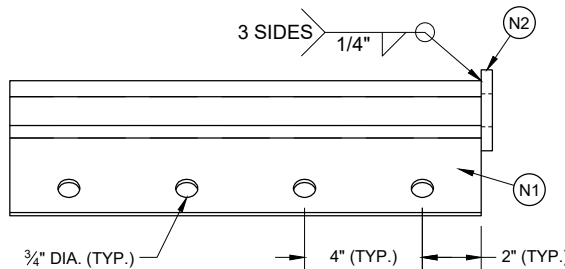
ANCHOR CABLE ASSEMBLY



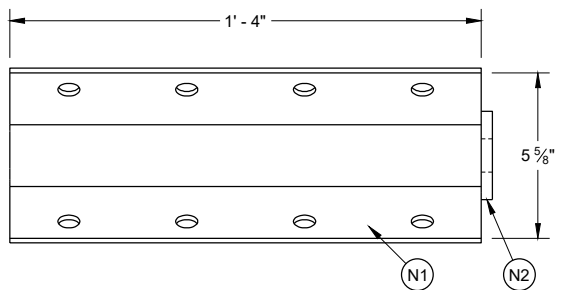
ELEVATION VIEW PROFILE VIEW
BCT BEARING PLATE (A3)



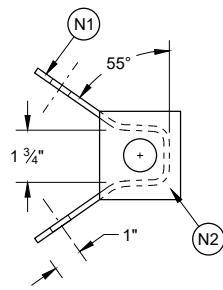
ELEVATION VIEW PROFILE VIEW
BCT POST SLEEVE (L2)



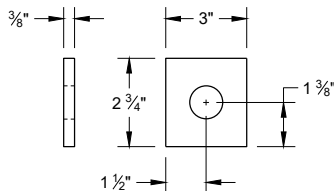
PLAN VIEW



ELEVATION VIEW
ANCHOR BRACKET ASSEMBLY (N1)



PROFILE VIEW



ANCHOR BRACKET
END PLATE (N2)

STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
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BILL OF MATERIALS LIST

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION
A1	LONG FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A2	FOUNDATION TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
A3	BEARING PLATE AT POST	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B1	LOWER SLIP POST ASSEMBLY - PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
B2	LOWER SLIP POST ASSEMBLY - TUBE	AASHTO M111/ASTM A123 ASTM A500 GRADE B OR ASTM A-501
C1	UPPER SLIP POST ASSEMBLY - PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
C2	UPPER SLIP POST ASSEMBLY - POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
D1	BLOCK FOR STEEL POST - WOOD	WISDOT SPEC. 614
D2	TAPERED BLOCK FOR STEEL POST - WOOD	WISDOT SPEC. 614
D3	TAPERED BLOCK FOR BCT POST - WOOD	WISDOT SPEC. 614
E1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER
E2	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER. INDICATE RADIUS BEAM GUARD IS BENT TO ON THE BACKSIDE OF RAIL. FOLLOW AASHTO M180. MARK RADIUS.
E3	THRIE BEAM RAIL - PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER
E4	THRIE BEAM RAIL - SHOP BENT AND PUNCHED	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER. INDICATE RADIUS BEAM GUARD IS BENT TO ON THE BACKSIDE OF RAIL. FOLLOW AASHTO M180. MARK RADIUS.
F1	5/8" DIA. HEX HEAD GROUND STRUT AND YOKE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
F2	5/8" DIA. GROUND STRUT AND YOKE BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
F3	GROUND STRUT AND YOKE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
G1	5/8 " DIA. POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G2	POST BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER TYPICALLY USED WITH STEEL POSTS) OR ASTM F844 (UNHARDENED WASHER TYPICALLY USED WITH WOOD)
G3	POST BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
H1	7/8" DIA. SOIL TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
H2	SOIL TUBE BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDEN WASHER ONLY)
H3	SOIL TUBE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD 7/8" ASTM A563DH OR SAE J995 GRADE 5
J1	16D DOUBLE HEAD NAIL	ASTM A153 HOT DIPPED CLASS D DOUBLE HEAD ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)
L1	BCT TIMBER POST	WISDOT SPEC. 614 S4S FINISH ON 4 SIDE
L2	BCT POST SLEEVE	AASHTO M111/ASTM A123 2 3/8" OD ASTM 53 GRADE B
M1	W6X8.5 OR W6X9 STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
M2	W6X8.5 OR W6X9 STEEL POST	AASHTO M111/ASTM A123 ASTM A6 W6X9 OR W6X8.5 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N1	ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
N2	ANCHOR BRACKET - BEARING PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI

PART NUMBER	DESCRIPTION	MATERIAL SPECIFICATION
P1	5/8" DIA. ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
P2	ANCHOR BRACKET BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
P3	SOIL TUBE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
Q1	5/8" DIA. NOSE CABLE	6X19 AASTHO M30 / ASTM A741 XIPS INDEPENDENT WIRE CORE (IWRC) PR 6X25 XIPS, IWRC NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
Q2	NOSE CABLE-SWAGE BUTTON	COLD TUFF BUTTON, S-409 SIZE NO. 12 STOCK NUMBER 1040395 OR ANY OTHER SIMILAR SIZED WAGED-GRIP-BUTTON FERRULES. ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FIELD SWAGED PER MANUFACTURERS RECOMMENDATION. NOMINAL BREAKING STRENGTH OF 41.2 KIPS.
R1	NOSE CABLE ANCHOR BRACKET	AASHTO M111/ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI
S1	5/8" DIA. SPLICE BOLT - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
S2	SPLICE - BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD 5/8" ASTM A563DH OR SAE J995 GRADE 5
T1	1/4" DIA. NOSE CABLE - U BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36
T2	U-BOLT - PLATE WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
T3	U-BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
U1	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT	ASTM A153 OR B695 CLASS 55 OR F2329 UNC FULLY THREADED HEX HEAD TAP BOLT ASTM A449 OR SAE J429 GRADE 5
U2	7/16" DIA. SLIP POST ASSEMBLY - BREAKAWAY BOLT - WASHER	ASTM F436 TYPE I (HARDEN TYPICALLY USED WITH STEEL) GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO POST BOLT CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 55, F2329
U3	SLIP POST ASSEMBLY - BREAKAWAY BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / STM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
V1	¾" DIA. BCT CABLE	AASHTO M30 / ASTM A741 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6X19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN BREAKING STRENGTH OF 42.7 KIPS
V2	ANCHOR CABLE-SWAGE FITTING	UNC ASTM A576 GRADE 1035 SWAGE FITTING ARE TO BE FACTORY SWAGED. MIN. BREAKING STRENGTH OF 42.7 KIPS. ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."
V3	1" DIA. ANCHOR CABLE-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)
V4	1" DIA. ANCHOR CABLE-NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5
W1	REFLECTOR	SEE SDD 15A4

STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

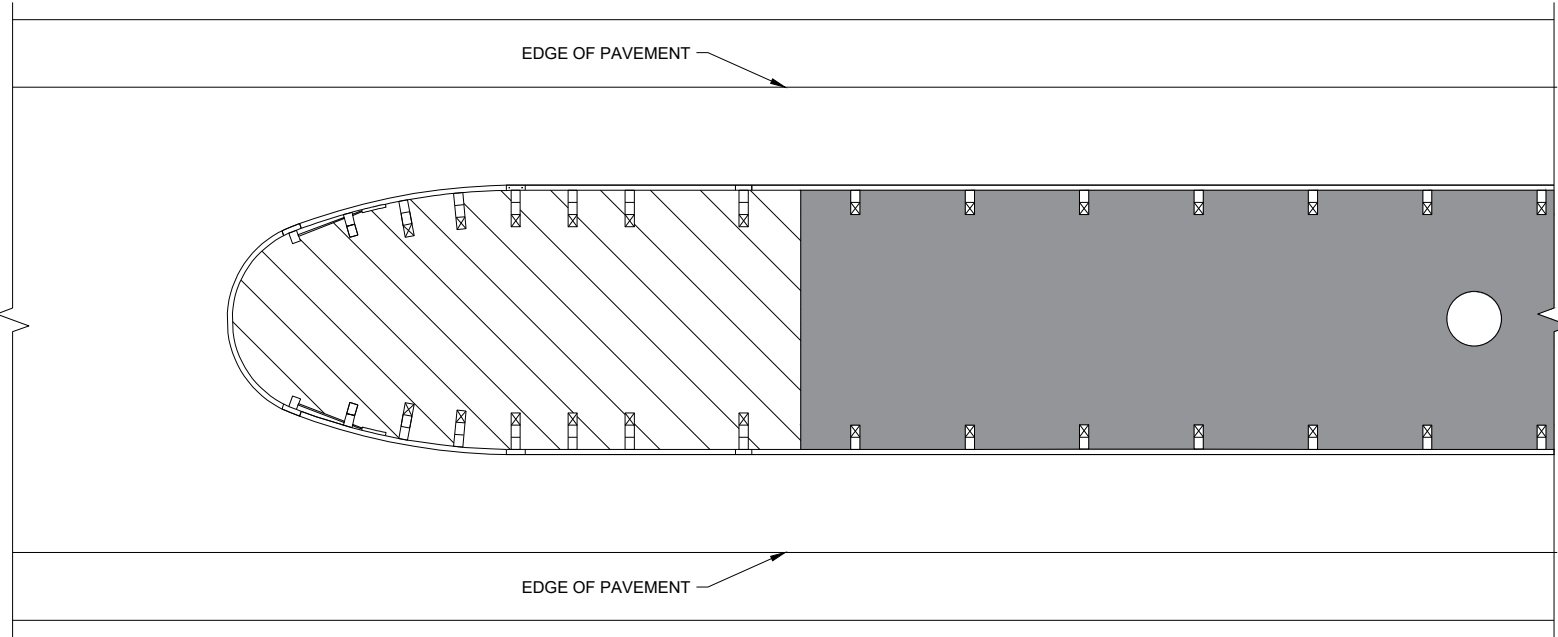
APPROVED
November 2022 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 202
FHWA

LEGEND

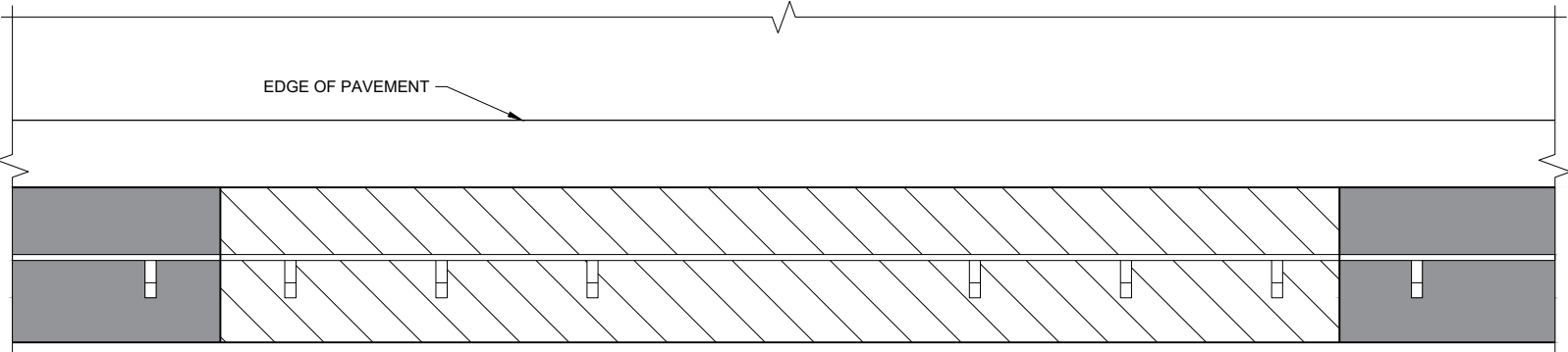
- CONCRETE, ASPHALT, OR EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)
- EMULSIFIED ASPHALT MOW STRIP (SEE OTHER DETAILS)

GENERAL NOTES

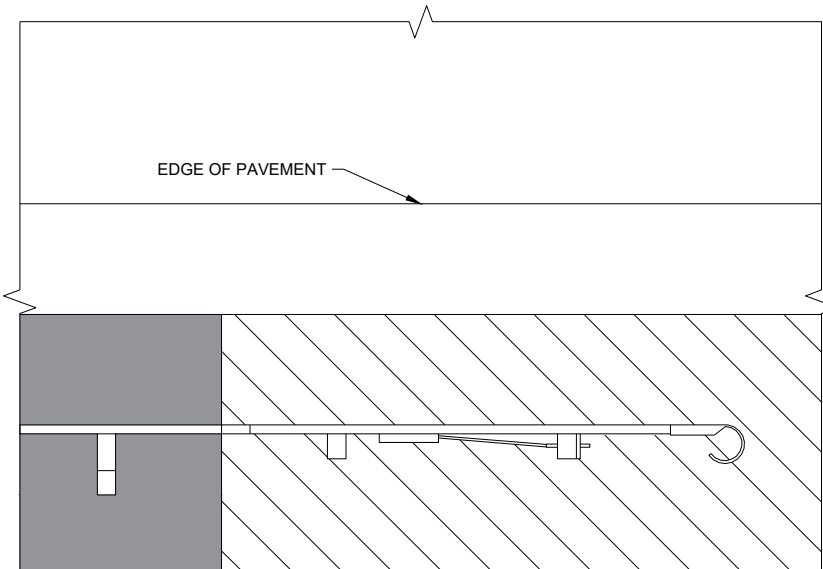
EXISTING THRIE BEAM BULLNOSES MAY HAVE WOOD POSTS. NEW THRIE BEAM BULLNOSE WILL HAVE STEEL POSTS.



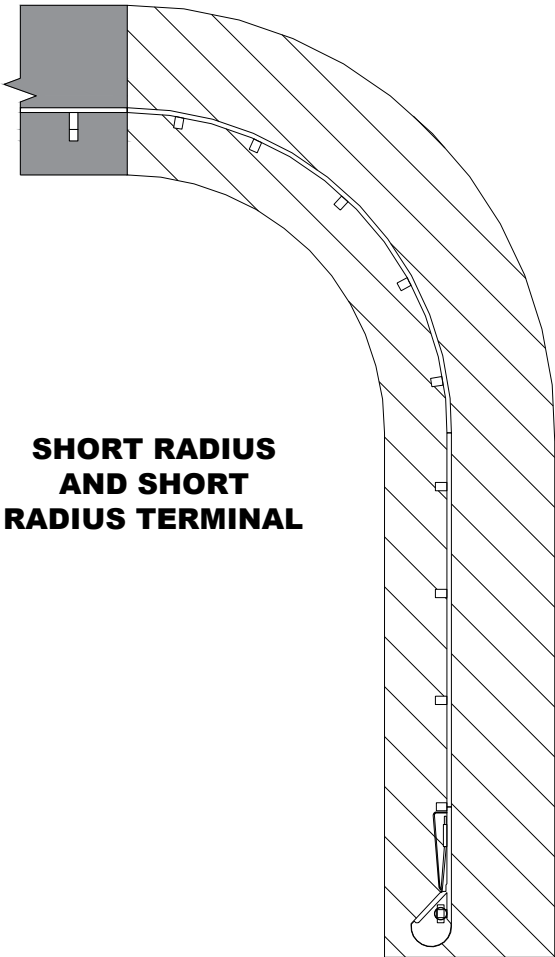
THRIE BEAM BULLNOSE



LONG - SPAN

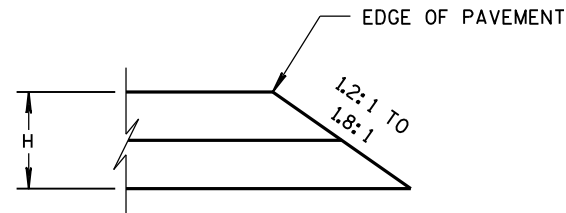


TYPE 2 TERMINAL

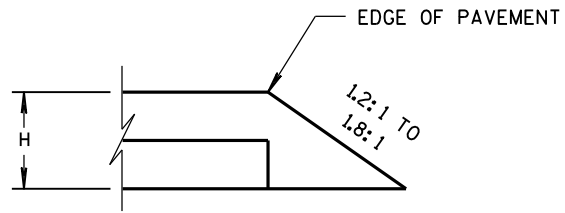


SHORT RADIUS
AND SHORT
RADIUS TERMINAL

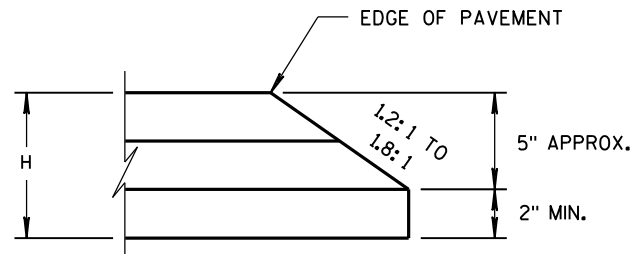
GUARDRAIL MOW STRIP	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2020 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER 204
FHWA	



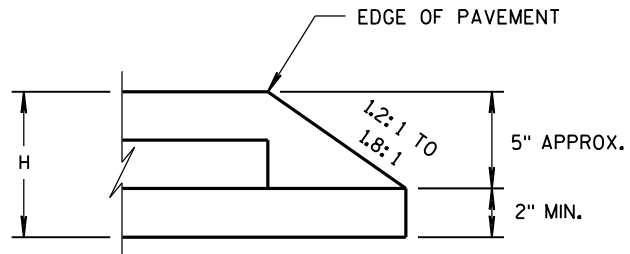
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

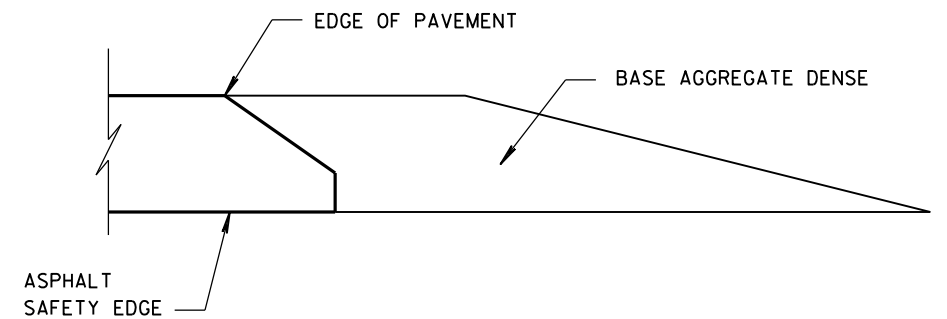


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

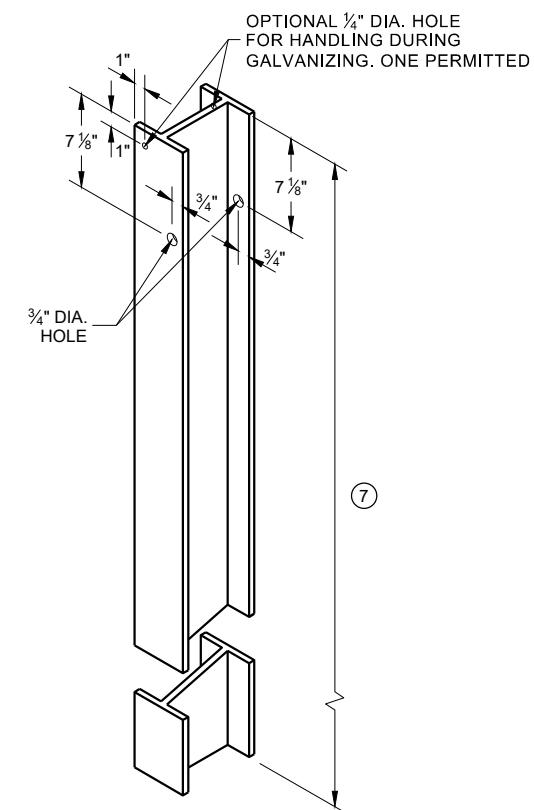
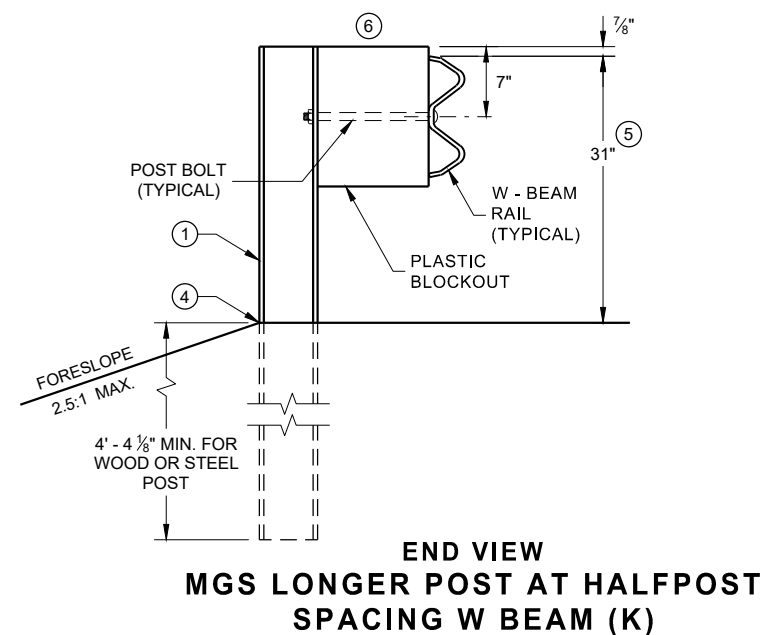
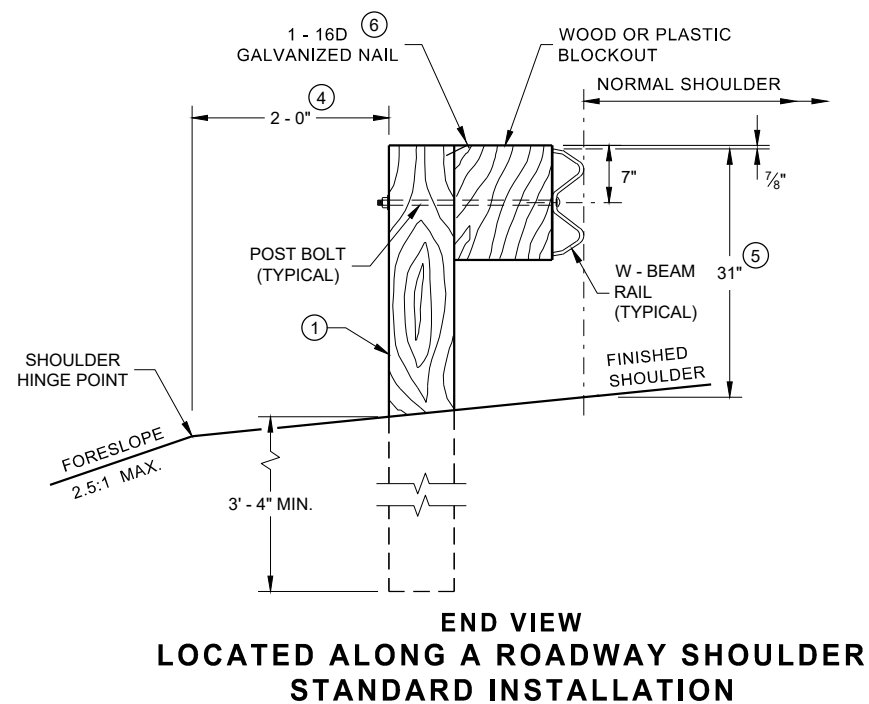
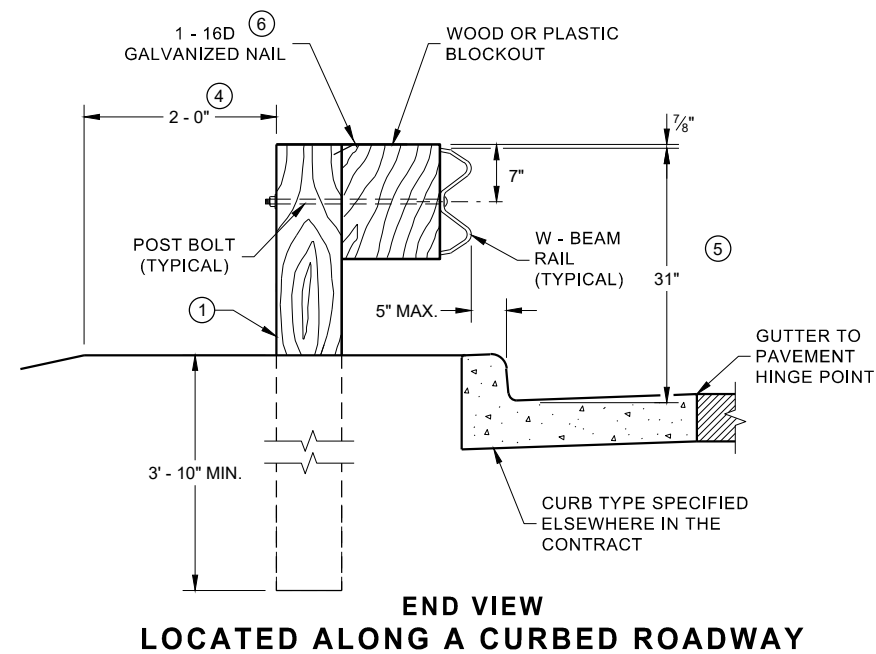
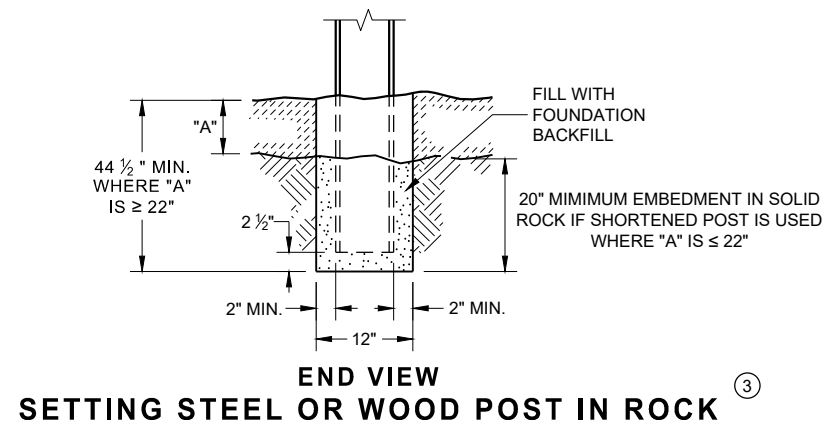
HMA PAVEMENT AND HMA OVERLAYS



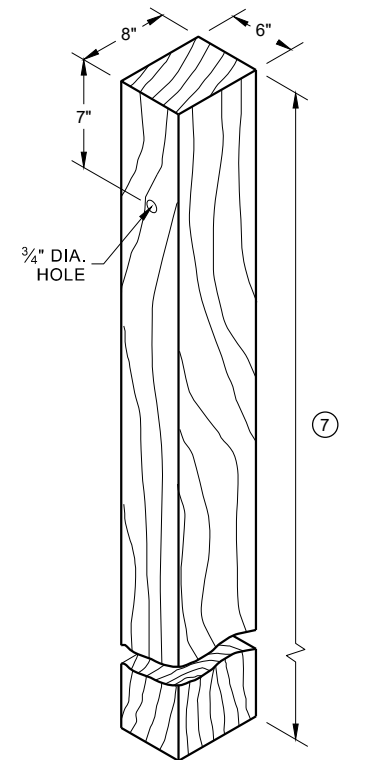
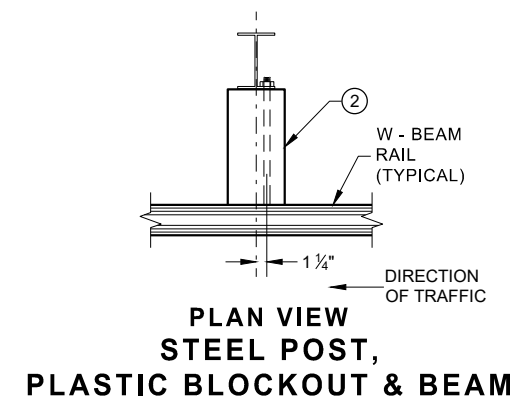
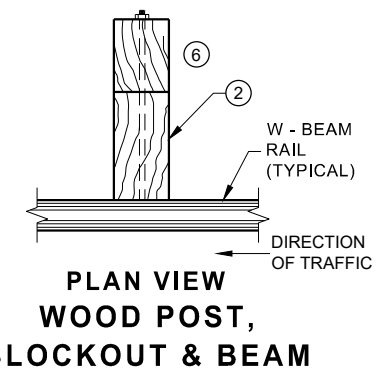
FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE _{SM}		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 11/30/2012	/S/ Jerry H. Zoaga ROADWAY STANDARDS ENGINEER	205 INT
FHWA		

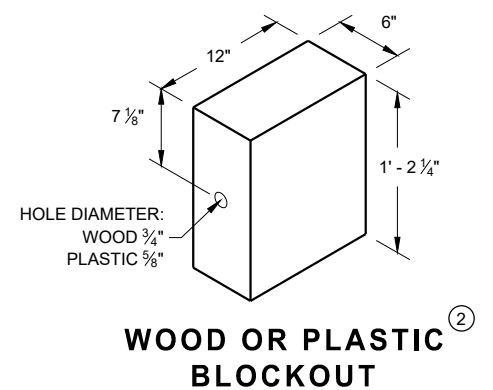
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



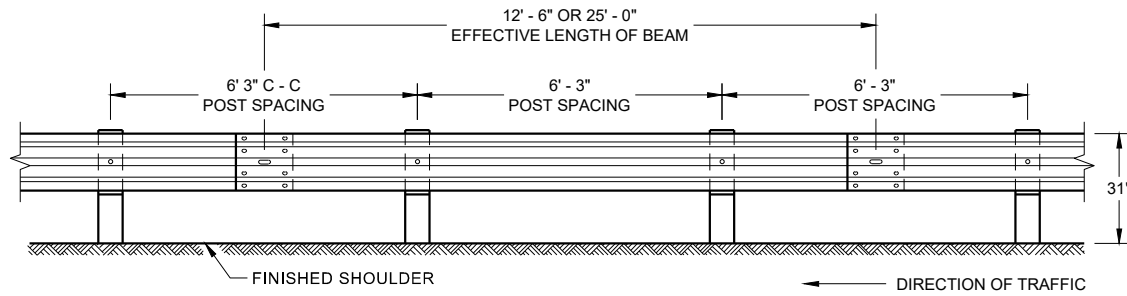
**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**



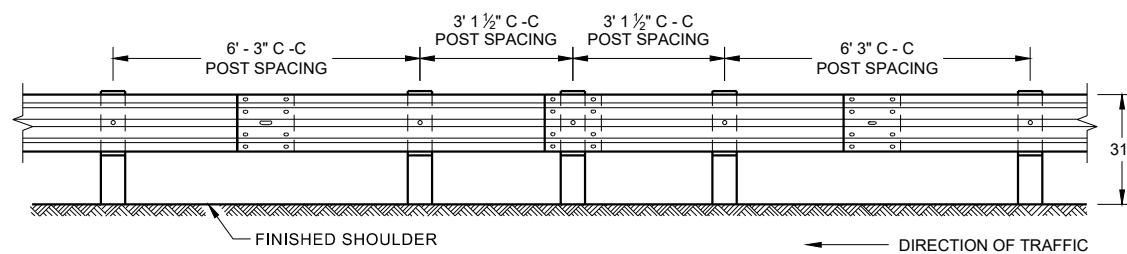
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



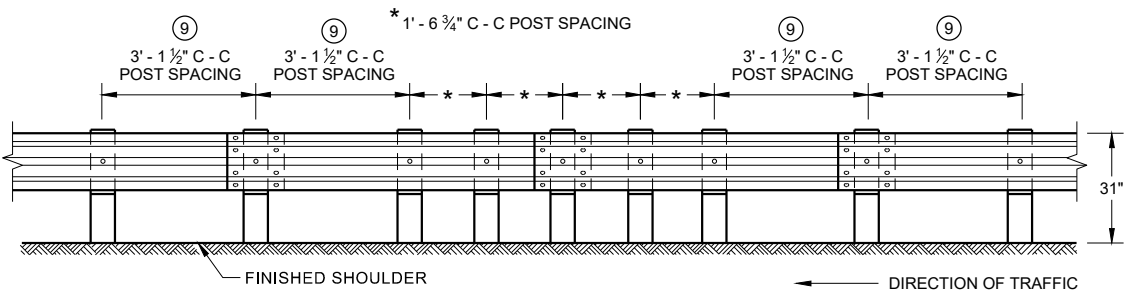
**WOOD OR PLASTIC
BLOCKOUT**



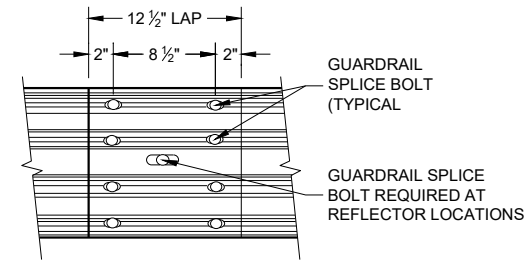
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



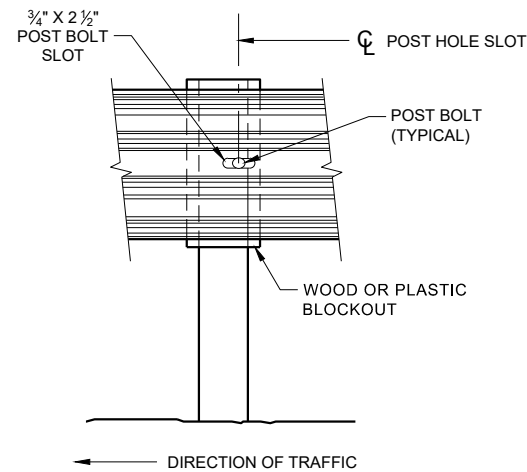
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



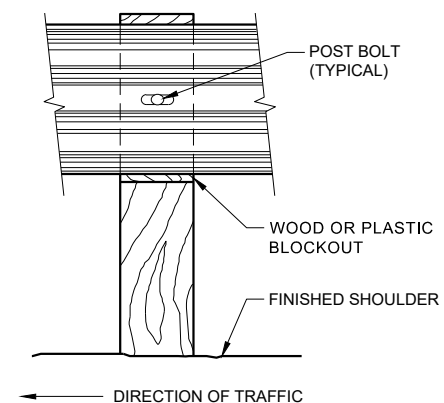
**FRONT VIEW
QUARTER POST SPACING (QS)**



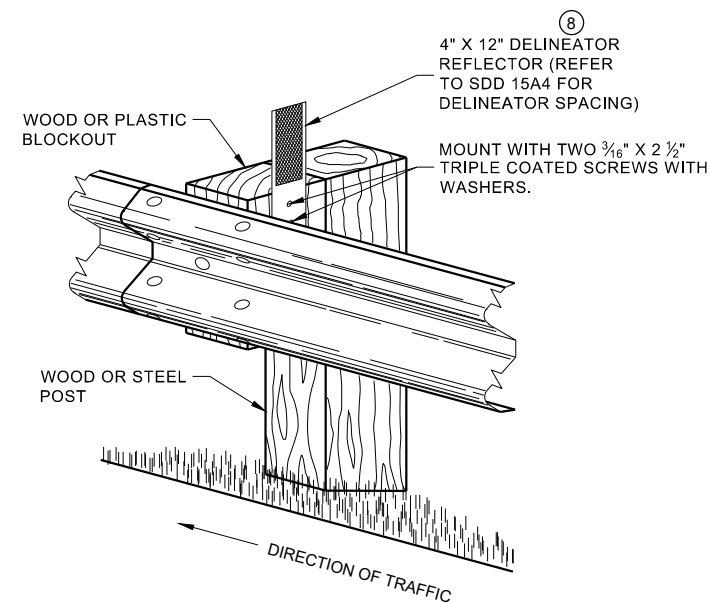
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



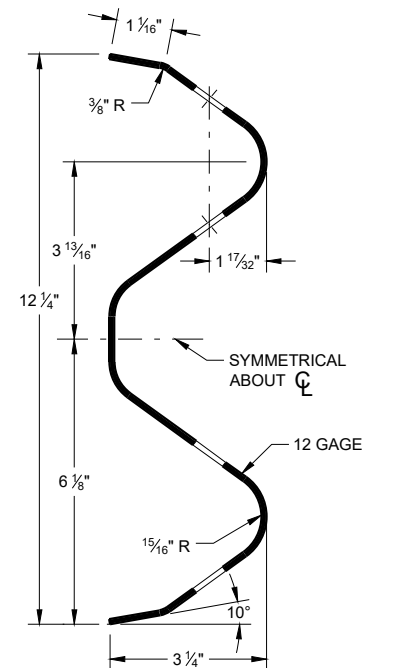
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 $\frac{3}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{3}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{3}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

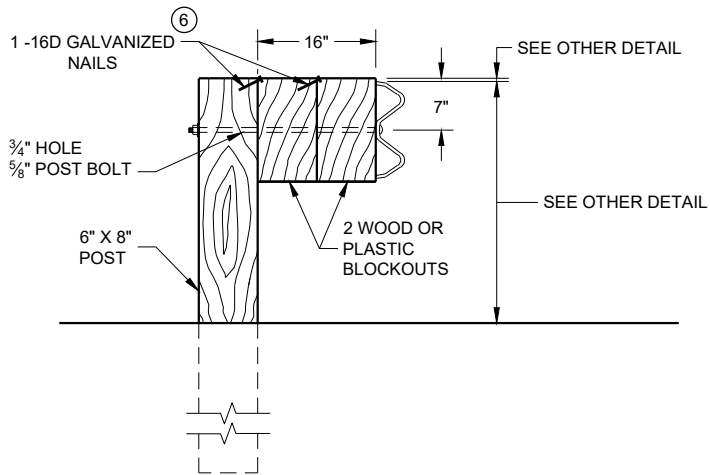
GUARD RAIL SPLICE BOLTS ARE A $\frac{3}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{3}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

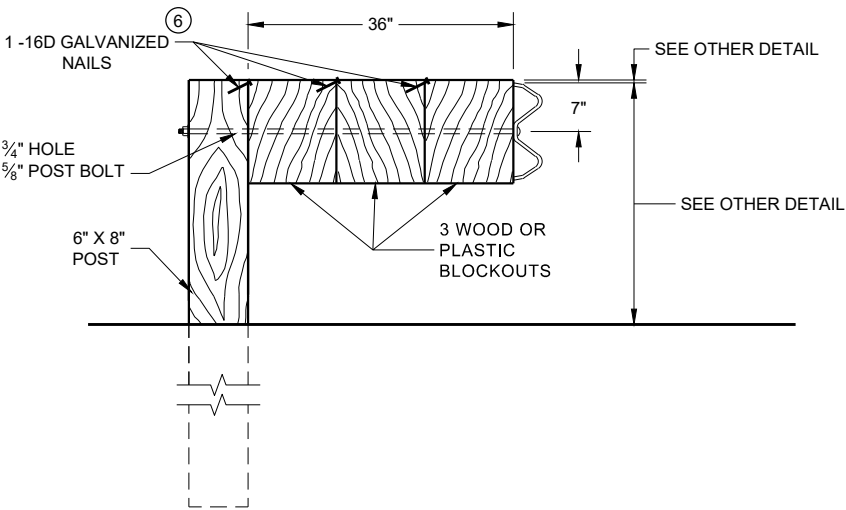
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 207



DETAIL FOR 16" BLOCKOUT DEPTH

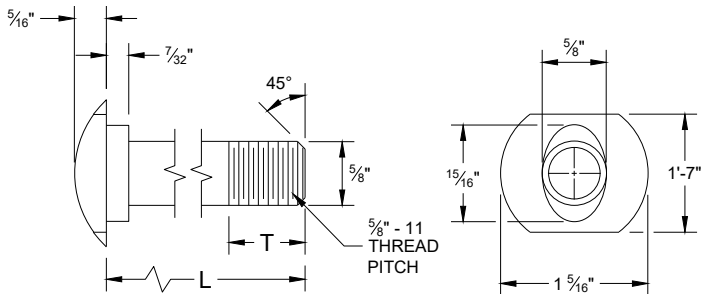
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

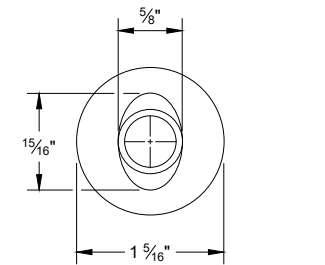
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

- 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.

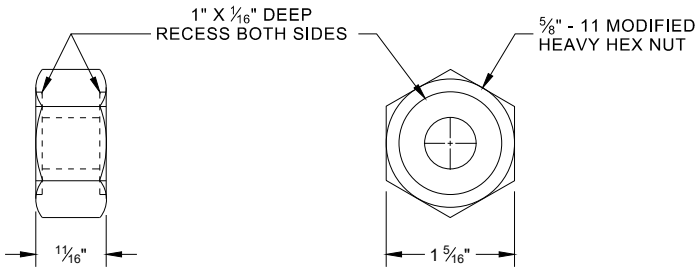


POST BOLT TABLE

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"

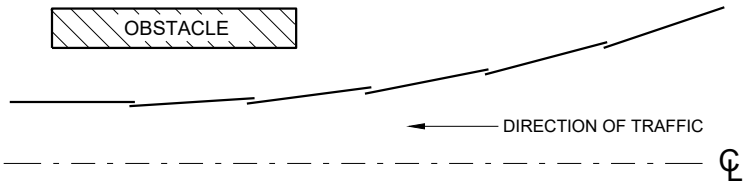


ALTERNATE BOLT HEAD

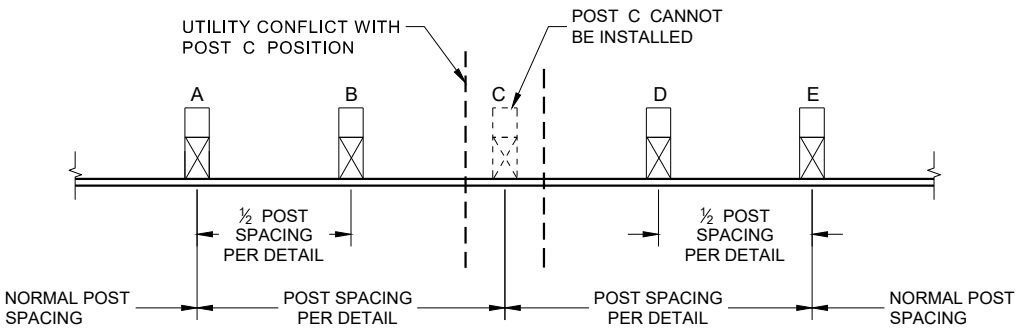


POST BOLT, SPLICE BOLT
AND RECESS NUT

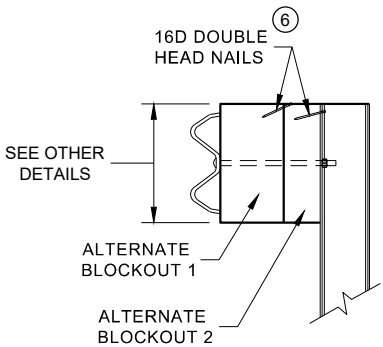
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



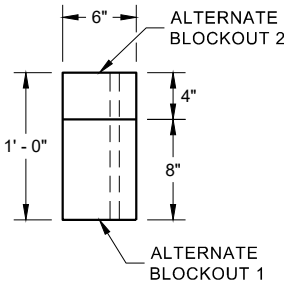
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

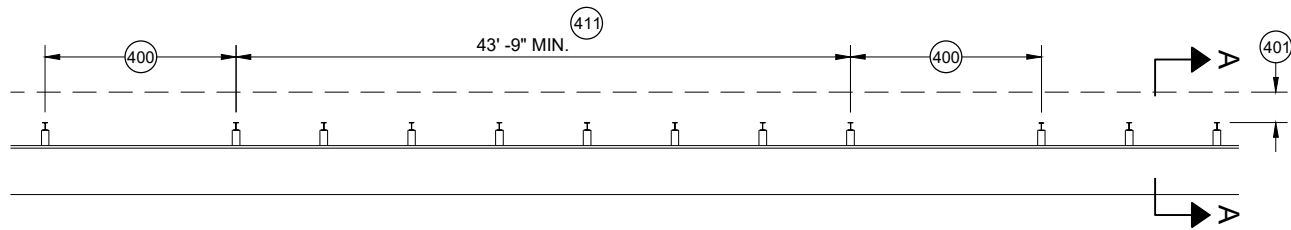


PLAN VIEW

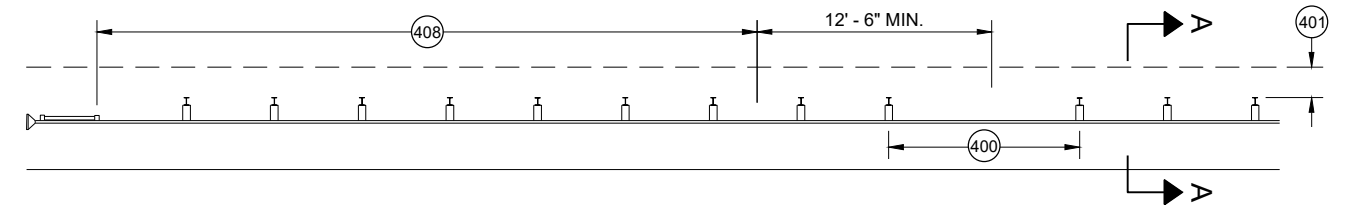
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

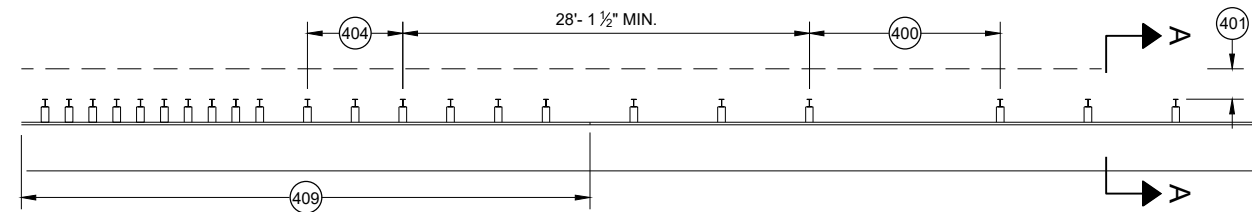
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



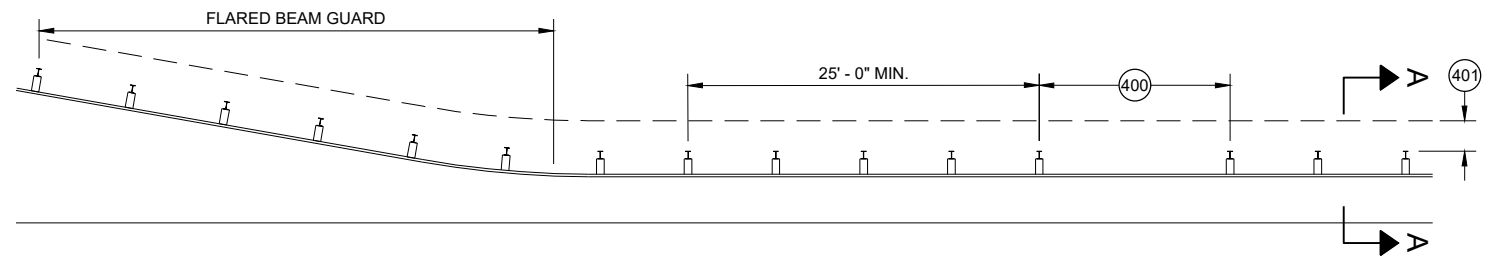
MISSING POST IN MGS GUARDRAIL



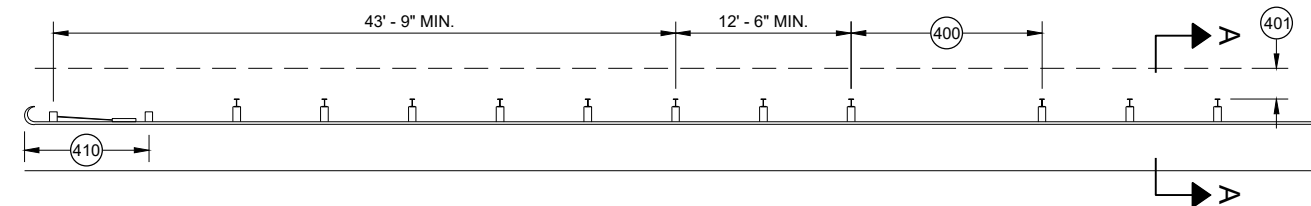
MISSING POST IN MGS GUARDRAIL NEAR EAT



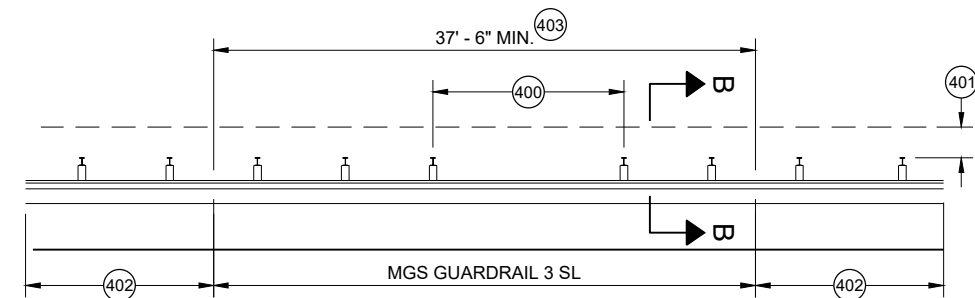
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

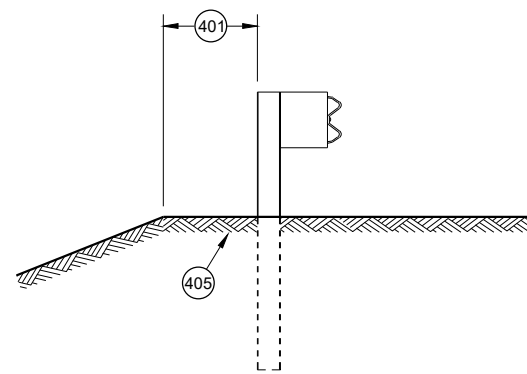


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

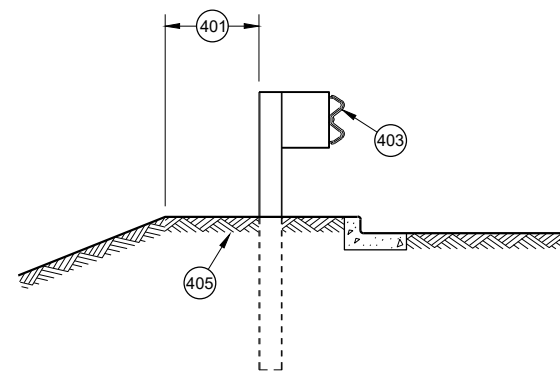


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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

FHWA

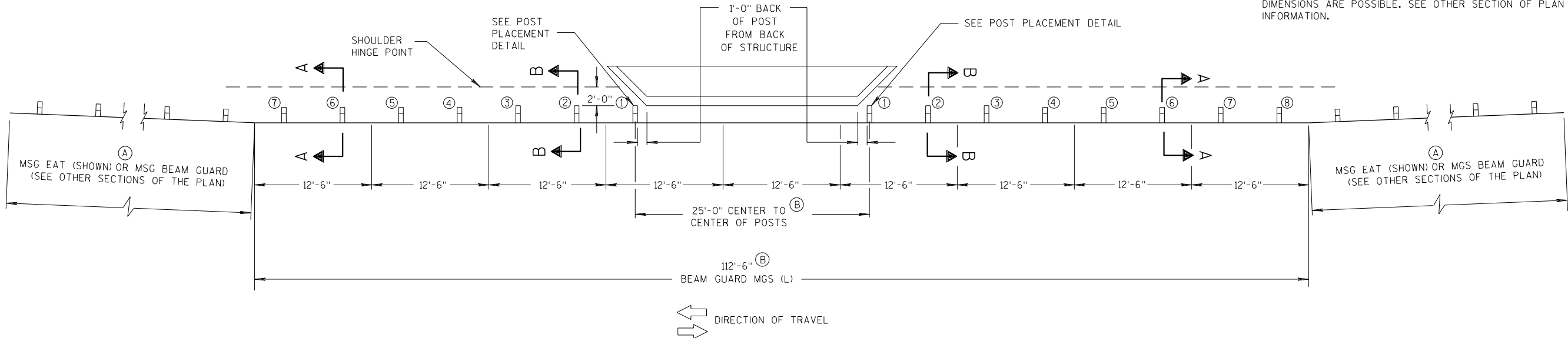
GENERAL NOTES

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

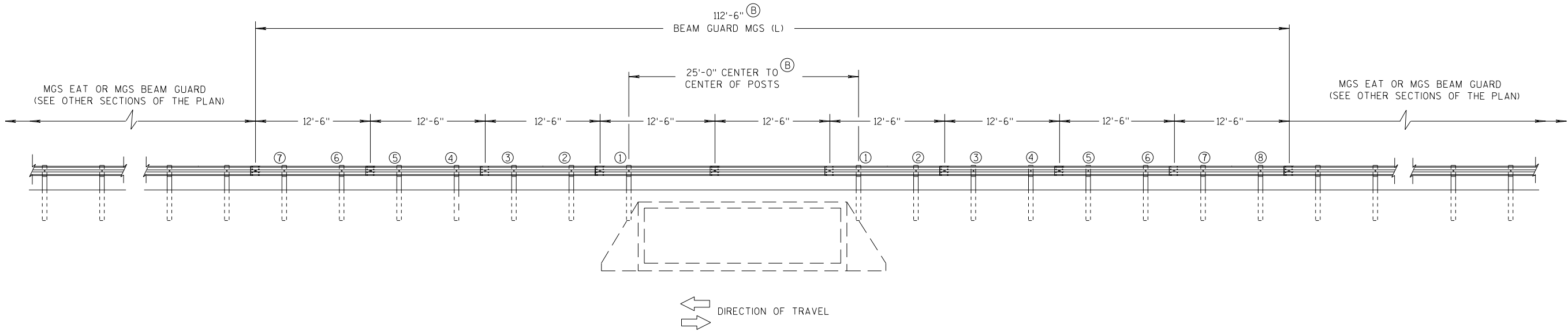
SEE SDD 14 B 42 FOR MORE DETAILS.

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

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



PLAN VIEW



ELEVATION VIEW

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

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

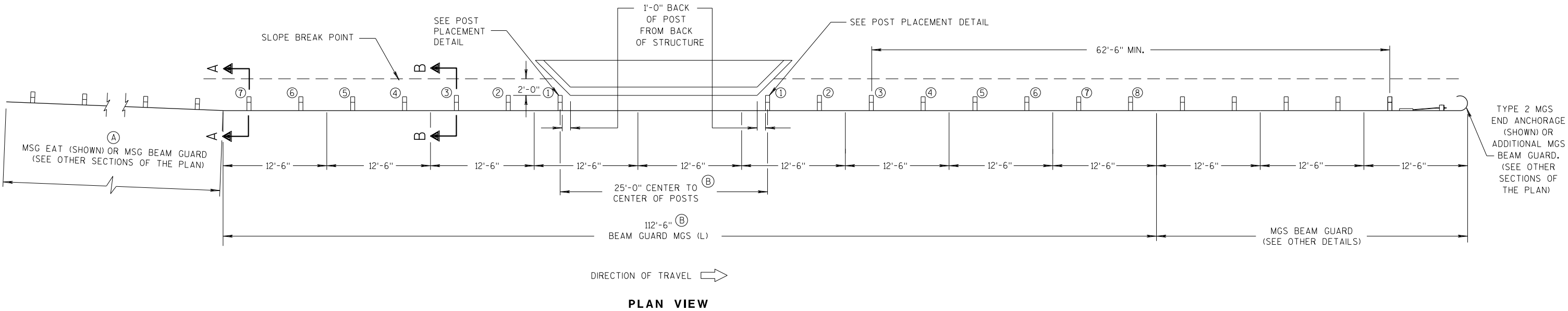
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

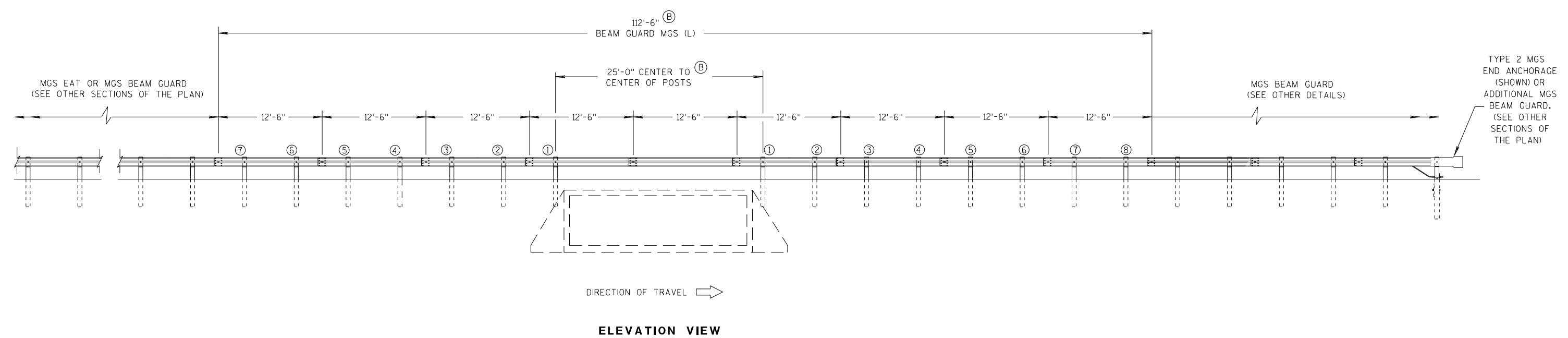
POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

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



PLAN VIEW

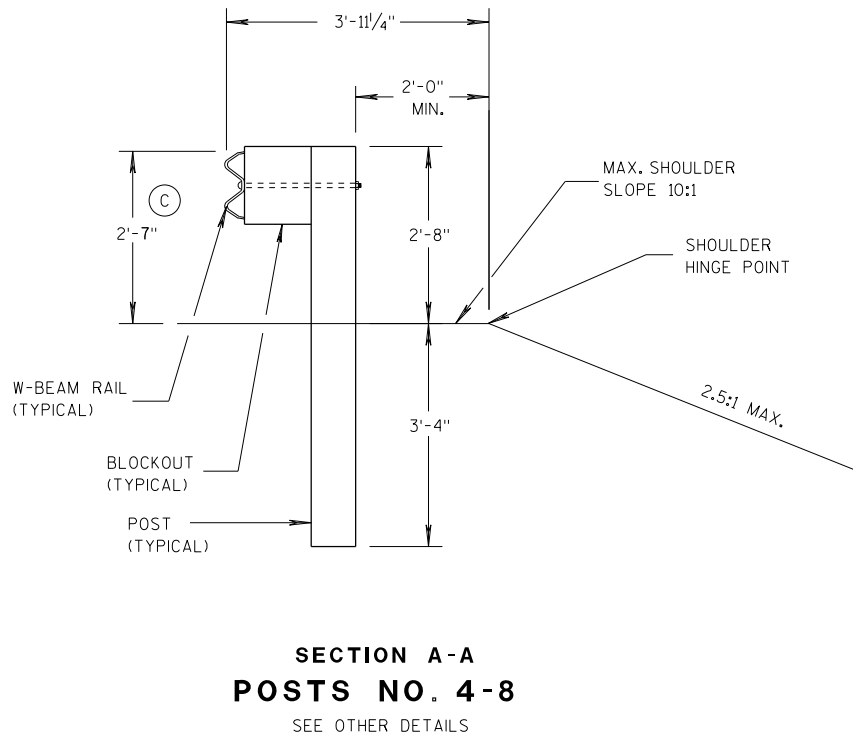
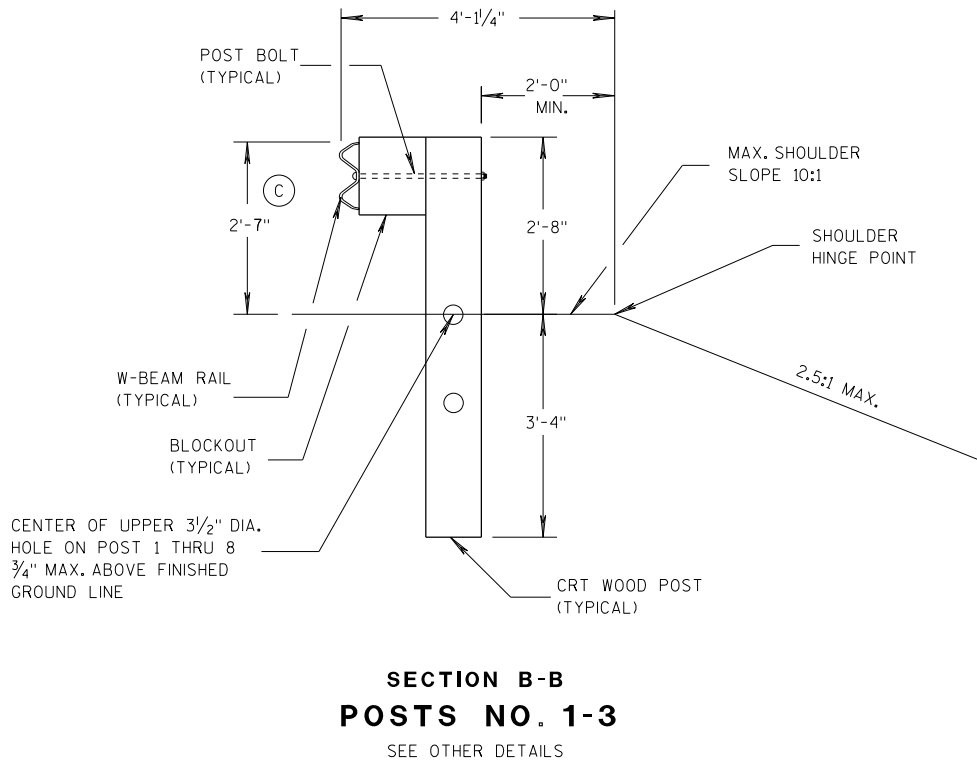
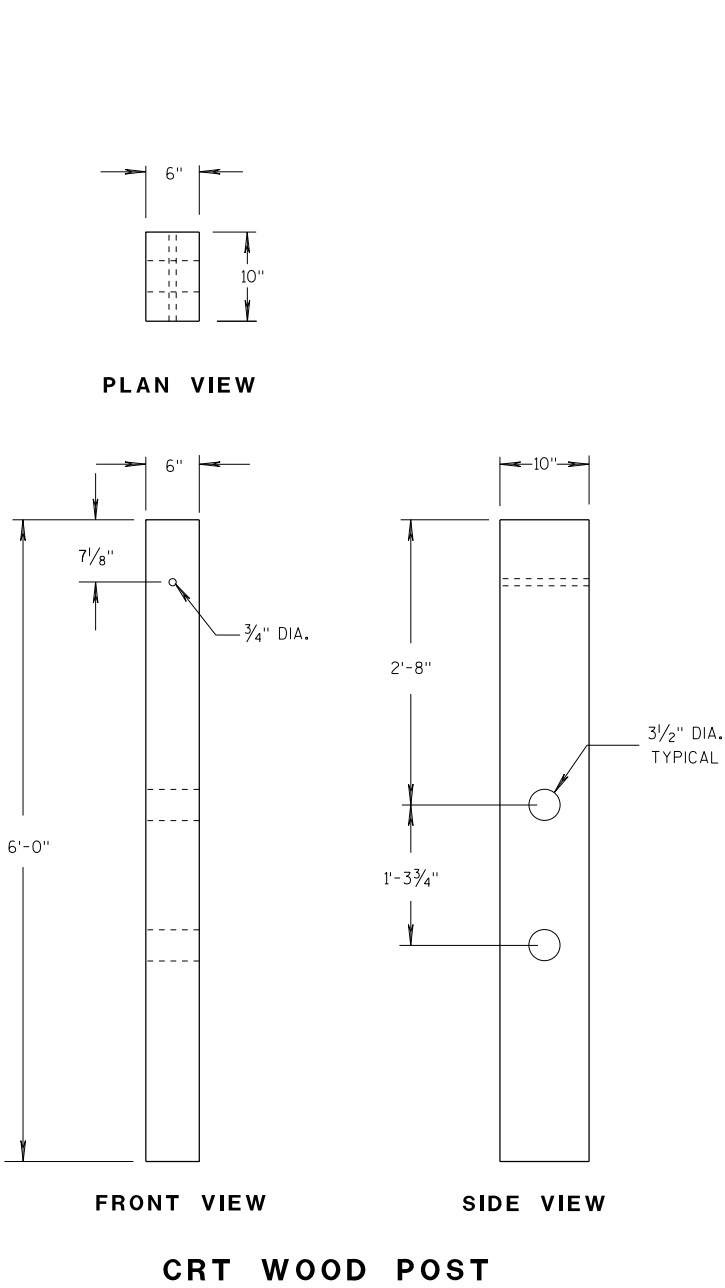


ELEVATION VIEW

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

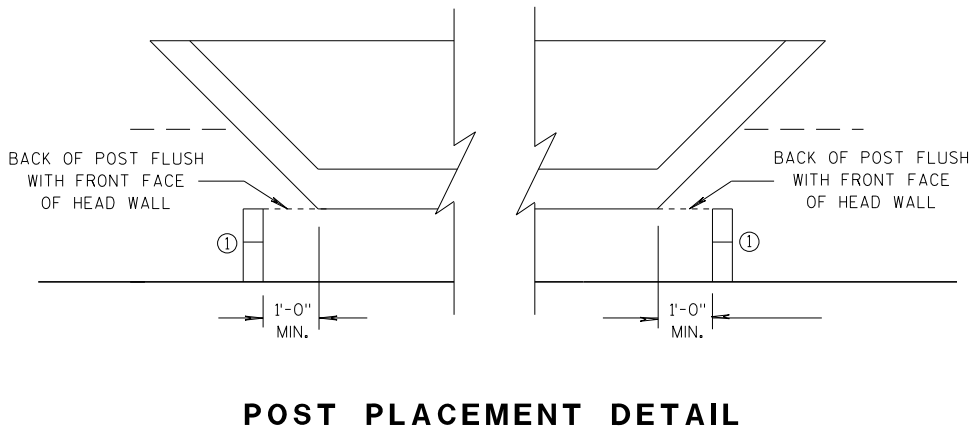
MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

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



MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED			
07/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS	212	NT
FHWA	ENGINEER		

GENERAL NOTES

- (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
 - (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.

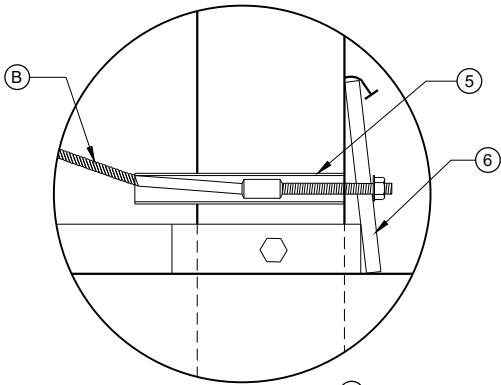
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

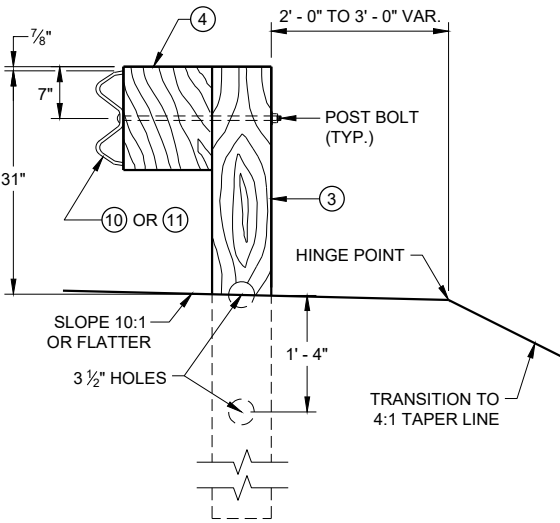
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

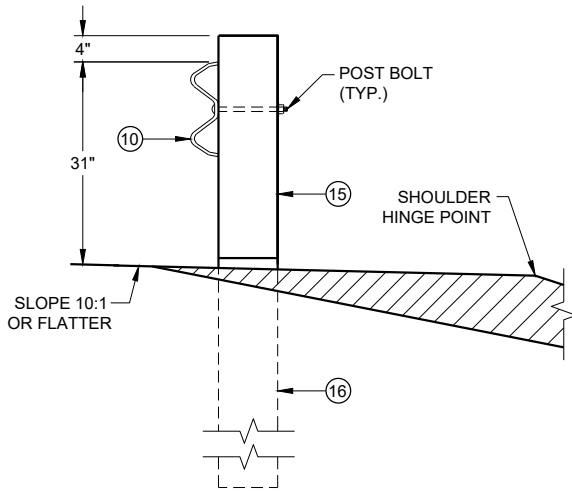
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



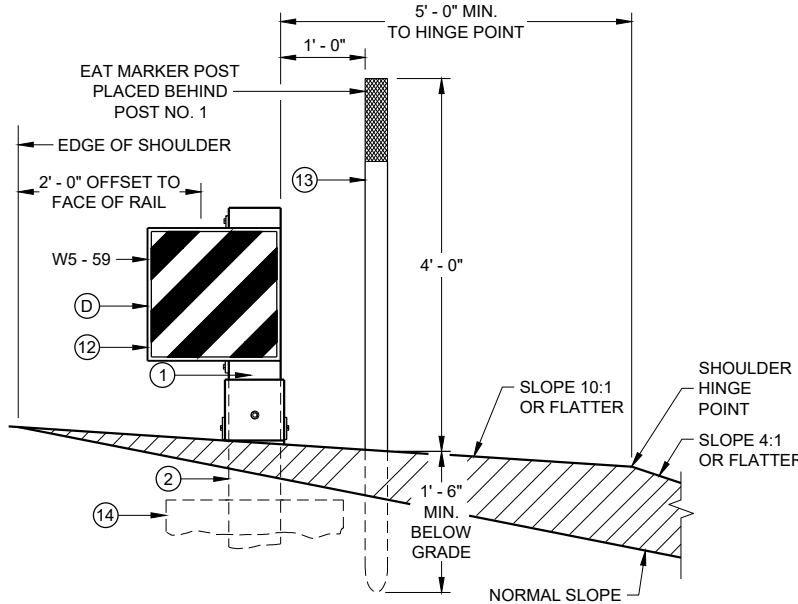
DETAIL "A"



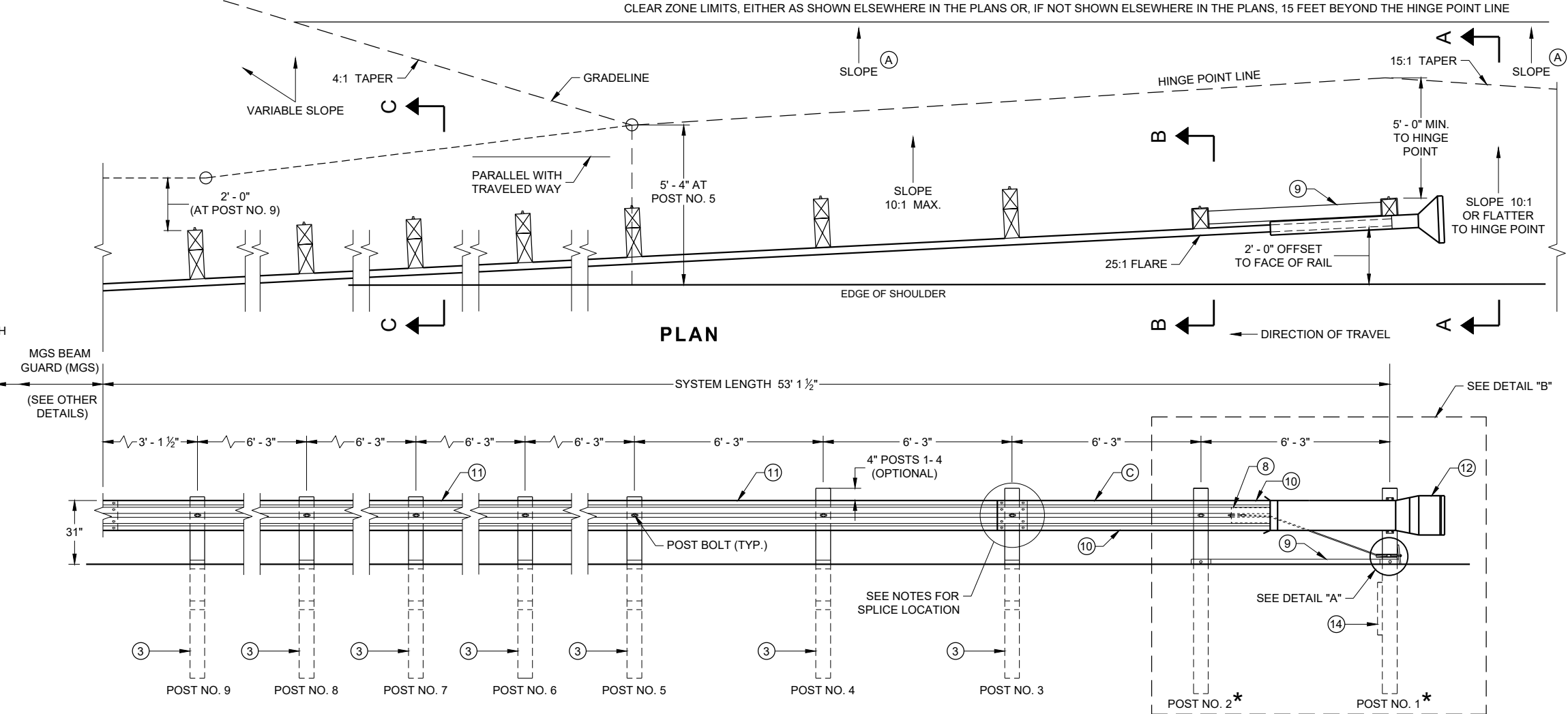
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*

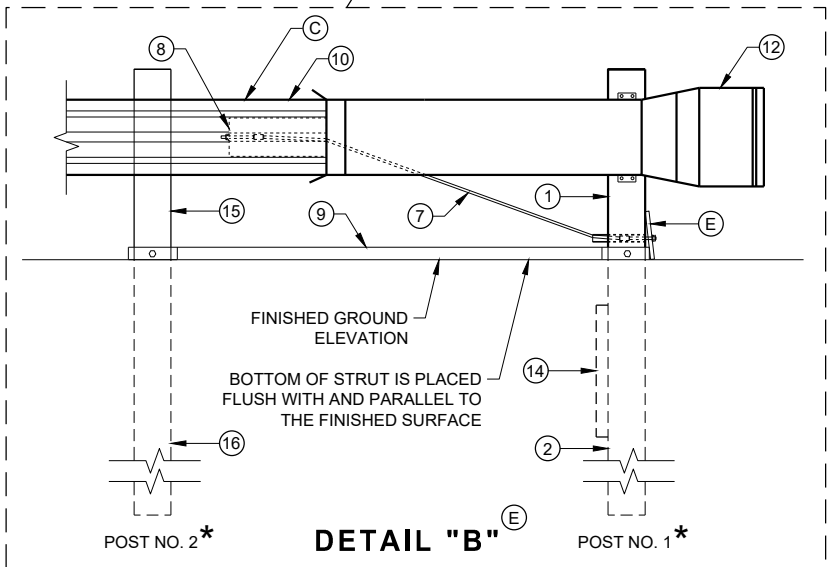


SECTION A - A
TYPICAL AT POST NO. 1*



PLAN

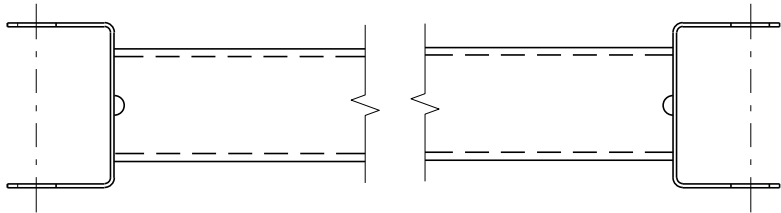
ELEVATION



DETAIL "B"

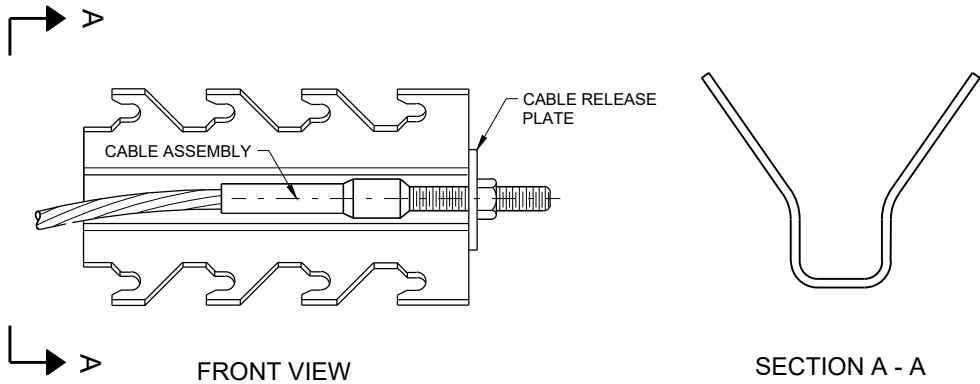
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

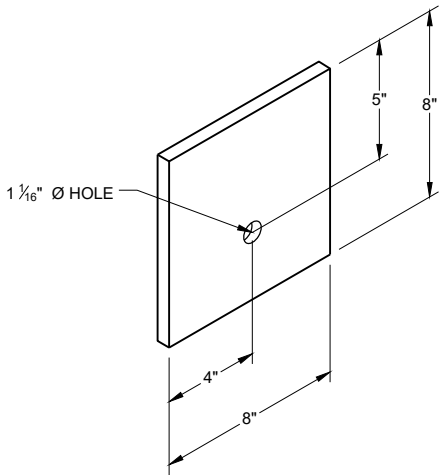


GENERIC GROUND STRUT⁹ E

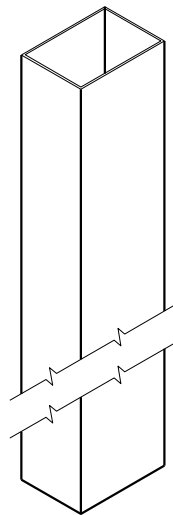
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED 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



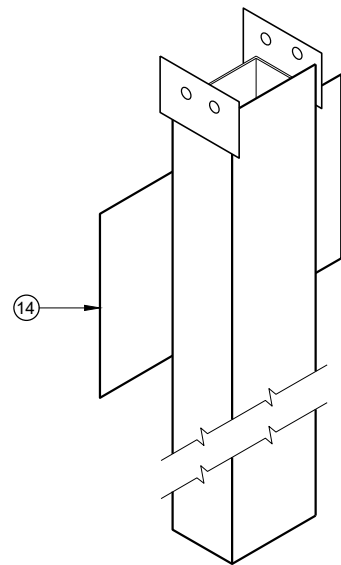
GENERIC ANCHOR CABLE BOX⁹ E



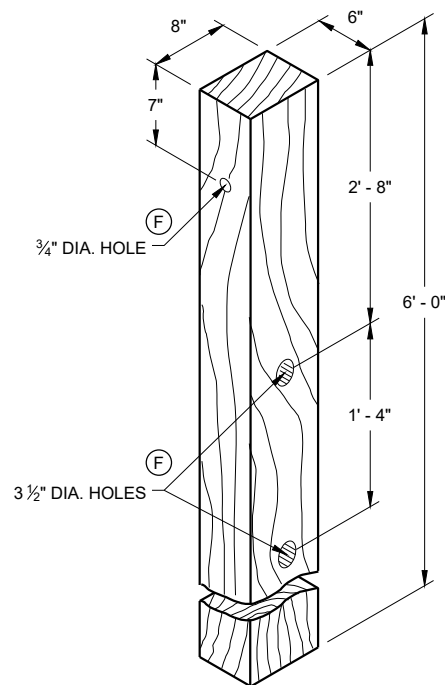
BEARING PLATE⁶ E



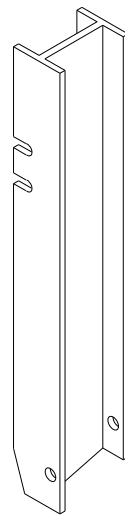
UPPER POST NO. 1 ⁽¹⁾ (E)



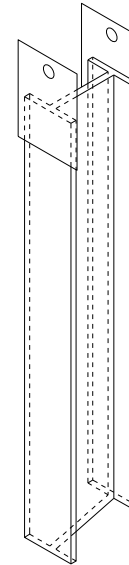
LOWER POST NO. 1 ⁽²⁾ (E)



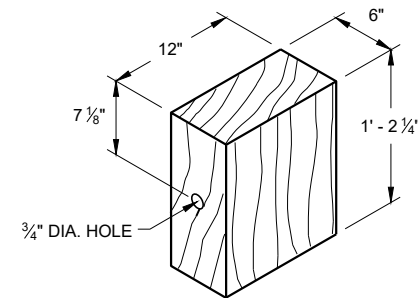
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



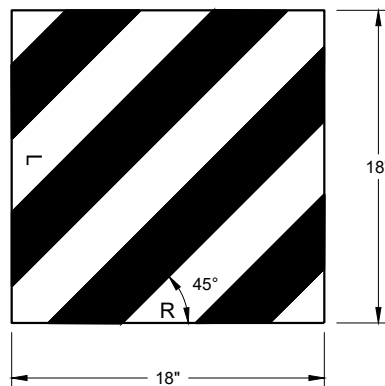
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



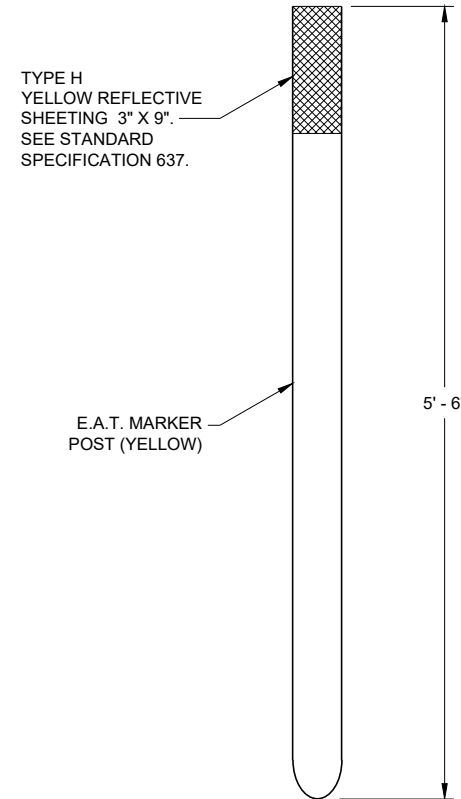
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



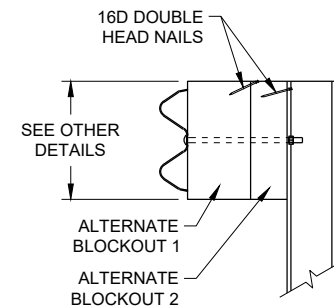
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



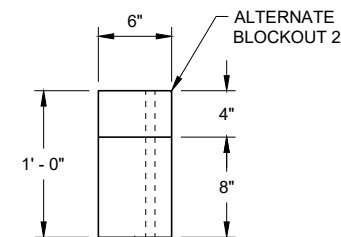
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



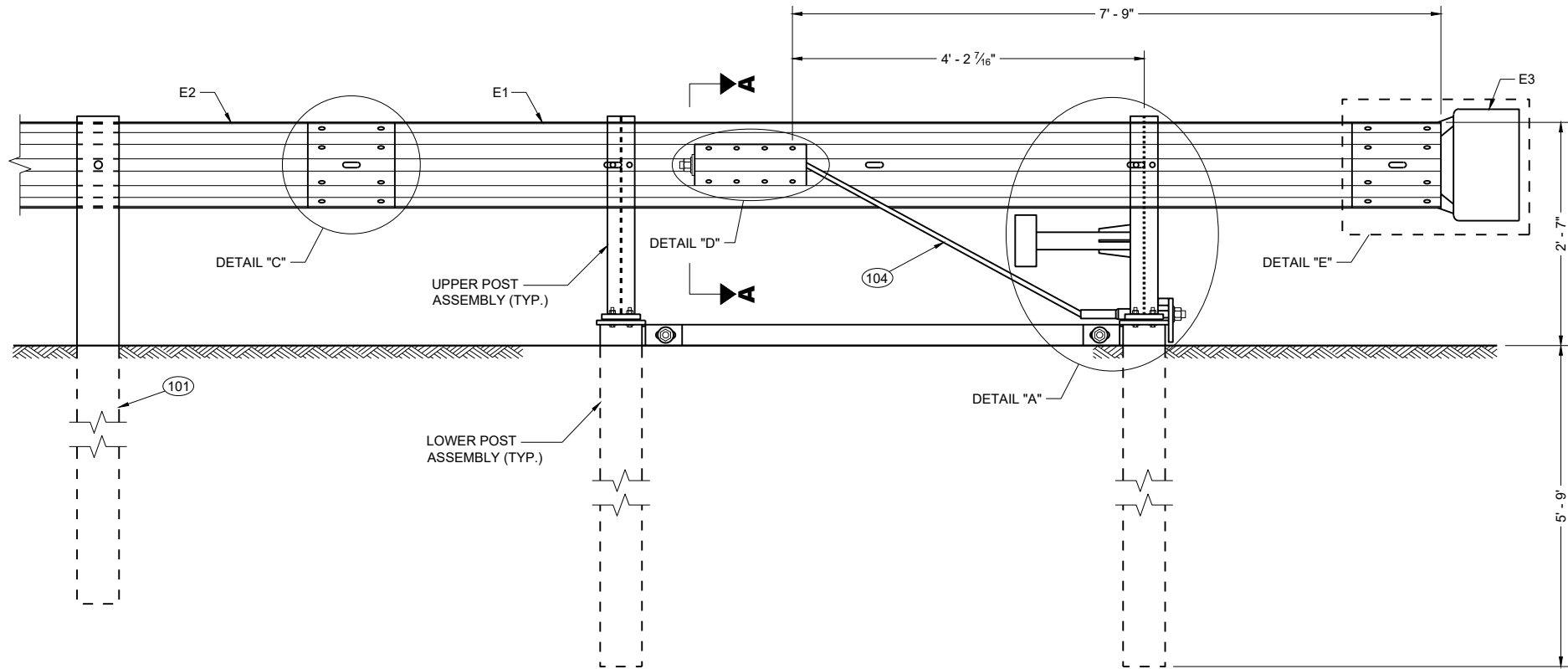
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

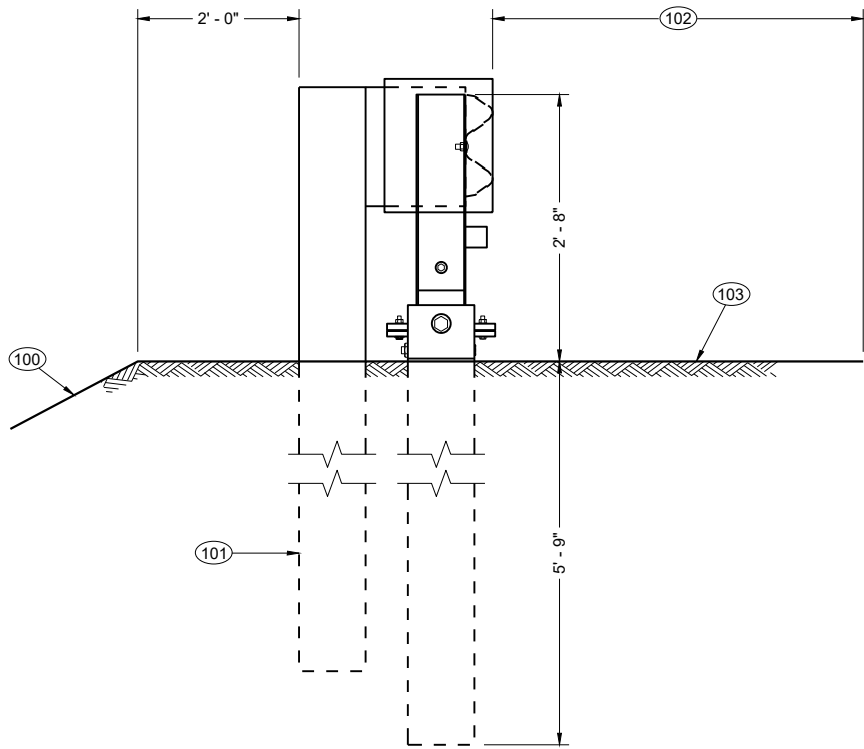
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

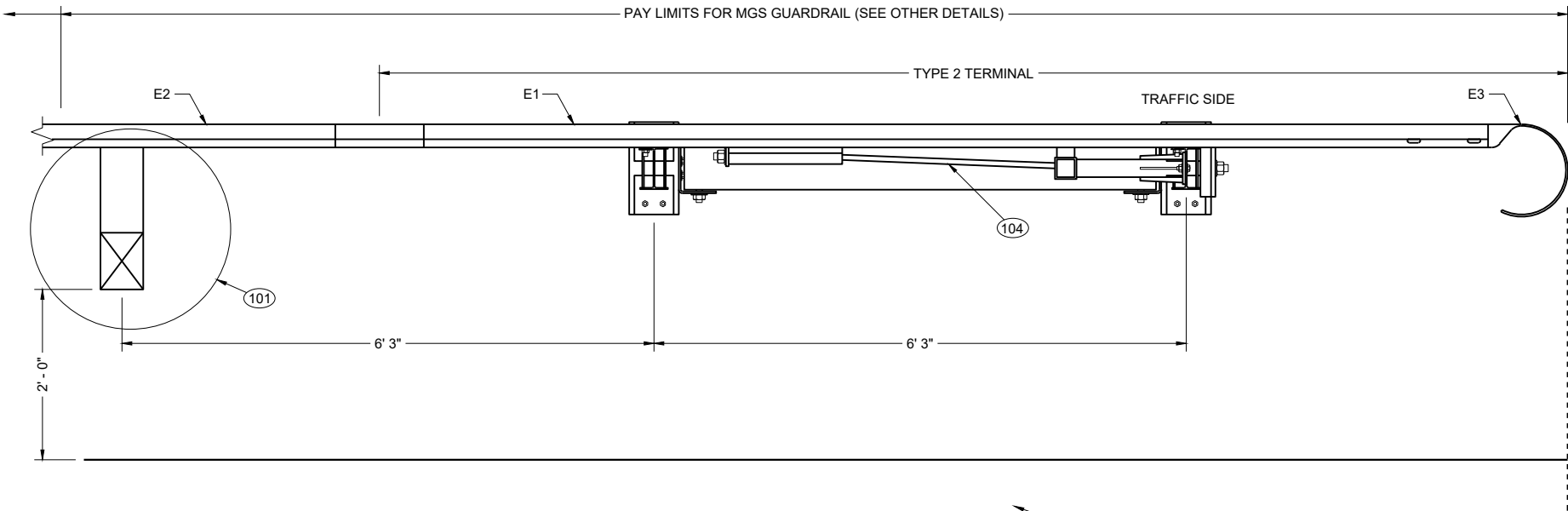
APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA



BACK VIEW
TYPE 2 TERMINAL



SIDE VIEW
TYPE 2 TERMINAL



TOP VIEW
TYPE 2 TERMINAL

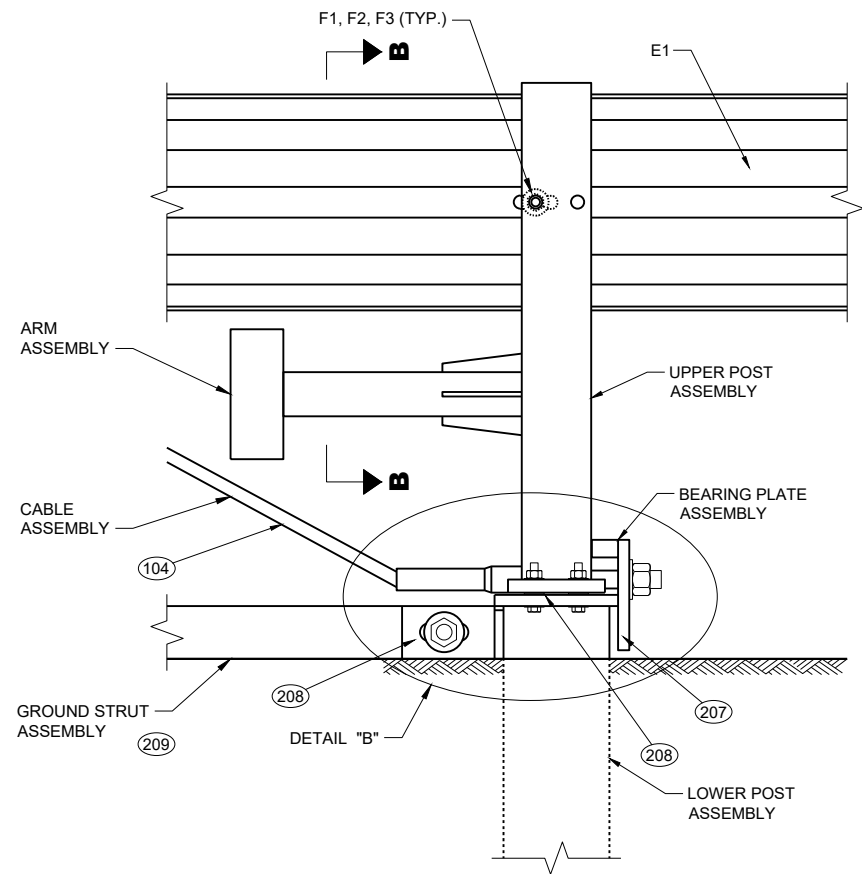
GENERAL NOTES

SEE SDD 14B42 FOR MORE INFORMATION

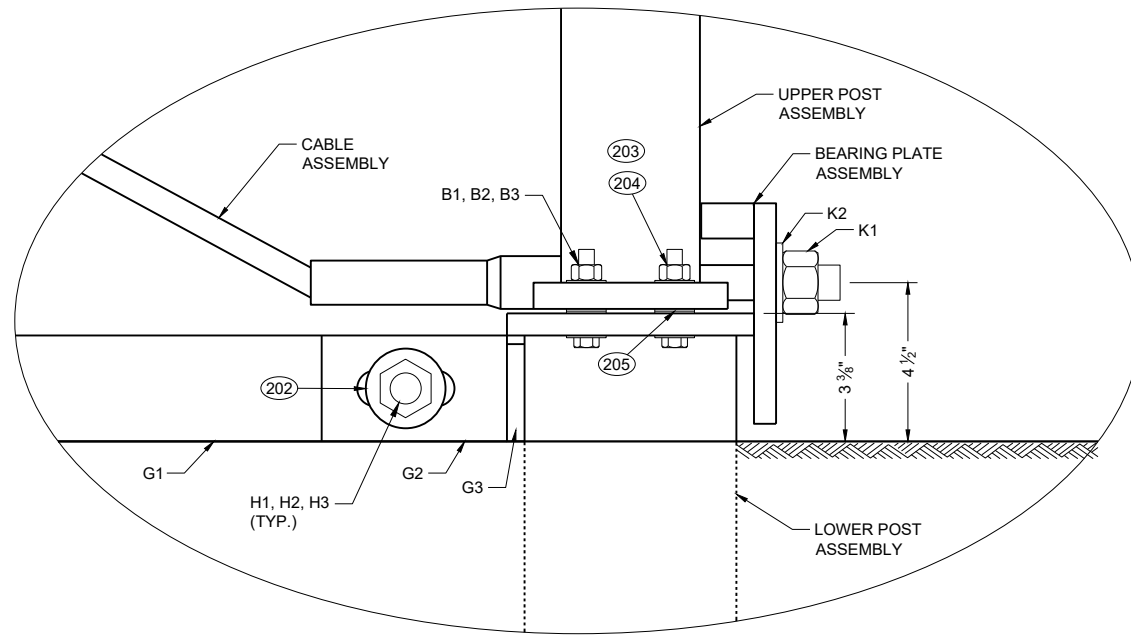
- 100 MAXIMUM SLOPE IS 2.5:1.
- 101 SEE SDD 14B42 FOR MORE INFORMATION.
- 102 SHOULDER
- 103 MAXIMUM SLOPE IS 10:1.
- 104 AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

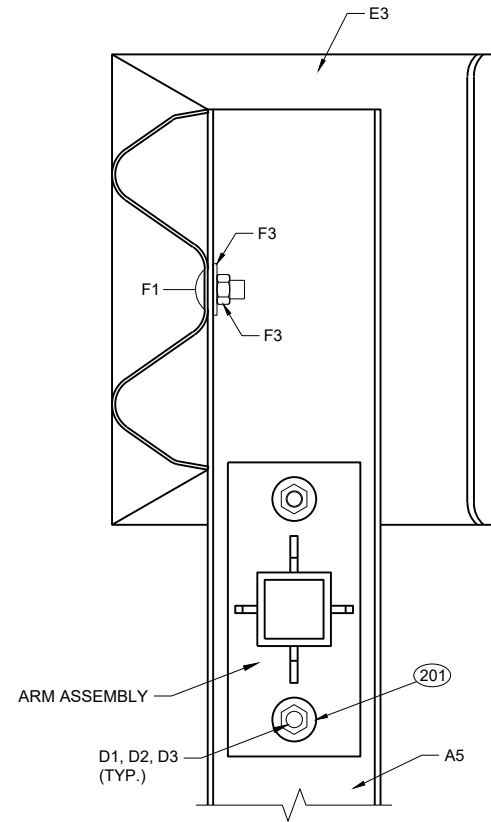
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



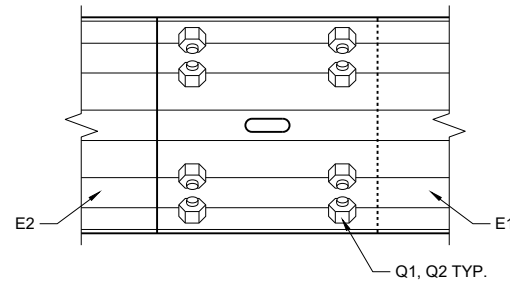
DETAIL "A"



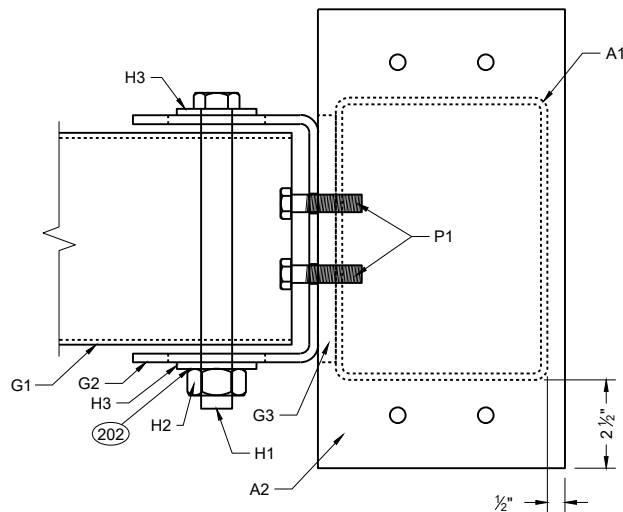
DETAIL "B"



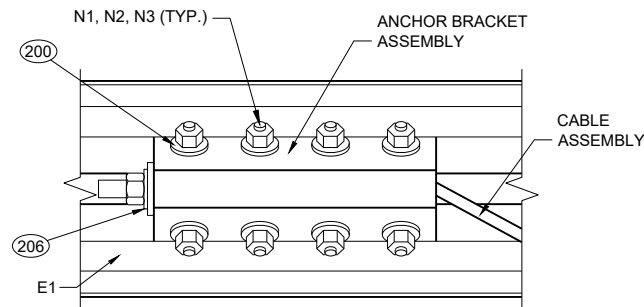
SECTION B - B



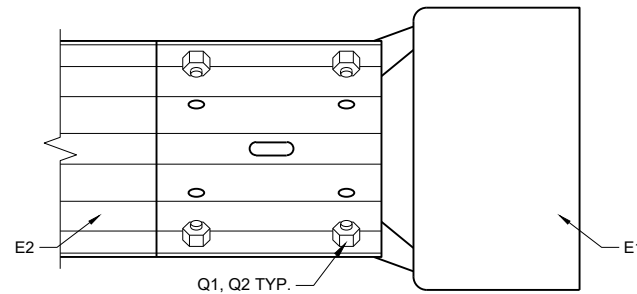
DETAIL "C"



TOP VIEW
GROUND STRUT
CONNECTION DETAIL



DETAIL "D"



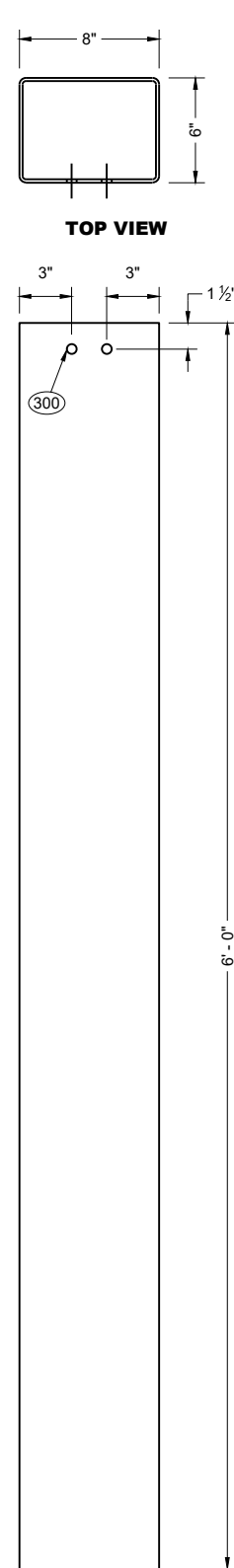
DETAIL "E"

GENERAL NOTES

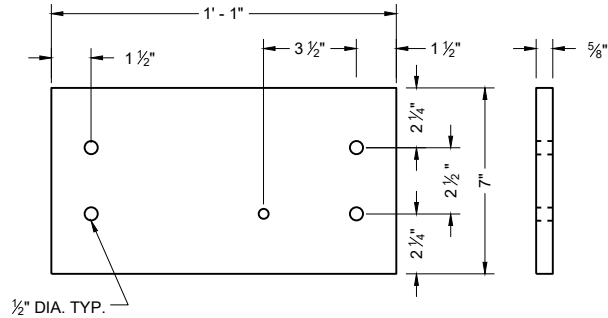
- (200) INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (201) INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- (202) INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- (203) INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- (204) TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- (205) TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- (206) INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (207) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- (208) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST ASSEMBLIES AND GROUND STRUT.
- (209) PREVENT OR REMOVE MATERIALS THAT IMPEDE REMOVAL OF GROUND STRUT.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

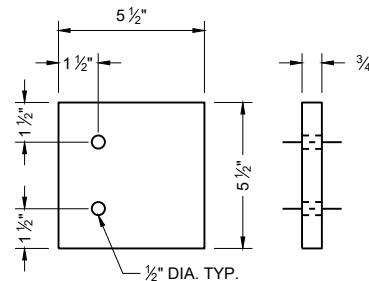
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



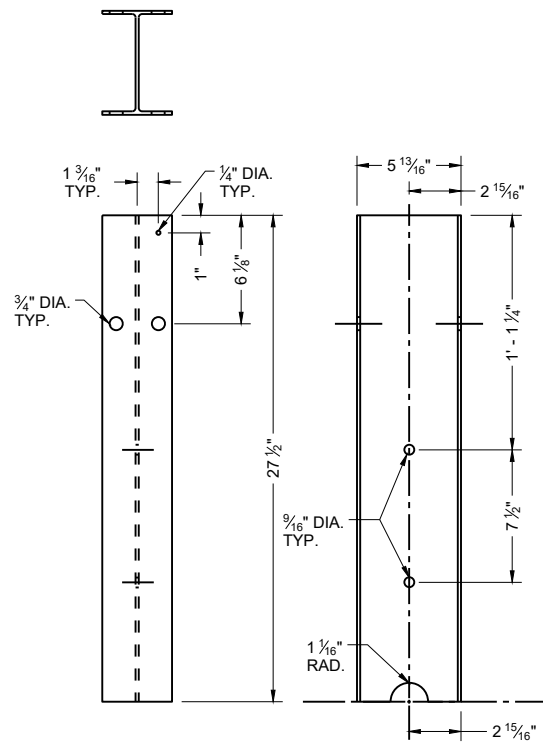
FOUNDATION
TUBE (A1)



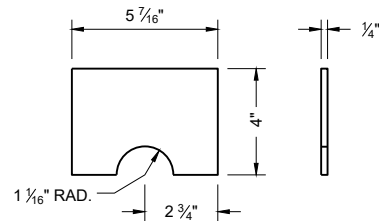
LOWER PLATE (A2)



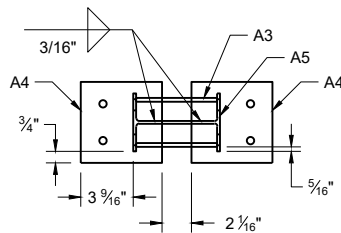
UPPER PLATE (A4)



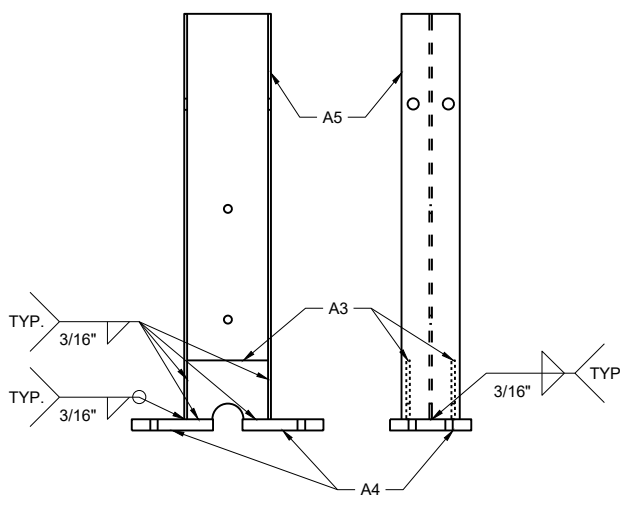
TYPE 2 POST (A5)



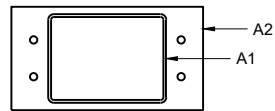
POST GUSSET (A3)



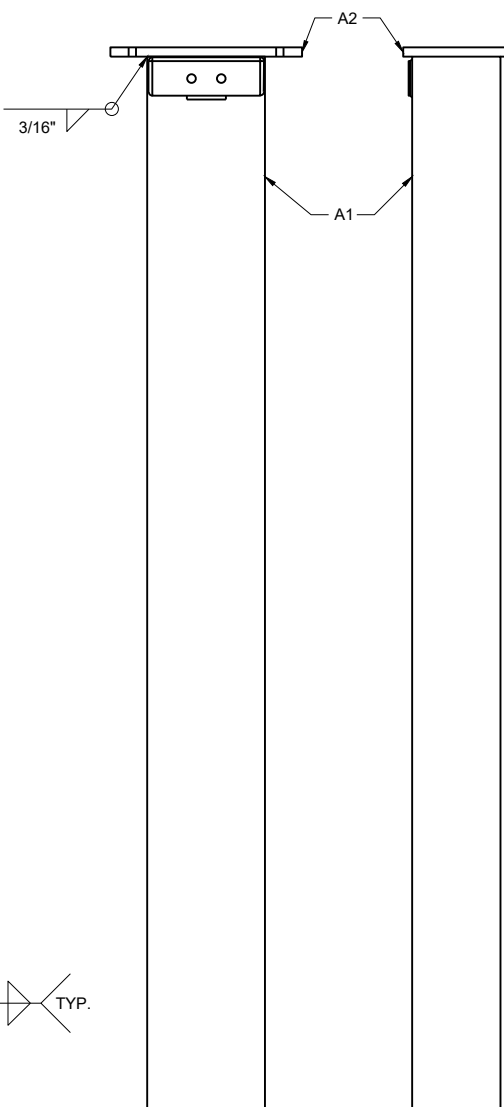
PLAN VIEW



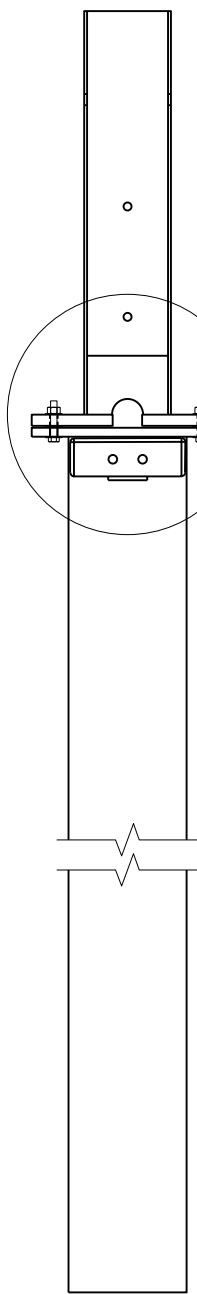
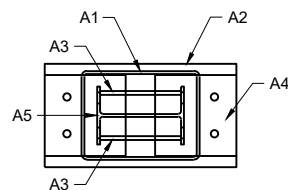
UPPER POST ASSEMBLY



PLAN VIEW



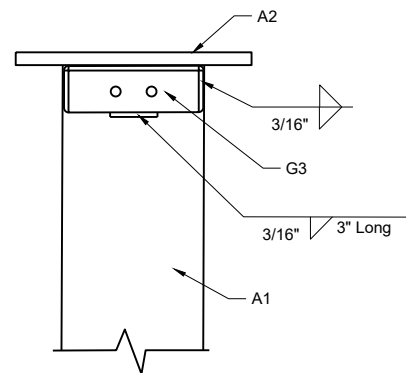
LOWER POST ASSEMBLY



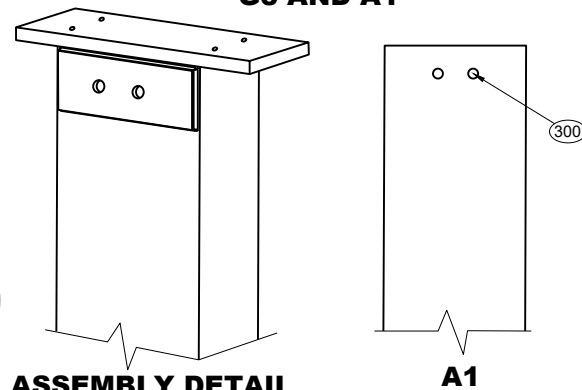
ASSEMBLED POST

GENERAL NOTES

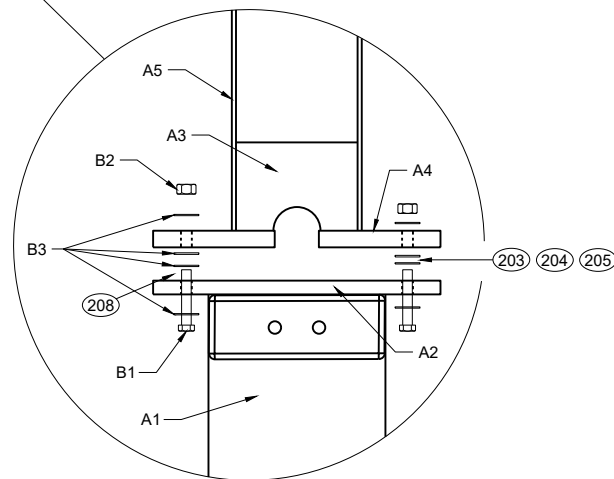
(300) TAP FOR 1/2" AFTER GALVANIZATION



WELDING DETAIL
G3 AND A1



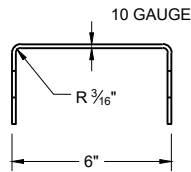
ASSEMBLY DETAIL
ISOMETRIC



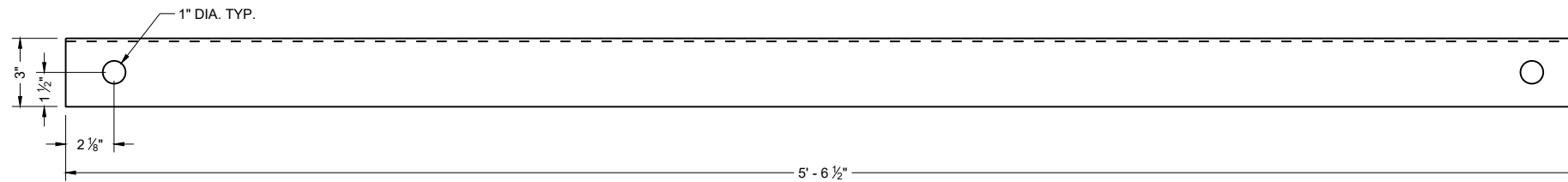
POST CONNECTION DETAIL

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

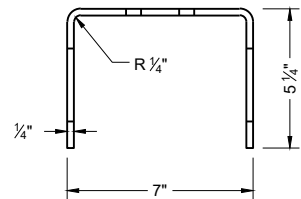


SIDE VIEW

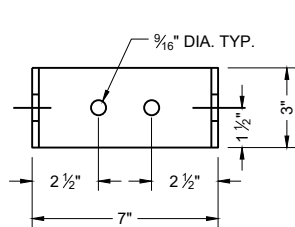


FRONT VIEW

GROUND STRUT CHANNEL (G1)

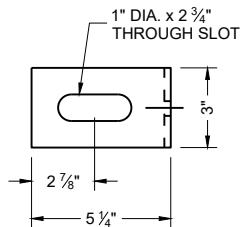


TOP VIEW



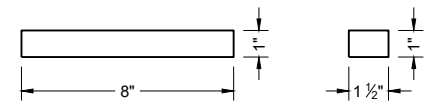
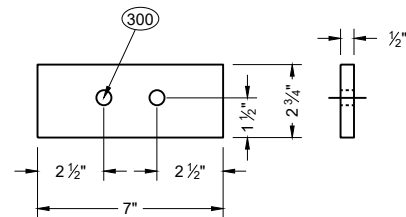
FRONT VIEW

GROUND STRUT CONNECTOR (G2)

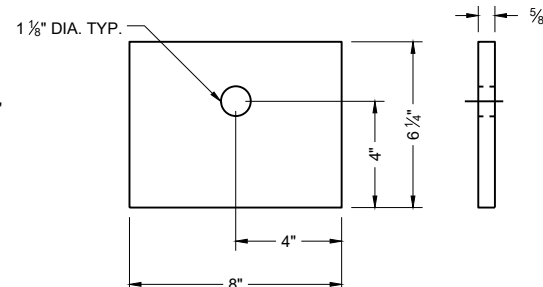


SIDE VIEW

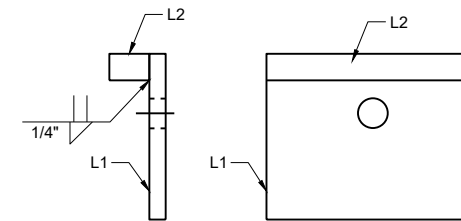
GROUND STRUT PLATE (G3)



BEARING PLATE FLANGE (L2)



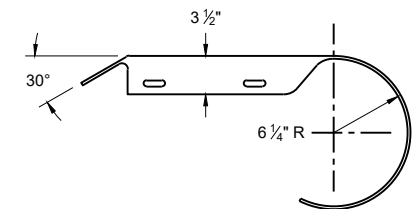
BEARING PLATE (L1)



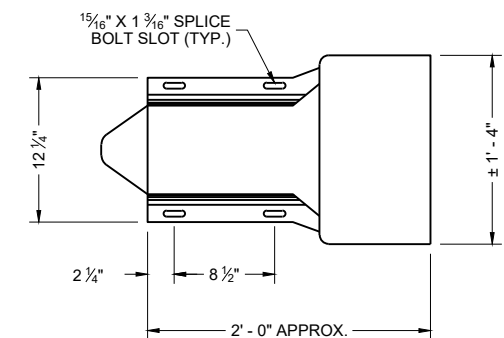
SIDE VIEW

FRONT VIEW

BEARING PLATE ASSEMBLY

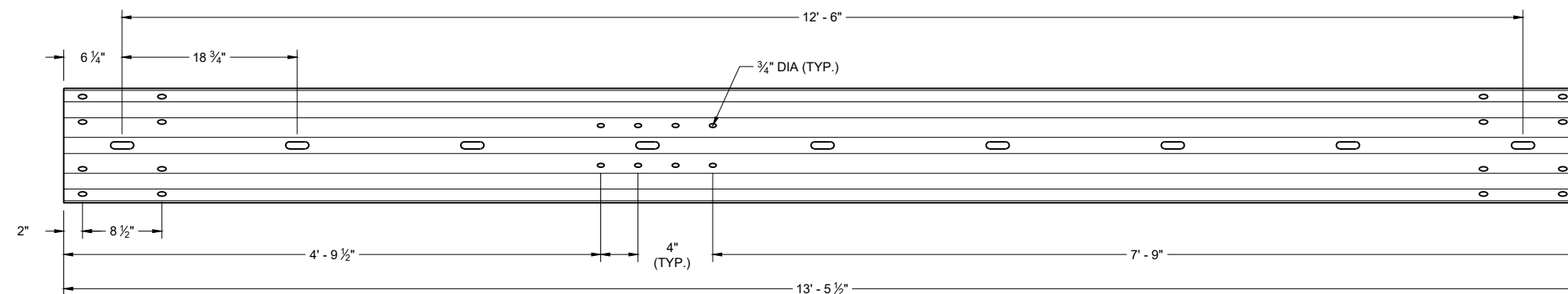


PLAN VIEW

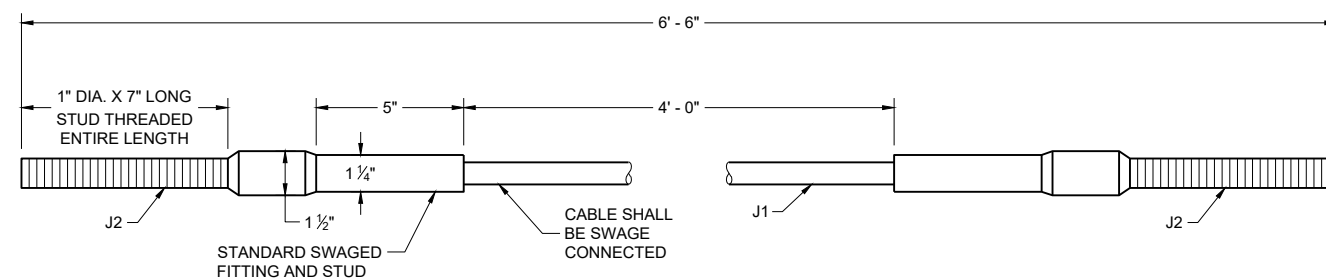


ELEVATION VIEW

ROUNDED BUFFER END (E3)



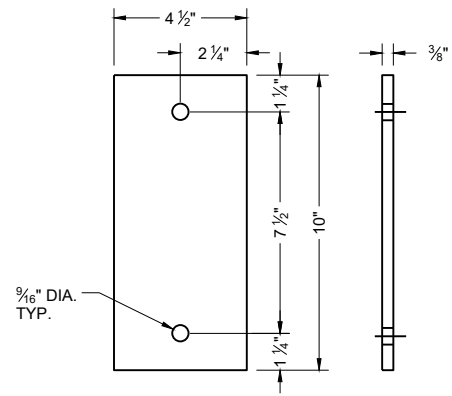
TYPE 2 GUARDRAIL (E1)



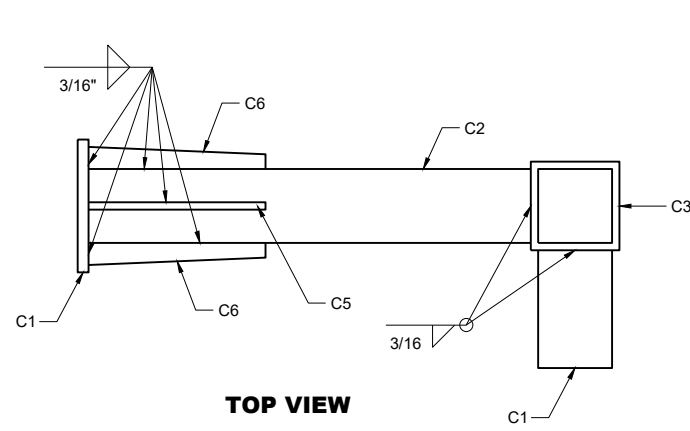
CABLE ASSEMBLY

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

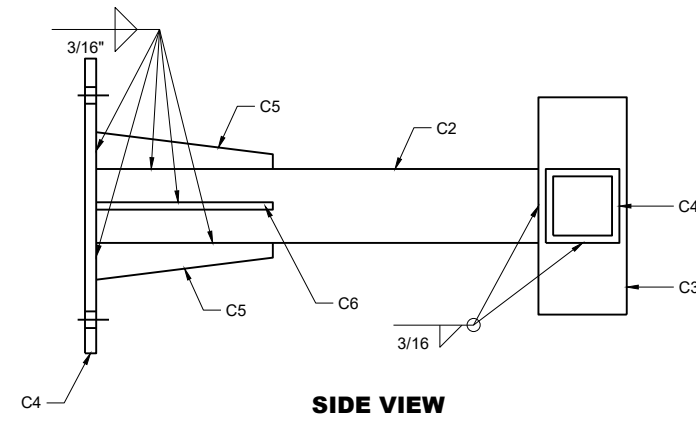
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



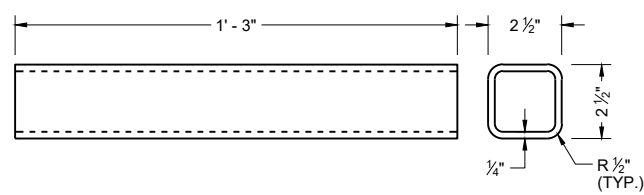
ARM PLATE (C1)



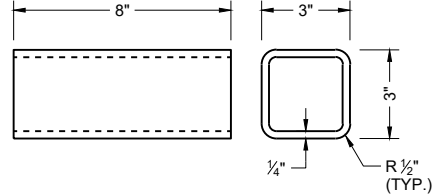
**TOP VIEW
ARM ASSEMBLY**



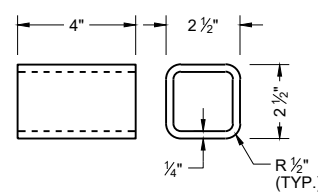
**SIDE VIEW
ARM ASSEMBLY**



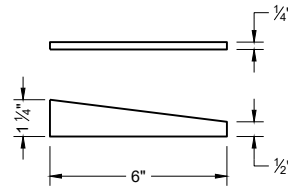
ARM TUBE 1 (C2)



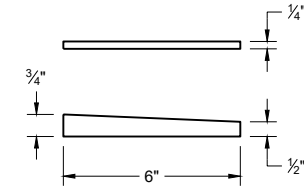
ARM TUBE 2 (C3)



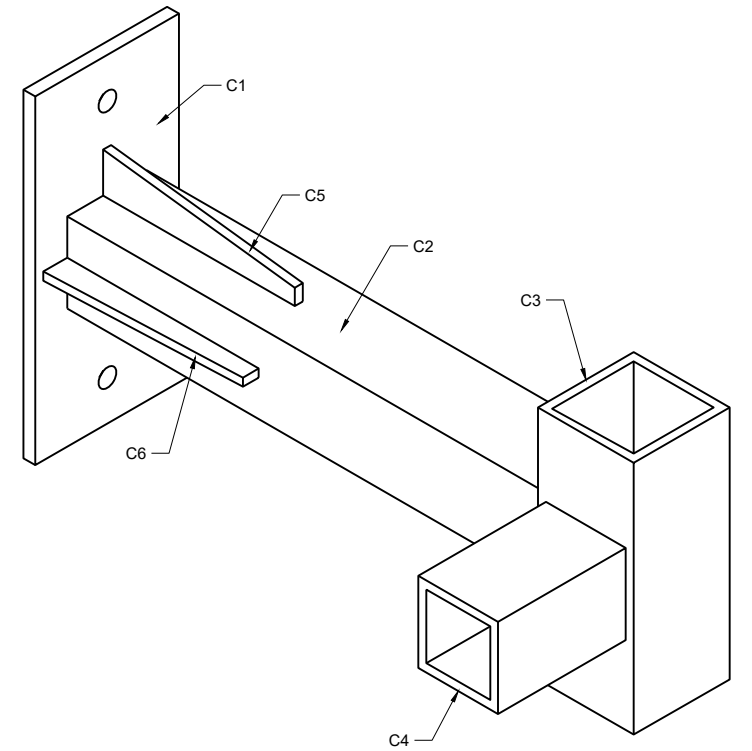
ARM TUBE 3 (C4)



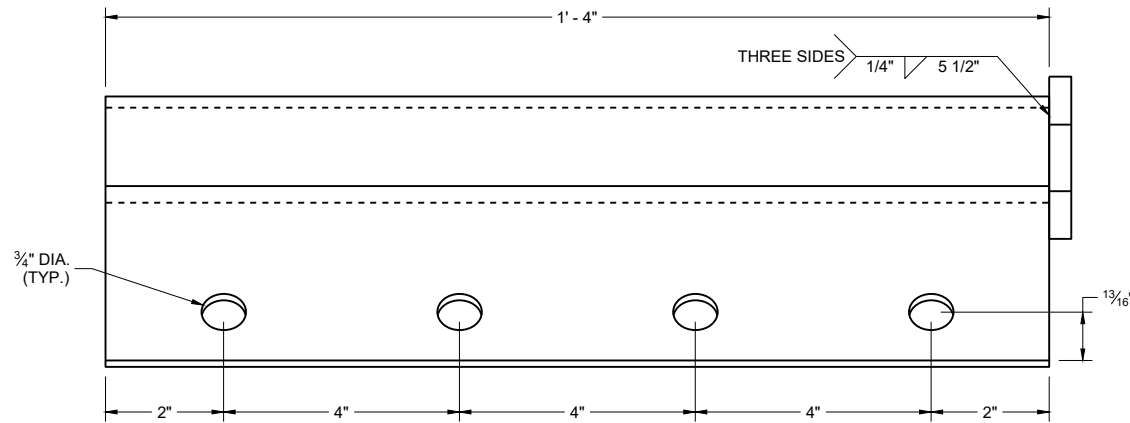
**ARM GUSSET
PLATE 1 (C5)**



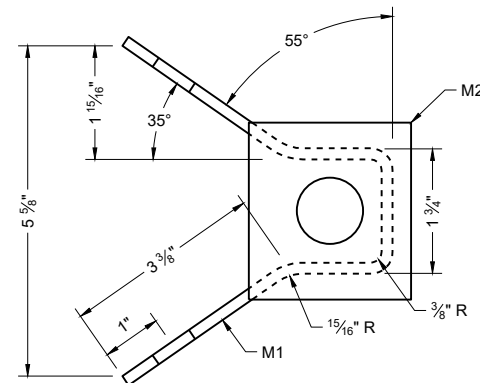
**ARM GUSSET
PLATE 2 (C6)**



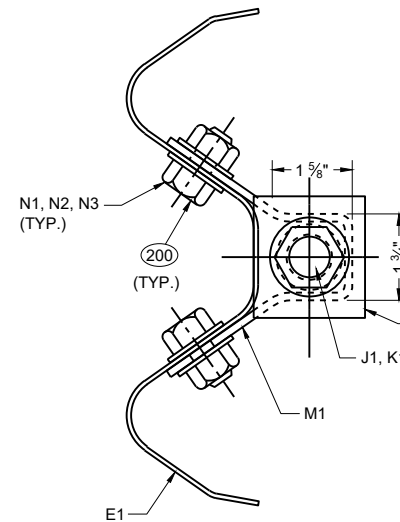
**ISOMETRIC VIEW
ARM ASSEMBLY**



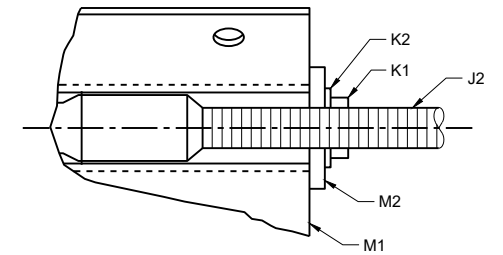
ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)



SECTION A - A



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
220

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SDD 14B47-07f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

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

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B47-07f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

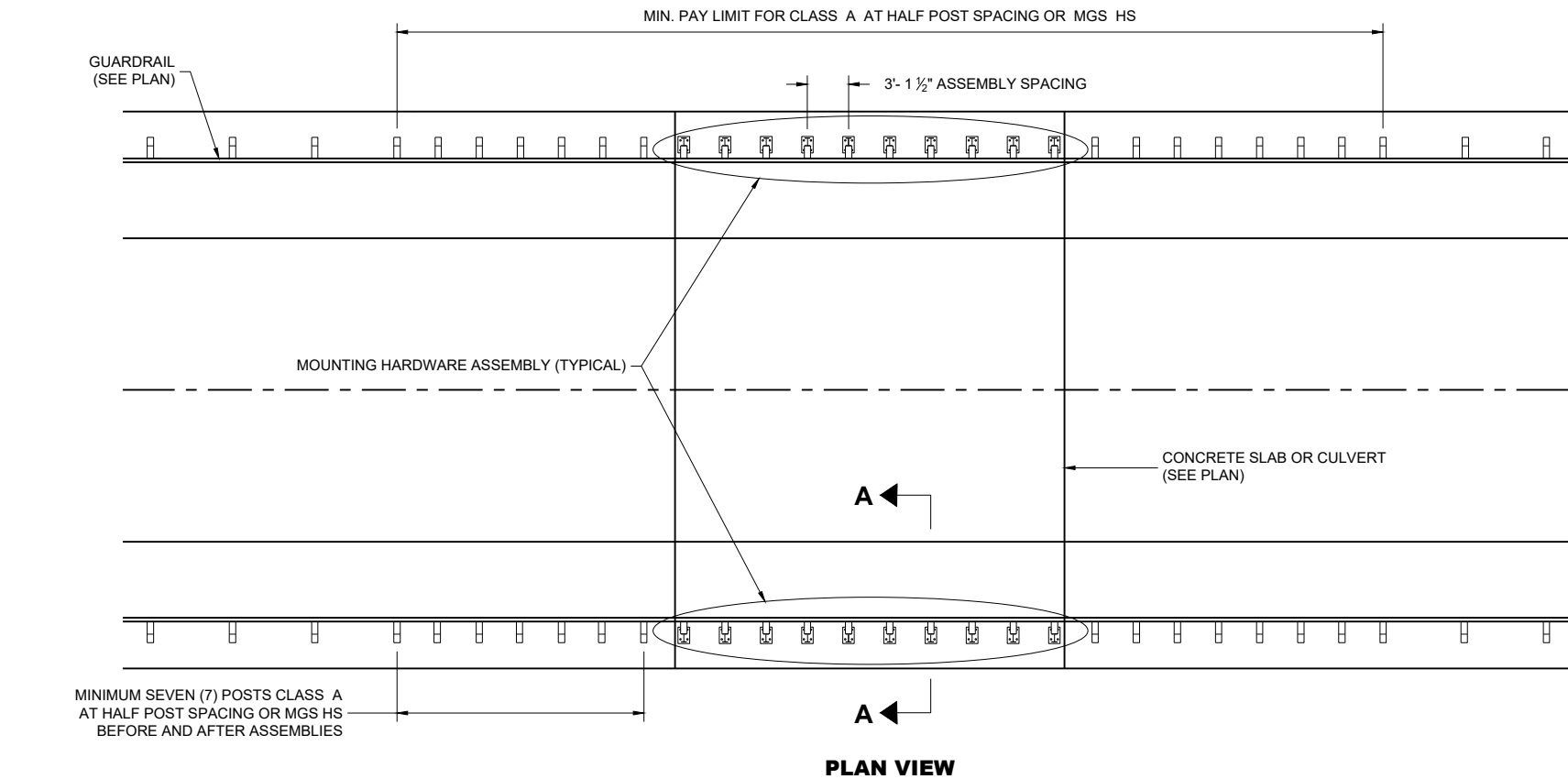
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2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

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2025 /S/ Rodney Taylor
DATE <position>

FHWA

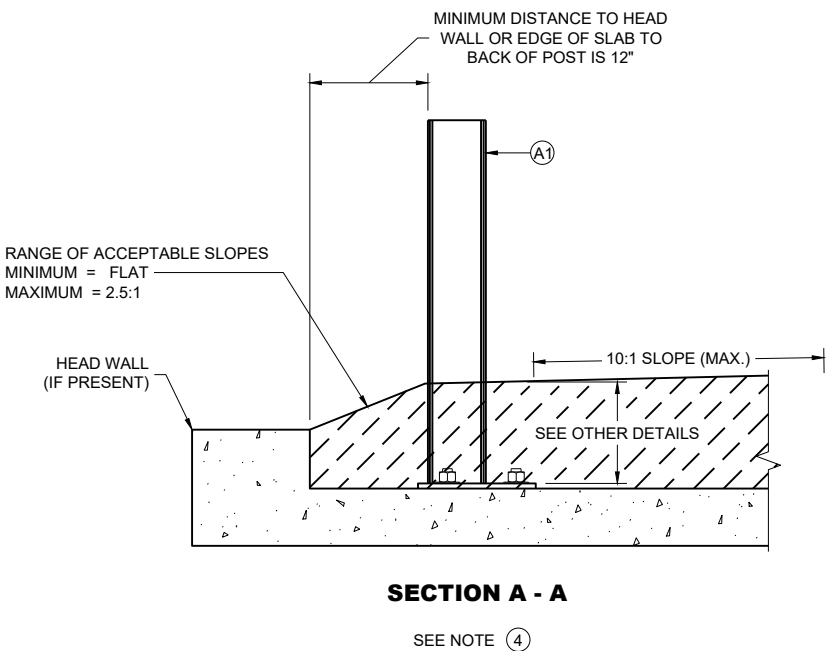
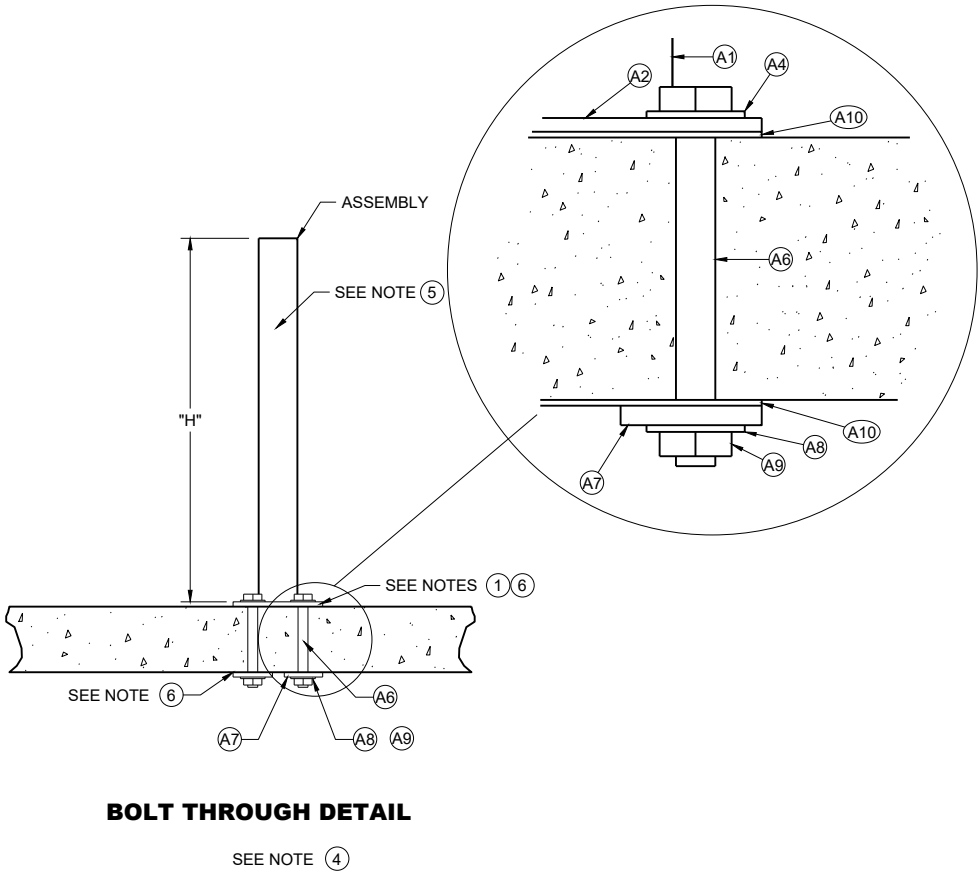
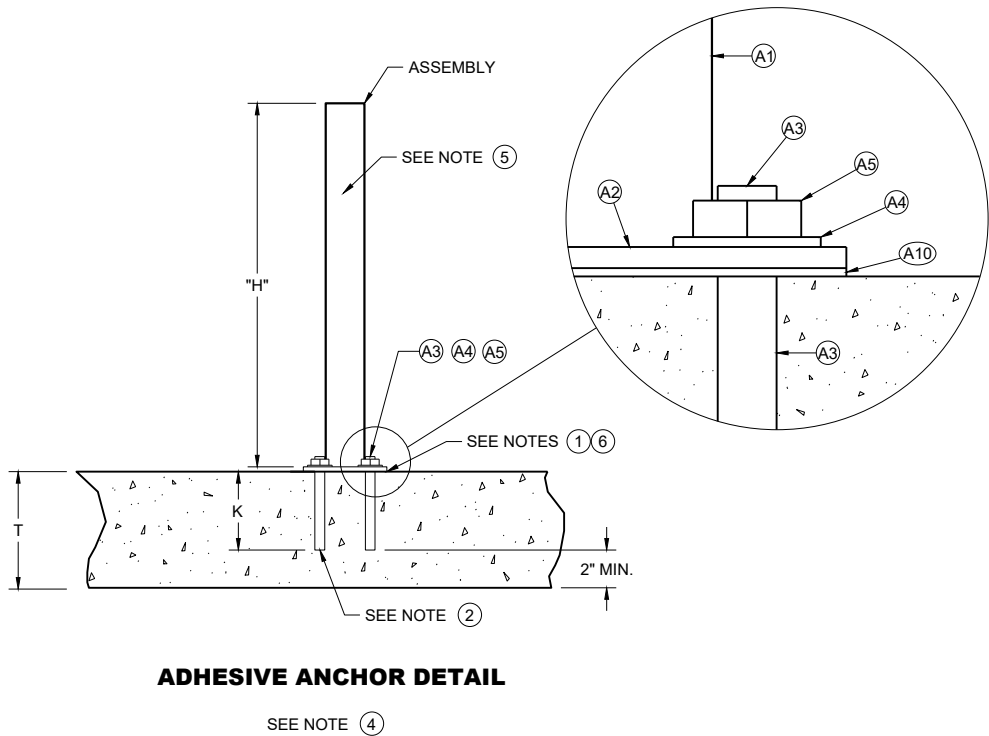


GENERAL NOTES

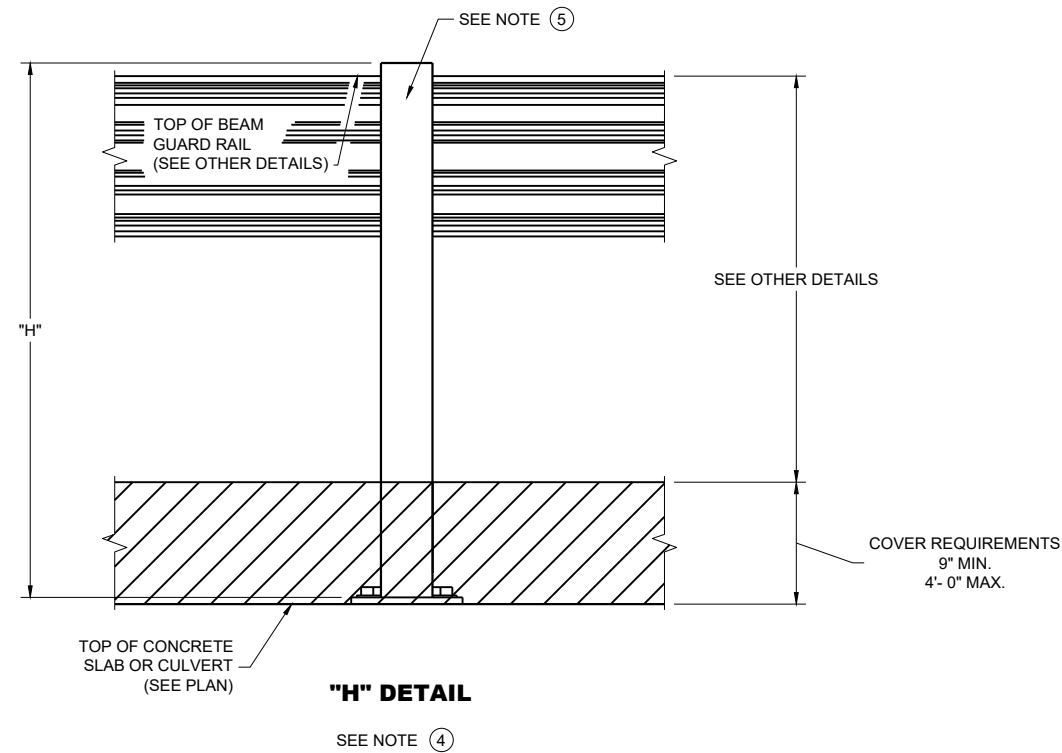
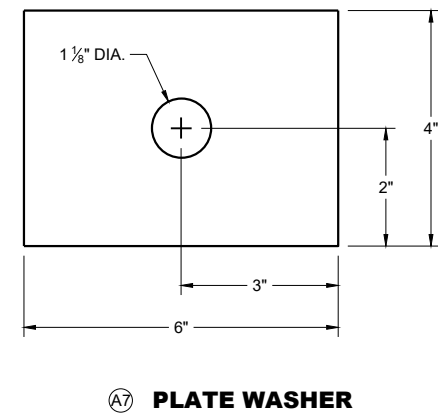
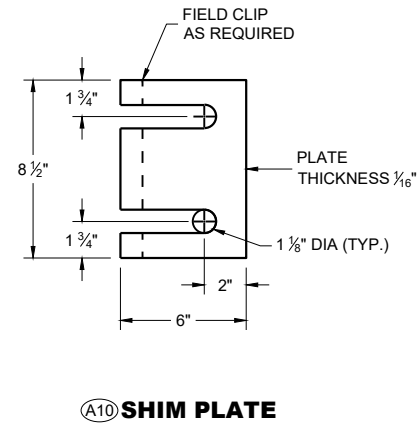
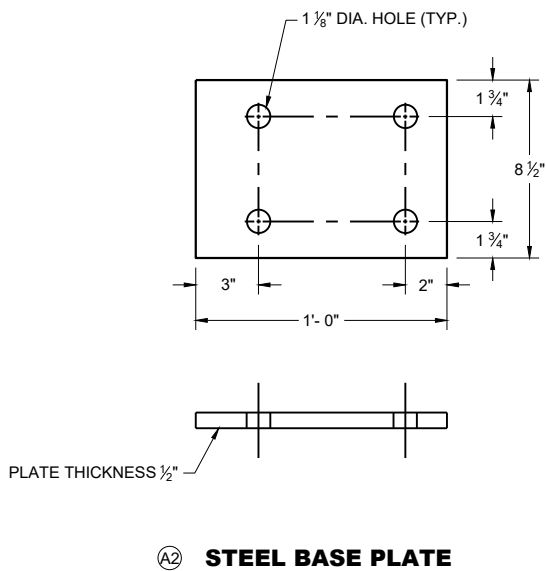
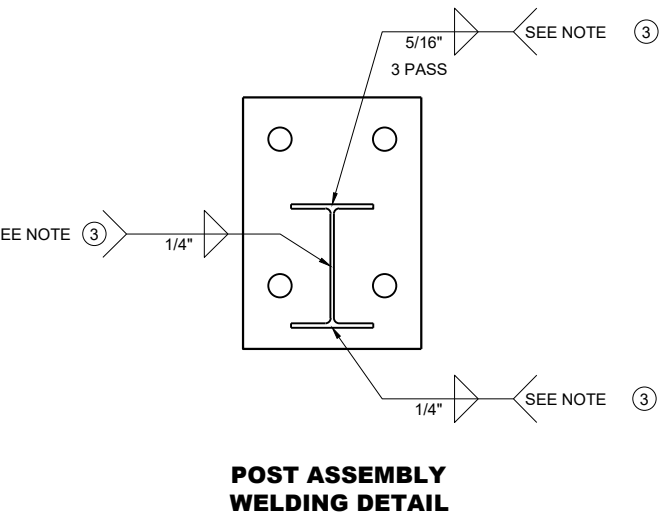
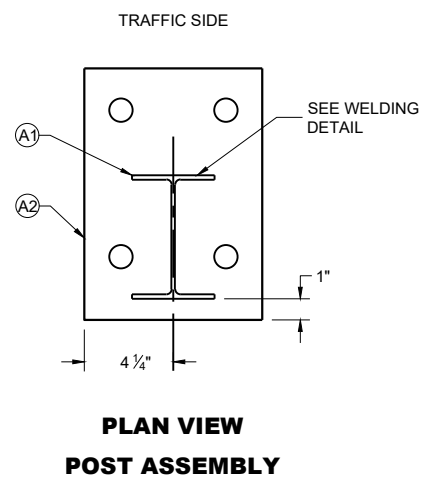
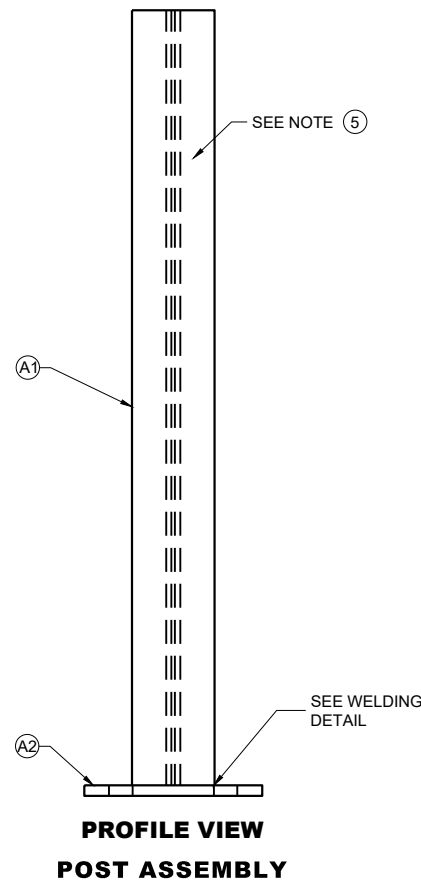
- HOLES DRILLED INTO CONCRETE SLAB OR CULVERT ARE 1 1/8" DIAMETER.
- POST BASE PLATE (AND BOTTOM PLATES IF USED) SHALL BE FLAT WITH ALL SURFACES SMOOTH, AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS. CUT BOTTOM OF POST SO THAT POST 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 FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE A2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF A2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- 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.

Concrete Strength (f'c) PSI	"T" Inch	Min. "K" Inch
3,500	11 ≤	9
4,000	10 ≤	8

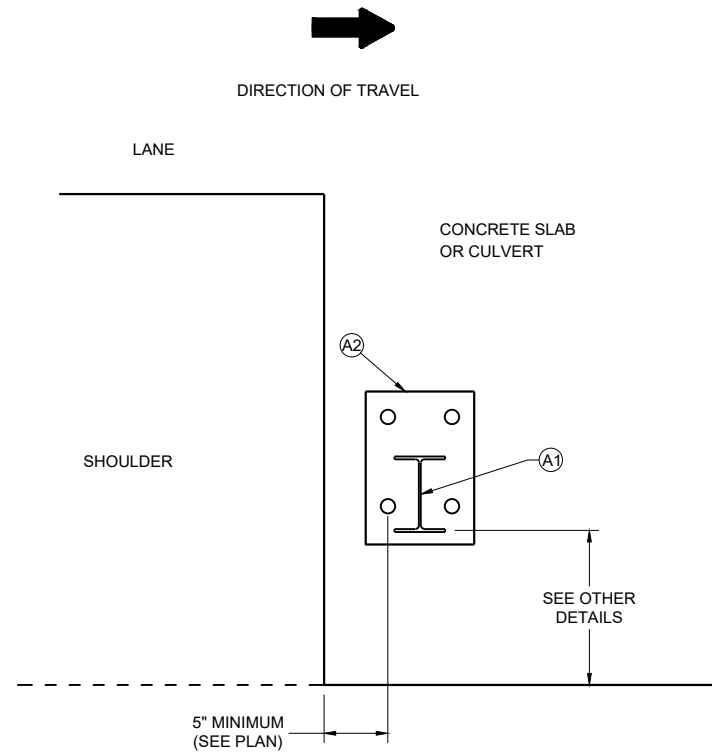


**ANCHOR POST ASSEMBLY
TOP MOUNTED**



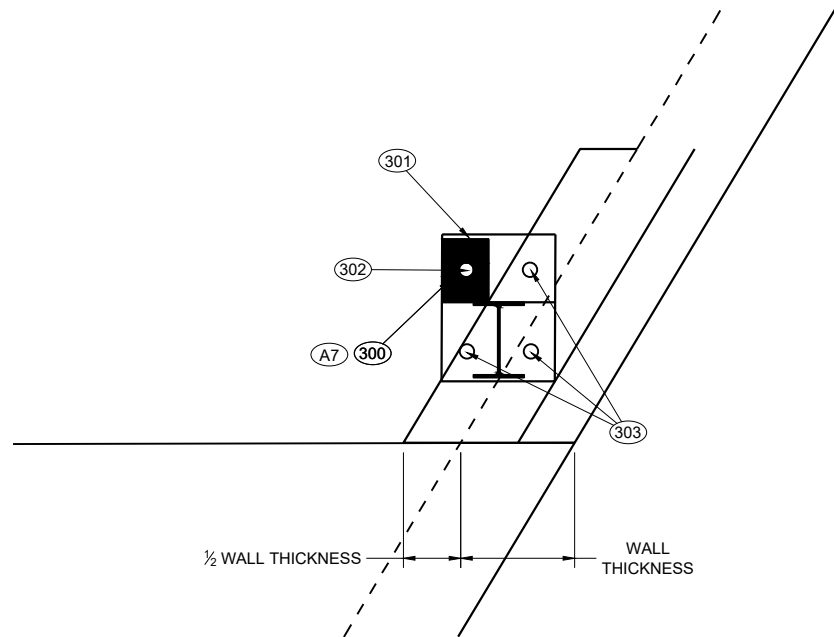
ANCHOR POST ASSEMBLY
TOP MOUNTED

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



EDGE PLACEMENT

SEE NOTE (4)



TOP MOUNT OPTION NEAR EDGE OF SLAB

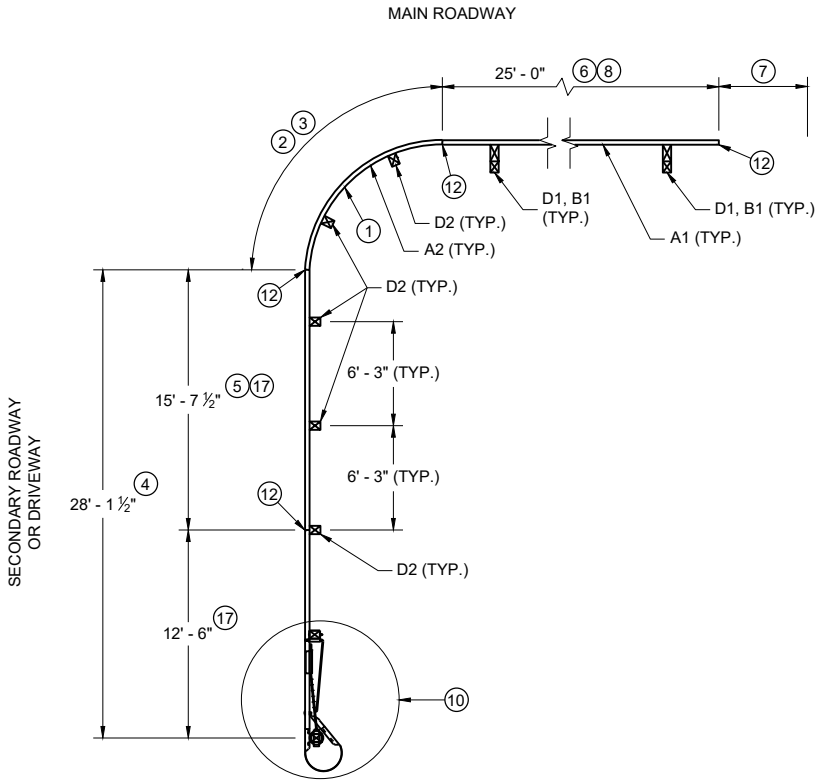
BILL OF MATERIALS LIST

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, OR ASTM F1554 GRADE 55	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	1/4" THICKNESS
(A8)	1" DIA. FLAT WASHER	ASTM F844	
(A9)	1" DIA. HEX NUT	ASTM A563A	
(A10)	SHIM PLATE	SEE (A2)	4 MAX PER POST

NOTES

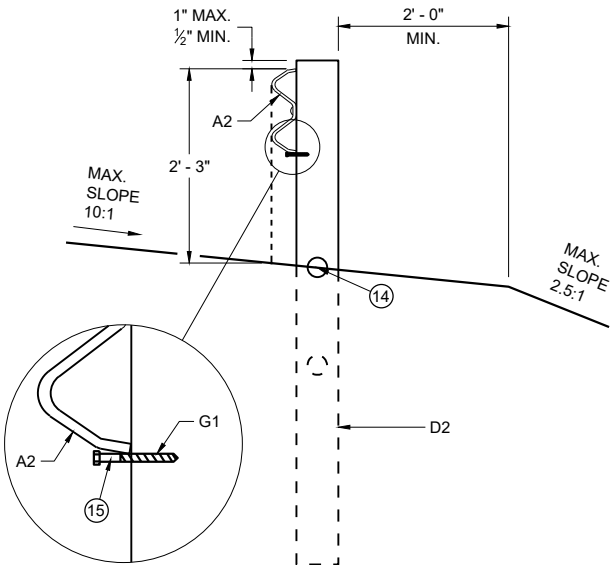
- (300) Plate washer installed on underside of slab or culvert
- (301) Top plate assembly on top of slab or culvert
- (302) Bolt through option allowed
- (303) Adhesive Anchors

ANCHOR POST ASSEMBLY TOP MOUNTED	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2025 DATE	/S/ Rodney Taylor WORK ZONE ENGINEER
FHWA	225

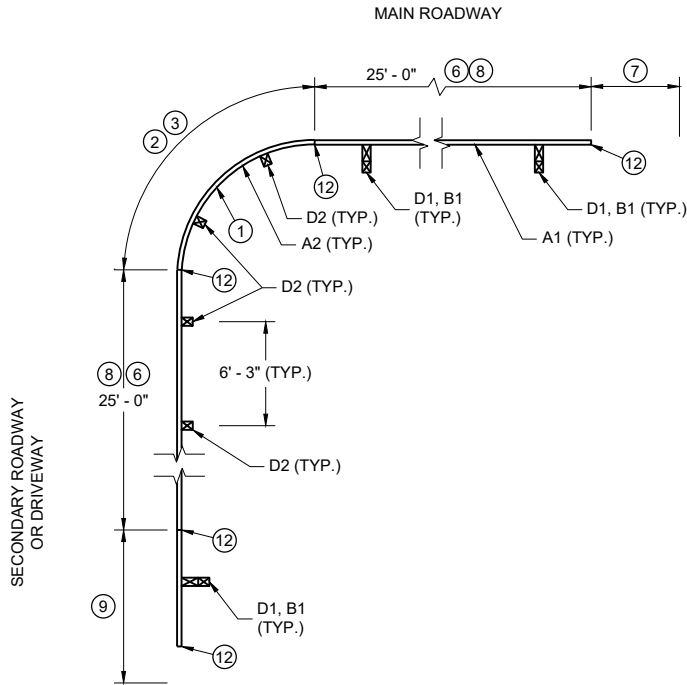


PLAN VIEW

**SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY**

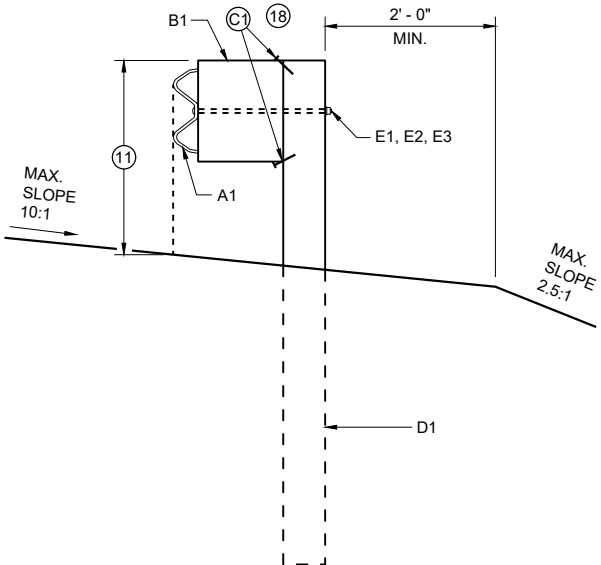


**CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS**



PLAN VIEW

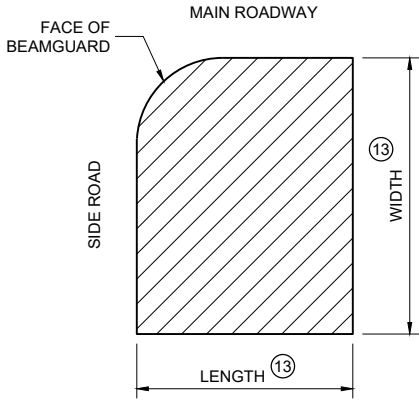
**SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY**



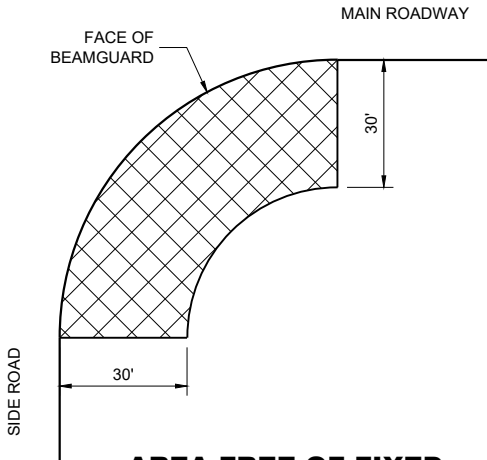
**BEAM GUARD POSTS
IN HEIGHT TRANSITION**

TABLE FOR RADIUS OF 32' AND LESS

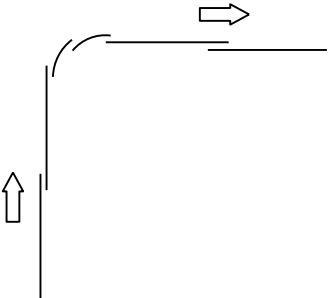
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS**



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'**



LAP SPLICE DETAIL

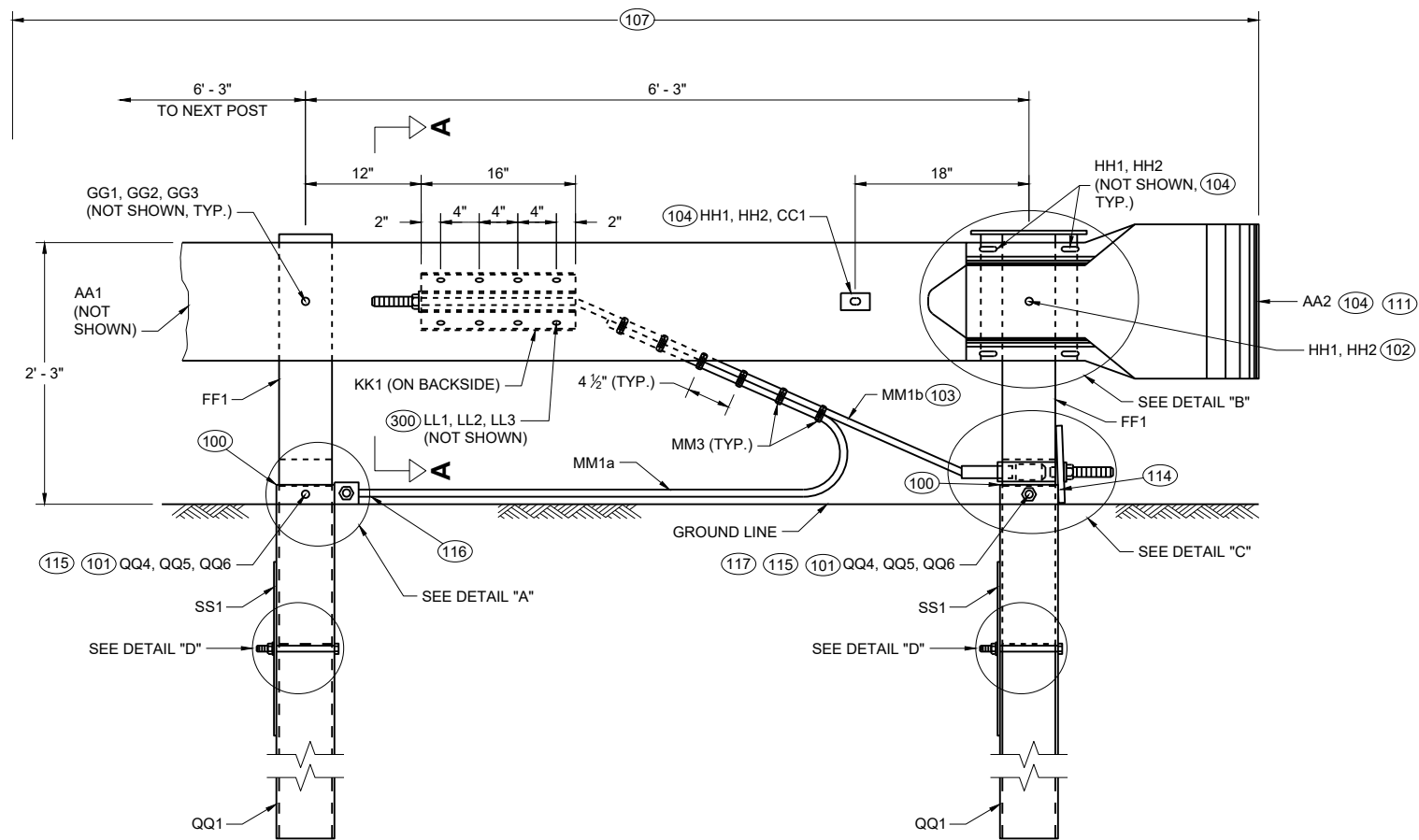
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

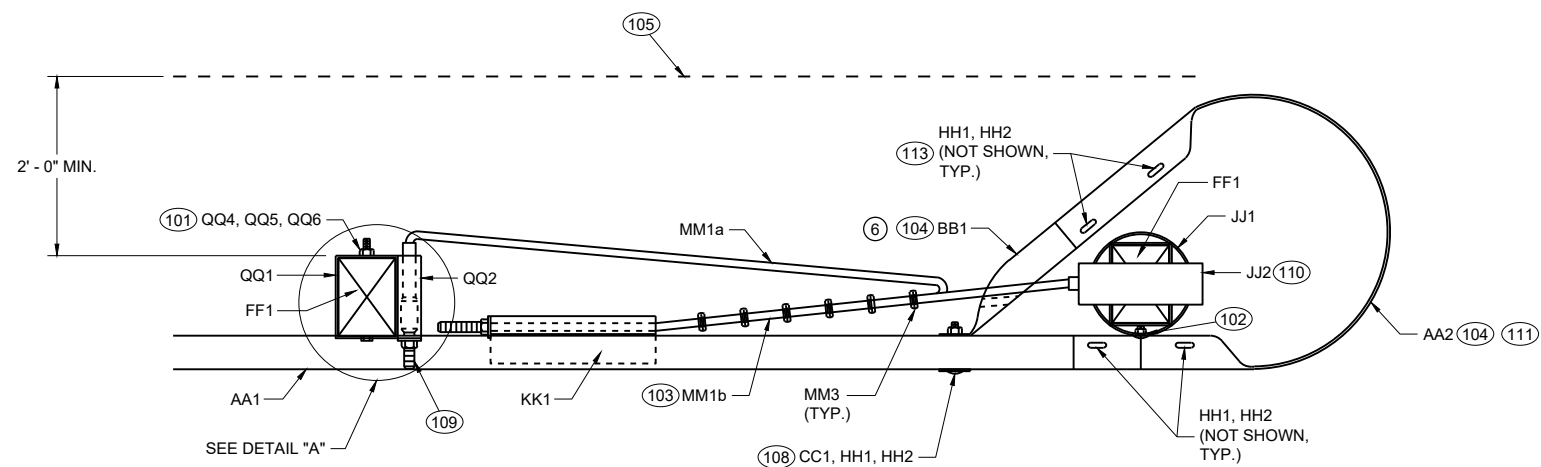
- (1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- (2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- (3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- (4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- (5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- (6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- (7) BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- (8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- (9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- (10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- (11) HEIGHT VARIES. SEE NOTE (8) AND (17).
- (12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- (13) SEE TABLE FOR VALUES.
- (14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- (15) DRILL POST 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- (16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- (17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).
- (18) INITIAL 1 NAIL AT EACH CORNER OF THE BLOCK TO CONNECT BLOCKS.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

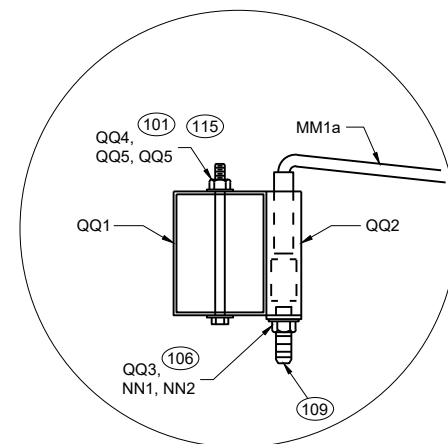
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



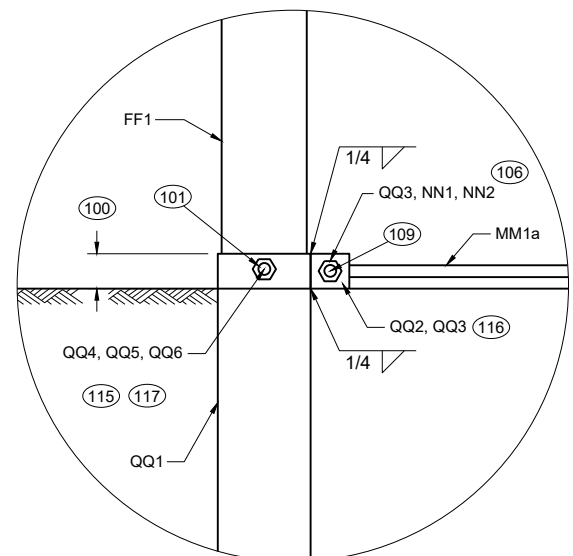
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



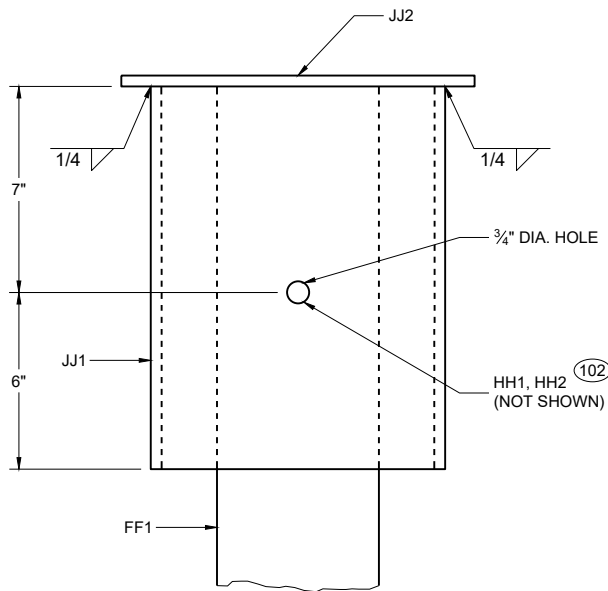
**PROFILE VIEW
DETAIL "A"**

GENERAL NOTES

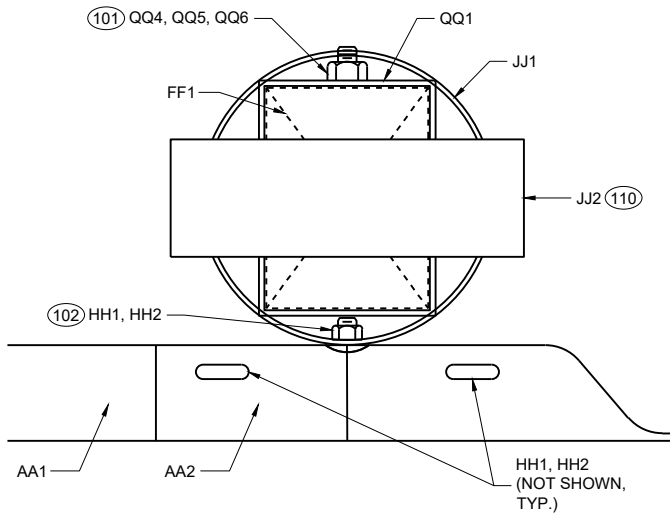
- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.
- (114) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- (115) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST AND SOIL TUBE.
- (116) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLT. PLACE CABLE ON TOP OF MATERIAL.
- (117) ONE WASHER BETWEEN BOLD HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

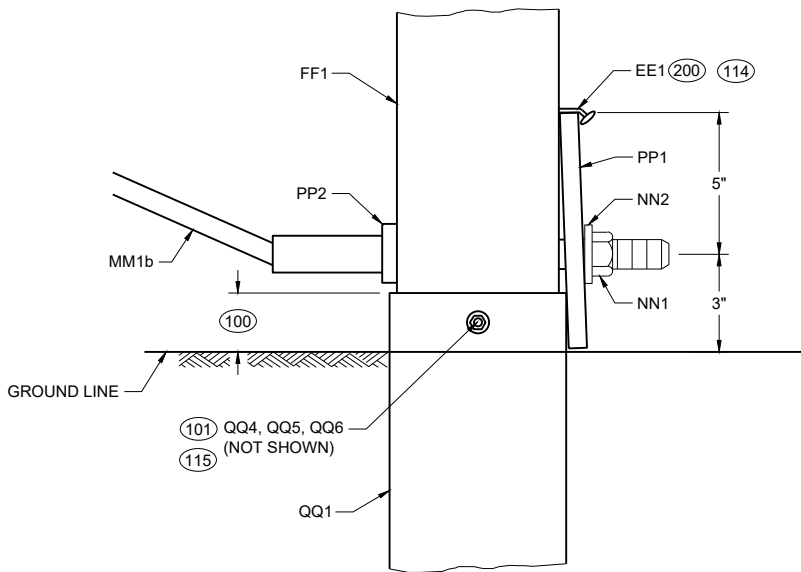
STATE OF WISCONSIN
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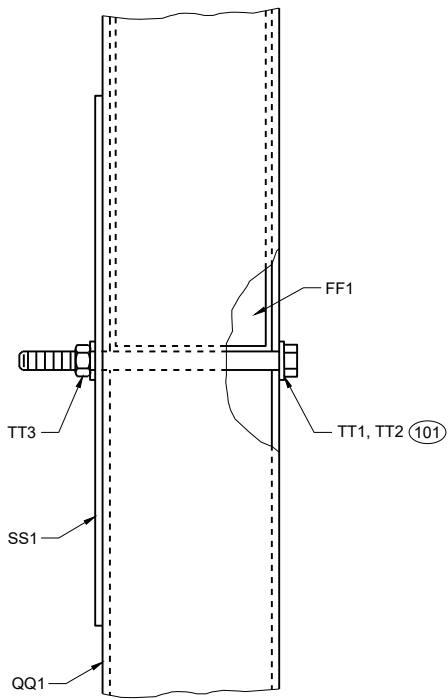
PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)



PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY



PROFILE VIEW
DETAIL "C"



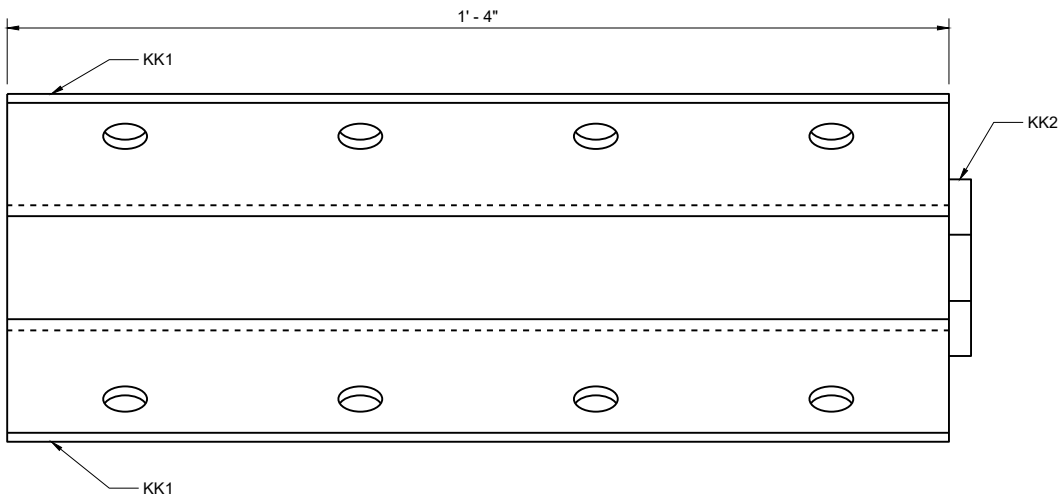
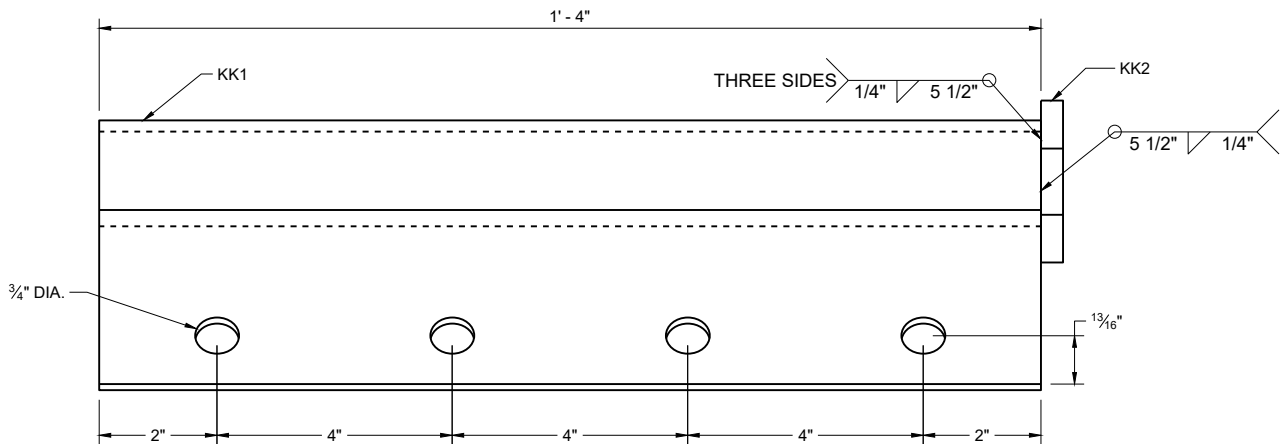
PROFILE VIEW
DETAIL "D"

GENERAL NOTES

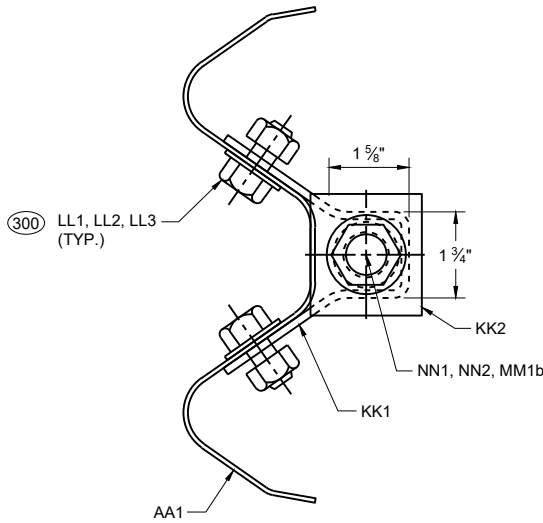
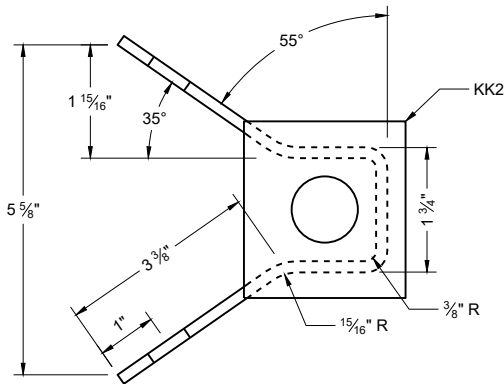
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



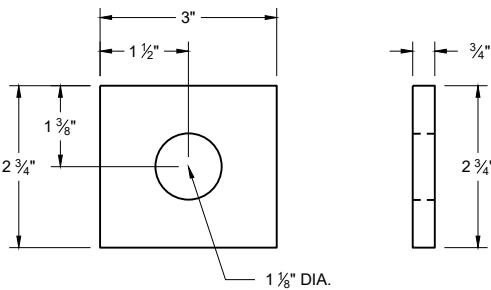
ANCHOR BRACKET (KK1, KK2)



SECTION A - A

GENERAL NOTES

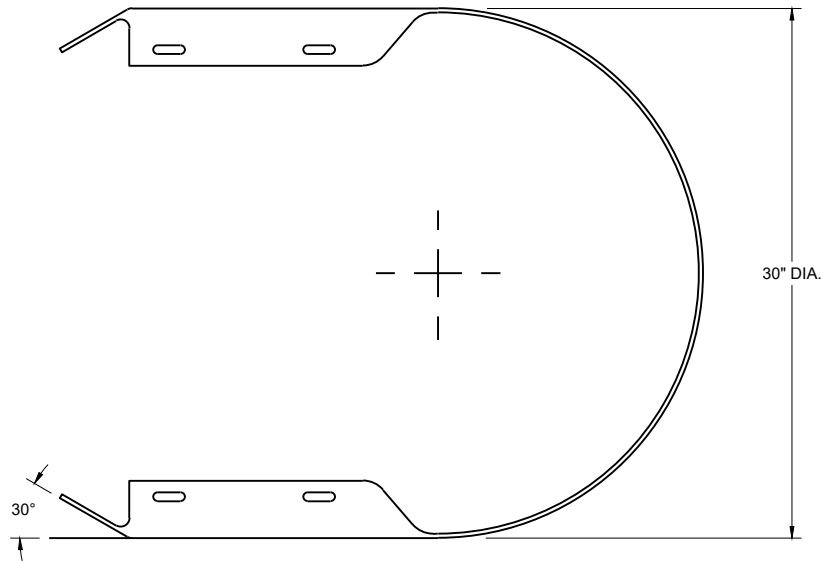
WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



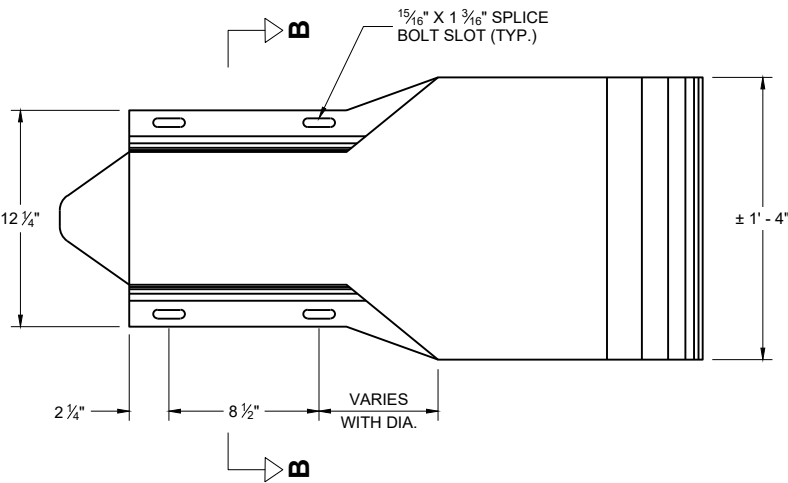
ANCHOR BRACKET BEARING PLATE (KK2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

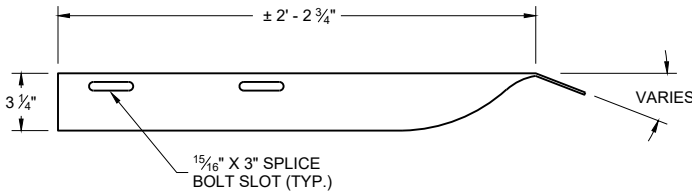


TOP VIEW

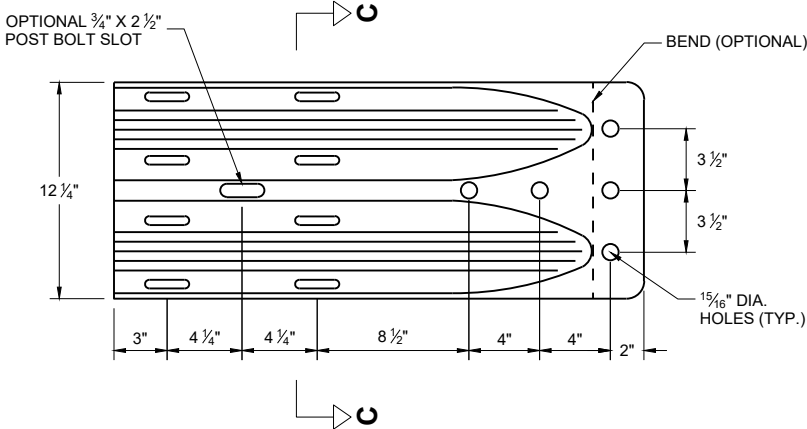


PROFILE VIEW

W BEAM
END SECTION BUFFER (AA2)



TOP VIEW

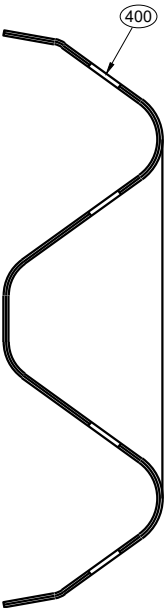


PROFILE VIEW

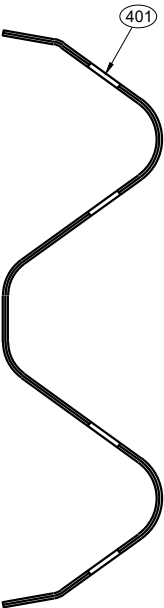
W BEAM
TERMINAL CONNECTOR (BB1)

GENERAL NOTES

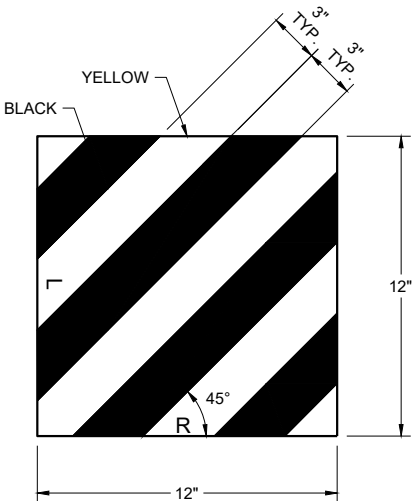
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B -B



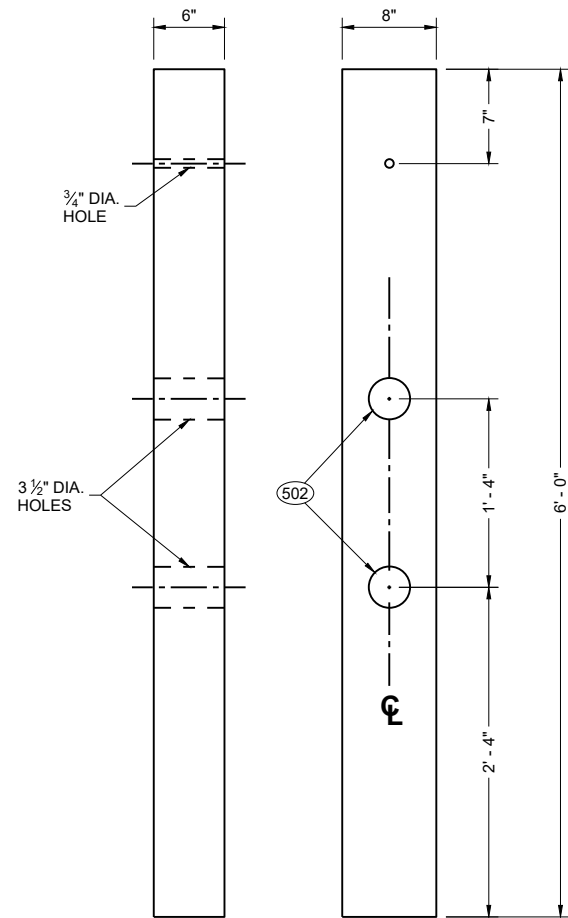
SECTION C -C



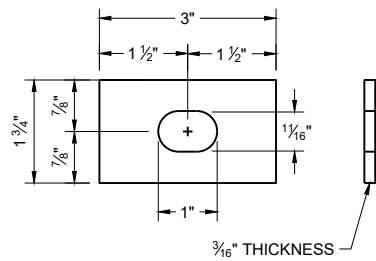
REFLECTIVE SHEETING (UU1, UU2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

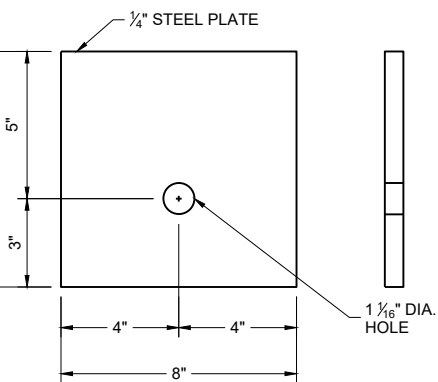
STATE OF WISCONSIN
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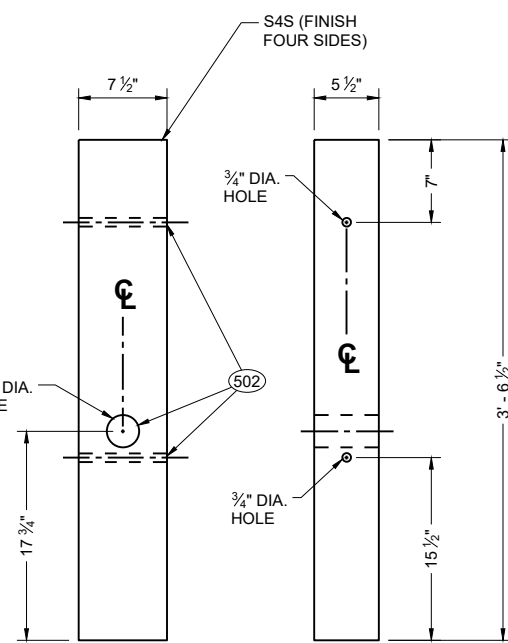
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



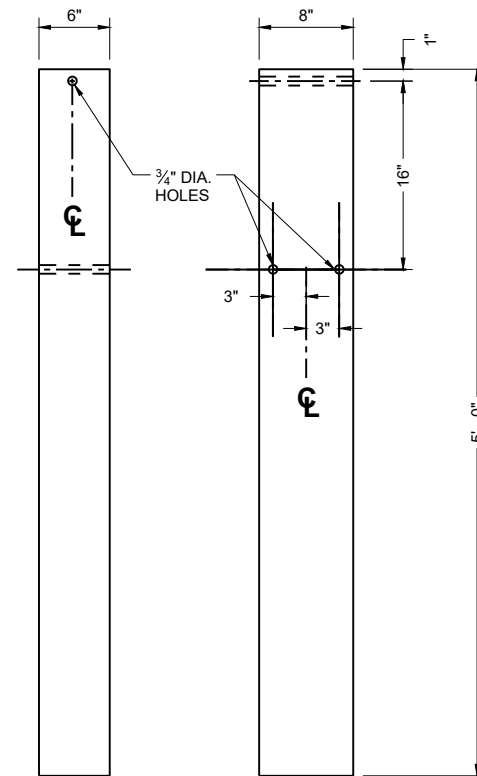
RECTANGULAR PLATE WASHER (CC1)



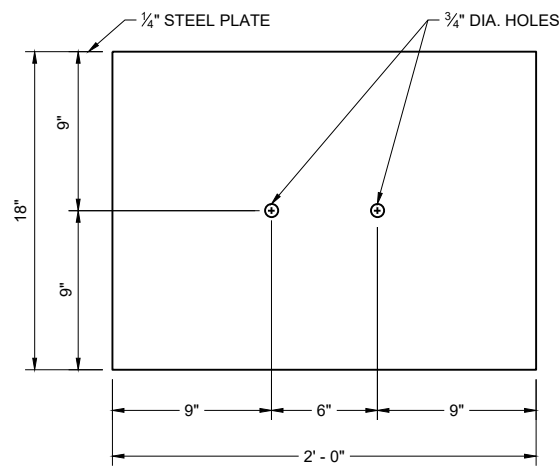
BEARING PLATE (PP1)



FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)



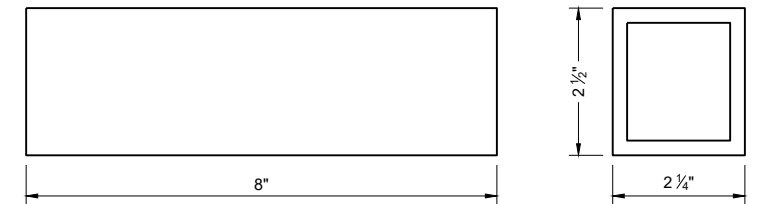
FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1) (500)



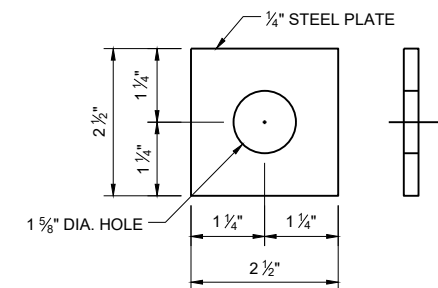
SOIL PLATE (SS1)

GENERAL NOTES

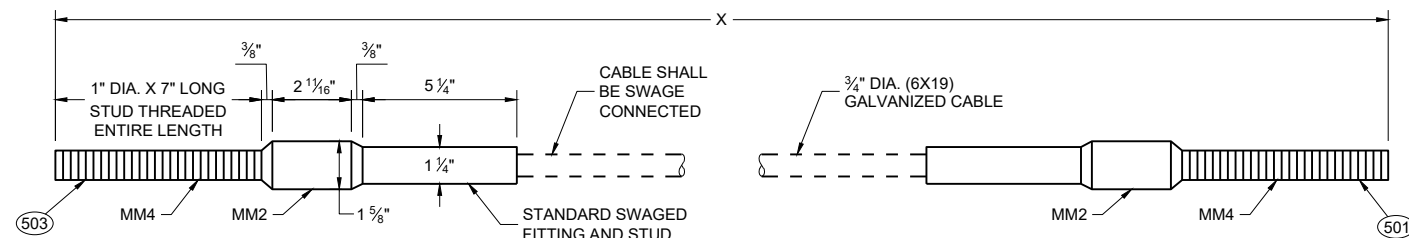
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109)



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

MM1b	9' - 0"
MM1b	6' - 8"

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1" - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3⁄16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 ½" X 2 ¼" X ¼" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 ½" X 2 ½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5⁄8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5⁄8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5⁄8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5⁄8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

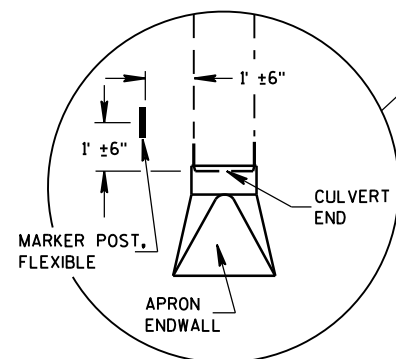
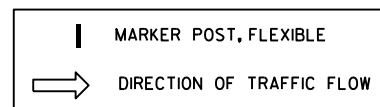
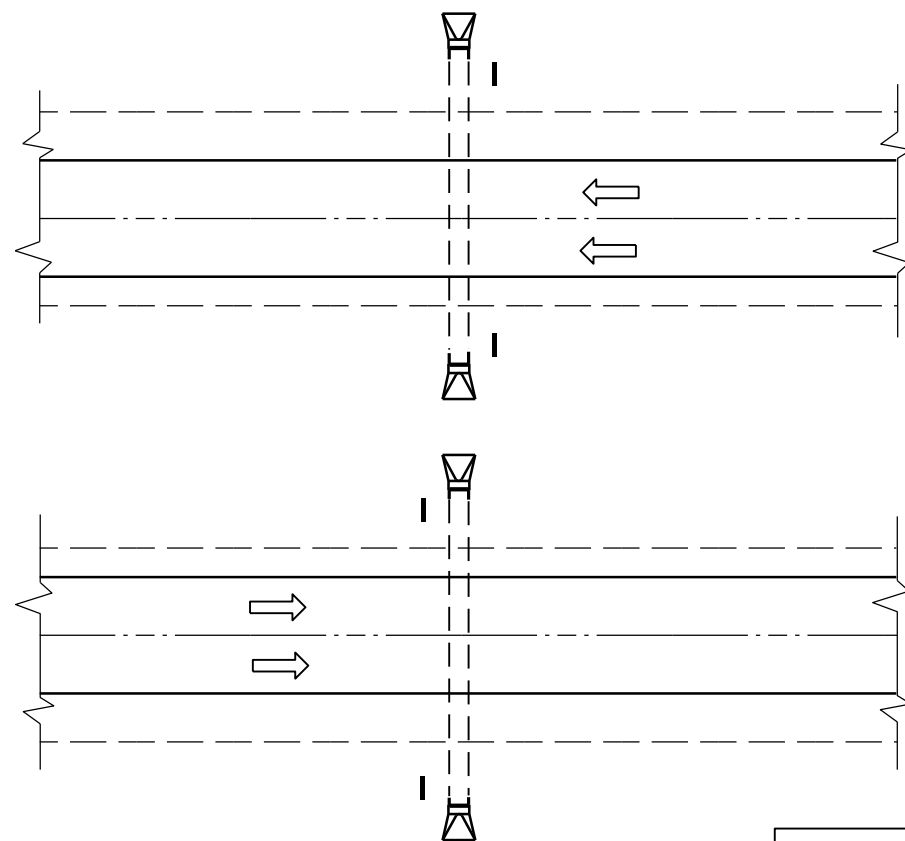
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2024
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

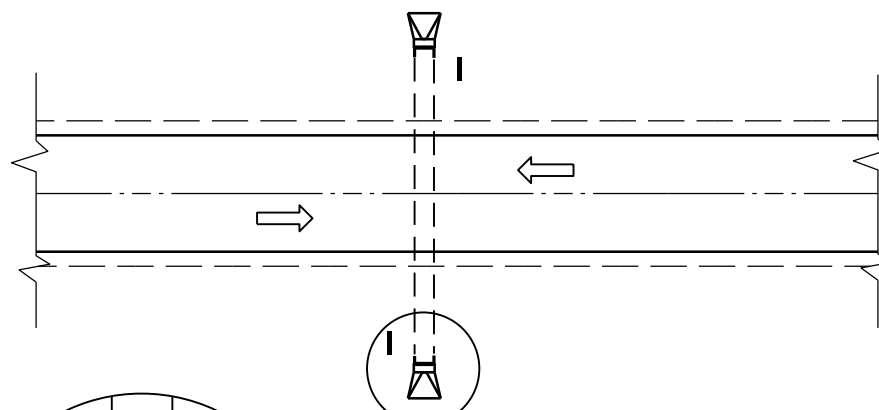
FHWA

PLAN VIEW
DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

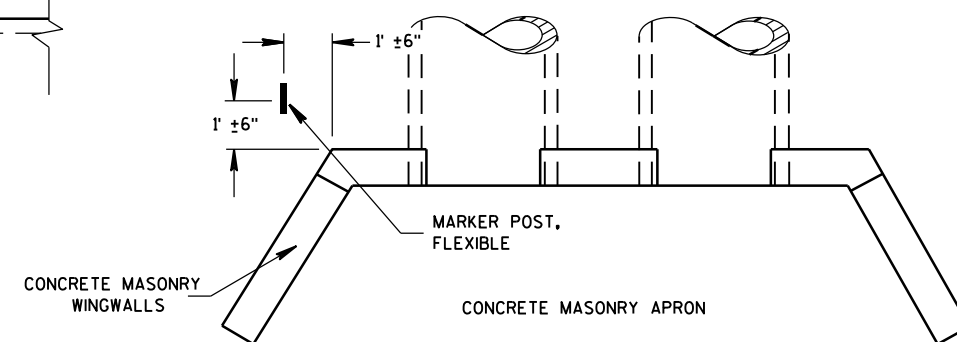
PLAN VIEW
UNDIVIDED HIGHWAY



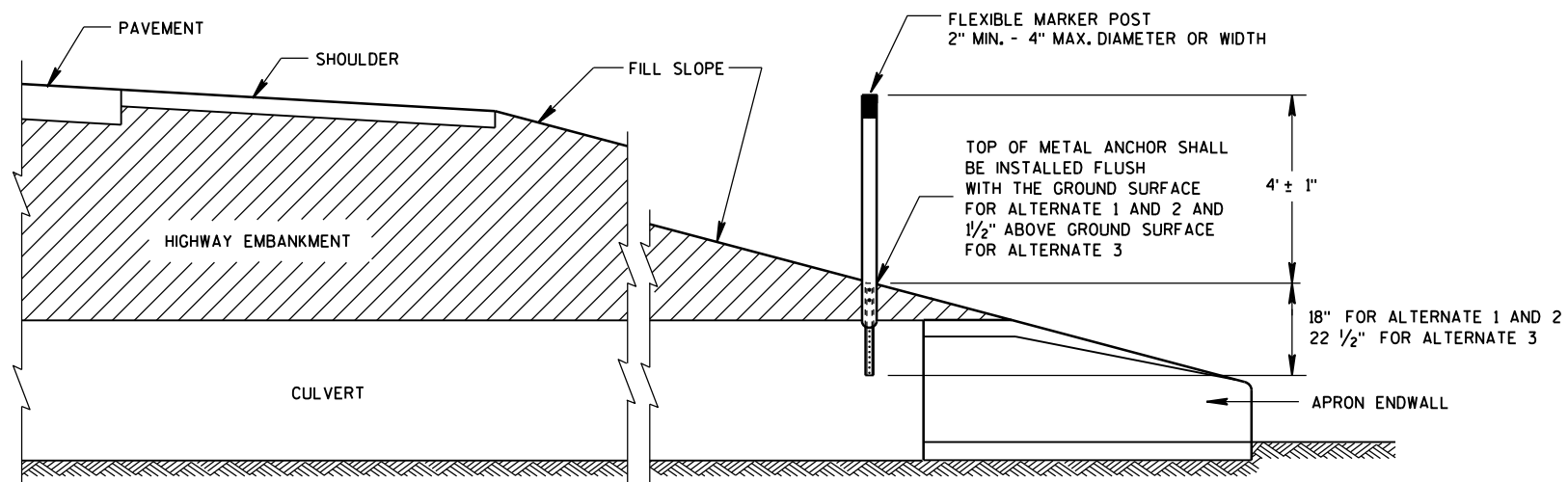
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

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



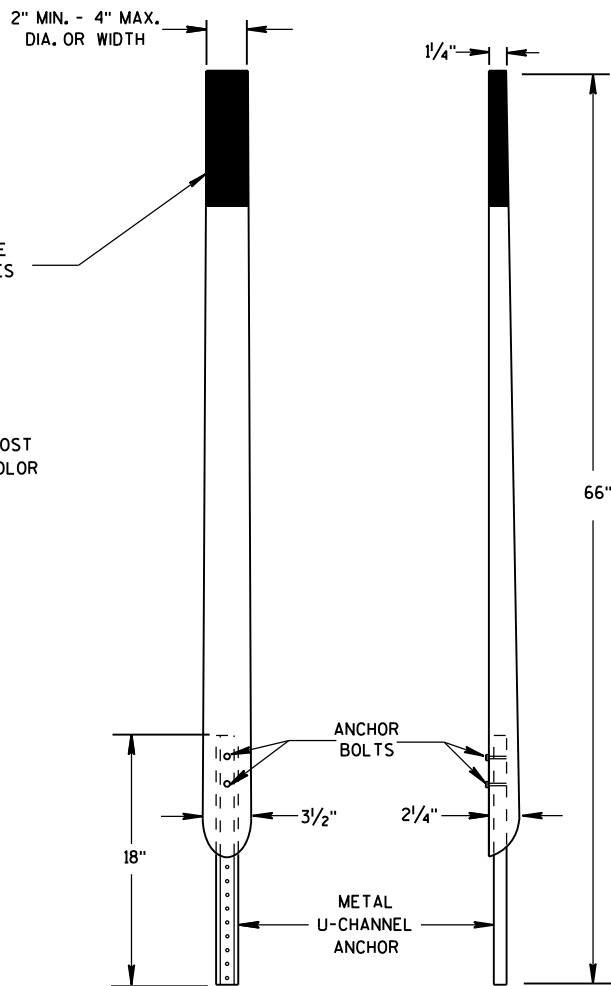
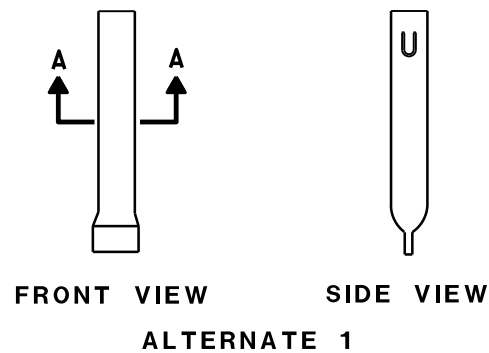
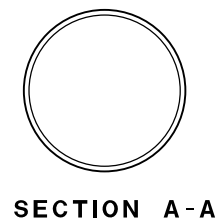
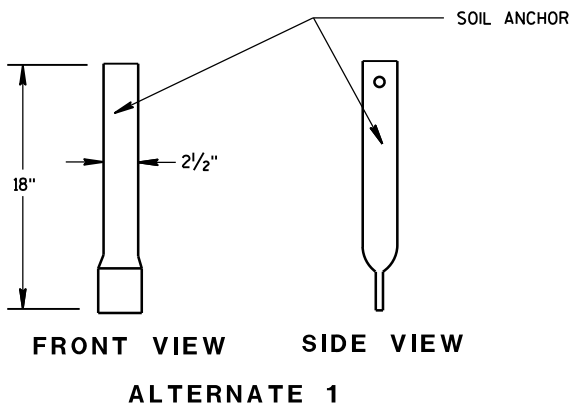
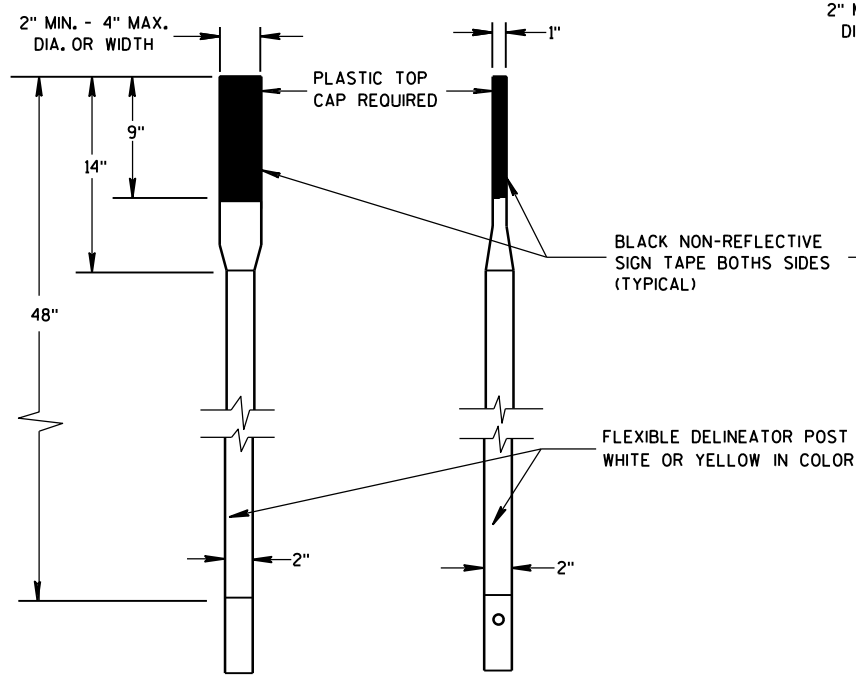
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

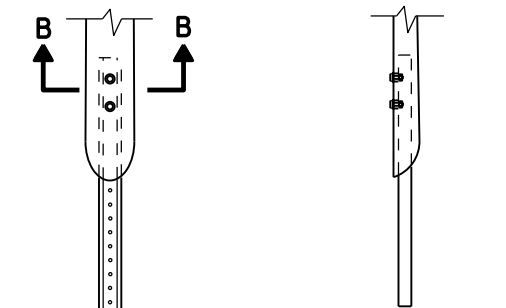
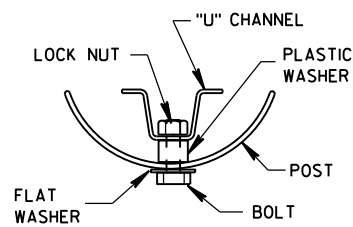
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

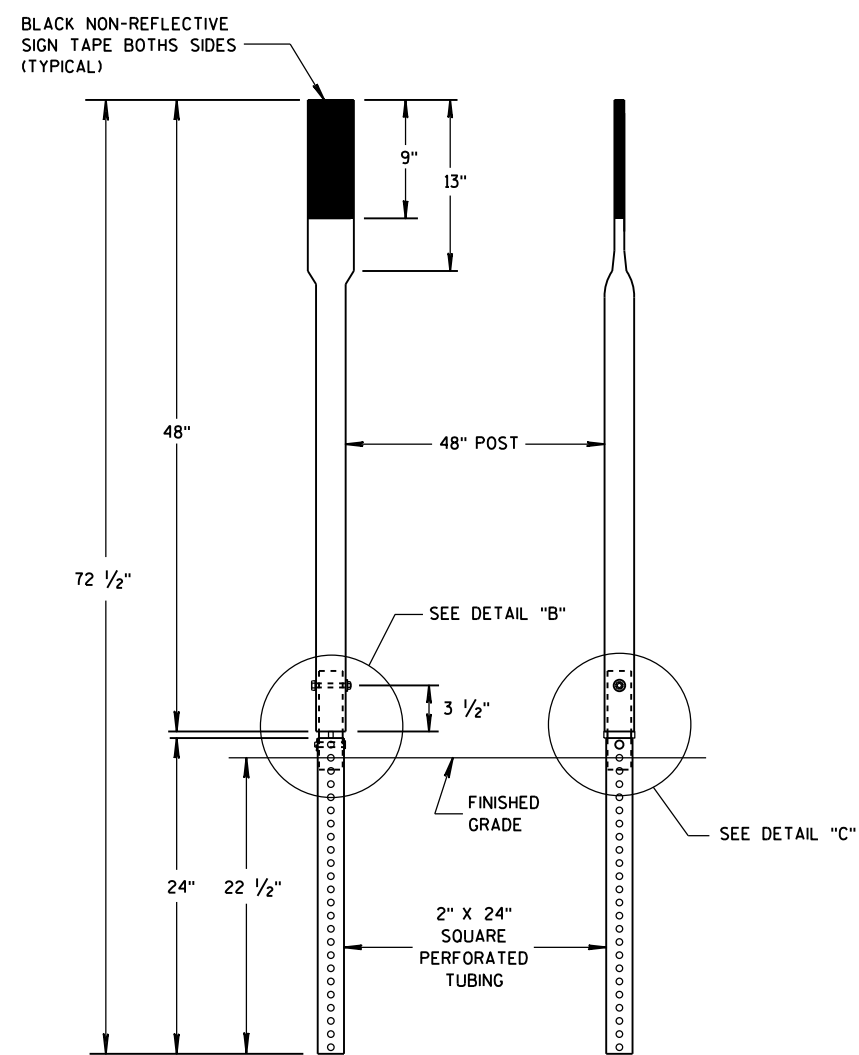


FRONT VIEW SIDE VIEW
ALTERNATE 2

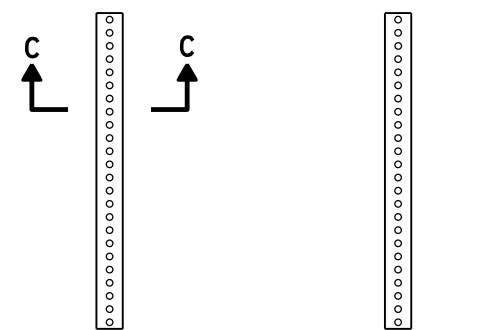
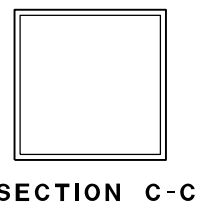
FLEXIBLE MARKER POSTS



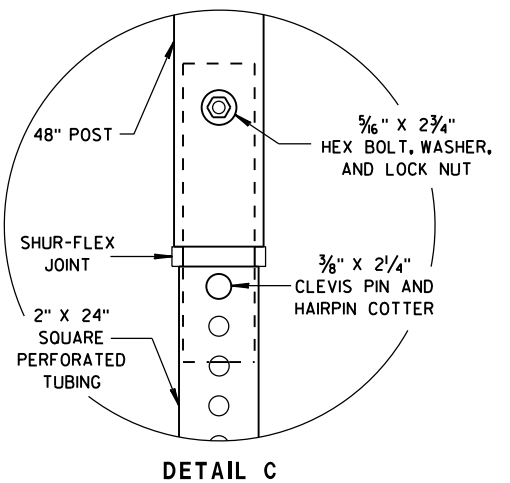
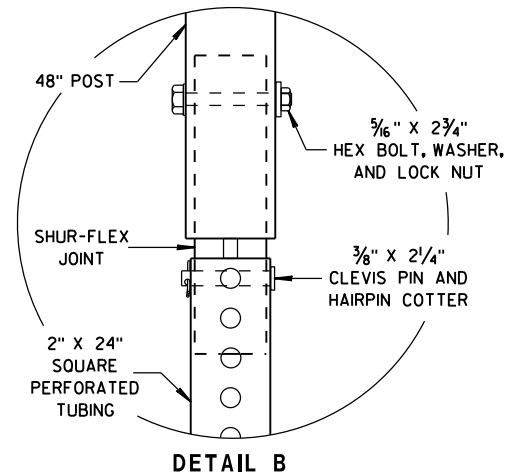
FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



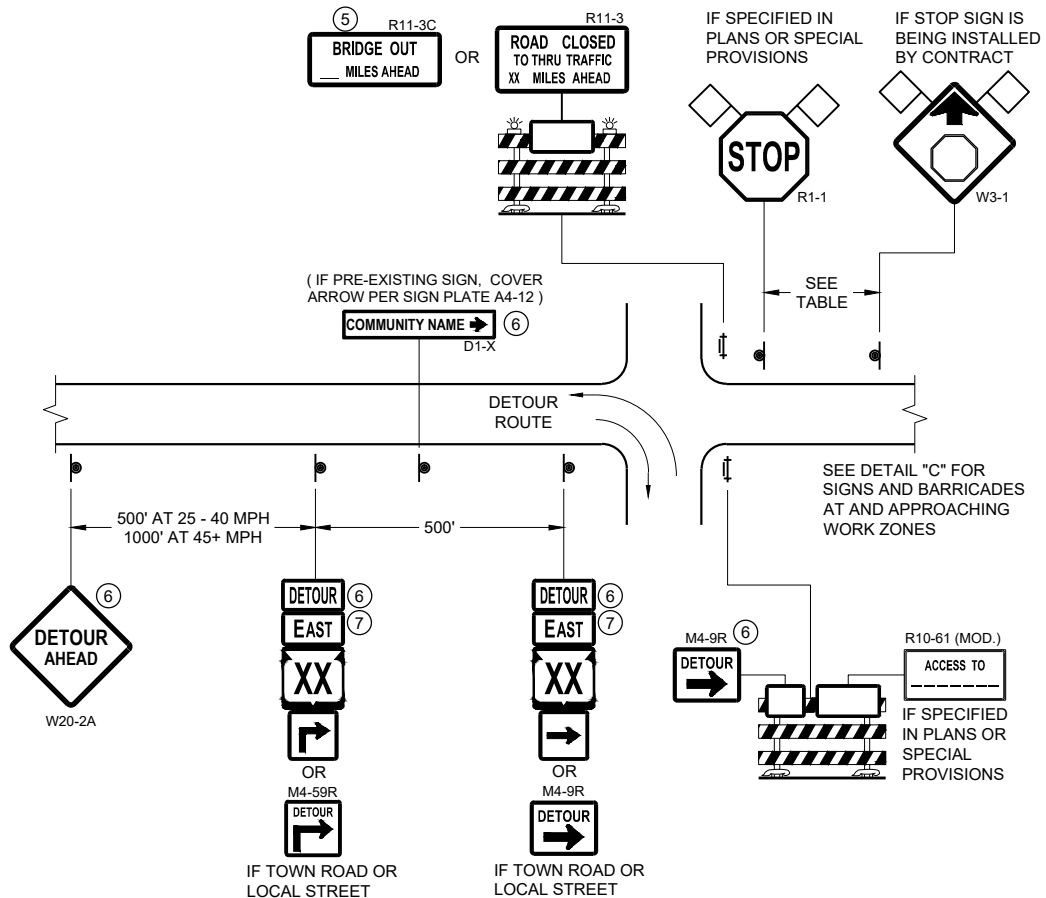
FRONT VIEW SIDE VIEW
ALTERNATE 3



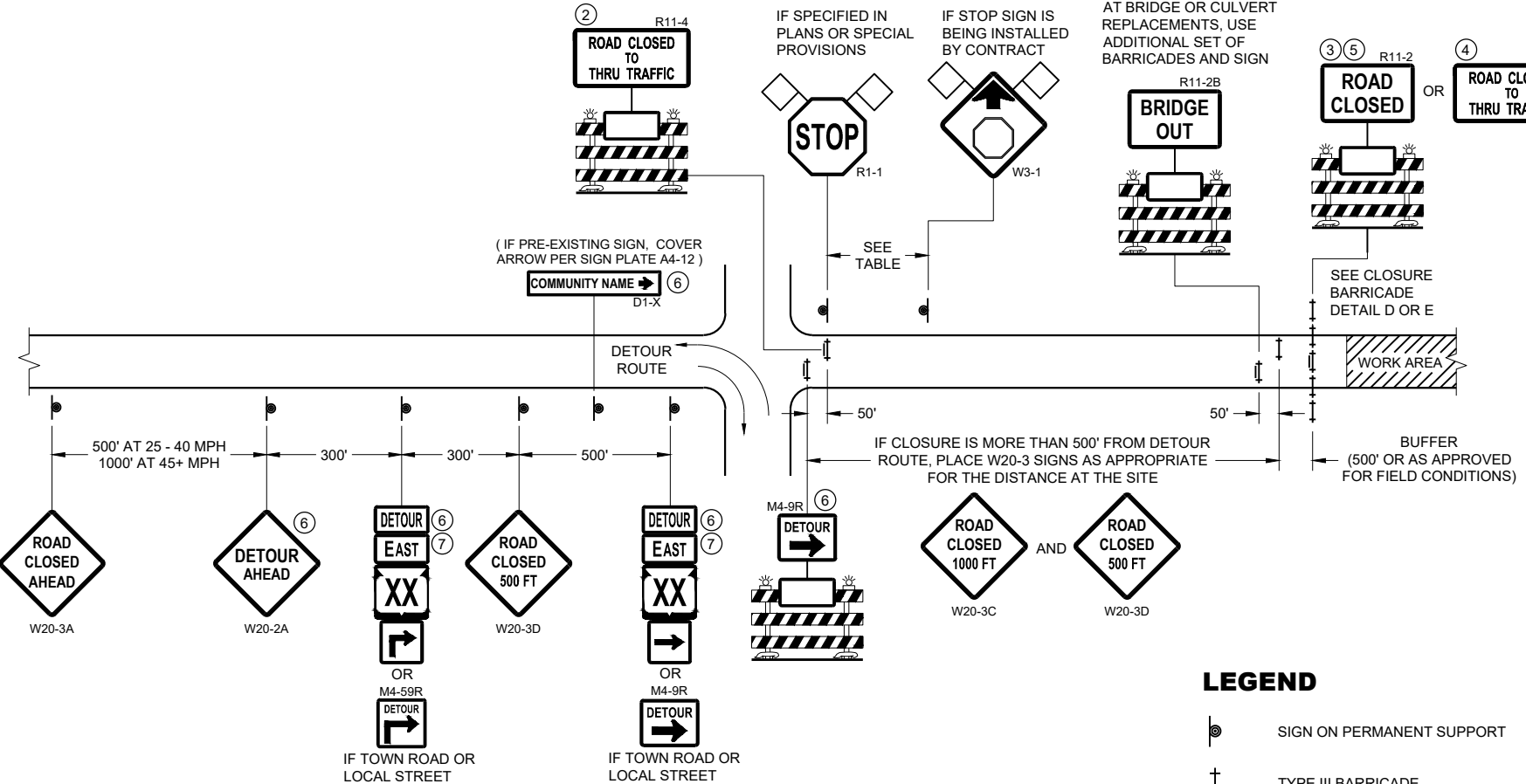
FRONT VIEW SIDE VIEW
ALTERNATE 3



FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER 236 IGN
FHWA	



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



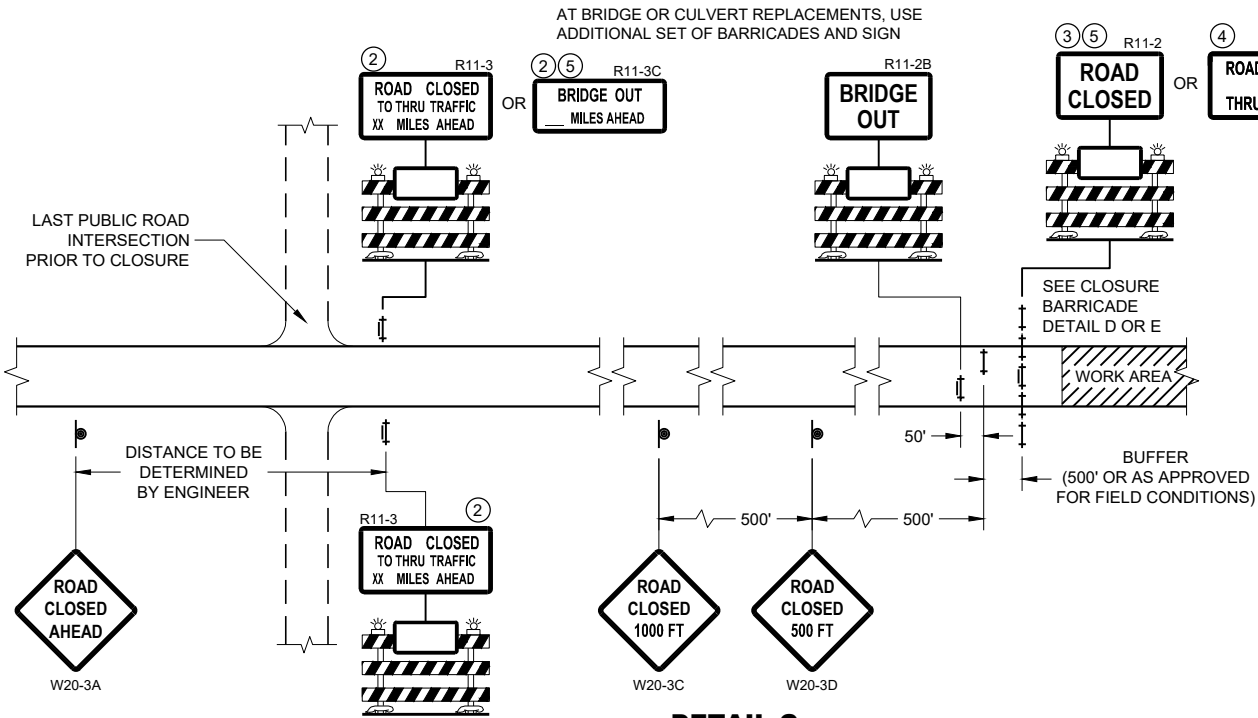
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- 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 M1 - 5A
- OR M05 - 1 OR M06 - 1

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

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

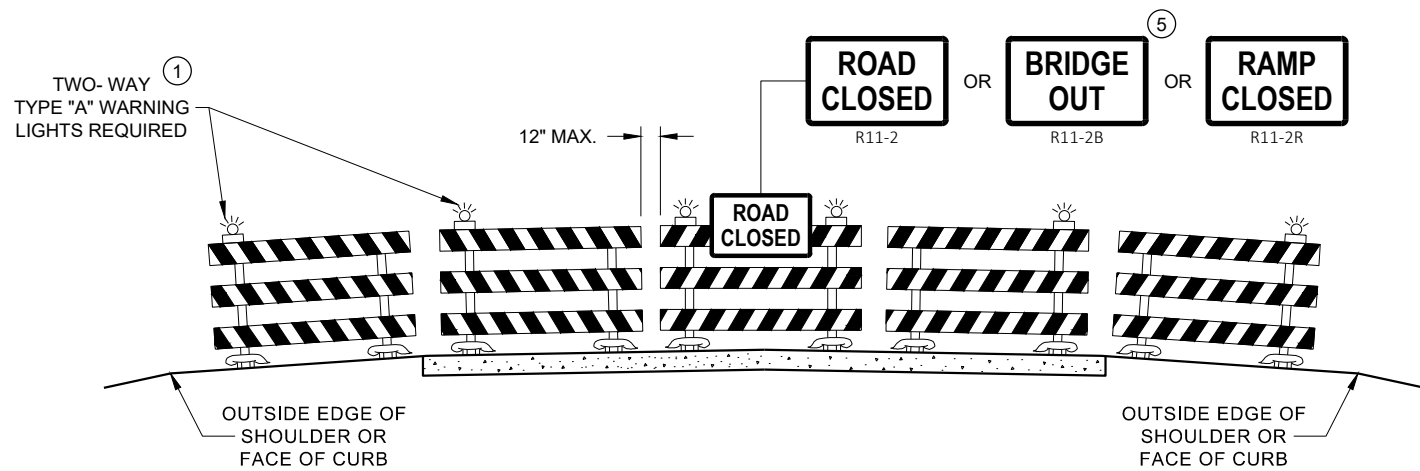


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

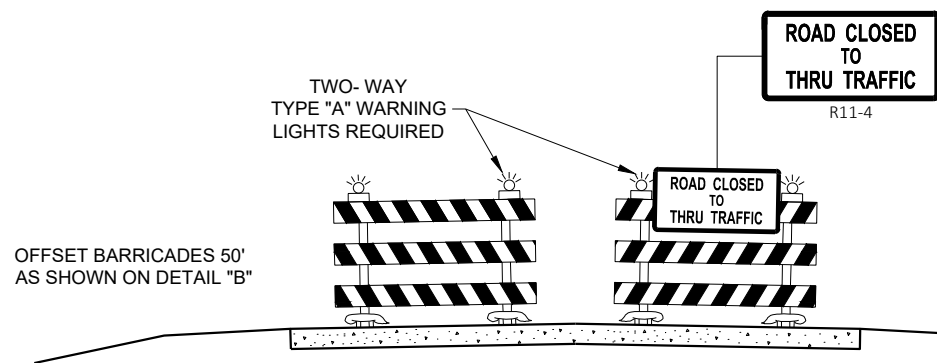
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 237
FHWA



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

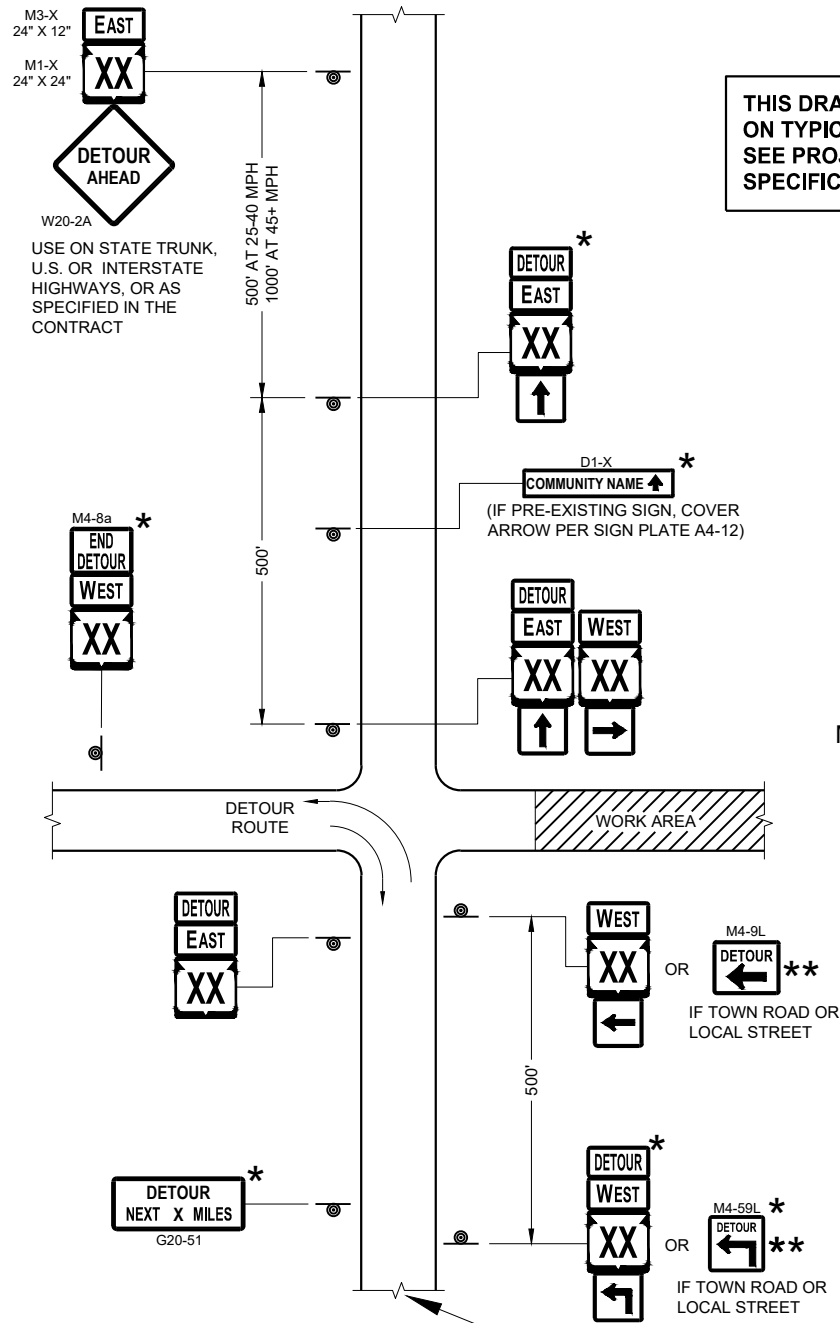
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 238

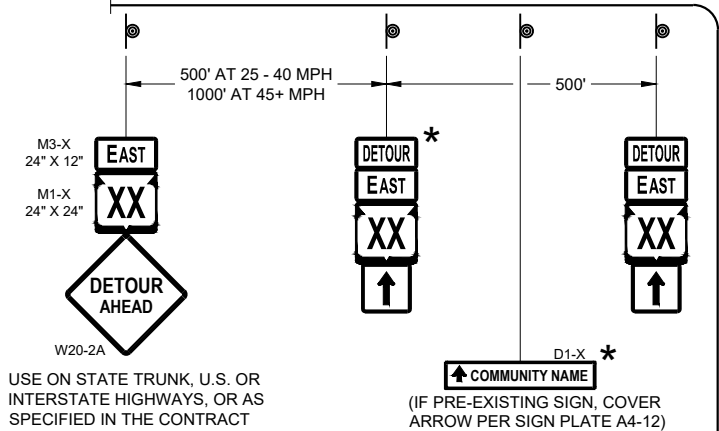
FHWA



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

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

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST (M4 - 8)
- DETOUR WEST (M4 - 8)
- DETOUR AHEAD (M1 - 4, M1 - 6, M1 - 5A)
- DETOUR RIGHT (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.

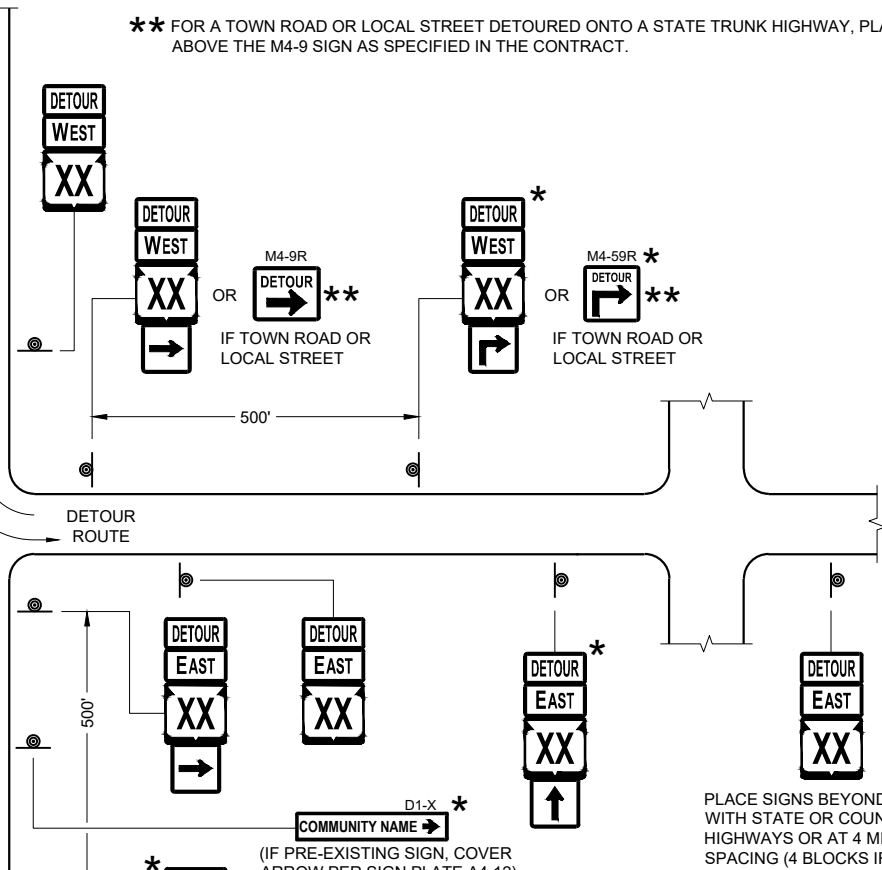
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

"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.



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

DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 239

FHWA

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL "TO" MO-4 SIGN LAYOUT AND SPACING. SEE PROJECT TO SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

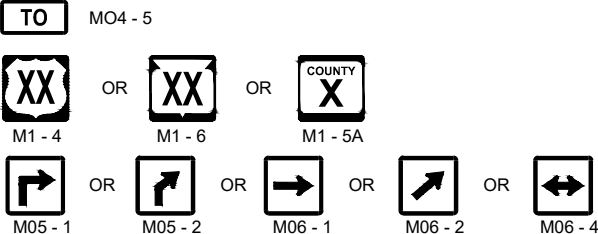
LEGEND



SIGN ON PERMANENT SUPPORT

PCMS

PORTABLE CHANGEABLE MESSAGE SIGN



GENERAL NOTES

SEE SDD 15D16 "TRAFFIC CONTROL, EXIT RAMP CLOSURE" DETAIL FOR TRAFFIC CONTROL AT EXIT RAMP CLOSURE.

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

IF THERE ARE ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE "TO" MO-4 ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT TO SIGNING DETAIL SHEETS MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND "TO" MO-4 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 SHALL 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 FOLLOW:

MO4 - 5 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, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS).

- ① ONLY ADD IF THERE ARE NO EXISTING ROUTE MARKERS FOR THE INTERSECTING ROADWAY.

OFF RAMP LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 341

FHWA

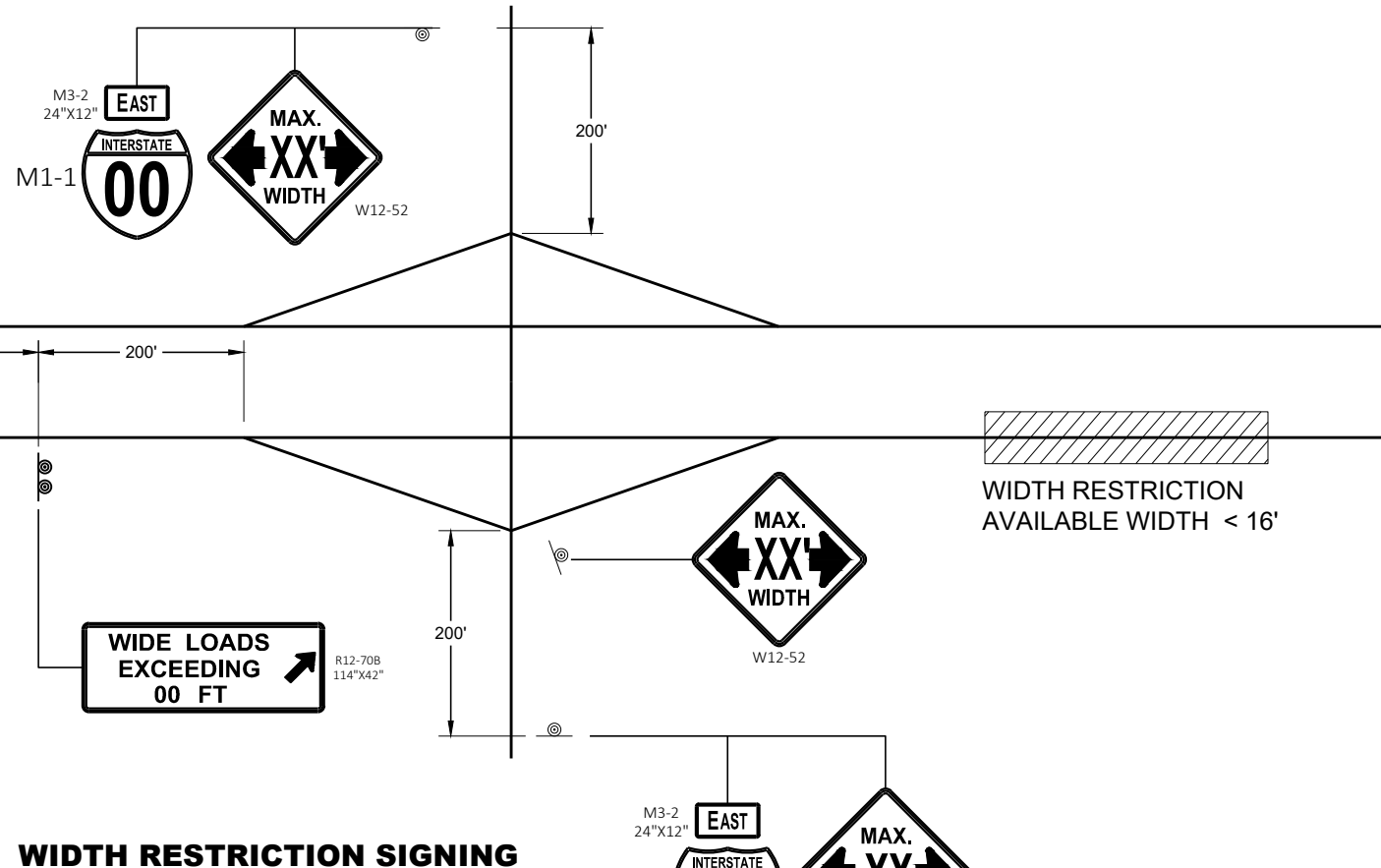
WORK ZONE ENGINEER 241

6

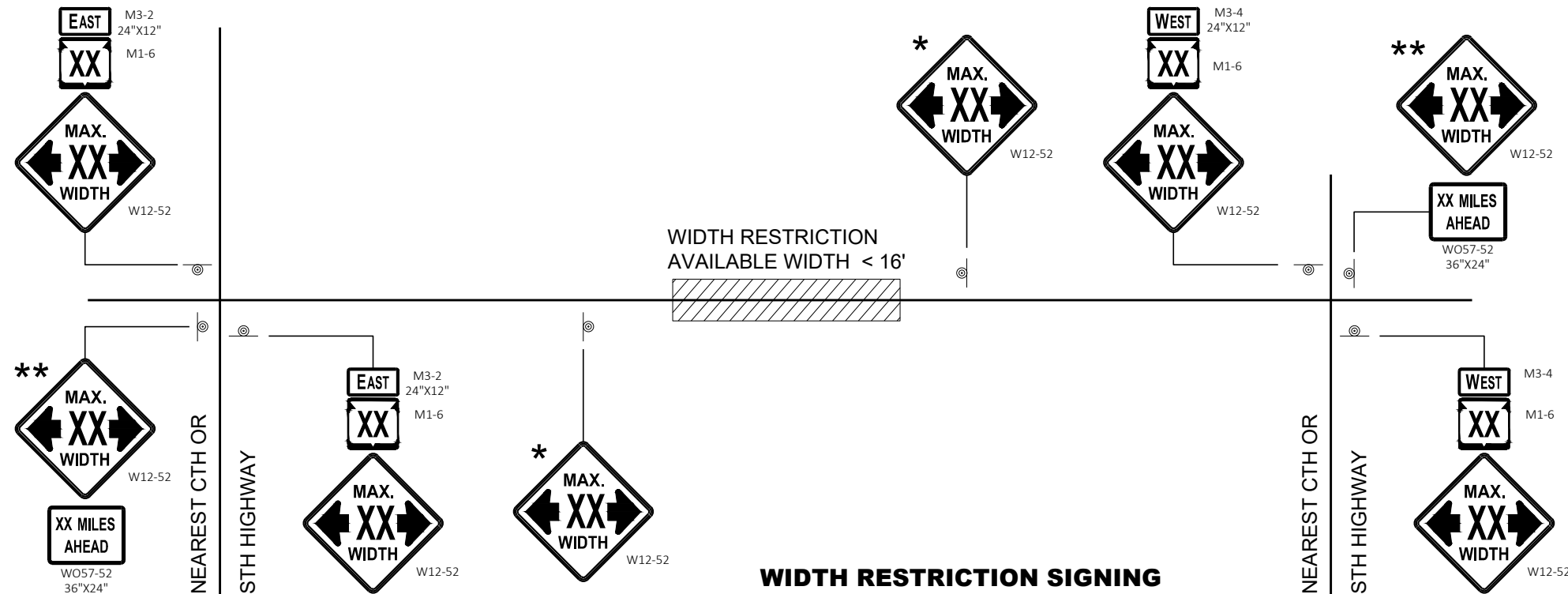
SDD 15C02 - 09e

6

SDD15C02 - 09e



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

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

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

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

- * PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- ** SIGN SHALL BE VISIBLE FROM ROADWAY.
- *** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

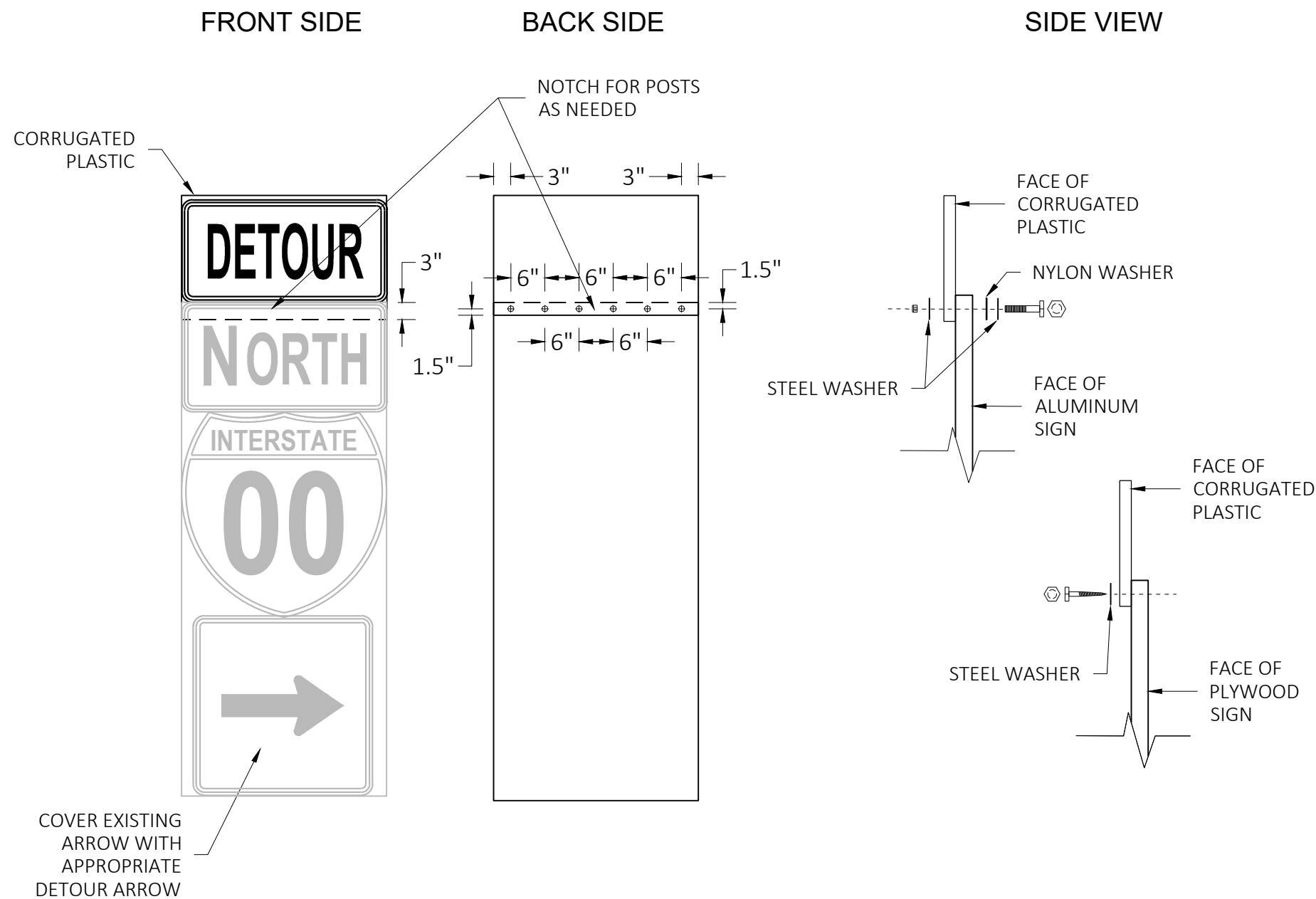


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

ADVANCED WIDTH
RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 242
FHWA



GENERAL NOTES

CELLS OF CORRUGATED PLASTIC SHALL BE VERTICALLY ORIENTED.

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

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

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

METAL WASHERS, NUTS, BOLTS AND LAGS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3.
- ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC3

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

PLYWOOD SIGNS:

LAG SCREWS - 5/16" x 1"

ALUMINUM SIGNS:

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

WASHERS:

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

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

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

MODIFIED ROUTE ASSEMBLY FOR DETOUR SIGNING

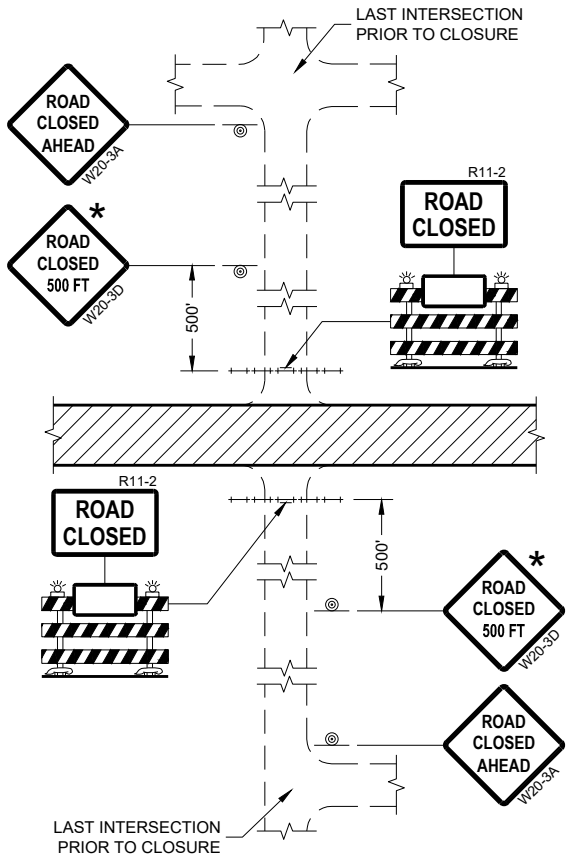
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

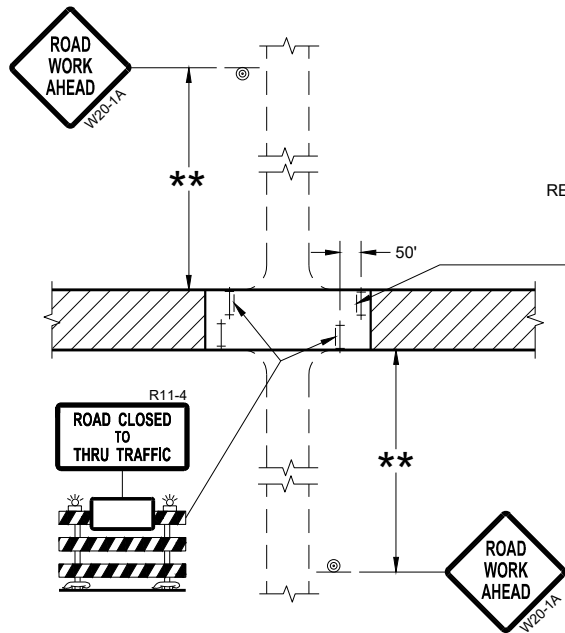
May 2023
DATE

/S/ Andrew Heidtke
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

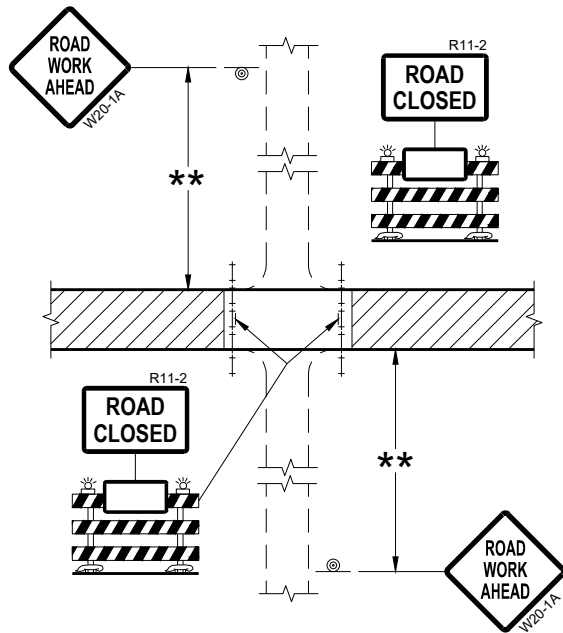
FHWA



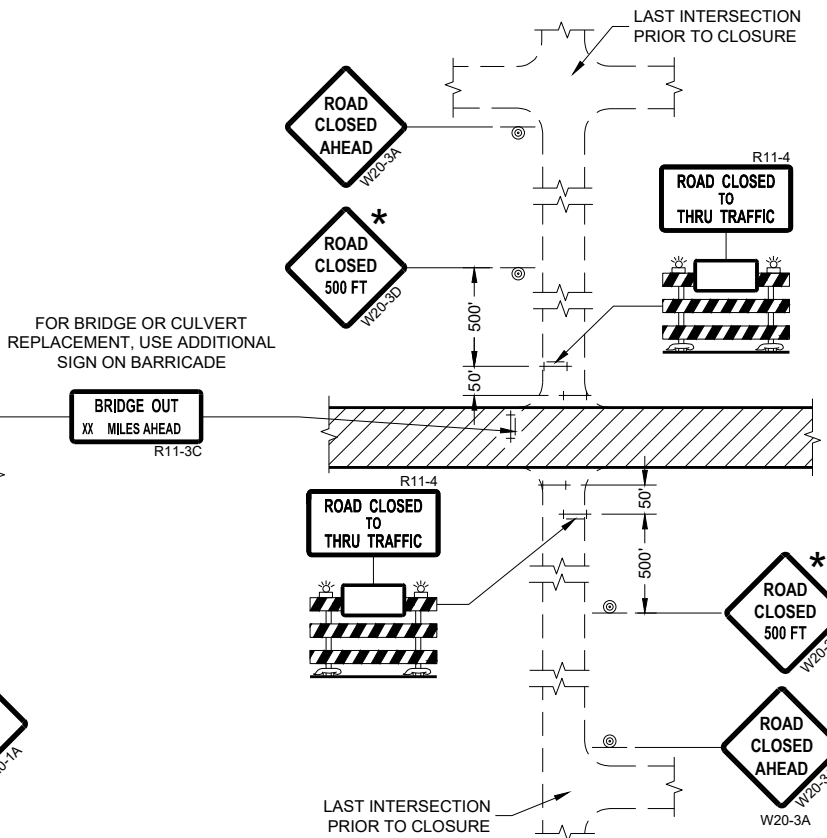
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 244

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GENERAL NOTES

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

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

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

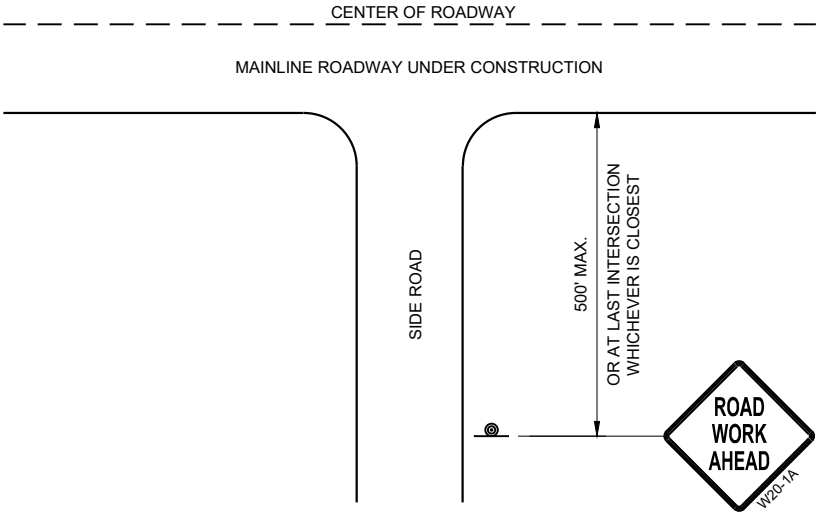
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

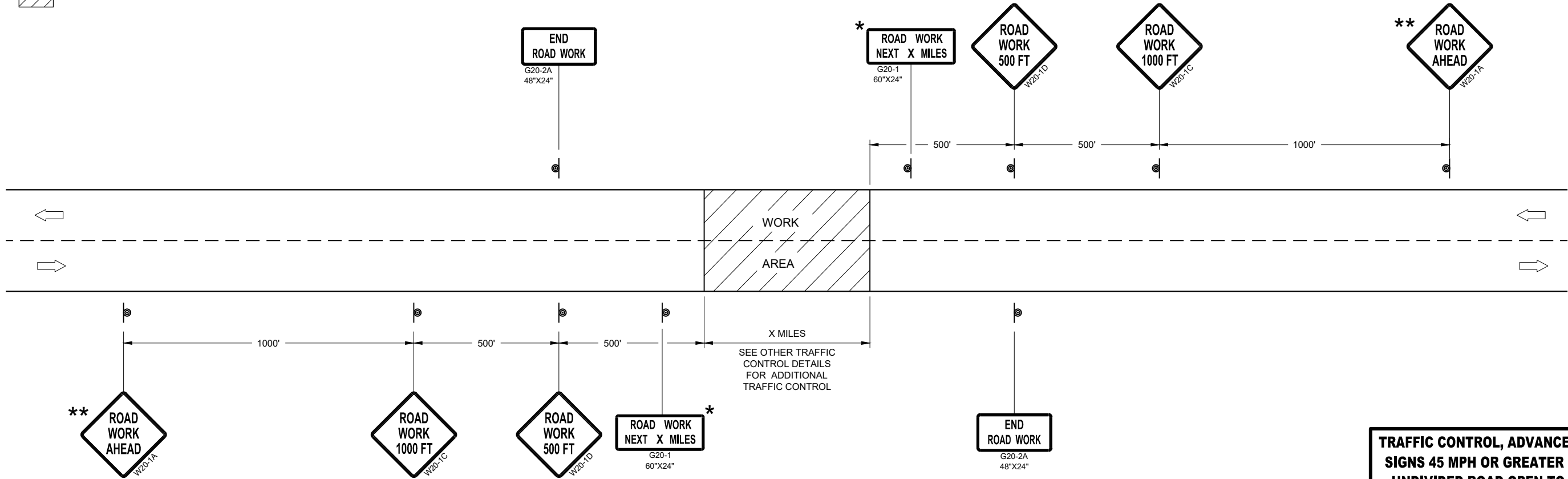
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

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

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DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 245
FHWA

GENERAL NOTES

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

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

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

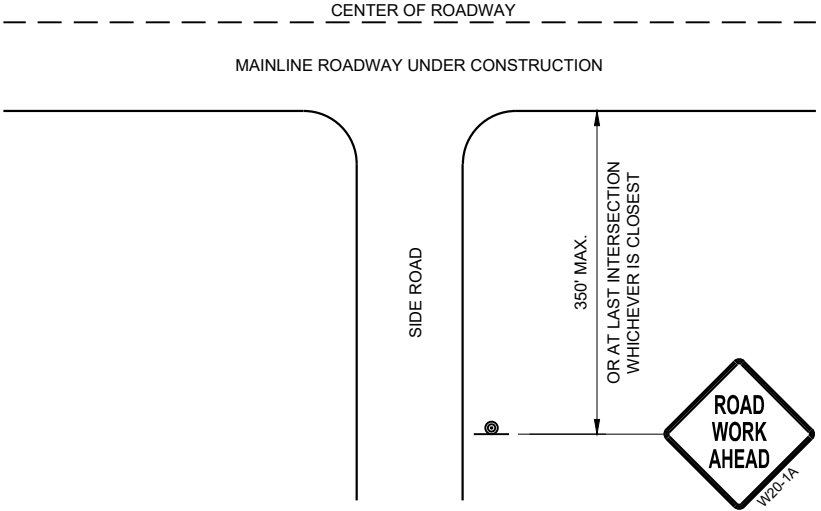
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

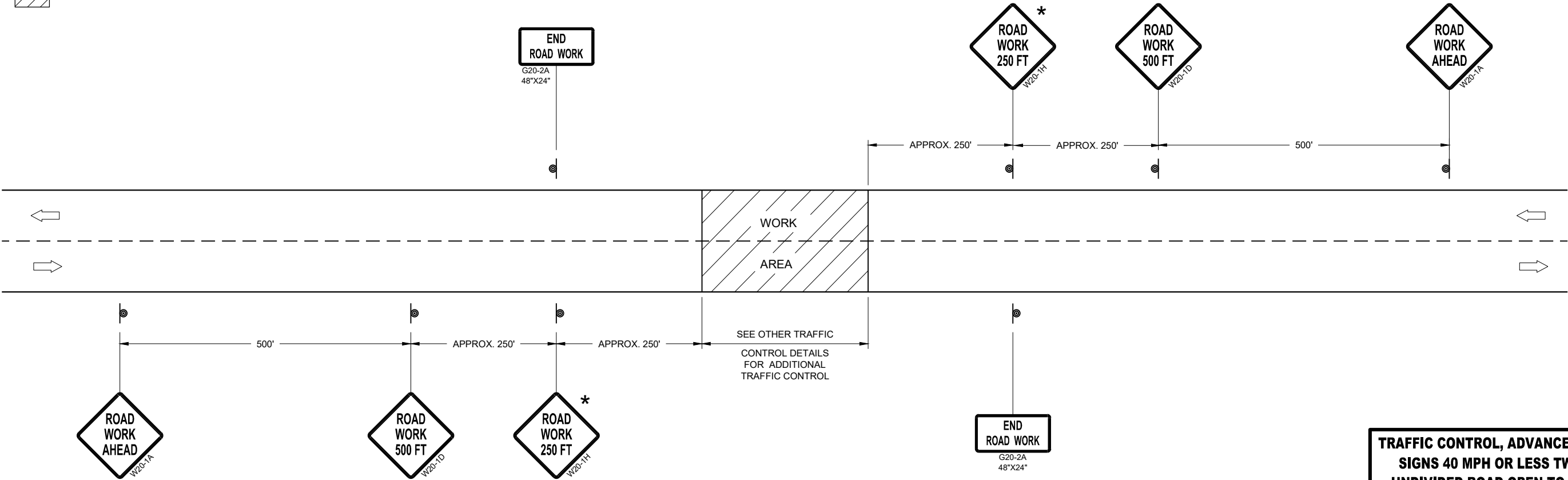
* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FEET" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



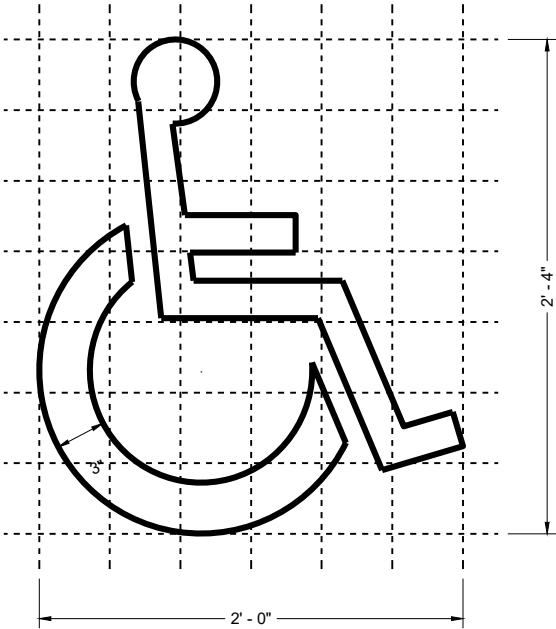
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40MPH OR LESS

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

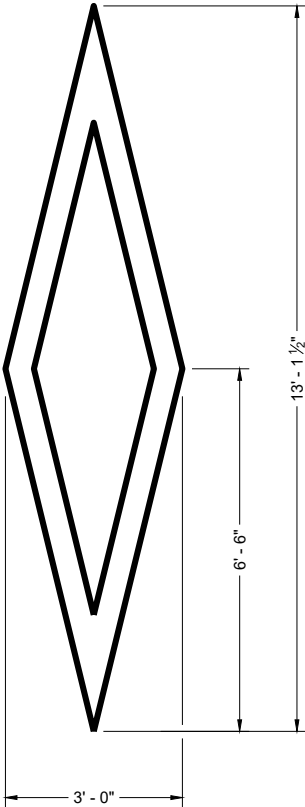
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DATE WORK ZONE ENGINEER 246

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HANDICAP SYMBOL



PREFERENTIAL
LANE SYMBOL

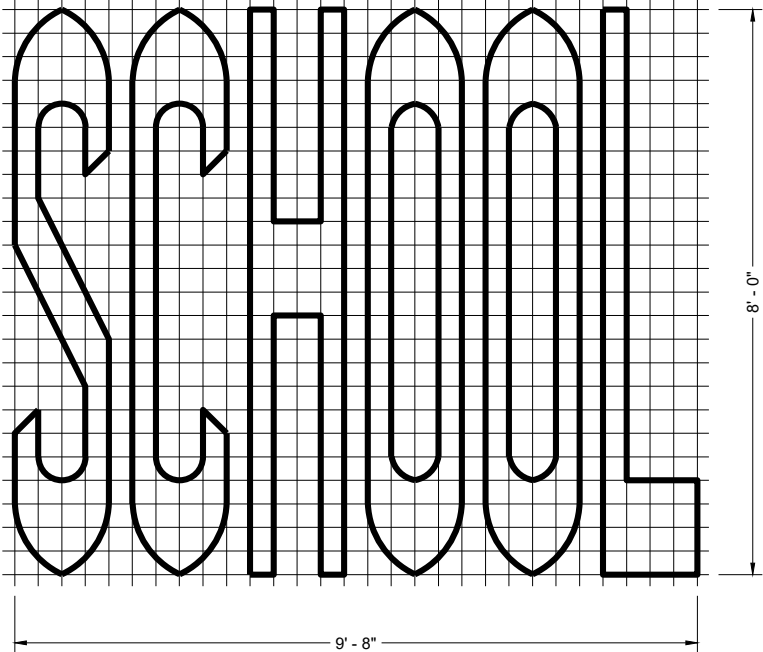
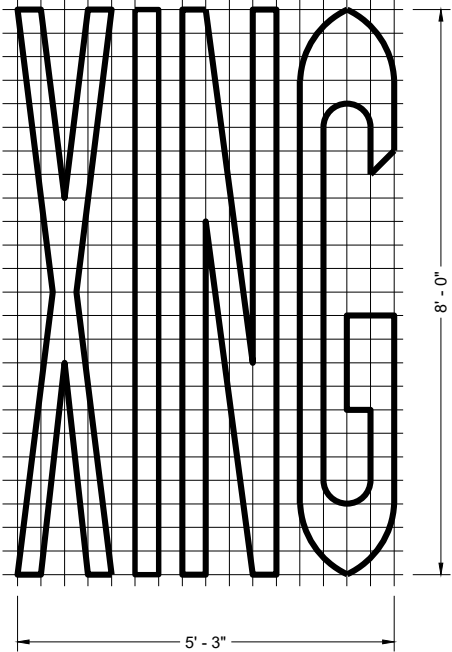
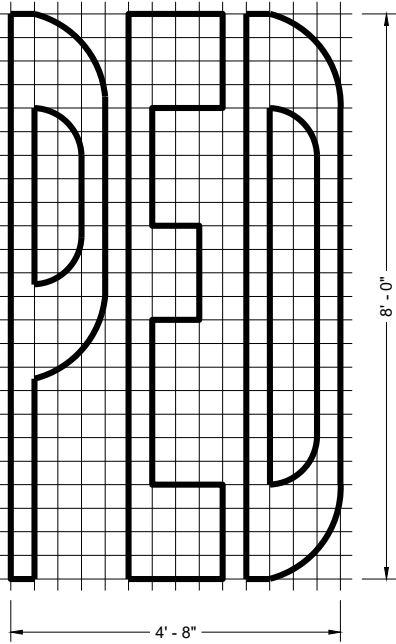
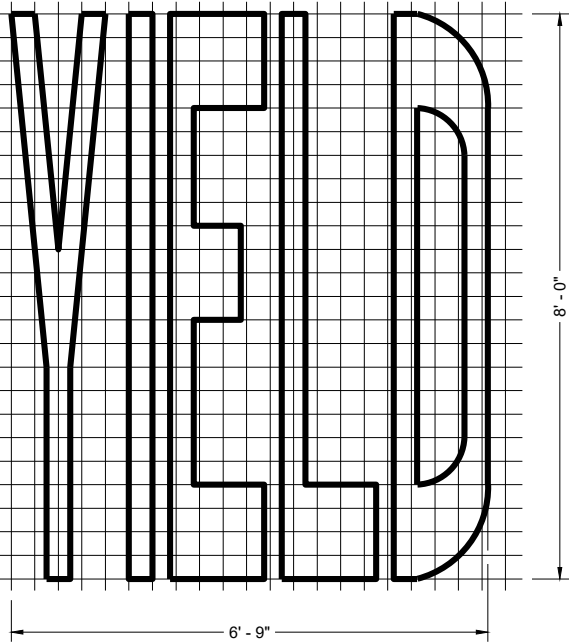
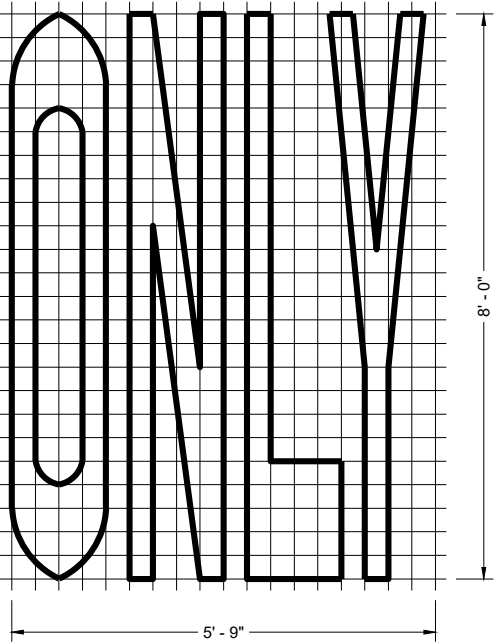
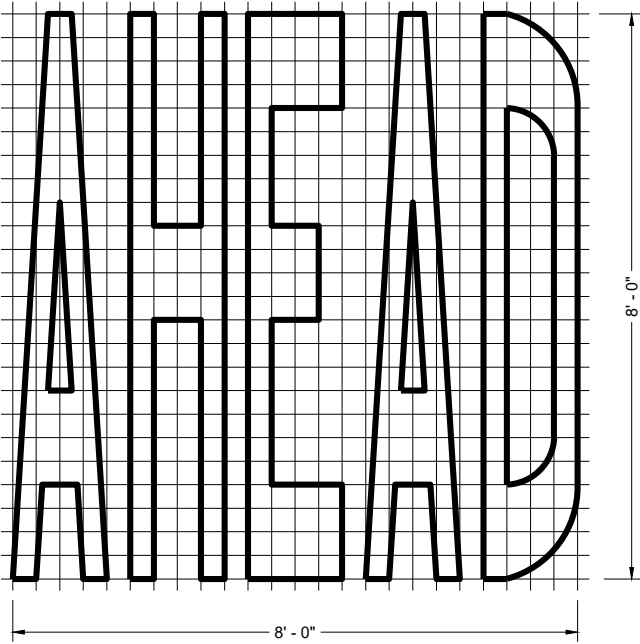
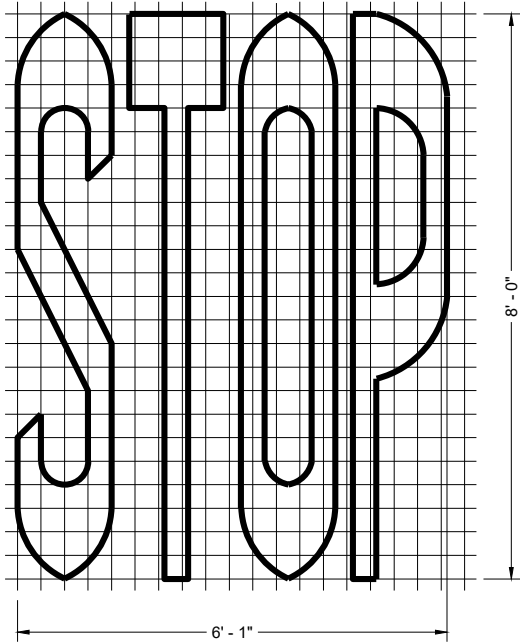
GENERAL NOTES

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.

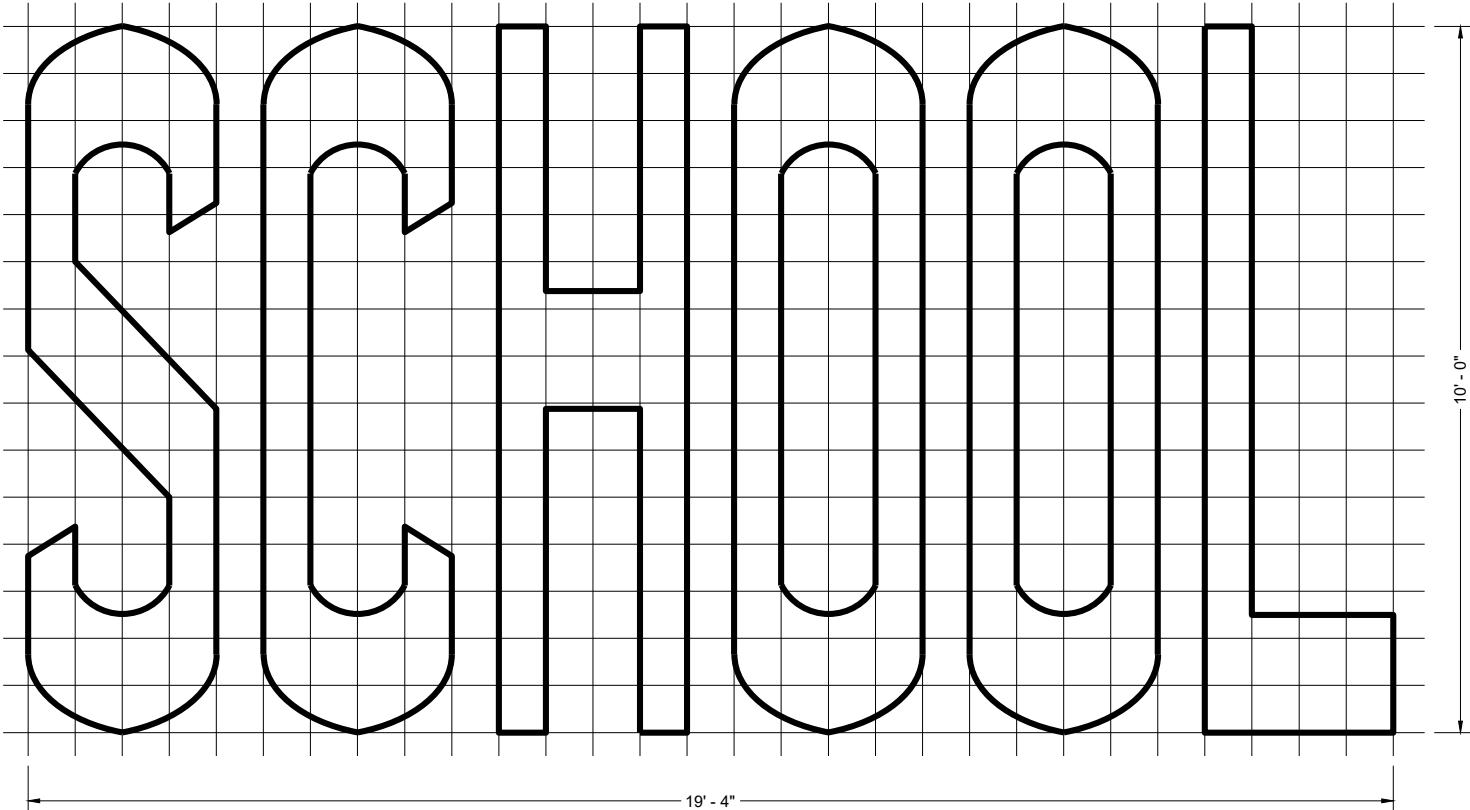
PAVEMENT MARKING SYMBOLS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Jeannie Silver
DATE STATE SIGNING AND MARKING ENGINEER



SINGLE LANE

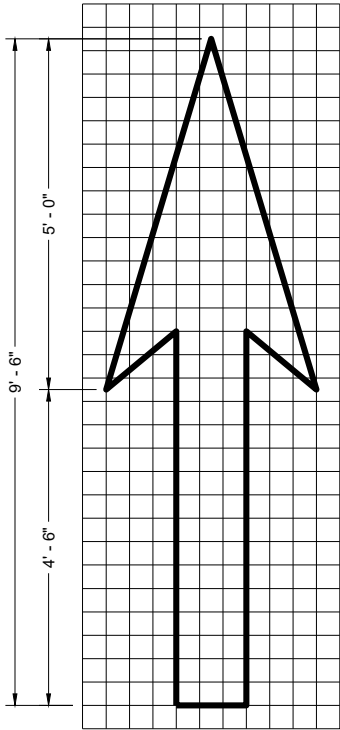


TWO - LANE

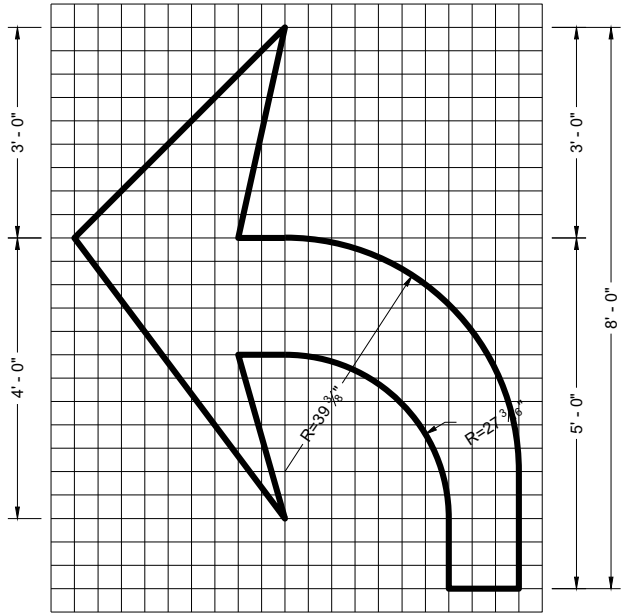
GENERAL NOTES

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

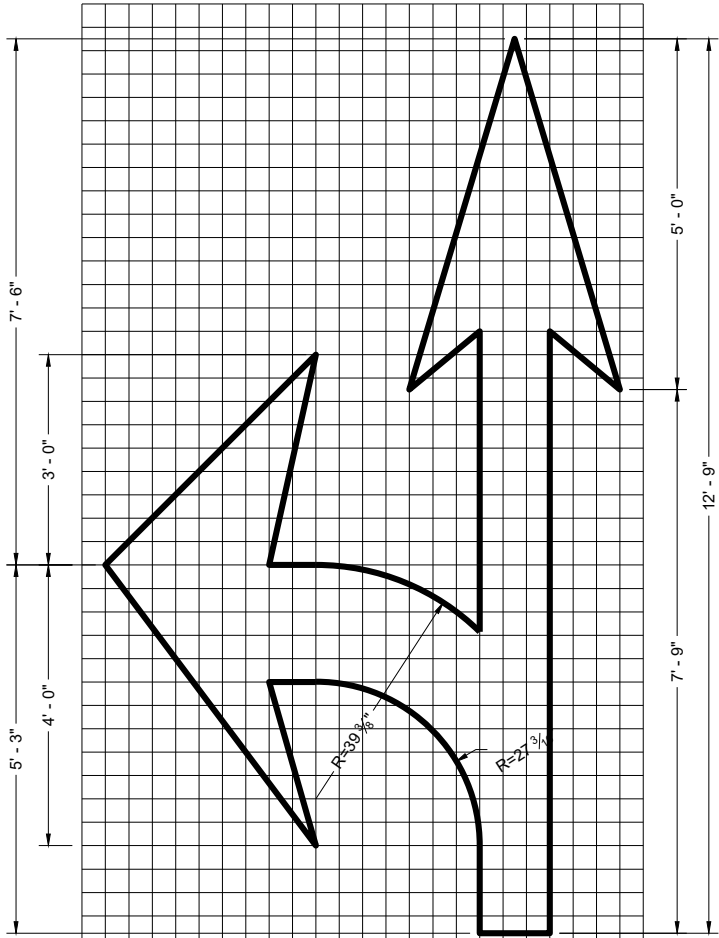
PAVEMENT MARKING WORDS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2024 DATE	/S/ Jeannie Silver STATE SIGNING AND MARKING ENGINEER
FHWA	248



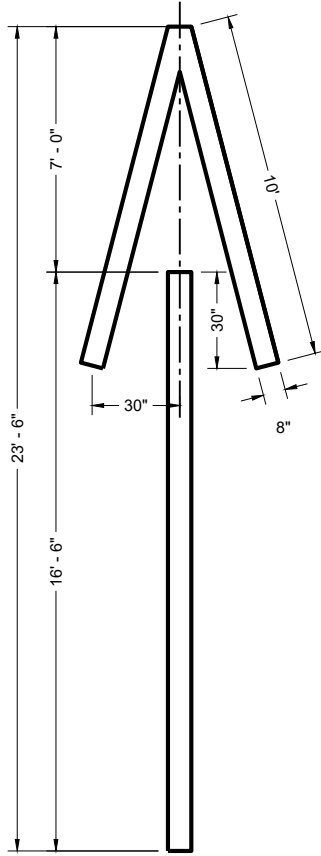
TYPE 1



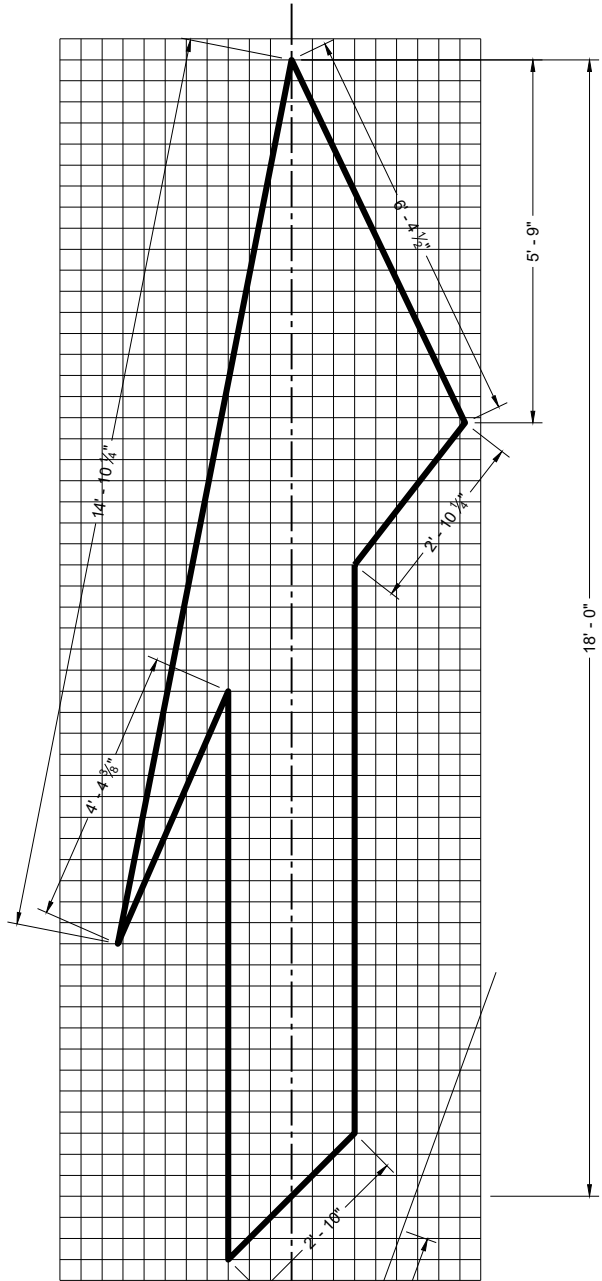
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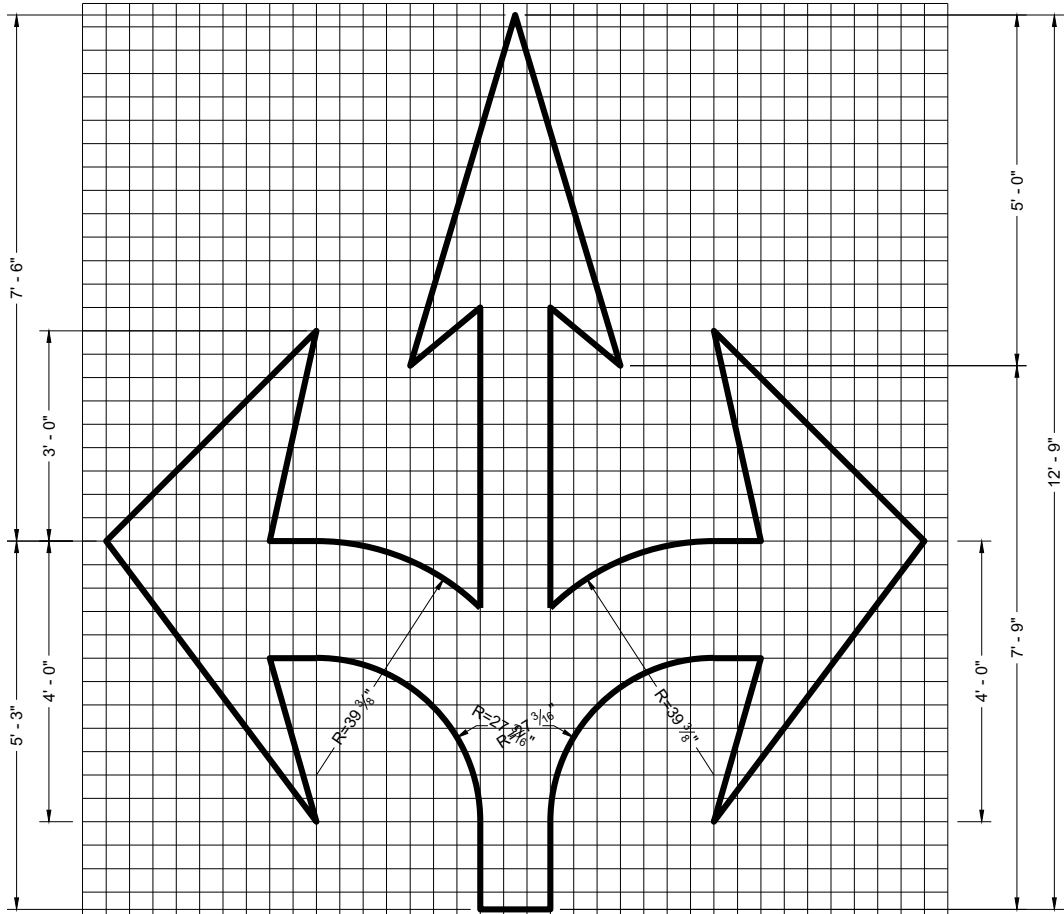
TYPE 3



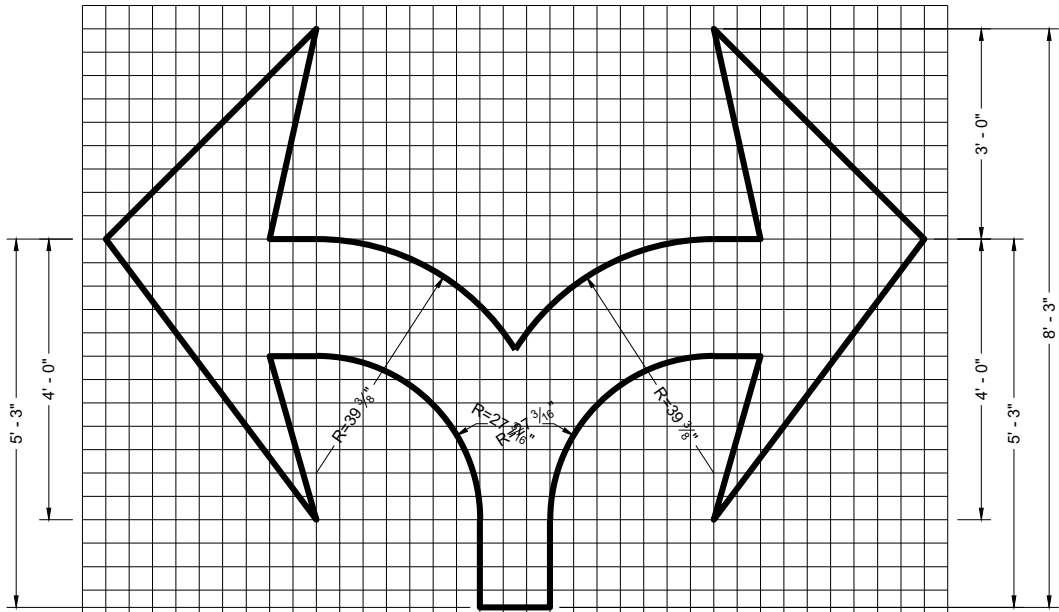
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

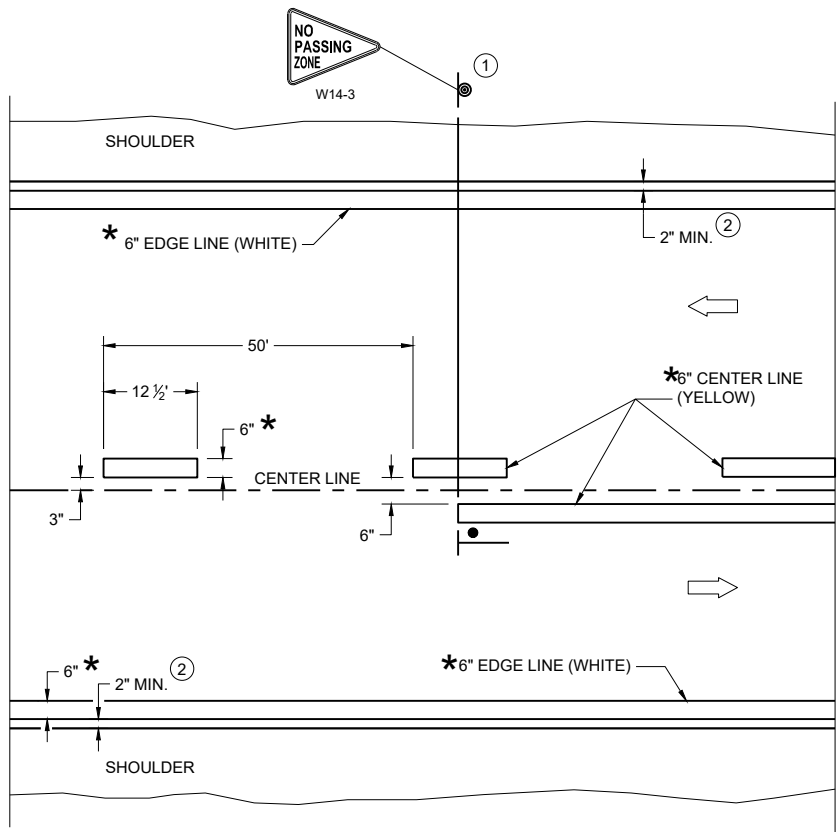
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PAVEMENT MARKING ARROWS

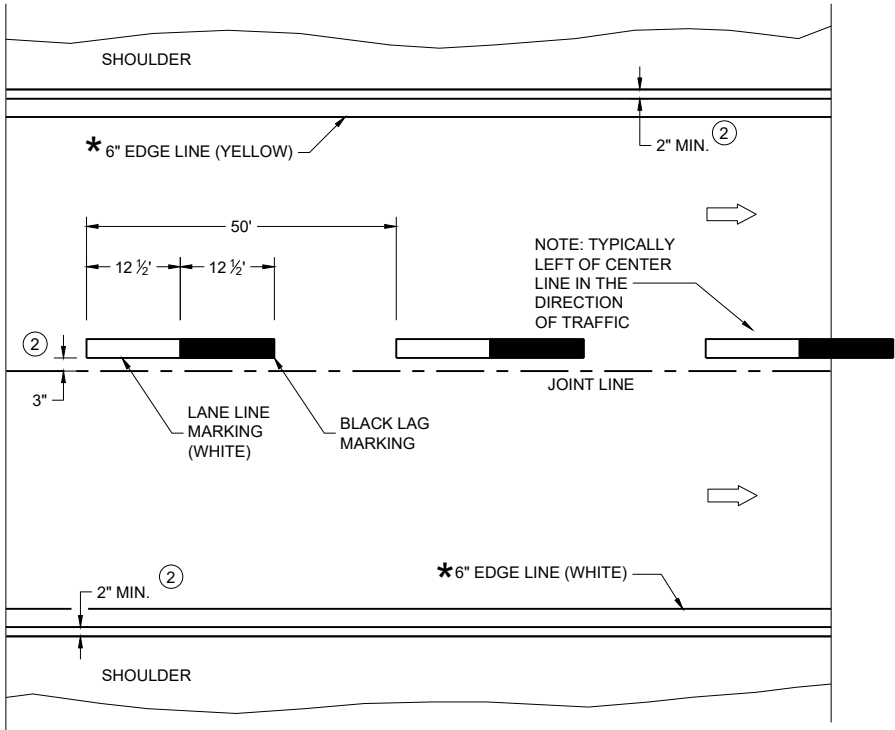
STATE OF WISCONSIN
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APPROVED
November 2024 /S/ Jeannie Silver
DATE STATE SIGNING AND MARKING ENGINEER

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

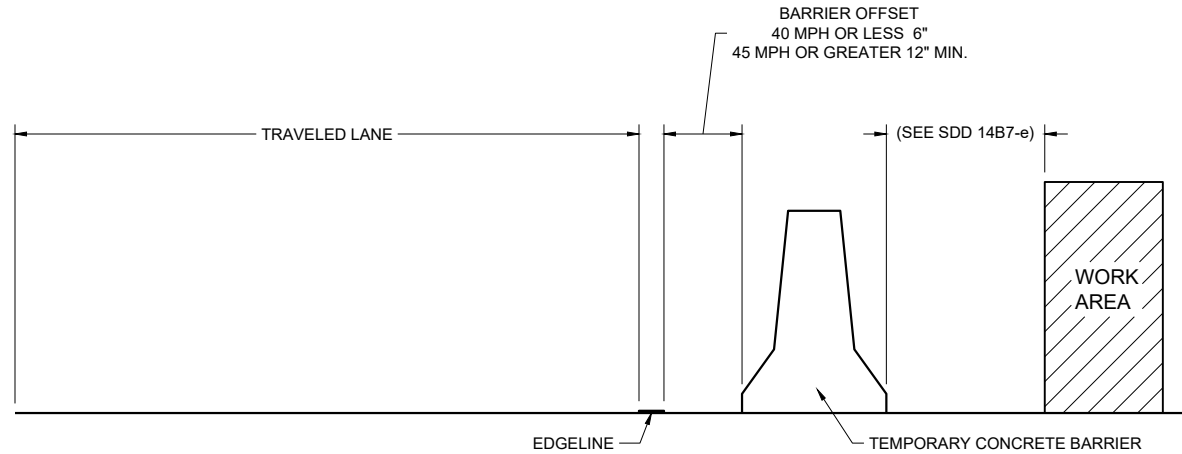
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

LEGEND

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

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	250



TEMPORARY BARRIER OFFSET FROM EDGE LINE

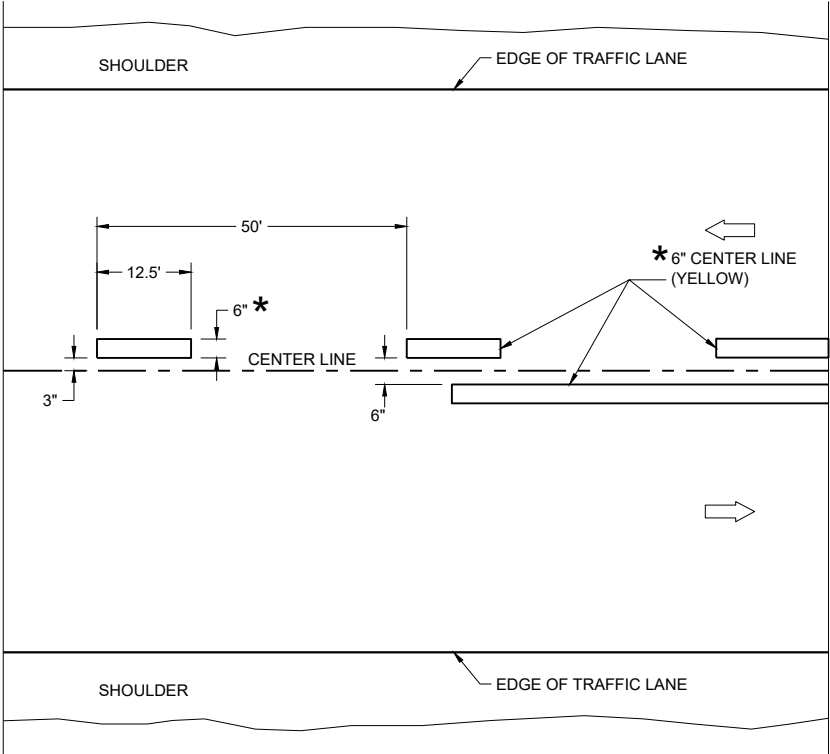
GENERAL NOTES

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

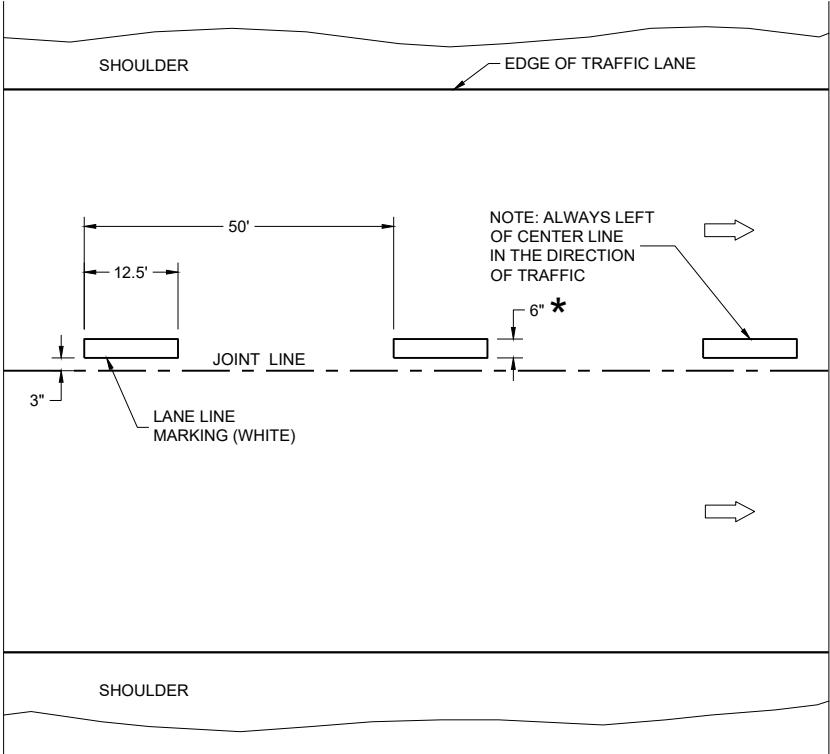
LEGEND

DIRECTION OF TRAFFIC

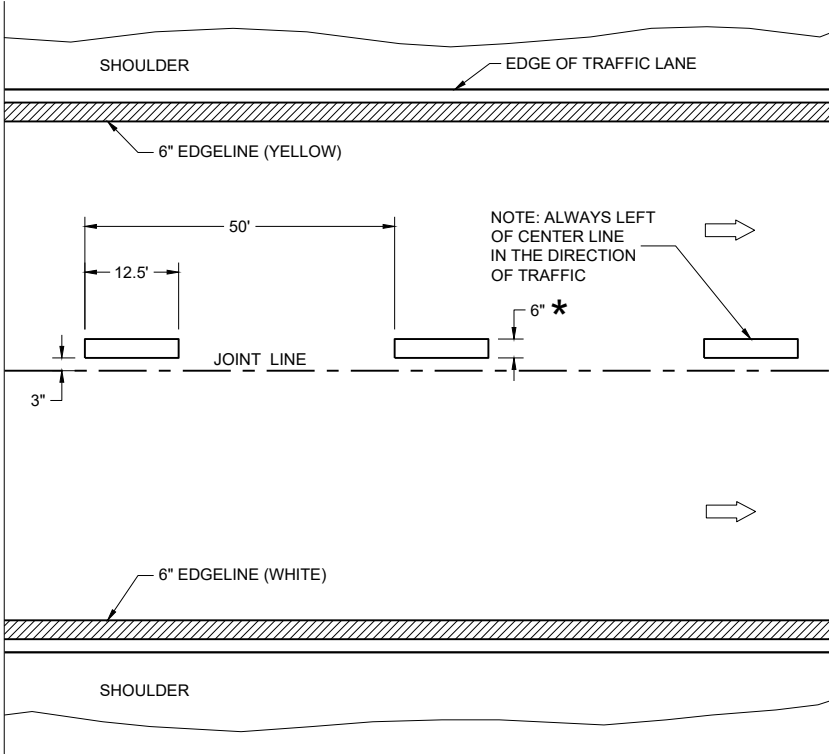
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



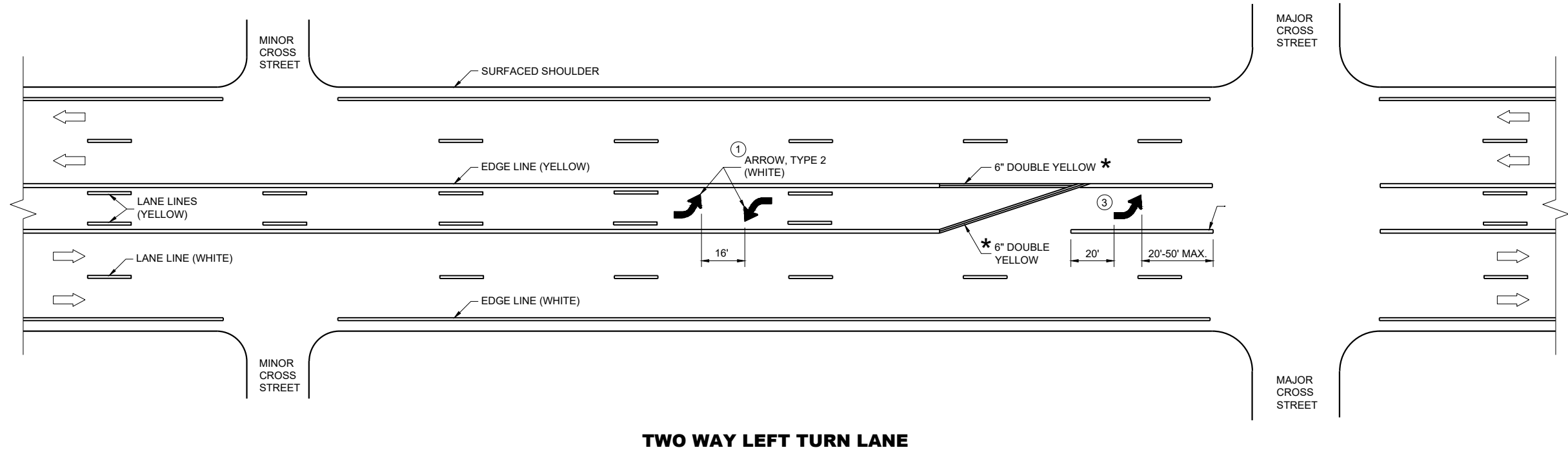
ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	251



GENERAL NOTES

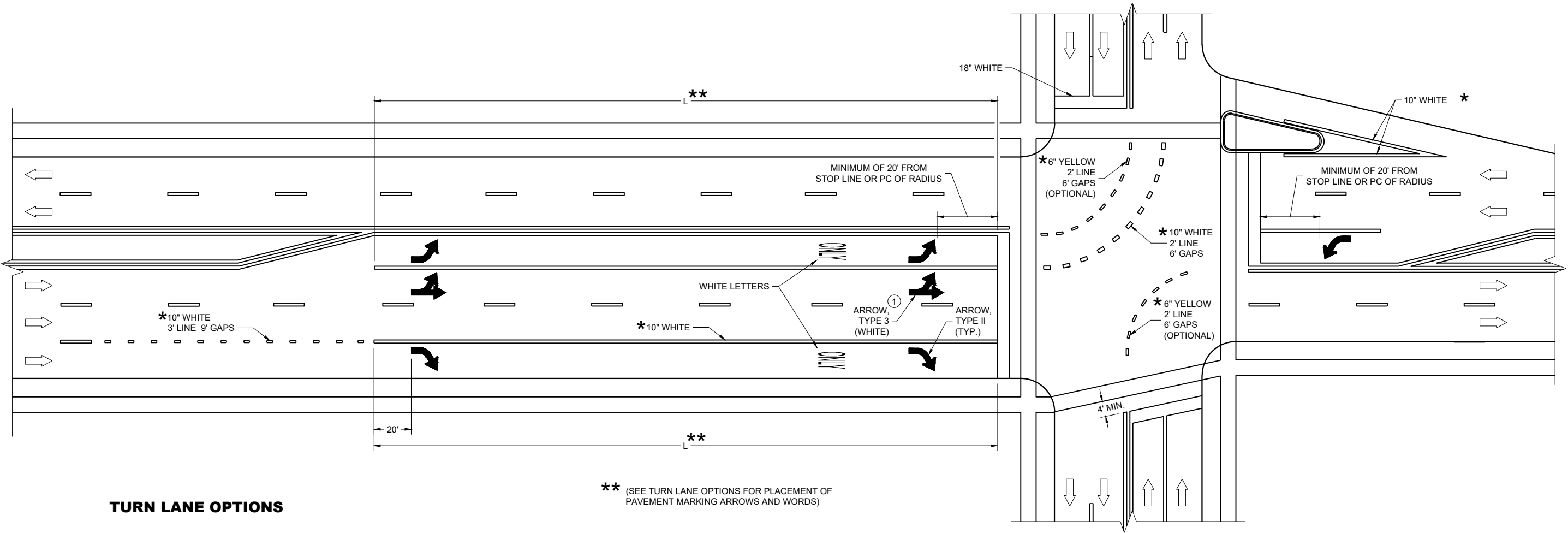
- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 10" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

➡ DIRECTION OF TRAFFIC

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

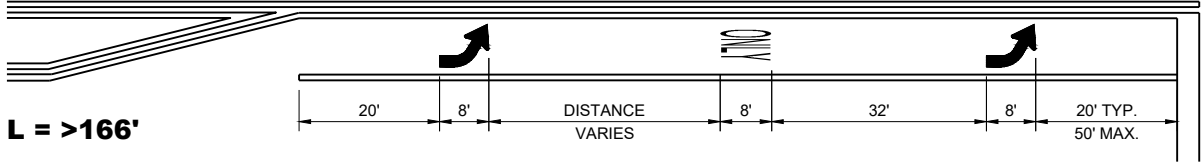
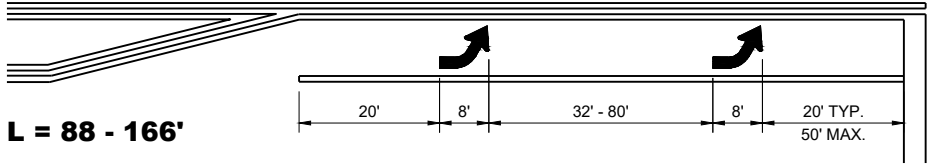
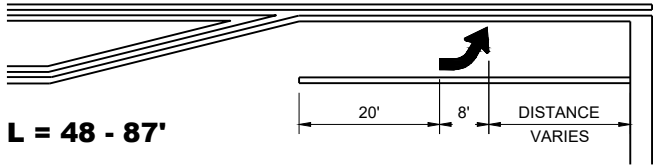
**PAVEMENT MARKING
(TURN LANES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TURN LANE OPTIONS

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



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

GENERAL NOTES

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

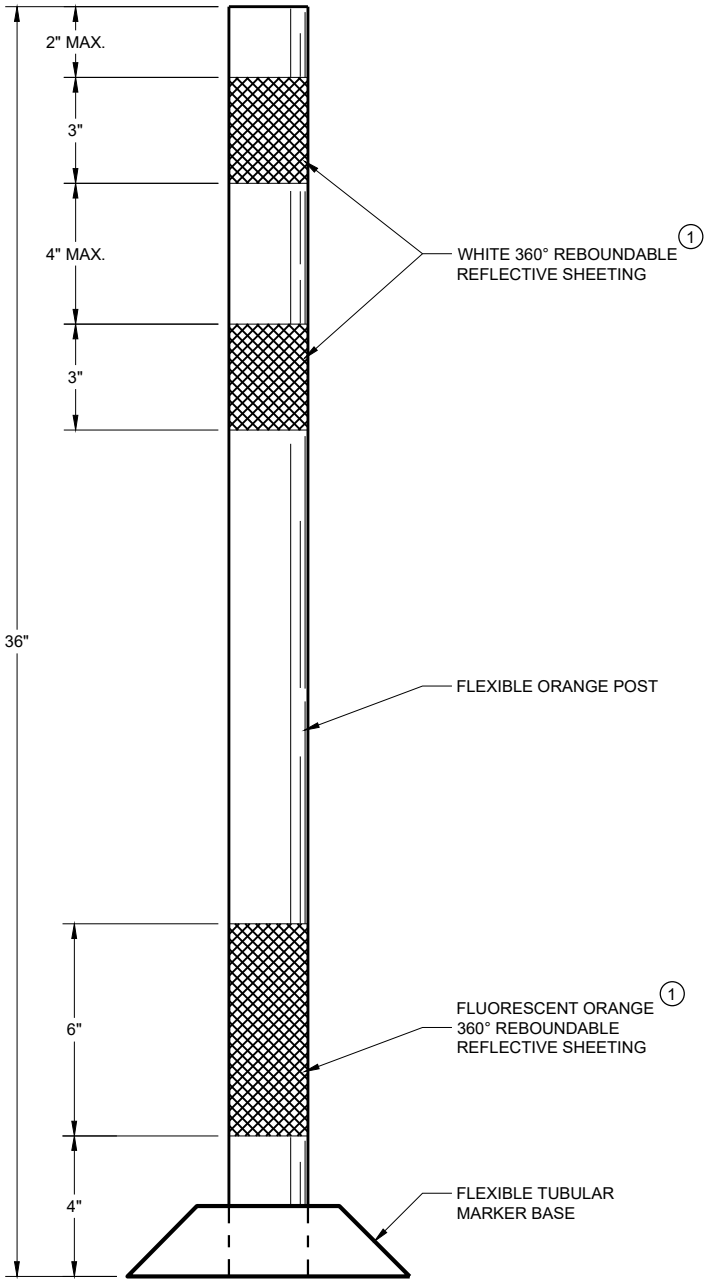
➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
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FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

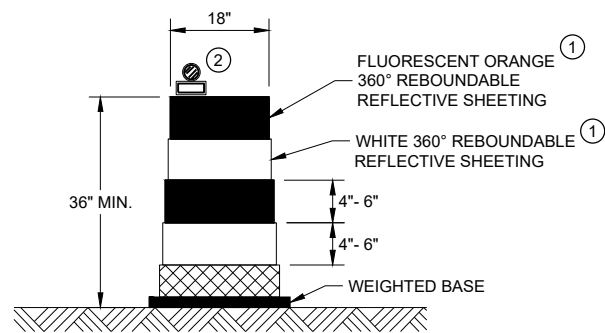
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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

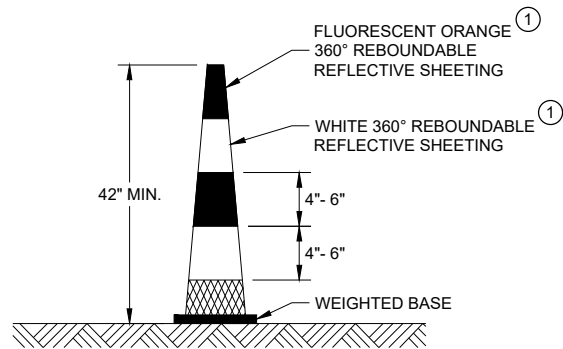
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 254
FHWA	



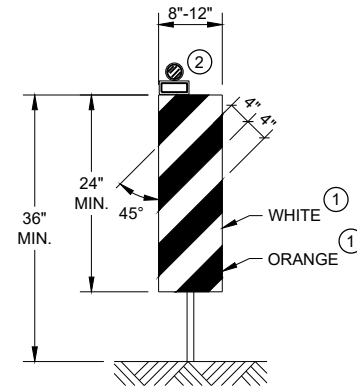
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



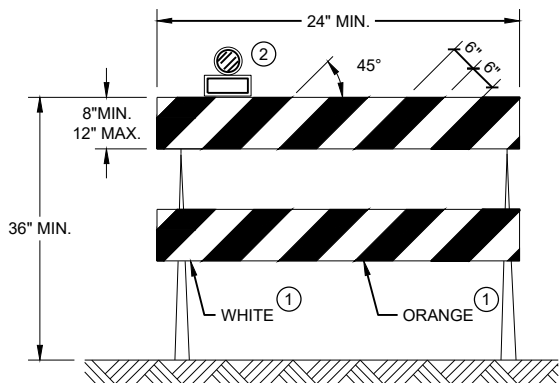
42" CONE

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



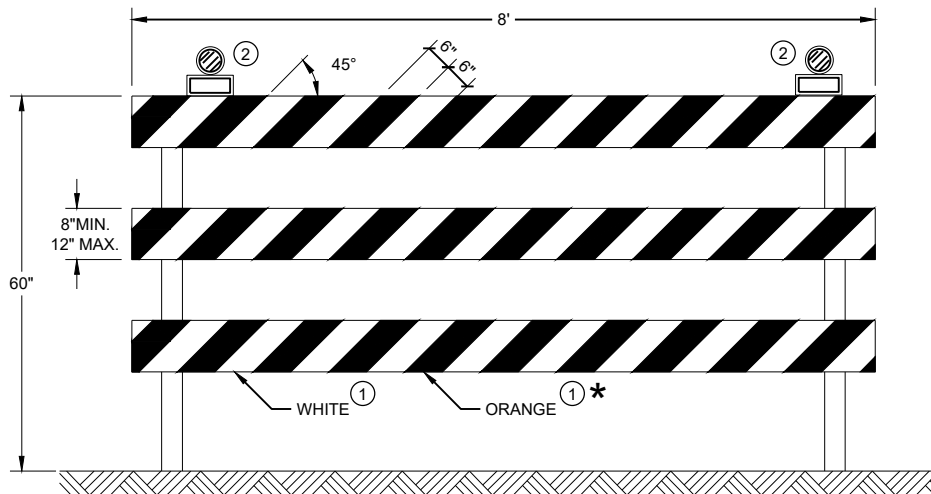
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

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

STATE OF WISCONSIN
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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

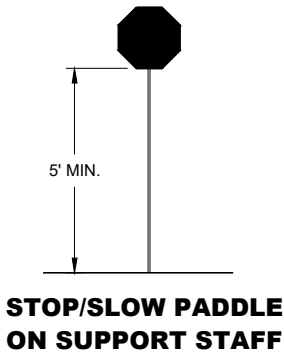
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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.

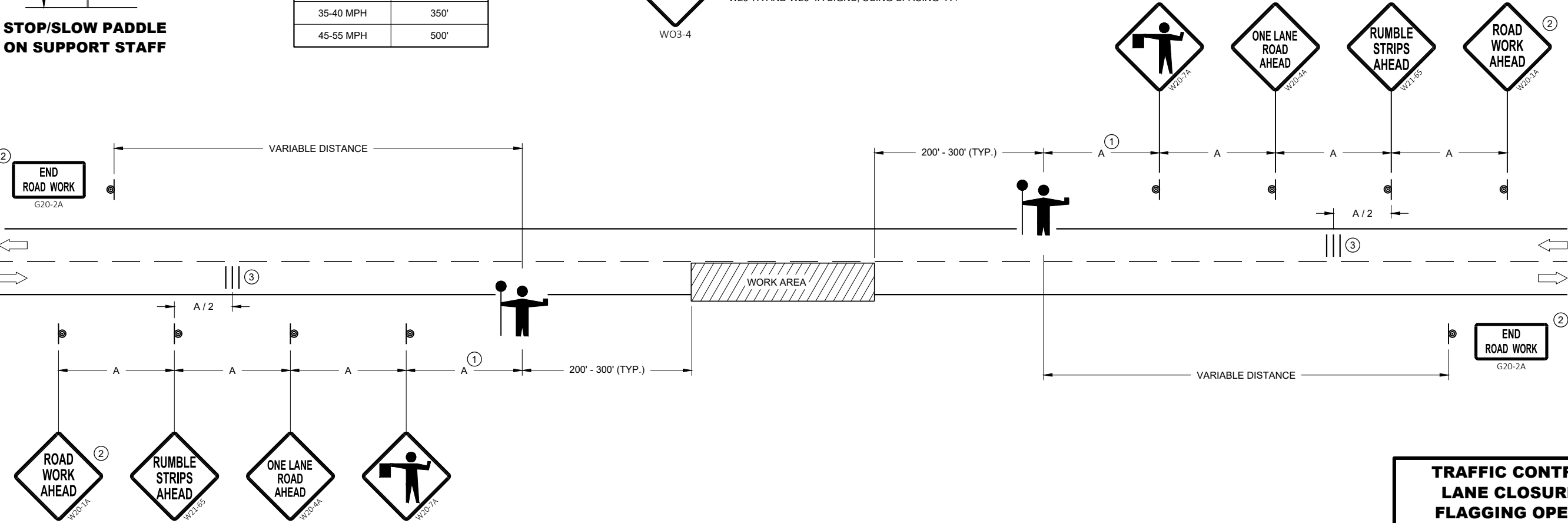


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



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

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DATE WORK ZONE ENGINEER 256

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	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL CONE 42-INCH
	TRAFFIC CONTROL DRUM
	TEMPORARY PORTABLE RUMBLE STRIP ARRAY
	DIRECTION OF TRAFFIC
	WORK AREA
	AFAD
	AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)

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.

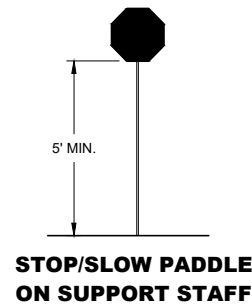
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

IF THE AUTOMATED FLAGGING ASSISTANCE DEVICE (AFAD) STOPS WORKING, 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.

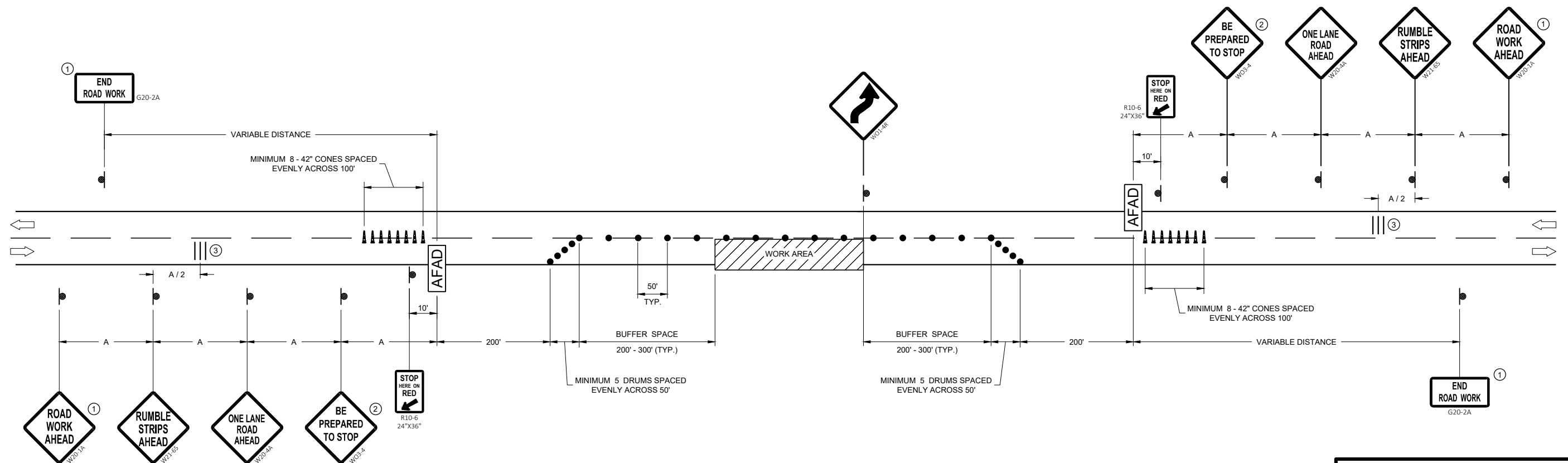
WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE W03-4 SIGNS WITH W20-7A SIGNS.

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- 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.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



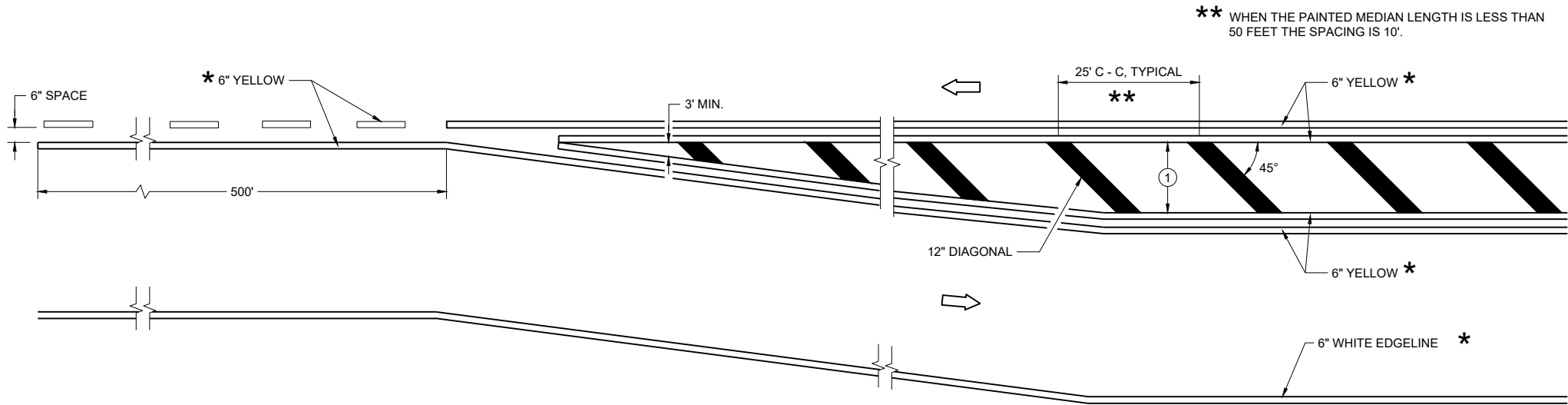
SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



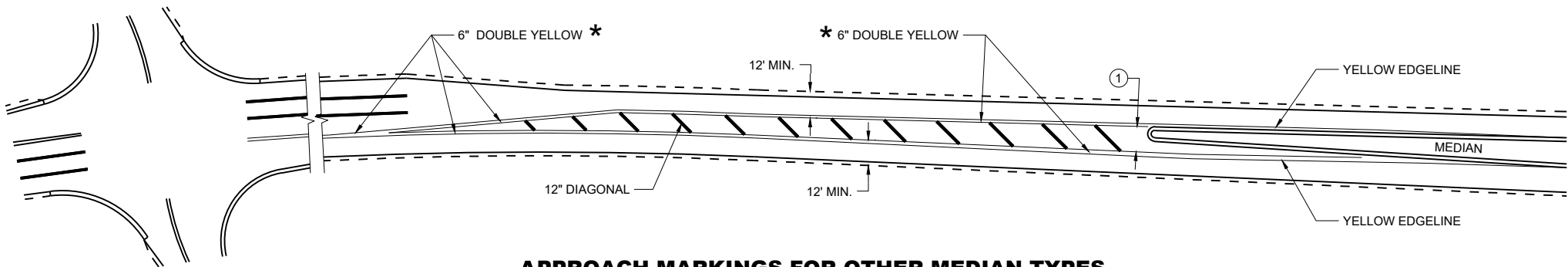
**TRAFFIC CONTROL, LANE
CLOSURE WITH AUTOMATED
FLAGGER ASSISTANCE DEVICE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

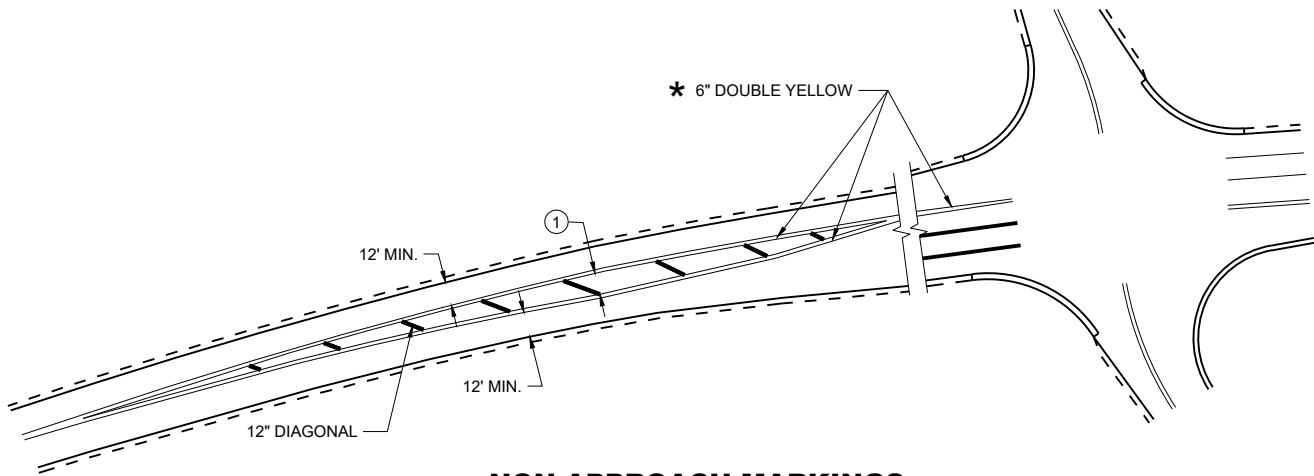
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May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 257



MEDIAN ISLAND DETAIL



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON-APPROACH MARKINGS

GENERAL NOTES

- ① DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT THE WIDEST POINT. OMIT DIAGONALS IF WIDTH IS LESS THAN 4 FEET.

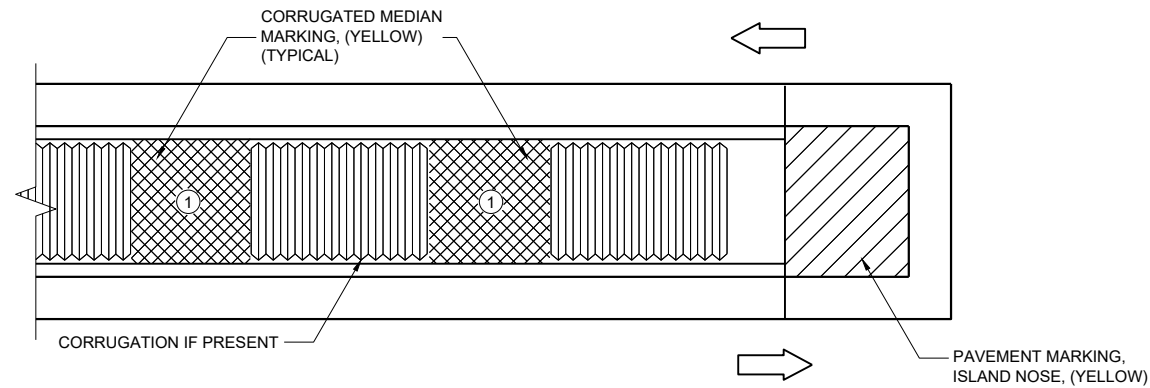
➡ DIRECTION OF TRAVEL

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

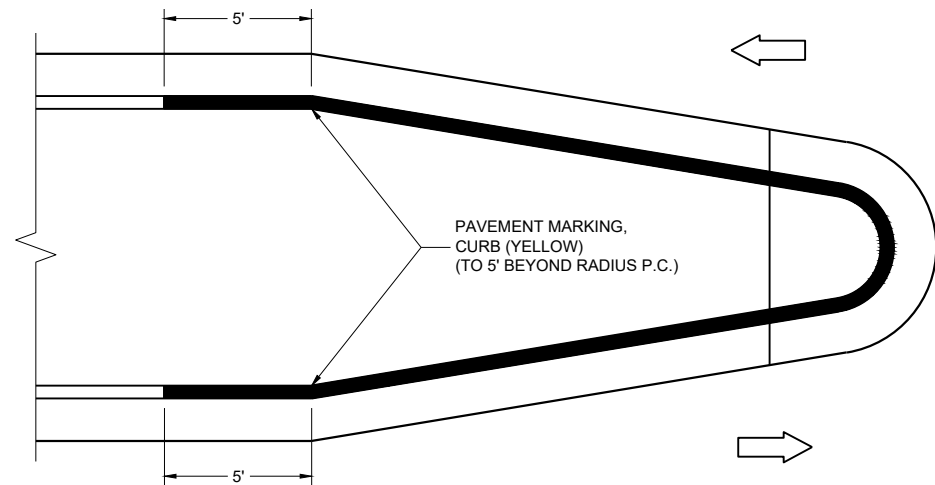
MEDIAN ISLAND
PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

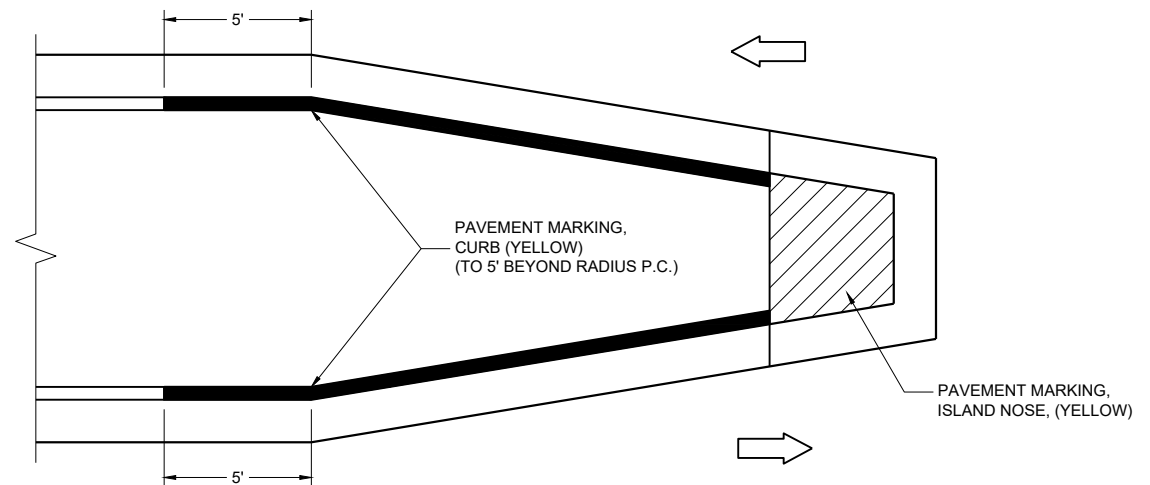
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August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

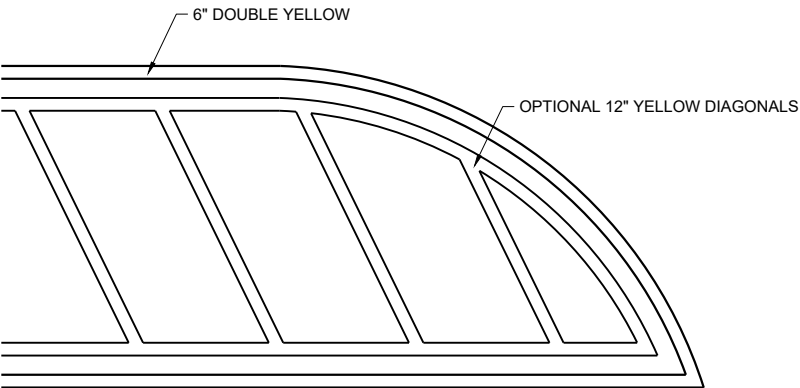
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

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

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

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL



FLUSH MEDIAN ISLAND NOSE

PAVEMENT MARKINGS, MEDIAN ISLAND NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer

LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

SHADOW VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC

GENERAL NOTES

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

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

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

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

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

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH

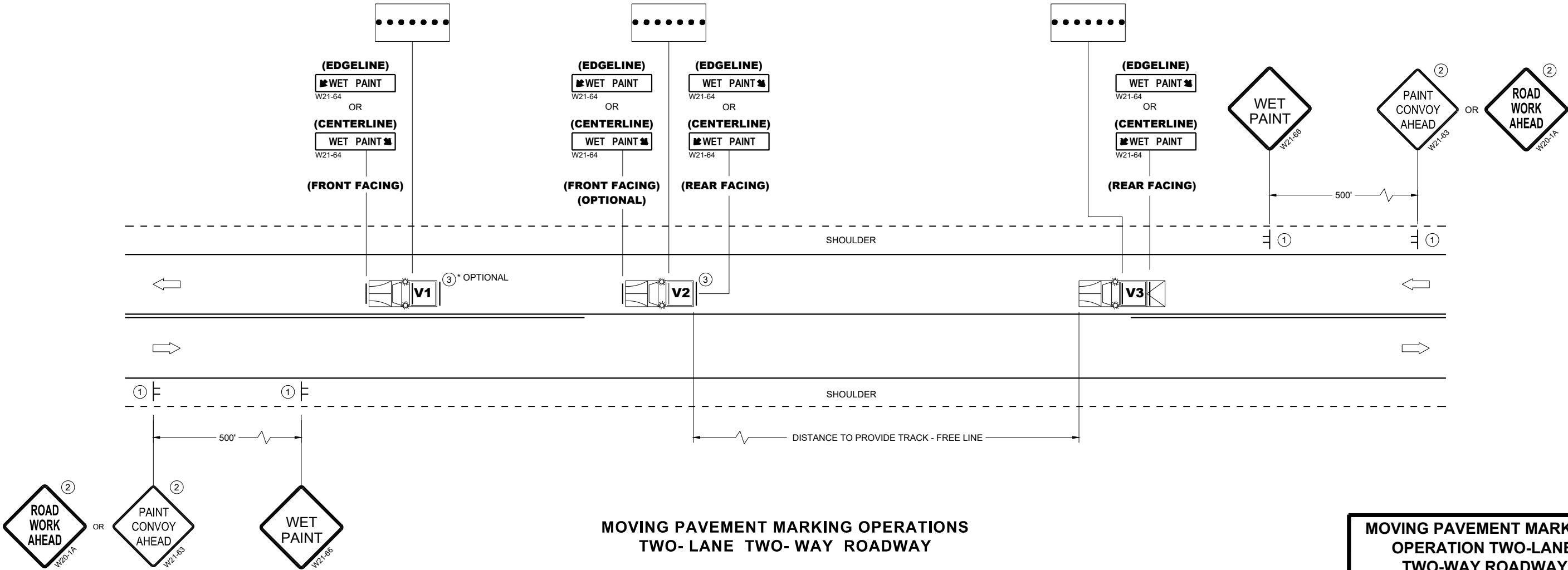
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

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

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY MAJOR INTERSECTION.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.



MOVING PAVEMENT MARKING OPERATIONS
TWO- LANE TWO- WAY ROADWAY

MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE STATE ELECTRICAL ENGINEER

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LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

SHADOW VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- ARROW PANEL (CAUTION)

GENERAL NOTES

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

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

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

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

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

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

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

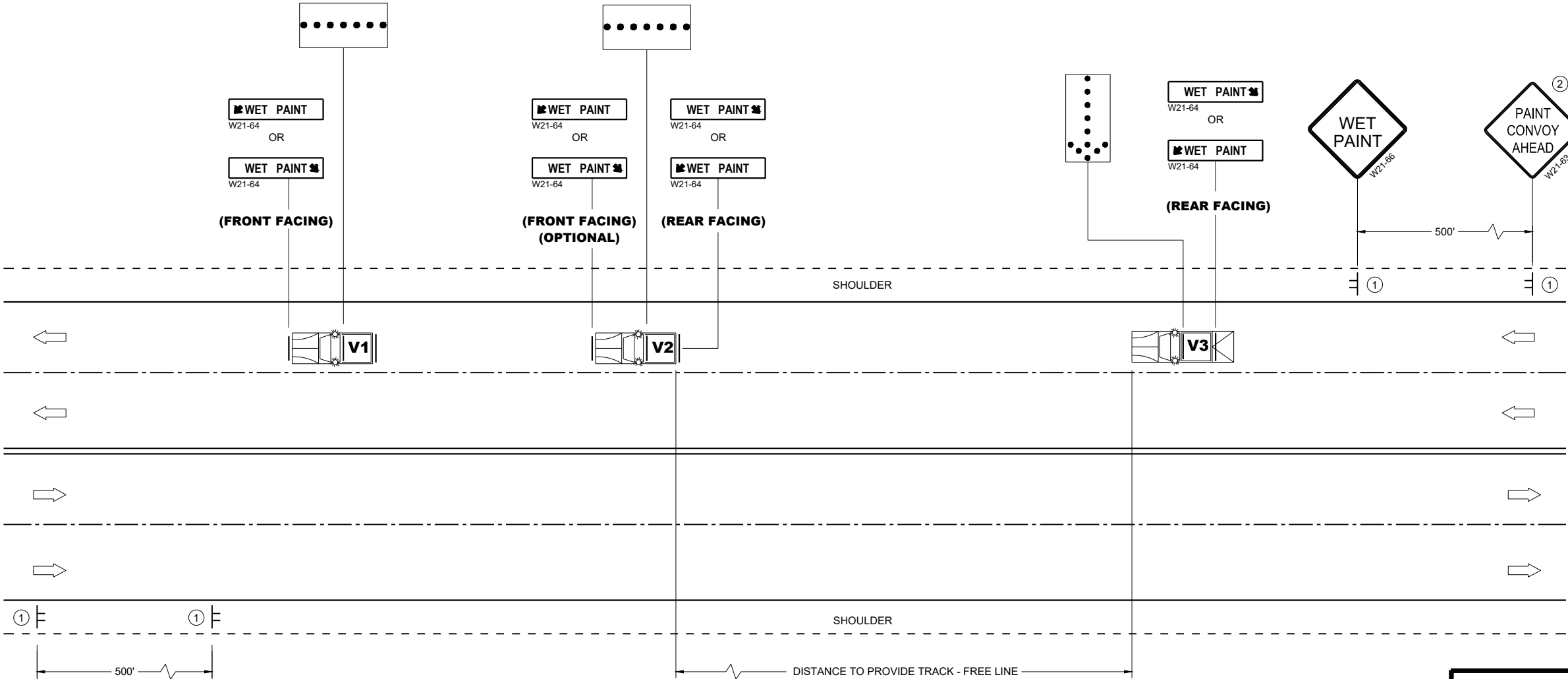
CONES SHALL HAVE A MINIMUM HEIGHT OF 28" FOR WET PAVEMENT MARKINGS.

1

SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY MAJOR INTERSECTION.

2

IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



MOVING PAVEMENT MARKING OPERATIONS
MULTILANE UNDIVIDED ROADWAY

MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
UNDIVIDED ROADWAY

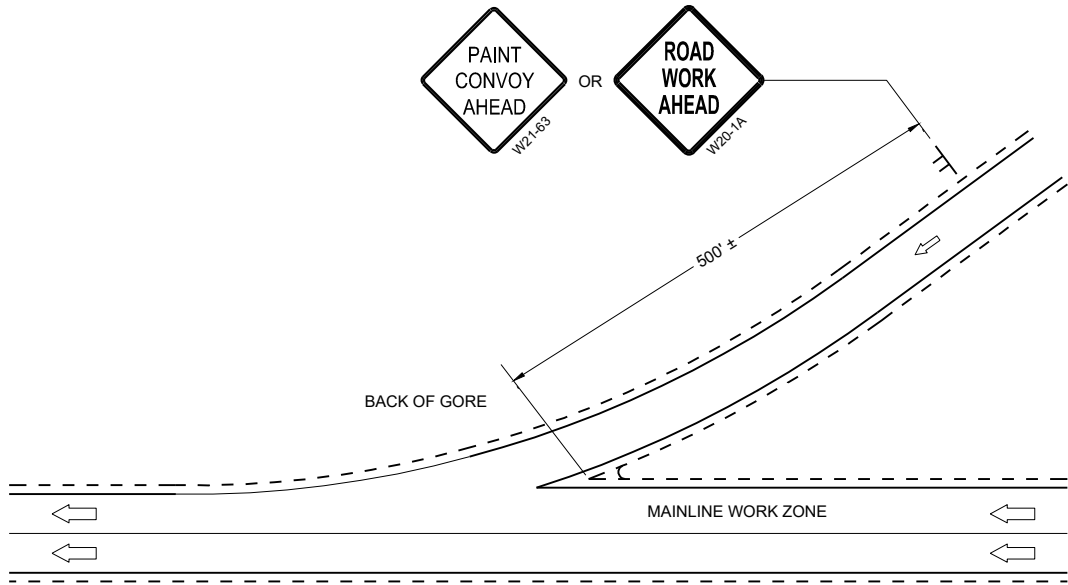
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE STATE ELECTRICAL ENGINEER
FHWA

261

LEGEND

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



GENERAL NOTES

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

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

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

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

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

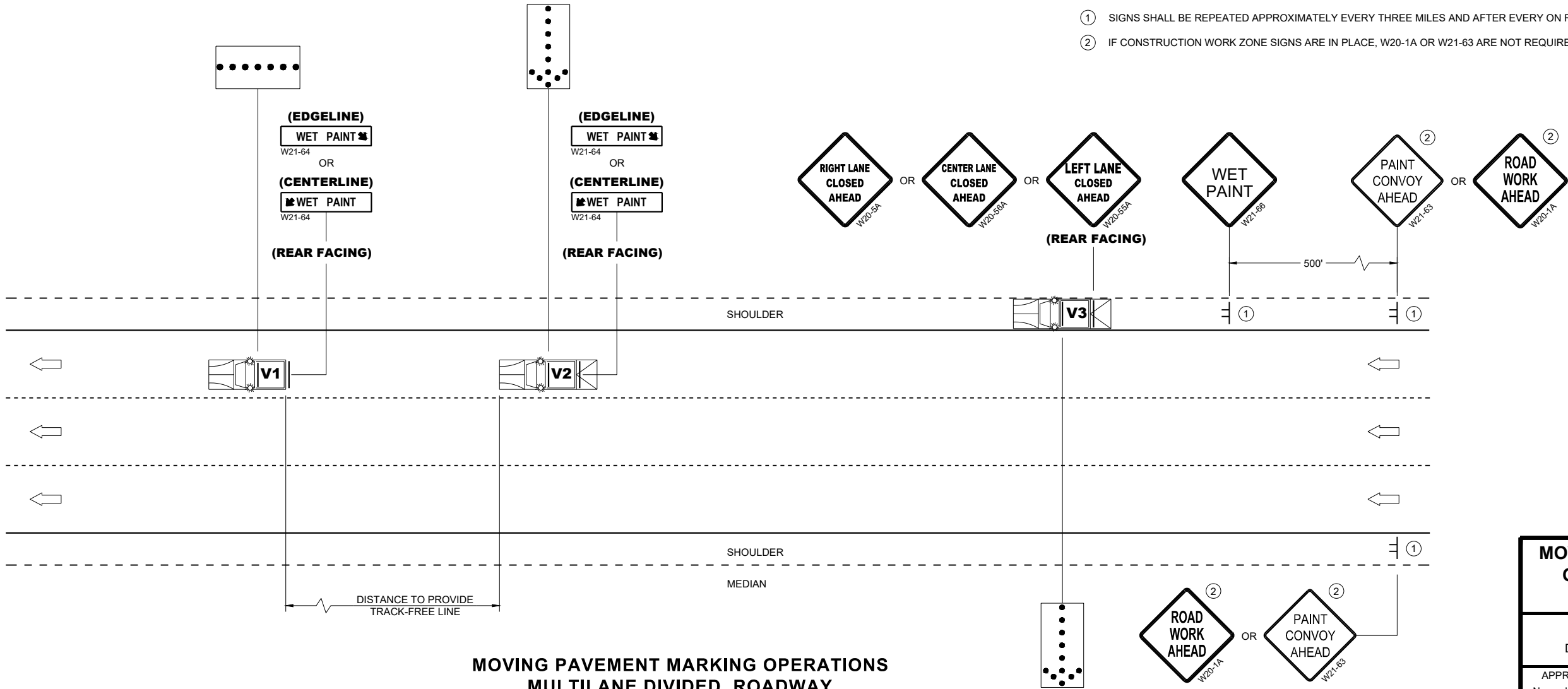
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC

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

CONES SHALL BE A MINIMUM HEIGHT OF 28" FOR WET PAVEMENT MARKINGS

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

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



**MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE STATE ELECTRICAL ENGINEER

FHWA

GENERAL NOTES

SIGNING AND MARKING IS SHOWN AS TYPICAL PLACEMENT. FIELD CONDITIONS MAY DICTATE CHANGES IN SIGNING AND MARKING PLACEMENT.

① USED ONLY WHEN APPROVED BY REGION TRAFFIC ENGINEER.

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

** SIGNS MAY BE OMITTED IF SPACE DOES NOT PERMIT PLACEMENT.

*** IF POSTED SPEED IS 45 MPH OR GREATER, PLACE W5-54 SIGN UNDER R4-7 SIGN. MOUNT W5-54 SIGN AT 4' MOUNTING HEIGHT (TOP OF ROADWAY TO BOTTOM OF SIGN).

LEGEND

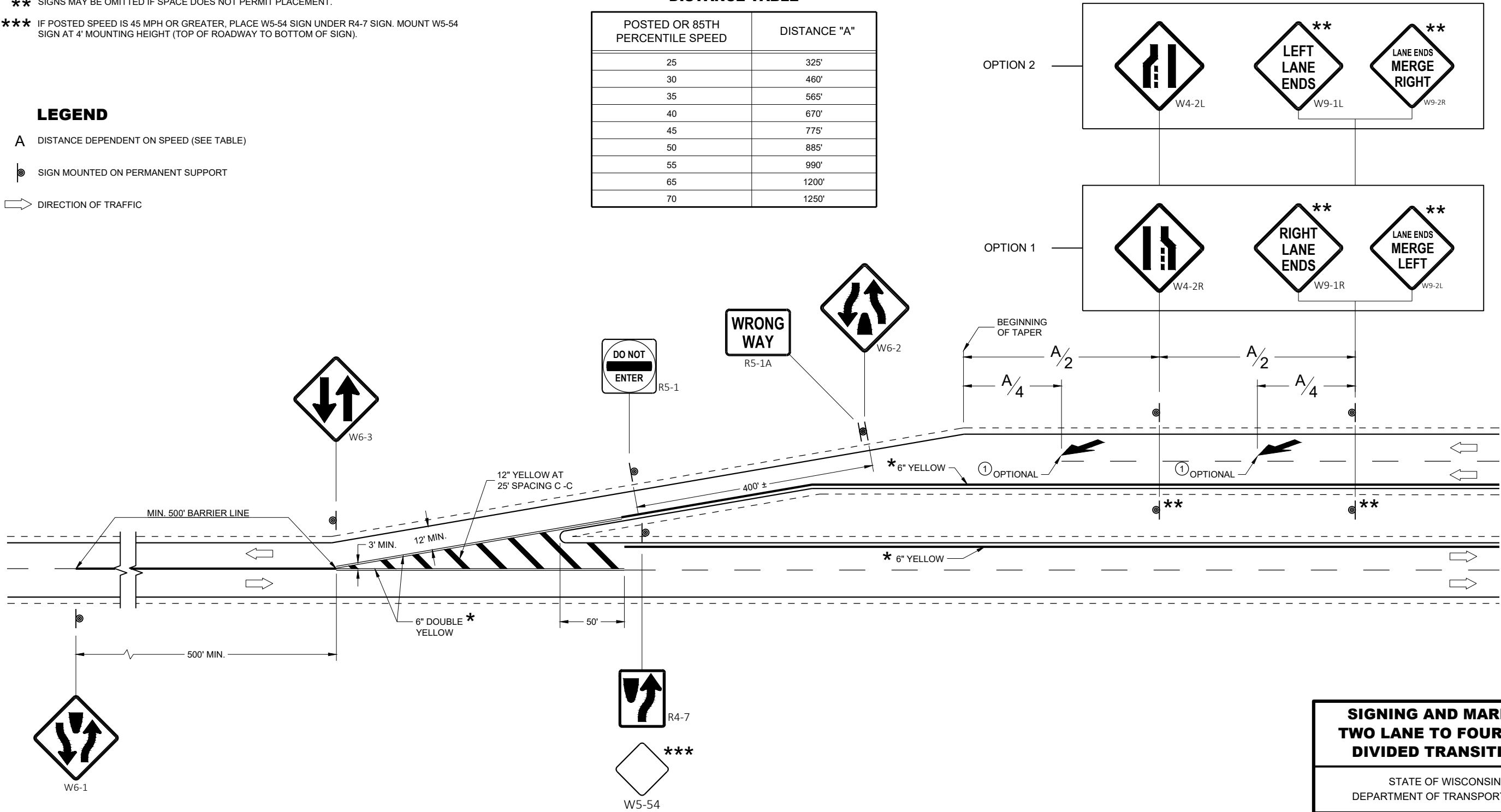
A DISTANCE DEPENDENT ON SPEED (SEE TABLE)

⦿ SIGN MOUNTED ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	325'
30	460'
35	565'
40	670'
45	775'
50	885'
55	990'
65	1200'
70	1250'

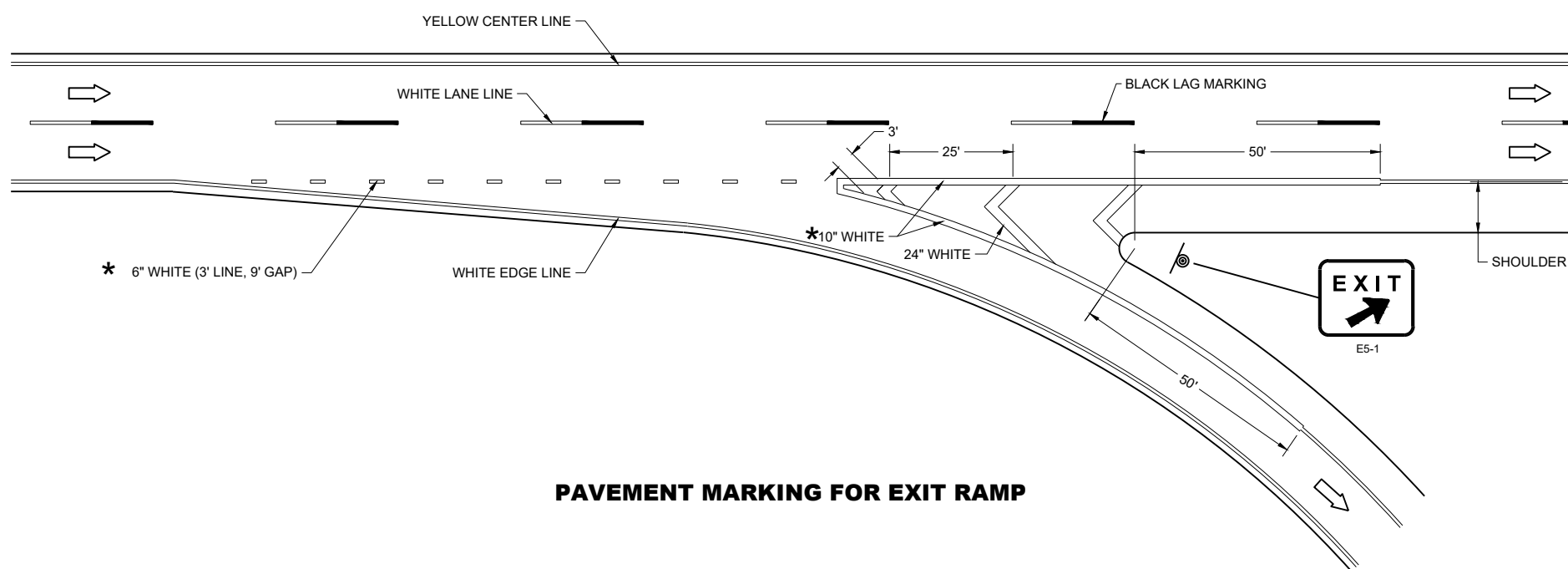


SIGNING AND MARKING
TWO LANE TO FOUR LANE
DIVIDED TRANSITIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Matthew Rauch
DATE STATE SIGNING AND MAPS ENGINEER 263

FHWA



GENERAL NOTES

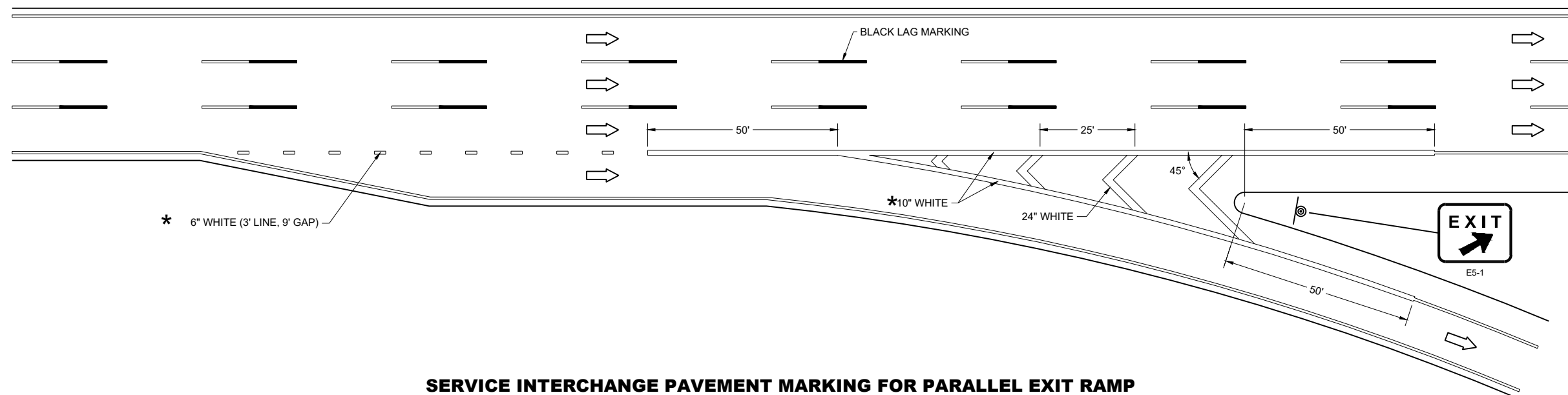
PLACE GROOVE 3 INCHES LEFT OF JOINT.

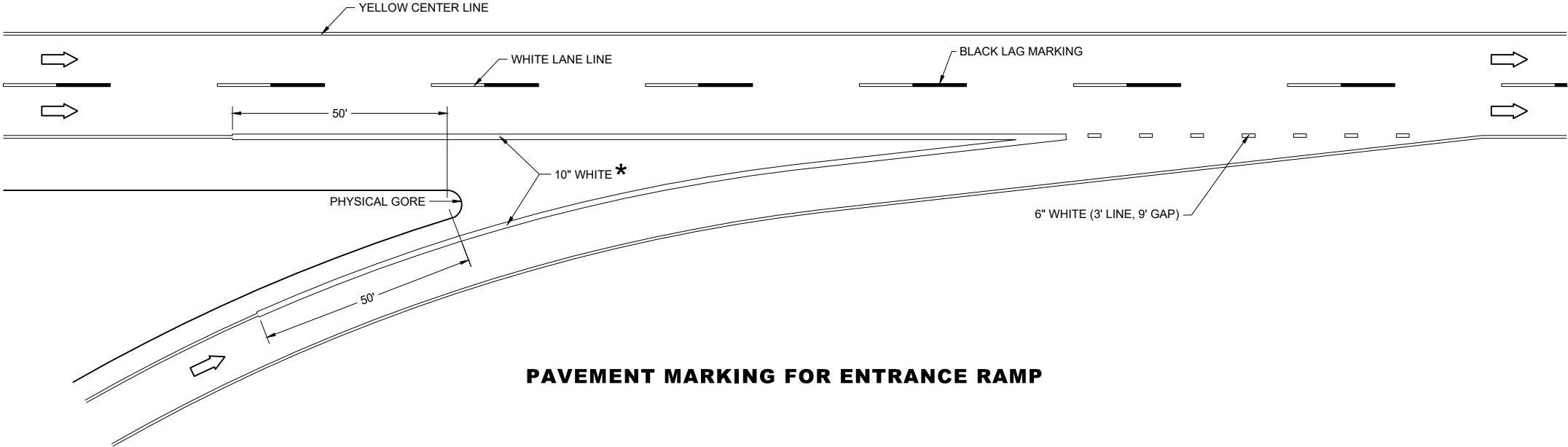
LEGEND

 SIGN ON PERMANENT SUPPORT

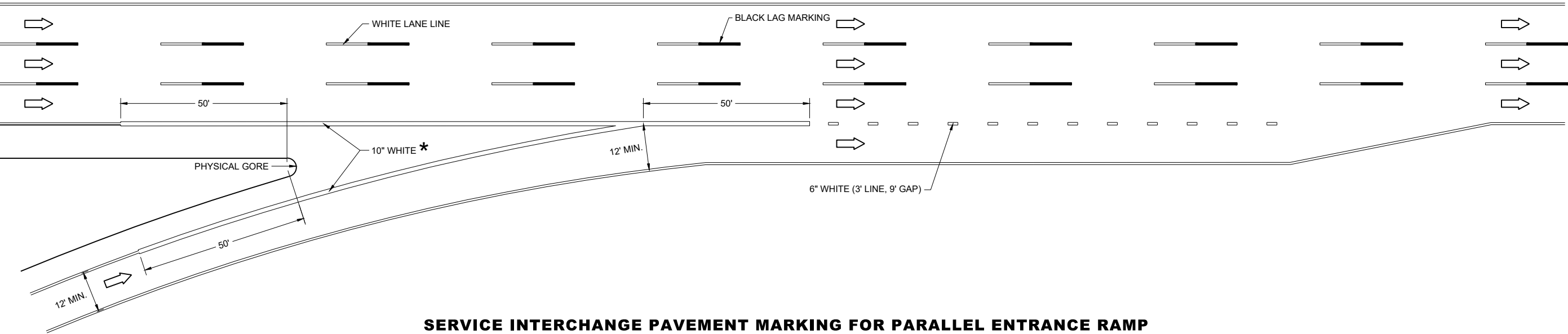
 DIRECTION OF TRAVEL

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES





PAVEMENT MARKING FOR ENTRANCE RAMP



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE RAMP

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

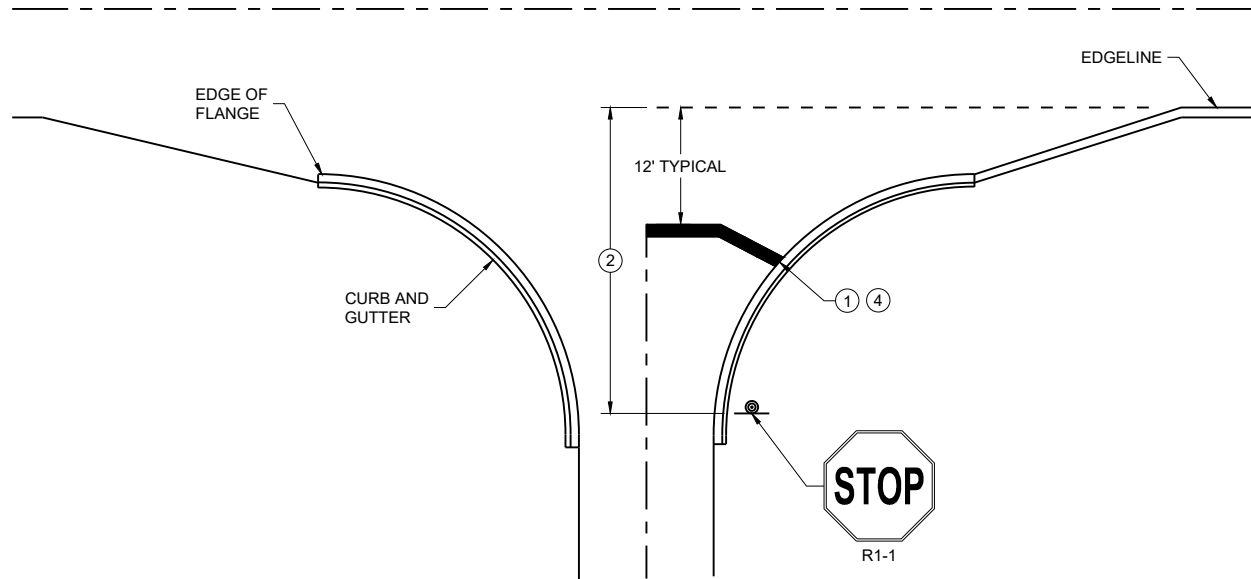
LEGEND

DIRECTION OF TRAVEL

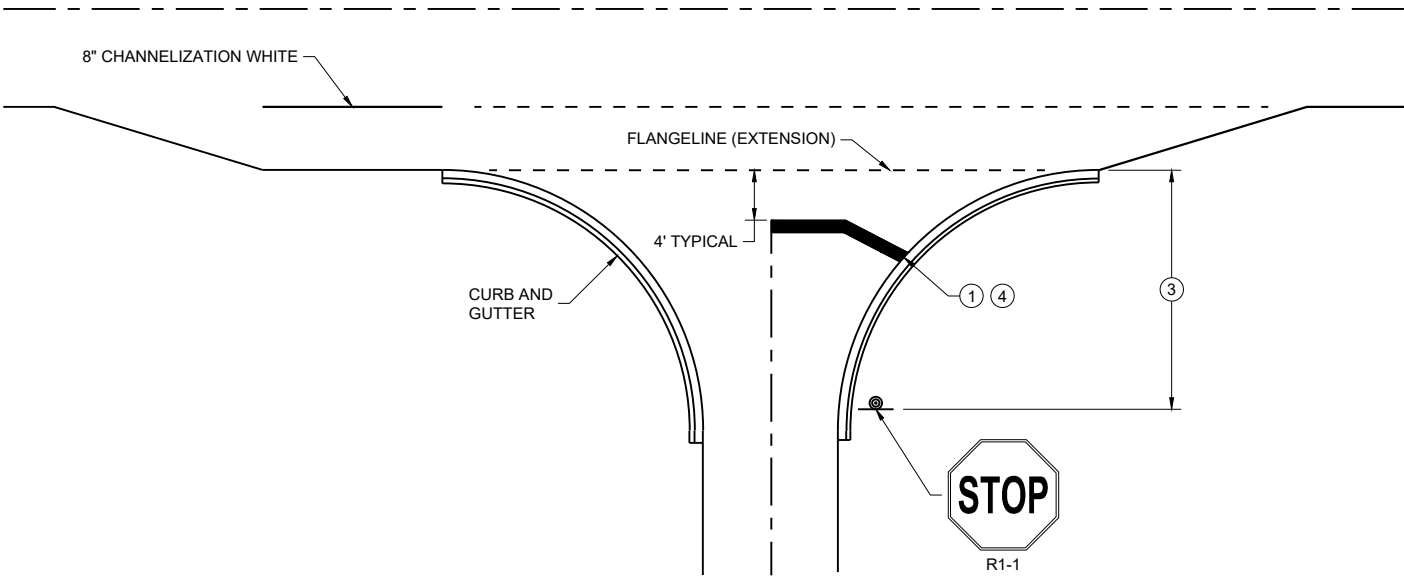
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING,
ENTRANCE RAMP AND
PARALLEL ENTRANCE RAMP

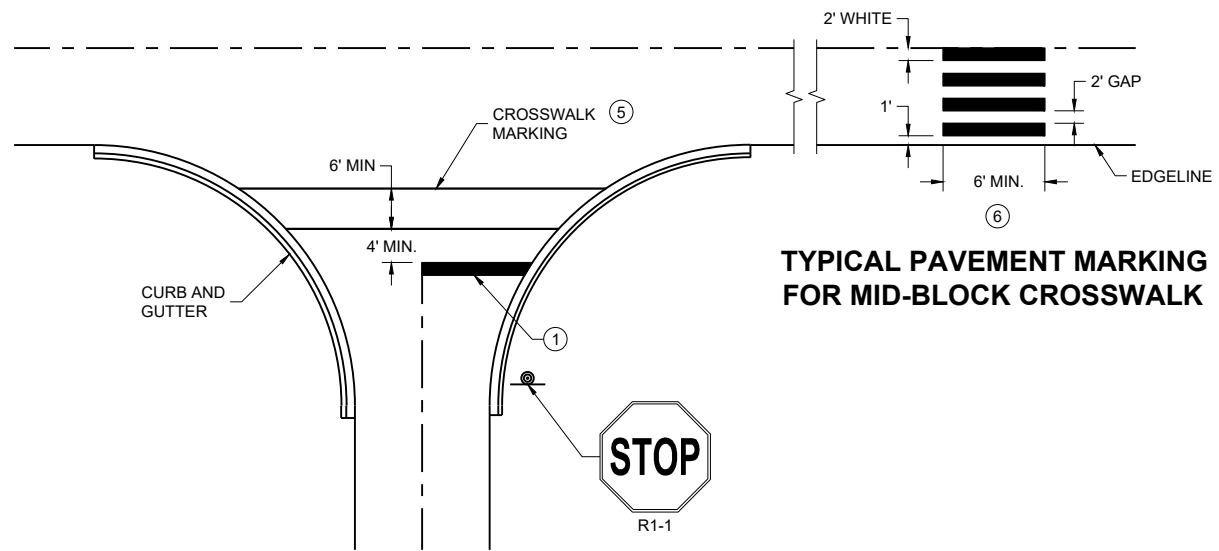
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



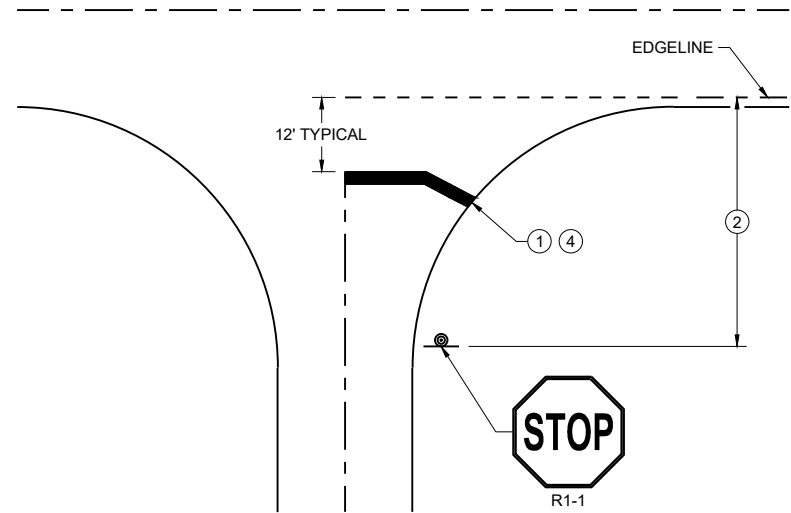
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

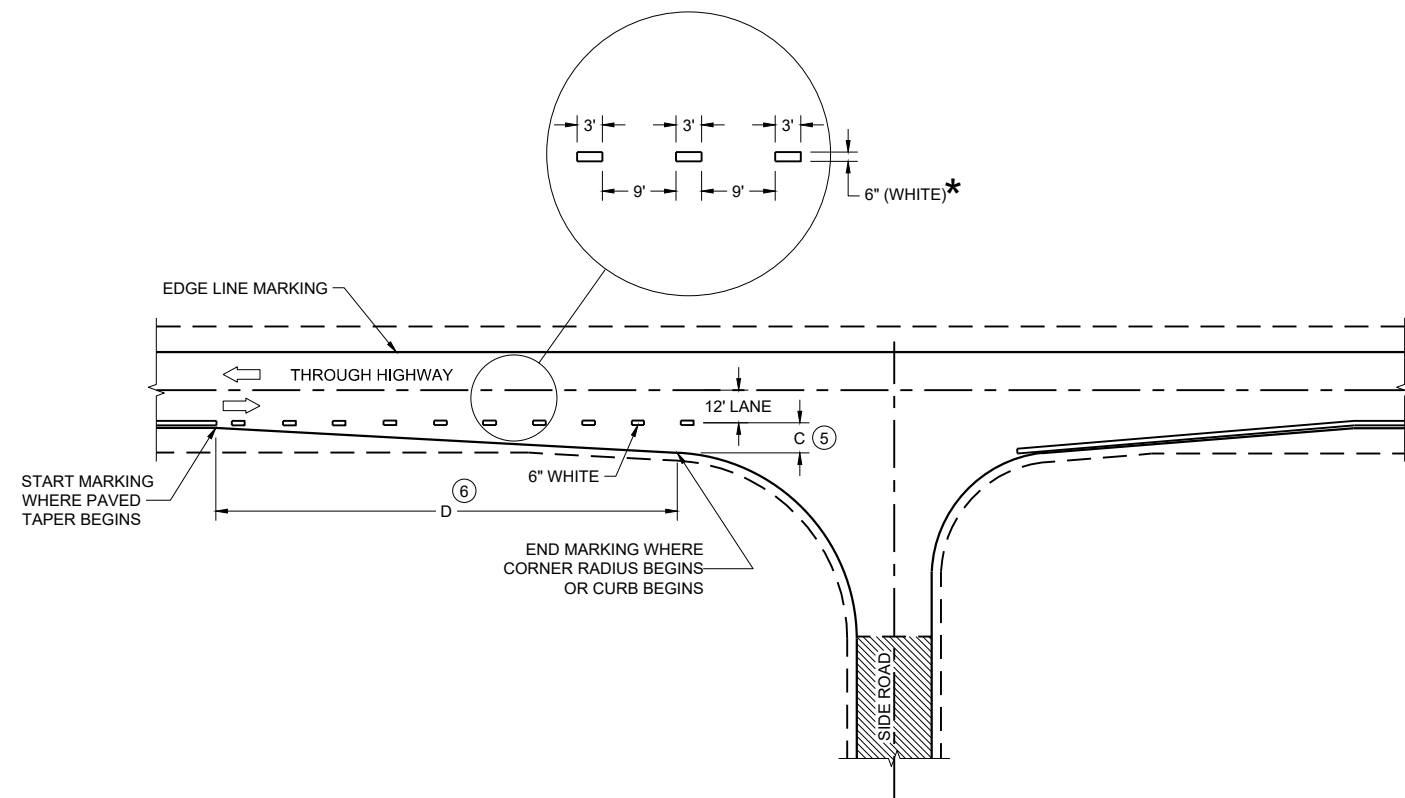
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- 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 FLANGE LINE 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.
- ⑥ POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

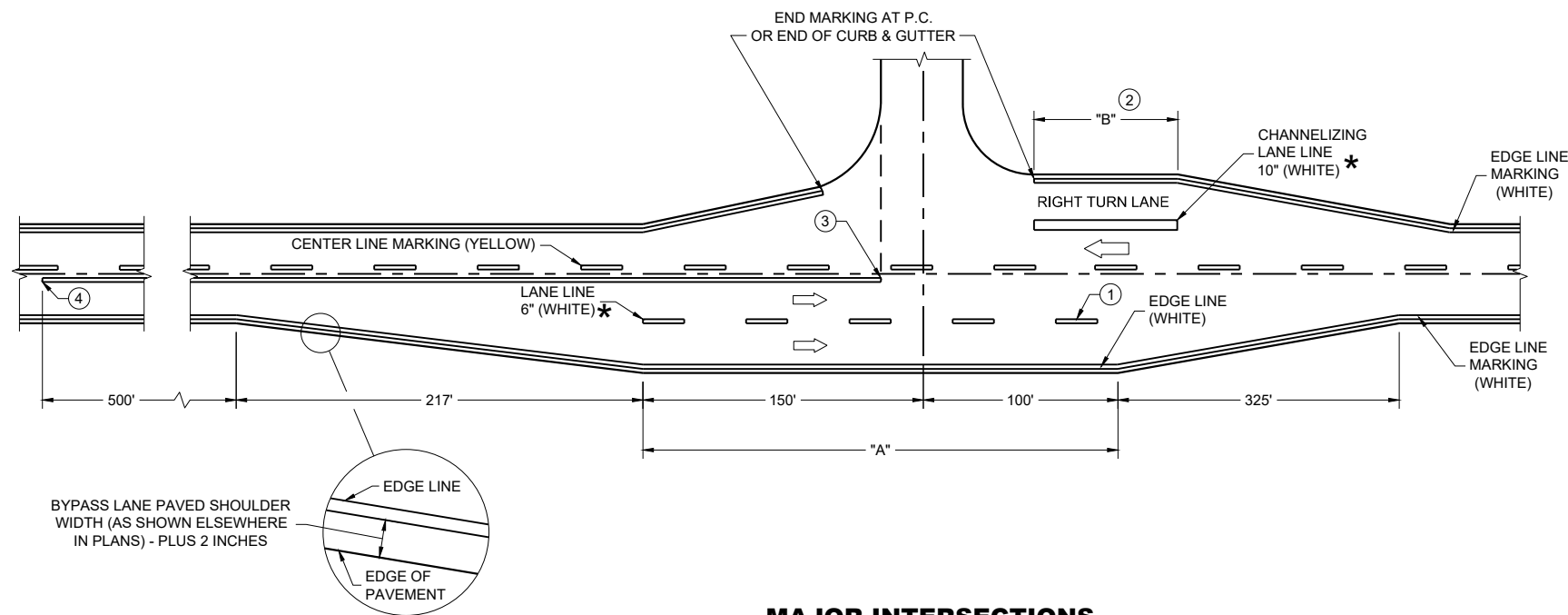
STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING
ENGINEER
FHWA



MINOR INTERSECTION



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

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

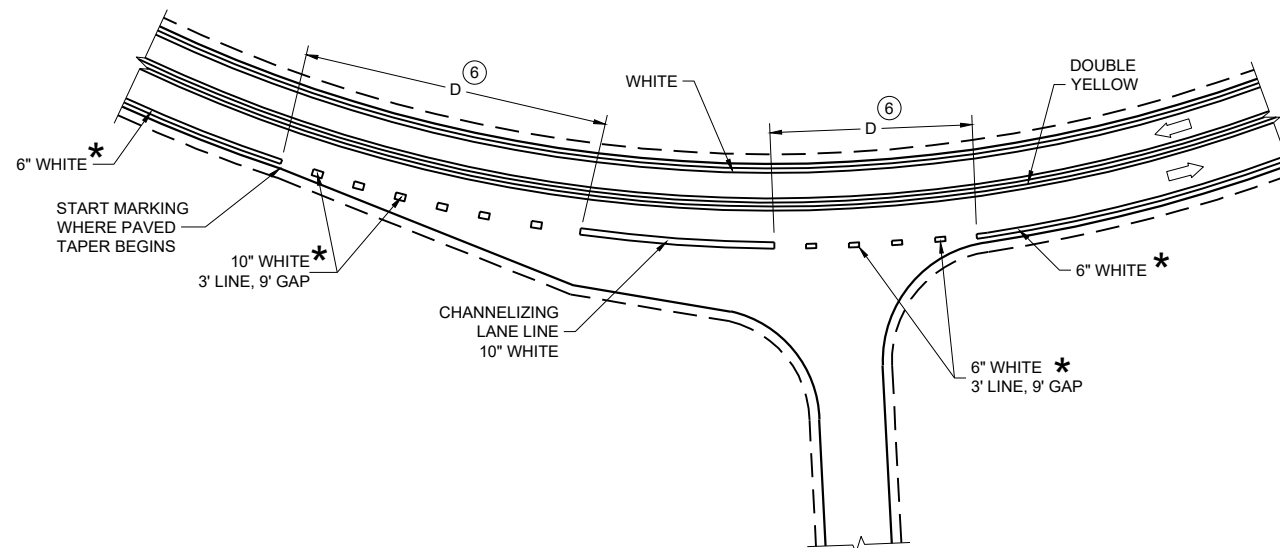
GENERAL NOTES

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

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

LEGEND

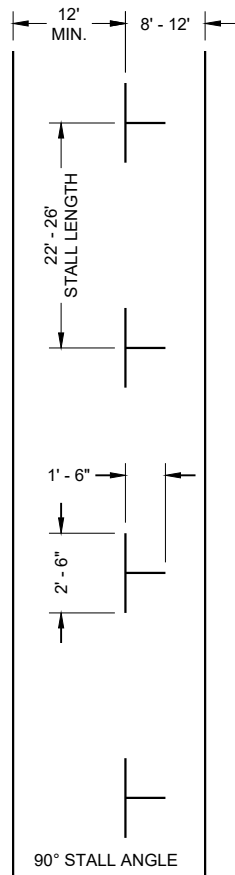
➡ DIRECTION OF TRAVEL



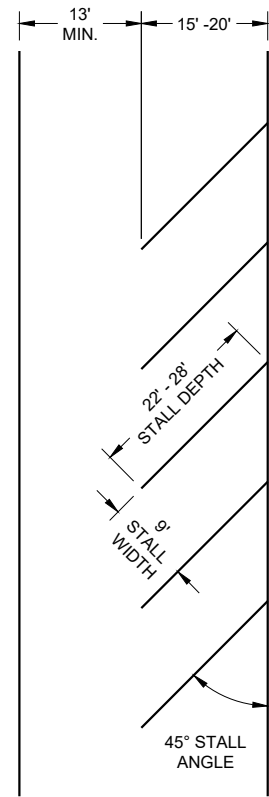
INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

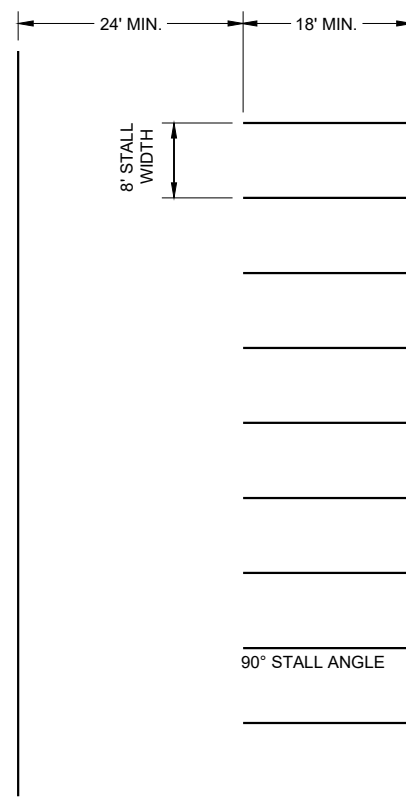
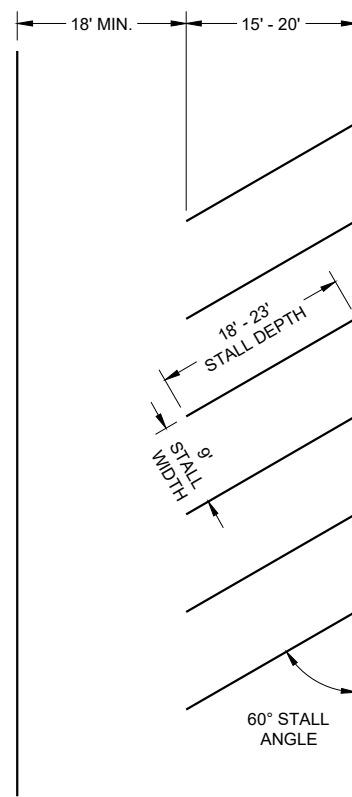


PARALLEL PARKING



ANGLED PARKING

(ANGLED PARKING IS NOT ALLOWED ON STATE HIGHWAYS UNLESS A DESIGN JUSTIFICATION HAS BEEN COMPLETED.)



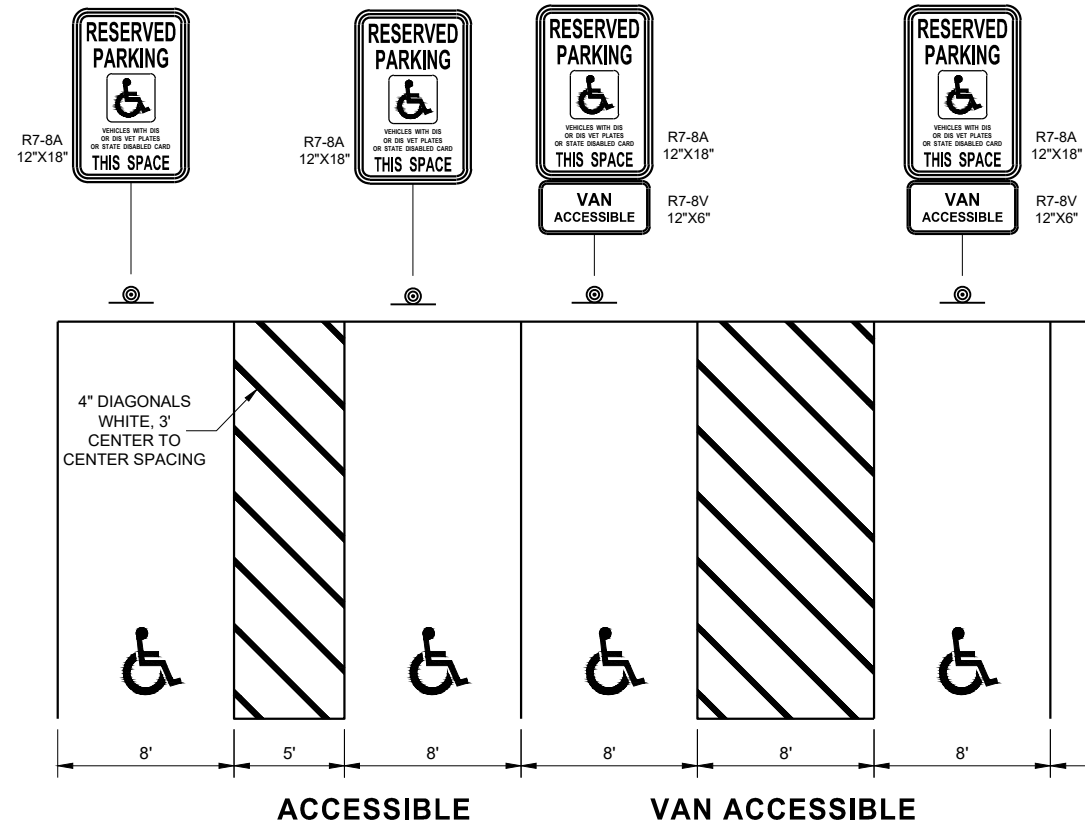
PARKING LOTS

GENERAL NOTES

ALL LINES 4" WHITE (UNLESS OTHERWISE NOTED)
LAST PARKING STALL IS A MINIMUM OF 15' FROM THE CROSSWALK.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT



PARKING STALL MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 268
FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DELINEATOR, FLEXIBLE/TUBULAR MARKER
-  DIRECTION OF TRAFFIC

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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

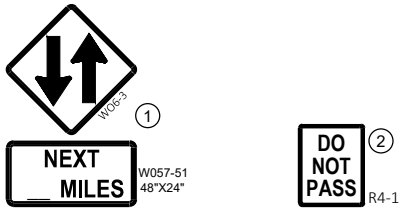
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

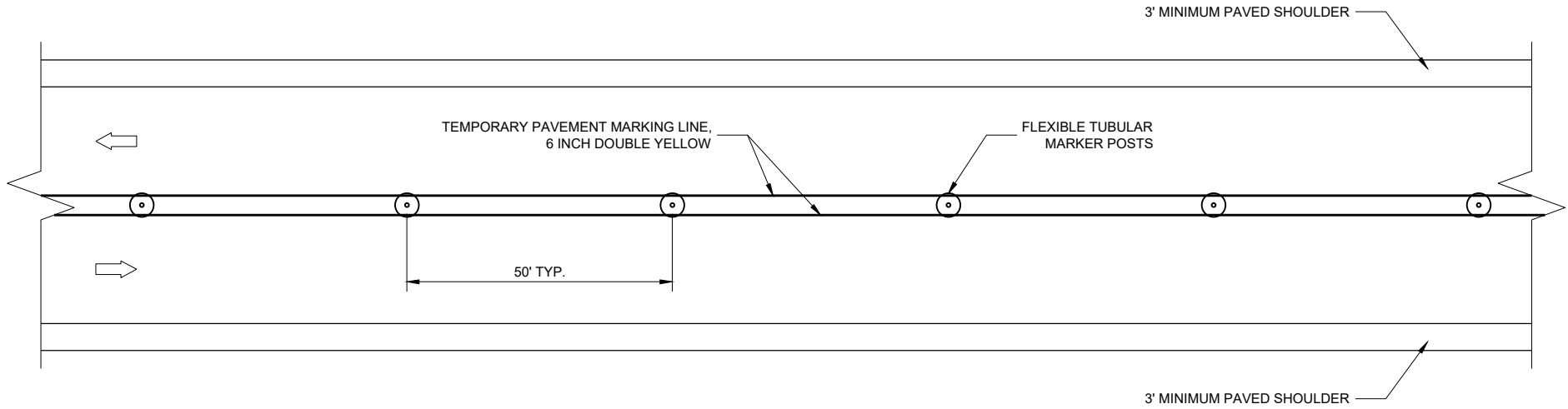
THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS.

A SINGLE ROW OF FLEXIBLE TUBULAR MARKERS ON CENTERLINE EXTEND FOR THE ENTIRE LENGTH OF TWO-WAY TRAFFIC AT 50 FOOT SPACING.

COVER EXISTING CENTERLINE STRIPE WITH TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW.



- ① THE WO6-3 AND WO57-51 SHALL BE LOCATED 200 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP AND / OR 500 FEET BEYOND ANY SIDE ROAD. THE R4-1 SHALL BE LOCATED 1000 FEET BEYOND THE WO6-3 AND THE WO57-51 AND THE SIGNS SHALL BE ALTERNATED WITH ONE MILE INTERVALS BETWEEN THE SIGNS.
- ② CONVENTIONAL: 24" X 30"
FREEWAY AND EXPRESSWAY: 36" X 48"



TWO LANE, TWO WAY OPERATION

TRAFFIC CONTROL
TWO LANE TWO WAY
OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 269
FHWA

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

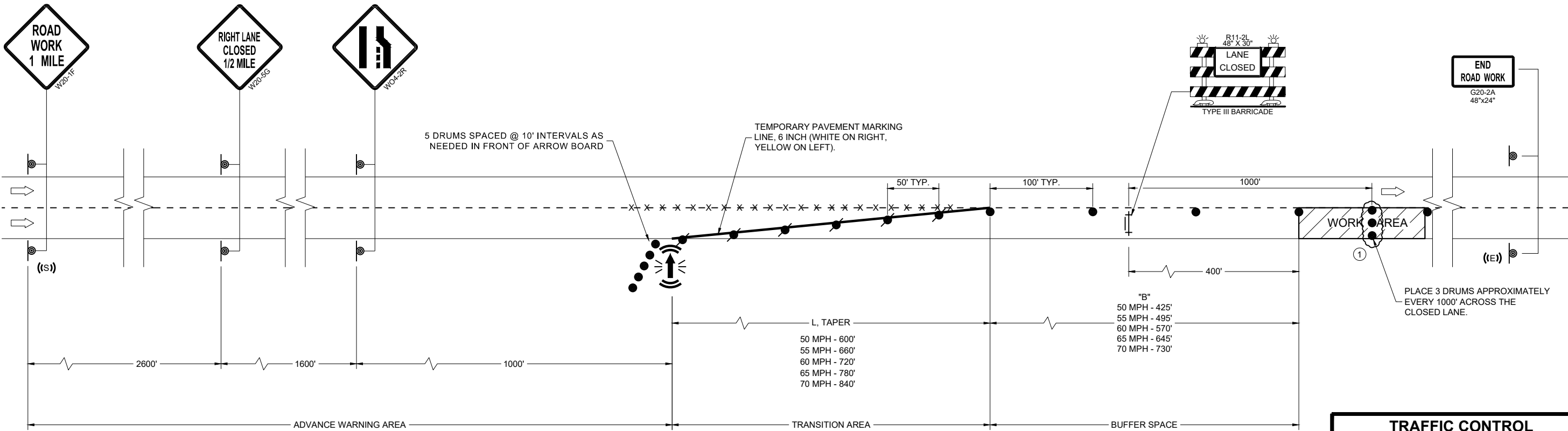
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE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

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

① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

LEGEND

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



TRAFFIC CONTROL
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

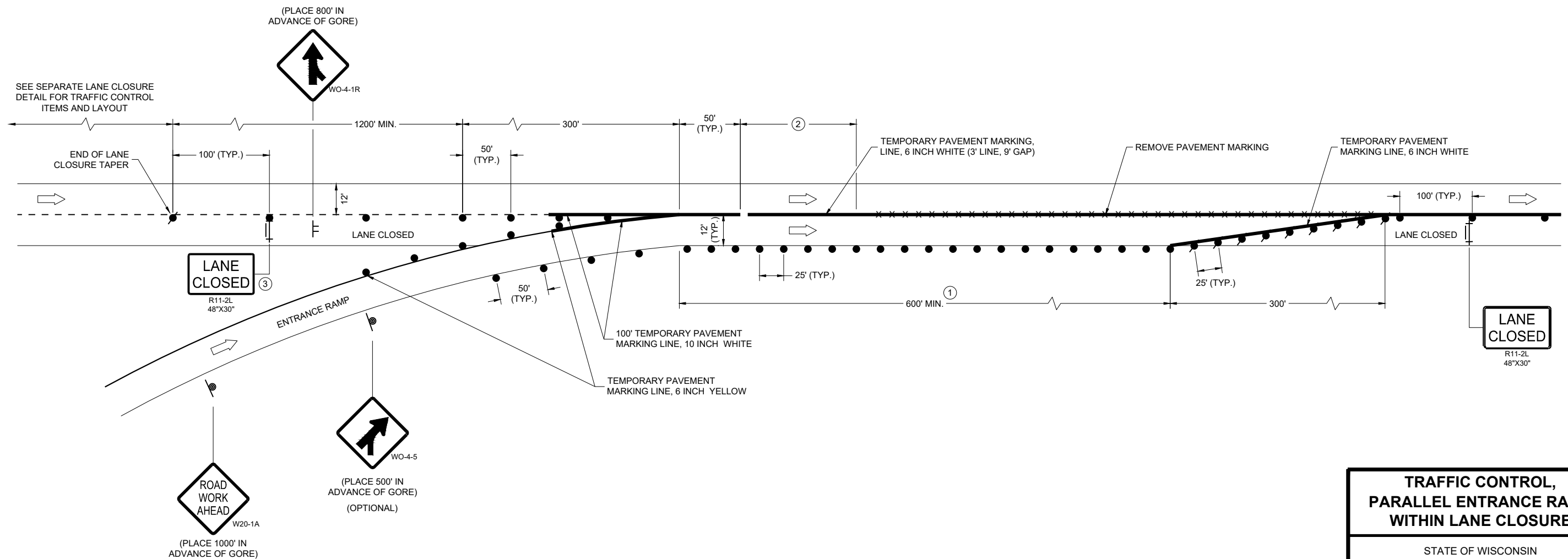
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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

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

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

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS $\pm 2.2\%$.
- ② END TEMPORARY PAVEMENT MARKING LINE AT 1/2 THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.
- ③ IF LOCATED AFTER INITIAL LANE CLOSURE BARRICADE AND "LANE CLOSED" SIGN, USE 3 DRUMS IN PLACE OF BARRICADE AND SIGN.



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA 371

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

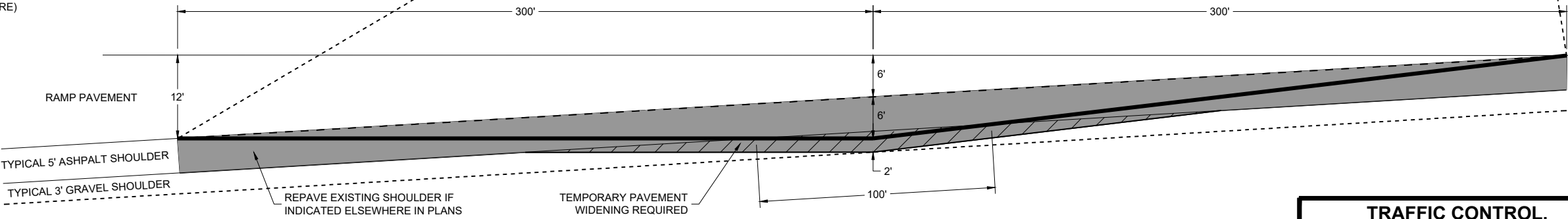
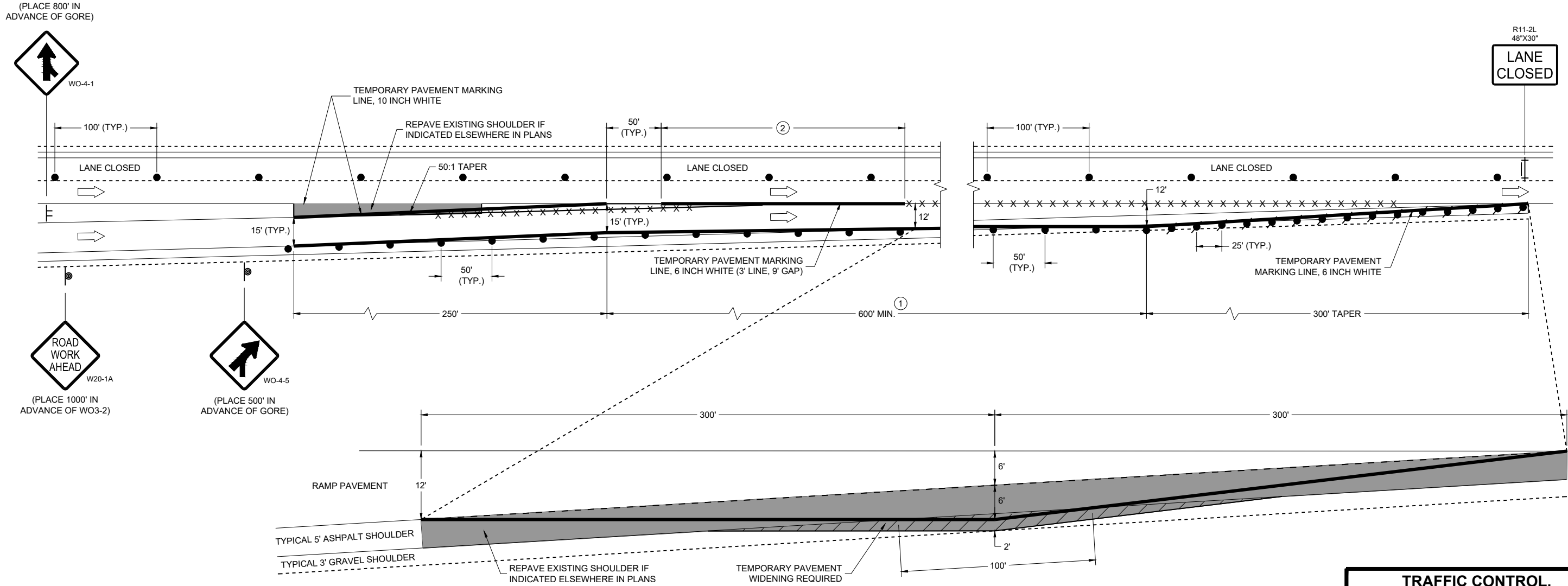
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REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

① EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS $\pm 2.2\%$.

② END TEMPORARY PAVEMENT MARKING LINE AT 1/2 THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



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

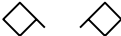
**TRAFFIC CONTROL,
ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

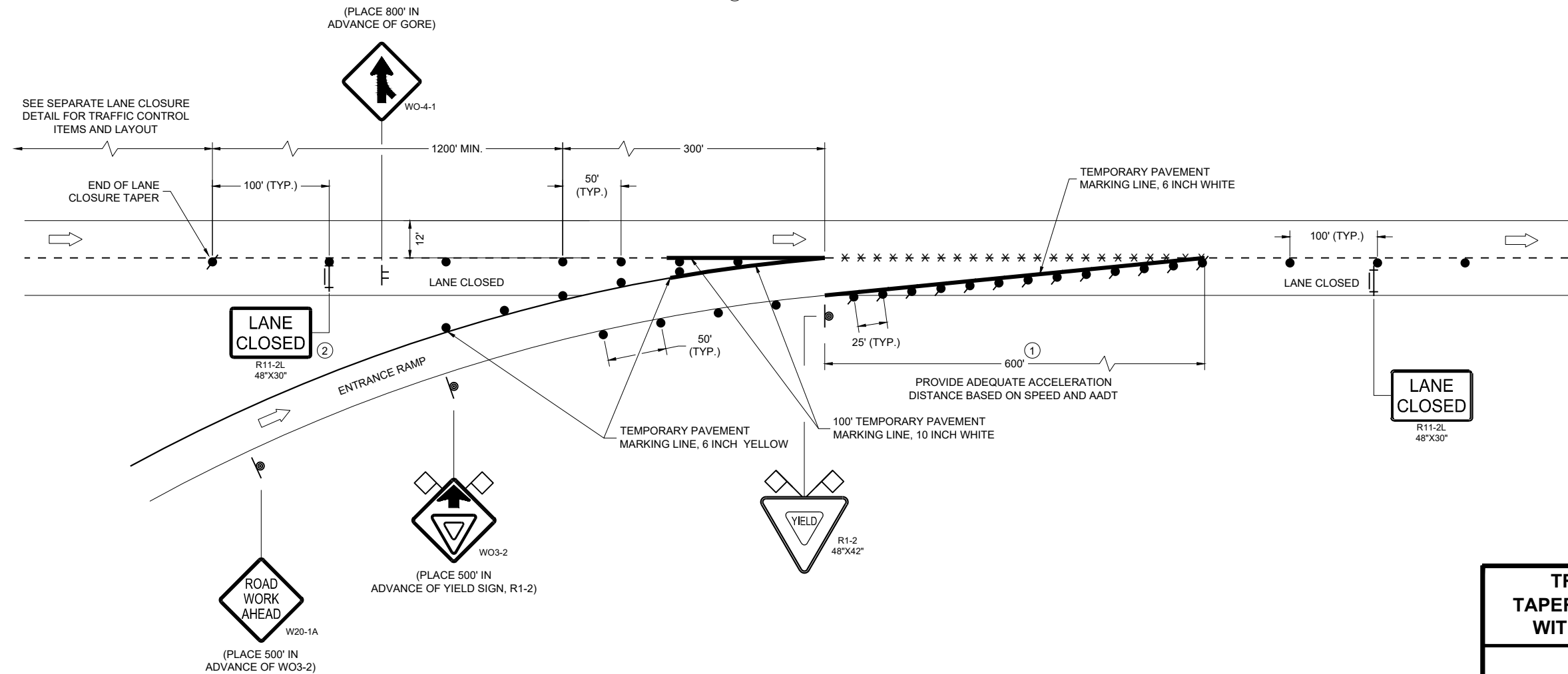
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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

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

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

- ① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.
- ② IF LOCATED AFTER INITIAL LANE CLOSURE BARRICADE AND "LANE CLOSED" SIGN, USE 3 DRUMS IN PLACE OF BARRICADE AND SIGN.

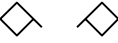


**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE <position>

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

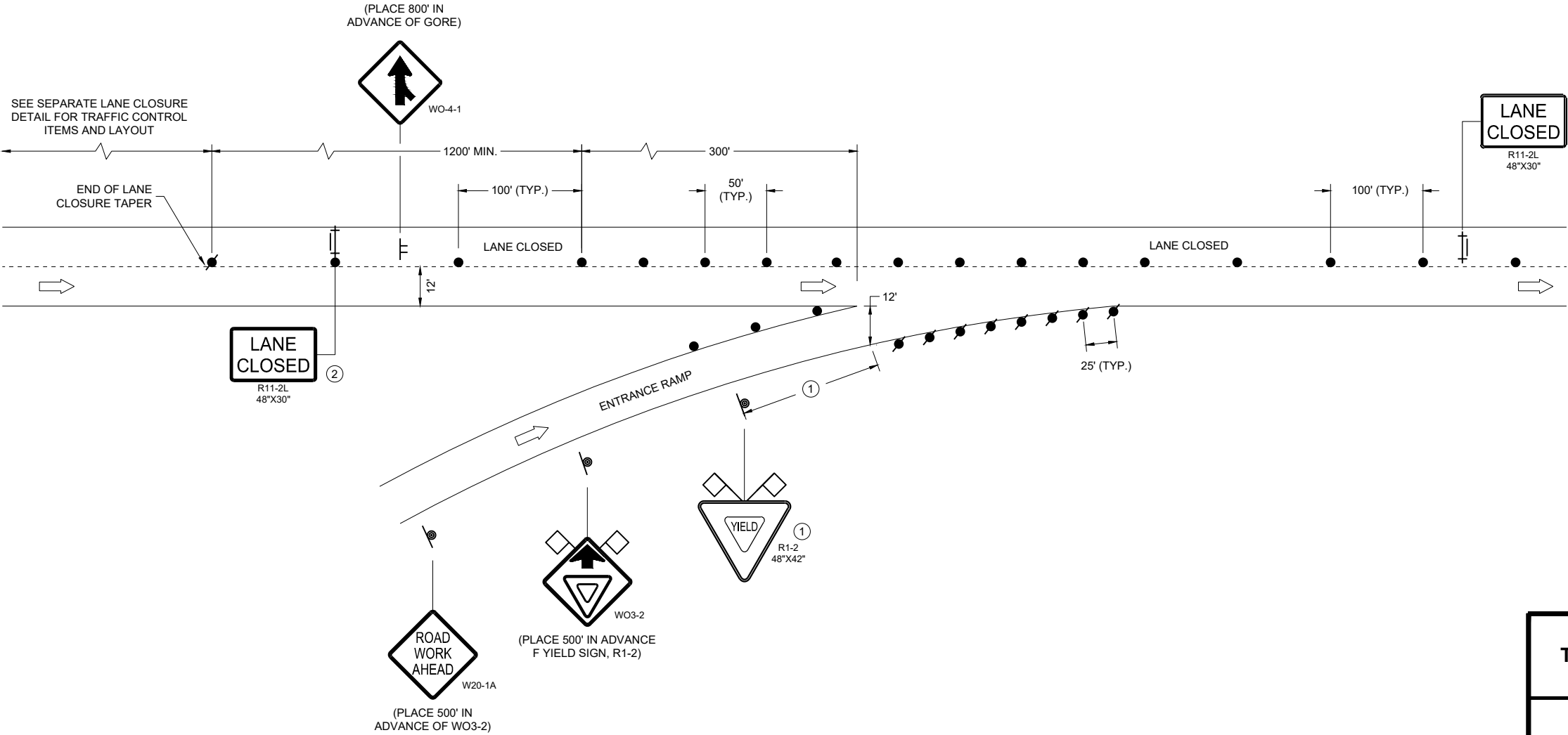
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

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

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

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

- 1 PLACE YIELD SIGN TO PROVIDE ADEQUATE SIGHT DISTANCE AND ACCELERATION DISTANCE.
- 2 IF LOCATED AFTER INITIAL LANE CLOSURE BARRICADE AND "LANE CLOSED" SIGN, USE 3 DRUMS IN PLACE OF BARRICADE AND SIGN.



TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

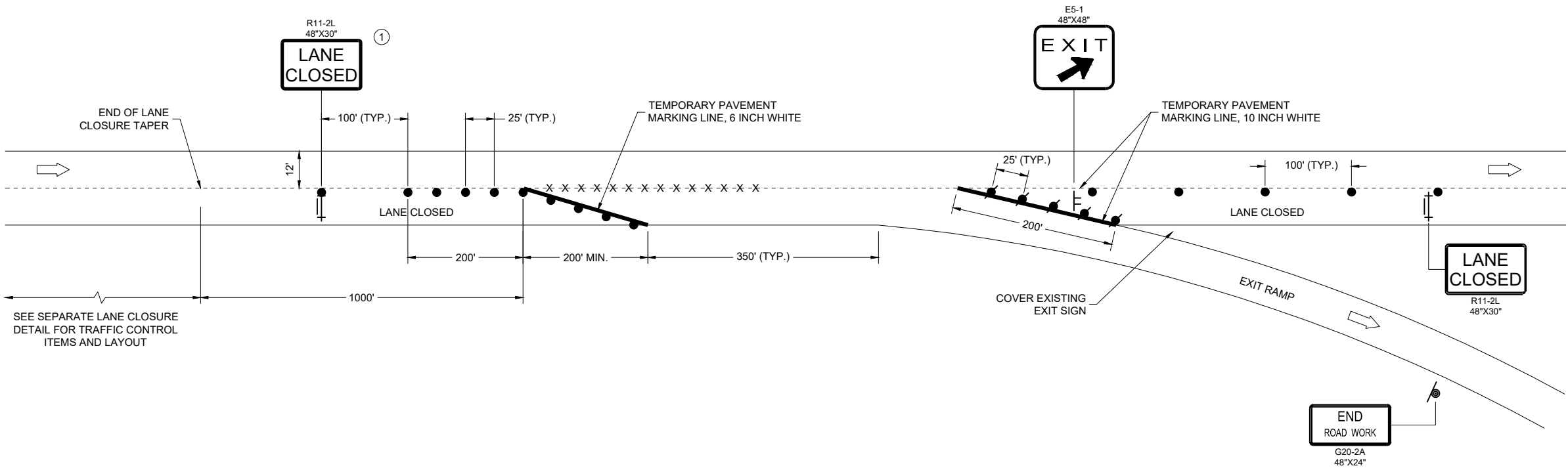
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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

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

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

① IF LOCATED AFTER INITIAL LANE CLOSURE BARRICADE AND "LANE CLOSED" SIGN, USE 3 DRUMS IN PLACE OF BARRICADE AND SIGN.

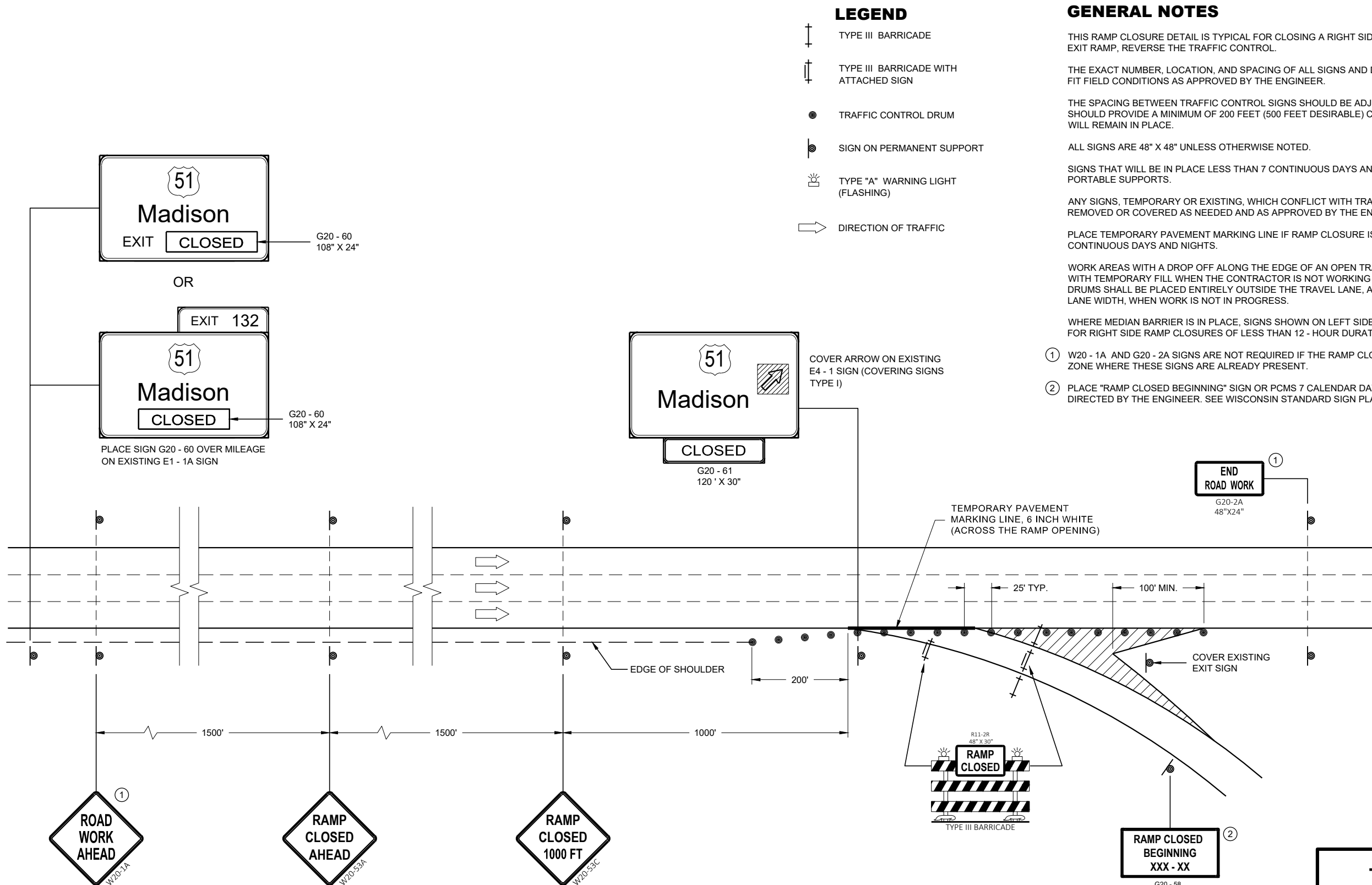


TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

GENERAL NOTES

- THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- 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.
- PLACE TEMPORARY PAVEMENT MARKING LINE IF RAMP CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.
- WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.
- ① W20 - 1A AND G20 - 2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.
- ② PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
ROADWAY STANDARDS DEVELOPER
ENGINEER

276

LEGEND

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

GENERAL NOTES

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45MPH, USE SDD 15D12.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN

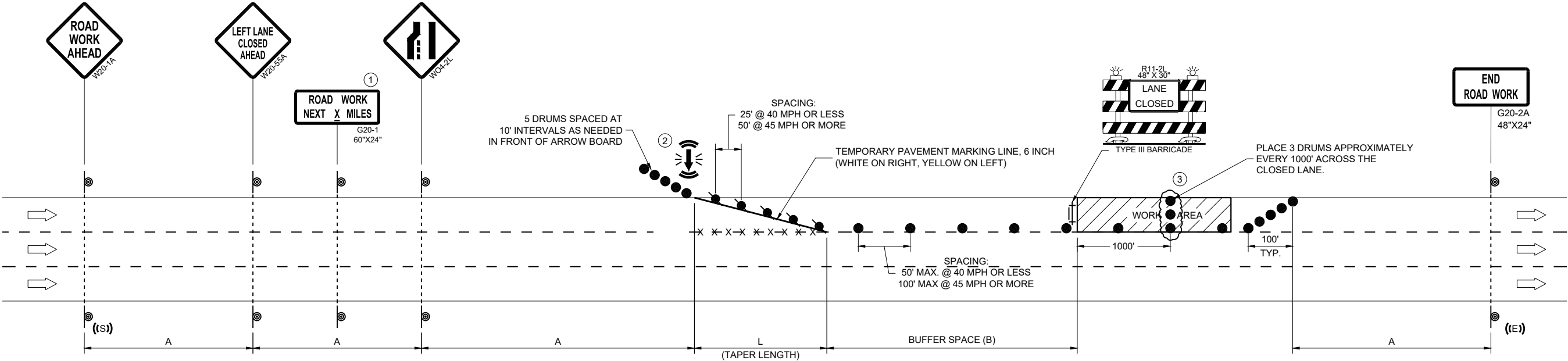
PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

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

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO PLACE THE ARROW BOARD AS SHOWN, PLACE THE ARROW BOARD AT THE END OF THE TAPER.
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'

TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA 277

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

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

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

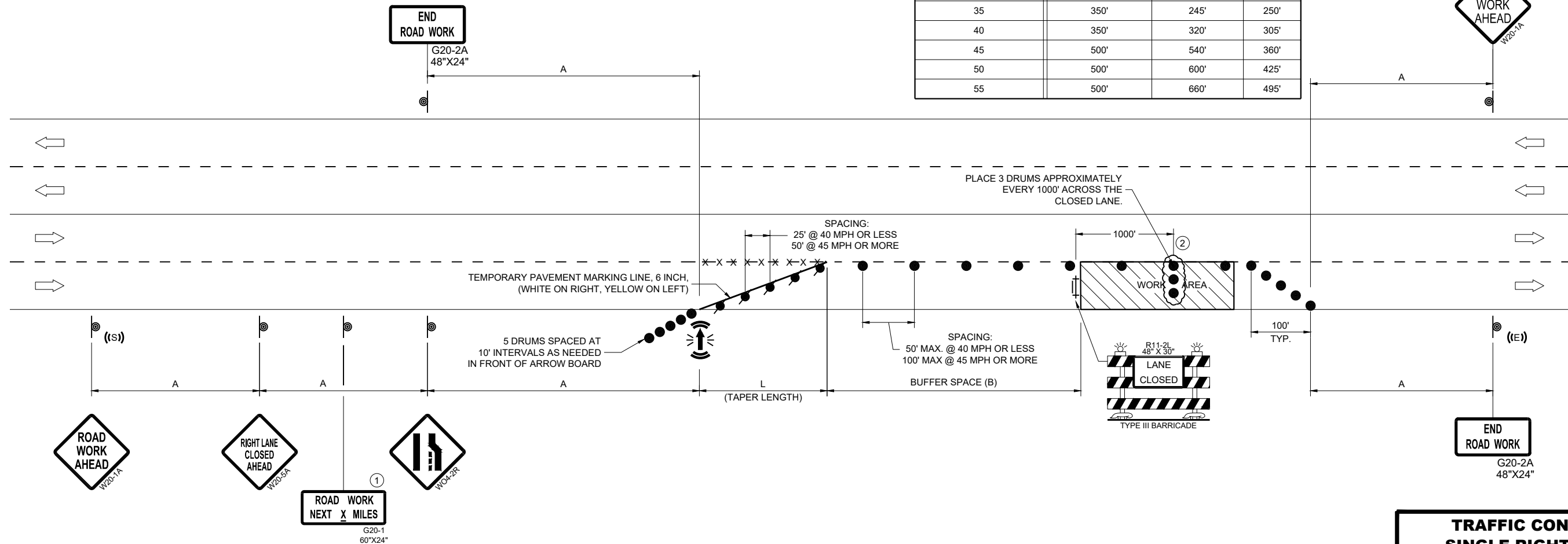
W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE

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

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'
50	500'	600'	425'
55	500'	660'	495'



**TRAFFIC CONTROL,
SINGLE RIGHT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

November 2025 /S/ Andrew Heidtke

DATE WORK ZONE ENGINEER

LEGEND

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

GENERAL NOTES

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROW BOARDS AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

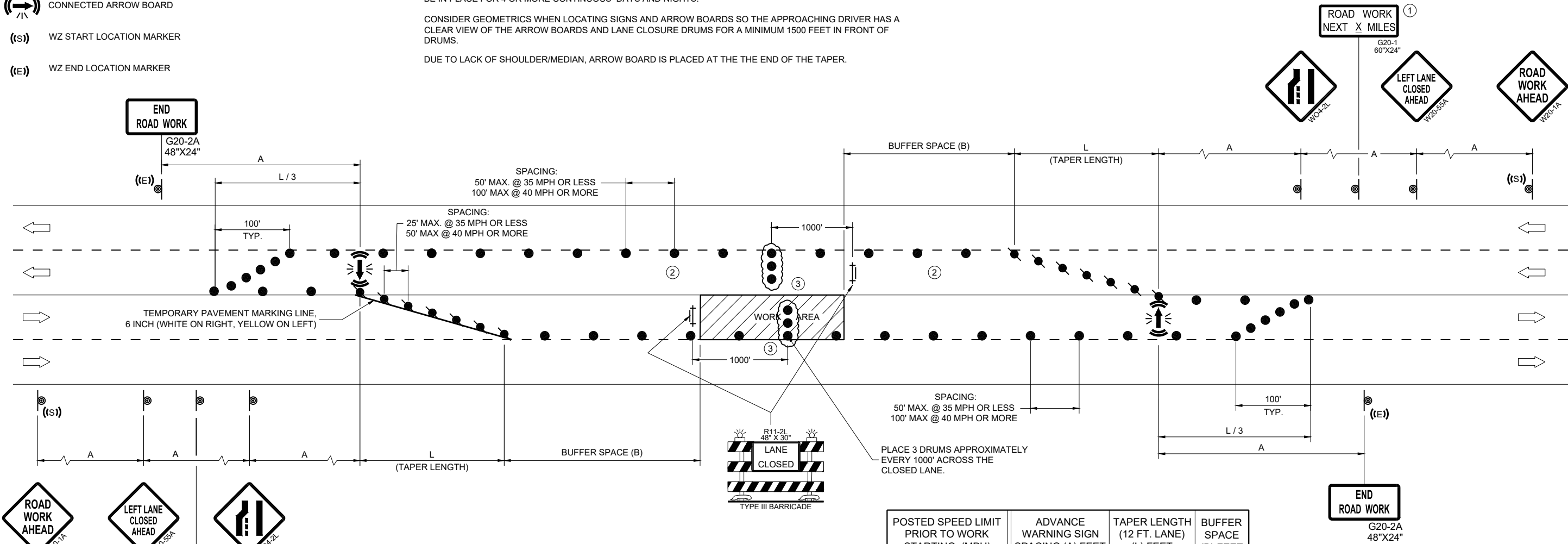
DUE TO LACK OF SHOULDER/MEDIAN, ARROW BOARD IS PLACED AT THE THE END OF THE TAPER.

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

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

- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② LANE MAY BE OPENED WHEN WORKERS ARE NOT PRESENT IN THE WORK AREA.

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



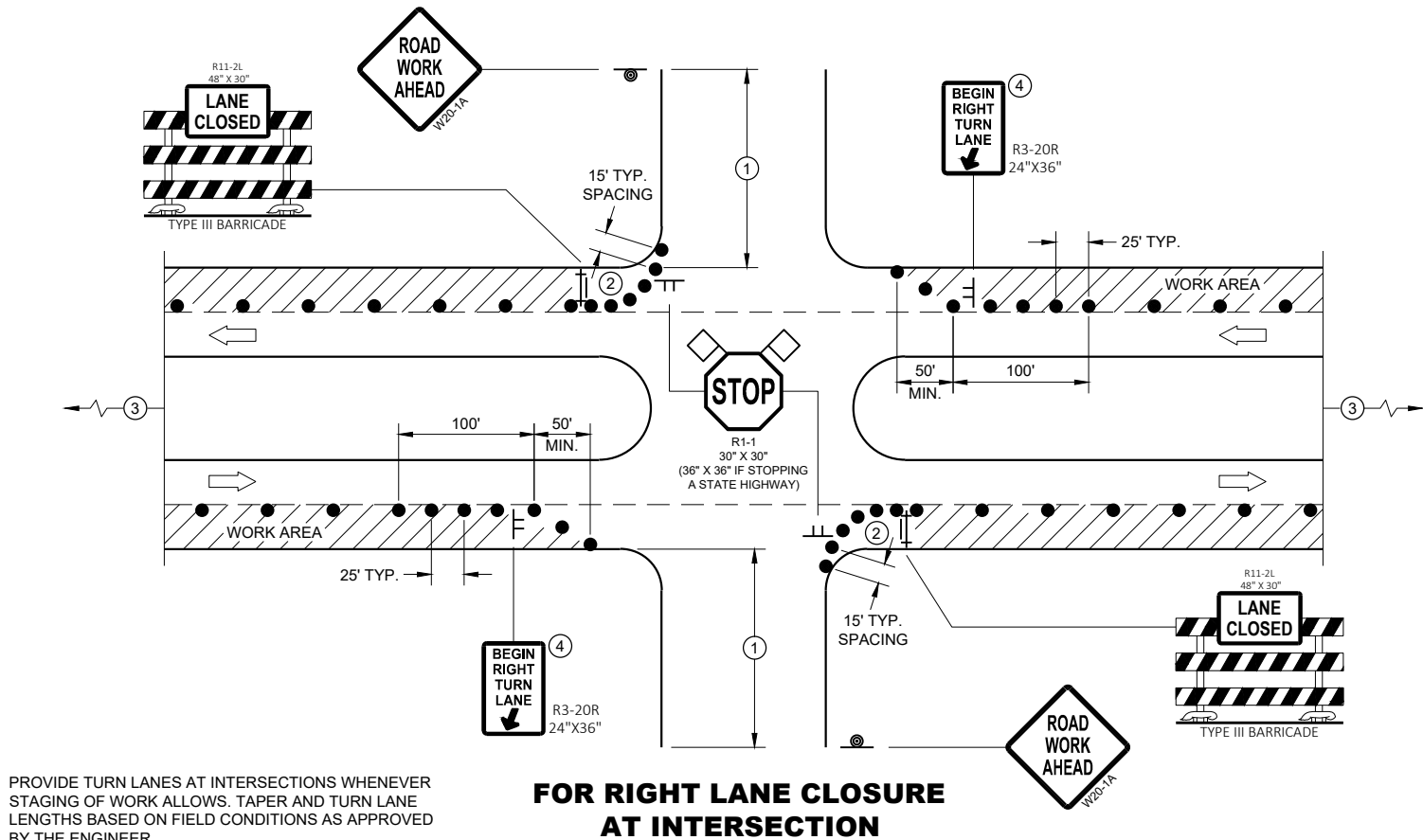
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'
50	500'	600'	425'
55	500'	660'	495'

**TRAFFIC CONTROL,
SINGLE LEFT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



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

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

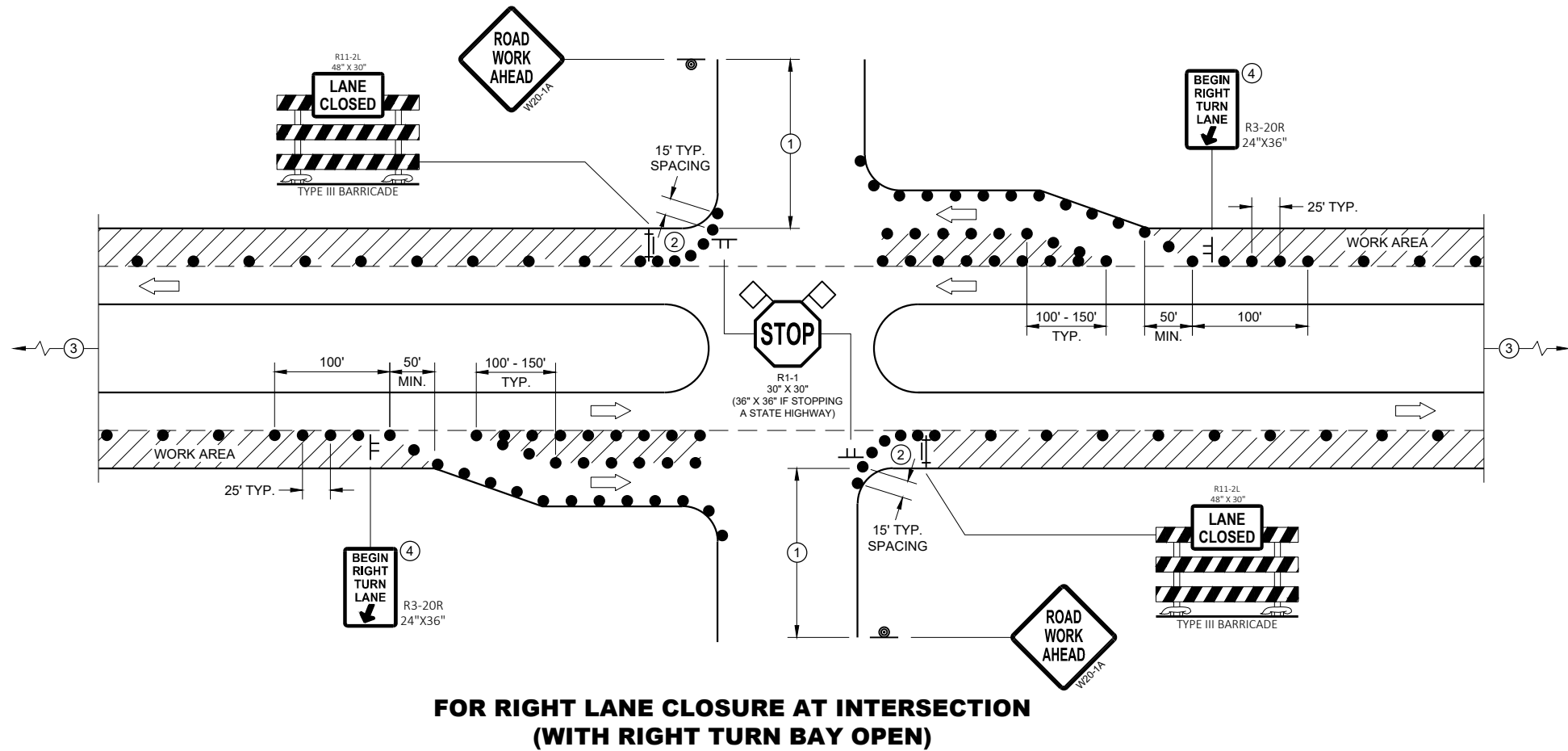
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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

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

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

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



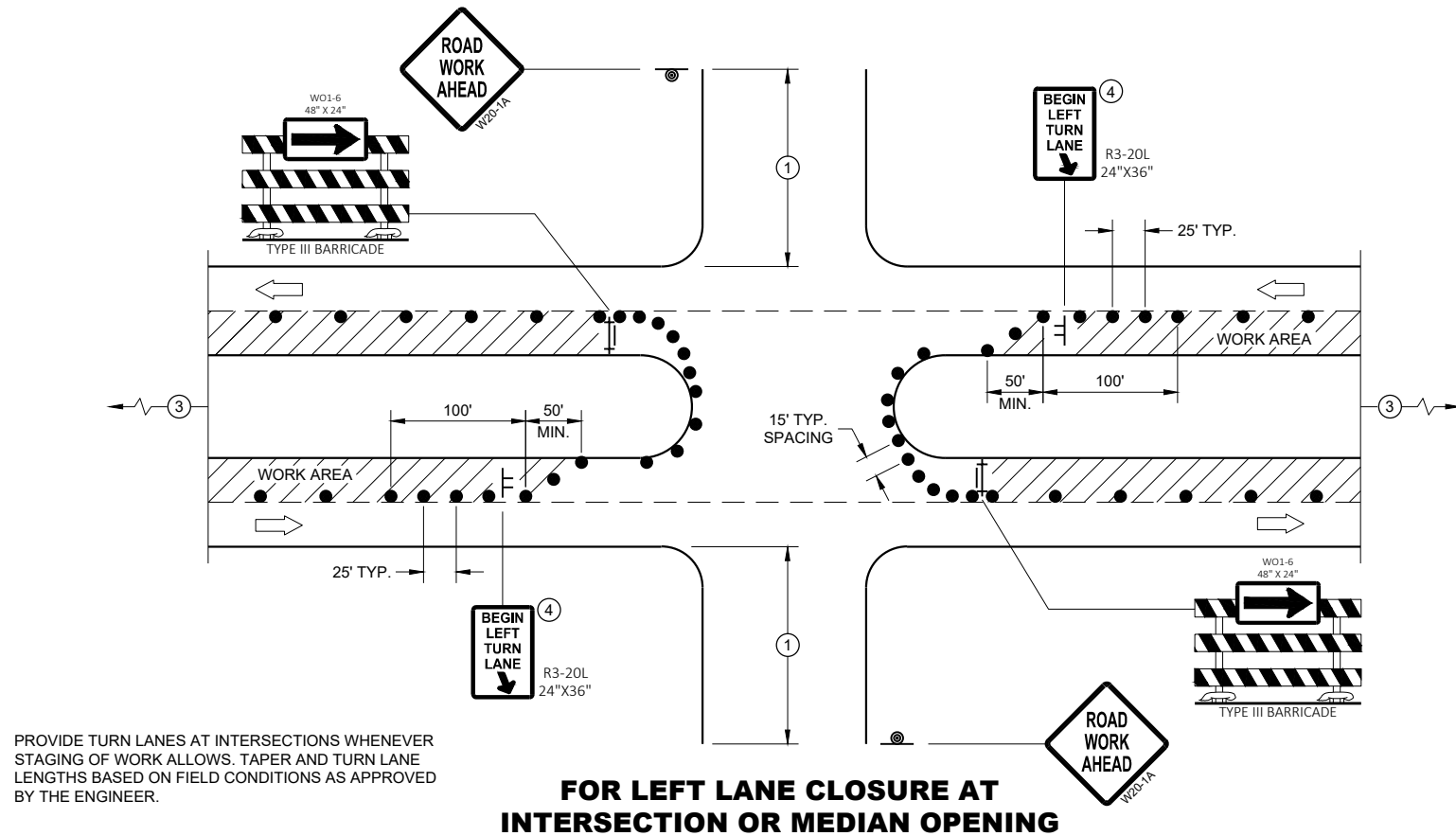
**FOR RIGHT LANE CLOSURE AT INTERSECTION
(WITH RIGHT TURN BAY OPEN)**

LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 280

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

LEGEND

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 281
FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  CONNECTED ARROW BOARD
-  WORK AREA
-  WZ START LOCATION MARKER
-  WZ END LOCATION MARKER

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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.

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

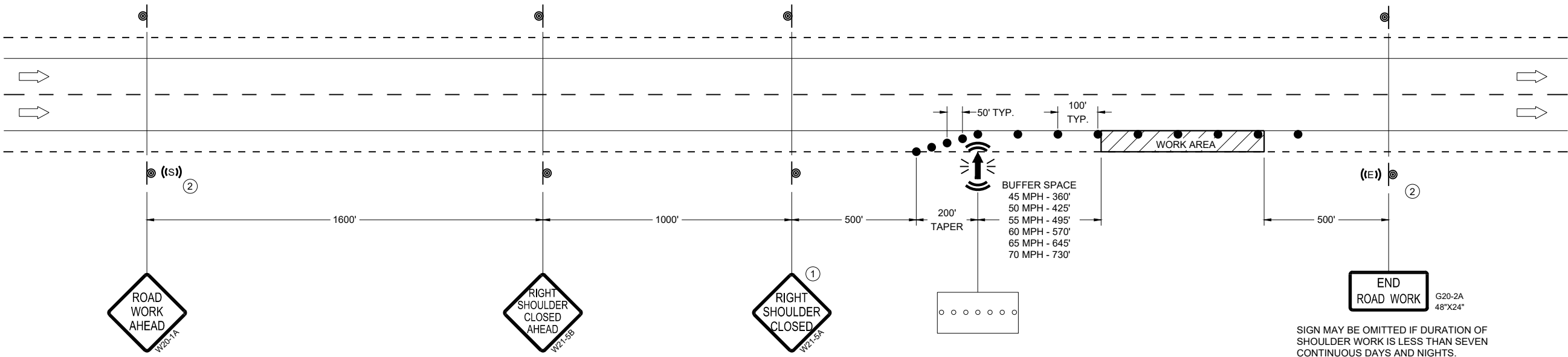
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

① FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR THE W21-5A SIGN MAY BE OMITTED.

② IF ALREADY PRESENT WITHIN PROJECT , DO NOT INCLUDE ADDITIONAL DEVICE.



TRAFFIC CONTROL,
SHOULDER CLOSURE ON
DIVIDED ROADWAY, SPEEDS
GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

November 2025
DATE

FHWA

/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

282

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.

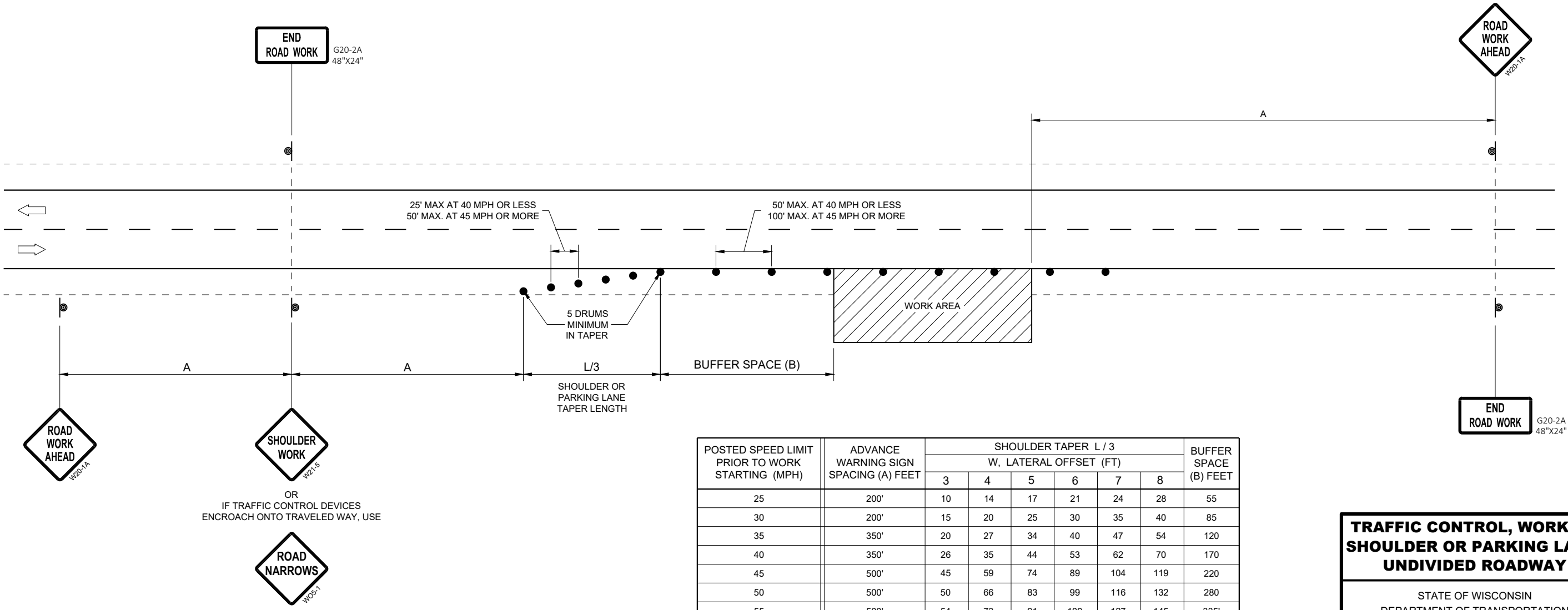
W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

6

6

SDD 15D28 - 04

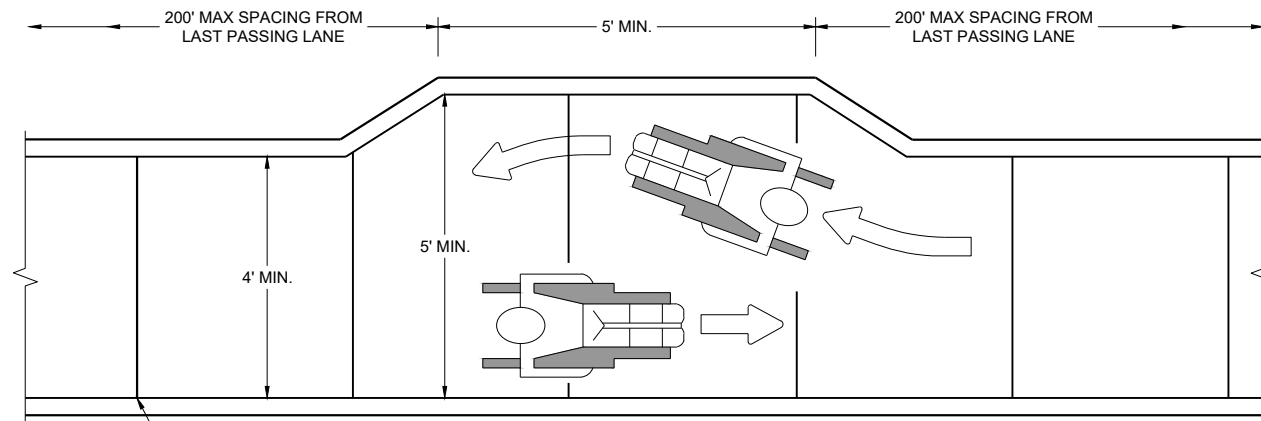
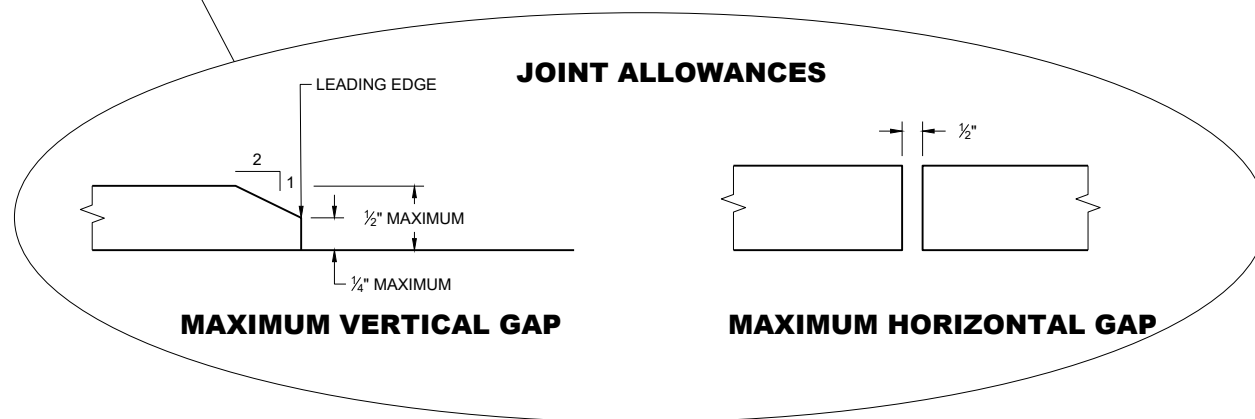
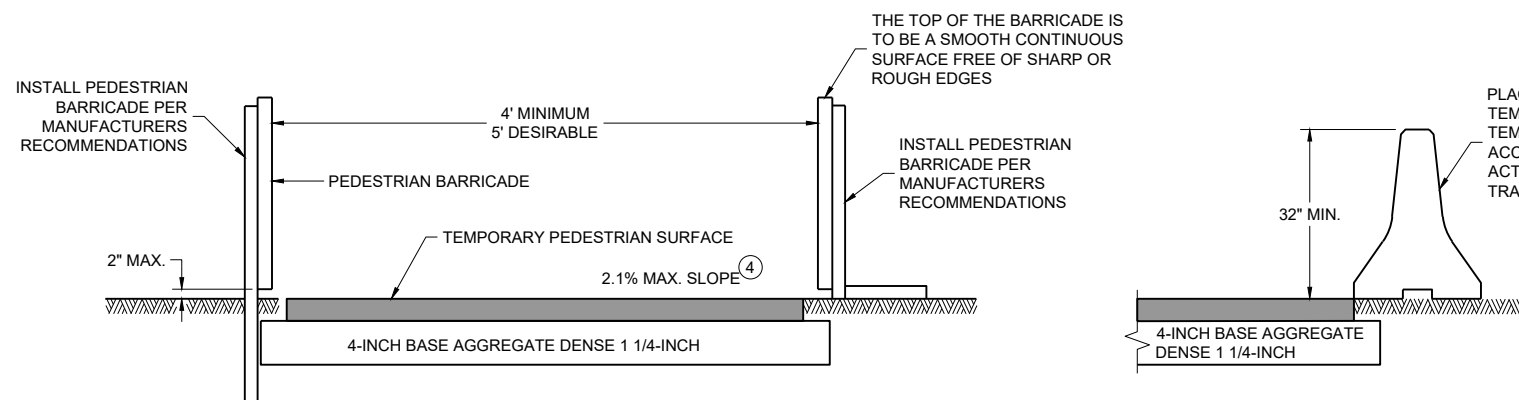
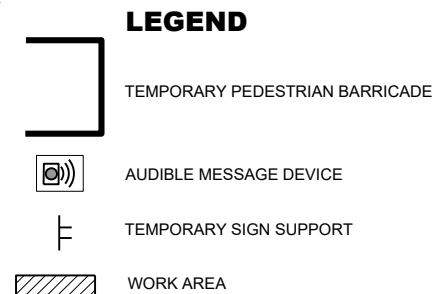
SDD 15D28 - 04



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020
DATE
/S/ Andrew Heidtke
STATEWIDE WORK ZONE T
SAFETY ENGINEER 283
FHWA

**NARROW SIDEWALK PASSING DETAIL****MAXIMUM VERTICAL GAP****MAXIMUM HORIZONTAL GAP****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.

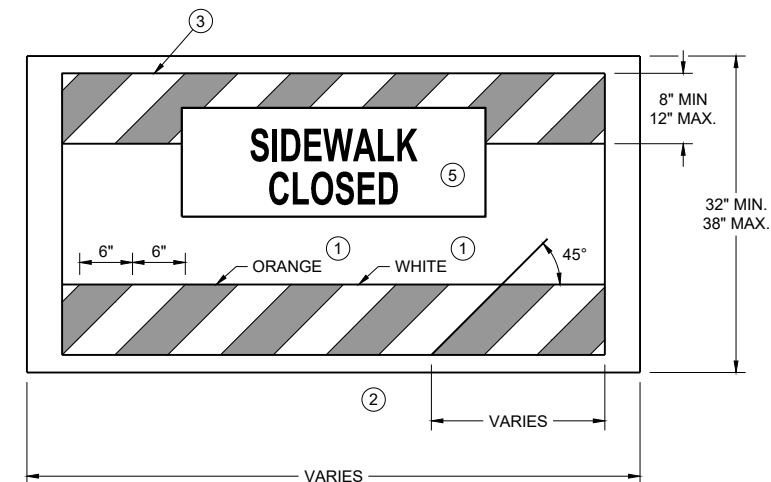
② SHEETING REQUIRED ON MORE THAN 50% OF BARRICADE WIDTH.

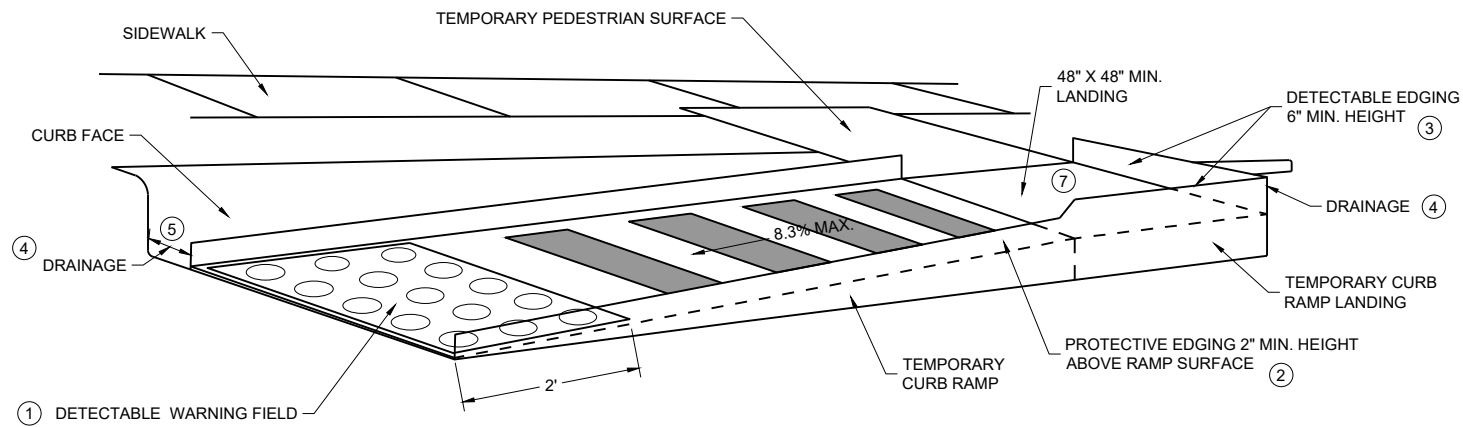
③ PLACE SHEETING ON BOTH SIDES OF THE BARRICADE.

★ USE THIS DETAIL FOR SHEETING PLACEMENT REFERENCE.

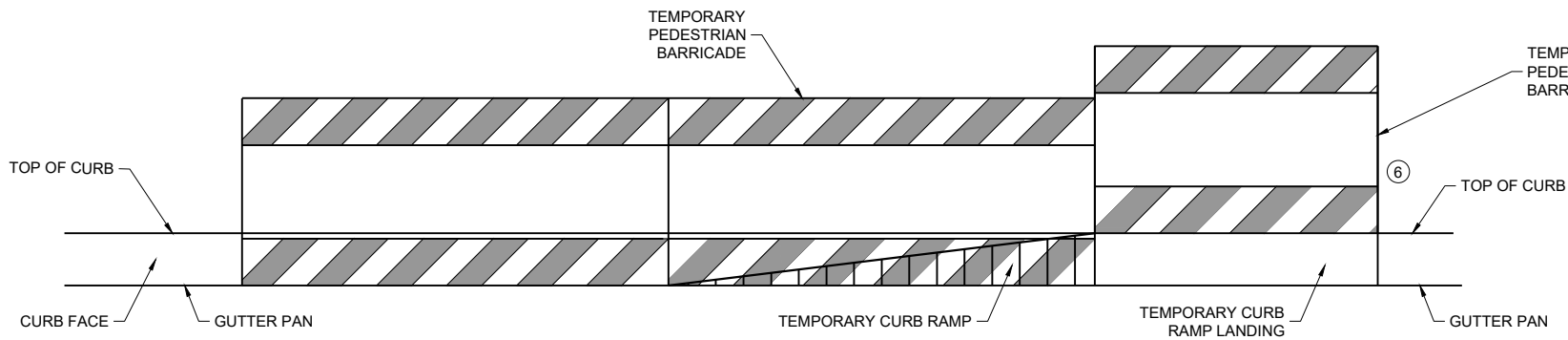
④ WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

⑤ WHERE SIGNS FOR TEMPORARY PEDESTRIAN ACCOMMODATIONS ARE SHOWN BEING PLACED BEHIND TEMPORARY PEDESTRIAN BARRICADE, THE SIGNS MAY BE MOUNTED ON THE TEMPORARY PEDESTRIAN BARRICADE INSTEAD. A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE SHALL BE USED IF MOUNTED ON THE BARRICADE. THE TOP OF THE SIGN SHALL BE MOUNTED BELOW THE TOP OF THE BARRICADE TO ALLOW A CONTINUOUS HAND-TRAILING EDGE.

**TEMPORARY PEDESTRIAN BARRICADE *****TEMPORARY PEDESTRIAN FLAGGING****TRAFFIC CONTROL,
PEDESTRIAN
ACCOMMODATION**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

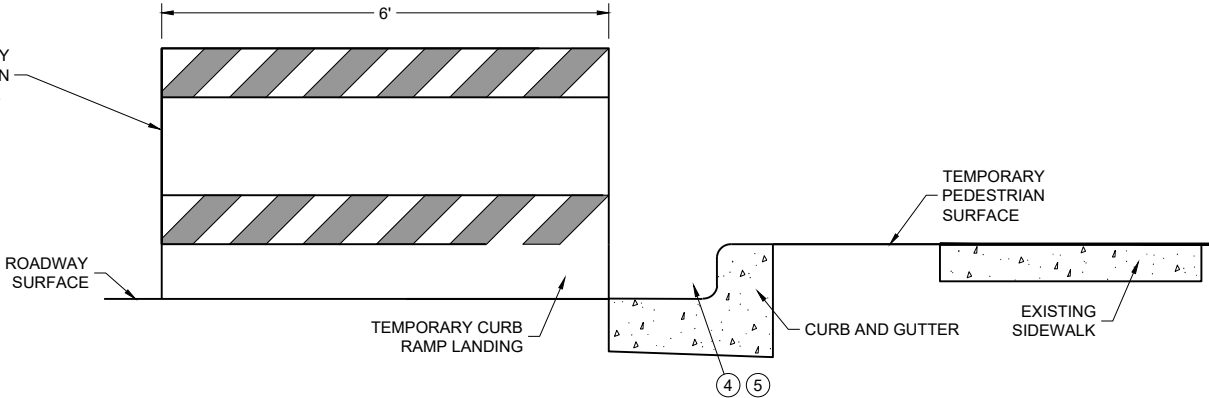


PERSPECTIVE VIEW



FRONT VIEW

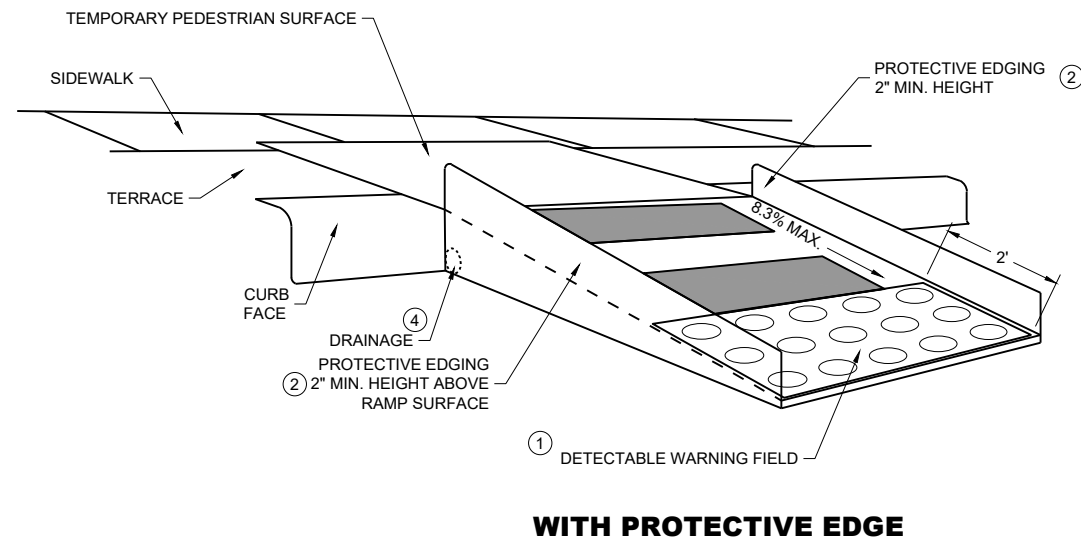
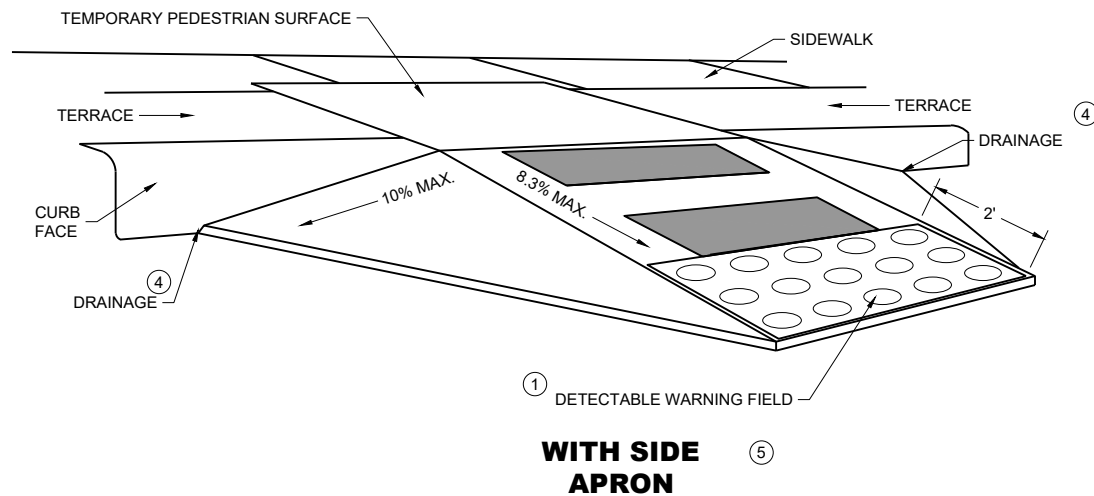
TEMPORARY CURB RAMP PARALLEL TO CURB



SIDE VIEW

GENERAL NOTES

- CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE.
- CURB RAMPS AND LANDINGS SHALL HAVE A 1:48 (2.1%) 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.
 7. LANDING TO BE SLOPED A MAXIMUM OF 2.1% IN ALL DIRECTIONS OF PEDESTRIAN TRAVEL.



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 1:48 (2.1%) MAX. CROSS-SLOPE.

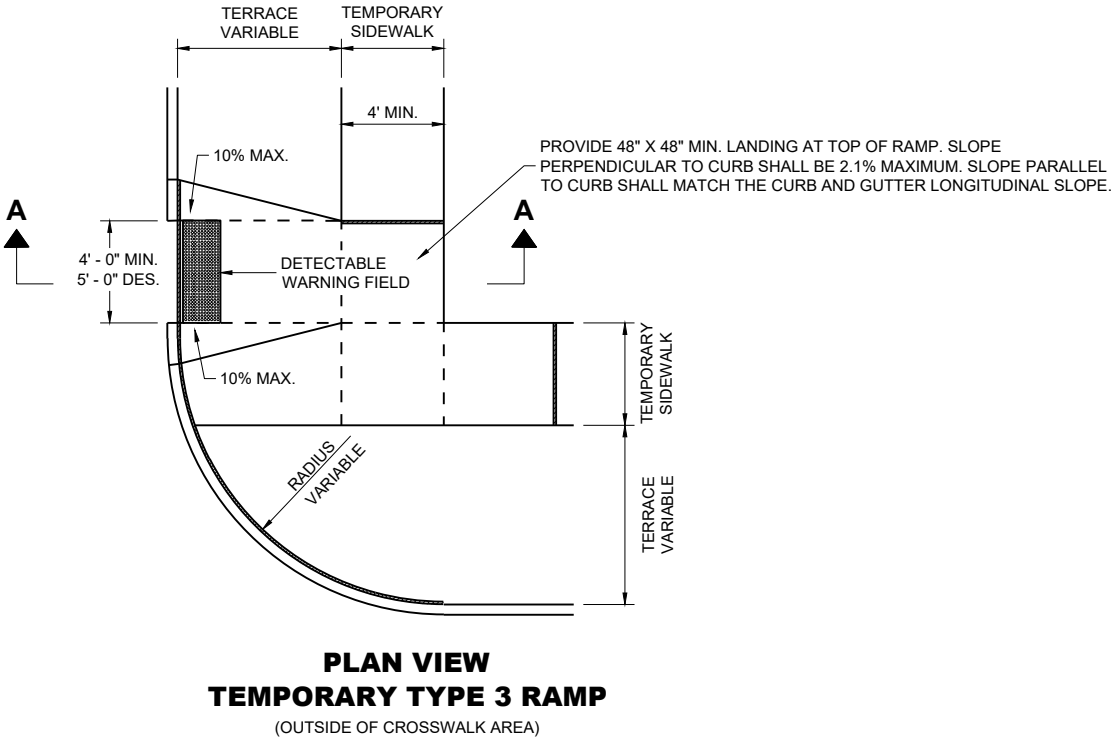
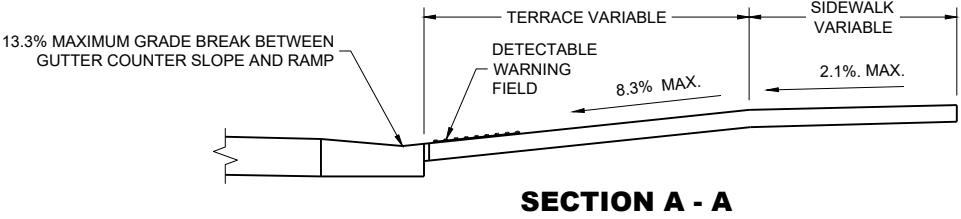
CLEAR SPACE OF 48" X 48" SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN ½" WIDTH.

CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED ½". LATERAL EDGES MAY BE VERTICAL UP TO ¼" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN ¼" AND ½".

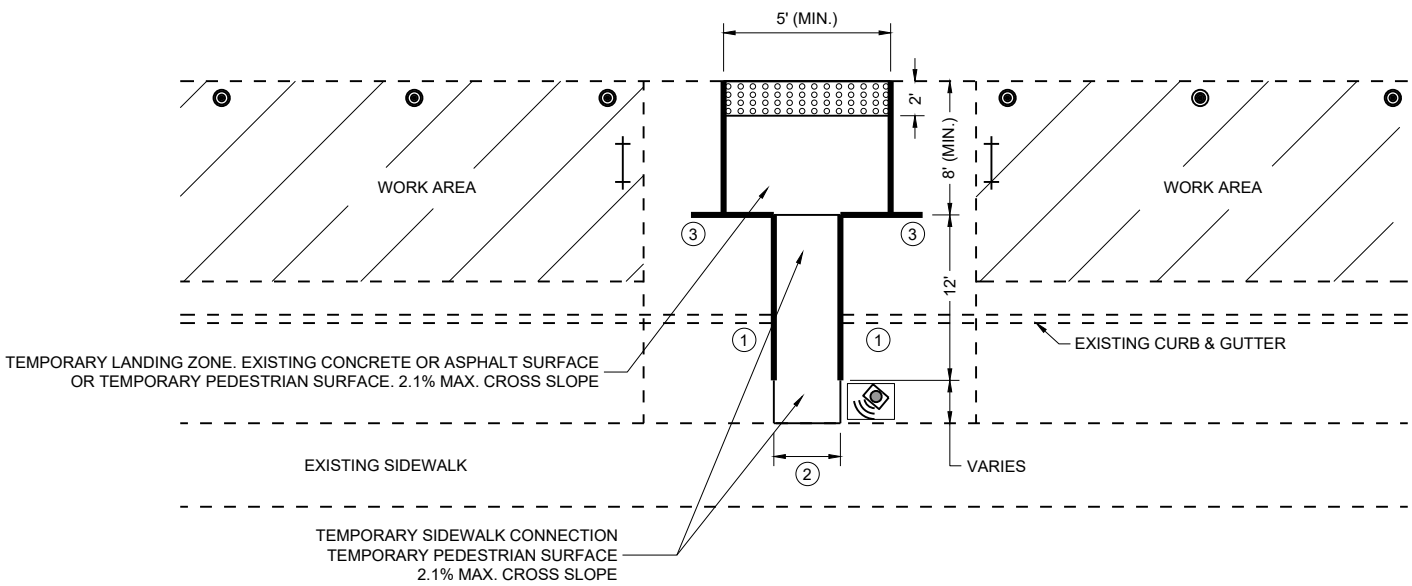
- ① INSTALL CONTRASTING TEMPORARY DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS, AS SHOWN IN THE PLANS
- ② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE 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.

GENERAL NOTES

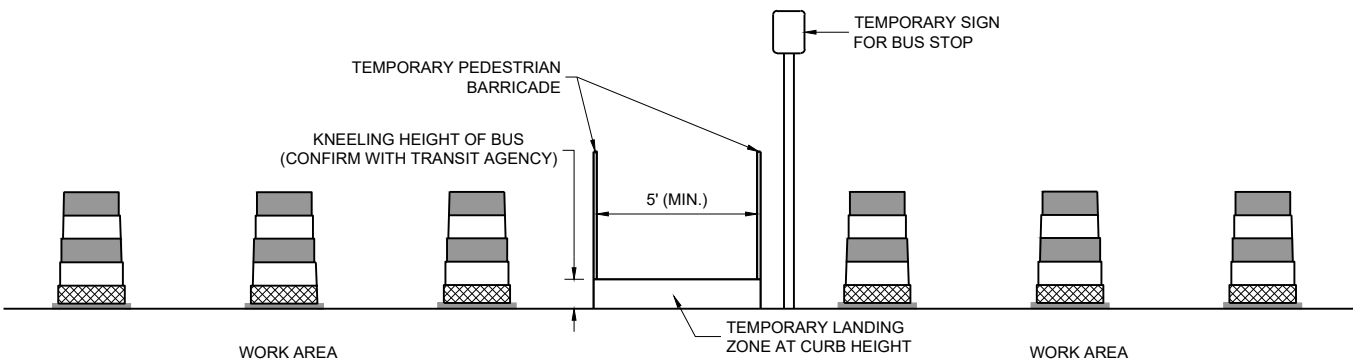


TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW



PROFILE VIEW
TEMPORARY BUS STOP PAD

GENERAL NOTES

- TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
- NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.
- 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.
- DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN ½" WIDTH.
- CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED ½". LATERAL EDGES MAY BE VERTICAL UP TO ¼" HIGH AND SHALL BE BEVELED AT 1:2 BETWEEN ¼" AND ½".
- CURB RAMPS AND LANDINGS SHALL HAVE A 1:48 (2.1%) MAX. CROSS-SLOPE.

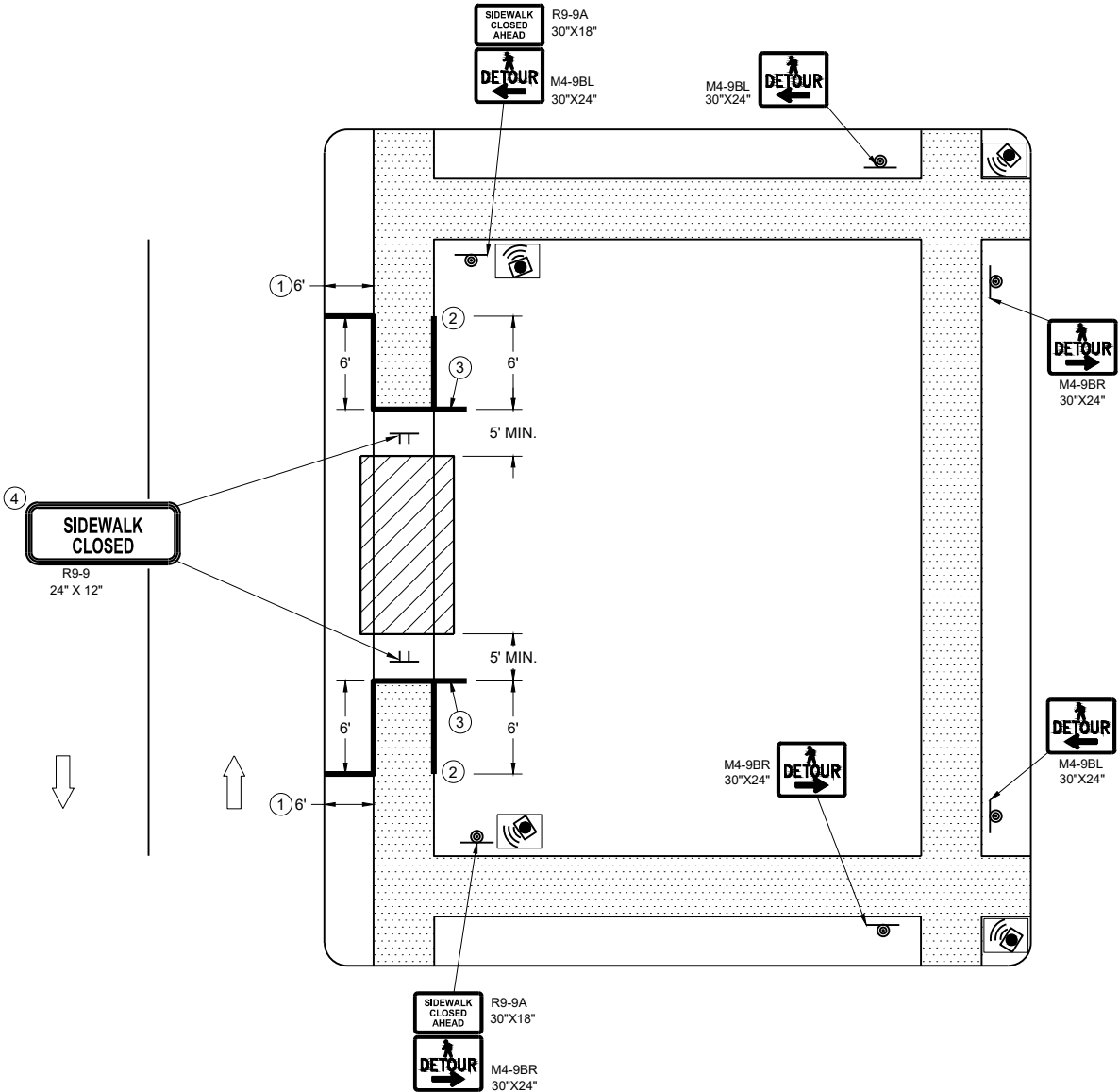
- ① DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.
- ② 5' WIDE MIN. WITH TEMPORARY PEDESTRIAN BARRICADE, 10' WIDE MIN. WITHOUT TEMPORARY PEDESTRIAN BARRICADE.
- ③ PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE INTO THIS SPACE.

LEGEND

- TRAFFIC CONTROL DRUM
- ⊢ TYPE III BARRICADE
- TEMPORARY PEDESTRIAN BARRICADE
- ⊞ TEMPORARY DETECTABLE WARNING FIELD
- ▨ WORK AREA
- 🔊 TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  UNDER PEDESTRIAN TRAFFIC
-  WORK AREA
-  TEMPORARY PEDESTRIAN BARRICADE
-  DIRECTION OF TRAFFIC
-  TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE

GENERAL NOTES

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICTS WITH DRIVEWAYS AND OTHER EXISTING FEATURES.

- ① IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- ② PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- ③ IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- ④ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- WORK AREA
- UNDER PEDESTRIAN TRAFFIC
- TEMPORARY PEDESTRIAN SURFACE
- TEMPORARY PEDESTRIAN BARRICADE
- OPTIONAL TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC

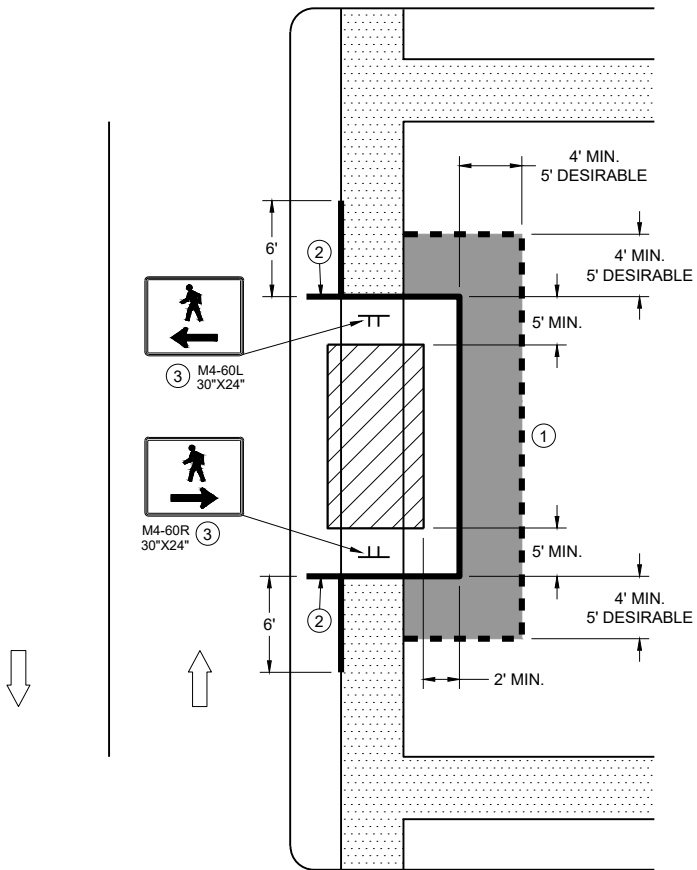
GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

- ① USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- ② IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- ③ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



SIDEWALK BYPASS
SINGLE SIDE

LEGEND

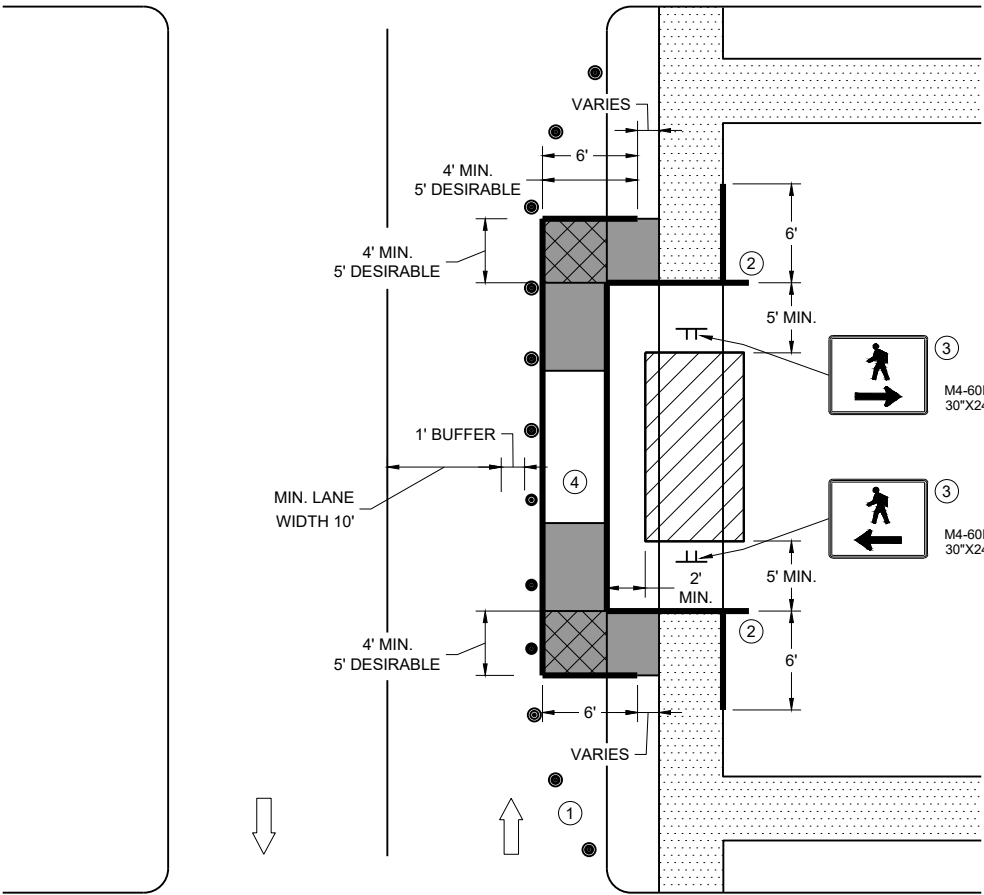
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- WORK AREA
- UNDER PEDESTRIAN TRAFFIC
- TEMPORARY CURB RAMP
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC

GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

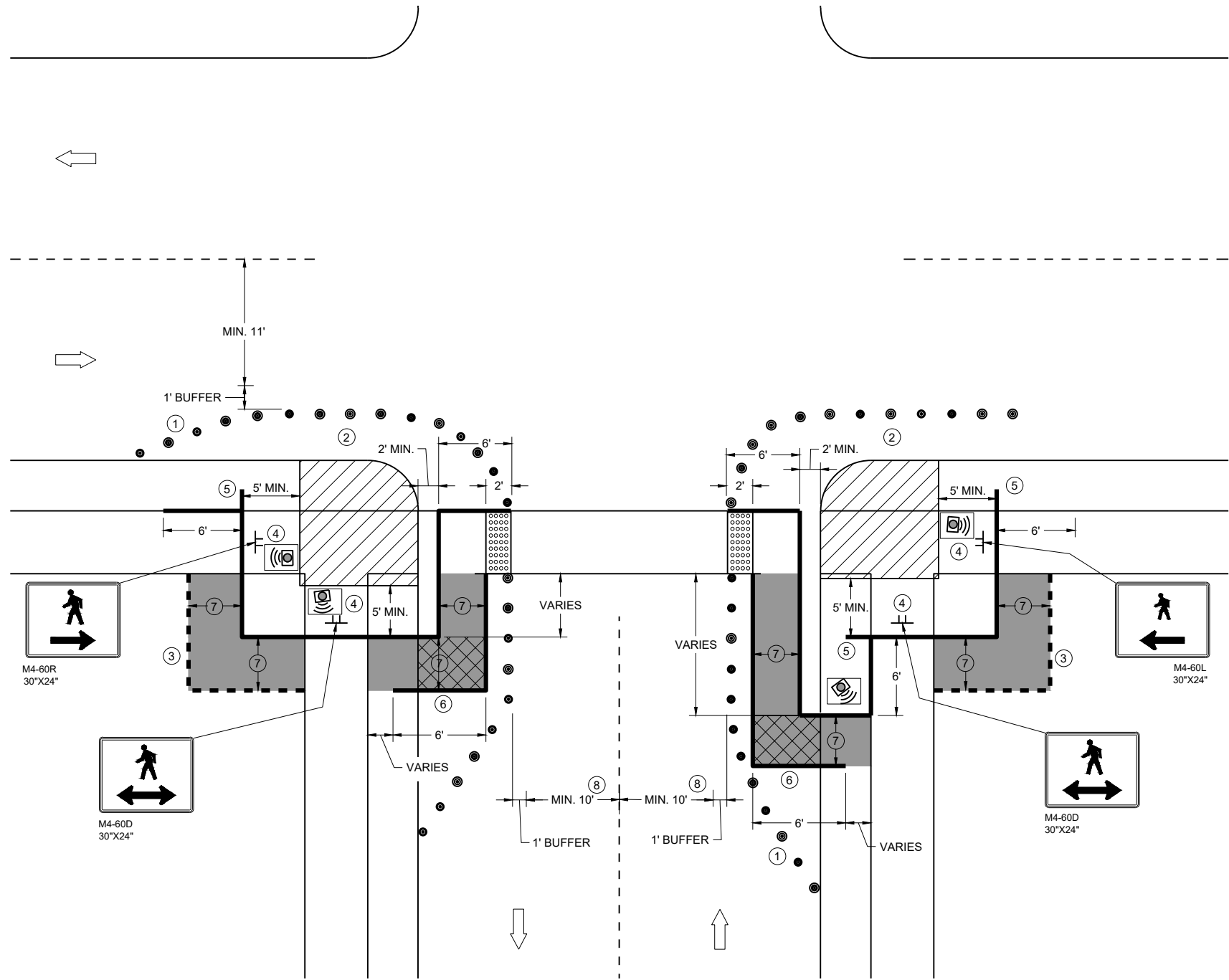
- ① SHOULDER OR LANE CLOSURE ADVANCE WARNING AND BUFFER SPACE REQUIRED.
- ② PLACE EXCESS PORTION OF TEMPORARY PEDESTRIAN BARRICADE PANEL PAST THE SIDEWALK ON THE SIDE AWAY FROM THE ROAD.
- ③ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.
- ④ USE EXISTING PAVEMENT SURFACE. IF EXISTING PAVEMENT SURFACE HAS BEEN REMOVED, USE A TEMPORARY PEDESTRIAN SURFACE. WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.



SIDEWALK BYPASS, SINGLE SIDE

TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



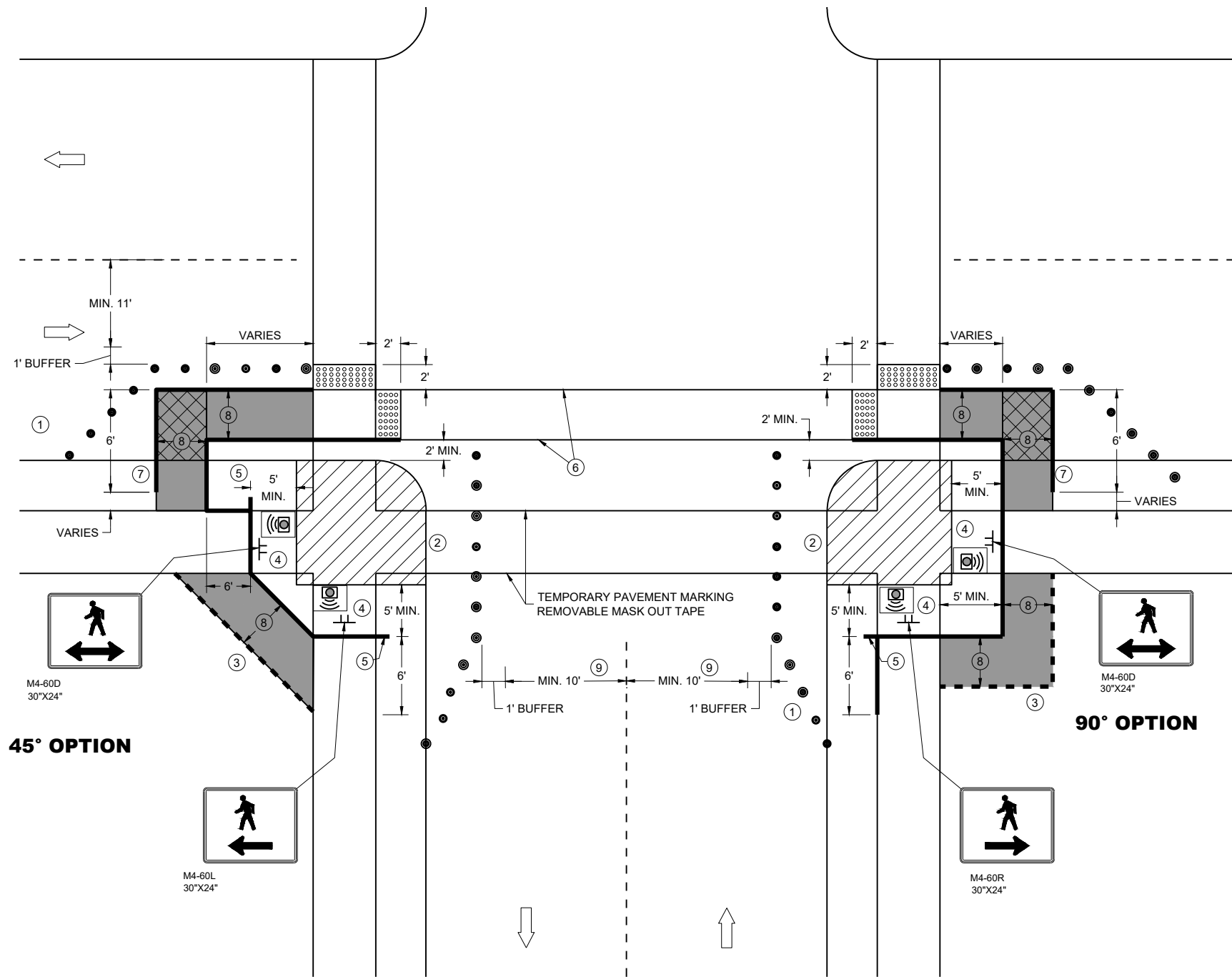
**CURB RAMP PEDESTRIAN TRAFFIC CONTROL
SIDEWALK ON SINGLE SIDE**

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.
- 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.
- WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.
- 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 IF TEMPORARY PEDESTRIAN BARRICADE DOES NOT REACH THE FACE OF THE CURB, USE AN ADDITIONAL PANEL AND EXTEND INTO THE TERRACE.
 - 7 4 FEET MINIMUM, 5 FEET DESIRABLE
 - 8 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
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



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.

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.

WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

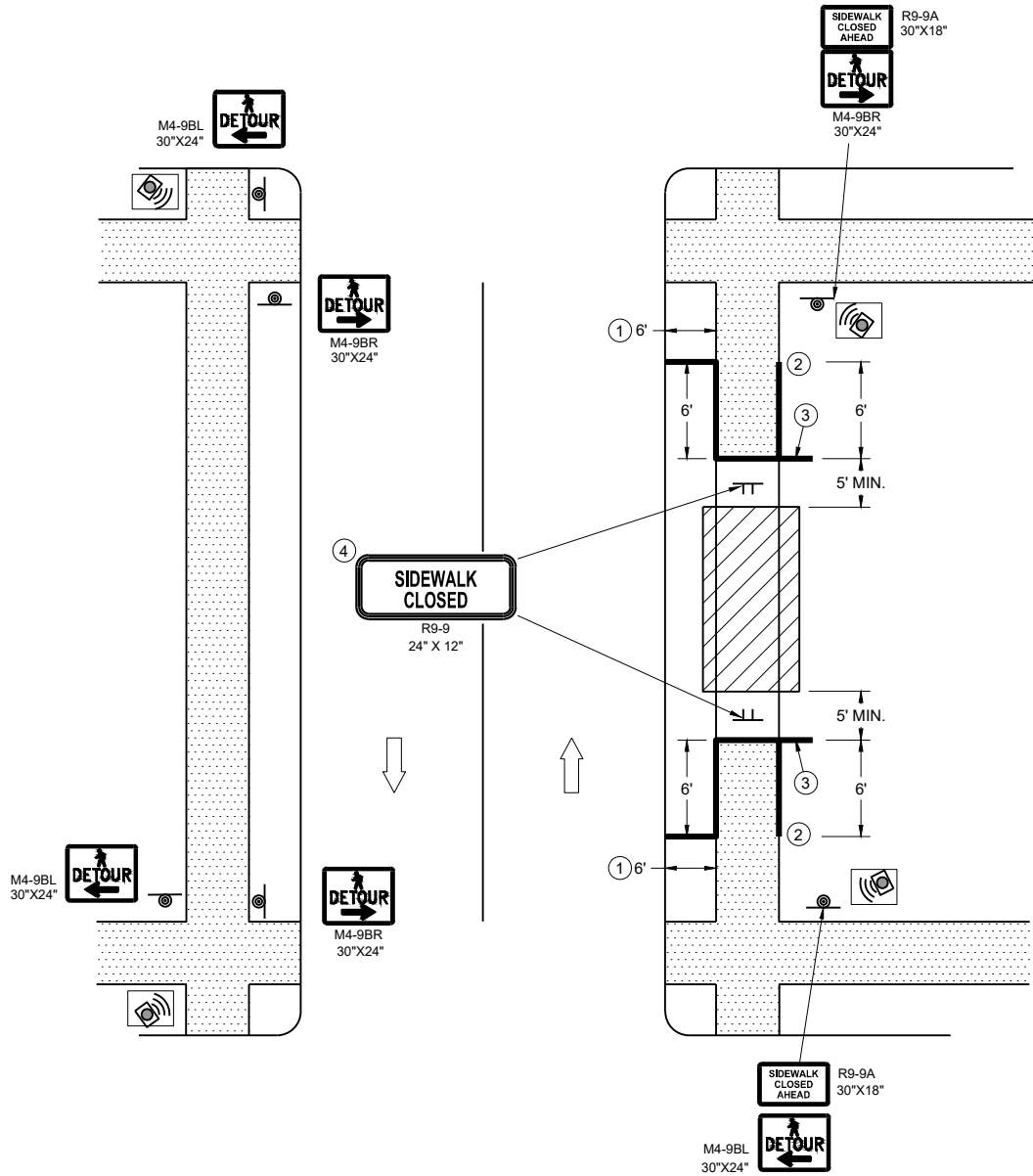
- 1 SHOULDER OR LANE CLOSURE ADVANCE WARNING AND PROPER BUFFER SPACE REQUIRED.
- 2 PROVIDE ADEQUATE SPACE FOR CONTRACTOR OPERATIONS
- 3 USE TEMPORARY PEDESTRIAN BARRICADE TO SEPARATE PEDESTRIANS FROM DROP OFFS OR FOR ADDITIONAL PEDESTRIAN CHANNELIZATION.
- 4 MOUNTING HEIGHT OF 5 FEET FROM SIDEWALK SURFACE 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
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

LEGEND

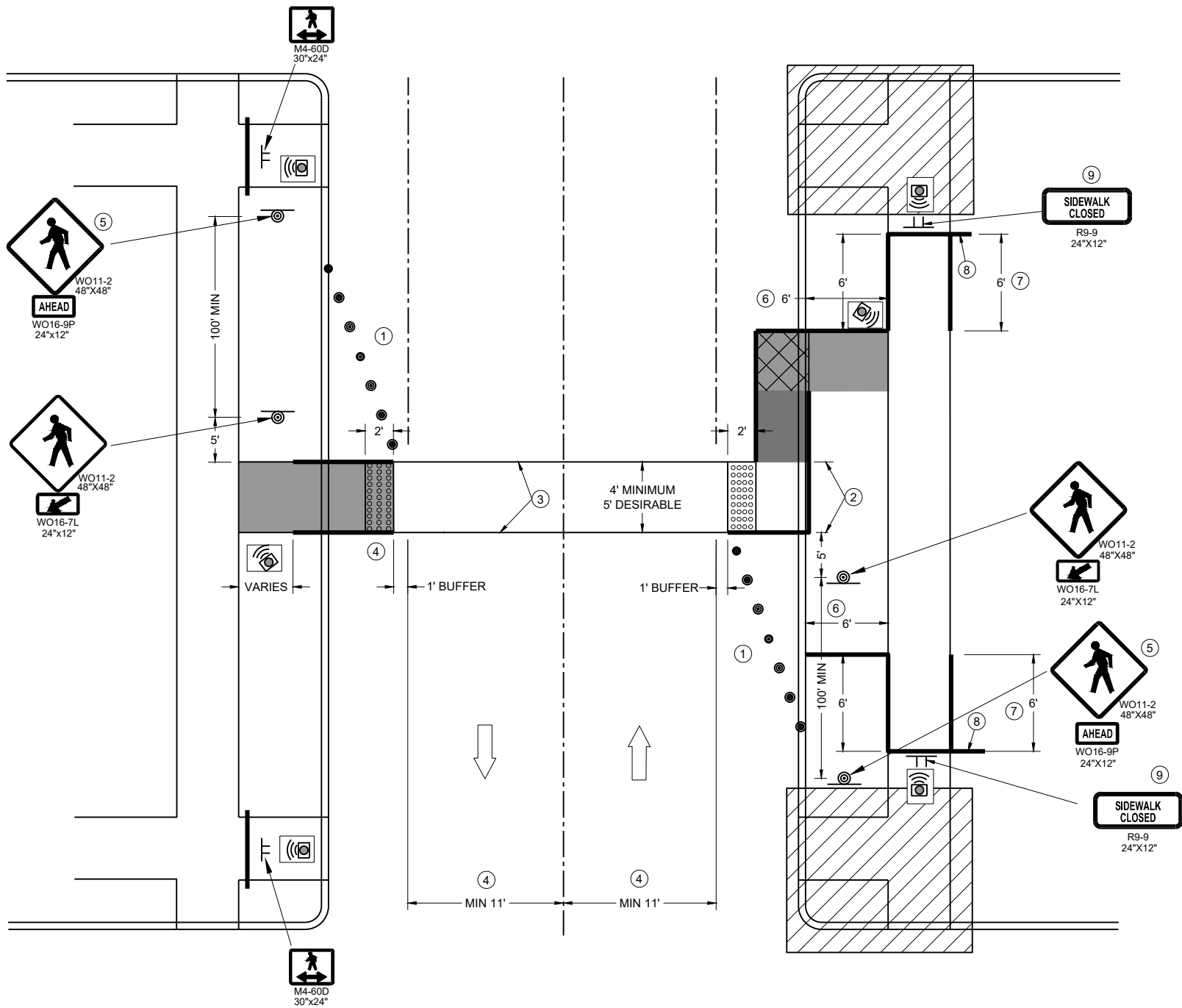
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



SIDEWALK DETOUR, SIDEWALK ON BOTH SIDES

GENERAL NOTES

- WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.
- SIGNS THAT REMAIN IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICT WITH DRIVEWAYS AND OTHER EXISTING FEATURES.
- IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
 - PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
 - IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
 - MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.



TEMPORARY PEDESTRIAN CROSSING

GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
SEE OTHER PEDESTRIAN ACCOMMODATION DETAILS FOR SIGNING AND DEVICES FOR DIFFERENT PEDESTRIAN FACILITIES CLOSURES.

WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

- ① SHOULDER OR LANE CLOSURE ADVANCED WARNING AND PROPER BUFFER SPACE REQUIRED.
- ② 4 FEET MINIMUM, 5 FEET DESIRABLE.
- ③ WHITE 6" TEMPORARY PAVEMENT MARKING.
- ④ IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, PERPENDICULAR CURB RAMPS MAY NEED TO BE UTILIZED.
- ⑤ IF MINIMUM 100' SPACING FROM THE MID-BLOCK CROSSING CANNOT BE ATTAINED BEFORE THE INTERSECTION, REMOVE THIS SIGN ASSEMBLY.
- ⑥ IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- ⑦ PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- ⑧ IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF THE EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- ⑨ MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF THE SIGN.

LEGEND

- TRAFFIC CONTROL DRUM
- ⊥ SIGN ON TEMPORARY SUPPORT
- ▬ TEMPORARY CURB RAMP
- ▬ TEMPORARY DETECTABLE WARNING FIELD
- ▬ TEMPORARY PEDESTRIAN SURFACE "A"
- ▬ TEMPORARY PEDESTRIAN SURFACE "B"
- ▬ WORK AREA
- ▬ TEMPORARY PEDESTRIAN BARRICADE
- ➡ DIRECTION OF TRAFFIC
- 🔊 TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

	SIGN ON PERMANENT SUPPORT		TEMPORARY RAISED PAVEMENT MARKERS (TWO WAY YELLOW)
	TRAFFIC CONTROL DRUM		TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	TEMPORARY DELINEATOR (WHITE, SINGLE DELINEATOR)		REMOVE PAVEMENT MARKINGS
	TYPE III BARRICADE		WORK AREA
	TYPE III BARRICADE WITH ATTACHED SIGN		
	TYPE "A" WARNING LIGHT (FLASHING)		

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" 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.

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

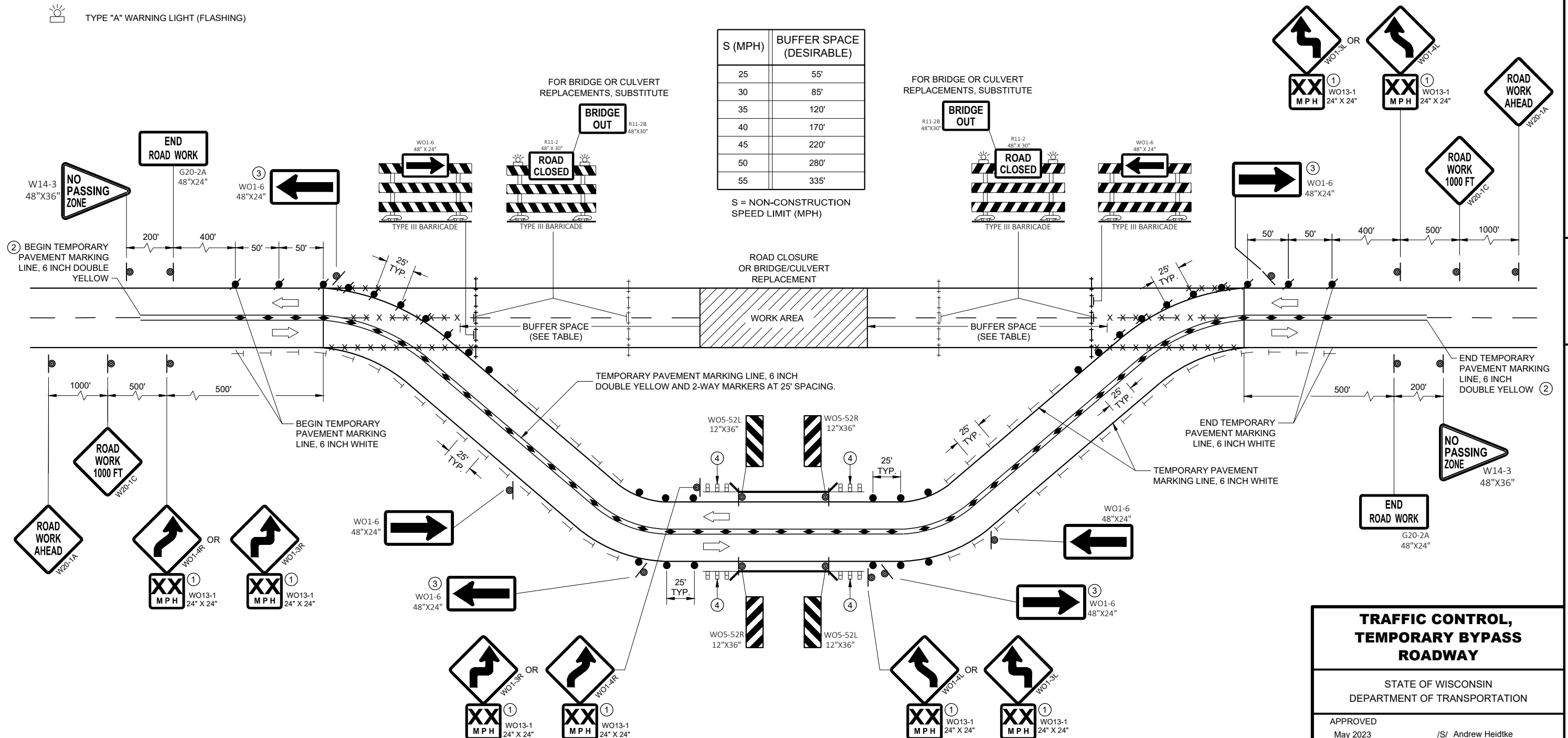
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL ON STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

EQUIPMENT, VEHICLES, OR MATERIAL SHOULD NOT BE STORED IN BUFFER SPACE.

- ① IF ADVISORY SPEED IS GREATER THAN 30 MPH, USE THE W01-4 SIGN. IF ADVISORY SPEED IS 30 MPH OR LESS, USE THE W01-3 SIGN.
- ② WHEN THE DISTANCE TO / FROM THE NEXT CLOSEST NO-PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
- ③ OMIT THESE W01-6 SIGNS IF THE ADVISORY SPEED OF THE CURVE IS GREATER THAN 30 MPH.
- ④ TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT WHEN INCLUDED IN THE CONTRACT. FOR LAYOUT, SEE DETAILS ELSEWHERE IN THE PLAN.

S (MPH)	BUFFER SPACE (DESIRABLE)
25	55'
30	85'
35	120'
40	170'
45	220'
50	280'
55	335'

S = NON-CONSTRUCTION
SPEED LIMIT (MPH)

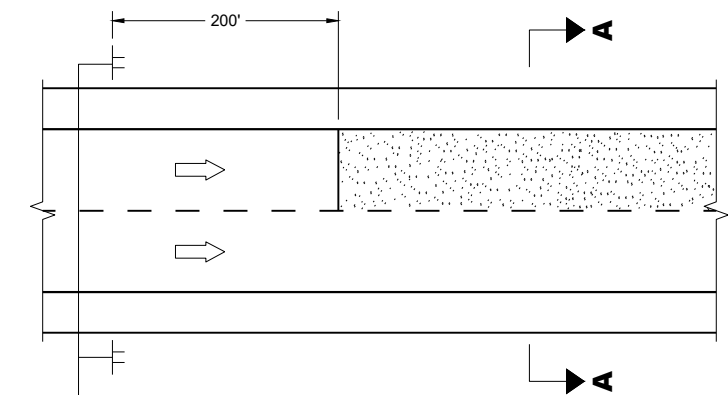


TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY

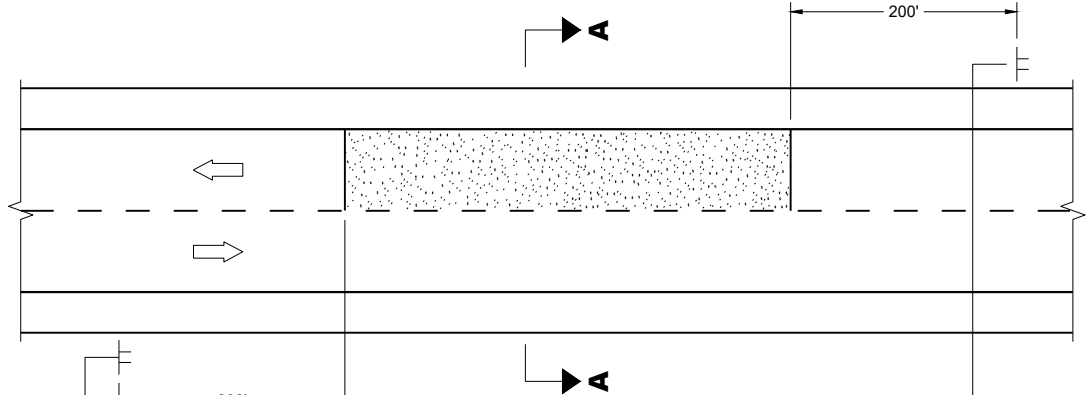
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
 DATE WORK ZONE ENGINEER 296

FHWA



MULTI-LANE

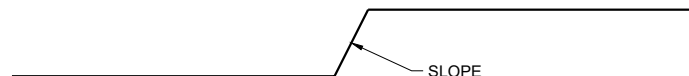


TWO-WAY TWO LANE

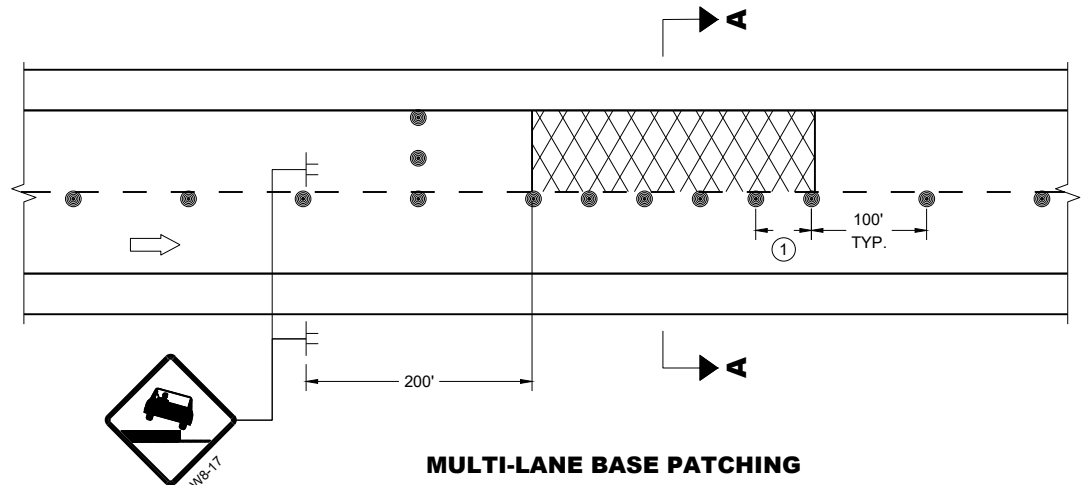


SECTION A - A

OR



SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

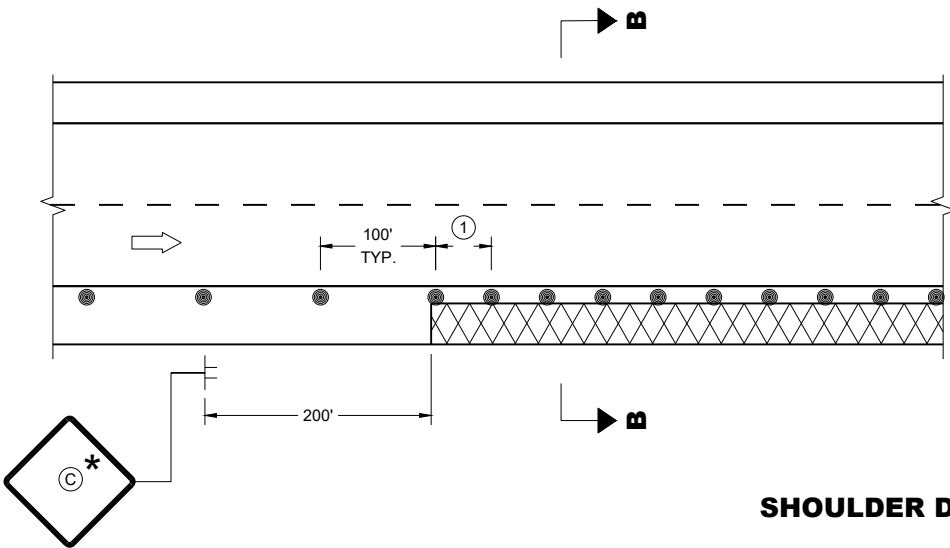
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

★ IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

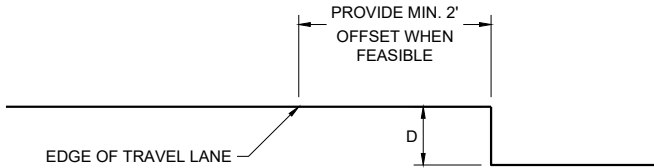
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

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



SHOULDER DROP-OFFS



SECTION B - B

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

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

TYPE III BARRICADE WITH ATTACHED SIGN

SIGN ON PERMANENT SUPPORT

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT

TYPE "A" WARNING LIGHT (FLASHING)

DIRECTION OF TRAFFIC

WORK AREA

REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

CONCRETE BARRIER TEMPORARY PRECAST

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

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

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT RIGHT - REVERSE FOR SHIFTING LEFT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

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

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

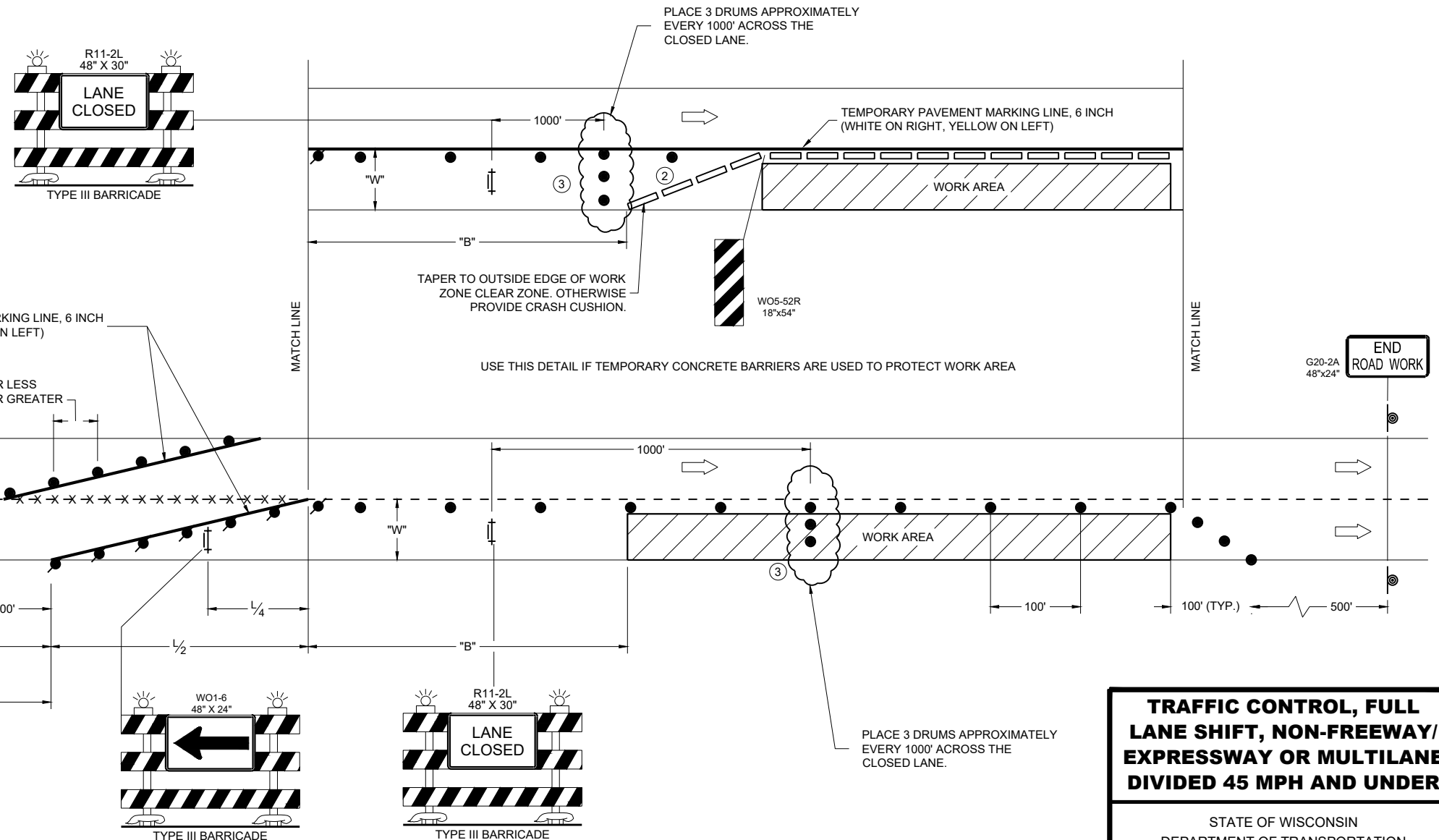
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER

SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- ① USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- ② BARRIER FLARE RATE: 6:1 @ 40 MPH OR LESS
8:1 @ 45 MPH OR GREATER
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $\frac{L}{2}$					BUFFER SPACE (B) FEET
		W, LATERAL OFFSET (FT)					
		10	11	12	13	14	
25	200	52	57	63	68	73	155
30	200	75	83	90	98	105	200
35	350	102	112	123	133	143	250
40	350	133	147	160	173	187	305
45	500	225	248	270	293	315	360



**TRAFFIC CONTROL, FULL
LANE SHIFT, NON-FREEWAY/
EXPRESSWAY OR MULTILANE
DIVIDED 45 MPH AND UNDER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TYPE "A" WARNING LIGHT (FLASHING)
	DIRECTION OF TRAFFIC
	WORK AREA
	REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

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

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

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT RIGHT - REVERSE FOR SHIFTING LEFT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

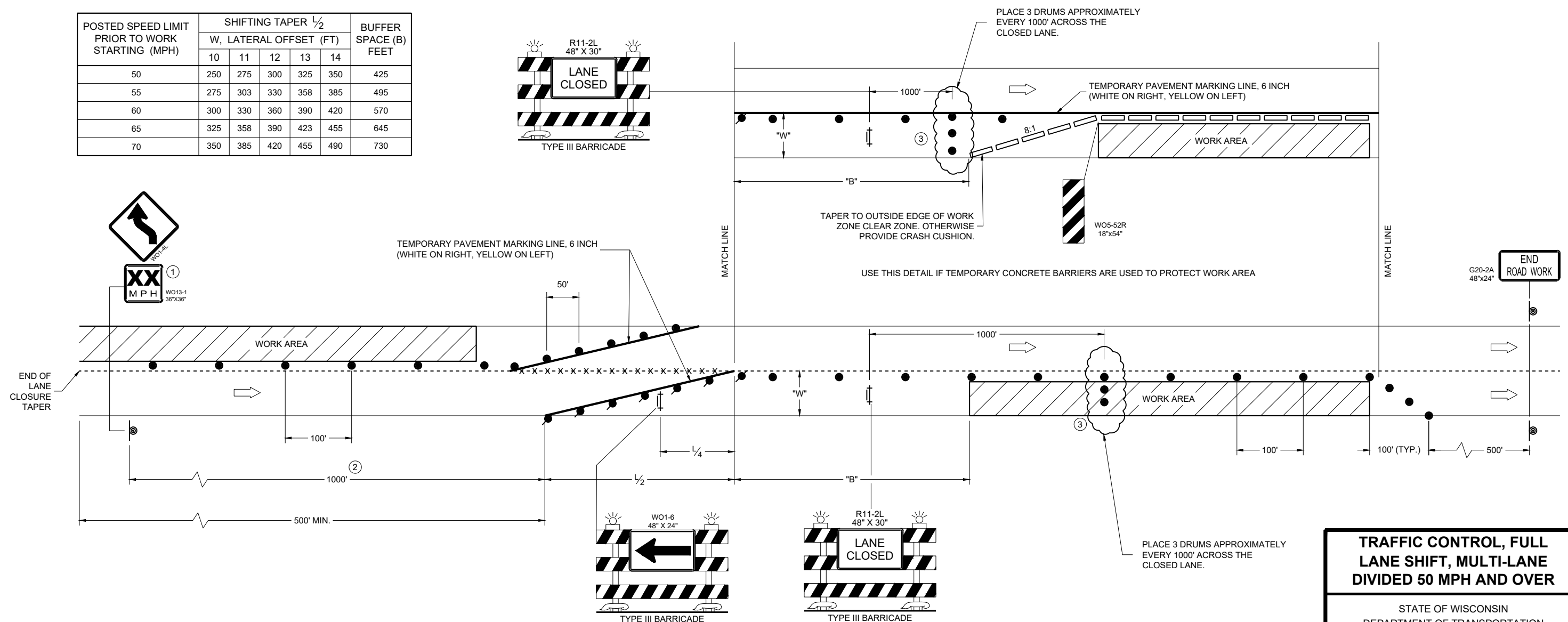
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE THE LENGTH OF ½ THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- ① USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- ② IF BEGINNING OF LANE SHIFT IS 1200' OF LESS FROM THE END OF THE LANE CLOSURE TAPER, PLACE THE W01-4L SIGN 200 FEET AFTER THE END OF THE LANE CLOSURE TAPER.
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{L}{2}$					BUFFER SPACE (B) FEET
	W, LATERAL OFFSET (FT)					
	10	11	12	13	14	
50	250	275	300	325	350	425
55	275	303	330	358	385	495
60	300	330	360	390	420	570
65	325	358	390	423	455	645
70	350	385	420	455	490	730



**TRAFFIC CONTROL, FULL
LANE SHIFT, MULTI-LANE
DIVIDED 50 MPH AND OVER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA 300

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- CONCRETE BARRIER TEMPORARY PRECAST

GENERAL NOTES

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

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

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

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

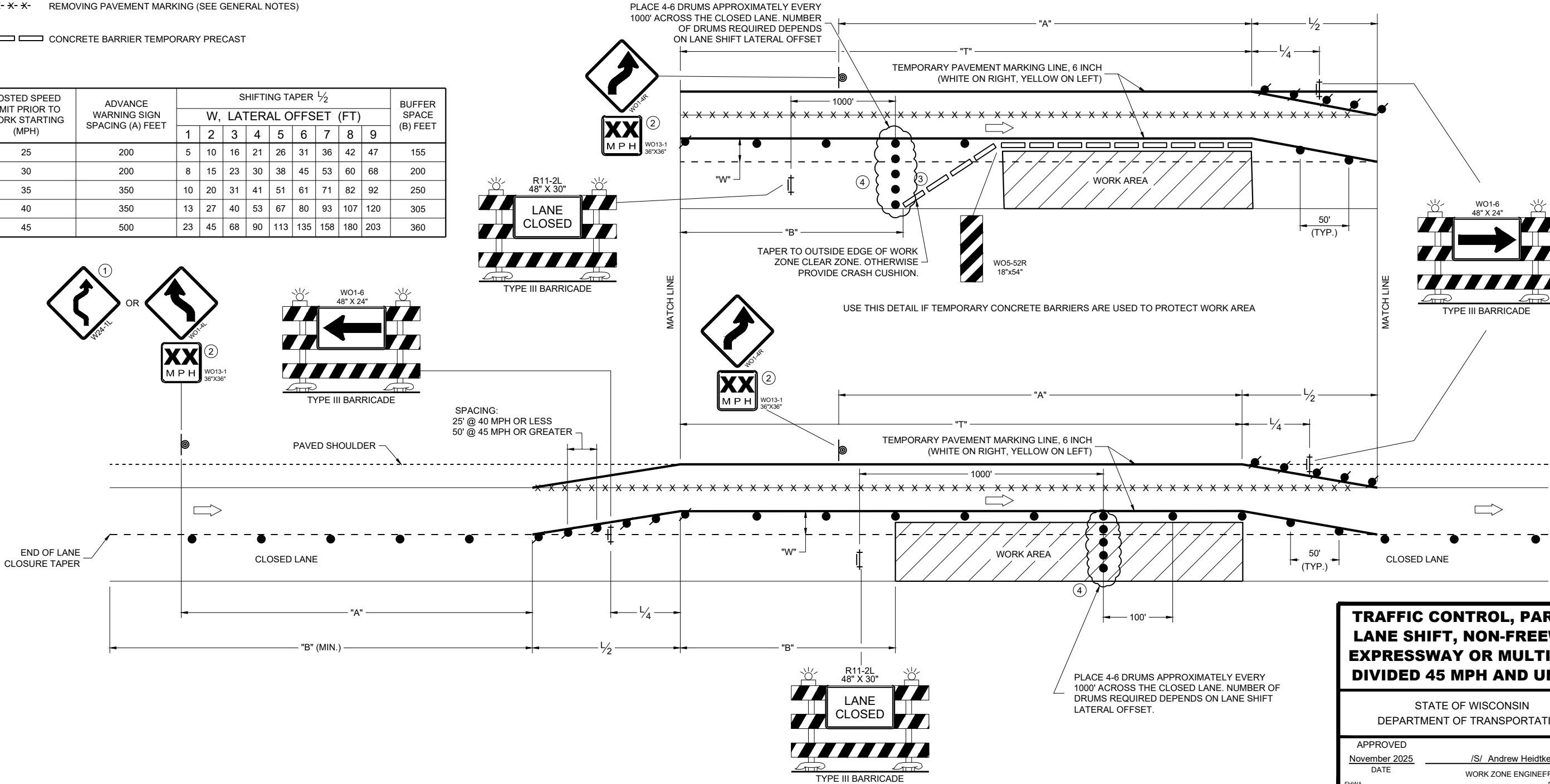
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- 1 USE ONLY WHEN T<600', OMIT WO1-4R.
- 2 IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- 3 BARRIER FLARE RATE: 6:1 @ 40 MPH OR LESS
8:1 @ 45 MPH OR GREATER
- 4 DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $\frac{L}{2}$									BUFFER SPACE (B) FEET
		W, LATERAL OFFSET (FT)									
		1	2	3	4	5	6	7	8	9	
25	200	5	10	16	21	26	31	36	42	47	155
30	200	8	15	23	30	38	45	53	60	68	200
35	350	10	20	31	41	51	61	71	82	92	250
40	350	13	27	40	53	67	80	93	107	120	305
45	500	23	45	68	90	113	135	158	180	203	360



LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- CONCRETE BARRIER TEMPORARY PRECAST

GENERAL NOTES

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

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

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

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

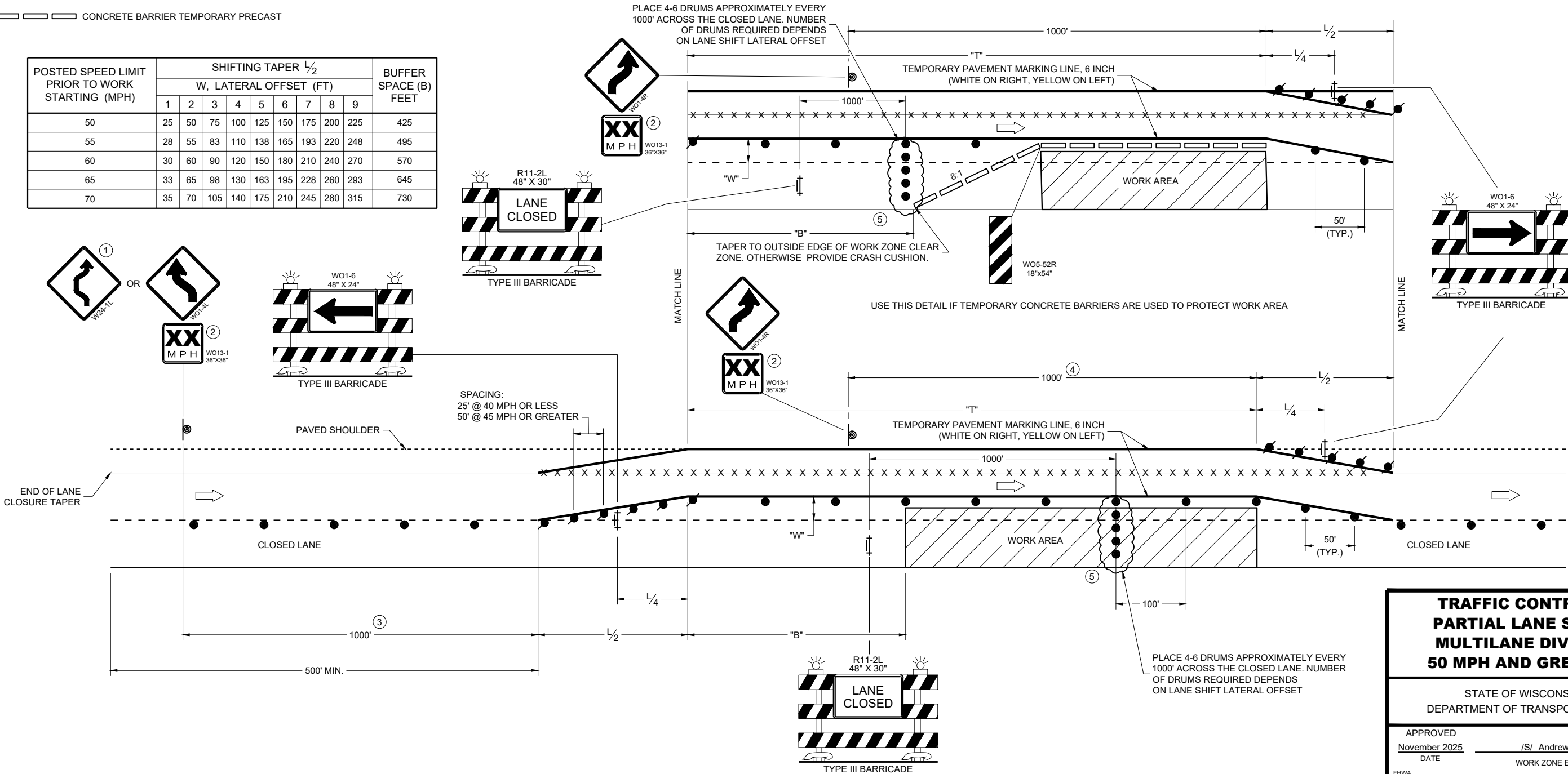
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A Crossover MANEUVER.

- USE ONLY WHEN T<600', OMIT WO1-4R.
- IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- IF THE BEGINNING OF LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE LANE CLOSURE TAPER.
- IF THE BEGINNING OF THE SECOND LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF THE FIRST LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE FIRST LANE CLOSURE TAPER.
- DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



**TRAFFIC CONTROL,
PARTIAL LANE SHIFT
MULTILANE DIVIDED
50 MPH AND GREATER**

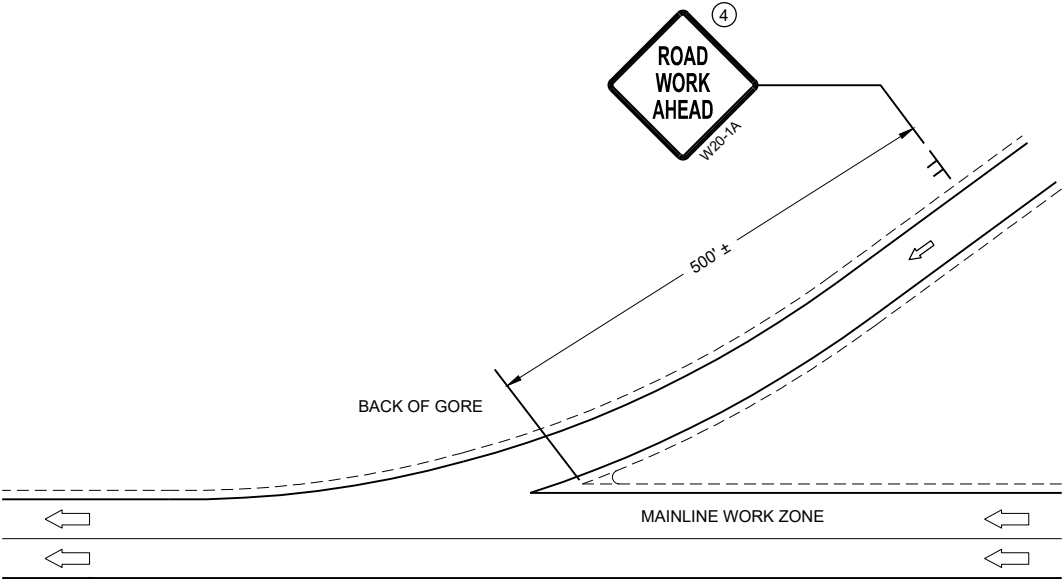
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA 301

LEGEND

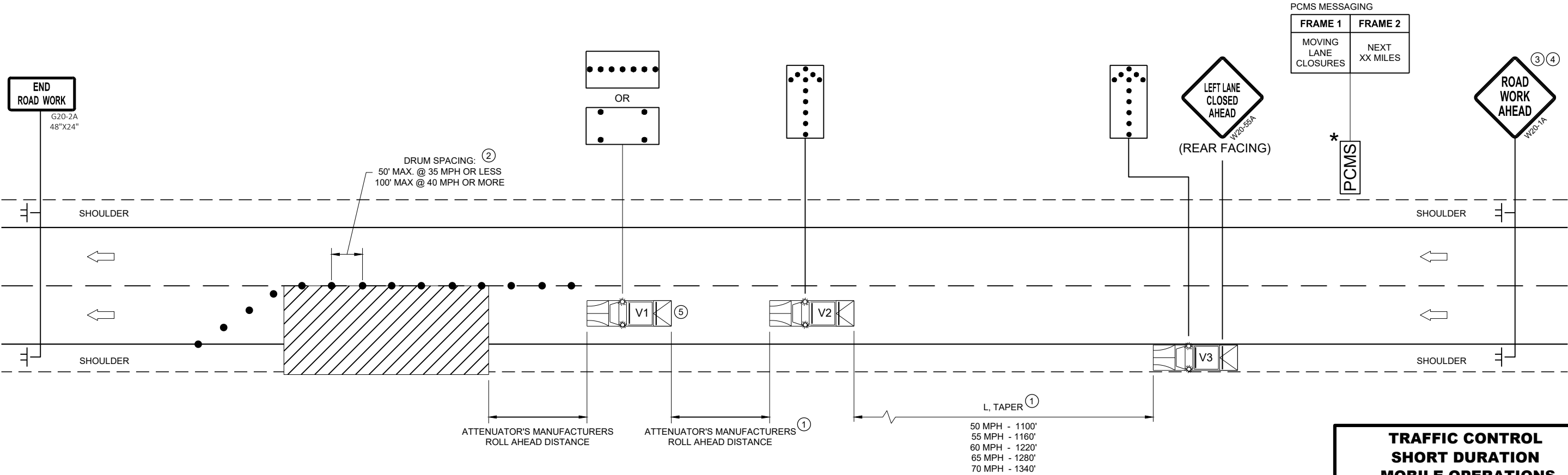
- V1 SHADOW VEHICLE 1
- V2 SHADOW VEHICLE 2
- V3 ADVANCE WARNING TRUCK
- TRAFFIC CONTROL DRUM
- ☐ TRUCK MOUNTED ATTENUATOR (TMA)
- ⊥ SIGN ON TEMPORARY SUPPORT
- ➡ DIRECTION OF TRAFFIC
- FLASHING ARROW PANEL (MERGE)
- FLASHING ARROW PANEL (CAUTION)
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- ▨ WORK AREA



GENERAL NOTES

- SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.
- ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
- ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.
- WHEN WORK ACTIVITY BLOCKS THE RIGHT LANE, REVERSE TRAFFIC CONTROL.
- WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.
- USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.
- WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC
- ① DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
 - ② DRUMS ARE TO BE USED FOR BRIDGE DECK SEALING AND OTHER PROJECTS THAT REQUIRE DELINEATION.
 - ③ WITHIN 5 MILES, RELOCATE SIGNS AS WORK PROGRESSES AND NECESSARY OR AS DIRECTED BY THE ENGINEER.
 - ④ SIGN NOT REQUIRED IF MOVING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
 - ⑤ SHADOW VEHICLE 1 (V1) IS OPTIONAL

* PCMS OPTIONAL



TRAFFIC CONTROL
SHORT DURATION
MOBILE OPERATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 302
FHWA

LEGEND

- EXISTING SIGN ON PERMANENT SUPPORT
- NEW SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK ZONE

GENERAL NOTES

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

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

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

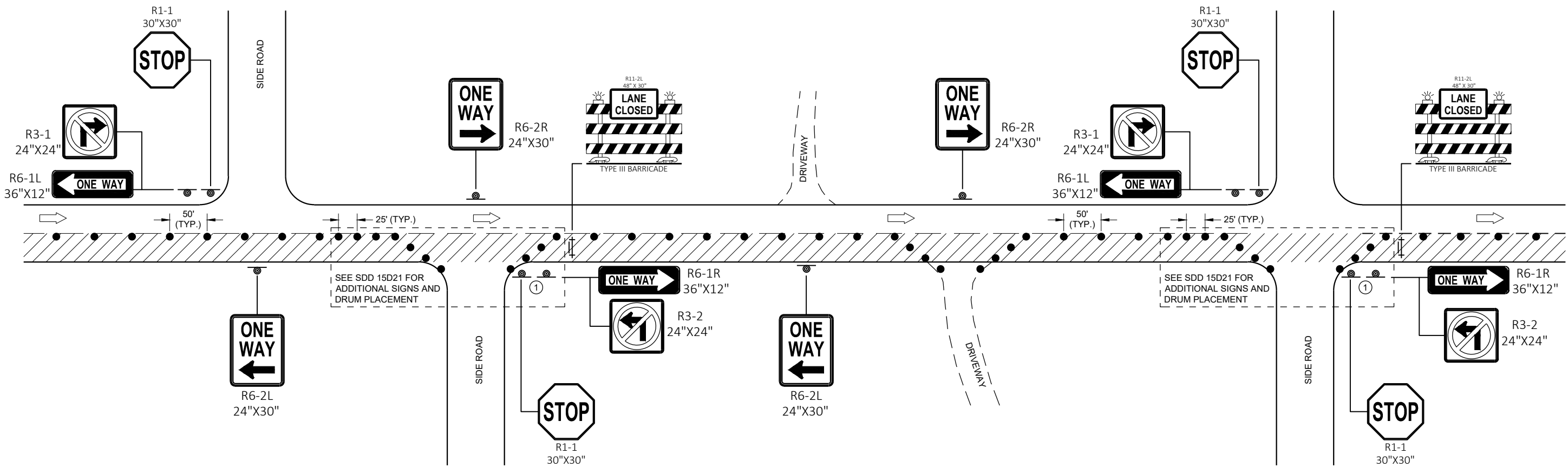
BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

① IF WORK OPERATIONS ALLOWS, MOVE R1-1, R6-1R, AND R3-2 CLOSER TO INTERSECTION.

SDD 15D46 - 01

6



6

SDD 15D46 - 01

TRAFFIC CONTROL
ONE - WAY SIGNING

TRAFFIC CONTROL ONE-WAY SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 303
FHWA	

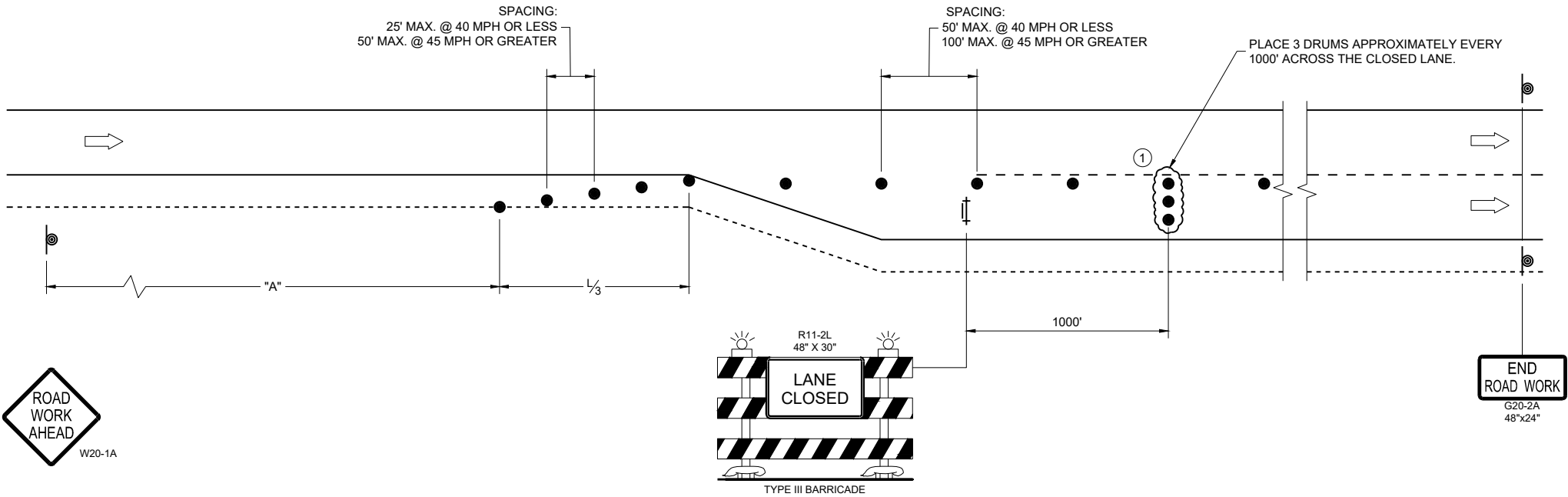
LEGEND

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

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $L\frac{1}{2}$					
		W, LATERAL OFFSET (FT)					
25	200	10	14	17	21	24	28
30	200	15	20	25	30	35	40
35	350	20	27	34	40	47	54
40	350	26	35	44	53	62	70
45	500	45	59	74	89	104	119
50	500	50	66	83	99	116	132
55	500	54	73	91	109	127	145

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"x36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND 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.
- W20-1 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 WORK IS LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS.
- ① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



TRAFFIC CONTROL
ADDED LANE CLOSURE
WITHOUT LANE SHIFT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND



TYPE III BARRICADE WITH ATTACHED SIGN



SIGN ON PERMANENT SUPPORT



TRAFFIC CONTROL DRUM



TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT



TYPE "A" WARNING LIGHT (FLASHING)



DIRECTION OF TRAFFIC



WORK AREA

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER (L/2) FEET
25	200	60
30	200	90
35	350	120
40	350	160
45	500	270
50	500	300
55	500	330

GENERAL NOTES

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"x36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

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

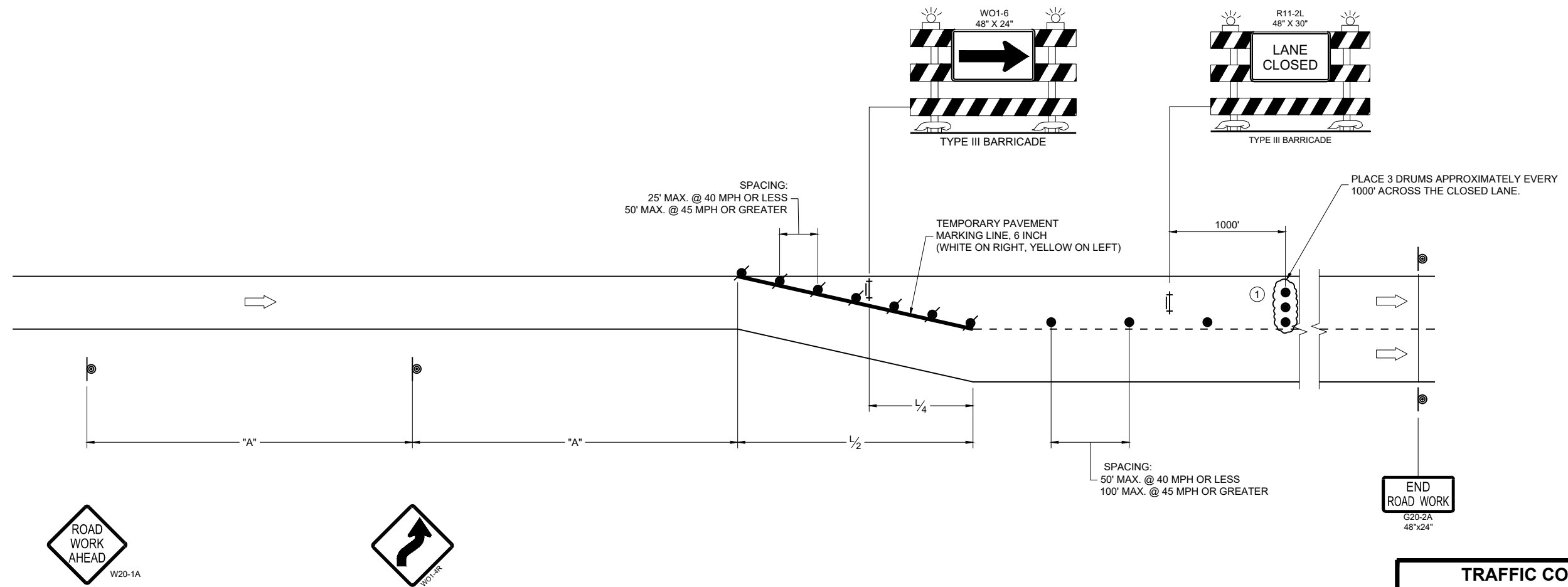
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

W20-1 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 WORK IS LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS.

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

① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



**TRAFFIC CONTROL,
ADDED LANE CLOSURE
WITH LANE SHIFT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

- 305

LEGEND

- V1
WORK VEHICLE
- V2
SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  FLASHING ARROW PANEL (CAUTION)
-  WORK AREA
-  DIRECTION OF TRAFFIC

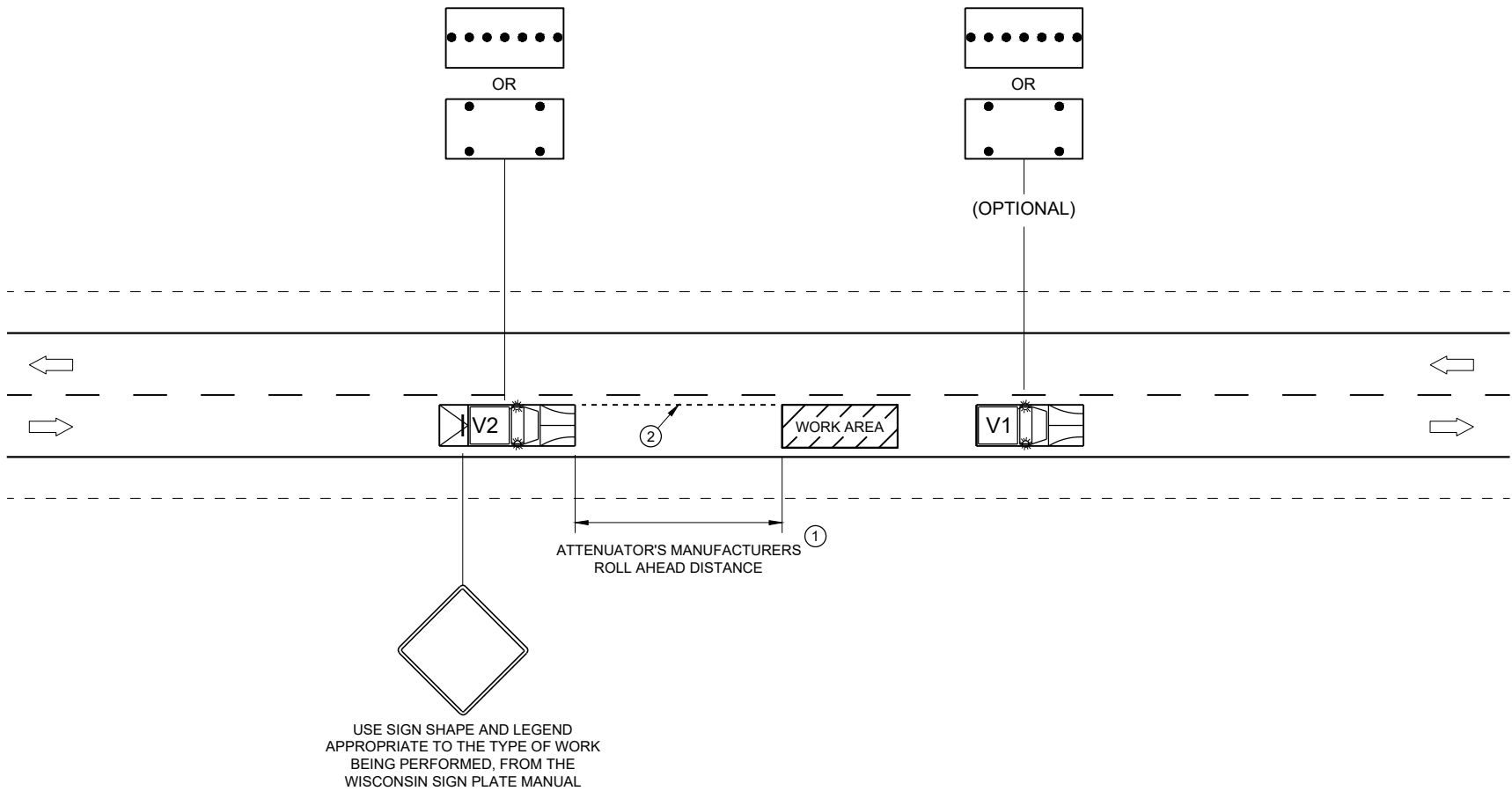
POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.
- MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.
- ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
- ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.
- USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.
- ①

DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ②

ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.

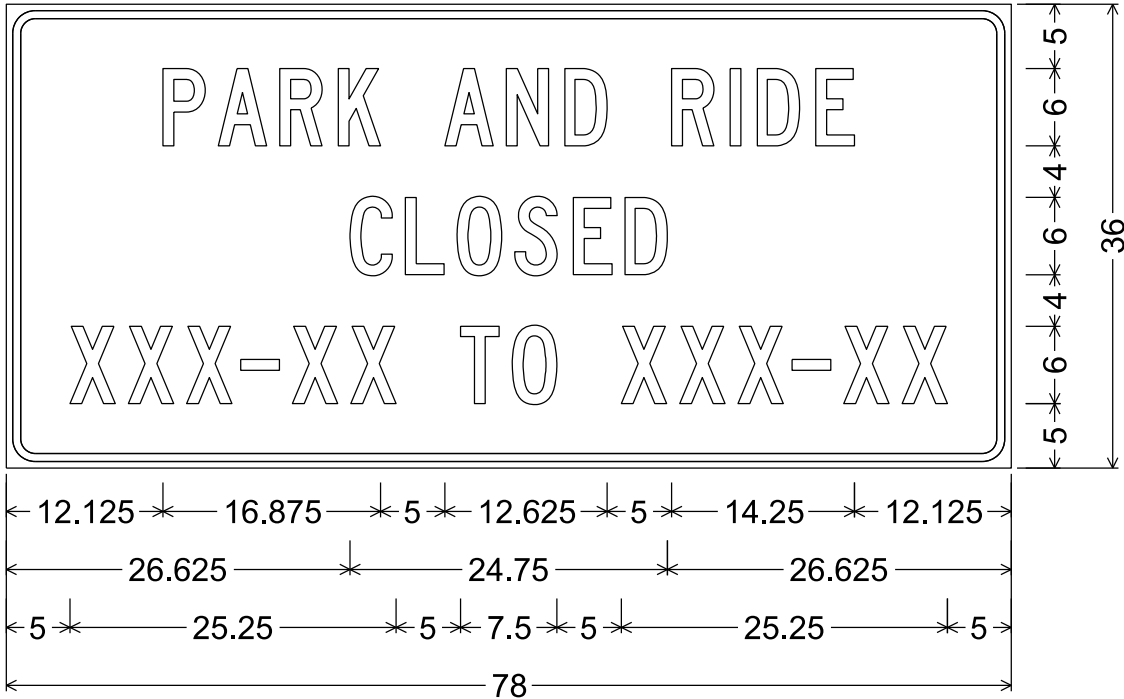


TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

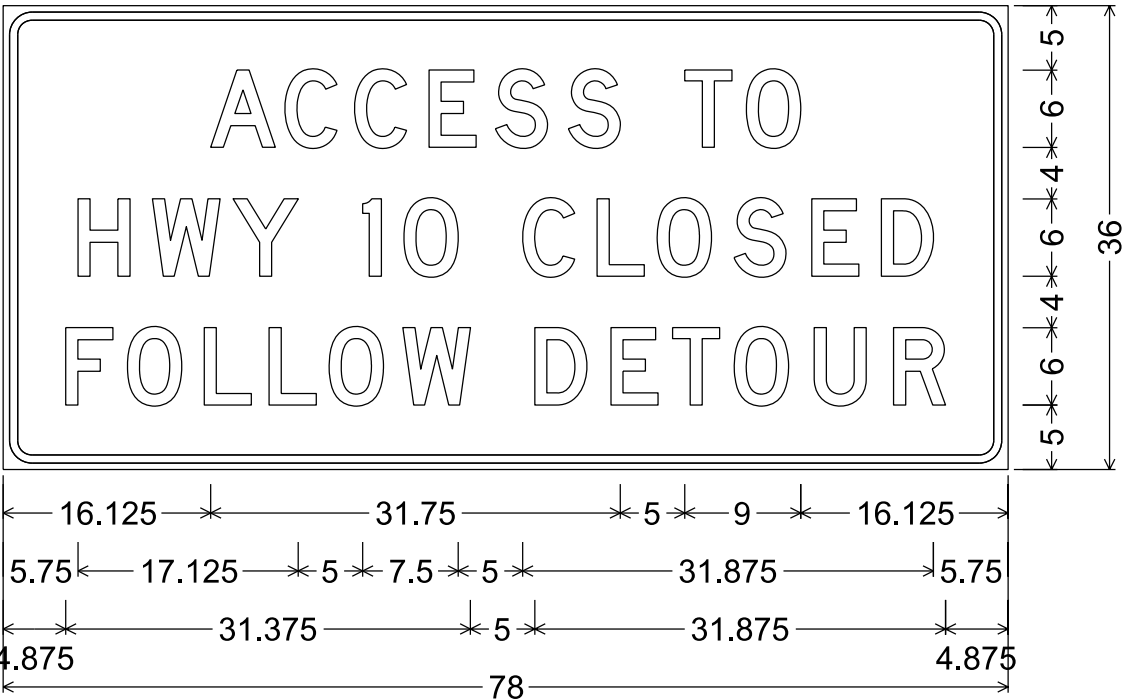
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE T SAFETY ENGINEER 306
FHWA

7



2.250" Radius, 0.625" Border, 0.500" Indent
"PARK", C; "AND", C; "RIDE", C; "CLOSED", C;
"XXX-XX", C; "TO", C; "XXX-XX", C

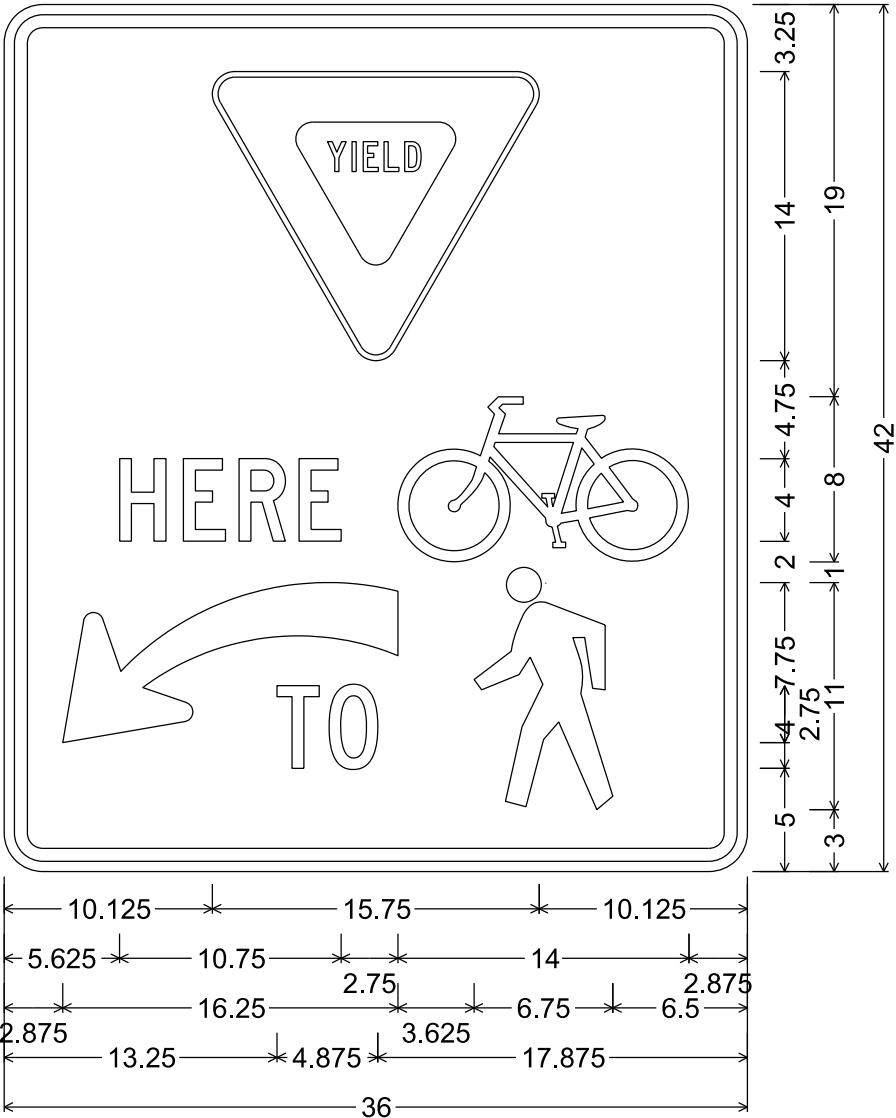


2.250" Radius, 0.625" Border, 0.500" Indent

NOTES

- 1. Fixed Message Signs Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D or as noted

7



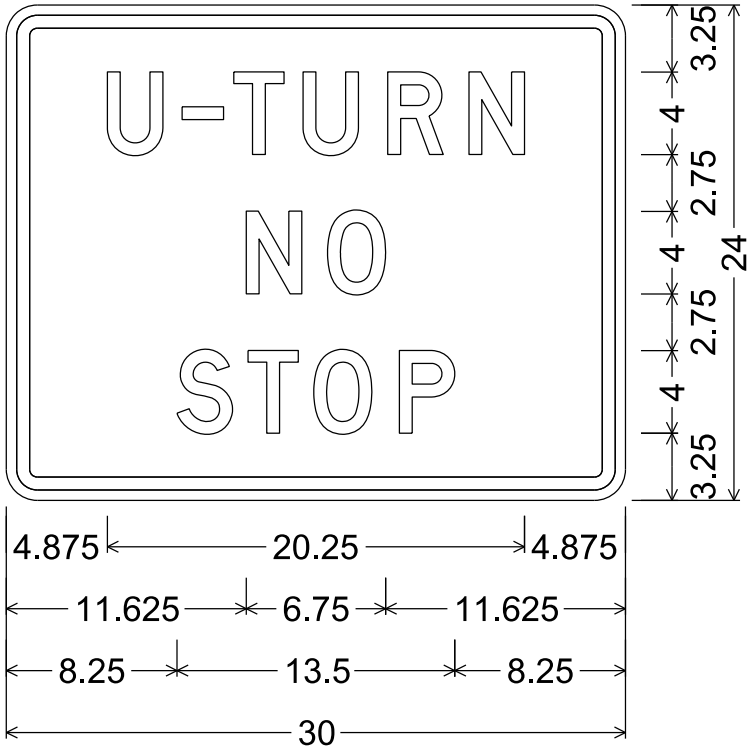
R1-5DL_36x36;
1.875" Radius, 0.625" Border, 0.500" Indent, Black on White;

NOTES

- 1. Fixed Message Sign Type II- Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black except Yield Shield is Red Message
- 3. Message Series - C

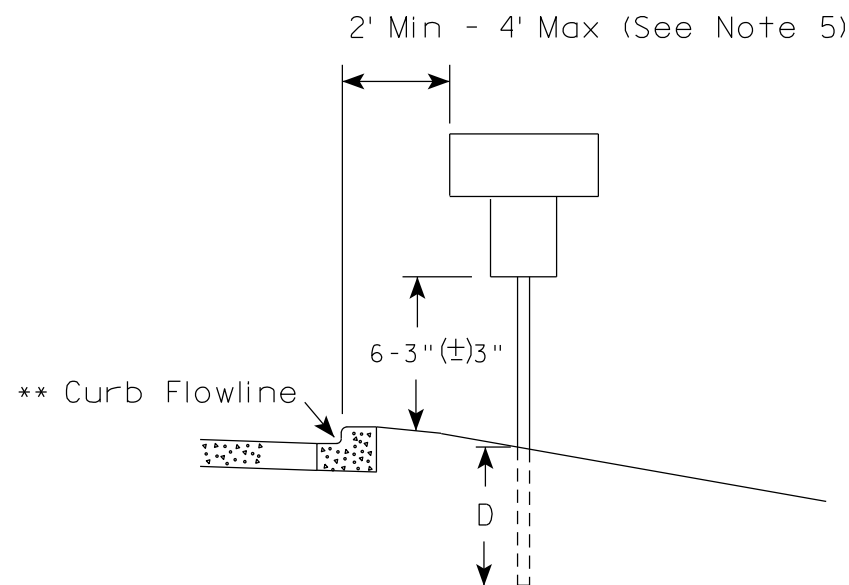
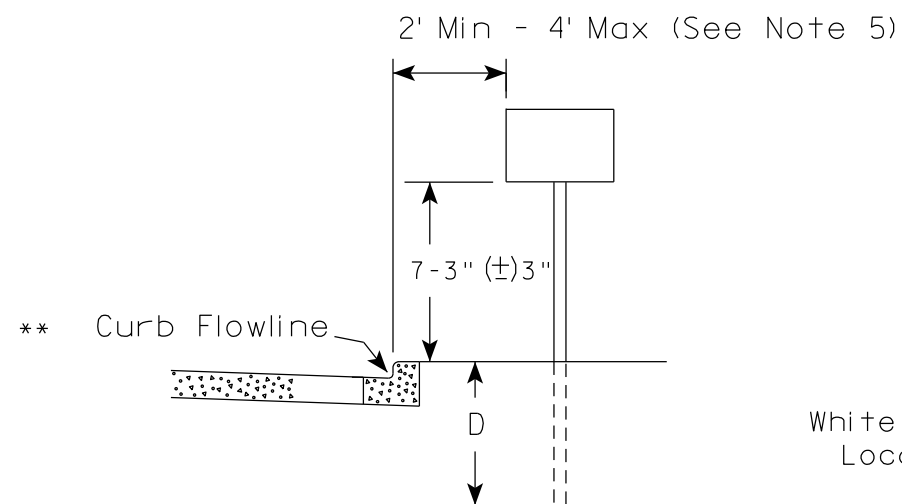
NOTES

- 1. Fixed Message Sign Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D



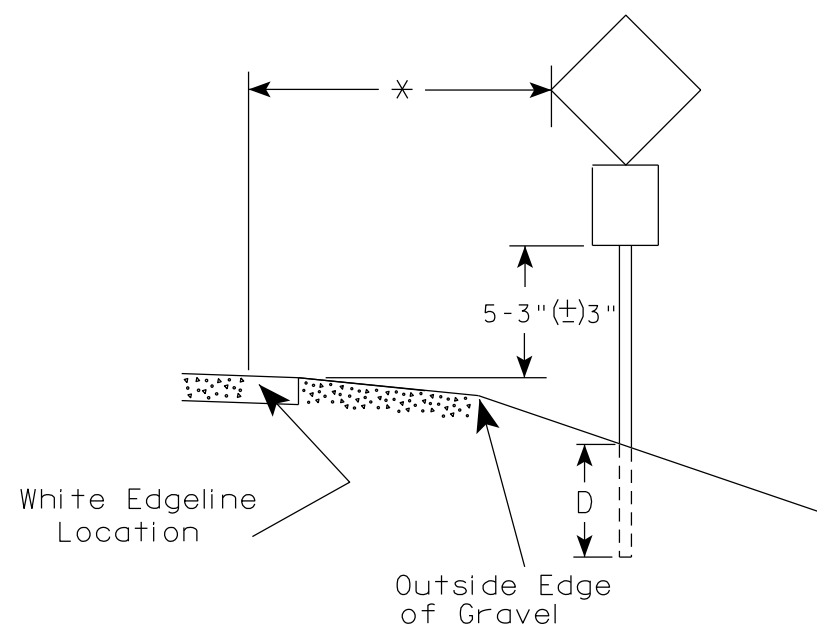
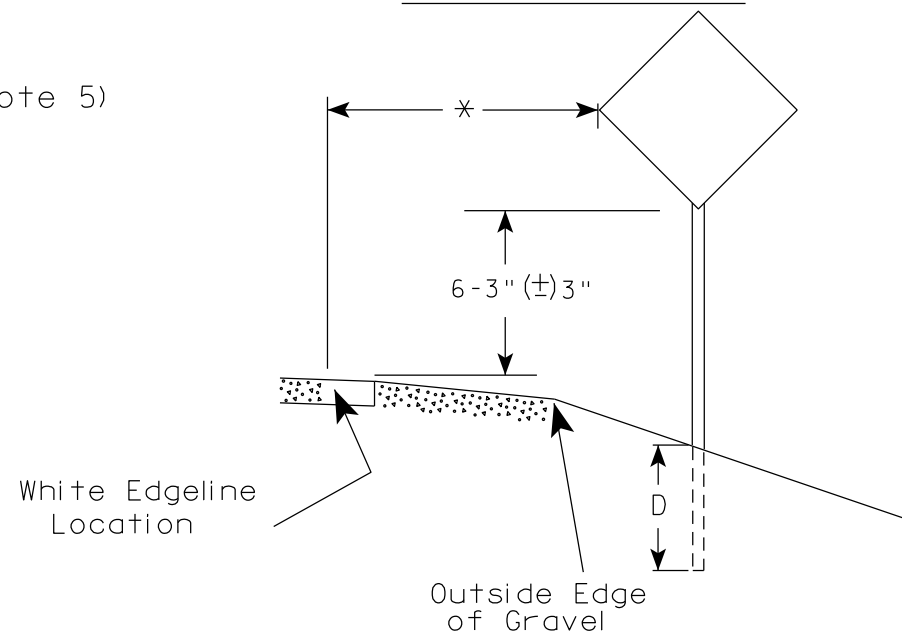
1.500" Radius, 0.625" Border, 0.500" Indent

URBAN AREA



* * 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.

RURAL AREA (See Note 2)



* 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.

POST EMBEDMENT DEPTH

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

GENERAL NOTES

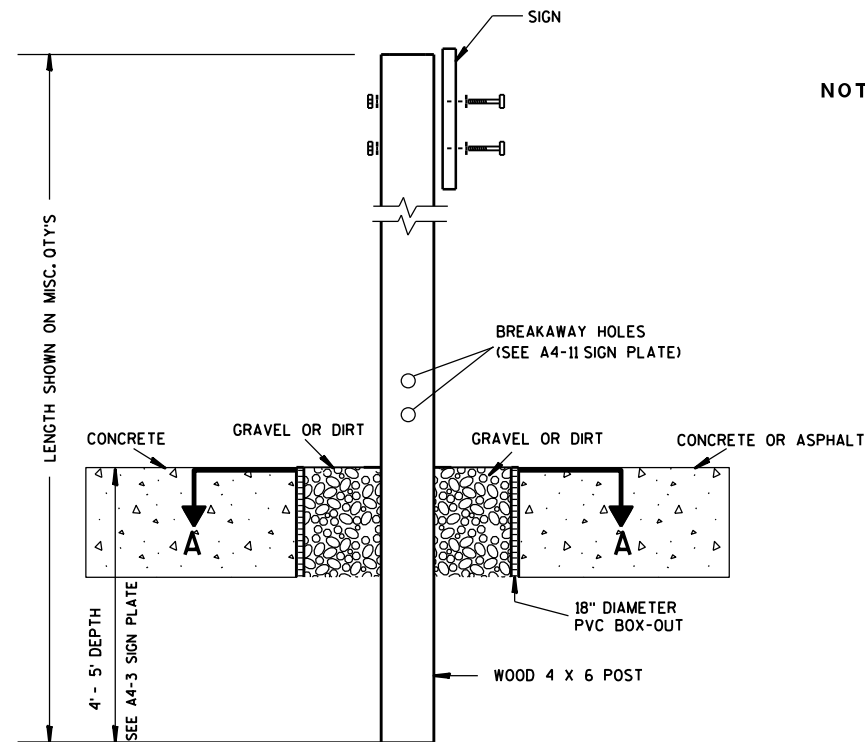
- Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
- If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (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" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
- Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

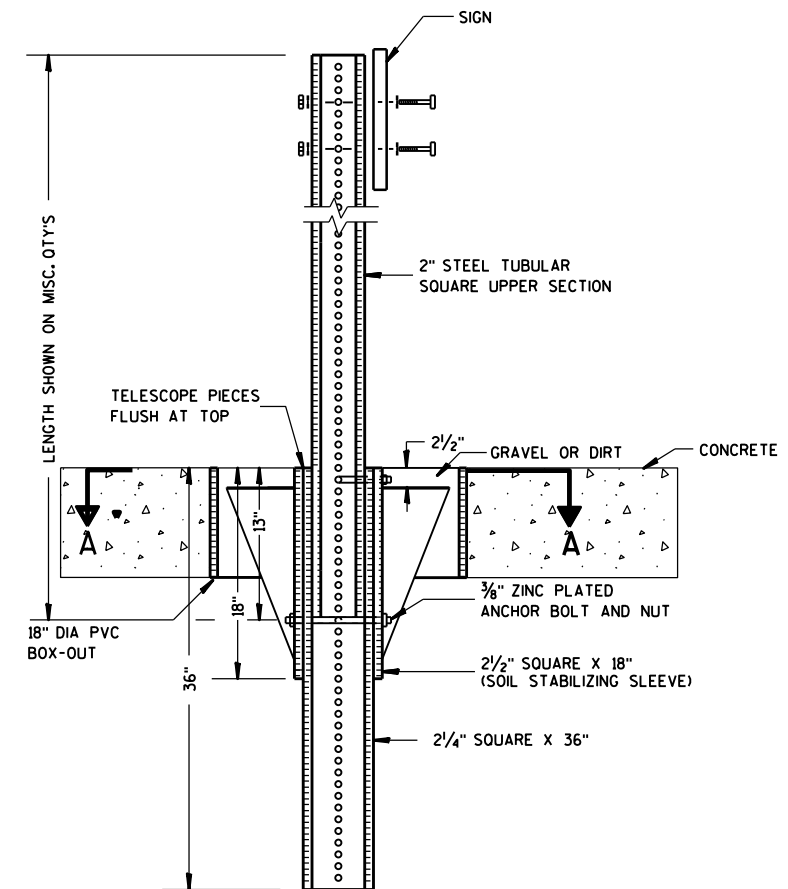
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

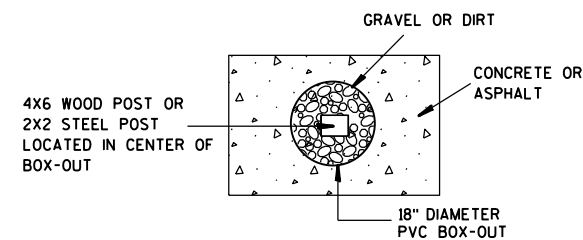
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 311 A4-3B.1

PROJECT NO:

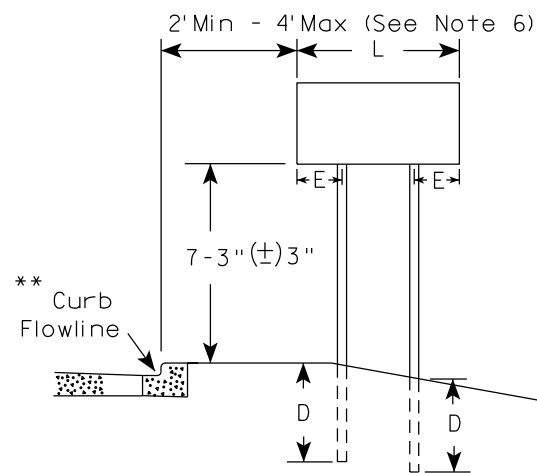
HWY:

COUNTY:

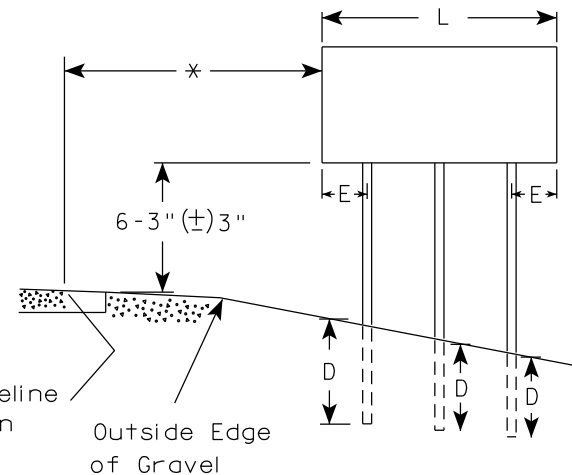
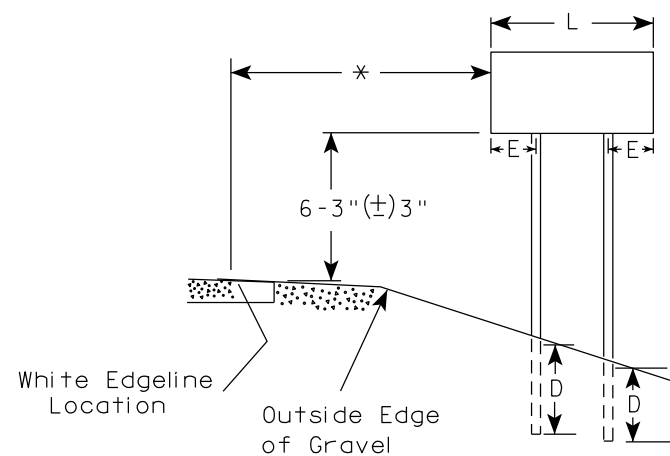
SHEET NO:

E

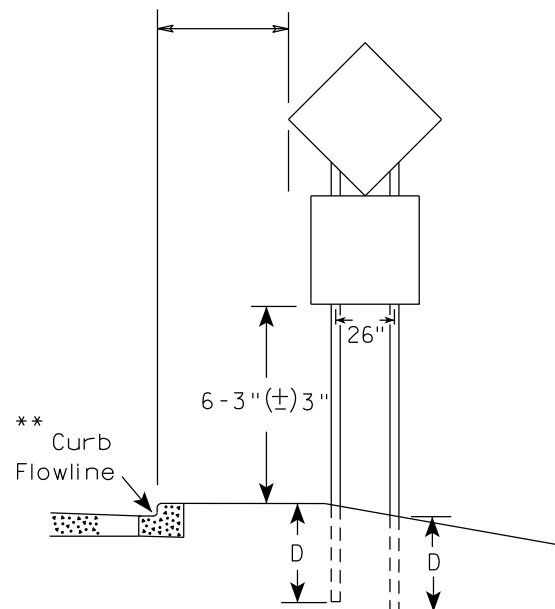
URBAN AREA



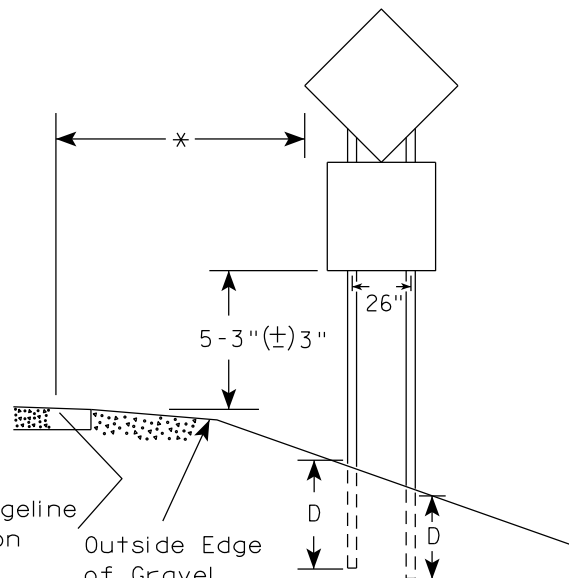
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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" (±) 3" or 6'-3" (±) 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" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 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" (±) 3".

* 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

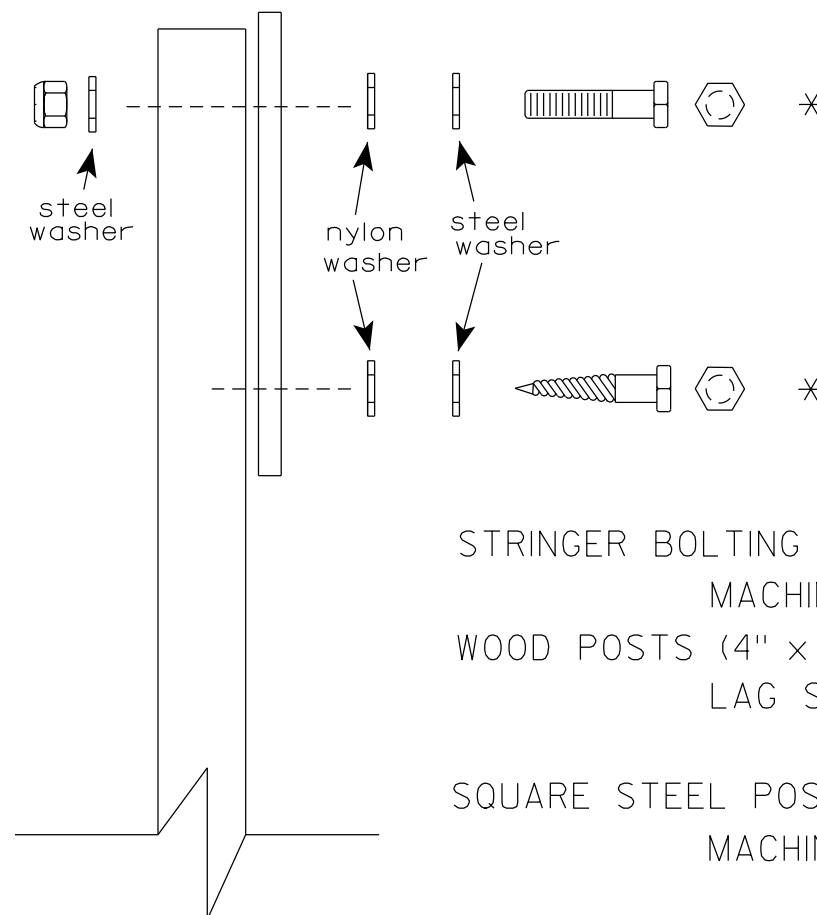
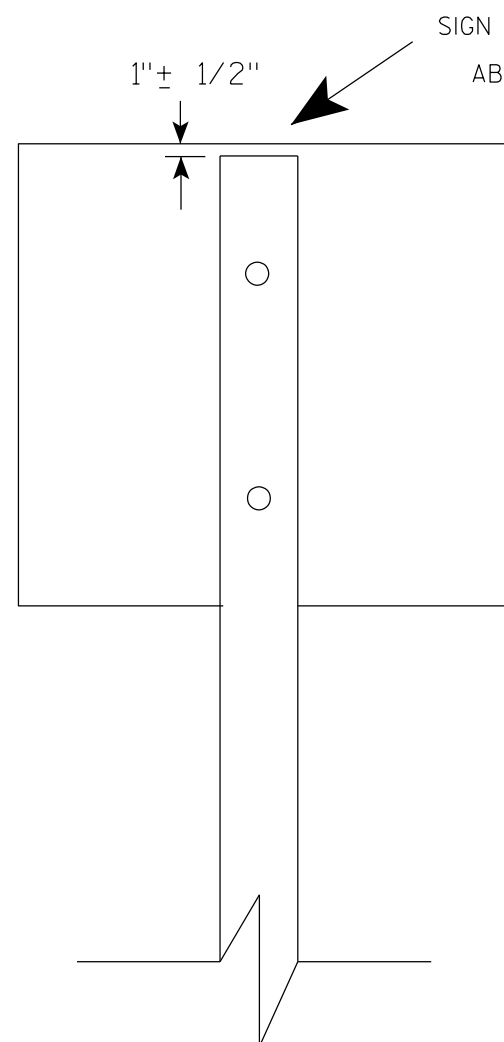
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16



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

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

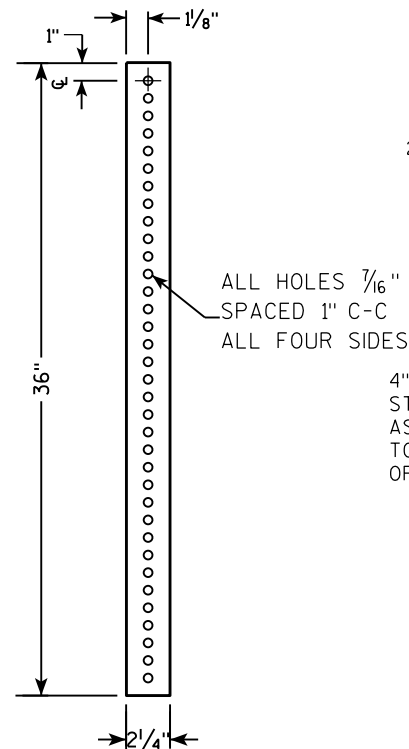
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

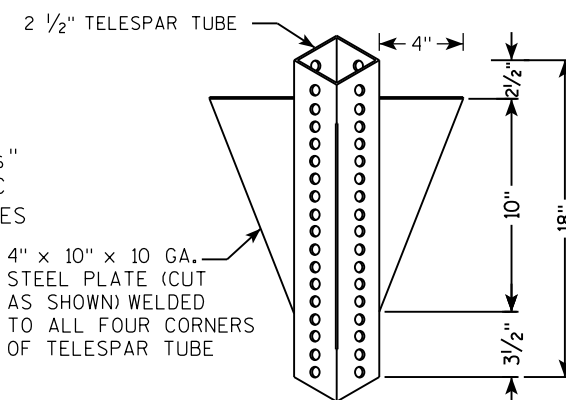
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



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



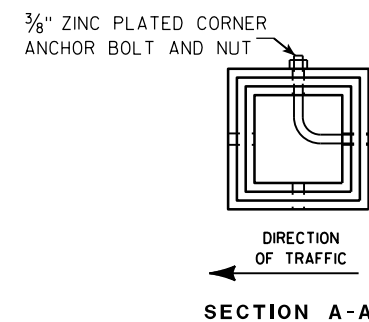
TECHNICAL DRAWING OF A VERTICAL SIGNPOST ASSEMBLY.

Labels and Dimensions:

- 2" STEEL TUBULAR SQUARE UPPER SECTION**
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES**
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT**
- 2 1/2" GRAVEL OR DIRT**
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT**
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**
- 2 1/4" SQUARE X 36"**
- 13"**
- 18"**
- 36"**
- 18" DIA SCHEDULE 40 PVC BOX-OUT**
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**
- SIGN**
- TELESCOPE PIECES FLUSH AT TOP**

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. QTYS.
 - Section A-A: 36" (total), 18" (upper), 12" (lower).
 - Section B-B: 1" (width).
- Components:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C
 - ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"
 - TELESCOPE PIECES FLUSH AT TOP



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 PLATI 314 14-9.9

PROJECT NO:

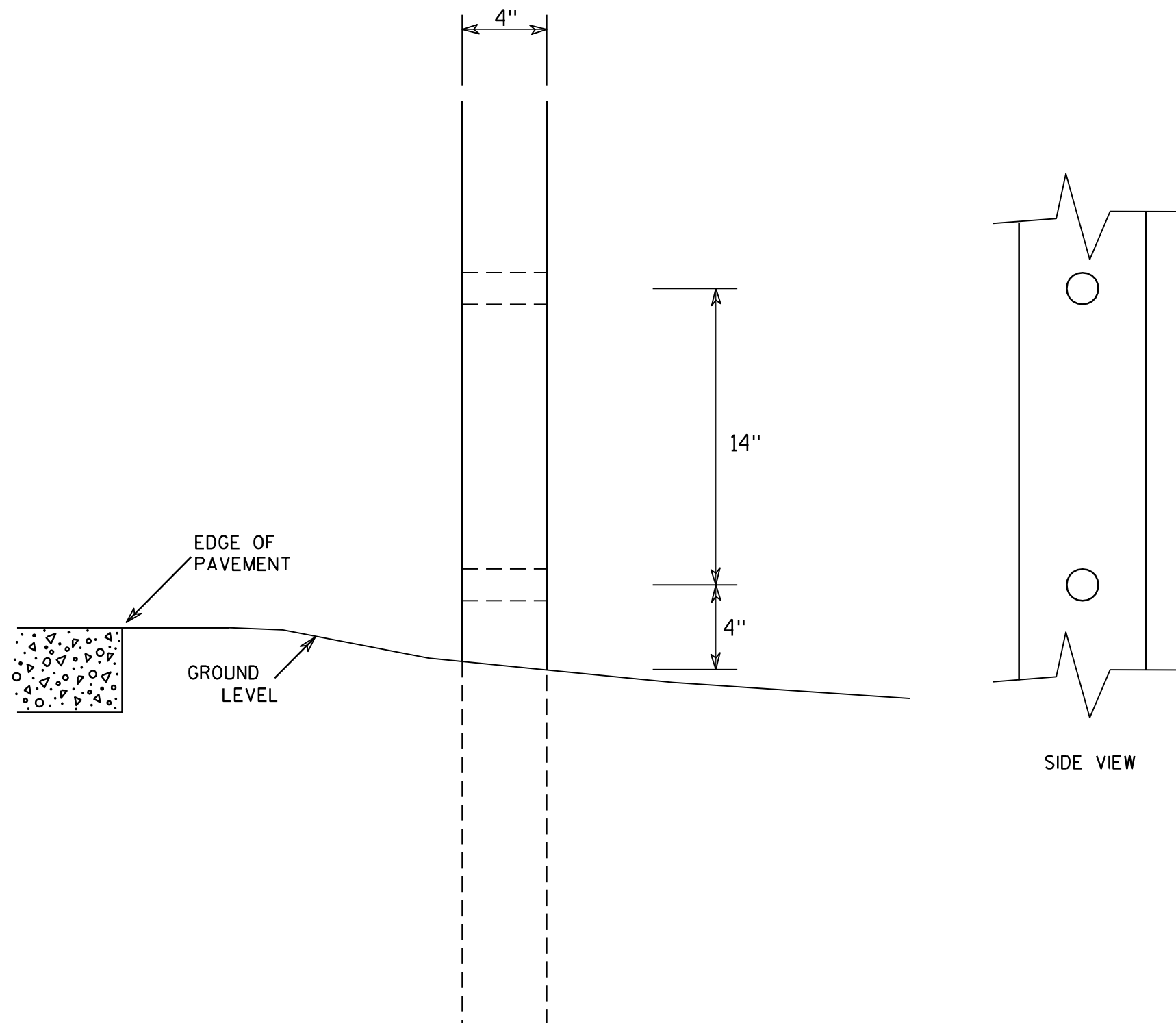
HWY:

COUNTY:

SHEET NO:

1

7



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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

COUNTY:

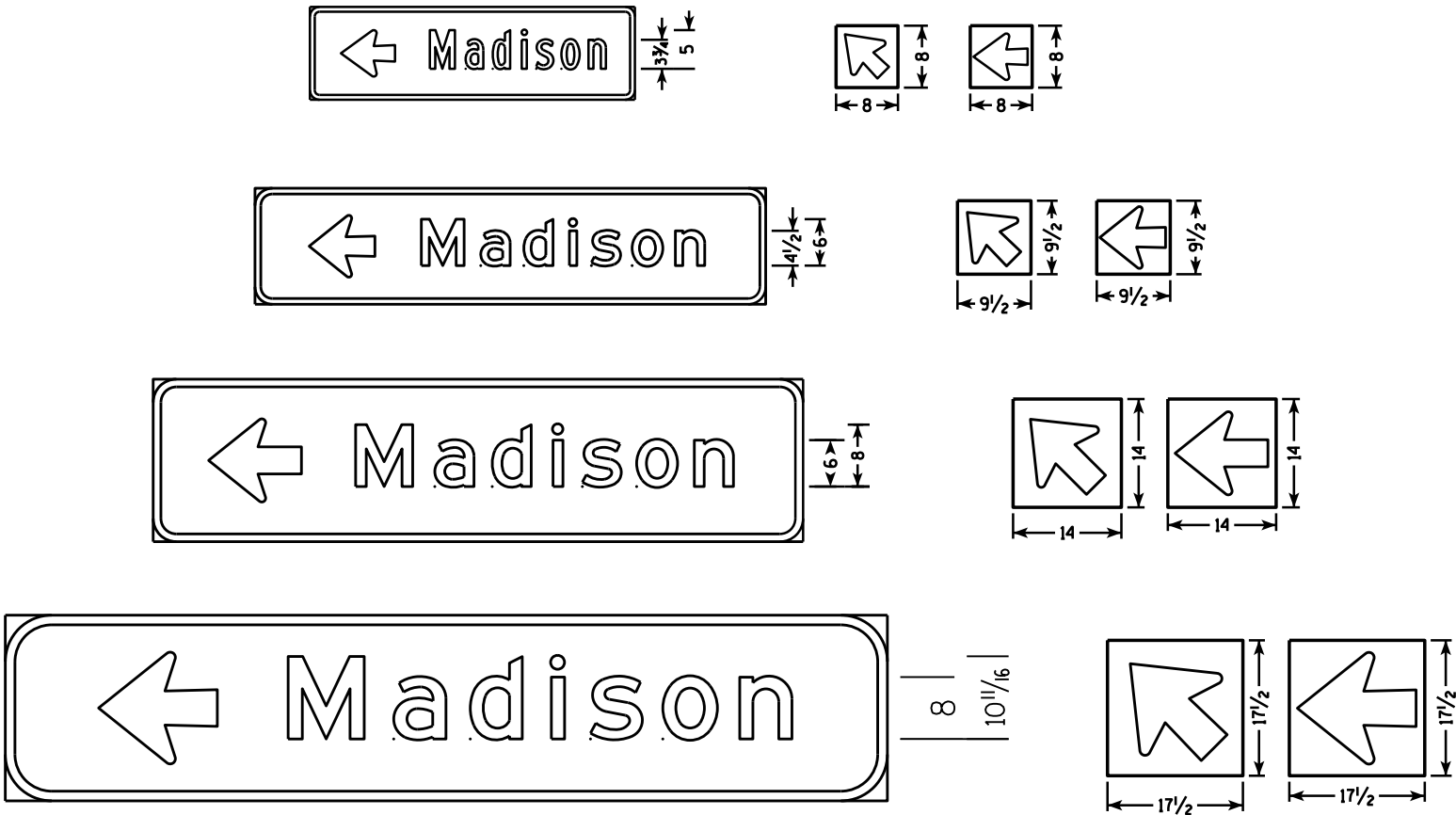
SHEET NO: 315

E

SIGN LAYOUT WITH VARIOUS SIZED MESSAGES

GENERAL NOTES

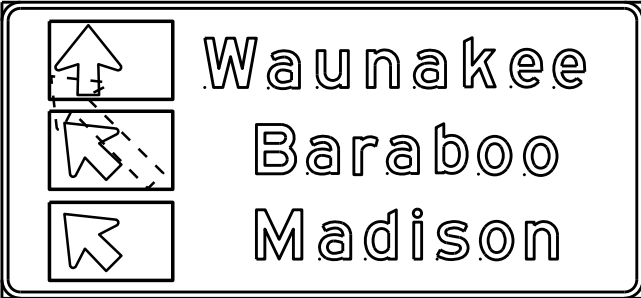
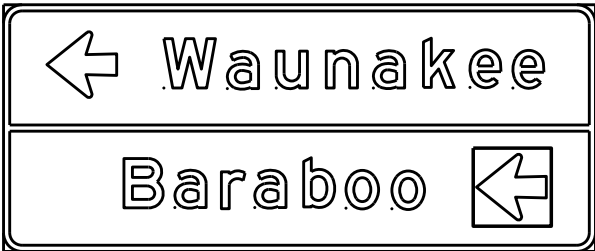
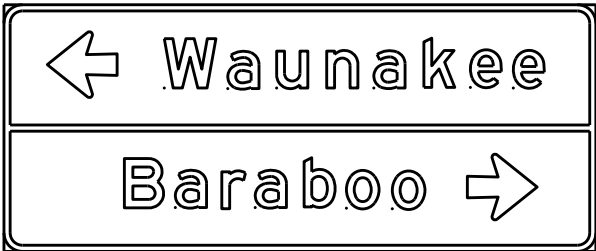
- 1. Materials shall conform to Standard Specification Section 637.
Base - Sheet Aluminum 0.040" Thickness
Sheeting - Orange Type F Reflective
Arrow - Black Non-Reflective
- 2. Arrow signs shall be fastened to permanent sign by either aluminum rivets or aluminum self-tapping sheet metal screws.
There shall be a minmum of 2 fasteners used per arrow sign.
- 3. There shall be a spacer consisting of a 0.08" nylon washer between the back of the arrow sign and the face of the permanent sign.
- 4. Arrows are per standard plate A1-2
- 5. Use separate arrow sign for each destination
- 6. Tilt arrow is always at 45 degrees
- 7. Arrow is centered on arrow sign



Lower Case Copy Size	Standard Width (Single Arrow)	2 Line Tilt Arrow Cover Width	3 Line Tilt Arrow Cover Width	Height
3 3/4" Series C	8	9 1/2	14 1/2	8
4 1/2" Series D & E	9 1/2	10	15	9 1/2
6" Series D & E	14	16	20 1/2	14
8" Series E	17 1/2	20 1/2	25	17 1/2

BEFORE

AFTER



DESTINATION DIRECTIONAL ARROW FOR DETOUR SIGNS

WISCONSIN DEPT OF TRANSPORTATION

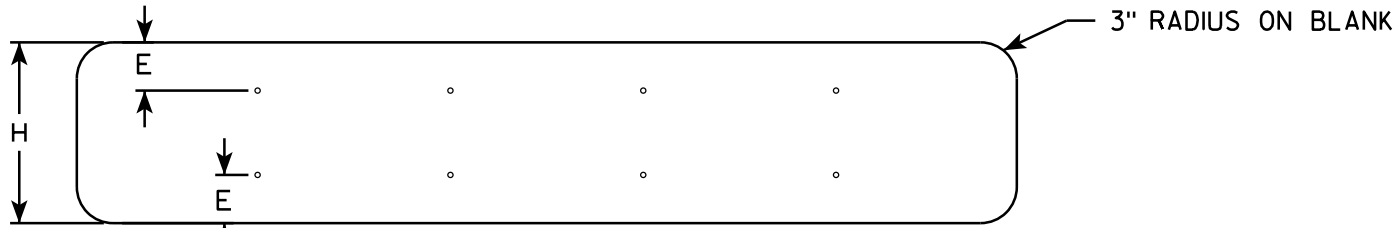
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 10/08/14 316 . A4-12.2

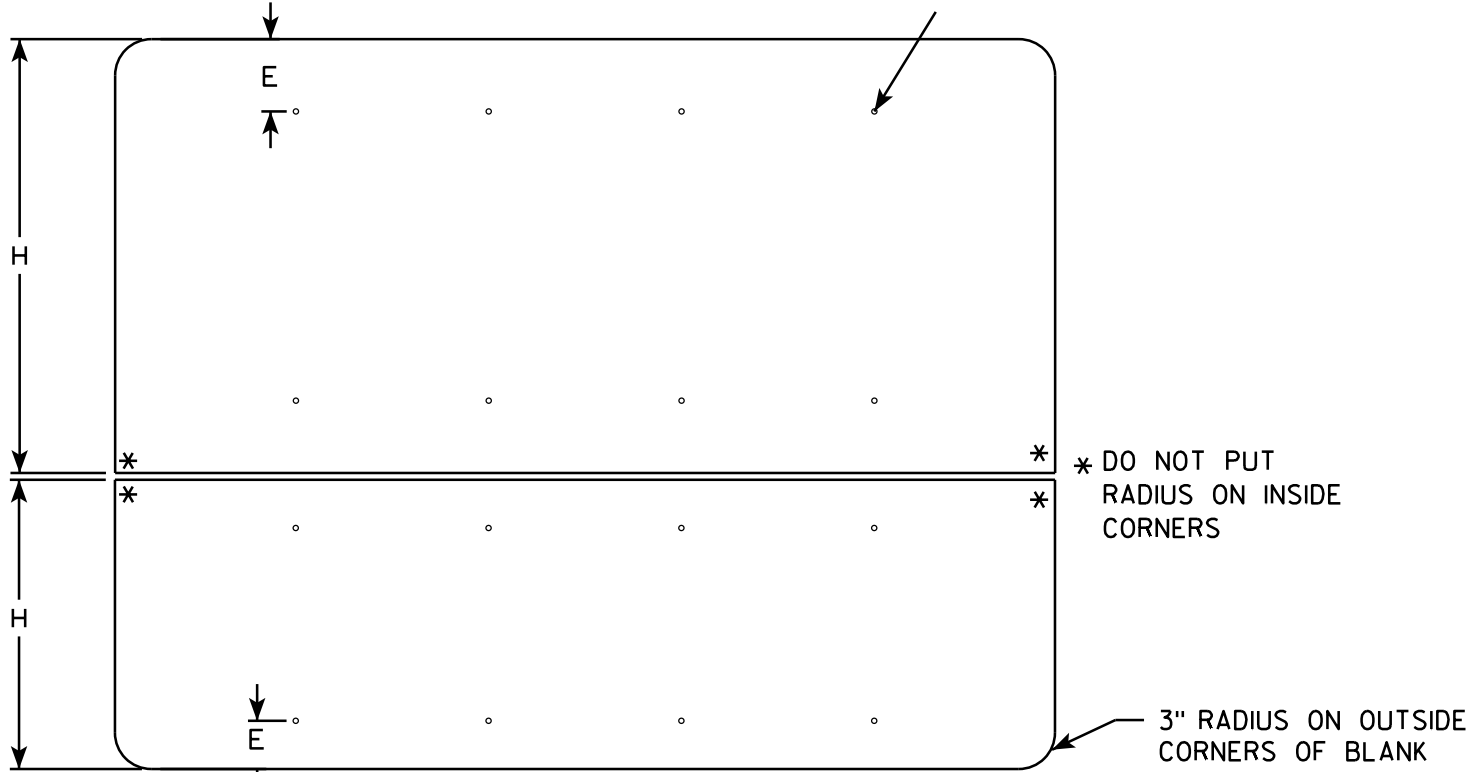
PROJECT NO:

SHEET NO:

E



SINGLE PIECE ALUMINUM SIGN 1/16" MOUNTING HOLES

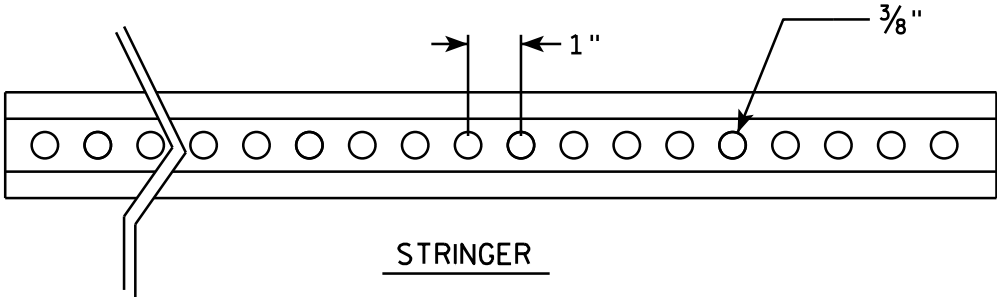


MULTI-PIECE ALUMINUM SIGN

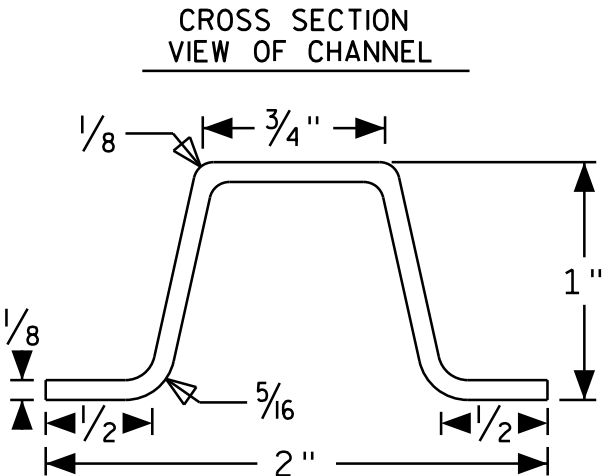
GENERAL NOTES

- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

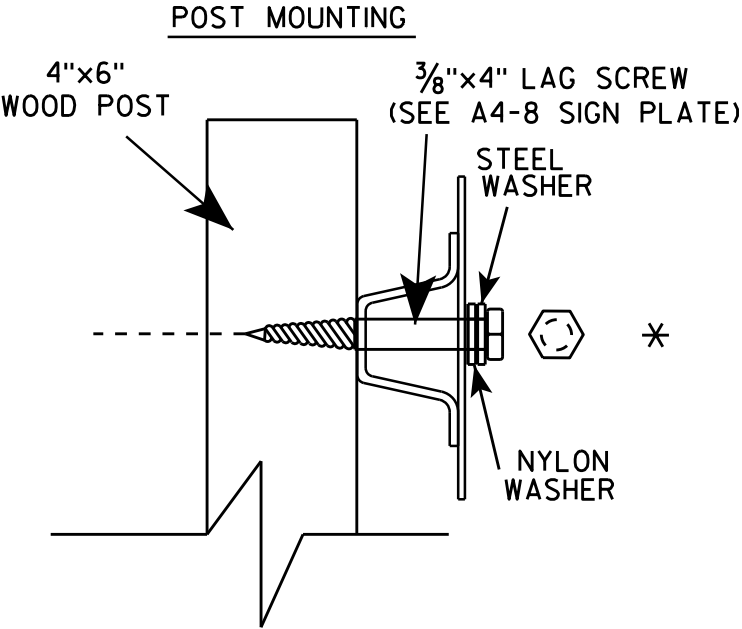
SIGN WIDTH	STRINGER WIDTH	POSTS	HOLE SPACING	MOUNTING HOLES			
78"	72"	2	16"	15"	31"	47"	63"
84"	72"	2	17"	16 1/2"	33 1/2"	50 1/2"	67 1/2"
90"	72"	2	18"	18"	36"	54"	72"
96"	90"	2	19"	19 1/2"	38 1/2"	57 1/2"	76 1/2"
102"	90"	2	20"	21"	41"	61"	81"
108"	90"	2	21"	22 1/2"	43 1/2"	64 1/2"	85 1/2"
114"	108"	3	15"	12"	27"	42"	57" 72" 87" 102"
120"	108"	3	16"	12"	28"	44"	60" 76" 92" 108"
126"	108"	3	17"	12"	29"	46"	63" 80" 97" 114"
132"	126"	3	18"	12"	30"	48"	66" 84" 102" 120"
138"	126"	3	19"	12"	31"	50"	69" 88" 107" 126"
144"	126"	3	20"	12"	32"	52"	72" 92" 112" 132"



STRINGER



CROSS SECTION VIEW OF CHANNEL



POST MOUNTING

SIGN STRINGER
MOUNTING REQUIREMENTS

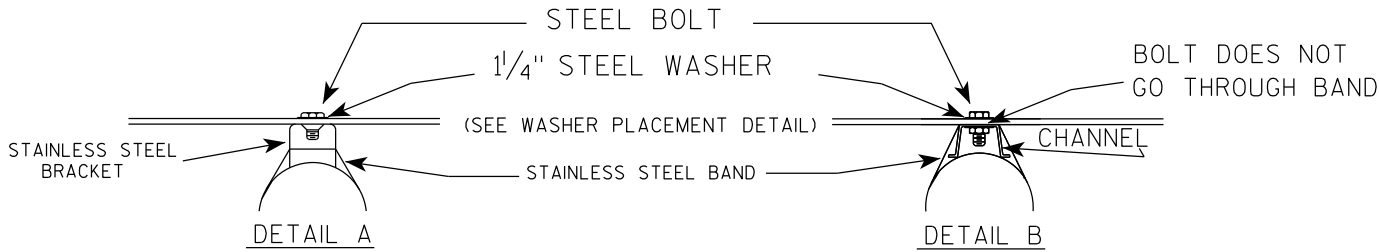
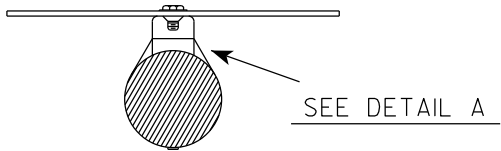
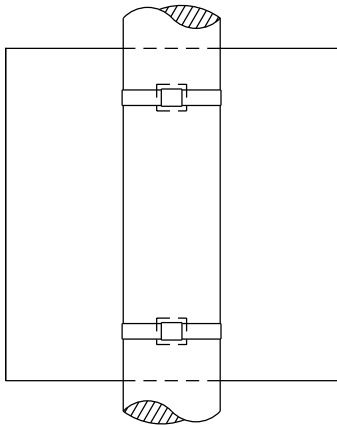
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/26/16 PLATE No A4-18.1
317

BANDING

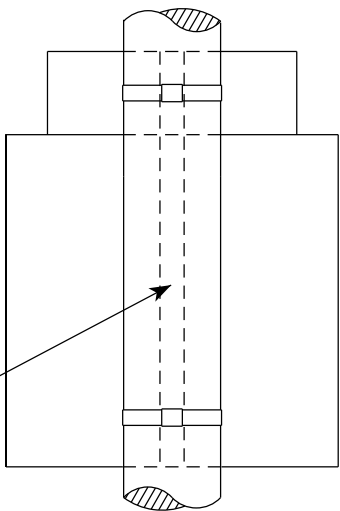
SINGLE SIGN



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

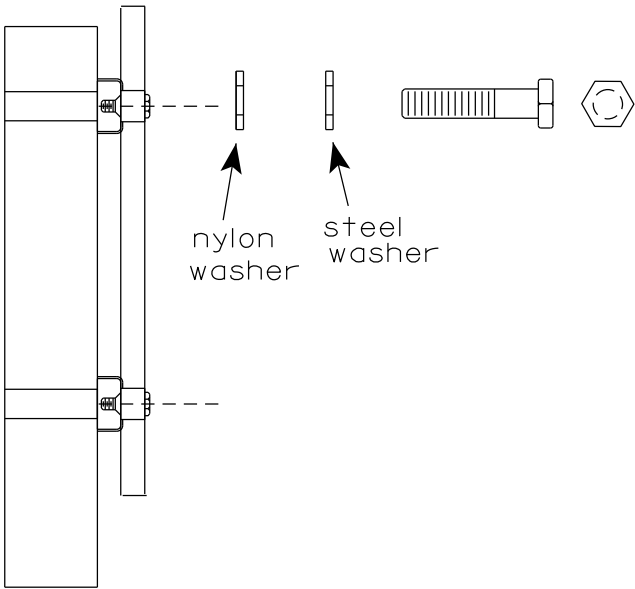
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

WASHER PLACEMENT



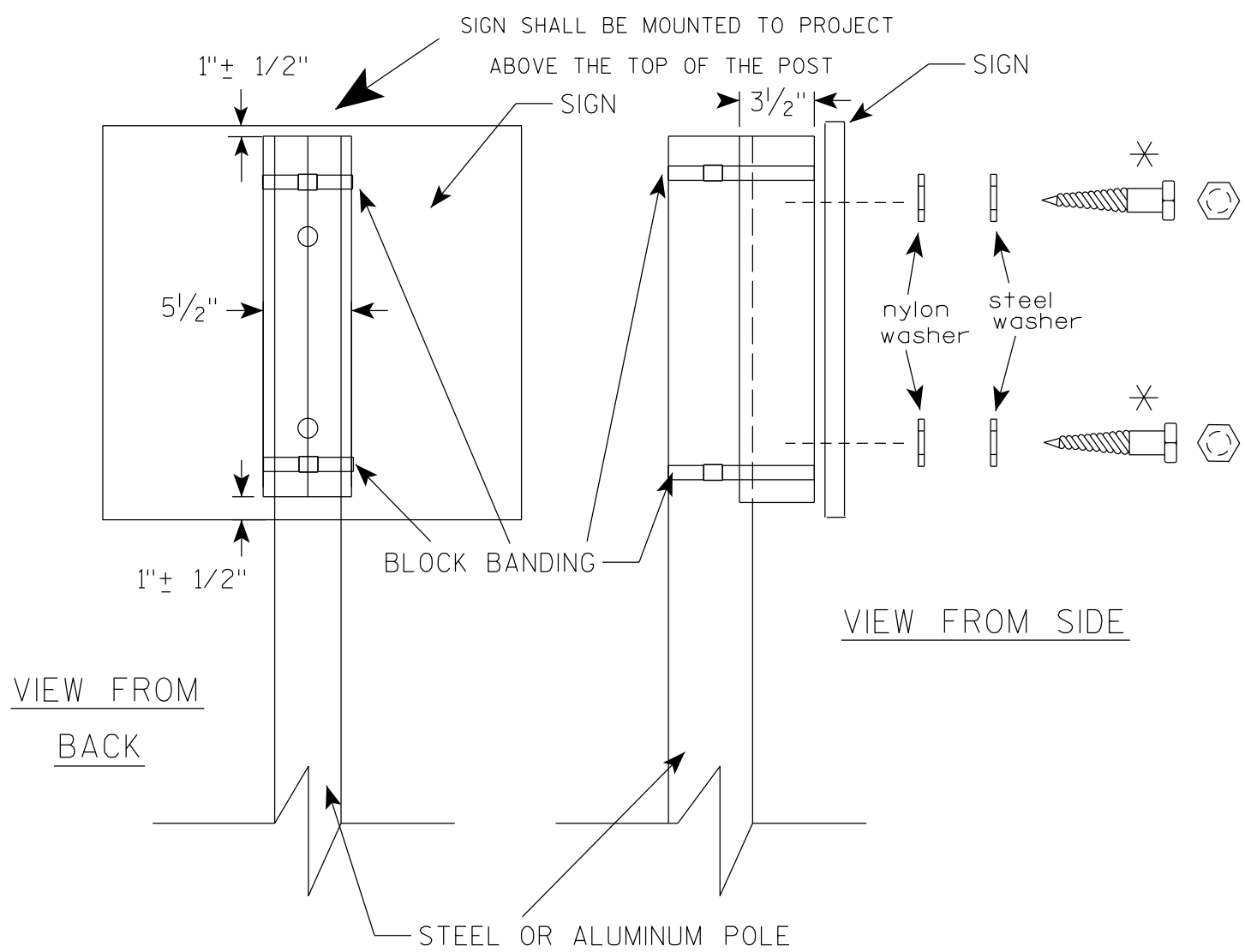
WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

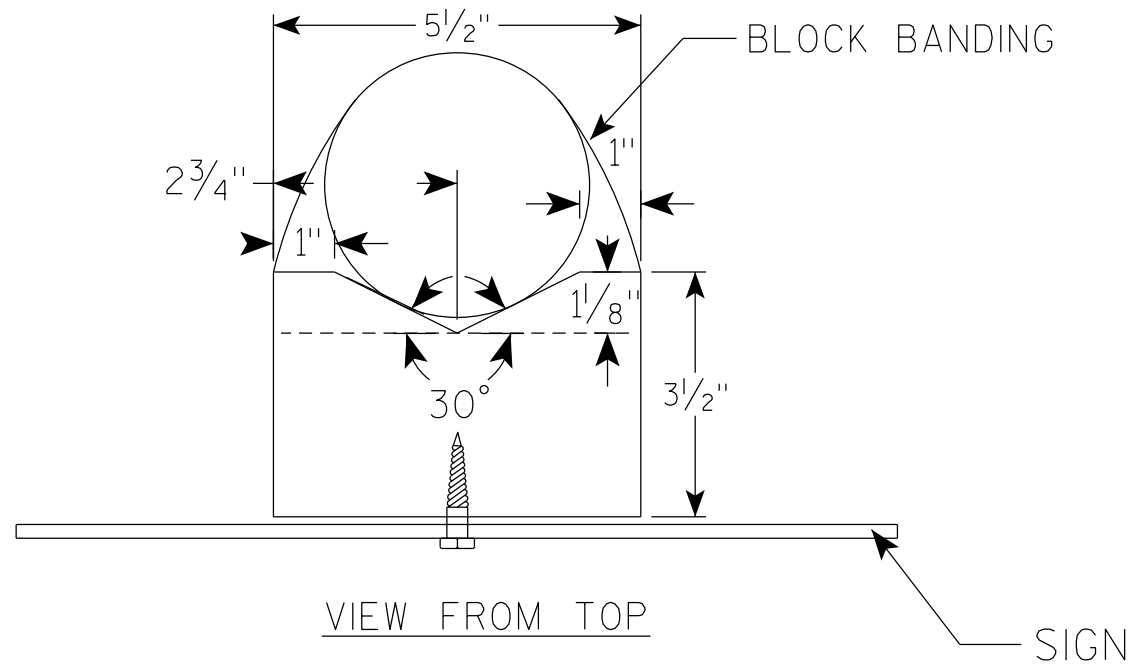
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

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, $\frac{3}{4}$ " 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 $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

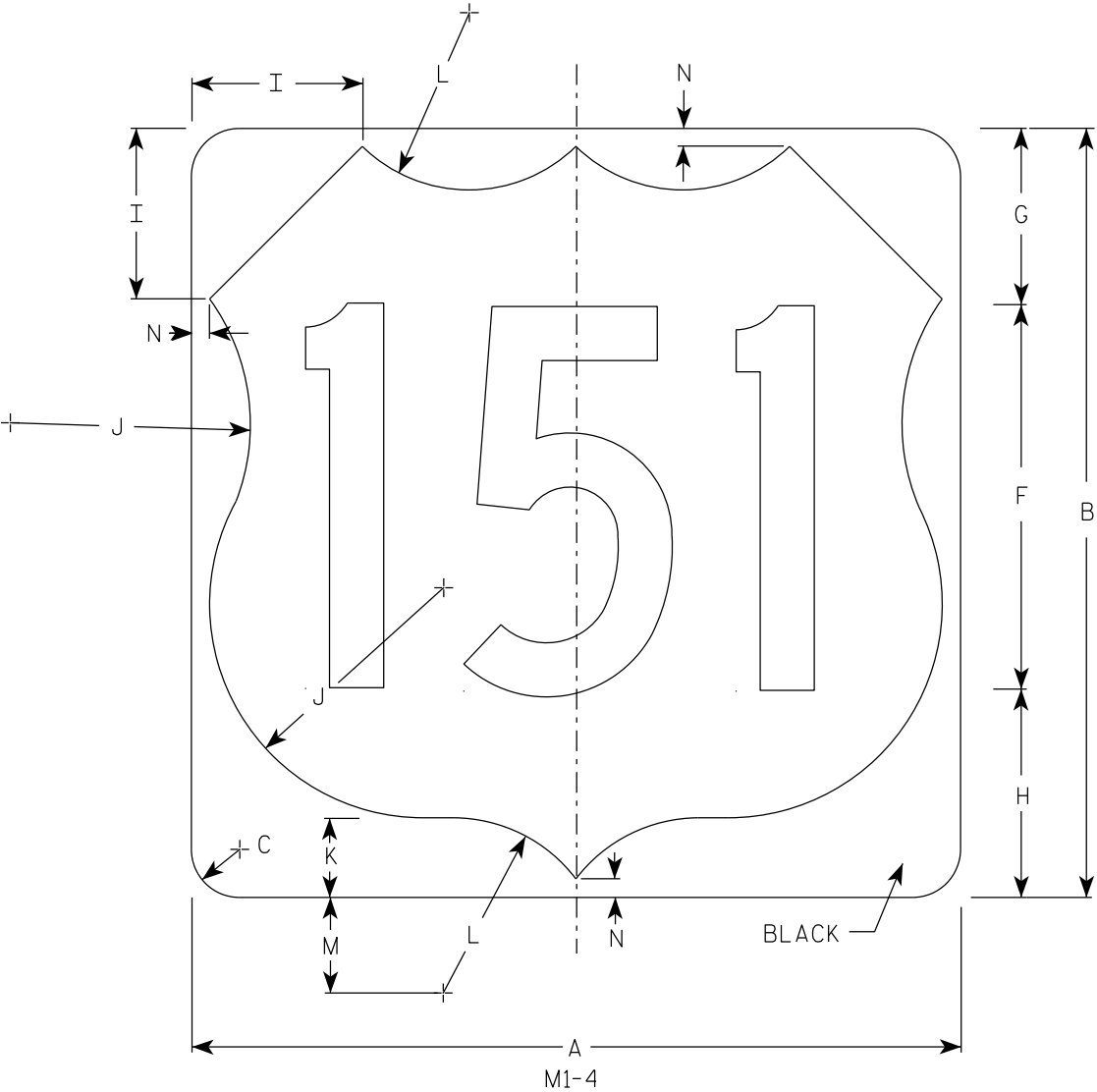
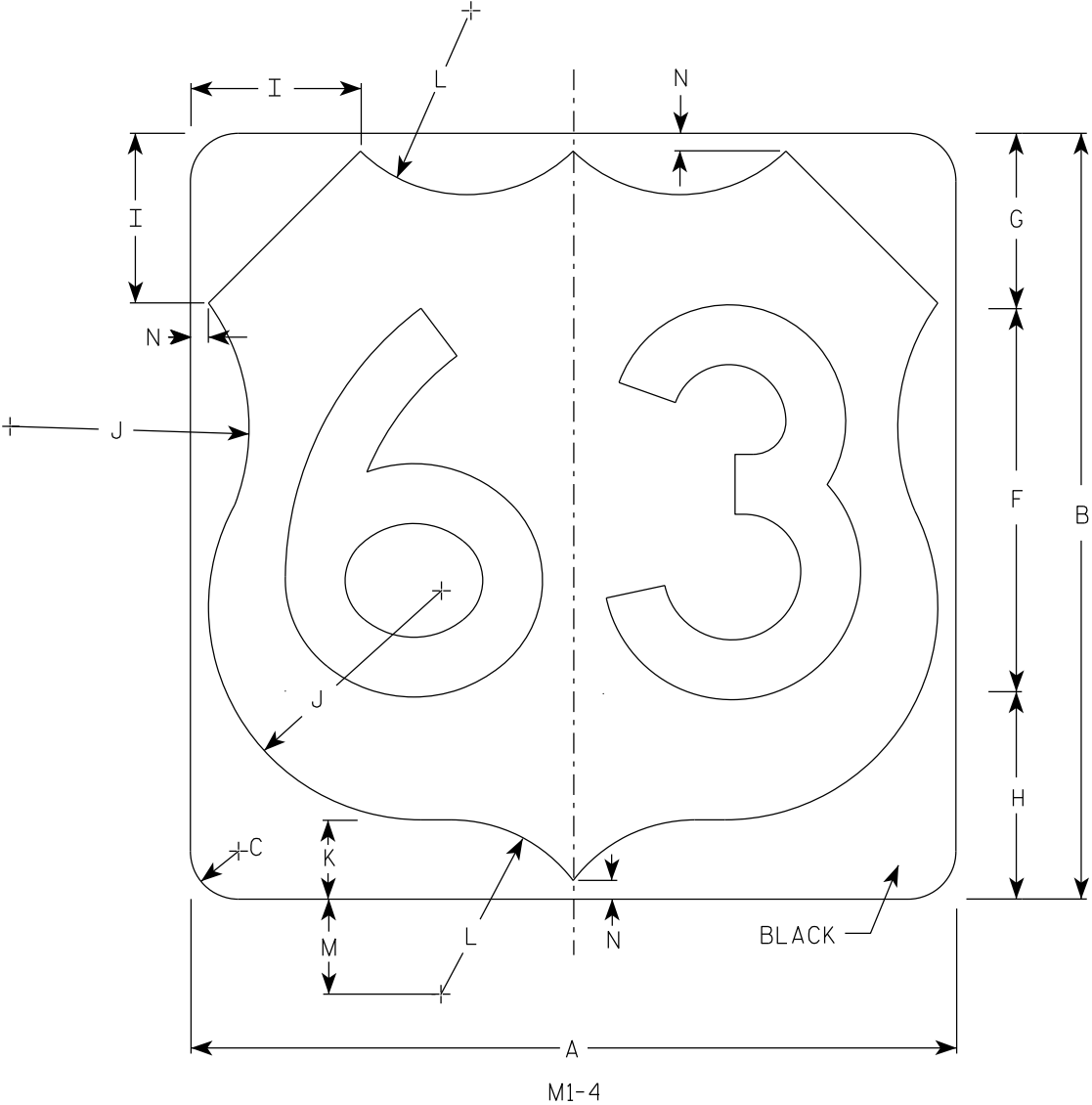
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 319

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

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	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
2M	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0

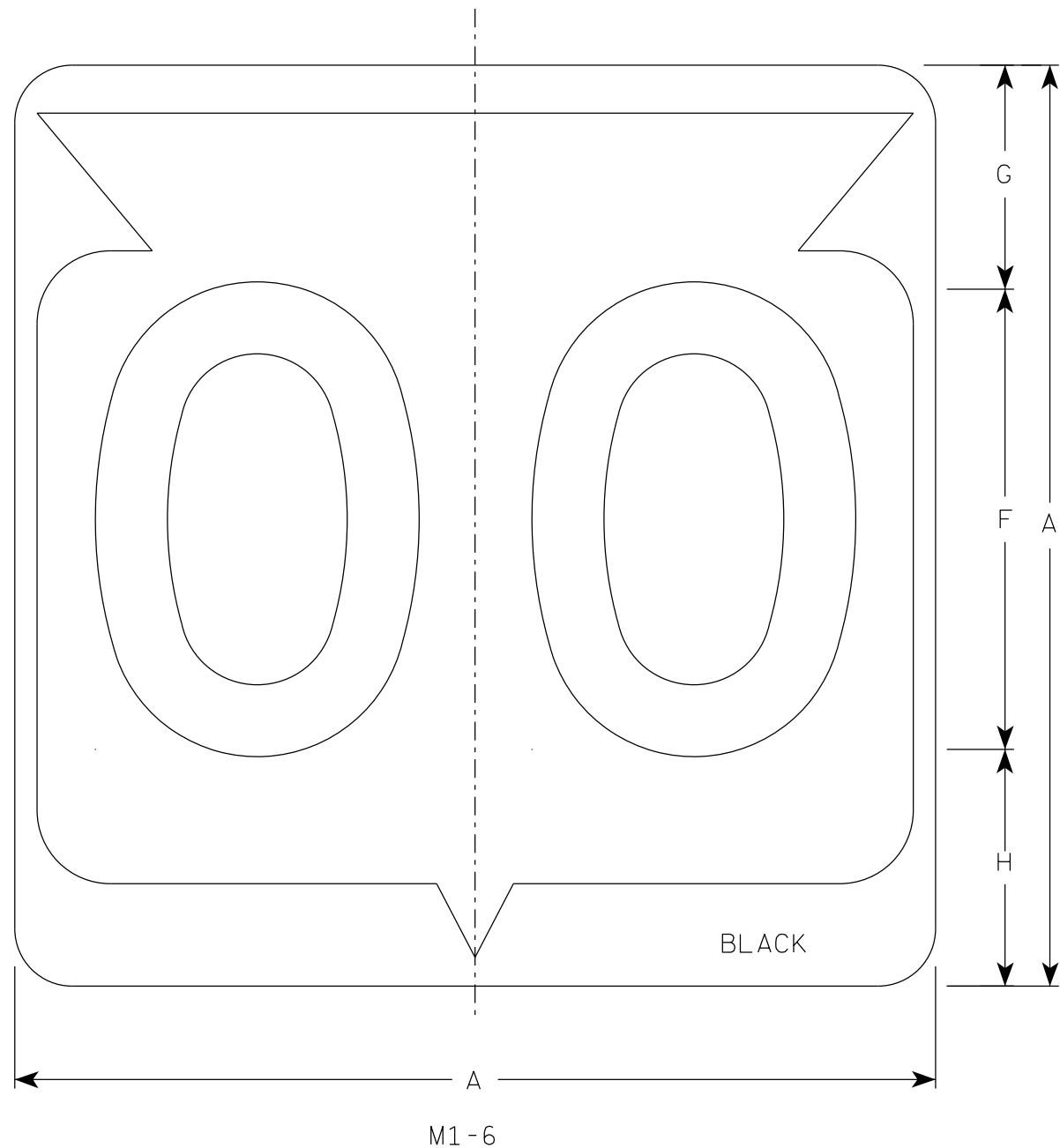
USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

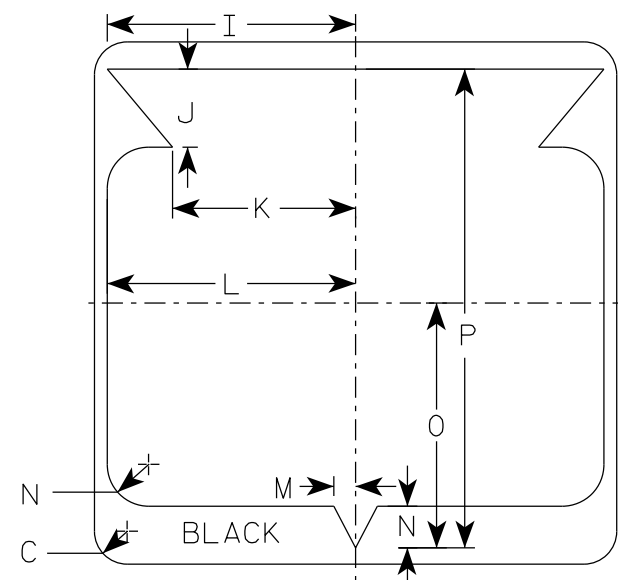
DATE 12/20/22 PLATE NO. M1-4.11

7



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



7

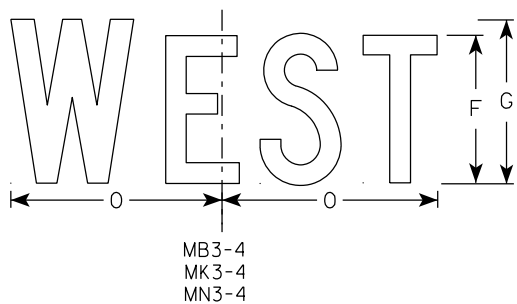
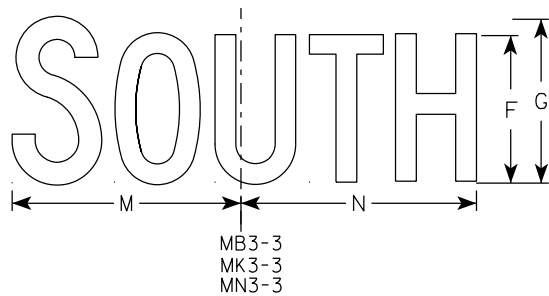
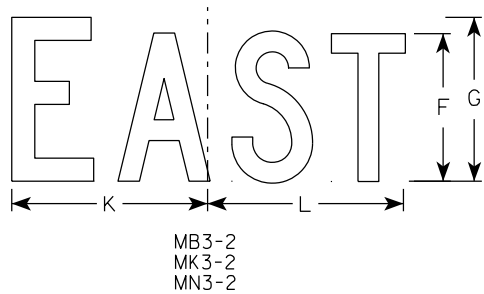
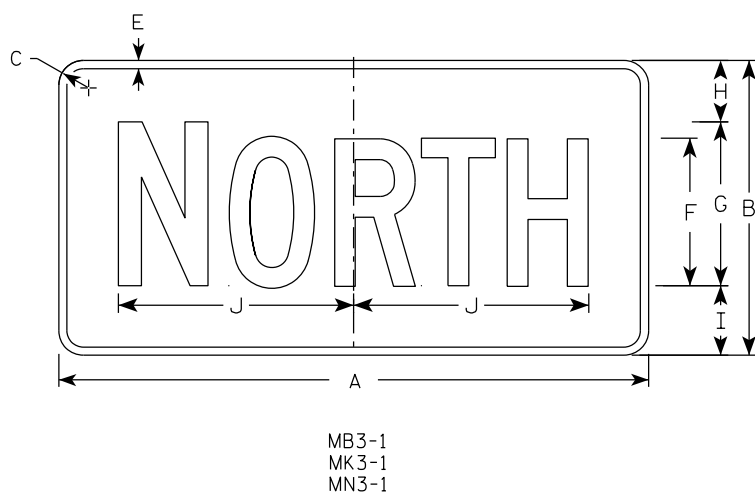
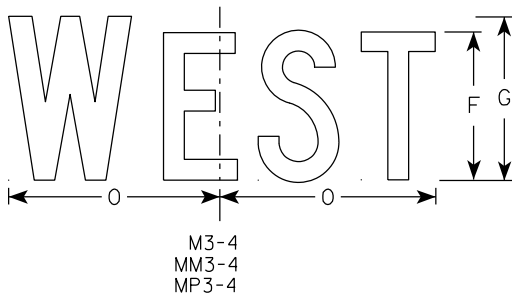
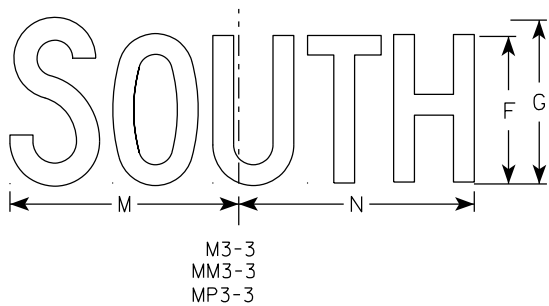
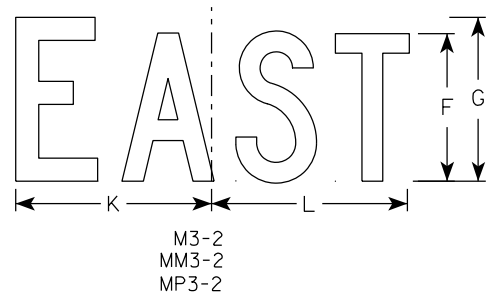
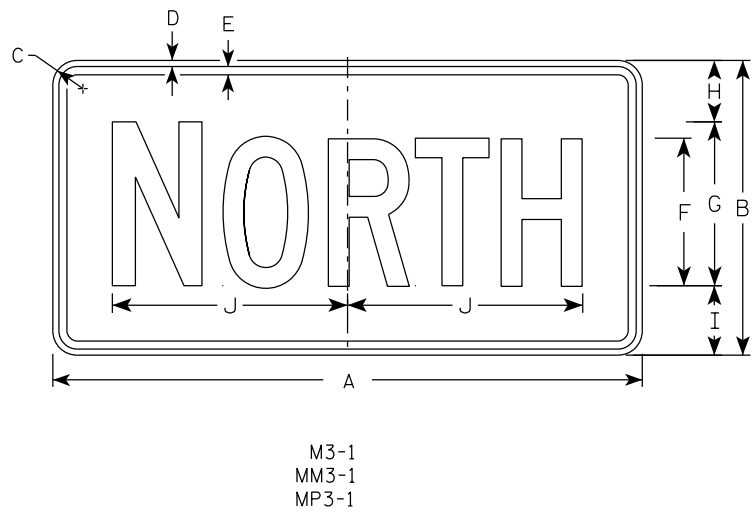
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
2M	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 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 11/8/2022 PLATE NO. M1-6.11



NOTES

1. All Signs Type II - Type H Reflective
2. Color:
Background - See note 5
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. 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
6. Note the first letter of each direction is larger than the remainder of the message.

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 1/2	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												2.00
2M	24	12	1 1/2	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												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 322

E

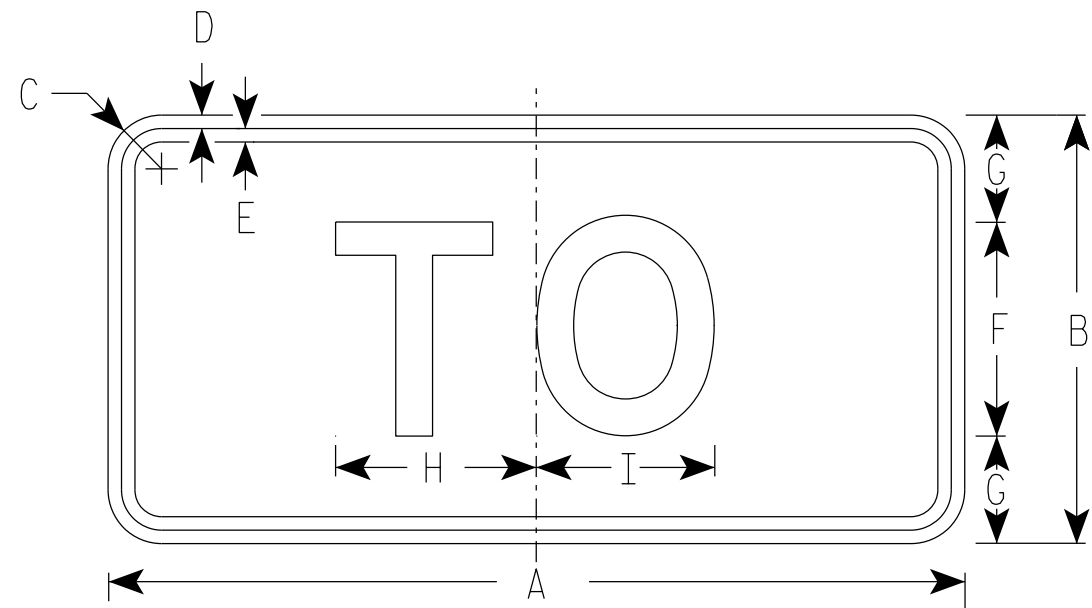
STANDARD SIGNS
M3-1 THRU M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

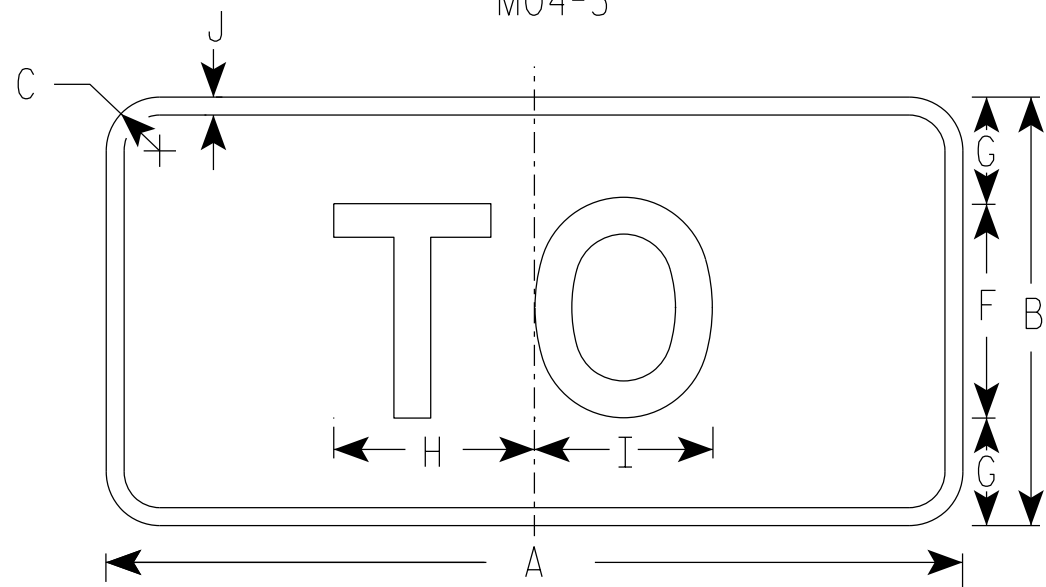
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 2/8/2023 PLATE NO. M3-1.15

7



M4-5
MM4-5
MP4-5
M04-5



MB4-5
MK4-5
MN4-5

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - E
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. M4-5 Background - White
Message - Black
MB4-5 Background - Blue
Message - White
MK4-5 Background - Green
Message - White
MM4-5 Background - White
Message - Green
MN4-5 Background - Brown
Message - White
MP4-5 Background - White
Message - Blue
M04-5 Background - Orange Type F Reflective
Message - Black

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 1/2	3/8	3/8	6	3	5 3/8	5 1/4	1/2																	2.00
2M	24	12	1 1/2	3/8	3/8	6	3	5 3/8	5 1/4	1/2																	2.00
3	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	8 1/4	8 3/8	1/2																	4.5

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 323	E

STANDARD SIGN
M4-5

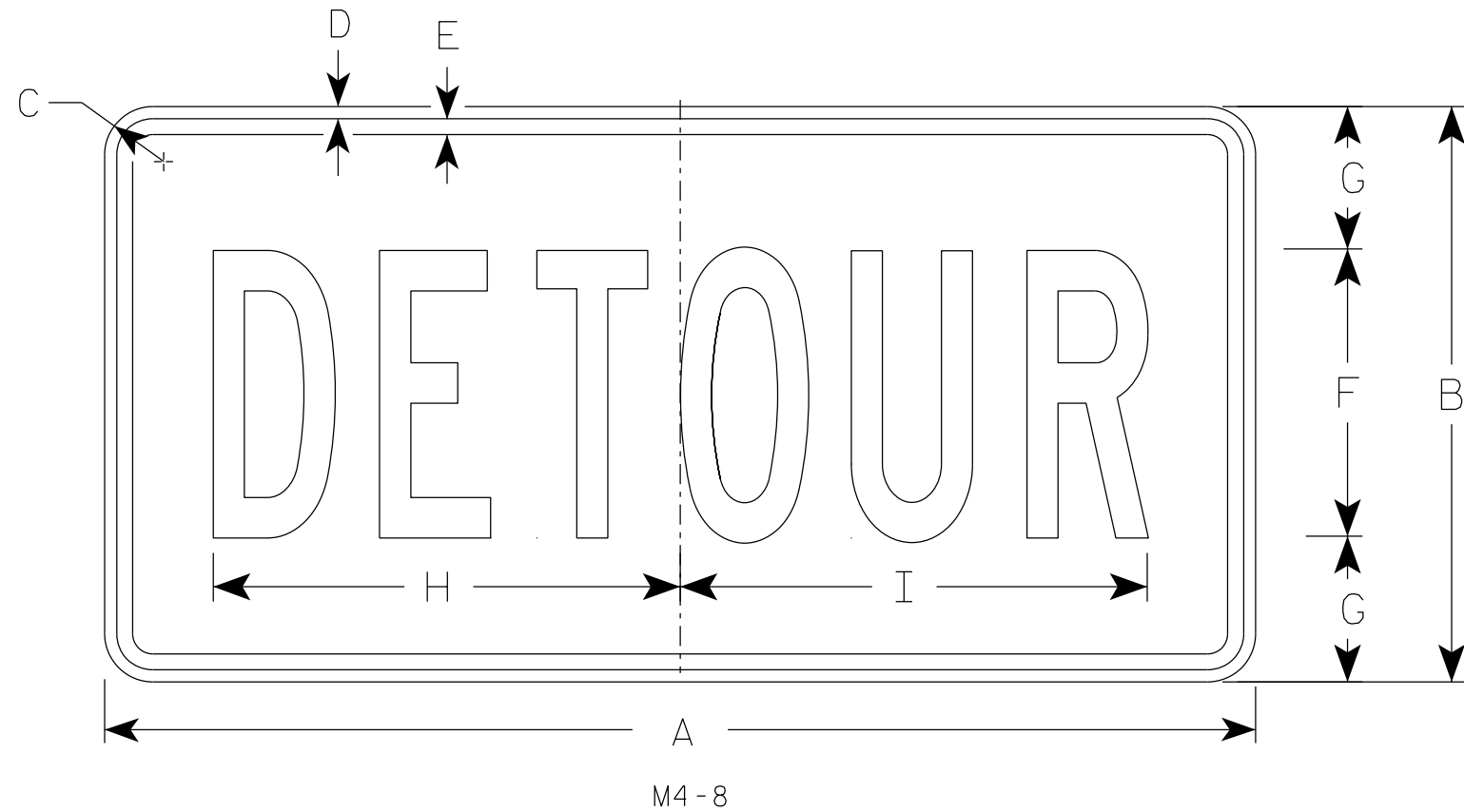
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/8/2023 PLATE NO. M4-5.11

7

7



NOTES

1. Sign is Type II - Type F Reflective
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

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 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

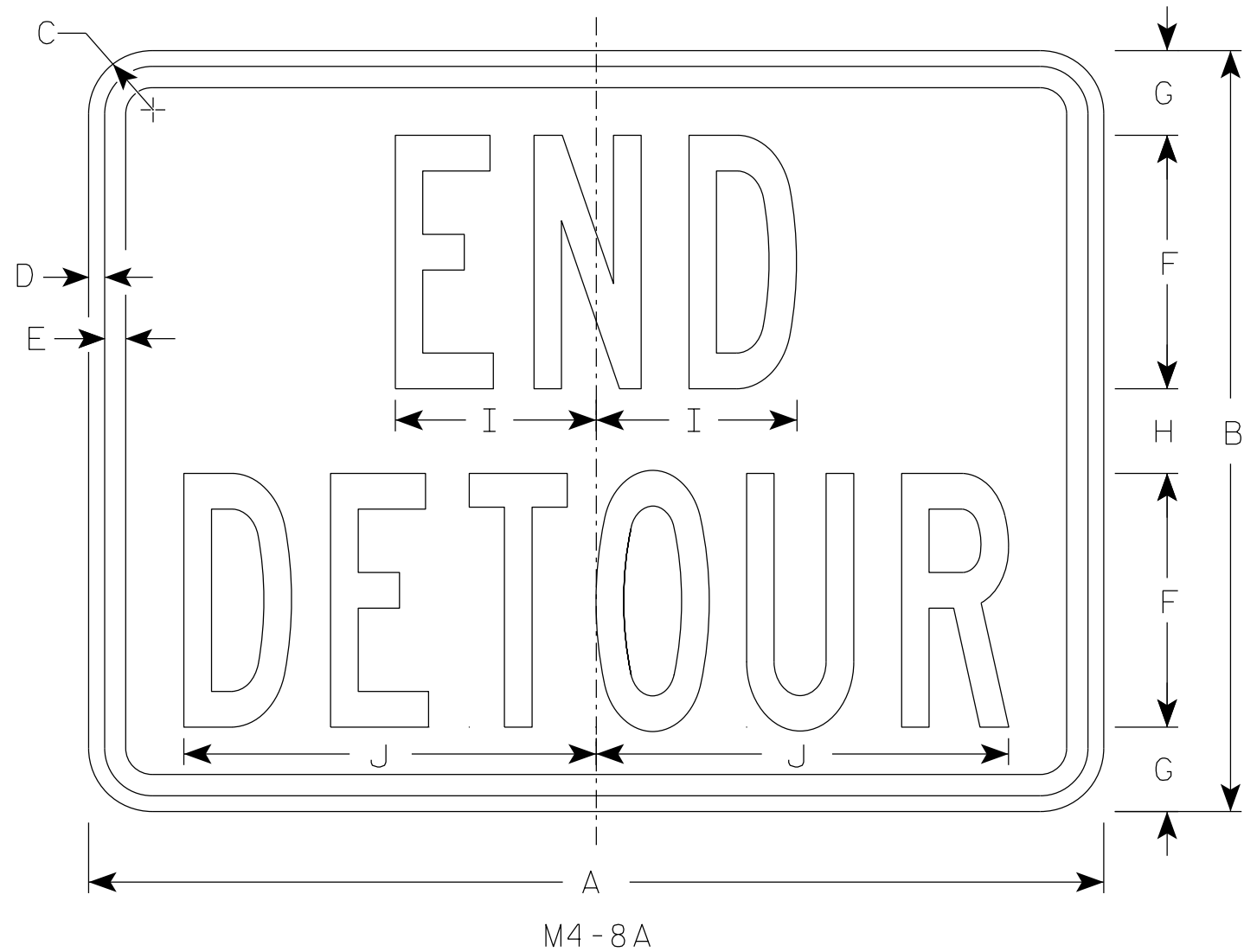
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 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

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 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

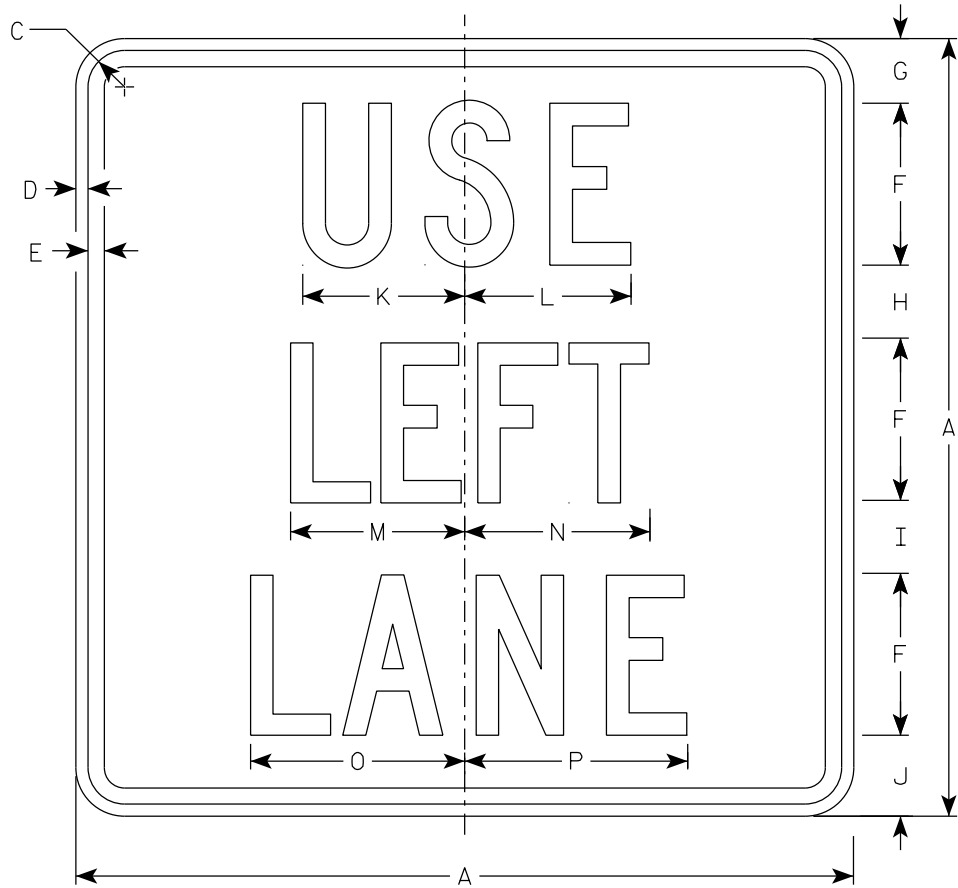
STANDARD SIGN

M4-8A

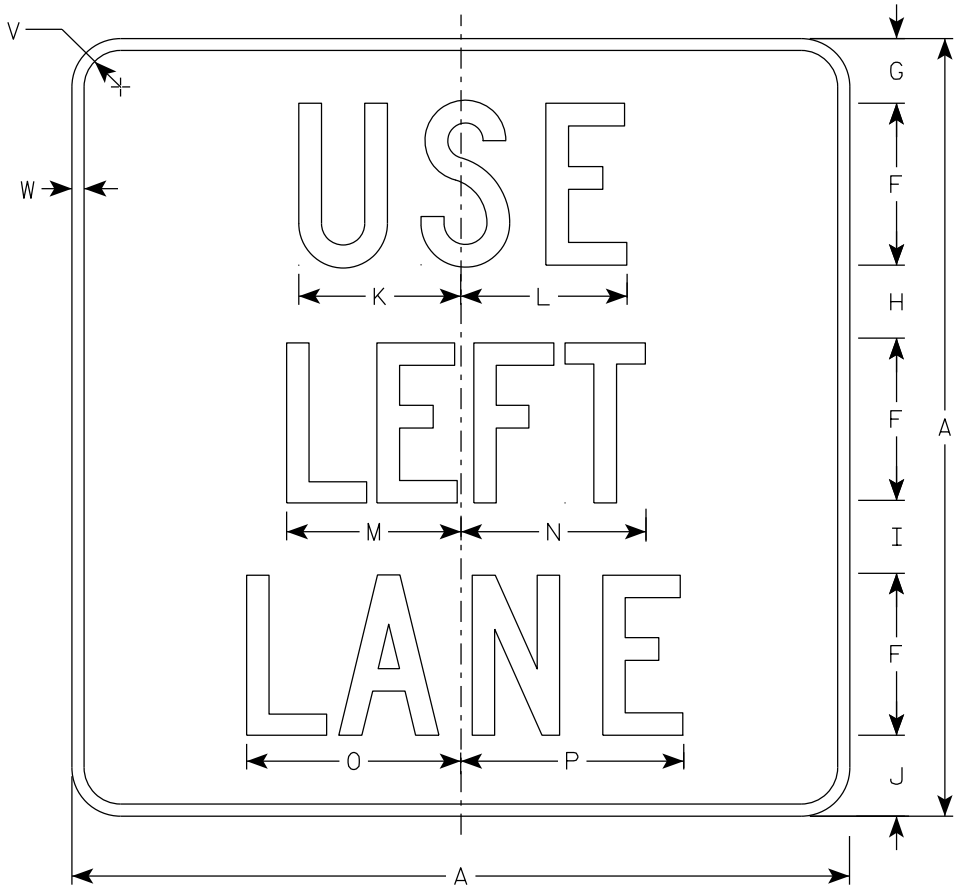
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

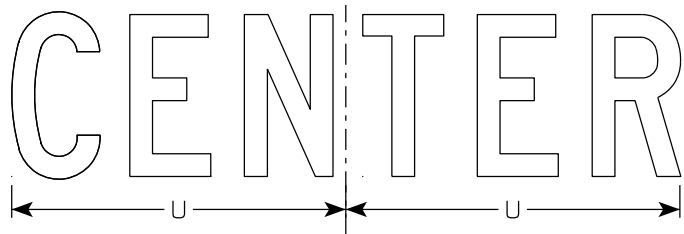
DATE 2/9/2023 PLATE NO. M4-8A.4



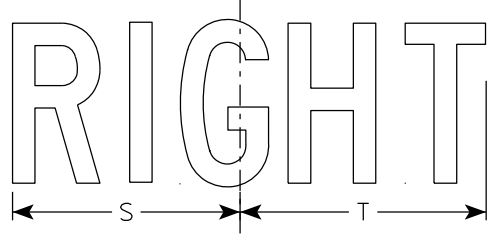
M4-20L
MM4-20L
M04-20L
MP4-20L



MB4-20L
MK4-20L
MN4-20L
MR4-20L



M4-20C
MB4-20C
MK4-20C
MM4-20C
MN4-20C
M04-20C
MP4-20C
MR4-20C



M4-20R
MB4-20R
MK4-20R
MM4-20R
MN4-20R
M04-20R
MP4-20R
MR4-20R

NOTES

- Sign is Type II - Type H except as Shown
- 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.
- M4-20 Background - White
Message - Black
MB4-20 Background - Blue
Message - White
MK4-20 Background - Green
Message - White
MM4-20 Background - White
Message - Green
MN4-20 Background - Brown
Message - White
M04-20 Background - Orange - Type F Reflective
Message - Black
MP4-20 Background - White
Message - Blue
MR4-20 Background - Brown
Message - Yellow

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 1/2	3/8	1/2	5	2	2 1/4	2 1/4	2 1/2	5	5 1/8	5 3/8	5 3/4	6 5/8	6 7/8			7	7 5/8	10 1/4	1 1/2	1/2				4.0
2M	24		1 1/2	3/8	1/2	5	2	2 1/4	2 1/4	2 1/2	5	5 1/8	5 3/8	5 3/4	6 5/8	6 7/8			7	7 5/8	10 1/4	1 1/2	1/2				4.0
3	36		2 1/4	5/8	3/4	7	4	3	3 1/2	4 1/2	7 1/2	7 3/4	8	8 5/8	9 7/8	10 1/4			10 3/8	11 3/8	14 3/8	1 7/8	1/2				9.0
4	36		2 1/4	5/8	3/4	7	4	3	3 1/2	4 1/2	7 1/2	7 3/4	8	8 5/8	9 7/8	10 1/4			10 3/8	11 3/8	14 3/8	1 7/8	1/2				9.0
5	36		2 1/4	5/8	3/4	7	4	3	3 1/2	4 1/2	7 1/2	7 3/4	8	8 5/8	9 7/8	10 1/4			10 3/8	11 3/8	14 3/8	1 7/8	1/2				9.0

STANDARD SIGN

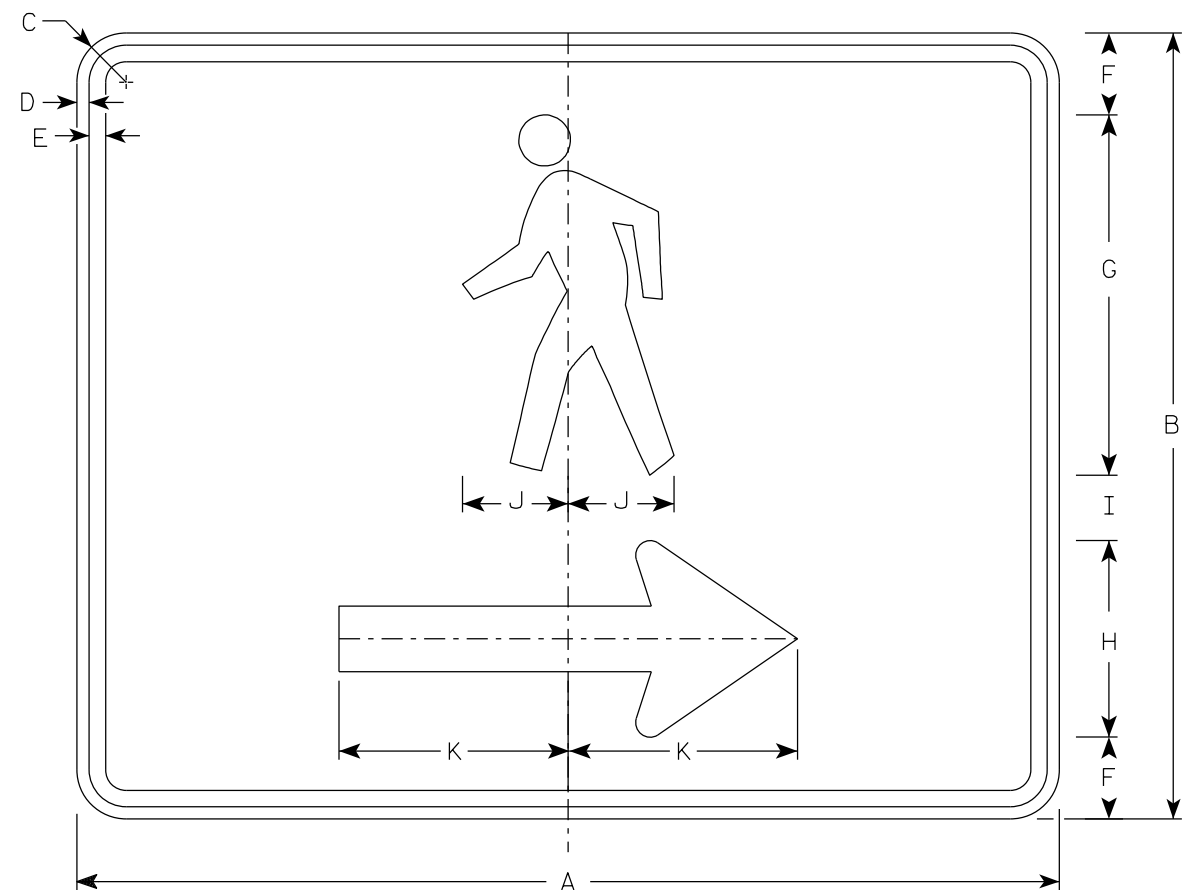
M4-20

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/13/2023 PLATE NO. M4-20.6

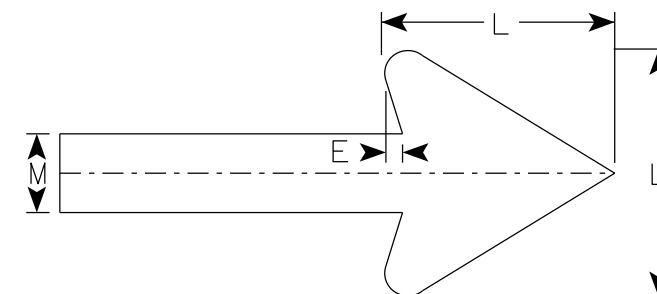
7



M4-60R

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.
4. M4-60L is the same as M4-60R except the arrow is reversed.

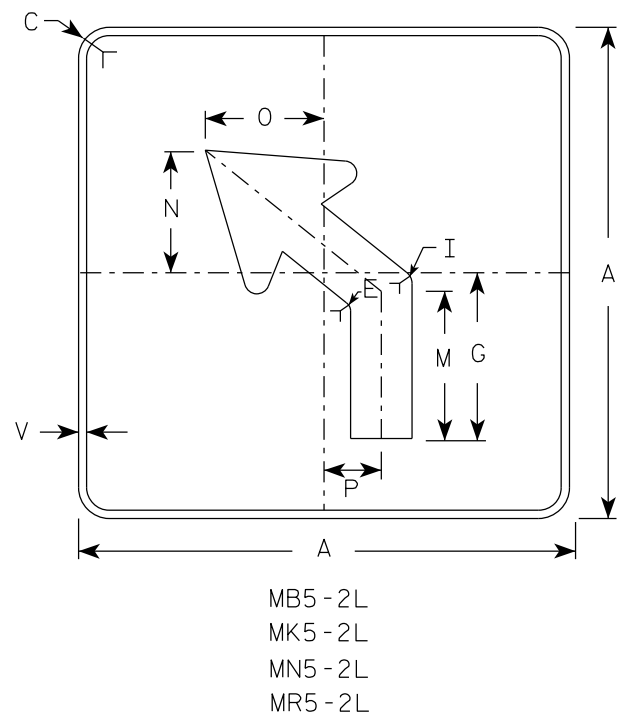
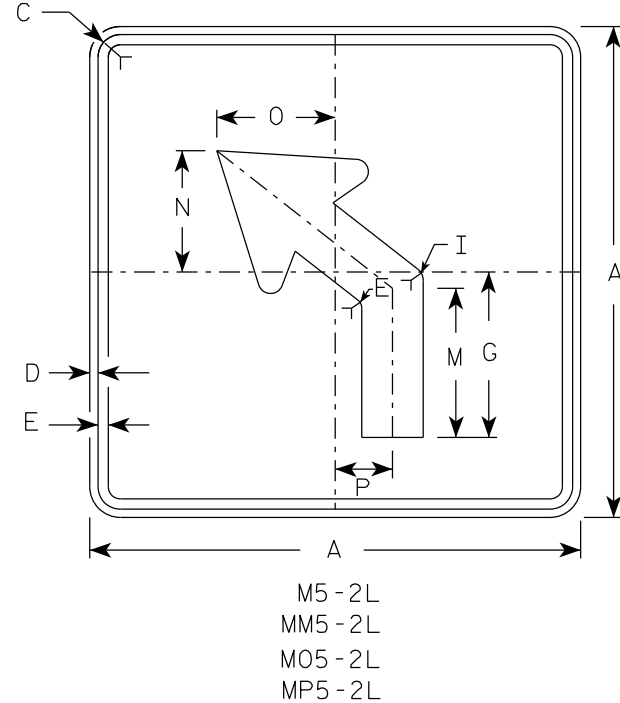
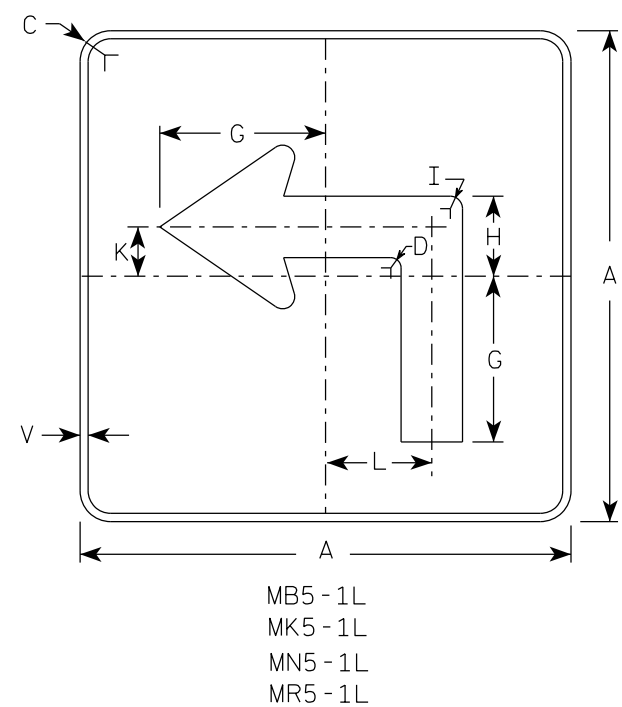
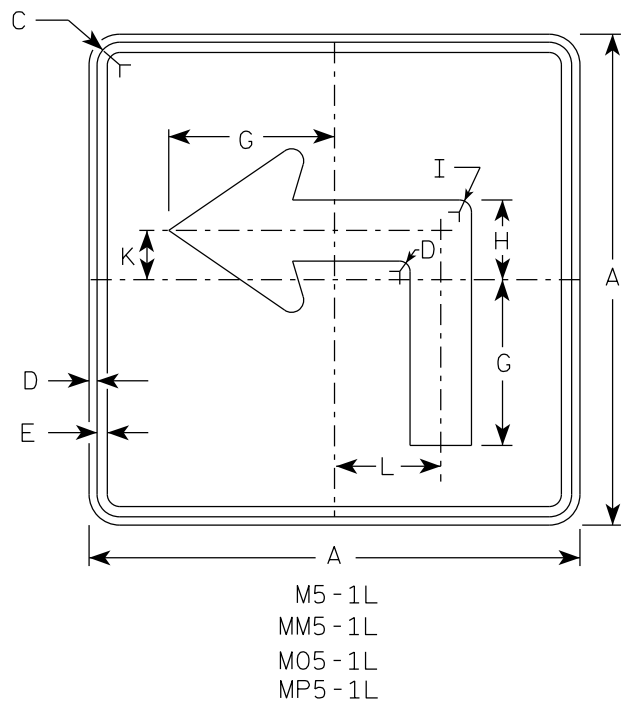


Arrow Detail

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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	24	1 1/2	3/8	1/2	2 1/2	11	6	2	3 1/4	7	6	2														5.00
2M	30	24	1 1/2	3/8	1/2	2 1/2	11	6	2	3 1/4	7	6	2														5.00
3																											
4																											
5																											

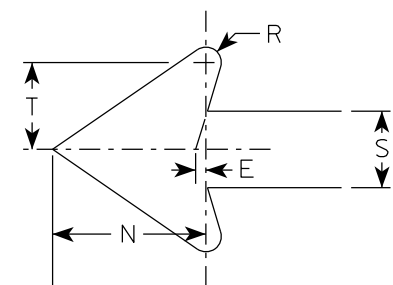
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 327		E



NOTES

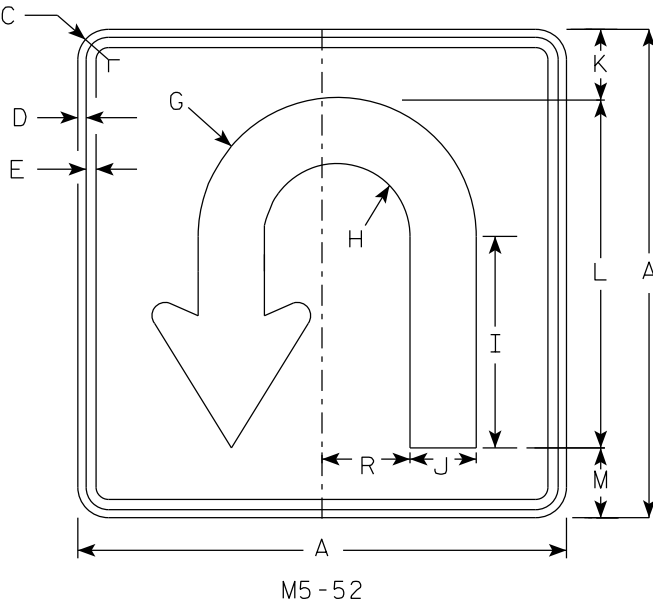
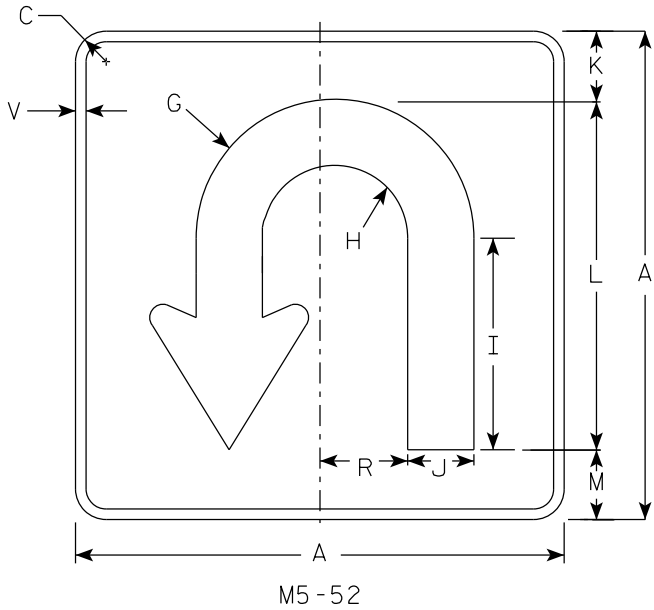
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| 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 |
| | | 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.

ARROW DETAIL

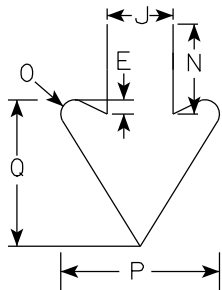


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	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		1/2					6.25
4	30		1 7/8	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		1/2					6.25
5	30		1 7/8	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		1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 328	E



- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See Note 4
Message - See note 4
 - M5-52 Background - White
Message - Black
MB5-52 Background - Blue
Message - White
MK5-52 Background - Green
Message - White
MM5-52 Background - White
Message - Green
MN5-52 Background - Brown
Message - White
M05-52 Background - Orange - Type F Reflective
Message - Black
MP5-52 Background - White
Message - Blue
MR5-52 Background - Brown
Message - Yellow



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	21		1 1/2	3/8	3/8		6	3 1/8	9 1/8	2 7/8	3	15	3	3 7/8	5/8	6 7/8	6 3/4	3 3/4				1/2					3.06
2M	21		1 1/2	3/8	3/8		6	3 1/8	9 1/8	2 7/8	3	15	3	3 7/8	5/8	6 7/8	6 3/4	3 3/4				1/2					3.06
3	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25
4	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25
5	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25

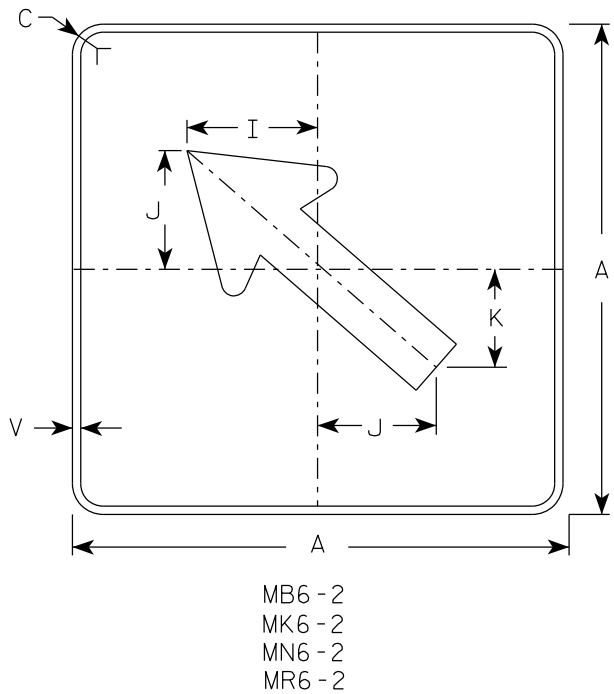
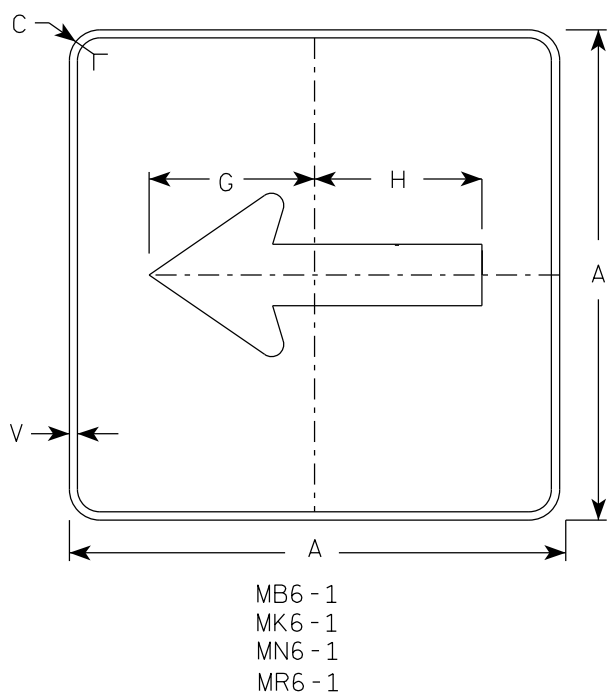
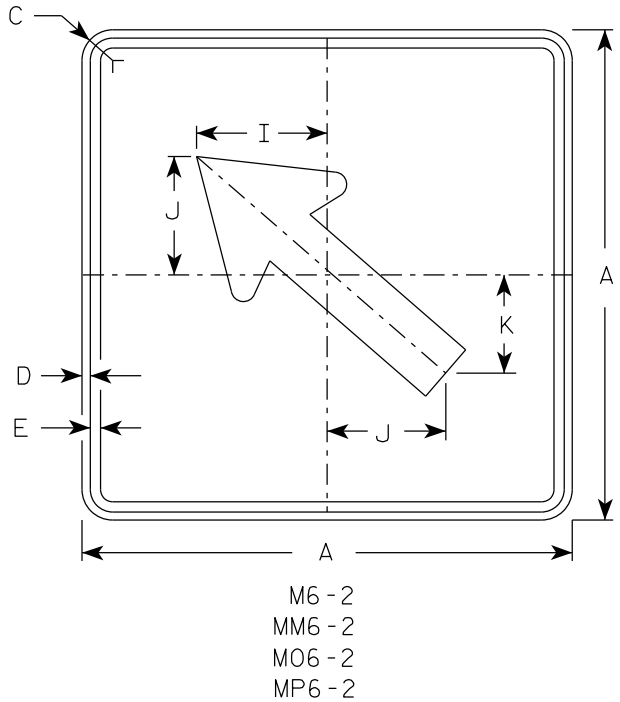
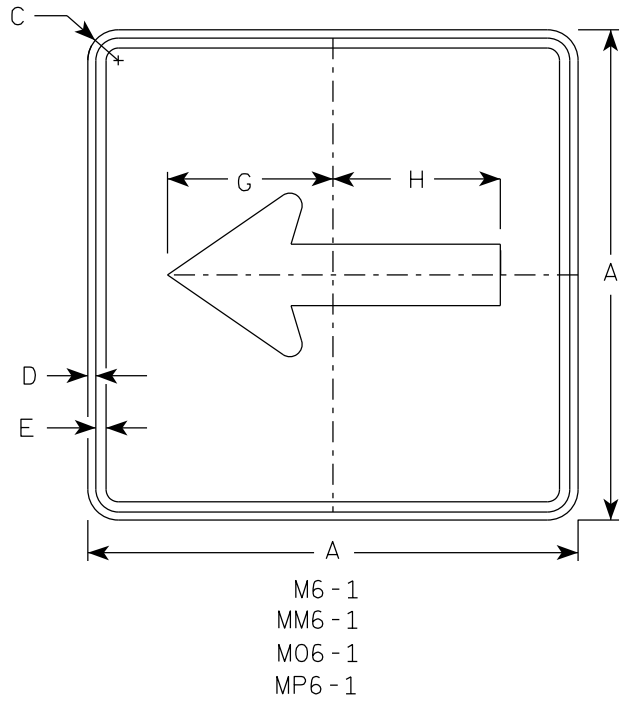
PROJECT NO:

HWY:

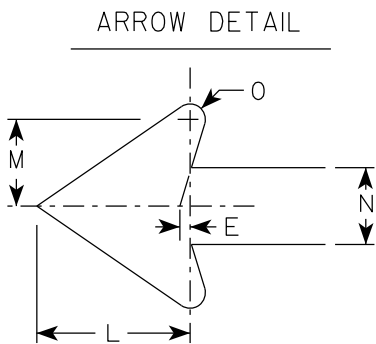
COUNTY:

SHEET NO: 329

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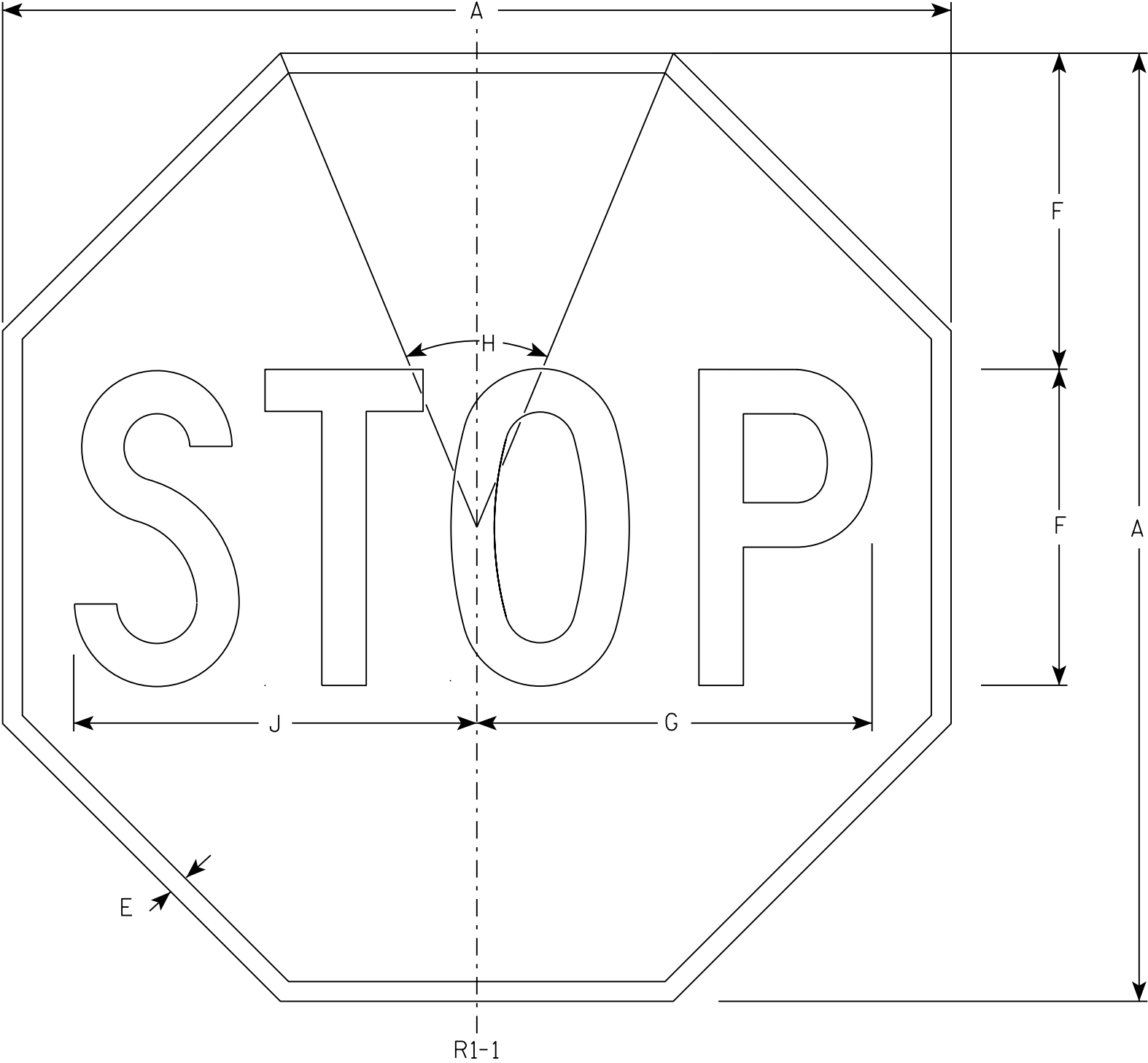


- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 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



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	21		1 1/2	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							1/2					3.06
2M	21		1 1/2	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							1/2					3.06
3	30		1 7/8	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							1/2					6.25
4	30		1 7/8	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							1/2					6.25
5	30		1 7/8	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							1/2					6.25

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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

R1-1

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

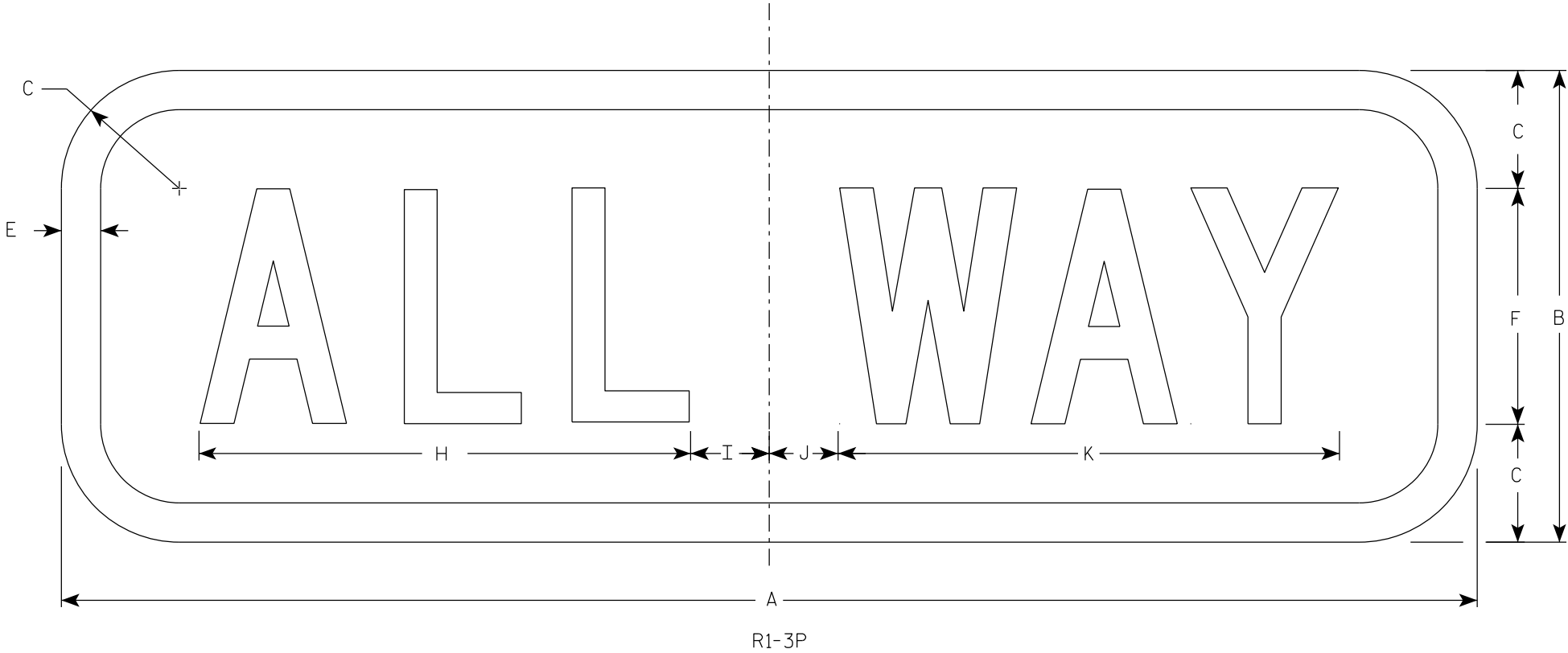
DATE 11/12/15 PLATE NO. R1-1.13

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NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C
- 4. For 30"x30" R1-1 use 18"x6" R1-3P sign
For 36"x36" R1-1 use 24"x9" R1-3P sign
For 48"x48" R1-1 use 30"x12" R1-3P sign



R1-3P

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	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2S	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2M	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
3	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
4	30	12	1 1/2		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5
5	30	12	1 1/2		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5

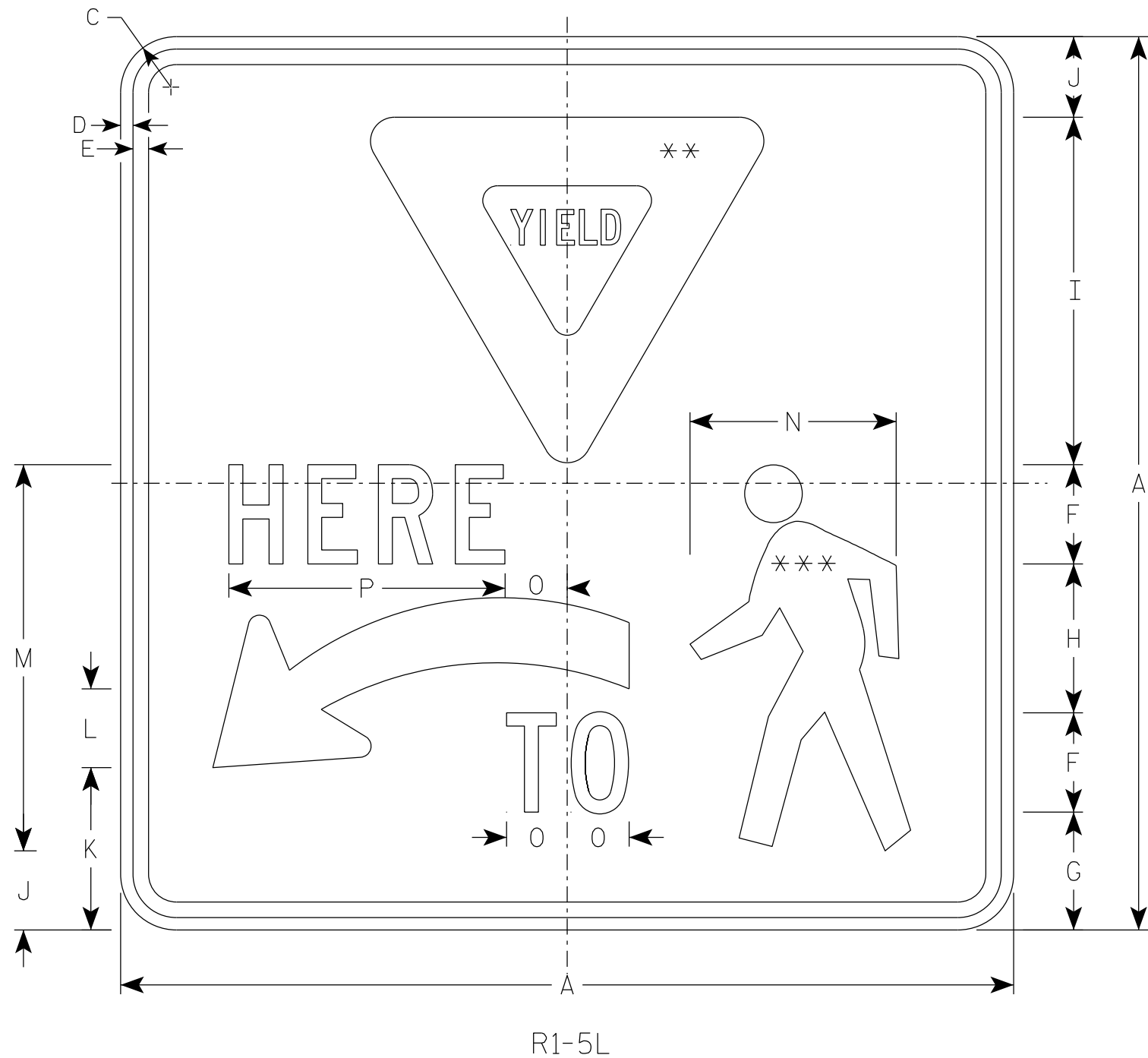
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 332

E



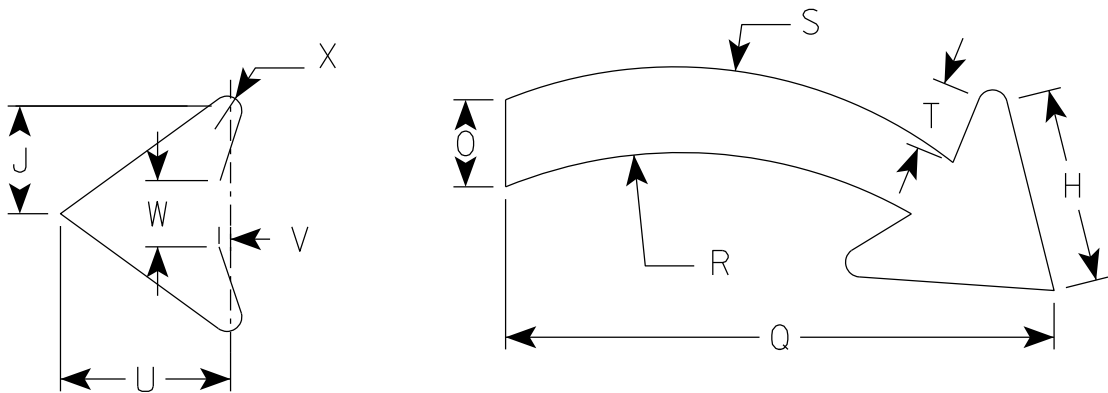
NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - WHITE
 - Message - BLACK
 - YIELD SYMBOL - RED ON WHITE
 - PED SYMBOL - BLACK ON WHITE

3. Message Series - D

- ** INSERT R1-2 AND SIZE TO FIT
- *** INSERT W11-2 AND SIZE TO FIT

Arrow Detail



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	1/2	5/8	4	4 3/4	6	14	3 1/4	6 1/2	3 1/8	15	8 1/4	2 1/2	11 1/8	16 3/4	28 1/2	27 3/4	2 1/8	5 1/4	3/8	2	1			9.0
2S	36		2 1/4	1/2	5/8	4	4 3/4	6	14	3 1/4	6 1/2	3 1/8	15	8 1/4	2 1/2	11 1/8	16 3/4	28 1/2	27 3/4	2 1/8	5 1/4	3/8	2	1			9.0
2M	36		2 1/4	1/2	5/8	4	4 3/4	6	14	3 1/4	6 1/2	3 1/8	15	8 1/4	2 1/2	11 1/8	16 3/4	28 1/2	27 3/4	2 1/8	5 1/4	3/8	2	1			9.0
3	36		2 1/4	1/2	5/8	4	4 3/4	6	14	3 1/4	6 1/2	3 1/8	15	8 1/4	2 1/2	11 1/8	16 3/4	28 1/2	27 3/4	2 1/8	5 1/4	3/8	2	1			9.0
4																											
5																											

PROJECT NO:

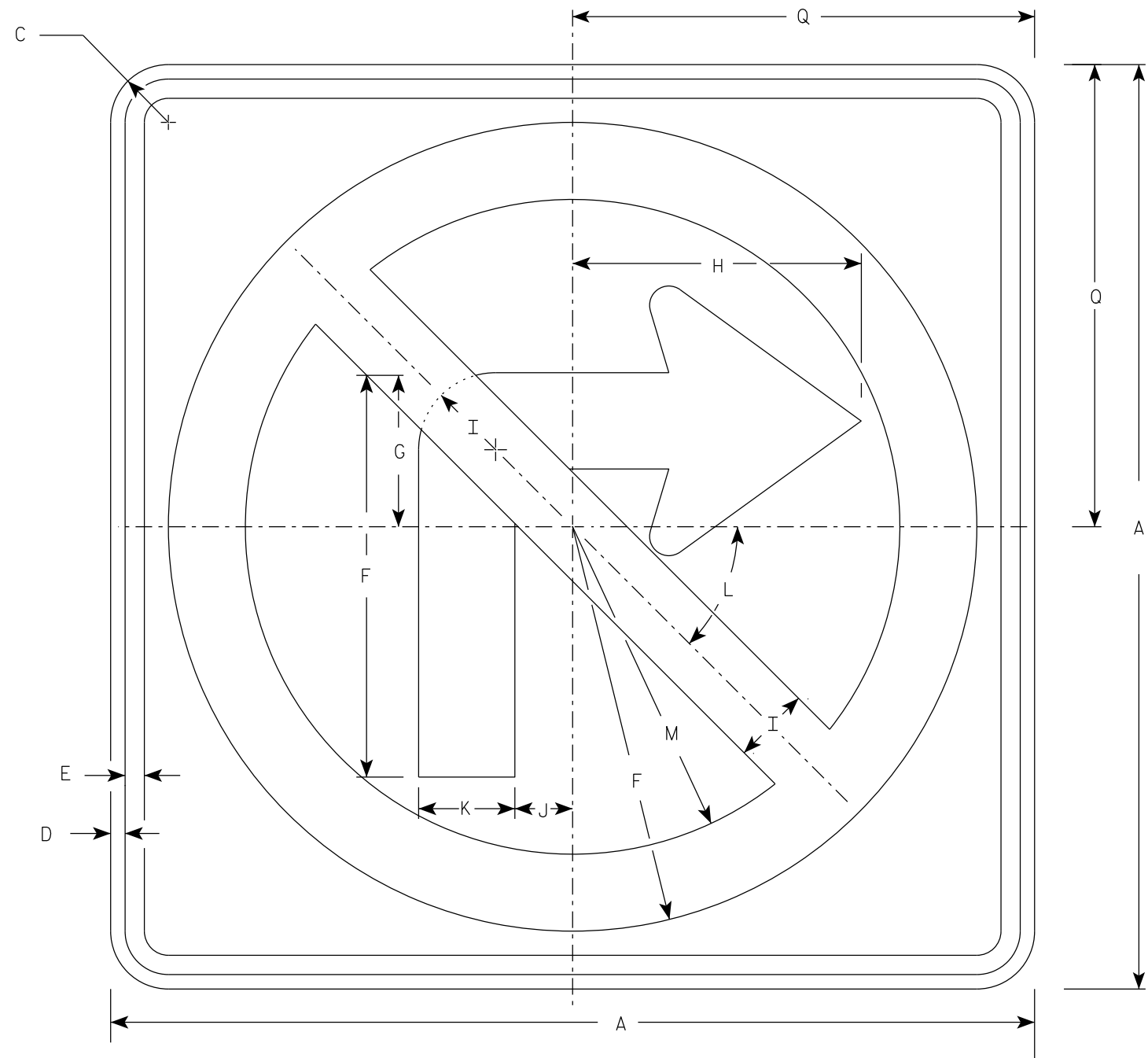
HWY:

COUNTY:

SHEET NO: 333

E

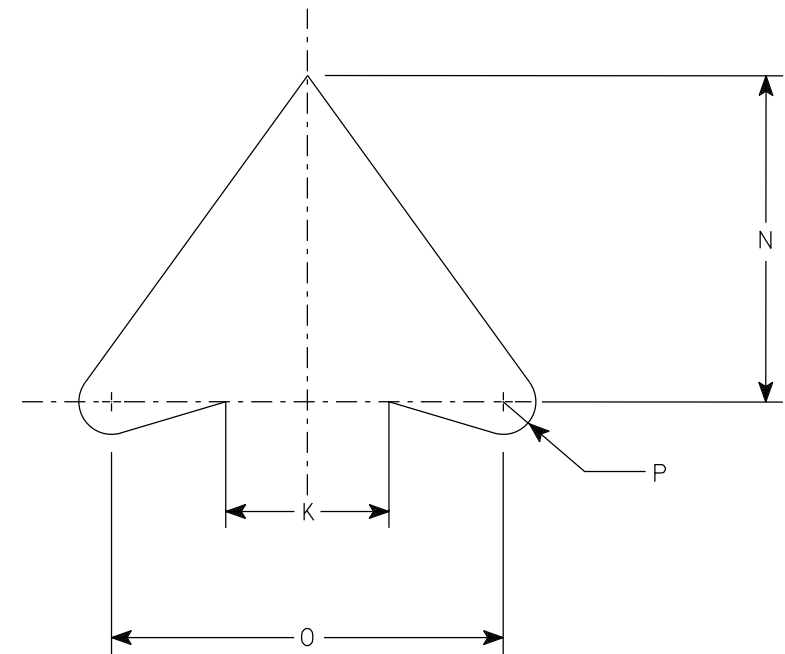
7



R3-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - See note 3
3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

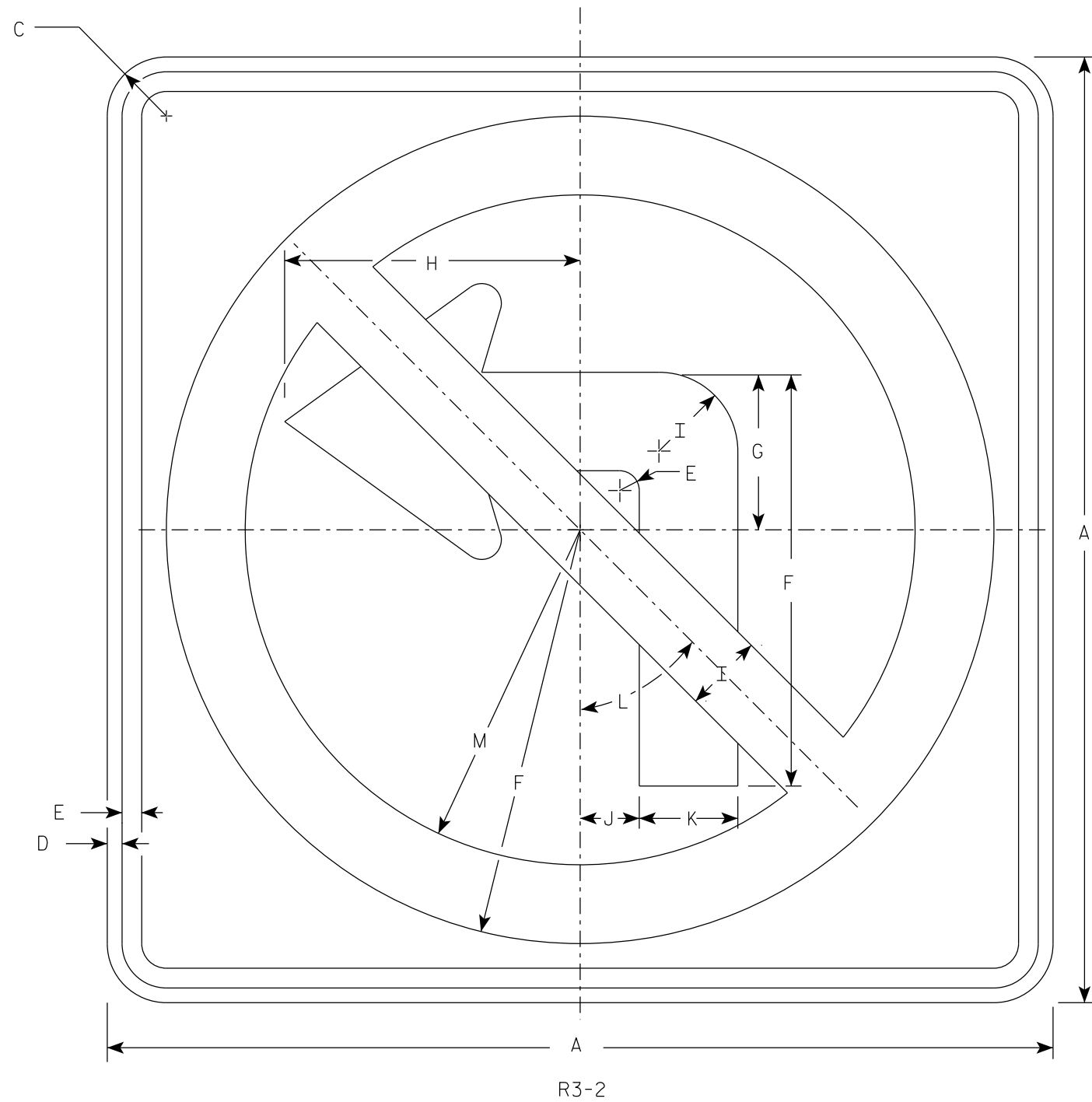


ARROW DETAIL

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	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

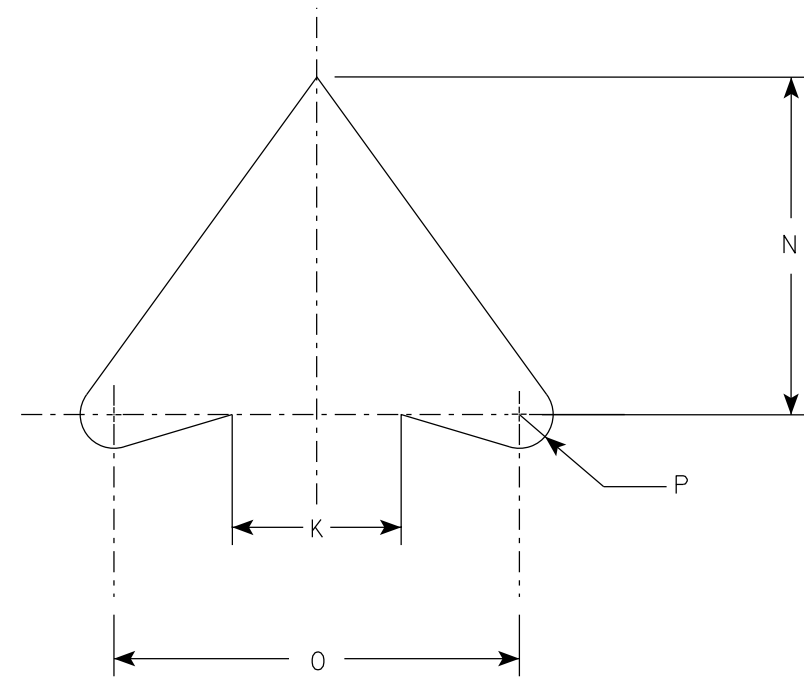
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 334	E

7



NOTES

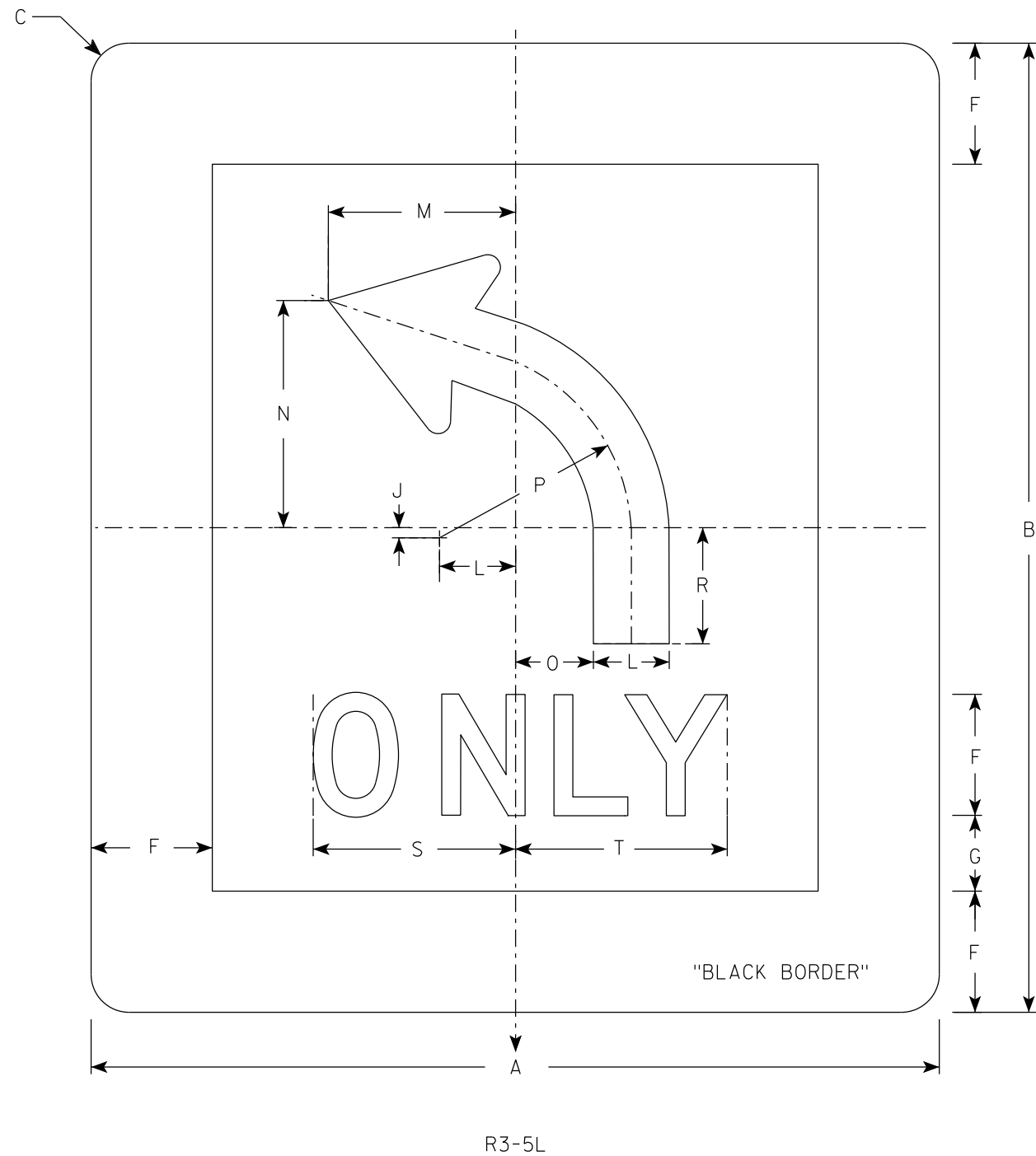
- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - See note 3
- 3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



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	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

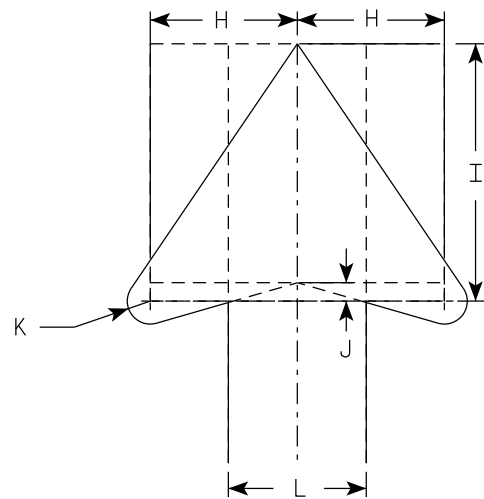
7



R3-5L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D
4. R3-5R is the same as R3-5L except curved portion of arrow points right.
5. The 6" border is non-reflective black.



ARROW DETAIL

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	42	48	1 7⁄8			6	3 3⁄4	4	7	1⁄2	5⁄8	3 3⁄4	9 1⁄4	11 1⁄4	3 7⁄8	9 1⁄2		5 3⁄4	10	10 1⁄2							14.0
2M	42	48	1 7⁄8			6	3 3⁄4	4	7	1⁄2	5⁄8	3 3⁄4	9 1⁄4	11 1⁄4	3 7⁄8	9 1⁄2		5 3⁄4	10	10 1⁄2							14.0
3																											
4																											
5																											

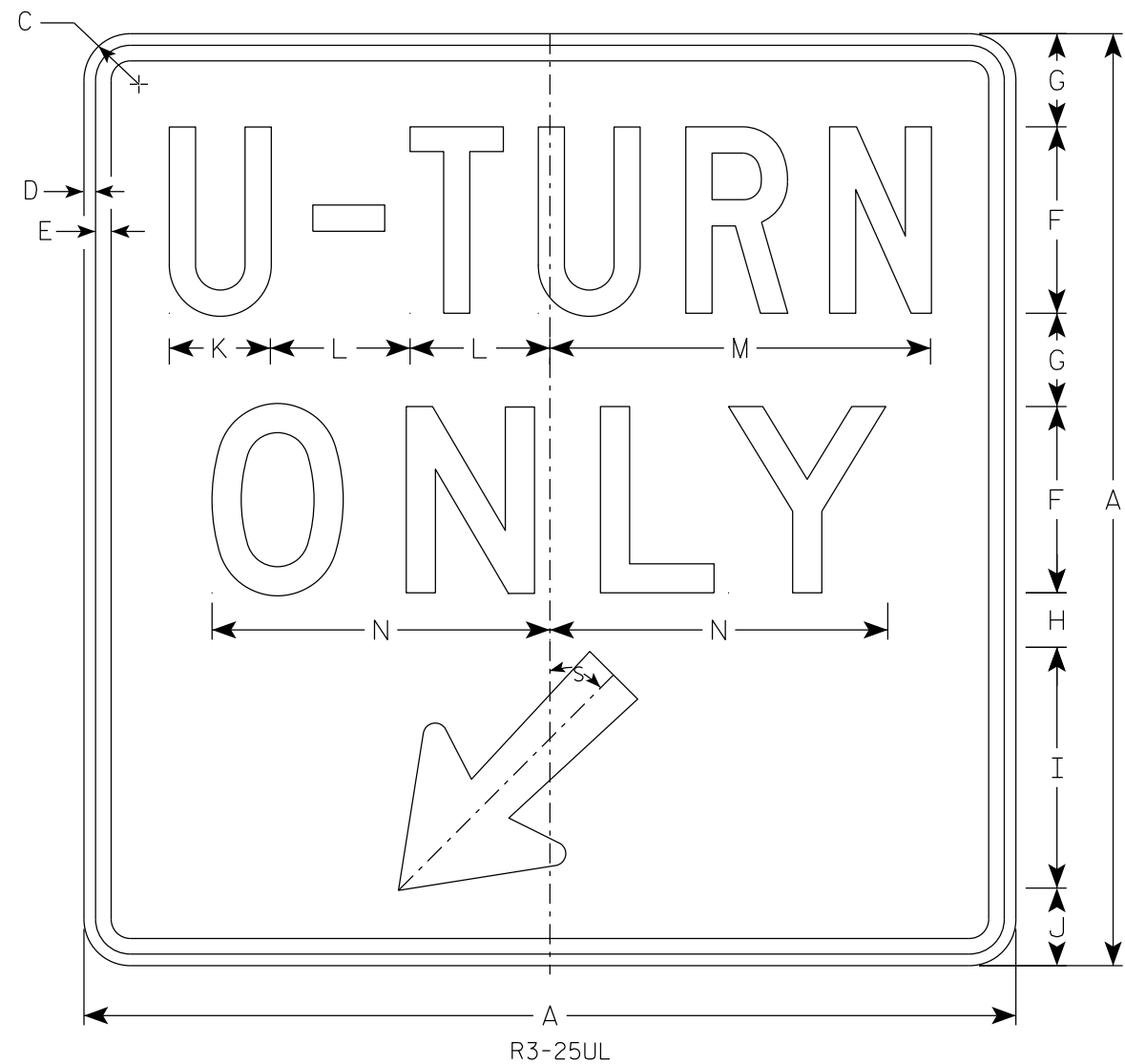
PROJECT NO:

HWY:

COUNTY:

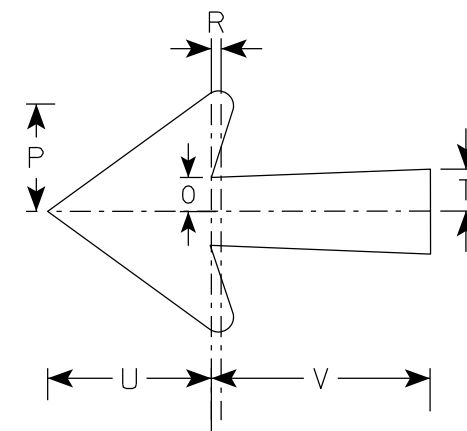
SHEET NO: 336

E



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - C Line 1, Series D Line 2
4. R3-25UR is same as R3-25L except the arrow is reversed along vertical centerline.



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	Areq. sq. ft.
1																											
2S	24		1 1/2	3/8	1/2	4	2 1/4	1 5/8	7 3/4	2 1/8	3	3	8 3/8	7	7/8	2 3/4	5	1/4	45°	1 1/8	4 1/4	5 5/8					4.0
2M	30		1 7/8	3/8	1/2	6	3	1 3/4	7 3/4	2 1/2	3 1/4	4 1/2	12 1/4	10 7/8	7/8	2 3/4	5	1/4	45°	1 1/8	4 1/4	5 5/8					6.25
3																											
4																											
5																											

PROJECT NO:

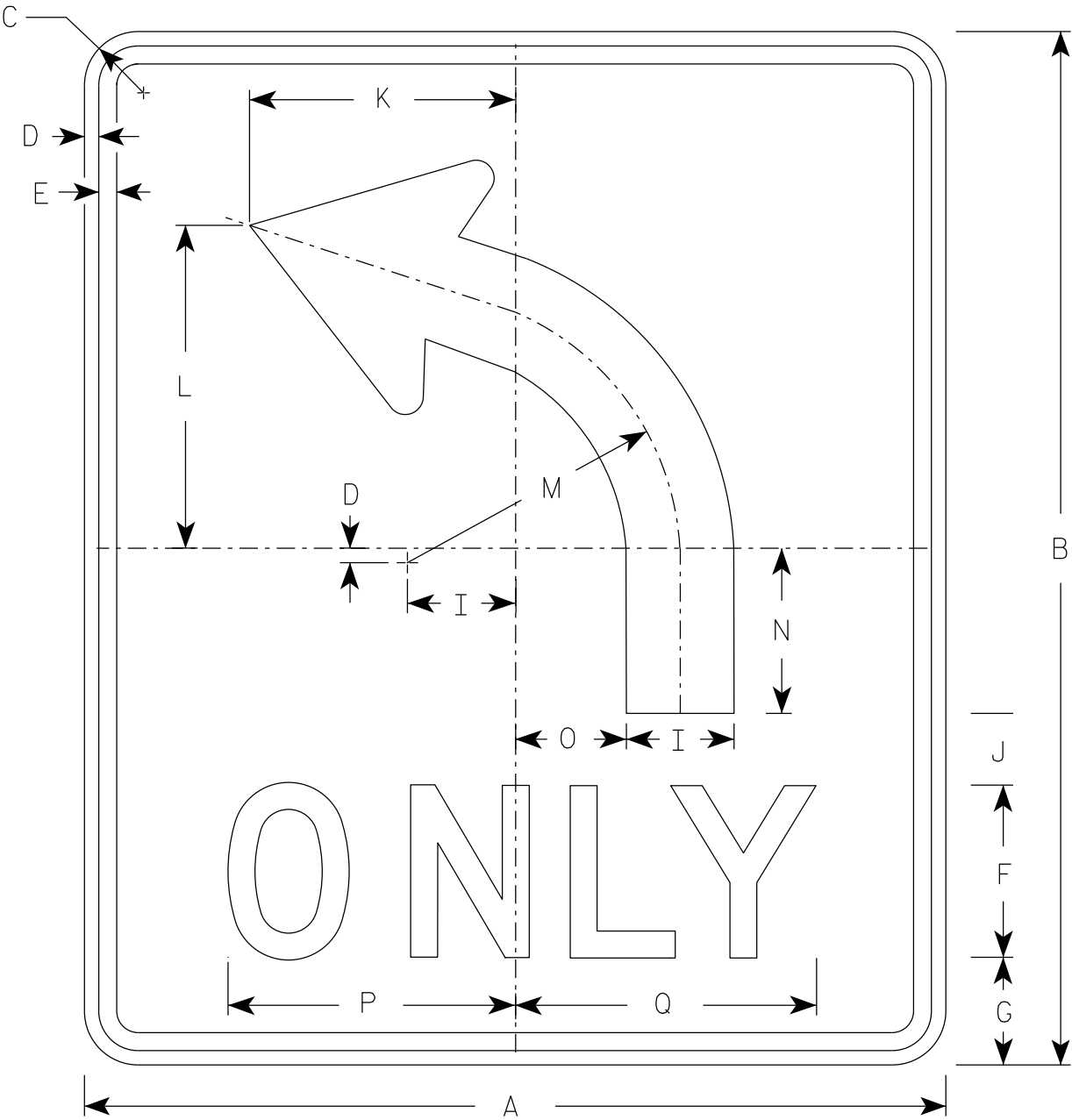
HWY:

COUNTY:

SHEET NO: 337

E

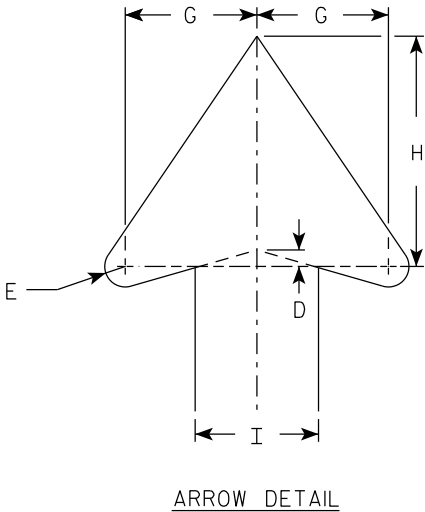
7



R3-50L

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D
- 4. R3-50R is the same as R3-50L except curved portion of arrow points right.



ARROW DETAIL

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	36	1 7/8	1/2	5/8	6	4	7	3 3/4	2 1/2	9 1/4	11 1/4	9 1/2	5 3/4	3 7/8	10	10 1/2										7.5
2M	30	36	1 7/8	1/2	5/8	6	4	7	3 3/4	2 1/2	9 1/4	11 1/4	9 1/2	5 3/4	3 7/8	10	10 1/2										7.5
3																											
4																											
5																											

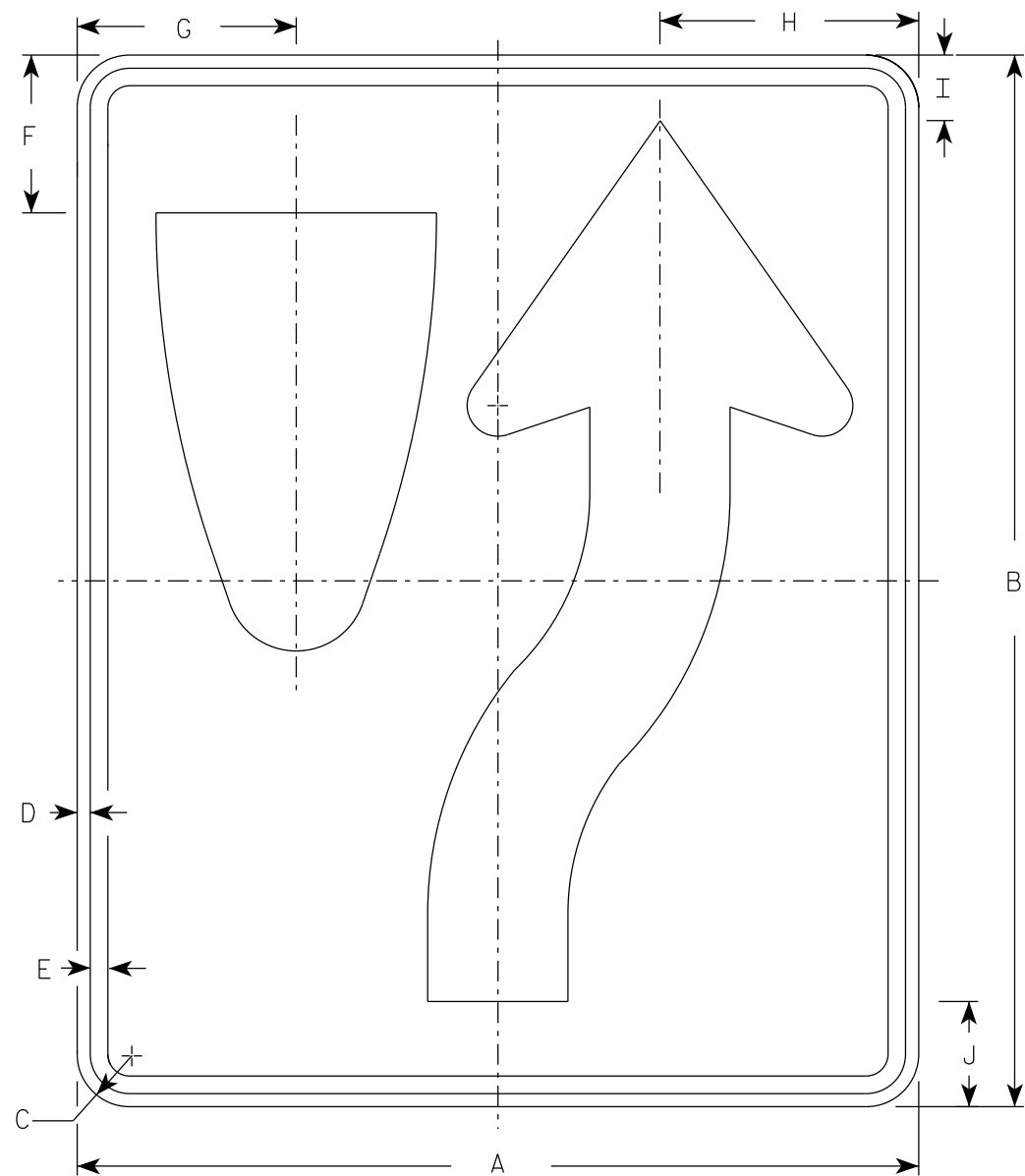
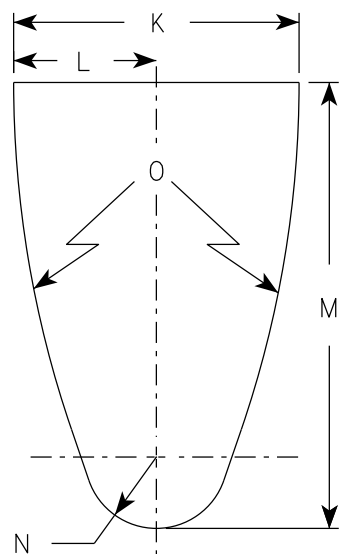
STANDARD SIGN
R3-50

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/23/23 PLATE NO. R3-50.3

DIVIDER DETAIL

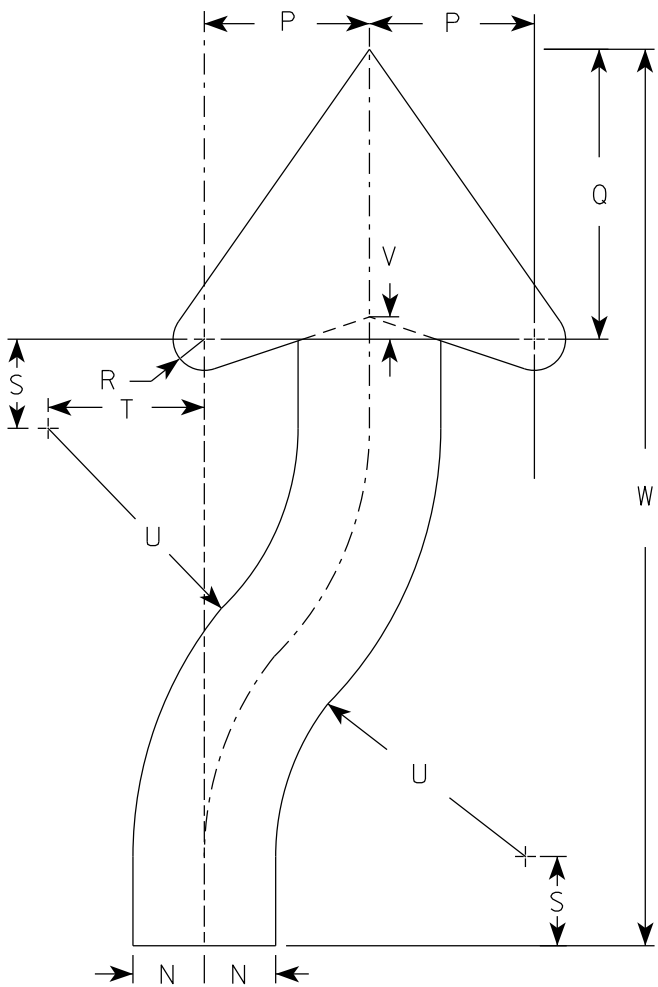


R4-7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. R4-8 is the same as R4-7 except Legend is reversed.

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 1/2	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 1/2	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 1/2	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 7/8	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 7/8	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	3	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

PROJECT NO:

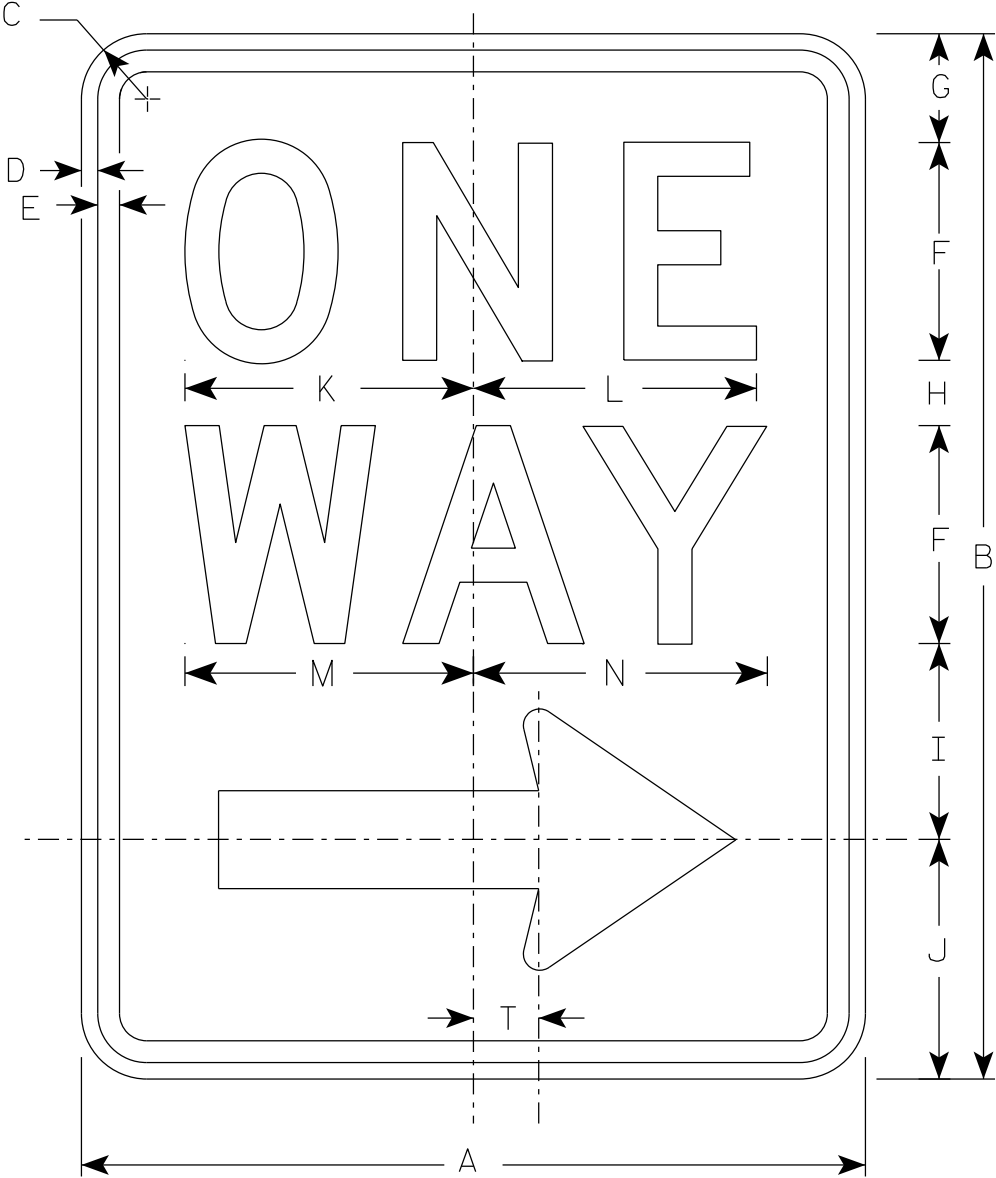
HWY:

COUNTY:

SHEET NO: 339

E

7

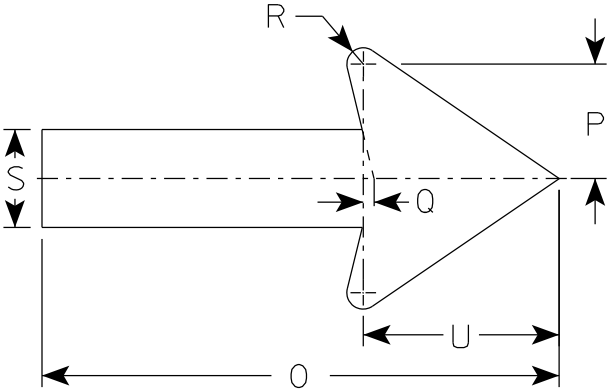


R6 - 2R

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - D
- 4. R6-2L same as R6-2R except arrow points to the left.

Arrow Detail



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
1	18	24	1 1/2	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	36	1 1/2	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 7/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

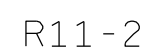
PROJECT NO:

HWY:

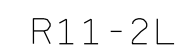
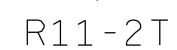
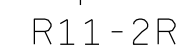
COUNTY:

SHEET NO: 340

E



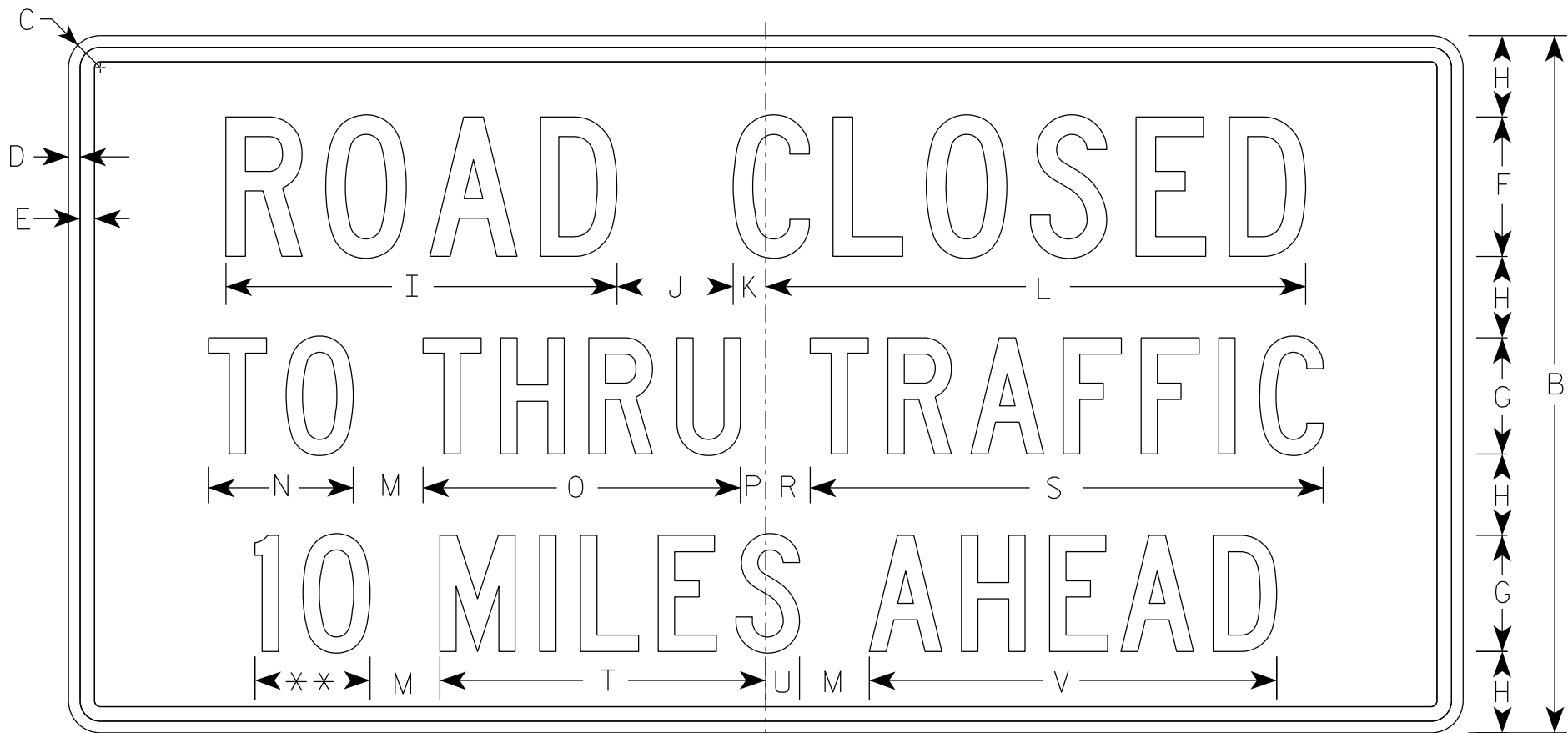
1. Sign is Type II - Type H Reflective
2. Color:
 - Background - White
 - Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the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



STANDARD SIGN	
R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<u>Matthew R Rauch</u> for State Traffic Engineer
DATE <u>2/5/24</u>	PLATE NO. <u>R11-2.12</u>

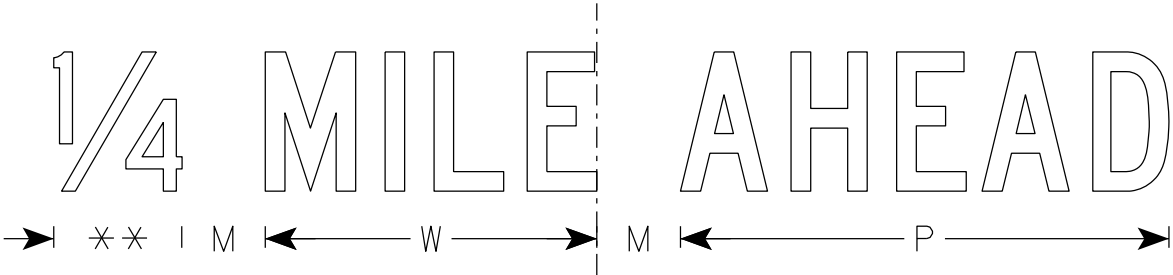
NOTES

- 1. Sign is Type II - Type H Reflective
- 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. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3

** See Note 5



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 1/2	3/8	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
2M	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
3																											
4																											
5																											

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3.10

PROJECT NO:

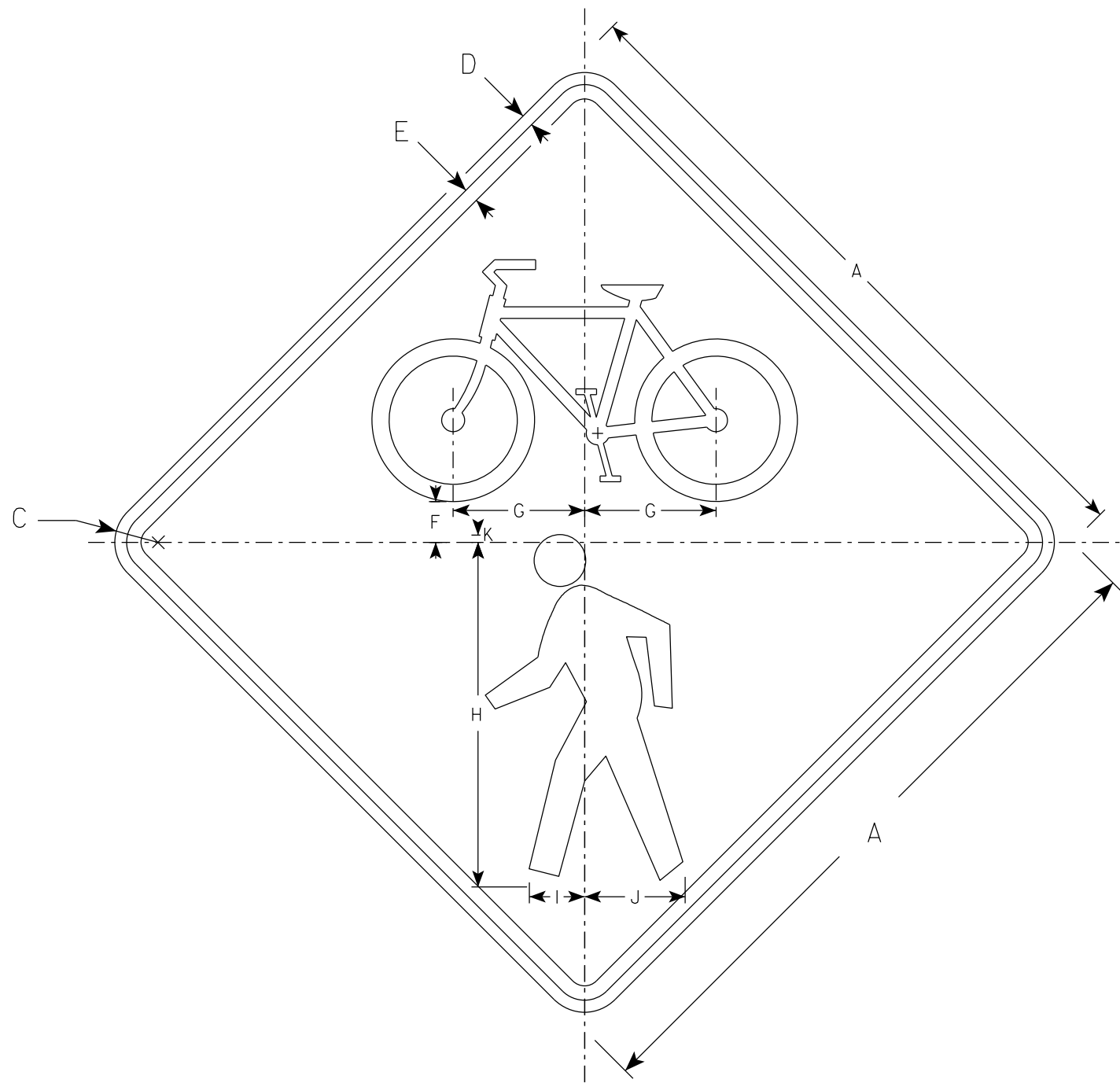
HWY:

COUNTY:

SHEET NO: 342

E

7



W11-15

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black

7

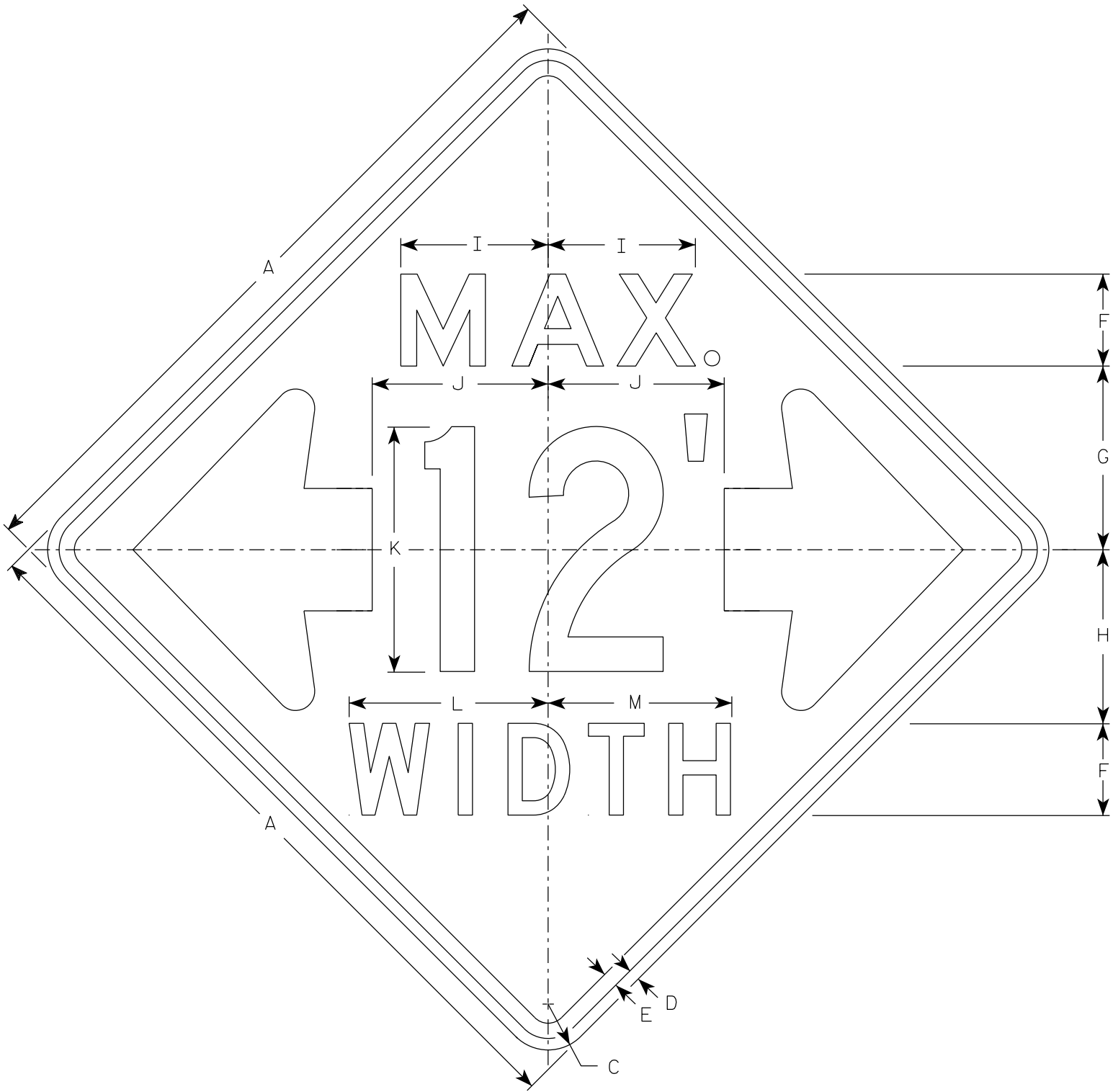
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	1 3/8	4 5/8	12	1 7/8	3 1/2	1/4																4.0
2S	30		1 7/8	1/2	5/8	1 3/4	5 3/4	15	2 3/8	4 3/8	3/8																6.25
2M	36		2 1/4	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																9.0
3	36		2 1/4	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																9.0
4	48		3	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

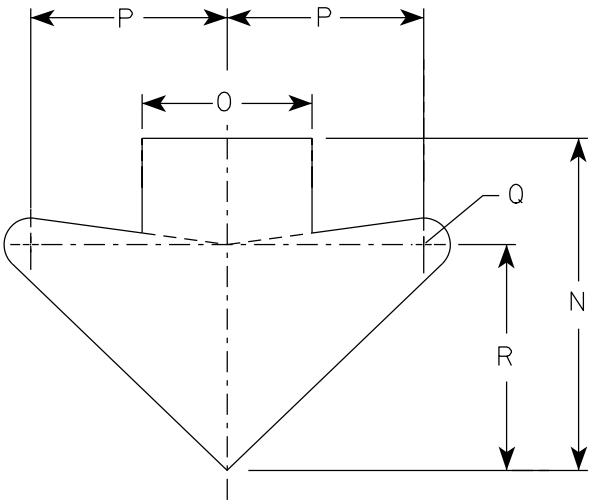
DATE 11/21/2023 PLATE NO. W11-15.5



W12-52

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See note 5
- 4. The top line is series E, the numerals are series C, and the bottom line is series D.
- 5. Substitute appropriate numerals and adjust spacing as required.



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	48		3	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
2M	48		3	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
3																											
4																											
5																											

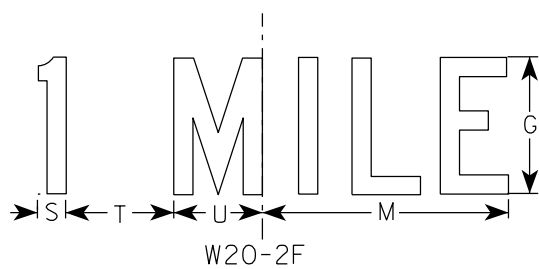
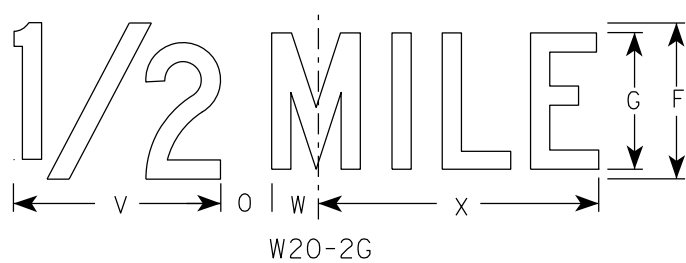
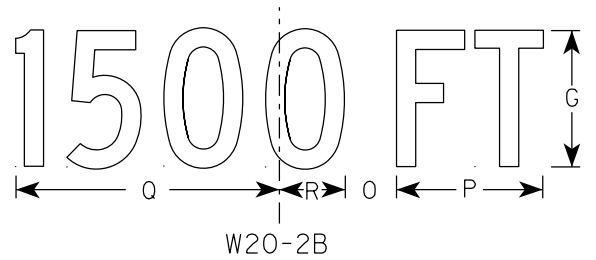
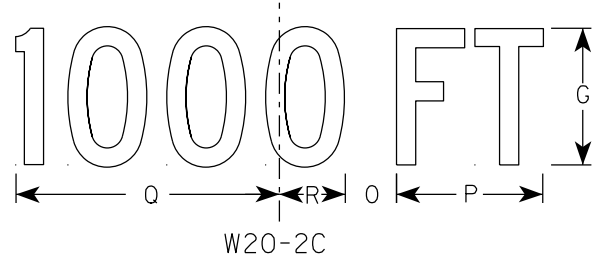
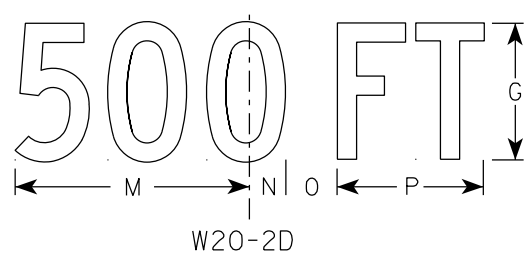
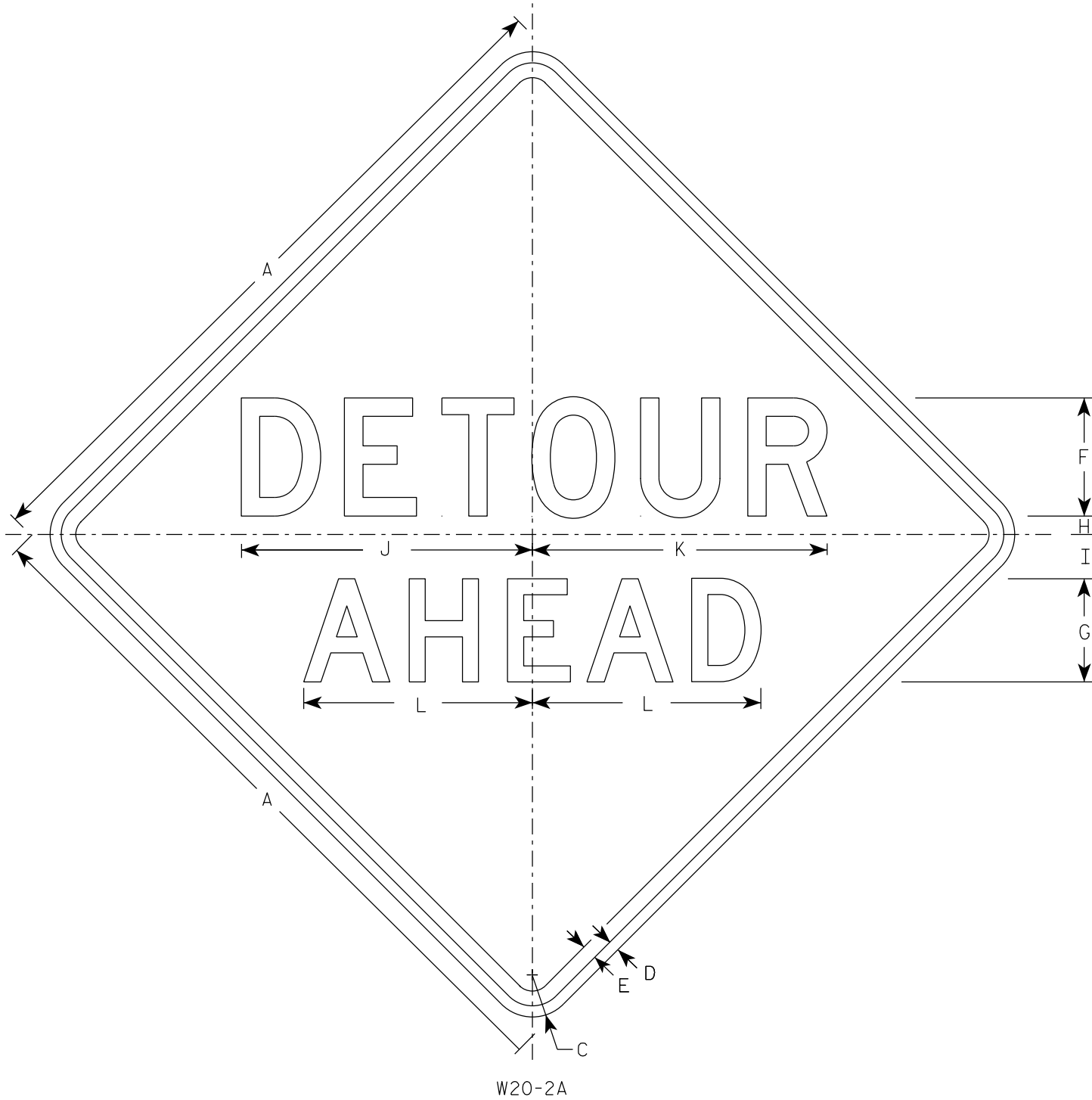
STANDARD SIGN

W12-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/10/2024 PLATE NO. W12-52.8

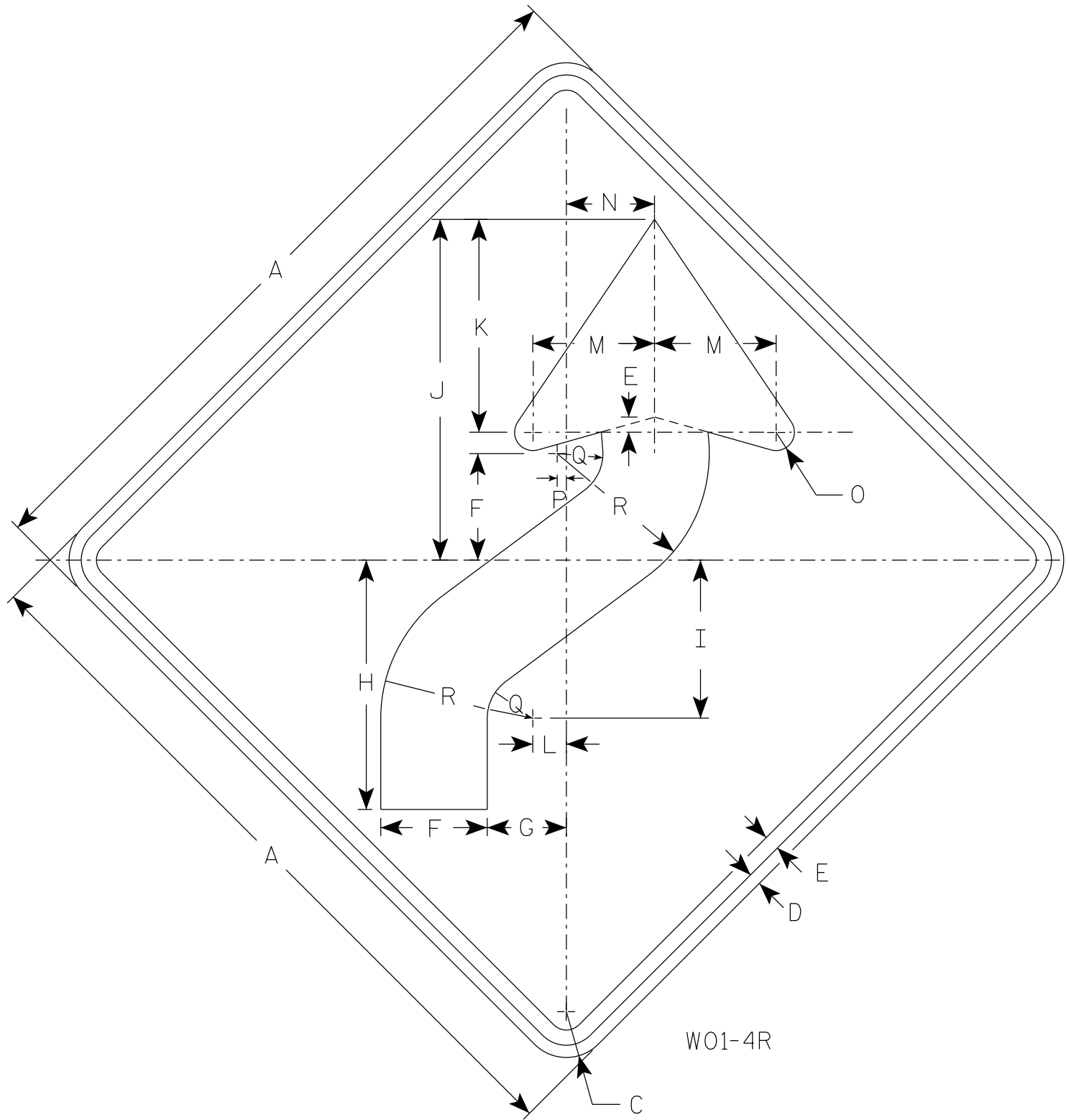


NOTES

- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- 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.
- Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

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		2 1/4	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		3	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		3	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		3	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		3	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		3	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	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7



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.
- 4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

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		2 1/4	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

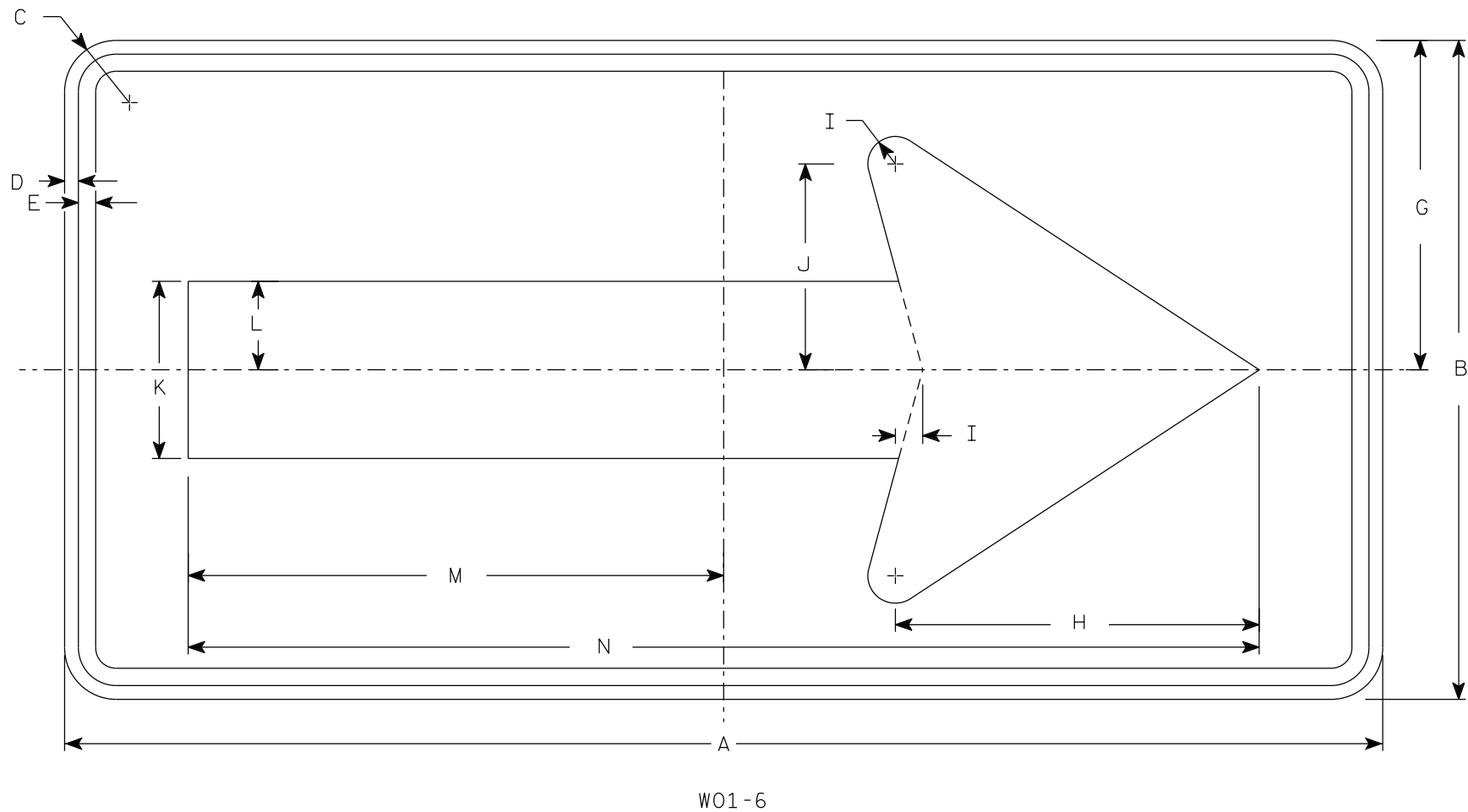
STANDARD SIGN
W01-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W01-4.2

7



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

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	24	1 7/8	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 7/8	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 7/8	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 7/8	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	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

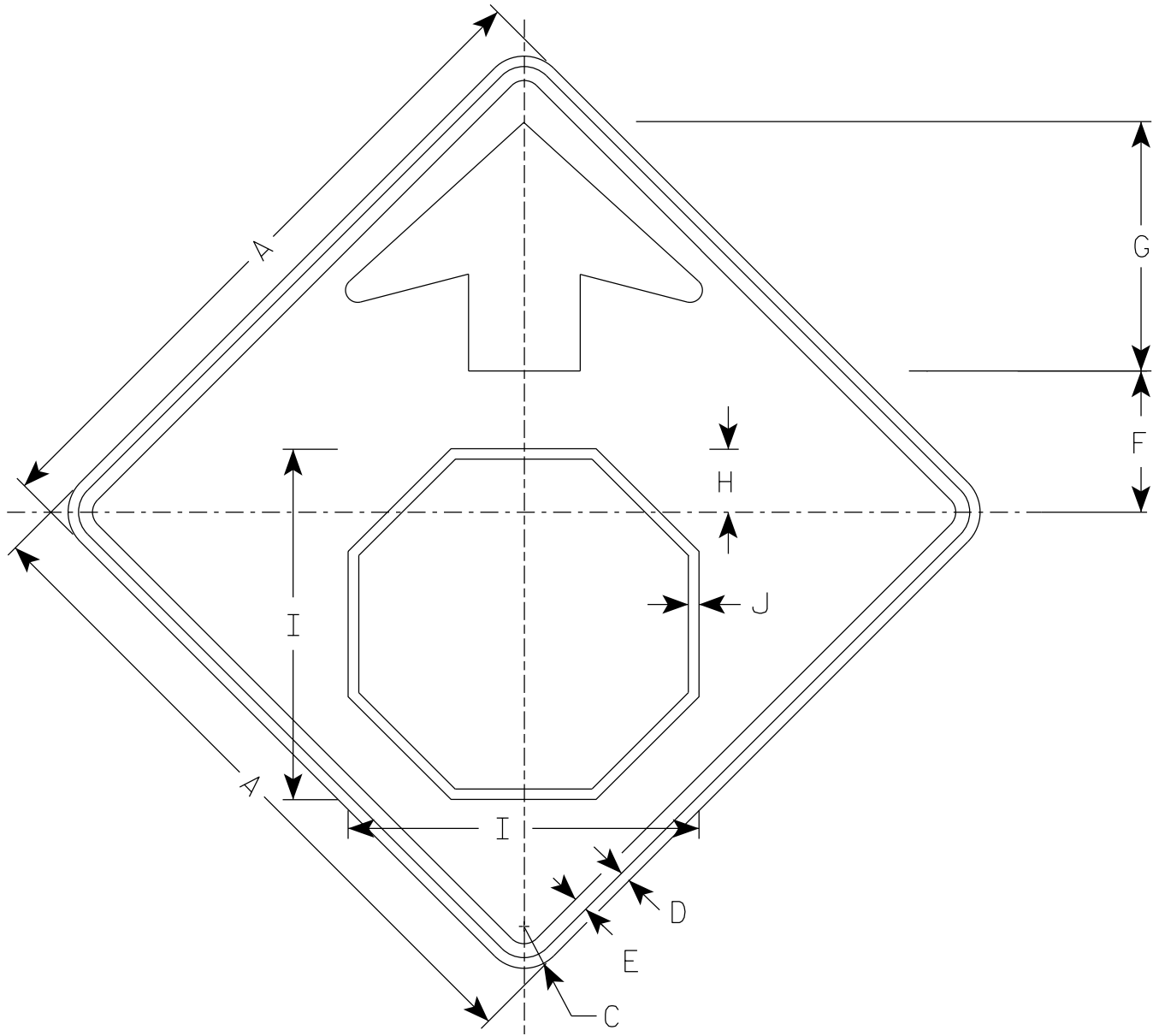
APPROVED

Matthew R. Rauch

for State Traffic Engineer

DATE 1/24/2024

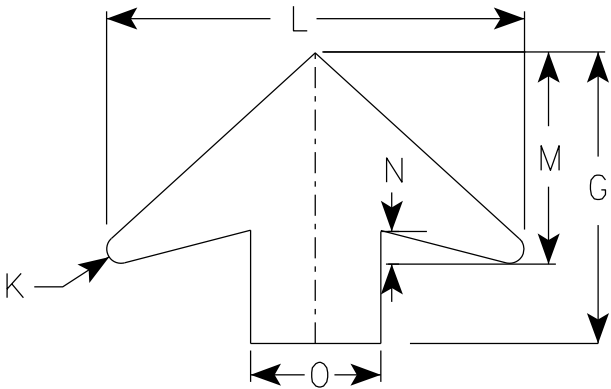
PLATE NO. W01-6.2



W03-1

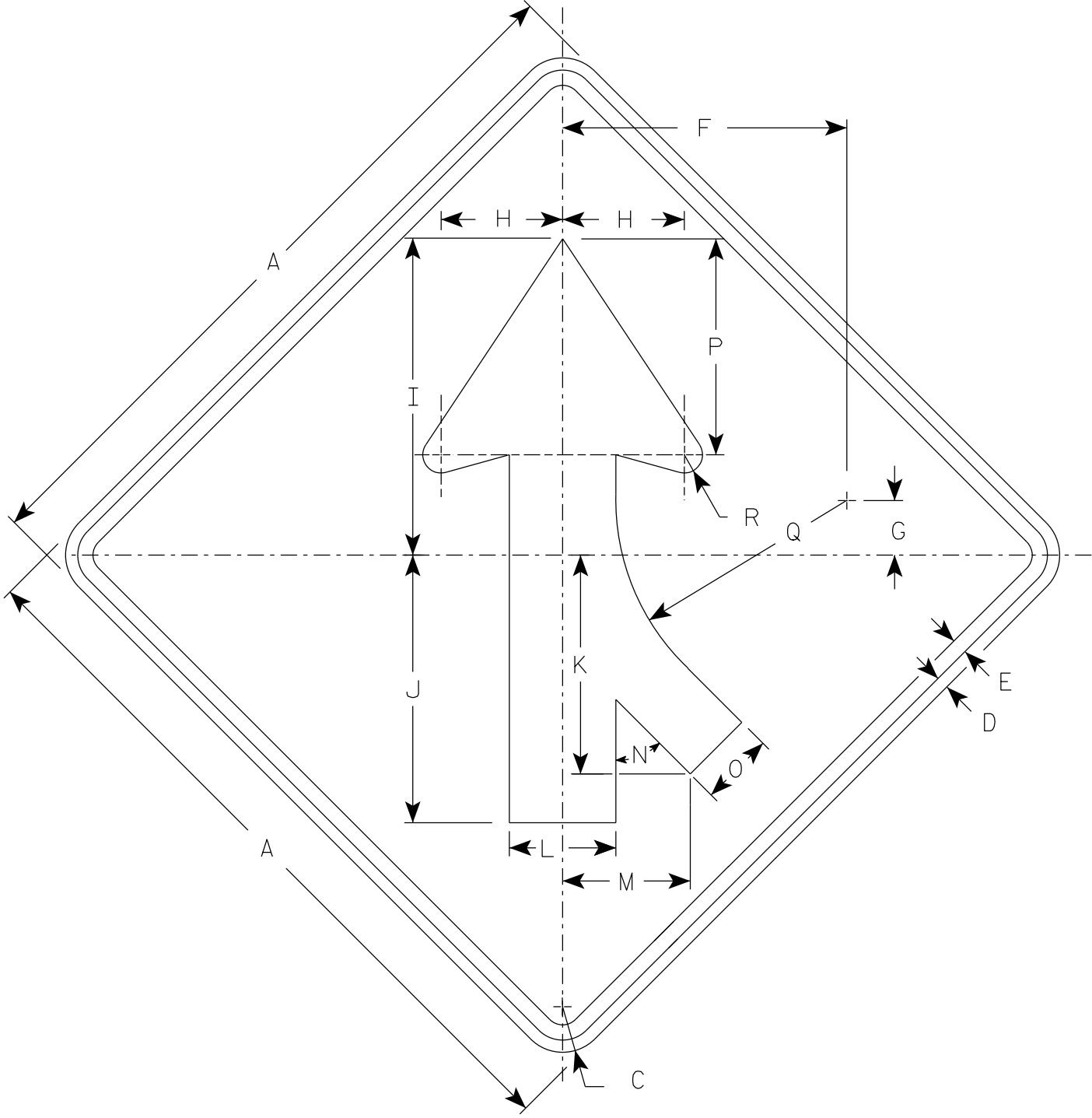
NOTES

- 1. All Signs Type II - Type F Reflective
- 2. Color:
 - Background - ORANGE
 - Arrow & Border - BLACK
 - Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2S	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
2M	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
3	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
4	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0



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.
- 4. W04-1L is the same as W04-1R 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	36		2 1/4	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
2S	48		3	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
2M	48		3	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
3	48		3	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
4	48		3	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		3	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

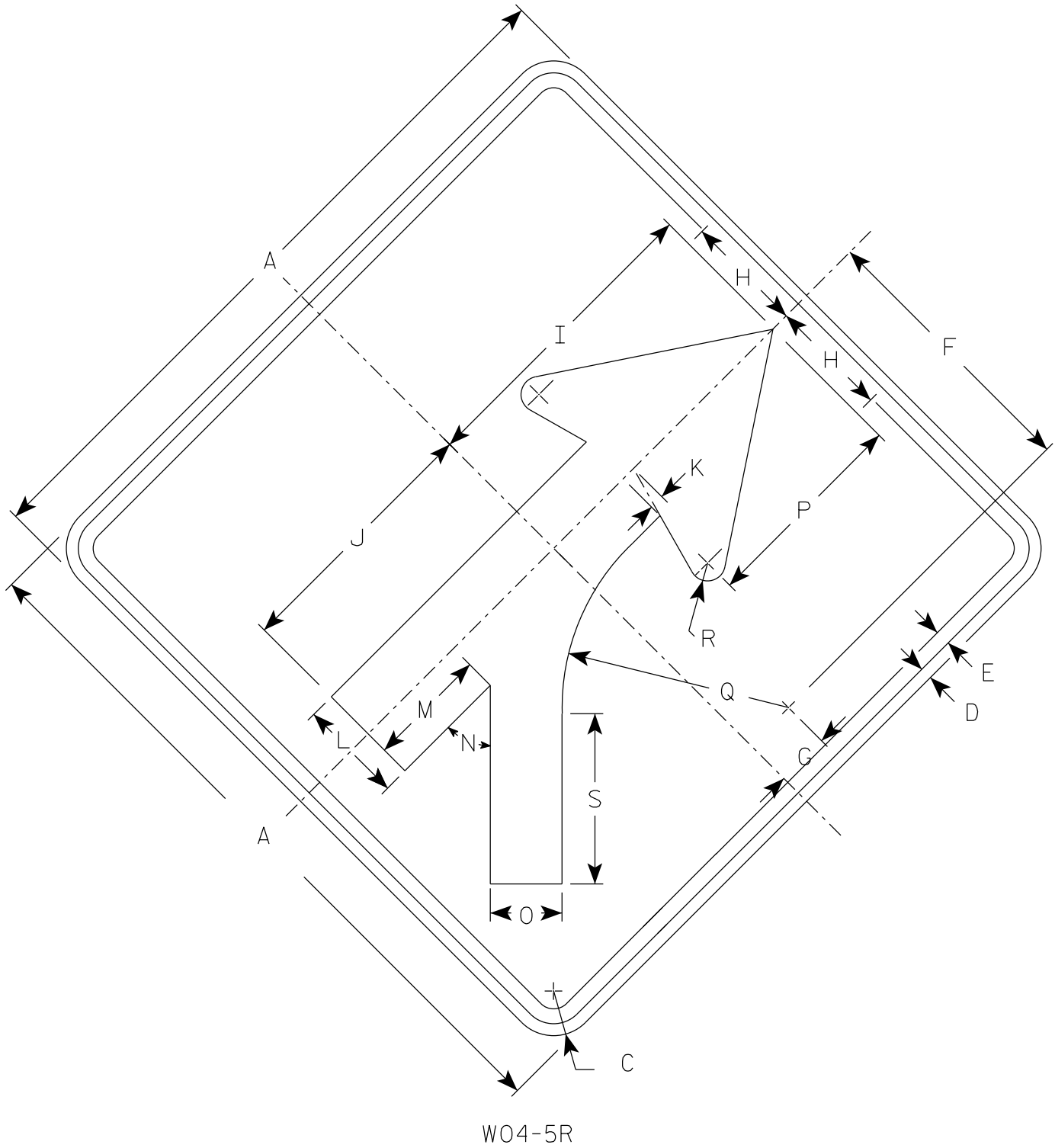
STANDARD SIGN

W04-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/25/2024 PLATE NO. W04-1.3



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.
- 4. W04-5L is the same as W04-5R except the arrow is reversed along the vertical centerline.

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		2 1/4	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	3/4	5 1/4	6 1/8	45°	3 5/8	10 5/8	11 3/8	7/8	8 1/2								9.0
2S	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
2M	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
3	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
4	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0
5	48		3	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	1	7	8 1/8	45°	4 3/4	14 1/4	15 1/4	1 1/4	11 3/8								16.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 350

E

STANDARD SIGN

W04-5

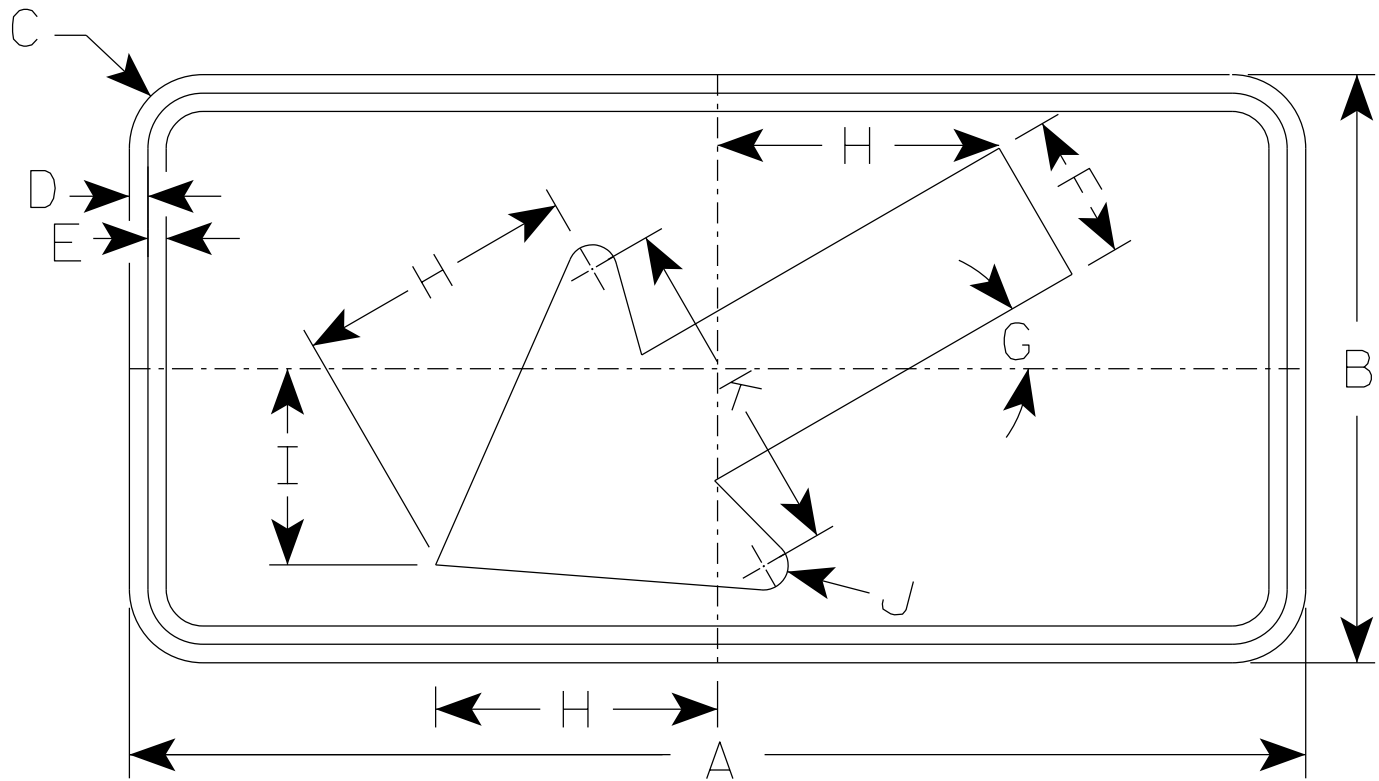
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/25/2024 PLATE NO. W04-5.3

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

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	3/8	1/2	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
2S	48	24	1 7/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
2M	48	24	1 7/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
3	48	24	1 7/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
4	48	24	1 7/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0
5	48	24	1 7/8	1/2	5/8	6	30°	11 1/2	8	1	14																8.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 351

E

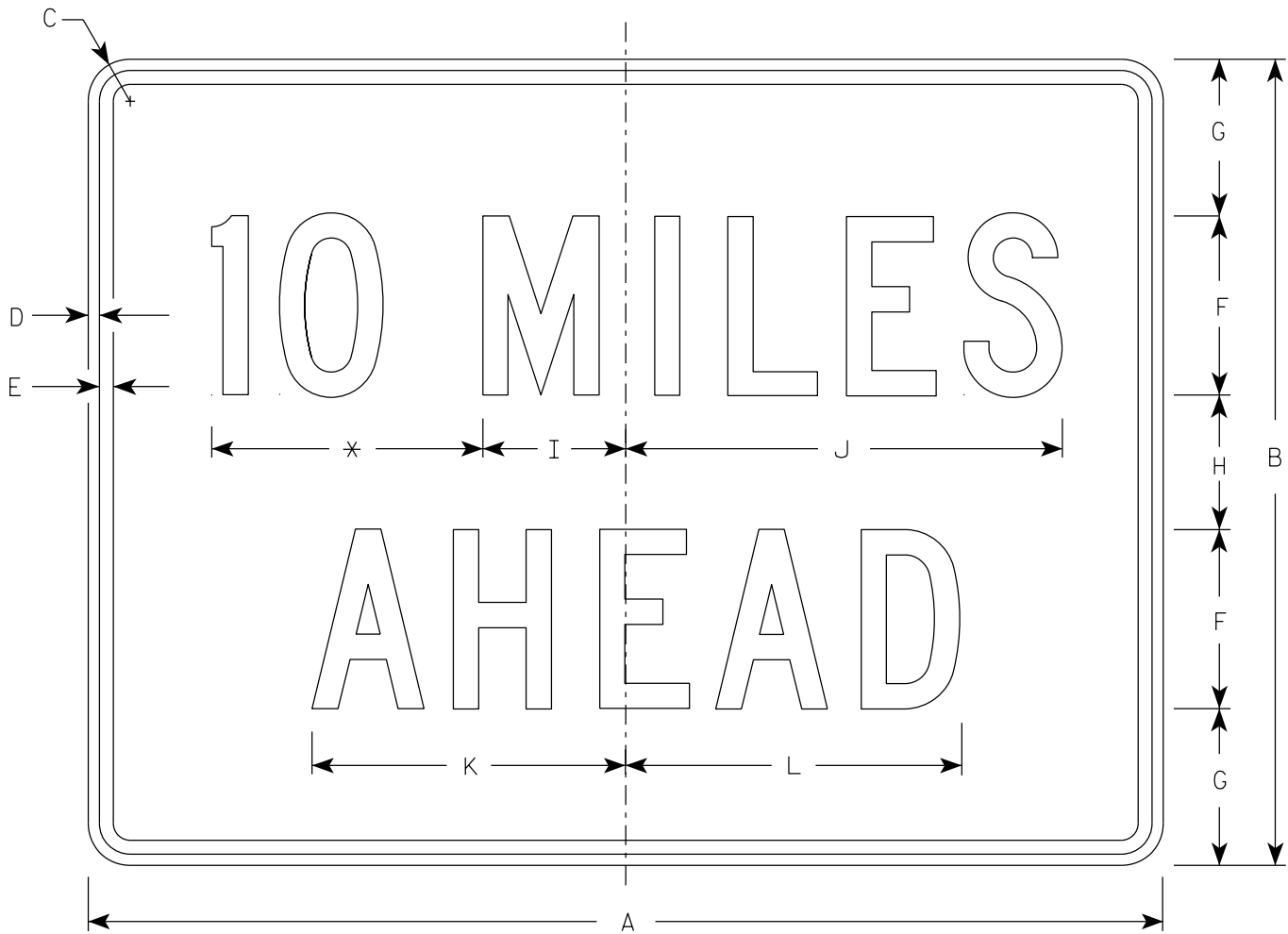
STANDARD SIGN
W016-7

WISCONSIN DEPT OF TRANSPORTATION

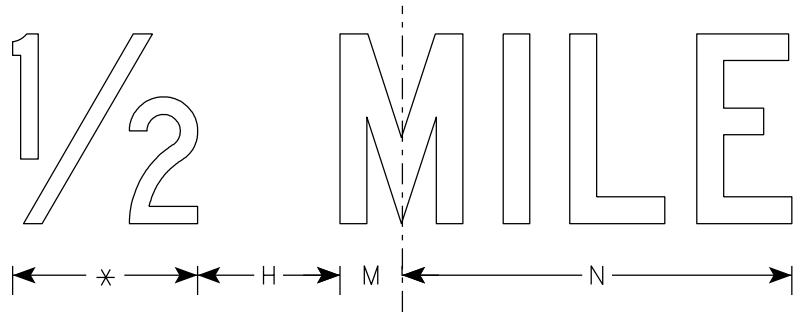
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/2024 PLATE NO. W016-7.3

7



W057-52



* See note 5

NOTES

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

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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	24	1 1/2	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

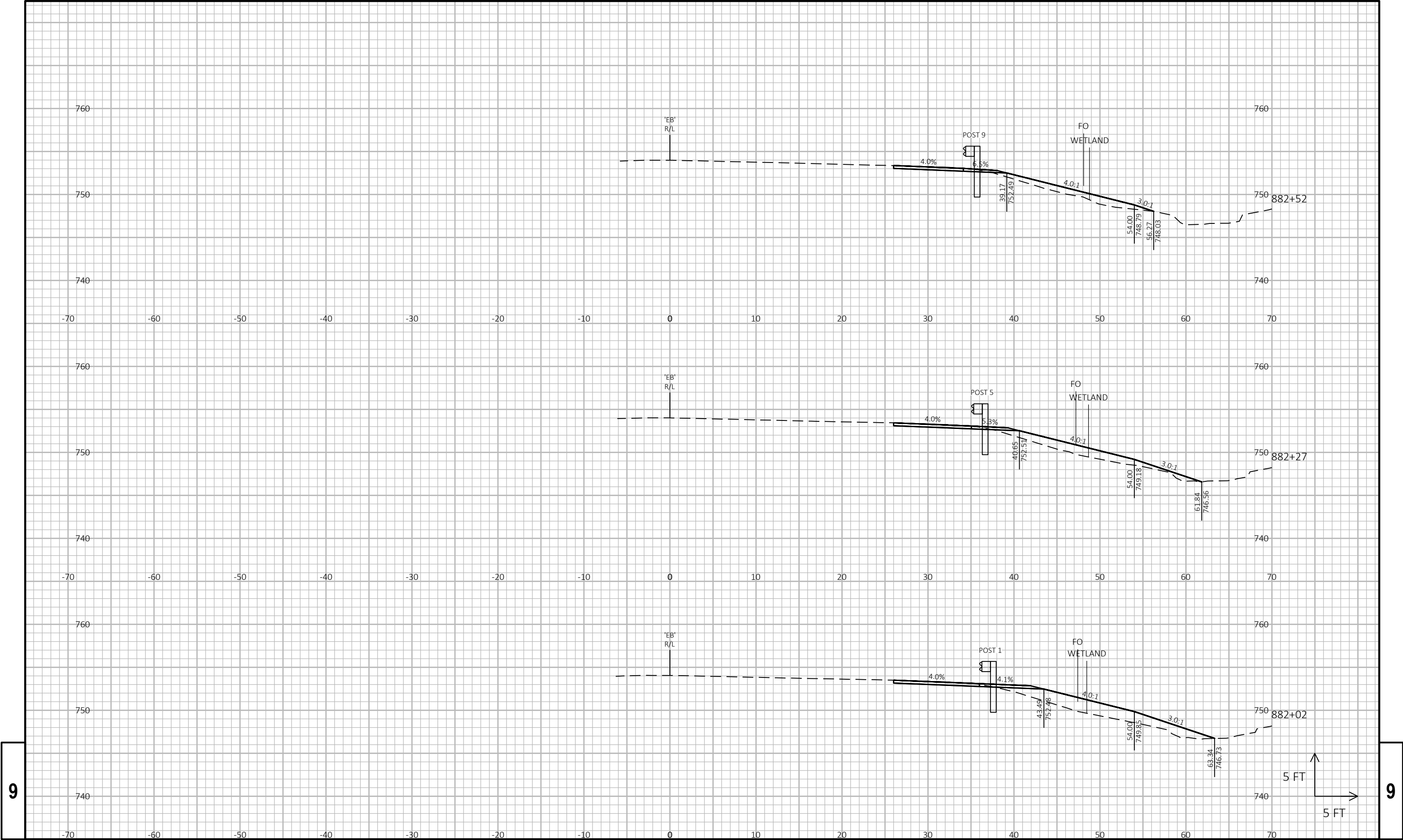
STANDARD SIGN

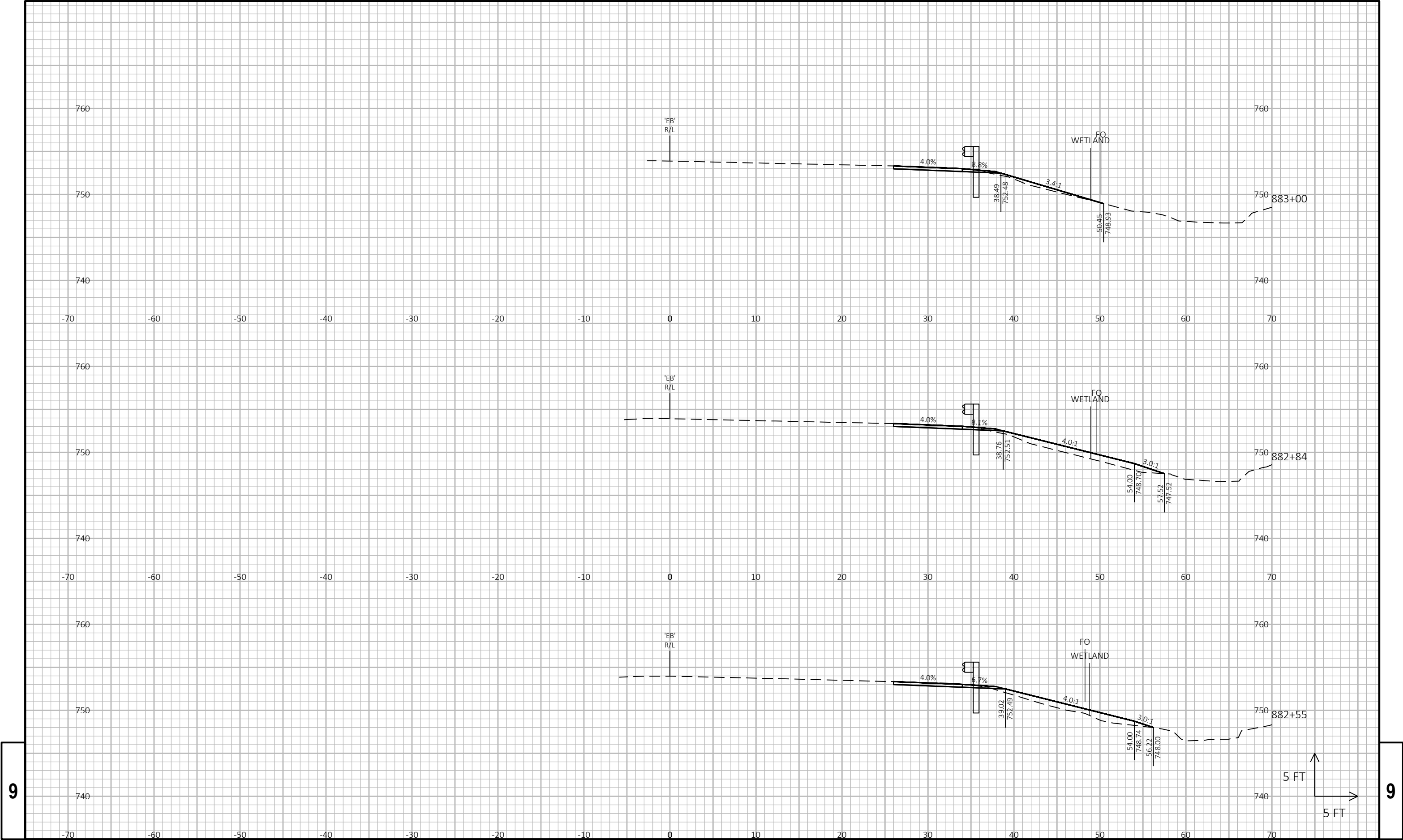
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/2024 PLATE NO. W057-52.3





9

9

PROJECT NO: 1500-49-60

HWY: USH 10

COUNTY: CALUMET

CROSS SECTIONS: GUARDRAIL - USH 10 EB - C-08-0018

SHEET

355

E

FILE NAME : P:\56XX\5699.DP.24.USH10.CAL\CADD\15004960\090201-XS.DWG
LAYOUT NAME - 03

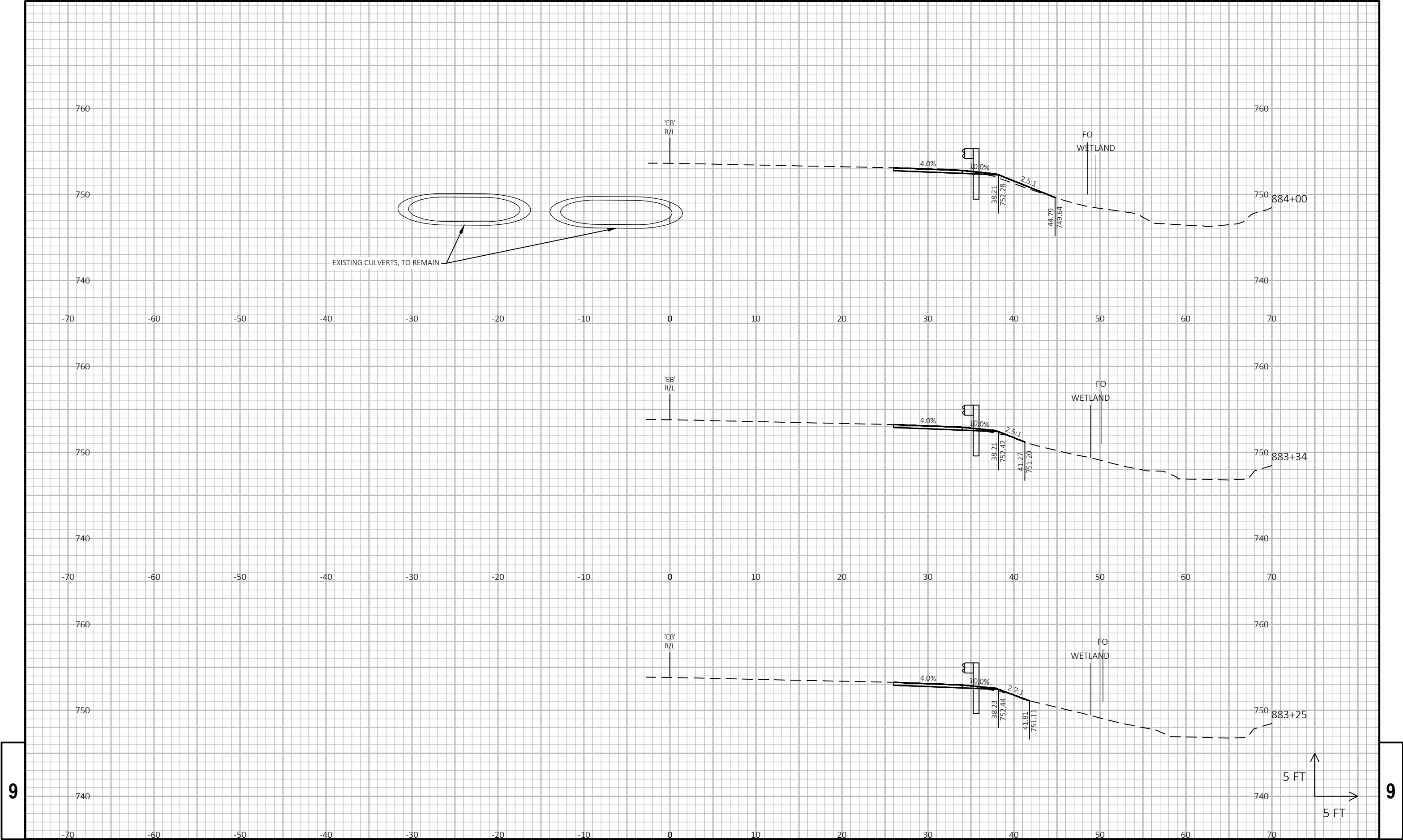
PLOT DATE : 8/14/2025 12:51 PM

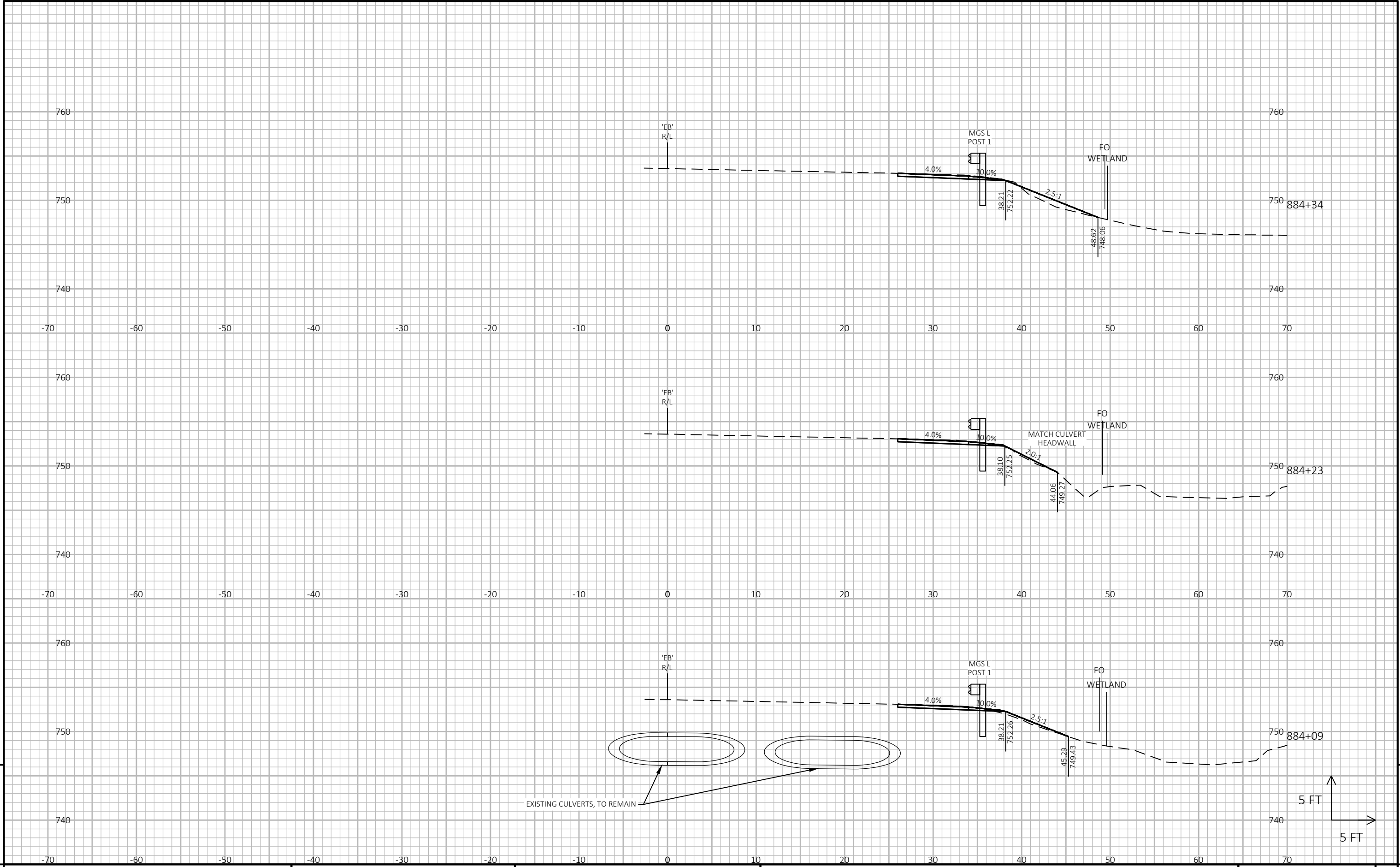
PLOT BY : AUSTIN STRAHL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

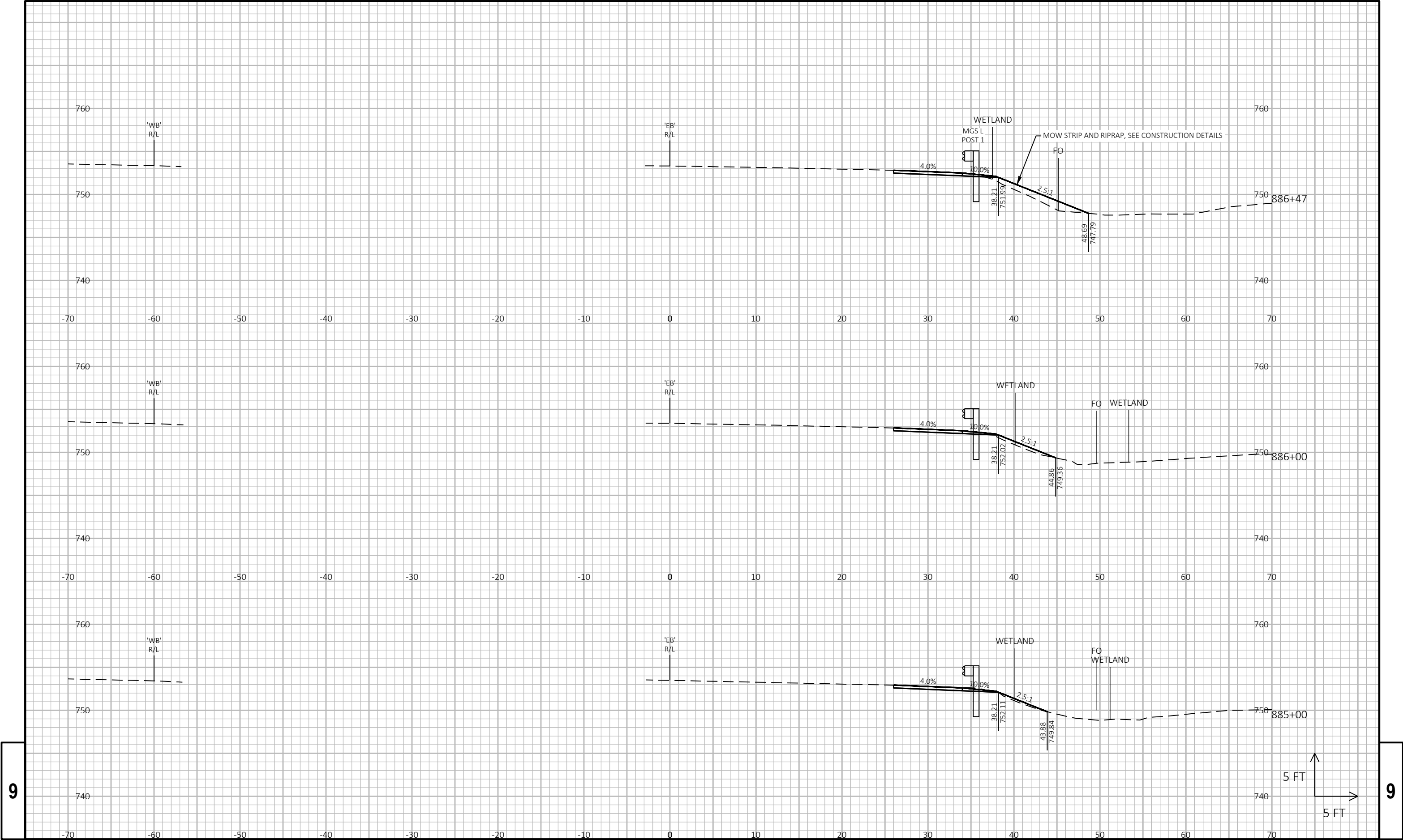
WISDOT/CADD SHEET 49





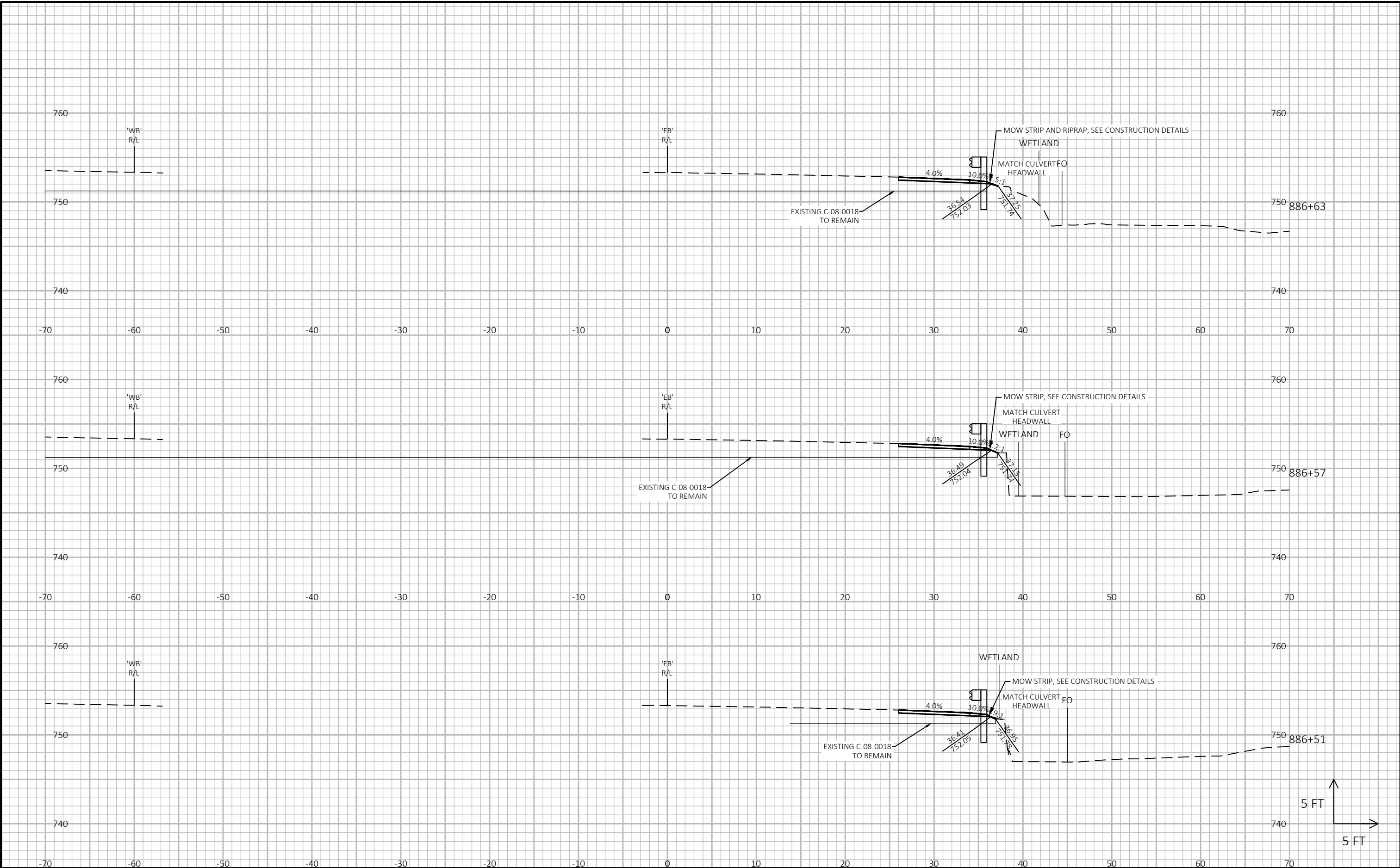
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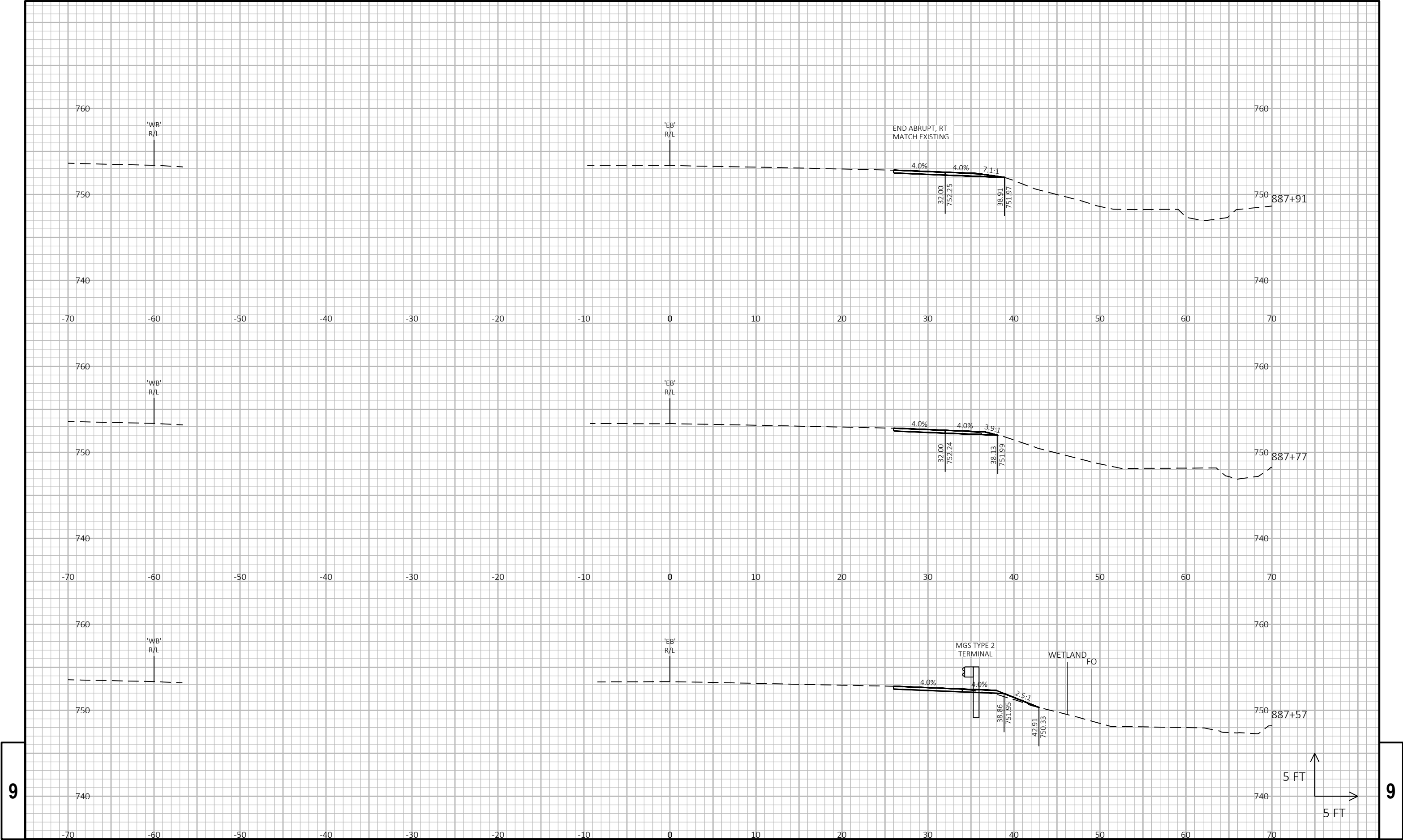
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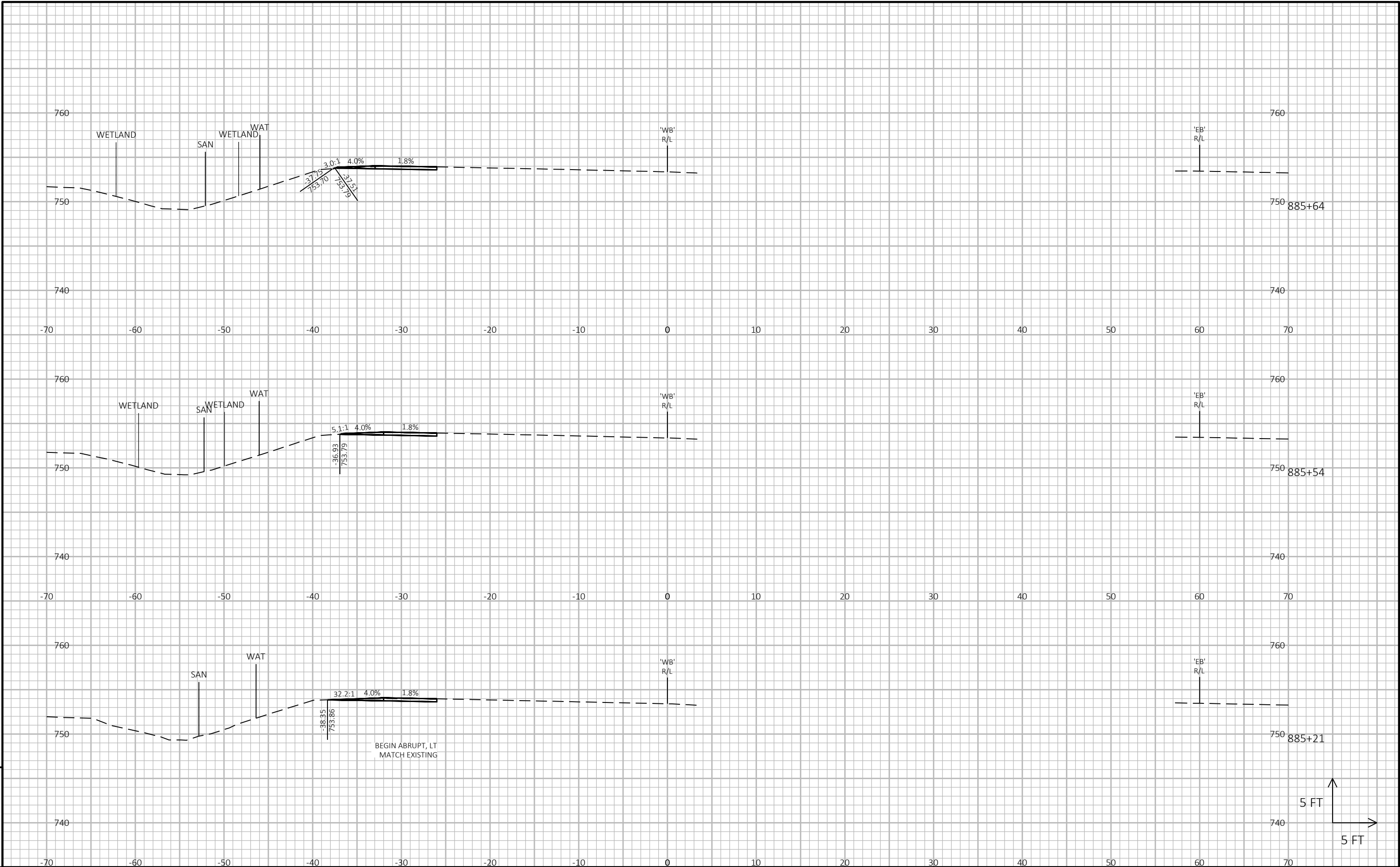
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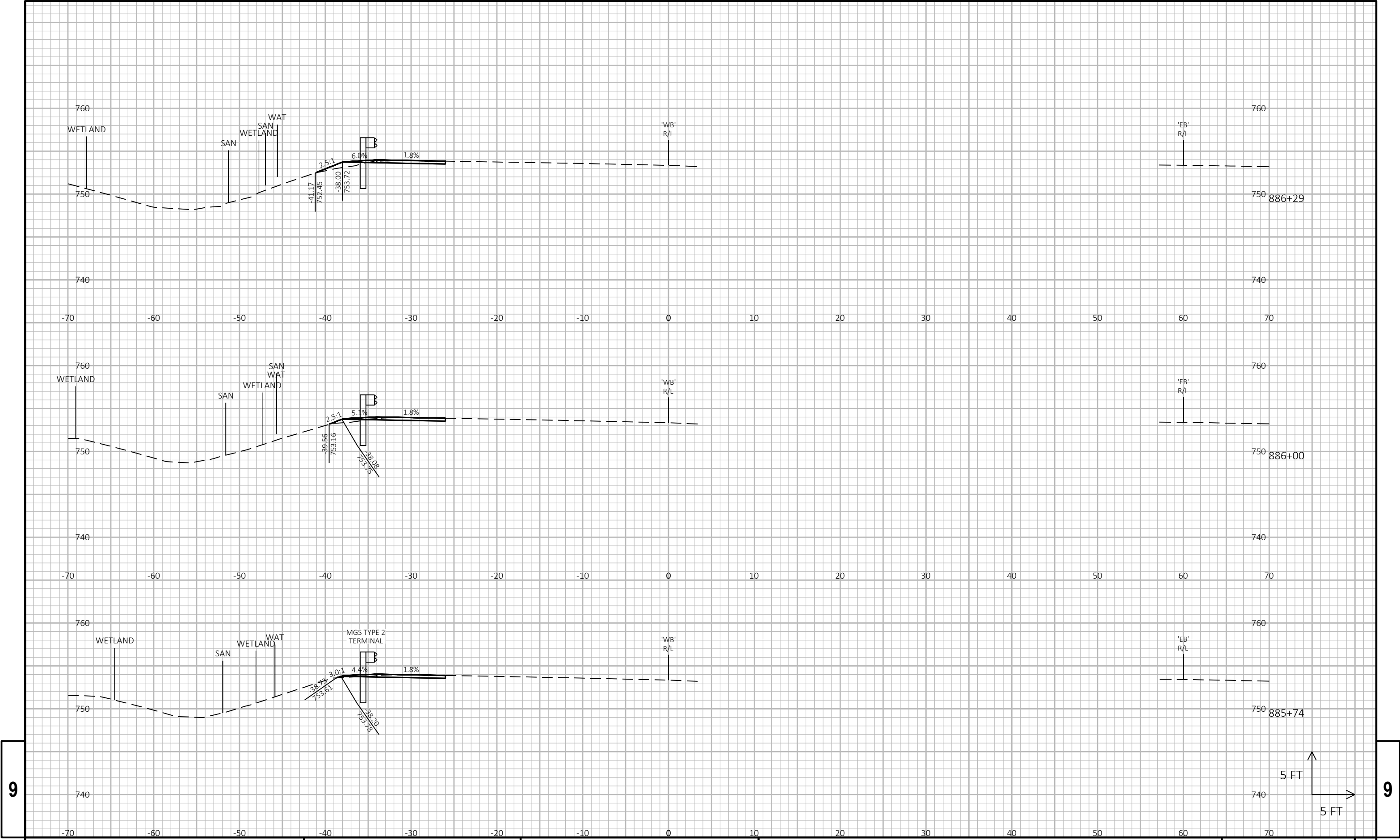




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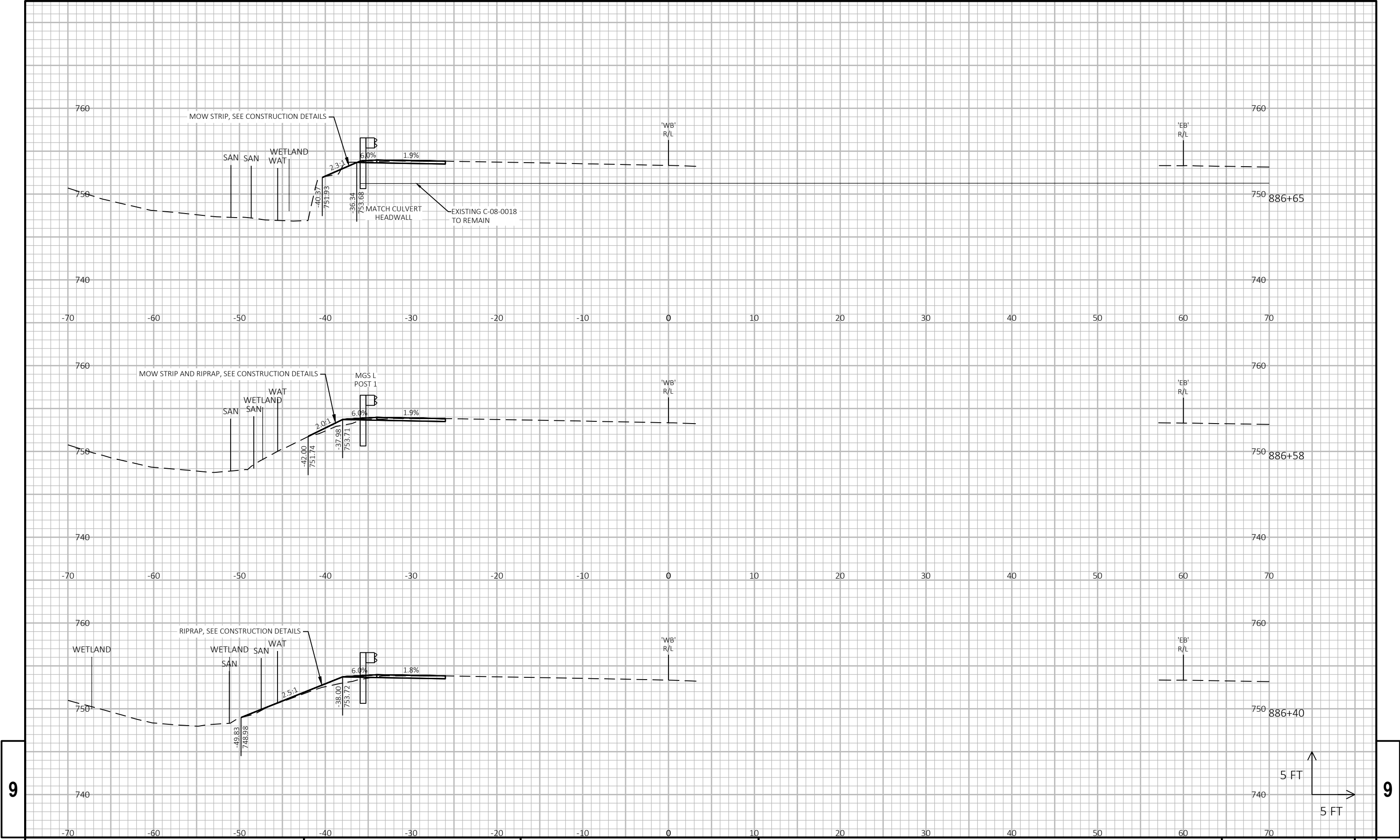
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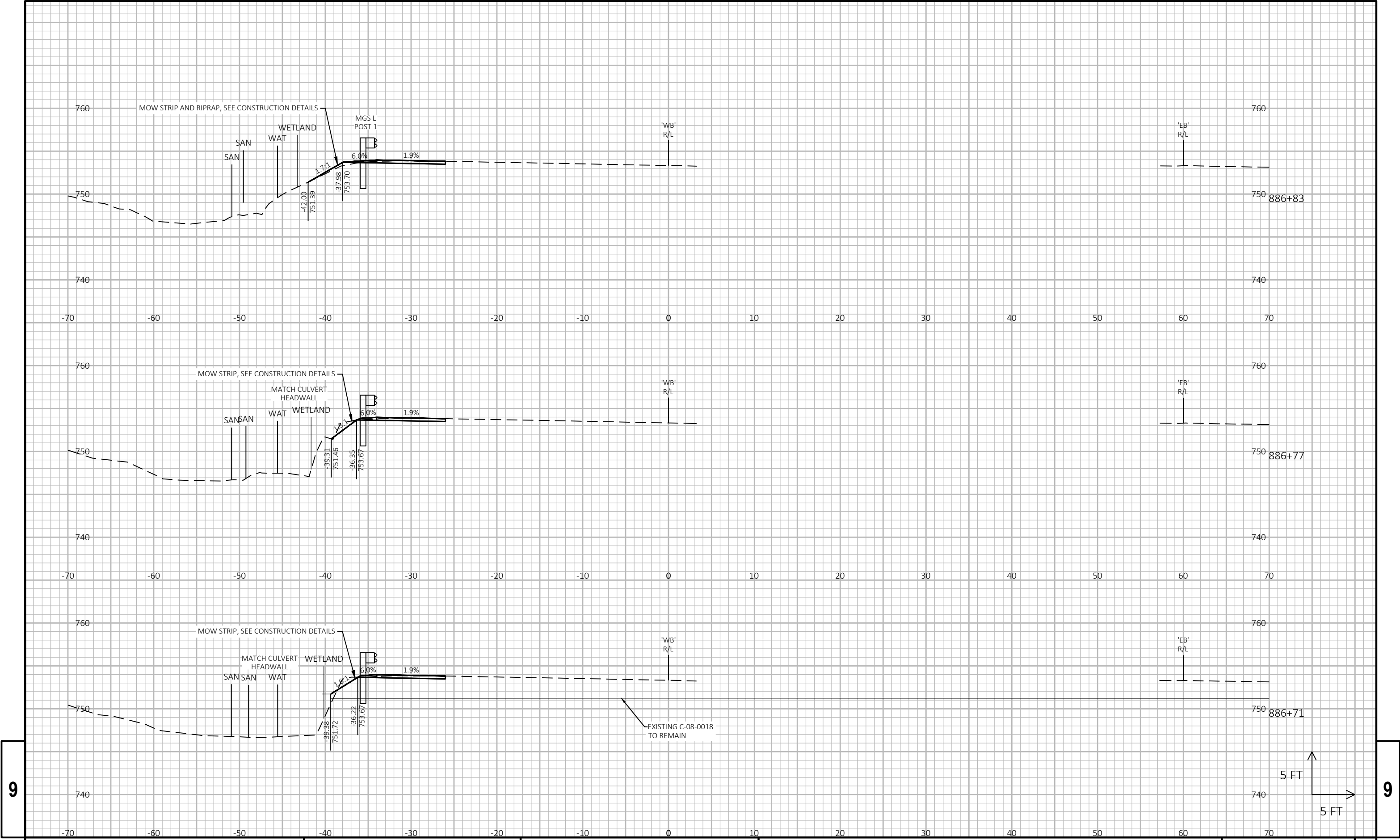
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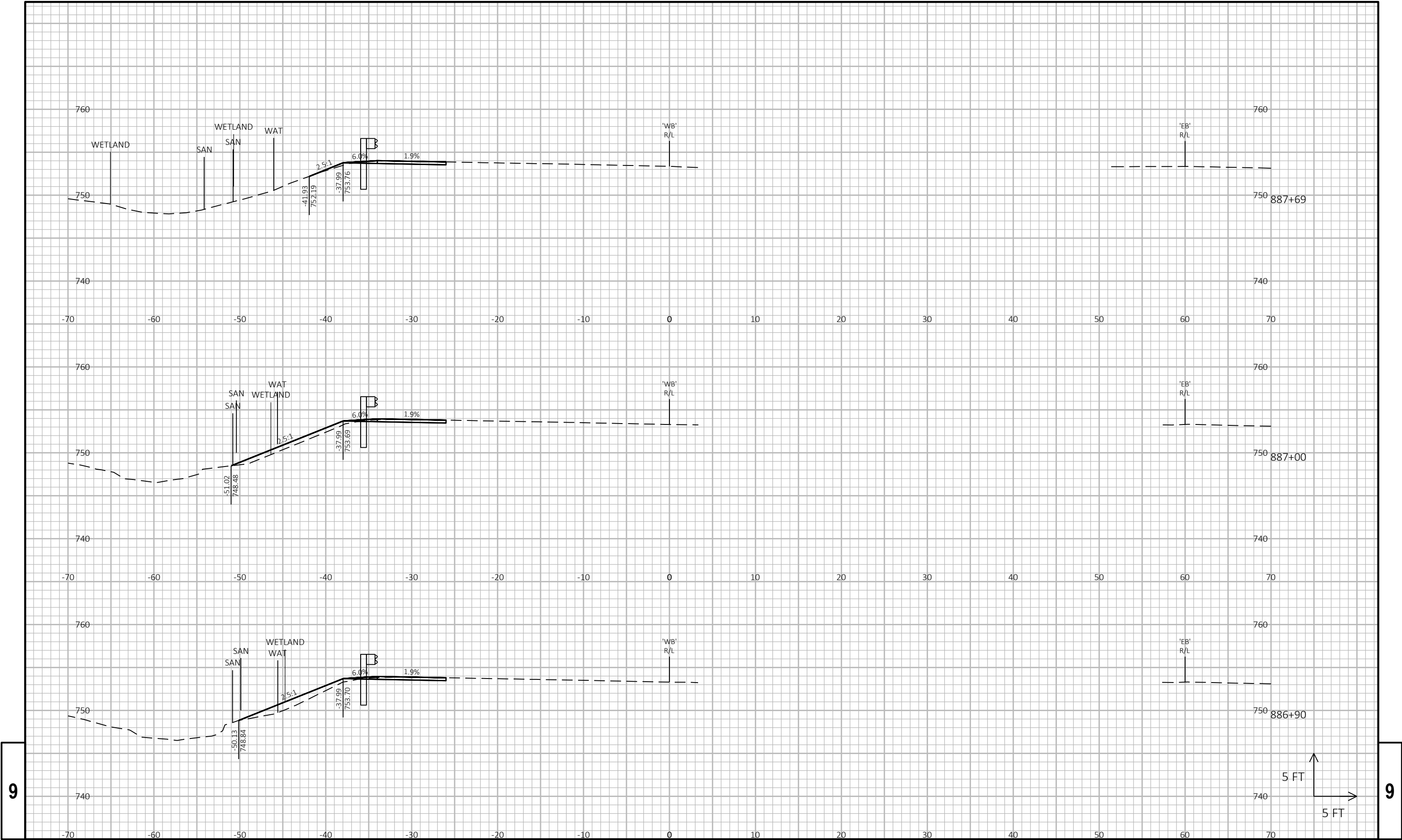
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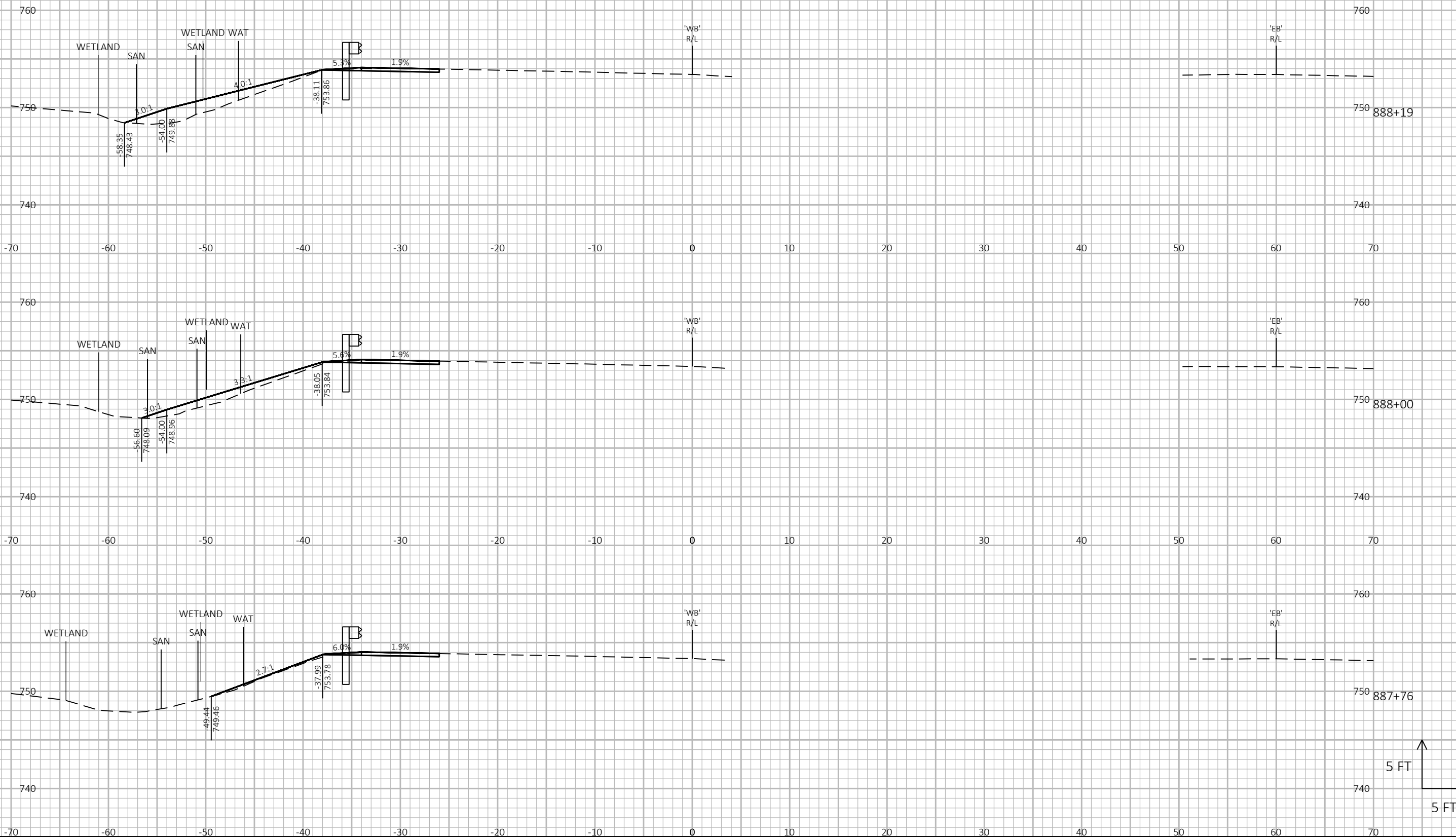
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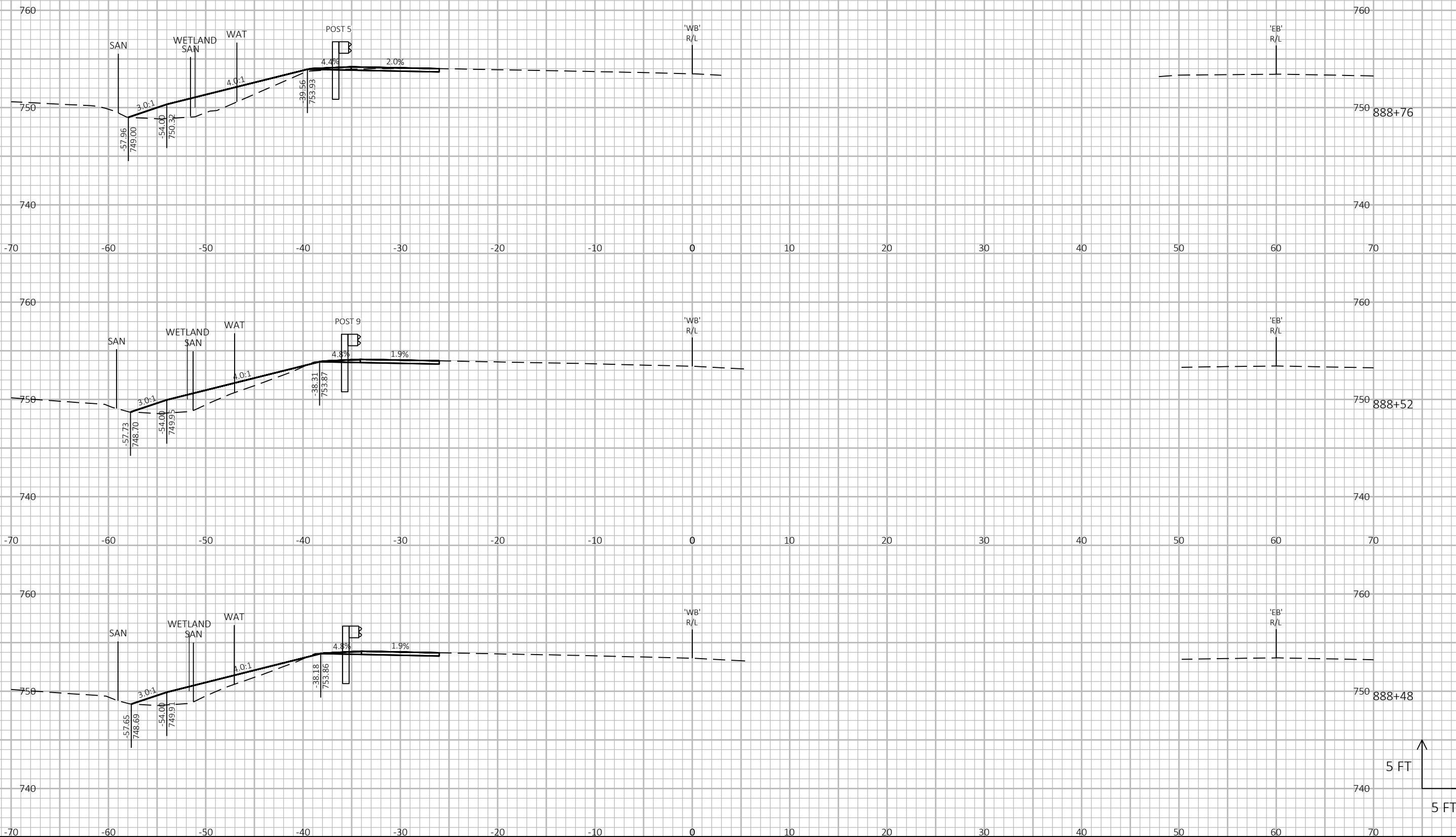
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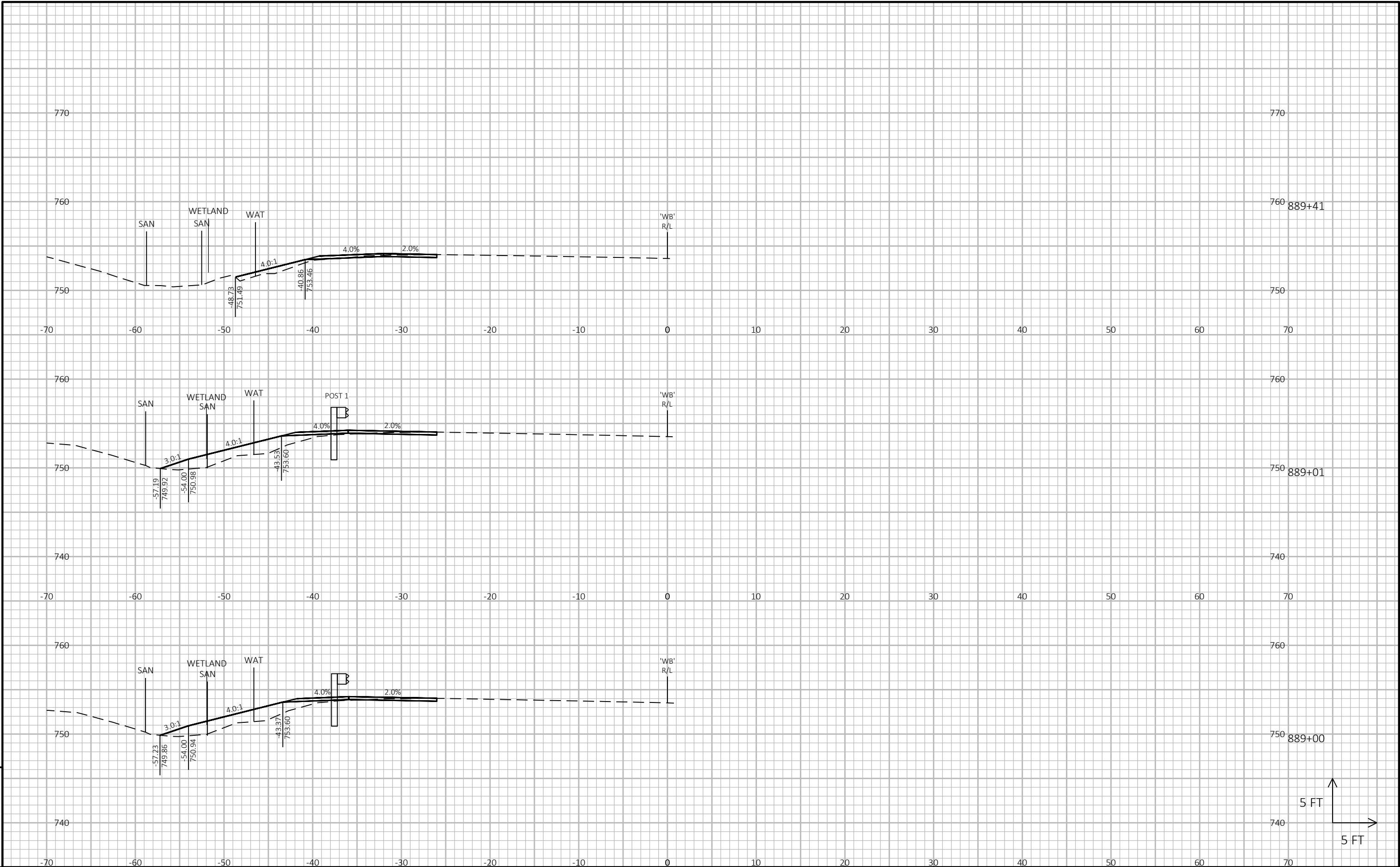
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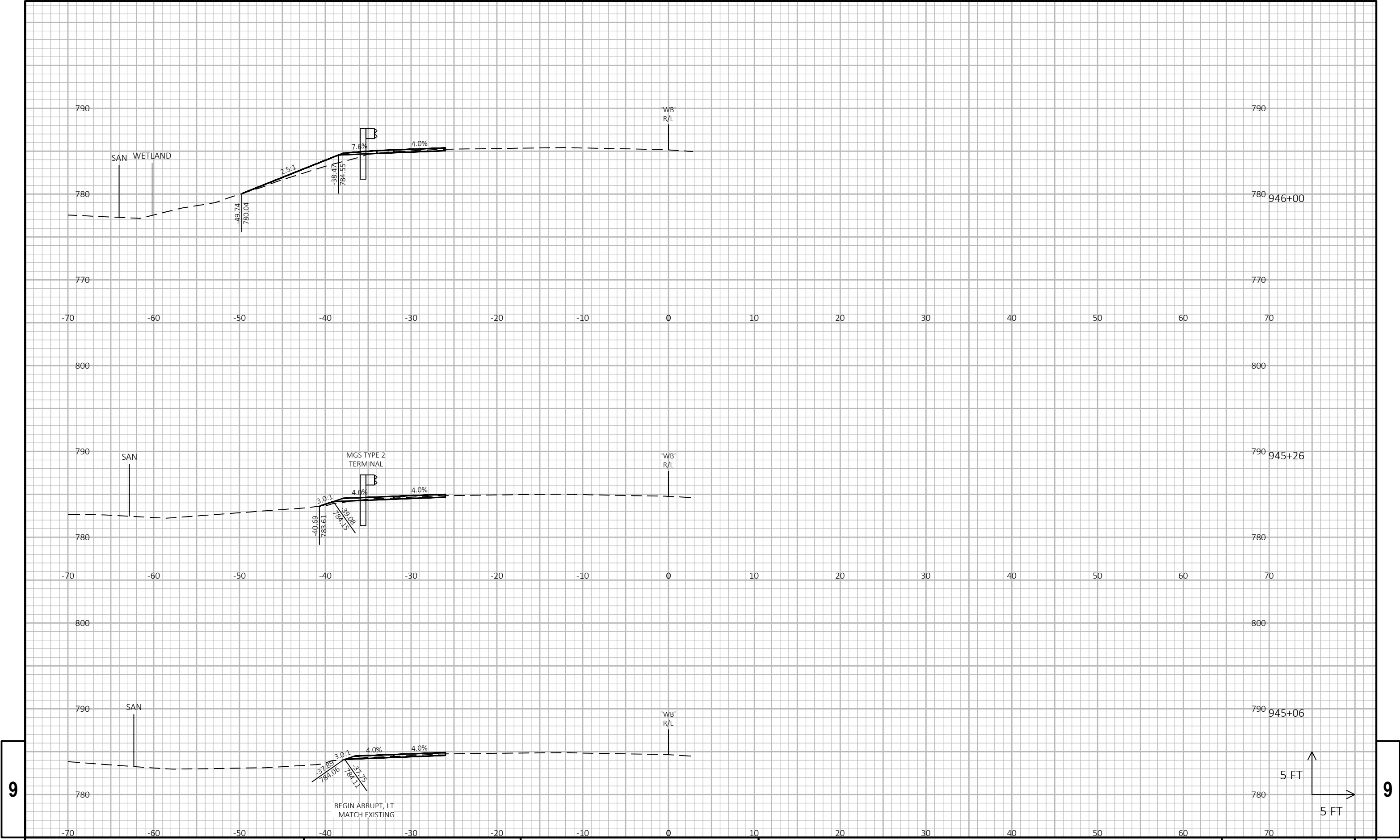
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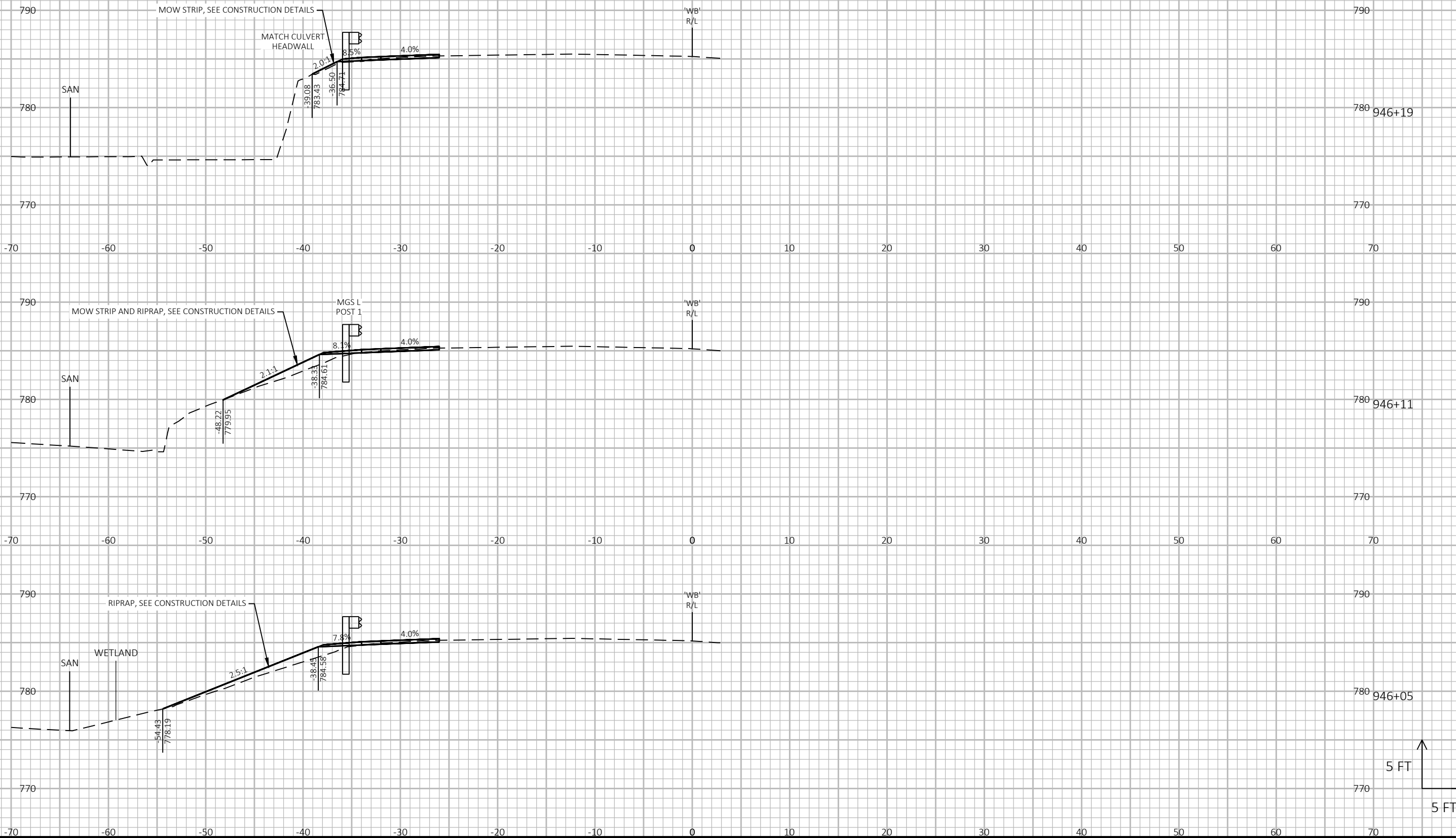


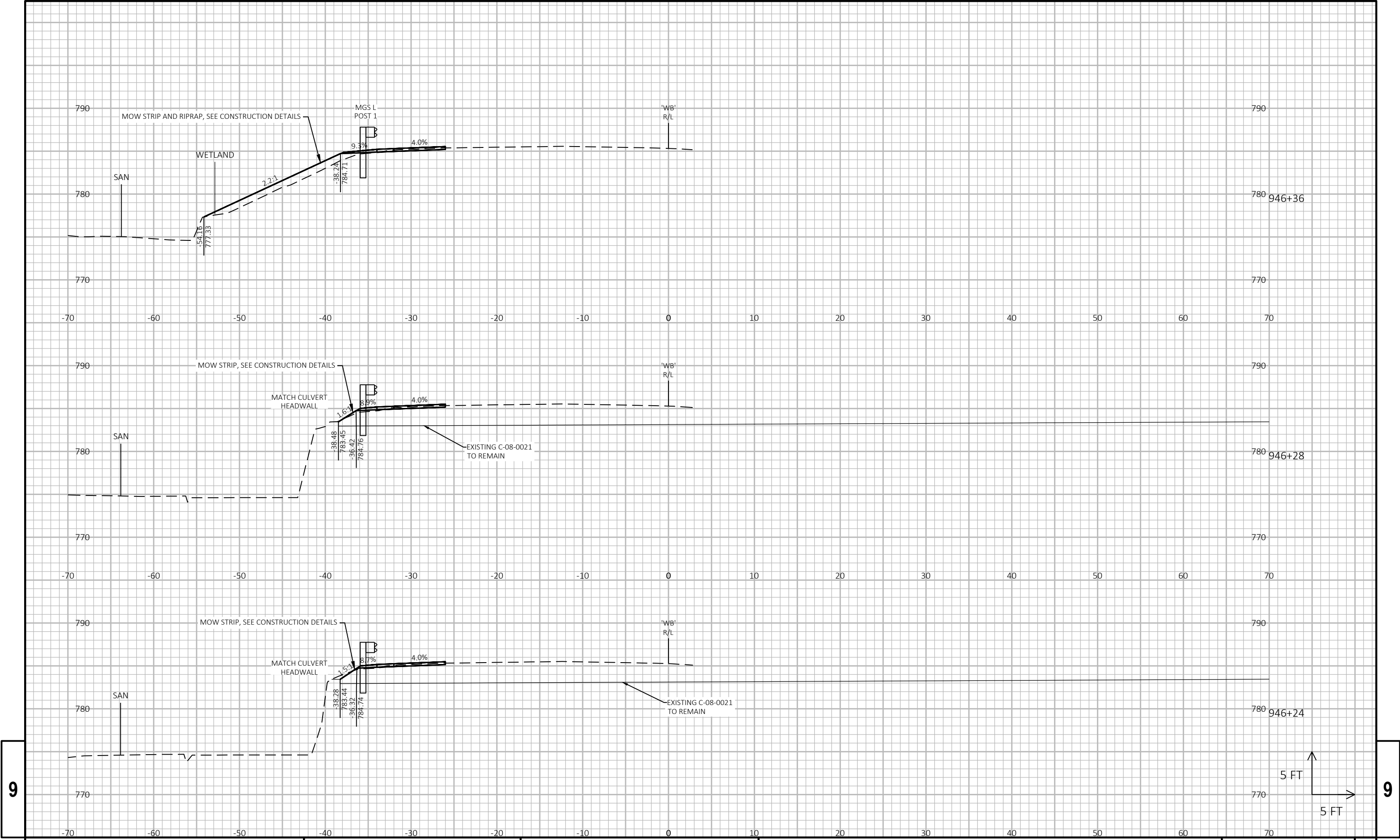




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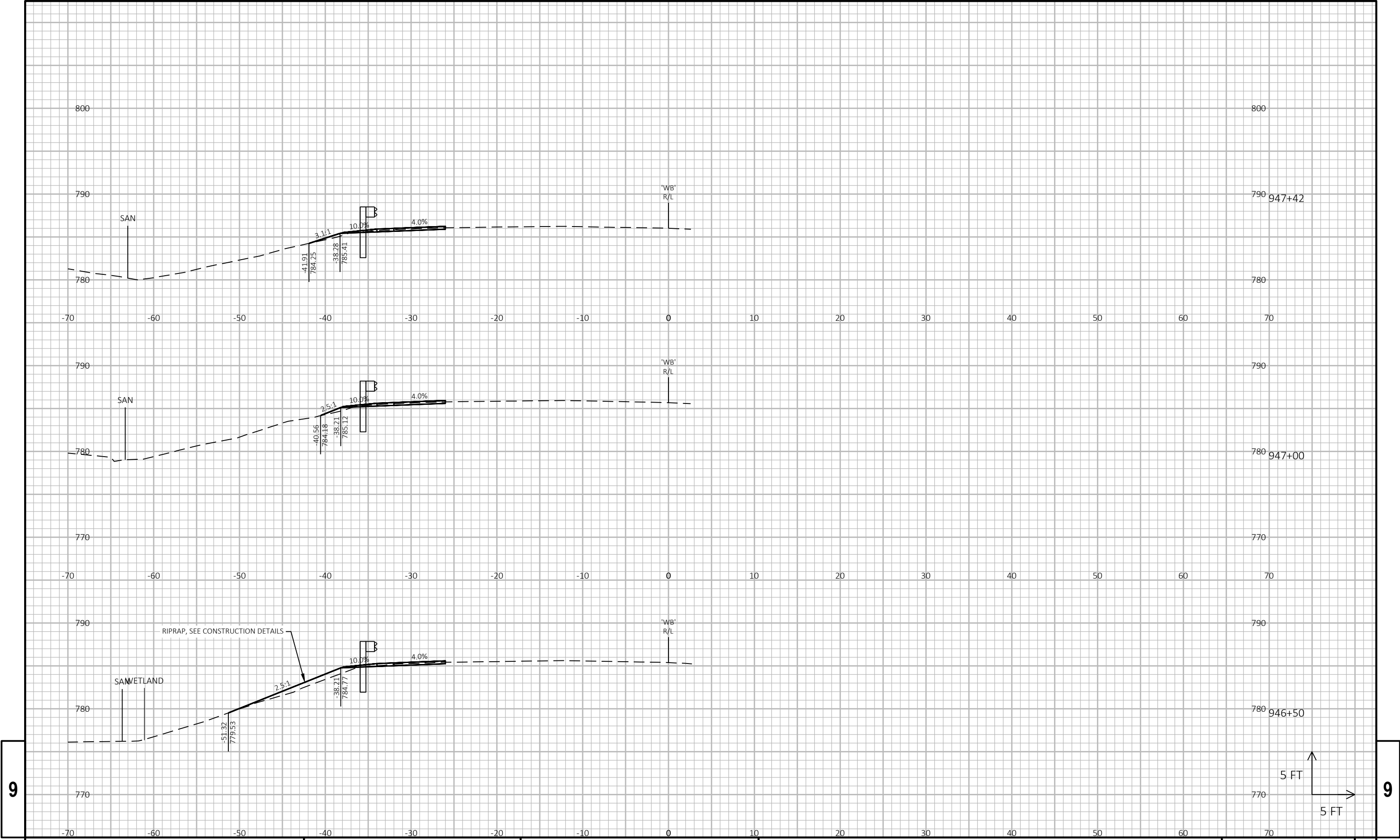
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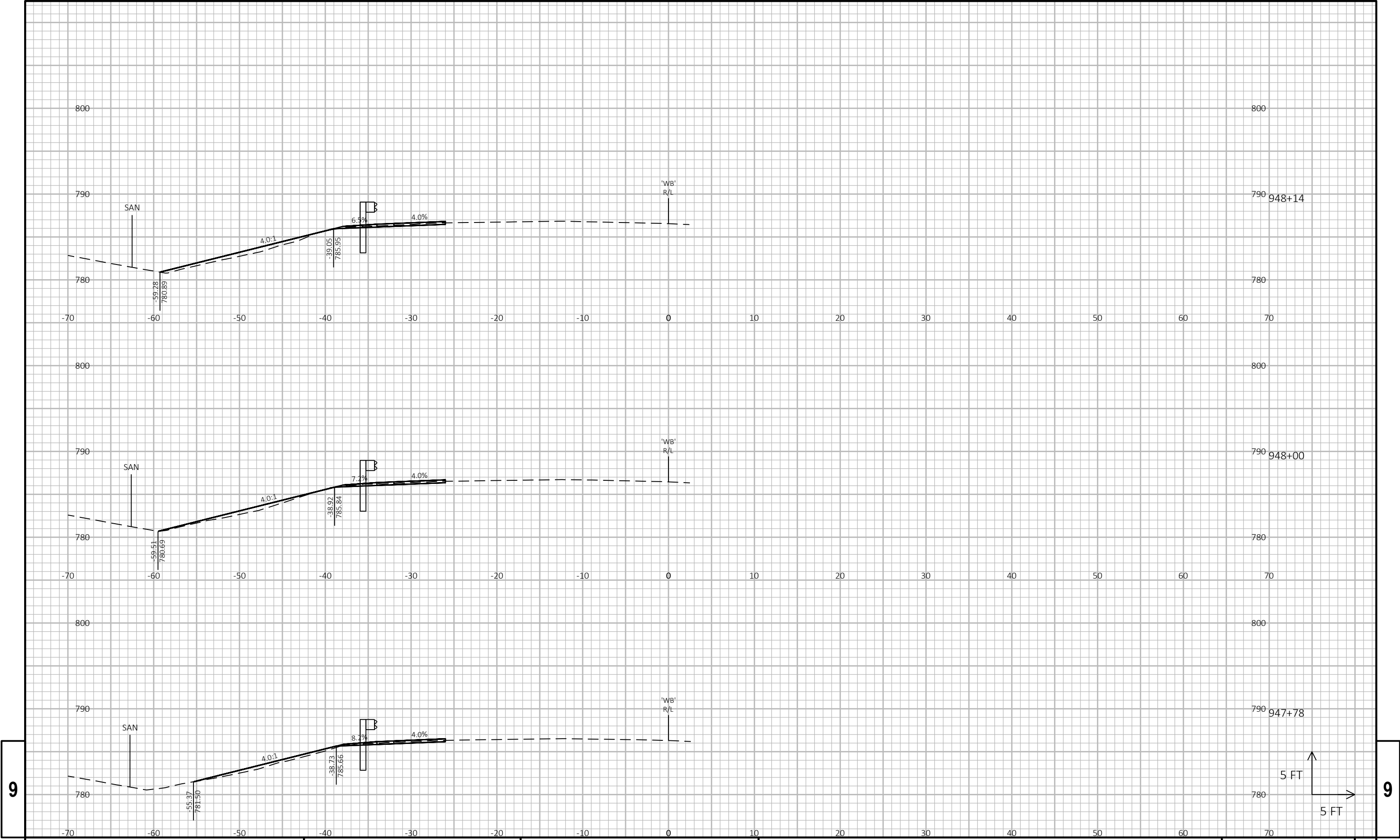
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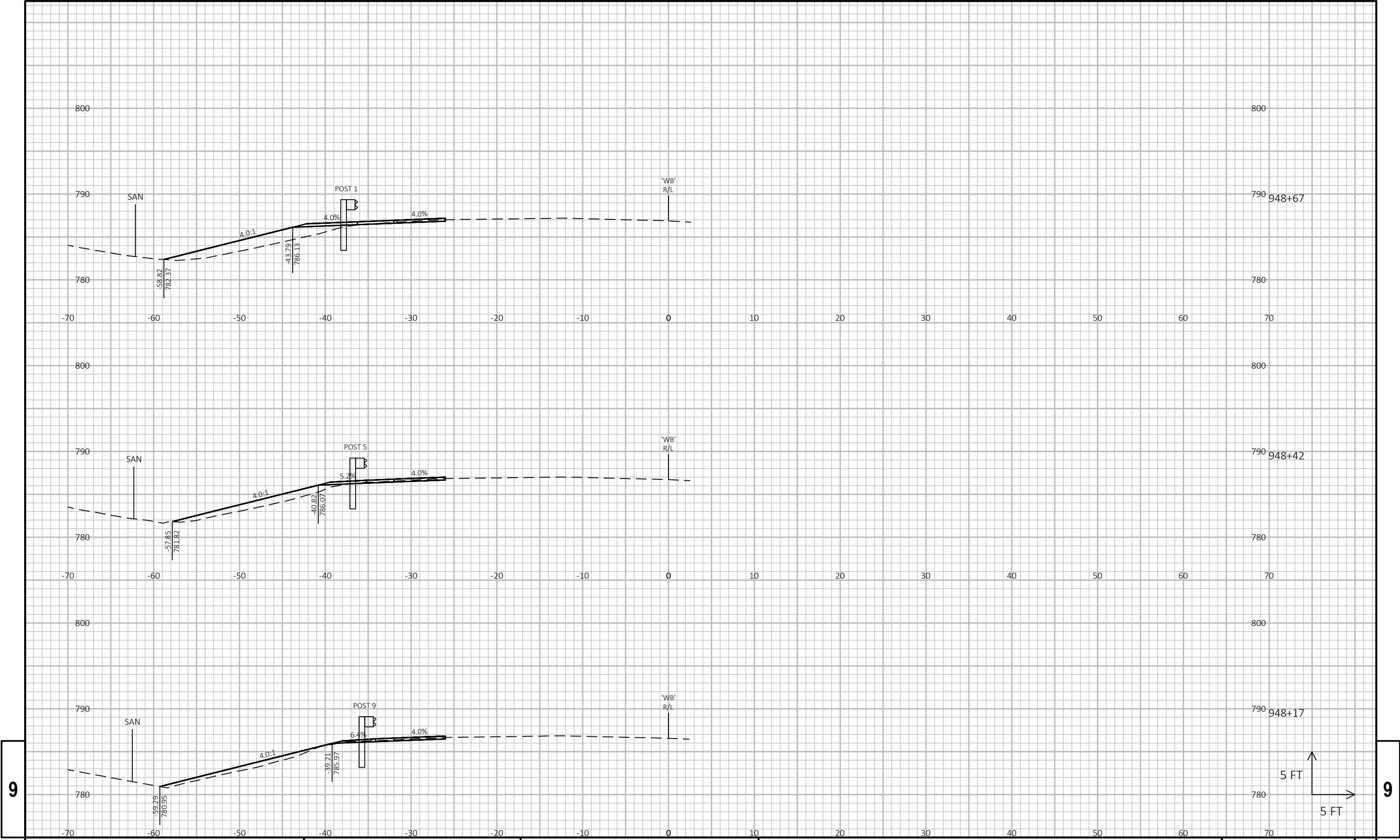
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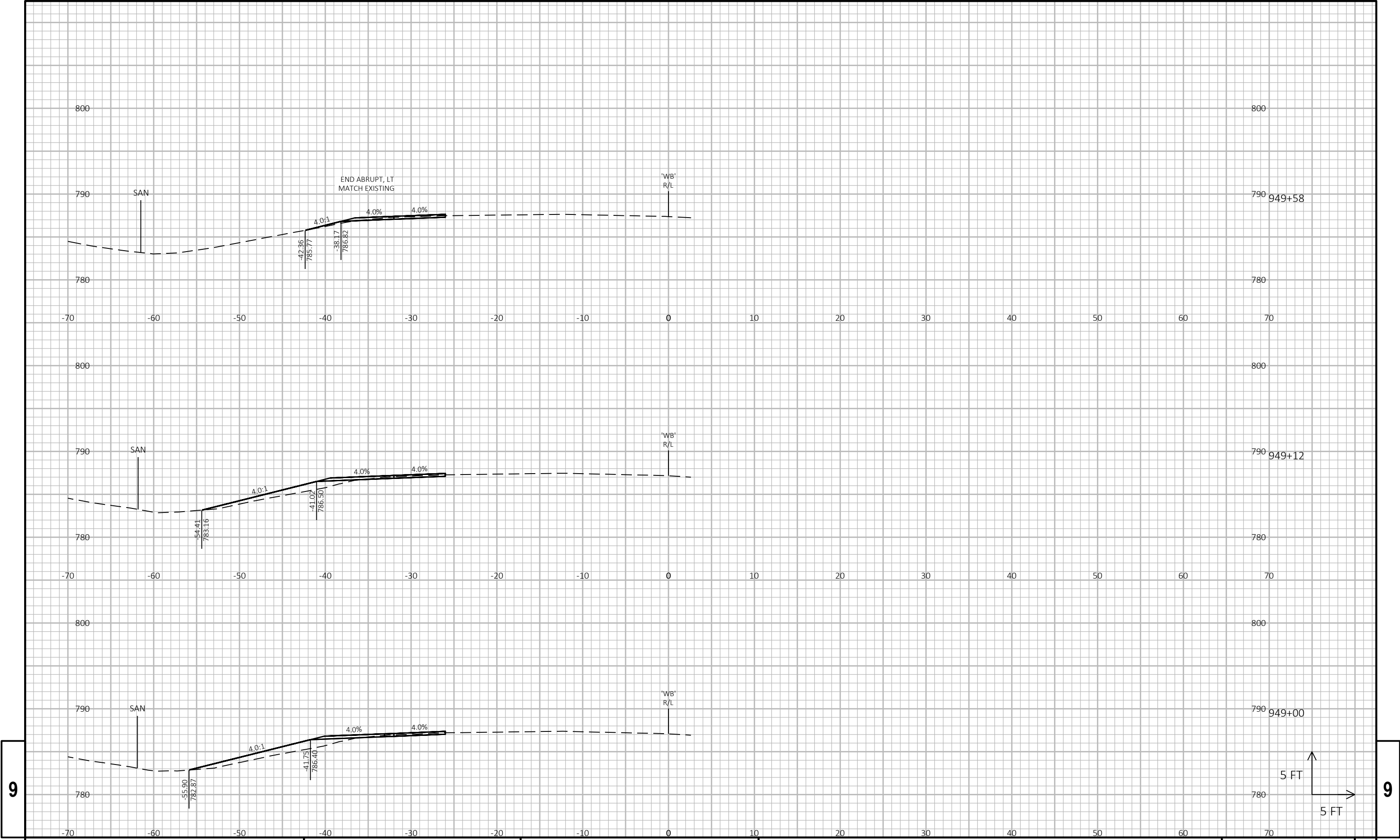
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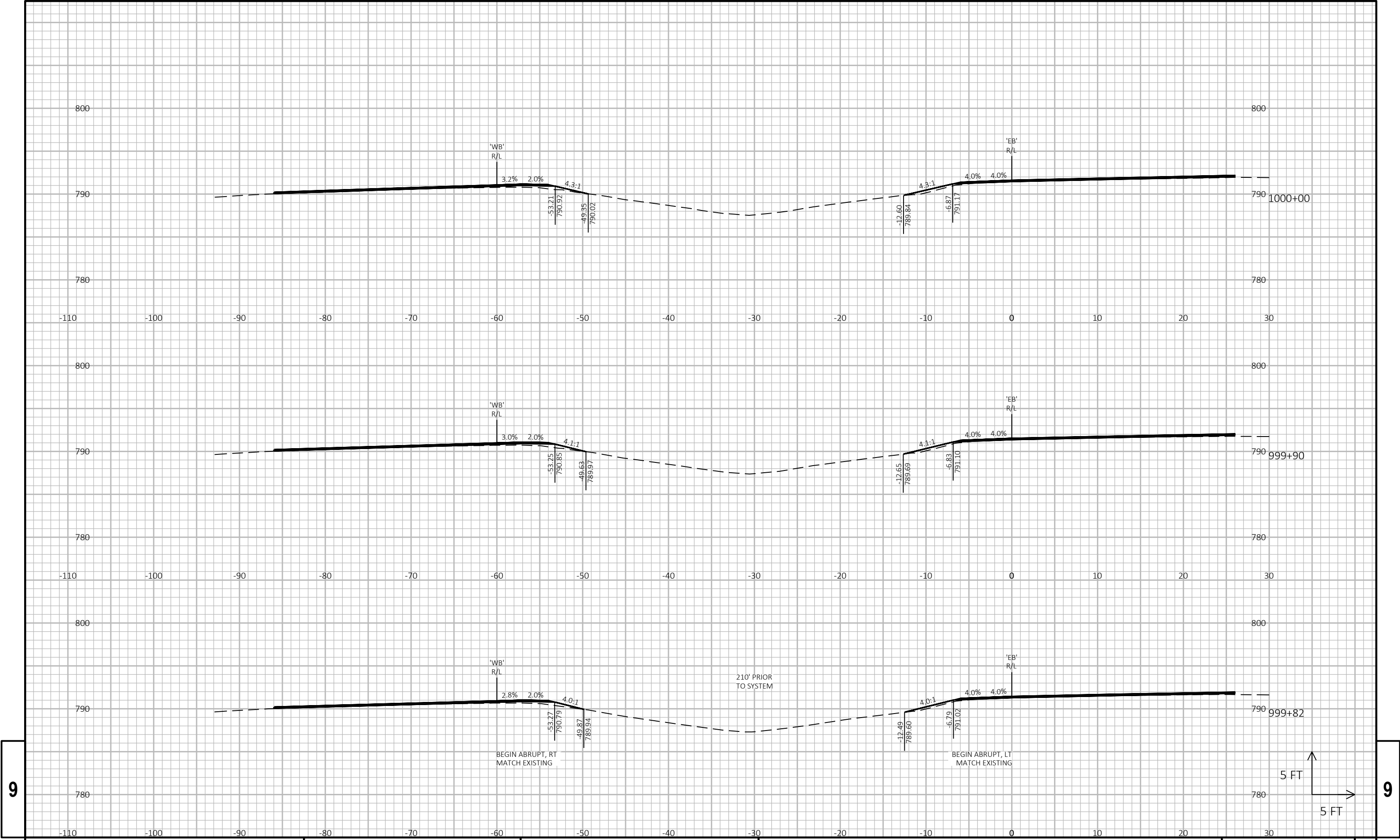
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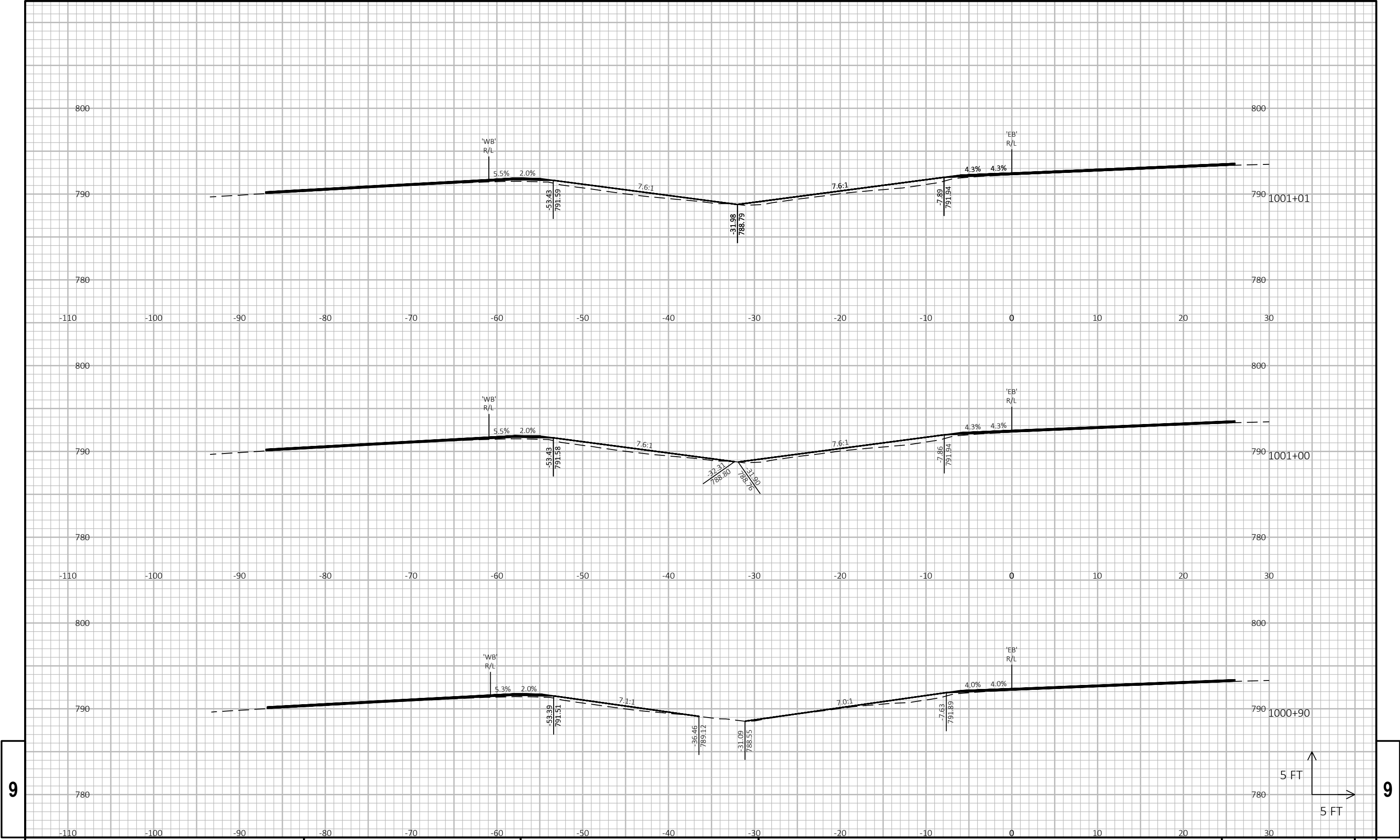
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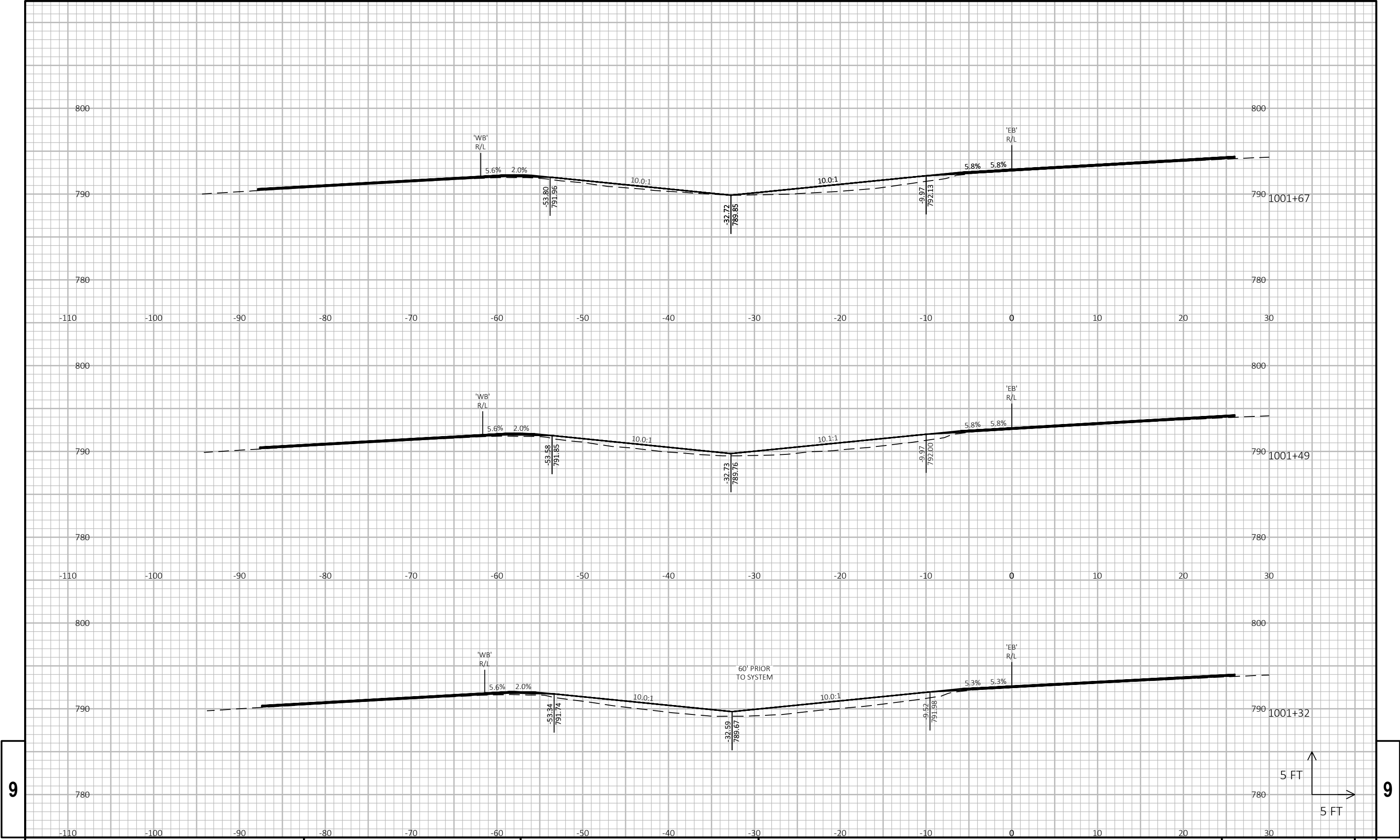
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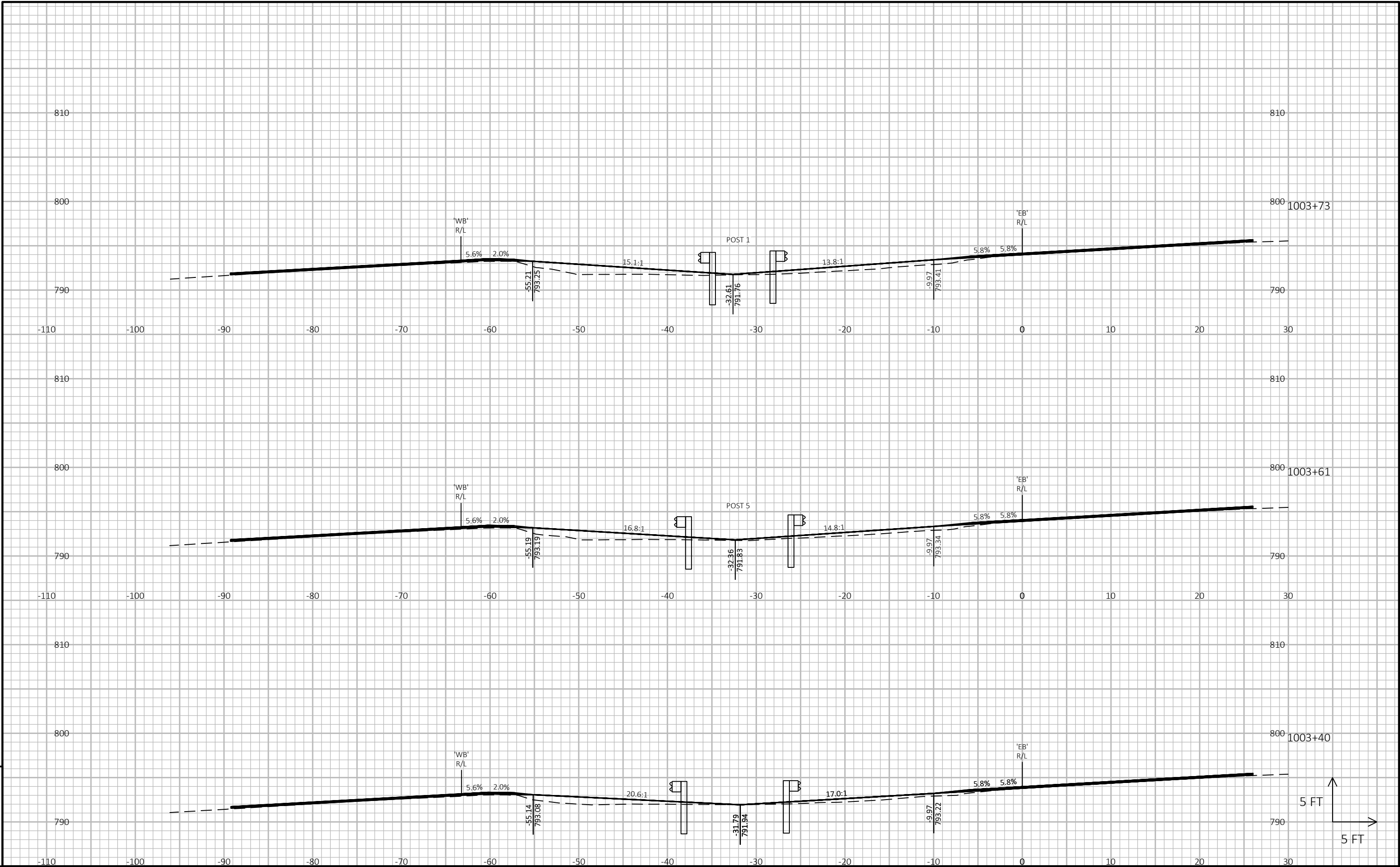
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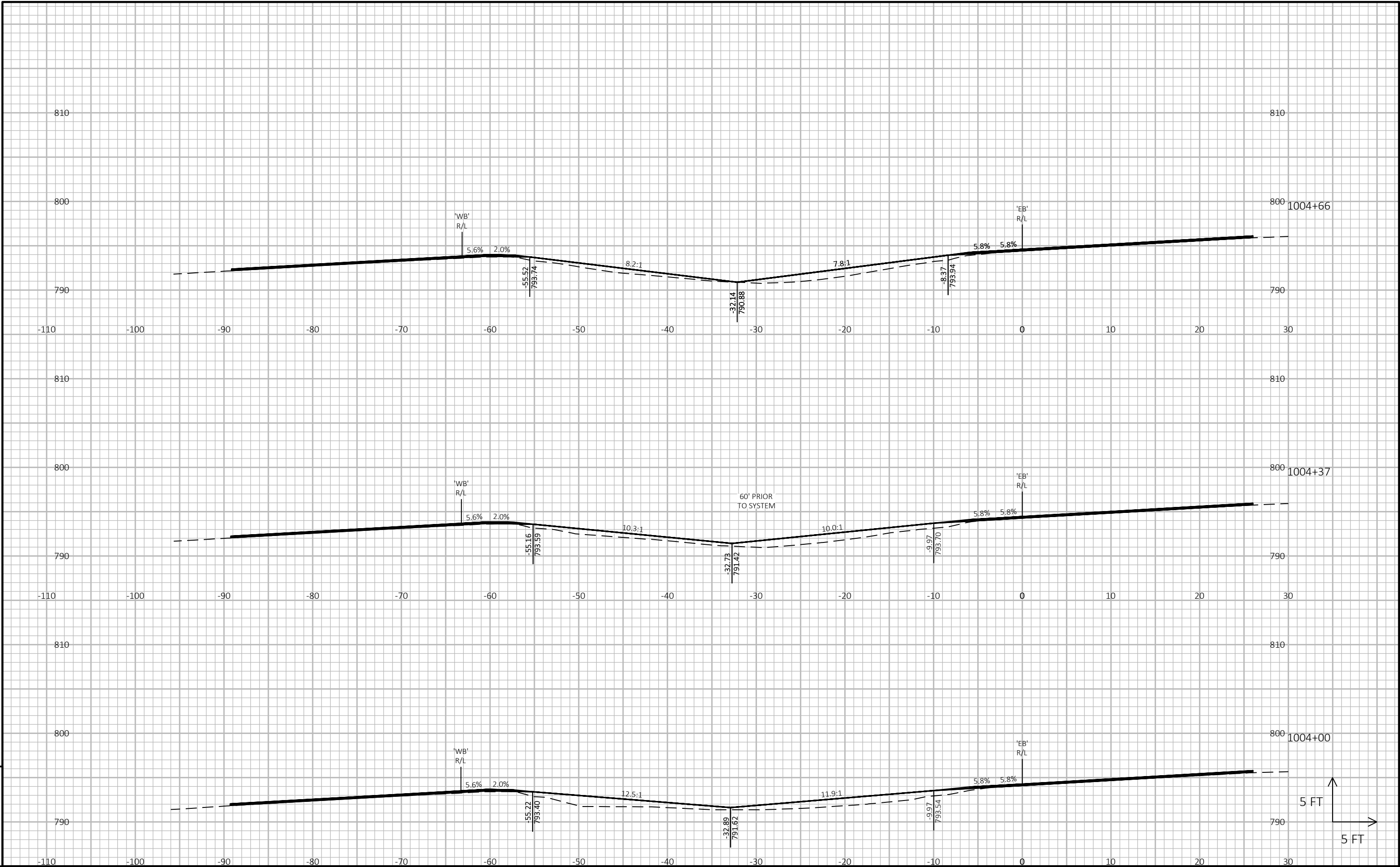


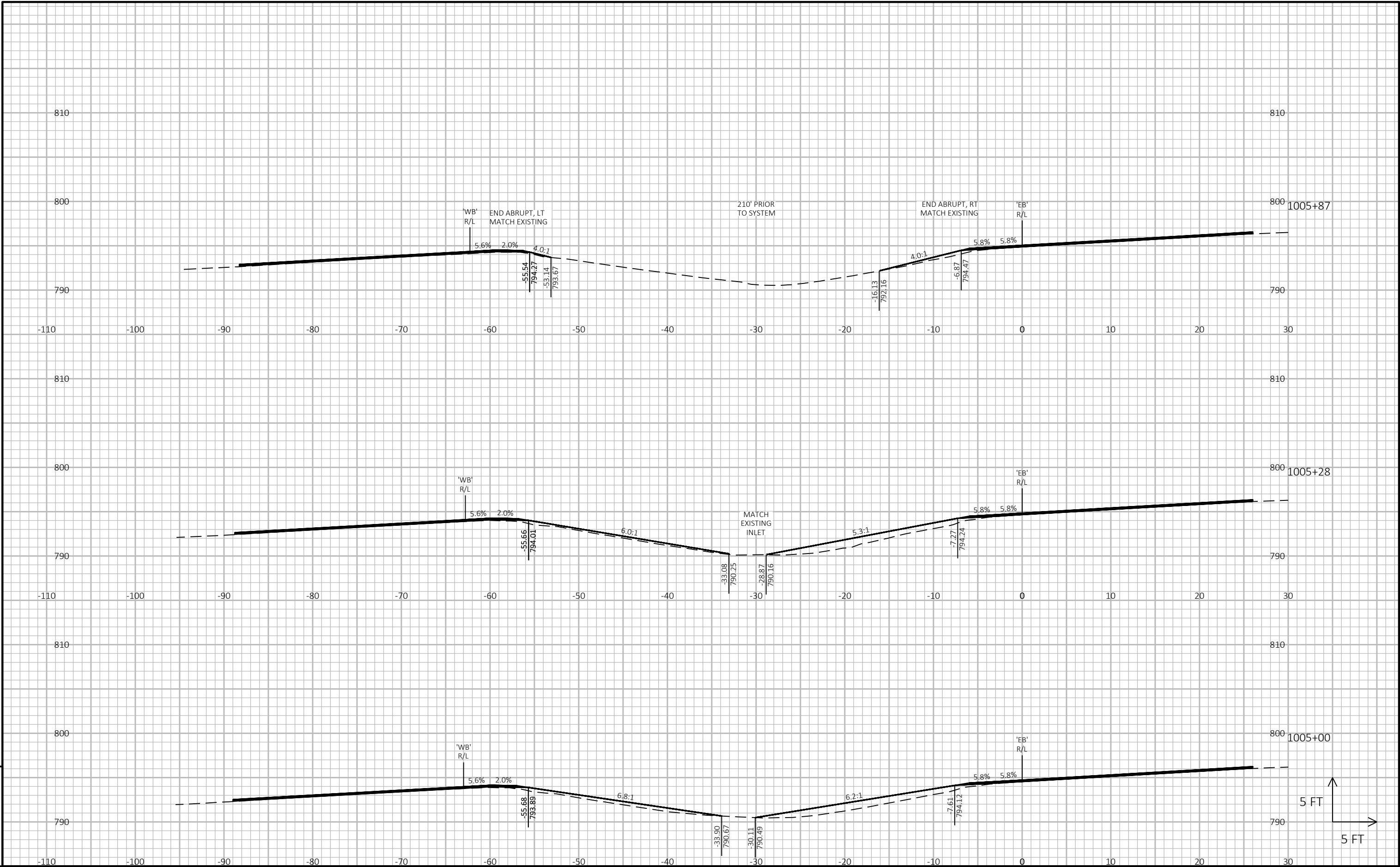
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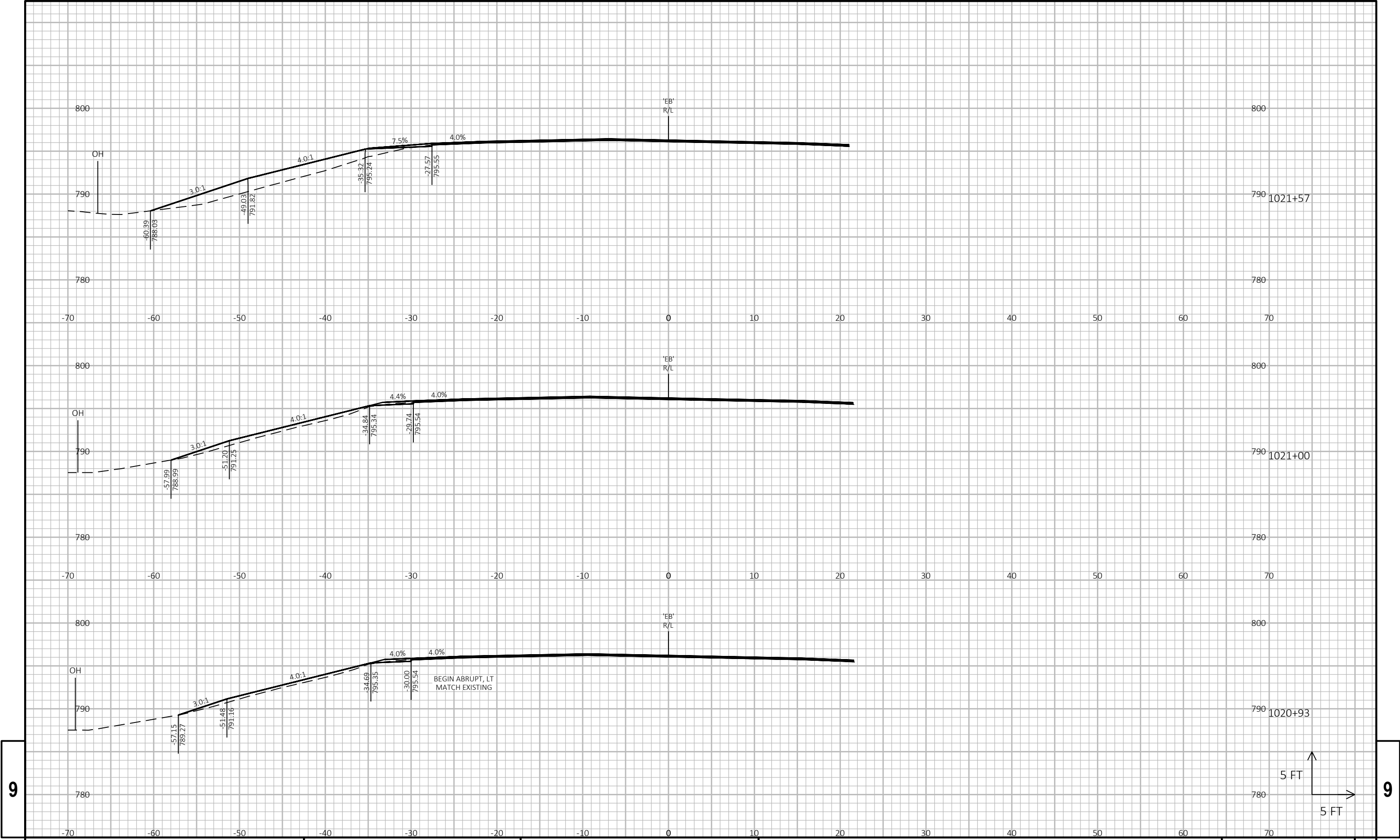
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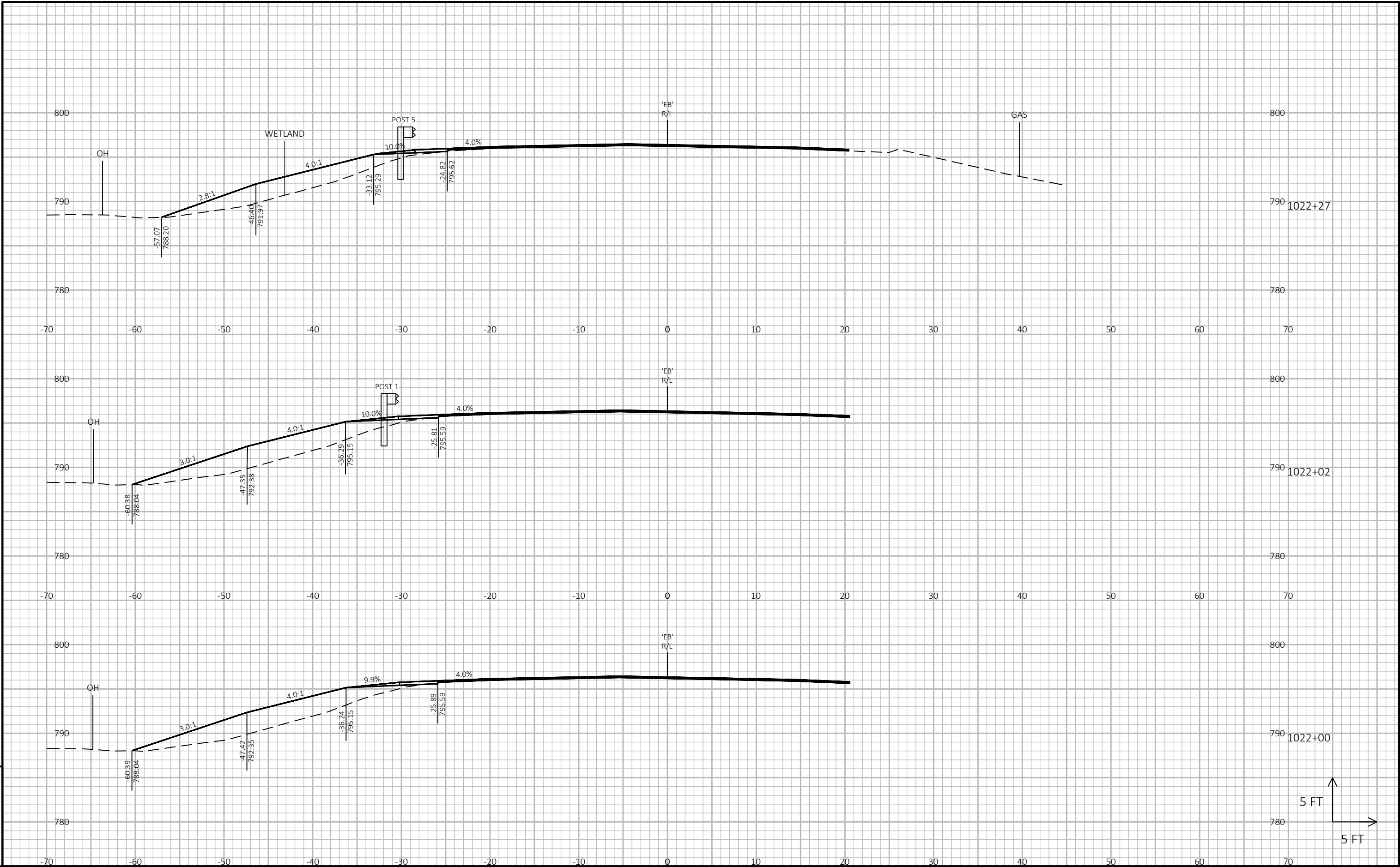


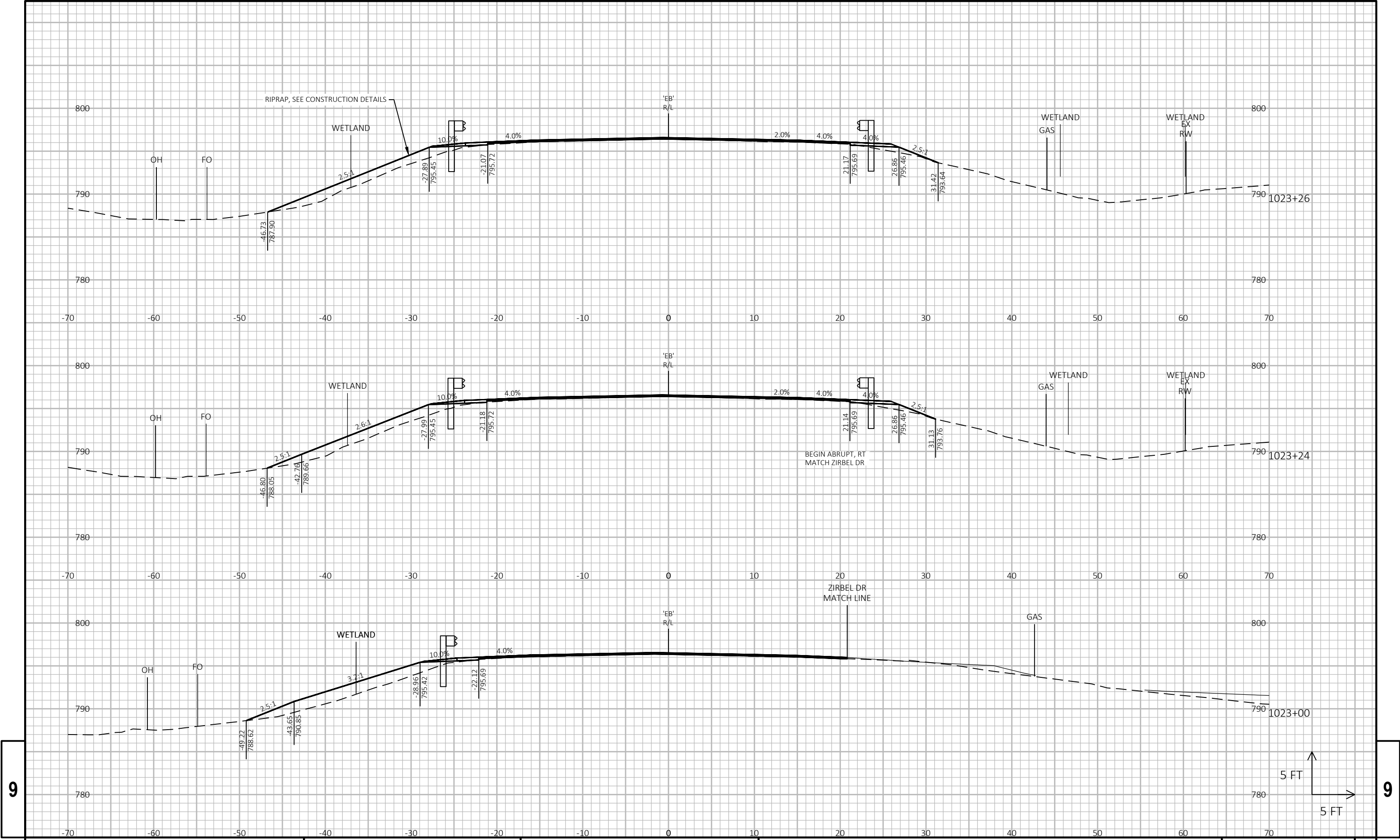


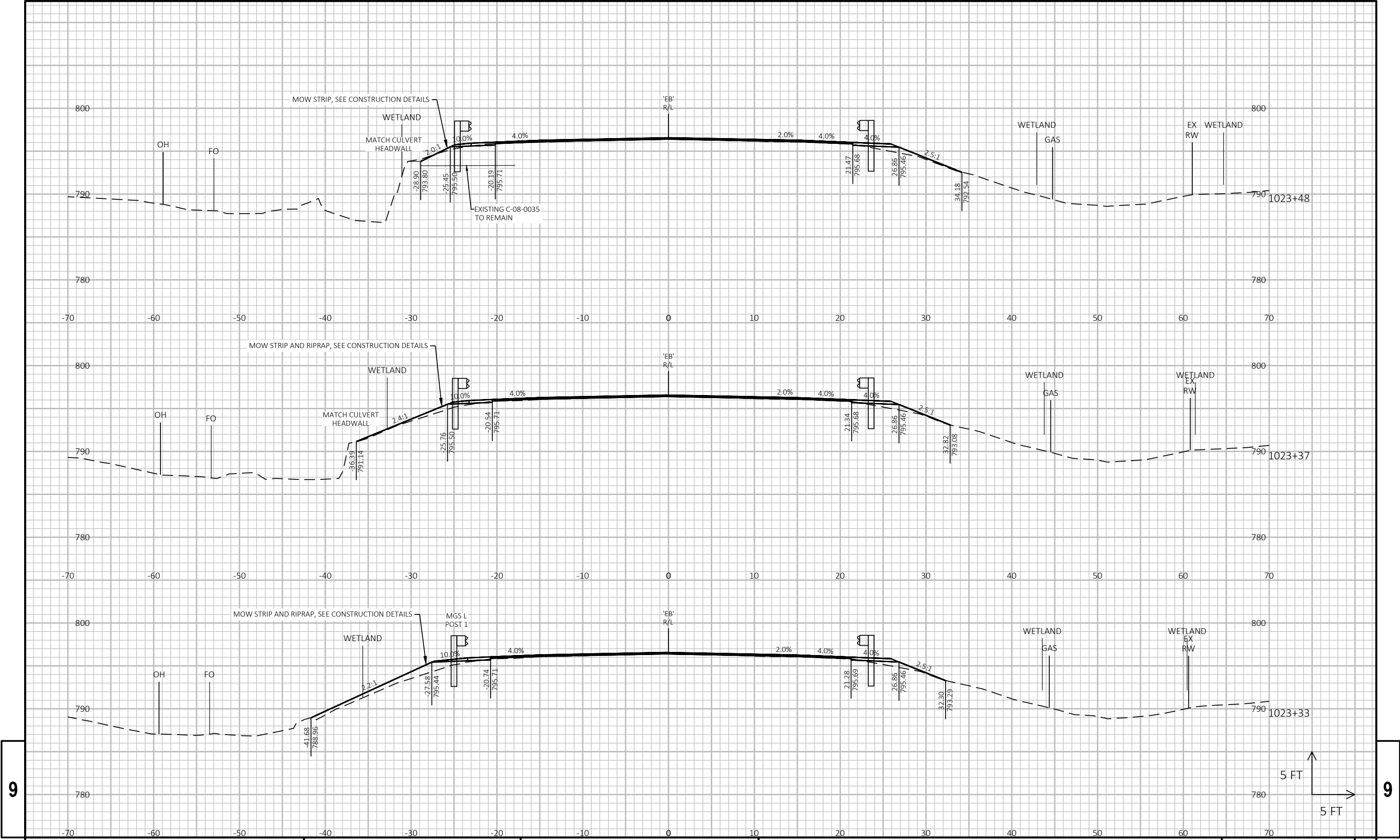


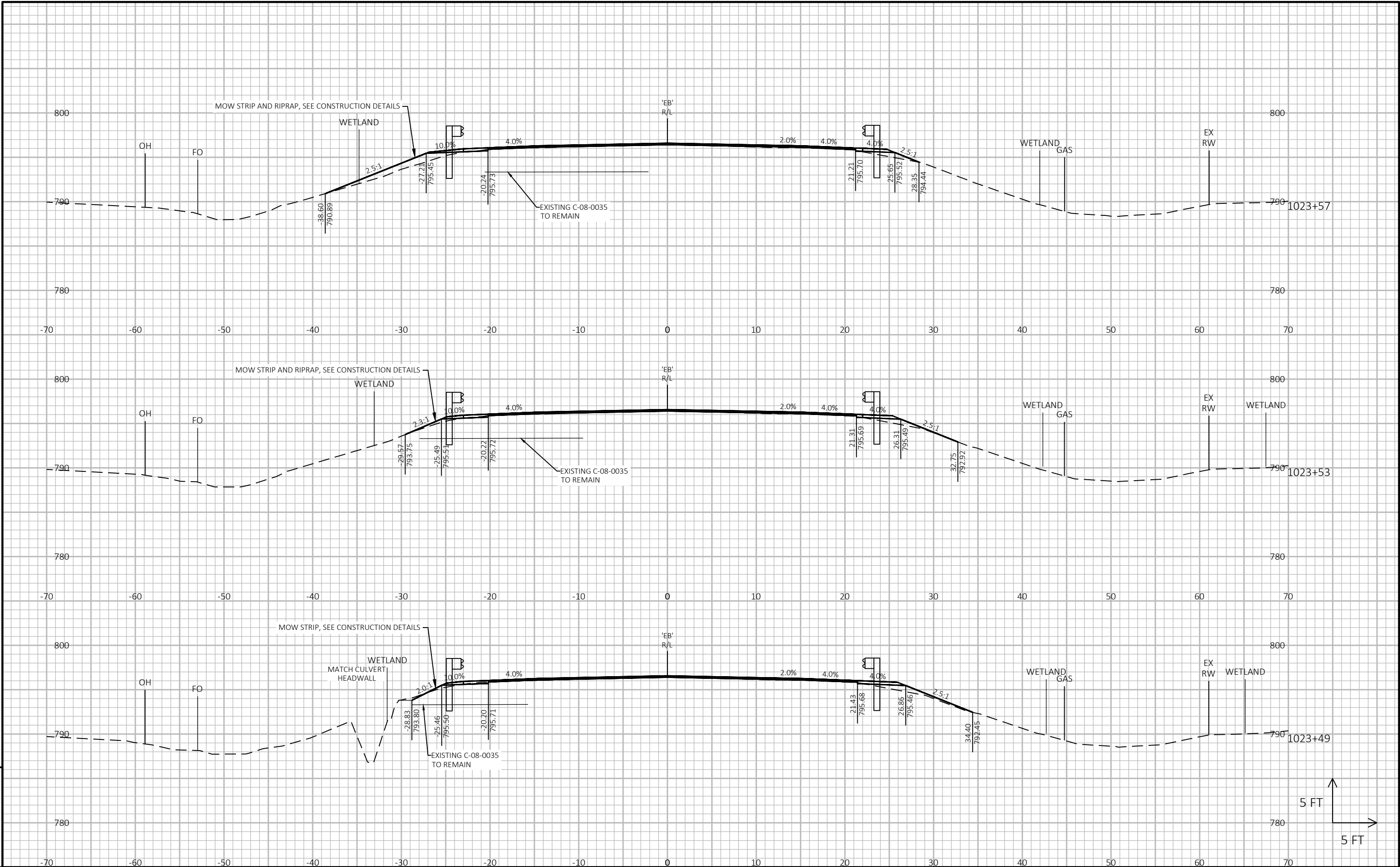


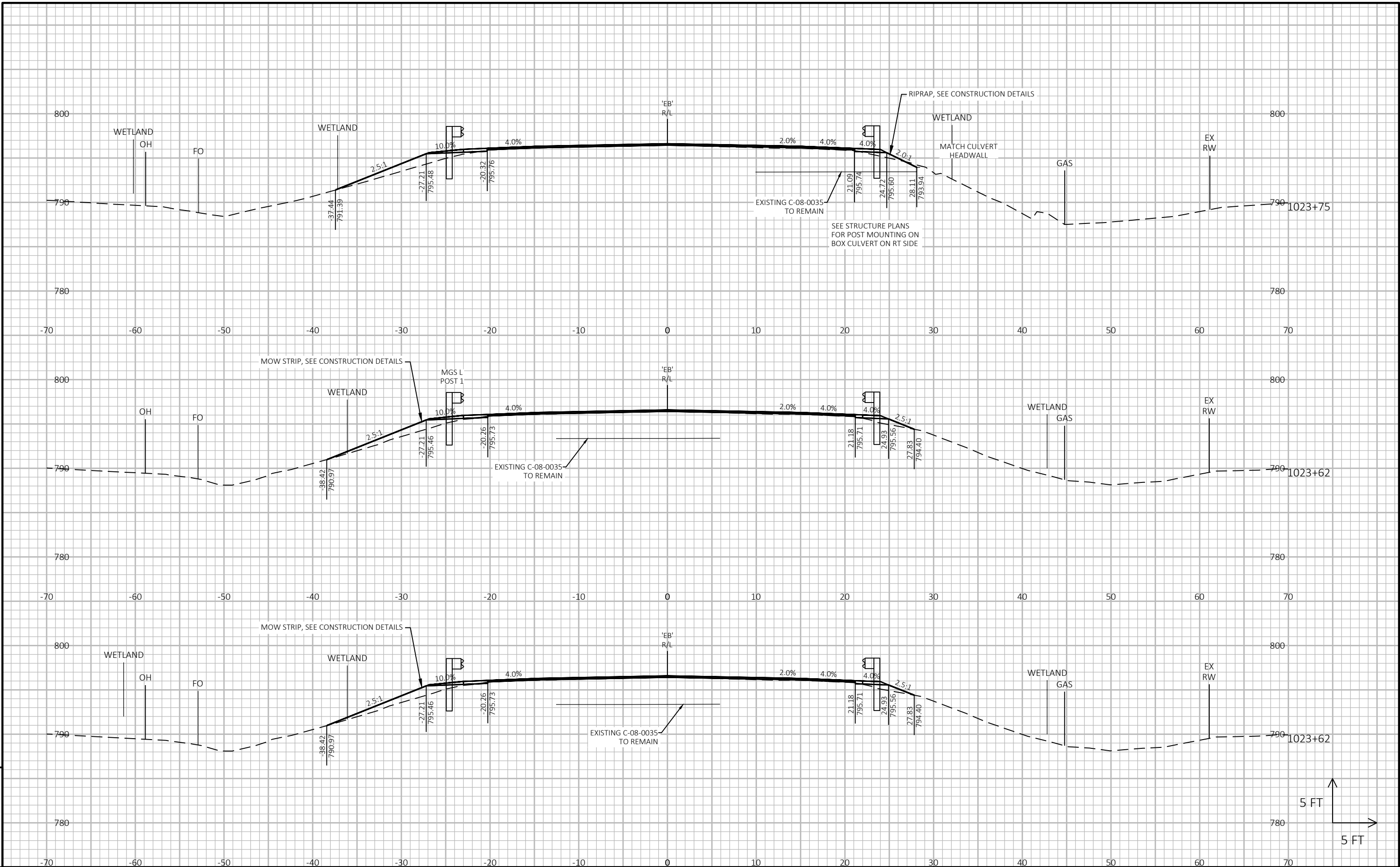


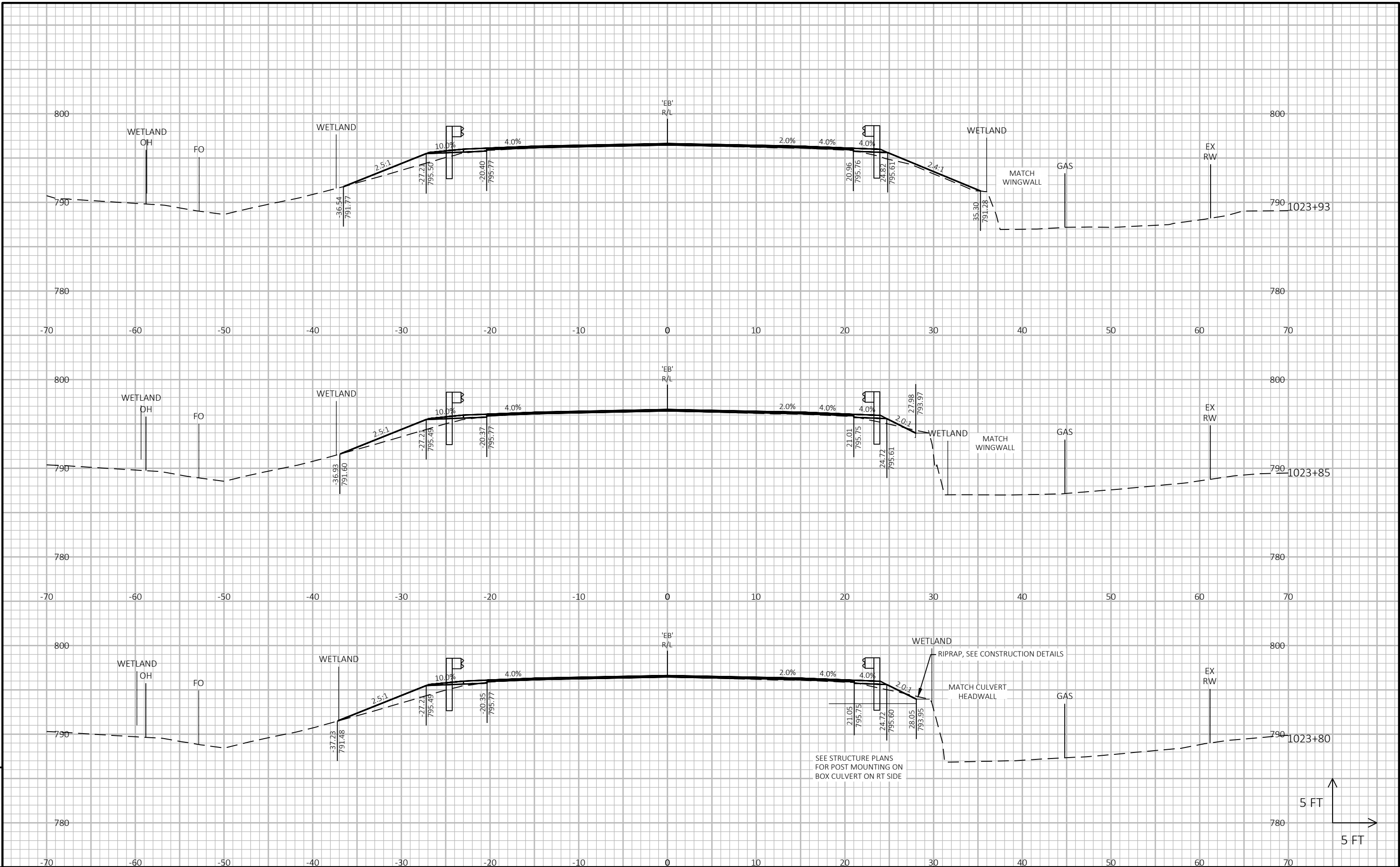


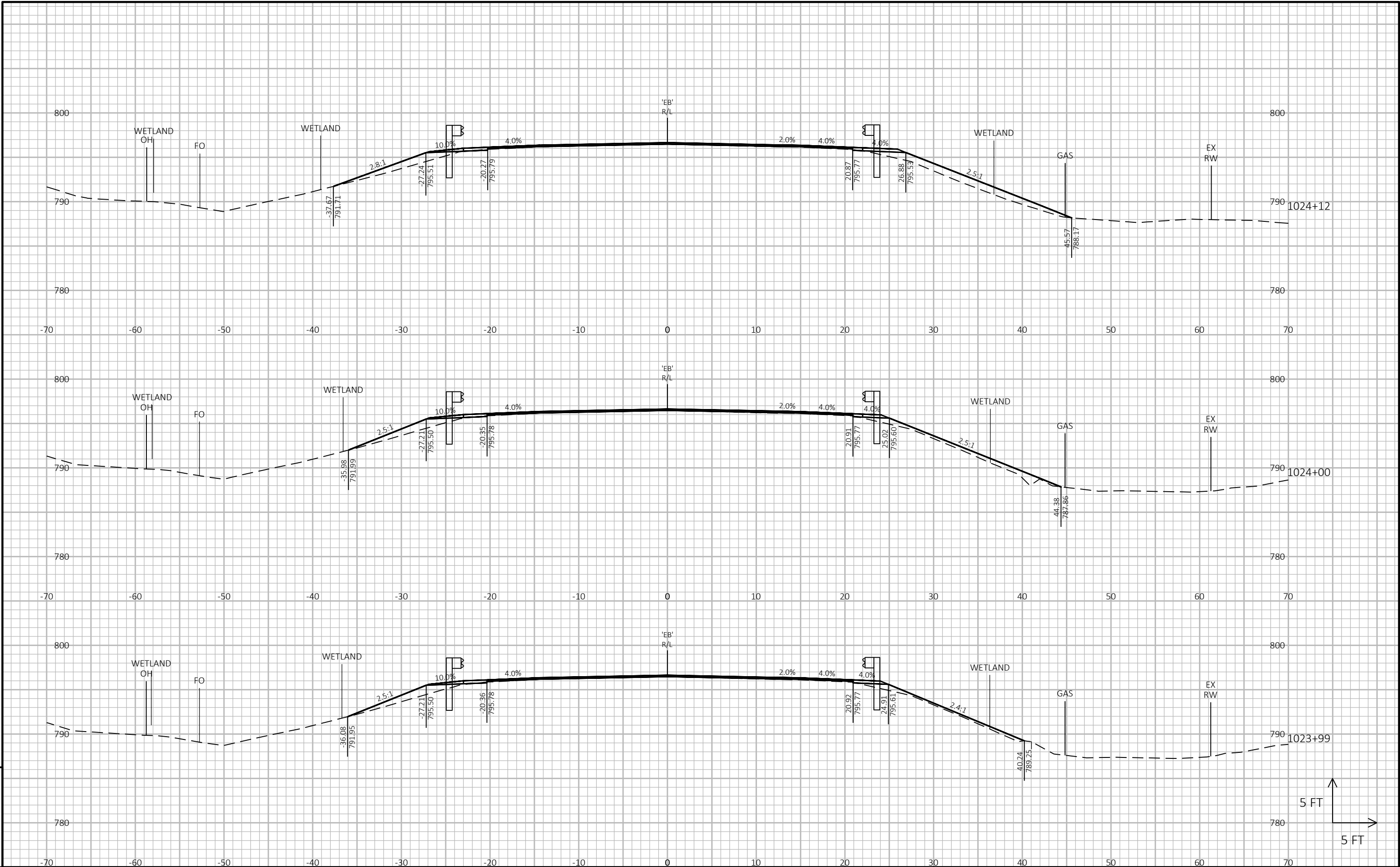




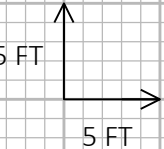
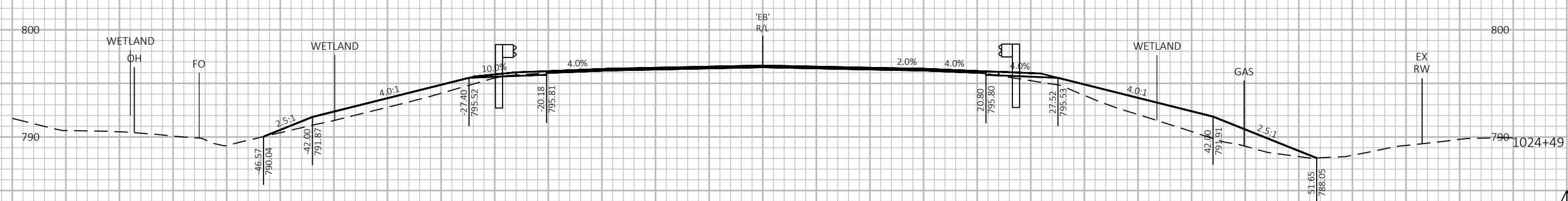
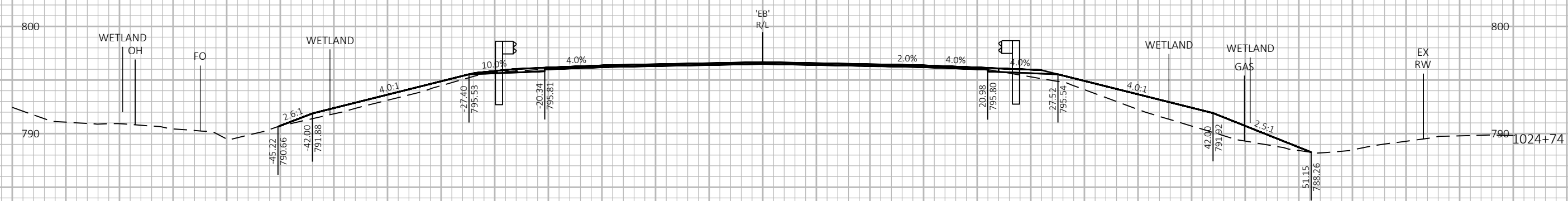
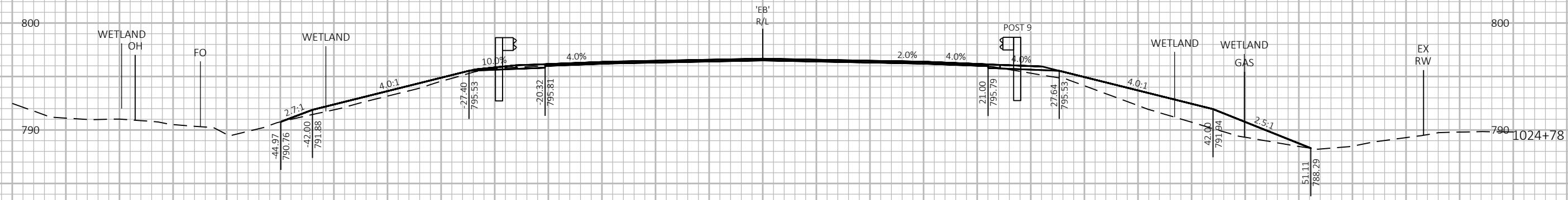






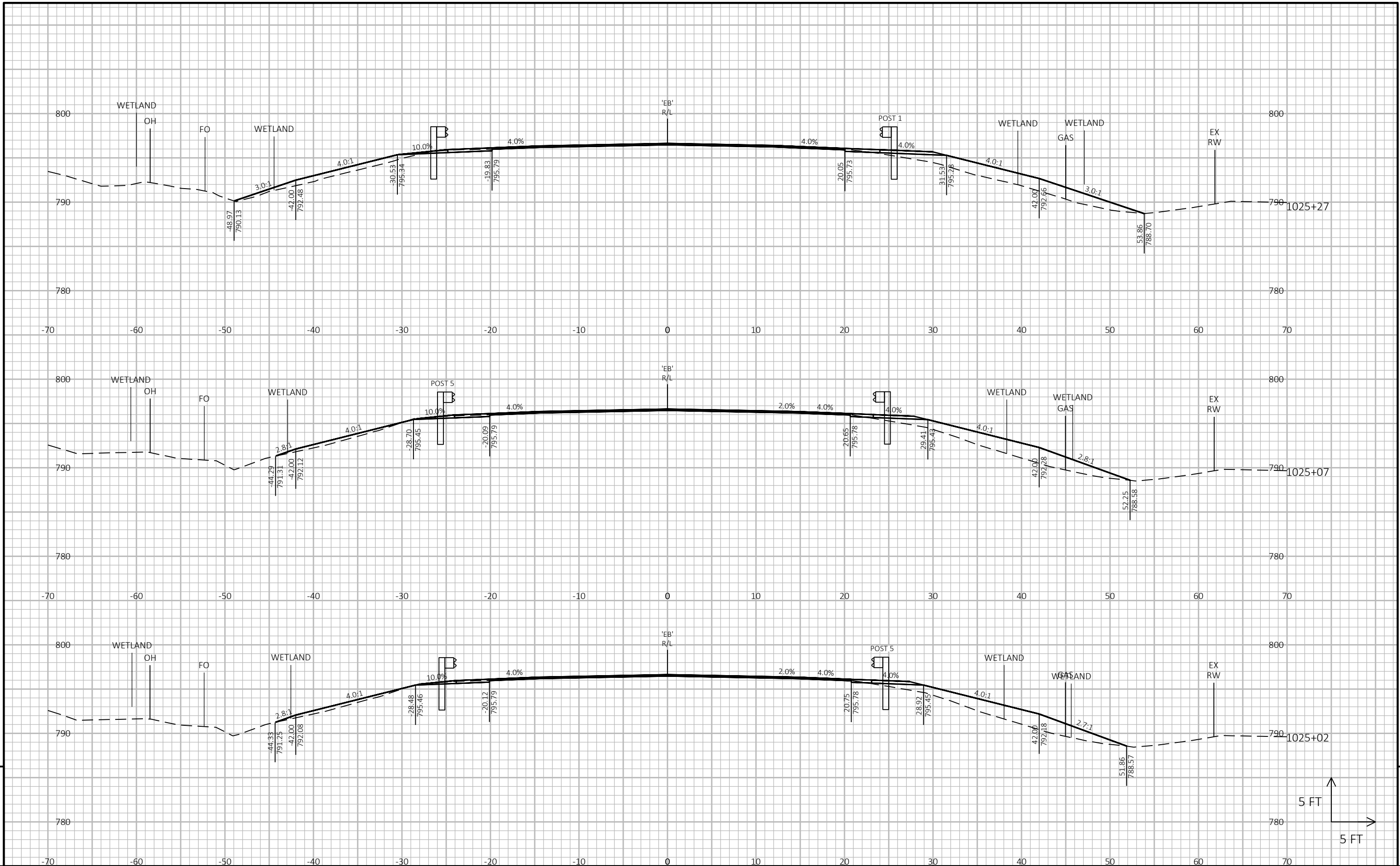


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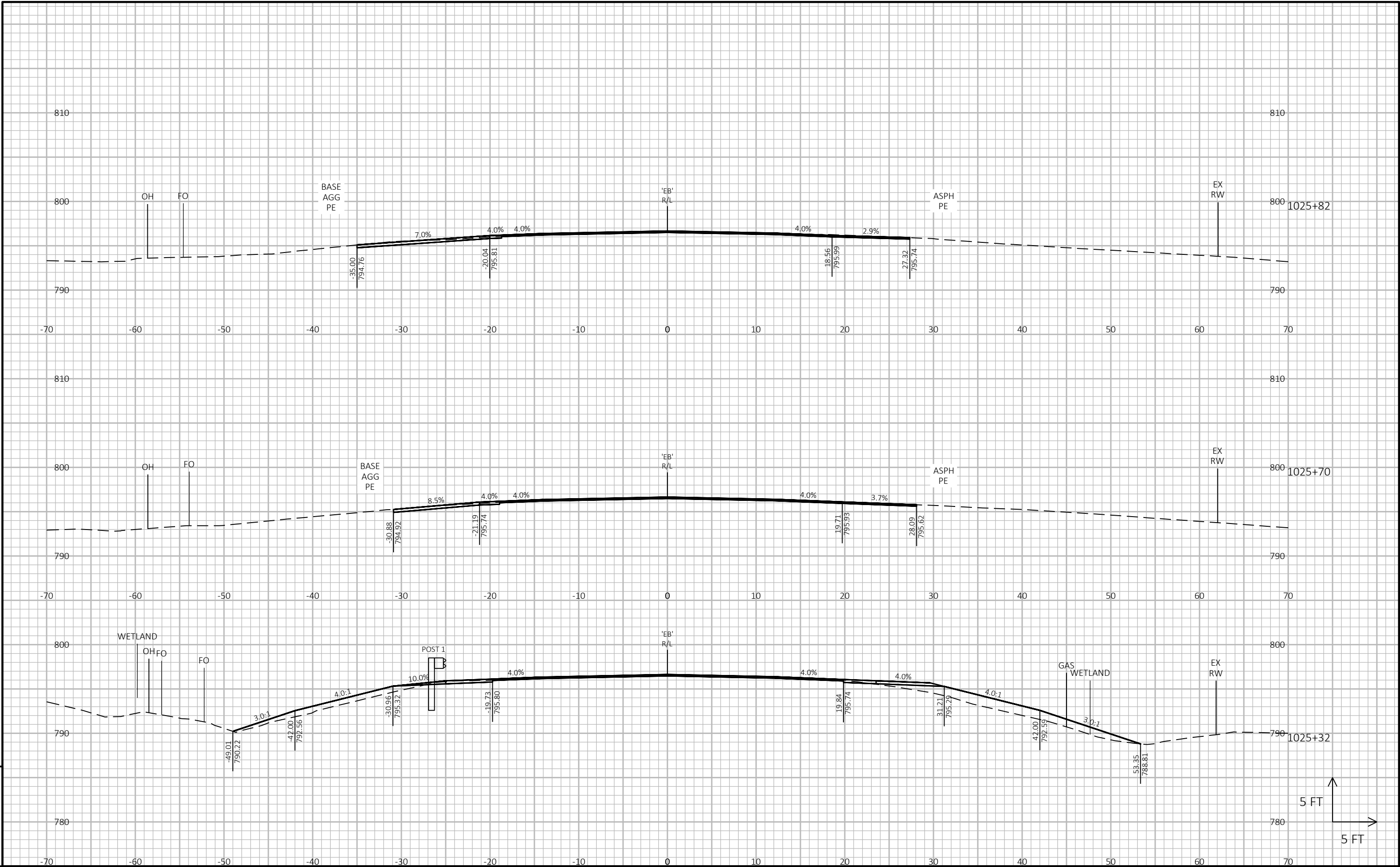


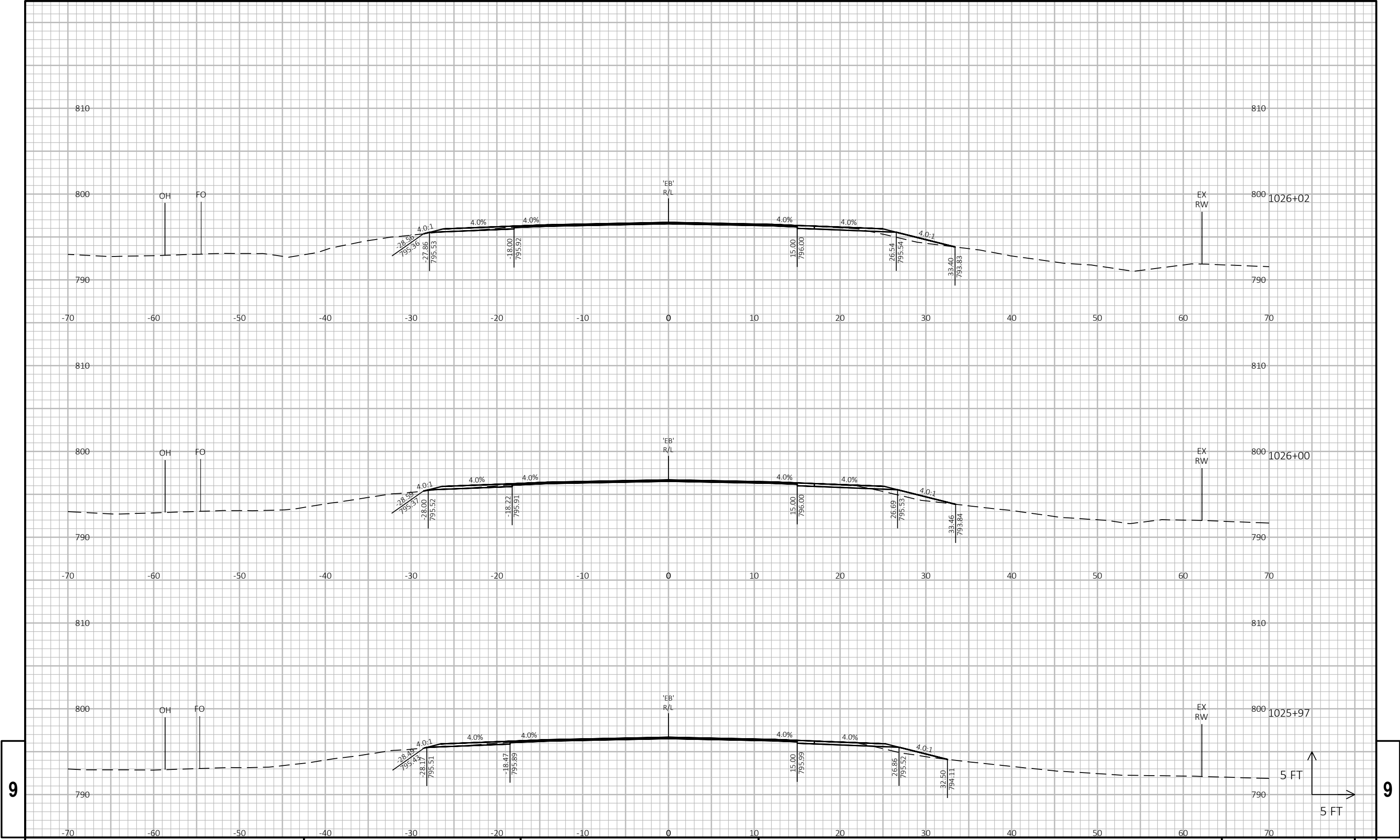
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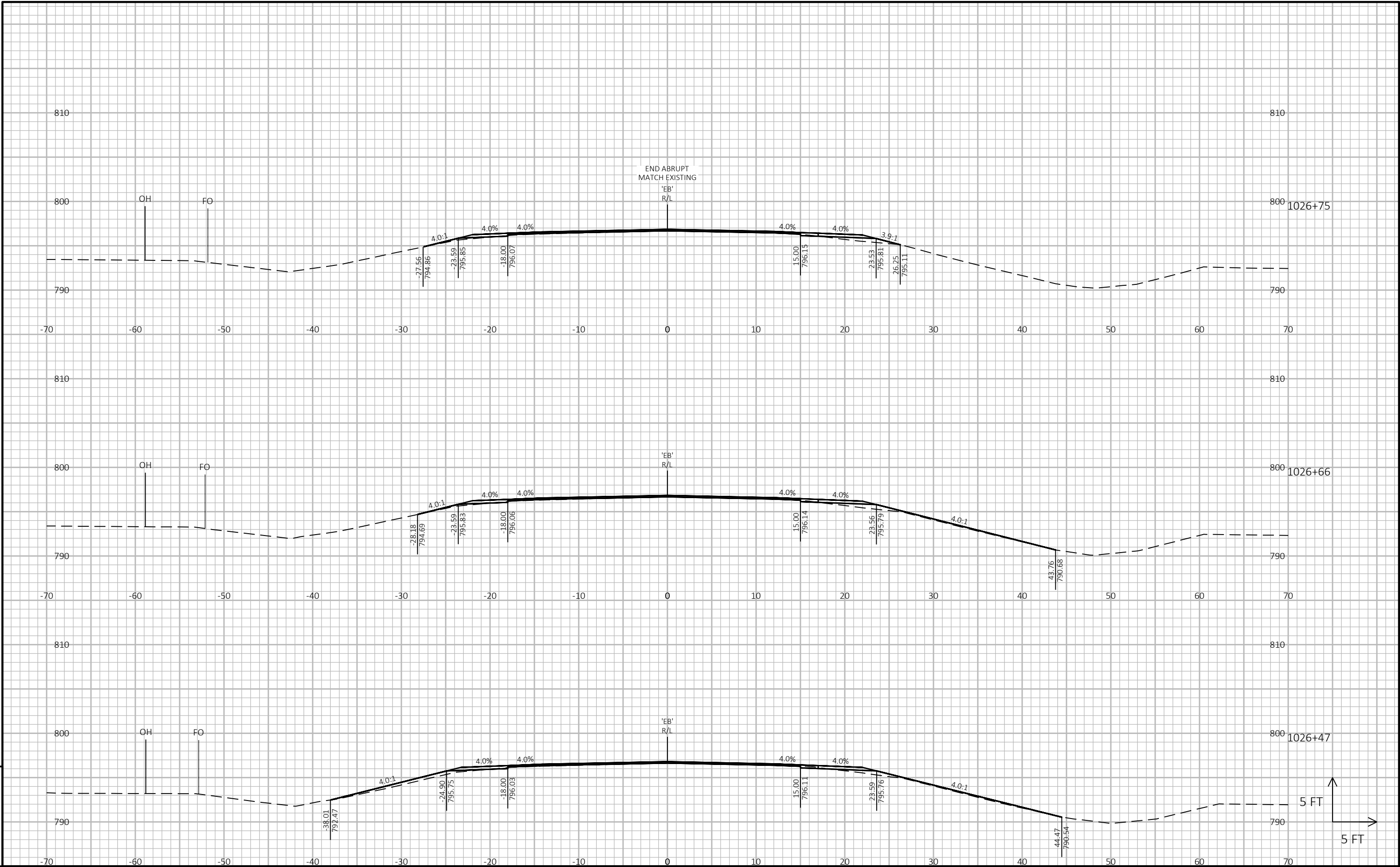
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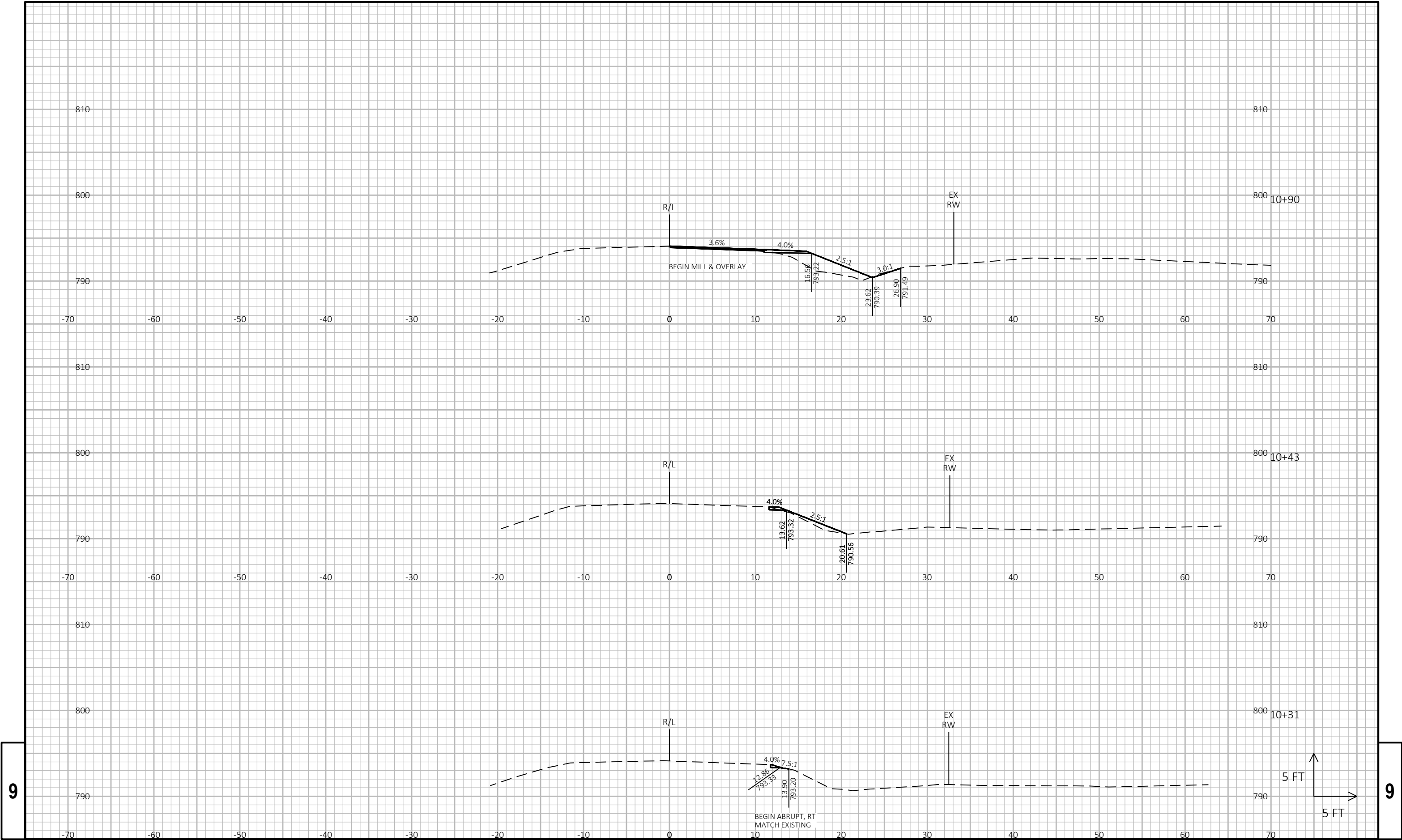


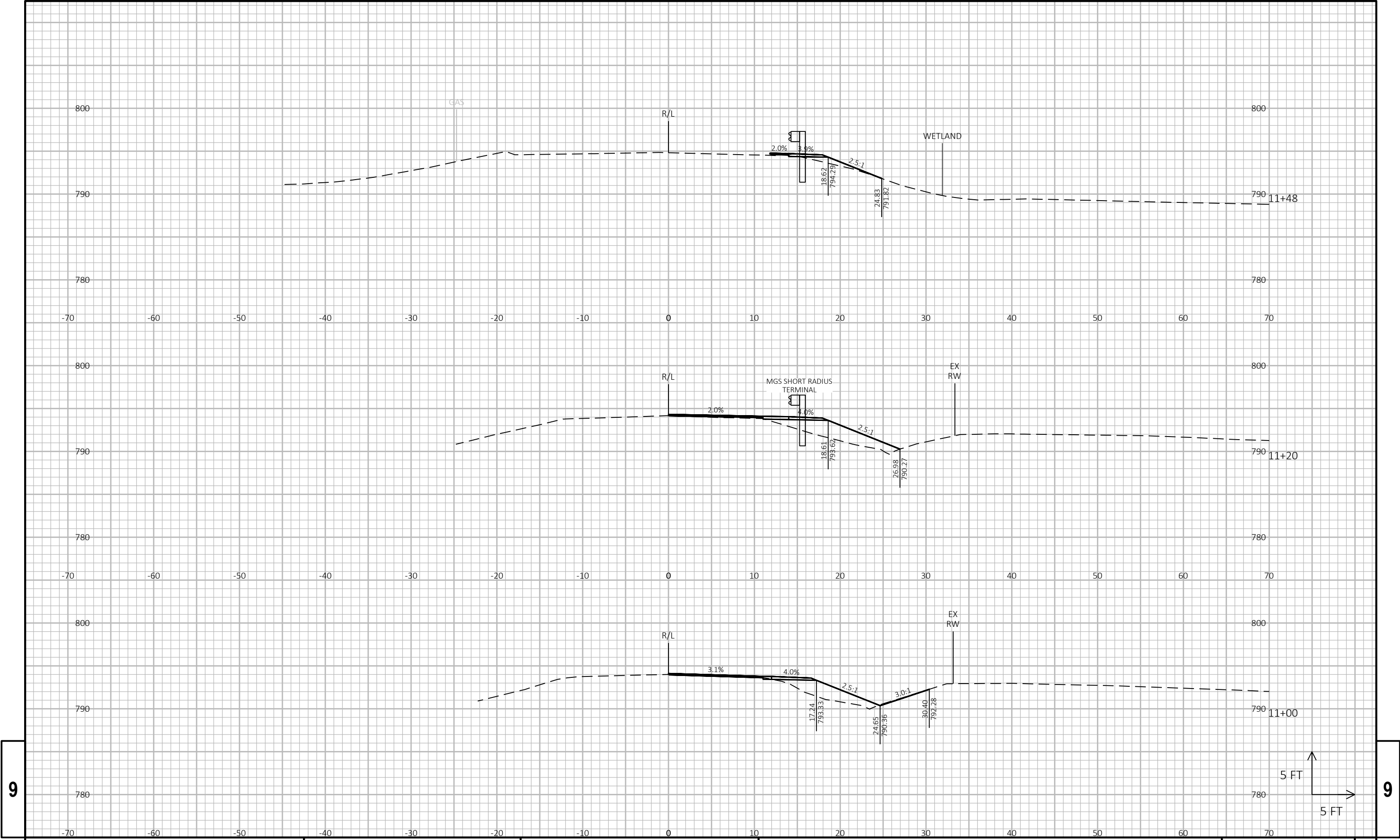


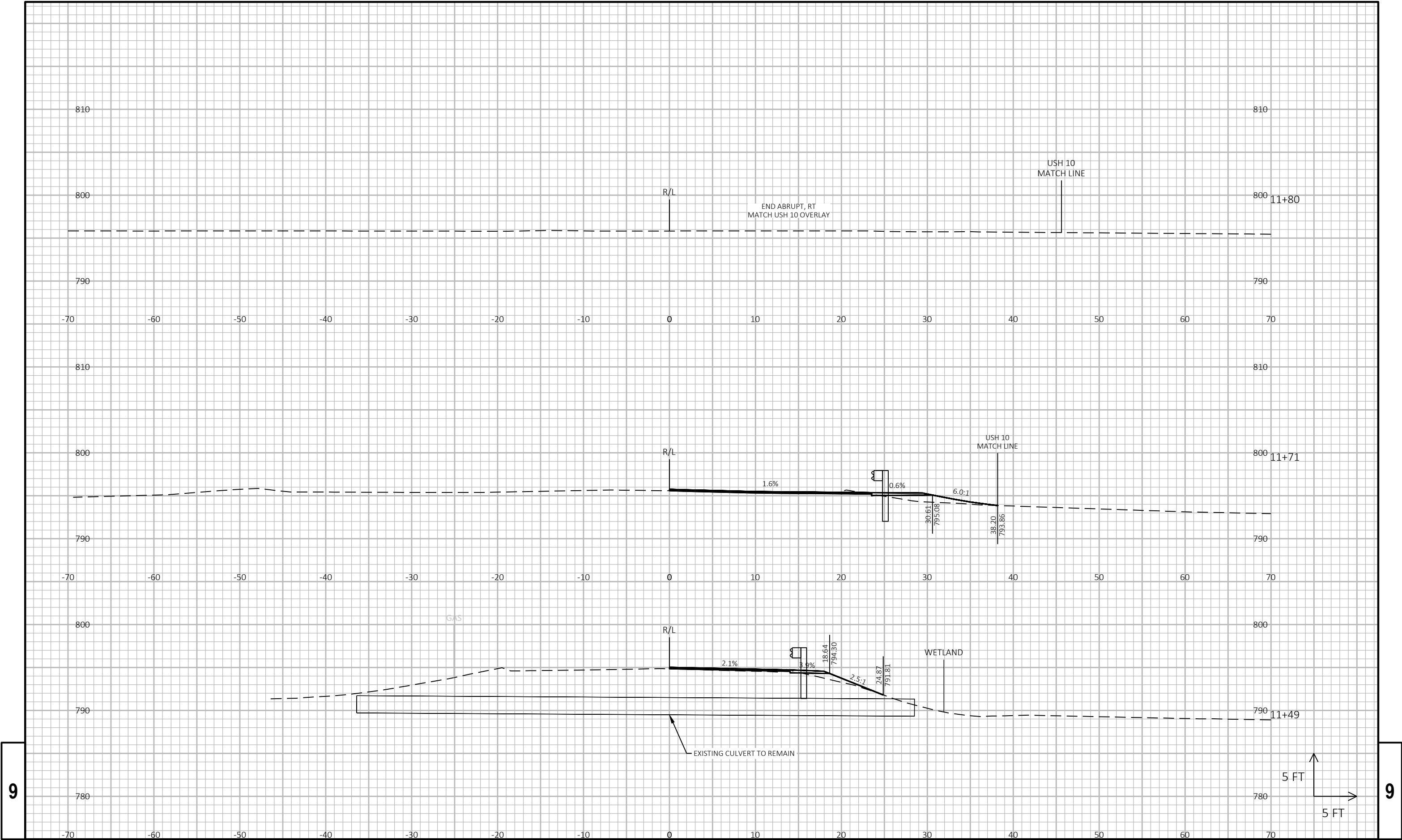
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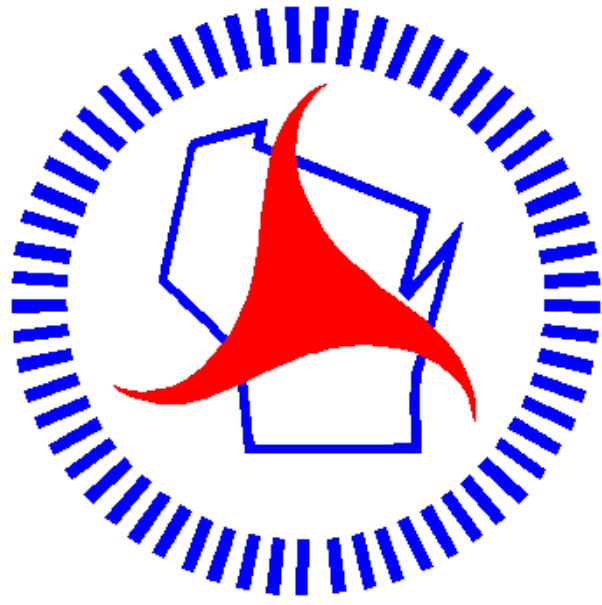






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Wisconsin Department of Transportation

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