

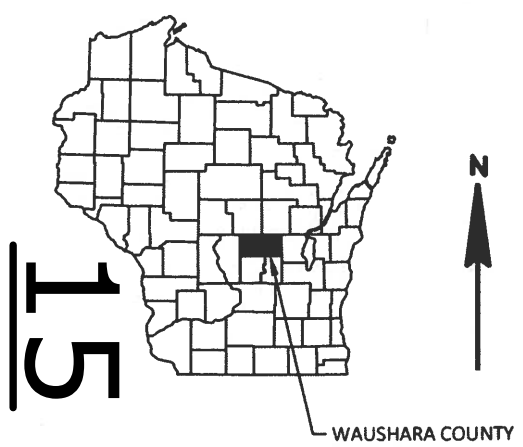
WIS
PROJECT ID: 1166-05-77
WITH: N/A
COUNTY: WAUSHARA

SEPTEMBER 27

ORDER OF SHEETS

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

TOTAL SHEETS = 270



DESIGN DESIGNATION

A.A.D.T.	2022	=	7,100
A.A.D.T.	2042	=	8,700
D.H.V.		=	
D.D.		=	
T.		=	17.5%
DESIGN SPEED		=	70 MPH
ESALS		=	7,200,000

CONVENTIONAL SYMBOLS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

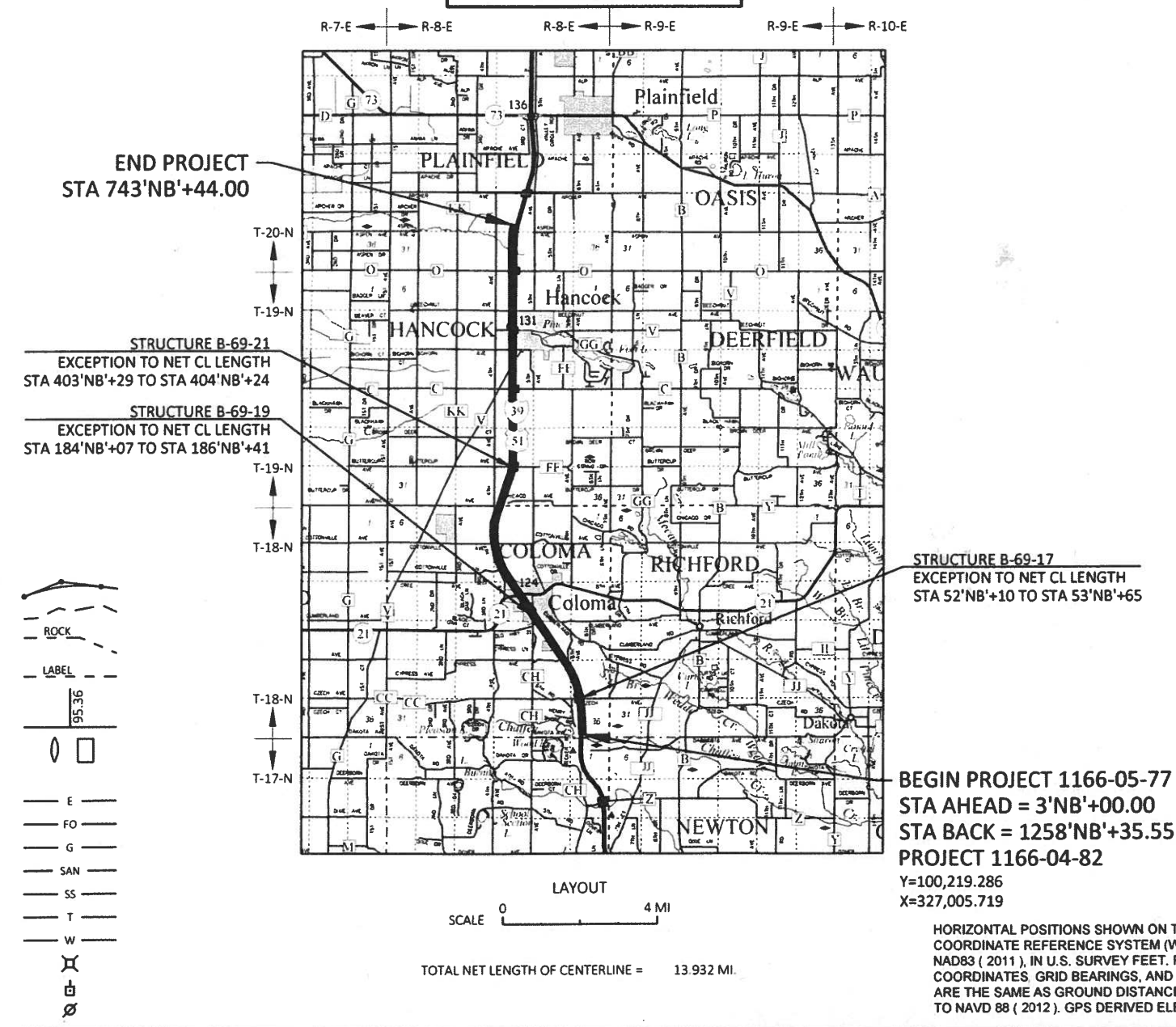
PACKWAUKEE - PLAINFIELD

(MARQUETTE COUNTY LINE TO CTH O, NB)

IH 39

WAUSHARA COUNTY

STATE PROJECT NUMBER
1166-05-77



STRUCTURE B-69-17
EXCEPTION TO NET CL LENGTH
STA 52'NB'+10 TO STA 53'NB'+65

BEGIN PROJECT 1166-05-77
STA AHEAD = 3'NB'+00.00
STA BACK = 1258'NB'+35.55
PROJECT 1166-04-82
Y=100,219.286
X=327,005.719

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUSHARA 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	FEDERAL PROJECT	
	PROJECT	CONTRACT
1166-05-77	WISC 2022516	1

ORIGINAL PLANS PREPARED BY
Westwood



4/2/22

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	QUEST/WESTWOOD
Designer	WESTWOOD
Project Manager	DAN HOLLOWAY
Regional Examiner	NC REGION
Regional Supervisor	MICHAEL KRETSCHMER

APPROVED FOR THE DEPARTMENT
DATE: _____
(Signature)

E

2

GENERAL NOTES

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

ALL MANHOLE AND INLET OFFSETS ARE GIVEN TO THE CENTER OF THE STRUCTURE.

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	0.08	0.16	0.22	0.12	0.20	0.27	0.15	0.24	0.33	0.19	0.28	0.38
	0.22	0.30	0.38	0.26	0.34	0.44	0.30	0.37	0.50	0.34	0.41	0.56
MEDIAN STRIP - TURF	0.19	0.20	0.24	0.19	0.22	0.26	0.20	0.23	0.30	0.20	0.25	0.30
	0.24	0.26	0.30	0.25	0.28	0.33	0.26	0.30	0.37	0.27	0.32	0.40
SIDE SLOPE - TURF			0.25			0.27			0.28			0.30
			0.32			0.34			0.36			0.38
PAVEMENT:												
ASPHALT .70 - .95												
CONCRETE .80 - .95												
BRICK .70 - .80												
DRIVES, WALKS .75 - .85												
ROOFS .75 - .95												
GRAVEL ROADS, SHOULDERS .40 - .60												

EROSION CONTROL NOTES

RUNOFF COEFFICIENT FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.

TOTAL PROJECT AREA = 380.18 ACRES.

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 77.73 ACRES.

UTILITIES

COMMUNICATION LINE	UNION TELEPHONE COMPANY JASON NOSKA 100 W. NORTH ST PLAINFIELD, WI 54909 TELEPHONE: 715-335-6301 EMAIL: JNOSKA@UNIONTEL.NET	ELECTRICITY TRANSMISSION	ATC MANAGEMENT INC. DOUG VOSBERG 2489 RINDEN RD. COTTAGE GROVE, WI 53527 TELEPHONE: 608-877-7650 EMAIL: DVOSBERG@ATCLLC.COM
ELECTRICITY	ADAMS-COLUMBIA ELECTRIC COOPERATIVE DUANE MOORE 401 E. LAKE ST FRIENDSHIP, WI 53934 TELEPHONE: 800-831-8629 EMAIL: DMOORE@ACECWI.COM	GAS\PETROLEUM	WE ENERGIES LARRY KOCH 1921 8TH ST. SOUTH WISCONSIN RAPIDS, WI 54494 TELEPHONE: 715-421-7249 CELL: 715-421-9293 EMAIL: LARRY.KOCH@WE-ENERGIES.COM
ELECTRICITY	ALLIANT ENERGY COREY CLINCH 880 N. WISCONSIN ST. BERLIN, WI 54923 TELEPHONE: 920-361-5668 EMAIL: COREYCLINCH@ALLIANTENERGY.COM		

OTHER CONTACTS

WISCONSIN DOT RWIS PROGRAM COMMUNICATION TOWER MICHAEL ADAMS TELEPHONE: 608-266-5004 EMAIL: michael.adams@dot.wi.gov	DEPARTMENT OF NATURAL RESOURCES CENTRAL REGION HEADQUATERS CASEY JONES 473 GRIFFITH AVE WISCONSIN RAPIDS, WI 54494 TELEPHONE: 715-213-6371 EMAIL: casey.jones@wisconsin.gov
ATR STATION RUSSELL LEWIS TELEPHONE: 608-516-5754 EMAIL: russell.lewis@dot.wi.gov	

DIGGERSHOTLINE

Dial 811 or (800) 242-8511

www.DiggersHotline.com

ORDER OF "SECTION 2" SHEETS

SHEET TITLE

GENERAL NOTES

PROJECT OVERVIEW

TYPICAL SECTIONS

CONSTRUCTION DETAILS

GUARDRAIL / EROSION CONTROL DETAILS

CONCRETE APPROACH DETAILS

STORM SEWER DETAILS

TRAFFIC CONTROL AND STAGING

PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

GENERAL NOTES

SHEET: 2

E

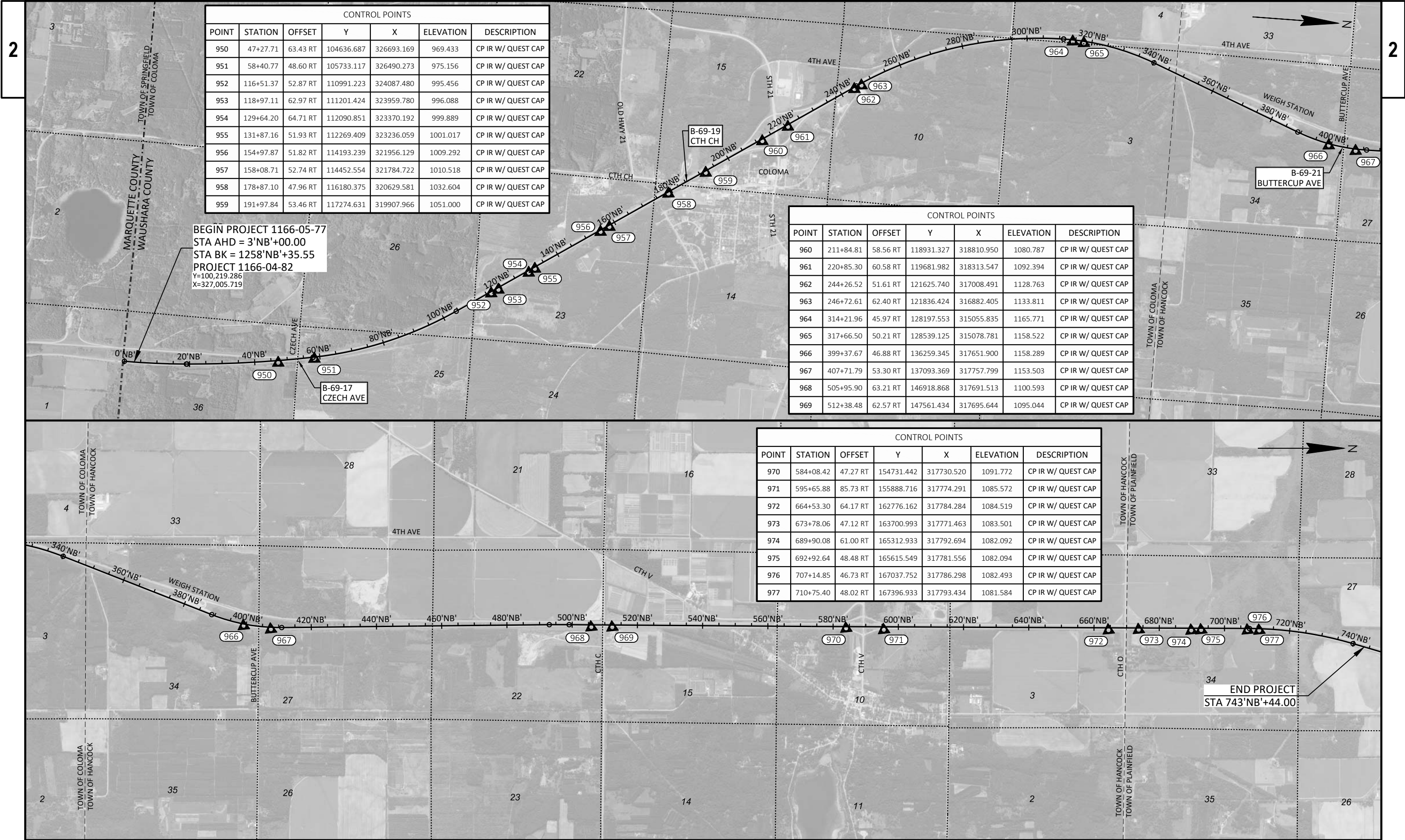
FILE NAME: N:\3000873.00\Civil3D\SheetsPlan\11660577-020101-gn

ORIGINATOR: OMNNI ASSOCIATES

ORIG. DATE: SEPTEMBER 15, 2015

REV. DATE: SEPTEMBER 15, 2015

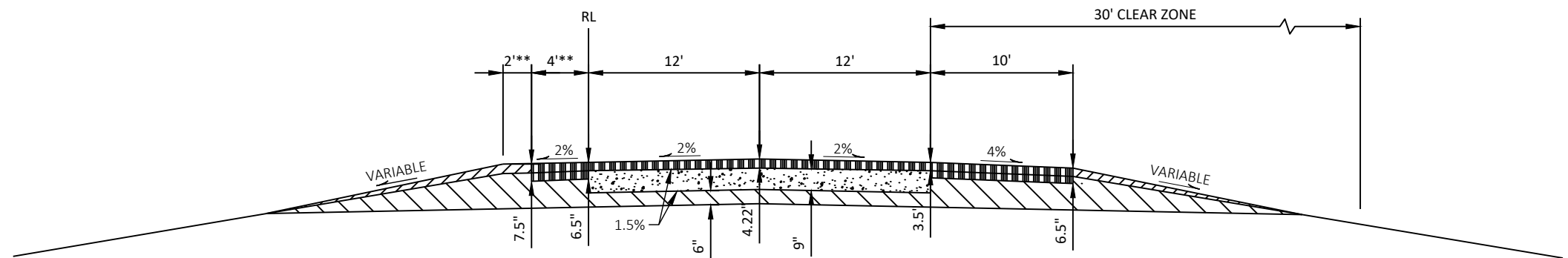
PRINT DATE: March 28, 2022



CONTROL POINTS						
POINT	STATION	OFFSET	Y	X	ELEVATION	DESCRIPTION
950	47+27.71	63.43 RT	104636.687	326693.169	969.433	CP IR W/ QUEST CAP
951	58+40.77	48.60 RT	105733.117	326490.273	975.156	CP IR W/ QUEST CAP
952	116+51.37	52.87 RT	110991.223	324087.480	995.456	CP IR W/ QUEST CAP
953	118+97.11	62.97 RT	111201.424	323959.780	996.088	CP IR W/ QUEST CAP
954	129+64.20	64.71 RT	112090.851	323370.192	999.889	CP IR W/ QUEST CAP
955	131+87.16	51.93 RT	112269.409	323236.059	1001.017	CP IR W/ QUEST CAP
956	154+97.87	51.82 RT	114193.239	321956.129	1009.292	CP IR W/ QUEST CAP
957	158+08.71	52.74 RT	114452.554	321784.722	1010.518	CP IR W/ QUEST CAP
958	178+87.10	47.96 RT	116180.375	320629.581	1032.604	CP IR W/ QUEST CAP
959	191+97.84	53.46 RT	117274.631	319907.966	1051.000	CP IR W/ QUEST CAP

CONTROL POINTS						
POINT	STATION	OFFSET	Y	X	ELEVATION	DESCRIPTION
960	211+84.81	58.56 RT	118931.327	318810.950	1080.787	CP IR W/ QUEST CAP
961	220+85.30	60.58 RT	119681.982	318313.547	1092.394	CP IR W/ QUEST CAP
962	244+26.52	51.61 RT	121625.740	317008.491	1128.763	CP IR W/ QUEST CAP
963	246+72.61	62.40 RT	121836.424	316882.405	1133.811	CP IR W/ QUEST CAP
964	314+21.96	45.97 RT	128197.553	315055.835	1165.771	CP IR W/ QUEST CAP
965	317+66.50	50.21 RT	128539.125	315078.781	1158.522	CP IR W/ QUEST CAP
966	399+37.67	46.88 RT	136259.345	317651.900	1158.289	CP IR W/ QUEST CAP
967	407+71.79	53.30 RT	137093.369	317757.799	1153.503	CP IR W/ QUEST CAP
968	505+95.90	63.21 RT	146918.868	317691.513	1100.593	CP IR W/ QUEST CAP
969	512+38.48	62.57 RT	147561.434	317695.644	1095.044	CP IR W/ QUEST CAP

CONTROL POINTS						
POINT	STATION	OFFSET	Y	X	ELEVATION	DESCRIPTION
970	584+08.42	47.27 RT	154731.442	317730.520	1091.772	CP IR W/ QUEST CAP
971	595+65.88	85.73 RT	155888.716	317774.291	1085.572	CP IR W/ QUEST CAP
972	664+53.30	64.17 RT	162776.162	317784.284	1084.519	CP IR W/ QUEST CAP
973	673+78.06	47.12 RT	163700.993	317771.463	1083.501	CP IR W/ QUEST CAP
974	689+90.08	61.00 RT	165312.933	317792.694	1082.092	CP IR W/ QUEST CAP
975	692+92.64	48.48 RT	165615.549	317781.556	1082.094	CP IR W/ QUEST CAP
976	707+14.85	46.73 RT	167037.752	317786.298	1082.493	CP IR W/ QUEST CAP
977	710+75.40	48.02 RT	167396.933	317793.434	1081.584	CP IR W/ QUEST CAP

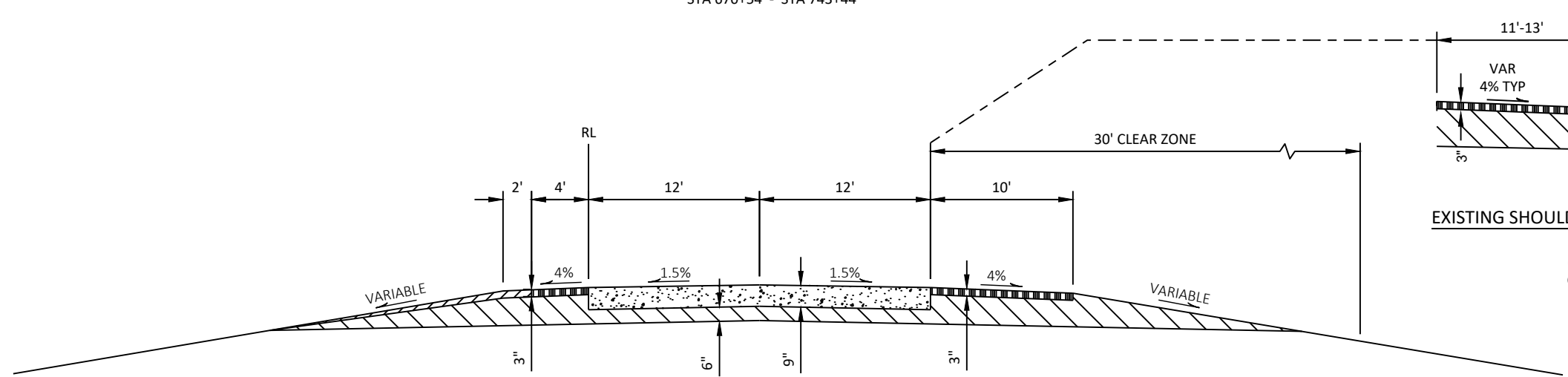


EXISTING TYPICAL SECTION - IH 39 NB

****6.0' PAVED SHOULDER AT FOLLOWING STATION RANGES:**

STA 3+00 - STA 9+91
STA 168+83 - STA 179+58
STA 186+97 - STA 190+85
STA 207+75 - STA 222+75

STA 3+00 - STA 52+10
STA 53+65 - STA 184+07
STA 186+97 - STA 403+09
STA 404+48 - STA 508+48
STA 510+49 - STA 588+00
STA 590+00 - STA 668+54
STA 670+54 - STA 743+44



EXISTING TYPICAL SECTION (CONCRETE UNDERPASS) - IH 39 NB

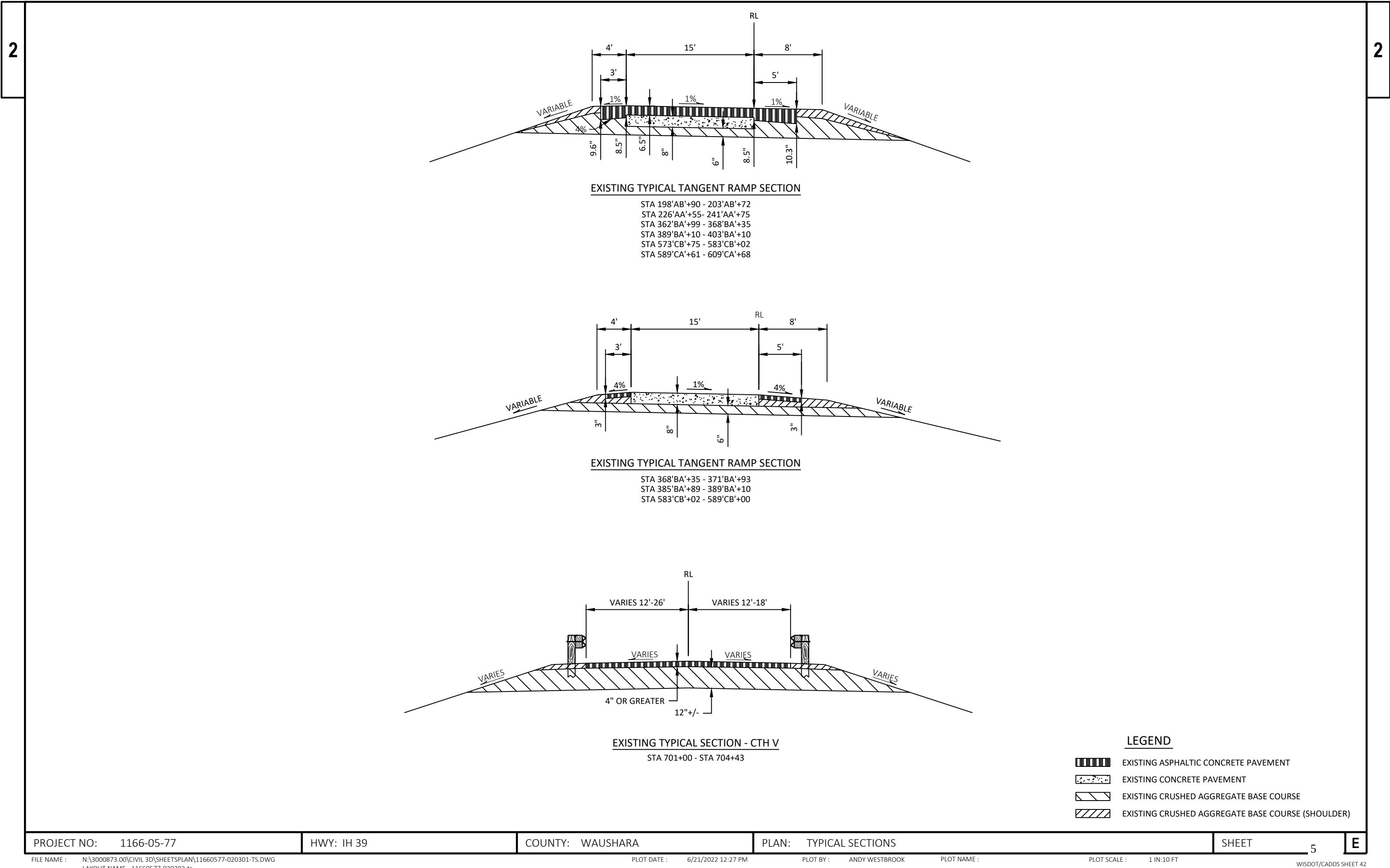
STA 508+48 - STA 510+49
STA 588+00 - STA 590+00
STA 668+54 - STA 670+54

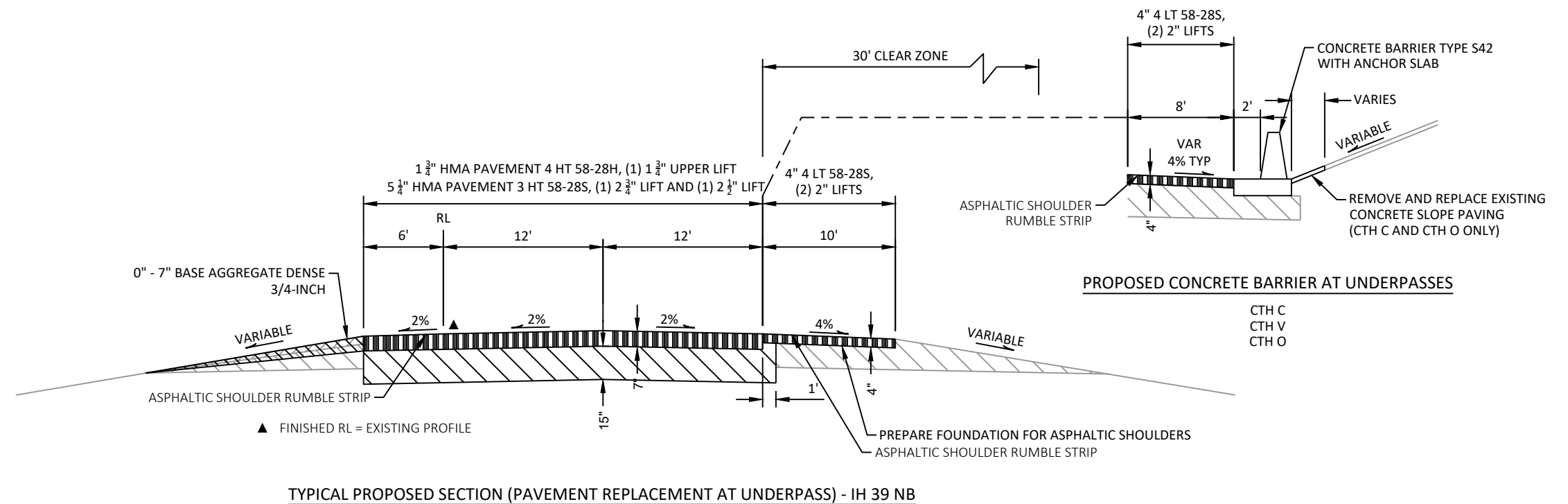
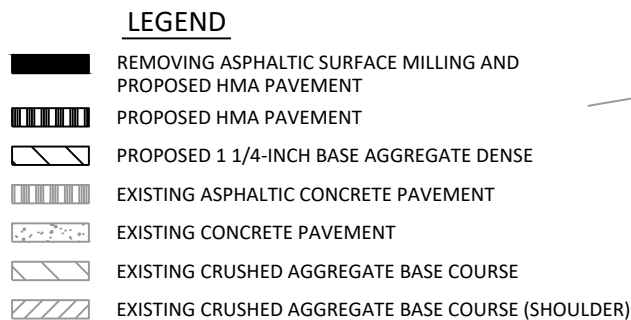
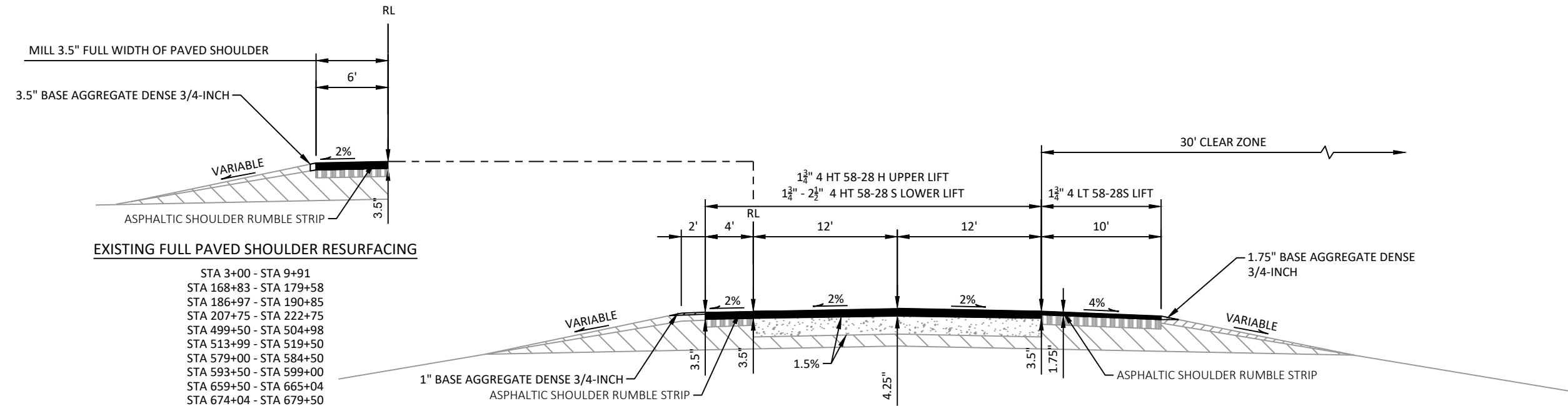
EXISTING SHOULDER AT UNDERPASSES

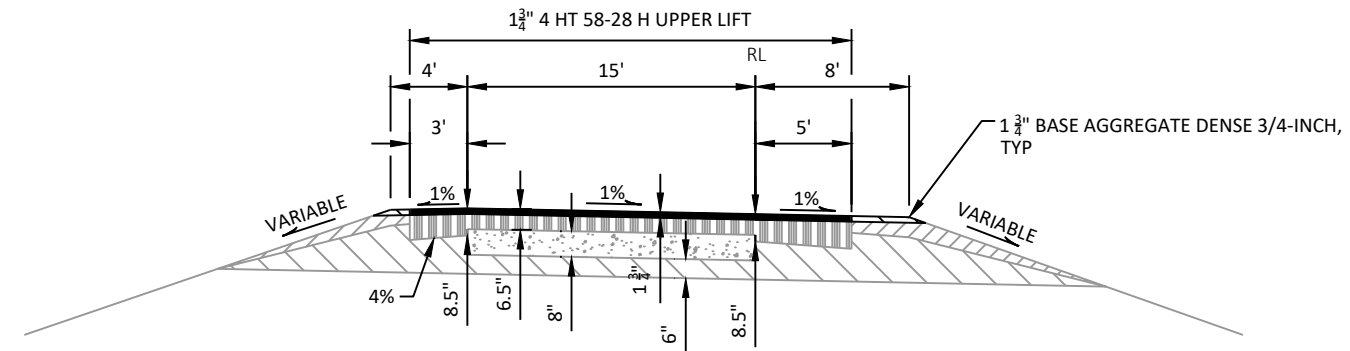
CTH C
CTH V
CTH O

LEGEND

- EXISTING ASPHALTIC CONCRETE PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING CRUSHED AGGREGATE BASE COURSE
- EXISTING CRUSHED AGGREGATE BASE COURSE (SHOULDER)

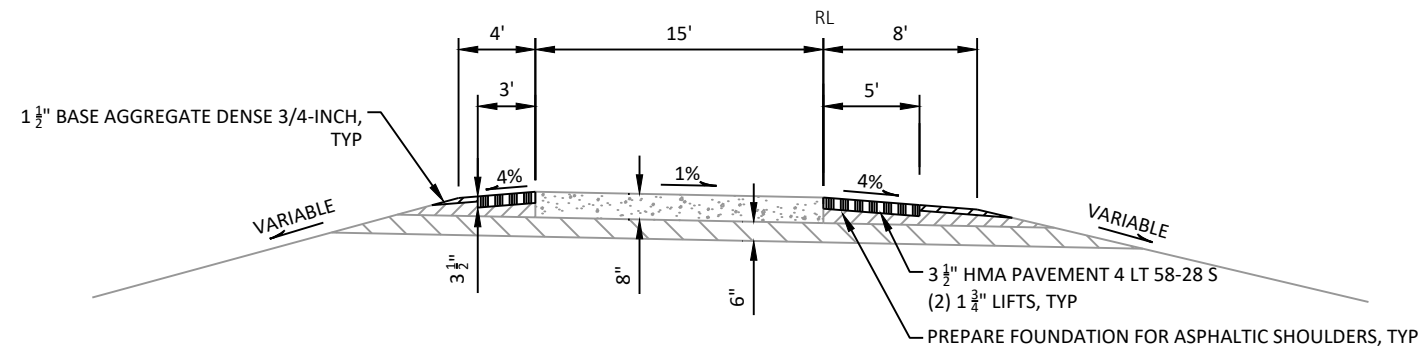






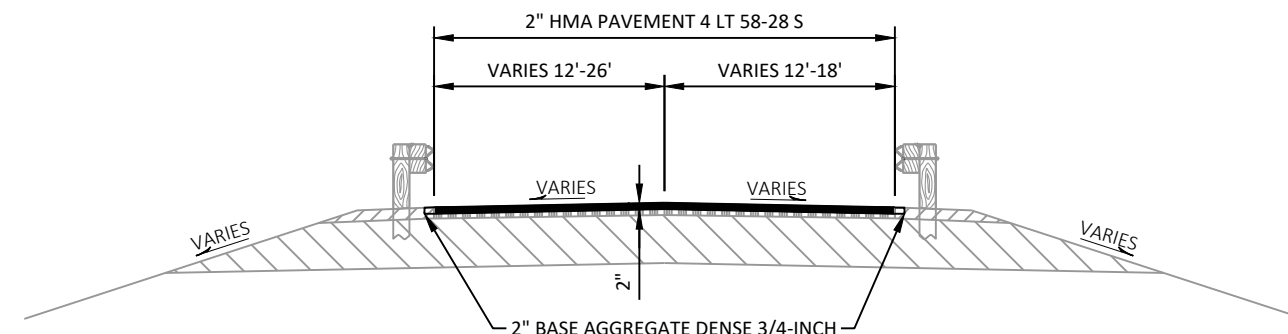
PROPOSED TYPICAL TANGENT RAMP SECTION

STA 198'AB'+90 - 203'AB'+72
STA 226'AA'+55- 241'AA'+75
STA 362'BA'+99 - 368'BA'+35
STA 389'BA'+18 - 403'BA'+10
STA 573'CB'+75 - 583'CB'+02
STA 589'CA'+61 - 609'CA'+68



PROPOSED TYPICAL TANGENT RAMP SECTION

STA 368'BA'+35 - 371'BA'+93
STA 385'BA'+89 - 389'BA'+10
STA 583'CB'+02 - 589'CB'+00

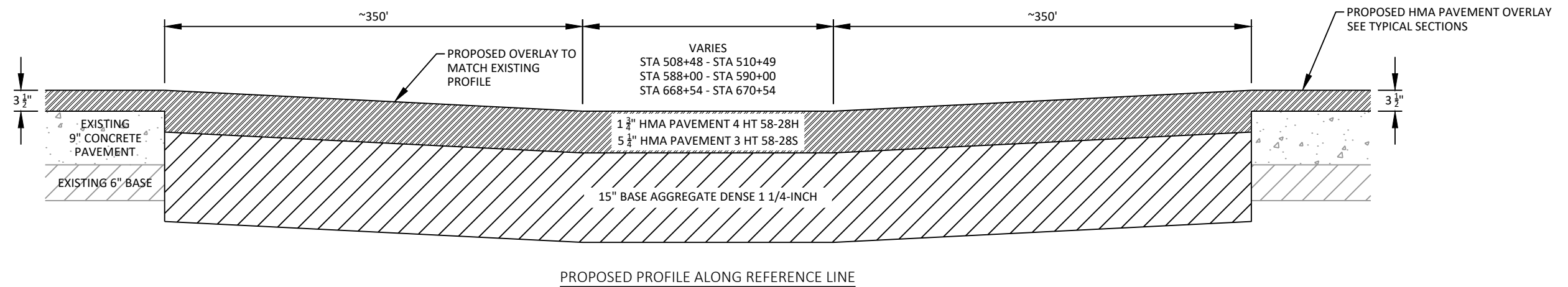
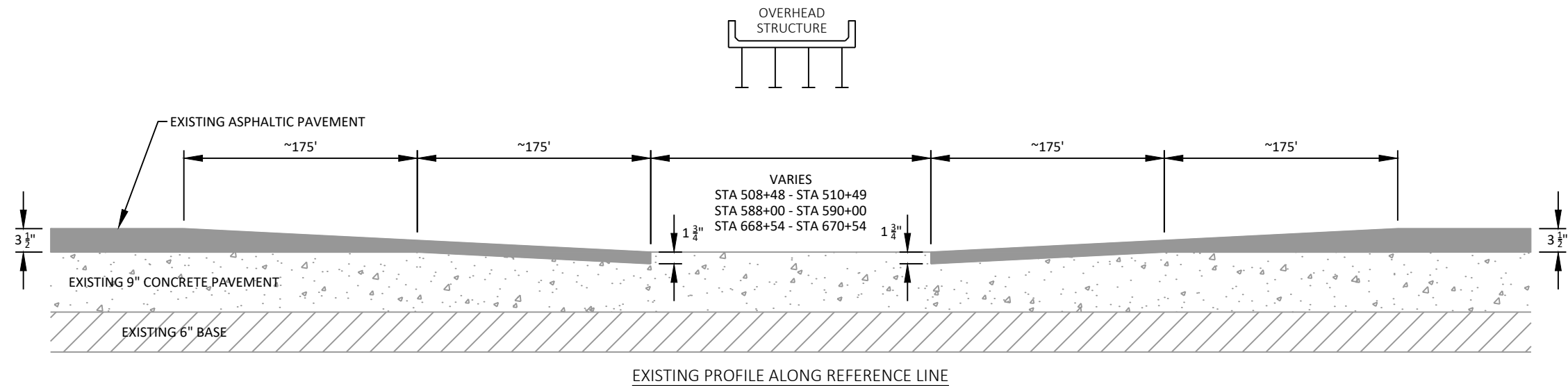


PROPOSED TYPICAL SECTION - CTH V

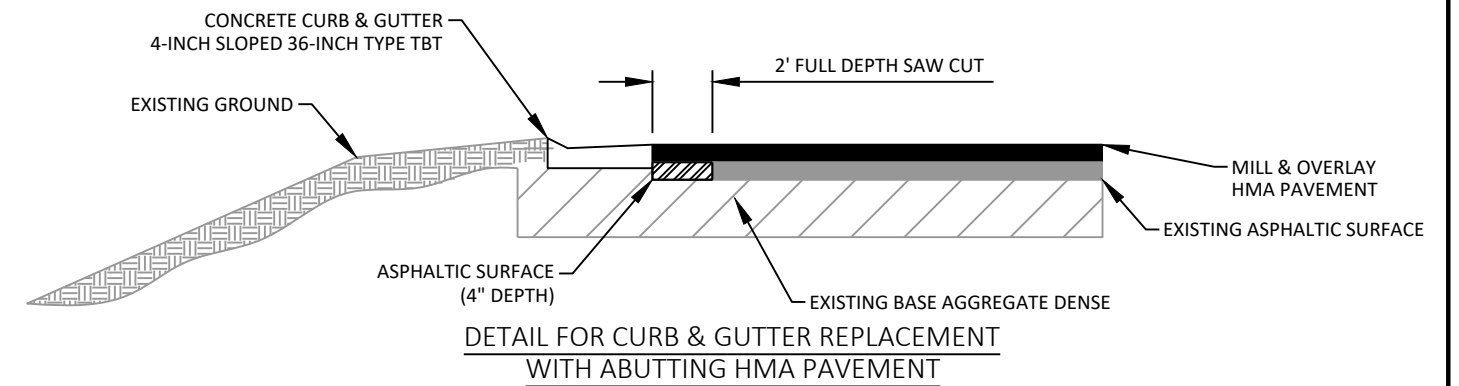
STA 701+00 - STA 704+43

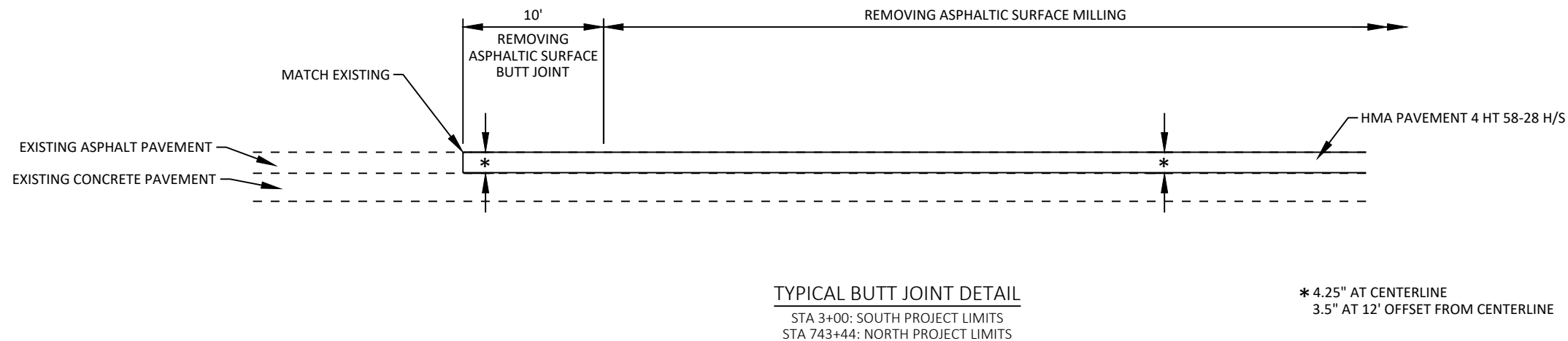
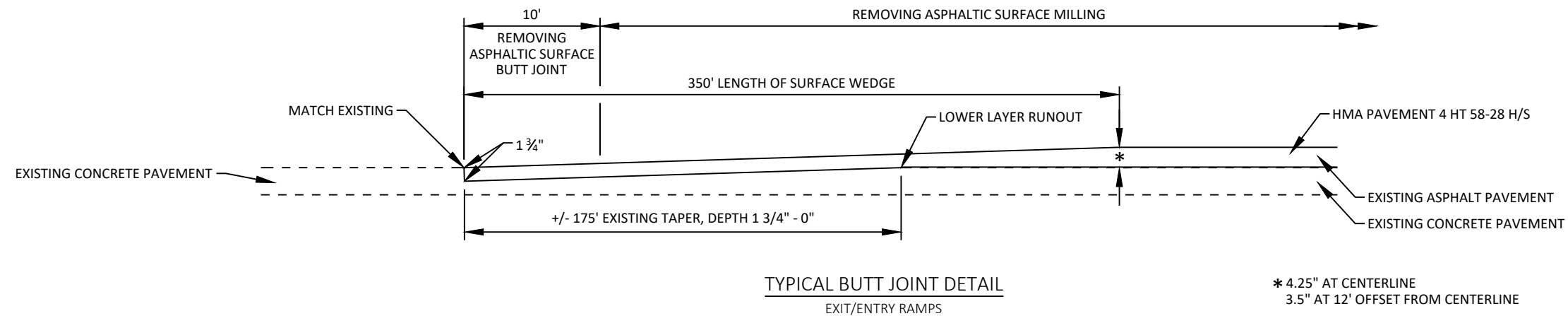
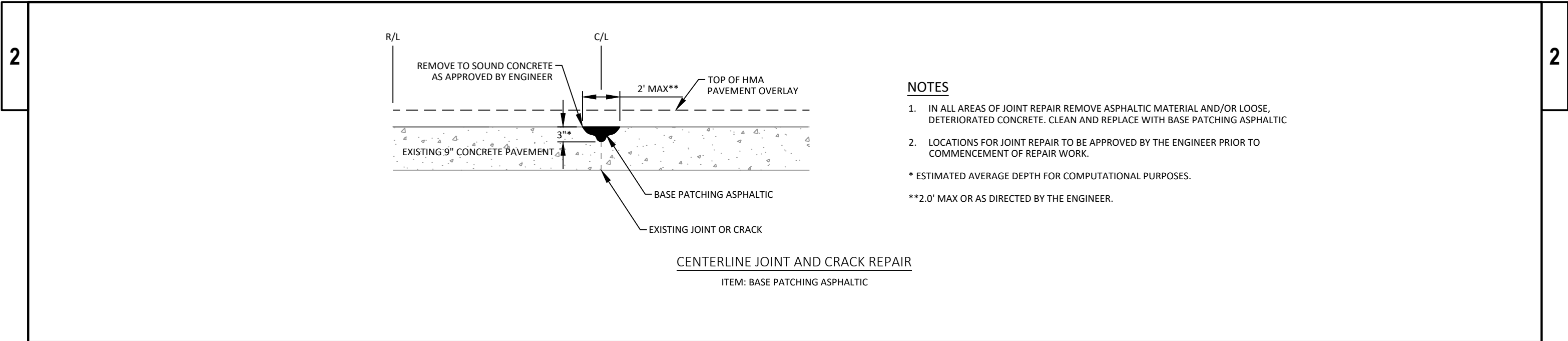
LEGEND

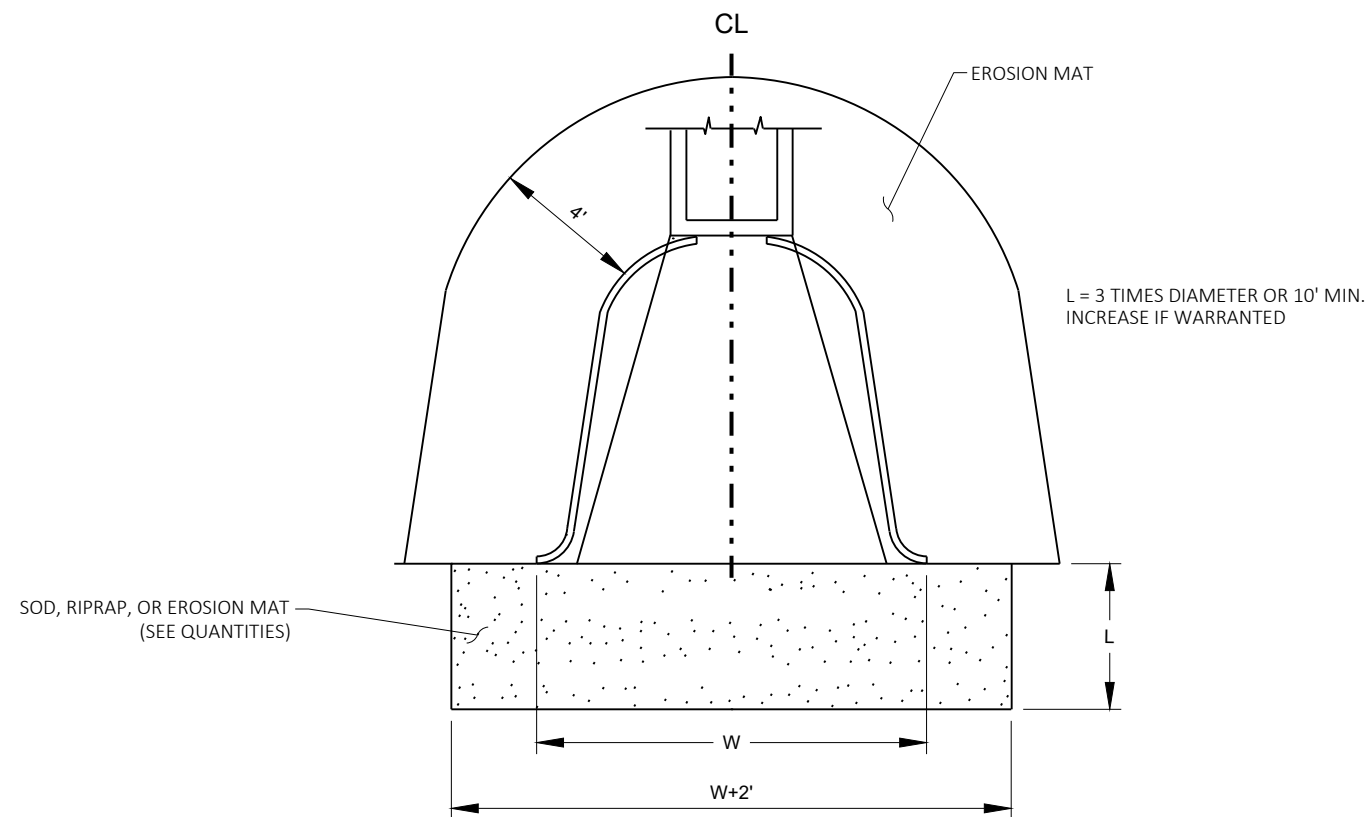
- REMOVING ASPHALTIC SURFACE MILLING AND PROPOSED HMA PAVEMENT
- PROPOSED HMA PAVEMENT
- PROPOSED 1 1/4-INCH BASE AGGREGATE DENSE
- EXISTING ASPHALTIC CONCRETE PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING CRUSHED AGGREGATE BASE COURSE
- EXISTING CRUSHED AGGREGATE BASE COURSE (SHOULDER)



DETAIL FOR PAVEMENT REPLACEMENT AT OVERHEAD STRUCTURES



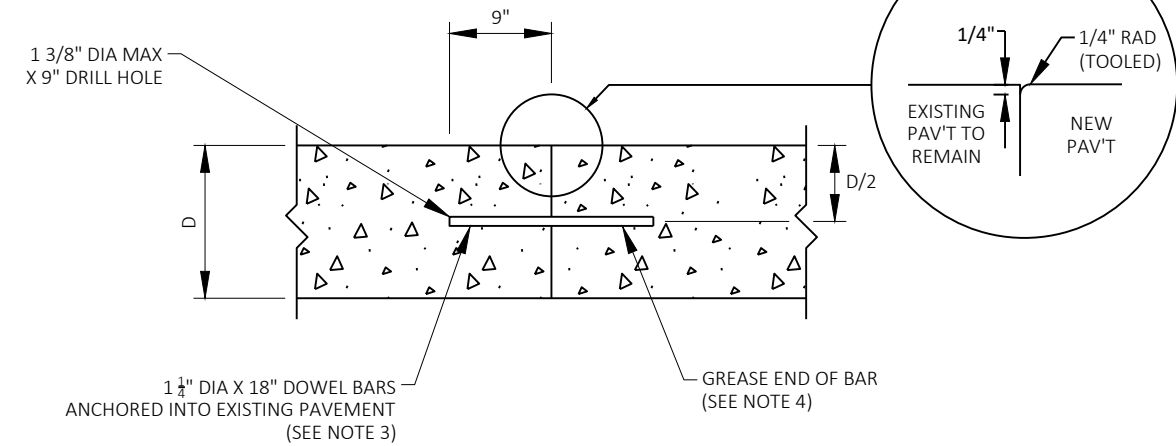




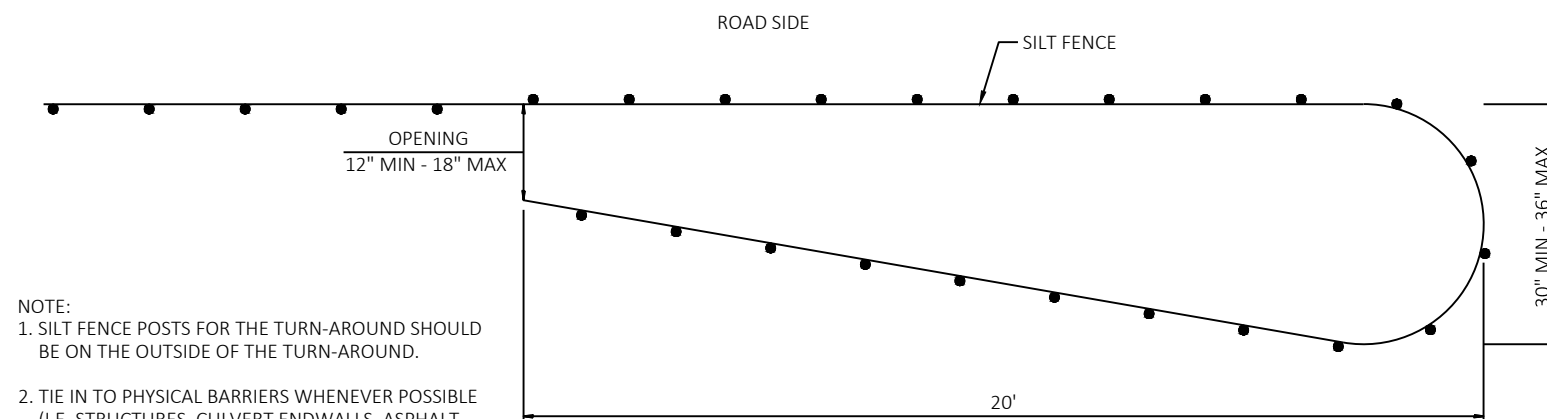
EROSION CONTROL AT PIPE ENDS

GENERAL NOTES

1. THE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS. DOWEL BARS SHALL BE COATED IN CONFORMANCE WITH SUBSECTION 505.2.6 OF THE STANDARD SPECIFICATIONS
2. DOWEL BARS SHALL BE INSTALLED PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE
3. DOWEL BARS SHALL BE ANCHORED INTO DRILL HOLES WITH AN APPROVED EPOXY GROUT
4. THE FREE END OF DOWEL BARS SHALL RECEIVE A THIN UNIFORM COATING OF BOND GREASE
5. JOINTS SHALL NOT BE SEALED OR FILLED
6. DOWEL BARS SHALL BE SPACED 1'-3" ON CENTER



DOWEL BAR
TRANSVERSE JOINTS ABUTTING EXISTING PAVEMENT



- NOTE:
1. SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND.
 2. TIE IN TO PHYSICAL BARRIERS WHENEVER POSSIBLE (I.E. STRUCTURES, CULVERT ENDWALLS, ASPHALT DRIVES, ETC.)

PLAN VIEW

SILT FENCE TURN-AROUND DETAIL

175' SURFACE WEDGE

125' SURFACE WEDGE

BUTT JOINT 50'

20.5' BRIDGE APPROACH SLAB

4 1/4"

EXISTING HMA PAVEMENT

EXISTING CONCRETE PAVEMENT

1 3/4"

1 3/4"

1 7/8"

1 7/8"

EXISTING BRIDGE OVERLAY TAPER

350' EXISTING ROADWAY OVERLAY TAPER

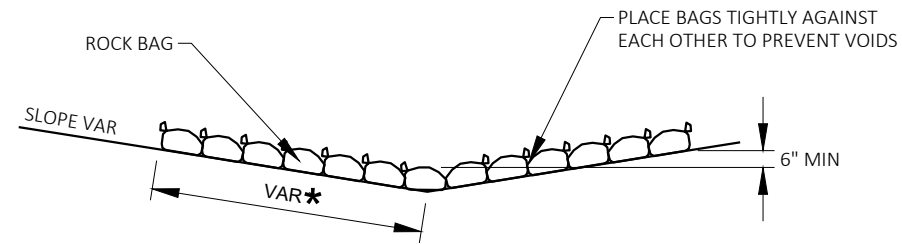
EXISTING OVERLAY & APPROACH SLAB TAPERS AT CENTERLINE

APPLICABLE FOR STR B-69-17, B-69-19, & B-69-21

BRIDGE

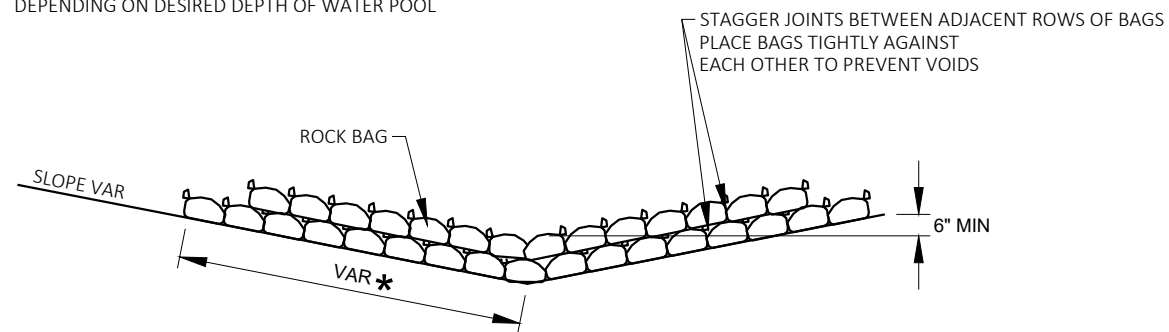
1

WISDOT/CADDS SHEET 42

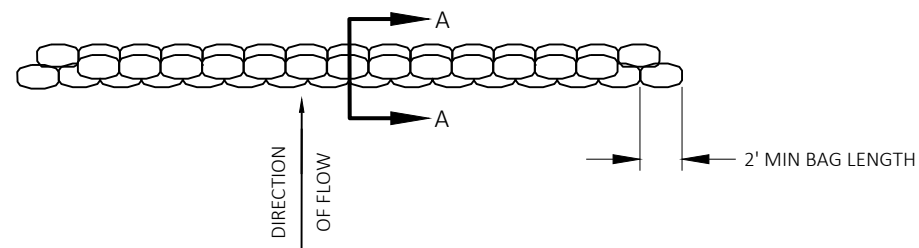


SIDE VIEW (SINGLE LAYER)

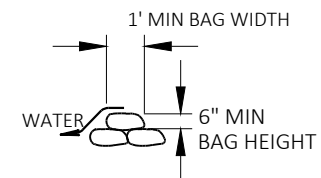
* LENGTH AND NUMBER OF BAGS MAY VARY
DEPENDING ON DESIRED DEPTH OF WATER POOL



SIDE VIEW (MULTIPLE LAYER)

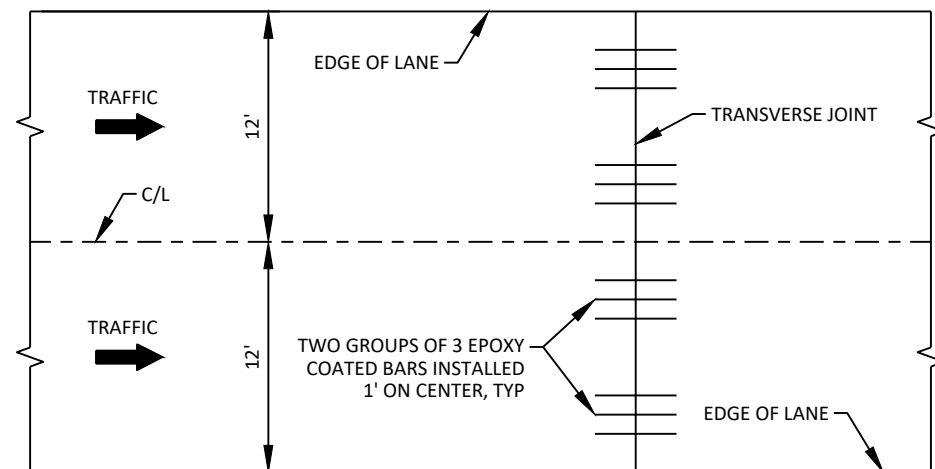


TOP VIEW (MULTIPLE LAYER)

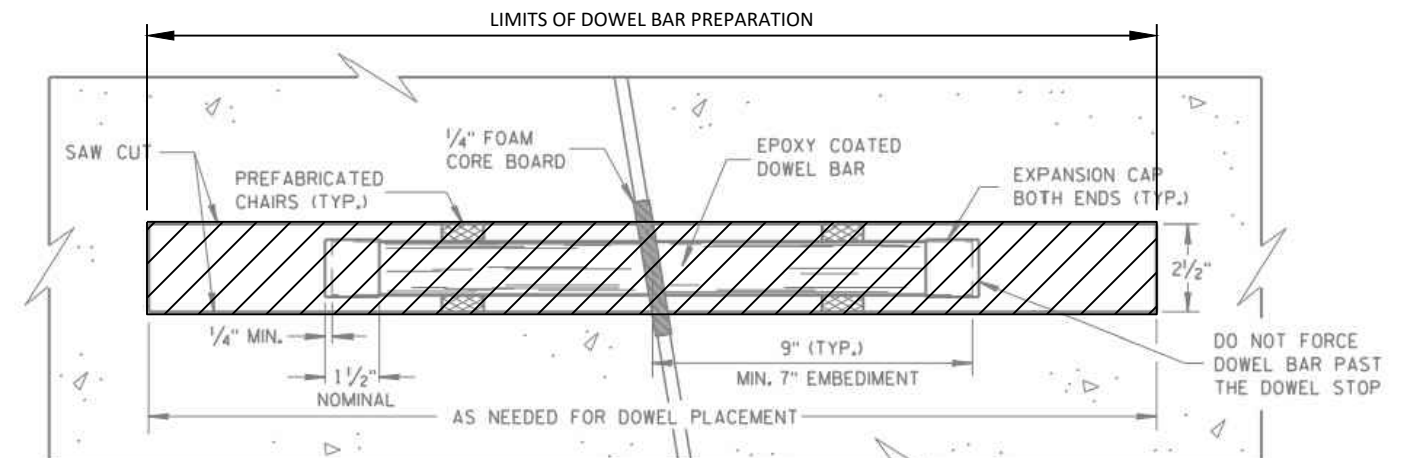


SECTION A-A

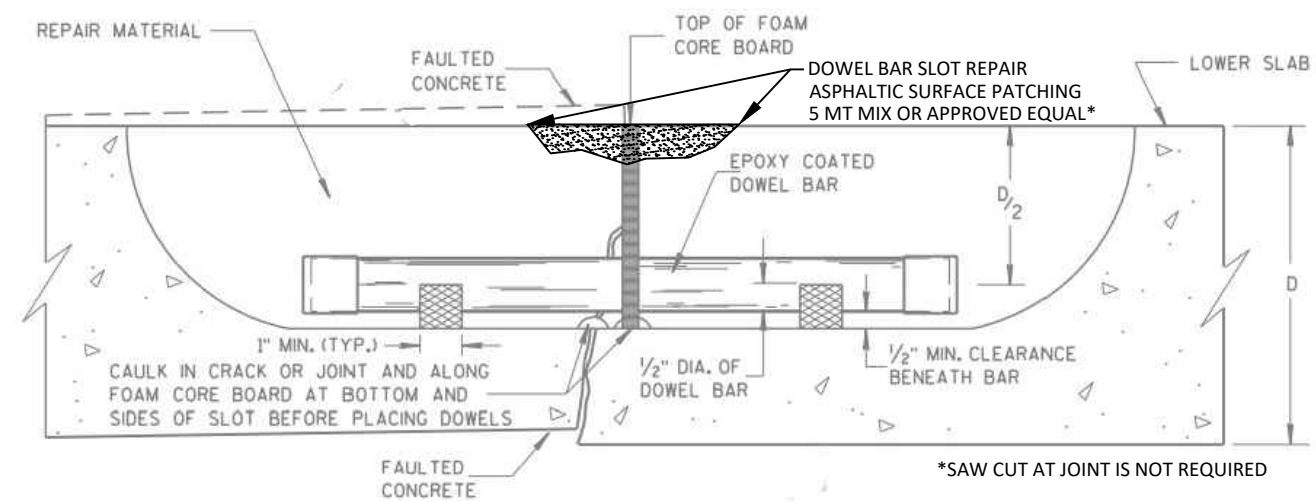
ROCK BAGS USED FOR DITCH CHECKS



EXISTING DOWEL BAR SPACING

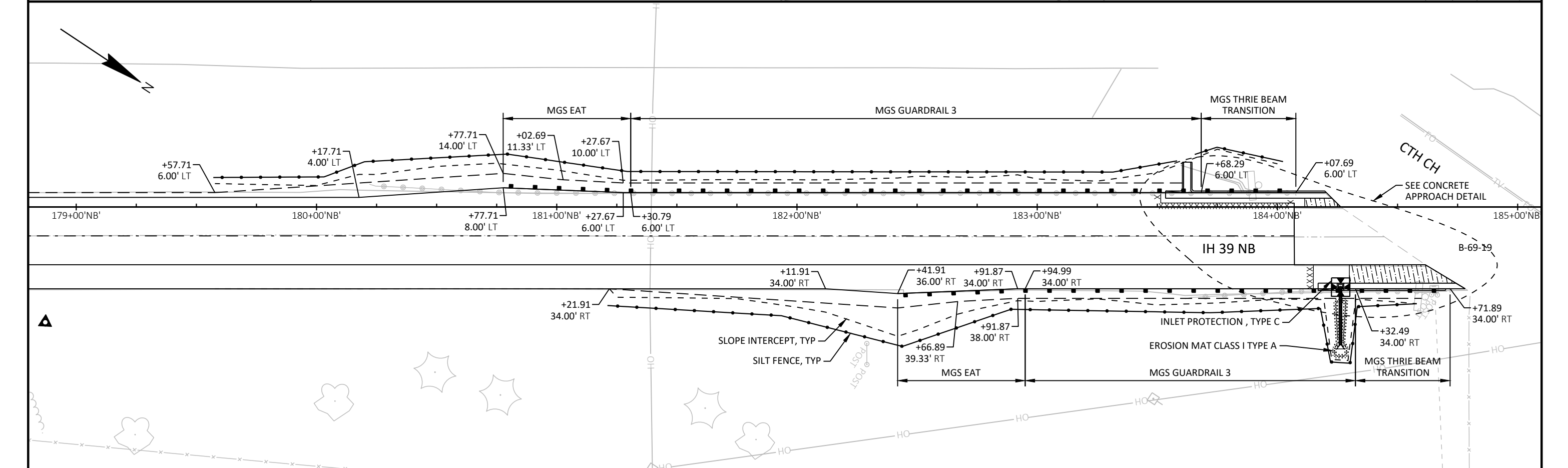
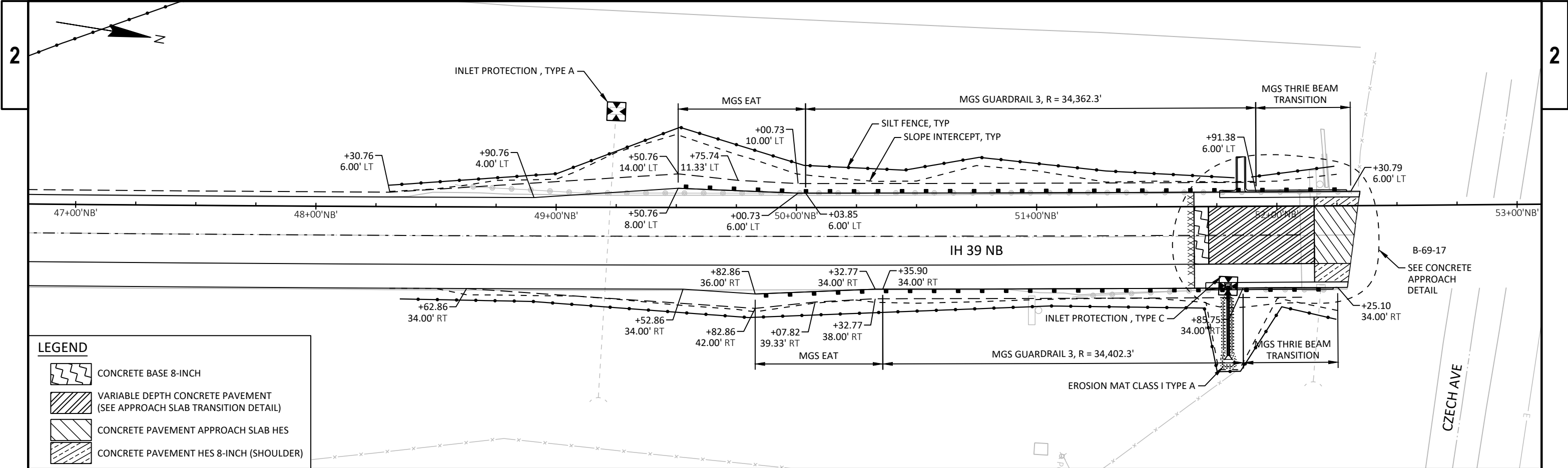


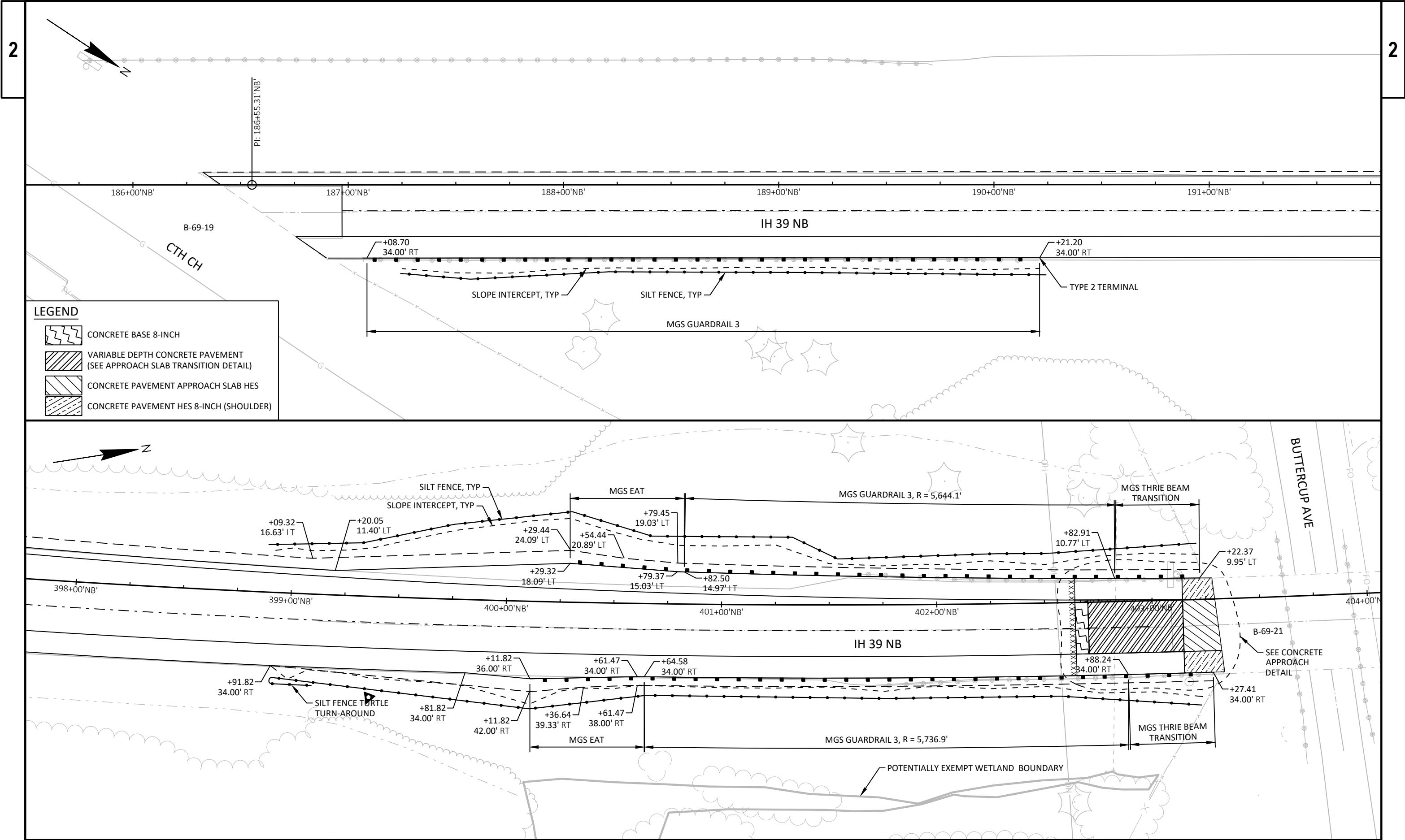
DOWEL BAR PLAN VIEW

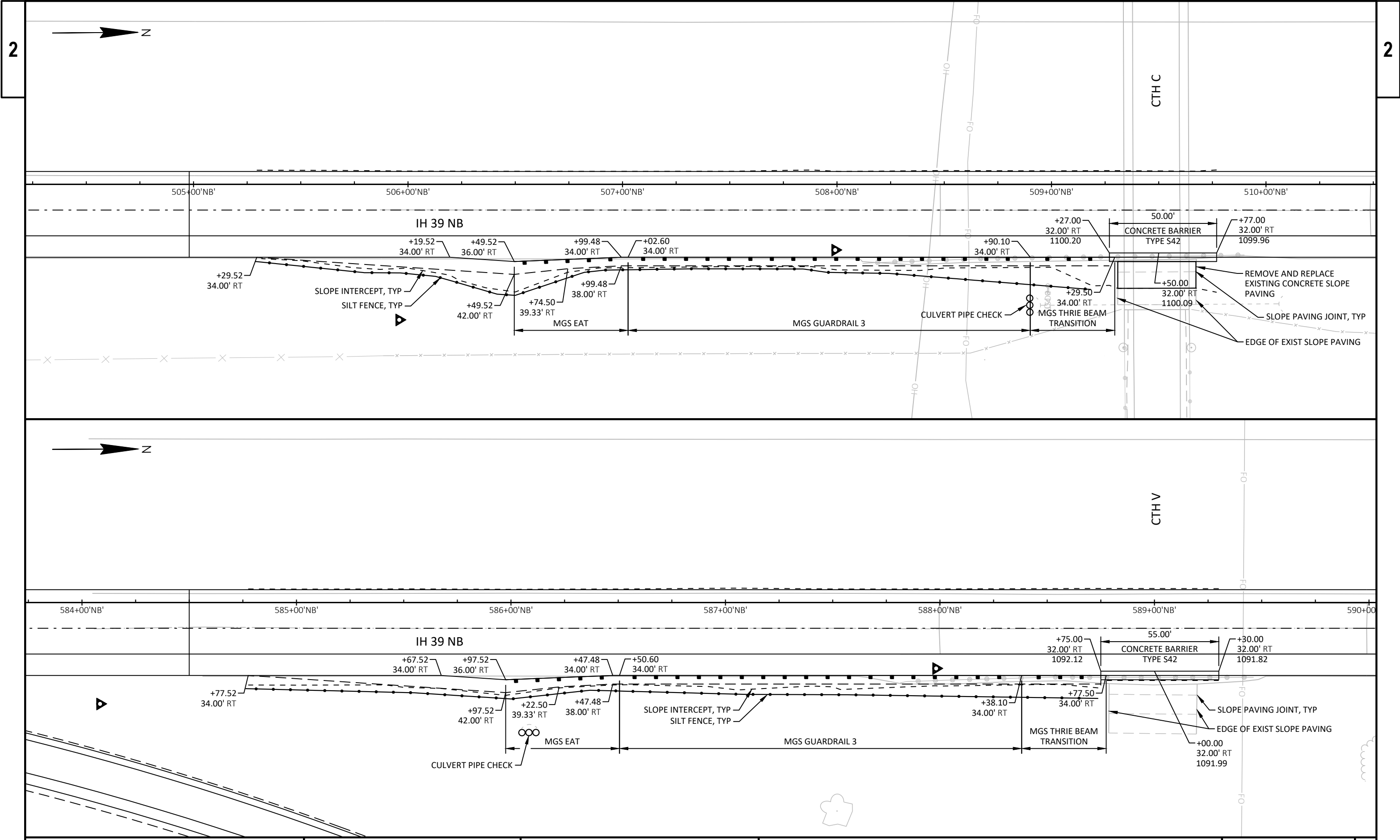


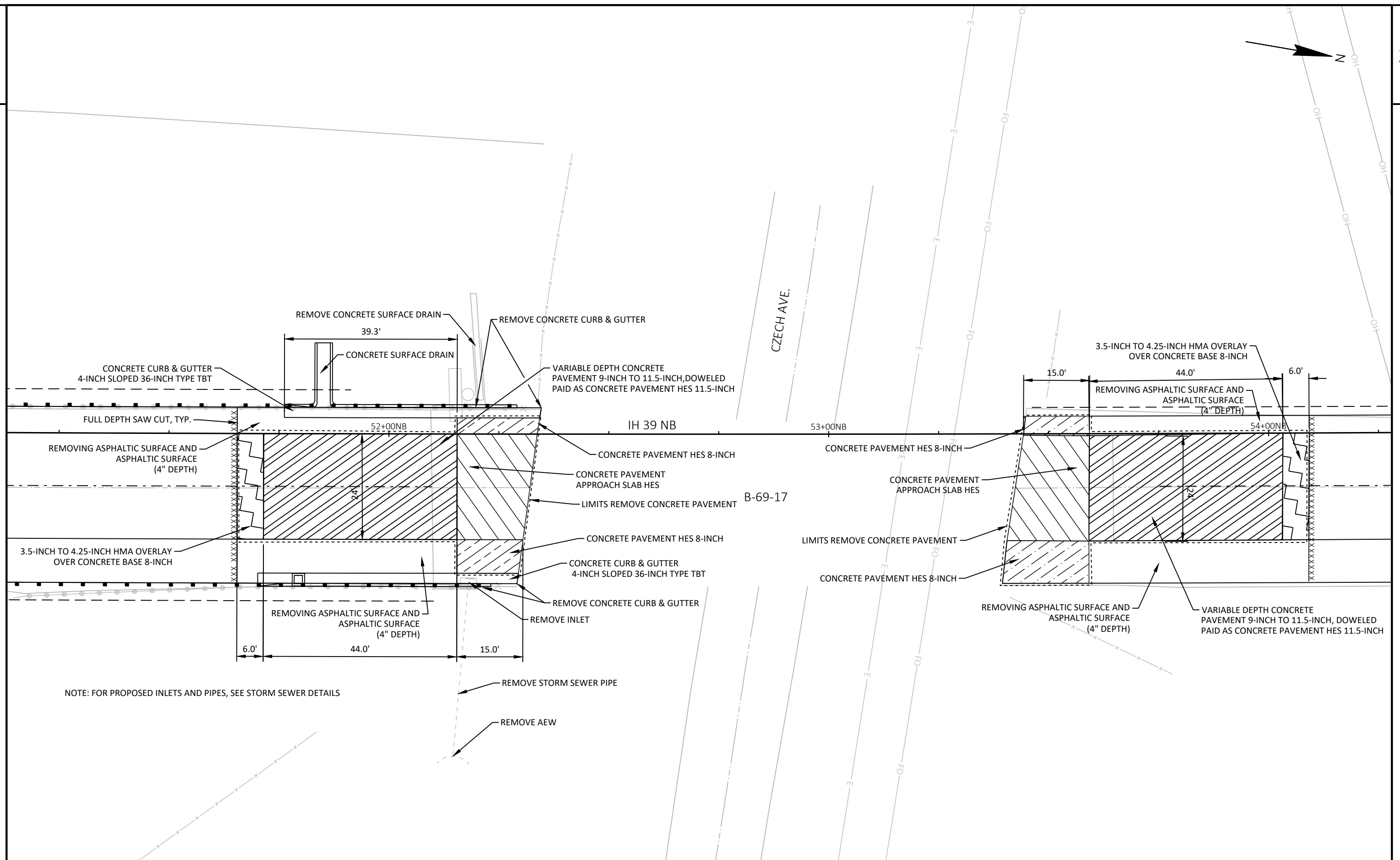
DOWEL BAR SIDE VIEW

DOWEL BAR SLOT REPAIR









PROJECT NO: 1166-05-77

HWY: IH 39

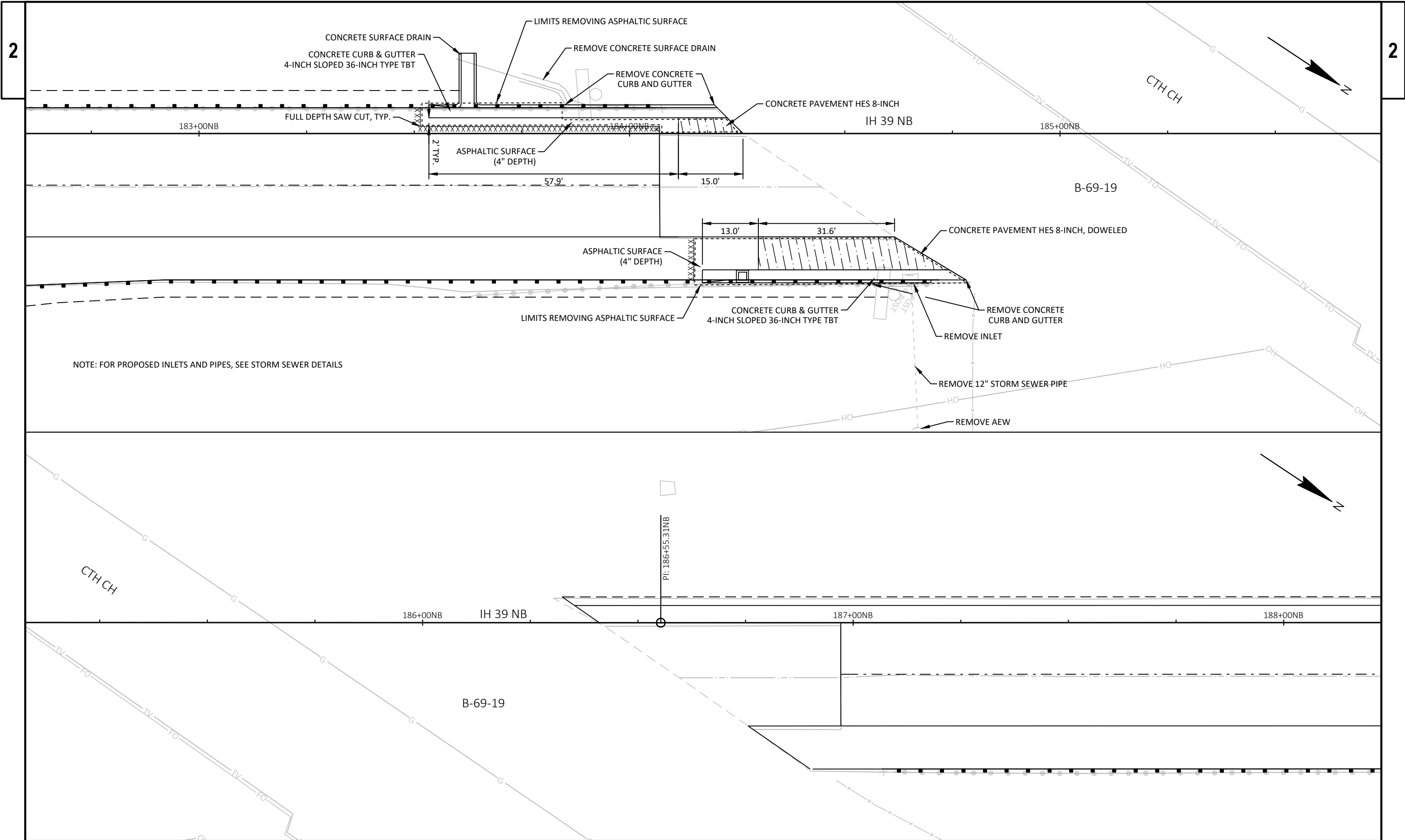
COUNTY: WAUSHARA

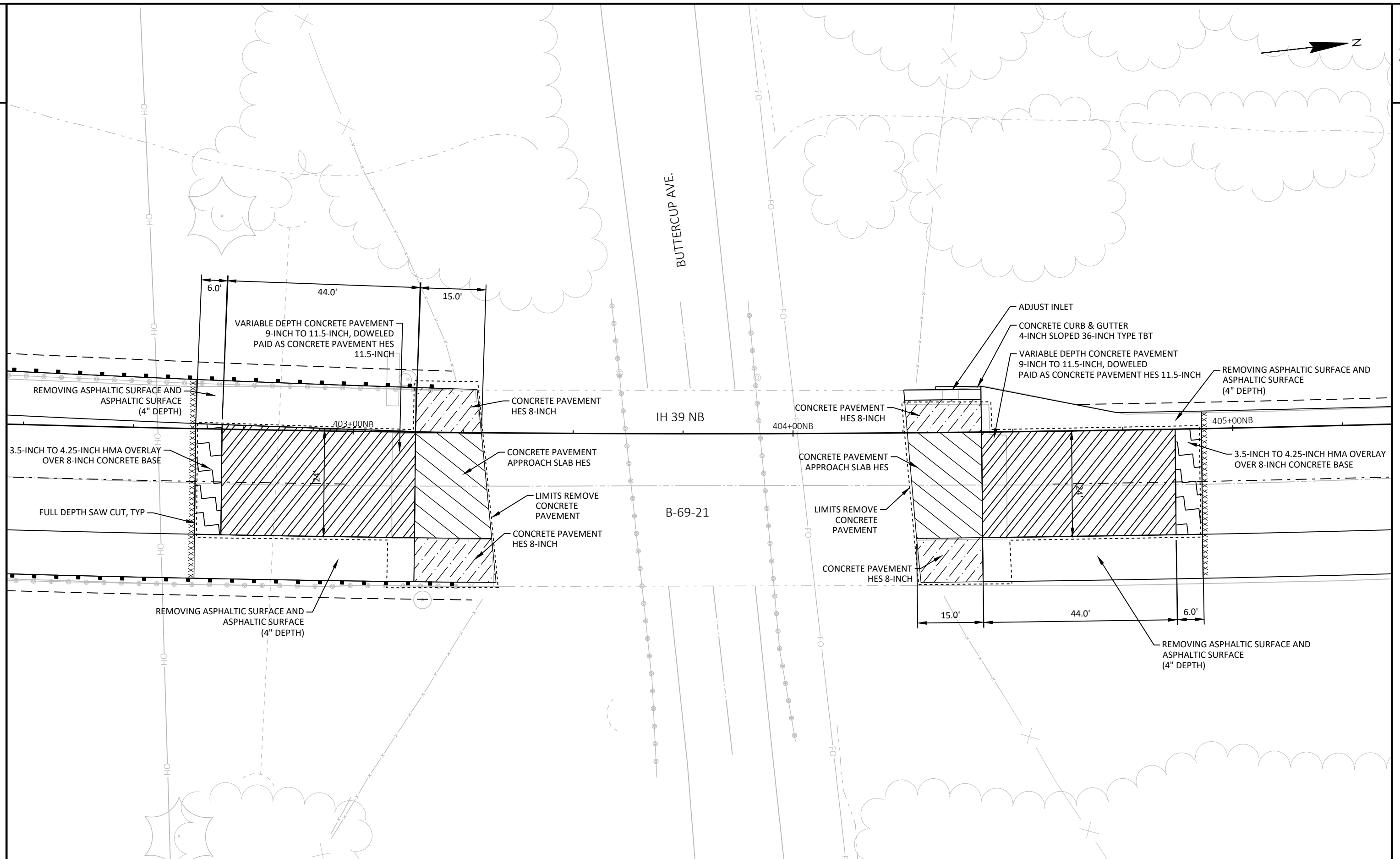
CONCRETE APPROACH DETAILS

SHEET

18

E





PROJECT NO: 1166-05-77

HWY: IH 39

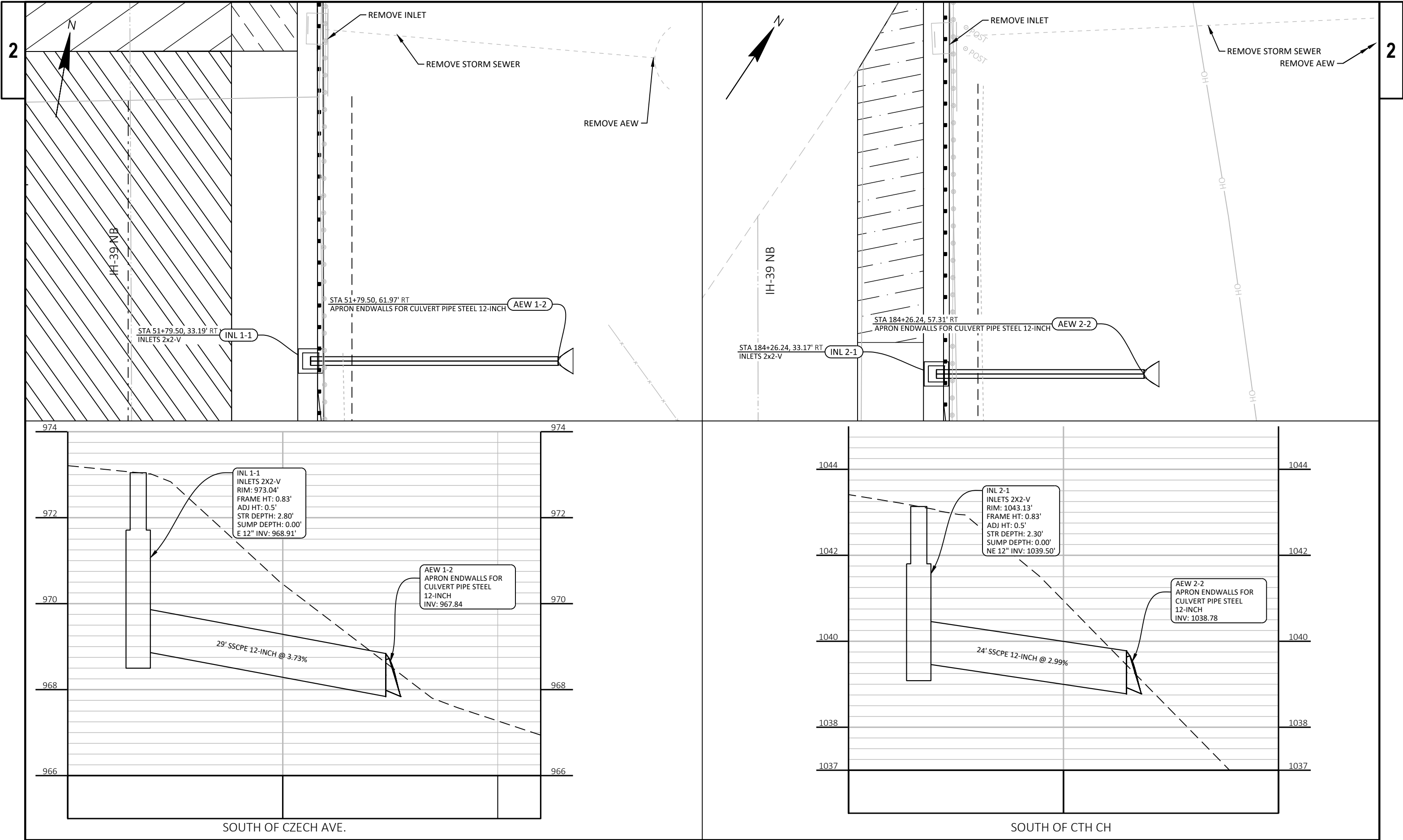
COUNTY: WAUSHARA

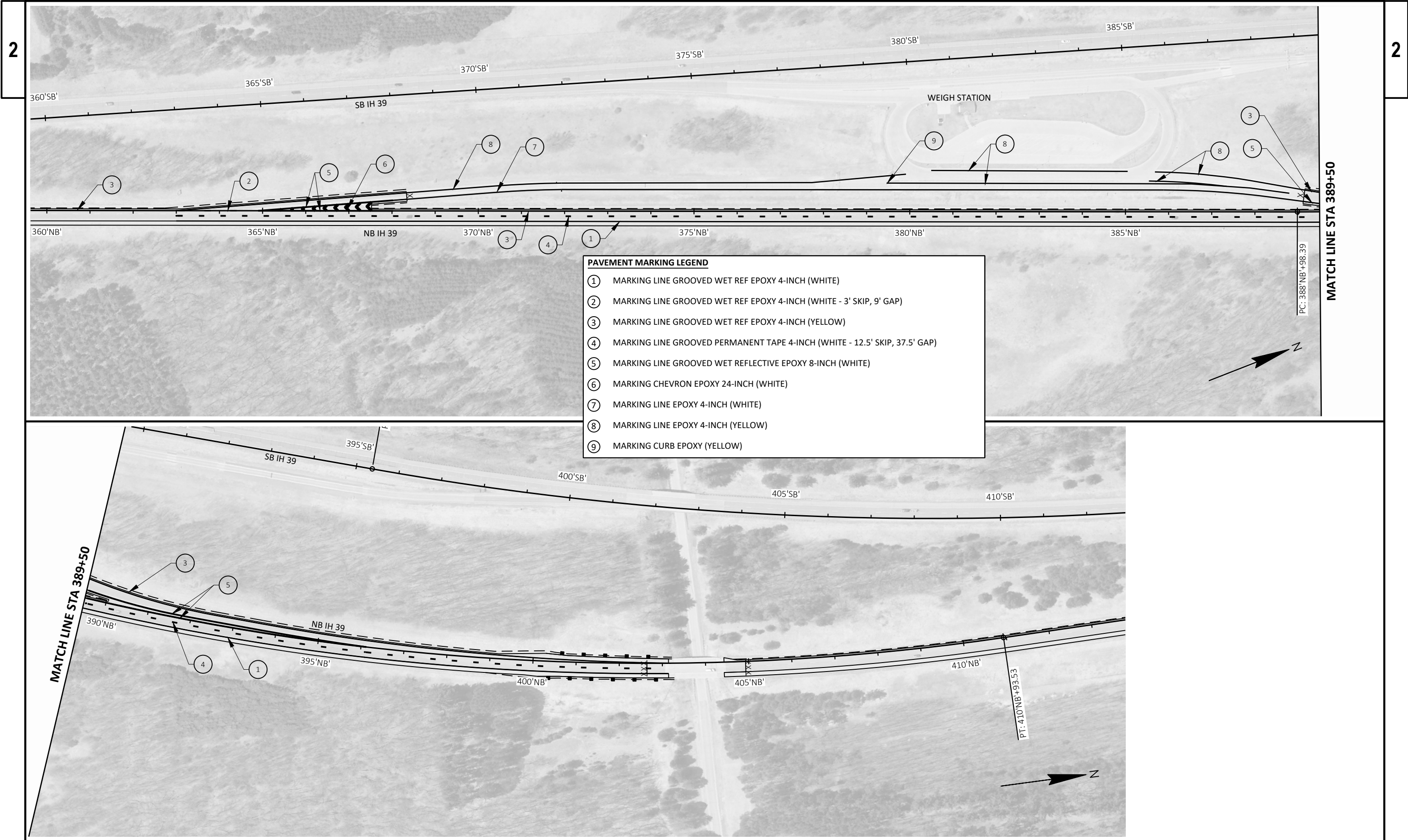
CONCRETE APPROACH DETAILS

SHEET

20

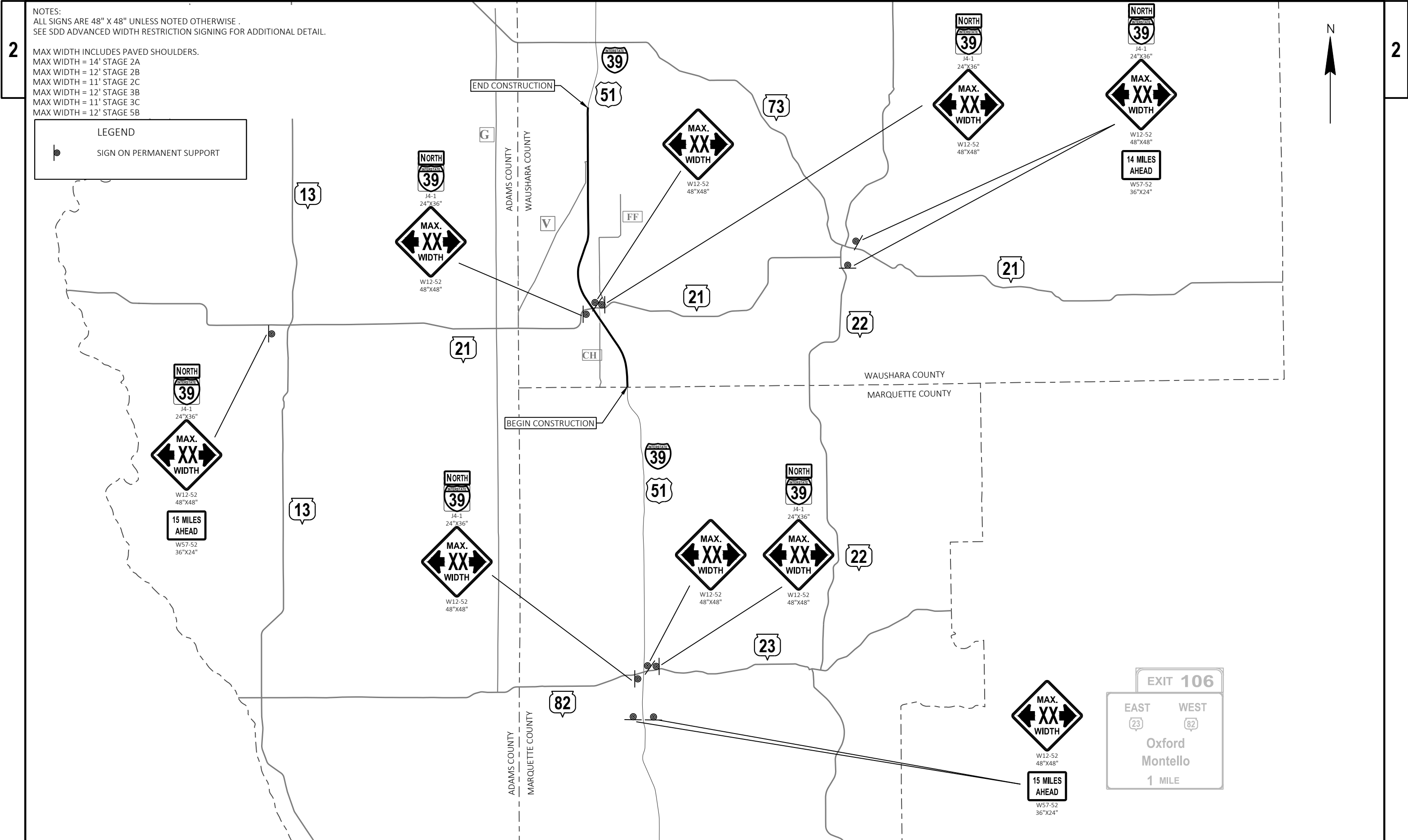
E

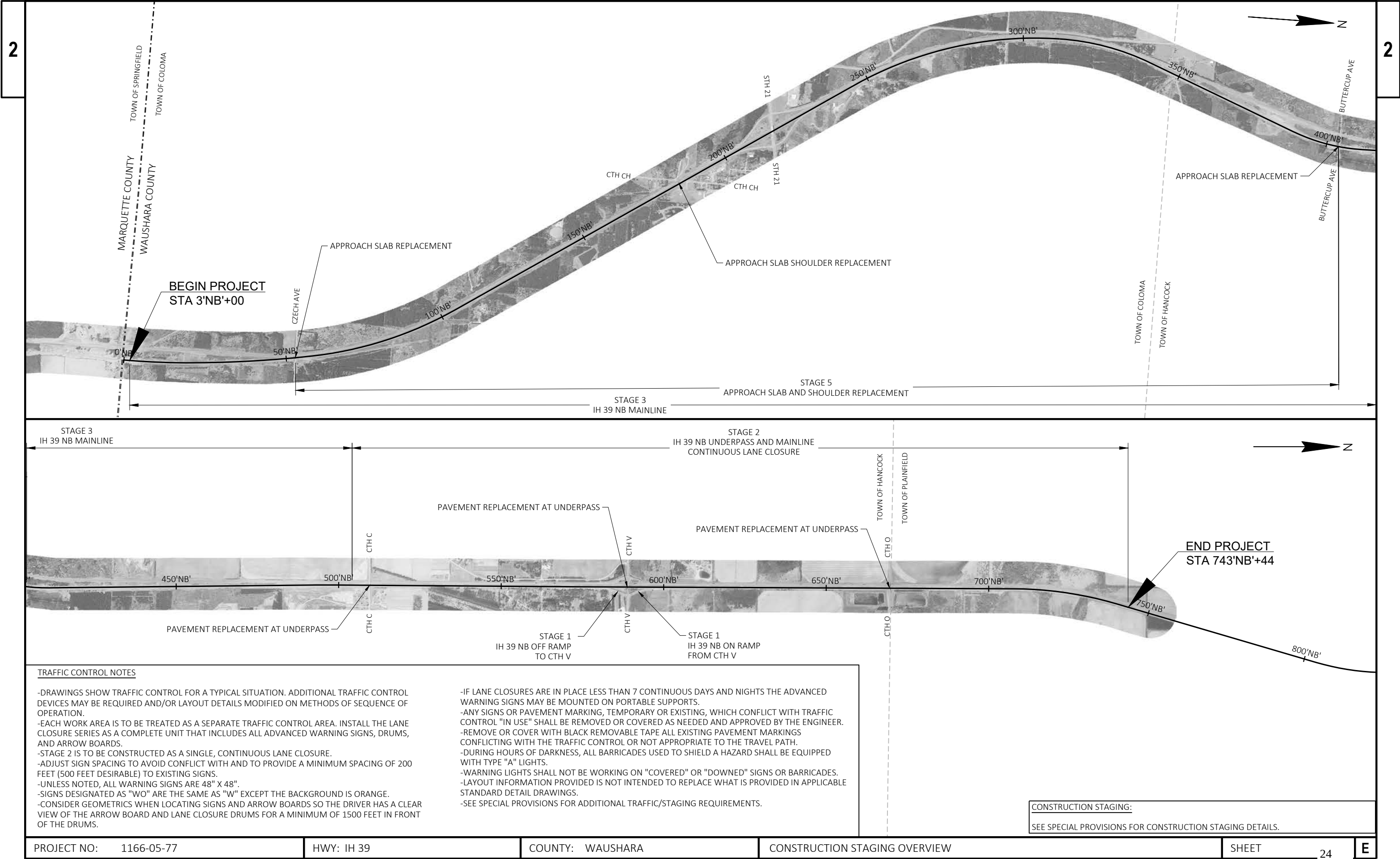




PAVEMENT MARKING LEGEND

- ① MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
- ② MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE - 3' SKIP, 9' GAP)
- ③ MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
- ④ MARKING LINE GROOVED PERMANENT TAPE 4-INCH (WHITE - 12.5' SKIP, 37.5' GAP)
- ⑤ MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- ⑥ MARKING CHEVRON EPOXY 24-INCH (WHITE)
- ⑦ MARKING LINE EPOXY 4-INCH (WHITE)
- ⑧ MARKING LINE EPOXY 4-INCH (YELLOW)
- ⑨ MARKING CURB EPOXY (YELLOW)

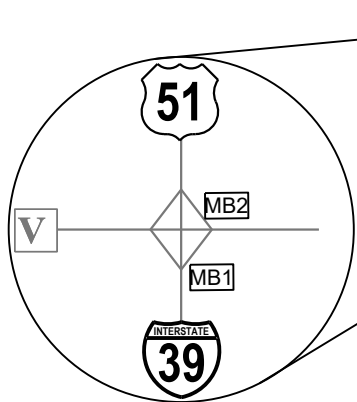




LEGEND

MB

PORTABLE CHANGEABLE MESSAGE BOARD



END CONSTRUCTION

G



MB3

C

FF

V



CH

MB4

BEGIN CONSTRUCTION



WAUSHARA COUNTY

MARQUETTE COUNTY



ADAMS COUNTY
WAUSHARA COUNTY

				NOTES
SITE	LOCATION	PHASE 1	PHASE 2	
MB1	IH 39 NB OFF RAMP TO CTH V	EXIT RAMP TO CLOSE	TIME DAY DATE	7 DAYS PRIOR TO RAMP CLOSURE
MB2	CTH V ON RAMP TO IH 39 NB	ENTRANCE RAMP TO CLOSE	TIME DAY DATE	7 DAYS PRIOR TO RAMP CLOSURE
MB3	STA 521+30 RT	EXIT RAMP CLOSED	DETOUR TO NEXT EXIT	STAGE 1 CONSTRUCTION
MB4	STA 3+00 LT	HWY 39 ROADWORK BEGINS	XXXDAY MONTH DAY	7 DAYS PRIOR TO IH 39 LANE CLOSURES

GENERAL NOTES FOR PORTABLE CHANGEABLE MESSAGE SIGNS

CONSIDER GEOMETRICS WHEN LOCATING MESSAGE BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE SIGN FOR A MINIMUM OF 1000 FEET IN FRONT OF THE MESSAGE BOARD.

MESSAGE BOARDS SHOULD BE PLACED AS FAR FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY. IN ADVANCE OF INTERSTATE CONSTRUCTION PROJECTS, THE SIGNS SHOULD BE PLACED ON THE BACKSLOPE BEYOND THE DITCH LINE. THE LOCATIONS SELECTED SHOULD BE AT OR SLIGHTLY ABOVE THE ELEVATION OF THE ROADWAY. FOR INTERMITTENT WORK, SUCH AS FREEWAY LANE CLOSURE, OR WHERE SITE CONDITIONS DO NOT ALLOW OTHERWISE, THE SIGNS MAY BE PLACED ON THE SHOULDER.

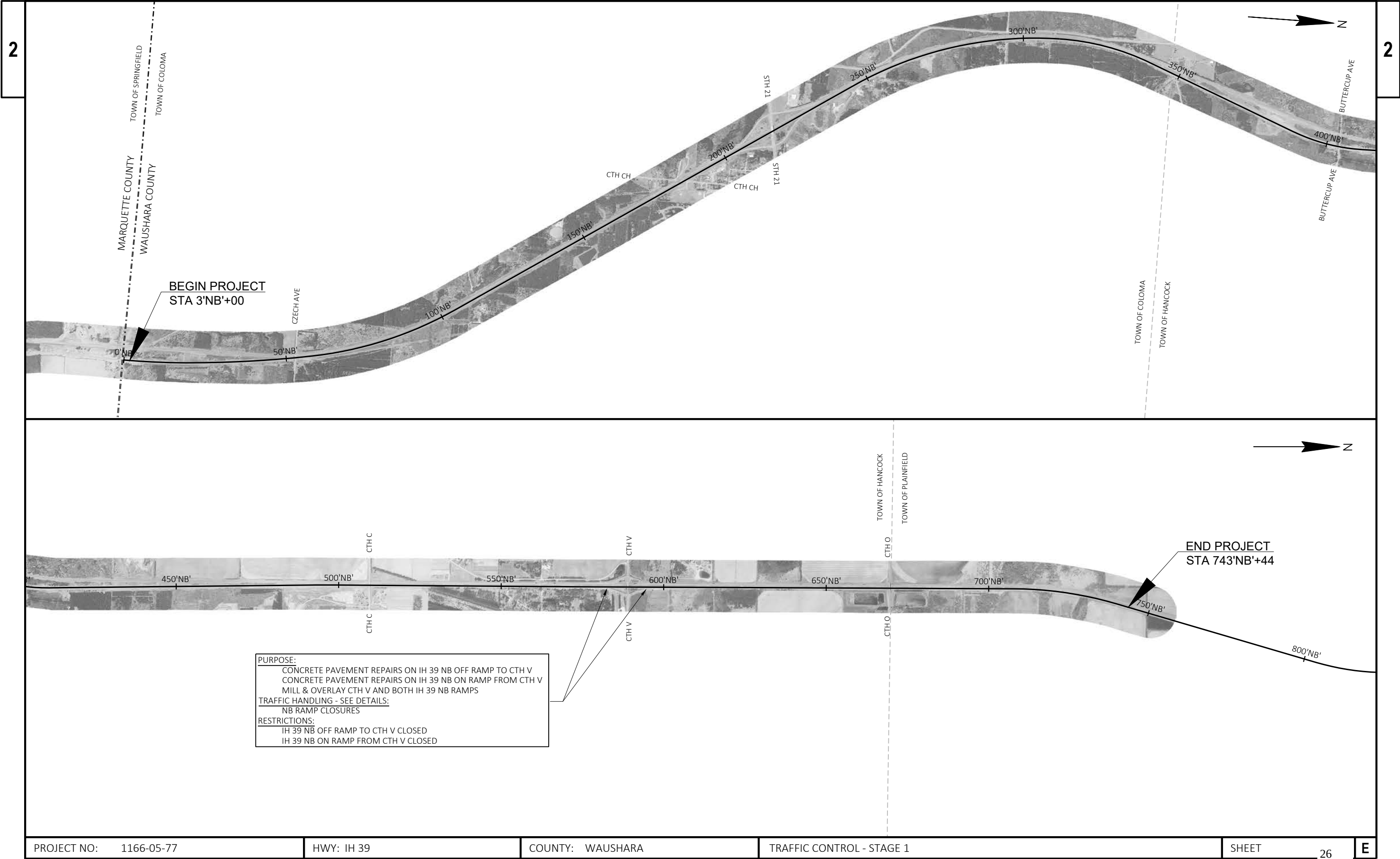
THE SITE SHOULD BE VISITED TO ASSURE VISIBILITY, SAFETY AND MAINTENANCE CONSIDERATIONS.

A TAPER OF FIVE (5) REFLECTORIZED DRUMS SHALL BE PLACED AHEAD OF PCMS PLACED ON THE SHOULDER IF IT IS NOT SHIELDED BY A BARRIER.

HAVE MESSAGE BOARDS IN PLACE AND DISPLAYING THE "PRIOR TO CONSTRUCTION " MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF THE IH 39 ROAD WORK THAT WILL REQUIRE LANE CLOSURES ON IH 39.

HAVE MESSAGE BOARDS IN PLACE AND DISPLAYING THE "PRIOR TO RAMP CLOSURE" MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF RAMP CLOSURES ON THE CTH V RAMP.

SEE SDD "TRAFFIC CONTROL, EXIT RAMP CLOSURE" FOR ADDITIONAL DETAILS ON PCMS PLACEMENT.



2

2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, EXIT RAMP CLOSURE

PERFORM CONCRETE PAVEMENT REPLACEMENT, CONCRETE JOINT REPAIRS, SHOULDER REPLACEMENT, AND MILL & OVERLAY OF THE CTH V RAMP AND CTH V DURING STAGE 1. STAGE 1 CAN OCCUR CONCURRENTLY WITH STAGE 2.



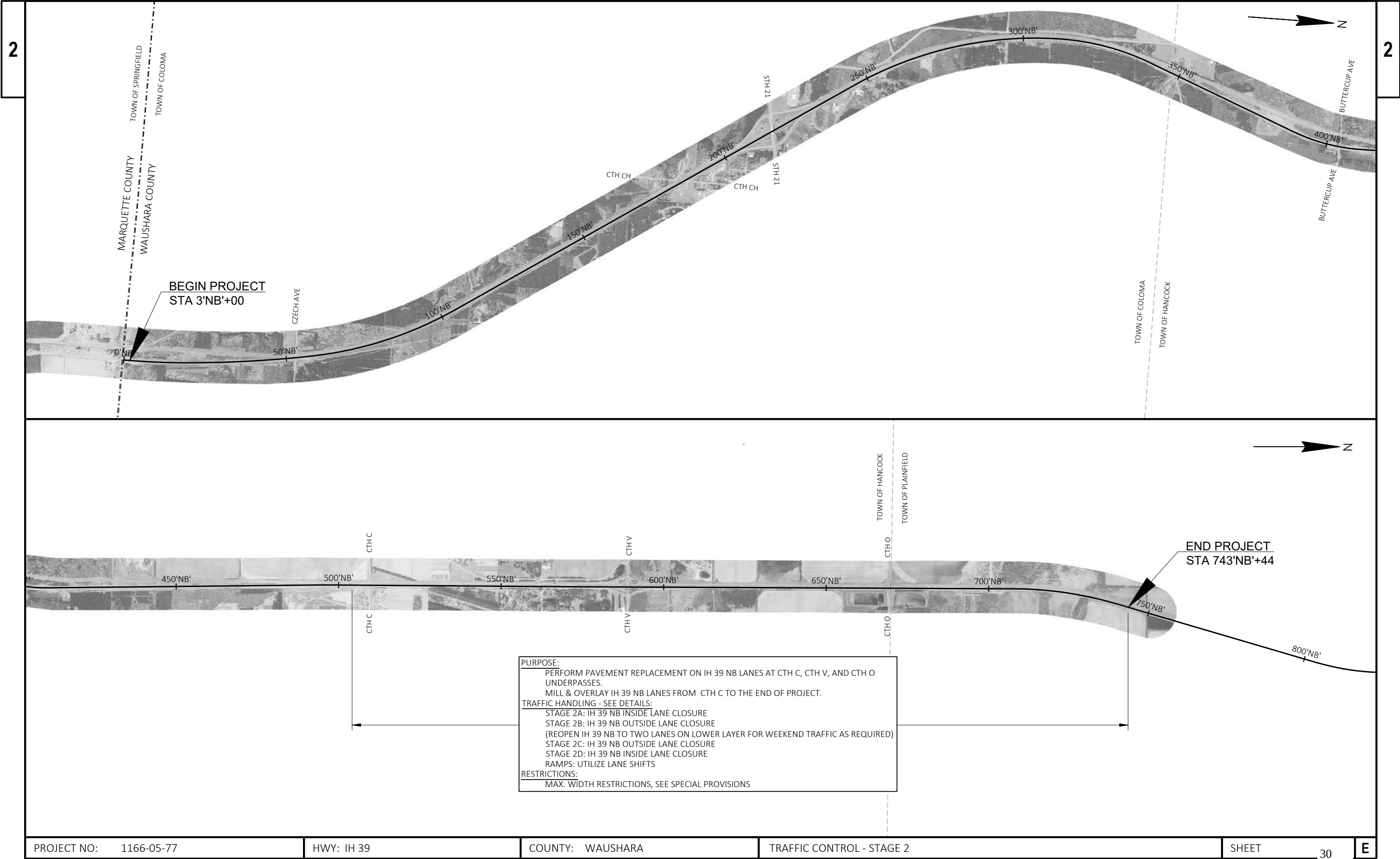
LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
- TYPE III BARRICADE
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- PORTABLE CHANGEABLE MESSAGE BOARD

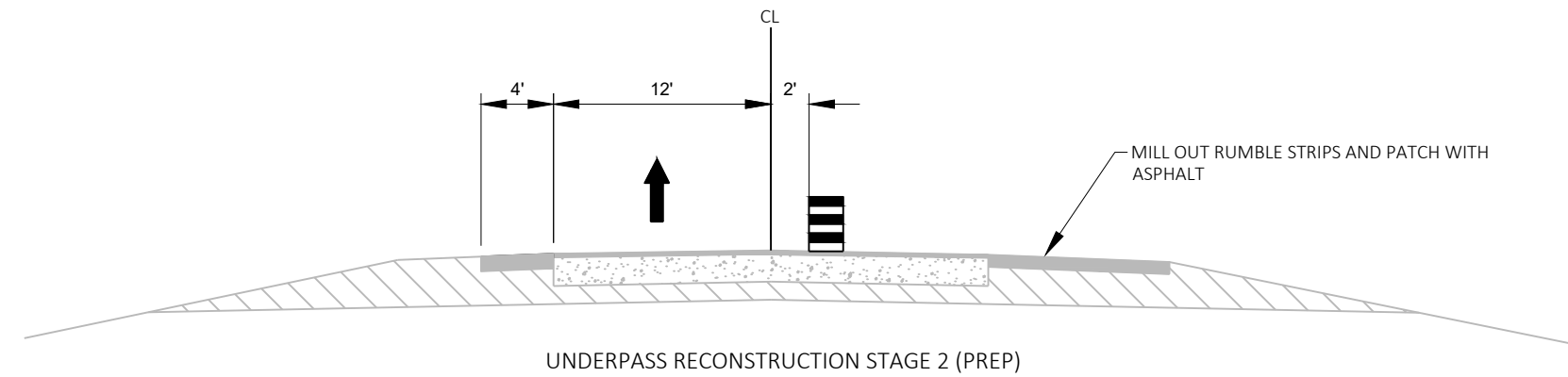




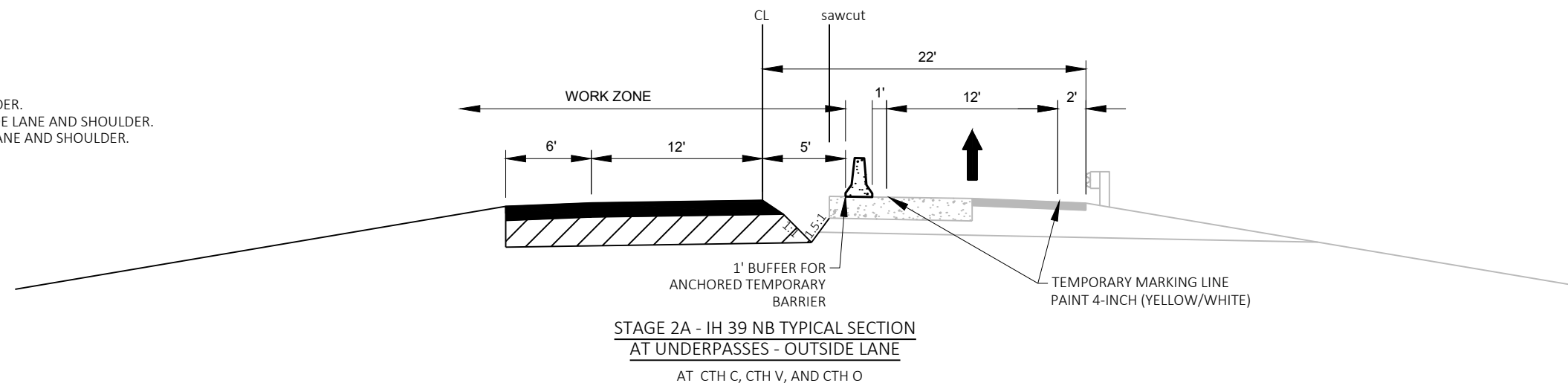
THIS FRAME INTENTIONALLY LEFT BLANK

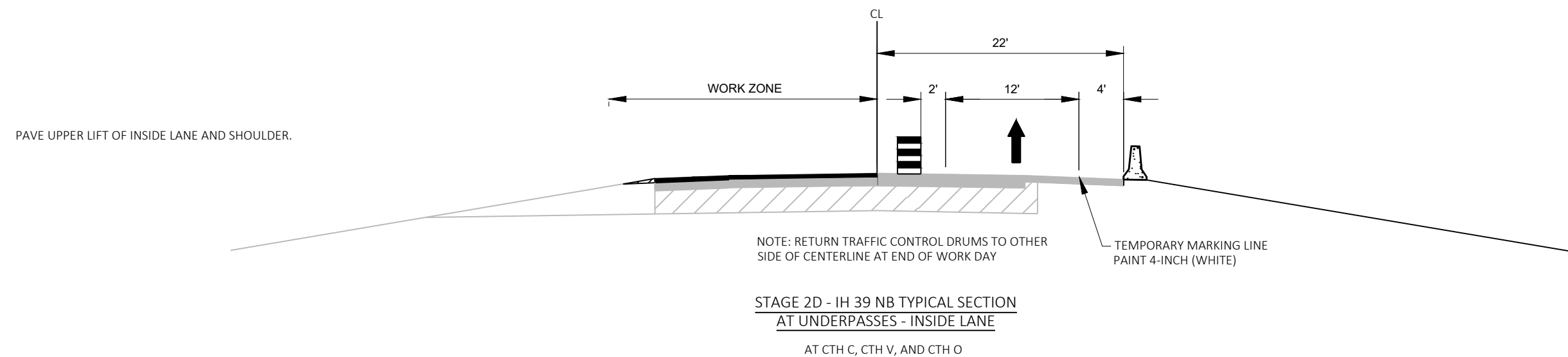
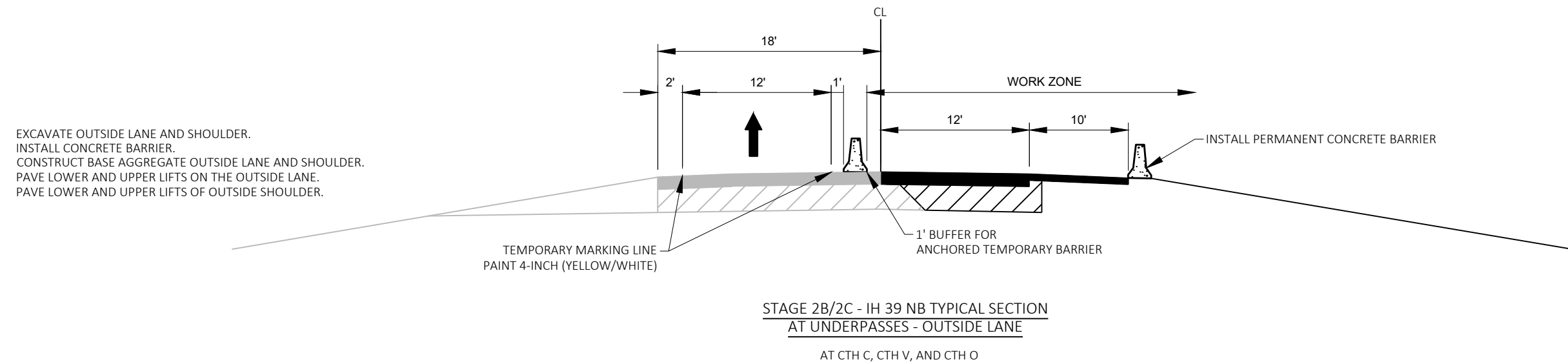


MILL AND PAVE OUTSIDE RUMBLE STRIPS
 STA 501+00 - STA 514+00
 STA 580+50 - STA 593+50
 STA 661+00 - STA 674+50

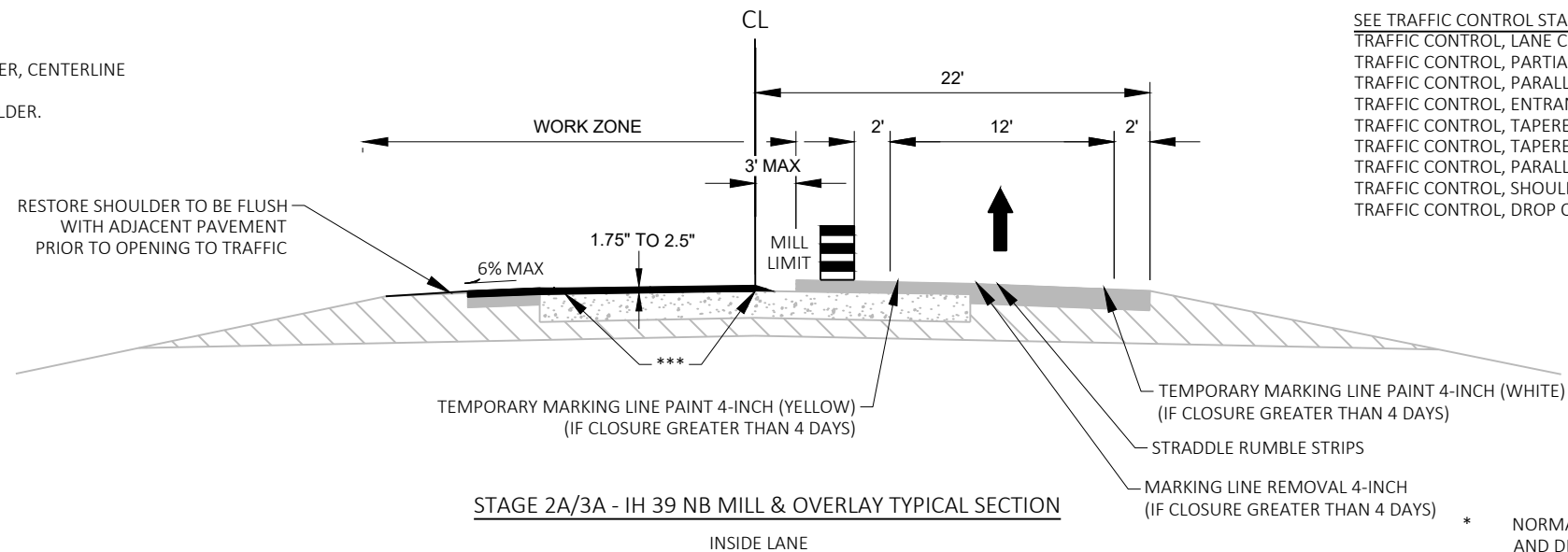


EXCAVATE INSIDE LANE AND SHOULDER.
 CONSTRUCT BASE AGGREGATE INSIDE LANE AND SHOULDER.
 PAVE LOWER LIFTS ON THE INSIDE LANE AND SHOULDER.



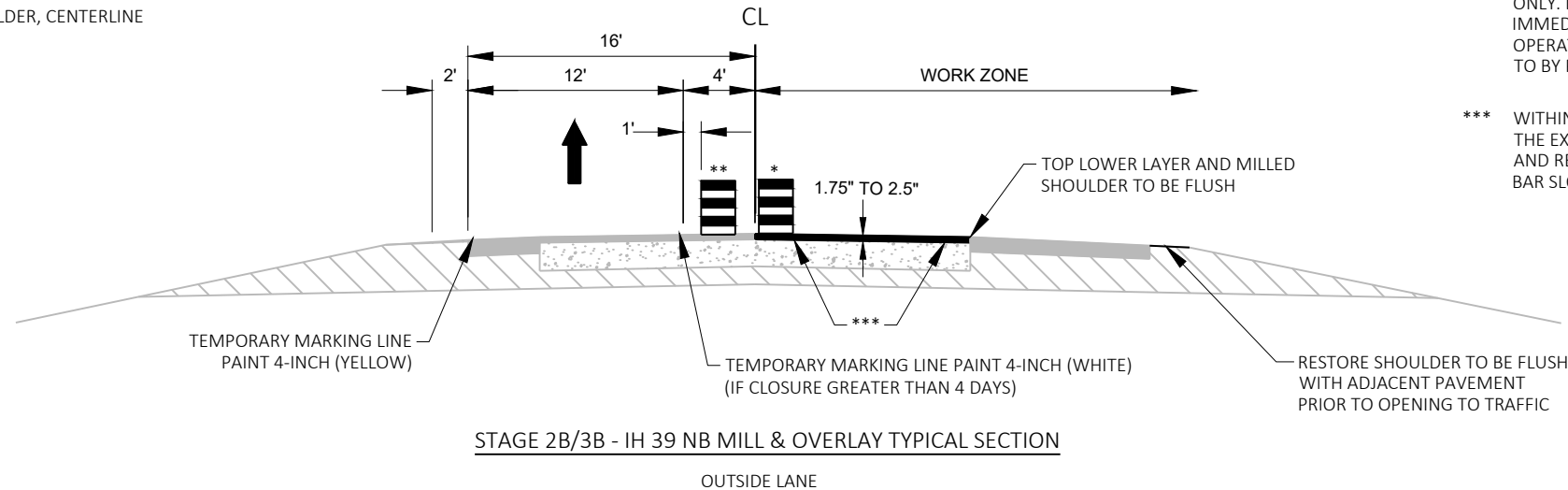


MILL EXISTING ASPHALTIC SURFACE ON INSIDE LANE AND SHOULDER, CENTERLINE
CONCRETE REPAIRS, DOWEL BAR SLOT REPAIRS AND
INSTALL LOWER LIFT HMA PAVEMENT ON INSIDE LANE AND SHOULDER.

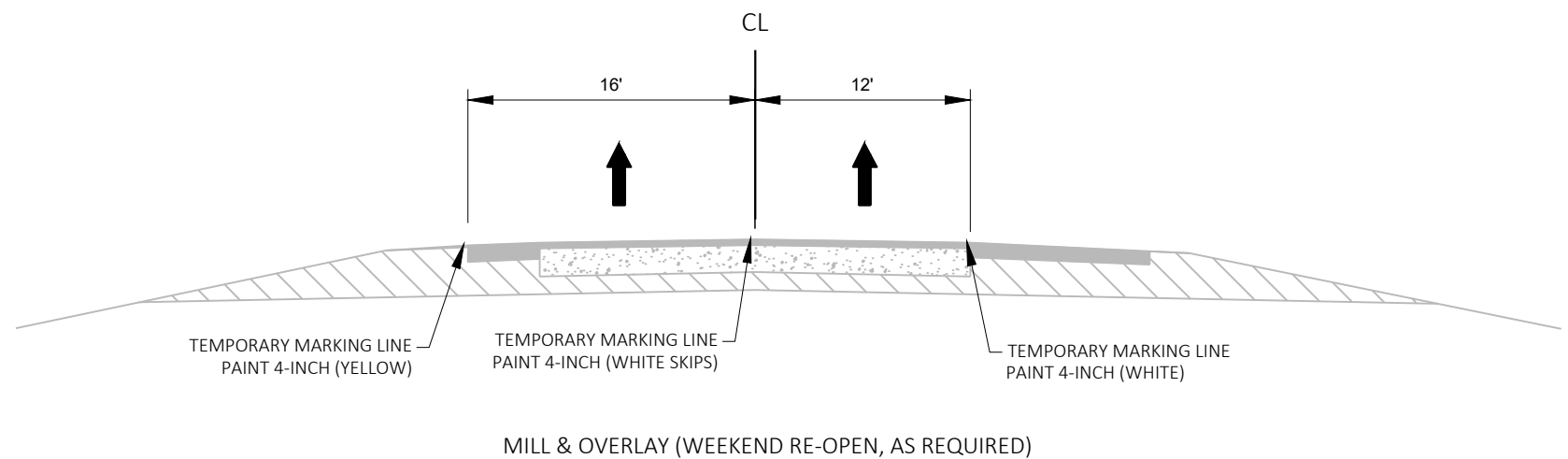


SEE TRAFFIC CONTROL STANDARD DETAILS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER
TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE
TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LEFT LANE CLOSURE
TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE
TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE
TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
TRAFFIC CONTROL, DROP OFF SIGNING

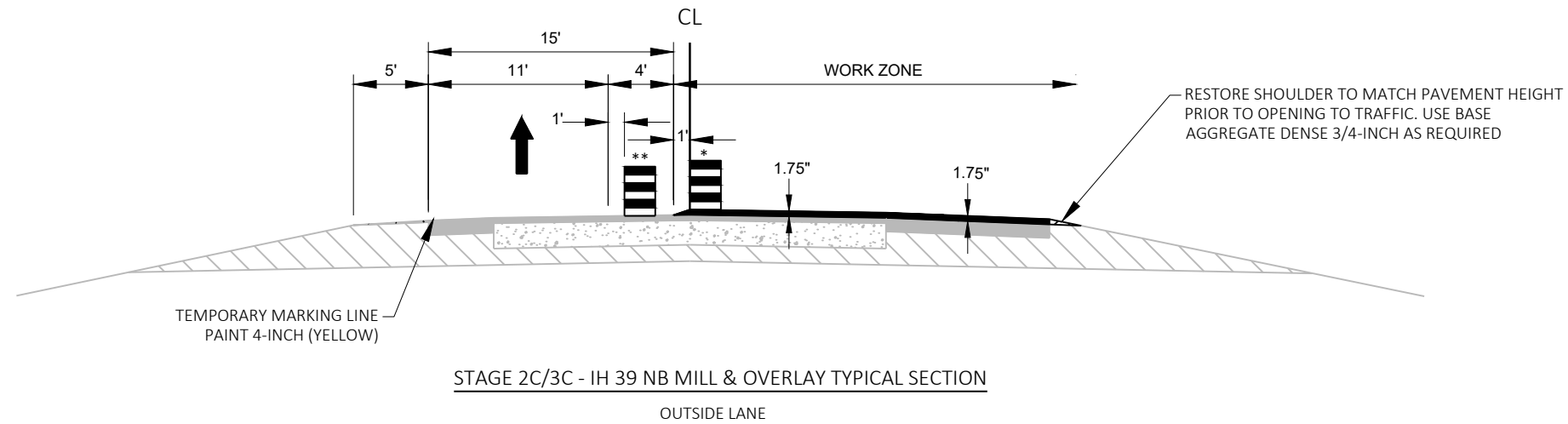
MILL EXISTING ASPHALTIC SURFACE ON OUTSIDE LANE AND SHOULDER, CENTERLINE
CONCRETE REPAIRS, DOWEL BAR SLOT REPAIRS AND
INSTALL LOWER LIFT HMA PAVEMENT ON OUTSIDE LANE.



- * NORMAL DRUM AND LANE LOCATION DURING NON-WORKING HOURS
AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND
IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.
- ** TEMPORARY DRUM AND LANE LOCATION DURING WORKING HOURS
ONLY. DRUMS SHALL BE MOVED AND RETURNED TO NORMAL POSITION
IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION
OPERATION HAS PASSED. TRAFFIC EXPECTED TO SHIFT ONTO SHOULDER
TO BY PASS CONSTRUCTION OPERATIONS.
- *** WITHIN THE DRIVING LANES, ALL MILLING SHALL EXPOSE THE TOP OF
THE EXISTING CONCRETE SURFACE TO ALLOW FIELD DETERMINATIONS
AND REPAIRS OF CENTERLINE JOINTS, CENTERLINE CRACKS, AND DOWEL
BAR SLOTS PRIOR TO PAVING THE FINISHED LOWER LAYER

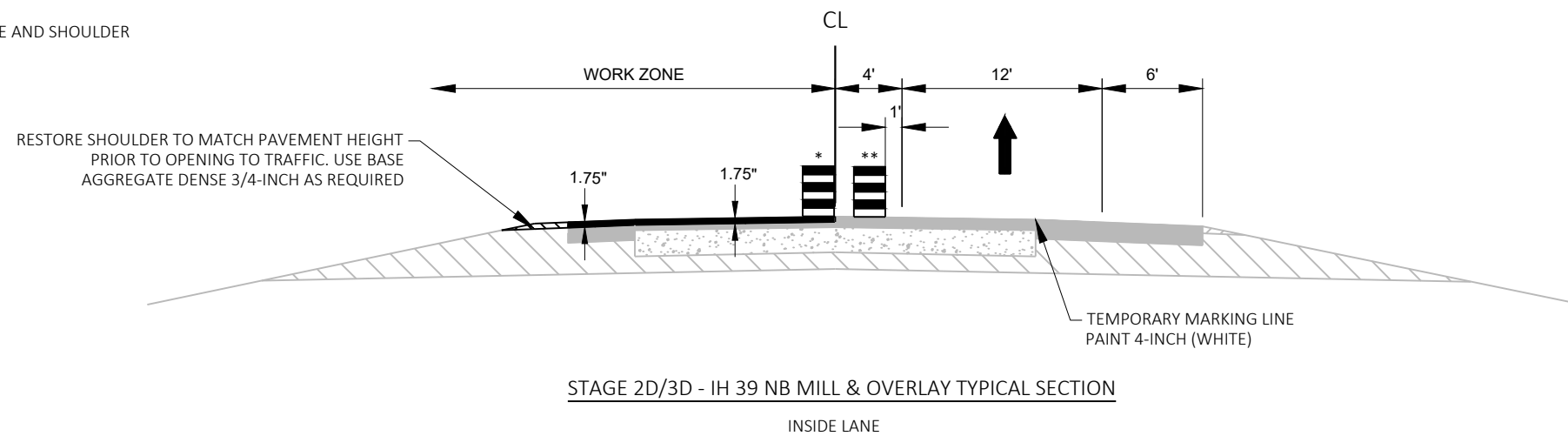


INSTALL UPPER LIFT HMA PAVEMENT ON OUTSIDE LANE AND SHOULDER



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

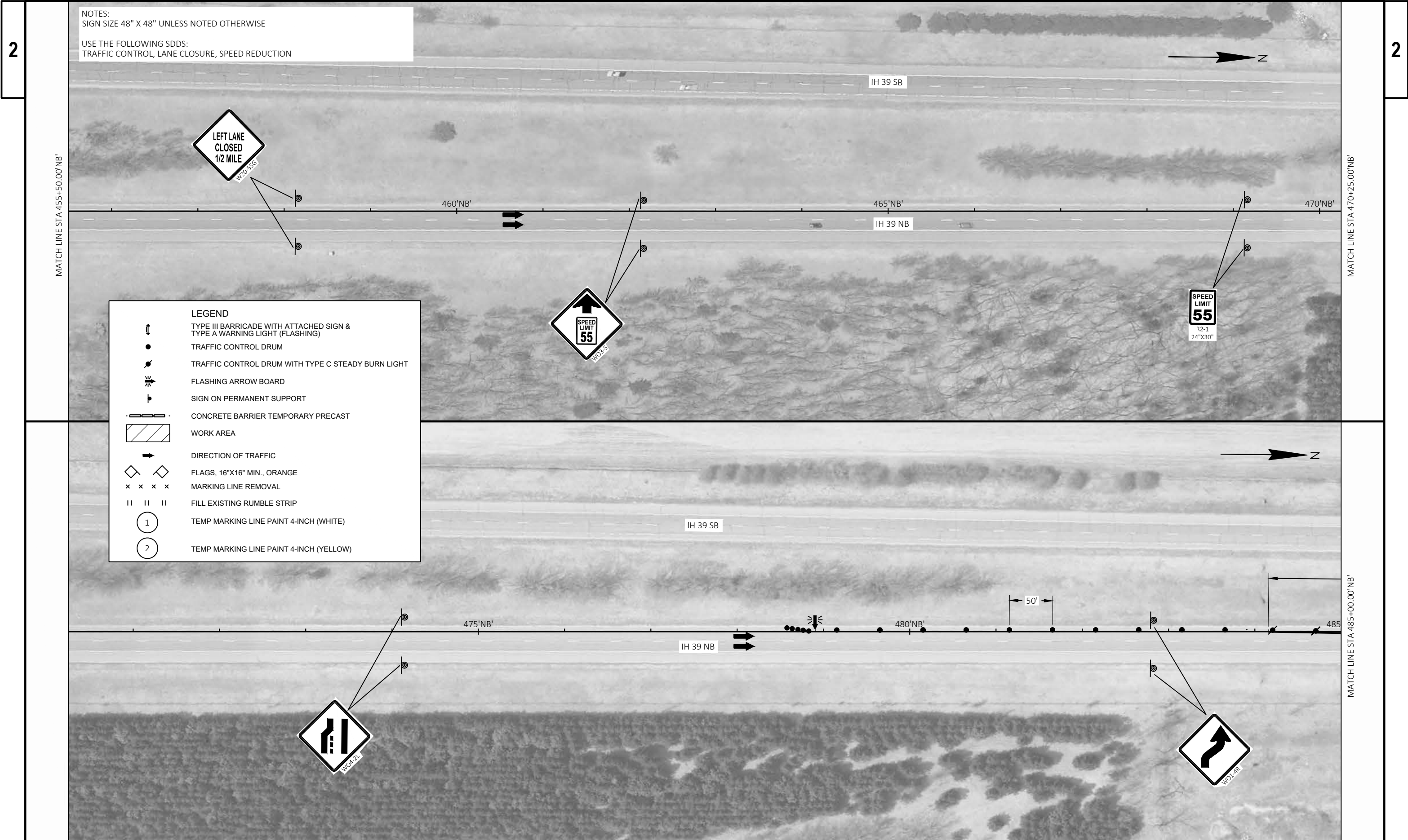
INSTALL UPPER LIFT HMA PAVEMENT ON INSIDE LANE AND SHOULDER

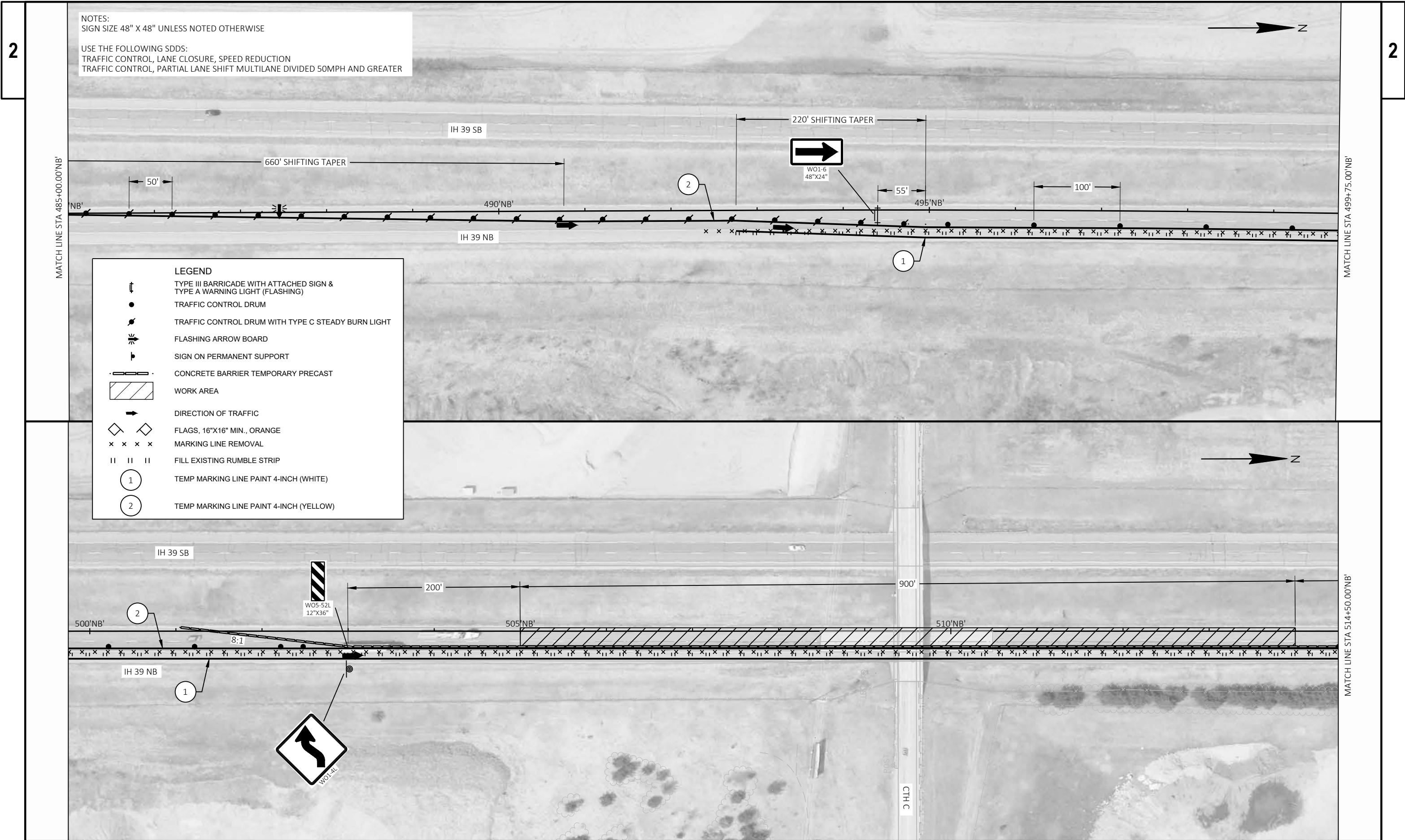


NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION



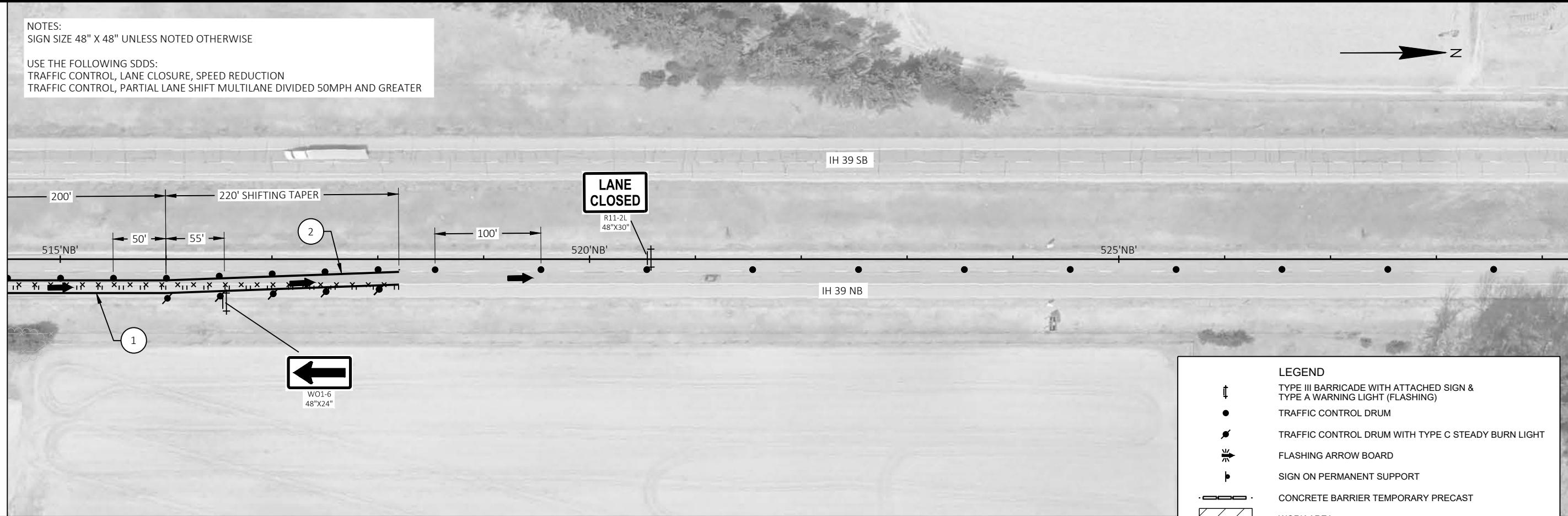




2

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

MATCH LINE STA 514+50.00'NB'



MATCH LINE STA 529+25.00' NB'

2



MATCH LINE STA 544+00.00'NB'

PROJECT NO:	1166-05-77
-------------	------------

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 2A

SHEET 28

E

FILE NAME : H:\PROJECTS\13000\13125\CAD_BIM\11660507\SHEETSPLAN\026201-S2A.DWG
LAYOUT NAME - TC-04

PLOT DATE : 3/31/2022 3:09 PM PLOT BY : BRIAN GENSOW

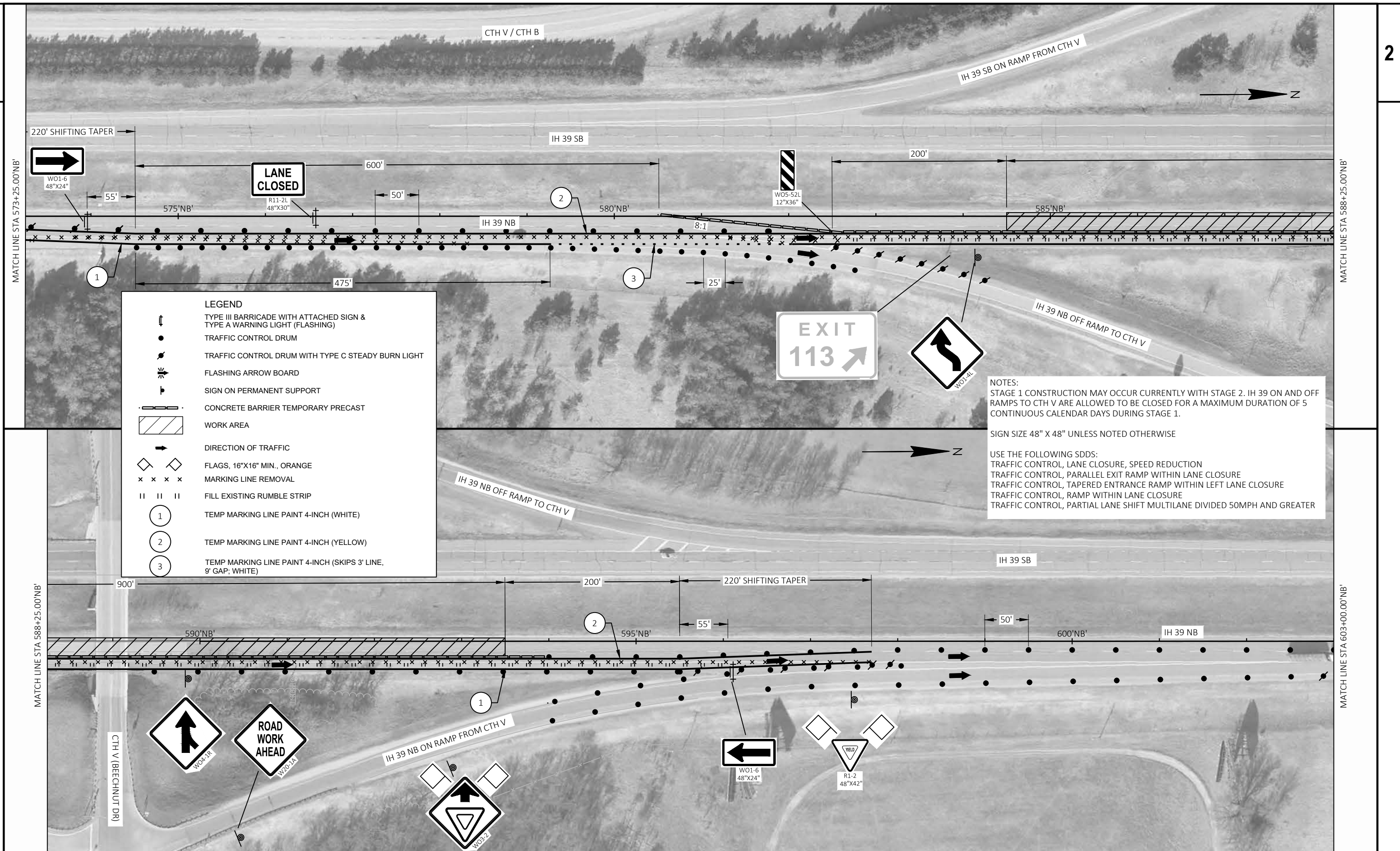
PLOT BY : BRIAN GENSKOW PLOT NAME :

PLOT NAME : PLOT SCALE : 1 IN:100 FT

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44





PROJECT NO: 1166-05-77

HWY: IH 39

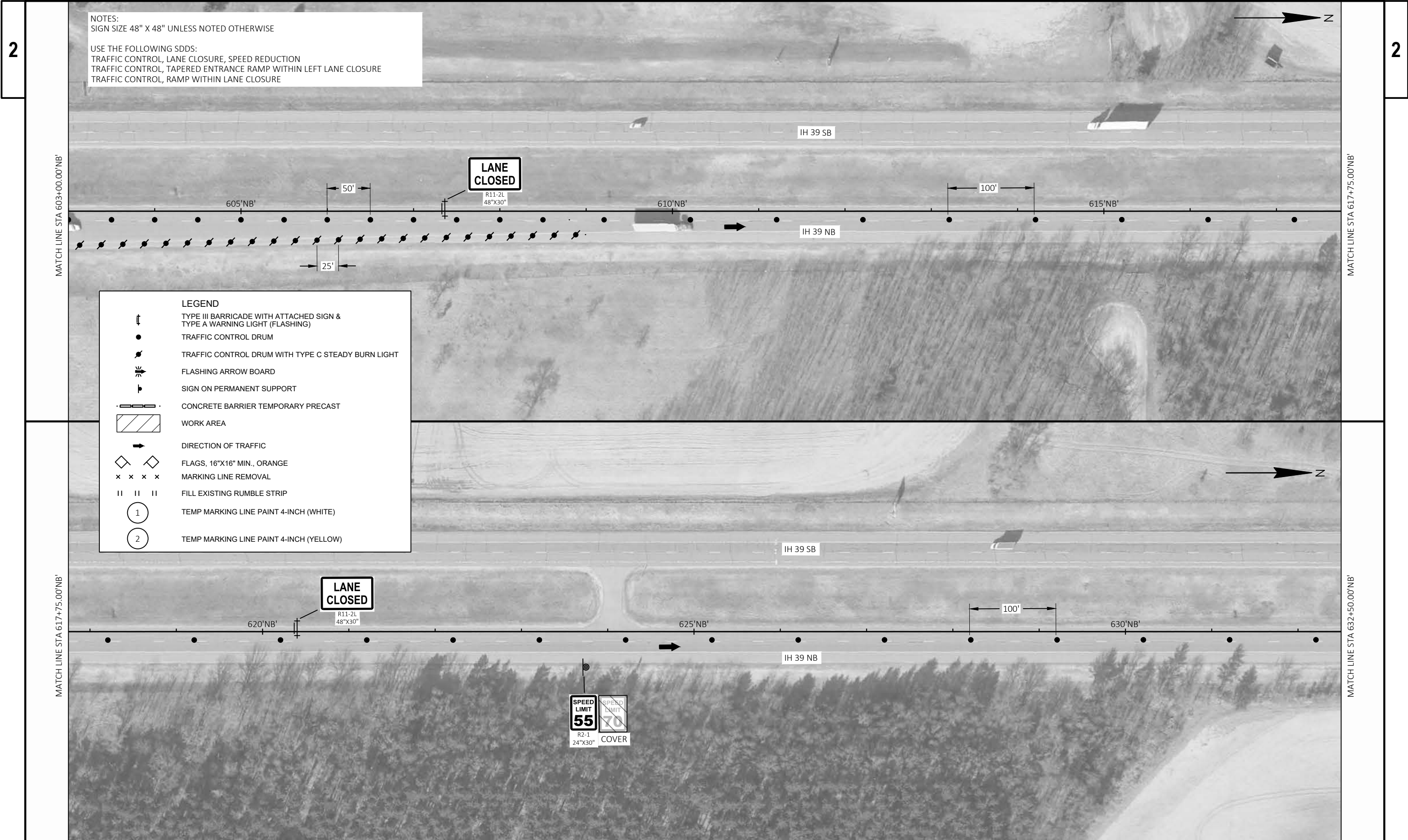
COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 2A

SHEET

40

E



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE
TRAFFIC CONTROL, RAMP WITHIN LANE CLOSURE

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

WORK AREA

DIRECTION OF TRAFFIC

FLAGS, 16"X16" MIN., ORANGE

MARKING LINE REMOVAL

FILL EXISTING RUMBLE STRIP

TEMP MARKING LINE PAINT 4-INCH (WHITE)

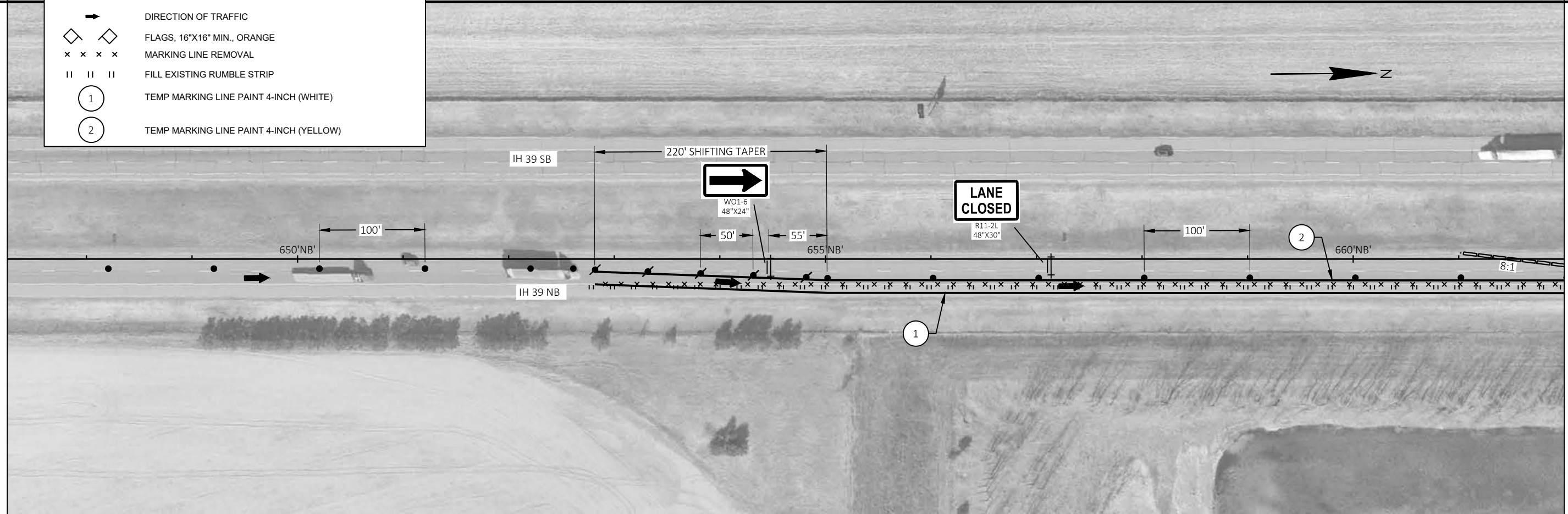
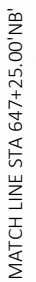
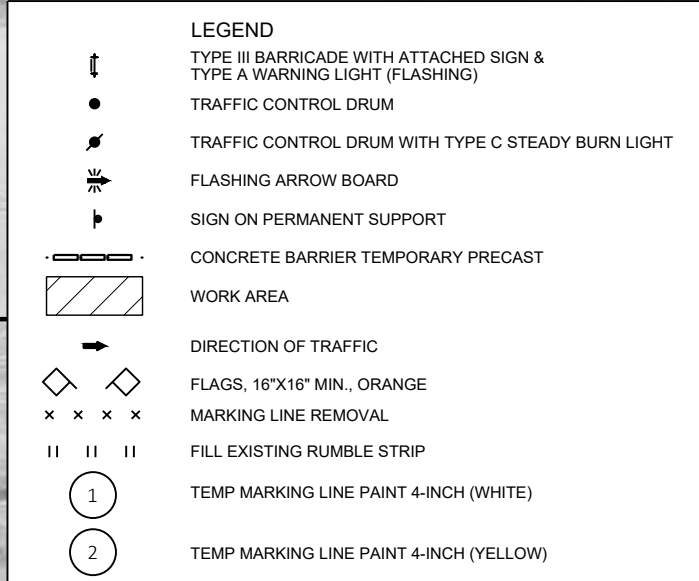
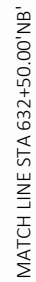
TEMP MARKING LINE PAINT 4-INCH (YELLOW)

2

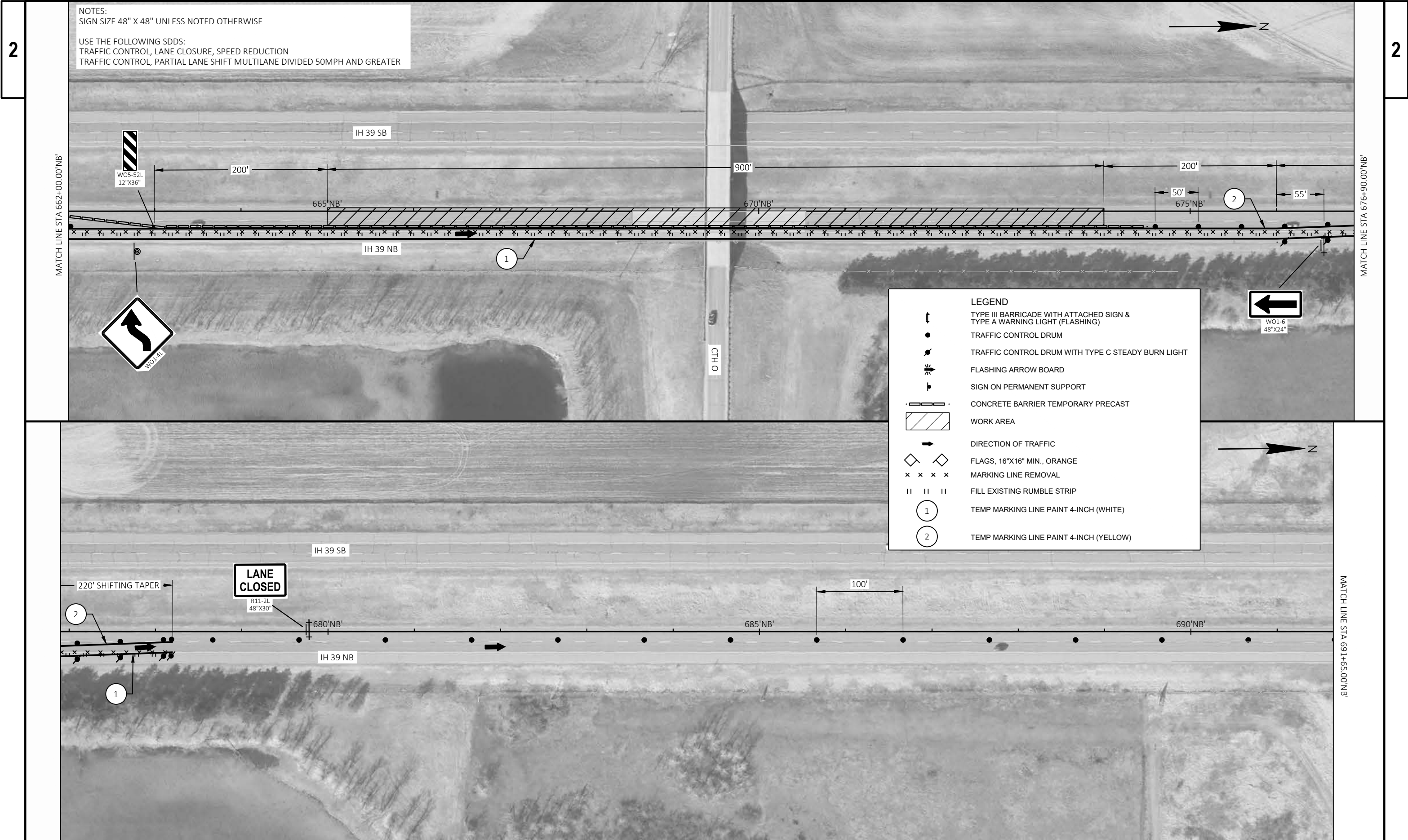
2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER



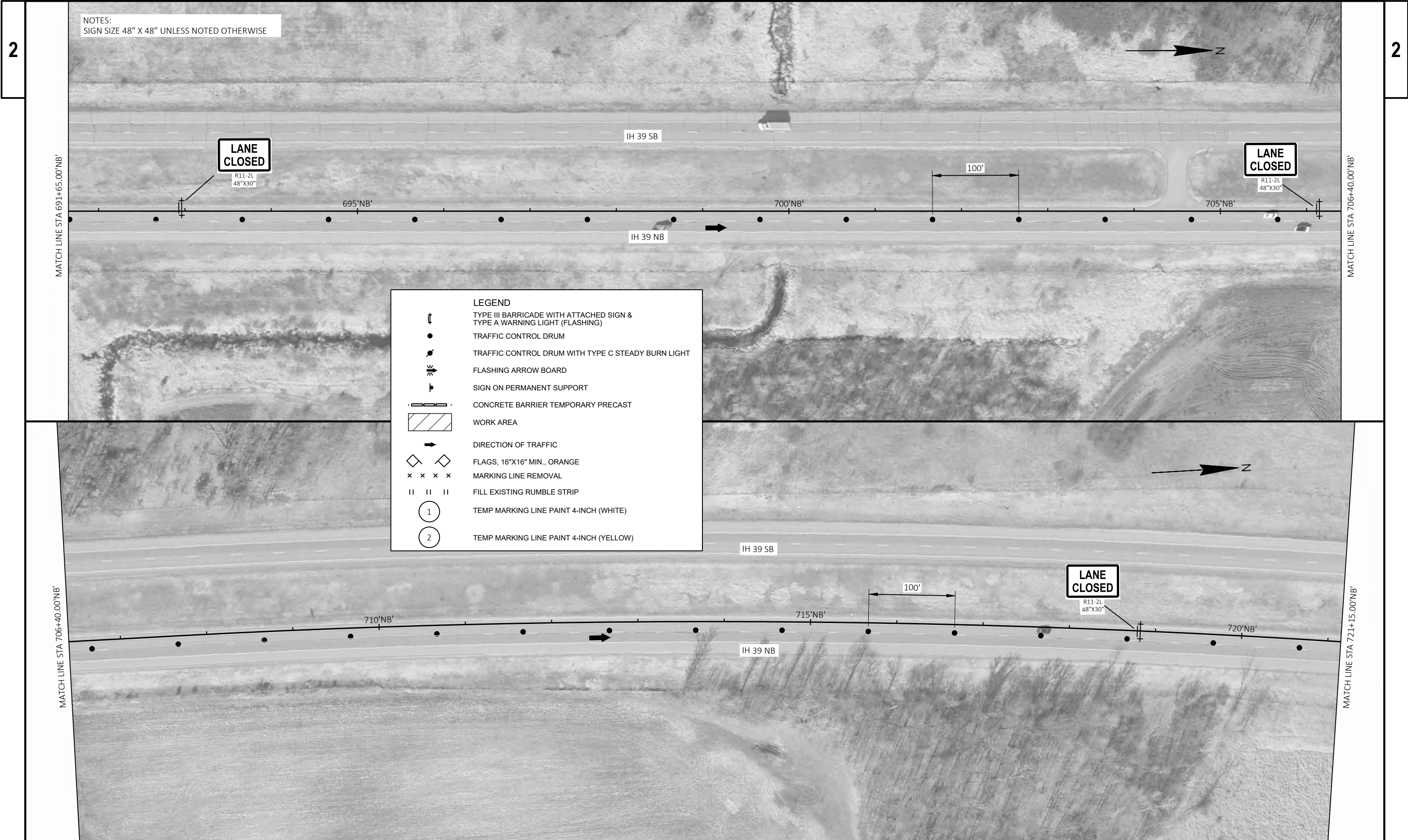
MATCH LINE STA 662+00.00'NB'



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

LEGEND	
	TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	CONCRETE BARRIER TEMPORARY PRECAST
	WORK AREA
	DIRECTION OF TRAFFIC
	FLAGS, 16"X16" MIN., ORANGE
	MARKING LINE REMOVAL
	FILL EXISTING RUMBLE STRIP
	TEMP MARKING LINE PAINT 4-INCH (WHITE)
	TEMP MARKING LINE PAINT 4-INCH (YELLOW)



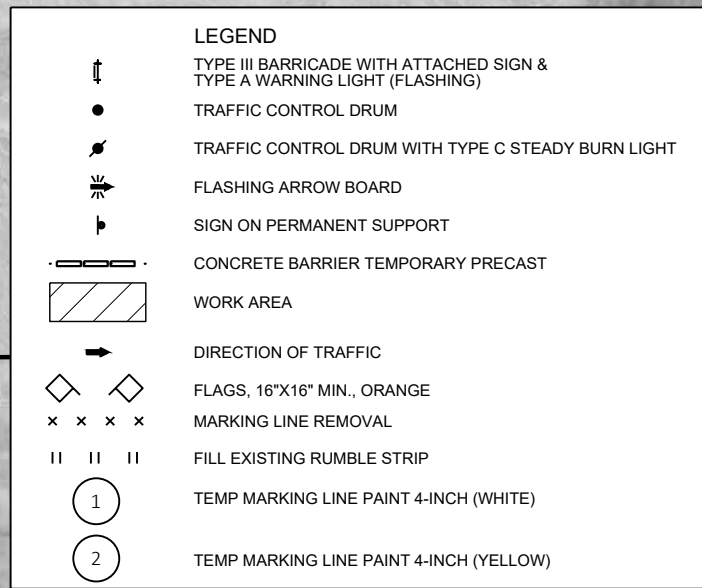
2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

MATCH LINE STA 721+15.00'NB'

2

MATCH LINE STA 735+90.00'NB'



MATCH LINE STA 735+90.00'NB'

MATCH LINE STA 750+65.00'NB'

PROJECT NO:	1166-05-77
-------------	------------

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 2A

SHEET 45

E

FILE NAME : H:\PROJECTS\13000\13125\CAD_BIM\11660507\SHEETSPLAN\026201-S2A.DWG
LAYOUT NAME - TC-11

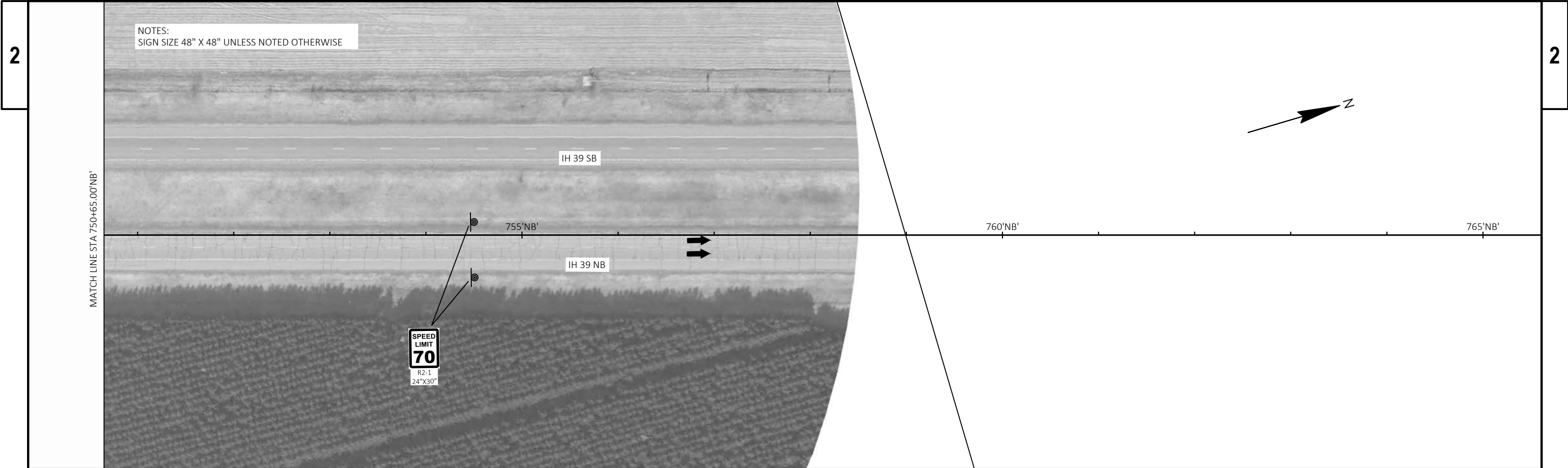
PLOT DATE : 3/31/2022 3:11 PM

PLOT BY : BRIAN GENSKOW

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 44



LEGEND

↑

●

☼

☼→

♣

▬▬▬

▨▨▨

→

◇

×

×

×

×

||

||

||

1

2

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

WORK AREA

DIRECTION OF TRAFFIC

FLAGS, 16"X16" MIN., ORANGE

MARKING LINE REMOVAL

FILL EXISTING RUMBLE STRIP

TEMP MARKING LINE PAINT 4-INCH (WHITE)

TEMP MARKING LINE PAINT 4-INCH (YELLOW)

PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 2A

SHEET 46

E

FILE NAME : H:\PROJECTS\13000\13125\CAD_BIM\11660507\SHEETSPLAN\026201-S2A.DWG
LAYOUT NAME - TC-12

PLOT DATE : 3/31/2022 3:11 PM

PLOT BY : BRIAN GENSKOW

PLOT NAME :

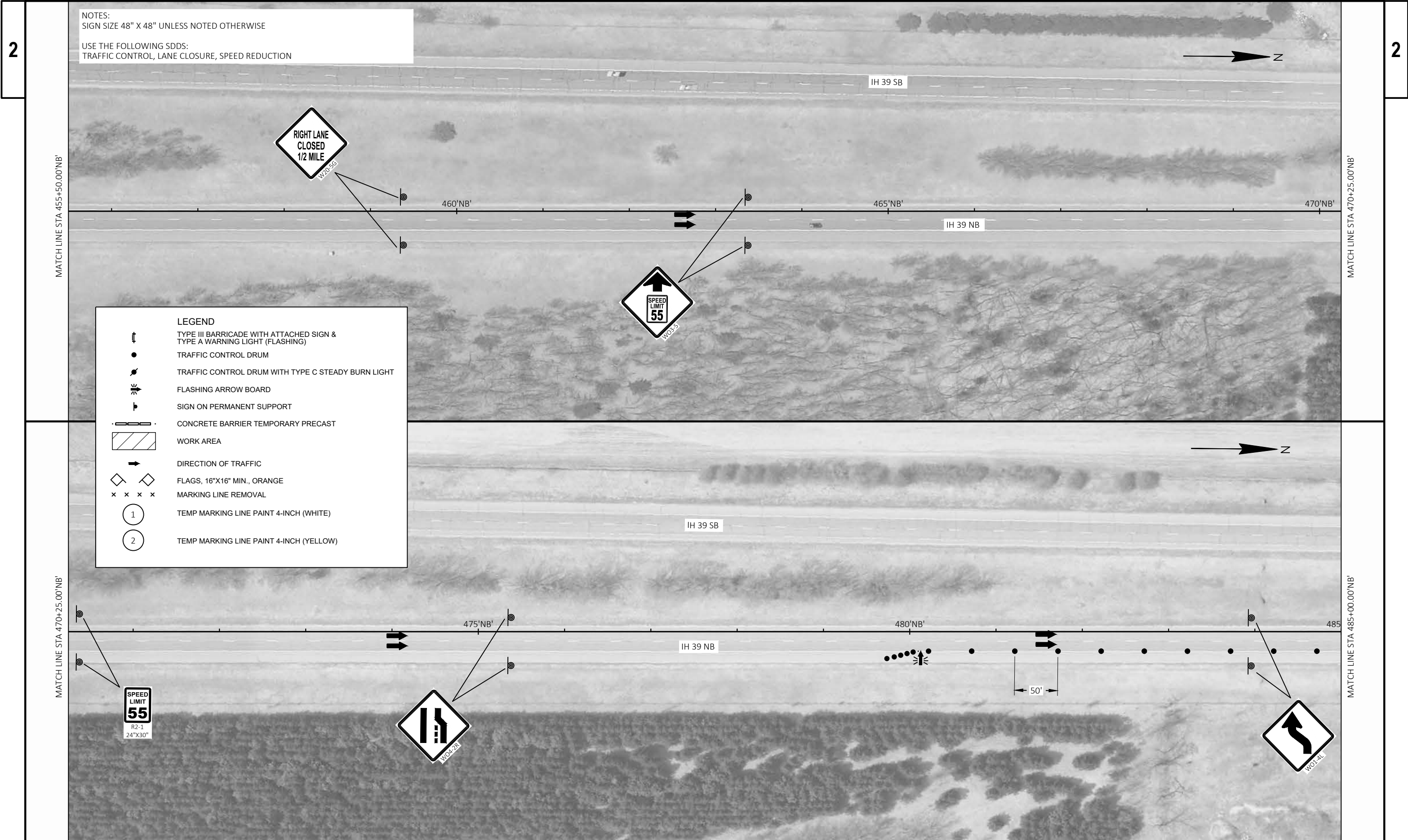
PLOT SCALE : 1 IN:100 FT

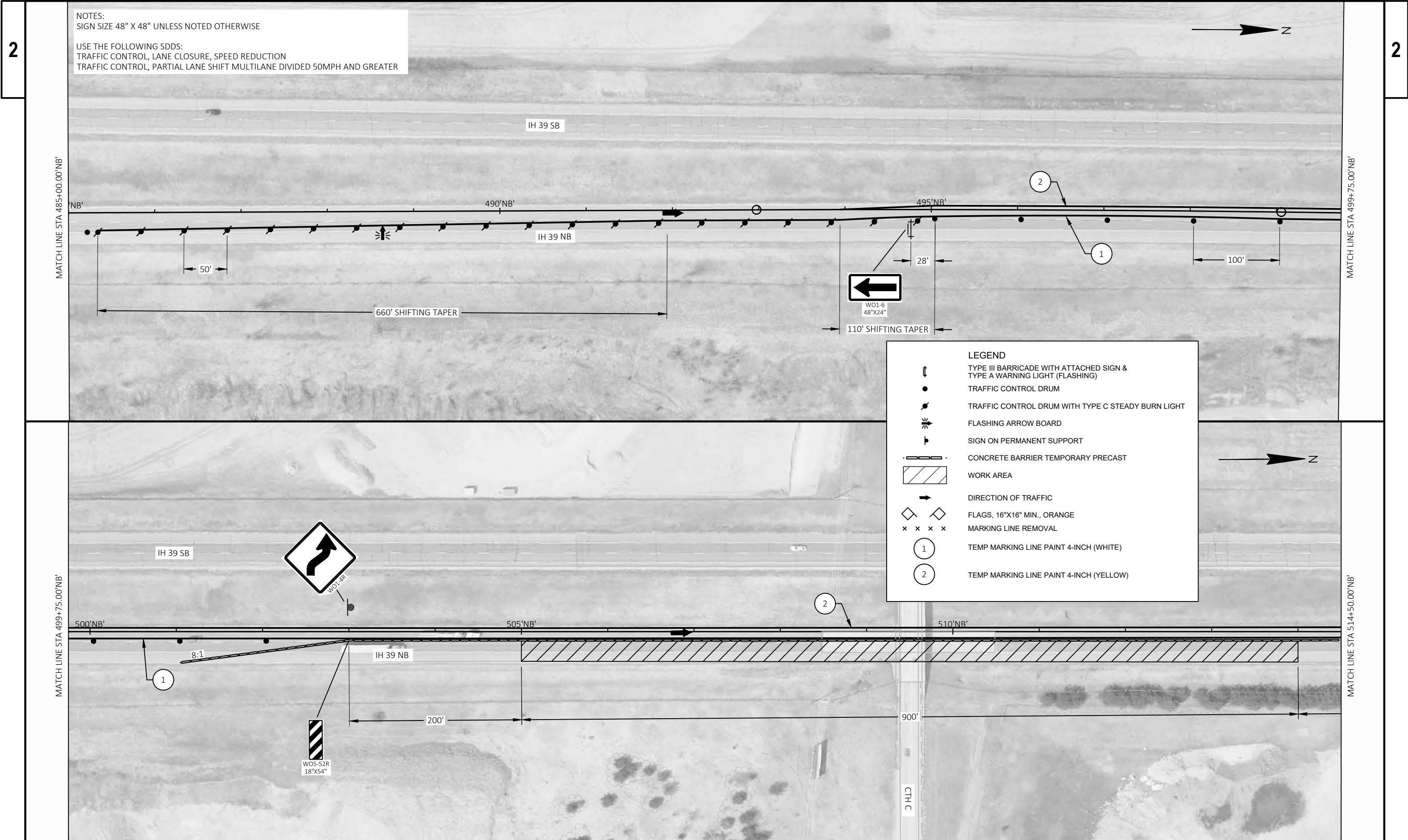
WISDOT/CADDs SHEET 44

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION









NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

WORK AREA

DIRECTION OF TRAFFIC

FLAGS, 16"X16" MIN., ORANGE

MARKING LINE REMOVAL

TEMP MARKING LINE PAINT 4-INCH (WHITE)

TEMP MARKING LINE PAINT 4-INCH (YELLOW)



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
TRAFFIC CONTROL, RAMP WITHIN LANE CLOSURE

LANE
CLOSED

R11-2L
48"X30"

LEGEND

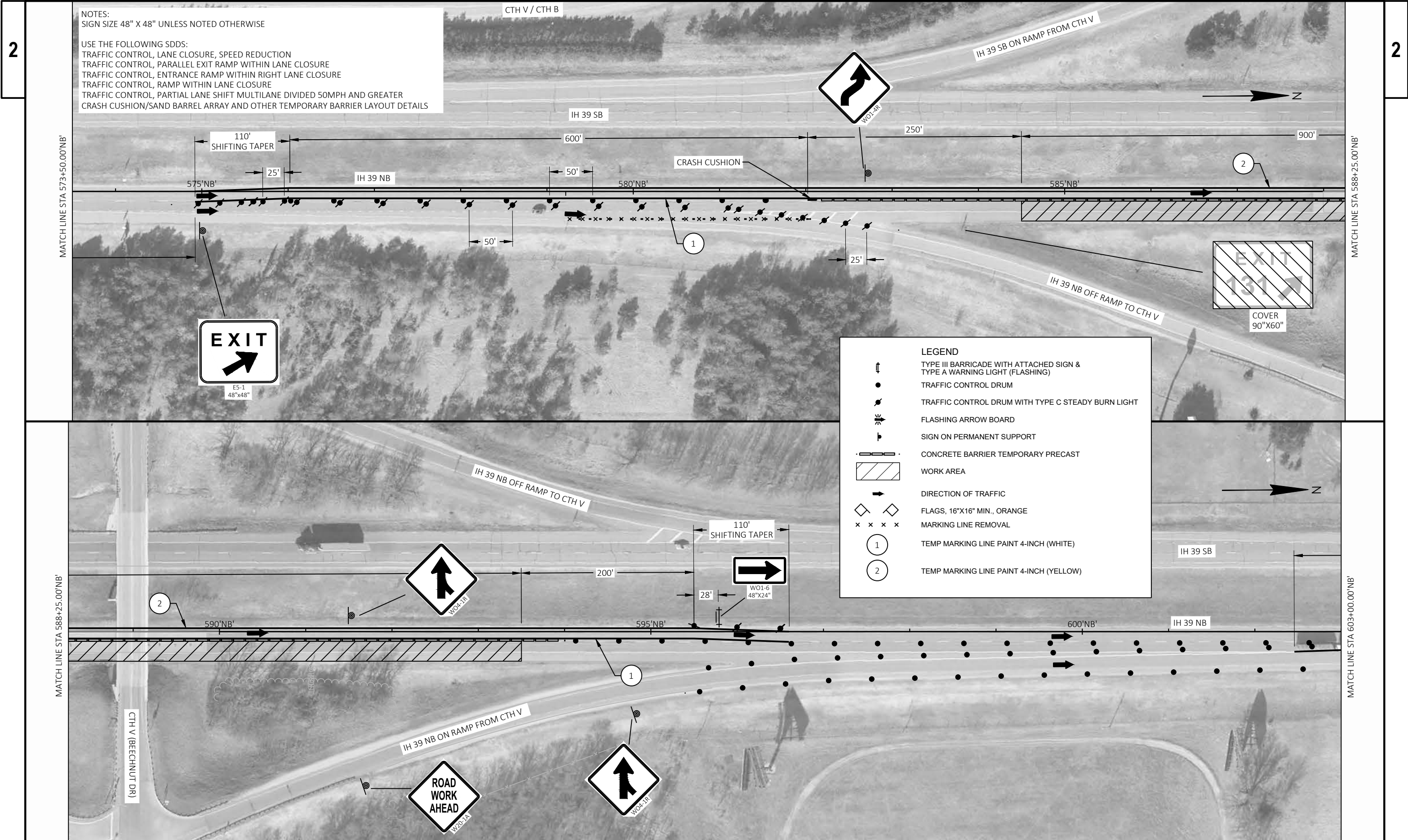
- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- FLAGS, 16"X16" MIN., ORANGE
- MARKING LINE REMOVAL
- TEMP MARKING LINE PAINT 4-INCH (WHITE)
- TEMP MARKING LINE PAINT 4-INCH (YELLOW)

LANE
CLOSED

R11-2L
48"X30"

LANE
CLOSED

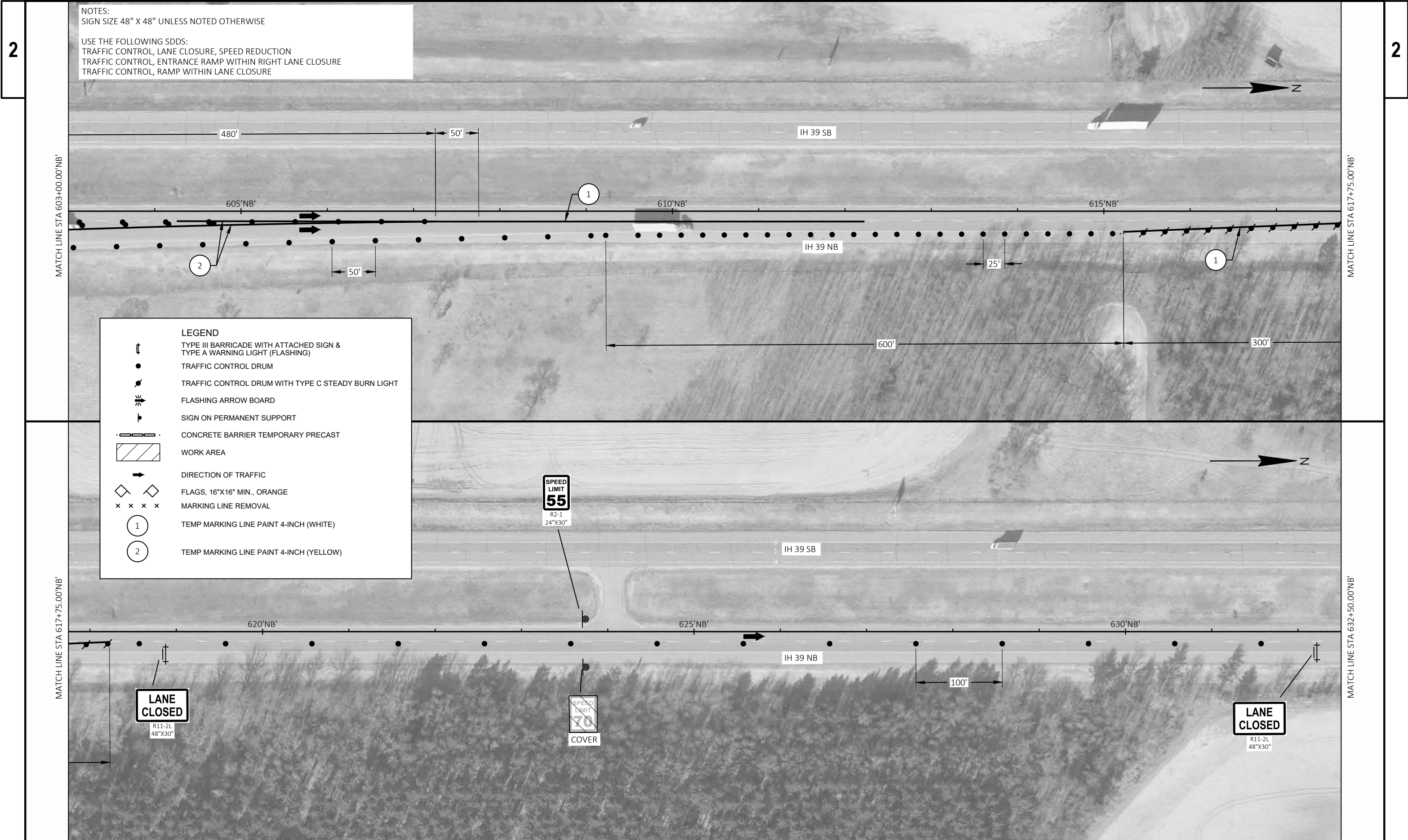
R11-2L
48"X30"

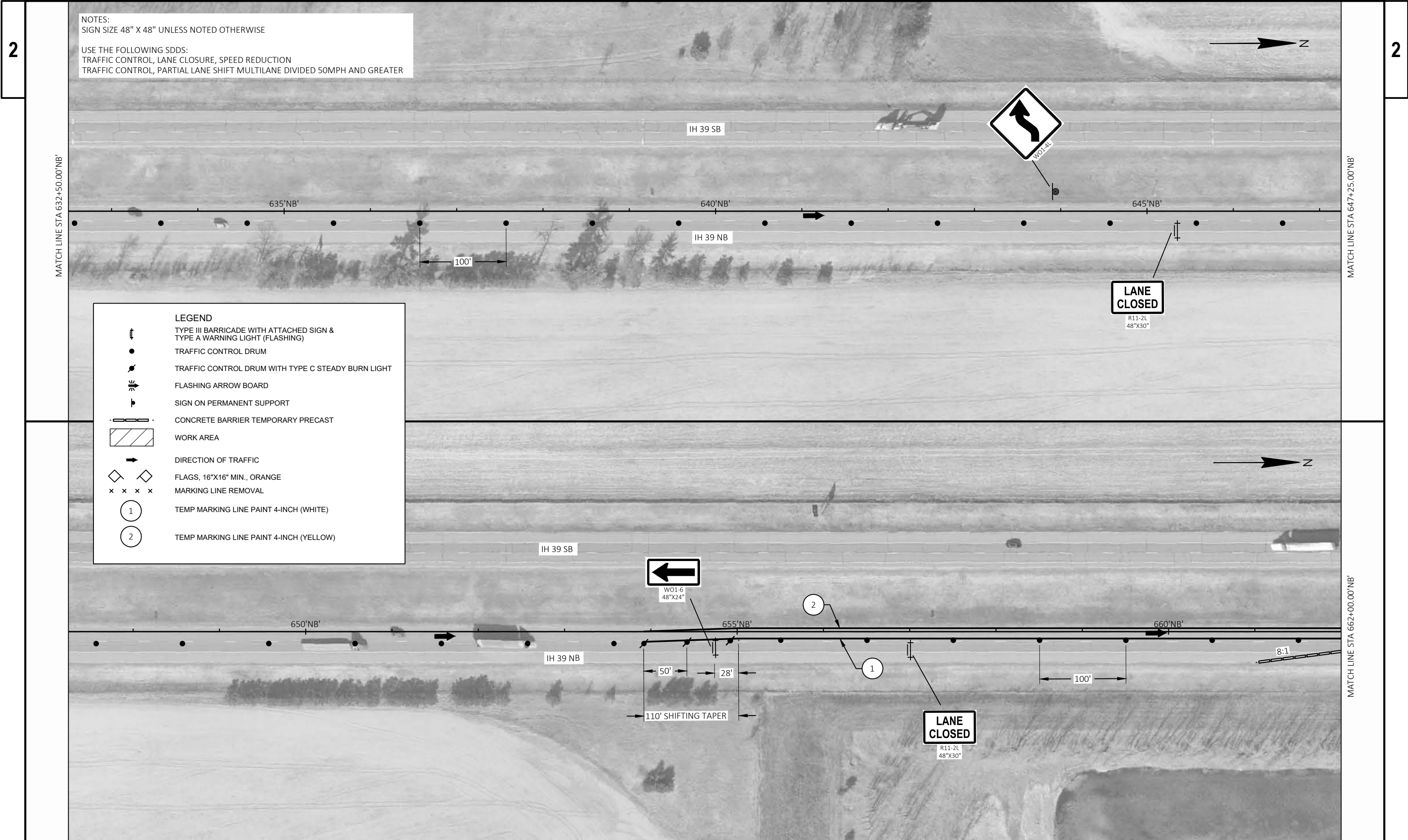


NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
TRAFFIC CONTROL, ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE
TRAFFIC CONTROL, RAMP WITHIN LANE CLOSURE
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

- LEGEND
- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - FLAGS, 16"X16" MIN., ORANGE
 - MARKING LINE REMOVAL
 - TEMP MARKING LINE PAINT 4-INCH (WHITE)
 - TEMP MARKING LINE PAINT 4-INCH (YELLOW)





NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

WORK AREA

DIRECTION OF TRAFFIC

FLAGS, 16"X16" MIN., ORANGE

MARKING LINE REMOVAL

TEMP MARKING LINE PAINT 4-INCH (WHITE)

TEMP MARKING LINE PAINT 4-INCH (YELLOW)



2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

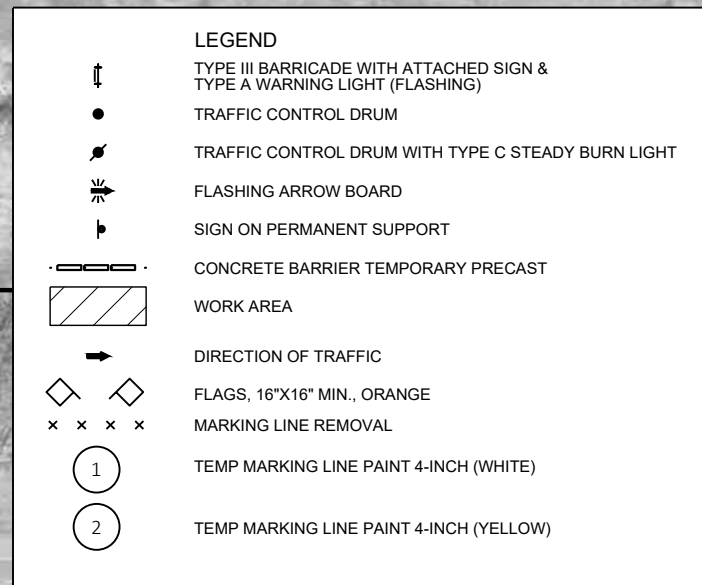
MATCH LINE STA 691+50.00'NB'

MATCH LINE STA 706+25.00'NB'

2 |

MATCH LINE S1A / U6+25.00' NB.

LINE 31A / 21+00.00'NB'



PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 2B

SHEET

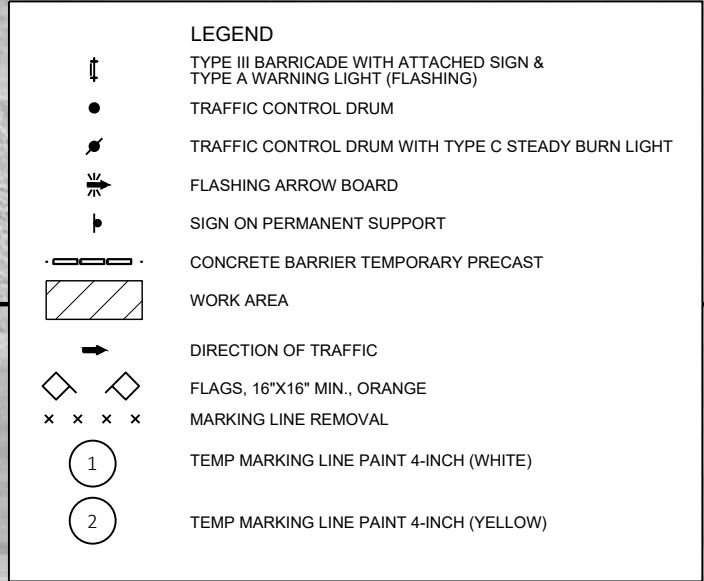
6

11

2

2 |

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE



PROJECT NO:	1166-05-77
-------------	------------

HWY: IH 39

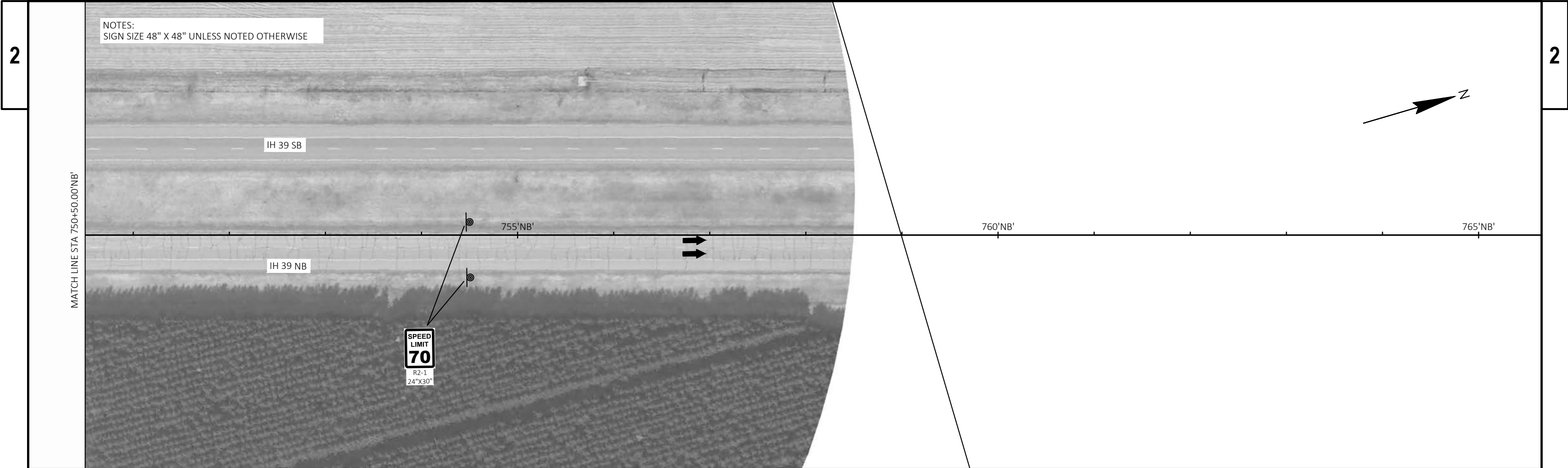
COUNTY: WAUSHARA

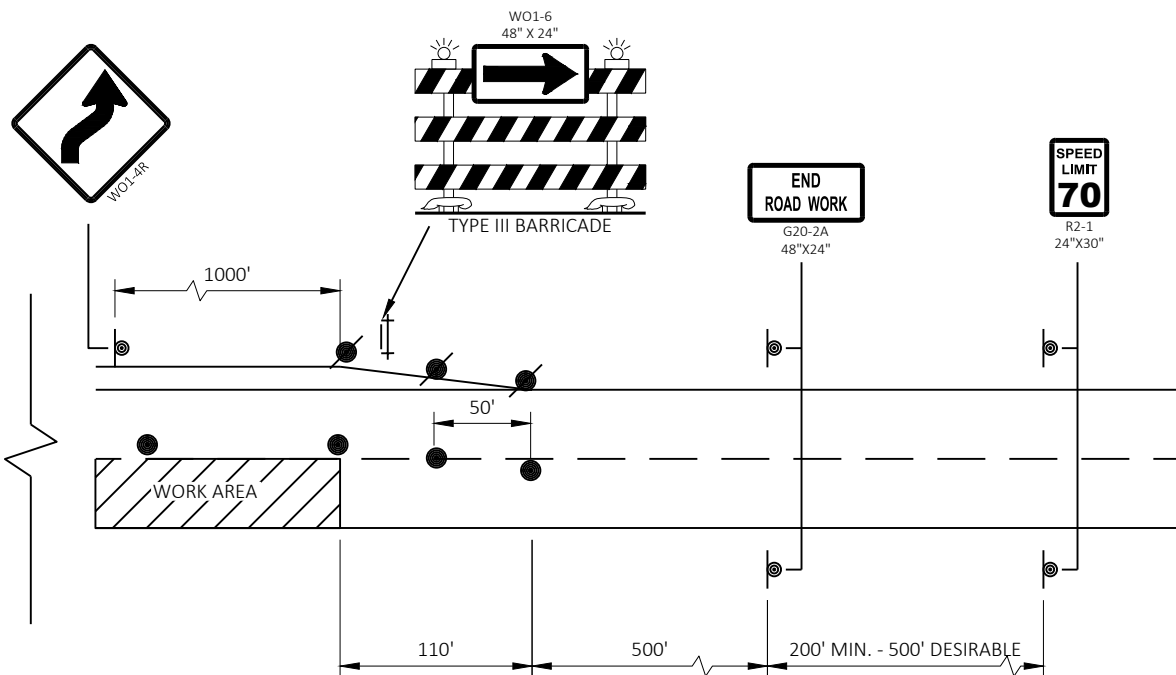
TRAFFIC CONTROL - STAGE 2B

SHEET

57

11





END OF LANE CLOSURE

- GENERAL NOTES:

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

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

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

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

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

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

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

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

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

PULL DRUMS BACK TO THE NOTCHED WEDGE DURING NON-WORKING HOURS AND DESIGNATED WORKING HOURS IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED. SEE TRAFFIC CONTROL TYPICAL SECTIONS.

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

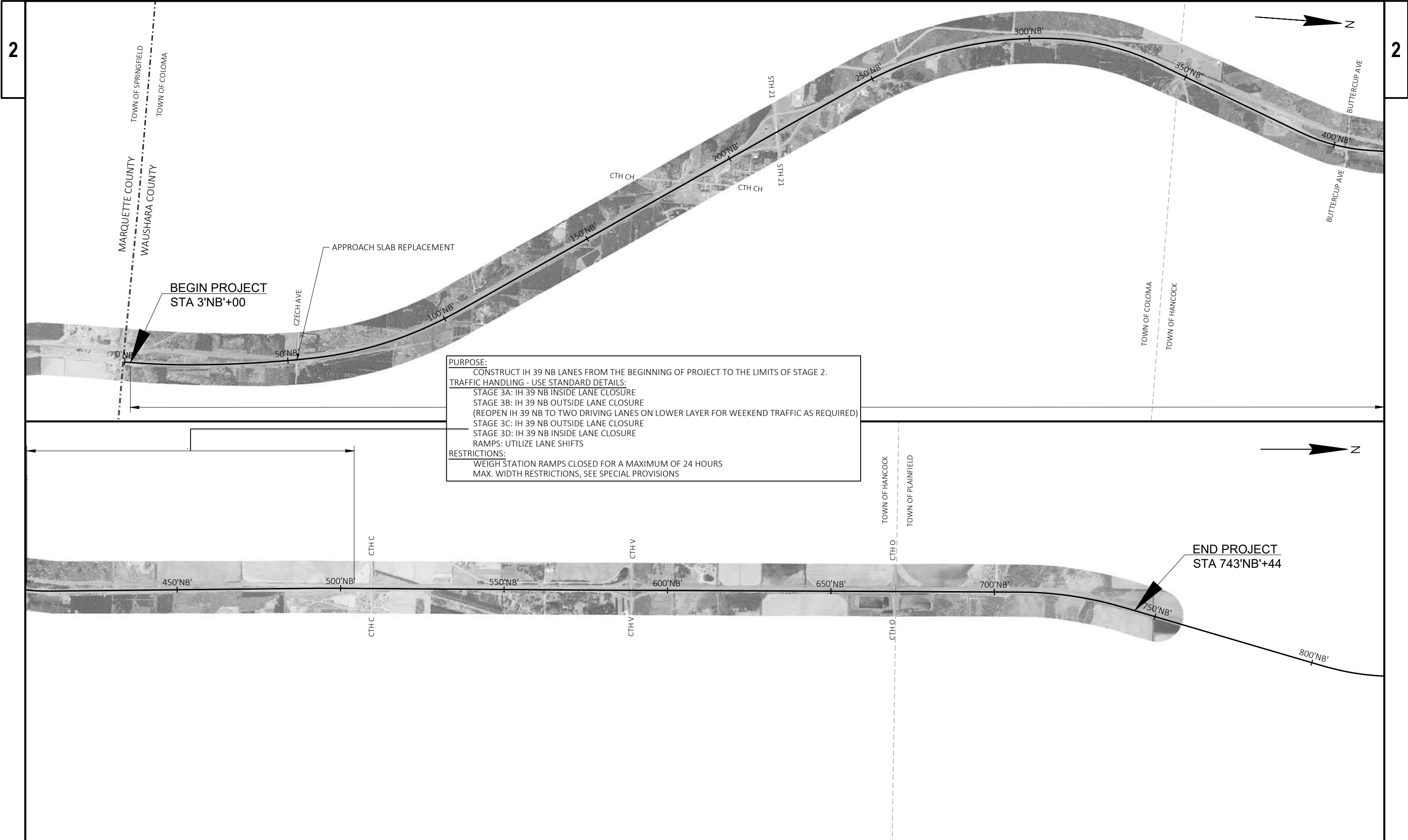
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. 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.

* A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES.

SEE THE FOLLOWING STANDARD DETAIL DRAWINGS FOR ADDITIONAL INFORMATION:

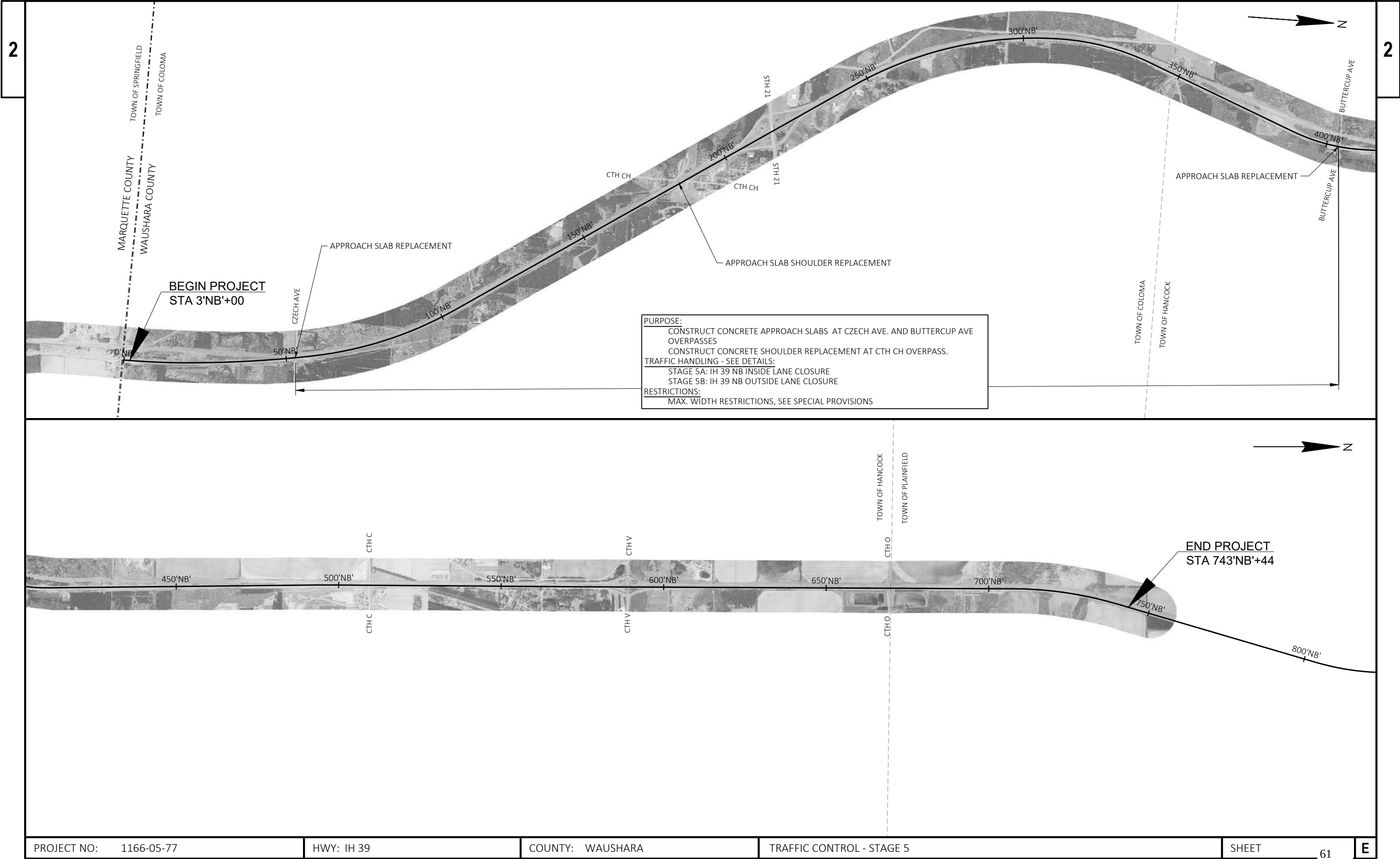
- TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
- TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER
- TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE
- TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LEFT LANE CLOSURE
- TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE
- TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE
- TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE



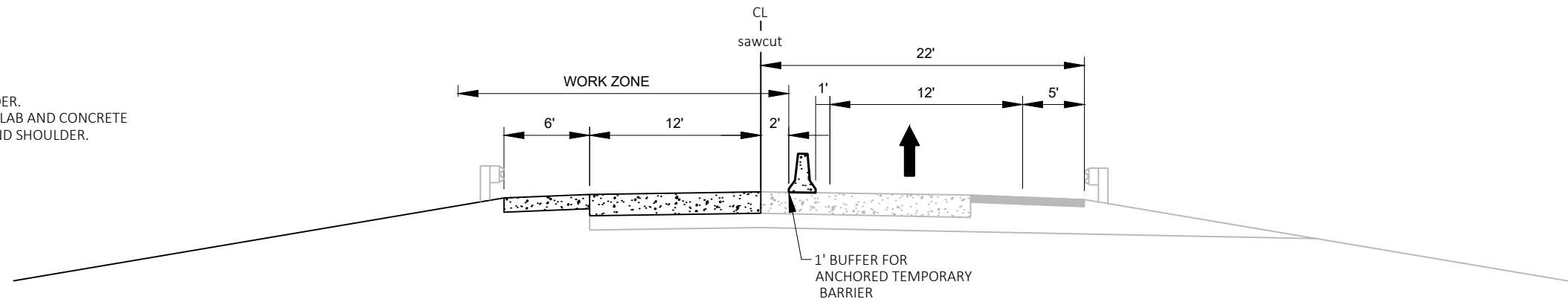
PURPOSE:
CONSTRUCT IH 39 NB LANES FROM THE BEGINNING OF PROJECT TO THE LIMITS OF STAGE 2.

TRAFFIC HANDLING - USE STANDARD DETAILS:
STAGE 3A: IH 39 NB INSIDE LANE CLOSURE
STAGE 3B: IH 39 NB OUTSIDE LANE CLOSURE
(REOPEN IH 39 NB TO TWO DRIVING LANES ON LOWER LAYER FOR WEEKEND TRAFFIC AS REQUIRED)
STAGE 3C: IH 39 NB OUTSIDE LANE CLOSURE
STAGE 3D: IH 39 NB INSIDE LANE CLOSURE
RAMPS: UTILIZE LANE SHIFTS

RESTRICTIONS:
WEIGH STATION RAMPS CLOSED FOR A MAXIMUM OF 24 HOURS
MAX. WIDTH RESTRICTIONS, SEE SPECIAL PROVISIONS

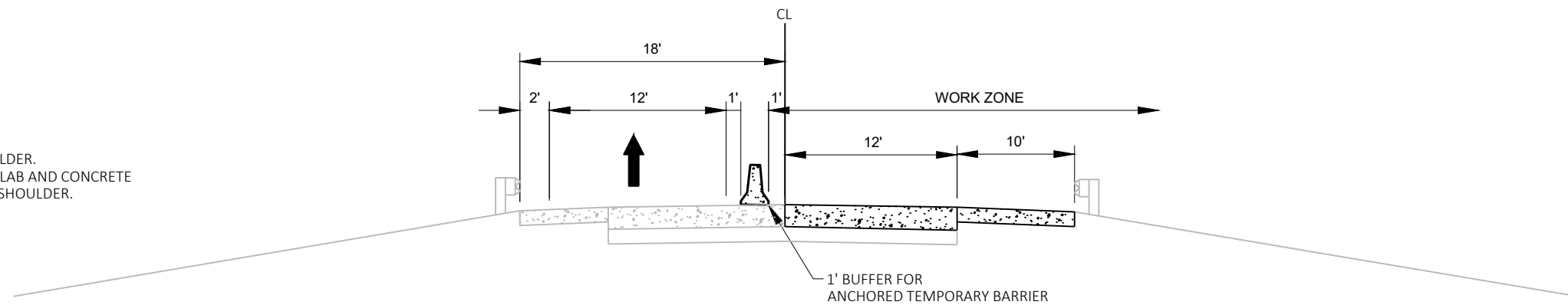


EXCAVATE INSIDE LANE AND SHOULDER.
CONSTRUCT CONCRETE APPROACH SLAB AND CONCRETE
PAVEMENT FOR THE INSIDE LANE AND SHOULDER.



STAGE 5A - IH 39 NB TYPICAL SECTION
AT APPROACH SLAB - INSIDE LANE
AT CZECH AVE AND BUTTERCUP AVE

EXCAVATE OUTSIDE LANE AND SHOULDER.
CONSTRUCT CONCRETE APPROACH SLAB AND CONCRETE
PAVEMENT FOR OUTSIDE LANE AND SHOULDER.

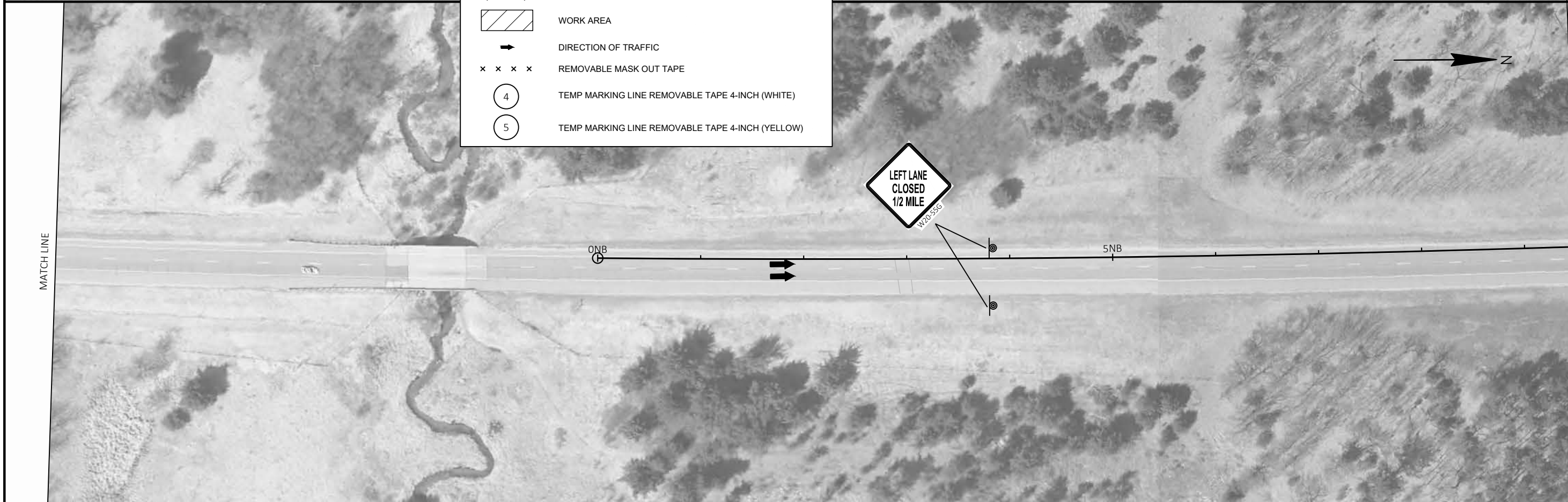
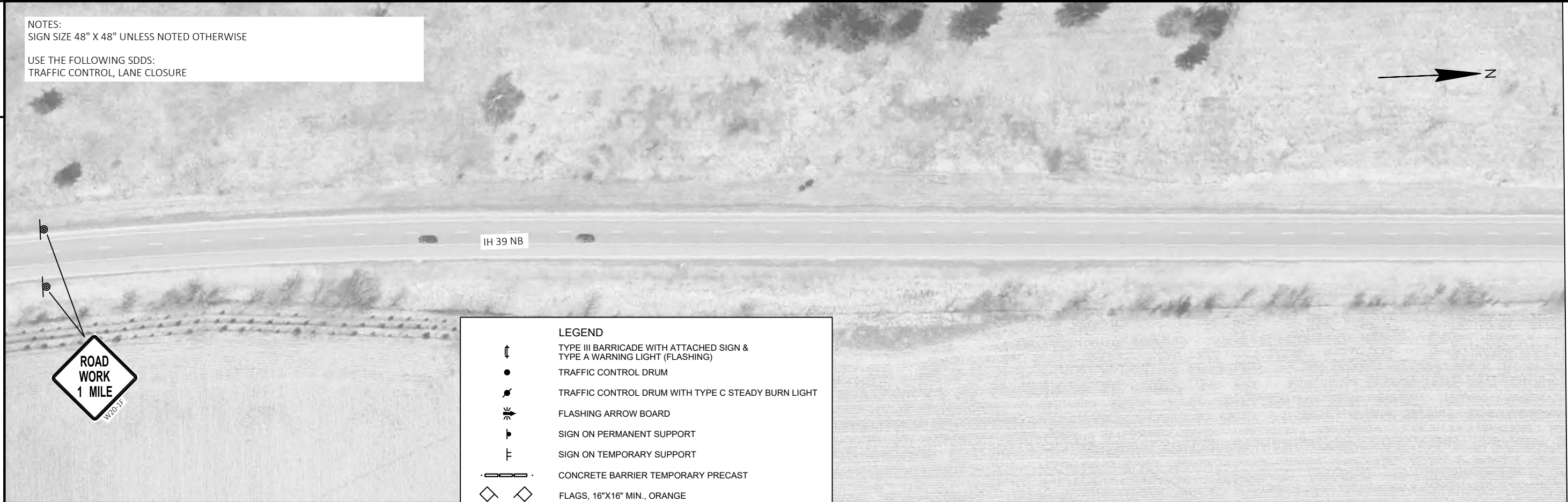


STAGE 5B - IH 39 NB TYPICAL SECTION
AT APPROACH SLAB - OUTSIDE LANE
AT CZECH AVE AND BUTTERCUP AVE

2

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

2



PROJECT NO:	1166-05-77
-------------	------------

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 5A

SHEET 63

E

FILE NAME : H:\PROJECTS\13000\13125\CAD_BIM\11660507\SHEETSPLAN\026501-S5A.DWG
LAYOUT NAME - 01-st5a

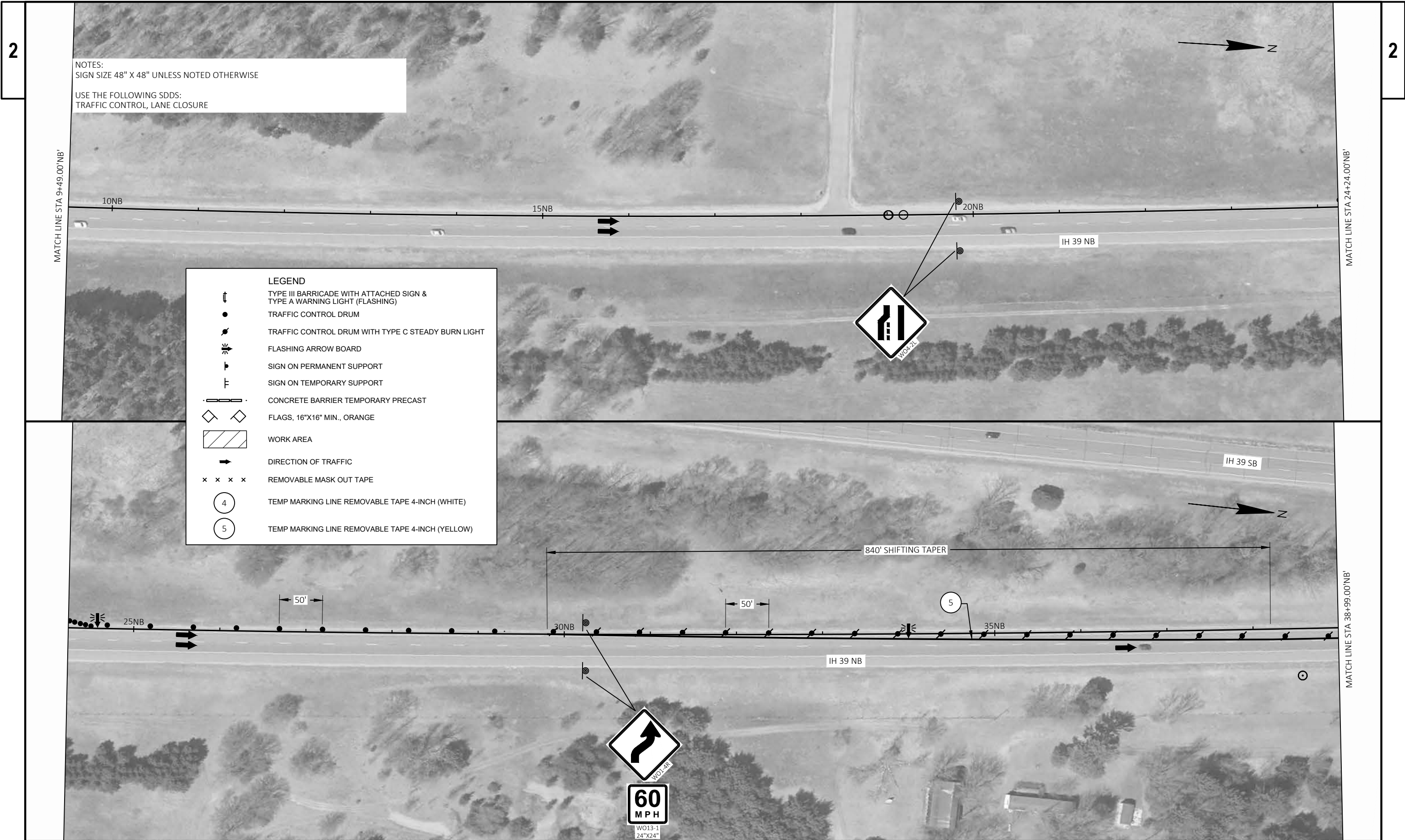
PLOT DATE : 3/31/2022 3:18 PM

PLOT BY : BRIAN GENSKOW

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

MATCH LINE STA 38+99.00'NB'

MATCH LINE STA 53+97.00'NB'

LEGEND	
	TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	CONCRETE BARRIER TEMPORARY PRECAST
	FLAGS, 16"X16" MIN., ORANGE
	WORK AREA
	DIRECTION OF TRAFFIC
	REMOVABLE MASK OUT TAPE
	TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
	TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

IH 39 SB

175' SHIFTING TAPER

W01-6
48"X24"

40NB

IH 39 NB

45NB

100'

5

8:1

W05-52L
12"X36"

50NB



W01-4L

CZECH AVE

200'

55NB

175' SHIFTING TAPER

44'

50'

60NB

IH 39 SB

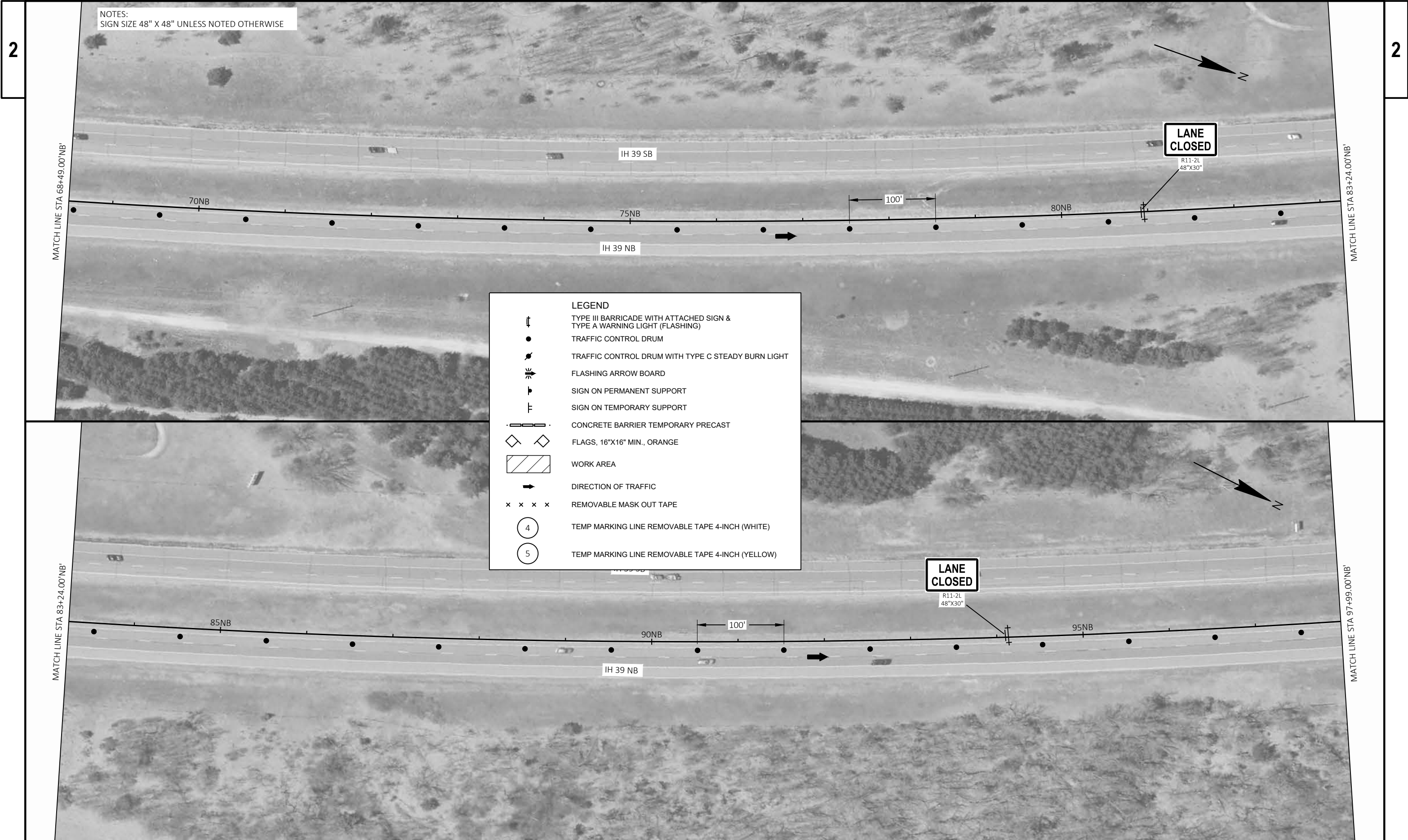
IH 39 NB

100'

65NB

LANE
CLOSEDR11-2L
48"X30"

MATCH LINE STA 68+49.00'NB'



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"X16" MIN., ORANGE

WORK AREA

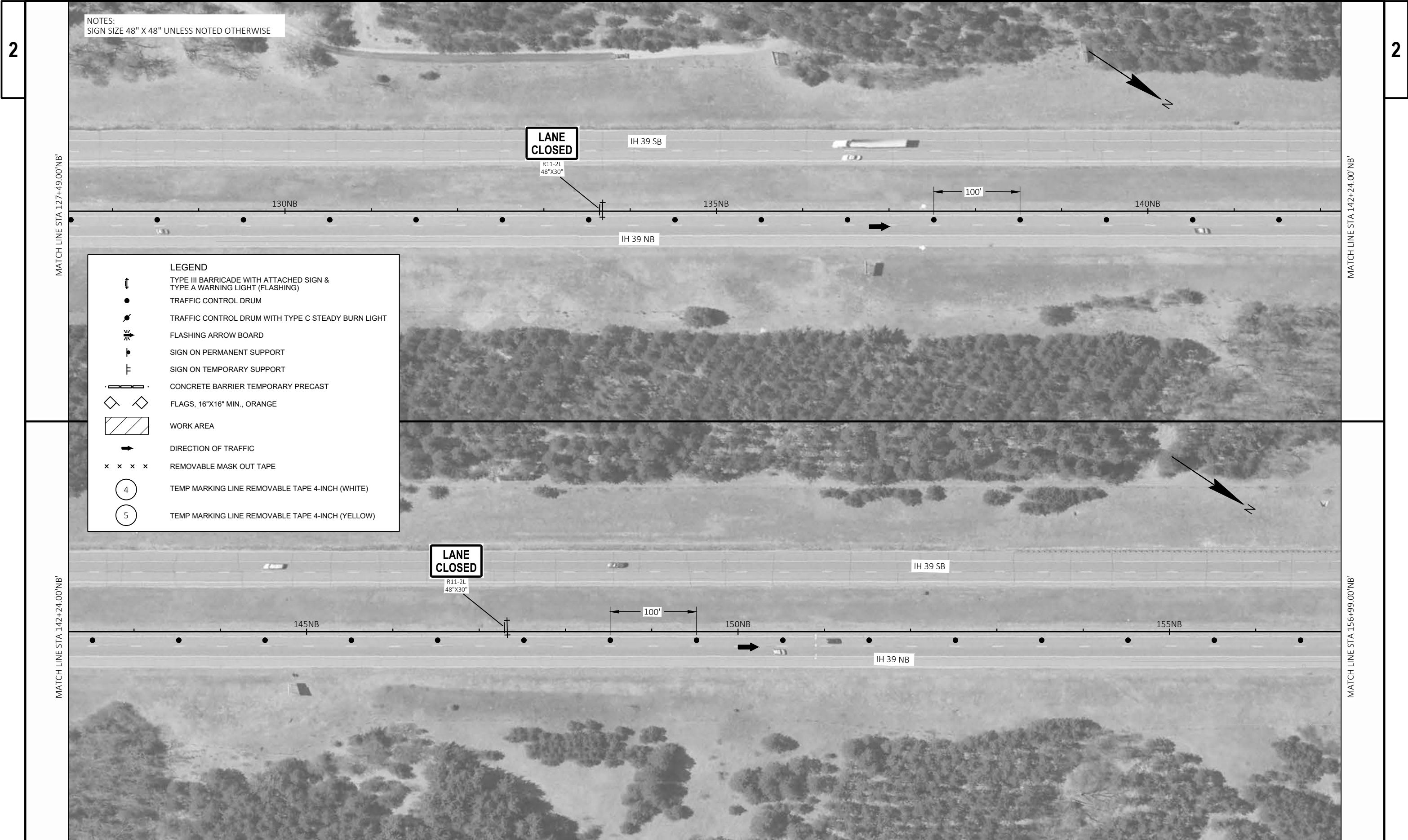
DIRECTION OF TRAFFIC

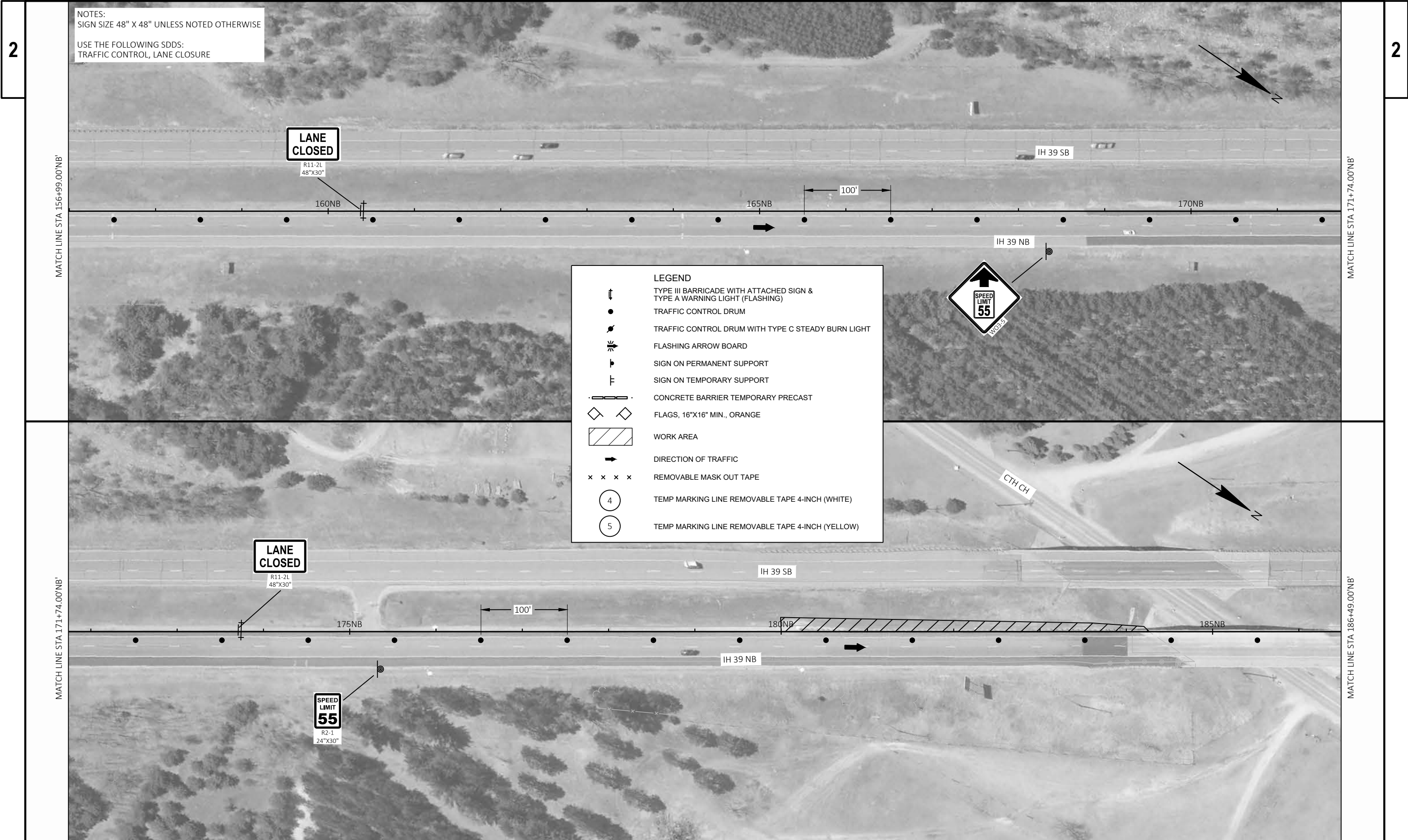
REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)







NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16"X16" MIN., ORANGE
- WORK AREA
- DIRECTION OF TRAFFIC
- REMOVABLE MASK OUT TAPE
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)



THIS FRAME INTENTIONALLY LEFT BLANK

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"X16" MIN., ORANGE

WORK AREA

DIRECTION OF TRAFFIC

REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

2

250NB

255NB

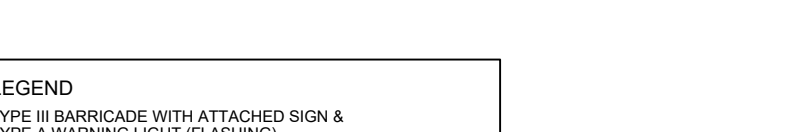
260NB

IH 39 SB

IH 39 NB

SPEED LIMIT 70

Diagram illustrating a proposed highway interchange. The main road is a multi-lane highway with a center turn lane. The diagram shows the layout of the interchange, including the proposed location of a speed limit sign (70) and the placement of lane markings. The diagram is labeled with "2" at both ends, indicating it is a section of a larger plan. A north arrow is present in the upper right corner. The diagram includes labels for existing and proposed features: "250NB", "255NB", "260NB", "IH 39 SB", "IH 39 NB", and "SPEED LIMIT 70". A note specifies "SIGN SIZE 48\" X 48\" UNLESS NOTED OTHERWISE".



LEGEND

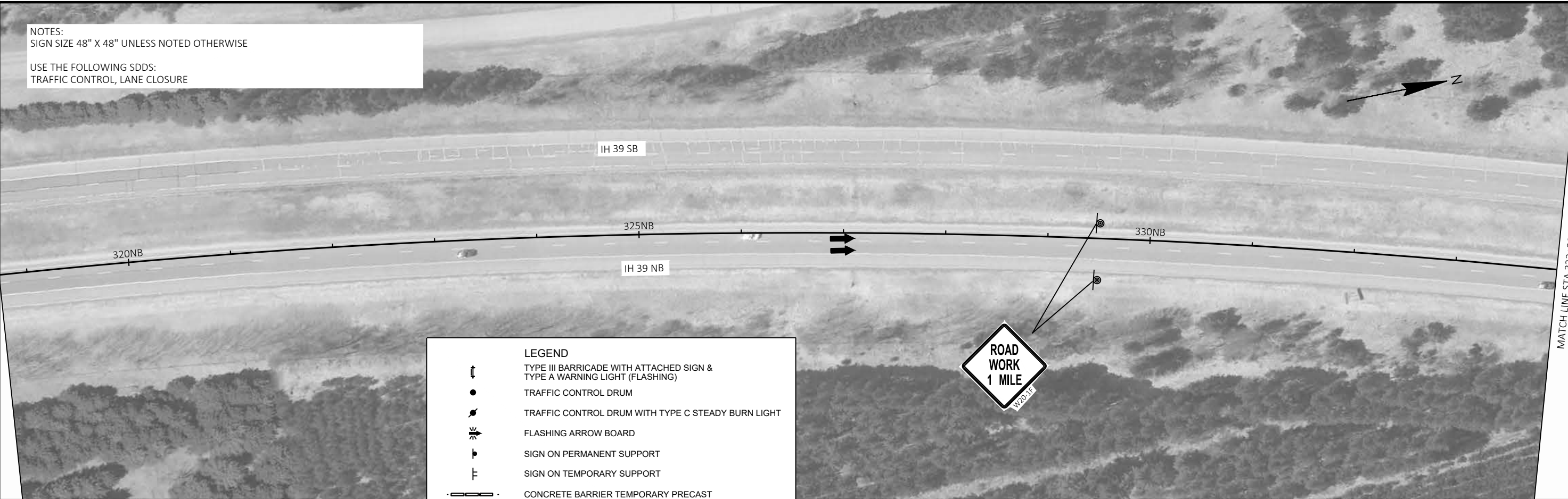
-  TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  CONCRETE BARRIER TEMPORARY PRECAST
-  FLAGS, 16"X16" MIN., ORANGE
-  WORK AREA
-  DIRECTION OF TRAFFIC
-  REMOVABLE MASK OUT TAPE
-  TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
-  TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

THIS FRAME INTENTIONALLY LEFT BLANK

PROJECT NO: 1166-05-77	HWY: IH 39	COUNTY: WAUSHARA	TRAFFIC CONTROL - STAGE 5A	SHEET 71	E
------------------------	------------	------------------	----------------------------	----------	----------

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE



LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"X16" MIN., ORANGE

WORK AREA

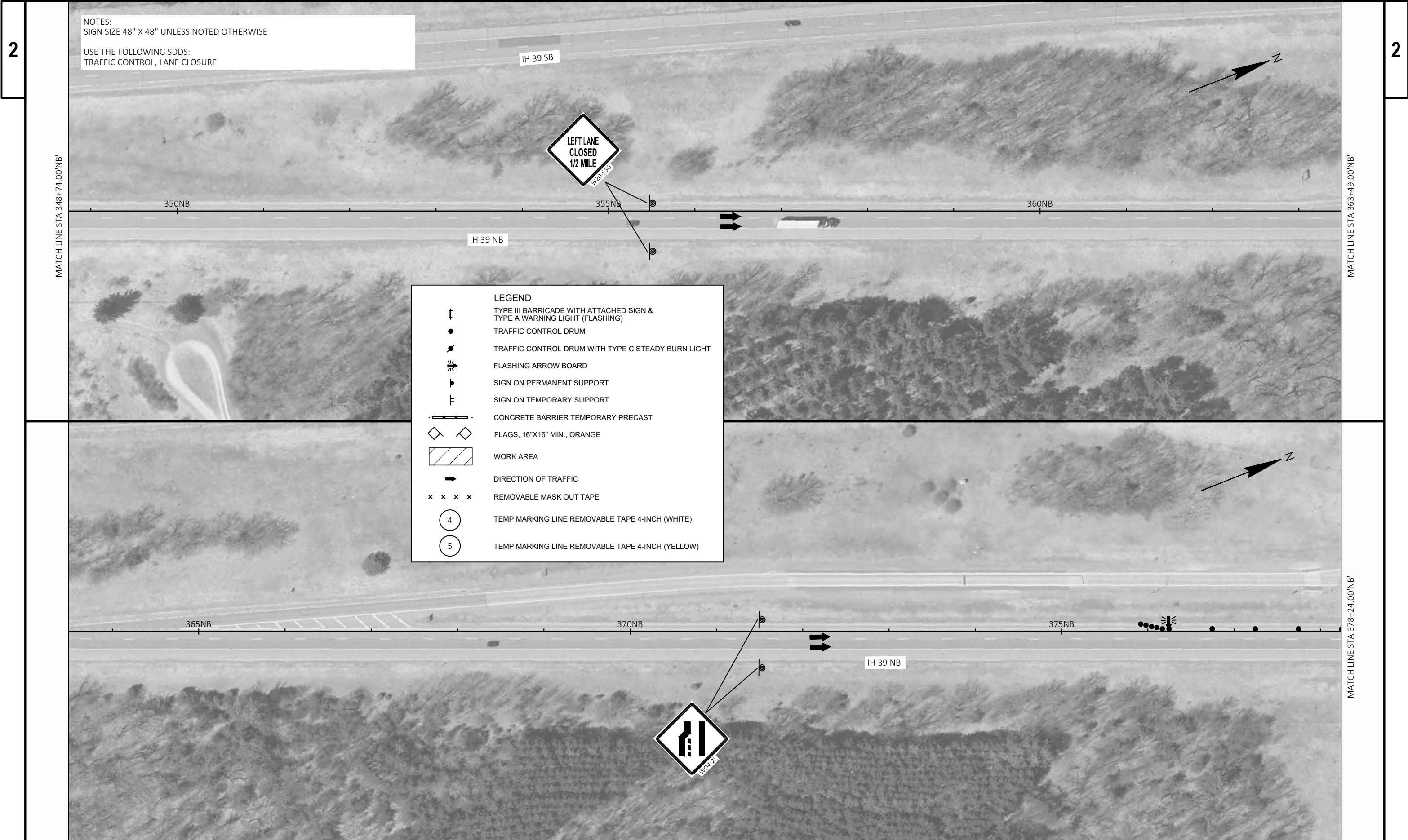
DIRECTION OF TRAFFIC

REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)



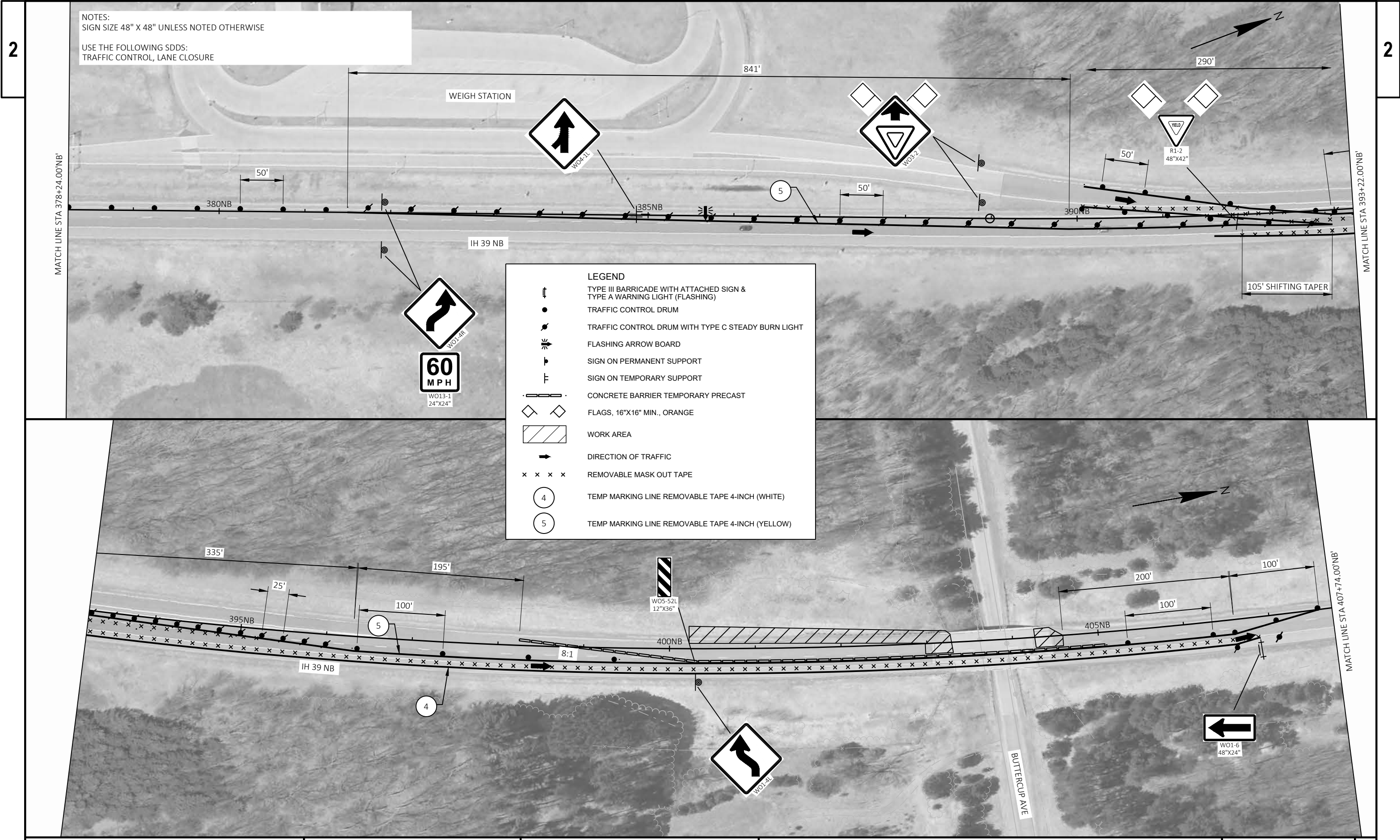


NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

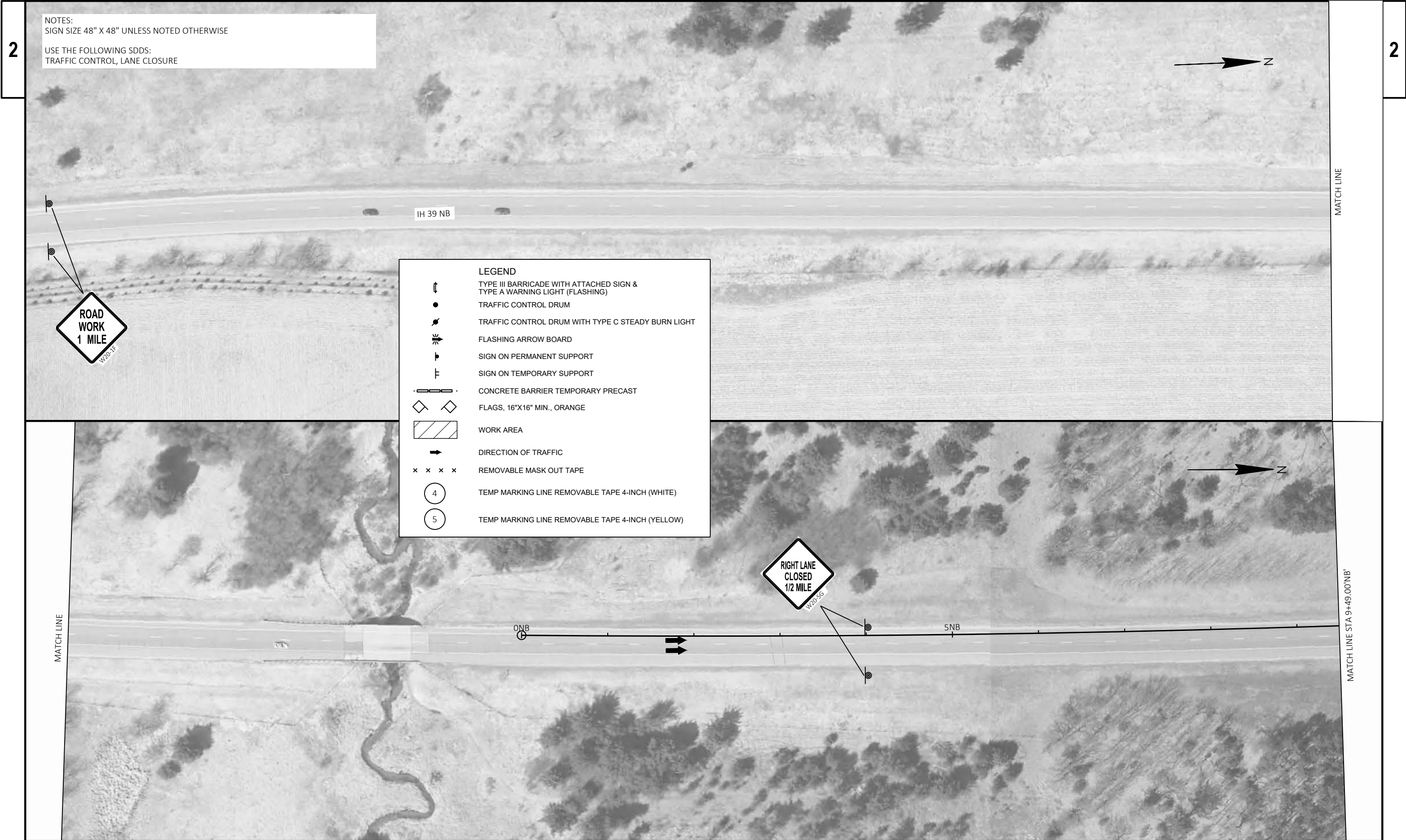
USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16"x16" MIN., ORANGE
- WORK AREA
- DIRECTION OF TRAFFIC
- REMOVABLE MASK OUT TAPE
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)







NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

IH 39 NB

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLASHING ARROW BOARD
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16"X16" MIN., ORANGE
- WORK AREA
- DIRECTION OF TRAFFIC
- REMOVABLE MASK OUT TAPE
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
- TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

RIGHT LANE
CLOSED
1/2 MILE

ONB

5NB

PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 5B

SHEET

76

E

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

MATCH LINE STA 9+49.00'NB'

10NB

15NB

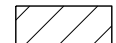
IH 39 NB

20NB

N

MATCH LINE STA 24+24.00'NB'

LEGEND

-  TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  CONCRETE BARRIER TEMPORARY PRECAST
-  FLAGS, 16"X16" MIN., ORANGE
-  WORK AREA
-  DIRECTION OF TRAFFIC
-  REMOVABLE MASK OUT TAPE
-  TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
-  TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)



60
MPH
W013-1
24"X24"

25NB

30NB

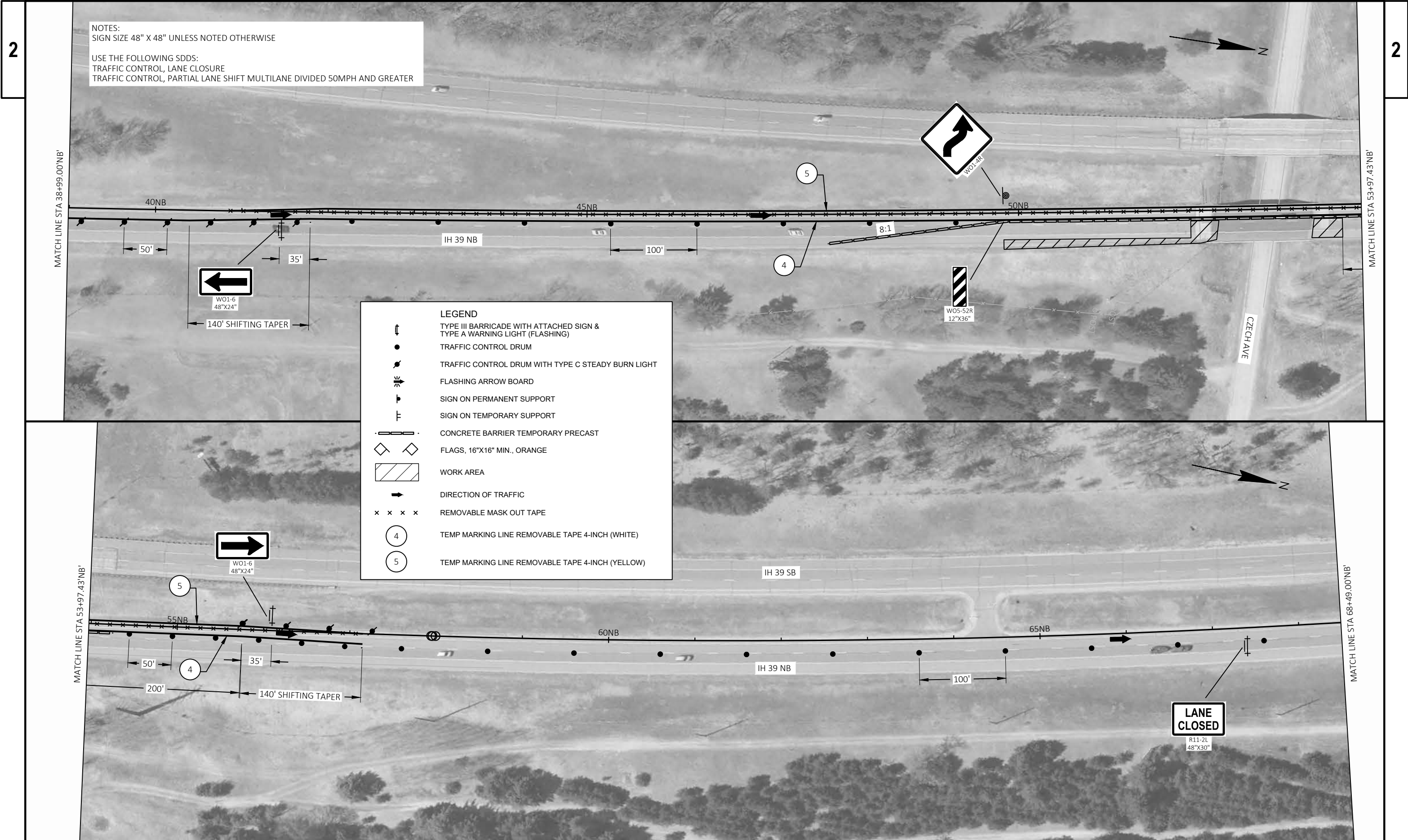
IH 39 NB

35NB

IH 39 SB

N

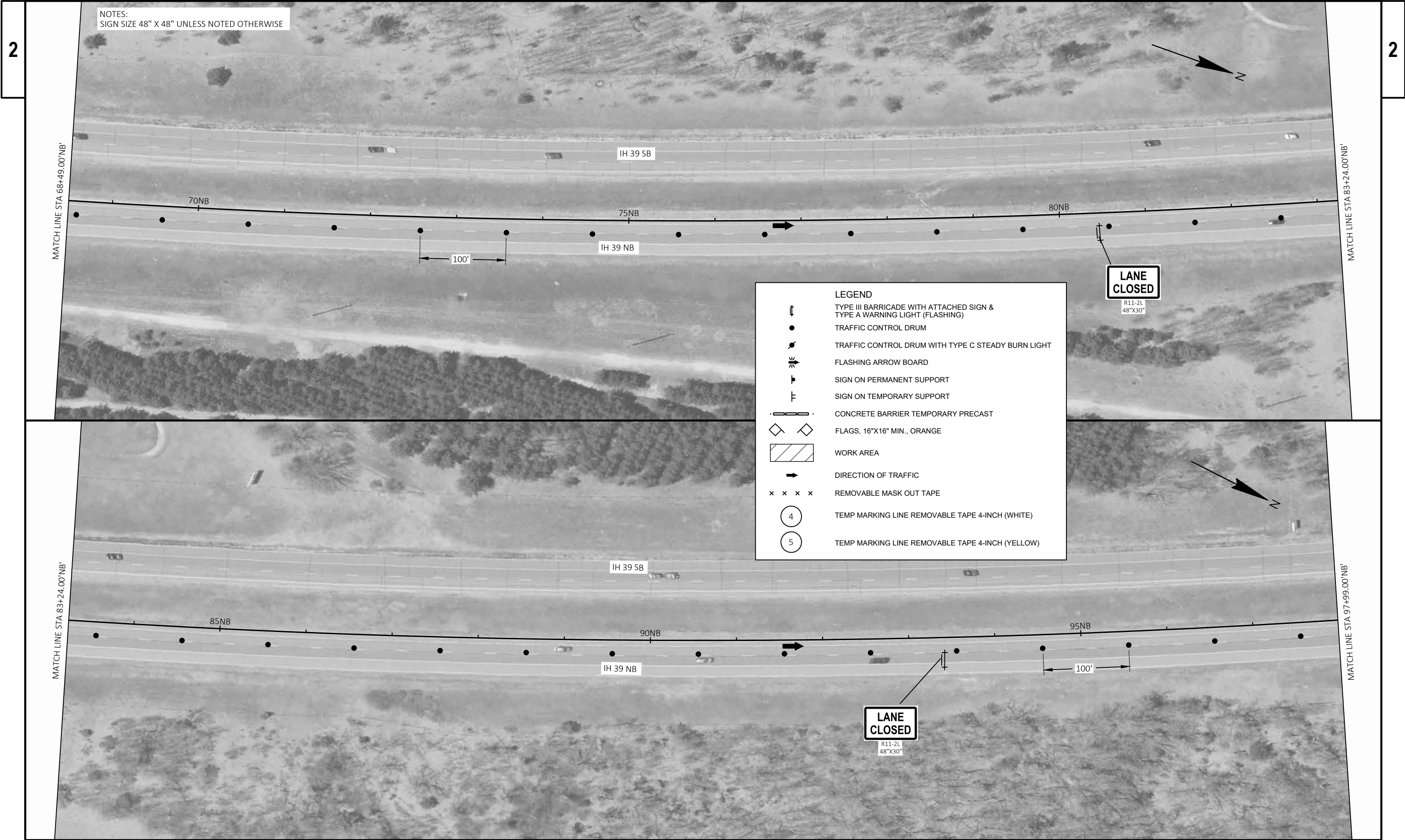
MATCH LINE STA 38+99.00'NB'



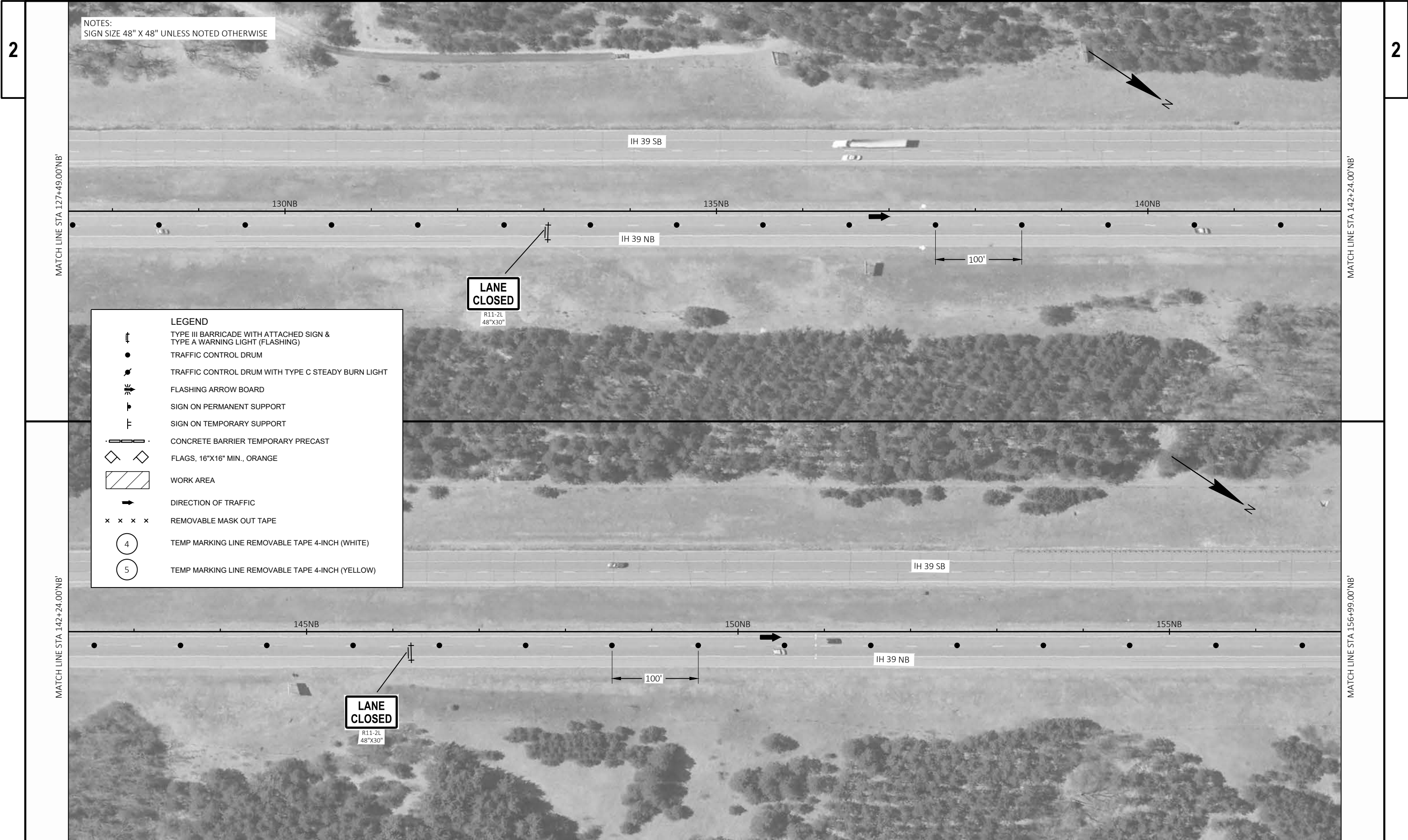
NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

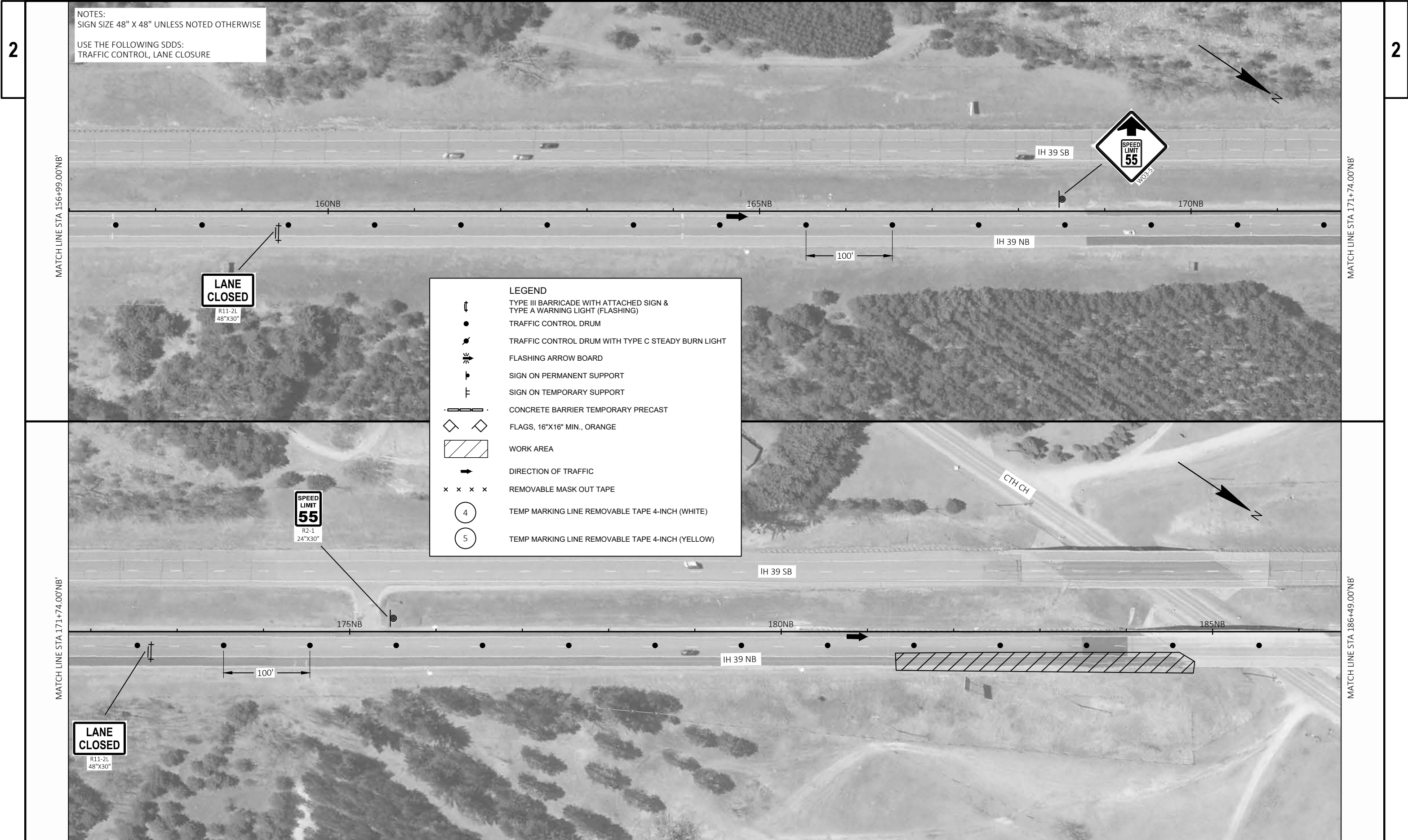
USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

- LEGEND**
- TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - SIGN ON PERMANENT SUPPORT
 - SIGN ON TEMPORARY SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - FLAGS, 16"x16" MIN., ORANGE
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - REMOVABLE MASK OUT TAPE
 - TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
 - TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)









NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"x16" MIN., ORANGE

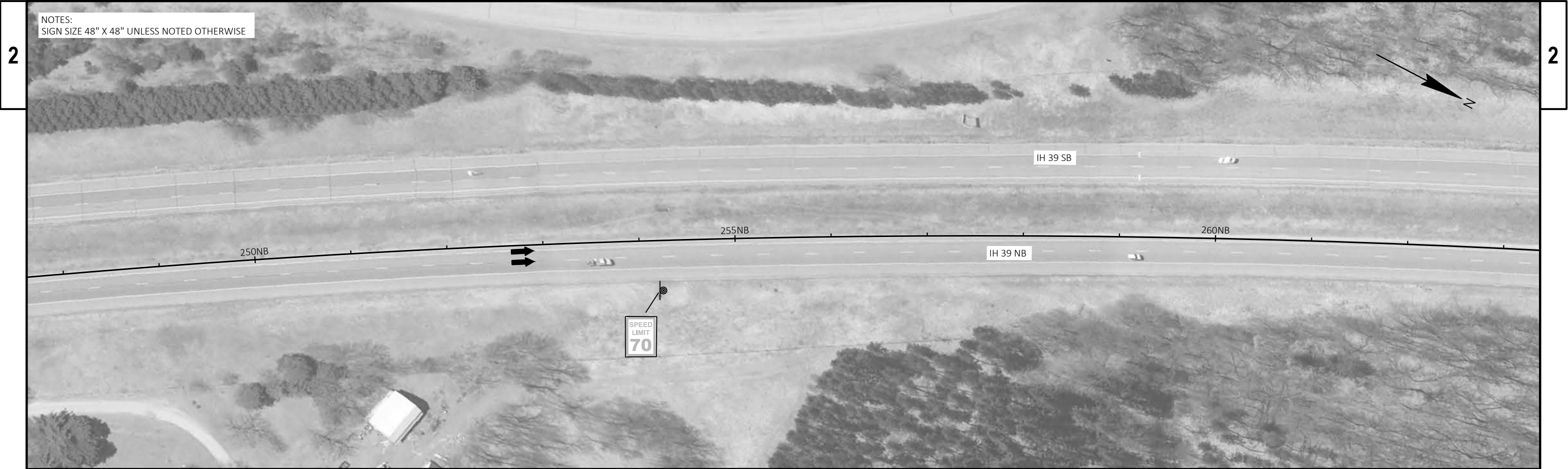
WORK AREA

DIRECTION OF TRAFFIC

REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)



THIS FRAME INTENTIONALLY LEFT BLANK

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"X16" MIN., ORANGE

WORK AREA

DIRECTION OF TRAFFIC

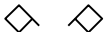
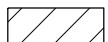
REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

LEGEND	
	TYPE III BARRICADE WITH ATTACHED SIGN & TYPE A WARNING LIGHT (FLASHING)
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	CONCRETE BARRIER TEMPORARY PRECAST
	FLAGS, 16"X16" MIN., ORANGE
	WORK AREA
	DIRECTION OF TRAFFIC
	REMOVABLE MASK OUT TAPE
	TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)
	TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

ROAD
WORK
1 MILE

MATCH LINE STA 333+99.00'NB'

MATCH LINE STA 348+74.00'NB'

PROJECT NO: 1166-05-77

HWY: IH 39

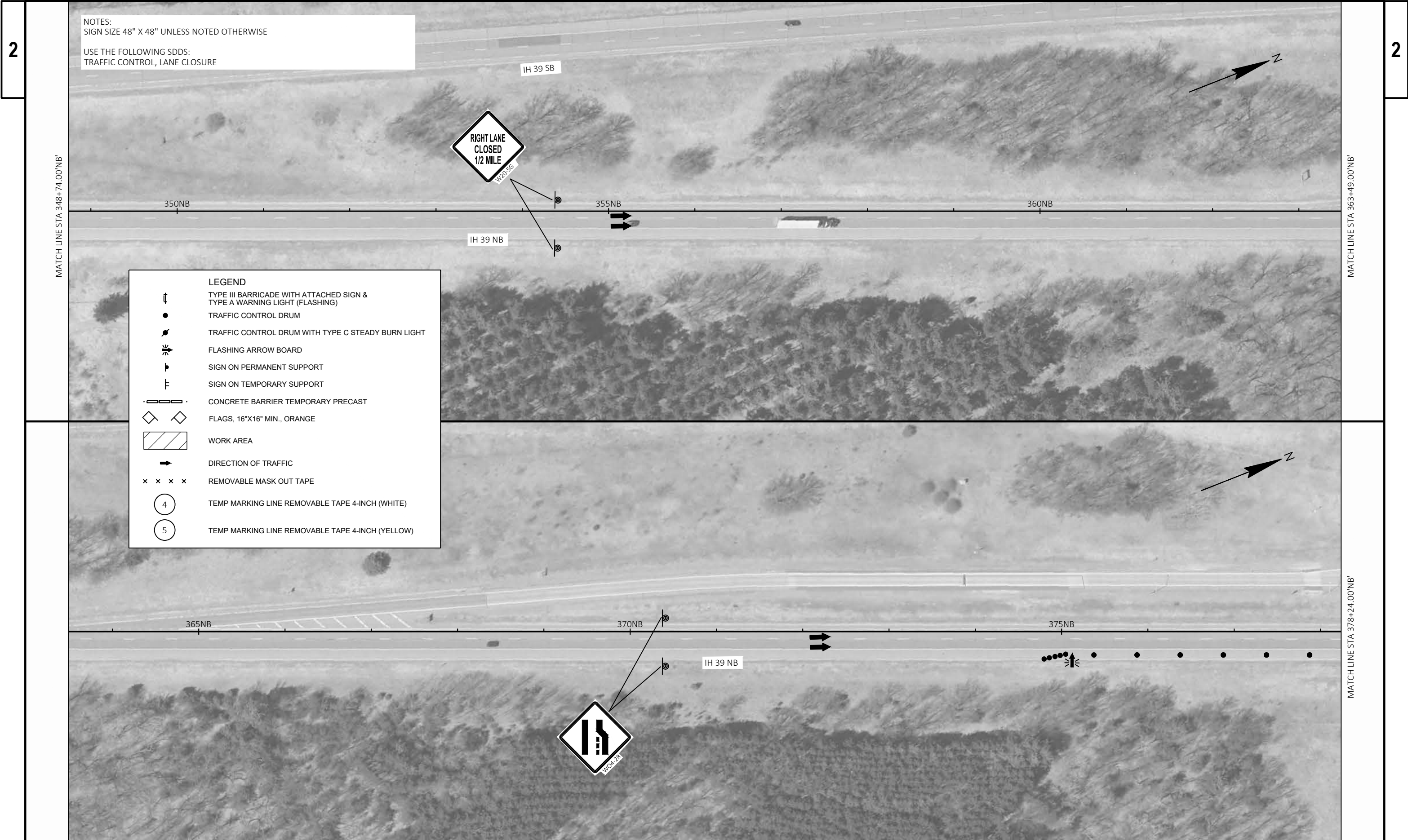
COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 5B

SHEET

85

E



NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE

LEGEND

TYPE III BARRICADE WITH ATTACHED SIGN &
TYPE A WARNING LIGHT (FLASHING)

TRAFFIC CONTROL DRUM

TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT

FLASHING ARROW BOARD

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

CONCRETE BARRIER TEMPORARY PRECAST

FLAGS, 16"X16" MIN., ORANGE

WORK AREA

DIRECTION OF TRAFFIC

REMOVABLE MASK OUT TAPE

TEMP MARKING LINE REMOVABLE TAPE 4-INCH (WHITE)

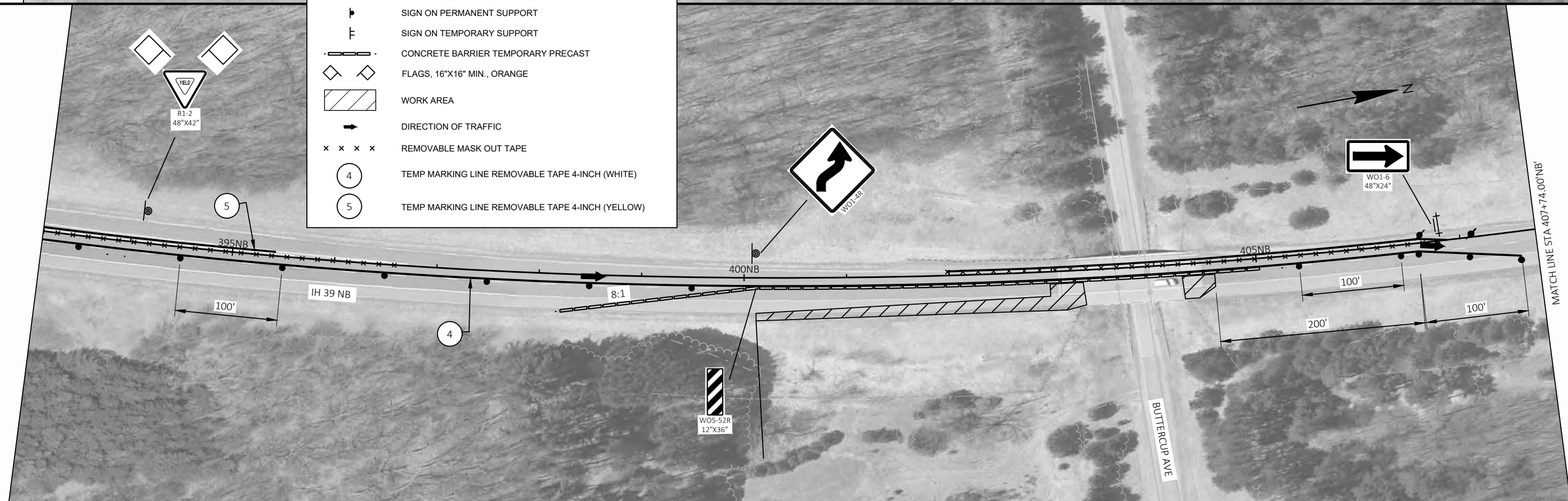
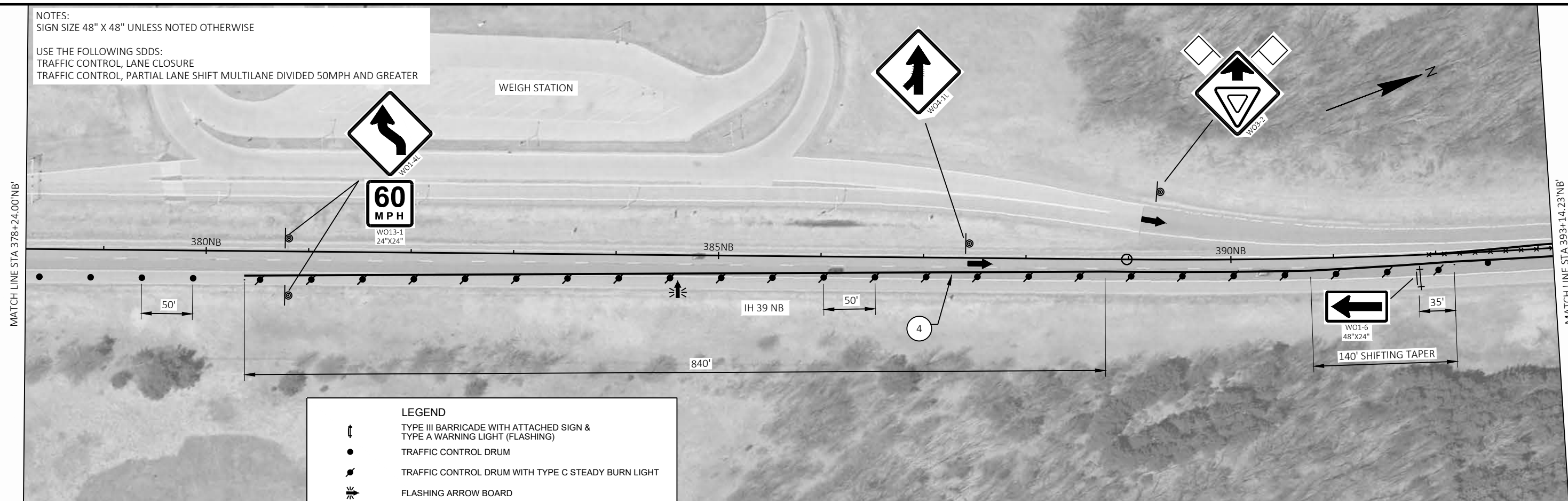
TEMP MARKING LINE REMOVABLE TAPE 4-INCH (YELLOW)

2

NOTES:
SIGN SIZE 48" X 48" UNLESS NOTED OTHERWISE

USE THE FOLLOWING SDDS:
TRAFFIC CONTROL, LANE CLOSURE
TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50MPH AND GREATER

2



PROJECT NO:	1166-05-77
-------------	------------

HWY: IH 39

COUNTY: WAUSHARA

TRAFFIC CONTROL - STAGE 5B

SHEET

87

E

FILE NAME : H:\PROJECTS\13000\13125\CAD_BIM\11660507\SHEETSPLAN\026514-S5B.DWG
LAYOUT NAME - 12-st5b

PLOT DATE : 3/31/2022 3:27 PM

PLOT BY : BRIAN GENSKOW

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

Estimate Of Quantities

1166-05-77

Line	Item	Item Description	Unit	Total	Qty
0002	204.0100	Removing Concrete Pavement	SY	7,966.000	7,966.000
0004	204.0105	Removing Concrete Pavement Butt Joints	SY	270.000	270.000
0006	204.0110	Removing Asphaltic Surface	SY	1,507.000	1,507.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	251.000	251.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	310,680.000	310,680.000
0012	204.0150	Removing Curb & Gutter	LF	75.000	75.000
0014	204.0165	Removing Guardrail	LF	2,117.000	2,117.000
0016	204.0175	Removing Concrete Slope Paving	SY	84.000	84.000
0018	204.0180	Removing Delineators and Markers	EACH	50.000	50.000
0020	204.0190	Removing Surface Drains	EACH	2.000	2.000
0022	204.0220	Removing Inlets	EACH	2.000	2.000
0024	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	80.000	80.000
0026	205.0100	Excavation Common	CY	2,700.000	2,700.000
0028	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1166-05-77	LS	1.000	1.000
0030	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	82.000	82.000
0032	213.0100	Finishing Roadway (project) 01. 1166-05-77	EACH	1.000	1.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,907.000	1,907.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	7,803.000	7,803.000
0038	320.0145	Concrete Base 8-Inch	SY	64.000	64.000
0040	390.0201	Base Patching Asphaltic	TON	50.000	50.000
0042	415.1080	Concrete Pavement HES 8-Inch	SY	153.000	153.000
0044	415.1115	Concrete Pavement HES 11 1/2-Inch	SY	587.000	587.000
0046	415.1410	Concrete Pavement Approach Slab HES	SY	175.000	175.000
0048	416.0610	Drilled Tie Bars	EACH	65.000	65.000
0050	416.0620	Drilled Dowel Bars	EACH	135.000	135.000
0052	416.0750.S	Concrete Pavement Partial Depth Repair Joint Repair	LF	95.000	95.000
0054	416.0754.S	Concrete Pavement Partial Depth Repair Surface Repair	SF	50.000	50.000
0056	416.0758.S	Concrete Pavement Partial Depth Repair Full Depth Adjustment	SF	25.000	25.000
0058	416.1010	Concrete Surface Drains	CY	4.000	4.000
0060	416.1715	Concrete Pavement Repair SHES	SY	70.000	70.000
0062	416.1725	Concrete Pavement Replacement SHES	SY	115.000	115.000
0064	450.4000	HMA Cold Weather Paving	TON	340.000	340.000
0066	455.0605	Tack Coat	GAL	33,255.000	33,255.000
0068	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0070	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0072	460.2000	Incentive Density HMA Pavement	DOL	22,870.000	22,870.000
0074	460.2005	Incentive Density PWL HMA Pavement	DOL	19,680.000	19,680.000
0076	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	59,910.000	59,910.000
0078	460.2010	Incentive Air Voids HMA Pavement	DOL	50,520.000	50,520.000
0080	460.5224	HMA Pavement 4 LT 58-28 S	TON	8,464.000	8,464.000
0082	460.7223	HMA Pavement 3 HT 58-28 S	TON	2,718.000	2,718.000
0084	460.7224	HMA Pavement 4 HT 58-28 S	TON	26,270.000	26,270.000
0086	460.7424	HMA Pavement 4 HT 58-28 H	TON	24,561.000	24,561.000
0088	465.0105	Asphaltic Surface	TON	91.000	91.000
0090	465.0110	Asphaltic Surface Patching	TON	75.000	75.000
0092	465.0400	Asphaltic Shoulder Rumble Strips	LF	116,739.000	116,739.000
0094	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0096	520.8700	Cleaning Culvert Pipes	EACH	6.000	6.000
0098	521.1012	Apron Endwalls for Culvert Pipe Steel 12-Inch	EACH	2.000	2.000

1166-05-77

Line	Item	Item Description	Unit	Total	Qty
0100	524.0118	Culvert Pipe Salvaged 18-Inch	LF	8.000	8.000
0102	524.0130	Culvert Pipe Salvaged 30-Inch	LF	16.000	16.000
0104	524.0618	Apron Endwalls for Culvert Pipe Salvaged 18-Inch	EACH	1.000	1.000
0106	524.0630	Apron Endwalls for Culvert Pipe Salvaged 30-Inch	EACH	1.000	1.000
0108	530.0112	Culvert Pipe Corrugated Polyethylene 12-Inch	LF	53.000	53.000
0110	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	264.000	264.000
0112	603.1142	Concrete Barrier Type S42	LF	155.000	155.000
0114	603.8000	Concrete Barrier Temporary Precast Delivered	LF	10,605.000	10,605.000
0116	603.8125	Concrete Barrier Temporary Precast Installed	LF	10,605.000	10,605.000
0118	603.8500	Anchoring Concrete Barrier Temporary Precast	LF	10,605.000	10,605.000
0120	604.0400	Slope Paving Concrete	SY	84.000	84.000
0122	611.0654	Inlet Covers Type V	EACH	2.000	2.000
0124	611.3220	Inlets 2x2-FT	EACH	2.000	2.000
0126	611.8115	Adjusting Inlet Covers	EACH	1.000	1.000
0128	614.0010	Barrier System Grading Shaping Finishing	EACH	7.000	7.000
0130	614.0905	Crash Cushions Temporary	EACH	1.000	1.000
0132	614.2300	MGS Guardrail 3	LF	2,025.000	2,025.000
0134	614.2500	MGS Thrie Beam Transition	LF	354.600	354.600
0136	614.2610	MGS Guardrail Terminal EAT	EACH	9.000	9.000
0138	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0140	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1166-05-77	EACH	1.000	1.000
0142	619.1000	Mobilization	EACH	1.000	1.000
0144	624.0100	Water	MGAL	97.000	97.000
0146	625.0100	Topsoil	SY	335.000	335.000
0148	628.1504	Silt Fence	LF	4,830.000	4,830.000
0150	628.1520	Silt Fence Maintenance	LF	4,830.000	4,830.000
0152	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0154	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0156	628.2008	Erosion Mat Urban Class I Type B	SY	353.000	353.000
0158	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0160	628.7015	Inlet Protection Type C	EACH	3.000	3.000
0162	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0164	628.7570	Rock Bags	EACH	50.000	50.000
0166	629.0210	Fertilizer Type B	CWT	0.250	0.250
0168	630.0130	Seeding Mixture No. 30	LB	6.300	6.300
0170	630.0500	Seed Water	MGAL	7.500	7.500
0172	633.0100	Delineator Posts Steel	EACH	50.000	50.000
0174	633.0500	Delineator Reflectors	EACH	50.000	50.000
0176	633.5200	Markers Culvert End	EACH	7.000	7.000
0178	642.5201	Field Office Type C	EACH	1.000	1.000
0180	643.0300	Traffic Control Drums	DAY	33,432.000	33,432.000
0182	643.0420	Traffic Control Barricades Type III	DAY	1,755.000	1,755.000
0184	643.0705	Traffic Control Warning Lights Type A	DAY	3,509.000	3,509.000
0186	643.0715	Traffic Control Warning Lights Type C	DAY	6,391.000	6,391.000
0188	643.0800	Traffic Control Arrow Boards	DAY	282.000	282.000
0190	643.0900	Traffic Control Signs	DAY	6,152.000	6,152.000
0192	643.0910	Traffic Control Covering Signs Type I	EACH	12.000	12.000
0194	643.0920	Traffic Control Covering Signs Type II	EACH	12.000	12.000
0196	643.1050	Traffic Control Signs PCMS	DAY	26.000	26.000

Estimate Of Quantities

1166-05-77					
Line	Item	Item Description	Unit	Total	Qty
0198	643.5000	Traffic Control	EACH	1.000	1.000
0200	646.1020	Marking Line Epoxy 4-Inch	LF	4,875.000	4,875.000
0202	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	156,794.000	156,794.000
0204	646.1050	Marking Line Grooved Permanent Tape 4-Inch	LF	18,511.000	18,511.000
0206	646.3020	Marking Line Epoxy 8-Inch	LF	109.000	109.000
0208	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	5,825.000	5,825.000
0210	646.5420	Marking Aerial Enforcement Bar Epoxy	EACH	18.000	18.000
0212	646.6120	Marking Stop Line Epoxy 18-Inch	LF	92.000	92.000
0214	646.6464	Cold Weather Marking Epoxy 4-Inch	LF	700.000	700.000
0216	646.7220	Marking Chevron Epoxy 24-Inch	LF	435.000	435.000
0218	646.8120	Marking Curb Epoxy	LF	10.000	10.000
0220	646.9000	Marking Removal Line 4-Inch	LF	207,880.000	207,880.000
0222	646.9100	Marking Removal Line 8-Inch	LF	510.000	510.000
0224	646.9200	Marking Removal Line Wide	LF	55.000	55.000
0226	649.0105	Temporary Marking Line Paint 4-Inch	LF	353,565.000	353,565.000
0228	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	18,160.000	18,160.000
0230	649.0205	Temporary Marking Line Paint 8-Inch	LF	10,790.000	10,790.000
0232	649.0960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	5,720.000	5,720.000
0234	649.0970	Temporary Marking Removable Mask Out Tape 10-Inch	LF	815.000	815.000
0236	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0238	650.4500	Construction Staking Subgrade	LF	2,700.000	2,700.000
0240	650.5000	Construction Staking Base	LF	2,700.000	2,700.000
0242	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	264.000	264.000
0244	650.7500	Construction Staking Concrete Barrier	LF	155.000	155.000
0246	650.8000	Construction Staking Resurfacing Reference	LF	80,449.000	80,449.000
0248	650.9910	Construction Staking Supplemental Control (project) 01. 1166-05-77	LS	1.000	1.000
0250	690.0150	Sawing Asphalt	LF	696.000	696.000
0252	690.0250	Sawing Concrete	LF	3,285.000	3,285.000
0254	715.0603	Incentive Strength Concrete Barrier	DOL	78.000	78.000
0256	740.0440	Incentive IRI Ride	DOL	55,651.000	55,651.000
0258	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,400.000	2,400.000
0260	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	2,760.000	2,760.000
0262	SPV.0060	Special 01. Pipe Joint Seal	EACH	3.000	3.000
0264	SPV.0060	Special 02. Dowel Bar Slot Repair	EACH	8,720.000	8,720.000
0266	SPV.0060	Special 03. Dowel Bar Spall Repair	EACH	200.000	200.000
0268	SPV.0090	Special 01. Ditch Cleaning	LF	200.000	200.000

REMOVING CONCRETE PAVEMENT

STATION TO STATION		ROADWAY	204.0100 SY
PROJECT 1166-05-77			
CATEGORY 0010			
52+09	- 52+33	IH 39 NB	216
53+40	- 53+65	IH 39 NB	179
403+08	- 403+32	IH 39 NB	181
404+25	- 404+48	IH 39 NB	190
504+98	- 513+99	IH 39 NB	2,400
584+50	- 593+50	IH 39 NB	2,400
665+04	- 674+04	IH 39 NB	2,400

PROJECT TOTAL 7,966

REMOVING CURB AND GUTTER

STATION TO STATION		DIR	LOCATION	204.0150 REMOVING CURB AND GUTTER LF
PROJECT 1166-05-77				
CATEGORY 0010				
52+09	- 52+23	LT	IH 39 NB	14
52+09	- 52+26	RT	IH 39 NB	17
183+85	- 184+05	LT	IH 39 NB	20
184+56	- 184+70	RT	IH 39 NB	14
404+32	- 404+42	LT	IH 39 NB	10

PROJECT TOTAL 75

REMOVING GUARDRAIL

STATION TO STATION		DIR	ROADWAY	204.0165 REMOVING GUARDRAIL LF	COMMENT
PROJECT 1166-05-77					
CATEGORY 0010					
48+58	- 52+31	LT	IH 39 NB	373	CZECH AVE, B-69-17
51+15	- 52+25	RT	IH 39 NB	110	
180+22	- 184+07	LT	IH 39 NB	385	CTH CH, B-69-19
183+62	- 184+72	RT	IH 39 NB	110	
187+07	- 190+21	RT	IH 39 NB	314	
401+64	- 403+22	LT	IH 39 NB	158	BUTTERCUP AVE, B-69-21
401+68	- 403+27	RT	IH 39 NB	159	
508+12	- 509+90	RT	IH 39 NB	178	CTH C OVERPASS
587+81	- 589+46	RT	IH 39 NB	165	CTH V OVERPASS
668+36	- 670+01	RT	IH 39 NB	165	CTH O OVERPASS

PROJECT TOTALS 2,117

REMOVING ASPHALTIC SURFACE AND PAVEMENT

LOCATION		ROADWAY	204.0105 REMOVING PAVEMENT BUTT JOINTS SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY
PROJECT 1166-05-77					
CATEGORY 0010					
3+00 SOUTH PROJECT LIMITS		IH 39 NB	---	---	42
52+10, B-69-17		IH 39 NB	---	67	---
53+65, B-69-17		IH 39 NB	---	77	---
184+07, B-69-19		IH 39 NB	135	66	---
186+97, B-69-19		IH 39 NB	135	---	---
203+72		RAMP AB	---	---	26
226+55		RAMP AA	---	---	26
403+09, B-69-21		IH 39 NB	---	111	---
404+48, B-69-21		IH 39 NB	---	89	---
743+44, NORTH PROJECT LIMITS		IH 39 NB	---	---	42
368+35 - 371+94		RAMP BA	---	316	26
385+91 - 389+18		RAMP BA	---	290	39
583+02 - 589+00		RAMP CB	---	492	26
589+61		RAMP CA	---	---	26

PROJECT TOTALS 270 1,507 251

REMOVING SURFACE DRAINS

STATION	DIR	LOCATION	204.0190 REMOVING SURFACE DRAINS EACH
PROJECT 1166-05-77			
CATEGORY 0010			
52+20	LT	IH 39 NB	1
183+85	LT	IH 39 NB	1

PROJECT TOTAL 2

REMOVING INLETS & STORM SEWER

STATION	DIR	LOCATION	204.0220 REMOVING INLETS EACH	204.0245 REMOVING STORM SEWER 12-INCH EACH
PROJECT 1166-05-77				
CATEGORY 0010				
52+20	RT	IH 39 NB	1	40
184+60	RT	IH 39 NB	1	40

PROJECT TOTAL 2 80

REMOVING ASPHALTIC SURFACE MILLING						
STATION TO STATION		ROADWAY	LOCATION		204.0120 SY	MILL DEPTH
PROJECT 1166-05-77						
CATEGORY 0010						
3+00	-	60+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	9,780	3.5" - 4.22"
				RT LANE	7,270	3.5" - 4.22"
				OUTSIDE SHOULDER	6,100	1.75"
60+00	-	120+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,670	3.5" - 4.22"
				RT LANE	8,010	3.5" - 4.22"
				OUTSIDE SHOULDER	6,680	1.75"
120+00	-	180+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,910	3.5" - 4.22"
				RT LANE	8,000	3.5" - 4.22"
				OUTSIDE SHOULDER	6,670	1.75"
180+00	-	240+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,640	3.5" - 4.22"
				RT LANE	7,610	3.5" - 4.22"
				OUTSIDE SHOULDER	6,380	1.75"
240+00	-	300+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,660	3.5" - 4.22"
				RT LANE	7,990	3.5" - 4.22"
				OUTSIDE SHOULDER	6,650	1.75"
300+00	-	360+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,660	3.5" - 4.22"
				RT LANE	7,990	3.5" - 4.22"
				OUTSIDE SHOULDER	6,650	1.75"
360+00	-	420+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,440	3.5" - 4.22"
				RT LANE	7,720	3.5" - 4.22"
				OUTSIDE SHOULDER	6,500	1.75"
420+00	-	480+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,670	3.5" - 4.22"
				RT LANE	8,000	3.5" - 4.22"
				OUTSIDE SHOULDER	6,670	1.75"

COLUMN TOTAL 199,320

REMOVING ASPHALTIC SURFACE MILLING CONT.						
STATION TO STATION		ROADWAY	LOCATION		204.0120 SY	MILL DEPTH
PROJECT 1166-05-77						
CATEGORY 0010						
480+00	-	540+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	9,060	3.5" - 4.22"
				RT LANE	6,800	3.5" - 4.22"
				OUTSIDE SHOULDER	5,670	1.75"
				RT OUTSIDE RUMBLE STRIP	470	1"
540+00	-	600+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	9,070	3.5" - 4.22"
				RT LANE	6,800	3.5" - 4.22"
				OUTSIDE SHOULDER	5,670	1.75"
				RT OUTSIDE RUMBLE STRIP	270	1"
600+00	-	660+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	10,670	3.5" - 4.22"
				RT LANE	8,000	3.5" - 4.22"
				OUTSIDE SHOULDER	6,670	1.75"
				RT OUTSIDE RUMBLE STRIP	130	1"
660+00	-	720+00	IH 39 NB	LT LANE AND INSIDE SHOULDER	9,070	3.5" - 4.22"
				RT LANE	6,800	3.5" - 4.22"
				OUTSIDE SHOULDER	5,660	1.75"
				RT OUTSIDE RUMBLE STRIP	340	1"
720+00	-	743+44	IH 39 NB	LT LANE AND INSIDE SHOULDER	4,150	3.5" - 4.22"
				RT LANE	3,110	3.5" - 4.22"
				OUTSIDE SHOULDER	2,590	1.75"
189+90	-	203+72	RAMP AB	LANE AND SHOULDER	920	1.75"
226+55	-	241+75	RAMP AA	LANE AND SHOULDER	1,660	1.75"
392+99	-	368+35	RAMP BA	LANE AND SHOULDER	1,030	1.75"
389+18	-	403+10	RAMP BA	LANE AND SHOULDER	1,850	1.75"
573+75	-	583+02	RAMP CB	LANE AND SHOULDER	550	1.75"
589+61	-	608+69	RAMP CA	LANE AND SHOULDER	3,050	1.75"
701+00	-	704+43	CTH V	EB & WB LANE AND SHOULDER	1,300	2"

COLUMN TOTAL 111,360

PROJECT TOTAL 310,680

EARTHWORK SUMMARY

ROADWAY	FROM/TO STATION	205.0100 COMMON EXCAVATION	AVAILABLE MATERIAL	UNEXPANDED FILL	EXPANDED FILL	MASS ORDINATE +/-	WASTE	COMMENT
		CY			FACTOR 1.20			
IH 39 NB	504+98 - 513+99	900	900	0	0	900	900	
IH 39 NB	584+50 - 593+50	900	900	0	0	900	900	
IH 39 NB	665+04 - 674+04	900	900	0	0	900	900	
PROJECT TOTALS		2,700						

NOTE: REMOVAL OF EXISTING CONCRETE PAVEMENT AND ASPHALT OVERLAY NOT INCLUDED IN COMMON EXCAVATION VOLUME (PAID AS REMOVING CONCRETE PAVEMENT).

PREPARE FOUNDATION FOR ASPHALTIC PAVING

STATION TO STATION			ROADWAY	211.0100
				LS
PROJECT 1166-05-77				
CATEGORY 0010				
3+00	-	743+44	IH 39 NB	1
198+90	-	203+72	RAMP AB	
226+55	-	241+75	RAMP AA	
362+99	-	368+35	RAMP BA	
398+18	-	403+10	RAMP BA	
573+75	-	589+00	RAMP CB	
589+61	-	609+68	RAMP CA	
701+00	-	704+43	CTH V	
PROJECT TOTAL				1

BASE AGGREGATE DENSE

STATION TO STATION		ROADWAY	AREA	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	COMMENTS
PROJECT 1166-05-77							
CATEGORY 0010							
3+00	-	52+10	IH 39 NB	SHOULDERS	154	---	---
53+45	-	60+00	IH 39 NB	SHOULDERS	8	---	---
60+00	-	120+00	IH 39 NB	SHOULDERS	77	---	---
120+00	-	180+00	IH 39 NB	SHOULDERS	63	---	---
180+00	-	184+78	IH 39 NB	SHOULDERS	170	---	---
186+35	-	240+00	IH 39 NB	SHOULDERS	44	---	---
240+00	-	300+00	IH 39 NB	SHOULDERS	77	---	---
300+00	-	360+00	IH 39 NB	SHOULDERS	77	---	---
360+00	-	403+30	IH 39 NB	SHOULDERS	284	---	---
404+47	-	420+00	IH 39 NB	SHOULDERS	20	---	---
420+00	-	480+00	IH 39 NB	SHOULDERS	77	---	---
480+00	-	504+98	IH 39 NB	SHOULDERS	24	---	---
504+98	-	513+99	IH 39 NB	FULL DEPTH	82	2,603	26
513+99	-	540+00	IH 39 NB	SHOULDERS	26	---	---
540+00	-	584+50	IH 39 NB	SHOULDERS	49	---	---
584+50	-	593+50	IH 39 NB	FULL DEPTH	82	2,600	26
593+50	-	600+00	IH 39 NB	SHOULDERS	1	---	---
600+00	-	660+00	IH 39 NB	SHOULDERS	75	---	---
660+00	-	665+04	IH 39 NB	SHOULDERS	8	---	---
665+04	-	674+04	IH 39 NB	FULL DEPTH	82	2,600	26
674+04	-	720+00	IH 39 NB	SHOULDERS	51	---	---
720+00	-	743+44	IH 39 NB	SHOULDERS	30	---	---
198+53	-	203+72	RAMP AB	SHOULDERS	20	---	---
226+55	-	240+70	RAMP AA	SHOULDERS	52	---	---
362+99	-	371+94	RAMP BA	SHOULDERS	67	---	---
385+91	-	393+69	RAMP BA	SHOULDERS	59	---	---
574+87	-	588+17	RAMP CB	SHOULDERS	65	---	---
589+92	-	608+69	RAMP CA	SHOULDERS	73	---	---
701+00	-	704+43	CTH V	SHOULDERS	10	---	---
UNDISTRIBUTED			SHOULDERS	---	---	19	FOR SHOULDERS
PROJECT TOTALS				1,907	7,803	97	

CONCRETE PAVEMENT

		320.0145	415.1080	415.1115	415.1410	416.1010
		CONCRETE BASE	CONCRETE	CONCRETE	CONCRETE	CONCRETE
		8-INCH	PAVEMENT HES	PAVEMENT HES	PAVEMENT	SURFACE
			8-INCH	11 1/2-INCH	APPROACH SLAB	DRAIN
					HES	
STATION TO STATION	LOCATION	SY	SY	SY	SY	CY
PROJECT 1166-05-77						
CATEGORY 0010						
52+09 - 52+33	IH 39 NB	16	20	117	44	2
53+40 - 53+65	IH 39 NB	16	28	117	45	---
184+06 - 184+62	IH 39 NB	0	38	0	0	2
403+08 - 403+32	IH 39 NB	16	37	117	43	---
404+25 - 404+48	IH 39 NB	16	30	117	42	---
PROJECT TOTALS		64	153	587	175	4

CONCRETE PAVEMENT REPAIRS

STATION TO STATION	DIR	LOCATION	416.0610	416.0620	416.0750.S	416.0754.S	416.0758.S	416.1715	416.1725	650.0250
			DRILLED TIE BARS	DRILLED DOWEL BARS	CONCRETE PAVEMENT PARTIAL DEPTH REPAIR			CONCRETE PAVEMENT REPAIR SHES SY	CONCRETE PAVEMENT REPLACEMENT SHES SY	*** SAWING CONCRETE LF
					JOINT REPAIR	SURFACE REPAIR	FULL DEPTH ADJUSTMENT			
STATION TO STATION	DIR	LOCATION	EACH	EACH	LF	SF	SF	SY	SY	LF
PROJECT 1166-05-77										
CATEGORY 0010										
52+00 - 52+34	R/L	IH 39 NB	---	16	---	---	---	---	---	---
53+44 - 53+75	R/L	IH 39 NB	---	16	---	---	---	---	---	---
402+98 - 403+29	R/L	IH 39 NB	---	16	---	---	---	---	---	---
404+26 - 404+59	R/L	IH 39 NB	---	16	---	---	---	---	---	---
583+02 - 589+25	R/L	RAMP CB	40	80	---	---	---	40	55	250
589+00 - 589+61	R/L	RAMP CA	15	35	45	---	---	10	60	40
UNDISTRIBUTED			10	20	50	50	25	20	---	30
PROJECT TOTALS			65	135	95	50	25	70	115	320

NOTE: UNDISTIBUTED QUANTITY PROVIDED FOR REPAIRS ON RAMPS OUTSIDE OF TERMINAL AREAS
*** ADDITIONAL QUANTITY CAN BE FOUND IN THE SAWCUT TABLE

ASPHALTIC ITEMS

STATION TO STATION			ROADWAY	AREA	PAVEMENT SECTION	PAVEMENT AVG DEPTH IN	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	450.4000 HMA COLD WEATHER PAVING TON	455.0605 TACK COAT GAL	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	460.7223 HMA PAVEMENT 3 HT 58-28 S TON	460.7224 HMA PAVEMENT 4 HT 58-28 S TON	460.7424 HMA PAVEMENT 4 HT 58-28 H TON	465.0400 ASPHALTIC SHOULDER RUMBLE STRIPS LF
PROJECT 1166-05-77														
CATEGORY 0010														
3+00	-	52+10	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	288	---	---	242	242	4,934
				LANES		3.875	---	170	1,557	---	---	1,586	1,306	---
				OUTSIDE SHLD		1.75	---	---	328	550	---	---	---	4,935
53+65	-	60+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	34	---	---	29	29	655
				LANES		3.875	---	---	189	---	---	193	159	---
				OUTSIDE SHLD		1.75	---	---	43	72	---	---	---	662
60+00	-	120+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	320	---	---	268	268	5,998
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	401	672	---	---	---	6,013
120+00	-	180+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	349	---	---	292	292	6,000
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	400	671	---	---	---	6,000
180+00	-	184+06	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	31	---	---	26	26	422
				LANES		3.875	---	---	130	---	---	133	109	---
				OUTSIDE SHLD		1.75	---	---	29	49	---	---	---	474
186+97	-	240+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	336	---	---	282	282	5,364
				LANES		3.875	---	---	1,697	---	---	1,728	1,423	---
				OUTSIDE SHLD		1.75	---	---	247	414	---	---	---	4,072
240+00	-	300+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	320	---	---	268	268	6,000
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	399	669	---	---	---	5,984
300+00	-	360+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	320	---	---	268	268	6,000
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	399	669	---	---	---	5,984
360+00	-	403+09	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	137	---	---	115	115	3,177
				LANES		3.875	---	170	1,365	---	---	1,390	1,145	---
				OUTSIDE SHLD		1.75	---	---	288	483	---	---	---	4,341
404+48	-	420+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	84	---	---	71	71	1,574
				LANES		3.875	---	---	483	---	---	491	405	---
				OUTSIDE SHLD		1.75	---	---	104	175	---	---	---	1,575
420+00	-	480+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	320	---	---	268	268	6,000
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	400	671	---	---	---	6,000
480+00	-	504+98	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	151	---	---	126	126	2,500
				LANES		3.875	---	---	799	---	---	814	670	---
				OUTSIDE SHLD		1.75	---	---	166	279	---	---	---	2,500
504+98	-	513+99	IH 39 NB	INSIDE SHLD	FULL DEPTH	7	---	---	72	---	181	---	60	900
				LANES		7	---	---	288	---	725	---	242	---
				OUTSIDE SHLD		4	18	---	60	230	---	---	---	900
513+99	-	540+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	155	---	---	130	130	2,600
				LANES		3.875	---	---	832	---	---	847	698	---
				OUTSIDE SHLD		1.75	---	---	173	290	---	---	---	2,600
540+00	-	584+50	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	254	---	---	213	213	4,450
				LANES		3.875	---	---	1,424	---	---	1,450	1,194	---
				OUTSIDE SHLD		1.75	---	---	259	435	---	---	---	3,442

PAGE SUBTOTALS 18 340 25,234 6,329 907 21,006 18,060 112,056

ASPHALTIC ITEMS - CONTINUED

STATION TO STATION			ROADWAY	AREA	PAVEMENT SECTION	PAVEMENT AVG DEPTH	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	450.4000 HMA COLD WEATHER PAVING	455.0605 TACK COAT	460.5224 HMA PAVEMENT 4 LT 58-28 S	460.7223 HMA PAVEMENT 3 HT 58-28 S	460.7224 HMA PAVEMENT 4 HT 58-28 S	460.7424 HMA PAVEMENT 4 HT 58-28 H	465.0400 ASPHALTIC SHOULDER RUMBLE STRIPS LF
						IN		TON	GAL	TON	TON	TON	TON	
PROJECT 1166-05-77														
CATEGORY 0010														
584+50	-	593+50	IH 39 NB	INSIDE SHLD	FULL DEPTH	7	---	---	72	---	181	---	60	900
				LANES		7	---	---	288	---	725	---	242	---
				OUTSIDE SHLD		4	18	---	61	232	---	---	---	900
593+50	-	600+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	51	---	---	43	43	650
				LANES		3.875	---	---	208	---	---	212	174	---
				OUTSIDE SHLD		1.75	---	---	16	27	---	---	---	245
600+00	-	660+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	324	---	---	271	271	6,000
				LANES		3.875	---	---	1,920	---	---	1,955	1,610	---
				OUTSIDE SHLD		1.75	---	---	352	590	---	---	---	5,776
660+00	-	665+04	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	40	---	---	33	33	500
				LANES		3.875	---	---	161	---	---	164	135	---
				OUTSIDE SHLD		1.75	---	---	34	56	---	---	---	500
665+04	-	674+04	IH 39 NB	INSIDE SHLD	FULL DEPTH	7	---	---	72	---	181	---	60	900
				LANES		7	---	---	288	---	725	---	242	---
				OUTSIDE SHLD		4	18	---	61	232	---	---	---	900
674+04	-	720+00	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	262	---	---	219	219	4,600
				LANES		3.875	---	---	1,471	---	---	1,498	1,233	---
				OUTSIDE SHLD		1.75	---	---	306	514	---	---	---	4,596
720+00	-	743+44	IH 39 NB	INSIDE SHLD	OVERLAY	3.5	---	---	125	---	---	105	105	2,345
				LANES		3.875	---	---	750	---	---	764	629	---
				OUTSIDE SHLD		1.75	---	---	156	262	---	---	---	2,338
198+90	-	203+72	RAMP AB	LANE / GORE	OVERLAY	1.75	---	---	68	---	---	---	114	---
				SHOULDERS	OVERLAY	1.75	---	---	17	---	---	---	29	---
226+55	-	241+75	RAMP AA	LANE / GORE	OVERLAY	1.75	---	---	137	---	---	---	230	---
				SHOULDERS	OVERLAY	1.75	---	---	43	---	---	---	72	---
362+99	-	368+35	RAMP BA	LANE / GORE	OVERLAY	1.75	---	---	62	---	---	---	104	---
				SHOULDERS	OVERLAY	1.75	---	---	13	---	---	---	22	---
368+35	-	371+93	RAMP BA	OUTSIDE SHLD	REPLACEMENT	3.5	4	---	12	40	---	---	---	---
				INSIDE SHLD	REPLACEMENT	3.5	4	---	7	23	---	---	---	---
385+89	-	389+10	RAMP BA	OUTSIDE SHLD	REPLACEMENT	3.5	4	---	11	36	---	---	---	---
				INSIDE SHLD	REPLACEMENT	3.5	4	---	7	22	---	---	---	---
389+10	-	403+10	RAMP BA	LANE / GORE	OVERLAY	1.75	---	---	136	---	---	---	229	---
				SHOULDERS	OVERLAY	1.75	---	---	52	---	---	---	87	---
573+75	-	583+02	RAMP CB	LANE / GORE	OVERLAY	1.75	---	---	53	---	---	---	90	---
				SHOULDERS	OVERLAY	1.75	---	---	19	---	---	---	32	---
583+02	-	589+00	RAMP CB	OUTSIDE SHLD	REPLACEMENT	3.5	6	---	16	54	---	---	---	---
				INSIDE SHLD	REPLACEMENT	3.5	6	---	14	46	---	---	---	---
589+61	-	609+68	RAMP CA	LANE / GORE	OVERLAY	1.75	---	---	188	---	---	---	315	---
				SHOULDERS	OVERLAY	1.75	---	---	71	---	---	---	120	---
701+00	-	704+43	CTH V	LANES / SHOULDERS	OVERLAY	2	---	---	78	150	---	---	---	---

PAGE SUBTOTALS	64	0	8,022	2,135	1,811	5,264	6,501	4,683
PROJECT TOTALS	82	340	33,255	8,464	2,718	26,270	24,561	116,739

HMA MIXTURE ACCEPTANCE

STATION RANGES	ROADWAY	LOCATION	MIXTURE USE	UNDERLAYING SURFACE	BID ITEM	AVG LAYER DEPTH (IN)	TONNAGE	QMP TO BE USED FOR:		COMMENT	
								MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE		
PROJECT 1166-05-77											
CATEGORY 0010											
3+00 - 52+10 53+65 - 184+07 186+97 - 403+09 404+48 - 504+98 513+99 - 584+50 593+50 - 665+04 674+04 - 743+44	IH 39 NB	OVERLAY	INSIDE SHOULDER	UPPER LAYER	4 HT 58-28 S	4 HT 58-28 H	1.75	3,271	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE OR DISINCENTIVE	INSIDE SHOULDER PAVED WITH INSIDE DRIVING LANE
				LOWER LAYER	EX HMA PAVT	4 HT 58-28 S	1.75	3,271			
			DRIVING LANES	UPPER LAYER	4 HT 58-28 S	4 HT 58-28 H	1.75	18,940		INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
				LOWER LAYER	EX CONC PAVT	4 HT 58-28 S	2.11	22,999		INCENTIVE DENSITY HMA PAVEMENT 460.2000	
			OUTSIDE SHOULDER	UPPER LAYER	EX HMA PAVT	4 LT 58-28 S	1.75	7,548	AS PER SS 460	INCENTIVE DENSITY HMA PAVEMENT 460.2000	
504+98 - 513+99 584+50 - 593+50 665+04 - 674+04	IH 39 NB	FULL DEPTH	INSIDE SHOULDER	UPPER LAYER	3 HT 58-28 S	4 HT 58-28 H	1.75	181	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE OR DISINCENTIVE	INSIDE SHOULDER PAVED WITH INSIDE DRIVING LANE
				LOWER LAYER	3 HT 58-28 S	3 HT 58-28 S	2.25	272	AS PER SS 460	INCENTIVE DENSITY HMA PAVEMENT 460.2000	
				LOWER LAYER	EX BASE AGG	3 HT 58-28 S	2.25	272			
			DRIVING LANES	UPPER LAYER	3 HT 58-28 S	4 HT 58-28 H	1.75	725	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005	
				LOWER LAYER	3 HT 58-28 S	3 HT 58-28 S	2.25	1,087	AS PER SS 460	INCENTIVE DENSITY HMA PAVEMENT 460.2000	
				LOWER LAYER	EX BASE AGG	3 HT 58-28 S	2.25	1,087			
			OUTSIDE SHOULDER	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	2.00	347	INCENTIVE DENSITY HMA PAVEMENT 460.2000		
				LOWER LAYER	EX BASE AGG	4 LT 58-28 S	2.00	347			
	ALL RAMPS		LANE / GORE	UPPER LAYER	EX HMA PAVT	4 HT 58-28 H	1.75 / 3.5	1,081	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY HMA PAVEMENT 460.2000	
			SHOULDERS	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	1.75	363	AS PER SS 460	INCENTIVE DENSITY HMA PAVEMENT 460.2000	
				LOWER LAYER	EX BASE AGG	4 LT 58-28 S	1.75 / 3.5	222			

BASE PATCHING ASPHALTIC

	390.0201	
	TONS	COMMENTS
PROJECT 1166-05-77		
CATEGORY 0010		
UNDISTRIBUTED	50	ASSUMED 2' WIDTH/ 3" DEPTH

PROJECT TOTALS 50

ASPHALTIC SURFACE

					465.0105	465.0110
					ASPHALTIC	ASPHALTIC
					SURFACE	SURFACE
						PATCHING
STATION	TO	STATION	ROADWAY	LOCATION	TON	TON
PROJECT 1166-05-77						
CATEGORY 0010						
492+80	-	518+20	IH 39 NB	RT OUTSIDE RUMBLE STRIP FILL	---	30
572+30	-	596+00	IH 39 NB	RT OUTSIDE RUMBLE STRIP FILL	---	15
652+80	-	678+20	IH 39 NB	RT OUTSIDE RUMBLE STRIP FILL	---	30
51+65	-	52+15	IH 39 NB	SHOULDER	16	---
53+59	-	54+08	IH 39 NB	SHOULDER	19	---
183+51	-	184+29	IH 39 NB	SHOULDER	7	---
402+64	-	403+14	IH 39 NB	SHOULDER	27	---
404+42	-	404+93	IH 39 NB	SHOULDER	22	---

PROJECT TOTAL 91 75

CULVERTS AND DITCH CLEANING

STATION	ROADWAY	DIRECTION	CULVERT NUMBER	CULVERT SIZE	CULVERT LENGTH	520.8000	520.8700	524.0118	524.0130	524.0618	524.0630	SPV.0090.01	633.5200	**	NOTES
						CONCRETE COLLAR	CLEANING CULVERT PIPES	CULVERT PIPE SALVAGED		APRON ENDWALL FOR CULVERT PIPE SALVAGED		DITCH CLEANING	MARKERS CULVERT END	JOINT TIES REQ'D	
								18-INCH LF	30-INCH LF	18-INCH EA	30-INCH EA				
PROJECT 1166-04-82															
CATEGORY 0010															
117+82	IH 39 NB	RT	69039006859	18	90	1	1	8	---	1	---	40	1	4	PIPE 50% FULL E. END
130+83	IH 39 NB	RT	69039006860	18	80	---	1	---	---	---	---	40	1	---	PIPE 30% FULL E. END
156+90	IH 39 NB	RT	69039006865	30	90	---	---	---	16	---	1	---	1	8	
245+69	IH 39 NB	RT	69039006872	18	70	---	1	---	---	---	---	40	1	---	PIPE 10% FULL
316+22	IH 39 NB	RT	69039006879	18	70	---	1	---	---	---	---	40	1	---	PIPE 20% FULL
402+80	IH 39 NB	LT	69039006886	30	170	---	1	---	---	---	---	---	1	---	PIPE 10% FULL
709+24	IH 39 NB	RT	69039006924	18	80	---	1	---	---	---	---	40	1	---	PIPE 50% FULL
PROJECT TOTALS						1	6	8	16	1	1	200	7		

** INSTALL JOINT TIES AT JOINTS EXPOSED DURING REMOVAL AND REPLACEMENT. DRILL HOLES FOR TIES IF NOT ALREADY PRESENT.

CONCRETE CURB AND GUTTER

			601.0558	650.5500
			CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT	CONSTRUCTION STAKING CURB & GUTTER
STATION TO STATION	DIR	LOCATION	LF	LF
PROJECT 1166-05-77				
CATEGORY 0010				
51+76 - 52+31	LT	IH 39 NB	59	59
51+70 - 52+25	RT	IH 39 NB	59	59
183+51 - 184+20	LT	IH 39 NB	67	67
184+17 - 184+70	RT	IH 39 NB	61	61
404+32 - 404+42	LT	IH 39 NB	18	18

PROJECT TOTALS 264 264

CONCRETE BARRIER & CONCRETE SLOPE PAVING

			204.0175	603.1142	604.0400
			REMOVING CONCRETE SLOPE PAVING	CONCRETE BARRIER TYPE S42	SLOPE PAVING CONCRETE
STATION TO STATION	DIR	LOCATION	SY	LF	SY
PROJECT 1166-05-77					
CATEGORY 0010					
509+27 - 509+77	RT	IH 39 NB	50	50	50
588+75 - 589+30	RT	IH 39 NB	---	55	---
669+33 - 669+83	RT	IH 39 NB	33	50	33

PROJECT TOTAL 84 155 84

STORM SEWER PIPE

STRUCTURE		530.0112
		CULVERT PIPE CORRUGATED POLYETHYLENE 12-INCH LF
FROM	TO	
PROJECT 1166-05-77		
CATEGORY 0010		
INL 1-1	AEW 1-2	29
INL 2-1	AEW 2-2	24

PROJECT TOTALS 53

ADJUSTING INLET COVERS

			611.8115
			ADJUSTING INLET COVERS EACH
STATION	DIR	LOCATION	
PROJECT 1166-05-77			
CATEGORY 0010			
404+37	LT	IH 39 NB	1

PROJECT TOTAL 1

STORM SEWER STRUCTURES

STRUCTURE NUMBER	LOCATION				521.1012	611.0654	611.3220	650.4000
					AEW FOR CULVERT PIPE STEEL 12-INCH	INLET COVER TYPE V	INLET 2X2-FT	CONSTRUCTION STAKING STORM SEWER
	STA	RL	DIST.	DIR	EACH	EACH	EACH	EACH
PROJECT 1166-05-77								
CATEGORY 0010								
INL 1-1	51+79.5	IH 39 NB	33.2'	RT	---	1	1	1
AEW 1-2	51+79.5	IH 39 NB	62.0'	RT	1	---	---	1
INL 2-1	184+26.2	IH 39 NB	33.2'	RT	---	1	1	1
AEW 2-2	184+26.2	IH 39 NB	57.3'	RT	1	---	---	1

PROJECT TOTALS 2 2 2 4

BARRIER SYSTEM GRADING SHAPING FINISHING

STATION TO STATION	DIR	ROADWAY	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EA	FOR INFORMATION ONLY							
				EXCAVATION COMMON	BORROW	SEED WATER	TOPSOIL	EROSION MAT CLASS I TYPE A	FERTILIZER TYPE B	SEEDING MIXTURE #30	
				CY	CY	MGAL	SY	SY	CWT	LB	
PROJECT 1166-04-82											
CATEGORY 0010											
48+31 - 52+31	LT	IH 39 NB	1	5	15	9	390	390	0.2	7	
48+63 - 52+25	RT	IH 39 NB	1	5	5	6	250	250	0.2	5	
179+58 - 184+08	LT	IH 39 NB	1	5	10	9	410	410	0.3	7	
181+22 - 184+72	RT	IH 39 NB	1	5	10	7	300	300	0.2	5	
187+07 - 190+21	RT	IH 39 NB	1	5	5	5	200	200	0.1	4	
398+92 - 403+22	RT	IH 39 NB	1	---	15	7	320	320	0.2	6	
398+92 - 403+22	LT	IH 39 NB	1	---	65	13	570	570	0.4	10	

PROJECT TOTALS 7

NOTE: EXCAVATION, GRADING, BORROW, TOPSOIL, SEED, WATER, FERTILIZER, AND E-MAT ITEMS FOR RESTORATION OF DISTURBED AREAS ADJACENT TO BEAM GUARD AND EAT APPROACHES PAID UNDER "BARRIER SYSTEM GRADING SHAPING FINISHING" ITEM.

GUARDRAIL

STATION TO STATION	DIR	ROADWAY	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EA	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EA	COMMENT
PROJECT 1166-05-77							
CATEGORY 0010							
49+83 - 52+25	RT	IH 39 NB	150.0	39.4	1	---	B-69-17
49+51 - 52+31	LT	IH 39 NB	187.5	39.4	1	---	
180+78 - 184+08	LT	IH 39 NB	237.5	39.4	1	---	B-69-19
182+42 - 184+72	RT	IH 39 NB	137.5	39.4	1	---	
187+09 - 190+21	RT	IH 39 NB	312.5	---	---	1	B-69-19 DEPARTURE
400+12 - 403+27	RT	IH 39 NB	225.0	39.4	1	---	B-69-21
400+29 - 403+22	LT	IH 39 NB	200.0	39.4	1	---	
506+50 - 509+30	RT	IH 39 NB	187.5	39.4	1	---	CTH C UNDERPASS
585+98 - 588+78	RT	IH 39 NB	187.5	39.4	1	---	CTH V UNDERPASS
666+43 - 669+36	RT	IH 39 NB	200.0	39.4	1	---	CTH O UNDERPASS

PROJECT TOTALS 2025.0 354.6 9 1

LANDSCAPING ITEMS

			625.0100	628.2008	629.0210	630.0130
			TOPSOIL	EROSION MAT URBAN CLASS I TYPE B	FERTILIZER TYPE B	SEEDING MIX NO. 30
STATION	DIR	LOCATION	SY	SY	CWT	LB
CATEGORY 0010						
117+82	RT	IH 39 NB	59	66	0.04	1.1
130+83	RT	IH 39 NB	53	53	0.04	1.0
156+90	RT	IH 39 NB	8	16	0.01	0.2
245+69	RT	IH 39 NB	53	53	0.04	1.0
316+22	RT	IH 39 NB	53	53	0.04	1.0
709+24	RT	IH 39 NB	53	53	0.04	1.0
UNDISTRIBUTED			56	59	0.04	1.0
PROJECT TOTALS			335	353	0.25	6.3

EROSION CONTROL ITEMS											
STATION TO STATION			LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINT LF	628.1905 MOB. EROSION CONTROL EA	628.1910 MOB. EMERGENCY EROSION CONTROL EA	628.7005 INLET PROTECT. TYPE A EACH	628.7504 INLET PROTECT. TYPE C EACH	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
PROJECT 1166-05-77											
CATEGORY 0010											
48+25	-	52+30	IH 39	790	790	---	---	1	1	---	---
179+57	-	184+72	IH 39	810	810	---	---	---	1	---	---
187+00	-	190+25	IH 39	300	300	---	---	---	---	---	---
398+75	-	403+30	IH 39	890	890	---	---	---	---	---	---
505+00	-	509+00	IH 39	375	375	---	---	---	---	7	---
584+75	-	588+75	IH 39	365	365	---	---	---	---	5	---
665+00	-	669+00	IH 39	390	390	---	---	---	---	5	---
699+50	-	700+50	IH 39	100	100	---	---	---	---	---	---
UNDISTRIBUTED				810	810	4	2	1	1	3	50
PROJECT TOTALS				4,830	4,830	4	2	2	3	20	50

DELINEATORS				
STATION TO STATION	ROADWAY	204.0180 REMOVING DELINEATORS AND MARKERS	633.0100 DELINEATOR POSTS STEEL EA	633.0500 DELINEATOR REFLECTORS EA
PROJECT 1166-05-77				
CATEGORY 0010				
UNDISTRIBUTED	IH 39 NB	50	50	50
PROJECT TOTALS		50	50	50

PAVEMENT MARKING													
		646.1020		646.1040		646.1050	646.3020	646.3040	646.5420	646.6120	646.7220	646.8120	
		MARKING LINE EPOXY 4-INCH		MARKING LINE GROOVED WET REF EPOXY 4-INCH		MARKING LINE GROOVED PERMANENT TAPE 4-INCH	MARKING LINE EPOXY 8-INCH	MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH	MARKING AERIAL ENFORCEMENT BAR EPOXY	MARKING STOP LINE 18-INCH EPOXY	MARKING CHEVRON EPOXY 24-INCH	MARKING CURB EPOXY	
		(WHITE)	(YELLOW)	(WHITE)	(YELLOW)	(WHITE)	(WHITE)	(WHITE)	(WHITE)	(WHITE)	(WHITE)	(YELLOW)	
STATION TO STATION		LF	LF	LF	LF	LF	LF	LF	EACH	LF	LF	LF	LF
PROJECT 1166-05-77													
3+00	-	198+27	IH 39 NB	0	0	19,527	19,527	4,882	0	0	8	0	0
198+27	-	241+75	IH 39 NB (STH 21)	0	0	2,306	4,348	1,087	0	0	0	0	0
198+27	-	214+93	STH 21 EXIT AB	0	0	1,664	1,135	0	72	697	0	44	205
214+74	-	241+75	STH 21 ENTR AA	0	0	2,699	1,192	0	0	1,406	0	0	0
241+75	-	362+99	IH 39 NB	0	0	12,124	12,124	3,031	0	0	0	0	0
362+99	-	403+20	IH 39 NB (WEIGH)	0	0	4,021	2,152	1,005	0	0	0	0	0
362+99	-	371+95	WEIGH STA EXIT BA	0	0	439	896	0	0	624	0	0	158
			WEIGH STA	2,154	2,721	0	0	0	0	0	0	0	10
385+91	-	403+20	WEIGH STA ENTR BA	0	0	367	1,732	0	0	1,315	0	0	0
403+20	-	573+75	IH 39 NB	0	0	17,055	17,055	4,264	0	0	10	0	0
573+75	-	609+68	IH 39 NB (CTH V)	0	0	1,213	3,593	898	0	0	0	0	0
573+75	-	588+94	CTH V EXIT CB	0	0	1,676	573	0	37	426	0	48	72
589+32	-	609+88	CTH V ENTR CA	0	0	2,036	588	0	0	1,357	0	0	0
609+68	-	743+44	IH 39 NB	0	0	13,376	13,376	3,344	0	0	0	0	0
PROJECT SUBTOTALS				2,154	2,721	78,503	78,291	18,511	109	5,825	18	92	435
PROJECT TOTALS					4,875		156,794	18,511	109	5,825	18	92	435

TRAFFIC CONTROL

STAGE	LOCATION	APPROX. SERVICE PERIOD	603.8000	603.8125	603.8500	643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1050	
			CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	ANCHORING CONCRETE BARRIER TEMPORARY PRECAST	DRUMS		BARRICADES TYPE III		WARNING LIGHTS TYPE A		WARNING LIGHTS TYPE C		ARROW BOARDS		SIGNS		SIGNS PCMS	
		DAYS	LF	LF	LF	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS	NO.	DAYS
PROJECT 1166-05-77																			
CATEGORY 0010																			
1	IH 39 NB, CTH V NB RAMPS	5	--	--	--	146	730	5	25	10	50	--	--	--	--	16	80	3	19
2A	IH 39 NB	12	--	--	--	380	4,560	21	252	42	504	79	948	2	24	73	876	1	7
	IH 39 NB, CTH C OVERPASS	--	1,350	1,350	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	IN 39 NB, CTH V OVERPASS	--	1,350	1,350	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	IH 39 NB, CTH O OVERPASS	--	1,350	1,350	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2B	IH 39 NB	12	--	--	--	388	4,656	19	228	38	456	72	864	2	24	70	840	--	--
	IH 39 NB, CTH C OVERPASS	--	1,350	1,350	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	IN 39 NB, CTH V OVERPASS	--	1,190	1,190	1,190	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	IH 39 NB, CTH O OVERPASS	--	1,350	1,350	1,350	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2C	IH 39 NB	3	--	--	--	415	1,245	23	69	46	138	64	192	2	6	65	195	--	--
2D	IH 39 NB	4	--	--	--	410	1,640	24	96	48	192	64	256	2	8	45	180	--	--
3A	IH 39 NB	14	--	--	--	230	3,220	13	182	26	364	40	560	2	28	34	476	--	--
3B	IH 39 NB	12	--	--	--	230	2,760	13	156	26	312	40	480	2	24	57	684	--	--
3C	IH 39 NB	7	--	--	--	230	1,610	13	91	26	182	40	280	2	14	57	399	--	--
3D	IH 39 NB	7	--	--	--	230	1,610	13	91	26	182	40	280	2	14	34	238	--	--
4	IH 39 NB	7	--	--	--	310	2,170	15	105	30	210	47	329	2	14	32	224	--	--
5A	IH 39 NB	13	1,320	1,320	1,320	252	3,276	12	156	24	312	73	949	4	52	45	585	--	--
5B	IH 39 NB	12	1,345	1,345	1,345	243	2,916	12	144	24	288	56	672	4	48	68	816	--	--
SUBTOTALS			10,605	10,605	10,605	30,393		1,595		3,190		5,810		256		5,593		26	
UNDISTRIBUTED			0	0	0	3,039		160		319		581		26		559		0	
TOTALS			10,605	10,605	10,605	33,432		1,755		3,509		6,391		282		6,152		26	

TRAFFIC CONTROL								
STAGE	LOCATION	614.0905 CRASH CUSHIONS TEMPORARY EACH	BACK WIDTH FT	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTIO N	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
PROJECT 1166-05-77								
CATEGORY 0010								
2B	582+08, 8' LT	1	2	OM-3R (W05- 58R)	TL-3	IDIRECTION	L	TEMPORARY CONCRETE BARRIER BETWEEN LANES
SUBTOTALS		1						
PROJECT TOTALS		1						

COVERING SIGNS						
STAGE	643.0910			643.0920		
	TRAFFIC CONTROL COVERING SIGNS TYPE I			TRAFFIC CONTROL COVERING SIGNS TYPE II		
	EACH	NUMBER OF CYCLES	NUMBER OF SIGNS	EACH	NUMBER OF CYCLES	NUMBER OF SIGNS
PROJECT 1166-05-77						
CATEGORY 0010						
1	1	1	1	3	1	3
2A	--	--	--	1	1	1
2B	1	1	1	1	1	1
2D	--	--	--	1	1	1
3A	1	1	1	1	1	1
3B	2	1	2	1	1	1
3C	2	1	2	1	1	1
3D	1	1	1	1	1	1
4	4	1	4	2	1	2
SUBTOTALS		12		12		
PROJECT TOTALS		12		12		

COLD WEATHER MARKING EPOXY

		646.6464
		4-INCH
STATION TO STATION	LOCATION	LF
PROJECT 1166-05-77		
CATEGORY 0010		
48+66 - 52+16	IH 39 NB	350
399+64 - 403+14	IH 39 NB	350
PROJECT TOTAL		700

PAVEMENT MARKING
TEMPORARY MARKING LINE REMOVABLE TAPE

				649.0150		649.0960	649.0970
				TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH		TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH	TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 10-INCH
				(WHITE) LF	(YELLOW) LF	LF	LF
STATION TO STATION			LOCATION				
CATEGORY 0010							
STAGE 5A							
29+80	-	57+50	CZECH AVE OVERPASS	1730	2775	1730	--
381+50	-	407+58	BUTTERCUP AVE OVERPASS	1830	2910	1570	285
STAGE 5B							
29+99	-	57+15	CZECH AVE OVERPASS	2720	1630	1630	--
380+37	-	407+58	BUTTERCUP AVE OVERPASS	2725	840	490	480
SUBTOTALS				9005	8155	5420	765
UNDISTRIBUTED				500	500	300	50

PROJECT TOTALS 18,160 5,720 815

PAVEMENT MARKING
MARKING LINE REMOVAL

		646.9000	646.9100	646.9200	NOTES
		MARKING REMOVAL LINE 4-INCH	MARKING REMOVAL LINE 8-INCH	MARKING REMOVAL LINE WIDE	
STATION TO STATION	LOCATION	LF	LF	LF	
CATEGORY 0010					
STAGE 2A					
484+15	- 518+20	IH 39 AT CTH C	2,580	--	--
572+31	- 597+70	IH 39 AT CTH V	2,225	510	55
652+82	- 678+20	IH 39 AT CTH O	2,540	--	--
504+00	- 743+44	IH 39	18,000	--	--
STAGE 2B					
569+42	- 581+96	IH 39 AT CTH V	170	--	--
STAGE 2D					
504+00	- 743+44	IH 39	69,565	--	--
STAGE 3A/B					
3+00	- 504+00	IH 39	12,600	--	--
STAGE 3C/D					
3+00	- 504+00	IH 39	100,200	--	--
SUBTOTALS			207,880	510	55
PROJECT TOTALS			207,880	510	55

- NOTES:
1.

MARKING REMOVAL LINE WIDE USED FOR GORE DIAGONALS
2.

ITEMS INCLUDE REMOVAL OF TEMPORARY MARKING LINE PAINT

PAVEMENT MARKING
TEMPORARY MARKING LINE PAINT

			649.0105	649.0205
			TEMPORARY MARKING LINE PAINT 4-INCH	TEMPORARY MARKING LINE PAINT 8-INCH
			(WHITE) LF	(YELLOW) LF
STATION TO STATION		LOCATION		
CATEGORY 0010				
STAGE 2A				
484+15	- 518+20	IH 39 AT CTH C	2,545	3,405
572+31	- 597+70	IH 39 AT CTH V	2,330	2,540
652+82	- 678+20	IH 39 AT CTH O	2,540	2,540
504+00	- 743+44	RT EDGELINE & CENTERLINE	11,600	11,600
STAGE 2B				
485+34	- 517+10	IH 39 AT CTH C	3,180	2,330
569+42	- 618+23	IH 39 AT CTH V	3,115	3,000
653+91	- 677+10	IH 39 AT CTH O	2,320	2,320
504+00	- 743+44	LT EDGELINE & CENTERLINE	12,300	17,000
STAGE 2D				
504+00	- 743+44	RT EDGELINE & CENTERLINE	30,000	--
STAGE 3A/B				
3+00	- 504+00	IH 39	29,300	62,700
STAGE 3C/D				
3+00	- 504+00	IH 39	66,800	50,100
SUBTOTALS			166,030	157,535
UNDISTRIBUTED			15,000	15,000

PROJECT TOTALS 353,565 10,790

CONSTRUCTION STAKING

		650.4500	650.5000	650.7500	650.8000	650.9910
		SUBGRADE	BASE	CONCRETE BARRIER	RESURFACING REFERENCE	SUPPLEMENTAL CONTROL
STATION TO STATION	LOCATION	LF	LF	LF	LF	LS
CATEGORY 0010						
3+00 - 52+10	IH 39 NB	---	---	---	4,910	---
53+45 - 184+78	IH 39 NB	---	---	---	13,133	---
186+35 - 403+30	IH 39 NB	---	---	---	21,695	---
404+47 - 743+44	IH 39 NB	---	---	---	33,897	---
504+98 - 513+98	IH 39 NB	900	900	---	---	---
509+27 - 509+77	IH 39 NB RT	---	---	50	---	---
584+50 - 593+50	IH 39 NB	900	900	---	---	---
588+75 - 589+30	IH 39 NB RT	---	---	55	---	---
665+04 - 674+04	IH 39 NB	900	900	---	---	---
198+53 - 203+72	RAMP AB	---	---	---	519	---
226+55 - 240+70	RAMP AA	---	---	---	1,415	---
362+99 - 371+94	RAMP BA	---	---	---	895	---
385+91 - 393+69	RAMP BA	---	---	---	778	---
574+87 - 588+17	RAMP CB	---	---	---	1,330	---
589+92 - 608+69	RAMP CA	---	---	---	1,877	---
669+33 - 669+83	IH 39 NB RT	---	---	50	---	---
1166-05-77	IH 39	---	---	---	---	1
PROJECT TOTALS		2,700	2,700	155	80,449	1

PIPE JOINT SEAL

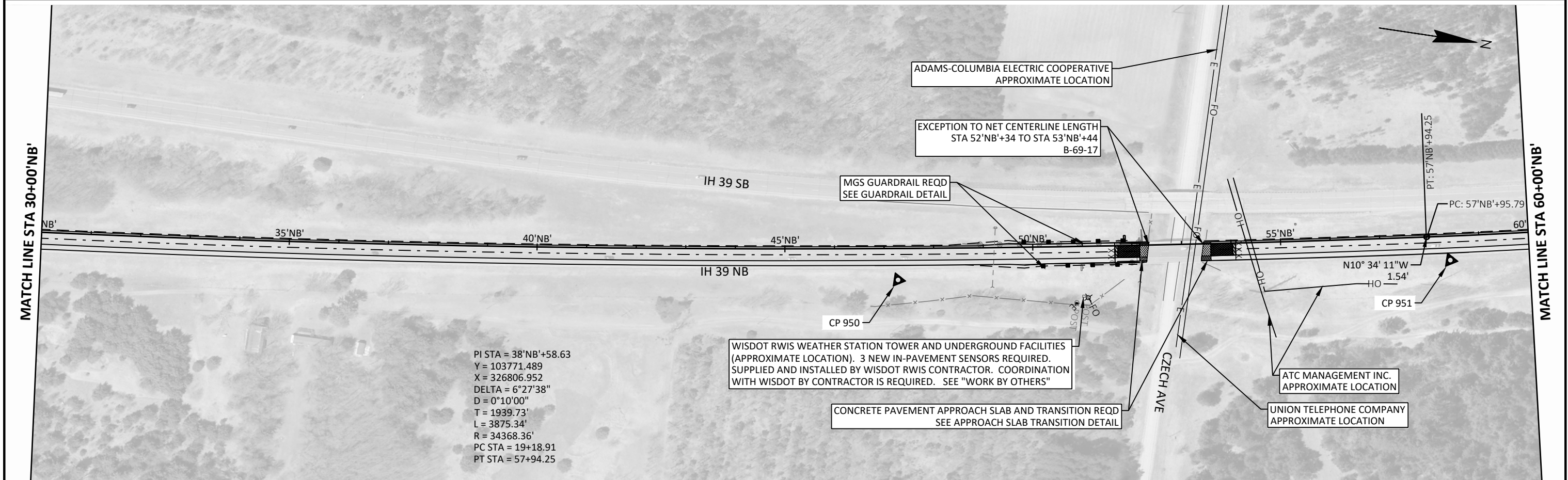
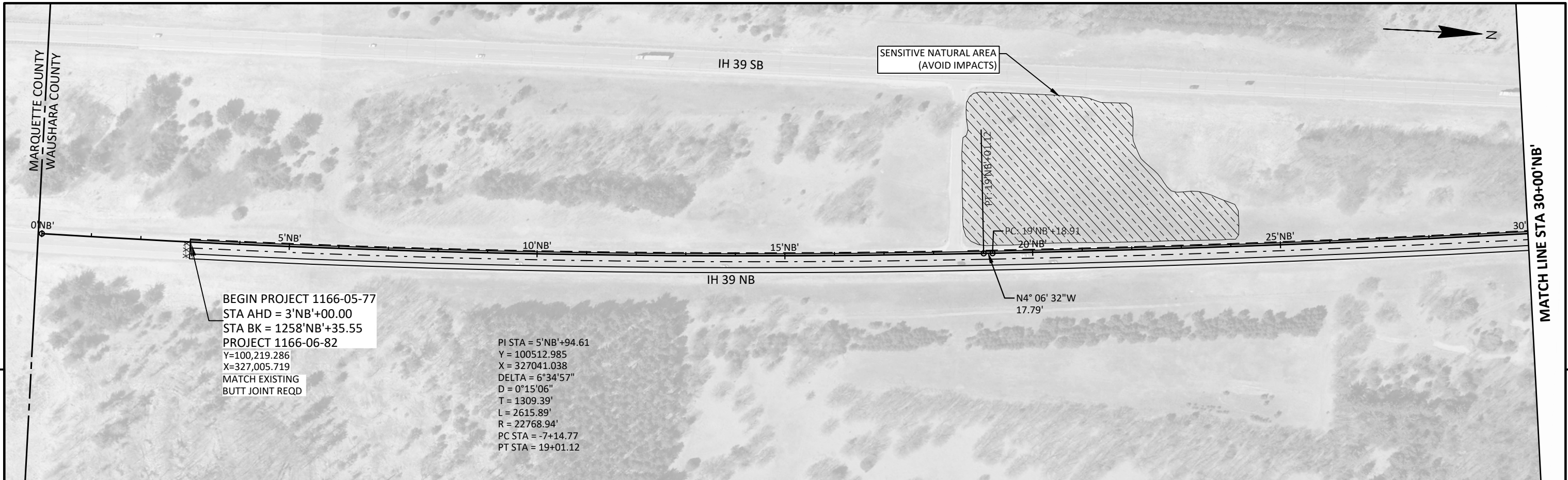
				SPV.0060.01 PIPE JOINT SEAL EA	COMMENTS
STATION	ROADWAY	DIR	CULVERT NUMBER		
PROJECT 1166-05-77					
CATEGORY 0010					
592+75	IH 39 NB	60' RT	69039007431	1	60" DIA CONC. PIPE
UNDISTRIBUTED				2	60" DIA CONC. PIPE
PROJECT TOTAL				3	

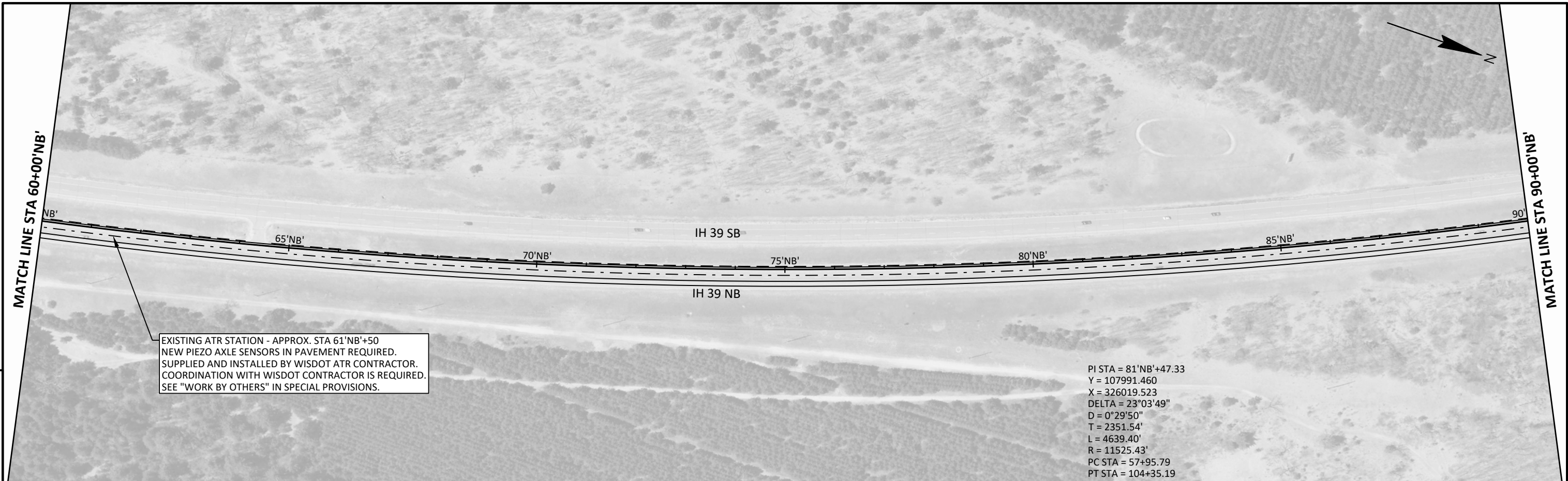
SAW CUTTING

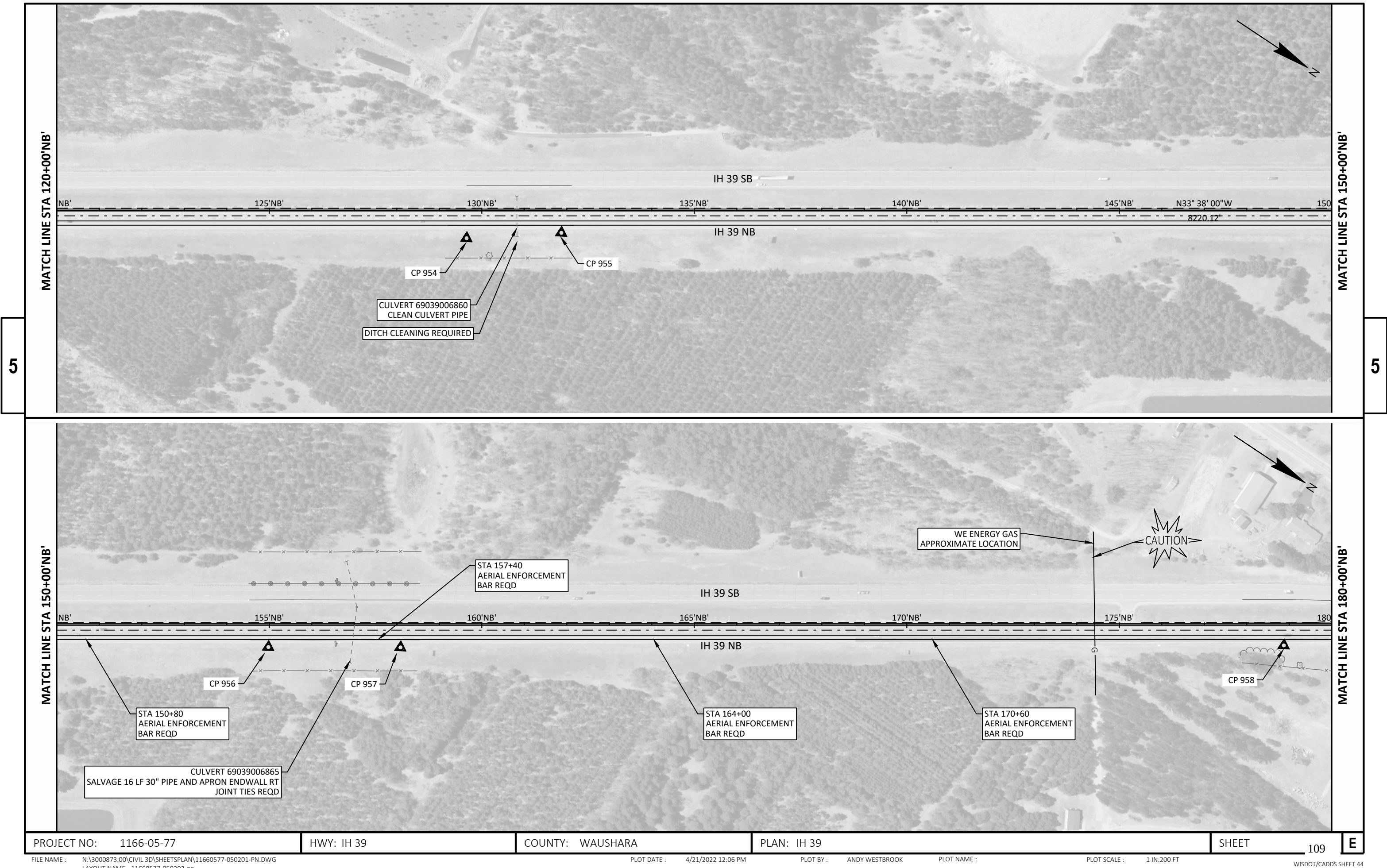
				690.0150	690.0250 ***
STATION	TO	STATION	LOCATION	SAWING ASPHALT LF	SAWING CONCRETE LF
PROJECT 1166-05-77					
CATEGORY 0010					
48+35	-	52+34	IH 39 NB	172	24
48+63			IH 39 NB	38	---
53+40	-	53+64	IH 39 NB	38	24
57+14			IH 39 NB	38	---
180+00	-	184+78	IH 39 NB	191	24
186+40	-	186+99	IH 39 NB	60	---
399+60			IH 39 NB	38	---
402+64			IH 39 NB	45	24
404+94			IH 39 NB	38	24
407+96			IH 39 NB	38	---
504+98	-	513+99	IH 39 NB	---	949
584+50	-	593+50	IH 39 NB	---	948
665+04	-	674+04	IH 39 NB	---	948
PROJECT TOTALS				696	2,965
*** ADDITIONAL QUANTITY CAN BE FOUND IN THE CONCRETE PAVEMENT REPAIR TABLE					

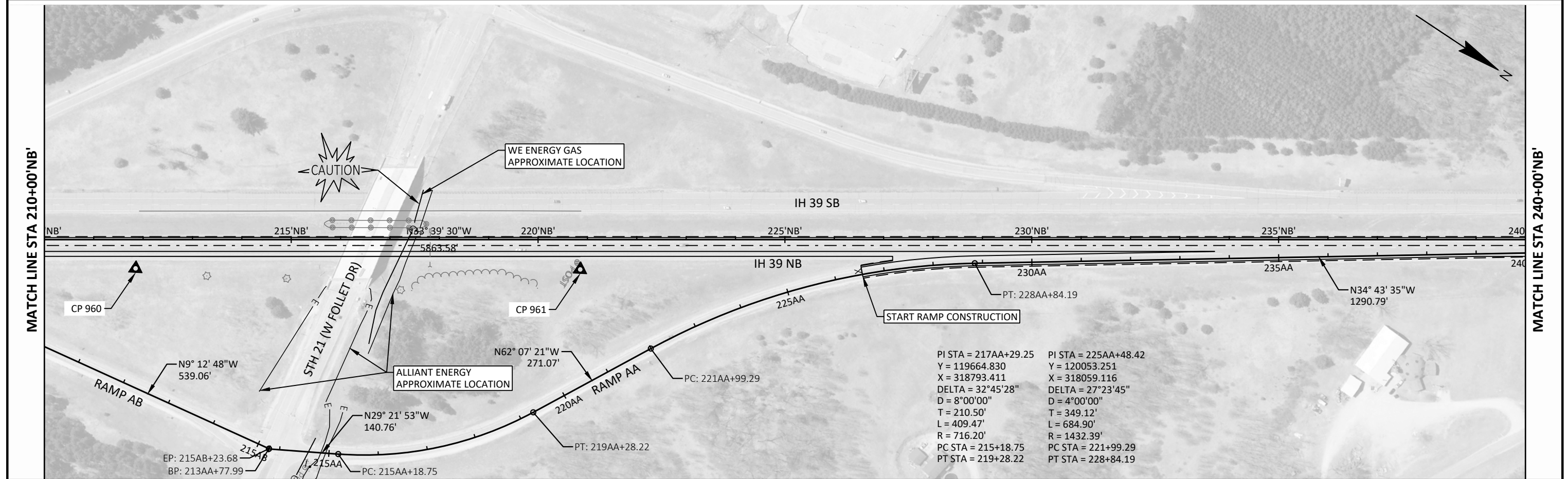
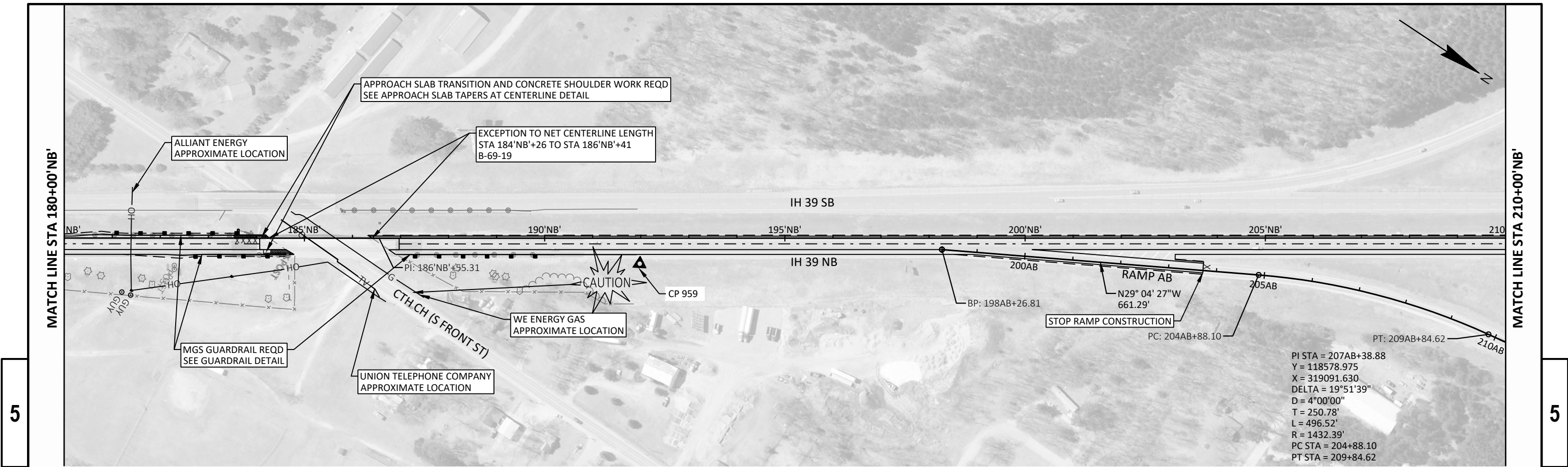
DOWEL BAR REPAIRS

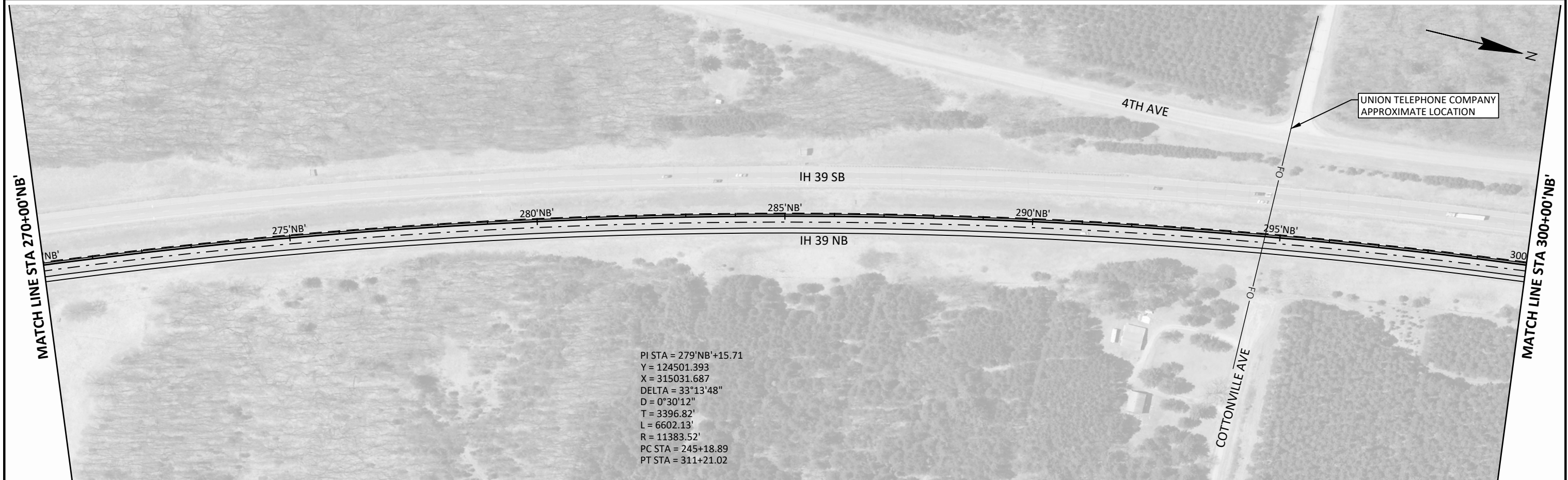
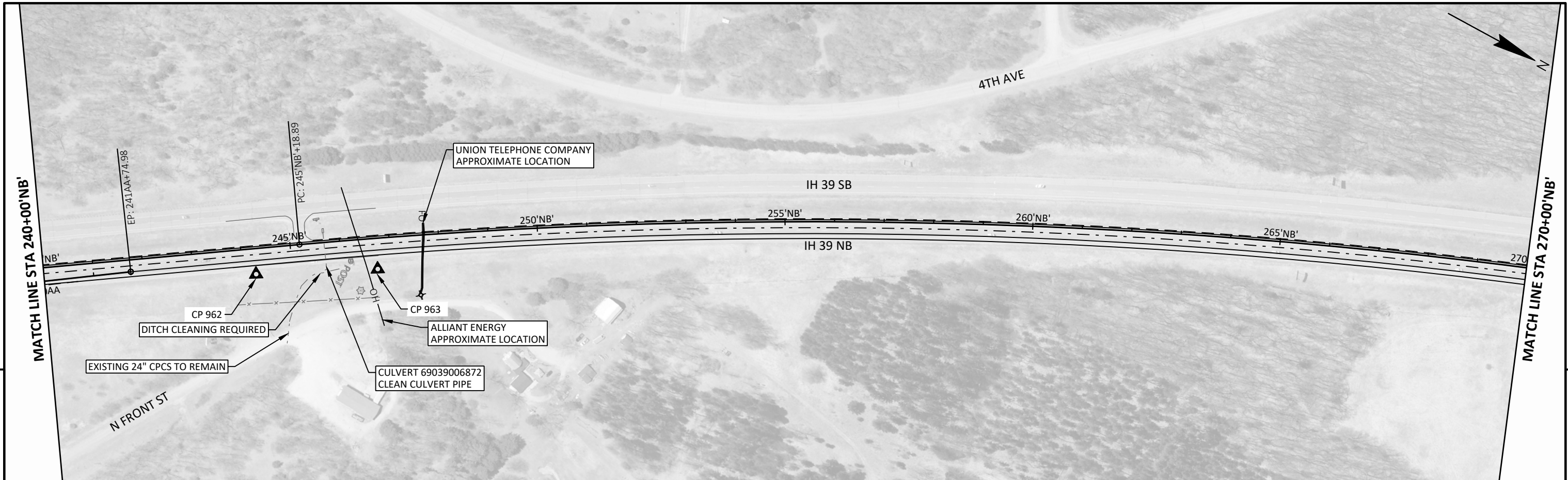
		SPV.0060.02 DOWEL BAR SLOT REPAIR EA	SPV.0060.03 DOWEL BAR SPALL REPAIR EA
LOCATION	ROADWAY		
PROJECT 1166-05-77			
CATEGORY 0010			
UNDISTRIBUTED	IH 39 NB	8,720	200
PROJECT TOTALS		8,720	200



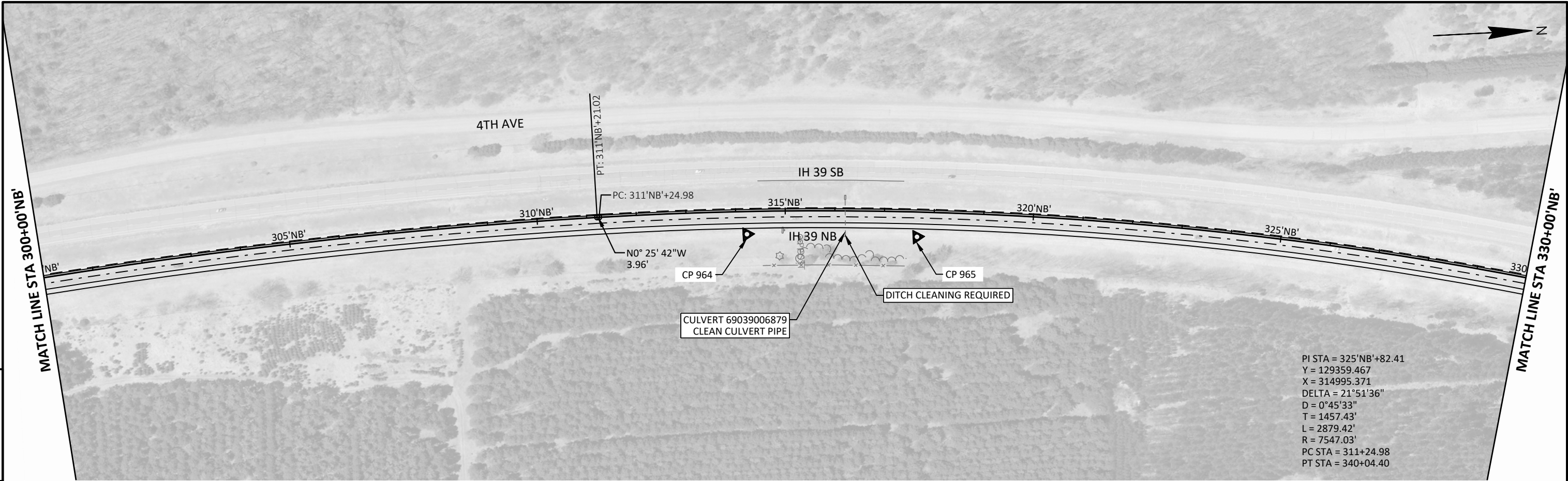




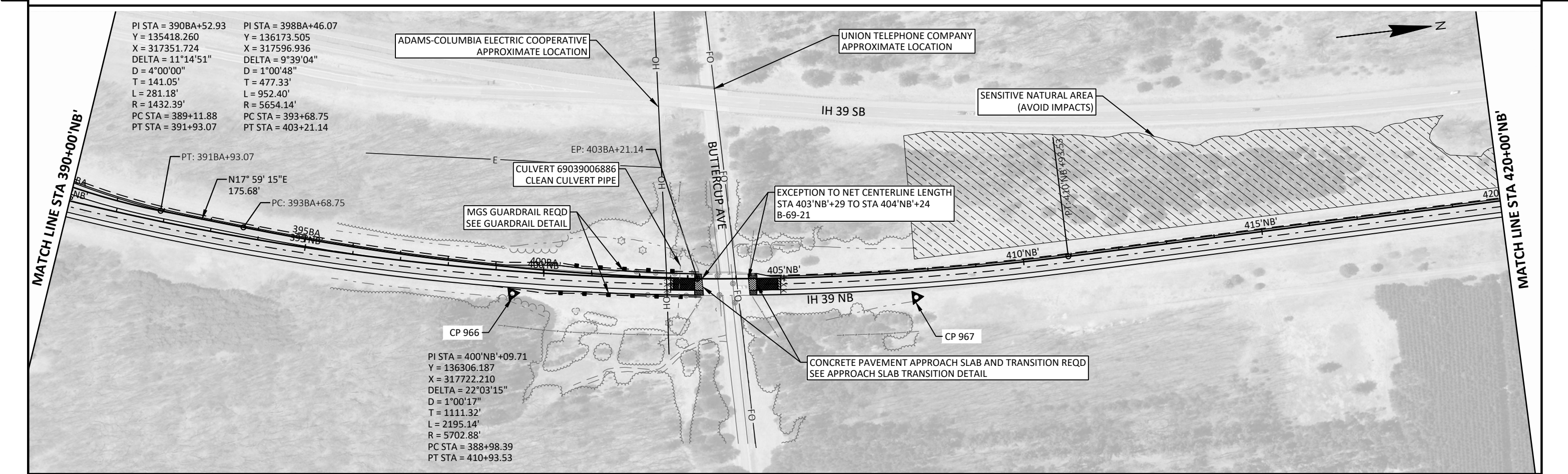
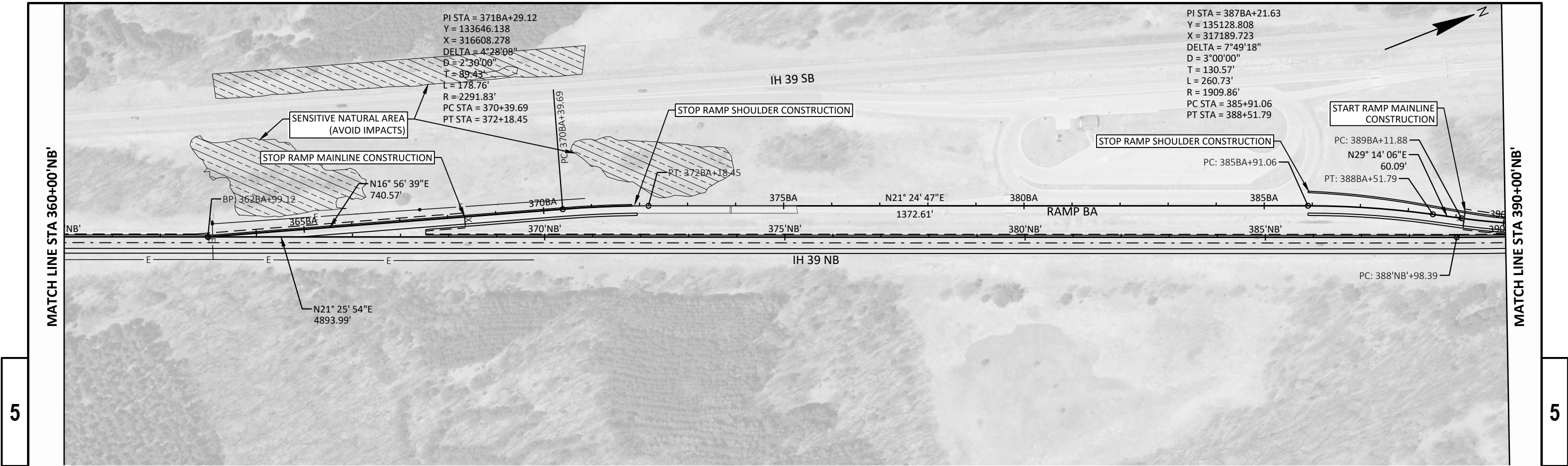




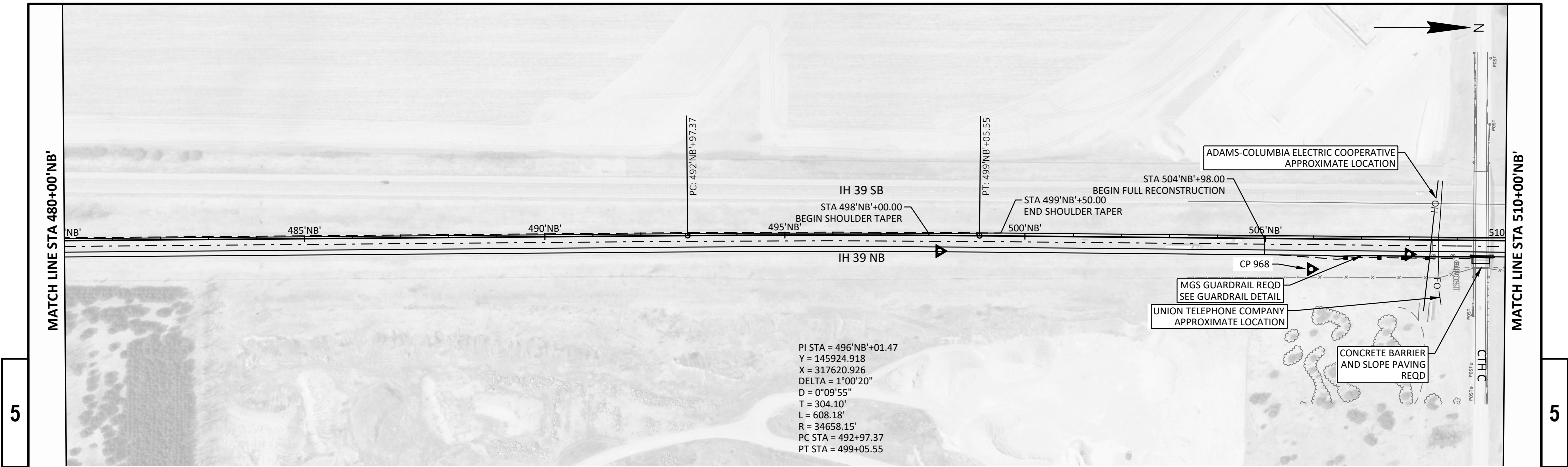
PROJECT NO: 1166-05-77	HWY: IH 39	COUNTY: WAUSHARA	PLAN: IH 39	SHEET 111	E
------------------------	------------	------------------	-------------	-----------	---

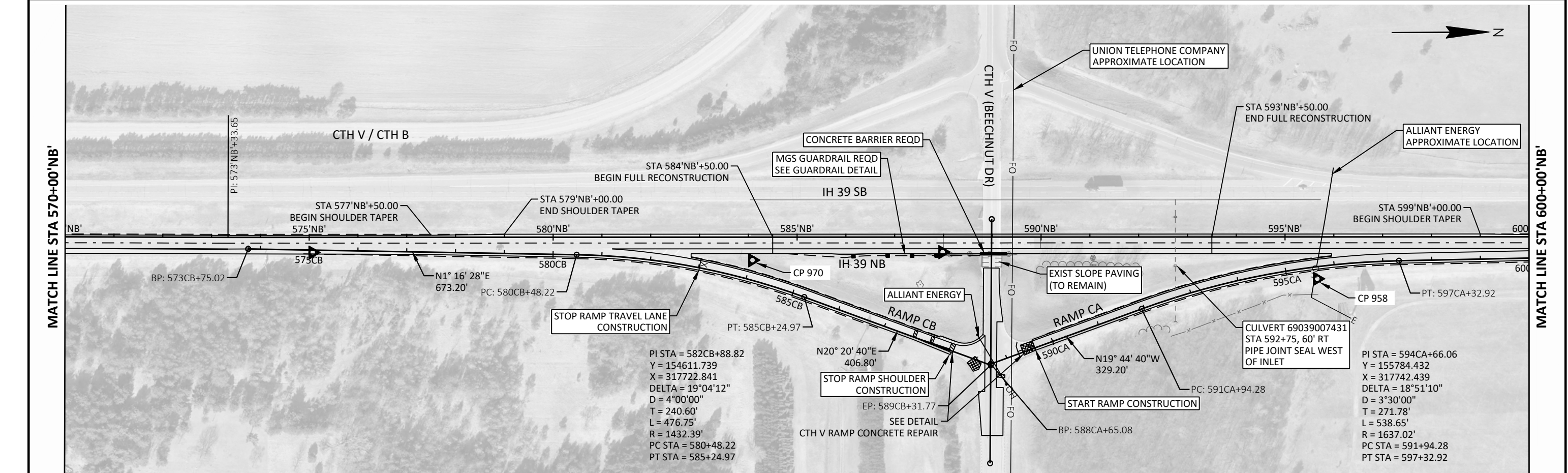
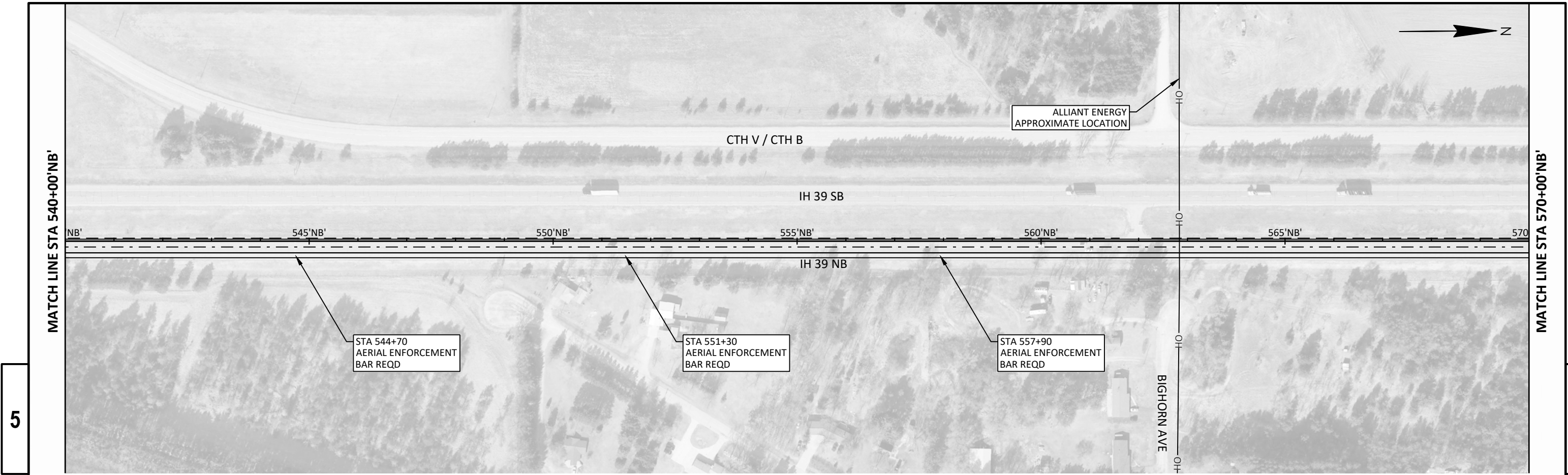


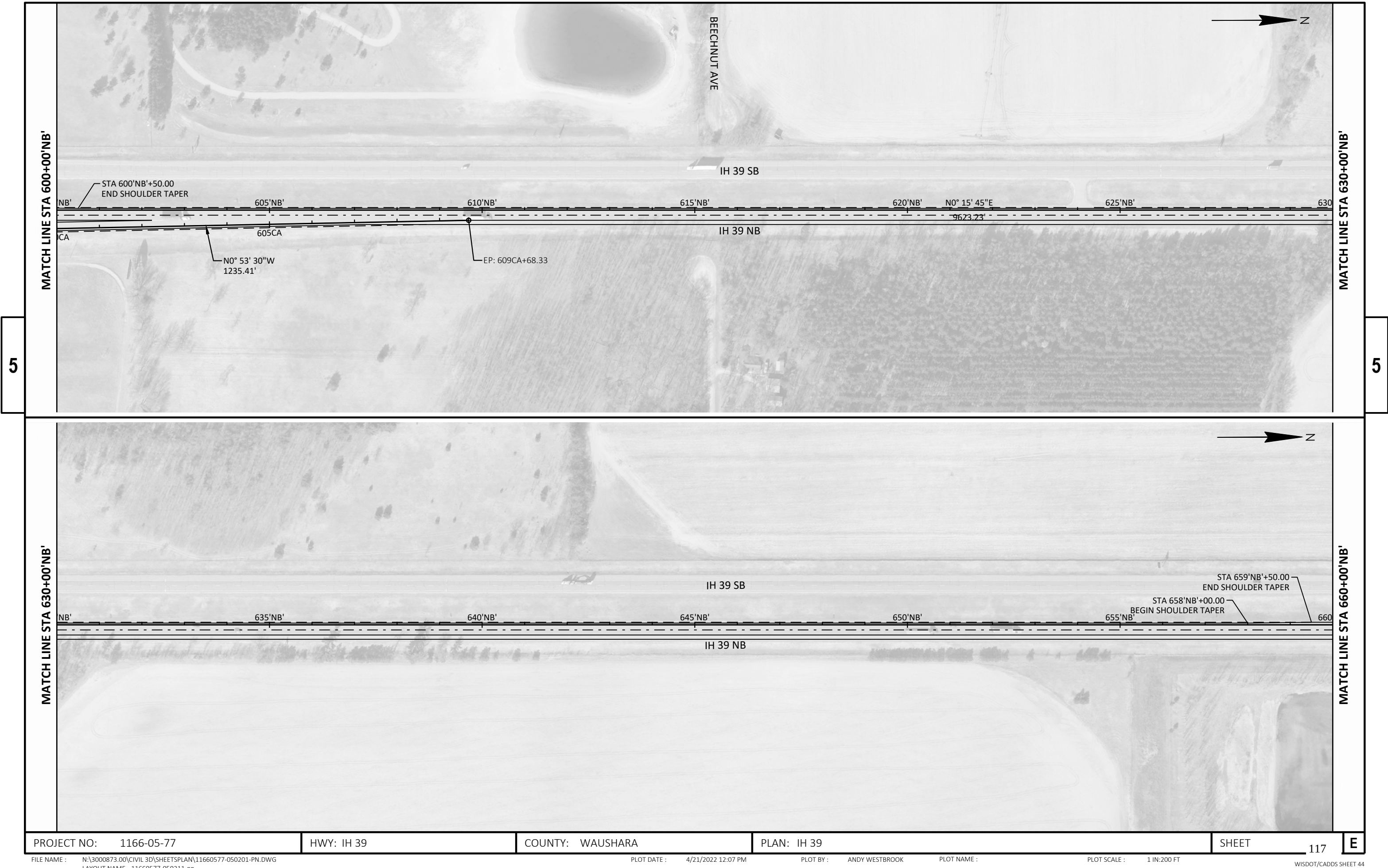
PROJECT NO: 1166-05-77	HWY: IH 39	COUNTY: WAUSHARA	PLAN: IH 39	SHEET 112	E
------------------------	------------	------------------	-------------	-----------	---



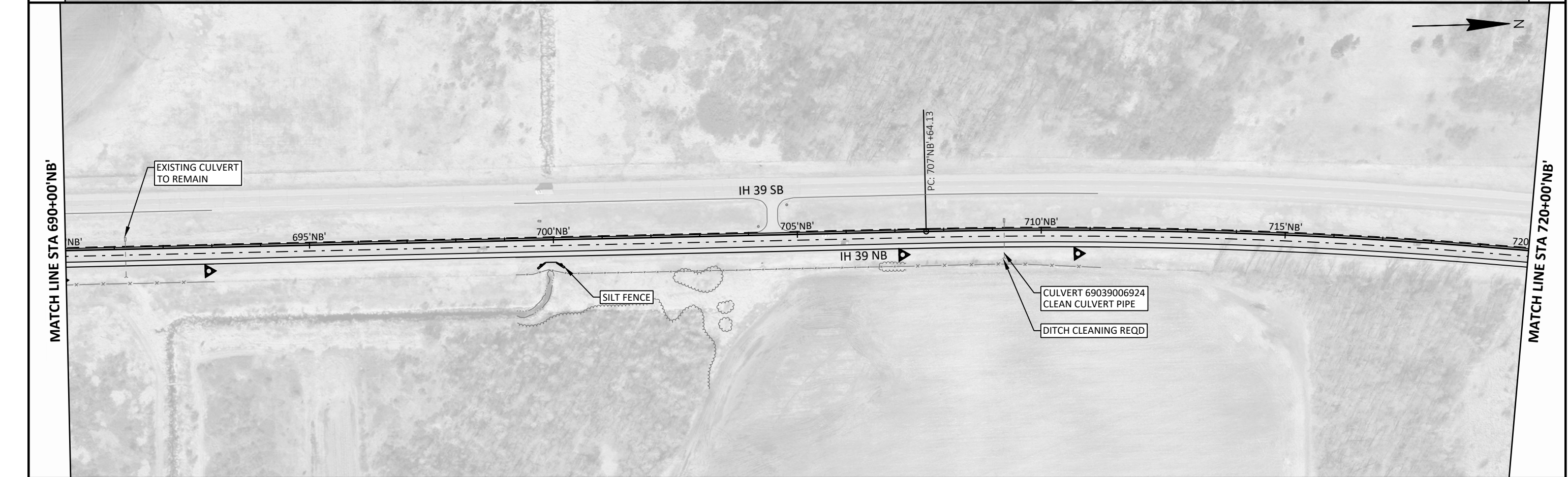
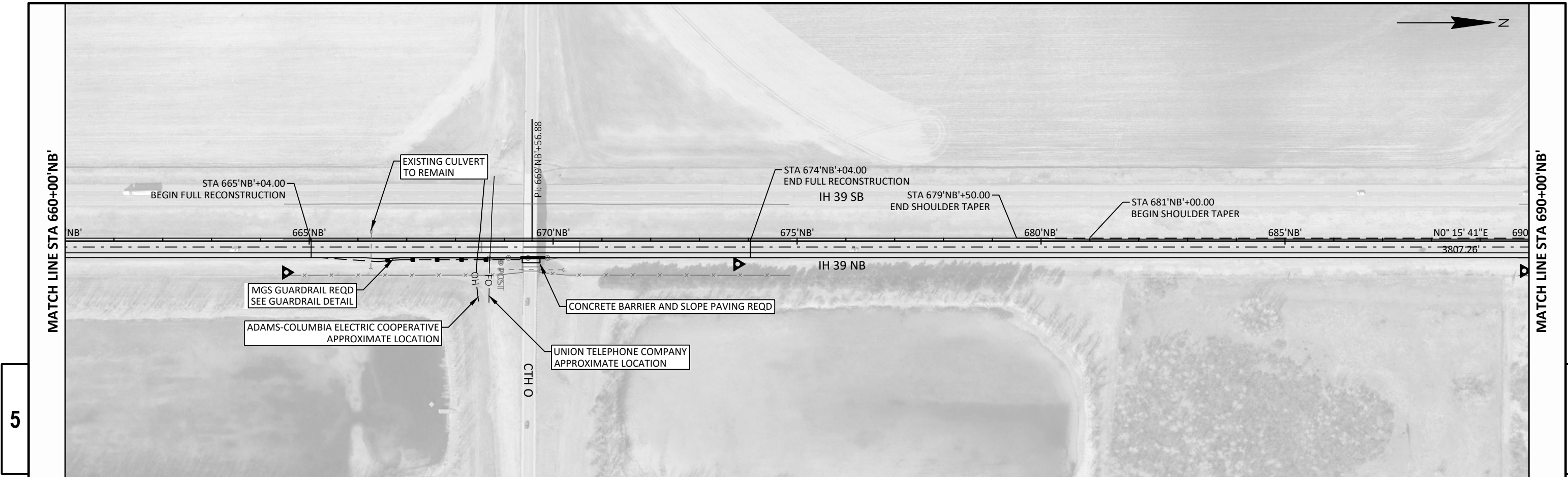




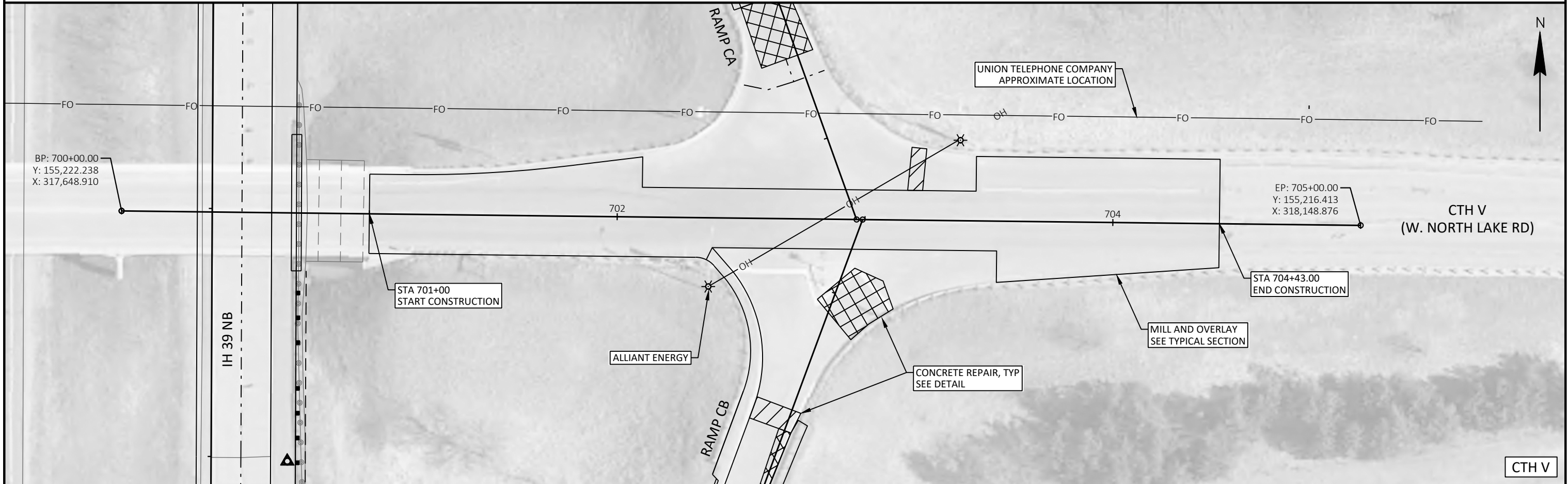
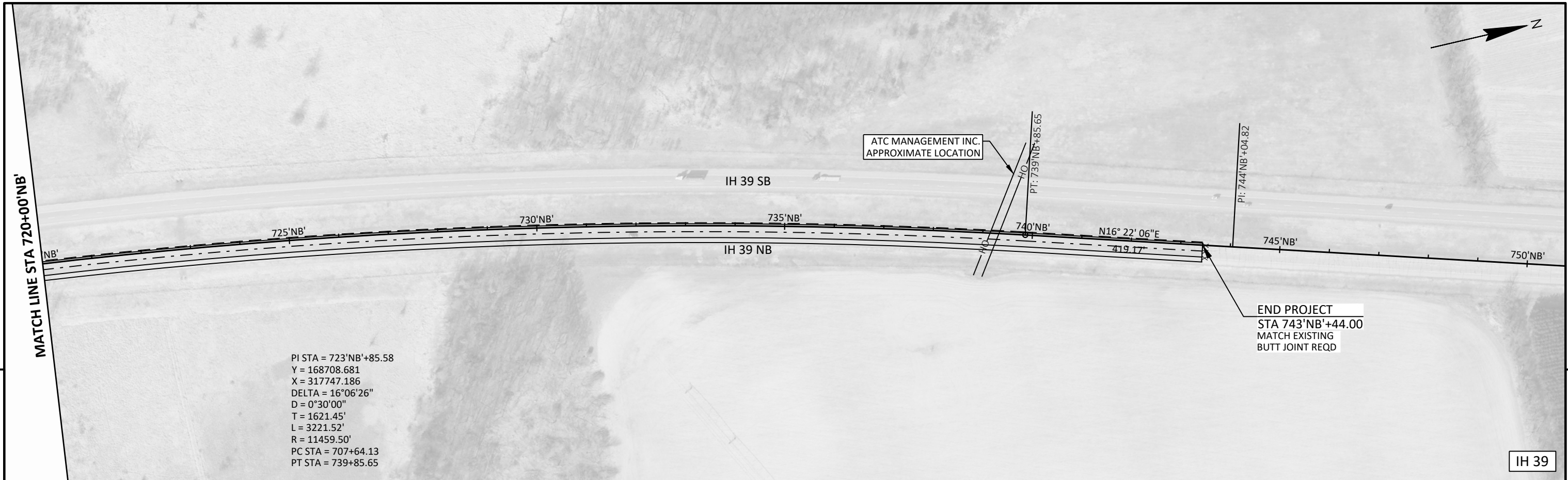


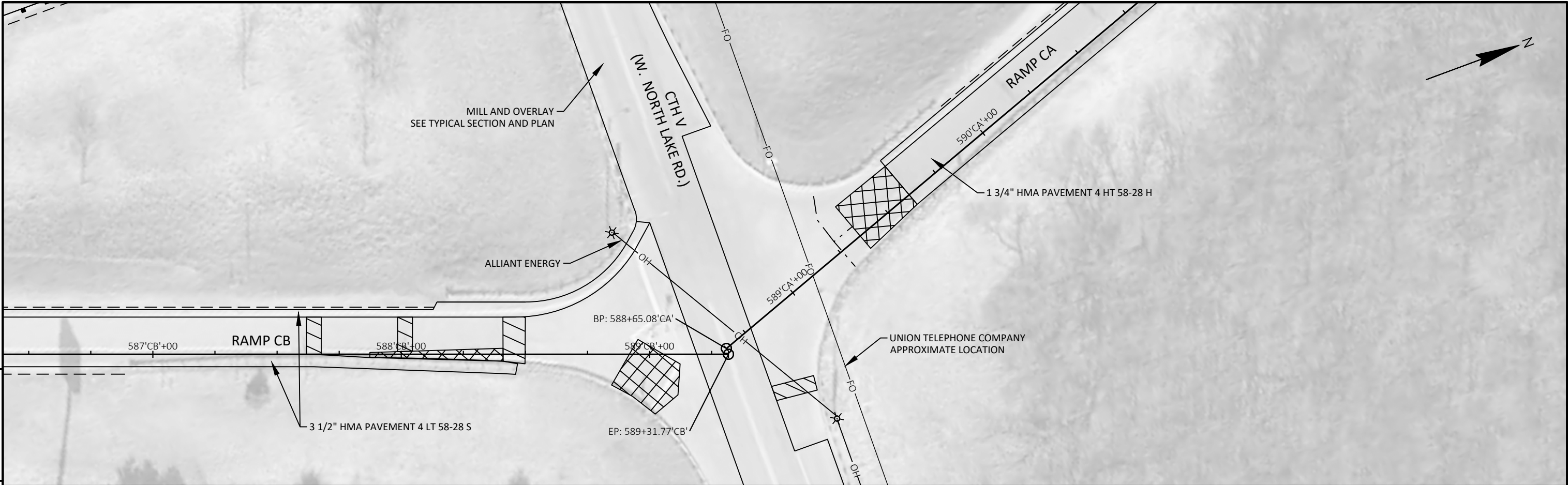


PROJECT NO:	1166-05-77	HWY: IH 39	COUNTY: WAUSHARA	PLAN: IH 39	SHEET	117	E
-------------	------------	------------	------------------	-------------	-------	-----	---



PROJECT NO: 1166-05-77	HWY: IH 39	COUNTY: WAUSHARA	PLAN: IH 39	SHEET 118	E
------------------------	------------	------------------	-------------	-----------	---





- LEGEND**
- CONCRETE PAVEMENT REPAIR
 - CONCRETE PAVEMENT REPLACEMENT
 - CONCRETE PAVEMENT PARTIAL DEPTH JOINT REPAIR

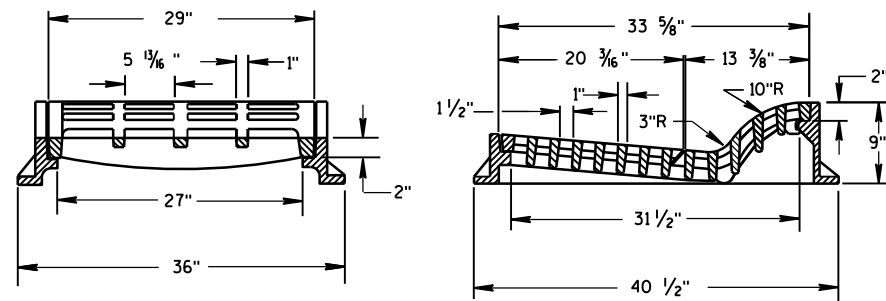
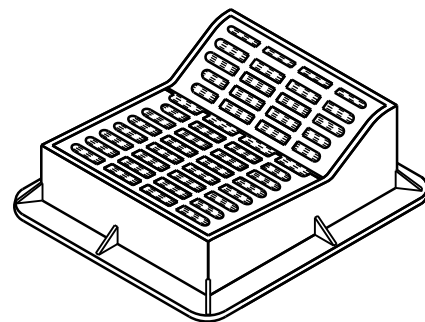
THIS FRAME INTENTIONALLY LEFT BLANK

Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D03-08A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-08B	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
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
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C08-02	CONCRETE PAVEMENT PARTIAL DEPTH REPAIR
13C09-15A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C11-12A	RURAL DOWELED CONCRETE PAVEMENT
13C11-12B	RURAL DOWELED CONCRETE PAVEMENT
13C15-06A	CONCRETE BASE
13C15-06B	CONCRETE BASE
13C19-03	HMA LONGITUDINAL JOINTS
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B32-09A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-09B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-09H	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B33-02G	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B33-02H	CONCRETE BARRIER SINGLE SLOPE 42" THRIE BEAM ANCHOR
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-03A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A04-07A	FLEXIBLE DELINEATOR POST

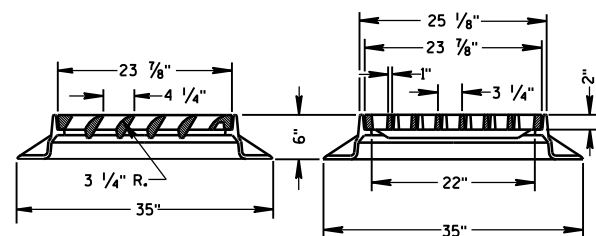
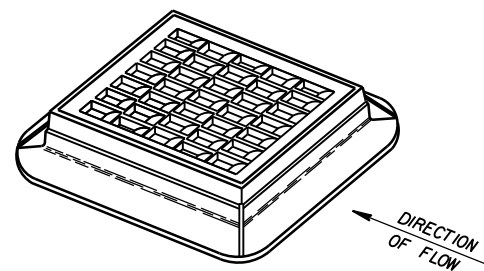
Standard Detail Drawing List

15A04-07B	BARRIER WALL DELINEATOR WITH REFLECTIVE SHEETING
15A04-07C	DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A04-07D	CHANNELIZING DEVICES, PERMANENT FLEXIBLE TUBULAR MARKER POST
15A04-07E	DELINEATOR POST WITH REFLECTIVE SHEETING
15C02-08D	ON RAMP LANE CLOSURE
15C02-08E	OFF RAMP LANE CLOSURE
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-08	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C14-04	AERIAL ENFORCEMENT BARS PAVEMENT MARKING DETAILS
15C19-06C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C31-04A	PAVEMENT MARKING EXIT RAMP AND PARALLEL EXIT RAMP
15C31-04C	PAVEMENT MARKING ENTRANCE RAMP AND PARALLEL ENTRANCE RAMP
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D12-10A	TRAFFIC CONTROL, LANE CLOSURE
15D12-10B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D15-06A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-06B	TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-06C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-06D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-06E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D16-05	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D40-03B	TRAFFIC CONTROL, FULL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER
15D40-03D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

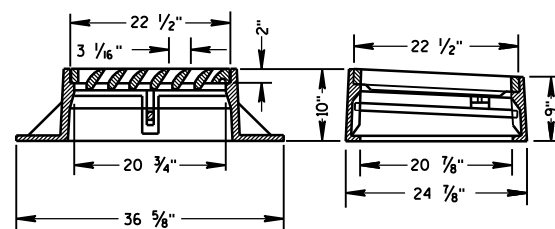
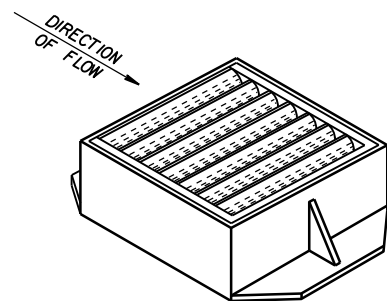


TYPE "F"

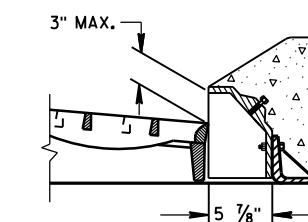
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



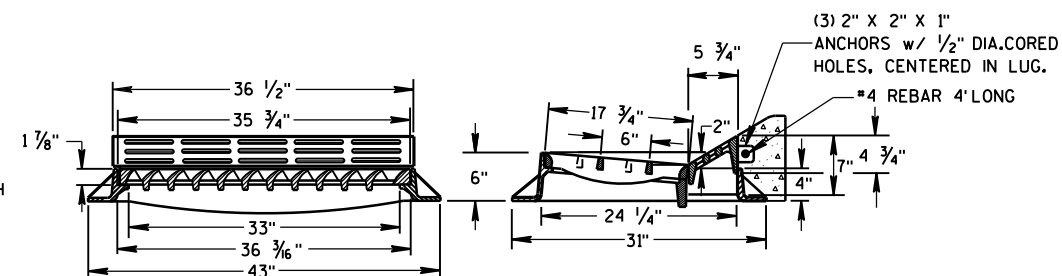
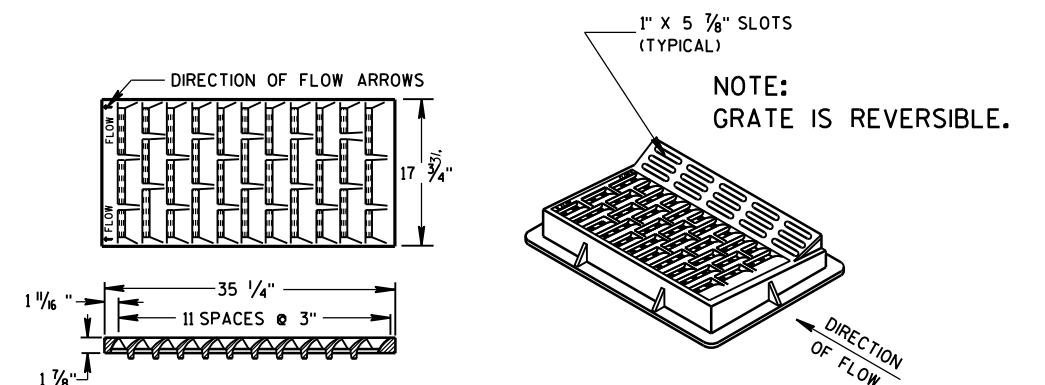
TYPE "S"



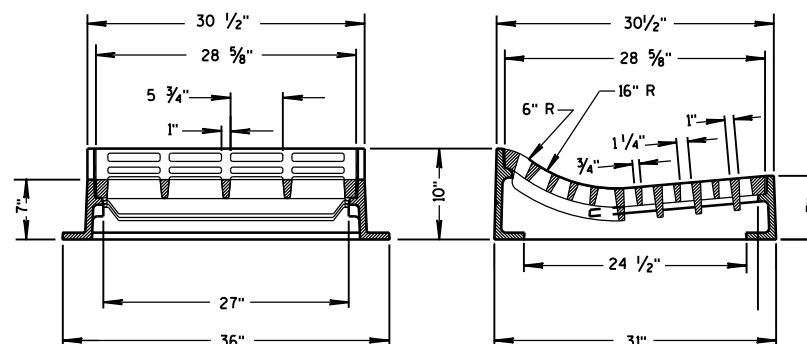
TYPE "V"

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

GENERAL NOTES

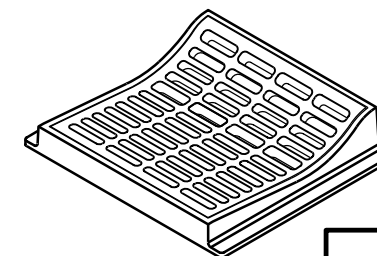
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL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

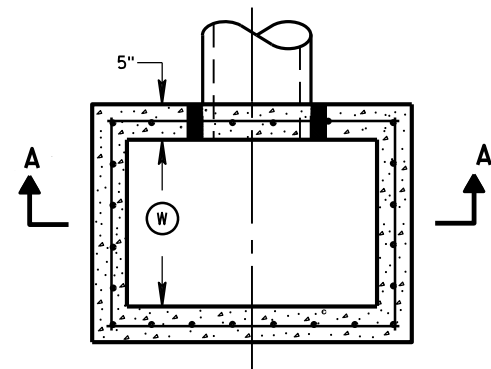
TYPE "HM"

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

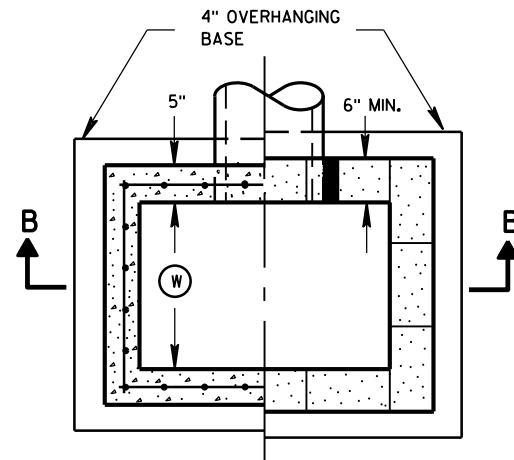
TYPE "T"

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

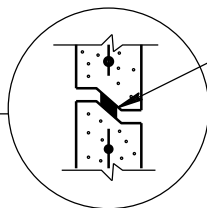
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA 123 ENT



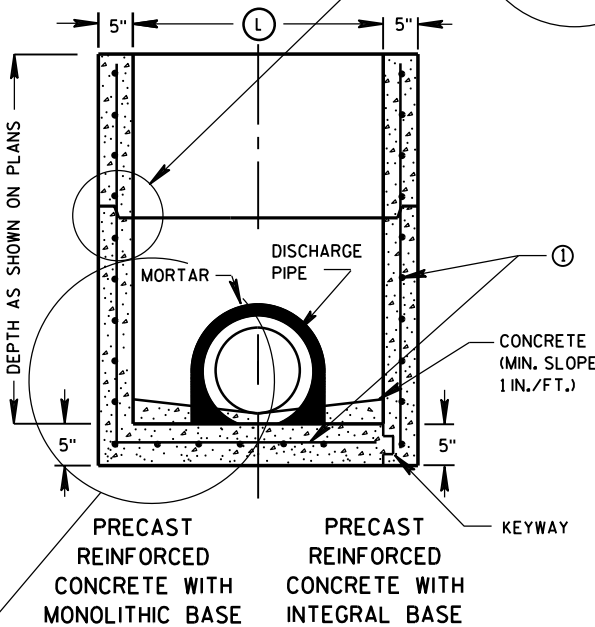
PLAN VIEW



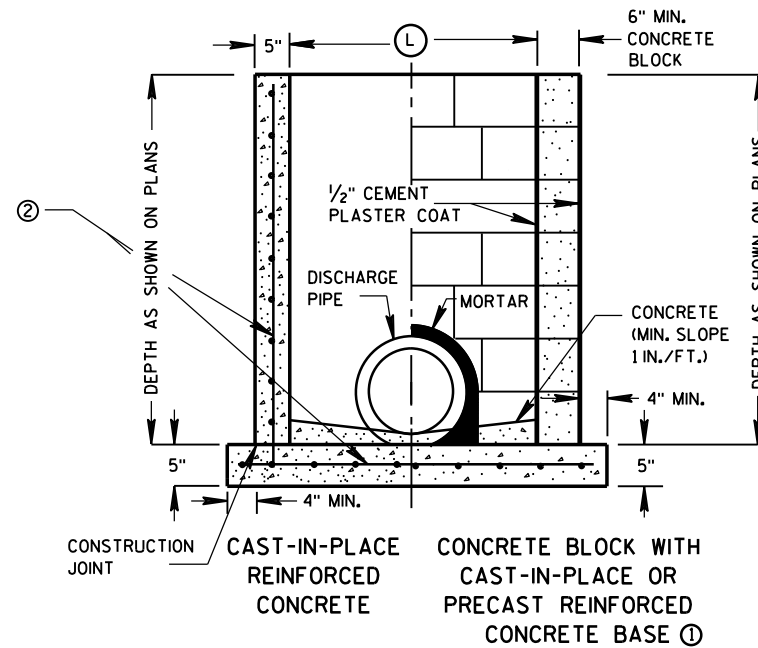
PLAN VIEW



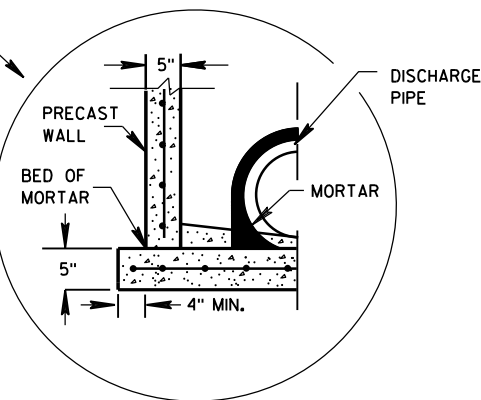
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

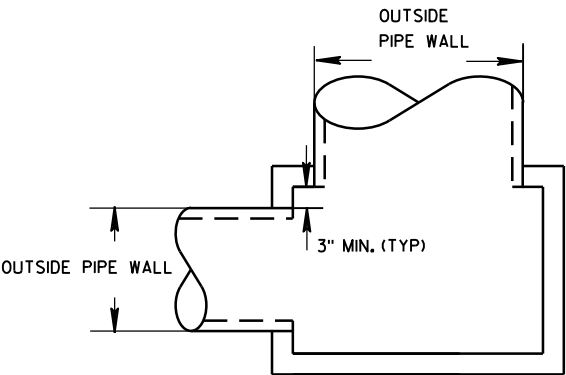
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

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

PIPE MATRIX

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

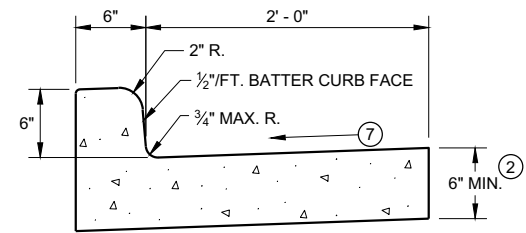


DETAIL "A"

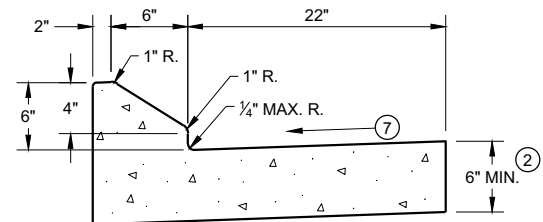
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

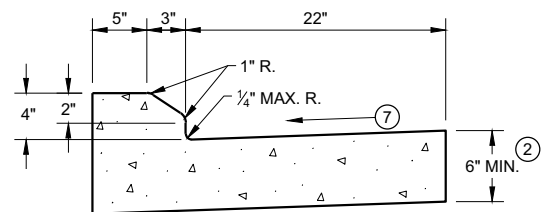
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS D 124 IT
FHWA UNIT SUPERVIS



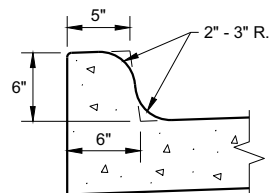
TYPES A⁽¹⁾ & D



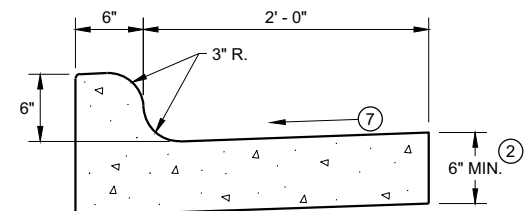
6" SLOPED CURB TYPES G⁽¹⁾ & J



4" SLOPED CURB TYPES G⁽¹⁾ & J

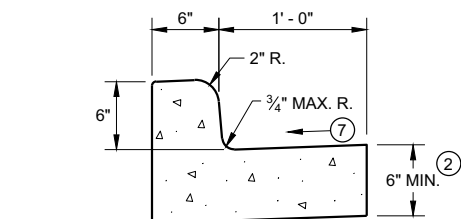


TYPES K⁽¹⁾ & L
(OPTIONAL CURB SHAPE)



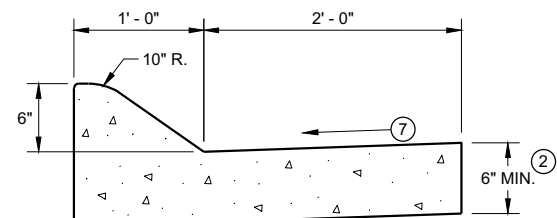
TYPES K⁽¹⁾ & L

CONCRETE CURB AND GUTTER 30"

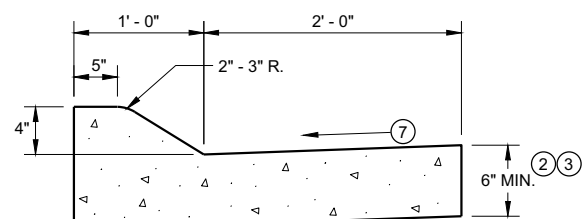


TYPES A⁽¹⁾ & D

CONCRETE CURB AND GUTTER 18"

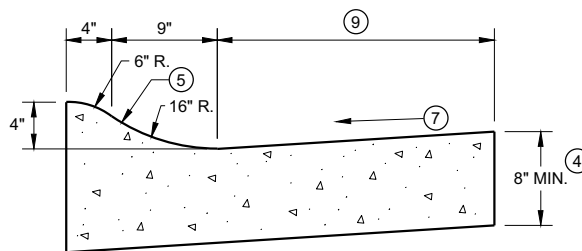


6" SLOPED CURB TYPES A⁽¹⁾ & D



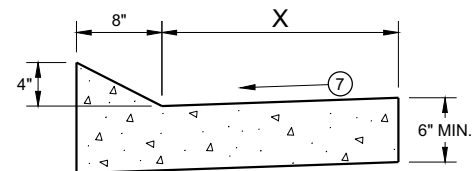
4" SLOPED CURB TYPES A⁽¹⁾ & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R⁽¹⁾ & T

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

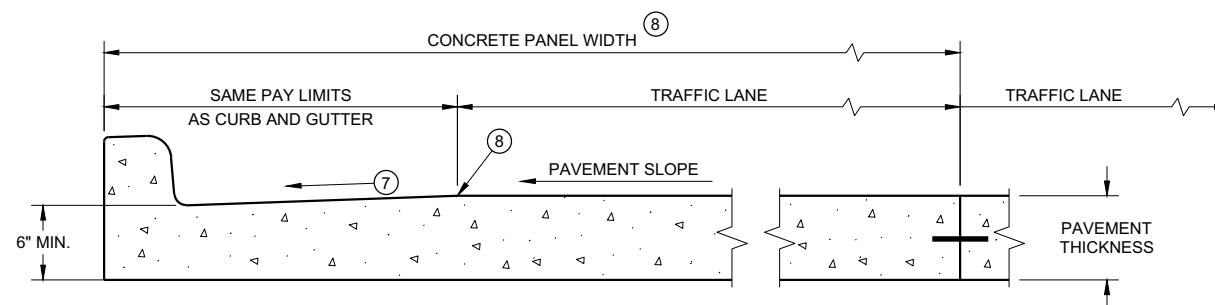


TYPES TBT & TBTT⁽¹⁾

CONCRETE CURB AND GUTTER

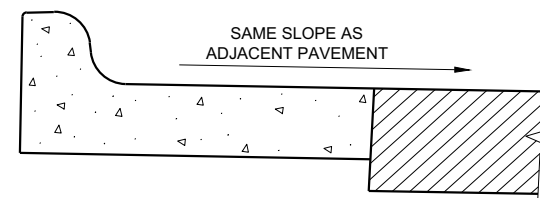
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

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

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

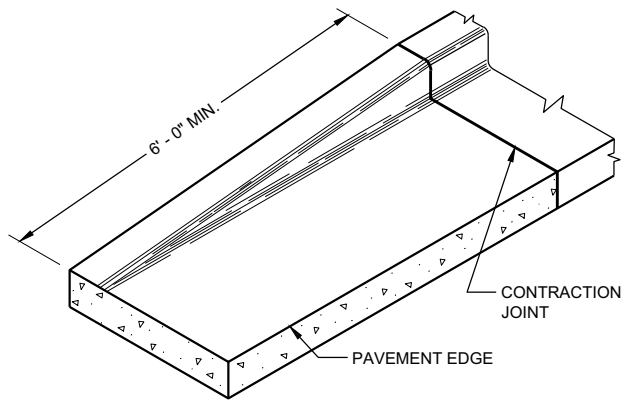
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

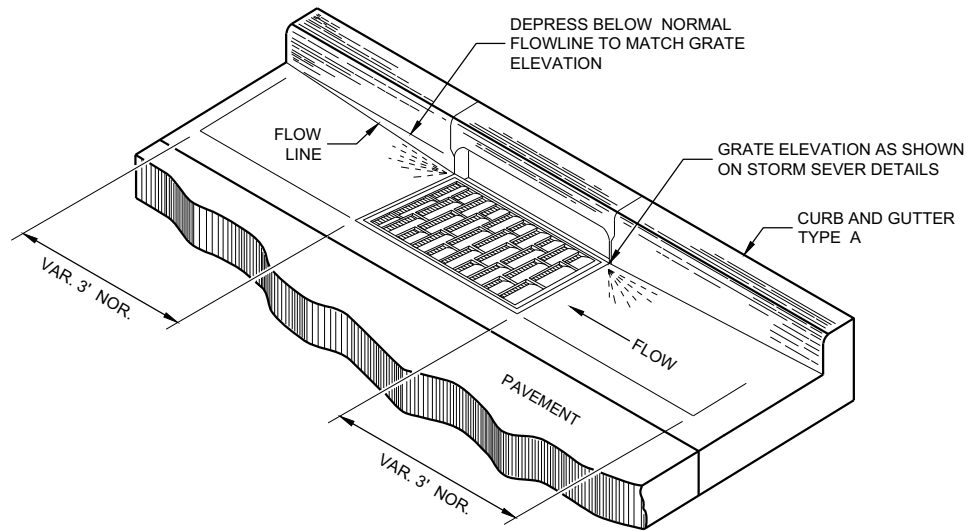
- (1) TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- (2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- (3) USE 8" MINIMUM GUTTER THICKNESS WHEN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

CONCRETE CURB AND GUTTER

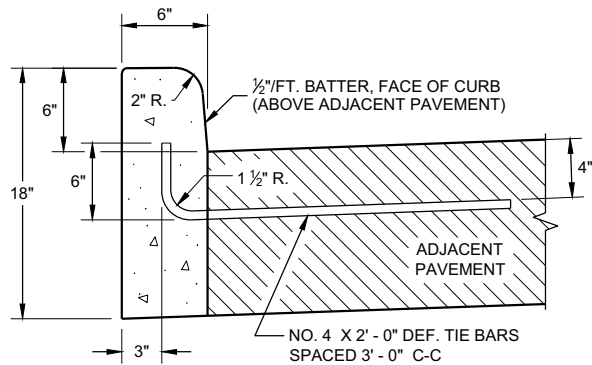
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 125



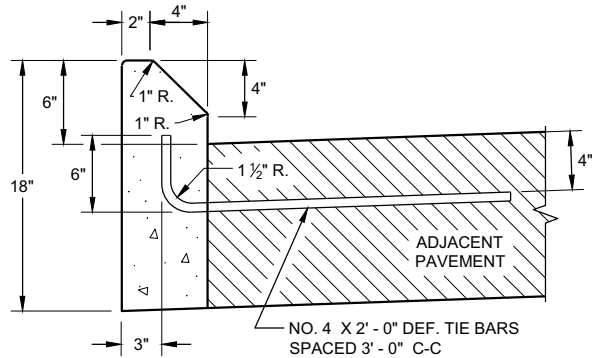
END SECTION CURB AND GUTTER



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

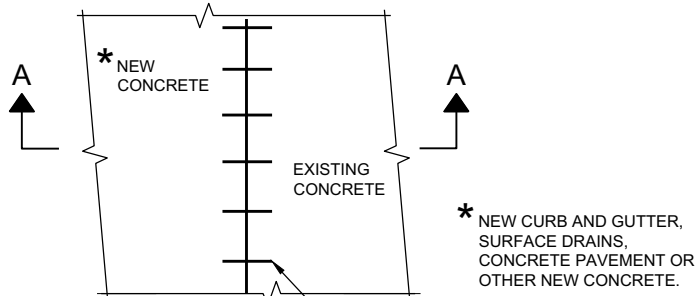


TYPES A^① & D

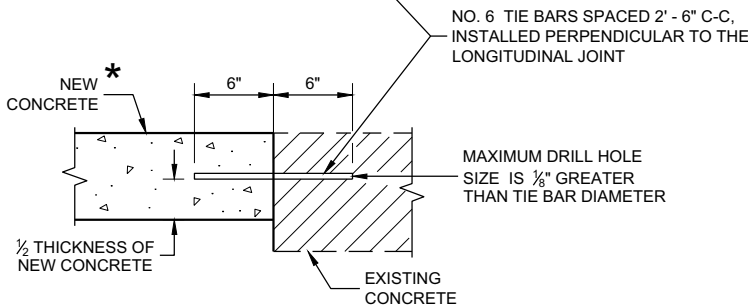


TYPES G^① & J

CONCRETE CURB



PLAN VIEW



SECTION A - A

TIE BARS DRILLED
INTO EXISTING PAVEMENT

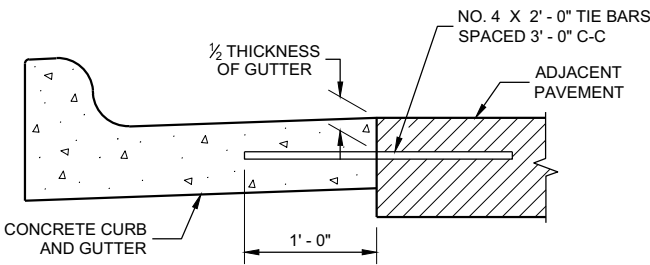
GENERAL NOTES

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

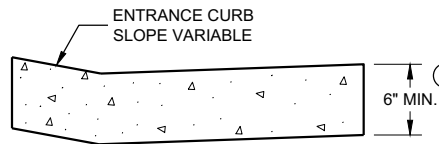
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 126

FHWA

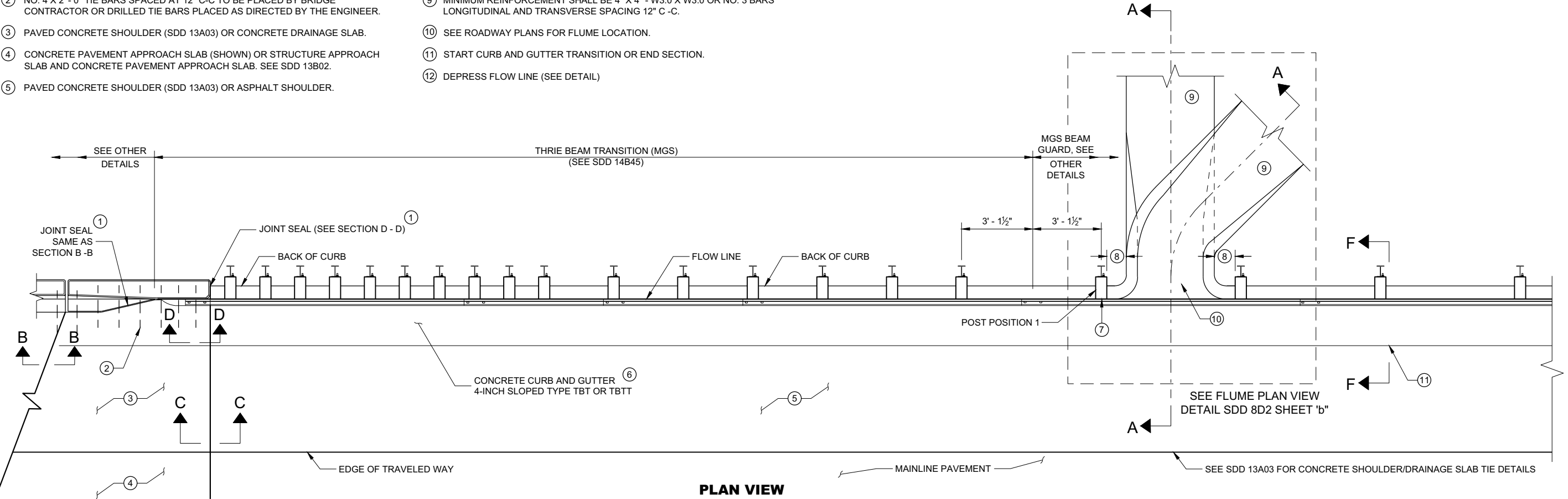
GENERAL NOTES

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.

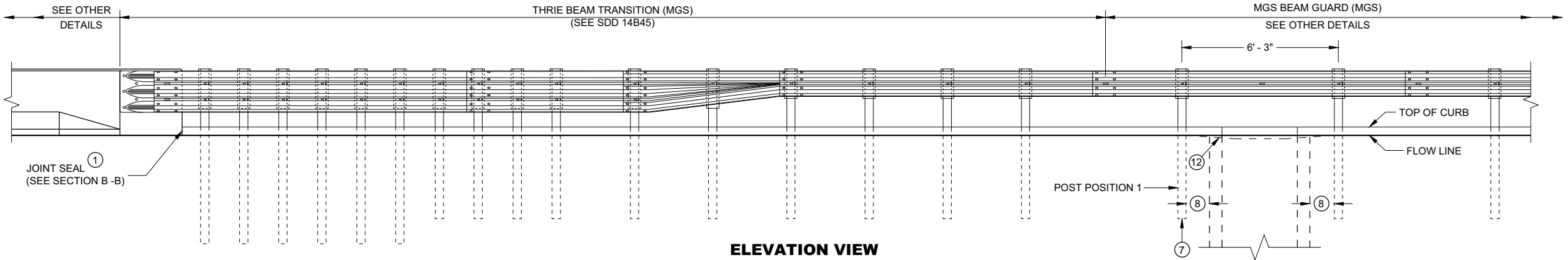
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- 9 MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- 10 SEE ROADWAY PLANS FOR FLUME LOCATION.
- 11 START CURB AND GUTTER TRANSITION OR END SECTION.
- 12 DEPRESS FLOW LINE (SEE DETAIL)



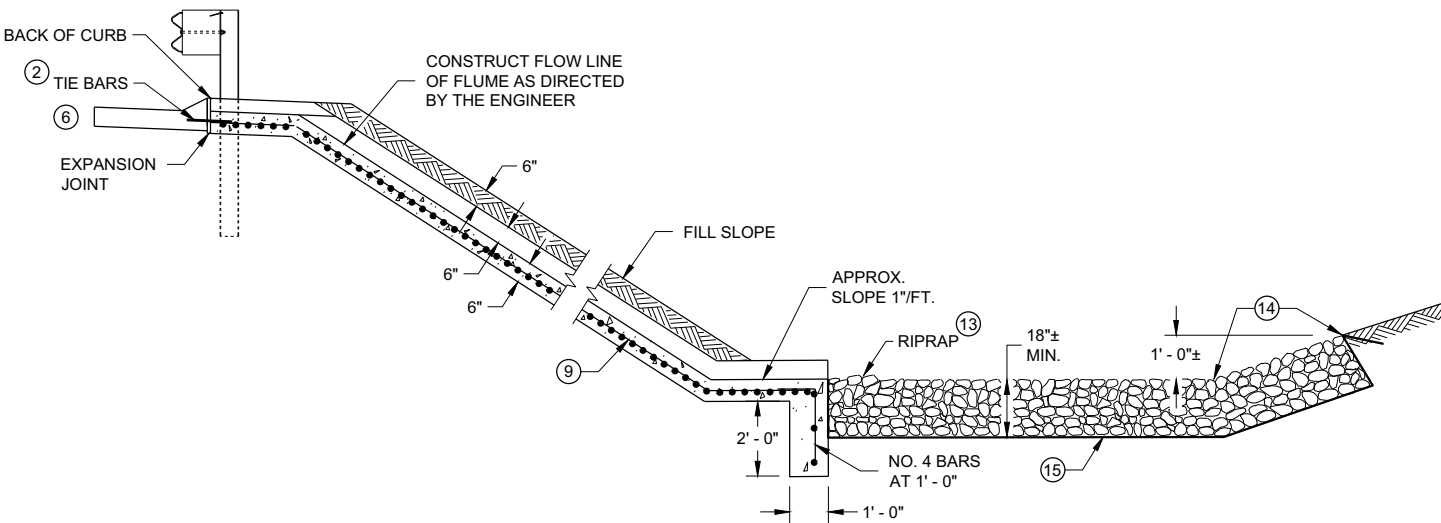
PLAN VIEW



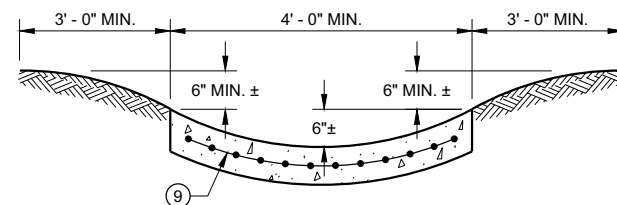
ELEVATION VIEW

CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES

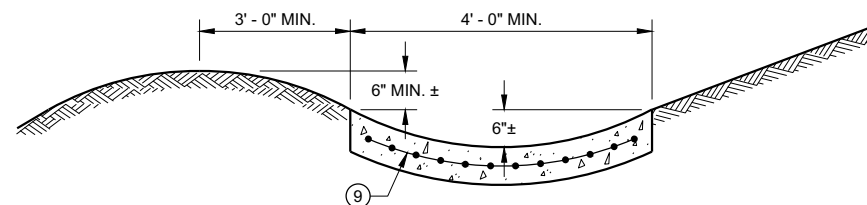
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



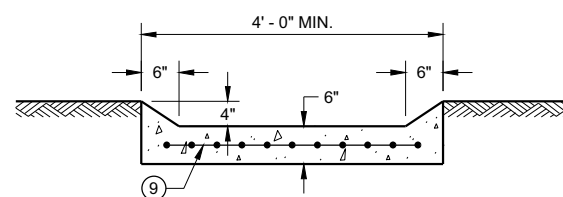
SECTION A - A



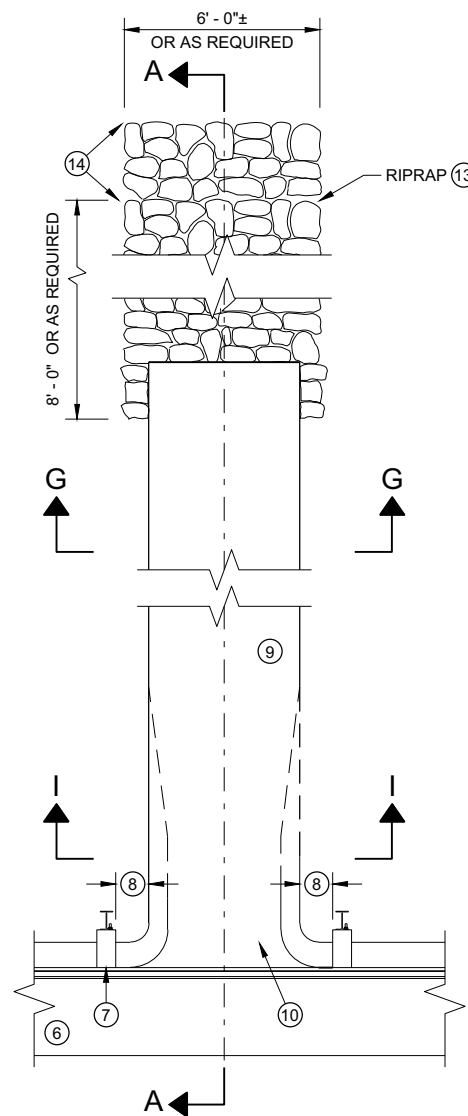
SECTION G - G



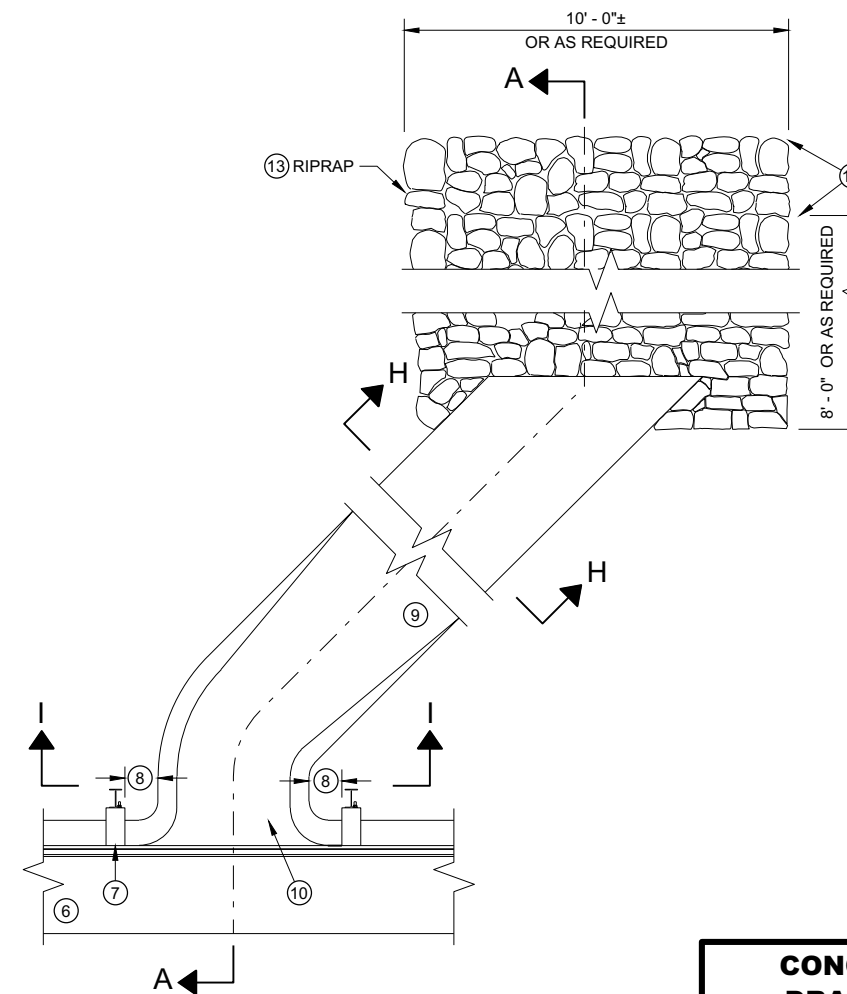
SECTION H - H



SECTION I - I



**PLAN VIEW
PERPENDICULAR FLUME**



**PLAN VIEW
SKEWED FLUME**

GENERAL NOTES

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

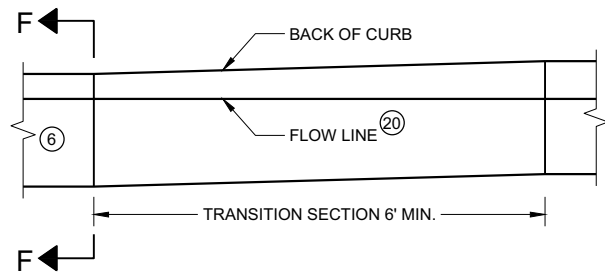
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

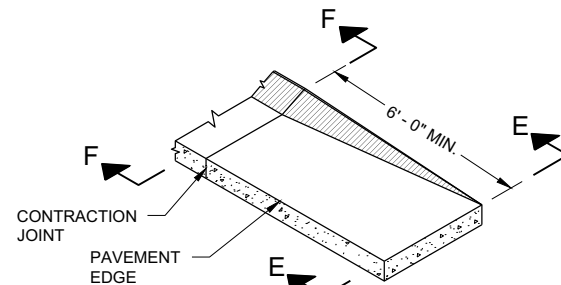
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

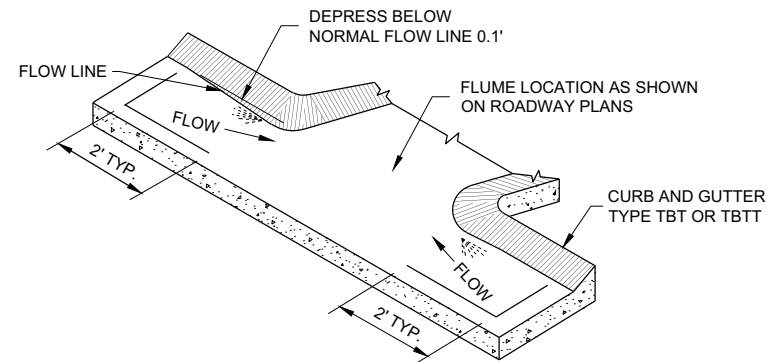
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 128



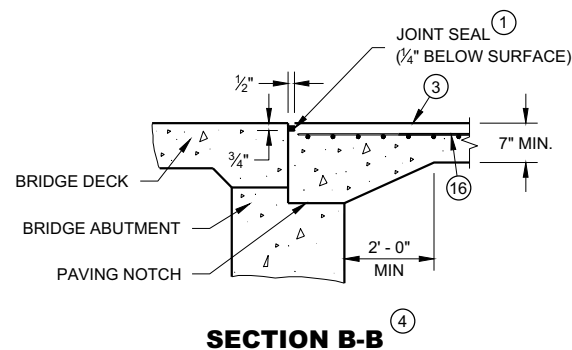
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



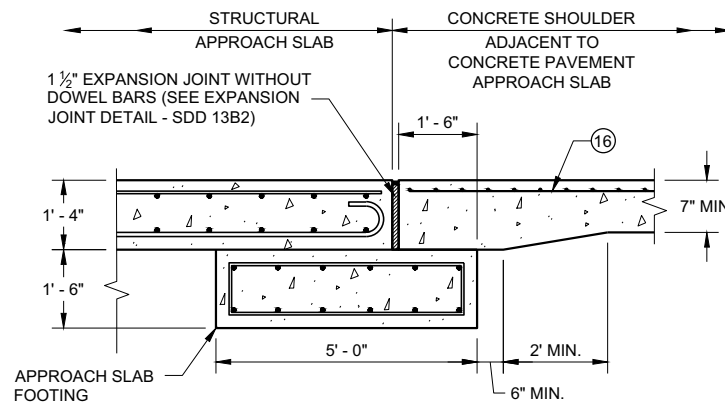
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



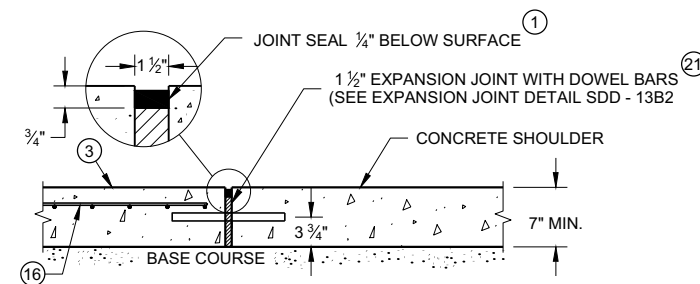
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



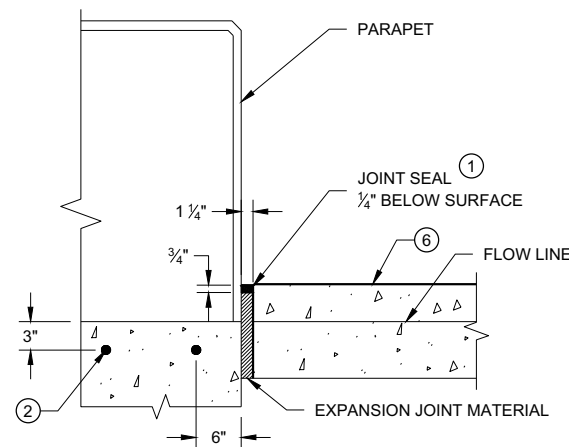
SECTION B-B



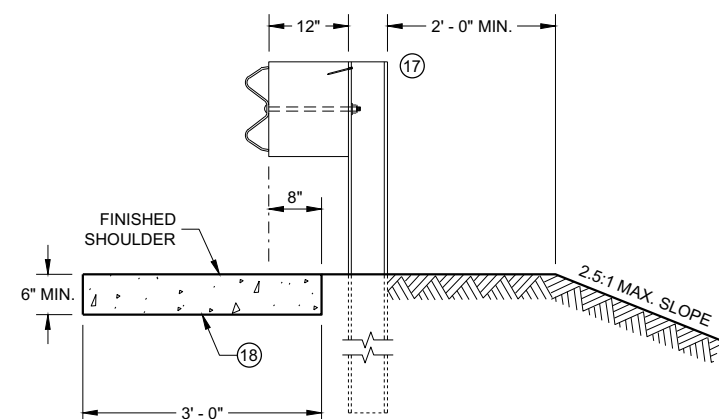
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



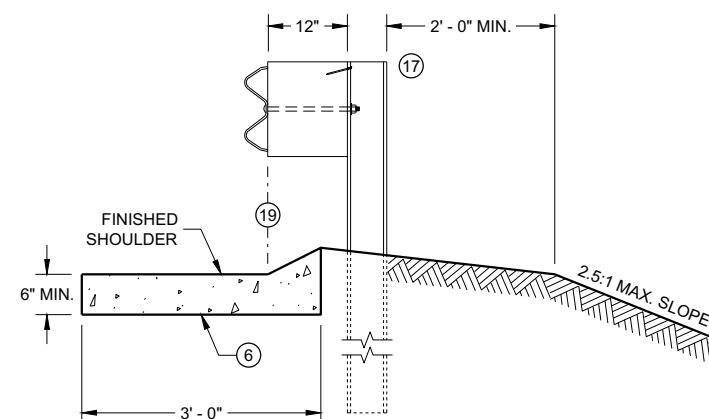
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

GENERAL NOTES

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

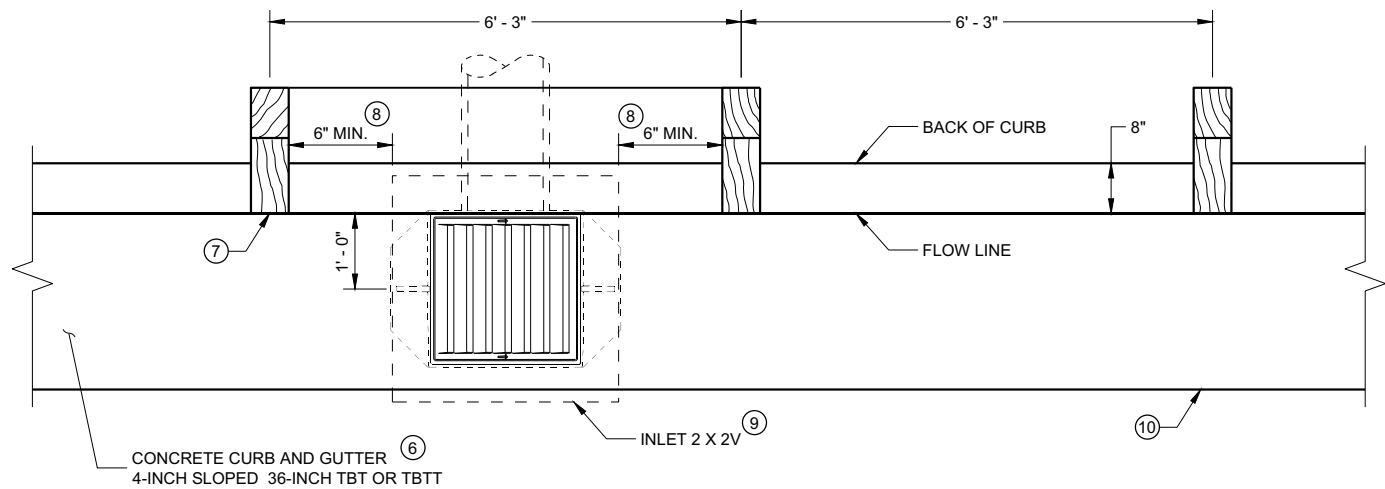
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

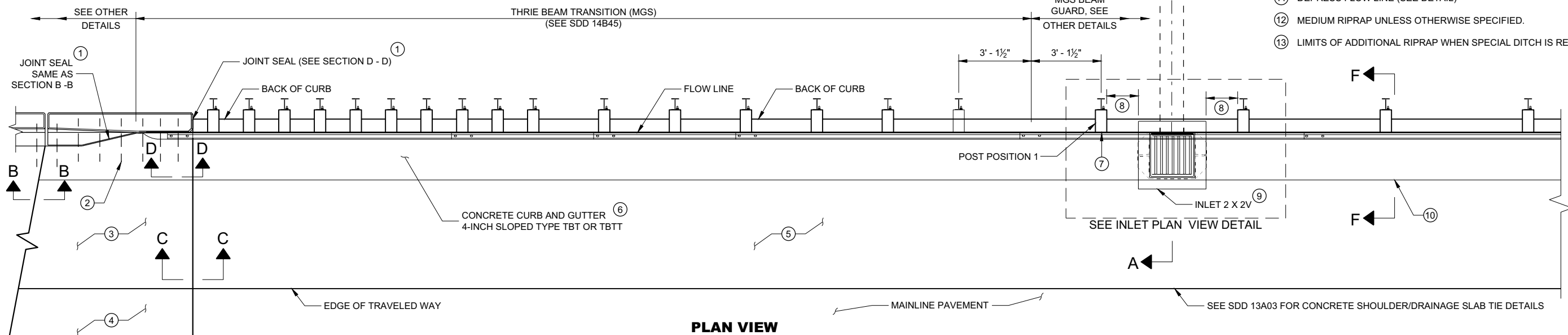
CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

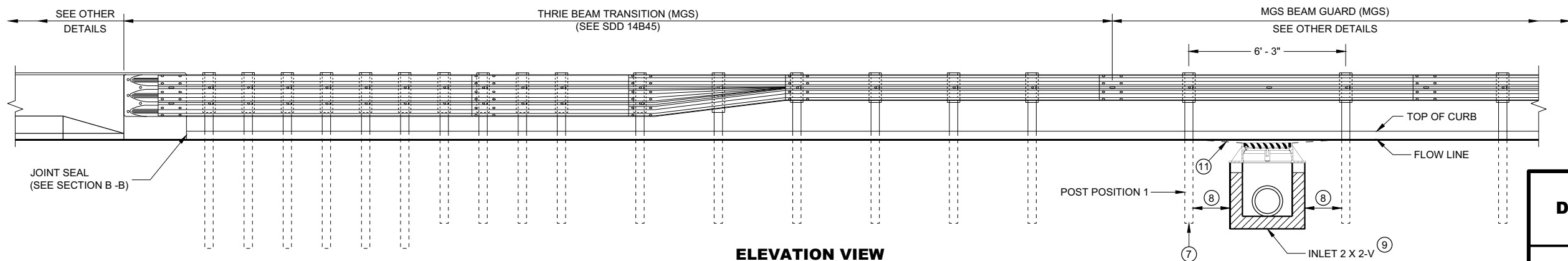
APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE ENGINEER 129
FHWA



INLET PLAN VIEW
(NOTE: RAIL NOT SHOWN FOR CLARITY)



PLAN VIEW



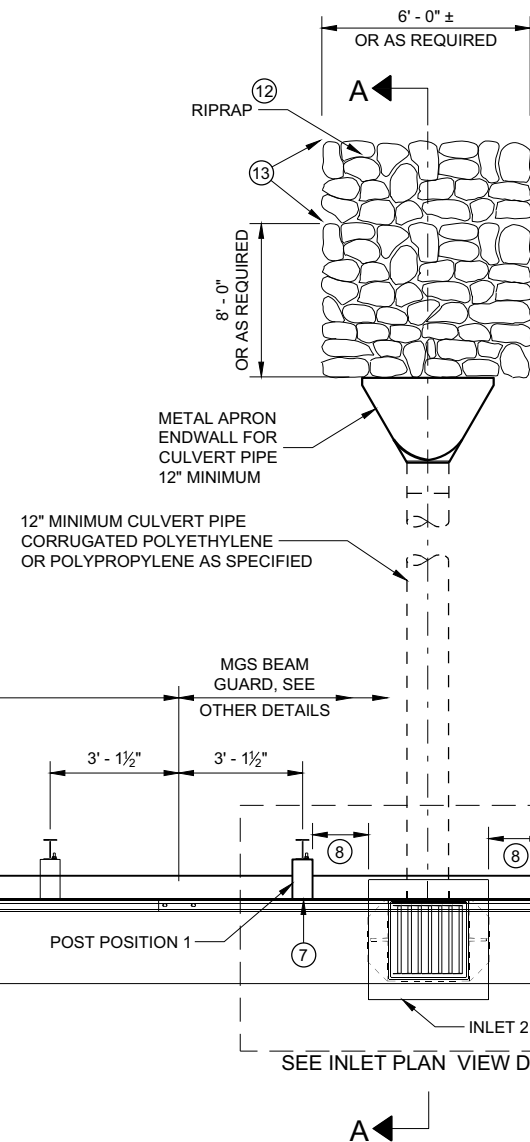
ELEVATION VIEW

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.

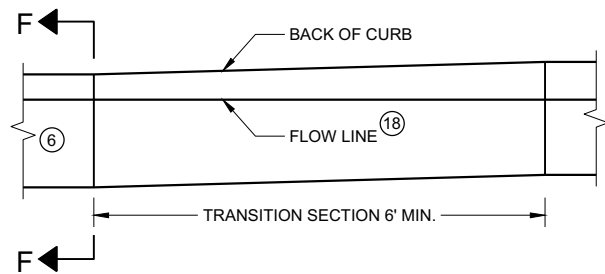
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- 9 SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- 10 START CURB AND GUTTER TRANSITION OR END SECTION.
- 11 DEPRESS FLOW LINE (SEE DETAIL)
- 12 MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- 13 LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

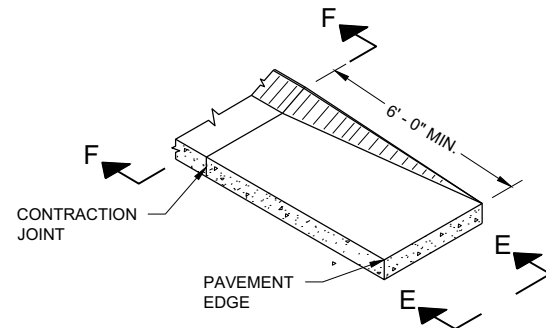


CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

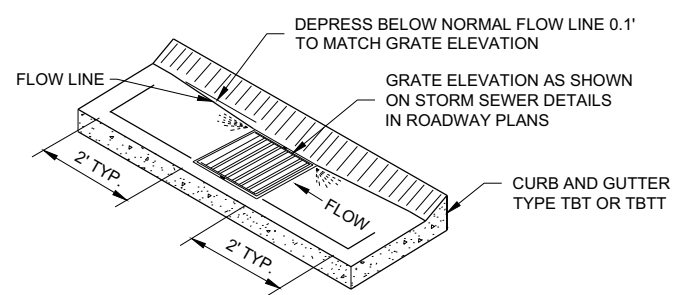
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



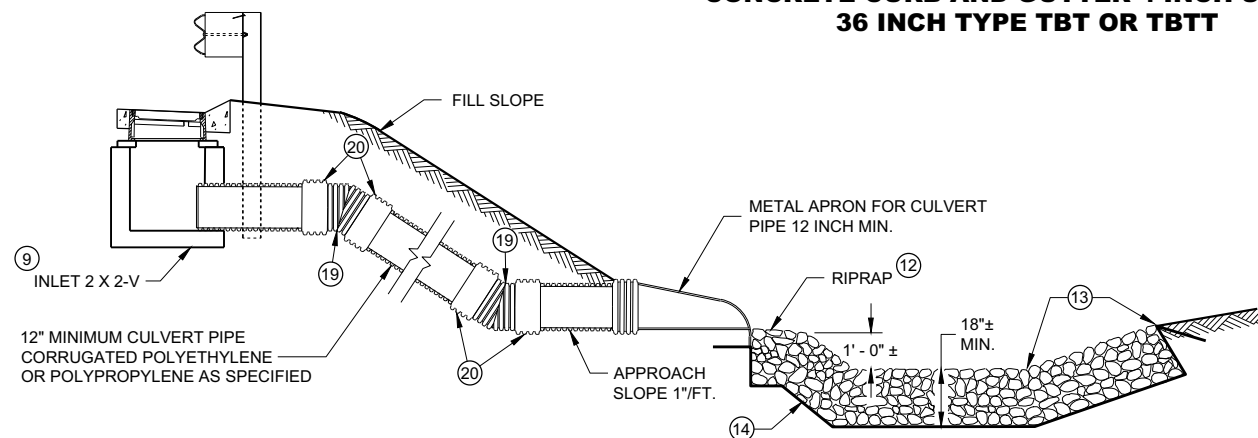
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



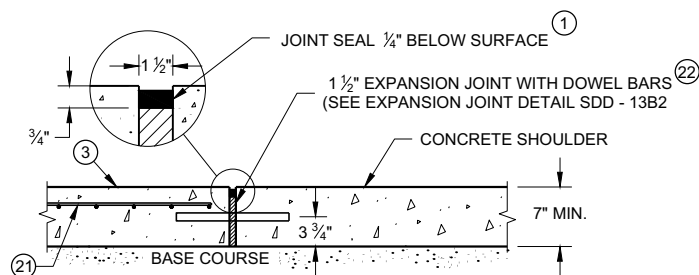
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBT**



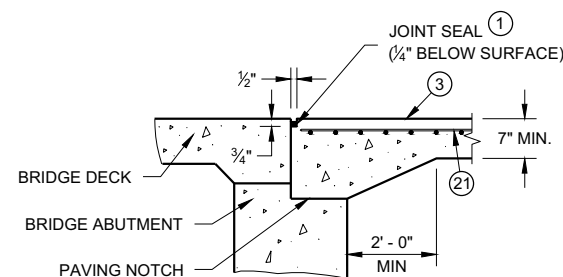
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBT**



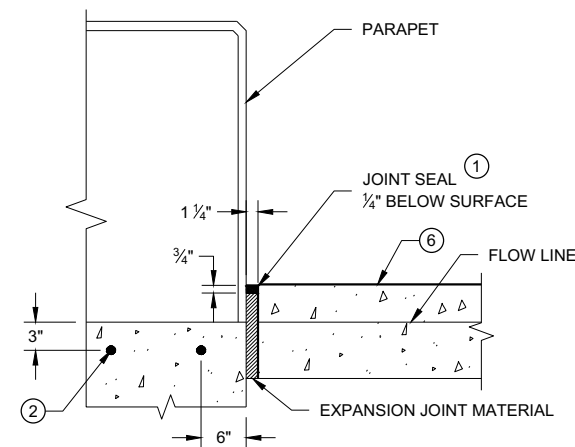
SECTION A - A



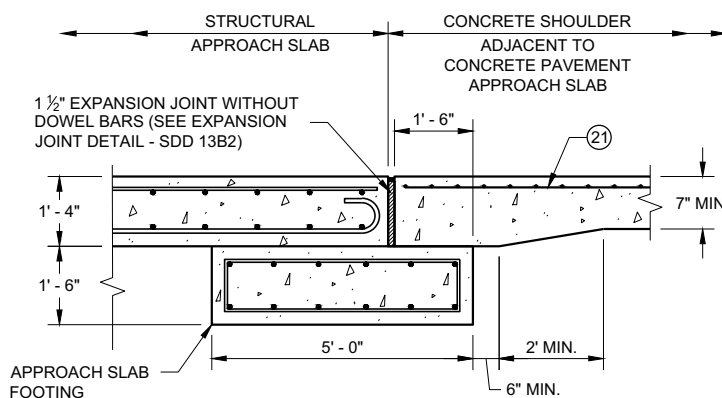
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



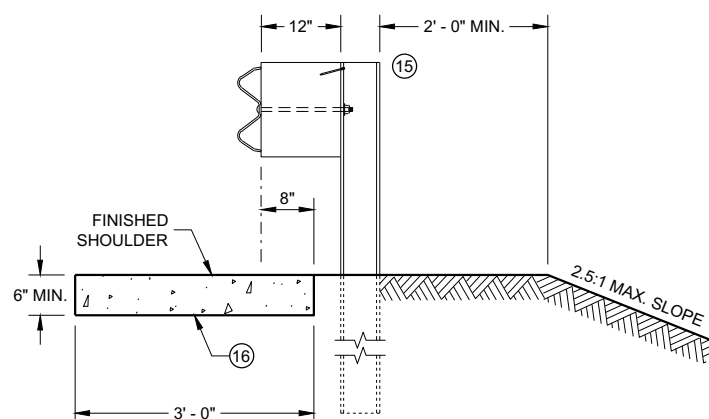
SECTION B-B



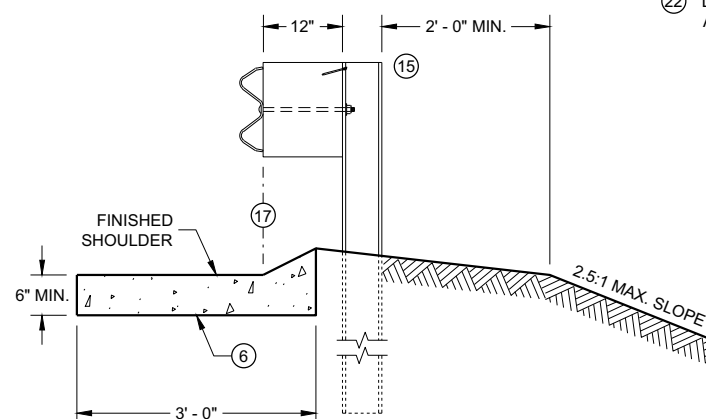
SECTION D - D



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



SECTION E - E



SECTION F - F

GENERAL NOTES

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE FABRIC TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

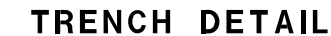
CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 131



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

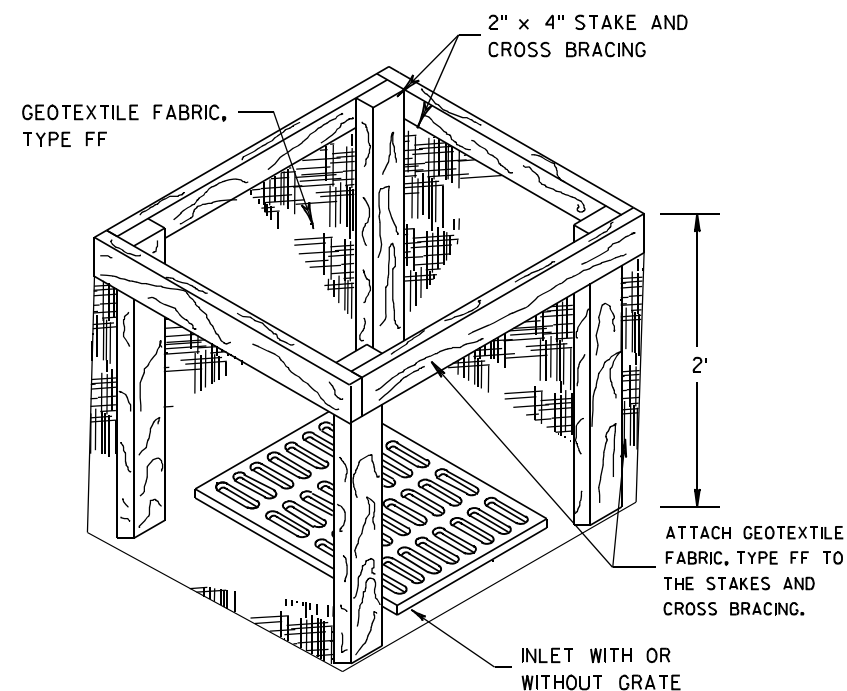
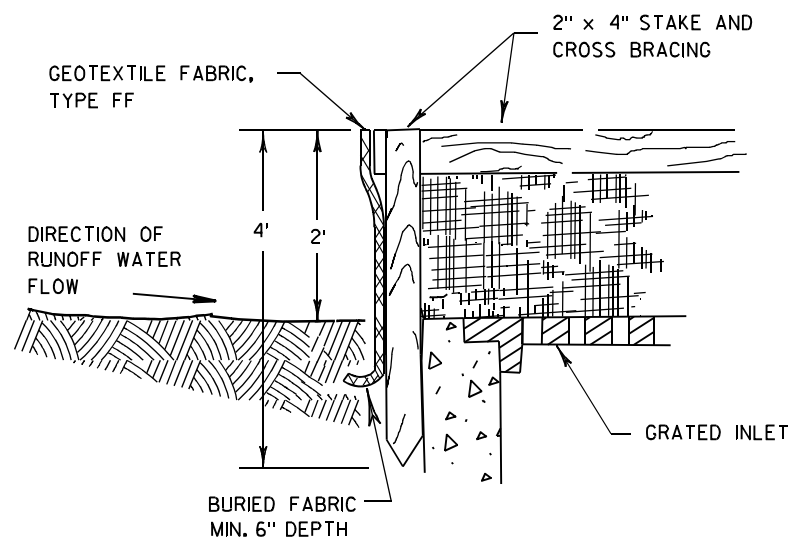


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE /S/ Beth Connolly
CHIEF ROADWAY DEVELOPMENT **132** **ENGINEER**

FHWA



INLET PROTECTION, TYPE A

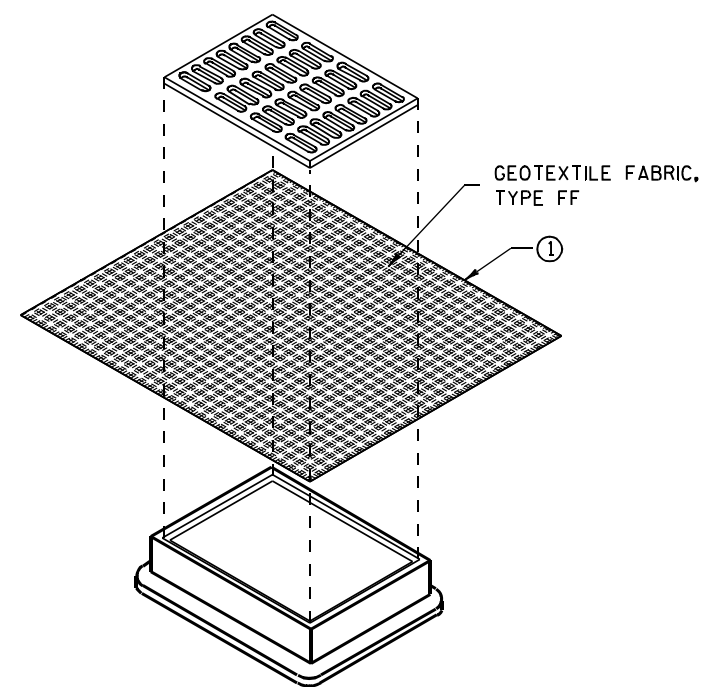
GENERAL NOTES

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

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

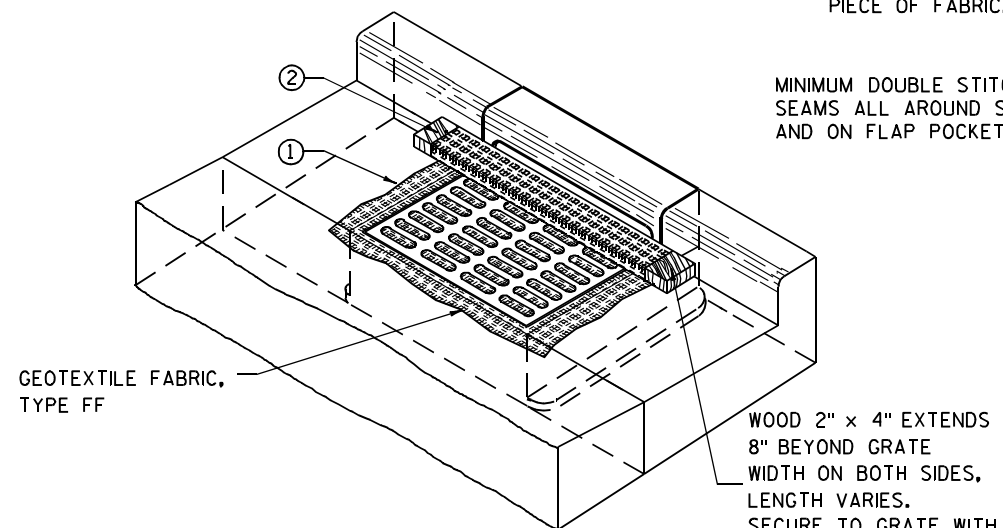
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

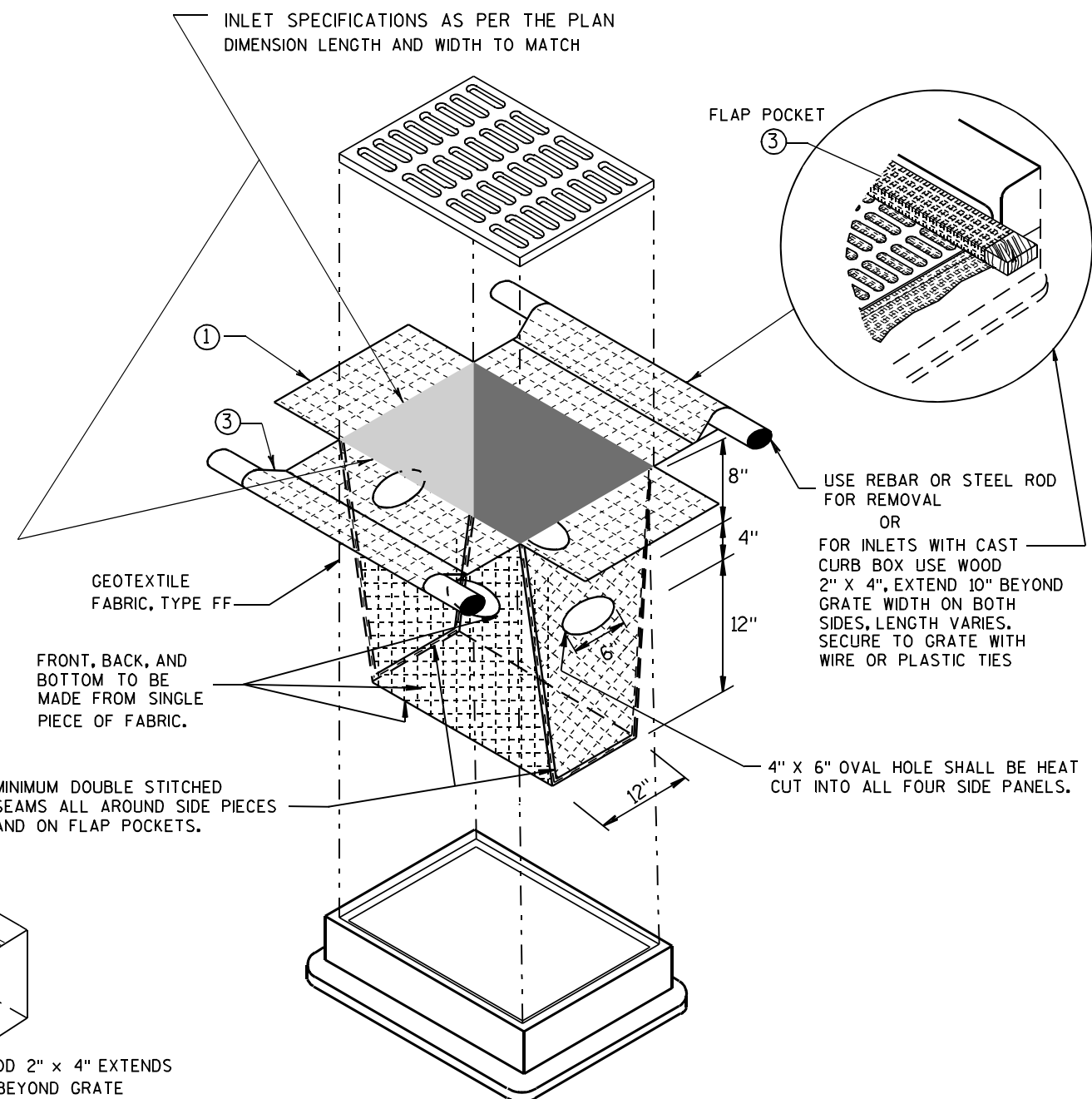
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

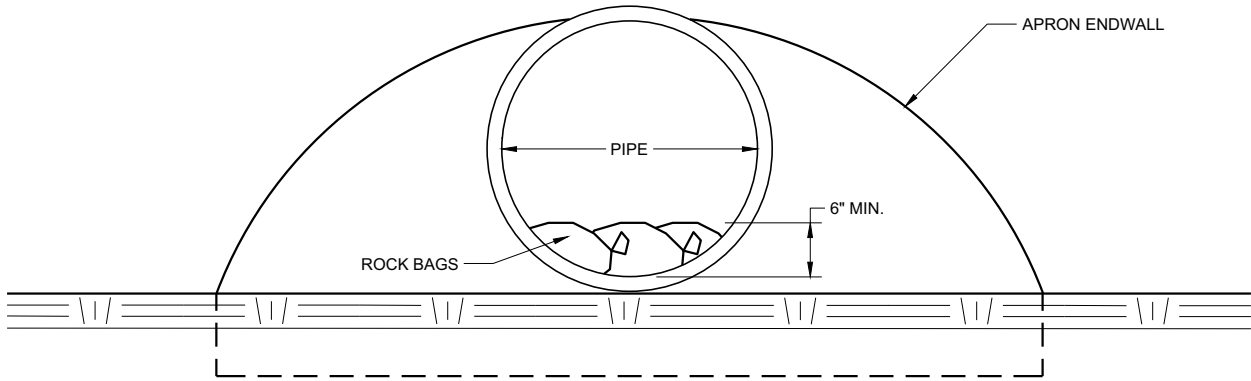
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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



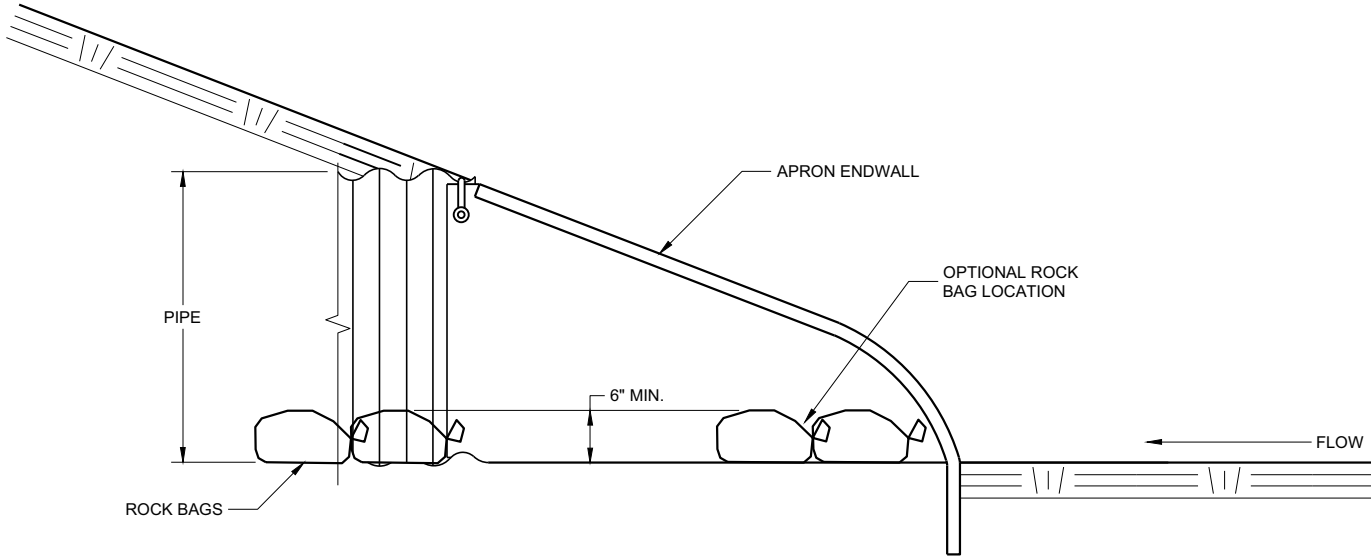
INLET PROTECTION, TYPE D

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

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 133 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



END VIEW



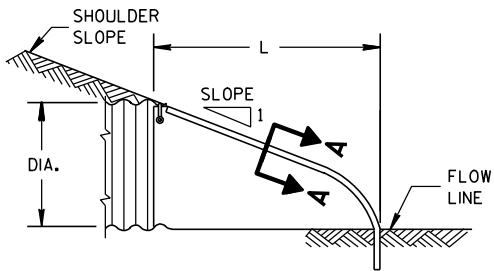
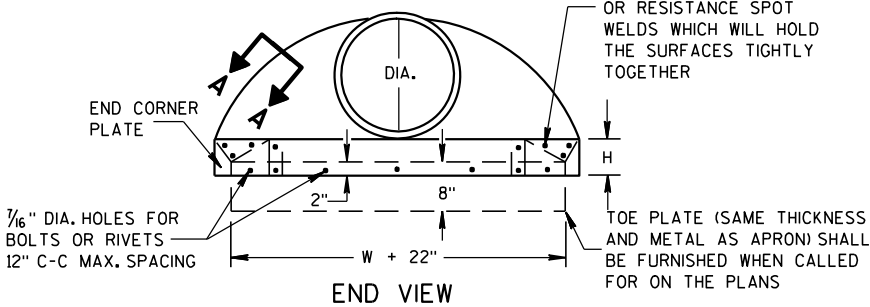
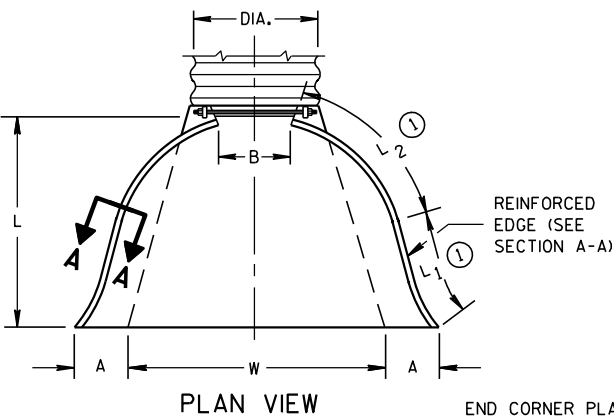
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 134
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.

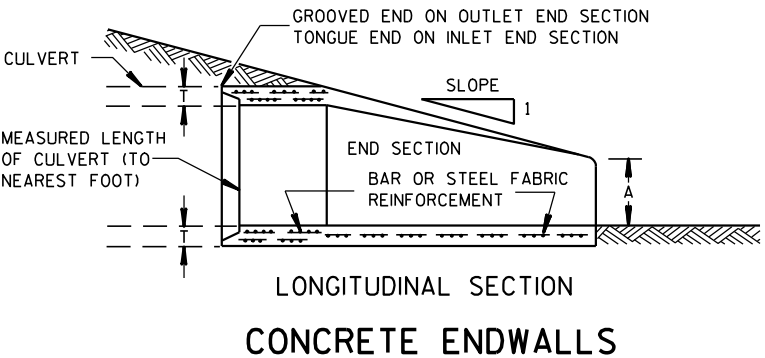
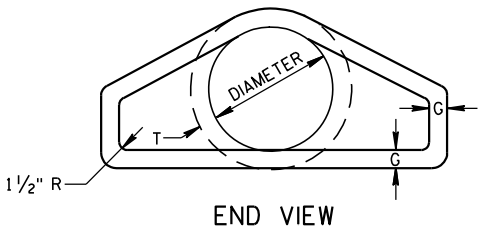
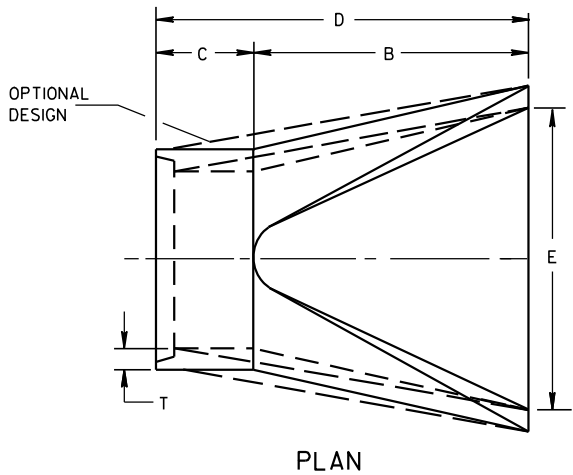
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

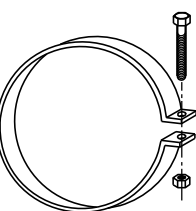
REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43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

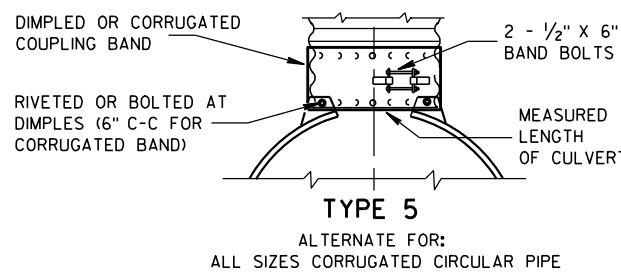
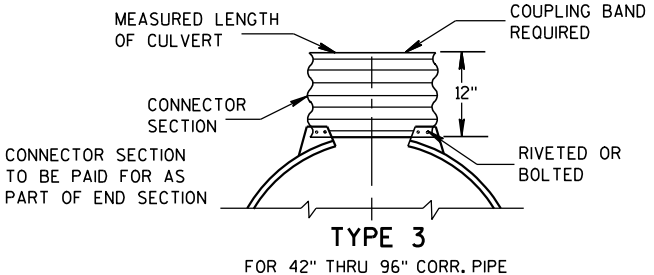
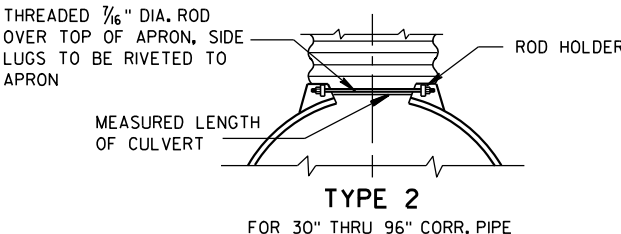
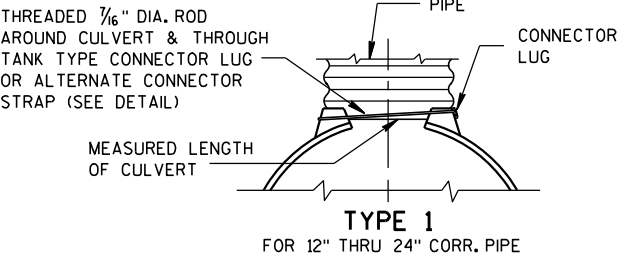


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



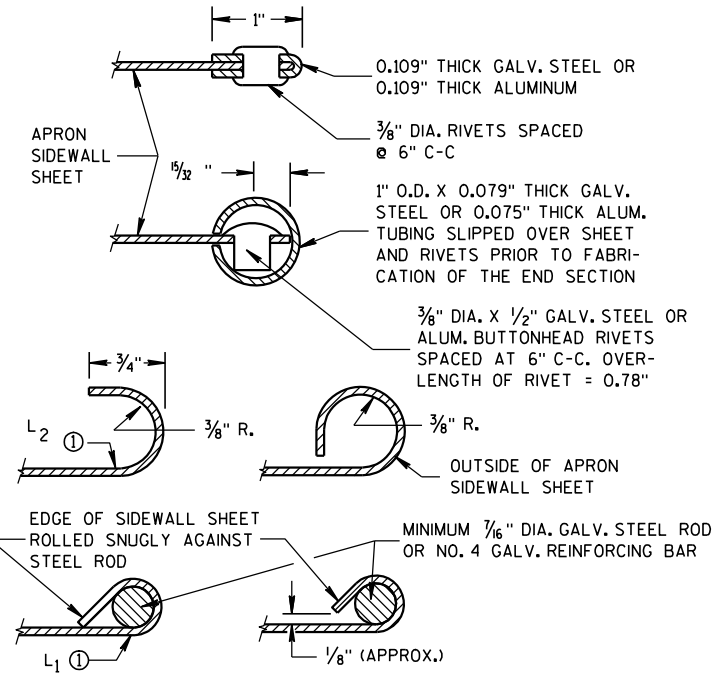
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

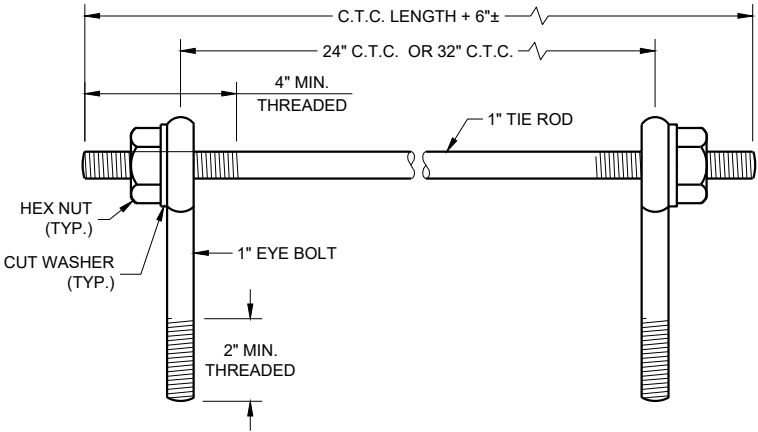
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

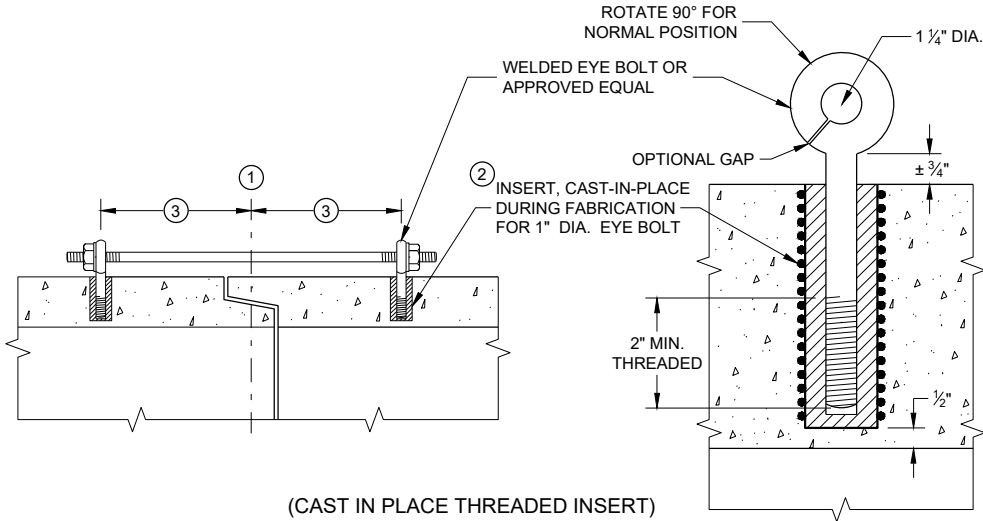
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOPMENT	135	NEER
FHWA			



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

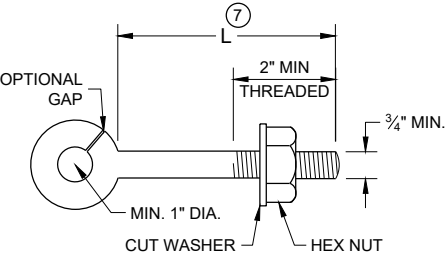
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

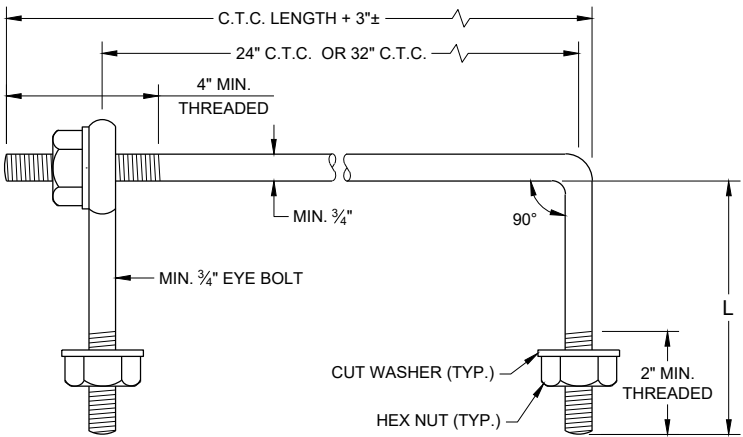
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

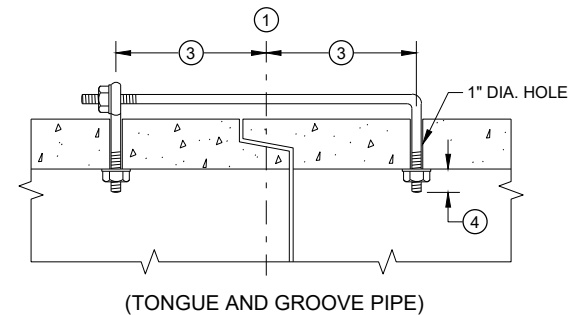


EYE BOLT ⑦

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

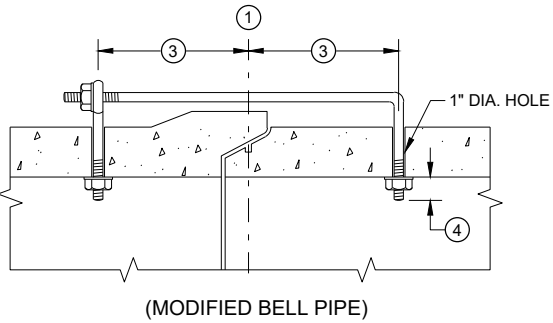


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

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

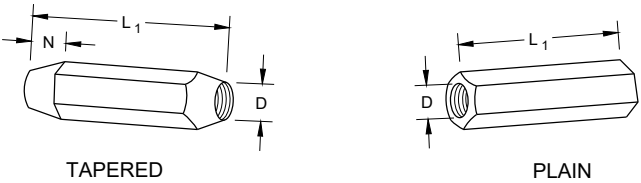


(MODIFIED BELL PIPE)

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

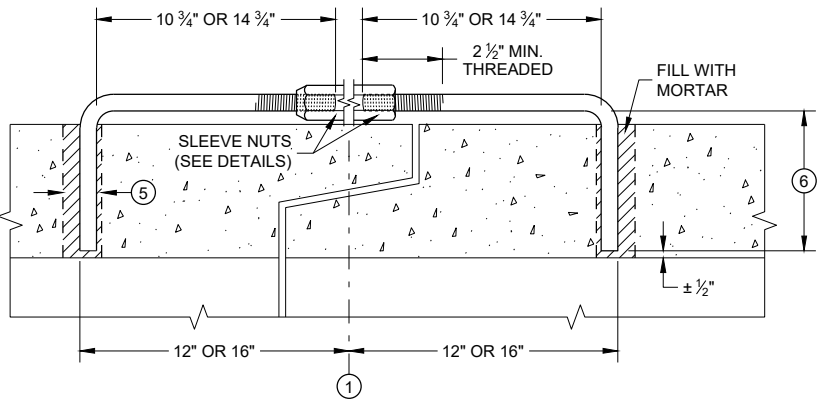
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

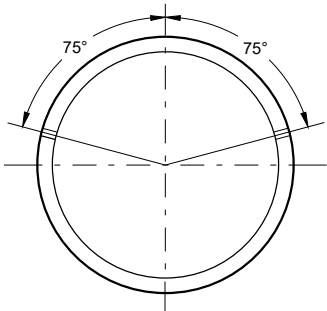
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



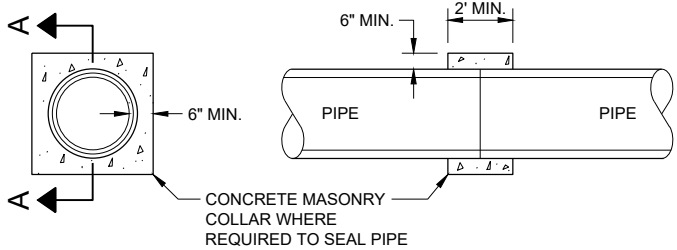
LONGITUDINAL SECTION

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



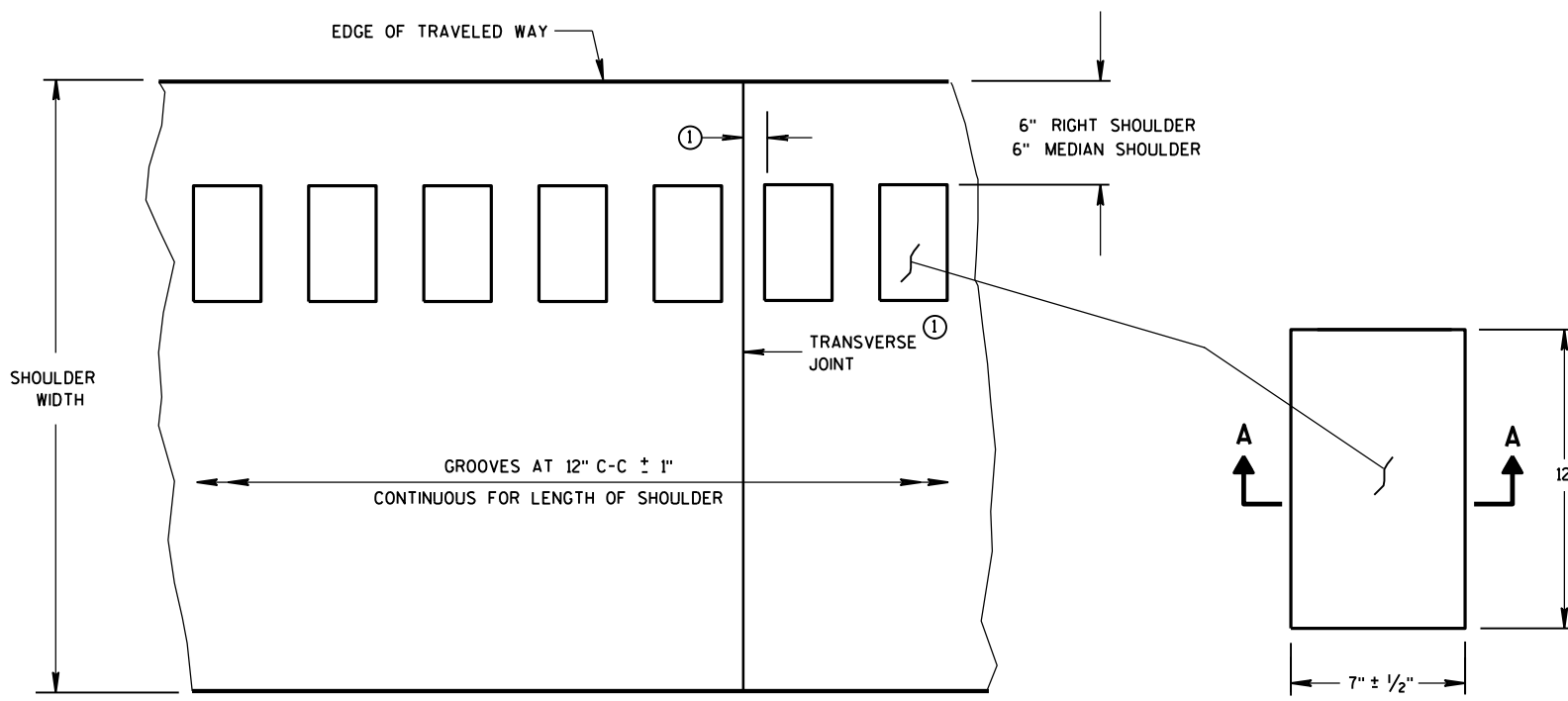
SECTION A - A

CONCRETE COLLAR DETAIL

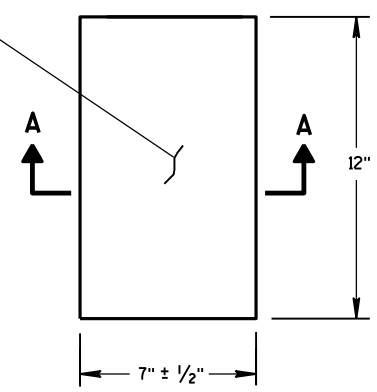
JOINT TIES FOR CONCRETE
PIPE AND CONCRETE
COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 136
FHWA



PLAN VIEW
SHOULDER WITH GROOVES



PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

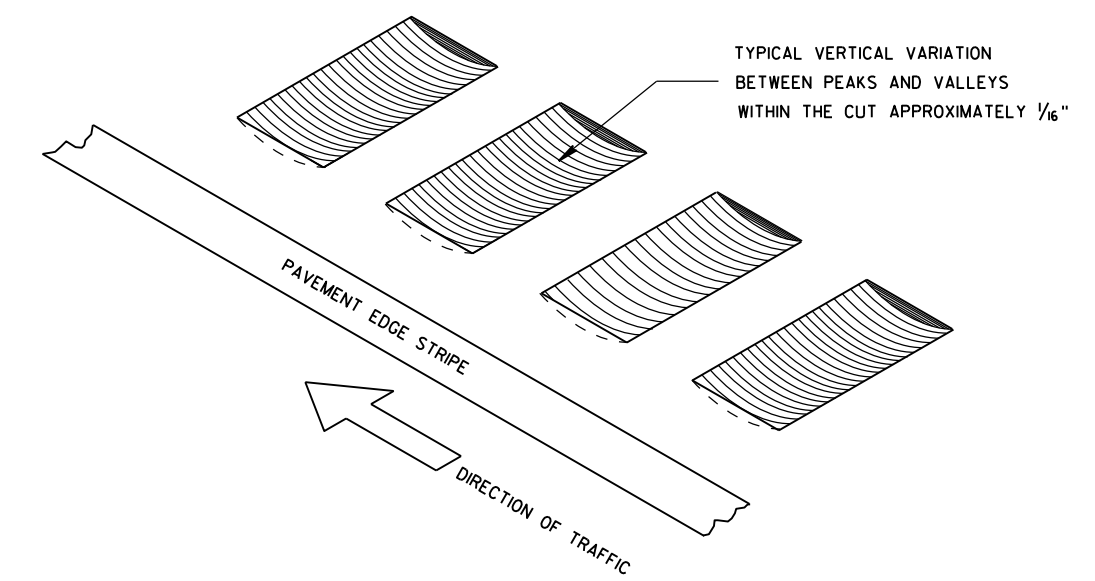
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

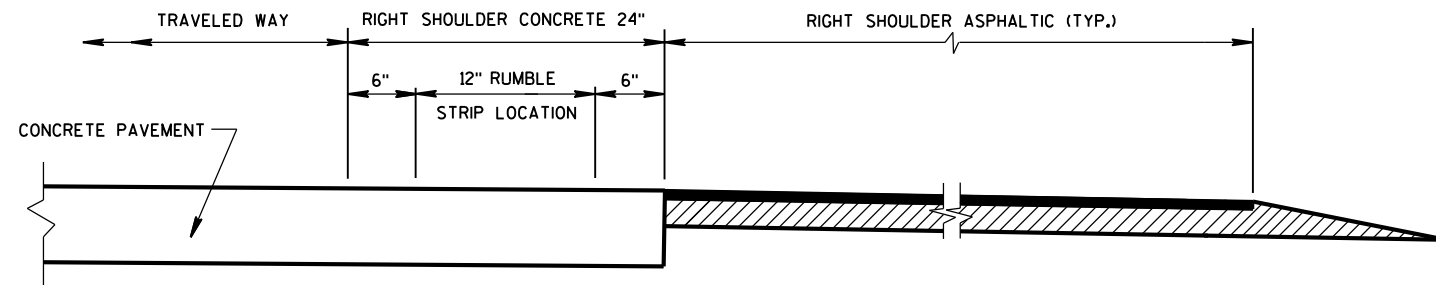
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

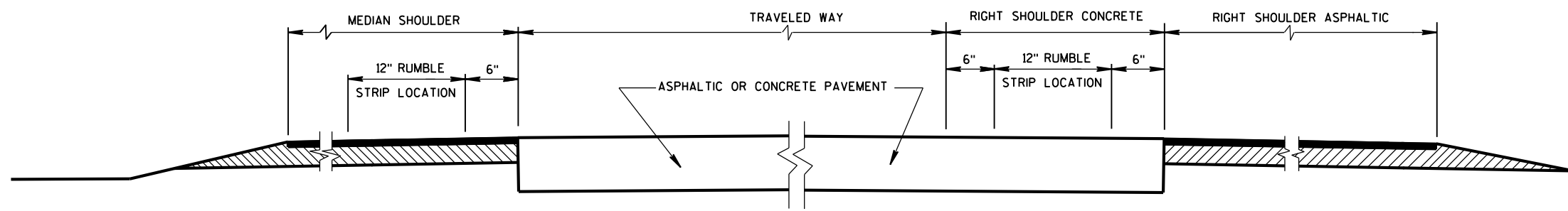
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



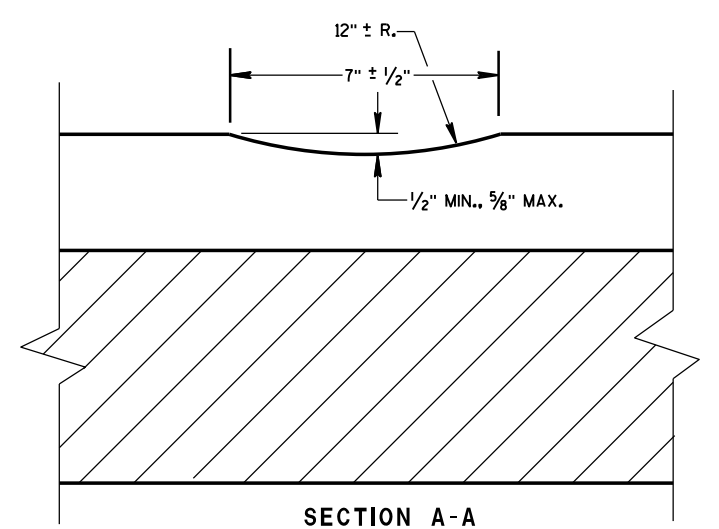
ISOMETRIC



SECTION VIEW
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



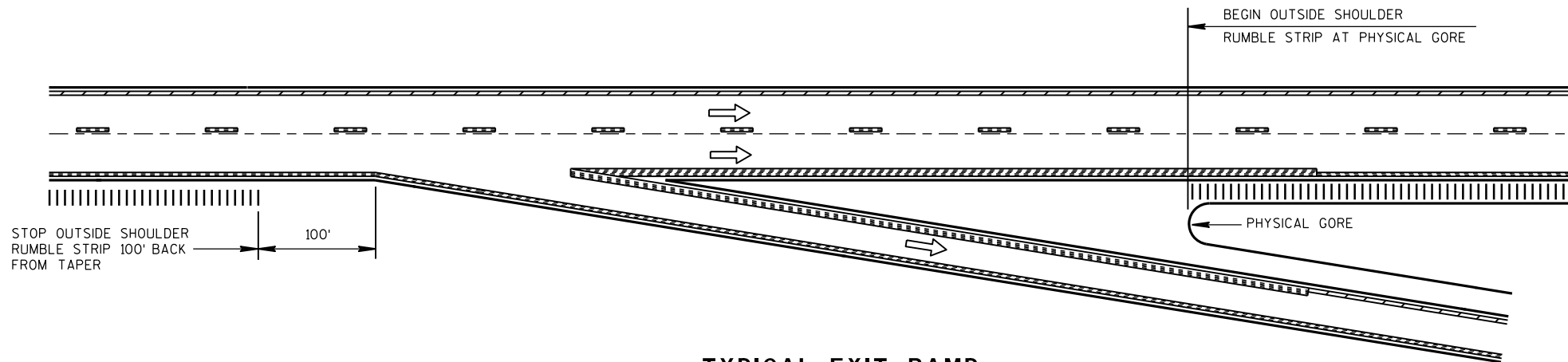
SECTION VIEW
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS
IN RURAL DIVIDED HIGHWAYS
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 137



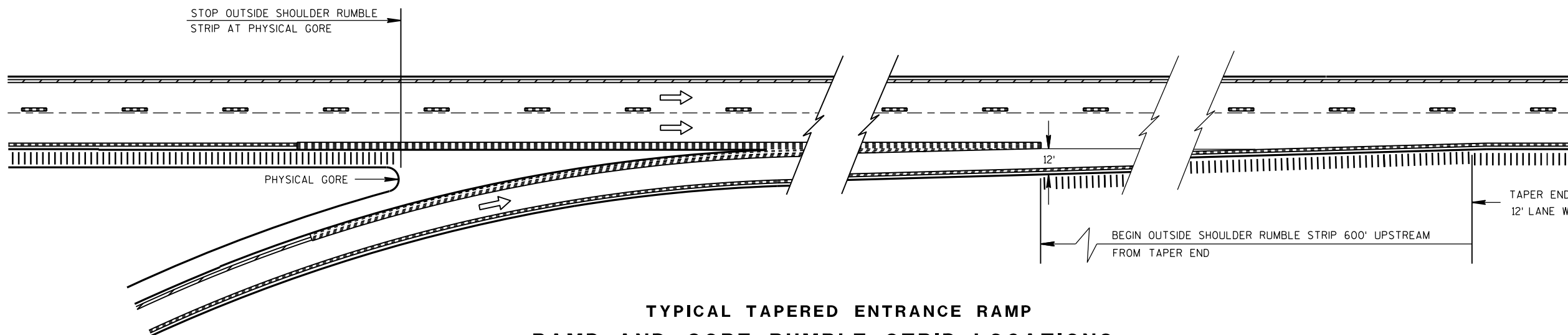
TYPICAL EXIT RAMP

NOTES:

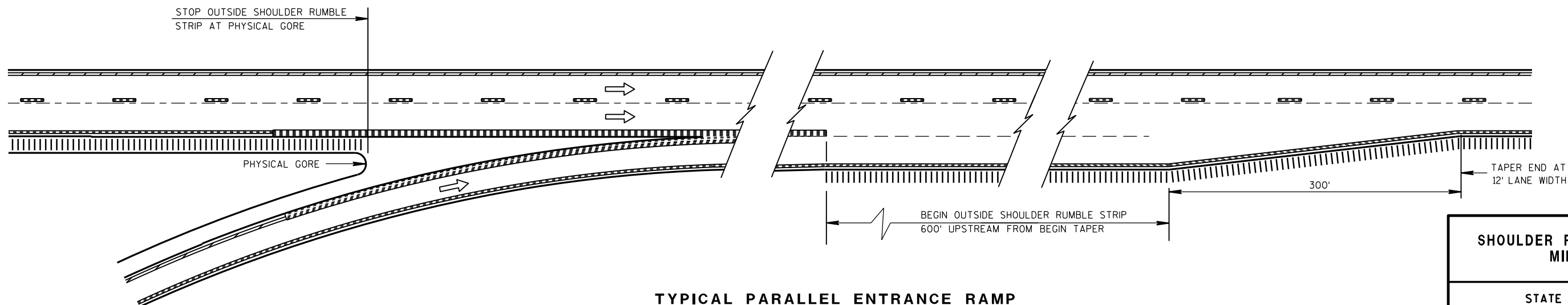
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



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



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

**SHOULDER RUMBLE STRIP,
MILLING**

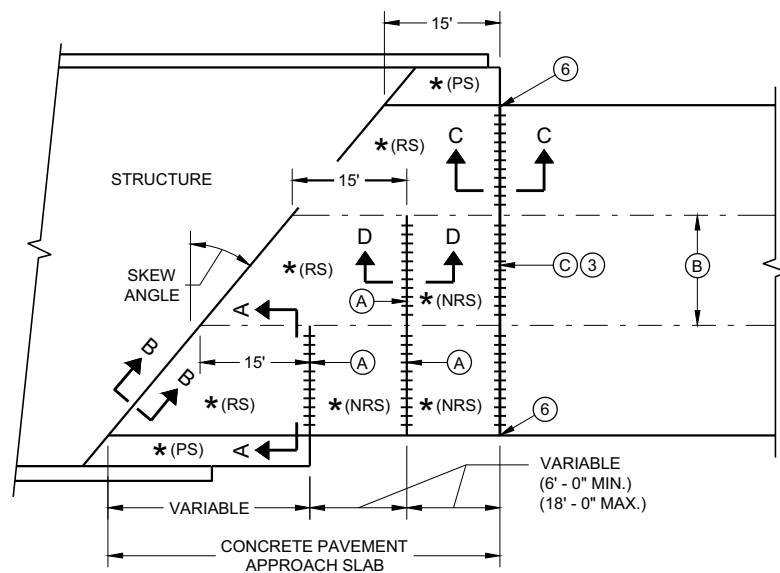
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/2012
DATE
FHWA

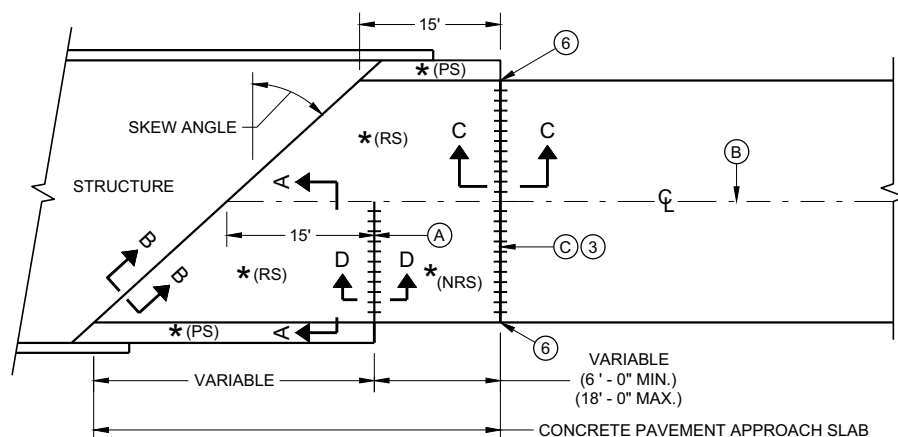
/S/ Jerry H. Zoagg
ROADWAY STANDARDS ENGINEER

138

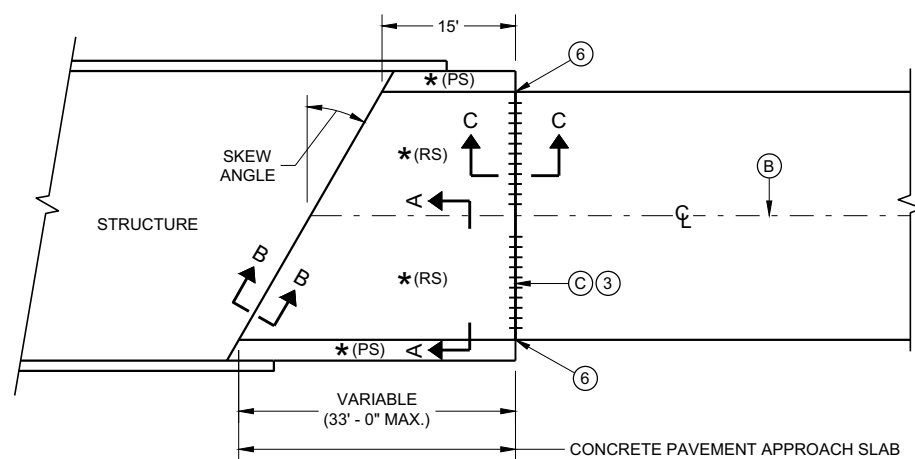
ENT



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



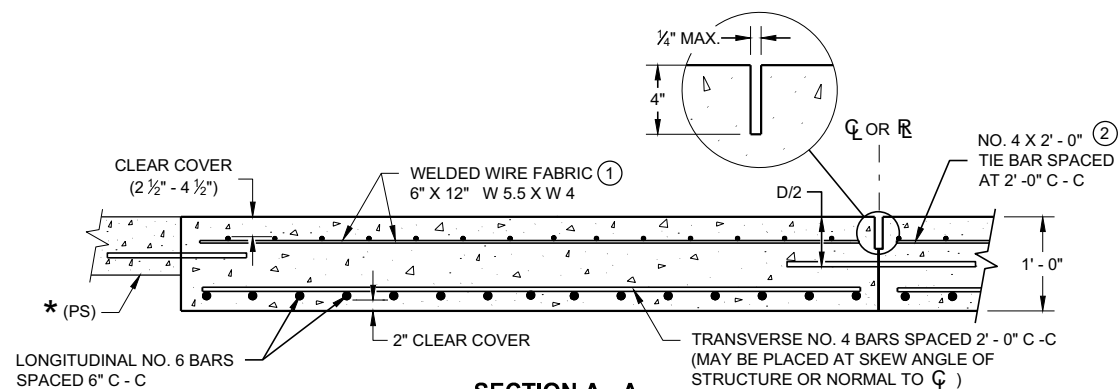
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



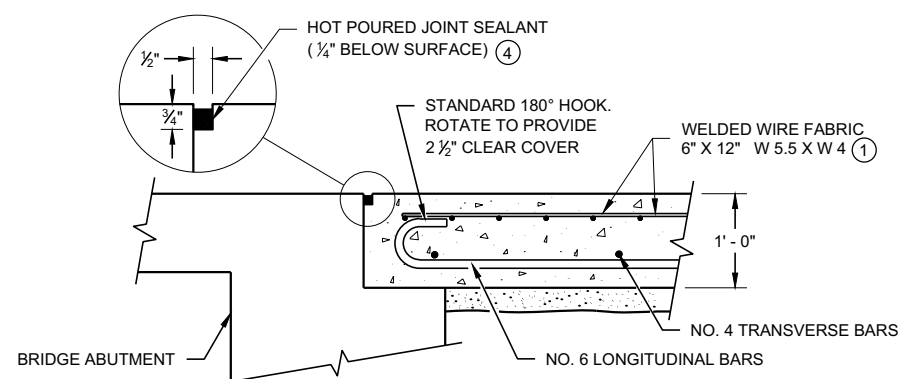
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

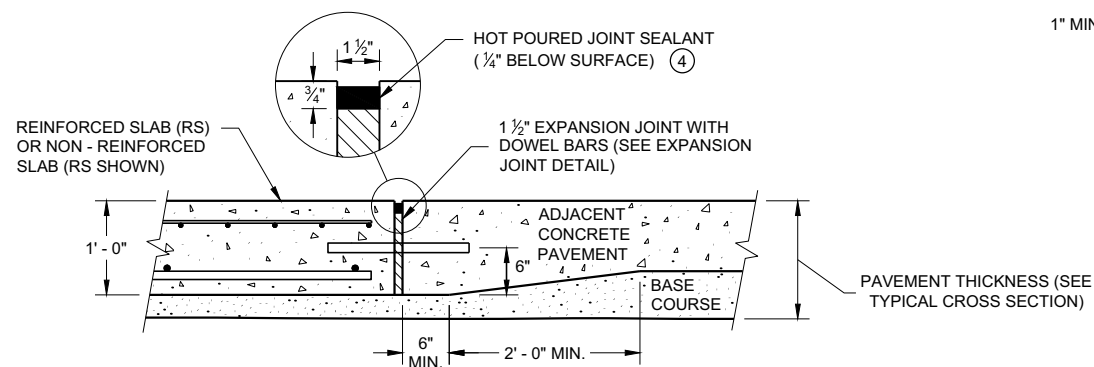
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



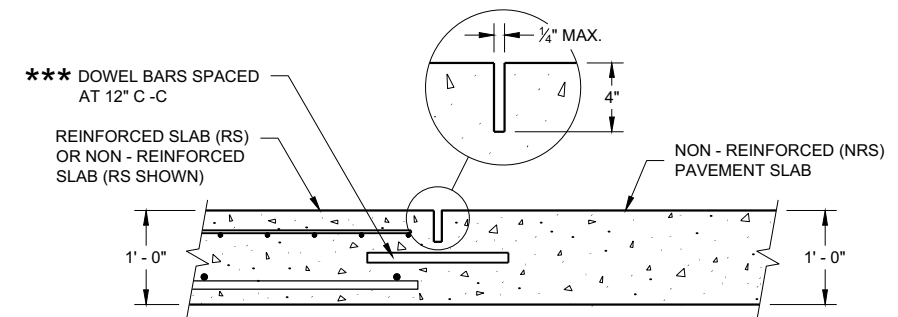
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

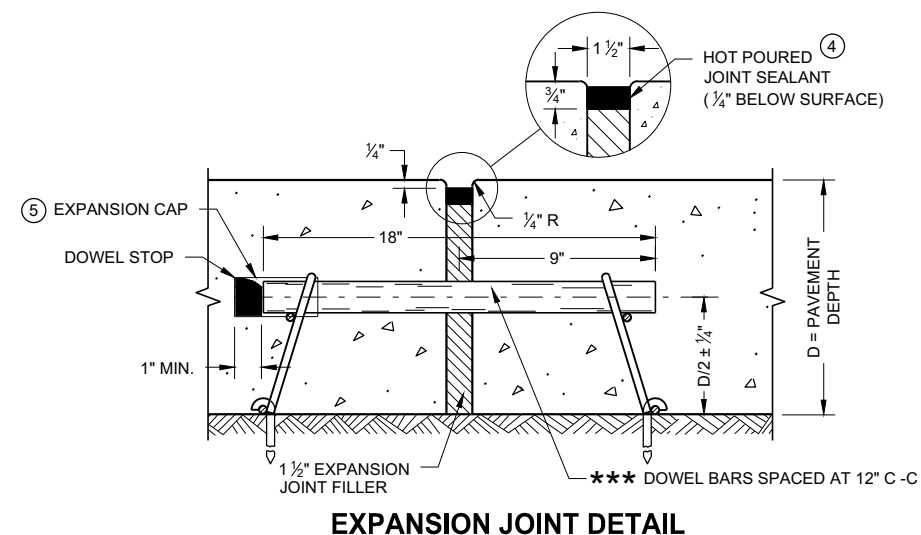
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

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



**SECTION D - D
CONTRACTION JOINT**



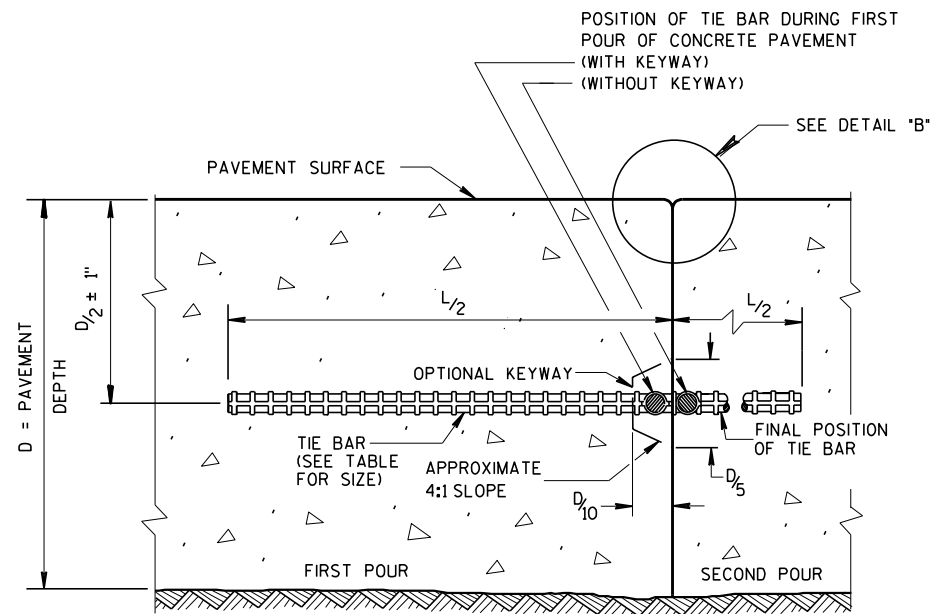
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

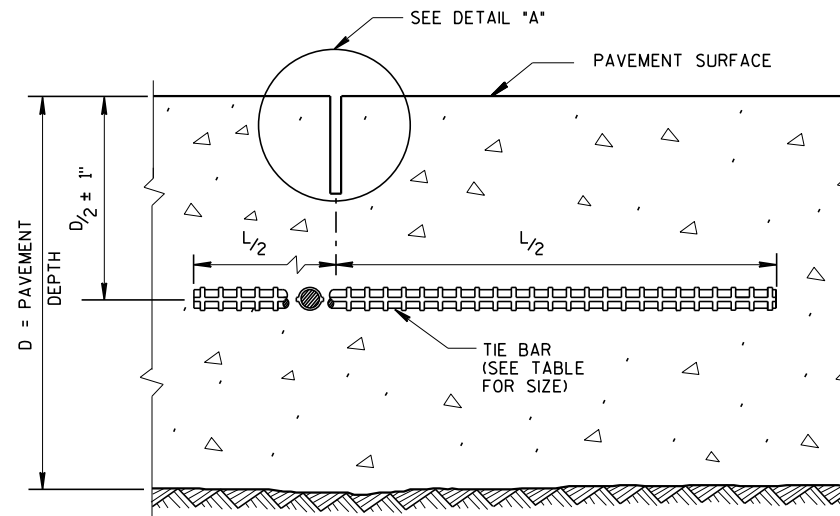
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 139

FHWA



CONSTRUCTION JOINT



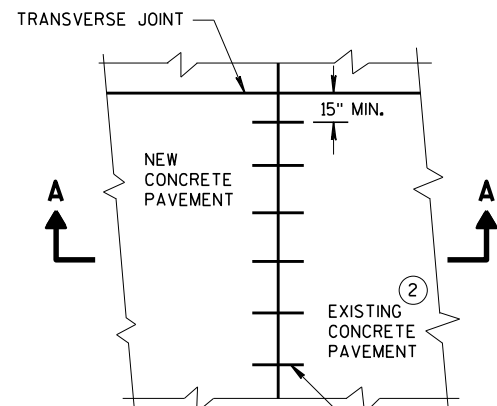
SAWED JOINT

GENERAL NOTES

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

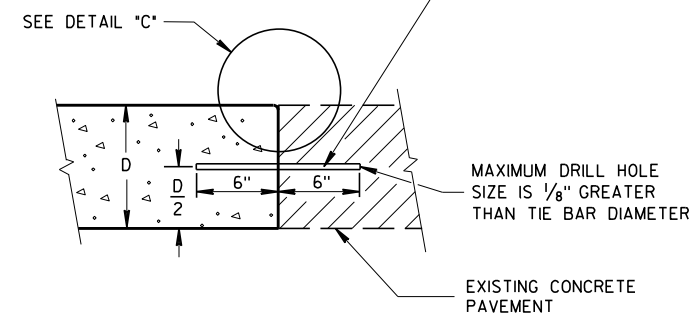
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

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

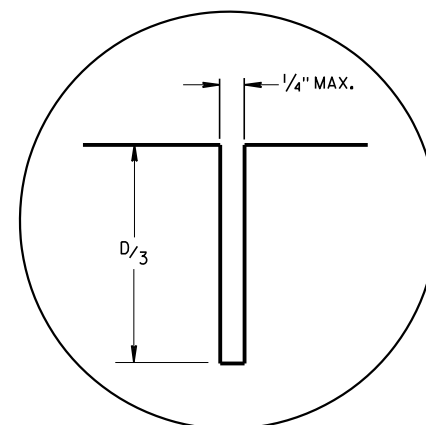


PLAN VIEW

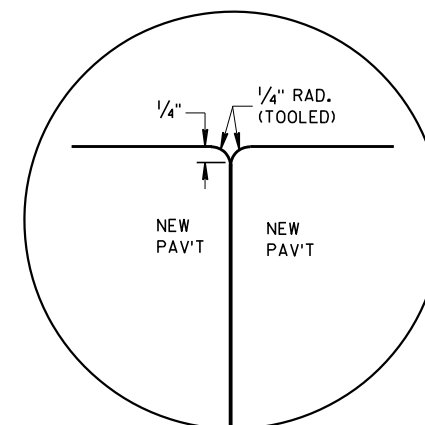
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



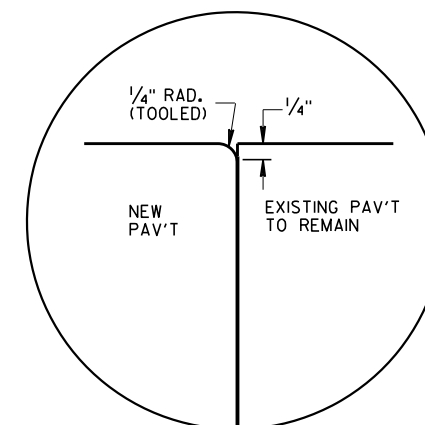
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



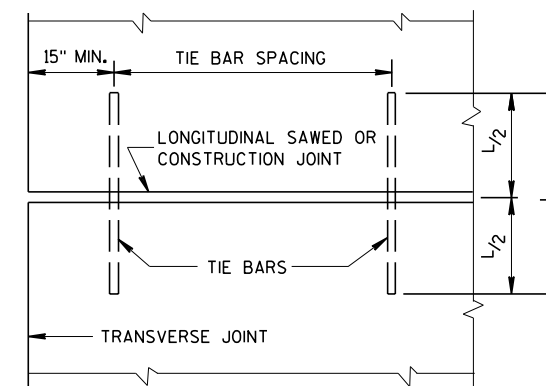
DETAIL "C"

TIE BAR TABLE

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

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

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

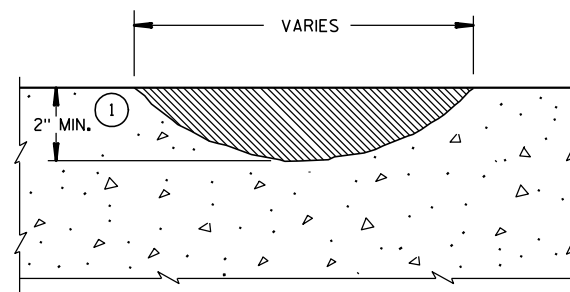


PLAN VIEW
SHOWING LOCATION OF TIE BARS

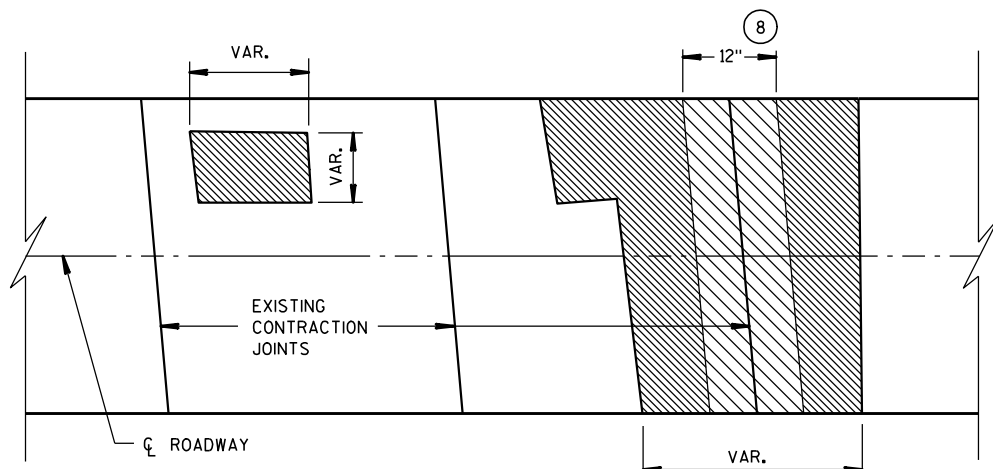
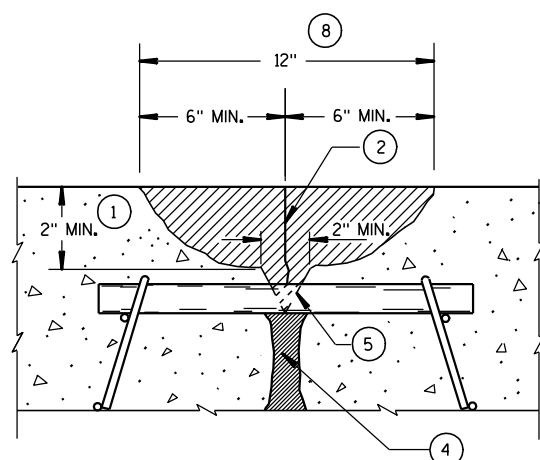
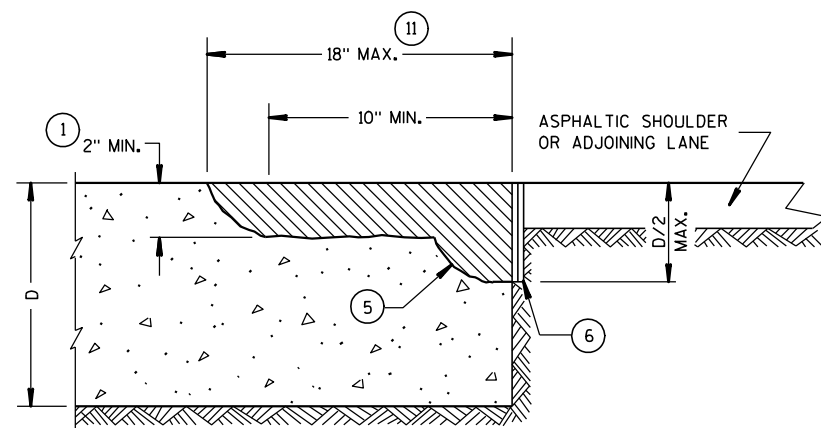
CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kern
DATE PAVEMENT SUPE 140
FHWA

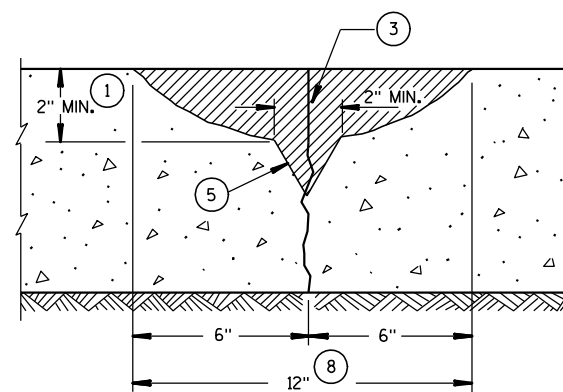


PROFILE VIEW

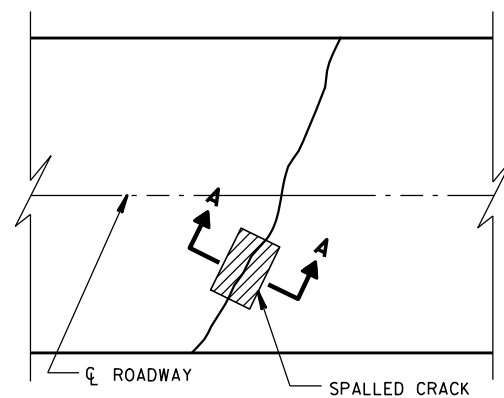
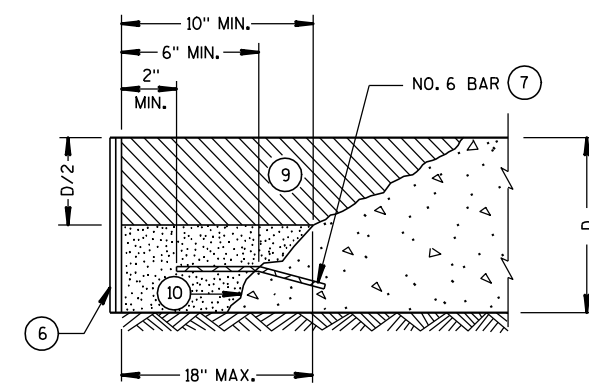
PLAN VIEW
SURFACE REPAIRPROFILE VIEW
JOINT REPAIR

PROFILE VIEW

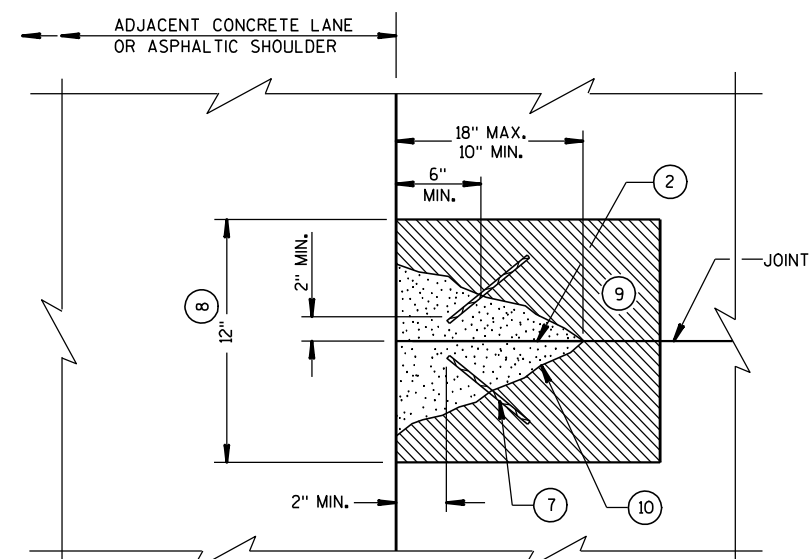
EDGE REPAIR



SECTION A-A

PLAN VIEW
CRACK REPAIR

PROFILE VIEW

PLAN VIEW
FULL DEPTH REPAIR ADJUSTMENT

GENERAL NOTES

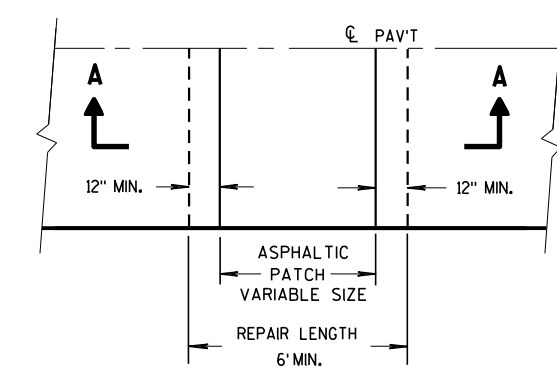
- ① REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO A MAXIMUM OF $\frac{1}{2}$ THE PAVEMENT DEPTH OR TOP OF DOWELS.
- ② IF REPAIR IS DEEPER THAN ANTICIPATED SAWCUT, COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK ($\frac{1}{4}$ "). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
- ③ COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK ($\frac{1}{4}$ "). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
- ④ CLEAN, DRY SAND WHEN NECESSARY.
- ⑤ REMOVE UNSOUND MATERIAL BY CHIPPING AT 1:1 SLOPE.
- ⑥ $\frac{1}{4}$ " MINIMUM PREFORMED JOINT FILLER IF ADJACENT TO CONCRETE. EDGING REQUIRED, FULLY FORMED EDGE IF ADJACENT TO SHOULDER.
- ⑦ PAVEMENT TIES AS SHOWN. ALL EMBEDMENTS 6" MINIMUM AND INSTALLED WITH GROUT.
- ⑧ OVER 12" (NOMINAL WIDTH) WILL BE PAID AS SURFACE REPAIR.
- ⑨ PAID AS JOINT OR CRACK REPAIR.
- ⑩ FULL-DEPTH ADJUSTMENT SHALL BE CHIPPED TO BOTTOM OF PCC PAVEMENT AT 1:1 SLOPE.
- ⑪ BEYOND 18" WILL BE PAID AS SURFACE REPAIR.

CONCRETE PAVEMENT
PARTIAL DEPTH REPAIRSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

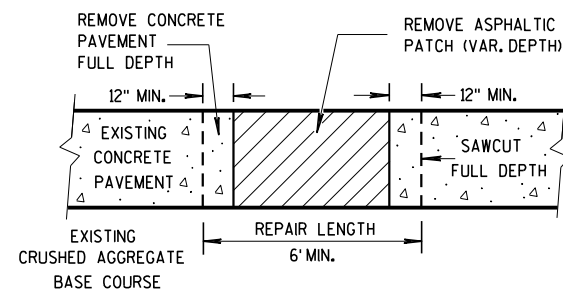
APPROVED

3/21/03
DATE/S/ Bill Duck
PAVEMENT ENGR 141

FHWA

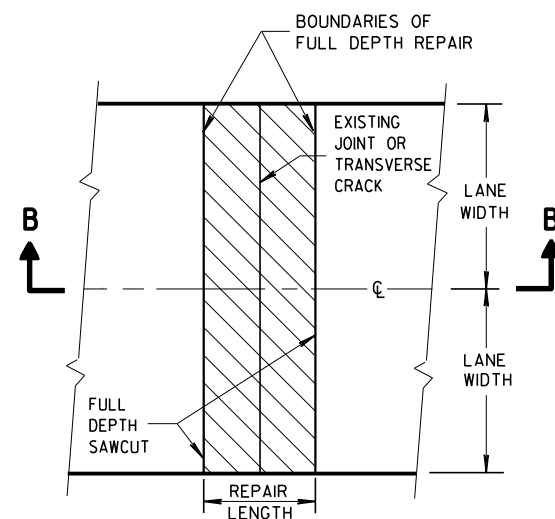
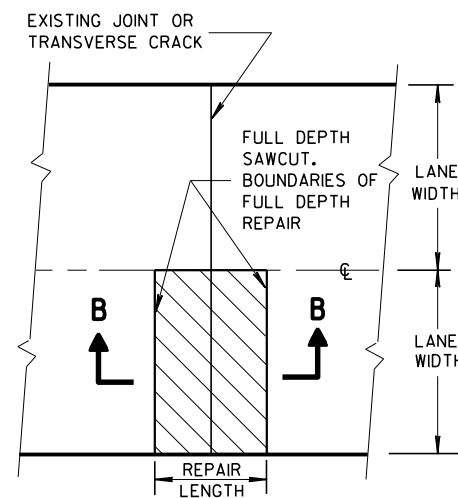


PLAN VIEW



SECTION A-A

HMA PATCH REMOVAL

PLAN VIEW
(DOUBLE LANE REPAIR)PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

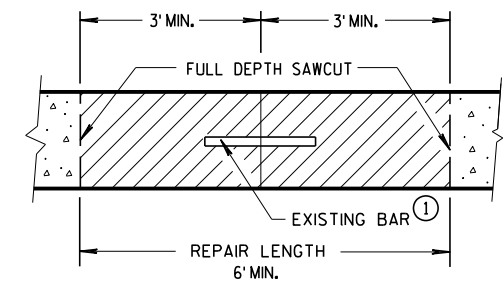
GENERAL NOTES

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

PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

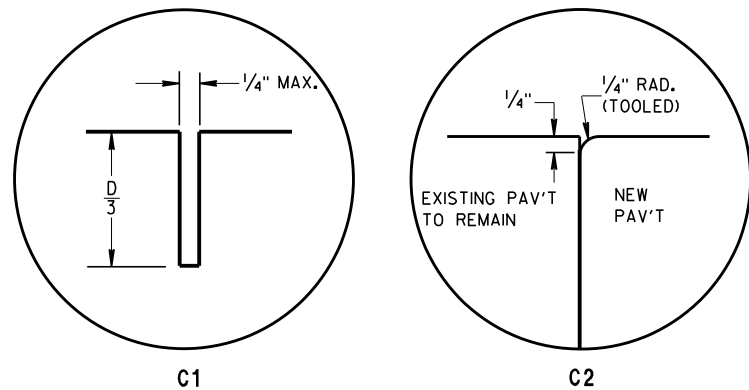
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MIGHT NOT EXIST.

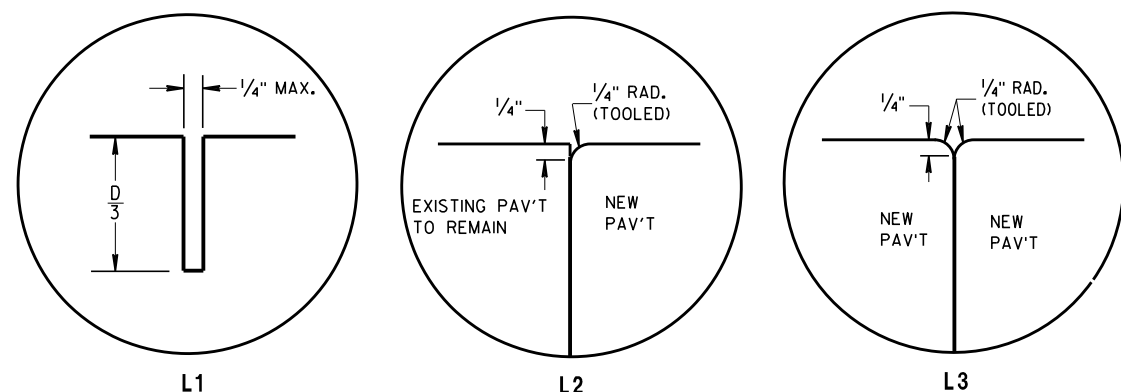
SECTION B-B
CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR
AND REPLACEMENT

STATE OF WISCONSIN¹⁴²
DEPARTMENT OF TRANSPORTATION



TRANSVERSE JOINTS

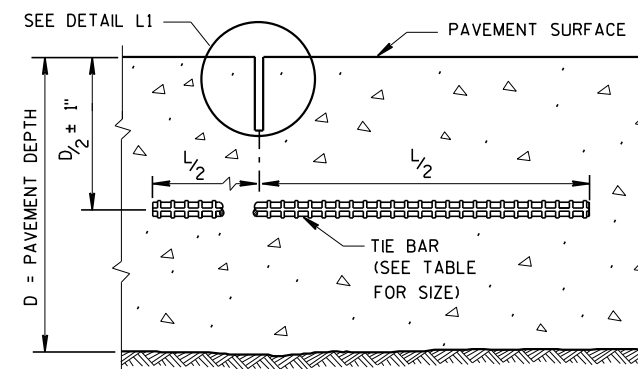


LONGITUDINAL JOINTS

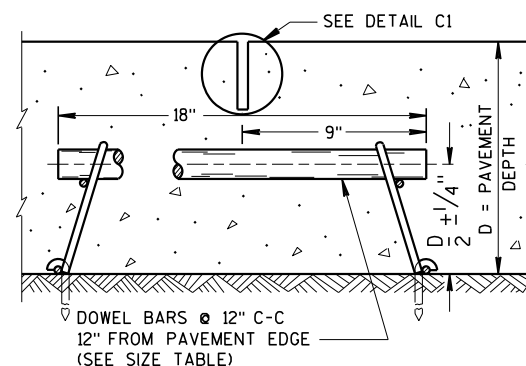
TIE BAR TABLE			
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* 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.



SECTION C-C
SAWED LONGITUDINAL JOINT



SECTION F-F
CONTRACTION JOINT

GENERAL NOTES

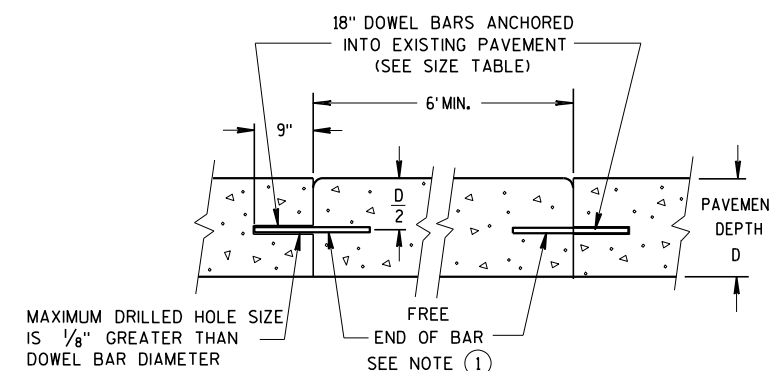
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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

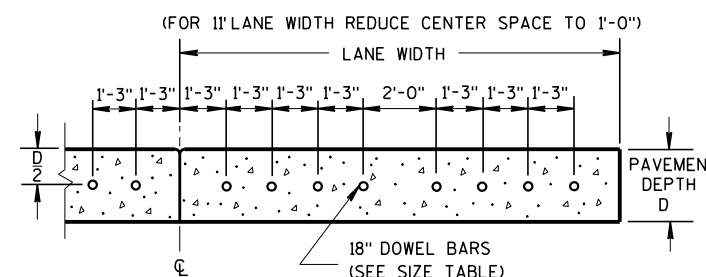
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

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.



SECTION D-D



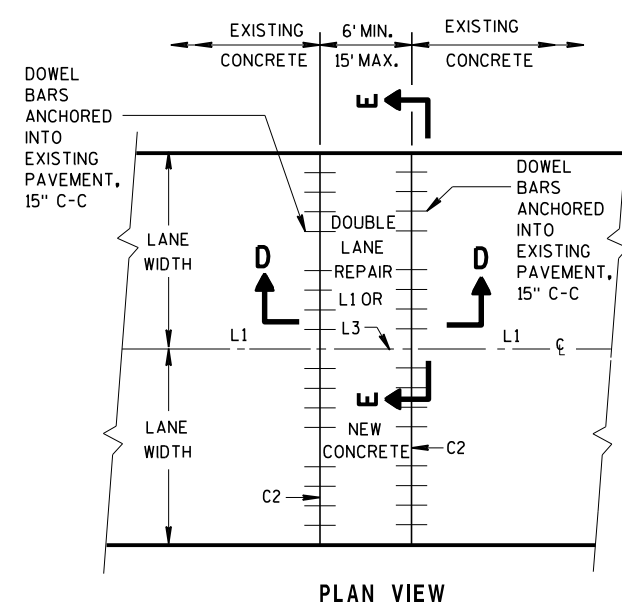
SECTION E-E
DRILLED DOWEL BAR CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

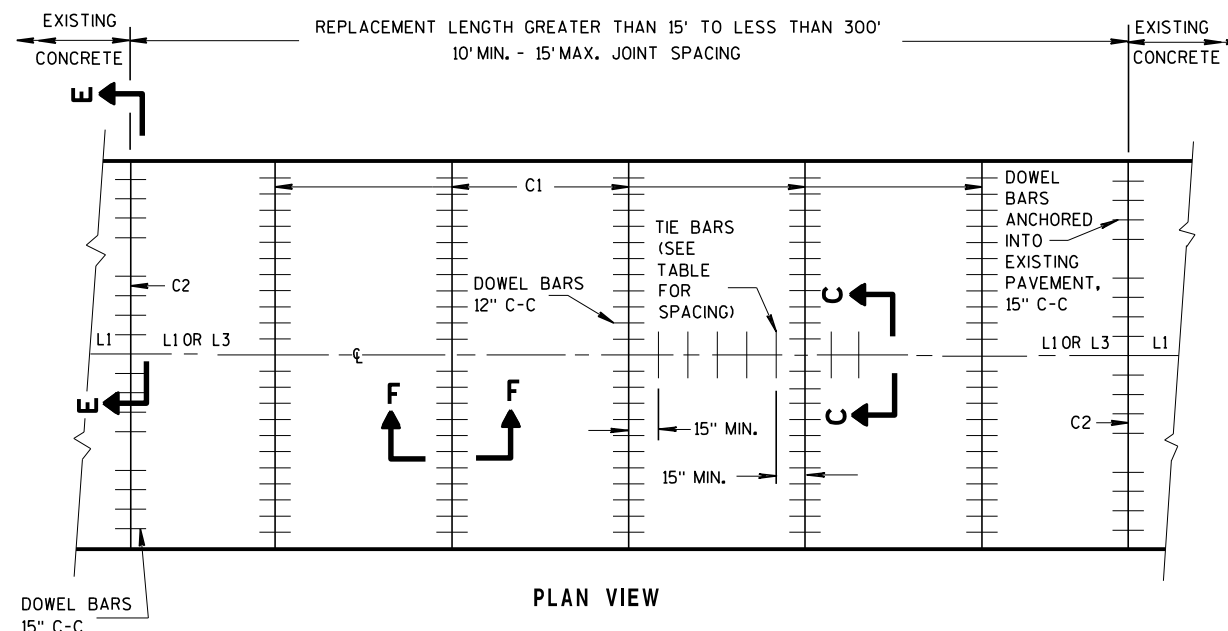
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8", 8 1/2"	1 1/4"	1 1/4"	15'
9", 9 1/2"	1 1/4"	1 1/4"	15'
10" & ABOVE	1 1/2"	1 1/4"	15'

CONCRETE PAVEMENT
REPAIR AND REPLACEMENT

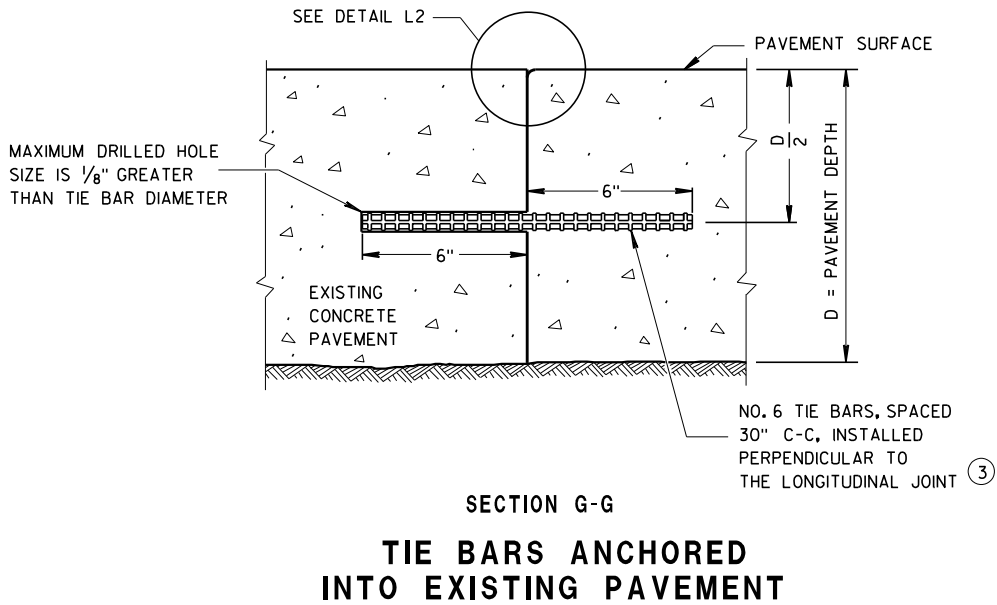
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPAIR

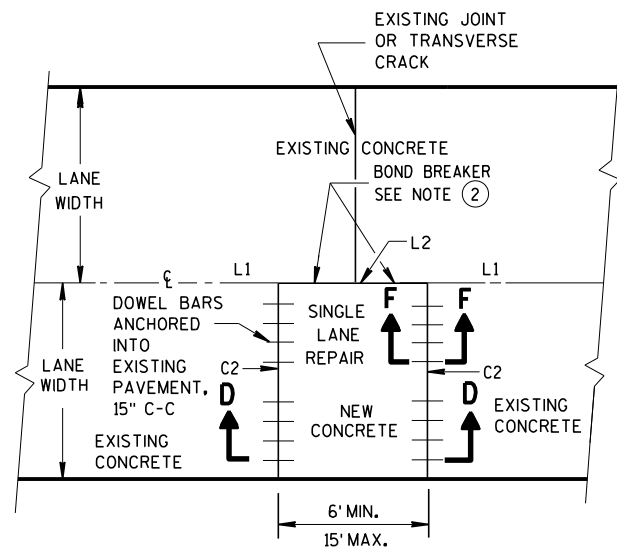


PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

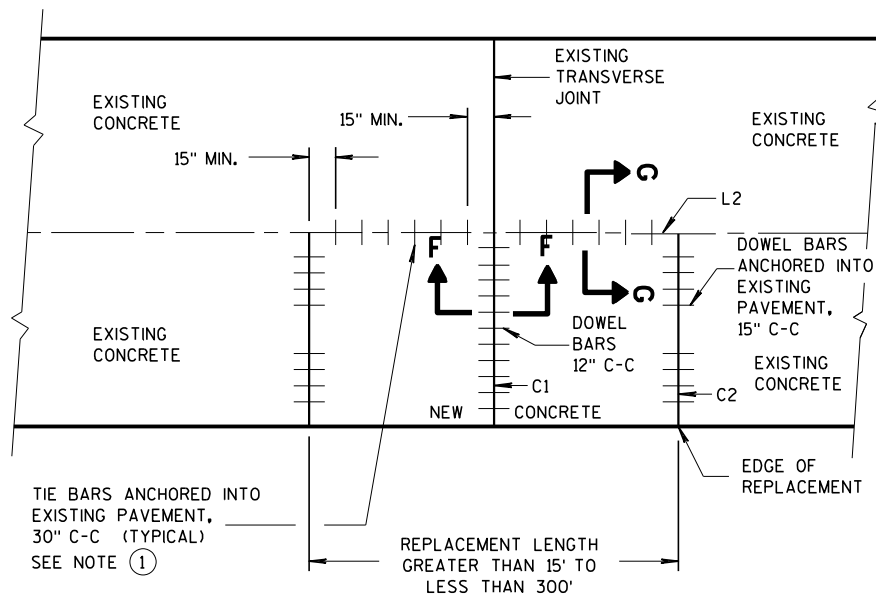


GENERAL NOTES

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

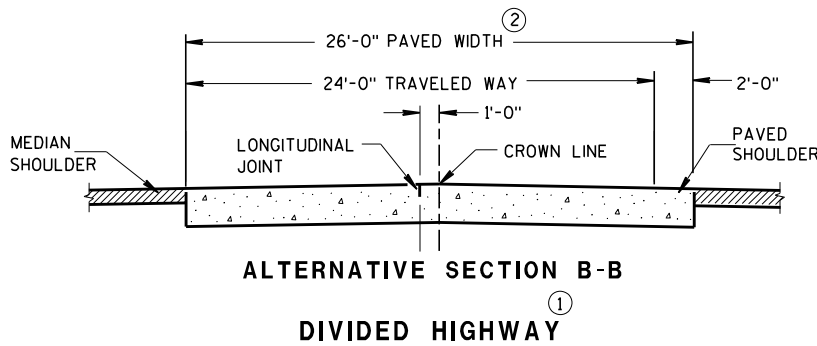
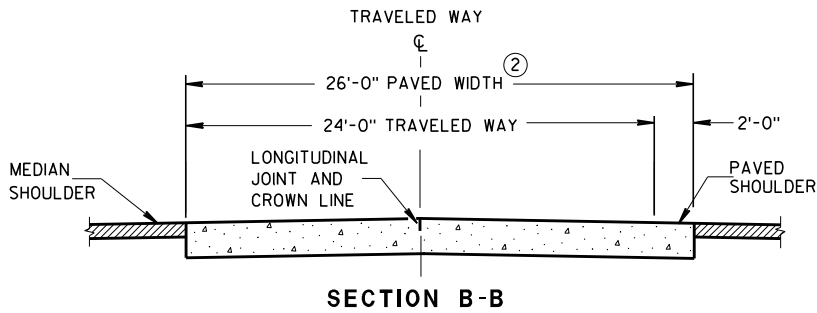
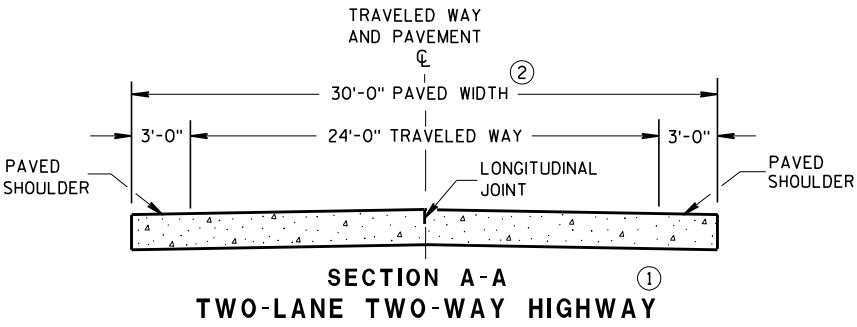


PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPAIR



PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Peter Kenney PAVEMENT SUPERVISOR 144
FHWA	



GENERAL NOTES

CONTRACTION JOINTS

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

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

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

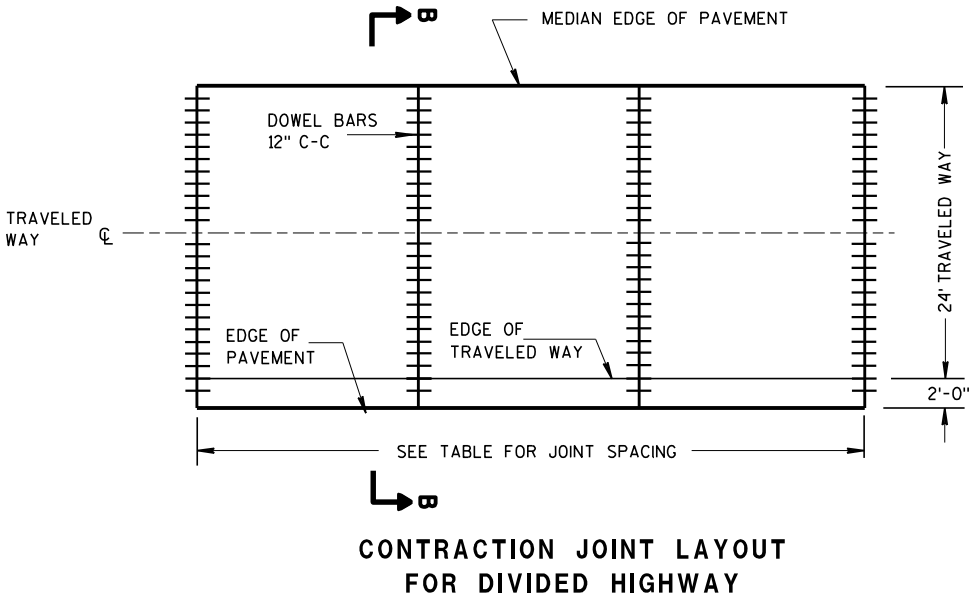
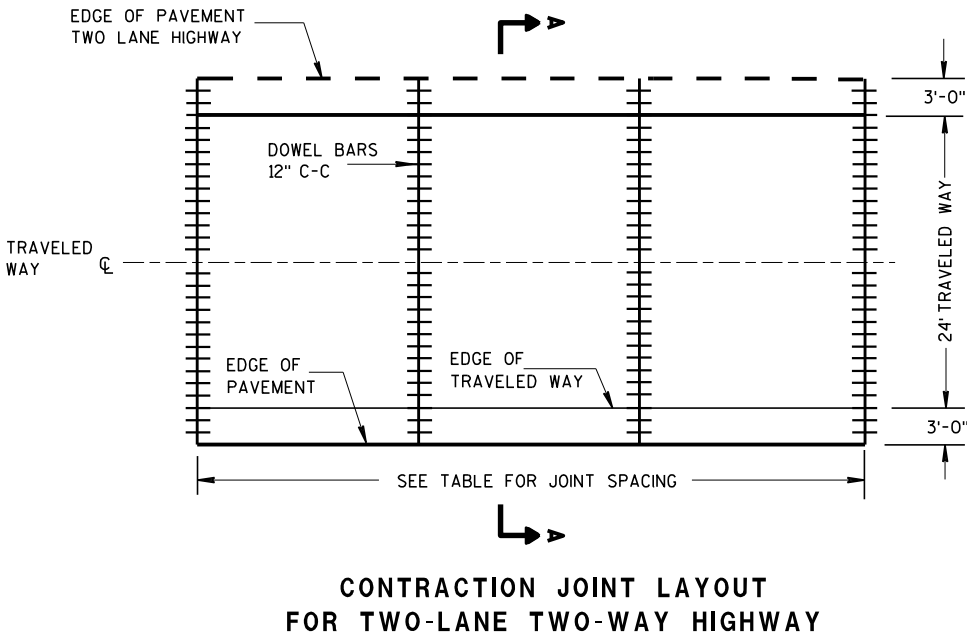
CONSTRUCTION JOINTS

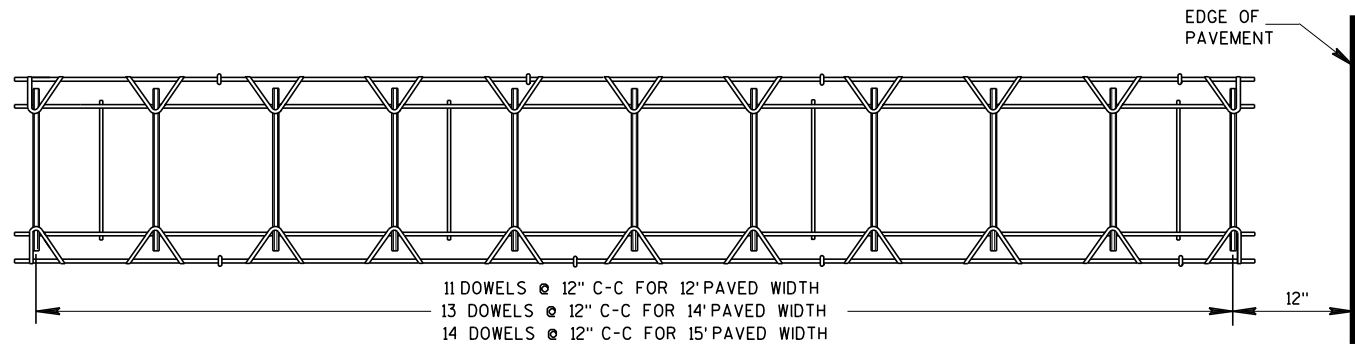
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

- 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.

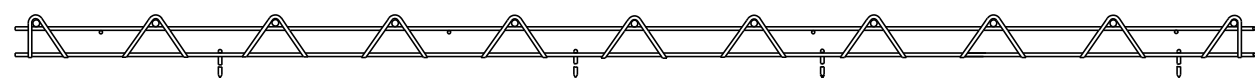
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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





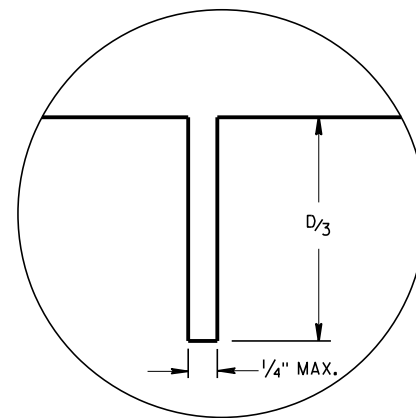
PLAN VIEW



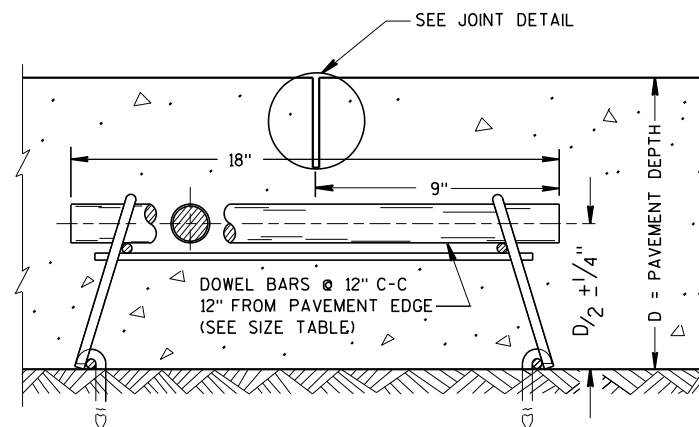
SIDE VIEW

(NORMAL TO CENTERLINE)

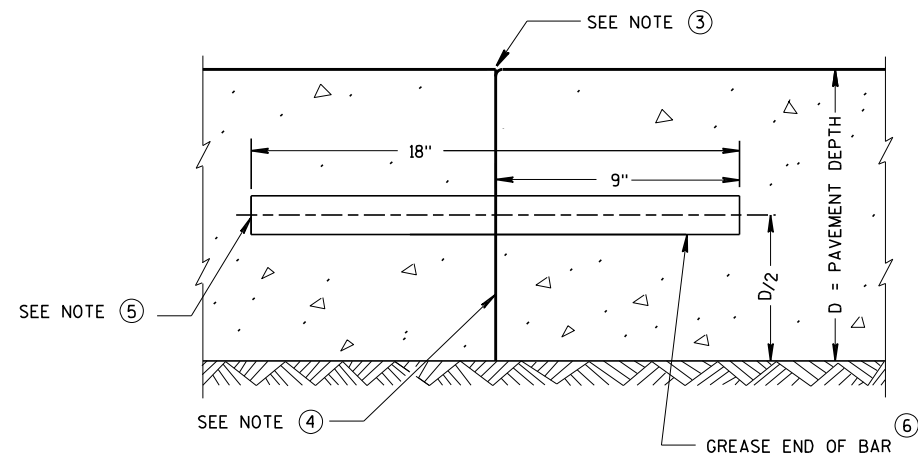
CONTRACTION JOINT DOWEL ASSEMBLY ①



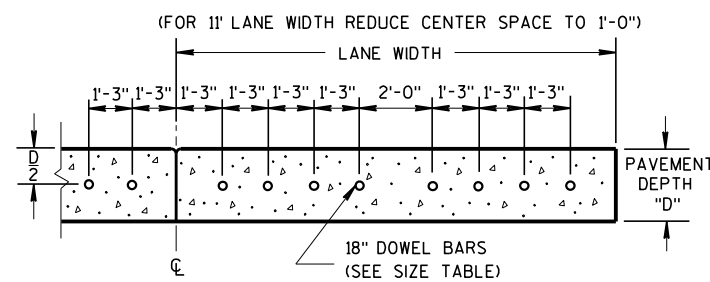
JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

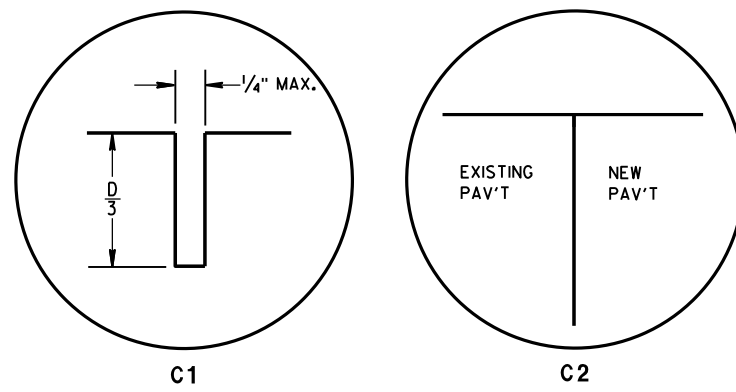
GENERAL NOTES

- 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 CONSTRUCTING 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 $1/4$ -INCH 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 *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 INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS $1/8$ -INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.

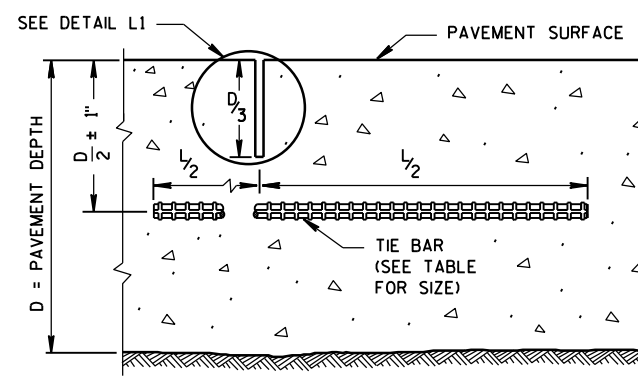
RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

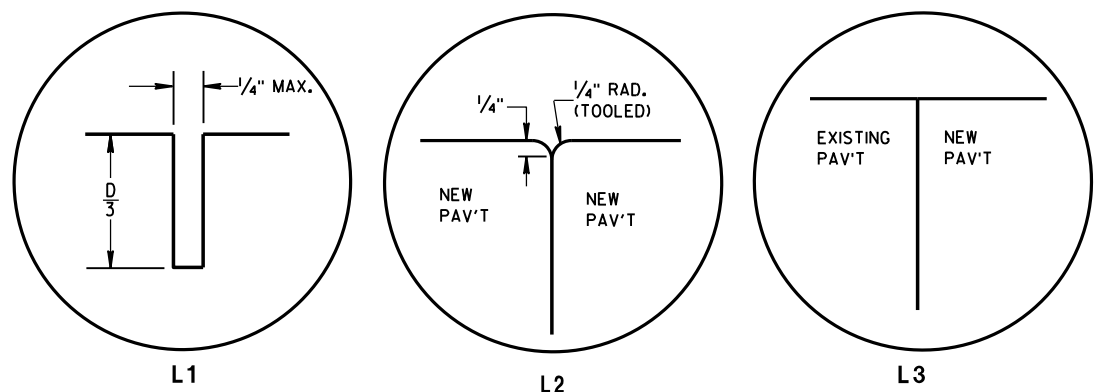
APPROVED
March 2018 /S/ Peter Kern
DATE PAVEMENT SUP 146
FHWA



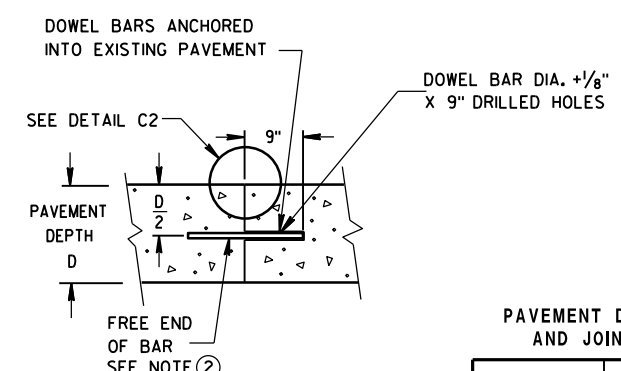
TRANSVERSE JOINTS



SECTION C-C
SAWED JOINT



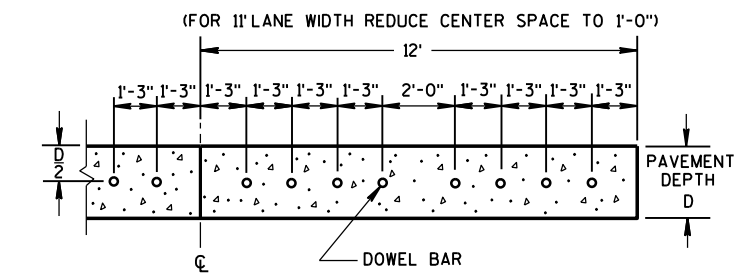
LONGITUDINAL JOINTS



SECTION D-D

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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



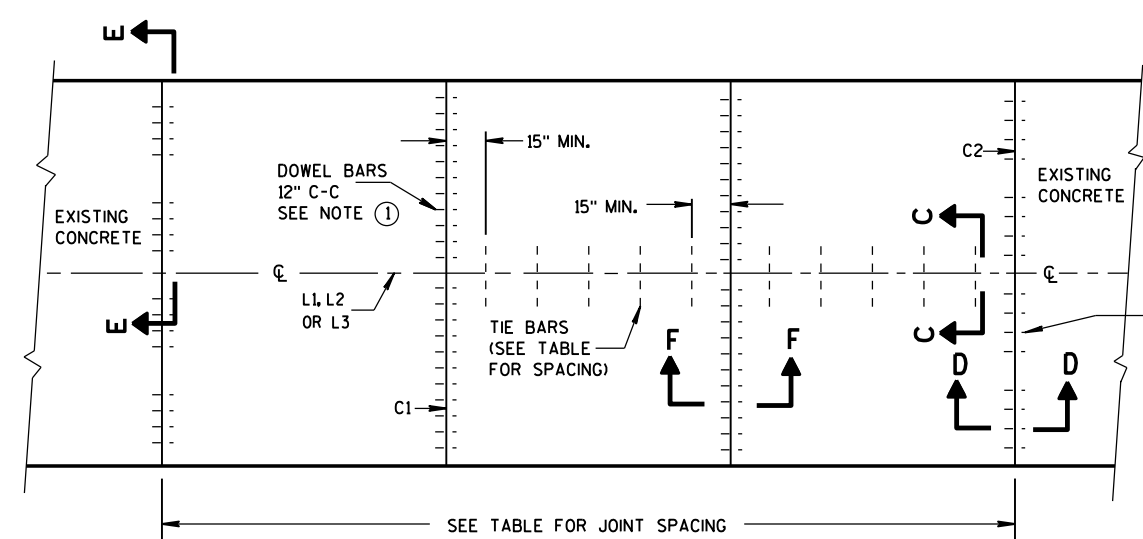
SECTION E-E
SPACING OF DOWEL BARS
ANCHORED INTO EXISTING PAVEMENT

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"**

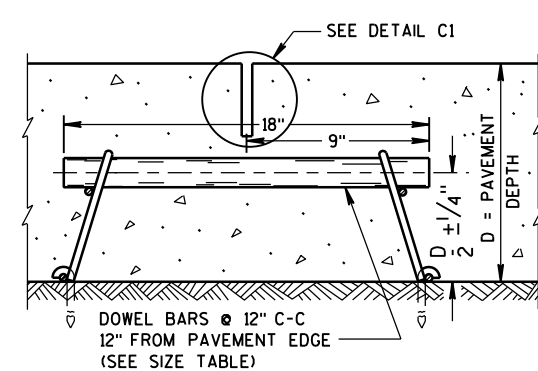
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

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



PLAN VIEW
CONCRETE BASE
CONTRACTION JOINT LOCATIONS

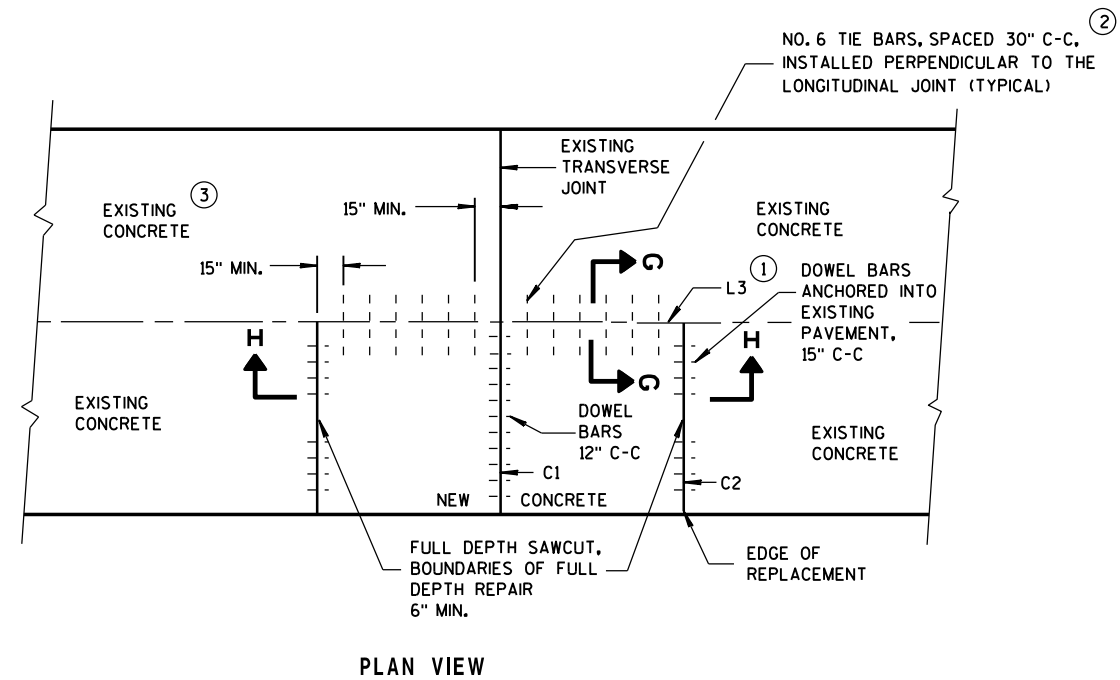
DOWEL BARS ANCHORED INTO EXISTING PAVEMENT, 15" C-C



SECTION F-F
CONTRACTION JOINT

CONCRETE BASE

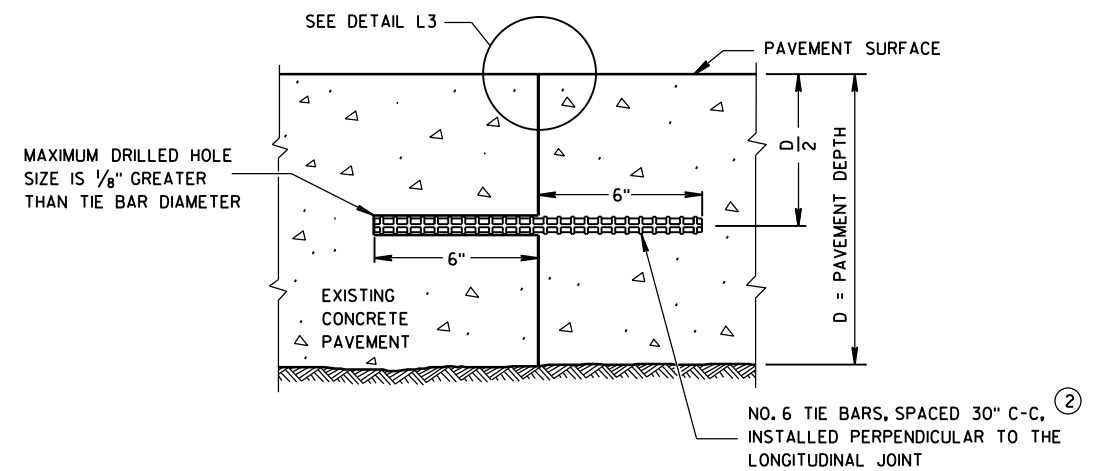
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 147



SINGLE LANE CONCRETE BASE REPAIR

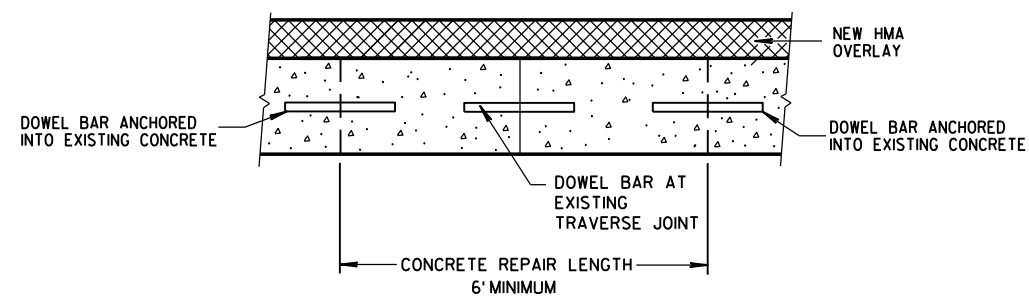
GENERAL NOTES

- (1) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) AT THE LONGITUDINAL JOINT IN LIEU OF TIE BARS FOR SINGLE LANE CONCRETE BASE REPAIRS UP TO 15 FEET IN LENGTH.
- (2) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- (3) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



SECTION G-G

TIE BARS ANCHORED INTO EXISTING PAVEMENT



SECTION H-H

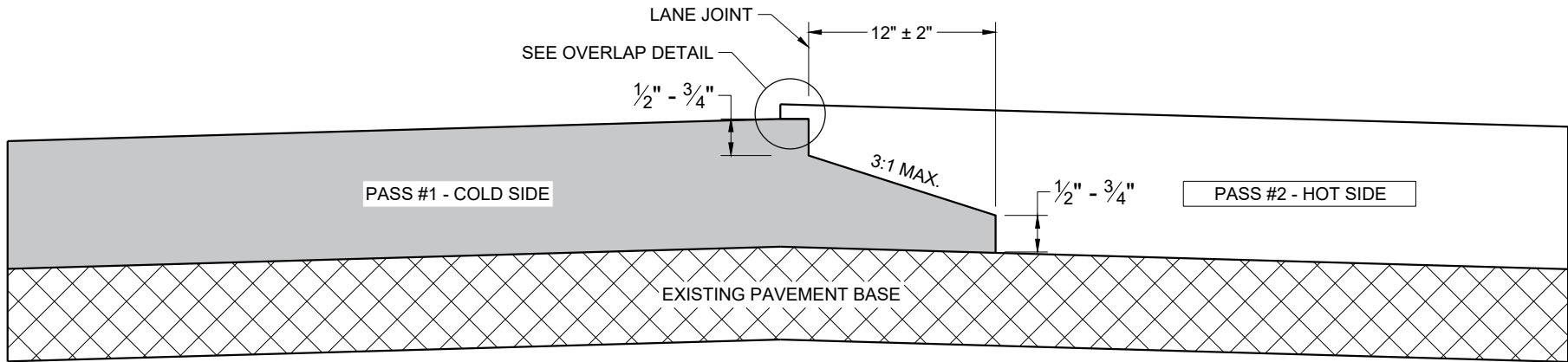
CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

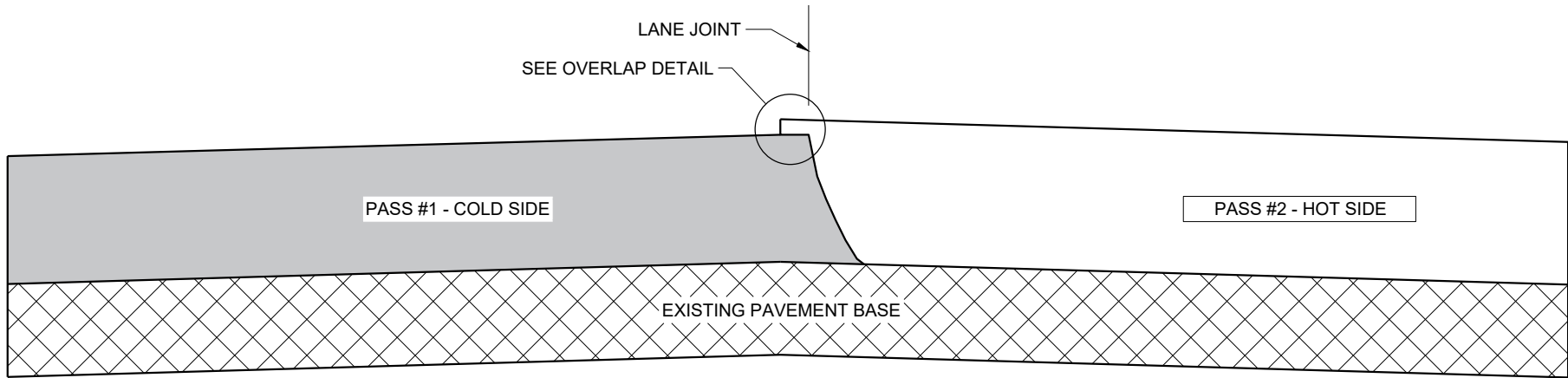
APPROVED

June, 2015
DATE/S/ Peter Kemp, P.E.
PAVEMENT SUPEI 148

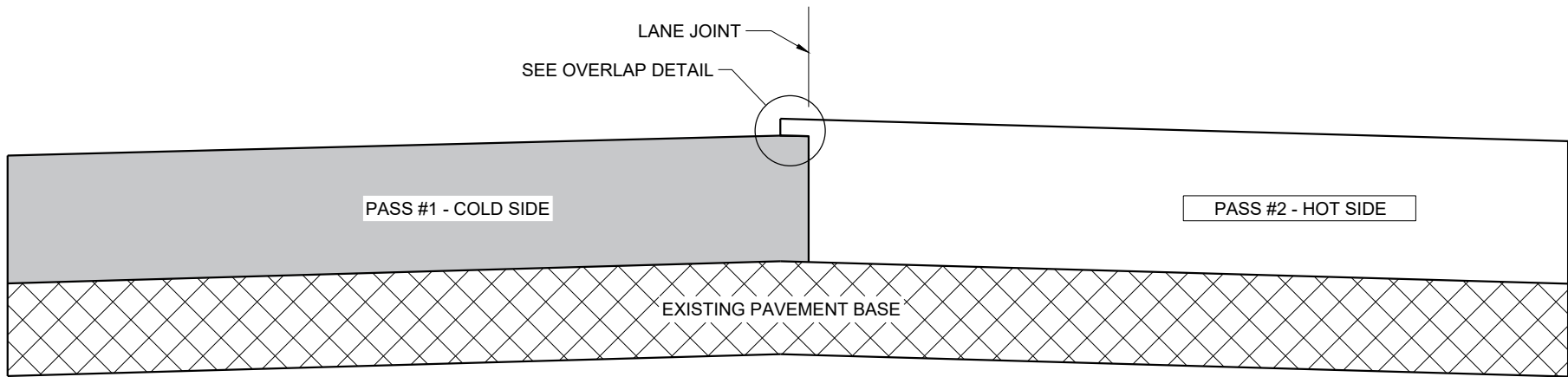
FHWA



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



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

GENERAL NOTES

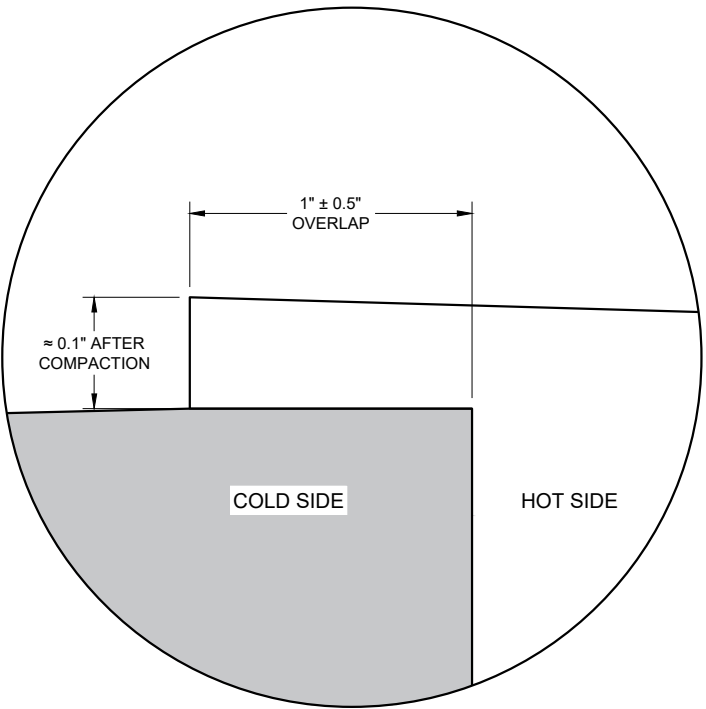
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.



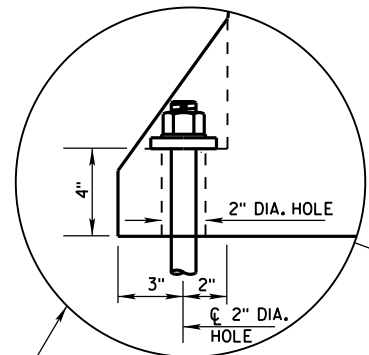
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

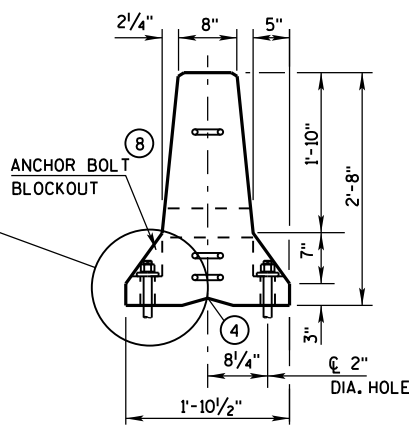
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 149

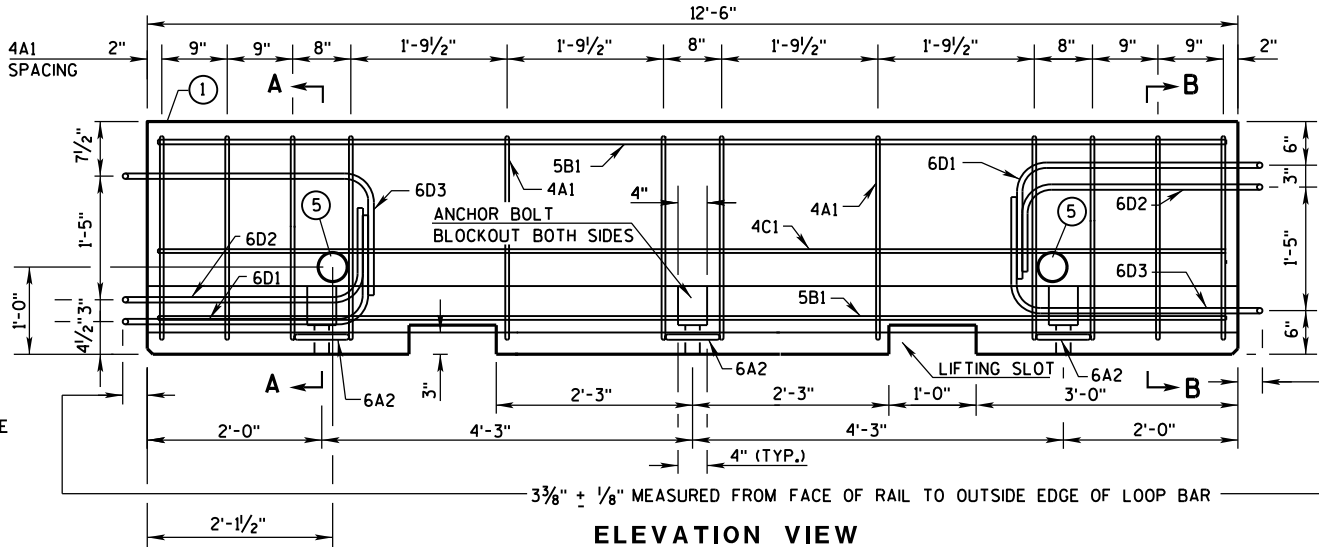
FHWA



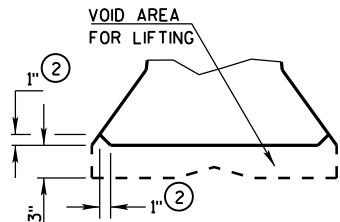
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



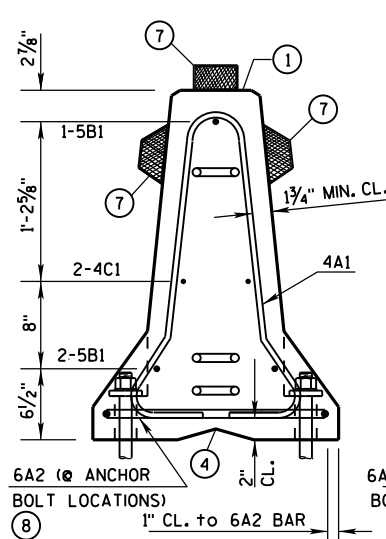
END VIEW



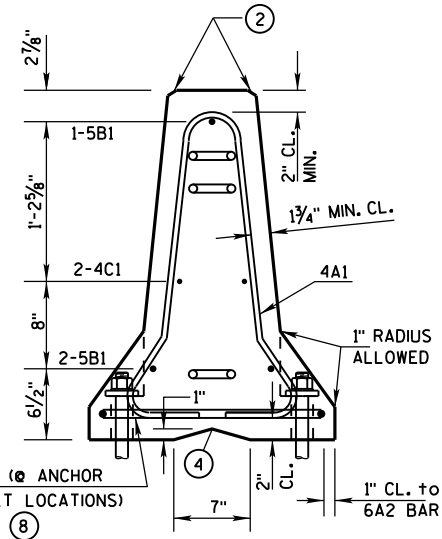
ELEVATION VIEW



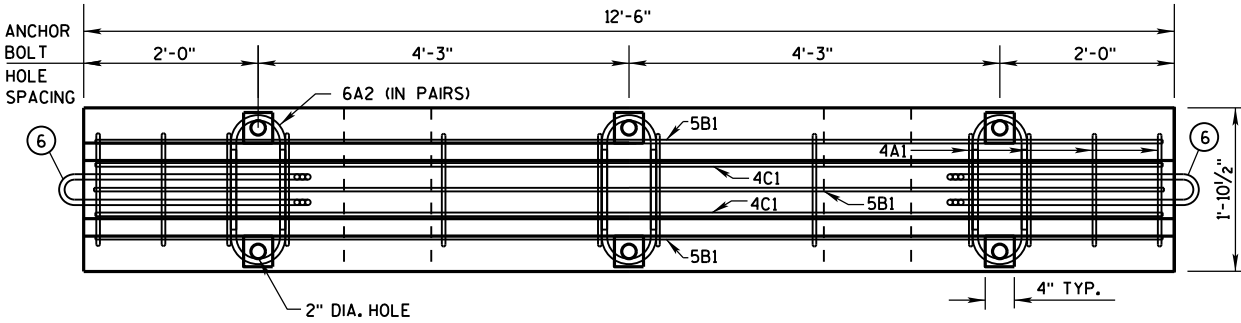
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

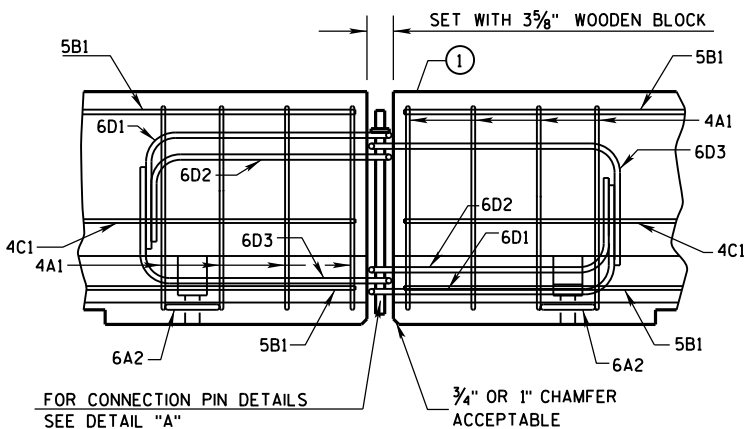


SECTION B-B
(STIRRUP PLACEMENT)

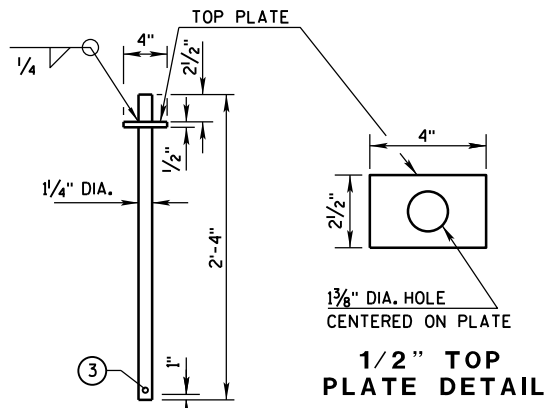


PLAN VIEW

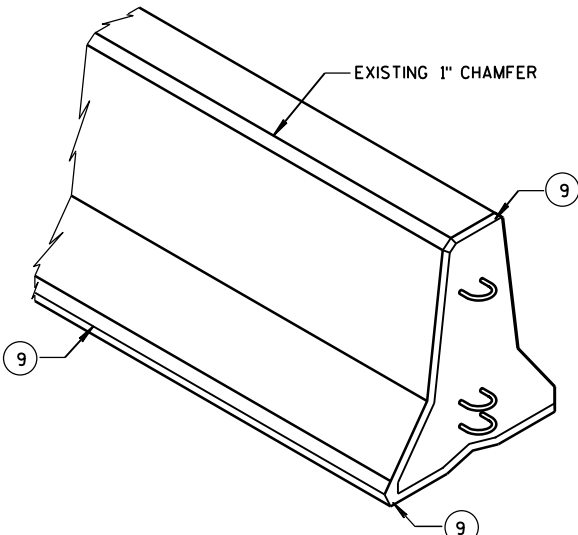
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



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



GENERAL NOTES

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

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

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

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

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

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

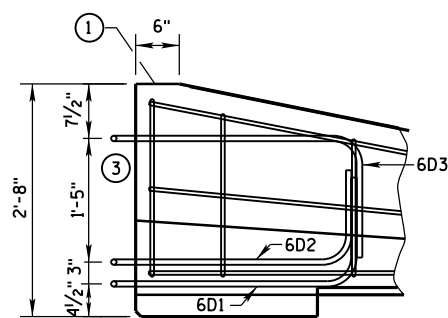
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

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

f'c = 4,000 psi

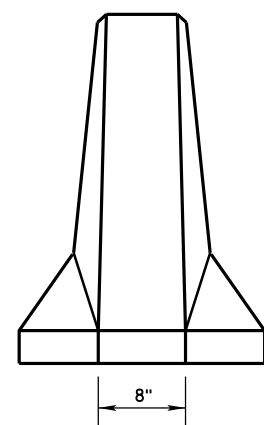
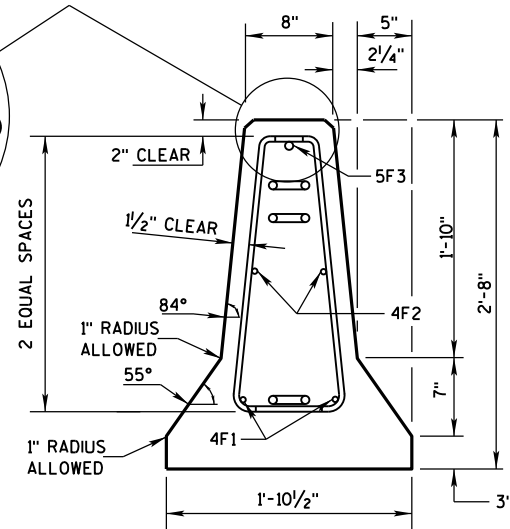
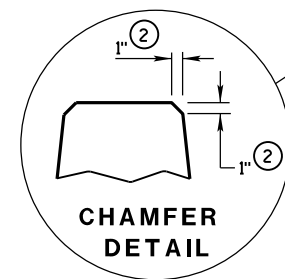
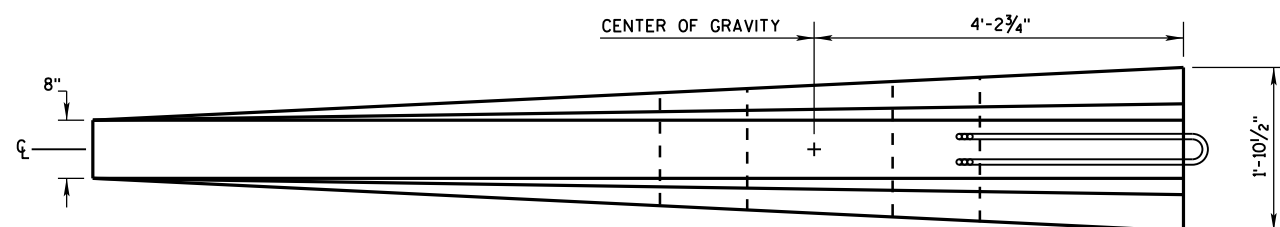
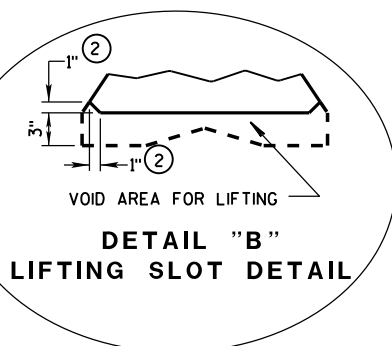
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

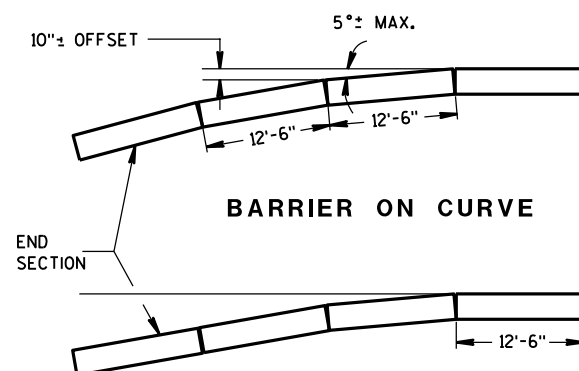


- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



FRONT ELEVATION



FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

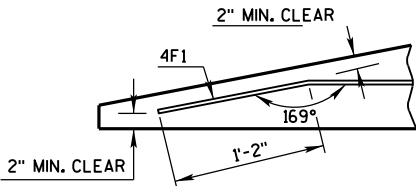
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 151

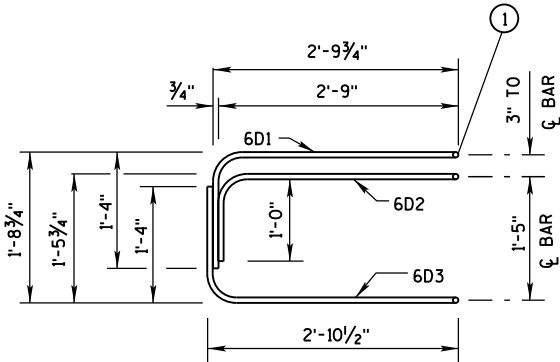
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

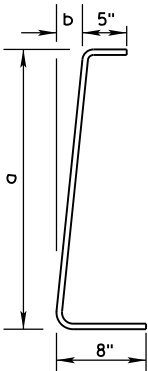
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

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

TAPER BARRIER SECTION

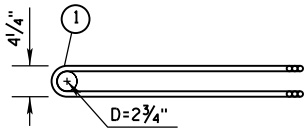
GENERAL NOTES

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

BARRIER SECTION
BILL OF MATERIALS

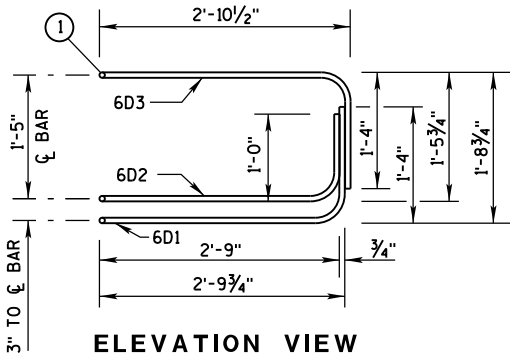
(PER 12'-6" BARRIER SECTION)

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

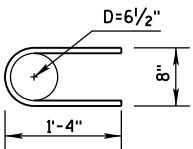


PLAN VIEW
LOOP BAR ASSEMBLY

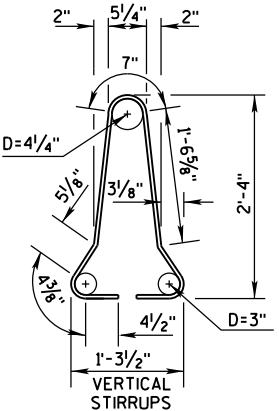
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2



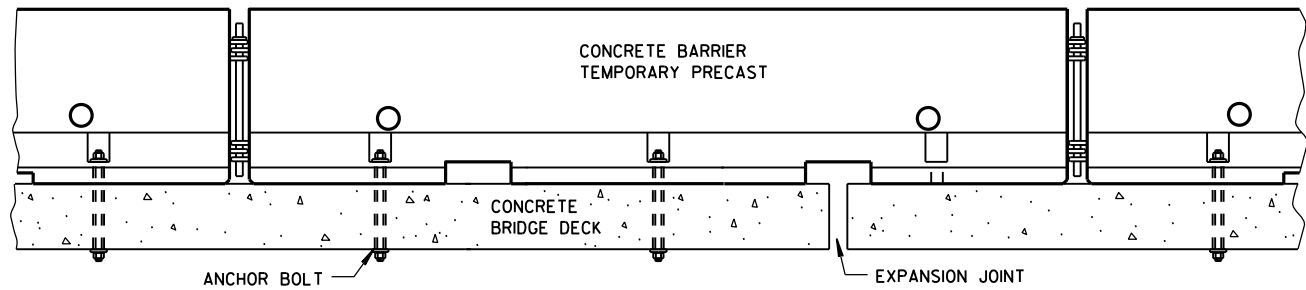
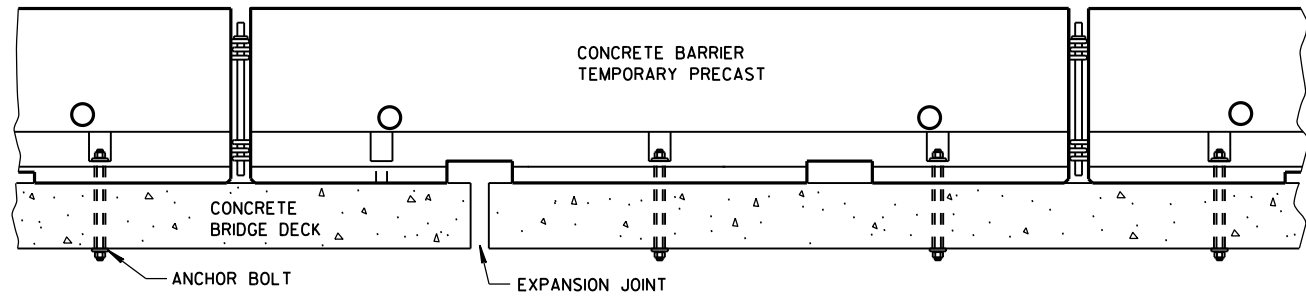
4A1

BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

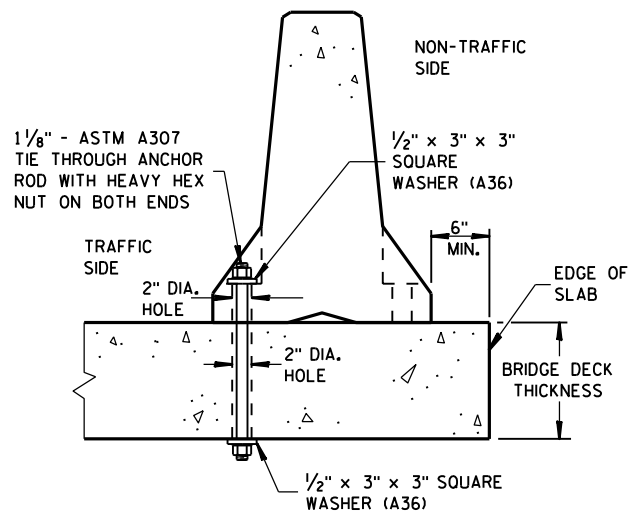
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

152



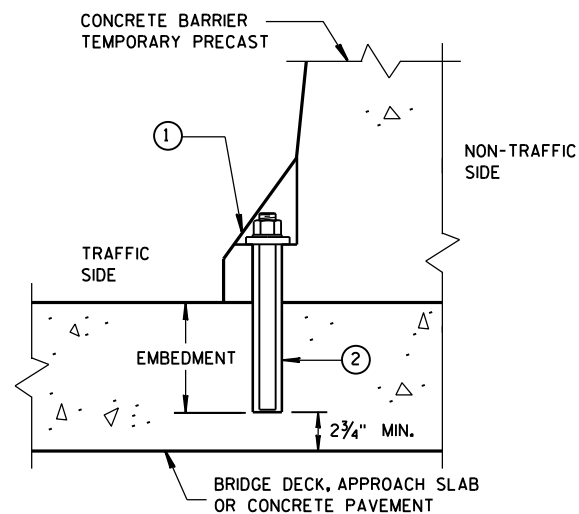
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

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



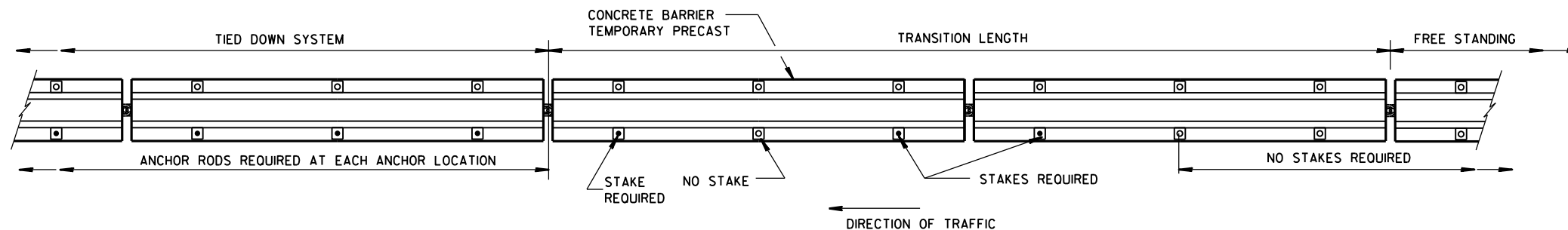
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

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



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

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

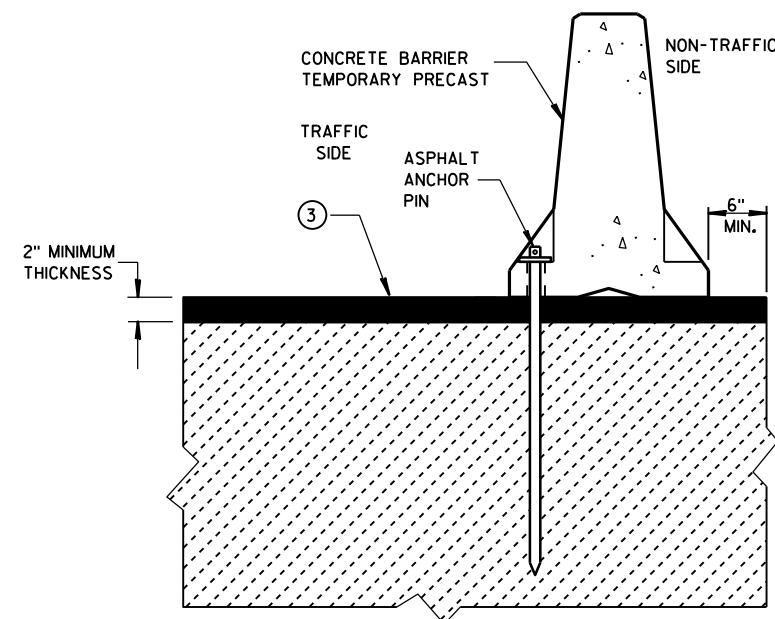
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

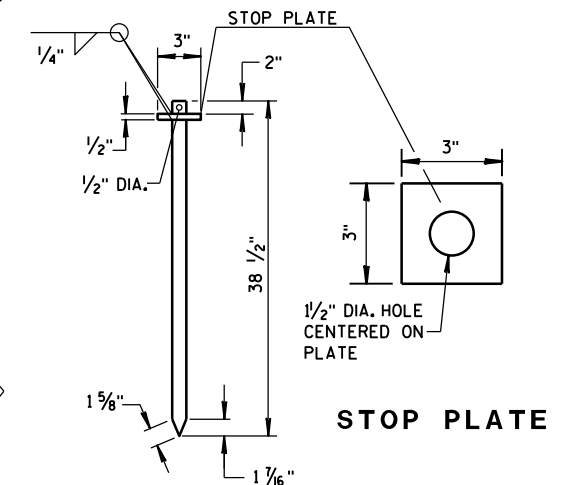
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

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

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



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

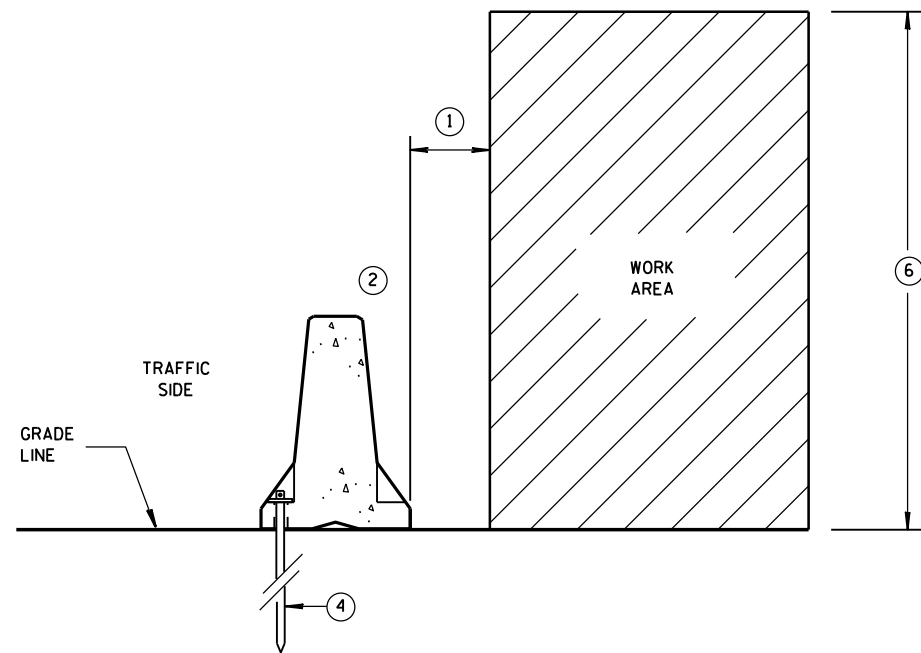


ASPHALT ANCHOR PIN

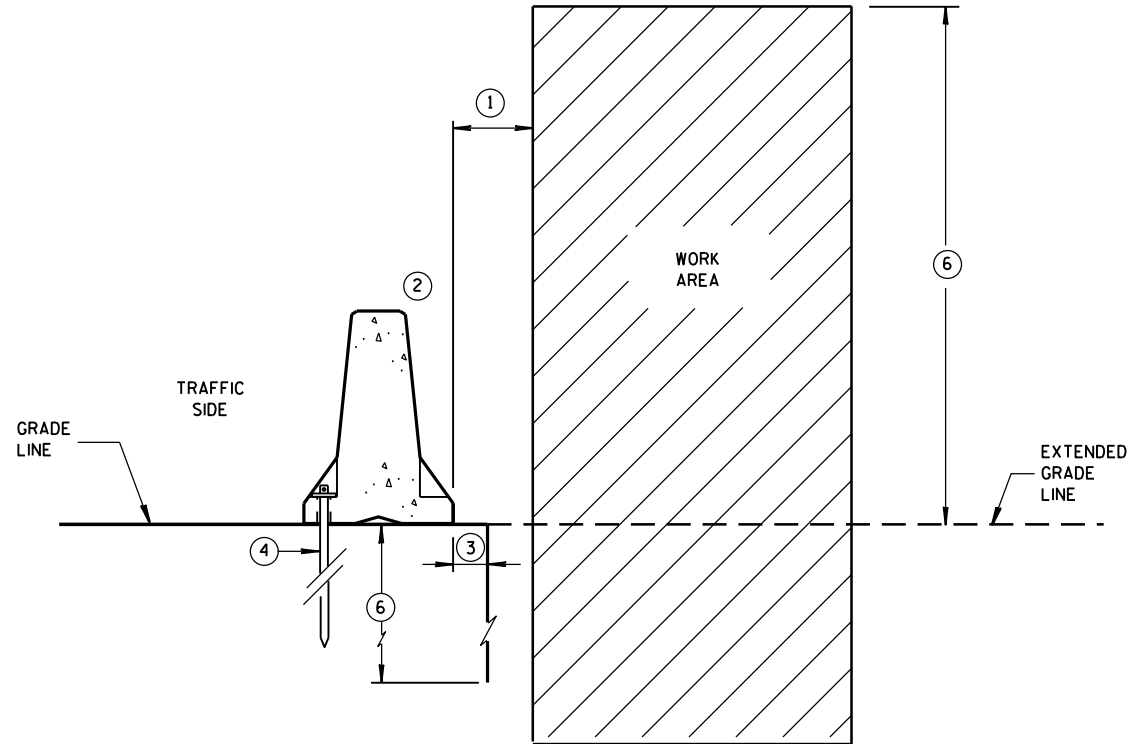
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 153



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

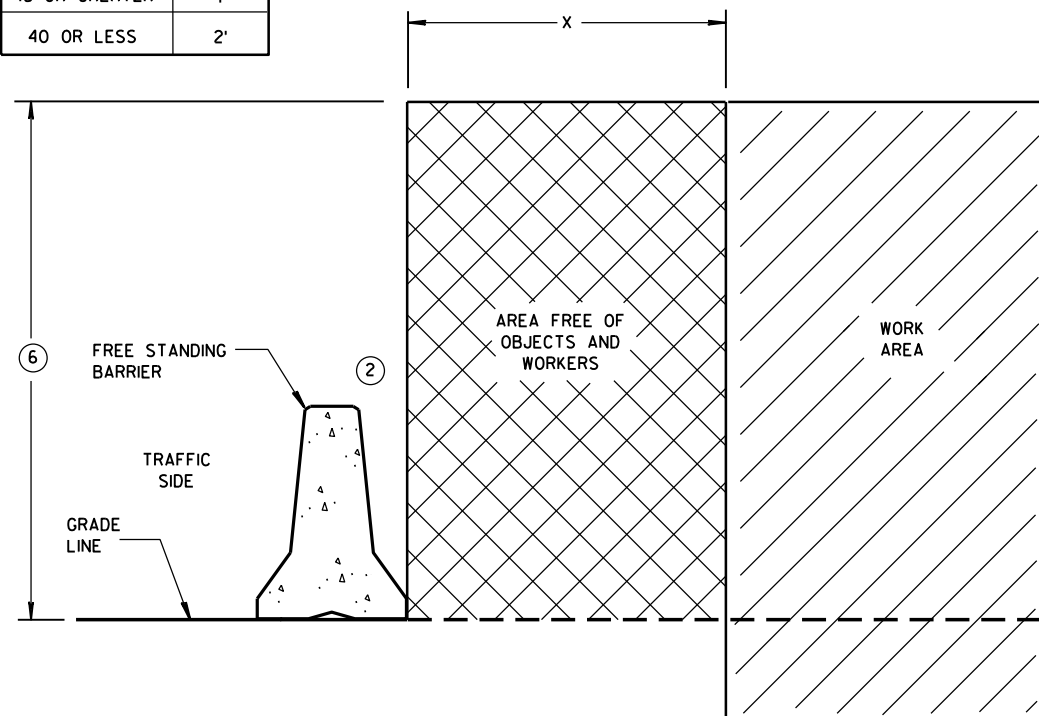


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

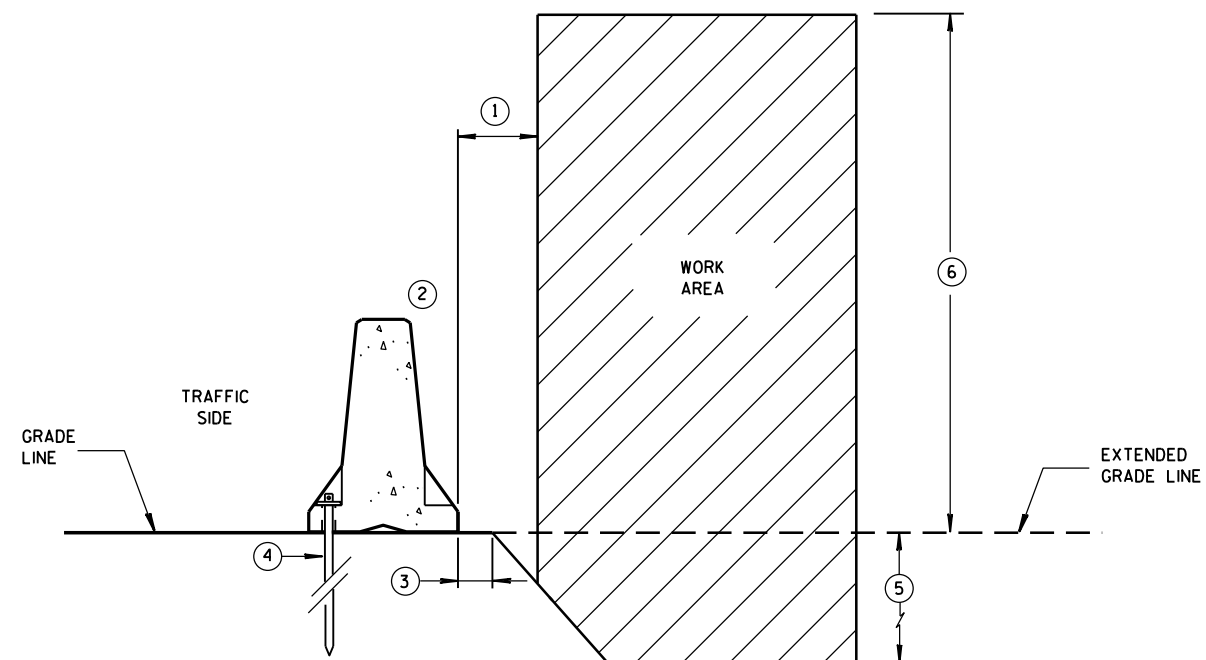
GENERAL NOTES

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

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



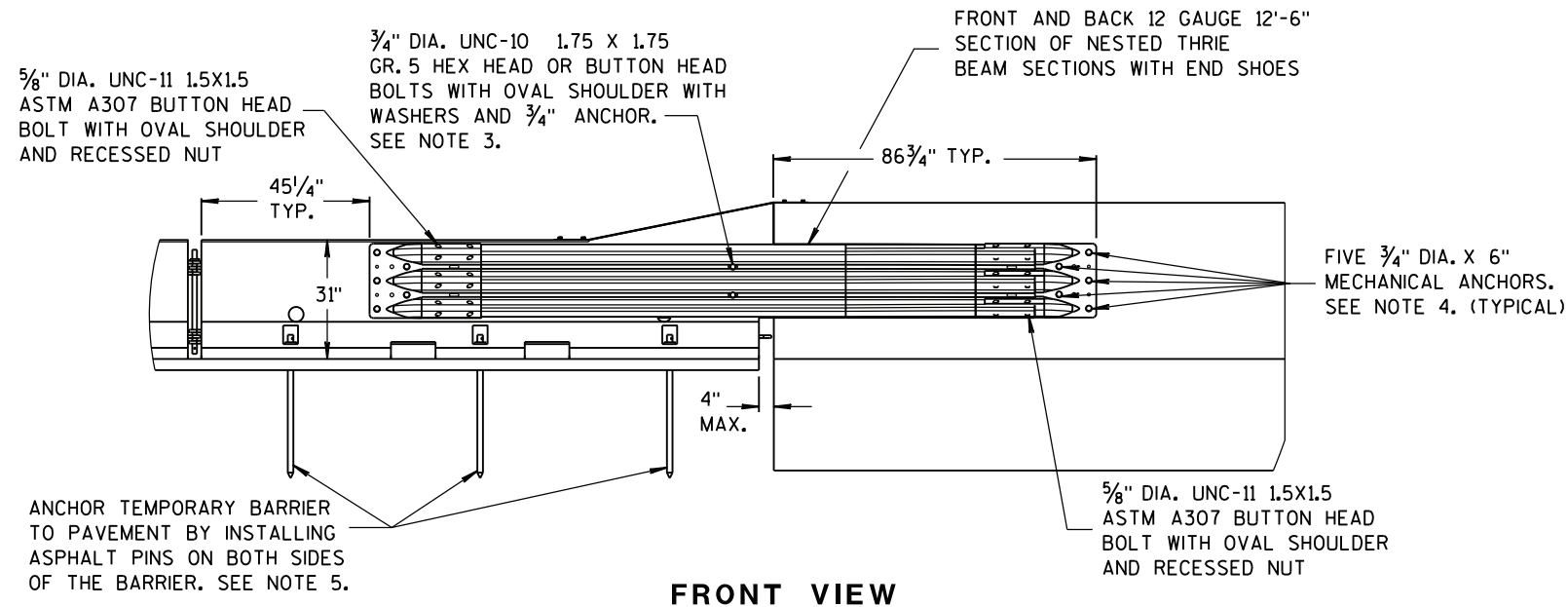
FREE STANDING BARRIER SPACE REQUIREMENTS



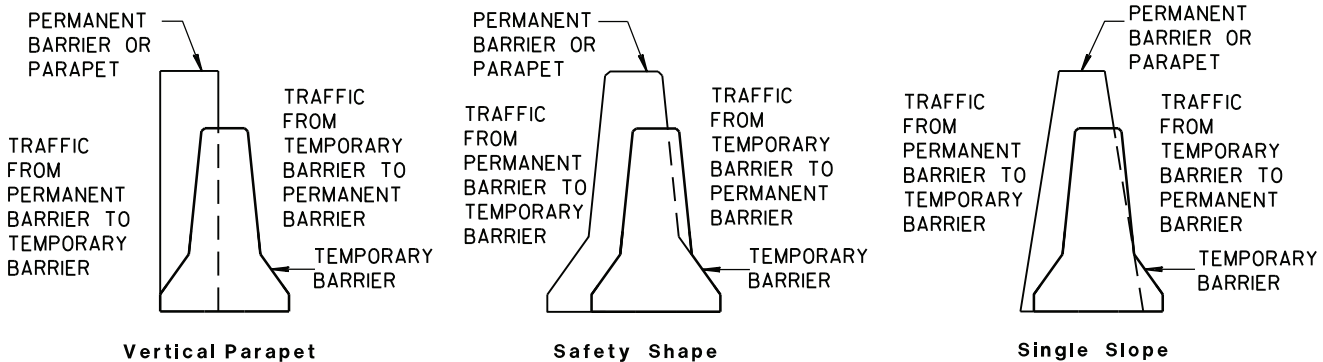
**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 154



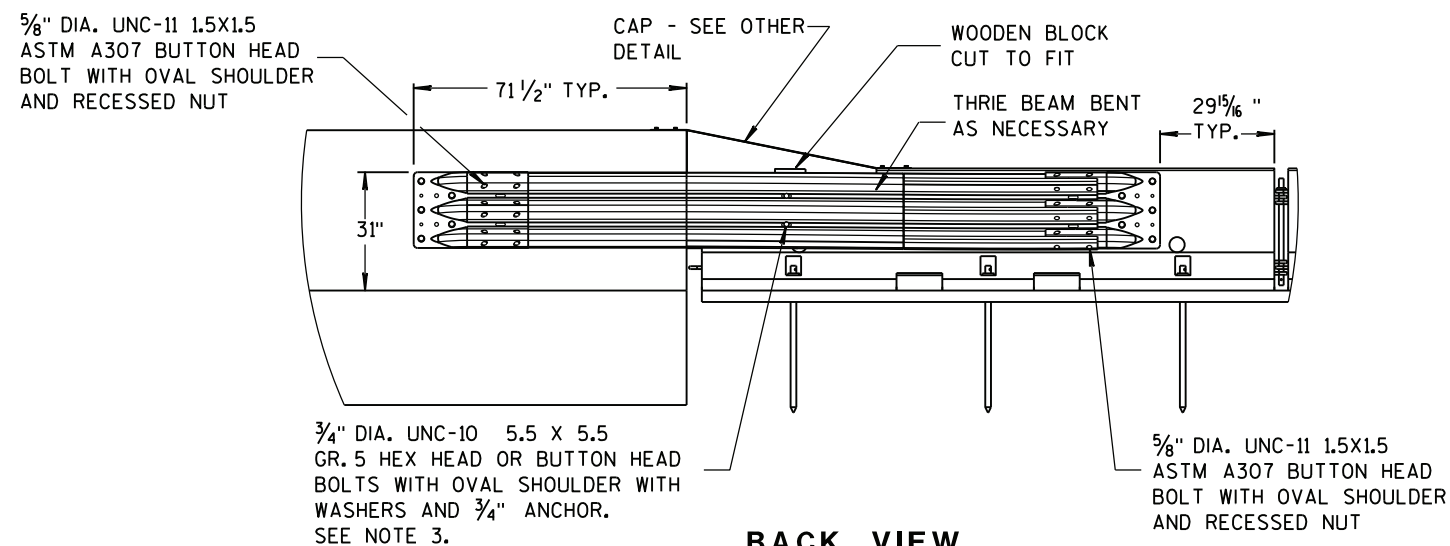
FRONT VIEW



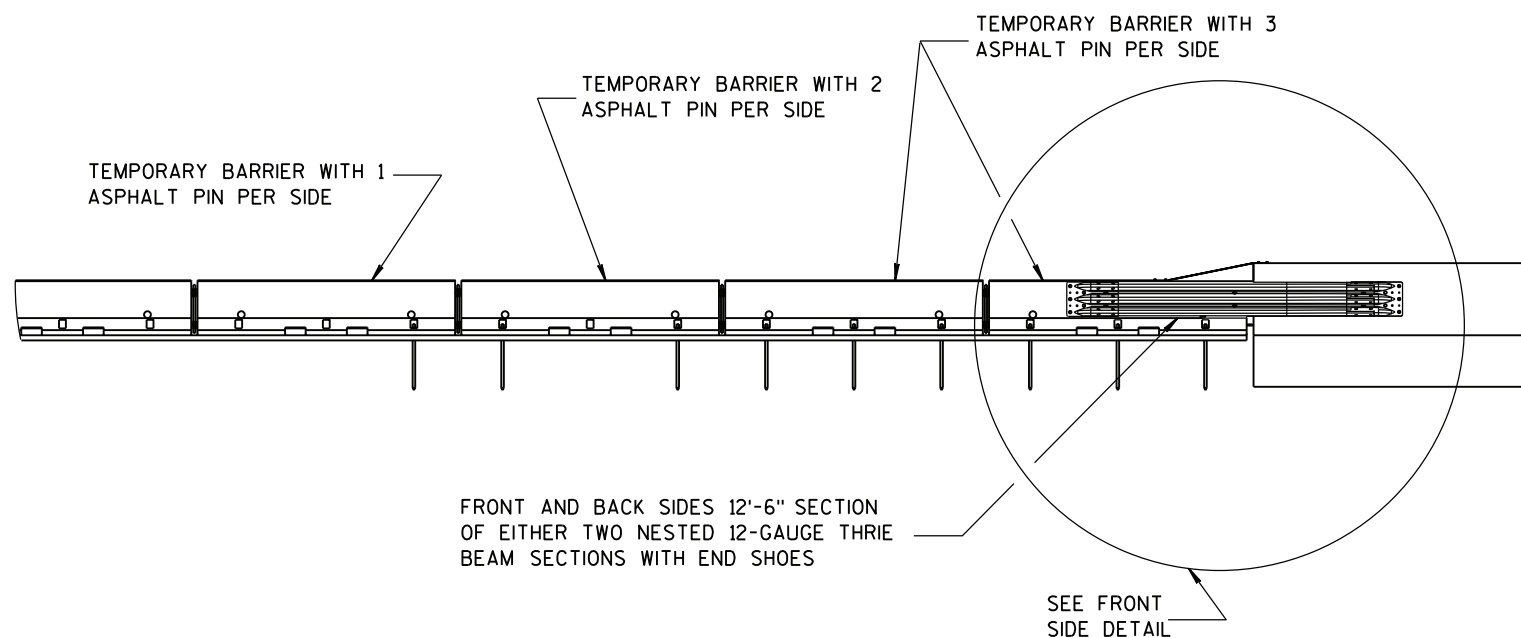
TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM

NOTES

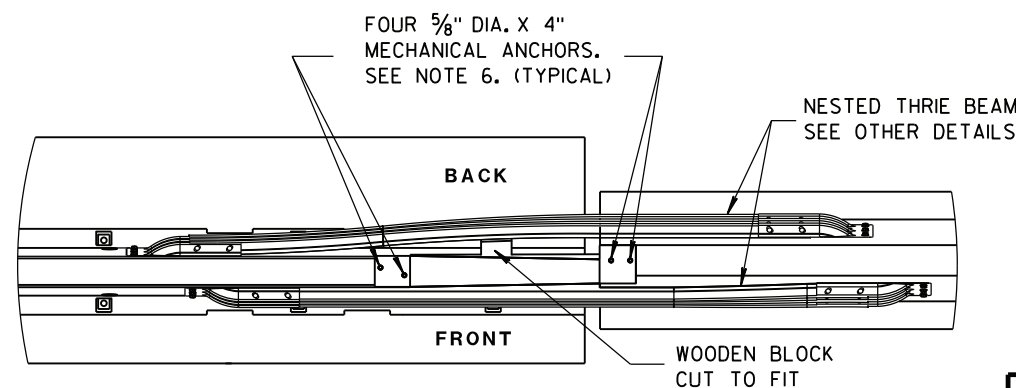
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

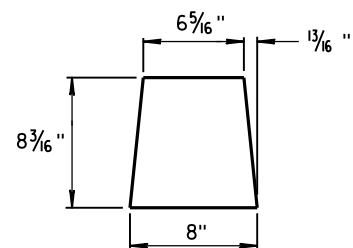


PLAN VIEW

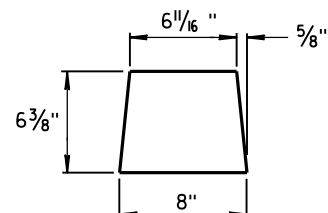
TRANSITION TO TIED DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

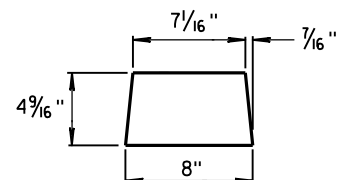
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



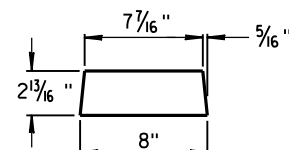
GUSSET 1



GUSSET 2

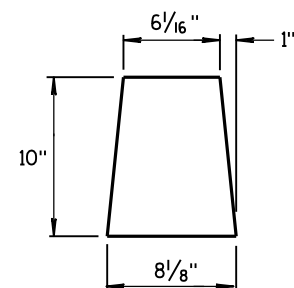


GUSSET 3

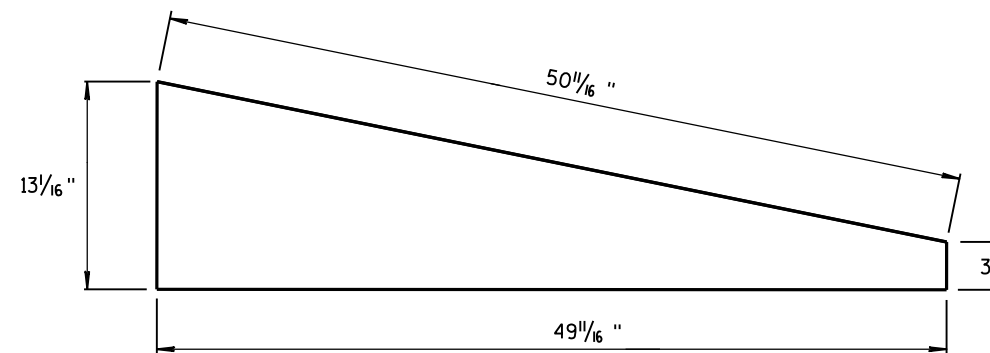


GUSSET 4

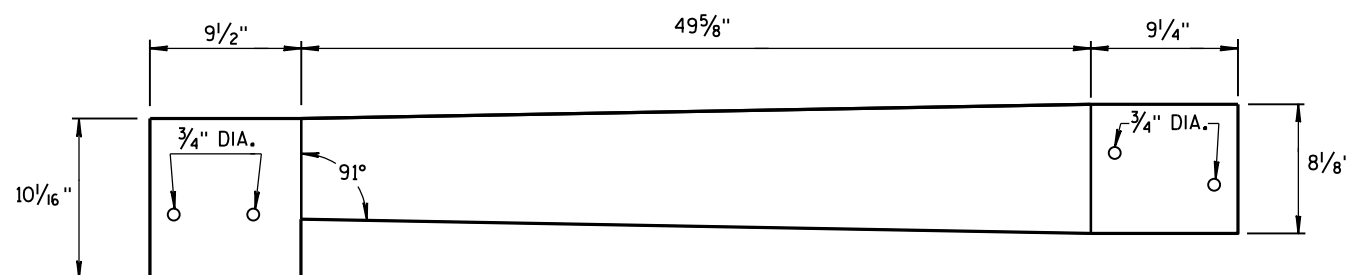
GUSSETS



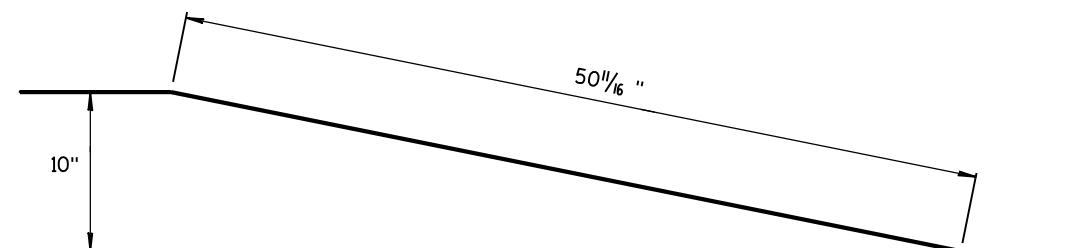
END PLATE



SIDE PLATE

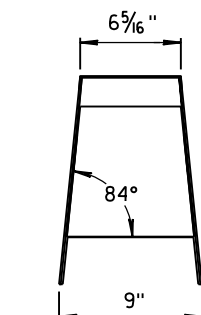
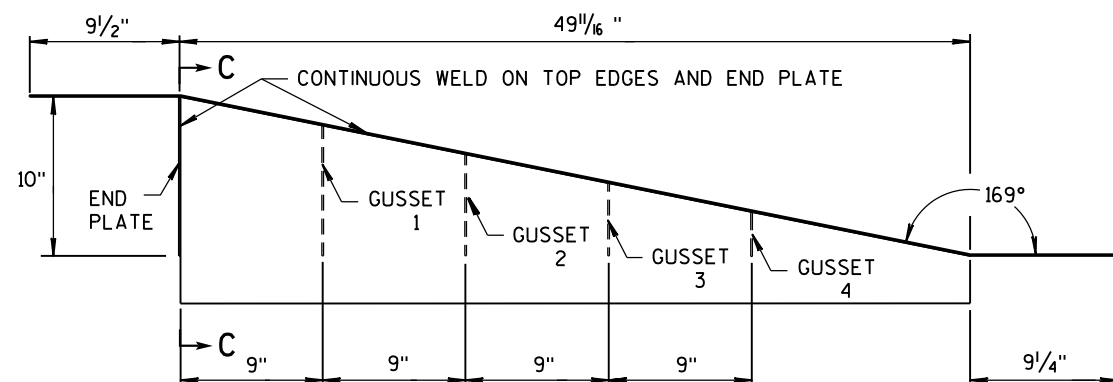
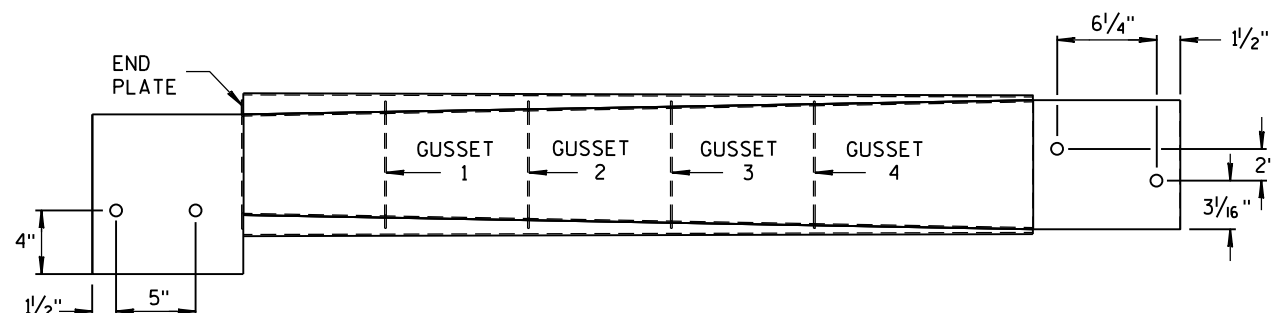


TOP PLATE



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

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



SECTION C-C

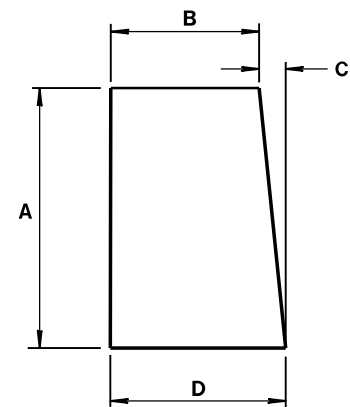
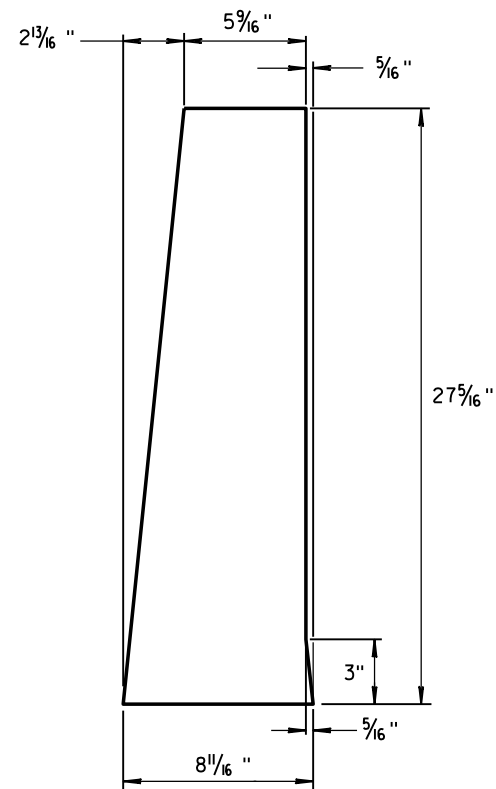
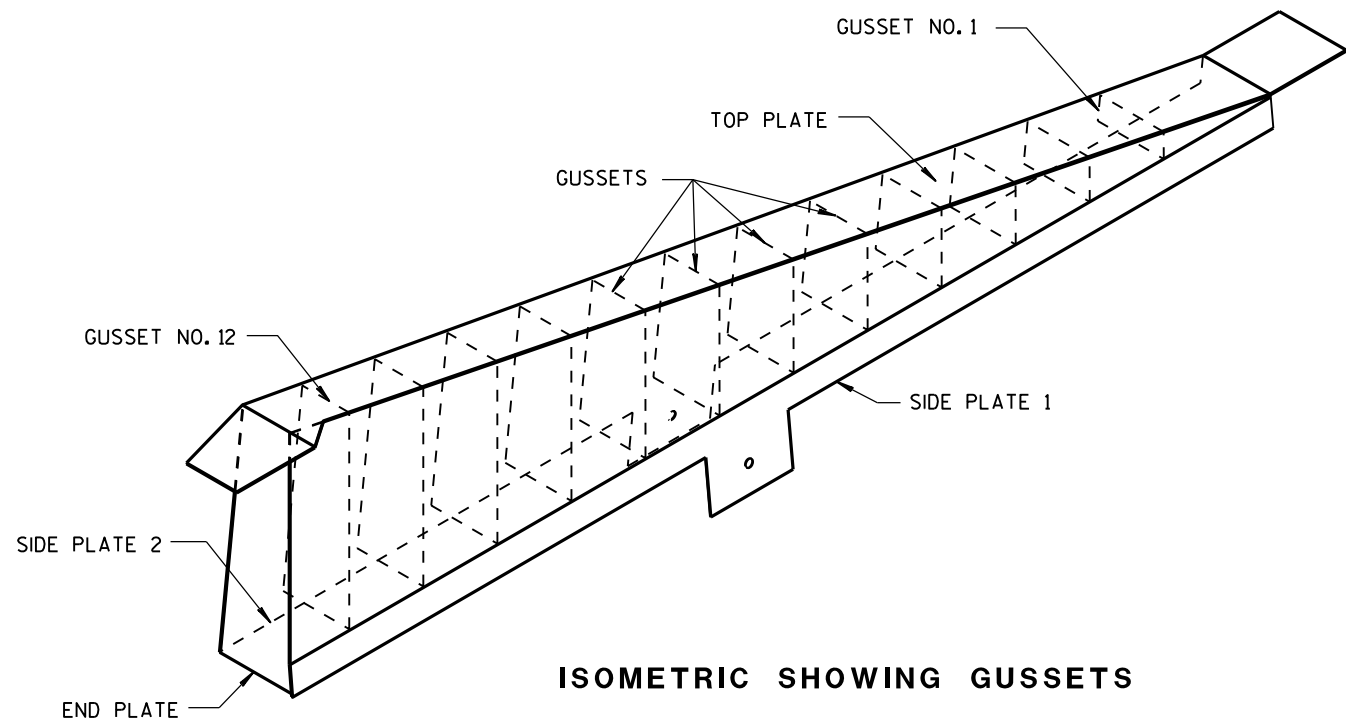
NOTES

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 156

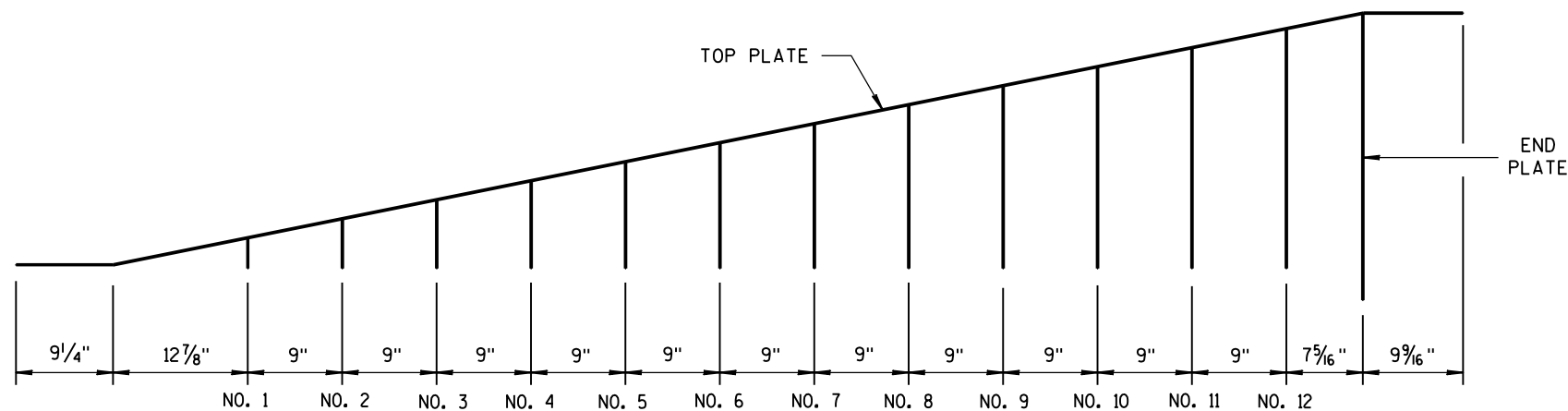


GUSSETS 1 - 12
ALL GUSSETS 1/8" STEEL PLATE

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

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

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

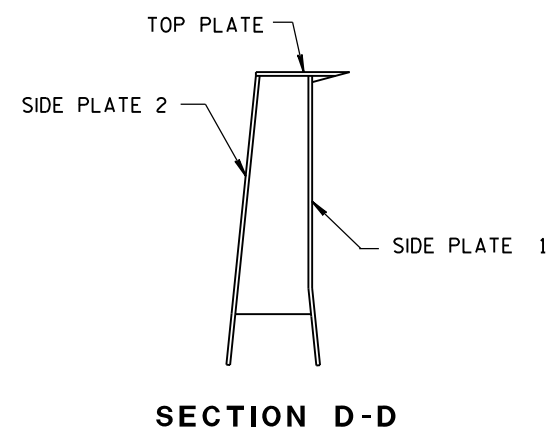
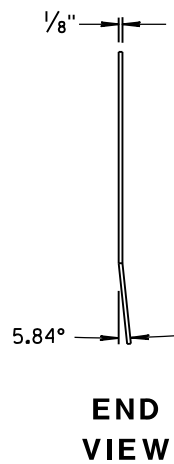
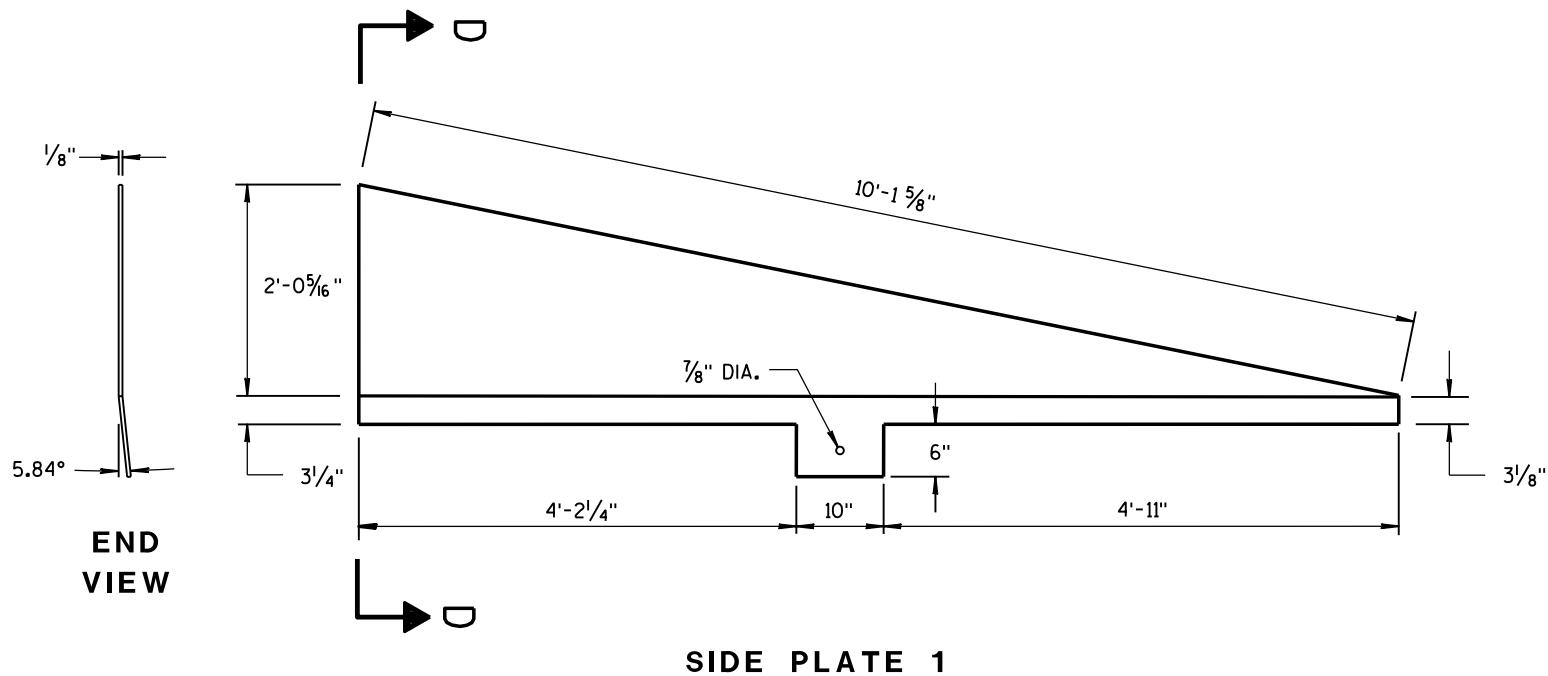
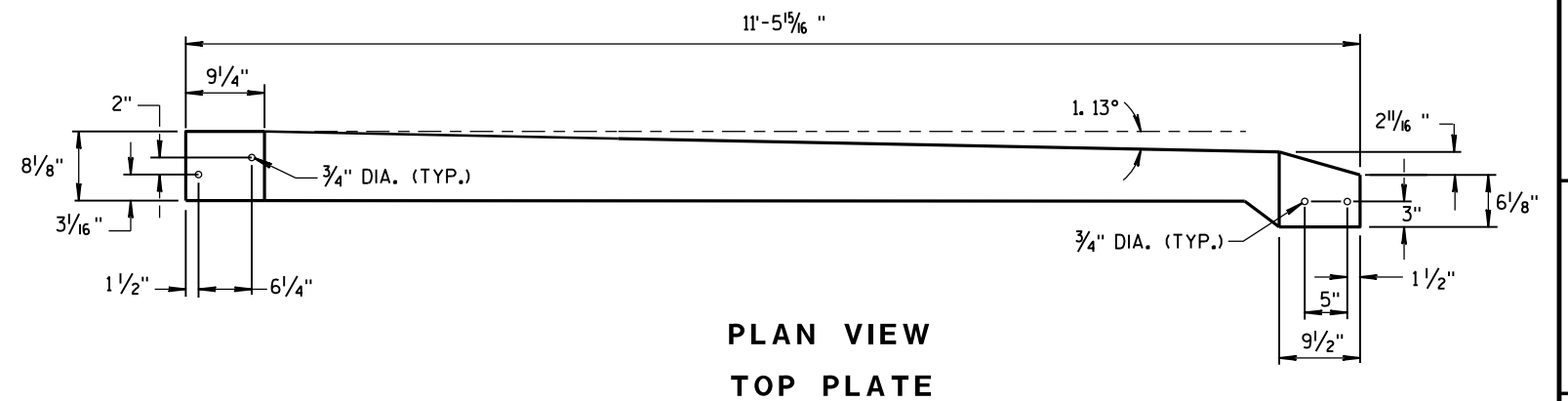
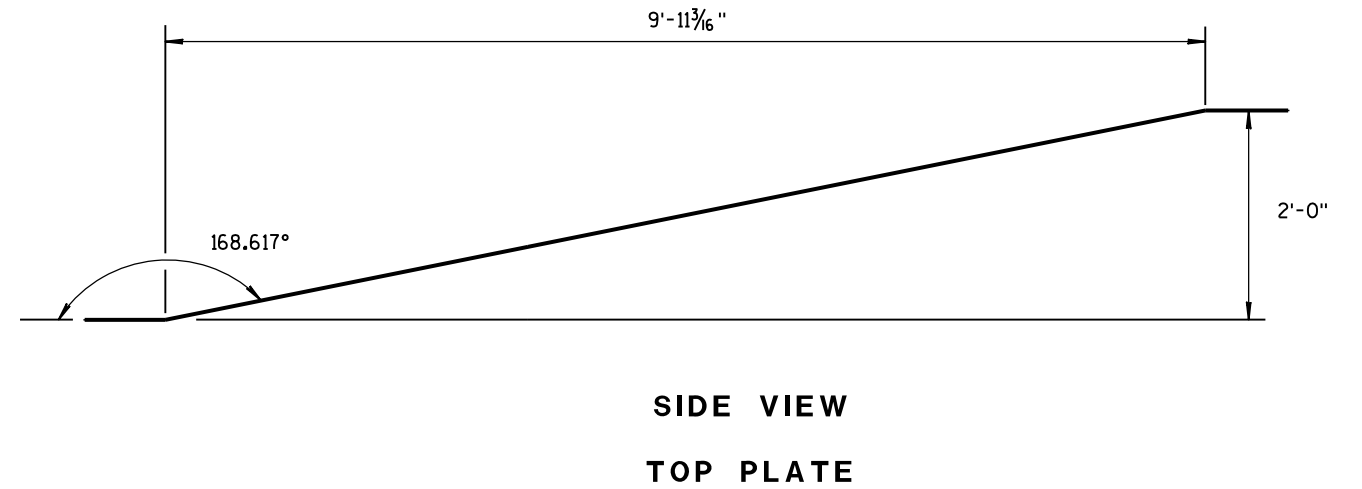
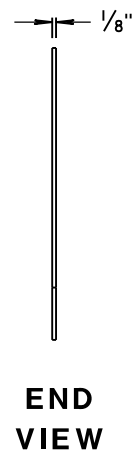
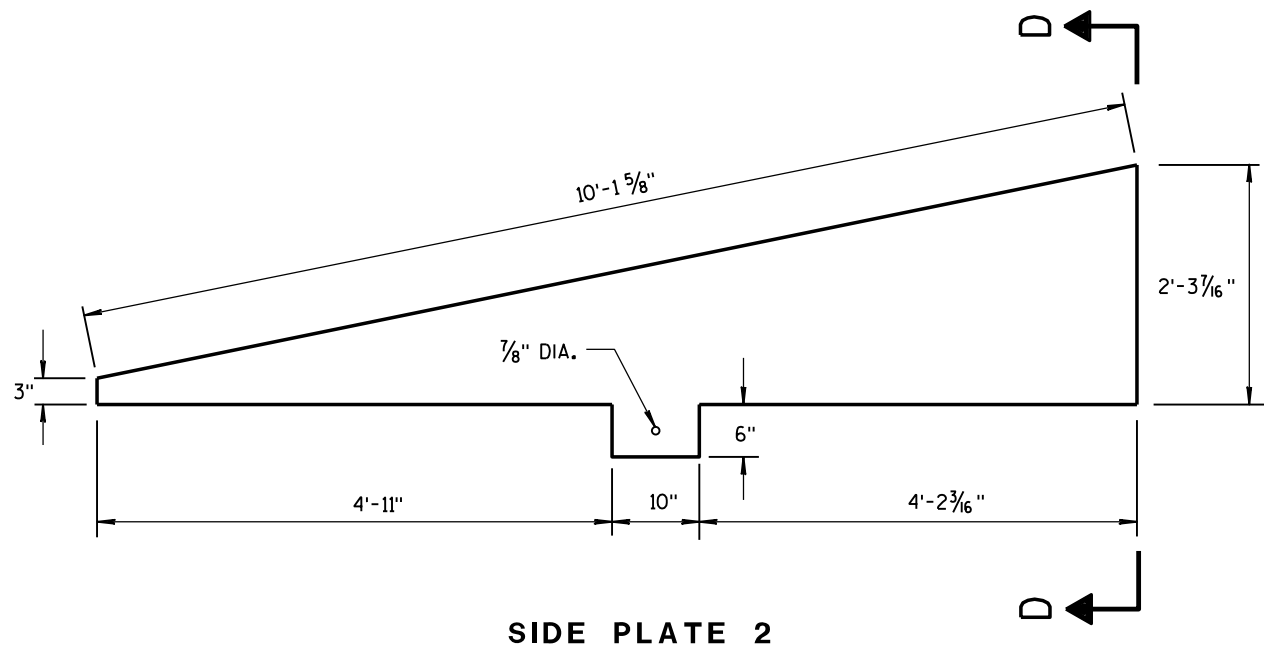


GUSSET LOCATION

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

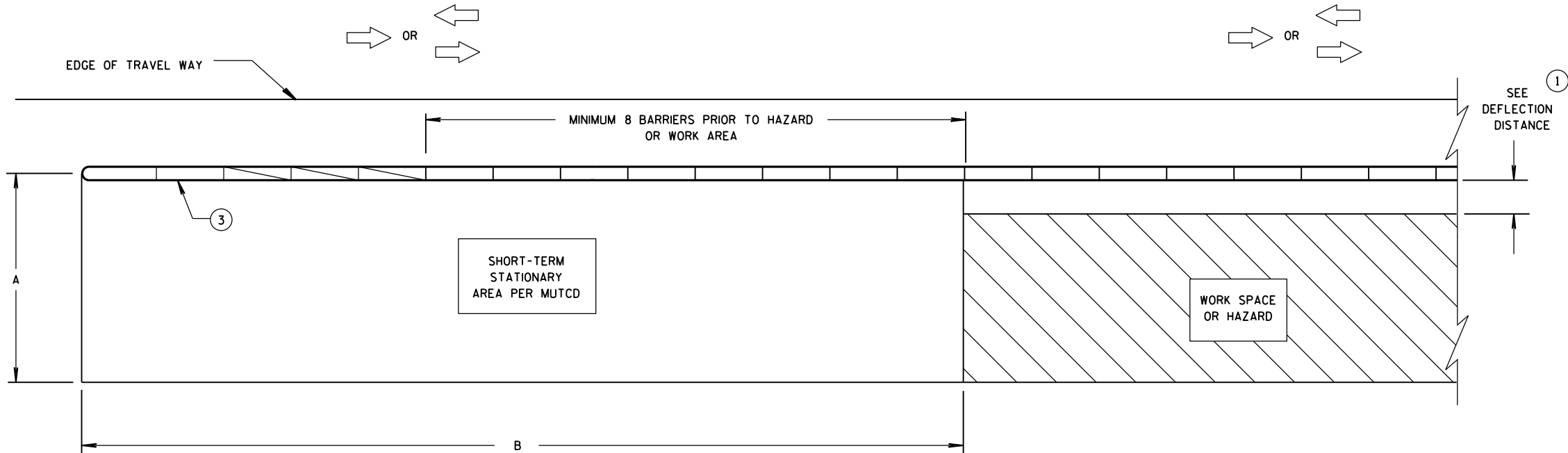
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 157



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

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED June 2017	/S/ Rodney Taylor		
DATE	ROADWAY STANDARD	158	ENT
FHWA	UNIT SUPERV		



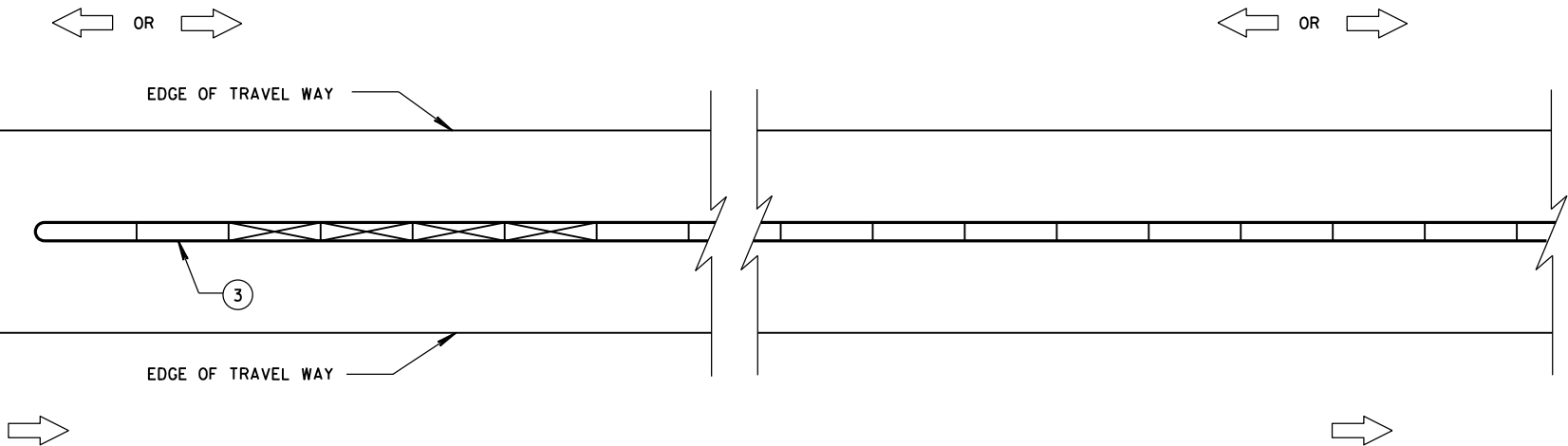
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE ②

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

DIMENSION B TABLE ②

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



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

LEGEND

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

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

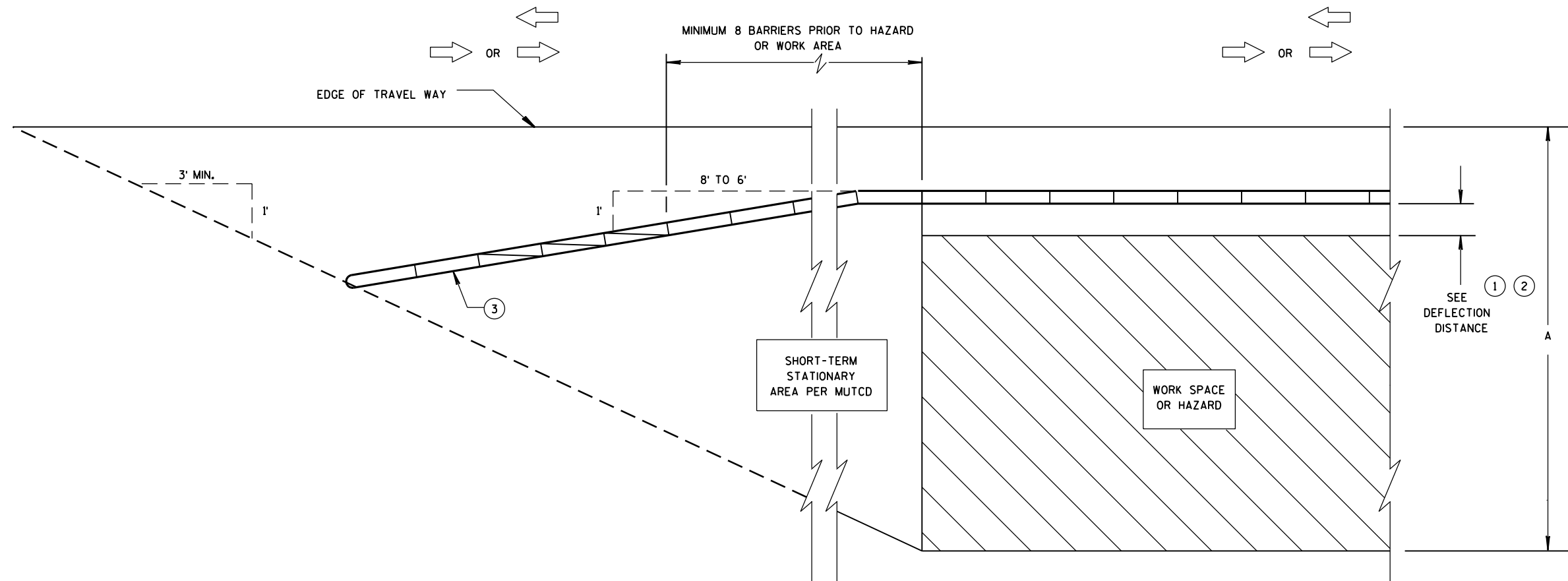
FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

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

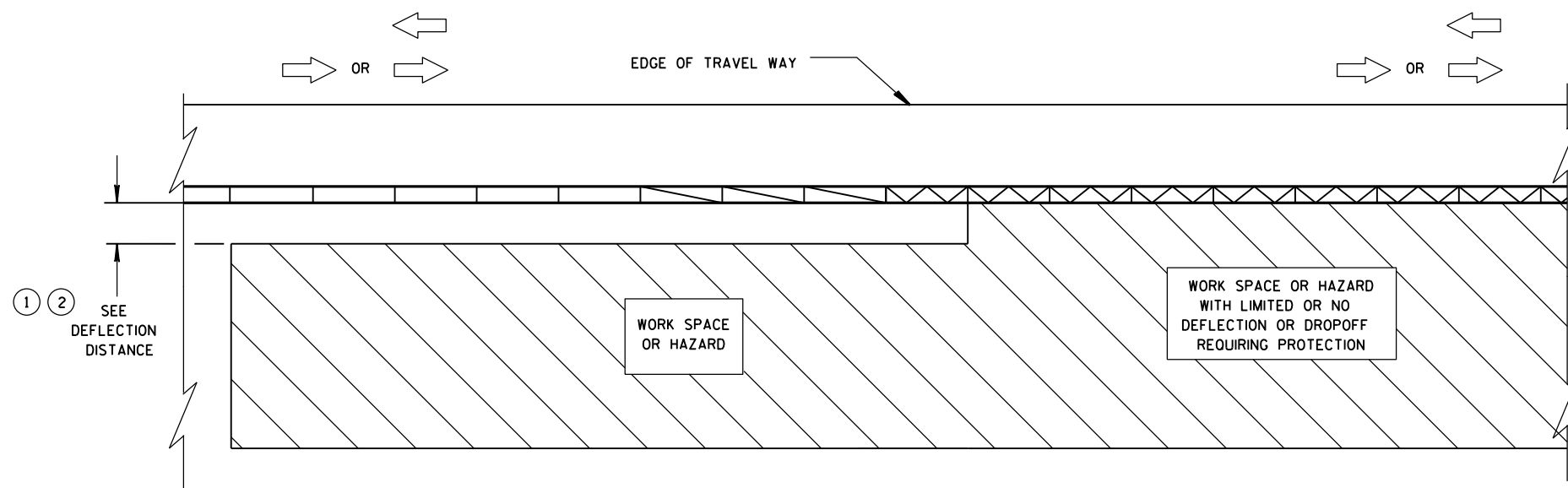
- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS.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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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



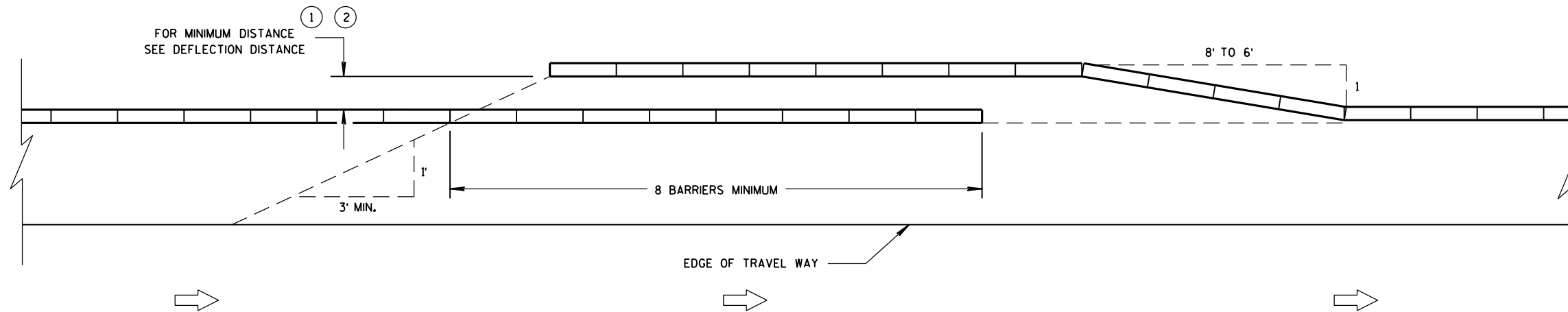
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

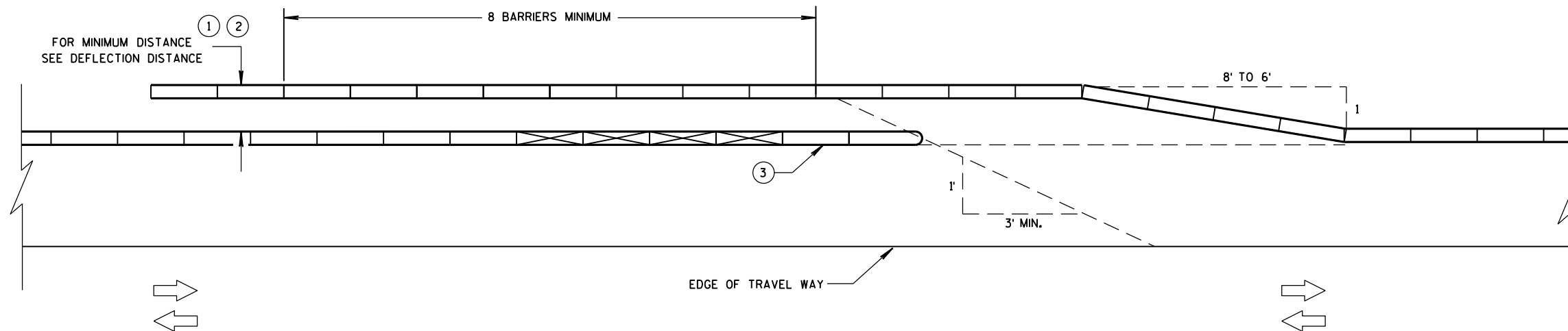
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

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

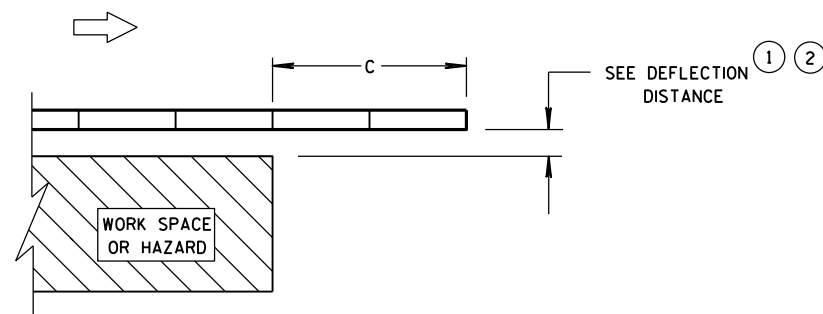
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 160



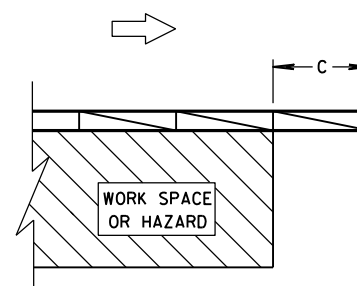
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



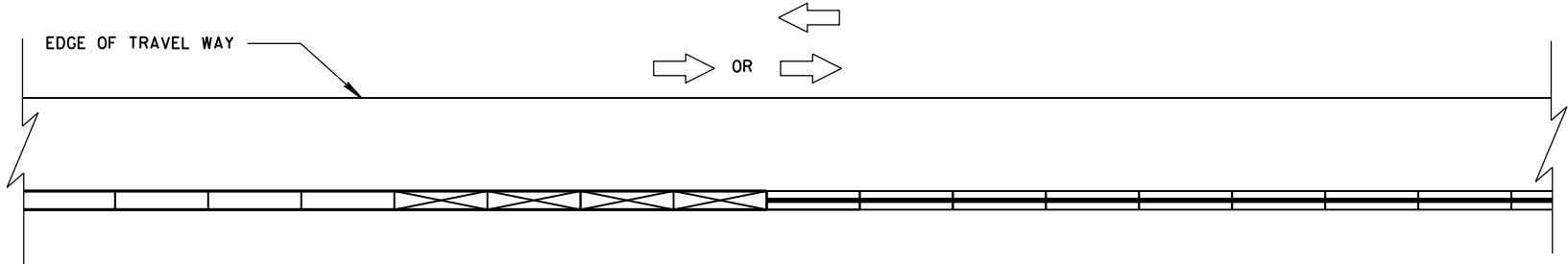
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

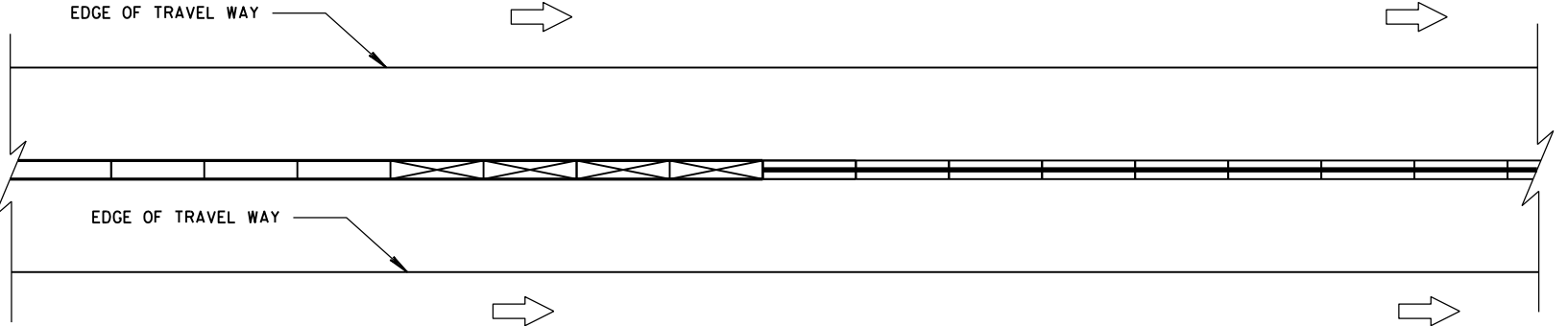
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 161



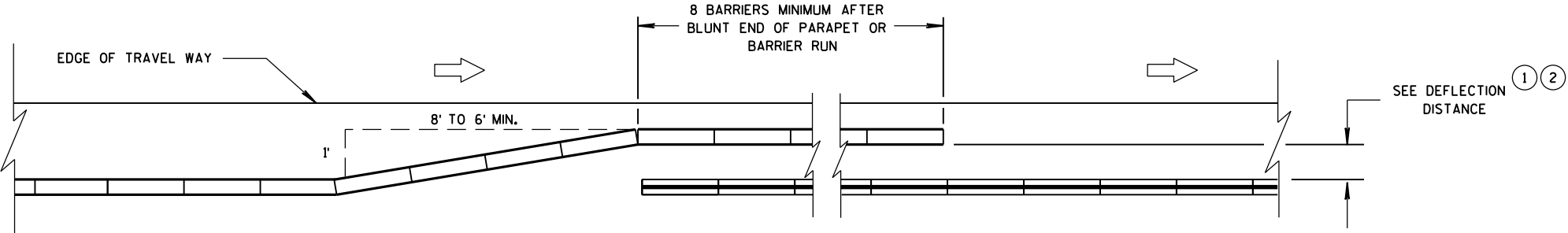
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



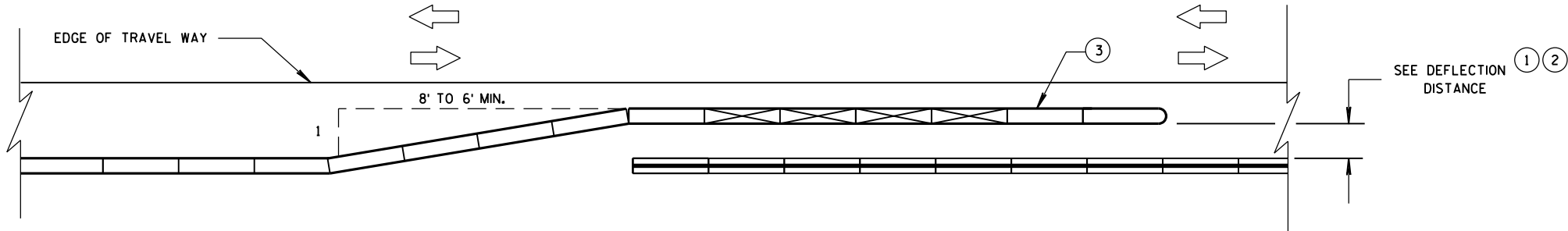
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

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



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC

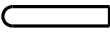


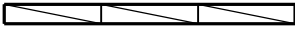
OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

LEGEND

- DIRECTION OF TRAVEL

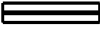

- CRASH CUSHION OR SAND BARREL ARRAY

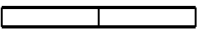

- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS


- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS


- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER


- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET


- FREE STANDING TEMPORARY BARRIER



DIMENSION C TABLE

2

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

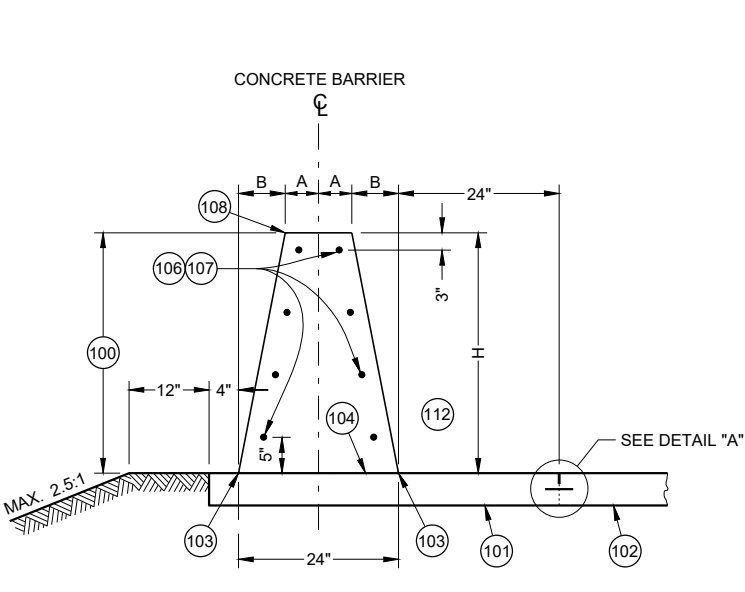
6

6

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

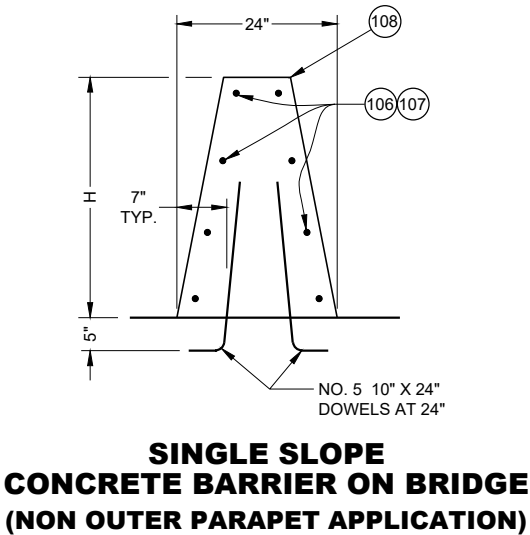
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS ENGINEER 163 ENT
FHWA



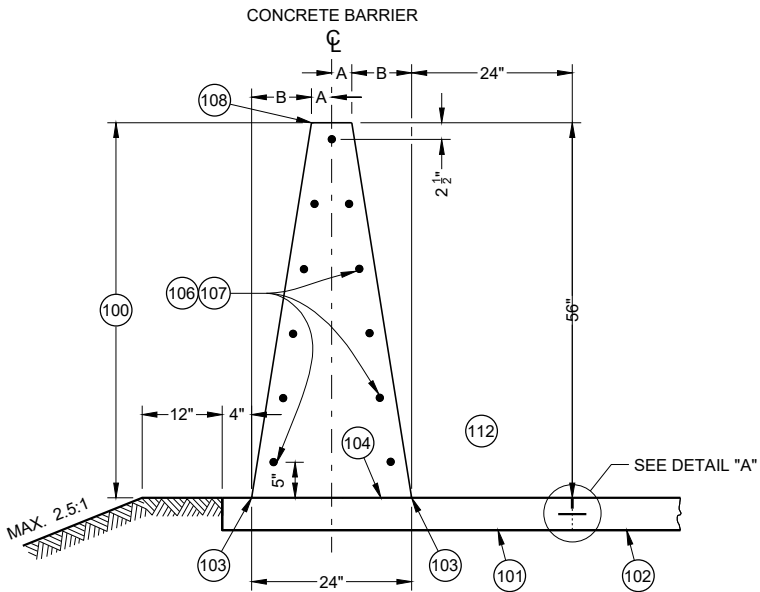
32 - INCH, 36 - INCH OR 42 - INCH
SINGLE SLOPE CONCRETE BARRIER
(TYPE S32, TYPE S36, TYPE S42)

TABLE "A"

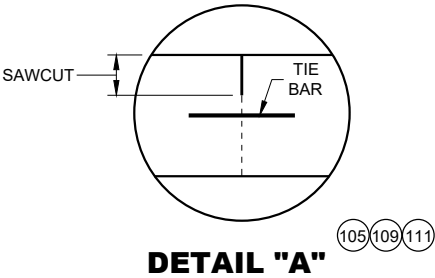
BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 ¼	5 ¾	8
42	5 ¼	6 ¾	10
56	3	9	11



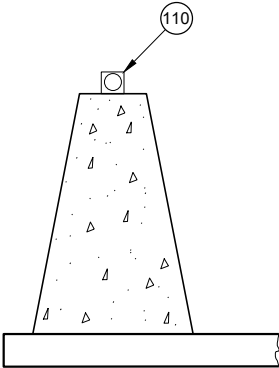
SINGLE SLOPE
CONCRETE BARRIER ON BRIDGE
(NON OUTER PARAPET APPLICATION)



56 - INCH SINGLE
SLOPE CONCRETE BARRIER
(TYPE S56)



DELINEATION

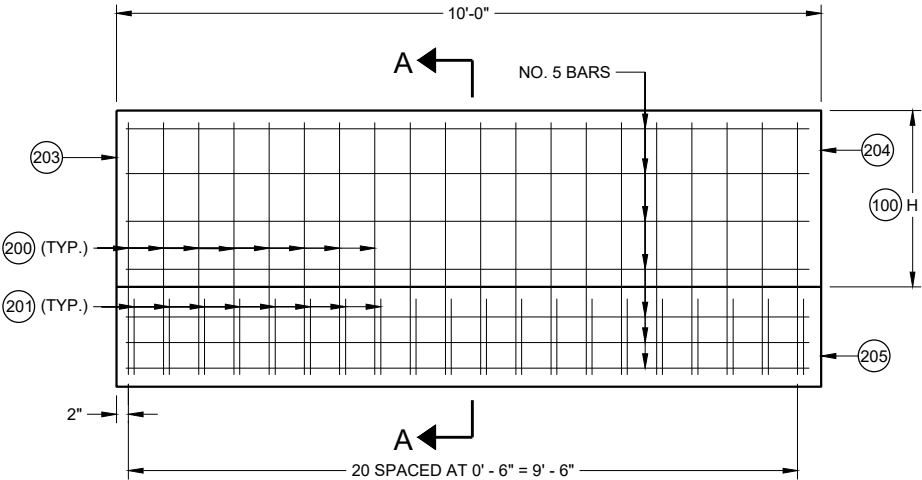


GENERAL NOTES

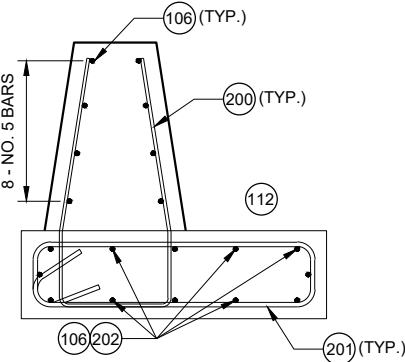
- WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.
- LOCATE EXPANSION JOINTS IN CONCRETE BARRIER SHALL AT ALL DECK AND PRINCIPAL WALL JOINTS. FILL EXPANSION JOINT WITH EXPANSION JOINT MATERIAL. SEAL THE EXPANSION JOINT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.
- 2" CLEAR COVER TYPICAL
- ANCHORS ARE REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN IN THIS SDD OR DETAIL SHOWN ON SDD 14B33. ANCHORS INCIDENTAL TO CBSS.
- PROVIDE A 1" DEEP CONTRACTION JOINT IN BARRIER PAD AND BARRIER. JOINT IS TO MATCH ADJACENT CONCRETE JOINTS. NO DOWEL BARS ARE REQUIRED FOR BARRIER PAD. IF ADJACENT TO ASPHALT, CONTRACTION JOINT IS REQUIRED EVERY 15'.
- ALL REBAR SHALL BE EPOXY COATED M31 TYPE S. SEE STANDARD SPECIFICATION 505.
- CONCRETE BARRIER, UPPER CONCRETE BARRIER, LOWER CONCRETE BARRIER, CONCRETE BARRIER PAD, AND FOOTINGS ARE TERMS USED TO DESCRIBE PARTS OF SINGLE SLOPE CONCRETE BARRIER BID ITEMS. THESE PARTS ARE INCIDENTAL TO THE SINGLE SLOPE CONCRETE BARRIER BID ITEMS.
- 100 CONCRETE BARRIER
- 101 CONCRETE BARRIER PAD
- 102 PAVEMENT
- 103 WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1 ½", USE TYPE A SINGLE SLOPE BARRIER.
- 104 OPTIONAL CONSTRUCTION JOINT.
- 105 CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAT 10'.
- 106 STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL IS 2' BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- 107 NO. 5 CONTINUOUS BARS EVENLY SPACED (SEE TABLE "A").
- 108 USE ¼" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- 109 CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED ⅓ DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6", OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- 110 SEE SDD 15A04 FOR DELINEATOR DETAILS AND SPACING.
- 111 SEE SDD 13C01 FOR DETAILS TYPING CONCRETE BARRIER TO ADJACENT CONCRETE
- 112 TRAFFIC SIDE

CONCRETE BARRIER
SINGLE SLOPE (CBSS)

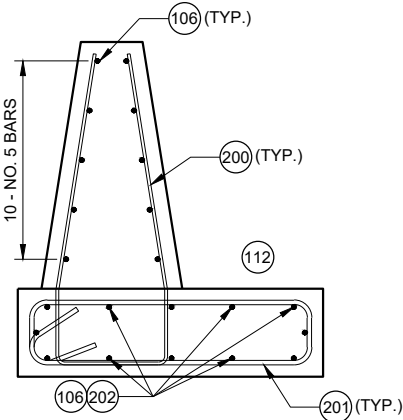
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 164



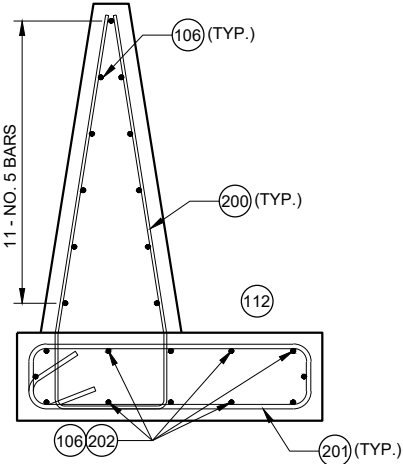
**END ANCHOR SINGLE
SLOPE CONCRETE BARRIER**



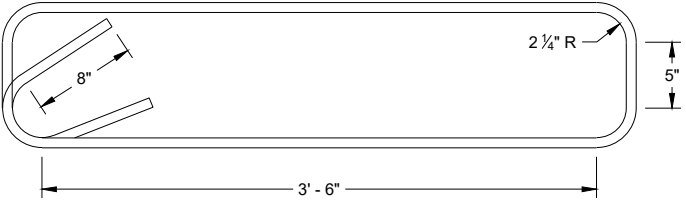
32" AND 36" CBSS



42" CBSS



56" CBSS



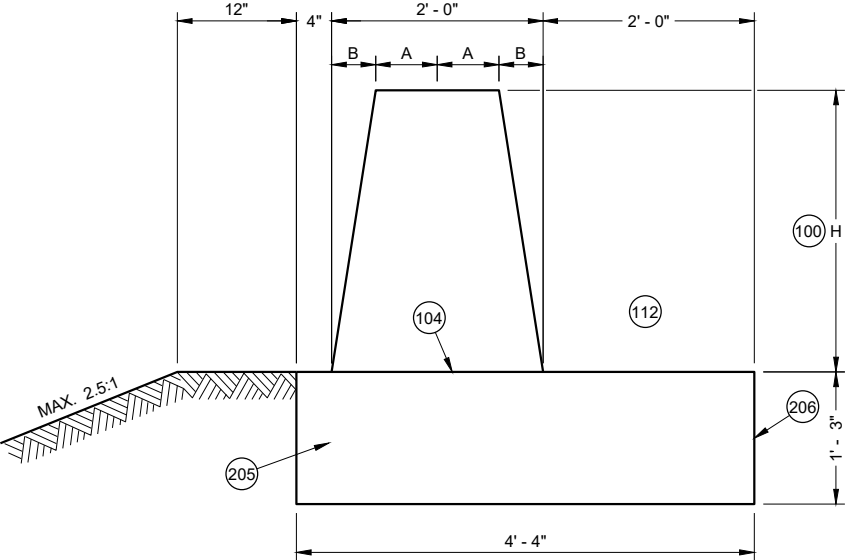
**STIRRUP BAR
BENDING DETAIL**

GENERAL NOTES

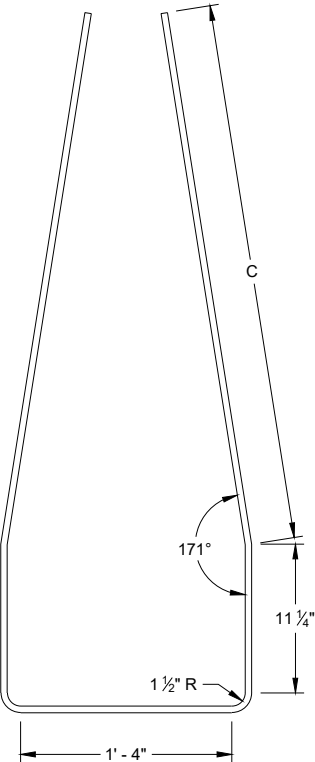
- (200) V1 BARS ARE NO. 5 BARS. (SEE BAR BENDING DETAIL)
- (201) STIRRUPS ARE NO. 6 BARS. (SEE BAR BENDING DETAIL)
- (202) TWELVE (12) NO. 5 BARS EVENLY SPACED
- (203) END OF INSTALLATION OR EXPANSION JOINT.
- (204) SEE COLD JOINT DETAIL TO CONNECT END ANCHOR SINGLE SLOPE CONCRETE BARRIER TO SINGLE SLOPE CONCRETE BARRIER.
- (205) FOOTING
- (206) DO NOT TIE TO FOOTING TO ADJACENT PAVEMENT.

TABLE "B"

BARRIER HEIGHT H INCHES	C INCHES
32	2' - 6"
36	2' - 11"
42	3' - 4"
56	4' - 6 1/2"



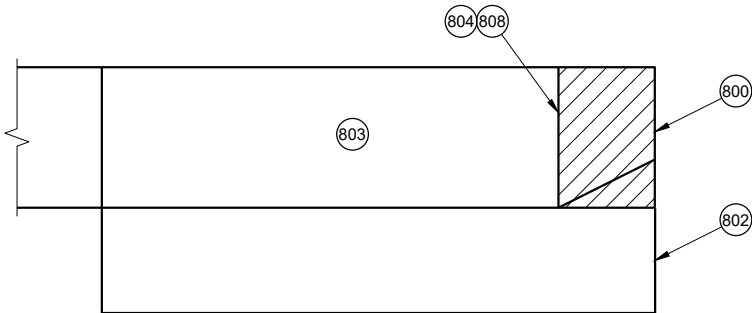
SECTION A - A



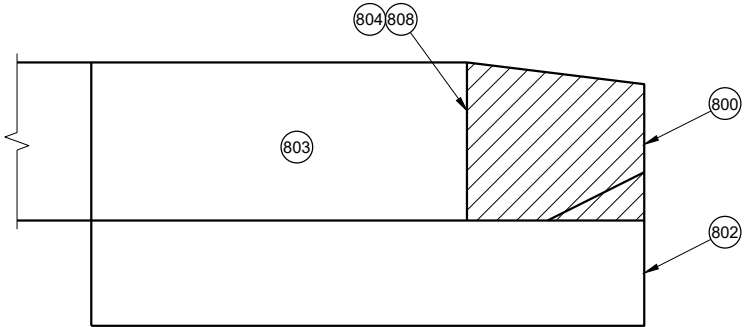
**V1 BAR
BENDING DETAIL**

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 165



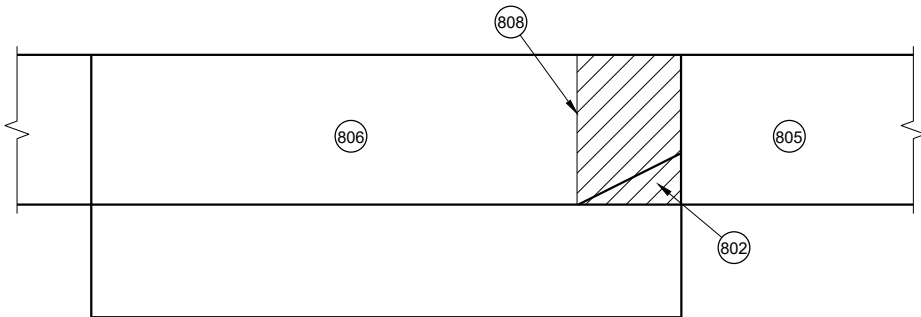
REMOVAL AREA OF
32" CONCRETE THRIE BEAM ANCHORAGE



REMOVAL AREA OF CONCRETE THRIE BEAM
ANCHORAGE WITH HEIGHT GREATER THAN 32"



CONCRETE BARRIER EXTENSION NEAR END ANCHORAGE



CONCRETE BARRIER EXTENSION NEAR THRIE BEAM TERMINAL

GENERAL NOTES

END ANCHORAGE MAY OR MAY NOT BE PRESENT ON EXISTING BARRIER.

REMOVE THRIE BEAM ANCHORAGE AS SHOWN.

800 AREA OF BARRIER REMOVAL AN NEW CONCRETE AND STEEL IS INSTALLED.

801 MINIMUM LENGTH OF REMOVAL IS 15'

802 FOOTING BELOW GROUND MAY REMAIN IN PLACE.

803 CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.

804 SAW CUT

805 NEW SINGLE SLOPE CONCRETE BARRIER.

806 CONCRETE BARRIE SINGLE SLOPE TO REMAIN.

807 SINGLE SLOPE CONCRETE BARRIER OR CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.

808 SEE CONNECTION DETAIL.

809 NO. 5 CONTINUOUS BAR.

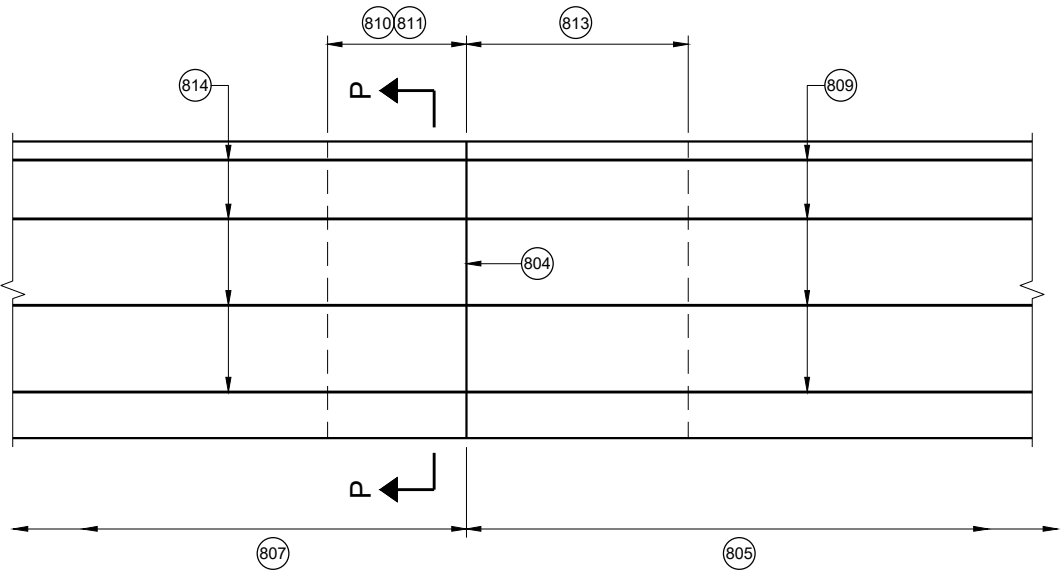
810 3" MIN. DRILL HOLES. USES NO. 5 ADHESIVE ANCHORS.

811 THE NUMBER OF DRILL HOLES IS EQUAL TO THE NUMBER OF HORIZONTAL REBAR IN BARRIER. DRILL HOLES ARE TO BE A MINIMUM OF 4" FROM EDGE OF CONCRETE.

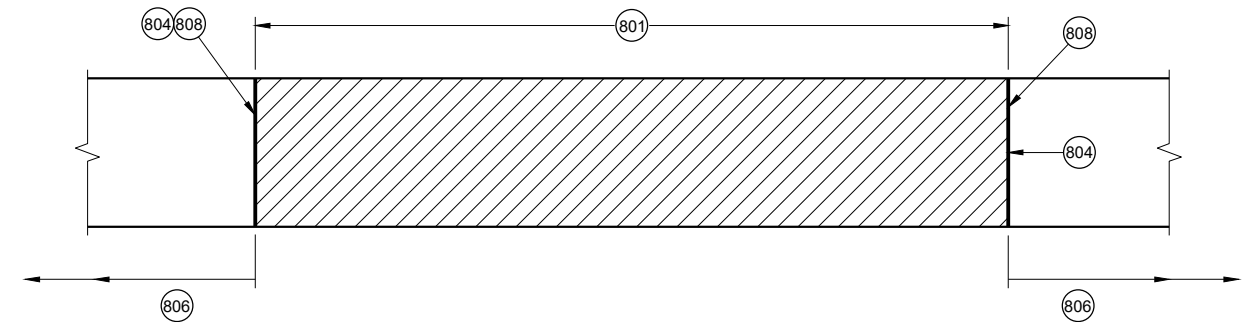
812 EXISTING REBAR IN EXISTING BARRIER OR END ANCHOR.

813 3" BAR OVERLAP

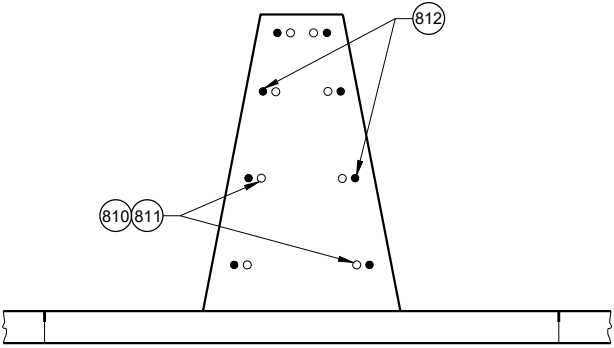
814 EXISTING REINFORCEMENT



CONNECTION DETAIL
SINGLE SLOPE CONCRETE BARRIER TO
NEW SINGLE SLOPE CONCRETE BARRIER



BARRIER REMOVAL AND REPLACEMENT



SECTION P - P

CONCRETE BARRIER
SINGLE SLOPE (CBSS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

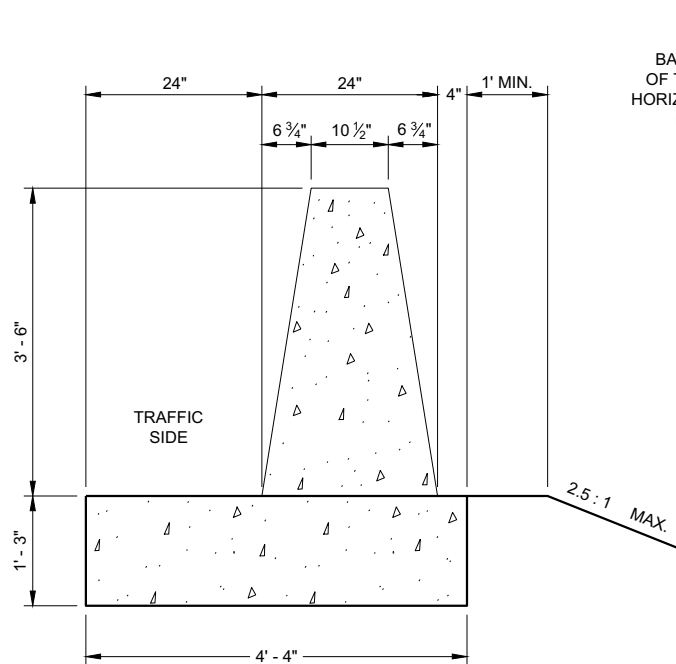
November 2021

DATE

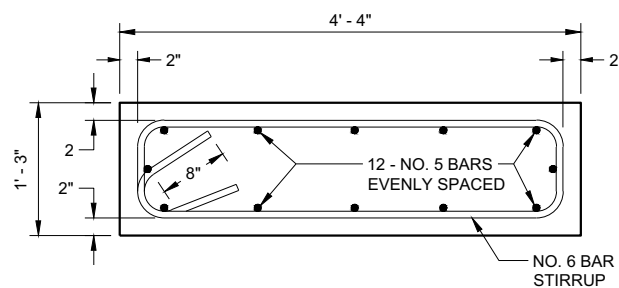
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE
UNIT SUPERVISOR

166



SECTION A - A



TYPICAL FOOTING

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 603.

SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.

USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.

THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.

INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.

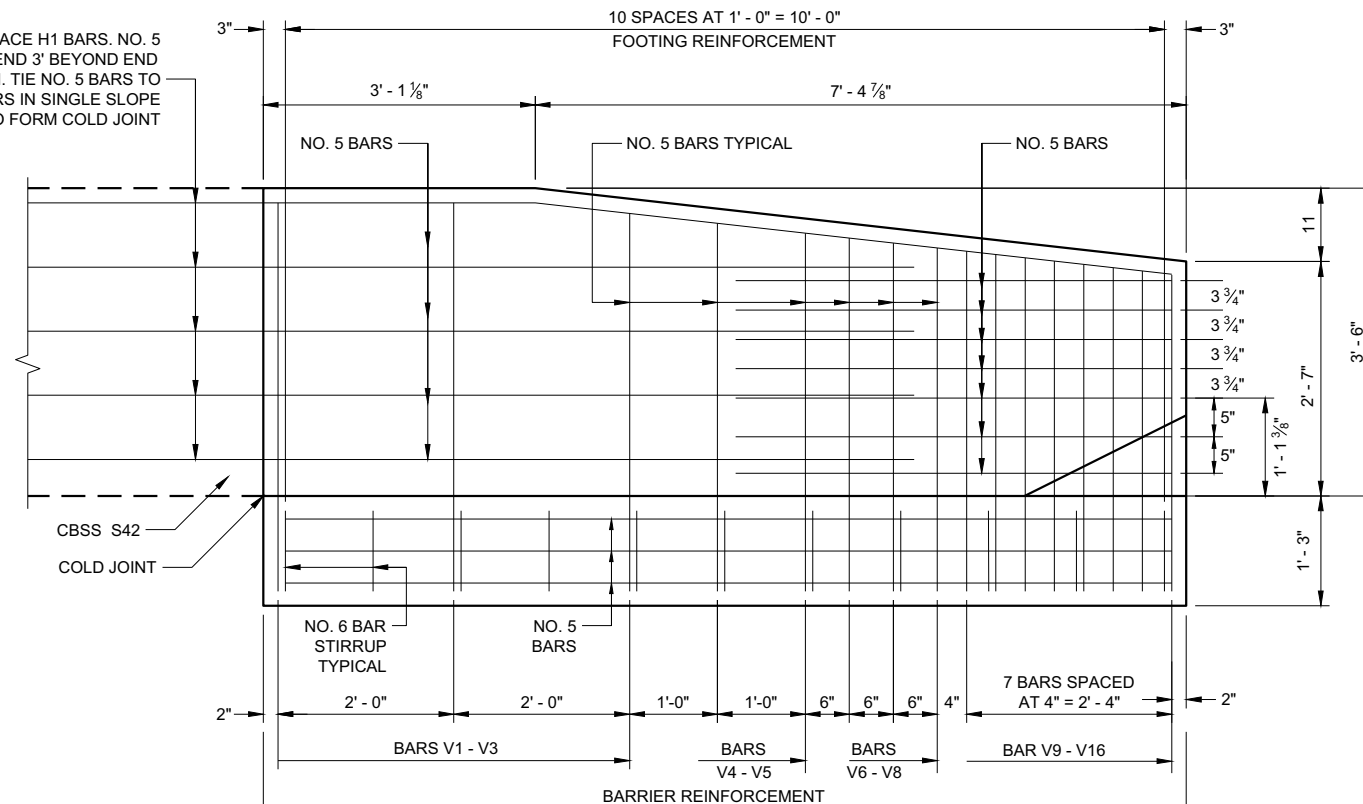
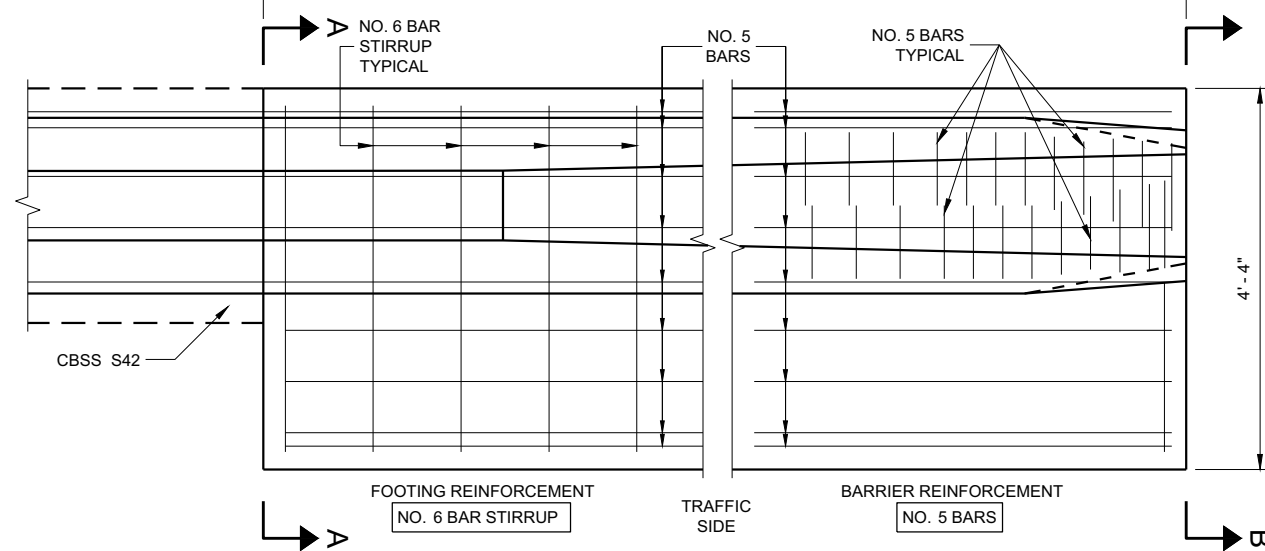
EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.

CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.

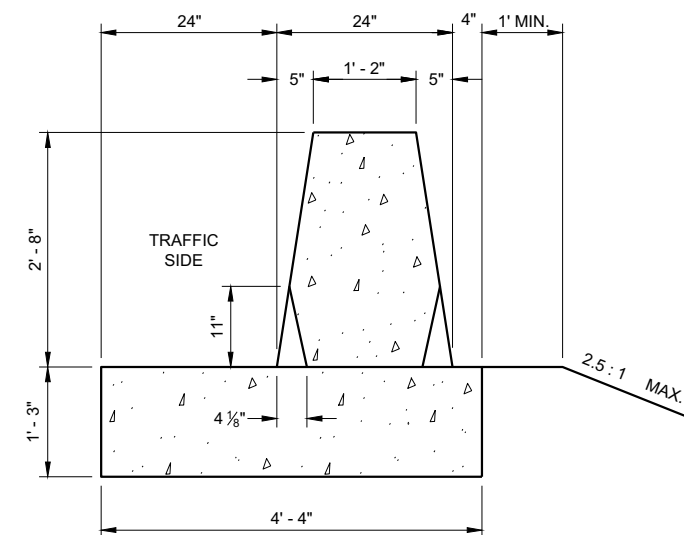
THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.

2" CLEAR COVER TYPICAL.

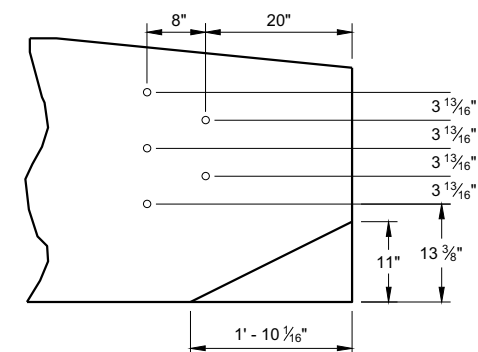
EVENLY SPACE H1 BARS. NO. 5 BARS TO EXTEND 3' BEYOND END OF TRANSITION. TIE NO. 5 BARS TO HORIZONTAL BARS IN SINGLE SLOPE BARRIER TO FORM COLD JOINT

SEE SECTIONS ① THRU ⑩
ELEVATION VIEW

PLAN VIEW



SECTION B - B



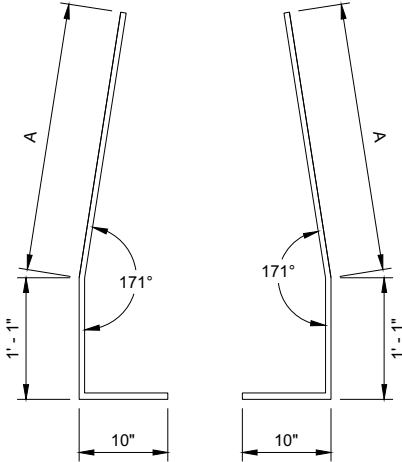
PVC PIPE LOCATIONS

**CONCRETE BARRIER
SINGLE SLOPE 42"
THRIE BEAM ANCHOR**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 167

BAR CHART
BAR POSITIONS
1 - 11

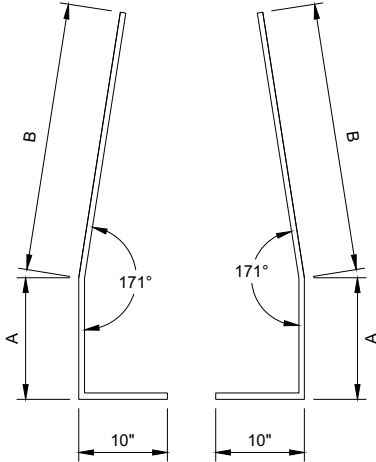
BAR	A
V1	3' - 4 1/2"
V2	3' - 4 1/2"
V3	3' - 2 1/2"
V4	3' - 1"
V5	2' - 11 1/2"
V6	2' - 11"
V7	2' - 10 1/2"
V8	2' - 9 1/2"
V9	2' - 9"
V10	2' - 8 1/2"
V11	2' - 8"



BAR BENDING DETAIL
SECTIONS V1 - V4

BAR CHART
BAR POSITIONS
12 - 13

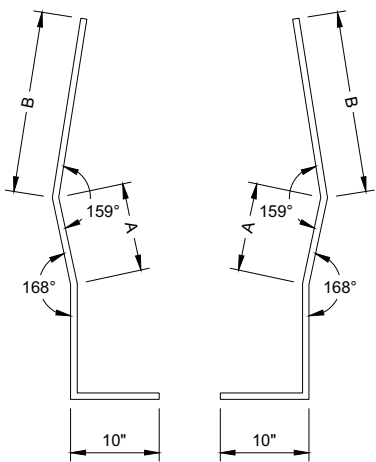
BAR	A	B
V12	1' - 3"	2' - 6"
V13	1' - 8"	2' - 1 1/2"



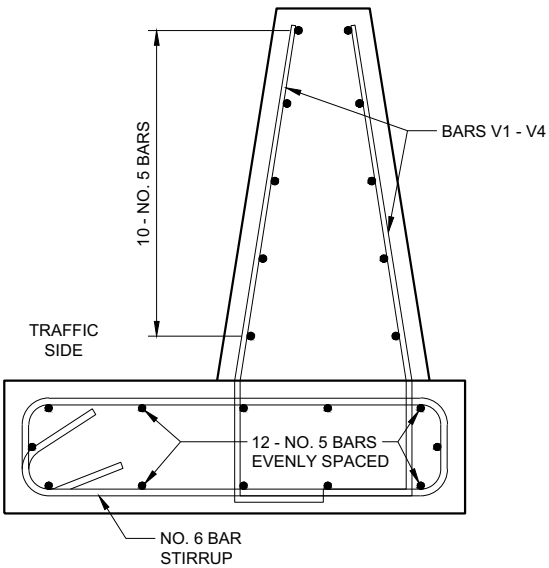
BAR BENDING DETAIL
SECTIONS V12 - V13

BAR CHART
BAR POSITIONS
14 - 16

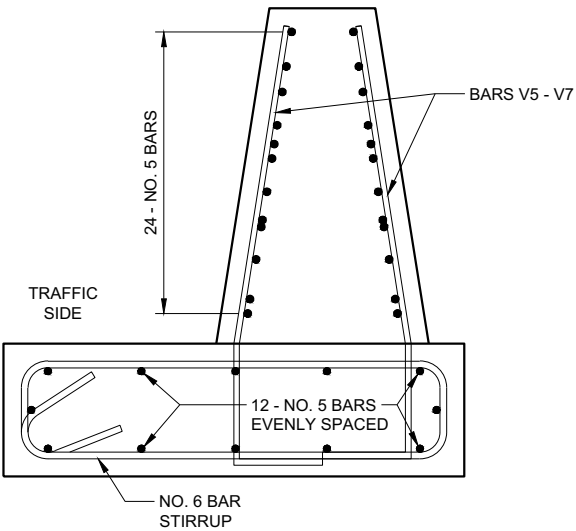
BAR	A	B
V14	6"	2' - 1"
V15	8"	1' - 11"
V16	10"	1' - 8 1/2"



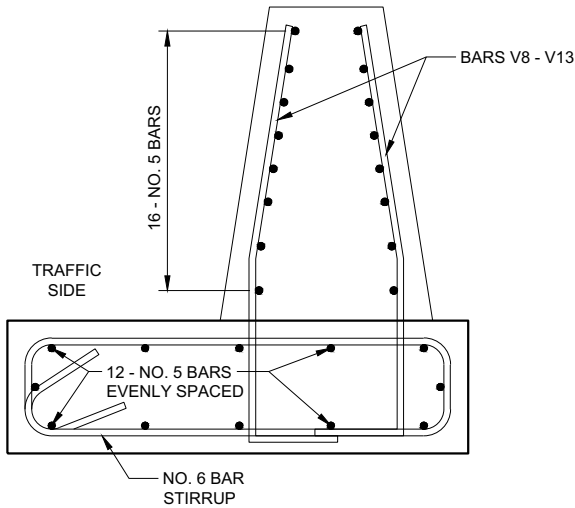
BAR BENDING DETAIL
SECTIONS V14 - V16



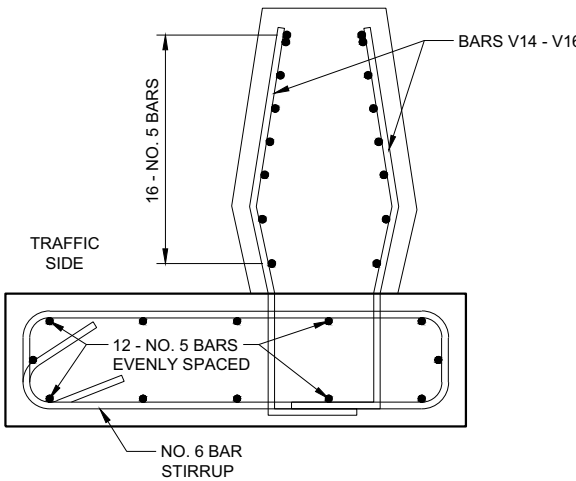
BAR DETAIL
SECTIONS 1 - 4



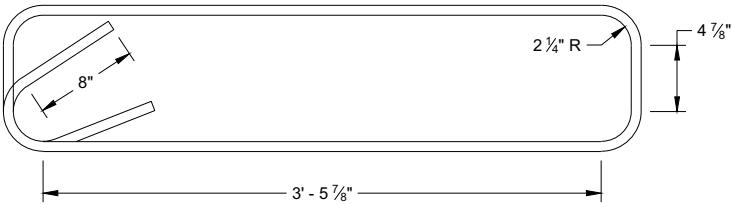
BAR DETAIL
SECTIONS 5 - 7



BAR DETAIL
SECTIONS 8 - 13



BAR DETAIL
SECTIONS 14 - 16



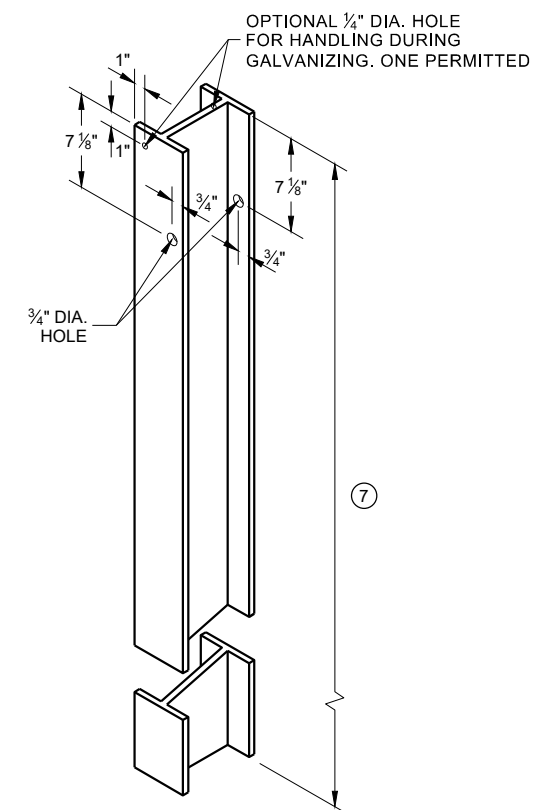
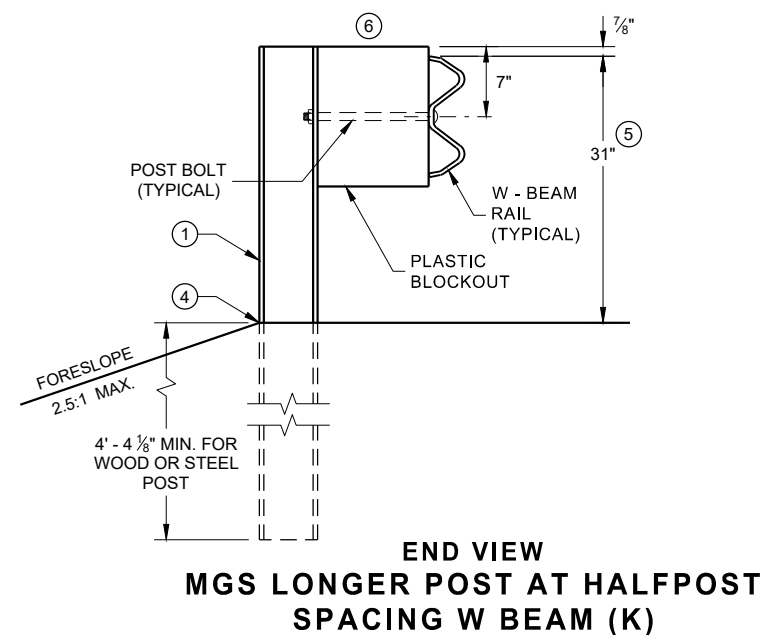
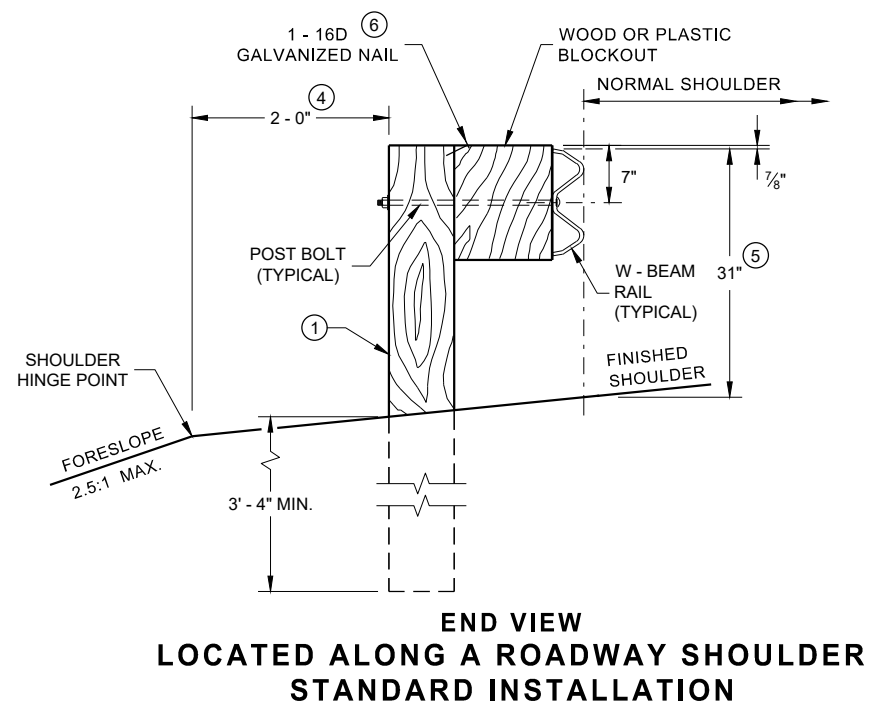
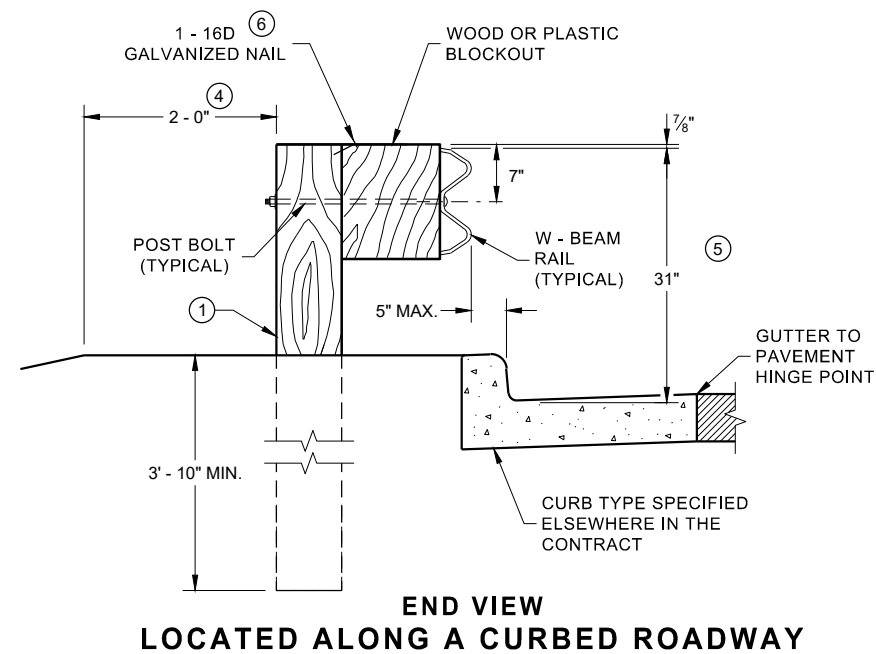
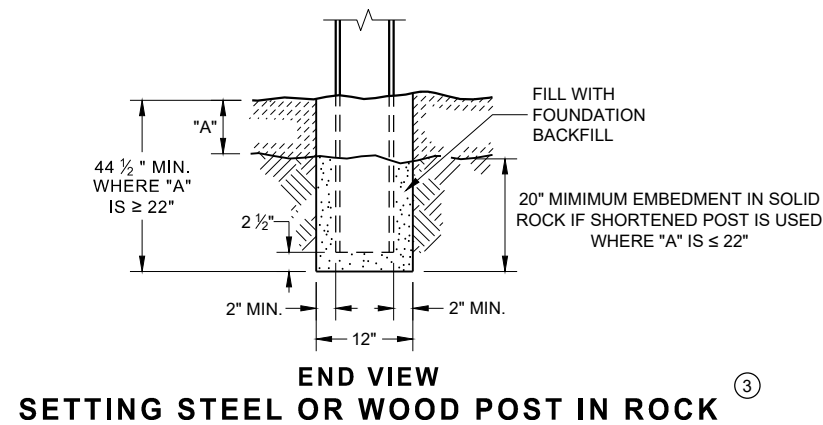
STIRRUP BAR
BENDING DETAIL

CONCRETE BARRIER
SINGLE SLOPE 42"
THRIE BEAM ANCHOR

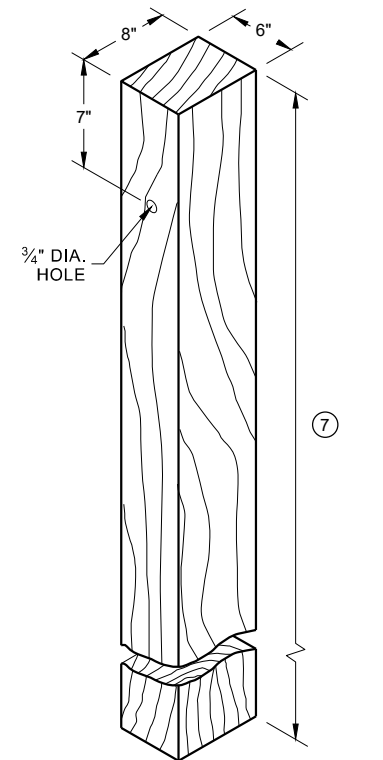
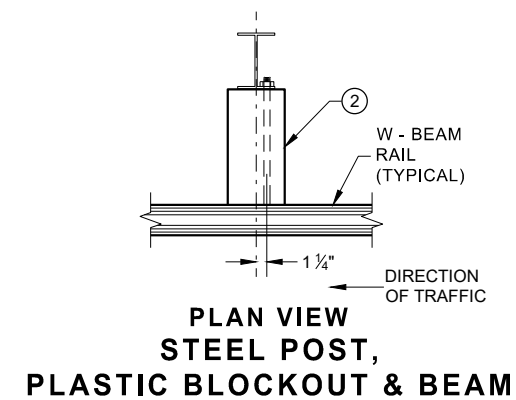
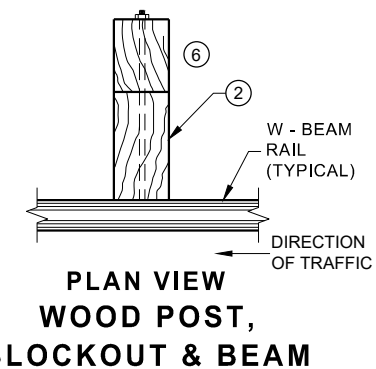
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

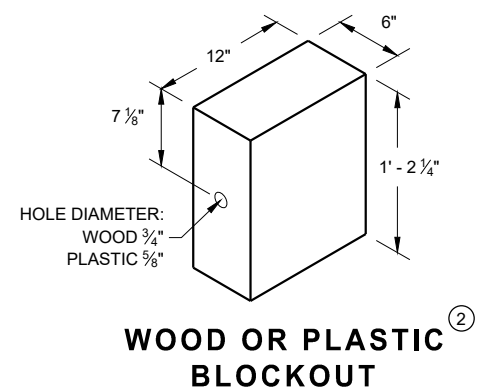
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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".

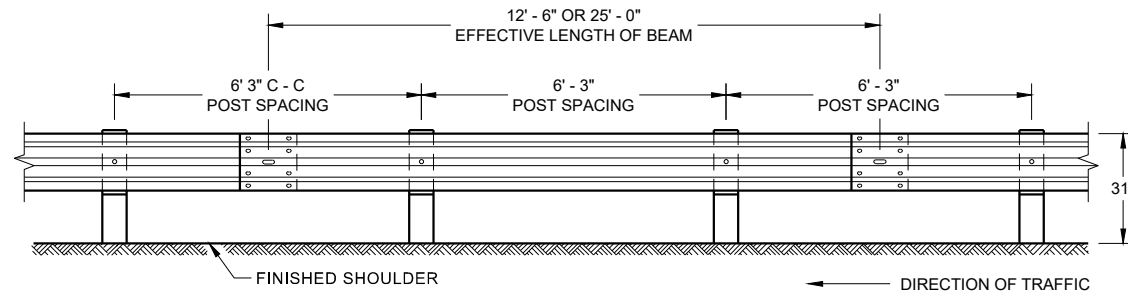


**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

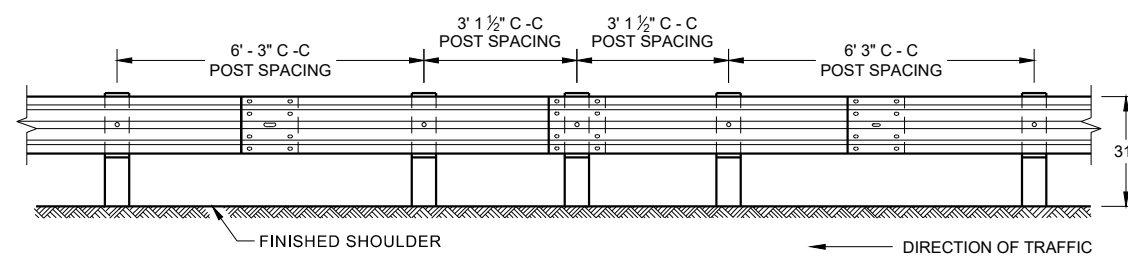


WOOD POST (6" X 8") NOMINAL ⁽¹⁾

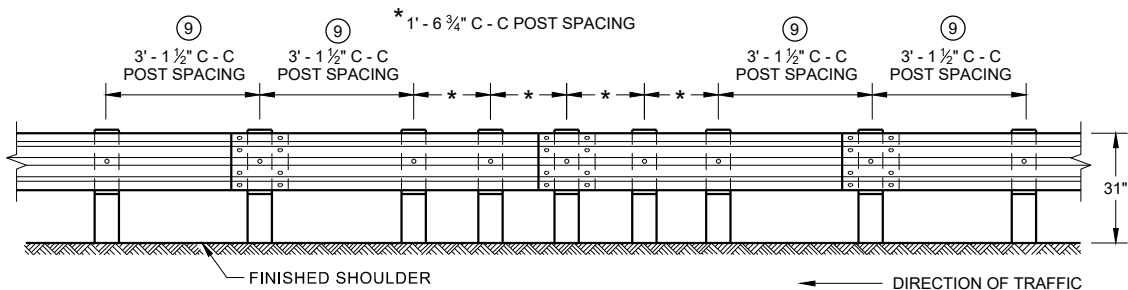




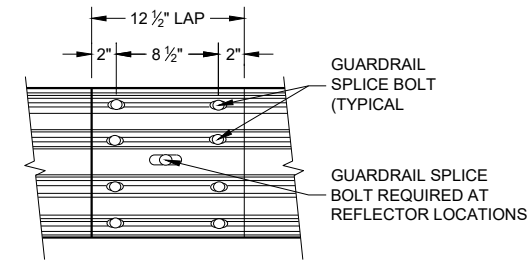
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



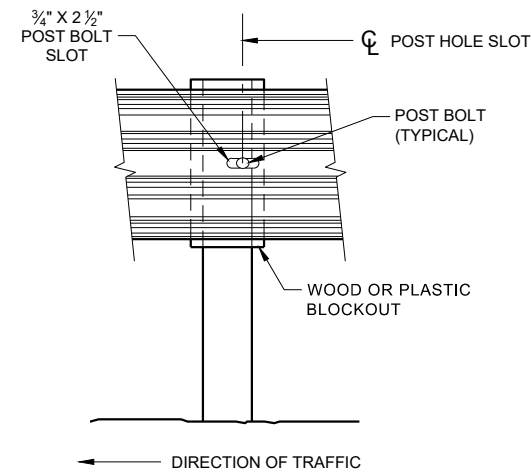
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



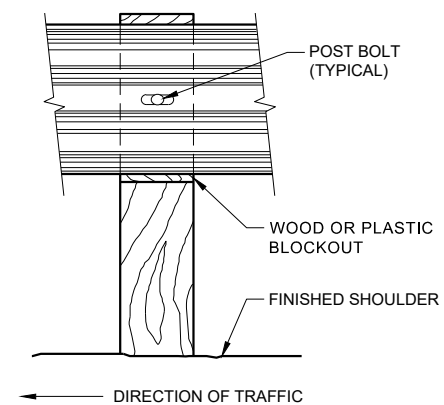
**FRONT VIEW
QUARTER POST SPACING (QS)**



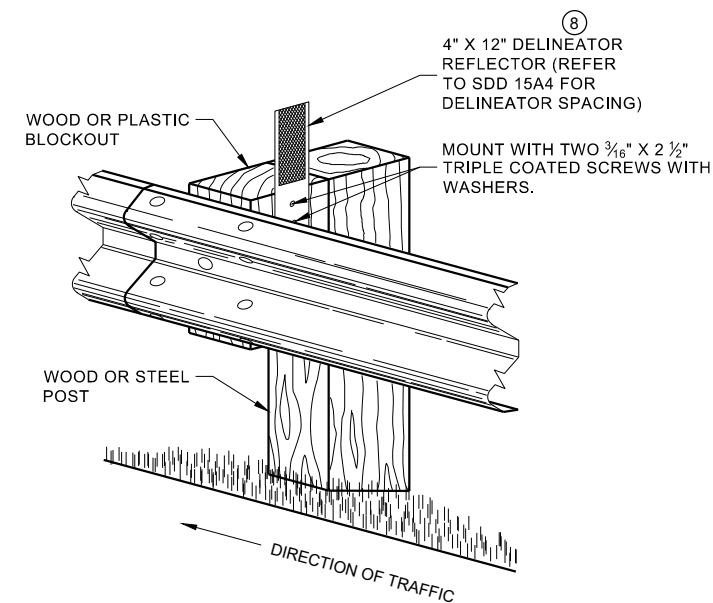
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



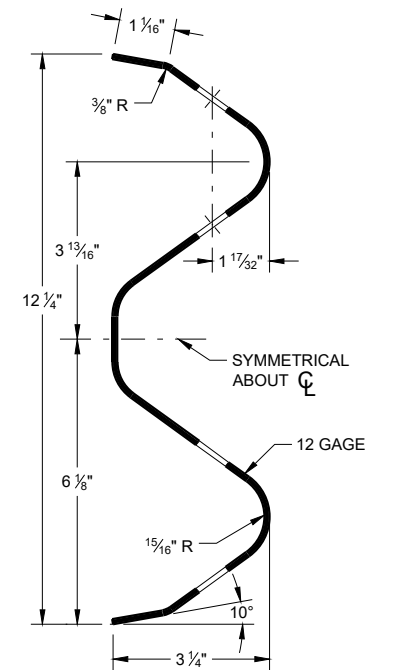
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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

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



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 170



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.

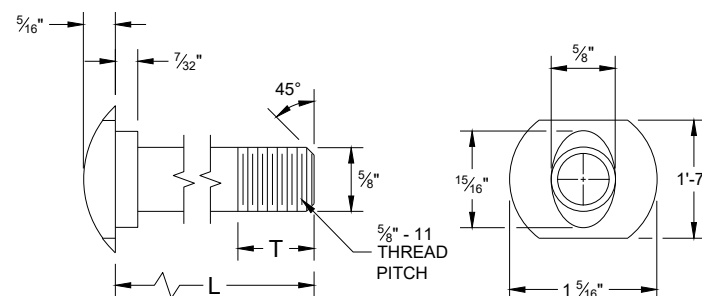


NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

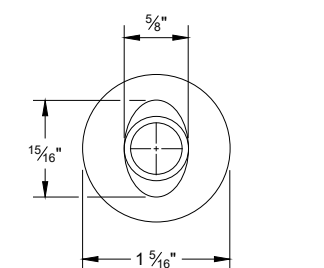
NOTE:

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

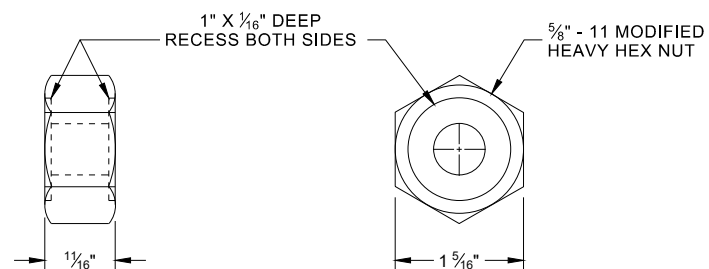


POST BOLT TABLE

L	T (MIN.)
1 ¼"	1 ½"
2"	1 ¾"
10"	4"
14"	4 ⅙"
18"	4"
21"	4 ⅙"
25"	4"

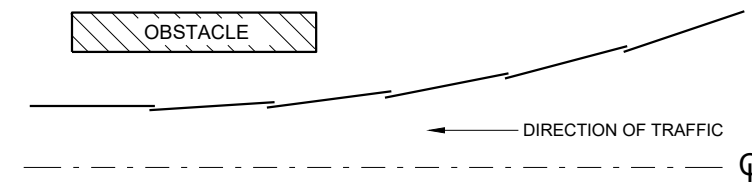


ALTERNATE BOLT HEAD

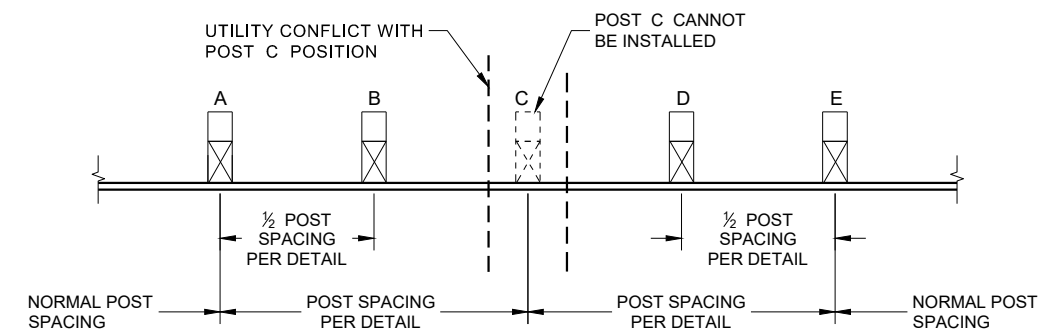


POST BOLT, SPLICE BOLT AND RECESS NUT

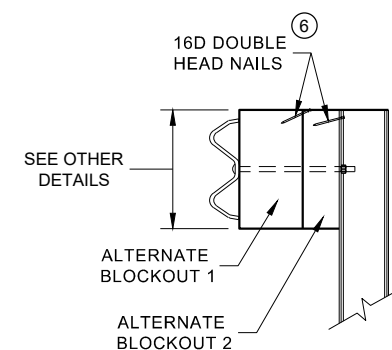
⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



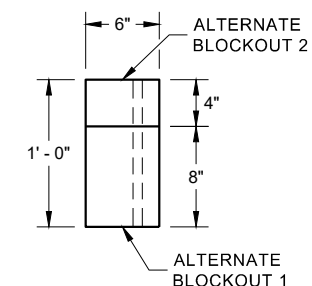
**PLAN VIEW
BEAM LAPPING DETAIL**



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

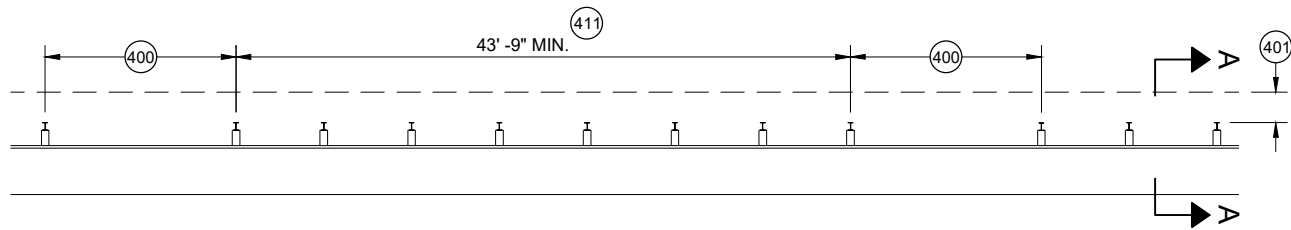


PLAN VIEW

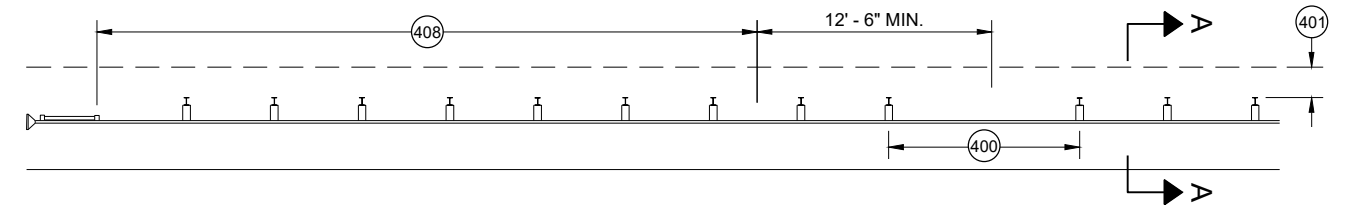
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

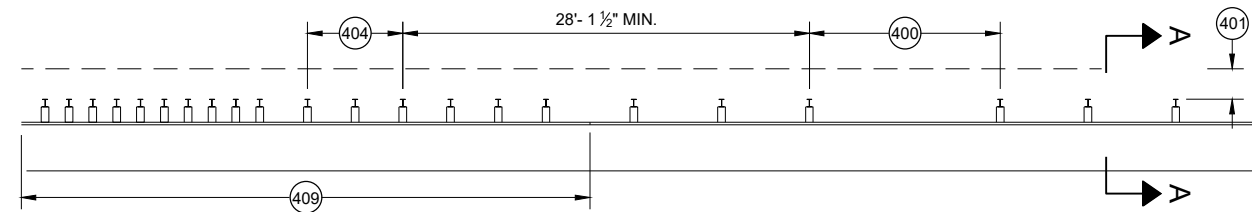
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 171



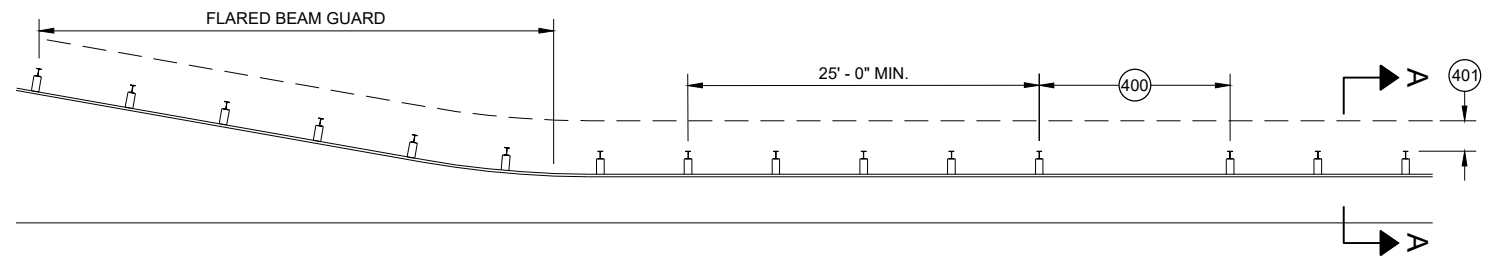
MISSING POST IN MGS GUARDRAIL



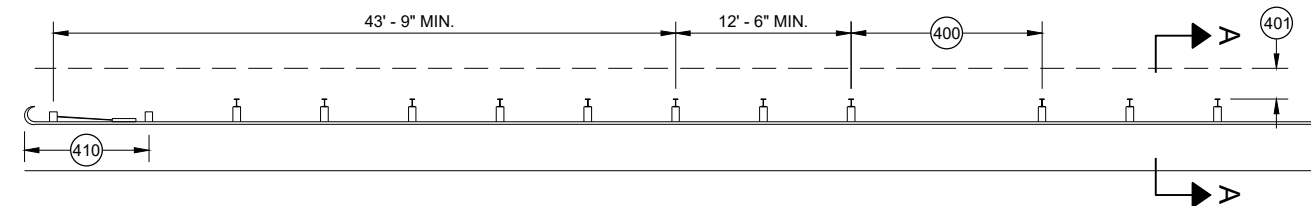
MISSING POST IN MGS GUARDRAIL NEAR EAT



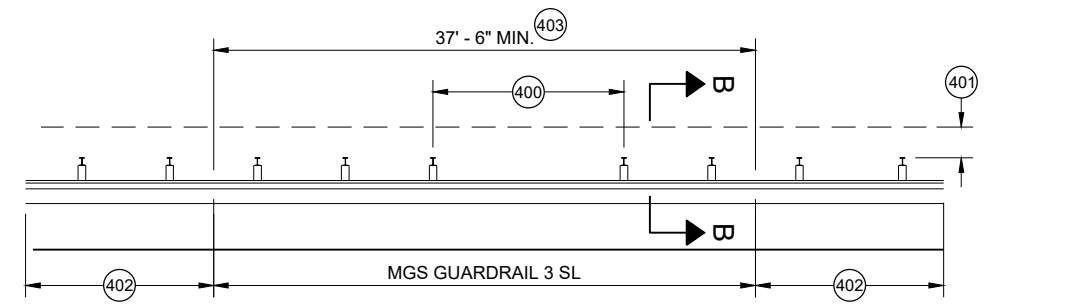
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

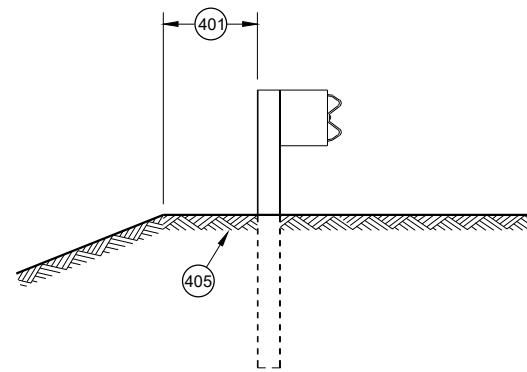


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

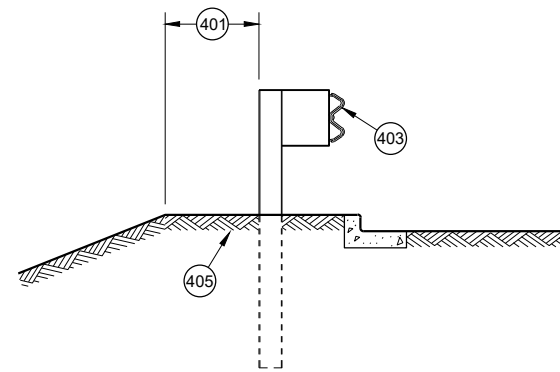


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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

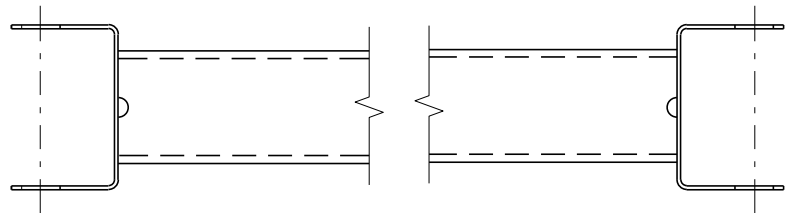
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

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.

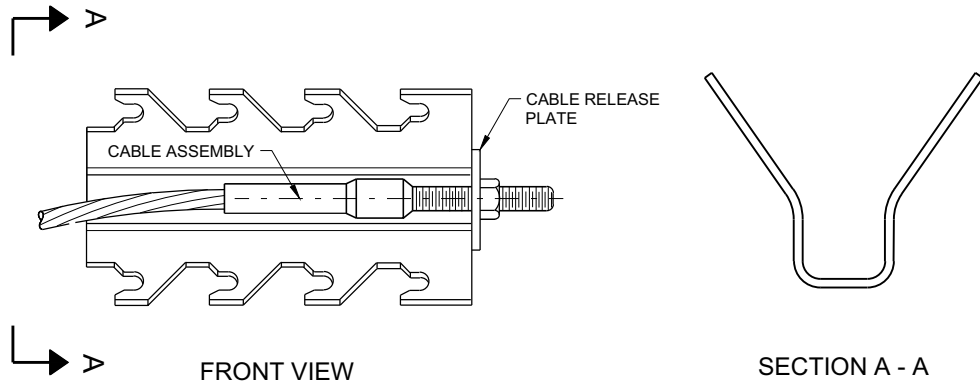


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 173

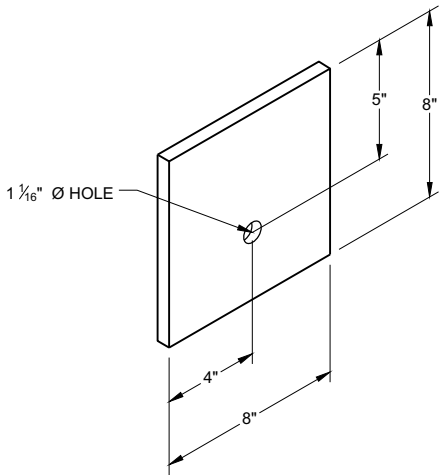


GENERIC GROUND STRUT⁹ ^E

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



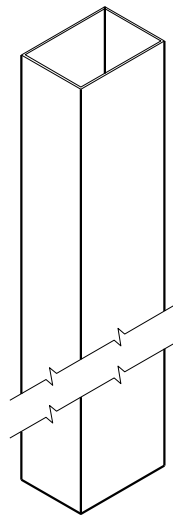
GENERIC ANCHOR CABLE BOX⁹ ^E



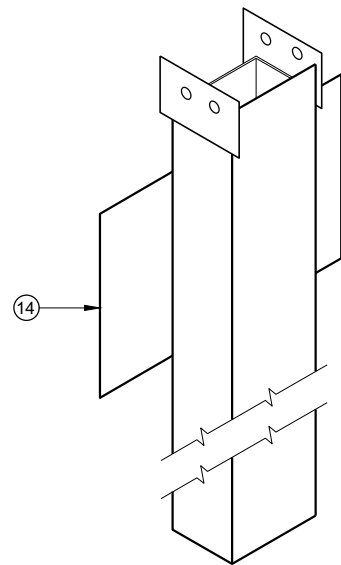
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

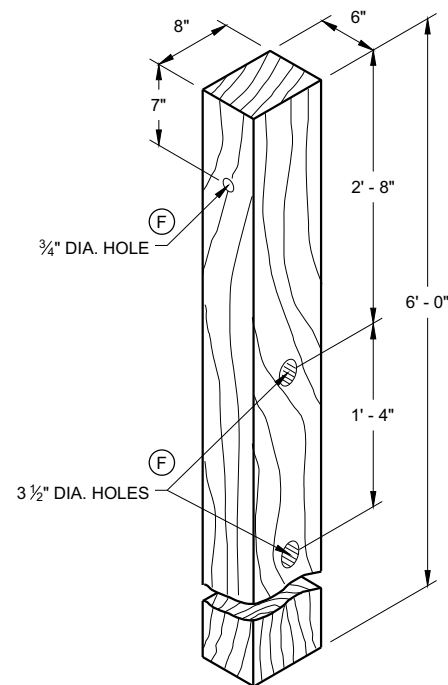
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 174



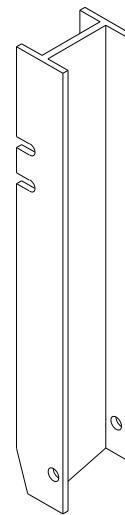
UPPER POST NO. 1 ⁽¹⁾ (E)



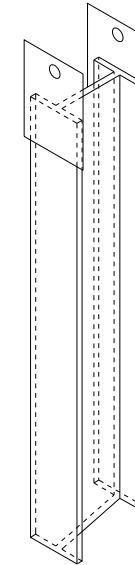
LOWER POST NO. 1 ⁽²⁾ (E)



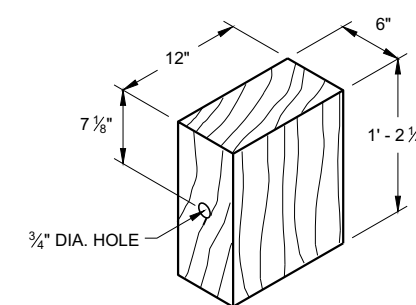
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



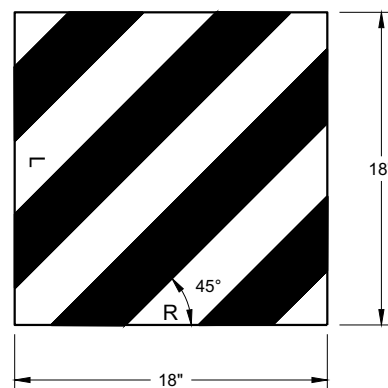
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



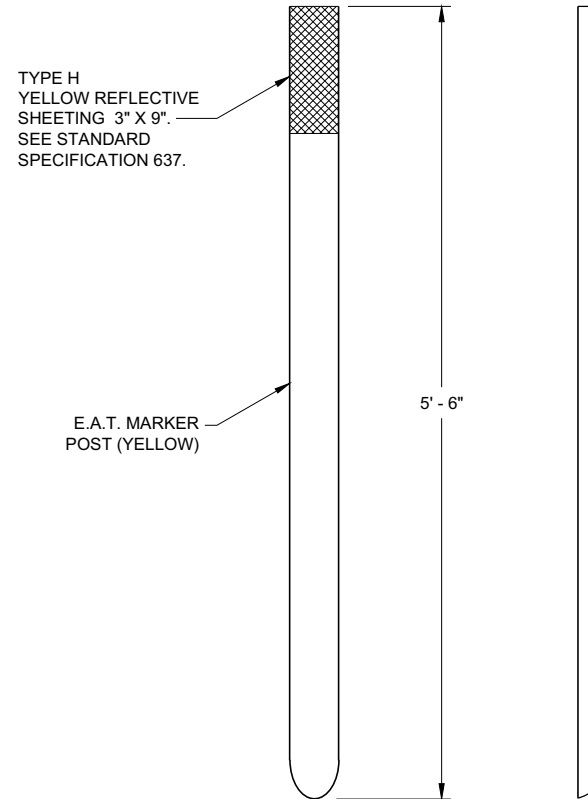
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



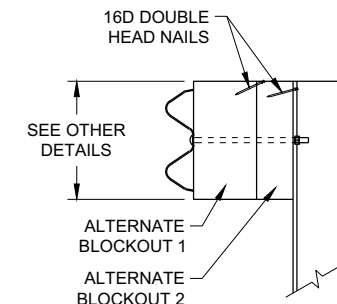
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



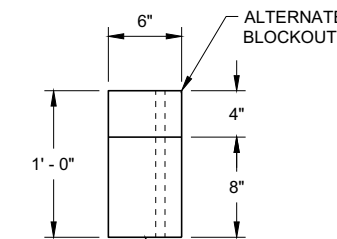
REFLECTIVE SHEETING DETAIL ^(E)



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 175
FHWA	



Ⓢ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42

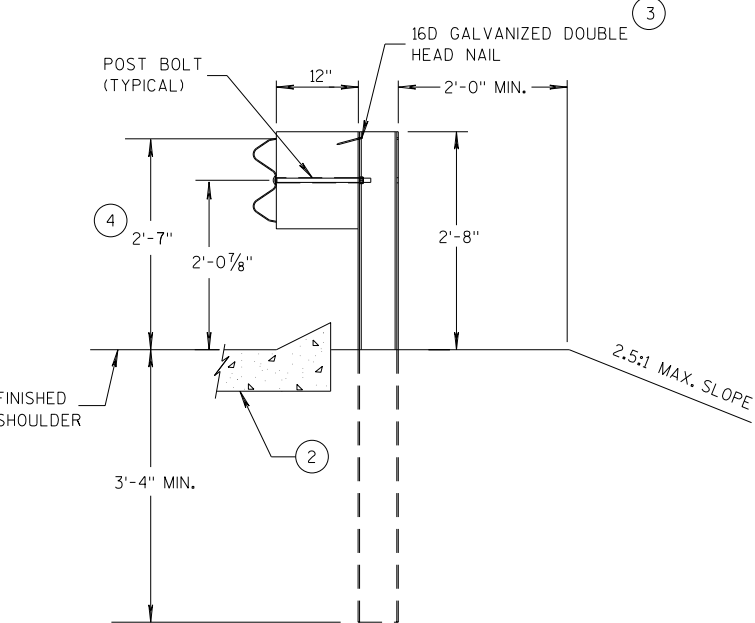


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

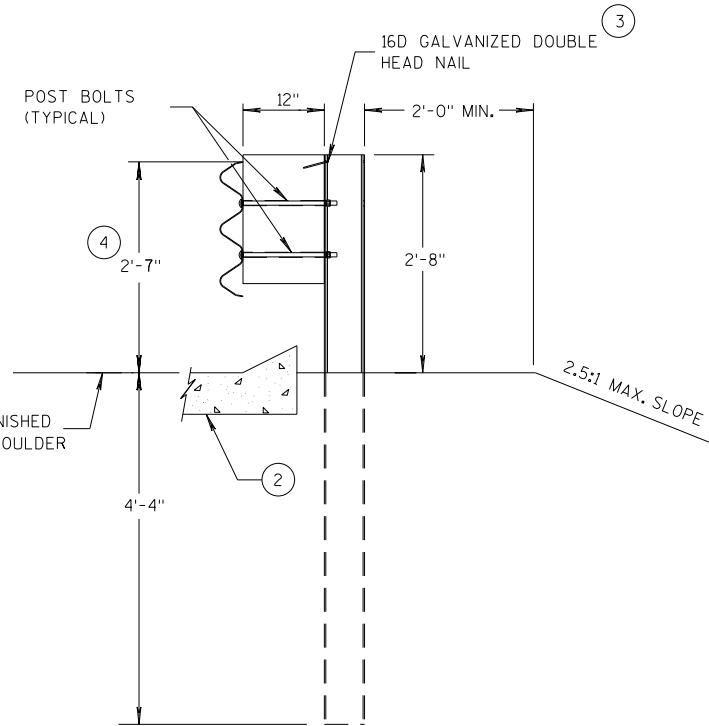
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 176

GENERAL NOTES

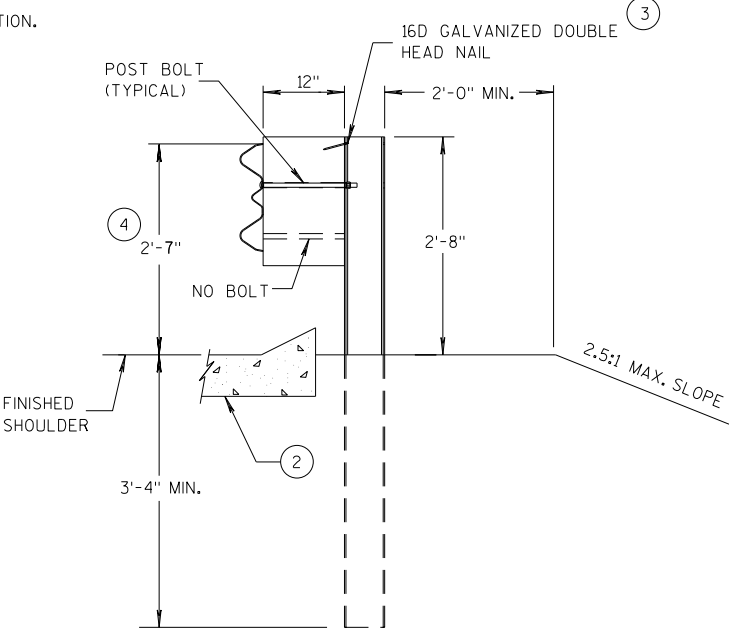
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



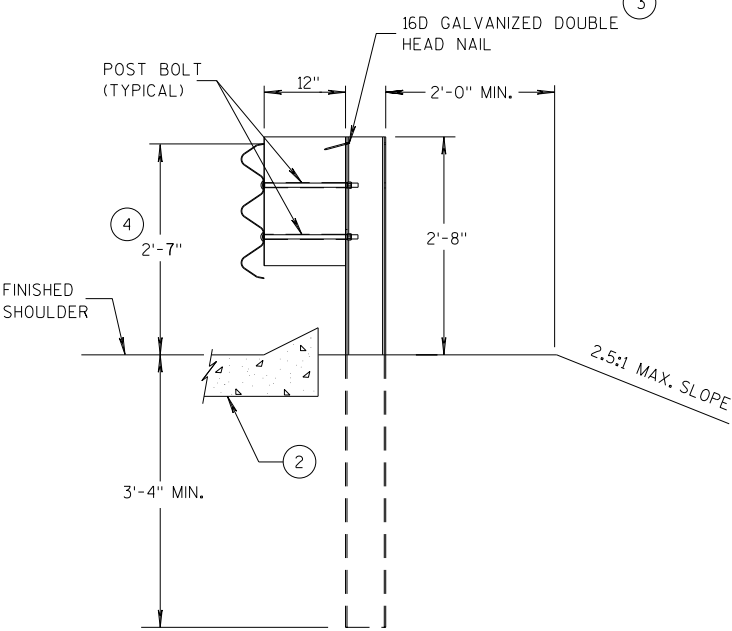
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

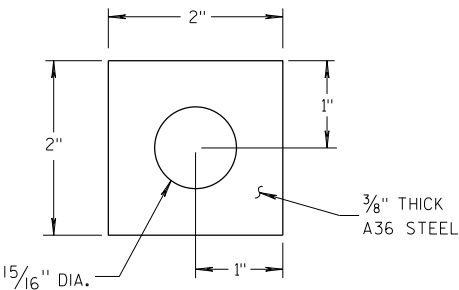
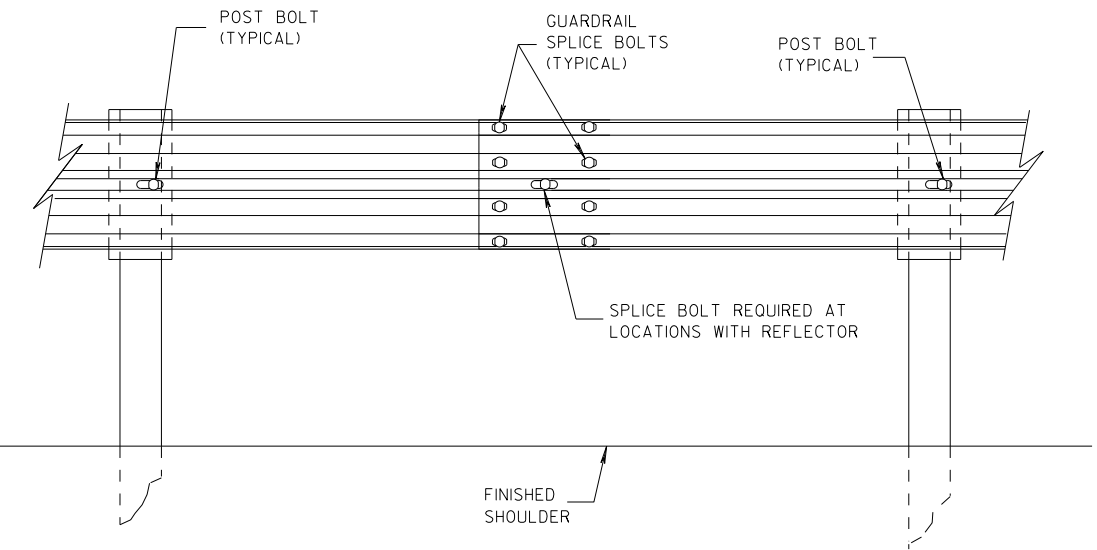
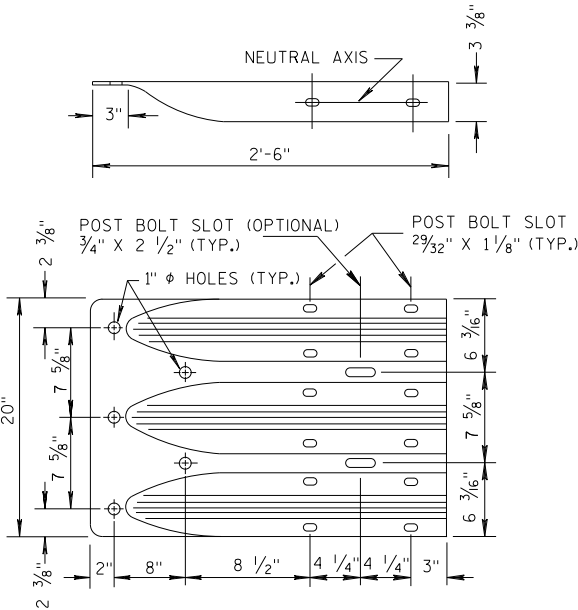


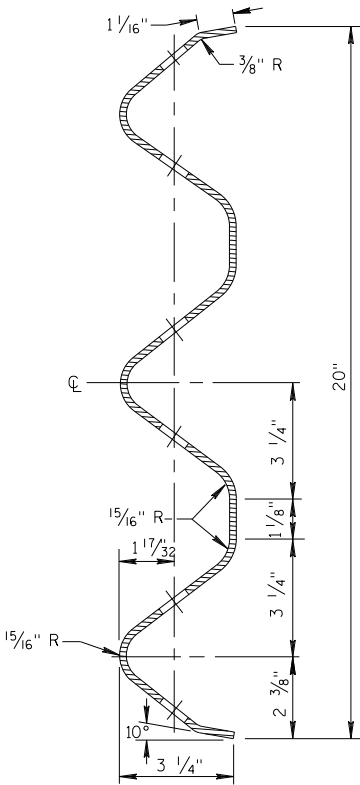
PLATE WASHER DETAIL



SPLICE DETAIL



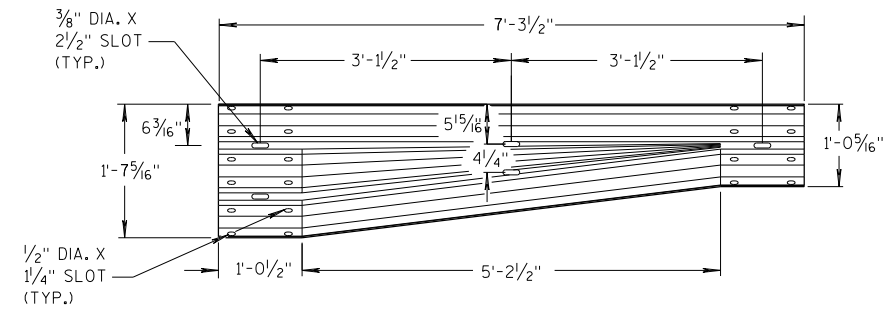
THRIE BEAM
TERMINAL CONNECTOR



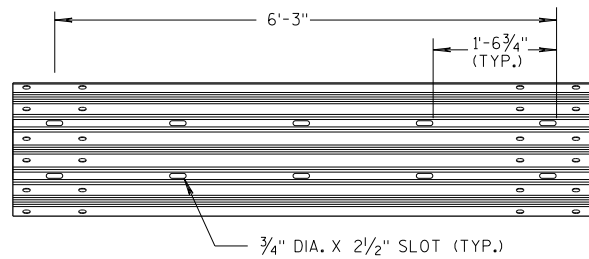
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

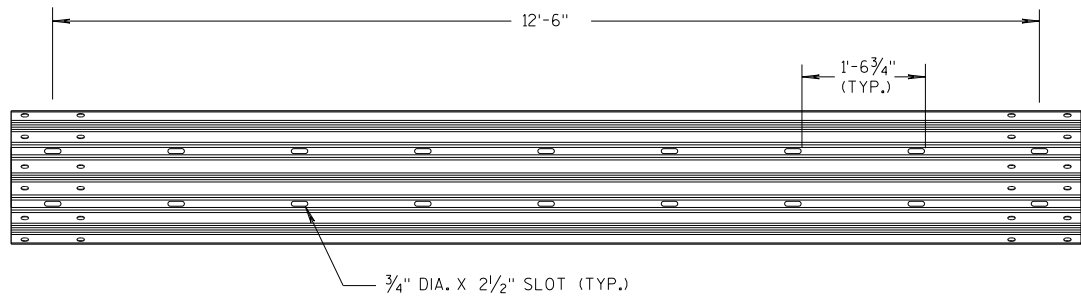
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



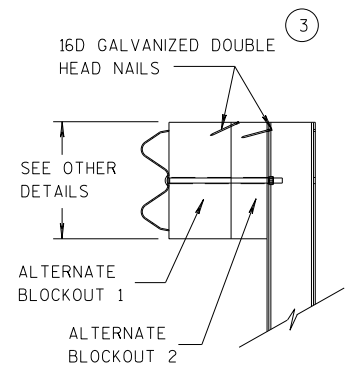
W-BEAM TO THRIE BEAM TRANSITION SECTION



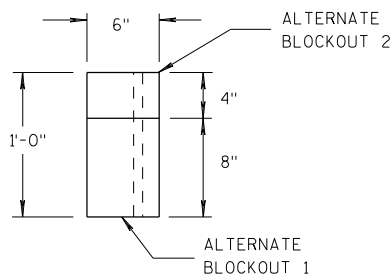
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

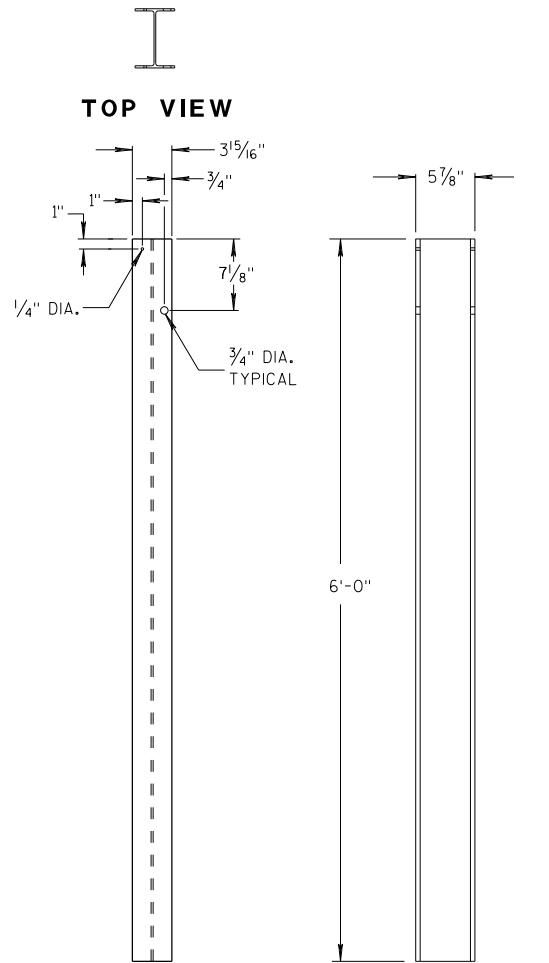


SIDE VIEW



TOP VIEW

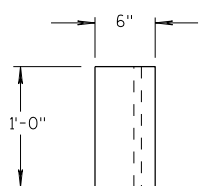
ALTERNATE WOOD BLOCKOUT DETAIL



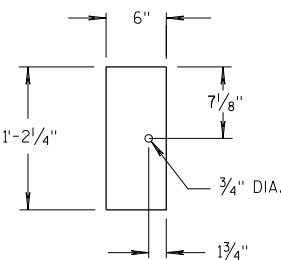
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

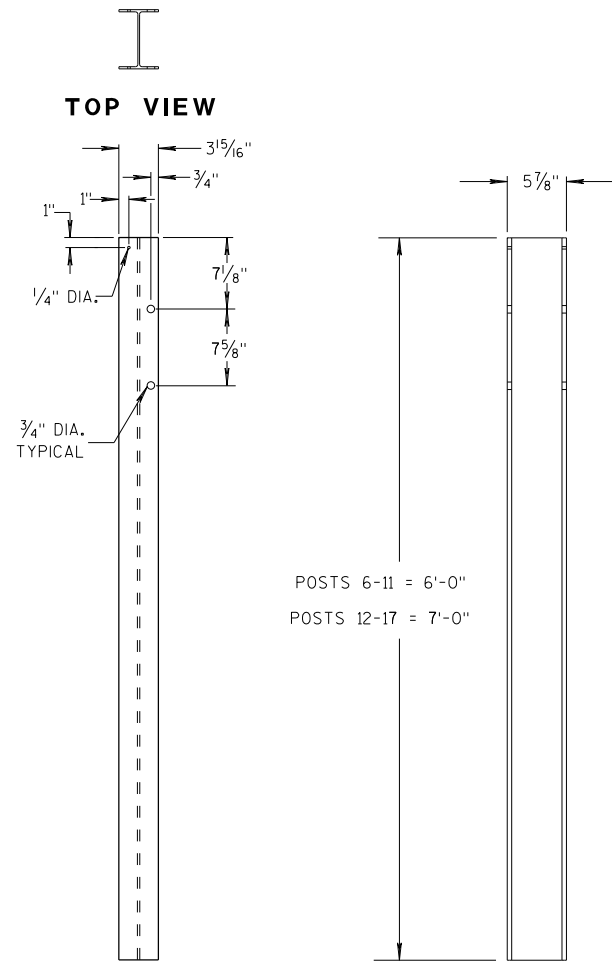


TOP VIEW



FRONT VIEW

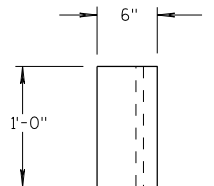
BLOCKOUT POSTS 1-5



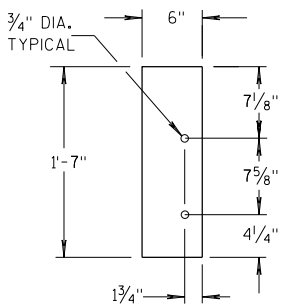
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

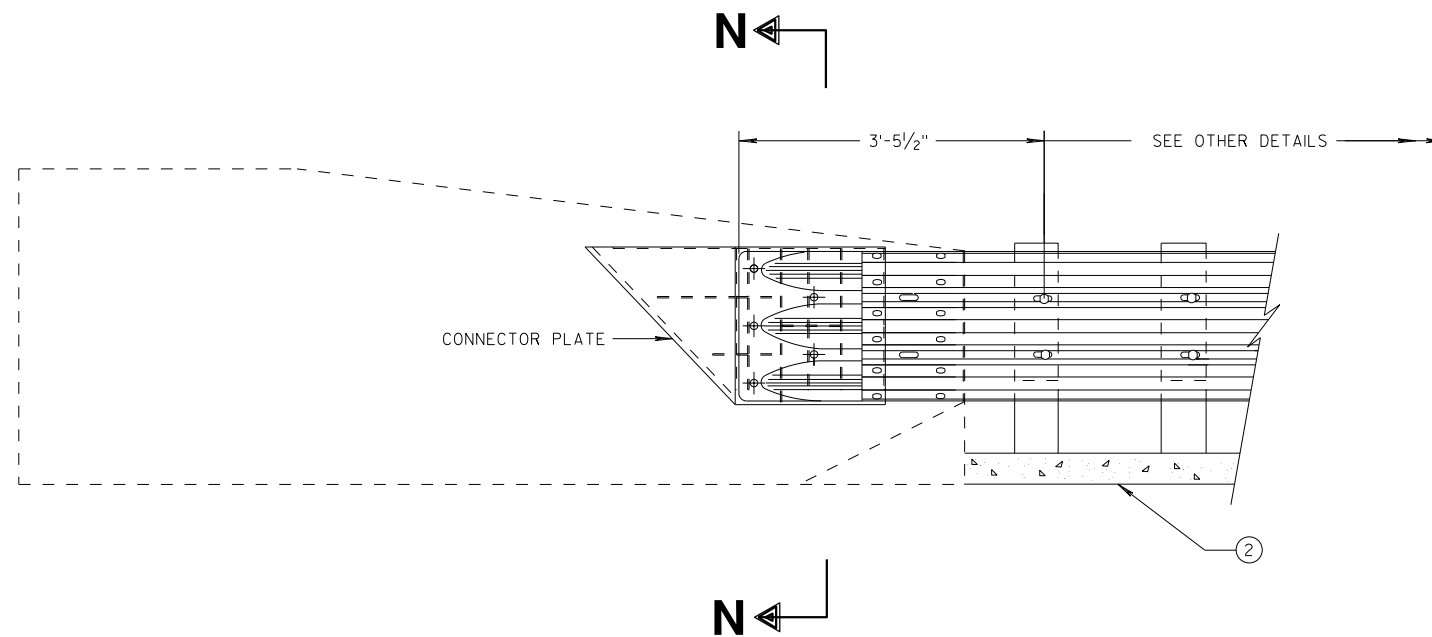
3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

5 WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

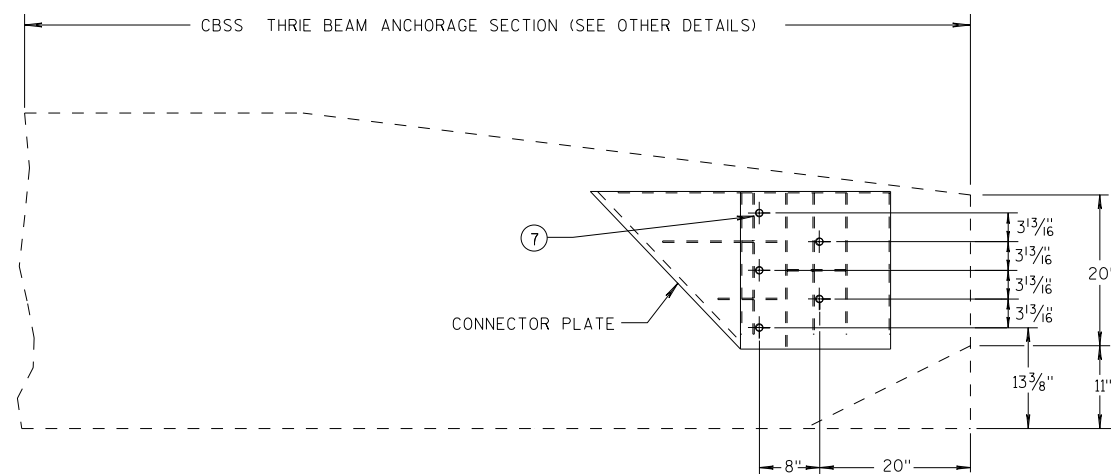
13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



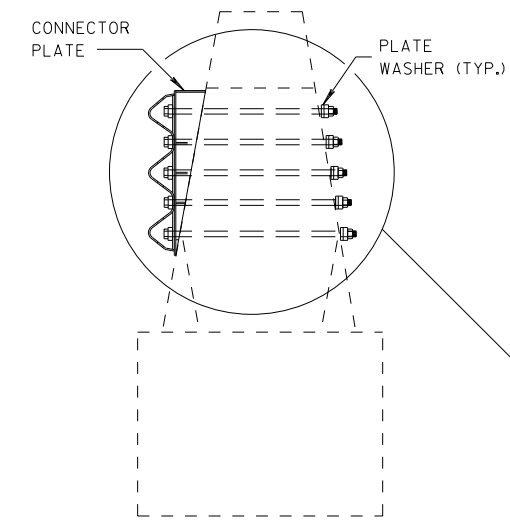
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

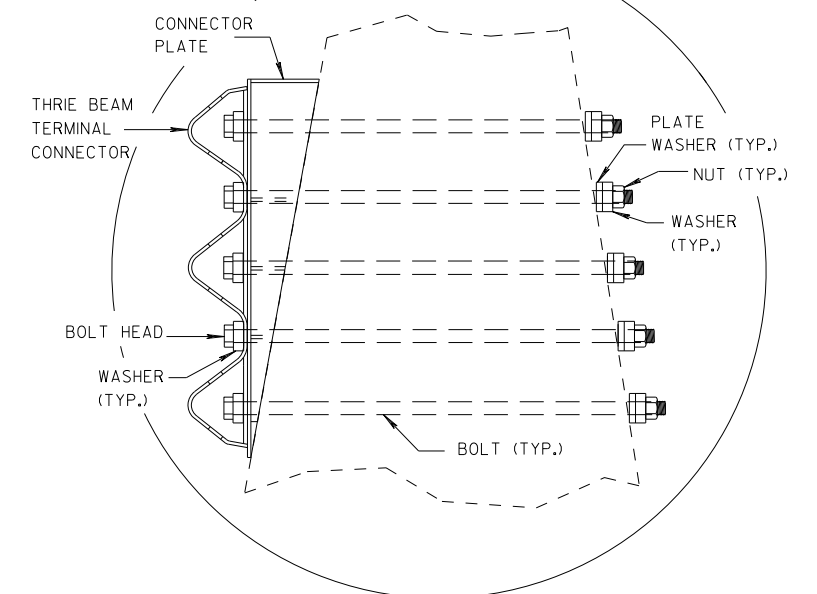
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

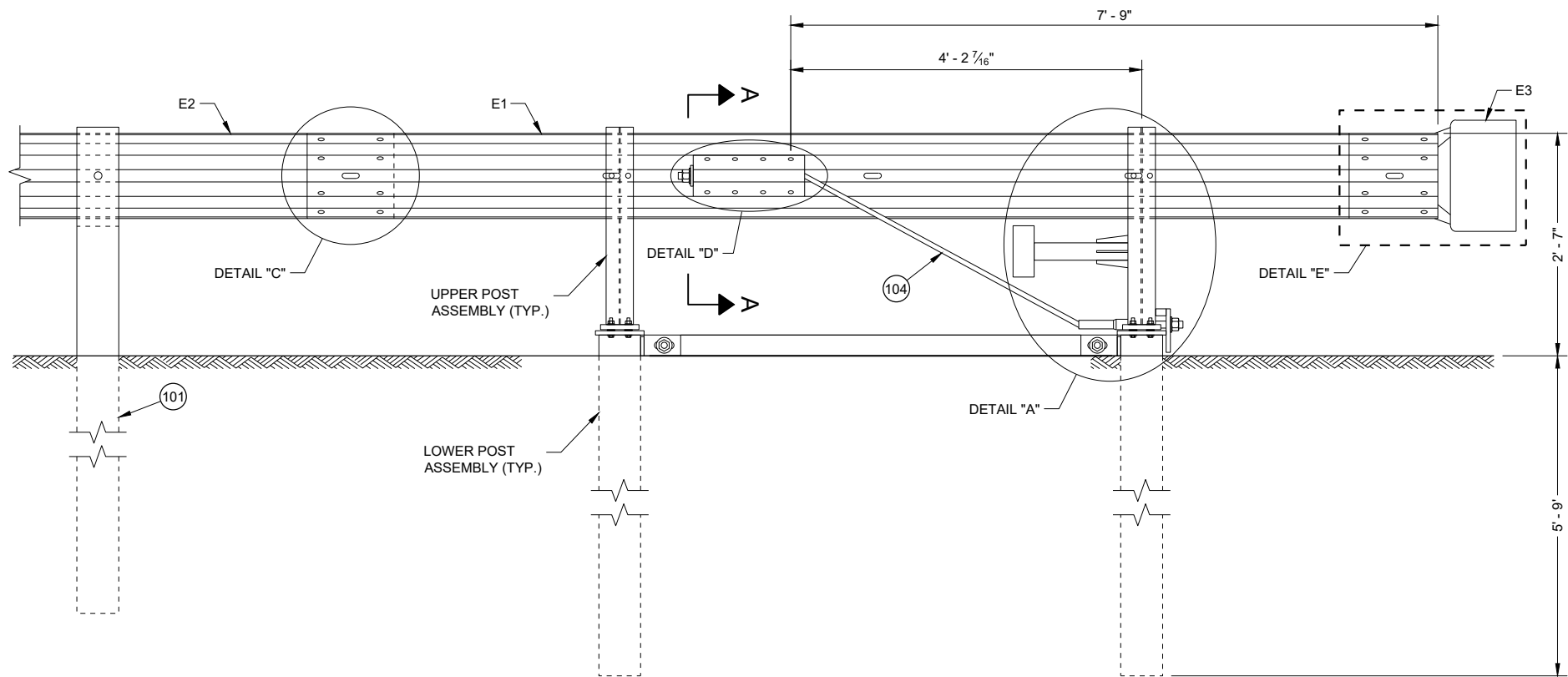
DATE

FHWA

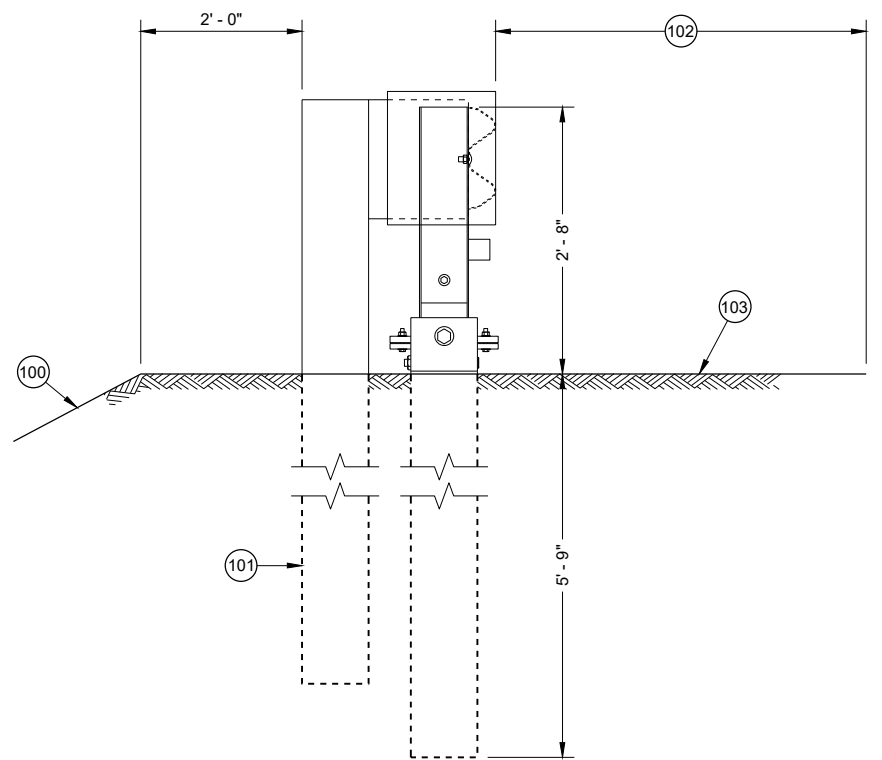
/S/ Rodney Taylor

ROADWAY STANDARDS DISTRICT 179

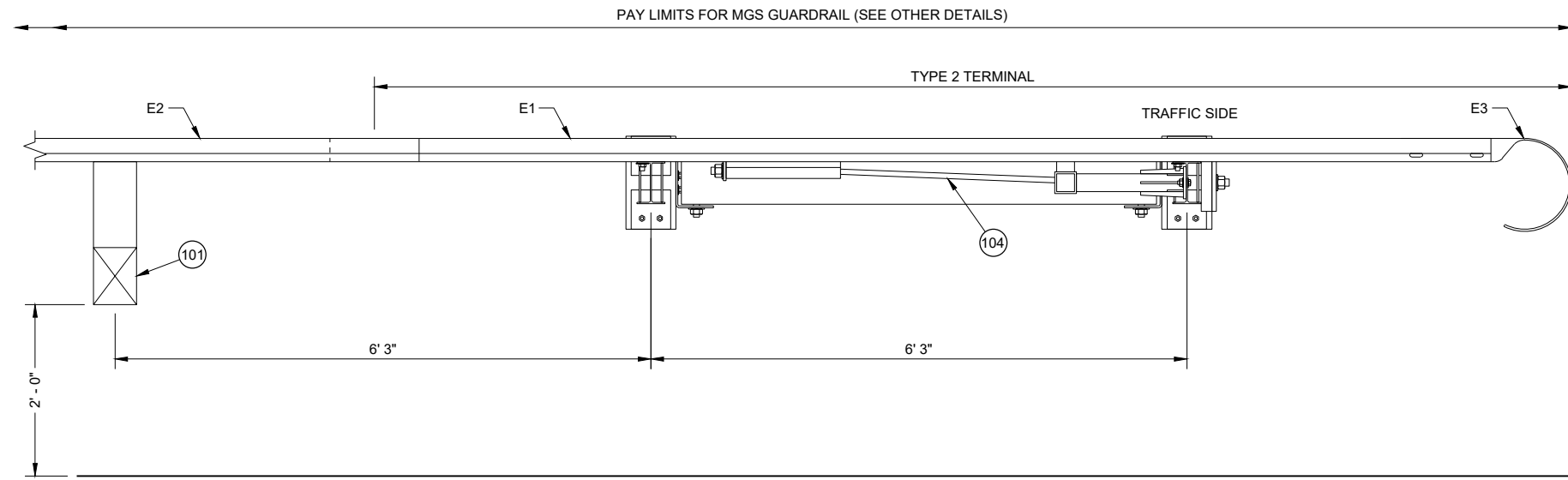
UNIT SUPERVISOR



**BACK VIEW
TYPE 2 TERMINAL**



**SIDE VIEW
TYPE 2 TERMINAL**

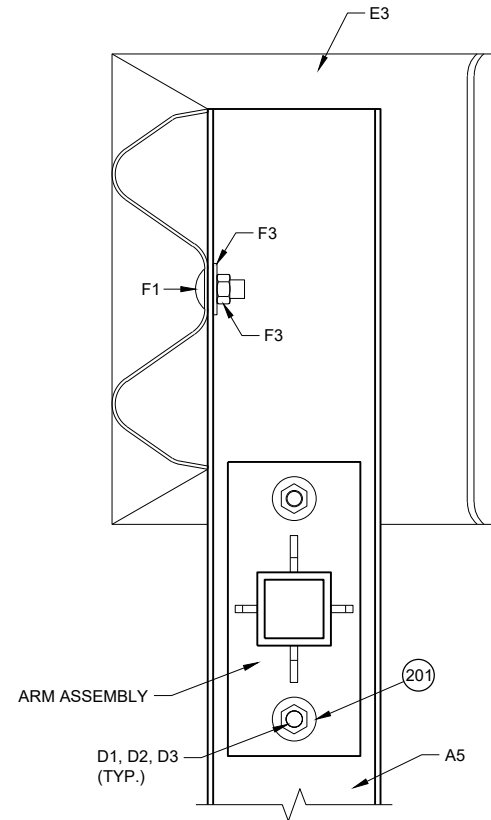
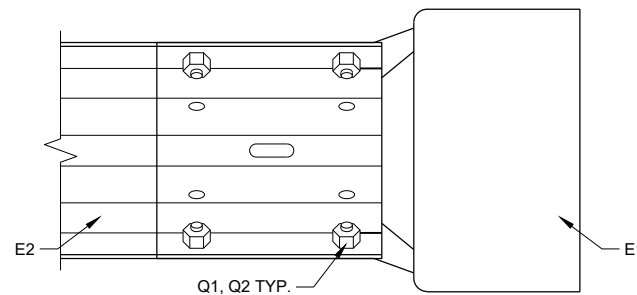
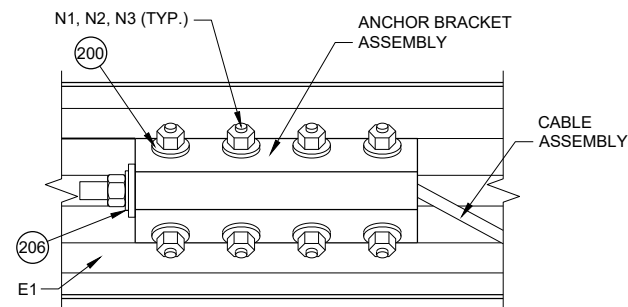
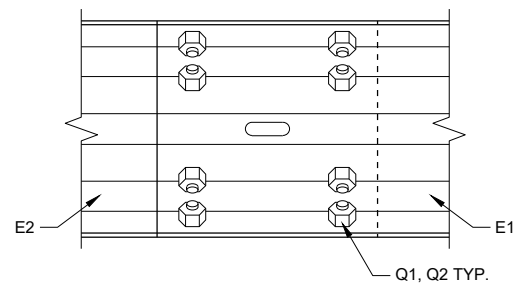
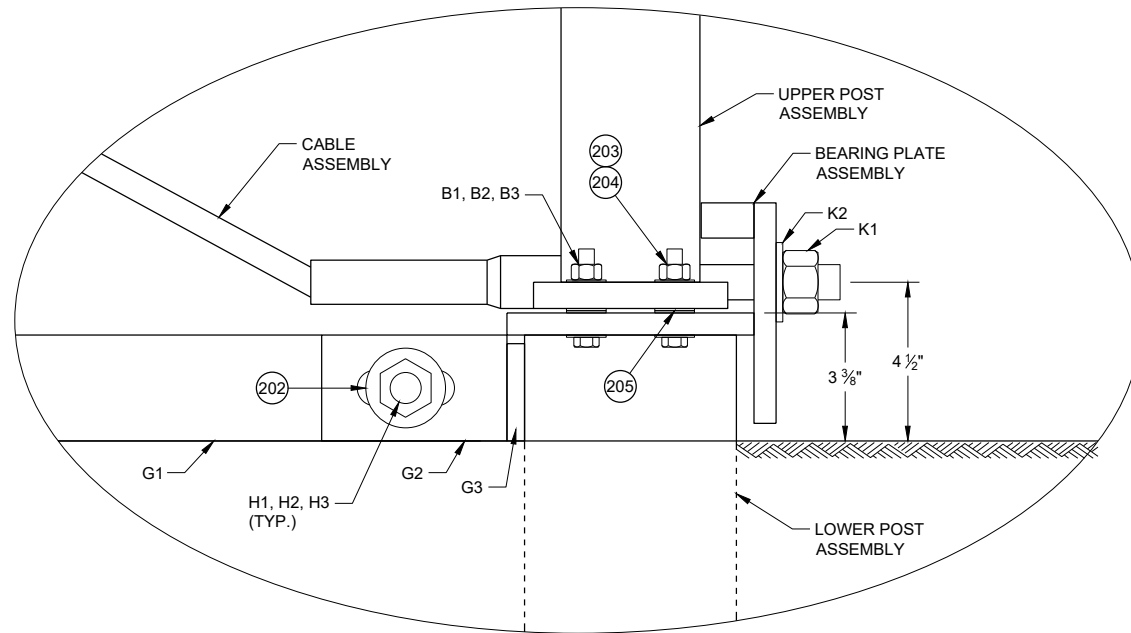
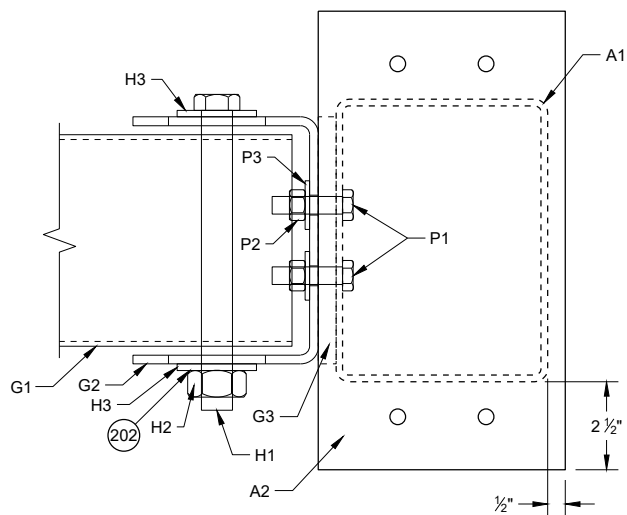
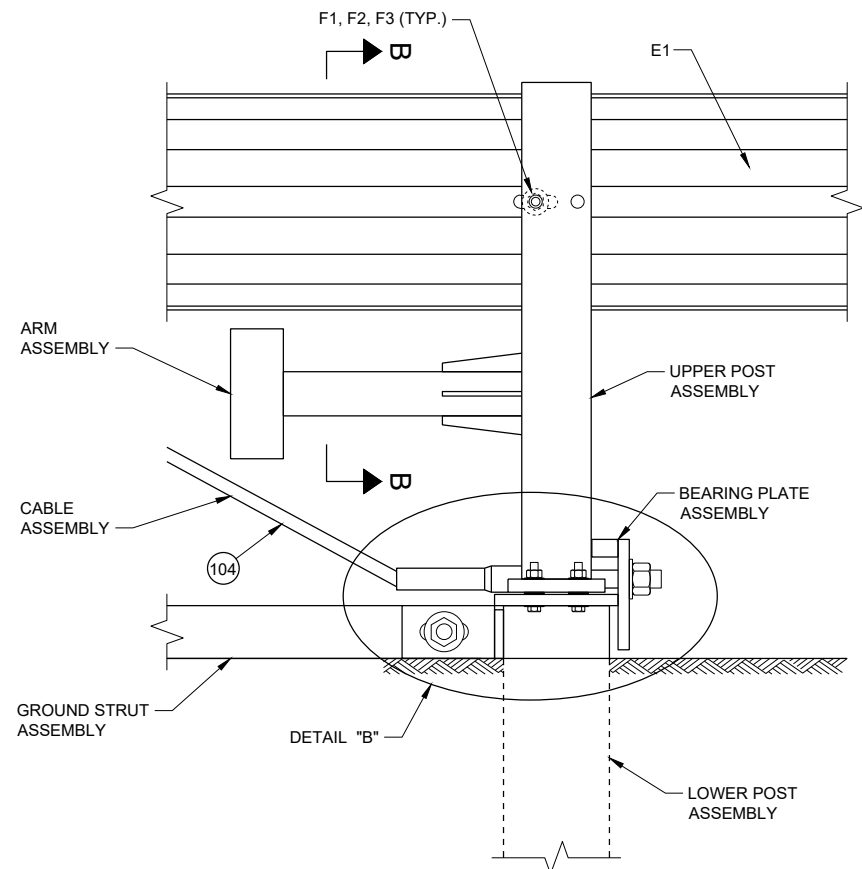


**TOP VIEW
TYPE 2 TERMINAL**

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 180

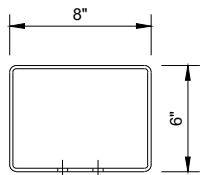


GENERAL NOTES

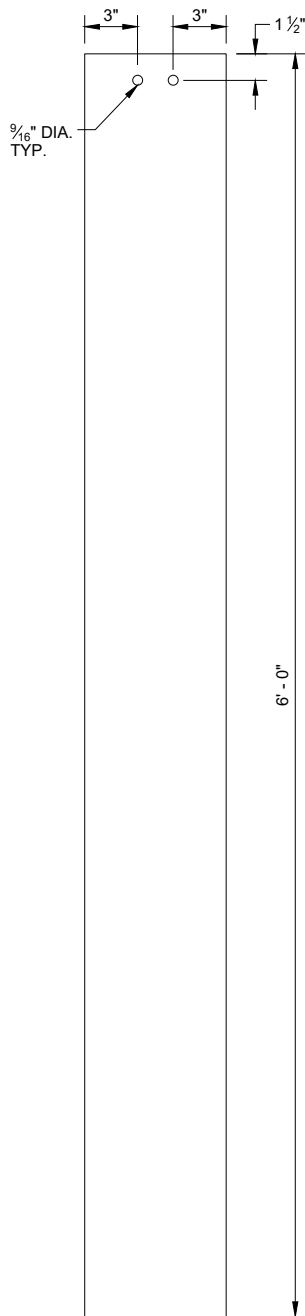
- (200) INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (201) INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- (202) INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 181

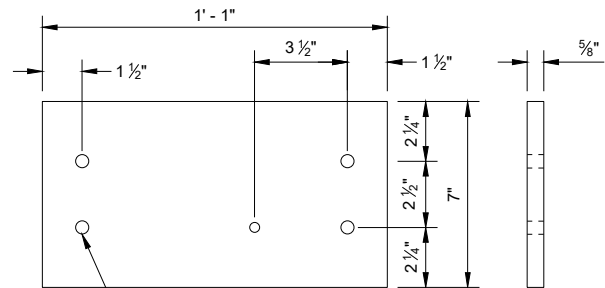


TOP VIEW

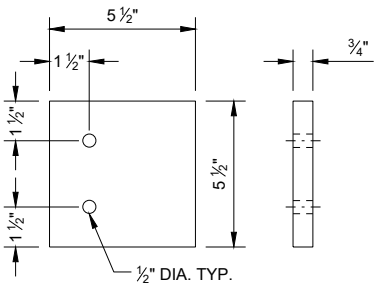


SIDE VIEW

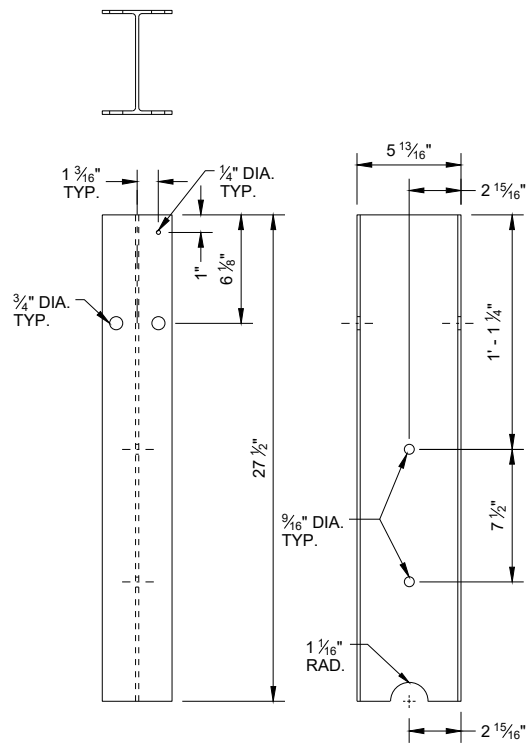
FOUNDATION
TUBE (A1)



LOWER PLATE (A2)



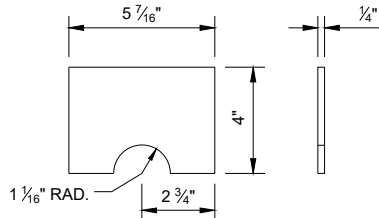
UPPER PLATE (A4)



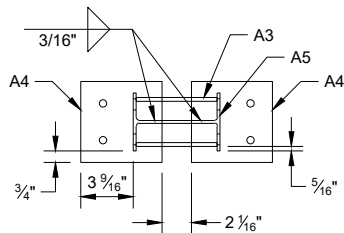
FRONT VIEW

SIDE VIEW

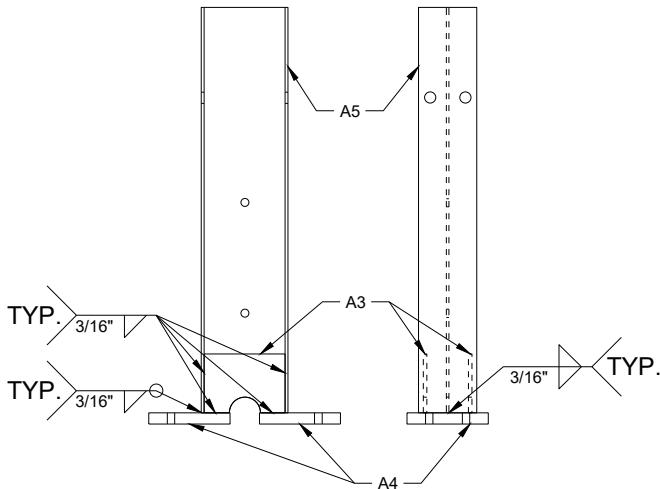
TYPE 2 POST (A5)



POST GUSSET (A3)



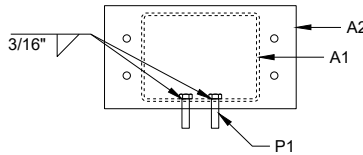
PLAN VIEW



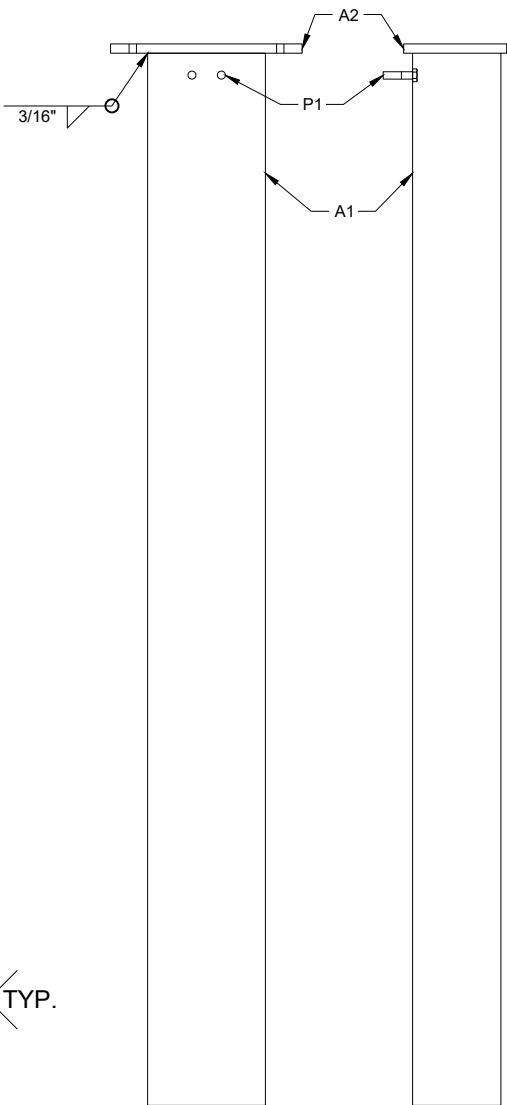
SIDE VIEW

FRONT VIEW

UPPER POST ASSEMBLY



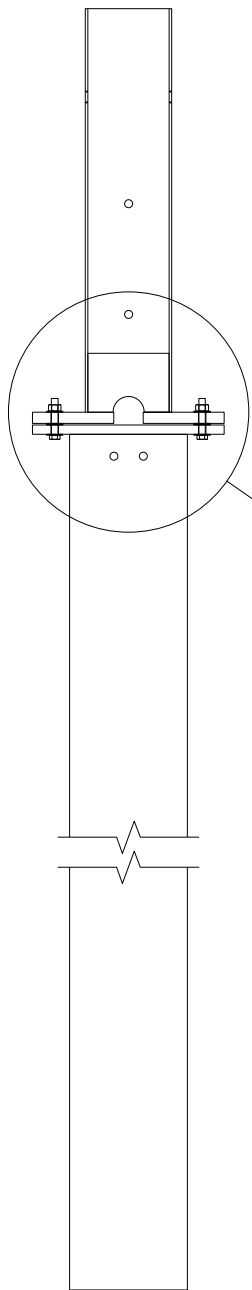
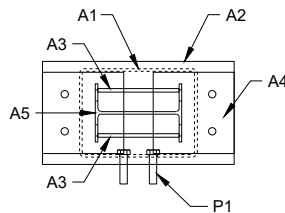
PLAN VIEW



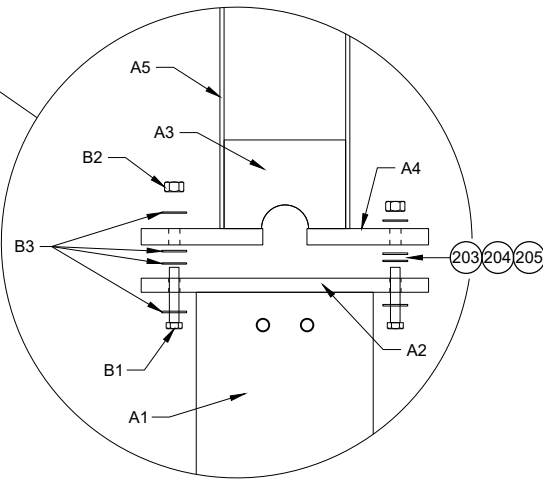
FRONT VIEW

SIDE VIEW

LOWER POST ASSEMBLY



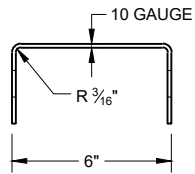
ASSEMBLED POST



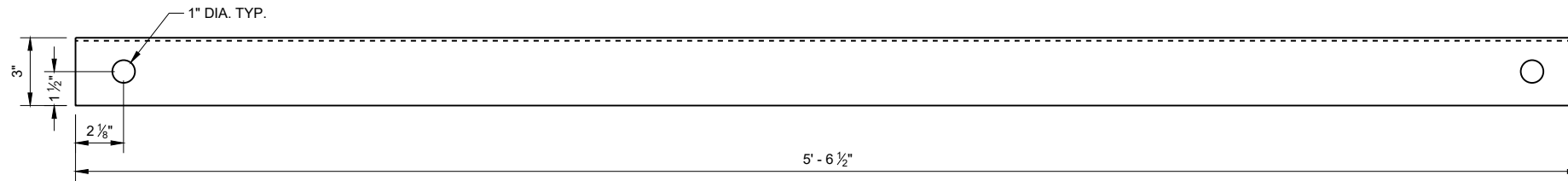
POST CONNECTION DETAIL

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 182

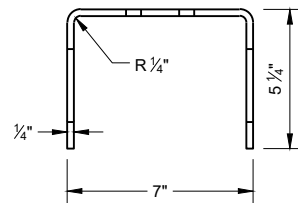


SIDE VIEW

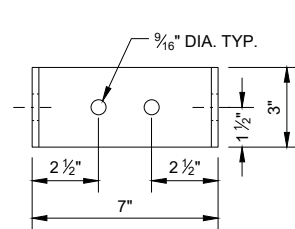


FRONT VIEW

GROUND STRUT CHANNEL (G1)

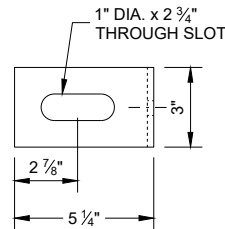


TOP VIEW



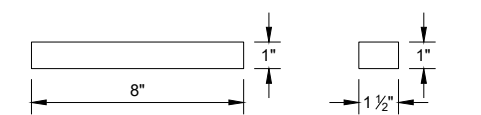
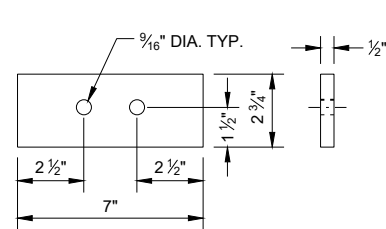
FRONT VIEW

GROUND STRUT CONNECTOR (G2)

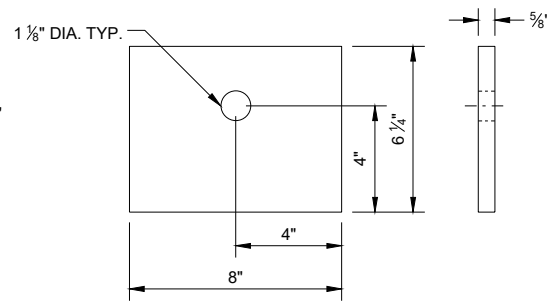


SIDE VIEW

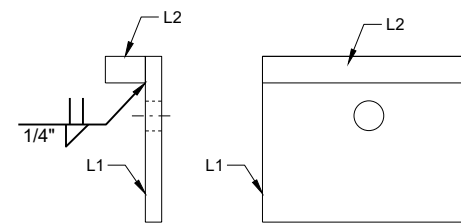
GROUND STRUT PLATE (G3)



BEARING PLATE FLANGE (L2)



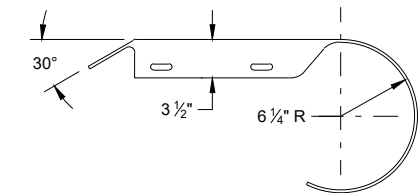
BEARING PLATE (L1)



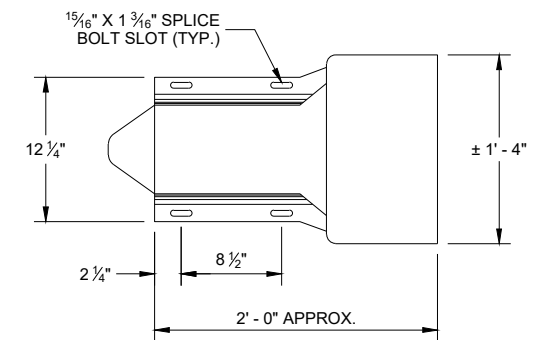
SIDE VIEW

FRONT VIEW

BEARING PLATE ASSEMBLY

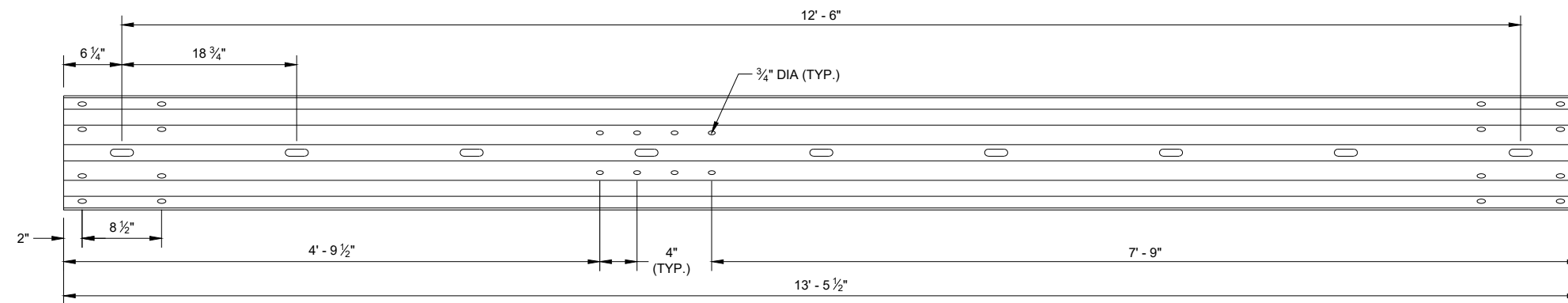


PLAN VIEW

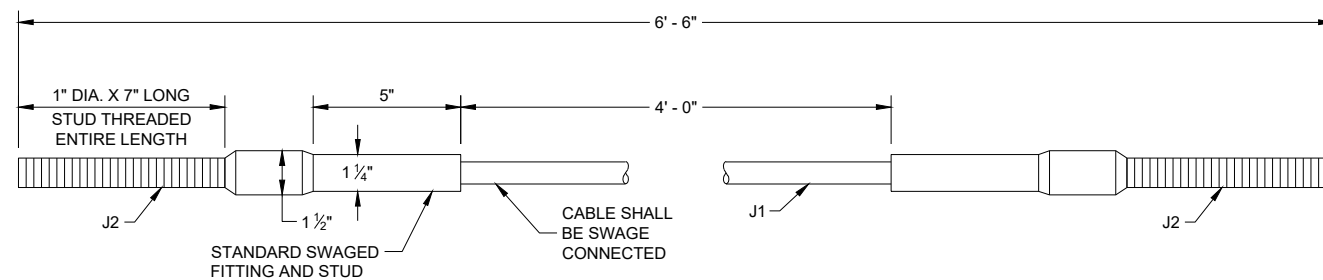


ELEVATION VIEW

ROUNDED BUFFER END (E3)



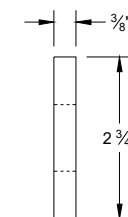
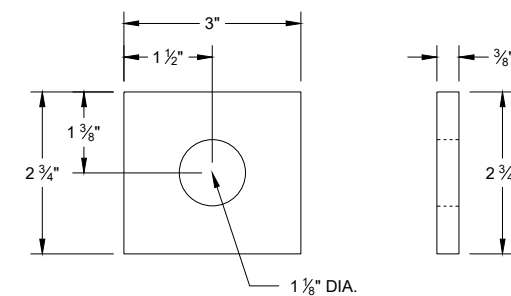
TYPE 2 GUARDRAIL (E1)



CABLE ASSEMBLY

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 184

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

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

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 185

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

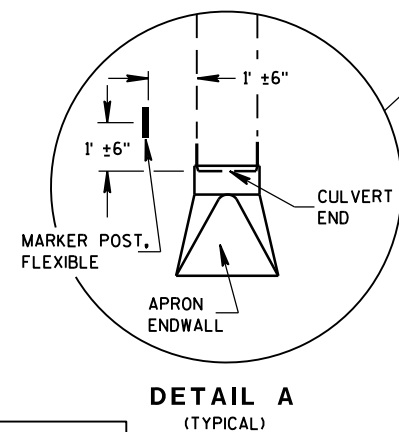
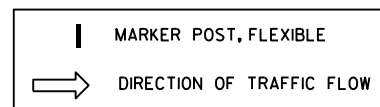
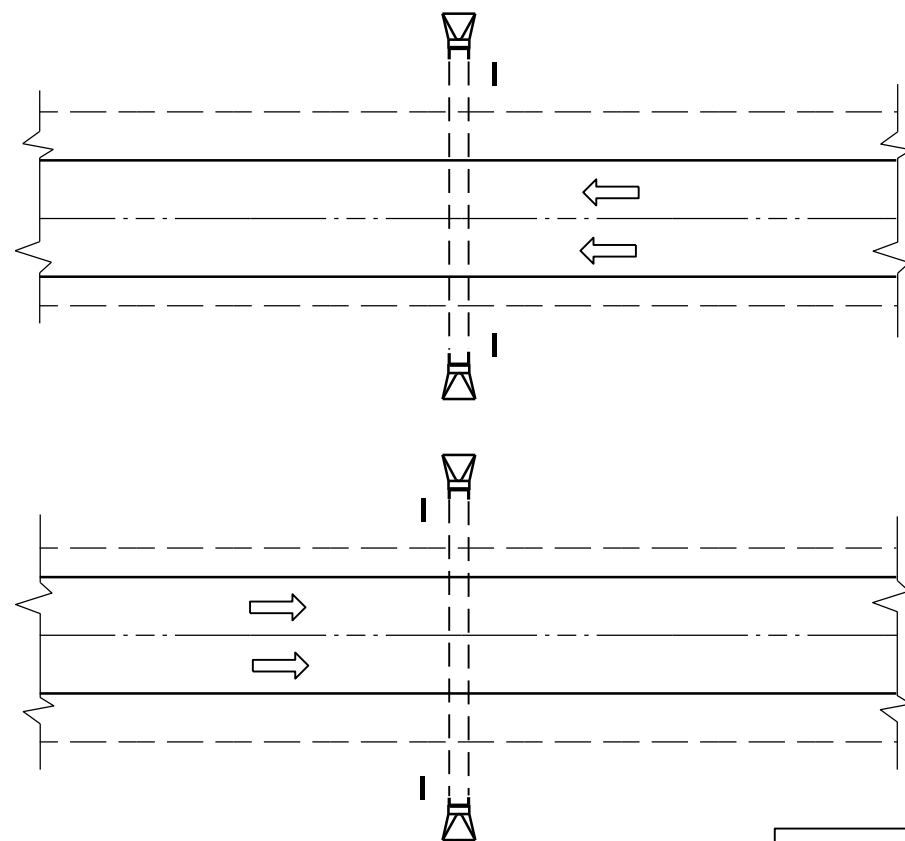
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2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

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

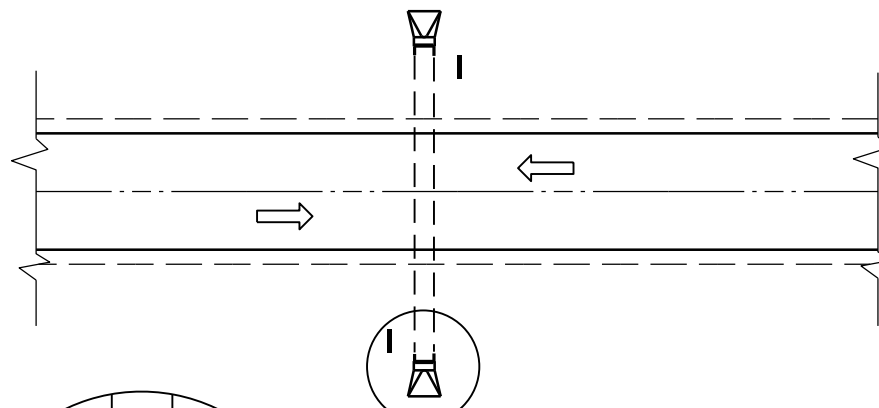
APPROVED
August 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE ENGINEER 186
FHWA

PLAN VIEW
DIVIDED HIGHWAY

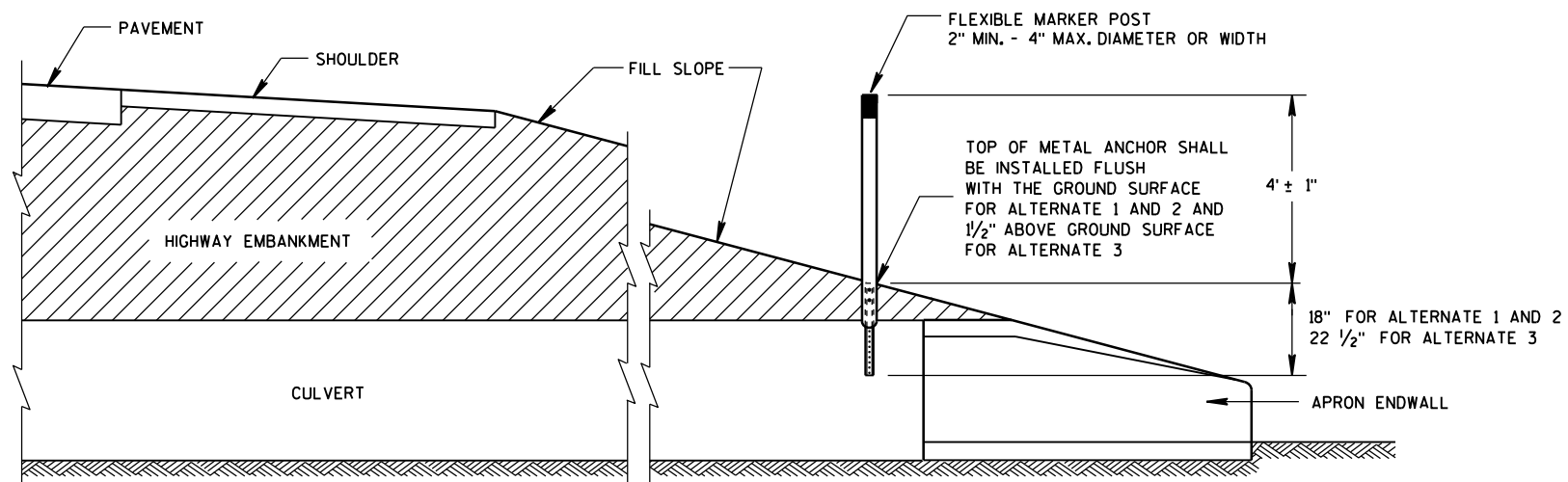


DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY



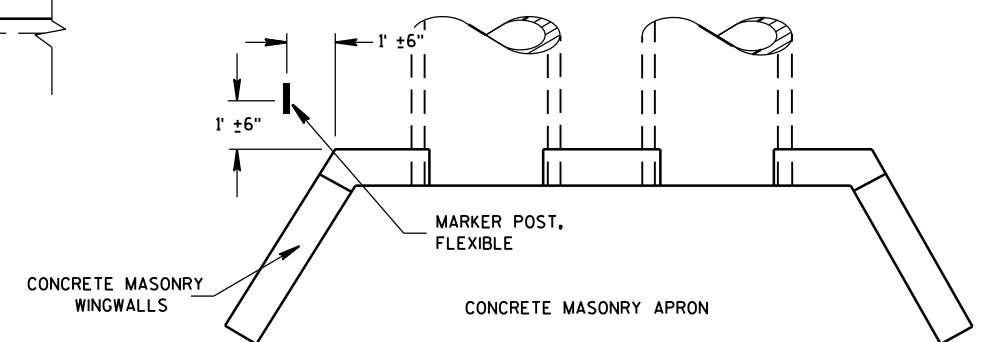
FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

GENERAL NOTES

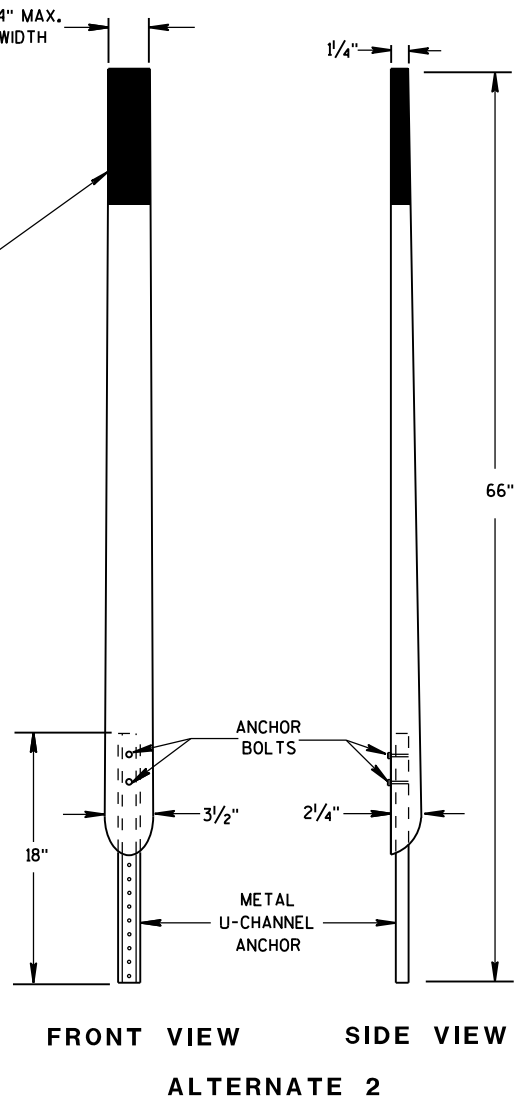
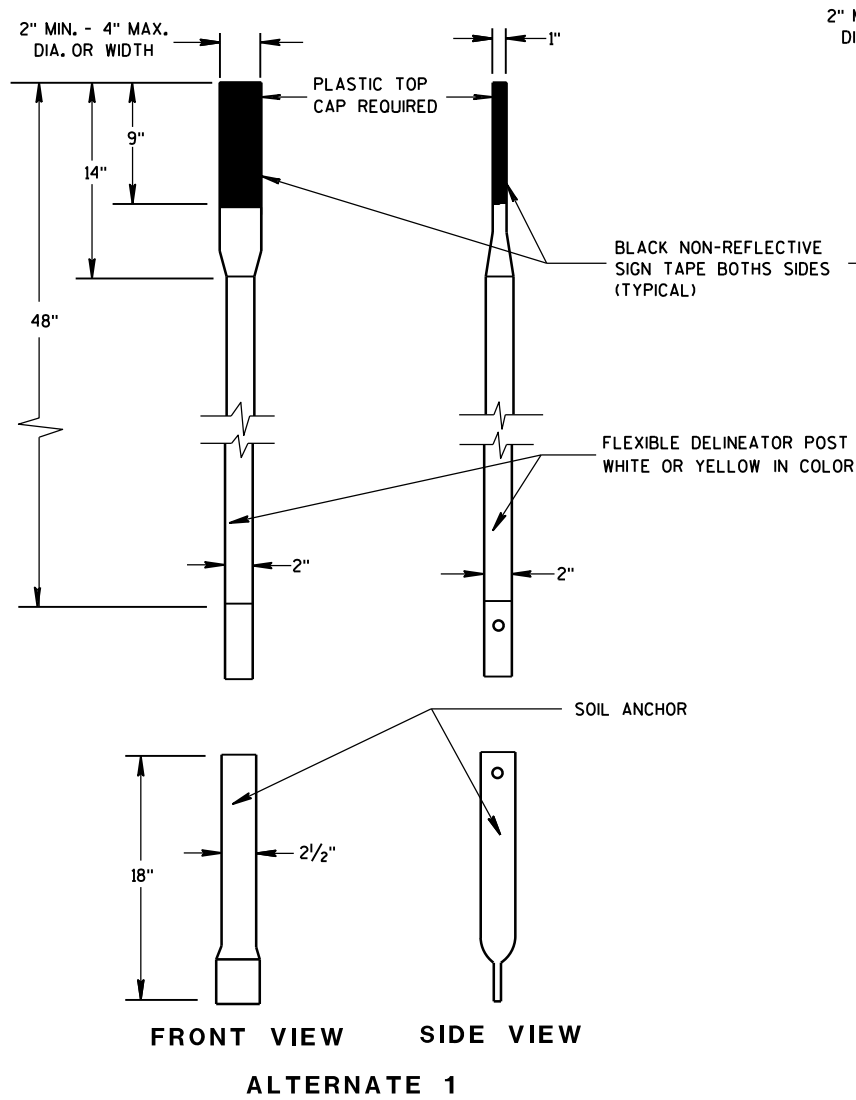
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



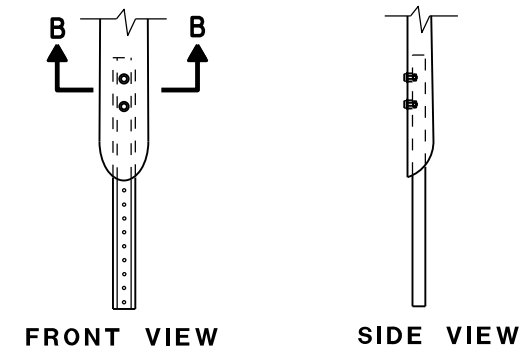
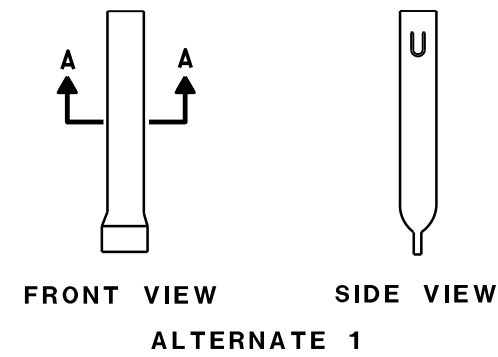
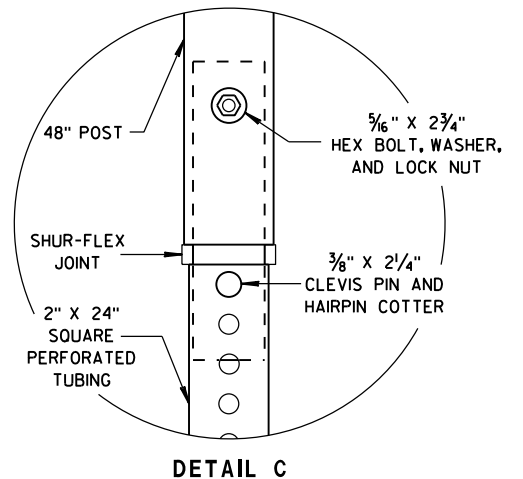
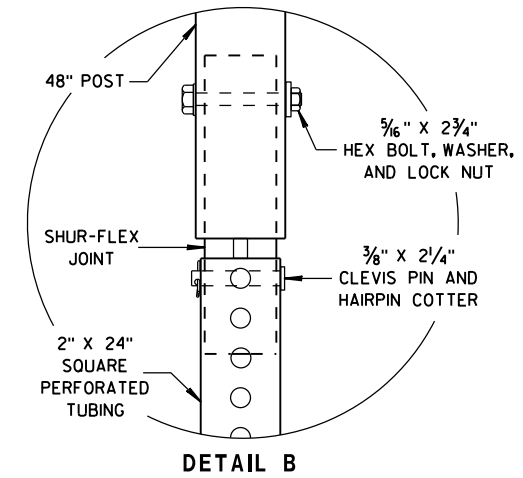
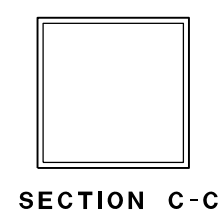
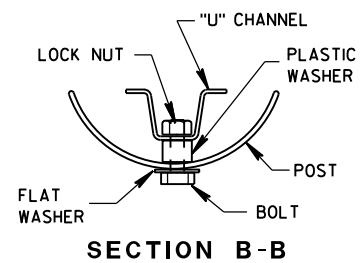
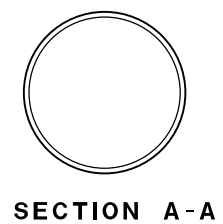
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST
FOR CULVERT END

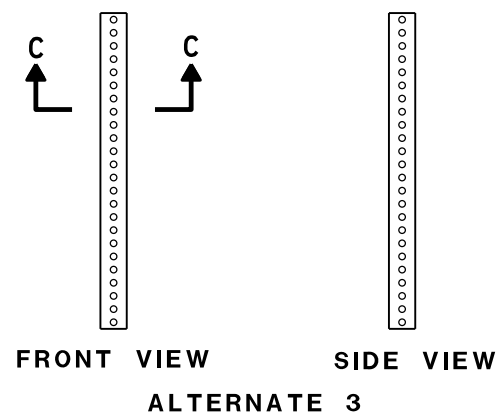
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 187



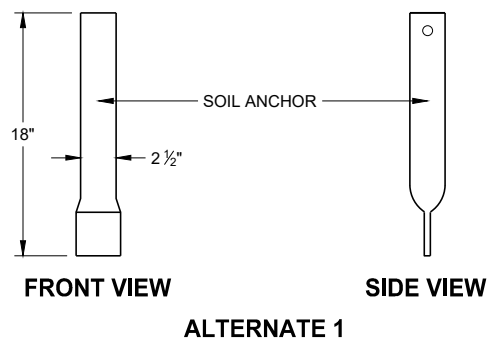
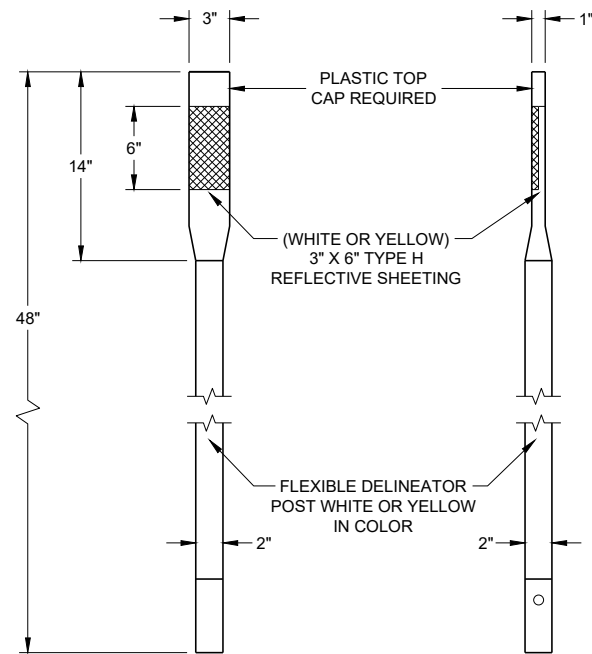
FLEXIBLE MARKER POSTS



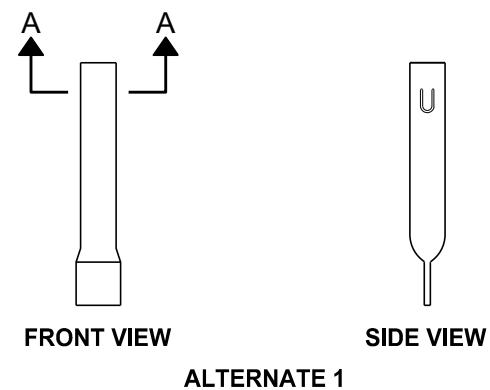
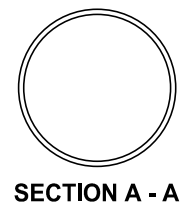
FLEXIBLE MARKER POST ANCHORS



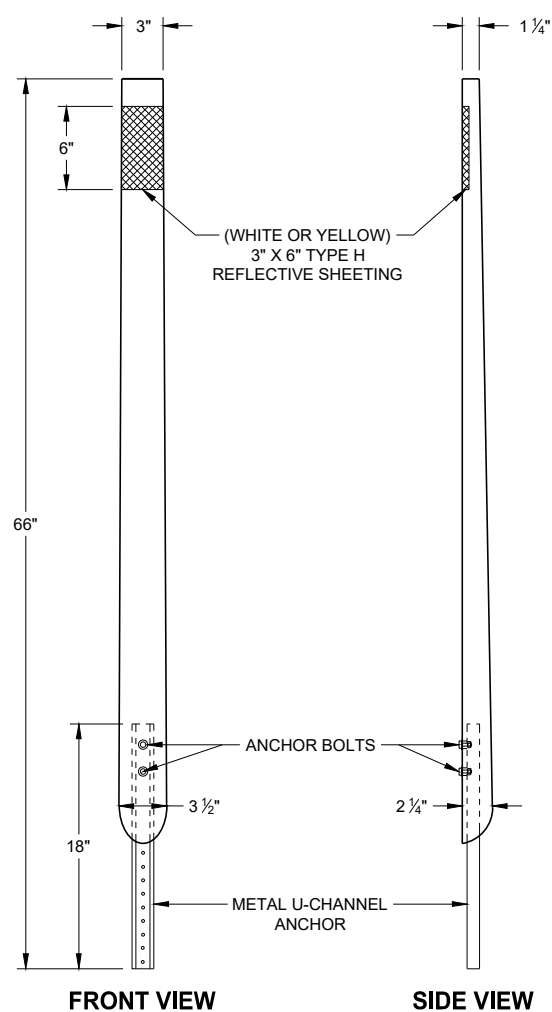
FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER 188 IGN
FHWA	



ALTERNATE 1

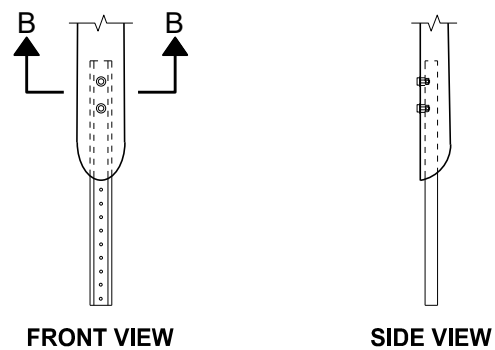
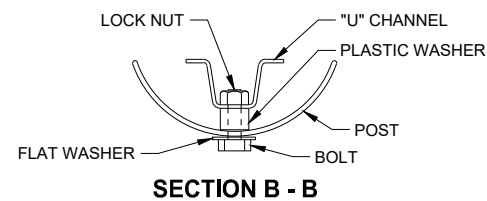


ALTERNATE 1



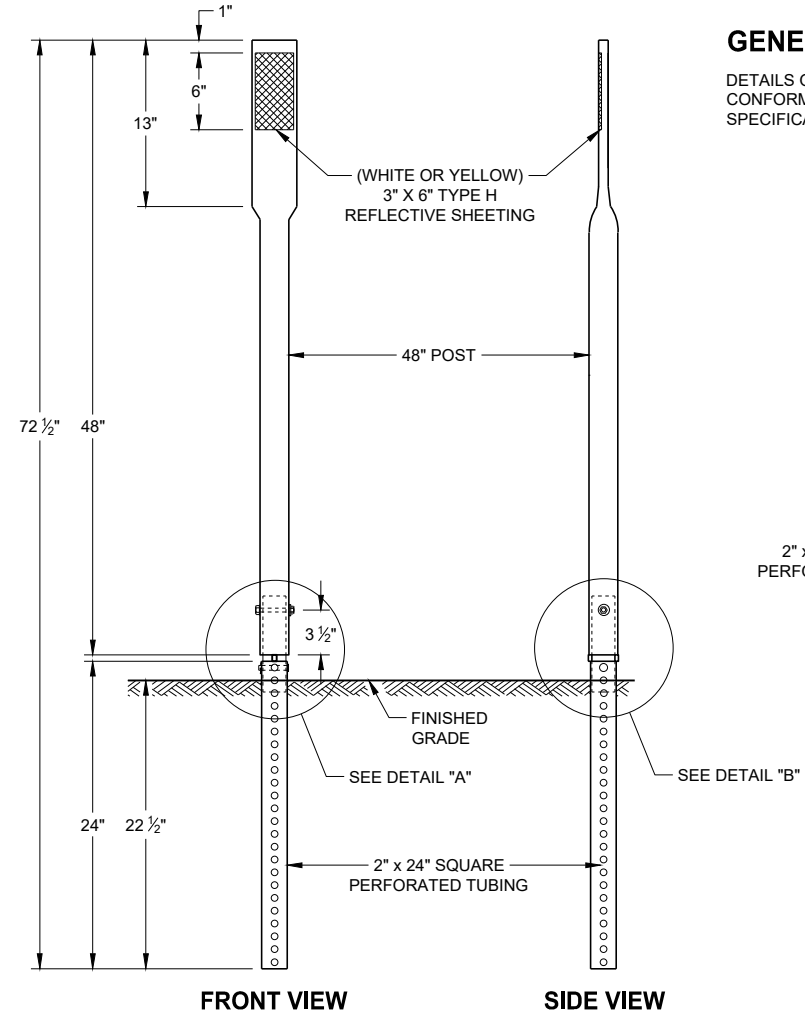
ALTERNATE 2

FLEXIBLE DELINEATOR POSTS



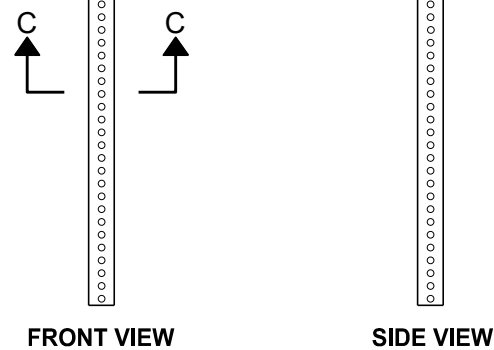
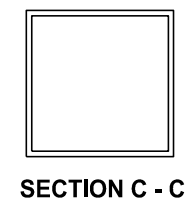
ALTERNATE 2

FLEXIBLE MARKER POST ANCHORS



ALTERNATE 3

FLEXIBLE DELINEATOR POSTS

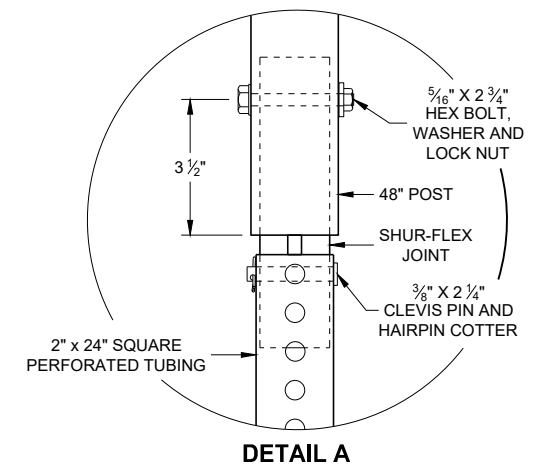


ALTERNATE 3

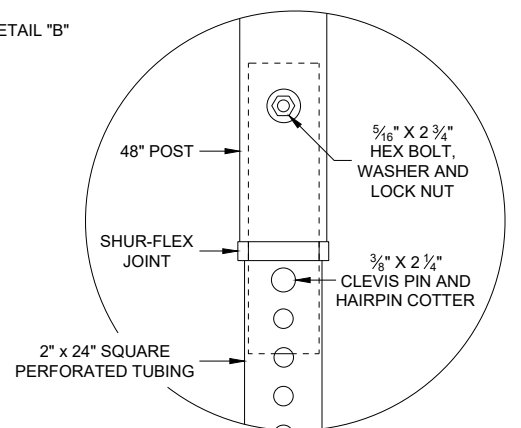
FLEXIBLE DELINEATOR POSTS

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.



DETAIL A



DETAIL B

REFLECTOR SPACING TABLE

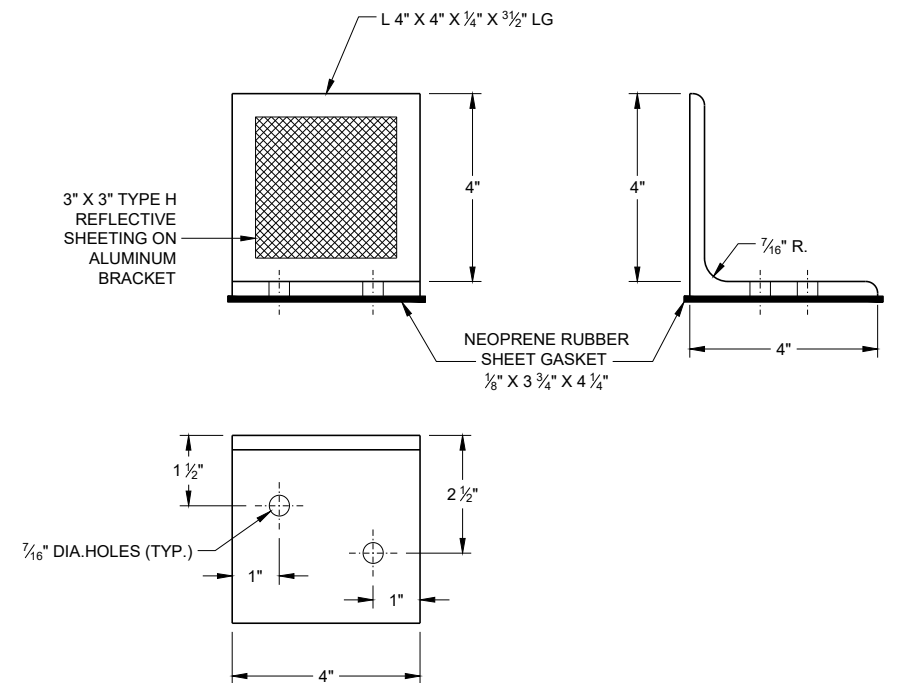
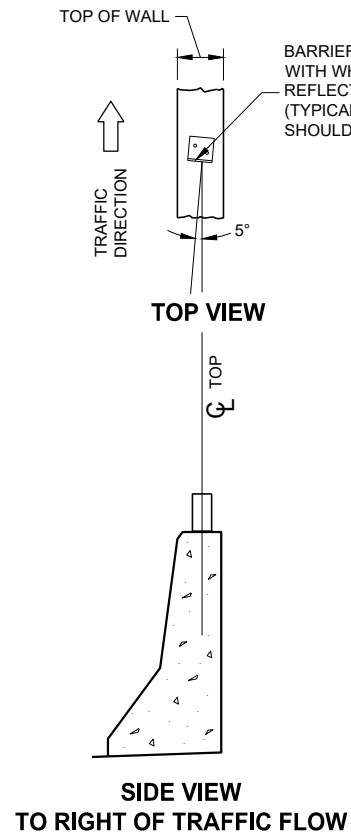
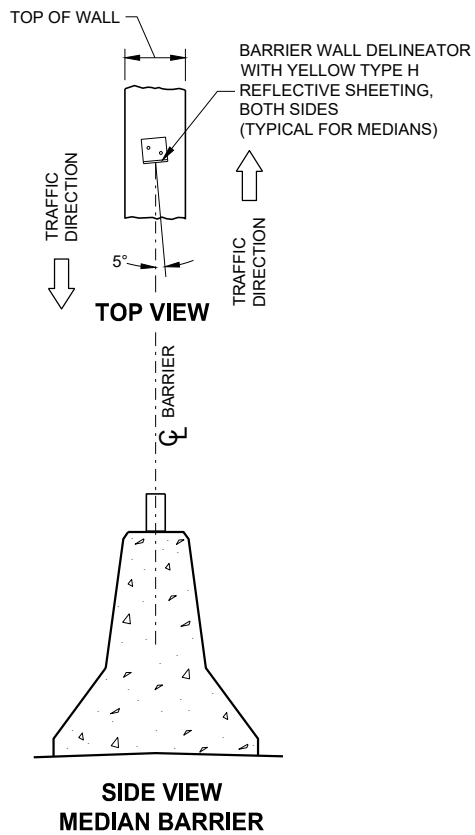
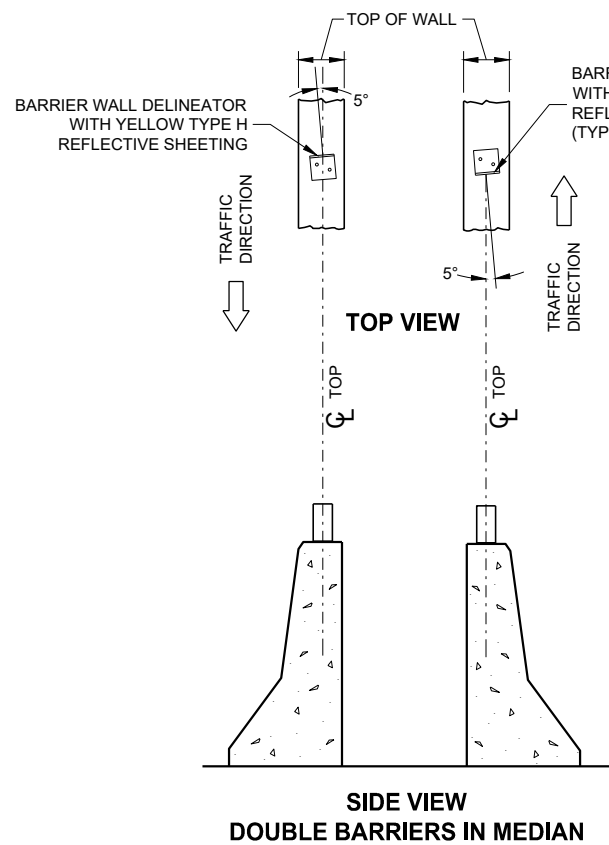
REFLECTOR SPACING	LOCATION
* 100' C-C	RAMPS
400' C-C	MAINLINE

* START AT BEGINNING OF RAMP TAPER AND END AT END OF RAMP TAPER

FLEXIBLE DELINEATOR POST

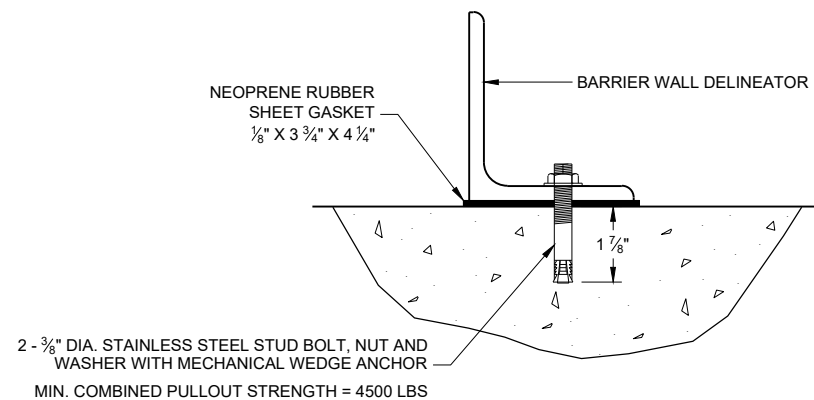
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Matthew Rauch
DATE STATE SIGNING AND MAF 189
ENGINEER
FHWA



BARRIER WALL DELINEATOR

LOCATION AND AIMING DETAILS FOR BARRIER WALL DELINEATOR MOUNTED ON CONCRETE BARRIERS



BARRIER WALL DELINEATOR MOUNTING DETAIL

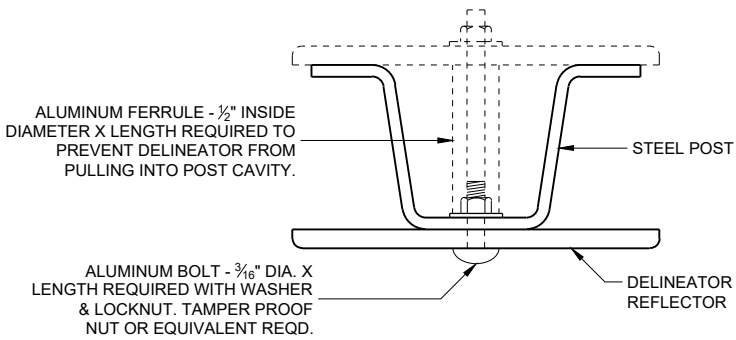
REFLECTOR SPACING TABLE

REFLECTOR SPACING	MINIMUM NUMBER OF REFLECTORS
100' C-C	3

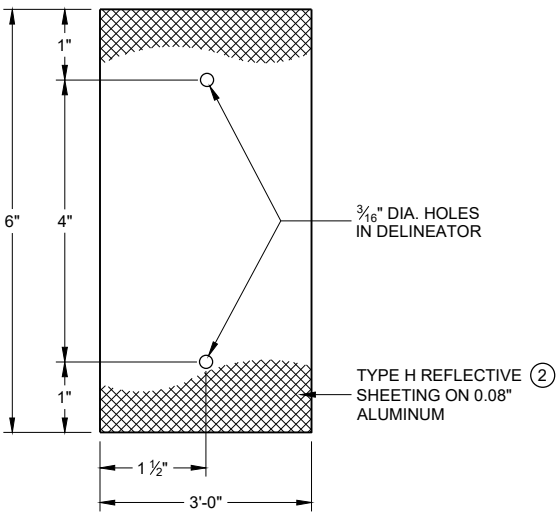
BARRIER WALL DELINEATOR WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

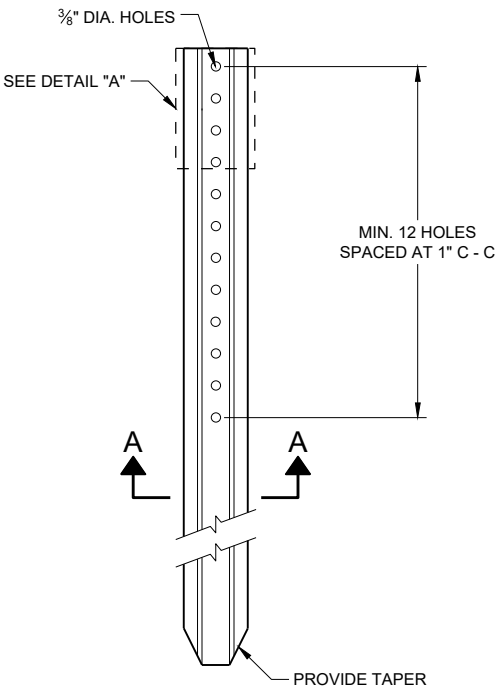
APPROVED
November 2021 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 190
FHWA



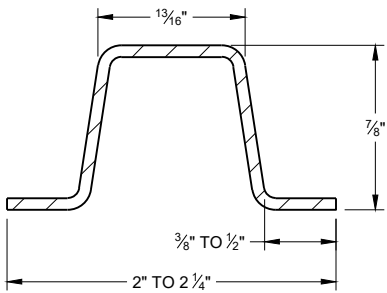
MOUNTING DETAIL FOR DELINEATOR REFLECTOR



DETAIL "A" 3" X 6" DELINEATOR REFLECTOR



DELINEATOR POST



SECTION A - A
WEIGHT 1.12 LBS PER FT. \ 0.1 LB.

REFLECTOR SPACING TABLE

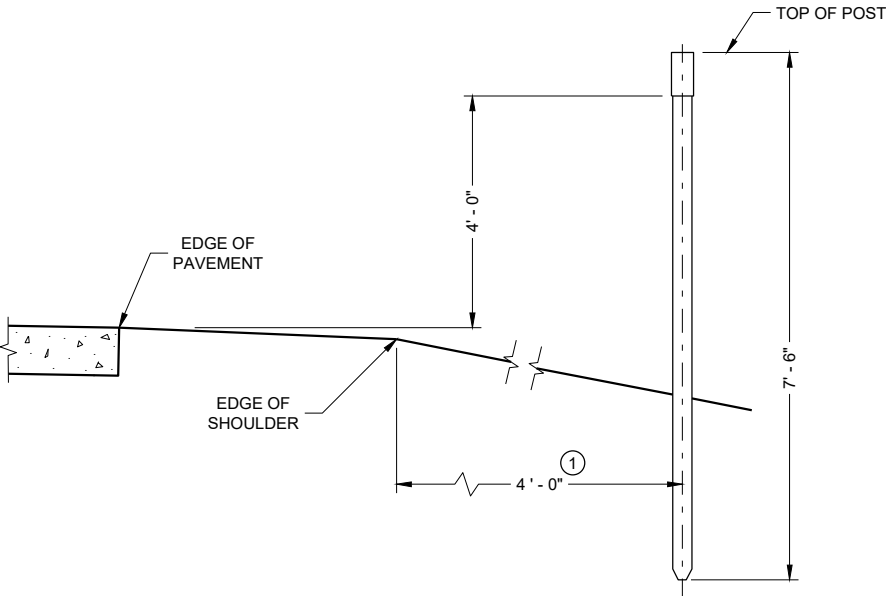
REFLECTOR SPACING	LOCATION
* 100' C-C	RAMPS
400' C-C	MAINLINE

* START AT BEGINNING OF RAMP TAPER AND END AT END OF RAMP TAPER

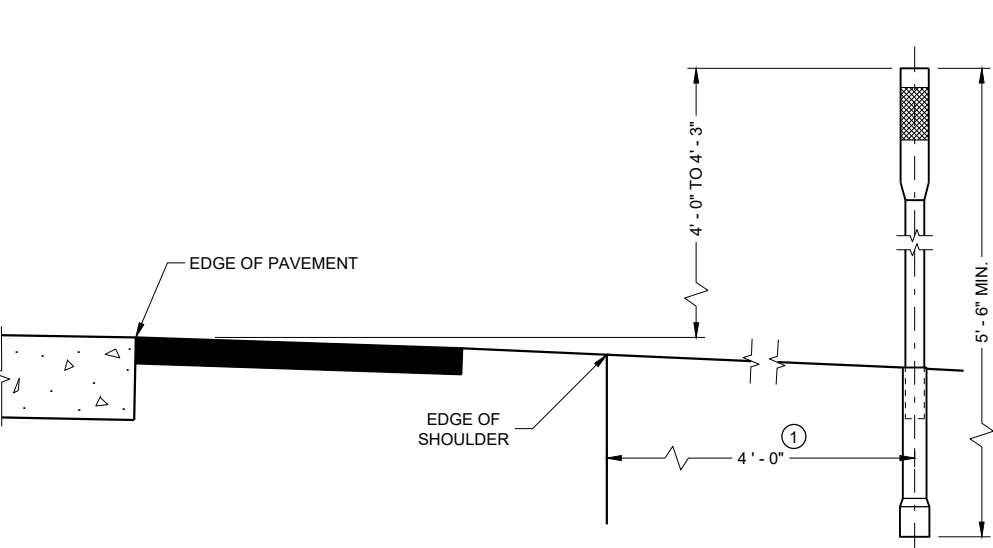
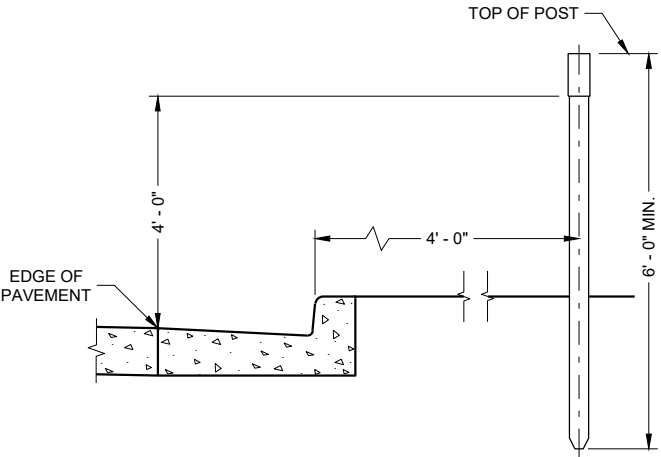
GENERAL NOTES

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

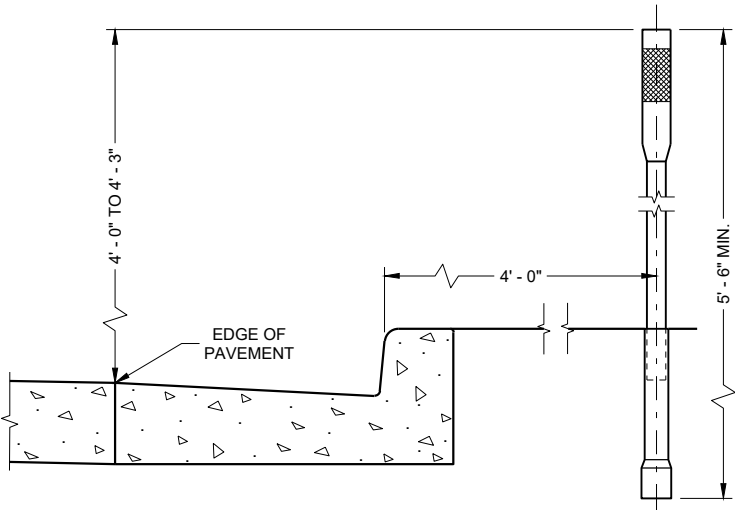
- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.
- ② FURNISH TYPE H SHEETING FROM THE APPROVED PRODUCTS LIST.



TYPICAL INSTALLATIONS OF DELINEATOR POSTS



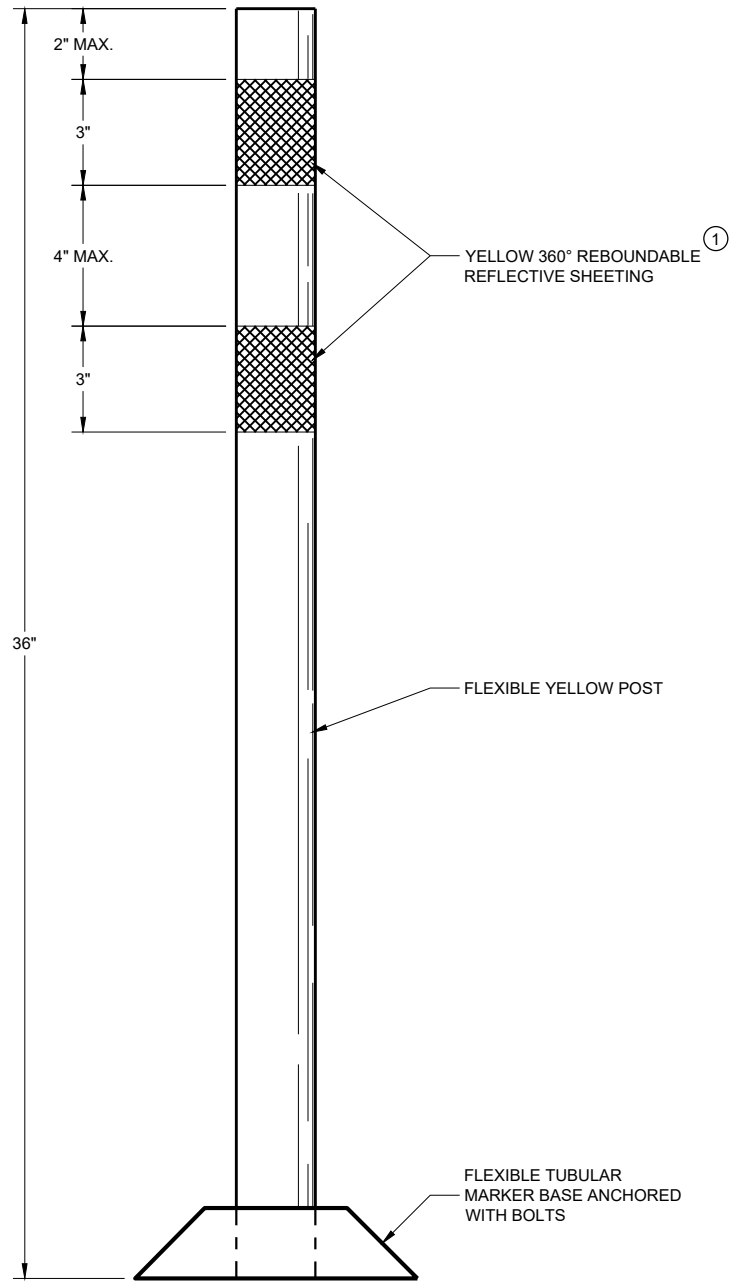
TYPICAL INSTALLATIONS OF FLEXIBLE DELINEATOR POSTS



DELINEATOR POST
WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 191
FHWA



PERMANENT FLEXIBLE
TUBULAR MARKER POST

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.

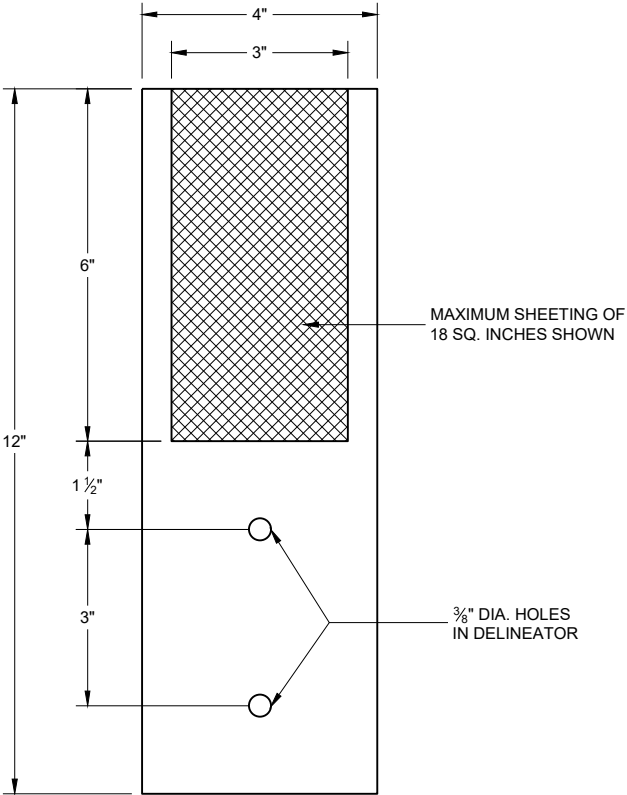
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
PERMANENT FLEXIBLE
TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

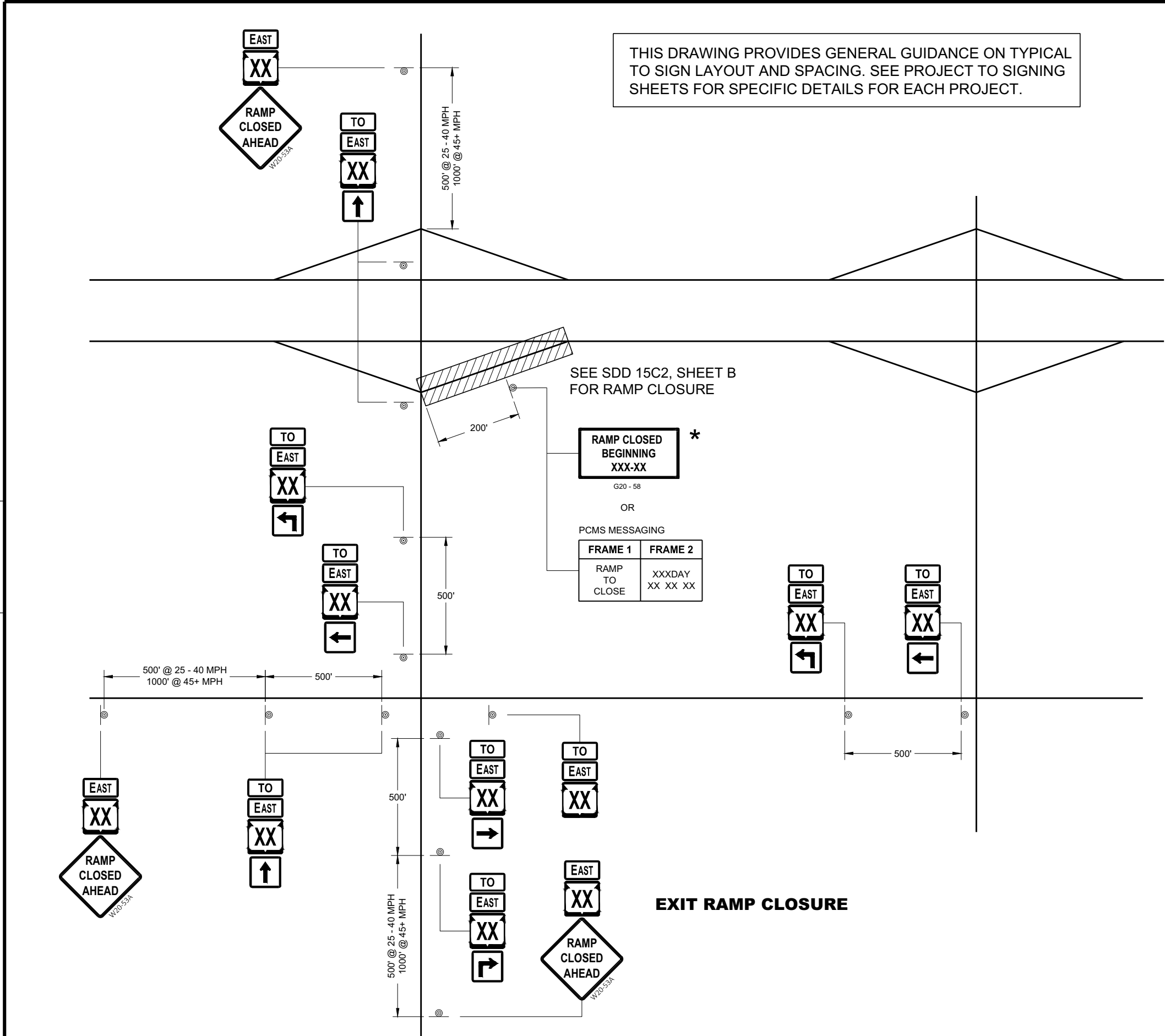
APPROVED
November 2021 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 192

FHWA



4" x 12" DELINEATOR
WITH REFLECTIVE SHEETING

DELINEATOR WITH REFLECTIVE SHEETING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2021 DATE	/S/ Matthew Rauch STATE SIGNING AND MAP ENGINEER 193
FHWA	



LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- TO EAST MO4 - 5 M3 - X
- XX M1 - 6 OR XX M1 - 4 OR XX M1 - 1
- MO5 - 1 OR MO6 - 1 OR MO6 - 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 ANY ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE TO 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 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:
M3 - X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).
MO4 - 5 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).
M1 - 1, M1 - 4, 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).
W20 - 53A SHALL BE 48" X 48"

* PLACE "RAMP CLOSED BEGINNING" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR LAYOUT.

ON RAMP
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 194

FHWA

EXIT RAMP
CLOSURE

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
-  PORTABLE CHANGEABLE MESSAGE SIGN

-  MO4 - 5
-  M1 - 4 OR  M1 - 6 OR  M1 - 5A
-  M05 - 1 OR  M05 - 2 OR  M06 - 1 OR  M06 - 2 OR  M06 - 4

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.

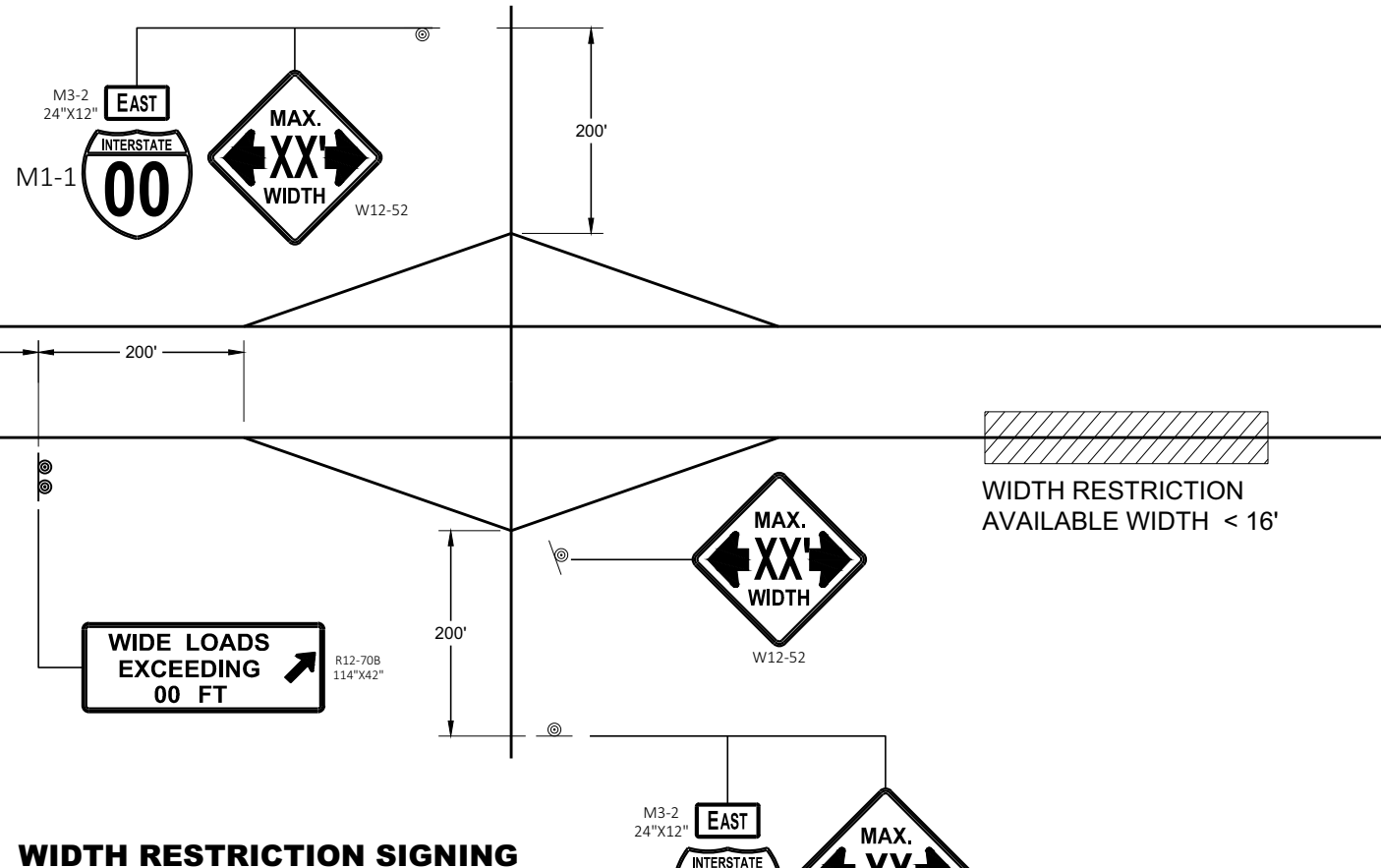
SIGN SIZES SHALL BE AS FOLLOW:
MO4 - 5 SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS).
M1 - 4, M1 - 5A, AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH
EXISTING SIGNS).
MO5 - 1, MO5 - 2, AND MO6 - 1, SHALL BE 21" X 21". (30" X 30" IF NEEDED TO
MATCH EXISTING SIGNS).

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

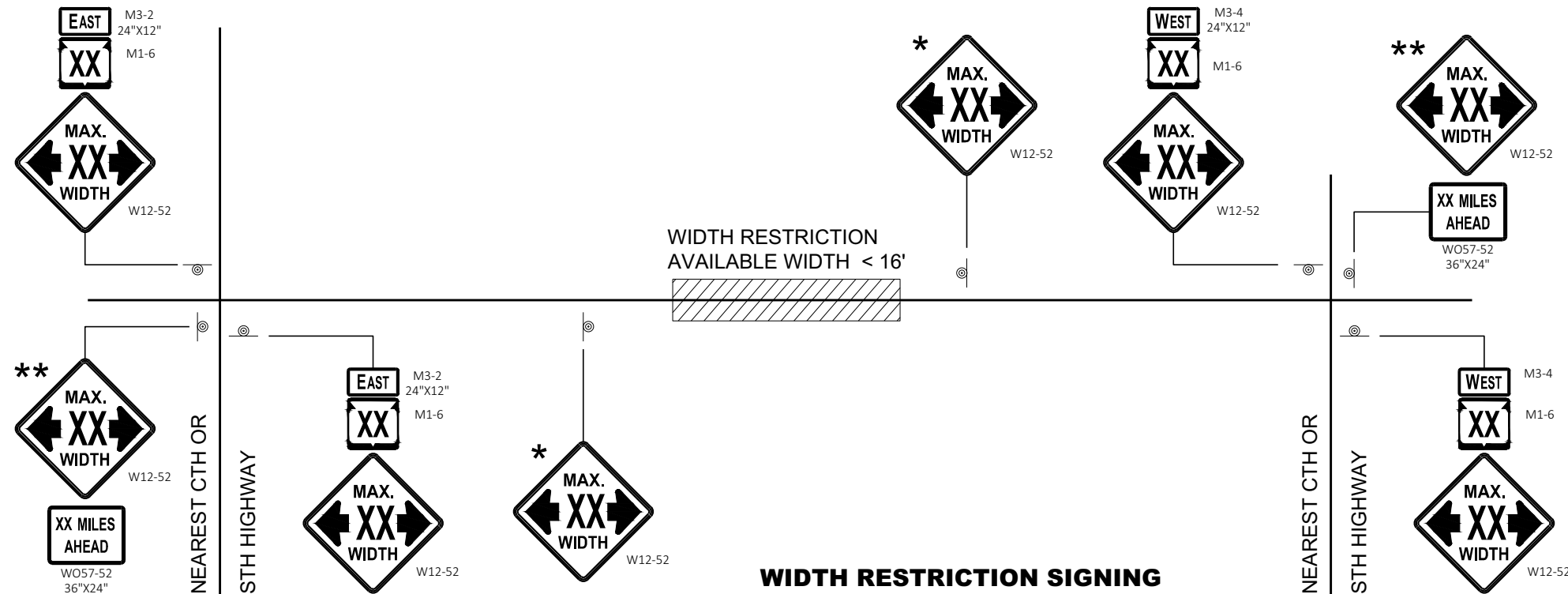
OFF RAMP
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 195
FHWA



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

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

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

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

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

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

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

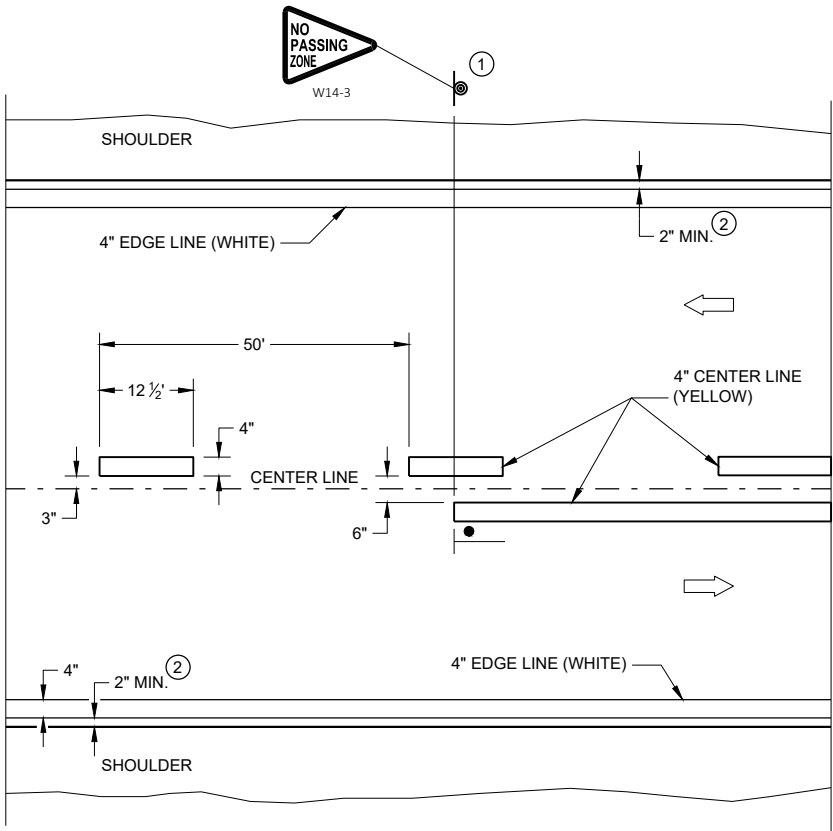


WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

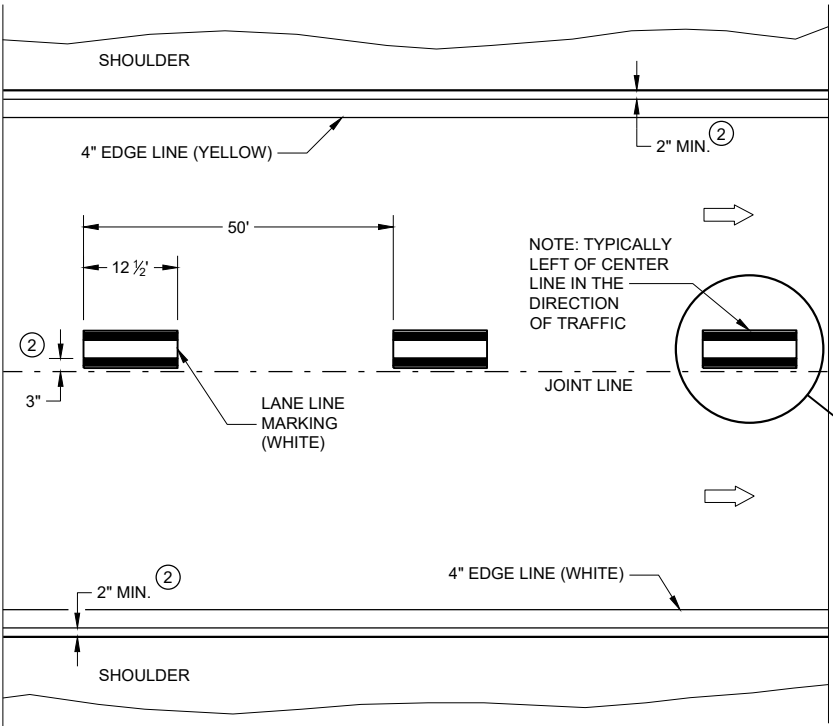
ADVANCED WIDTH
RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 196
FHWA

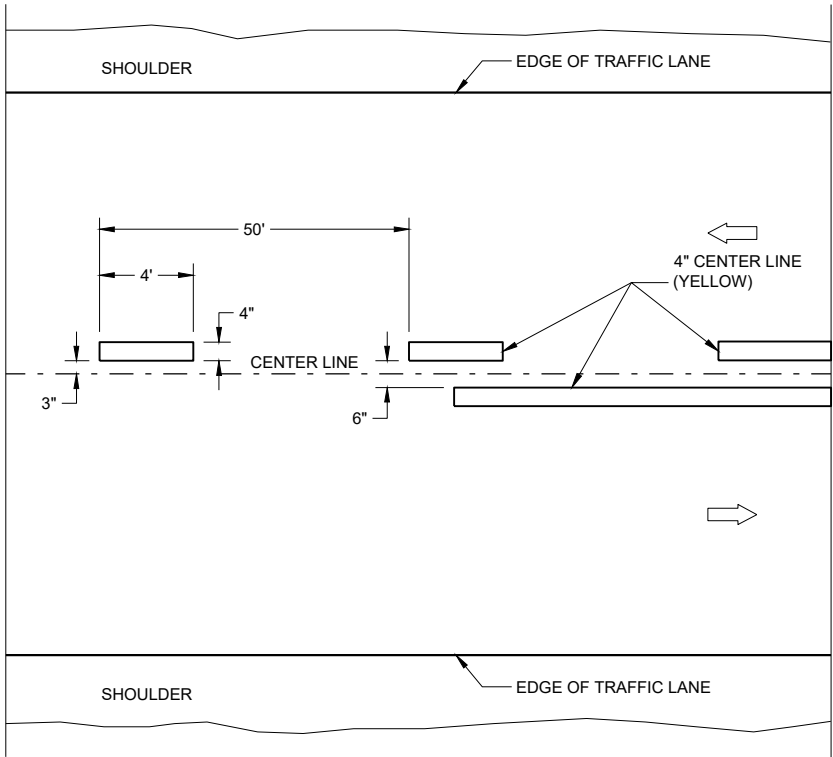


TWO WAY TRAFFIC

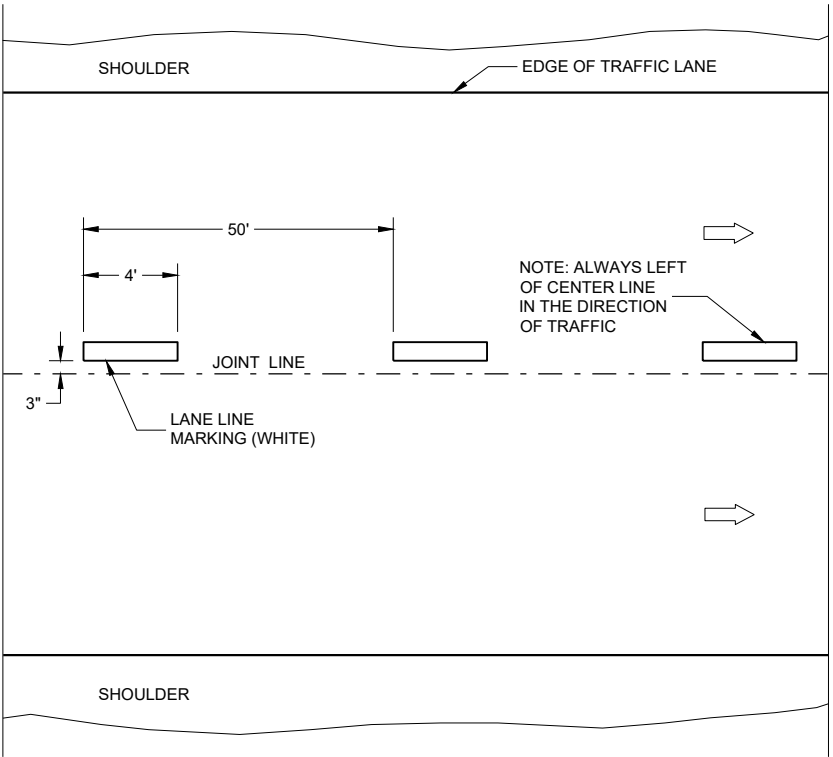


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

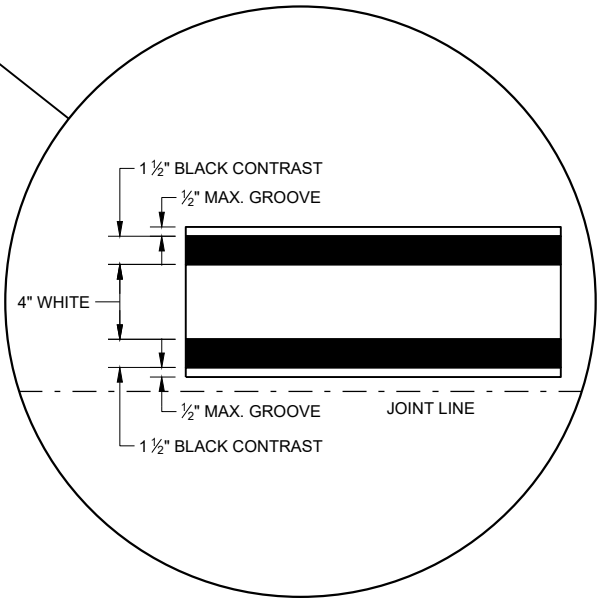
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN 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

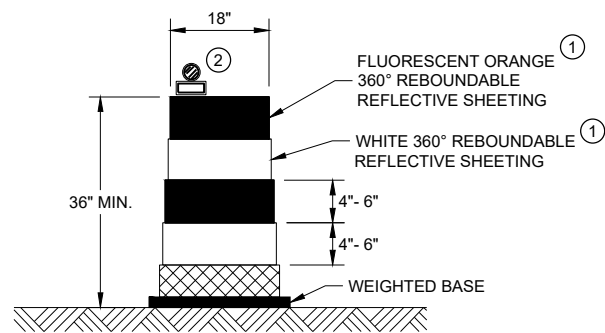


LONGITUDINAL MARKING (MAINLINE)

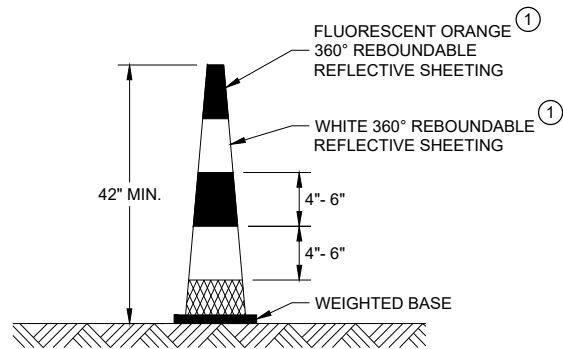
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND N 197
ENGINEER

FHWA

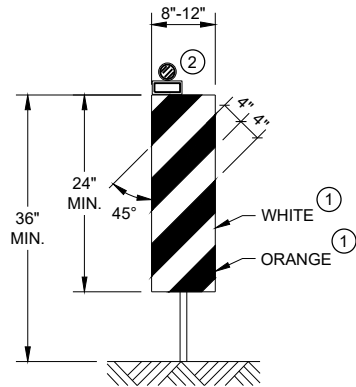


DRUM



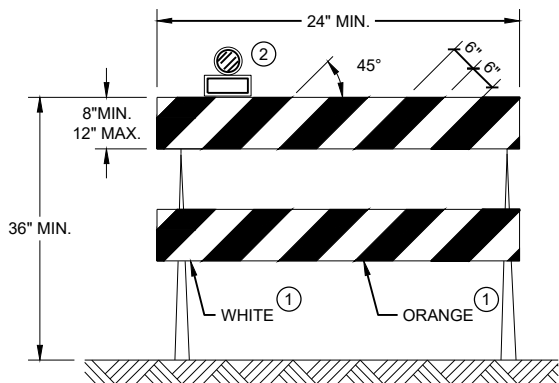
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



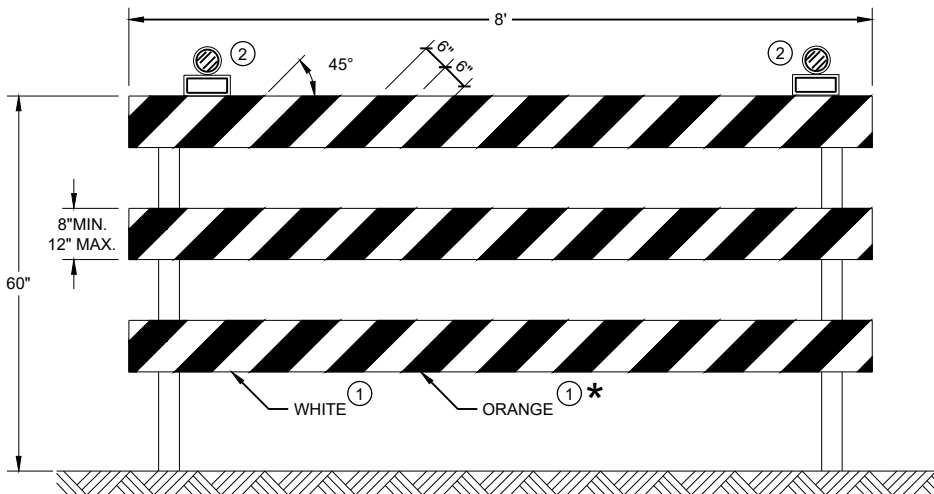
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 198

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

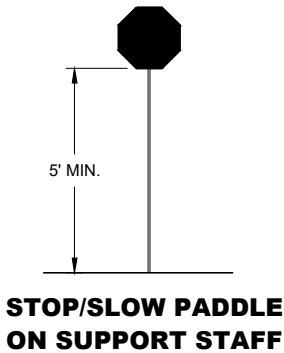
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

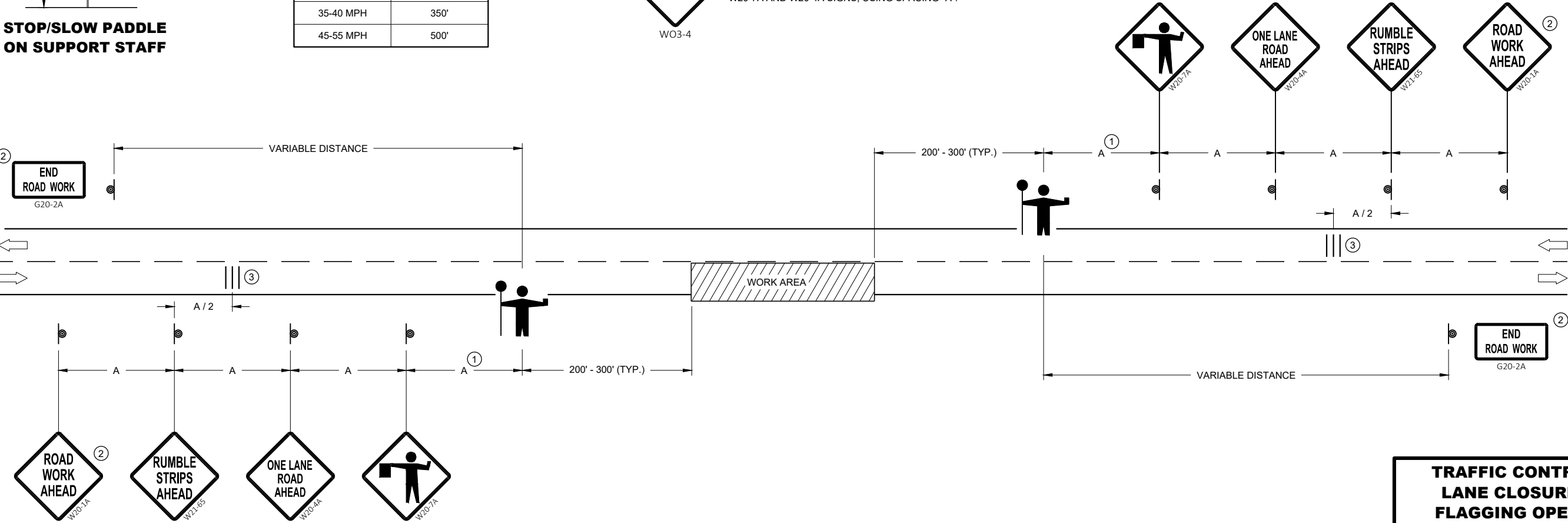


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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".

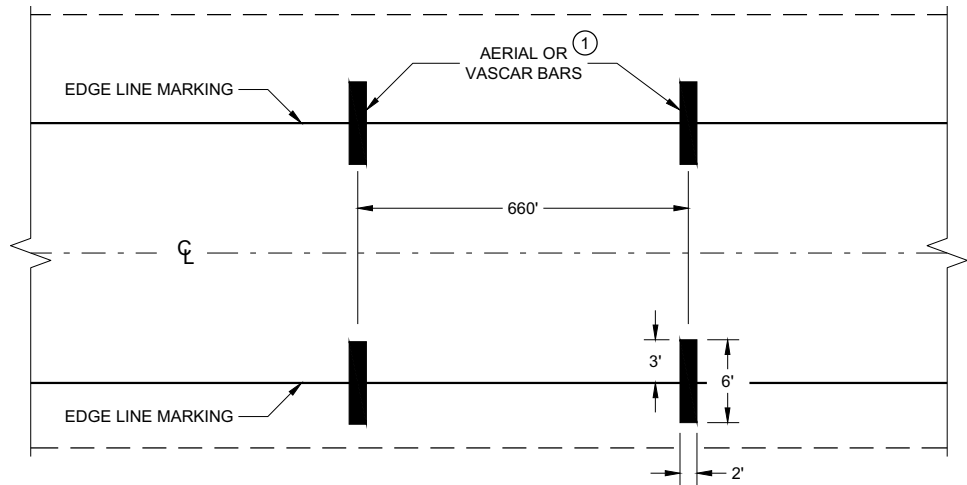


TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

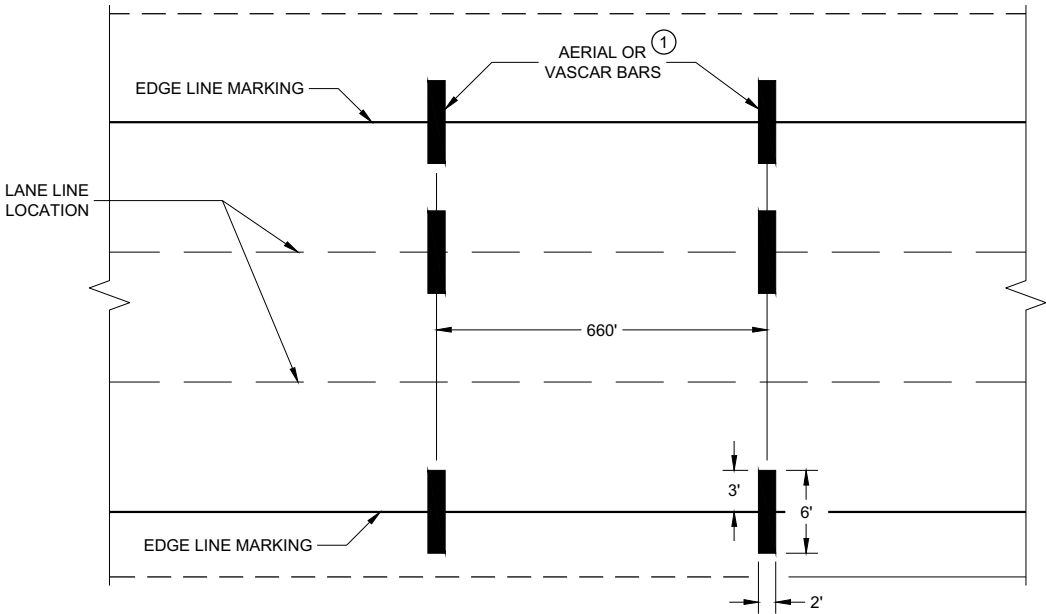
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 199

FHWA



TYPICAL FOR TWO WAY OR ONE WAY TRAFFIC



TYPICAL FOR MULTILANE TRAFFIC

SPEED ENFORCEMENT ZONE WITH AERIAL OR VASCAR BARS

GENERAL NOTES

- ① PLACE TWO TO FIVE AERIAL OR VASCAR BARS AT 660 FOOT SPACING.
- A CAR CAN BE PROVIDED BY THE WISCONSIN STATE PATROL FOR TRAFFIC CONTROL.

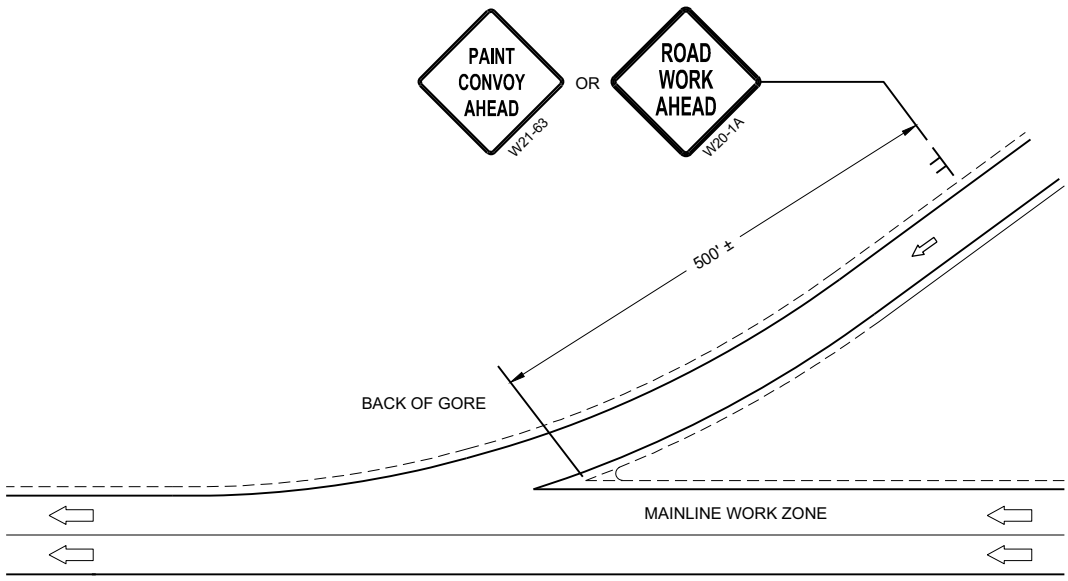
AERIAL ENFORCEMENT BARS
PAVEMENT MARKING DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MAP ENGINEER 200
FHWA

LEGEND

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



GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. 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.

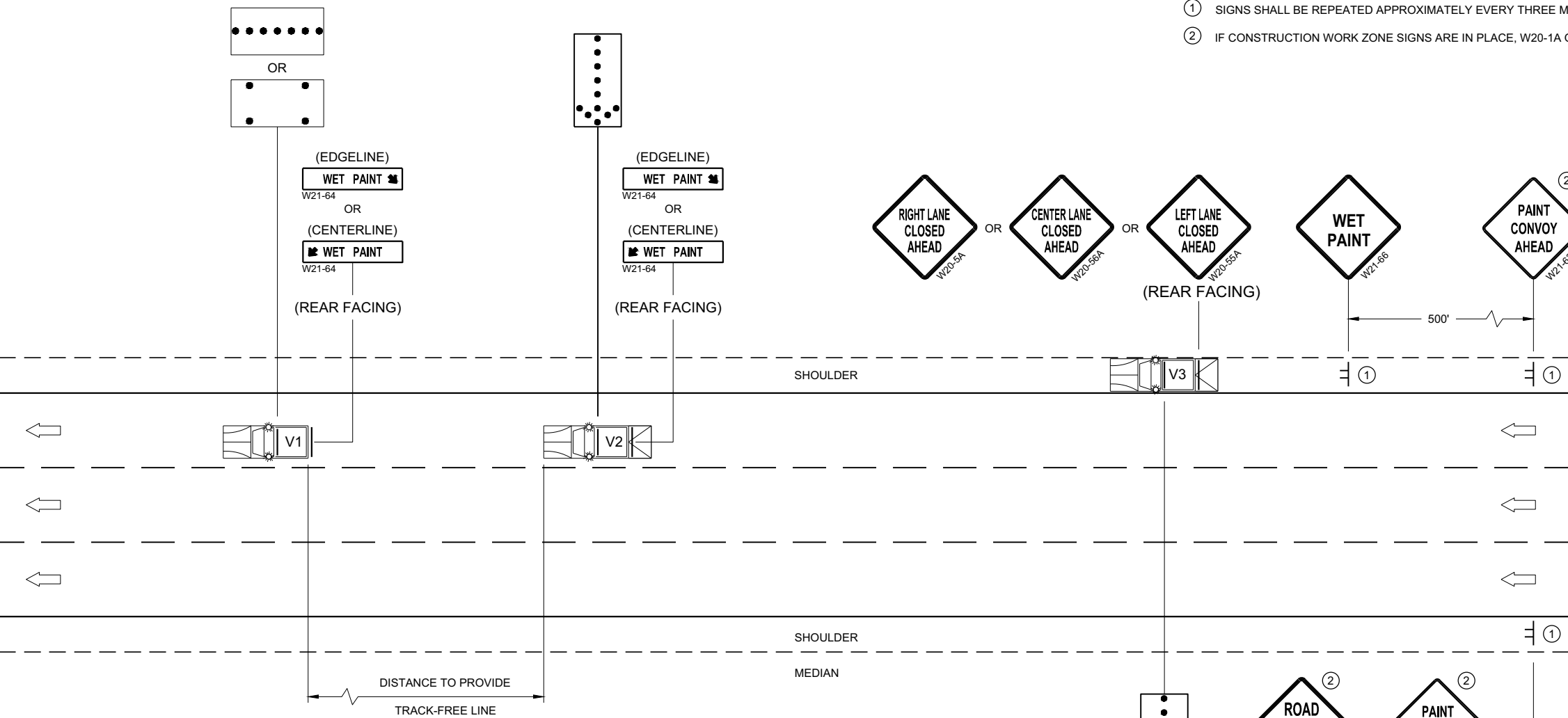
IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

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 18" FOR WET PAVEMENT MARKINGS

- 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 OPERATIONS
MULTILANE DIVIDED ROADWAY

**MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 201

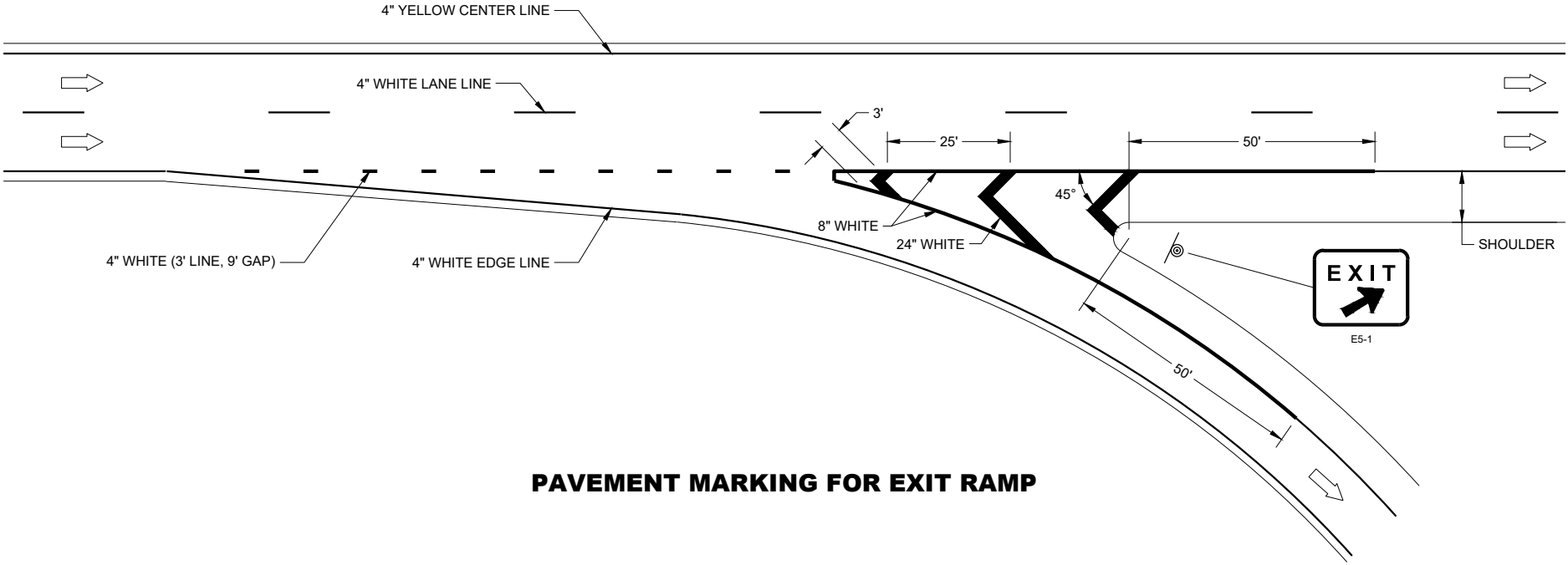
FHWA

GENERAL NOTES

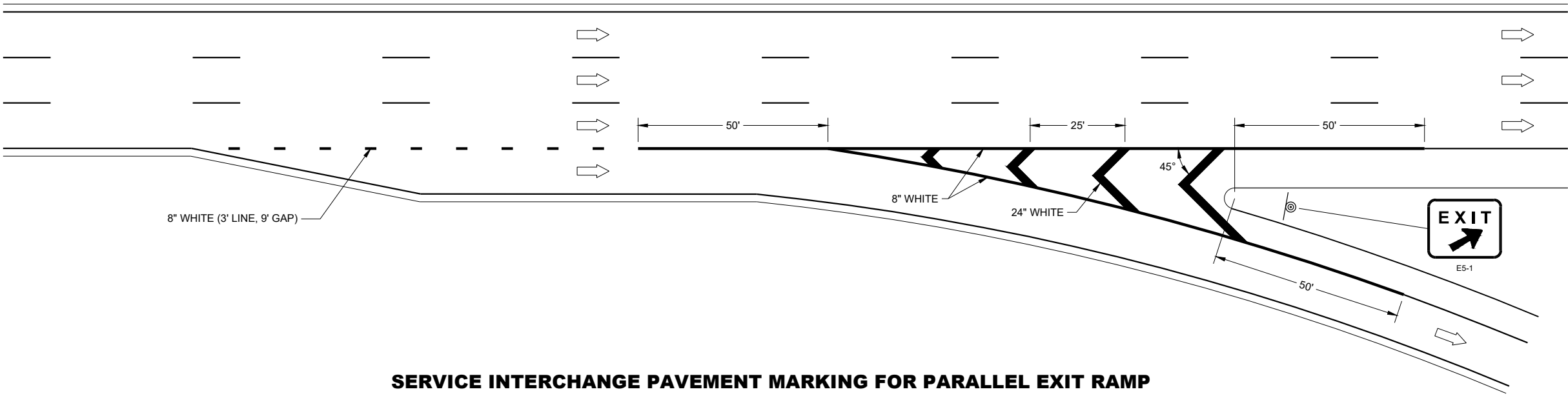
PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAVEL



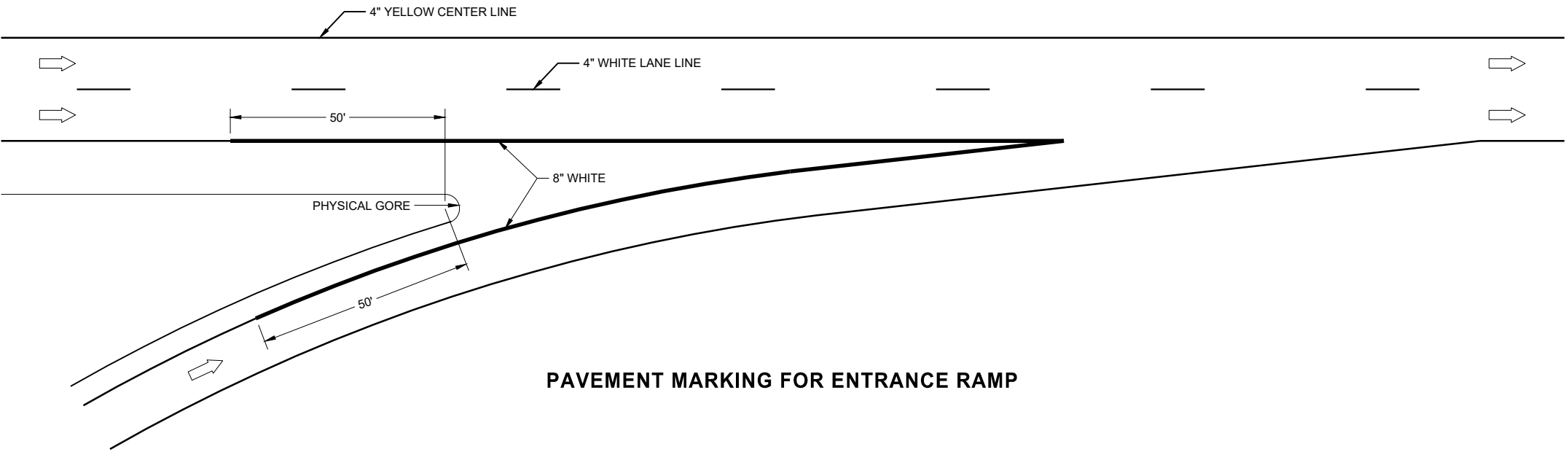
PAVEMENT MARKING FOR EXIT RAMP



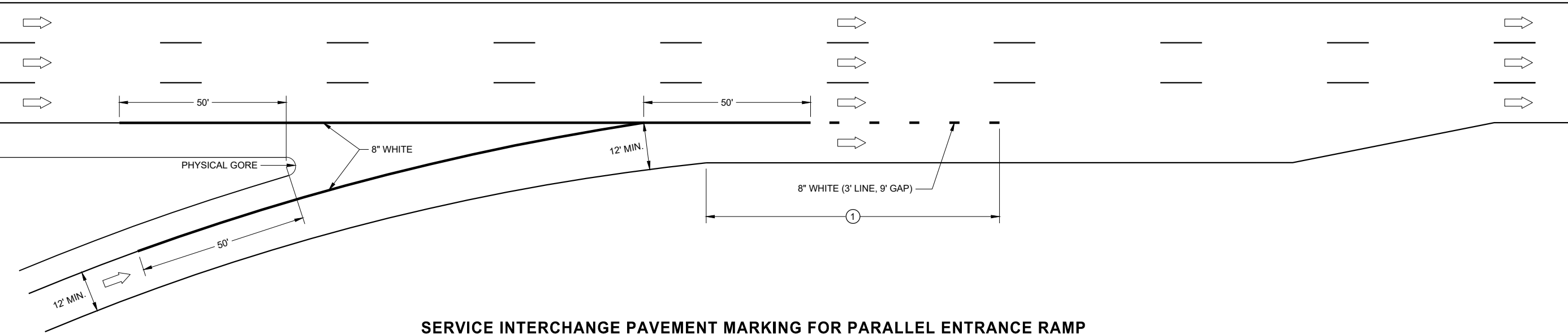
SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT RAMP

PAVEMENT MARKING,
EXIT RAMP AND
PARALLEL EXIT RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 202



PAVEMENT MARKING FOR ENTRANCE RAMP



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE RAMP

GENERAL NOTES

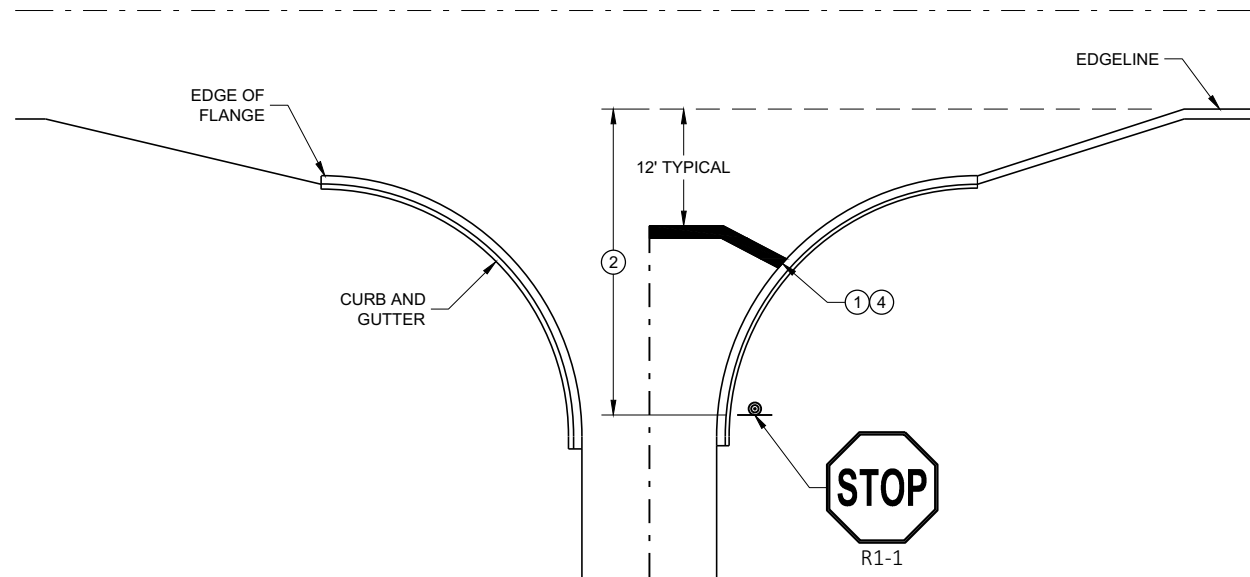
- PLACE GROOVE 3 INCHES LEFT OF JOINT.
- ① ½ LENGTH OF FULL WIDTH ACCELERATION LANE.

LEGEND

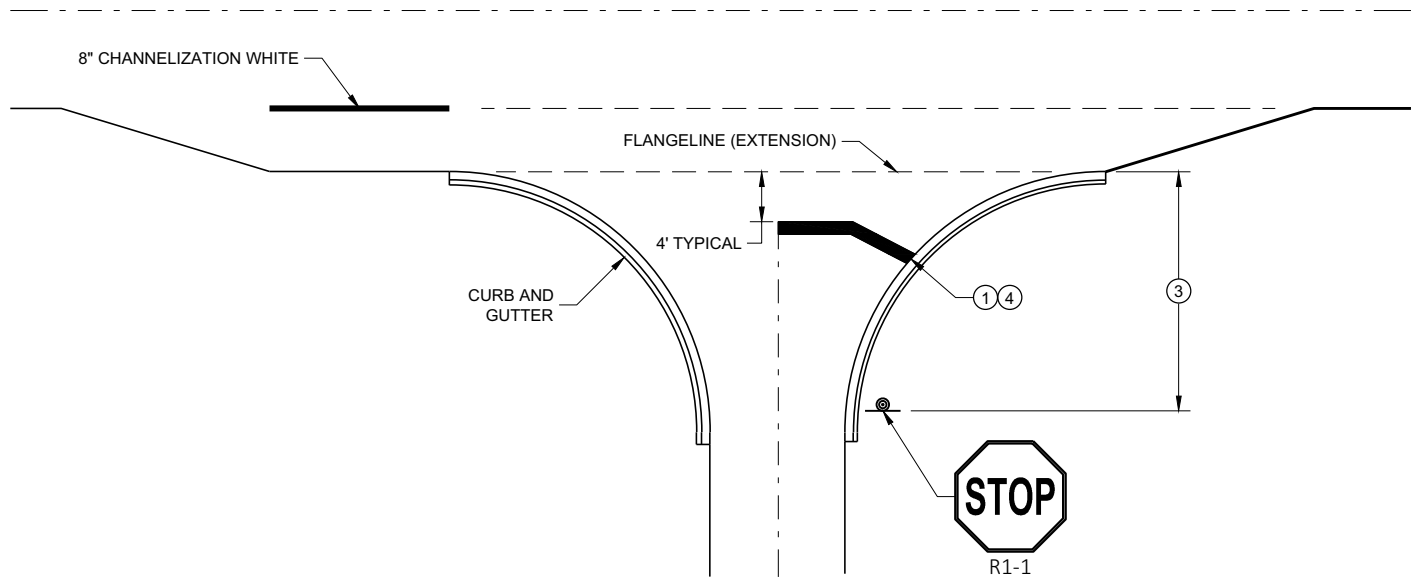
➡ DIRECTION OF TRAVEL

PAVEMENT MARKING,
ENTRANCE RAMP AND
PARALLEL ENTRANCE RAMP

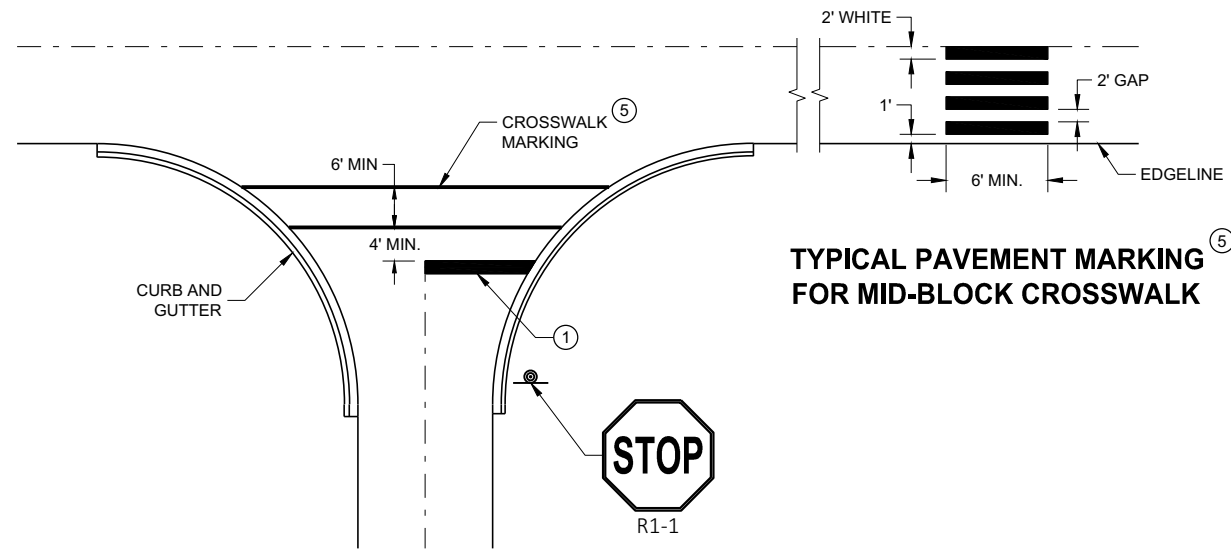
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 203



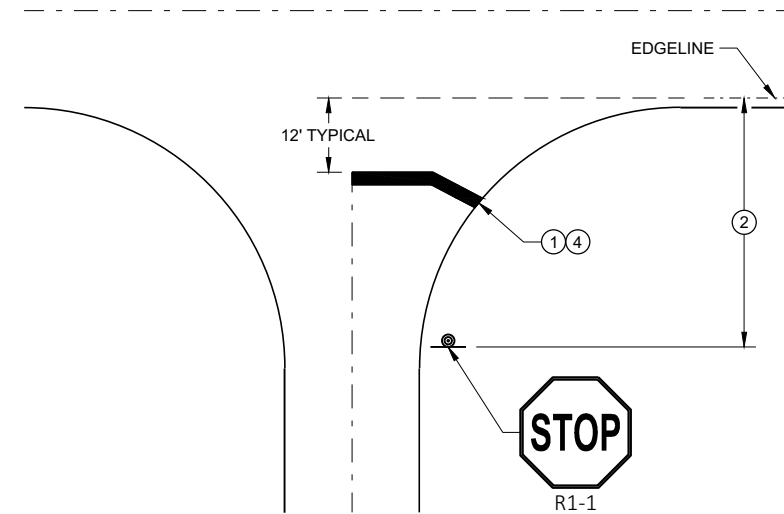
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

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

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

STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MAP ENGINEER 204
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

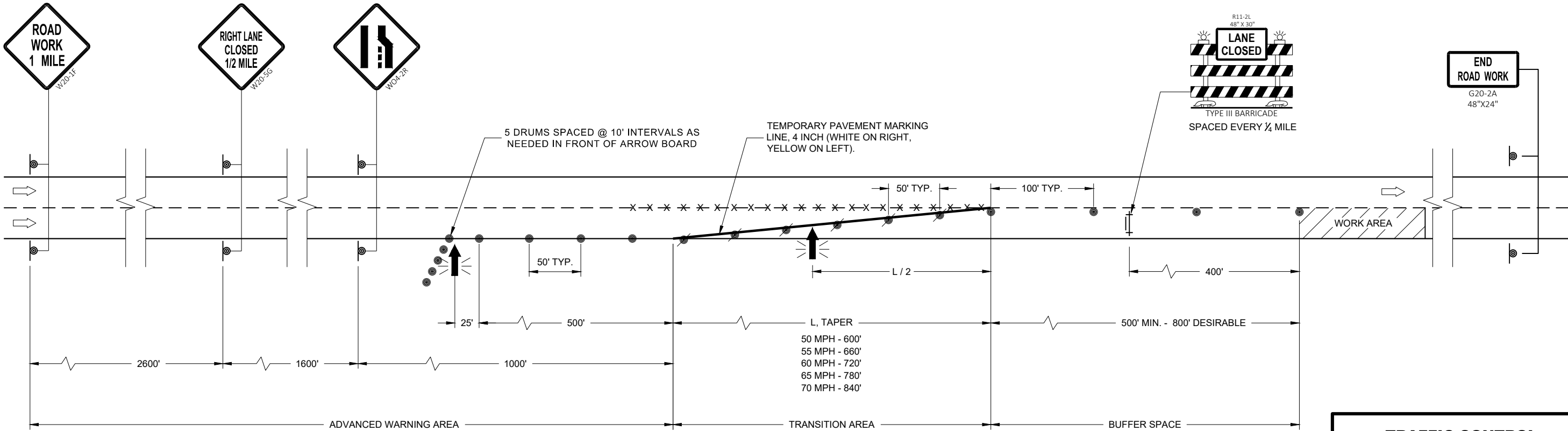
NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE 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.

LEGEND

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

6



6

SDD 15D12 - 10a

SDD 15D12 - 10a

TRAFFIC CONTROL
LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 205

FHWA

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

LEGEND

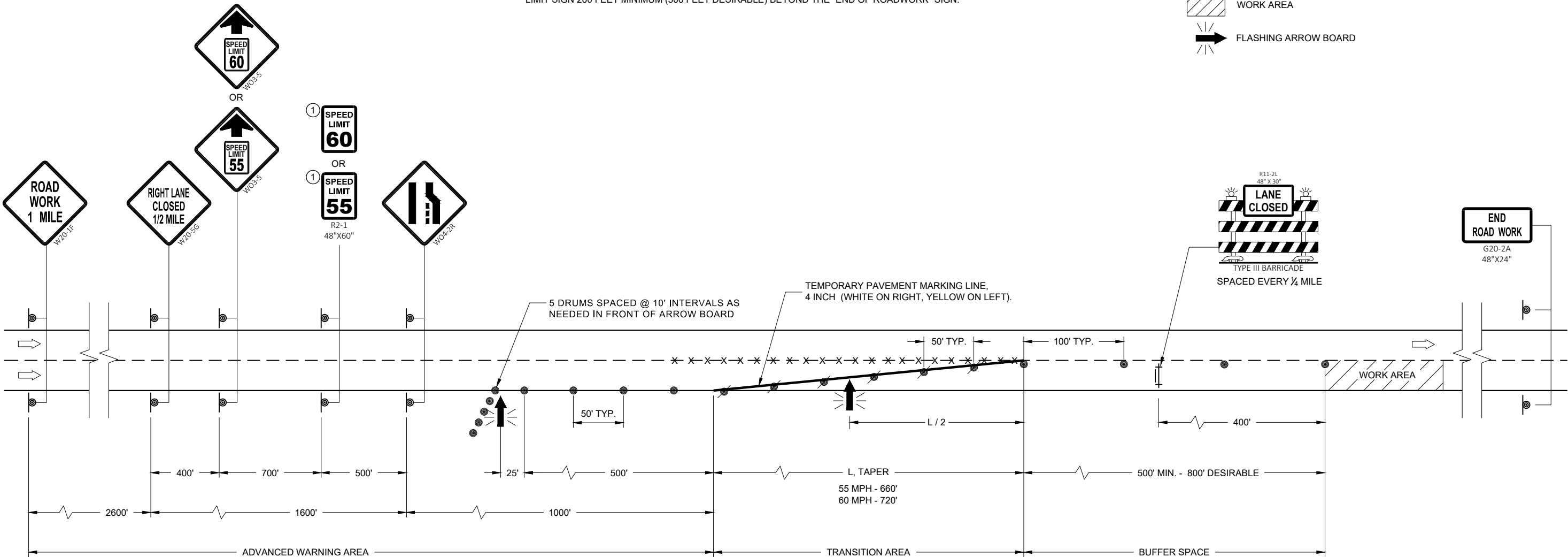
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)

✕ ✕ ✕ REMOVING PAVEMENT MARKINGS

➡ DIRECTION OF TRAFFIC

WORK AREA

FLASHING ARROW BOARD



TRAFFIC CONTROL,
LANE CLOSURE,
SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 206

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

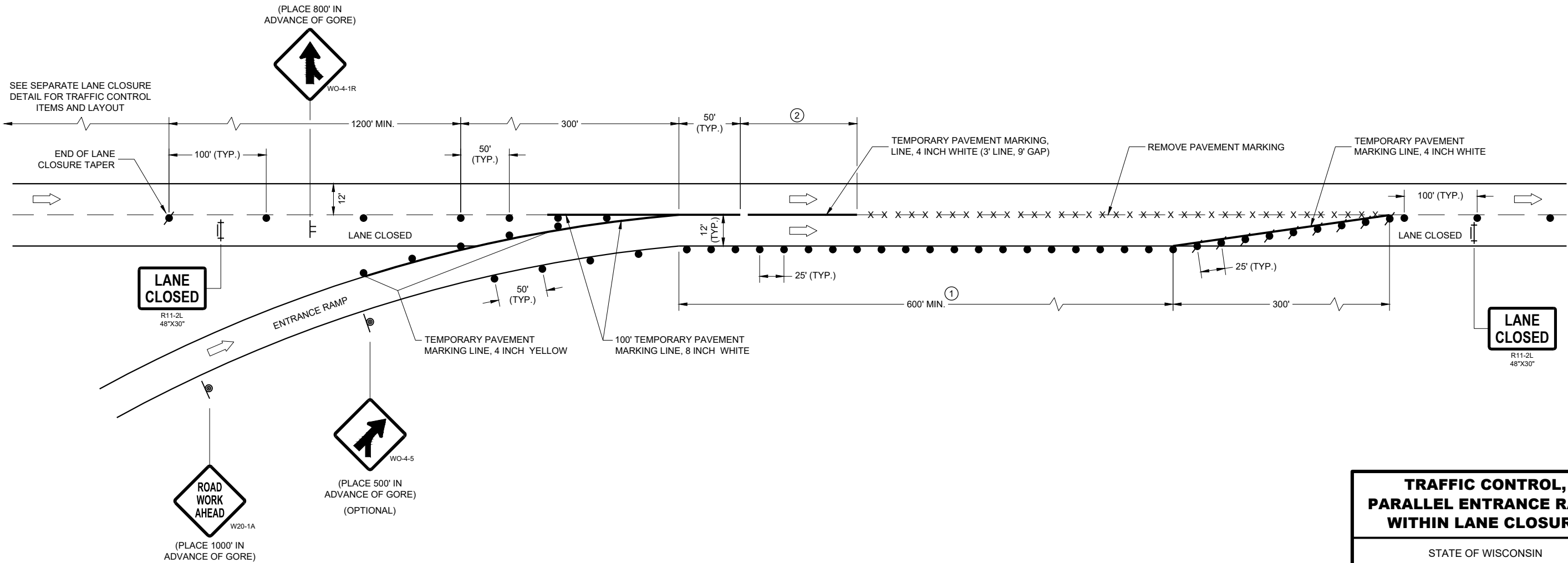
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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

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

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

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 207

FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

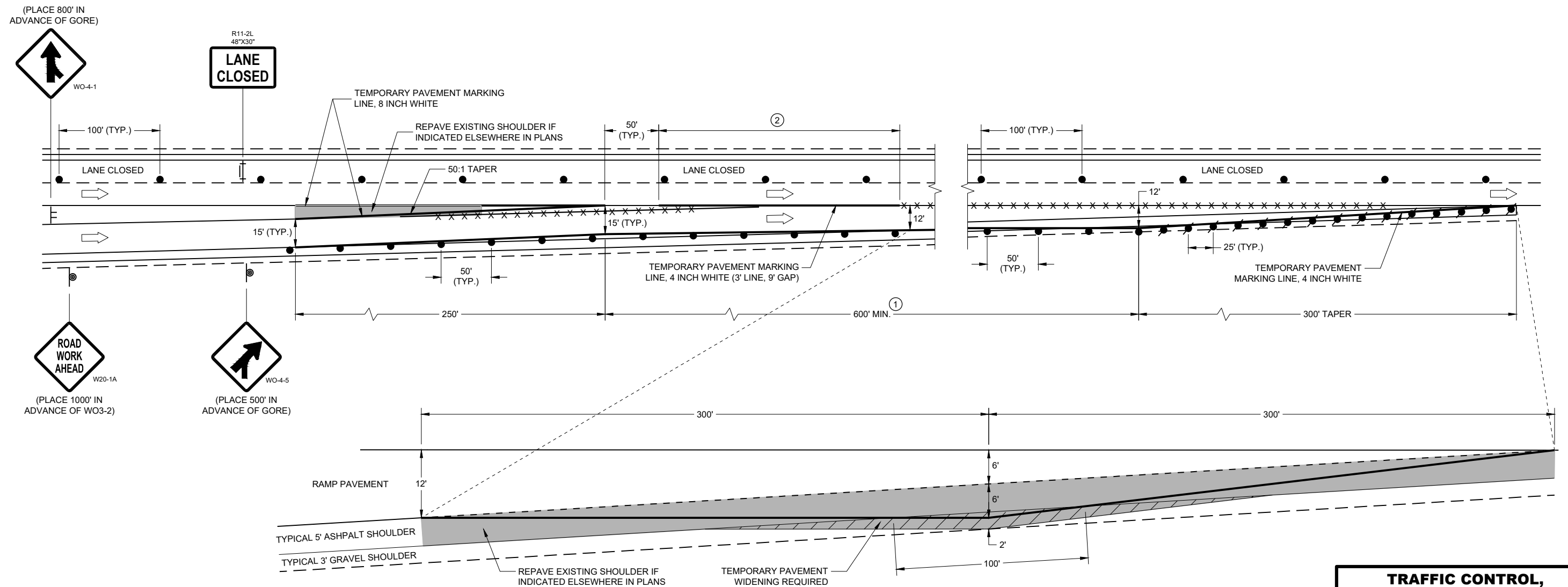
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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

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

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

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



TEMPORARY PAVEMENT DETAIL

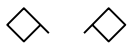
(EXISTING RAMP DIMENSIONS MAY VARY,
ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 DATE /S/ Andrew Heidtke
WORK ZONE ENGINEER 208

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

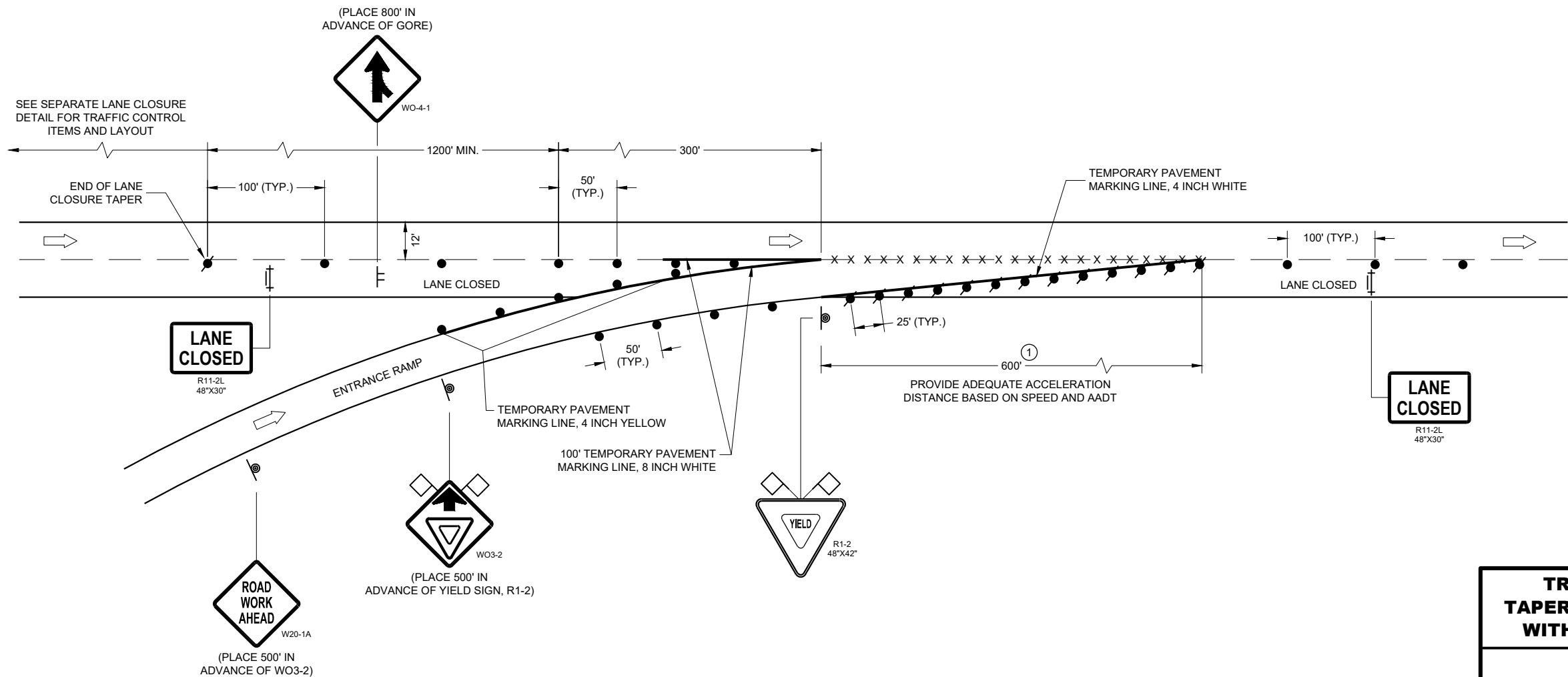
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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

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

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

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



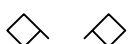
**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 209

FHWA

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.

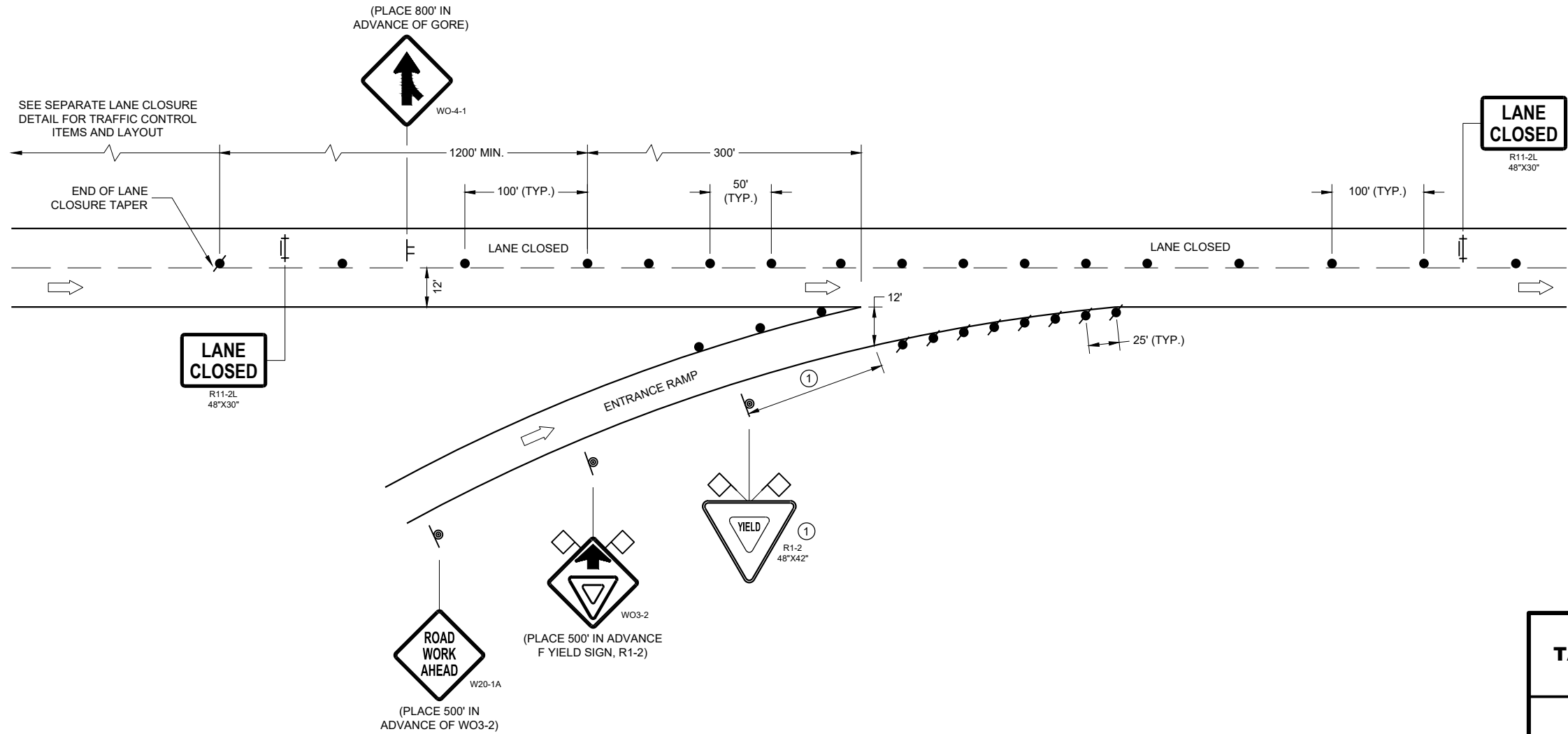
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

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.



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 210

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.

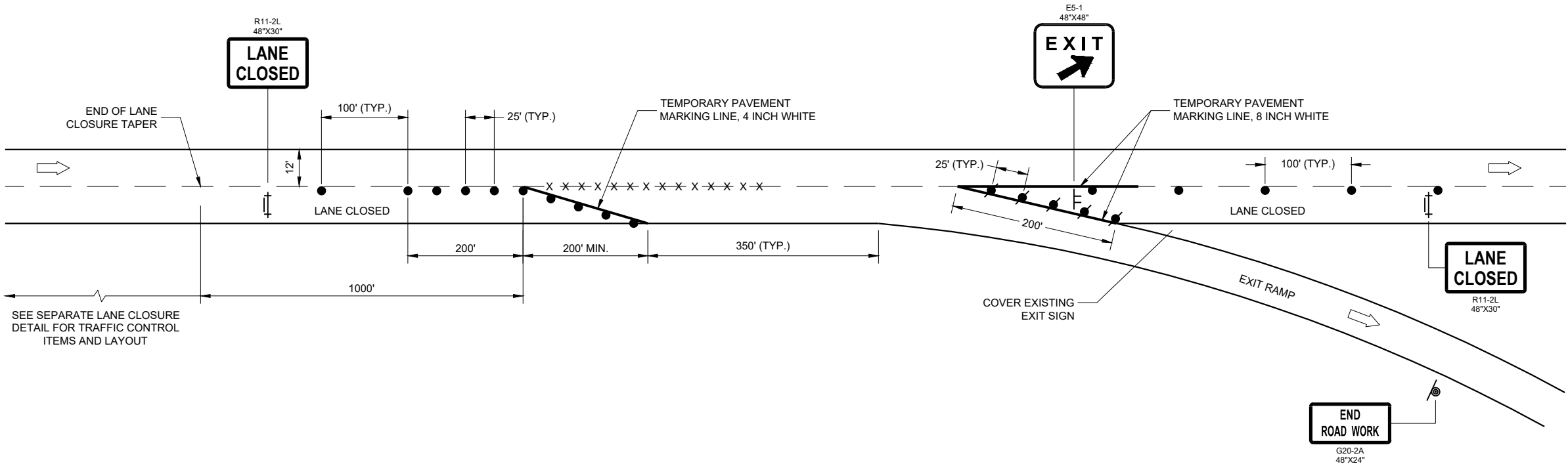
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

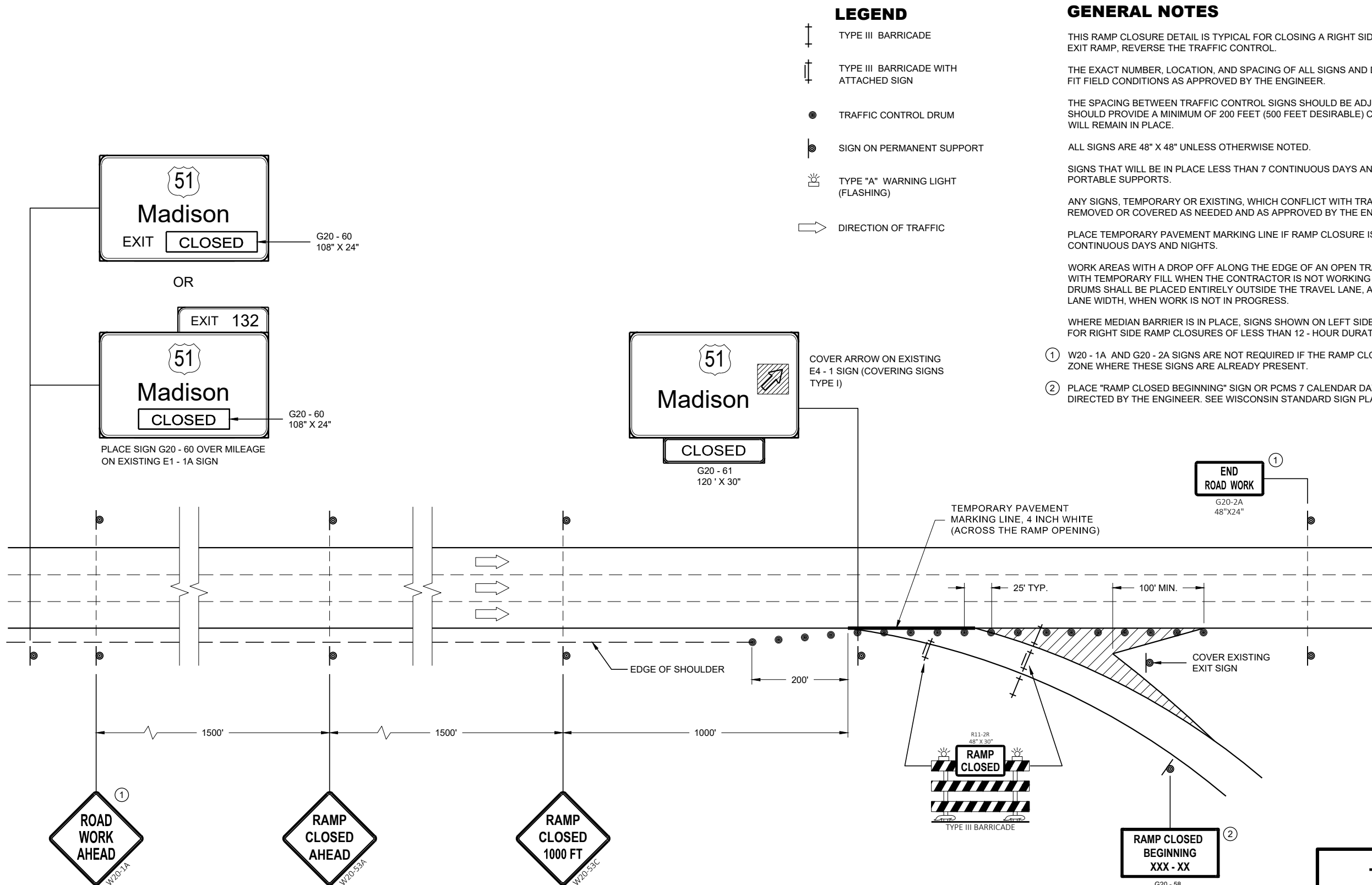


**TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 211

FHWA



TRAFFIC CONTROL, EXIT RAMP CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 212	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

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.

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" X 48" UNLESS OTHERWISE NOTED.

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

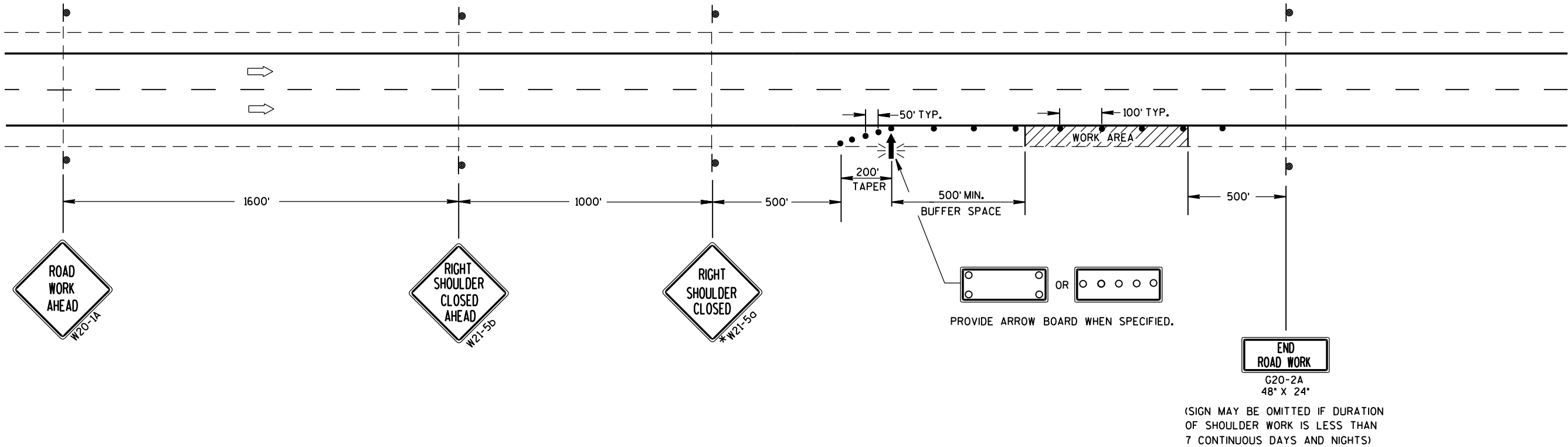
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

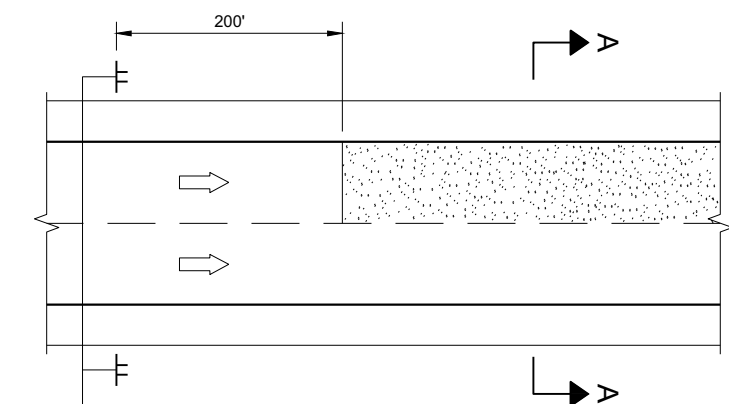
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A 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.

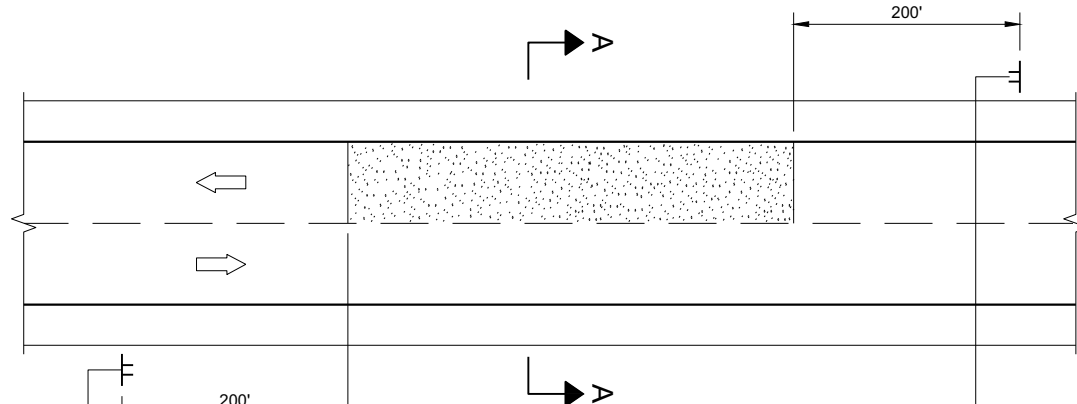
*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



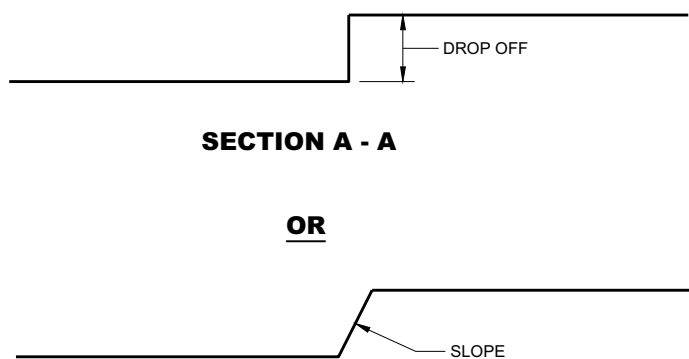
TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED		
June 2016	/S/ Peter Amakobe Atepe	
DATE	STATEWIDE WORK ZO 213	IC
FHWA	SAFETY ENGR	



MULTI-LANE



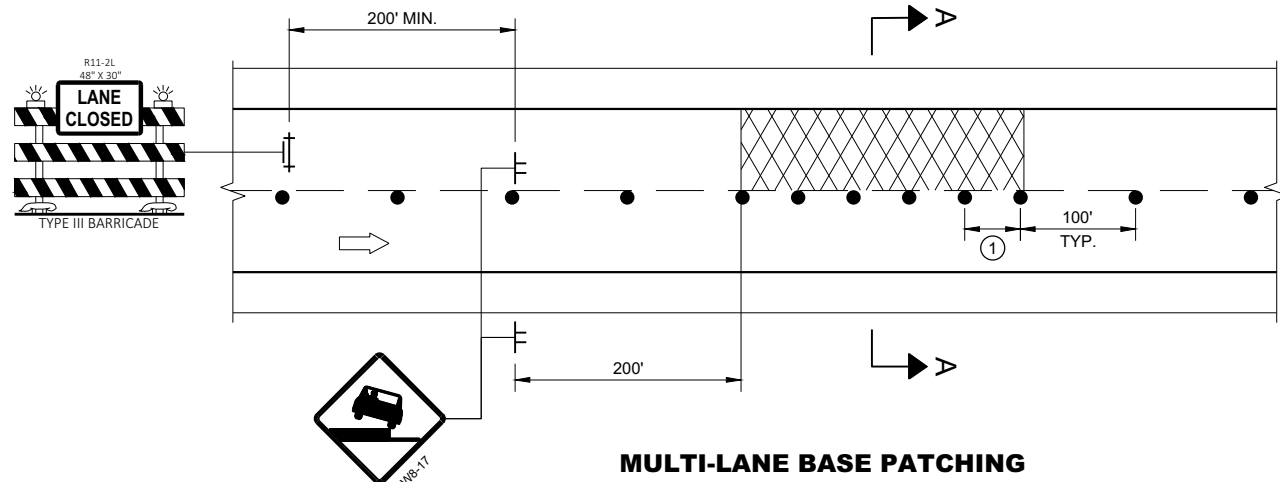
TWO-WAY TWO LANE



SECTION A - A

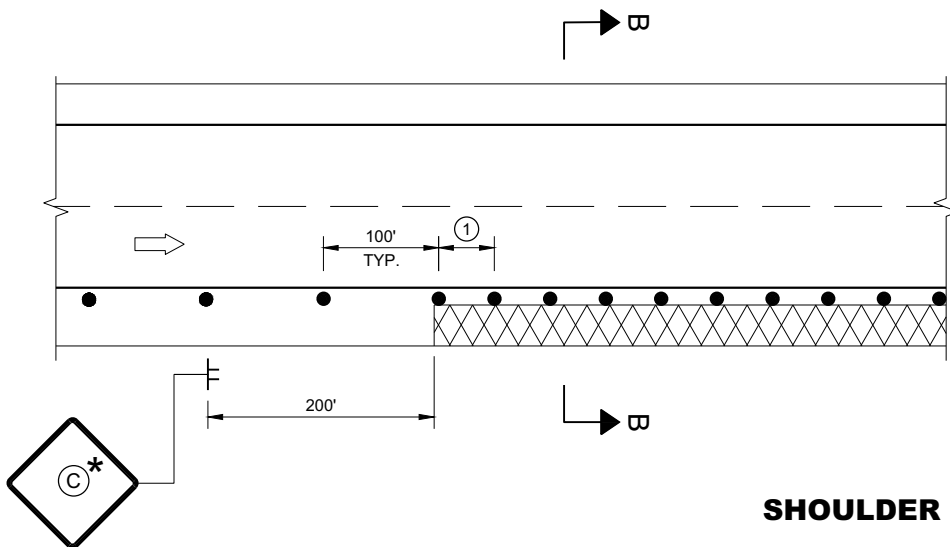
OR

SECTION A - A

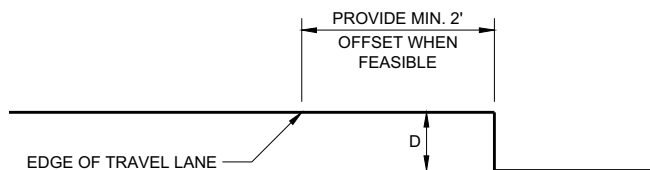


MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 WB-8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 WB-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

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

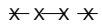
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 214
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
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

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.

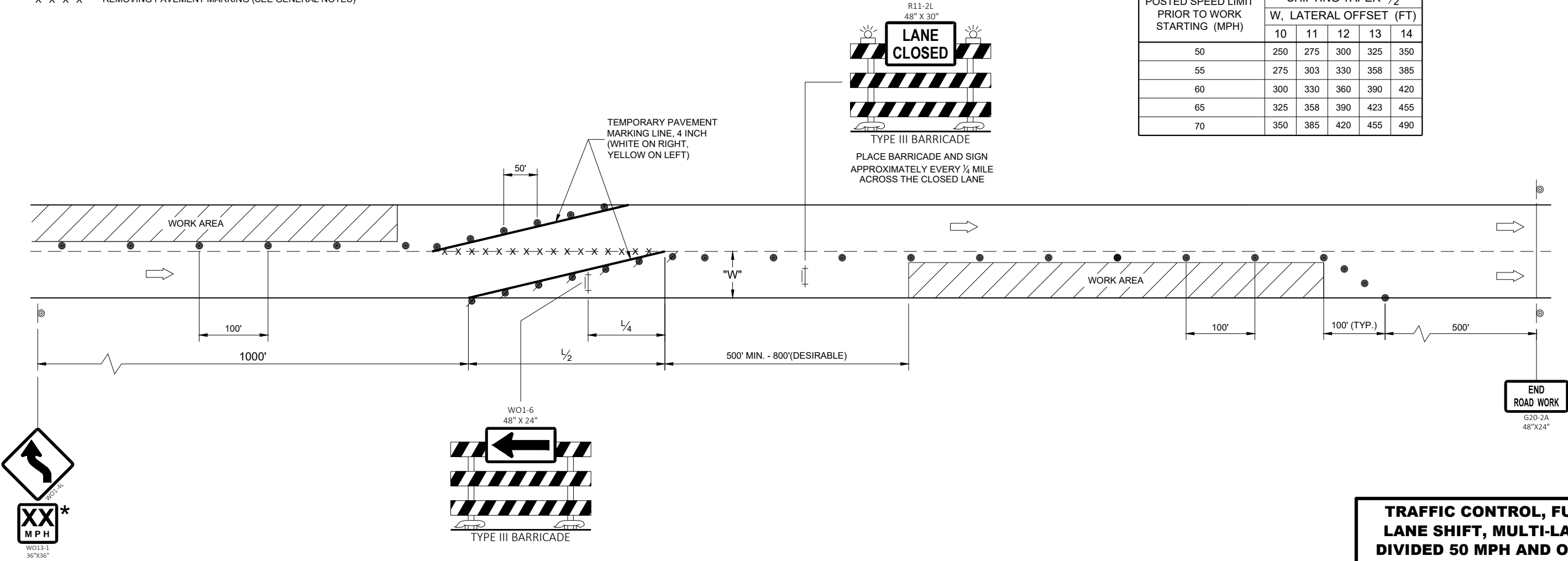
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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 ½ 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.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{L}{2}$ W, LATERAL OFFSET (FT)				
	10	11	12	13	14
50	250	275	300	325	350
55	275	303	330	358	385
60	300	330	360	390	420
65	325	358	390	423	455
70	350	385	420	455	490



TRAFFIC CONTROL, FULL
LANE SHIFT, MULTI-LANE
DIVIDED 50 MPH AND OVER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 215

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
	REMOVE PAVEMENT MARKING

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 LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

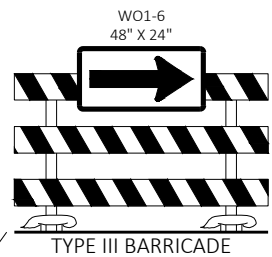
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

① USE ONLY WHEN T<600', OMIT WO1-4R.

② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{L}{2}$								
	W, LATERAL OFFSET (FT)								
	1	2	3	4	5	6	7	8	9
50	25	50	75	100	125	150	175	200	225
55	28	55	83	110	138	165	193	220	248
60	30	60	90	120	150	180	210	240	270
65	33	65	98	130	163	195	228	260	293
70	35	70	105	140	175	210	245	280	315



APPROVED
February 2022 _____ /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 216

GENERAL NOTES

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

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

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

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

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

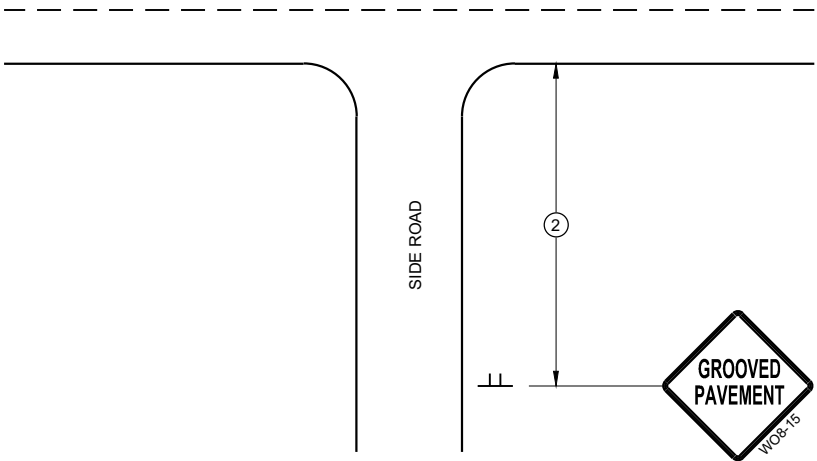
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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

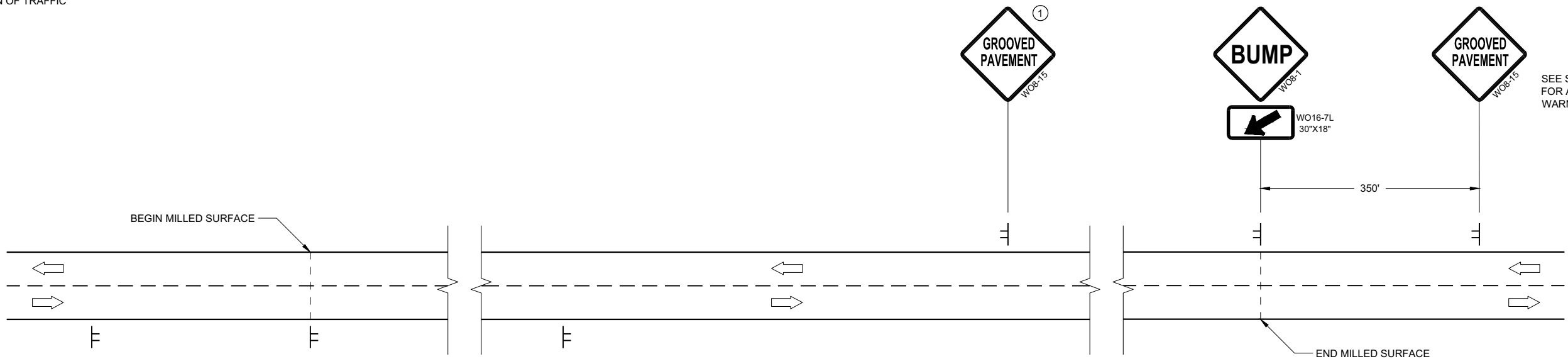
- 1 PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.
- 2 PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH
SIGN DETAIL



SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

SEE SDD15C04
FOR ADVANCE
WARNING SIGNS

DETAIL FOR SIGNING ON MILLED SURFACES

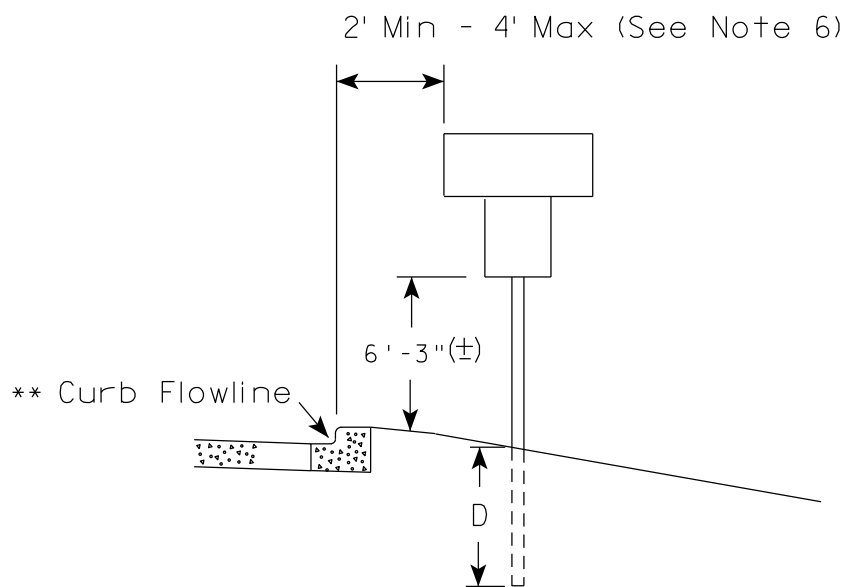
TRAFFIC CONTROL,
SIGNING ON ROADWAYS
WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 217

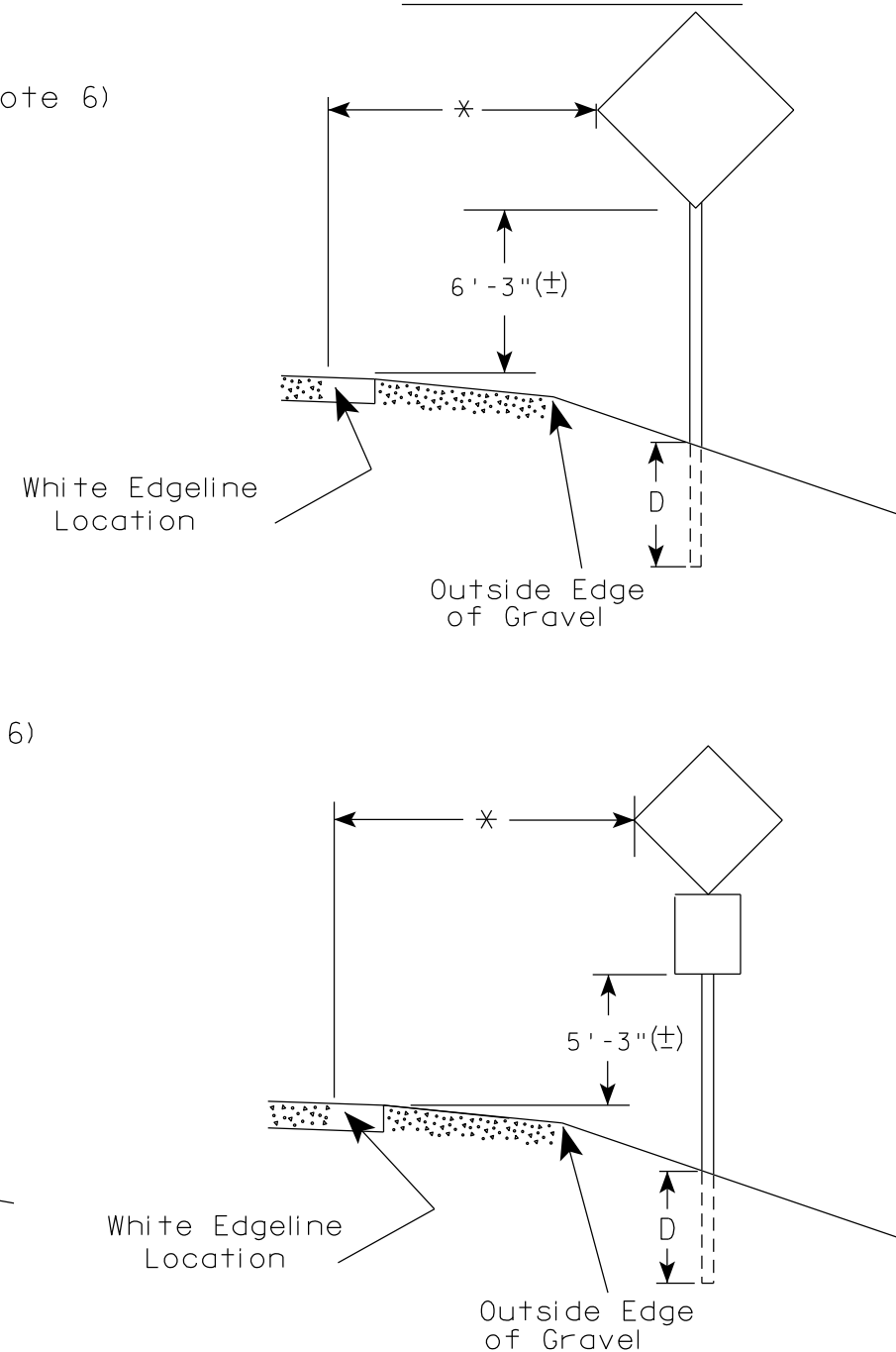
FHWA

7



* * 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.

7



- * 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.

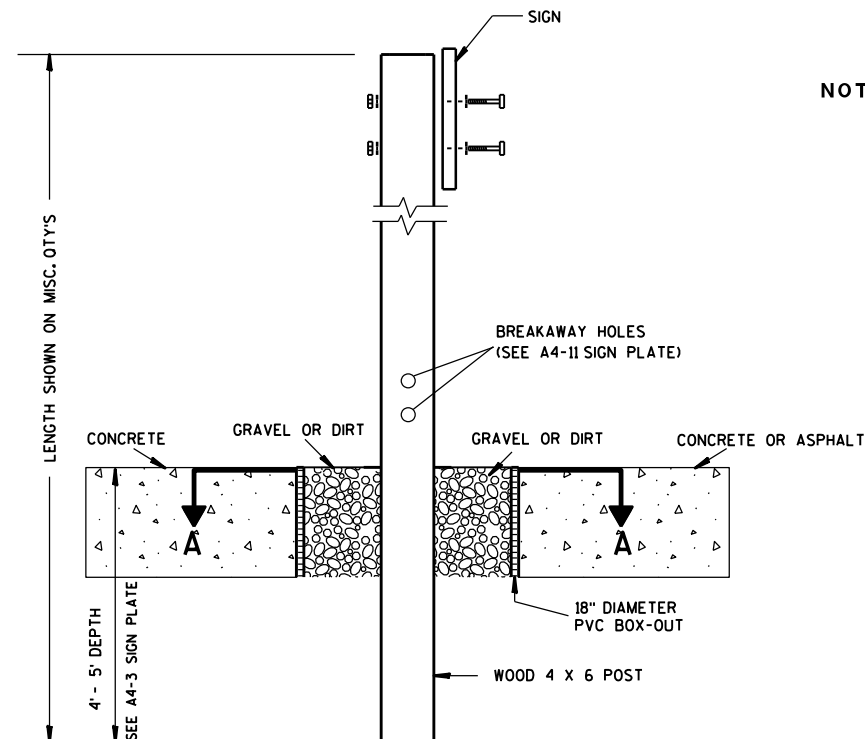
POST EMBEDMENT DEPTH	
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" ($\pm$). 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" ($\pm$).
3. For expressways and freeways, mounting height is 7'- 3" ($\pm$) or 6'-3" ($\pm$) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" ($\pm$).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The ($\pm$) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" ($\pm$) or as directed by the Engineer.

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

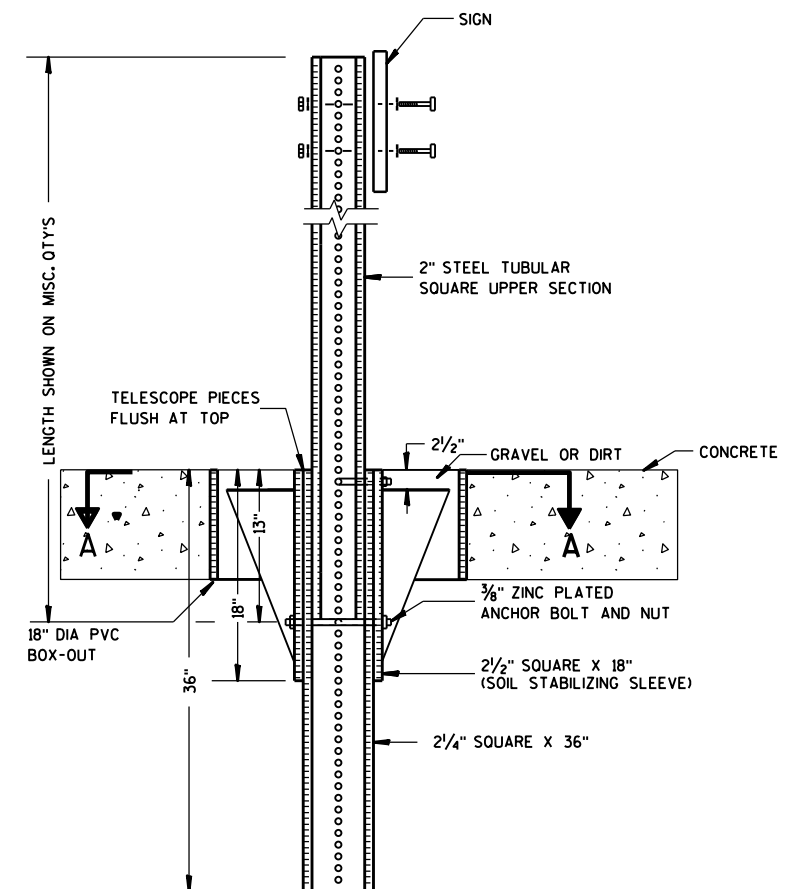
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

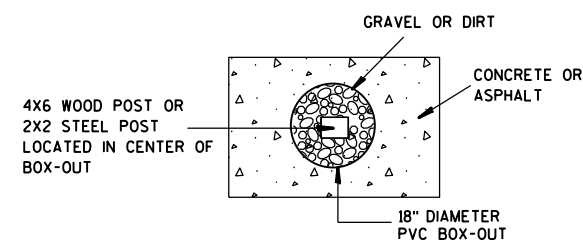
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 219 A4-3B.1

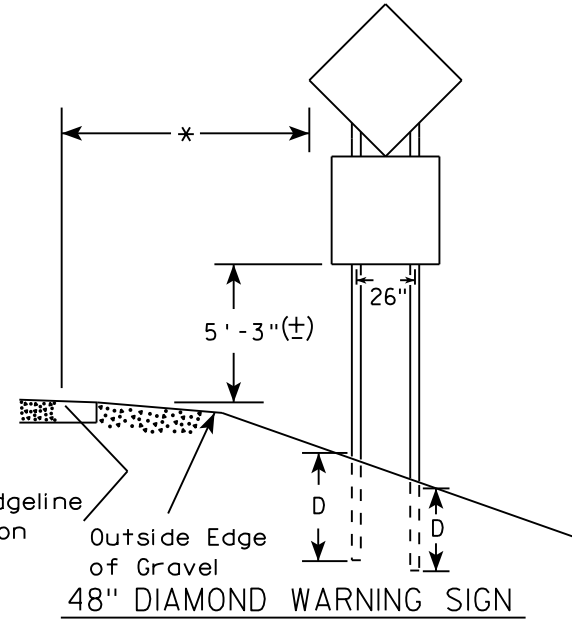
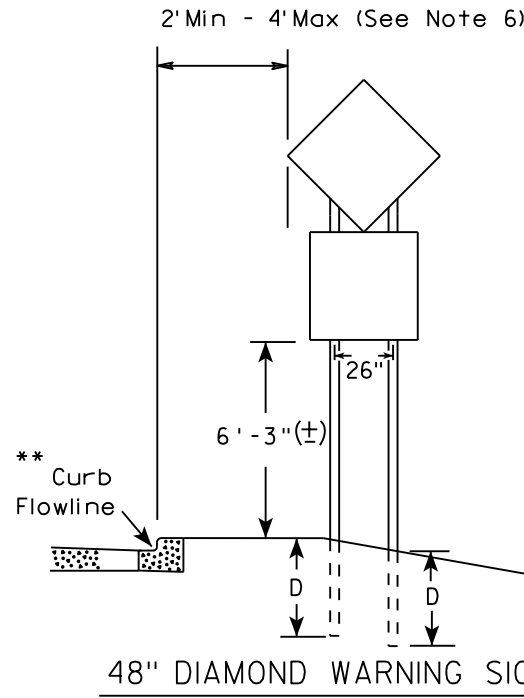
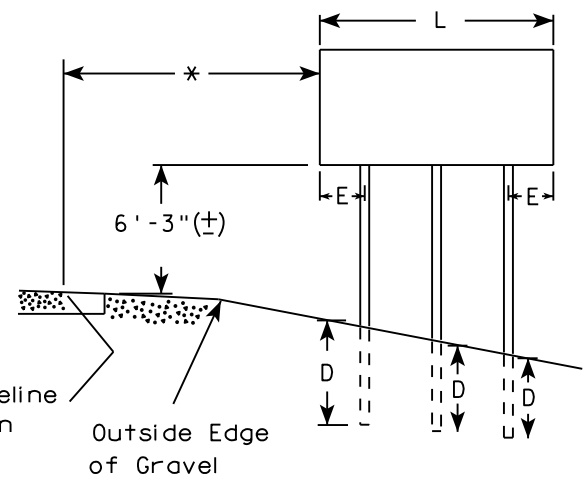
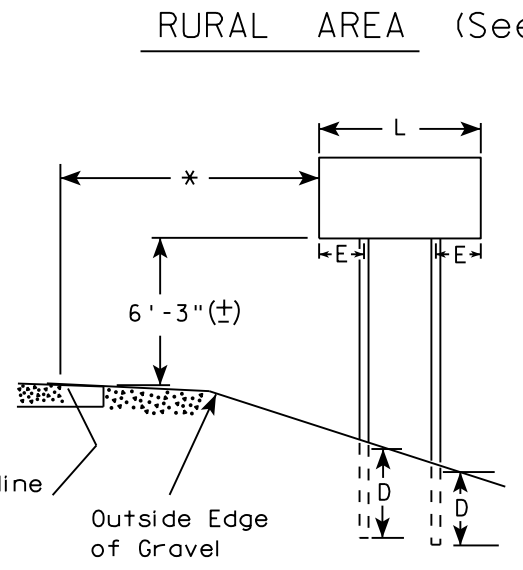
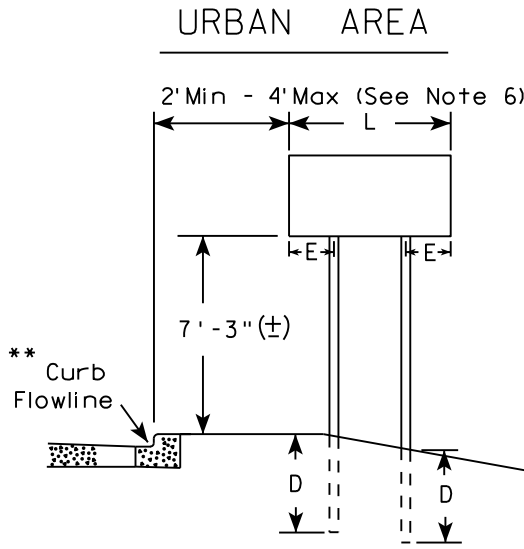
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

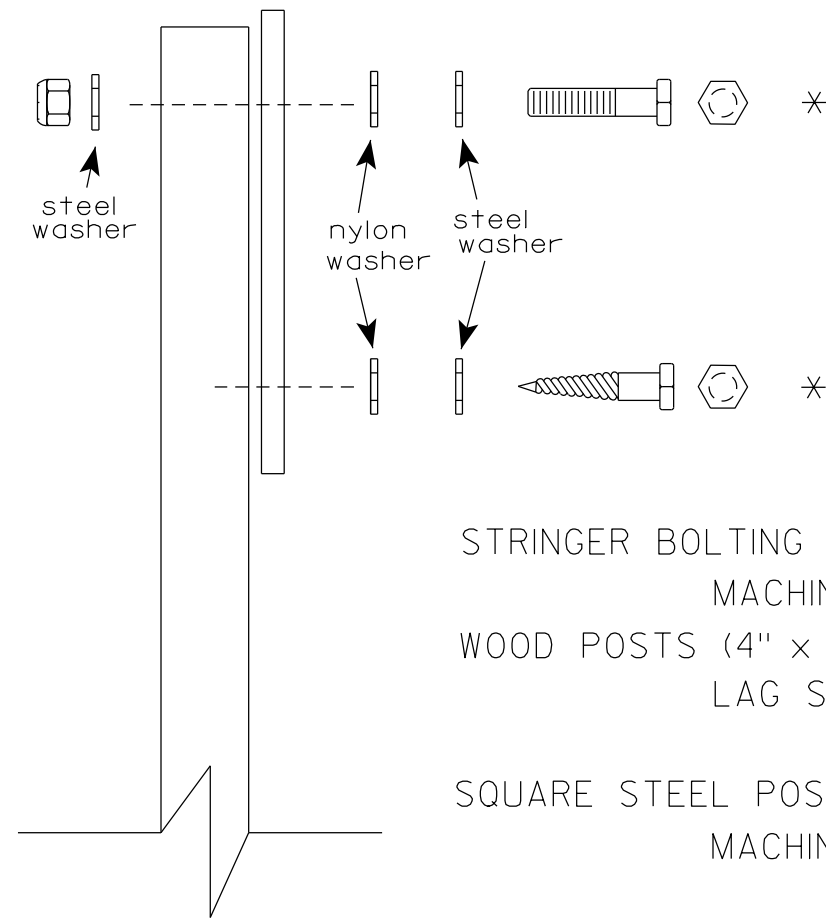
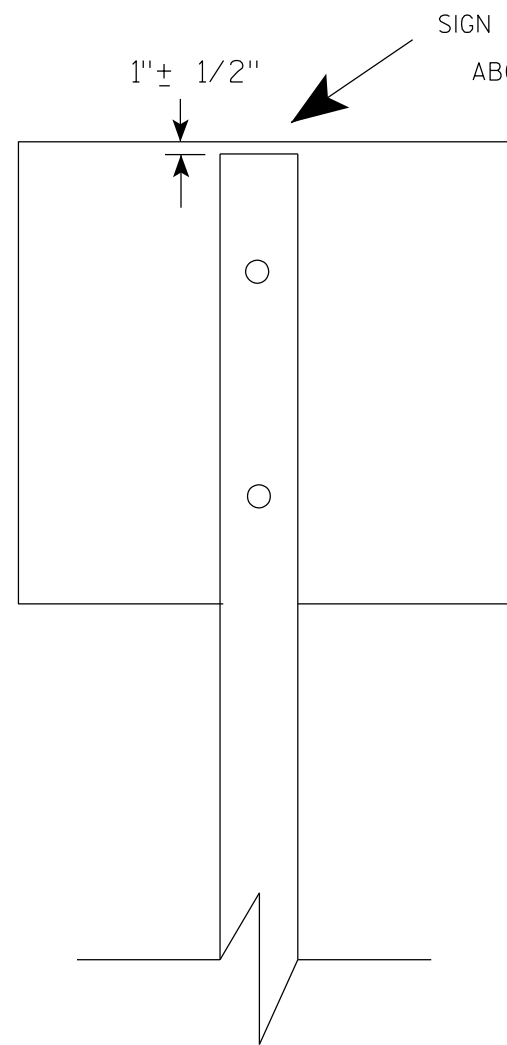
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15



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**

4" x 10" x 10 GA. — 
STEEL PLATE (CUT
AS SHOWN) WELDED
TO ALL FOUR CORNERS
OF TELESPAR TUBE

**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

2 1/2" TELESAR TUBE

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELESAR TUBE

4"

2 1/2"

10"

3 1/2"

19"

LENGTH SHOWN ON MISC. Q'TYS
 18" DIA SCHEDULE 40 PVC BOX-OUT
 TELESCOPE PIECES FLUSH AT TOP
 36"
 18"
 13"
 2 1/2"
 2 1/4" SQUARE X 36"
 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 2 1/2" GRAVEL OR DIRT
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
 2" STEEL TUBULAR SQUARE UPPER SECTION
 SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 SIGN

LENGTH SHOWN ON MISC. QTY'S

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

1"

TELESCOPE PIECES FLUSH AT TOP

18"

12"

36"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

A

B

C

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT

DIRECTION
OF TRAFFIC

SECTION A-A

The diagram shows a cross-section of a road with two travel lanes. The left lane is marked with a dashed center line and a solid left edge line. The right lane is marked with a solid center line and a solid right edge line. A north arrow points towards the top right. A label 'DIRECTION OF TRAFFIC' with an arrow points to the left, indicating traffic flow. Below the road, the text 'SECTION A-A' is written.

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

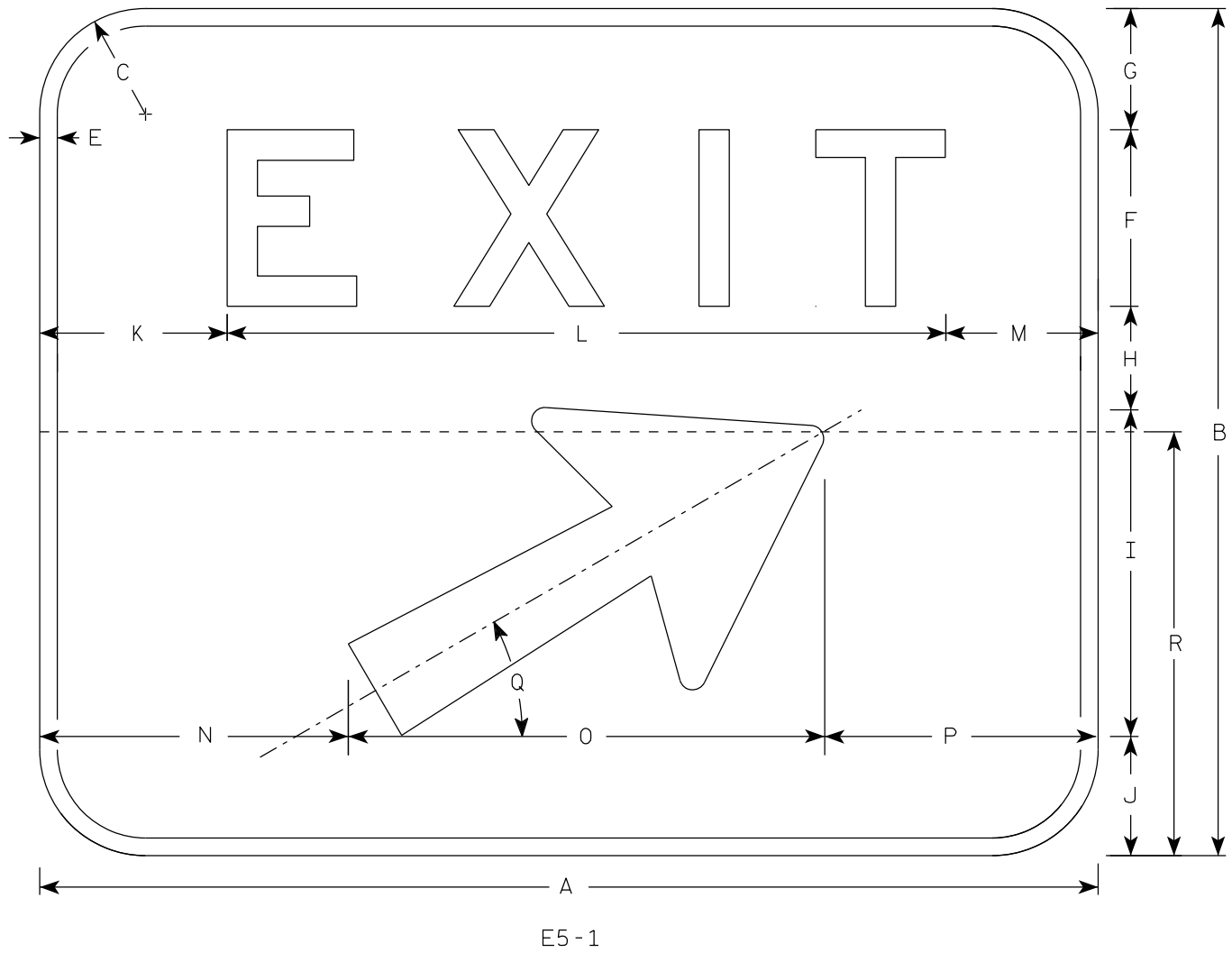
APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLAT 222 14-9.9

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

7



NOTES

- 1. Sign is Type II - Type H reflective
- 2. Color:
Background - Green
Message - White
- 3. Message Series - E
- 4. Sign shall be split into two separate pieces as shown on the detail by the dashed line (-----) for sizes 4 & 5.
- 5. Arrow is Type "A" from sign plate A1-1.
- 6. As per the Standard Spec's, this sign shall not have a vertical joint.
- 7. Size 3 E5-1 shall only be used in a Work Zone application with a Temporary Sign Support

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																											
3	48	48	6		1	10	6 7⁄8	5 7⁄8	18 1⁄2	6 3⁄4	8 1⁄2	31 1⁄8	8 3⁄8	11 1⁄2	27	9 1⁄2	30°	30									16.0
4	60	48	6		1	10	6 7⁄8	5 7⁄8	18 1⁄2	6 3⁄4	10 5⁄8	40 3⁄4	8 5⁄8	17 1⁄2	27	15 1⁄2	30°	30									20.0
5	72	60	6		1	12	9 3⁄4	10	18 1⁄2	9 3⁄4	13 1⁄4	48 1⁄2	10 1⁄4	23 1⁄2	27	21 1⁄2	30°	30									30.0

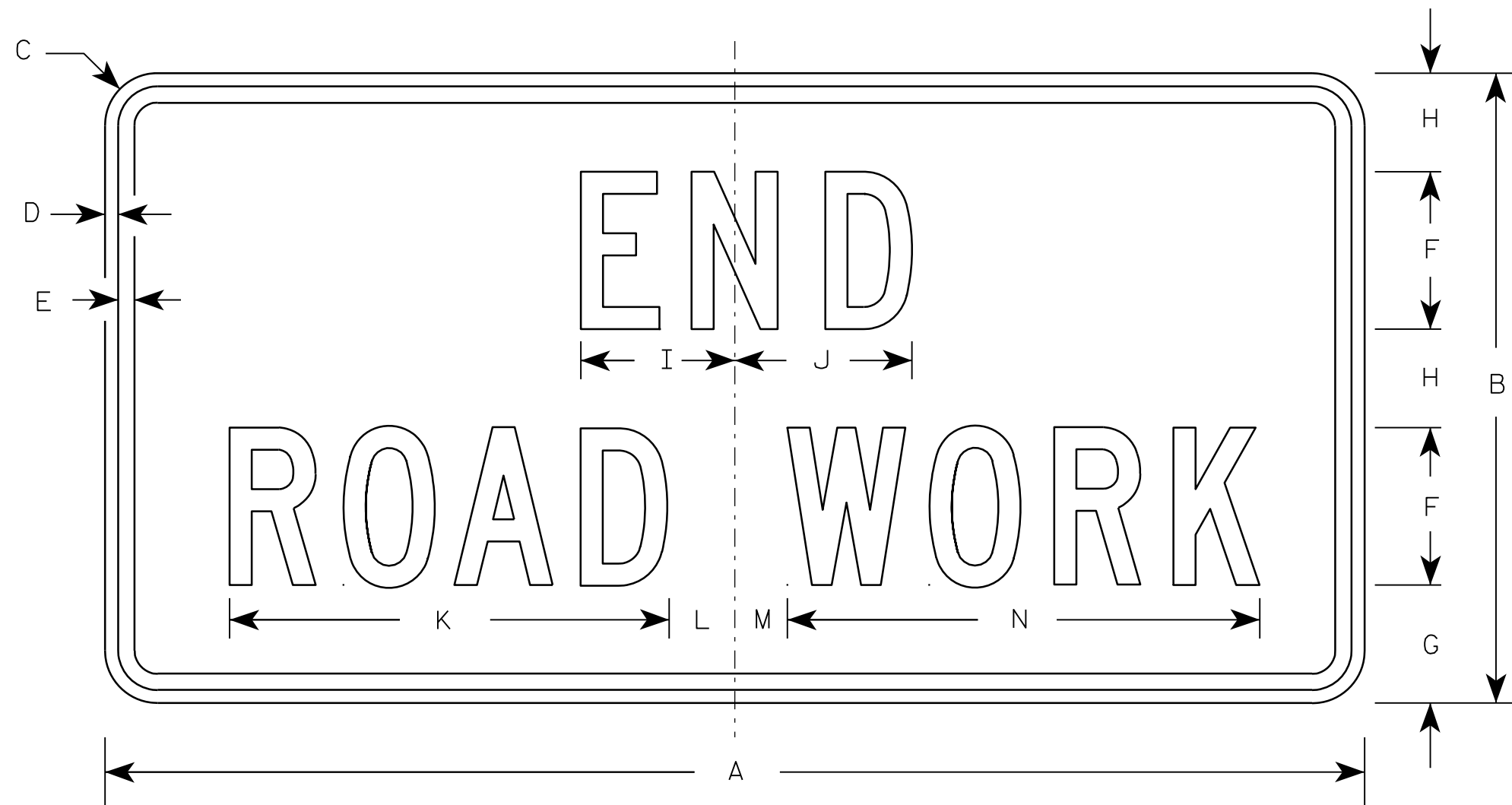
STANDARD SIGN
E5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2022 PLATE NO. E5-1.11

7



G20-2A

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

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.	Area m ²
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- 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.

7

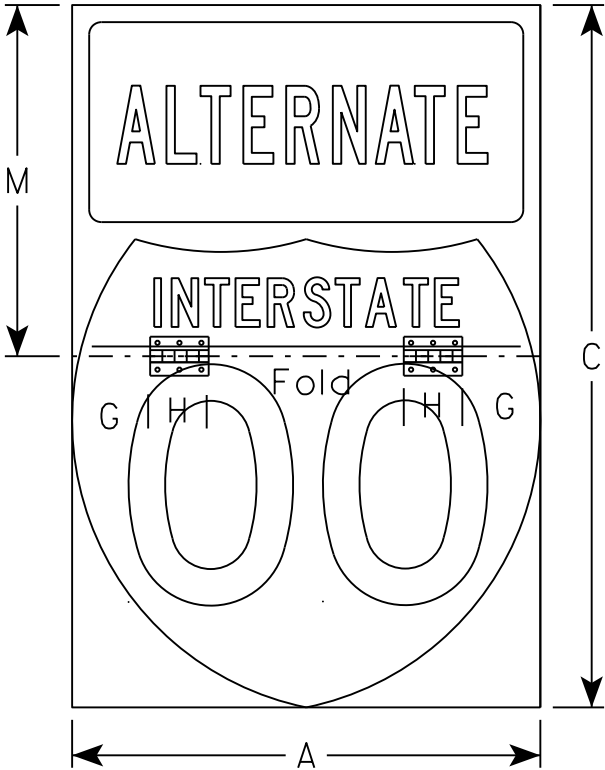
PROJECT NO:

HWY:

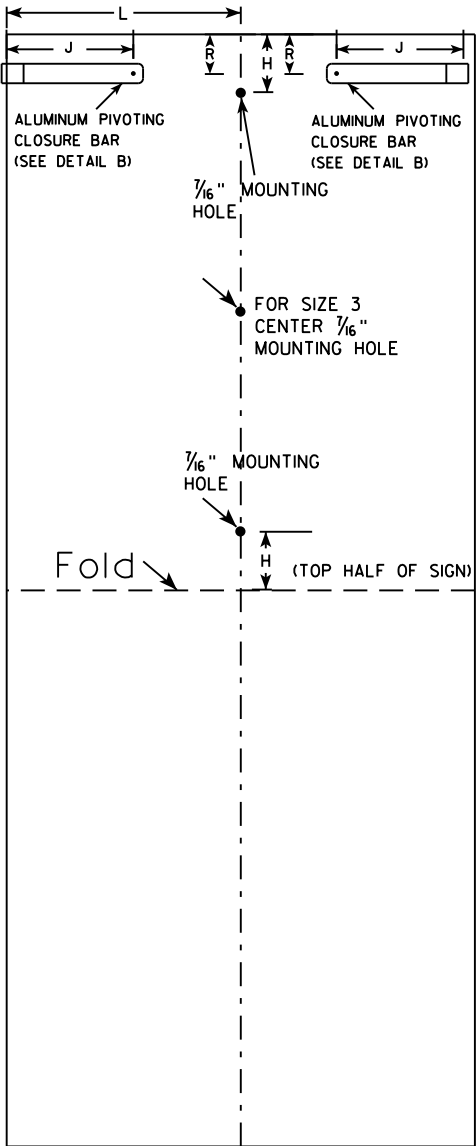
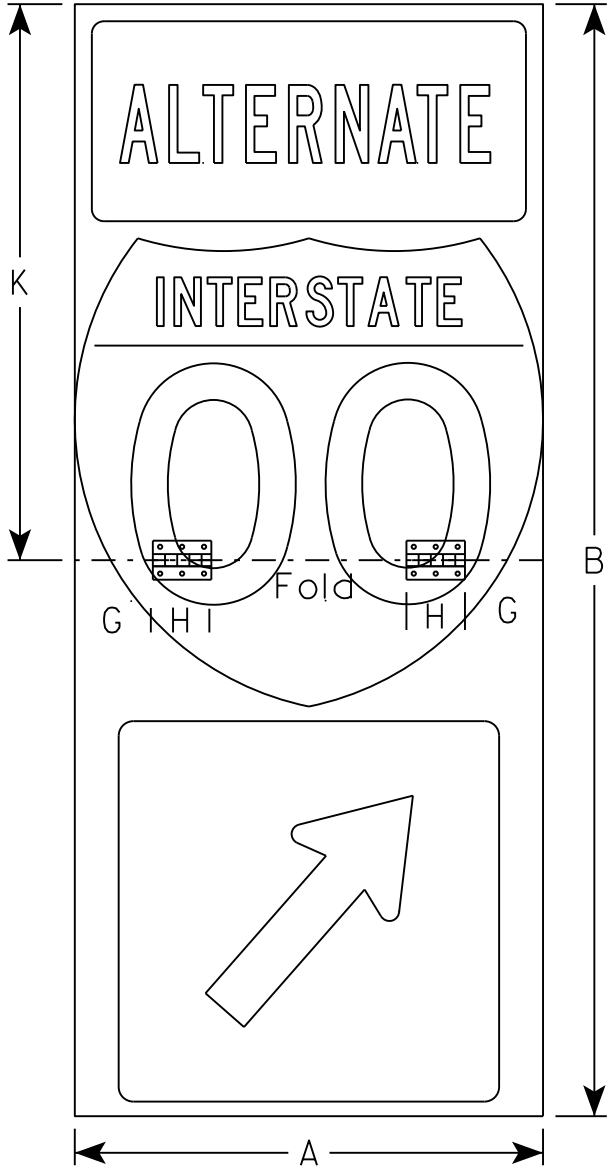
COUNTY:

SHEET NO: 224

E



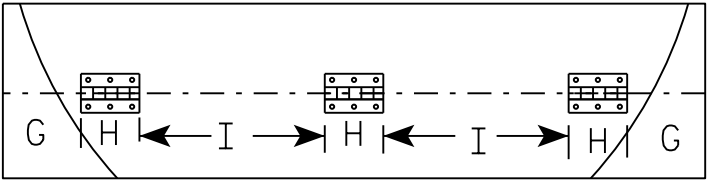
SIZE	Area sq. ft.
1	
2	6.0
3	13.5



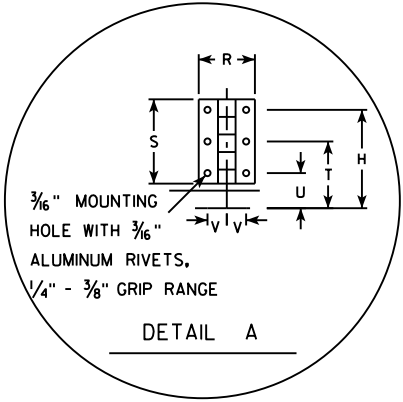
(BACK VIEW)

NOTES

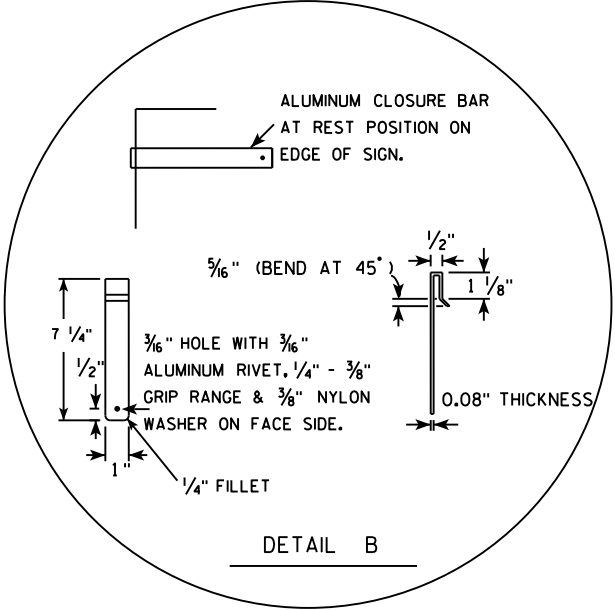
1. Sign is Type II - Type H Reflective
2. Color:
Background - *
Message - *
3. Message Series - C
4. Sign Base Material shall be aluminum and borders shall be rounded.
5. All hardware used on the folding sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.
6. Size 3 shall have 3 hinges see detail below
* See Appropriate Route Shield, Cardinals, Arrow, and A2-IS Sign Plates.



HINGE PLACEMENT FOR SIZE 3



DETAIL A



DETAIL B

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	57	36				4	3		6 1/2	28 1/2	12	18					2	3	2 5/8	1 1/4	11/16					9.5
3	36	84	54				4	3	9 1/2	6 1/2	40 1/2	18	27					2	3	2 5/8	1 1/4	11/16					21.0
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 225

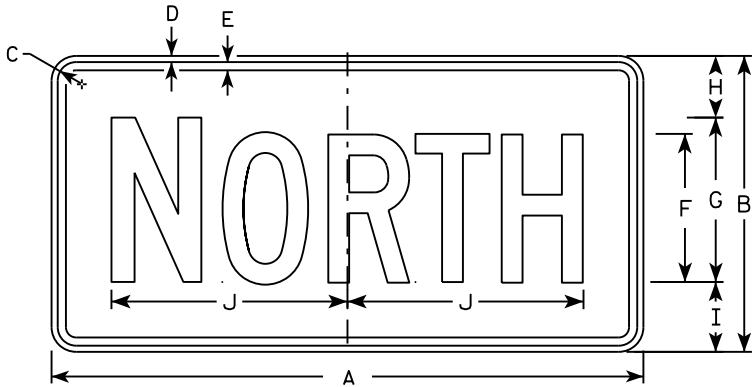
E

STANDARD SIGN
JV-F

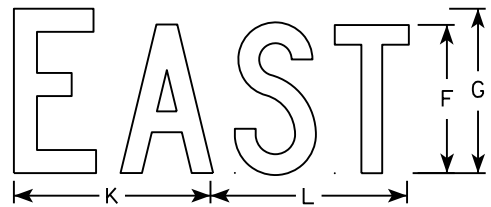
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

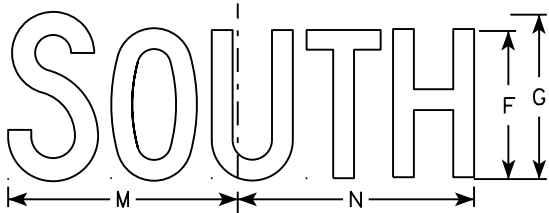
DATE 2/23/17 PLATE NO. JV-F.3



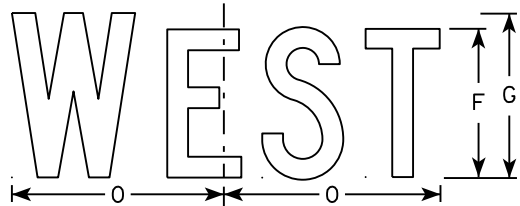
M3-1
MM3-1
MP3-1



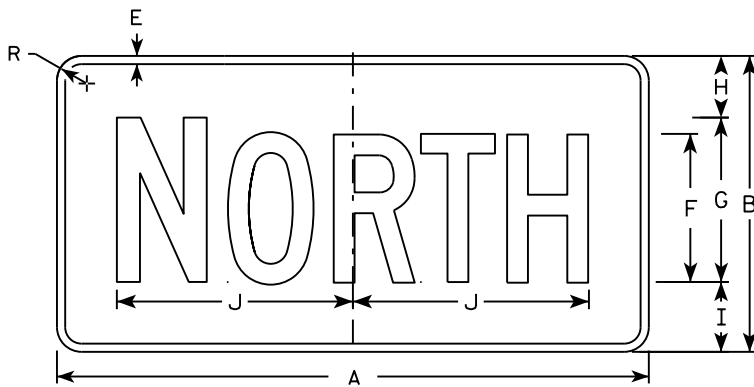
M3-2
MM3-2
MP3-2



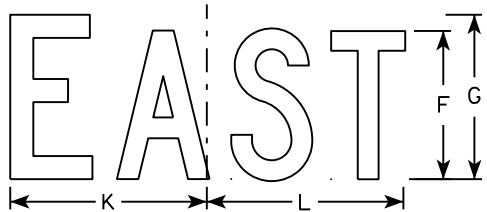
M3-3
MM3-3
MP3-3



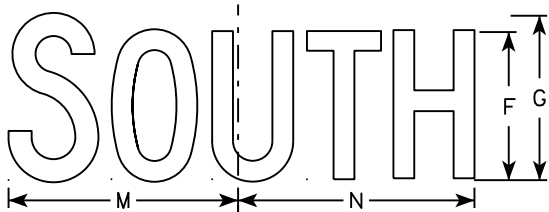
M3-4
MM3-4
MP3-4



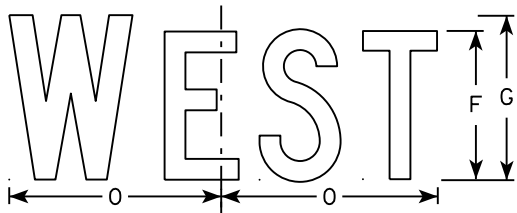
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
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.

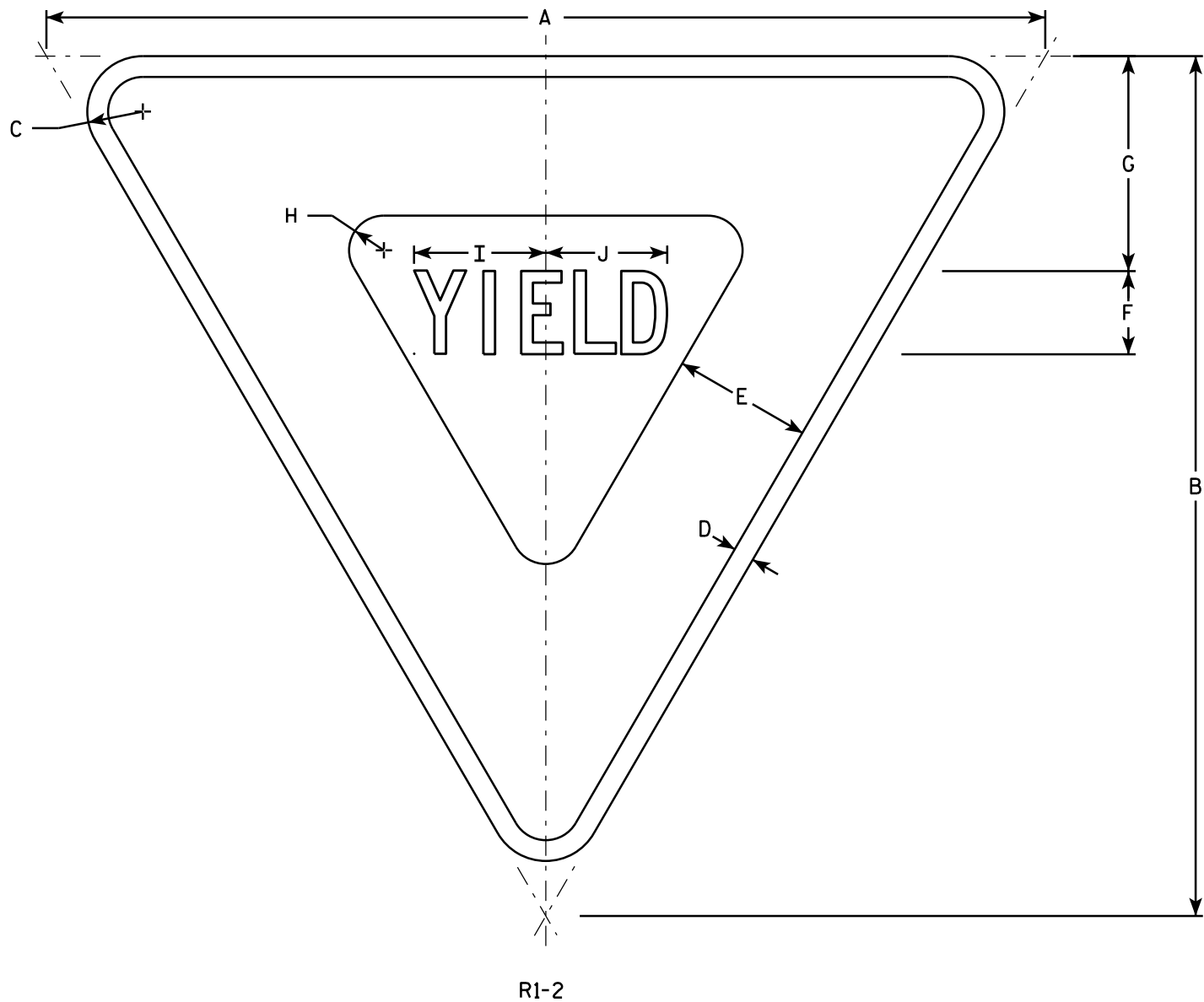
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. 226 M3-1.14



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - White
Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. The border strip and word message are reflectorized red.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

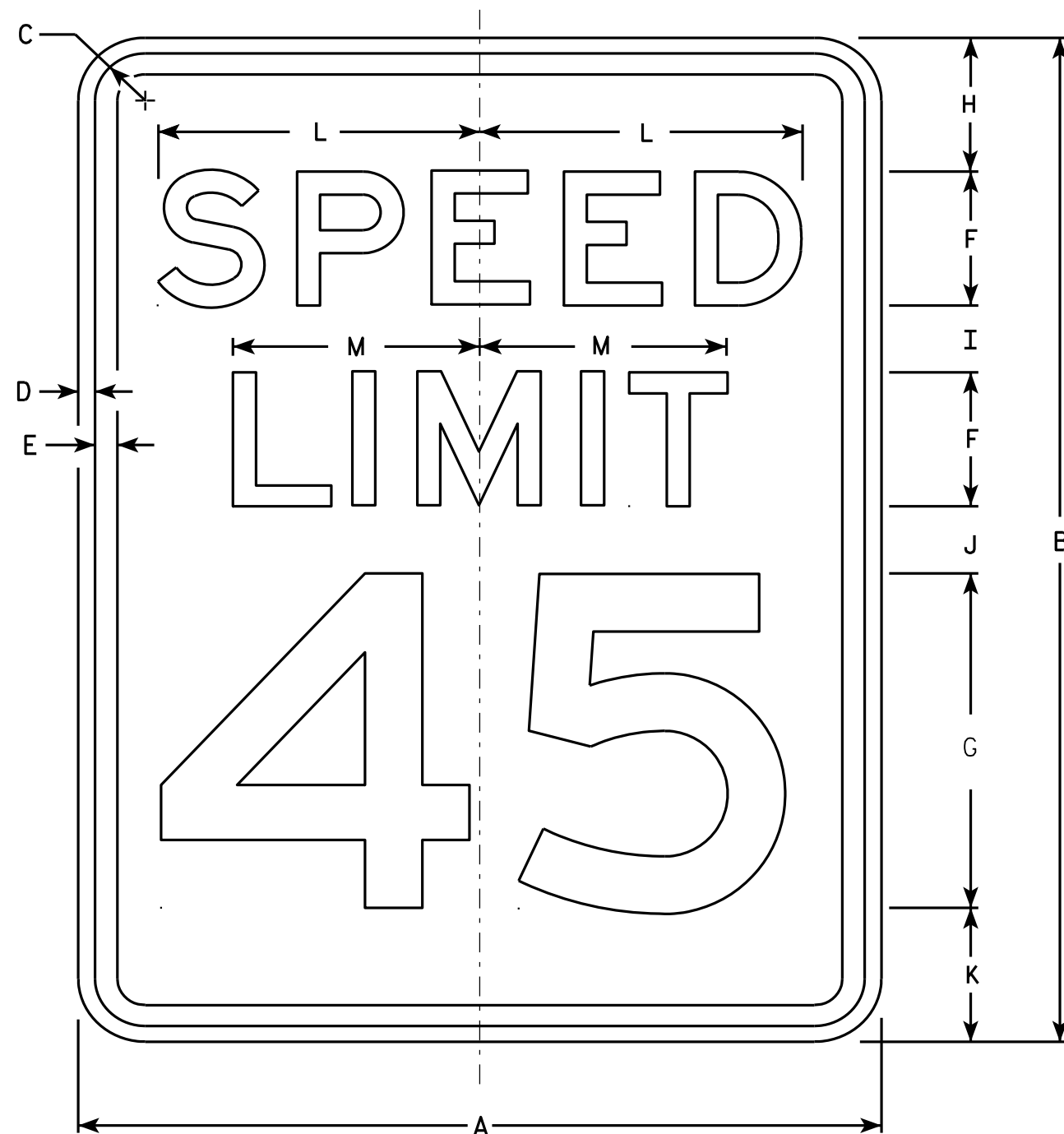
STANDARD SIGN

R1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE 227 P1-2.12



R2-1

NOTES

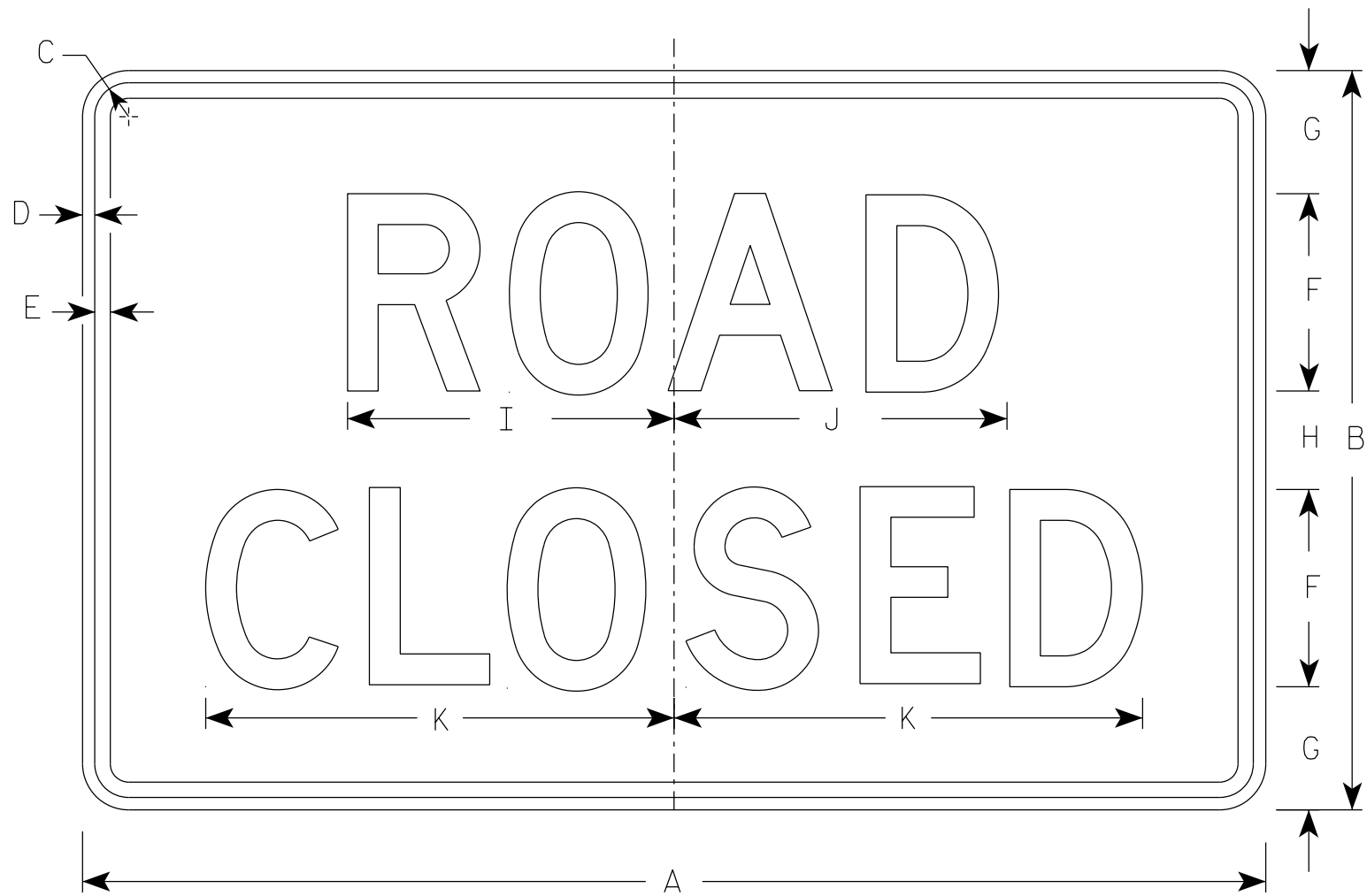
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

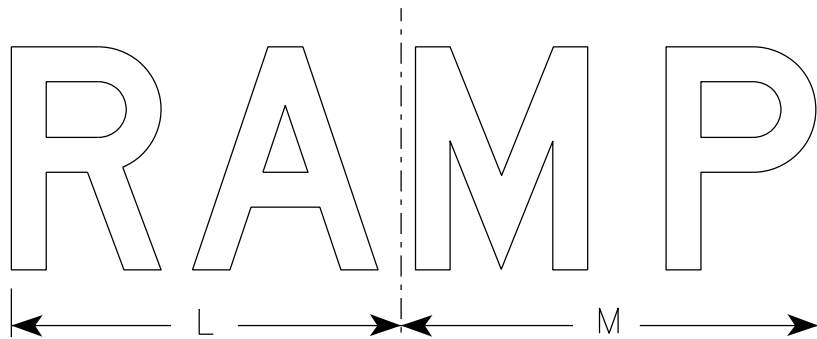
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: 228 E

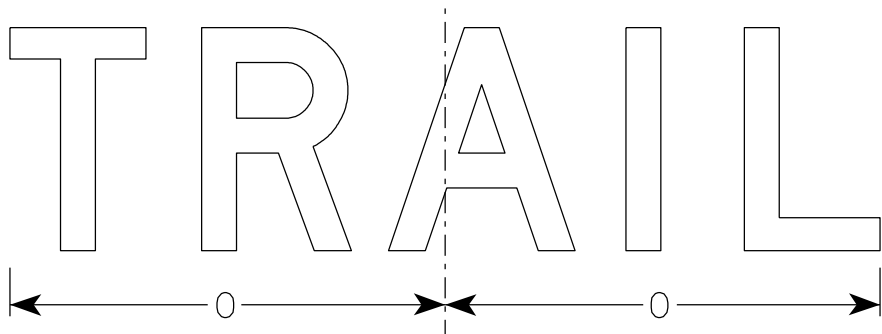


R11-2

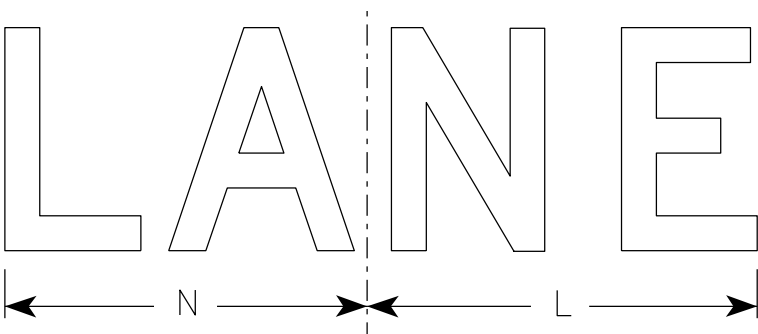
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify the message as required.



R11-2R



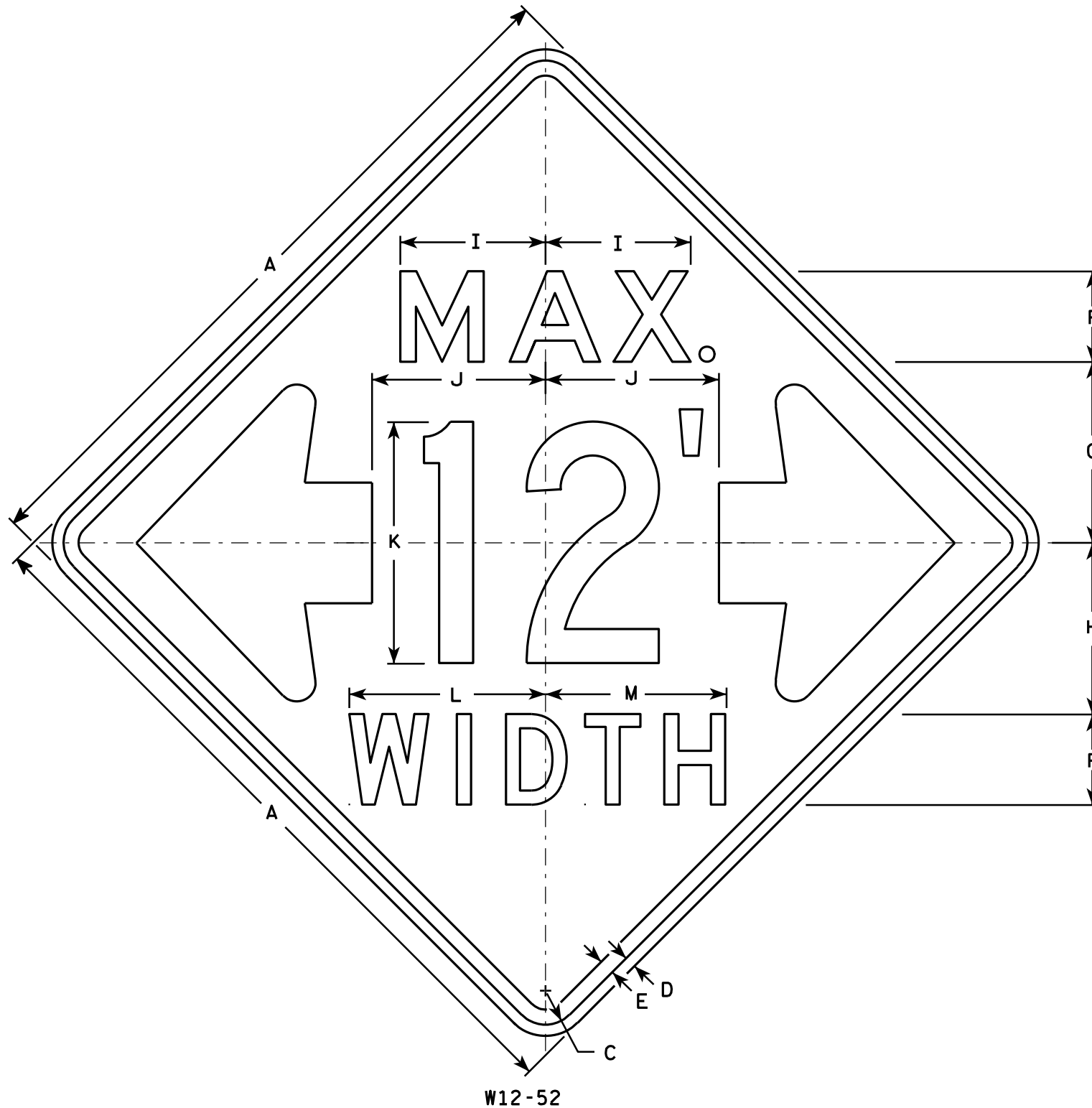
R11-2T



R11-2L

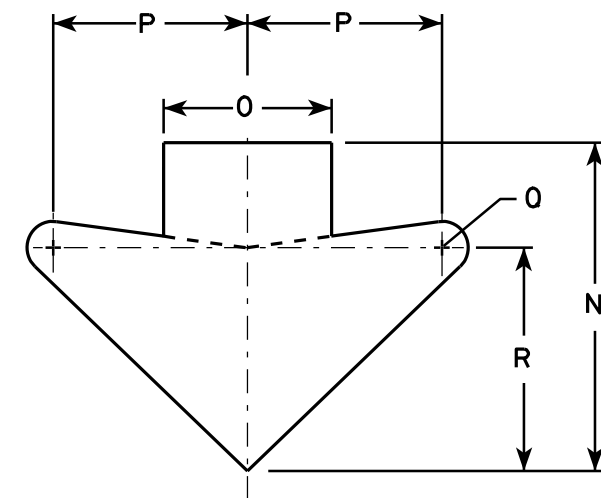
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
4	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0
5	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13	15 5⁄8												10.0

STANDARD SIGN R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/29/2021	PLATE NO. R11-2.11



NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 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.
- The top line is series E, the numerals are series C, and the bottom line is series D.
- 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		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

STANDARD SIGN W12-52

WISCONSIN DEPT OF TRANSPORTATION

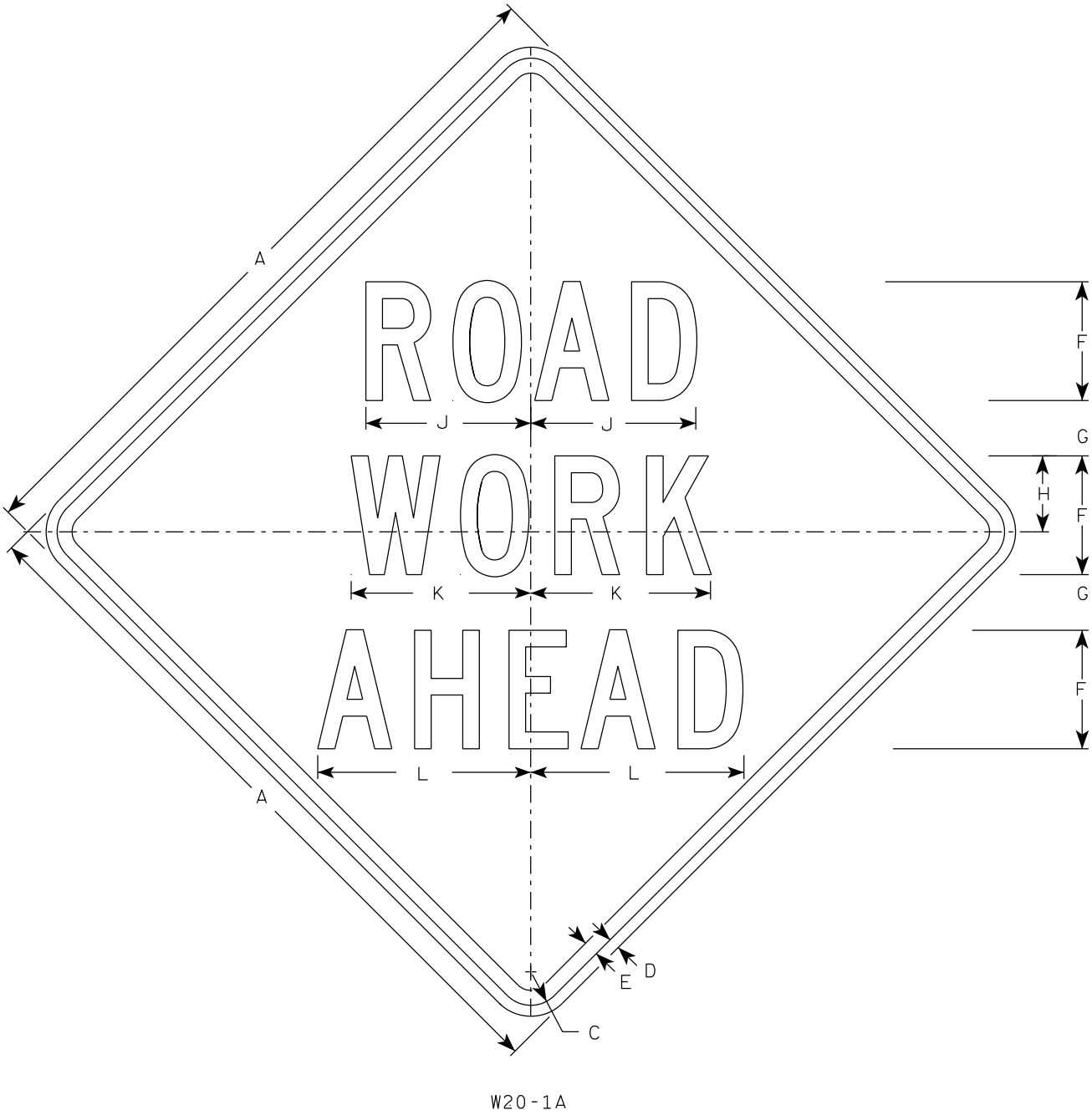
APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

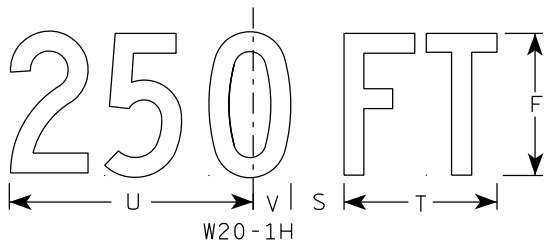
PROJECT NO: HWY: COUNTY: SHEET NO: 230 E

NOTES

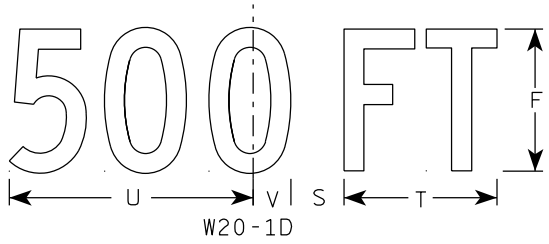
1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1A



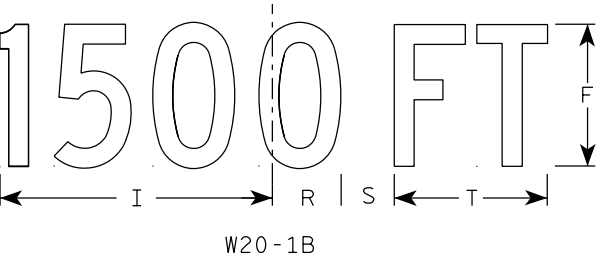
W20-1H



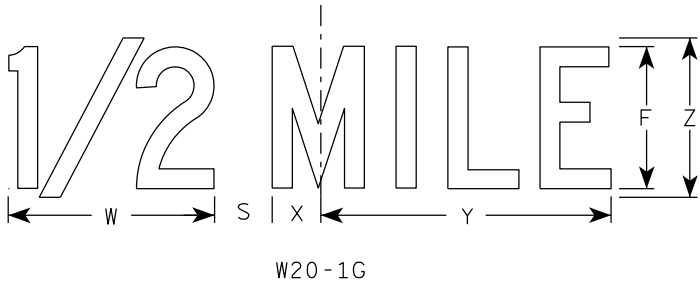
W20-1D



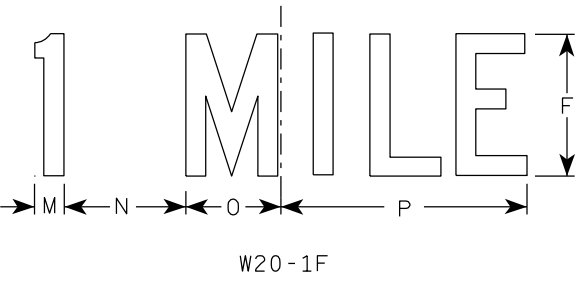
W20-1C



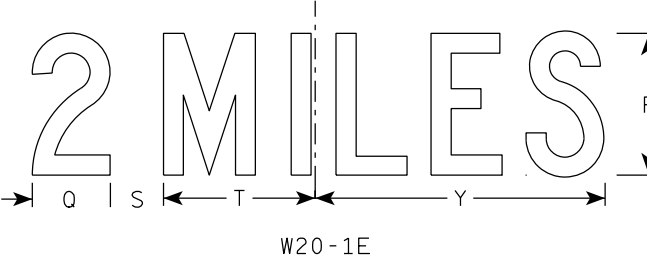
W20-1B



W20-1G



W20-1F



W20-1E

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	A _{req} sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

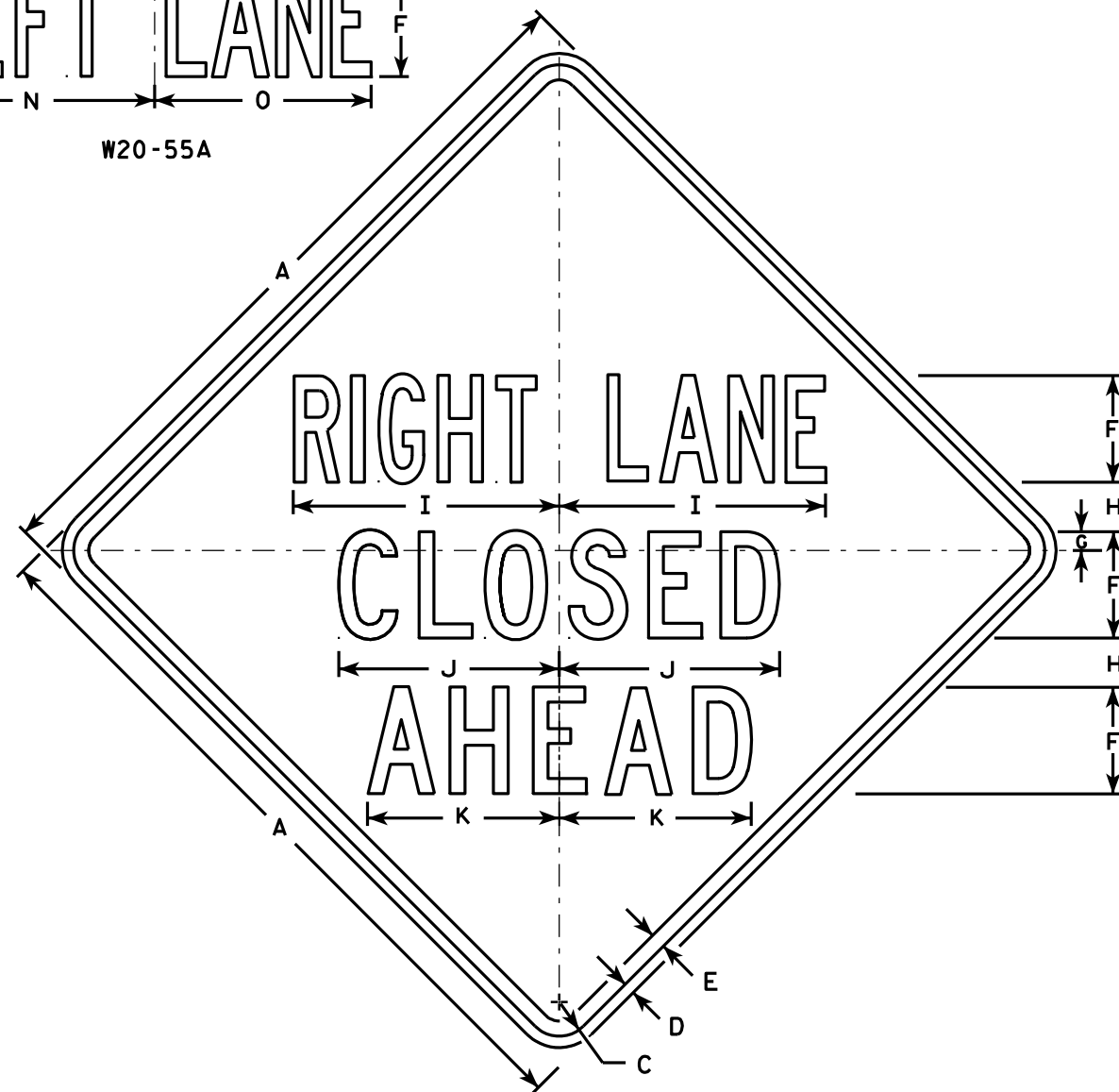
DATE 3/25/2020 PLATE NO. W20-1.11

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. "----- LANE" is Series B.
All other copy is 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	36	6	1 5/8	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

PROJECT NO:

HWY:

COUNTY:

STANDARD SIGN
W20-5A, B, C, D, F & G

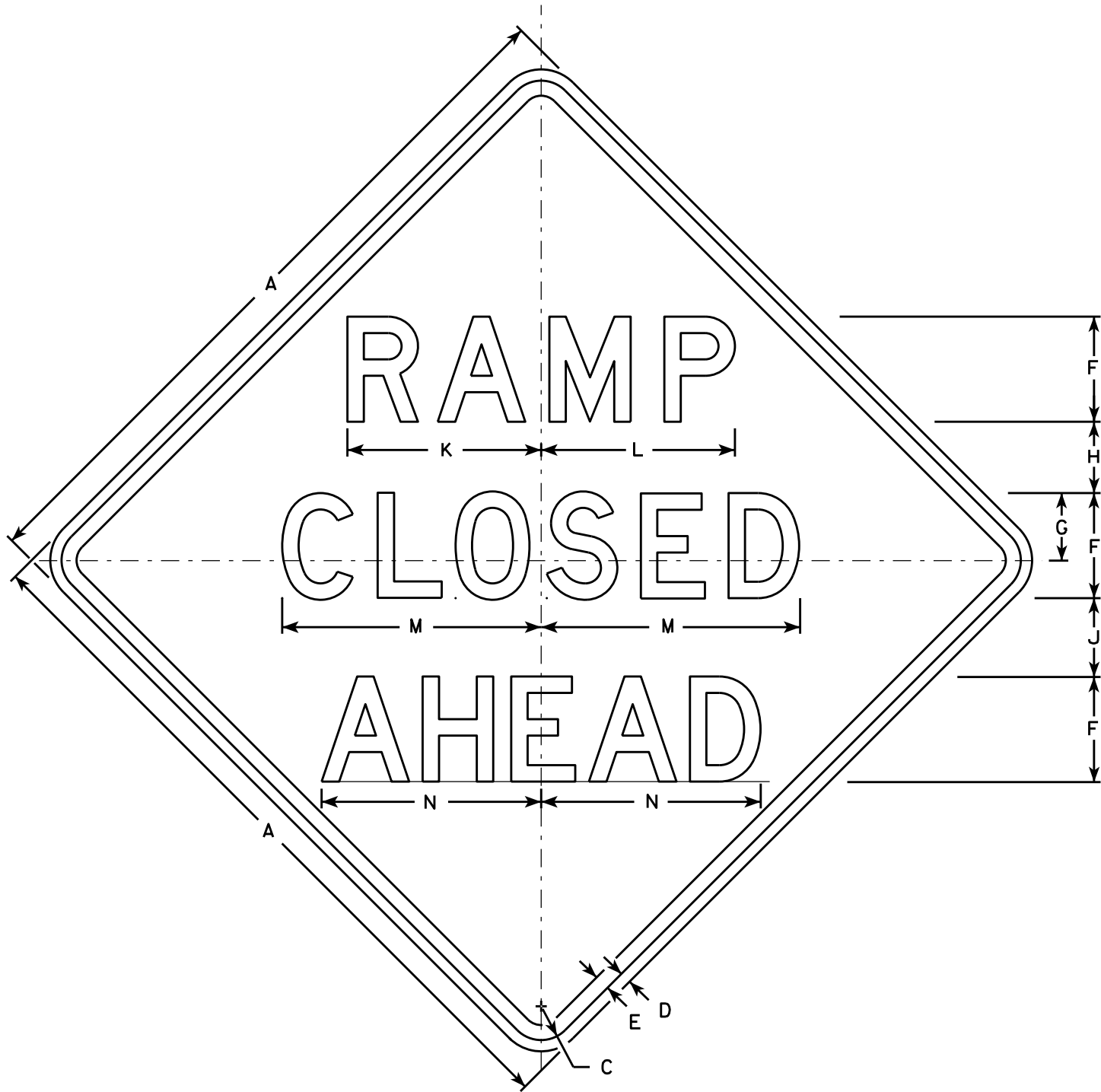
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

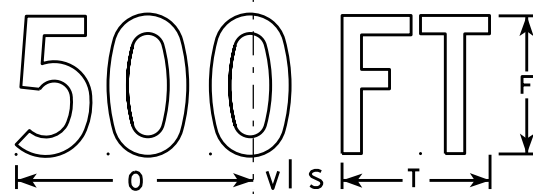
DATE 3/18/11 PLATE NO. W20-5.11

SHEET NO: 232

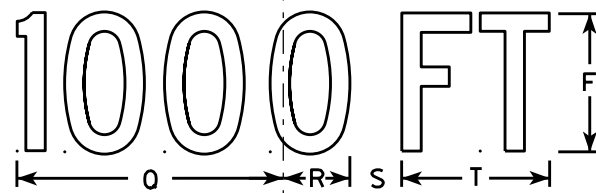
E



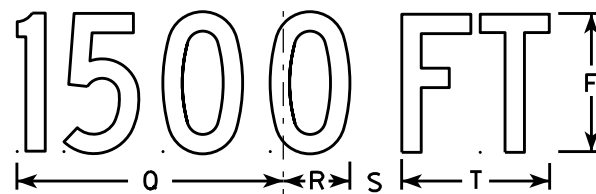
W20-53A



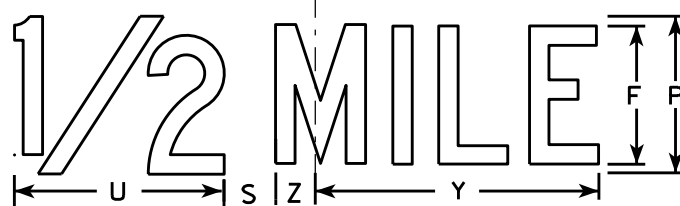
W20-53D



W20-53C



W20-53B



W20-53G



W20-53F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	9 1/4	9 1/4	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	12 7/8	12 7/8	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-53A,B,C,D,F,G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/27/15 PLATE NO. W20-53.1

233

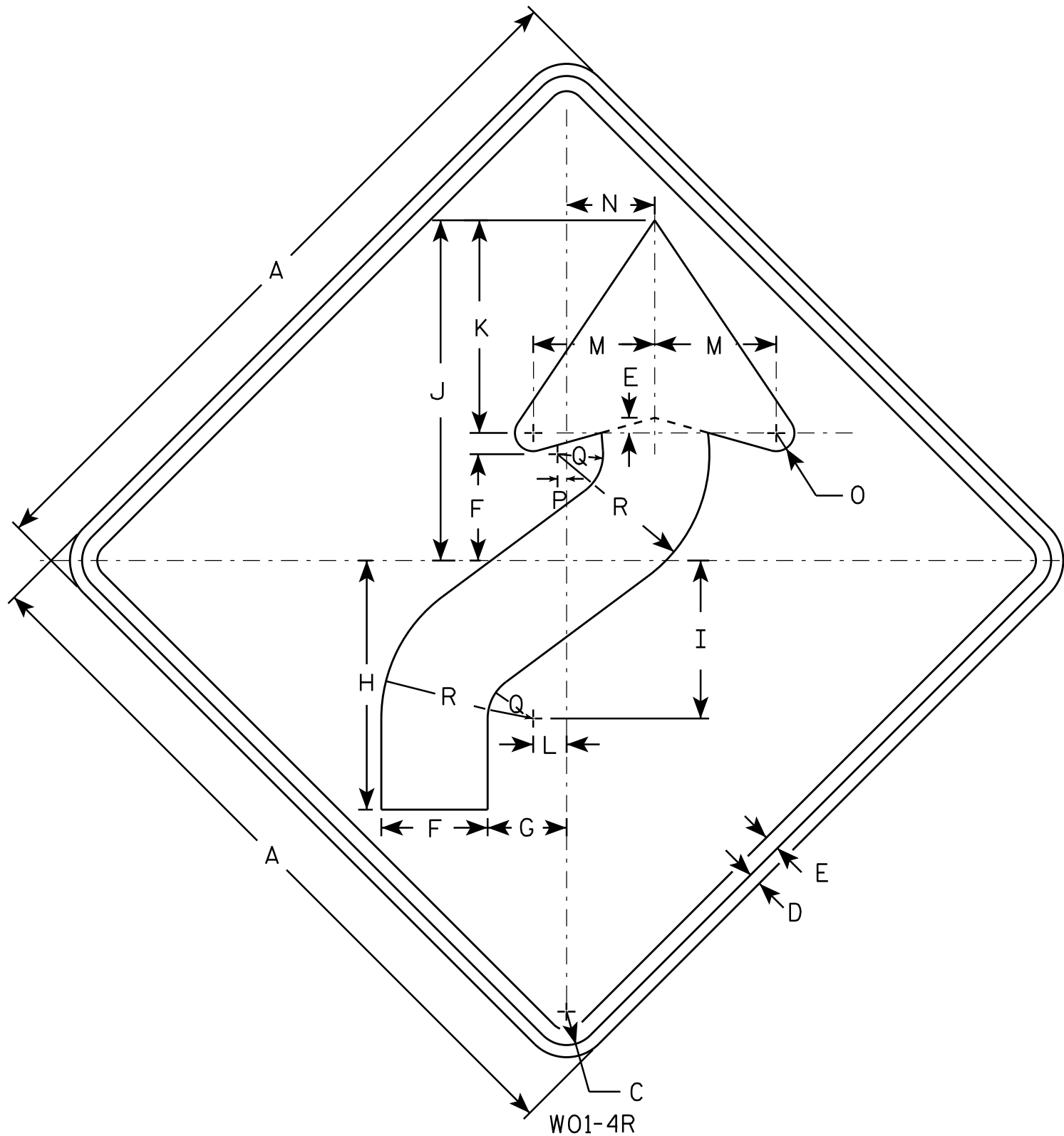
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. 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		1 5/8	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		2 1/4	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		2 1/4	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		2 1/4	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		2 1/4	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		2 1/4	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

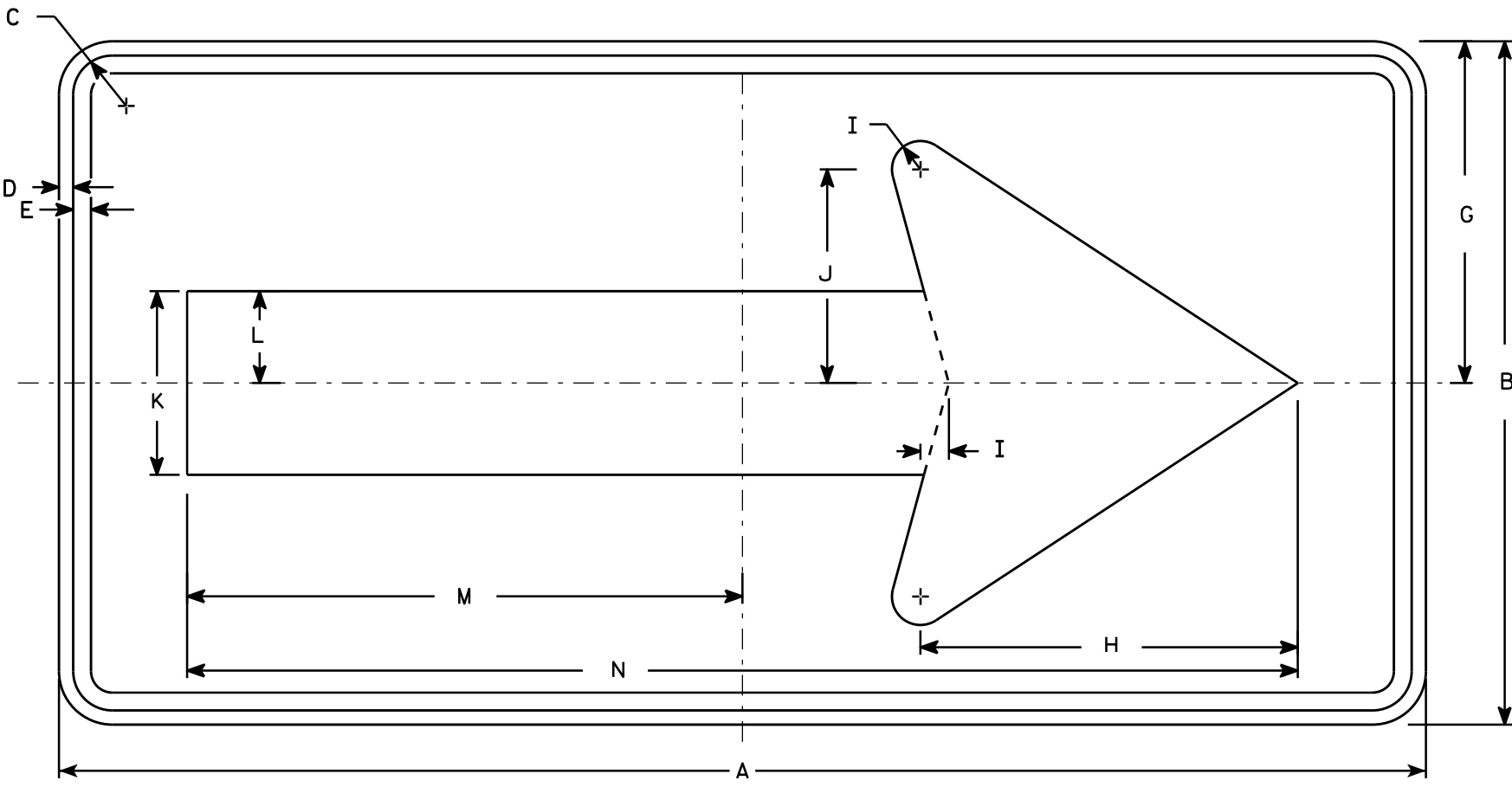
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-4.1
234

PROJECT NO: HWY: COUNTY: SHEET NO: E

NOTES

1. Sign is Type II - Type F Reflective - reference
WIS DOT Standard Specification for HIGHWAY
and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. 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.



W01-6

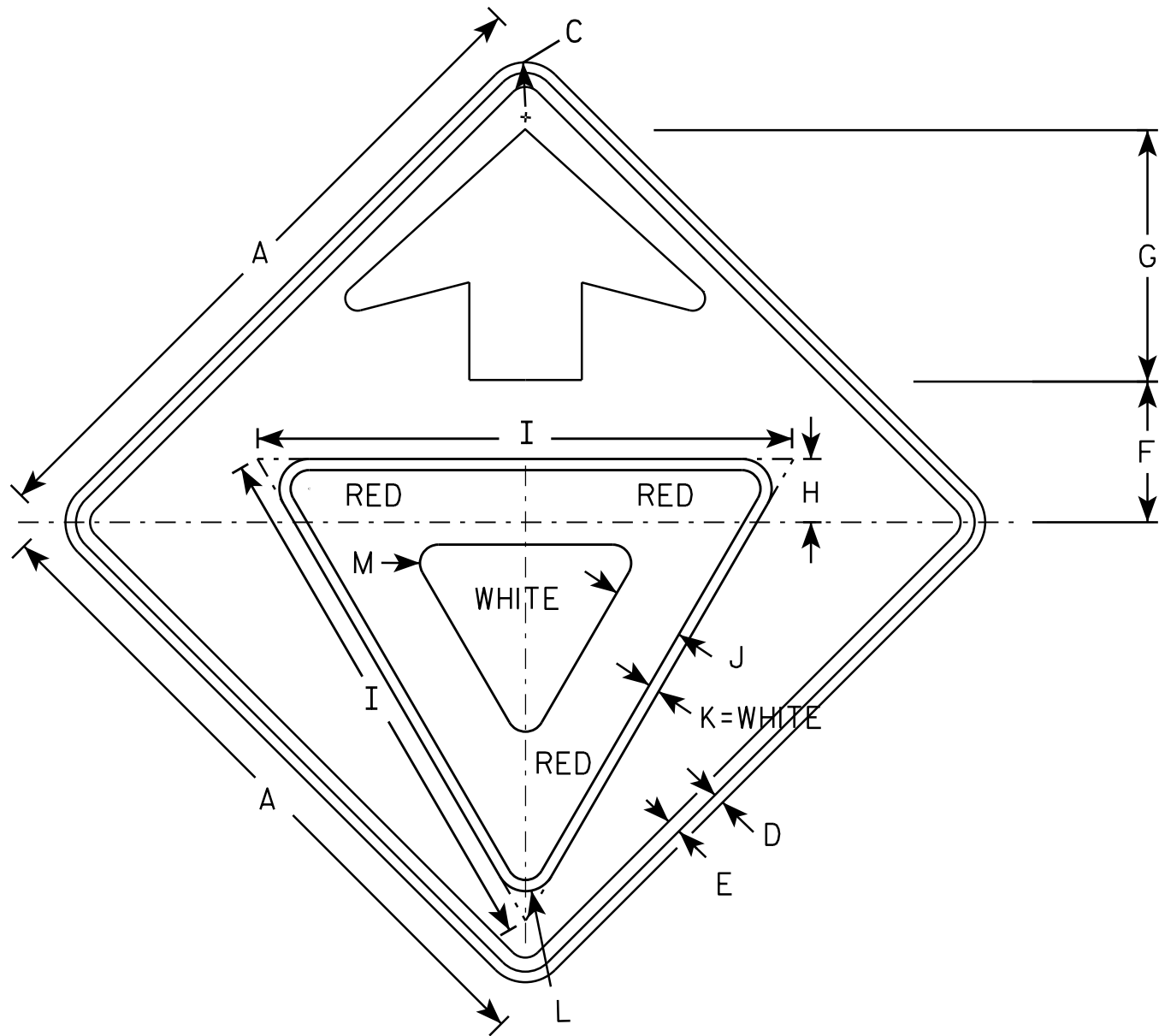
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

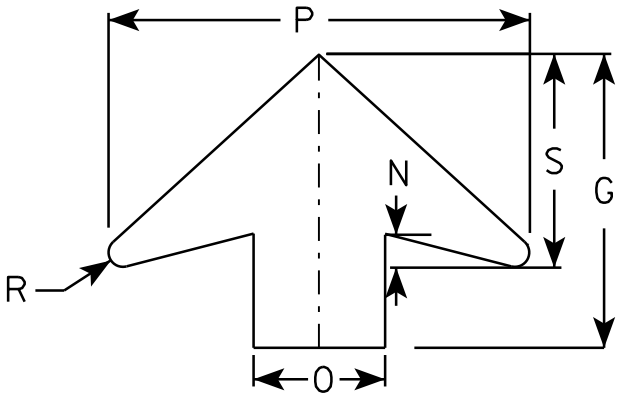
DATE 11/18/13 PLATE NO. 235 W01-6.1



W03-2

NOTES

- 1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - ORANGE
 - Arrow & Border - BLACK
 - Yield 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		1 5/8	5/8	3/4	7 1/2	13 1/2	3 3/8	28	3 3/4	5/8	1 1/2	1	1 5/8	6	19 1/4		5/8	9 3/4								9.0
2S	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0
2M	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0
3	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	38	5	3/4	2 1/8	1 3/8	2	8	25 5/8		7/8	13								16.0

PROJECT NO:

SHEET NO:

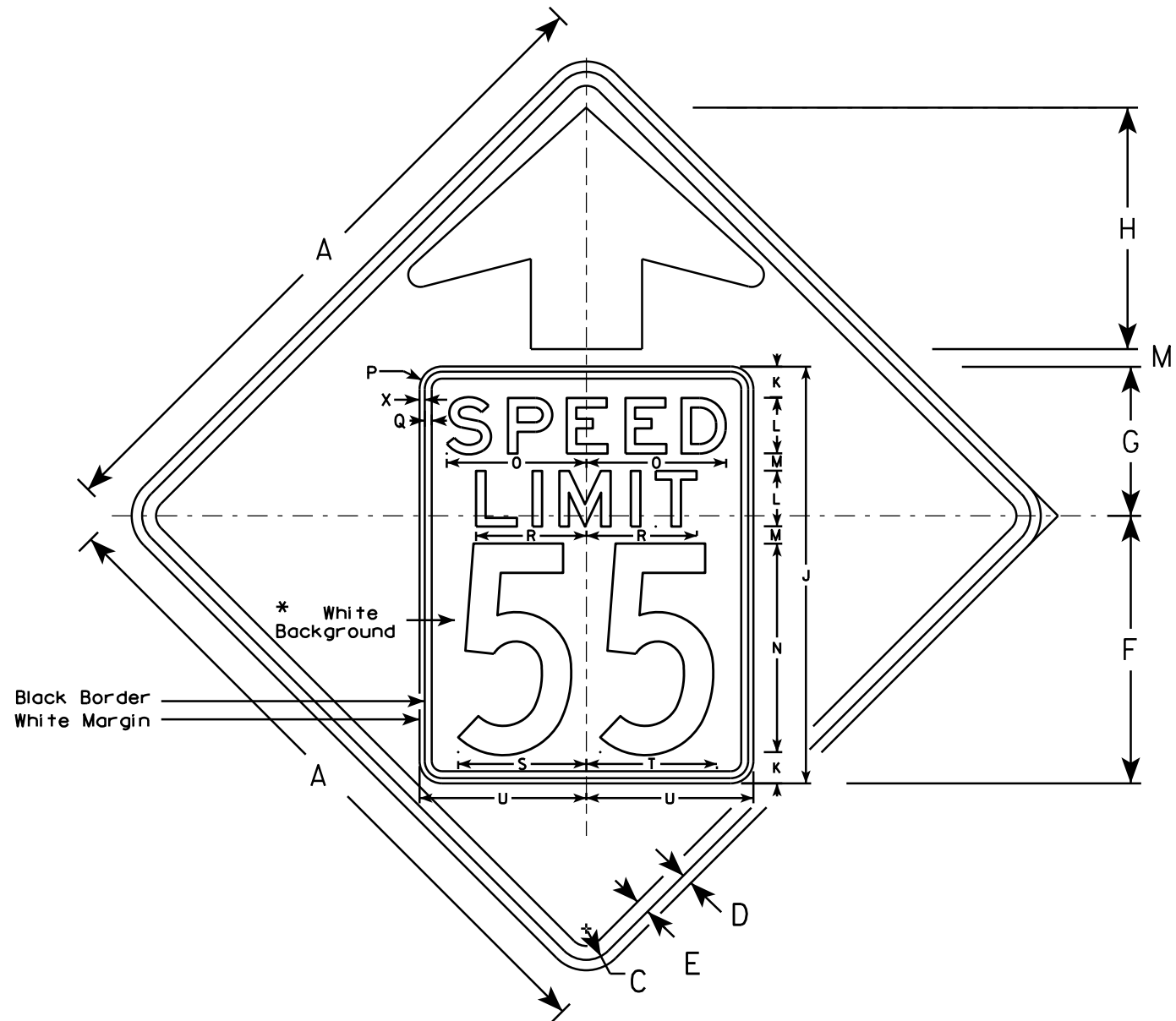
E

STANDARD SIGN
W03-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE 236 W03-2.1

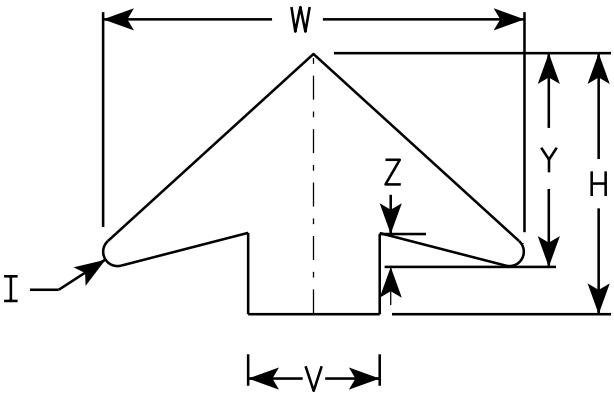


W03-5

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color: *
Background - ORANGE*
Message - BLACK
- 3. Message Series - C for numbers Series E for wording
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



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		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

PROJECT NO:

SHEET NO:

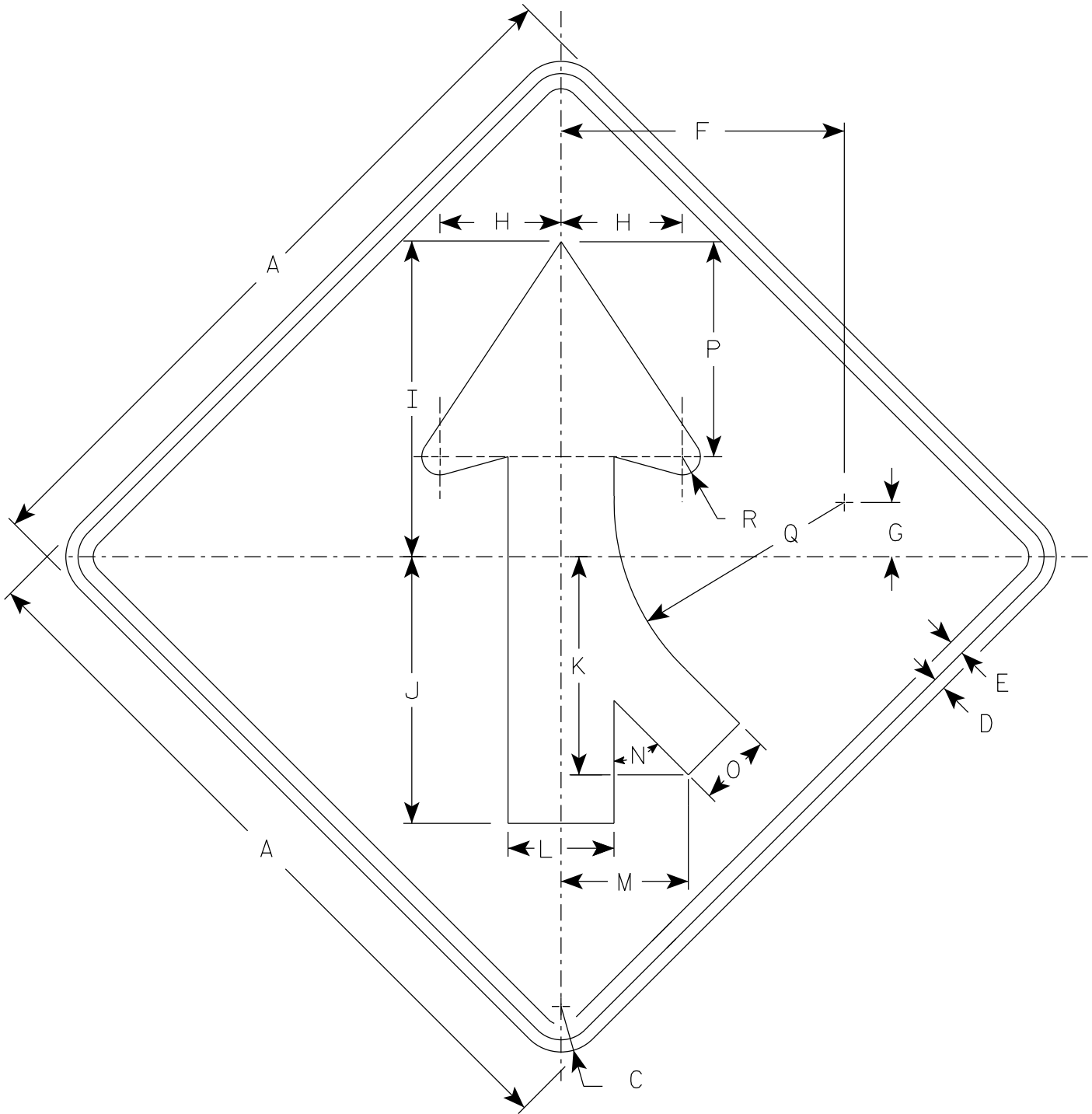
E

STANDARD SIGN
W03-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE 237 W03-5.1



W04-1R

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.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14	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		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
2M	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
3	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
4	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

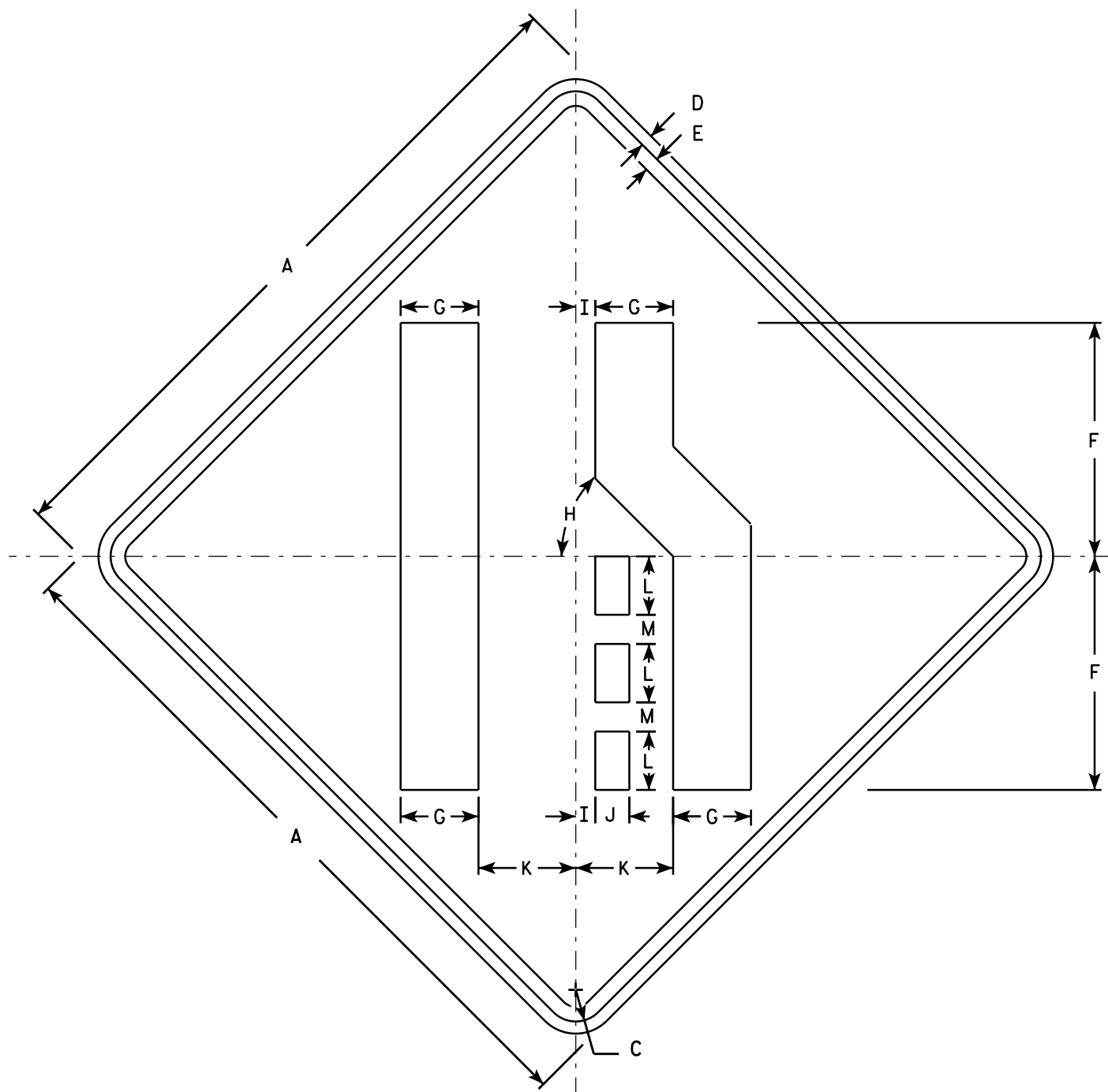
STANDARD SIGN

W04-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/31/2021 PLATE NO. W04-1.2



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. 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. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

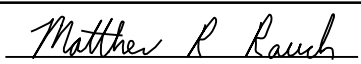
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

STANDARD SIGN

W04-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

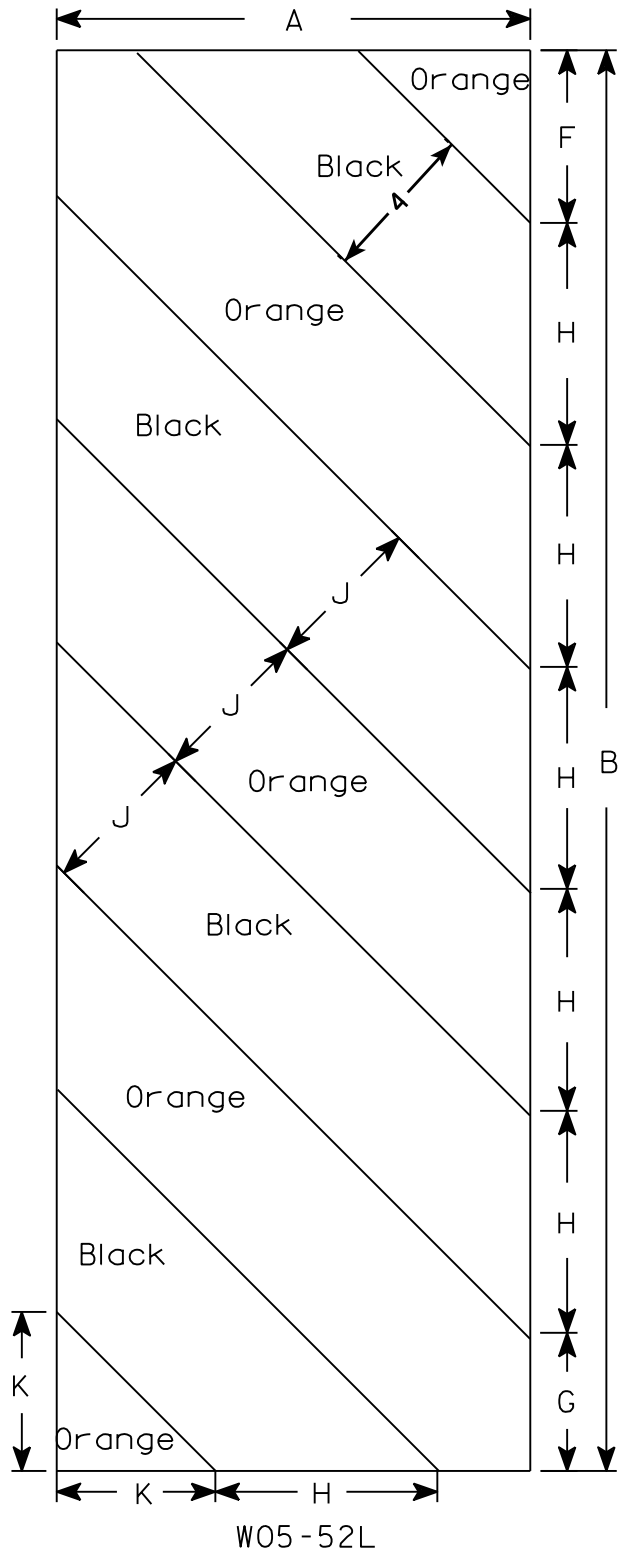


For State Traffic Engineer

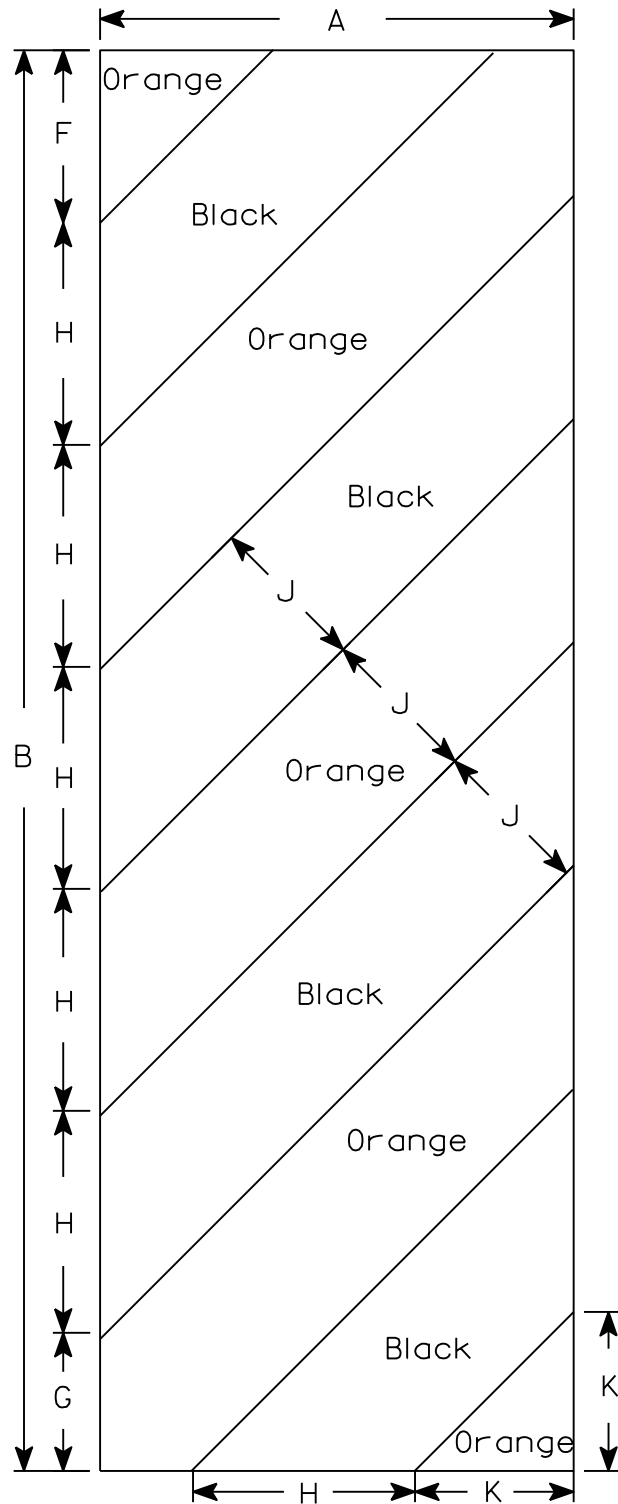
DATE 11/20/13

PLATE 239

W04-2.1



W05-52L



W05-52R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - 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. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

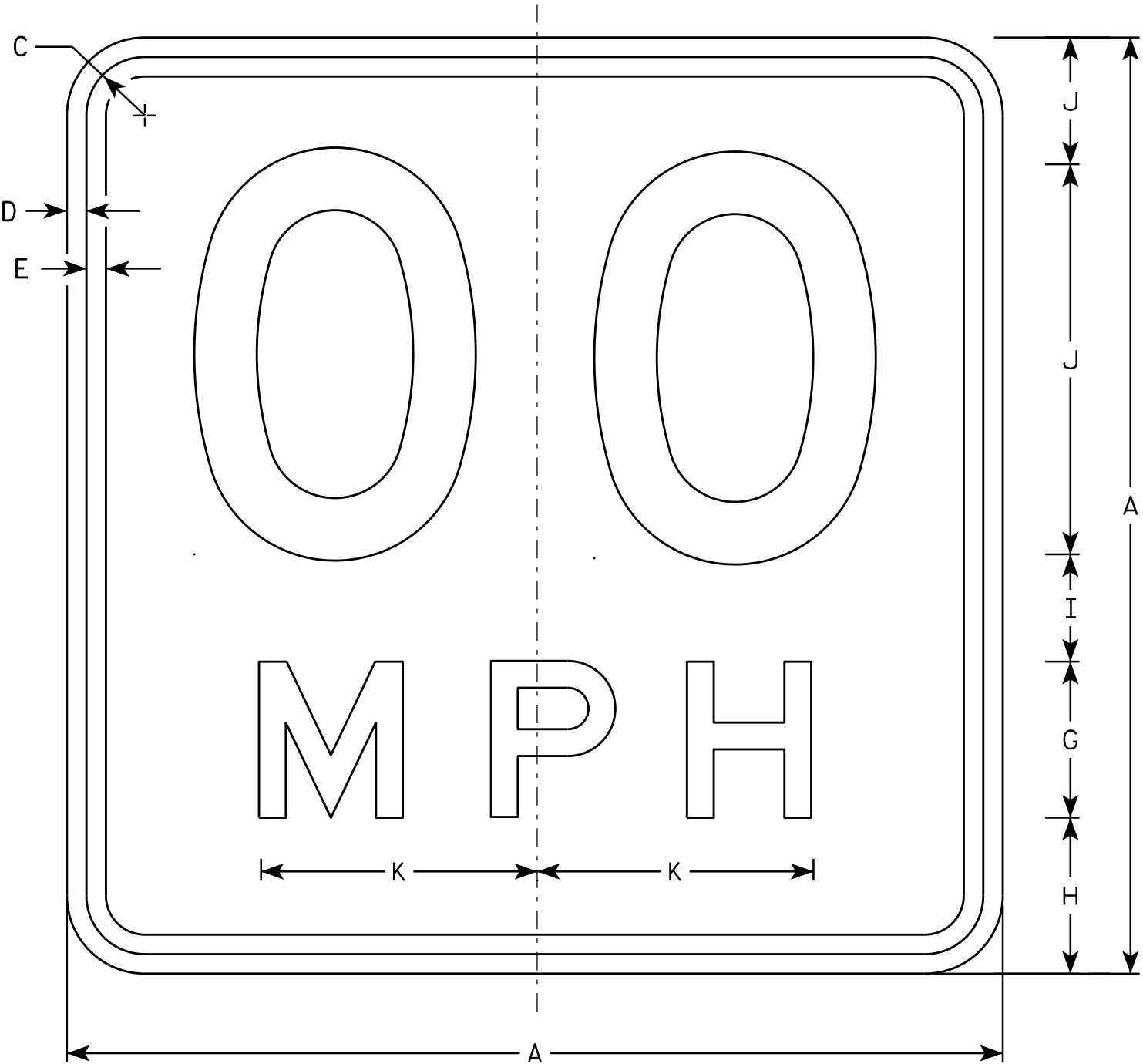
STANDARD SIGN

W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE 240 W05-52.1



W013-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
Line 2 is Series E

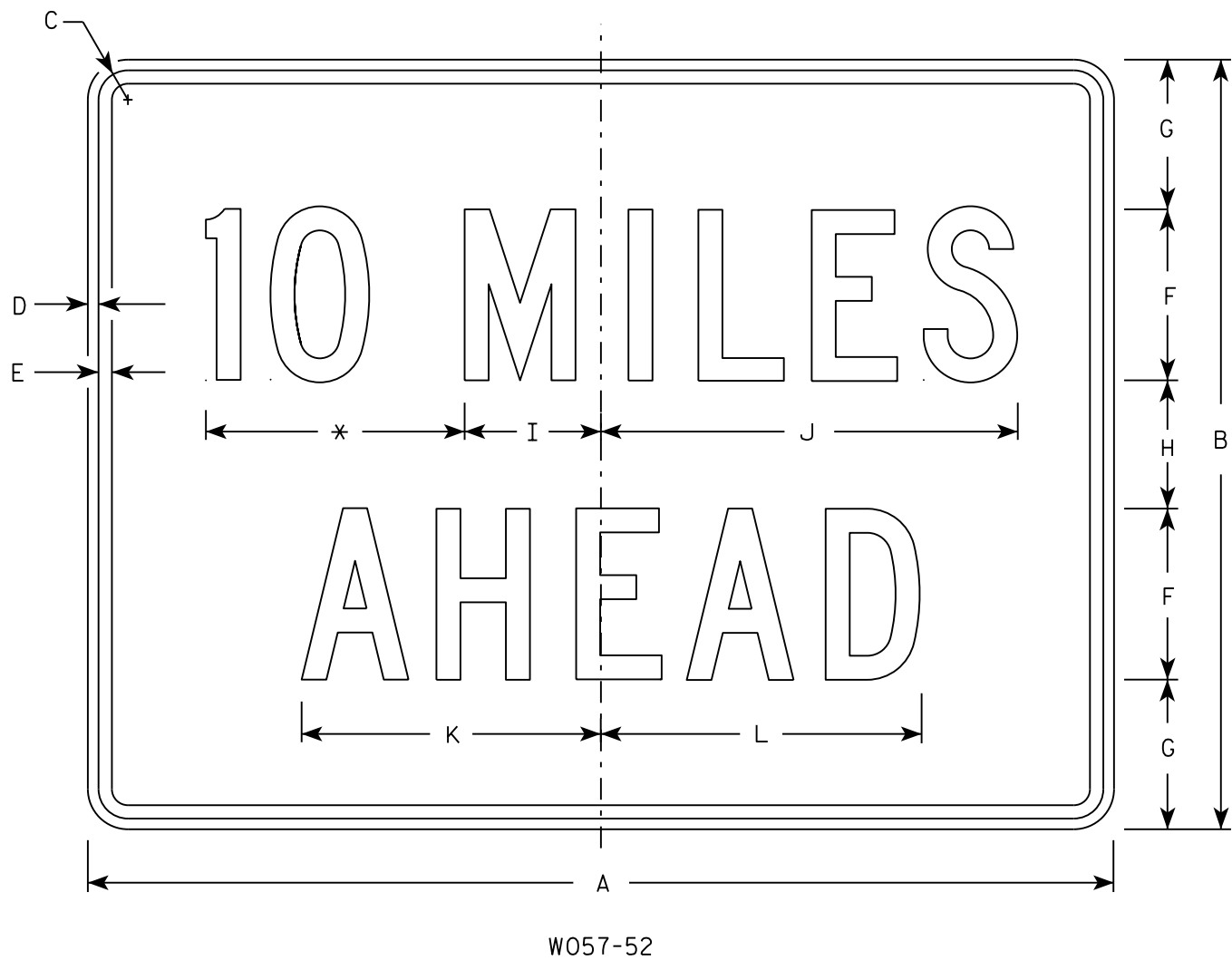
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN
W013-1

WISCONSIN DEPT OF TRANSPORTATION

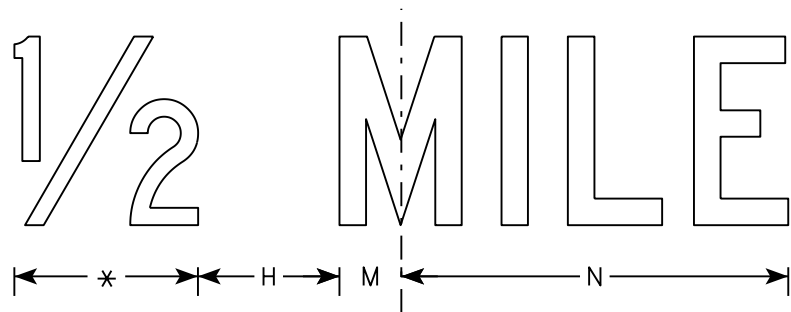
APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 11/21/13 PLATE 241 W013-1.1



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.



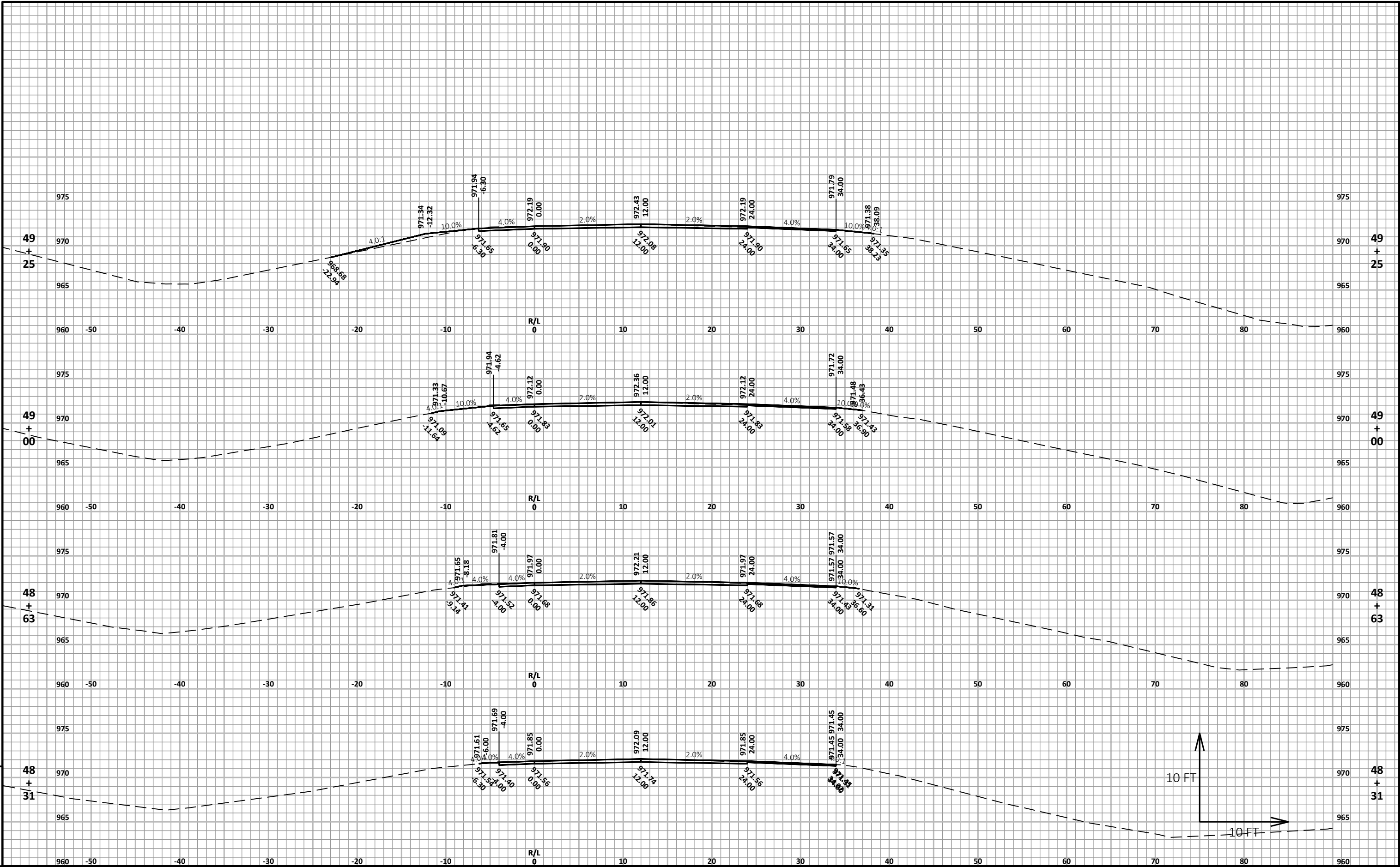
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	1 3/8	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	1 3/8	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	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

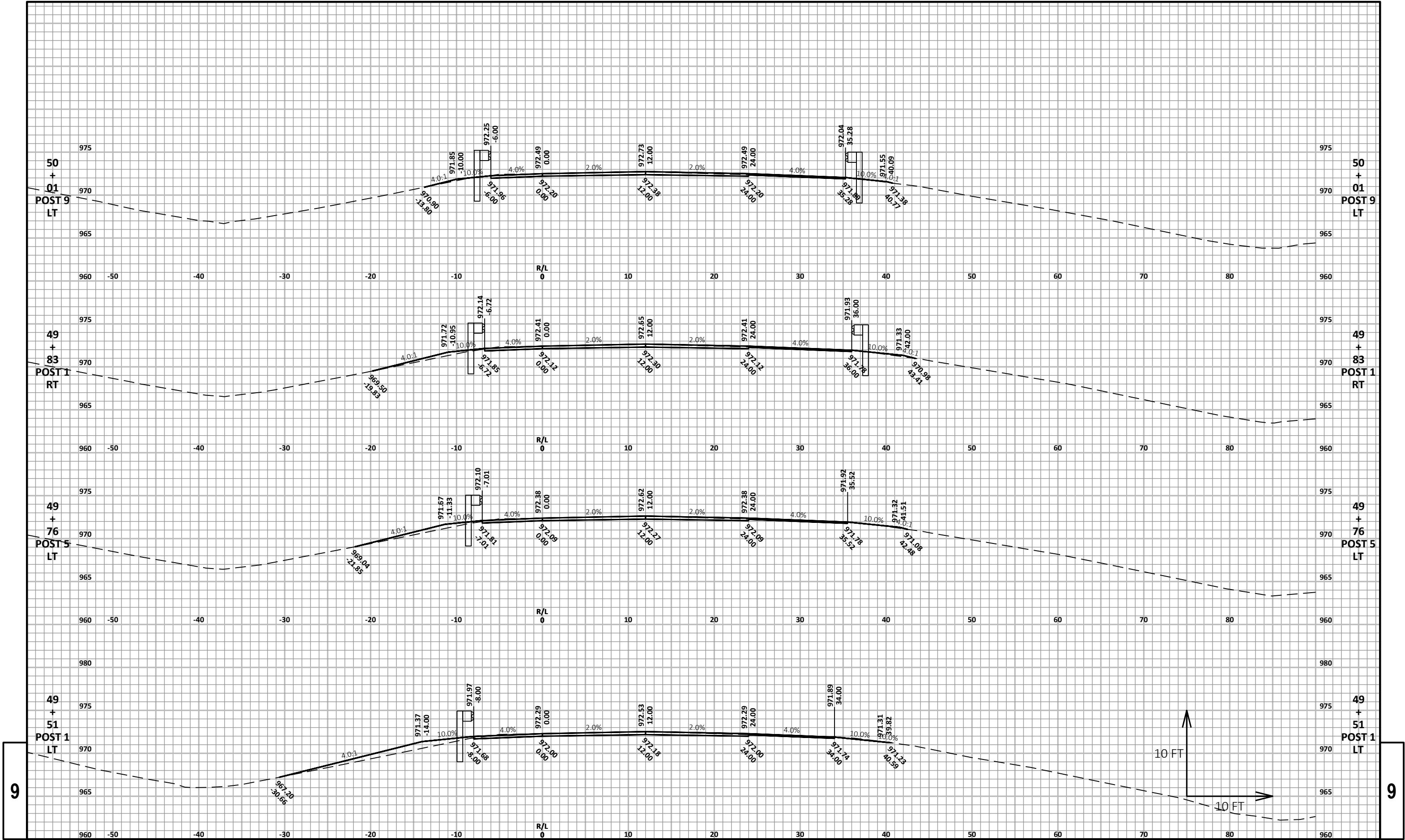
STANDARD SIGN
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W057-52.2





PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

CROSS SECTIONS: CZECH AVE GUARDRAIL

SHEET

244

E

FILE NAME: N:\3000873.00\CIVIL 3D\SHEETS\PLAN\11660577-090201-XS.DWG
LAYOUT NAME - 11660577-090202-xs

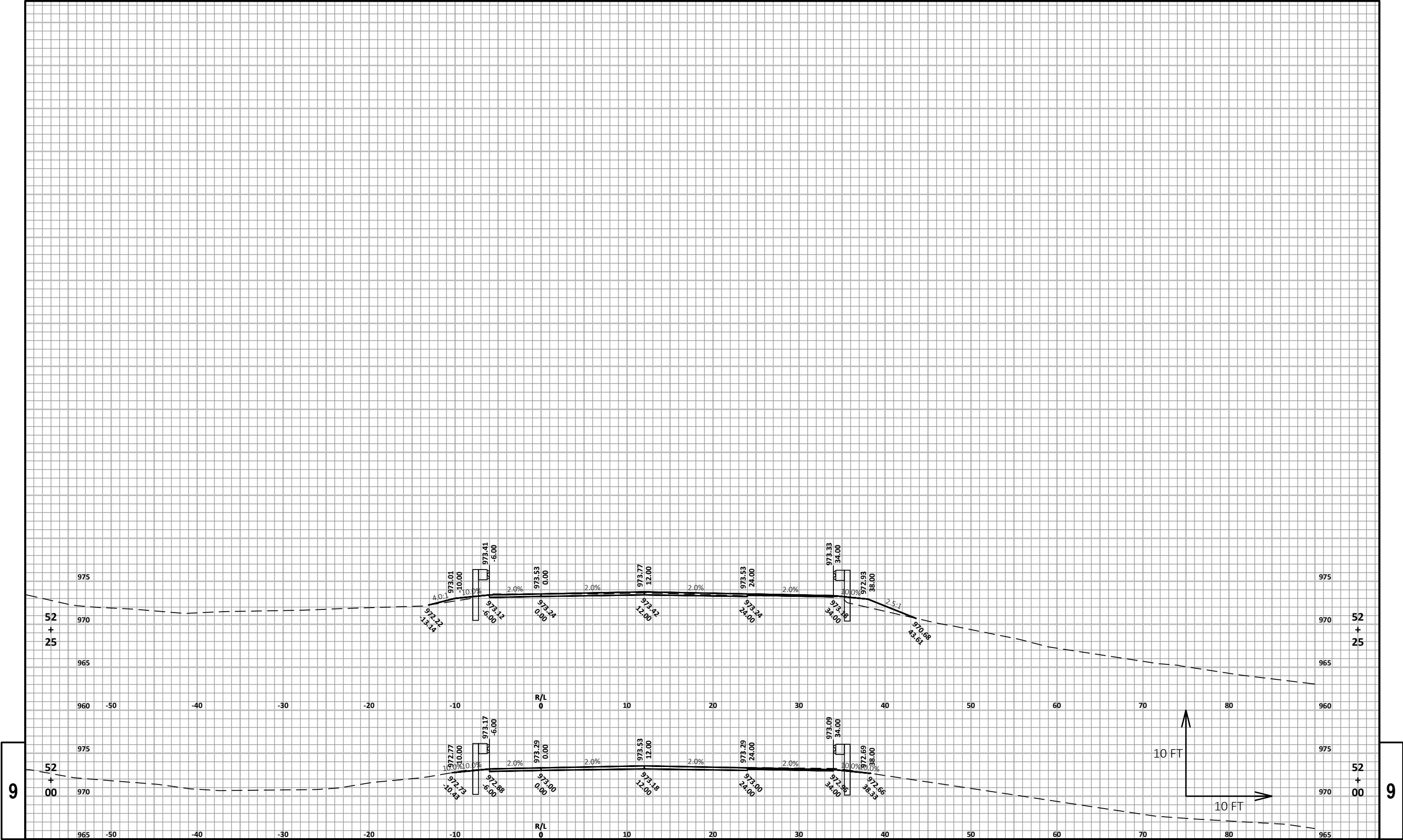
PLOT DATE: 4/27/2021 11:27 AM

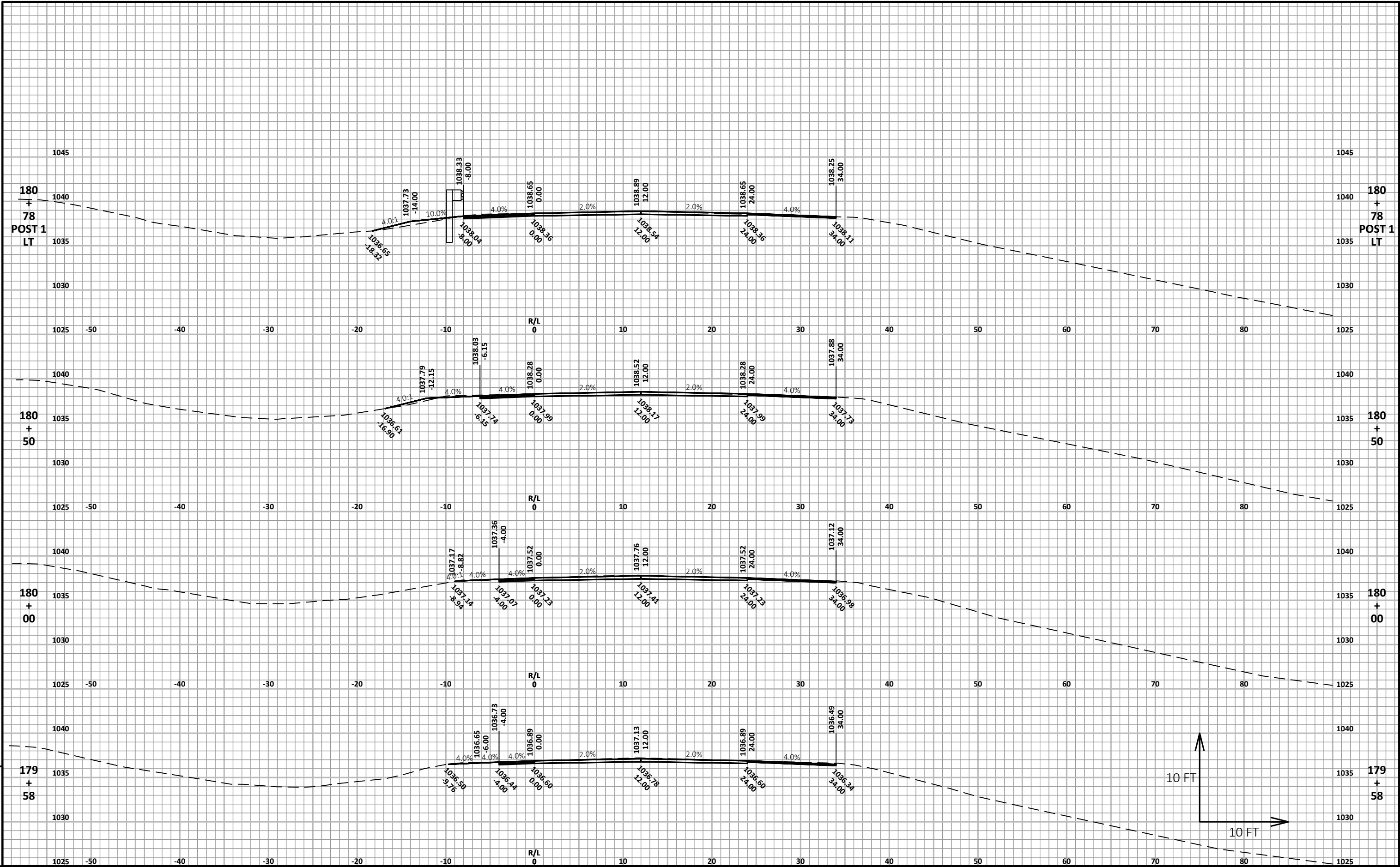
PLOT BY: MATT TOMSOVIC

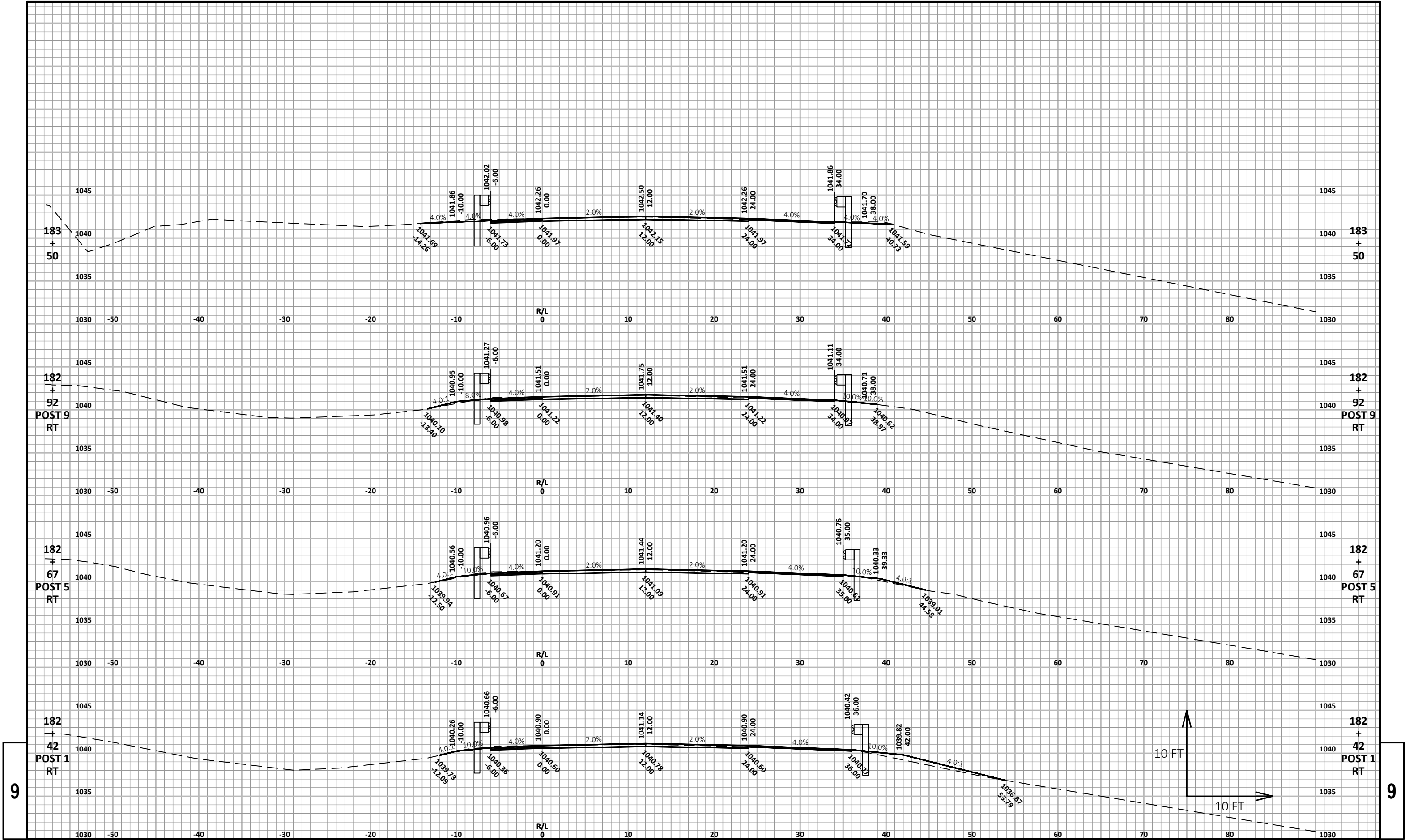
PLOT NAME:

PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDs SHEET 49







PROJECT NO: 1166-05-77

HWY: IH 39

COUNTY: WAUSHARA

CROSS SECTIONS: CTH CH GUARDRAIL

SHEET

249

E

FILE NAME : N:\3000873.00\CIVIL 3D\SHEETS\PLAN\11660577-090201-XS.DWG
LAYOUT NAME - 11660577-090213-xs

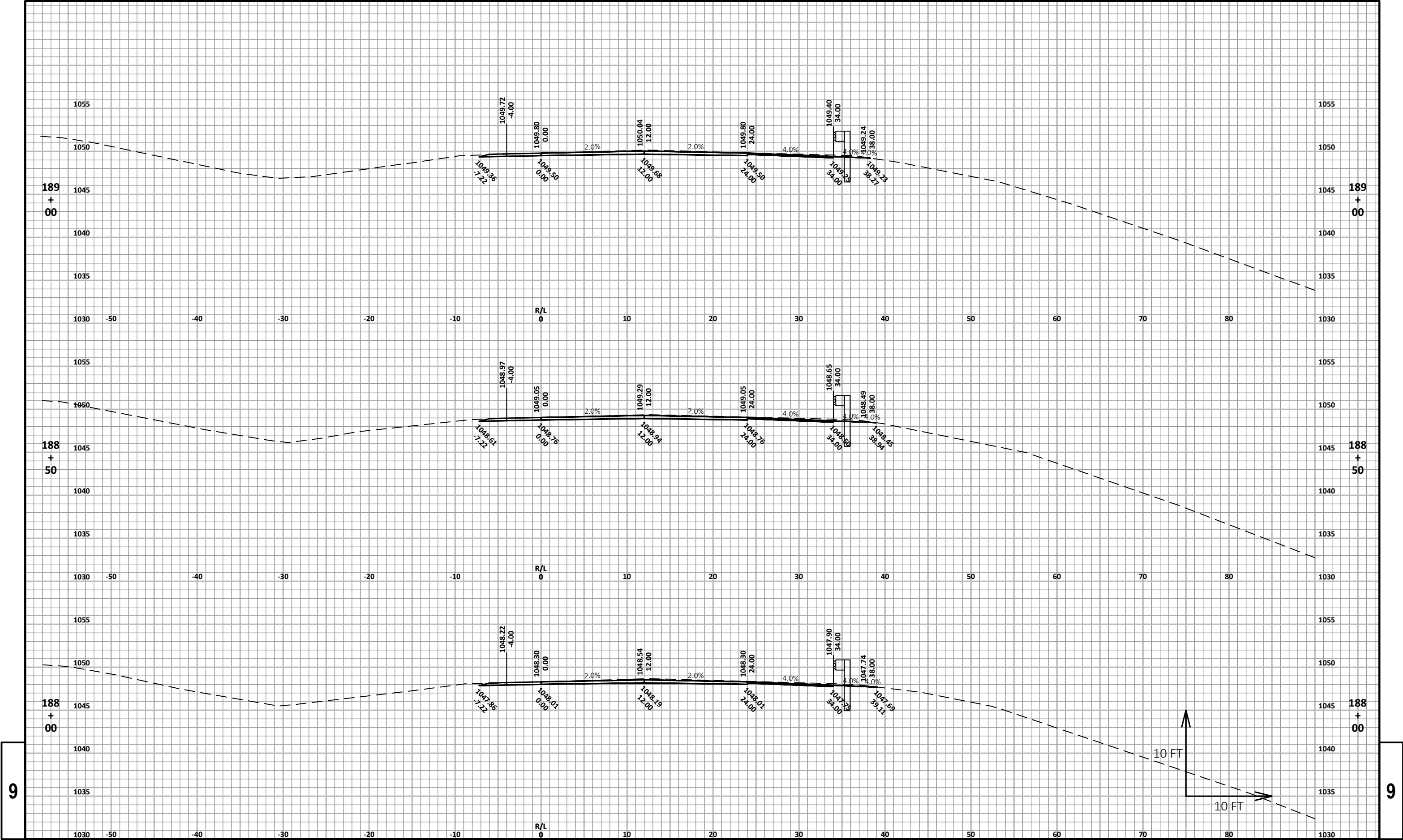
PLOT DATE : 4/27/2021 11:27 AM

PLOT BY : MATT TOMSOVIC

PLOT NAME :

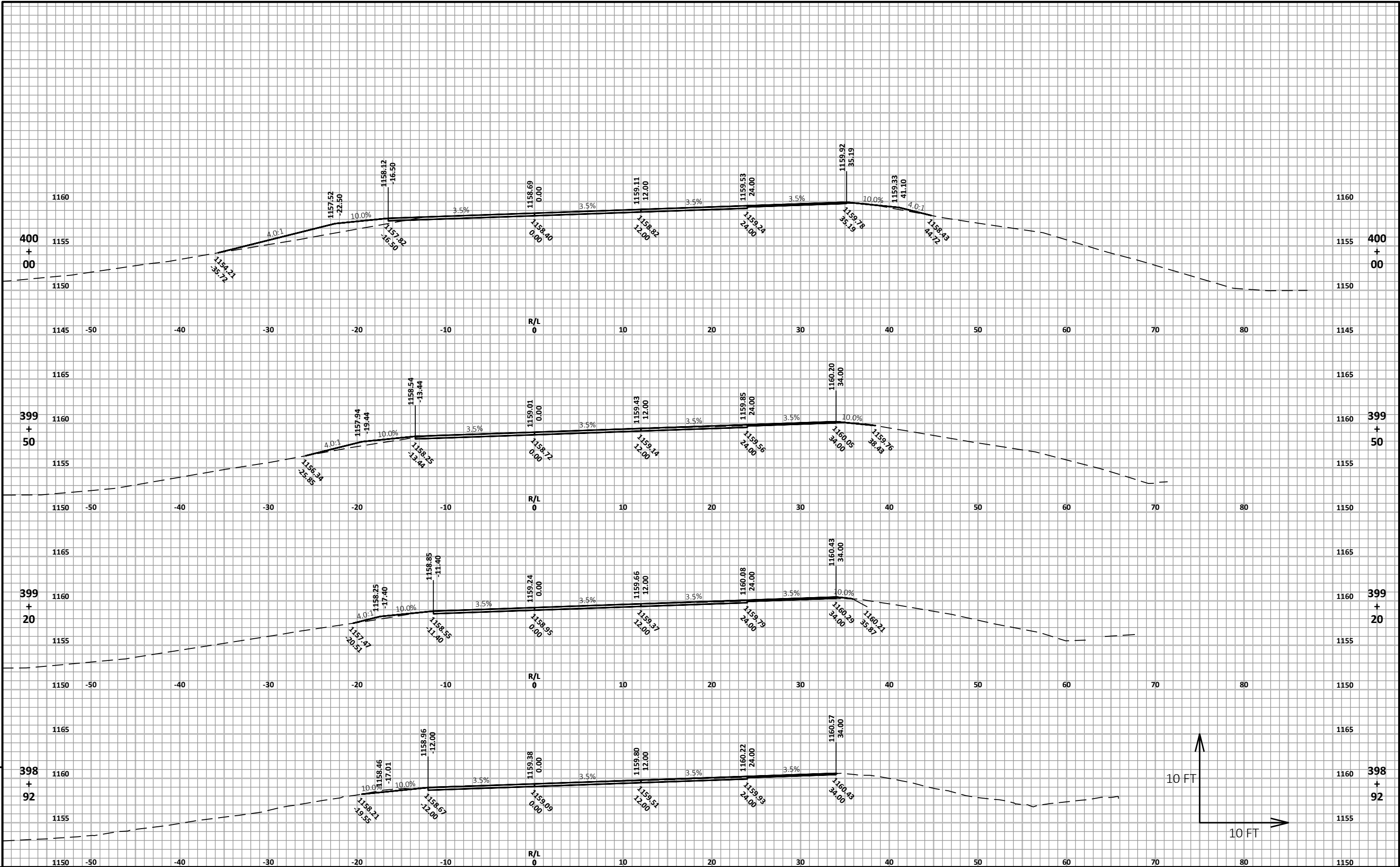
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

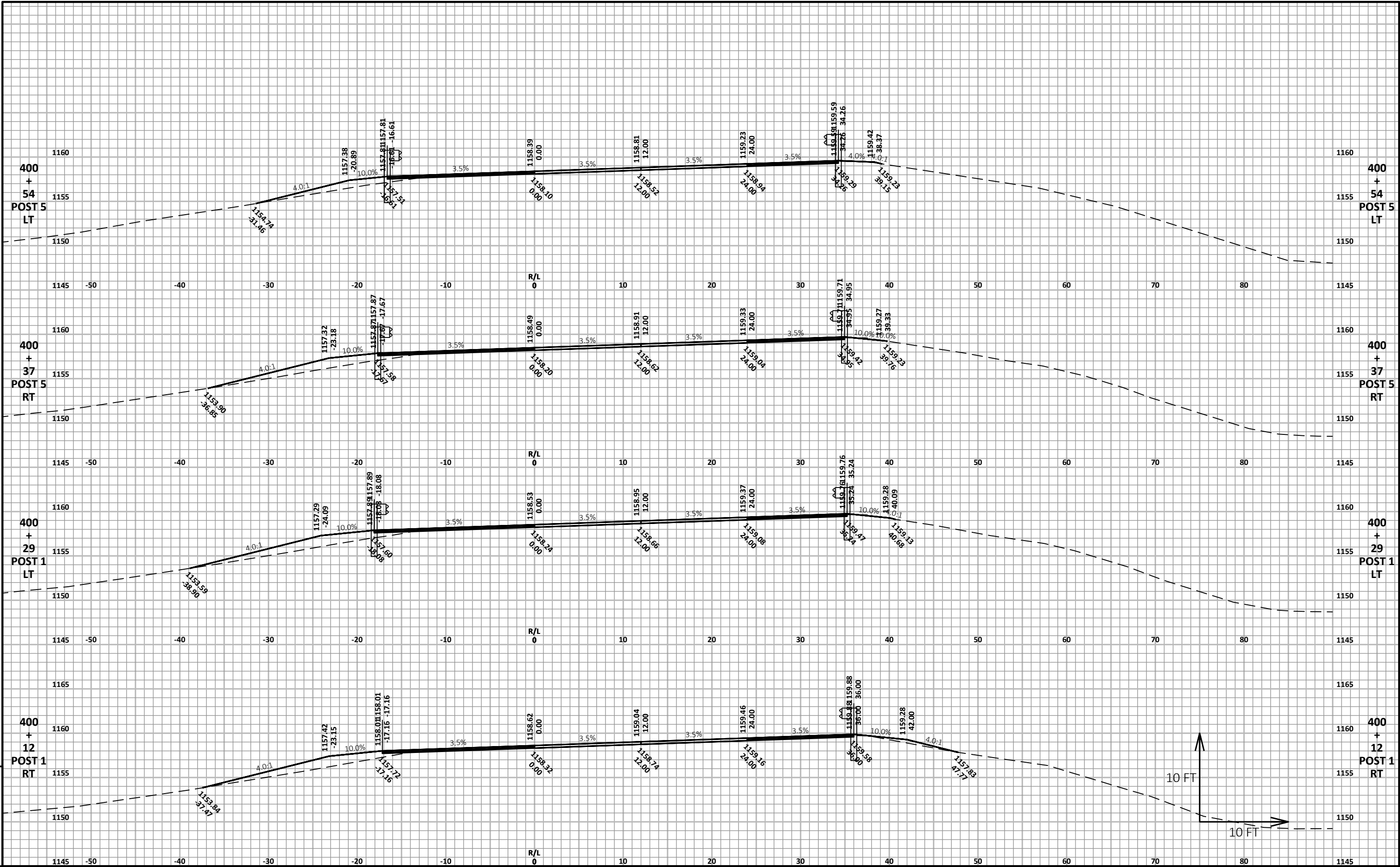
WISDOT/CADDs SHEET 49

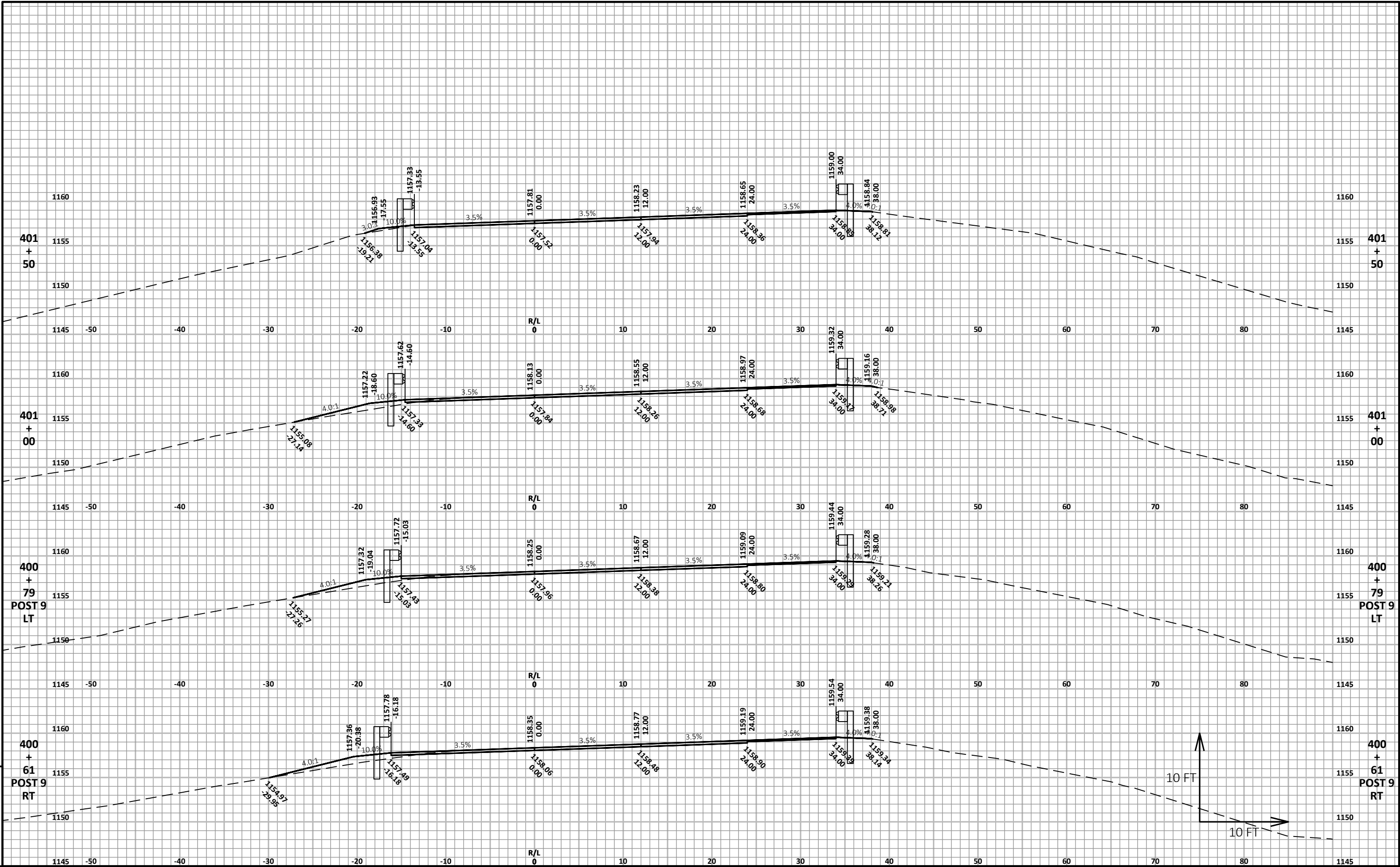


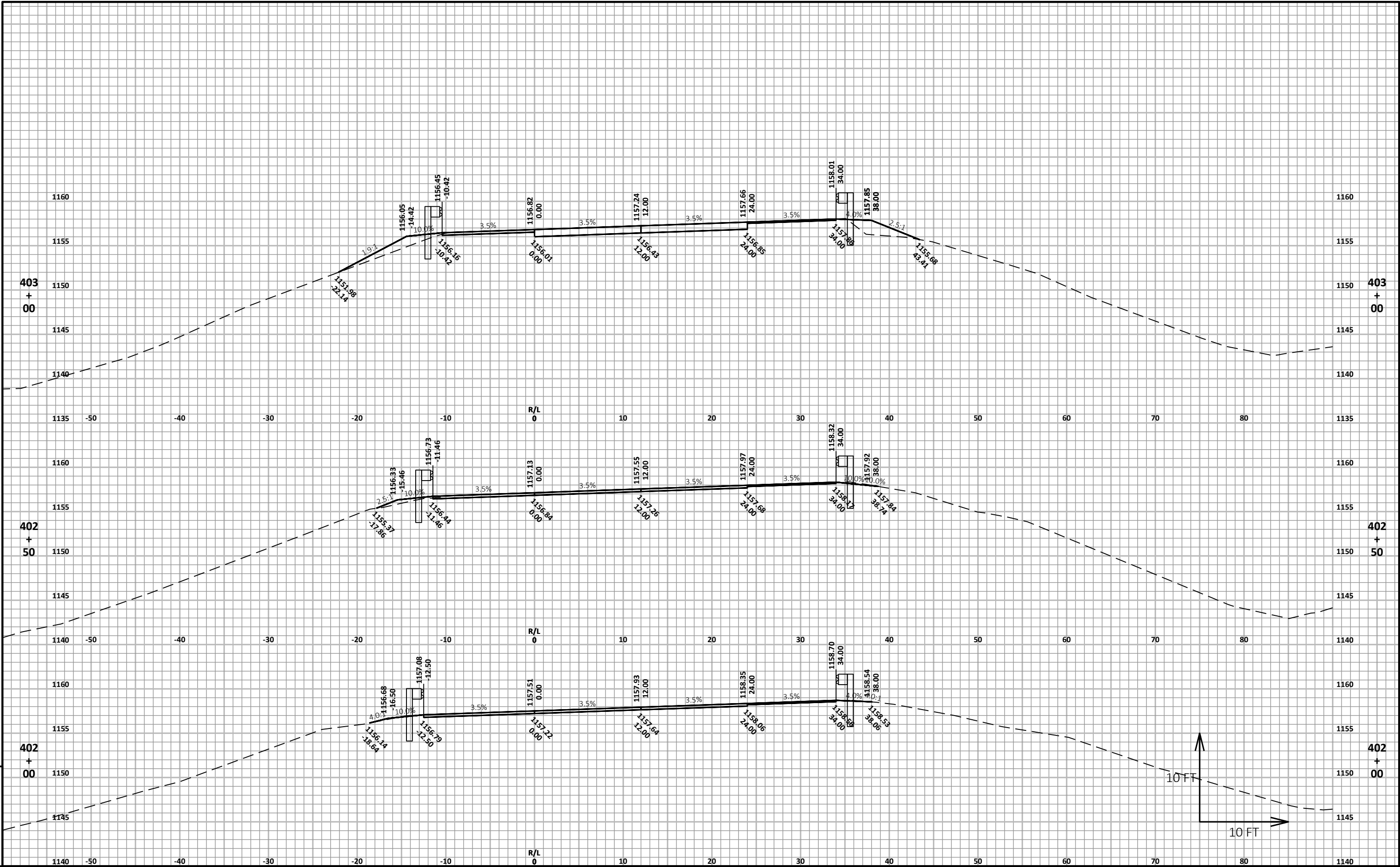
9

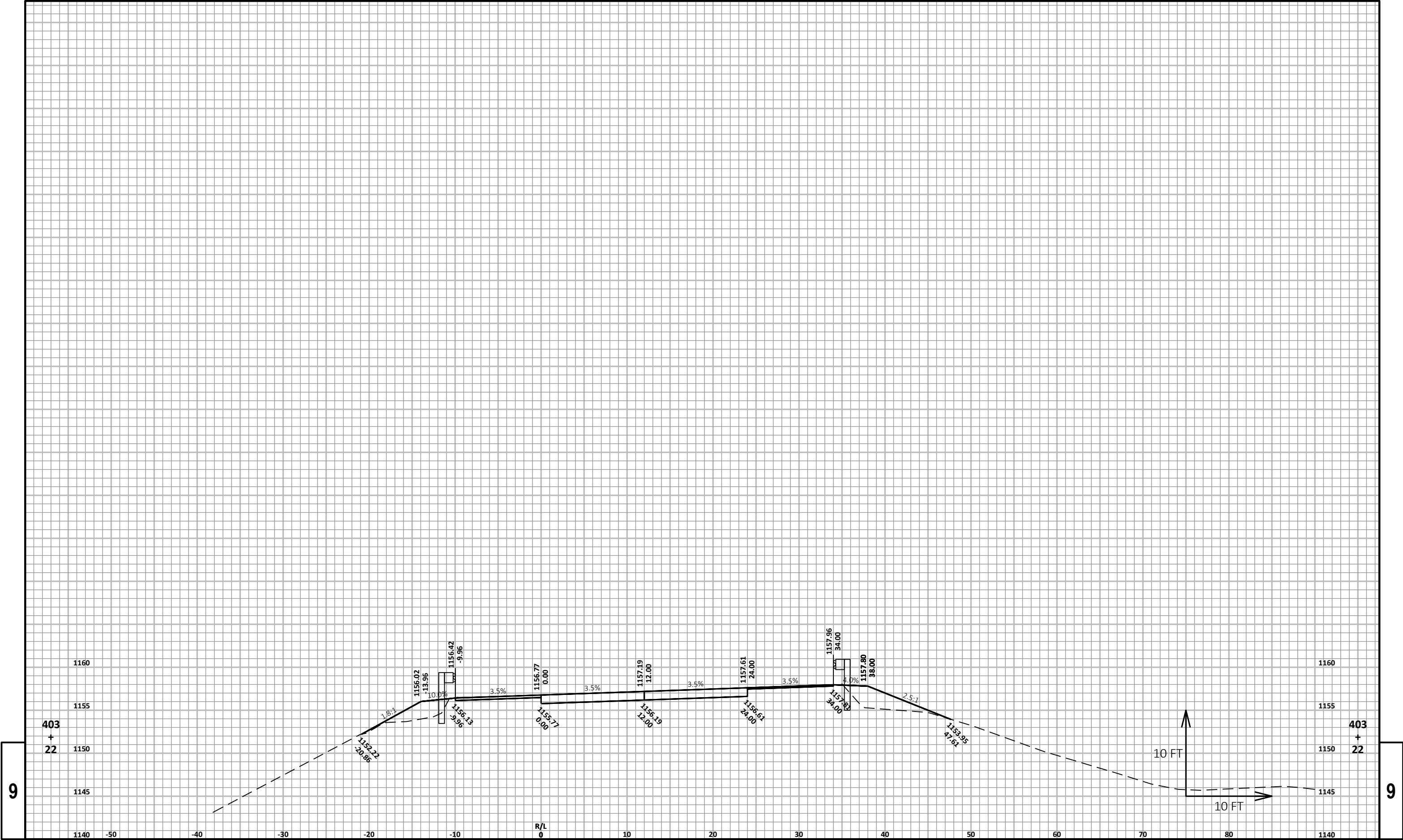
9





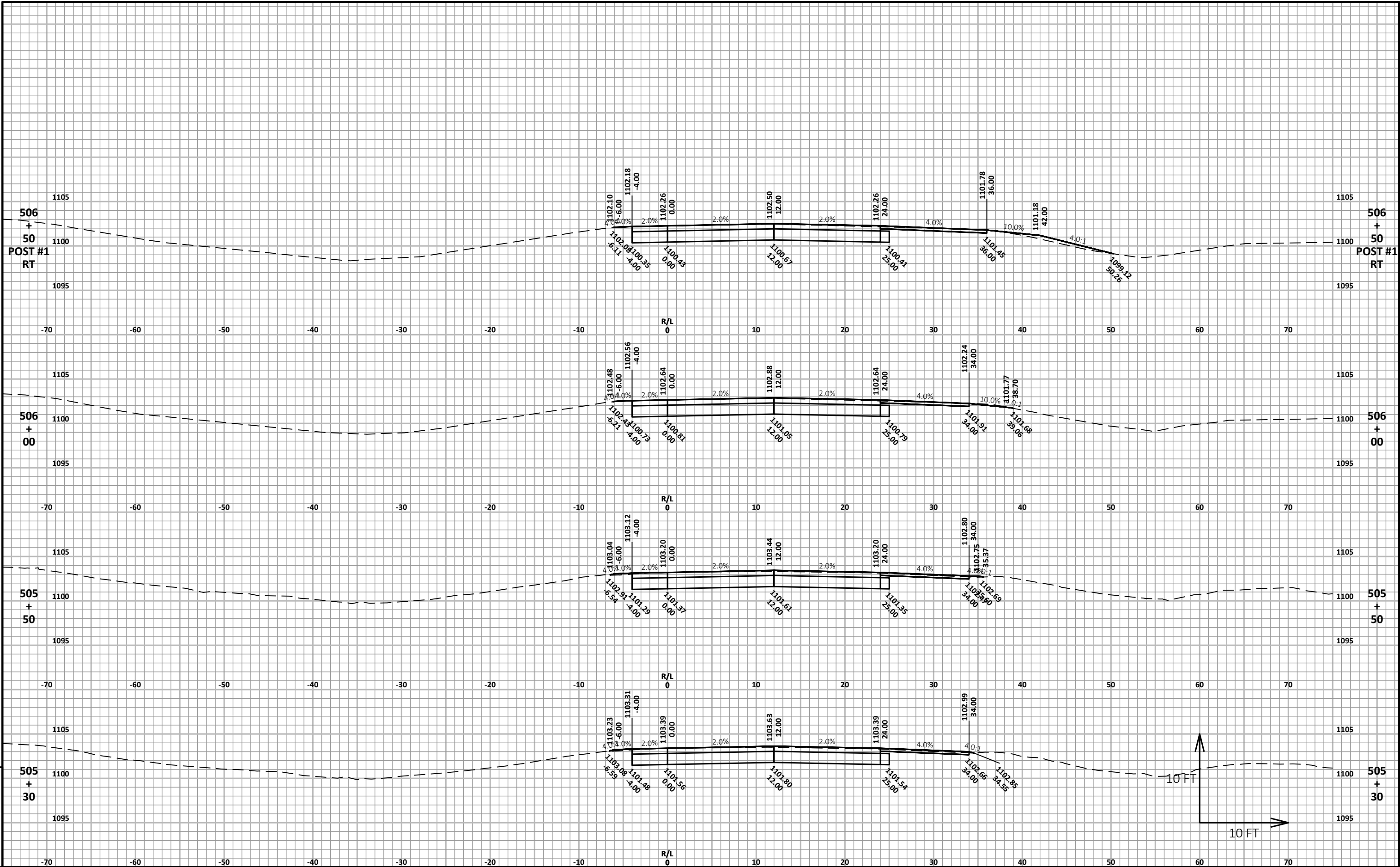


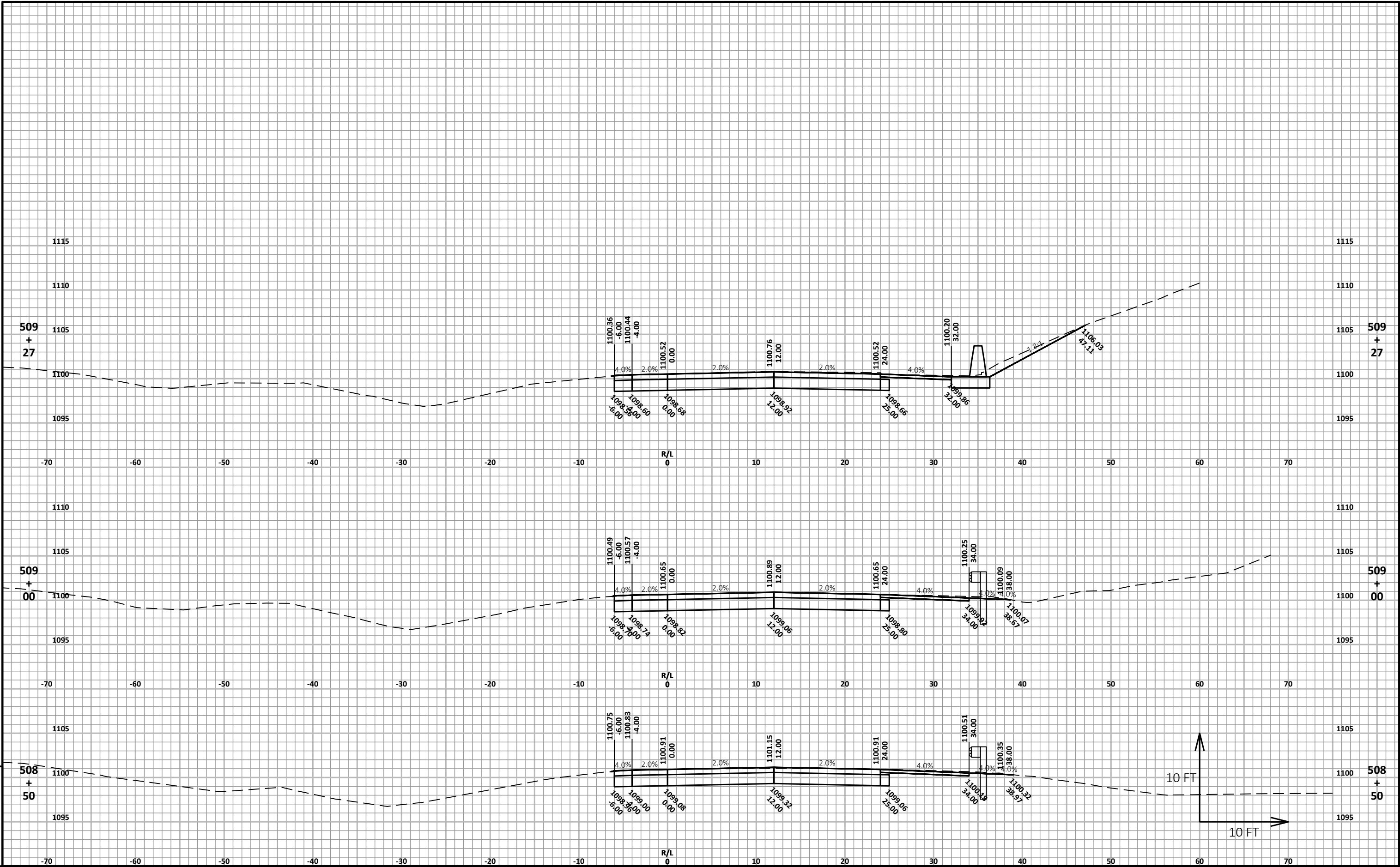


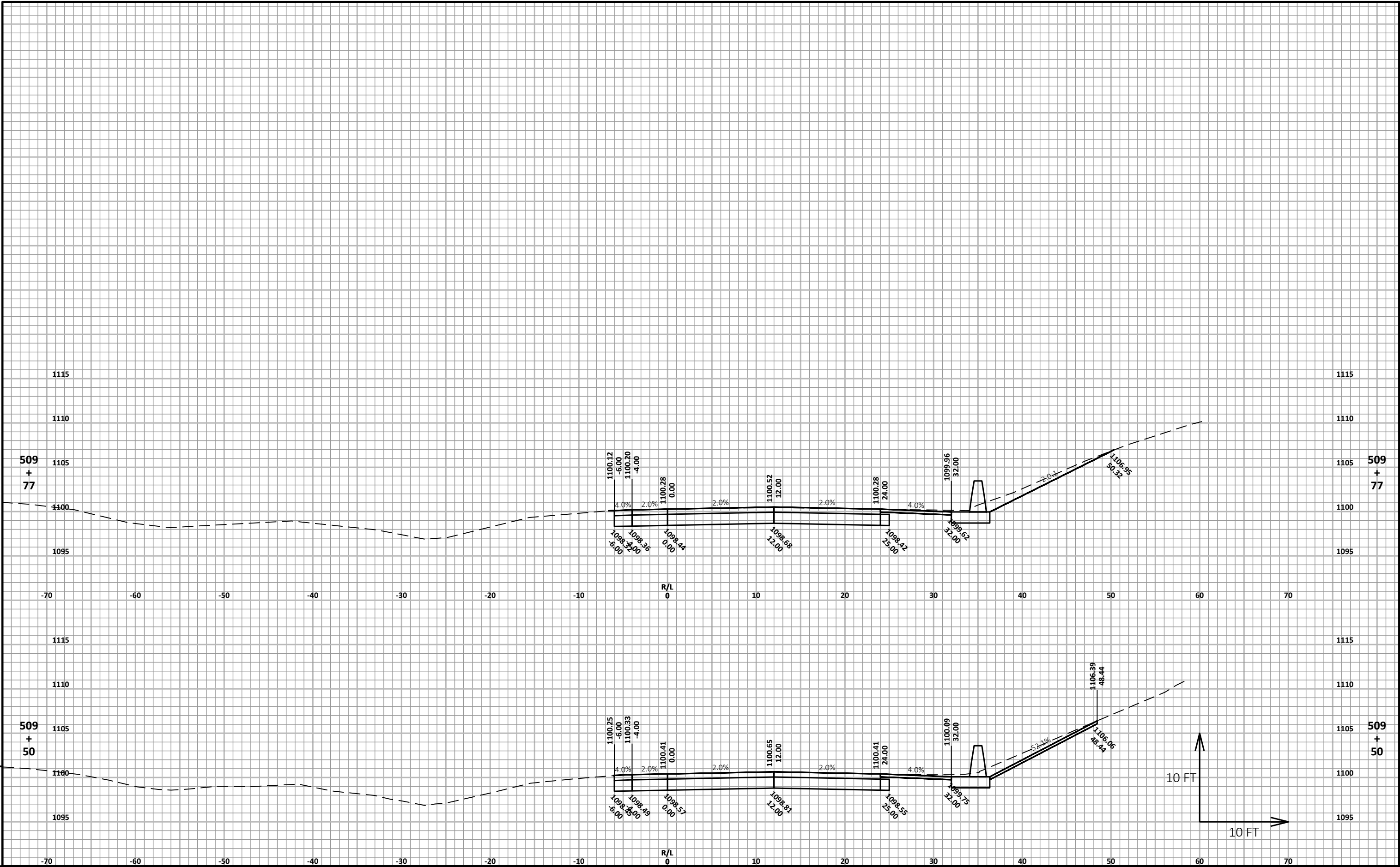


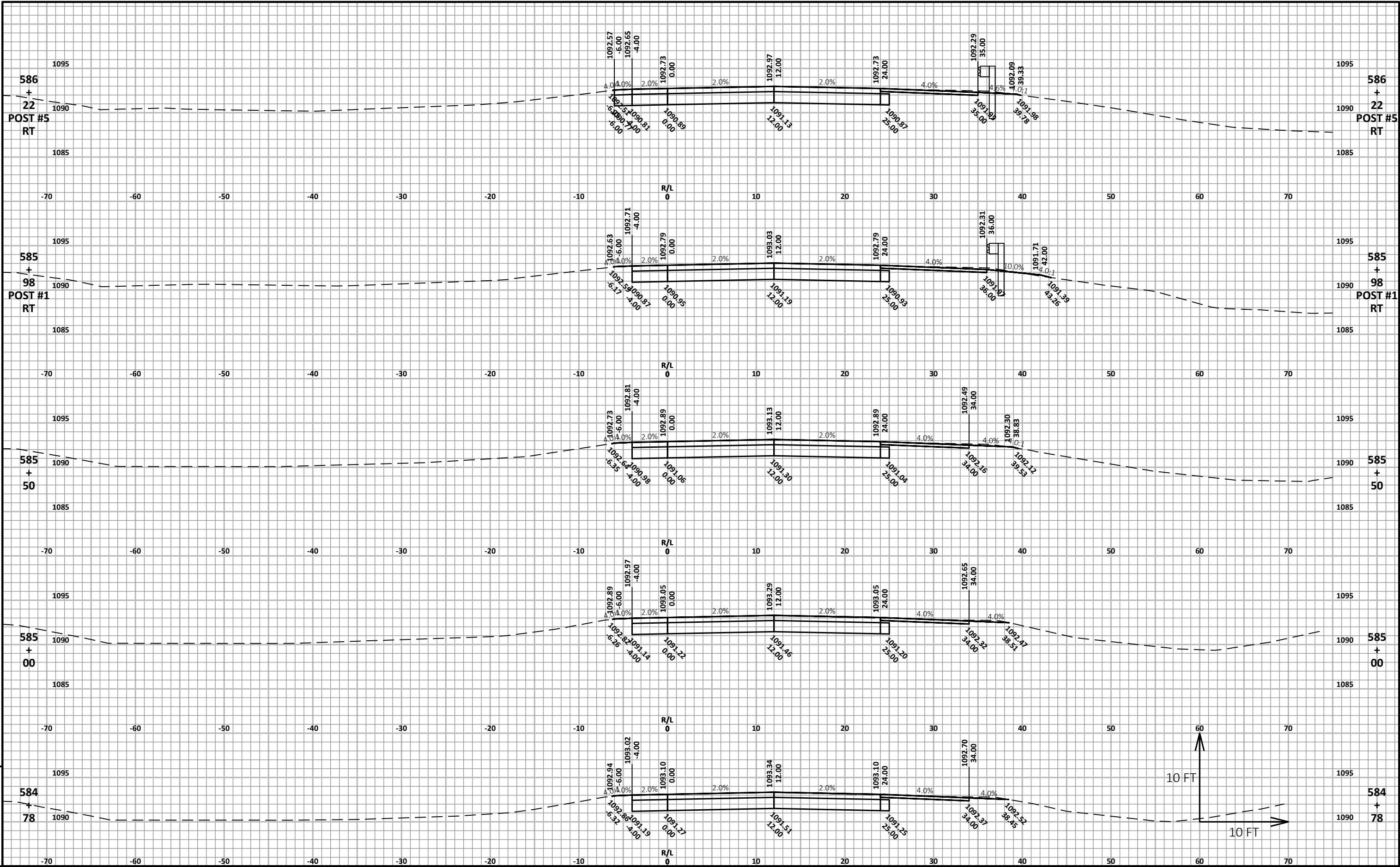
9

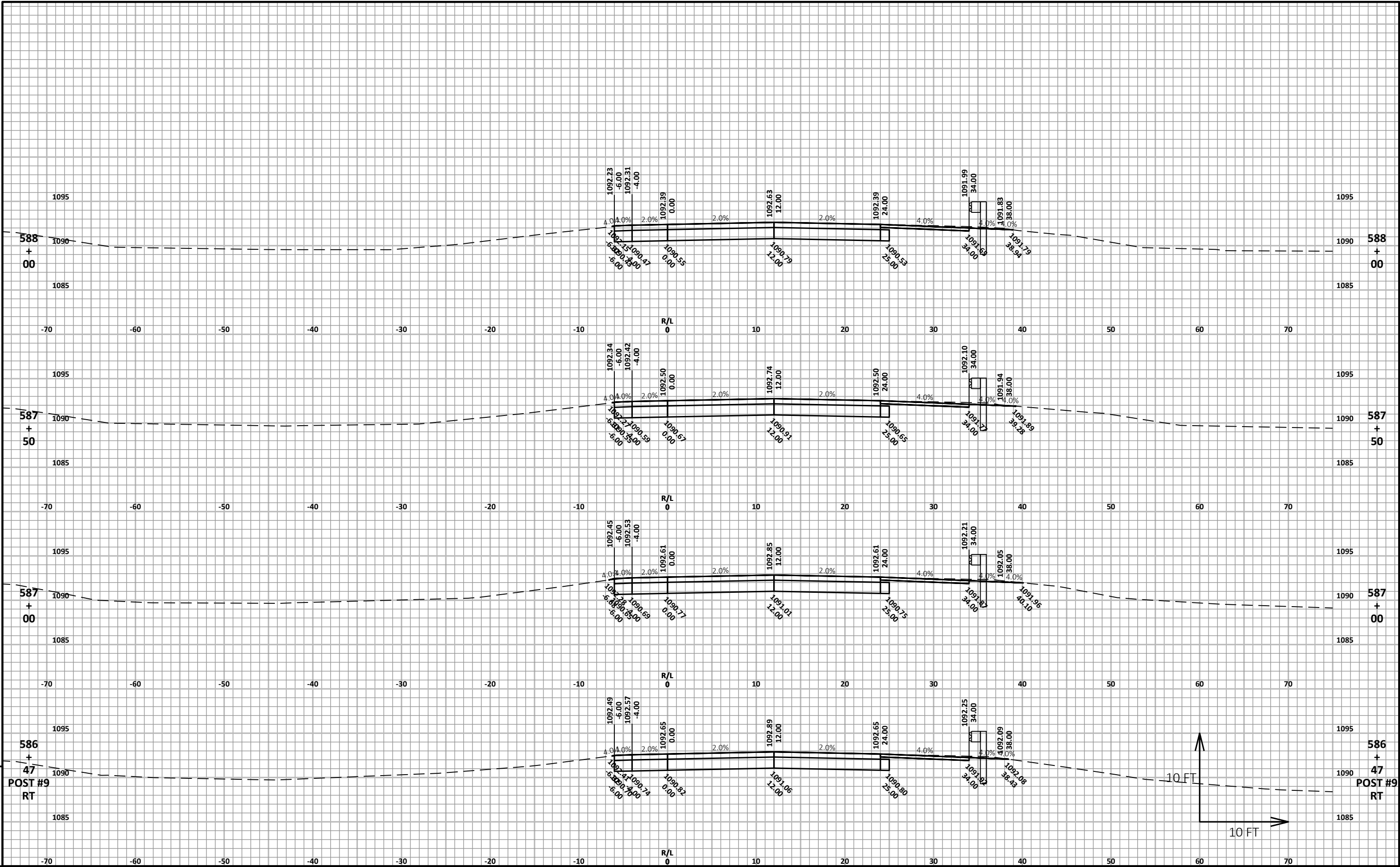
9

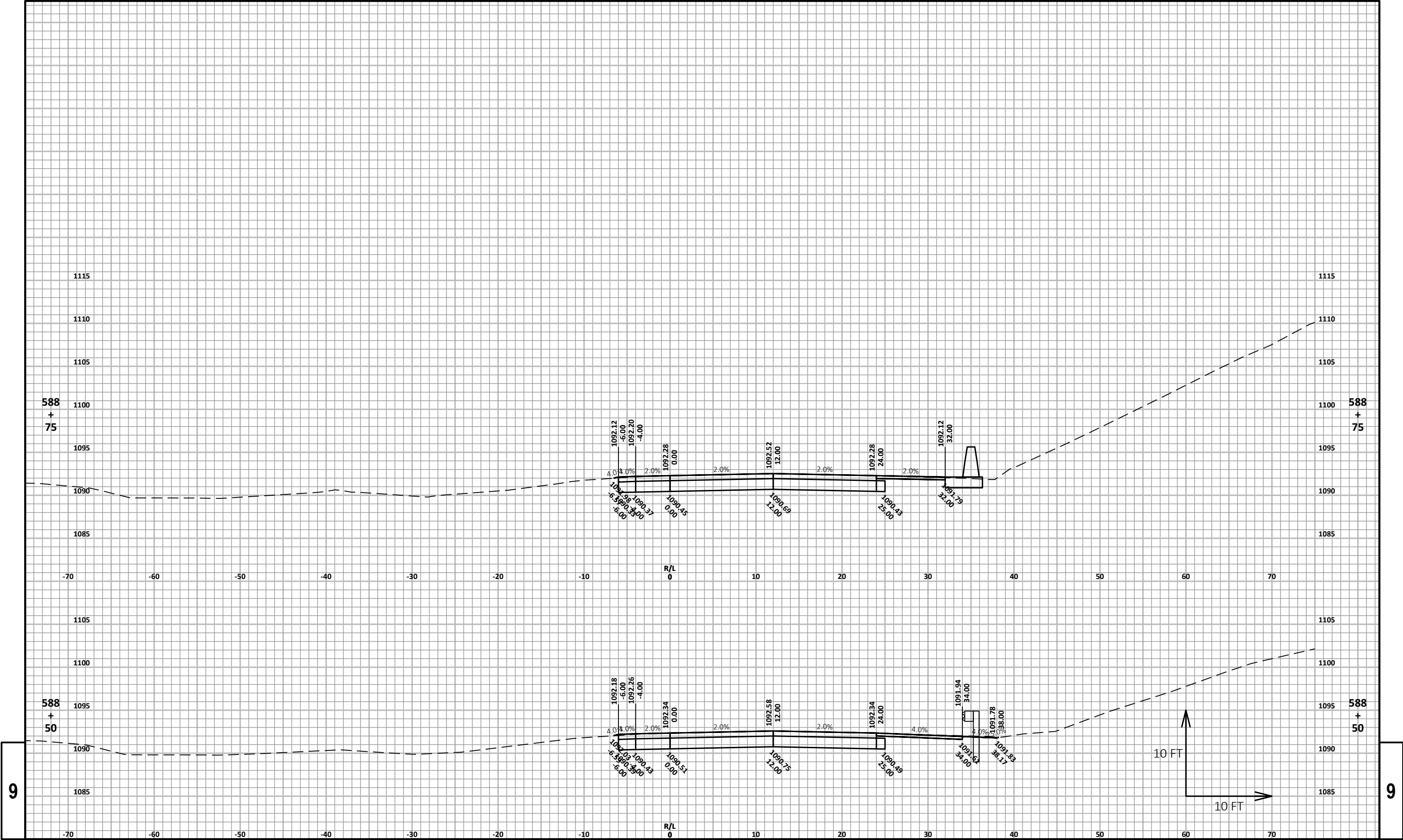


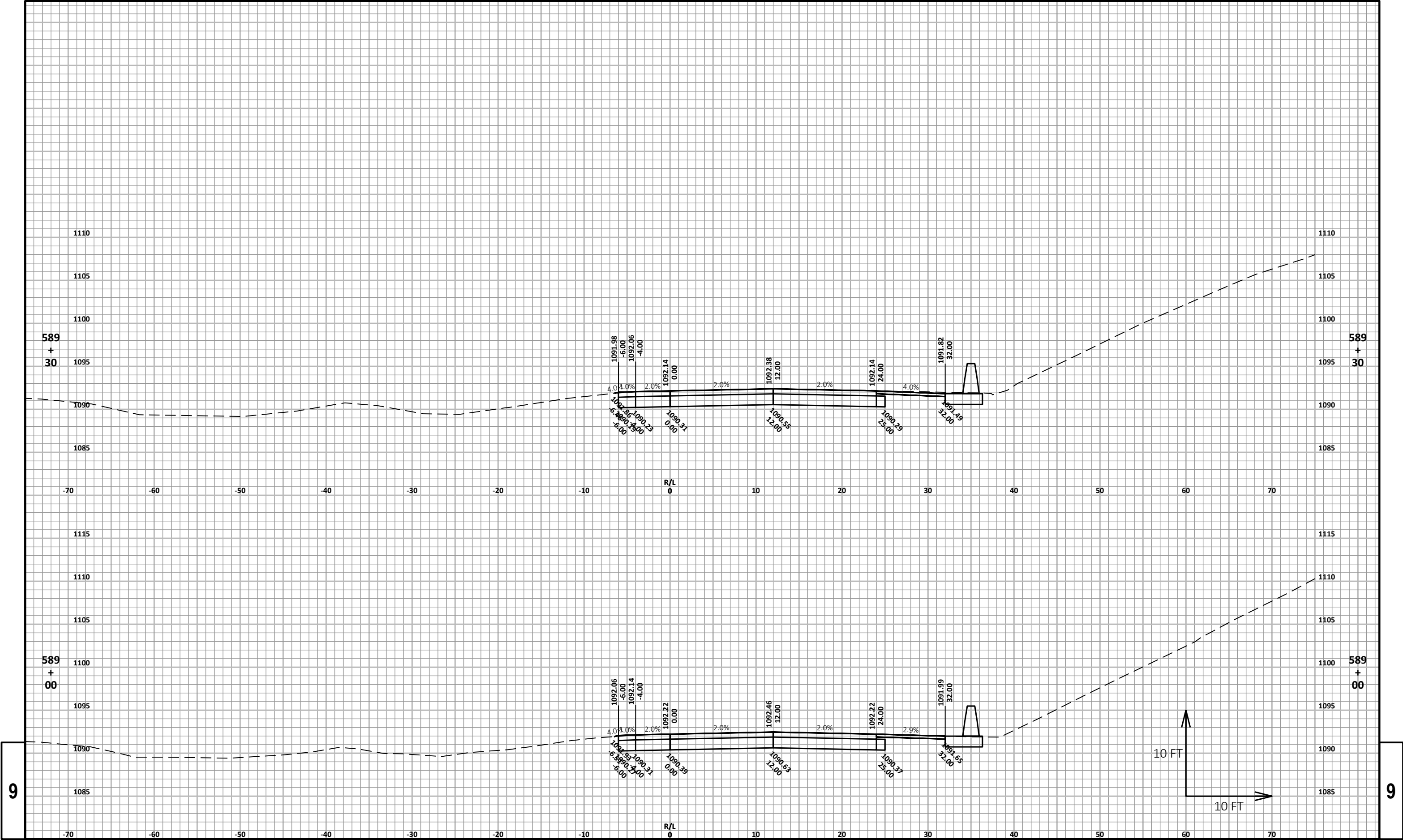


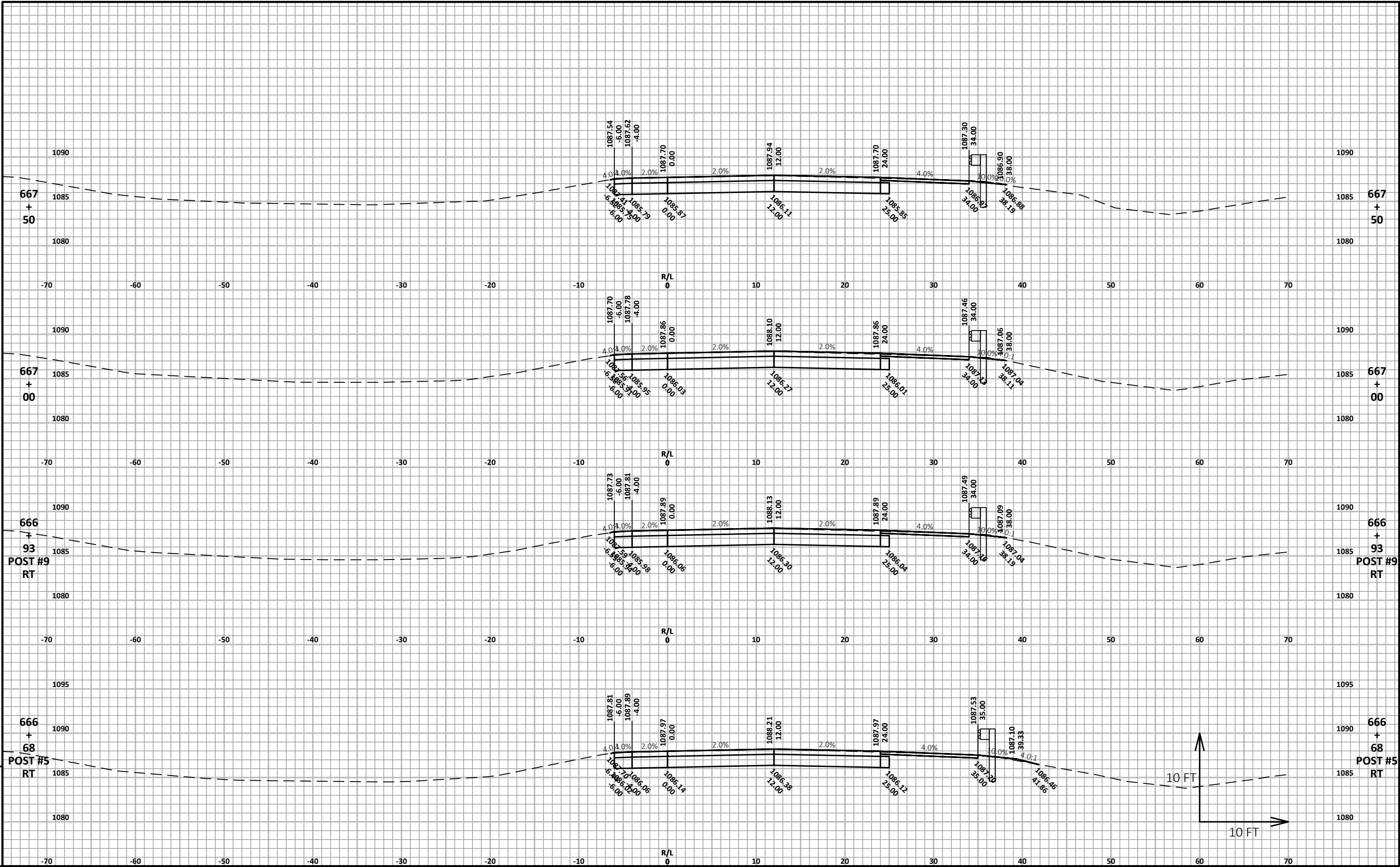


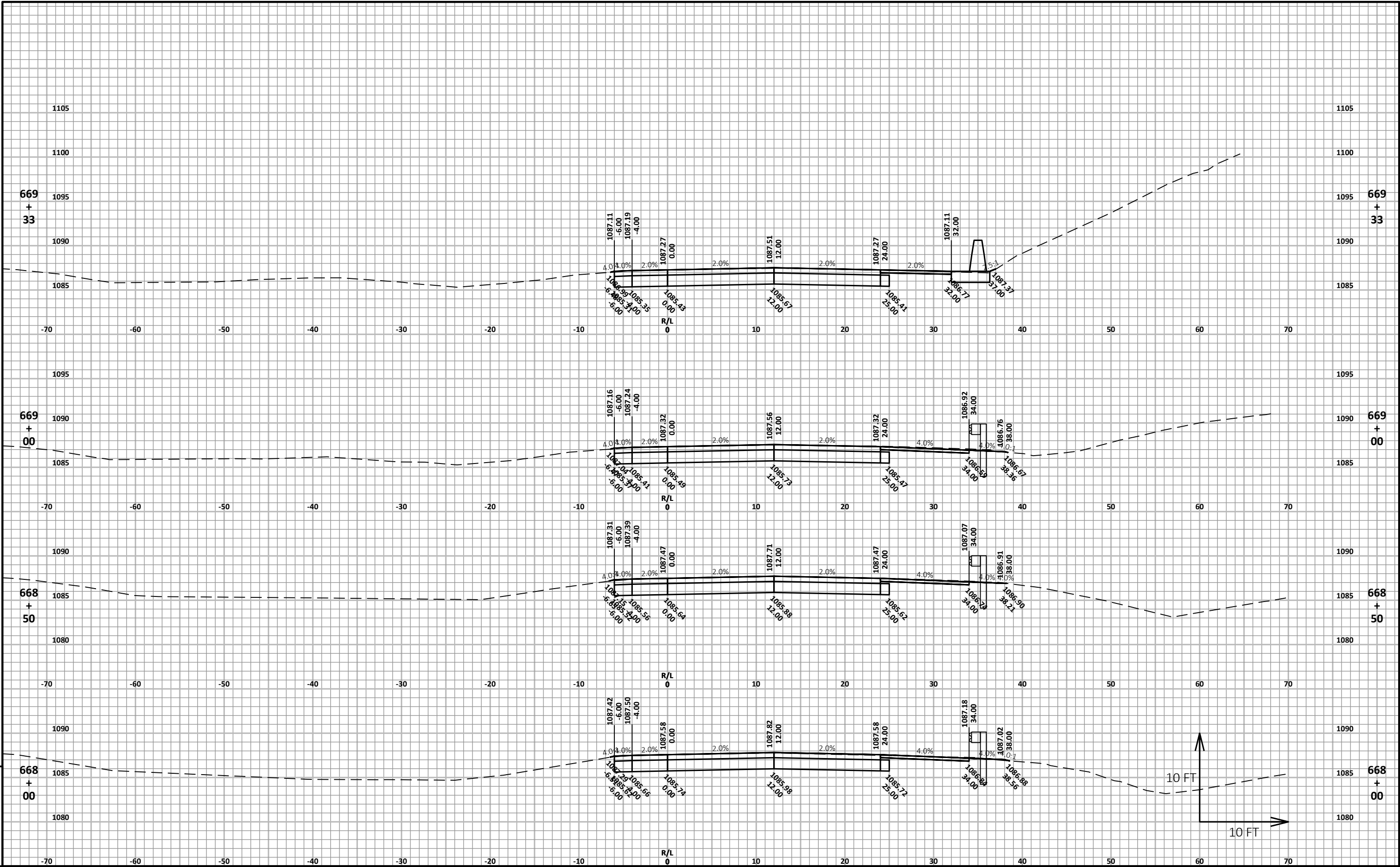


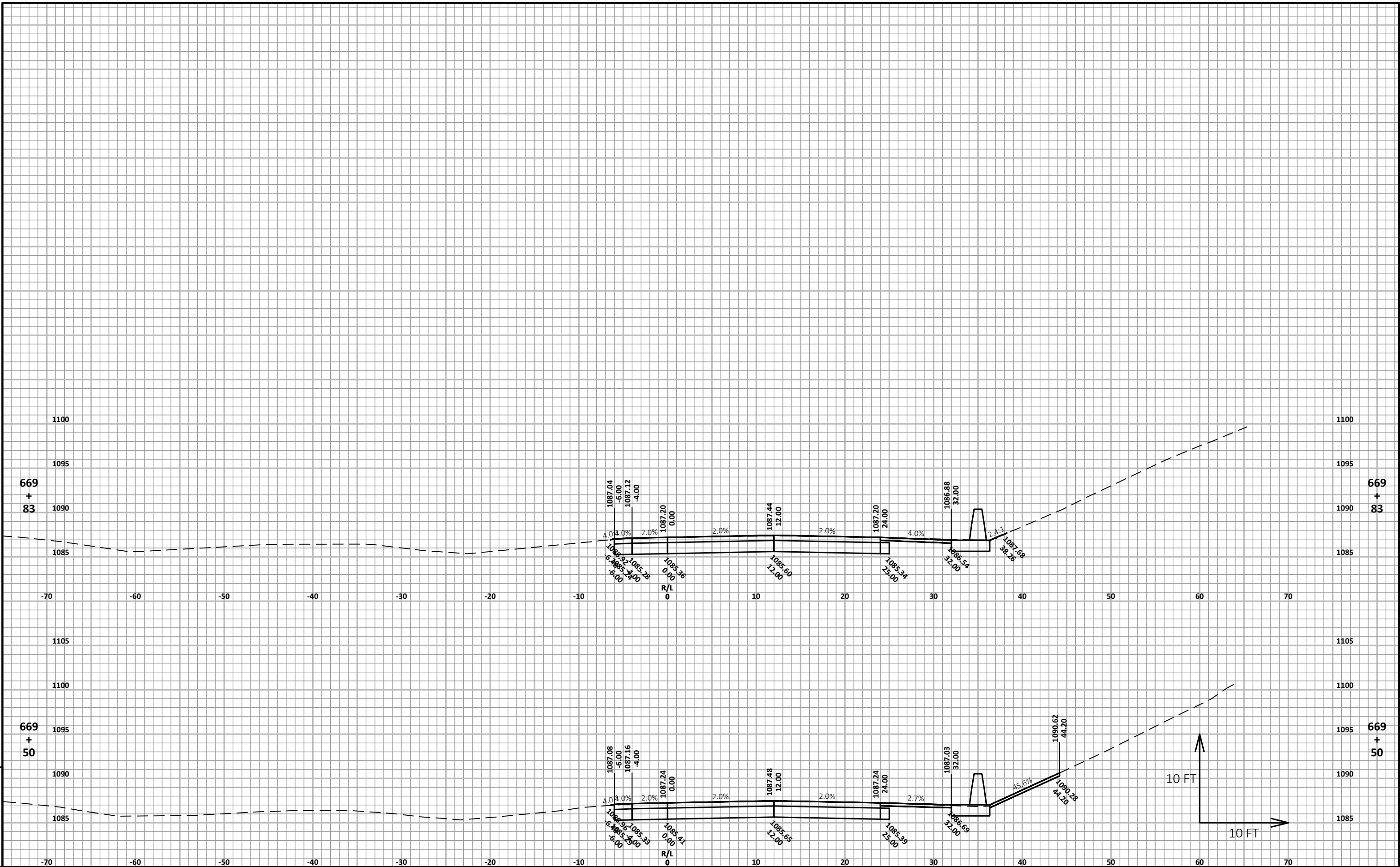


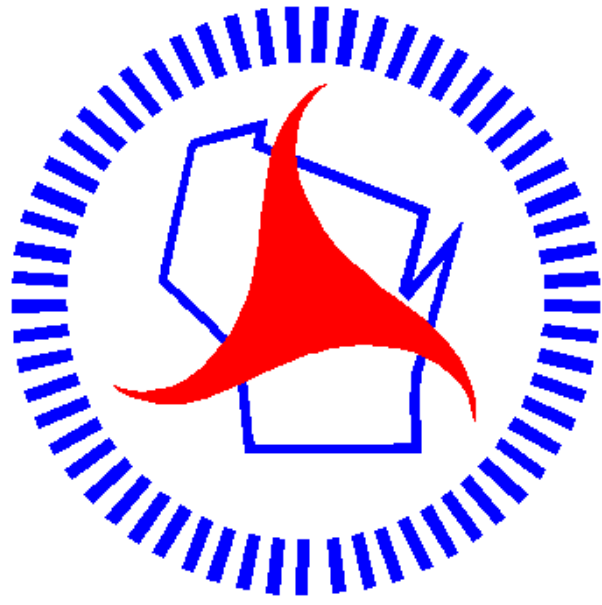












Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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