

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 Plan
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 = 40

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
FREDONIA - PORT WASHINGTON
CTH A - CTH KW
CTH H
OZAUKEE COUNTY

STATE PROJECT NUMBER
4822-07-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4822-07-71	WISC 2024228	1

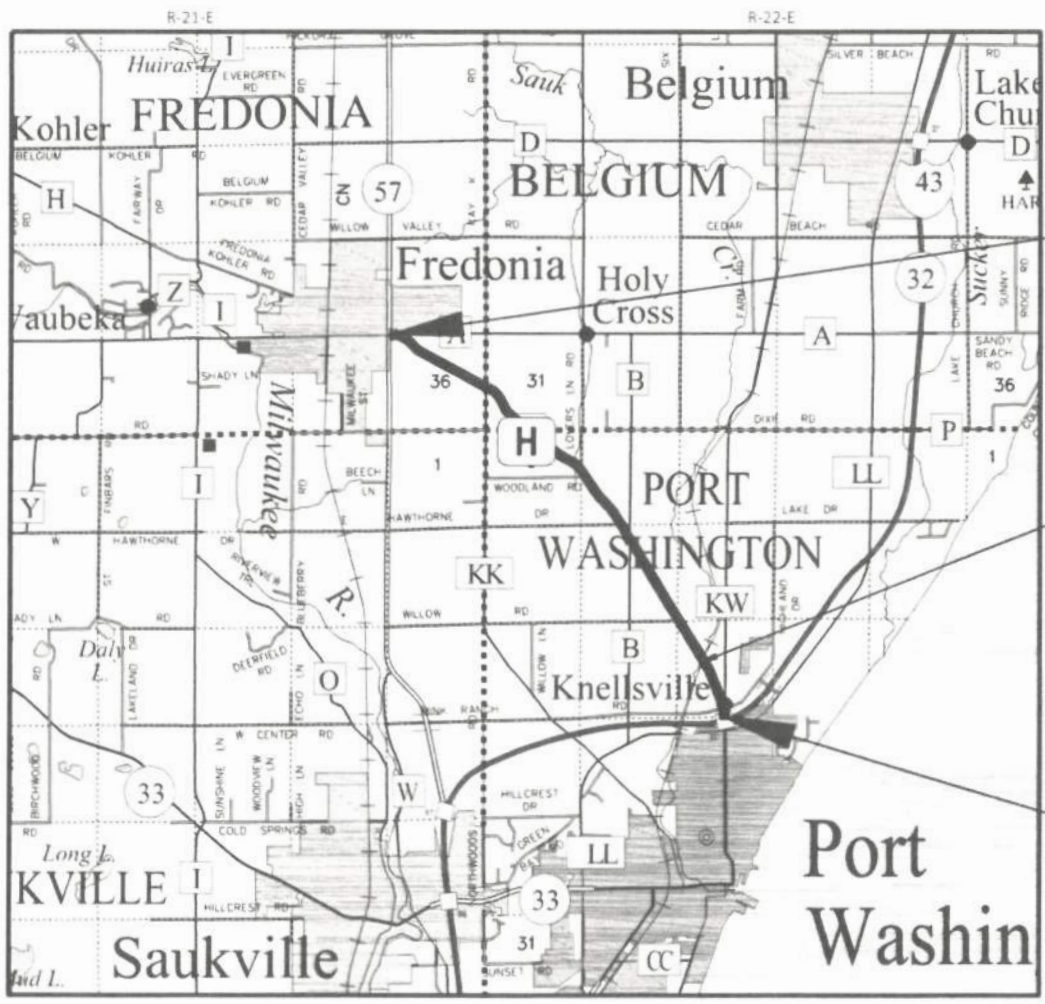


DESIGN DESIGNATION		
A.A.D.T.	2024	= 2,325
A.A.D.T.	2044	= 2,900
D.H.V.		= 430
D.D.		= 50/50
T.		= 5.0%
DESIGN SPEED		= 35 MPH, 55 MPH
ESALS		= 802,000

CONVENTIONAL SYMBOLS

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

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



BEGIN PROJECT
STA 438+00
Y = 456807.8815
X = 598384.1256

NET EXCEPTION TO CL LENGTH
STA 685+50 - STA 688+30
STRUCTURE B-45-91

END PROJECT
STA 711+18

LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 5.121 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), OZAUKEE 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 12A.

ACCEPTED FOR
OZAUKEE COUNTY

10/18/23
Date Signature and Title of Official

ORIGINAL PLANS PREPARED BY
CBS SQUARED INC.

DATE 10/17/23
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor _____
Designer _____ CBS SQUARED
Project Manager _____ GREG HAFEMAN, PE
Regional Estimator _____
Regional Supervisor _____ BRIAN BOOTHBY, PE

APPROVED FOR THE DEPARTMENT
DATE 10/20/23
(Signature)

E

GENERAL NOTES

THE LOCATION OF EXISTING OR PROPOSED UTILITIES, AS NOTED ON THE PLANS, IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

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

ROADWAY ALIGNMENT IS BASED ON A BEST-FIT CENTERLINE DEVELOPED FROM AVAILABLE AS-BUILTS AND AERIAL IMAGERY.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE EXACT LOCATION AND OFFSETS FOR THE SIGNS SHALL BE COORDINATED WITH THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.

KEEP ALL EQUIPMENT AND MATERIALS OUT OF ADJACENT WETLANDS AND WATERWAYS. STORAGE OF ANY MATERIAL IN WETLANDS WILL NOT BE PERMITTED.

TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH APPLICABLE STANDARD DETAIL DRAWINGS INCLUDING:

- SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC"
- SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION"
- SDD "MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY"
- SDD "TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY"

ORDER OF DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS

UTILITIES

COMMUNICATIONS

FRONTIER
CHRIS BLUMER
451 BROADWAY DRIVE
SUN PRAIRIE, WI 53590
(608) 622-3807
MECHEMENT@PIKE.COM

COMMUNICATIONS

AT&T WISCONSIN
DEAN HERRO
435 S 95TH ST
MILWAUKEE, WI 53214
(262) 226-9639
DH2572@ATT.COM

GAS

WE ENERGIES
BRADLEY ENGNATH
500 S 116TH STREET
GREENFIELD, WI 53220
(414) 944-5767
BRADLEY.ENGNATH@WE-ENERGIES.COM
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

ELECTRIC

WE ENERGIES
JOE FELLEENZ
W140 N9100 LILLY ROAD
MENOMONEE FALLS, WI 53051
(414) 322-8928
JOSEPH.FELLEENZ@WE-ENERGIES.COM
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

OTHER CONTACTS

WISCONSIN DNR

DEPARTMENT OF NATURAL RESOURCES
BENTON STELZEL
141 NW BARSTOW STREET #180
WAUKESHA, WI 53188
(262) 623-0194
BENTON.STELZEL@WISCONSIN.GOV

OZAUKEE COUNTY

OZAUKEE COUNTY HIGHWAY DEPARTMENT
JON EDGREN
410 SOUTH SPRING STREET
PORT WASHINGTON, WI 53074
(262) 238-8335
JEDGREN@CO.OZAUKEE.WI.US

WISDOT CONTACT

SE REGION
GREG HAFEMAN
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 548-8677
GREG.HAFEMAN@DOT.WI.GOV

DESIGN CONSULTANT

CBS SQUARED, INC.
JOE MALENOWSKI
2500 E ENTERPRISE AVENUE, SUITE A
APPLETON, WI 54913
(920) 574-3135
JMALENOWSKI@CBSSQUAREDINC.COM

MUNICIPALITY CONTACTS

TOWN OF FREDONIA

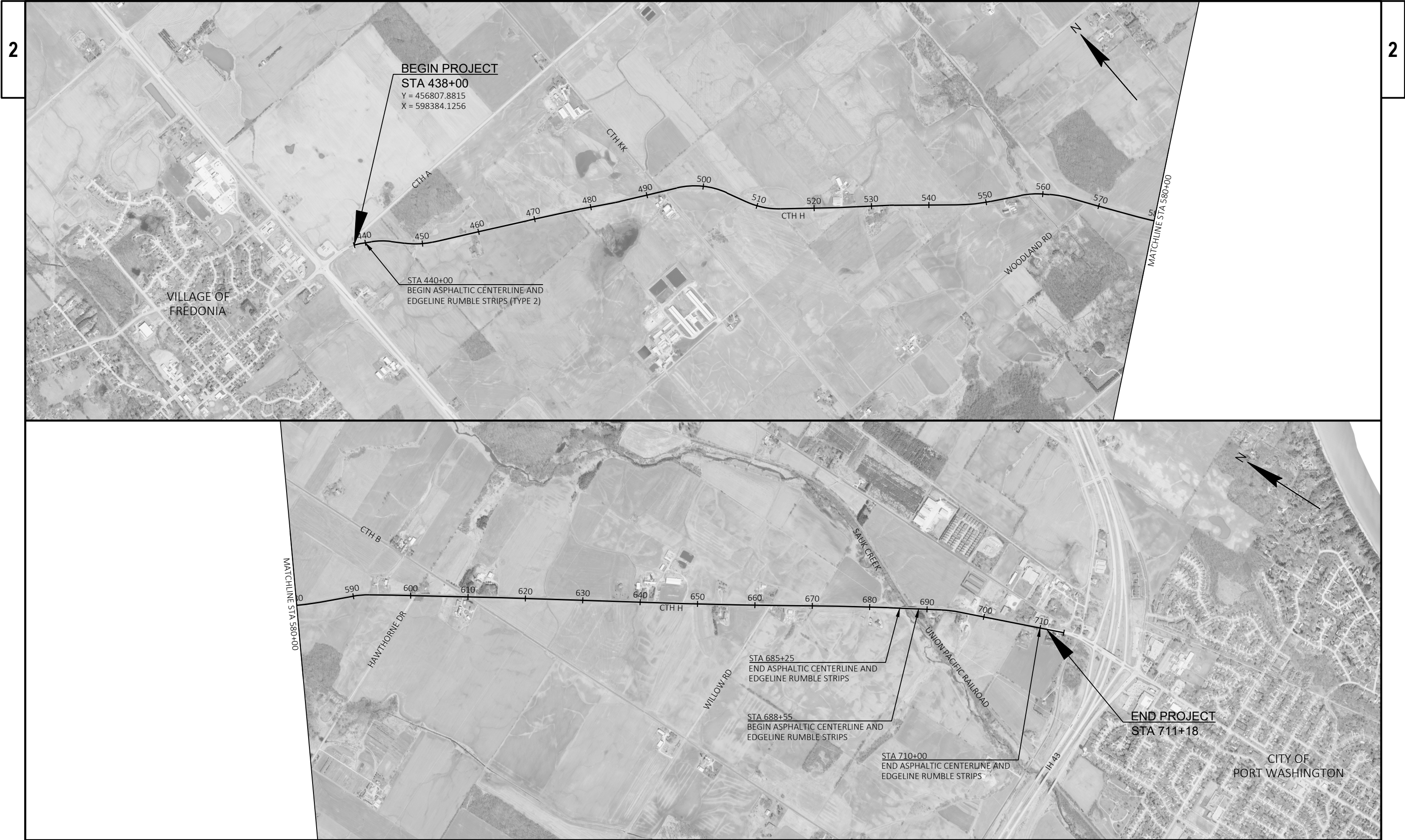
CHAIRPERSON
LANCE LEIDER
242 FREDONIA AVENUE
FREDONIA, WI 53021
(262) 483-2205
LEIDFMS@GMAIL.COM

TOWN OF PORT WASHINGTON

CHAIRPERSON
MIKE DIDIER
4627 HIGHWAY KW
PORT WASHINGTON, WI 53074
(414) 573-0018
MIKE@MIKEDIDIER.COM

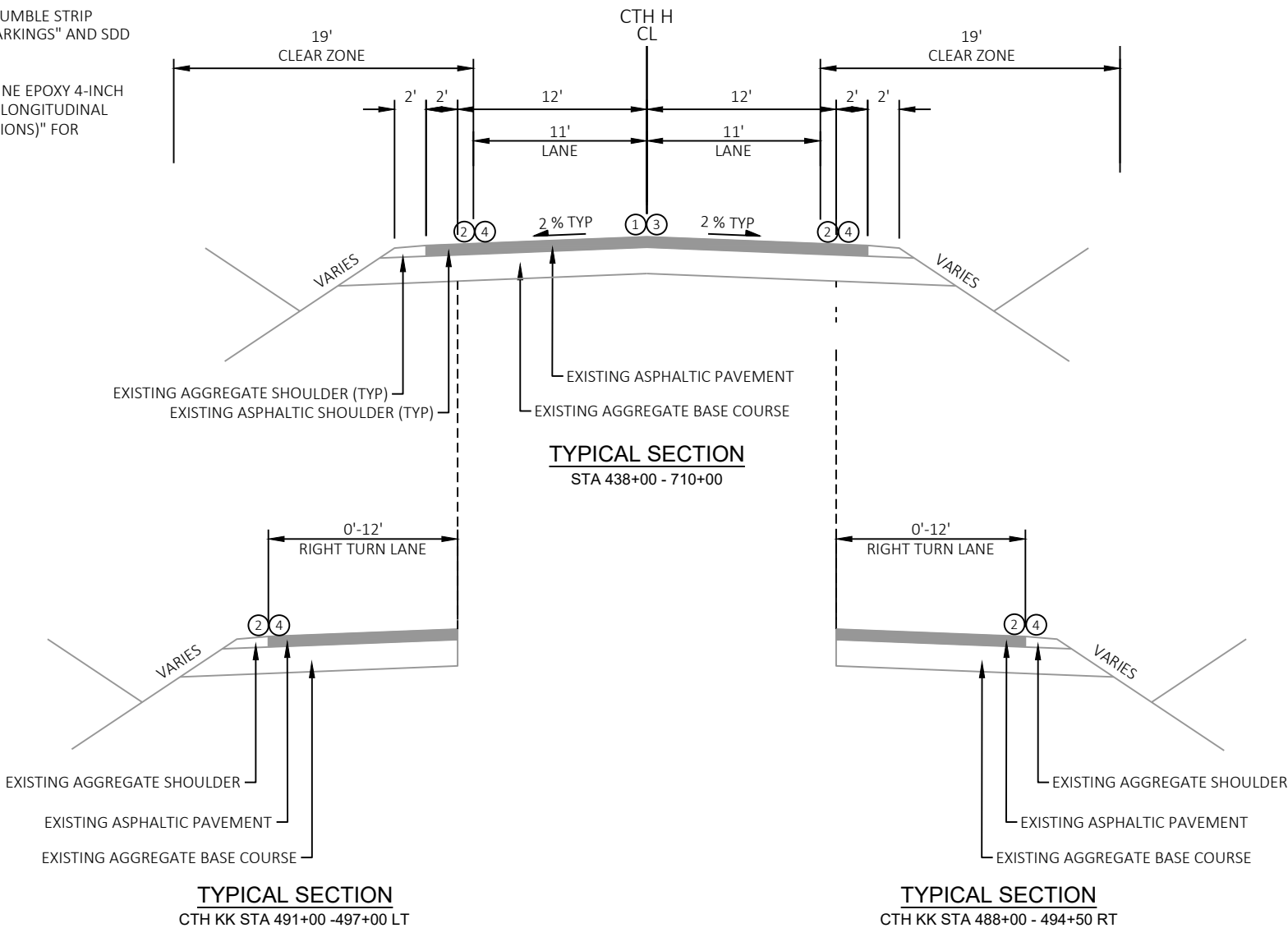
TOWN OF BELGIUM

CHAIRPERSON
THOMAS WINKER
171 MAIN STREET
BELGIUM, WI 53004
(262) 224-6691
TOWNOFBELGIUMTREAS@GMAIL.COM



PROJECT NO: 4822-07-71	HWY: CTH H	COUNTY: OZAUKEE	PROJECT OVERVIEW	SHEET 3	E
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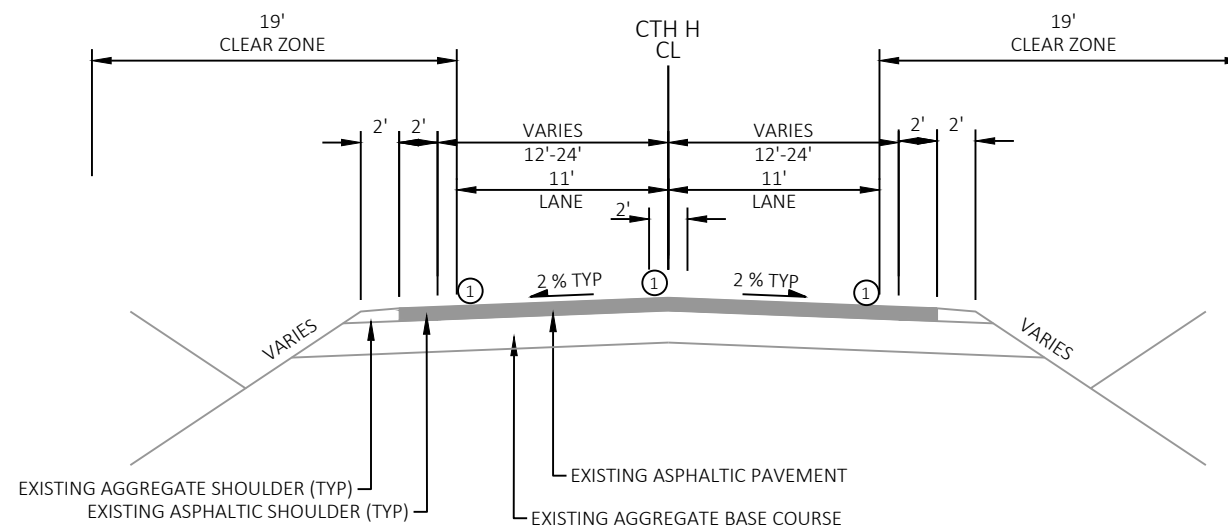
- NOTES:
- DEPTHS OF EXISTING ASPHALT PAVEMENT, SHOULDER MATERIAL, AND BASE AGGREGATE ARE UNKNOWN.
- ① STA 440+00 TO STA 685+25, STA 688+55 TO STA 710+00 ASPHALTIC RUMBLE STRIPS, CENTERLINE REQ'D. FOLLOW SDD "CENTERLINE RUMBLE STRIPS - ASPHALT" FOR GROOVE SPACING AND GAP LOCATIONS.
 - ② STA 440+00 TO STA 685+25, STA 688+55 TO STA 710+00 ASPHALTIC RUMBLE STRIPS, EDGE LINE REQ'D. FOLLOW SDD "EDGE LINE RUMBLE STRIPS - ASPHALT" FOR GROOVE SPACING AND GAP LOCATIONS.
 - ③ STA 440+00 TO STA 685+25, STA 688+55 TO STA 710+00 MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW) AFTER RUMBLE STRIP MILLING. FOLLOW SDD "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND SDD "PAVEMENT MARKING (INTERSECTIONS)" FOR PLACEMENT.
 - ④ STA 440+00 TO STA 685+25, STA 688+55 TO STA 710+00 MARKING LINE EPOXY 4-INCH (WHITE) AFTER RUMBLE STRIP MILLING. FOLLOW SDD "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND SDD "PAVEMENT MARKING (INTERSECTIONS)" FOR PLACEMENT.



NOTES:

DEPTHS OF EXISTING ASPHALT PAVEMENT, CONCRETE PAVEMENT, SHOULDER MATERIAL, AND BASE AGGREGATE ARE UNKNOWN. CONCRETE PAVEMENT REINFORCEMENT IS UNKOWN.

- ① MARKING LINE EPOXY 4-INCH. SEE SDD "PERMANENT LONGITUDINAL PAVEMENT MARKINGS" AND SDD "PAVEMENT MARKING (INTERSECTIONS)".



TYPICAL SECTION
STA 710+00 - 711+18

Estimate Of Quantities

4822-07-71

Line	Item	Item Description	Unit	Total	Qty
0002	213.0100	Finishing Roadway (project) 01. 4822-07-71	EACH	1.000	1.000
0004	465.0540	Asphaltic Rumble Strips, Edge Line	LF	47,530.000	47,530.000
0006	465.0560	Asphaltic Rumble Strips, Centerline	LF	23,310.000	23,310.000
0008	619.1000	Mobilization	EACH	1.000	1.000
0010	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	20.000	20.000
0012	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	14.000	14.000
0014	637.2230	Signs Type II Reflective F	SF	175.600	175.600
0016	638.2102	Moving Signs Type II	EACH	4.000	4.000
0018	638.2602	Removing Signs Type II	EACH	2.000	2.000
0020	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0022	643.0900	Traffic Control Signs	DAY	152.000	152.000
0024	643.5000	Traffic Control	EACH	1.000	1.000
0026	646.1020	Marking Line Epoxy 4-Inch	LF	53,165.000	53,165.000
0028	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	41,480.000	41,480.000
0030	646.9000	Marking Removal Line 4-Inch	LF	2,100.000	2,100.000
0032	648.0100	Locating No-Passing Zones	MI	5.170	5.170

3

FINISHING ROADWAY

CATEGORY	STATION	TO	STATION	LOCATION	213.0100.01 FINISHING ROADWAY (PROJECT) (01. 4822-07-71) EACH
0010	438+00	-	711+18	CTH H	1
TOTAL 0010					1

ASPHALTIC RUMBLE STRIPS

						465.0540 ASPHALTIC RUMBLE STRIPS, EDGE LINE LF	465.0560 ASPHALTIC RUMBLE STRIPS, CENTERLINE LF
CATEGORY	STATION	TO	STATION	LOCATION			
0010	440+00	-	490+68	CTH H		9,810	4,570
0010	494+68	-	607+65	CTH H		21,250	10,170
0010	611+65	-	682+25	CTH H		12,850	6,630
0010	688+55	-	710+00	CTH H		3,620	1,940
TOTAL 0010						47,530	23,310

TRAFFIC CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	643.0900 TRAFFIC CONTROL SIGNS DAY	643.5000 TRAFFIC CONTROL EACH
0010	438+00	-	711+18	CTH H	152	1
TOTAL 0010					152	1

3

PAVEMENT MARKING

										646.1020	646.1040 MARKING LINE GROOVED WET REF EPOXY 4- INCH YELLOW	646.9000 MARKING REMOVAL LINE 4- INCH	648.0100 LOCATING NO- PASSING ZONES
CATEGORY	STATION	TO	STATION	LOCATION	MARKING LINE EPOXY 4-INCH WHITE LF	YELLOW LF					LF	LF	MI
0010	438+00	-	656+00	CTH H	43,180	-					35,755	-	-
0010	656+00	-	669+00	CTH H	1,680	-					1,125	-	-
0010	669+00	-	685+50	CTH H	3,575	-					1,315	-	-
0010	688+30	-	710+00	CTH H	4,340	-					3,285	-	-
0010	710+00	-	711+18	CTH H	240	150					-		
0010	438+00	-	711+18	CTH H	-	-					-	2,100	5.17
TOTAL 0010					53,165		41,480		2,100		5.17		

NOTE: MARKING REMOVAL LINE 4-INCH SHALL BE PERFORMED AFTER LOCATING NO-PASSING ZONES AND CENTERLINE RUMBLE STRIP PLACEMENT, AS NECESSARY, TO REMOVE EXISTING CENTERLINE MARKING.

PROJECT NO: 4822-07-71

HWY: CTH H

COUNTY: OZAUKEE

MISCELLANEOUS QUANTITIES

SHEET

7

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3

3

SIGNING													
CATEGORY	SIGN NO.	CODE	SIGN MESSAGE	SIZE (IN X IN)	LOCATION	634.0612	634.0616	637.2230	638.2102	638.2602	638.3000	REMARKS	
						POSTS WOOD 4X6-INCH X 12- FT EACH	POSTS WOOD 4X6-INCH X 16- FT EACH	SIGNS TYPE II REFLECTIVE F SF	MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH		
0010	1-1	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-2	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-3	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-4	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-5	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-6	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-7	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-8	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-9	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-10	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-11	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	1-12	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	2-1	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	2-2	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	2-3	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	2-4	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	2-5	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	2-6	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-1	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-2	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-3	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-4	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-5	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-6	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-7	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-8	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-9	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-10	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-11	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-12	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-13	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	3-14	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	4-1	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	4-2	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	4-3	W13-1	45 MPH	18 X 18	CTH H	-	-	-	-	1	-		
0010	4-4	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	4-5	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	4-6	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	4-7	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-1	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-2	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-3	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-4	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-5	W1-8	CHEVRON	18 X 24	CTH H	1	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-6	W1-8	CHEVRON	18 X 24	CTH H	-	-	3.00	-	-	-	4-FT MOUNTING HEIGHT	
0010	5-7	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	5-8	W13-1	45 MPH	18 X 18	CTH H	-	-	-	-	1	-		
0010	5-9	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	7-1	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	8-1	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	9-1	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	9-2	W14-3	NO PASSING ZONE	48 X 36	CTH H	-	1	5.56	-	-	-		
0010	-	-	-	- - -	CTH H	-	4	-	4	-	4	UNDISTRIBUTED - MOVING EXISTING NO PASSING ZONE SIGNS	
TOTAL 0010						20	14	175.60	4	2	4		

PROJECT NO: 4822-07-71

HWY: CTH H

COUNTY: OZAUKEE

MISCELLANEOUS QUANTITIES

SHEET

E

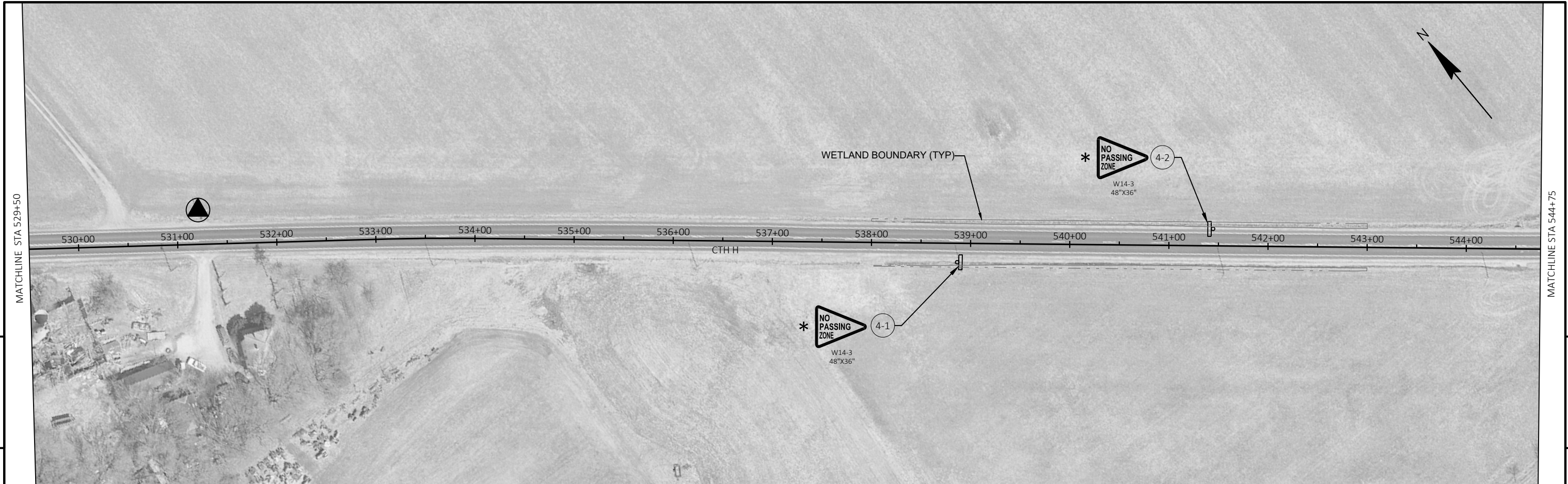


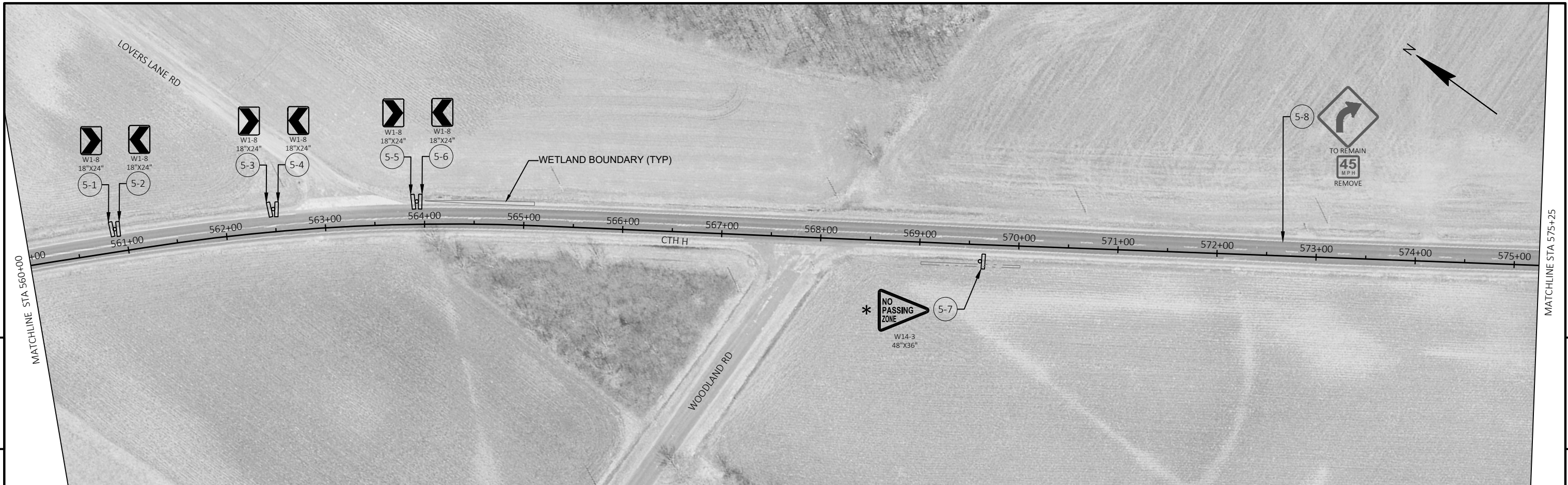


* LOCATION OF NO PASSING ZONE SIGNS AS SHOWN IS APPROXIMATE. ACTUAL LOCATION SHALL BE DETERMINED BASED UPON RESULTS OF LOCATING NO-PASSING ZONES.



X = TREE TO BE REMOVED BY OTHERS PRIOR TO CONSTRUCTION





* LOCATION OF NO PASSING ZONE SIGNS AS SHOWN IS APPROXIMATE. ACTUAL LOCATION SHALL BE DETERMINED BASED UPON RESULTS OF LOCATING NO-PASSING ZONES.



PROJECT NO: 4822-07-71	HWY: CTH H	COUNTY: OZAUKEE	PLAN	SHEET 14	E
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MATCHLINE STA 621+00



MATCHLINE STA 636+25

MATCHLINE STA 636+25



MATCHLINE STA 651+50

* LOCATION OF NO PASSING ZONE SIGNS AS SHOWN IS APPROXIMATE. ACTUAL LOCATION SHALL BE DETERMINED BASED UPON RESULTS OF LOCATING NO-PASSING ZONES.

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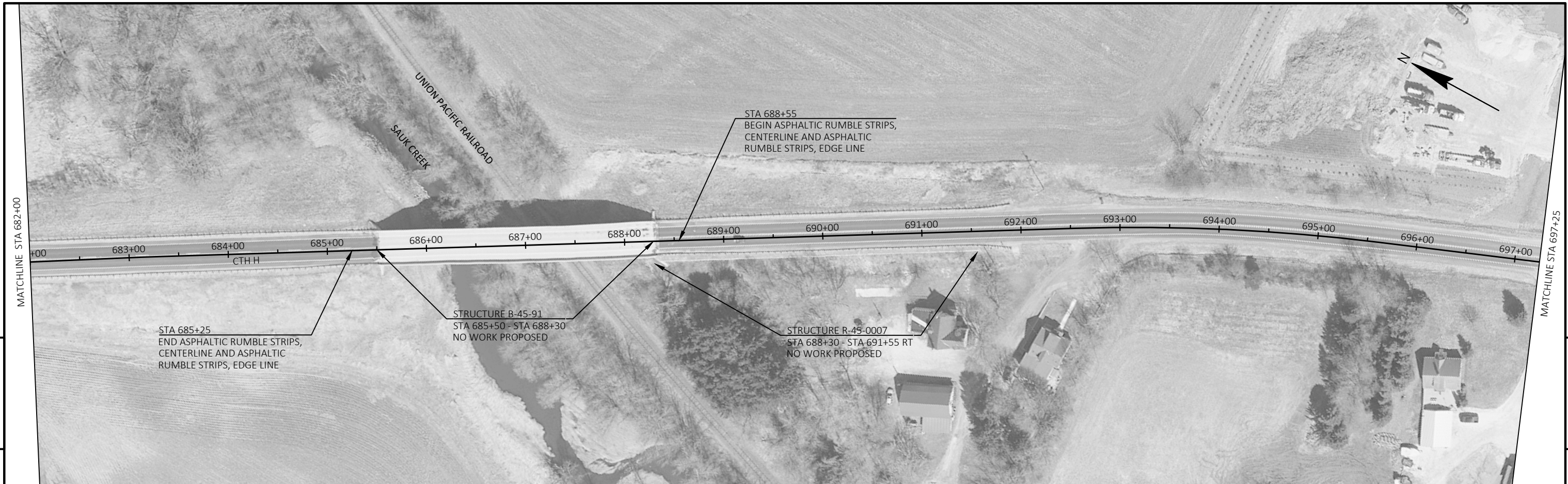


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* LOCATION OF NO PASSING ZONE SIGNS AS SHOWN IS APPROXIMATE. ACTUAL LOCATION SHALL BE DETERMINED BASED UPON RESULTS OF LOCATING NO-PASSING ZONES.

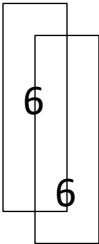
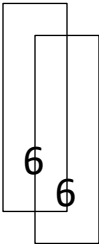
PROJECT NO: 4822-07-71	HWY: CTH H	COUNTY: OZAUKEE	PLAN	SHEET 16	E
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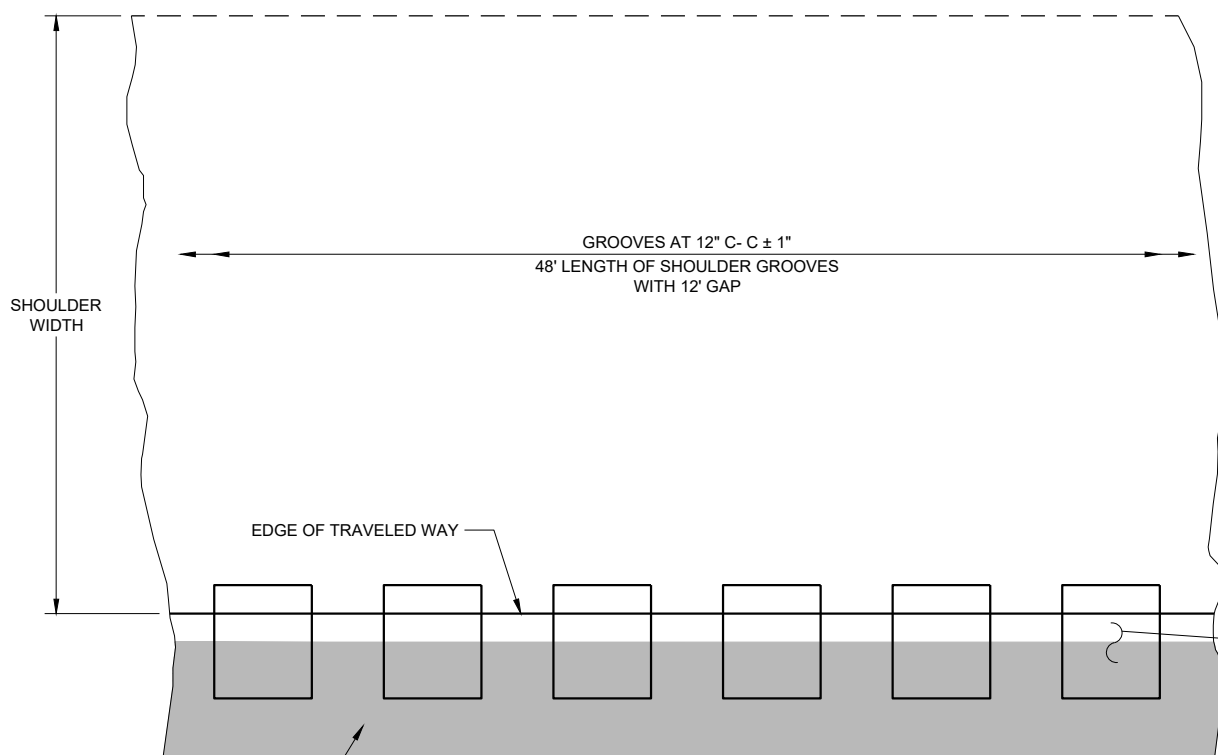


PROJECT NO: 4822-07-71	HWY: CTH H	COUNTY: OZAUKEE	PLAN	SHEET 17	E
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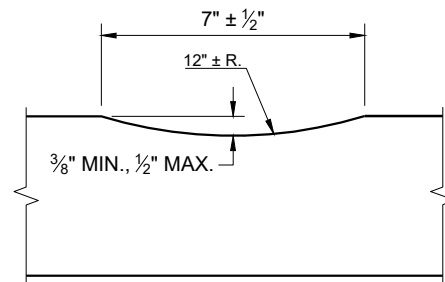
Standard Detail Drawing ListStandard Detail Drawing List

13A10-03E	EDGE LINE RUMBLE STRIPS - ASPHALT
13A10-03G	SHOULDER AND EDGE LINE RUMBLE STRIPS - CROSSINGS, INTERSECTIONS, BRIDGES, DRIVEWAYS
13A10-03H	SHOULDER AND EDGE LINE RUMBLE STRIPS - RAILROAD, PASSING, CLIMBING AND BYPASS LANES
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C19-08A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

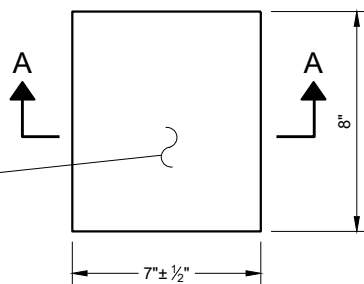




PLAN DETAIL VIEW
SHOULDER WITH GROOVES



SECTION A - A

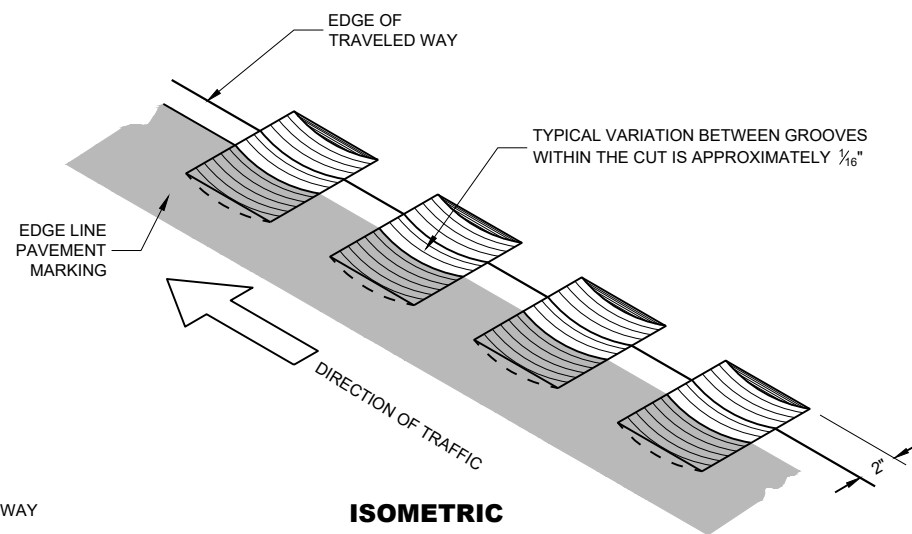


PLAN VIEW
(SINGLE GROOVE)

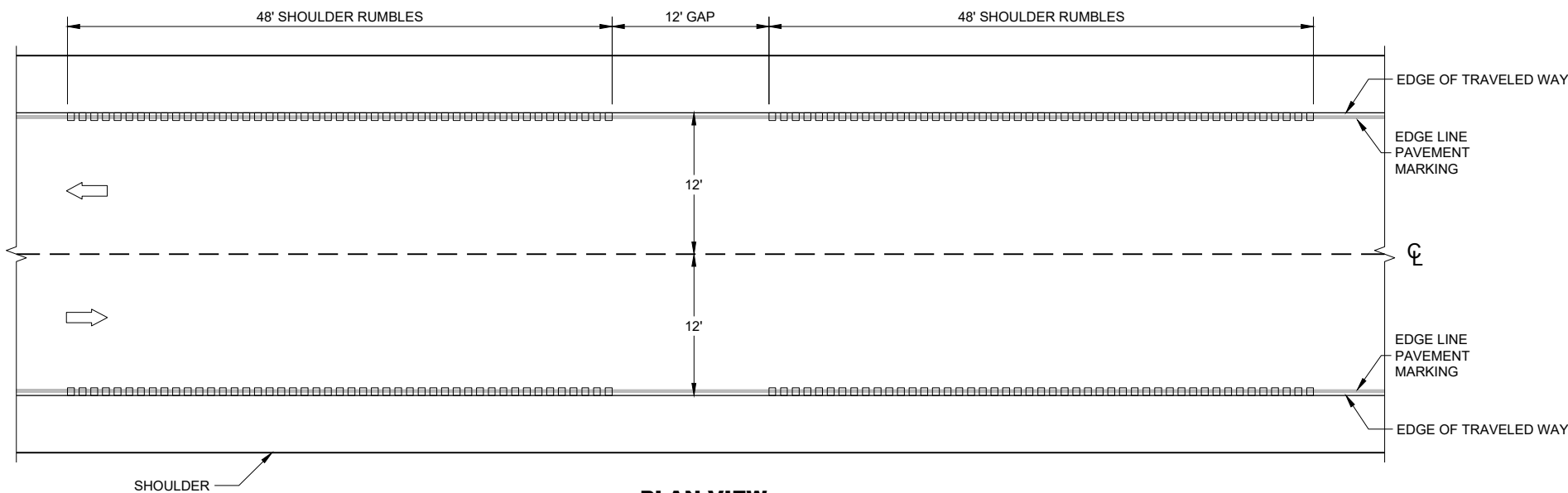
GENERAL NOTES

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

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



ISOMETRIC

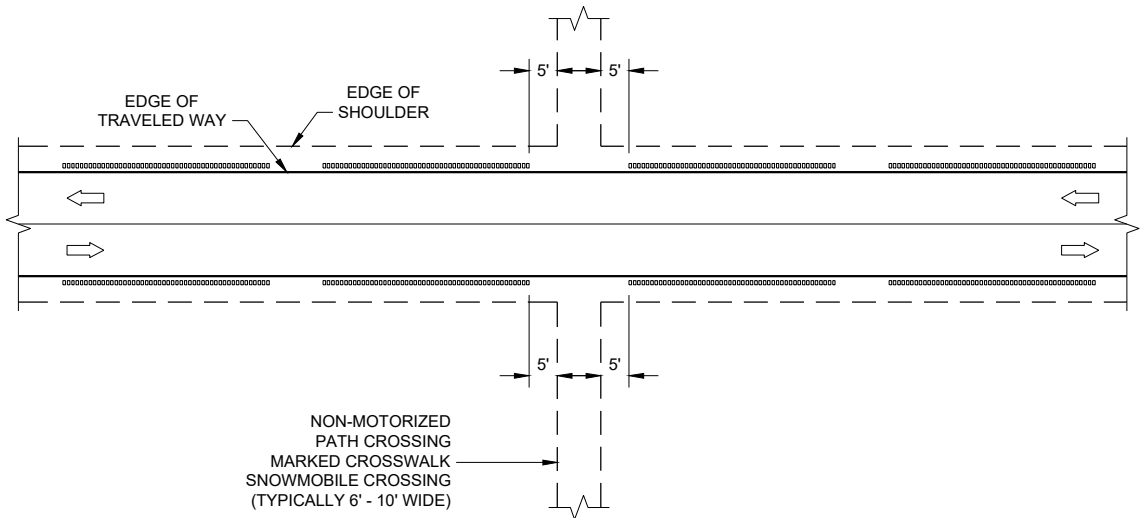


PLAN VIEW

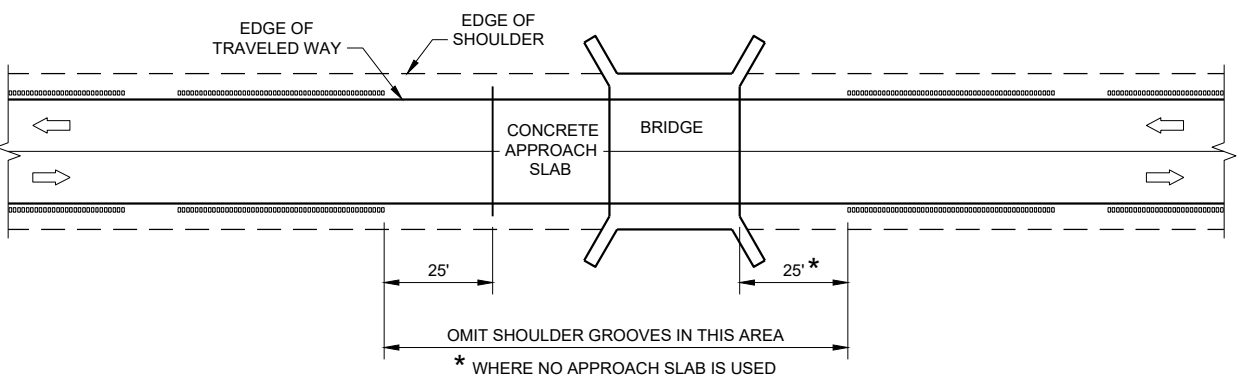
EDGE LINE RUMBLE STRIPS - ASPHALT

EDGE LINE RUMBLE
STRIPS - ASPHALT

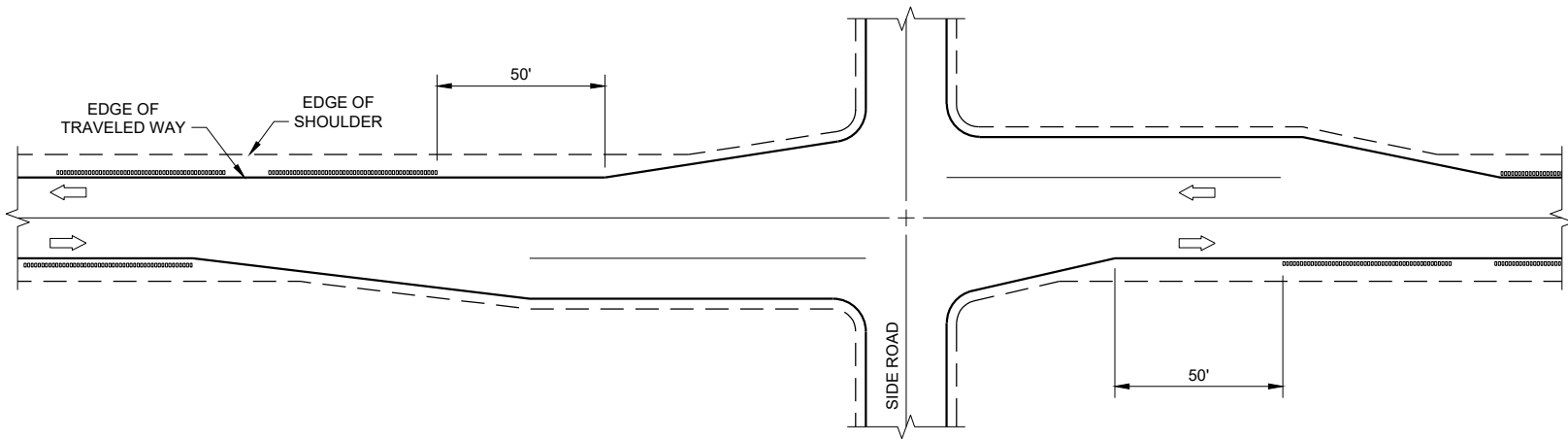
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



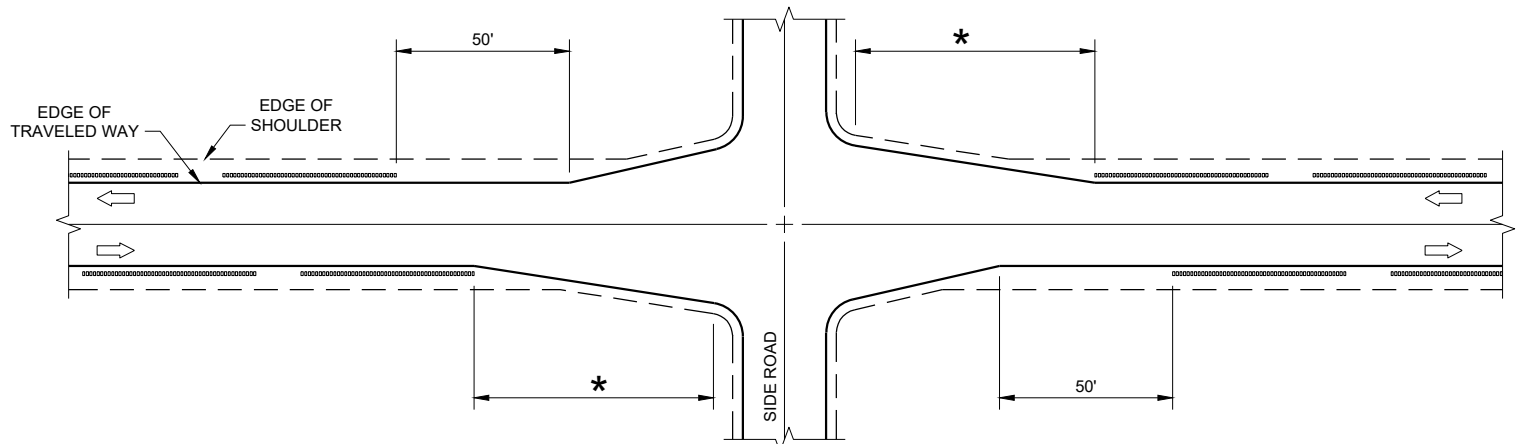
GROOVES AT MISCELLANEOUS CROSSINGS



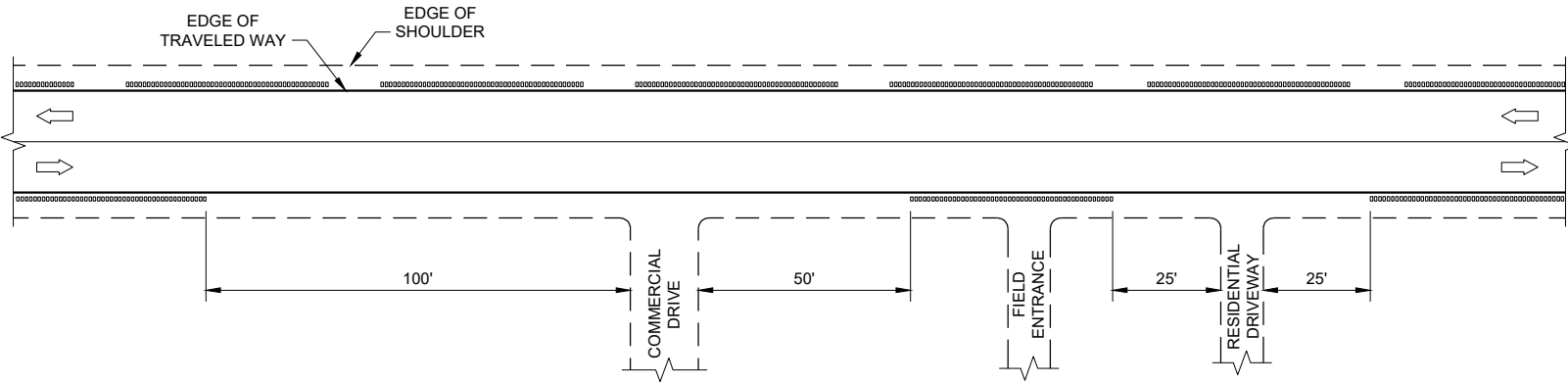
GROOVES AT BRIDGES



GROOVES AT RIGHT TURN LANE



GROOVES AT INTERSECTIONS WITH APPROACH TAPER



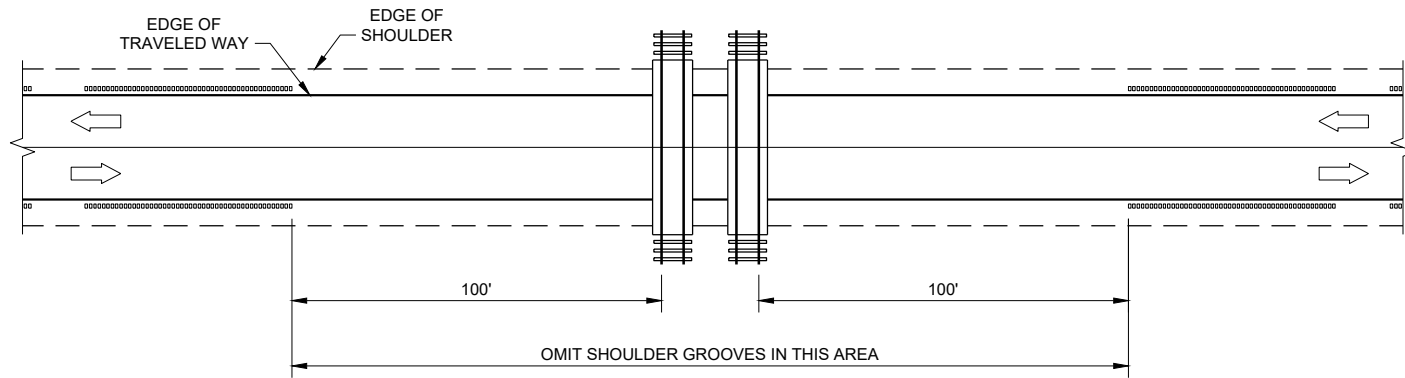
GROOVES AT DRIVEWAYS

GENERAL NOTES

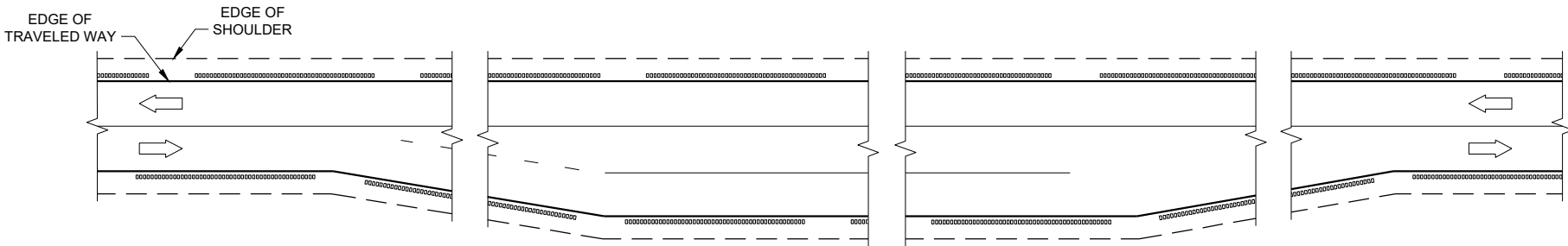
- ① SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.

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

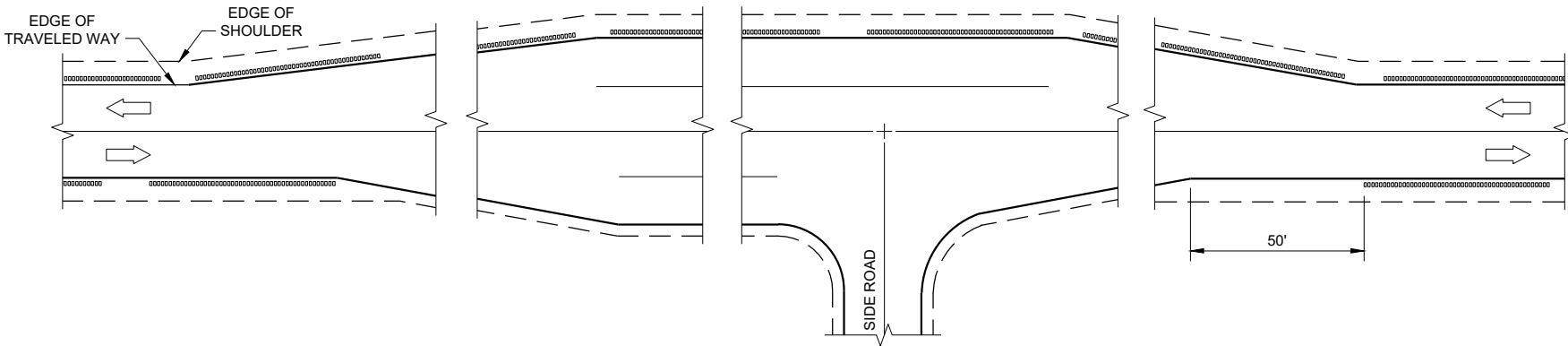
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GROOVES AT RAILROADS



GROOVES AT PASSING AND CLIMBING LANES

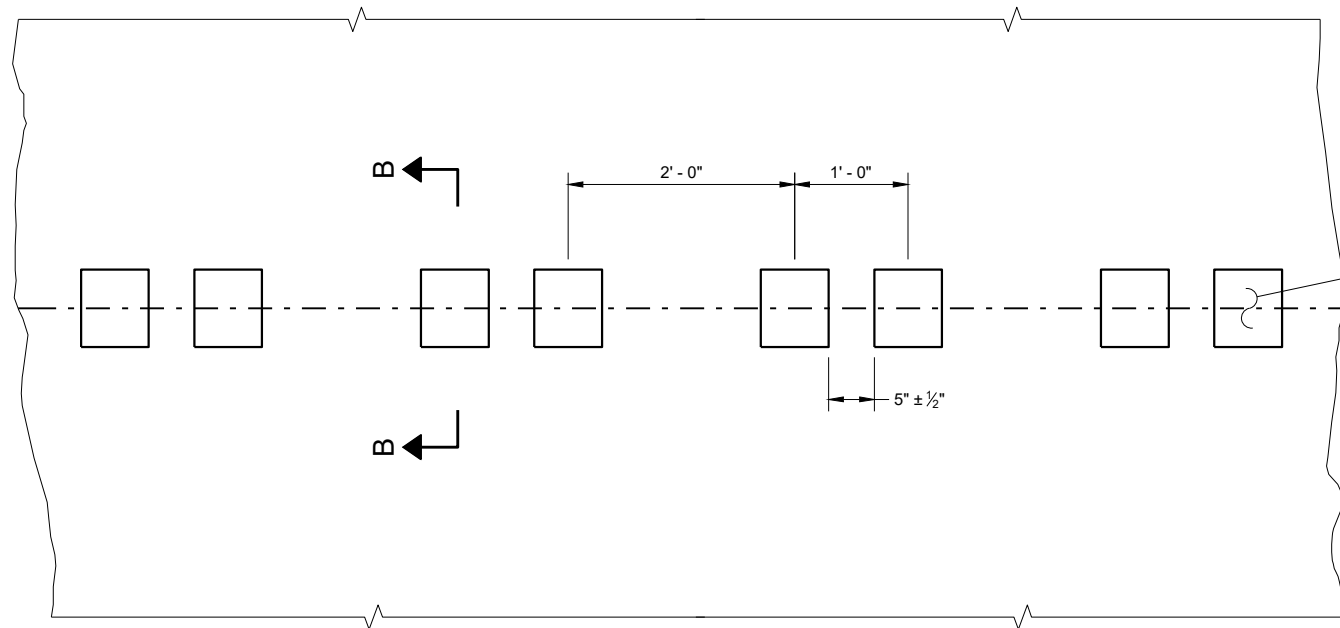


GROOVES AT BYPASS LANES

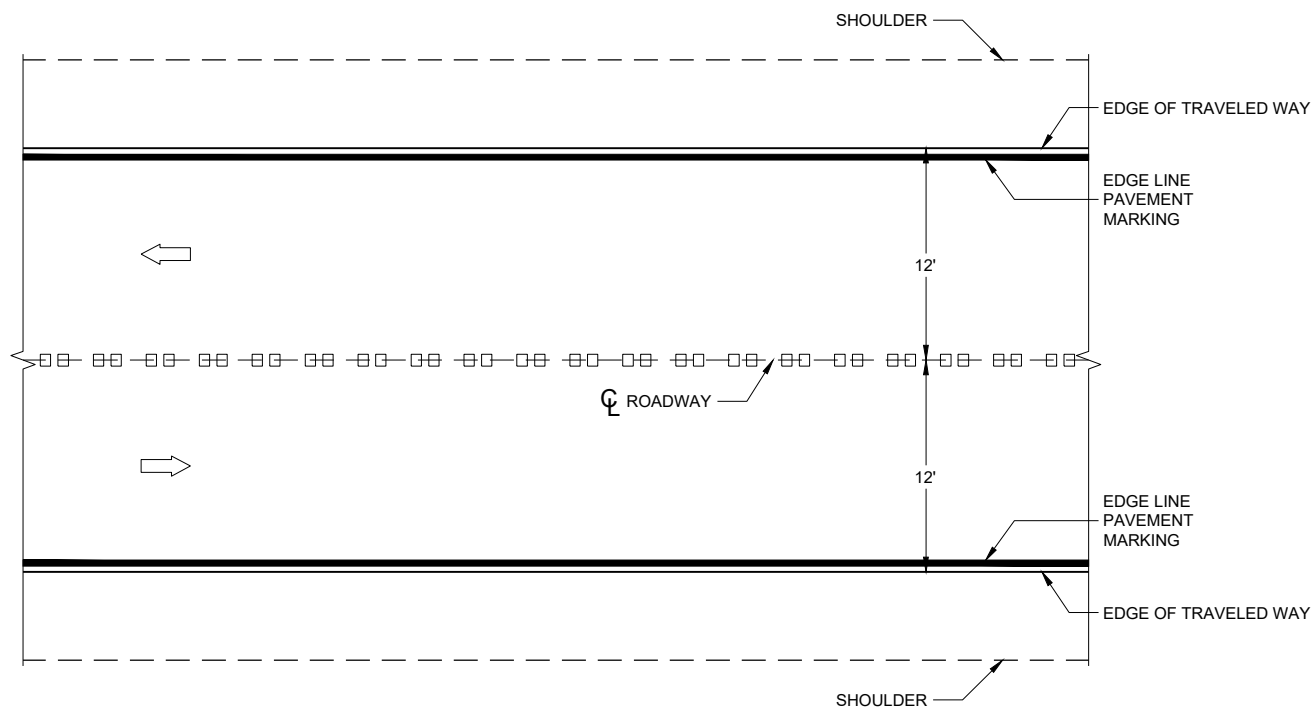
**SHOULDER AND EDGE LINE
RUMBLE STRIPS -
RAILROAD, PASSING,
CLIMBING AND BYPASS LANES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ John Jenkins
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 21
FHWA

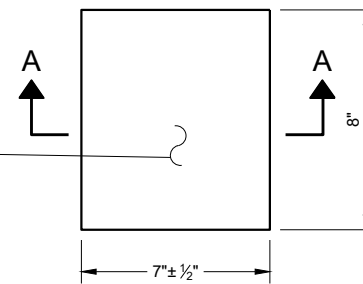


PLAN DETAIL VIEW

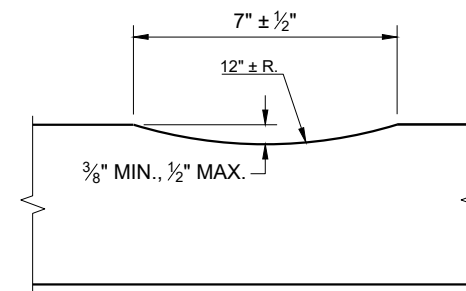


PLAN VIEW

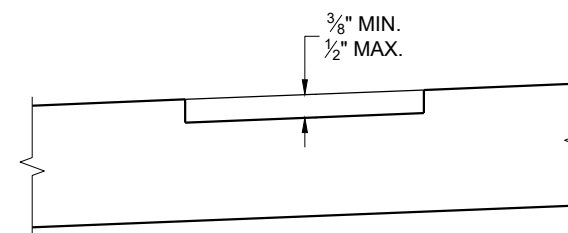
CENTERLINE RUMBLE STRIPS - ASPHALT



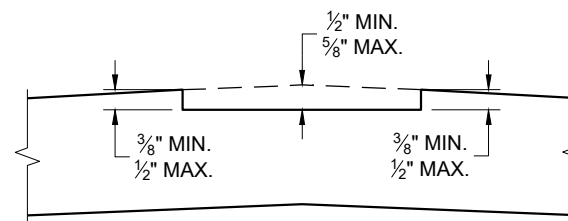
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

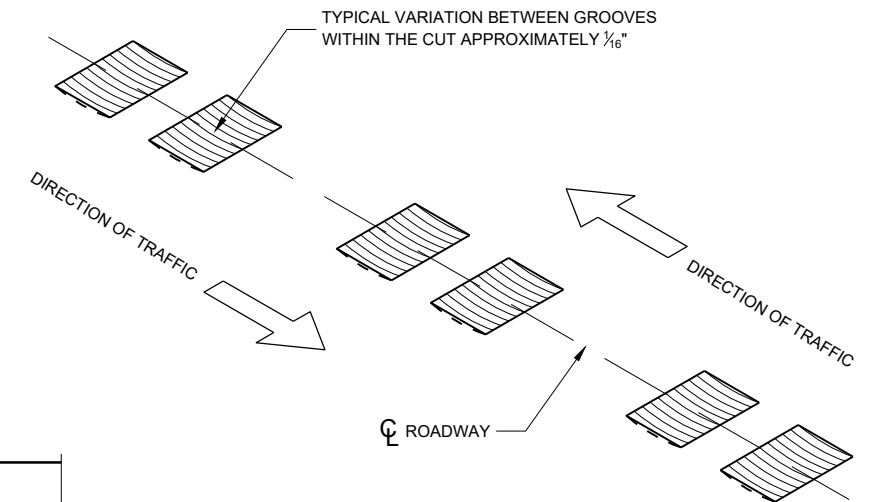


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

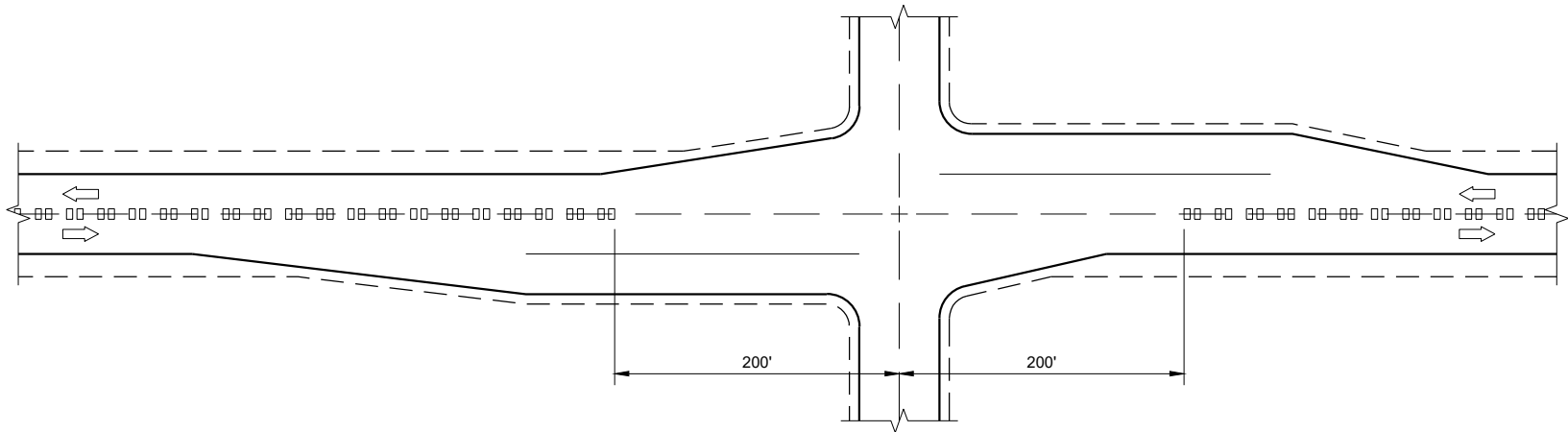
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

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

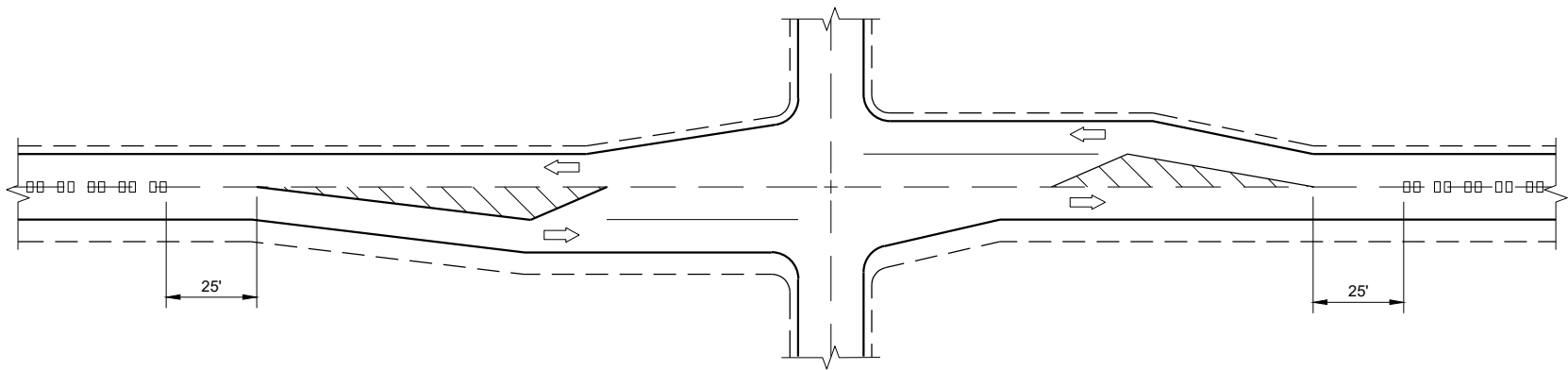


CENTERLINE RUMBLE STRIPS - ASPHALT

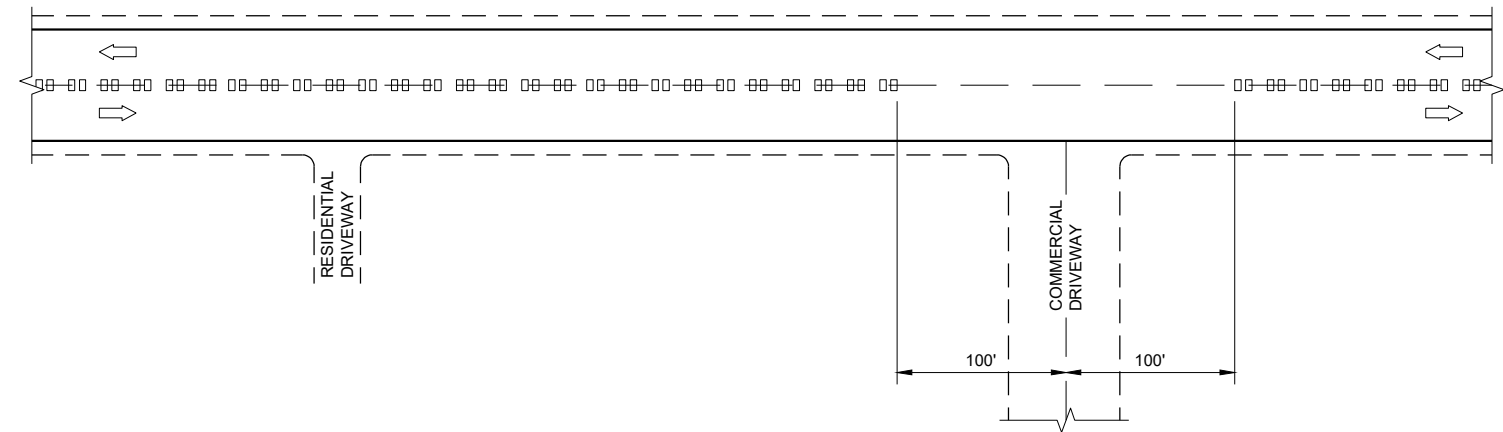
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CENTERLINE GROOVES AT INTERSECTIONS



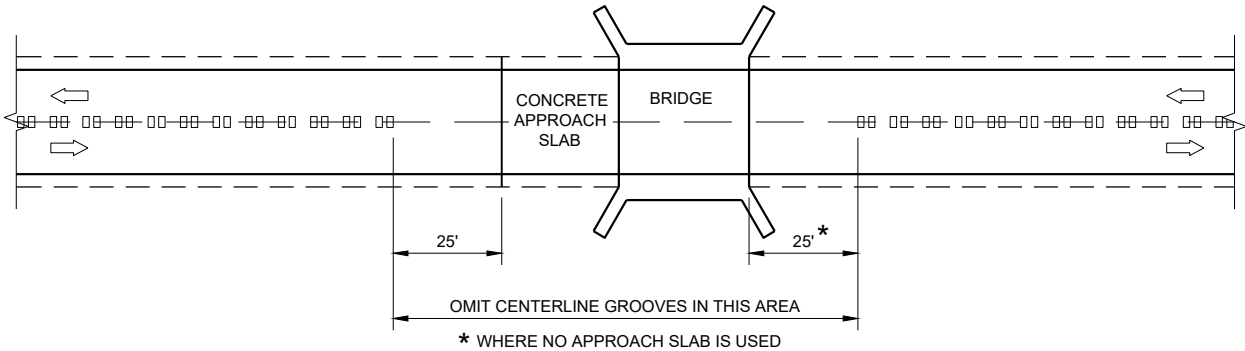
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



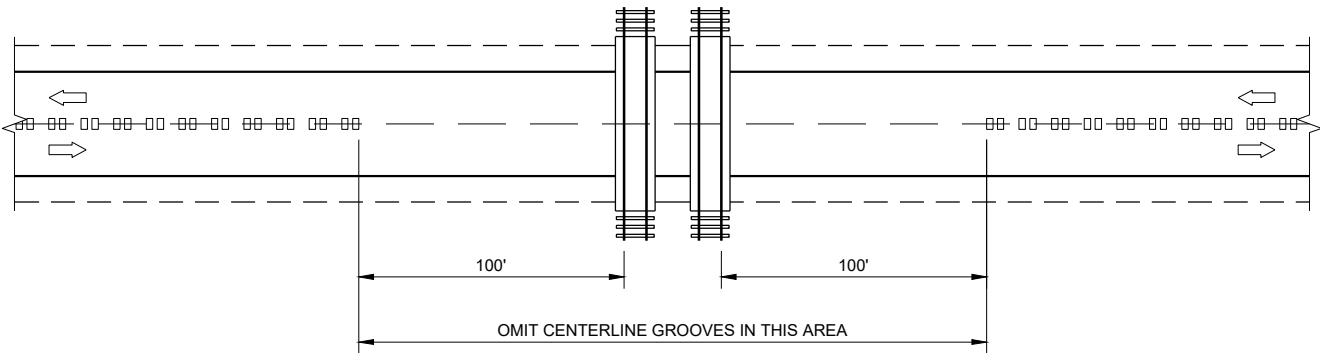
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

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



CENTERLINE GROOVES AT BRIDGES



CENTERLINE GROOVES AT RAILROADS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER
23
FHWA

GENERAL NOTES

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

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

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

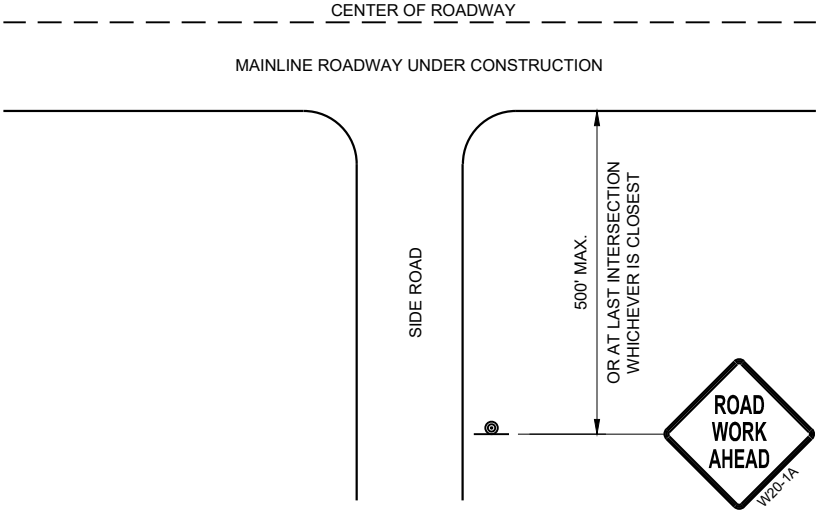
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

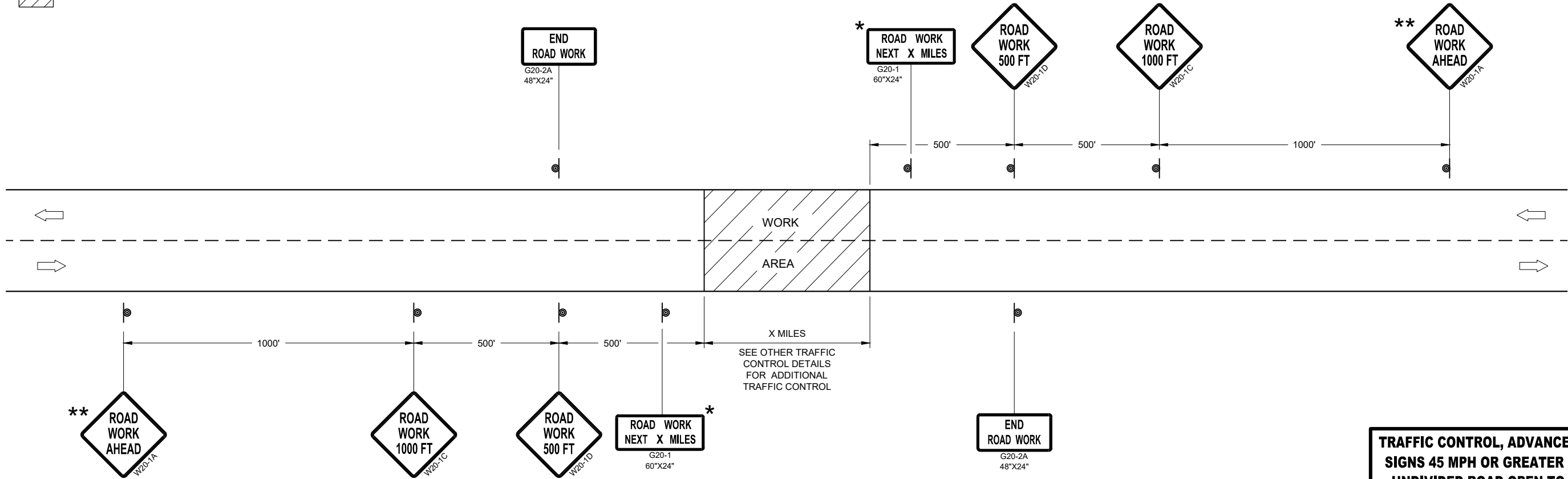
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

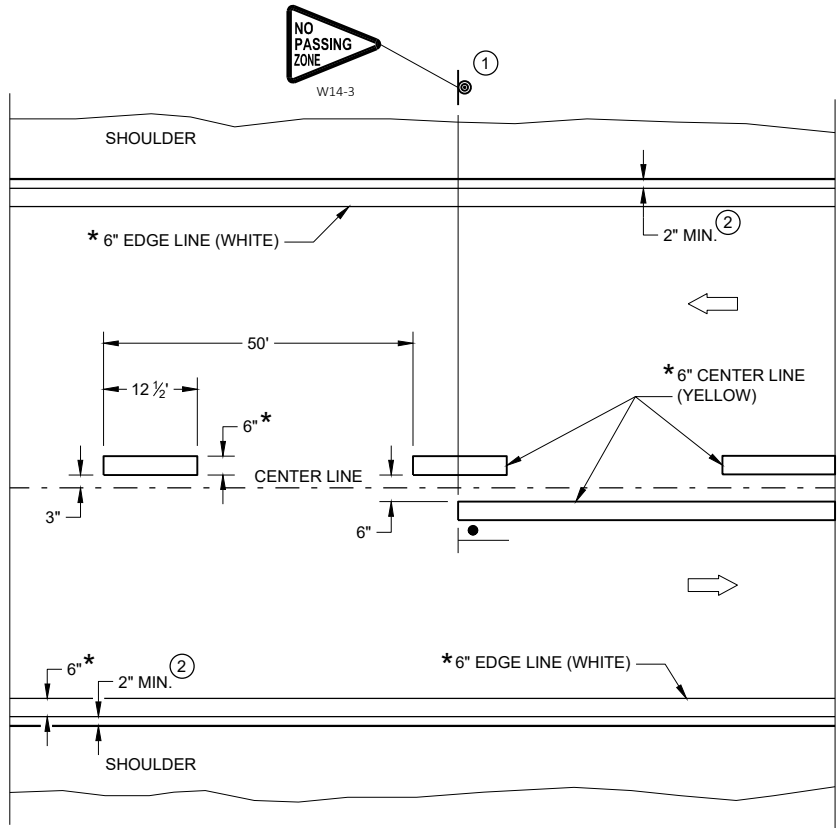


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

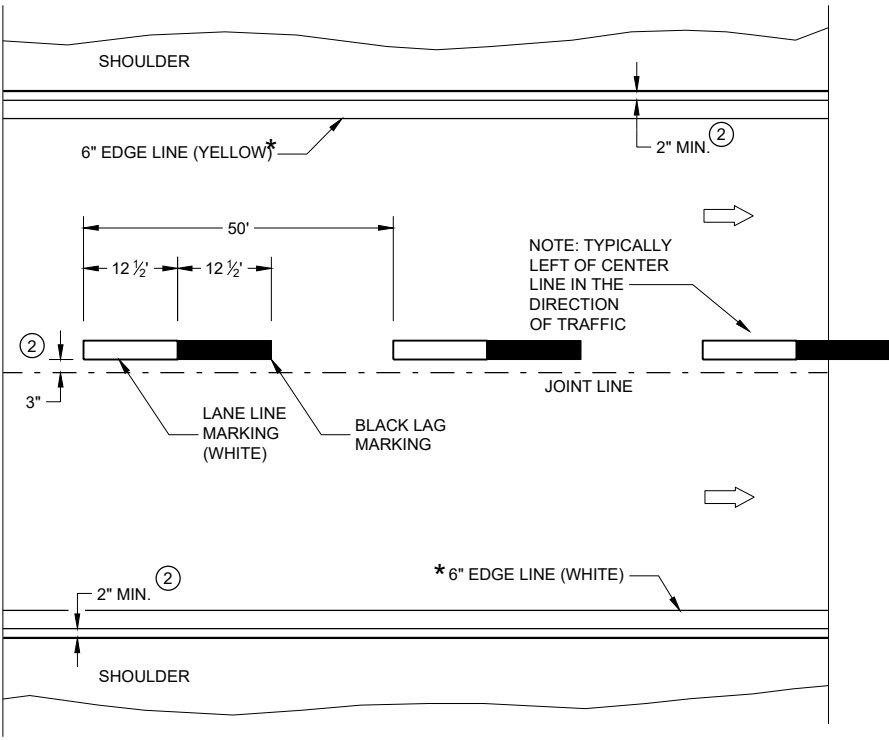
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 24
FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

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

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

LEGEND

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

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE STATEWIDE SIGNING AND M ENGINEER 25
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

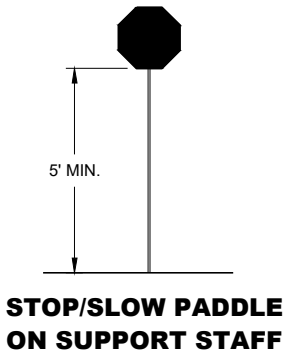
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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.

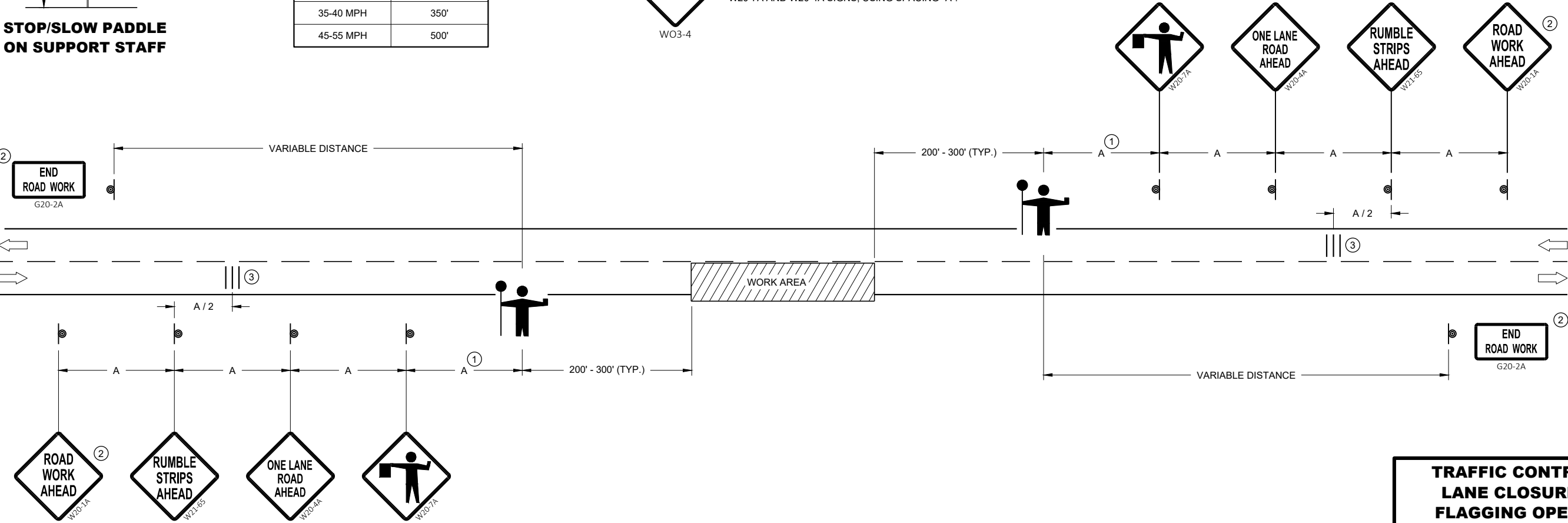


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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".



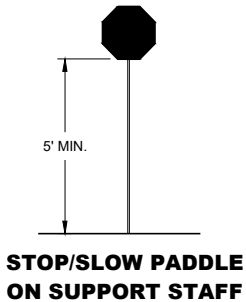
**TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 26

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- **GENERAL NOTES**
SIGN ON PERMANENT SUPPORT
- 
TRAFFIC CONTROL CONE 42-INCH
- 
TRAFFIC CONTROL DRUM
- 
TEMPORARY PORTABLE RUMBLE STRIP ARRAY
- 
DIRECTION OF TRAFFIC
- 
WORK AREA
- 
AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)



- 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.

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

- FLAGGING**
IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.
- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

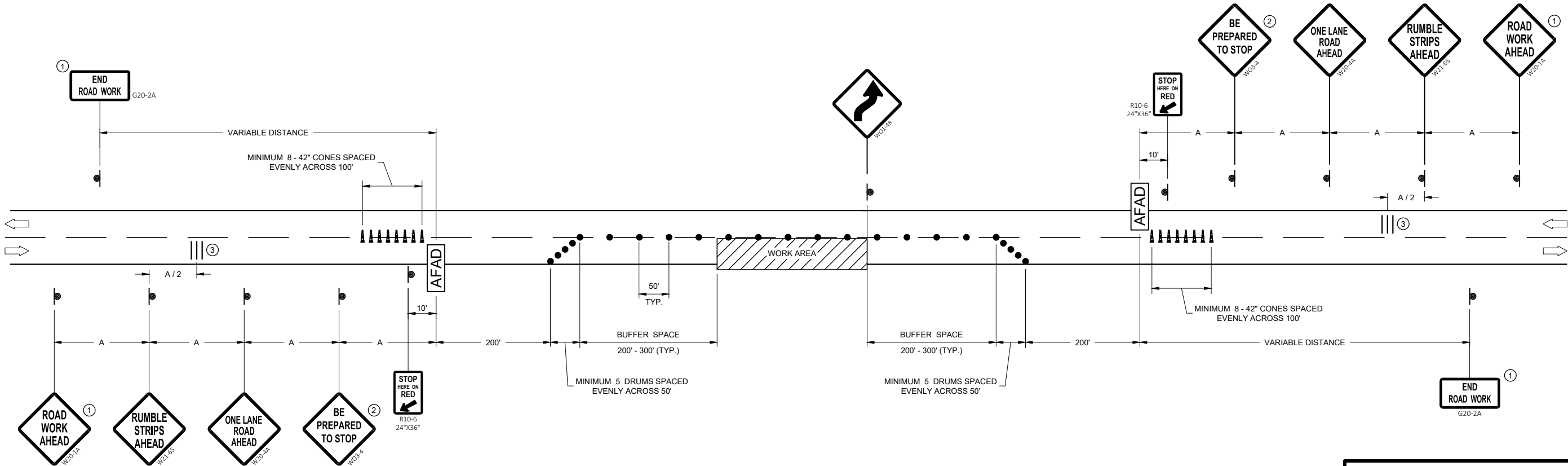
② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.
- TEMPORARY PORTABLE RUMBLE STRIPS**
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

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

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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



**TRAFFIC CONTROL, LANE
CLOSURE WITH AUTOMATED
FLAGGER ASSISTANCE DEVICE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 27

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LEGEND

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

GENERAL NOTES

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

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

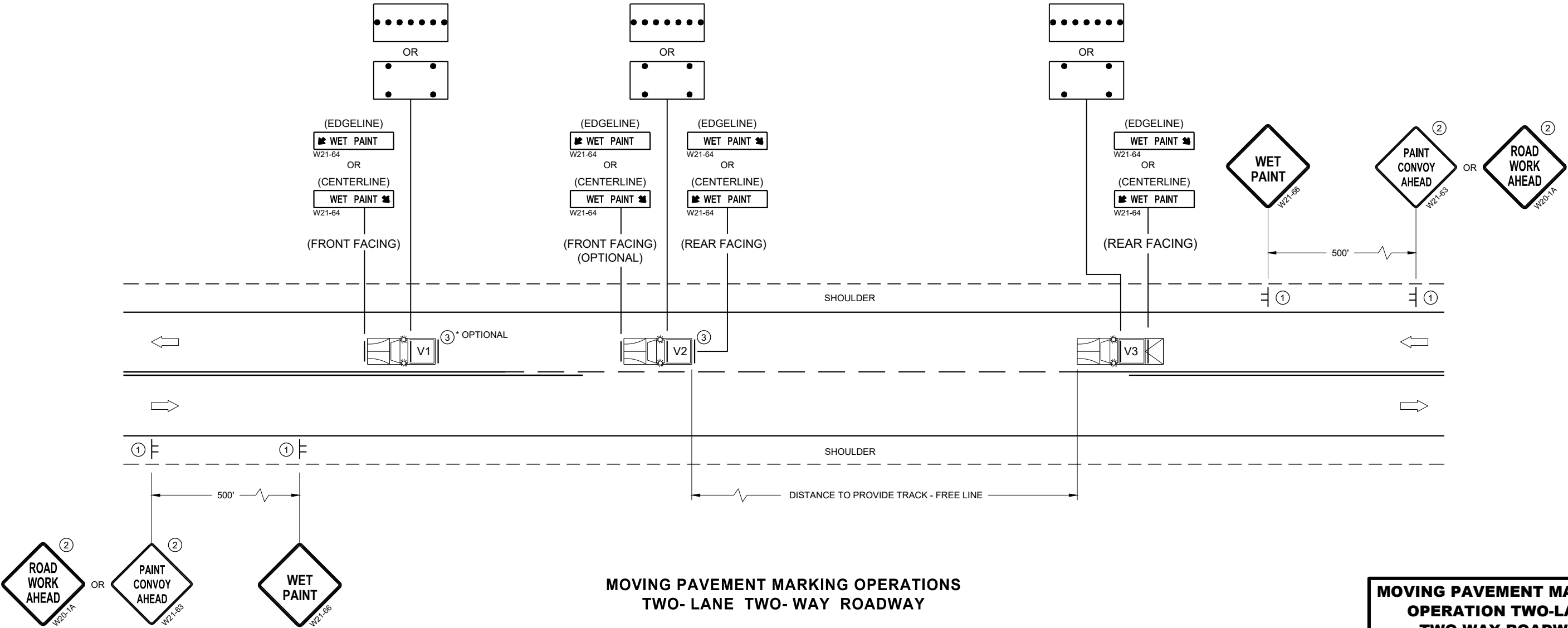
THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

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

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2023 /S/ Andrew J. ...
DATE WORK ZONE EN 28
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

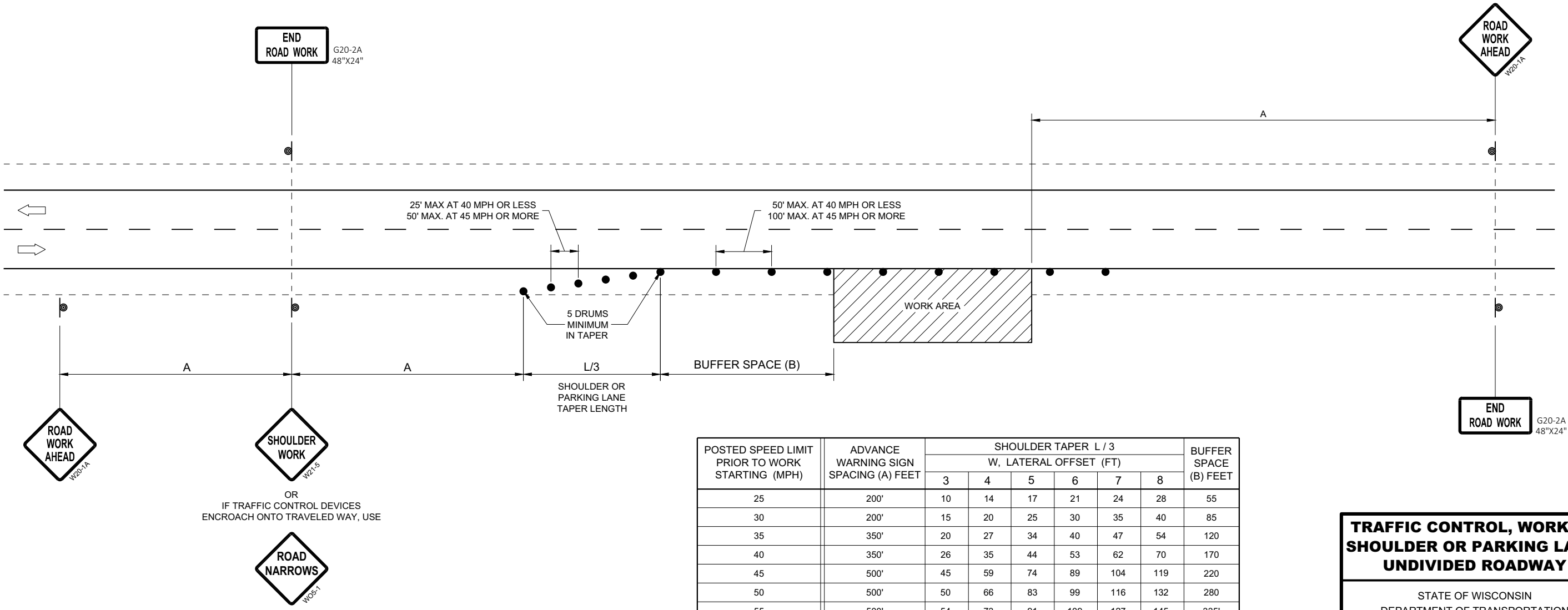
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE T
SAFETY ENGINEER

29

FHWA

SDD 15D28 - 04

SDD 15D28 - 04

LEGEND

- V1

WORK VEHICLE
- V2

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

FLASHING ARROW PANEL (CAUTION)
- 

WORK AREA
- 

DIRECTION OF TRAFFIC

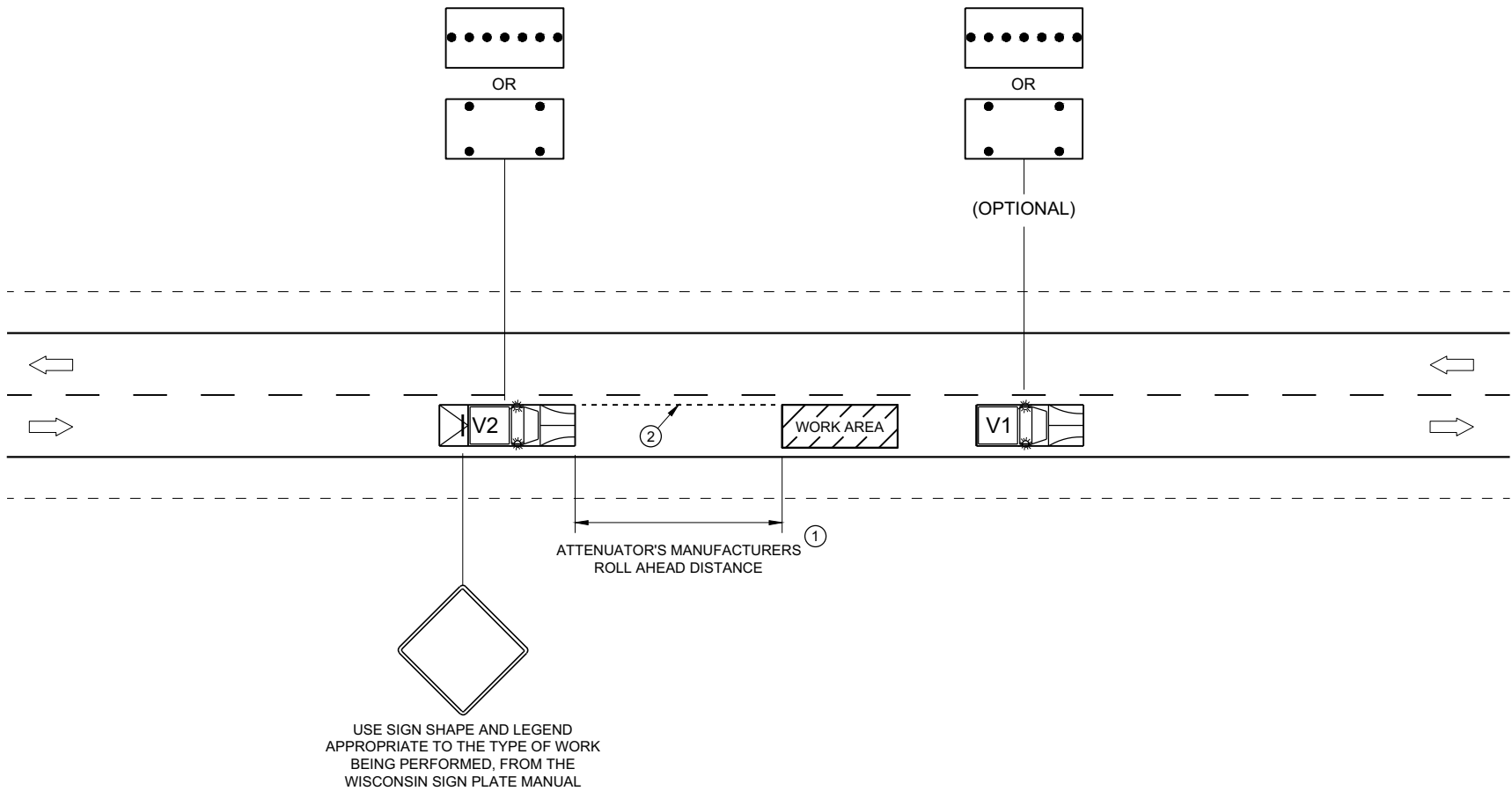
POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
- MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.
- ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.
- ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.
- USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.
- ①

DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ②

ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

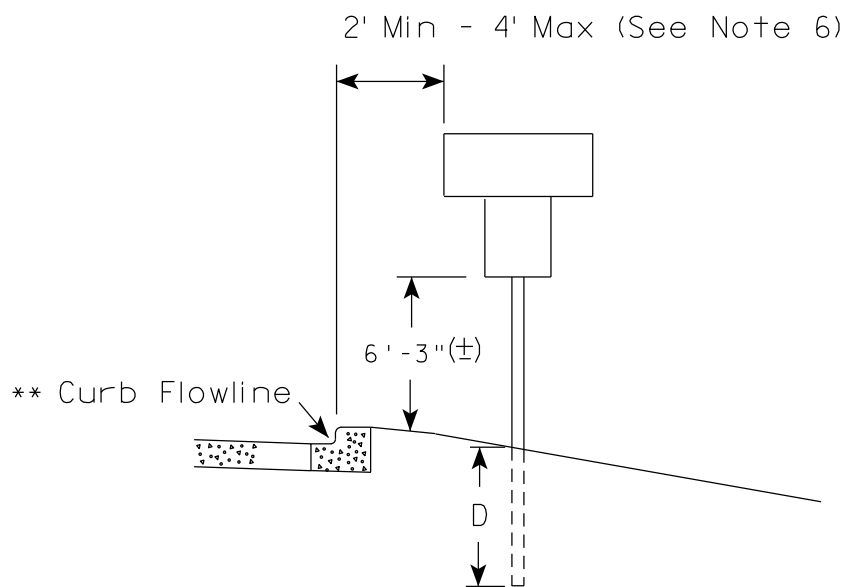
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE T
SAFETY ENGINEER 30

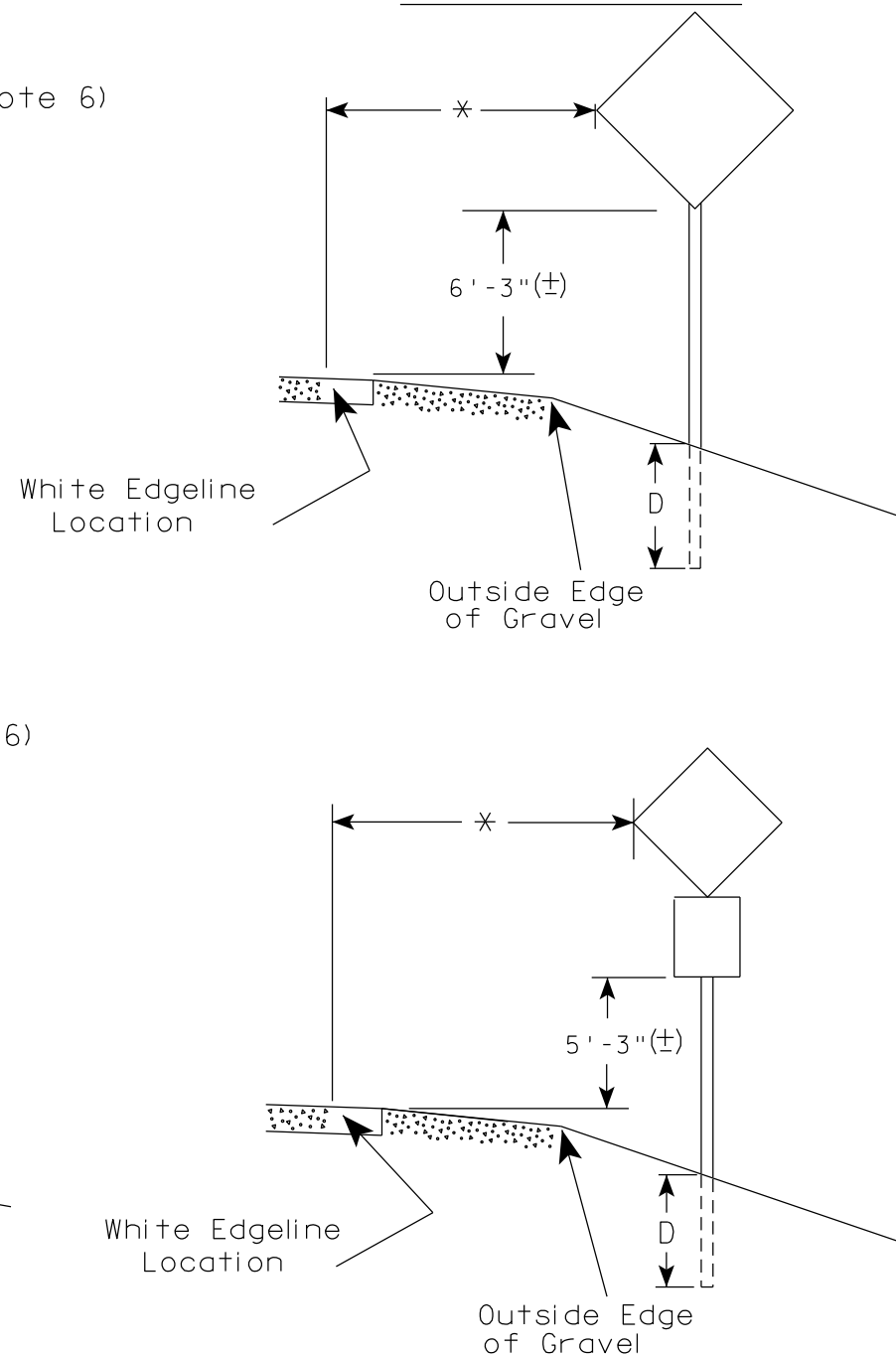
FHWA

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.

7



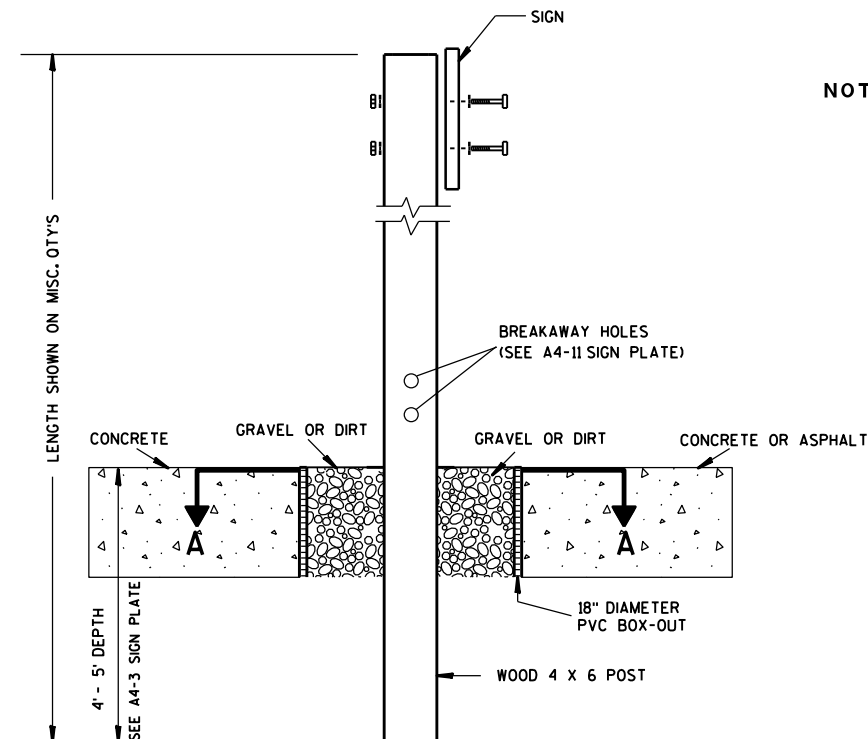
TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

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

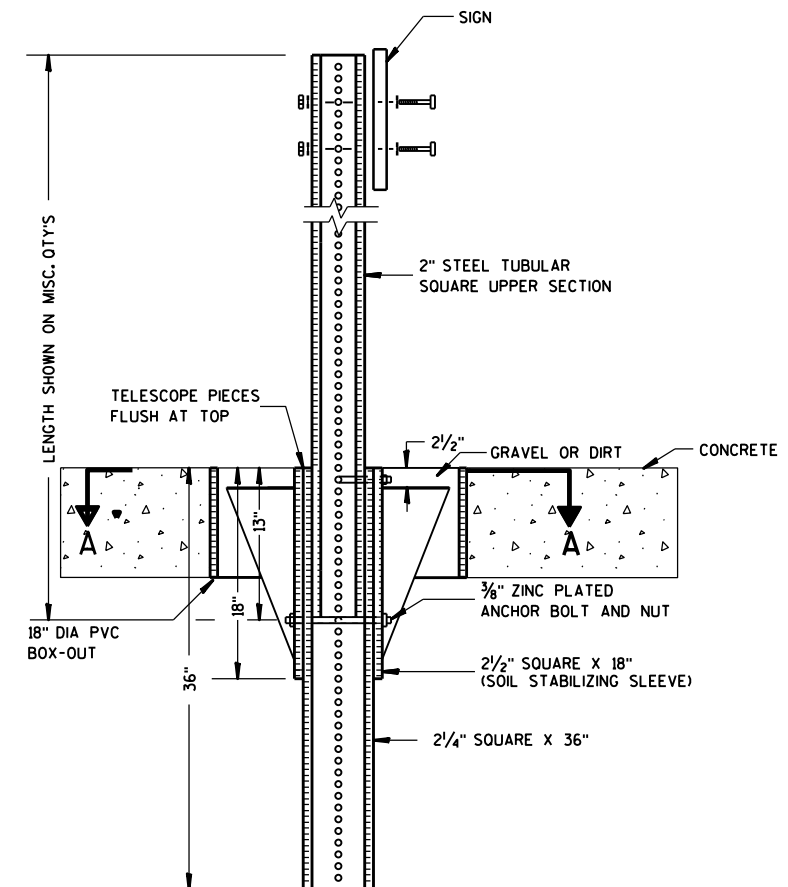
- ## GENERAL NOTES
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
 2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" ($\pm$). The Chevron sign (W1-8), 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.



ELEVATION VIEW

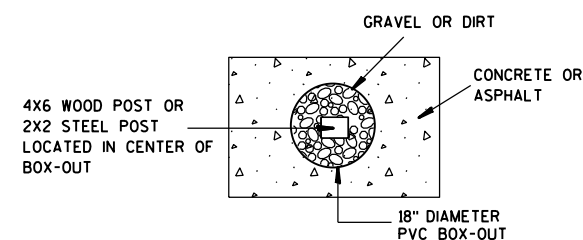
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 32 A4-3B.1

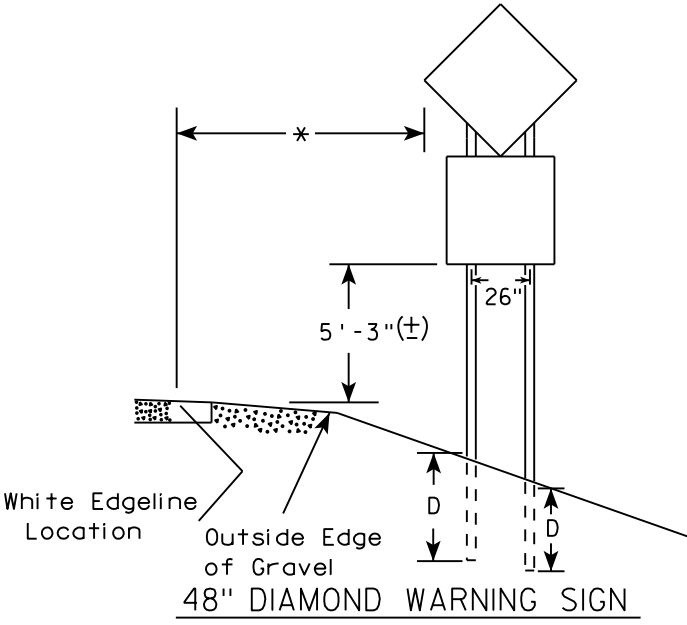
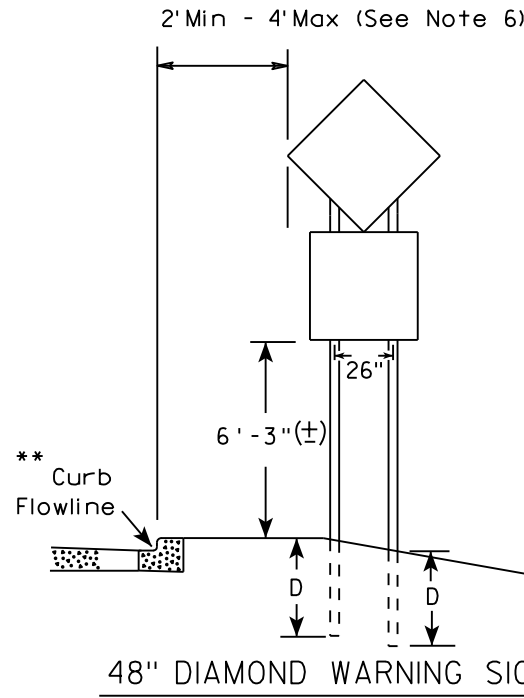
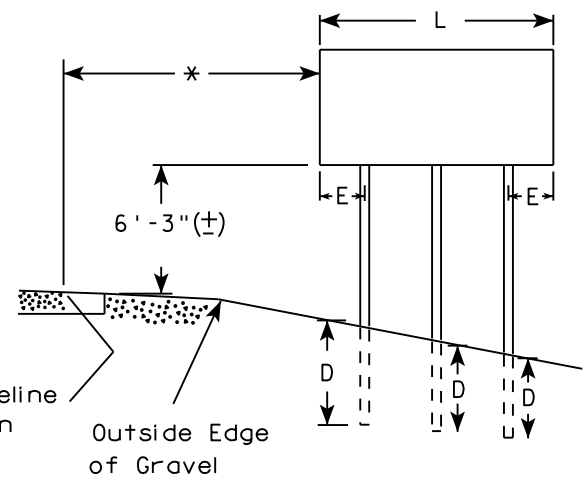
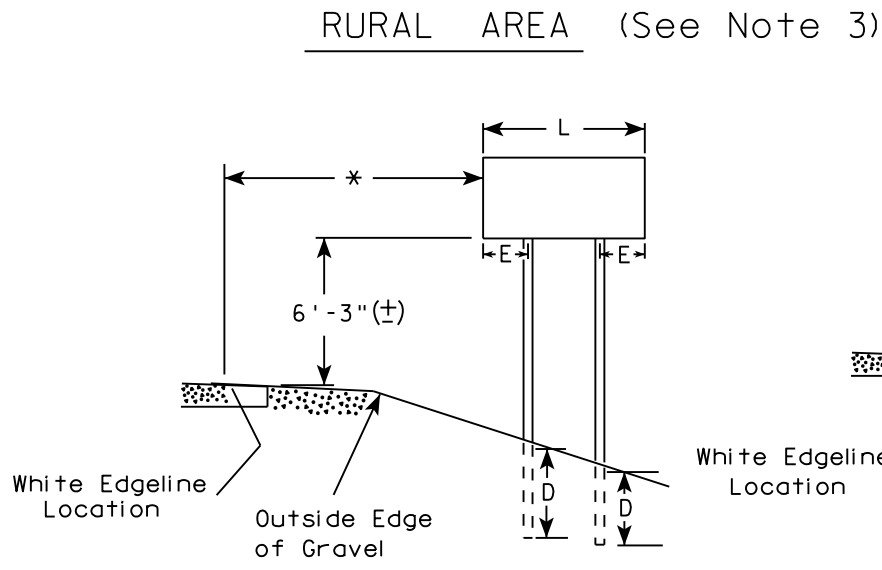
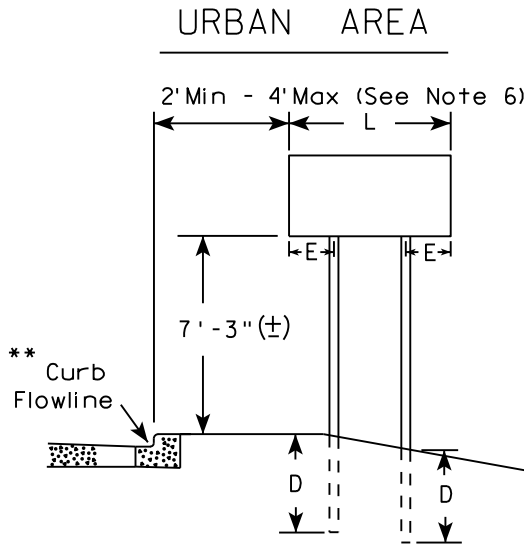
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

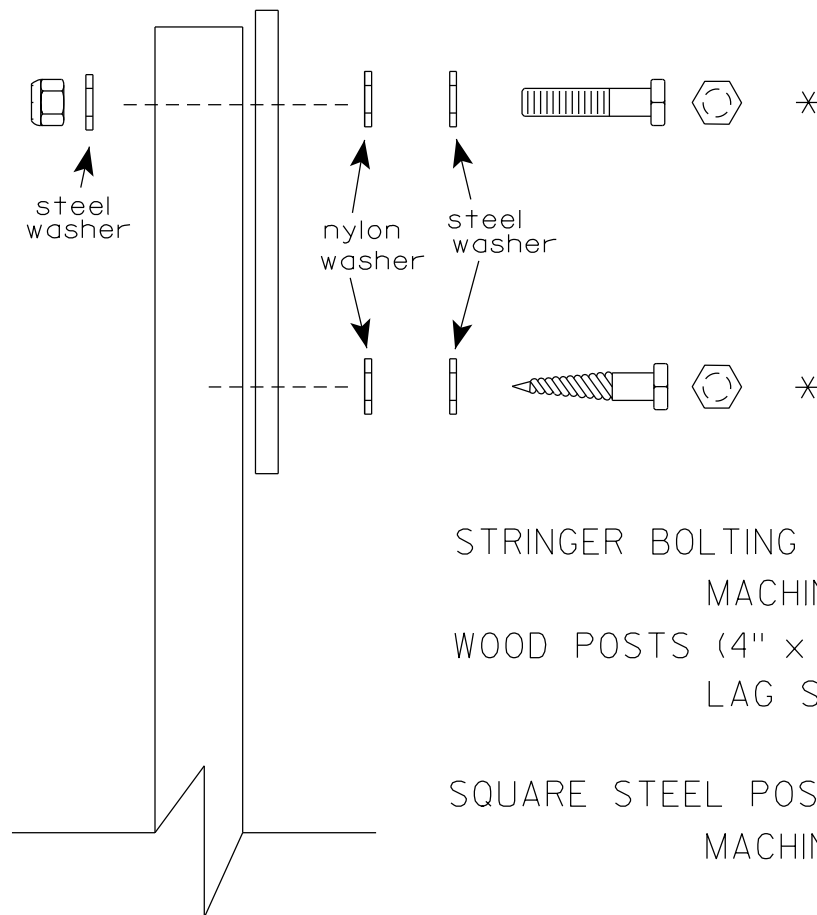
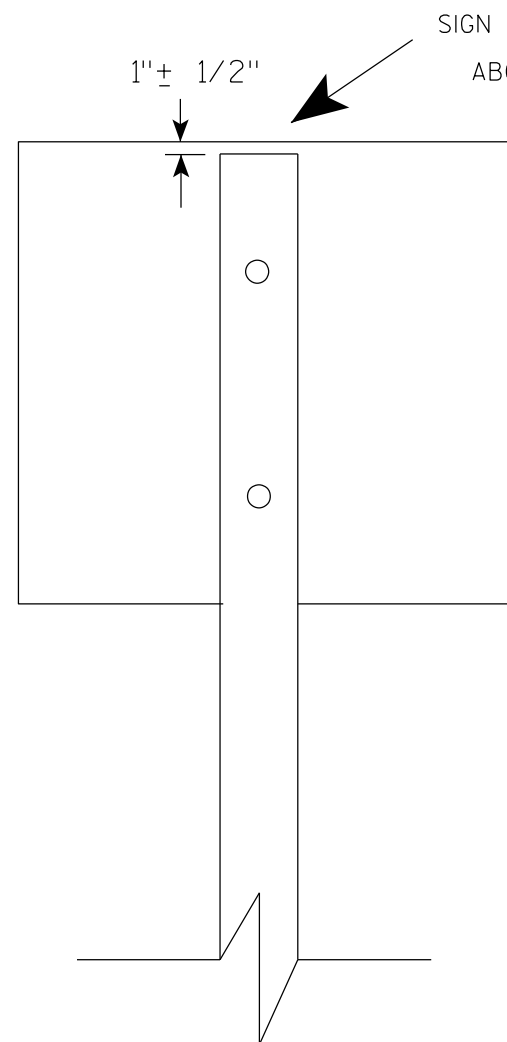
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

- GENERAL NOTES
1. 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.



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.

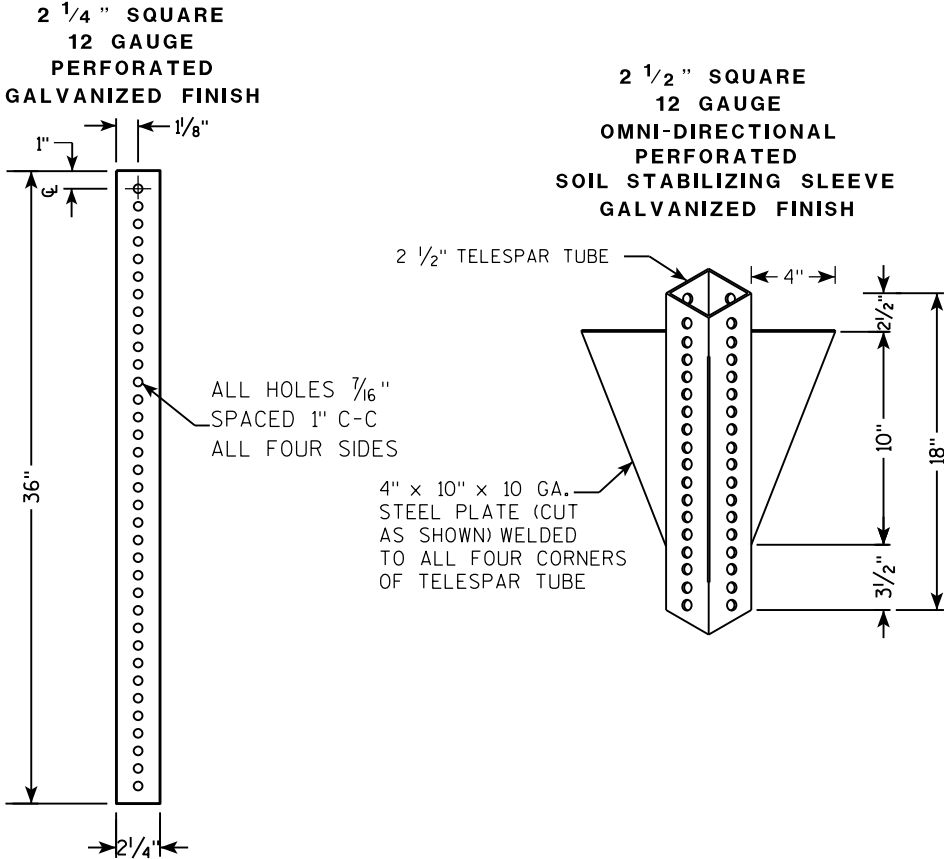
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

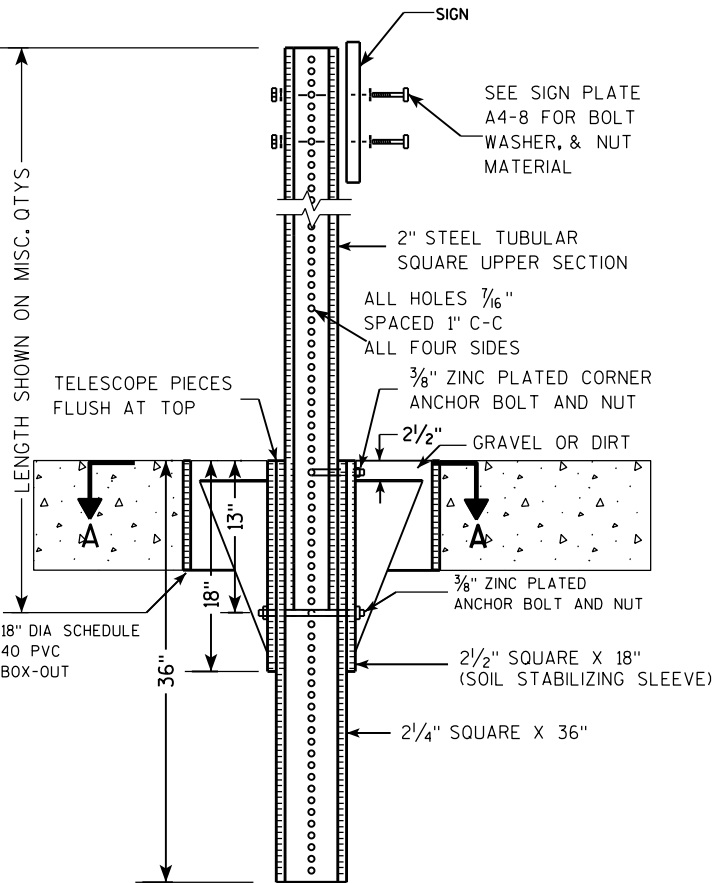
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require 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

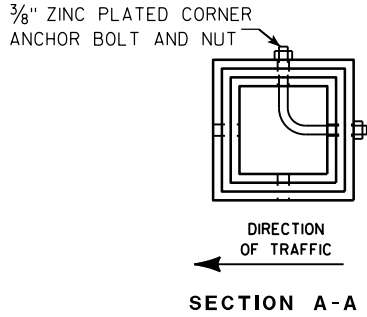
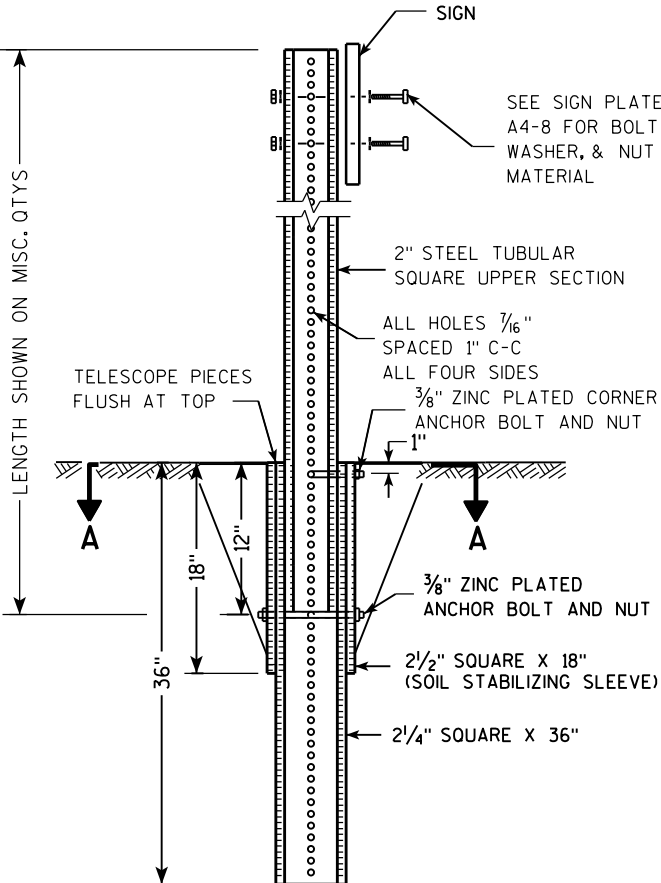
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

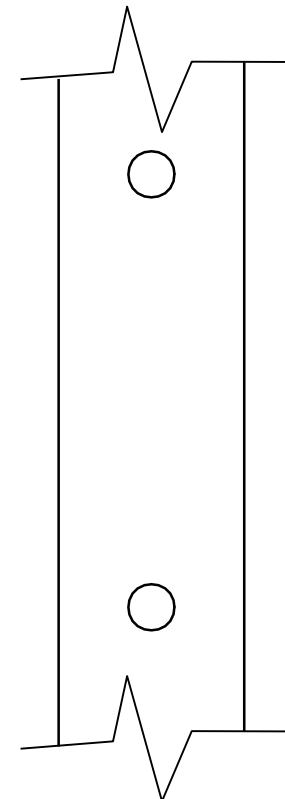
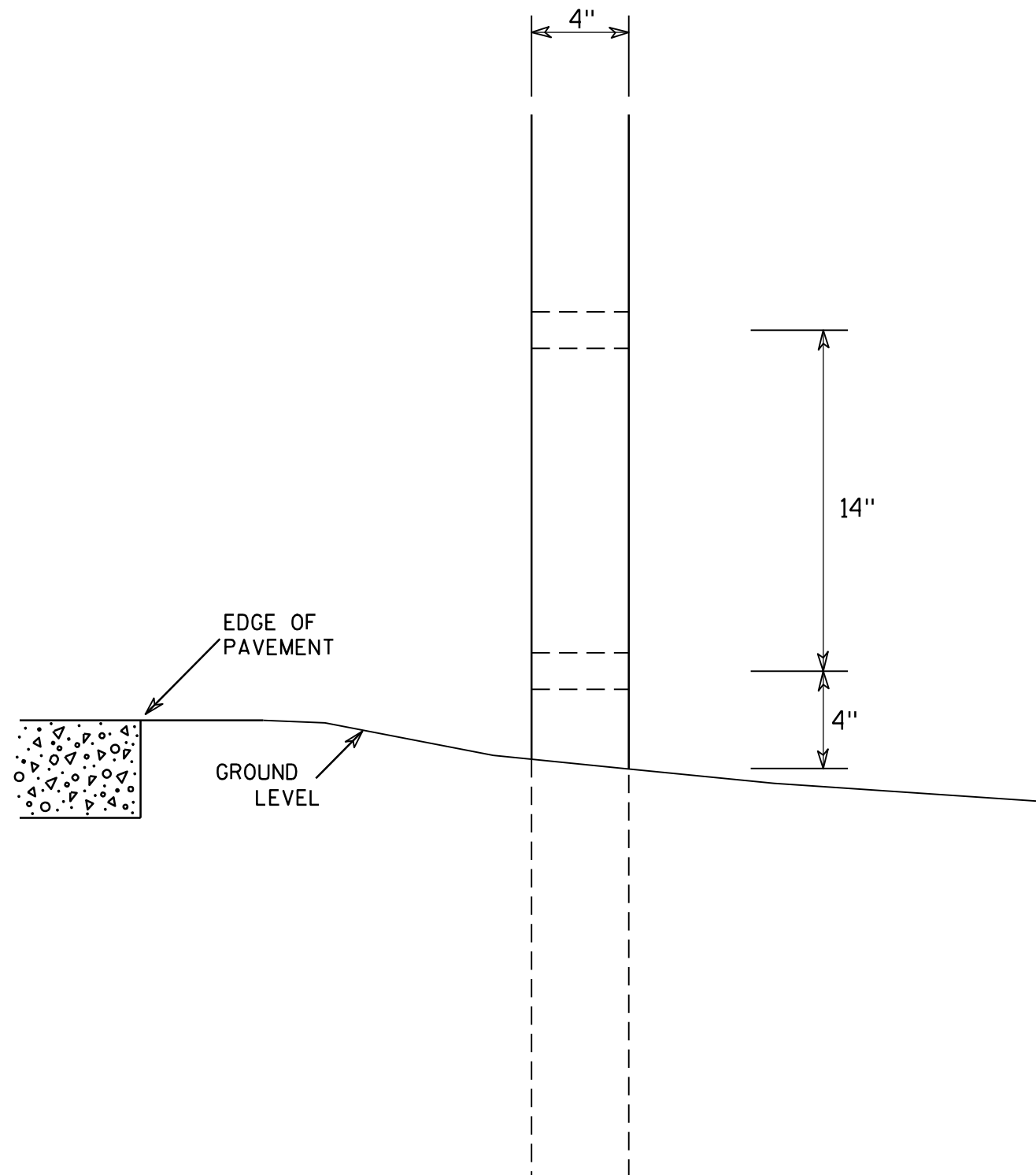
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 35 14-9.9



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

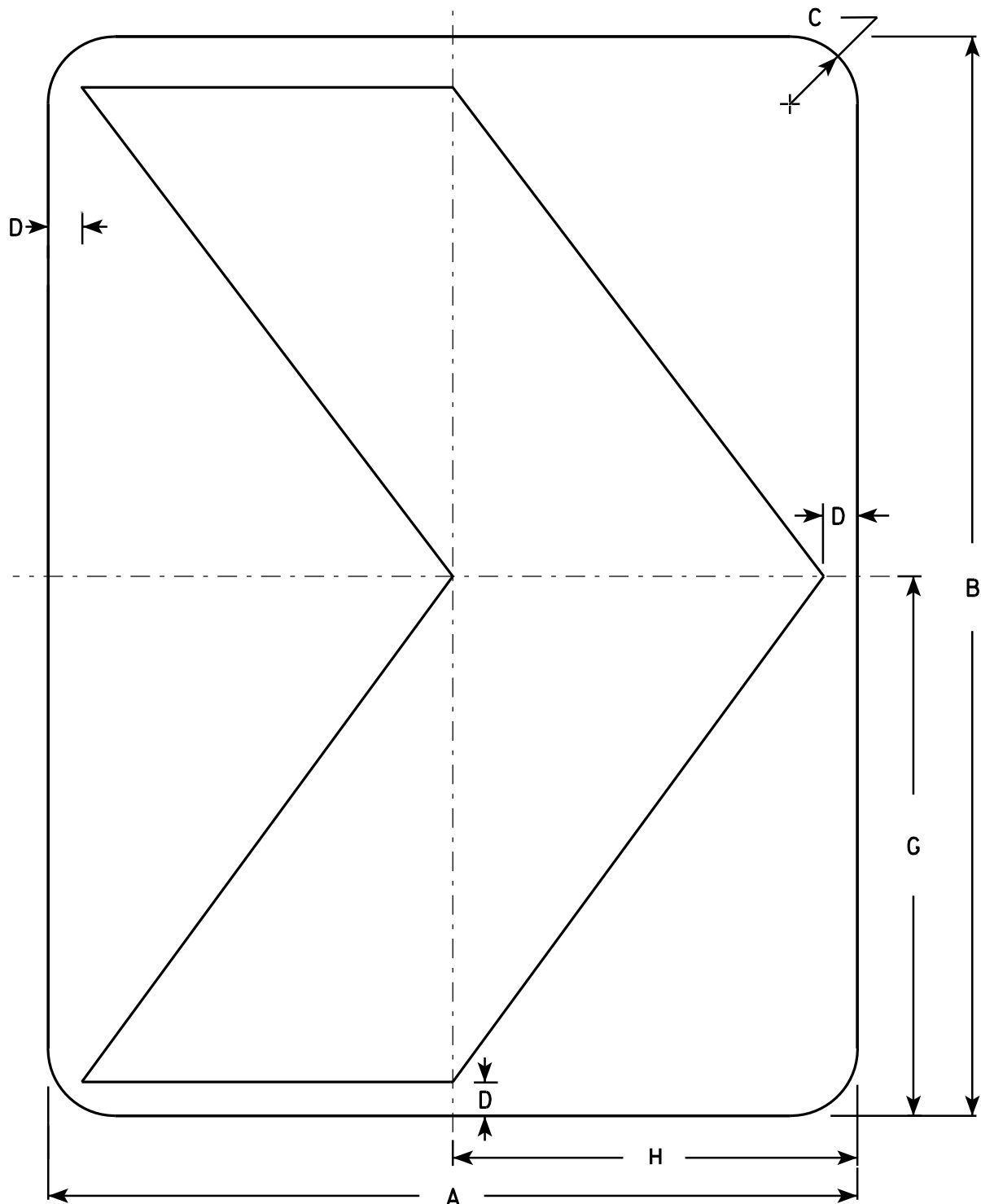
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 36

E



W1-8

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

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	12	18	1 1/2	1/2			9	6																			1.5
2S	18	24	1 1/2	3/4			12	9																			3.0
2M	18	24	1 1/2	3/4			12	9																			3.0
3	24	30	1 1/2	1			15	12																			5.0
4	30	36	1 7/8	1 1/4			18	15																			7.5
5	36	48	2 1/4	1 1/2			24	18																			12.0

STANDARD SIGN

W1-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-8.6

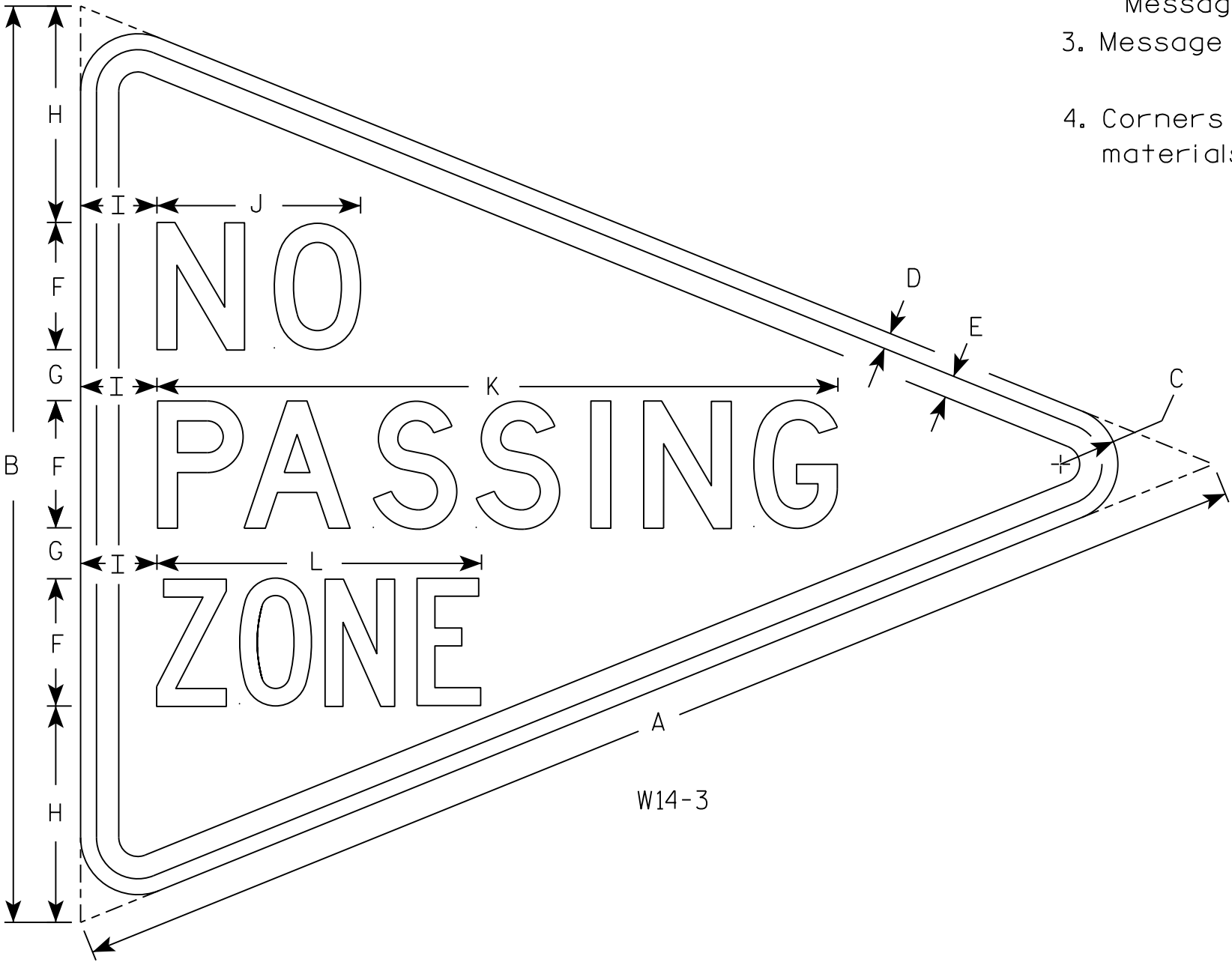
PROJECT NO:

SHEET NO: 37

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



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	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															5.56
2M																											
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 38

E

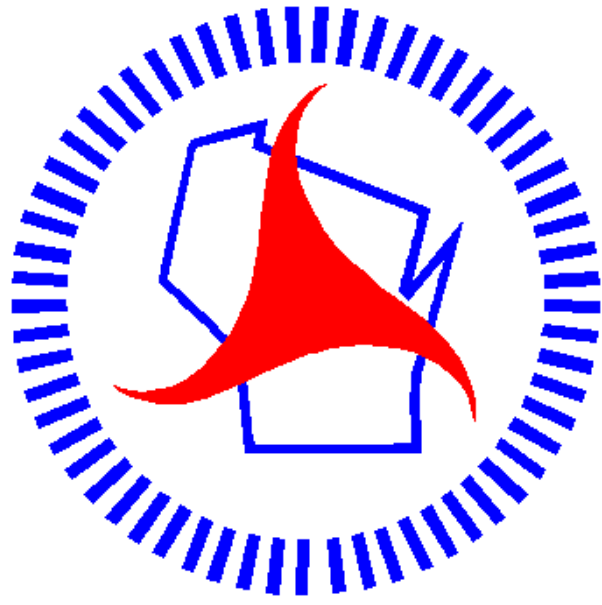
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10

Notes



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