

NEL

WITH:

PROJECT ID: 4323-07-71

COUNTY: MANITOWOC

DEC 2014

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
<del>Section No. 4</del>	<del>Right of Way Plat</del>
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
<del>Section No. 7</del>	<del>Sign Plates</del>
<del>Section No. 8</del>	<del>Structure Plans</del>
<del>Section No. 9</del>	<del>Computer Earthwork Data</del>
<del>Section No. 9</del>	<del>Cross Sections</del>

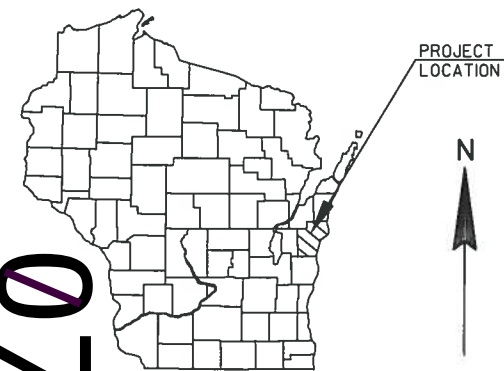
TOTAL SHEETS = 22

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH W  
(USH 10 TO TAUS ROAD)  
CTH W  
MANITOWOC COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4323-07-71	WISC 2014439	1



STATE PROJECT NUMBER  
4323-07-71

BEGIN PROJECT  
STA. 116+72.00  
X=153211.683  
Y=325183.138

END PROJECT  
STA. 233+15.00

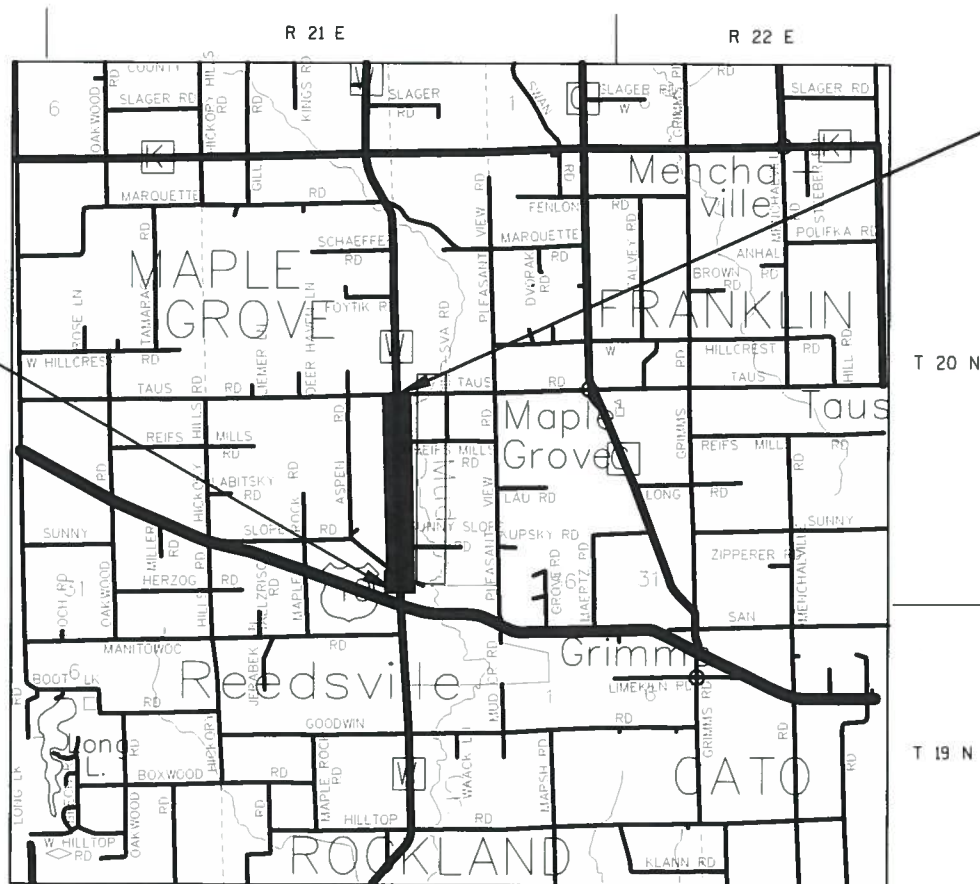
DESIGN DESIGNATION

A.A.D.T. (2014)	=	1,250
A.A.D.T. (2034)	=	1,350
D.H.V. (2034)	=	162
D.D.	=	60/40
T.	=	5.4%
DESIGN SPEED	=	60 MPH
ESALS	=	219,000

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	PL + 58.1
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	CAUTION
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	ROCK
SPECIAL DITCH	LABEL
GRADE ELEVATION	95.36
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	E
FIBER OPTIC	FO
GAS	G
SANITARY SEWER	SAN
STORM SEWER	SS
TELEPHONE	T
WATER	W
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



LAYOUT  
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 2.205 MI. RURAL

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MANITOWOC COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR  
MANITOWOC COUNTY

6-19-14  
DATE  
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AYRES  
ASSOCIATES



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY  
Surveyor AYRES ASSOCIATES  
Designer AYRES ASSOCIATES  
Management Consultant SEH

APPROVED FOR THE DEPARTMENT  
DATE: 6/26/14  
Robert Buffone  
(Management Consultant Signature)  
SEH-NE REGION LPMC



GENERAL NOTES

THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE.  
THERE MAY BE UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

REFERENCE LINE REFERS TO ALIGNMENT AND STATIONING. CENTERLINE REFERS TO EXISTING  
ROADWAY CENTERLINE. REFERENCE LINE AND CENTERLINE ARE NOT COINCIDENTAL.

SAW CUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECTED TO ADJUSTMENT BY THE ENGINEER IN  
FIELD. THE LINE OF SUCH SAW CUTS WILL BE NEATLY DELINEATED THRU THE ASPHALT WITHOUT ANY  
DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

CURVE DATA IS BASED ON ARC DEFINITION.

4-INCH HMA PAVEMENT WILL BE CONSTRUCTED WITH THE TWO LAYERS CONSISTING OF ONE  
2 1/4-INCH LOWER LAYER AND ONE 1 3/4-INCH UPPER LAYER.

ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED DURING CONSTRUCTION.

EXACT LOCATION AND WIDTH OF ENTRANCES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ENTRANCES ARE TO BE REPLACED IN KIND.

THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING MOTORISTS AND PEDESTRIANS THAT MAY  
ENTER THE WORK ZONE FORM POSSIBLE HAZARDS.

UTILITIES

\* WISCONSIN PUBLIC SERVICE - ELECTRIC TELEPHONE 920-433-1703  
700 N. ADAMS STREET  
PO BOX 1210  
GREEN BAY, WISCONSIN 54307  
ATTENTION: LORI BUTRY  
E-MAIL: LABUTRY@INTEGRYSGROUP.COM

\* FRONTIER COMMUNICATIONS TELEPHONE 920-893-7455  
118 DIVISION STREET  
PLYMOUTH, WISCONSIN 53073  
ATTENTION: RYAN OSNESS  
E-MAIL: ryan.osness@ftr.com

\* TIME WARNER CABLE TELEPHONE 920-831-9249  
3545 PLANK ROAD  
APPLETON, WISCONSIN 54915  
ATTENTION: VINCE ALBIN  
E-MAIL: vince.albin@twcable.com

\*-MEMBER OF DIGGERS HOTLINE



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

RUNOFF COEFFICIENT TABLE

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

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 9.81 ACRES  
SOIL GROUP C

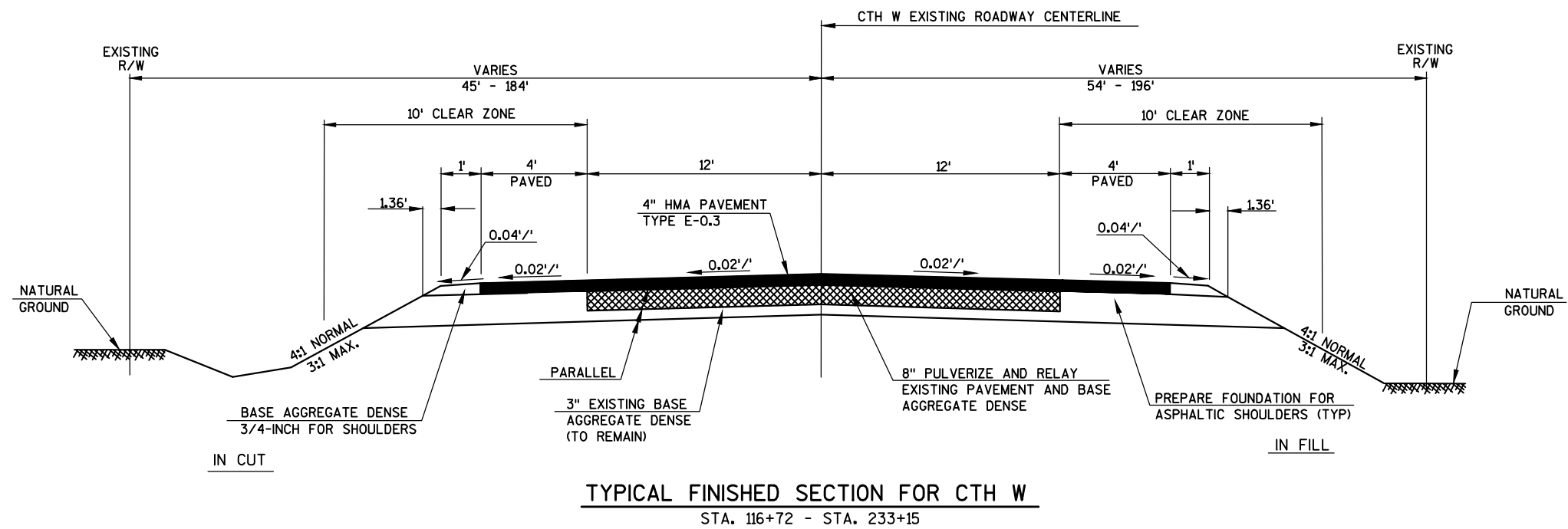
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AC	ASPHALT CEMENT	PT	POINT OF TANGENCY
AGG	AGGREGATE	PC	POINT OF CURVATURE
ASPH	ASPHALT	PI	POINT OF INTERSECTION
BM	BENCH MARK	PE	PRIVATE ENTRANCE
C/L	CENTERLINE	R	RADIUS
CONC	CONCRETE	REM	REMOVE
CMP	CORRUGATED METAL PIPE	R/L OR RL	REFERENCE LINE
CR.	CREEK	RCCP	REINFORCED CONCRETE CULVERT PIPE
D	DEGREE OF CURVE	RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
DHV	DESIGN HOUR VOLUME	R.O.	RUNOUT
ESALS	EQUIVALENT SINGLE AXIS LOADS	R/W	RIGHT-OF-WAY
EXIST	EXISTING	STA	STATION
FE	FIELD ENTRANCE	SE	SUPER ELEVATION
HYD	HYDRANT	SS	STORM SEWER
IP	IRON PIPE OR PIN	T	TANGENT
L	LENGTH OF CURVE	TEL	TELEPHONE
LC	LONG CHORD OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LR	LENGTH OF RUNOFF	T	TRUCKS
MH	MANHOLE	VC	VERTICAL CURVE
		W	WELL

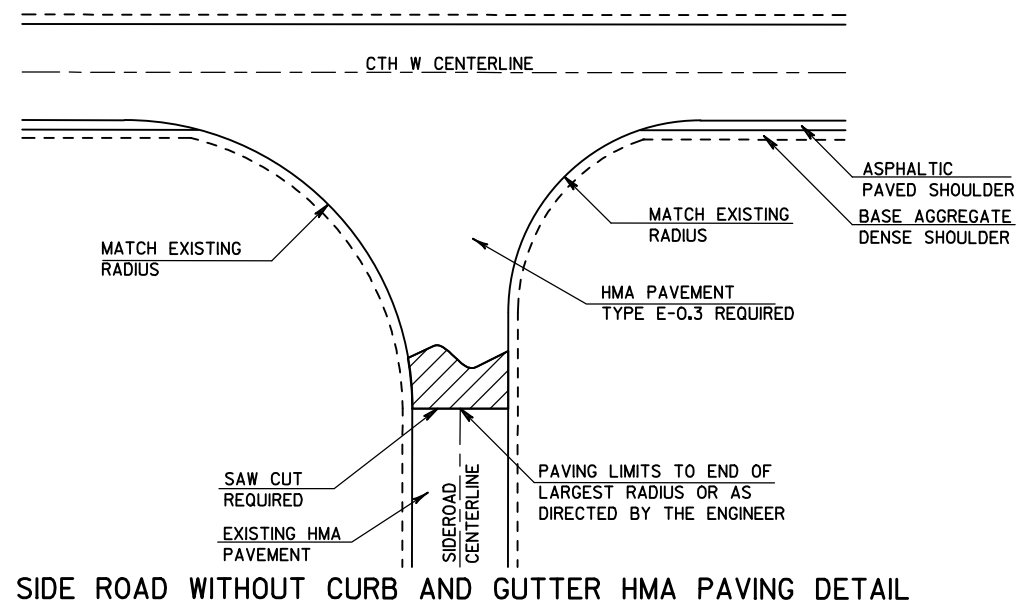
DEPARTMENT OF NATURAL RESOURCES

WDNR TELEPHONE 920-662-5472  
P.O. BOX 10448  
GREEN BAY, WISCONSIN 54307  
ATTENTION: MATT SCHAEVE  
E-MAIL: MATTHEW.SCHAEVE@WISCONSIN.GOV

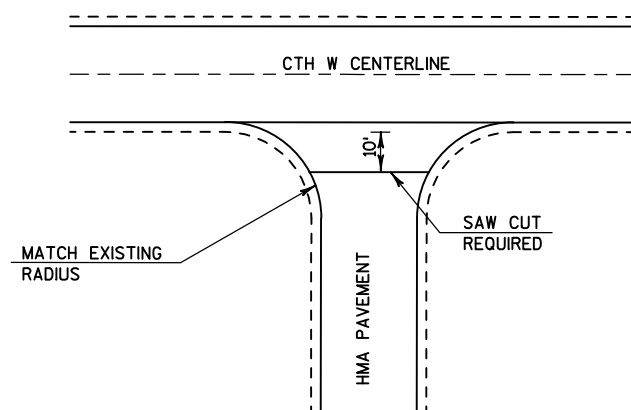






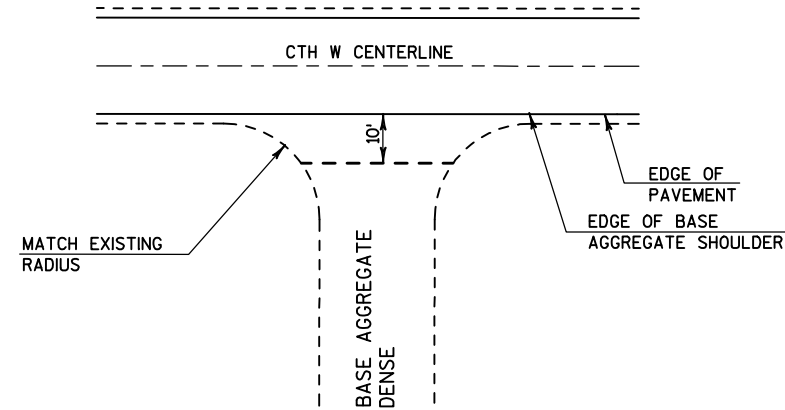


SIDE ROAD WITHOUT CURB AND GUTTER HMA PAVING DETAIL

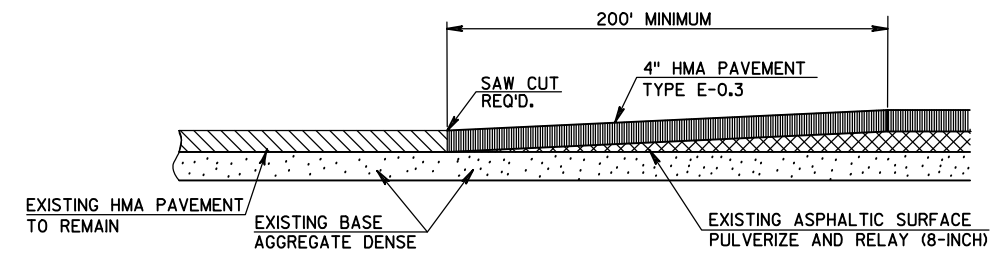


PRIVATE ENTRANCE AND FIELD ENTRANCE HMA DETAIL

STA. 120+07



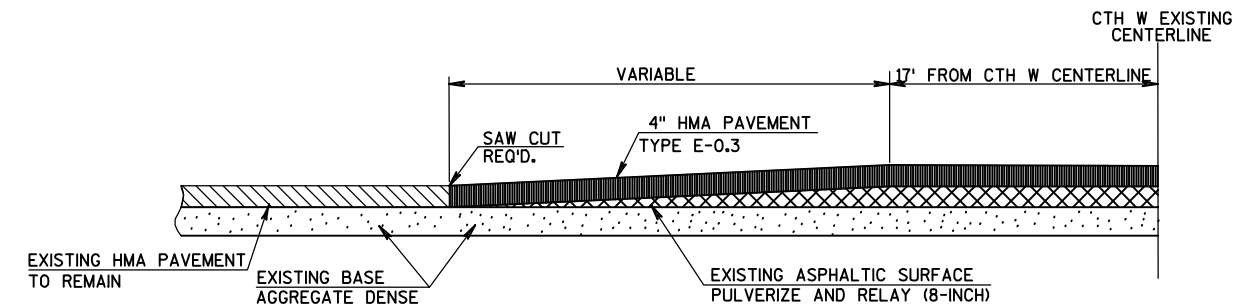
PRIVATE ENTRANCE AND FIELD ENTRANCE  
BASE AGGREGATE DENSE DETAIL



JOINT DETAIL FOR PULVERIZE AND RELAY AREAS

STA. 116+80 CTH W  
STA. 233+15 CTH W

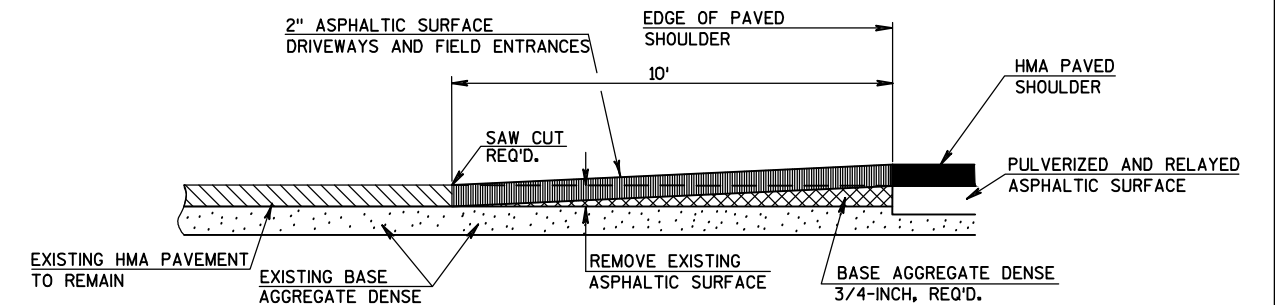
COST OF REMOVAL OF EXCESS MATERIAL  
IN TAPER AREAS SHALL BE INCIDENTAL  
TO PULVERIZE AND RELAY



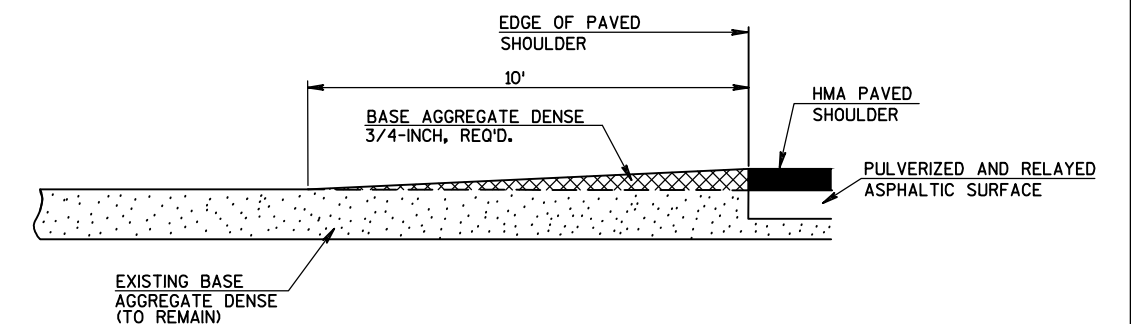
SIDE ROAD JOINT DETAIL FOR PULVERIZE AND RELAY AREA

SUNNY SLOPE RD.  
REIFS MILLS RD.  
TAUS RD.

COST OF REMOVAL OF EXCESS MATERIAL  
IN TAPER AREAS SHALL BE INCIDENTAL  
TO PULVERIZE AND RELAY



JOINT DETAIL FOR HMA PRIVATE ENTRANCES  
(REPLACE IN KIND)



DETAIL FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES



DATE 09OCT14			E S T I M A T E O F Q U A N T I T I E S		
LINE					4323-07-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	204.0110	REMOVING ASPHALTIC SURFACE	SY	60.000	60.000
0020	211.0400	PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS	STA	234.000	234.000
0030	213.0100	FINISHING ROADWAY (PROJECT) 01. 4323-07-71	EACH	1.000	1.000
0040	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	2,800.000	2,800.000
0050	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,000.000	1,000.000
0060	325.0100	PULVERIZE AND RELAY	SY	33,730.000	33,730.000
0070	440.4410.S	INCENTIVE IRI RIDE	DOL	8,820.000	8,820.000
0080	455.0105	ASPHALTIC MATERIAL PG58-28	TON	560.000	560.000
0090	455.0605	TACK COAT	GAL	1,100.000	1,100.000
0100	460.1100	HMA PAVEMENT TYPE E-O.3	TON	10,170.000	10,170.000
0110	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	6,500.000	6,500.000
0120	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	15.000	15.000
0130	619.1000	MOBILIZATION	EACH	1.000	1.000
0140	621.0100	LANDMARK REFERENCE MONUMENTS	EACH	4.000	4.000
0150	623.0200	DUST CONTROL SURFACE TREATMENT	SY	3,200.000	3,200.000
0160	624.0100	WATER	MGAL	138.000	138.000
0170	628.1504	SILT FENCE	LF	300.000	300.000
0180	628.1520	SILT FENCE MAINTENANCE	LF	300.000	300.000
0190	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0200	643.0100	TRAFFIC CONTROL (PROJECT) 01. 4323-07-71	EACH	1.000	1.000
0210	643.0900	TRAFFIC CONTROL SIGNS	DAY	930.000	930.000
0220	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	22,300.000	22,300.000
0230	646.0406	PAVEMENT MARKING SAME DAY EPOXY 4-INCH	LF	3,515.000	3,515.000
0240	649.0100	TEMPORARY PAVEMENT MARKING 4-INCH	LF	3,515.000	3,515.000
0250	650.8000	CONSTRUCTION STAKING RESURFACING REFERENCE	LF	11,643.000	11,643.000
0260	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 4323-07-71	LS	1.000	1.000
0270	690.0150	SAWING ASPHALT	LF	250.000	250.000
0280	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	300.000	300.000
0290	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	600.000	600.000
0300	SPV.0060	SPECIAL 01. SECTION SURVEY MONUMENTS	EACH	5.000	5.000



REMOVING ASPHALTIC SURFACE

STATION	LOCATION	204.0110 S.Y.
120+06	CTH W, LT	60
TOTAL		60

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION	TO	STATION	LOCATION	211.0400 STA
116+72	-	233+15 LT	CTH W	117
116+72	-	233+15 RT	CTH W	117
TOTAL				234

BASE AGGREGATE DENSE AND WATER

STATION	TO	STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1-1/4-Inch TON	624.0100 WATER MGAL
116+72	-	175+00	CTH W	1,000		10
175+00	-	233+15	CTH W	970		10
-	-	-	DRIVEWAYS & SIDEROADS	830		8
-	-	-	PULVERIZE AREAS			100
-	-	-	UNDISTRUBUTED		1,000	10
TOTALS				2,800	1,000	138

NOTE: UNDISTRIBUTED QUANTITY OF 1-1/4-INCH BASE AGGREGATE DENSE TO BE USED IN AREAS BENEATH PROPOSED PAVED SHOULDERS, IN CONJUNCTION WITH BID ITEM "PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS", TO MATCH PROPOSED CROSS SLOPE OF CTH W.

PULVERIZE AND RELAY

STATION	TO	STATION	LOCATION	325.0100 S.Y.
116+72	-	233+15	CTH W	31,100
-	-	-	W. SUNNY SLOPE RD.	720
-	-	-	E. SUNNY SLOPE RD.	645
-	-	-	REIFS MILLS RD.	435
-	-	-	W. TAUS RD.	430
-	-	-	E. TAUS RD.	400
TOTAL				33,730

DUST CONTROL SURFACE TREATMENT

LOCATION	623.0200 QUANTITY S.Y.
UNDISTRIBUTED	3,200
TOTAL	3,200

HMA PAVEMENT ITEMS

STATION	TO	STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG58-28 (5.5%) TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT TYPE E-0.3 TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON
116+72	-	175+00	CTH W	280	552	5,100	-
175+00	-	233+15	CTH W	280	548	5,070	-
120+06	-	-	DRIVEWAY, LT	-	-	-	15
TOTALS				560	1,100	10,170	15

MONUMENT SUMMARY

STATION	LOCATION	DESCRIPTION	621.0100 LANDMARK REFERENCE MONUMENTS EACH	SPV.0060.01 SECTION SURVEY MONUMENTS EACH
126+37.31 - 13.74' RT.	CTH W	W QUARTER CORNER SECTION 35, T20N, R21E	3	1
152+53.36 - 1.33' RT.	CTH W	SW CORNER SECTION 26, T20N, R21E	-	1
179+02.25 - 14.75' LT.	CTH W	W QUARTER CORNER SECTION 26, T20N, R21E	-	1
205+41.66 - 3.44' RT.	CTH W	SW CORNER SECTION 23, T20N, R21E	-	1
231+83.28 - 0.84' RT.	CTH W	W QUARTER CORNER SECTION 23, T20N, R21E	1	1
TOTALS			4	5

SILT FENCE

STATION	LOCATION	628.1504 QUANTITY LF	628.1520 MAINTENANCE LF	REMARKS
225+00, RT. & LT.	CTH W	300	300	CULVERT ENDS
TOTALS		300	300	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED



TRAFFIC CONTROL SUMMARY

LOCATION	APPROXIMATE SERVICE DAYS	643.0900 SIGNS		REMARKS
		NO. IN SERVICE	DAYS	
CTH W / SOUTH OF USH 10	30	4	120	START OF PROJECT - TYPICAL ADVANCE WARNING SIGNING WITH END ROAD WORK
USH 10 / WEST OF CTH W	30	9	270	START OF PROJECT - M3-1 (NORTH) & M1-5A (COUNTY W) SIGNING MOUNTED ABOVE TYPICAL ADVANCE WARNING SIGNING
USH 10 / EAST OF CTH W	30	9	270	START OF PROJECT - M3-1 (NORTH) & M1-5A (COUNTY W) SIGNING MOUNTED ABOVE TYPICAL ADVANCE WARNING SIGNING
CTH W / W. SUNNY SLOPE ROAD	30	1	30	ROAD WORK AHEAD
CTH W / E. SUNNY SLOPE ROAD	30	1	30	ROAD WORK AHEAD
CTH W / REIFS MILLS ROAD	30	1	30	ROAD WORK AHEAD
CTH W / W. TAUS ROAD	30	1	30	ROAD WORK AHEAD
CTH W / E. TAUS ROAD	30	1	30	ROAD WORK AHEAD
CTH W	30	4	120	END OF PROJECT - TYPICAL ADVANCE WARNING SIGNING WITH END ROAD WORK
TOTAL			930	

PAVEMENT MARKING

STATION	TO	STATION	LOCATION	646.0406	646.0106	649.0100
				4-INCH EPOXY SAME DAY YELLOW LF	4-INCH EPOXY WHITE LF	4-INCH TEMPORARY YELLOW LF
116+72	-	122+75	CTH W	755	1,225	755
122+75	-	233+15	CTH W	2,760	21,075	2,760
TOTAL				3,515	22,300	3,515

SAWING ASPHALT

STATION	LOCATION	690.0150 LF	REMARKS
116+72	CTH W	48	PROJECT LIMITS
233+15	CTH W	25	PROJECT LIMITS
-	E. TAUS RD.	24	PROJECT LIMITS
-	W. TAUS RD.	22	PROJECT LIMITS
-	REIFS MILLS RD.	23	PROJECT LIMITS
-	E. SUNNY SLOPE RD.	24	PROJECT LIMITS
-	W. SUNNY SLOPE RD.	24	PROJECT LIMITS
120+07	DRIVEWAY	50	PROJECT LIMITS
116+75	EXISTING FLUME	10	PROJECT LIMITS
TOTAL		250	

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.8000	650.9910
				RESURFACING REFERENCE LF	SUPPLEMENTAL CONTROL LS
116+72	-	175+00	CTH W	5,828	1
175+00	-	233+15	CTH W	5,815	-
TOTALS				11,643	1

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED





BEGIN PROJECT  
STA. 116+72.00  
X=153211.683  
Y=325183.138

USH 10

SUNNY SLOPE ROAD

PI STA = 124+33.91  
Y = 325945.27  
X = 153215.86  
DELTA = 0°20'13"  
D = 0°15'00"  
T = 67.42  
L = 134.83  
R = 22918.31  
PC STA = 123+66.49  
PT STA = 125+01.32

BURIED TELEPHONE CABLE  
(APPROXIMATE LOCATION)

BURIED FIBER OPTIC  
(APPROXIMATE LOCATION)

SAW CUT  
REQUIRED

SAW CUT  
REQUIRED

SAW CUT  
REQUIRED

SAW CUT  
REQUIRED

BURIED TELEPHONE CABLE  
(APPROXIMATE LOCATION)

CTH W CONSTRUCTION R

USH 10

SUNNY SLOPE ROAD

PROJECT NO: 4323-07-71

HWY: CTH W

COUNTY: MANITOWOC

PLAN

SHEET

E

FILE NAME : N:\C3D\45036900\SHEETS\PLAN\050201.DWG

PLOT DATE : 7/29/2014 1:52 PM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

PLOT SCALE : 1 IN:200 FT

WISDOT/CADDs SHEET 44





PI STA = 149+33.77  
Y = 328445.13  
X = 153214.77  
DELTA = 1°07'20"  
D = 0°15'00"  
T = 224.44  
L = 448.86  
R = 22918.31  
PC STA = 147+09.33  
PT STA = 151+58.19

CTH W CONSTRUCTION R

BURIED TELEPHONE CABLE  
(APPROXIMATE LOCATION)

140 CTH W, N0°01'30"W 145 150 155 160 N1°08'49"W 165 170

PC: 147+09.33

PT: 151+58.19

PC: 170+53.01

PROJECT NO: 4323-07-71

HWY: CTH W

COUNTY: MANITOWOC

PLAN

SHEET

E

FILE NAME : N:\C3D\45036900\SHEETSPLAN\050201.DWG

PLOT DATE : 7/29/2014 1:52 PM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

PLOT SCALE : 1 IN:200 FT

WISDOT/CADDs SHEET 44



5

PI STA = 178+87.46  
Y = 331398.25  
X = 153155.64  
DELTA = 4°10'14"  
D = 0°15'00"  
T = 834.45  
L = 1668.17  
R = 22918.31  
PC STA = 170+53.01  
PT STA = 187+21.18

CTH W CONSTRUCTION R

PT: 187+21.18

PC: 199+55.30

5

BURIED TELEPHONE CABLE  
(APPROXIMATE LOCATION)





PI STA = 204+97.13  
Y = 334005.02  
X = 153293.32  
DELTA = 2°42'31"  
D = 0°15'00"  
T = 541.83  
L = 1083.46  
R = 22918.31  
PC STA = 199+55.30  
PT STA = 210+38.76

PC: 199+55.30

PT: 210+38.76

CTH W CONSTRUCTION R

SILT FENCE  
REQUIRED

SAW CUT  
REQUIRED

BURIED TELEPHONE CABLE  
(APPROXIMATE LOCATION)

SILT FENCE  
REQUIRED

REIFS MILLS ROAD

PROJECT NO: 4323-07-71

HWY: CTH W

COUNTY: MANITOWOC

PLAN

SHEET

E

FILE NAME : N:\C3D\45036900\SHEETSP\PLAN\050201.DWG

PLOT DATE : 7/29/2014 1:53 PM

PLOT BY : SOUFAL, KEVIN

PLOT NAME :

PLOT SCALE : 1 IN:200 FT

WISDOT/CADDs SHEET 44



5

5



PROJECT NO: 4323-07-71	HWY: CTH W	COUNTY: MANITOWOC	PLAN	SHEET	E
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Standard Detail Drawing List

08E09-06	SILT FENCE
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C19-02A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
16A01-06	LANDMARK REFERENCE MONUMENTS AND COVERS



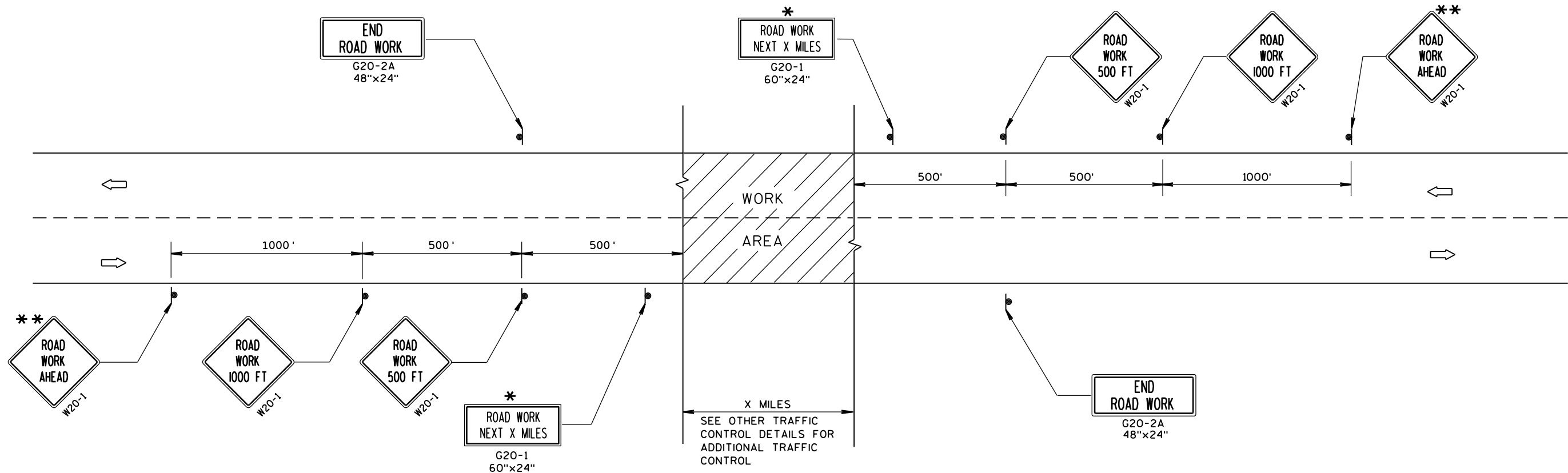


- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



<div style="text-align: center;"><b>SILT FENCE</b></div>	
<div style="text-align: center;"><b>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</b></div>	
<div>APPROVED <u>4-29-05</u> DATE</div>	<div><u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER</div>





TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

## 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.

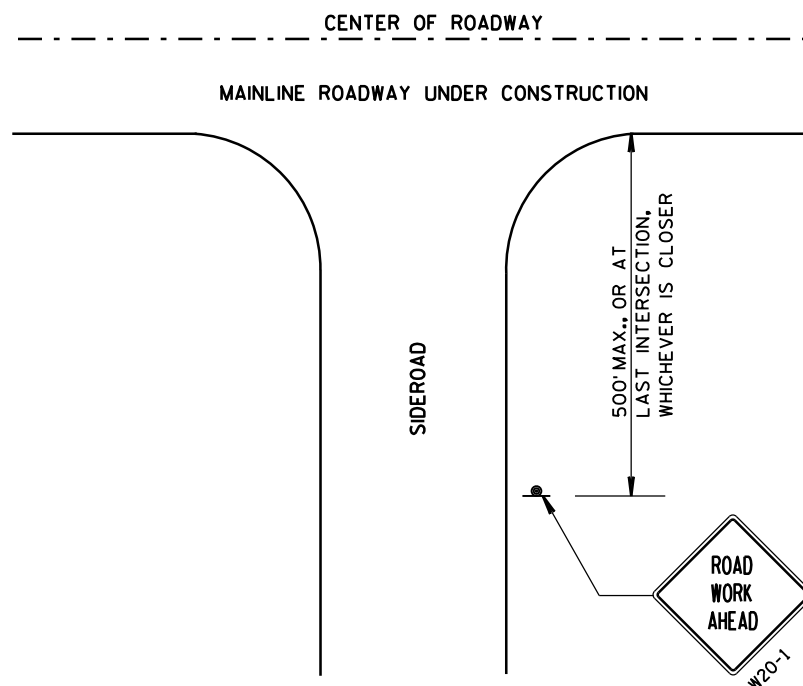
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.

\* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

\*\* PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

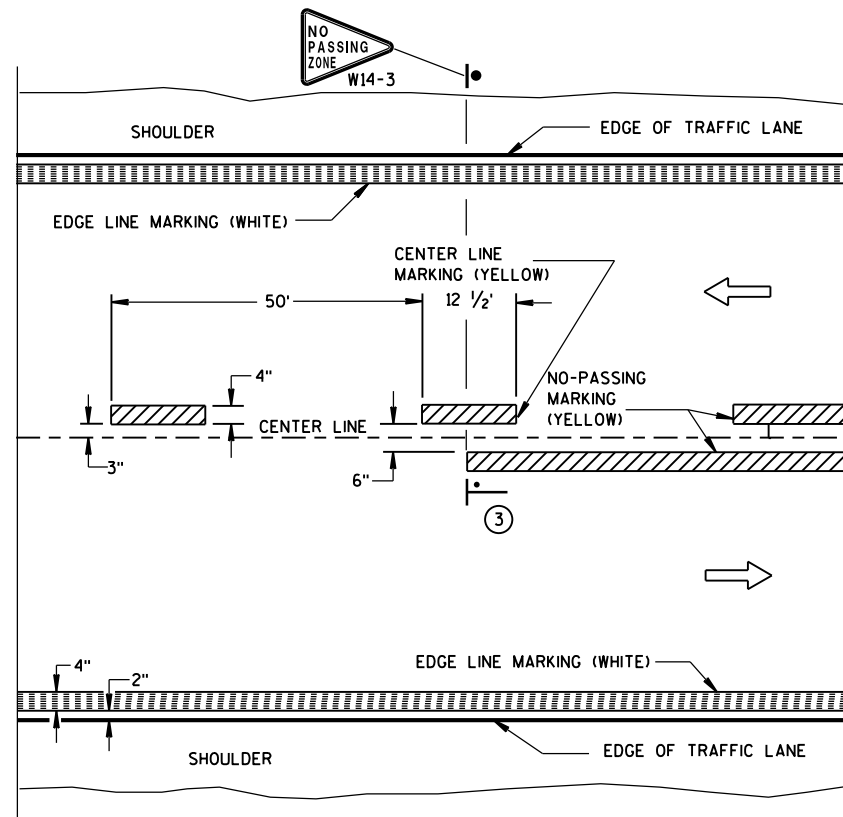


## LEGEND

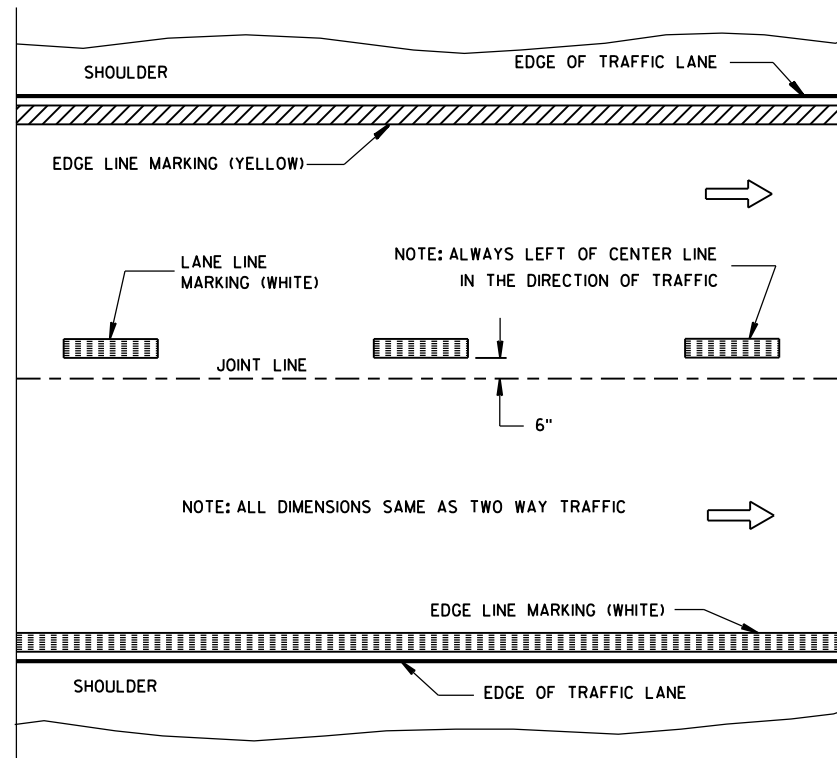
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



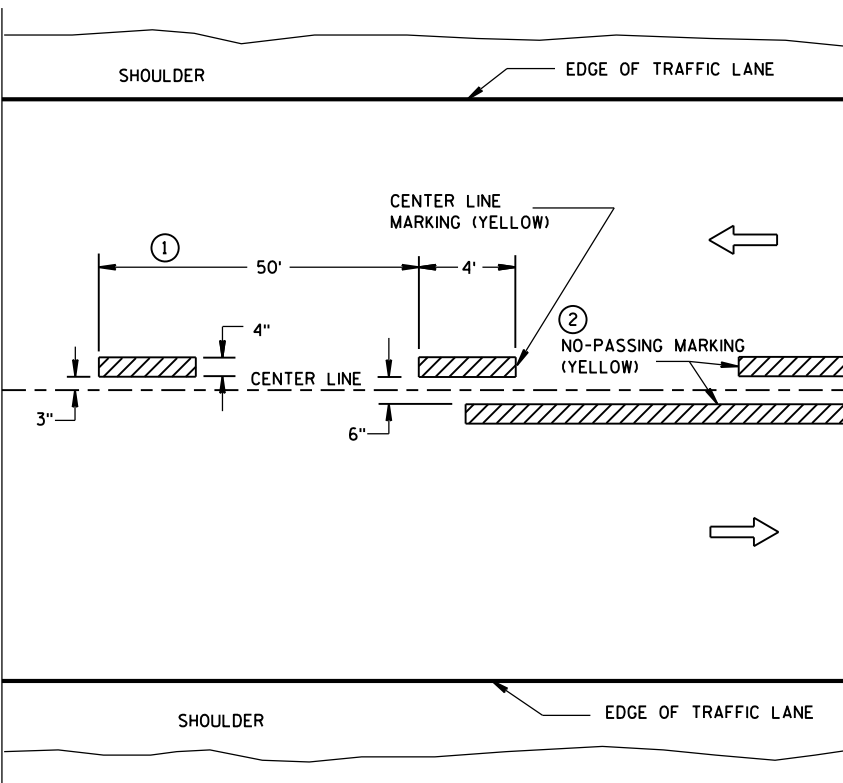


TWO WAY TRAFFIC

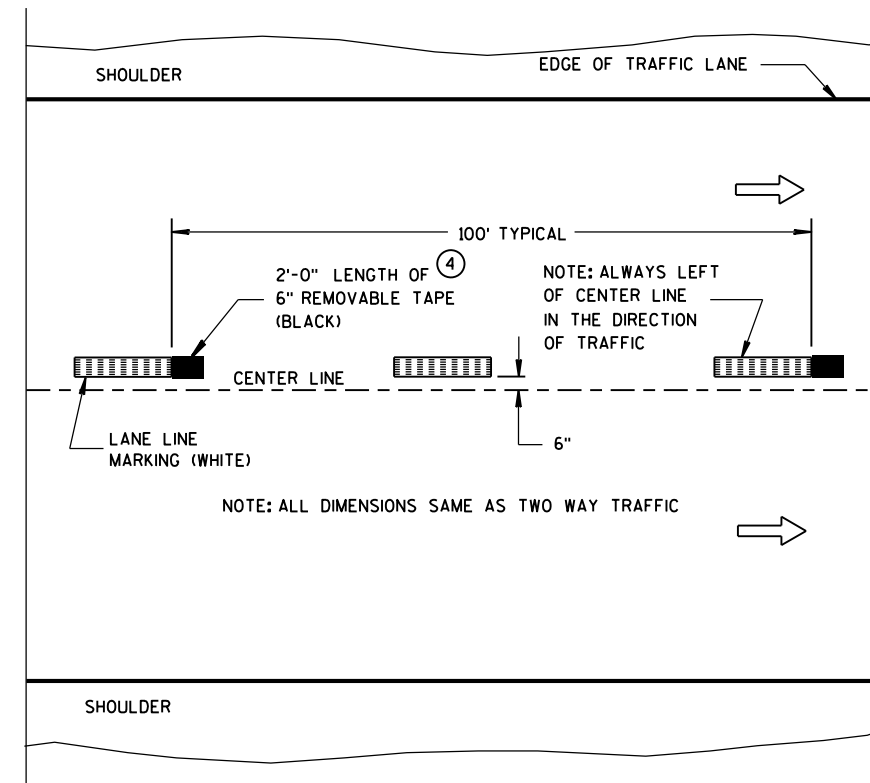


ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

**TEMPORARY (INTERMEDIATE) PAVEMENT MARKING**  
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

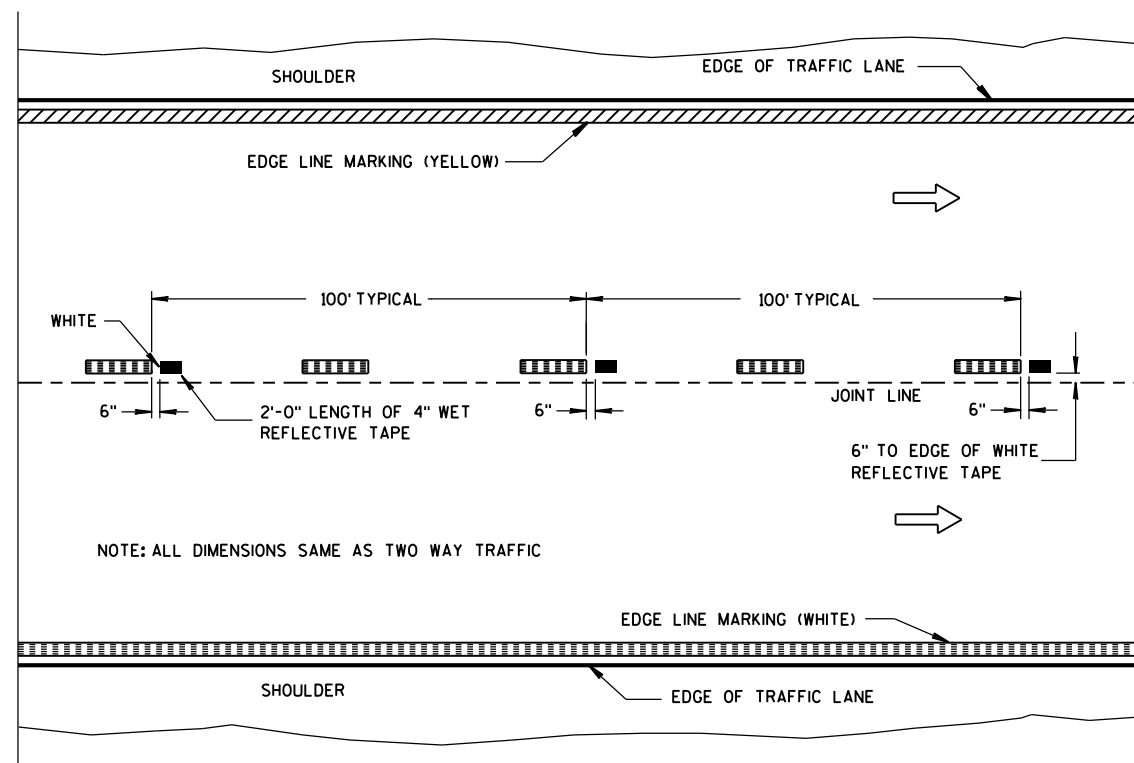
## GENERAL NOTES

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

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

## NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



**WET REFLECTIVE TAPE SUPPLEMENT TO  
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE**

## LEGEND

- "T" MARKING
- POST MOUNTED SIGN

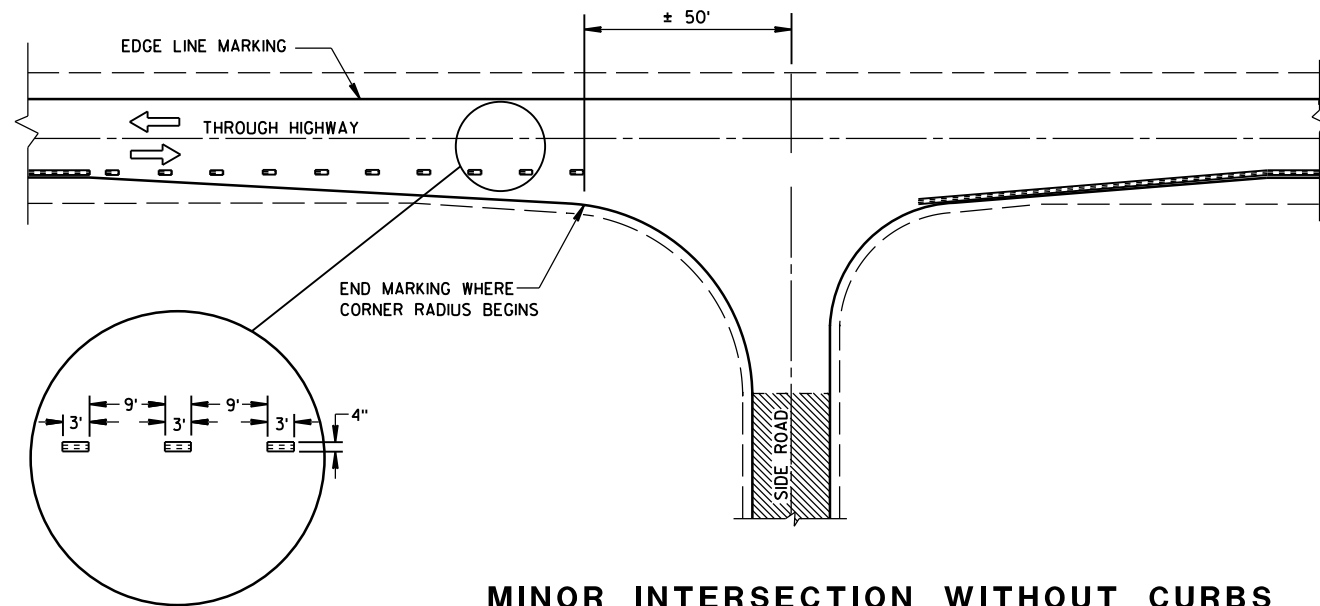
PAVEMENT MARKING  
(MAINLINE)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
5-13-2013  
DATE  
FHWA

/S/ Travis Feltes  
STATE TRAFFIC ENGINEER

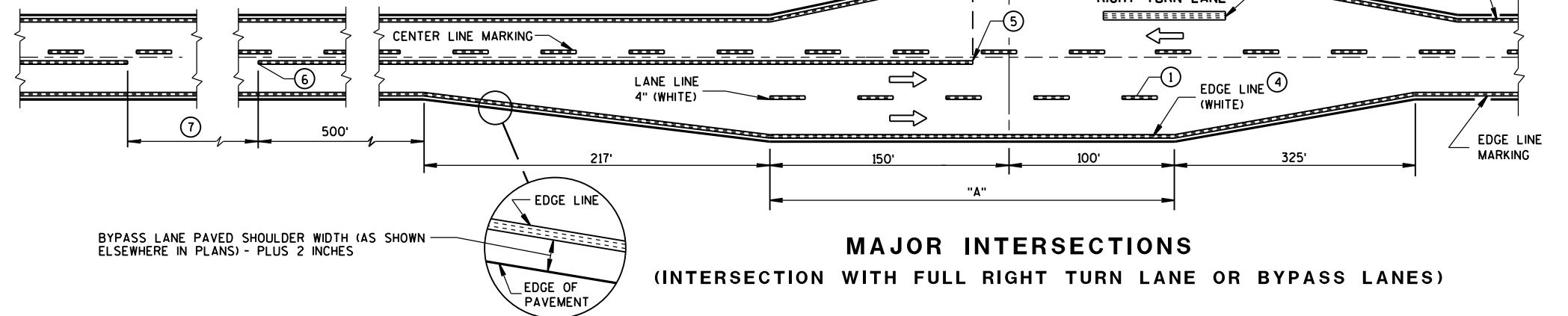




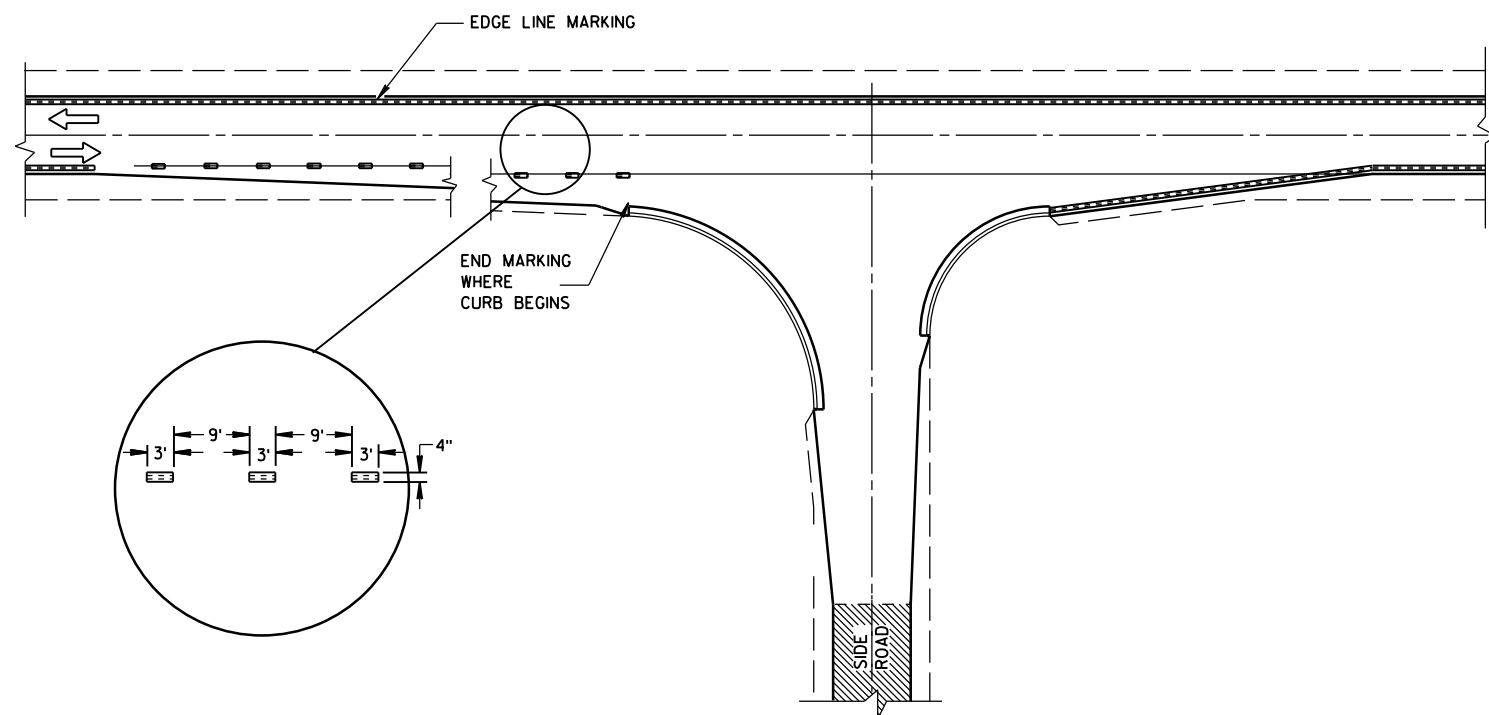
**MINOR INTERSECTION WITHOUT CURBS**

⑦

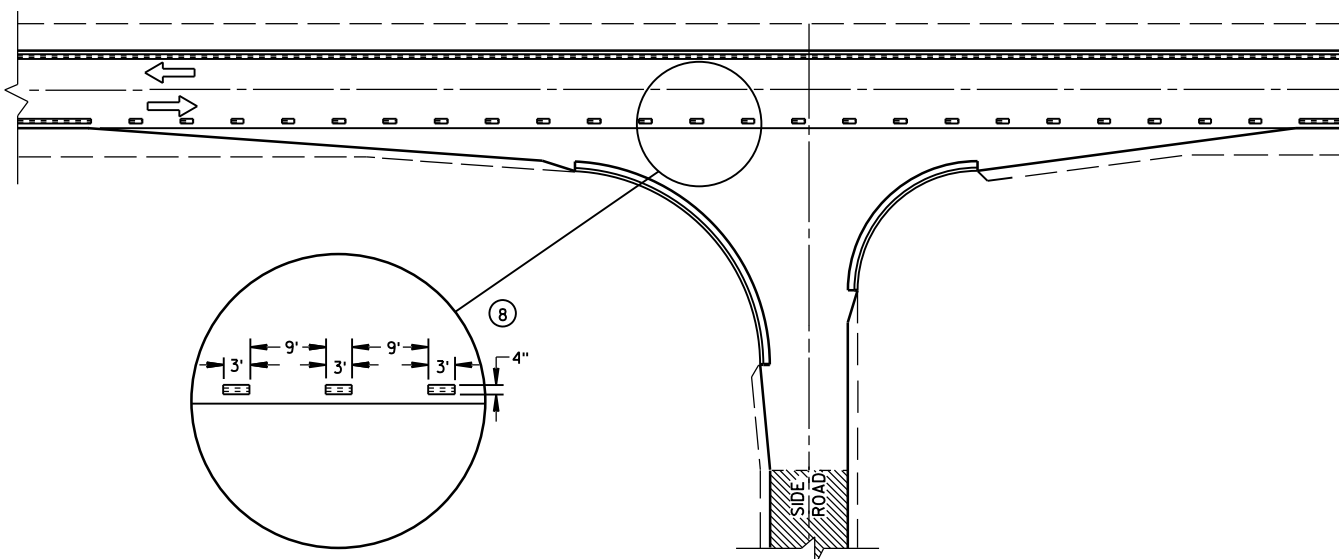
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



**MAJOR INTERSECTIONS**  
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



**MINOR INTERSECTION WITH CURBS**  
(TYPICAL MARKING)



**MINOR INTERSECTION WITH CURBS**  
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

## GENERAL NOTES

- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
  - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
  - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
  - ④ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
  - ⑤ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
  - ⑥ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
  - ⑦ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
  - ⑧ 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- ARROW SYMBOL ( → ) SHOWS DIRECTION OF TRAVEL



LEGEND

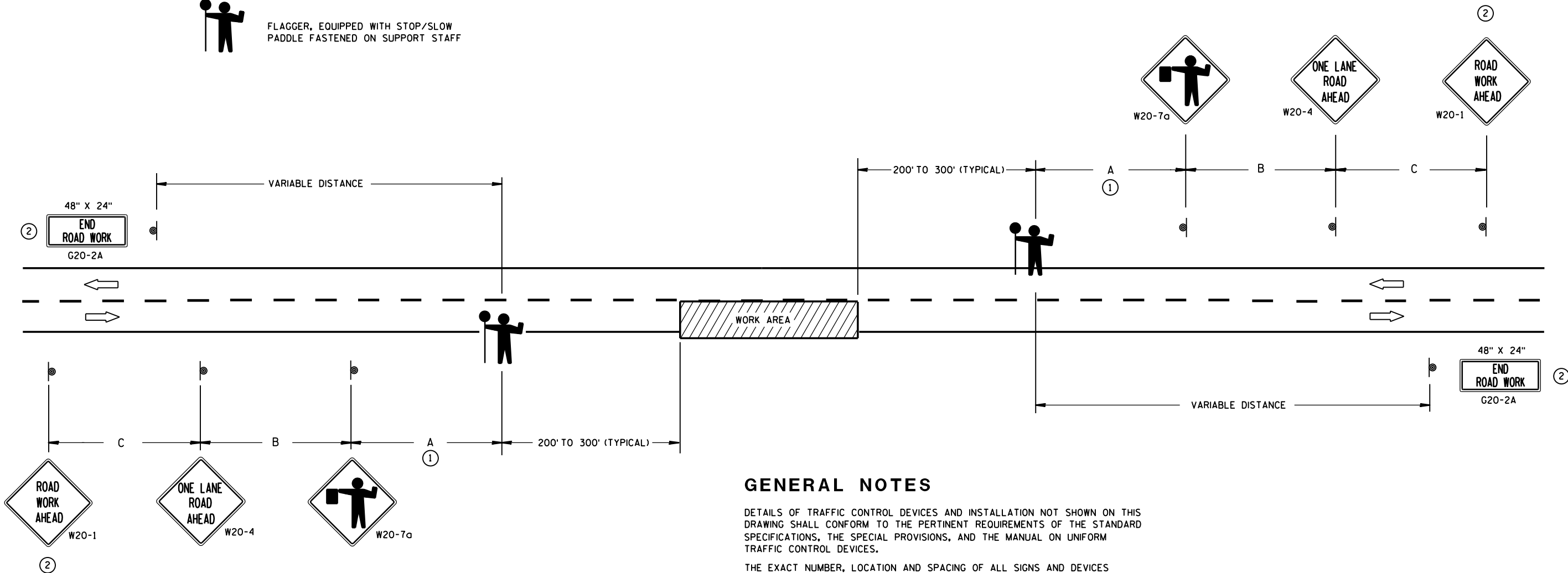
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



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.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE 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.

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, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

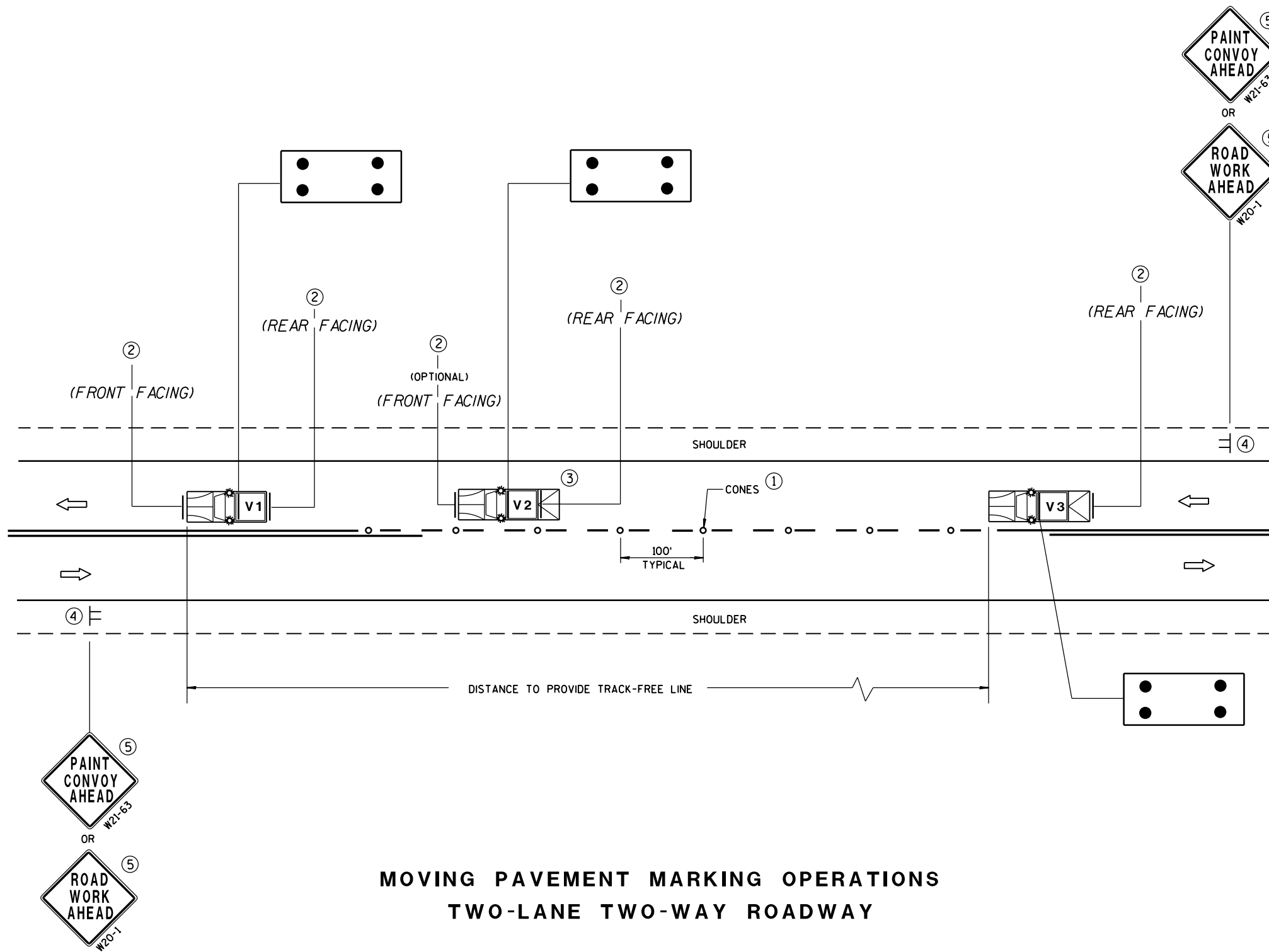
- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA





MOVING PAVEMENT MARKING OPERATIONS  
TWO-LANE TWO-WAY ROADWAY

## 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.

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.

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

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 OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

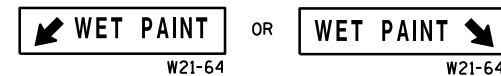
THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

① CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

② USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.



③ OPTIONAL TRUCK-MOUNTED ATTENUATOR.

④ SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

⑤ IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

## LEGEND

**V1** LEAD VEHICLE

**V2** SHADOW VEHICLE

**V3** TRAIL VEHICLE WITH TMA

**TMA** TRUCK-MOUNTED ATTENUATOR

 SIGN ON TEMPORARY SUPPORT

 DIRECTION OF TRAFFIC

 CONES

 FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING  
OPERATION  
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

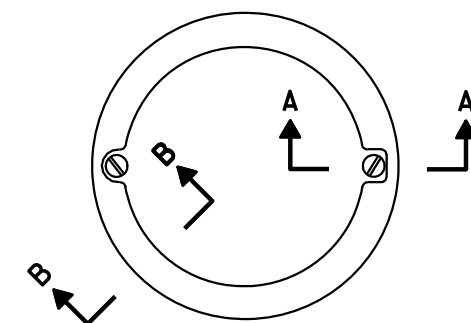
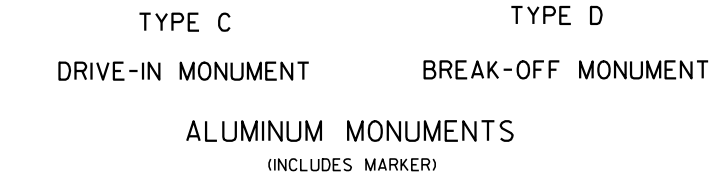
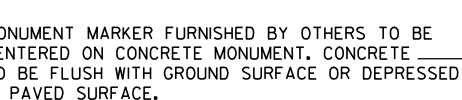
APPROVED

5/3/2013  
DATE

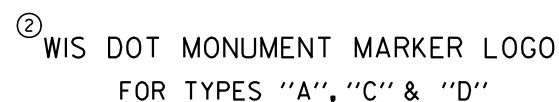
FHWA

/S/ Travis Feltes  
STATE TRAFFIC ENGINEER





APPROVED  
9/22/1999 /S/ Rory L. Rhinesmith  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA





## Notes





## *Wisconsin Department of Transportation*

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