

PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

FOR 20 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES °F OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

POLY PREFORM INLAY APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150° F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120° F. APPLICATION BELOW 120° F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15th AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF THE YEAR.

NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT INSTALL LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS. OF WEIGHT.

USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR. IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER, MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

POLY PREFORM GROOVED APPLICATION:

CONCRETE PAVEMENT SURFACES AND BITUMINOUS PAVEMENT SURFACES WHERE PAVEMENT MARKINGS CANNOT BE INLAID IN THE HOT MAT, SHALL BE GROOVED FOR THE INSTALLATION OF DURABLE REFLECTORIZED PAVEMENT MARKINGS. SEE SPECIAL PROVISIONS.

PAINT:

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

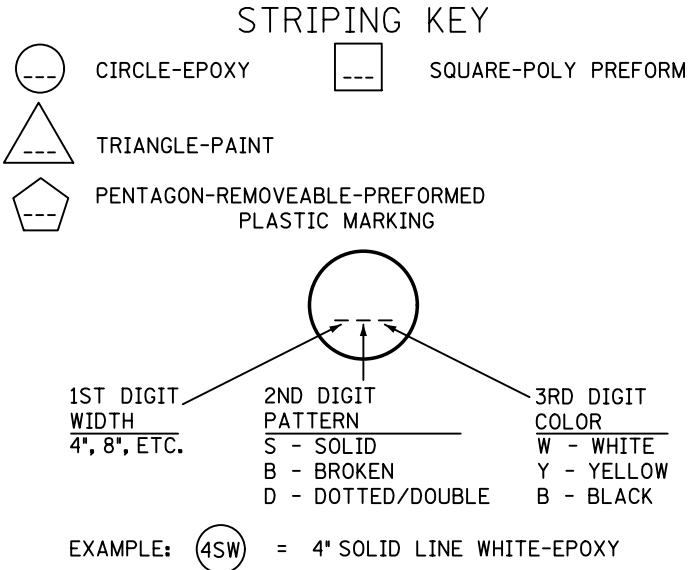
THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PERMANENT PAVEMENT MARKING PLAN INDEX

0	PERM PAVEMENT MARKING TITLE AND TABULATION
0-0	DETAILS
0-0	TYPICALS

SYMBOLS & MATERIALS LEGEND

	CROSSWALK BLOCK WHITE-PREFORM
	PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM
	CIRCLE-EPOXY
	SQUARE-POLY PREFORM
	TRIANGLE-PAINT
	PENTAGON-REMOVEABLE-PREFORMED PLASTIC MARKING



I HEREBY CERTIFY THAT SHEETS 000 THROUGH 000 OF THIS PLAN WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: ENGR NAME HERE LICENSE *

DATE: 8/11/2014 SIGNATURE: _____

DESIGNER TECH NAME HERE

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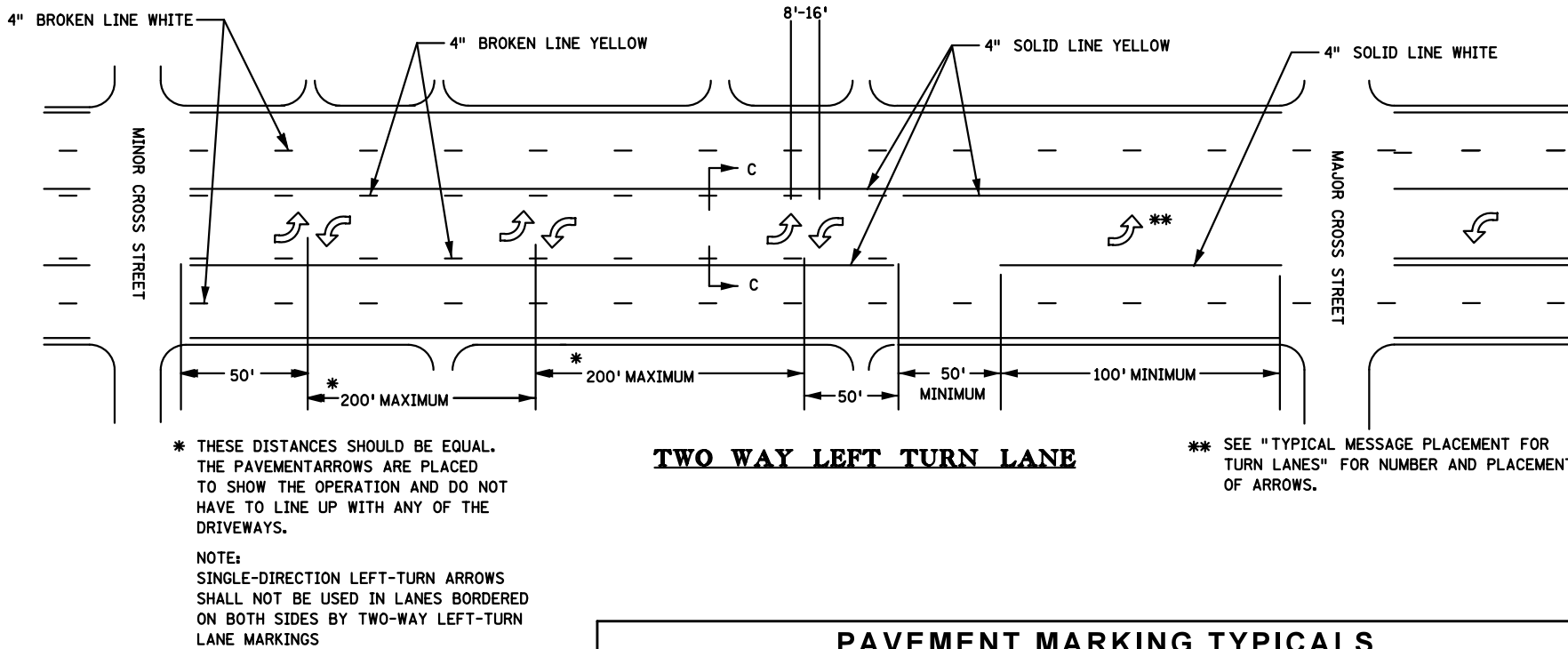
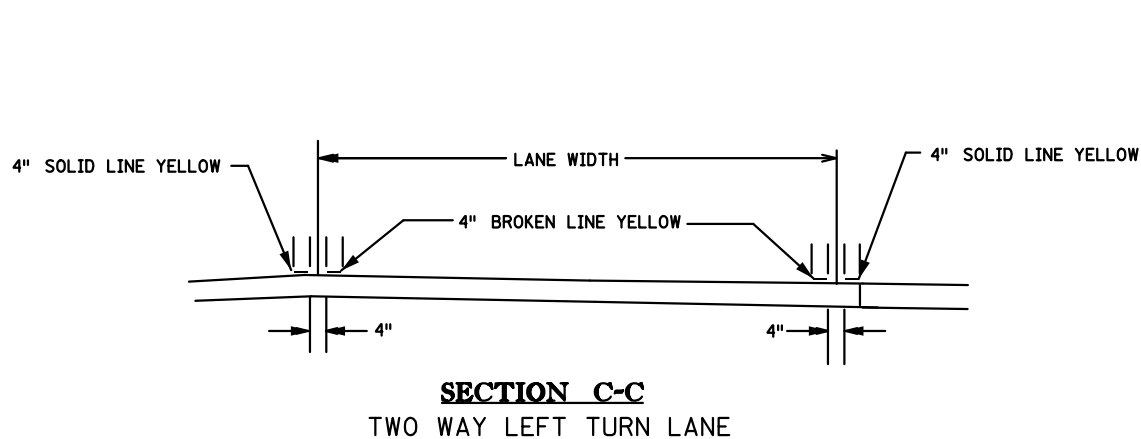
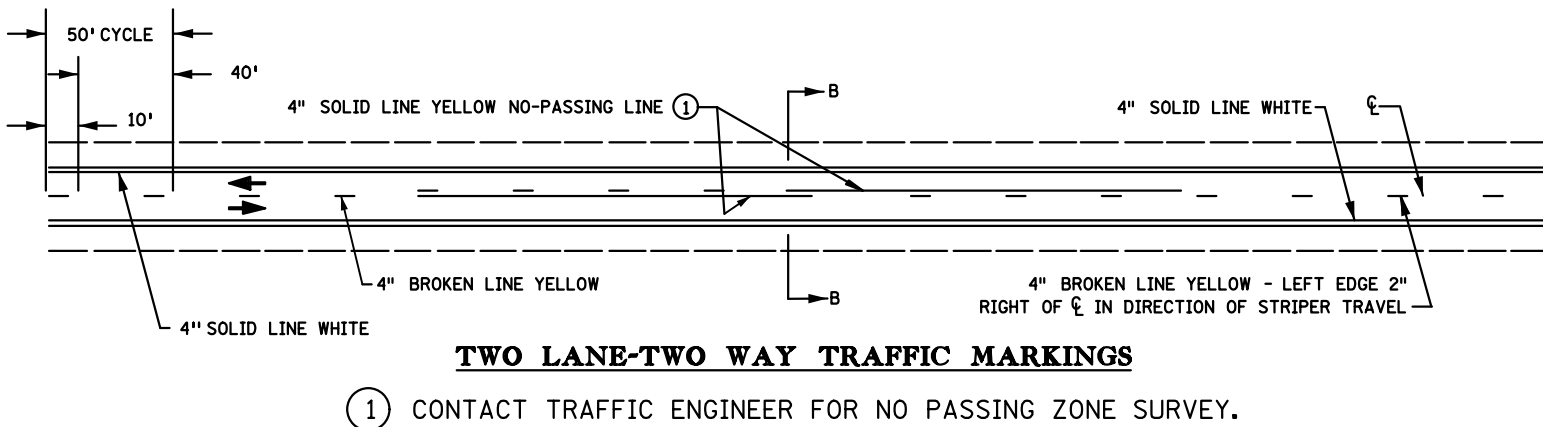
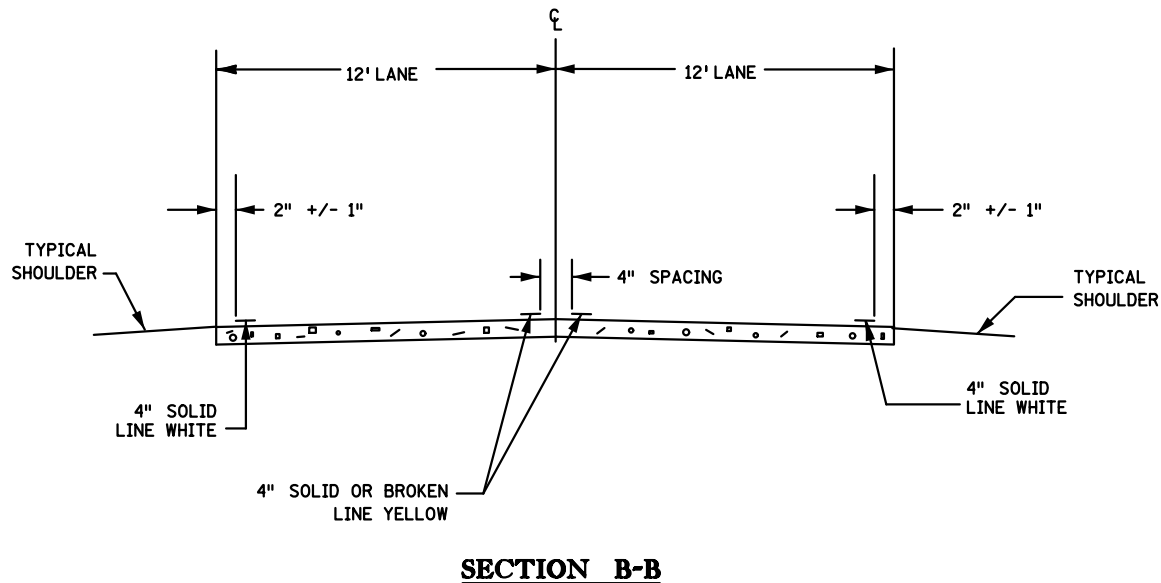
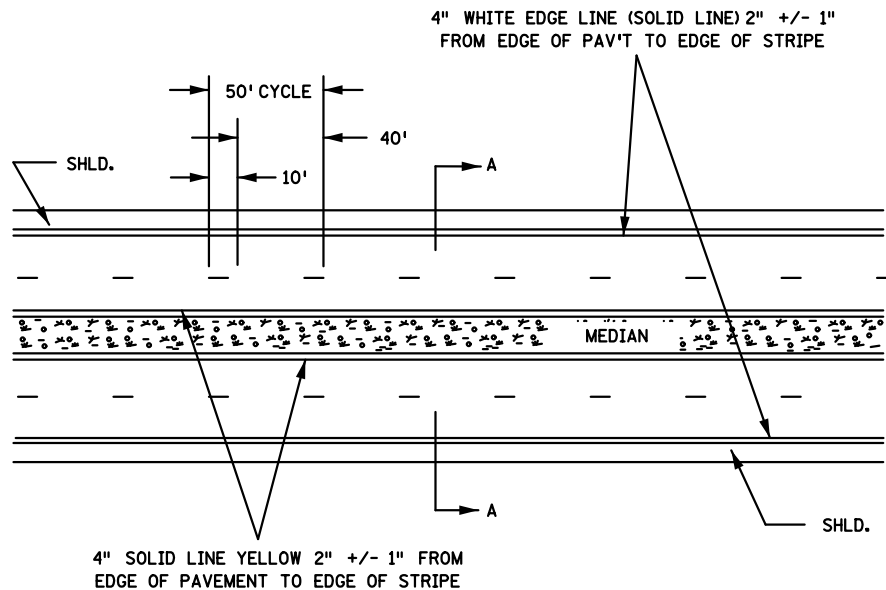
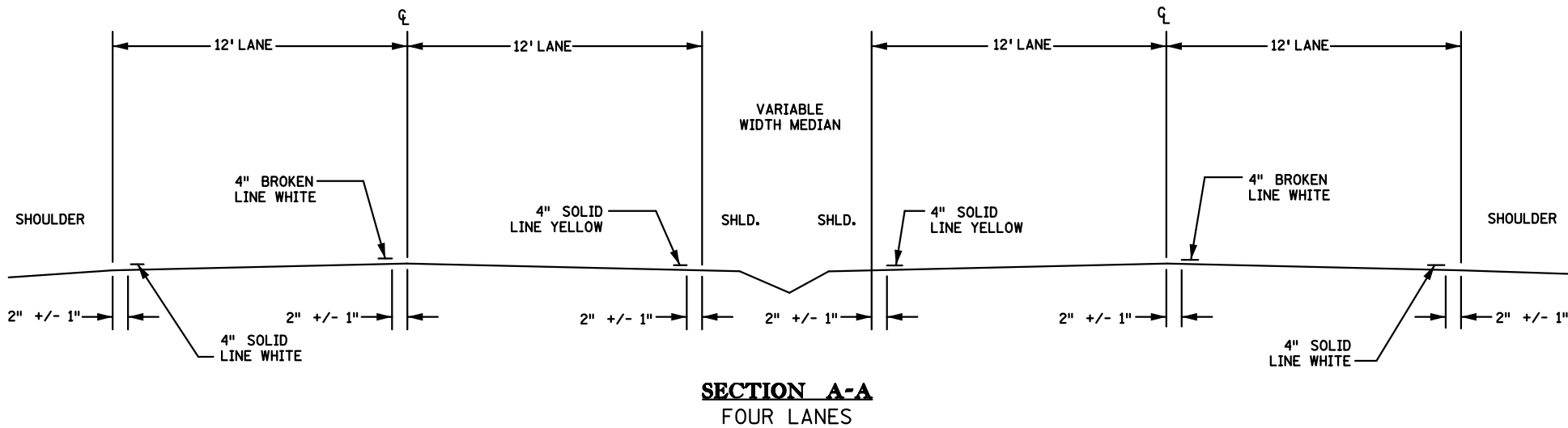
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PLOTTED/REVISED: 8/11/2014

PAVEMENT MARKING TABULATION		
ITEM	UNIT	QUANTITY
4" BROKEN LINE YELLOW-EPOXY	LIN FT	
4" BROKEN LINE WHITE-EPOXY	LIN FT	
8" SOLID LINE WHITE-EPOXY	LIN FT	
4" SOLID LINE YELLOW-EPOXY	LIN FT	
4" SOLID LINE WHITE-EPOXY	LIN FT	
4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	
PAVEMENT MESSAGE (LT ARROW)-EPOXY	EACH	
PAVEMENT MESSAGE (RT ARROW)-EPOXY	EACH	
PAVEMENT MESSAGE (THRU & LT)-EPOXY	EACH	
PAVEMENT MESSAGE (H.O.V. DIAMOND)-EPOXY	EACH	
PAVEMENT MARKING REMOVAL	SQ FT	
4" SOLID LINE WHITE-PAINT	LIN FT	
4" SOLID LINE YELLOW-PAINT	LIN FT	
8" BROKEN LINE WHITE-PAINT	LIN FT	
8" SOLID LINE WHITE-PAINT	LIN FT	
8" DOTTED LINE WHITE-PAINT	LIN FT	
4" BROKEN LINE WHITE-POLY PREFORM	LIN FT	
4" BROKEN LINE WHITE-POLY PREFORM (GROUND-IN)	LIN FT	
8" DOTTED LINE WHITE-POLY PREFORM	LIN FT	
8" DOTTED LINE WHITE-POLY PREFORM (GROUND-IN)	LIN FT	

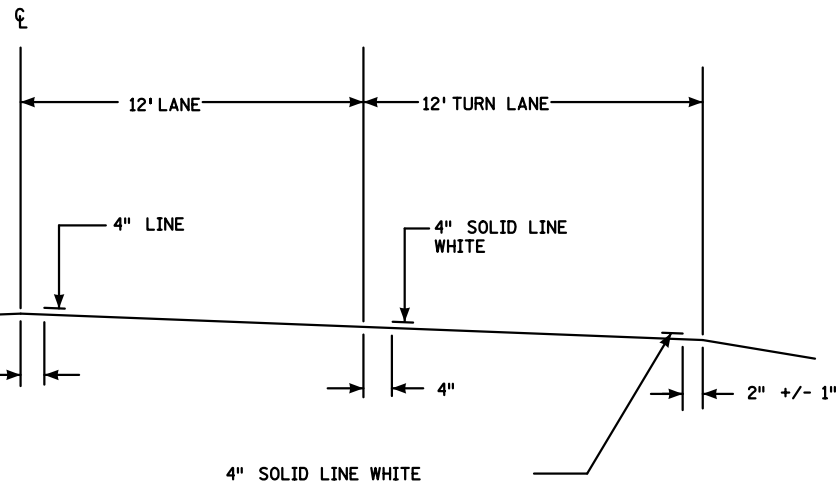
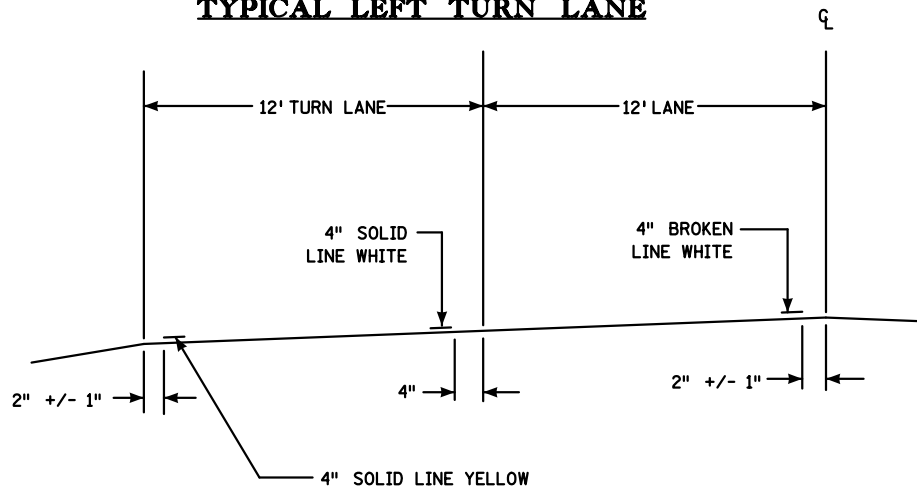
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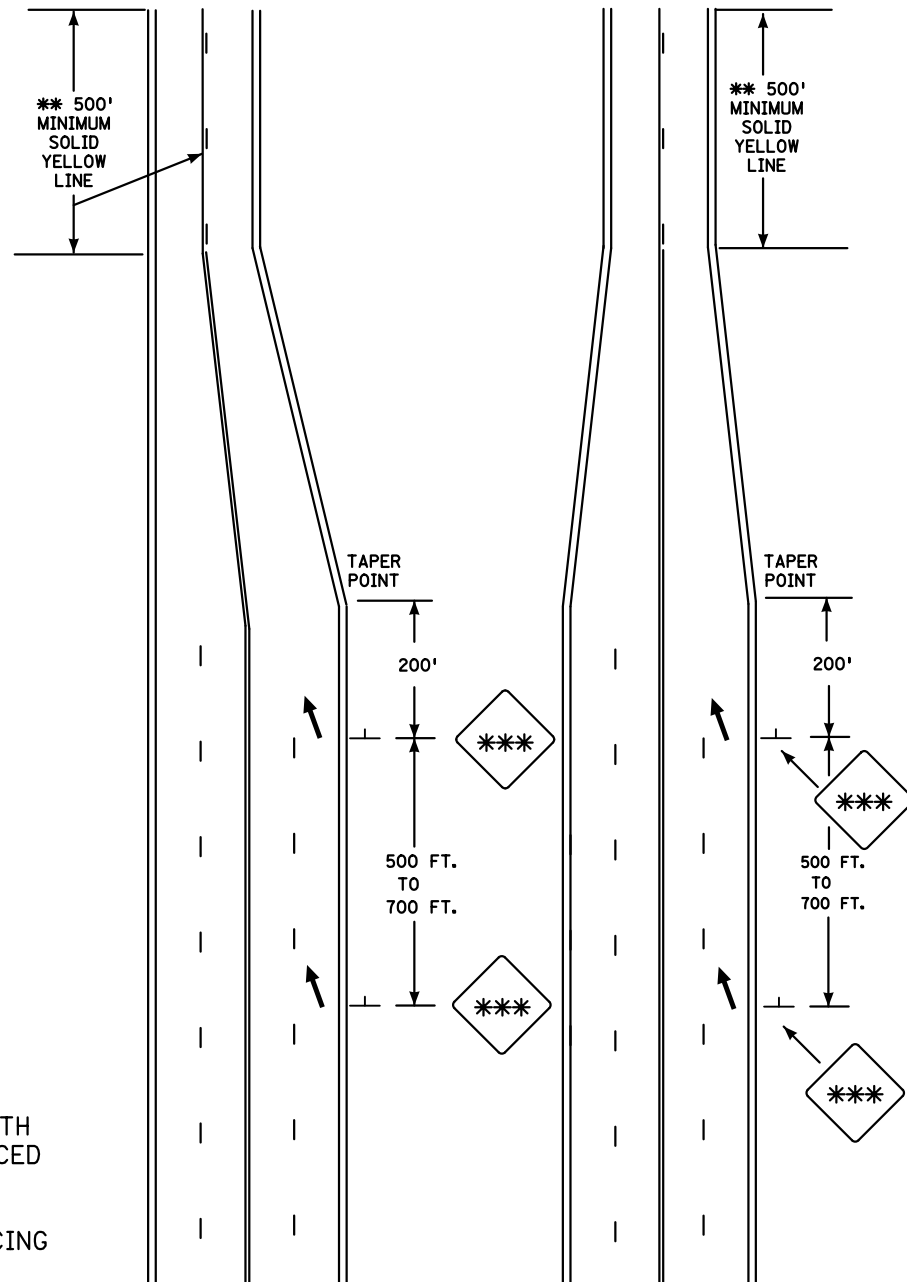
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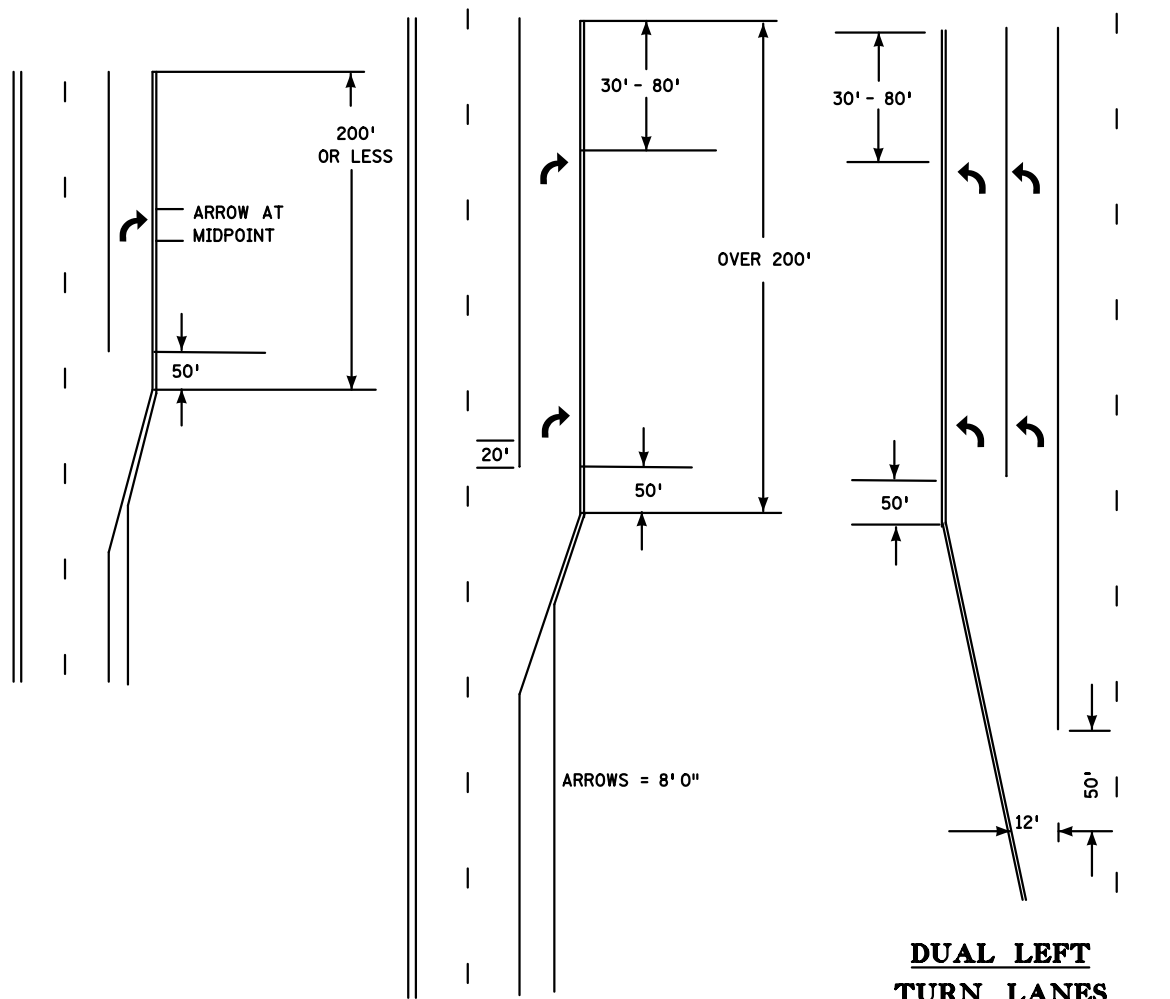
TYPICAL LEFT TURN LANE



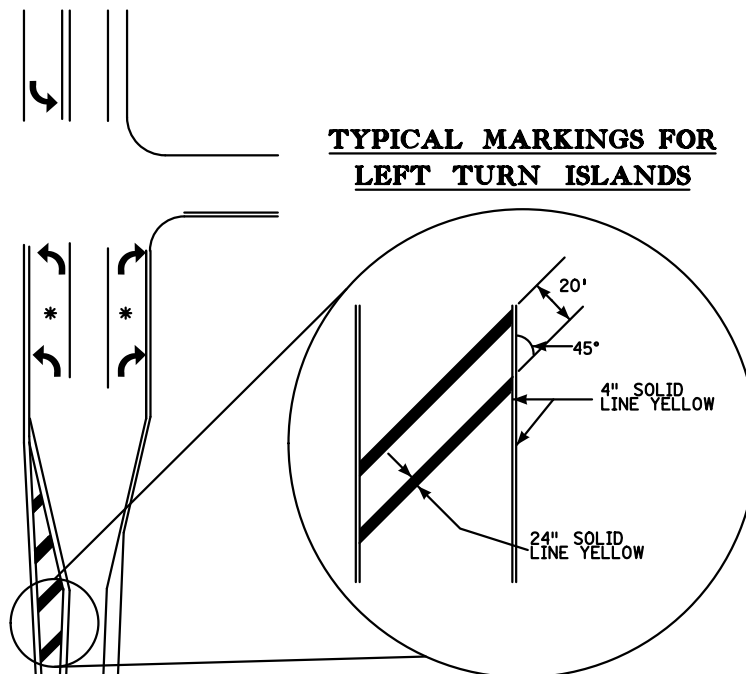
TYPICAL LANE REDUCTION TRANSITION



TYPICAL MESSAGE PLACEMENT FOR TURN LANES



TYPICAL MARKINGS FOR LEFT TURN ISLANDS



AT SPEEDS LESS THAN 40 MPH THE WIDTH OF THE CROSSHATCH LINE MAY BE REDUCED TO 12".

AT SPEEDS 40 MPH AND OVER THE SPACING MAY BE INCREASED TO 30' BETWEEN CROSSHATCH LINES.

* SEE "TYPICAL MESSAGE PLACEMENT FOR TURN LANES" FOR NUMBER OF ARROWS.

** IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

39 MPH SPEED LIMIT OR LESS.....500'
40-54 MPH SPEED LIMIT.....650'
55 MPH SPEED LIMIT.....800'

*** PLACE TRANSITION ARROWS ADJACENT TO LANE REDUCTION SIGNS. REFER TO SIGNING TYPICALS FOR SIGN DETAILS AND PLACEMENT.

**** LANE REDUCTION TRANSITION ARROWS ARE OPTIONAL FOR SPEEDS LESS THAN 45 MPH.

DUAL LEFT TURN LANES

PAVEMENT MARKING TYPICALS

REVISED: 20-NOV-2013

CERTIFIED BY _____ LIC. NO. _____ DATE 8/11/2014

STATE PROJ. NO. 0000-000 (TH 000) SHEET NO.000 OF 000 SHEETS

LICENSED PROFESSIONAL ENGINEER

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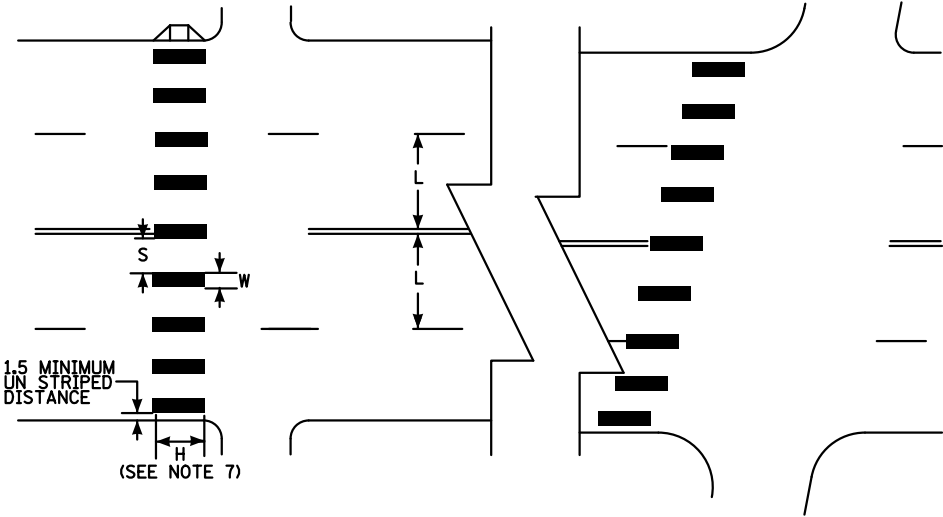
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MARKINGS FOR PEDESTRIAN CROSSWALKS

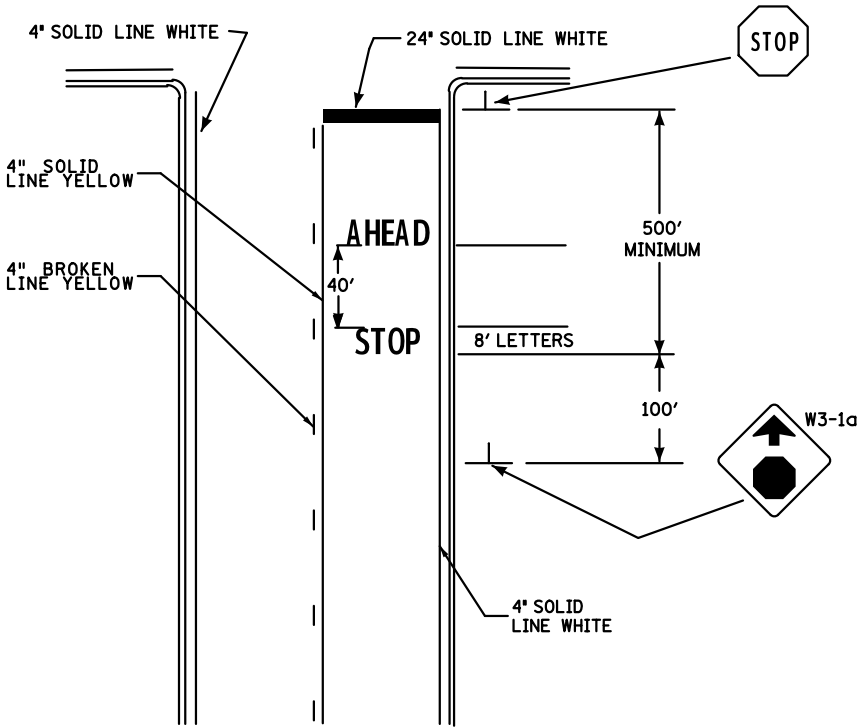
(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF PAINTED AREA
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



NOTES:

- PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
- A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
- ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
- FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
- AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
- THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES
- THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
- THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

PLACEMENT FOR "STOP AHEAD" MARKINGS AND STOP LINES

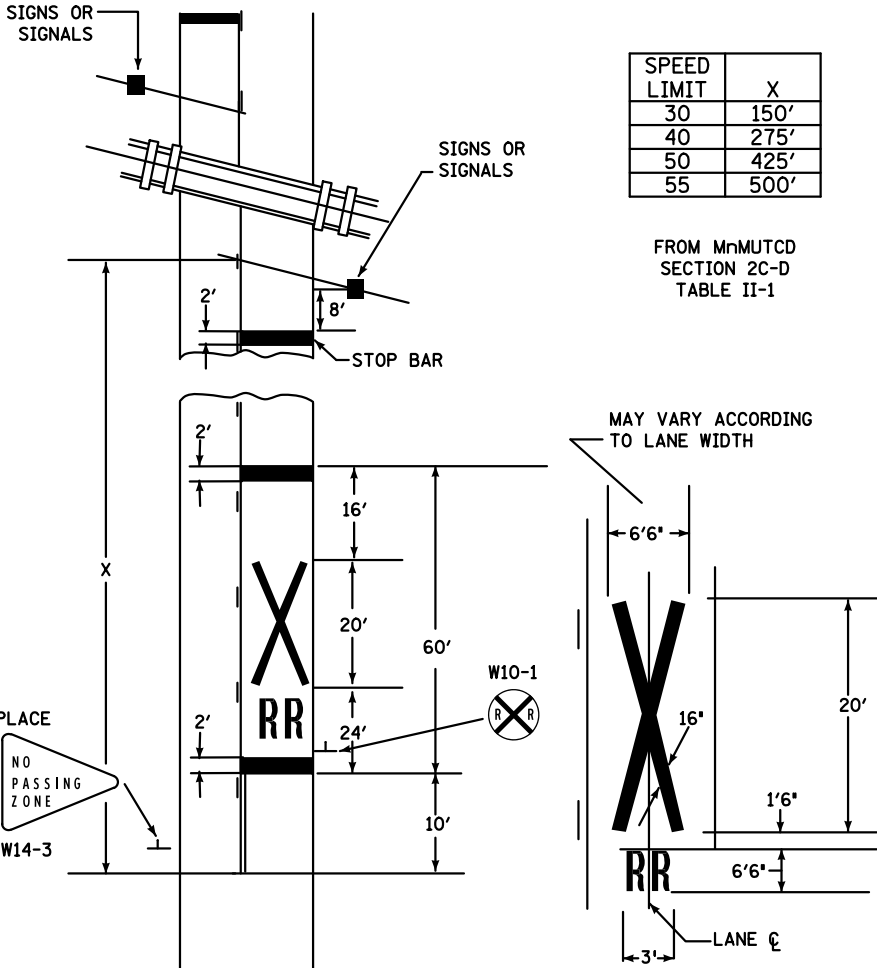


NOTES:

- DO NOT INSTALL A STOP AHEAD PAVEMENT MESSAGE IF THE INTERSECTION HAS ADEQUATE LIGHTING
- INSTALL ONLY ONE SET OF STOP AHEAD PAVEMENT MESSAGES. IF A STOP AHEAD SIGN NEEDS TO BE INSTALLED MORE THAN 1000 FEET FROM THE STOP SIGN, CONTACT DISTRICT TRAFFIC ENGINEER TO DETERMINE IF, AND WHERE, A SECOND SET OF STOP AHEAD PAVEMENT MESSAGES SHOULD BE INSTALLED.
- THE STOP LINE SHOULD ORDINARILY BE PLACED 4 FEET IN ADVANCE OF AND PARALLEL TO THE NEAREST CROSSWALK LINE. IN THE ABSENCE OF A MARKED CROSSWALK, THE STOP LINE SHOULD BE PLACED AT THE DESIRED STOPPING POINT, AND IN NO CASE NO MORE THAN 30 FEET OR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING CURB LINE OR THE NEAR EDGE OF THE THRU LANE.
- IF A STOP LINE IS USED IN CONJUNCTION WITH A STOP SIGN, IT SHOULD ORDINARILY BE PLACED IN LINE WITH THE STOP SIGN. HOWEVER, IF THE SIGN CANNOT BE LOCATED EXACTLY WHERE VEHICLES ARE EXPECTED TO STOP, THE STOP LINE SHOULD BE PLACED AT THE STOPPING POINT.
- IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS
40-50 MPH SPEED LIMIT
55 MPH SPEED LIMIT

MARKINGS FOR RAILROAD CROSSINGS



SPEED LIMIT	X
30	150'
40	275'
50	425'
55	500'

FROM MnMUTCD
SECTION 2C-D
TABLE II-1

NOTES:

- THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT SHOULD NOT BE LESS THAN 50 FEET.
- ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
- THE STOP LINE MAY BE PARALLEL TO AND 15 FEET FROM THE TRACKS WHERE THERE ARE RAILROAD CROSSBUCK SIGNS.

DOUBLE PAVEMENT MESSAGE AS SHOWN SHOULD BE INSTALLED WHENEVER THE STOP AHEAD SIGN IS PLACED A MINIMUM OF 1100' IN ADVANCE OF THE STOP SIGN

IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS 500'
40-50 MPH SPEED LIMIT 650'
55 MPH SPEED LIMIT 800'

PAVEMENT MARKING TYPICALS

REVISED: 10-JULY-2014

CERTIFIED BY _____ LIC. NO. _____ DATE 8/11/2014

LICENSED PROFESSIONAL ENGINEER

STATE PROJ. NO. 0000-000 (TH 000) SHEET NO. 000 OF 000 SHEETS

DISTRICT #: METRO
IPLOT NAME: thypicals.dd5
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AIRPLANE MARKINGS

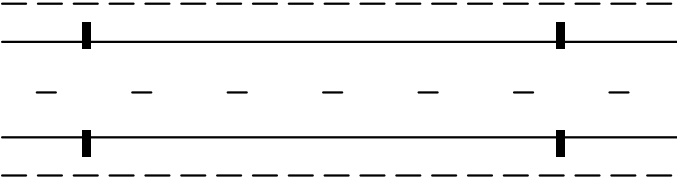
2 LANE ROADWAY

GRAVEL SHOULDERS



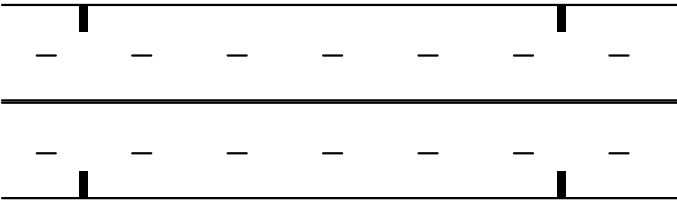
2 LANE ROADWAY

PAVED SHOULDERS



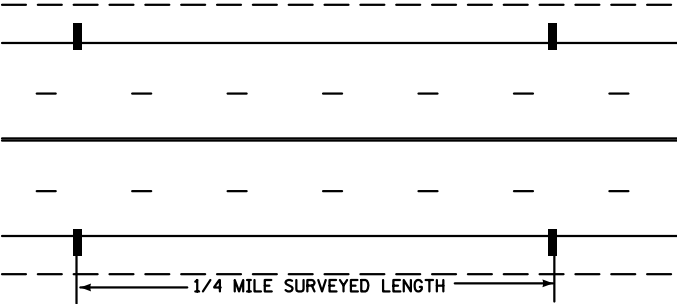
4 LANE ROADWAY (UNDIVIDED)

GRAVEL SHOULDERS



4 LANE ROADWAY (UNDIVIDED)

PAVED SHOULDERS



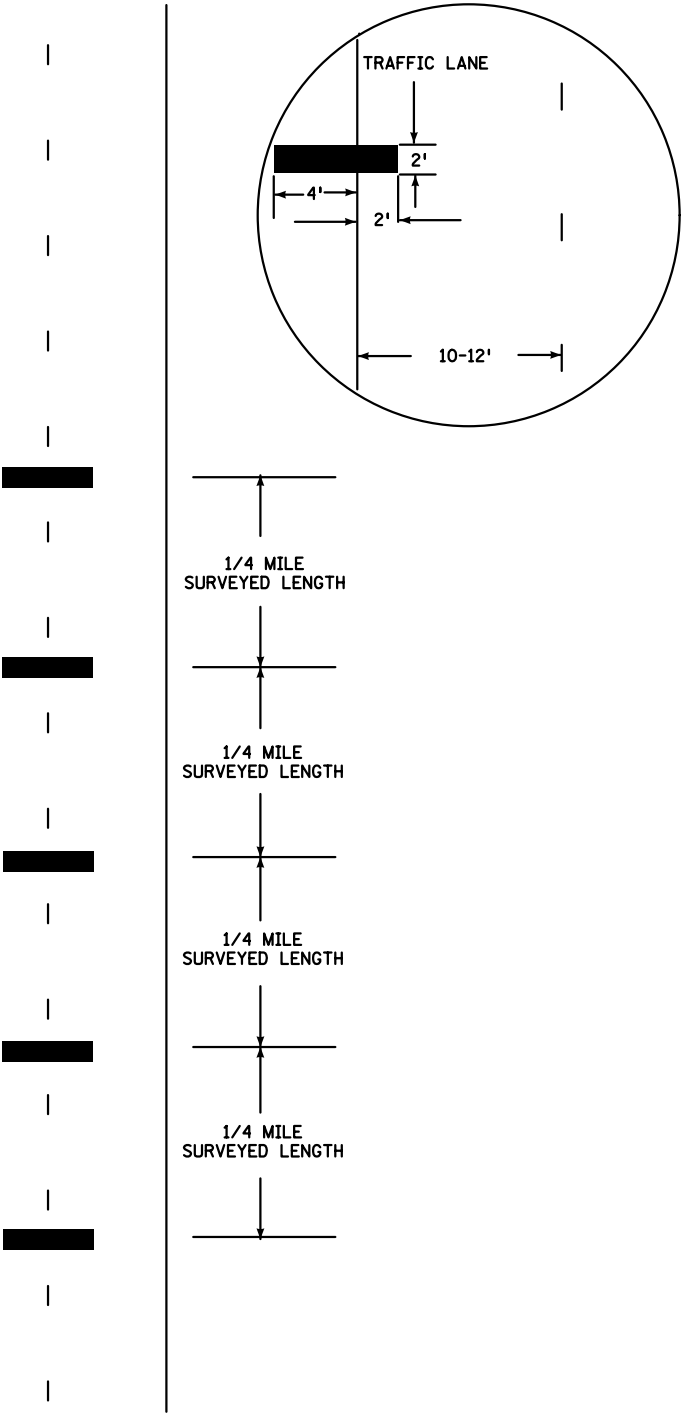
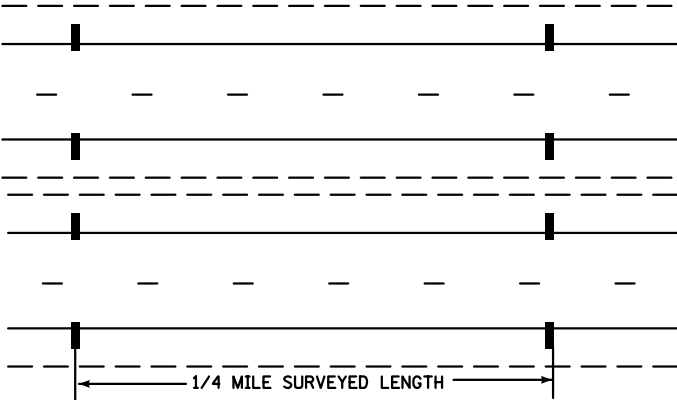
4 OR MORE LANE ROADWAY (DIVIDED)

GRAVEL SHOULDERS



4 OR MORE LANE ROADWAY (DIVIDED)

PAVED SHOULDERS



PAVEMENT MARKING TYPICALS

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PLOT NAME: typicals_dd6
PATH & FILENAME: IP_PWP-d1189609\typicals_dd.dgn

PLOTTED/REVISED: 8/11/2014

DRAWN BY: XXX			CHECKED BY: XXX			CERTIFIED BY _____ <small>LICENSED PROFESSIONAL ENGINEER</small>			LIC. NO. _____			DATE 06/20/2004			PAVEMENT MARKING TYPICALS			STATE PROJ. NO. 0000-000 (TH 000)			SHEET NO. 000 OF 000 SHEETS		
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DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

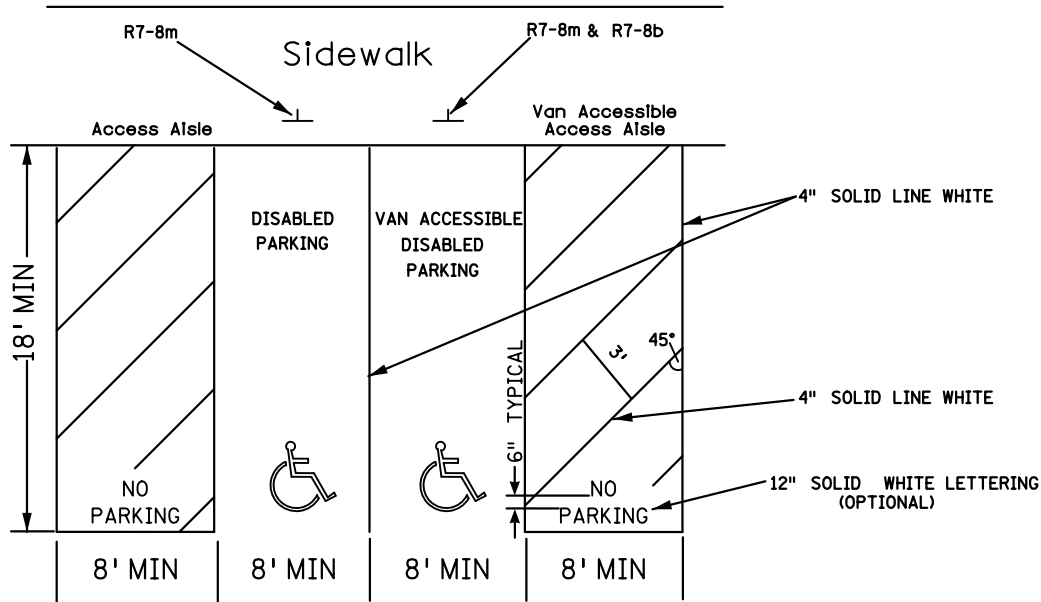
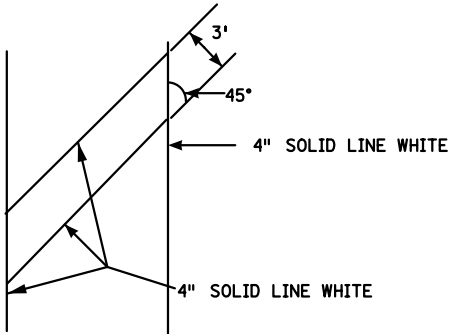


TABLE A	
TOTAL NUMBER OF PARKING SPACES OR STALLS	MINIMUM NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 150	5
151 - 200	6
201 - 300	7
301 - 400	8
401 - 500	9
501 - 1000	2 PERCENT OF TOTAL
GREATER THAN 1000	20 PLUS 1 FOR EACH 100 OR FRACTION THEREOF OVER 1000

TYPICAL MARKINGS FOR ACCESS AISLE



- REFER TO TABLE A FOR STANDARDS ON THE MINIMUM REQUIRED NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS RELATIVE TO THE TOTAL NUMBER OF PROVIDED AUTOMOBILE PARKING SPACES OR STALLS.
- ONE IN EVERY EIGHT ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, SHALL BE SERVED BY AN ACCESS AISLE 96 IN WIDE AND SHALL BE DESIGNATED "VAN ACCESSIBLE"
- THERE MUST BE A SIGN POSTED SO THAT IT IS VISIBLE FROM WITHIN THE VEHICLE.
- EACH DESIGNATED SPACE MUST BE 8' WIDE WITH AN ADJACENT 5' WIDE ACCESS AISLE.
- VAN ACCESSIBLE SPACE MUST HAVE AN ADJACENT 8' WIDE ACCESS AISLE.
- VAN ACCESSIBLE SPACE MUST HAVE A SIGN INDICATING "VAN ACCESSIBLE"
- DESIGNATED SPACES TO BE ON AN ACCESSIBLE ROUTE LOCATED AS NEAR AS POSSIBLE TO AN ACCESSIBLE ENTRANCE.
- EACH SPACE TO HAVE A SIGN WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, INDICATING THAT A PERMIT IS REQUIRED AND NOTIFICATION OF A \$200 MAXIMUM FINE FOR VIOLATION.
- TWO ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.



R7-8m

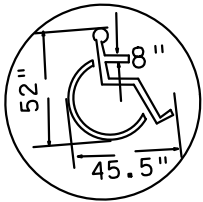


R7-8m



R7-8b

CENTER SYMBOL
IN PARKING SPACE



DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

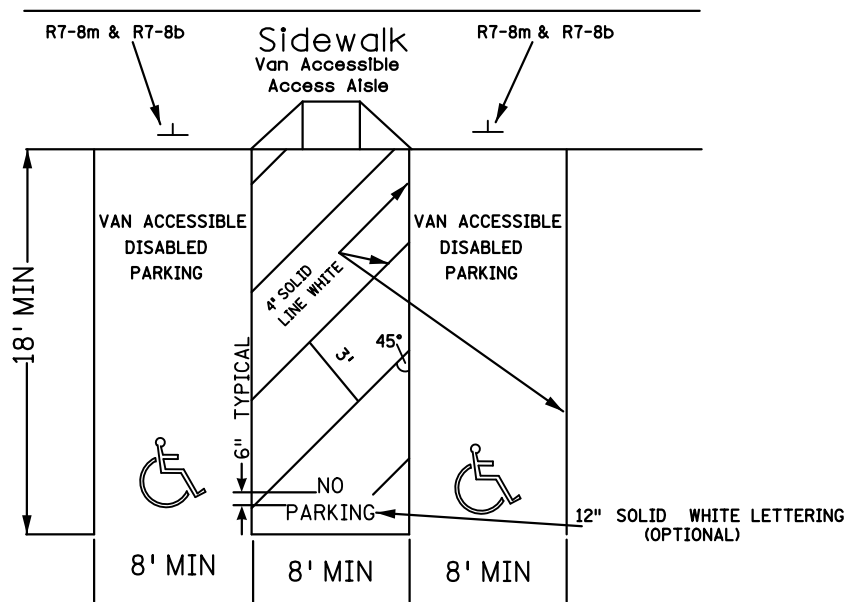
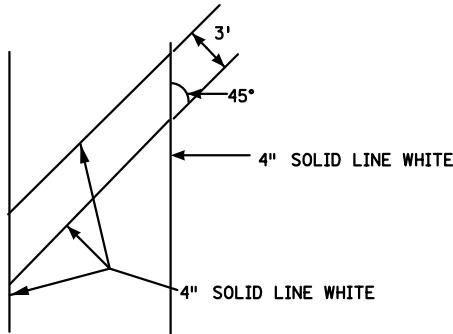


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R7-8m

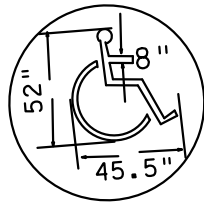


R7-8m



R7-8b

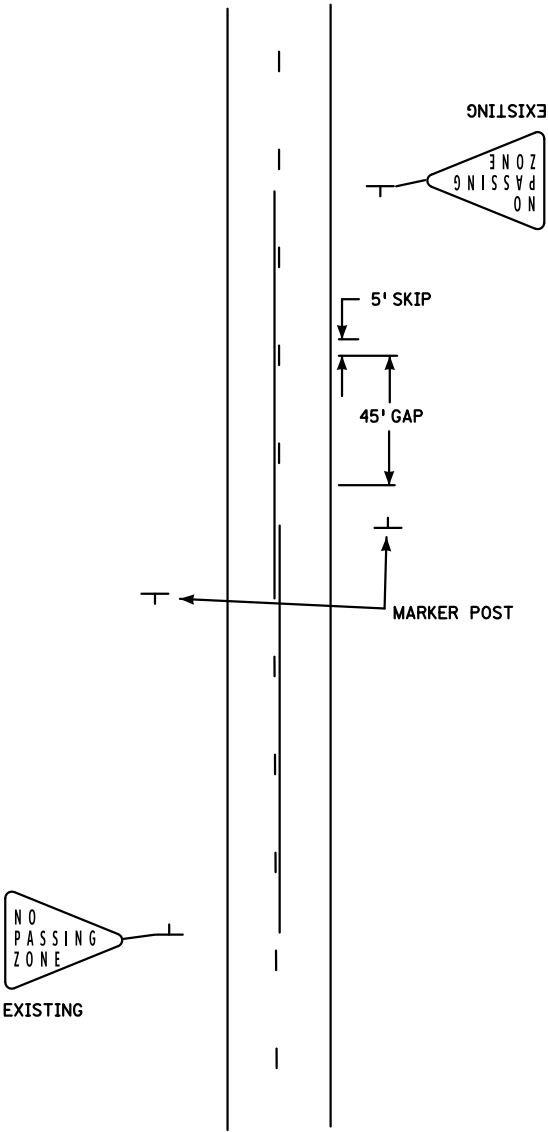
CENTER SYMBOL IN PARKING SPACE



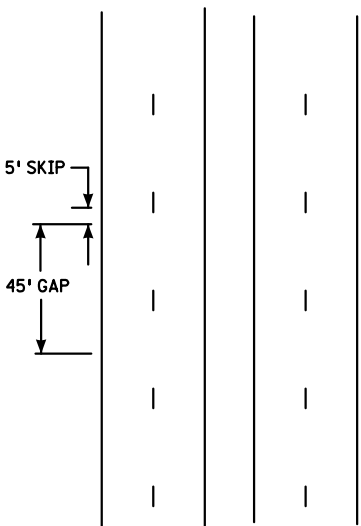
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INTERIM PAVEMENT MARKING

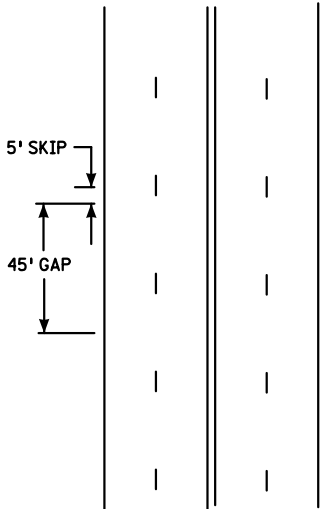
TWO LANE,TWO WAY



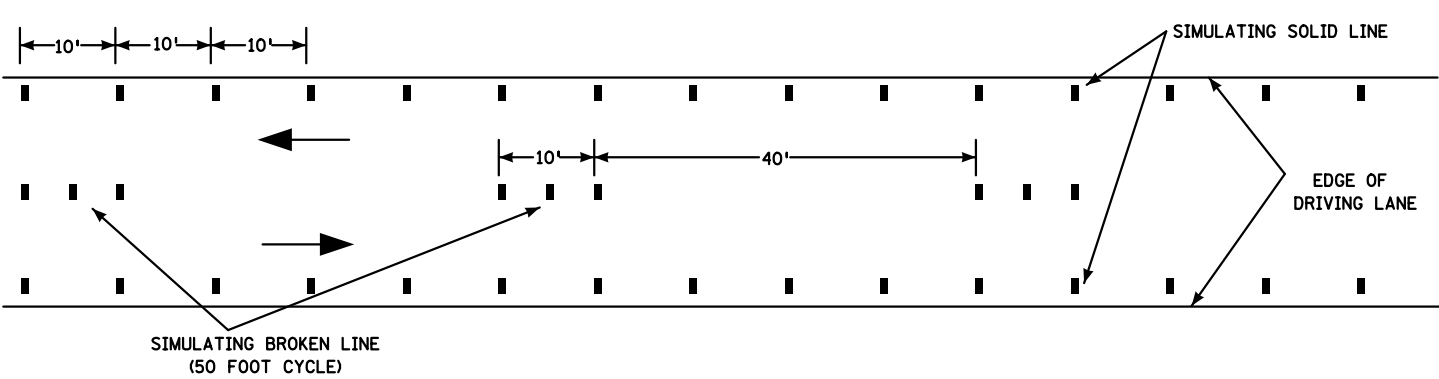
MULTI-LANE,DIVIDED



MULTI-LANE,UNDIVIDED



SIMULATING A SOLID LINE AND A BROKEN LINE (50 FOOT CYCLE) WITH TRPMS



USING TRPM'S AS INTERIM PAVEMENT MARKING

WHEN TRPM'S ARE USED TO SIMULATE A LINE THE FOLLOWING GUIDELINE APPLIES:

SKIP STRIPE - USES 3 TRPM's PER 10' SKIP STRIPE ON 5' CENTERS WITH A 40' GAP

SOLID LINE - USES TRPM'S ON 10' CENTERS ON TANGENTS, FLATTER GRADES AND CURVES UNDER 6 DEGREES. FOR CURVES OVER 6 DEGREES AND STEEP GRADES, THIS SPACING SHALL BE REDUCED TO 5' CENTERS.

GENERAL NOTES (CONTINUED):

FINAL MARKINGS AND ALL OTHER PAVEMENT MARKINGS INCLUDING EDGELINES, CHANNELIZING LINES, LANE REDUCTION TRANSITIONS, GORE MARKINGS AND OTHER LONGITUDINAL MARKINGS AND THE VARIOUS NON-LONGITUDINAL MARKINGS (STOP LINES, RAIL ROAD CROSSINGS, CROSSWALKS, WORDS, SYMBOLS, ETC) SHOULD BE INSTALLED WITHIN 14 CALENDAR DAYS.

NOTE: WHEN FINAL MARKINGS ARE TO BE EPOXY AND PAINT IS USED FOR INTERIM SOLID LINES, A 10 MIL THICK LAYER APPLICATION OF A WATER-BASED TRAFFIC MARKING PAINT SHALL BE USED. WITH A 10 MIL LAYER OF PAINT APPLIED, BEADS SHOULD BE APPLIED AT A RATE OF 6 LBS/GAL. REMOVAL OF THE 10 MIL LAYER OF PAINT IS NOT REQUIRED PRIOR TO PLACING THE EPOXY.

GENERAL NOTES:

SEE SPECIAL PROVISIONS FOR INTERIM PAVEMENT MARKING GUIDELINES

THESE INTERIM PAVEMENT MARKING GUIDELINES APPLY TO ALL TEMPORARY TRAFFIC CONTROL ZONES OF AT LEAST 300' IN LENGTH ON TANGENT AND 50' ON CURVES OF 6 DEGREES OR GREATER.

- FOR ALL PROJECTS GREATER THAN 1.25 MILES IN LENGTH, INTERIM SKIP STRIPE PAVEMENT MARKINGS SHALL USE THE SAME CYCLE LENGTH AS FINAL PAVEMENT MARKINGS (50') AND SHALL BE A MINIMUM OF 5' LENGTH.
- ON PROJECTS GREATER THAN 300' IN LENGTH, BUT LESS THAN 1.25 MILES IN LENGTH, THE INTERIM MARKING SHALL MATCH THE CYCLE LENGTH AT EITHER END OF THE PROJECT. THE INTERIM STRIPE SHALL BE 5' IN LENGTH.

ALL INTERIM MARKINGS SHALL BE INSTALLED PRIOR TO REMOVING LANE CLOSURE OR OPENING THE ROADWAY TO TRAFFIC.

INTERIM PAVEMENT MARKING

REVISED: 20-NOV-2013

CERTIFIED BY _____ LIC. NO. _____ DATE 8/11/2014

STATE PROJ. NO. 0000-000 (TH 000) SHEET NO. 000 OF 000 SHEETS

DISTRICT #: METRO
PLOT NAME: thypcal.ddg
PATH & FILENAME: IP_PWP-d1189609Nthypcal.ddg

DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

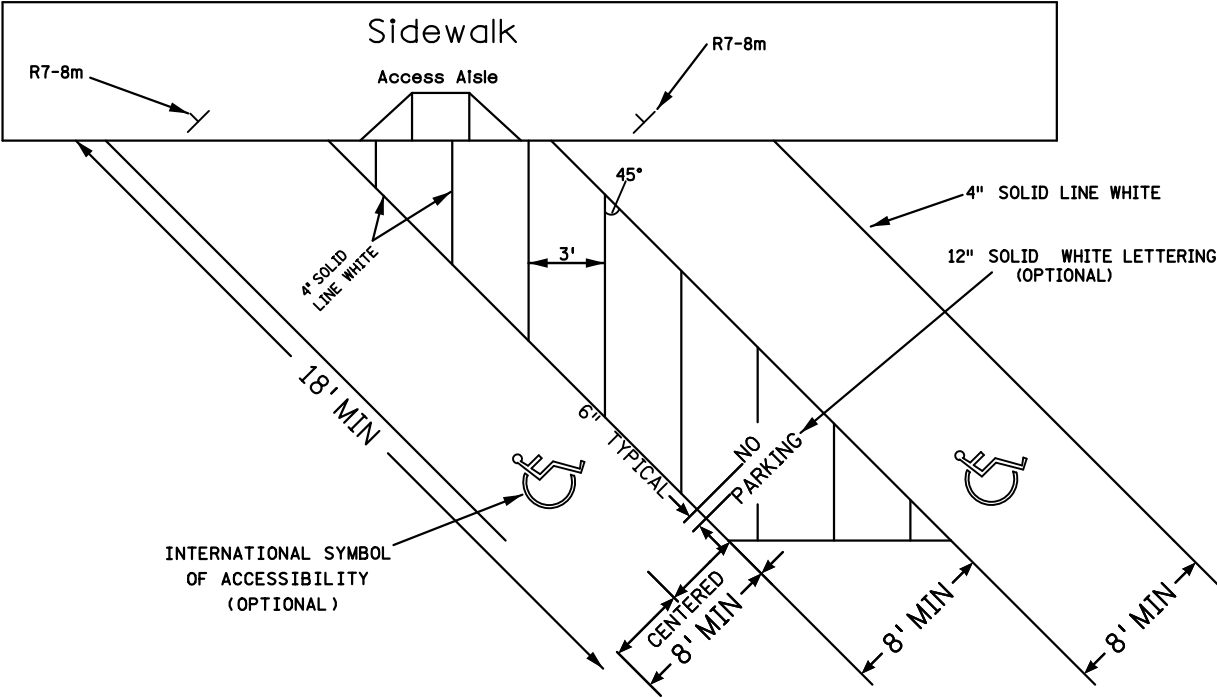
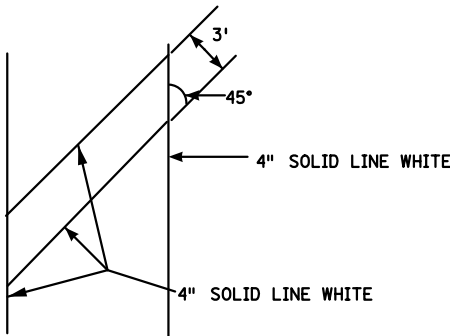


TABLE A	
TOTAL NUMBER OF MARKED OR METERED PARKING SPACES ON THE BLOCK PERIMETER	MINIMUM NUMBER OF ACCESSIBLE PARKING SPACES
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 150	5
151 - 200	6
201 and over	4% of total

TYPICAL MARKINGS FOR ACCESS AISLE



- REFER TO TABLE A FOR STANDARDS ON THE MINIMUM REQUIRED NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS RELATIVE TO THE TOTAL NUMBER OF PROVIDED AUTOMOBILE PARKING SPACES OR STALLS.
- ONE IN EVERY EIGHT ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, SHALL BE SERVED BY AN ACCESS AISLE 96 IN WIDE AND SHALL BE DESIGNATED "VAN ACCESSIBLE"
- THERE MUST BE A SIGN POSTED SO THAT IT IS VISIBLE FROM WITHIN THE VEHICLE.
- EACH DESIGNATED SPACE MUST BE 8' WIDE WITH AN ADJACENT 5' WIDE ACCESS AISLE.
- VAN ACCESSIBLE SPACE MUST HAVE AN ADJACENT 8' WIDE ACCESS AISLE.
- VAN ACCESSIBLE SPACE MUST HAVE A SIGN INDICATING "VAN ACCESSIBLE"
- DESIGNATED SPACES TO BE ON AN ACCESSIBLE ROUTE LOCATED AS NEAR AS POSSIBLE TO AN ACCESSIBLE ENTRANCE.
- EACH SPACE TO HAVE A SIGN WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, INDICATING THAT A PERMIT IS REQUIRED AND NOTIFICATION OF A \$200 MAXIMUM FINE FOR VIOLATION.
- TWO ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.



R7-8m

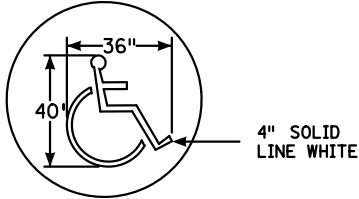


R7-8m



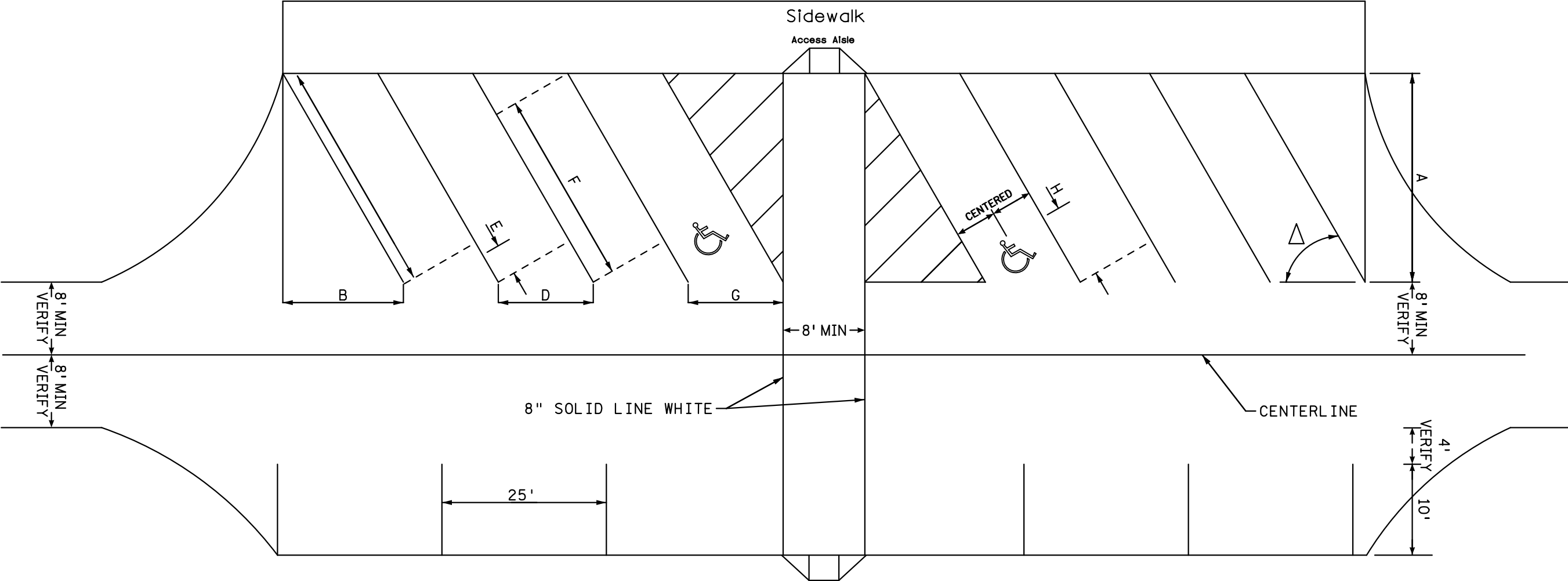
R7-8b

INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING FOR ACCESSIBLE PARKING SPACE OR STALL



DISTRICT #: METRO
PLOT NAME: thypicals.dwg
PATH & FILENAME: IP_PWP-dll89609Ntypicals-dd.dgn
PLOTTED/REVISED: 8/11/2014

DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS



- REFER TO TABLE A FOR STANDARDS ON THE MINIMUM REQUIRED NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS RELATIVE TO THE TOTAL NUMBER OF PROVIDED AUTOMOBILE PARKING SPACES OR STALLS.
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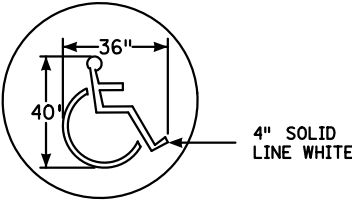
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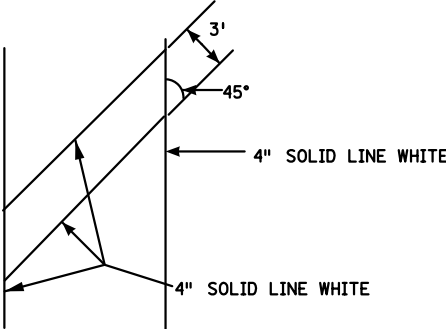
R7-8m

PARKING SPACE (BASED ON 18 FT. MINIMUM STALL LENGTH) (ALL DIMENSIONS ARE IN FEET OR FRACTIONS OF FEET)													
Δ	ALL STALLS			10' WIDE STALLS					12' WIDE STALLS				
	A	B	C	D	E	F	G	H	D	E	F	G	H
45°	22.00	22.00	31.11	-	-	-	-	-	16.97	12.00	19.11	16.97	12.00
	20.00	20.00	28.28	14.14	10.00	18.28	14.14	10.00	-	-	-	-	-
50°	22.00	18.46	28.72	-	-	-	-	-	15.66	10.07	18.65	15.67	10.07
	21.00	17.62	28.41	13.05	8.39	19.02	13.05	8.39	-	-	-	-	-
55°	22.00	15.40	26.86	-	-	-	-	-	14.65	8.40	18.64	14.65	8.40
	21.00	14.70	25.64	12.21	7.00	18.64	12.21	7.00	-	-	-	-	-
60°	22.00	12.70	25.40	-	-	-	-	-	13.86	6.93	18.48	13.86	6.93
	21.00	12.12	24.25	11.55	5.77	18.48	11.55	5.77	-	-	-	-	-

INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING FOR ACCESSIBLE PARKING SPACE OR STALL



TYPICAL MARKINGS FOR ACCESS AISLE



PAVEMENT MARKING DETAIL FOR DISABLED PARKING

DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

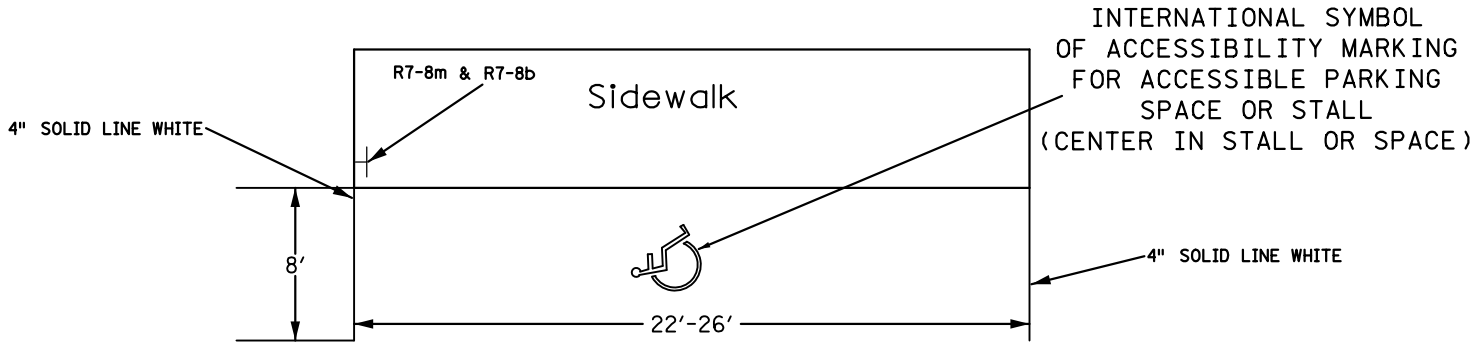


TABLE A	
TOTAL NUMBER OF PARKING SPACES OR STALLS	MINIMUM NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 150	5
151 - 200	6
201 - 300	7
301 - 400	8
401 - 500	9
501 - 1000	2 PERCENT OF TOTAL
GREATER THAN 1000	20 PLUS 1 FOR EACH 100 OR FRACTION THEREOF OVER 1000

- REFER TO TABLE A FOR STANDARDS ON THE MINIMUM REQUIRED NUMBER OF DISABLED ACCESSIBLE PARKING SPACES OR STALLS RELATIVE TO THE TOTAL NUMBER OF PROVIDED AUTOMOBILE PARKING SPACES OR STALLS.
- IF STALL IS THE FIRST OR LAST STALL LENGTH MAY BE REDUCE TO 20'.
- SIDEWALK ADJACENT TO HANDICAP STALL SHALL BE CLEAR OF ALL OBSTRUCTIONS.
- THERE MUST BE A SIGN POSTED SO THAT IT IS VISIBLE FROM WITHIN THE VEHICLE.
- DESIGNATED SPACES TO BE ON AN ACCESSIBLE ROUTE LOCATED AS NEAR AS POSSIBLE TO AN ACCESSIBLE ENTRANCE.
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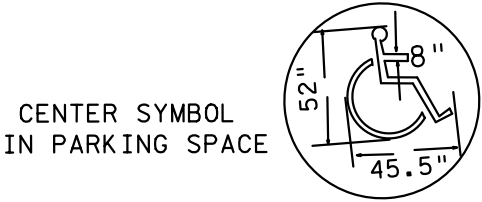
R7-8m



R7-8m



R7-8b



DISTRICT #: METRO
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PLOTTED/REVISED: 8/11/2014

DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

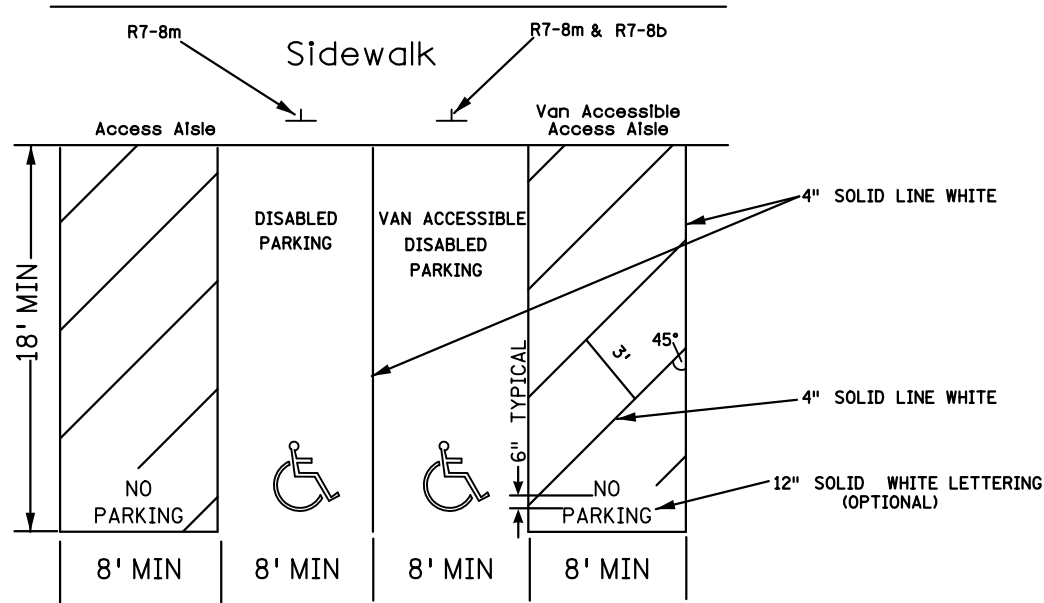
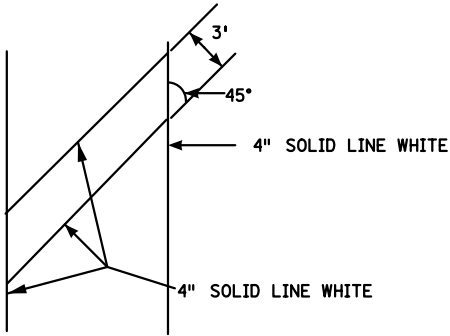


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R7-8m

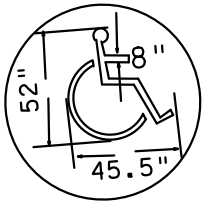


R7-8m



R7-8b

CENTER SYMBOL IN PARKING SPACE



DISABLED PARKING PAVEMENT MARKING DETAIL FOR PARKING LOTS

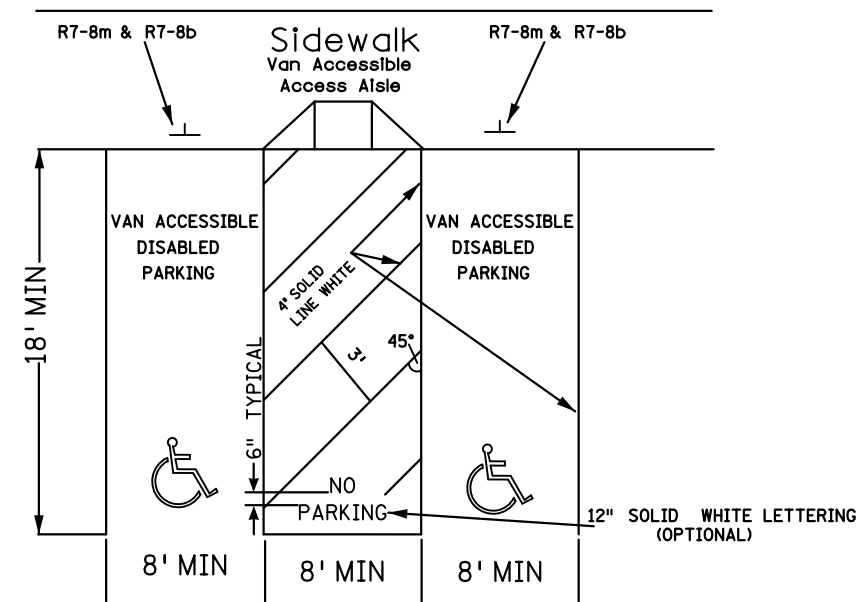
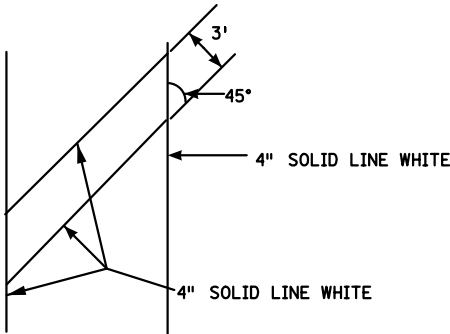


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R7-8m

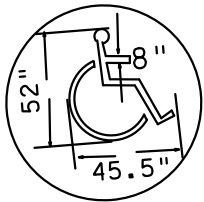


R7-8m



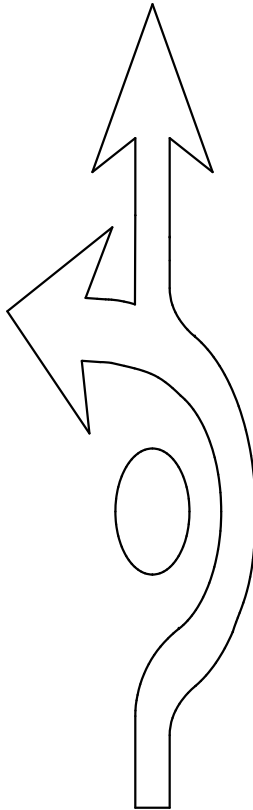
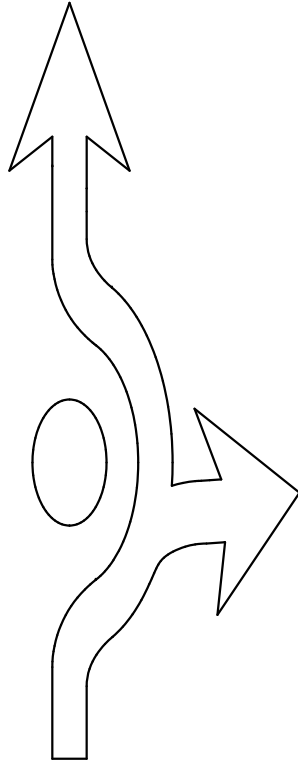
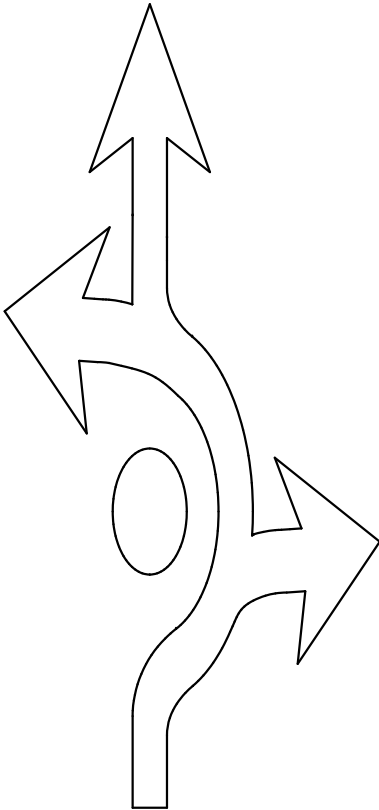
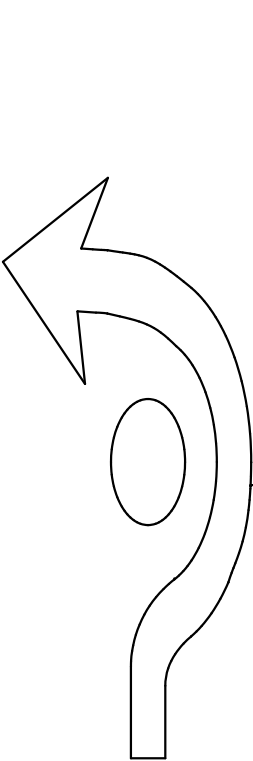
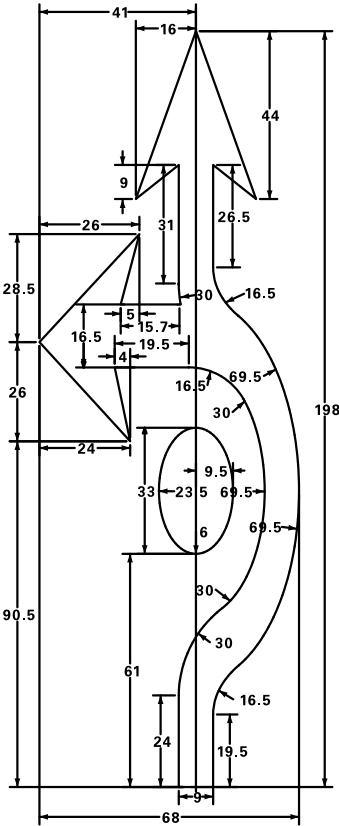
R7-8b

CENTER SYMBOL IN PARKING SPACE



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IPLOT NAME: thypicals.ddl5
PATH & FILENAME: IP_PWP-dll89609\thypicals_dd.dgn

PLOTTED/REVISED: 8/11/2014



DRAWN BY: XXX

CHECKED BY: XXX

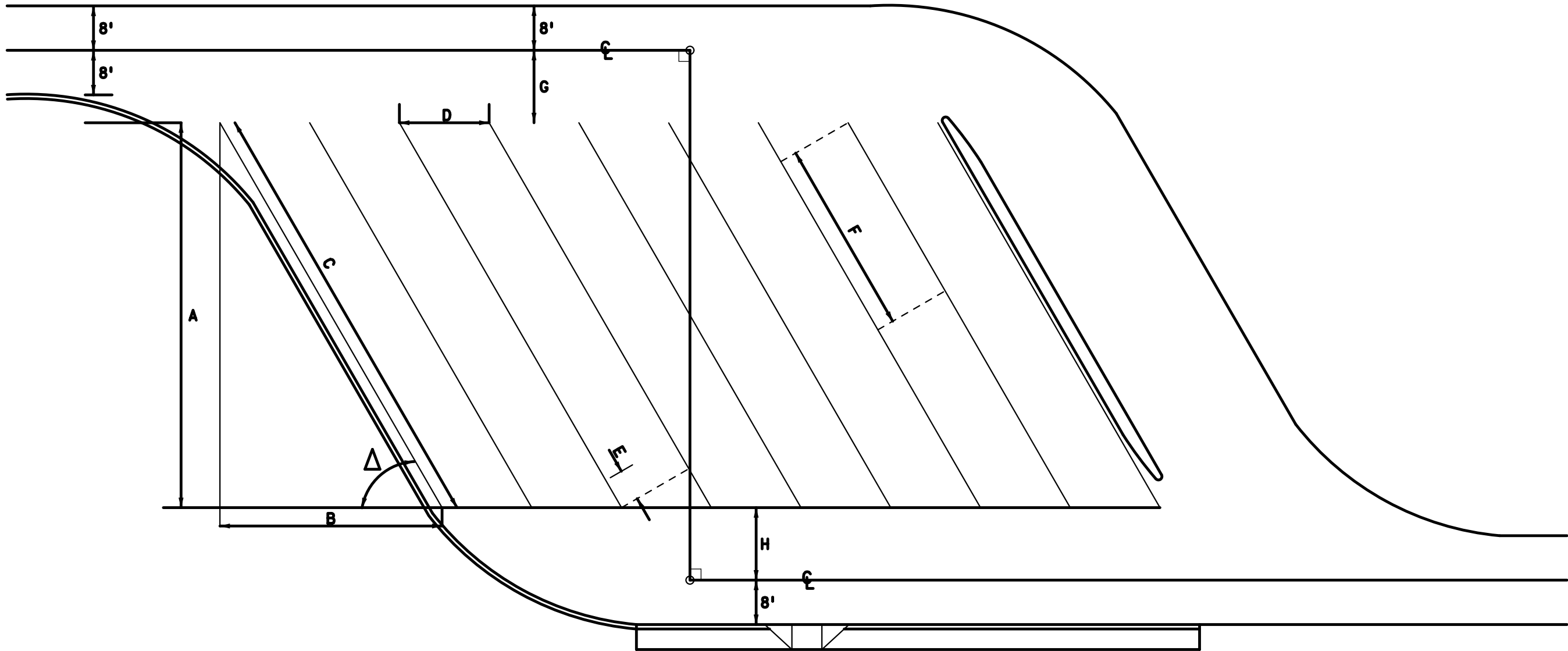
CERTIFIED BY _____ LIC. NO. _____ DATE 06/20/2004

LICENSED PROFESSIONAL ENGINEER

FISH HOOK ARROWS

STATE PROJ. NO. 0000-000 (TH 000) SHEET NO. 000 OF 000 SHEETS

PARKING AREA PAVEMENT MARKINGS
TRUCK PARKING STALL DETAILS



Parking Space data (based on 14ft x 75ft minimum stall length) (ALL DIMENSIONS ARE IN FEET OR FRACTIONS OF FEET)									
Δ	A	B	C	D	E	F	G	H	ε-ε
30°	50.00	86.60	100.00	28.00	24.25	75.75	14.00	15.00	79.00
35°	55.00	78.55	95.89	24.41	20.00	75.90	19.00	18.00	92.00
40°	59.00	70.31	91.79	21.78	16.69	75.10	26.00	21.00	106.00
45°	63.00	63.00	89.10	19.80	14.00	75.10	32.00	25.00	120.00
50	67.00	56.22	87.46	18.28	11.75	75.72	40.00	28.00	135.00
55	70.00	49.01	85.45	17.09	9.80	75.65	46.00	31.00	147.00
60	72.00	41.57	93.14	16.71	8.08	75.06	54.00	34.00	160.00

NOTES: When the parking area is located on a curve, the dimensions for the parking spaces should be adjusted (fanned) to compensate for curvature.
An island up to 14ft wide may be included between every ten stalls in the parking area.
The location of the pedestrian curb ramp for the disabled will depend on the site development and landing location.
The need for 150ft parking stalls should be studied on a case by case basis and additional parking provided for as many as required.

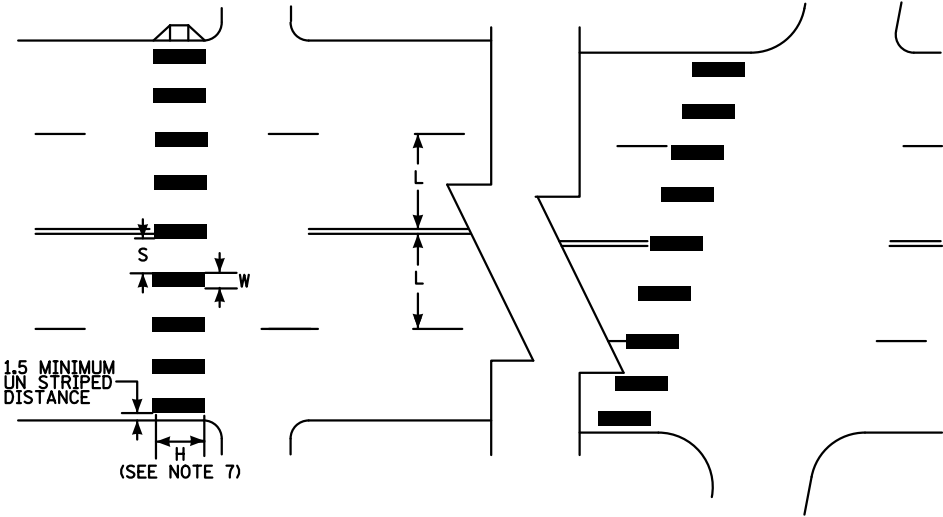
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PLOTTED/REVISED: 8/11/2014

DISTRICT #: METRO
PLOT NAME: thypcal.sdd17
PATH & FILENAME: IP_PWP-d1189609thypcal.sdd.dgn

PLOTTED/REVISED: 8/11/2014

MARKINGS FOR PEDESTRIAN CROSSWALKS

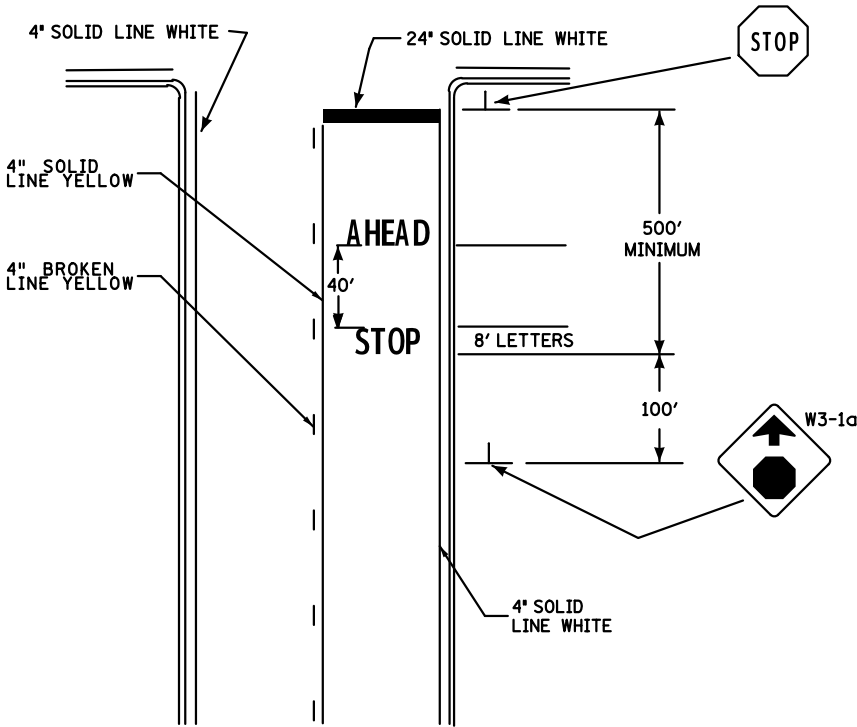
(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF PAINTED AREA
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



NOTES:

1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES
7. THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
8. THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

PLACEMENT FOR "STOP AHEAD" MARKINGS AND STOP LINES

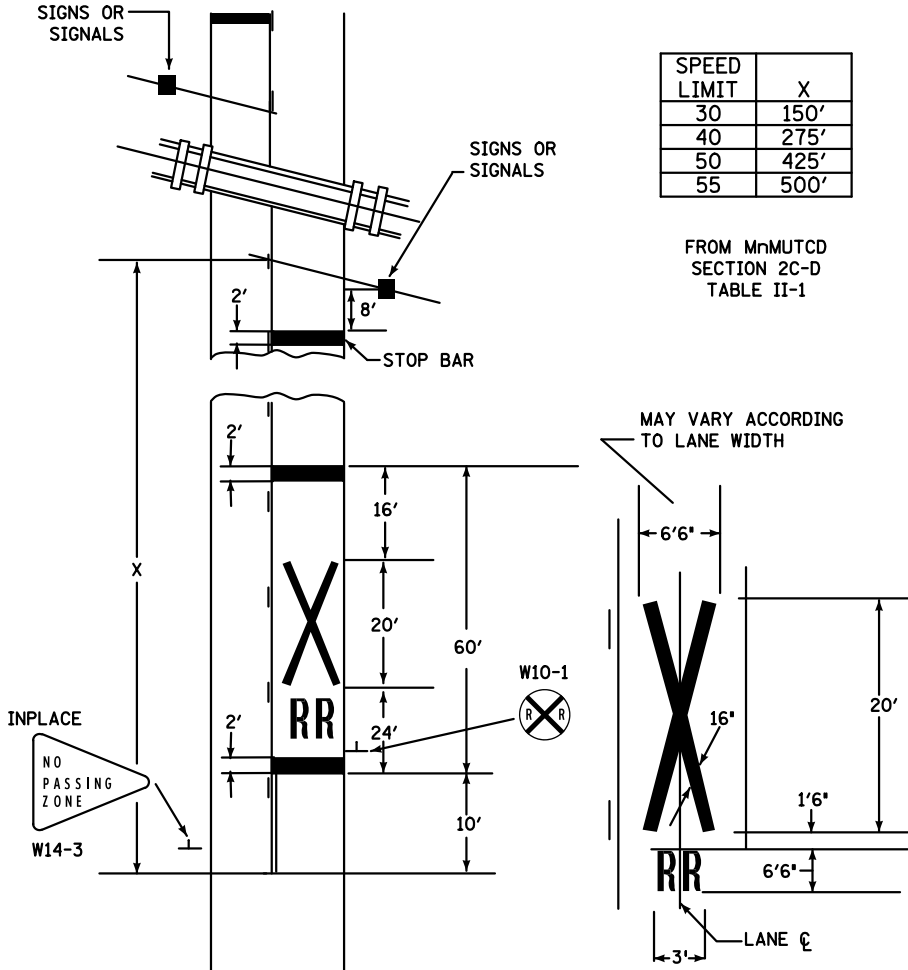


NOTES:

1. DO NOT INSTALL A STOP AHEAD PAVEMENT MESSAGE IF THE INTERSECTION HAS ADEQUATE LIGHTING
2. INSTALL ONLY ONE SET OF STOP AHEAD PAVEMENT MESSAGES. IF A STOP AHEAD SIGN NEEDS TO BE INSTALLED MORE THAN 1000 FEET FROM THE STOP SIGN, CONTACT DISTRICT TRAFFIC ENGINEER TO DETERMINE IF, AND WHERE, A SECOND SET OF STOP AHEAD PAVEMENT MESSAGES SHOULD BE INSTALLED.
3. THE STOP LINE SHOULD ORDINARILY BE PLACED 4 FEET IN ADVANCE OF AND PARALLEL TO THE NEAREST CROSSWALK LINE. IN THE ABSENCE OF A MARKED CROSSWALK, THE STOP LINE SHOULD BE PLACED AT THE DESIRED STOPPING POINT, AND IN NO CASE NO MORE THAN 30 FEET OR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING CURB LINE OR THE NEAR EDGE OF THE THRU LANE.
4. IF A STOP LINE IS USED IN CONJUNCTION WITH A STOP SIGN, IT SHOULD ORDINARILY BE PLACED IN LINE WITH THE STOP SIGN. HOWEVER, IF THE SIGN CANNOT BE LOCATED EXACTLY WHERE VEHICLES ARE EXPECTED TO STOP, THE STOP LINE SHOULD BE PLACED AT THE STOPPING POINT.
5. IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS
40-50 MPH SPEED LIMIT
55 MPH SPEED LIMIT

MARKINGS FOR RAILROAD CROSSINGS



SPEED LIMIT	X
30	150'
40	275'
50	425'
55	500'

FROM MnMUTCD
SECTION 2C-D
TABLE II-1

NOTES:

1. THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT SHOULD NOT BE LESS THAN 50 FEET.
2. ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
3. THE STOP LINE MAY BE PARALLEL TO AND 15 FEET FROM THE TRACKS WHERE THERE ARE RAILROAD CROSSBUCK SIGNS.

DOUBLE PAVEMENT MESSAGE AS SHOWN SHOULD BE INSTALLED WHENEVER THE STOP AHEAD SIGN IS PLACED A MINIMUM OF 1100' IN ADVANCE OF THE STOP SIGN

IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS 500'
40-50 MPH SPEED LIMIT 650'
55 MPH SPEED LIMIT 800'

PAVEMENT MARKING TYPICALS

REVISED: 10-JULY-2014

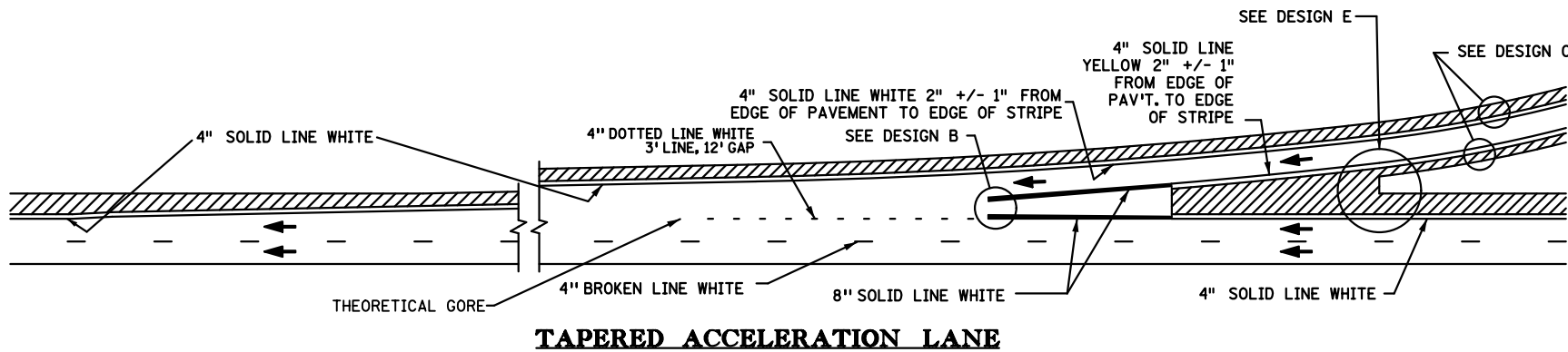
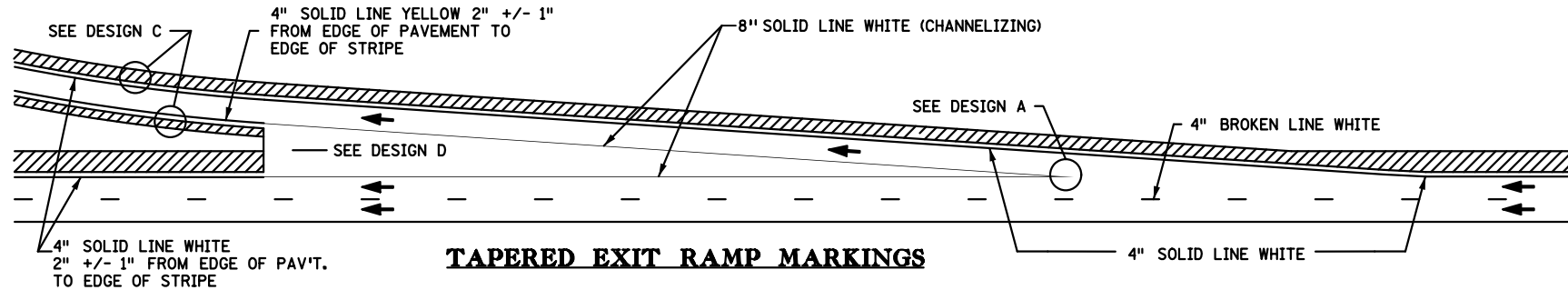
CERTIFIED BY _____ LIC. NO. _____ DATE 8/11/2014

LICENSED PROFESSIONAL ENGINEER

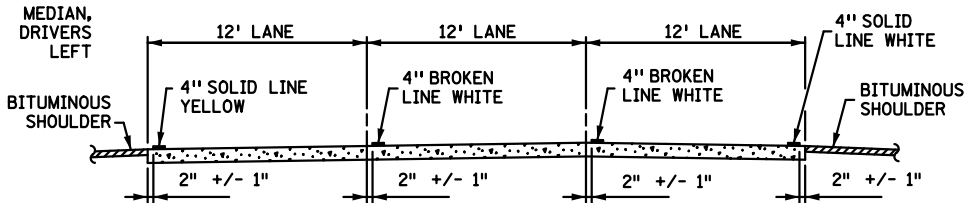
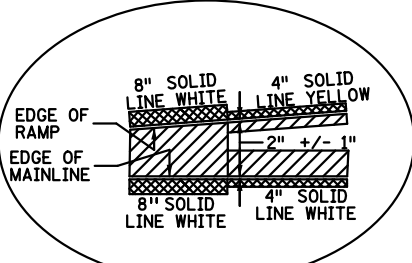
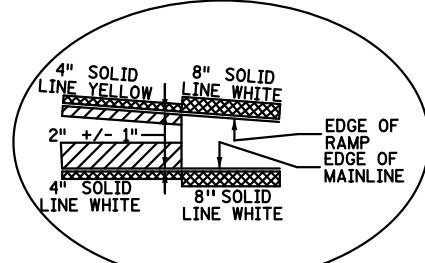
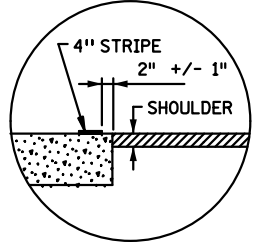
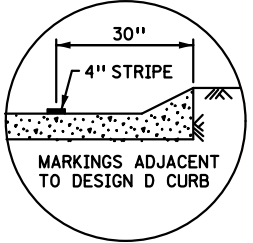
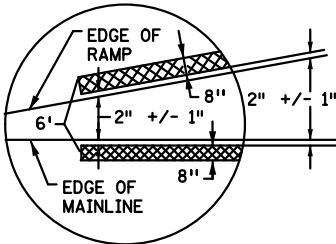
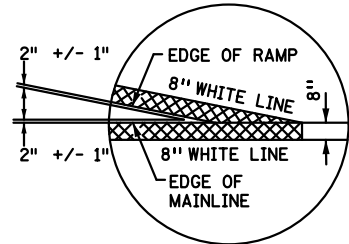
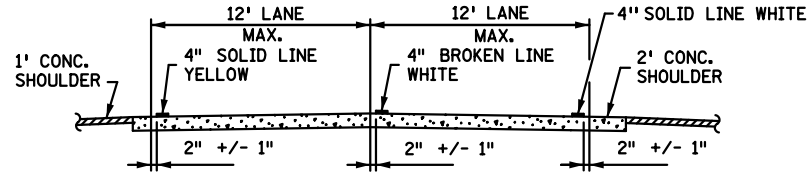
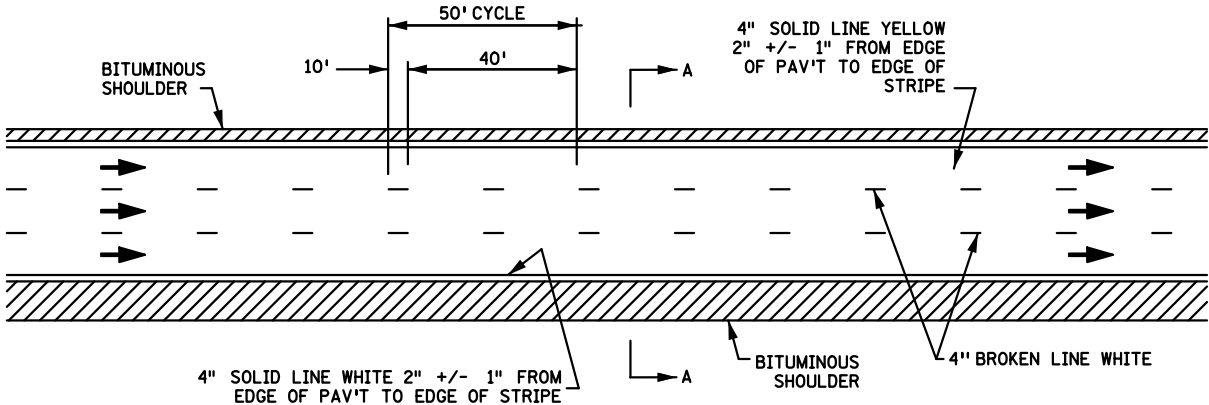
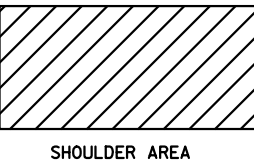
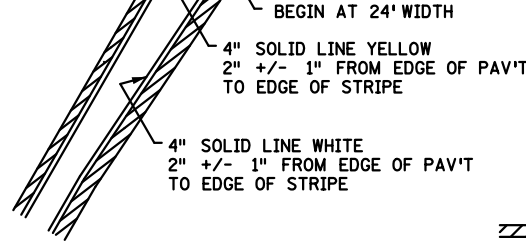
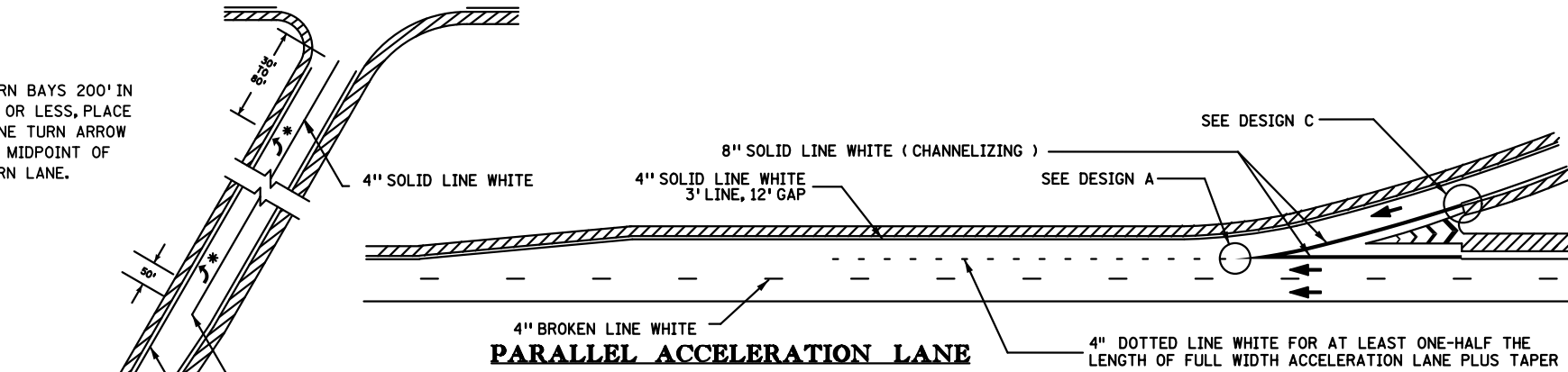
STATE PROJ. NO. 0000-000 (TH 000) SHEET NO. 000 OF 000 SHEETS

PLOTTED/REVISED: 8/11/2014

DISTRICT #: METRO
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PATH & FILENAME: IP_PWP-d1189609Nthypcal.sdd.dgn

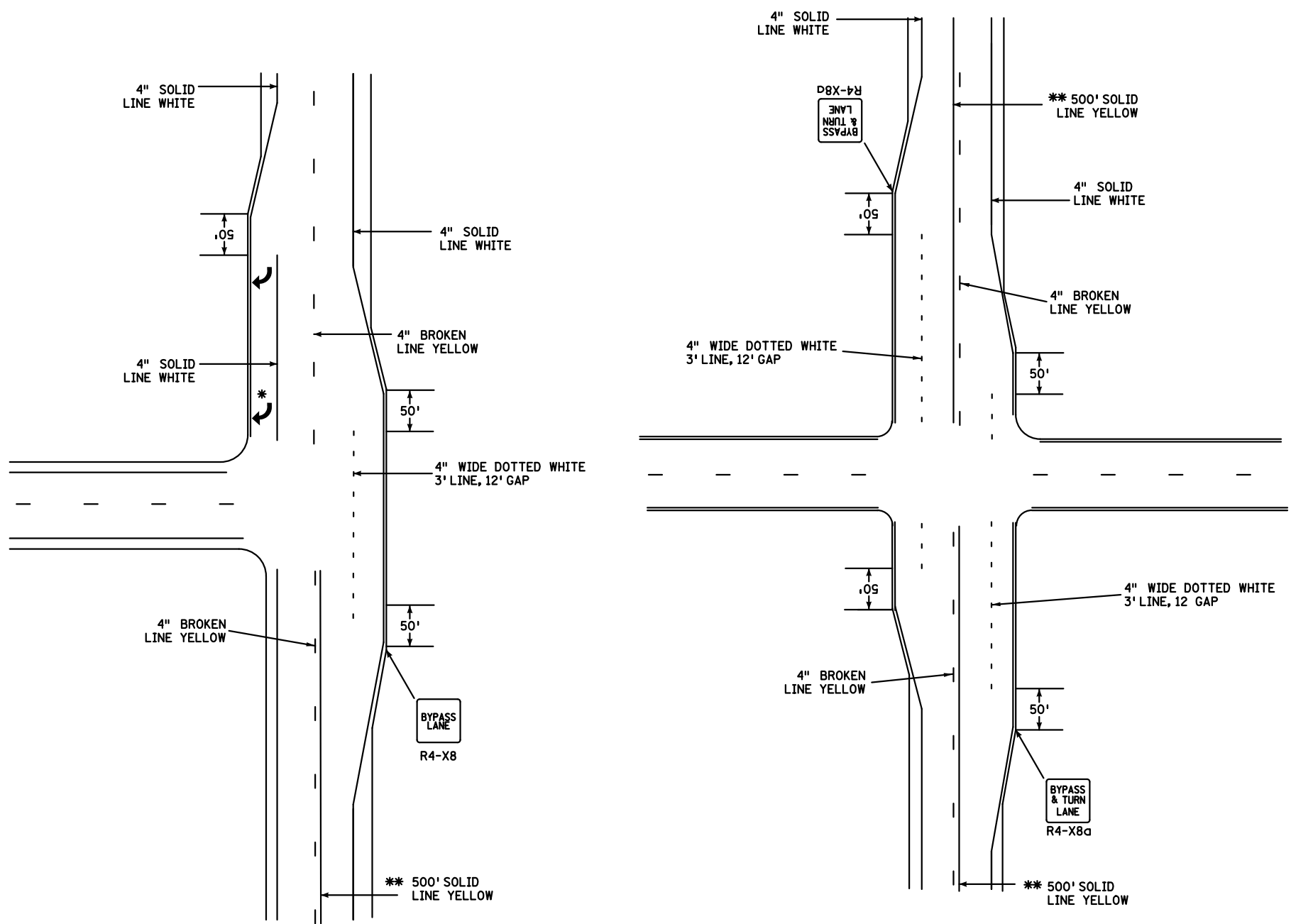


* FOR TURN BAYS 200' IN LENGTH OR LESS, PLACE ONLY ONE TURN ARROW AT THE MIDPOINT OF THE TURN LANE.



PAVEMENT MARKING TYPICALS

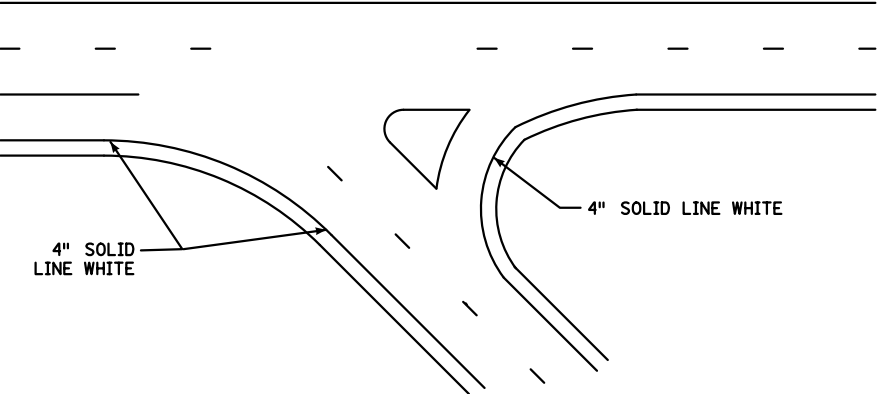
MARKINGS FOR BYPASS LANES



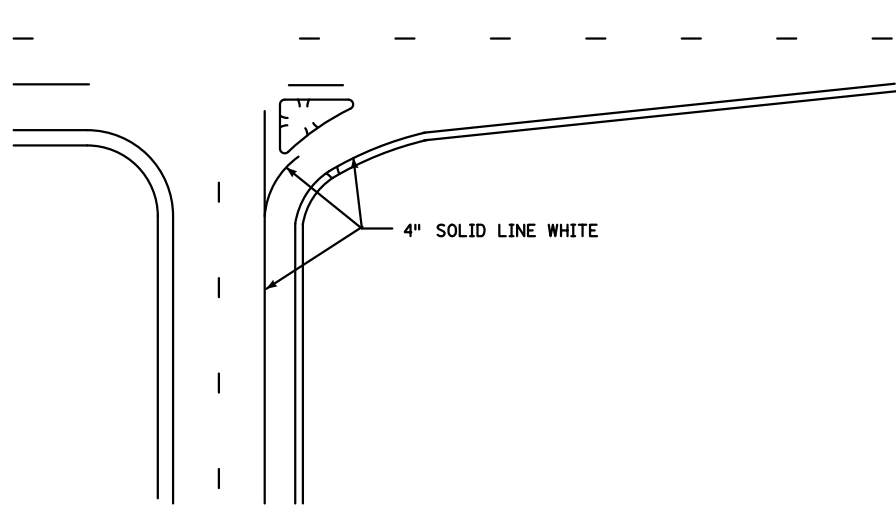
- * SEE "TYPICAL MESSAGE PLACEMENT FOR TURN LANES" FOR NUMBER OF ARROWS.
- ** NO PASSING ZONES AT INTERSECTIONS SHALL BE STRIPED FOR 500 FEET ON BOTH SIDES OF THE INTERSECTION IF IT IS LOCATED WITHIN THE CITY LIMITS. NO PASSING ZONES AT INTERSECTIONS SHALL BE STRIPED IF LOCATED WITHIN ANY NO PASSING ZONE. NO PASSING ZONE STRIPING IS OPTIONAL AT THE DISCRETION OF THE DISTRICT TRAFFIC ENGINEER FOR RURAL INTERSECTIONS.

39 MPH SPEED LIMIT OR LESS.....	500'
40-54 MPH SPEED LIMIT.....	650'
55 MPH SPEED LIMIT.....	800'

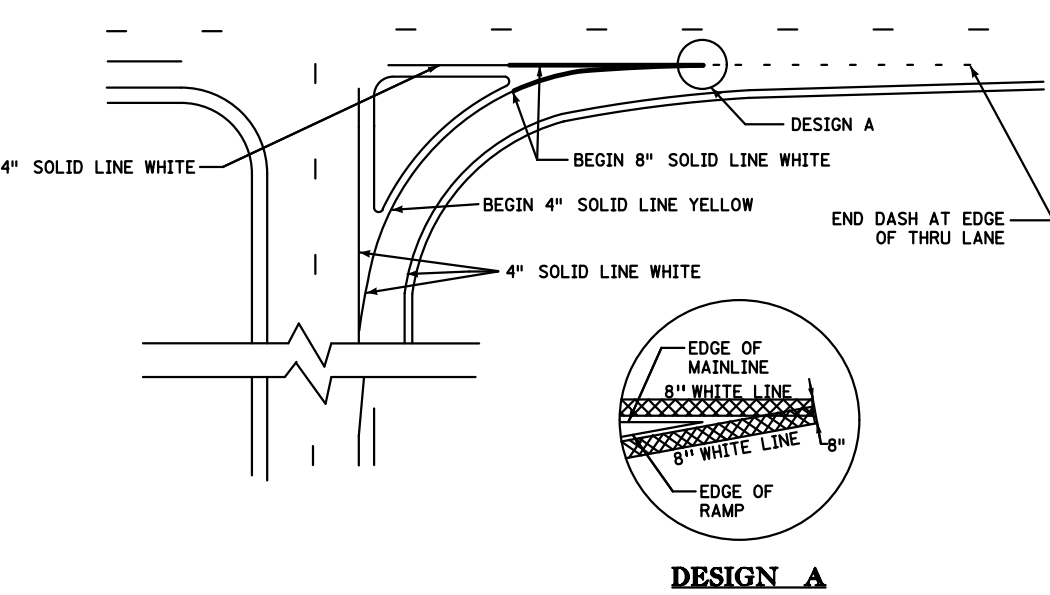
FREE RIGHT STOP CONDITION



FREE RIGHT YIELD CONDITION



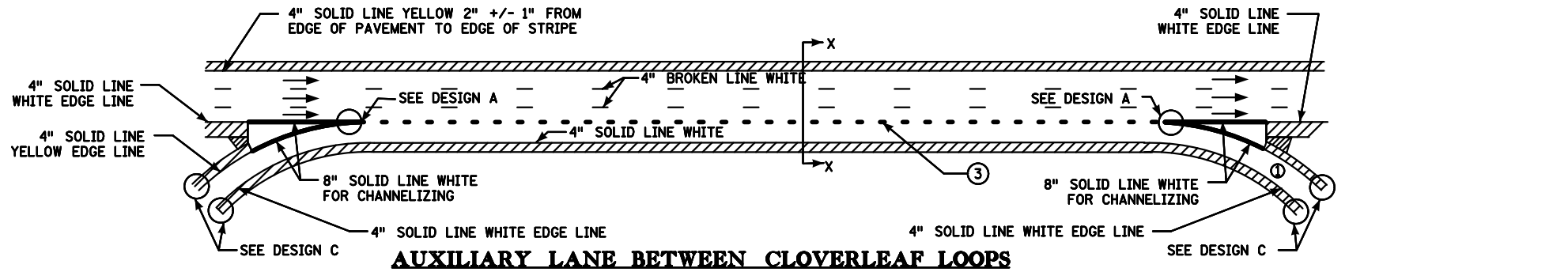
FREE RIGHT ACCELERATION LANE CONDITION



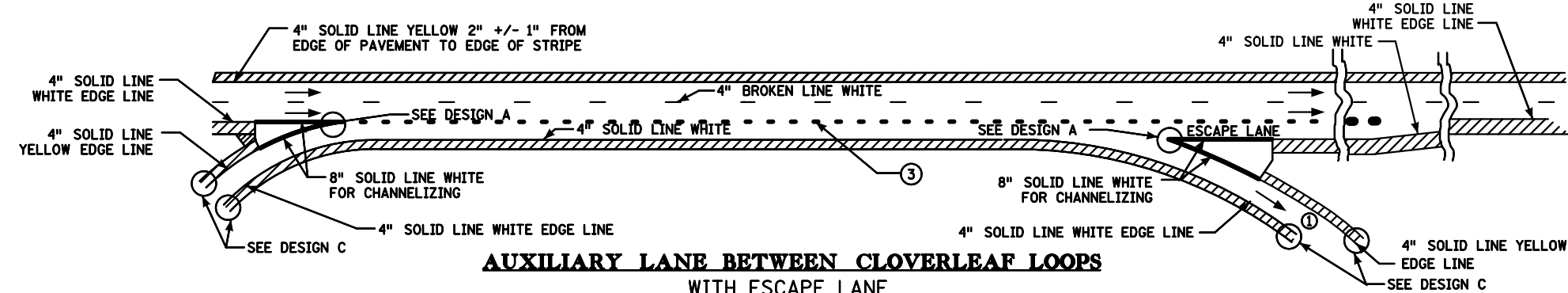
PAVEMENT MARKING TYPICALS

PLOTTED/REVISED: 8/11/2014

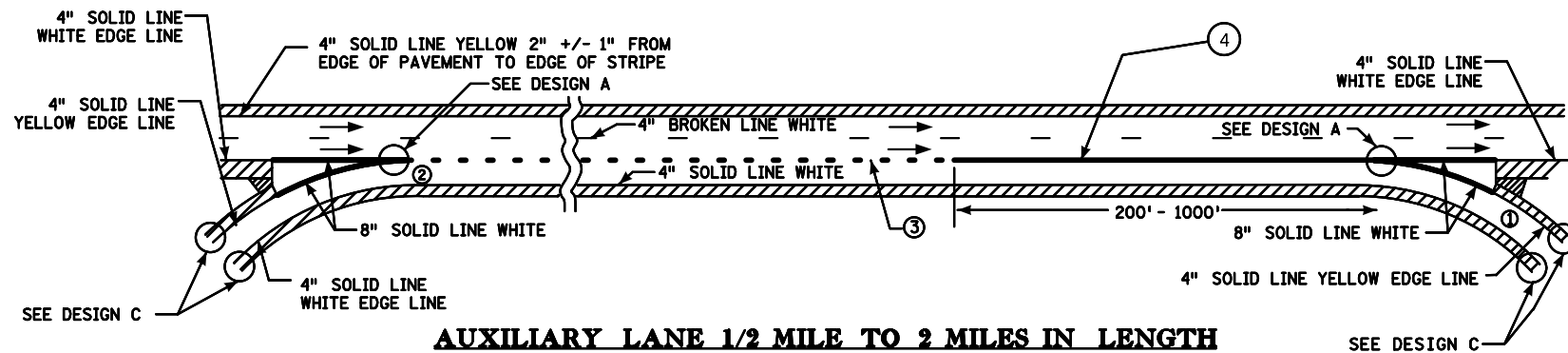
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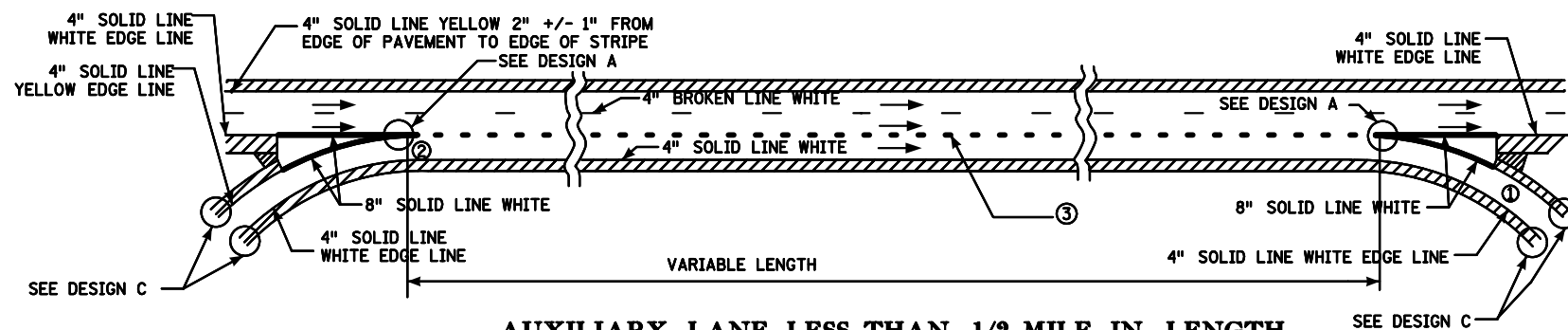
**AUXILIARY LANE BETWEEN CLOVERLEAF LOOPS
WITHOUT ESCAPE LANE**



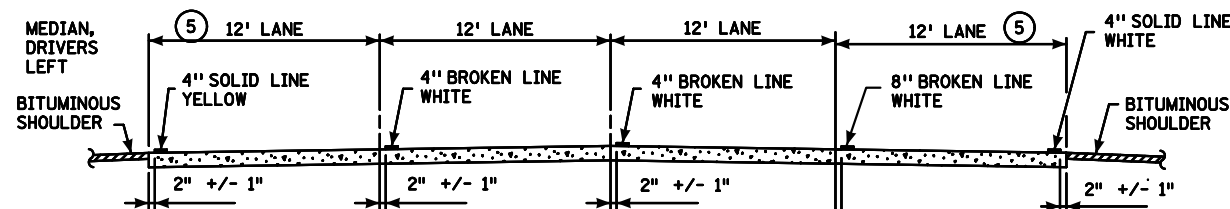
**AUXILIARY LANE BETWEEN CLOVERLEAF LOOPS
WITH ESCAPE LANE**



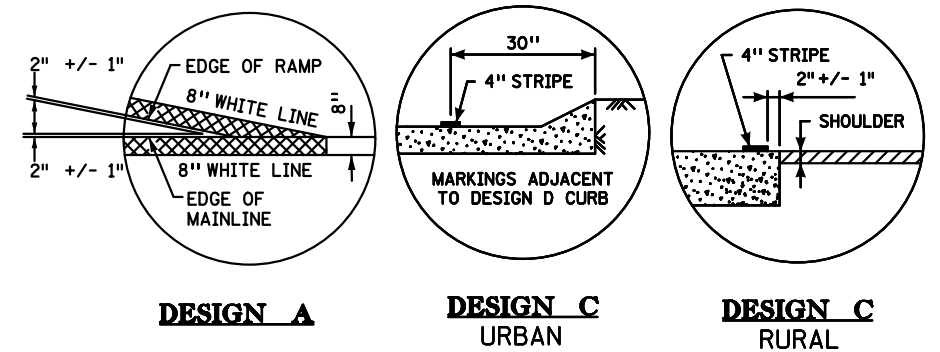
**AUXILIARY LANE 1/2 MILE TO 2 MILES IN LENGTH
WITHOUT ESCAPE LANE**



**AUXILIARY LANE LESS THAN 1/2 MILE IN LENGTH
EXCEPT CLOVERLEAF WITH ESCAPE LANE**



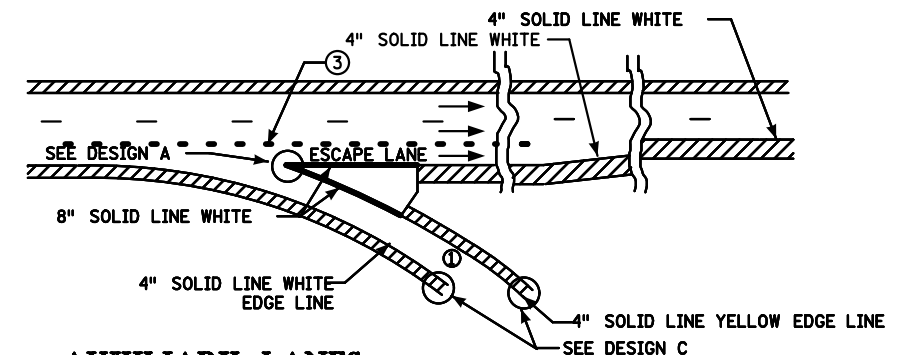
SECTION X - X (5)



NOTES:

- ① EXTEND 8" SOLID LINE WHITE 50' MIN. BEYOND GORE AREA TO COMPENSATE FOR SHARP CURVATURE.
- ② EXTEND 8" SOLID LINE WHITE FOR 200' TO 300' AT DISCRETION OF DISTRICT TRAFFIC ENGINEER. ON CURVATURE OR FOR OTHER SITUATIONS WHERE NEEDED FOR BETTER DELINEATION.
- ③ 8" DOTTED LINE WHITE 3' LINES WITH 12' GAPS AS DETAILED IN FIGURE 3B-10 OF THE MMUTCD.
- ④ EXTEND 8" SOLID LINE WHITE 200' TO 1000' FROM INTERSECTION OF GORE STRIPES, DEPENDING ON LENGTH OF LANE BEING DROPPED, AS DETERMINED BY DISTRICT TRAFFIC ENGINEER.
- ⑤ ON PAVEMENTS OVER 24' WIDE (I.E. 27') EDGE LINES WILL BE PLACED SO LANES ARE A MAXIMUM OF 12' WIDE.

 DENOTES SHOULDER AREA



**AUXILIARY LANES
WITH ESCAPE LANE**

PAVEMENT MARKING TYPICALS