

PROJECT NO.	SHEET NO.
DK00475	1

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	BEGIN MP	END MP	1841000000-E	1881000000-E	4846000000-E	4846000000-E	4850000000-E	
											MILLED RUMBLE STRIPS (ASPHALT CONCRETE), 12" TO BE PLACED IN CENTER OF ROADWAY	CENTERLINE MILLED RUMBLE STRIPS (ASPHALT CONCRETE), 12"	YELLOW POLYUREA PAVEMENT MARKING LINES, 6", 30 MIL	WHITE POLYUREA PAVEMENT MARKING LINES, 6", 30 MIL	REMOVAL OF PAVEMENT MARKING LINES (4")	
												LF	LF	LF	LF	LF
50983.3.5	CALDWELL	1	US-321	FROM SR 1370 (KIRBY MOUNTAIN ROAD) TO SR 1500 (BLACKBERRY ROAD)		4	MU	6.26	24.26	30.52			132,211.0	82,632.0	214,843.0	
50983.3.5	CALDWELL	2	US-321	FROM SR 1500 (BLACKBERRY ROAD) TO THE END OF THE DOUBLE YELLOW CENTERLINE		4	MU	0.98	30.52	31.5	5,174.0		20,698.0	12,936.0	33,634.0	
50983.3.5	CALDWELL	3	US-321	FROM THE END OF DOUBLE YELLOW CENTERLINE TO GREEN HILL ROAD		4	MU	0.95	31.5	32.45		5,016.0	10,032.0	12,540.0	22,572.0	
TOTAL FOR PROJ NO. 50983.3.5								8.19			5,174.0	5,016.0	162,941.0	108,108.0	271,049.0	
GRAND TOTAL								8.19			5,174.0	5,016.0	271,049.0		271,049.0	

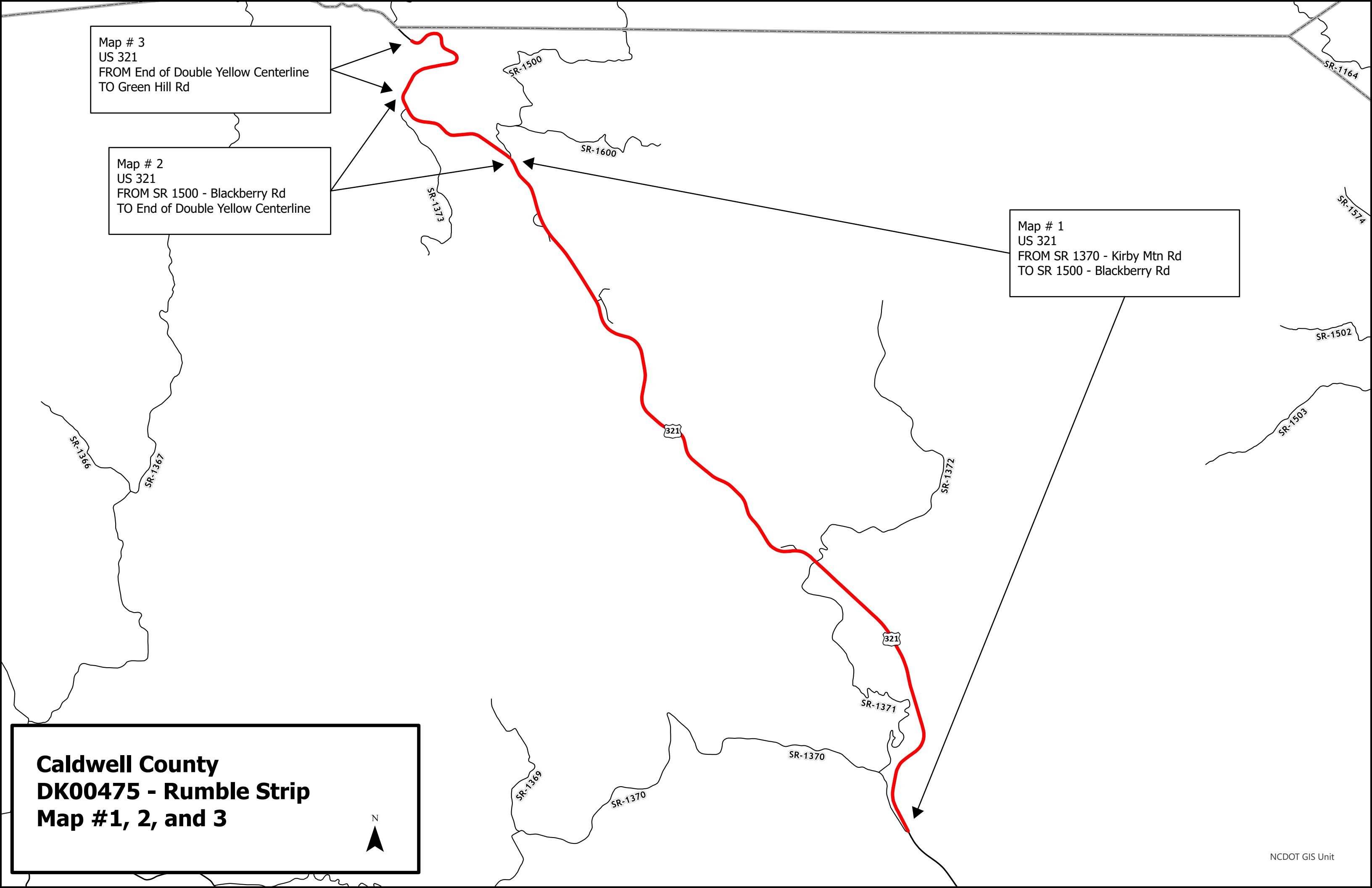
[MILE POST MAPS](#)

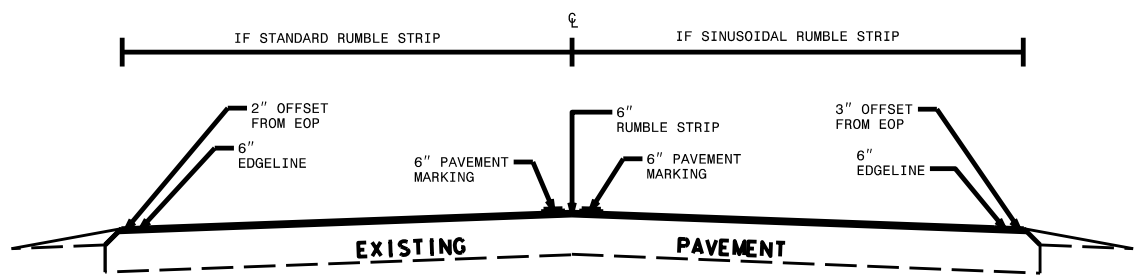
Map # 3
US 321
FROM End of Double Yellow Centerline
TO Green Hill Rd

Map # 2
US 321
FROM SR 1500 - Blackberry Rd
TO End of Double Yellow Centerline

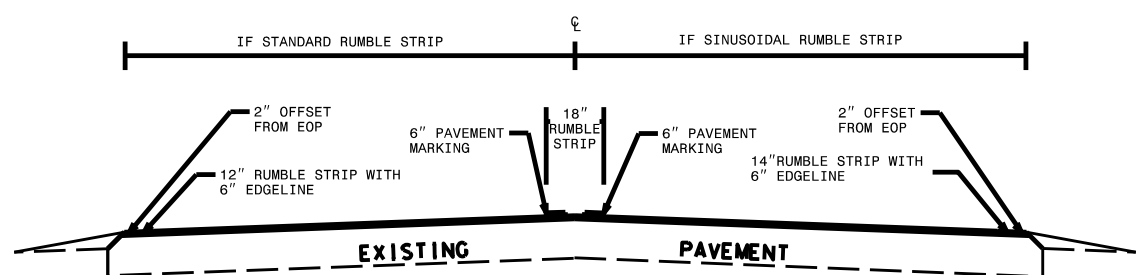
Map # 1
US 321
FROM SR 1370 - Kirby Mtn Rd
TO SR 1500 - Blackberry Rd

**Caldwell County
DK00475 - Rumble Strip
Map #1, 2, and 3**

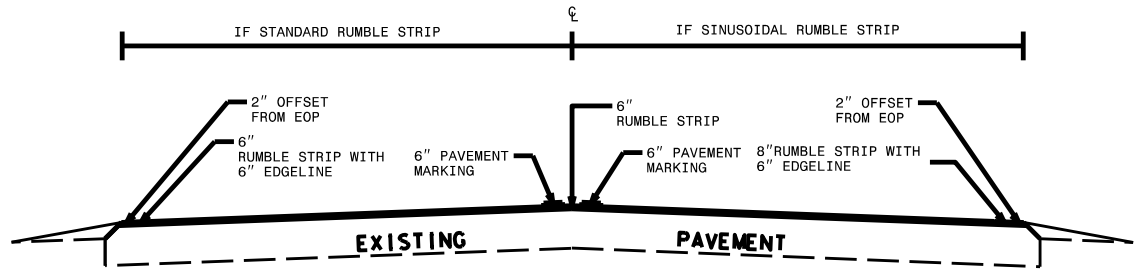




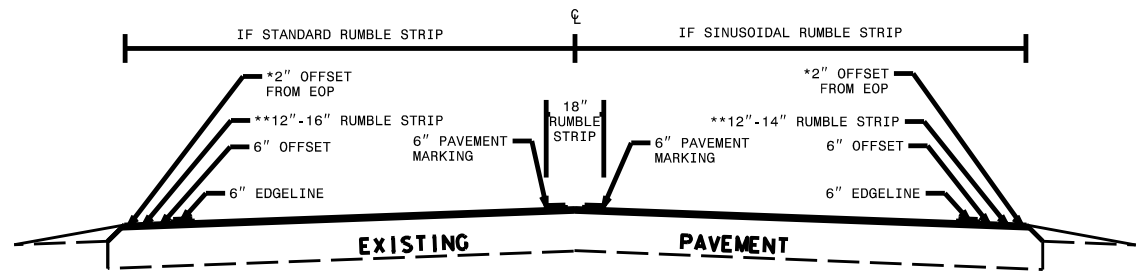
TYPICAL SECTION NO. 1
 $20' \leq \text{PAVEMENT WIDTH} < 22'$



TYPICAL SECTION NO. 4
 $24' \leq \text{PAVEMENT WIDTH} < 26'$

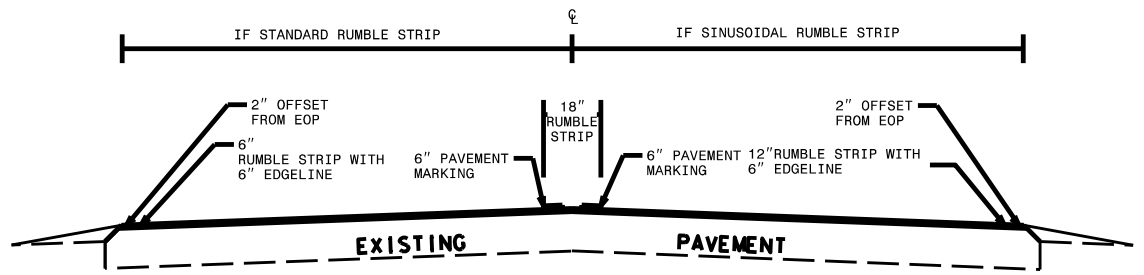


TYPICAL SECTION NO. 2
 $22' \leq \text{PAVEMENT WIDTH} < 23'$



TYPICAL SECTION NO. 5
 $\text{PAVEMENT WIDTH} \geq 26'$

* INCREASE THIS DISTANCE FOR PAVEMENT WIDTHS > 30' BASED ON A LANE WIDTH OF 12'
 ** WIDTH OF RUMBLE STRIP IS BASED ON A LANE WIDTH OF 10'-12'



TYPICAL SECTION NO. 3
 $23' \leq \text{PAVEMENT WIDTH} < 24'$

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$DGN\$\$\$\$\$
 \$\$\$JERNAM\$\$\$\$\$

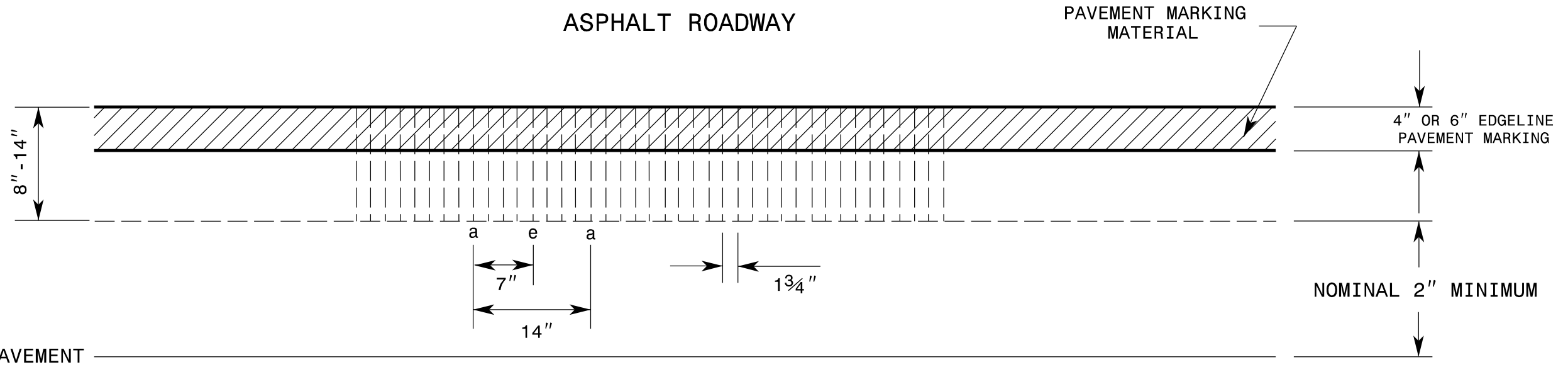
APPROVED: _____	DATE: _____	MILLED/SINUSOIDAL RUMBLE STRIP DETAIL	
SEAL 			
		DWG. BY: JCB	
		DESIGN BY: WAT	
		REVIEWED BY: _____	



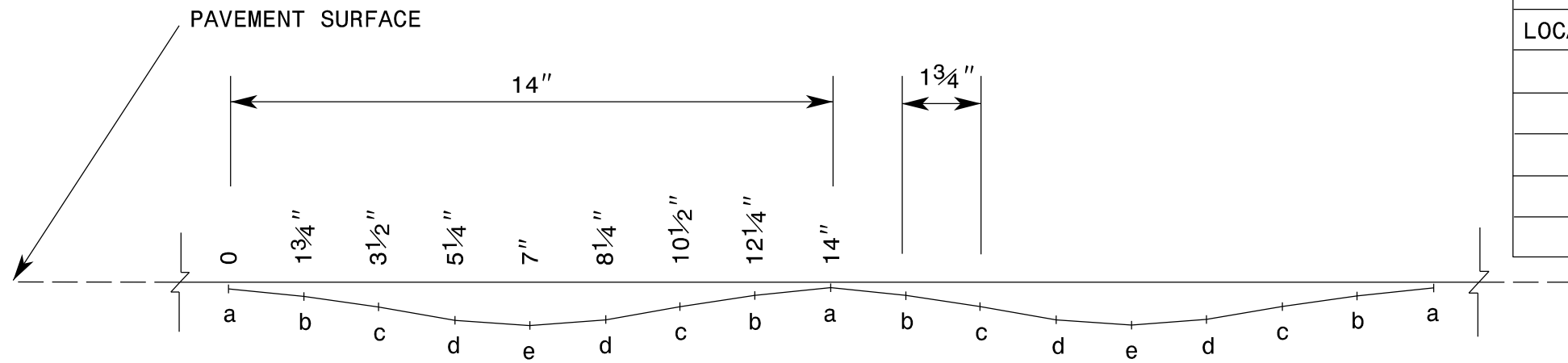
See Table 1 within Rumble Strip Policy for Design Guidance

PLAN VIEW

TRAVEL LANE(S)
ASPHALT ROADWAY



PROFILE VIEW



LOCATION	DEPTH	
	MIL	INCHES
a	62.5	$\frac{1}{16}$ "
b	125	$\frac{1}{8}$ "
c	219	$\frac{7}{32}$ "
d	344	$\frac{11}{32}$ "
e	375	$\frac{3}{8}$ "

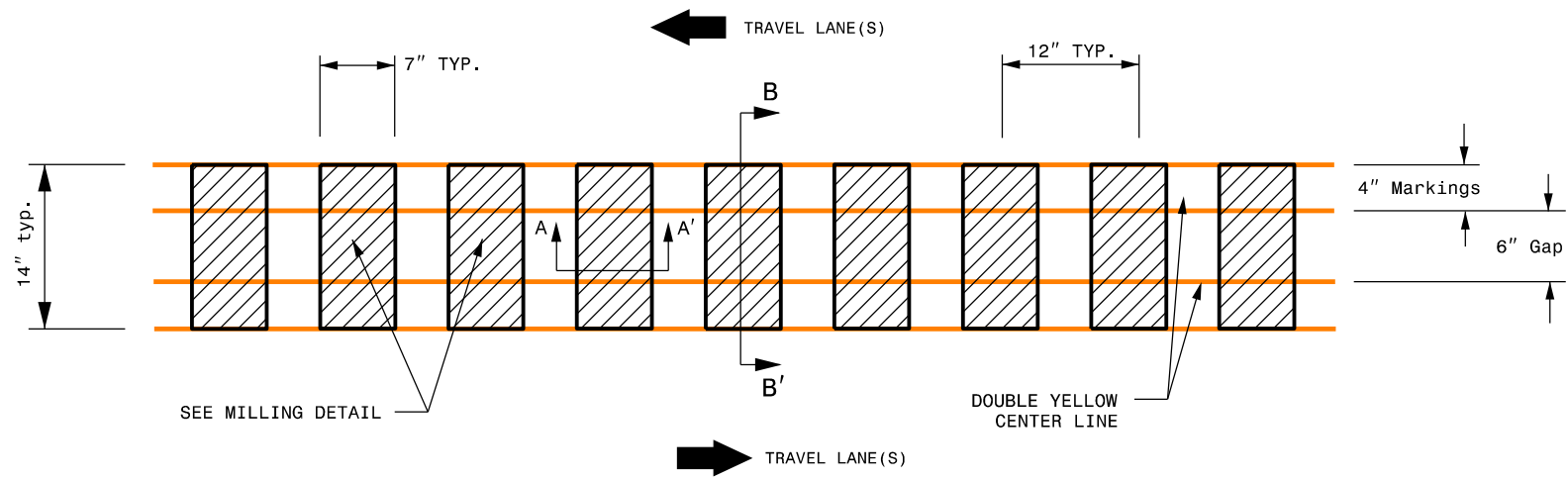
REFERENCE DRAWING ID: Sin.Stripe

NOTES:

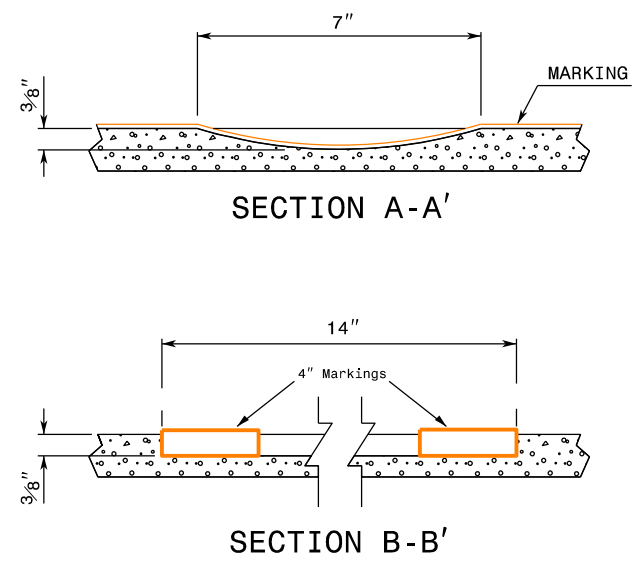
- 1) Specification in table taken from MNDOT Research Project Final Report 2016-23: *Sinusoidal Rumble Strip Design Optimization Study By: Terhaar et. al, June 2016*
- 2) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 3) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.

See Table 2 within Rumble Strip Policy for Design Guidance

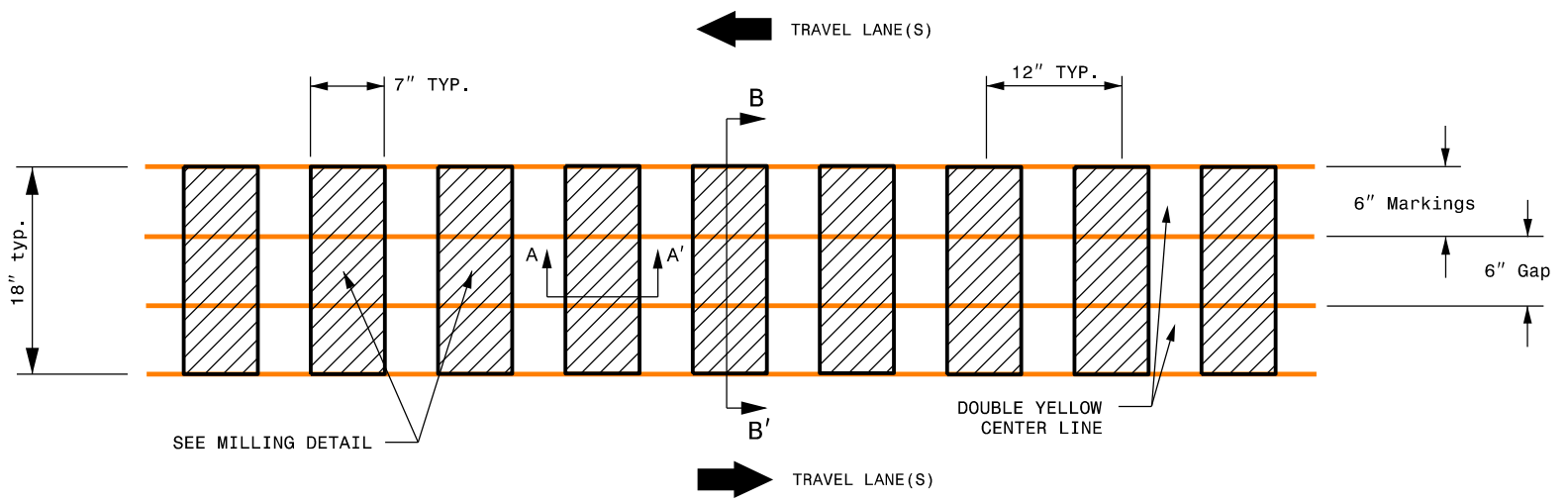
If 4" Markings will be used:



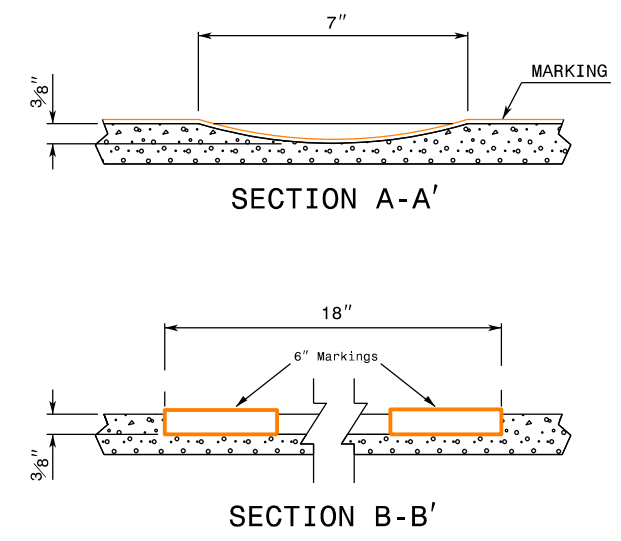
MILLING DETAIL - 4" Markings



If 6" Markings will be used:



MILLING DETAIL - 6" Markings

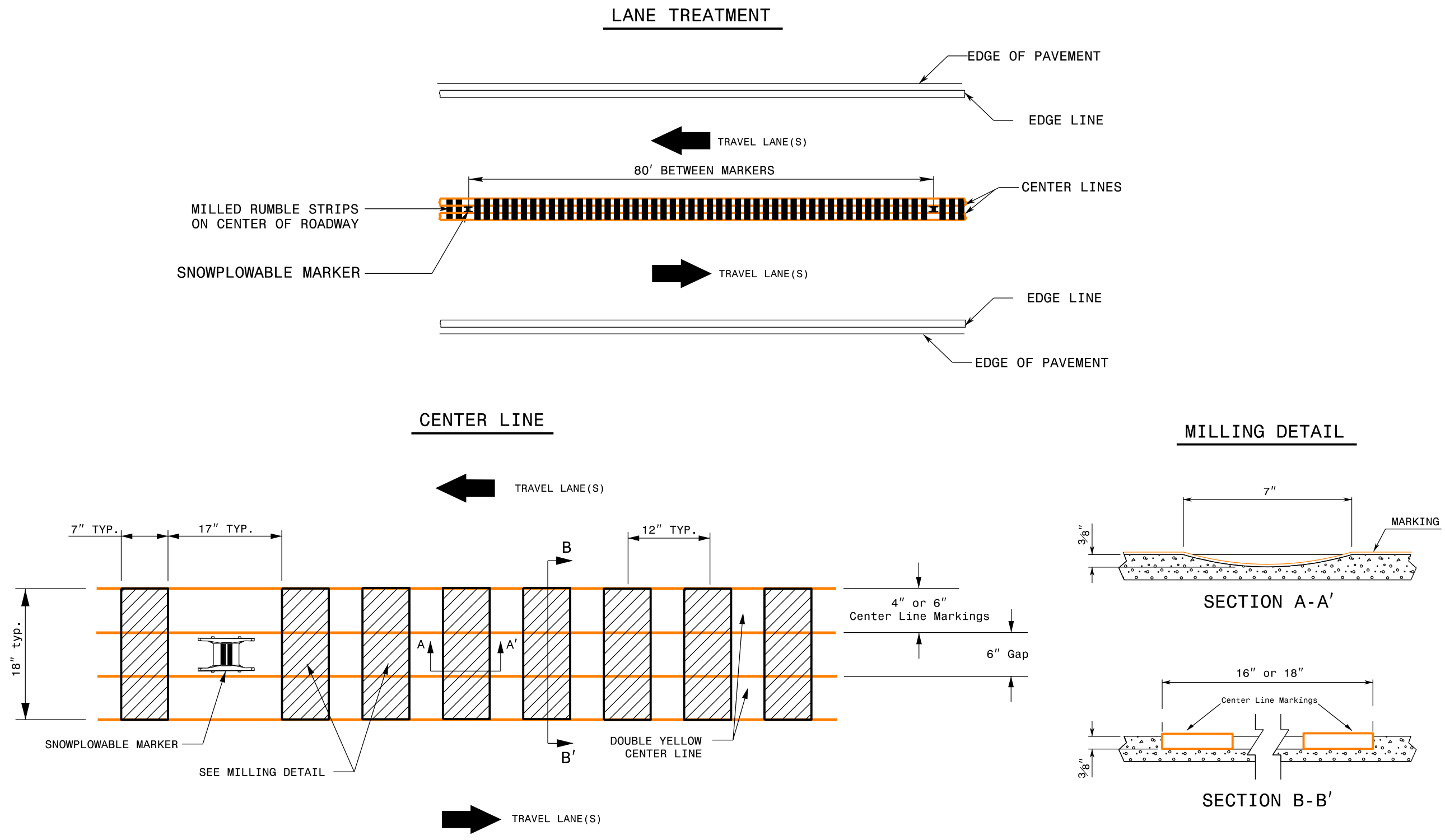


REFERENCE DRAWING ID: Trad.CL

NOTES:

- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.

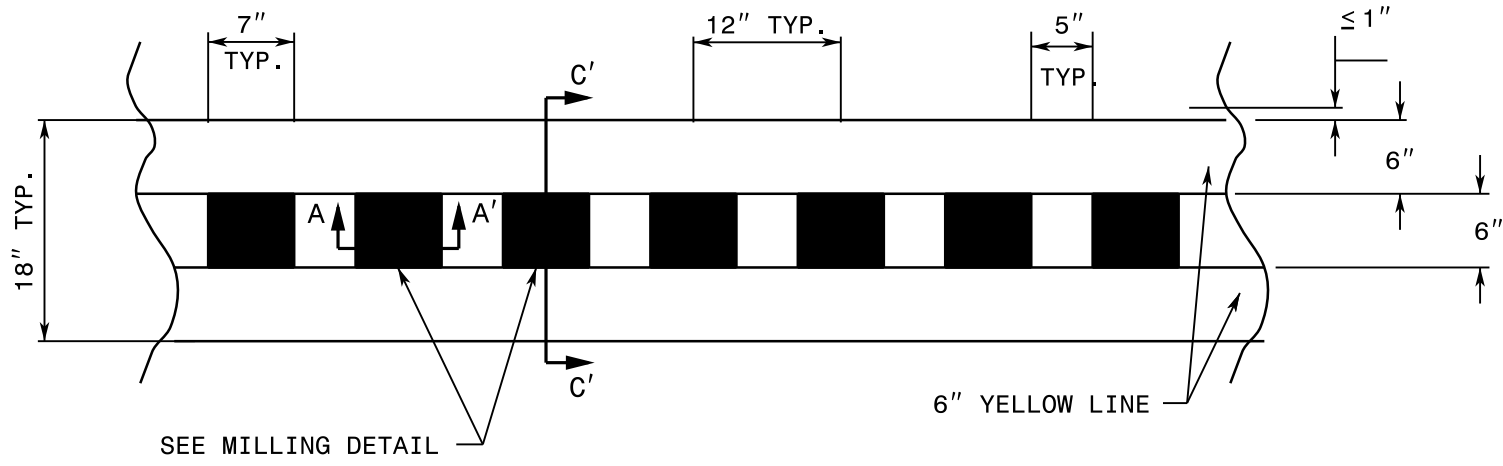
See Table 2 within Rumble Strip Policy for Design Guidance



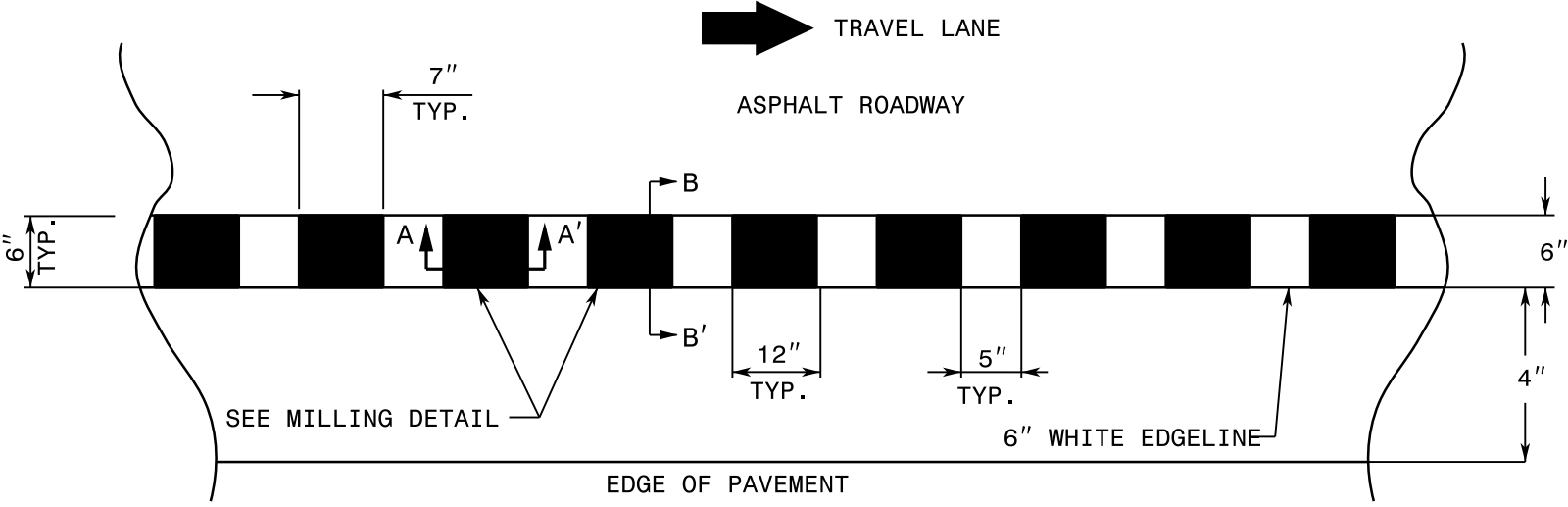
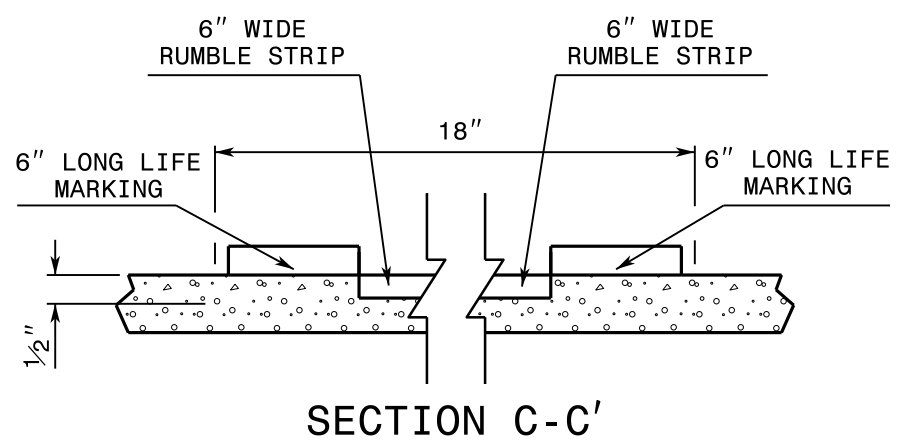
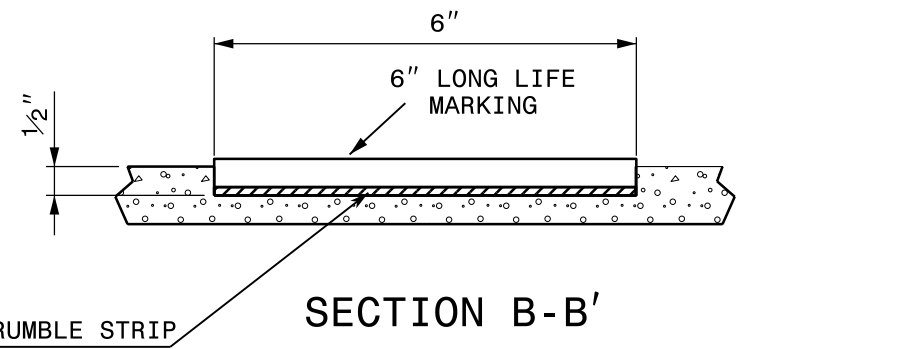
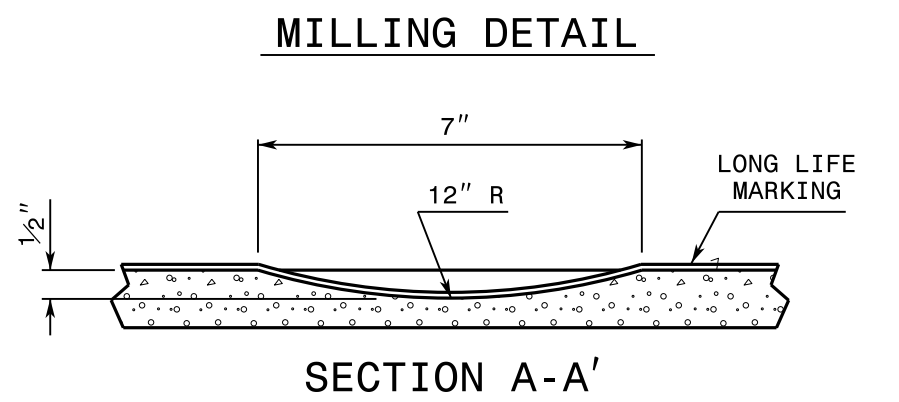
REFERENCE DRAWING ID: Trad.CL with Snowplowable Markers

NOTES:

- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) INSTALL SNOWPLOWABLE MARKERS AT APPROXIMATELY 80' INCREMENTS. DO NOT MILL RUMBLE STRIPS IN SECTION WHERE SNOWPLOWABLE MARKERS ARE INSTALLED.

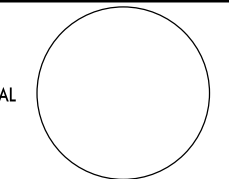


CENTERLINE

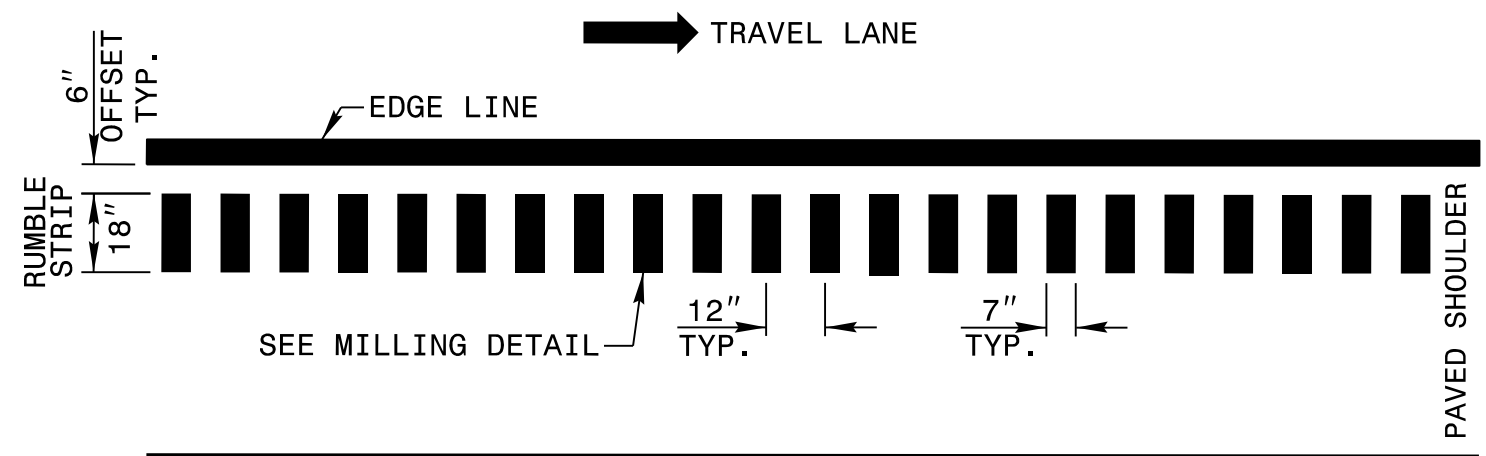


NOTE:

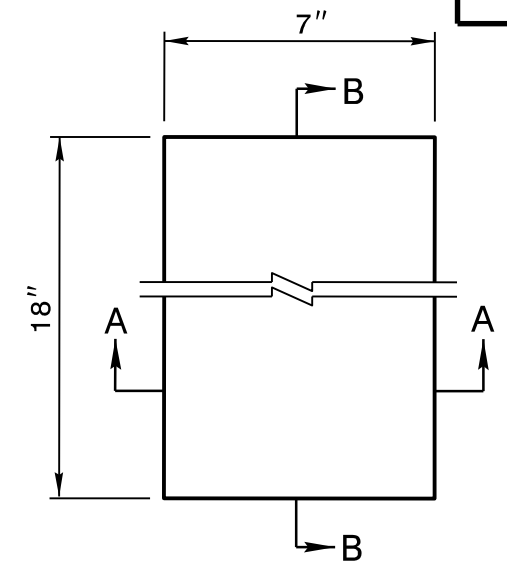
- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) IF SNOWPLOWABLE MARKERS ARE TO BE INSTALLED IN THE CENTERLINE, SKIP A 18" SPACE IN THE RUMBLE STRIPS EVERY 80'

APPROVED: _____	DATE: _____	MILLED RUMBLE STRIP DETAIL	
			
		DATE: JUN 17'	
DESIGN BY: TWB			
REVIEWED BY: _____			

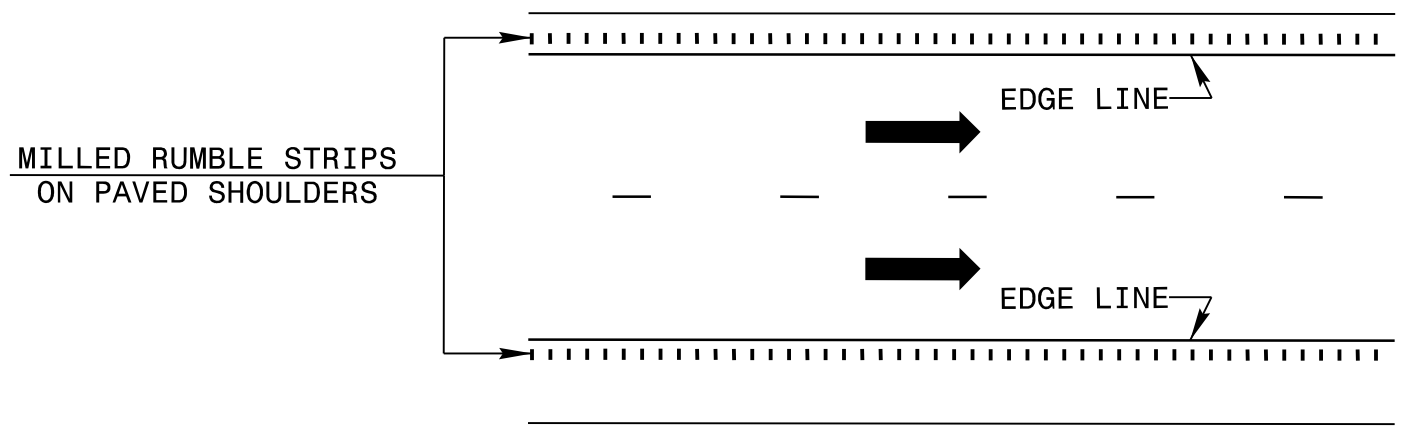
17-JAN-2024 10:04 AM
 C:\Users\jamesone\OneDrive - State of North Carolina\Desktop\Rumble Strip Typicals.dgn
 USER: jamesone



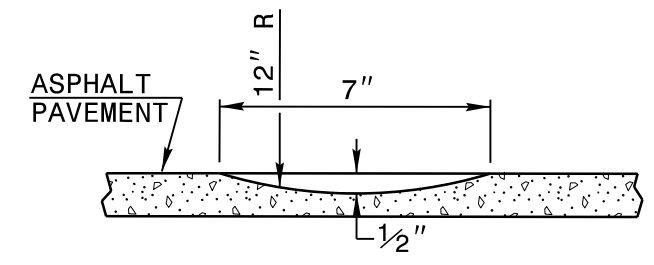
**PLAN VIEW
PAVED SHOULDER**



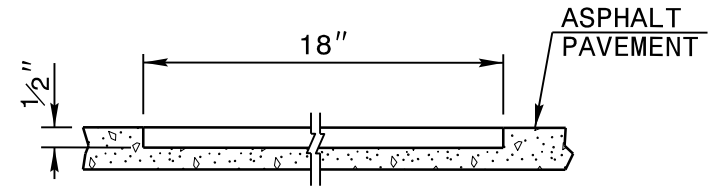
**PLAN VIEW
MILLING DETAIL**



LANE TREATMENT



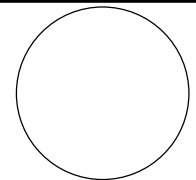

SECTION A-A



SECTION B-B

NOTES:

1. THE MILLING OPERATION SHALL MAINTAIN A MINIMUM CLEARANCE OF 3" FROM CONSTRUCTION JOINTS.

APPROVED: _____ DATE: _____	MILLED/SINUSOIDAL RUMBLE STRIP DETAIL		REVISIONS	
SEAL 			SCALE: NONE	
	DATE:			
	DWG. BY:			
	DESIGN BY:			
	REVIEWED BY:			
				CADD FILE