

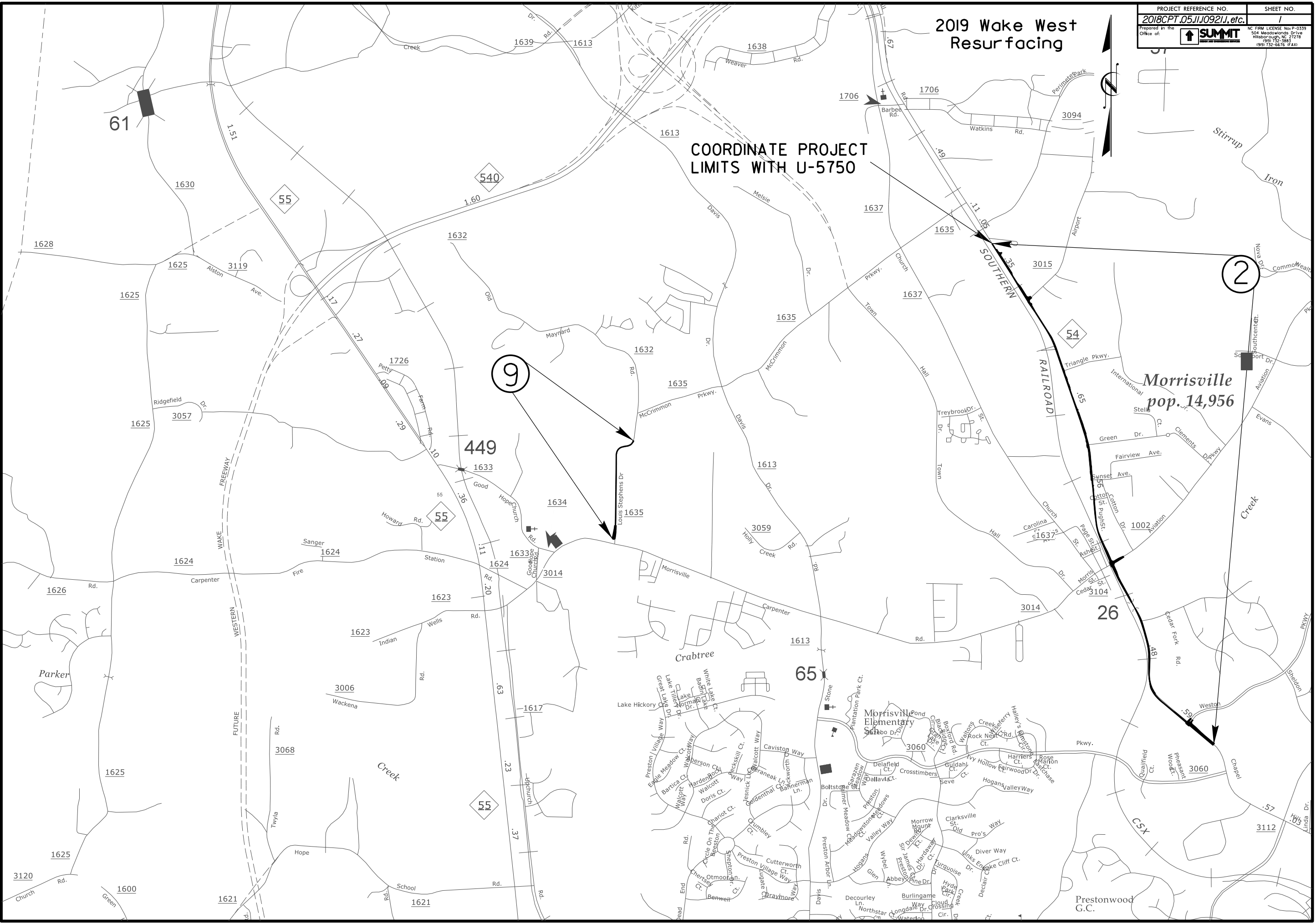
2019 Wake West Resurfacing

COORDINATE PROJECT LIMITS WITH U-5750



REVISIONS

07-DEC-2017 08:14 N:\Infrastructure_Jobs\2017 Projects\17-0111.103 Wake_West_Resurfacing_Design\Roadway_Proj_2019_Wake_West_Rdy.esb\ldgn 8/17/19



Morrisville
pop. 14,956

Morrisville Elementary

26

449

65

2

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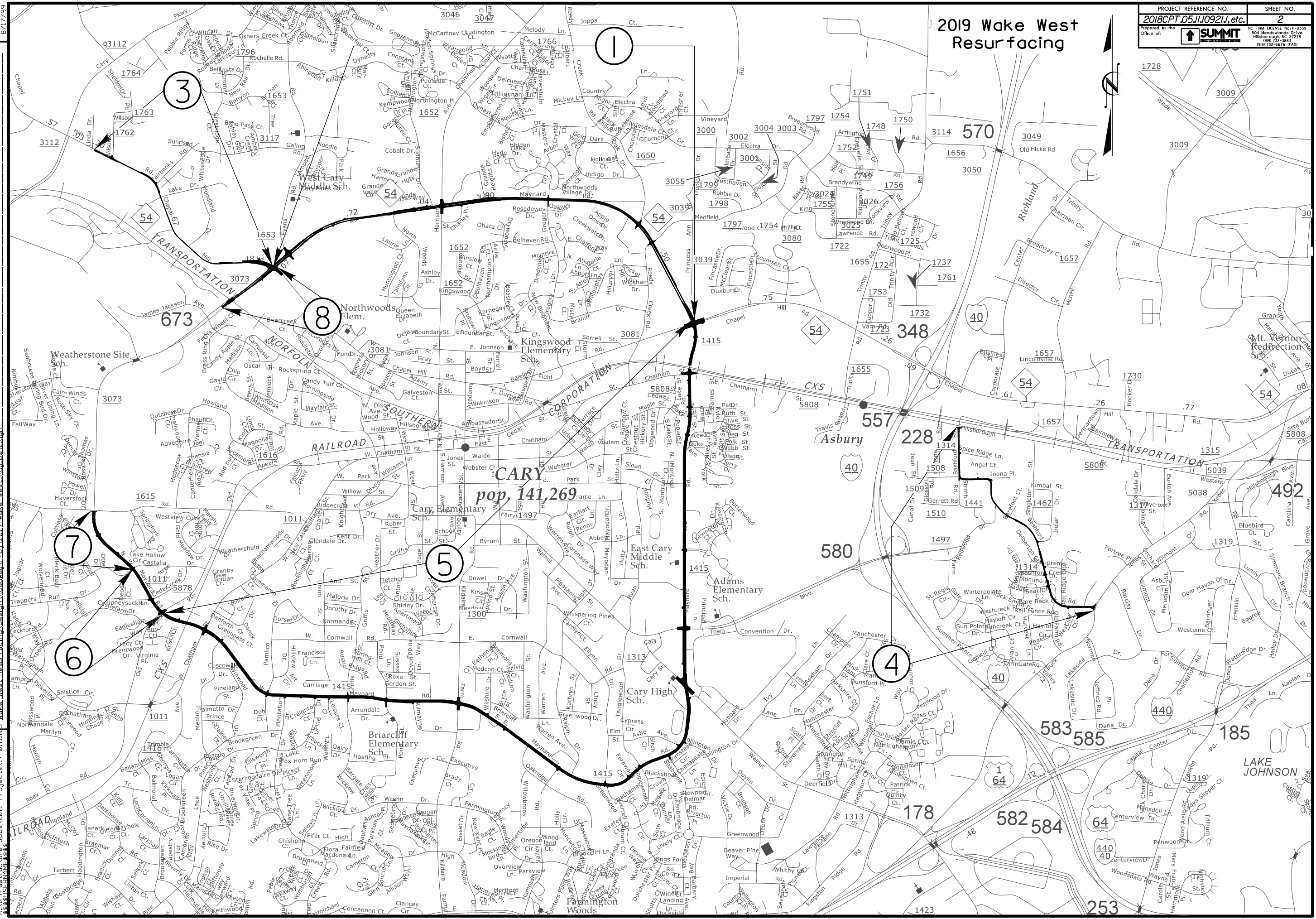
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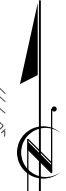
2019 Wake West Resurfacing



REVISIONS
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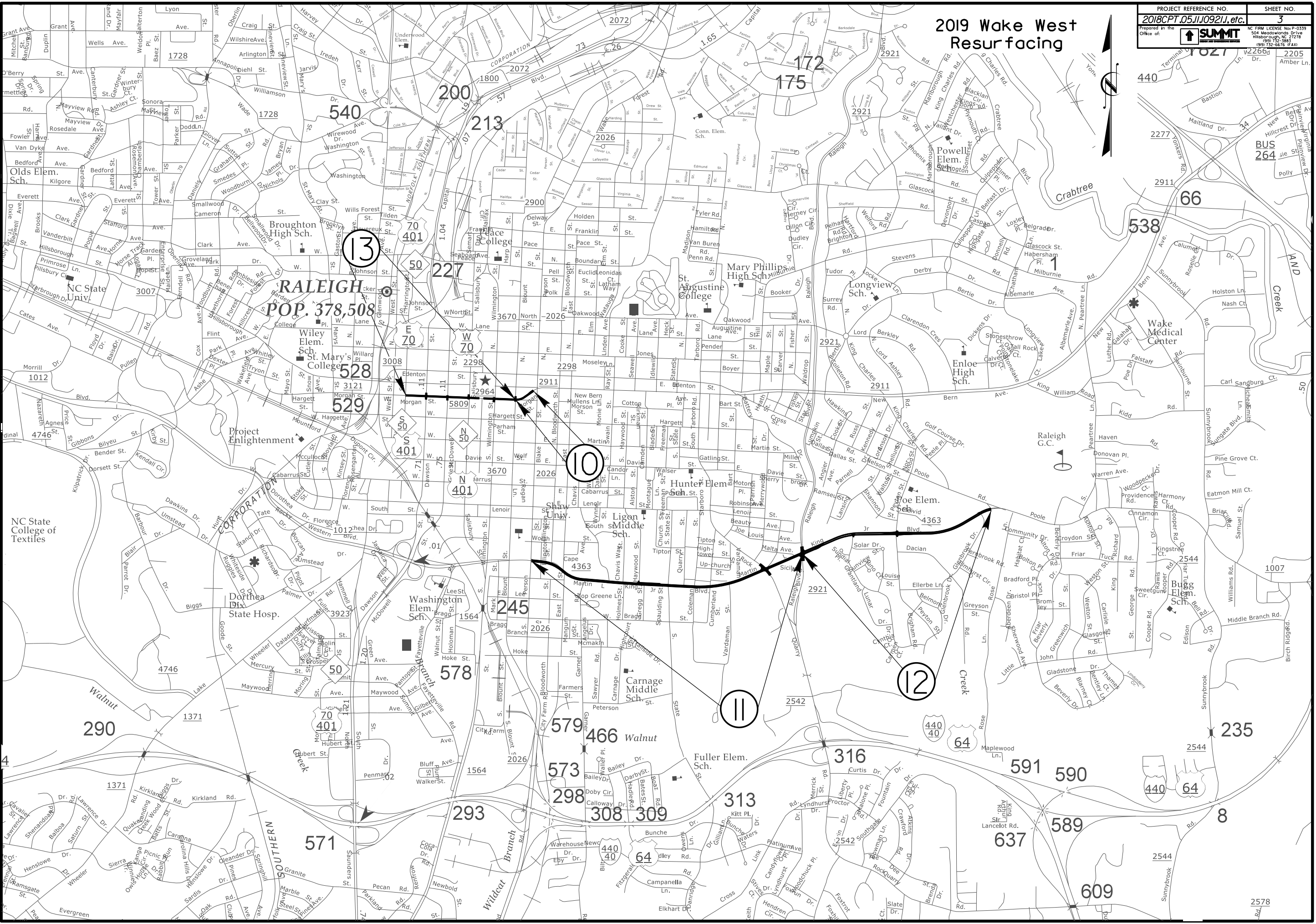
8/17/19

2019 Wake West Resurfacing

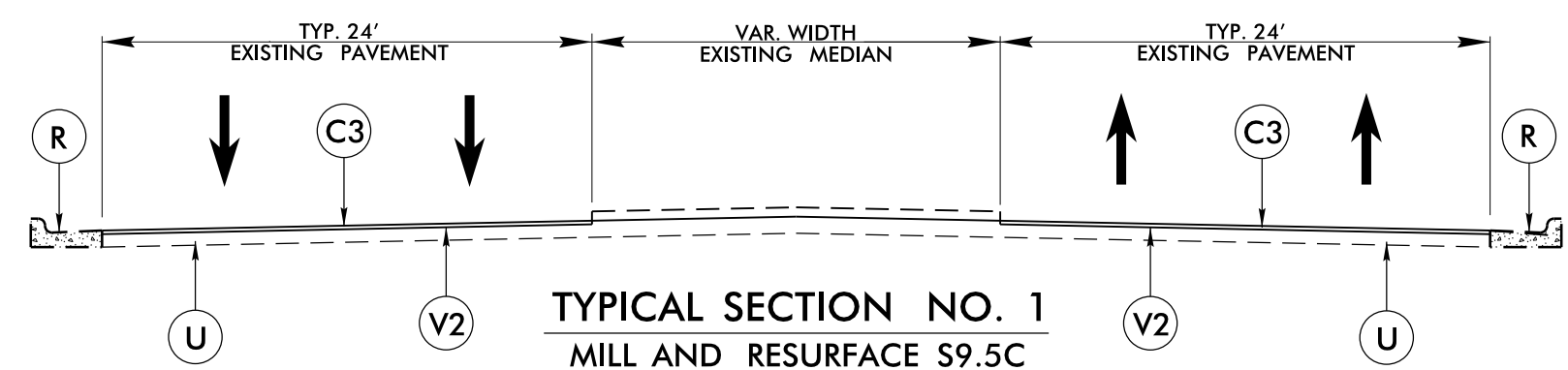


REVISIONS

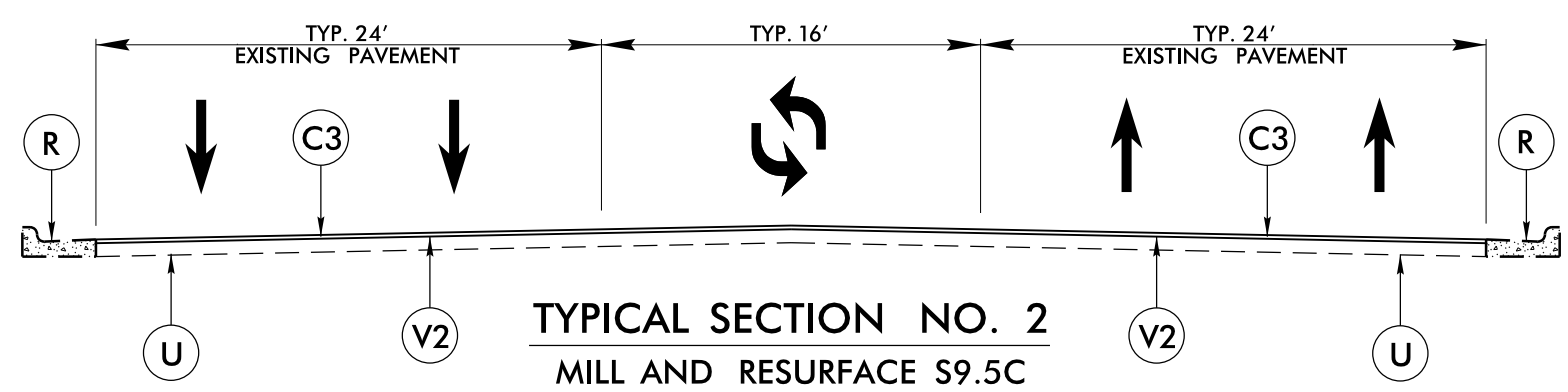
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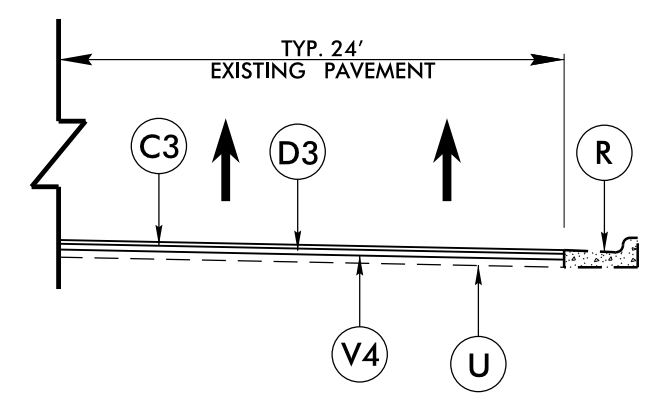
PAVEMENT SCHEDULE					
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	V1	0 - 1 1/2" MILLING NEW ASPHALT TO BE PAVED BACK FLUSH.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	V2	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R	EXISTING CURB AND GUTTER	V3	MILL ASPHALT PAVEMENT, 3" DEPTH
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	S	SHOULDER GRADING, ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS)	V4	MILL ASPHALT PAVEMENT, 4" DEPTH
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT	V5	MILL ASPHALT PAVEMENT, 4 1/2" DEPTH



MAP NO. 1 (NC 54)
-from Chapel Hill Rd to Reedy Creek Rd
-from Grande Heights Dr to Chapel Hill Rd



MAP NO. 1 (NC 54)
-from Reedy Creek Rd to Grande Heights Dr
MAP NO. 5 (Maynard Rd)
MAP NO. 7 (Maynard Rd)



Use in conjunction with T.S. No. 2 on Map No. 5 (Maynard Rd)
- from 300' south of Chatham St intersection to Chatham St.

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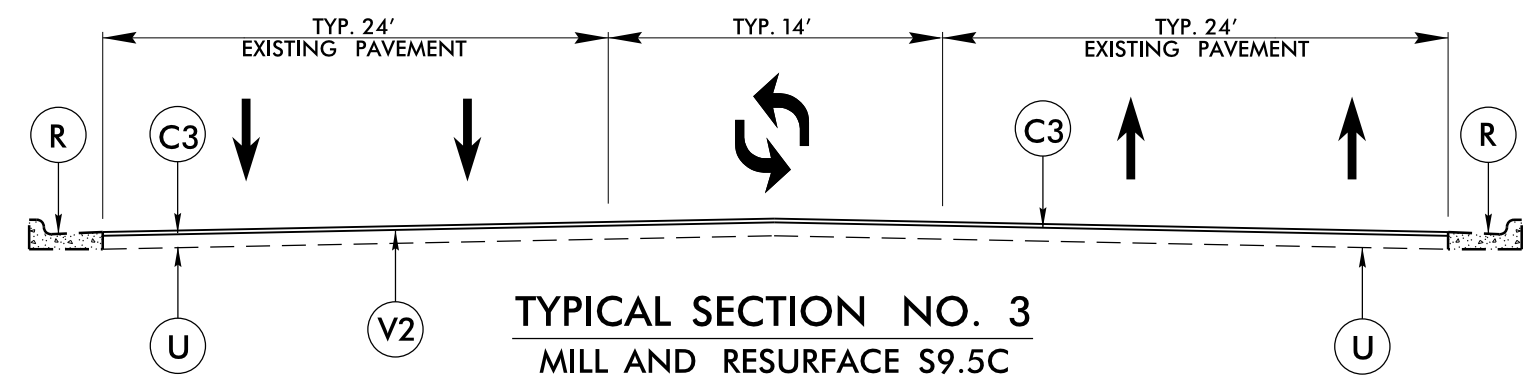
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 \$\$\$\$LEADER\$\$\$\$

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	3" S9.5B
C3	1½" S9.5C
C4	3" S9.5C
D1	2½" I19.0B
D2	3" I19.0B
D3	2½" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	0-1½" MILLING
V2	1½" MILLING
V3	3" MILLING
V4	4" MILLING
V5	4½" MILLING

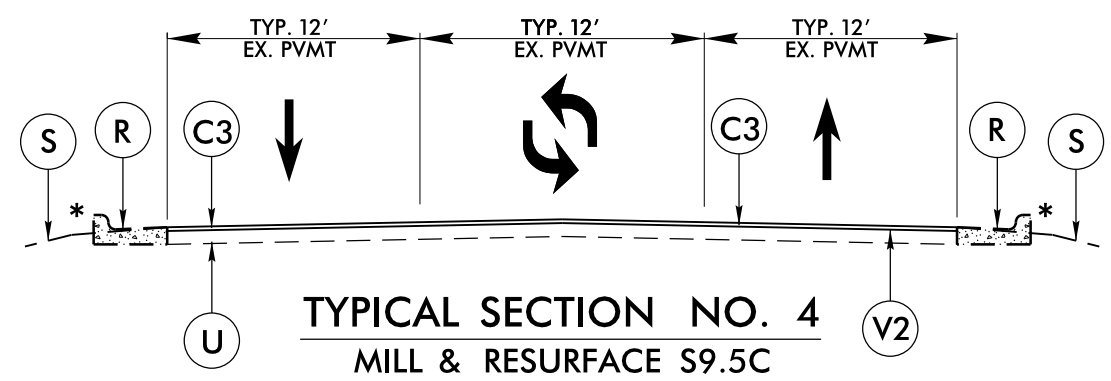
WAKE WEST RESURFACING

PROJECT REFERENCE NO. 2018CPT_05.11.10921J, etc.	SHEET NO. 5
<small> Prepared in the Office of: SUMMIT NC FIRM LICENSE No. P-0339 504 Meadowlands Drive Hillsborough, NC 27278 (919) 732-3883 • (919) 732-6676 (FAX) </small>	

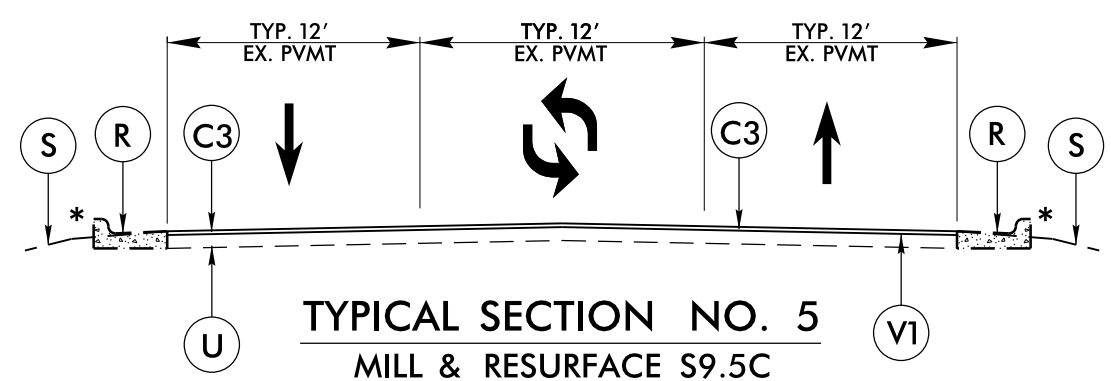
* VARIABLE OUTSIDE SHOULDER – PARTIAL C&G, PARTIAL EARTH SHOULDER



TYPICAL SECTION NO. 3
 MILL AND RESURFACE S9.5C
 MAP NO. 2 (MAYNARD RD)
 -from pvmt joint .15 miles W of SR 3060 (Morrisville Pkwy) to Rise Drive
 (Only mill & fill older pavement)



TYPICAL SECTION NO. 4
 MILL & RESURFACE S9.5C
 MAP NO. 2 (MAYNARD RD)
 -from Rise Drive to .04 miles S of Aviation Pkwy
 (Only mill & fill older pavement)

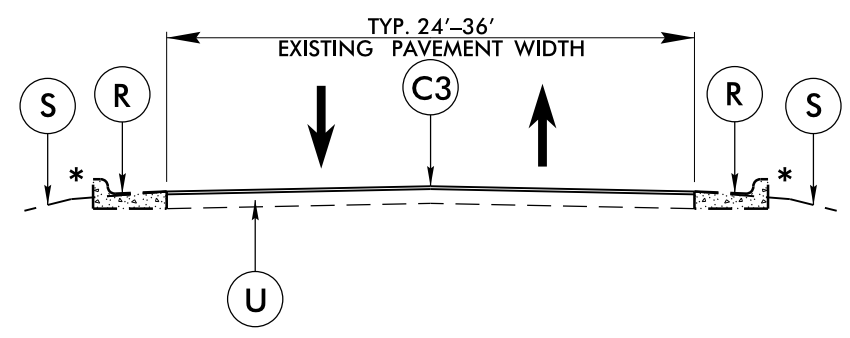


TYPICAL SECTION NO. 5
 MILL & RESURFACE S9.5C
 MAP NO. 2 (MAYNARD RD)
 -from .04 miles S of Aviation Pkwy to U-5750 Construction Limits

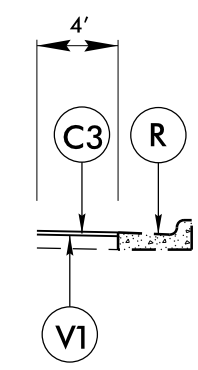
6/2/99

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	3" S9.5B
C3	1½" S9.5C
C4	3" S9.5C
D1	2½" I19.0B
D2	3" I19.0B
D3	2½" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	0-1½" MILLING
V2	1½" MILLING
V3	3" MILLING
V4	4" MILLING
V5	4½" MILLING

WAKE WEST RESURFACING

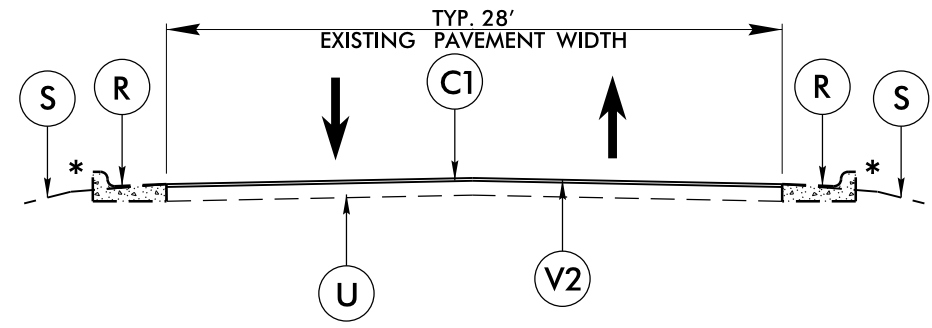


TYPICAL SECTION NO. 6
 RESURFACE S9.5C
 MAP NO. 3 (NC 54)

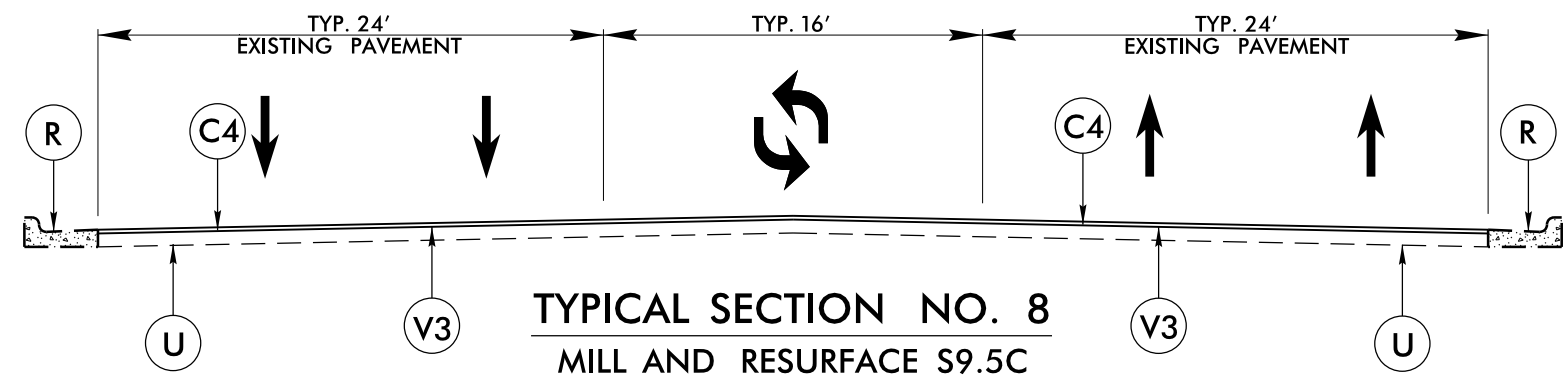


PARTIAL TYPICAL SECTION
 MILL AND RESURFACE S9.5C

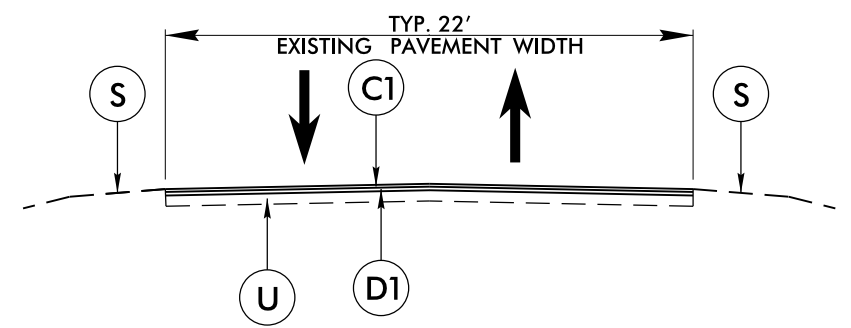
Use in conjunction with Typical No. 6 at locations with C&G



TYPICAL SECTION NO. 7
 MILL AND RESURFACE S9.5B
 MAP NO. 4 (BASHFORD RD)



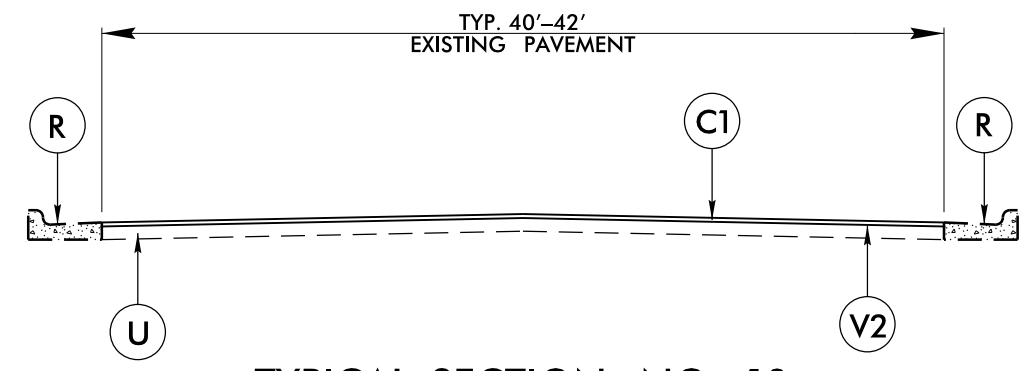
TYPICAL SECTION NO. 8
 MILL AND RESURFACE S9.5C
 MAP NO. 6 (Maynard Rd)



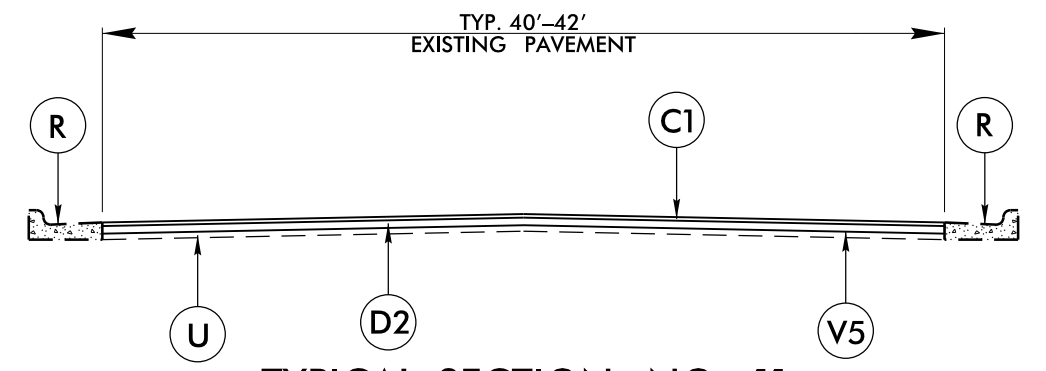
TYPICAL SECTION NO. 9
 RESURFACE S9.5C, I19.0C
 MAP NO. 9 (LOUIS STEPHENS RD)

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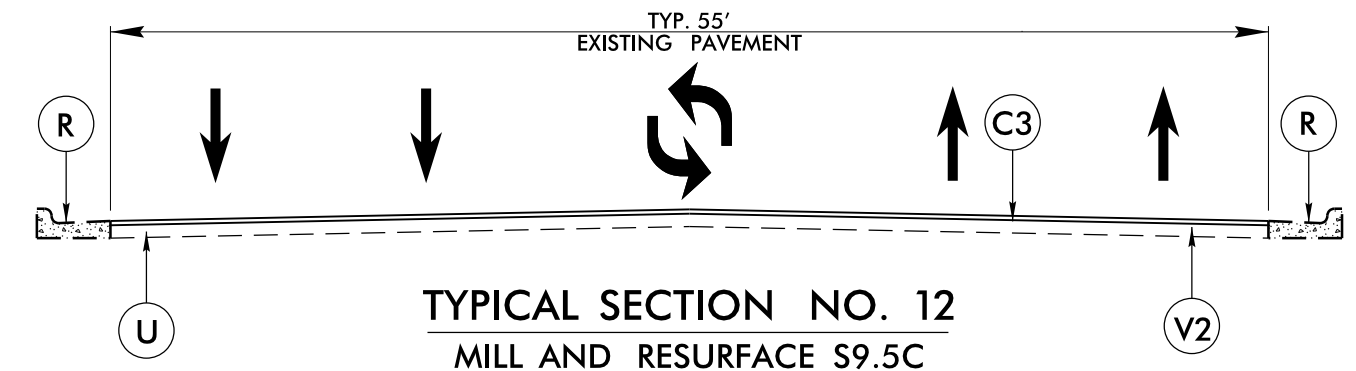
PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	3" S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
D1	2 1/2" I19.0B
D2	3" I19.0B
D3	2 1/2" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	0-1 1/2" MILLING
V2	1 1/2" MILLING
V3	3" MILLING
V4	4" MILLING
V5	4 1/2" MILLING



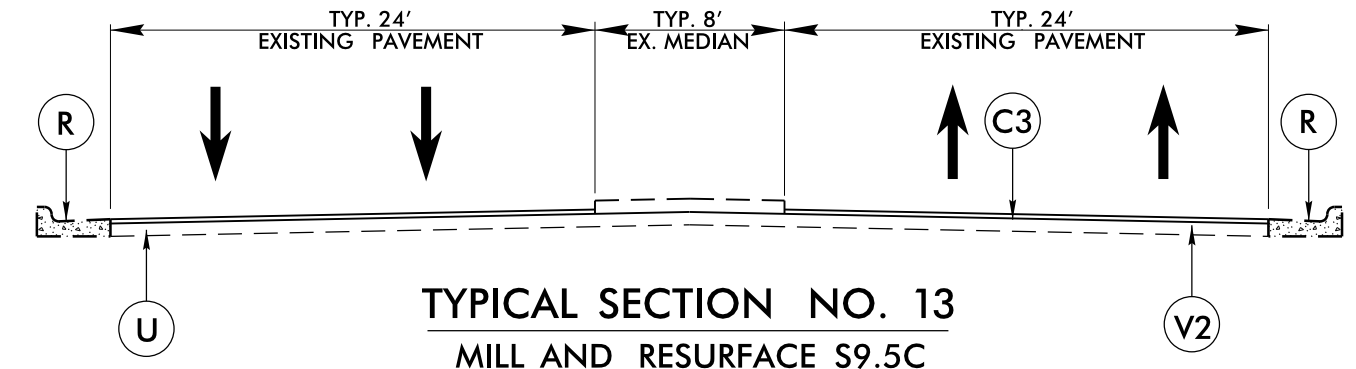
TYPICAL SECTION NO. 10
MILL AND RESURFACE S9.5B
MAP NO. 13 – MORGAN ST
–from S Harrington St to Blount St



TYPICAL SECTION NO. 11
MILL AND RESURFACE S9.5B, I19.0B
MAP NO. 10 – MORGAN ST
–from Blount St to pvtmt jt 80' west of Person St.



TYPICAL SECTION NO. 12
MILL AND RESURFACE S9.5C
MAP NO. 11 (MLK Jr Blvd)
–from Person St to Raleigh Blvd

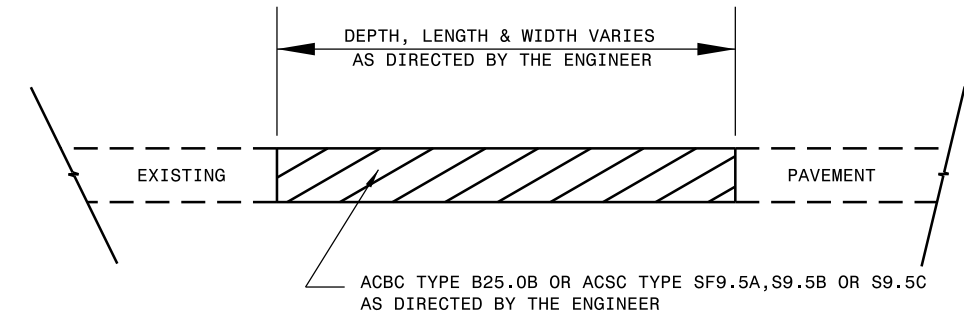


TYPICAL SECTION NO. 13
MILL AND RESURFACE S9.5C
MAP NO. 12 (MLK Jr Blvd)
–from Raleigh Blvd to Poole Rd

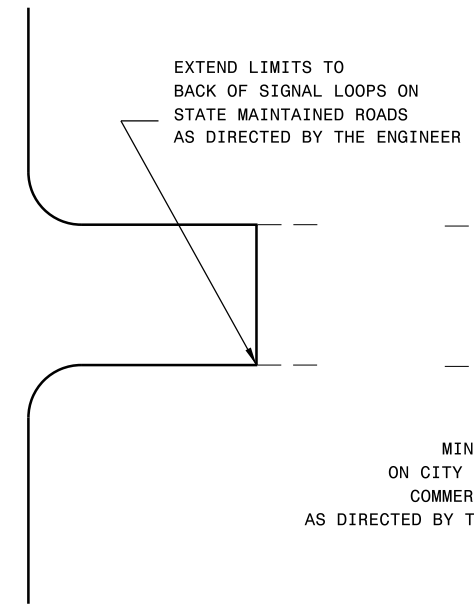
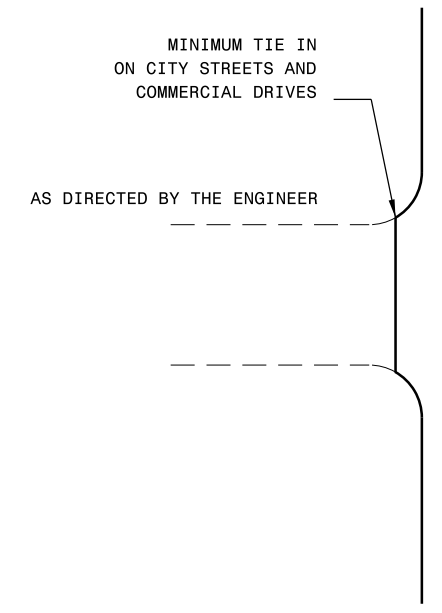
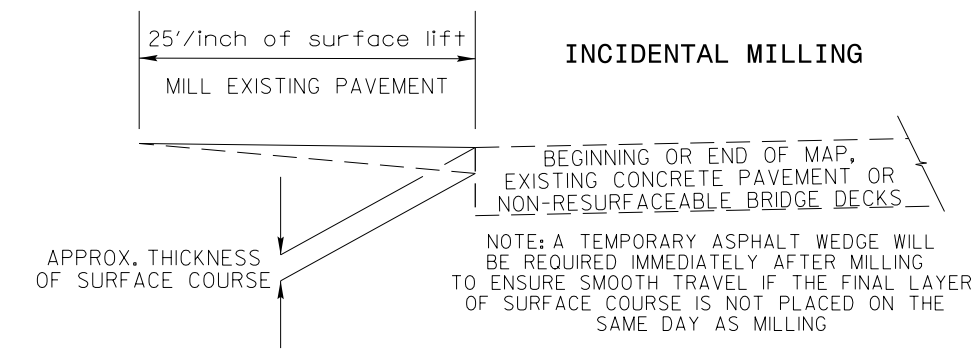
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 \$\$\$\$LSPRINT\$\$\$\$

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PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	3" S9.5B
C3	1½" S9.5C
C4	3" S9.5C
D1	2½" I19.0B
D2	3" I19.0B
D3	2½" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	0-1½" MILLING
V2	1½" MILLING
V3	3" MILLING
V4	4" MILLING
V5	4½" MILLING

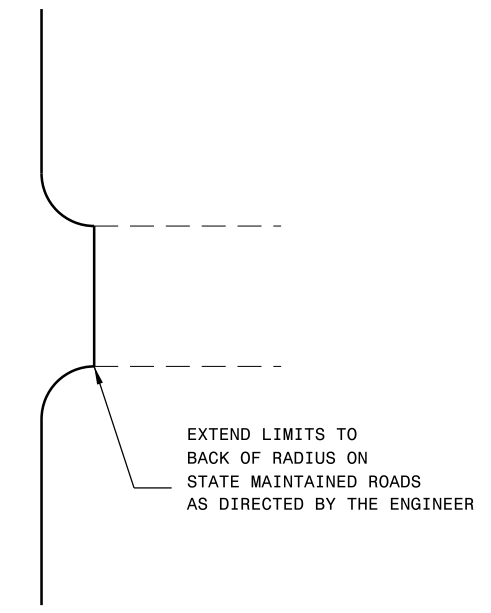


PATCHING EXISTING PAVEMENT
MILLING TO BE PERFORMED PRIOR TO PATCHING



MINIMUM TIE IN
ON CITY STREETS AND
COMMERCIAL DRIVES
AS DIRECTED BY THE ENGINEER

**DETAIL OF PROJECT LIMITS AT
SIGNALIZED Y LINES**

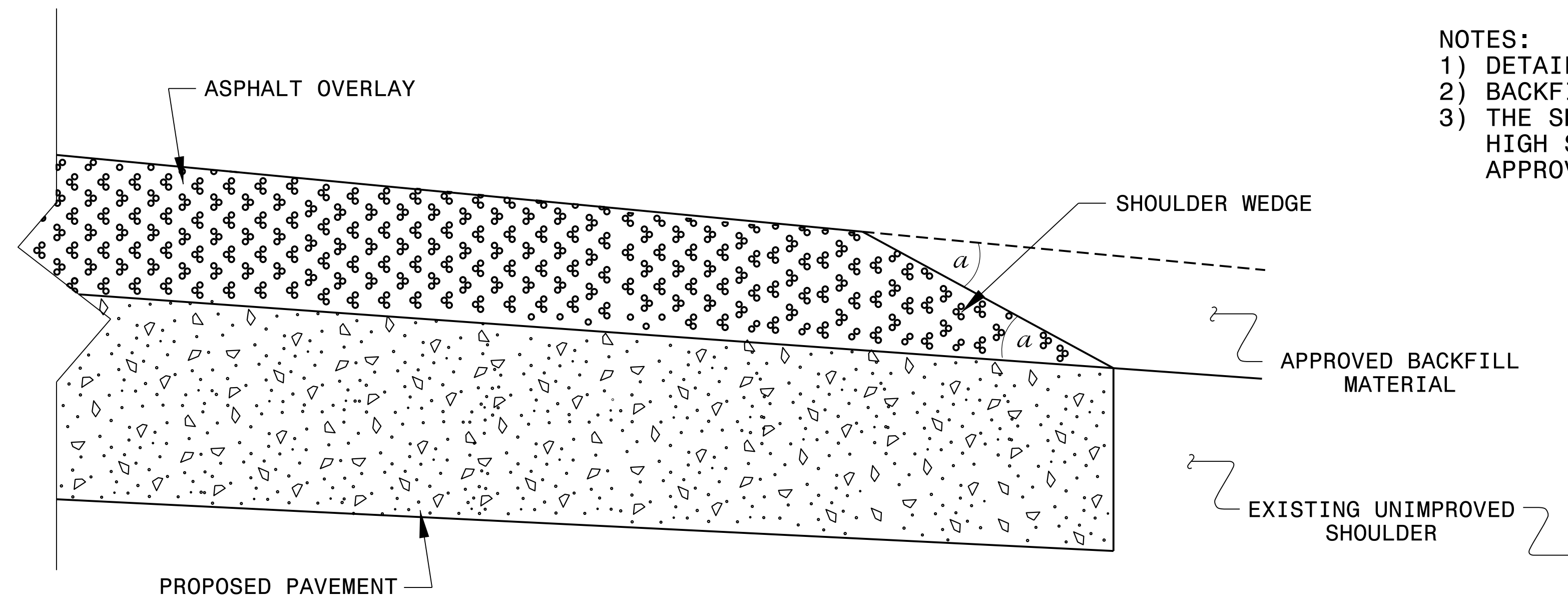


**DETAIL OF PROJECT LIMITS AT
UNSIGNALIZED Y LINES**

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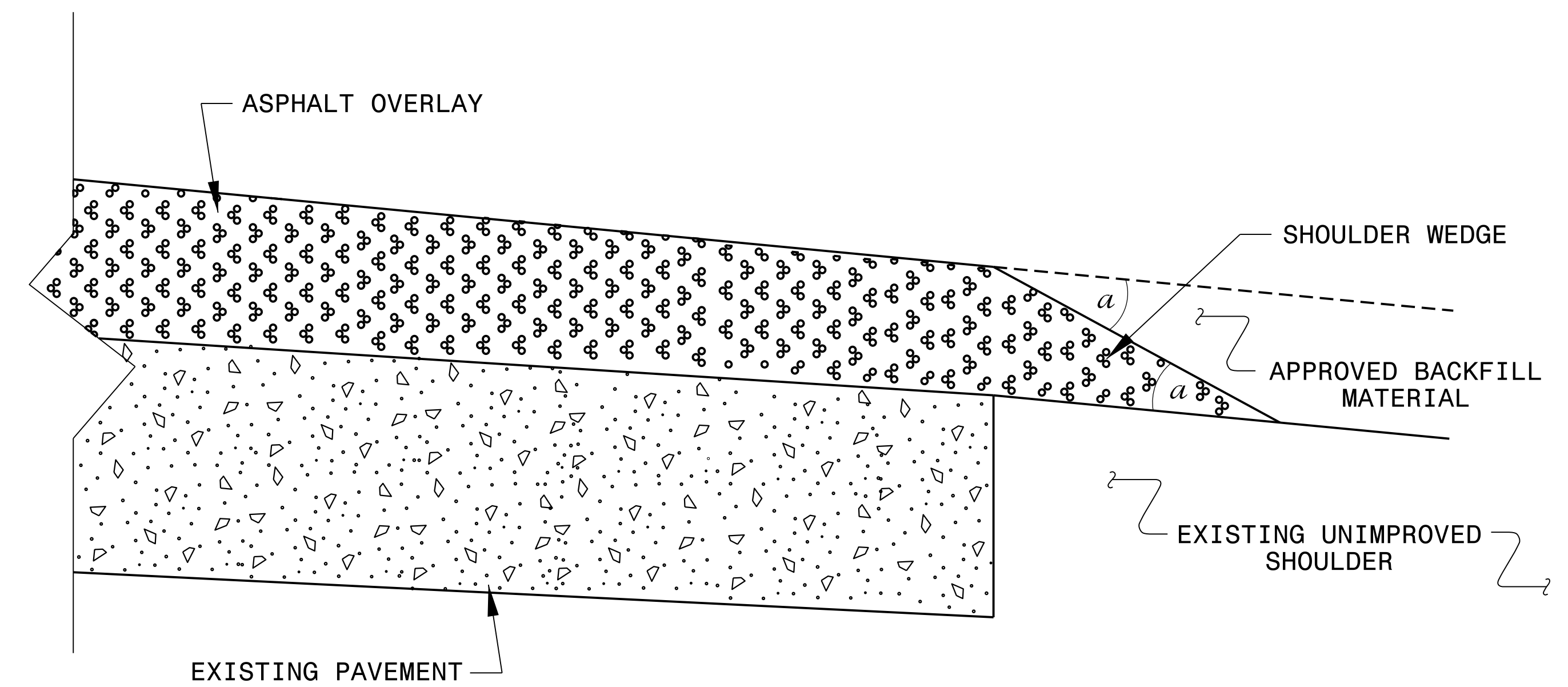
NOTES:

- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



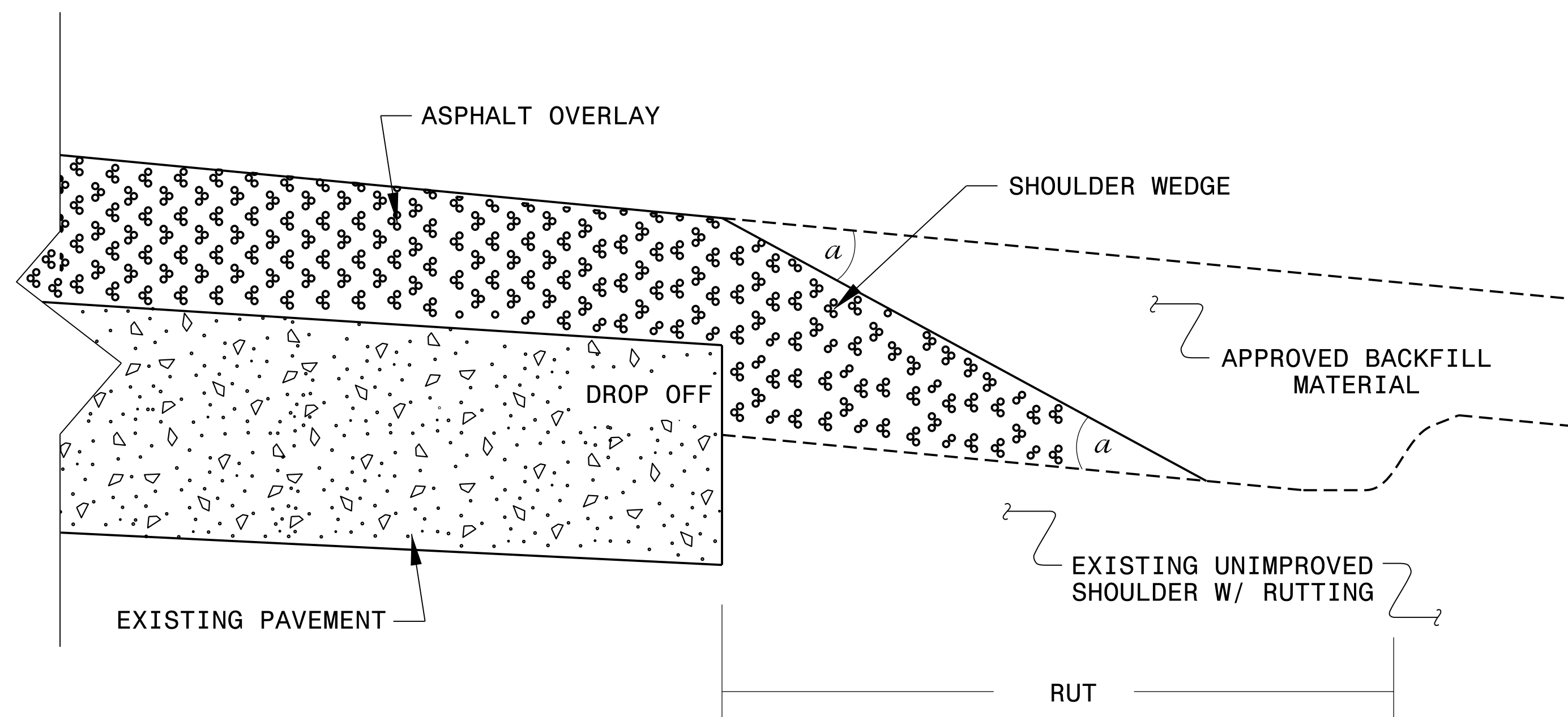
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

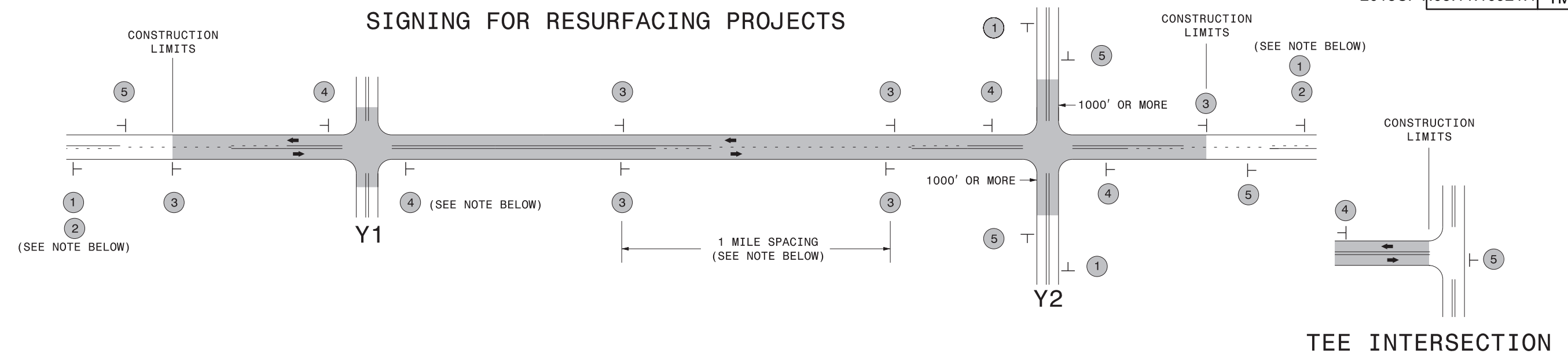
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SHOULDER WEDGE DETAILS

ORIGINAL BY: T. SPELL DATE: 7-19-11
 MODIFIED BY: DATE: 2/2/16
 CHECKED BY: DATE:
 FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGNING FOR RESURFACING PROJECTS



LEGEND	
—	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

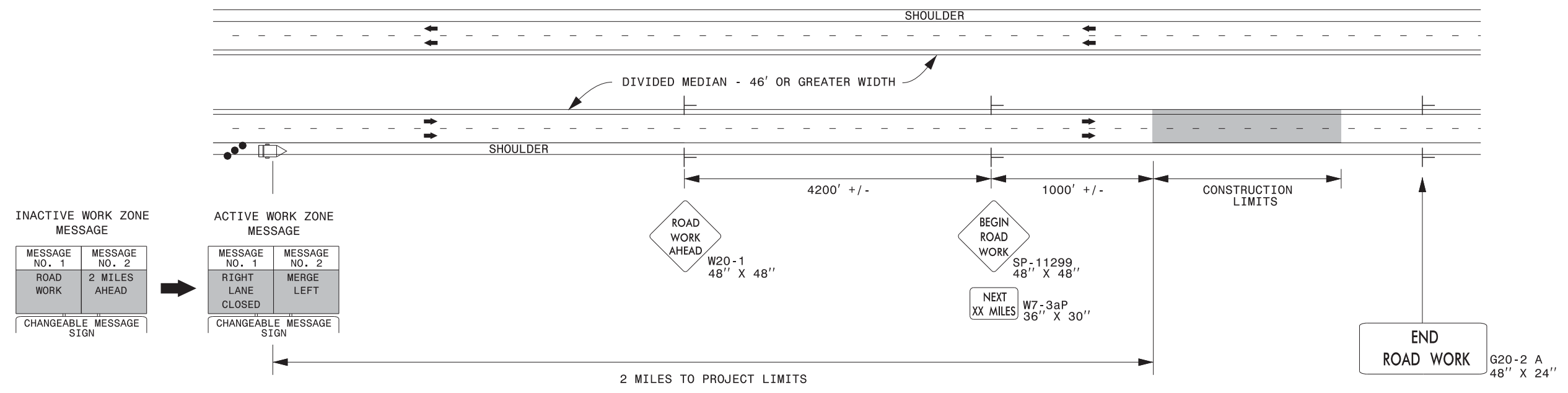
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

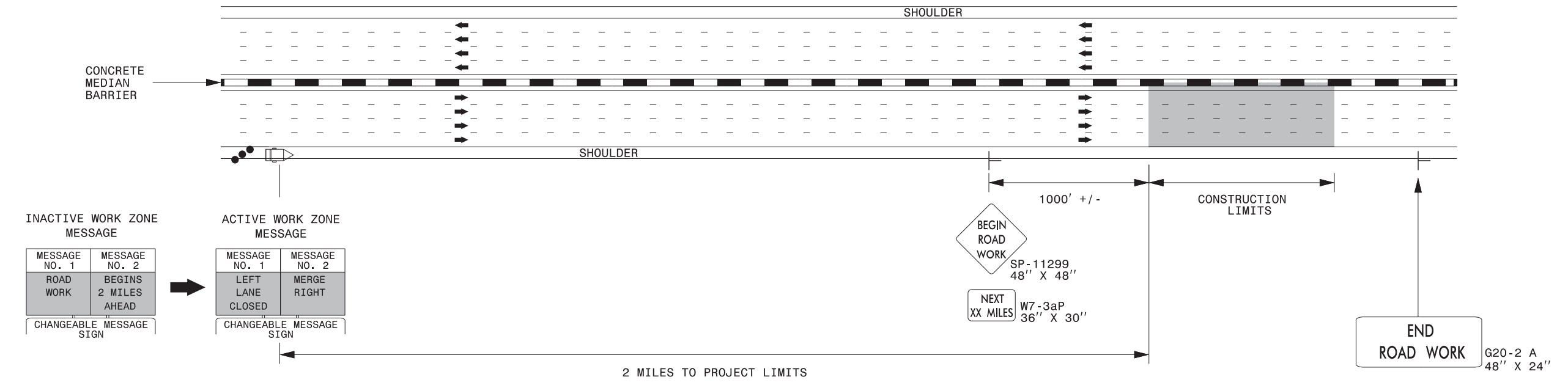
SIGNING NOTES AND PLACEMENT PER DIRECTION	MAINLINE (-L-) SIGNING		-Y- LINE SIGNING		
	1	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> W20-1 48" X 48" </div> <div style="text-align: center;"> W20-7 A 48" X 48" </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>	
	2	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)		
	3	 SP 13107 48" X 48"	<ul style="list-style-type: none"> - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER. 		
	4	 SP 13106 48" X 48"	<ul style="list-style-type: none"> - THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. - INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. - FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. - A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN. - FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE. 		
5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.			

**RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS**

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

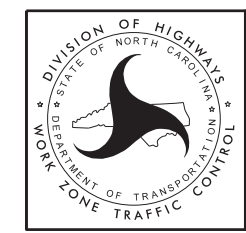


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

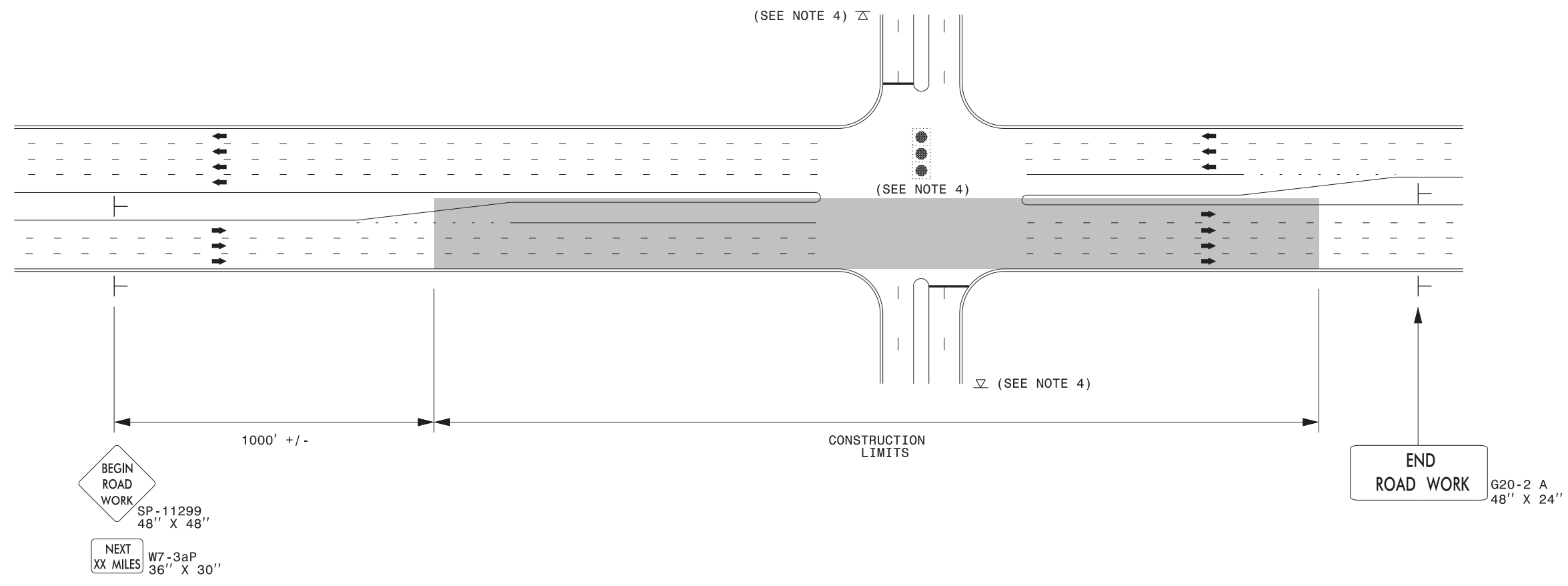
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

3/23/2015 C:\Users\rmgarrrett\Downloads\Resurfacing_AdvWarn_HSpd.dgn User:rmgarrrett

URBAN / SUBURBAN WORKZONES



NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

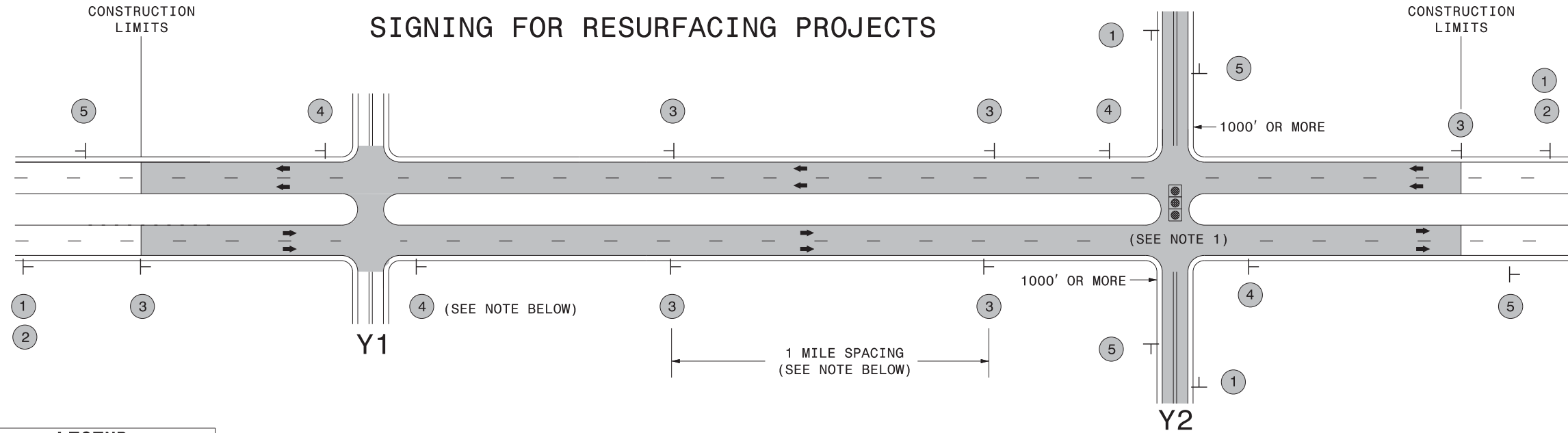
LEGEND

┆ STATIONARY SIGN

➔ DIRECTION OF TRAFFIC FLOW

RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES

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LEGEND
 ┆ STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

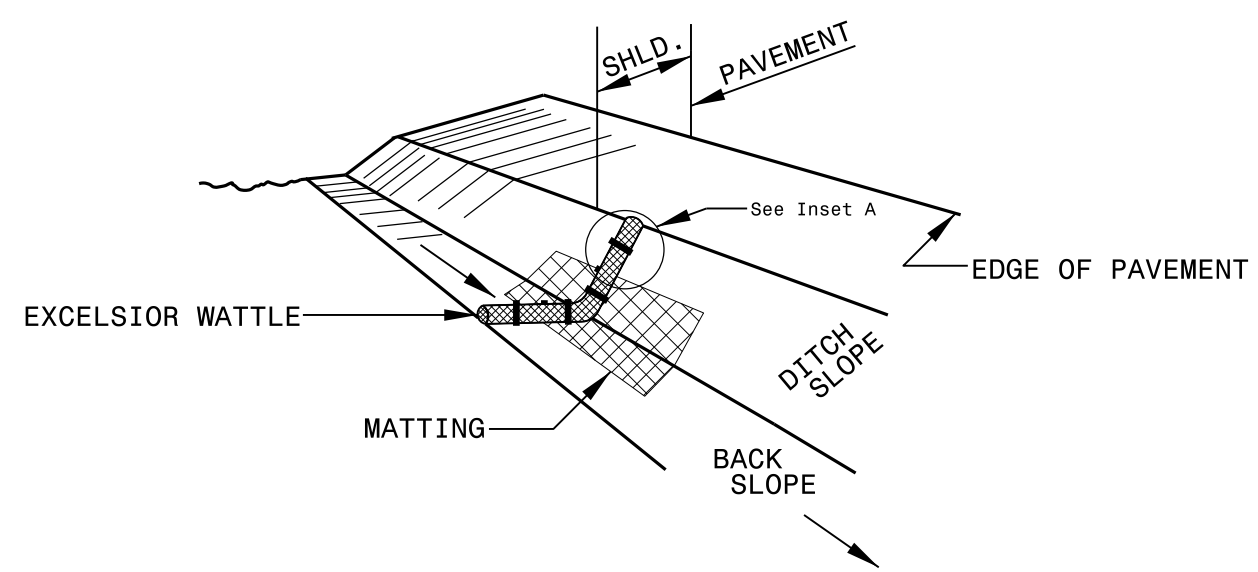
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION		<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p> <p>#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)</p>	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>W20-1 48" X 48"</p> </div> <div style="text-align: center;"> <p>W20-7 A 48" X 48"</p> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
		<p>PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.</p>	
		<p>THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.</p>	
		<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>	

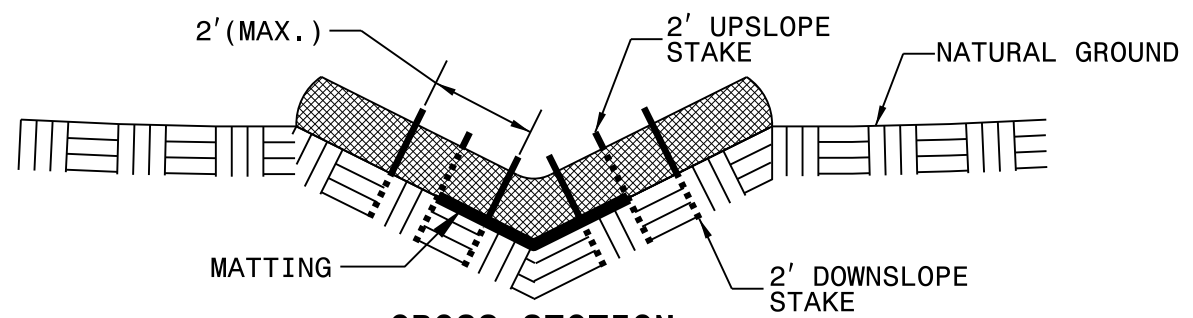
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**RESURFACING
 ADVANCE WARNING SIGNS
 FOR RURAL AND SUBURBAN
 MULTI-LANE ROADWAYS
 W/ SHOULDER SECTIONS**

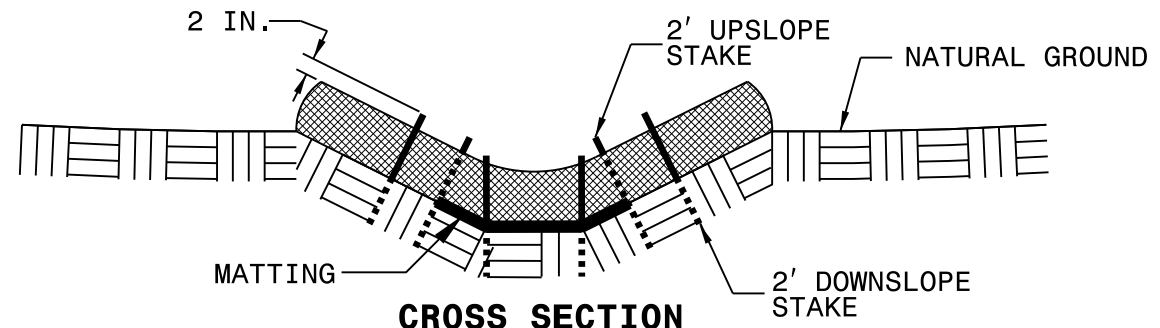
WATTLE DETAIL



ISOMETRIC VIEW



**CROSS SECTION
VEE DITCH**



**CROSS SECTION
TRAPEZOIDAL DITCH**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

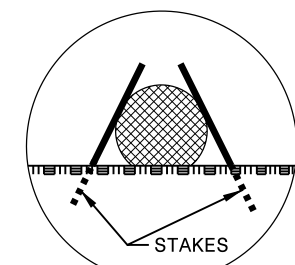
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

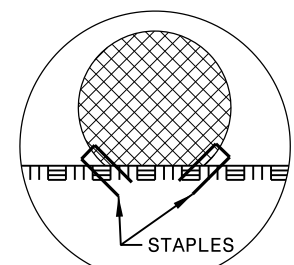
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

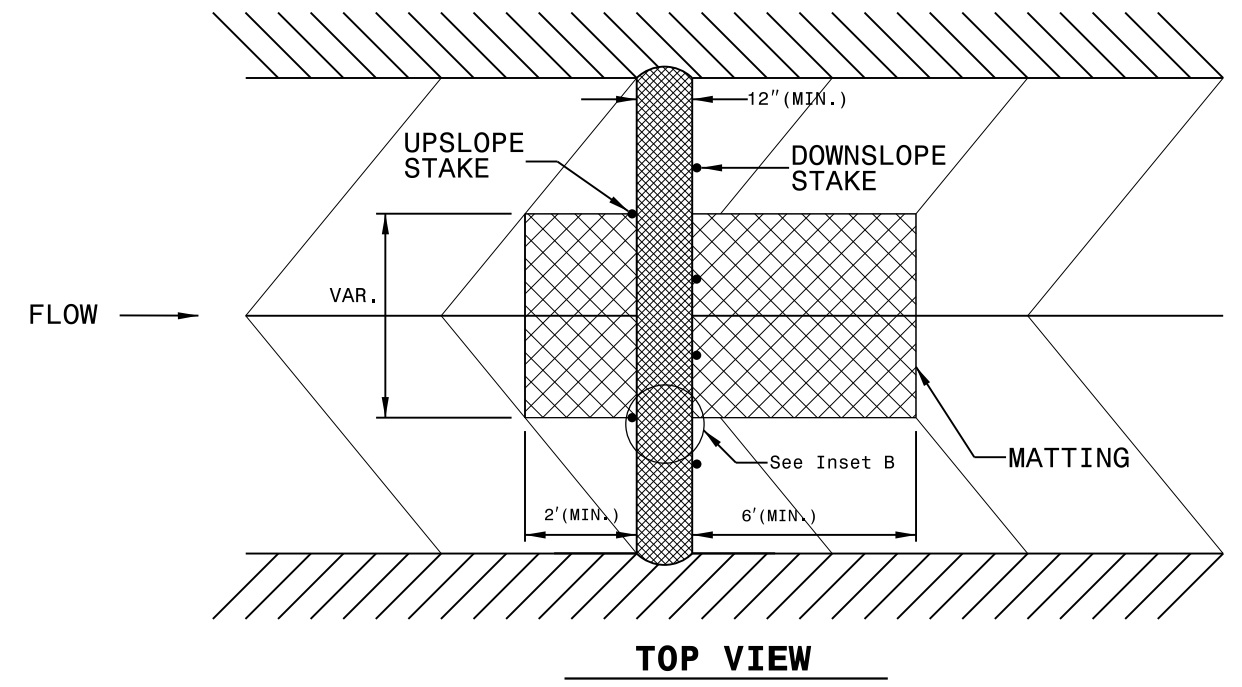
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A

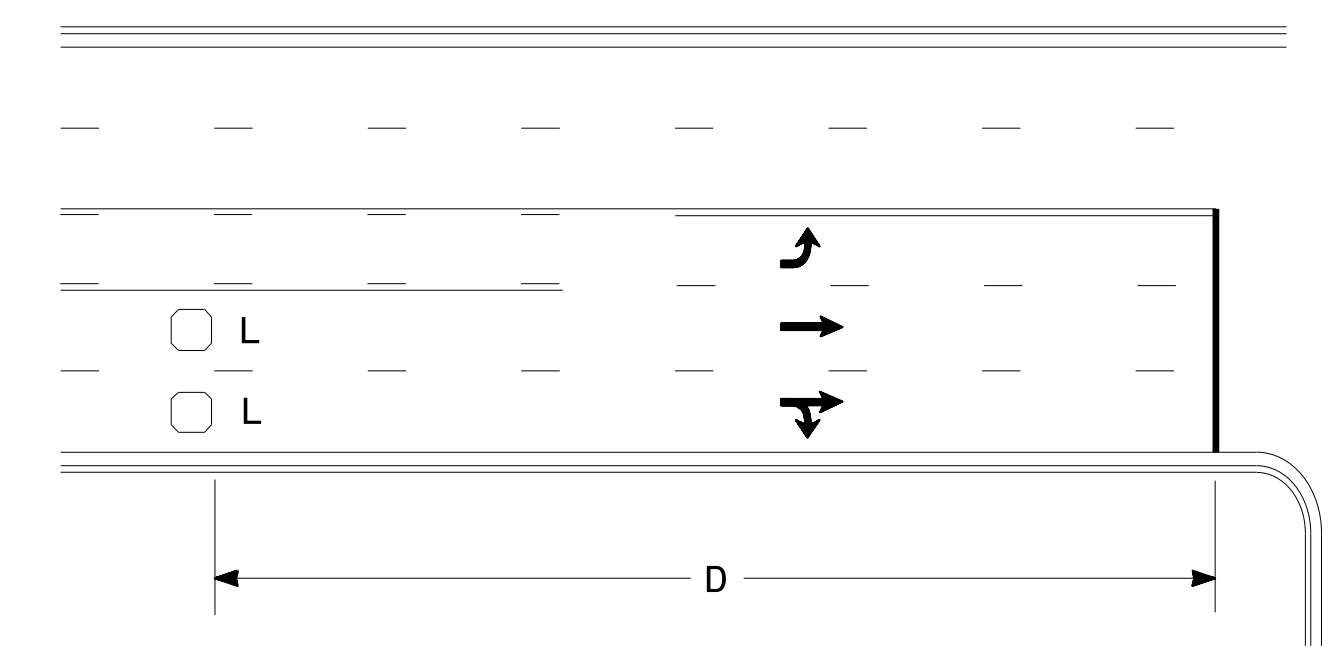


INSET B



TOP VIEW

High Speed Detection (≥40 mph)

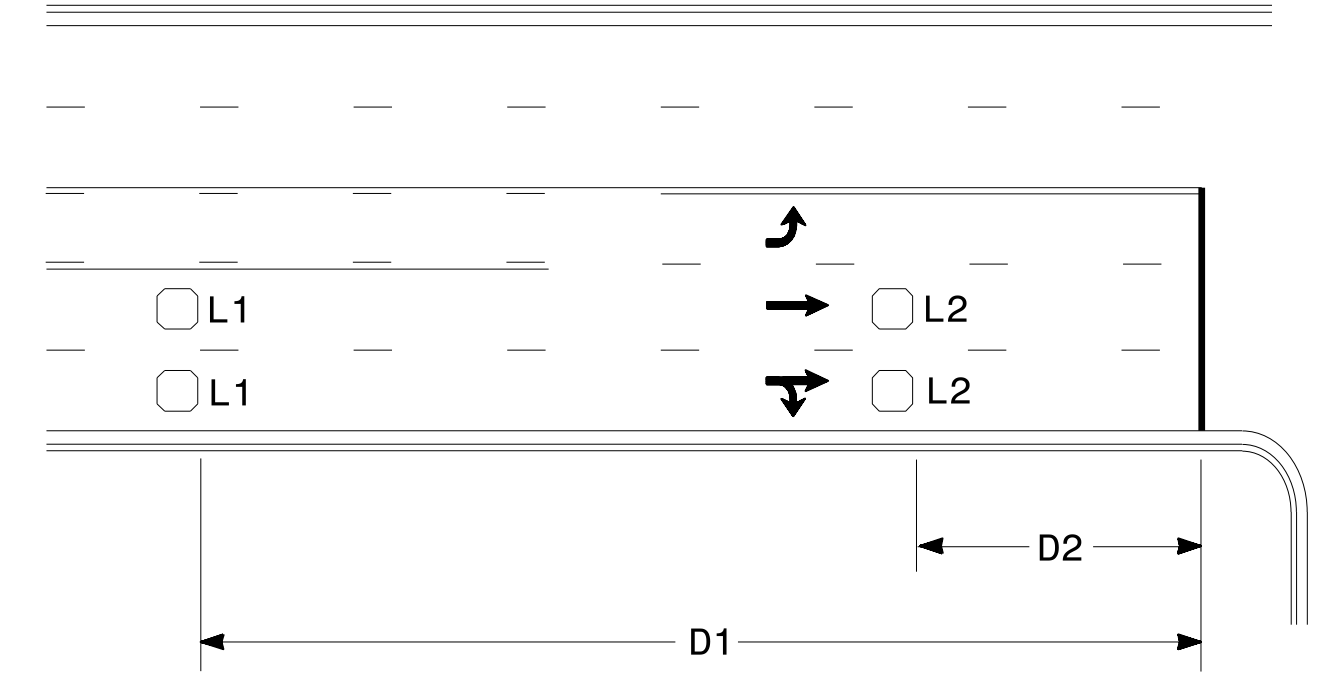


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

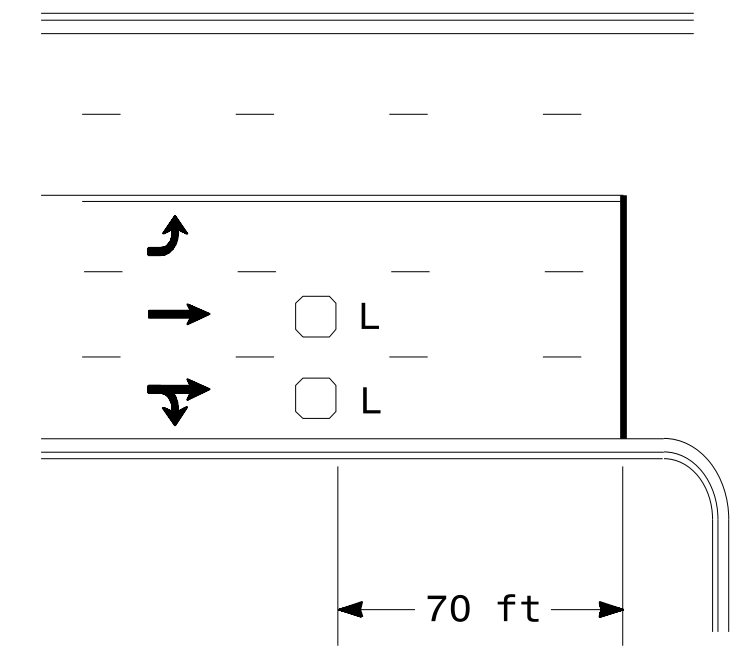


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series
L2 = 6ft X 6ft
Wired in series

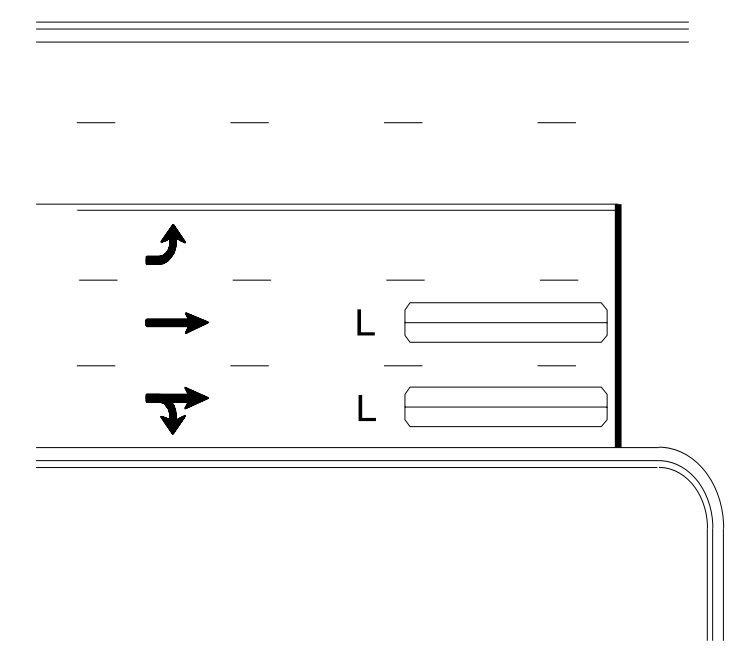
"Stretch" Operation

Low Speed Detection (≤35 mph)



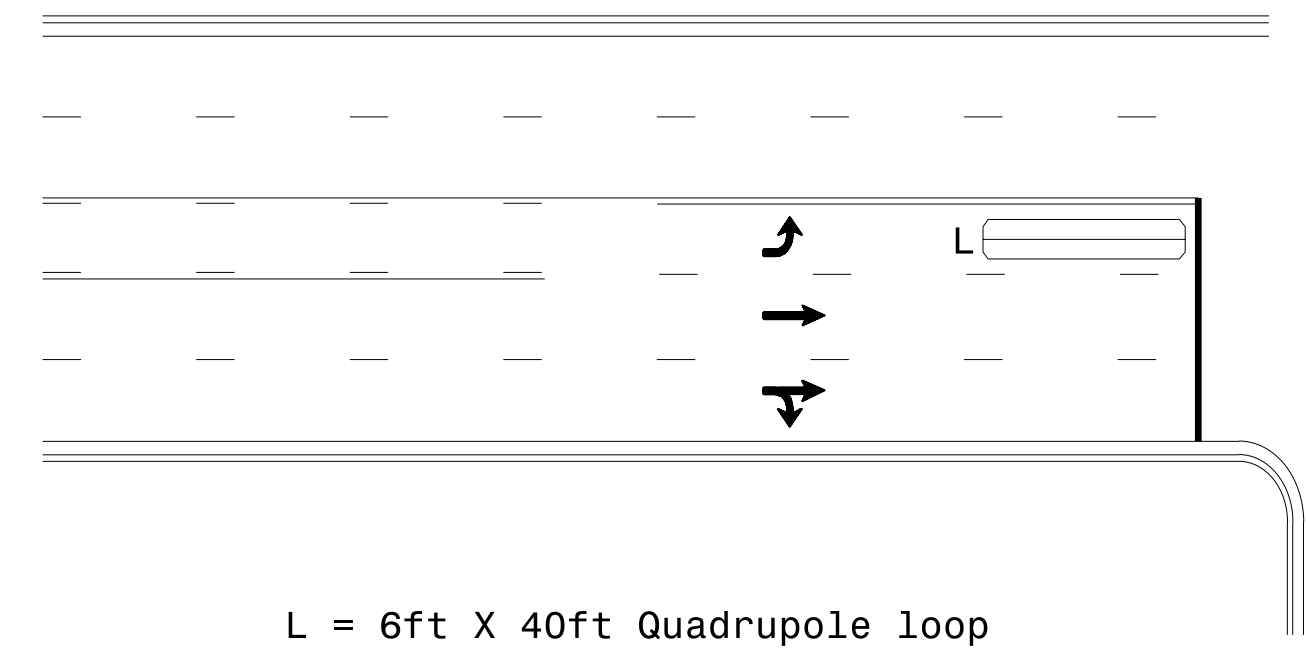
L = 6ft X 6ft
Wired in series

OR



L = 6ft X 40ft
Quadrupole loop, wired separately

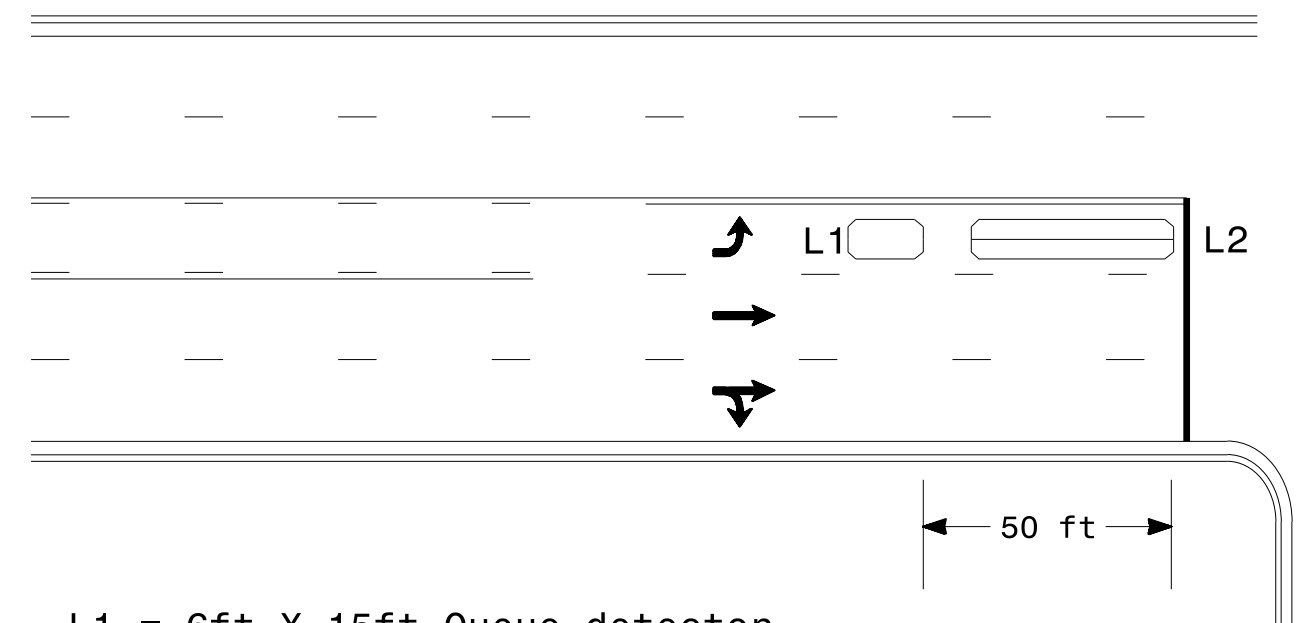
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

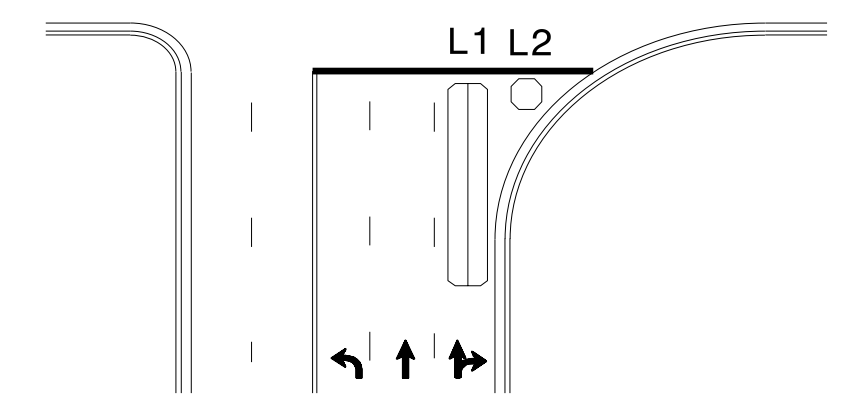
OR



L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

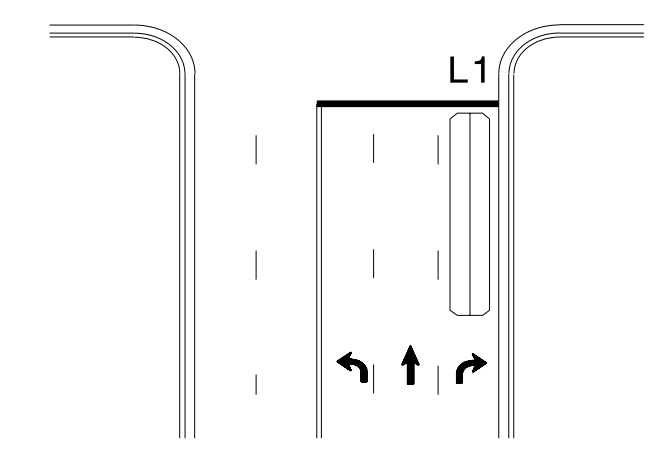
Queue Loop Detection

Right Turn Lane Detection

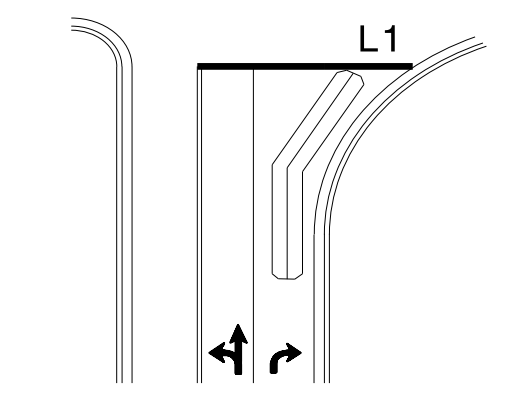


Shared Lane/
Wide Radius Turn

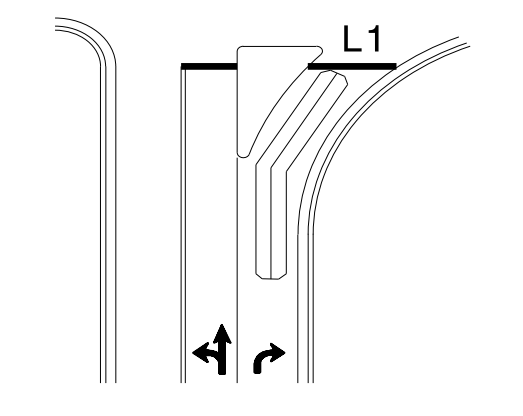
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

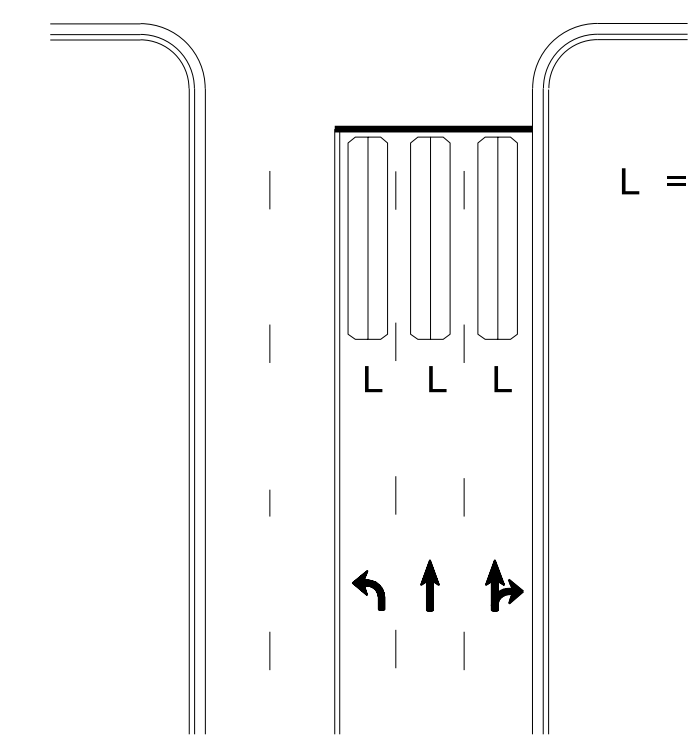


Wide Radius Turn



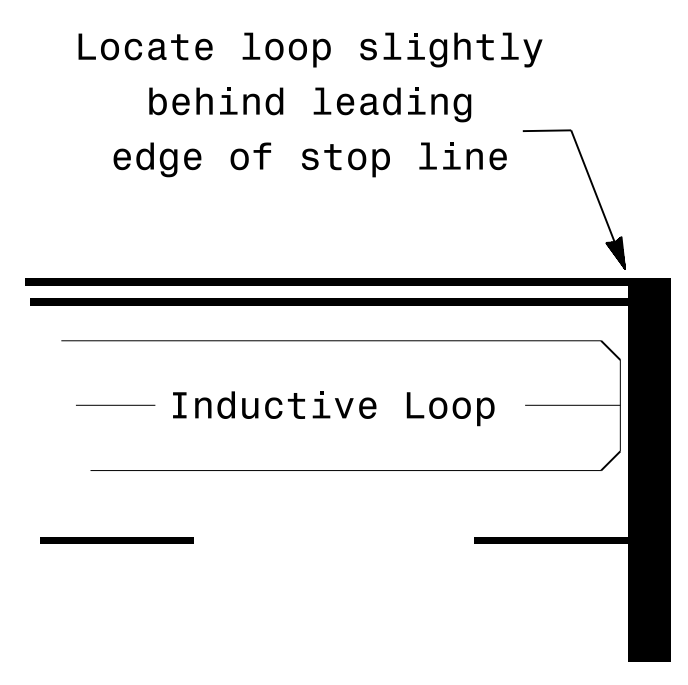
Channelized Turn

Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines



Locate loop slightly
behind leading
edge of stop line

Note:
Loop may be located in advance
of stop line under any of the
following conditions:
1) stop line is greater than 15'
from edge of intersecting
roadway
2) loop detects a permissive or
protected/permissive left turn
3) for an exclusive right turn
lane

Recommended Number of Turns

Single 6' X 6' loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' Loops:
Lead-in < 150', use 2 turns
Lead-in > 150', use 3 turns

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE
N/A

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

DocuSigned by:
P. Alexander
1/30/2015 11:00:00 AM
DATE

SIG. INVENTORY NO.

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 paalexander