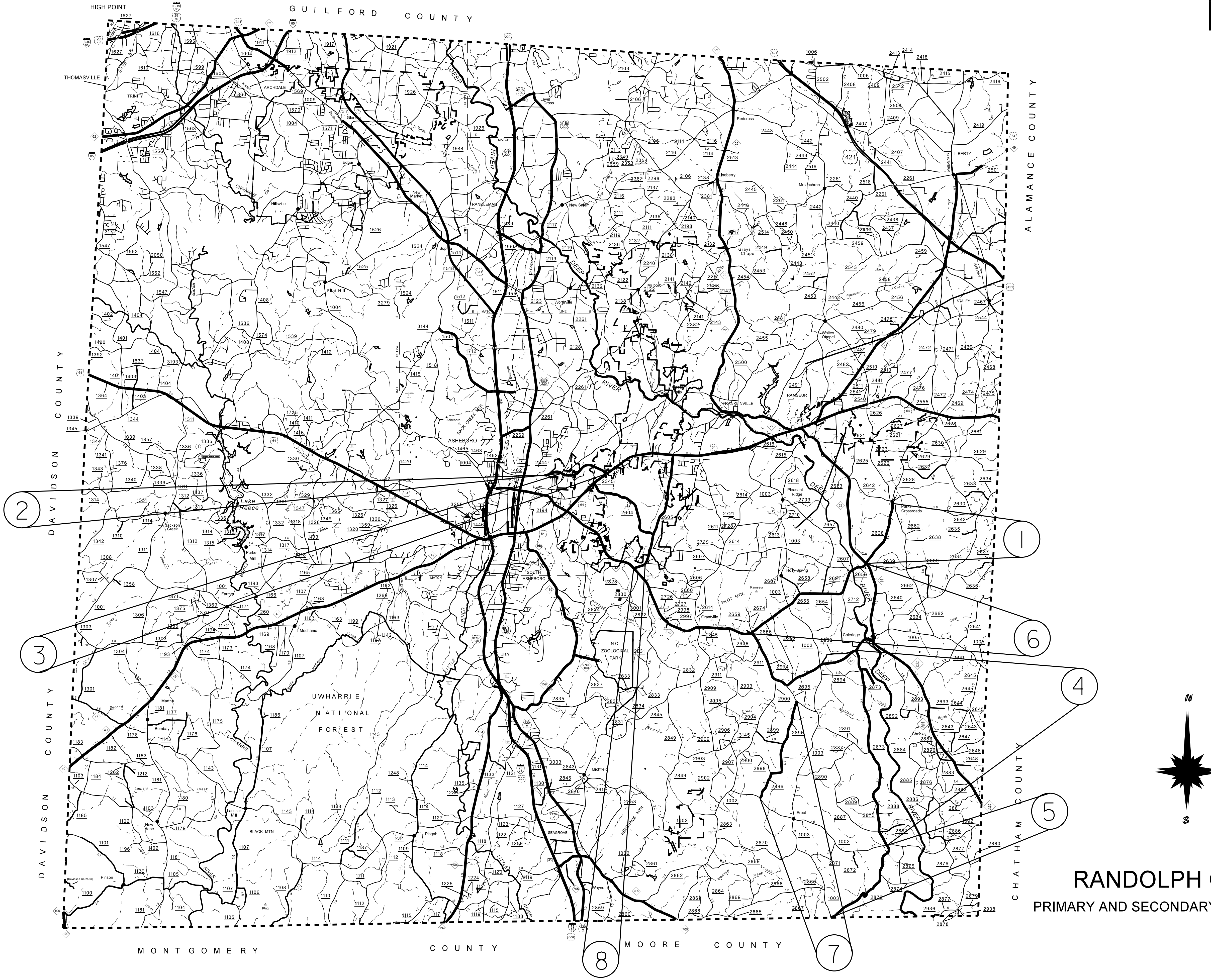
WBS ELEMENT	SHEET NO.
2021CPT.08.08.20761	1

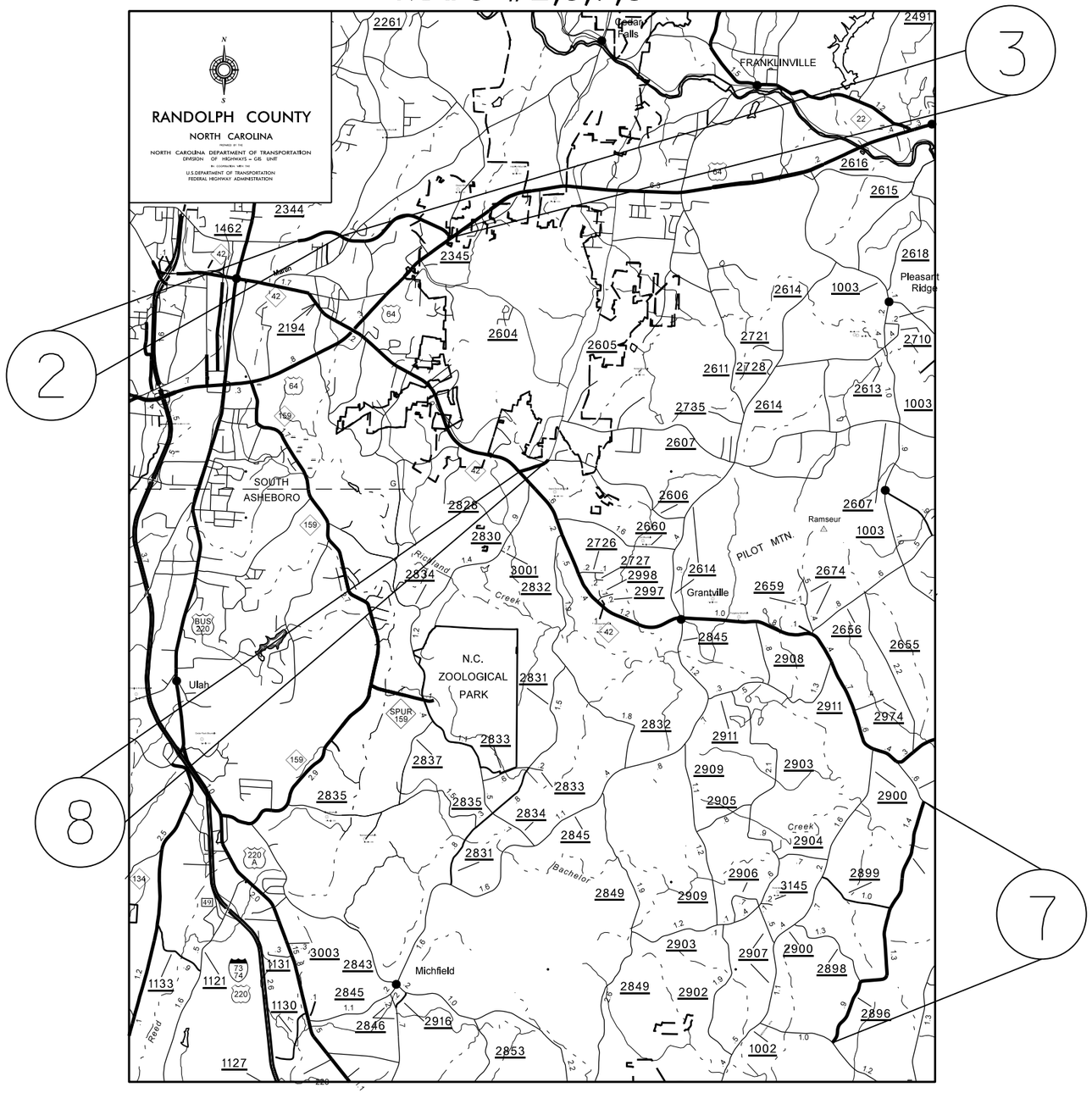


RANDOLPH COUNTY

PRIMARY AND SECONDARY RESURFACING MAP

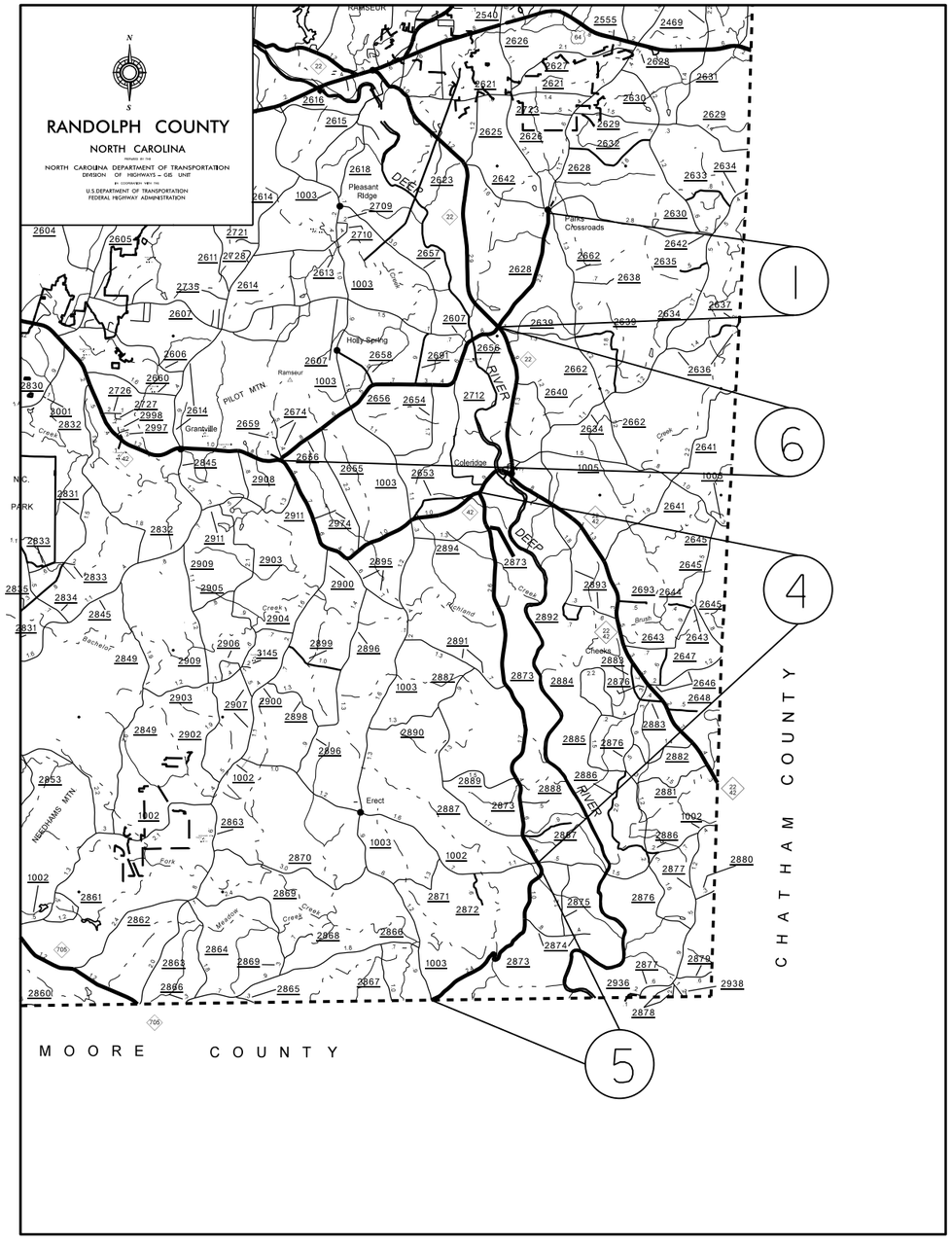
WBS ELEMENT	SHEET NO.
2021CPT.08.08.20761	2

MAPS #2,3,7,8

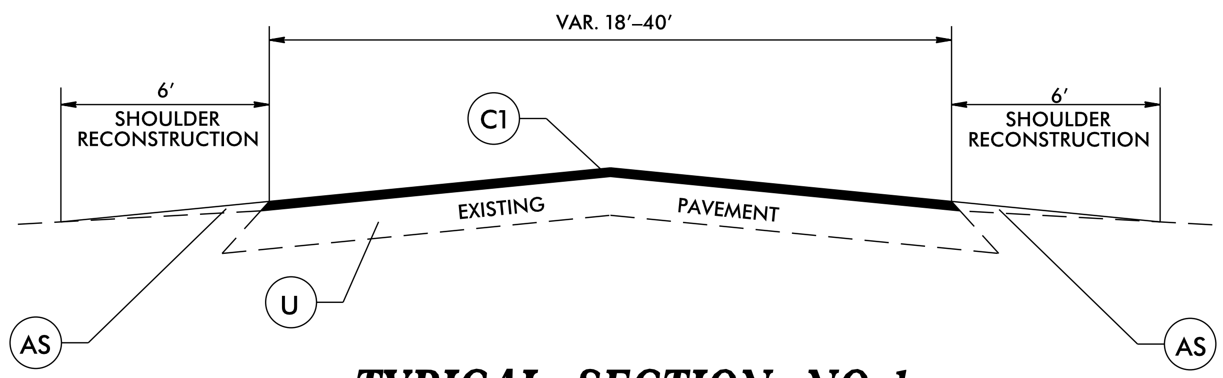


WBS ELEMENT	SHEET NO.
2021CPT.08.08.20761	3

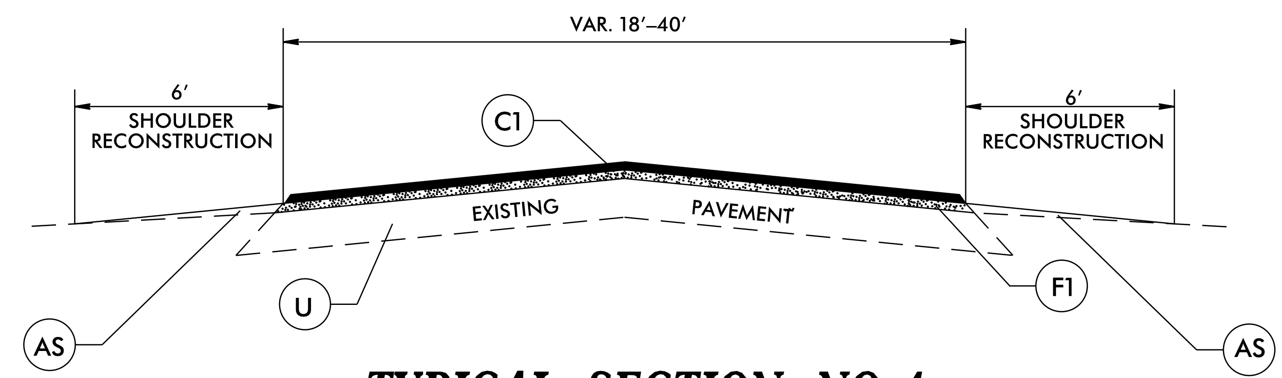
MAPS #1,4,5,6



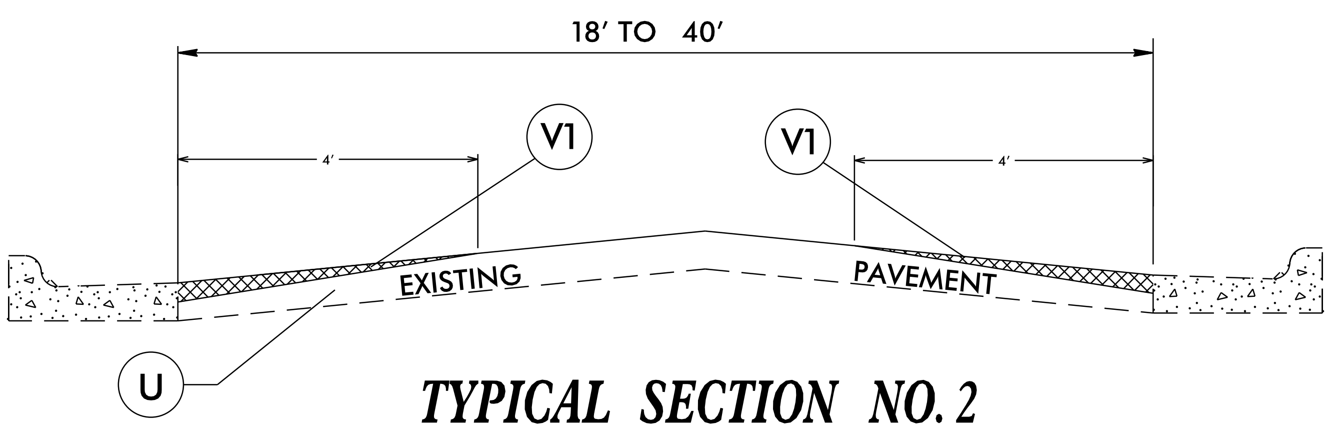
WBS ELEMENT	SHEET NO.
2021CPT.08.08.20761	4



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 4

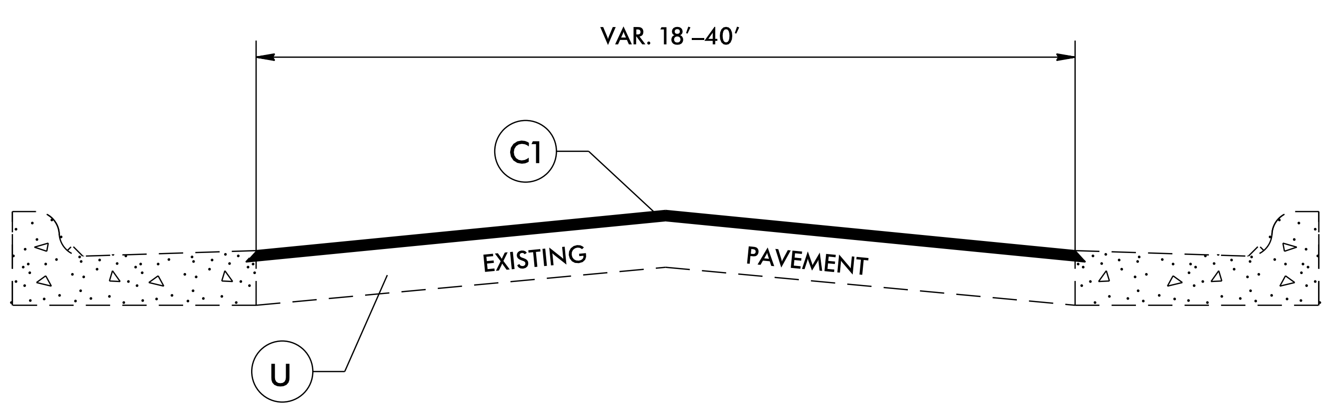


TYPICAL SECTION NO. 2

USE FOR SECTIONS OF MAP WITH CURB & GUTTER OR ISLANDS

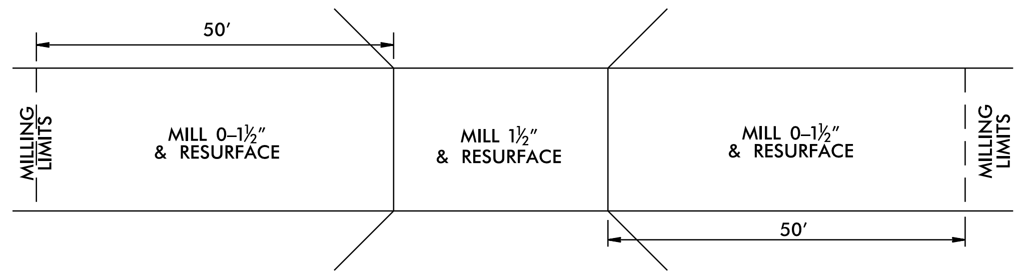
PAVEMENT SCHEDULE

AS	AGGREGATE SHOULDER BORROW
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
F1	PROPOSED ASPHALT SURFACE TREATMENT, MAT COAT WITH #67 STONE
U	EXISTING PAVEMENT.
V1	4' MILL HEAD MILLING 0" TO 1.5" IN DEPTH



TYPICAL SECTION NO. 3

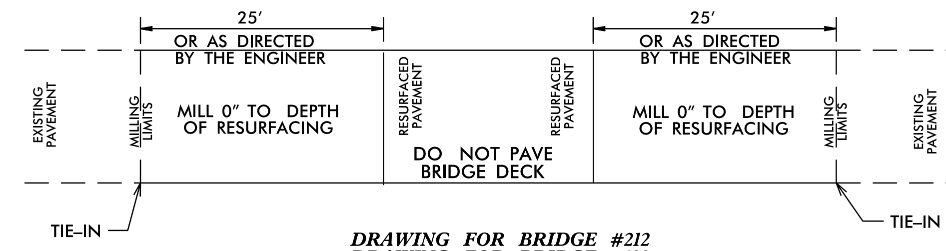
PAVEMENT TIE-IN AND PATCHING DETAILS



USE FOR MAP #2
USE FOR MAP #4
USE FOR MAP #6
USE FOR MAP #8

DRAWING FOR BRIDGE #198
DRAWING FOR BRIDGE #247
DRAWING FOR BRIDGE #187
DRAWING FOR BRIDGE #185

* MILLING SHALL BE PAID FOR UNDER INCIDENTAL MILLING

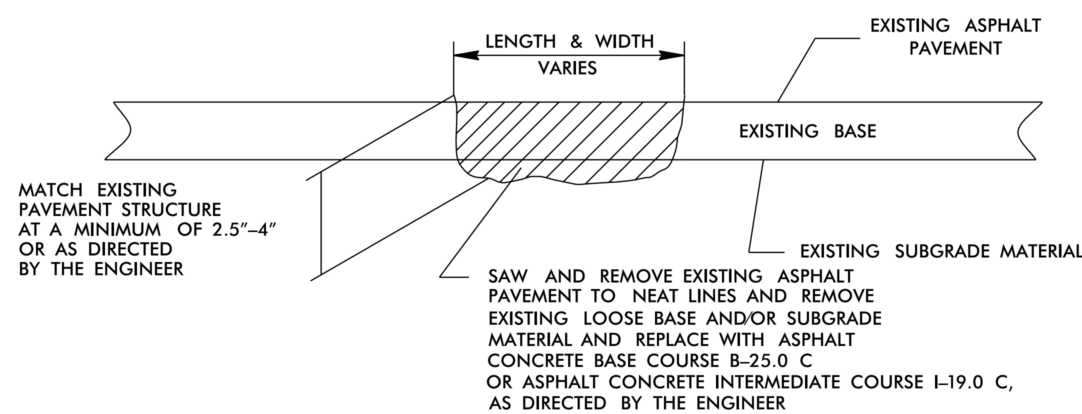


DRAWING FOR BRIDGE #212
DRAWING FOR BRIDGE #199

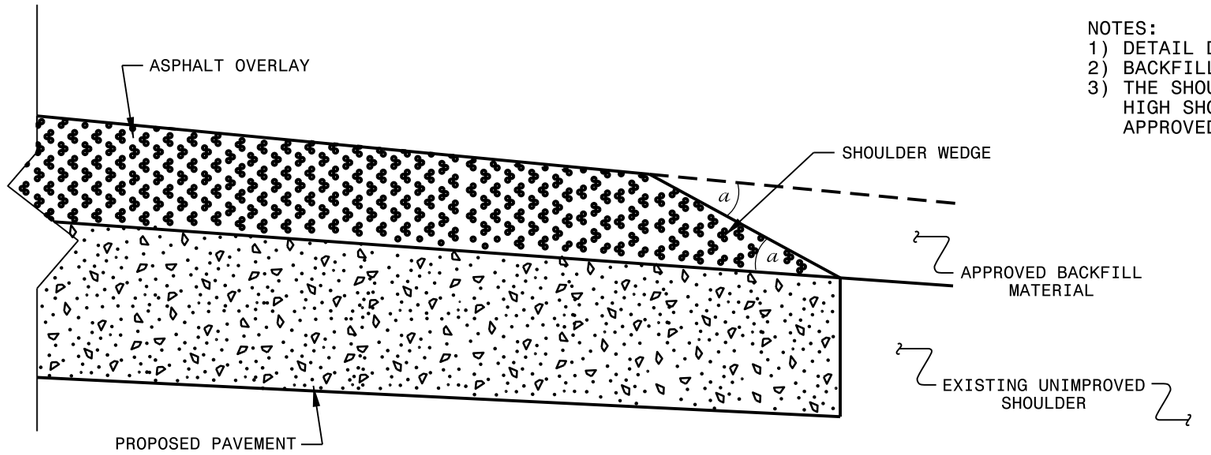
USE FOR MAP #7
USE FOR MAP #4

* MILLING SHALL BE PAID FOR UNDER INCIDENTAL MILLING

DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING



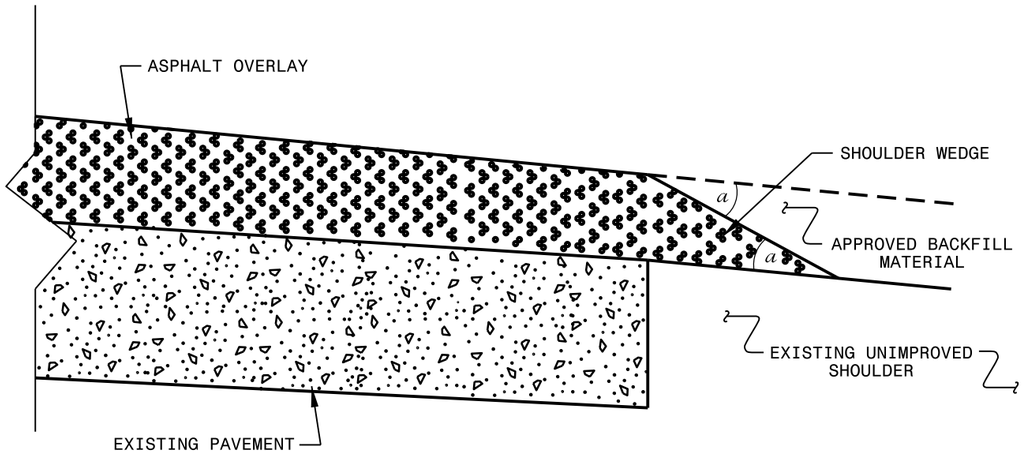
PROJECT REFERENCE NO.	SHEET NO.
2021CPT.08.08.20761	6



NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC 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.

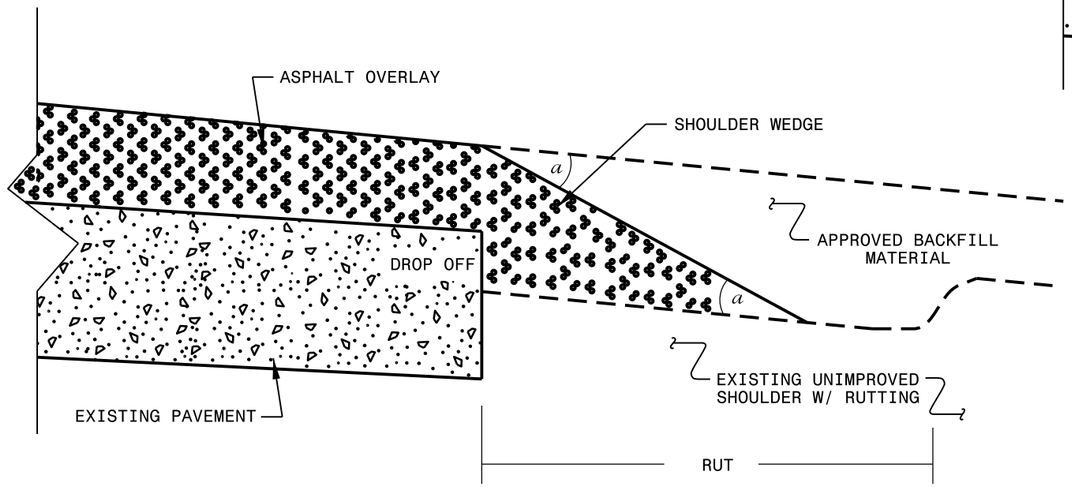
SHOULDER WEDGE DETAIL

(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

22-JAN-2018 09:41
S:\Contracts\Contracts\Resurfacing Projects\Division 4\I-5937 Wilson March 2018\Revised Shoulder Wedge Detail.dgn
pporter AI CSD-29252

PROJECT NO.	SHEET NO.
2021CPT.08.08.20761	7

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	SHOULDER RECONSTRUCTION	ASB	0" TO 1.5" MILLING	INC. MILLING	S9.5B	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	AST, MAT-COAT, #67 STONE	EMUL-SION FOR AST	VACUUM TRUCK	ADJ. OF MAN-HOLES	ADJ. OF METER OR VALVE BOX	LEAD-IN CABLE (14-2 PAIR)
									MI	FT	SMI	TON	SY	SY	TONS	TONS	TONS	SY	GAL	WK	EA	EA	LF
2021CPT.08.08.20761	Randolph	1	SR2628 PARKS CROSSROADS CHURCH RD.	(FROM: NC-22 S TO: SR2642 OLD SILER CITY RD.	1	2	NO	NO	2.155	20	4.31	605		560	2,338	157	89						
		2	SR2344 E. PRESNELL ST.	(FROM: GREENSBORO ST. TO: LOACH ST.)	2,3	2	NO	NO	0.59	31			3,285	3,143	1,261	84	150				15	6	300
		3	SR2345 E. PRESNELL ST.	(FROM: US-64E TO: LOACH ST.)	1,2	2	NO	NO	2.12	43	4.35	609	1,310	2,000	4,698	315	150						
		4	SR2873 RIVERSIDE RD.	(FROM:SR1002 BENNETT RD. TO: NC-42 E)	1	2	NO	NO	6.5	21	13.00	1,826		1,700	7,287	488	1,174						
		5	SR2873 RIVERSIDE RD.	(FROM:SR1003 NEEDHAM GROVE RD. TO:SR1002 BENNETT RD.)	1	2	NO	NO	3.21	21	6.42	902		650	3,629	243	150						
		6	SR2656 HINSHAW TOWN RD.	(FROM: NC-22 S TO: NC-42 E.)	1	2	NO	NO	4.63	21	9.26	6,023.63		1,690	5,437	364	322						
		7	SR2896 PICKETTS MILL RD.	(FROM: 2895 MOFFITT MILL RD. TO: SR1002 FORK CREEK MILL RD.)	1,3,4	2	NO	NO	3.51	21	7.02	986		520	4,004	268	100	43,243	18,121	2			
		8	SR2606 IRON MOUNTAIN RD.	(FROM:SR2606 SPOONS CHAPEL RD. TO: NC-42 E)	1	2	NO	NO	0.39	20	0.78	110		260	456	31	150						
GRAND TOTAL FOR PROJ NO. 2021CPT.08.08.20761									**23.105**		**45.14**	**11,061.63**	**4,595**	**10,523**	**29,110**	**1,950**	**2,285**	**43,243**	**18,121**	**2**	**15**	**6**	**300**

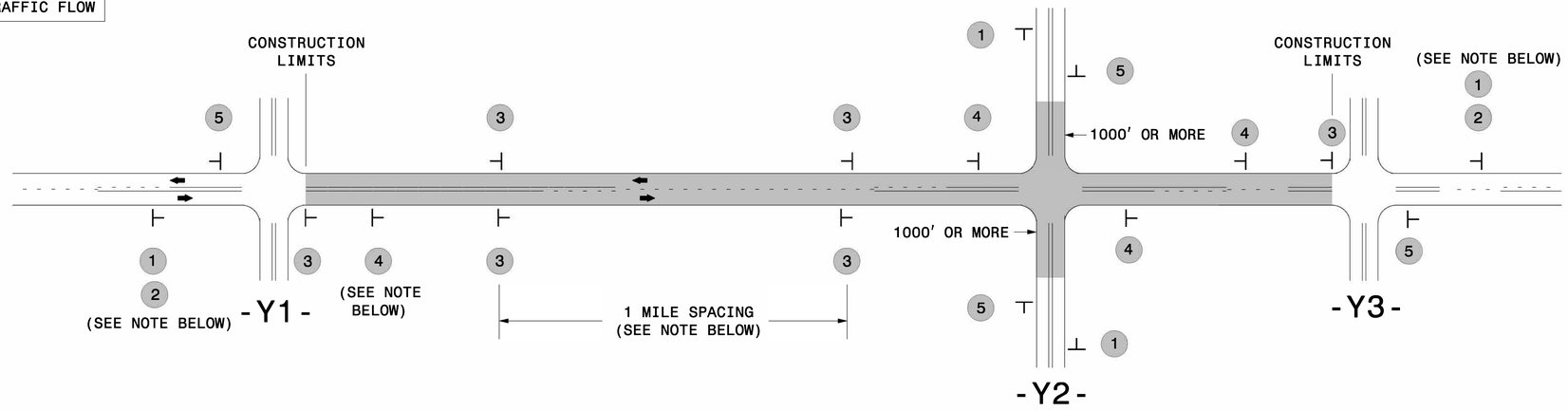
THERMOPLASTIC AND PAINT QUANTITIES

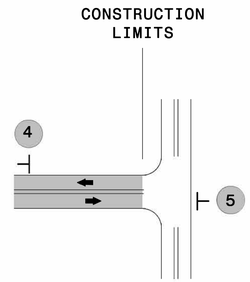
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LENGTH	WIDTH	44130000 WZ ADV/ GEN. WARN. SIGNING	445700(TEMP. TRAFFIC CONTROL	4685000000-E 4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4695000 8" X 90 M WHITE THERMO	4725000000-E THERMO LT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO RT ARROW 90 M	48910000 24" X 90 M WHITE THERMO	4905000000-N SNOW PLOWABLE MARKERS Y & Y
							MI	FT	SF	LS	LF	LF	LF	EA	EA	EA	EA	LF	EA
2021CPT.08.08.20761	Randolph	1	SR2628 PARKS CROSSROADS CHURCH RD.	(FROM: NC-22 S TO: SR2642 OLD SILER CITY RD.	1	2	2.155	20	483										
		2	SR2344 E. PRESNELL ST.	(FROM: GREENSBORO ST. TO: LOACH ST.)	2,3	2	0.59	31	80										
		3	SR2345 E. PRESNELL ST.	(FROM: US-64E TO: LOACH ST.)	1,2	2	2.12	43	237		28,000	28,000	300	15	15	5	11	385	140
		4	SR2873 RIVERSIDE RD.	(FROM:SR1002 BENNETT RD. TO: NC-42 E)	1	2	6.5	21	728										
		5	SR2873 RIVERSIDE RD.	(FROM:SR1003 NEEDHAM GROVE RD. TO:SR1002 BENNETT RD.)	1	2	3.21	21	360										
		6	SR2656 HINSHAW TOWN RD.	(FROM: NC-22 S TO: NC-42 E.)	1	2	4.63	21	519										
		7	SR2896 PICKETTS MILL RD.	(FROM: 2895 MOFFITT MILL RD. TO: SR1002 FORK CREEK MILL RD.)	1,3	2	3.51	21	394										
		8	SR2606 IRON MOUNTAIN RD.	(FROM:SR2606 SPOONS CHAPEL RD. TO: NC-42 E)	1	2	0.39	20	44	*									
GRAND TOTAL FOR PROJ NO. 2021CPT.08.08.20761							**23.105**		**2,845**	**1**	**28,000**	**28,000**	**300**	**15**	**15**	**5**	**11**	**385**	**140**
											56,000			**46**					

PROJ. REFERENCE NO.	SHEET NO.
2021CPT.08.08.20761	TMP-1

SIGNING FOR RESURFACING PROJECTS

LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW





TEE INTERSECTION

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD, W20-1, 48″ X 48″

2 — NEXT XX MILES, W7-3aP, 24″ X 18″

PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.

#2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)

3 — LOWSOFT SHOULDER, SP 13107, 48″ X 48″

- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.
- AT TEE INTERSECTIONS INSTALL INITIALLY ½ MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.

4 — ROAD UNDER CONST, SP 13106, 48″ X 48″

- 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 — END ROAD WORK, 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.

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

MAPS LESS THAN 2 MILES

FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, PORTABLE ADVANCE WARNING SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

ROAD WORK AHEAD, W20-1, 48″ X 48″
PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A, 48″ X 48″
PLACED 250′ IN ADVANCE OF FLAGGER.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

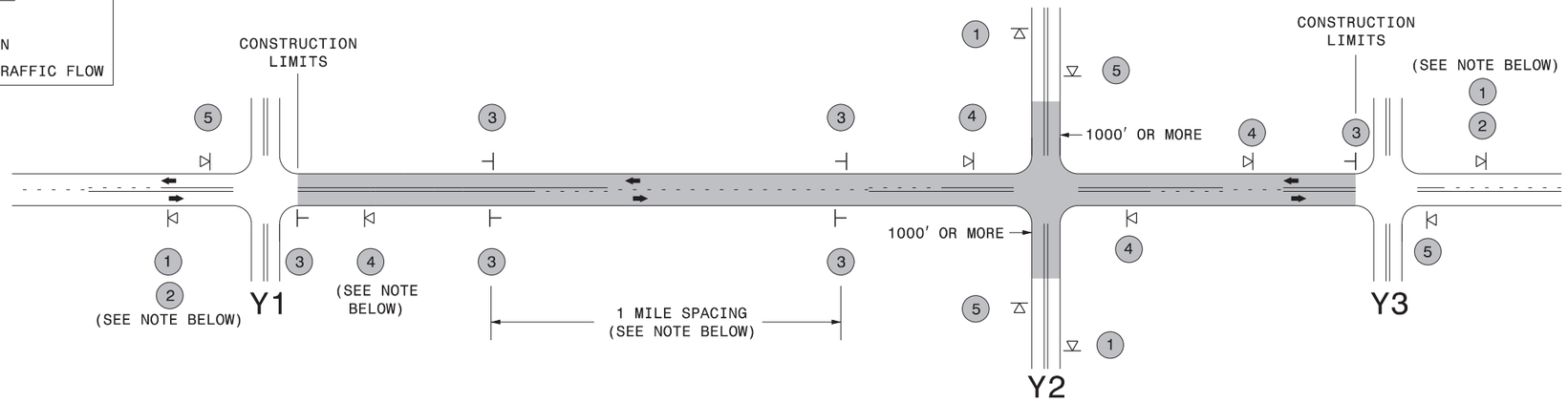
ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING

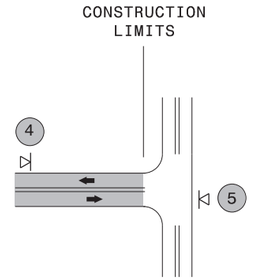
5/15/2017
S:\TMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn
User:keddis

PROJ. REFERENCE NO.	SHEET NO.
2021CPT.08.08.20761	TMP-2

SIGNING FOR ASPHALT SURFACE TREATMENT

LEGEND
- PORTABLE SIGN
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW





TEE INTERSECTION

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1. ROAD WORK AHEAD W20-1 48" X 48"
2. NEXT XX MILES W7-3aP 24" X 18"
   - PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.
   - SIGN #2 ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO THE NEAREST WHOLE NUMBER. DO NOT USE FRACTIONAL OR DECIMAL NUMBERS.
3. LOOSE GRAVEL W8-7 48" X 48"
   UNMARKED PAVEMENT SP 48" X 48"
   - ALTERNATE THE FOLLOWING TWO SIGNS:
   - STARTING WITH "LOOSE GRAVEL" (W8-7) FOLLOWED BY "UNMARKED PAVEMENT".
   - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER.
   - AT TEE INTERSECTIONS INSTALL INITIALLY 0.5 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.
4. ROAD UNDER CONST SP 13106 48" X 48"
   - 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.
5. END ROAD WORK 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.

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

MAPS LESS THAN 2 MILES

FOR AST RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, USE A STATIONARY "LOOSE GRAVEL" SIGN AT THE BEGINNING CONSTRUCTION LIMIT FOLLOWED BY AN "UNMARKED PAVEMENT" SIGN MIDWAY THROUGH AND AN "END ROAD WORK" SIGN AT THE END CONSTRUCTION LIMIT.

-Y- LINE SIGNING

STATIONARY SIGNING NOT REQUIRED FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, PORTABLE ADVANCE WARNING SIGNS SHALLE BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

PLACED 500' IN ADVANCE OF FLAGGER.

PLACED 250' IN ADVANCE OF FLAGGER.

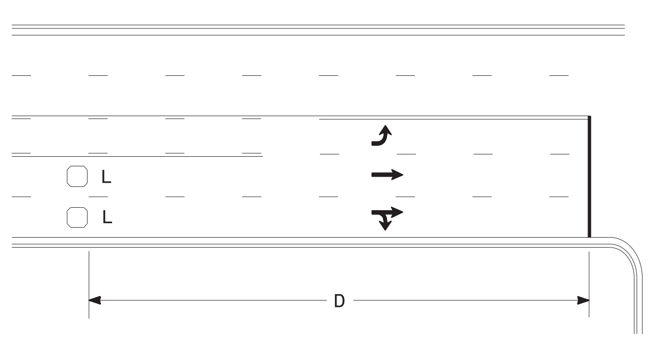
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ADVANCE WARNING SIGNS FOR 2-LANE ROADWAY ASPHALT SURFACE TREATMENT

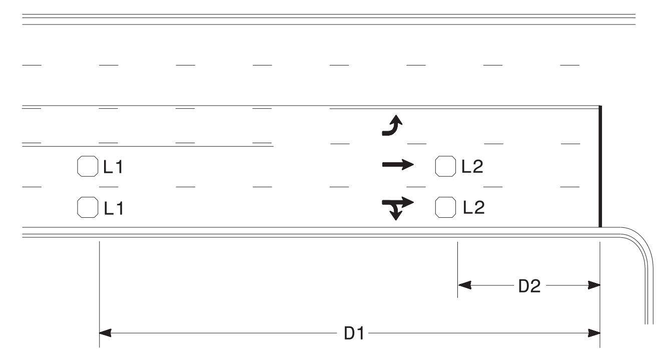
5/12/2017
S:\TMD\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln - AST.dgn
User:kedris

PROJECT REFERENCE NO.	SHEET NO.
2021CPT.08.08.20761	SIG-1

High Speed Detection
(≥40 mph)



OR



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

L = 6ft X 6ft
Wired separately

Volume Density Operation

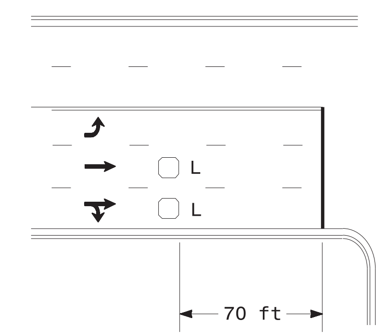
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series

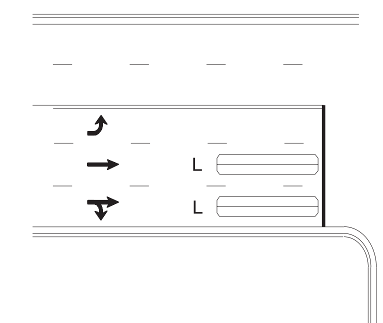
L2 = 6ft X 6ft
Wired in series

"Stretch" Operation

Low Speed Detection
(≤35 mph)



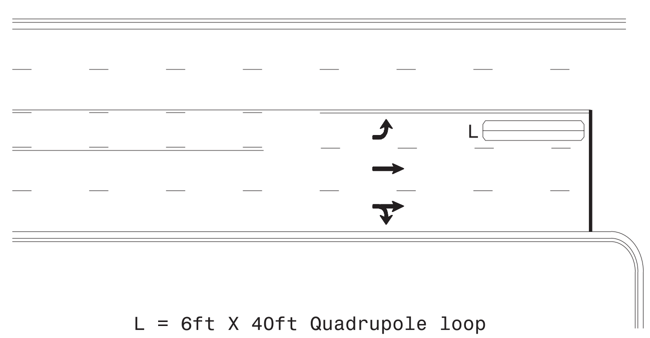
OR



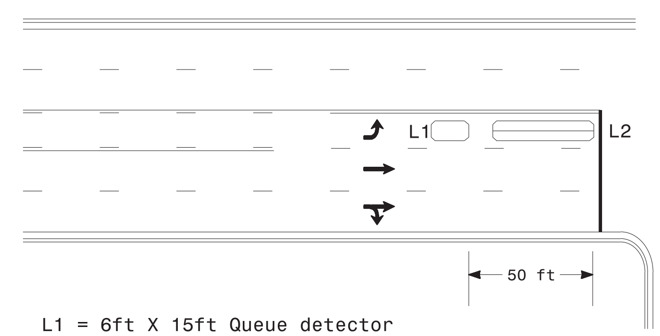
L = 6ft X 6ft
Wired in series

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

Left Turn Lane Detection



OR



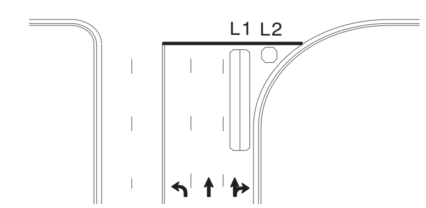
L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

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

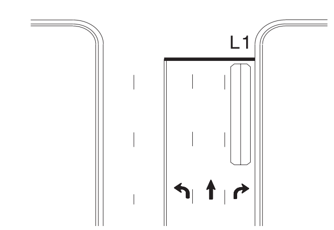
Queue Loop Detection

Right Turn Lane Detection

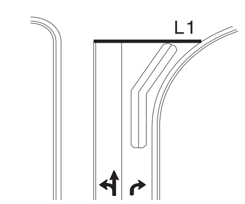


Shared Lane/
Wide Radius Turn

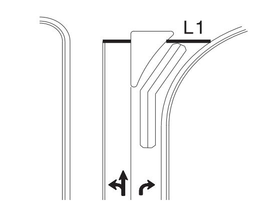
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

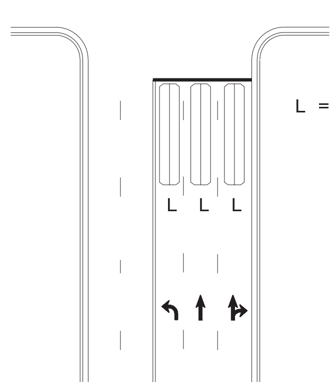


Wide Radius Turn



Channelized Turn

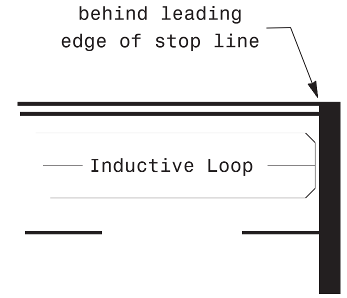
Side Street Detection



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:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

Typical Signal Loop Locations

PLAN DATE: September 2020	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:

SCALE
N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 029904
ENGINEER
JASON P. GALLOWAY
9/8/2020
DATE

SIG. INVENTORY NO.

08-SEP-2020 11:54
S:\ITS&SU\ITS Signals\Signal Design Section\Eastern Region\Loop Typical\looptypical2015.dgn
jgalloway