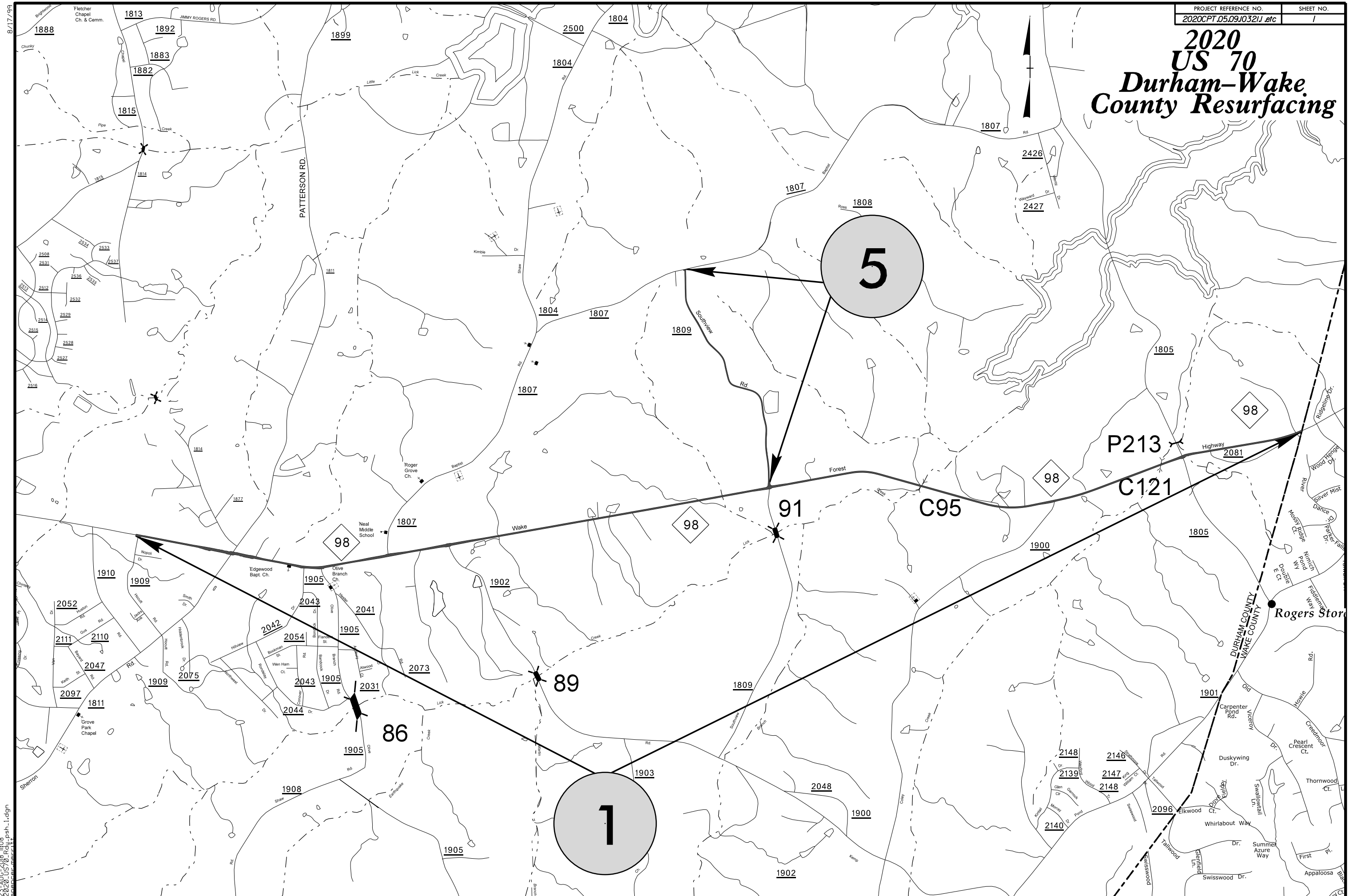
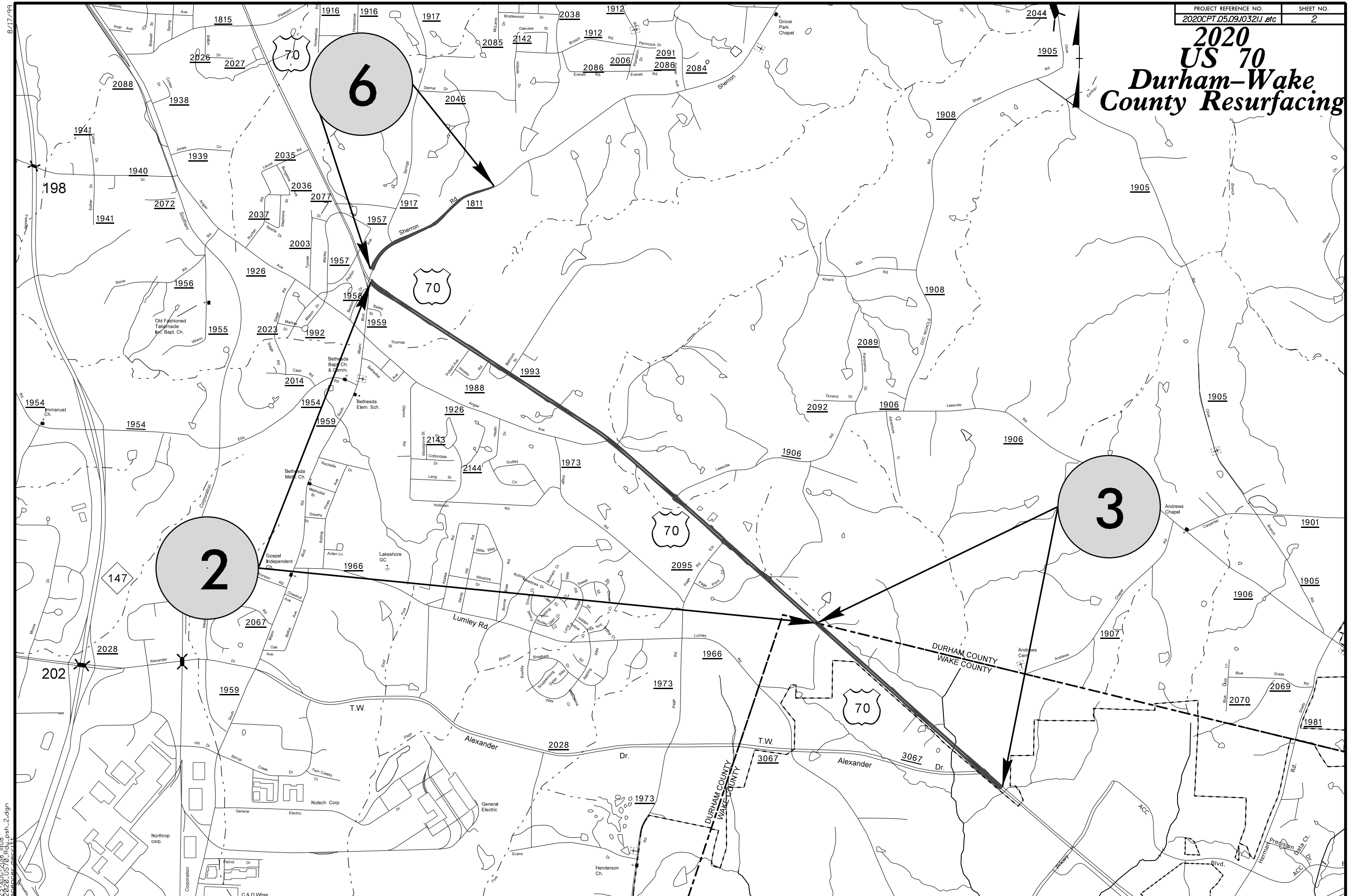


2020 US 70 Durham-Wake County Resurfacing

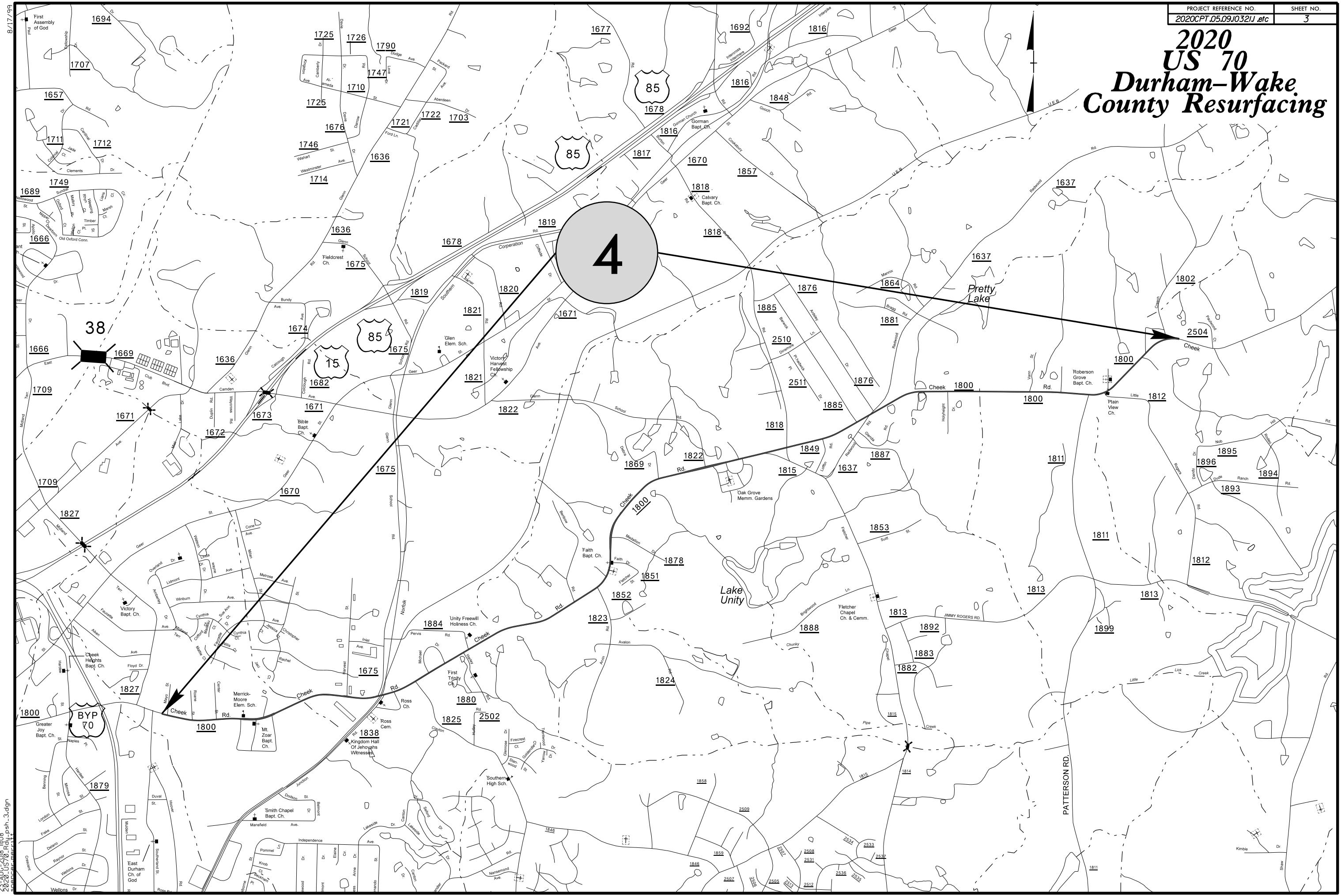


8/17/99
23-AUG-2018 11:08
2020_US70_Rd4_psh-1.dgn

2020 US 70 Durham-Wake County Resurfacing



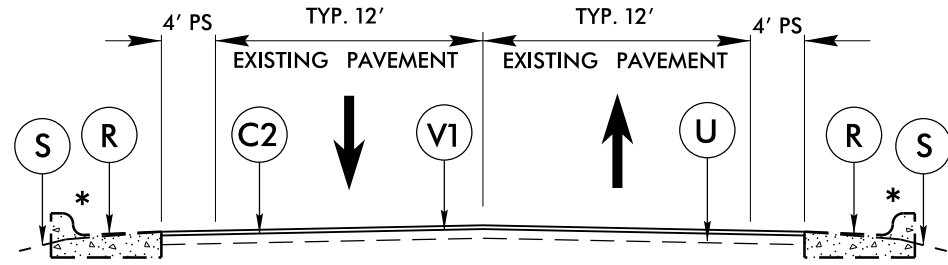
2020 US 70 Durham-Wake County Resurfacing



6/2/99

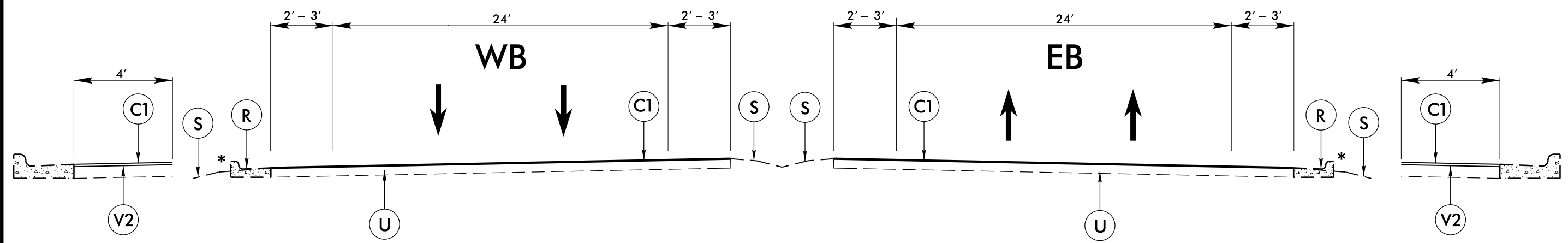
PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OR 168 LBS. PER SQ. YD.	S	PROP. SHOULDER GRADING WITH AGGREGATE SHOULDER BORROW, AS DIRECTED BY THE ENGINEER
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OR 168 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OR 285 LBS. PER SQ. YD.	V1	MILL ASPHALT PAVEMENT, 1.5" DEPTH
R	EXISTING CURB AND GUTTER	V2	MILL ASPHALT PAVEMENT, 0" TO 1.5" DEPTH

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



TYPICAL SECTION NO. 1
MILL AND RESURFACE S9.5C

MAP NO. 1 (NC 98)
FROM SR 1909 (HOCUTT RD) TO WAKE COUNTY LINE



TYPICAL SECTION NO. 2
RESURFACE S9.5B
MAP NO. 2 (US 70)

-US 70 FROM SR 1811 (SHERRON RD) TO WAKE COUNTY LINE

23-AUG-2018 11:08
2020_US70_Rd1_typ.dgn
s:\m\m\11

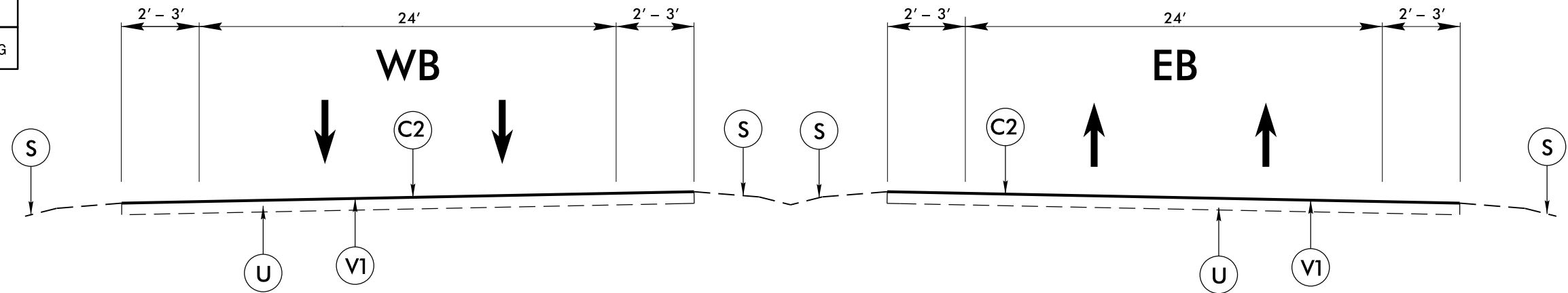
6/2/99

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	1½" S9.5C
D1	2½" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	1½" MILLING
V2	0-1½" MILLING

2020 US 70 DURHAM-WAKE COUNTY RESURFACING

PROJECT REFERENCE NO. 2020CPT.05.09.10321J, etc.	SHEET NO. 5
<small>Prepared in the Office of:</small>  <small>NC FIRM LICENSE No P-0339 504 Meadows Drive Wilmington, NC 27276 (919) 732-3883 • (919) 732-6676 (FAX)</small>	

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

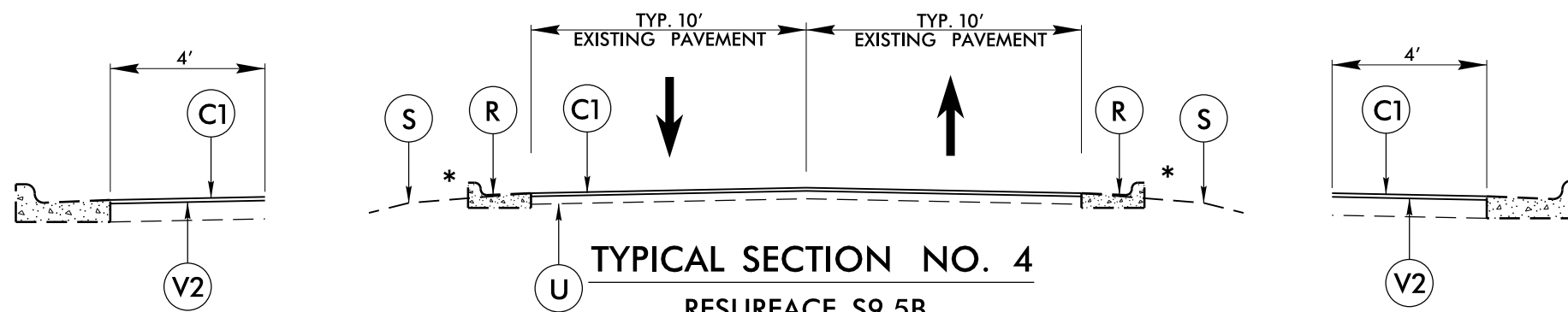


TYPICAL SECTION NO. 3

MILL AND RESURFACE S9.5C

MAP NO. 3 (US 70)

-US 70 FROM DURHAM COUNTY LINE TO 650' PAST SR 3067 (T.W. ALEXANDER DR)



TYPICAL SECTION NO. 4

RESURFACE S9.5B

MAP NO. 4 (CHEEK RD)

-MAP NO. 4 From WIDTH CHANGE AFTER US 70 BYPASS to SR 1802 (CREECH RD)

23-AUG-2018 11:08
2020_US70_Rd1_tjpe2.dgn

6/2/99

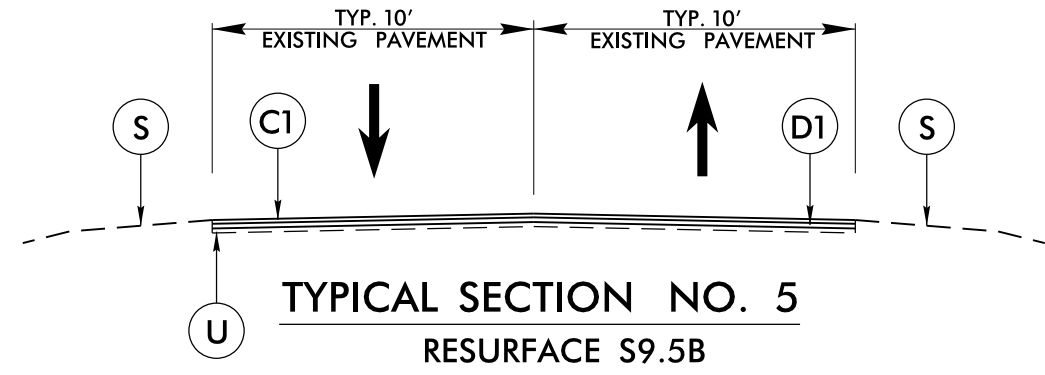
PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	1½" S9.5C
D1	2½" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	1½" MILLING
V2	0-1½" MILLING

2020 US 70 DURHAM-WAKE COUNTY RESURFACING

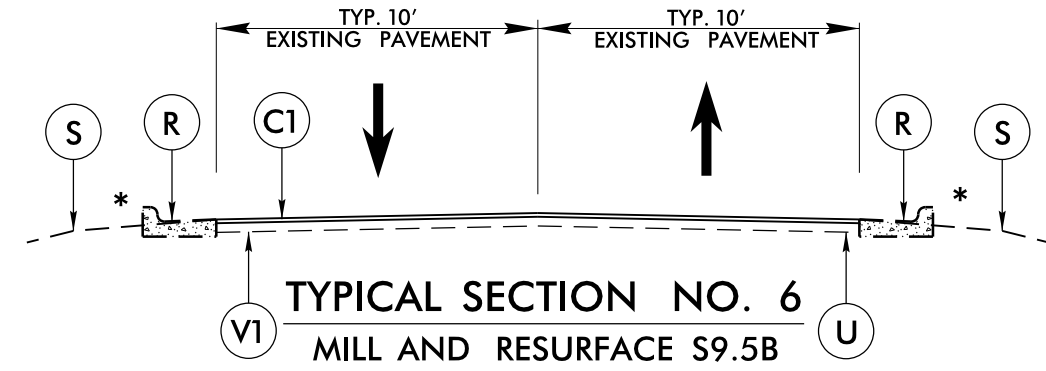
PROJECT REFERENCE NO.	SHEET NO.
2020CPT.05.09.10321J, etc.	6

Prepared in the Office of:  NC FIRM LICENSE No P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883 • (919) 732-6676 (FAX)

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



MAP NO. 5 (SOUTHVIEW RD)
-MAP NO. 5 FROM NC 98 TO SR 1807 (BAPTIST RD)

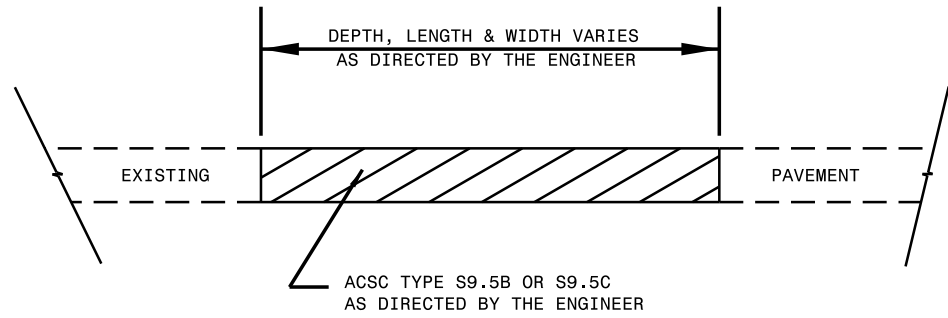


MAP NO. 6 (SHERRON RD)
-FROM US 70 TO PAVEMENT JOINT AFTER ASHTON GLEN

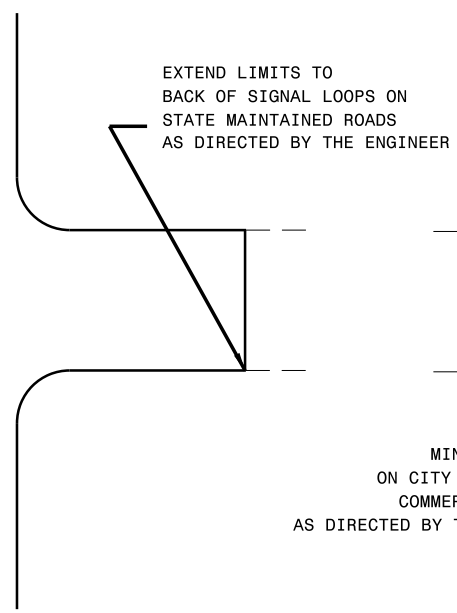
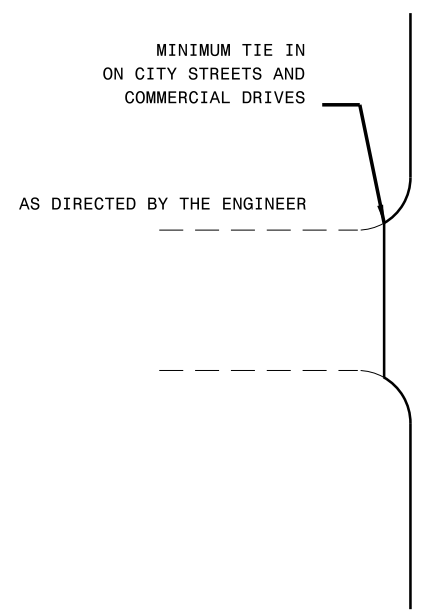
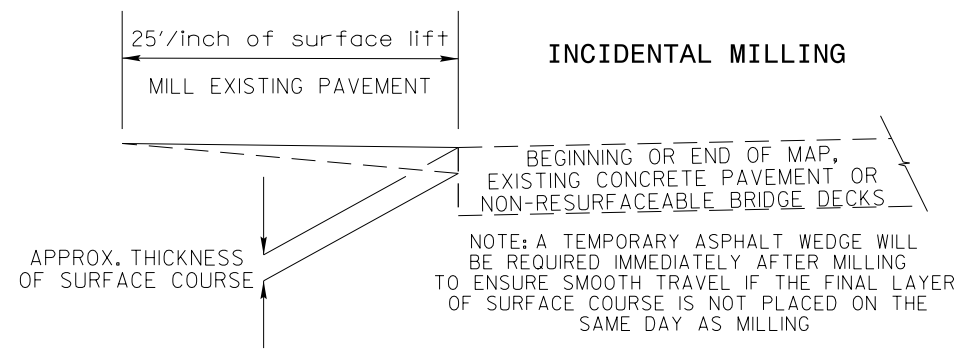
23-AUG-2018 11:08
2020_US70_Rd4_Typ3.dgn
s:\cadd\m\2020\20200814\2020_US70_Rd4_Typ3.dgn

6/2/99

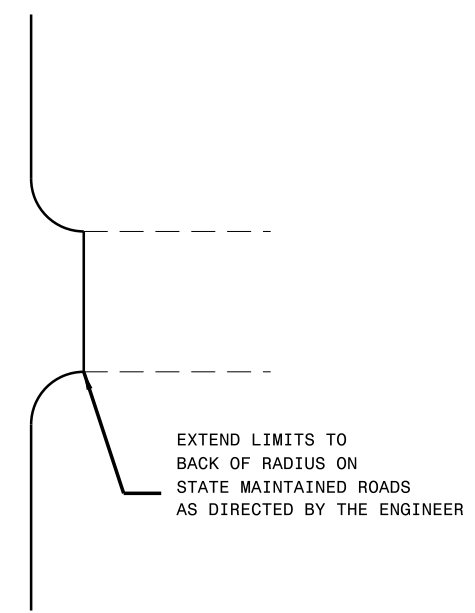
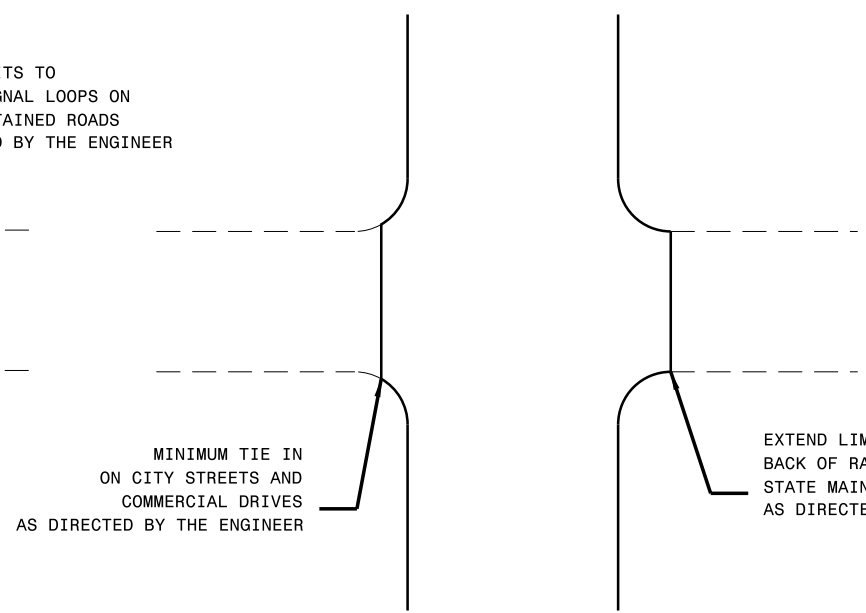
PAVEMENT SCHEDULE	
C1	1 1/2" S9.5B
C2	1 1/2" S9.5C
D1	2 1/2" I19.0C
R	EX C & G
S	SHLD GRADING
U	EXIST. PAVEMENT
V1	1 1/2" MILLING
V2	0-1 1/2" MILLING



PATCHING EXISTING PAVEMENT
MILLING TO BE PERFORMED PRIOR TO PATCHING



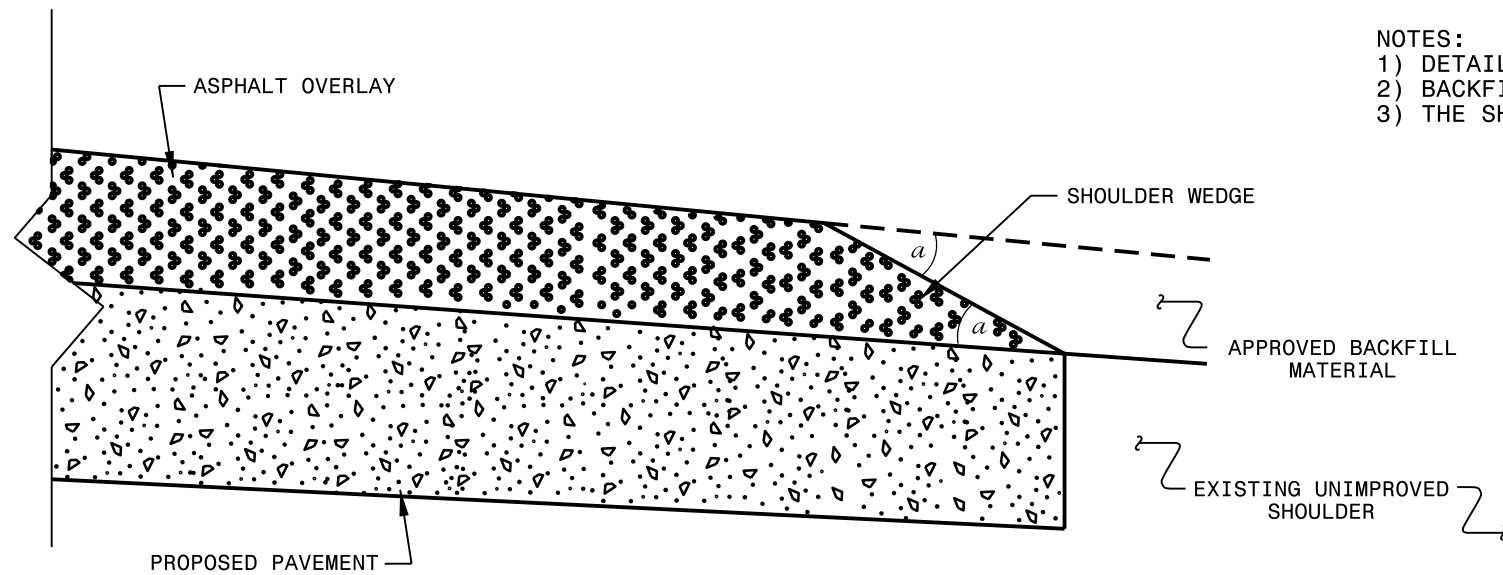
DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES



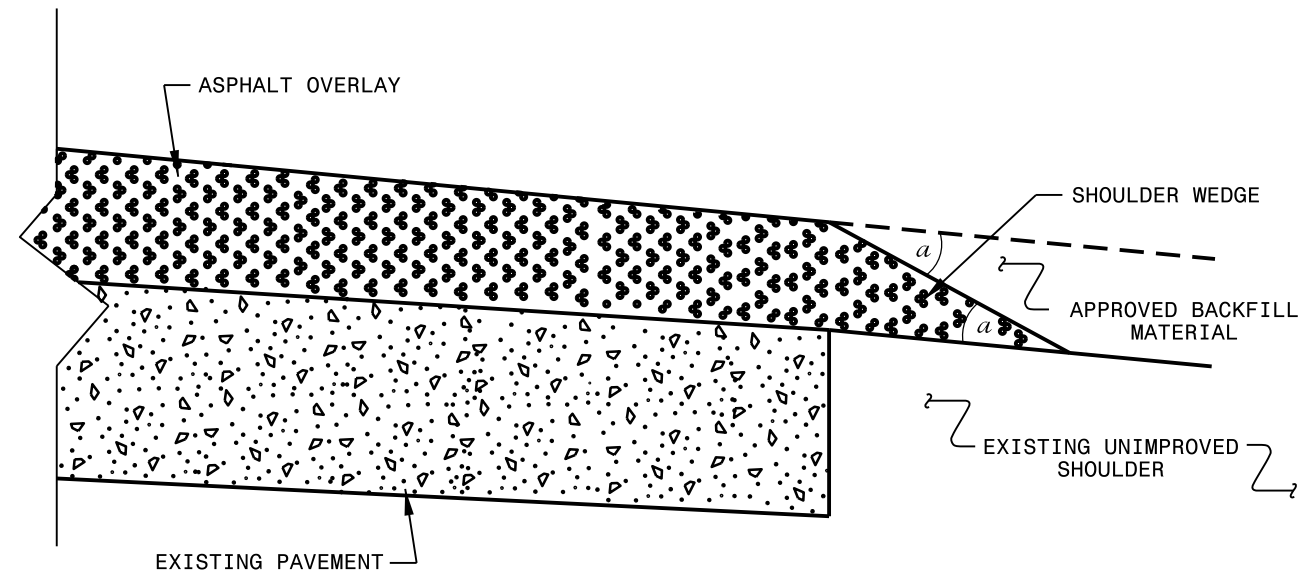
DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

23-AUG-2018 11:08
2020_US70_Rd4_typ_4_det.dgn
sencen.merrett

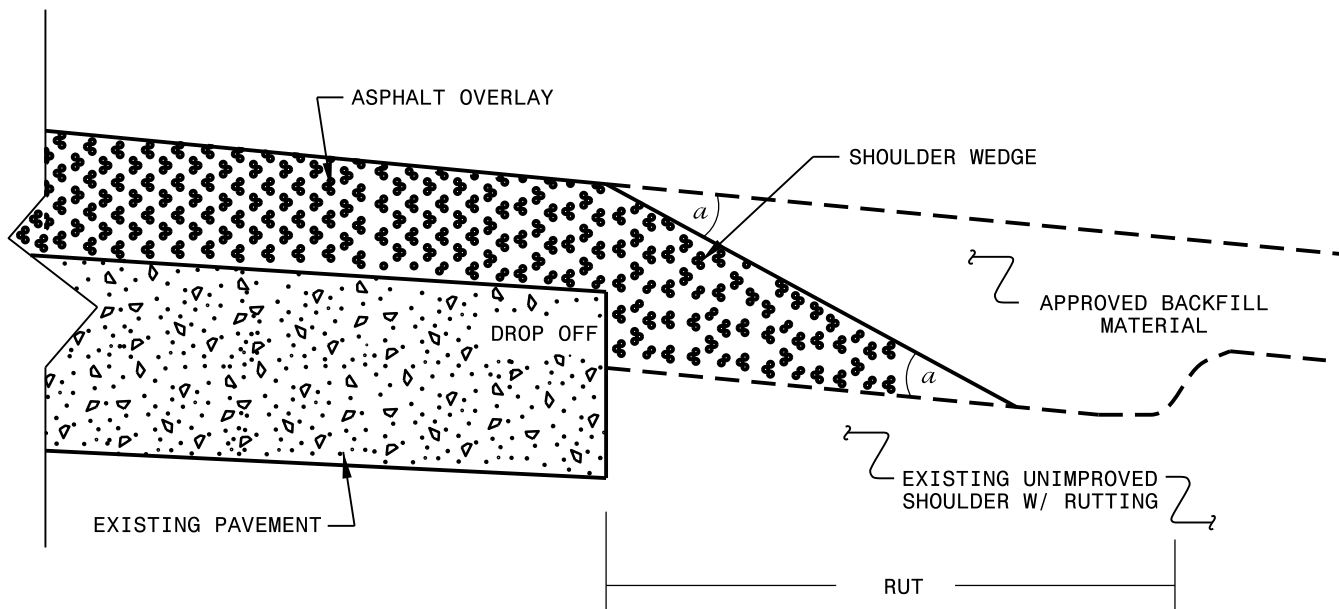
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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: 10/16/12
CHECKED BY:	DATE:
FILE SPEC.: susr/details/stand/shoulderwedgedetail.dgn	

SYSTEMS DESIGN
 USER NAME

PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.05.09.10321.1, etc.	9	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH		WIDTH		0106000000-E	0264000000-E	1220000000-E	1260000000-E	1297000000-E	1308000000-E	1330000000-E	1503000000-E	1519000000-E	1523000000-E	1575000000-E	1704000000-E	2830000000-N	5255000000-N	6000000000-E	6071010000-E	6084000000-E	7444000000-E			
									BORROW	SHOULDER GRADING	INCIDENTAL STONE BASE	AGGREGATE SHOULDER BORROW	1½" MILLING	0" TO 1.5" MILLING	INCIDENTAL MILLING	INTERMEDIATE COURSE, I19.0C	SURFACE COURSE, S9.5B	SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	ADJUST MANHOLES	PORTABLE LIGHTING	TEMPORARY SILT FENCE	WATTLE	SEED & MULCHING	INDUCTIVE LOOP SAWCUT							
									MI	FT	CY	SMI	TONS	TON	SY	SY	SY	TONS	TONS	TONS	TON	TONS	EA	LS	LF	LF	AC	LF					
2020CPT.05.09.10321.1	Durham	1	NC 98	SR 1909 (HOCUTT RD) - WAKE COUNTY LINE	1	2	NO	NO	5.29	35	130	10.40	260	721	108,621	420	2,362			9,615	577	400				189	945	1.89	460				
TOTAL FOR MAP NO. 1									5.29		130	10.40	260	721	108,621	420	2,362			9,615	577	400				189	945	1.89	460				
2020CPT.05.09.10321.1	Durham	2	US 70 (DURHAM CO.)	SR 1811 (SHERRON RD.) - WAKE COUNTY LINE	2	4	NO	NO	2.56	66	50	4.82	124	368		342	2,410		8,603		576	855	2	1.00	72	190	0.72	2,150					
TOTAL FOR MAP NO. 2									2.56		50	4.82	124	368		342	2,410		8,603		576	855	2	1.00	72	190	0.72	2,150					
TOTAL FOR PROJ NO. 2020CPT.05.09.10321.1									7.85		180	15.22	384	1,089	108,621	762	4,772		8,603	9,615	1,153	1,255	2	1.00	261	1,135	2.61	2,610					
2020CPT.05.09.10921.1	Wake	3	US 70 (WAKE CO.)	DURHAM COUNTY LINE - 650 FT PAST NOSE OF ISLAND ON SR 3067 (T.W. ALEXANDER)	3	4	NO	NO	1.12	70	22	2.24	56	166	45,995					4,064	244	650			1.00	33	90	0.33	1,330				
TOTAL FOR MAP NO. 3									1.12		22	2.24	56	166	45,995				4,064	244	650			1.00	33	90	0.33	1,330					
TOTAL FOR PROJ NO. 2020CPT.05.09.10921.1									1.12		22	2.24	56	166	45,995				4,064	244	650			1.00	33	90	0.33	1,330					
2020CPT.05.09.20321.1	Durham	4	SR 1800 (CHEEK RD)	WIDTH CHANGE - SR 1802 (CREECH RD)	4	2	NO	NO	5.13	23	352	10.06	251	279		480			6,029		404	350				512	1,280	5.12					
TOTAL FOR MAP NO. 4									5.13		352	10.06	251	279		480			6,029		404	350						512	1,280	5.12			
2020CPT.05.09.20321.1	Durham	5	SR 1809 (SOUTHVIEW RD)	NC 98 - SR 1807 (BAPTIST RD)	5	2	NO	NO	1.12	20	56	2.24	56	103				1,987	1,145		172	420				81	210	0.81					
TOTAL FOR MAP NO. 5									1.12		56	2.24	56	103				1,987	1,145		172	420						81	210	0.81			
2020CPT.05.09.20321.1	Durham	6	SR 1811 (SHERRON RD)	US 70 - PAVEMENT JOINT	6	2	NO	NO	0.67	54					21,226				1,843		123	50							790				
TOTAL FOR MAP NO. 6									0.67						21,226			1,843		123	50										790		
TOTAL FOR PROJ NO. 2020CPT.05.09.20321.1									6.92		408	12.30	307	382	21,226	480		1,987	9,017		699	820								593	1,490	5.93	790
GRAND TOTAL									15.89		610	29.76	747	1,637	175,842	1,242	4,772	1,987	17,620	13,679	2,096	2,725	2	2.00	887	2,715	8.87	4,730					

PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.05.09.10321.1, etc.	10	

THERMOPLASTIC AND PAINT QUANTITIES

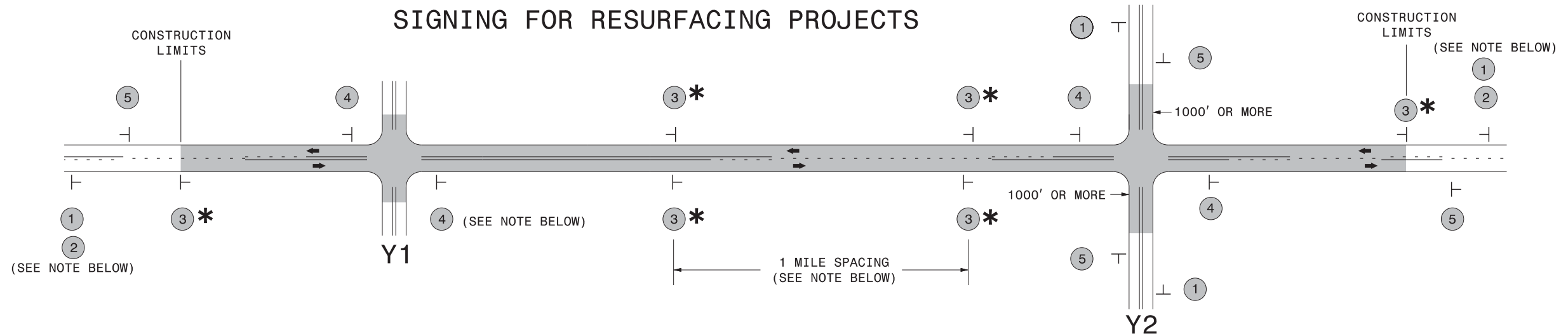
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LENGTH		WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	LAW ENFORCEMENT	4685000000-E		4686000000-E		4695000000-E		4705000000-E		4710000000-E		4721000000-E					4725000000-E					4810000000-E			
							MI	FT				SF	LS	HR	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
2020CPT.05.09.10321.1	Durham	1	NC 98	SR 1909 (HOCUTT RD) - WAKE COUNTY LINE	1	2	5.29	35	592	0.17		52,873		48,671	4,450	631				301	16	12					17	17	3			48,671	4,450		
TOTAL FOR MAP NO. 1							5.29		592	0.17		52,873		48,671	4,450	631				301	16	12					17	17	3			48,671	4,450		
2020CPT.05.09.10321.1	Durham	2	US 70 (DURHAM CO.)	SR 1811 (SHERRON RD.) - WAKE COUNTY LINE	2	4	2.56	66	287	0.17	40	23,540	25,685		10,966					303							30	23	20	8	2		10,966		
TOTAL FOR MAP NO. 2							2.56		287	0.17	40	23,540	25,685		10,966						303							30	23	20	8	2		10,966	
TOTAL FOR PROJ NO. 2020CPT.05.09.10321.1							7.85		879	0.33	40	76,413	25,685		48,671	15,416	631				604	16	12					47	40	23	8	2	48,671	15,416	
												102,098		64,087		631					28						120					64,087			
2020CPT.05.09.10921.1	Wake	3	US 70 (WAKE CO.)	DURHAM COUNTY LINE - 650 FT PAST NOSE OF ISLAND ON SR 3067 (T.W. ALEXANDER)	3	4	1.12	70	125	0.17	120	11,350	11,085		5,018					94							16	6	10				5,018		
TOTAL FOR MAP NO. 3							1.12		125	0.17	120	11,350	11,085		5,018						94							16	6	10				5,018	
TOTAL FOR PROJ NO. 2020CPT.05.09.10921.1							1.12		125	0.17	120	11,350	11,085		5,018						94							16	6	10				5,018	
												22,435		5,018													32					5,018			
2020CPT.05.09.20321.1	Durham	4	SR 1800 (CHEEK RD)	WIDTH CHANGE - SR 1802 (CREECH RD)	4	2	5.13	23	575	0.17		44,804		54,714	7,181	427			100	156		12	4	8	10		10					54,714	7,181		
TOTAL FOR MAP NO. 4							5.13		575	0.17		44,804		54,714	7,181	427				100	156		12	4	8	10		10					54,714	7,181	
2020CPT.05.09.20321.1	Durham	5	SR 1809 (SOUTHVIEW RD)	NC 98 - SR 1807 (BAPTIST RD)	5	2	1.12	20	125	0.17		11,448		11,496																					
TOTAL FOR MAP NO. 5							1.12		125	0.17		11,448		11,496																					
2020CPT.05.09.20321.1	Durham	6	SR 1811 (SHERRON RD)	US 70 - PAVEMENT JOINT	6	2	0.67	54		0.17		3,729	8,603	1,973	116	200											22	5	10		3	8,603	1,973		
TOTAL FOR MAP NO. 6							0.67			0		3,729	8,603	1,973	116	200													22	5	10		3	8,603	1,973
TOTAL FOR PROJ NO. 2020CPT.05.09.20321.1							6.92		700	1		59,981	74,813	9,154	543	200	100	245				12	4	8	10				32	5	10		3	63,317	9,154
												59,981		83,967		743					34							50					72,471		
GRAND TOTAL							15.89		1,704	1	160	147,744	36,770	123,484	29,588	1,174	200	100	943	16	24	4	8	10				95	51	43	8	5	111,988	29,588	
												184,514		153,072		1,374				62							202					141,576			

PROJECT NO.	SHEET NO.	TOTAL NO.
20CPT.05.09.10321.1, e	11	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LENGTH		483000000-E		483500000-E				484000000-N				484500000-N		490500000-N
							MI	FT	16" WHITE PAINT	24" WHITE PAINT	PAINT MSG ONLY	PAINT MSG SCHOOL	PAINT MSG AHEAD	PAINT MSG RXR	PAINT LT ARROW	PAINT RT ARROW	PAINT STR ARROW	PAINT MERGE ARROW	SNOW PLOWABLE MARKERS		
2020CPT.05.09.10321.1	Durham	1	NC 98	SR 1909 (HOCUTT RD) - WAKE COUNTY LINE	1	2	5.29	35		301	16	12			17	17	3			660	
TOTAL FOR MAP NO. 1							5.29			301	16	12			17	17	3			660	
2020CPT.05.09.10321.1	Durham	2	US 70 (DURHAM CO.)	SR 1811 (SHERRON RD.) - WAKE COUNTY LINE	2	4	2.56	66		303					30	23	20	2		900	
TOTAL FOR MAP NO. 2							2.56			303					30	23	20	2		900	
TOTAL FOR PROJ NO. 2020CPT.05.09.10321.1							7.85			604	16	12			47	40	23	2		1,560	
										28				112							
2020CPT.05.09.10921.1	Wake	3	US 70 (WAKE CO.)	DURHAM COUNTY LINE - 650 FT PAST NOSE OF ISLAND ON SR 3067 (T.W. ALEXANDER)	3	4	1.12	70		94					16	6	10			90	
TOTAL FOR MAP NO. 3							1.12			94					16	6	10			90	
TOTAL FOR PROJ NO. 2020CPT.05.09.10921.1							1.12			94					16	6	10			90	
										32											
2020CPT.05.09.20321.1	Durham	4	SR 1800 (CHEEK RD)	WIDTH CHANGE - SR 1802 (CREECH RD)	4	2	5.13	23	100.00	306		12	10	4	10						
TOTAL FOR MAP NO. 4							5.13		100	306		12	10	4	10						
2020CPT.05.09.20321.1	Durham	5	SR 1809 (SOUTHVIEW RD)	NC 98 - SR 1807 (BAPTIST RD)	5	2	1.12	20													
TOTAL FOR MAP NO. 5							1.12														
2020CPT.05.09.20321.1	Durham	6	SR 1811 (SHERRON RD)	US 70 - PAVEMENT JOINT	6	2	0.67	54		89					22	5	10	3			
TOTAL FOR MAP NO. 6							0.67			89					22	5	10	3			
TOTAL FOR PROJ NO. 2020CPT.05.09.20321.1							6.92		100	395		12	10	4	32	5	10	3			
										26				50							
GRAND TOTAL							15.89		100	1,093	16	24	10	4	95	51	43	5		1,650	
										54				194							

SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

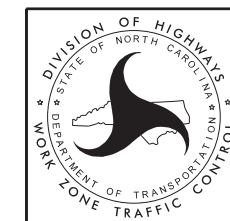
MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	<p>PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.</p>	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> LESS THAN 1000' OF RESURFACING ALONG -Y- LINE SUBDIVISION ROADS 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;"> <small>W20-1 48" X 48"</small> </div> <div style="text-align: center;"> <small>W20-7 A 48" X 48"</small> </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	2	<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>	
	3 *	<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>	
	4	<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>	
5	<p>PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.</p>		

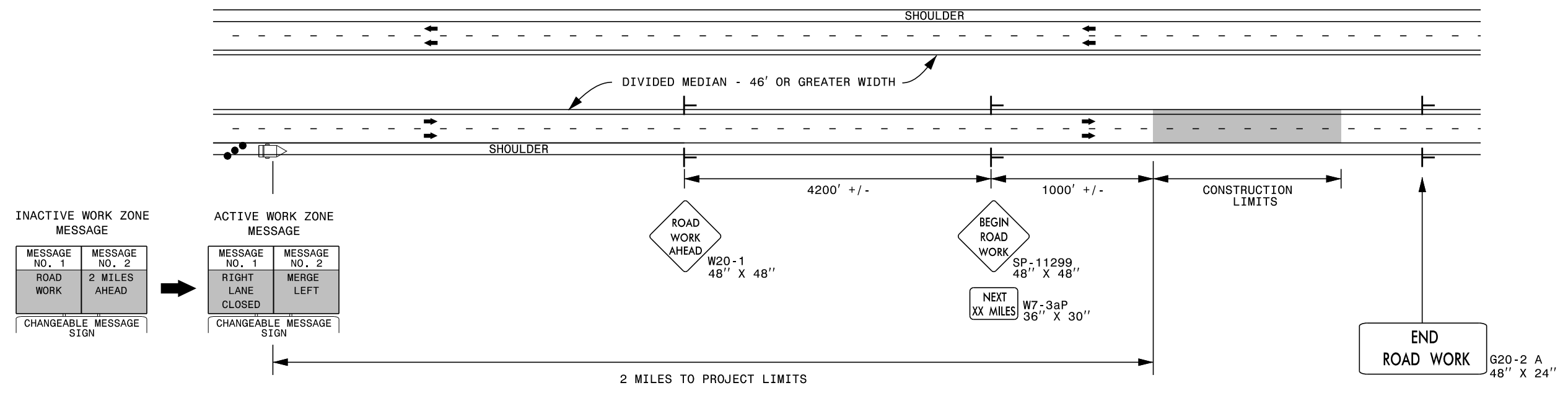
* SIGNING FOR ASPHALT SURFACE TREATMENTS (ONLY)

SUBSTITUTE LOW/SOFT SHOULDER SIGNS BY ALTERNATING THE FOLLOWING TWO SIGNS: STARTING WITH "UNMARKED PAVEMENT AHEAD" (SP 06026) FOLLOWED BY "LOOSE GRAVEL" (W8-7).

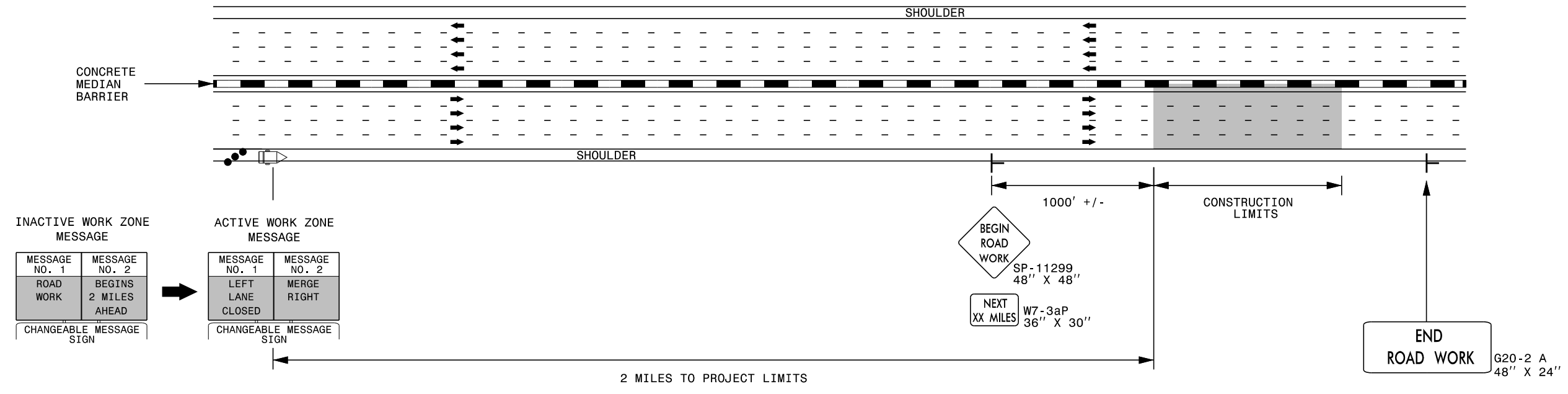


**RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS**

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

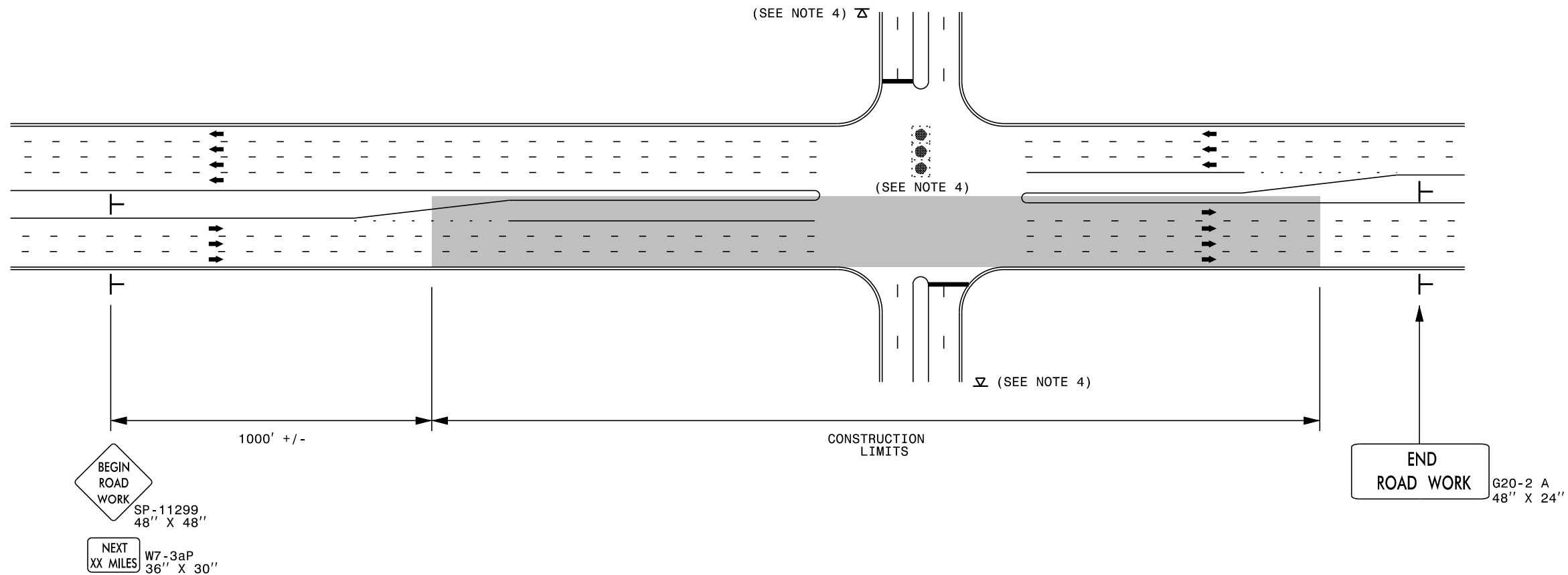
- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

10/3/2013 S:\T\U\W\ZTC\Resurfacing\2013\Documents\New_Procedures_05_09_2013\Resurfacing_AdvWarn_HSpd.dgn User:frmgarratt

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.

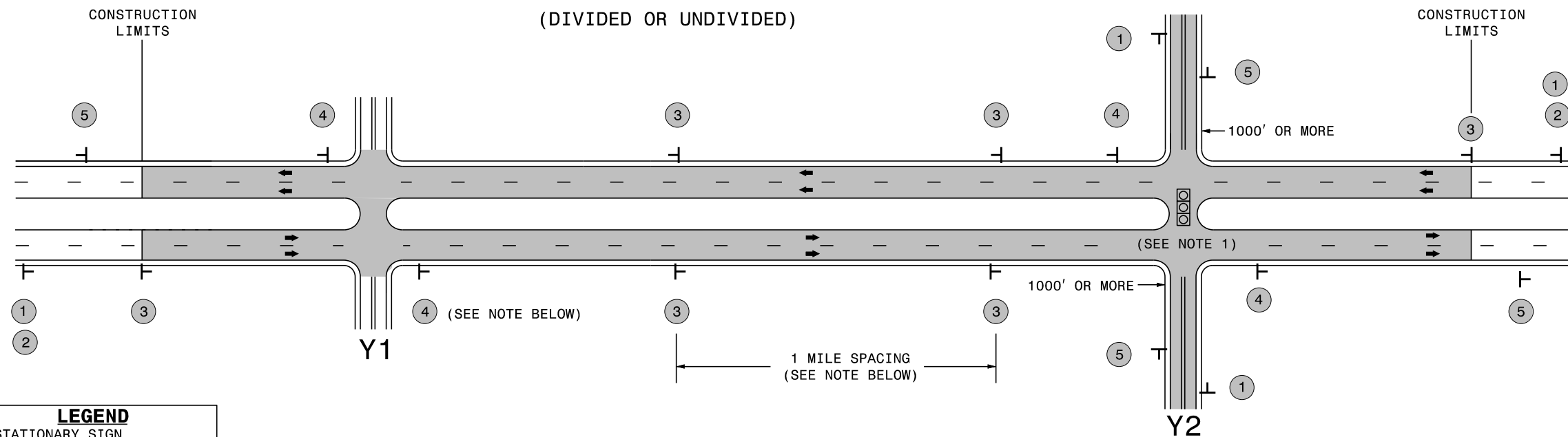
LEGEND

- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**

SIGNING FOR RURAL AND SUBURBAN MULTI-LANE ROADWAYS WITH SHOULDER SECTIONS (DIVIDED OR UNDIVIDED)



LEGEND
 T 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" NEXT W7-3aP 24" X 18" XX MILES	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 RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	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
	3	 SP 13107 48" X 48"	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.	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.
	4	 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.	 W20-1 48" X 48" W20-7 A 48" X 48" PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.
5	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	NOTES: 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.	



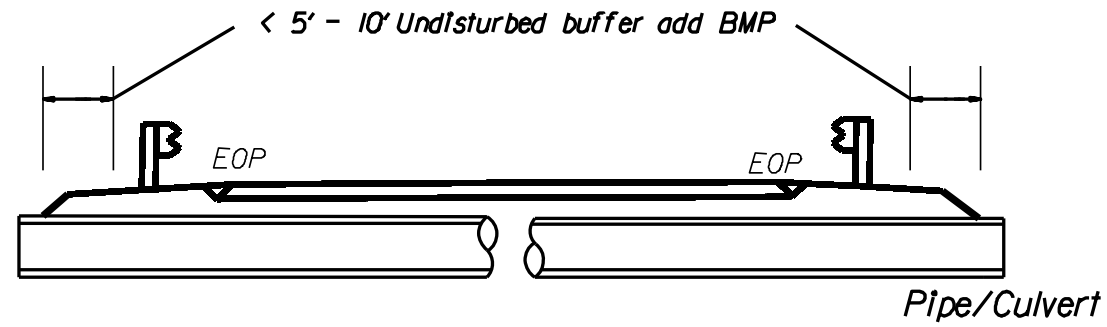
RESURFACING
 ADVANCE WARNING SIGNS
 FOR RURAL AND SUBURBAN
 MULTI-LANE ROADWAYS
 W/ SHOULDER SECTIONS

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

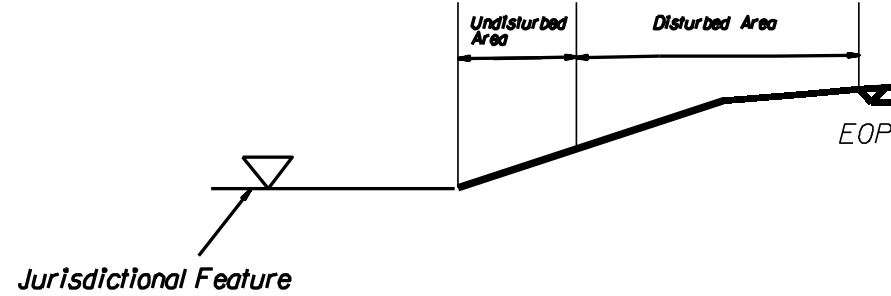
BMP Options: Wattle, Silt Fence, or Hardened Aggregate.

EROSION CONTROL DETAIL

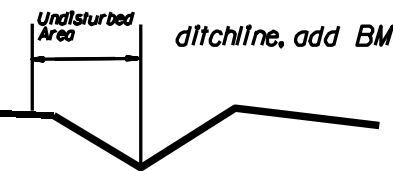
PROJECT REFERENCE NO. 2020CPT.05.09.10321.1	SHEET NO. EC-1
RDW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



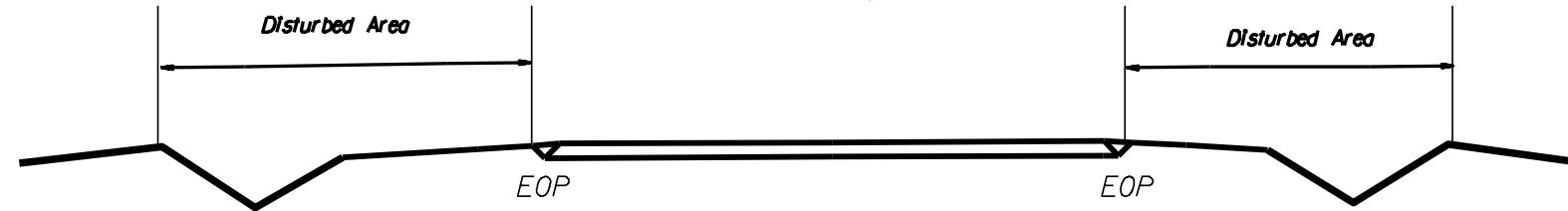
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



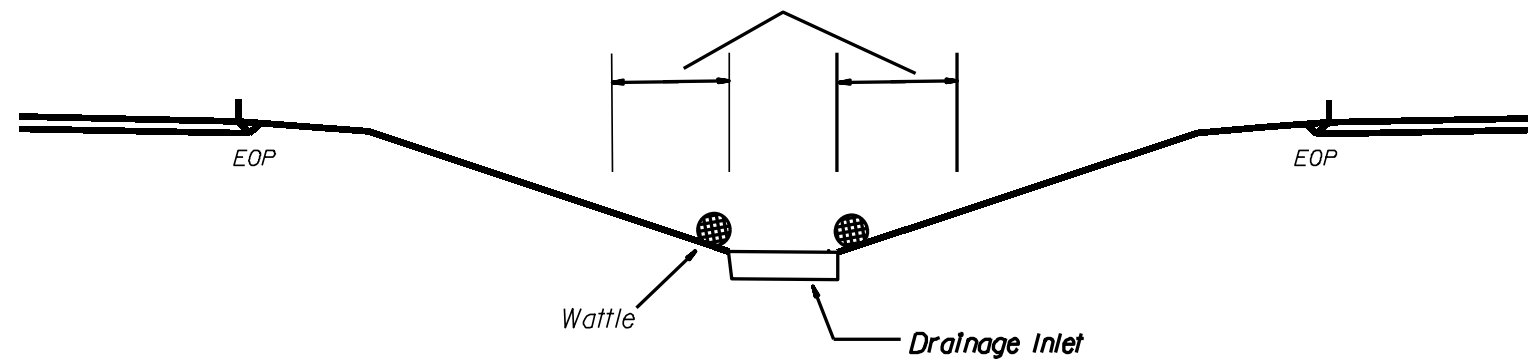
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or front slopes and/or ditchline and/or back slopes are disturbed

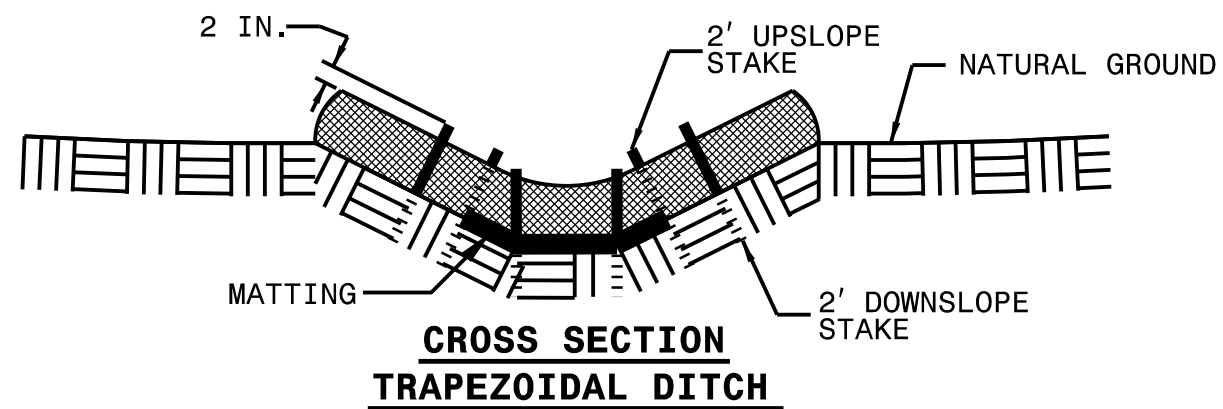
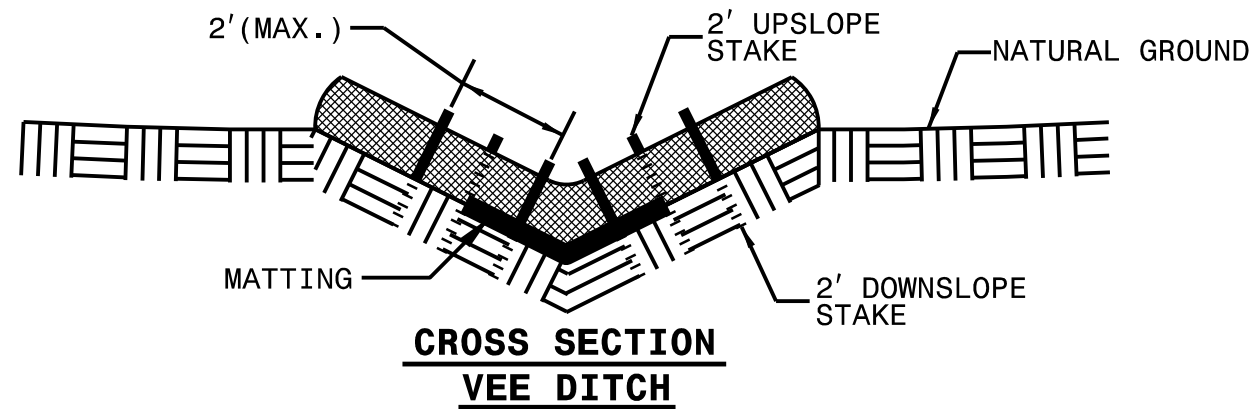
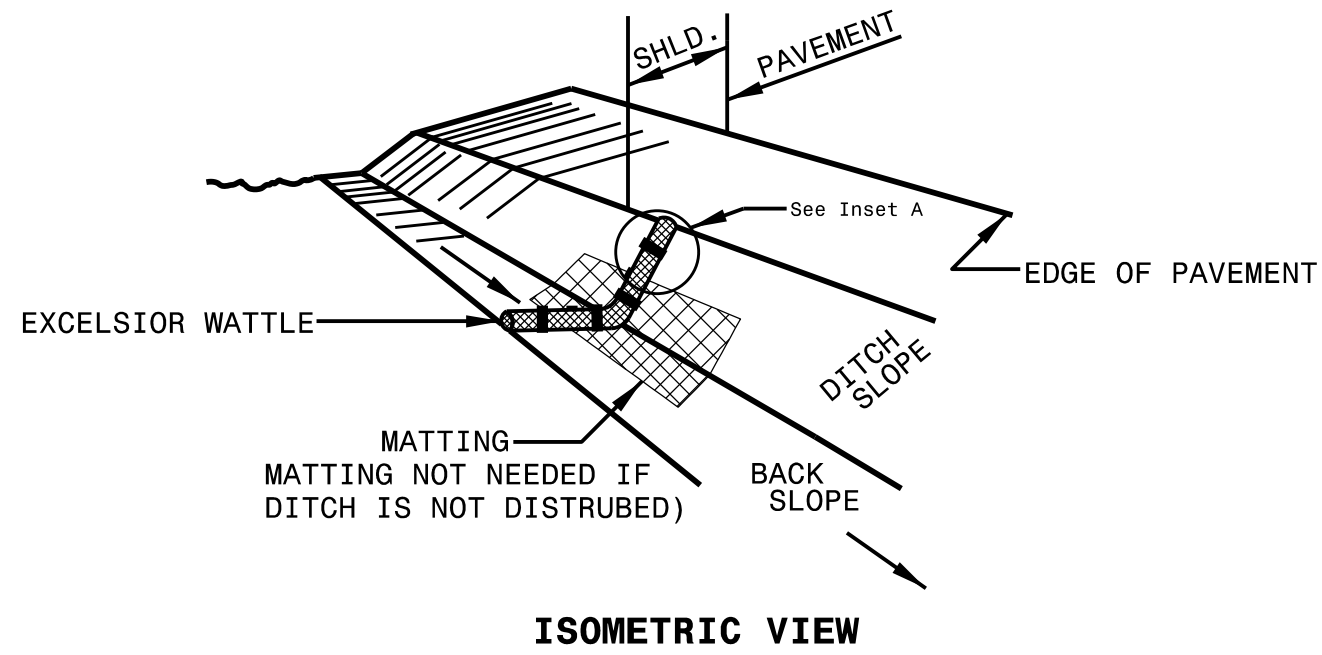


< 5' - 10' Undisturbed buffer from Inlet, add wattle



NOT TO SCALE

WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

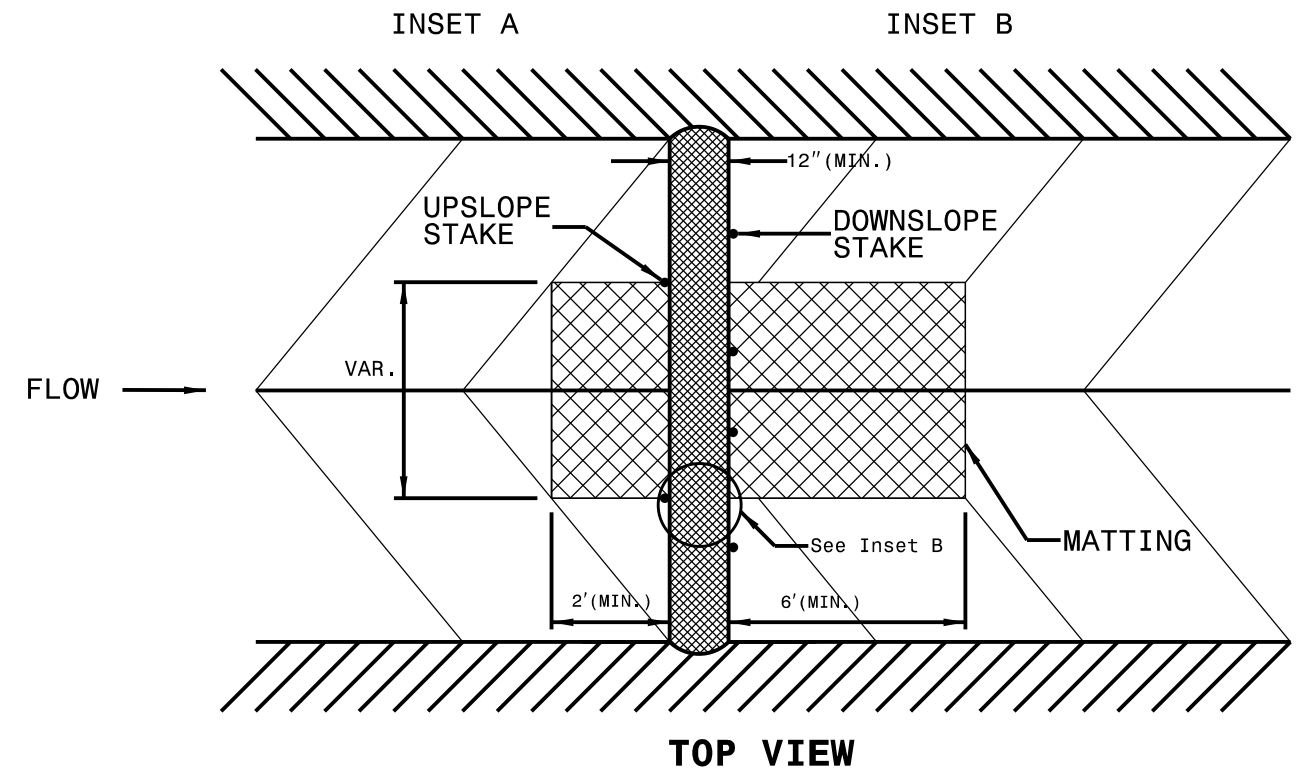
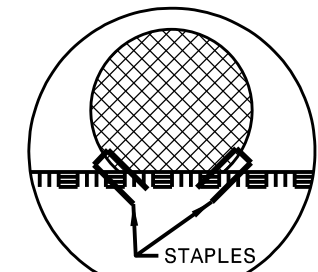
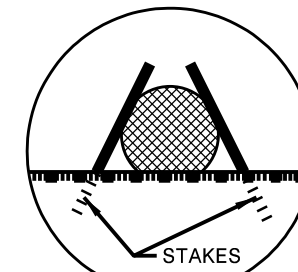
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.

IF DITCH WILL BE DISTURBED, INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

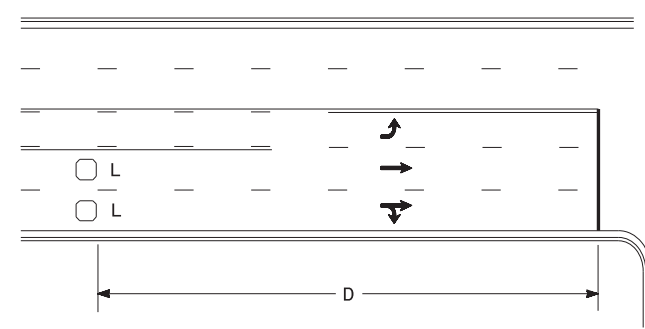


**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

High Speed Detection (≥40 mph)

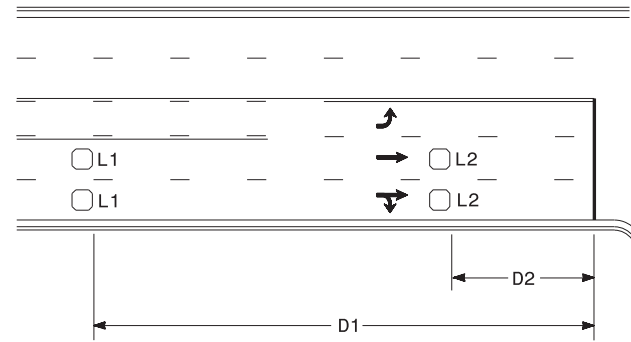


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

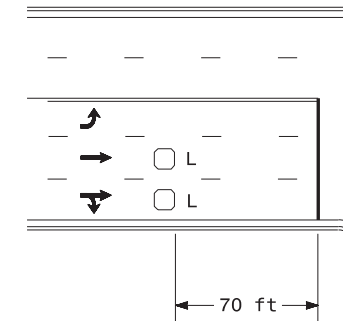


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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

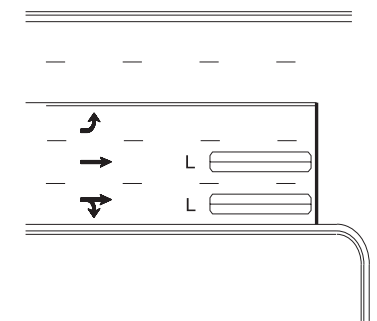
"Stretch" Operation

Low Speed Detection (≤35 mph)



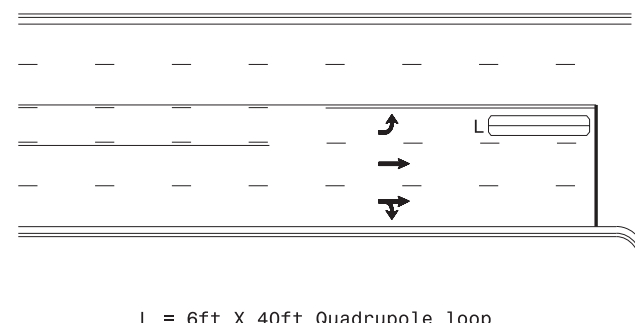
L = 6ft X 6ft
Wired in series

OR



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

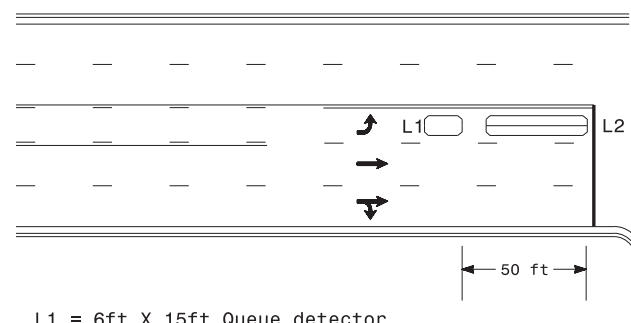
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

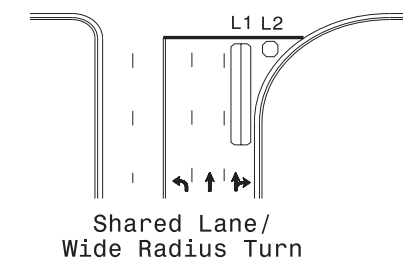
OR



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

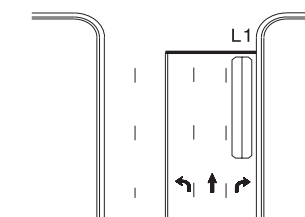
Queue Loop Detection

Right Turn Lane Detection

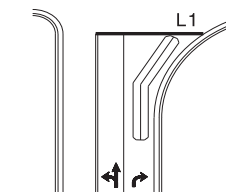


Shared Lane/
Wide Radius Turn

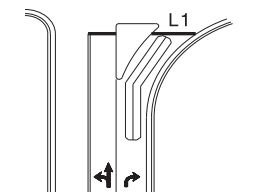
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

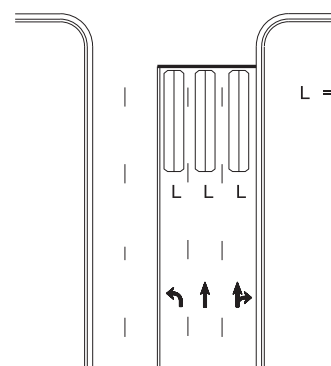


Wide Radius Turn



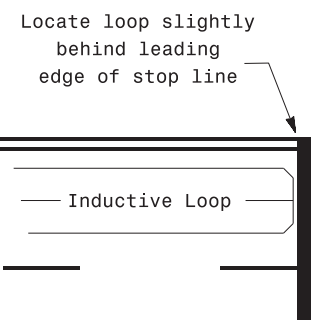
Channelized Turn

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

750 N. Greenfield Pkwy, Garner, NC 27529

Typical Signal Loop Locations

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

1/30/2015
DATE