

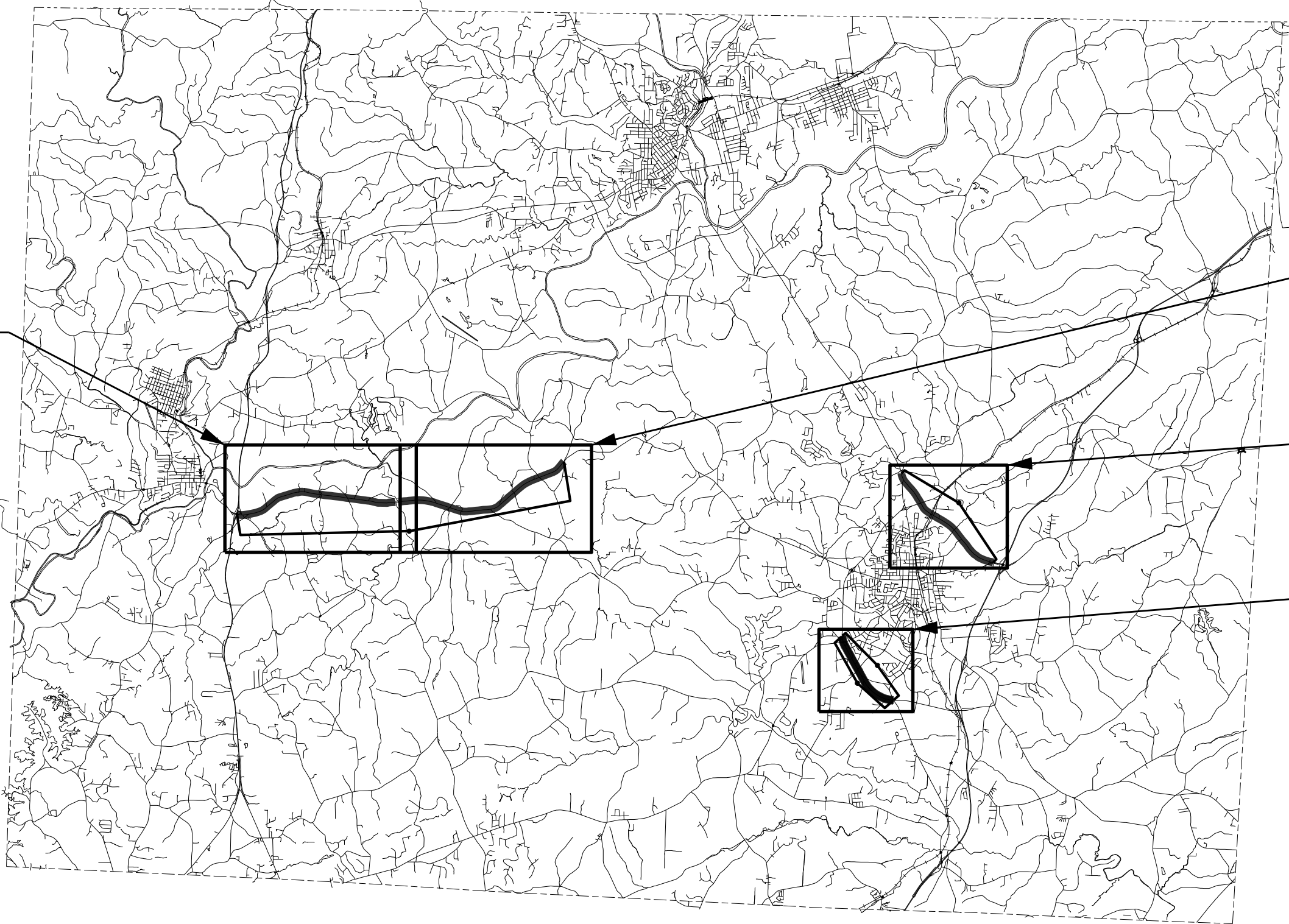


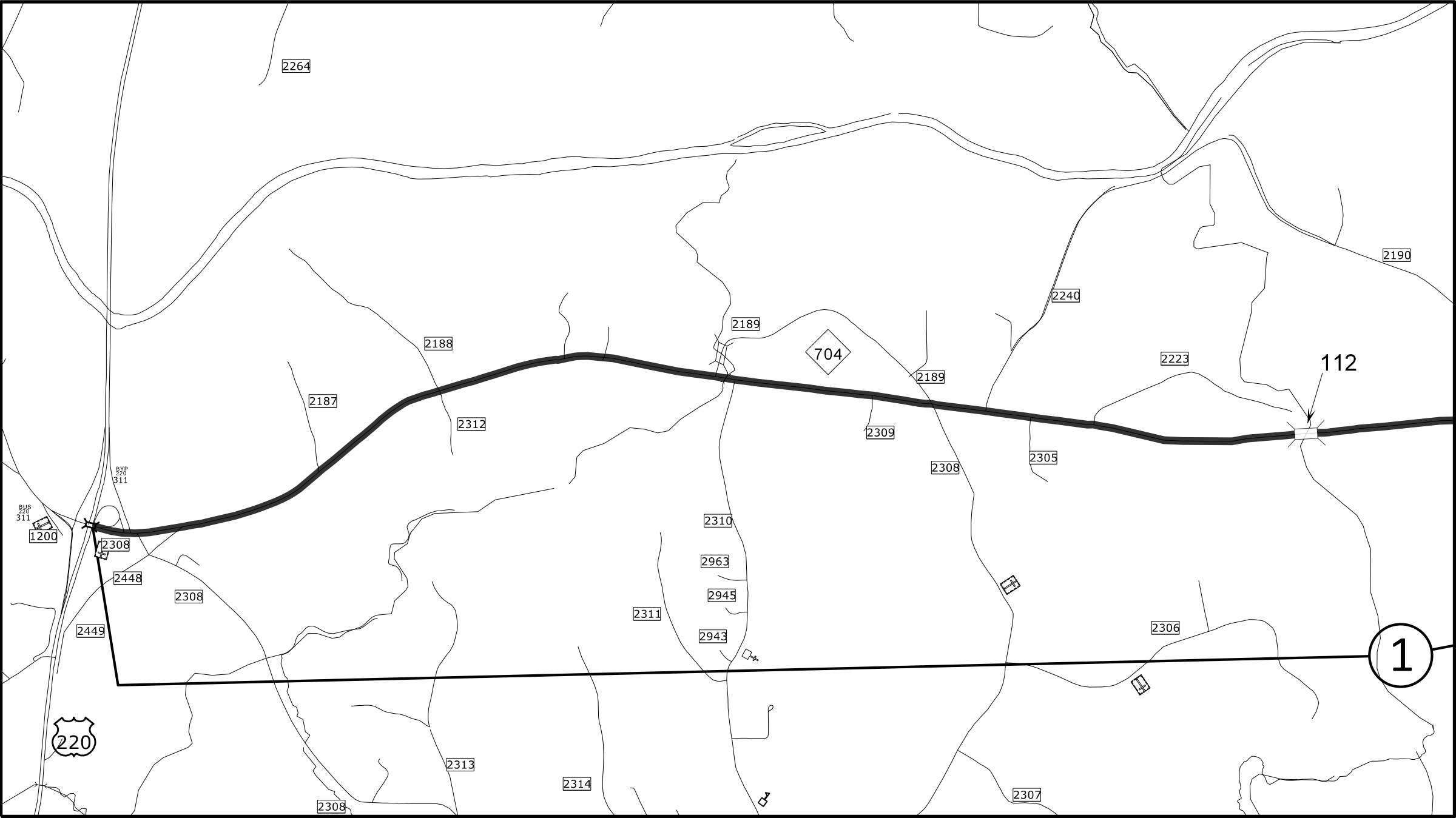
SHEET 2

SHEET 3

SHEET 4

SHEET 5



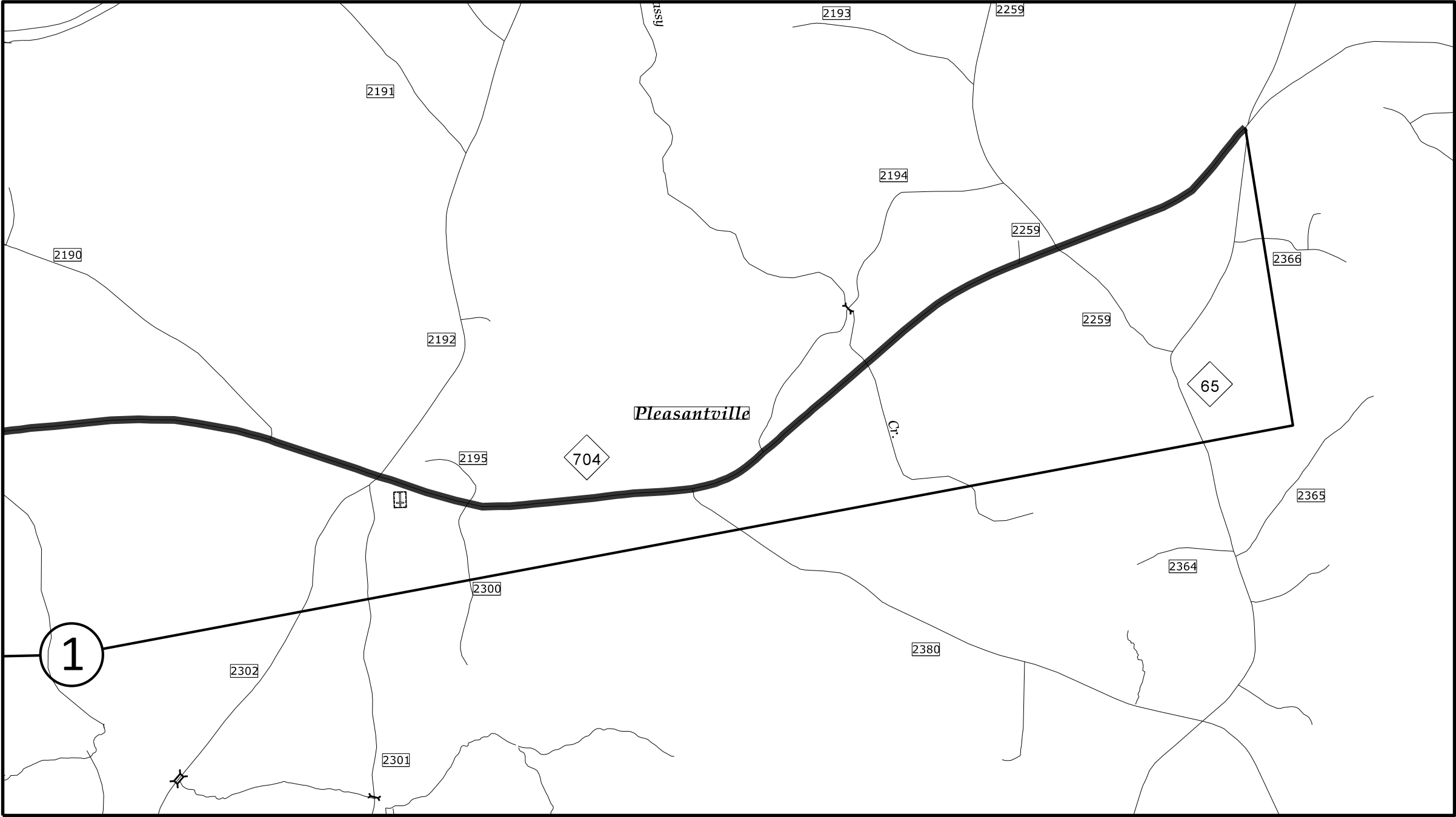


MATCH LINE: SHEET 3

Map 1 NC 704
DO NOT PAVE BRIDGE 112



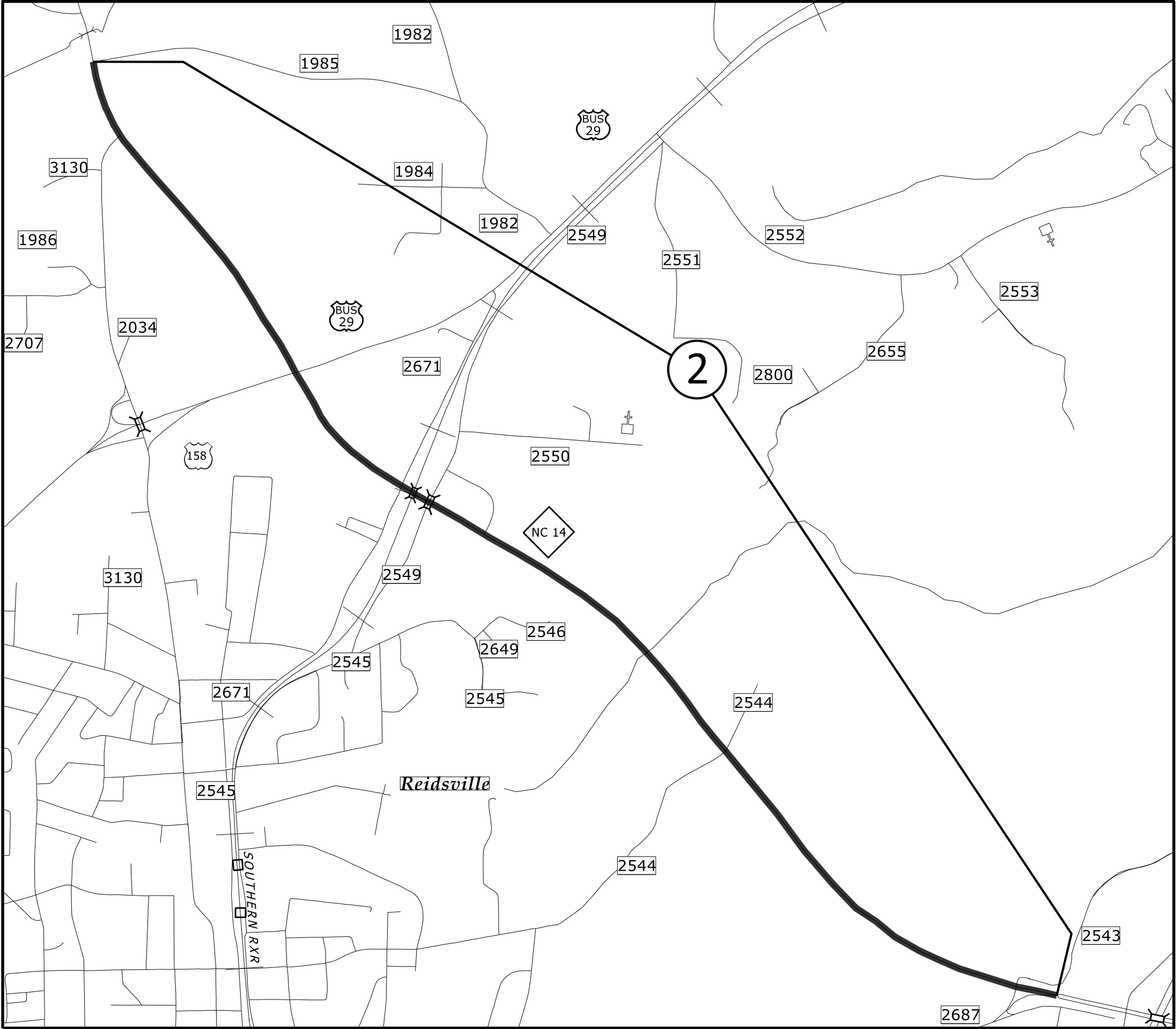
MATCH LINE: SHEET 2



Map 1 NC 704

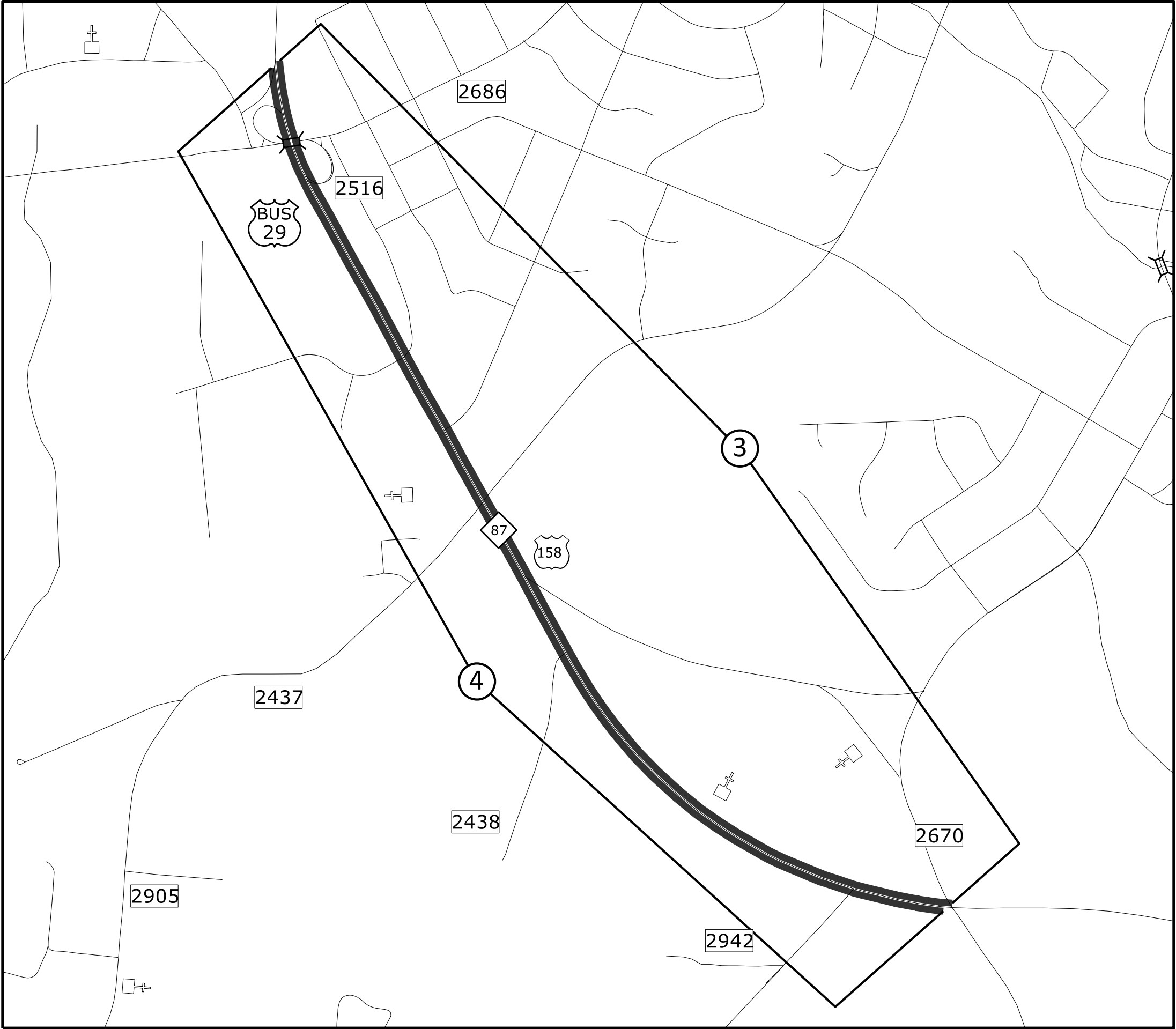


ROCKINGHAM COUNTY
NORTH CAROLINA



Map 2 NC 14

PROJECT REFERENCE NO.	SHEET NO.
2027CPT.07.07.10791	5



Map 3 US 158 (Freeway Dr) (WB)
Map 4 US 158 (Freeway Dr) (EB)

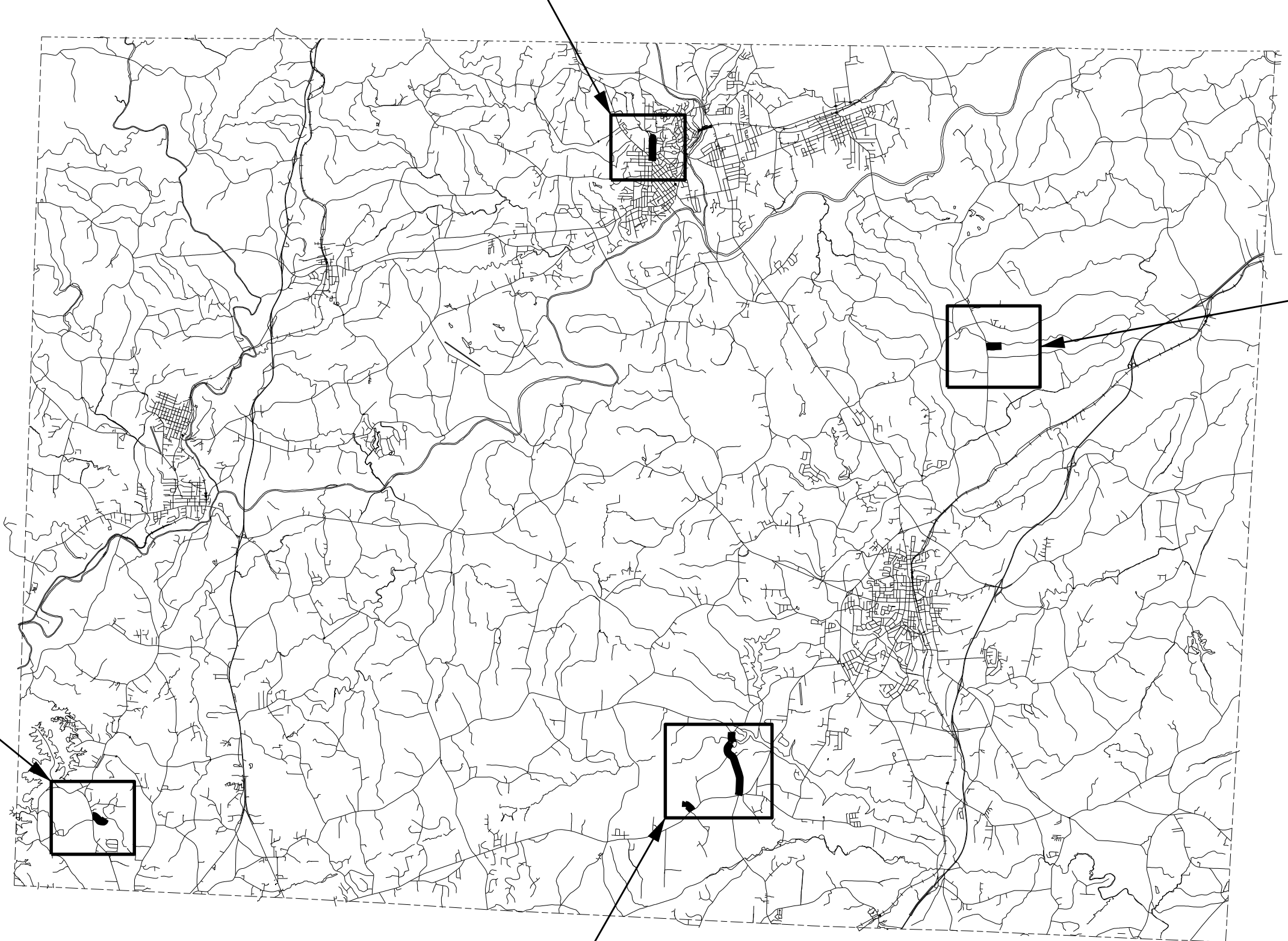
ROCKINGHAM COUNTY
NORTH CAROLINA

SHEET 7

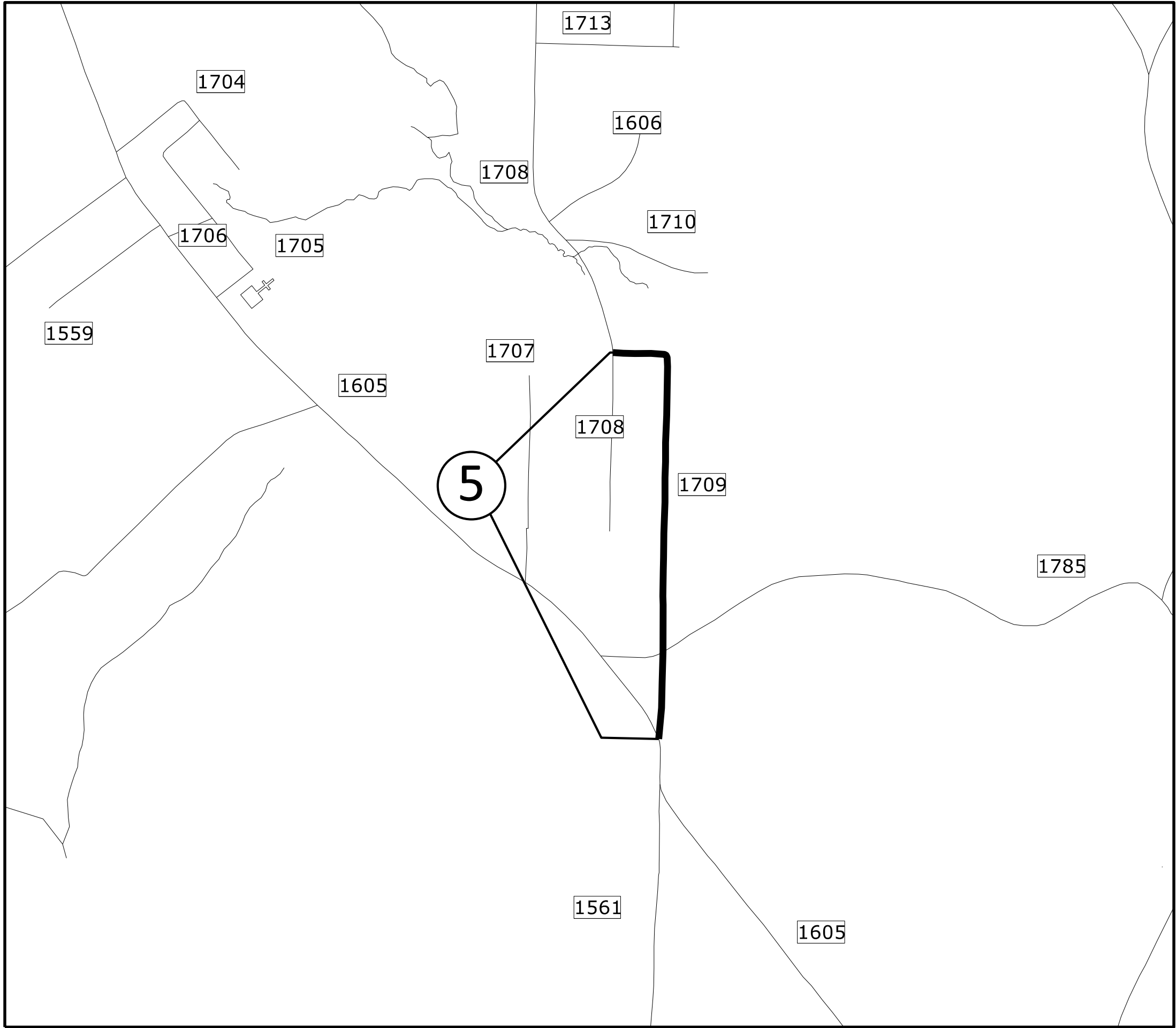
SHEET 8

SHEET 10

SHEET 9



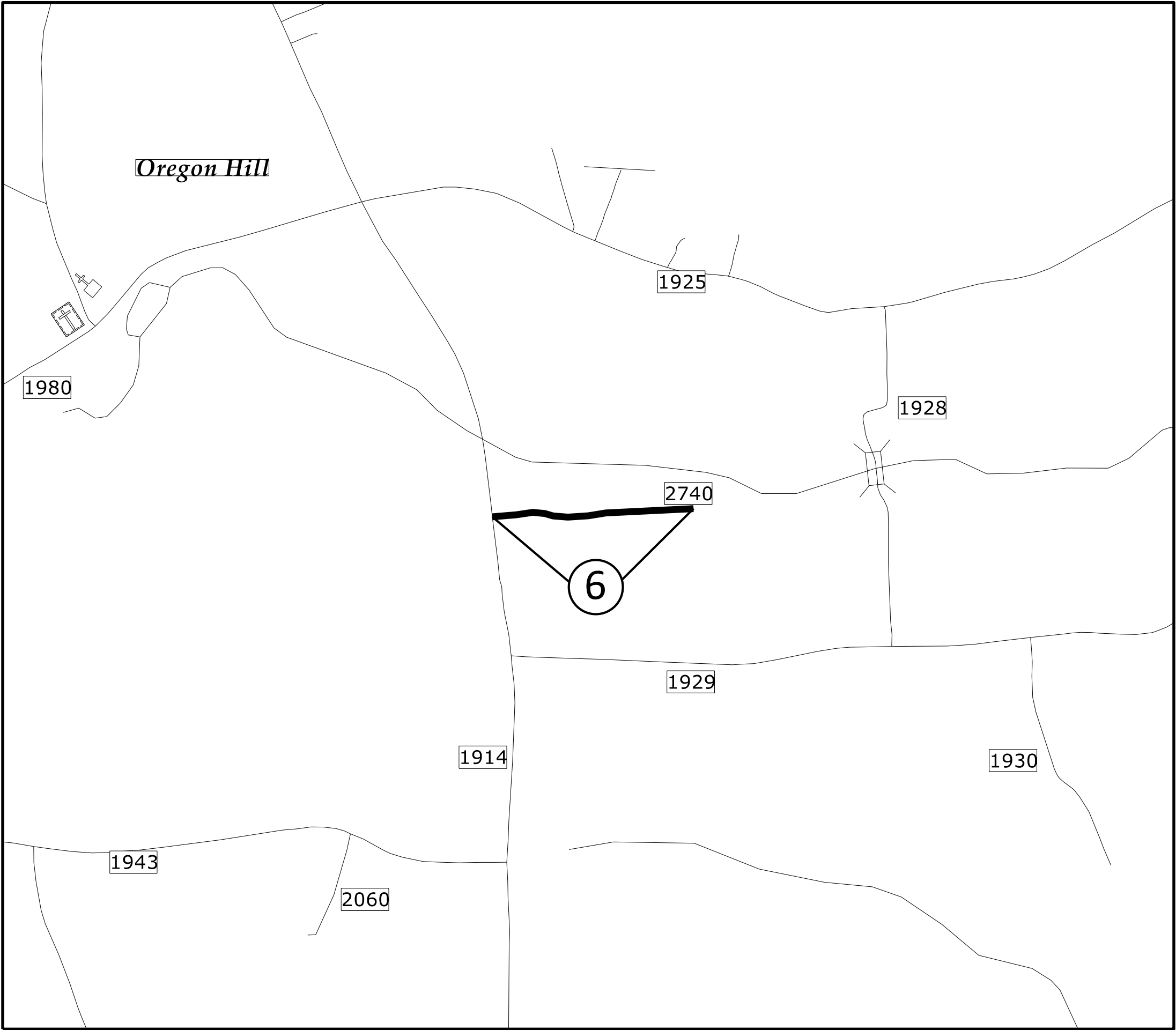
PROJECT REFERENCE NO.	SHEET NO.
2027CPT.07.07.20791	7



Map 5

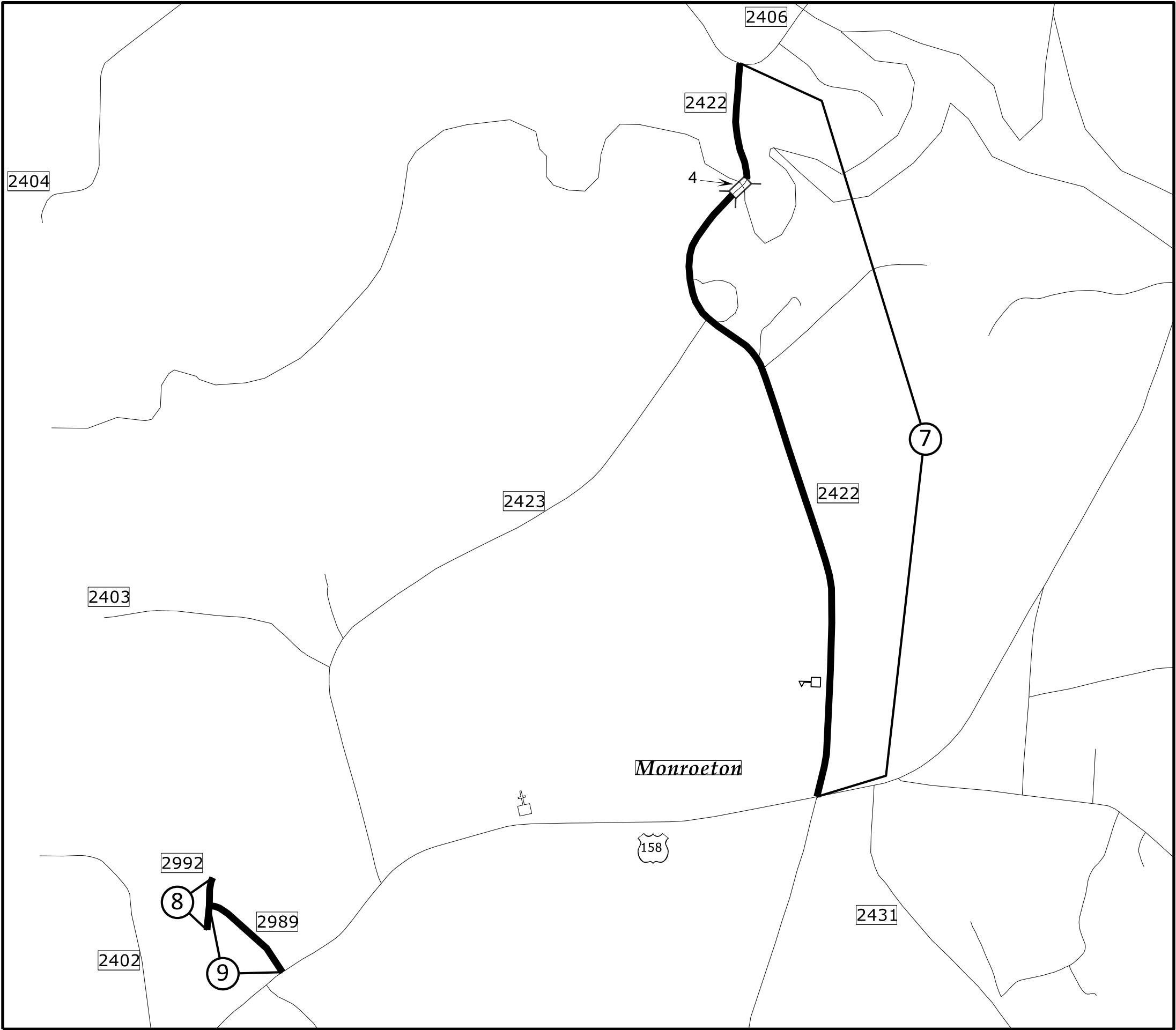
SR 1709 - N Hamilton Street

PROJECT REFERENCE NO.	SHEET NO.
2027CPT.07.07.20791	8



Map 6 SR 2740 - Arrowhead Road

PROJECT REFERENCE NO.	SHEET NO.
2027CPT.07.07.20791	9

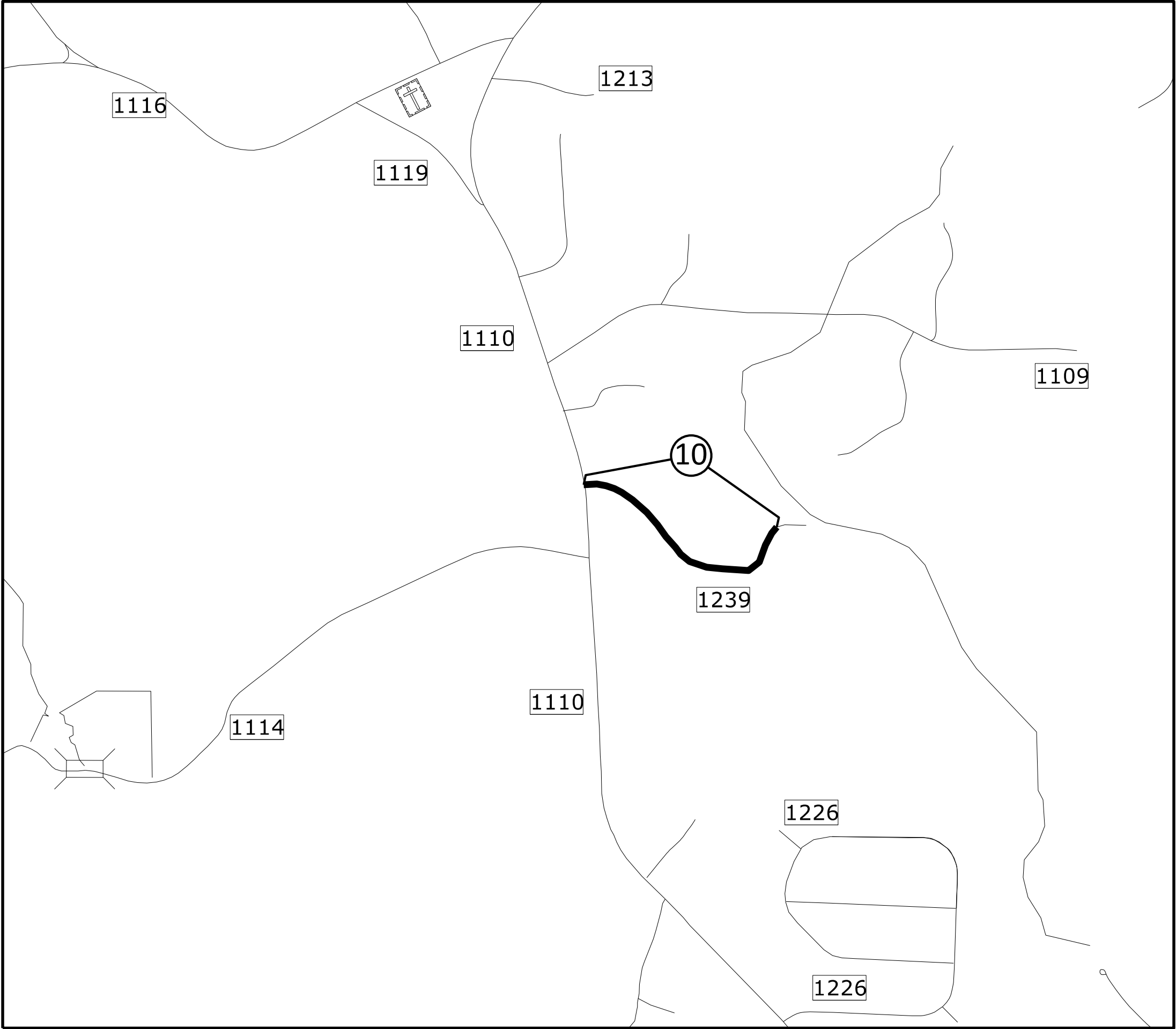


Map 7 SR 2422 - Monroeton Road
DO NOT PAVE BRIDGE 4

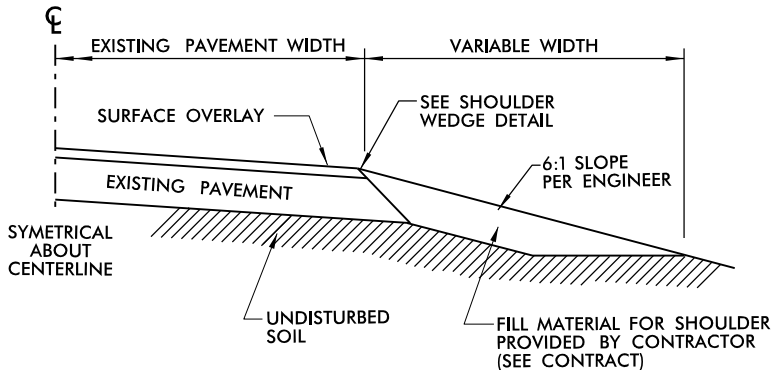
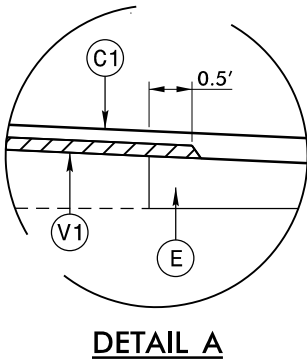
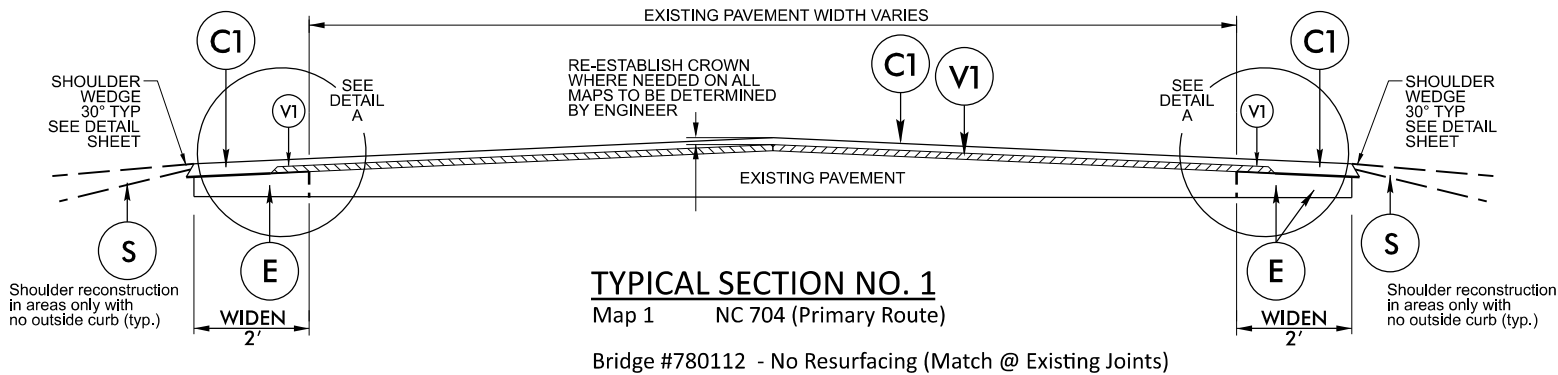
Map 8 SR 2992 - Streamside Court
Map 9 SR 2989 - Oak Leaf Drive

ROCKINGHAM COUNTY
NORTH CAROLINA

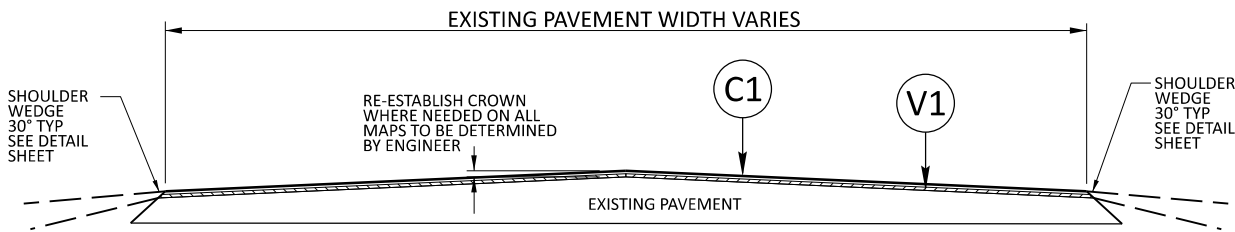
PROJECT REFERENCE NO.	SHEET NO.
2027CPT.07.07.20791	10



Map 10 SR 1239 - Angieline Drive

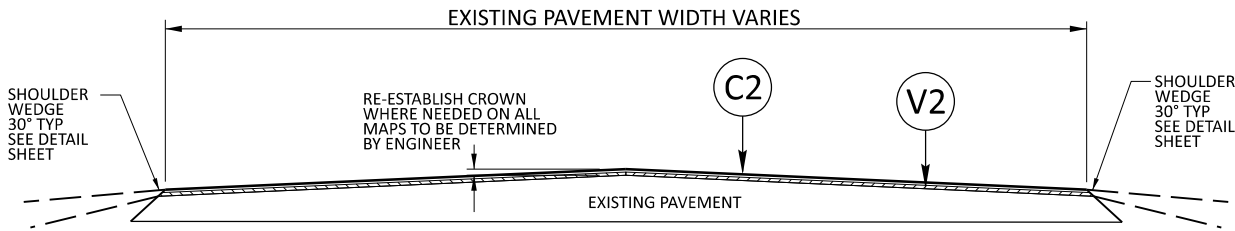


SHOULDER RECONSTRUCTION
* PLACE ASB OR BORROW AS DIRECTED BY THE ENGINEER



TYPICAL SECTION NO. 2

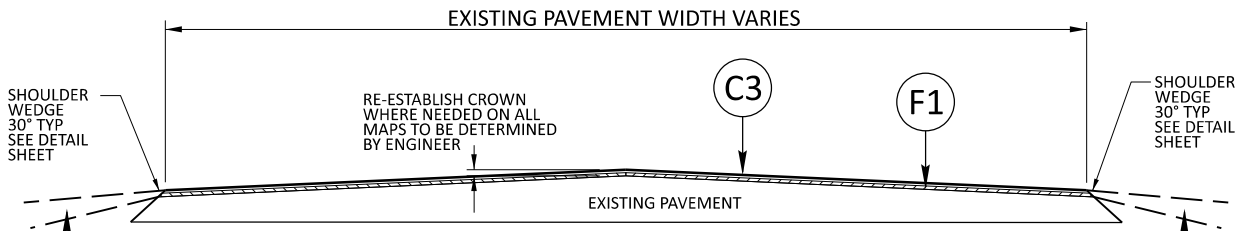
Map 2 NC 14 (Primary Route)
Map 3 US 158 (Freeway Drive) (WB) (Primary Route)
Map 4 US 158 (Freeway Drive) (EB) (Primary Route)



TYPICAL SECTION NO. 3

Map 5 SR 1709 - Hamilton Street (North)

Bridge #78004: No Resurfacing (Match @ Existing Joints)

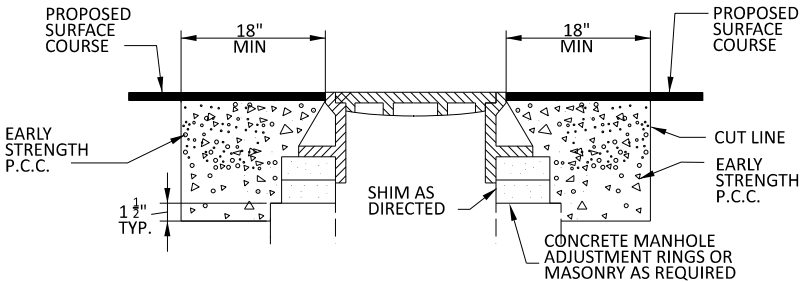


TYPICAL SECTION NO. 4

Map 6 SR 2740 - Arrowhead Road
Map 7 SR 2422 - Monroeton Road
Map 8 SR 2992 - Streamside Court
Map 9 SR 2989 - Oak Leaf Drive
Map 10 SR 1239 - Angieline Drive

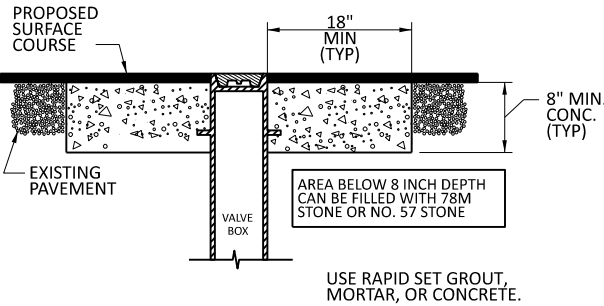
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
C2	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
E	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
F1	AST MAT COAT, #78M
V1	MILL ASPHALT PAVEMENT, 1½" DEPTH
V2	MILL ASPHALT PAVEMENT, 1¼" DEPTH
S	SHOULDER RECONSTRUCTION (SEE DETAIL)
U	EXISTING ASPHALT

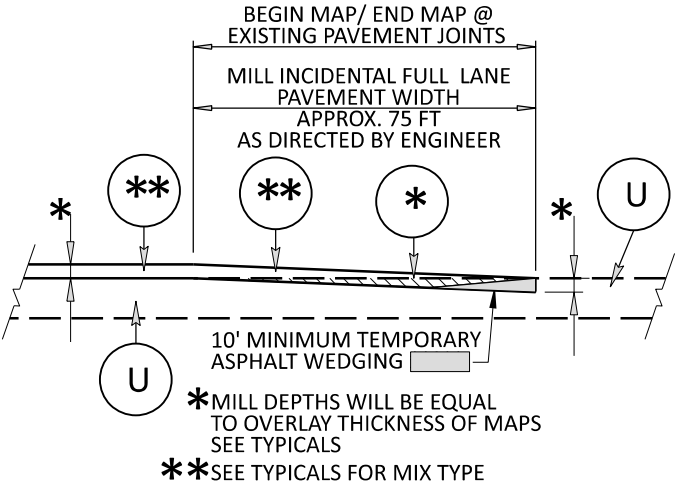


- NOTES:
1. MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
 2. ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
 3. EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
 4. RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.

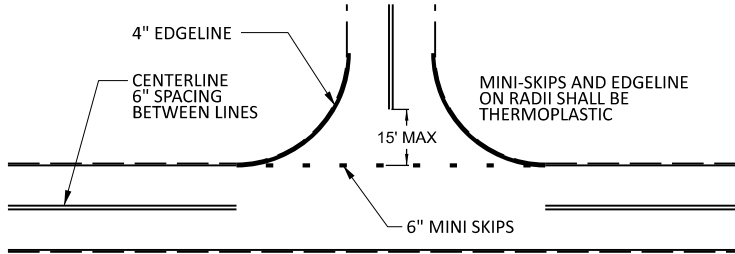
**STANDARD CONCRETE ENCASEMENT
FOR MANHOLE CASTINGS IN PAVEMENT**



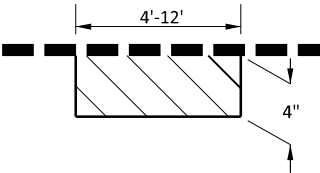
**STANDARD CONCRETE ENCASEMENT FOR
VALVE CASTINGS IN PAVEMENT**



INCIDENTAL MILLING AT TIE-IN DETAIL

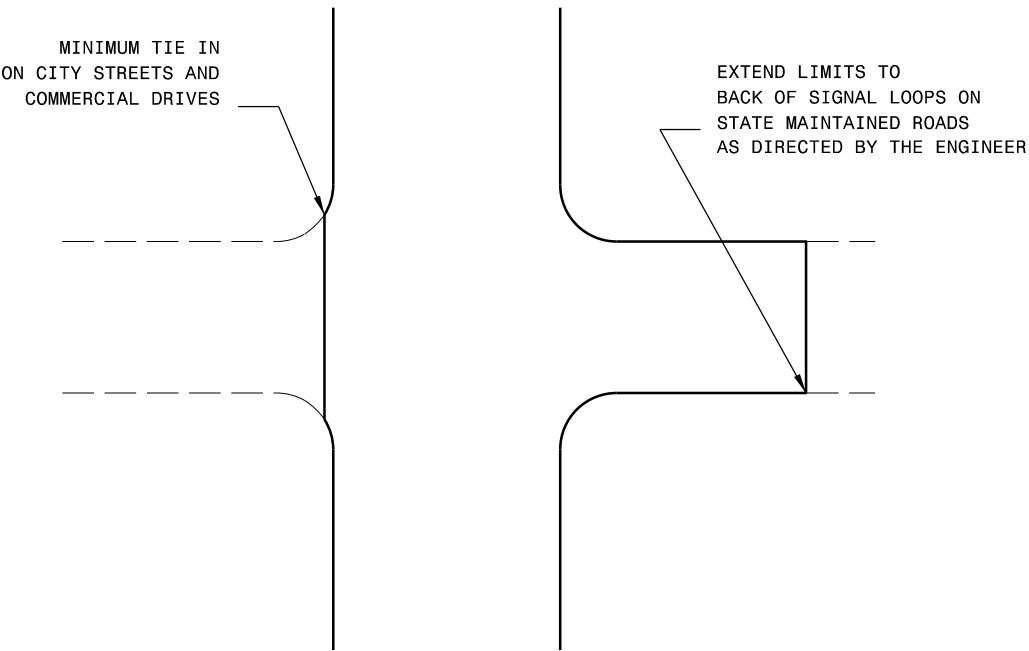


**TO BE USED AT ALL
NON-SIGNALIZED INTERSECTIONS
(NOT TO SCALE)**

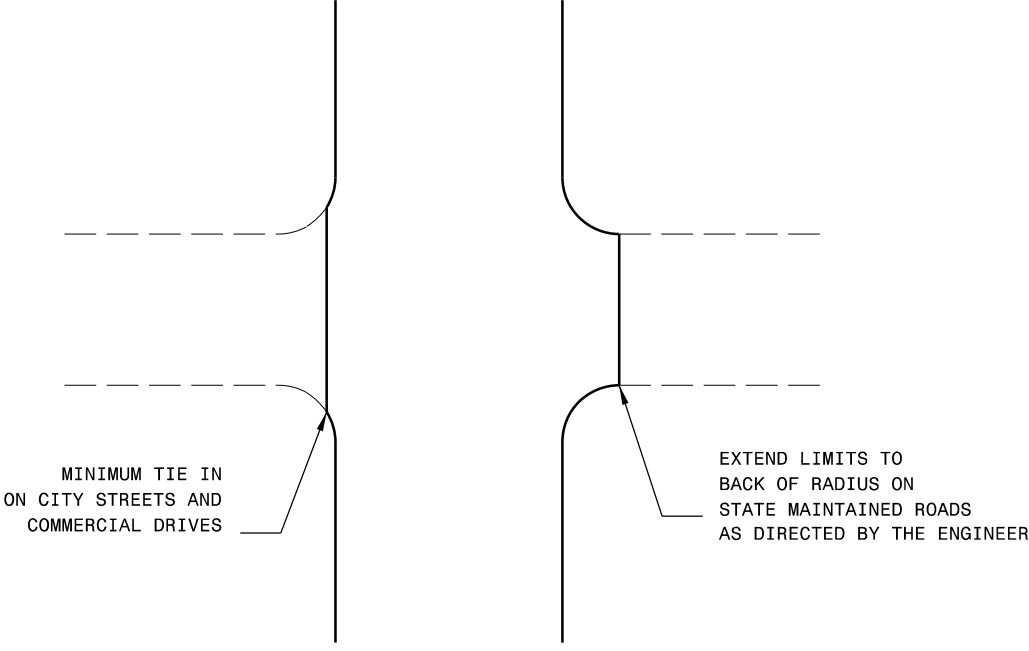


**PATCHING EXISTING
PAVEMENT DETAIL**

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
C2	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
E	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
F1	AST MAT COAT, #78M
V1	MILL ASPHALT PAVEMENT, 1 1/2" DEPTH
V2	MILL ASPHALT PAVEMENT, 1 1/4" DEPTH
S	SHOULDER RECONSTRUCTION (SEE DETAIL)
U	EXISTING ASPHALT

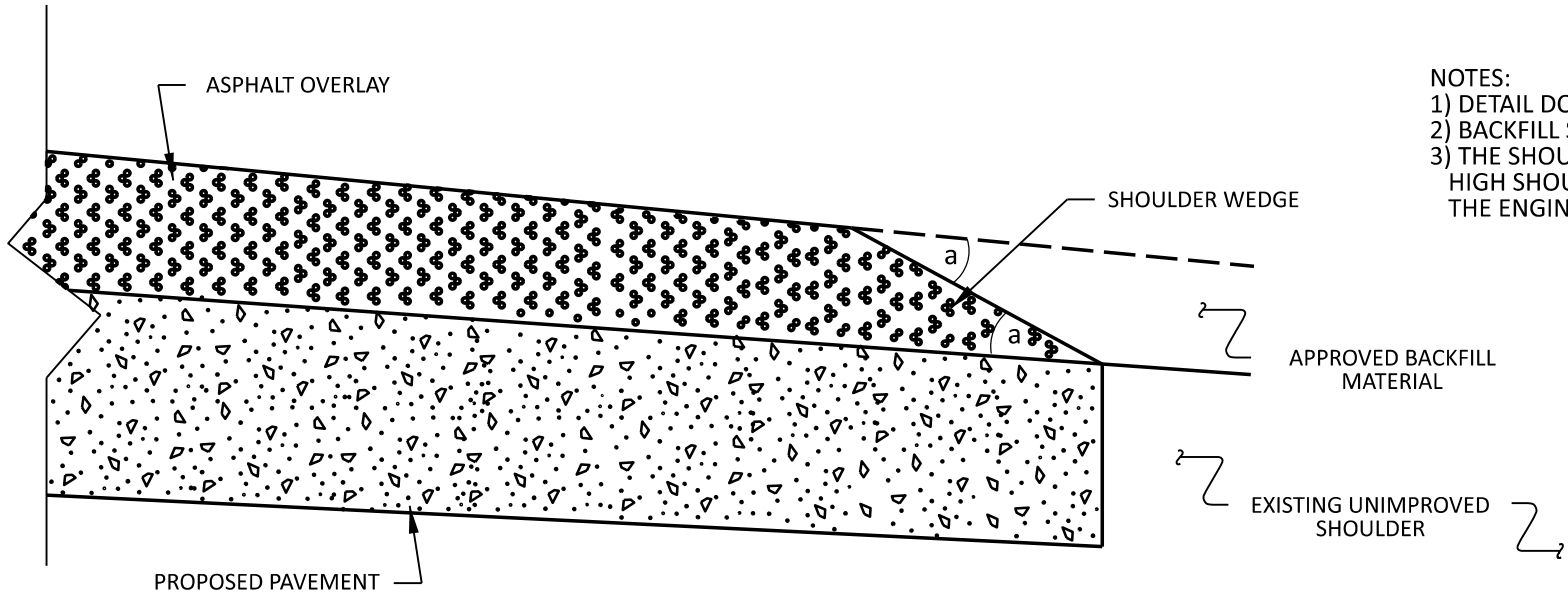


TYPICAL DETAIL OF PROJECT LIMITS AT
SIGNALIZED Y LINES



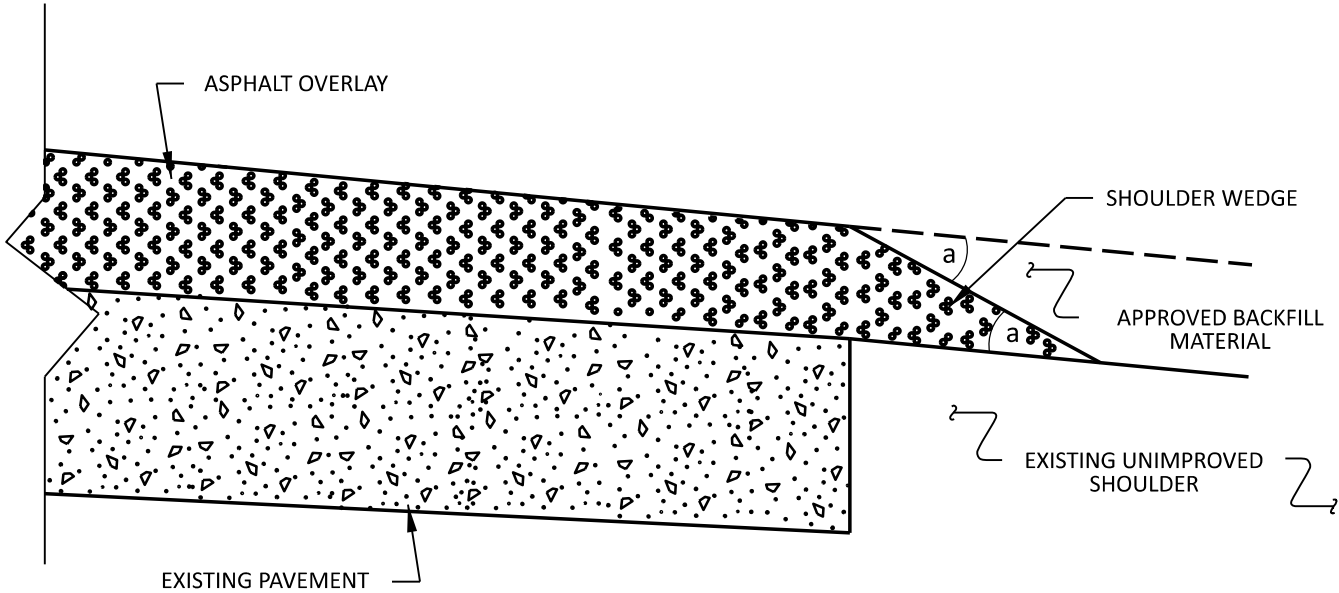
TYPICAL DETAIL OF PROJECT LIMITS AT
UNSIGNALIZED Y LINES

ADDITIONAL INTERSECTIONS (NON-TYPICAL)		
Extend paving limits to back of radius or loop on the following intersections:		
MAP#	STREET NAME	COMMENTS
1	NANABLE DRIVE	TO ROW
1	LINDA DRIVE	GRAVEL
1	MCLEMORE FARM ROAD	GRAVEL
1	PULL OFF (TWO ACCESS POINTS)	GRAVEL
	BETWEEN CROWDER ROAD AND NC 65	
3	LAWNDALE DRIVE INTERSECTION	MAJOR INTERSECTION (TO ROW)
3	SOUTH PARK DRIVE INTERSECTION	MAJOR INTERSECTION (TO ROW)
3	BELMONT DRIVE	MAJOR INTERSECTION (TO ROW)
4	ASHCROFT DRIVE	MAJOR INTERSECTION (TO ROW)
7	PARRISH LANE	GRAVEL
7	ACCESS ROAD BETWEEN PARRISH LN / CIRCLE LOOP	GRAVEL
7	CIRCLE LOOP	GRAVEL

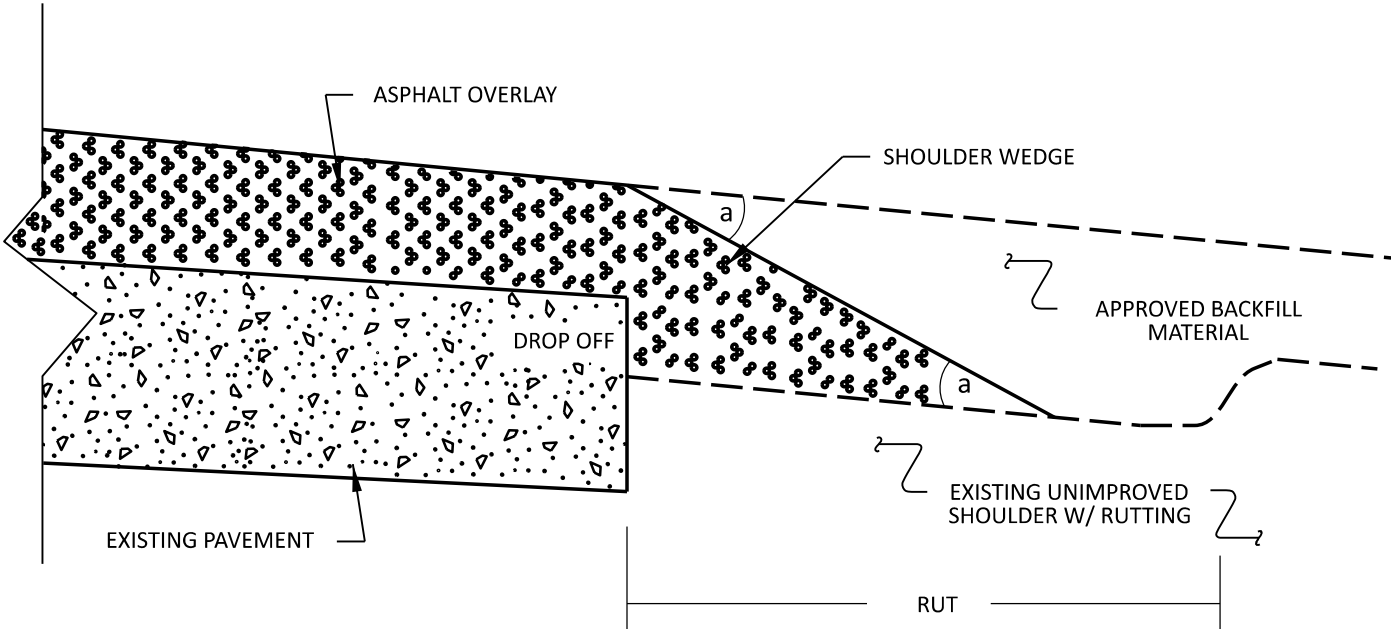


NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS DIRECTED BY THE ENGINEER.

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



SHOULDER WEDGE DETAIL
(Resurfacing Projects w/ NO Widening)

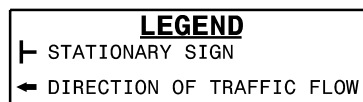


SHOULDER WEDGE DETAIL
(Resurfacing Adjacent to
Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

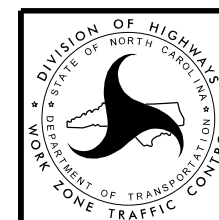
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119			
SHOULDER WEDGE DETAILS			
ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedgedetail.dgn		

														PROJECT NO.		SHEET NO.		TOTAL NO.							
														PT.07.07.10791, 2027CPT.07.07		16									
THERMOPLASTIC AND PAINT QUANTITIES																									
											4413000000-E	4457000000-N	4688000000-E		4700000000-E		4709000000-E	4720000000-E	4725000000-E					4895000000-N	
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LENGTH	WIDTH	BEGIN MP	END MP	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	12" X 90 M YELLOW THERMO	12" X 90 M WHITE THERMO	24" X 90 M WHITE THERMO	THERMO MSG ONLY 90 M	THERMO RT ARROW 90 M	THERMO LT ARROW 90 M	THERMO STR ARROW 90 M	THERMO MERGE LEFT ARROW 90 M	THERMO STR & RT ARROW 90 M	POLYCARBONATE H-SHAPED MARKERS CRYSTAL/RED	POLYCARBONATE H-SHAPED MARKERS YELLOW/YELLOW
							MI	FT																	
2027CPT.07.07.10791	Rockingham	1	NC-704	FROM US 220 TO NC 65	1	2	8.14	25	6.84	14.98	912	*	88,000	76,000	100		50		5					50	550
TOTAL FOR MAP NO. 1							8.14				912		88,000	76,000	100		50		5					50	550
2027CPT.07.07.10791	Rockingham	2	NC-14	FROM NEW PVMT JOINT 750' SE OF SR 2543 - ADAMS ROAD TO SR 1985 - WILSON ROAD	2	5	2.93	71	0.32	3.25	328		46,201	40,322	220	215	656	16	30	96	42	3		430	640
TOTAL FOR MAP NO. 2							2.93				328		46,201	40,322	220	215	656	16	30	96	42	3		430	640
2027CPT.07.07.10791	Rockingham	3	US-158 W	FROM SR 2670 - S SCALES STREET TO SR 2686 - RICHARDSON DRIVE	2	2	1.69	36	11.91	13.60			16,334	1,398		1,220	437		13	20	14	3		340	10
TOTAL FOR MAP NO. 3							1.69						16,334	1,398		1,220	437		13	20	14	3		340	10
2027CPT.07.07.10791	Rockingham	4	US-158 E	FROM SR 2670 - S SCALES STREET TO SR 2686 - RICHARDSON DRIVE	2	2	1.69	36	11.91	13.60			18,000	2,500		2,000	500		8	24	21	3	3	350	10
TOTAL FOR MAP NO. 4							1.69						18,000	2,500		2,000	500		8	24	21	3	3	350	10
TOTAL FOR PROJ NO. 2027CPT.07.07.10791							14.45				1,240	1.00	168,535	120,220	320	3,435	1,643	16	56	140	77	9	3	1,170	1,210
													288,755	120,220	320	3,755	1,643	16	56	140	77	9	3	1,170	1,210
2027CPT.07.07.20791	Rockingham	5	SR-1709 / N HAMILTON ST	FROM SR 1708 - BRYANT STREET TO SR 1605 - S OAKLAND AVE	3	2	0.61	20	0.00	0.61		*	6,200	6,200											
TOTAL FOR MAP NO. 5							0.61						6,200	6,200											
2027CPT.07.07.20791	Rockingham	6	SR-2740 / ARROWHEAD RD	FROM CUL-DE-SAC TO SR 1914 - OREGON HILL ROAD	4	2	0.35	19	0.00	0.35															
TOTAL FOR MAP NO. 6							0.35																		
2027CPT.07.07.20791	Rockingham	7	SR-2422 / MONROETON RD	FROM SR 2406 - IRON WORKS RD TO US 158	4	2	1.59	22.5	0.00	1.59			17,000	14,000											
TOTAL FOR MAP NO. 7							1.59						17,000	14,000											
2027CPT.07.07.20791	Rockingham	8	SR-2992 / STREAMSIDE CT	FROM CUL-DE-SAC TO CUL-DE-SAC	4	2	0.11	21	0.00	0.11															
TOTAL FOR MAP NO. 8							0.11																		
2027CPT.07.07.20791	Rockingham	9	SR-2989 / OAK LEAF DR	FROM SR 2992 - STREAMSIDE CT TO US 158	4	2	0.20	19.5	0.00	0.20															
TOTAL FOR MAP NO. 9							0.20																		
2027CPT.07.07.20791	Rockingham	10	SR-1239 / ANGIELINE DR	FROM END OF MAINTENANCE TO SR 1110 - ELLISBORO ROAD	4	2	0.40	20.5	0.00	0.40															
TOTAL FOR MAP NO. 10							0.40																		
TOTAL FOR PROJ NO. 2027CPT.07.07.20791							3.26					1.00	23,200	20,200											
													43,400	20,200											
GRAND TOTAL							17.71				1,240	1	191,735	140,420	320	3,435	1,643	16	56	140	77	9	3	1,170	1,210
													332,155	140,420	3,755				285					2,380	



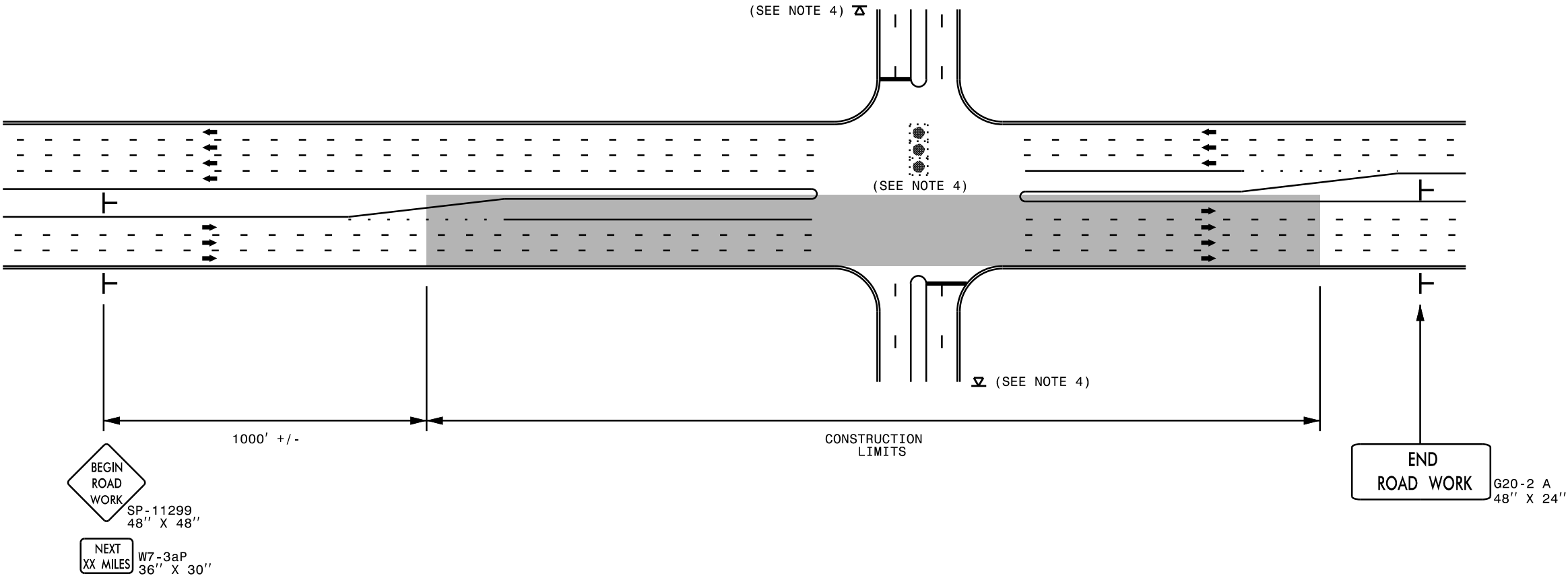
-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1 ROAD WORK AHEAD W20-1 48" X 48" 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 #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 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. ROAD WORK AHEAD W20-1 48" X 48" ROAD WORK AHEAD W20-7 A 48" X 48" PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER
	3 LOW/SOFT SHOULDER 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 1½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE 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.	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

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

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

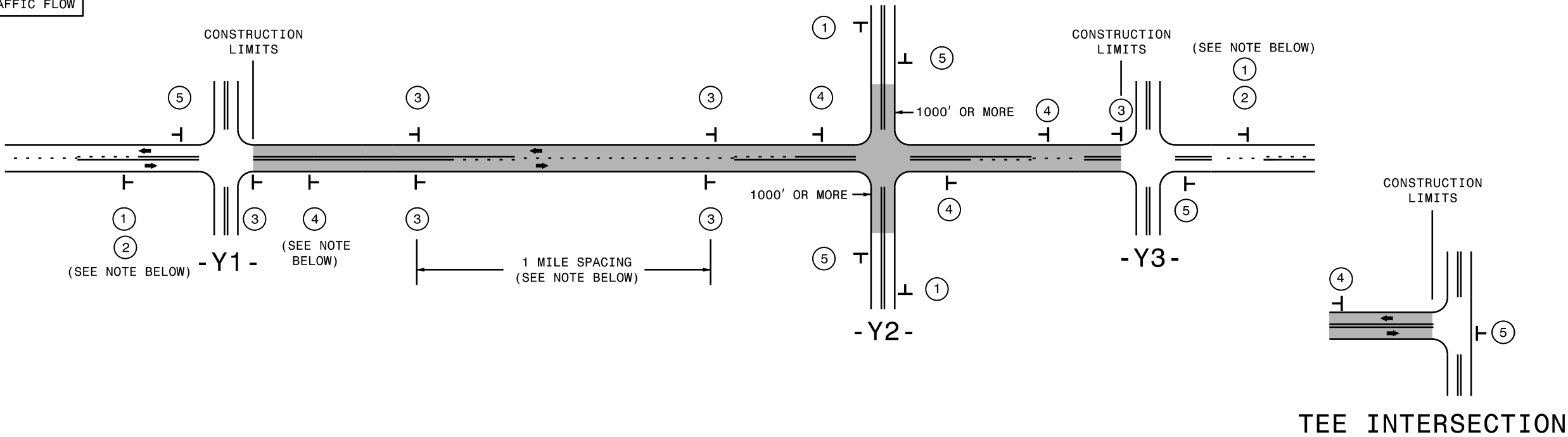
RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES

SIGNING FOR RESURFACING PROJECTS

LEGEND

STATIONARY SIGN

DIRECTION OF TRAFFIC FLOW



MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1 ROAD WORK AHEAD W20-1 48" X 48" 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)	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.
	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 1/2 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.	
LESS 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.	

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

AD

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

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

BMP Options: Wattle or Silt Fence

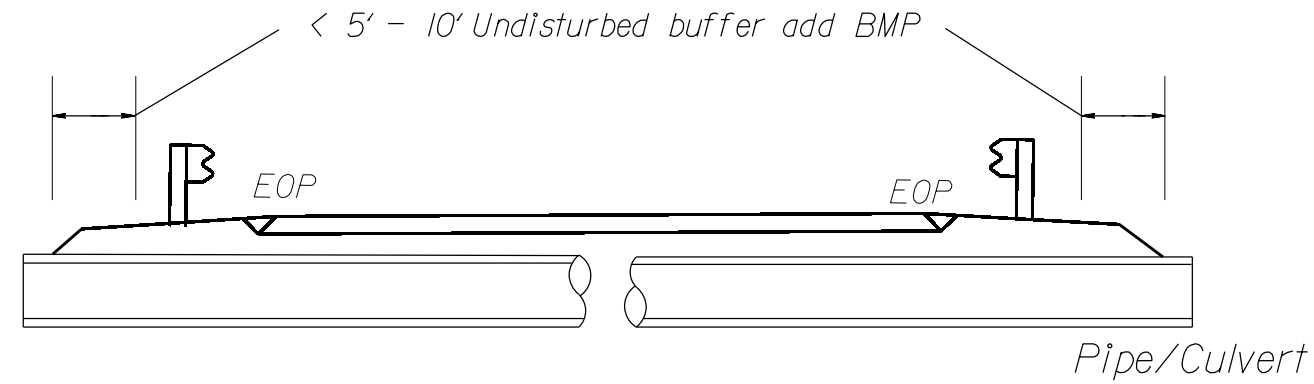
EROSION CONTROL DETAIL

PROJECT REFERENCE NO.

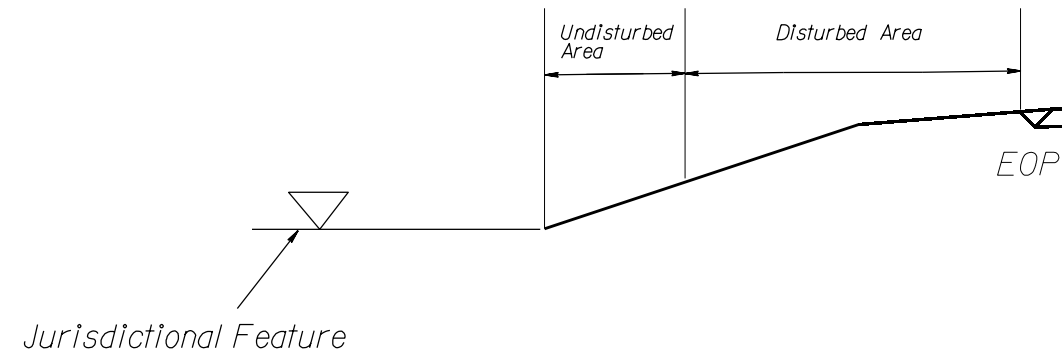
2027CPT.07.07.10791
2027CPT.07.07.20791

SHEET NO.

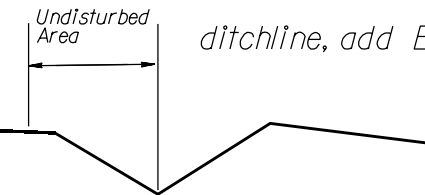
EC-1



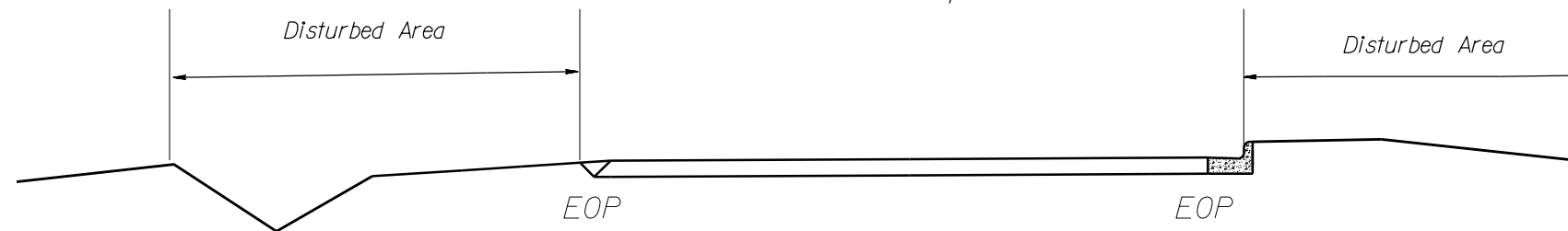
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



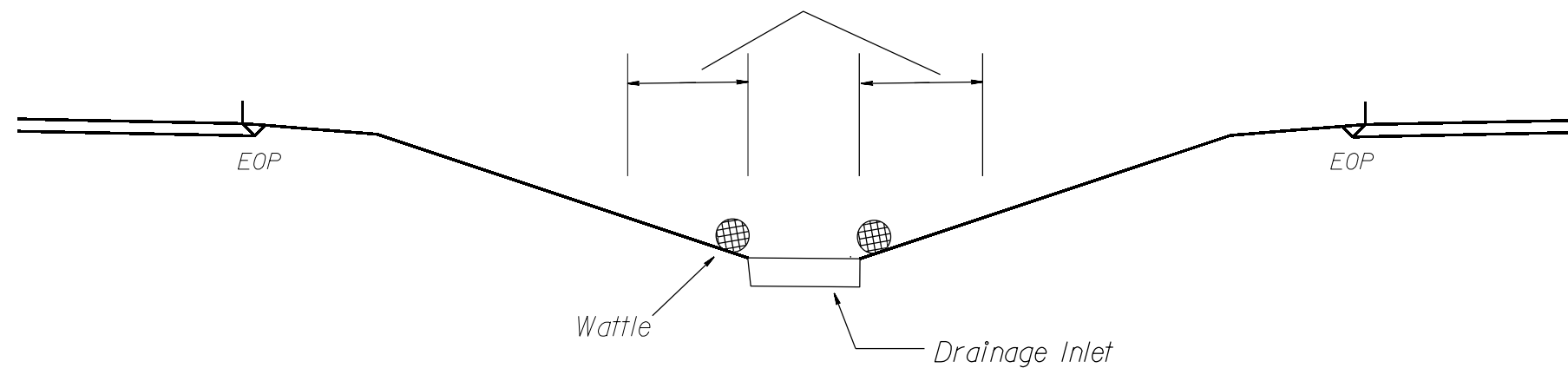
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if berms, shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



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



NOT TO SCALE

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DEEP-CUT INDUCTIVE DETECTION LOOPS
(FOR INSTALLATION PRIOR TO MILLING)

NOTES

- OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
- MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
- WIRE LOOPS CONNECTED TO THE SAME DETECTOR IN SERIES.
- LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS.
- USE A SERIES OF ONE INCH PIECES OF BACKER ROD SPACED ONE FOOT APART ALONG THE ENTIRE LENGTH OF THE FEEDER SLOT AND LOOP SAW SLOT.
- CONSULT LOOP SEALANT MANUFACTURER TO DETERMINE CURING TIME REQUIRED PRIOR TO MILLING.
- REFER TO STANDARD DRAWING 1725.01 SHEETS 2 AND 3 FOR ADDITIONAL REQUIREMENTS.

SAW SLOT DEPTH CHART

ASSUMING 2" MILLING DEPTH

DEPTH (IN)	MAX NO. OF WIRE LAYERS				
	2	3	4	5	6
SAW SLOT DEPTH	4.0	4.5	5.0	5.0	5.0
MINIMUM TOTAL ASPHALT DEPTH REQUIRED	5.0	5.5	6.0	6.0	6.0

LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE

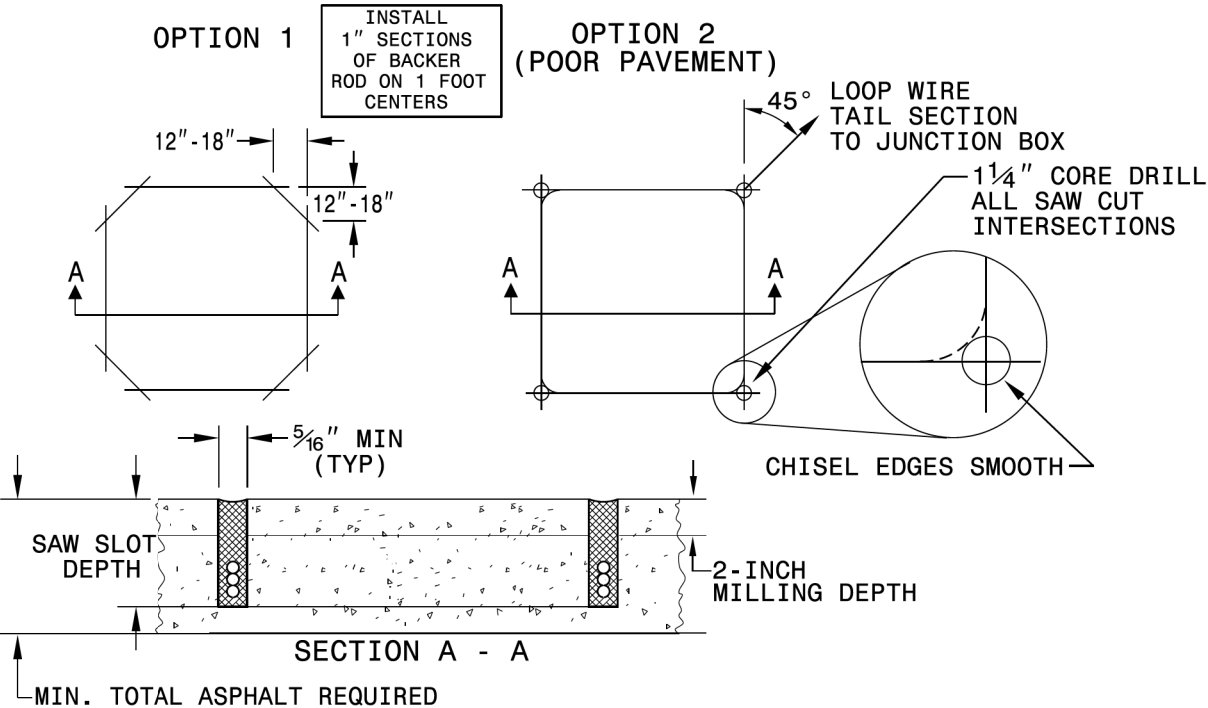


CORRECT WAY TO TWIST WIRE

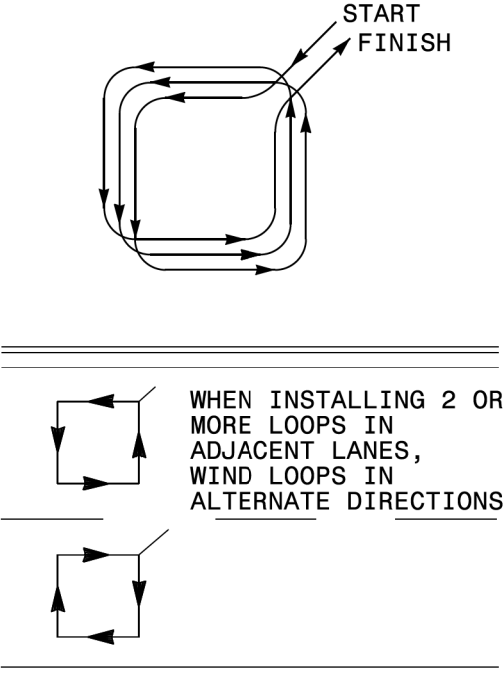


CONVENTIONAL 4-SIDED LOOP

SAW CUT OPTIONS

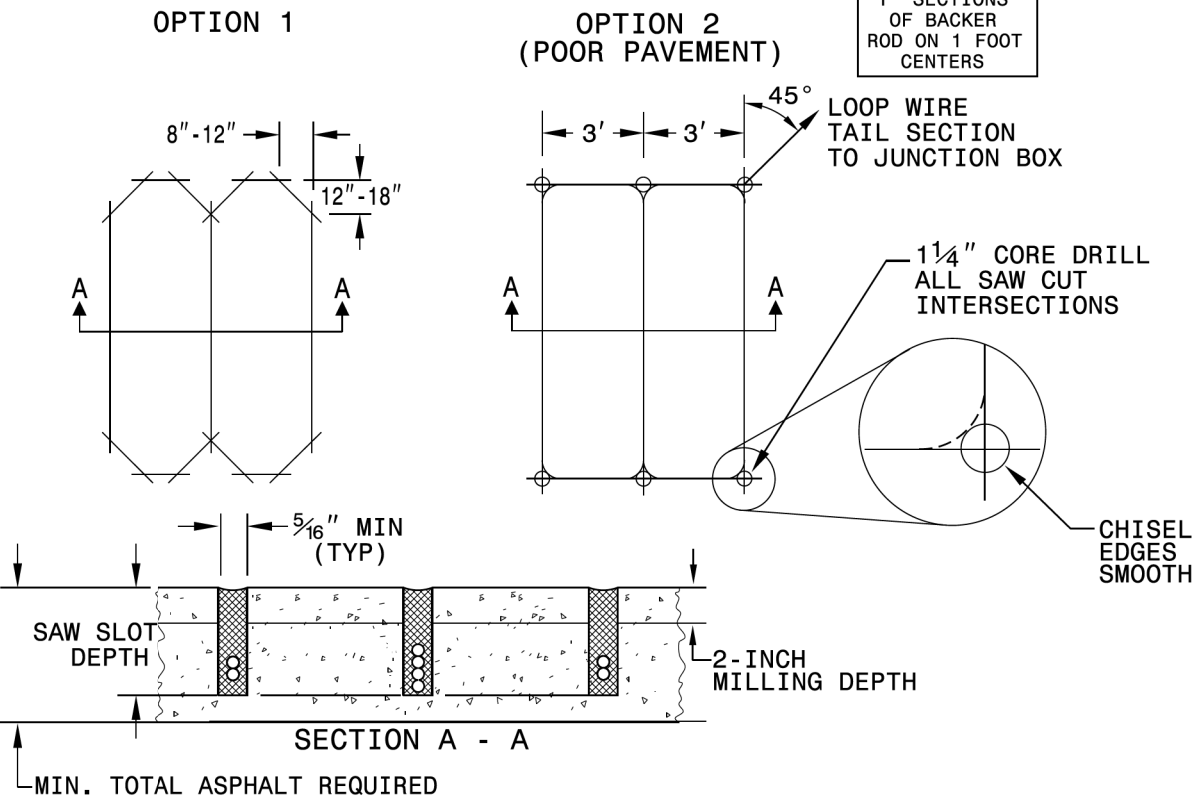


LOOP WINDING METHOD

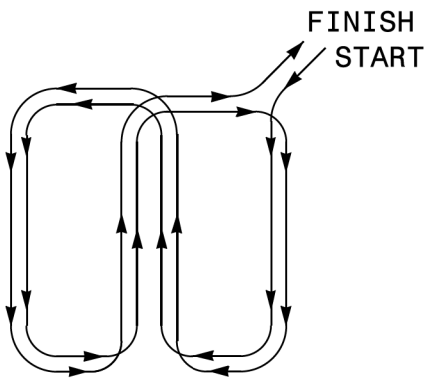


QUADRUPOLE LOOP

SAW CUT OPTIONS

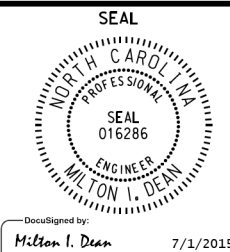


LOOP WINDING METHOD



REVISIONS

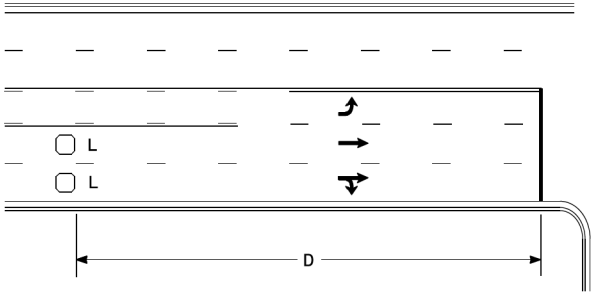
1. REMOVED TWISTING NOTES FROM TAIL SECT. TO JUNCTION BOX. 2/26/08 MWH
2. REVISED SECTION A - A DETAILS. 6/29/15 JTP



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RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DEEP-CUT INDUCTIVE DETECTION LOOPS
(FOR INSTALLATION PRIOR TO MILLING)

High Speed Detection
(≥35 mph)

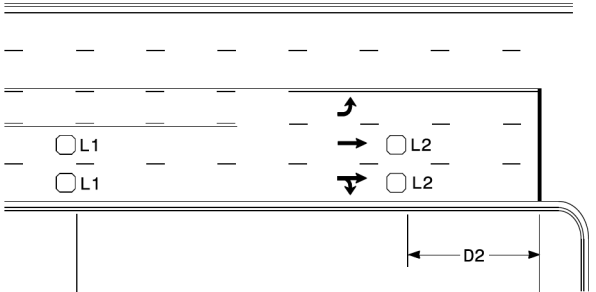


Speed Limit mph	D ft
35	200
40	250
45	300
50	355
55	420
60	475
65	550

L = 6ft X 6ft
Wired separately

Volume Density Operation

OR



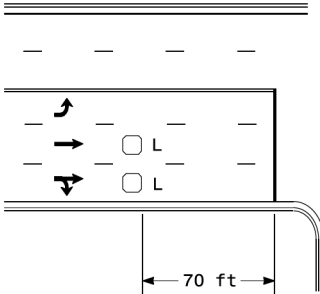
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110
60	475	120
65	550	130

L1 = 6ft X 6ft
Wired in series

L2 = 6ft X 6ft
Wired in series

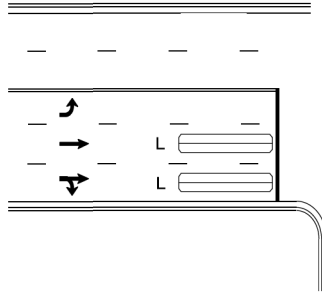
"Stretch" Operation

Low Speed Detection
(≤35 mph)



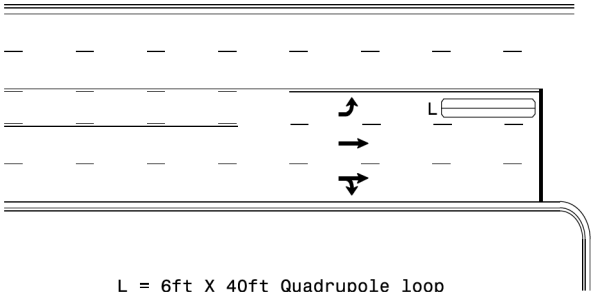
L = 6ft X 6ft
Wired in series

OR



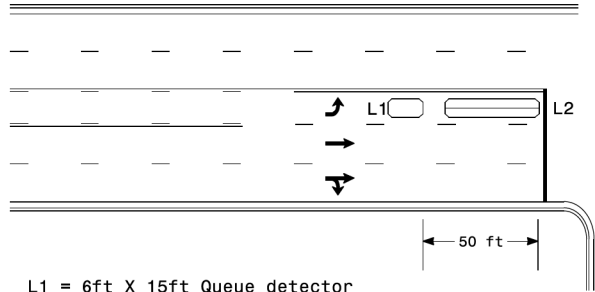
L = 6ft X 40ft
Quadrupole loop, wired separately

Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

OR

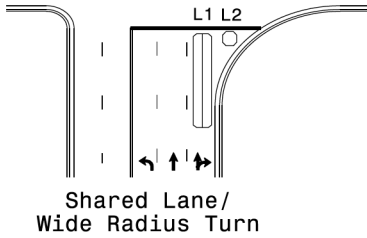


L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

Presence Loop Detection

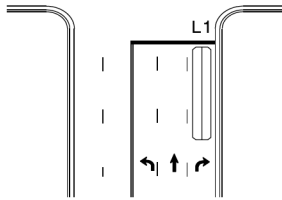
Queue Loop Detection

Right Turn Lane Detection

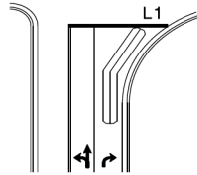


L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately

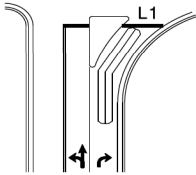
Standard Turn



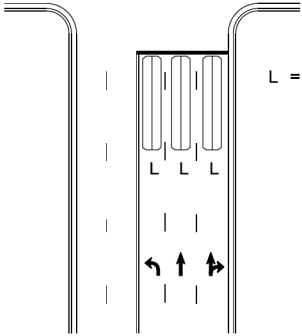
Wide Radius Turn



Channelized Turn

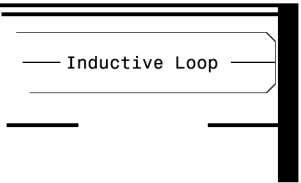


Side Street Detection



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

Inductive Loop

Note:
Loop may be located in advance
of stop line under any of the
following conditions:

- stop line is greater than 15'
from edge of intersecting
roadway
- loop detects a permissive or
protected/permissive left turn
- 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

Typical Signal Loop Locations



750 N. Greenfield Pkwy, Garner, NC 27529

PLAN DATE: September 2025
PREPARED BY: J.A. Lohr
REVIEWED BY:

SCALE
N/A

REVISIONS
INIT. DATE

SIG. INVENTORY NO.