

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 5C.092132             | 1         |
| 5CR.2032123           |           |
| 5CR.2092140           |           |

54

Nelson

**1**

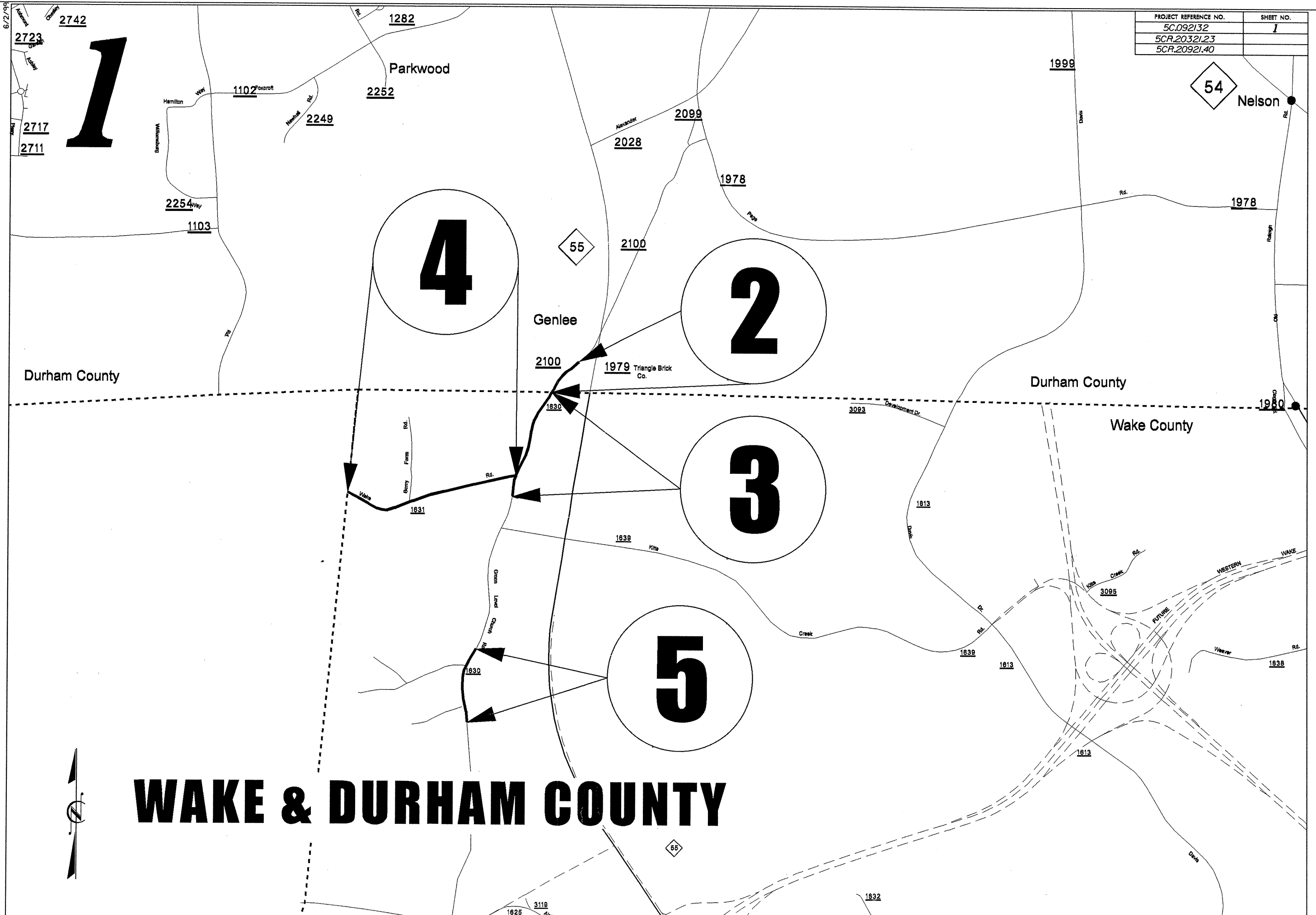
**4**

**2**

**3**

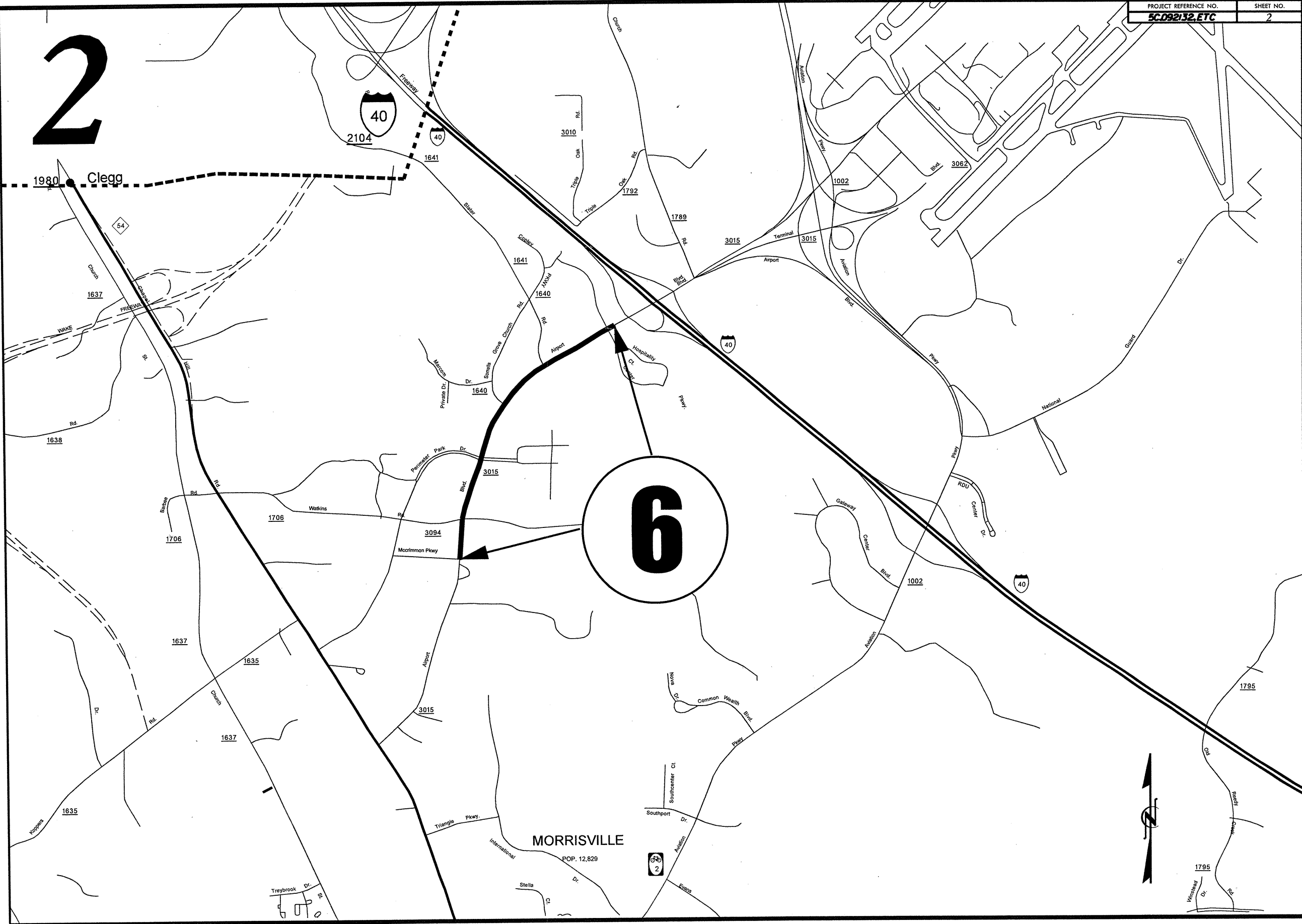
**5**

**WAKE & DURHAM COUNTY**



2

6



1980 Clegg



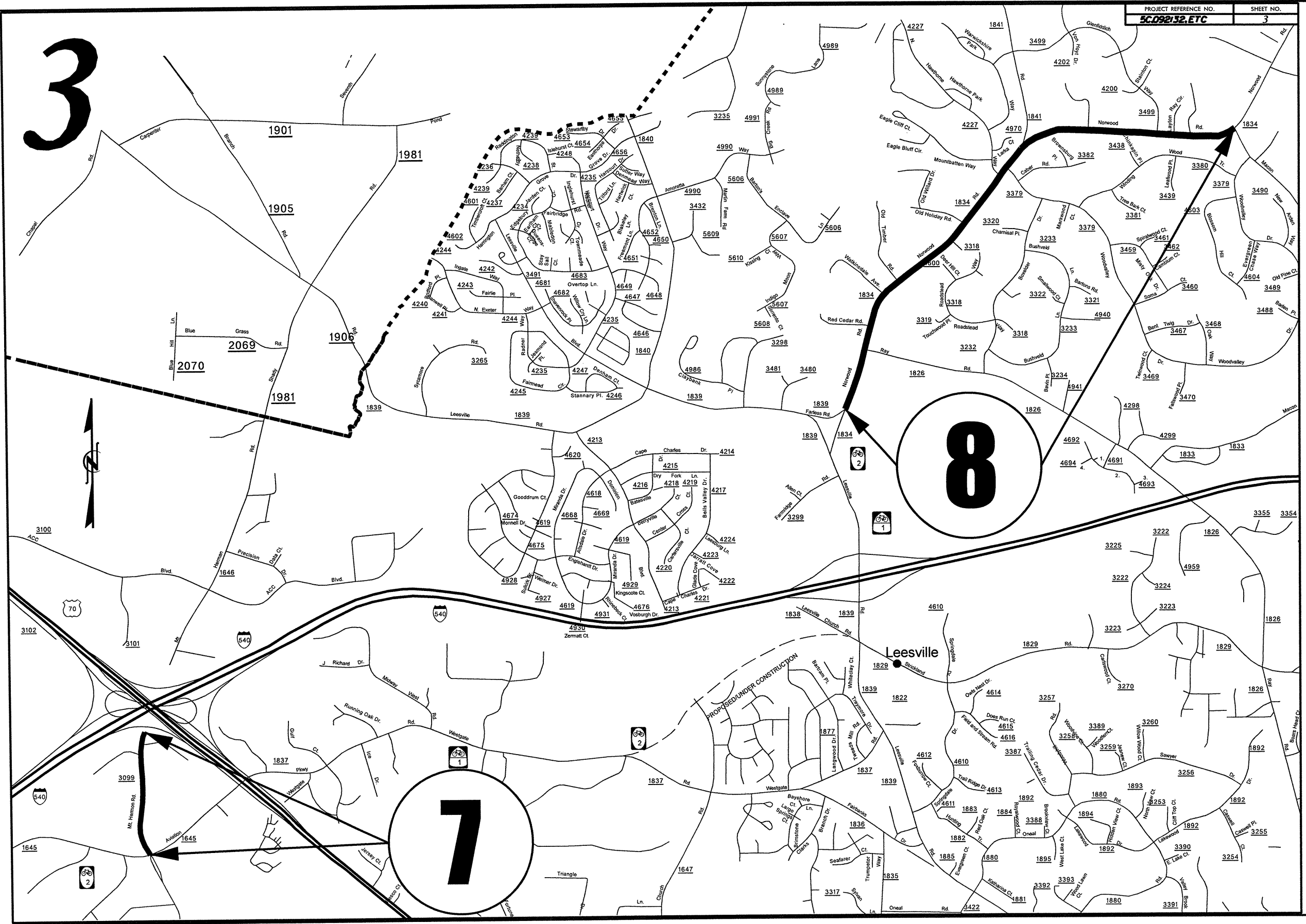
MORRISVILLE  
POP. 12,829



3

8

7



PROPOSED UNDER CONSTRUCTION

Leesville

70

540

540







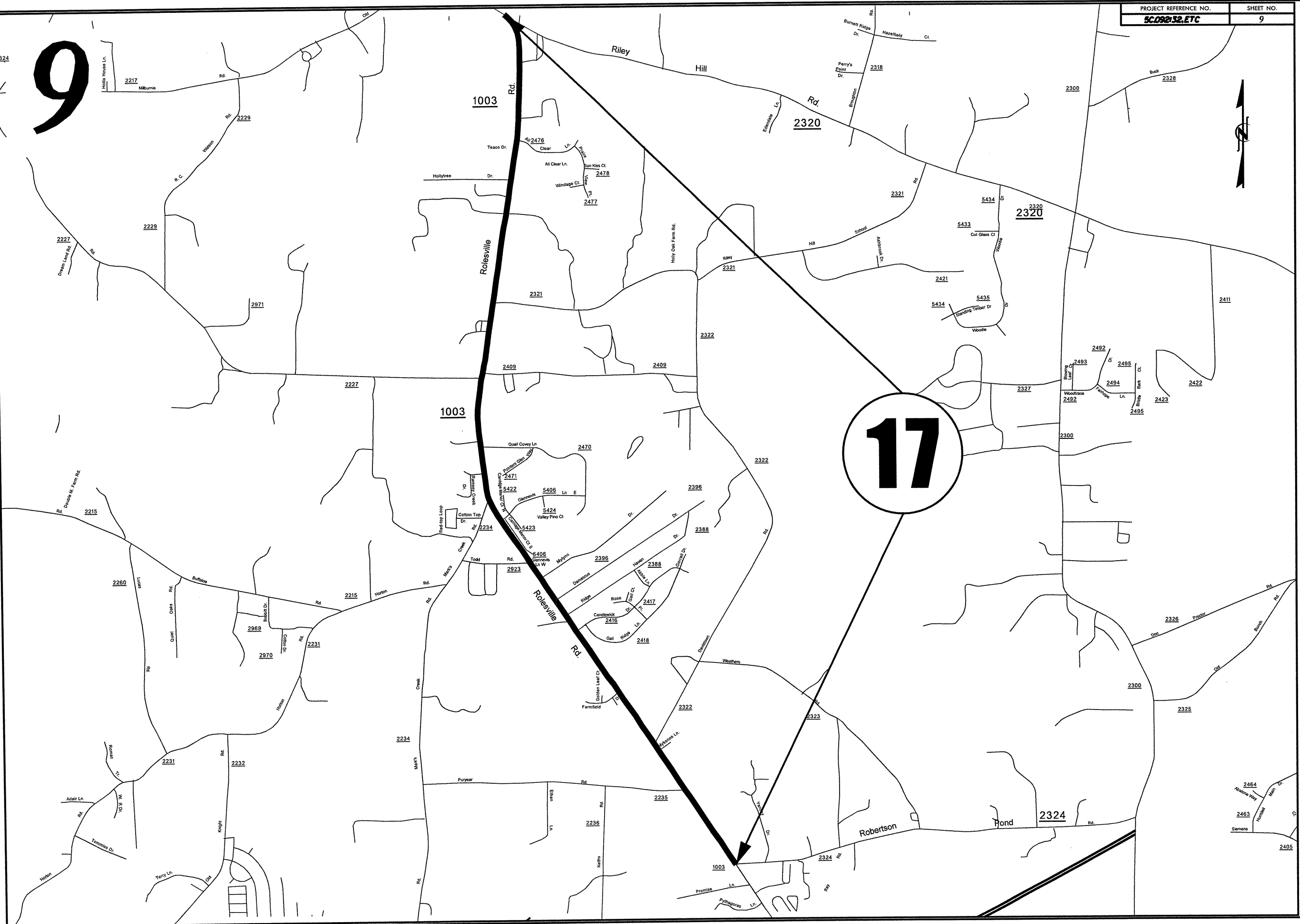






9

17

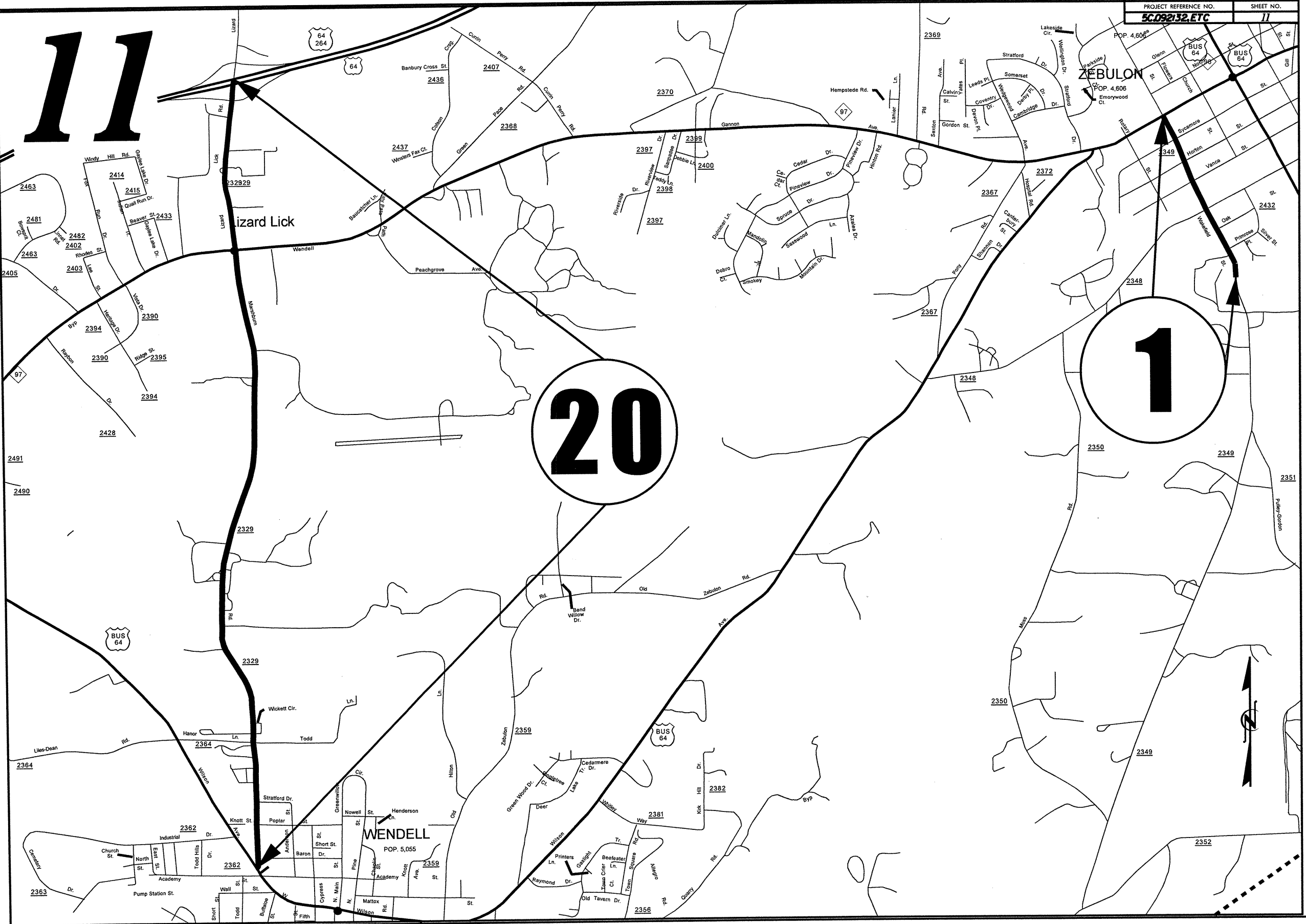




# 11

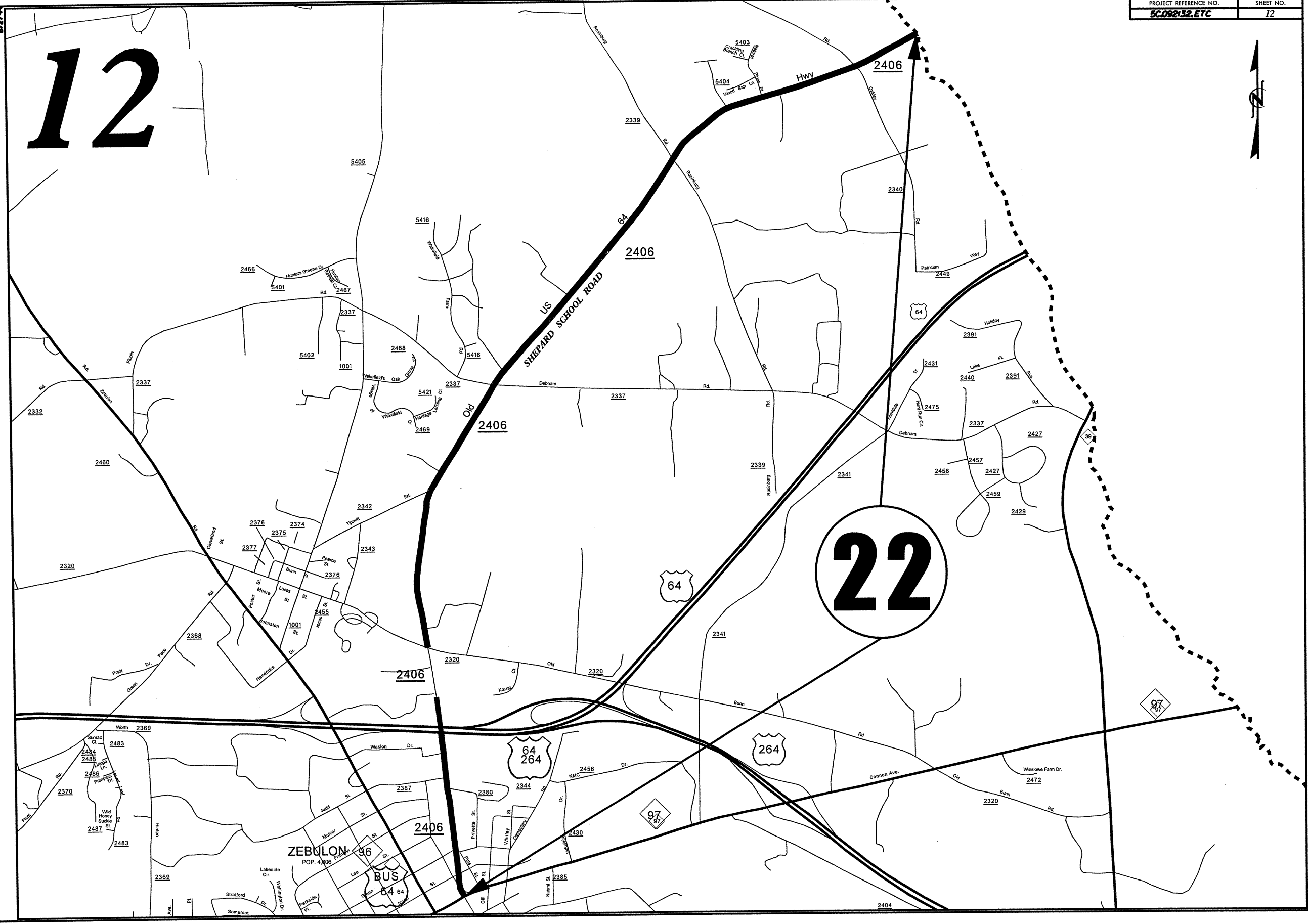
# 20

# 1



6/2/94

12

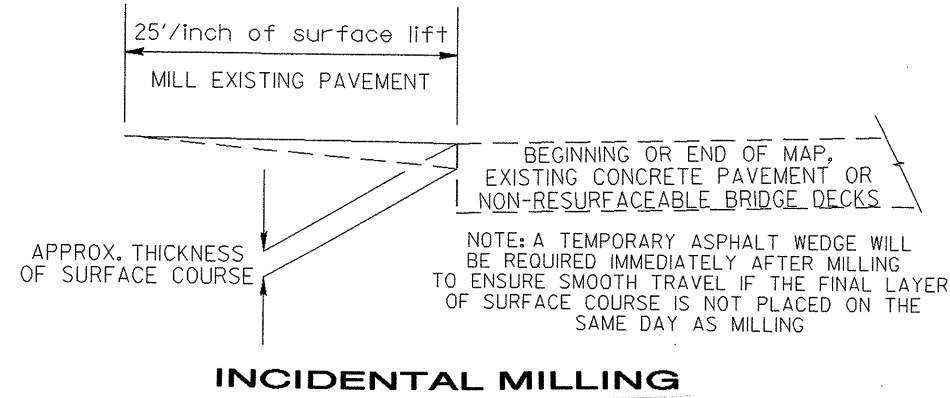




DETAIL  
MAP 23

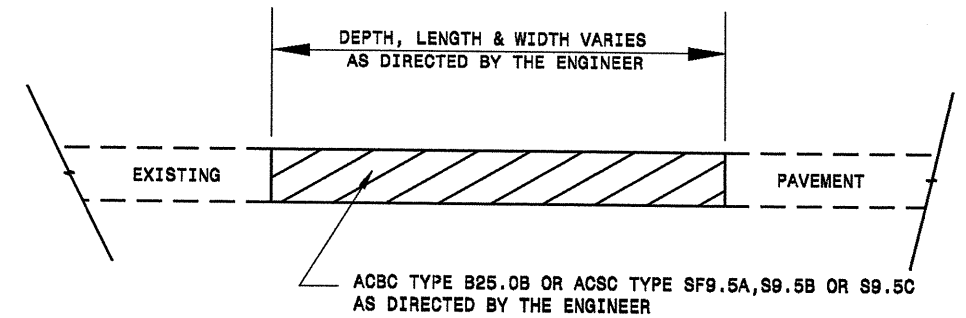
# PAVEMENT SCHEDULE

|    |   |
|----|---|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING  |
| U  | EXISTING PAVEMENT   |
| V1 | 1½" MILLING   |
| V2 | 2½" MILLING   |
| V3 | 4" MILLING  |
| V4 | 0" - 1½" MILLING  |

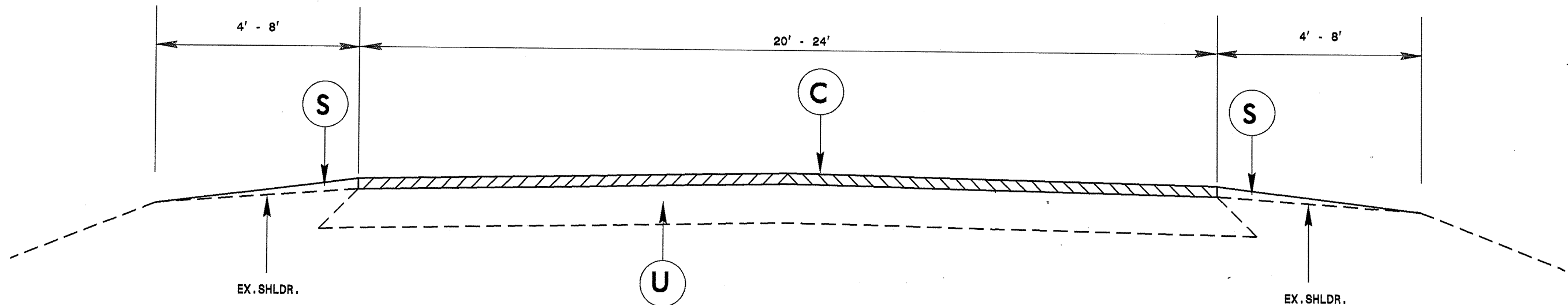


NOTES

ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT  
 ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADI, OR AS DIRECTED BY THE ENGINEER.  
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.  
 BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.



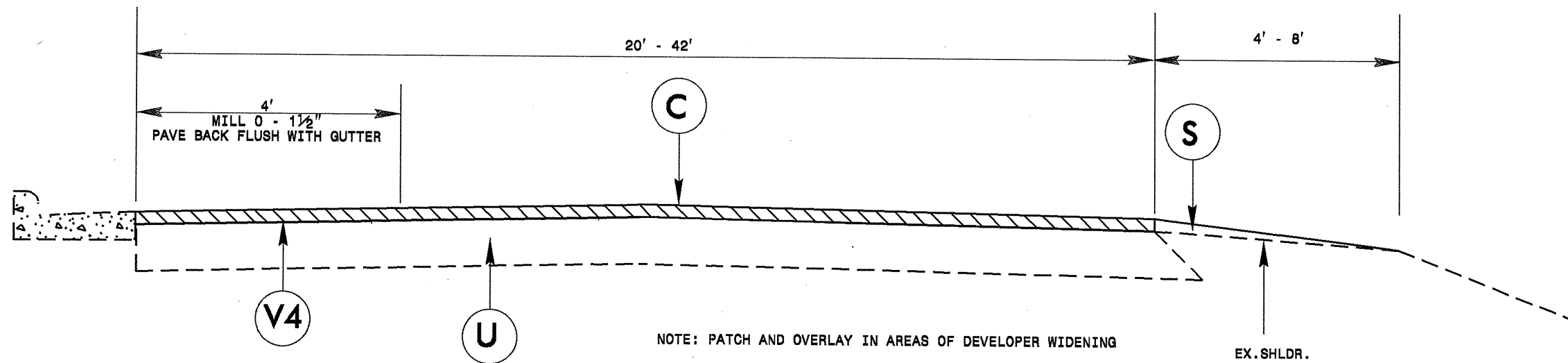
**PATCHING EXISTING PAVEMENT**



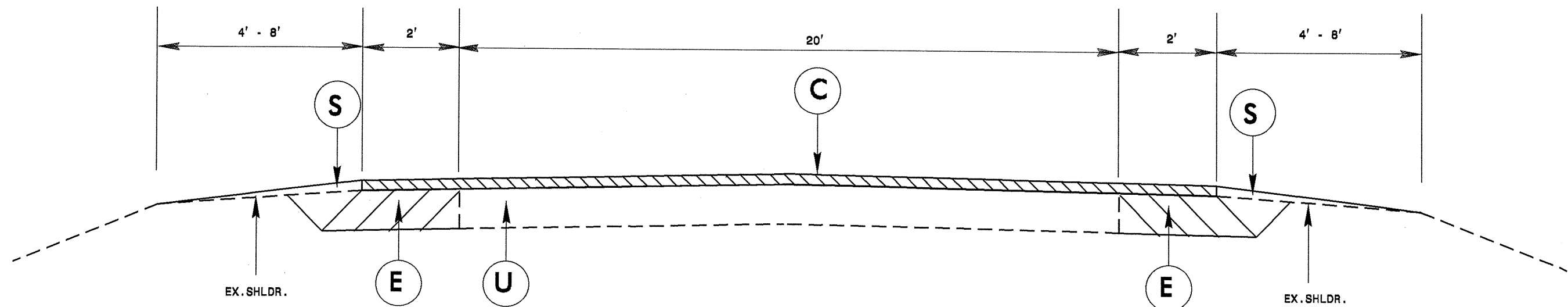
**TYPICAL SECTION NO. 1**

# PAVEMENT SCHEDULE

|    |  |
|----|--|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B,<br>AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B,<br>AT AN AVERAGE RATE OF 827 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING   |
| U  | EXISTING PAVEMENT  |
| V1 | 1½" MILLING  |
| V2 | 2½" MILLING  |
| V3 | 4" MILLING   |
| V4 | 0" - 1½" MILLING   |



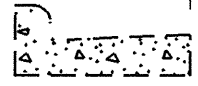
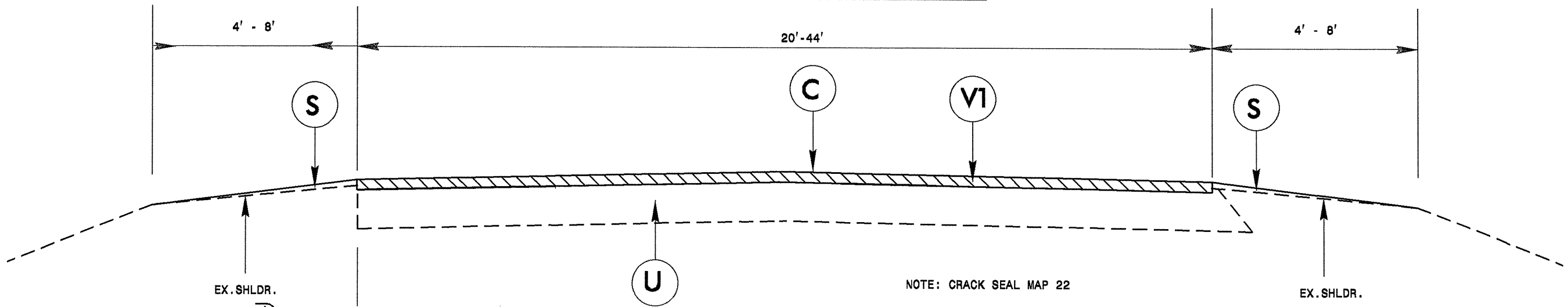
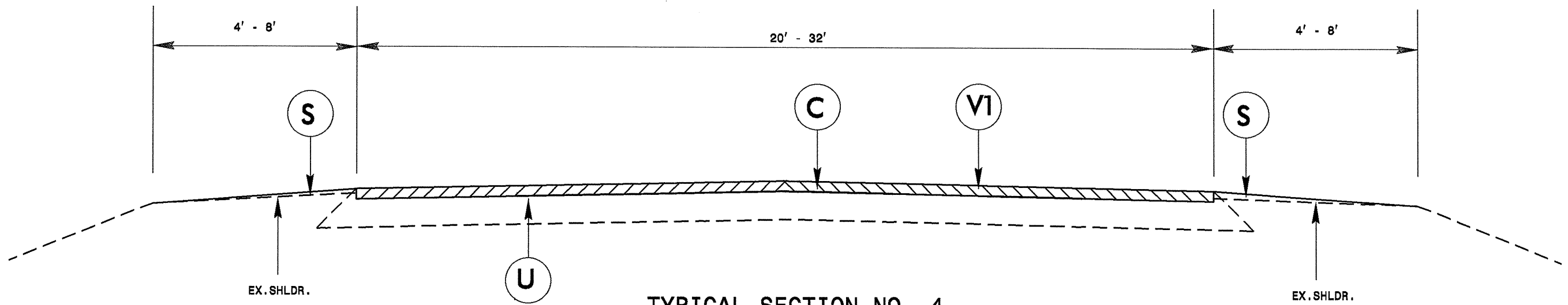
**TYPICAL SECTION NO. 2**



**TYPICAL SECTION NO. 3**

# PAVEMENT SCHEDULE

|    |   |
|----|---|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING  |
| U  | EXISTING PAVEMENT   |
| V1 | 1½" MILLING   |
| V2 | 2½" MILLING   |
| V3 | 4" MILLING  |
| V4 | 0" - 1½" MILLING  |

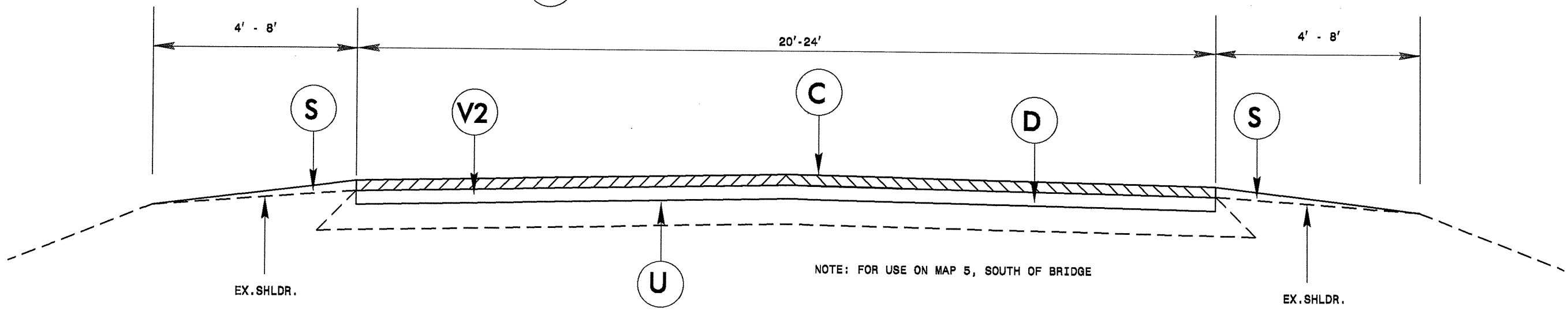
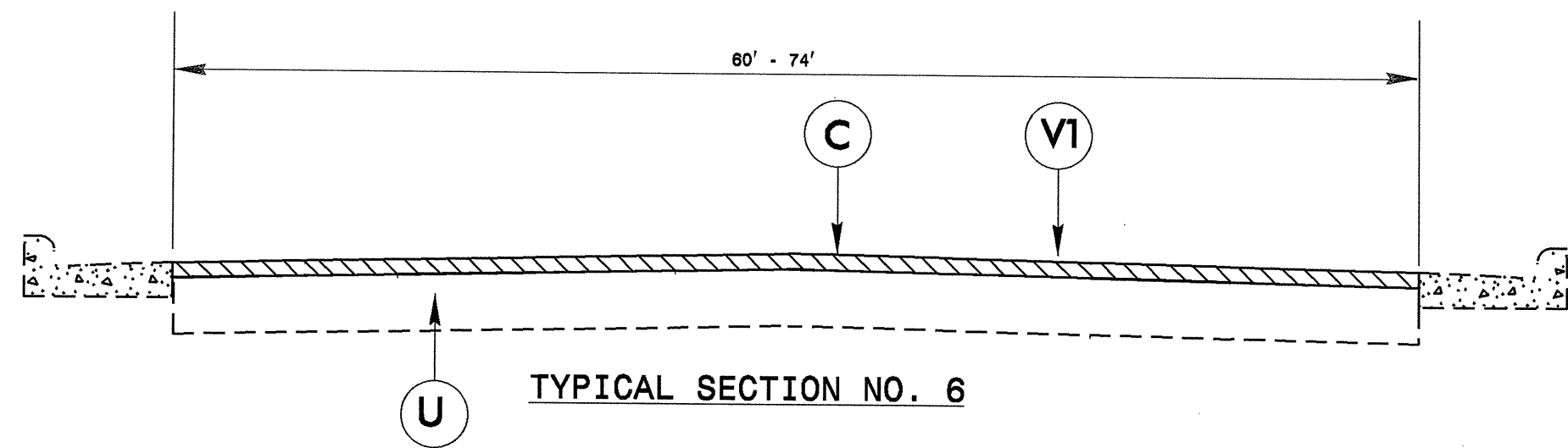


TYPICAL SECTION NO. 5



# PAVEMENT SCHEDULE

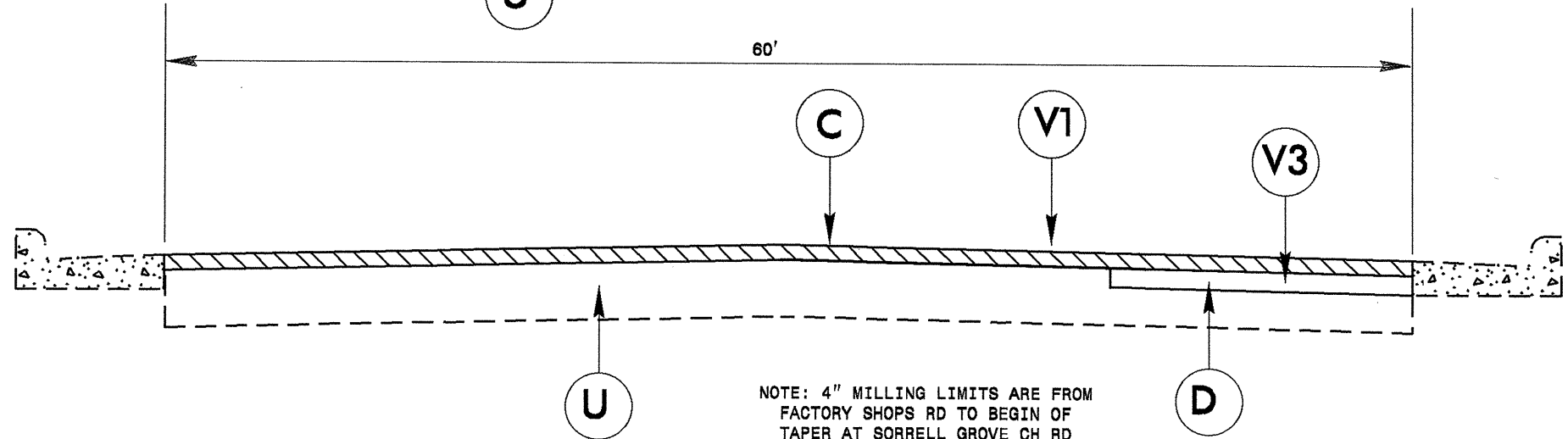
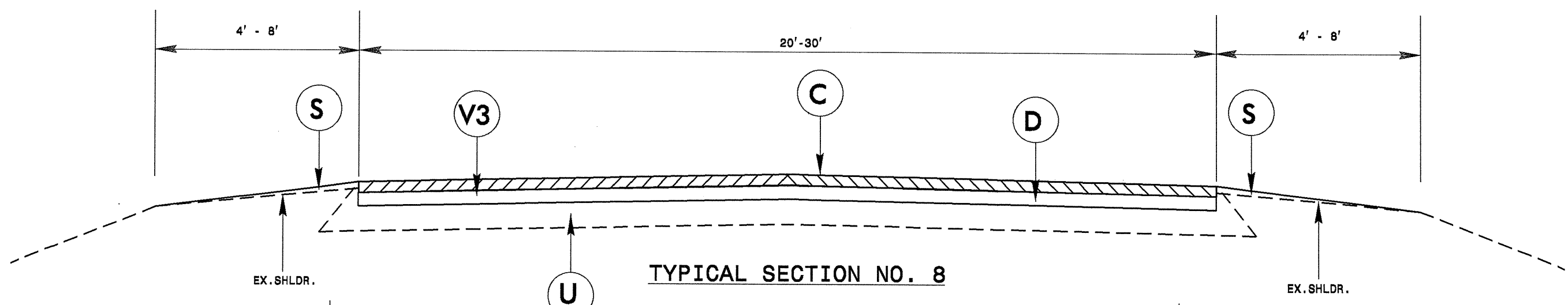
|    |  |
|----|--|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B,<br>AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B,<br>AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING   |
| U  | EXISTING PAVEMENT  |
| V1 | 1½" MILLING  |
| V2 | 2½" MILLING  |
| V3 | 4" MILLING   |
| V4 | 0" - 1½" MILLING   |



**TYPICAL SECTION NO. 7**

# PAVEMENT SCHEDULE

|    |  |
|----|--|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B,<br>AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B,<br>AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING   |
| U  | EXISTING PAVEMENT  |
| V1 | 1½" MILLING  |
| V2 | 2½" MILLING  |
| V3 | 4" MILLING   |
| V4 | 0" - 1½" MILLING   |

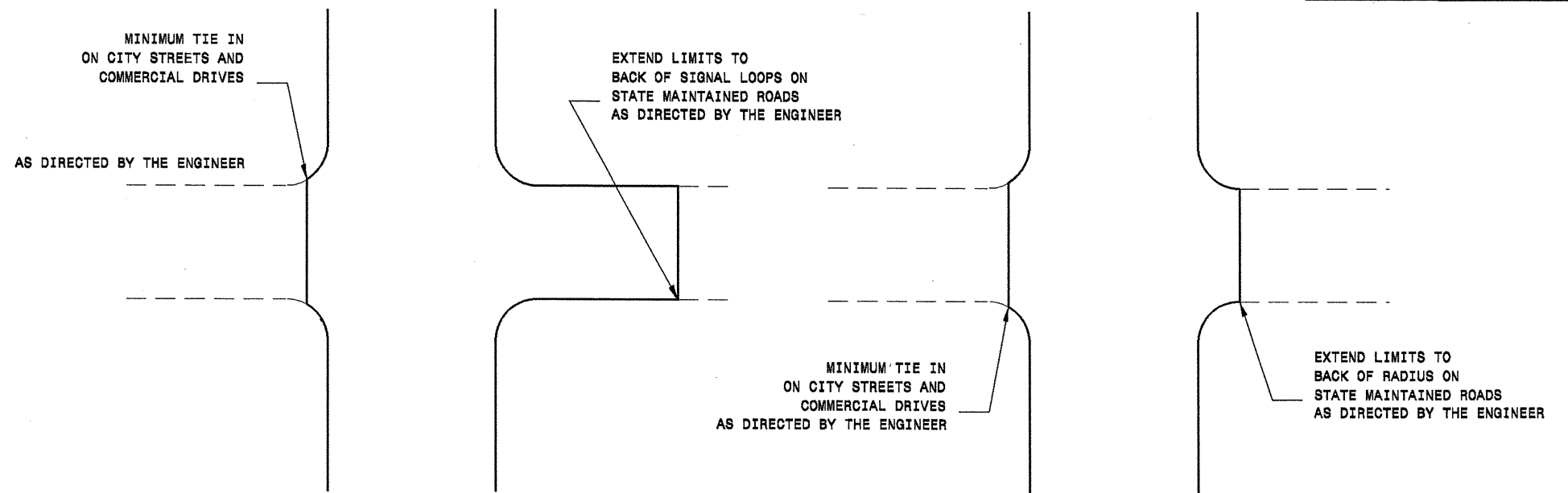


NOTE: 4" MILLING LIMITS ARE FROM  
FACTORY SHOPS RD TO BEGIN OF  
TAPER AT SORRELL GROVE CH RD  
(OUTER SOUTH BOUND LANE)

**TYPICAL SECTION NO. 9**

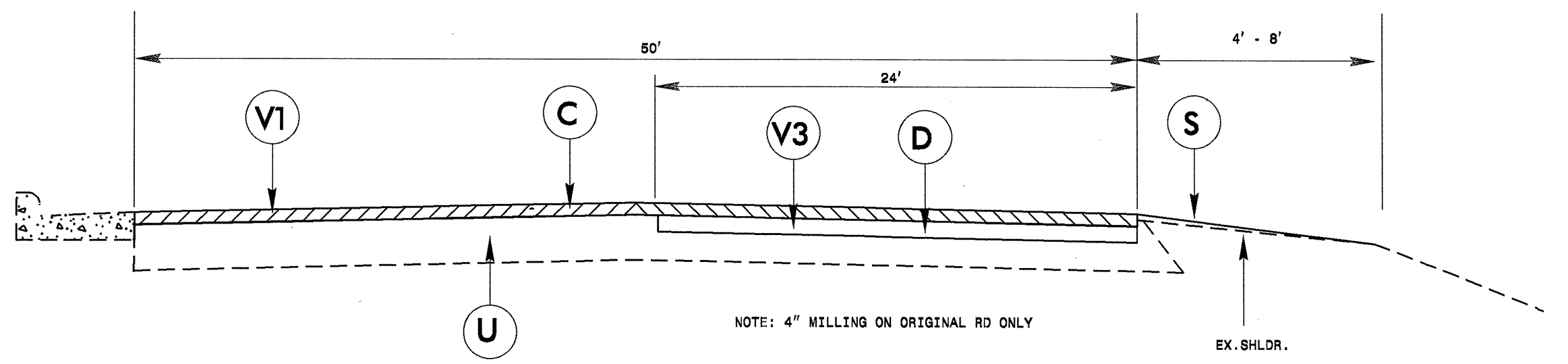
### PAVEMENT SCHEDULE

|    |   |
|----|---|
| C  | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.       |
| D  | 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| E  | 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.      |
| S  | PROP. SHOULDER GRADING  |
| U  | EXISTING PAVEMENT   |
| V1 | 1½" MILLING   |
| V2 | 2½" MILLING   |
| V3 | 4" MILLING  |
| V4 | 0" - 1½" MILLING  |

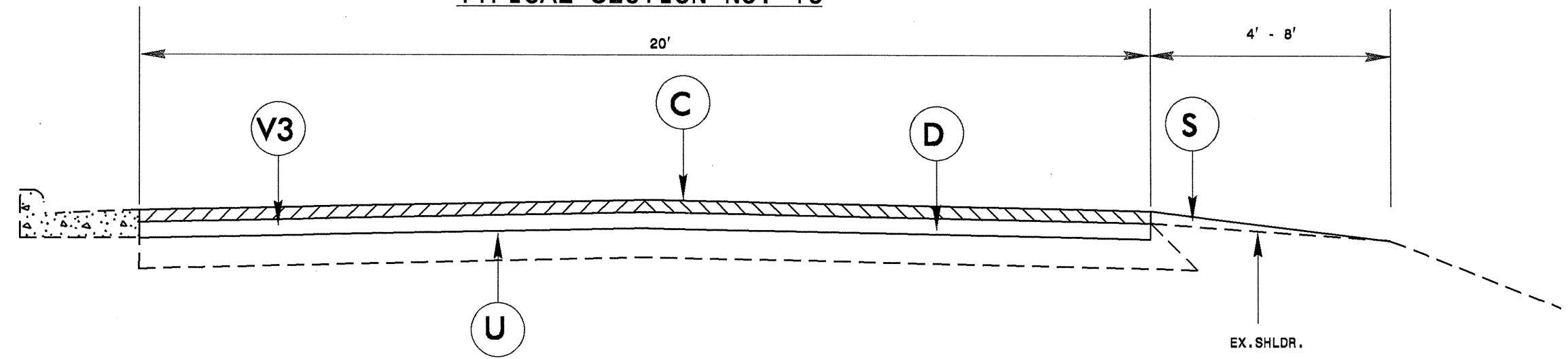


DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES



TYPICAL SECTION NO. 10



TYPICAL SECTION NO. 11

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

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## ***SOIL STABILIZATION TIMEFRAMES***

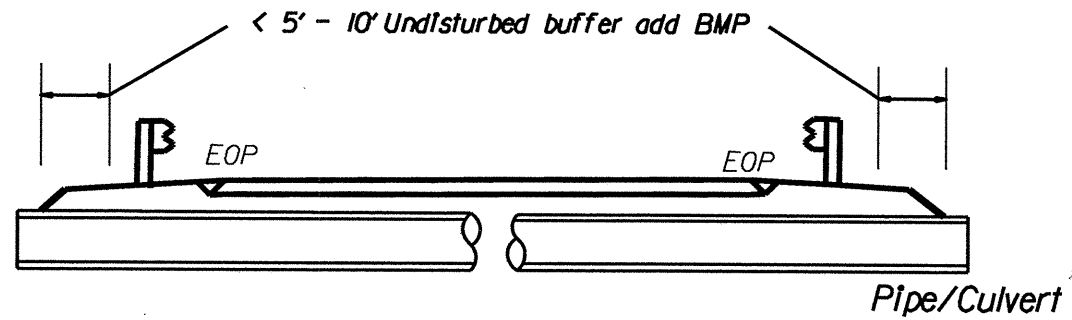
| <i>SITE DESCRIPTION</i>                      | <i>STABILIZATION TIME</i> | <i>TIMEFRAME EXCEPTIONS</i>  |
|--|---------------------------|--|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES  | 7 DAYS                    | NONE   |
| HIGH QUALITY WATER (HOW) ZONES               | 7 DAYS                    | 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.   |

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

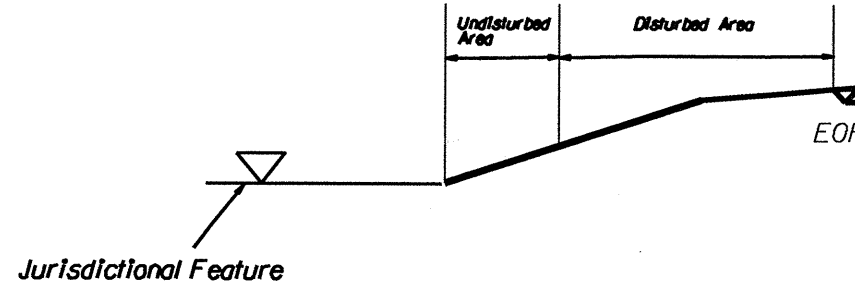
BMP Options: Wattle, Silt Fence, or Hardened Aggregate.

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| SC.092132, ETC.       | 21        |

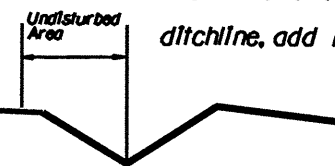
## EROSION CONTROL DETAIL



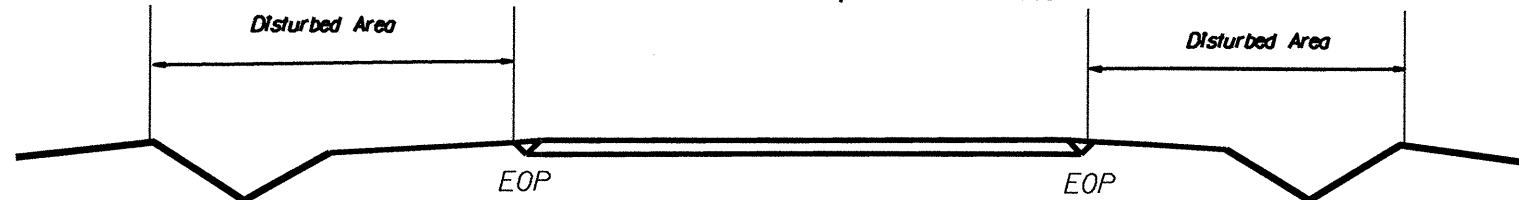
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



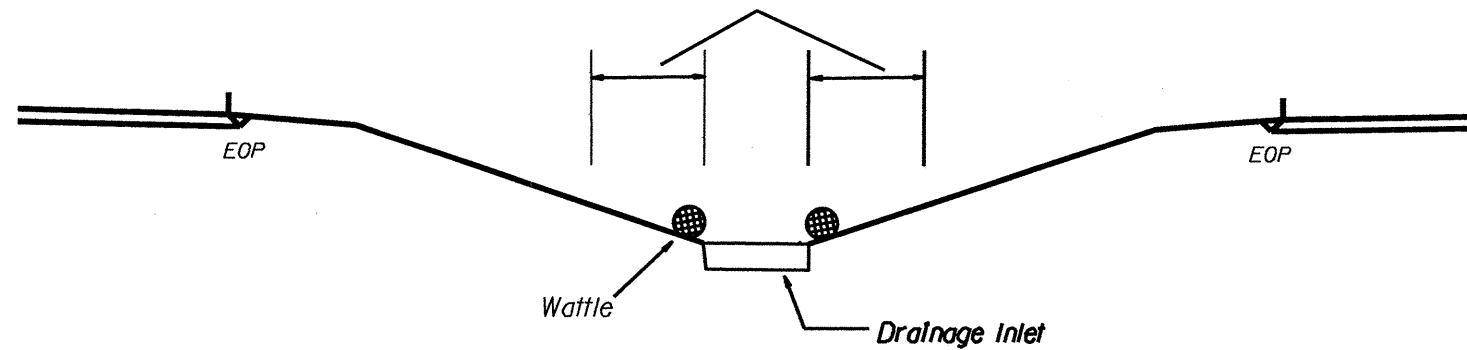
< 5' - 10' Undisturbed buffer from ditchline, add BMP



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

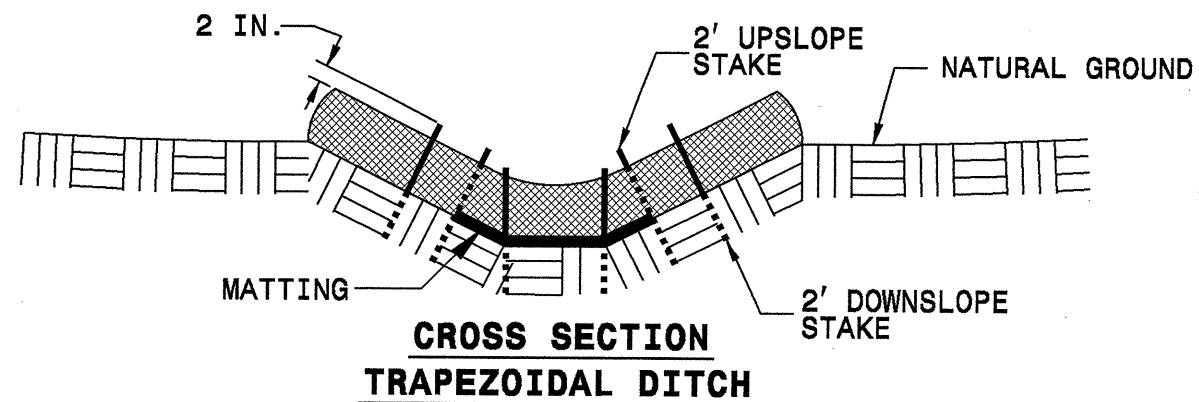
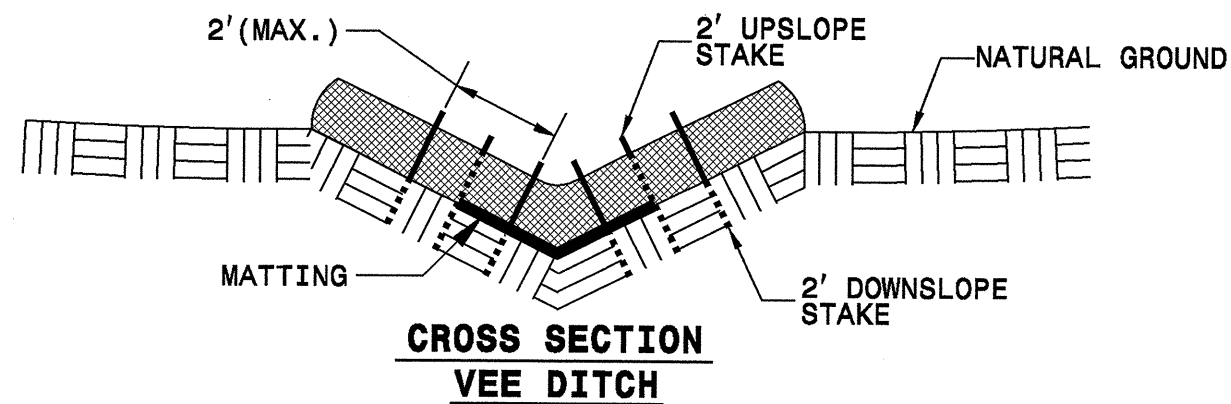
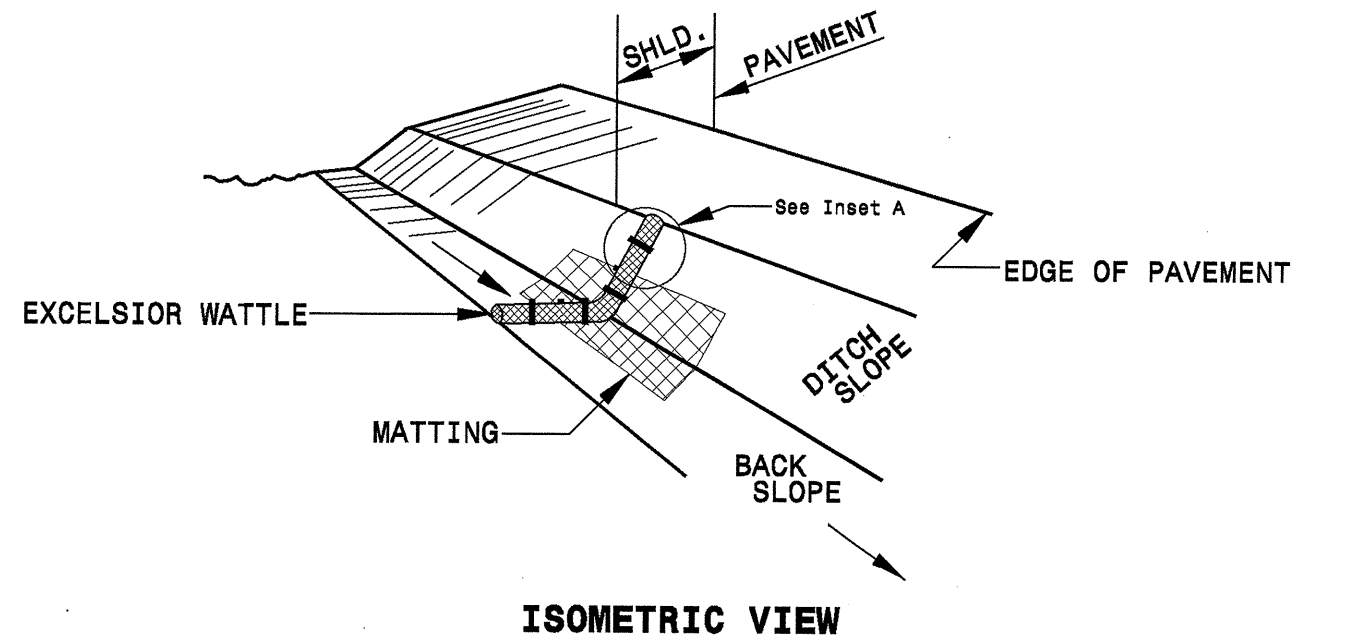


< 5' - 10' Undisturbed buffer from Inlet, add wattle



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.

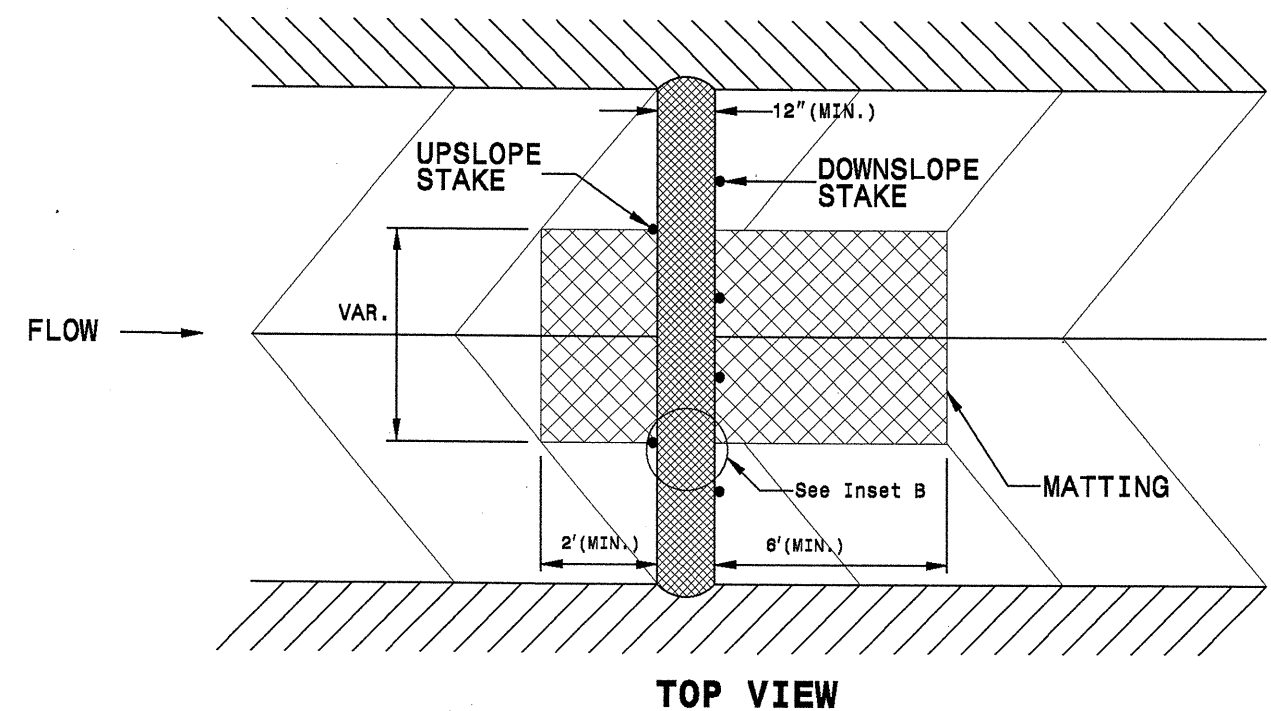
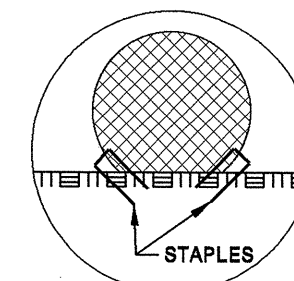
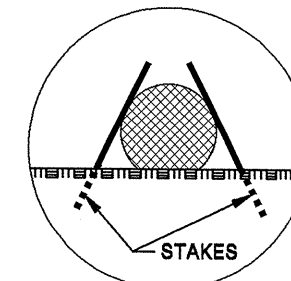
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

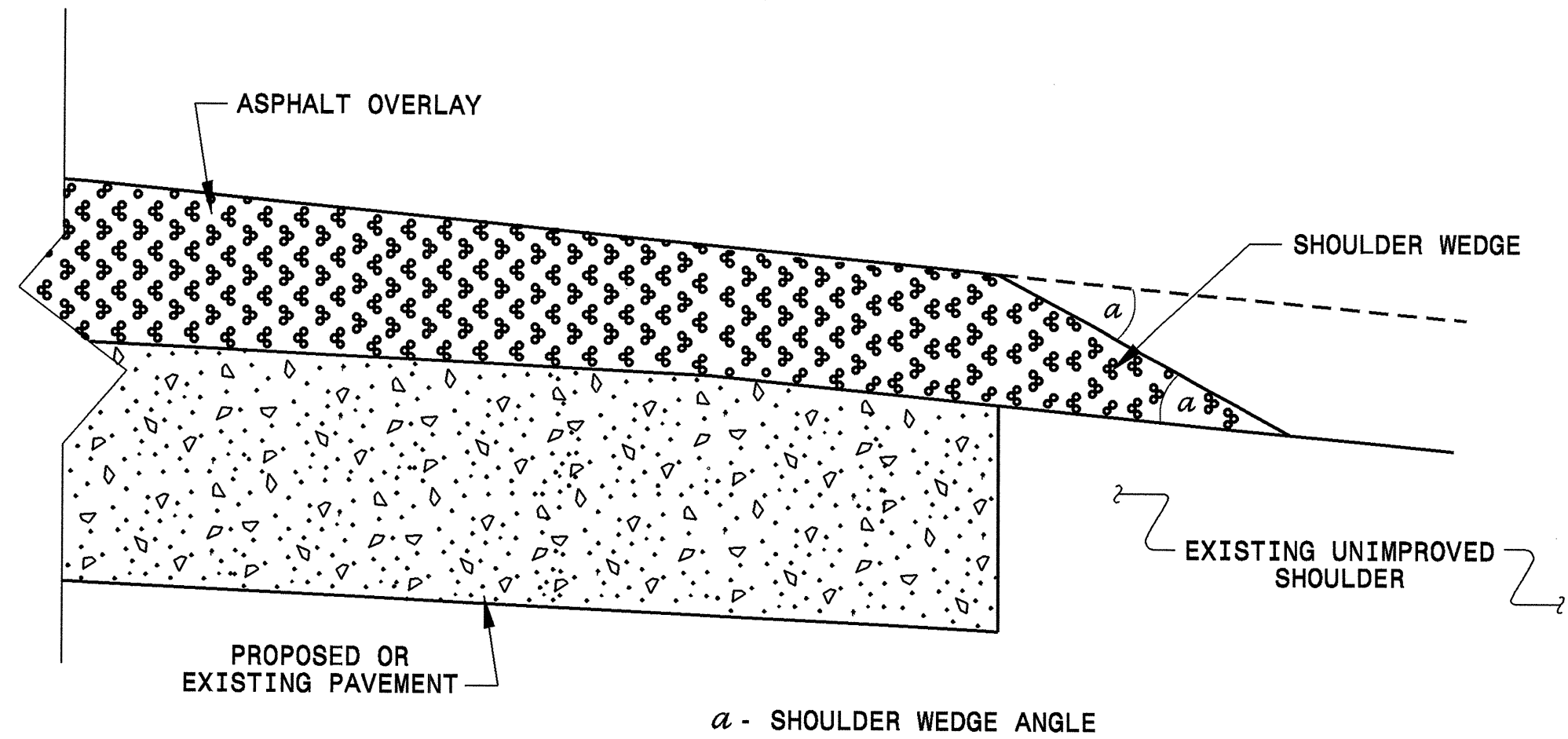
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

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.

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





# SHOULDER WEDGE DETAIL

07-JUN-2012 09:07  
 S:\Contracts\Contractors\Resurfacing Projects\Division 5\Wakenorth\Revised Files\Shoulder Wedge Detail.dgn  
 \$\$\$USERNAME\$\$\$

|  |   |       |         |
|--|---|-------|---------|
| <b>CONTRACT STANDARDS<br/>AND DEVELOPMENT UNIT</b><br>Office 919-707-6950 FAX 919-250-4119 |   |       |         |
| <b>SHOULDER WEDGE<br/>DETAIL</b>   |   |       |         |
| ORIGINAL BY:   | T.SPELL                                       | DATE: | 7-19-11 |
| MODIFIED BY:   |   | DATE: |         |
| CHECKED BY:  |   | DATE: |         |
| FILE SPEC.:  | s:\user\details\stand\shoulderwedgedetail.dgn |       |         |

|                         |           |           |
|-------------------------|-----------|-----------|
| PROJECT NO.             | SHEET NO. | TOTAL NO. |
| SC.092132, 5CR.20321.23 | 24        | 26        |
| SCR.20921.40,           |           |           |

### SUMMARY OF QUANTITIES

| PROJECT NO                      | COUNTY | MAP NO | ROUTE                                    | DESCRIPTION  | TYP  | FINAL SURFACE TESTING REQUIRED | LENGTH MI | WIDTH FT | BORROW CY | SHOULDER GRADING SMI | INCIDENTAL STONE BASE TONS | 4" MILLING SY | 1 1/2" MILLING SY | 2 1/2" MILLING SY | 0" TO 1 1/2" MILLING SY | INCIDENTAL MILLING SY | BASE COURSE, B25.0B TONS | INTERMEDIATE COURSE, I19.0B TONS | SURFACE COURSE, S9.5B TONS | ASPHALT BINDER FOR PLANT MIX TON | SEALING EXISTING PAVEMENT CRACKS & JOINTS LB | PATCHING EXISTING PAVEMENT TONS | ADJUST MANHOLES EA | ADJUST METER OR VALVE BOX EA | PORTABLE LIGHTING LS | TEMPORARY SILT FENCE LF | WATTLE LF | SEED & MULCHING AC | INDUCTIVE LOOP LF |       |       |
|---------------------------------|--------|--------|--|--|------|--------------------------------|-----------|----------|-----------|----------------------|----------------------------|---------------|-------------------|-------------------|-------------------------|-----------------------|--------------------------|----------------------------------|----------------------------|----------------------------------|--|---------------------------------|--------------------|------------------------------|----------------------|-------------------------|-----------|--------------------|-------------------|-------|-------|
| 5C.092132                       | Wake   | 1      | SR 2349 - WAKEFIELD ST/MORPHUS BRIDGE RD | NC 97 - GANNON AVE TO PAVEMENT JT                              | 11   | NO                             | 0.578     | 20-33    | 46        | 0.46                 | 23                         | 7,482         |                   |                   |                         | 670                   |                          | 1,130                            | 695                        | 96                               |  | 58                              | 8                  | 12                           |                      | 34                      | 90        | 0.34               | 198               |       |       |
| TOTAL FOR MAP NO. 1             |        |        |  |  |      |                                | 0.578     |          | 46        | 0.46                 | 23                         | 7,482         |                   |                   |                         | 670                   |                          | 1,130                            | 695                        | 96                               |  | 58                              | 8                  | 12                           |                      | 34                      | 90        | 0.34               | 198               |       |       |
| TOTAL FOR PROJ NO. 5C.092132    |        |        |  |  |      |                                | 0.578     |          | 46        | 0.46                 | 23                         | 7,482         |                   |                   |                         | 670                   |                          | 1,130                            | 695                        | 96                               |  | 58                              | 8                  | 12                           |                      | 34                      | 90        | 0.34               | 198               |       |       |
| 5CR.20321.23                    | Durham | 2      | SR 2100 - GREEN LEVEL CH RD              | WAKE CO LINE TO PAVEMENT JT. NEAR HWY 55                       | 1    | NO                             | 0.082     | 20       | 16        | 0.16                 | 8                          |               |                   |                   |                         | 55                    |                          |                                  | 89                         | 5                                |  | 20                              |                    |                              |                      | 12                      | 30        | 0.12               |                   |       |       |
| TOTAL FOR MAP NO. 2             |        |        |  |  |      |                                | 0.082     |          | 16        | 0.16                 | 8                          |               |                   |                   |                         | 55                    |                          |                                  | 89                         | 5                                |  | 20                              |                    |                              |                      |                         | 12        | 30                 | 0.12              |       |       |
| TOTAL FOR PROJ NO. 5CR.20321.23 |        |        |  |  |      |                                | 0.082     |          | 16        | 0.16                 | 8                          |               |                   |                   |                         | 55                    |                          |                                  | 89                         | 5                                |  | 20                              |                    |                              |                      |                         | 12        | 30                 | 0.12              |       |       |
| 5CR.20921.40                    | Wake   | 3      | SR 1630 - GREEN LEVEL CH RD              | JT SOUTH OF WAKE RD TO COUNTY LINE                             | 1    | NO                             | 0.37      | 24       | 74        | 0.74                 | 37                         |               |                   |                   |                         | 133                   |                          | 484                              | 29                         |                                  | 185  |                                 |                    |                              |                      | 54                      | 140       | 0.54               |                   |       |       |
| TOTAL FOR MAP NO. 3             |        |        |  |  |      |                                | 0.37      |          | 74        | 0.74                 | 37                         |               |                   |                   |                         | 133                   |                          | 484                              | 29                         |                                  | 185  |                                 |                    |                              |                      |                         | 54        | 140                | 0.54              |       |       |
| 5CR.20921.40                    | Wake   | 4      | SR 1631 - WAKE RD                        | SR 1630 - GREEN LEVEL CH RD TO DURHAM CO                       | 1    | NO                             | 0.578     | 20       | 116       | 1.16                 | 58                         |               |                   |                   |                         | 112                   |                          | 631                              | 38                         |                                  | 290  |                                 |                    |                              |                      | 84                      | 210       | 0.84               |                   |       |       |
| TOTAL FOR MAP NO. 4             |        |        |  |  |      |                                | 0.578     |          | 116       | 1.16                 | 58                         |               |                   |                   |                         | 112                   |                          | 631                              | 38                         |                                  | 290  |                                 |                    |                              |                      |                         |           | 84                 | 210               | 0.84  |       |
| 5CR.20921.40                    | Wake   | 5      | SR 1630 - GREEN LEVEL CHURCH RD          | JT S OF KIT CREEK BRG TO N OF CONC. ISLAND                     | 7,10 | NO                             | 0.29      | 24-59    | 38        | 0.38                 | 19                         | 2,347         | 2,923             | 1,320             |                         |                       |                          | 548                              | 649                        | 65                               |  | 30                              |                    |                              |                      | 28                      | 70        | 0.28               |                   |       |       |
| TOTAL FOR MAP NO. 5             |        |        |  |  |      |                                | 0.29      |          | 38        | 0.38                 | 19                         | 2,347         | 2,923             | 1,320             |                         |                       |                          | 548                              | 649                        | 65                               |  | 30                              |                    |                              |                      |                         | 28        | 70                 | 0.28              |       |       |
| 5CR.20921.40                    | Wake   | 6      | SR 3015 - AIRPORT BLVD                   | PAVEMENT JOINT SOUTH OF I-40 TO SR 1635 - MCCRIMMON PKWY       | 9    | NO                             | 1.05      | 60       |           |                      |                            | 2,723         | 36,945            |                   |                         |                       |                          | 407                              | 3,506                      | 230                              |  | 210                             |                    |                              |                      |                         |           |                    | 1,300             |       |       |
| TOTAL FOR MAP NO. 6             |        |        |  |  |      |                                | 1.05      |          |           |                      |                            | 2,723         | 36,945            |                   |                         |                       |                          | 407                              | 3,506                      | 230                              |  | 210                             |                    |                              |                      |                         |           |                    |                   | 1,300 |       |
| 5CR.20921.40                    | Wake   | 7      | SR 3099 - MT HERMON RD                   | SR 1645 - LUMLEY RD TO END OF MAINTENANCE                      | 8    | NO                             | 0.43      | 20-30    | 86        | 0.86                 | 43                         | 5,601         |                   |                   |                         |                       |                          | 846                              | 520                        | 72                               |  | 22                              |                    |                              |                      | 62                      | 160       | 0.62               |                   |       |       |
| TOTAL FOR MAP NO. 7             |        |        |  |  |      |                                | 0.43      |          | 86        | 0.86                 | 43                         | 5,601         |                   |                   |                         |                       |                          | 846                              | 520                        | 72                               |  | 22                              |                    |                              |                      |                         | 62        | 160                | 0.62              |       |       |
| 5CR.20921.40                    | Wake   | 8      | SR 1834 - NORWOOD RD                     | SR 1839 - LEESVILLE RD TO SR 1833 - MACON RD                   | 7    | NO                             | 1.832     | 23       | 366       | 3.66                 | 183                        |               |                   | 24,720            | 715                     |                       |                          | 3,732                            | 2,297                      | 317                              |  | 184                             |                    |                              |                      | 266                     | 670       | 2.66               | 606               |       |       |
| TOTAL FOR MAP NO. 8             |        |        |  |  |      |                                | 1.832     |          | 366       | 3.66                 | 183                        |               |                   | 24,720            | 715                     |                       |                          | 3,732                            | 2,297                      | 317                              |  | 184                             |                    |                              |                      |                         | 266       | 670                | 2.66              | 606   |       |
| 5CR.20921.40                    | Wake   | 9      | SR 2005 - HONEYCUTT RD                   | SR 2002 - POSSUM TRACK TO SR 2007 BRASSFIELD RD                | 4    | NO                             | 1.428     | 20       | 207       | 2.86                 | 143                        |               | 19,780            |                   |                         |                       |                          |                                  | 1,837                      | 110                              |  | 143                             |                    |                              |                      | 207                     | 520       | 2.07               |                   |       |       |
| TOTAL FOR MAP NO. 9             |        |        |  |  |      |                                | 1.428     |          | 207       | 2.86                 | 143                        |               | 19,780            |                   |                         |                       |                          |                                  |                            | 1,837                            | 110  |                                 | 143                |                              |                      |                         |           | 207                | 520               | 2.07  |       |
| 5CR.20921.40                    | Wake   | 10     | SR 2002 - POSSUM TRACK RD                | SR 2003 - BAYLEAF CH RD TO SR 2002 RAVEN RIDGE RD              | 1    | NO                             | 1.84      | 20-32    | 368       | 3.68                 | 184                        |               |                   |                   | 1,689                   |                       |                          |                                  | 2,132                      | 128                              |  | 368                             |                    |                              |                      | 267                     | 670       | 2.67               |                   |       |       |
| TOTAL FOR MAP NO. 10            |        |        |  |  |      |                                | 1.84      |          | 368       | 3.68                 | 184                        |               |                   |                   | 1,689                   |                       |                          |                                  |                            | 2,132                            | 128  |                                 | 368                |                              |                      |                         |           | 267                | 670               | 2.67  |       |
| 5CR.20921.40                    | Wake   | 11     | SR 2010 - HARDEE RD                      | SR 2002 - RAVEN RIDGE TO SR 2162 - POSSUM TRACK RD             | 1    | NO                             | 0.67      | 21       | 134       | 1.34                 | 67                         |               |                   |                   | 700                     |                       |                          |                                  | 767                        | 46                               |  | 335                             |                    |                              |                      | 97                      | 250       | 0.97               |                   |       |       |
| TOTAL FOR MAP NO. 11            |        |        |  |  |      |                                | 0.67      |          | 134       | 1.34                 | 67                         |               |                   |                   | 700                     |                       |                          |                                  |                            | 767                              | 46   |                                 | 335                |                              |                      |                         |           | 97                 | 250               | 0.97  |       |
| 5CR.20921.40                    | Wake   | 12     | SR 2000 - FALLS OF NEUSE RD              | PVMT JT PVMT JT  | 6    | NO                             | 0.269     | 60-72    |           |                      |                            |               | 13,173            |                   |                         |                       |                          |                                  | 1,164                      | 70                               |  | 80                              | 15                 | 12                           | 0.50                 |                         |           |                    | 1,800             |       |       |
| TOTAL FOR MAP NO. 12            |        |        |  |  |      |                                | 0.269     |          |           |                      |                            |               | 13,173            |                   |                         |                       |                          |                                  |                            | 1,164                            | 70   |                                 | 80                 | 15                           | 12                   | 0.50                    |           |                    |                   | 1,800 |       |
| 5CR.20921.40                    | Wake   | 13     | SR 2015 - DIXIE FOREST RD                | SR 2012 - LITCHFORD RD TO SR 2041 - SPRING FOREST RD           | 2    | NO                             | 0.227     | 20-38    | 37        | 0.37                 | 19                         |               |                   |                   | 220                     | 500                   |                          |                                  | 361                        | 22                               |  | 150                             | 1                  | 2                            |                      | 27                      | 70        | 0.27               |                   |       |       |
| TOTAL FOR MAP NO. 13            |        |        |  |  |      |                                | 0.227     |          | 37        | 0.37                 | 19                         |               |                   |                   | 220                     | 500                   |                          |                                  |                            | 361                              | 22   |                                 | 150                | 1                            | 2                    |                         | 27        | 70                 | 0.27              |       |       |
| 5CR.20921.40                    | Wake   | 14     | SR 3555 - OLD WAKE FOREST RD             | JOINT W OF RURITANIA ST TO SR 2012 LITCHFORD RD                | 5    | NO                             | 0.76      | 24-44    | 77        | 0.77                 | 39                         |               | 16,437            |                   |                         |                       |                          | 1,524                            | 91                         |                                  | 77   | 1                               | 4                  |                              |                      | 56                      | 140       | 0.56               | 445               |       |       |
| TOTAL FOR MAP NO. 14            |        |        |  |  |      |                                | 0.76      |          | 77        | 0.77                 | 39                         |               | 16,437            |                   |                         |                       |                          |                                  | 1,524                      | 91                               |  | 77                              | 1                  | 4                            |                      |                         | 56        | 140                | 0.56              | 445   |       |
| 5CR.20921.40                    | Wake   | 15     | SR 1945 - AVERETTE RD                    | NC 98 - WAIT AVE TO SR 1942 - OAK GROVE CH RD                  | 1    | NO                             | 1.71      | 21       | 342       | 3.42                 | 171                        |               |                   |                   |                         |                       |                          | 1,958                            | 117                        |                                  | 171  |                                 |                    |                              |                      | 248                     | 620       | 2.48               |                   |       |       |
| TOTAL FOR MAP NO. 15            |        |        |  |  |      |                                | 1.71      |          | 342       | 3.42                 | 171                        |               |                   |                   |                         |                       |                          | 1,958                            | 117                        |                                  | 171  |                                 |                    |                              |                      |                         |           | 248                | 620               | 2.48  |       |
| 5CR.20921.40                    | Wake   | 16     | SR 2217 - OLD MILBURNIE RD               | SR 2215 - BUFFALO RD TO SR 1003 - ROLESVILLE RD                | 1    | NO                             | 4.26      | 24       | 852       | 8.52                 | 426                        | 243           |                   |                   | 2,600                   |                       |                          |                                  | 4,806                      | 288                              |  | 1,830                           |                    |                              |                      | 618                     | 1,550     | 6.18               | 414               |       |       |
| TOTAL FOR MAP NO. 16            |        |        |  |  |      |                                | 4.26      |          | 852       | 8.52                 | 426                        | 243           |                   |                   | 2,600                   |                       |                          |                                  | 4,806                      | 288                              |  | 1,830                           |                    |                              |                      |                         | 618       | 1,550              | 6.18              | 414   |       |
| 5CR.20921.40                    | Wake   | 17     | SR 1003 - ROLESVILLE RD                  | SR 2324 - ROBERTSON POND RD TO SR 2320 - RILEY HILL RD         | 4    | NO                             | 3.85      | 22       | 770       | 7.70                 | 385                        |               | 50,187            |                   |                         |                       |                          |                                  | 4,663                      | 280                              |  | 385                             |                    |                              |                      | 558                     | 1,400     | 5.58               |                   |       |       |
| TOTAL FOR MAP NO. 17            |        |        |  |  |      |                                | 3.85      |          | 770       | 7.70                 | 385                        |               | 50,187            |                   |                         |                       |                          |                                  | 4,663                      | 280                              |  | 385                             |                    |                              |                      |                         |           | 558                | 1,400             | 5.58  |       |
| 5CR.20921.40                    | Wake   | 18     | SR 2234 - MARKS CREEK RD                 | US 64 BUS TO SR 1003 - ROLESVILLE RD                           | 1    | NO                             | 2.12      | 20       | 424       | 4.24                 | 212                        |               |                   |                   |                         | 290                   |                          |                                  | 2,164                      | 130                              |  | 424                             |                    |                              |                      | 307                     | 770       | 3.07               |                   |       |       |
| TOTAL FOR MAP NO. 18            |        |        |  |  |      |                                | 2.12      |          | 424       | 4.24                 | 212                        |               |                   |                   |                         | 290                   |                          |                                  | 2,164                      | 130                              |  | 424                             |                    |                              |                      |                         |           | 307                | 770               | 3.07  |       |
| 5CR.20921.40                    | Wake   | 19     | SR 2232 - OLD KNIGHT RD                  | US 64 BUS TO SR 2231 - HORTON RD                               | 2    | NO                             | 1.8       | 20-75    | 303       | 3.03                 | 152                        |               |                   | 1,347             | 414                     |                       |                          |                                  | 2,462                      | 148                              |  | 360                             |                    |                              |                      | 220                     | 550       | 2.20               | 408               |       |       |
| TOTAL FOR MAP NO. 19            |        |        |  |  |      |                                | 1.8       |          | 303       | 3.03                 | 152                        |               | 1,347             | 414               |                         |                       |                          | 2,462                            | 148                        |                                  |  | 2,462                           | 148                |                              | 360                  |                         |           | 220                | 550               | 2.20  | 408   |
| 5CR.20921.40                    | Wake   | 20     | SR 2329 - LIZARD LICK RD/MARSHBURN RD    | US 64 TO US 64 BUS   | 3    | NO                             | 2.683     | 24       | 537       | 5.37                 | 268                        |               |                   |                   |                         |                       |                          |                                  | 1,333                      | 2,074                            |  | 970                             | 1                  | 1                            |                      | 389                     | 980       | 3.89               |                   |       |       |
| TOTAL FOR MAP NO. 20            |        |        |  |  |      |                                | 2.683     |          | 537       | 5.37                 | 268                        |               |                   |                   |                         |                       |                          | 1,333                            | 2,074                      |                                  | 970  | 1                               | 1                  |                              |                      |                         |           | 389                | 980               | 3.89  |       |
| 5CR.20921.40                    | Wake   | 21     | SR 2162 - POSSUM TRACK RD                | SR 2002 - RAVEN RIDGE RD TO EOM                                | 1    | NO                             | 1.46      | 20       | 292       | 2.92                 | 146                        |               |                   |                   |                         | 1,135                 |                          |                                  | 1,698                      | 102                              |  | 292                             |                    |                              |                      | 212                     | 530       | 2.12               |                   |       |       |
| TOTAL FOR MAP NO. 21            |        |        |  |  |      |                                | 1.46      |          | 292       | 2.92                 | 146                        |               |                   |                   |                         | 1,135                 |                          |                                  | 1,698                      | 102                              |  | 292                             |                    |                              |                      |                         |           | 212                | 530               | 2.12  |       |
| 5CR.20921.40                    | Wake   | 22     | SR 2406 - SHEPARD SCHOOL RD              | NC 97 TO FRANKLIN CO LINE (EXCLUDE SECTION AT SCHOOL ENTRANCE) | 5    | NO                             | 3.975     | 20-32    | 741       | 7.41                 | 371                        |               | 54,658            |                   |                         |                       |                          |                                  | 5,077                      | 305                              | 30,190                                       | 415                             | 2                  | 1                            |                      | 539                     | 1,350     | 5.39               |                   |       |       |
| TOTAL FOR MAP NO. 22            |        |        |  |  |      |                                | 3.975     |          | 741       | 7.41                 | 371                        |               | 54,658            |                   |                         |                       |                          |                                  | 5,077                      | 305                              | 30,190                                       | 415                             | 2                  | 1                            |                      |                         |           | 539                | 1,350             | 5.39  |       |
| 5CR.20921.40                    | Wake   | 23     | SR 1005 - SIX FORKS RD                   | INTERSECTION WITH SR 1829 - STRICKLAND RD                      | 6    | NO                             | 0.1       | 64-74    |           |                      |                            |               | 8,713             |                   |                         |                       |                          |                                  | 769                        | 46                               |  | 50                              | 2                  | 9                            | 0.50                 |                         |           |                    | 1,250             |       |       |
| TOTAL FOR MAP NO. 23            |        |        |  |  |      |                                | 0.1       |          |           |                      |                            |               | 8,713             |                   |                         |                       |                          |                                  | 769                        | 46                               |  | 50                              | 2                  | 9                            | 0.50                 |                         |           |                    |                   |       | 1,250 |
| TOTAL FOR PROJ NO. 5CR.20921.40 |        |        |  |  |      |                                | 31.702    |          | 5,764     | 58.43                | 2,923                      | 10,914        | 202,816           | 26,040            | 1,567                   | 10,876                | 2,074                    | 5,533                            | 43,847                     | 3,042                            | 30,190                                       | 7,049                           | 30                 | 41                           | 1.00                 | 4,239                   | 10,650    | 42.39              | 6,421             |       |       |
| GRAND TOTAL                     |        |        |  |  |      |                                | 32.362    |          | 5,826     | 59.05                | 2,954                      | 18,396        | 202,816           | 26,040            | 1,567                   | 10,876                | 2,074                    | 6,663                            | 43,847                     | 3,042                            | 30,190                                       | 7,049                           | 30                 | 41                           | 1.00                 | 4,285                   | 10,770    | 42.85              | 6,421             |       |       |



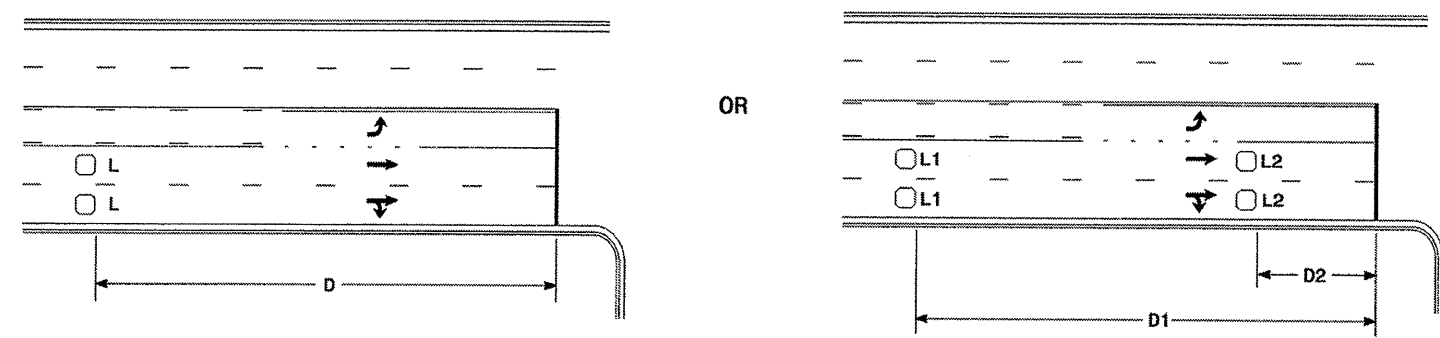


|  |           |           |
|--|-----------|-----------|
| PROJECT NO.                              | SHEET NO. | TOTAL NO. |
| 5C.092132, 5CR.20921.23<br>5CR.20921.40, | 26        | 26        |

| PROJECT NO                      | COUNTY | MAP NO | ROUTE                                    | DESCRIPTION  | LENGTH | WIDTH | 477000000-E                                |   | 481000000-E        |                   | 482000000-E       |                    | 483000000-E        | 483500000-E        | 484000000-N      |                   | 484500000-N       |                   | 485000000-E        | 490000000-N             |                    |                            |                          |    |
|---------------------------------|--------|--------|--|--|--------|-------|--|---|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|------------------|-------------------|-------------------|-------------------|--------------------|-------------------------|--------------------|----------------------------|--------------------------|----|
|                                 |        |        |  |  |        |       | 4" WHITE COLD APPLIED PLASTIC, TYPE III LF | 4" YELLOW COLD APPLIED PLASTIC, TYPE III LF | 4" YELLOW PAINT LF | 4" WHITE PAINT LF | 8" WHITE PAINT LF | 8" YELLOW PAINT LF | 16" WHITE PAINT LF | 24" WHITE PAINT LF | PAINT MSG RXR EA | PAINT MSG ONLY EA | PAINT RT ARROW EA | PAINT LT ARROW EA | PAINT STR ARROW EA | PAINT STR & RT ARROW EA | 4" LINE REMOVAL LF | YELLOW & YELLOW MARKERS EA | CRYSTAL & RED MARKERS EA |    |
| 5C.092132                       | Wake   | 1      | SR 2349 - WAKEFIELD ST/MORPHUS BRIDGE RD | NC 97 - GANNON AVE TO PAVEMENT JT                              | 0.578  | 20    |  |   | 5,080              | 3,696             | 235               |                    | 100.00             | 90                 | 4                |                   |                   |                   |                    |                         | 38                 |                            |                          |    |
| TOTAL FOR MAP NO. 1             |        |        |  |  | 0.578  |       |  |   | 5,080              | 3,696             | 235               |                    | 100                | 90                 | 4                |                   |                   |                   |                    |                         |                    | 38                         |                          |    |
| TOTAL FOR PROJ NO. 5C.092132    |        |        |  |  | 0.578  |       |  |   | 5,080              | 3,696             | 235               |                    | 100                | 90                 | 4                |                   |                   |                   |                    |                         |                    | 38                         |                          |    |
|                                 |        |        |  |  |        |       | 8,776                                      |   |                    |                   | 235               |                    |                    |                    | 4                |                   |                   |                   |                    |                         | 38                 |                            |                          |    |
| 5CR.20321.23                    | Durham | 2      | SR 2100 - GREEN LEVEL CH RD              | WAKE CO LINE TO PAVEMENT JT. NEAR HWY 55                       | 0.082  | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 5                  |                            |                          |    |
| TOTAL FOR MAP NO. 2             |        |        |  |  | 0.082  |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 5                          |                          |    |
| TOTAL FOR PROJ NO. 5CR.20321.23 |        |        |  |  | 0.082  |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 5                          |                          |    |
|                                 |        |        |  |  |        |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 5                  |                            |                          |    |
| 5CR.20921.40                    | Wake   | 3      | SR 1630 - GREEN LEVEL CH RD              | JT SOUTH OF WAKE RD TO COUNTY LINE                             | 0.37   | 24    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 24                 |                            |                          |    |
| TOTAL FOR MAP NO. 3             |        |        |  |  | 0.37   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 24                         |                          |    |
| 5CR.20921.40                    | Wake   | 4      | SR 1631 - WAKE RD                        | SR 1630 - GREEN LEVEL CH RD TO DURHAM CO                       | 0.578  | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 38                 |                            |                          |    |
| TOTAL FOR MAP NO. 4             |        |        |  |  | 0.578  |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 38                         |                          |    |
| 5CR.20921.40                    | Wake   | 5      | SR 1630 - GREEN LEVEL CHURCH RD          | JT S OF KIT CREEK BRG TO N OF CONC. ISLAND                     | 0.29   | 24    |  |   | 3,900              | 3,359             | 425               | 138                |                    |                    |                  | 2                 | 2                 |                   |                    |                         | 52                 | 11                         |                          |    |
| TOTAL FOR MAP NO. 5             |        |        |  |  | 0.29   |       |  |   | 3,900              | 3,359             | 425               | 138                |                    |                    |                  | 2                 | 2                 |                   |                    |                         |                    | 52                         | 11                       |    |
| 5CR.20921.40                    | Wake   | 6      | SR 3015 - AIRPORT BLVD                   | PAVEMENT JOINT SOUTH OF I-40 TO SR 1635 - MCCRIMMON PKWY       | 1.05   | 60    |  |   | 12,015             | 3,886             | 320               | 45                 |                    | 188                |                  | 8                 | 9                 | 33                | 10                 | 4                       | 220                | 230                        |                          |    |
| TOTAL FOR MAP NO. 6             |        |        |  |  | 1.05   |       |  |   | 12,015             | 3,886             | 320               | 45                 |                    | 188                |                  | 8                 | 9                 | 33                | 10                 | 4                       |                    | 220                        | 230                      |    |
| 5CR.20921.40                    | Wake   | 7      | SR 3099 - MT HERMON RD                   | SR 1645 - LUMLEY RD TO END OF MAINTENANCE                      | 0.43   | 20    |  |   | 4,540              | 4,540             |                   |                    |                    |                    |                  | 8                 | 9                 | 33                | 10                 | 4                       | 28                 |                            |                          |    |
| TOTAL FOR MAP NO. 7             |        |        |  |  | 0.43   |       |  |   | 4,540              | 4,540             |                   |                    |                    |                    |                  | 8                 | 9                 | 33                | 10                 | 4                       |                    | 28                         |                          |    |
| 5CR.20921.40                    | Wake   | 8      | SR 1834 - NORWOOD RD                     | SR 1839 - LEESVILLE RD TO SR 1833 - MACON RD                   | 1.832  | 23    |  |   | 18,159             | 19,346            |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 121                |                            |                          |    |
| TOTAL FOR MAP NO. 8             |        |        |  |  | 1.832  |       |  |   | 18,159             | 19,346            |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 121                        |                          |    |
| 5CR.20921.40                    | Wake   | 9      | SR 2005 - HONEYCUTT RD                   | SR 2002 - POSSUM TRACK TO SR 2007 BRASSFIELD RD                | 1.428  | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 130                | 23                         |                          |    |
| TOTAL FOR MAP NO. 9             |        |        |  |  | 1.428  |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 130                        | 23                       |    |
| 5CR.20921.40                    | Wake   | 10     | SR 2002 - POSSUM TRACK RD                | SR 2003 - BAYLEAF CH RD TO SR 2002 RAVEN RIDGE RD              | 1.84   | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 121                |                            |                          |    |
| TOTAL FOR MAP NO. 10            |        |        |  |  | 1.84   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 121                        |                          |    |
| 5CR.20921.40                    | Wake   | 11     | SR 2010 - HARDEE RD                      | SR 2002 - RAVEN RIDGE TO SR 2162 - POSSUM TRACK RD             | 0.67   | 21    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 44                 |                            |                          |    |
| TOTAL FOR MAP NO. 11            |        |        |  |  | 0.67   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 44                         |                          |    |
| 5CR.20921.40                    | Wake   | 12     | SR 2000 - FALLS OF NEUSE RD              | PVMT JT PVMT JT  | 0.269  | 60    |  |   | 2,775              | 2,895             |                   | 40                 |                    | 1,070              |                  | 5                 | 20                | 15                | 7                  |                         | 35                 | 160                        |                          |    |
| TOTAL FOR MAP NO. 12            |        |        |  |  | 0.269  |       |  |   | 2,775              | 2,895             |                   | 40                 |                    | 1,070              |                  | 5                 | 20                | 15                | 7                  |                         |                    | 35                         | 160                      |    |
| 5CR.20921.40                    | Wake   | 13     | SR 2015 - DIXIE FOREST RD                | SR 2012 - LITCHFORD RD TO SR 2041 - SPRING FOREST RD           | 0.227  | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 15                 | 14                         |                          |    |
| TOTAL FOR MAP NO. 13            |        |        |  |  | 0.227  |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 15                         | 14                       |    |
| 5CR.20921.40                    | Wake   | 14     | SR 3555 - OLD WAKE FOREST RD             | JOINT W OF RURITANIA ST TO SR 2012 LITCHFORD RD                | 0.76   | 24    | 300  | 300   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    | 600                     | 75                 | 75                         |                          |    |
| TOTAL FOR MAP NO. 14            |        |        |  |  | 0.76   |       | 300  | 300   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 600                | 75                         | 75                       |    |
| 5CR.20921.40                    | Wake   | 15     | SR 1945 - AVERETTE RD                    | NC 98 - WAIT AVE TO SR 1942 - OAK GROVE CH RD                  | 1.71   | 21    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 113                |                            |                          |    |
| TOTAL FOR MAP NO. 15            |        |        |  |  | 1.71   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 113                        |                          |    |
| 5CR.20921.40                    | Wake   | 16     | SR 2217 - OLD MILBURNIE RD               | SR 2215 - BUFFALO RD TO SR 1003 - ROLESVILLE RD                | 4.26   | 24    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 335                | 20                         |                          |    |
| TOTAL FOR MAP NO. 16            |        |        |  |  | 4.26   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 335                        | 20                       |    |
| 5CR.20921.40                    | Wake   | 17     | SR 1003 - ROLESVILLE RD                  | SR 2324 - ROBERTSON POND RD TO SR 2320 - RILEY HILL RD         | 3.85   | 22    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 255                |                            |                          |    |
| TOTAL FOR MAP NO. 17            |        |        |  |  | 3.85   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 255                        |                          |    |
| 5CR.20921.40                    | Wake   | 18     | SR 2234 - MARKS CREEK RD                 | US 64 BUS TO SR 1003 - ROLESVILLE RD                           | 2.12   | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 140                |                            |                          |    |
| TOTAL FOR MAP NO. 18            |        |        |  |  | 2.12   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 140                        |                          |    |
| 5CR.20921.40                    | Wake   | 19     | SR 2232 - OLD KNIGHT RD                  | US 64 BUS TO SR 2231 - HORTON RD                               | 1.8    | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 140                | 20                         |                          |    |
| TOTAL FOR MAP NO. 19            |        |        |  |  | 1.8    |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 140                        | 20                       |    |
| 5CR.20921.40                    | Wake   | 20     | SR 2329 - LIZARD LICK RD/MARSHBURN RD    | US 64 TO US 64 BUS   | 2.683  | 24    | 500  | 500   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 1,000              | 319                        |                          |    |
| TOTAL FOR MAP NO. 20            |        |        |  |  | 2.683  |       | 500  | 500   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 1,000                      | 319                      |    |
| 5CR.20921.40                    | Wake   | 21     | SR 2162 - POSSUM TRACK RD                | SR 2002 - RAVEN RIDGE RD TO EOM                                | 1.46   | 20    |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 96                 |                            |                          |    |
| TOTAL FOR MAP NO. 21            |        |        |  |  | 1.46   |       |  |   |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 96                         |                          |    |
| 5CR.20921.40                    | Wake   | 22     | SR 2406 - SHEPARD SCHOOL RD              | NC 97 TO FRANKLIN CO LINE (EXCLUDE SECTION AT SCHOOL ENTRANCE) | 3.975  | 20    | 1,000                                      | 1,000                                       |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         | 2,000              | 304                        | 45                       |    |
| TOTAL FOR MAP NO. 22            |        |        |  |  | 3.975  |       | 1,000                                      | 1,000                                       |                    |                   |                   |                    |                    |                    |                  |                   |                   |                   |                    |                         |                    | 2,000                      | 304                      | 45 |
| 5CR.20921.40                    | Wake   | 23     | SR 1005 - SIX FORKS RD                   | INTERSECTION WITH SR 1829 - STRICKLAND RD                      | 0.1    | 64    |  |   | 96                 | 1,885             | 1,136             | 10                 |                    | 200                |                  | 2                 | 9                 | 11                | 5                  |                         | 2                  | 115                        |                          |    |
| TOTAL FOR MAP NO. 23            |        |        |  |  | 0.1    |       |  |   | 96                 | 1,885             | 1,136             | 10                 |                    | 200                |                  | 2                 | 9                 | 11                | 5                  |                         |                    | 2                          | 115                      |    |
| TOTAL FOR PROJ NO. 5CR.20921.40 |        |        |  |  | 31.702 |       | 1,800                                      | 1,800                                       | 41,485             | 35,911            | 1,881             | 233                |                    | 1,458              |                  | 8                 | 18                | 64                | 36                 | 16                      | 3,600              | 2,607                      | 713                      |    |
|                                 |        |        |  |  |        |       | 3,600                                      |   | 77,396             |                   | 2,114             |                    |                    |                    | 8                |                   | 134               |                   |                    |                         | 3,320              |                            |                          |    |
| GRAND TOTAL                     |        |        |  |  | 32.362 |       | 1,800                                      | 1,800                                       | 46,565             | 39,607            | 2,116             | 233                | 100                | 1,548              | 4                | 8                 | 18                | 64                | 36                 | 16                      | 3,600              | 2,650                      | 713                      |    |
|                                 |        |        |  |  |        |       | 3,600                                      |   | 86,172             |                   | 2,349             |                    |                    |                    | 12               |                   | 134               |                   |                    |                         | 3,363              |                            |                          |    |

### High Speed Detection

[≥40 mph (64 km/hr)]



| Speed Limit<br>mph (km/hr) | D<br>ft (m) |
|----------------------------|-------------|
| 40 (64)                    | 250 (75)    |
| 45 (72)                    | 300 (90)    |
| 50 (80)                    | 355 (110)   |
| 55 (88)                    | 420 (130)   |

L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series for TS1  
Controllers  
Wired separately for TS2,  
170, and 2070L Controllers

| Speed Limit<br>mph (km/hr) | D1<br>ft (m) | D2<br>ft (m) |
|----------------------------|--------------|--------------|
| 40 (64)                    | 250 (75)     | 80 (25)      |
| 45 (72)                    | 300 (90)     | 90 (27)      |
| 50 (80)                    | 355 (110)    | 100 (30)     |
| 55 (88)                    | 420 (130)    | 110 (35)     |

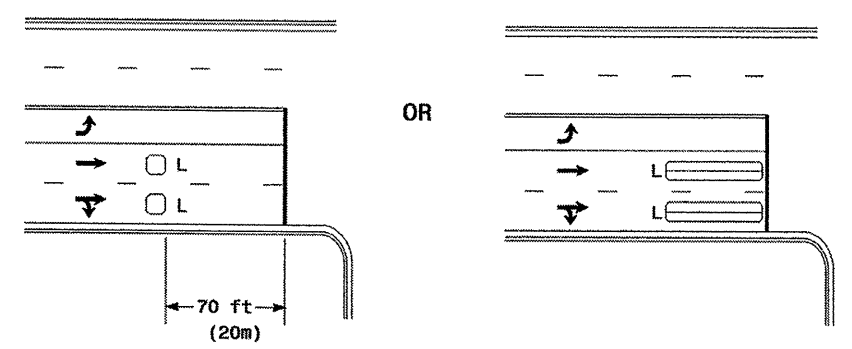
L1 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series  
L2 = 6ft X 6ft  
(1.8m X 1.8m)  
Wired in series

Volume Density Operation

"Stretch" Operation

### Low Speed Detection

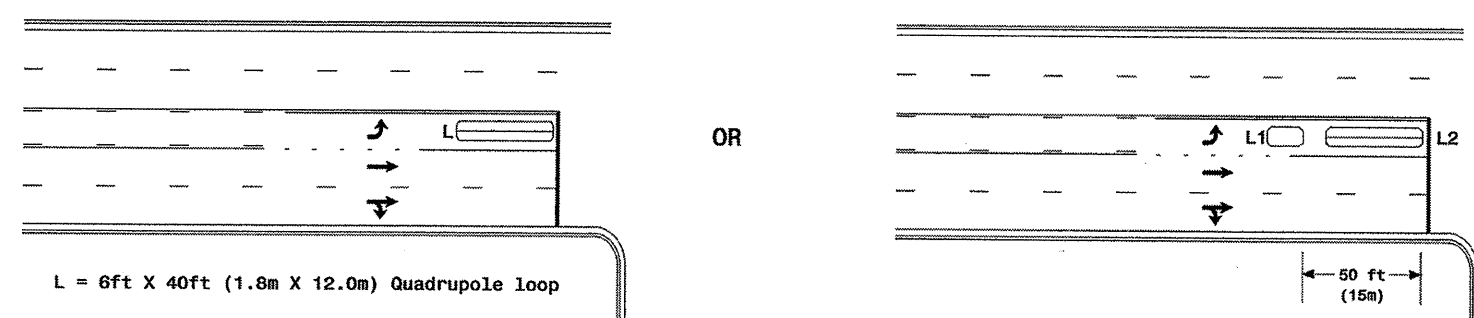
[≤35 mph (56 km/hr)]



L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

L = 6ft X 40ft (1.8m X 12.0m)  
Quadrupole loop, wired separately

### Left Turn Lane Detection



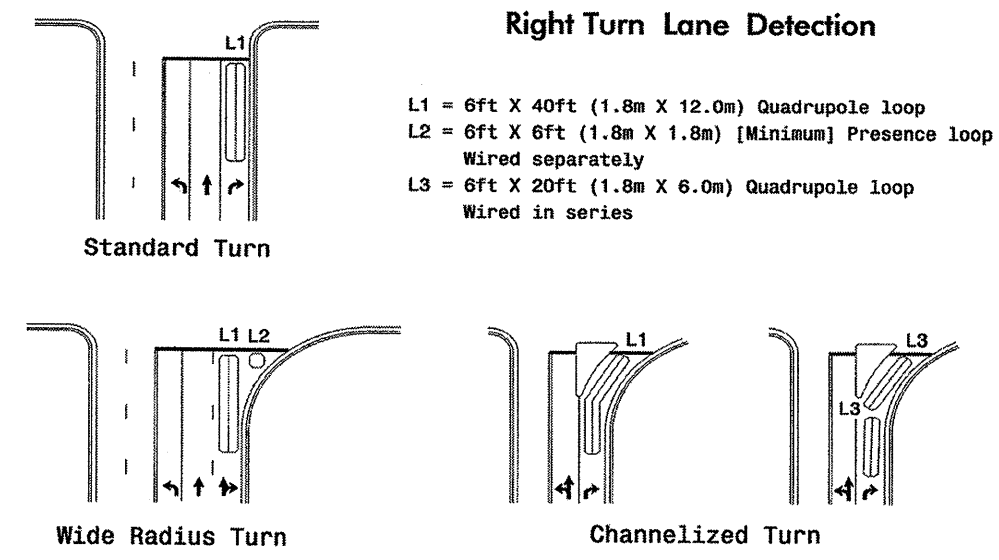
L = 6ft X 40ft (1.8m X 12.0m) Quadrupole Loop

L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector  
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

Queue Loop Detection

### Right Turn Lane Detection



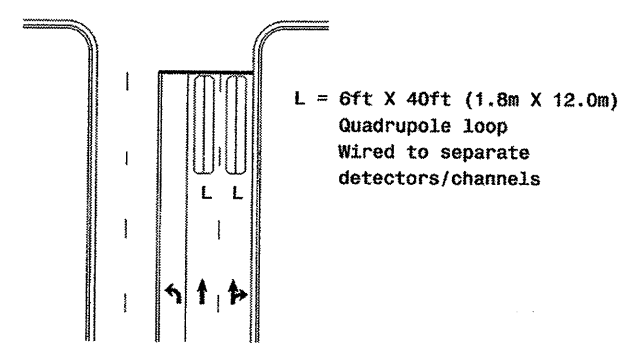
L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop  
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop  
Wired separately  
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop  
Wired in series

Standard Turn

Wide Radius Turn

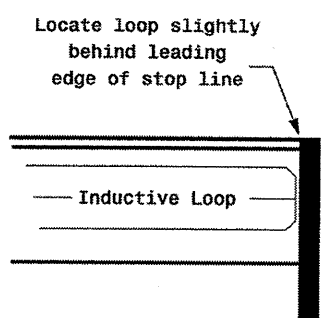
Channelized Turn

### Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)  
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 when stop line is  
greater than 15' (4.5m) from edge  
of intersecting roadway; or, when  
loop detects a permissive or  
protected/permissive left turn.

### Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)  
loop (wired separately):

| Length of<br>Lead-in<br>ft (m) | Number<br>of Turns |
|--------------------------------|--------------------|
| < 250 (75)                     | 3                  |
| 250-375 (75-115)               | 4                  |
| 375-525 (115-160)              | 5                  |
| > 525 (160)                    | 6                  |

Quadrupole loops: Use 2-4-2 turns  
6' X 15' (1.8m X 4.6m) Loops:  
Lead-in < 150' (45 m), use 2 turns  
Lead-in > 150' (45 m), use 3 turns

### Typical Loop Locations

|  |  |  |  |   |
|--|--|--|--|---|
|  | Prepared in the Office of:<br>         | PLAN DATE: June 2006<br>PREPARED BY: P. L. Alexander<br>SCALE: N/A | REVIEWED BY:<br>REVIEWED BY:<br>DATE: 12/19/06 | SEAL<br>NORTH CAROLINA<br>PROFESSIONAL ENGINEER<br>P. L. ALEXANDER<br>License No. 23488<br>DATE: 12/19/06 |
|  | 122 N. McDowell St., Raleigh, NC 27603 | REVISIONS:<br>1/ Revise pavement markings                          | INITIALS: [Signature]<br>DATE: 12/19/06        | SIGNATURE: [Signature]<br>DATE: 12/19/06  |

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