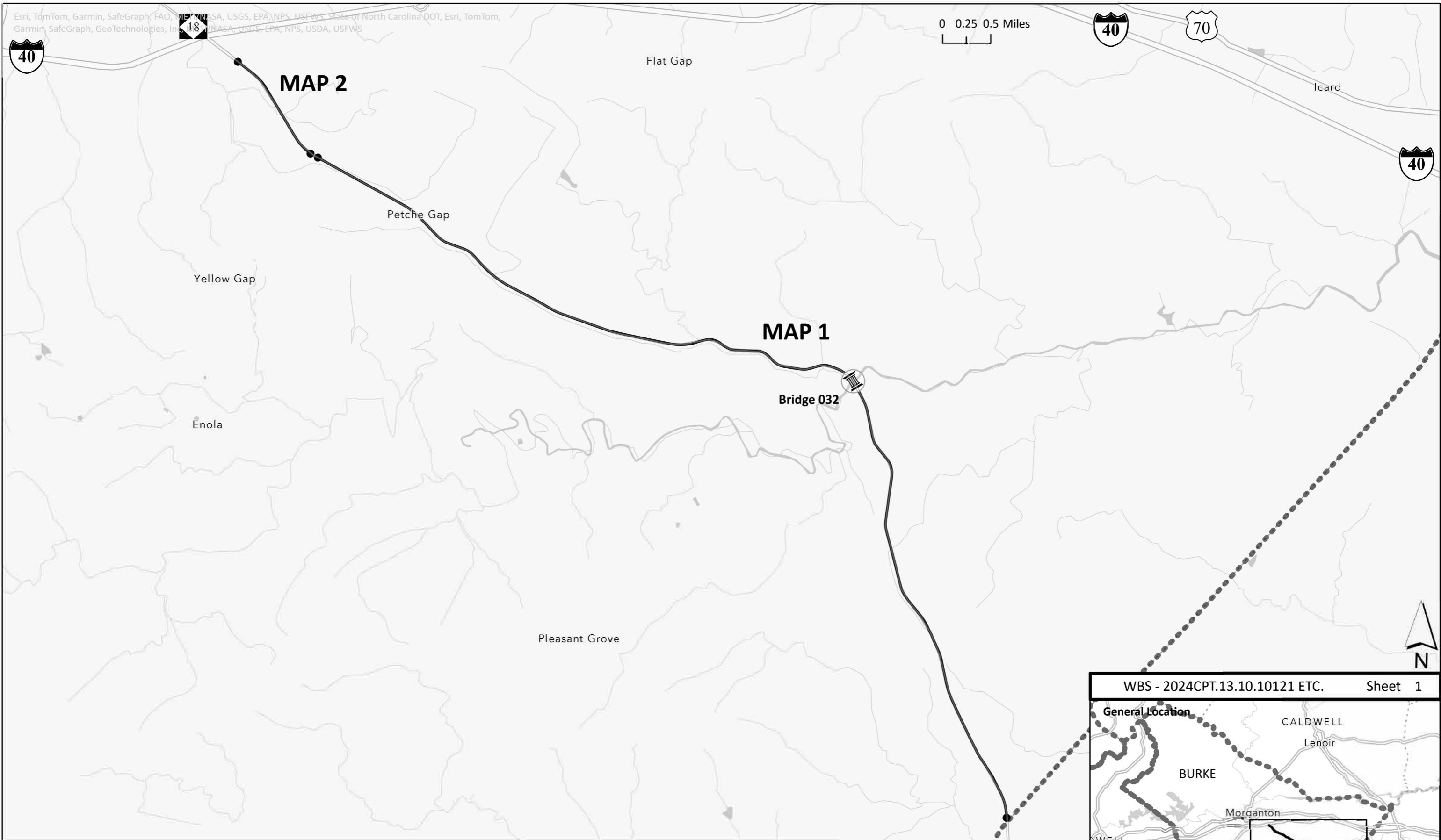




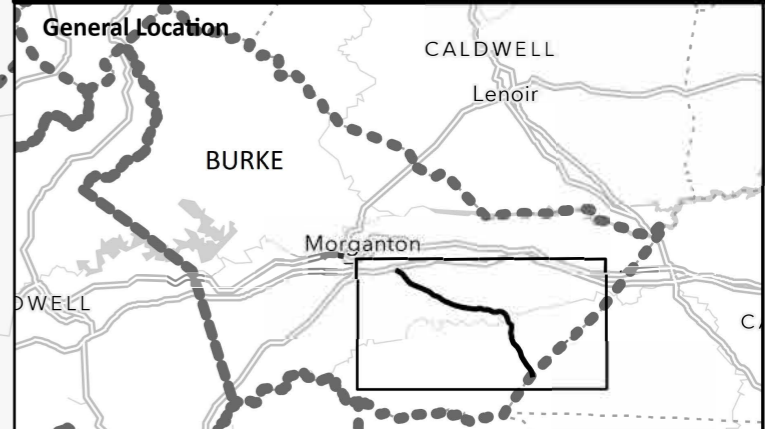
**MAP 2**

**MAP 1**

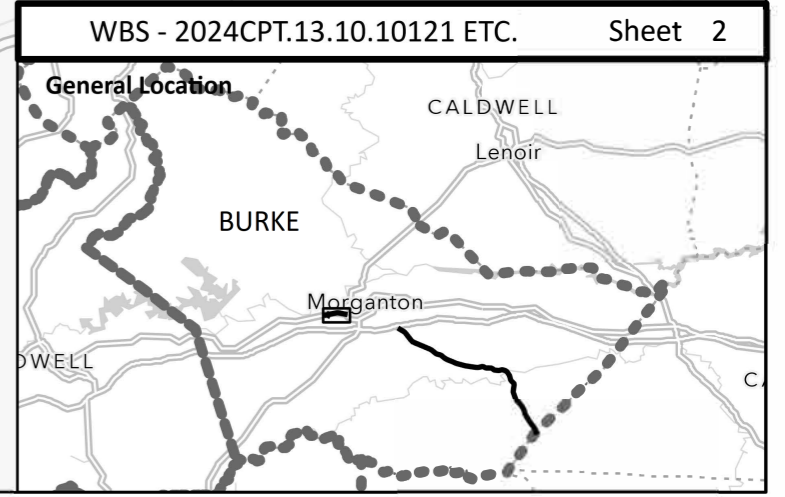
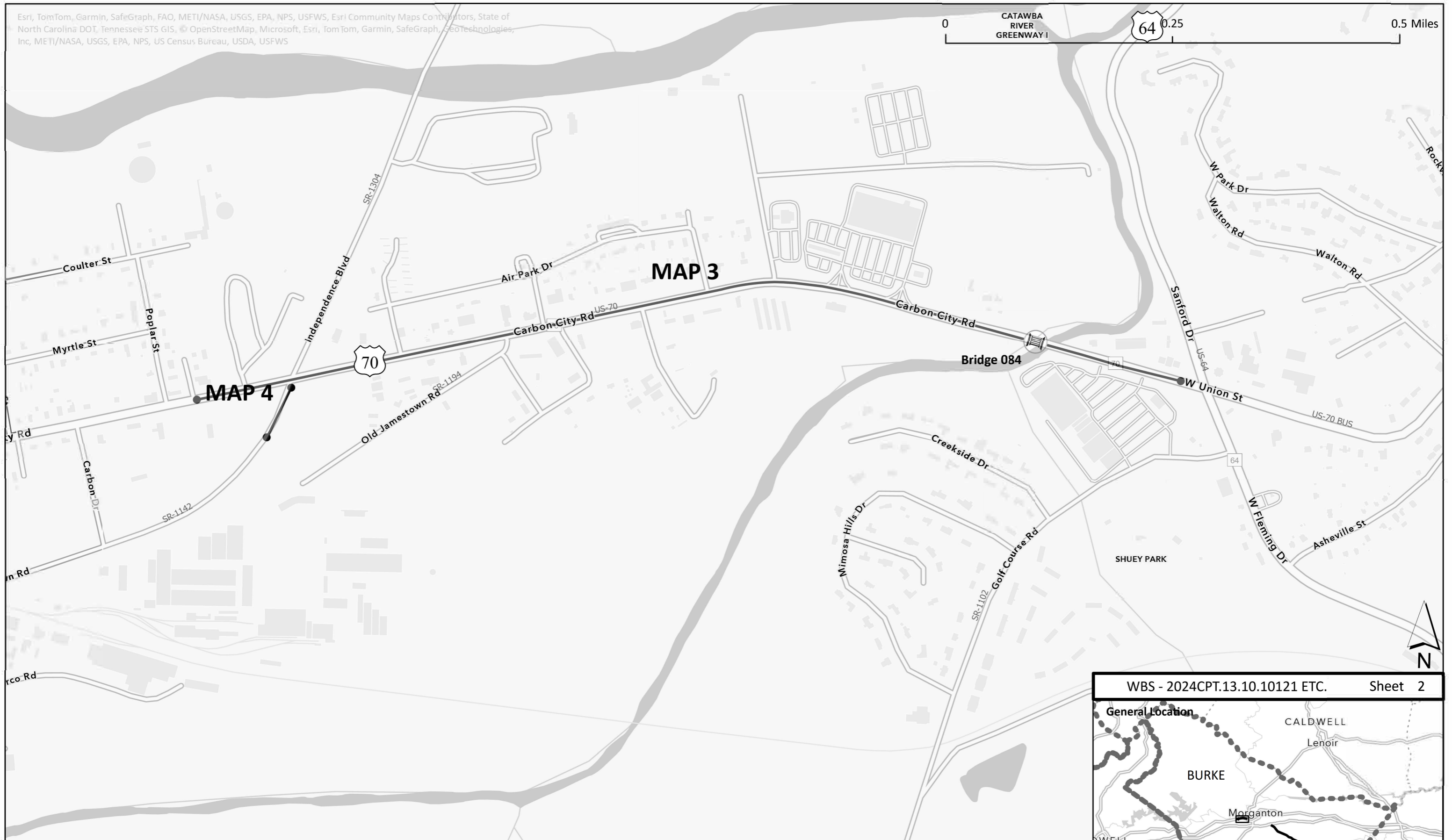
Bridge 032



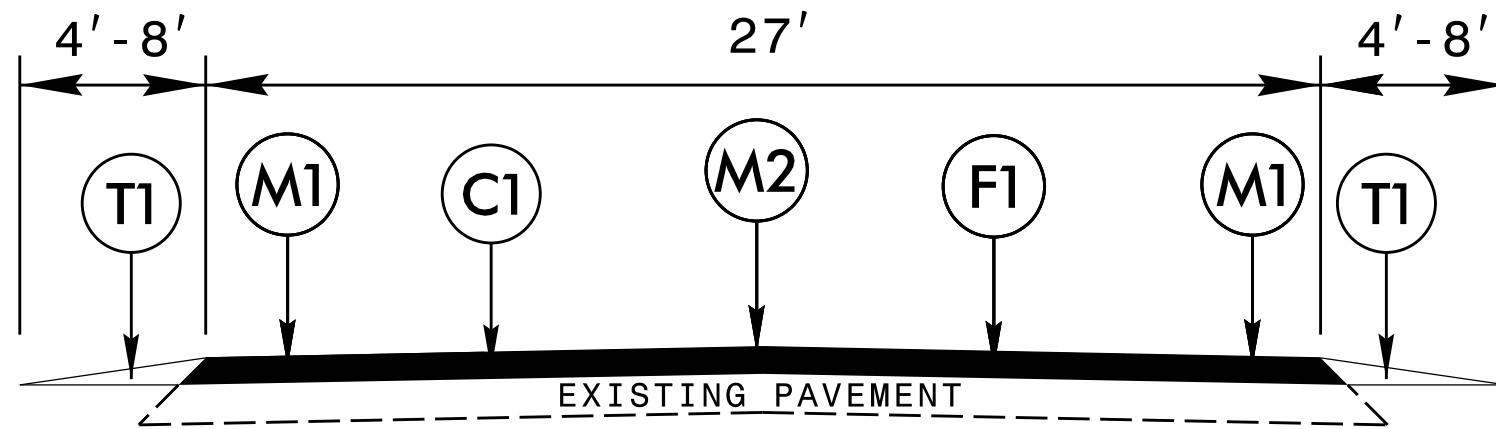
WBS - 2024CPT.13.10.10121 ETC. Sheet 1



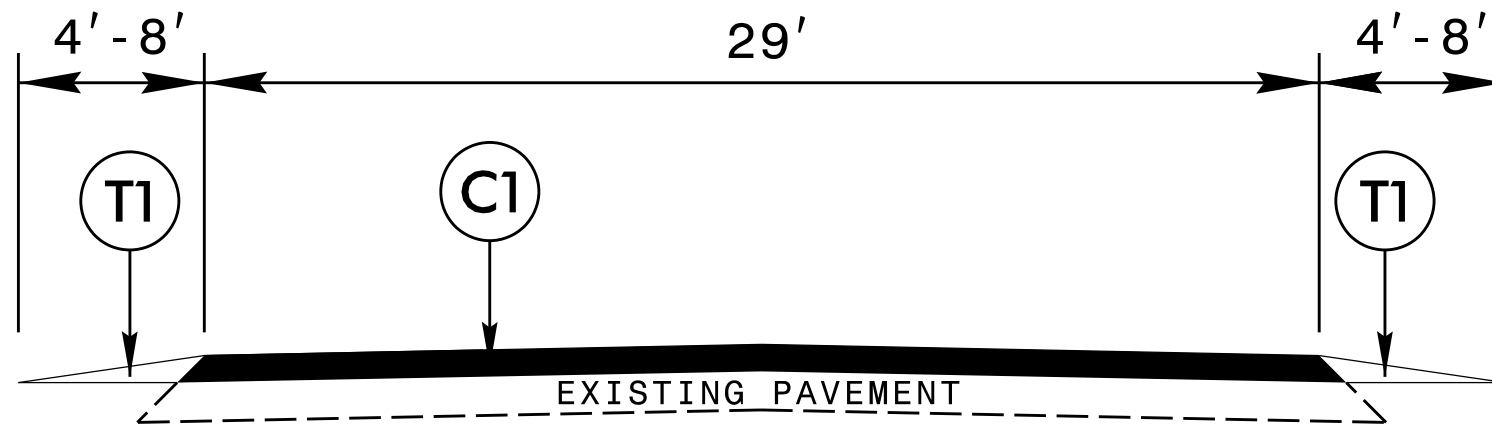
| MAP_NUMBER | ROUTE NAME  | FROM_DESC   | TO_DESC  | LENGTH |
|------------|-------------|---|--|--------|
| 1          | NC 18 SOUTH | CATAWBA COUNTY LINE                               | SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT | 11.13  |
| 2          | NC 18 SOUTH | SR 1931(MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT | SR 1712 (DREXEL ROAD) +.05 MILE                    | 1.30   |



| MAP_NUMBER | ROUTE NAME  | FROM_DESC                          | TO_DESC                                     | LENGTH |
|------------|---|------------------------------------|---|--------|
| 3          | US 70 EAST (CARBON CITY ROAD / WEST UNION STREET) | SR 1142 (JAMESTOWN ROAD) - .1 MILE | US 64 BYPASS (WEST FLEMING DRIVE) -.02 MILE | 1.12   |
| 4          | SR 1142 (JAMESTOWN ROAD)                          | US 70 (CARBON CITY ROAD) -.07 MILE | US 70 (CARBON CITY ROAD)                    | 0.07   |

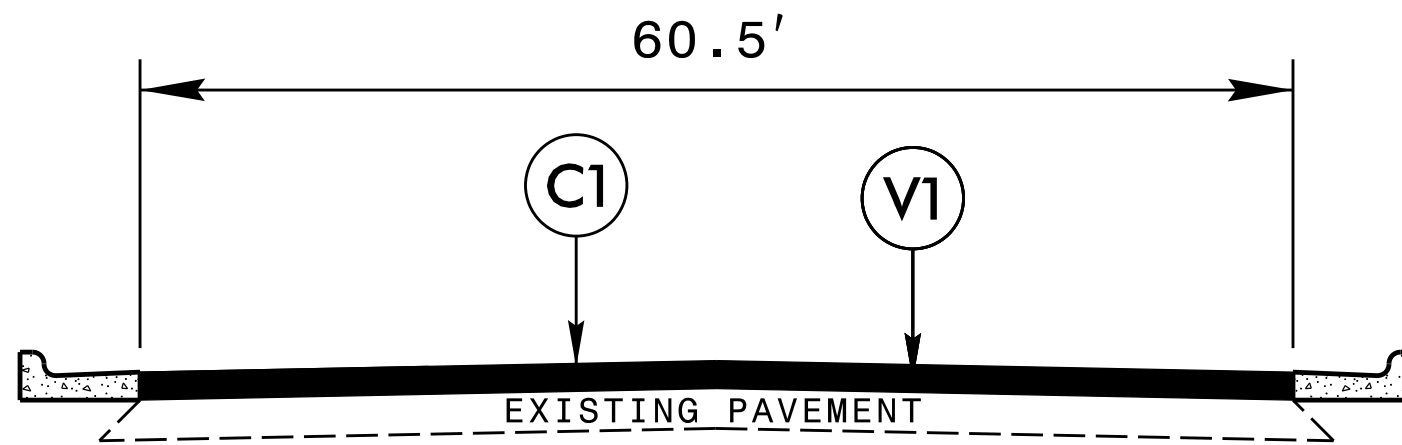


**TYPICAL SECTION #1**

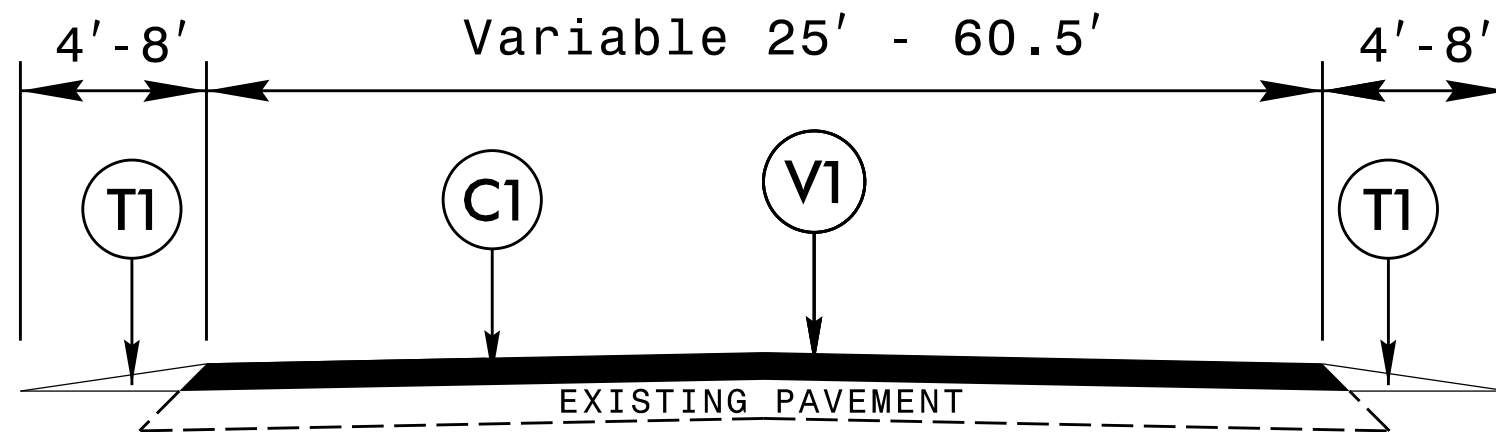


**TYPICAL SECTION #2**

| PAVEMENT SCHEDULE |   |
|-------------------|---|
| C1                | PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD |
| F1                | ASPHALT SURFACE TREATMENT, SINGLE SEAL  |
| T1                | SHOULDER RECONSTRUCTION   |
| V1                | MILLING ASPHALT PAVEMENT 1-1/2" DEPTH   |
| V2                | INCIDENTAL MILLING  |
| M1                | MILLED RUMBLE STRIPS  |
| M2                | MILLED CENTERLINE RUMBLE STRIPS   |

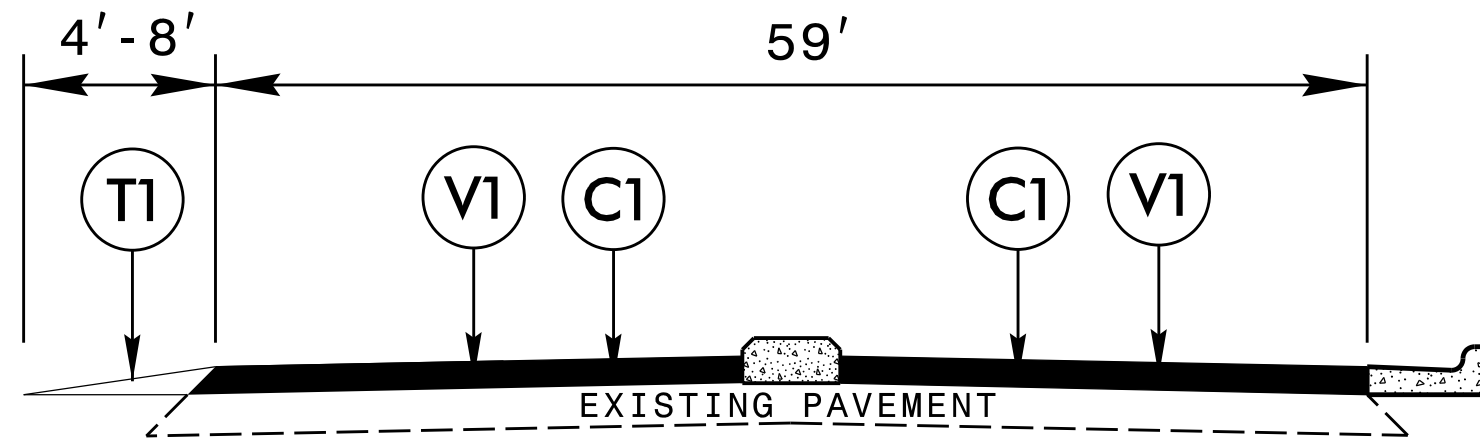


**TYPICAL SECTION #3**

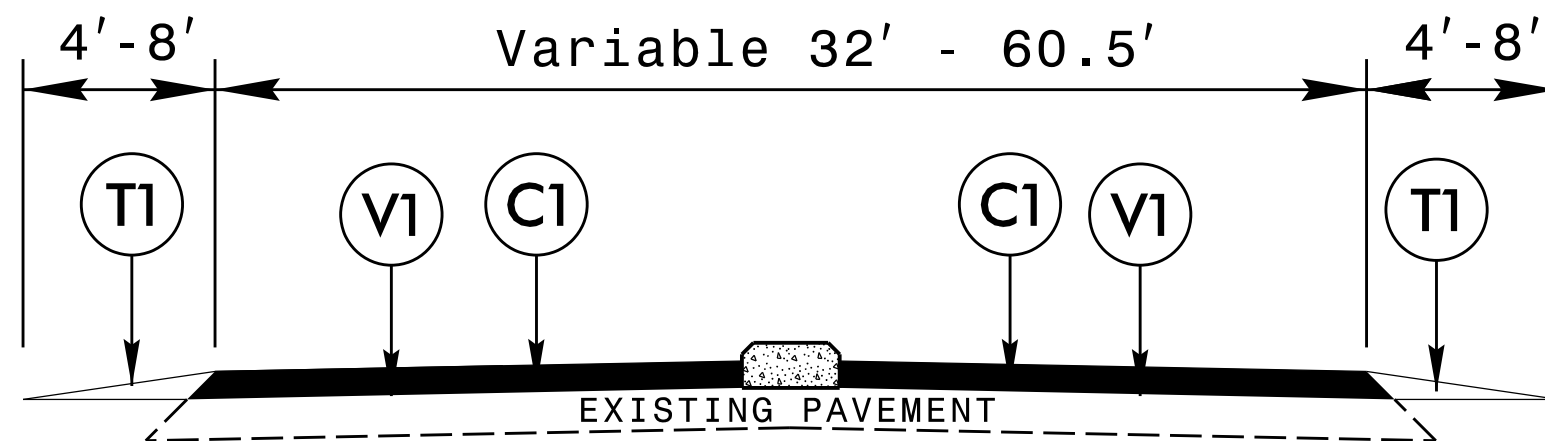


**TYPICAL SECTION #4**

| PAVEMENT SCHEDULE |   |
|-------------------|---|
| C1                | PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD |
| F1                | ASPHALT SURFACE TREATMENT, SINGLE SEAL  |
| T1                | SHOULDER RECONSTRUCTION   |
| V1                | MILLING ASPHALT PAVEMENT 1-1/2" DEPTH   |
| V2                | INCIDENTAL MILLING  |
| M1                | MILLED RUMBLE STRIPS  |
| M2                | MILLED CENTERLINE RUMBLE STRIPS   |

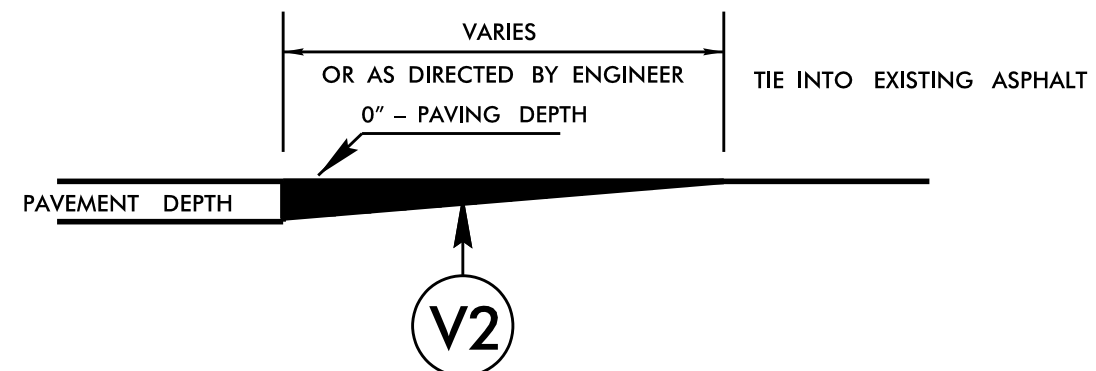


**TYPICAL SECTION #5**

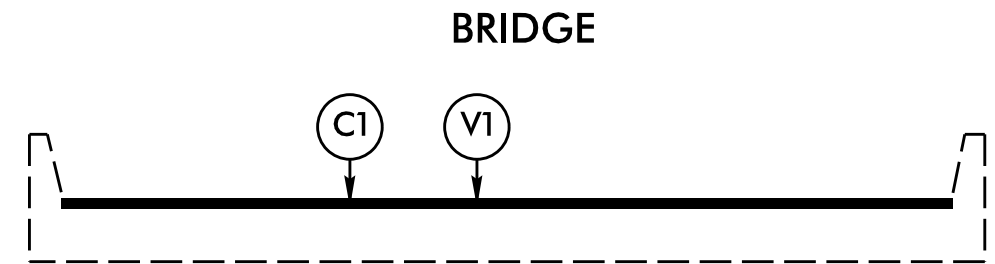


**TYPICAL SECTION #6**

| PAVEMENT SCHEDULE |   |
|-------------------|---|
| C1                | PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD |
| F1                | ASPHALT SURFACE TREATMENT, SINGLE SEAL  |
| T1                | SHOULDER RECONSTRUCTION   |
| V1                | MILLING ASPHALT PAVEMENT 1-1/2" DEPTH   |
| V2                | INCIDENTAL MILLING  |
| M1                | MILLED RUMBLE STRIPS  |
| M2                | MILLED CENTERLINE RUMBLE STRIPS   |



**DETAIL TO TIE INTO EXIST PAVEMENT**  
THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT HE WILL BE REQUIRED TO MILL THE EXISTING ASPHALT PAVEMENT TO ENSURE A PROPER TIE-IN WITH THE EXISTING SURFACE AT THE BEGINNING, END AND Y LINES OF EACH MAP TO BE RESURFACED WITH ASPHALT CONC SURFACE COURSE, TYPE 9.5B OR S9.5C. THIS WILL BE PAID FOR AS INCIDENTAL MILLING.

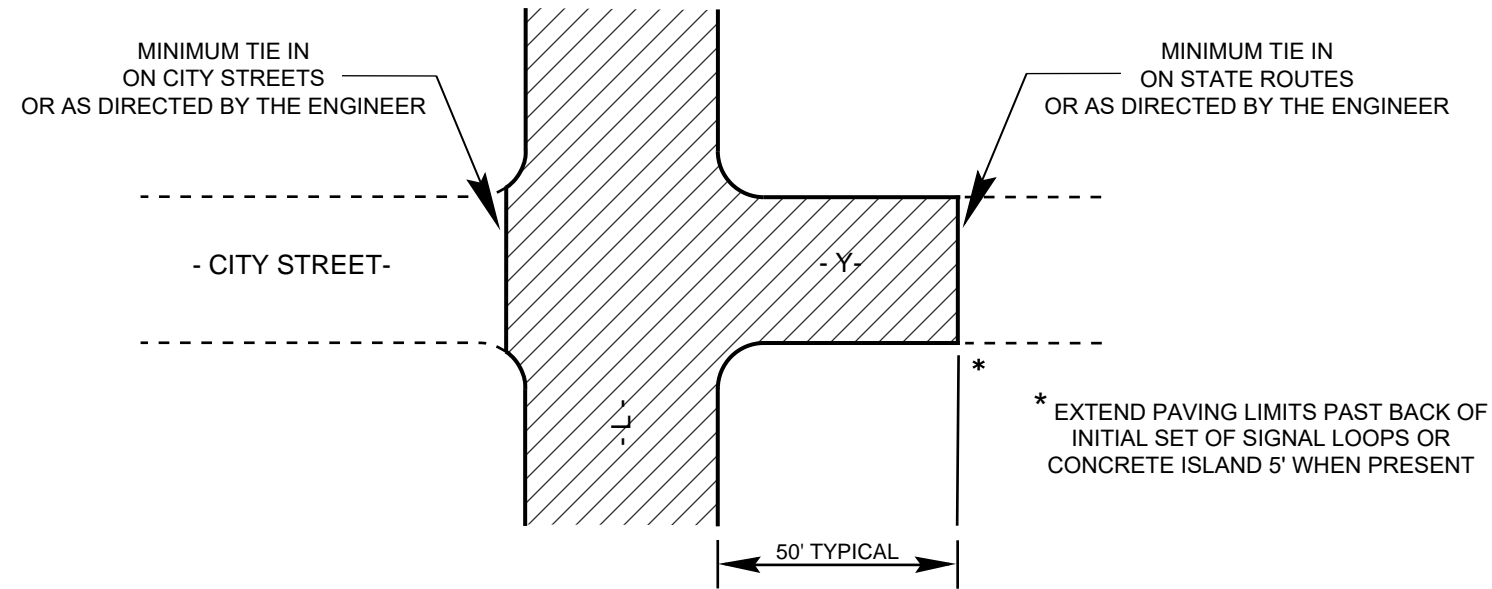


**BRIDGE DETAIL**  
WHERE BRIDGES WILL BE MILLED AND RESURFACED.  
SEE MAP FOR BRIDGE LOCATION.  
USE AT BRIDGE NUMBER: 032 MAP 1, AND 084 MAP 3.

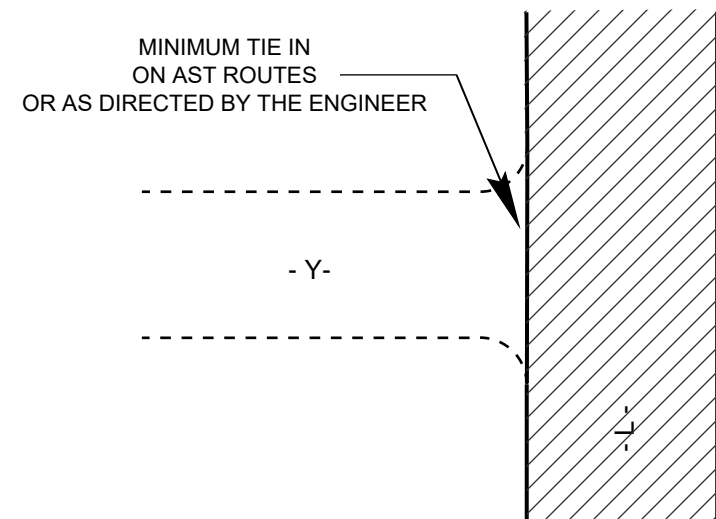
| PAVEMENT SCHEDULE |   |
|-------------------|---|
| C1                | PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YARD |
| F1                | ASPHALT SURFACE TREATMENT, SINGLE SEAL  |
| T1                | SHOULDER RECONSTRUCTION   |
| V1                | MILLING ASPHALT PAVEMENT 1-1/2" DEPTH   |
| V2                | INCIDENTAL MILLING  |
| M1                | MILLED RUMBLE STRIPS  |
| M2                | MILLED CENTERLINE RUMBLE STRIPS   |

6/22/19

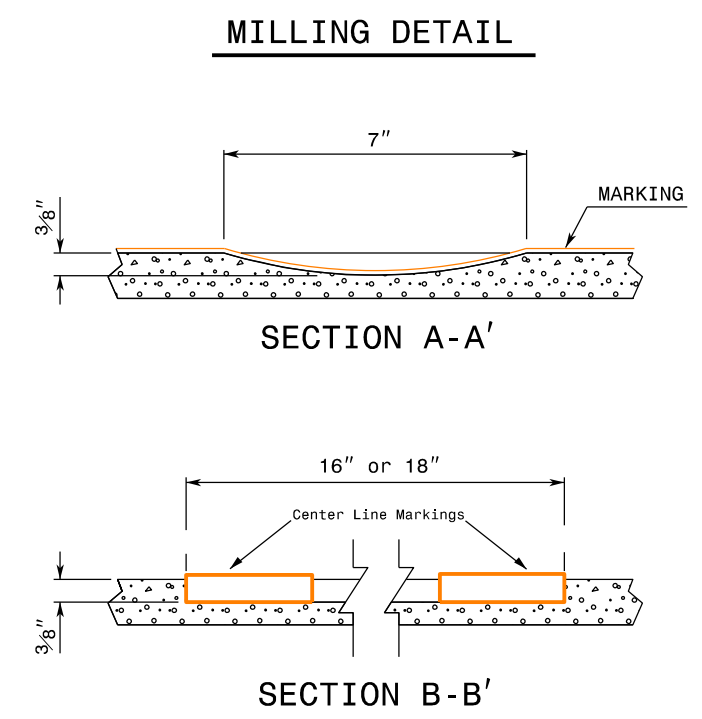
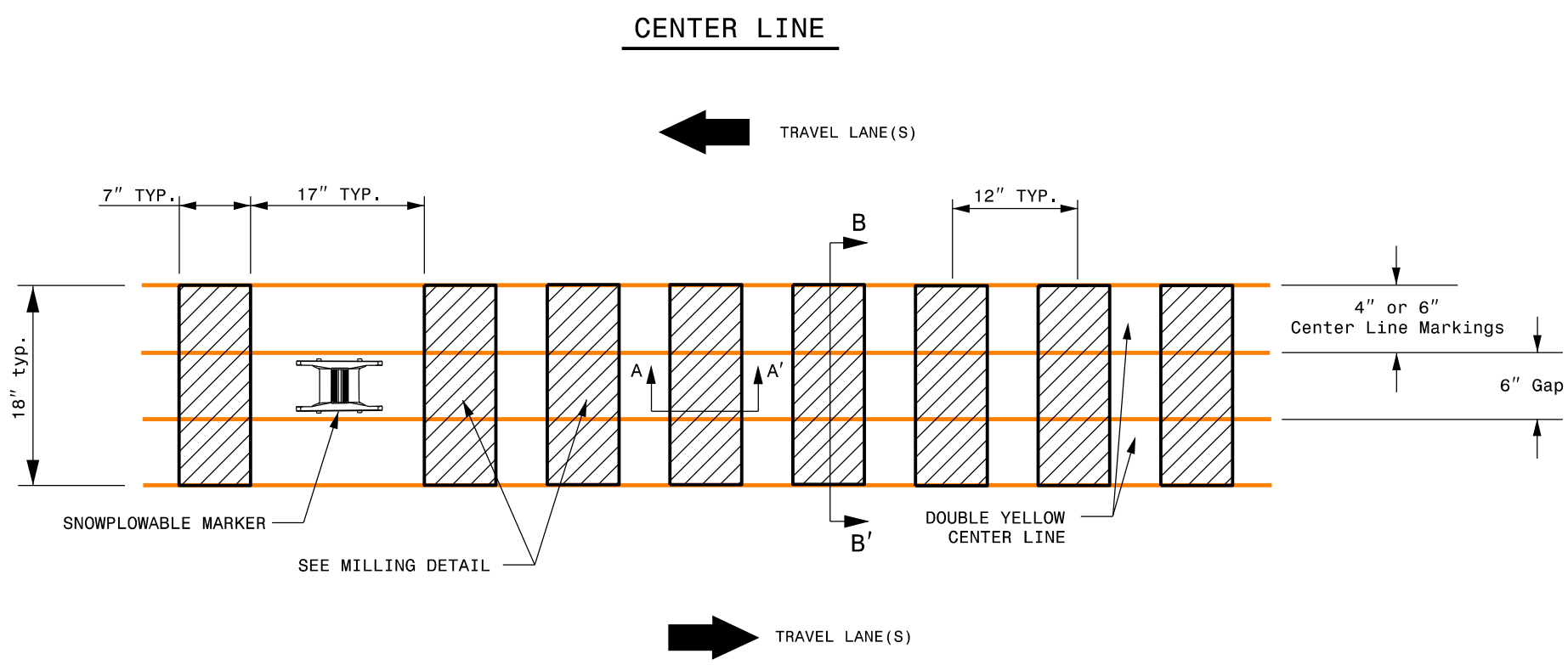
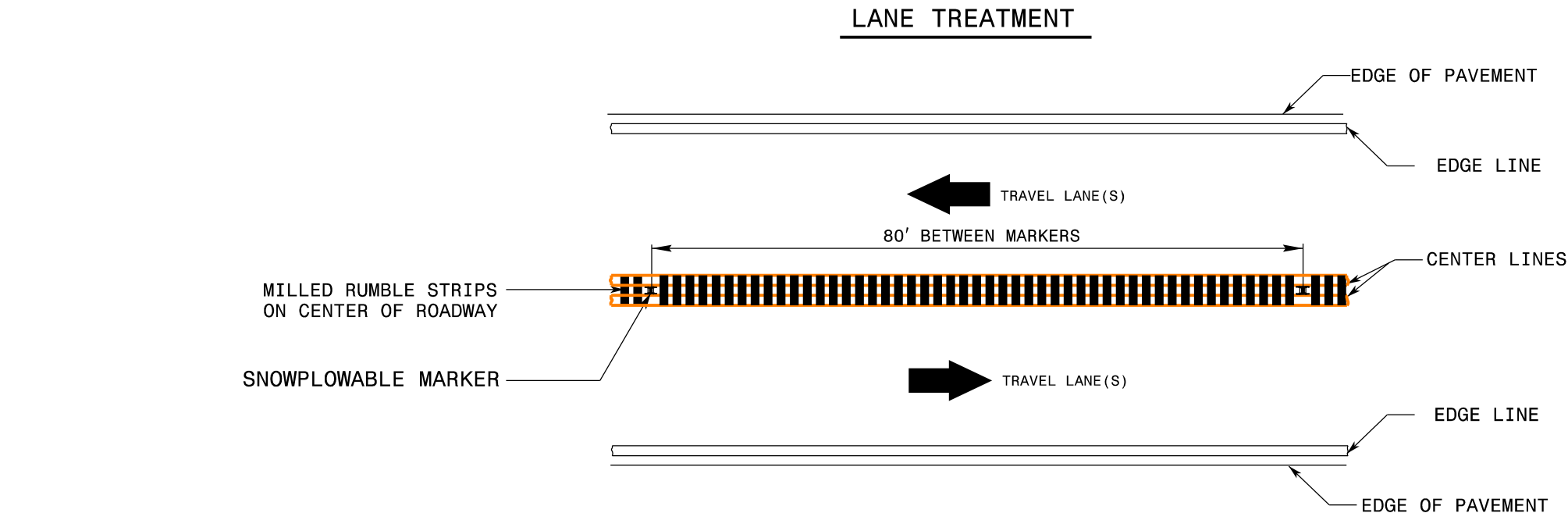
**DETAIL 1**



**DETAIL 2**



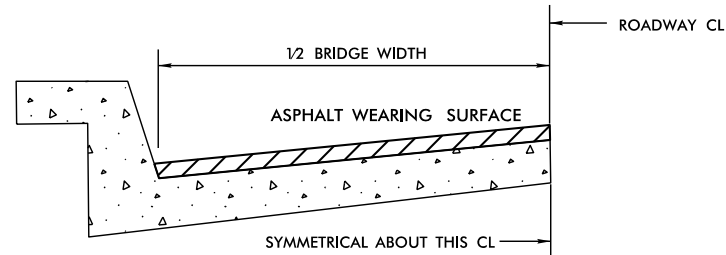
**TYPICAL DETAILS OF PAVING LIMITS AT -Y- LINES**



**NOTES:**

- 1) REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) INSTALL SNOWPLOWABLE MARKERS AT APPROXIMATELY 80' INCREMENTS. DO NOT MILL RUMBLE STRIPS IN SECTION WHERE SNOWPLOWABLE MARKERS ARE INSTALLED.





**BRIDGE HALF TYPICAL SECTION**

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN.

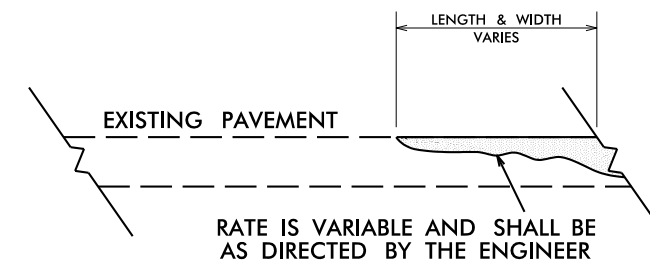
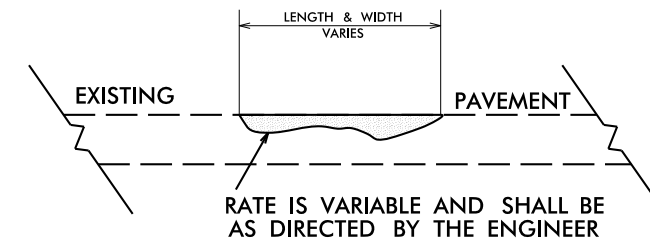
THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/2", S9.5B 1", S9.5C,D 1.5" - 2". ULTRA-THIN HOT MIX ASPHALT - TYPE A 3/4". ULTRA-THIN HOT MIX ASPHALT - TYPE B 5/8". ULTRA-THIN HOT MIX ASPHALT - TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1", S9.5B 1.5", S9.5C,D 2". ULTRA-THIN HOT MIX ASPHALT - TYPE A 3/4", ULTRA-THIN HOT MIX ASPHALT - TYPE B 5/8", ULTRA-THIN HOT MIX ASPHALT - TYPE C 1/2".

**NOTES**

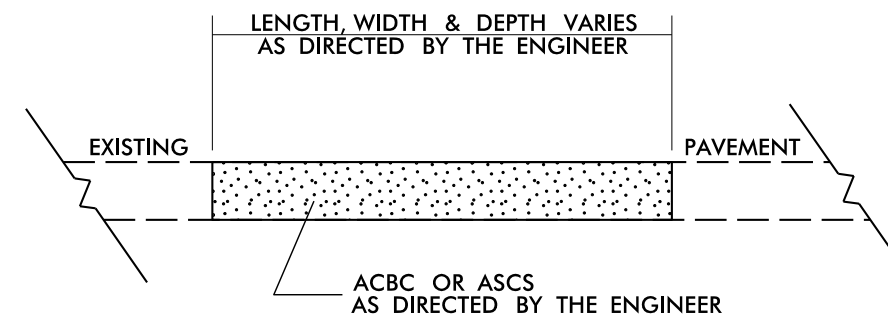
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.

SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.

BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

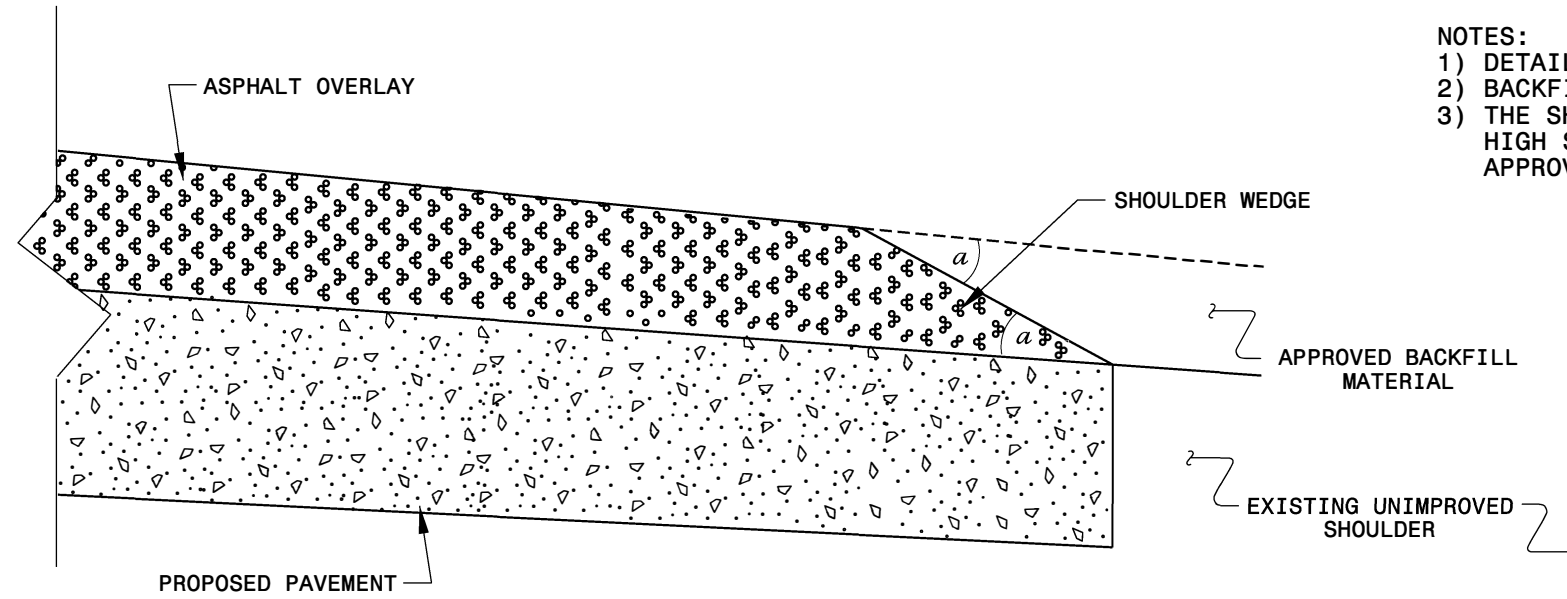


**DETAIL SHOWING METHOD OF WEDGING**

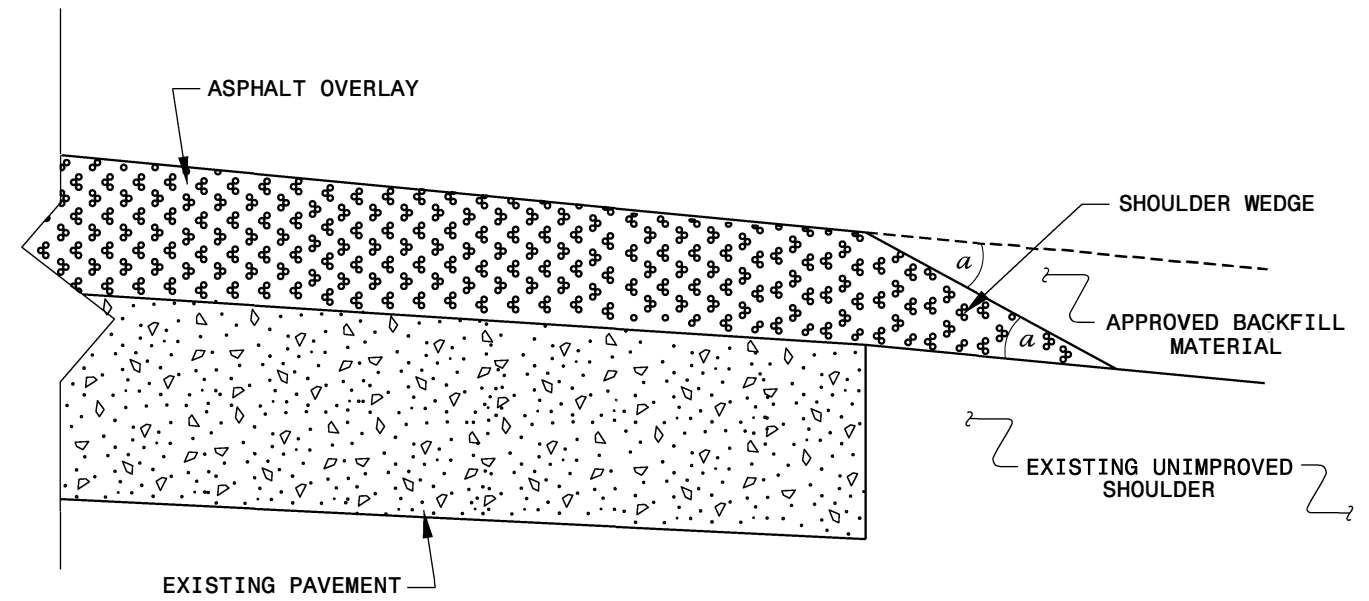


**PATCHING EXISTING PAVEMENT**

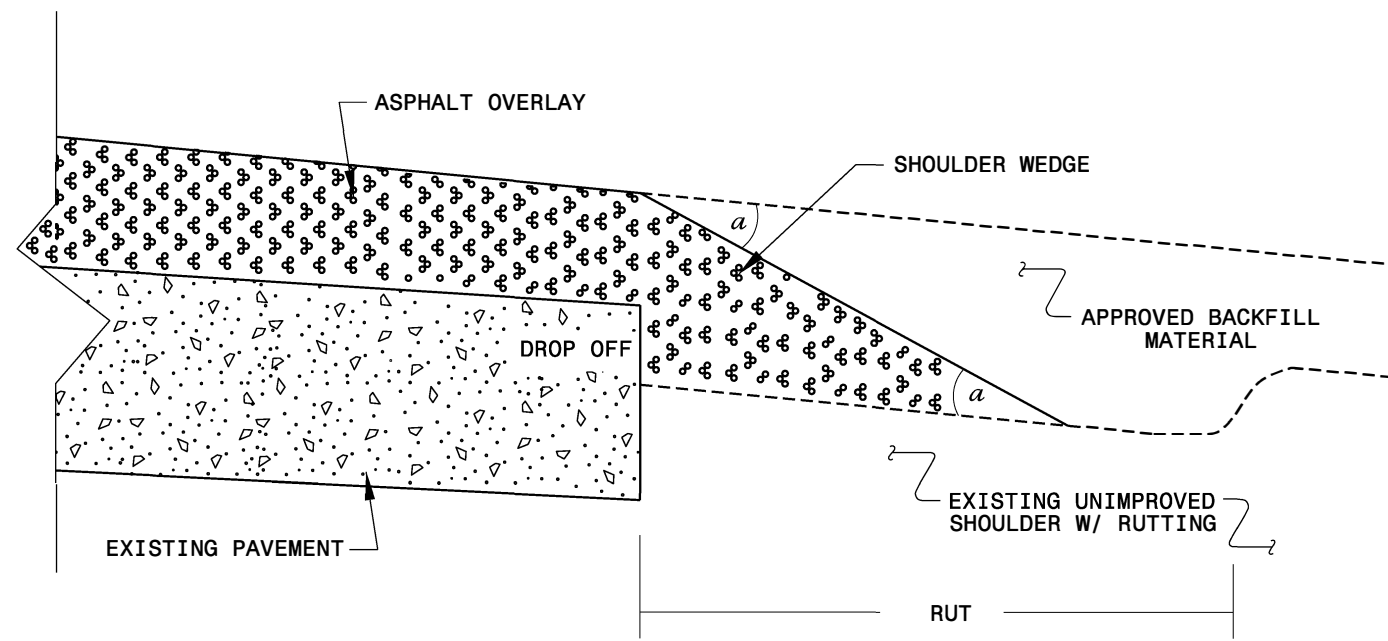
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAF C AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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



**SHOULDER WEDGE DETAIL**  
 (Resurfacing Projects w/ NO Widening)



**SHOULDER WEDGE DETAIL**  
 (Resurfacing Adjacent to  
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°



|  |               |
|--|---------------|
| <b>CONTRACT STANDARDS<br/>AND DEVELOPMENT UNIT</b>       |               |
| Office 919-707-6950 FAX 919-250-4119                     |               |
| <b>SHOULDER WEDGE<br/>DETAILS</b>                        |               |
| ORIGINAL BY: T. SPELL                                    | DATE: 7-19-11 |
| MODIFIED BY:   | DATE: 2/2/16  |
| CHECKED BY:  | DATE:         |
| FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn |               |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

|                          |           |
|--------------------------|-----------|
| PROJECT NO.              | SHEET NO. |
| 2024CPT.13.10.10121, ETC | 11        |

### SUMMARY OF QUANTITIES

| PROJECT NO                                    | MAP NO | ROUTE  | DESCRIPTION  | TYP NO  | LANES | LANE TYPE | LENGTH       | WIDTH | BEGIN MP | END MP | 1220000000-E          | 1245000000-E            | 1260000000-E              | 1297000000-E                           | 1330000000-E       | 1523000000-E                            | 1575000000-E                 | 1704000000-E               |
|---|--------|--|--|---------|-------|-----------|--------------|-------|----------|--------|-----------------------|-------------------------|---------------------------|--|--------------------|---|------------------------------|----------------------------|
|   |        |  |  |         |       |           | MI           | FT    |          |        | INCIDENTAL STONE BASE | SHOULDER RECONSTRUCTION | AGGREGATE SHOULDER BORROW | MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH | INCIDENTAL MILLING | ASPHALT CONC SURFACE COURSE, TYPE S9.5C | ASPHALT BINDER FOR PLANT MIX | PATCHING EXISTING PAVEMENT |
|   |        |  |  |         |       |           | TON          | SMI   | TON      | SY     | SY                    | TON                     | TON                       | TON                                    |                    |   |                              |                            |
| 2024CPT.13.10.10121                           | 1      | NC 18 SOUTH  | FROM CATAWBA COUNTY LINE TO SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT             | 1       | 2     | 2WU       | 11.13        | 27.00 | 0.00     | 11.13  | 283                   | 22.26                   | 2,894                     | 1,674                                  | 5,702              | 16,590                                  | 1,000                        | 447                        |
| 2024CPT.13.10.10121                           | 2      | NC 18 SOUTH  | FROM SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT TO SR 1712 (DREXEL ROAD) +.05 MILE | 2       | 2     | 2WU       | 1.30         | 29.00 | 11.13    | 12.43  | 16                    | 2.60                    | 338                       |  | 2,094              | 2,228                                   | 134                          | 50                         |
| 2024CPT.13.10.10121                           | 3      | US 70 EAST ( CARBON CITY ROAD / WEST UNION STREET) | FROM SR 1142 (JAMESTOWN ROAD) - .1 MILE TO US 64 BYPASS (WEST FLEMING DRIVE) -.02 MILE     | 3, 4, 6 | 5     | MU        | 1.12         | 60.50 | 8.99     | 10.11  |                       | 0.20                    | 26                        | 39,104                                 |                    | 3,525                                   | 208                          | 10                         |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.10121</b> |        |  |  |         |       |           | <b>13.55</b> |       |          |        | <b>299</b>            | <b>25.06</b>            | <b>3,258</b>              | <b>40,778</b>                          | <b>7,796</b>       | <b>22,343</b>                           | <b>1,342</b>                 | <b>507</b>                 |
| 2024CPT.13.10.20121                           | 4      | SR 1142 (JAMESTOWN ROAD)                           | FROM US 70 (CARBON CITY ROAD) -.07 MILE TO US 70 (CARBON CITY ROAD)                        | 4, 5, 6 | 2     | MD        | 0.07         | 59.00 | 7.60     | 7.67   |                       | 0.12                    | 16                        | 2,622                                  |                    | 240                                     | 14                           | 5                          |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.20121</b> |        |  |  |         |       |           | <b>0.07</b>  |       |          |        |                       | <b>0.12</b>             | <b>16</b>                 | <b>2,622</b>                           |                    | <b>240</b>                              | <b>14</b>                    | <b>5</b>                   |
| <b>GRAND TOTAL</b>                            |        |  |  |         |       |           | <b>13.62</b> |       |          |        | <b>299</b>            | <b>25.18</b>            | <b>3,274</b>              | <b>43,400</b>                          | <b>7,796</b>       | <b>22,583</b>                           | <b>1,356</b>                 | <b>512</b>                 |

\*NOTE-ALL MAPS, COUNTY = BURKE, FINAL TESTING REQUIRED = NO, WARM MIX REQUIRED = NO.

### SUMMARY OF QUANTITIES (CONTINUED)

| PROJECT NO                                    | MAP NO | ROUTE  | DESCRIPTION  | TYP NO  | LANES | LANE TYPE | LENGTH       | WIDTH | BEGIN MP | END MP | 1814500000-E                           | 1838000000-E                           | 1840000000-E                          | 2830000000-N           | 2845000000-N                             | 7444000000-E          | 7456100000-E         |            |
|---|--------|--|--|---------|-------|-----------|--------------|-------|----------|--------|--|--|---------------------------------------|------------------------|--|-----------------------|----------------------|------------|
|   |        |  |  |         |       |           | MI           | FT    |          |        | ASPHALT SURFACE TREATMENT, SINGLE SEAL | EMULSION FOR ASPHALT SURFACE TREATMENT | MILLED RUMBLE STRIPS ASPHALT CONCRETE | ADJUSTMENT OF MANHOLES | ADJUSTMENT OF METER BOXES OR VALVE BOXES | INDUCTIVE LOOP SAWCUT | LEAD-IN CABLE (14-2) |            |
|   |        |  |  |         |       |           | SY           | GAL   | LF       | EA     | EA                                     | LF                                     | LF                                    |                        |  |                       |                      |            |
| 2024CPT.13.10.10121                           | 1      | NC 18 SOUTH  | FROM CATAWBA COUNTY LINE TO SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT             | 1       | 2     | 2WU       | 11.13        | 27.00 | 0.00     | 11.13  | 178,556                                | 53,567                                 | 48,844                                |                        |  |                       |                      |            |
| 2024CPT.13.10.10121                           | 2      | NC 18 SOUTH  | FROM SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT TO SR 1712 (DREXEL ROAD) +.05 MILE | 2       | 2     | 2WU       | 1.30         | 29.00 | 11.13    | 12.43  |  |  |                                       |                        | 1  |                       |                      |            |
| 2024CPT.13.10.10121                           | 3      | US 70 EAST ( CARBON CITY ROAD / WEST UNION STREET) | FROM SR 1142 (JAMESTOWN ROAD) - .1 MILE TO US 64 BYPASS (WEST FLEMING DRIVE) -.02 MILE     | 3, 4, 6 | 5     | MU        | 1.12         | 60.50 | 8.99     | 10.11  |  |  |                                       | 1                      | 10                                       | 840                   | 1,090                |            |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.10121</b> |        |  |  |         |       |           | <b>13.55</b> |       |          |        | <b>178,556</b>                         | <b>53,567</b>                          | <b>48,844</b>                         | <b>1</b>               | <b>11</b>                                | <b>840</b>            | <b>1,090</b>         |            |
| 2024CPT.13.10.20121                           | 4      | SR 1142 (JAMESTOWN ROAD)                           | FROM US 70 (CARBON CITY ROAD) -.07 MILE TO US 70 (CARBON CITY ROAD)                        | 4, 5, 6 | 2     | MD        | 0.07         | 59.00 | 7.60     | 7.67   |  |  |                                       |                        |  | 620                   | 270                  |            |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.20121</b> |        |  |  |         |       |           | <b>0.07</b>  |       |          |        |  |  |                                       |                        |  |                       | <b>620</b>           | <b>270</b> |
| <b>GRAND TOTAL</b>                            |        |  |  |         |       |           | <b>13.62</b> |       |          |        | <b>178,556</b>                         | <b>53,567</b>                          | <b>48,844</b>                         | <b>1</b>               | <b>11</b>                                | <b>1,460</b>          | <b>1,360</b>         |            |

\*NOTE-ALL MAPS, COUNTY = BURKE, FINAL TESTING REQUIRED = NO, WARM MIX REQUIRED = NO.

|                          |           |
|--------------------------|-----------|
| PROJECT NO.              | SHEET NO. |
| 2024CPT.13.10.10121, ETC | 12        |

**THERMOPLASTIC AND PAINT QUANTITIES**

| PROJECT NO                                    | MAP NO | ROUTE  | DESCRIPTION  | TYP NO  | LANES | LANE TYPE | LENGTH       | WIDTH | BEGIN MP | END MP | 4413000000-E | 4457000000-N | 4510000000-N | 4685000000-E   |                | 4695000000-E   |              | 4709000000-E |            |
|---|--------|--|--|---------|-------|-----------|--------------|-------|----------|--------|--------------|--------------|--------------|----------------|----------------|----------------|--------------|--------------|------------|
|   |        |  |  |         |       |           | MI           | FT    |          |        | SF           | LS           | HR           | LF             | LF             | LF             | LF           | LF           |            |
| 2024CPT.13.10.10121                           | 1      | NC 18  | FROM CATAWBA COUNTY LINE TO SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT             | 1       | 2     | 2WU       | 11.13        | 27.00 | 0.00     | 11.13  | 1,247        |              |              |                | 118,077        | 86,104         | 76           |              |            |
| 2024CPT.13.10.10121                           | 2      | NC 18  | FROM SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT TO SR 1712 (DREXEL ROAD) +.05 MILE | 2       | 2     | 2WU       | 1.30         | 29.00 | 11.13    | 12.43  | 146          |              |              |                | 14,738         | 16,102         | 159          | 28           |            |
| 2024CPT.13.10.10121                           | 3      | US 70 EAST ( CARBON CITY ROAD / WEST UNION STREET) | FROM SR 1142 (JAMESTOWN ROAD) - .1 MILE TO US 64 BYPASS (WEST FLEMING DRIVE) -.02 MILE     | 3, 4, 6 | 5     | MU        | 1.12         | 60.50 | 8.99     | 10.11  | 126          |              |              | 16             | 5,363          | 13,426         | 78           | 709          | 264        |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.10121</b> |        |  |  |         |       |           | <b>13.55</b> |       |          |        | <b>1,519</b> |              |              | <b>16</b>      | <b>138,178</b> | <b>115,632</b> | <b>313</b>   | <b>709</b>   | <b>292</b> |
|   |        |  |  |         |       |           |              |       |          |        |              |              |              |                | <b>253,810</b> |                | <b>1,022</b> |              |            |
| 2024CPT.13.10.20121                           | 4      | SR 1142 (JAMESTOWN ROAD)                           | FROM US 70 (CARBON CITY ROAD) -.07 MILE TO US 70 (CARBON CITY ROAD)                        | 4, 5, 6 | 2     | MD        | 0.07         | 59.00 | 7.60     | 7.67   | 126          |              |              | 8              | 955            | 276            | 20           |              | 36         |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.20121</b> |        |  |  |         |       |           | <b>0.07</b>  |       |          |        | <b>126</b>   |              |              | <b>8</b>       | <b>955</b>     | <b>276</b>     | <b>20</b>    |              | <b>36</b>  |
|   |        |  |  |         |       |           |              |       |          |        |              |              |              |                | <b>1,231</b>   |                | <b>20</b>    |              |            |
| <b>GRAND TOTAL</b>                            |        |  |  |         |       |           | <b>13.62</b> |       |          |        | <b>1,645</b> | <b>1</b>     | <b>24</b>    | <b>139,133</b> | <b>115,908</b> | <b>333</b>     | <b>709</b>   | <b>328</b>   |            |
|   |        |  |  |         |       |           |              |       |          |        |              |              |              |                | <b>255,041</b> |                | <b>1,042</b> |              |            |

\*NOTE-ALL MAPS, COUNTY = BURKE, FINAL TESTING REQUIRED = NO, WARM MIX REQUIRED = NO.

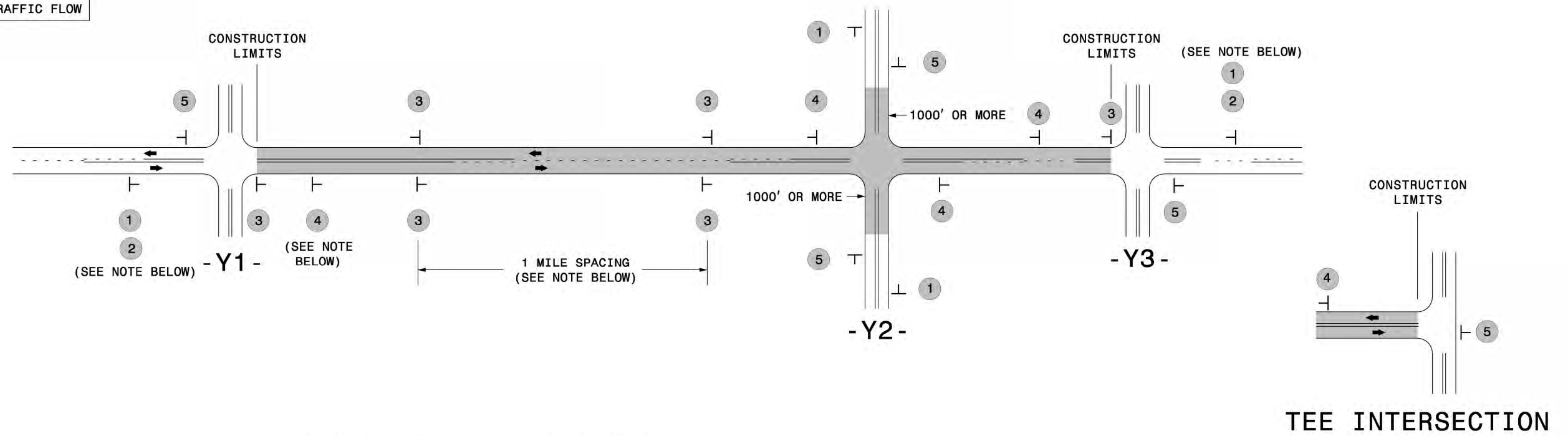
**THERMOPLASTIC AND PAINT QUANTITIES (CONTINUED)**

| PROJECT NO                                    | MAP NO | ROUTE  | DESCRIPTION  | TYP NO  | LANES | LANE TYPE | LENGTH       | WIDTH | BEGIN MP | END MP | 4720000000-E | 4725000000-E |           |           |           | 4905100000-N |              |     |  |
|---|--------|--|--|---------|-------|-----------|--------------|-------|----------|--------|--------------|--------------|-----------|-----------|-----------|--------------|--------------|-----|--|
|   |        |  |  |         |       |           | MI           | FT    |          |        |              |              |           |           |           |              |              |     |  |
| 2024CPT.13.10.10121                           | 1      | NC 18 SOUTH  | FROM CATAWBA COUNTY LINE TO SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT             | 1       | 2     | 2WU       | 11.13        | 27    | 0        | 11.13  |              |              |           |           |           |              | 25           | 791 |  |
| 2024CPT.13.10.10121                           | 2      | NC 18 SOUTH  | FROM SR 1931 (MOUNT HOME CHURCH ROAD) AT PAVEMENT JOINT TO SR 1712 (DREXEL ROAD) +.05 MILE | 2       | 2     | 2WU       | 1.3          | 29    | 11.13    | 12.43  |              |              |           |           |           |              | 10           | 97  |  |
| 2024CPT.13.10.10121                           | 3      | US 70 EAST ( CARBON CITY ROAD / WEST UNION STREET) | FROM SR 1142 (JAMESTOWN ROAD) - .1 MILE TO US 64 BYPASS (WEST FLEMING DRIVE) -.02 MILE     | 3, 4, 6 | 5     | MU        | 1.12         | 60.5  | 8.99     | 10.11  | 16           | 11           | 39        | 11        | 6         | 186          | 134          |     |  |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.10121</b> |        |  |  |         |       |           | <b>13.55</b> |       |          |        | <b>16</b>    | <b>13</b>    | <b>45</b> | <b>11</b> | <b>6</b>  | <b>221</b>   | <b>1,022</b> |     |  |
|   |        |  |  |         |       |           |              |       |          |        |              |              |           |           | <b>75</b> |              | <b>1,243</b> |     |  |
| 2024CPT.13.10.20121                           | 4      | SR 1142 (JAMESTOWN ROAD)                           | FROM US 70 (CARBON CITY ROAD) -.07 MILE TO US 70 (CARBON CITY ROAD)                        | 4, 5, 6 | 2     | MD        | 0.07         | 59    | 7.6      | 7.67   |              |              |           |           |           | 13           |              |     |  |
| <b>TOTAL FOR PROJ NO. 2024CPT.13.10.20121</b> |        |  |  |         |       |           | <b>0.07</b>  |       |          |        |              | <b>2</b>     | <b>1</b>  | <b>1</b>  |           | <b>13</b>    |              |     |  |
|   |        |  |  |         |       |           |              |       |          |        |              |              |           |           | <b>4</b>  |              | <b>13</b>    |     |  |
| <b>GRAND TOTAL</b>                            |        |  |  |         |       |           | <b>13.62</b> |       |          |        | <b>16</b>    | <b>15</b>    | <b>46</b> | <b>12</b> | <b>6</b>  | <b>234</b>   | <b>1,022</b> |     |  |
|   |        |  |  |         |       |           |              |       |          |        |              |              |           |           | <b>79</b> |              | <b>1,256</b> |     |  |

\*NOTE-ALL MAPS, COUNTY = BURKE, FINAL TESTING REQUIRED = NO, WARM MIX REQUIRED = NO.

# SIGNING FOR RESURFACING PROJECTS

**LEGEND**  
 ┆ STATIONARY SIGN  
 ← DIRECTION OF TRAFFIC FLOW



## MAINLINE (-L-) SIGNING

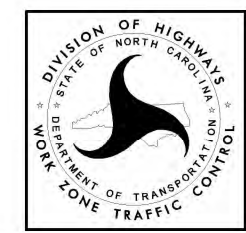
## -Y- LINE SIGNING

|   |   |  |   |   |
|---|---|--|---|---|
| SIGNING NOTES AND PLACEMENT PER DIRECTION | 1 |  | PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.  | <p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <p>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.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <br/>           W20-1<br/>48" X 48"<br/>           PLACED 500' IN ADVANCE OF FLAGGER.         </div> <div style="text-align: center;"> <br/>           W20-7 A<br/>48" X 48"<br/>           PLACED 250' IN ADVANCE OF FLAGGER.         </div> </div> |
|   | 2 |  | #2 SIGN ONLY USED WHEN CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)   |   |
|   | 3 |  | - PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER.<br>- AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.   |   |
|   | 4 |  | - THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS.<br>- DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS.<br>- INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE.<br>- 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.<br>- A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.<br>- FOR TEE INTERSECTIONS, INSTALL WITHIN 500' +/- OF THE INTERSECTION ALONG -L- LINE. |   |
|   | 5 |  | PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.   |   |

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

**MAPS LESS THAN 2 MILES**

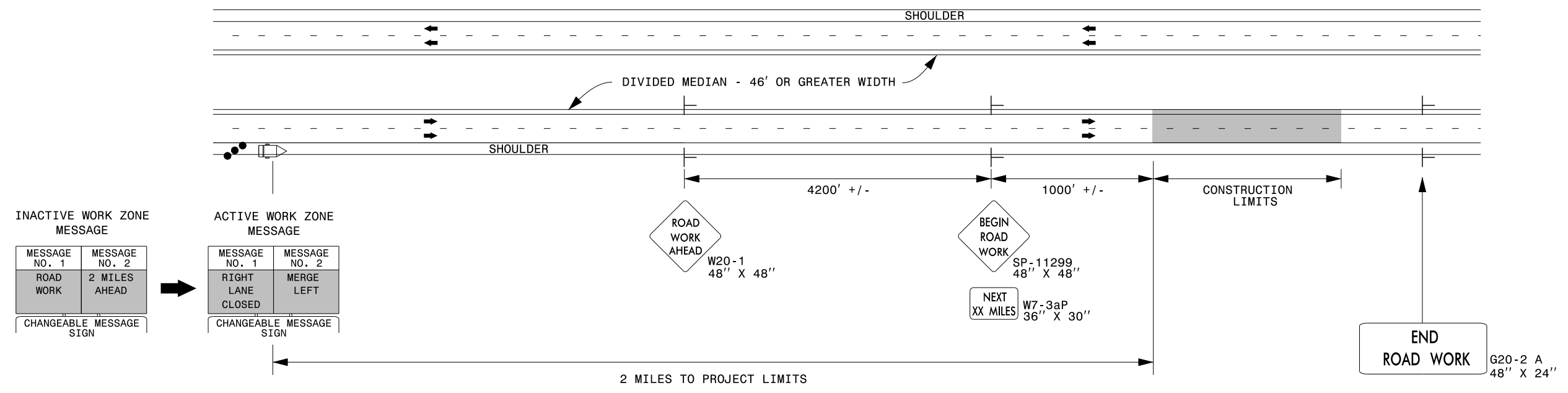
FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.



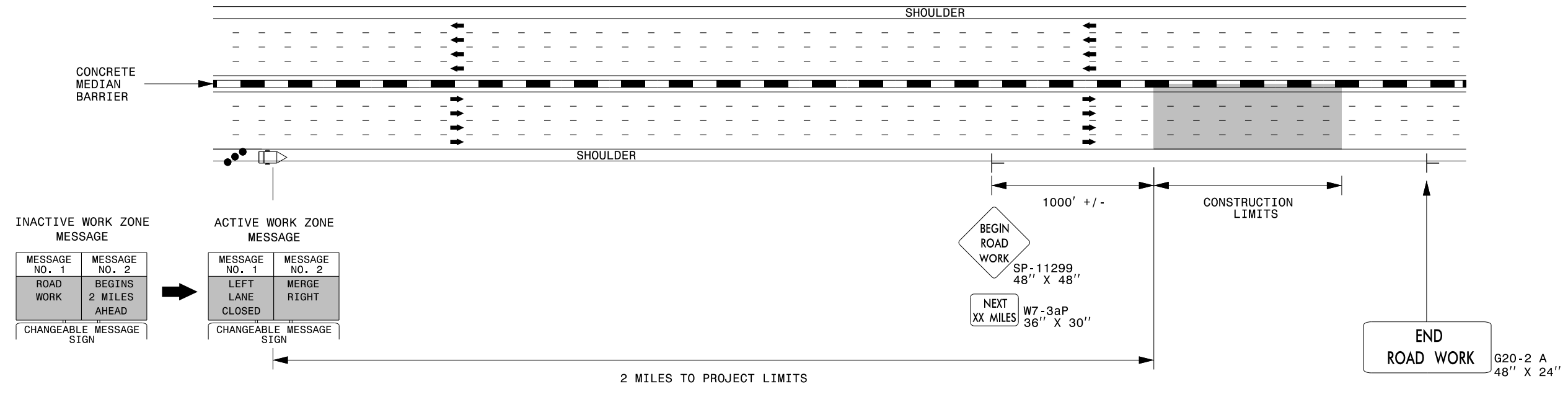
**ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING**

5/15/2017 S:\T\13107\ZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing\_AdvWarn\_2Ln.dgn User:keads

### DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER







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

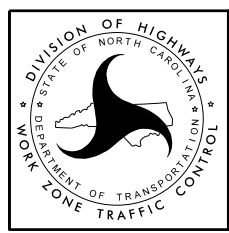


**NOTES:**

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

**LEGEND**

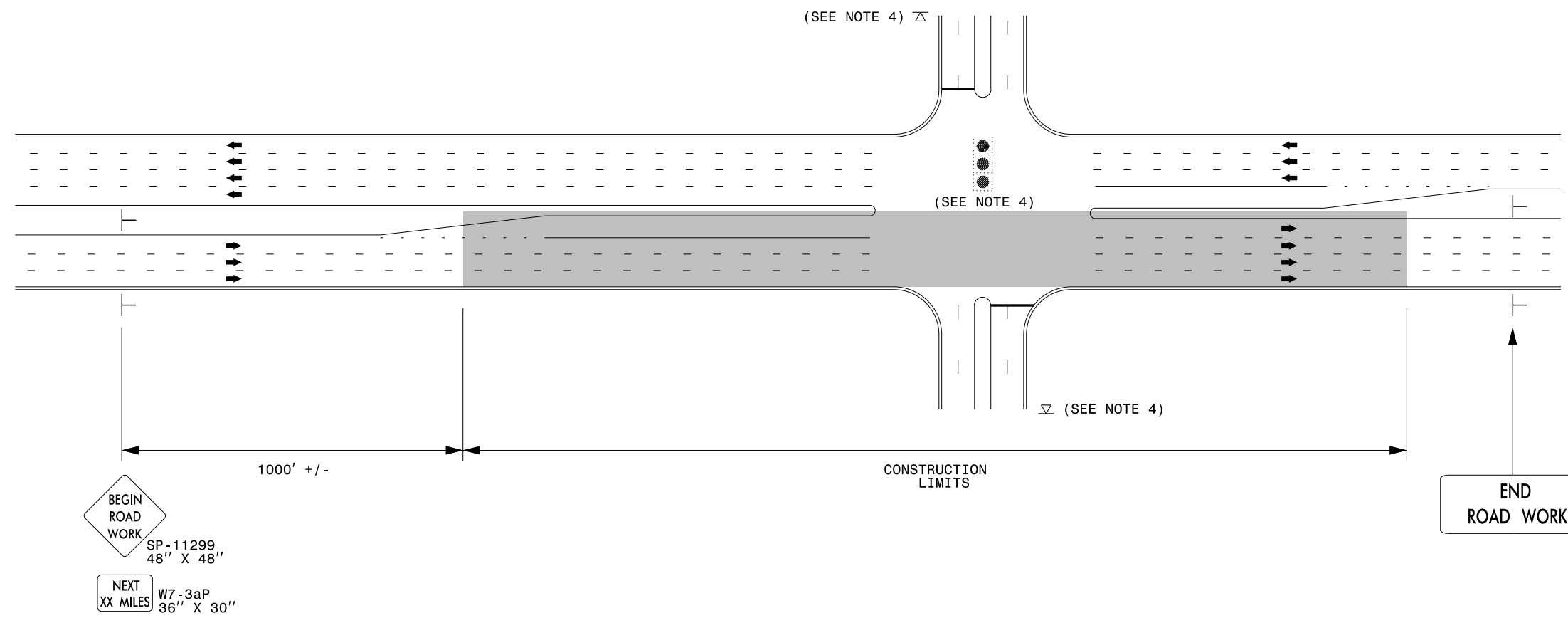
-  CHANGEABLE MESSAGE SIGN (CMS)
-  STATIONARY SIGN
-  DIRECTION OF TRAFFIC FLOW
-  TRAFFIC DRUM



**RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH**

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## URBAN / SUBURBAN WORKZONES



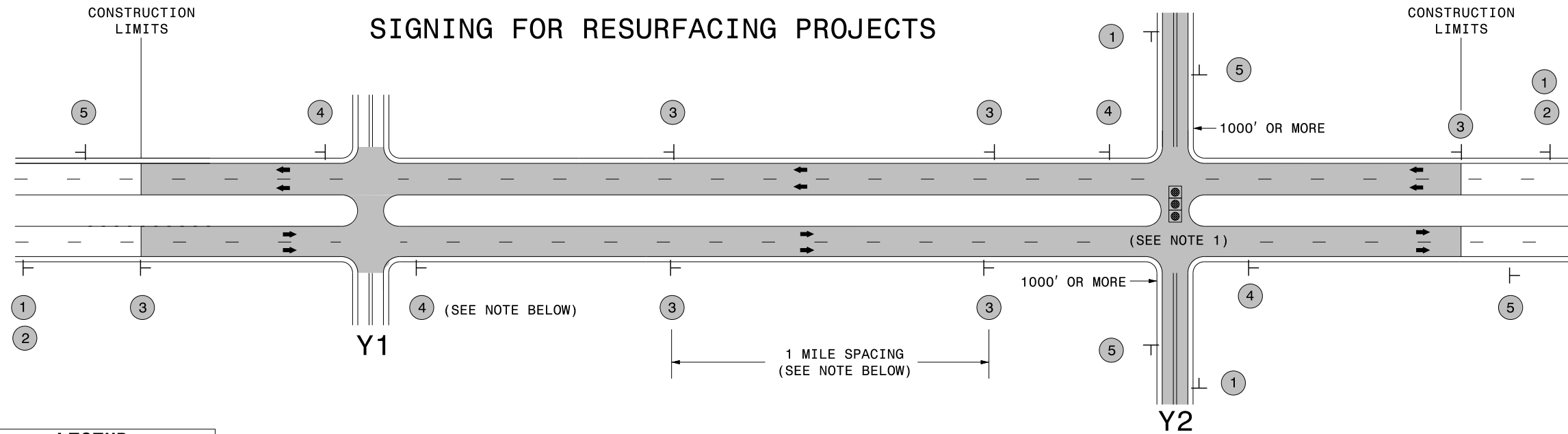
**NOTES:**

- 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 |

|  |   |
|--|---|
|  | <p><b>RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES</b></p> |
|--|---|

4/8/2015 C:\Users\rmgarrrett\Downloads\Resurfacing\_AdvWarn\_UrSu (2).dgn User:rmgarrrett



| LEGEND |                           |
|--------|---------------------------|
| —      | STATIONARY SIGN           |
| ←      | DIRECTION OF TRAFFIC FLOW |

### MAINLINE (-L-) SIGNING

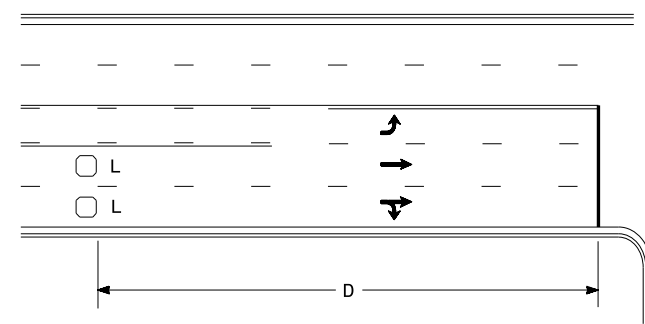
### -Y- LINE SIGNING

| SIGNING NOTES AND<br>PLACEMENT PER DIRECTION | MAINLINE (-L-) SIGNING   |  | -Y- LINE SIGNING  |   |
|--|--------------------------|--|---|---|
|  | 1                        | <br>W20-1<br>48" X 48"                               | PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS.<br>ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.   | <p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> <li>1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE</li> <li>2) SUBDIVISION ROADS</li> <li>3) DEAD END ROADS</li> </ol> <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <br/>           W20-1<br/>           48" X 48"         </div> <div style="text-align: center;"> <br/>           W20-7 A<br/>           48" X 48"         </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>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.</li> </ol> |
|  | 2                        | <br>W7-3aP<br>24" X 18"                              | #2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)  |   |
|  | 3                        | <br>SP 13107<br>48" X 48"                            | PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.   |   |
|  | 4                        | <br>SP 13106<br>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  | <br>G20-2 A<br>48" X 24" | PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS. |   |   |

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



### High Speed Detection (≥40 mph)

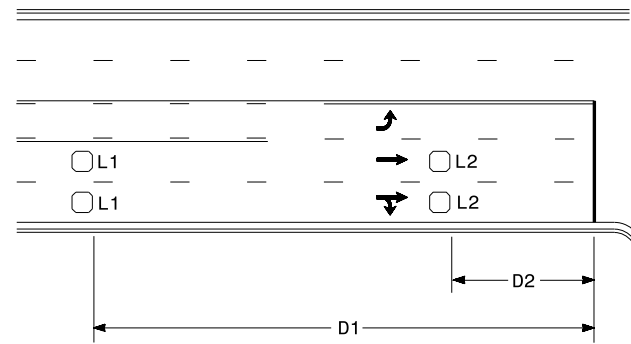


| Speed Limit mph | D ft |
|-----------------|------|
| 40              | 250  |
| 45              | 300  |
| 50              | 355  |
| 55              | 420  |

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

Volume Density Operation

OR

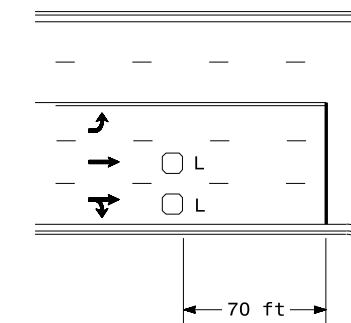


| Speed Limit mph | D1 ft | D2 ft |
|-----------------|-------|-------|
| 40              | 250   | 80    |
| 45              | 300   | 90    |
| 50              | 355   | 100   |
| 55              | 420   | 110   |

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

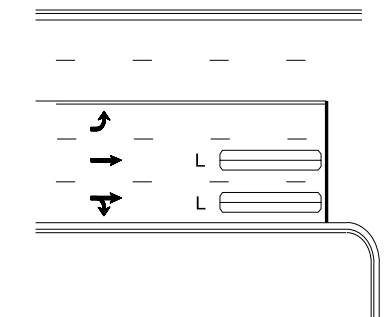
"Stretch" Operation

### Low Speed Detection (≤35 mph)



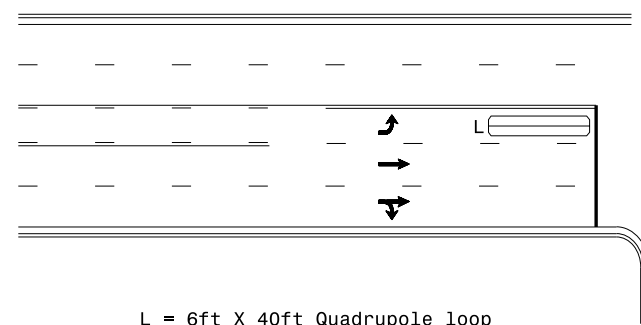
L = 6ft X 6ft  
Wired in series

OR



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

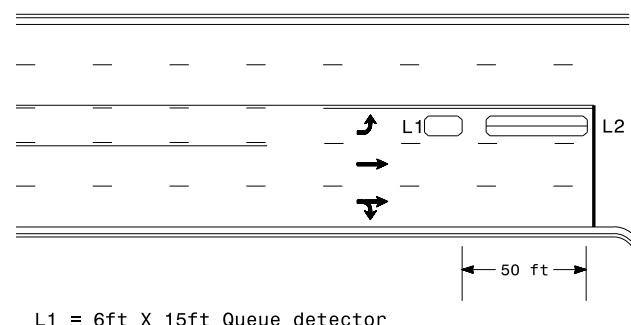
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

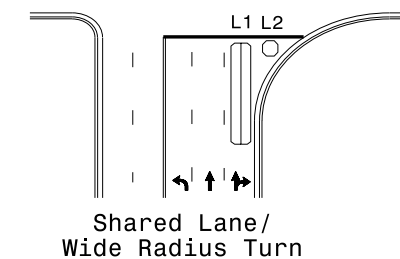
OR



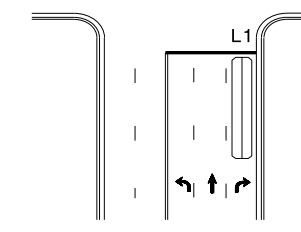
L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

Queue Loop Detection

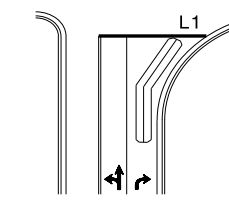
### Right Turn Lane Detection



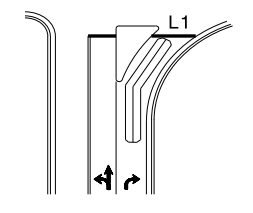
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

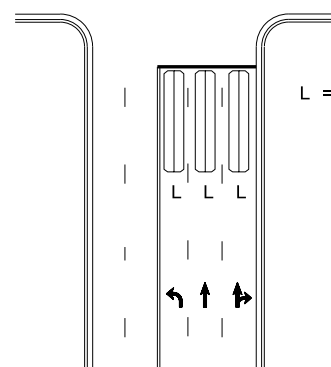


Wide Radius Turn



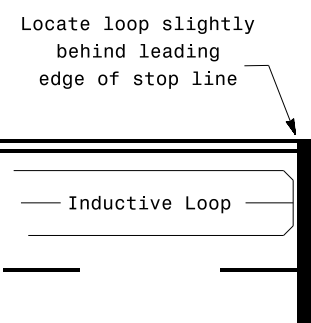
Channelized Turn

### Side Street Detection



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

### Presence Loop Placement at Stop Lines



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

### Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns

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

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

#### Typical Signal Loop Locations

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

SCALE: N/A

SEAL

1/30/2015

SIG. INVENTORY NO.