

- 2. SR 1135 - Wall Rd
- 3. SR 1138 - Green Rd
- 4. SR 1147 - Holden Rd
- 5. SR 1148 - N. College St
- 6. SR 1156 - Rolling Acres Rd
- 7. SR 1160 - Old John Mitchell Rd
- 8. SR 1161 - Stephen Taylor Rd
- 9. SR 1162 - Cardinal Dr
- 10. SR 1164 - Colonial Rd
- 11. SR 1165 - Beechwood Dr
- 12. SR 1172 - Dawn Ct
- 13. SR 1182 - S. College St
- 14. SR 1185 - Spring Ct
- 15. SR 1191 - Young Forest Dr
- 16. SR 1192 - Appaloosa Way
- 17. SR 1230 - Bunn Rd
- 24. SR 1644 - Alston Pruitt Rd
- 25. SR 1645 - Rex PL
- 26. SR 1648 - Alston Acres Subdivison Rd
- 27. SR 1700 - Fox Park Rd
- 28. SR 1786 - Kent St
- 29. SR 1787 - Dozer Dr
- 30. SR 1902 - Fawn Ct

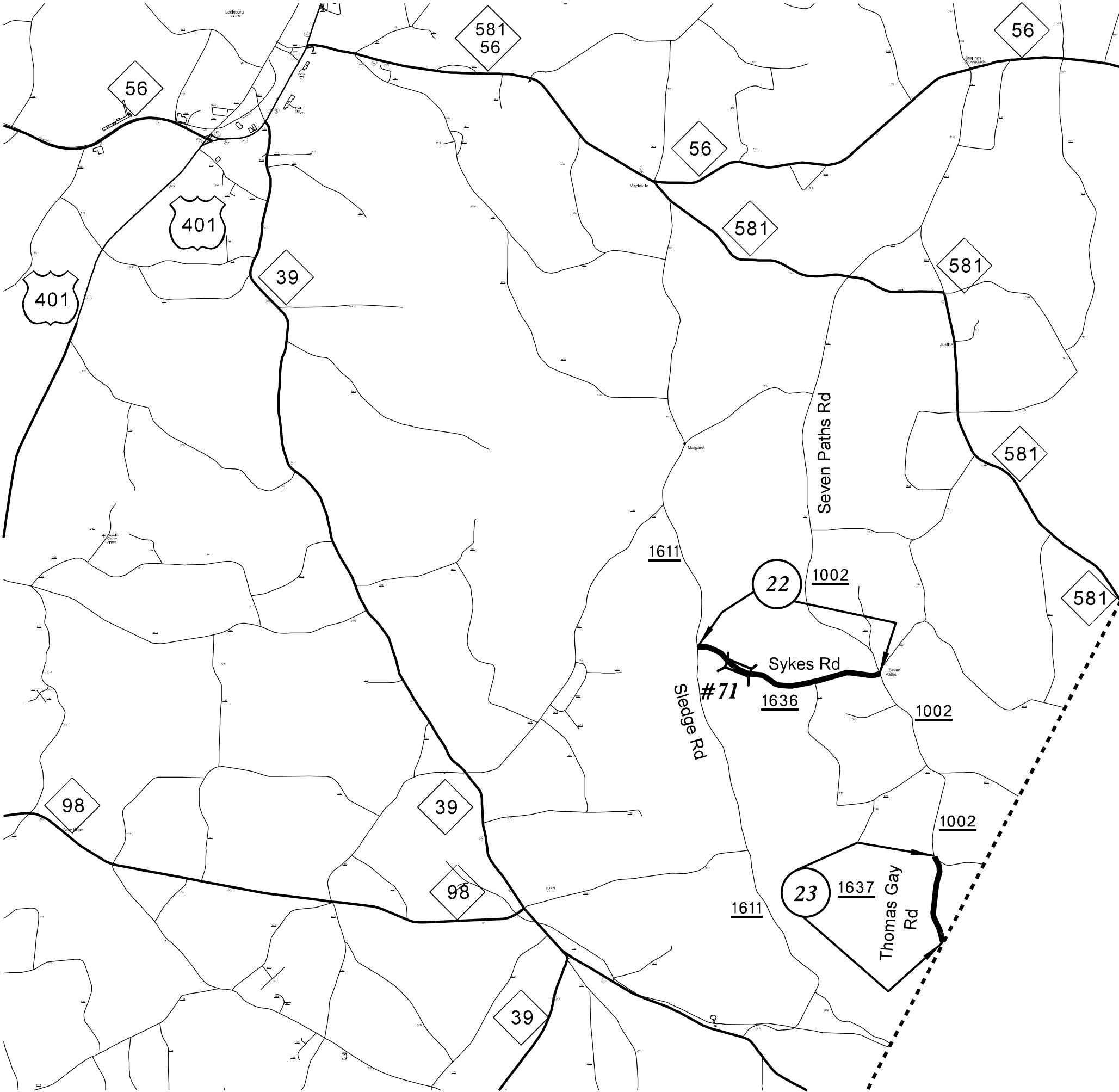


# 2021 Franklin County Resurfacing

5/14/99  
 SYSTEMS  
 05/14/99



5/14/2021  
C:\Users\jrbarnes\OneDrive\Documents\2021 Franklin County Resurfacing\2021 Franklin County Resurfacing.dwg  
2021 Franklin County Resurfacing



# 2021 Franklin County Resurfacing

**PAVEMENT SCHEDULE**

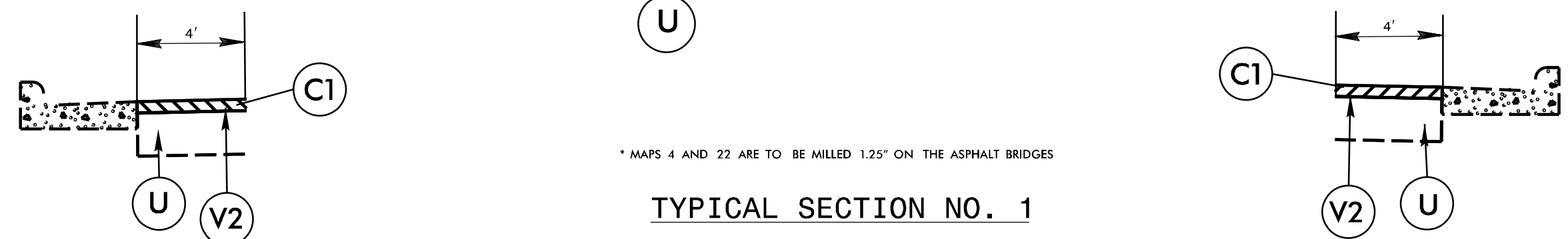
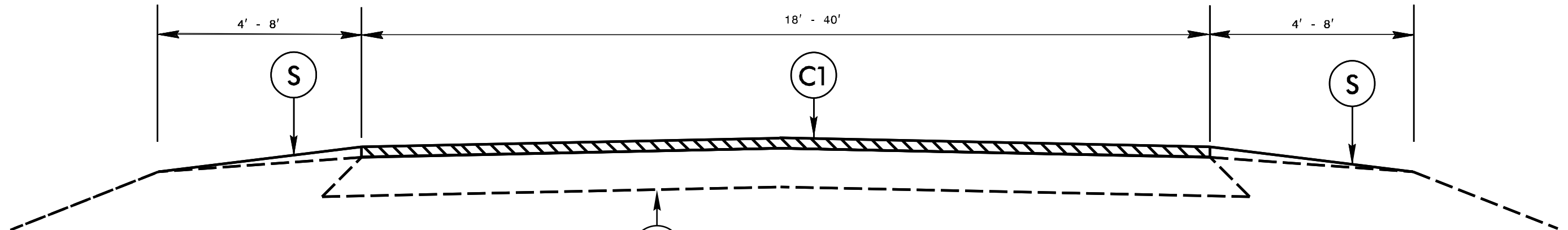
PROJECT REFERENCE NO.

SHEET NO.

2021CPT.05.05.20351.1

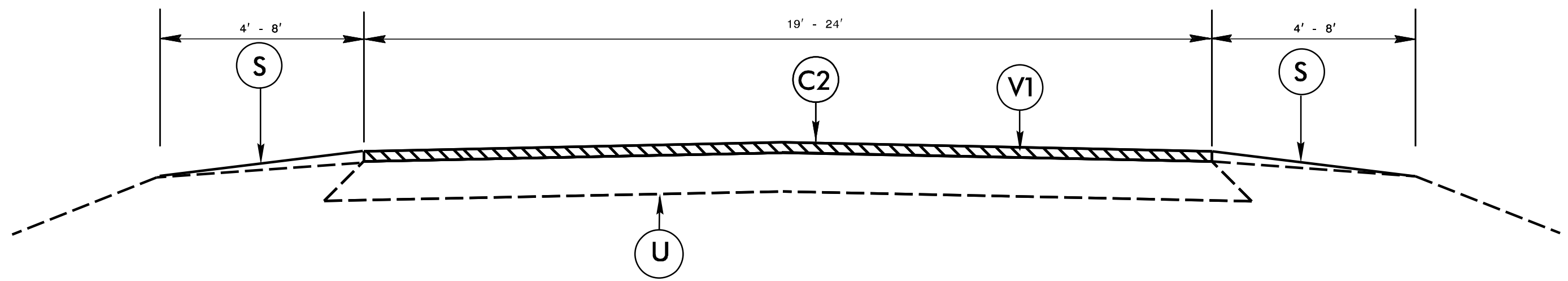
4

|    |  |    |  |
|----|--|----|--|
| C1 | 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.      | S  | SHOULDER GRADING<br>ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS) |
| C2 | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.        | U  | EXISTING PAVEMENT  |
| D  | 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. | V1 | 1½" MILLING  |
|    |  | V2 | 0" - 1¼" MILLING   |



\* MAPS 4 AND 22 ARE TO BE MILLED 1.25" ON THE ASPHALT BRIDGES

TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

**PAVEMENT SCHEDULE**

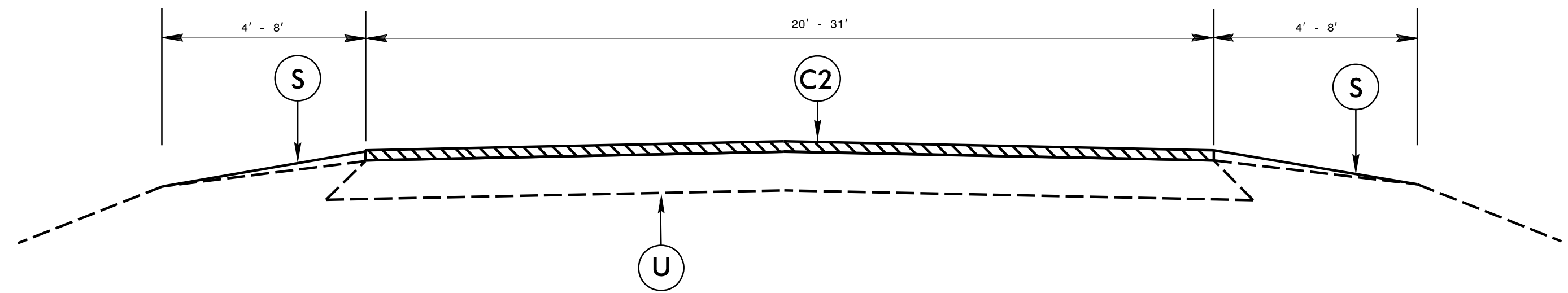
PROJECT REFERENCE NO.

SHEET NO.

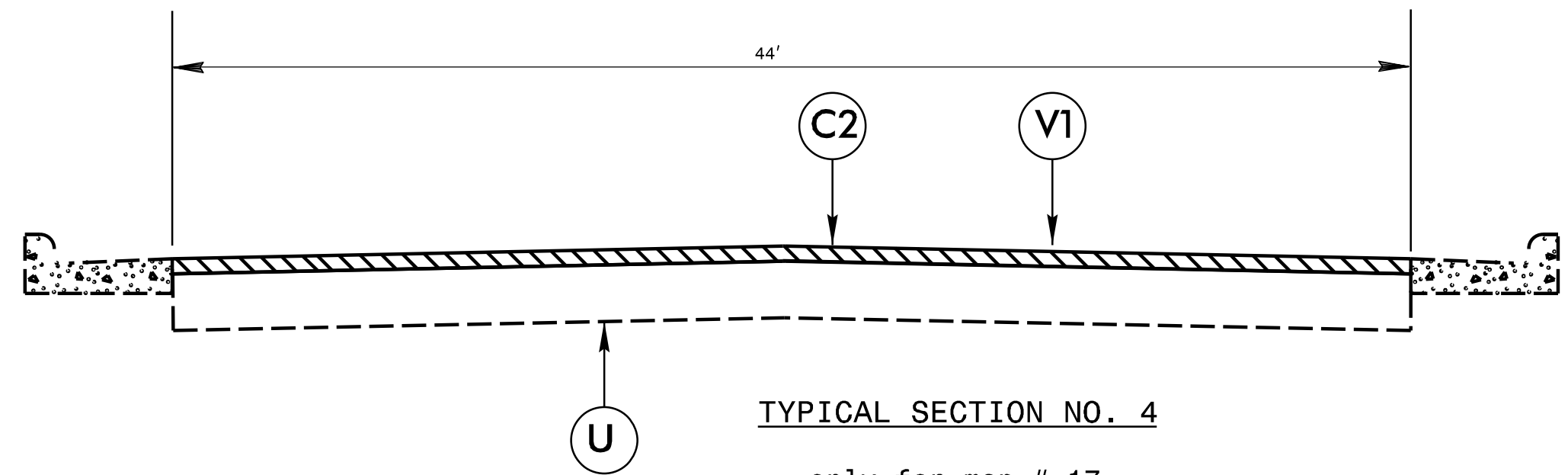
2021CPT.05.05.20351.1

5

|    |  |    |  |
|----|--|----|--|
| C1 | 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.         | U  | EXISTING PAVEMENT  |
| C2 | 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.           | S  | SHOULDER GRADING<br>ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS) |
| D  | 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE,<br>TYPE I19.0C, AT AN AVERAGE RATE OF<br>285 LBS. PER SQ. YD. | V1 | 1½" MILLING  |
|    |  | V2 | 0" - 1¼" MILLING   |



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4

only for map # 17

**PAVEMENT SCHEDULE**

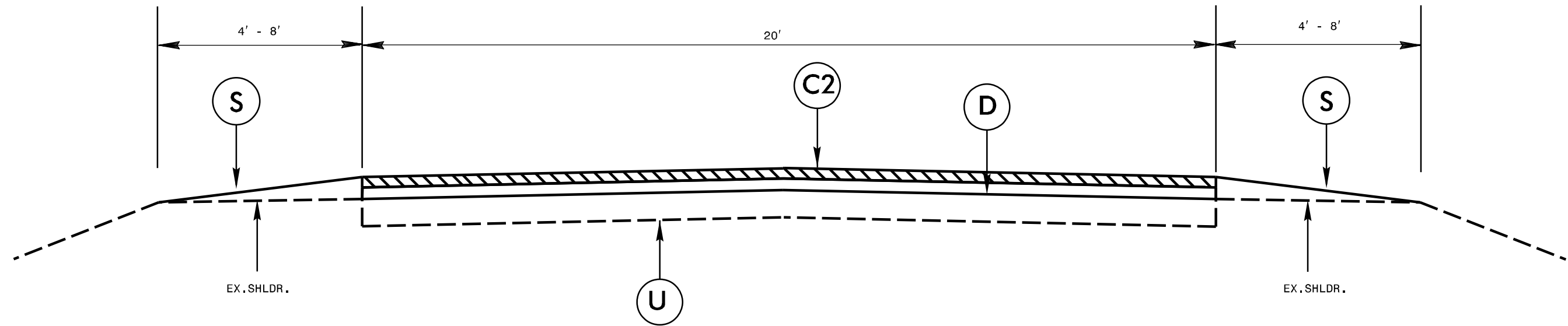
PROJECT REFERENCE NO.

SHEET NO.

2021CPT.05.05.20351.1

6

|    |  |    |  |
|----|--|----|--|
| C1 | 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.      | U  | EXISTING PAVEMENT  |
| C2 | 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B,<br>AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.        | S  | SHOULDER GRADING<br>ASB REQUIRED (EXCEPT AT RESIDENTIAL AREAS) |
| D  | 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE,<br>TYPE I19.0C, AT AN AVERAGE RATE OF<br>285 LBS. PER SQ. YD. | V1 | 1 1/2" MILLING   |
|    |  | V2 | 0" - 1 1/4" MILLING  |

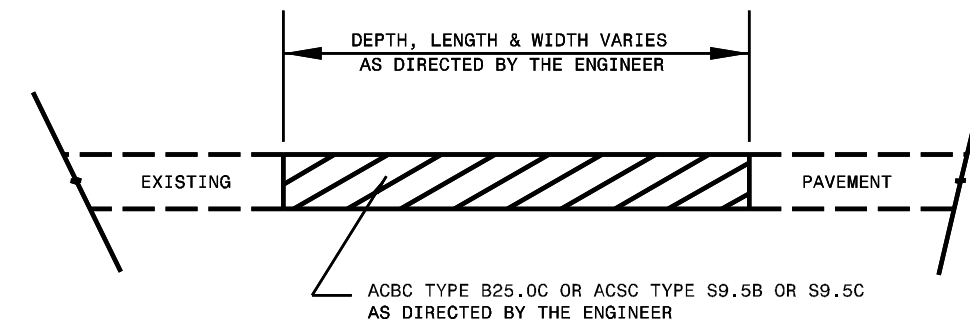
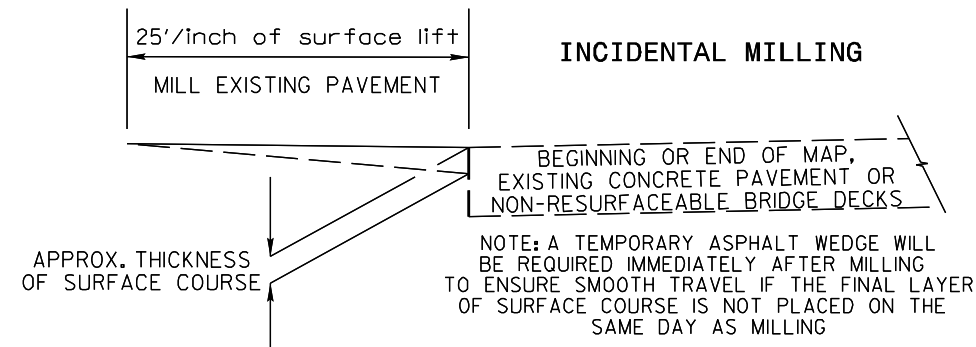


TYPICAL SECTION NO. 5

\* Use only for map # 3 Beginning from US 1 STA 0+00  
 Fill Section 1, STA 14+60 To STA 23+90  
 Fill Section 2, STA 44+00 To STA 51+50.

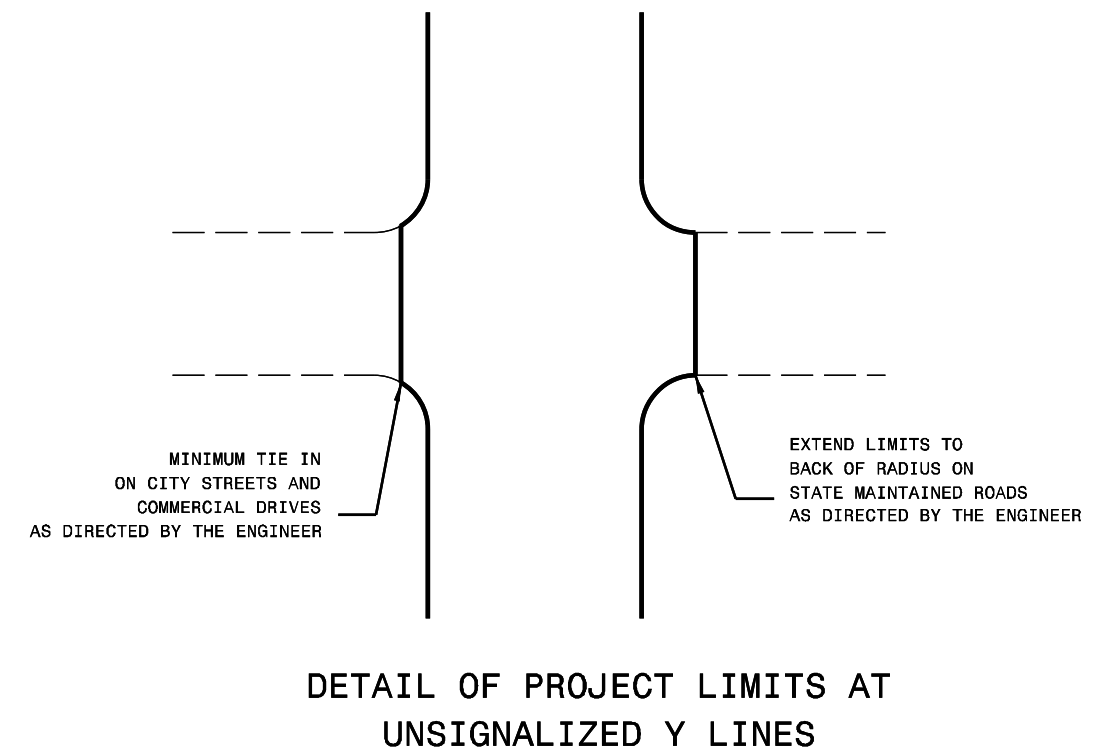
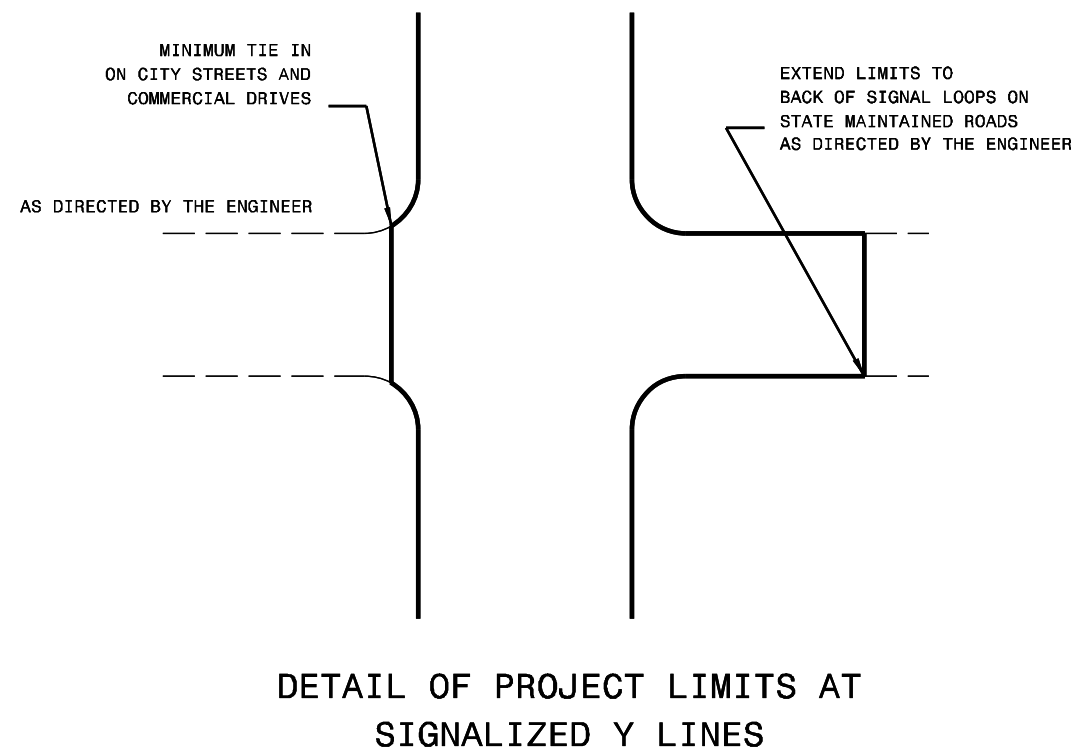
NOTES

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 RADII, 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.

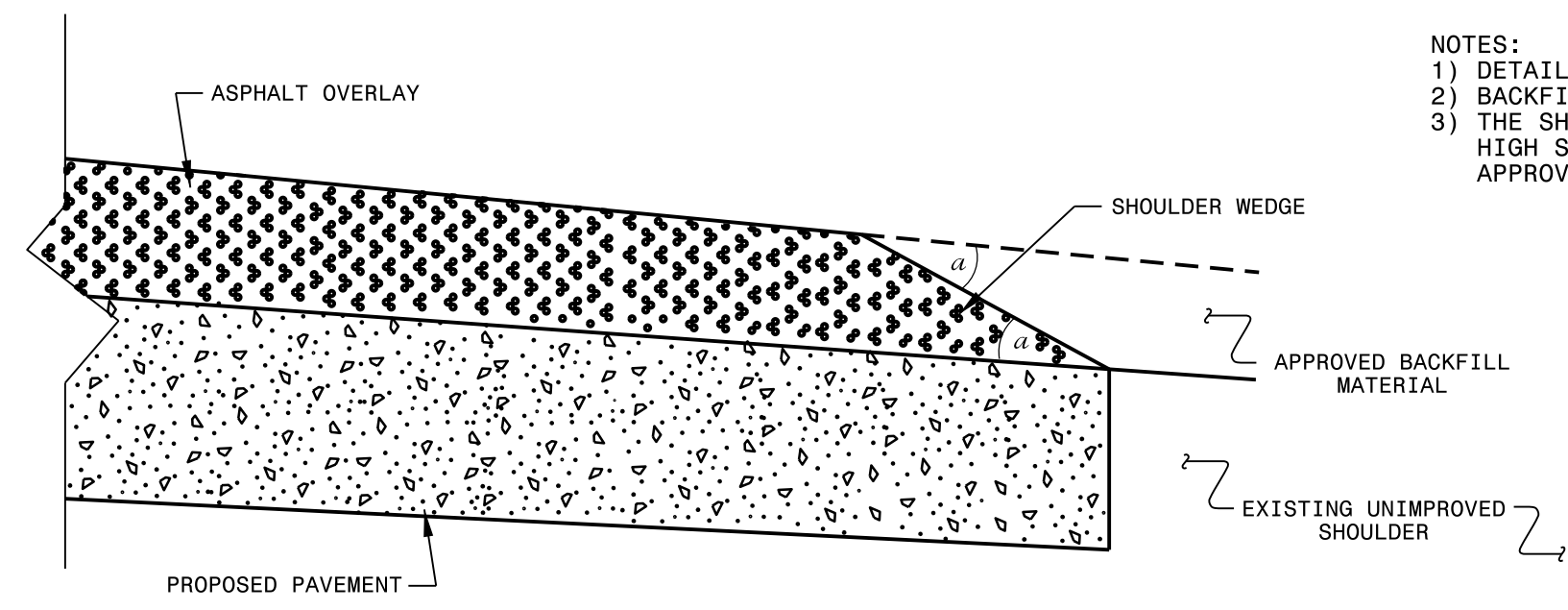


**PATCHING EXISTING PAVEMENT**

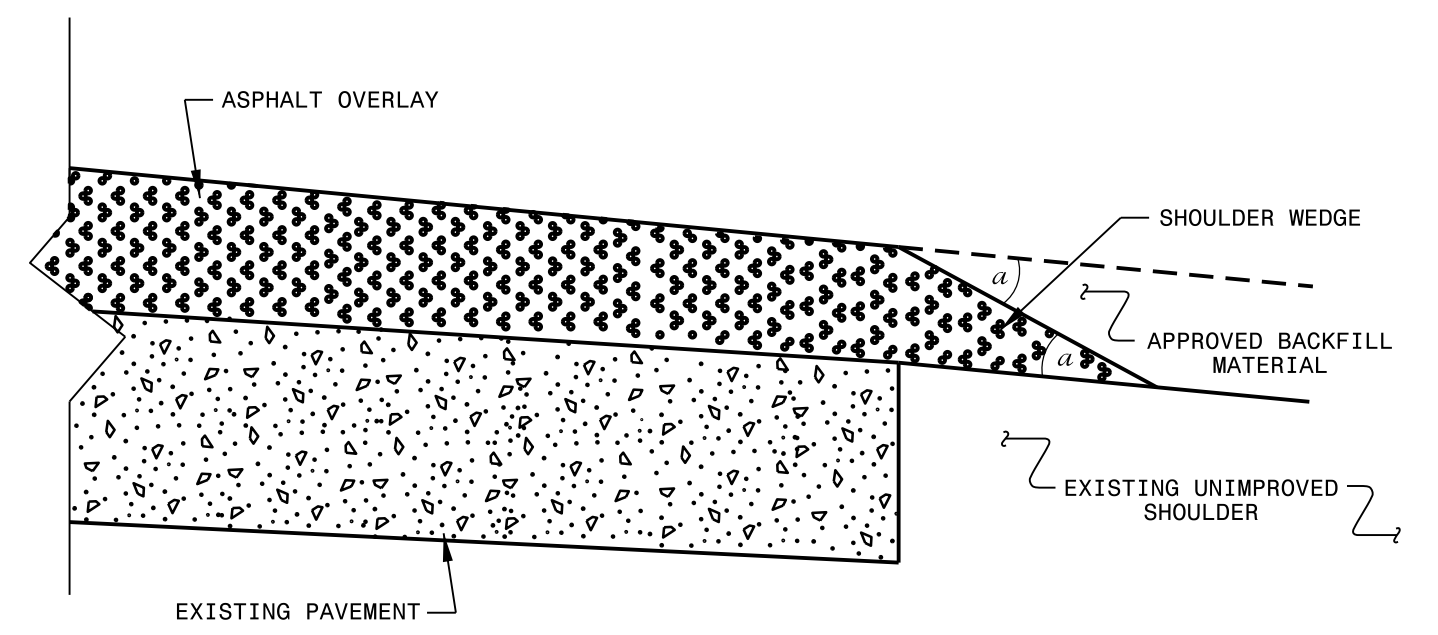
MILLING TO BE PERFORMED PRIOR TO PATCHING



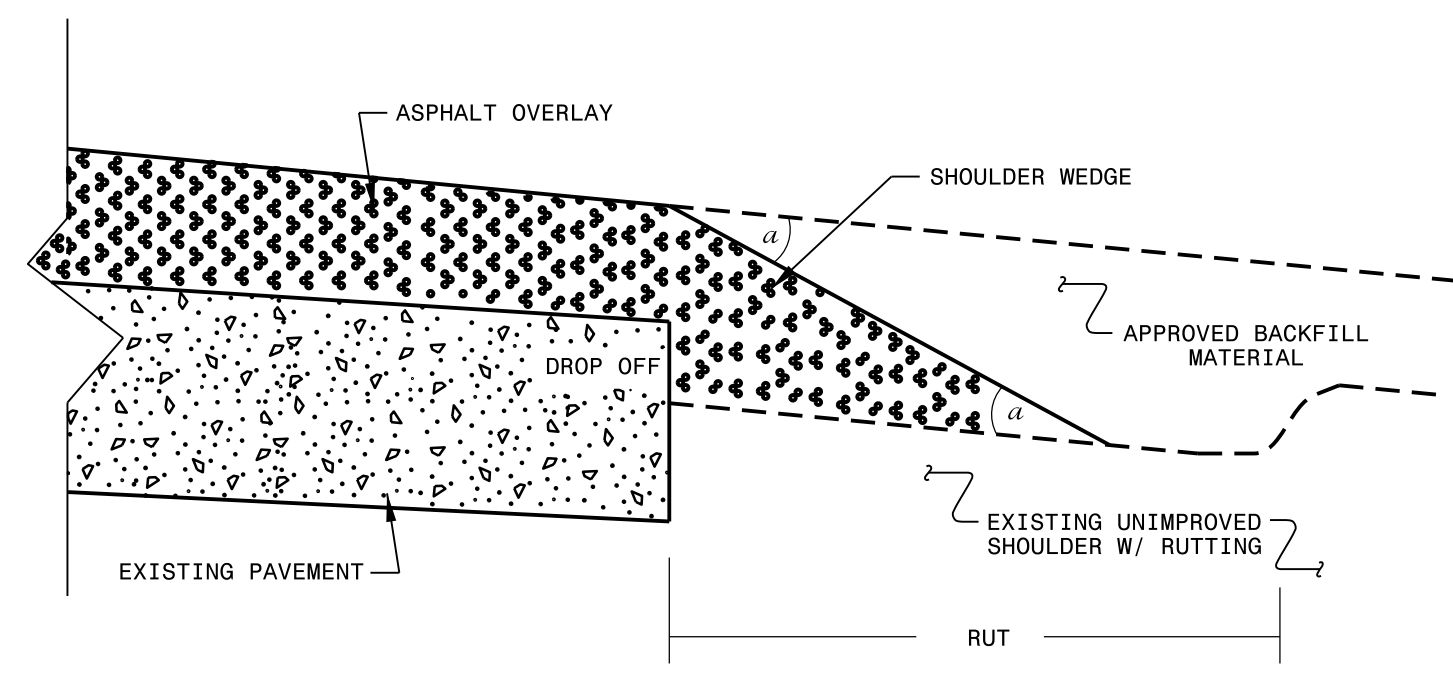
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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

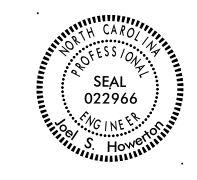


**SHOULDER WEDGE DETAIL**  
 (Resurfacing Projects w/ NO Widening)



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

- SHOULDER WEDGE ANGLE = 30°



**CONTRACT STANDARDS  
 AND DEVELOPMENT UNIT**  
 Office 919-707-6950 FAX 919-250-4119

**SHOULDER WEDGE  
 DETAILS**

ORIGINAL BY: T. SPELL DATE: 7-19-11  
 MODIFIED BY: DATE: 2/2/16  
 CHECKED BY: DATE:  
 FILE SPEC.: s:usr/details/stand/shoulderwedgedetail.dgn

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

\*\*\*\*\*  
 SYSTEMS DESIGN  
 \*\*\*\*\*





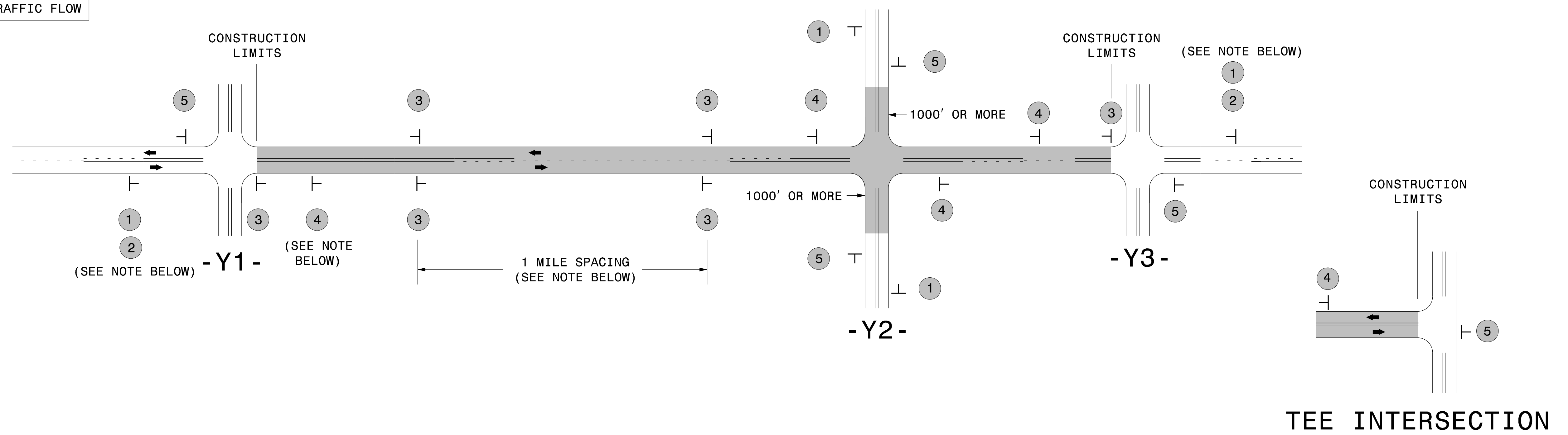


# SIGNING FOR RESURFACING PROJECTS

**LEGEND**

┆ STATIONARY SIGN

← DIRECTION OF TRAFFIC FLOW



## MAINLINE (-L-) SIGNING

## -Y- LINE SIGNING

|  |   |   |   |
|--|---|---|---|
| <b>SIGNING NOTES AND<br/>PLACEMENT PER DIRECTION</b> | 1 | <br><small>W20-1<br/>48" X 48"</small>    | PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.  |
|  | 2 | <br><small>W7-3aP<br/>24" X 18"</small>   | #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 | <br><small>SP 13107<br/>48" X 48"</small> | - 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 | <br><small>SP 13106<br/>48" X 48"</small> | - 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 | <br><small>G20-2 A<br/>48" X 24"</small>  | PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.   |

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

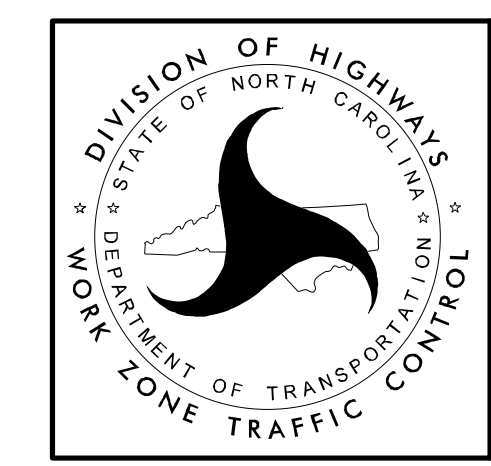
- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

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

|  |  |
|--|--|
| <br><small>W20-1<br/>48" X 48"</small><br>PLACED 500' IN ADVANCE OF FLAGGER. | <br><small>W20-7 A<br/>48" X 48"</small><br>PLACED 250' IN ADVANCE OF FLAGGER. |
|--|--|

### 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**

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

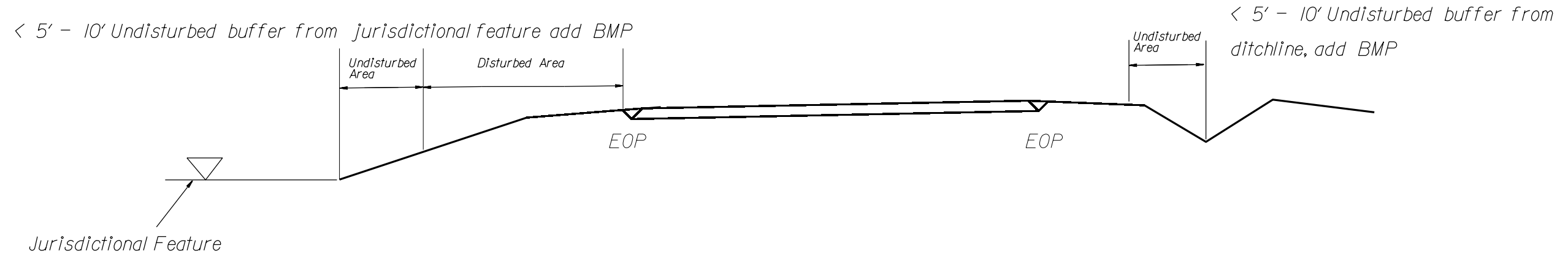
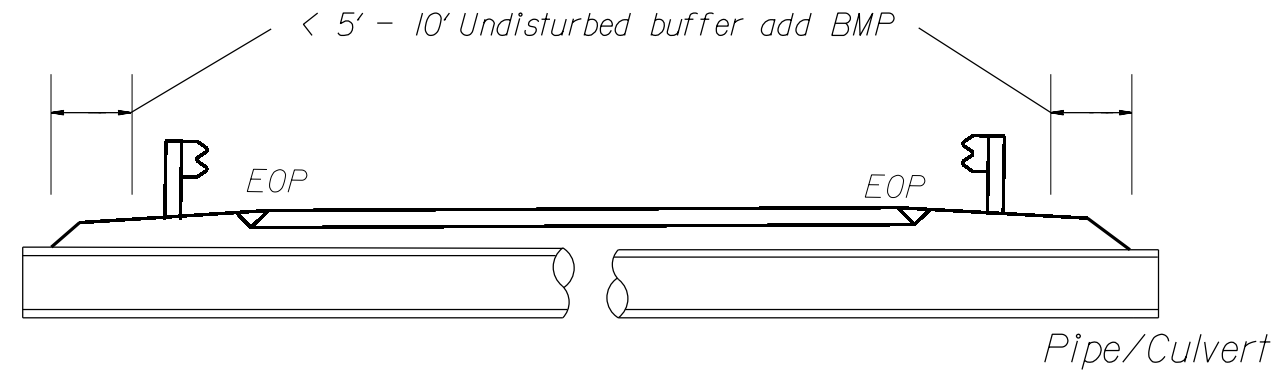
***SOIL STABILIZATION TIMEFRAMES***

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

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

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

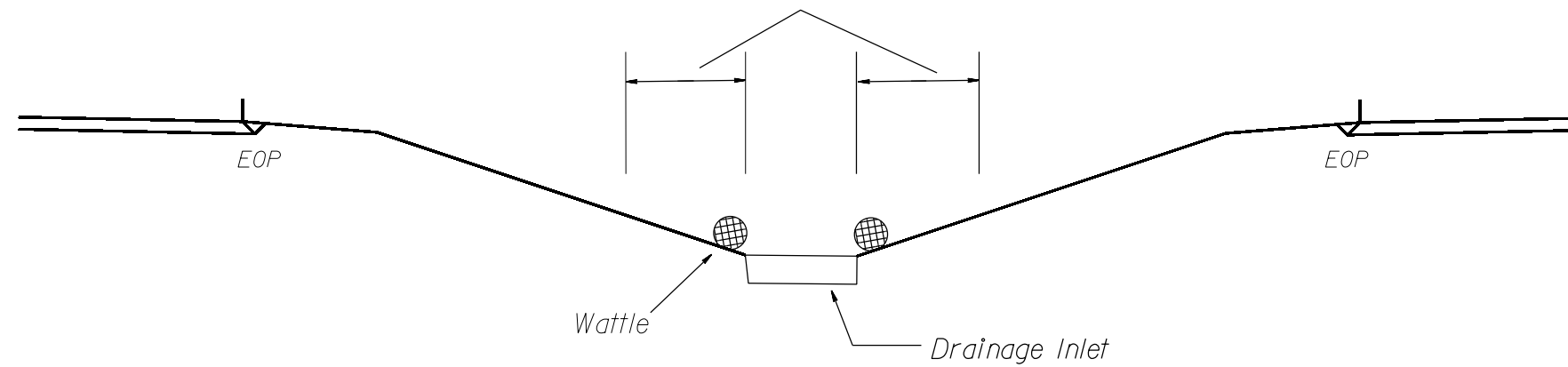
# EROSION CONTROL DETAIL



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

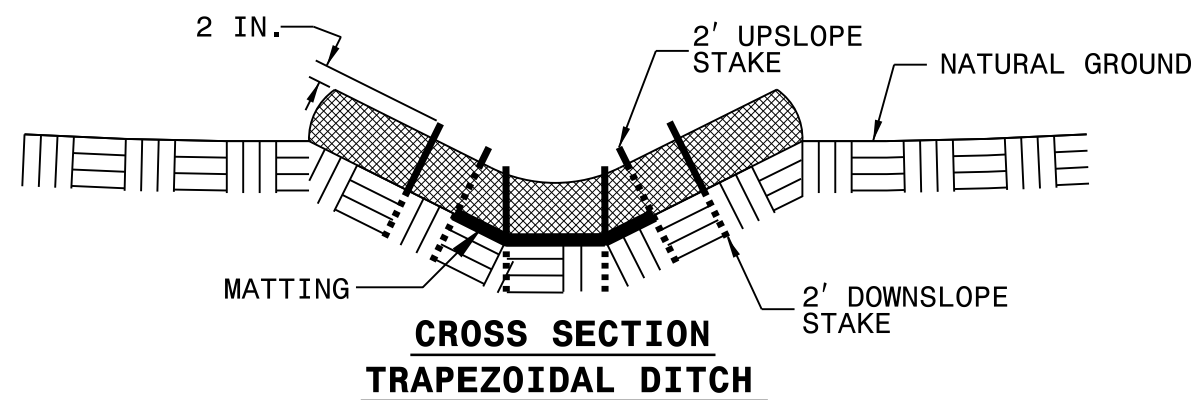
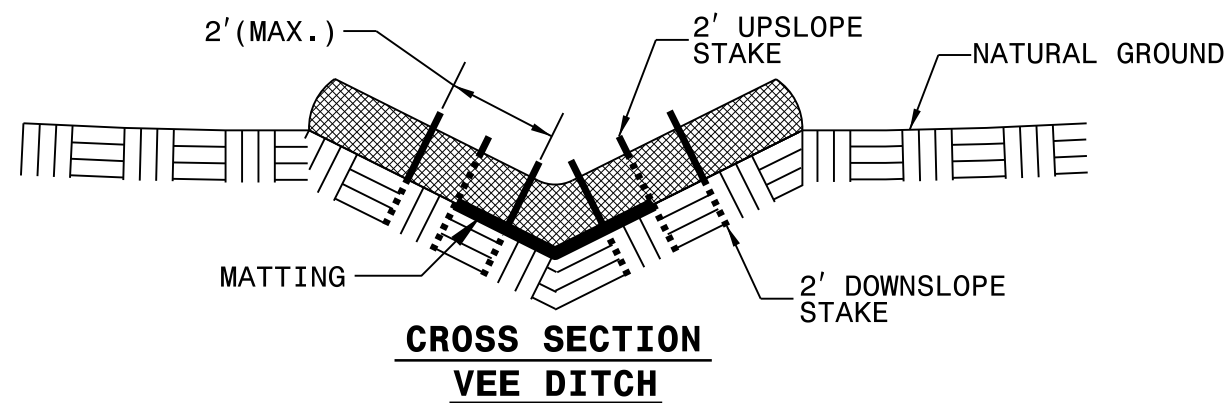
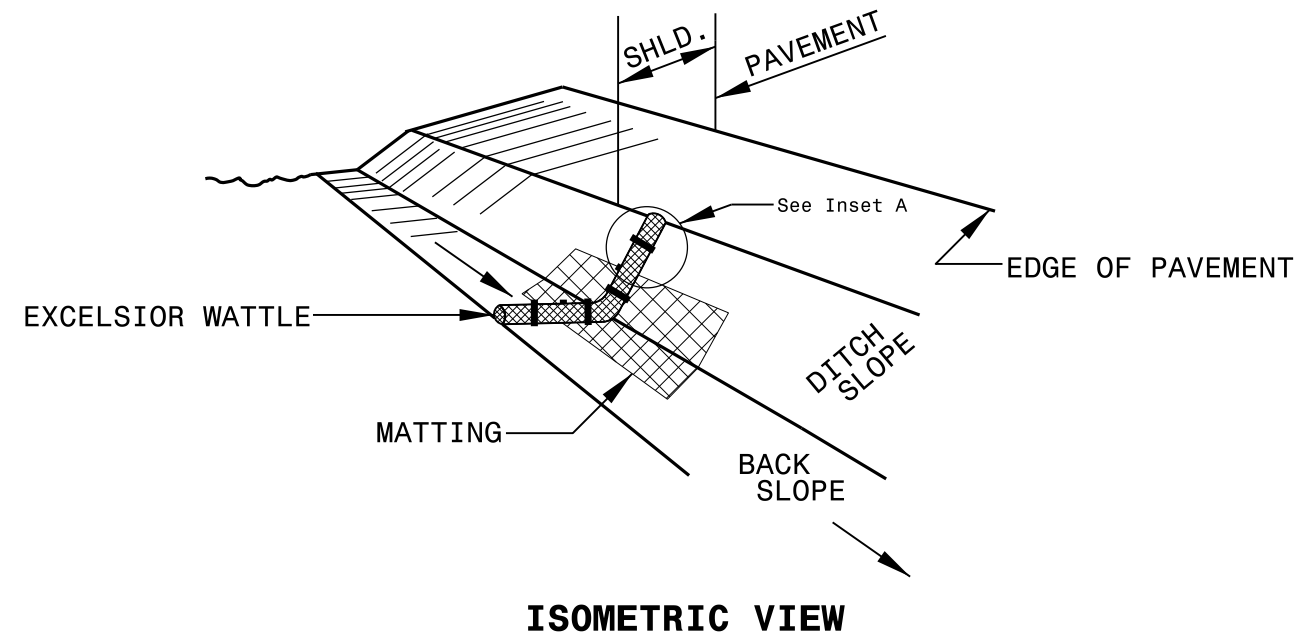


< 5' - 10' Undisturbed buffer from inlet, add wattle



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.

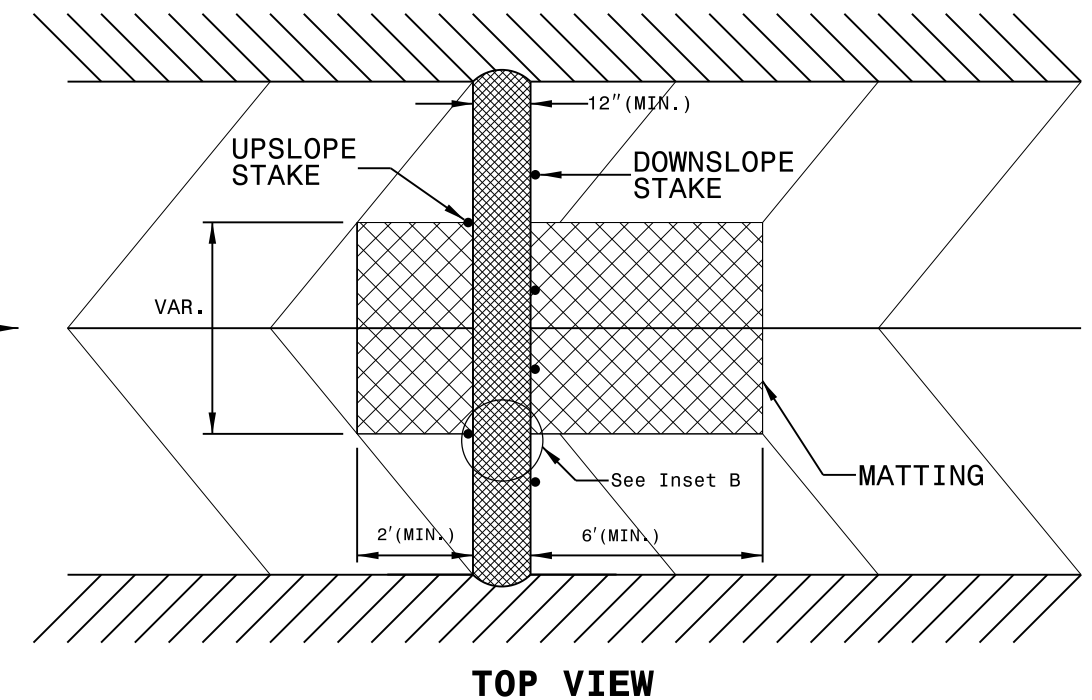
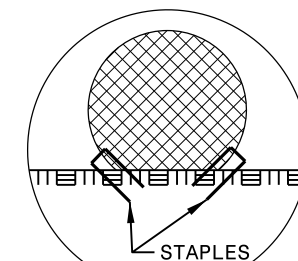
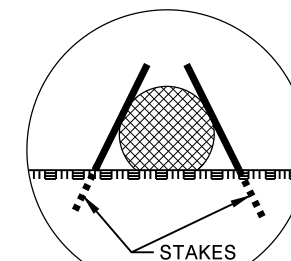
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

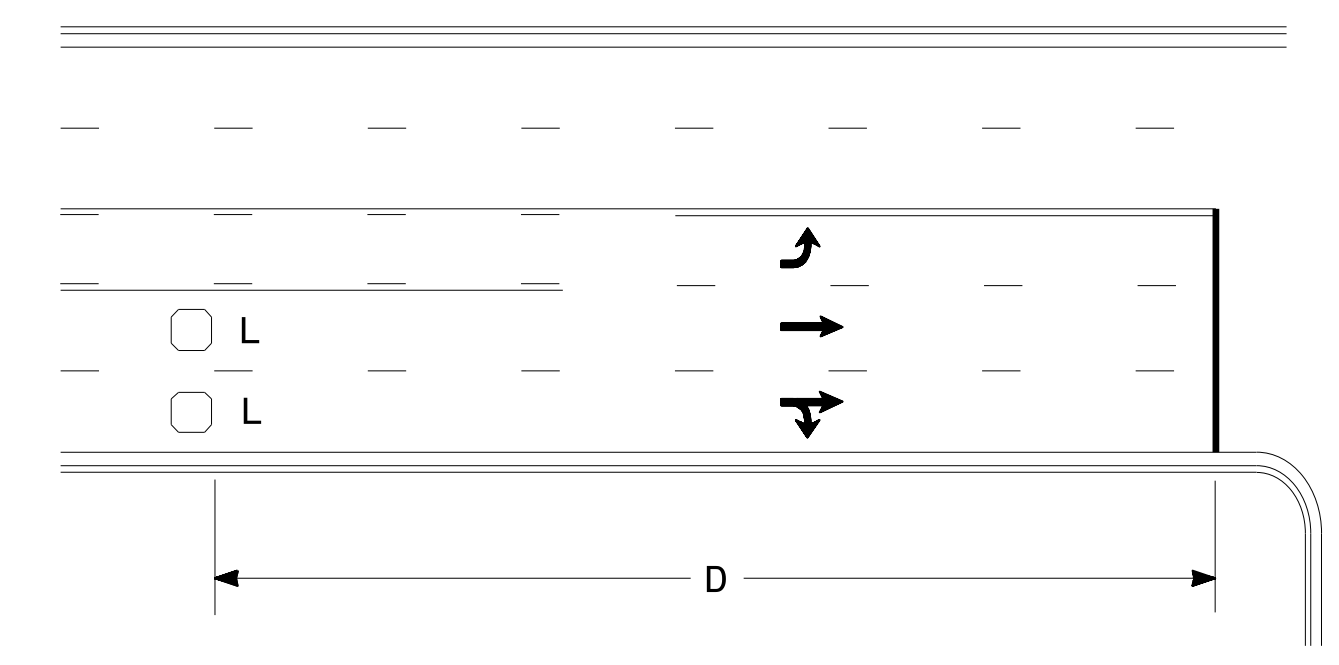
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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.



### High Speed Detection (≥40 mph)

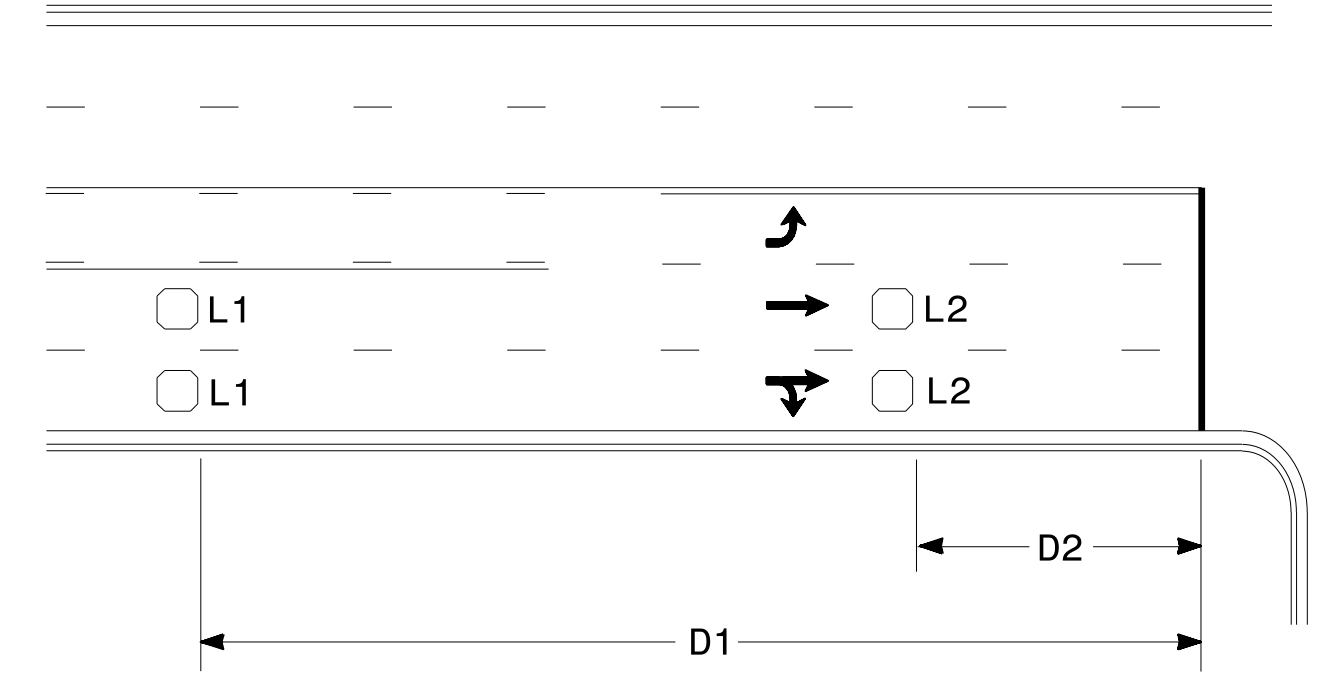


| Speed Limit<br>mph | D<br>ft |
|--------------------|---------|
| 40                 | 250     |
| 45                 | 300     |
| 50                 | 355     |
| 55                 | 420     |

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

Volume Density Operation

OR

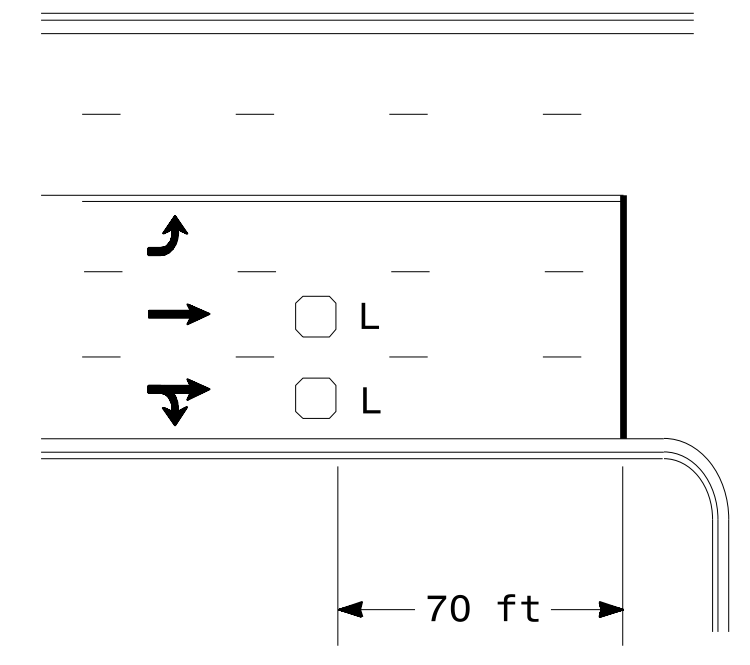


| Speed Limit<br>mph | D1<br>ft | D2<br>ft |
|--------------------|----------|----------|
| 40                 | 250      | 80       |
| 45                 | 300      | 90       |
| 50                 | 355      | 100      |
| 55                 | 420      | 110      |

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

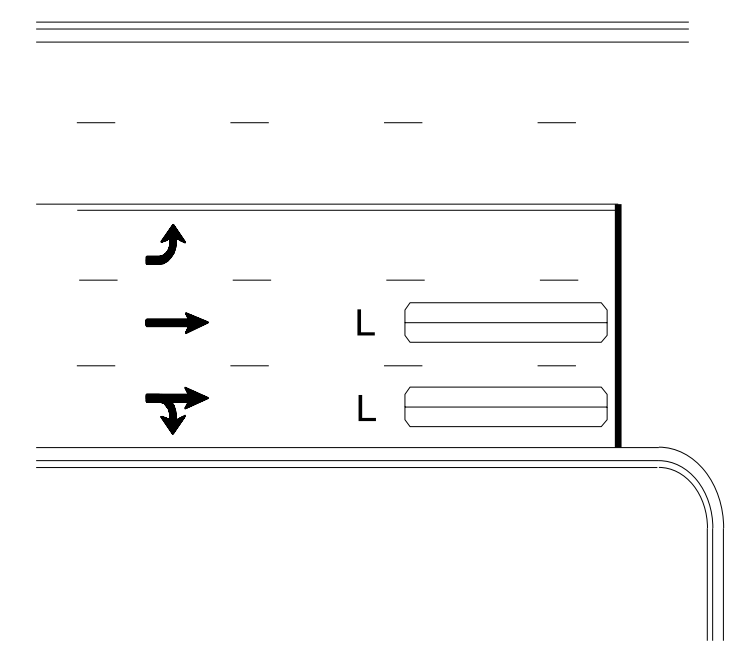
"Stretch" Operation

### Low Speed Detection (≤35 mph)



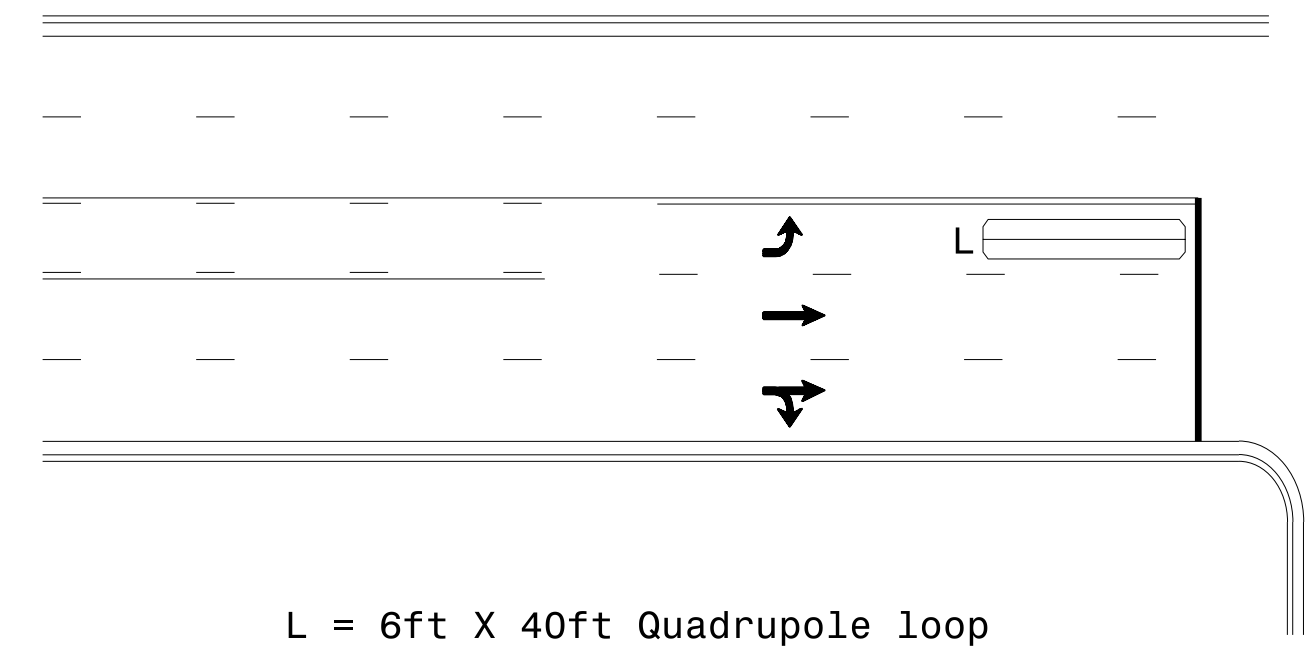
L = 6ft X 6ft  
Wired in series

OR



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

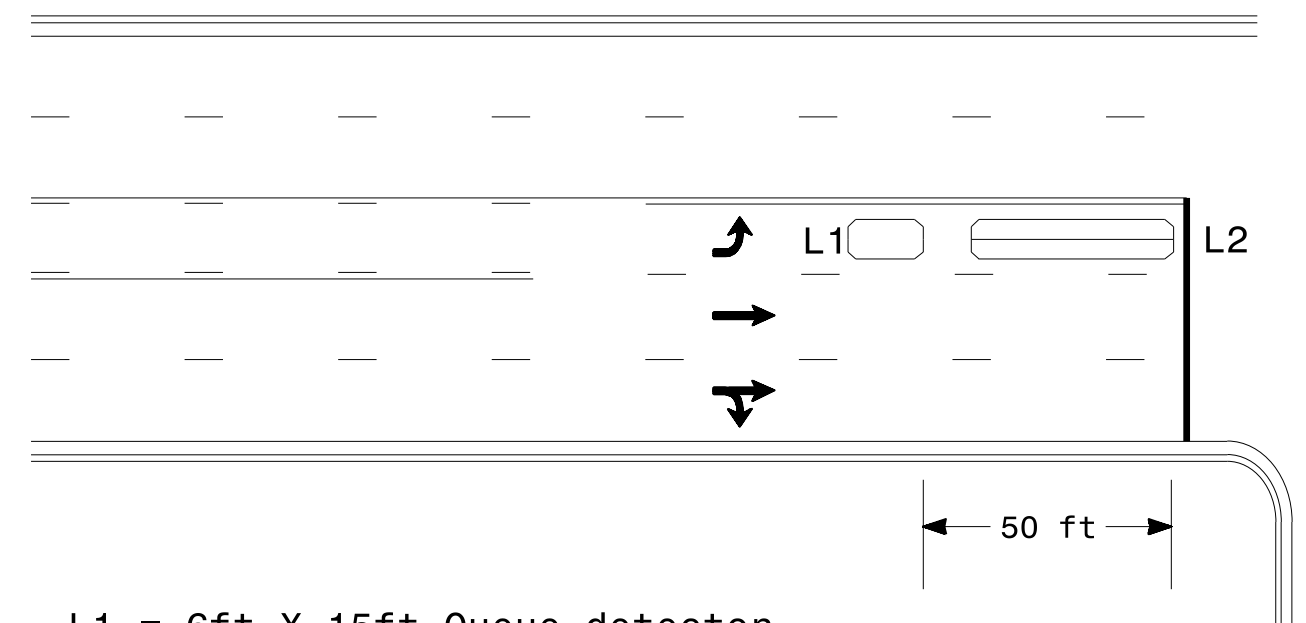
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

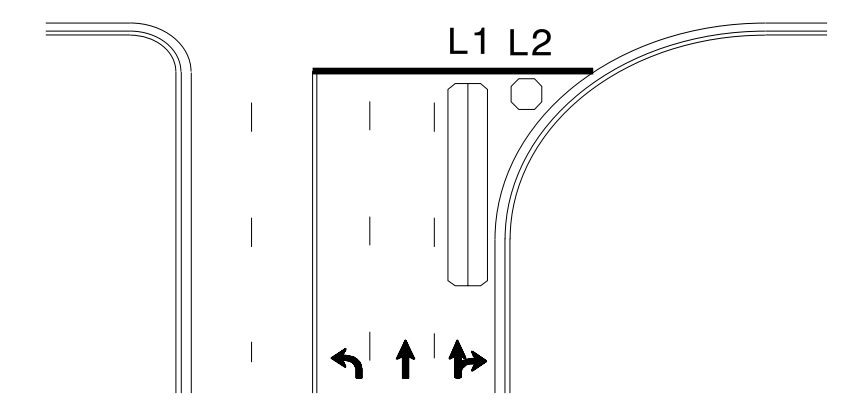
OR



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

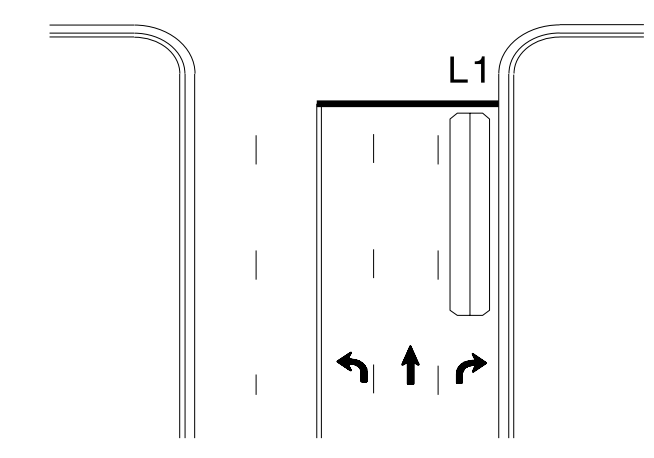
Queue Loop Detection

### Right Turn Lane Detection

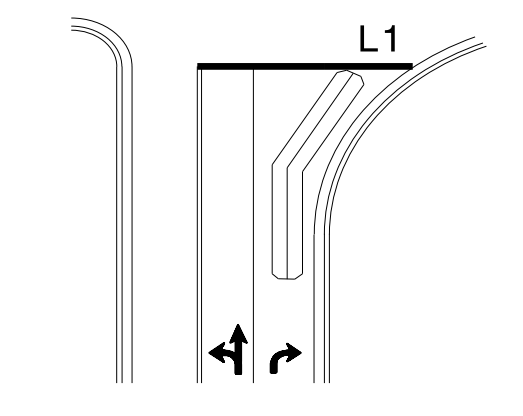


Shared Lane/  
Wide Radius Turn

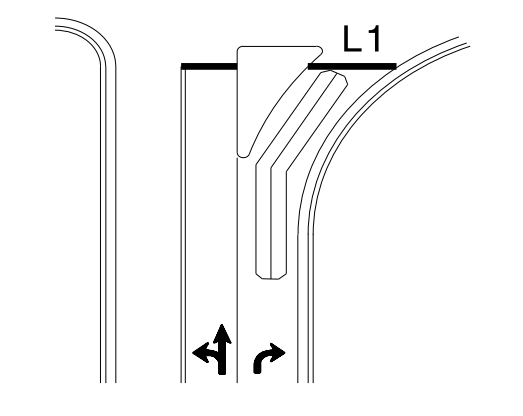
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

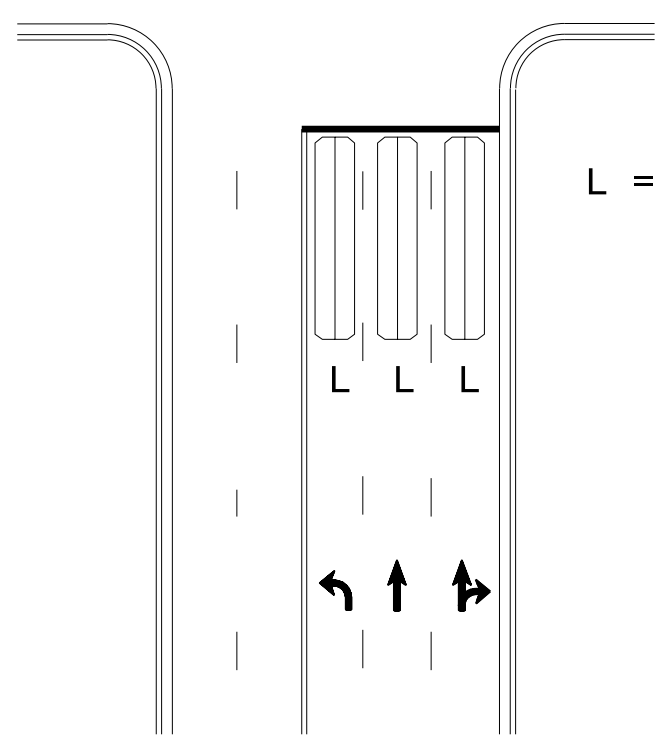


Wide Radius Turn



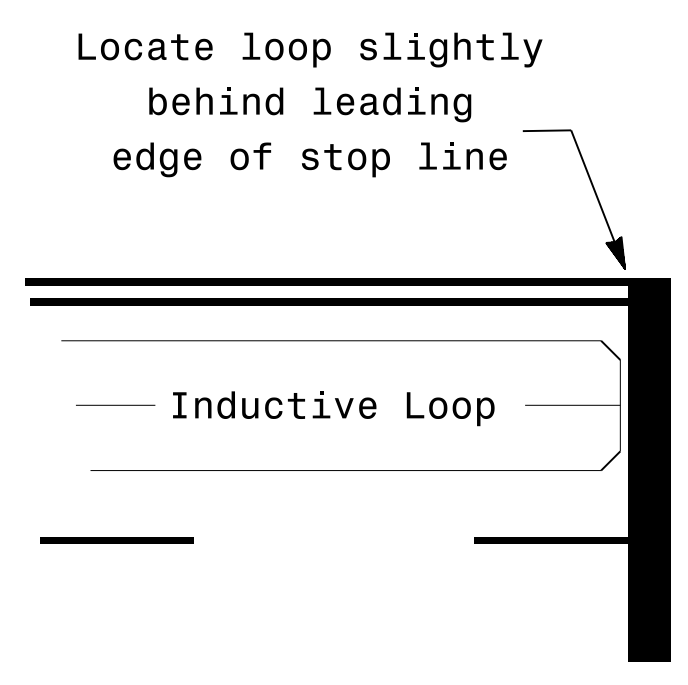
Channelized Turn

### Side Street Detection



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

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

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

### Recommended Number of Turns

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

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

Quadrupole loops: Use 2-4-2 turns  
6' X 15' Loops:  
Lead-in < 150', use 2 turns  
Lead-in > 150', use 3 turns

750 N. Greenfield Pkwy, Garner, NC 27529

#### Typical Signal Loop Locations

PLAN DATE: January 2015 REVIEWED BY: JPG  
PREPARED BY: PLA REVIEWED BY:

SEAL  
NORTH CAROLINA  
PROFESSIONAL ENGINEER  
PAMELA L. ALEXANDER  
23489

1/30/2015

3D:\AHU-2015\_12\319  
 S:\ITS\ASU\15\_Signal\Loop\Signal Design\Section\Eastern\_Region\loop\ypj\ca\2015.dgn  
 paalexander