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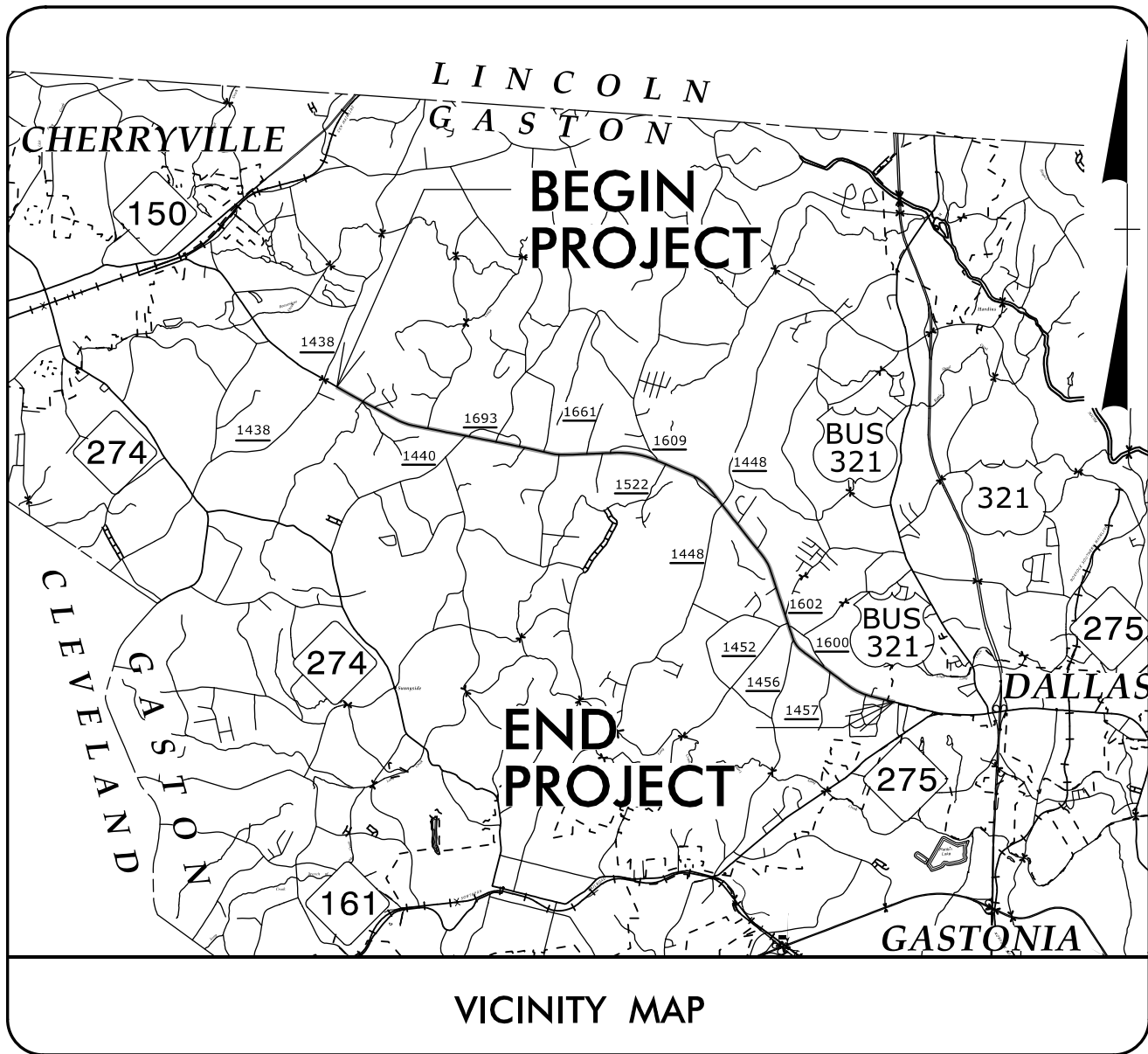
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TIP PROJECT: W-5212N

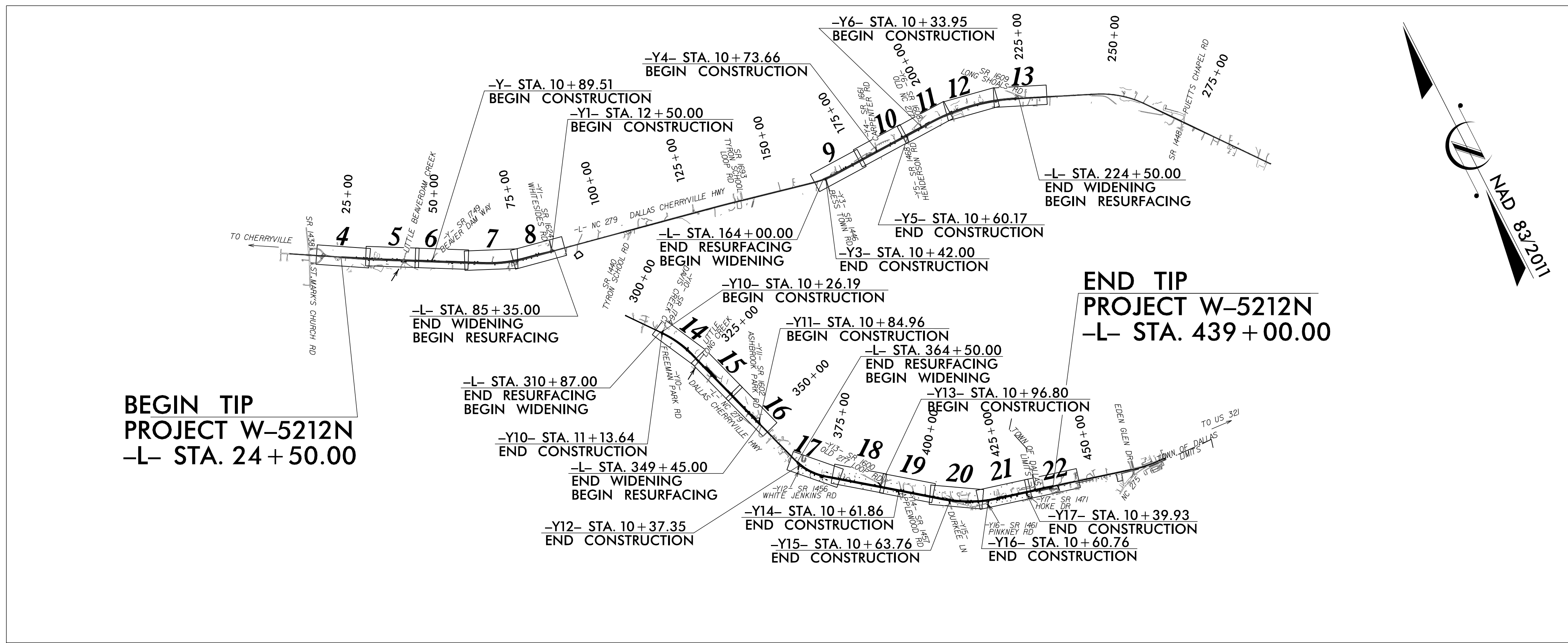
CONTRACT: C204262



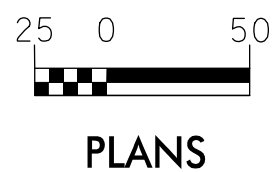
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL  
GASTON COUNTY

LOCATION: NC 279 (DALLAS CHERRYVILLE HWY) FROM SOUTH OF SR 1438  
(ST MARK'S CHURCH RD) TO NORTH OF NC 275

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS, AND RESURFACING



GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY.

Prepared In the Office of:

**TGS ENGINEERS**  
804-C N. LAFAYETTE ST.  
SHELBY, NC 28150

2018 STANDARD SPECIFICATIONS

Designed by:

**ANDREW H. COCHRANE, PE**  
NAME

**3015**

LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

**ROADSIDE ENVIRONMENTAL UNIT**  
1 South Wilmington St.  
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

|         |                                  |         |                                      |
|---------|----------------------------------|---------|--------------------------------------|
| 1604.01 | Railroad Erosion Control Detail  | 1632.01 | Rock Inlet Sediment Trap Type A      |
| 1605.01 | Temporary Silt Fence             | 1632.02 | Rock Inlet Sediment Trap Type B      |
| 1606.01 | Special Sediment Control Fence   | 1632.03 | Rock Inlet Sediment Trap Type C      |
| 1607.01 | Gravel Construction Entrance     | 1633.01 | Temporary Rock Silt Check Type A     |
| 1622.01 | Temporary Berms and Slope Drains | 1633.02 | Temporary Rock Silt Check Type B     |
| 1630.01 | Riser Basin                      | 1634.01 | Temporary Rock Sediment Dam Type A   |
| 1630.02 | Silt Basin Type B                | 1634.02 | Temporary Rock Sediment Dam Type B   |
| 1630.03 | Temporary Silt Ditch             | 1635.01 | Rock Pipe Inlet Sediment Trap Type A |
| 1630.04 | Stilling Basin                   | 1635.02 | Rock Pipe Inlet Sediment Trap Type B |
| 1630.05 | Temporary Diversion              | 1640.01 | Coir Fiber Baffle                    |
| 1630.06 | Special Stilling Basin           | 1645.01 | Temporary Stream Crossing            |
| 1631.01 | Matting Installation             |         |                                      |

EROSION AND SEDIMENT CONTROL MEASURES

| Std. #  | Description                                                            | Symbol    |
|---------|------------------------------------------------------------------------|-----------|
| 1630.03 | Temporary Silt Ditch                                                   | TD        |
| 1630.05 | Temporary Diversion                                                    | TD        |
| 1605.01 | Temporary Silt Fence                                                   | TSF       |
| 1606.01 | Special Sediment Control Fence                                         | SSCF      |
| 1622.01 | Temporary Berms and Slope Drains                                       | TB&SD     |
| 1630.02 | Silt Basin Type B                                                      | SB        |
| 1633.01 | Temporary Rock Silt Check Type-A                                       | TRSCA     |
|         | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | TRSCA-PAM |
| 1633.02 | Temporary Rock Silt Check Type-B                                       | TRSCB     |
|         | Wattle/Coir Fiber Wattle                                               | W/CFW     |
|         | Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)                     | W/CFW-PAM |
| 1634.01 | Temporary Rock Sediment Dam Type-A                                     | TRSDA     |
| 1634.02 | Temporary Rock Sediment Dam Type-B                                     | TRSDB     |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A                                   | RPIST-A   |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B                                   | RPIST-B   |
| 1630.04 | Stilling Basin                                                         | SB        |
| 1630.06 | Special Stilling Basin                                                 | SSB       |
|         | Rock Inlet Sediment Trap:                                              |           |
| 1632.01 | Type A                                                                 | A         |
| 1632.02 | Type B                                                                 | B         |
| 1632.03 | Type C                                                                 | C         |
|         | Skimmer Basin                                                          | SB        |
|         | Tiered Skimmer Basin                                                   | TSB       |
|         | Infiltration Basin                                                     | IB        |

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

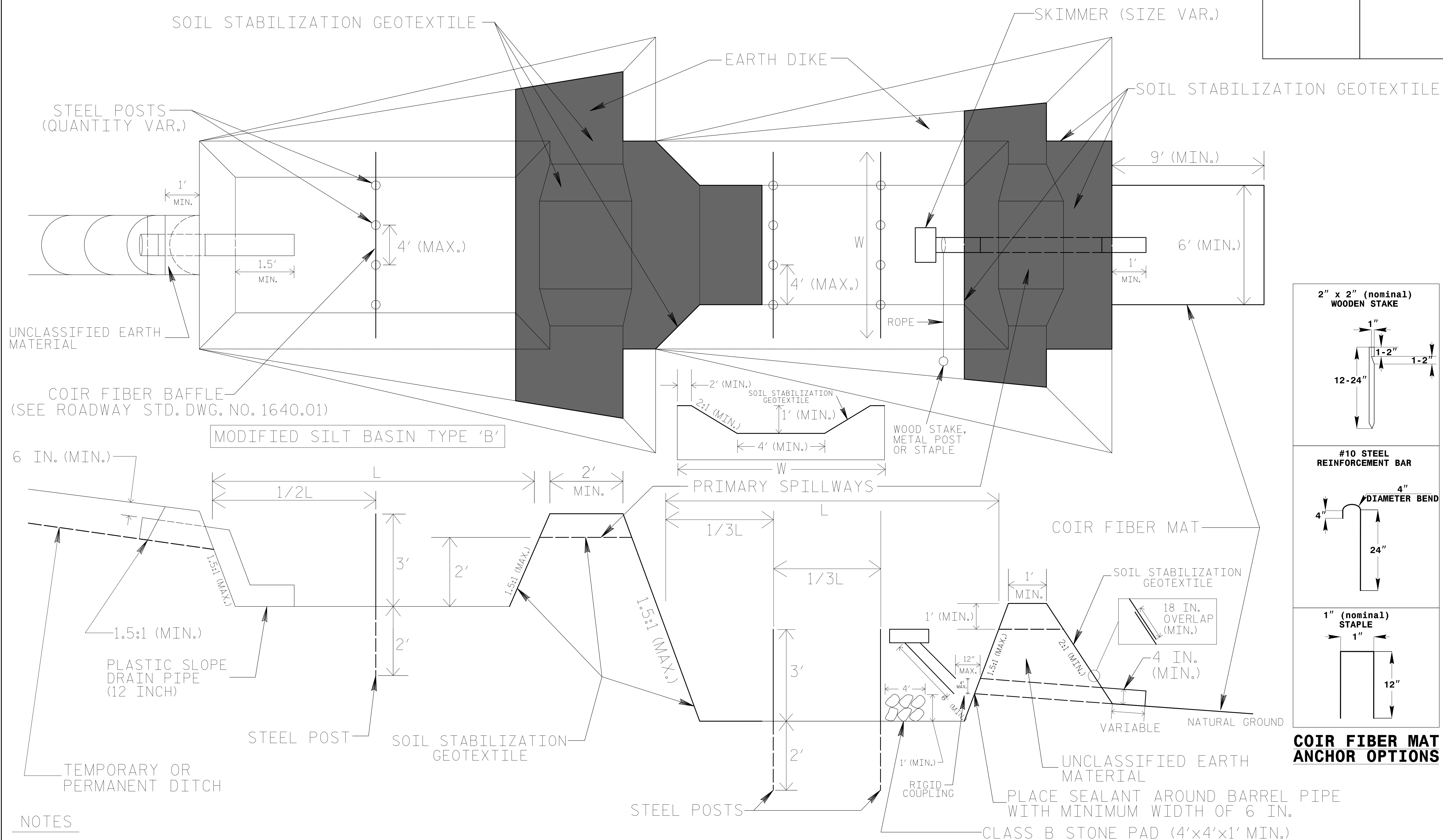






# TIERED SKIMMER BASIN DETAIL

|                            |                        |
|----------------------------|------------------------|
| PROJECT REFERENCE NO.      | SHEET NO.              |
| W-5212N                    | EC-2A                  |
| RW SHEET NO.               |                        |
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |



## NOTES

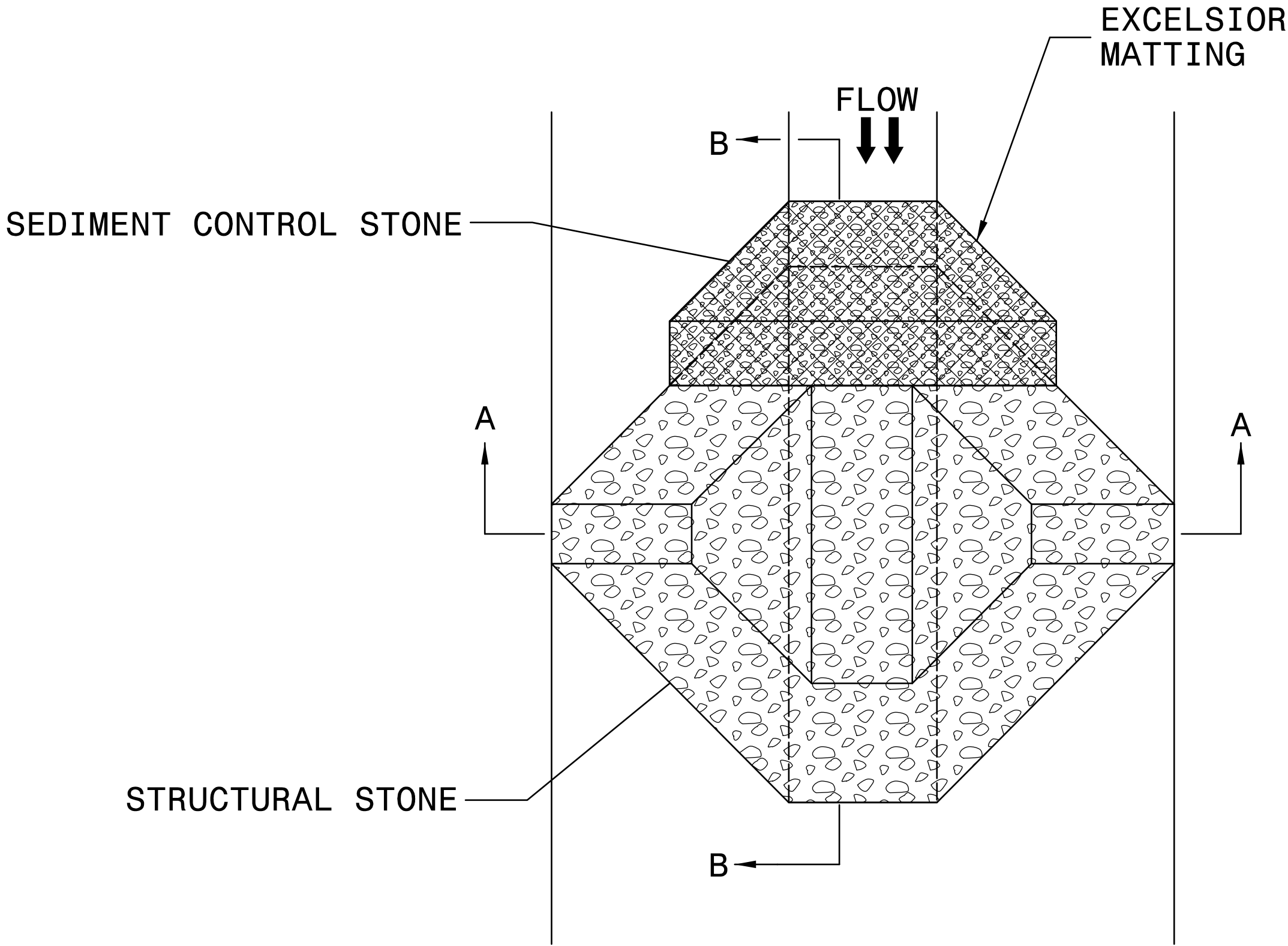
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY WEIR LENGTHS (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

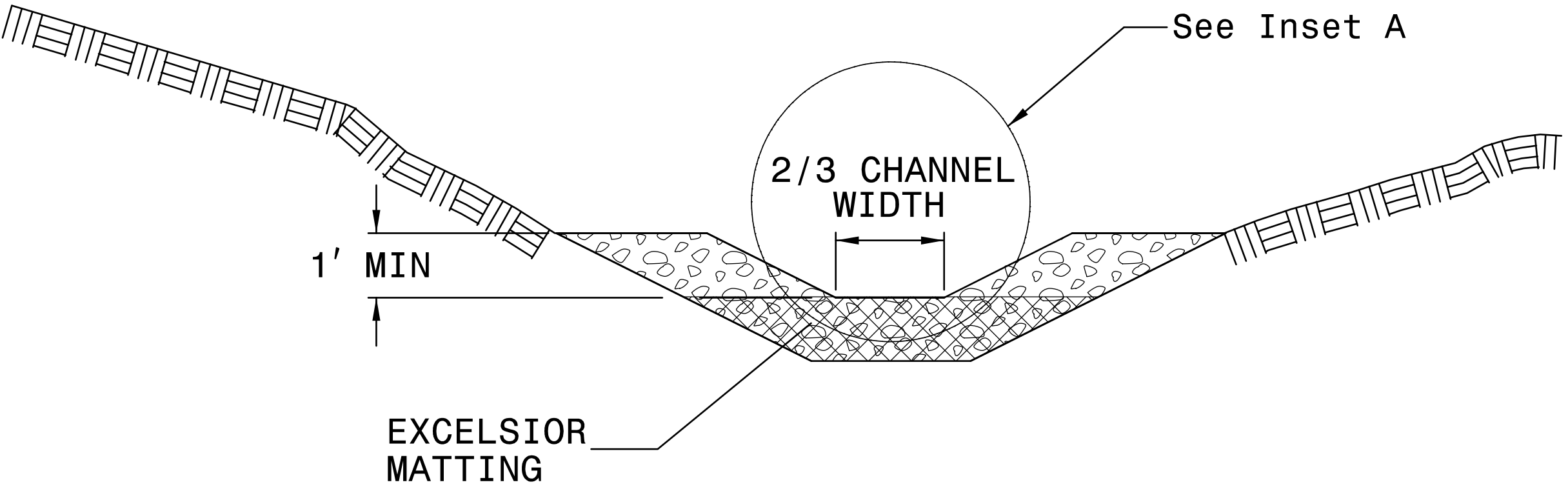


# TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

|                         |                     |
|-------------------------|---------------------|
| PROJECT REFERENCE NO.   | SHEET NO.           |
| W-5212N                 | EC-2B               |
| RW SHEET NO.            |                     |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



PLAN



SECTION A-A

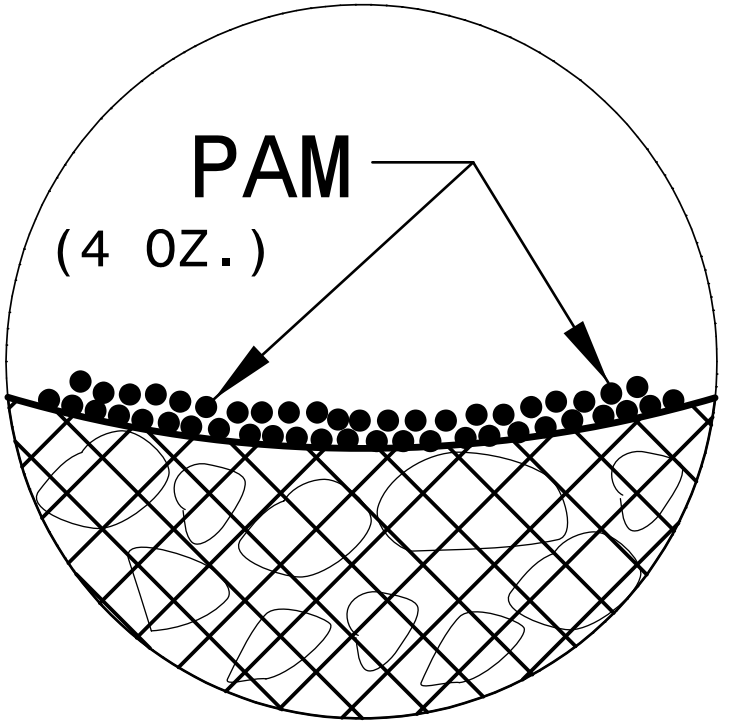
## NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

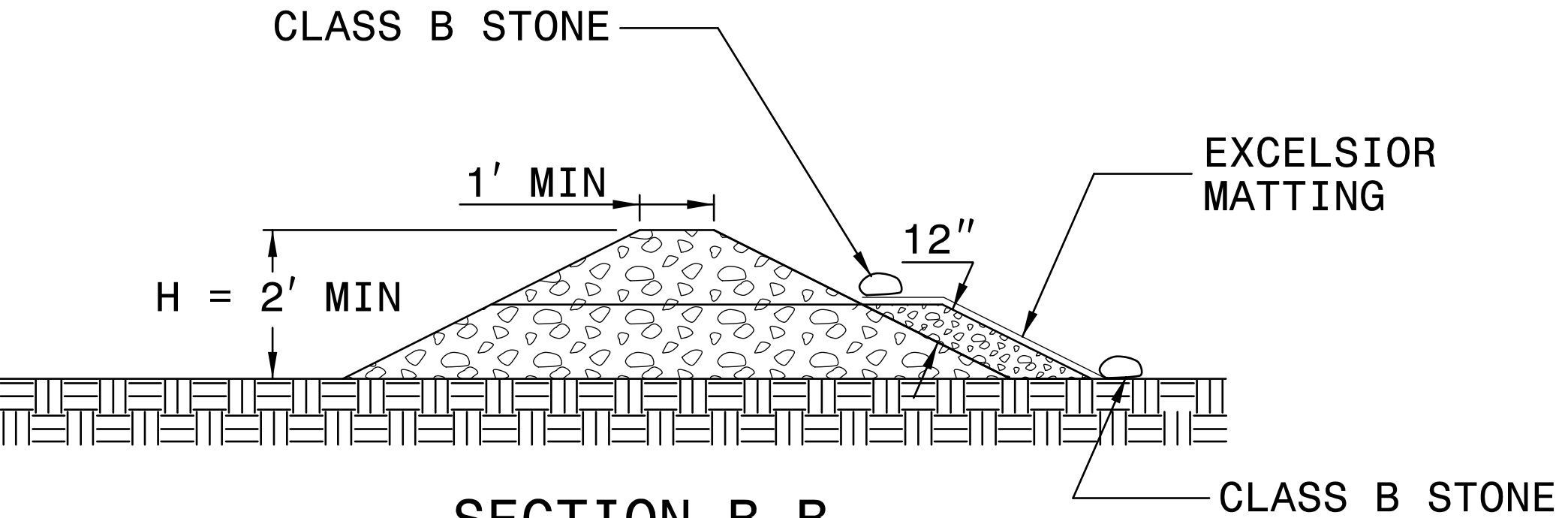
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



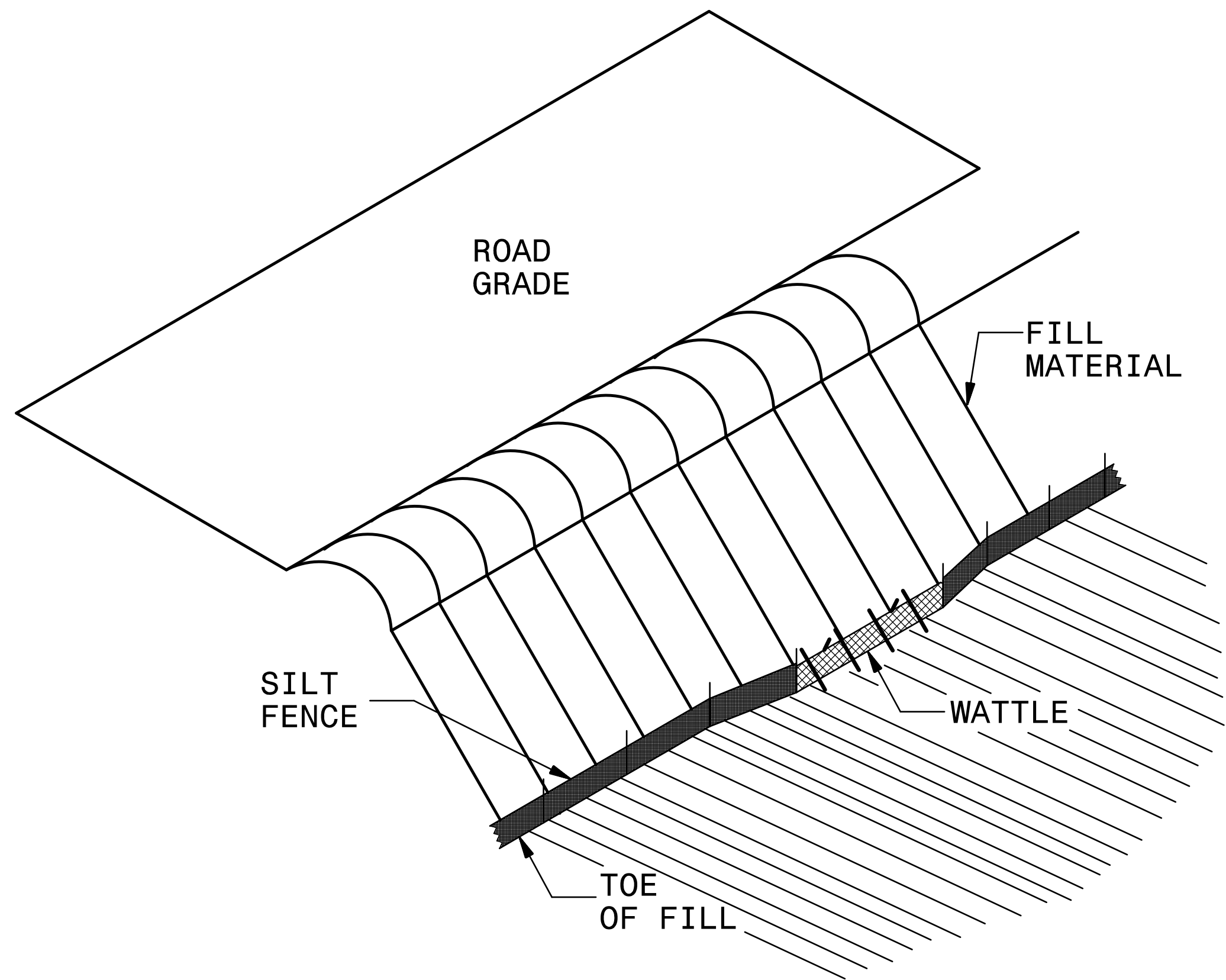
SECTION B-B

NOT TO SCALE

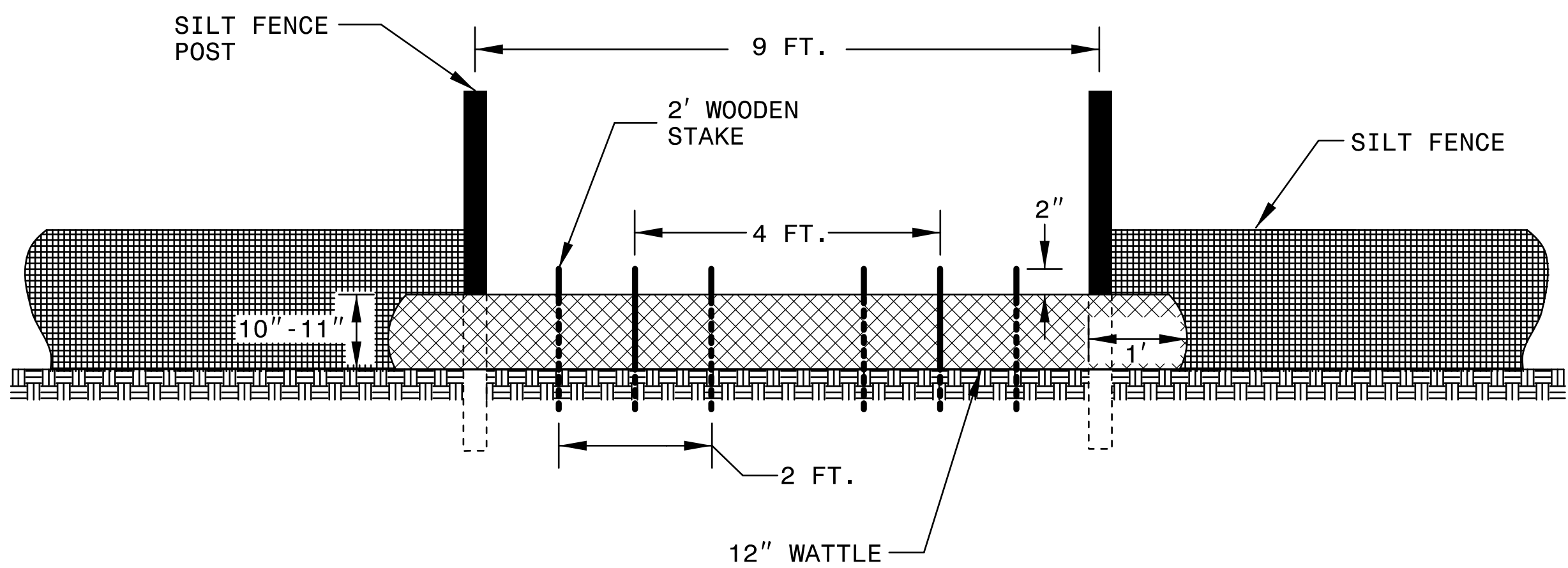


# SILT FENCE COIR FIBER WATTLE BREAK DETAIL

|                         |                     |
|-------------------------|---------------------|
| PROJECT REFERENCE NO.   | SHEET NO.           |
| W-52/2N                 | EC-2C               |
| RW SHEET NO.            |                     |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



**ISOMETRIC VIEW**



**VIEW FROM SLOPE**

## NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

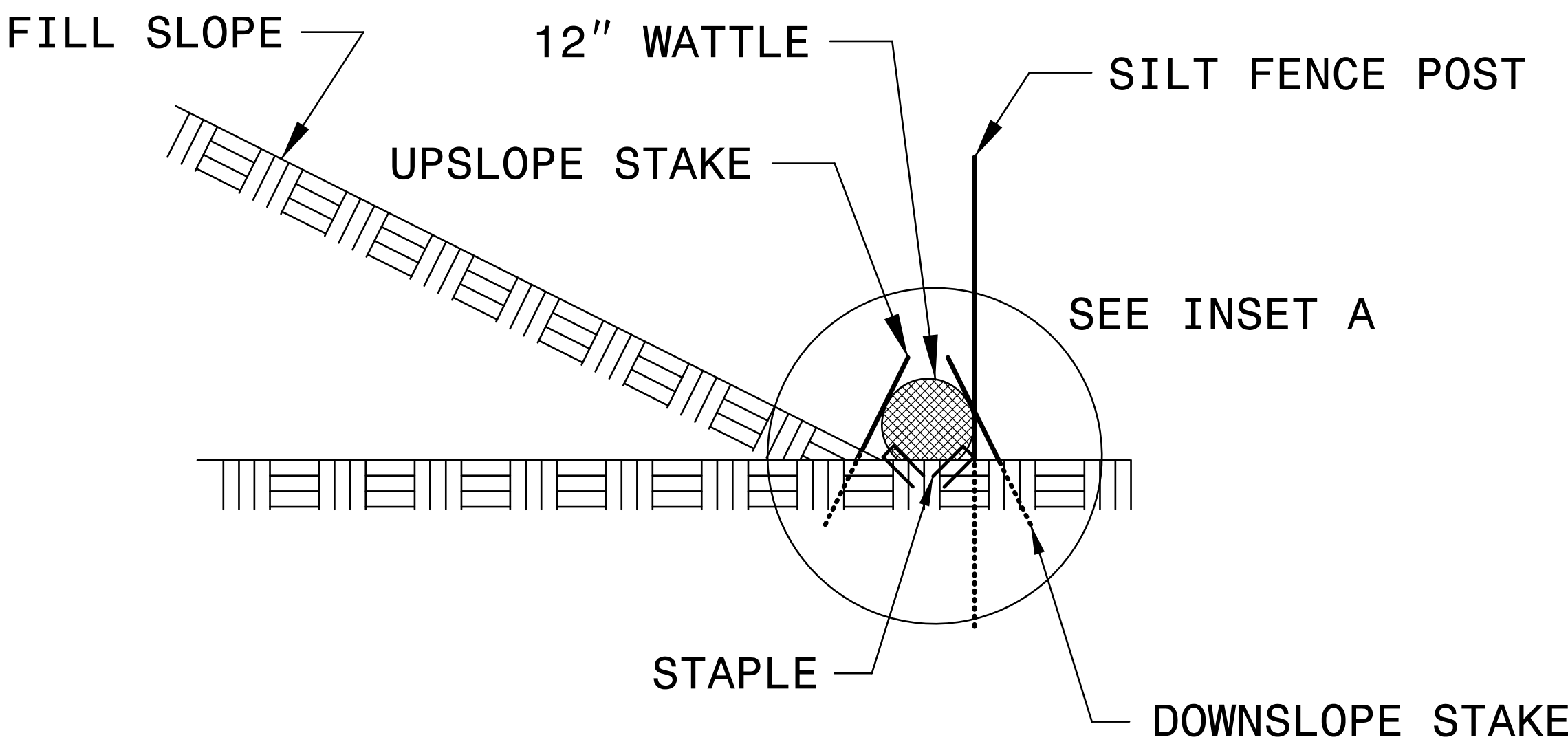
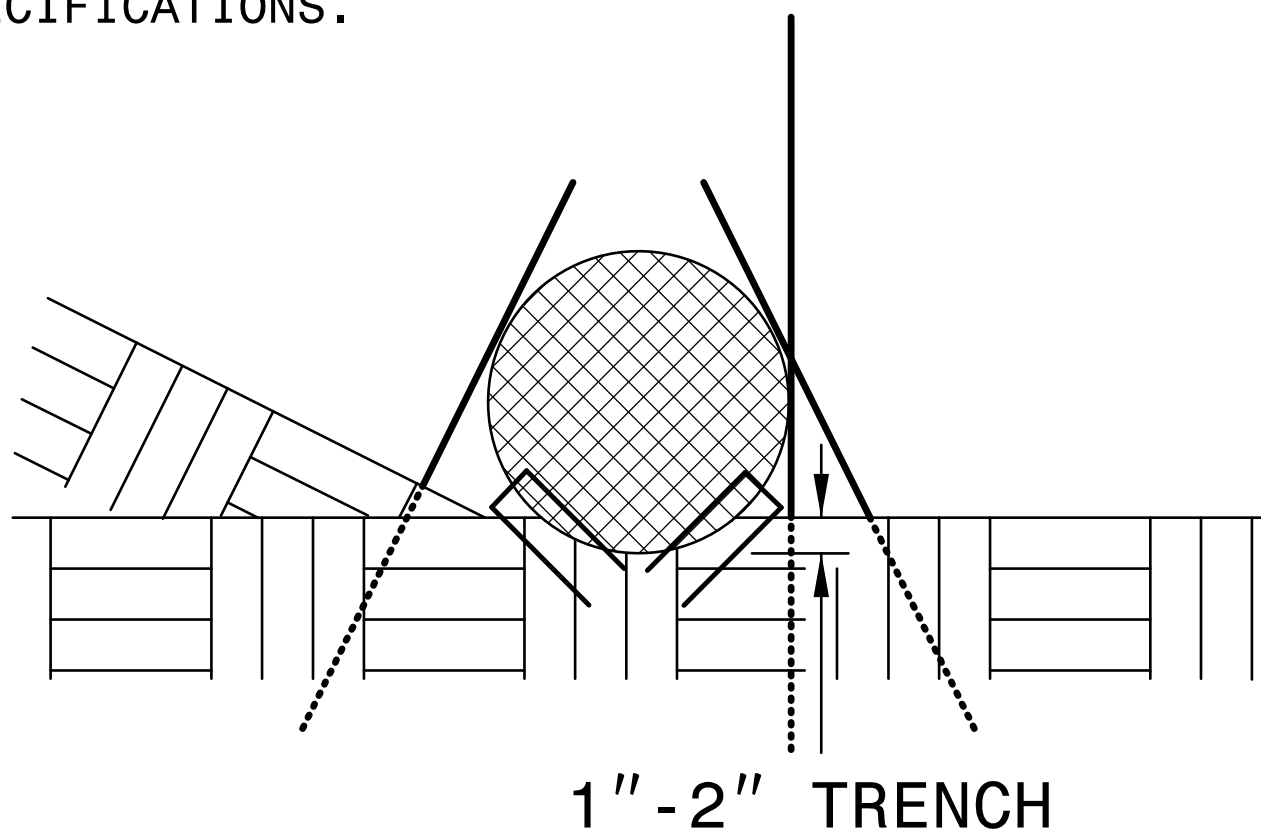
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**



**SIDE VIEW**



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

|                         |  |                     |
|-------------------------|--|---------------------|
| PROJECT REFERENCE NO.   |  | SHEET NO.           |
| W-5212N                 |  | EC-3                |
| ROADWAY DESIGN ENGINEER |  | HYDRAULICS ENGINEER |

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|-----------------|------|--------------|------------|------|---------------|
| 5               | -L-  | 35+50        | 35+95      | RT   | 50            |
| 5               | -L-  | 36+50        | 38+50      | RT   | 120           |
| 5               | -L-  | 39+50        | 40+00      | LT   | 35            |
| 6               | -L-  | 49+50        | 50+00      | LT   | 35            |
| 6               | -L-  | 49+50        | 50+22      | RT   | 90            |
| 6               | -L-  | 57+00        | 59+50      | LT   | 105           |
| 6               | -L-  | 55+50        | 56+50      | RT   | 70            |
| 6               | -L-  | 56+50        | 57+75      | RT   | 90            |
| 7               | -L-  | 61+00        | 62+00      | LT   | 70            |
| 7               | -L-  | 62+50        | 64+00      | LT   | 105           |
| 7               | -L-  | 64+65        | 66+00      | LT   | 100           |
| 7               | -L-  | 69+00        | 74+00      | LT   | 350           |
| 8               | -L-  | 74+00        | 75+00      | LT   | 70            |
| 8               | -L-  | 75+00        | 76+00      | LT   | 70            |
| 8               | -L-  | 79+00        | 80+50      | LT   | 105           |
| 9               | -L-  | 166+00       | 167+50     | RT   | 75            |
| 9               | -L-  | 167+50       | 168+50     | RT   | 50            |
| 9               | -L-  | 168+50       | 170+00     | RT   | 105           |
| 9               | -L-  | 172+50       | 174+00     | RT   | 105           |
| 9               | -L-  | 175+50       | 176+00     | RT   | 35            |
| 9               | -L-  | 164+50       | 165+50     | LT   | 105           |
| 9               | -L-  | 165+50       | 166+00     | LT   | 35            |
| 9               | -L-  | 166+00       | 168+00     | LT   | 140           |
| 9               | -L-  | 175+00       | 176+00     | LT   | 70            |
| 10              | -L-  | 176+00       | 176+66     | RT   | 50            |
| 10              | -L-  | 185+00       | 187+00     | RT   | 140           |
| 10              | -L-  | 188+50       | 189+50     | RT   | 70            |
| 10              | -L-  | 176+00       | 180+00     | LT   | 280           |
| 10              | -L-  | 180+00       | 180+95     | LT   | 70            |
| 10              | -L-  | 184+00       | 185+20     | LT   | 85            |

MATTING FOR EROSION CONTROL

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|-----------------|------|--------------|------------|------|---------------|
| 10              | -L-  | 185+20       | 185+50     | LT   | 25            |
| 10              | -L-  | 186+00       | 188+00     | LT   | 140           |
| 10              | -L-  | 188+58       | 189+00     | LT   | 30            |
| 10              | -L-  | 189+50       | 190+00     | LT   | 35            |
| 11              | -L-  | 194+00       | 195+00     | LT   | 65            |
| 11              | -L-  | 195+00       | 196+27     | RT   | 90            |
| 12              | -L-  | 204+00       | 204+85     | RT   | 60            |
| 12              | -L-  | 205+30       | 207+67     | RT   | 170           |
| 12              | -L-  | 208+00       | 209+50     | RT   | 105           |
| 12              | -L-  | 209+80       | 211+23     | RT   | 105           |
| 12              | -L-  | 211+23       | 212+50     | RT   | 80            |
| 12              | -L-  | 212+50       | 218+00     | RT   | 385           |
| 12              | -L-  | 208+50       | 210+50     | LT   | 140           |
| 12              | -L-  | 212+00       | 213+00     | LT   | 70            |
| 12              | -L-  | 214+00       | 217+50     | LT   | 245           |
| 13              | -L-  | 221+00       | 223+00     | LT   | 140           |
| 14              | -L-  | 316+75       | 319+80     | RT   | 215           |
| 15              | -L-  | 336+50       | 338+00     | LT   | 105           |
| 15              | -L-  | 327+00       | 328+63     | RT   | 115           |
| 15              | -L-  | 330+60       | 332+00     | RT   | 85            |
| 15              | -L-  | 332+00       | 333+80     | RT   | 130           |
| 15              | -L-  | 337+00       | 338+00     | RT   | 60            |
| 16              | -L-  | 338+00       | 342+50     | LT   | 315           |
| 16              | -L-  | 338+00       | 340+00     | RT   | 140           |
| 16              | -L-  | 340+00       | 343+50     | RT   | 245           |
| 16              | -L-  | 344+30       | 349+00     | RT   | 330           |
| 17              | -L-  | 365+00       | 369+50     | LT   | 315           |
| 17              | -L-  | 368+50       | 370+25     | RT   | 125           |
| 18              | -L-  | 386+00       | 390+00     | LT   | 280           |
| 18              | -L-  | 379+00       | 380+50     | RT   | 105           |



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

|                            |                        |
|----------------------------|------------------------|
| PROJECT REFERENCE NO.      | SHEET NO.              |
| <i>W-5212N</i>             | <i>EC-3A</i>           |
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |

# SOIL STABILIZATION SUMMARY SHEET

## MATTING FOR EROSION CONTROL

[illegible]

## ***MATTING FOR EROSION CONTROL***

[illegible]



# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

|                            |                        |
|----------------------------|------------------------|
| PROJECT REFERENCE NO.      | SHEET NO.              |
| <i>W-5212N</i>             | <i>EC-3B</i>           |
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |

# SOIL STABILIZATION SUMMARY SHEET

## PERMANENT SOIL REINFORCEMENT MAT

[illegible]

## PERMANENT SOIL REINFORCEMENT MAT

[illegible]

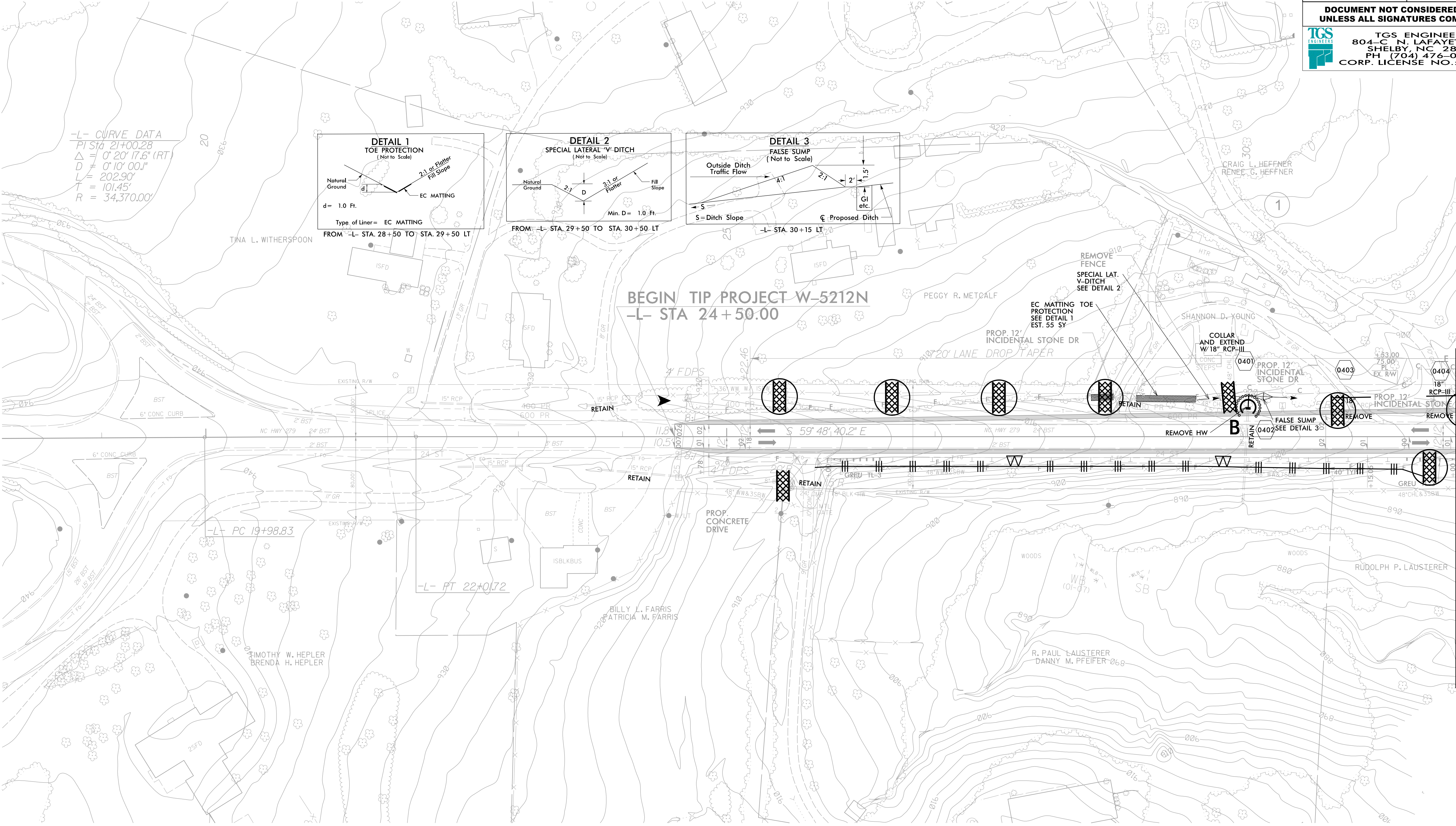


SOIL STABILIZATION TIMEFRAMES

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



|                                                                                                              |  |                        |
|--------------------------------------------------------------------------------------------------------------|--|------------------------|
| PROJECT REFERENCE NO.                                                                                        |  | SHEET NO.              |
| W-5212N                                                                                                      |  | EC-04/CONST.4          |
| RW SHEET NO.                                                                                                 |  |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                   |  | HYDRAULICS<br>ENGINEER |
|                                                                                                              |  |                        |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                             |  |                        |
| TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |                        |

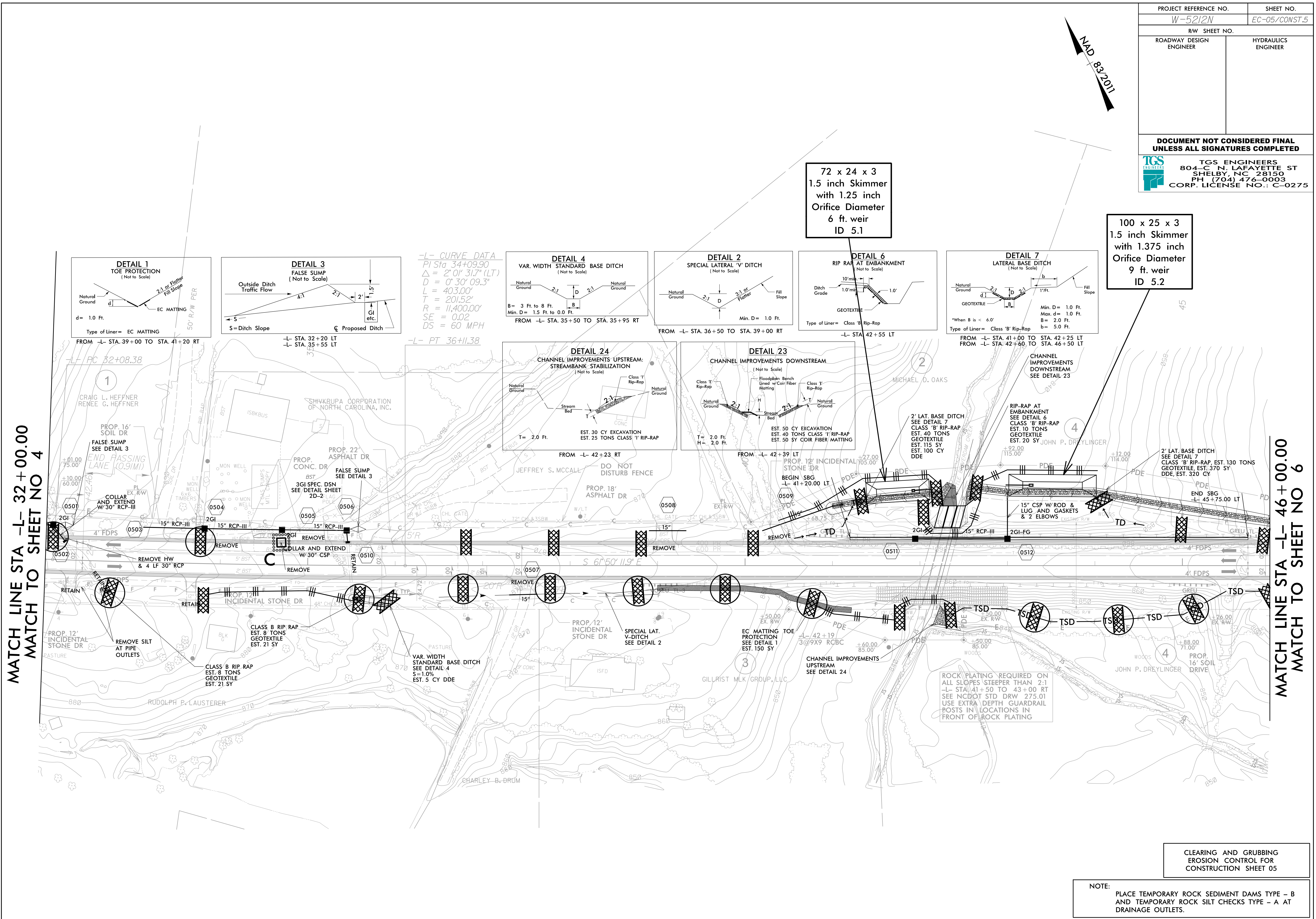


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4

NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



|                                                                                                                                                                                                                                                  |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                                                                                                                                                                            | SHEET NO.              |
| <i>W-52/2N</i>                                                                                                                                                                                                                                   | <i>EC-05/CONST.5</i>   |
| R/W SHEET NO.                                                                                                                                                                                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                       | HYDRAULICS<br>ENGINEER |
| <p><b>PROJECT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                                                                                                                                   |                        |
|  <p><b>TGS ENGINEERS</b><br/>       804-C N. LAFAYETTE ST<br/>       SHELBY, NC 28150<br/>       PH (704) 476-0003<br/>       CORP. SIGNATURE NO.: C-0275</p> |                        |



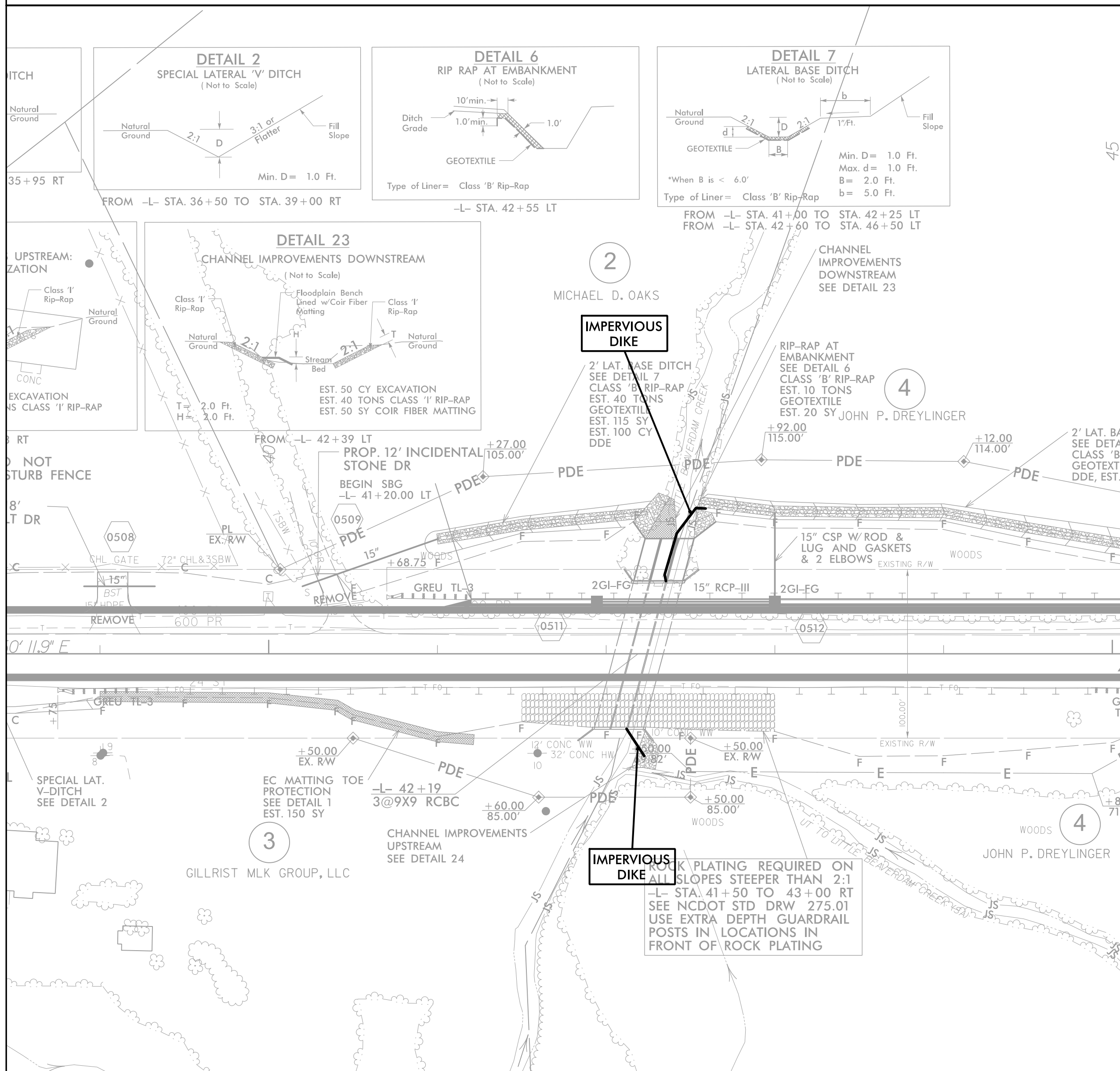


|                            |                        |
|----------------------------|------------------------|
| PROJECT REFERENCE NO.      | SHEET NO.              |
| W-52/2N                    | EC-06/CONST.5          |
| RW SHEET NO.               |                        |
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |

# CULVERT CONSTRUCTION SEQUENCE STA. 42+19 -L-

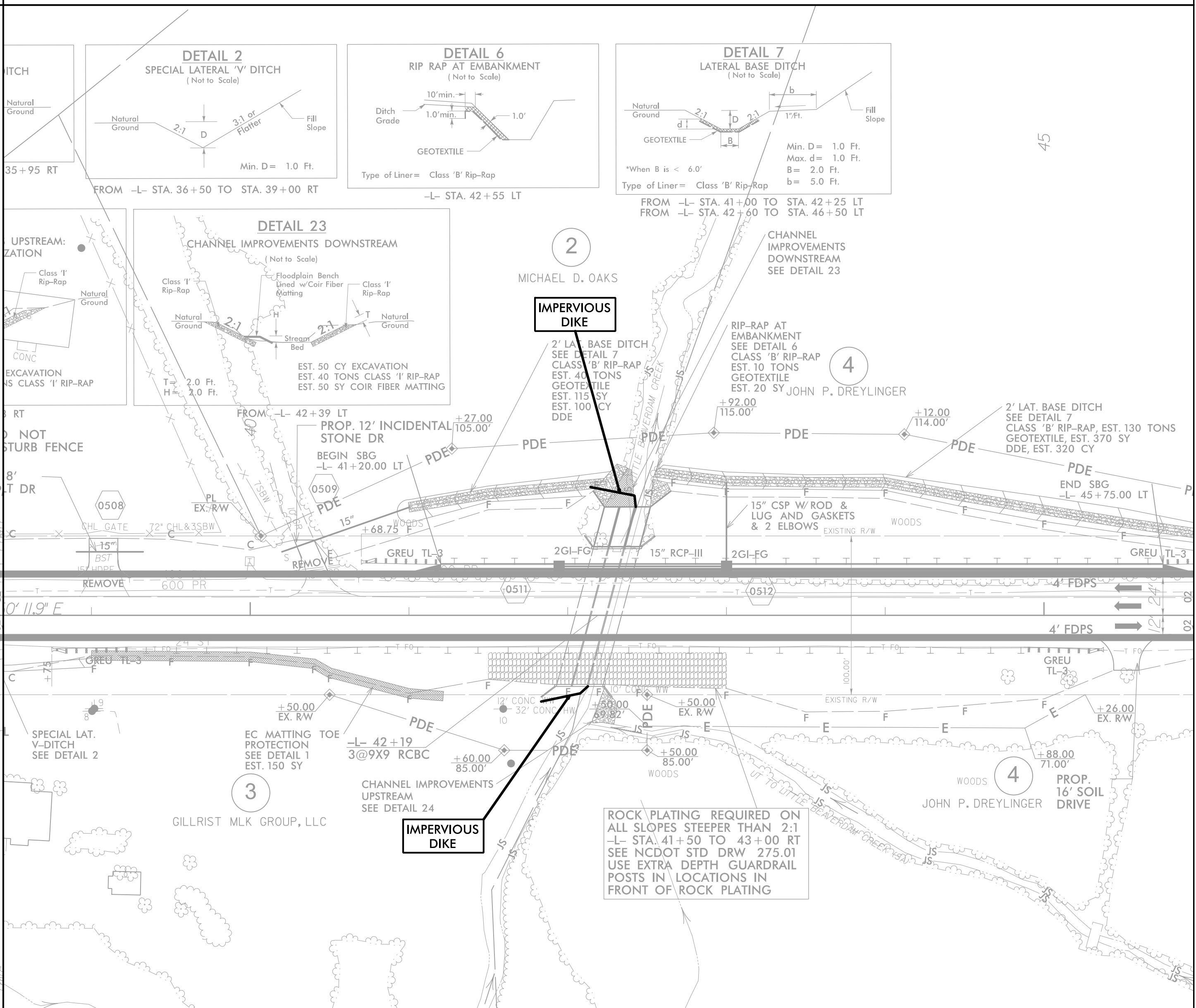
## PHASE I

1. INSTALL IMPERVIOUS DIKE AS SHOWN ON PLANS.
2. BEGIN PUMP AROUND OPERATION.
3. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.
4. CONSTRUCT LOW FLOW EXTENSION WHILE RETAINING EXISTING SILT IN ALL BARRELS.



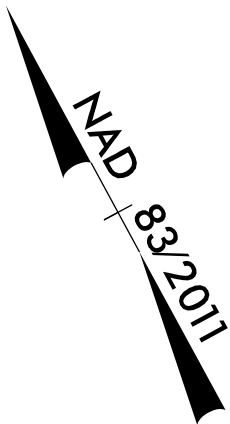
## PHASE II

5. STOP PUMP AROUND OPERATION.
6. REMOVE IMPERVIOUS DIKE AND RESTORE FLOW IN LOW FLOW BARRELS.
7. INSTALL IMPERVIOUS DIKE AS SHOWN ON PLANS.
8. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.
9. CONSTRUCT HIGH FLOW BARREL EXTENSIONS WHILE RETAINING EXISTING SILT IN ALL BARRELS.
10. UPON COMPLETION OF CULVERT EXTENSION, REMOVE IMPERVIOUS DIKE AND REESTABLISH STREAM ACCORDING TO CONST. PLANS.



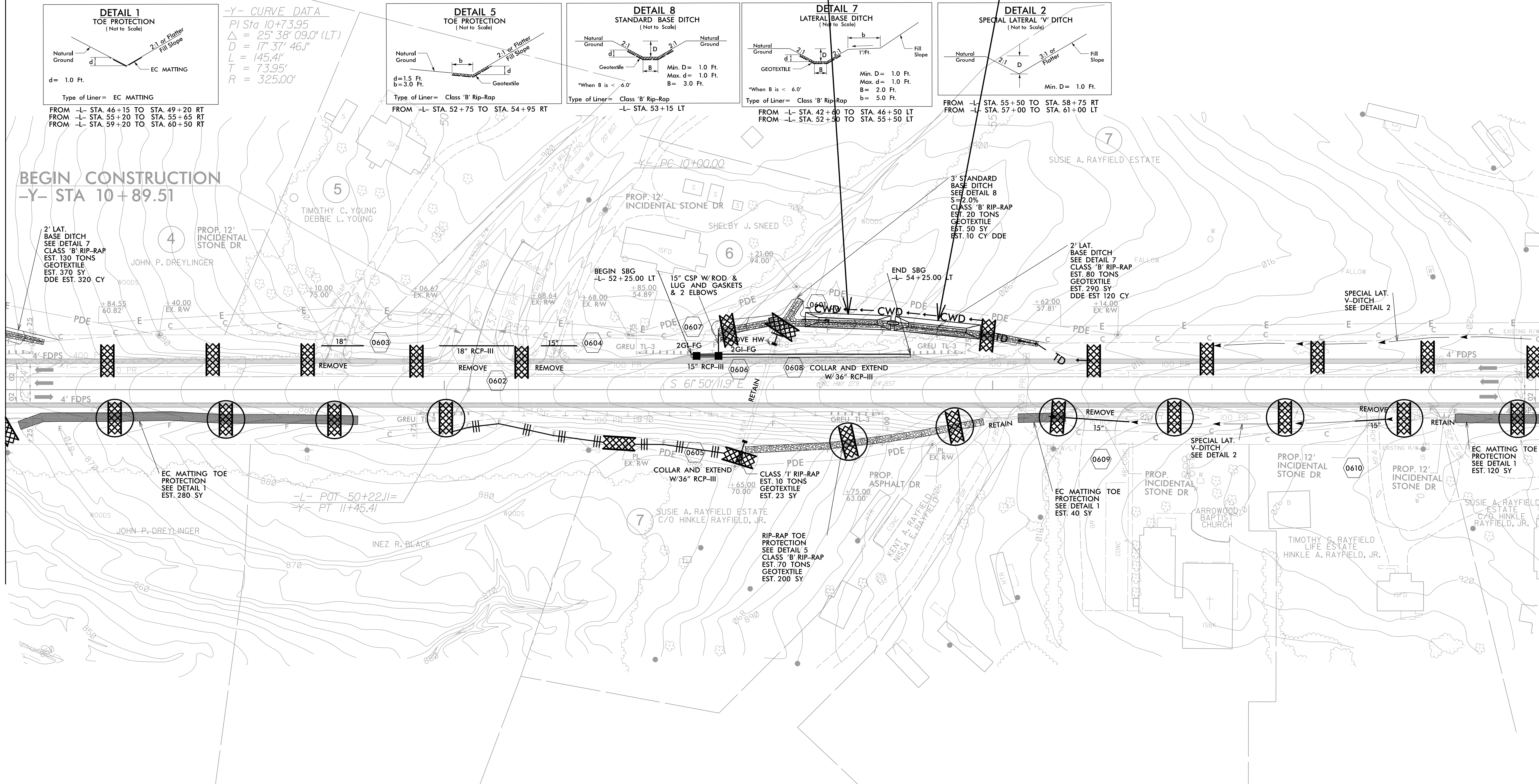


|                                                                                                                                                                                                  |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                                                                                                                                                            | SHEET NO.           |
| W-5212N                                                                                                                                                                                          | EC-07/CONST.6       |
| RW SHEET NO.                                                                                                                                                                                     |                     |
| ROADWAY DESIGN ENGINEER                                                                                                                                                                          | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                                                                                                 |                     |
|  TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |                     |



MATCH LINE STA -L- 46+00.00  
MATCH TO SHEET NO 5

MATCH LINE STA -L- 60+00.00  
MATCH TO SHEET NO 7

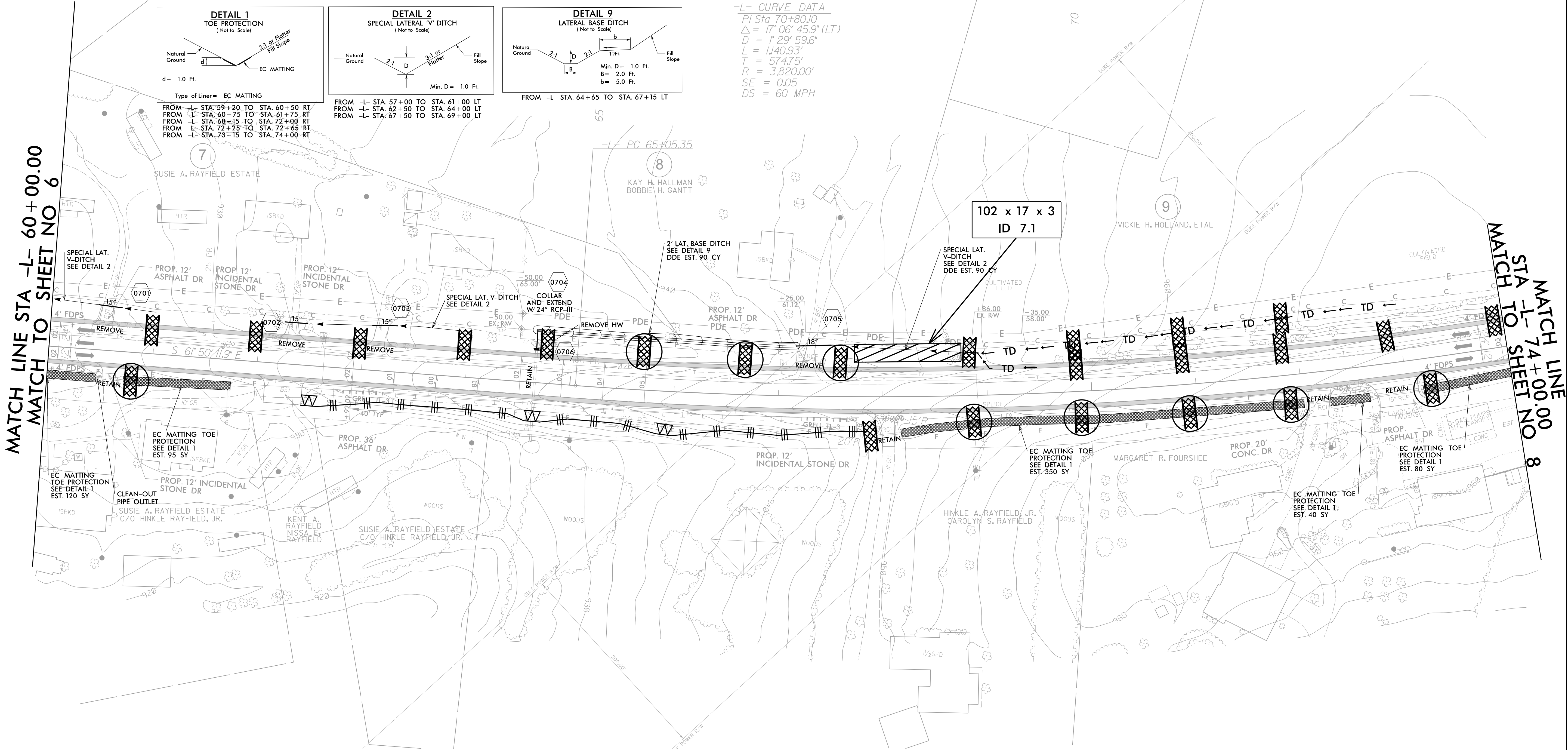
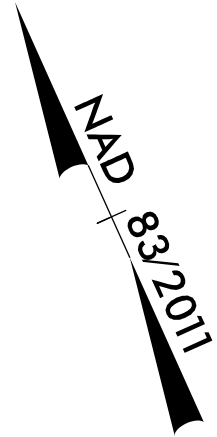


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 06

NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



|                                                                                     |  |                                                                                                              |  |
|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-08/CONST.7                                                                                                |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
|                                                                                     |  |                                                                                                              |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>            |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

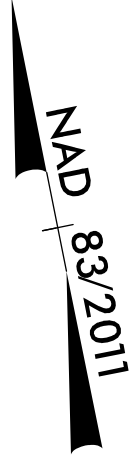


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 7

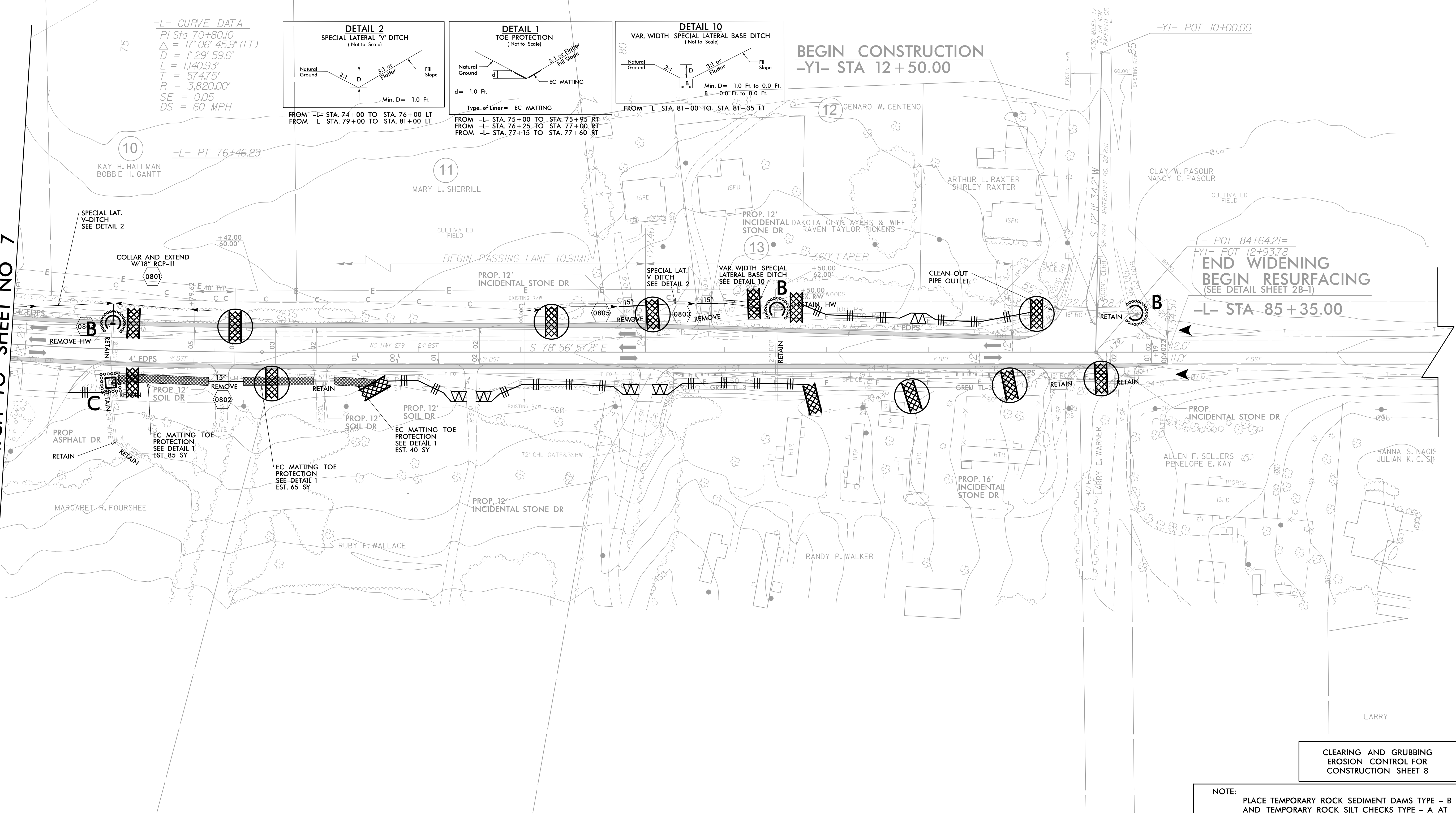
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



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| PROJECT REFERENCE NO.      |  | SHEET NO.              |  |
| W-5212N                    |  | EC-09/CONST.8          |  |
| RW SHEET NO.               |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |  |
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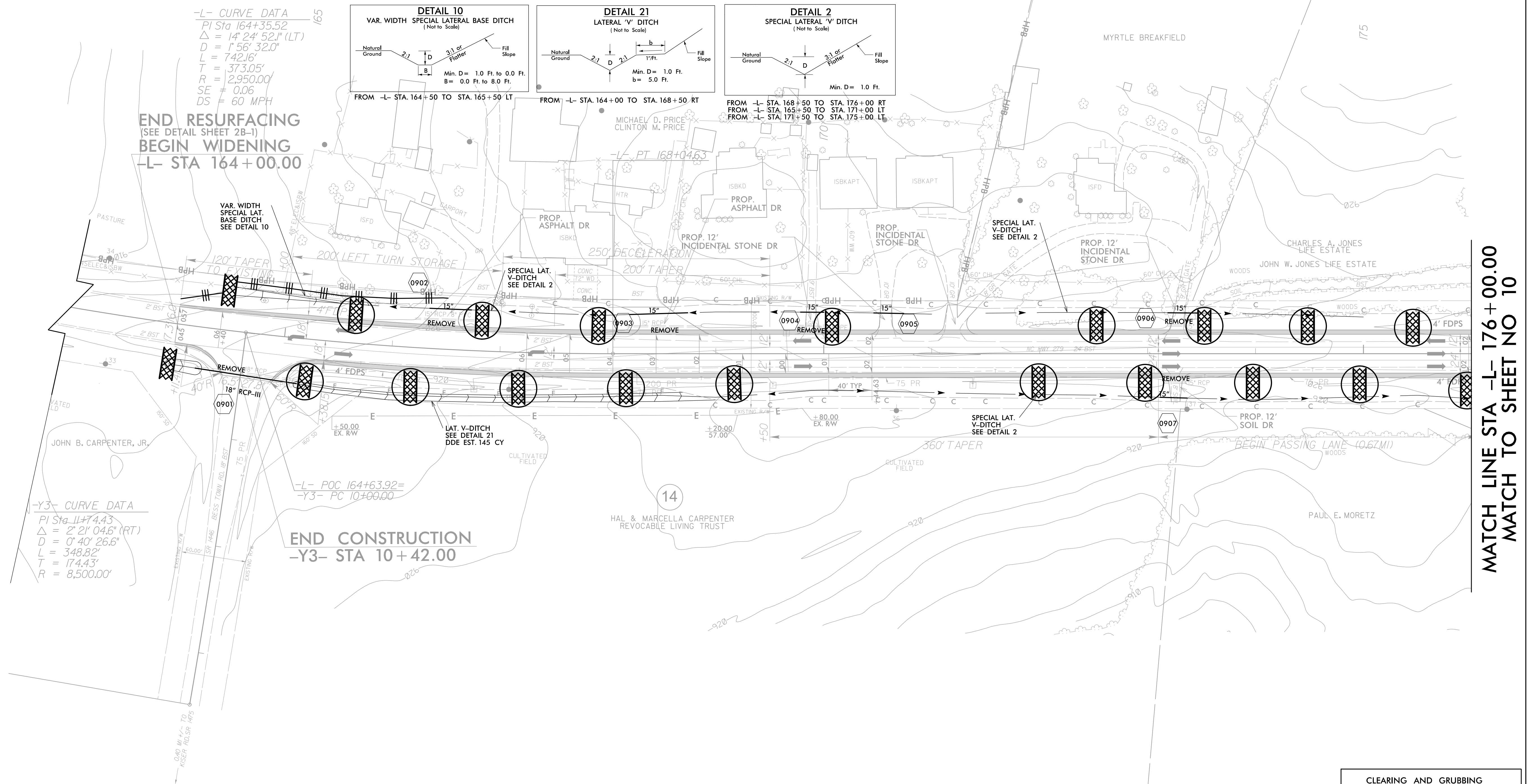
MATCH LINE STA -L- 74+00.00  
MATCH TO SHEET NO 7



NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



|                                                                                                                                                                                                                                                  |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                                                                                                                                                                            | SHEET NO.              |
| <i>W-5212N</i>                                                                                                                                                                                                                                   | <i>EC-10/CONST.9</i>   |
| R/W SHEET NO.                                                                                                                                                                                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                       | HYDRAULICS<br>ENGINEER |
| <p><b>PROJECT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                                                                                                                                   |                        |
|  <p><b>TGS ENGINEERS</b><br/>       804-C N. LAFAYETTE ST<br/>       SHELBY, NC 28150<br/>       PH (704) 476-0003<br/>       CORP. SIGNATURE NO.: C-0275</p> |                        |



NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

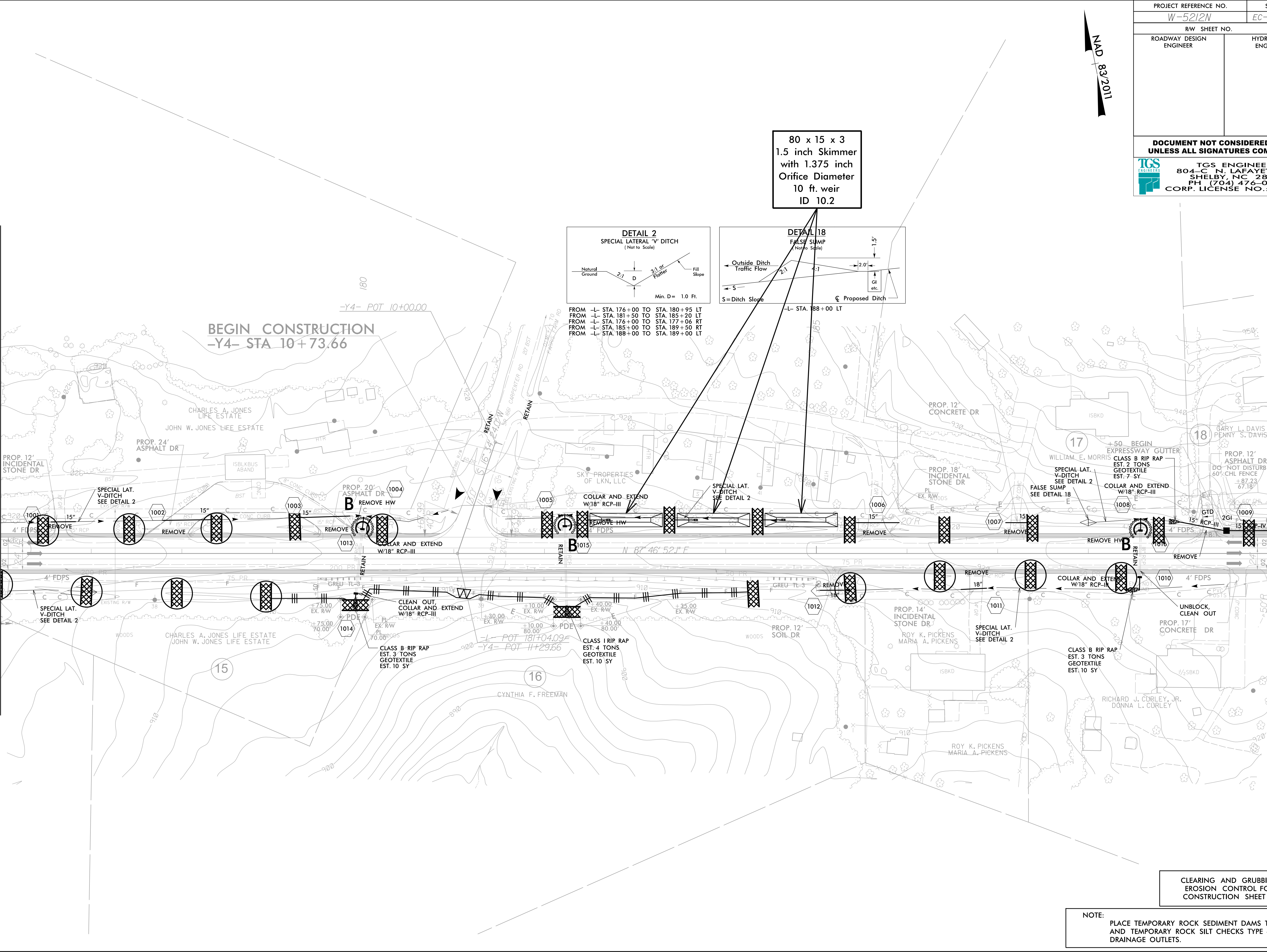


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|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-II/CONST.10                                                                                               |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>            |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

NAD 83/2011

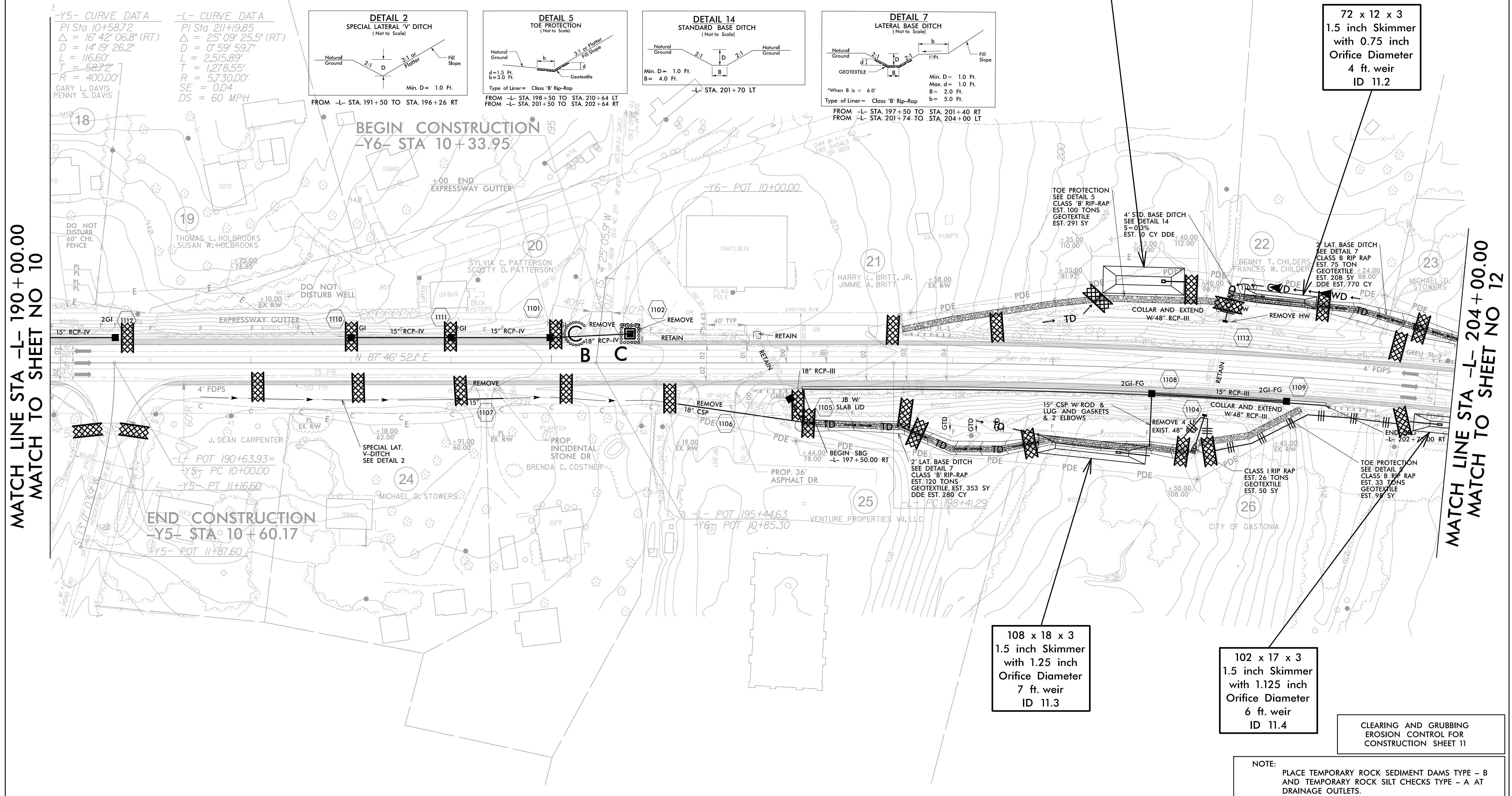
MATCH LINE STA -L- 176+00.00  
MATCH TO SHEET NO 9

MATCH LINE STA -L- 190+00.00  
MATCH TO SHEET NO 11





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| PROJECT REFERENCE NO.                                                                                                                                                                                                                            | SHEET NO.              |
| <i>W-52/2N</i>                                                                                                                                                                                                                                   | <i>EC-12/CONST.II</i>  |
| R/W SHEET NO.                                                                                                                                                                                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                       | HYDRAULICS<br>ENGINEER |
| <p><b>PROJECT DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                                                                                                                          |                        |
|  <p><b>TGS ENGINEERS</b><br/>       804-C N. LAFAYETTE ST<br/>       SHELBY, NC 28150<br/>       PH (704) 476-0003<br/>       CORP. SIGNATURE NO.: C-0275</p> |                        |





PROJECT REFERENCE NO.  
W-5212N

SHEET NO.  
EC-13/CONST.12

RW SHEET NO.

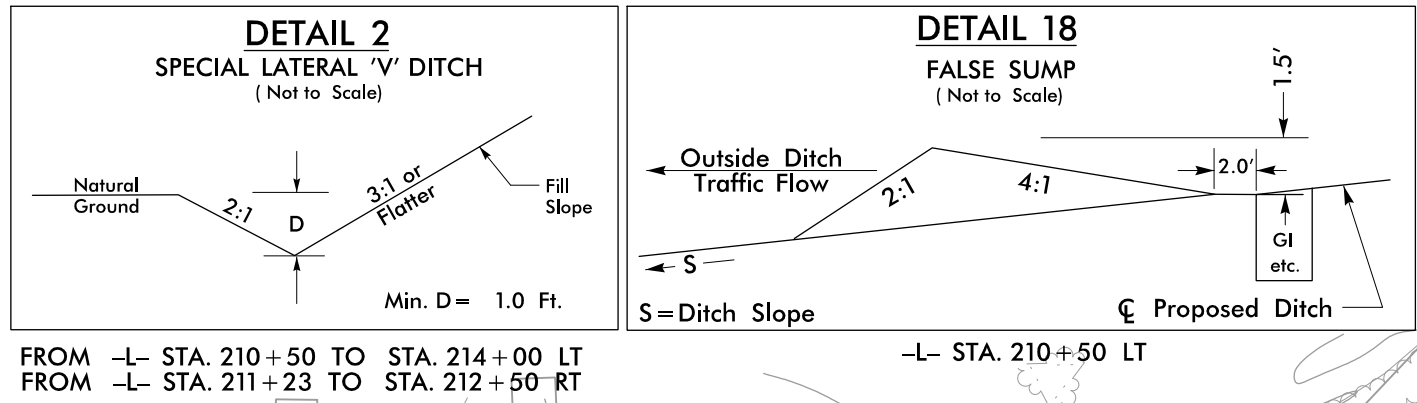
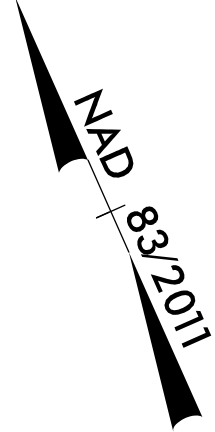
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS

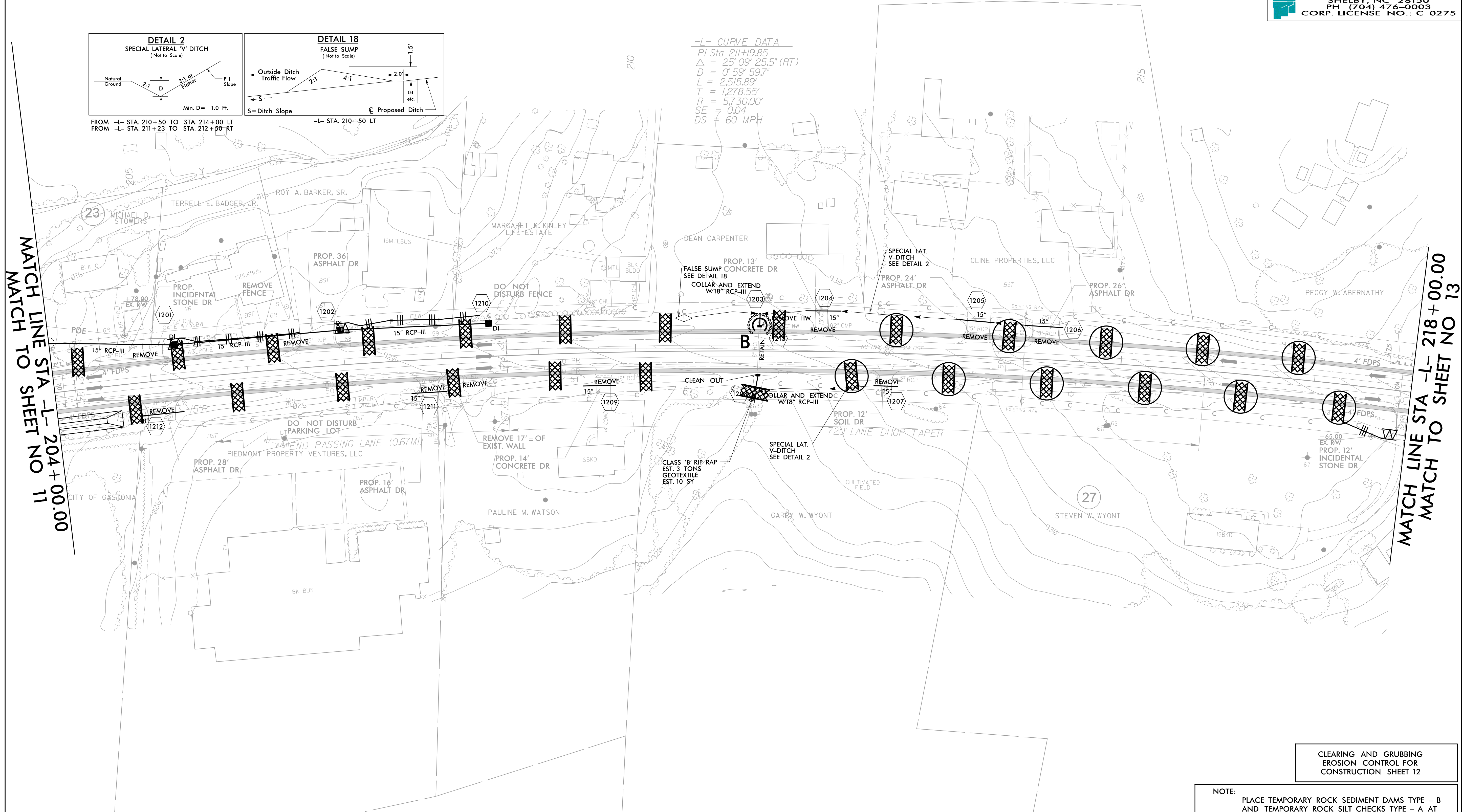
804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275



-L- CURVE DATA  
PI Sta 211+9.85  
 $\Delta = 25^\circ 09' 25.5''$  (RT)  
 $D = 0^\circ 59' 59.7''$   
 $L = 2515.89'$   
 $T = 1278.55'$   
 $R = 5730.00'$   
 $SE = 0.04$   
 $DS = 60$  MPH

MATCH LINE STA -L- 204+00.00  
MATCH TO SHEET NO 11

MATCH LINE STA -L- 218+00.00  
MATCH TO SHEET NO 13

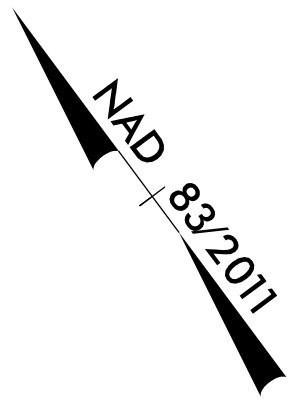


CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 12

NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

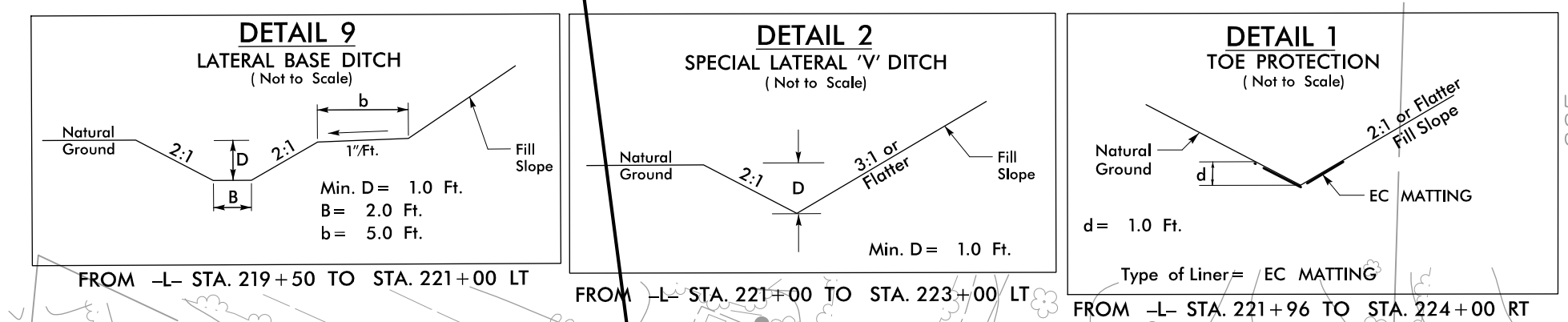


|                                                                                     |  |                                                                                                              |  |
|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-14/CONST13                                                                                                |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>            |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

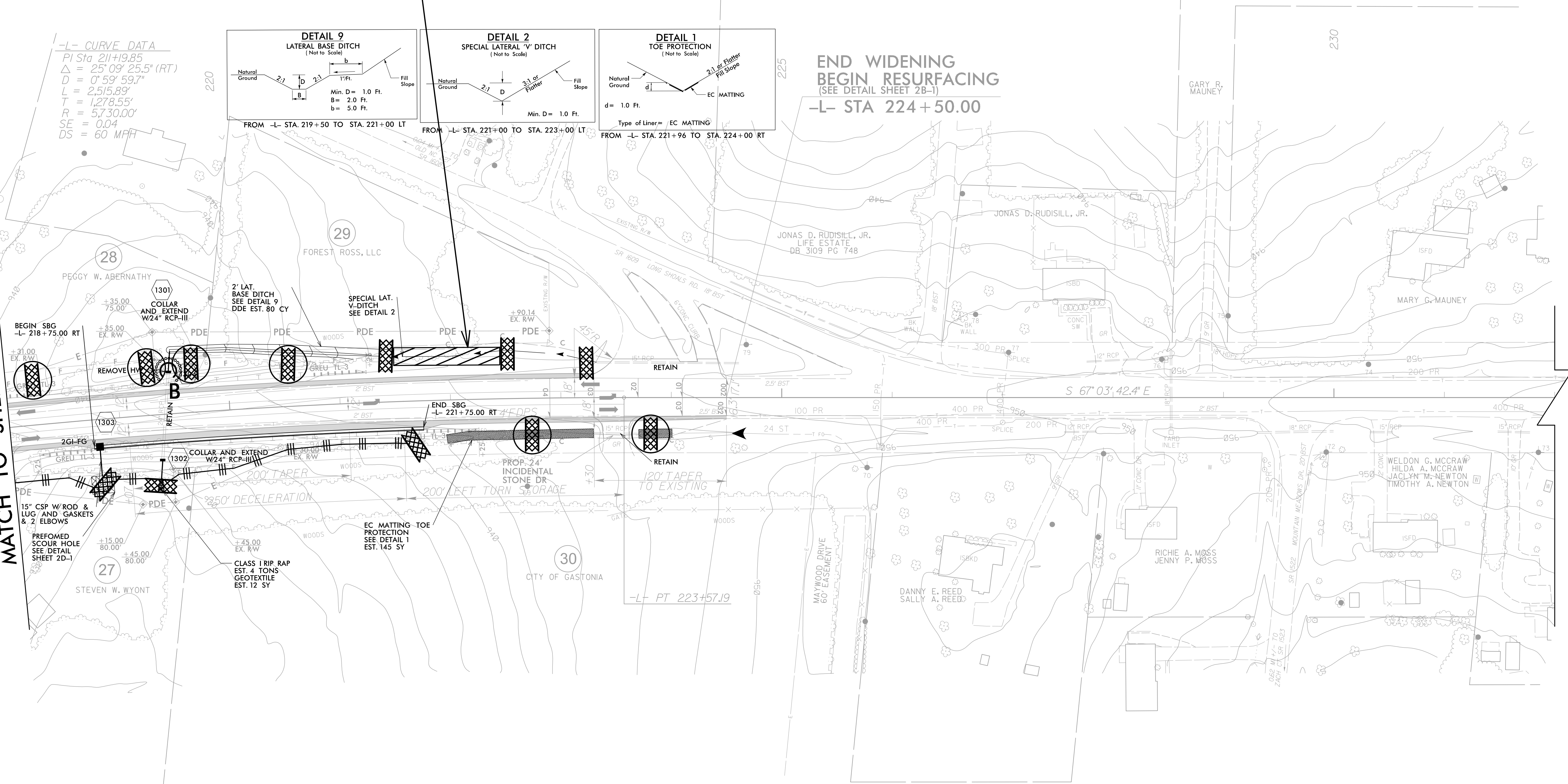


MATCH LINE STA -L- 218+00.00  
MATCH TO SHEET NO 12

-L- CURVE DATA  
PI Sta 211+9.85  
 $\Delta = 25^{\circ}09'25.5"$  (RT)  
 $D = 0^{\circ}59'59.7"$   
 $L = 2,515.89'$   
 $T = 1,278.55'$   
 $R = 5,730.00'$   
 $SE = 0.04$   
 $DS = 60$  MPH



END WIDENING  
BEGIN RESURFACING  
(SEE DETAIL SHEET 2B-1)  
-L- STA 224+50.00



CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 13

NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



NAD 83/2011

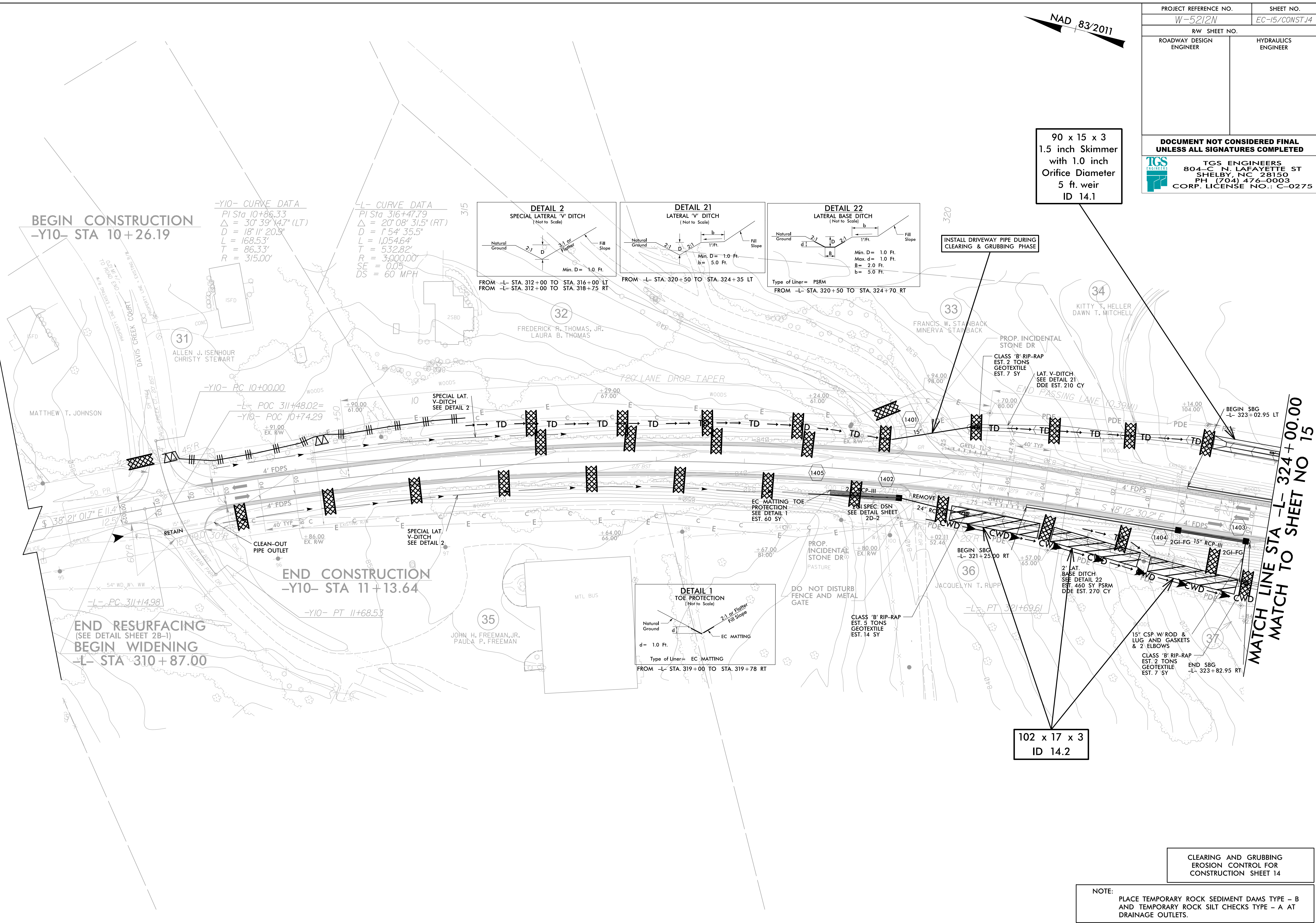
90 x 15 x 3  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
5 ft. weir  
ID 14.1

**INSTALL DRIVEWAY PIPE DURING  
CLEARING & GRUBBING PHASE**

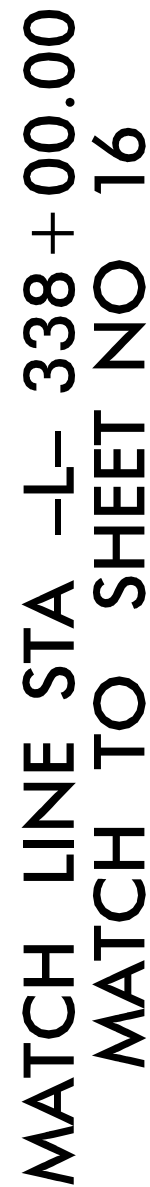
102 x 17 x 3  
ID 14.2

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 14

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.





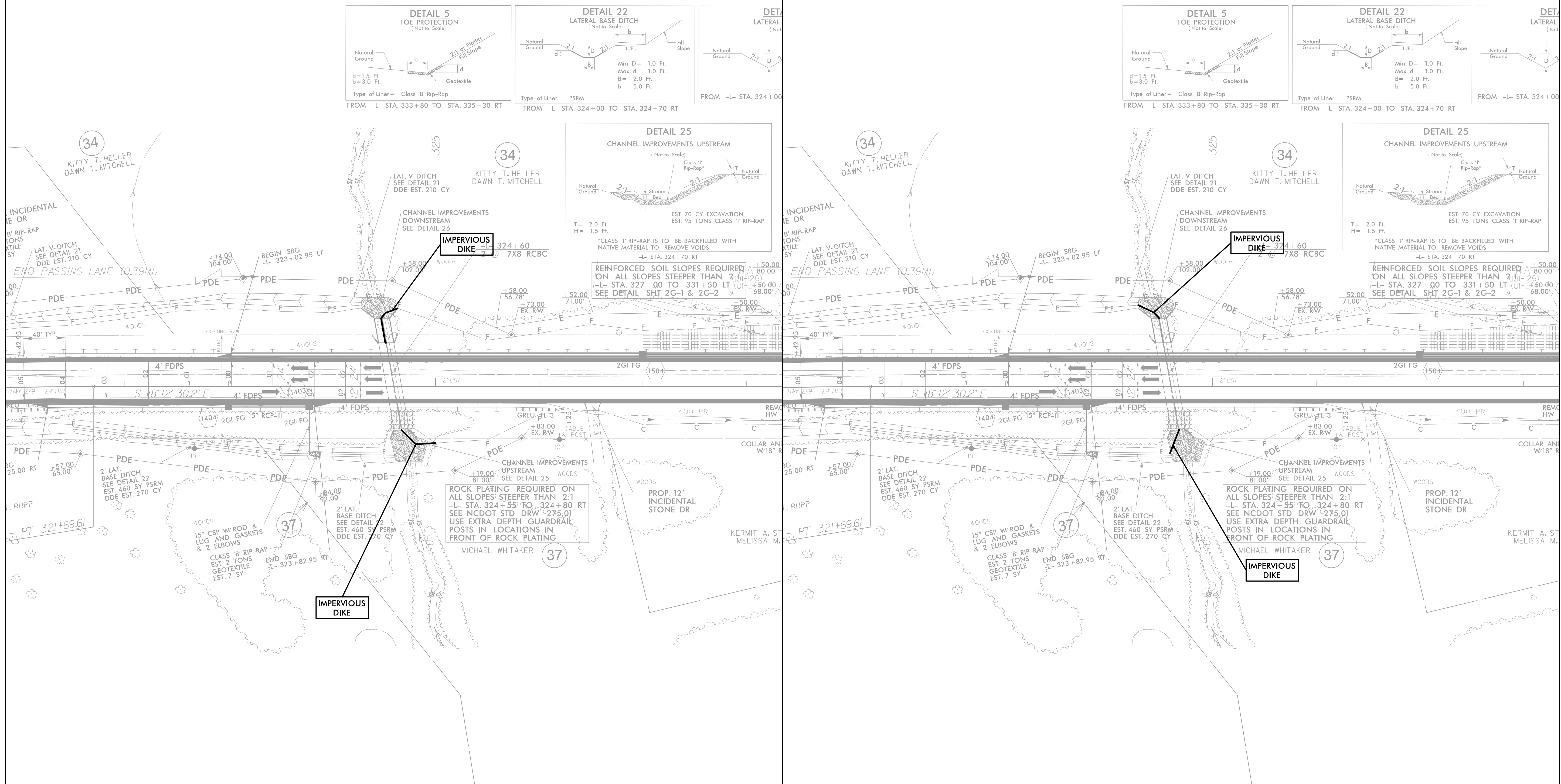




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| PROJECT REFERENCE NO.      | SHEET NO.              |
| W-5212N                    | EC-17/CONST/5          |
| R/W SHEET NO.              |                        |
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |

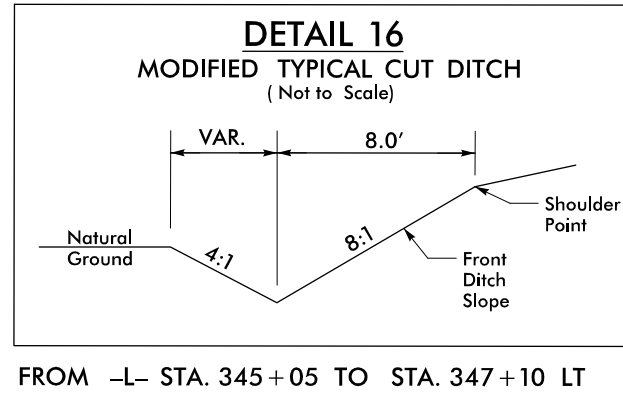
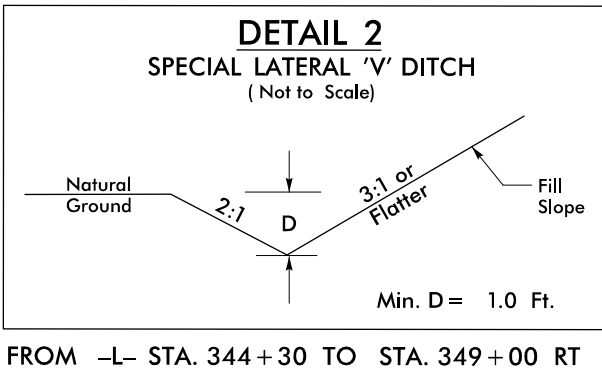
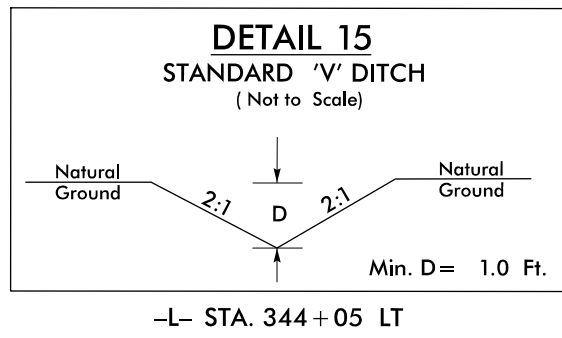
## PHASE II

- |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. INSTALL IMPERVIOUS DIKE AS SHOWN ON PLANS.<br>2. BEGIN PUMP AROUND OPERATION.<br>3. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.<br>4. CONSTRUCT LOW FLOW EXTENSION WHILE RETAINING EXISTING SILT IN ALL BARRELS. | 5. STOP PUMP AROUND OPERATION.<br>6. REMOVE IMPERVIOUS DIKE AND RESTORE FLOW IN LOW FLOW BARRELS.<br>7. INSTALL IMPERVIOUS DIKE AS SHOWN ON PLANS.<br>8. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.<br>9. CONSTRUCT HIGH FLOW BARREL EXTENSIONS WHILE RETAINING EXISTING SILT IN ALL BARRELS.<br>10. UPON COMPLETION OF CULVERT EXTENSION, REMOVE IMPERVIOUS DIKE AND REESTABLISH STREAM ACCORDING TO CONST. PLANS. |
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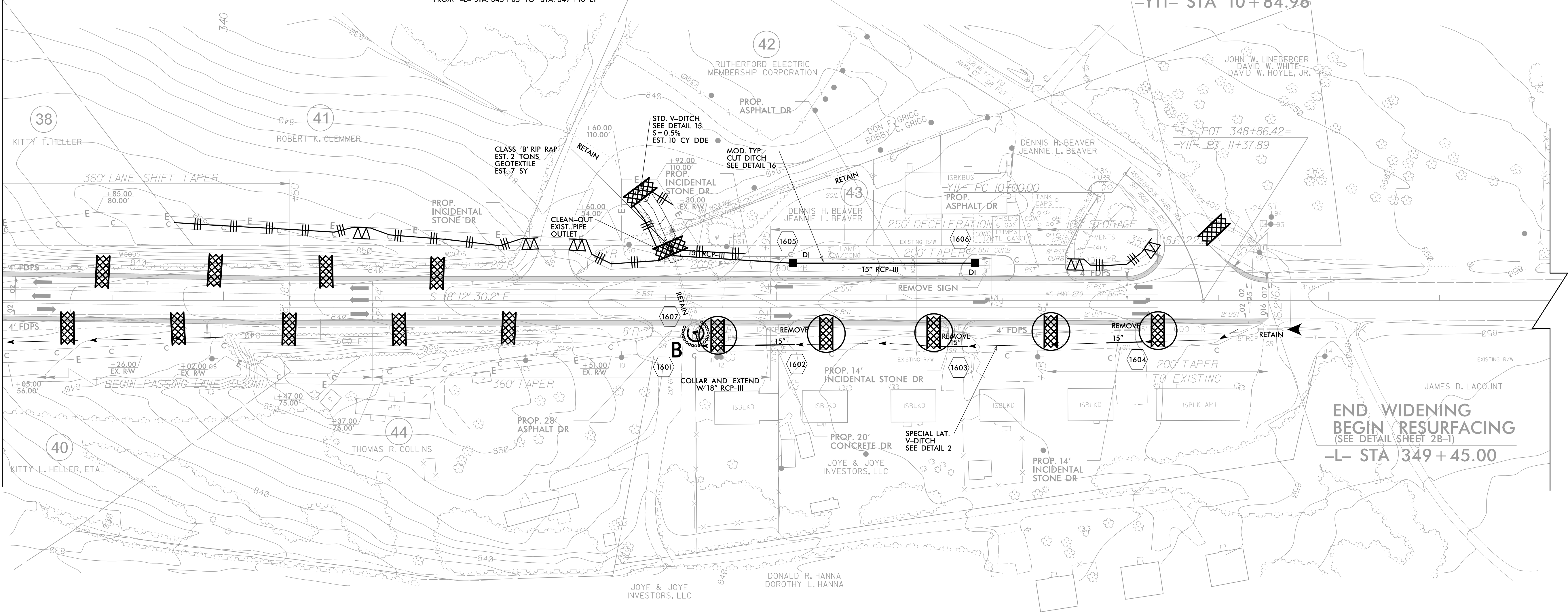
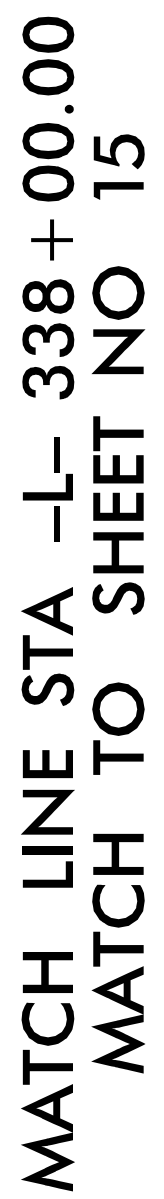


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| PROJECT REFERENCE NO.                                                                                                   | SHEET NO.              |
| W-5212N                                                                                                                 | EC-18/CONST.16         |
| RW SHEET NO.                                                                                                            |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                              | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                         |                        |
| <p>TGS ENGINEERS<br/>804-C N. LAFAYETTE ST<br/>SHELBY, NC 28150<br/>PH (704) 476-0003<br/>CORP. LICENSE NO.: C-0275</p> |                        |



-YII- CURVE DATA  
 PI Sta 10+72.53  
 $\Delta = 43^{\circ} 53' 27.3''$  (RT)  
 $D = 31^{\circ} 49' 51.6''$   
 $L = 137.89'$   
 $T = 72.53'$   
 $R = 180.00'$

BEGIN CONSTRUCTION  
-Y11- STA 10+84.96

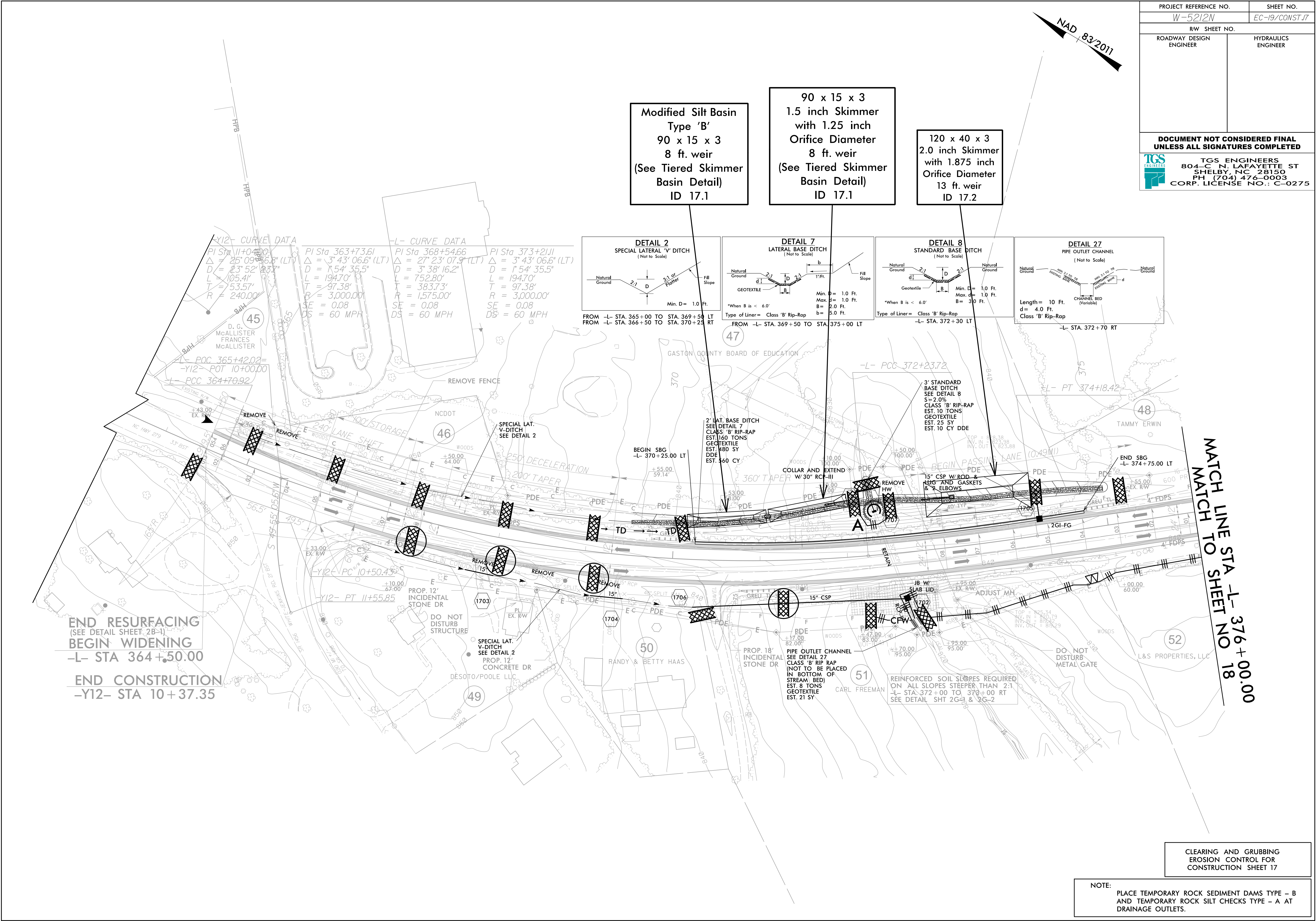


END WIDENING  
BEGIN RESURFACING  
(SEE DETAIL SHEET 2B-1)  
-L- STA 349+45.00

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 16

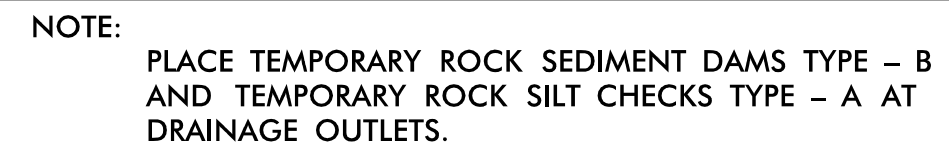
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.





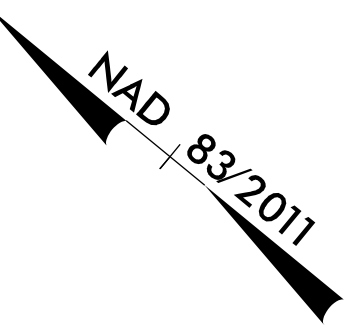


NAD 83/2011



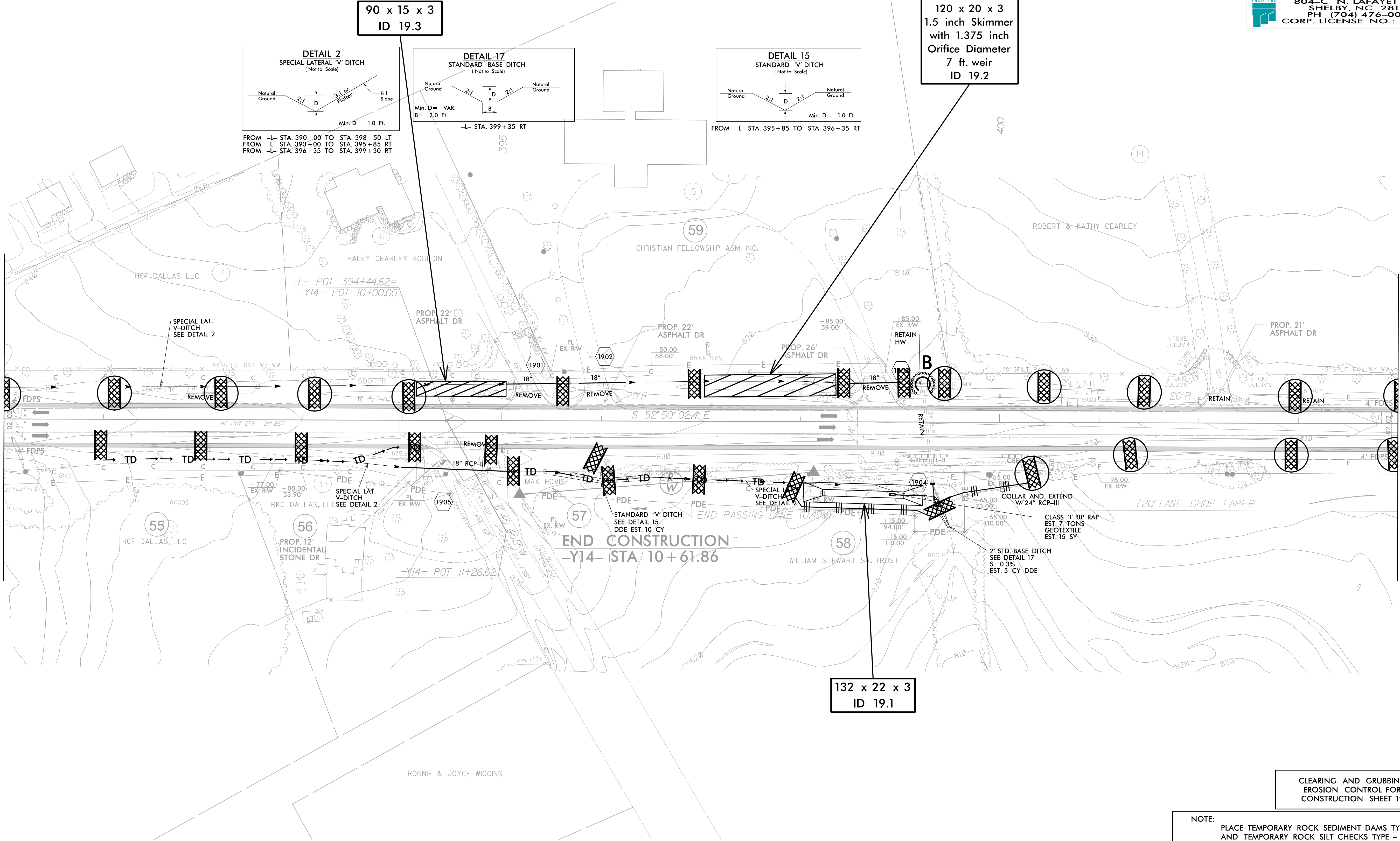


| PROJECT REFERENCE NO.      |  | SHEET NO.              |  |
|----------------------------|--|------------------------|--|
| W-5212N                    |  | EC-21/CONST.19         |  |
| RW SHEET NO.               |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |  |
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MATCH LINE STA -L- 390+00.00  
MATCH TO SHEET NO 18

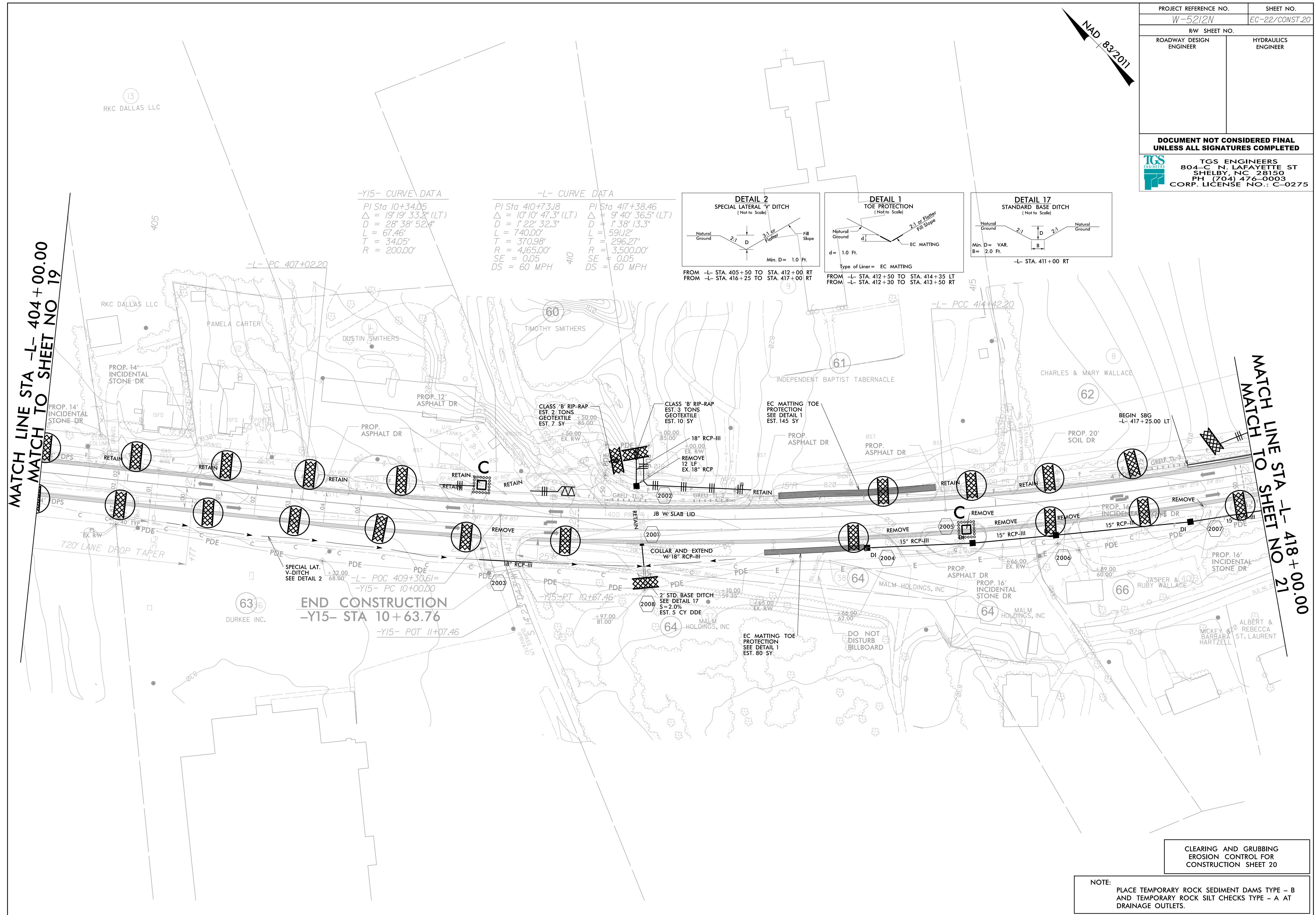
MATCH LINE STA -L- 404+00.00  
MATCH TO SHEET NO 20



NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



|                                                                                                                                                                                                             |                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                                                                                                                                       | SHEET NO.              |
| <i>W-5212N</i>                                                                                                                                                                                              | <i>EC-22/CONST.20</i>  |
| RW SHEET NO.                                                                                                                                                                                                |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                  | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                                                                                             |                        |
|  <p>TGS ENGINEERS<br/>804-C N. LAFAYETTE ST<br/>SHELBY, NC 28150<br/>PH (704) 476-0003<br/>CORP. LICENSE NO.: C-0275</p> |                        |





PROJECT REFERENCE NO.  
W-5212N

SHEET NO.  
EC-23/CONST.21

RW SHEET NO.

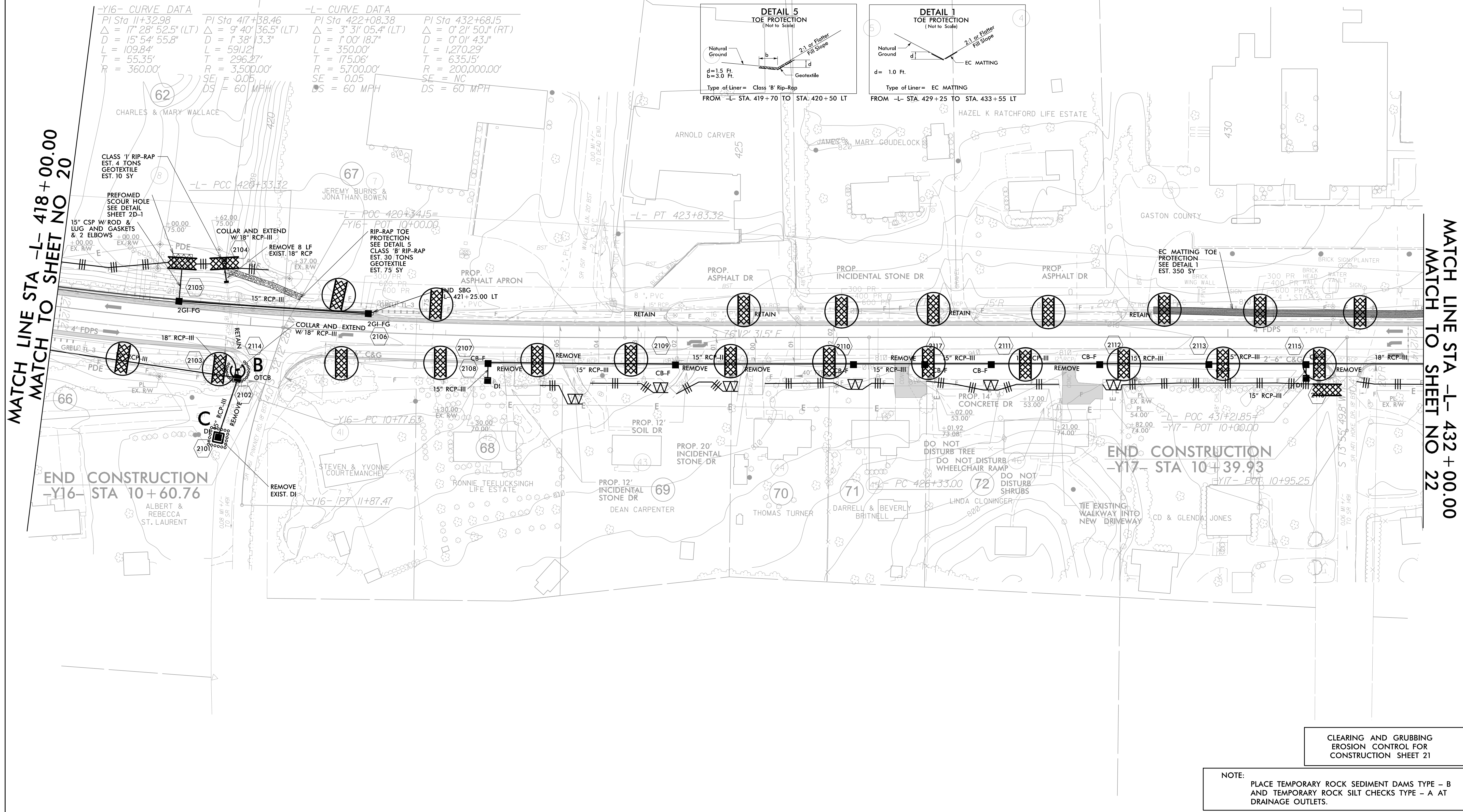
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS

TGS ENGINEERS  
804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275





PROJECT REFERENCE NO.  
W-5212N

SHEET NO.  
EC-24/CONST.22

RW SHEET NO.

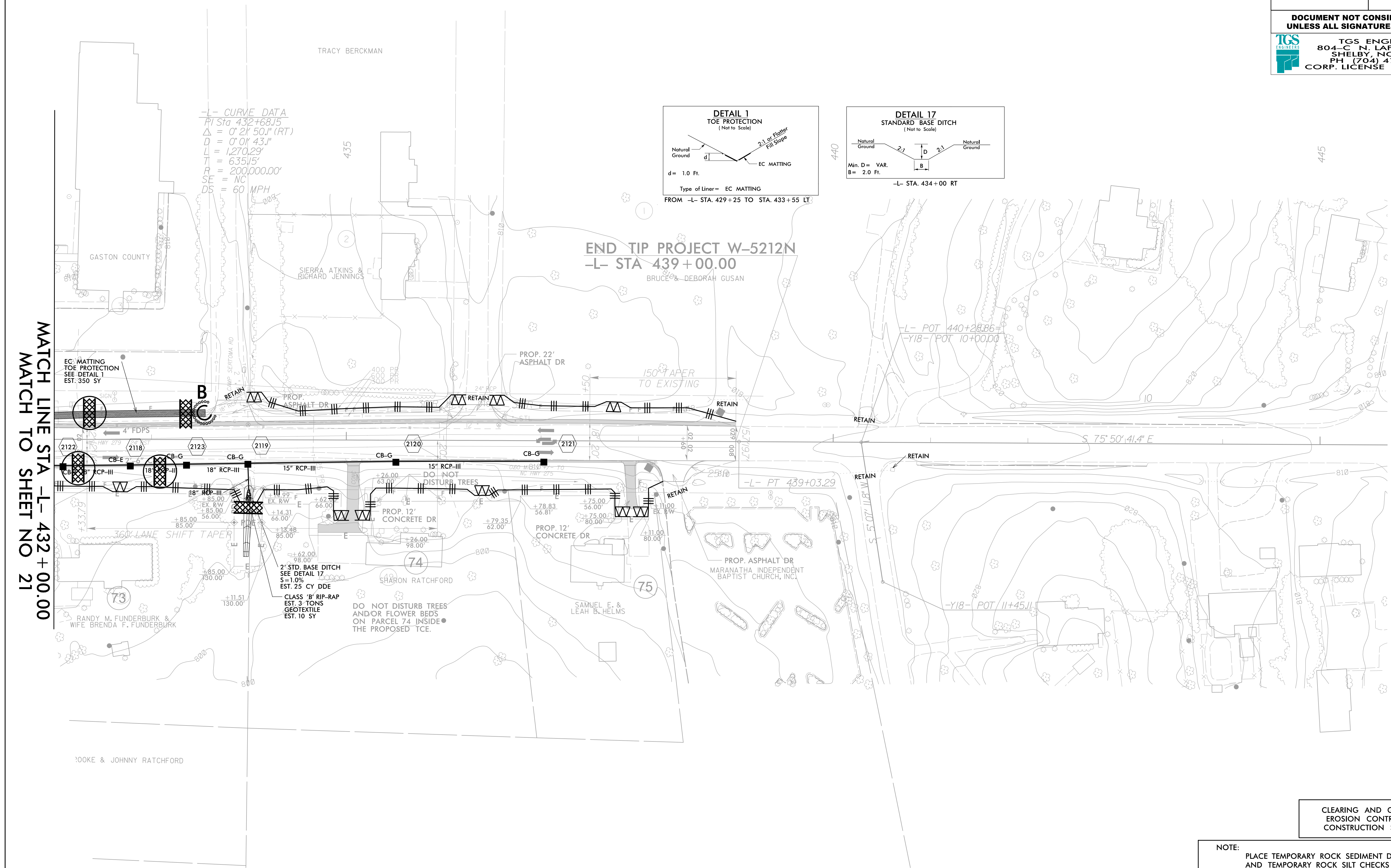
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS

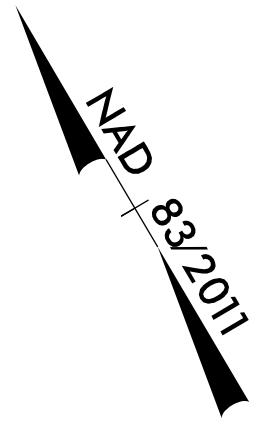
TGS ENGINEERS  
804-C N. LAFAYETTE ST  
SHELBY, NC 28150  
PH (704) 476-0003  
CORP. LICENSE NO.: C-0275



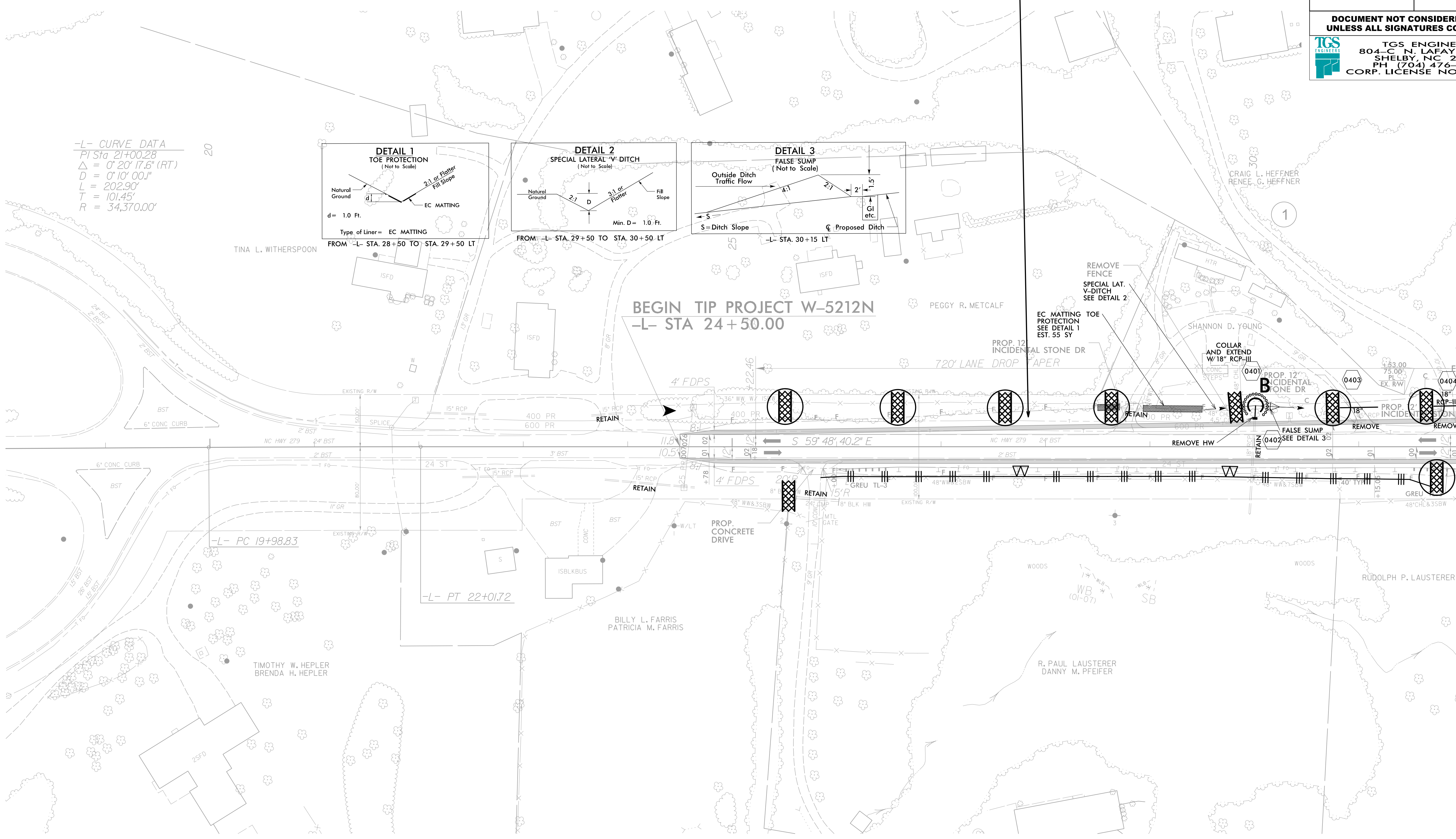
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



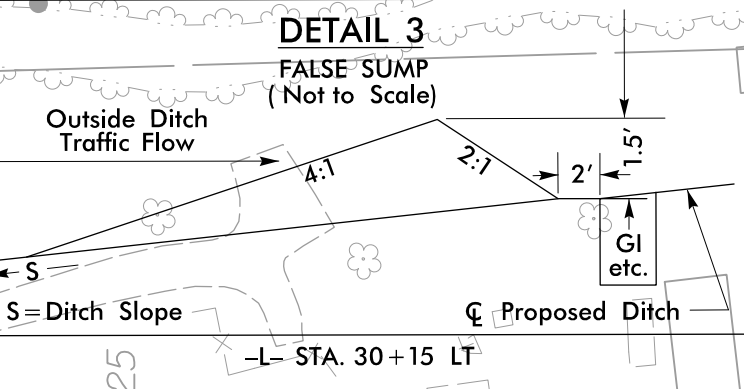
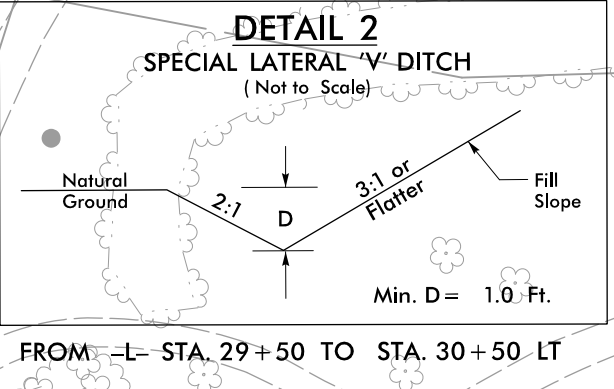
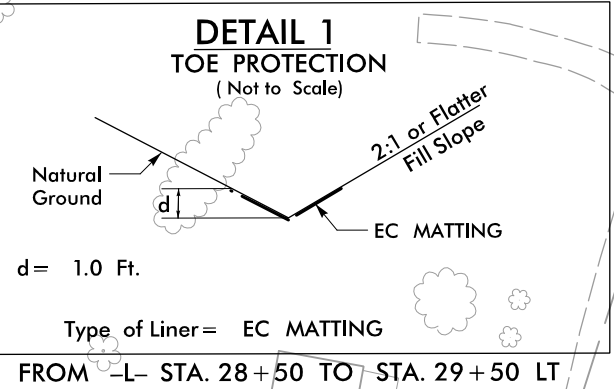
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|----------------------------|--|------------------------|
| PROJECT REFERENCE NO.      |  | SHEET NO.              |
| W-5212N                    |  | EC-25/CONST.4          |
| RW SHEET NO.               |  |                        |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |
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Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 27+50 to 29+50 LT



-L- CURVE DATA  
PI Sta 21+00.28  
 $\Delta = 0^\circ 20' 17.6''$  (RT)  
 $D = 0^\circ 10' 00.1''$   
 $L = 202.90'$   
 $T = 101.45'$   
 $R = 34,370.00'$

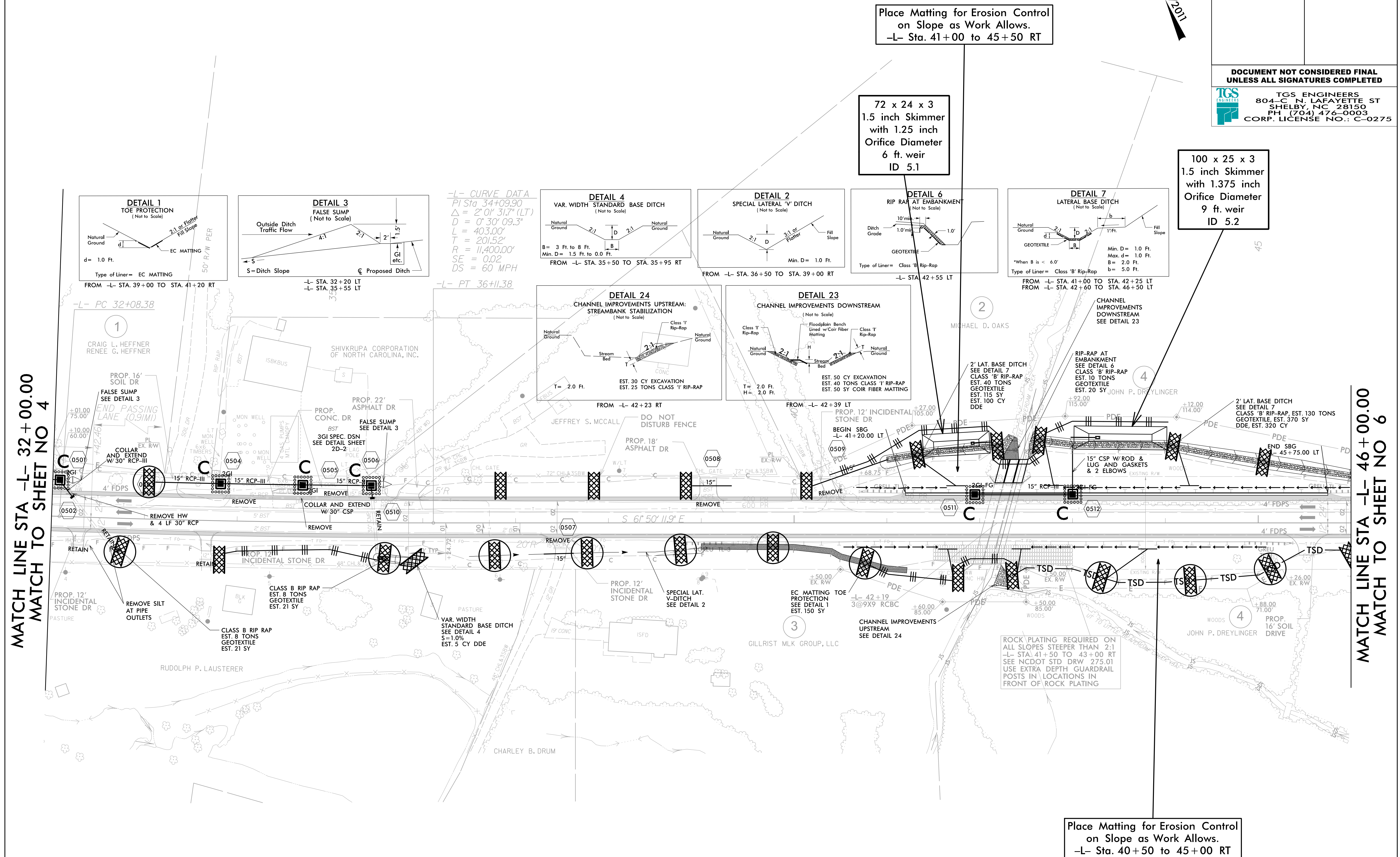


BEGIN TIP PROJECT W-5212N  
-L- STA 24+50.00

MATCH LINE STA -L- 32+00.00  
MATCH TO SHEET NO 5

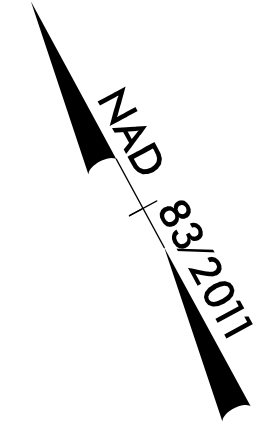


|                                                                                                                                                                                                                                                  |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                                                                                                                                                                            | SHEET NO.              |
| <i>W-52/2N</i>                                                                                                                                                                                                                                   | <i>EC-26/CONST.5</i>   |
| R/W SHEET NO.                                                                                                                                                                                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                       | HYDRAULICS<br>ENGINEER |
| <p><b>PROJECT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                                                                                                                                   |                        |
|  <p><b>TGS ENGINEERS</b><br/>       804-C N. LAFAYETTE ST<br/>       SHELBY, NC 28150<br/>       PH (704) 476-0003<br/>       CORP. SIGNATURE NO.: C-0275</p> |                        |





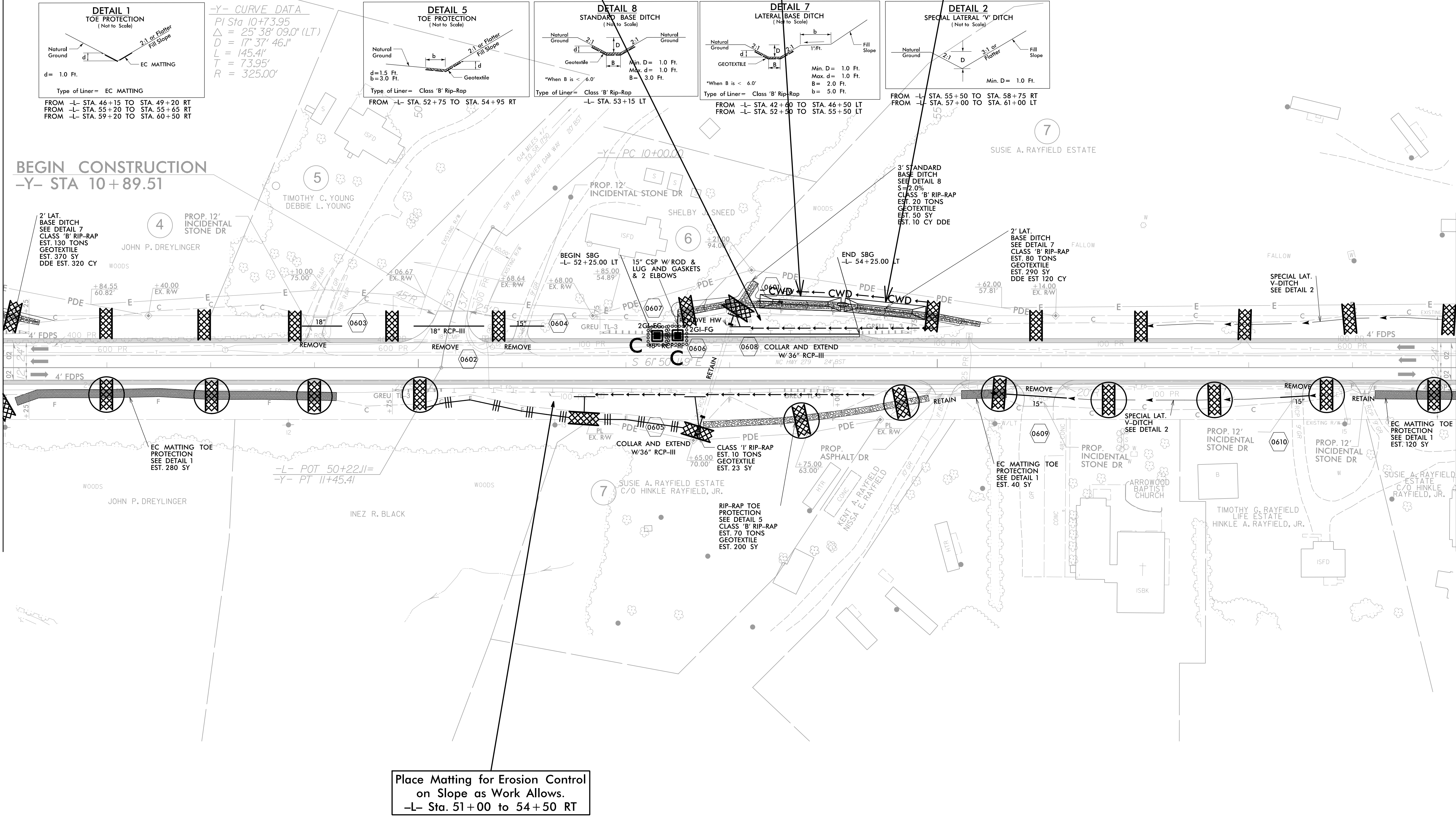
For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.



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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                                                                                                                                                                                                                                                                                                |  | SHEET NO.              |  |
| W-5212N                                                                                                                                                                                                                                                                                                                                              |  | EC-27/CONST.6          |  |
| RW SHEET NO.                                                                                                                                                                                                                                                                                                                                         |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                                                                                                                           |  | HYDRAULICS<br>ENGINEER |  |
| <div>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</div> <div><div></div><div><div>TGS ENGINEERS</div><div>804-C N. LAFAYETTE ST</div><div>SHELBY, NC 28150</div><div>PH (704) 476-0003</div><div>CORP. LICENSE NO.: C-0275</div></div></div> |  |                        |  |

MATCH LINE STA -L- 46+00.00  
MATCH TO SHEET NO 5

MATCH LINE STA -L- 60+00.00  
MATCH TO SHEET NO 7



Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 52+50 to 55+00 LT

78 x 13 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
6 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 6.1

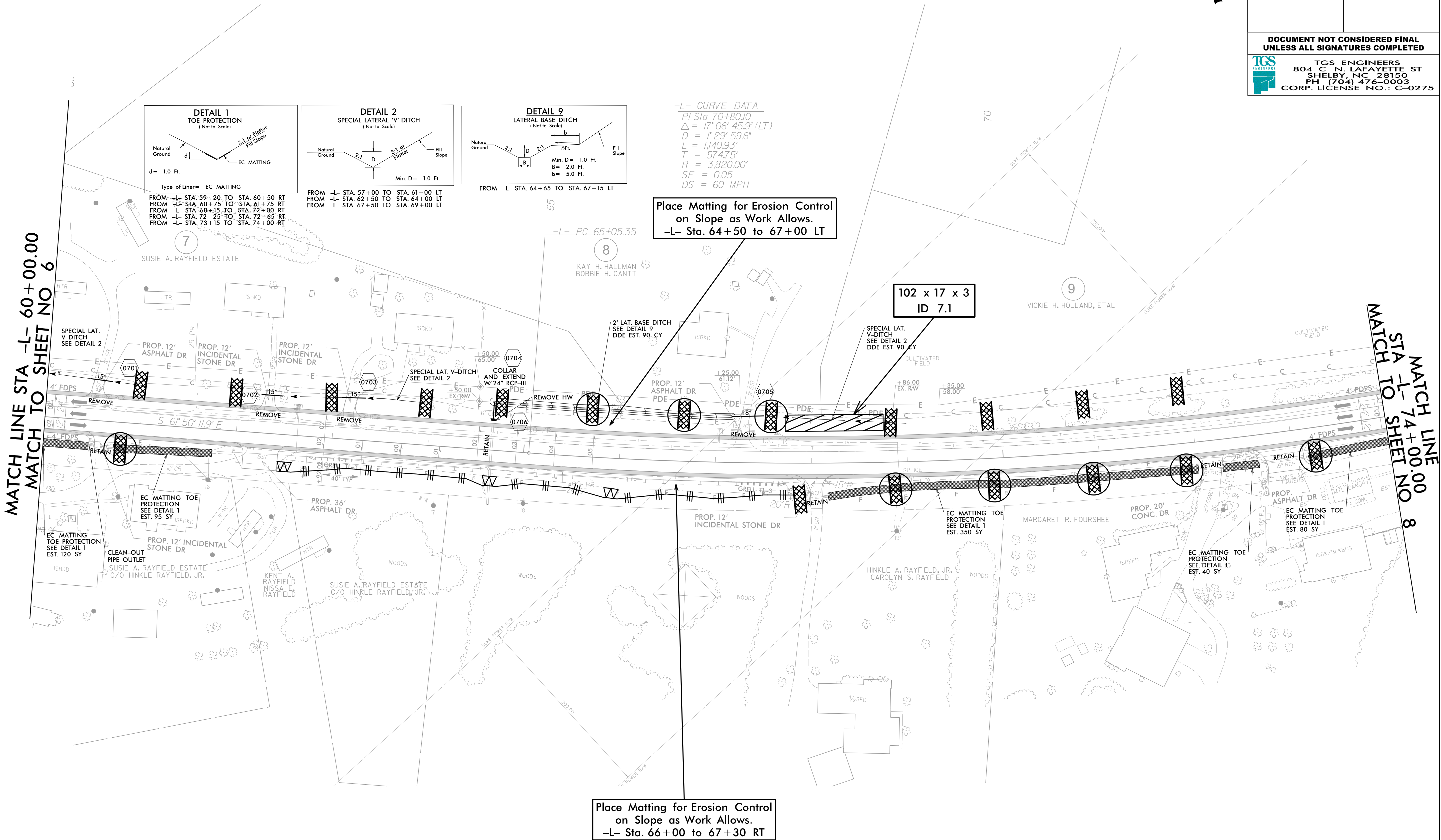
Modified Silt Basin  
Type 'B'  
78 x 13 x 3  
6 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 6.1

Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 51+00 to 54+50 RT



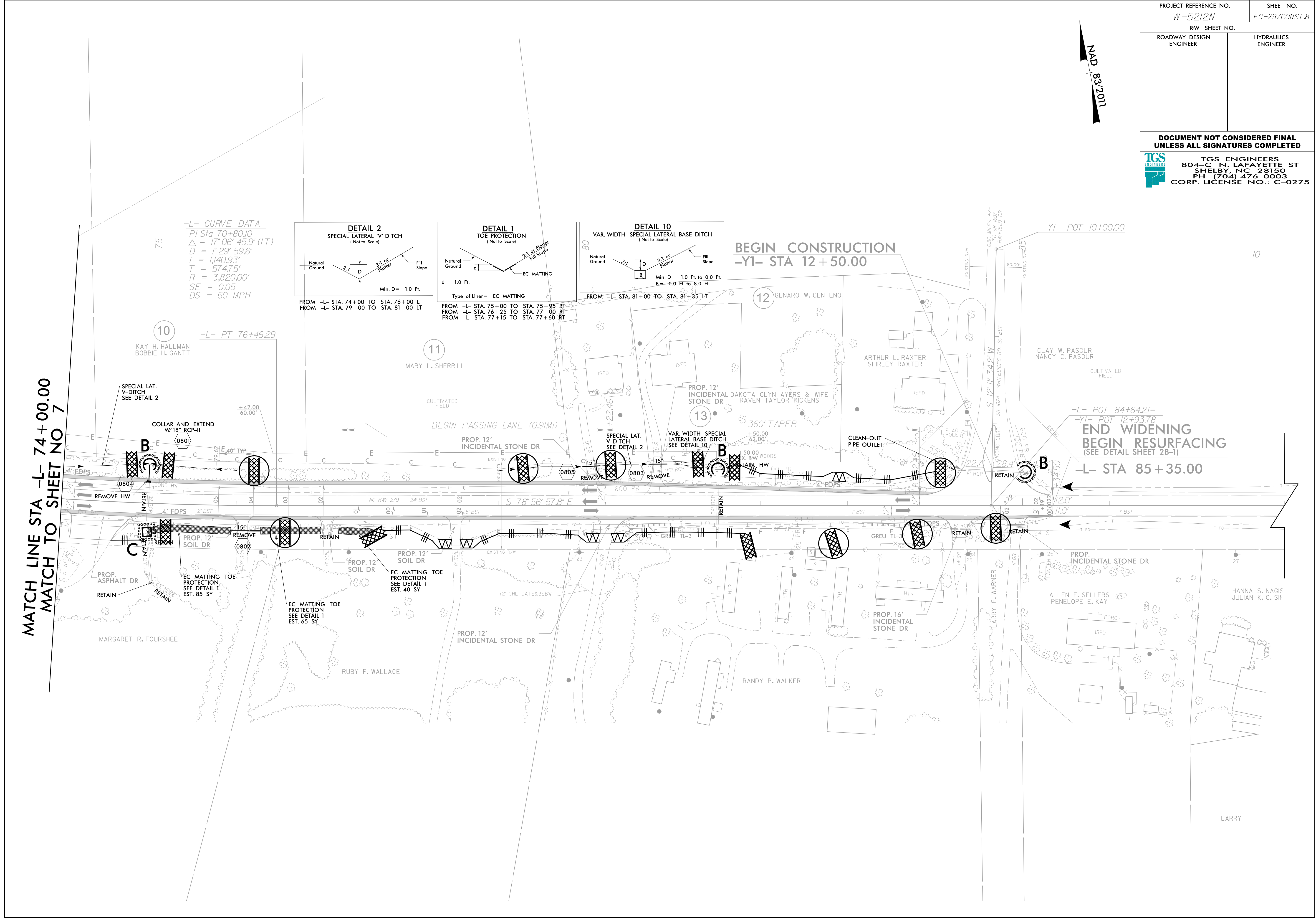
For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.

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|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-28/CONST.7                                                                                                |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                    |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

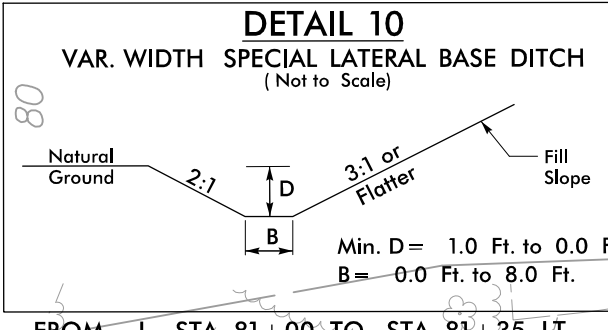
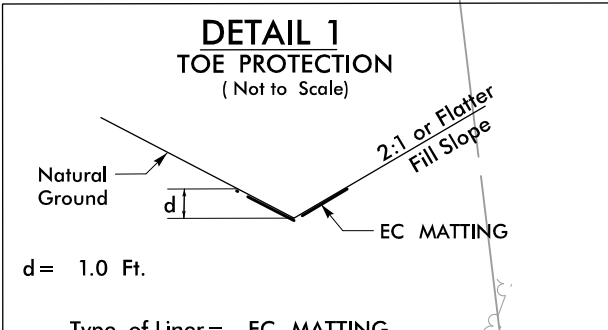
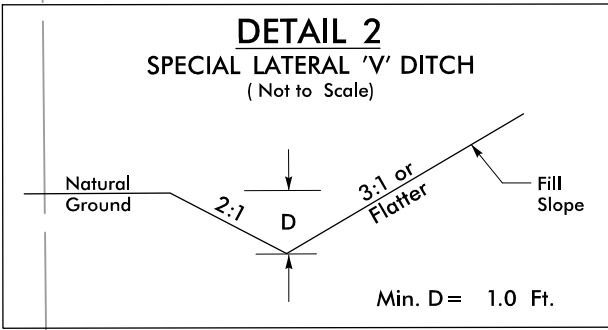




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| PROJECT REFERENCE NO.      |  | SHEET NO.              |
| W-5212N                    |  | EC-29/CONST.8          |
| RW SHEET NO.               |  |                        |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |
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-L- CURVE DATA  
PI Sta 70+80.10  
 $\Delta = 17^{\circ} 06' 45.9"$  (LT)  
 $D = 1^{\circ} 29' 59.6"$   
 $L = 1,140.93'$   
 $T = 574.75'$   
 $R = 3,820.00'$   
 $SE = 0.05$   
 $DS = 60$  MPH

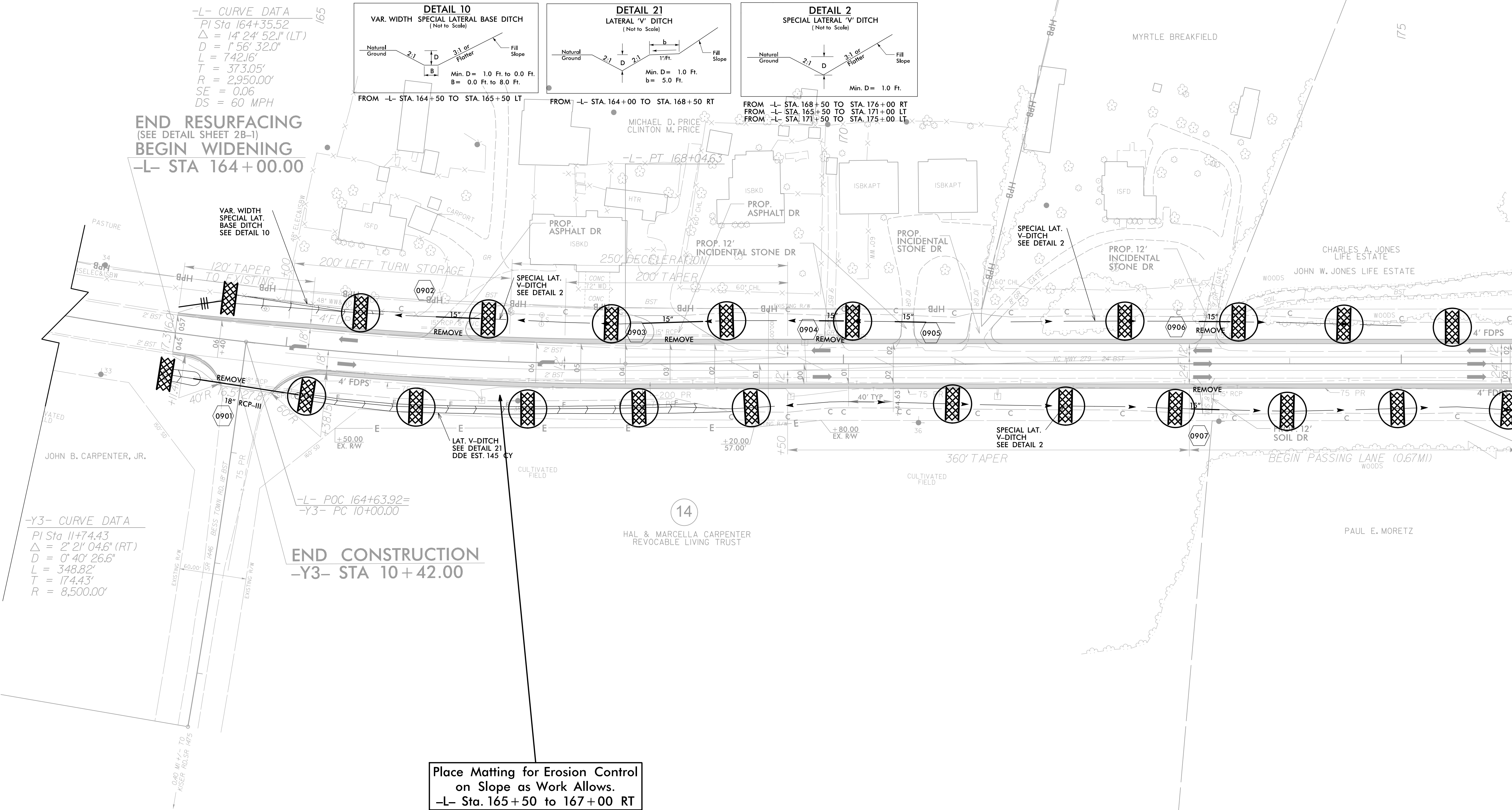


MATCH LINE STA -L- 74+00.00  
MATCH TO SHEET NO 7

-L- POT 84+64.21=  
-YI- POT 12+93.78  
**END WIDENING**  
**BEGIN RESURFACING**  
(SEE DETAIL SHEET 2B-1)  
-L- STA 85+35.00



| PROJECT REFERENCE NO.                                                                                                                                                                                                  |  | SHEET NO.           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------|
| W-5212N                                                                                                                                                                                                                |  | EC-30/CONST.9       |
| RW SHEET NO.                                                                                                                                                                                                           |  |                     |
| ROADWAY DESIGN ENGINEER                                                                                                                                                                                                |  | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                                                                                                                       |  |                     |
| <div><div><div>TGS</div><div>ENGINEERS</div></div><div><div>TGS ENGINEERS</div><div>804-C N. LAFAYETTE ST</div><div>SHELBY, NC 28150</div><div>PH (704) 476-0003</div><div>CORP. LICENSE NO.: C-0275</div></div></div> |  |                     |



MATCH LINE STA -L- 176 + 00.00  
MATCH TO SHEET NO 10

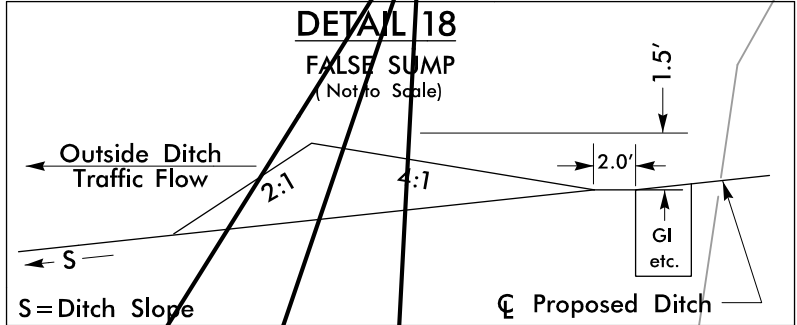
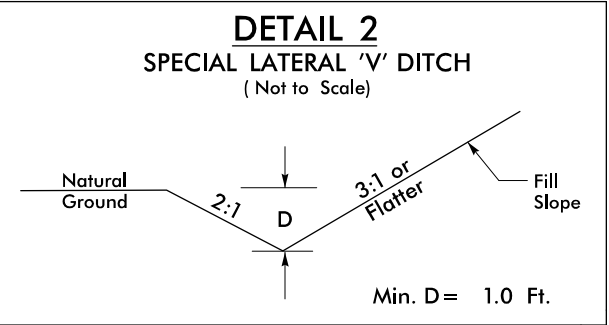
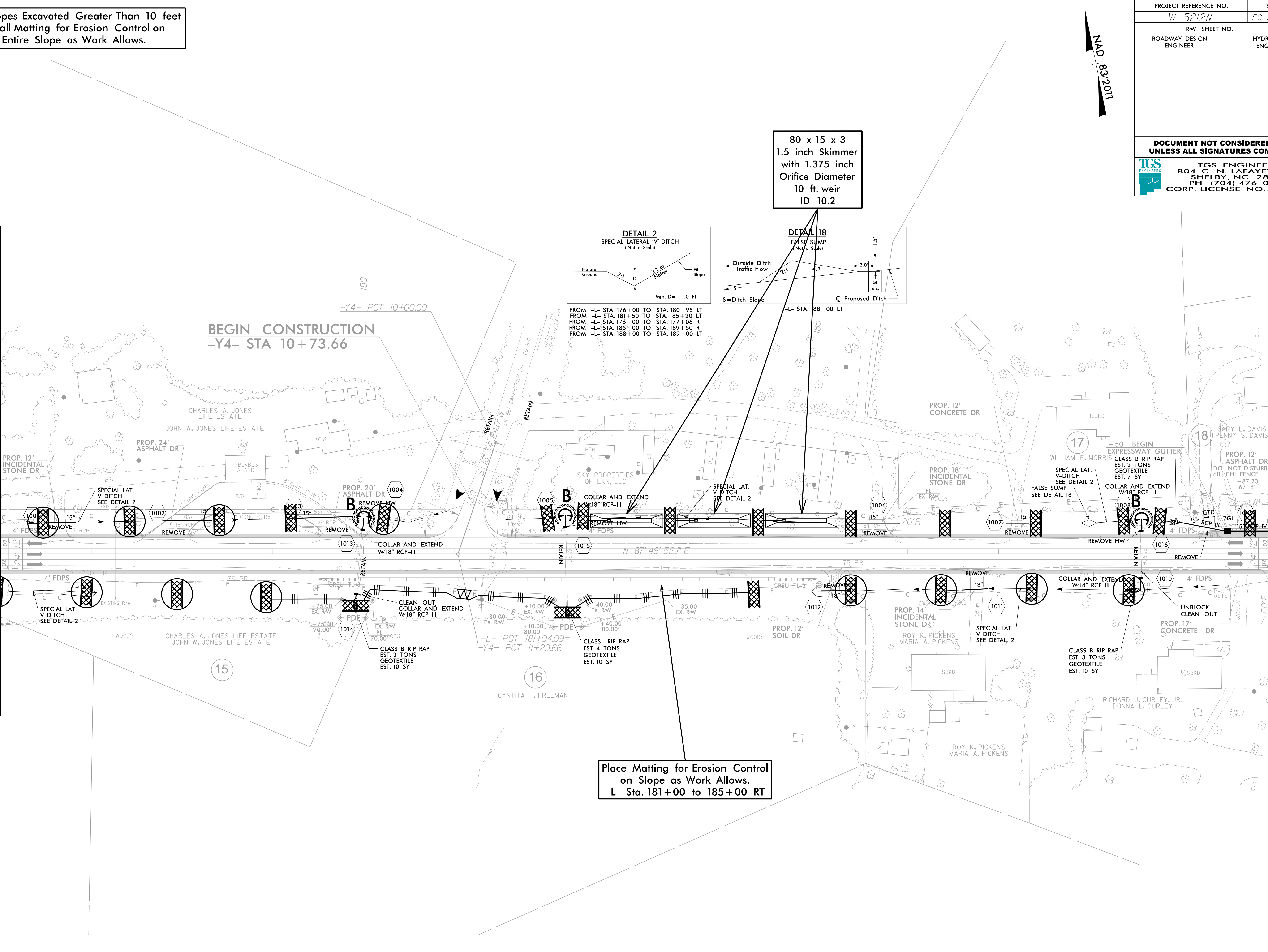


For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.

NAD  
8/3/2011

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| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-31/CONST.10                                                                                               |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
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| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>            |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

MATCH LINE STA -L- 176+00.00  
MATCH TO SHEET NO 9



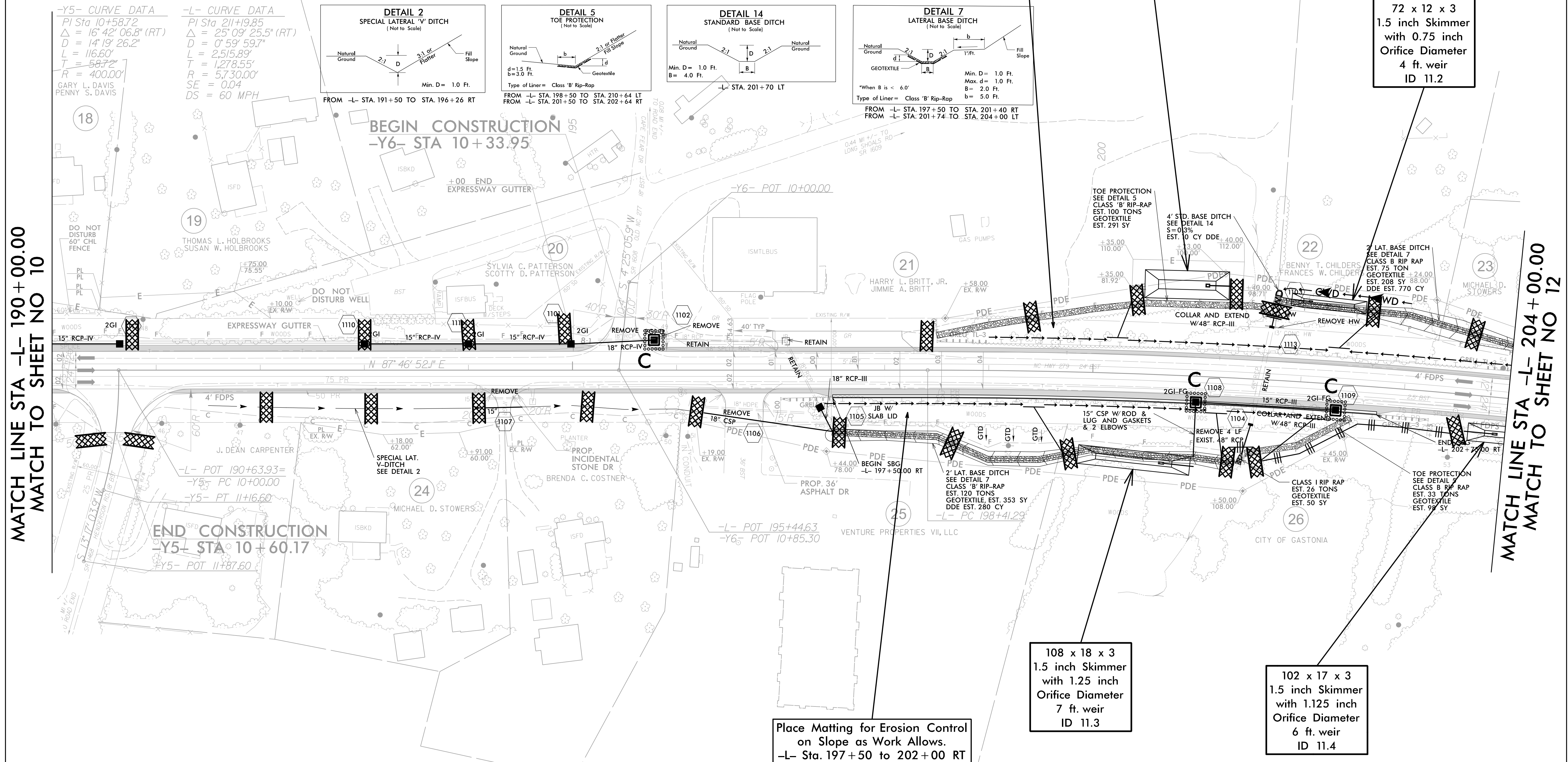
FROM -L- STA. 176+00 TO STA. 180+95 LT  
FROM -L- STA. 181+50 TO STA. 185+20 LT  
FROM -L- STA. 176+00 TO STA. 177+06 RT  
FROM -L- STA. 185+00 TO STA. 189+50 RT  
FROM -L- STA. 188+00 TO STA. 189+00 LT

Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 181+00 to 185+00 RT

MATCH LINE STA -L- 190+00.00  
MATCH TO SHEET NO 11



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| PROJECT REFERENCE NO.                                                                                                                                                                                                                                                                                                                                                                        | SHEET NO.              |
| W-5212N                                                                                                                                                                                                                                                                                                                                                                                      | EC-32/CONST II         |
| RW SHEET NO.                                                                                                                                                                                                                                                                                                                                                                                 |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                                                                                                                                                                   | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> <p style="text-align: center;">  <b>TGS ENGINEERS</b><br/>             804-C N. LAFAYETTE ST<br/>             SHELBY, NC 28150<br/>             PH (704) 476-0003<br/>             CORP. LICENSE NO.: C-0275         </p> |                        |

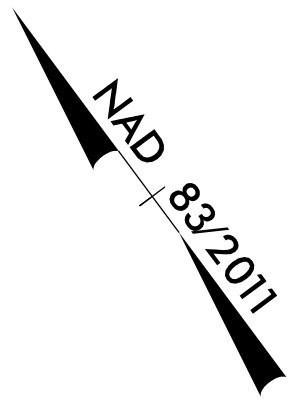








| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|--|
| W-5212N                                                                             |  | EC-34/CONST.13                                                                                               |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>            |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

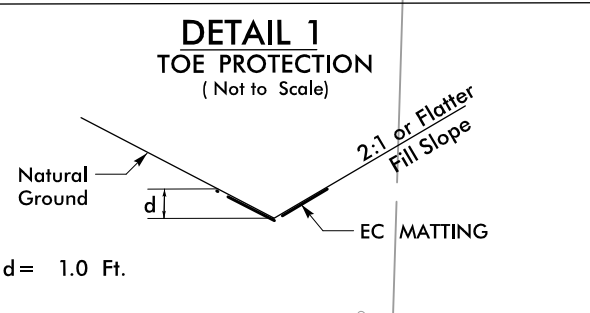
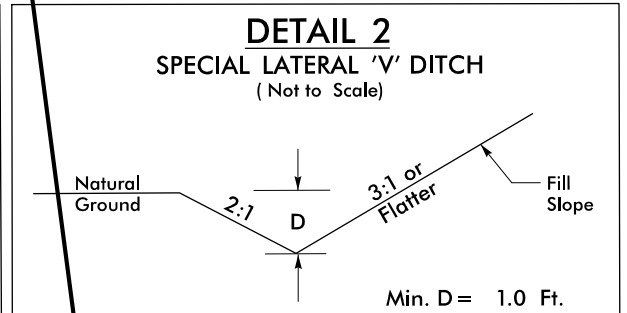
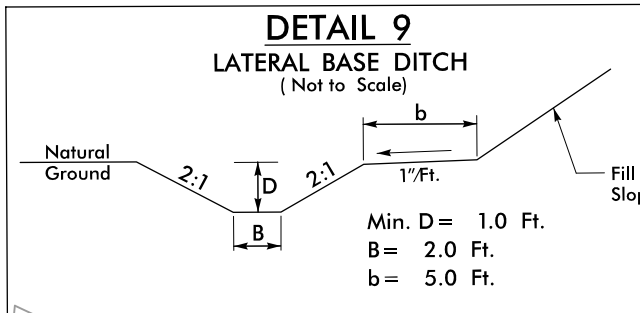


MATCH LINE STA -L- 218+00.00  
MATCH TO SHEET NO 12

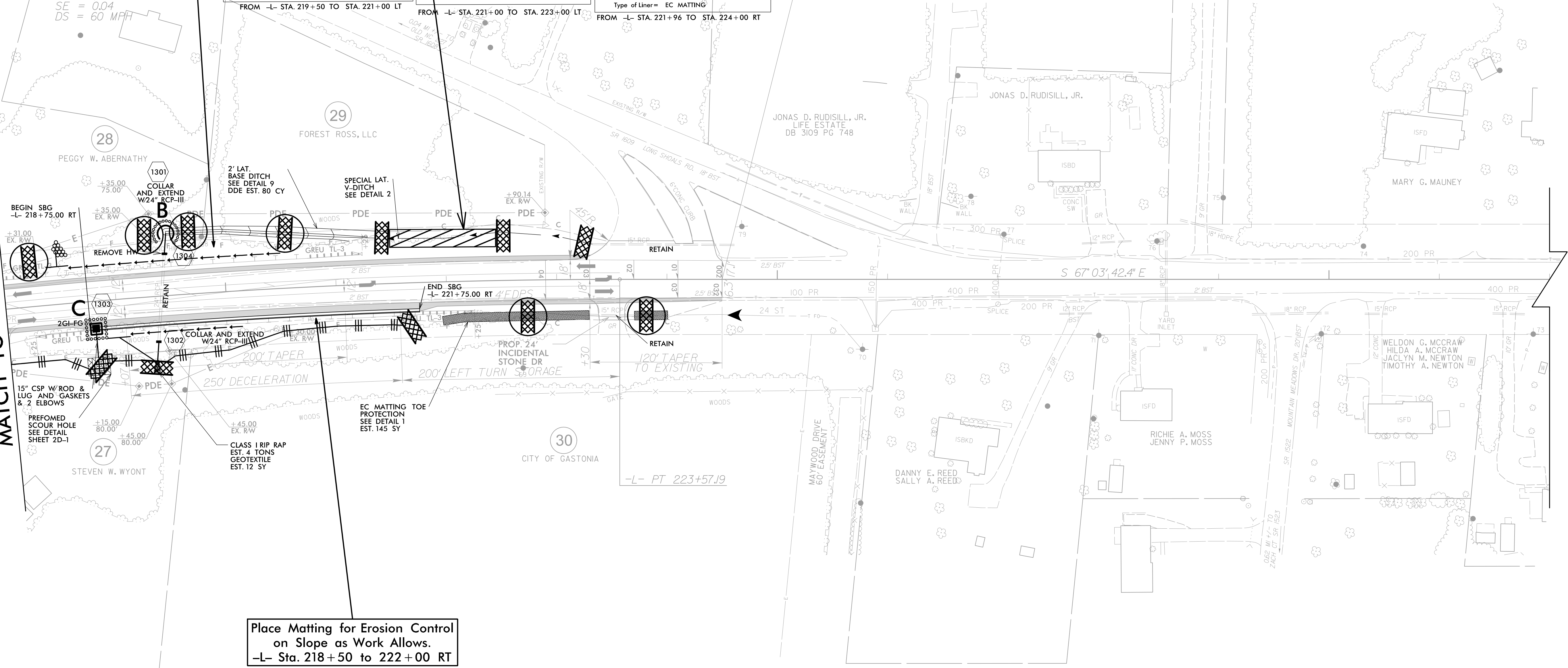
-L- CURVE DATA  
PI Sta 211+9.85  
 $\Delta = 25^{\circ}09'25.5"$  (RT)  
 $D = 0^{\circ}59'59.7"$   
 $L = 2,515.89'$   
 $T = 1,278.55'$   
 $R = 5,730.00'$   
 $SE = 0.04$   
 $DS = 60$  MPH

Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 218+50 to 221+00 LT

96 x 16 x 3  
ID 13.1



END WIDENING  
BEGIN RESURFACING  
(SEE DETAIL SHEET 2B-1)  
-L- STA 224+50.00



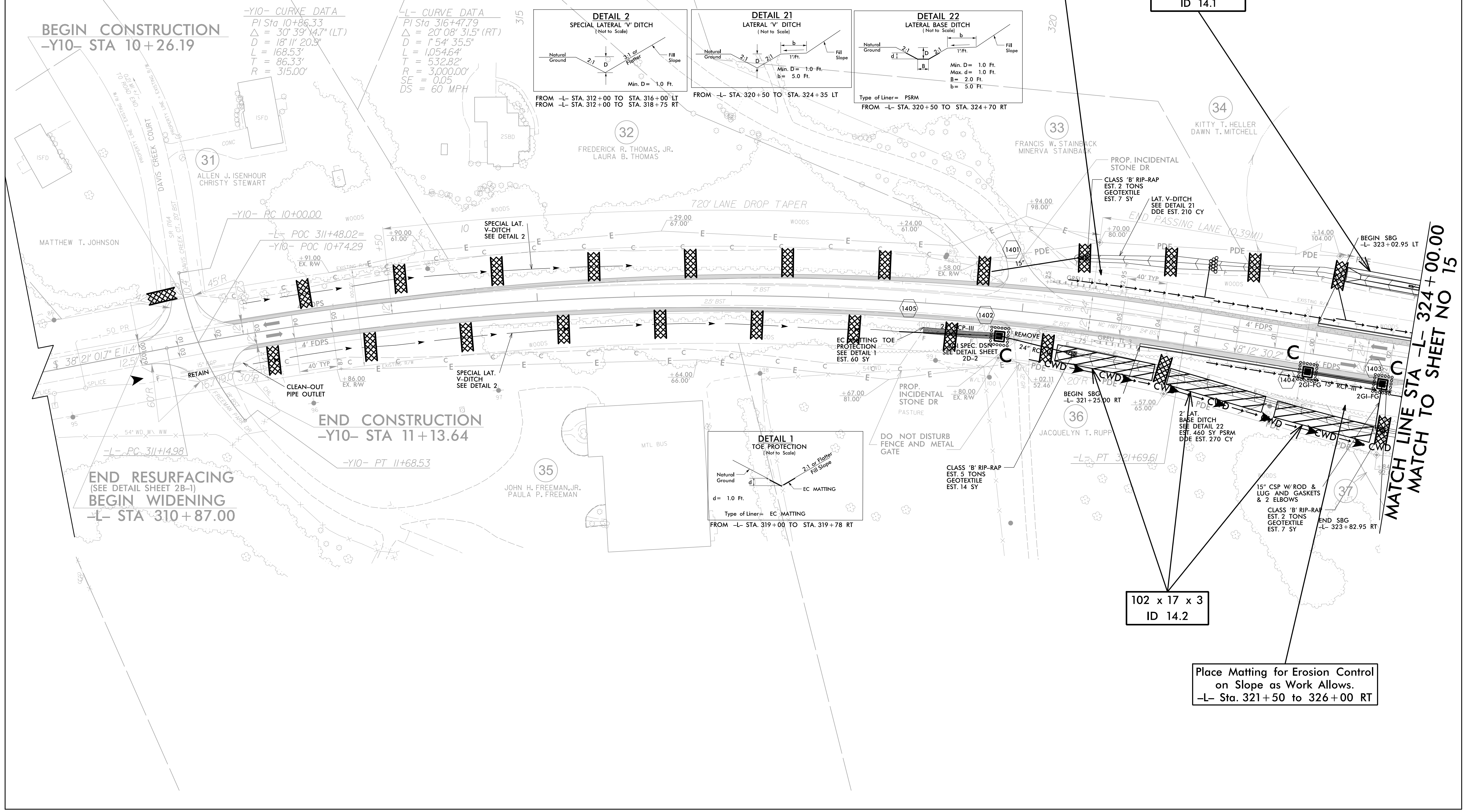
Place Matting for Erosion Control  
on Slope as Work Allows.  
-L- Sta. 218+50 to 222+00 RT



For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.

NAD 83/2011

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|--------------------------------------------------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                                                                        | SHEET NO.           |
| W-5212N                                                                                                      | EC-35/CONST.14      |
| RW SHEET NO.                                                                                                 |                     |
| ROADWAY DESIGN ENGINEER                                                                                      | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                             |                     |
| TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |                     |





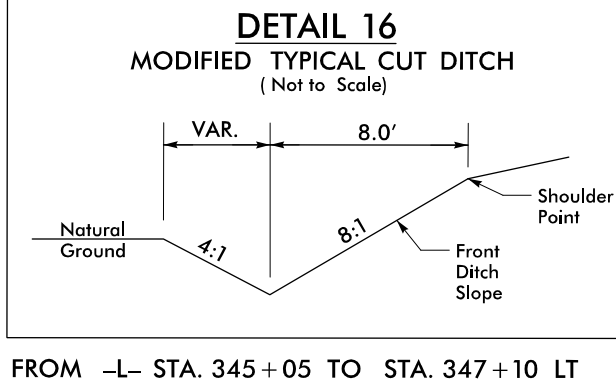
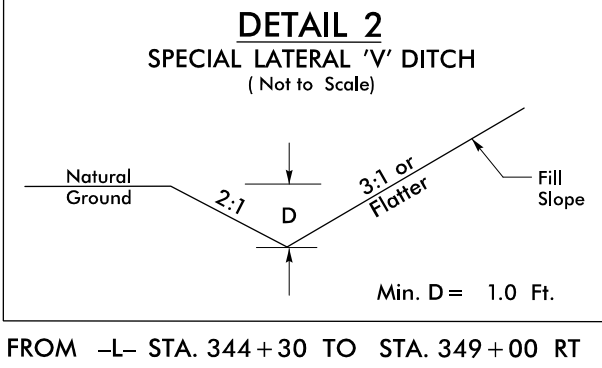
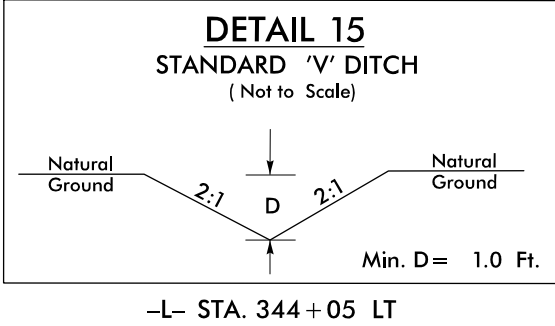




NAD 83/2011

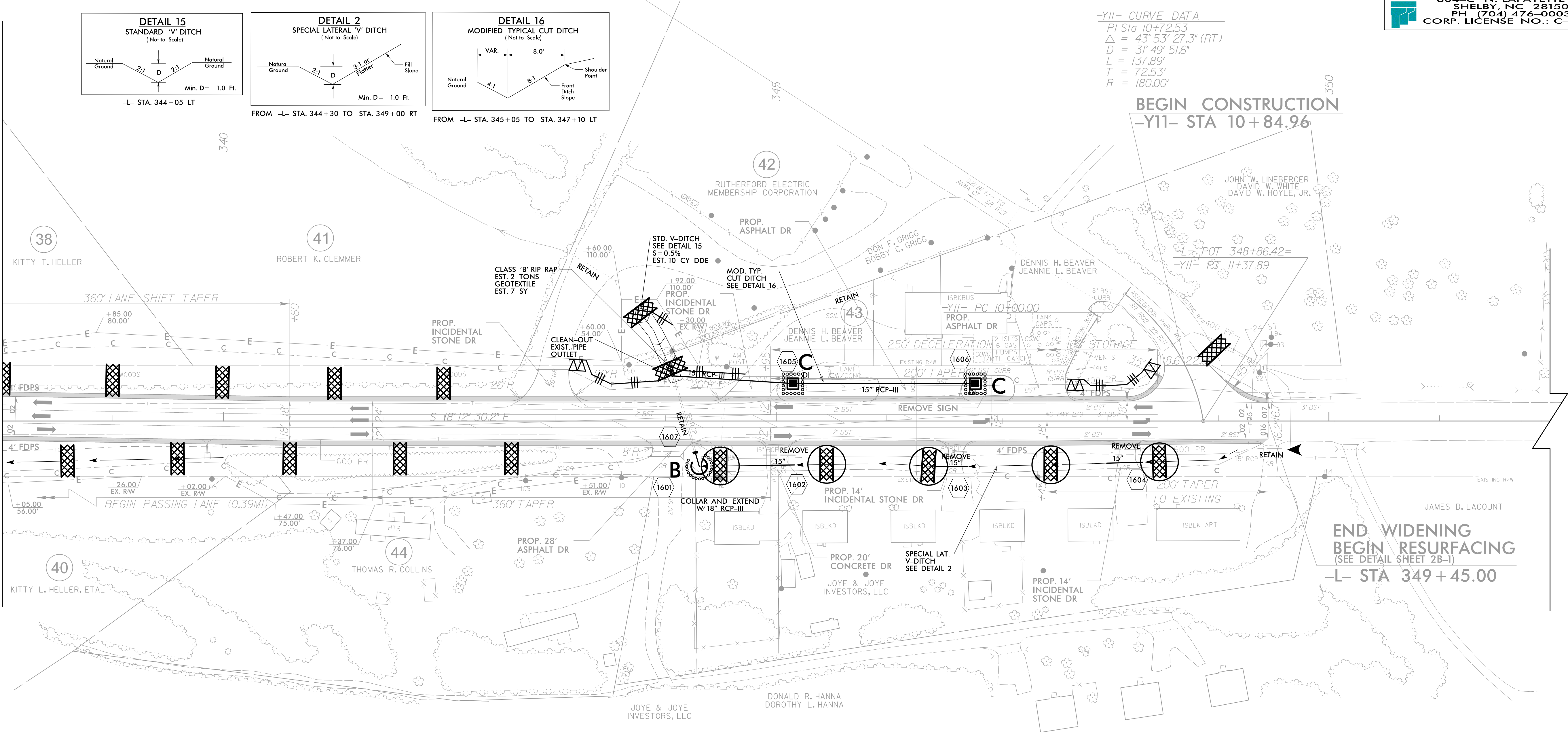
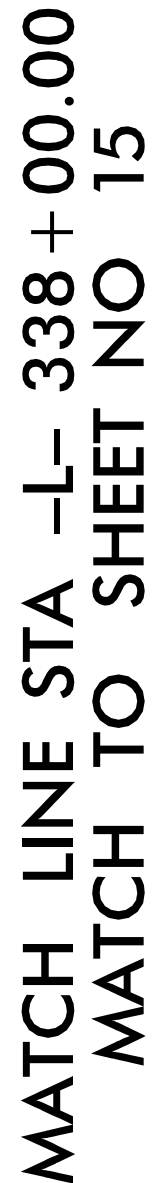
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| PROJECT REFERENCE NO.                                                                                                                                                                                                                                                                                                                                                                        | SHEET NO.              |
| W-5212N                                                                                                                                                                                                                                                                                                                                                                                      | EC-37/CONST.J6         |
| RW SHEET NO.                                                                                                                                                                                                                                                                                                                                                                                 |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                                                                                                                                                                                                                                                   | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> <p style="text-align: center;">  <b>TGS ENGINEERS</b><br/>             804-C N. LAFAYETTE ST<br/>             SHELBY, NC 28150<br/>             PH (704) 476-0003<br/>             CORP. LICENSE NO.: C-0275         </p> |                        |

For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.



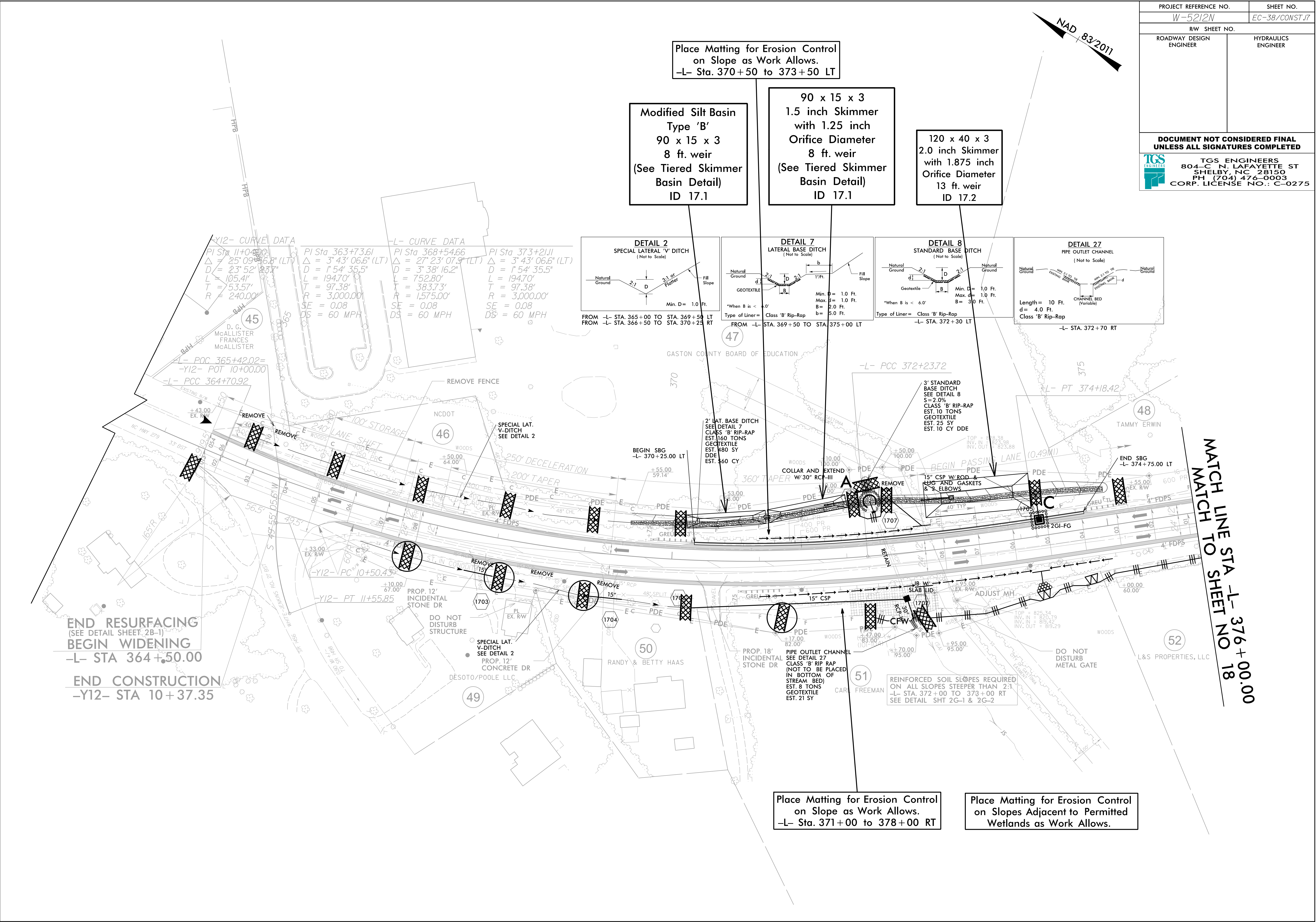
-YII- CURVE DATA  
 PI Sta 10+72.53  
 $\Delta = 43^{\circ} 53' 27.3''$  (RT)  
 $D = 31^{\circ} 49' 51.6''$   
 $L = 137.89'$   
 $T = 72.53'$   
 $R = 180.00'$

BEGIN CONSTRUCTION  
-Y11- STA 10+84.96



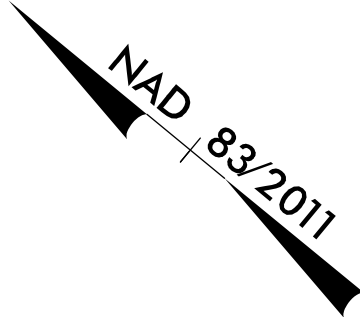


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| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
| W-5212N                                                                             |  | EC-38/CONST.17                                                                                               |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                    |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |

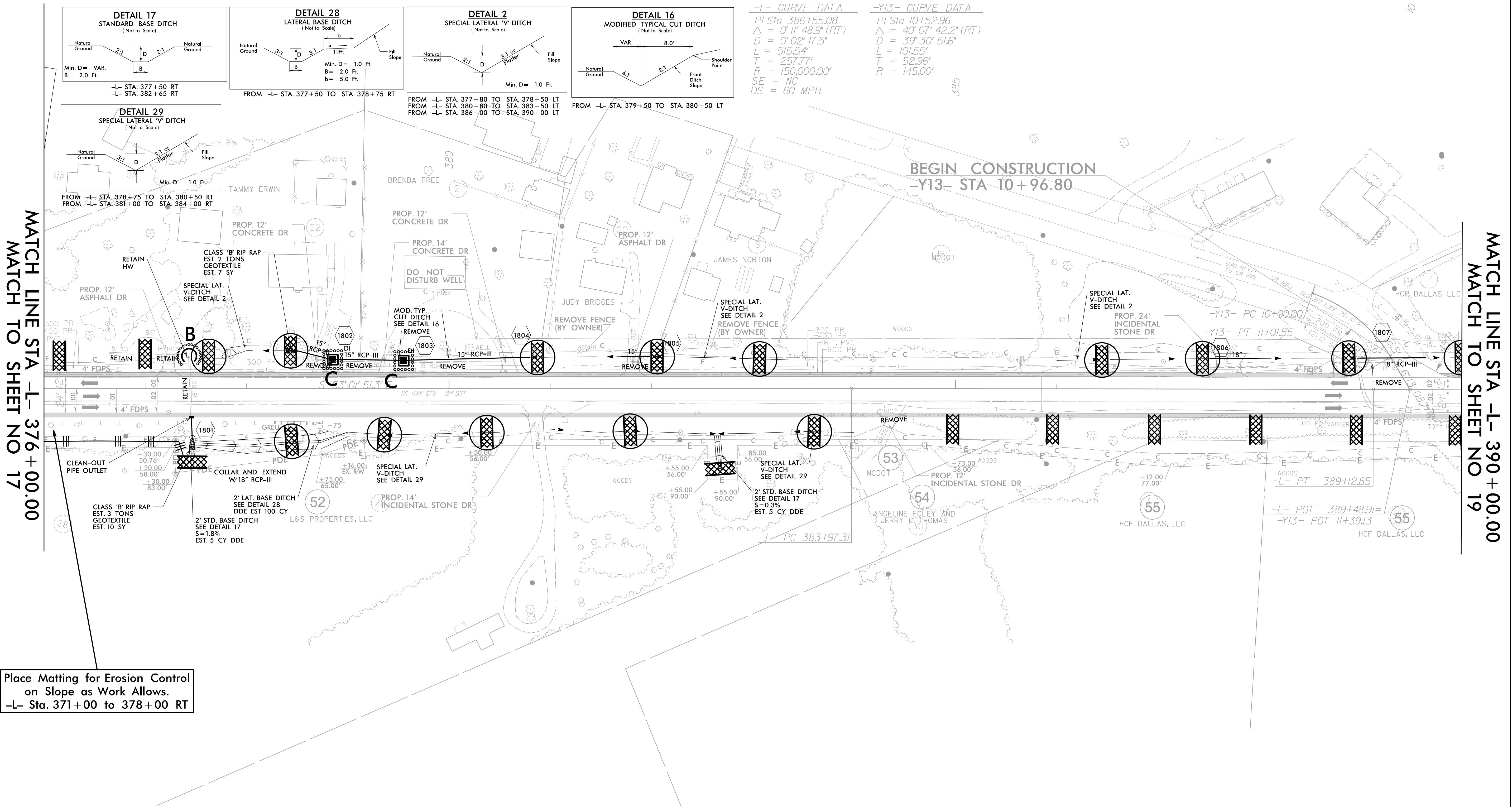




For Slopes Excavated Greater Than 10 feet  
Install Matting for Erosion Control on  
Entire Slope as Work Allows.

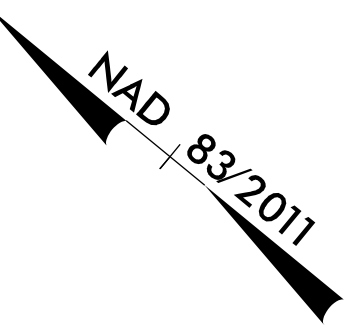


| PROJECT REFERENCE NO.                                                               |  | SHEET NO.                                                                                                    |  |
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| W-5212N                                                                             |  | EC-39/CONST.18                                                                                               |  |
| RW SHEET NO.                                                                        |  |                                                                                                              |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                                                       |  |
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| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                    |  |                                                                                                              |  |
|  |  | TGS ENGINEERS<br>804-C N. LAFAYETTE ST<br>SHELBY, NC 28150<br>PH (704) 476-0003<br>CORP. LICENSE NO.: C-0275 |  |



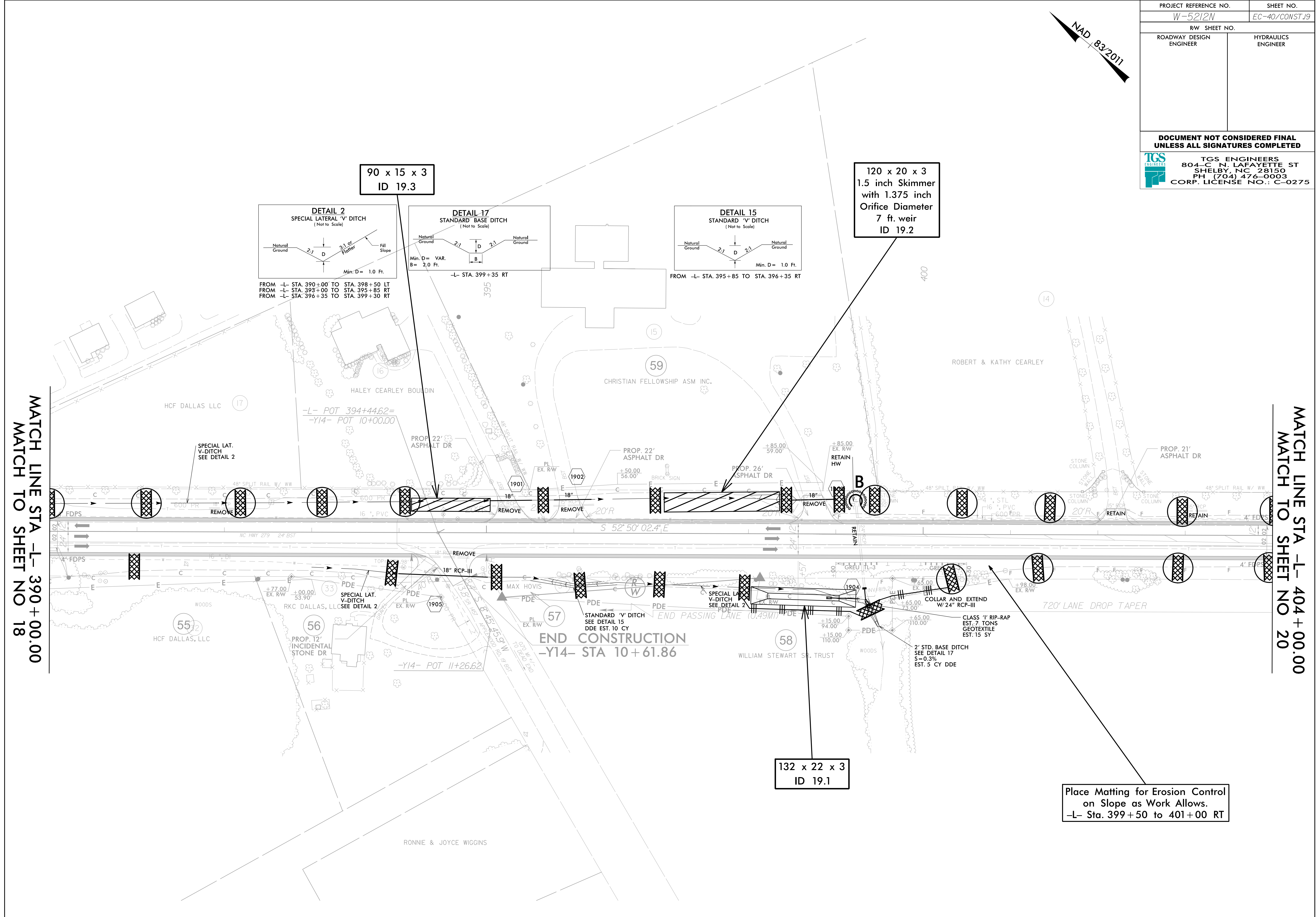


| PROJECT REFERENCE NO.      |  | SHEET NO.              |  |
|----------------------------|--|------------------------|--|
| W-5212N                    |  | EC-40/CONST.19         |  |
| RW SHEET NO.               |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |  |
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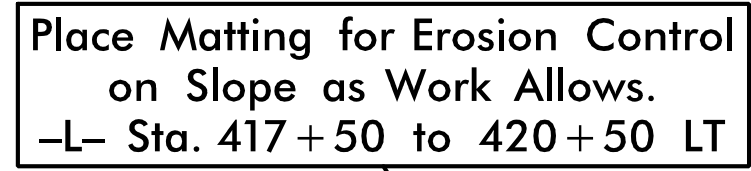
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| PROJECT REFERENCE NO.                                                                                                                                                                            | SHEET NO.           |
| W-5212N                                                                                                                                                                                          | EC-42/CONST.21      |
| RW SHEET NO.                                                                                                                                                                                     |                     |
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