

REFERENCE: B-5831

PROJECT: 45784

CONTENTS

| SHEET NO.            | DESCRIPTION                           |
|----------------------|---------------------------------------|
| 1                    | TITLE SHEET                           |
| 2                    | LEGEND (SOIL & ROCK)                  |
| 2A                   | SUPPLEMENTAL LEGEND (GSI)             |
| 3 - 4                | SITE PLAN                             |
|                      |                                       |
| MAIN ALIGNMENT (-L-) |                                       |
| 5 - 6                | PROFILE                               |
| 7 - 14               | CROSS SECTIONS                        |
| 15 - 40              | BORE LOGS, CORE LOGS, AND CORE PHOTOS |
| 41                   | LAB RESULTS                           |
| 42                   | SITE PHOTOGRAPHS                      |

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE  
SUBSURFACE INVESTIGATION

COUNTY YADKINSURRY  
PROJECT DESCRIPTION REPLACE BRIDGE 850006 ON  
I-77 OVER NC 268, SOUTHERN RAILROAD, AND  
THE YADKIN RIVER

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C.  | B-5831                      | 1         |              |

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PERSONNEL

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YCSO PERSONNEL

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SUBMITTED BY RK&K, LLP

DATE AUGUST 2023



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James W. Mize 08/30/2023  
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES

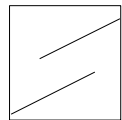
FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000)

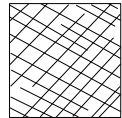
GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000)

From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.

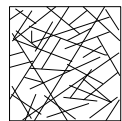
STRUCTURE



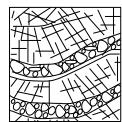
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities



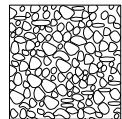
BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets



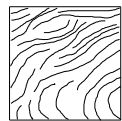
VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets



BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity



DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces



LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes

SURFACE CONDITIONS

VERY GOOD  
Very rough, fresh unweathered surfaces

GOOD  
Rough, slightly weathered, iron stained surfaces

FAIR  
Smooth, moderately weathered and altered surfaces

POOR  
Slickensided, highly weathered surfaces with compact coatings or fillings or angular fragments

VERY POOR  
Slickensided, highly weathered surfaces with soft clay coatings or fillings

DECREASING SURFACE QUALITY



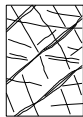
GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos, P and Hoek E., 2000)

From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally controlled failures. Where unfavourably oriented continuous weak planar discontinuities are present, these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis.

COMPOSITION AND STRUCTURE



A. Thick bedded, very blocky sandstone  
The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability.



B. Sandstone with thin inter-layers of siltstone



C. Sandstone and siltstone in similar amounts



D. Siltstone or silty shale with sandstone layers

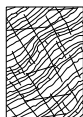


E. Weak siltstone or clayey shale with sandstone layers

C, D, E, and G - may be more or less folded than illustrated but this does not change the strength. Tectonic deformation, faulting and loss of continuity moves these categories to F and H.



F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or siltstone with broken and deformed sandstone layers forming an almost chaotic structure



G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers



H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone are transformed into small rock pieces.

➡ Means deformation after tectonic disturbance

SURFACE CONDITIONS OF DISCONTINUITIES (Predominantly bedding planes)

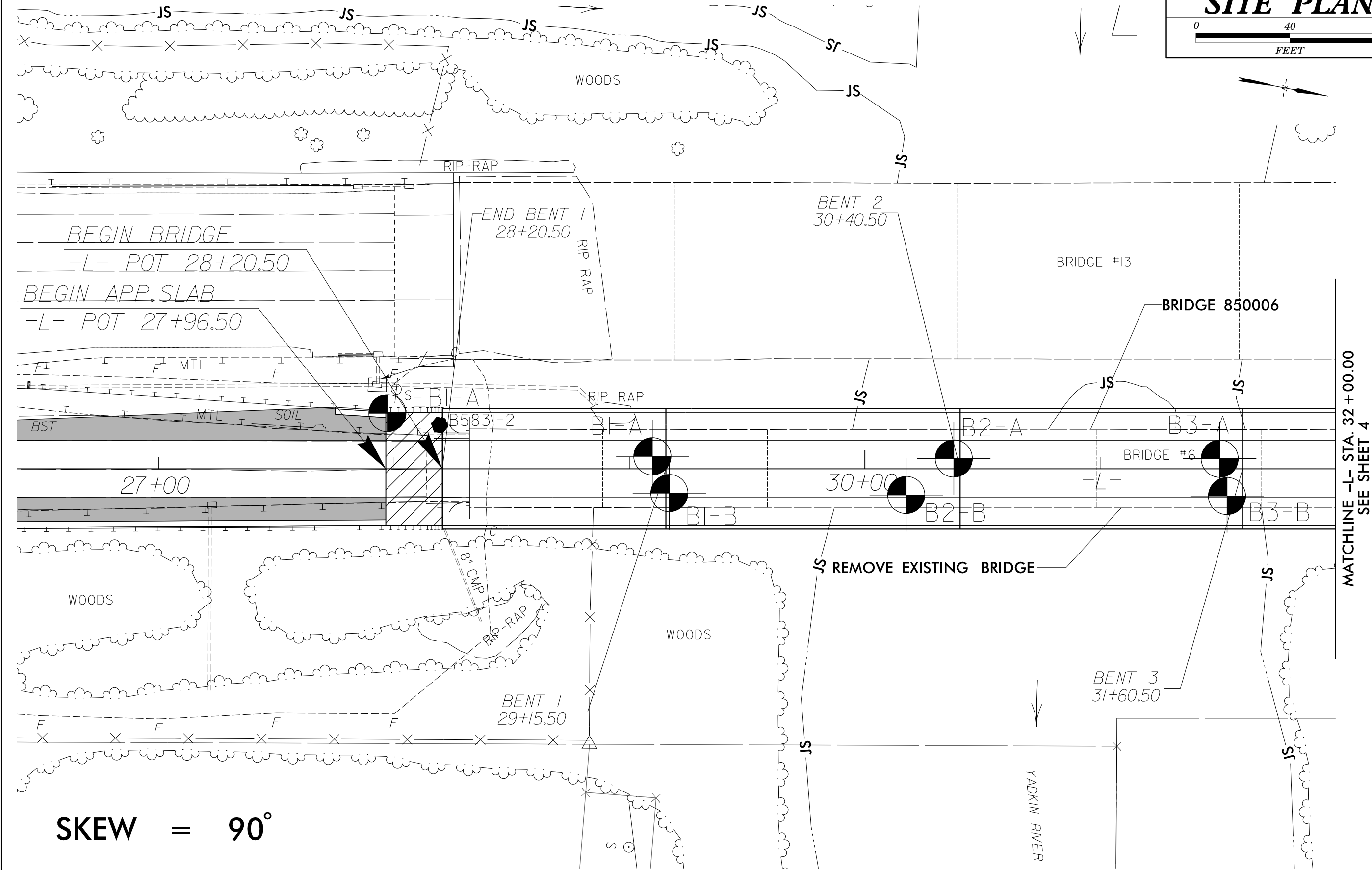
VERY GOOD - Very Rough, fresh unweathered surfaces

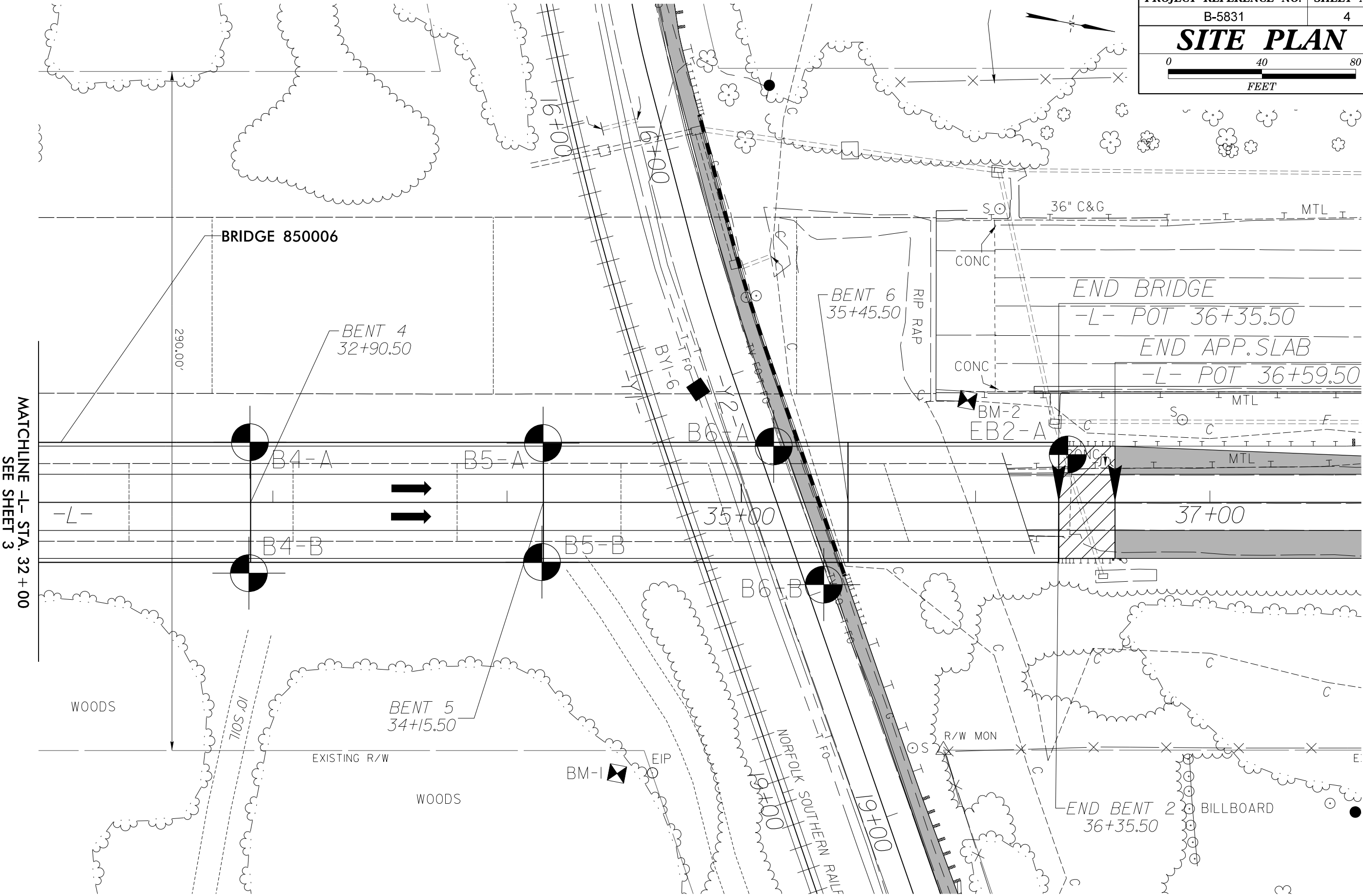
GOOD - Rough, slightly weathered surfaces

FAIR - Smooth, moderately weathered and altered surfaces

POOR - Very smooth, occasionally slickensided surfaces with compact coatings or fillings with angular fragments

VERY POOR - Very smooth, slickensided or highly weathered surfaces with soft clay coatings or fillings

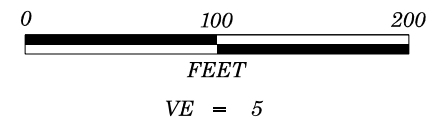




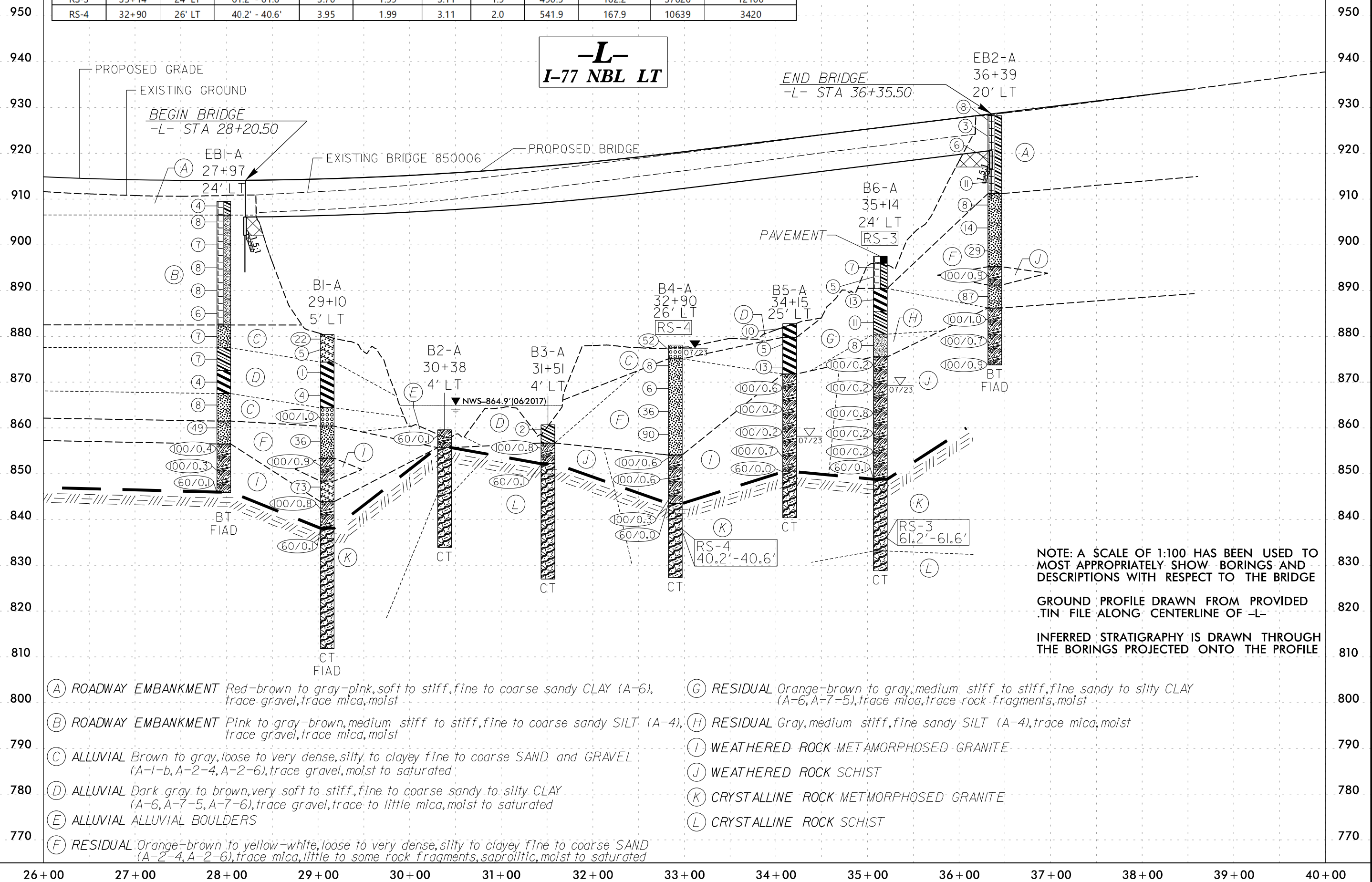
SKEW = 90°

MATCHLINE -L- STA. 32+00  
SEE SHEET 3

| SOIL TEST RESULTS |         |        |                |             |               |              |     |          |                   |            |                      |
|-------------------|---------|--------|----------------|-------------|---------------|--------------|-----|----------|-------------------|------------|----------------------|
| SAMPLE NO.        | STATION | OFFSET | DEPTH INTERVAL | HEIGHT (in) | DIAMETER (in) | AREA (sq in) | H:D | Mass (g) | Unit Weight (pcf) | Load (lbs) | Comp. Strength (psi) |
| RS-3              | 35+14   | 24' LT | 61.2' - 61.6'  | 3.70        | 1.99          | 3.11         | 1.9 | 490.5    | 162.2             | 37626      | 12100                |
| RS-4              | 32+90   | 26' LT | 40.2' - 40.6'  | 3.95        | 1.99          | 3.11         | 2.0 | 541.9    | 167.9             | 10639      | 3420                 |



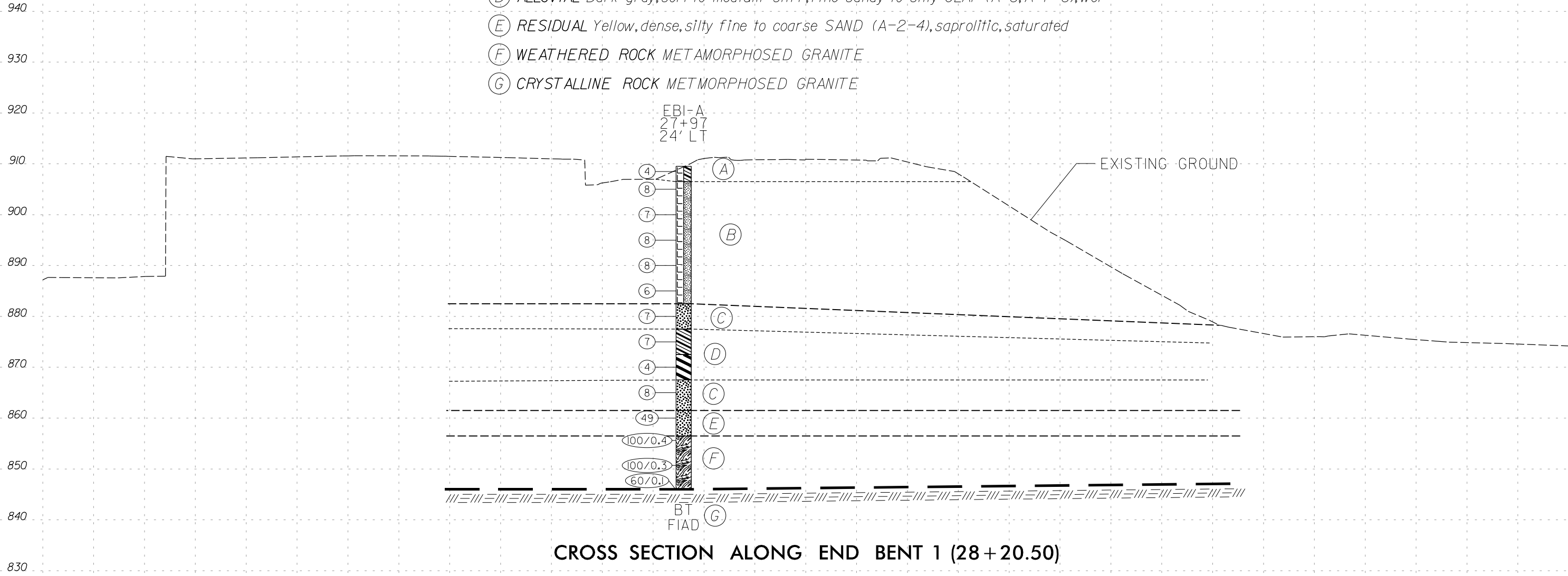
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|-------------------------------------------------------------|------------------|
| <b>PROJECT REFERENCE NO.</b>                                | <b>SHEET NO.</b> |
| B-5831                                                      | 5                |
| <b>PROFILE THROUGH A LINE<br/>BORINGS PROJECT ALONG -L-</b> |                  |







150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150





6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

940 940

930 930

920 920

910 910

900 900

890 890

880 880

870 870

860 860

850 850

840 840

830 830

820 820

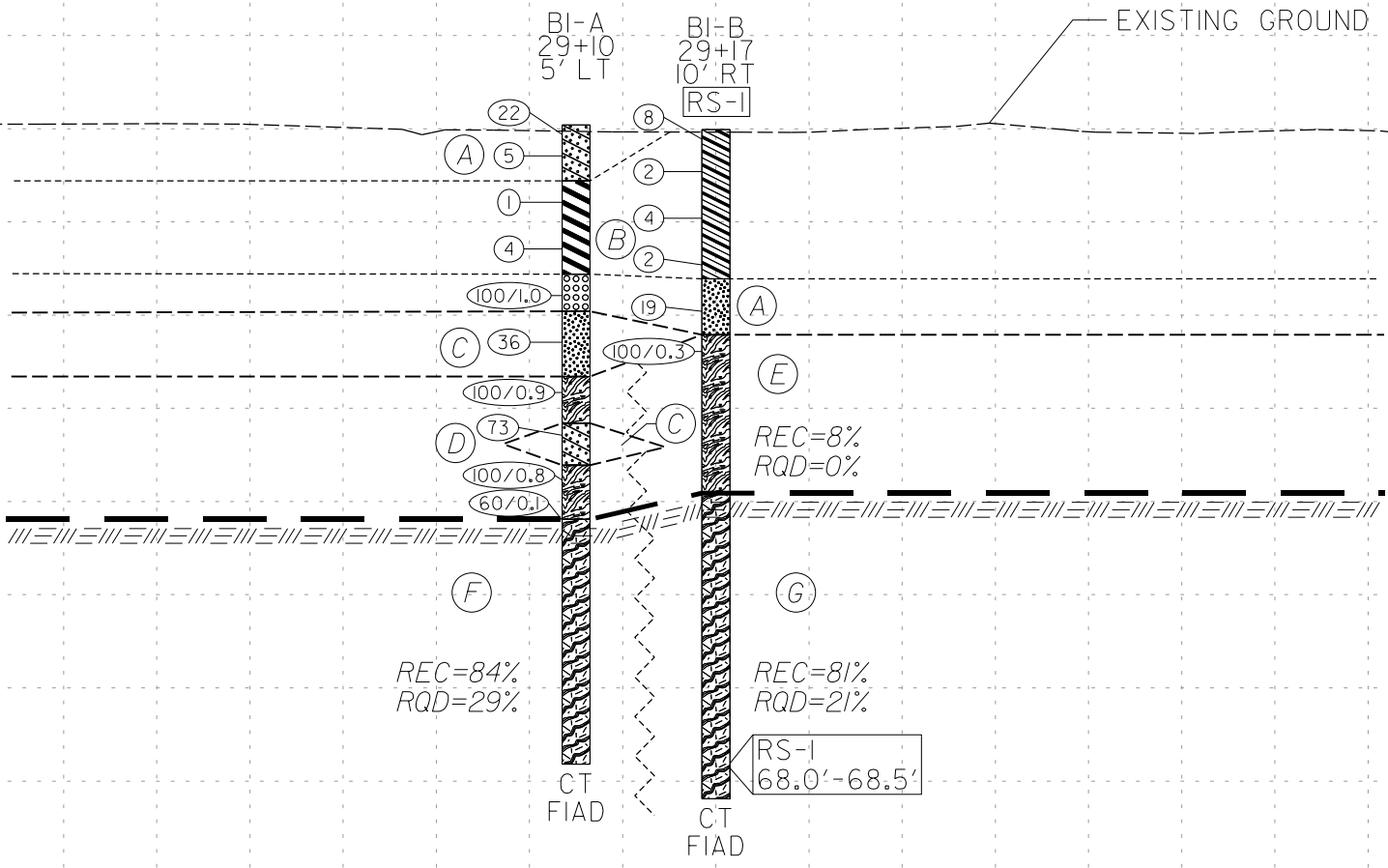
810 810

800 800

790 790

| SOIL TEST RESULTS |         |        |                |             |               |              |     |          |                   |            |                      |
|-------------------|---------|--------|----------------|-------------|---------------|--------------|-----|----------|-------------------|------------|----------------------|
| SAMPLE NO.        | STATION | OFFSET | DEPTH INTERVAL | HEIGHT (in) | DIAMETER (in) | AREA (sq in) | H:D | Mass (g) | Unit Weight (pcf) | Load (lbs) | Comp. Strength (psi) |
| RS-1              | 29+17   | 10' RT | 68.0' - 68.5'  | 4.01        | 1.99          | 3.11         | 2.0 | 529.9    | 161.7             | 22149      | 7120                 |

- (A) ALLUVIAL Yellow-brown, loose to medium dense, gravelly to silty to clayey fine to coarse SAND (A-1-b, A-2-4, A-2-6), trace gravel, moist to saturated
- (B) ALLUVIAL Brown to gray, very soft to soft, fine sandy to silty CLAY (A-6, A-7-6), trace roots, trace mica, moist to saturated
- (C) RESIDUAL Orange-brown, dense to very dense, silty to clayey fine to coarse SAND (A-2-4, A-2-6), saprolitic, saturated
- (D) WEATHERED ROCK METAMORPHOSED GRANITE
- (E) WEATHERED ROCK SCHIST
- (F) CRYSTALLINE ROCK METMORPHOSED GRANITE
- (G) CRYSTALLINE ROCK SCHIST



CROSS SECTION ALONG BENT 1 (29+15.50)

— L —

6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

920 920

910 910

900 900

890 890

880 880

870 870

860 860

850 850

840 840

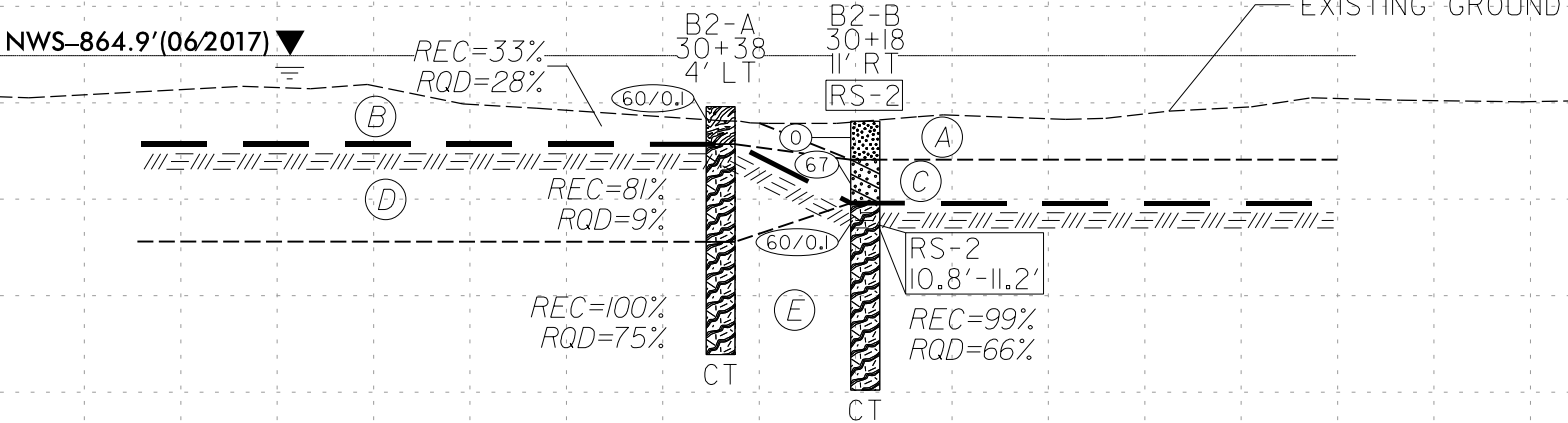
830 830

820 820

810 810

| SOIL TEST RESULTS |         |        |                |             |               |              |     |          |                   |            |                      |
|-------------------|---------|--------|----------------|-------------|---------------|--------------|-----|----------|-------------------|------------|----------------------|
| SAMPLE NO.        | STATION | OFFSET | DEPTH INTERVAL | HEIGHT (in) | DIAMETER (in) | AREA (sq in) | H:D | Mass (g) | Unit Weight (pcf) | Load (lbs) | Comp. Strength (psi) |
| RS-2              | 30+18   | 11' RT | 10.8' - 11.2'  | 3.44        | 1.99          | 3.11         | 1.7 | 466.7    | 166.0             | 8581       | 2760                 |

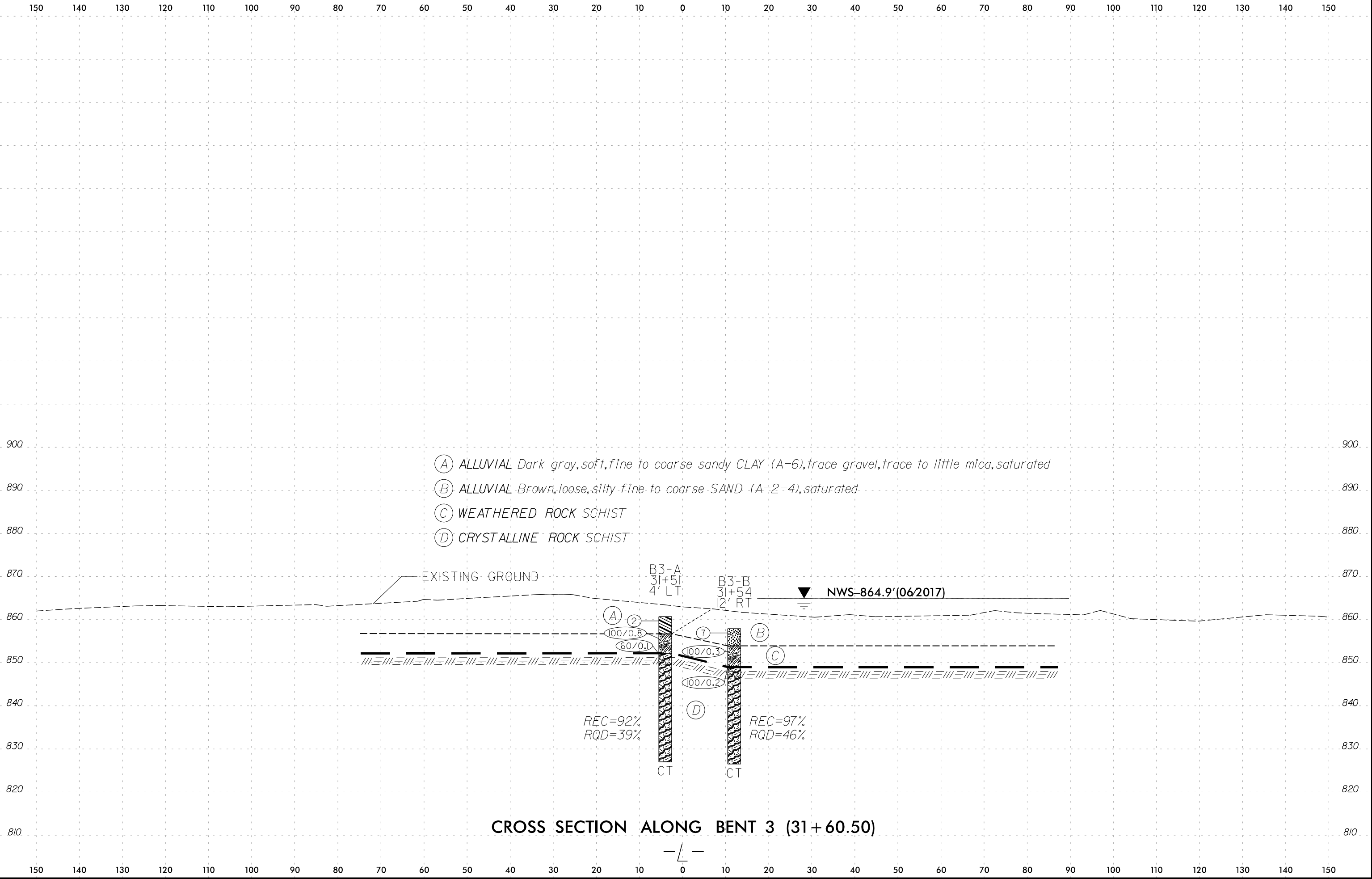
- (A) ALLUVIAL Brown,very loose,silty fine to coarse SAND (A-2-4),trace gravel,saturated
- (B) ALLUVIAL BOULDERS
- (C) RESIDUAL Orange-brown,very dense,clayey fine to coarse SAND (A-2-6),saprolitic,saturated
- (D) CRYSTALLINE ROCK METMORPHOSED GRANITE
- (E) CRYSTALLINE ROCK SCHIST

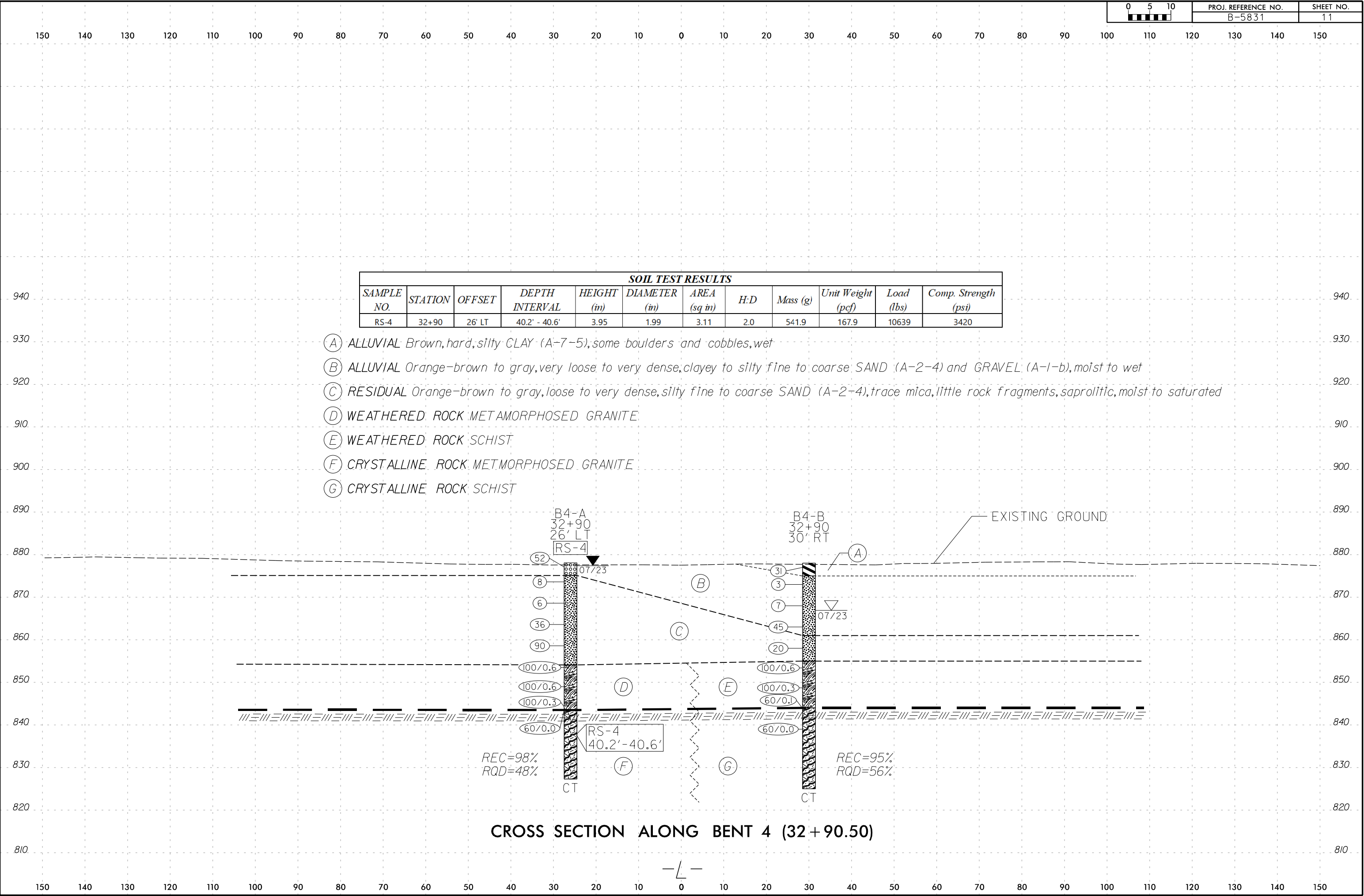


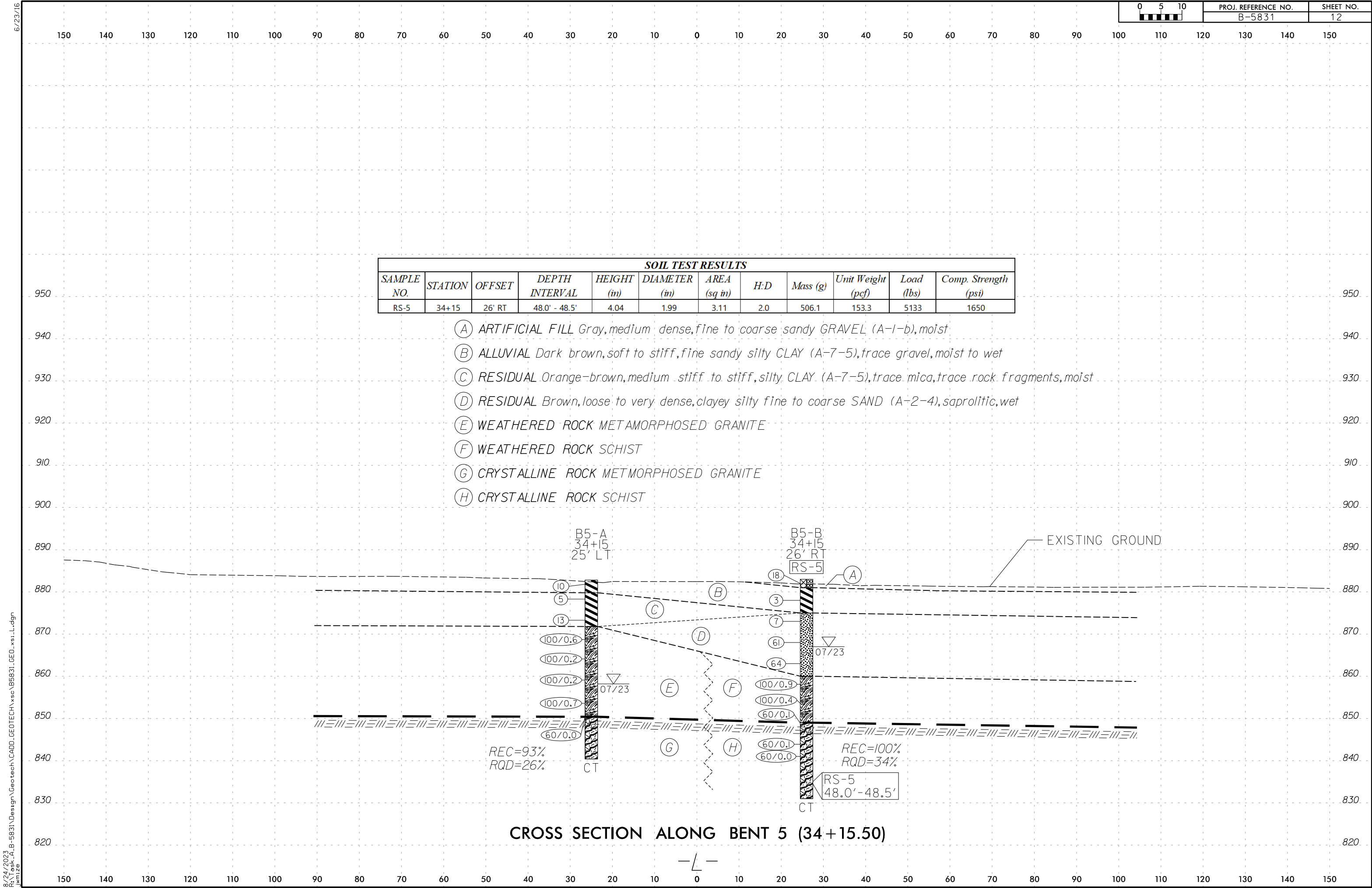
CROSS SECTION ALONG BENT 2 (30+40.50)



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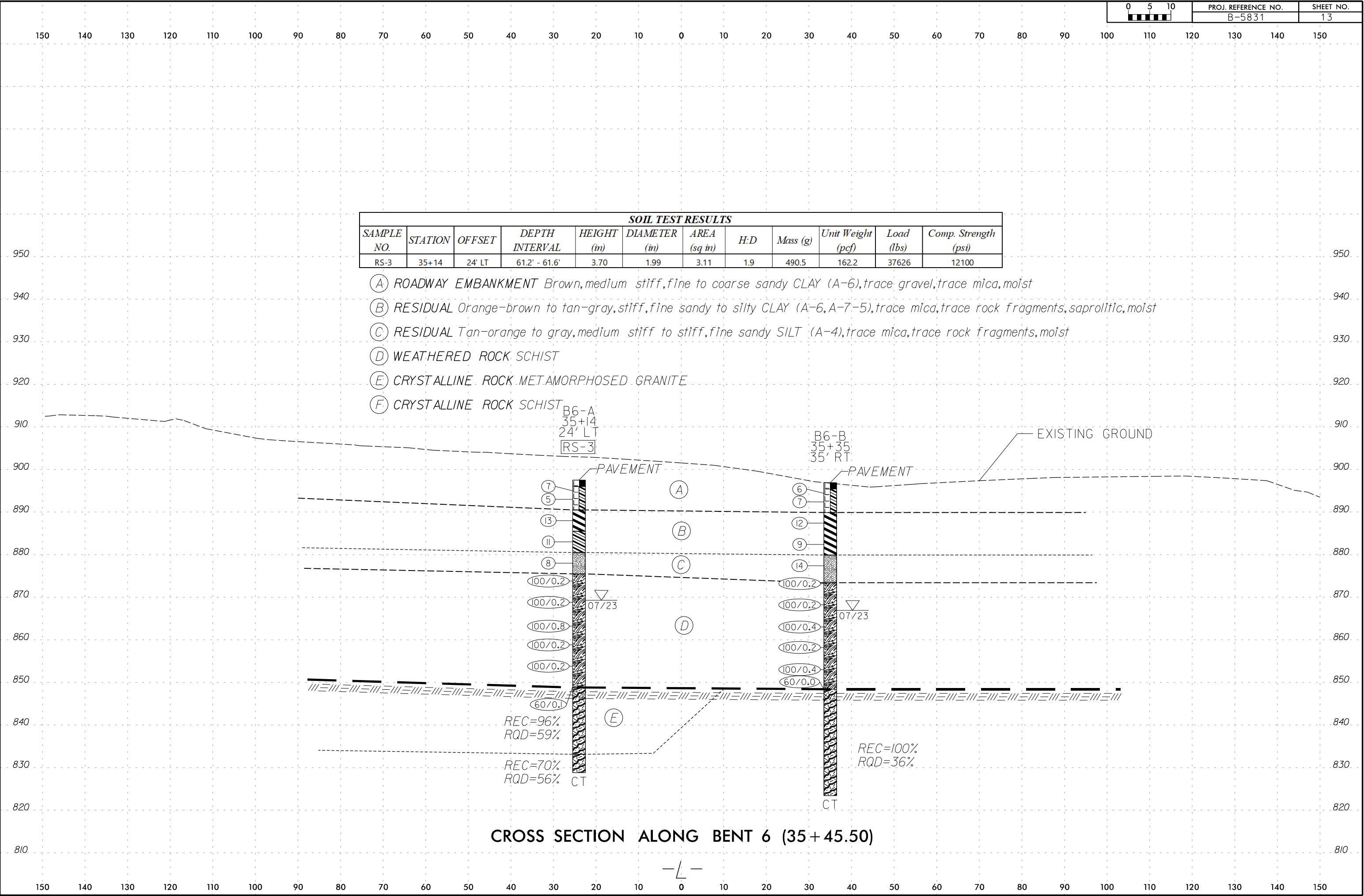






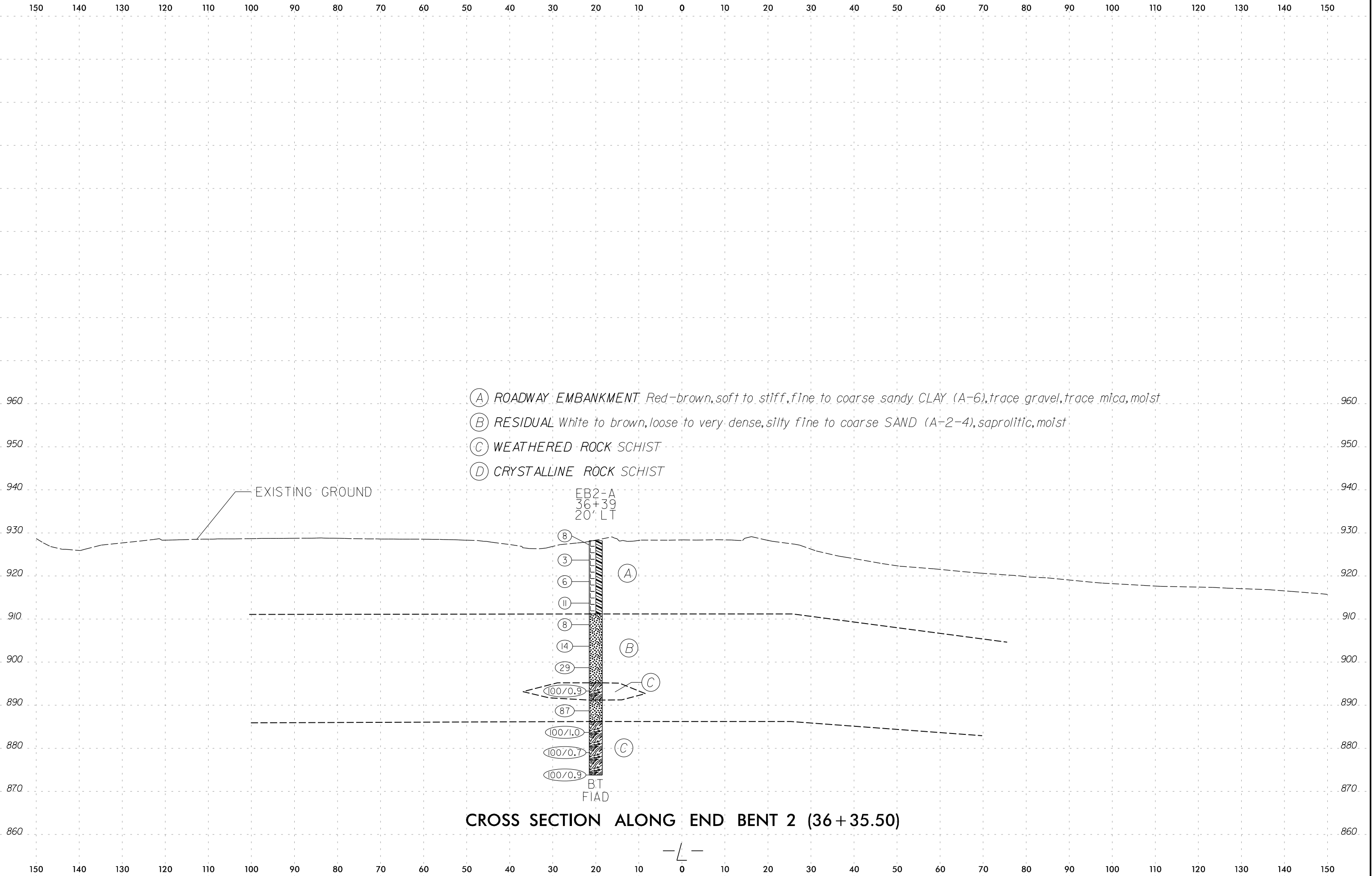
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wmize





6/23/16



GEOTECHNICAL BORING REPORT  
BORE LOG

|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|---------------------|-------|-------|--------------------------|----|----|-------------------------|-----------------|-----------|-------------|-------|---------------------------------------------------------------------------------------------------------------------------|------------|
| WBS 45784.1.2                                                                                       |                 |            | TIP B-5831          |       |       | COUNTY YADKIN            |    |    | GEOLOGIST J. Mize       |                 |           |             |       |                                                                                                                           |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |                     |       |       |                          |    |    |                         | GROUND WTR (ft) |           |             |       |                                                                                                                           |            |
| BORING NO. EB1-A                                                                                    |                 |            | STATION 27+97       |       |       | OFFSET 24 ft LT          |    |    | ALIGNMENT -L-           |                 |           | 0 HR. Dry   |       |                                                                                                                           |            |
| COLLAR ELEV. 909.5 ft                                                                               |                 |            | TOTAL DEPTH 63.6 ft |       |       | NORTHING 914,692         |    |    | EASTING 1,463,139       |                 |           | 24 HR. FIAD |       |                                                                                                                           |            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |                     |       |       | DRILL METHOD H.S. Augers |    |    | HAMMER TYPE Automatic   |                 |           |             |       |                                                                                                                           |            |
| DRILLER B. Maxson                                                                                   |                 |            | START DATE 06/28/23 |       |       | COMP. DATE 06/29/23      |    |    | SURFACE WATER DEPTH N/A |                 |           |             |       |                                                                                                                           |            |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT          |       |       | BLOWS PER FOOT           |    |    |                         |                 | SAMP. NO. | MOI         | L O G | SOIL AND ROCK DESCRIPTION                                                                                                 |            |
|                                                                                                     |                 |            | 0.5ft               | 0.5ft | 0.5ft | 0                        | 25 | 50 | 75                      | 100             |           |             |       | ELEV. (ft)                                                                                                                | DEPTH (ft) |
| 910                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 909.5           | 0.0        | 2                   | 2     | 2     | 4                        |    |    |                         |                 |           | M           |       | 909.5                                                                                                                     | 0.0        |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | GROUND SURFACE                                                                                                            |            |
|                                                                                                     | 906.0           | 3.5        | 1                   | 3     | 5     | 6                        |    |    |                         |                 |           | M           |       | 906.5                                                                                                                     | 3.0        |
| 905                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | ROADWAY EMBANKMENT                                                                                                        |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Pink to gray, fine to coarse sandy CLAY (A-6)                                                                             |            |
|                                                                                                     | 901.0           | 8.5        | 2                   | 3     | 4     | 7                        |    |    |                         |                 |           | M           |       | Pink to gray-brown, fine to coarse sandy SILT (A-4), trace gravel, trace mica                                             |            |
| 900                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 896.0           | 13.5       | 3                   | 3     | 5     | 8                        |    |    |                         |                 |           | M           |       |                                                                                                                           |            |
| 895                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 891.0           | 18.5       | 2                   | 2     | 6     | 8                        |    |    |                         |                 |           | M           |       |                                                                                                                           |            |
| 890                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 886.0           | 23.5       | 3                   | 3     | 3     | 6                        |    |    |                         |                 |           | M           |       |                                                                                                                           |            |
| 885                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 881.0           | 28.5       | 2                   | 3     | 4     | 7                        |    |    |                         |                 |           | W           |       | 882.5                                                                                                                     | 27.0       |
| 880                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | ALLUVIAL                                                                                                                  |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Gray, silty fine to coarse SAND (A-2-4)                                                                                   |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 876.0           | 33.5       | 4                   | 3     | 4     | 7                        |    |    |                         |                 |           | W           |       | 877.5                                                                                                                     | 32.0       |
| 875                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Dark gray, fine sandy CLAY (A-6)                                                                                          |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 871.0           | 38.5       | 2                   | 2     | 2     | 4                        |    |    |                         |                 |           | W           |       | 872.5                                                                                                                     | 37.0       |
| 870                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Dark gray, silty CLAY (A-7-6)                                                                                             |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 866.0           | 43.5       | 2                   | 2     | 6     | 8                        |    |    |                         |                 |           | Sat.        |       | 867.5                                                                                                                     | 42.0       |
| 865                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Gray, silty fine to coarse SAND (A-2-4)                                                                                   |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 861.0           | 48.5       | 6                   | 16    | 33    | 49                       |    |    |                         |                 |           | Sat.        |       | 861.5                                                                                                                     | 48.0       |
| 860                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | RESIDUAL                                                                                                                  |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Yellow, silty fine to coarse SAND (A-2-4), saprolitic                                                                     |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 856.0           | 53.5       | 100/0.4             |       |       |                          |    |    |                         | 100/0.4         |           |             |       | 856.5                                                                                                                     | 53.0       |
| 855                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | WEATHERED ROCK                                                                                                            |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | METAMORPHOSED GRANITE                                                                                                     |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 851.0           | 58.5       | 100/0.3             |       |       |                          |    |    |                         | 100/0.3         |           |             |       |                                                                                                                           |            |
| 850                                                                                                 |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       |                                                                                                                           |            |
|                                                                                                     | 846.0           | 63.5       | 60/0.1              |       |       |                          |    |    |                         | 60/0.1          |           |             |       | 846.0                                                                                                                     | 63.5       |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | 845.9                                                                                                                     | 63.6       |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | CRYSTALLINE ROCK                                                                                                          |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | METAMORPHOSED GRANITE                                                                                                     |            |
|                                                                                                     |                 |            |                     |       |       |                          |    |    |                         |                 |           |             |       | Boring Terminated with Standard Penetration Test Refusal at Elevation 845.9 ft in Crystalline Rock: METAMORPHOSED GRANITE |            |

NCDOT BORE DOUBLE B5831.GPJ NC\_DOT.GDT 8/11/23

# GEOTECHNICAL BORING REPORT

# BORE LOG

# GEOTECHNICAL BORING REPORT

# CORE LOG



## CORE PHOTOGRAPHS

### B1-A

BOX 1: 42.4 - 53.6 FEET



BOX 3: 65.6 - 68.6 FEET



BOX 2: 53.6 - 65.6 FEET





# GEOTECHNICAL BORING REPORT

## BORE LOG

|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|---------------------|-------|-------|-------------------------------------|----|----|-------------------------|-----|-----------------|-------------|------|---------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------|------|
| WBS 45784.1.2                                                                                       |                 |            | TIP B-5831          |       |       | COUNTY YADKIN                       |    |    | GEOLOGIST J. Mize       |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |                     |       |       |                                     |    |    |                         |     | GROUND WTR (ft) |             |      |                                                                                 |                                                                     |                                                       |      |
| BORING NO. B1-B                                                                                     |                 |            | STATION 29+17       |       |       | OFFSET 10 ft RT                     |    |    | ALIGNMENT -L-           |     |                 | 0 HR. N/A   |      |                                                                                 |                                                                     |                                                       |      |
| COLLAR ELEV. 879.9 ft                                                                               |                 |            | TOTAL DEPTH 71.8 ft |       |       | NORTHING 914,816                    |    |    | EASTING 1,463,150       |     |                 | 24 HR. FIAD |      |                                                                                 |                                                                     |                                                       |      |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |                     |       |       | DRILL METHOD NW Casing W/SPT & Core |    |    | HAMMER TYPE Automatic   |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| DRILLER B. Maxson                                                                                   |                 |            | START DATE 06/28/23 |       |       | COMP. DATE 06/28/23                 |    |    | SURFACE WATER DEPTH N/A |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT          |       |       | BLOWS PER FOOT                      |    |    |                         |     | SAMP. NO.       | MOI         | LOG  | SOIL AND ROCK DESCRIPTION                                                       |                                                                     |                                                       |      |
|                                                                                                     |                 |            | 0.5ft               | 0.5ft | 0.5ft | 0                                   | 25 | 50 | 75                      | 100 |                 |             |      | ELEV. (ft)                                                                      | DEPTH (ft)                                                          |                                                       |      |
| 880                                                                                                 | 879.9           | 0.0        | 2                   | 3     | 5     |                                     |    |    |                         |     |                 |             |      | 879.9                                                                           | 0.0                                                                 |                                                       |      |
| 875                                                                                                 | 876.4           | 3.5        | 1                   | 1     | 1     |                                     |    |    |                         |     |                 |             | M    | ALLUVIAL<br>Brown to gray, silty fine sandy CLAY (A-6), trace roots, trace mica |                                                                     |                                                       |      |
|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             | Sat. |                                                                                 |                                                                     |                                                       |      |
| 870                                                                                                 | 871.4           | 8.5        | 1                   | 2     | 2     |                                     |    |    |                         |     |                 |             |      | Sat.                                                                            |                                                                     |                                                       |      |
|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             | Sat. |                                                                                 |                                                                     |                                                       |      |
| 865                                                                                                 | 866.4           | 13.5       | 1                   | 1     | 1     |                                     |    |    |                         |     |                 |             |      | Sat.                                                                            | 863.9                                                               | Yellow-brown, silty coarse SAND (A-2-4), trace gravel | 16.0 |
|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             | Sat. |                                                                                 |                                                                     |                                                       |      |
| 860                                                                                                 | 861.4           | 18.5       | 8                   | 10    | 9     |                                     |    |    |                         |     |                 |             |      | Sat.                                                                            | 857.9                                                               | 22.0                                                  |      |
| 855                                                                                                 | 856.4           | 23.5       | 100/0.3             |       |       | 100/0.3                             |    |    |                         |     |                 |             |      |                                                                                 | WEATHERED ROCK<br>SCHIST                                            |                                                       |      |
| 850                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 | Auger Refusal at 26.7' (bit burned up)                              |                                                       |      |
| 845                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| 840                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      | 840.9                                                                           | 39.0                                                                |                                                       |      |
| 835                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 | CRYSTALLINE ROCK<br>SCHIST                                          |                                                       |      |
| 830                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| 825                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| 820                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| 815                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 |                                                                     |                                                       |      |
| 810                                                                                                 |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             | RS-1 |                                                                                 |                                                                     |                                                       |      |
|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      | 808.1                                                                           | 71.8                                                                |                                                       |      |
|                                                                                                     |                 |            |                     |       |       |                                     |    |    |                         |     |                 |             |      |                                                                                 | Boring Terminated at Elevation 808.1 ft in Crystalline Rock: SCHIST |                                                       |      |

# GEOTECHNICAL BORING REPORT

## CORE LOG

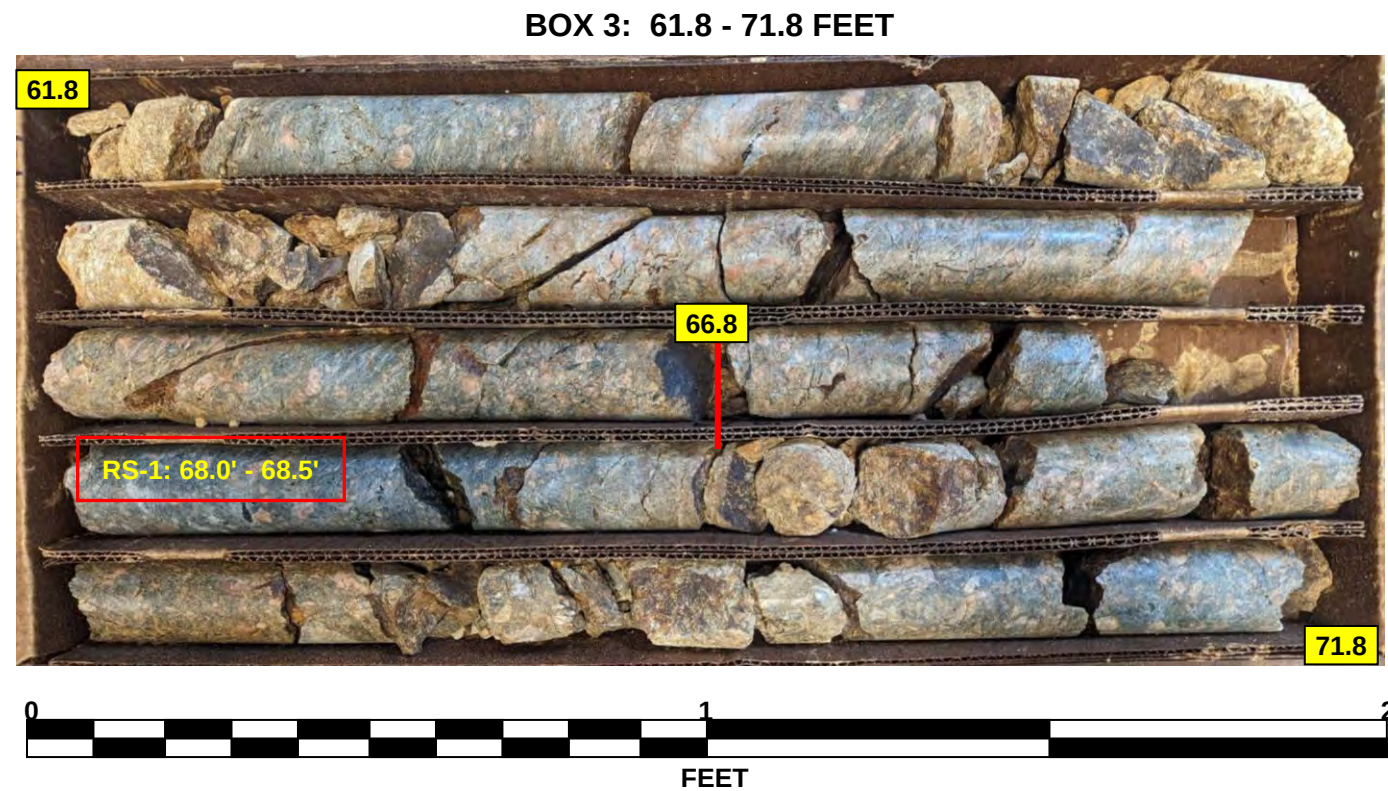
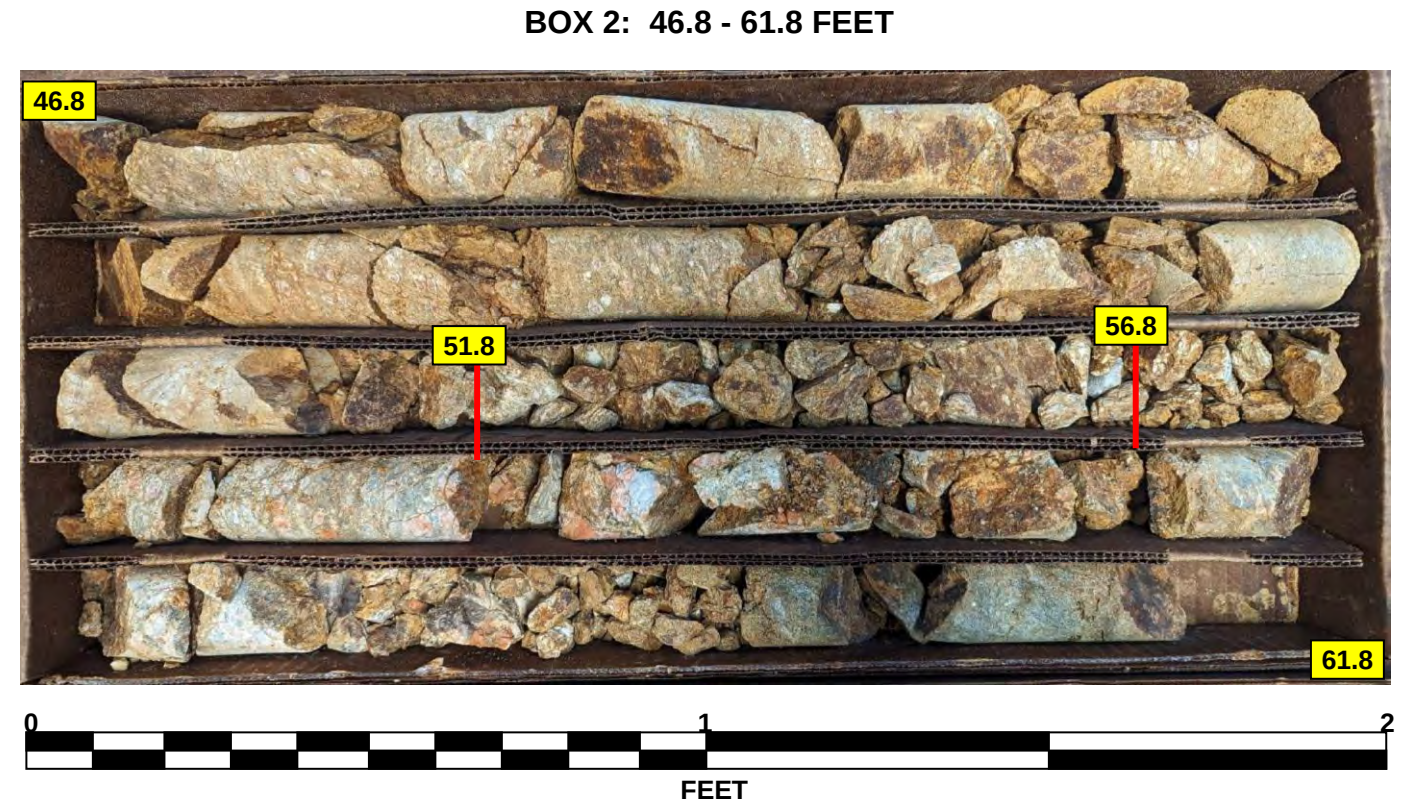
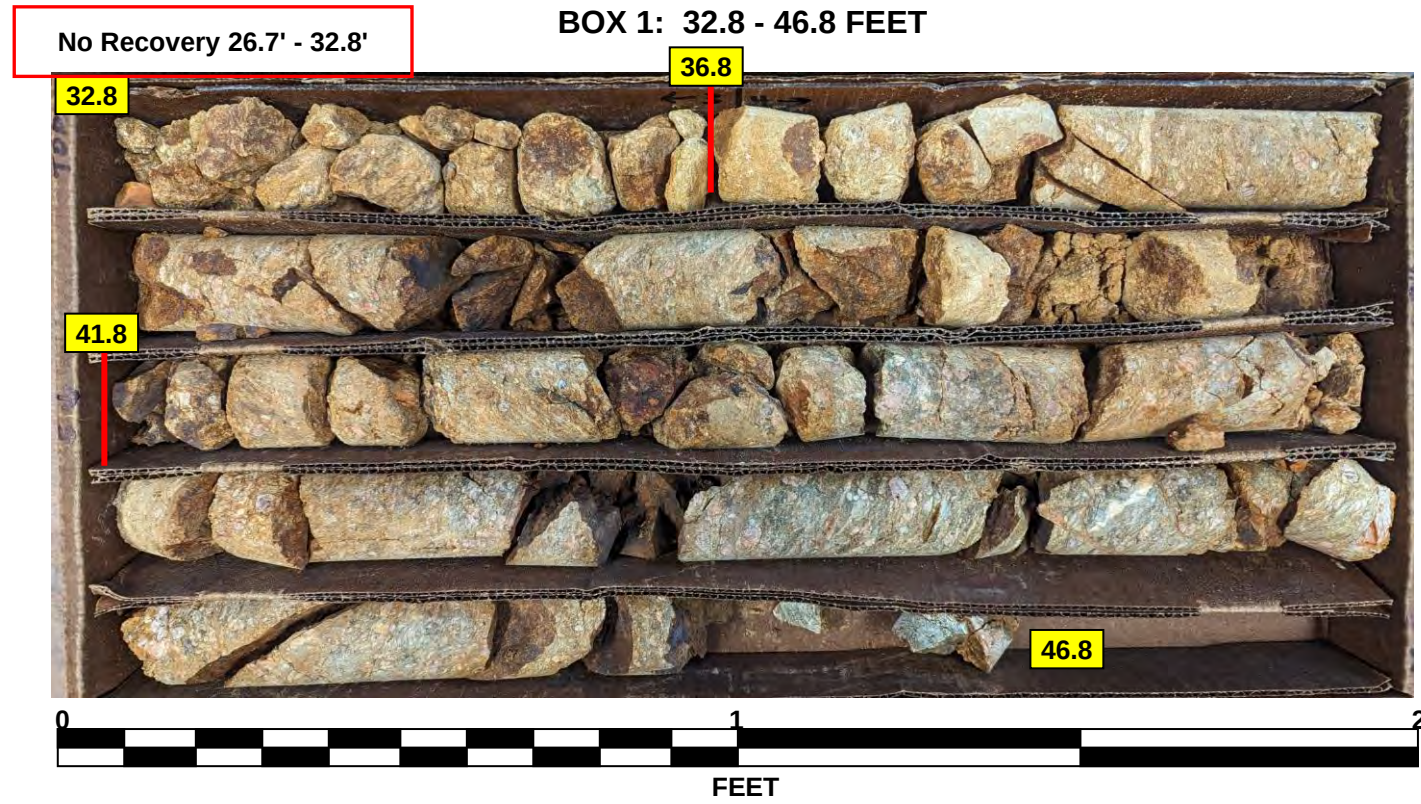
|                                                                                                     |                     |               |             |                           |                          |                  |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|--------------------------|------------------|--------------|-------------------------------------|------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------|--|-------------|--|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                          |                  |              | COUNTY YADKIN                       |                  |             |                                                                                                                                 | GEOLOGIST J. Mize       |  |             |  |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                          |                  |              |                                     |                  |             |                                                                                                                                 | GROUND WTR (ft)         |  |             |  |
| BORING NO. B1-B                                                                                     |                     |               |             | STATION 29+17             |                          |                  |              | OFFSET 10 ft RT                     |                  |             |                                                                                                                                 | ALIGNMENT -L-           |  | 0 HR. N/A   |  |
| COLLAR ELEV. 879.9 ft                                                                               |                     |               |             | TOTAL DEPTH 71.8 ft       |                          |                  |              | NORTHING 914,816                    |                  |             |                                                                                                                                 | EASTING 1,463,150       |  | 24 HR. FIAD |  |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                          |                  |              | DRILL METHOD NW Casing W/SPT & Core |                  |             |                                                                                                                                 | HAMMER TYPE Automatic   |  |             |  |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 06/28/23       |                          |                  |              | COMP. DATE 06/28/23                 |                  |             |                                                                                                                                 | SURFACE WATER DEPTH N/A |  |             |  |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 49.8 ft         |                          |                  |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC.<br>(ft)<br>% | ROD<br>(ft)<br>% | SAMP.<br>NO. | STRATA<br>REC.<br>(ft)<br>%         | ROD<br>(ft)<br>% | L<br>O<br>G | DESCRIPTION AND REMARKS<br><div>ELEV. (ft)DEPTH (ft)</div>                                                                      |                         |  |             |  |
| 857.9                                                                                               | 857.9               | 22.0          | 4.7         |                           |                          | SPT              |              | (1.0)<br>8%                         | (0.0)<br>0%      |             | Begin Coring @ 22.0 ft                                                                                                          |                         |  |             |  |
| 855                                                                                                 | 853.2               | 26.7          |             |                           |                          |                  |              |                                     |                  |             | 857.9 WEATHERED ROCK 22.0                                                                                                       |                         |  |             |  |
|                                                                                                     | 852.1               | 27.8          | 1.1         | 3:15/1.1                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             | Orange-brown, moderately severe to very severe weathering, medium hard,<br>very close fractures, SCHIST                         |                         |  |             |  |
| 850                                                                                                 |                     |               | 5.0         | 2:30/1.0                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             | Auger Refusal at 26.7' (bit burned up)                                                                                          |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:37/1.0                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:45/1.0                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:25/1.0                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:27/1.0                  | (0.0)<br>0%              | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 845                                                                                                 |                     |               | 4.0         | 3:20/1.0                  | (1.0)<br>25%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:10/1.0                  | (1.0)<br>25%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:00/1.0                  | (1.0)<br>25%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:10/1.0                  | (1.0)<br>25%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:06/1.0                  | (2.8)<br>56%             | (0.3)<br>6%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 840                                                                                                 |                     |               | 5.0         | 2:19/1.0                  | (2.8)<br>56%             | (0.3)<br>6%      |              | (26.6)<br>81%                       | (7.0)<br>21%     |             | 840.9 39.0                                                                                                                      |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:20/1.0                  | (2.8)<br>56%             | (0.3)<br>6%      |              |                                     |                  |             | CRYSTALLINE ROCK                                                                                                                |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:04/1.0                  | (2.8)<br>56%             | (0.3)<br>6%      |              |                                     |                  |             | Orange-brown to gray, moderately severe to slight weathering, moderately<br>hard to hard, very close to close fractures, SCHIST |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:10/1.0                  | (2.8)<br>56%             | (0.3)<br>6%      |              |                                     |                  |             | Highly fractured zone 52' - 58'                                                                                                 |                         |  |             |  |
| 835                                                                                                 |                     |               | 5.0         | 2:01/1.0                  | (4.8)<br>96%             | (1.4)<br>28%     |              |                                     |                  |             | GSI = 25 to 40                                                                                                                  |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:24/1.0                  | (4.8)<br>96%             | (1.4)<br>28%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:31/1.0                  | (4.8)<br>96%             | (1.4)<br>28%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:37/1.0                  | (4.8)<br>96%             | (1.4)<br>28%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:08/1.0                  | (4.8)<br>96%             | (1.4)<br>28%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 830                                                                                                 |                     |               | 5.0         | 3:52/1.0                  | (4.5)<br>90%             | (1.2)<br>24%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:47/1.0                  | (4.5)<br>90%             | (1.2)<br>24%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:50/1.0                  | (4.5)<br>90%             | (1.2)<br>24%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:55/1.0                  | (4.5)<br>90%             | (1.2)<br>24%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:50/1.0                  | (4.5)<br>90%             | (1.2)<br>24%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 825                                                                                                 |                     |               | 5.0         | 1:47/1.0                  | (1.0)<br>20%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:45/1.0                  | (1.0)<br>20%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:44/1.0                  | (1.0)<br>20%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:59/1.0                  | (1.0)<br>20%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:02/1.0                  | (1.0)<br>20%             | (0.0)<br>0%      |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 820                                                                                                 |                     |               | 5.0         | 2:13/1.0                  | (4.1)<br>82%             | (0.7)<br>14%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:15/1.0                  | (4.1)<br>82%             | (0.7)<br>14%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:04/1.0                  | (4.1)<br>82%             | (0.7)<br>14%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:21/1.0                  | (4.1)<br>82%             | (0.7)<br>14%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:04/1.0                  | (4.1)<br>82%             | (0.7)<br>14%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 815                                                                                                 |                     |               | 5.0         | 1:54/1.0                  | (4.9)<br>98%             | (2.1)<br>42%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:34/1.0                  | (4.9)<br>98%             | (2.1)<br>42%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:36/1.0                  | (4.9)<br>98%             | (2.1)<br>42%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 1:39/1.0                  | (4.9)<br>98%             | (2.1)<br>42%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:21/1.0                  | (4.9)<br>98%             | (2.1)<br>42%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| 810                                                                                                 |                     |               | 5.0         | 3:10/1.0                  | (4.5)<br>90%             | (1.3)<br>26%     | RS-1         |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:40/1.0                  | (4.5)<br>90%             | (1.3)<br>26%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:48/1.0                  | (4.5)<br>90%             | (1.3)<br>26%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 2:51/1.0                  | (4.5)<br>90%             | (1.3)<br>26%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             | 3:32/1.0                  | (4.5)<br>90%             | (1.3)<br>26%     |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
|                                                                                                     |                     |               |             |                           |                          |                  |              |                                     |                  | 808.1 71.8  |                                                                                                                                 |                         |  |             |  |
| Boring Terminated at Elevation 808.1 ft in Crystalline Rock: SCHIST                                 |                     |               |             |                           |                          |                  |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |
| Auger Refusal at 26.7' (bit burned up)                                                              |                     |               |             |                           |                          |                  |              |                                     |                  |             |                                                                                                                                 |                         |  |             |  |

**NC DOT BORE DOUBLE B5831.GPJ NC\_DOT.GDT 8/11/23**



## CORE PHOTOGRAPHS

### B1-B









## CORE PHOTOGRAPHS

### B2-A

BOX 1: 1.9 - 13.9 FEET



BOX 3: 22.7 - 25.7 FEET



BOX 2: 13.9 - 22.7 FEET





GEOTECHNICAL BORING REPORT  
BORE LOG

|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|------------|---------------------|-------|-------------------------------------|----|---------------------------|-----------------------|-----------------|-----------|-----|-----|---------------------------|------------|
| WBS 45784.1.2                                                                                       |                 |            |            | TIP B-5831          |       | COUNTY YADKIN                       |    | GEOLOGIST J. Mize         |                       |                 |           |     |     |                           |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |            |                     |       |                                     |    |                           |                       | GROUND WTR (ft) |           |     |     |                           |            |
| BORING NO. B2-B                                                                                     |                 |            |            | STATION 30+18       |       | OFFSET 11 ft RT                     |    | ALIGNMENT -L-             |                       | 0 HR.           | N/A       |     |     |                           |            |
| COLLAR ELEV. 858.1 ft                                                                               |                 |            |            | TOTAL DEPTH 27.9 ft |       | NORTHING 914,915                    |    | EASTING 1,463,132         |                       | 24 HR.          | N/A       |     |     |                           |            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |            |                     |       | DRILL METHOD NW Casing W/SPT & Core |    |                           | HAMMER TYPE Automatic |                 |           |     |     |                           |            |
| DRILLER B. Maxson                                                                                   |                 |            |            | START DATE 07/17/23 |       | COMP. DATE 07/18/23                 |    | SURFACE WATER DEPTH 8.8ft |                       |                 |           |     |     |                           |            |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT |                     |       | BLOWS PER FOOT                      |    |                           |                       |                 | SAMP. NO. | MOI | LOG | SOIL AND ROCK DESCRIPTION |            |
|                                                                                                     |                 |            | 0.5ft      | 0.5ft               | 0.5ft | 0                                   | 25 | 50                        | 75                    | 100             |           |     |     | ELEV. (ft)                | DEPTH (ft) |
| 870                                                                                                 |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 865                                                                                                 |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     | WATER SURFACE (07/17/23)  |            |
| 860                                                                                                 |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 855                                                                                                 | 857.4           | 0.7        | 2          | 0                   | 0     |                                     |    |                           |                       |                 |           |     |     | 858.1                     | 0.0        |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 850                                                                                                 | 852.6           | 5.5        | 5          | 18                  | 49    |                                     |    |                           |                       |                 |           |     |     | 854.1                     | 4.0        |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 845                                                                                                 | 847.6           | 10.5       | 60/0.1     |                     |       |                                     |    |                           |                       |                 |           |     |     | 849.6                     | 8.5        |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 840                                                                                                 |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
| 835                                                                                                 |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
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|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |
|                                                                                                     |                 |            |            |                     |       |                                     |    |                           |                       |                 |           |     |     |                           |            |

GEOTECHNICAL BORING REPORT  
CORE LOG

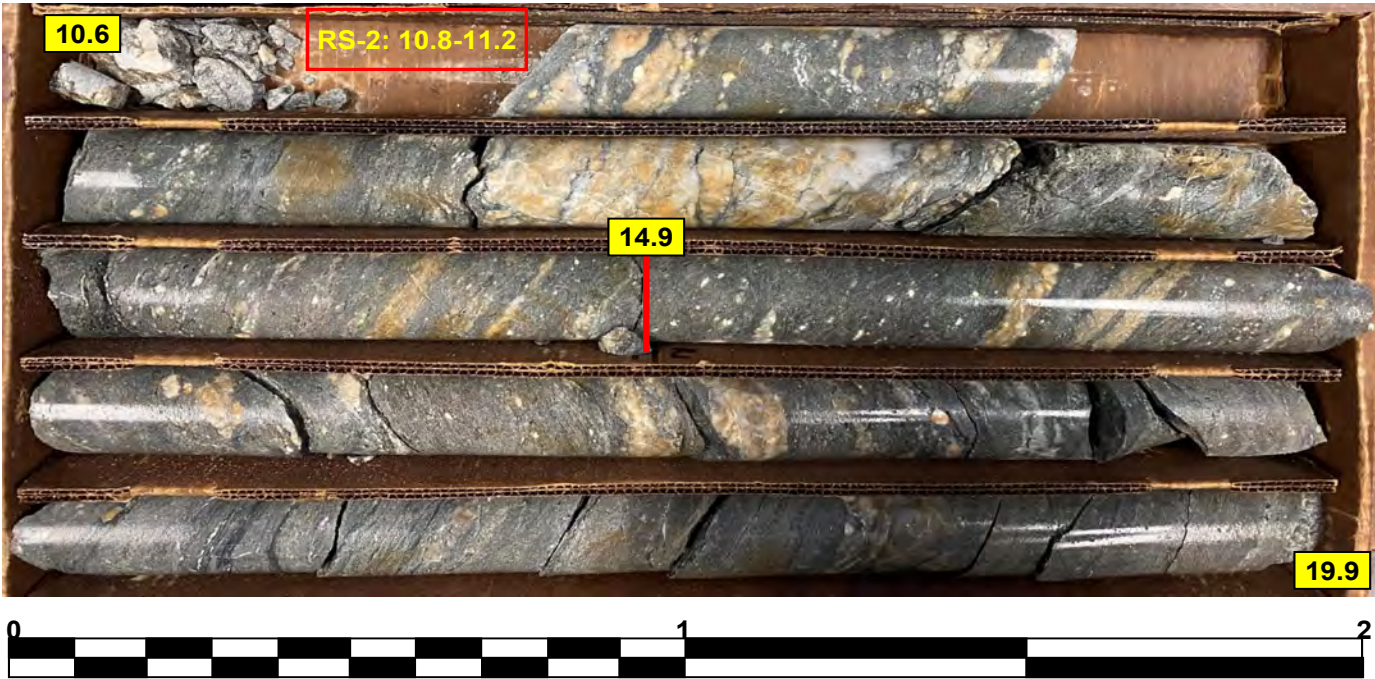
SHEET 22

|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|----------------------------------------------------------|-------------------|------------------|--------------|-------------------------------------|------------------|-------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--|--|------------|------------|------------|--|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                                               |                   |                  |              | COUNTY YADKIN                       |                  |                                                                                     |                         | GEOLOGIST J. Mize                                                   |                                                                                                       |  |  |            |            |            |  |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         | GROUND WTR (ft)                                                     |                                                                                                       |  |  |            |            |            |  |
| BORING NO. B2-B                                                                                     |                     |               |             | STATION 30+18                                            |                   |                  |              | OFFSET 11 ft RT                     |                  |                                                                                     |                         | ALIGNMENT -L-                                                       |                                                                                                       |  |  | 0 HR. N/A  |            |            |  |
| COLLAR ELEV. 858.1 ft                                                                               |                     |               |             | TOTAL DEPTH 27.9 ft                                      |                   |                  |              | NORTHING 914,915                    |                  |                                                                                     |                         | EASTING 1,463,132                                                   |                                                                                                       |  |  | 24 HR. N/A |            |            |  |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                                                          |                   |                  |              | DRILL METHOD NW Casing W/SPT & Core |                  |                                                                                     |                         | HAMMER TYPE Automatic                                               |                                                                                                       |  |  |            |            |            |  |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/17/23                                      |                   |                  |              | COMP. DATE 07/18/23                 |                  |                                                                                     |                         | SURFACE WATER DEPTH 8.8ft                                           |                                                                                                       |  |  |            |            |            |  |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 19.4 ft                                        |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft)                                | RUN               |                  | SAMP.<br>NO. | STRATA                              |                  | L<br>O<br>G                                                                         | DESCRIPTION AND REMARKS |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          | REC.<br>(ft)<br>% | RQD<br>(ft)<br>% |              | REC.<br>(ft)<br>%                   | RQD<br>(ft)<br>% |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            | ELEV. (ft) | DEPTH (ft) |  |
| 849.6                                                                                               |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     | Begin Coring @ 8.5 ft   |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     | 849.6               | 8.5           | 2.1         |                                                          |                   | SPT              |              | (17.2)                              | (11.5)           |  | 849.6                   | 8.5                                                                 | Gray, fresh to slight weathering, hard to very hard, very close to moderately close fractures, SCHIST |  |  |            |            |            |  |
|                                                                                                     | 847.5               | 10.6          |             |                                                          |                   |                  | 99%          | 66%                                 |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
| 845                                                                                                 |                     |               | 4.3         | 1:15/0.3<br>4:10/1.0<br>4:10/1.0<br>4:10/1.0<br>4:10/1.0 | (4.3)<br>100%     | (4.1)<br>95%     | RS-2         |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     | 843.2               | 14.9          |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
| 840                                                                                                 |                     |               | 5.0         | 4:08/1.0<br>4:08/1.0<br>4:08/1.0<br>4:08/1.0<br>4:08/1.0 | (5.0)<br>100%     | (2.7)<br>54%     |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     | 838.2               | 19.9          |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
| 835                                                                                                 |                     |               | 5.0         | 4:28/1.0<br>4:28/1.0<br>4:28/1.0<br>4:28/1.0<br>4:28/1.0 | (4.9)<br>98%      | (3.0)<br>60%     |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     | 833.2               | 24.9          |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     | 830.2               | 27.9          | 3.0         | 3:54/1.0<br>3:54/1.0<br>3:54/1.0                         | (3.0)<br>100%     | (1.7)<br>57%     |              |                                     | 830.2            |                                                                                     | 27.9                    | Boring Terminated at Elevation 830.2 ft in Crystalline Rock: SCHIST |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
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|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |
|                                                                                                     |                     |               |             |                                                          |                   |                  |              |                                     |                  |                                                                                     |                         |                                                                     |                                                                                                       |  |  |            |            |            |  |

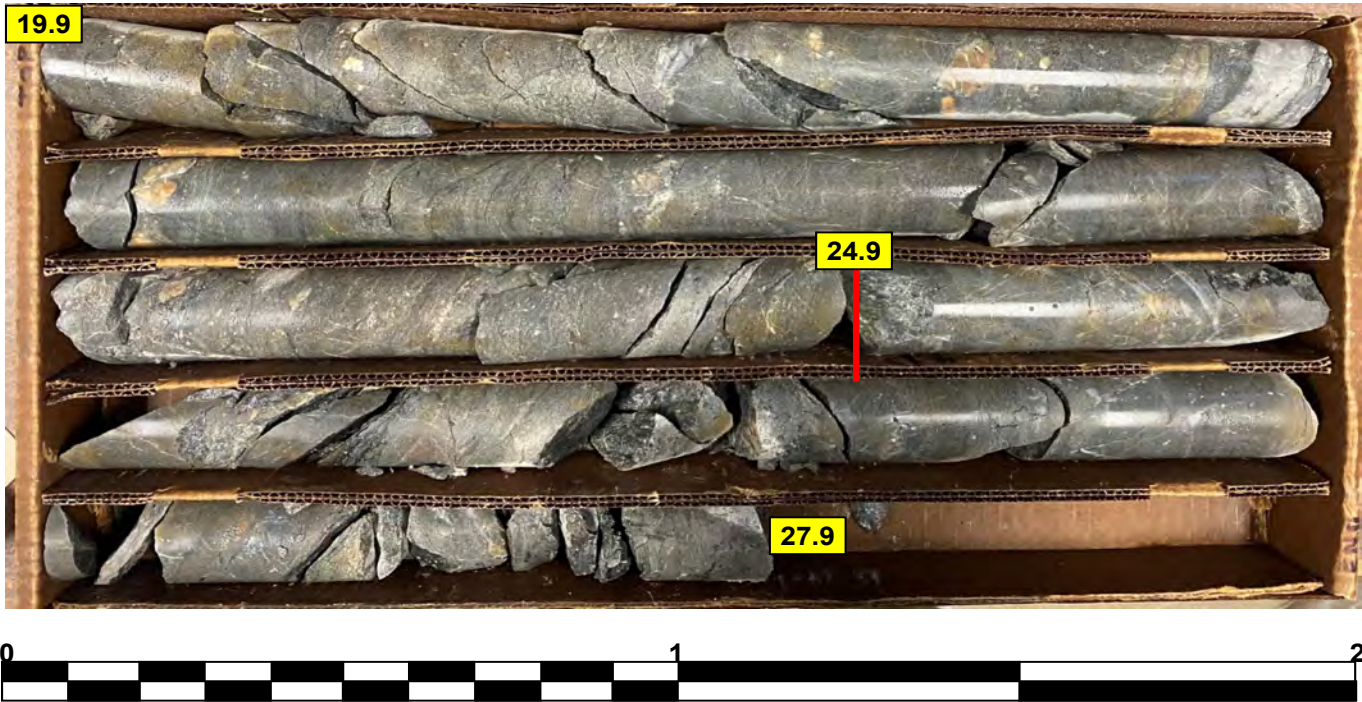
CORE PHOTOGRAPHS

B2-B

BOX 1: 10.6 - 19.9 FEET



BOX 2: 19.9 - 27.9 FEET





# GEOTECHNICAL BORING REPORT

## CORE LOG

|                                                                                                     |                     |               |             |                           |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|-----------------------------------|-------|--------------|-------------------------------------|-------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------|--|--|--|------------|--|--|--|--|--|--|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                                   |       |              | COUNTY SURRY                        |       |                                                                                     |                                                                                                                              | GEOLOGIST J. Mize         |  |  |  |            |  |  |  |  |  |  |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              | GROUND WTR (ft)           |  |  |  |            |  |  |  |  |  |  |
| BORING NO. B3-A                                                                                     |                     |               |             | STATION 31+51             |                                   |       |              | OFFSET 4 ft LT                      |       |                                                                                     |                                                                                                                              | ALIGNMENT -L-             |  |  |  | 0 HR. N/A  |  |  |  |  |  |  |
| COLLAR ELEV. 860.7 ft                                                                               |                     |               |             | TOTAL DEPTH 33.7 ft       |                                   |       |              | NORTHING 915,043                    |       |                                                                                     |                                                                                                                              | EASTING 1,463,092         |  |  |  | 24 HR. N/A |  |  |  |  |  |  |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                                   |       |              | DRILL METHOD NW Casing W/SPT & Core |       |                                                                                     |                                                                                                                              | HAMMER TYPE Automatic     |  |  |  |            |  |  |  |  |  |  |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/13/23       |                                   |       |              | COMP. DATE 07/14/23                 |       |                                                                                     |                                                                                                                              | SURFACE WATER DEPTH 4.5ft |  |  |  |            |  |  |  |  |  |  |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 25.2 ft         |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC. (ft) % ROD (ft) % SPT |       | SAMP.<br>NO. | STRATA<br>REC. (ft) % ROD (ft) %    |       | L<br>O<br>G                                                                         | DESCRIPTION AND REMARKS<br>ELEV. (ft) DEPTH (ft)                                                                             |                           |  |  |  |            |  |  |  |  |  |  |
| 852.2                                                                                               | 852.2               | 8.5           | 0.2         | 3:50/1.0                  | (4.3)                             | (0.7) |              | (23.0)                              | (9.8) |  | Begin Coring @ 8.5 ft                                                                                                        |                           |  |  |  |            |  |  |  |  |  |  |
| 850                                                                                                 | 852.2               | 8.5           | 5.0         | 3:50/1.0                  | 86%                               | (0.7) |              | 92%                                 | 39%   |                                                                                     | CRYSTALLINE ROCK 8.5                                                                                                         |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:50/1.0                  |                                   | 14%   |              |                                     |       |                                                                                     | Gray to brown, slight to moderately severe weathering, medium hard to hard, very close to moderately close fractures, SCHIST |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:50/1.0                  |                                   |       |              |                                     |       |                                                                                     | Highly fractured zone 8.7' - 9.7'                                                                                            |                           |  |  |  |            |  |  |  |  |  |  |
| 845                                                                                                 | 847.0               | 13.7          | 5.0         | 3:08/1.0                  | (4.7)                             | (0.9) |              |                                     |       |                                                                                     | GSI = 30 to 40                                                                                                               |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:08/1.0                  | 94%                               | 18%   |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:08/1.0                  |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
| 840                                                                                                 | 842.0               | 18.7          | 5.0         | 3:26/1.0                  | (4.0)                             | (0.5) |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:26/1.0                  | 80%                               | 10%   |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:26/1.0                  |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
| 835                                                                                                 | 837.0               | 23.7          | 5.0         | 4:17/1.0                  | (5.0)                             | (3.5) |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 4:17/1.0                  | 100%                              | 70%   |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 4:17/1.0                  |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
| 830                                                                                                 | 832.0               | 28.7          | 5.0         | 3:52/1.0                  | (5.0)                             | (4.2) |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:52/1.0                  | 100%                              | 84%   |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     |                     |               |             | 3:52/1.0                  |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |
|                                                                                                     | 827.0               | 33.7          |             | 3:52/1.0                  |                                   |       |              |                                     |       | 827.0                                                                               | 33.7                                                                                                                         |                           |  |  |  |            |  |  |  |  |  |  |
| Boring Terminated at Elevation 827.0 ft in Crystalline Rock: SCHIST                                 |                     |               |             |                           |                                   |       |              |                                     |       |                                                                                     |                                                                                                                              |                           |  |  |  |            |  |  |  |  |  |  |



## CORE PHOTOGRAPHS

### B3-A

BOX 1: 8.7 - 18.7 FEET



BOX 3: 28.7 - 33.7 FEET



BOX 2: 18.7 - 28.7 FEET





# GEOTECHNICAL BORING REPORT

## CORE LOG

|                                                                                                     |                     |               |             |                           |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|-------------------------------------------|-------|--------------|----------------------------------------------|--------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--|--|--|------------|--|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                                           |       |              | COUNTY SURRY                                 |        |                                                                                     |                                                                        | GEOLOGIST J. Mize                                                                                       |  |  |  |            |  |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                                           |       |              |                                              |        |                                                                                     |                                                                        | GROUND WTR (ft)                                                                                         |  |  |  |            |  |
| BORING NO. B3-B                                                                                     |                     |               |             | STATION 31+54             |                                           |       |              | OFFSET 12 ft RT                              |        |                                                                                     |                                                                        | ALIGNMENT -L-                                                                                           |  |  |  | 0 HR. N/A  |  |
| COLLAR ELEV. 857.9 ft                                                                               |                     |               |             | TOTAL DEPTH 31.4 ft       |                                           |       |              | NORTHING 915,049                             |        |                                                                                     |                                                                        | EASTING 1,463,107                                                                                       |  |  |  | 24 HR. N/A |  |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                                           |       |              | DRILL METHOD NW Casing W/SPT & Core          |        |                                                                                     |                                                                        | HAMMER TYPE Automatic                                                                                   |  |  |  |            |  |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/18/23       |                                           |       |              | COMP. DATE 07/19/23                          |        |                                                                                     |                                                                        | SURFACE WATER DEPTH 9.0ft                                                                               |  |  |  |            |  |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 22.5 ft         |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC.<br>(ft)<br>% ROD<br>(ft)<br>% |       | SAMP.<br>NO. | STRATA<br>REC.<br>(ft)<br>% ROD<br>(ft)<br>% |        | L<br>O<br>G                                                                         | DESCRIPTION AND REMARKS<br><div>ELEV. (ft)</div> <div>DEPTH (ft)</div> |                                                                                                         |  |  |  |            |  |
| 849                                                                                                 |                     |               |             |                           |                                           |       |              |                                              |        |                                                                                     | Begin Coring @ 8.9 ft                                                  |                                                                                                         |  |  |  |            |  |
|                                                                                                     | 849.0               | 8.9           | 2.5         | 1:57/0.5                  | (2.3)                                     | (0.0) |              | (21.9)                                       | (10.4) |  | 849.0                                                                  | 8.9                                                                                                     |  |  |  |            |  |
|                                                                                                     | 846.5               | 11.4          |             | 3:54/1.0                  | 92%                                       | 0%    |              |                                              |        |                                                                                     |                                                                        | Gray, severe weathering to fresh, medium hard to hard, very close to moderately close fractures, SCHIST |  |  |  |            |  |
| 845                                                                                                 |                     |               | 5.0         | 3:26/1.0                  | (4.7)                                     | (0.0) |              |                                              |        |                                                                                     | GSi = 35 to 50                                                         |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               |             | 3:26/1.0                  | 94%                                       | 0%    |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     | 841.5               | 16.4          |             | 3:26/1.0                  |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
| 840                                                                                                 |                     |               | 5.0         | 3:14/1.0                  | (5.0)                                     | (3.3) |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               |             | 3:14/1.0                  | 100%                                      | 66%   |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               |             | 3:14/1.0                  |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
| 835                                                                                                 | 836.5               | 21.4          |             | 3:14/1.0                  |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               | 5.0         | 3:19/1.0                  | (5.0)                                     | (3.7) |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               |             | 3:19/1.0                  | 100%                                      | 74%   |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
| 830                                                                                                 | 831.5               | 26.4          |             | 3:19/1.0                  |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               | 5.0         | 3:03/1.0                  | (4.9)                                     | (3.4) |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     |                     |               |             | 3:03/1.0                  | 98%                                       | 68%   |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |
|                                                                                                     | 826.5               | 31.4          |             | 3:03/1.0                  |                                           |       |              |                                              |        |                                                                                     | 826.5                                                                  | 31.4                                                                                                    |  |  |  |            |  |
| Boring Terminated at Elevation 826.5 ft in Crystalline Rock: SCHIST                                 |                     |               |             |                           |                                           |       |              |                                              |        |                                                                                     |                                                                        |                                                                                                         |  |  |  |            |  |



## CORE PHOTOGRAPHS

### B3-B

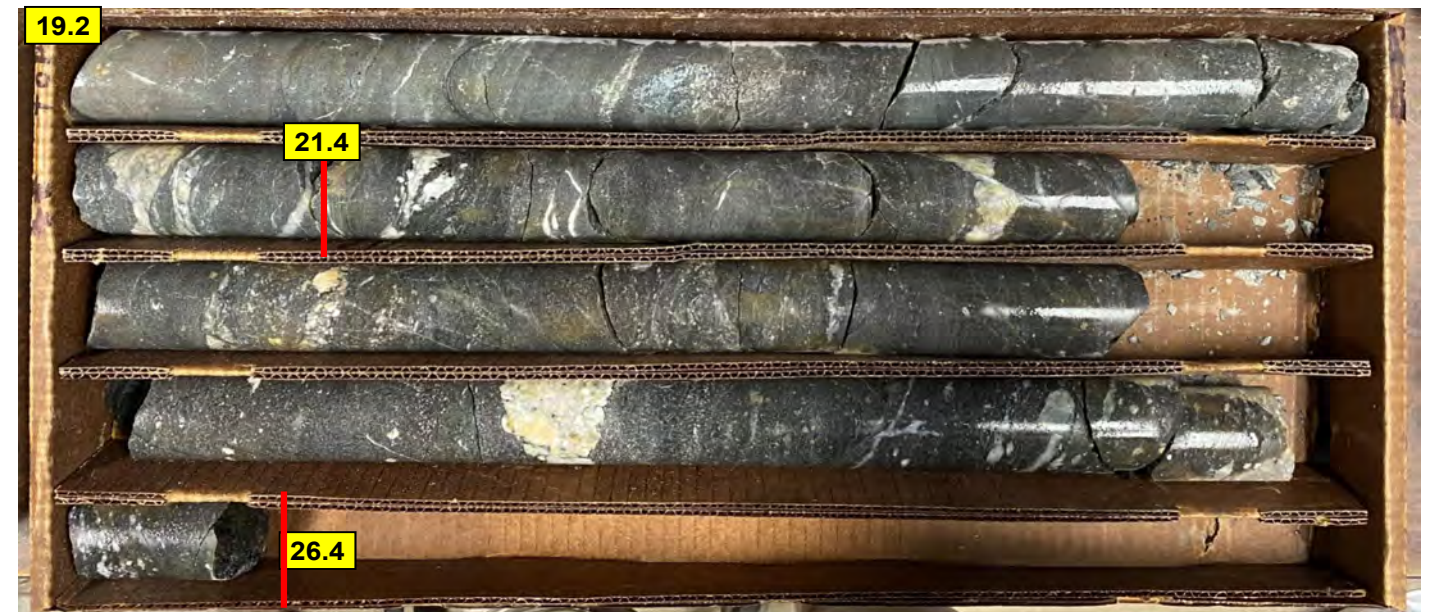
BOX 1: 8.9 - 19.2 FEET



BOX 3: 26.4 - 31.4 FEET



BOX 2: 19.2 - 26.4 FEET





# **GEOTECHNICAL BORING REPORT**

## **BORE LOG**

# GEOTECHNICAL BORING REPORT

## CORE LOG

|                                                                                                     |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|---------------------|--------|--------|---------------------------------|----|----|-------------------------------|-----|-----------|------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------|
| WBS 45784.1.2                                                                                       |                 |            | TIP B-5831          |        |        | COUNT SURRY                     |    |    | GEOLOGIST P. Fallon & J. Mize |     |           |                  |                           |                                                                                                                            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |                     |        |        |                                 |    |    |                               |     |           | GROUND WTR (ft)  |                           |                                                                                                                            |
| BORING NO. B4-A                                                                                     |                 |            | STATION 32+90       |        |        | OFFSET 26 ft LT                 |    |    | ALIGNMENT -L-                 |     |           | 0 HR. 17.9       |                           |                                                                                                                            |
| COLLAR ELEV. 878.1 ft                                                                               |                 |            | TOTAL DEPTH 50.8 ft |        |        | NORTHING 915,176                |    |    | EASTING 1,463,045             |     |           | 24 HR. 0.7 Caved |                           |                                                                                                                            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |                     |        |        | DRILL METHOD H.S. Augers & Core |    |    | HAMMER TYPE Automatic         |     |           |                  |                           |                                                                                                                            |
| DRILLER B. Maxson                                                                                   |                 |            | START DATE 07/07/23 |        |        | COMP. DATE 07/20/23             |    |    | SURFACE WATER DEPTH N/A       |     |           |                  |                           |                                                                                                                            |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT          |        |        | BLOWS PER FOOT                  |    |    |                               |     | SAMP. NO. | LOG              | SOIL AND ROCK DESCRIPTION |                                                                                                                            |
|                                                                                                     |                 |            | 0.5ft               | 0.5ft  | 0.5ft  | 0                               | 25 | 50 | 75                            | 100 |           |                  | ELEV. (ft)                | DEPTH (ft)                                                                                                                 |
| 880                                                                                                 |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|                                                                                                     | 878.1           | 0.0        | 2                   | 15     | 37     |                                 |    |    |                               |     |           |                  | 878.1                     | GROUND SURFACE 0.0                                                                                                         |
| 875                                                                                                 | 874.6           | 3.5        | 3                   | 4      | 4      |                                 |    |    |                               |     |           |                  | 875.1                     | ALLUVIAL<br>Dark brown to gray, clayey sandy GRAVEL (A-1-b) 3.0                                                            |
| 870                                                                                                 | 869.6           | 8.5        | 2                   | 3      | 3      |                                 |    |    |                               |     |           | M                |                           | RESIDUAL<br>Orange-brown to gray, silty fine to coarse SAND (A-2-4), trace mica, little to some rock fragments, saprolitic |
| 865                                                                                                 | 864.6           | 13.5       | 9                   | 16     | 20     |                                 |    |    |                               |     |           | W                |                           |                                                                                                                            |
| 860                                                                                                 | 859.6           | 18.5       | 20                  | 40     | 50     |                                 |    |    |                               |     |           | Sat.             |                           |                                                                                                                            |
| 855                                                                                                 | 854.6           | 23.5       | 20                  | 42     | 58/0.1 |                                 |    |    |                               |     |           | Sat.             |                           |                                                                                                                            |
| 850                                                                                                 | 849.6           | 28.5       | 84                  | 16/0.1 |        |                                 |    |    |                               |     |           |                  | 854.1                     | WEATHERED ROCK<br>METAMORPHOSED GRANITE 24.0                                                                               |
| 845                                                                                                 | 844.6           | 33.5       |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|                                                                                                     | 843.5           | 34.6       | 100/0.3             |        |        |                                 |    |    |                               |     |           |                  | 843.5                     | CRYSTALLINE ROCK<br>METAMORPHOSED GRANITE 34.6                                                                             |
|                                                                                                     |                 |            | 60/0.0              |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
| 840                                                                                                 |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|                                                                                                     |                 |            |                     |        |        |                                 |    |    |                               |     | RS-4      |                  |                           |                                                                                                                            |
| 835                                                                                                 |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|                                                                                                     |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
| 830                                                                                                 |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  |                           |                                                                                                                            |
|                                                                                                     |                 |            |                     |        |        |                                 |    |    |                               |     |           |                  | 827.3                     | Boring Terminated at Elevation 827.3 ft in Crystalline Rock: METAMORPHOSED GRANITE 50.8                                    |

|                                                                                                     |                     |               |             |                           |                          |       |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|--------------------------|-------|------------------|---------------------------------|-----------------------------|-------|------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--|--|------------------|------------|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                          |       |                  | COUNTY SURRY                    |                             |       |                  | GEOLOGIST P. Fallon & J. Mize                                                       |                                                                                                           |  |  |                  |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                          |       |                  |                                 |                             |       |                  | GROUND WTR (ft)                                                                     |                                                                                                           |  |  |                  |            |
| BORING NO. B4-A                                                                                     |                     |               |             | STATION 32+90             |                          |       |                  | OFFSET 26 ft LT                 |                             |       |                  | ALIGNMENT -L-                                                                       |                                                                                                           |  |  | 0 HR. 17.9       |            |
| COLLAR ELEV. 878.1 ft                                                                               |                     |               |             | TOTAL DEPTH 50.8 ft       |                          |       |                  | NORTHING 915,176                |                             |       |                  | EASTING 1,463,045                                                                   |                                                                                                           |  |  | 24 HR. 0.7 Caved |            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                          |       |                  | DRILL METHOD H.S. Augers & Core |                             |       |                  | HAMMER TYPE Automatic                                                               |                                                                                                           |  |  |                  |            |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/07/23       |                          |       |                  | COMP. DATE 07/20/23             |                             |       |                  | SURFACE WATER DEPTH N/A                                                             |                                                                                                           |  |  |                  |            |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 16.2 ft         |                          |       |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC.<br>(ft)<br>% |       | ROD<br>(ft)<br>% | SAMP.<br>NO.                    | STRATA<br>REC.<br>(ft)<br>% |       | ROD<br>(ft)<br>% | L<br>O<br>G                                                                         | DESCRIPTION AND REMARKS                                                                                   |  |  |                  | DEPTH (ft) |
| 843.5                                                                                               | 843.5               | 34.6          | 1.2         | 4:35/1.2                  | (1.2)                    | (0.0) |                  |                                 | (15.9)                      | (7.8) |                  |  | Begin Coring @ 34.6 ft                                                                                    |  |  |                  | 34.6       |
| 840                                                                                                 | 842.3               | 35.8          | 5.0         | 6:42/1.0                  | 100%                     | 0%    |                  |                                 | 98%                         | 48%   |                  |                                                                                     | CRYSTALLINE ROCK                                                                                          |  |  |                  |            |
|                                                                                                     |                     |               |             | 6:42/1.0                  | (4.7)                    | (2.6) |                  |                                 |                             |       |                  |                                                                                     | Dark gray, very slight to moderate weathering, very close to close fractures, hard, METAMORPHOSED GRANITE |  |  |                  |            |
|                                                                                                     |                     |               |             | 6:42/1.0                  | 94%                      | 52%   |                  |                                 |                             |       |                  |                                                                                     | GSI = 30 to 50                                                                                            |  |  |                  |            |
| 835                                                                                                 | 837.3               | 40.8          | 5.0         | 6:42/1.0                  |                          |       | RS-4             |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|                                                                                                     |                     |               |             | 9:38/1.0                  | (5.0)                    | (3.0) |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|                                                                                                     |                     |               |             | 9:38/1.0                  | 100%                     | 60%   |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
| 830                                                                                                 | 832.3               | 45.8          | 5.0         | 9:38/1.0                  |                          |       |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|                                                                                                     |                     |               |             | 9:38/1.0                  | (5.0)                    | (2.2) |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|                                                                                                     |                     |               |             | 4:12/1.0                  | 100%                     | 44%   |                  |                                 |                             |       |                  |                                                                                     |                                                                                                           |  |  |                  |            |
|                                                                                                     | 827.3               | 50.8          |             | 4:12/1.0                  |                          |       |                  |                                 |                             |       |                  |                                                                                     | Boring Terminated at Elevation 827.3 ft in Crystalline Rock: METAMORPHOSED GRANITE                        |  |  |                  | 50.8       |

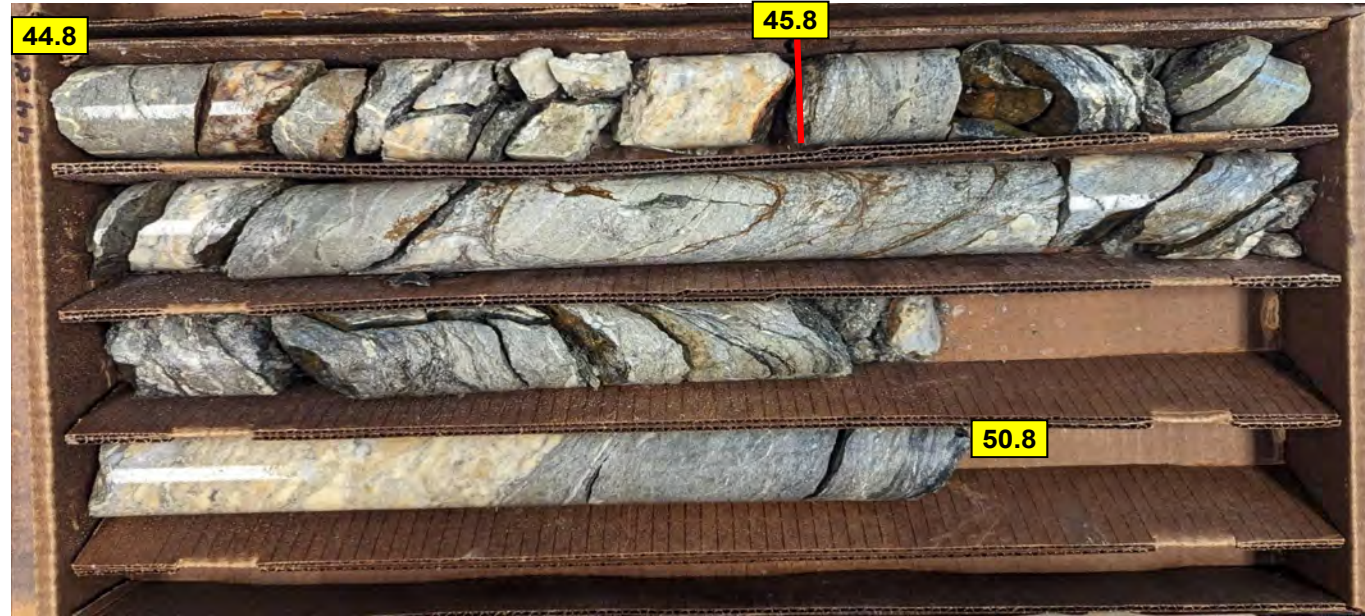
CORE PHOTOGRAPHS

B4-A

BOX 1: 34.6 - 44.8 FEET



BOX 2: 44.8 - 50.8 FEET





# BORE LOG

# CORE LOG

[illegible]

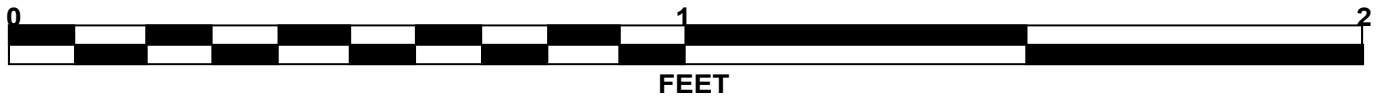
|                                                                                                     |                     |               |             |                           |                          |              |                  |                                 |                             |              |                  |                         |                                                                                          |             |            |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|--------------------------|--------------|------------------|---------------------------------|-----------------------------|--------------|------------------|-------------------------|------------------------------------------------------------------------------------------|-------------|------------|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                          |              |                  | COUNTY SURRY                    |                             |              |                  | GEOLOGIST J. Mize       |                                                                                          |             |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                          |              |                  |                                 |                             |              |                  | GROUND WTR (ft)         |                                                                                          |             |            |
| BORING NO. B4-B                                                                                     |                     |               |             | STATION 32+90             |                          |              |                  | OFFSET 30 ft RT                 |                             |              |                  | ALIGNMENT -L-           |                                                                                          | 0 HR. 11.1  |            |
| COLLAR ELEV. 878.0 ft                                                                               |                     |               |             | TOTAL DEPTH 53.0 ft       |                          |              |                  | NORTHING 915,186                |                             |              |                  | EASTING 1,463,100       |                                                                                          | 24 HR. FIAD |            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                          |              |                  | DRILL METHOD H.S. Augers & Core |                             |              |                  | HAMMER TYPE Automatic   |                                                                                          |             |            |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/19/23       |                          |              |                  | COMP. DATE 07/21/23             |                             |              |                  | SURFACE WATER DEPTH N/A |                                                                                          |             |            |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 19.0 ft         |                          |              |                  |                                 |                             |              |                  |                         |                                                                                          |             |            |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC.<br>(ft)<br>% |              | ROD<br>(ft)<br>% | SAMP.<br>NO.                    | STRATA<br>REC.<br>(ft)<br>% |              | ROD<br>(ft)<br>% | L<br>O<br>G             | DESCRIPTION AND REMARKS                                                                  |             | DEPTH (ft) |
| 844                                                                                                 | 844.0               | 34.0          | 5.0         |                           |                          |              | SPT              |                                 | (13.3)<br>95%               | (7.9)<br>56% |                  |                         | Begin Coring @ 34.0 ft                                                                   |             | 34.0       |
| 840                                                                                                 | 839.0               | 39.0          |             |                           |                          |              |                  |                                 |                             |              |                  |                         | CRYSTALLINE ROCK                                                                         |             |            |
|                                                                                                     | 838.0               | 40.0          | 1.0         | 2:37/1.0                  | (0.9)<br>90%             | (0.5)<br>50% |                  |                                 |                             |              |                  |                         | Gray, fresh to slight weathering, very close to moderately close fractures, hard, SCHIST |             |            |
| 835                                                                                                 |                     |               | 5.0         | 3:11/1.0                  | (4.5)<br>90%             | (2.4)<br>48% |                  |                                 |                             |              |                  |                         | GSI = 45 to 55                                                                           |             |            |
|                                                                                                     | 833.0               | 45.0          |             | 3:11/1.0                  |                          |              |                  |                                 |                             |              |                  |                         |                                                                                          |             |            |
| 830                                                                                                 |                     |               | 5.0         | 4:17/1.0                  | (4.9)<br>98%             | (2.1)<br>42% |                  |                                 |                             |              |                  |                         |                                                                                          |             |            |
|                                                                                                     | 828.0               | 50.0          |             | 4:17/1.0                  |                          |              |                  |                                 |                             |              |                  |                         |                                                                                          |             |            |
| 825                                                                                                 | 825.0               | 53.0          | 3.0         | 4:55/1.0                  | (3.0)<br>100%            | (2.9)<br>97% |                  |                                 |                             |              |                  |                         |                                                                                          |             | 53.0       |
|                                                                                                     |                     |               |             | 4:55/1.0                  |                          |              |                  |                                 |                             |              |                  |                         | Boring Terminated at Elevation 825.0 ft in Crystalline Rock: SCHIST                      |             |            |

**NC DOT BORE DOUBLE B5831.GPJ NC\_DOT.GDT 8/11/23**

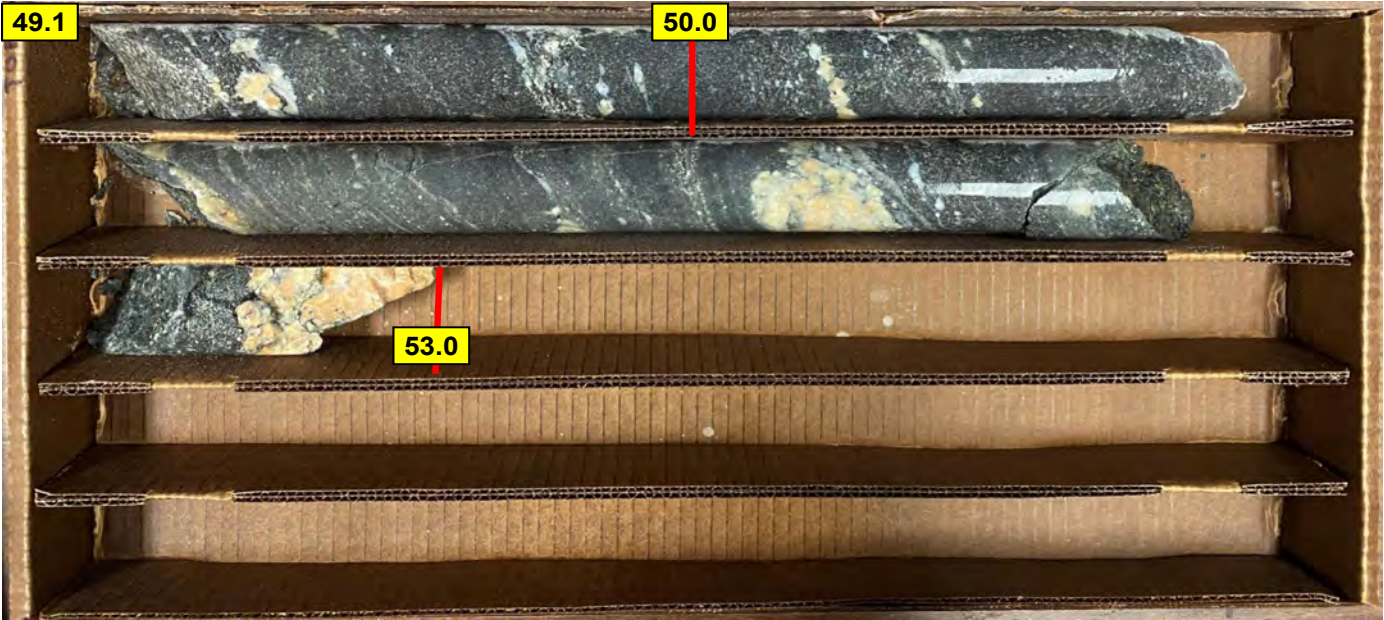
CORE PHOTOGRAPHS

B4-B

BOX 1: 39.0 - 49.1 FEET



BOX 2: 49.1 - 53.0 FEET



GEOTECHNICAL BORING REPORT  
BORE LOG

|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|---------------------|------------|---------|---------------------------------|----|-------------------------------|-------------------------|-----------------|--------------|-----|-----|---------------------------|--------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| WBS 45784.1.2                                                                                       |                 |            |                     | TIP B-5831 |         | COUNTY SURRY                    |    | GEOLOGIST P. Fallon & J. Mize |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |                     |            |         |                                 |    |                               |                         | GROUND WTR (ft) |              |     |     |                           |                    |                                                                         |                                                                                    |
| BORING NO. B5-A                                                                                     |                 |            | STATION 34+15       |            |         | OFFSET 25 ft LT                 |    |                               | ALIGNMENT -L-           |                 | 0 HR. 24.6   |     |     |                           |                    |                                                                         |                                                                                    |
| COLLAR ELEV. 882.8 ft                                                                               |                 |            | TOTAL DEPTH 42.4 ft |            |         | NORTHING 915,299                |    |                               | EASTING 1,463,022       |                 | 24 HR. Caved |     |     |                           |                    |                                                                         |                                                                                    |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |                     |            |         | DRILL METHOD H.S. Augers & Core |    |                               | HAMMER TYPE Automatic   |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
| DRILLER B. Maxson                                                                                   |                 |            | START DATE 07/07/23 |            |         | COMP. DATE 07/20/23             |    |                               | SURFACE WATER DEPTH N/A |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT          |            |         | BLOWS PER FOOT                  |    |                               |                         |                 | SAMP. NO.    | MOI | LOG | SOIL AND ROCK DESCRIPTION |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            | 0.5ft               | 0.5ft      | 0.5ft   | 0                               | 25 | 50                            | 75                      | 100             |              |     |     | ELEV. (ft)                | DEPTH (ft)         |                                                                         |                                                                                    |
| 885                                                                                                 |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
| 880                                                                                                 | 882.8           | 0.0        |                     | 4          | 6       | 4                               |    |                               |                         |                 |              |     |     | 882.8                     | GROUND SURFACE 0.0 |                                                                         |                                                                                    |
|                                                                                                     | 879.3           | 3.5        |                     | 2          | 2       | 3                               |    |                               |                         |                 |              |     | M   |                           | 879.8              | ALLUVIAL<br>Dark brown, fine sandy silty CLAY (A-7-5), trace gravel 3.0 |                                                                                    |
| 875                                                                                                 | 874.3           | 8.5        |                     | 2          | 6       | 7                               |    |                               |                         |                 |              |     | M   |                           |                    | 871.8                                                                   | RESIDUAL<br>Orange-brown, silty CLAY (A-7-5), trace mica, trace rock fragments     |
|                                                                                                     | 870             | 869.3      | 13.5                |            | 72      | 28/0.1                          |    |                               |                         |                 |              |     | M   |                           |                    |                                                                         | WEATHERED ROCK<br>Brown to gray, METAMORPHOSED GRANITE                             |
| 865                                                                                                 |                 | 864.3      | 18.5                |            | 100/0.2 |                                 |    |                               |                         |                 |              |     |     |                           |                    | 850.4                                                                   | CRYSTALLINE ROCK<br>METAMORPHOSED GRANITE                                          |
| 860                                                                                                 | 859.3           | 23.5       |                     | 100/0.2    |         |                                 |    |                               |                         |                 |              |     |     |                           |                    | 840.4                                                                   | Boring Terminated at Elevation 840.4 ft in Crystalline Rock: METAMORPHOSED GRANITE |
|                                                                                                     | 855             | 854.3      | 28.5                |            | 59      | 41/0.2                          |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
| 850                                                                                                 | 850.4           | 32.4       |                     | 60/0.0     |         |                                 |    |                               |                         |                 |              |     |     |                           | 840.4              |                                                                         |                                                                                    |
| 845                                                                                                 |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            |                     |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |
|                                                                                                     |                 |            | </                  |            |         |                                 |    |                               |                         |                 |              |     |     |                           |                    |                                                                         |                                                                                    |

GEOTECHNICAL BORING REPORT  
CORE LOG

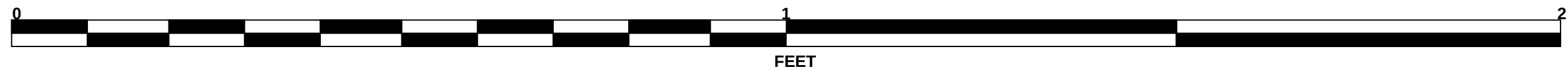
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     |                                                                                                              |                         |                 |  |        |            |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|----------------------------------------------|---------------------|------------------|--------------|-------------------|---------------------------------|-----|--------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|--|--------|------------|
| WBS 45784.1.2                                                                                       |                     |               |             |                                              | TIP B-5831          |                  |              | COUNTY SURRY      |                                 |     | GEOLOGIST P. Fallon & J. Mize                                                                                |                         |                 |  |        |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                                              |                     |                  |              |                   |                                 |     |                                                                                                              |                         | GROUND WTR (ft) |  |        |            |
| BORING NO. B5-A                                                                                     |                     |               |             |                                              | STATION 34+15       |                  |              |                   | OFFSET 25 ft LT                 |     |                                                                                                              | ALIGNMENT -L-           |                 |  | 0 HR.  | 24.6       |
| COLLAR ELEV. 882.8 ft                                                                               |                     |               |             |                                              | TOTAL DEPTH 42.4 ft |                  |              |                   | NORTHING 915,299                |     |                                                                                                              | EASTING 1,463,022       |                 |  | 24 HR. | Caved      |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                                              |                     |                  |              |                   | DRILL METHOD H.S. Augers & Core |     |                                                                                                              | HAMMER TYPE Automatic   |                 |  |        |            |
| DRILLER B. Maxson                                                                                   |                     |               |             |                                              | START DATE 07/07/23 |                  |              |                   | COMP. DATE 07/20/23             |     |                                                                                                              | SURFACE WATER DEPTH N/A |                 |  |        |            |
| CORE SIZE NQ2                                                                                       |                     |               |             |                                              | TOTAL RUN 10.0 ft   |                  |              |                   |                                 |     |                                                                                                              |                         |                 |  |        |            |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft)                    | RUN                 |                  | SAMP.<br>NO. | STRATA            |                                 | LOG | DESCRIPTION AND REMARKS                                                                                      |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              | REC.<br>(ft)<br>%   | RQD<br>(ft)<br>% |              | REC.<br>(ft)<br>% | RQD<br>(ft)<br>%                |     |                                                                                                              |                         |                 |  |        | ELEV. (ft) |
| 850.4                                                                                               | 850.4               | 32.4          | 5.0         | 6:56/1.0<br>6:56/1.0<br>6:56/1.0<br>6:56/1.0 | (4.3)<br>86%        | (2.2)<br>44%     |              | (9.3)<br>93%      | (2.6)<br>26%                    |     | Begin Coring @ 32.4 ft                                                                                       |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     | CRYSTALLINE ROCK                                                                                             |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     | Gray, fresh to very slight weathering, very hard, close to moderately close fractures, METAMORPHOSED GRANITE |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     | Highly fractured zone 35' - 36'                                                                              |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     | GSI = 35 to 55                                                                                               |                         |                 |  |        |            |
|                                                                                                     |                     |               |             |                                              |                     |                  |              |                   |                                 |     | Boring Terminated at Elevation 840.4 ft in Crystalline Rock: METAMORPHOSED GRANITE                           |                         |                 |  |        |            |



## CORE PHOTOGRAPHS

B5-A

BOX 1: 32.4 - 42.4 FEET





# **GEOTECHNICAL BORING REPORT**

## **BORE LOG**

# GEOTECHNICAL BORING REPORT CORE LOG

[illegible]

|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|-----------------------------------------------------------------------------------------------------|---------------------|---------------|-------------|---------------------------|----------------------------------------------|---------------|------------------|---------------------------------|-----------------------------|--------------|------------------|-------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------|--|
| WBS 45784.1.2                                                                                       |                     |               |             | TIP B-5831                |                                              |               |                  | COUNTY SURRY                    |                             |              |                  | GEOLOGIST J. Mize                                                                   |                         |                                                                                                                                                                       |                                                                     |      |  |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  | GROUND WTR (ft)                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
| BORING NO. B5-B                                                                                     |                     |               |             | STATION 34+15             |                                              |               |                  | OFFSET 26 ft RT                 |                             |              |                  | ALIGNMENT -L-                                                                       |                         | 0 HR. 16.0                                                                                                                                                            |                                                                     |      |  |
| COLLAR ELEV. 883.0 ft                                                                               |                     |               |             | TOTAL DEPTH 52.0 ft       |                                              |               |                  | NORTHING 915,308                |                             |              |                  | EASTING 1,463,072                                                                   |                         | 24 HR. FIAD                                                                                                                                                           |                                                                     |      |  |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                     |               |             |                           |                                              |               |                  | DRILL METHOD H.S. Augers & Core |                             |              |                  | HAMMER TYPE Automatic                                                               |                         |                                                                                                                                                                       |                                                                     |      |  |
| DRILLER B. Maxson                                                                                   |                     |               |             | START DATE 07/19/23       |                                              |               |                  | COMP. DATE 07/20/23             |                             |              |                  | SURFACE WATER DEPTH N/A                                                             |                         |                                                                                                                                                                       |                                                                     |      |  |
| CORE SIZE NQ2                                                                                       |                     |               |             | TOTAL RUN 18.0 ft         |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
| ELEV<br>(ft)                                                                                        | RUN<br>ELEV<br>(ft) | DEPTH<br>(ft) | RUN<br>(ft) | DRILL<br>RATE<br>(Min/ft) | RUN<br>REC.<br>(ft)<br>%                     |               | ROD<br>(ft)<br>% | SAMP.<br>NO.                    | STRATA<br>REC.<br>(ft)<br>% |              | ROD<br>(ft)<br>% | L<br>O<br>G                                                                         | DESCRIPTION AND REMARKS |                                                                                                                                                                       | DEPTH (ft)                                                          |      |  |
| 849                                                                                                 | 849.0               | 34.0          | 8.0         |                           |                                              |               | SPT              |                                 | (10.0)<br>100%              | (3.4)<br>34% |                  |  | 849.0                   | Begin Coring @ 34.0 ft<br><b>CRYSTALLINE ROCK</b><br>Dark gray, very slight to moderate weathering, hard, close to very close fractures, SCHIST<br><br>GSI = 35 to 45 | 34.0                                                                |      |  |
| 845                                                                                                 |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
| 840                                                                                                 | 841.0               | 42.0          |             | 5.0                       | 3:13/1.0<br>3:13/1.0<br>3:13/1.0<br>3:13/1.0 | (5.0)<br>100% | (2.3)<br>46%     |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
| 835                                                                                                 | 836.0               | 47.0          |             | 5.0                       | 3:26/1.0<br>3:26/1.0<br>3:26/1.0<br>3:26/1.0 | (5.0)<br>100% | (1.1)<br>22%     | RS-5                            |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     | 831.0               | 52.0          |             |                           | 3:26/1.0<br>3:26/1.0<br>3:26/1.0<br>3:26/1.0 |               |                  |                                 |                             |              |                  |                                                                                     |                         | 831.0                                                                                                                                                                 | Boring Terminated at Elevation 831.0 ft in Crystalline Rock: SCHIST | 52.0 |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |
|                                                                                                     |                     |               |             |                           |                                              |               |                  |                                 |                             |              |                  |                                                                                     |                         |                                                                                                                                                                       |                                                                     |      |  |

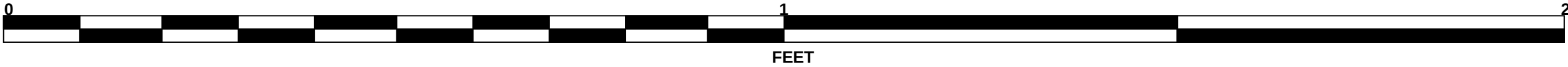
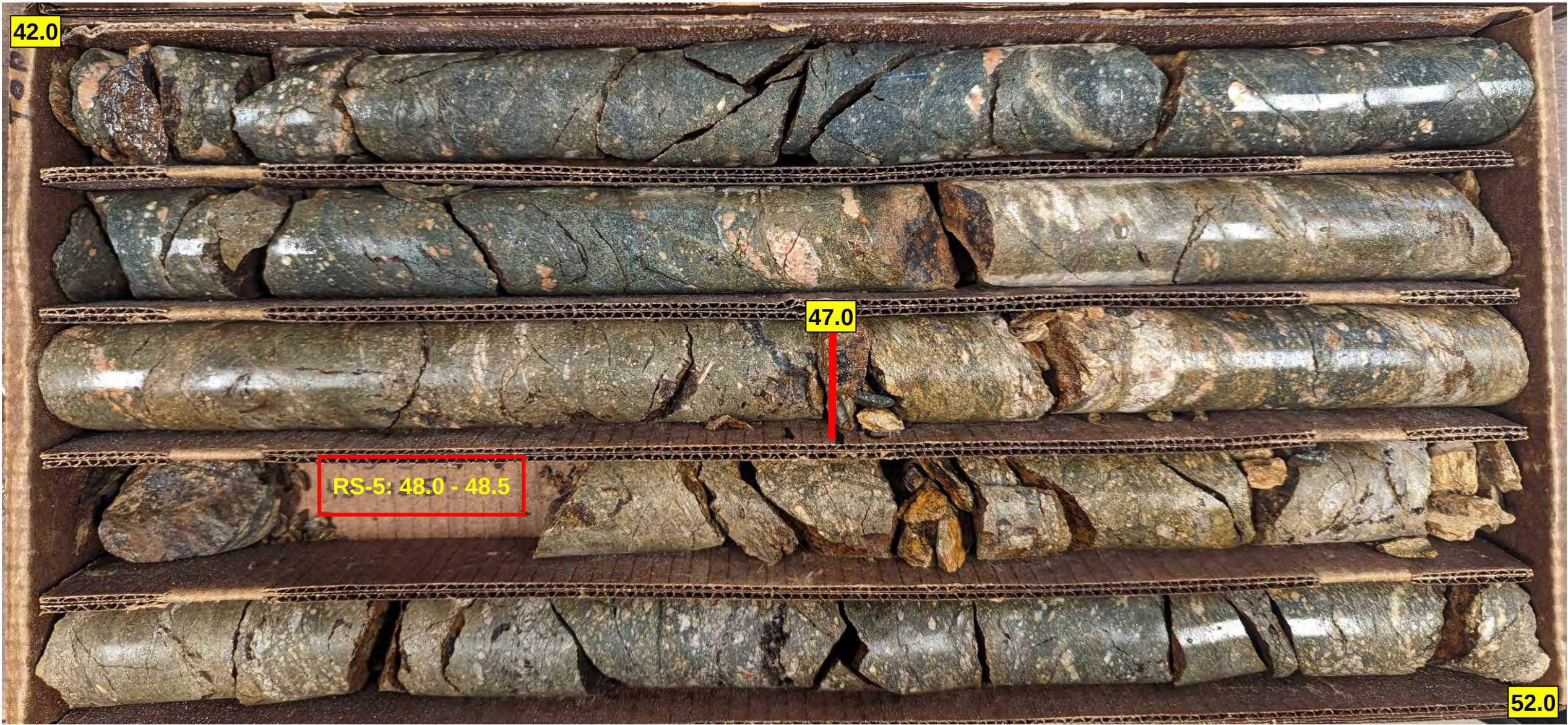
NCDOT BORE DOUBLE B5831.GPJ NC\_DOT.GDT 8/11/23



CORE PHOTOGRAPHS

B5-B

BOX 1: 42.0 - 52.0 FEET









CORE PHOTOGRAPHS

B6-A

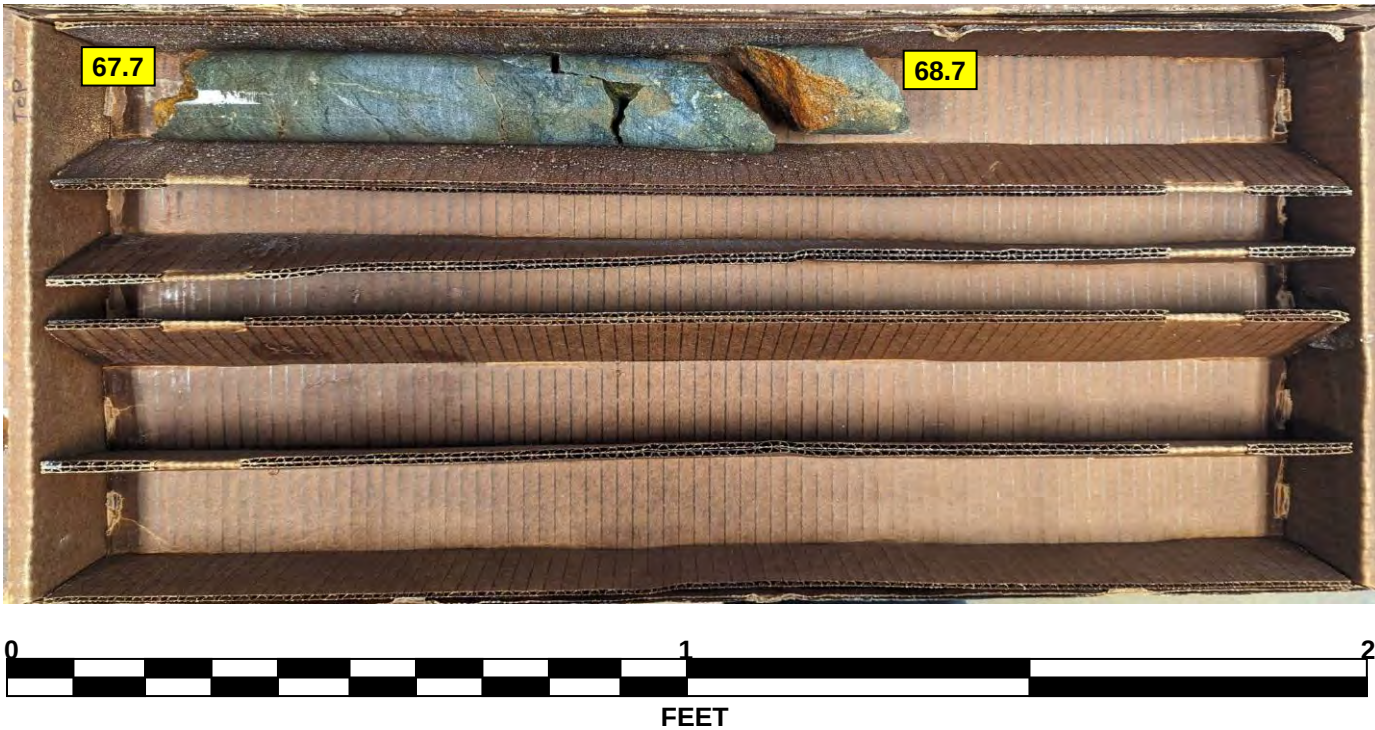
BOX 1: 48.7 - 58.7 FEET



BOX 2: 58.7 - 67.7 FEET



BOX 3: 67.7 - 68.7 FEET





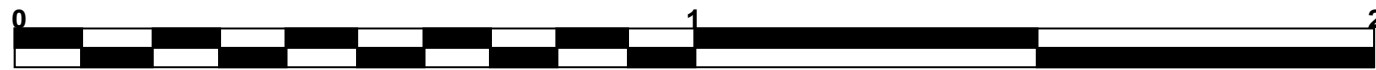




## CORE PHOTOGRAPHS

### B6-B

BOX 1: 48.5 - 58.5 FEET



BOX 3: 68.5 - 73.5 FEET



BOX 2: 58.5 - 68.5 FEET





GEOTECHNICAL BORING REPORT  
BORE LOG

|                                                                                                     |                 |            |                     |        |        |                           |    |    |                         |     |           |                 |                                                                                       |                                                                                                                 |            |
|-----------------------------------------------------------------------------------------------------|-----------------|------------|---------------------|--------|--------|---------------------------|----|----|-------------------------|-----|-----------|-----------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------|
| WBS 45784.1.2                                                                                       |                 |            | TIP B-5831          |        |        | COUNTY SURRY              |    |    | GEOLOGIST J. Mize       |     |           |                 |                                                                                       |                                                                                                                 |            |
| SITE DESCRIPTION Replace Bridge 850006 on I-77 over NC 268, Southern Railroad, and the Yadkin River |                 |            |                     |        |        |                           |    |    |                         |     |           | GROUND WTR (ft) |                                                                                       |                                                                                                                 |            |
| BORING NO. EB2-A                                                                                    |                 |            | STATION 36+39       |        |        | OFFSET 20 ft LT           |    |    | ALIGNMENT -L-           |     |           | 0 HR. Dry       |                                                                                       |                                                                                                                 |            |
| COLLAR ELEV. 928.2 ft                                                                               |                 |            | TOTAL DEPTH 54.4 ft |        |        | NORTHING 915,520          |    |    | EASTING 1,462,985       |     |           | 24 HR. FIAD     |                                                                                       |                                                                                                                 |            |
| DRILL RIG/HAMMER EFF./DATE F&R7078 Diedrich D50 85% 08/30/2021                                      |                 |            |                     |        |        | DRILL METHOD H.S. Augers, |    |    | HAMMER TYPE Automatic   |     |           |                 |                                                                                       |                                                                                                                 |            |
| DRILLER B. Maxson                                                                                   |                 |            | START DATE 06/29/23 |        |        | COMP. DATE 06/29/23       |    |    | SURFACE WATER DEPTH N/A |     |           |                 |                                                                                       |                                                                                                                 |            |
| ELEV (ft)                                                                                           | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT          |        |        | BLOWS PER FOOT            |    |    |                         |     | SAMP. NO. | MOI             | L O G                                                                                 | SOIL AND ROCK DESCRIPTION                                                                                       |            |
|                                                                                                     |                 |            | 0.5ft               | 0.5ft  | 0.5ft  | 0                         | 25 | 50 | 75                      | 100 |           |                 |                                                                                       | ELEV. (ft)                                                                                                      | DEPTH (ft) |
| 930                                                                                                 |                 |            |                     |        |        |                           |    |    |                         |     |           |                 |                                                                                       |                                                                                                                 |            |
|                                                                                                     | 928.2           | 0.0        | 4                   | 3      | 5      |                           |    |    |                         |     |           |                 |                                                                                       | 928.2                                                                                                           | 0.0        |
| 925                                                                                                 | 924.7           | 3.5        | 2                   | 1      | 2      |                           |    |    |                         |     |           | M               |    | GROUND SURFACE<br>ROADWAY EMBANKMENT<br>Red-brown, fine to coarse sandy CLAY (A-6),<br>trace gravel, trace mica |            |
| 920                                                                                                 | 919.7           | 8.5        | 2                   | 2      | 4      |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
| 915                                                                                                 | 914.7           | 13.5       | 5                   | 5      | 6      |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
| 910                                                                                                 | 909.7           | 18.5       | 3                   | 4      | 4      |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
| 905                                                                                                 | 904.7           | 23.5       | 5                   | 7      | 7      |                           |    |    |                         |     |           | M               |   | 911.2<br>RESIDUAL<br>White to brown, silty fine to coarse SAND (A-2-4), saprolitic                              |            |
| 900                                                                                                 | 899.7           | 28.5       | 7                   | 10     | 19     |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
| 895                                                                                                 | 894.7           | 33.5       | 18                  | 38     | 62/0.4 |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
| 890                                                                                                 | 889.7           | 38.5       | 20                  | 31     | 56     |                           |    |    |                         |     |           | M               |                                                                                       |                                                                                                                 |            |
|                                                                                                     |                 |            |                     |        |        |                           |    |    |                         |     | 100/0.9   |                 |  | 895.2<br>WEATHERED ROCK<br>SCHIST                                                                               |            |
| 885                                                                                                 | 884.7           | 43.5       | 42                  | 58/0.5 |        |                           |    |    |                         |     |           |                 |                                                                                       |                                                                                                                 |            |
| 880                                                                                                 | 879.7           | 48.5       | 60                  | 40/0.2 |        |                           |    |    |                         |     |           |                 |                                                                                       |                                                                                                                 |            |
| 875                                                                                                 | 874.7           | 53.5       | 30                  | 70/0.4 |        |                           |    |    |                         |     |           |                 |                                                                                       |                                                                                                                 |            |
|                                                                                                     |                 |            |                     |        |        |                           |    |    |                         |     | 100/0.9   |                 |                                                                                       | 873.8<br>Boring Terminated at Elevation 873.8 ft in<br>Weathered Rock: SCHIST                                   |            |

NCDOT BORE DOUBLE B5831.GPJ NC\_DOT.GDT 8/11/23

ASTM D7012 - 14e1 Test Report

Unconfined Compression Test

Client: RK&K  
Report Date: 8/1/2023

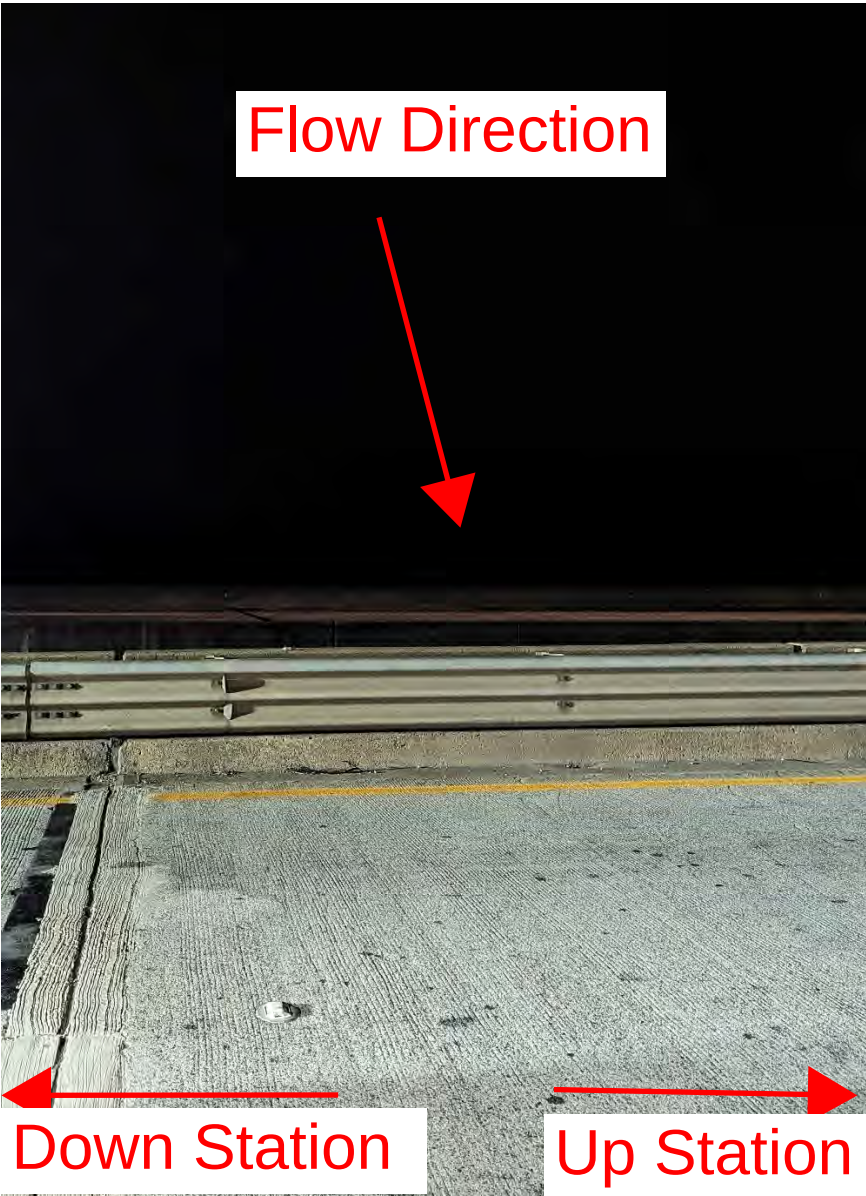
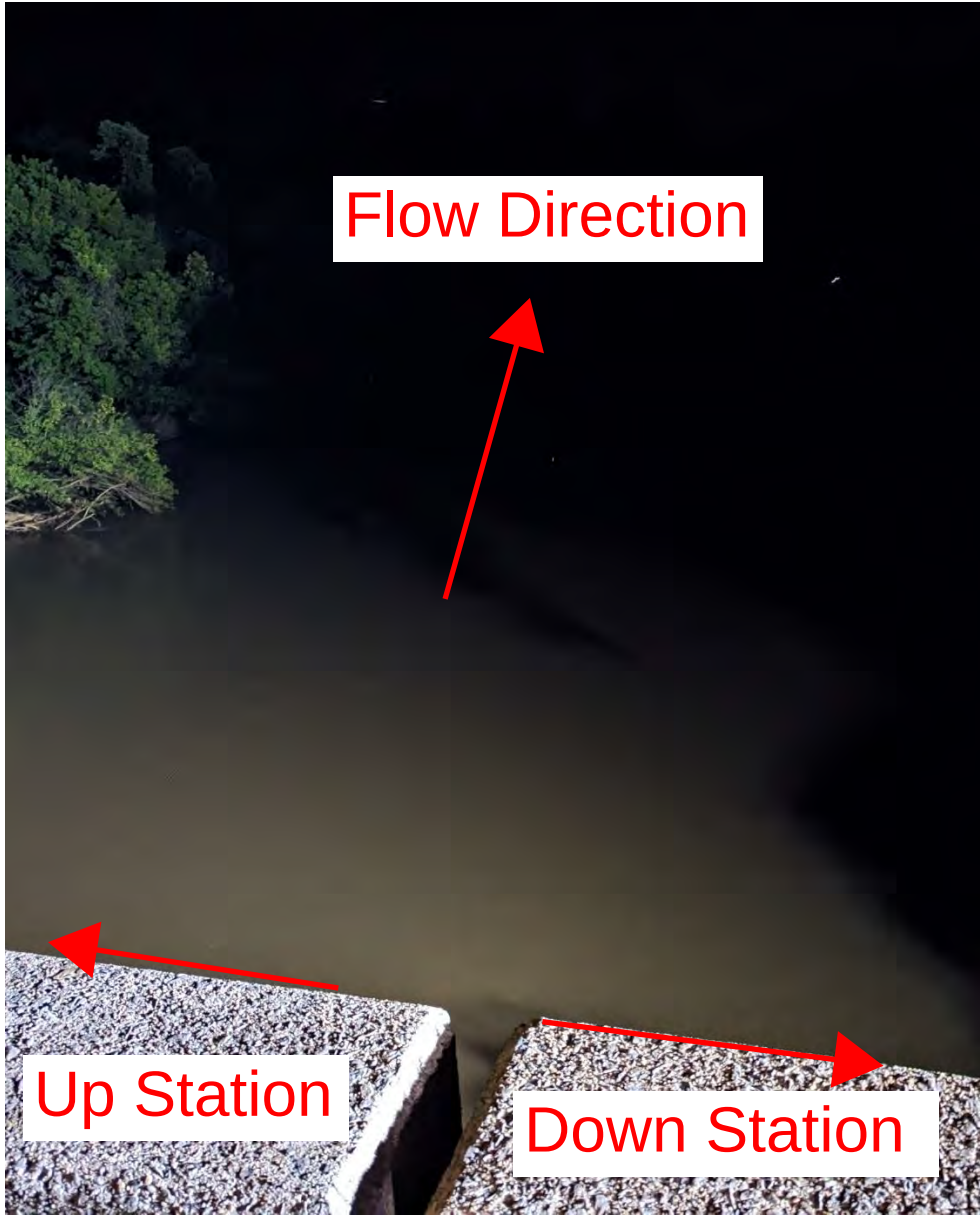
Project:  
F&R Project No.:

B-5831, Bridge 850006 on I-77  
66B-01110

| Specimen ID             | Diameter (in.) | Height (in.) | Height/Diameter Ratio | Area (in. <sup>2</sup> ) | Volume (in. <sup>3</sup> ) | Specimen Wt (gm) | Unit Weight (pcf) | Maximum Axial Load (lbs) | Maximum Unconfined Compressive Strength (psi) |
|-------------------------|----------------|--------------|-----------------------|--------------------------|----------------------------|------------------|-------------------|--------------------------|-----------------------------------------------|
| B1-B; RS-1; 68.0'-68.5' | 1.990          | 4.010        | 2.0                   | 3.110                    | 12.472                     | 529.90           | 161.712           | 22149                    | 7120                                          |
| B2-B; RS-2; 10.8'-11.2' | 1.990          | 3.440        | 1.7                   | 3.110                    | 10.699                     | 466.70           | 166.024           | 8581                     | 2760                                          |
| B6-A; RS-3; 61.2'-61.6' | 1.990          | 3.700        | 1.9                   | 3.110                    | 11.508                     | 490.50           | 162.229           | 37626                    | 12100                                         |
| B4-A; RS-4; 40.2'-40.6' | 1.990          | 3.950        | 2.0                   | 3.110                    | 12.286                     | 541.90           | 167.886           | 10639                    | 3420                                          |
| B5-B; RS-5; 48.0'-48.5' | 1.990          | 4.040        | 2.0                   | 3.110                    | 12.565                     | 506.10           | 153.302           | 5133                     | 1650                                          |







Drill Rig Photo on Bridge Deck (-L-)

Yadkin River Downstream

Yadkin River Upstream

