

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | 38458.1.1 (B-4663) | 1 | 10 |

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38458.1.1 (B-4663) F.A. PROJ. BRZ-2507(1)
COUNTY WAKE
PROJECT DESCRIPTION BRIDGE NO. 225 ON -L- (SR 2507)
OVER MARK'S CREEK AT STA. 16+04.5

SITE DESCRIPTION _____

CONTENTS

| <u>SHEET</u> | <u>DESCRIPTION</u> |
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CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

J. L. PEDRO

J. I. MILKOVITS

H. R. CONLEY

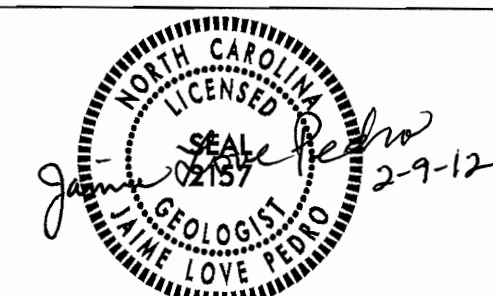
J. R. MATULA

INVESTIGATED BY J. L. PEDRO

CHECKED BY N. T. ROBERSON

SUBMITTED BY J. L. PEDRO

DATE FEBRUARY 2012

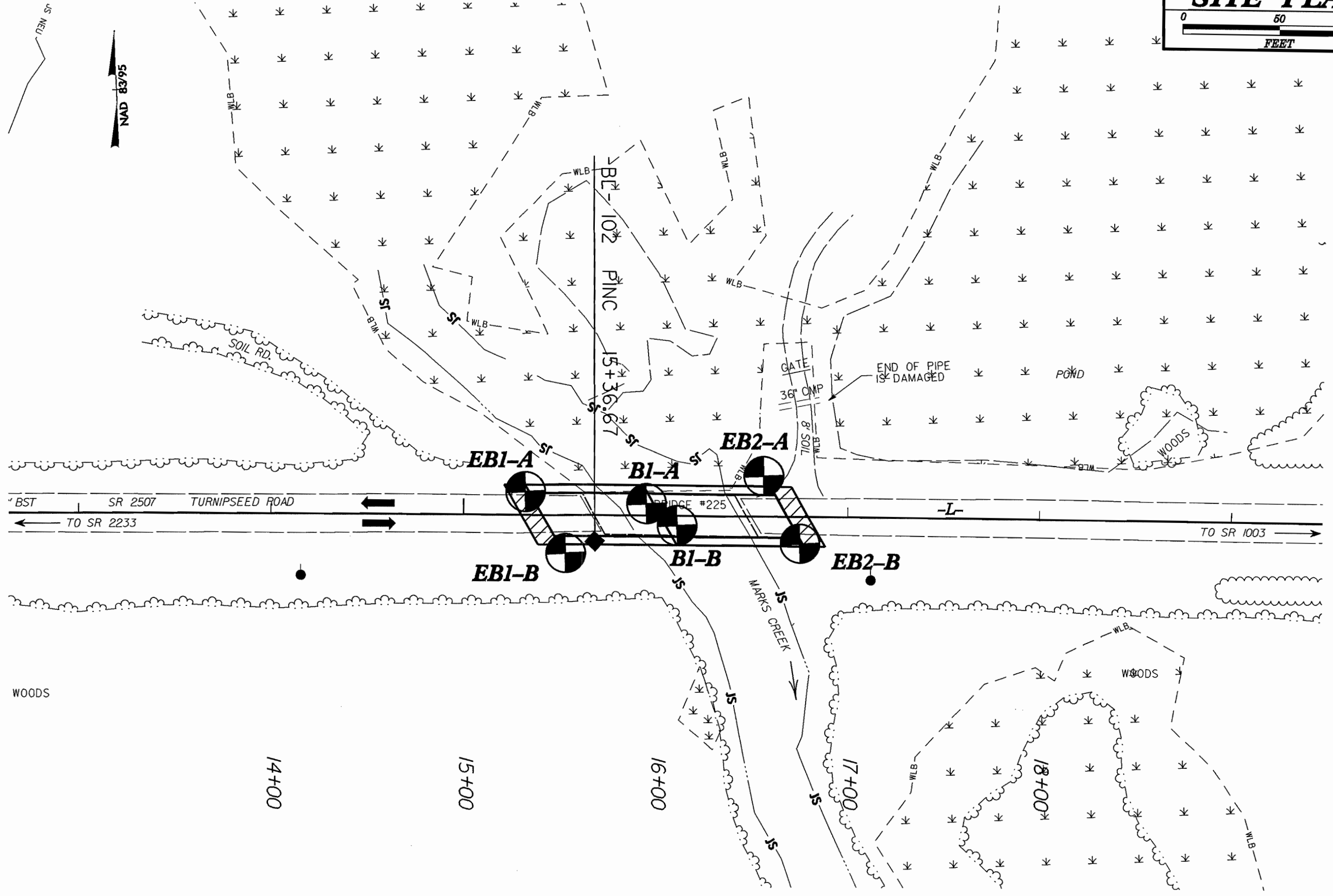
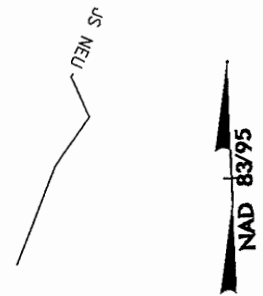


PROJECT: 38458.1.1 ID: B-4663

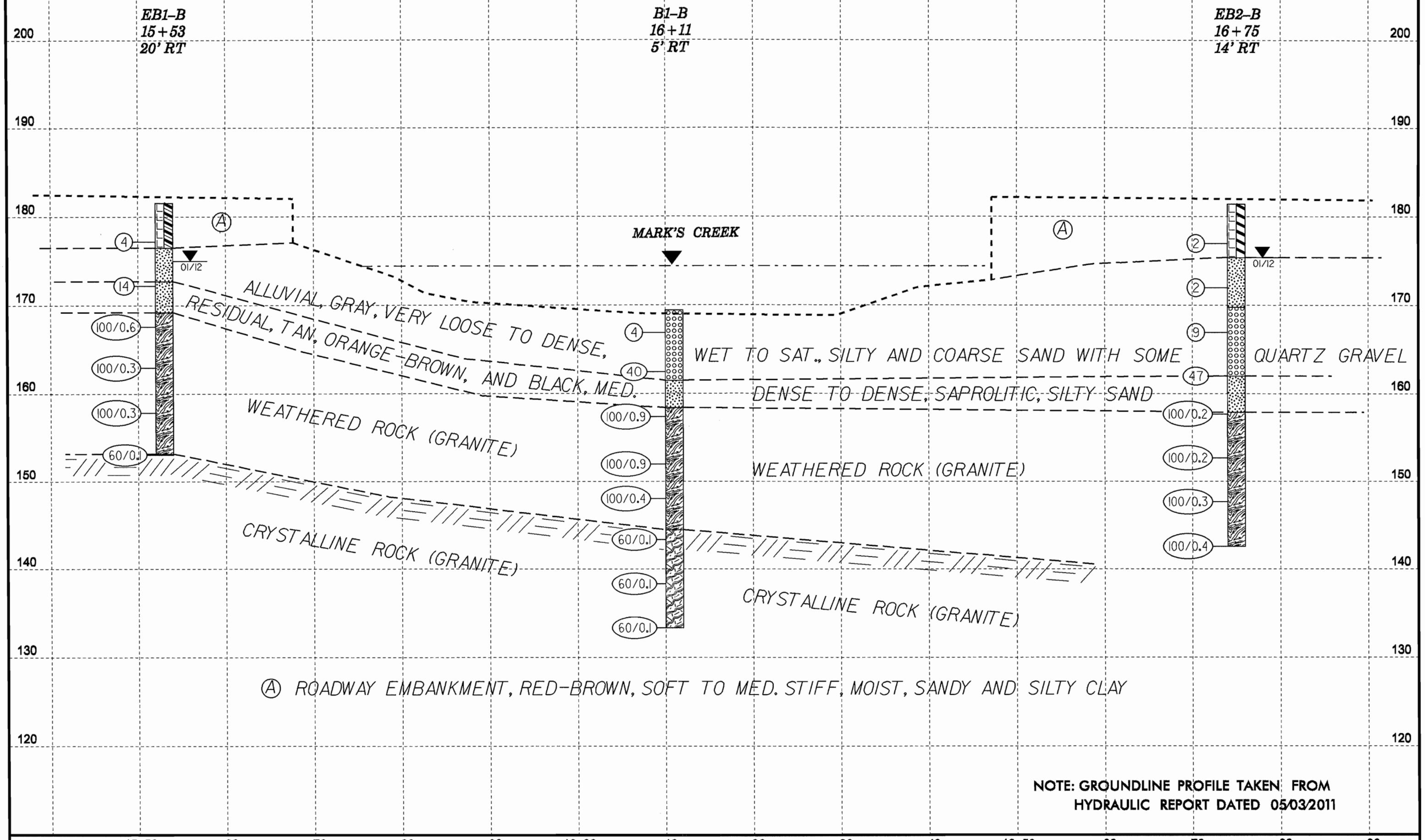
DRAWN BY: J. L. PEDRO, T. T. WALKER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

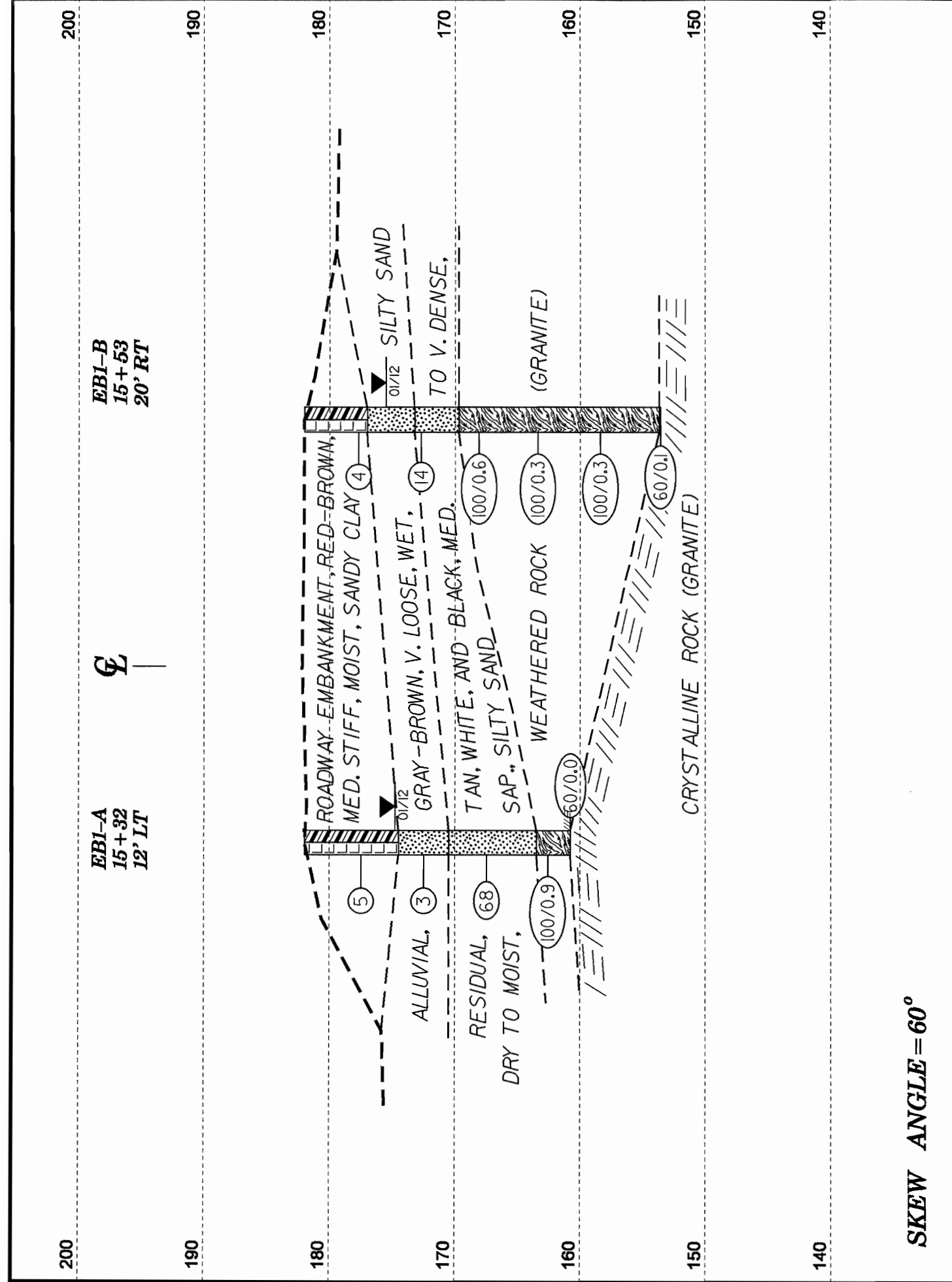
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



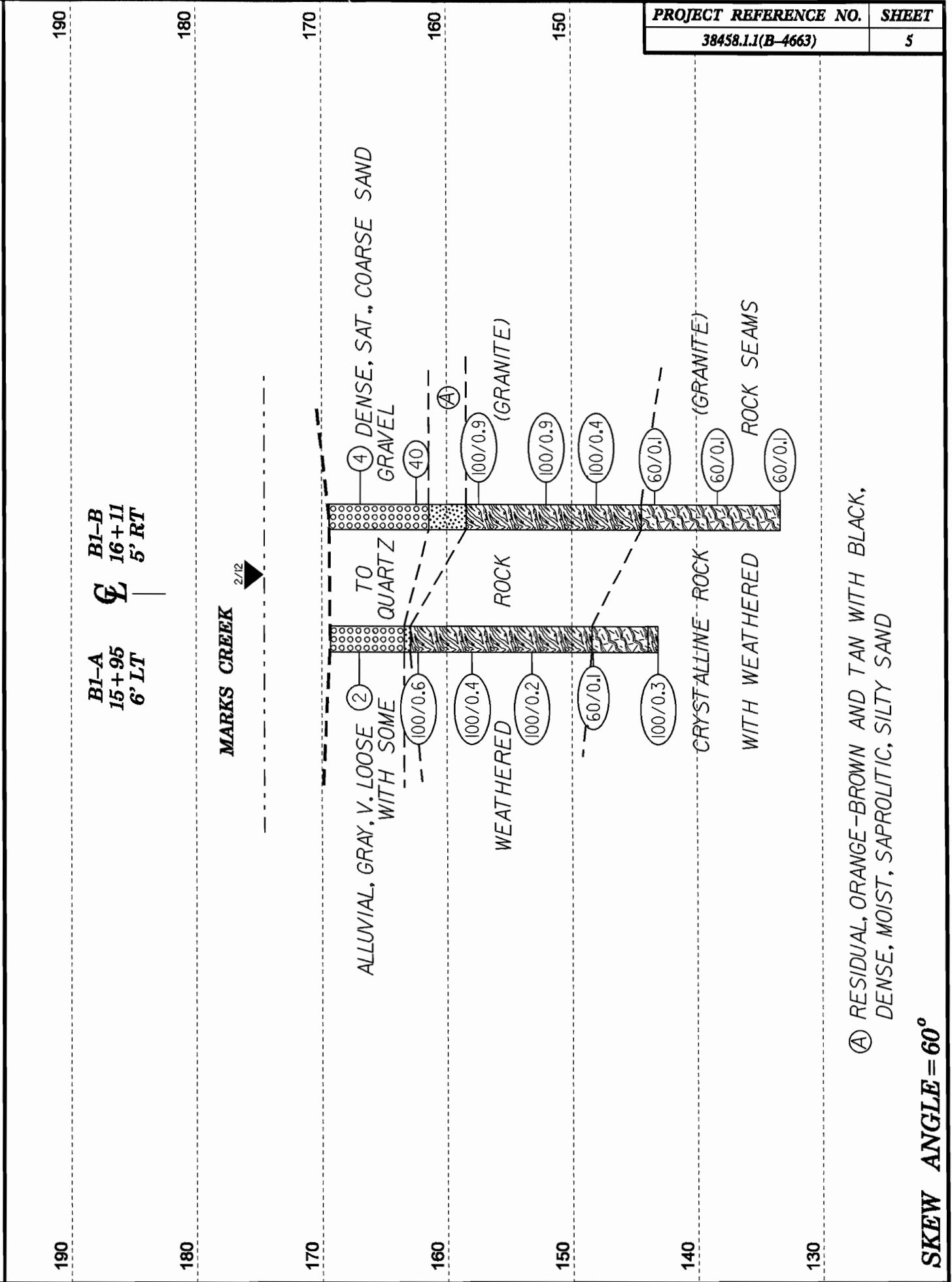
SKEW ANGLE = 60°



NOTE: GROUNDLINE PROFILE TAKEN FROM HYDRAULIC REPORT DATED 05/03/2011

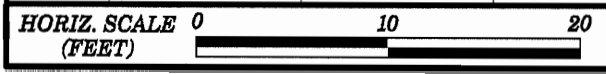


HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 **CROSS SECTION THROUGH END BENT 1**



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1 **CROSS SECTION THROUGH BENT 1**

Ⓐ RESIDUAL, ORANGE-BROWN AND TAN WITH BLACK, DENSE, MOIST, SAPROLITIC, SILTY SAND

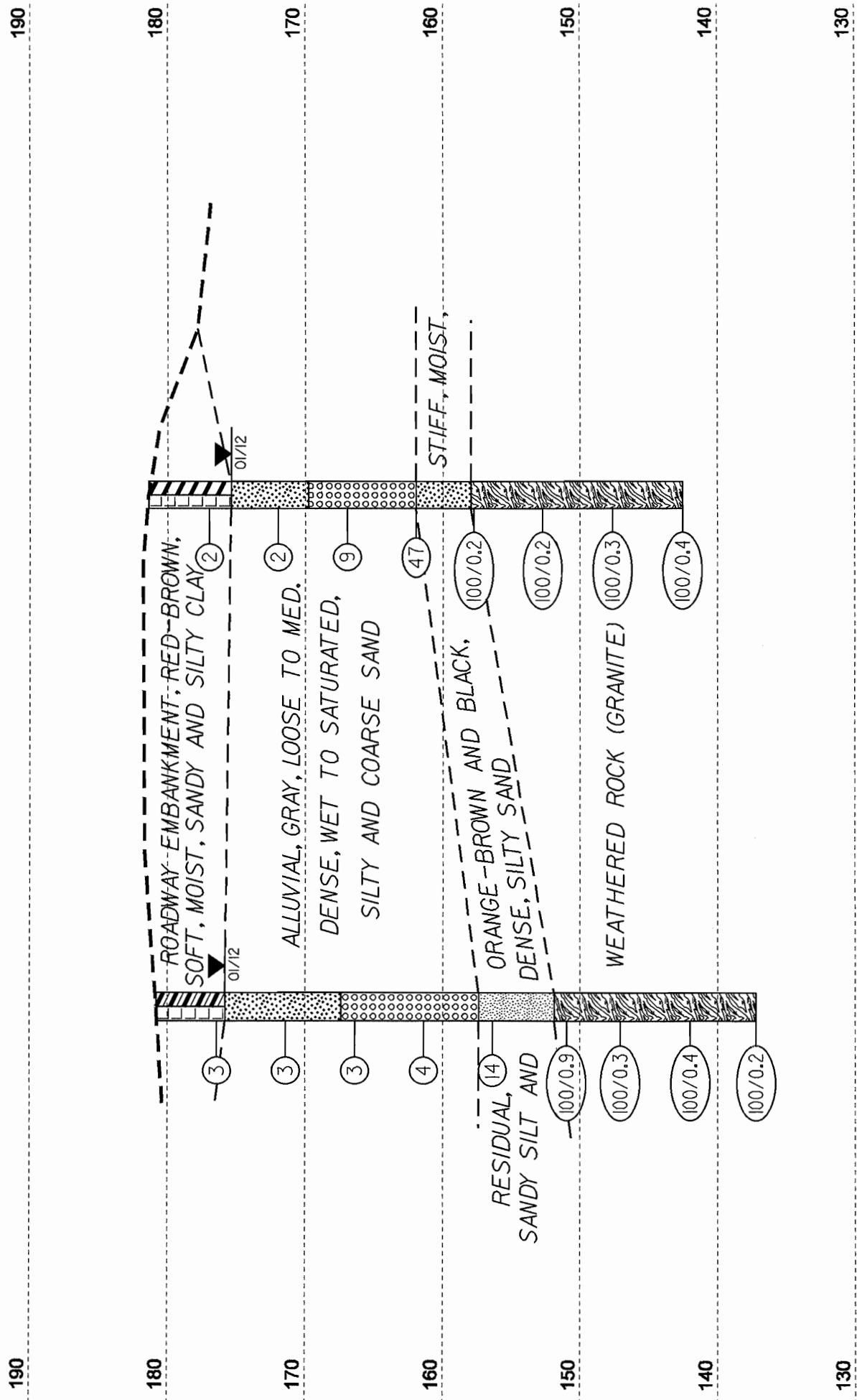
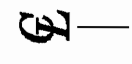


VE = 1:1

CROSS SECTION THROUGH END BENT 2

EB2-A
16+56
21' LT

EB2-B
16+75
14' RT



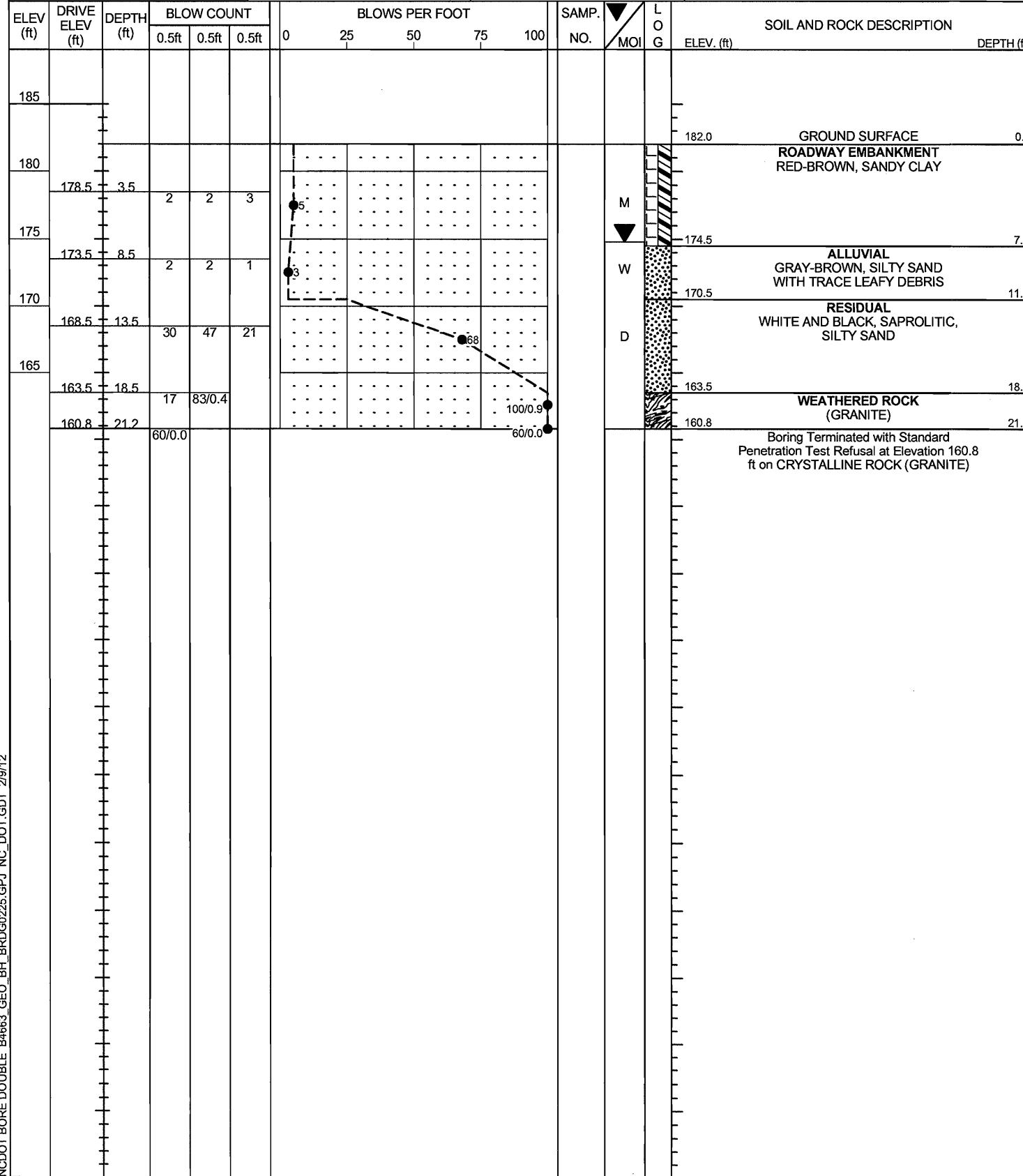
SKEW ANGLE = 60°



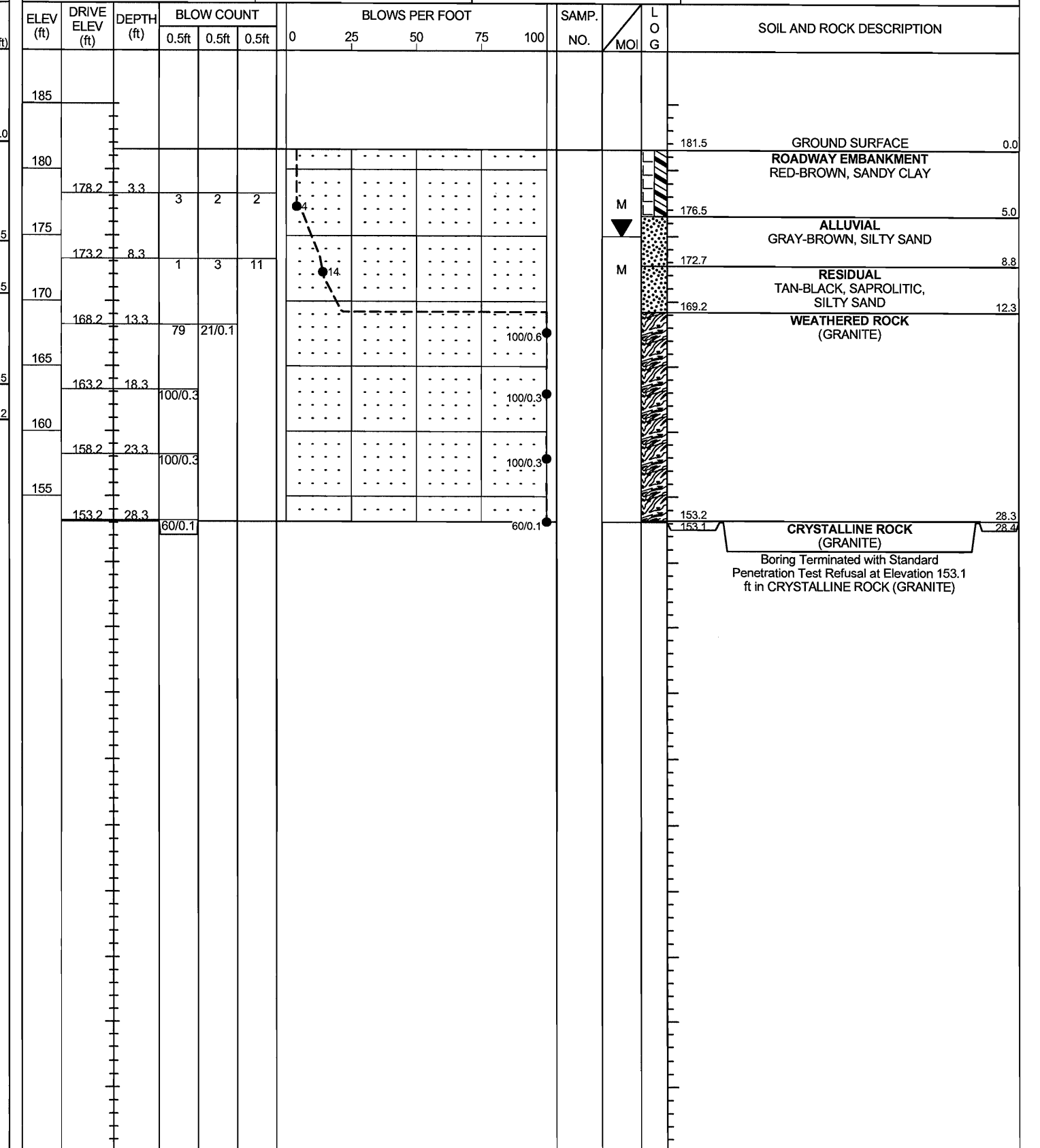
NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

| | | | | |
|---|---------------------|--------------------------|-------------------------|-----------------|
| WBS 38458.1.1 | TIP B-4663 | COUNTY WAKE | GEOLOGIST Pedro, J. L. | |
| SITE DESCRIPTION BRIDGE NO.225 ON -L- (SR 2507) OVER MARK'S CREEK | | | | GROUND WTR (ft) |
| BORING NO. EB1-A | STATION 15+32 | OFFSET 12 ft LT | ALIGNMENT -L- | 0 HR. 7.5 |
| COLLAR ELEV. 182.0 ft | TOTAL DEPTH 21.2 ft | NORTHING 724,086 | EASTING 2,170,933 | 24 HR. 7.2 |
| DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 07/12/2011 | | DRILL METHOD H.S. Augers | HAMMER TYPE Automatic | |
| DRILLER Conley, H. R. | START DATE 01/30/12 | COMP. DATE 01/30/12 | SURFACE WATER DEPTH N/A | |



| | | | | |
|---|---------------------|--------------------------|----------------------------|-----------------|
| WBS 38458.1.1 | TIP B-4663 | COUNTY WAKE | GEOLOGIST Milkovits, J. I. | |
| SITE DESCRIPTION BRIDGE NO.225 ON -L- (SR 2507) OVER MARK'S CREEK | | | | GROUND WTR (ft) |
| BORING NO. EB1-B | STATION 15+53 | OFFSET 20 ft RT | ALIGNMENT -L- | 0 HR. 8.1 |
| COLLAR ELEV. 181.5 ft | TOTAL DEPTH 28.4 ft | NORTHING 724,053 | EASTING 2,179,053 | 24 HR. 6.5 |
| DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 07/12/2011 | | DRILL METHOD H.S. Augers | HAMMER TYPE Automatic | |
| DRILLER Conley, H. R. | START DATE 01/25/12 | COMP. DATE 01/25/12 | SURFACE WATER DEPTH N/A | |



NCDOT BORE DOUBLE B4663 GEO_BH_BRD6025.GPJ NC_DOT.GDT 2/9/12

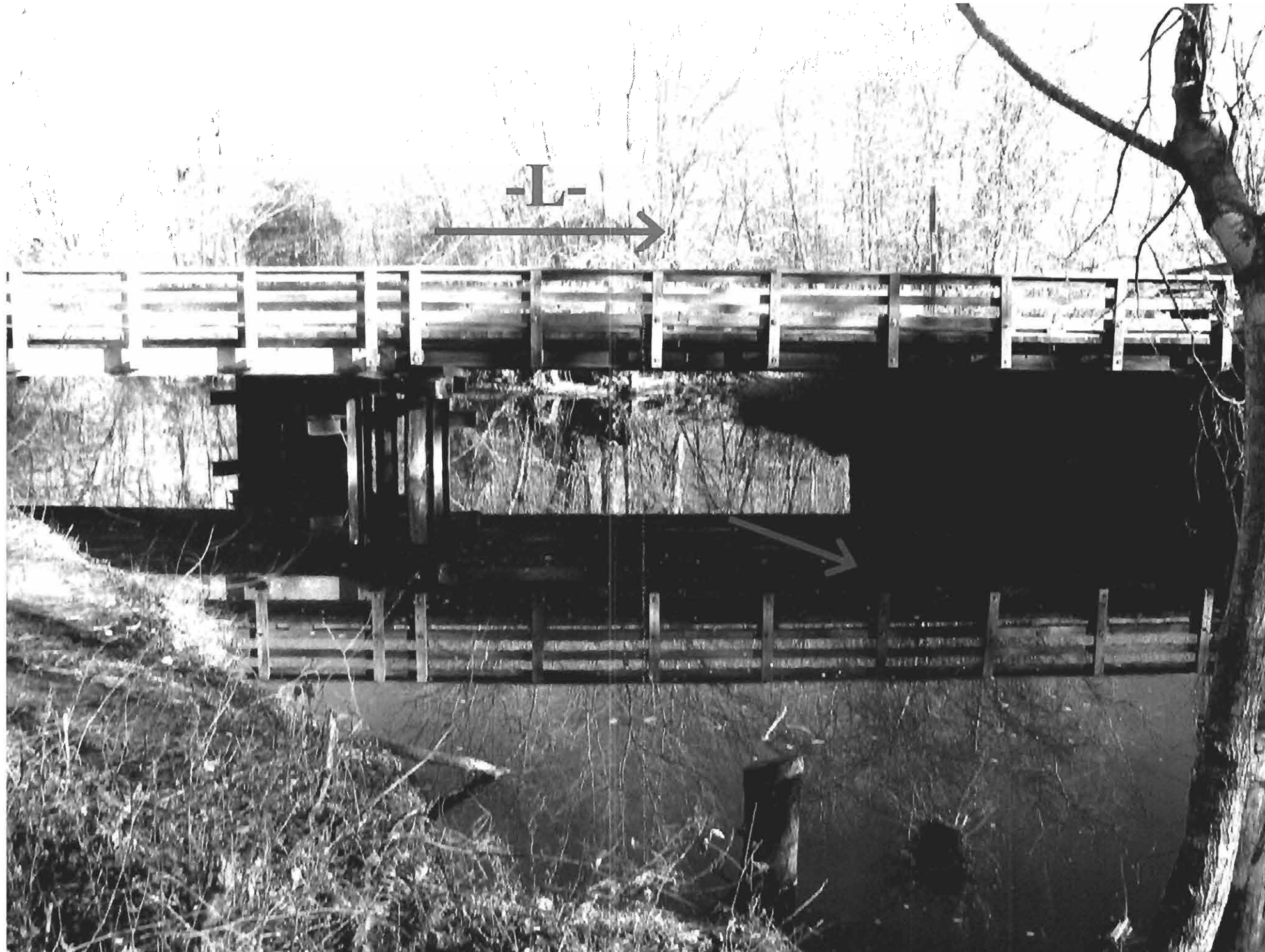
| WBS 38458.1.1 | | TIP B-4663 | | COUNTY WAKE | | GEOLOGIST Pedro, J. L. | | | | | | | | | | | |
|---|-----------------|-------------------------------|------------|-----------------------|---------|---------------------------|-----------------|----|----|-----|-----------|---------|-------|---------------------------|------------|--|--|
| SITE DESCRIPTION BRIDGE NO.225 ON -L- (SR 2507) OVER MARK'S CREEK | | | | | | | GROUND WTR (ft) | | | | | | | | | | |
| BORING NO. B1-A | | STATION 15+95 | | OFFSET 6 ft LT | | ALIGNMENT -L- | | | | | | | | | | | |
| COLLAR ELEV. 169.3 ft | | TOTAL DEPTH 26.2 ft | | NORTHING 724,077 | | EASTING 2,170,996 | | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 07/12/2011 | | DRILL METHOD NW Casing w/ SPT | | HAMMER TYPE Automatic | | | | | | | | | | | | | |
| DRILLER Conley, H. R. | | START DATE 01/30/12 | | COMP. DATE 01/30/12 | | SURFACE WATER DEPTH 5.3ft | | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | LOG G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | | |
| 175 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | | | |
| | 168.0 | 1.3 | 1 | 1 | 1 | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | | | |
| | 163.4 | 5.9 | 19 | 65 | 35/0.1 | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | | | |
| | 158.4 | 10.9 | | | 100/0.4 | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | | | |
| | 153.4 | 15.9 | | | 100/0.2 | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | |
| | 148.4 | 20.9 | | | 60/0.1 | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | |
| | 143.4 | 25.9 | | | 100/0.3 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| WBS 38458.1.1 | | TIP B-4663 | | COUNTY WAKE | | GEOLOGIST Pedro, J. L. | | | | | | | | | | | |
|---|-----------------|-------------------------------|------------|-----------------------|---------|---------------------------|-----------------|----|----|-----|-----------|---------|-------|---------------------------|------------|--|--|
| SITE DESCRIPTION BRIDGE NO.225 ON -L- (SR 2507) OVER MARK'S CREEK | | | | | | | GROUND WTR (ft) | | | | | | | | | | |
| BORING NO. B1-B | | STATION 16+11 | | OFFSET 5 ft RT | | ALIGNMENT -L- | | | | | | | | | | | |
| COLLAR ELEV. 169.4 ft | | TOTAL DEPTH 36.1 ft | | NORTHING 724,066 | | EASTING 2,171,011 | | | | | | | | | | | |
| DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 07/12/2011 | | DRILL METHOD NW Casing w/ SPT | | HAMMER TYPE Automatic | | | | | | | | | | | | | |
| DRILLER Conley, H. R. | | START DATE 01/31/12 | | COMP. DATE 01/31/12 | | SURFACE WATER DEPTH 5.2ft | | | | | | | | | | | |
| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | LOG G | SOIL AND ROCK DESCRIPTION | DEPTH (ft) | | |
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | | |
| 175 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | | | |
| | 167.9 | 1.5 | 2 | 2 | 2 | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | | | |
| | 163.4 | 6.0 | 8 | 25 | 15 | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | | | |
| | 158.4 | 11.0 | 40 | 60/0.4 | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | | | |
| | 153.4 | 16.0 | 8 | 35 | 65/0.4 | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | |
| | 148.4 | 21.0 | | | 100/0.4 | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | |
| | 143.4 | 26.0 | | | 60/0.1 | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | |
| | 138.4 | 31.0 | | | 60/0.1 | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | |
| | 133.4 | 36.0 | | | 60/0.1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

ICDOT BORE DOUBLE B4663 GEO_BH_BRD00225.GPJ NC_DOT.GDT 2/9/12

SITE PHOTOGRAPH

Bridge No. 225 on -L- (SR 2507) over Marks Creek



Looking North towards Bent 1