

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3601	1	65

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38868.1.1 (R-3601) F.A. PROJ. NHS-0017(68)
COUNTY BRUNSWICK
PROJECT DESCRIPTION US 17-74-76 FROM NC 133 /SR 1472
INTERCHANGE TO US 421 /NC 133 INTERCHANGE

SITE DESCRIPTION BRIDGE NO.103 ON US 17 /US 74 /US 76 /NC 133
OVER THE BRUNSWICK RIVER AT -LMED- 60+32.7

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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 (919) 707-6850. 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 (UN-PLACED) 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.

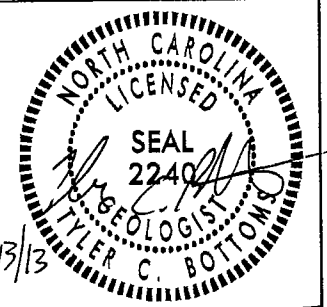
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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.

PROJECT: 38868.1.1 ID: R-3601

PERSONNEL
C.M. WRIKE

S&ME PERSONNEL

INVESTIGATED BY T.C. BOTTOMS
CHECKED BY T.C. BOTTOMS
SUBMITTED BY D.N. ARGENBRIGHT
DATE JUNE 2013



DRAWN BY: C.P. TURNER

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

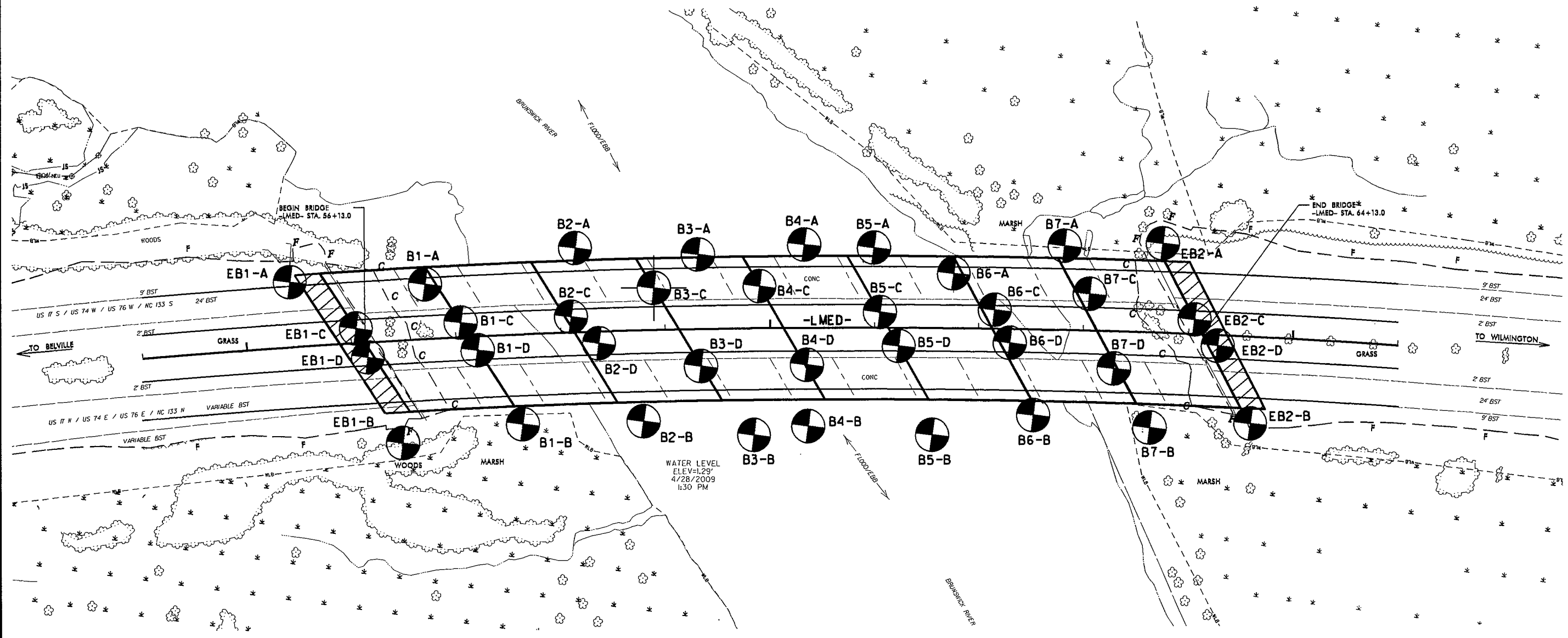
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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SUBSURFACE INVESTIGATION

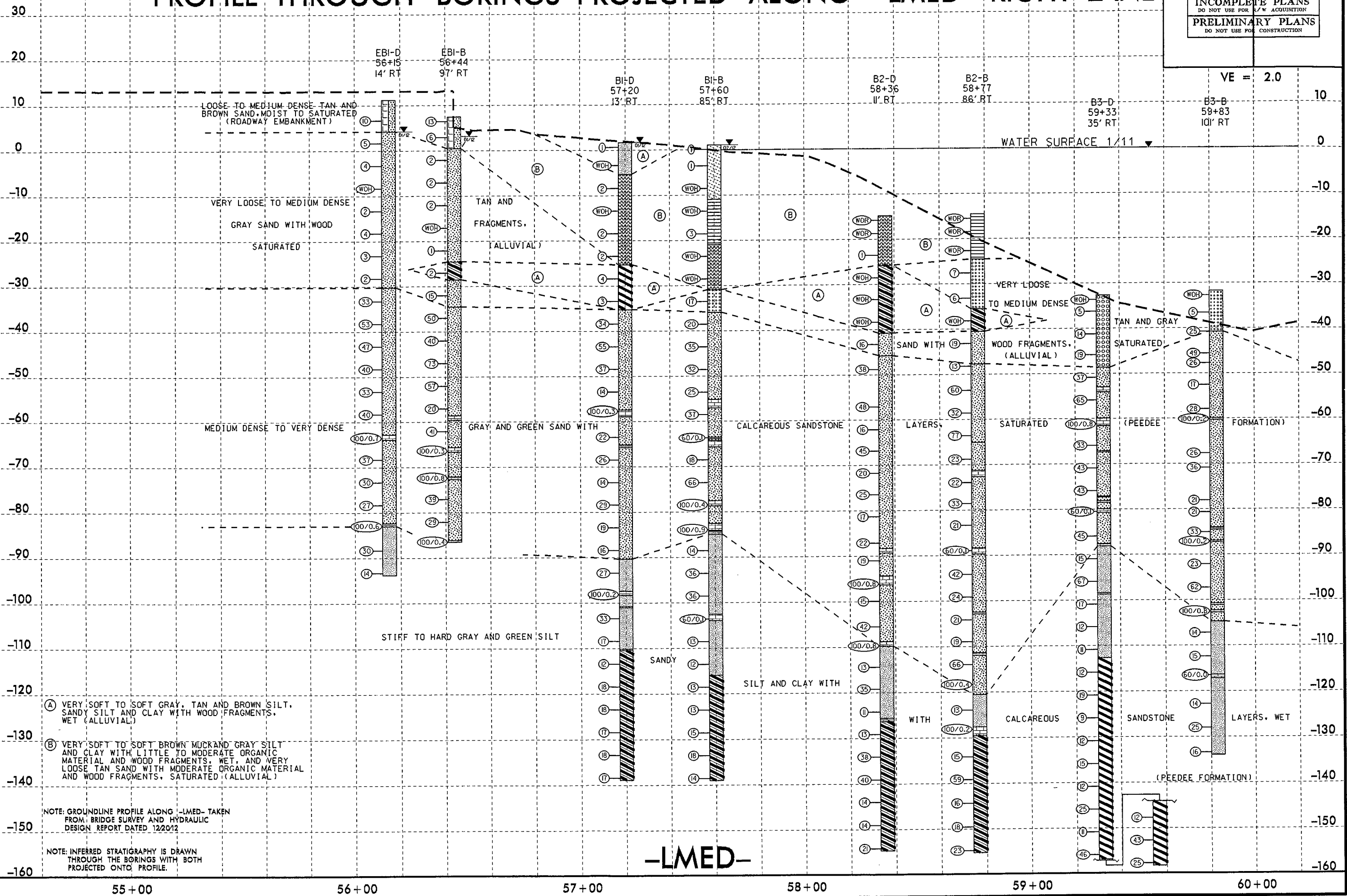
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CPS)	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOADED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION GENERAL CLASS. GRANULAR MATERIALS (< 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS GROUP CLASS. A-1, A-3, A-2, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7 SYMBOL	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50 PERCENTAGE OF MATERIAL ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	WEATHERING FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> COMPLETE ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINDERS. SAPROLITE IS ALSO AN EXAMPLE.	
CONSISTENCY OR DENSENESS PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/F ²) GENERALLY GRANULAR MATERIAL (NON-COHESSIVE) VERY LOOSE <4 LOOSE 4 TO 10 MEDIUM DENSE 10 TO 30 DENSE 30 TO 50 VERY DENSE >50 GENERALLY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT <2 SOFT 2 TO 4 MEDIUM STIFF 4 TO 8 STIFF 8 TO 15 VERY STIFF 15 TO 30 HARD >30	MISCELLANEOUS SYMBOLS 	ROCK HARDNESS VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	
TEXTURE OR GRAIN SIZE U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.76 2.00 0.42 0.25 0.075 0.053 BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F. SD.) SILT (SL.) CLAY (CL.) GRAIN SIZE MM 305 75 2.0 0.25 0.05 0.005 IN. 12 3	ABBREVIATIONS AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT v - VERY VST - VANE SHEAR TEST WEA. - WEATHERED W - UNIT WEIGHT W _d - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO		
SOIL MOISTURE - CORRELATION OF TERMS SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION LL - LIQUID LIMIT - SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE PL - PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE OM - OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE SL - SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT DRILL UNITS: <input checked="" type="checkbox"/> DIEDRICH D-50 <input checked="" type="checkbox"/> D-25 <input checked="" type="checkbox"/> CME-45B <input checked="" type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG.-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING w/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 15/16" STEEL TEETH <input type="checkbox"/> TRICONE " TUNG.-CARB. <input type="checkbox"/> CORE BIT HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL CORE SIZE: <input type="checkbox"/> B <input type="checkbox"/> N <input type="checkbox"/> H HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST	FRACTURE SPACING TERM SPACING VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET BEDDING TERM THICKNESS VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET INDURATION FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	BENCH MARK: RAILROAD SPIKE SET IN 26' PINE AT -BL- STA. 57+28.06, 131.47' RT ELEVATION: 27.47 FT. NOTES:
PLASTICITY NONPLASTIC 0-5 LOW PLASTICITY 6-15 MED. PLASTICITY 16-25 HIGH PLASTICITY 26 OR MORE PLASTICITY INDEX (PI) DRY STRENGTH VERY LOW SLIGHT MEDIUM HIGH	COLOR DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		



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PROFILE THROUGH BORINGS PROJECTED ALONG -LMED- RIGHT LANE



- (A) VERY SOFT TO SOFT GRAY, TAN AND BROWN SILT, SANDY SILT AND CLAY WITH WOOD FRAGMENTS, WET (ALLUVIAL)
- (B) VERY SOFT TO SOFT BROWN MUCK AND GRAY SILT AND CLAY WITH LITTLE TO MODERATE ORGANIC MATERIAL AND WOOD FRAGMENTS, WET, AND VERY LOOSE TAN SAND WITH MODERATE ORGANIC MATERIAL AND WOOD FRAGMENTS, SATURATED (ALLUVIAL)

NOTE: GROUNDLINE PROFILE ALONG -LMED- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 12/20/12

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

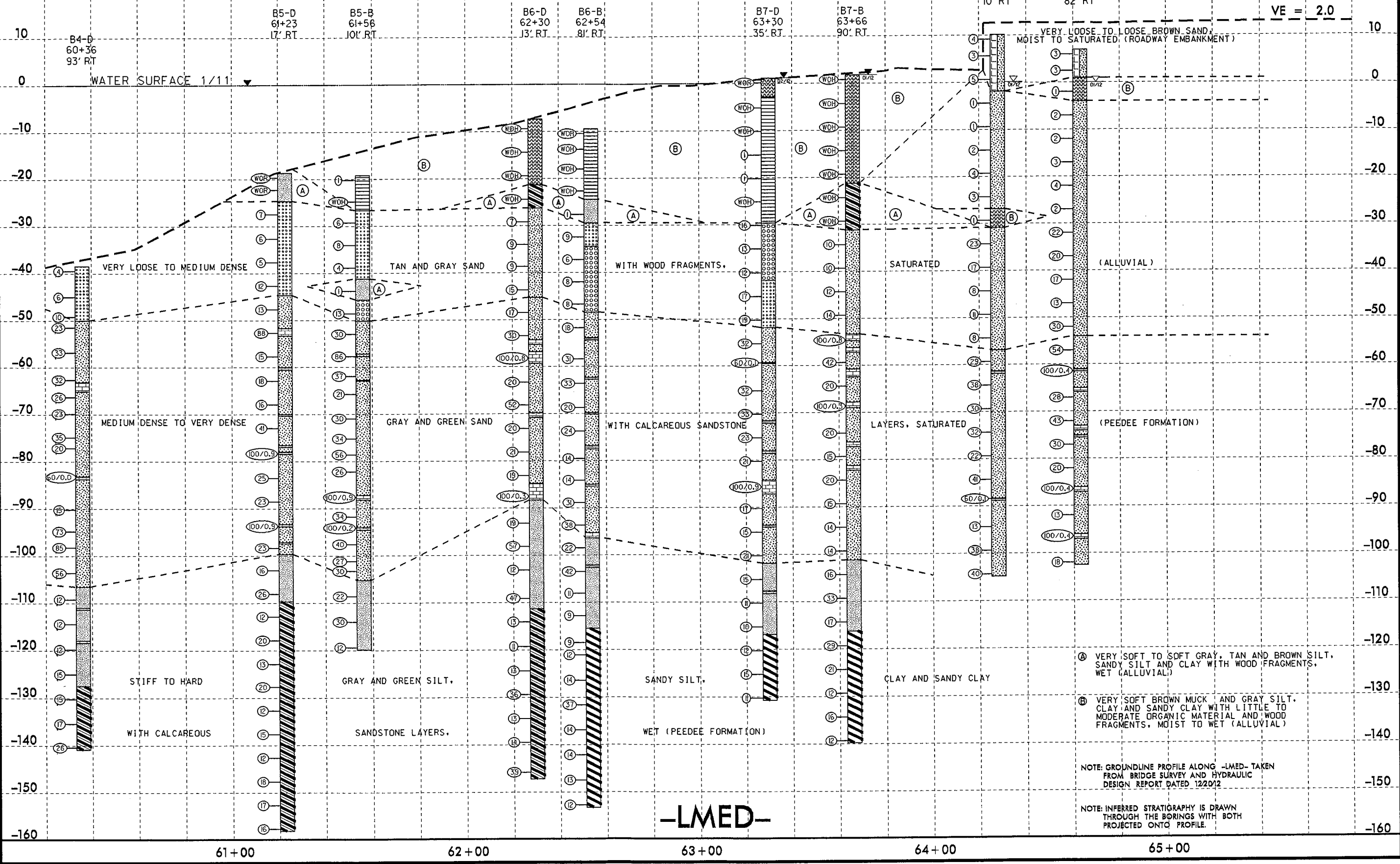
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PROJECT REFERENCE NO. R-3601	SHEET NO. 5 OF 65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PROFILE THROUGH BORINGS PROJECTED ALONG -LMED- RIGHT LANE



(A) VERY SOFT TO SOFT GRAY, TAN AND BROWN SILT, SANDY SILT AND CLAY WITH WOOD FRAGMENTS, WET (ALLUVIAL)

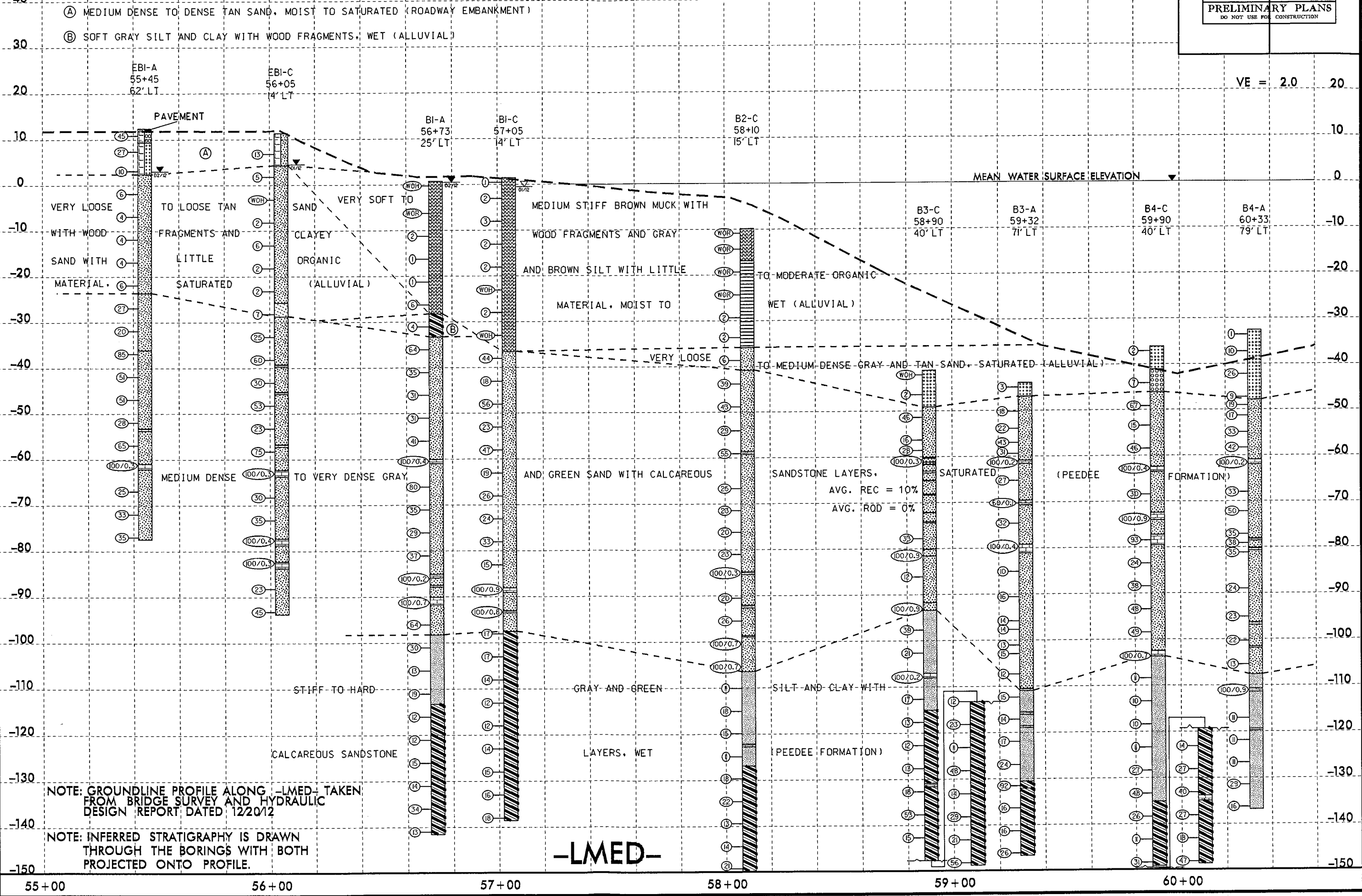
(B) VERY SOFT BROWN MUCK AND GRAY SILT, CLAY AND SANDY CLAY WITH LITTLE TO MODERATE ORGANIC MATERIAL AND WOOD FRAGMENTS, MOIST TO WET (ALLUVIAL)

NOTE: GROUNDLINE PROFILE ALONG -LMED- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 12/20/12

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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PROFILE THROUGH BORINGS PROJECTED ALONG -LMED- LEFT LANE



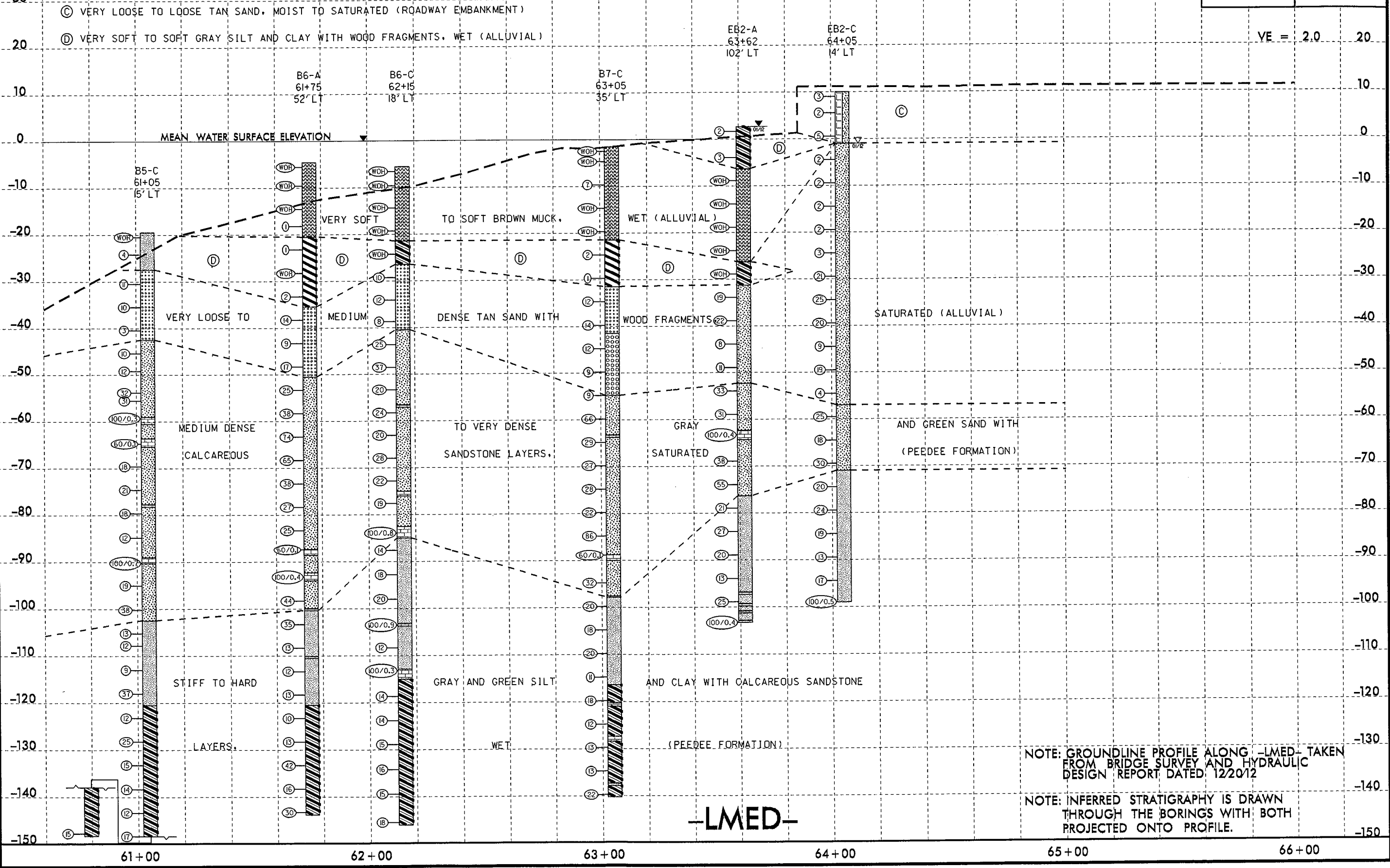
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PROJECT REFERENCE NO. R-3601	SHEET NO. 7 OF 65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PROFILE THROUGH BORINGS PROJECTED ALONG -LMED- LEFT LANE



VE = 2.0 20

NOTE: GROUNDLINE PROFILE ALONG -LMED- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 12/2012

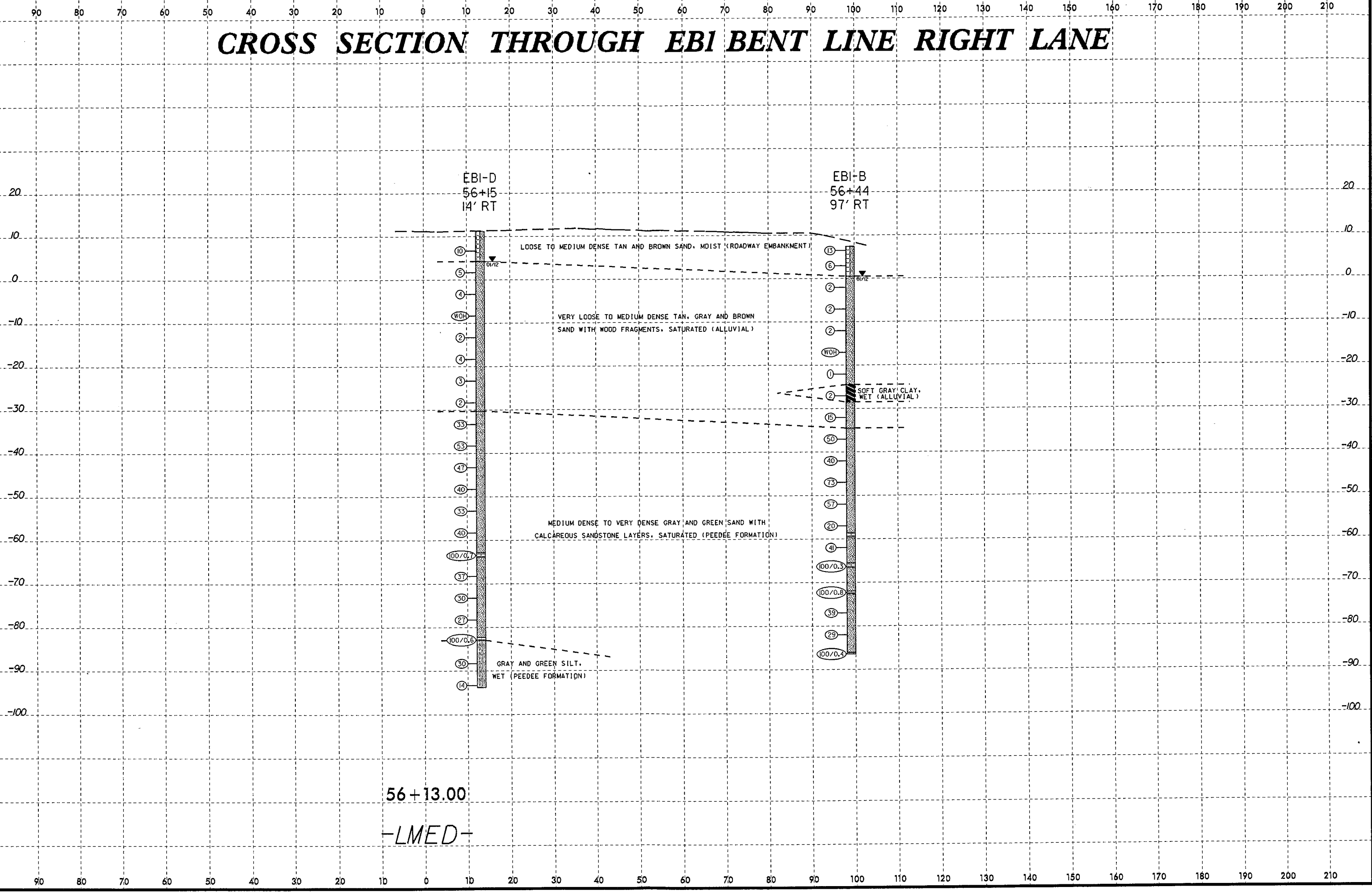
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

-LMED-

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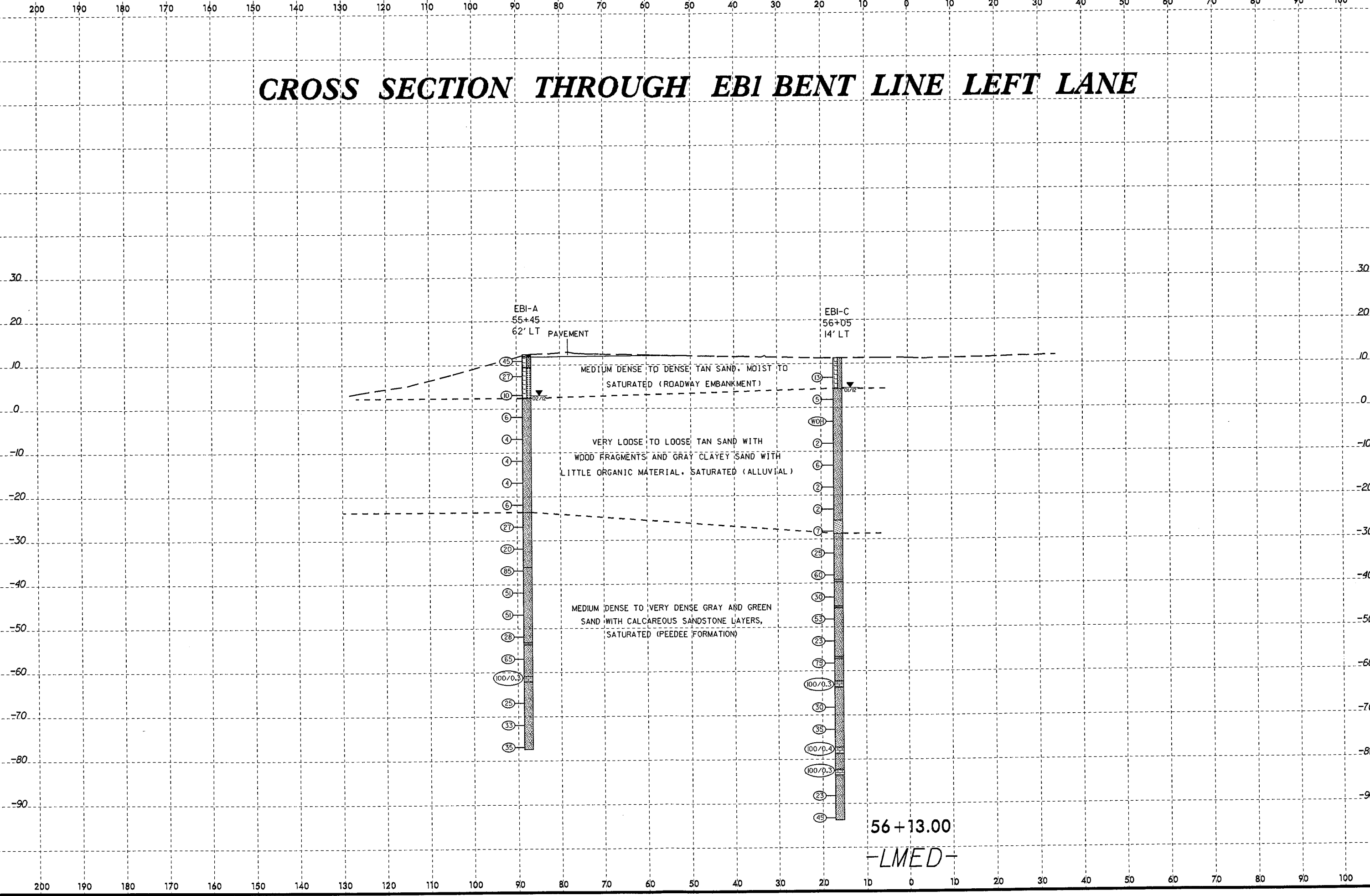
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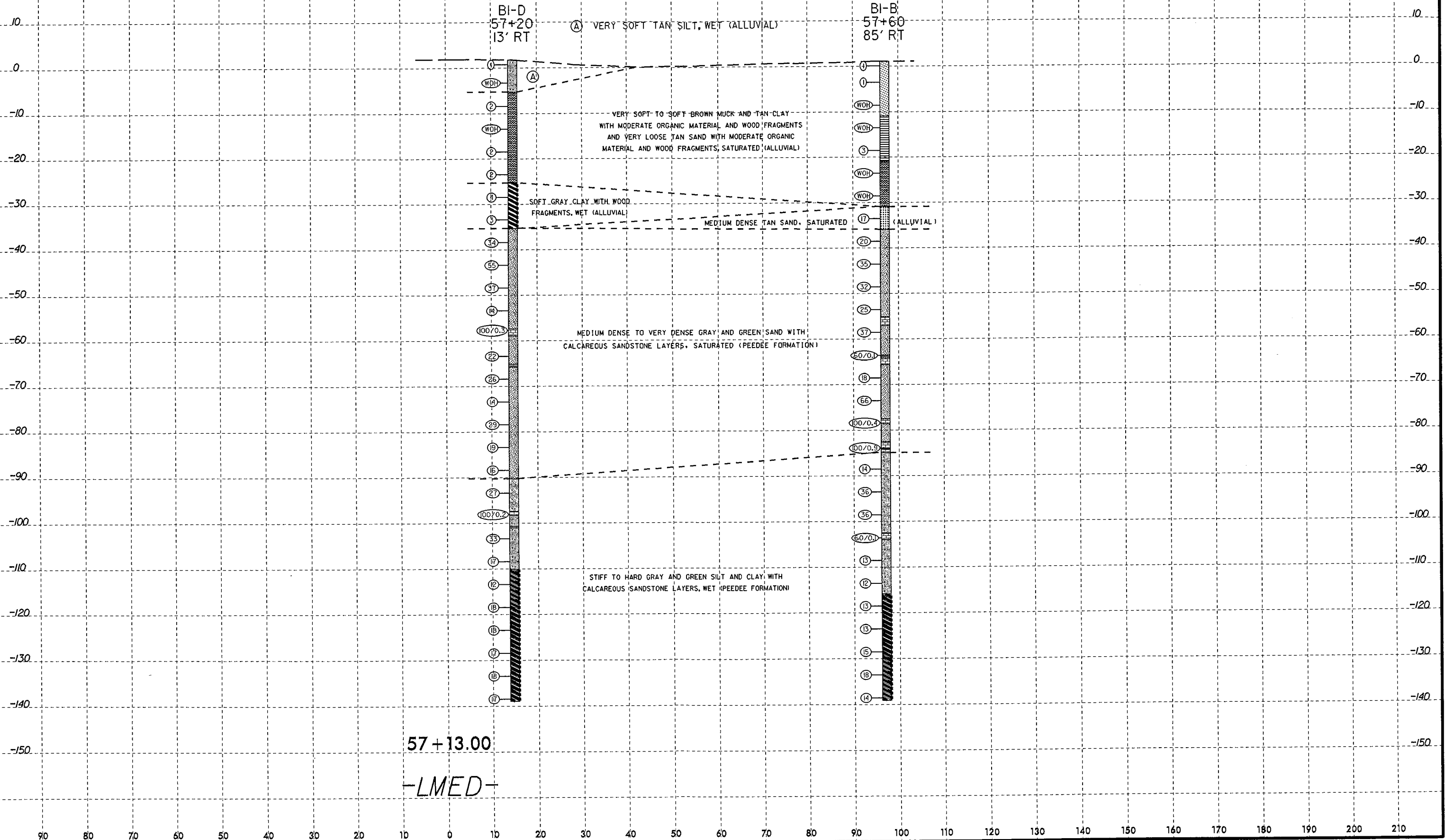
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CROSS SECTION THROUGH EBI BENT LINE LEFT LANE



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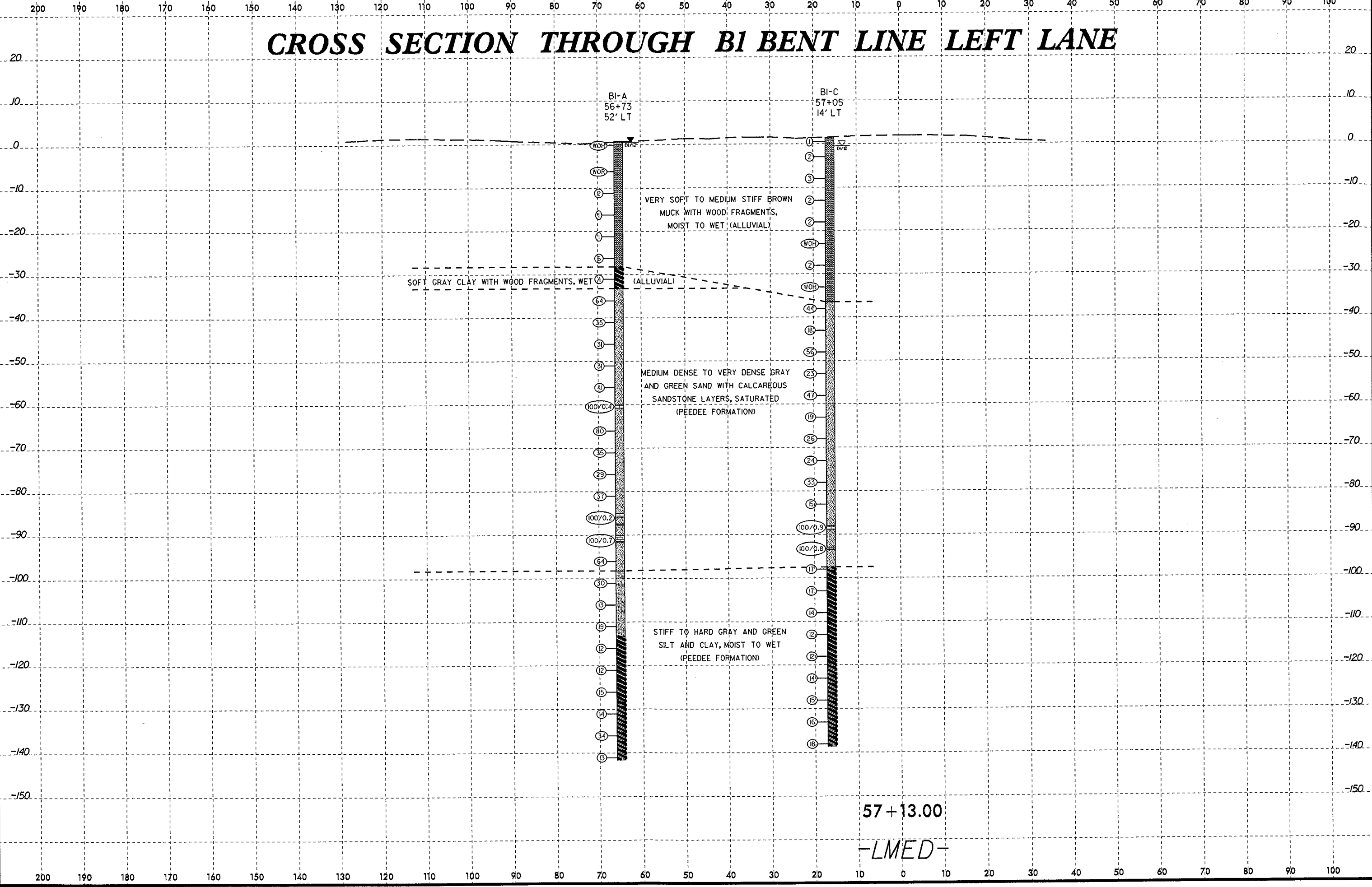


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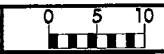


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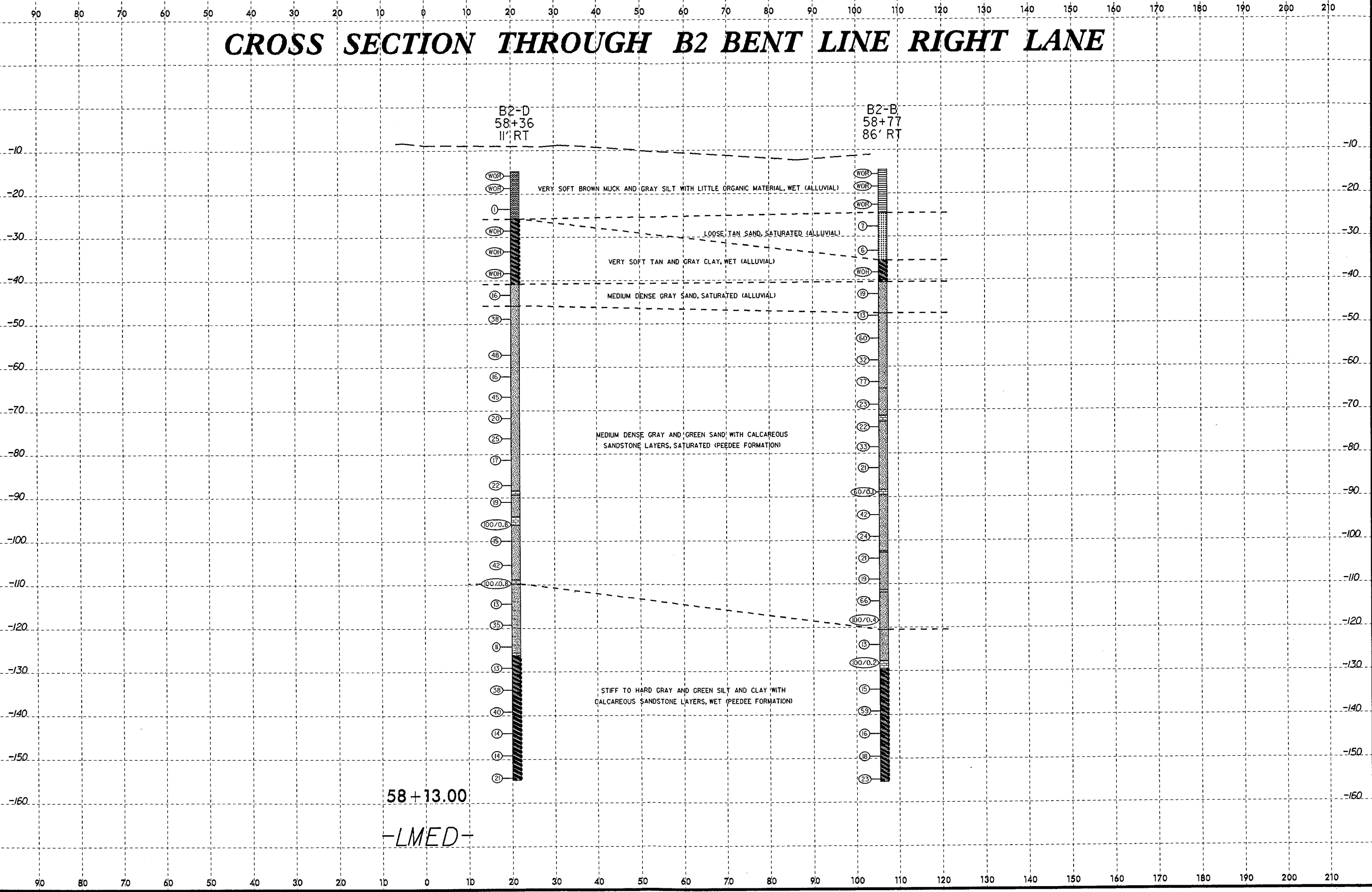
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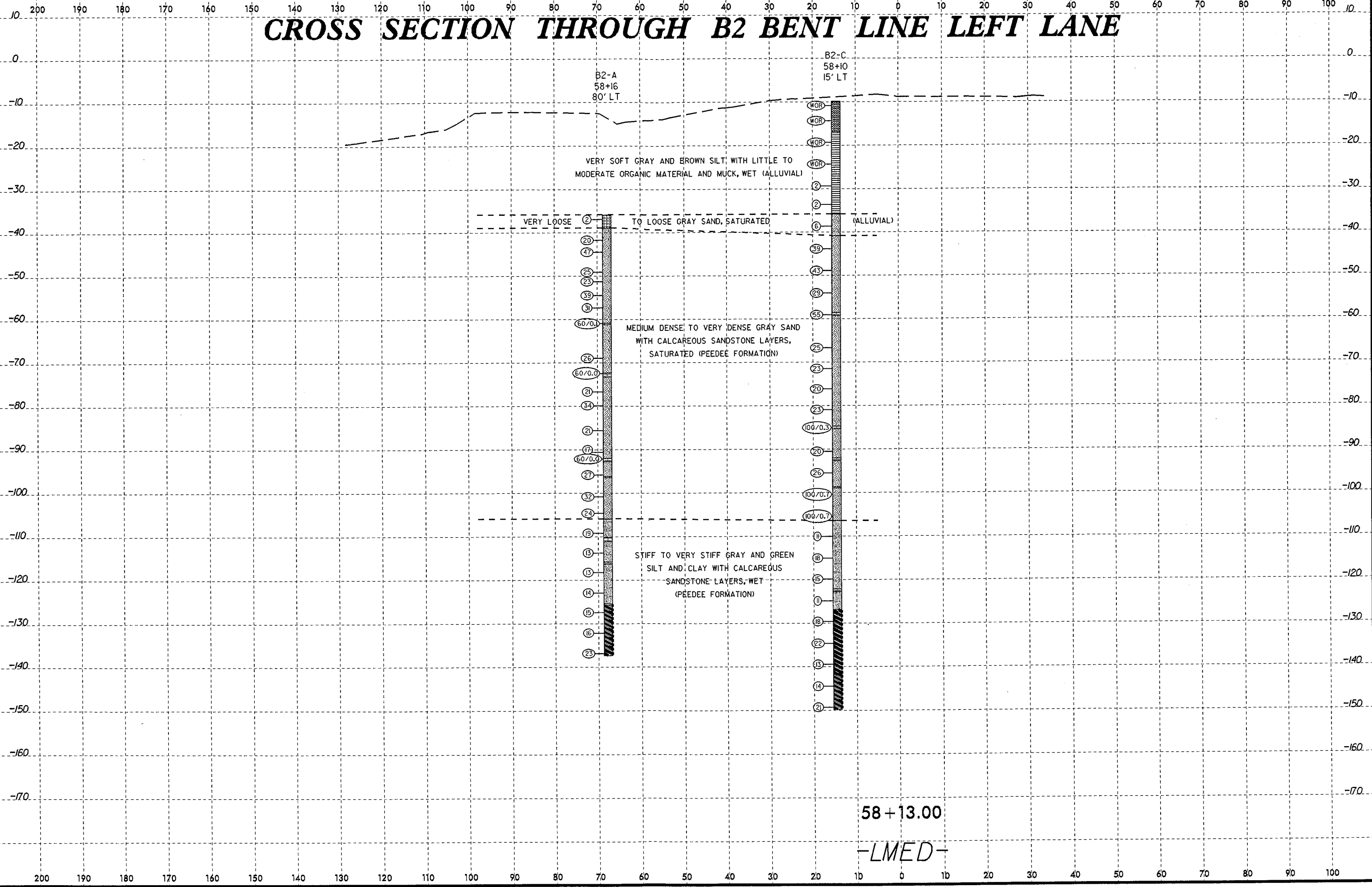
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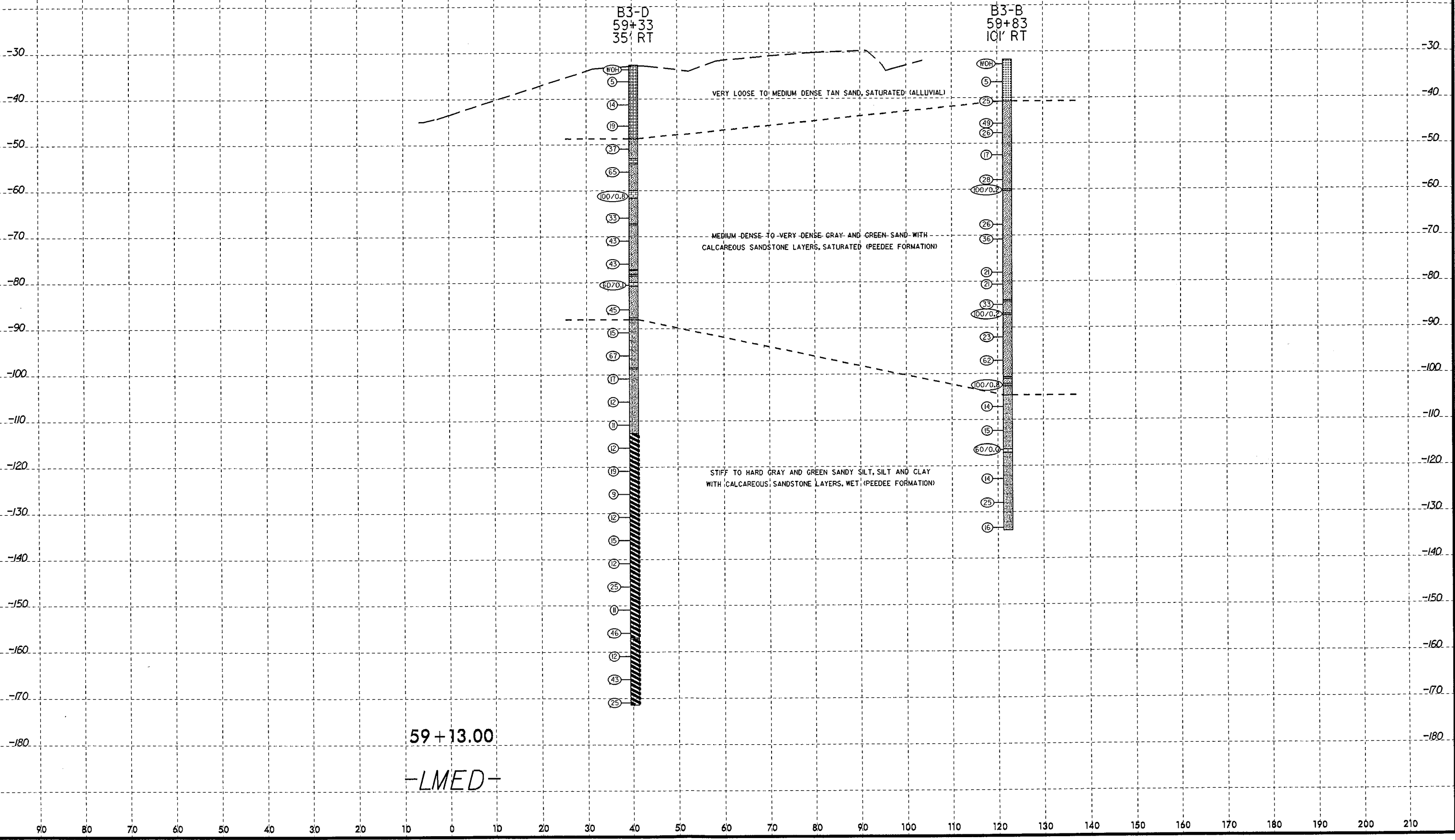
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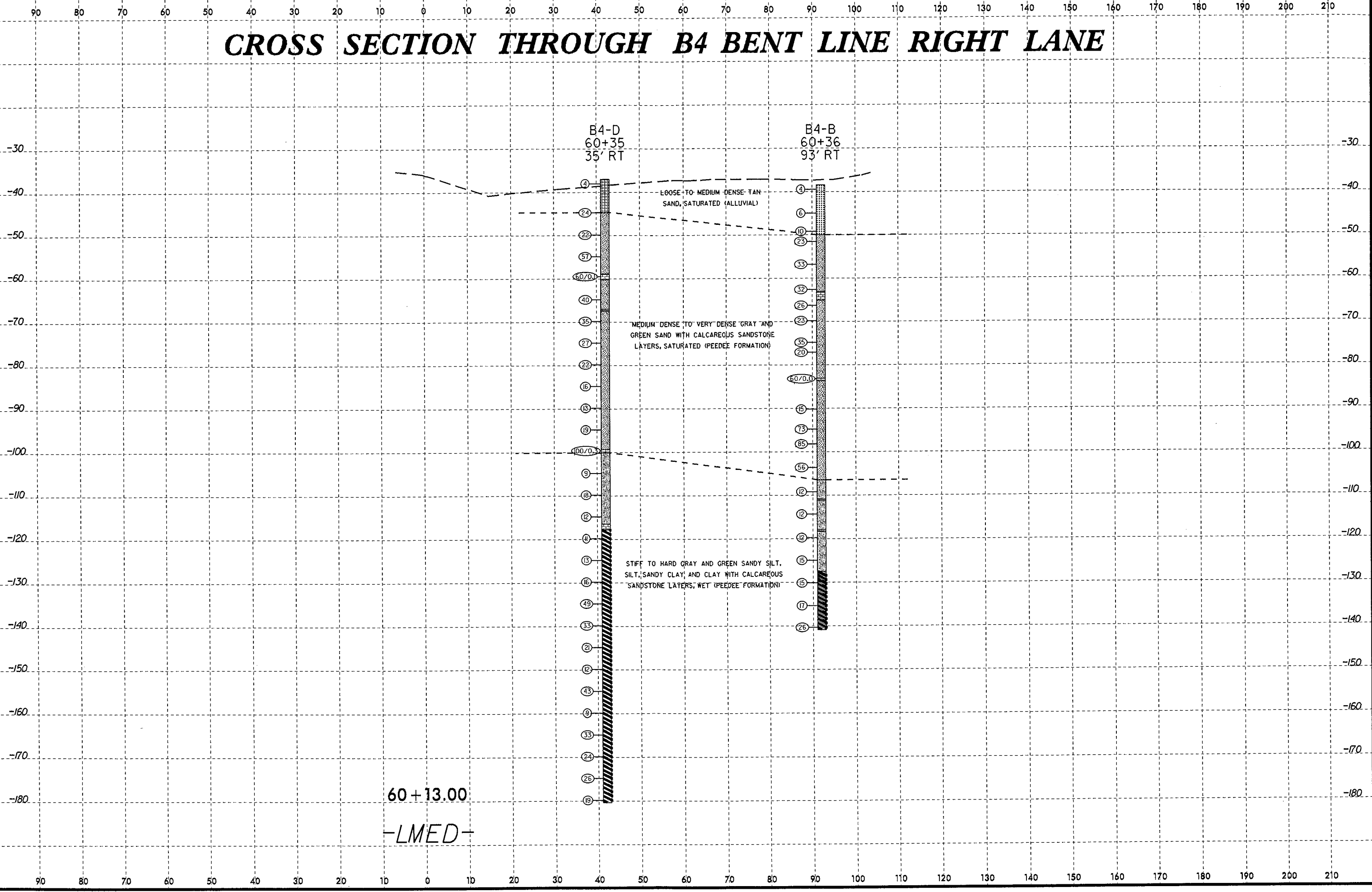
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CROSS SECTION THROUGH B3 BENT LINE RIGHT LANE



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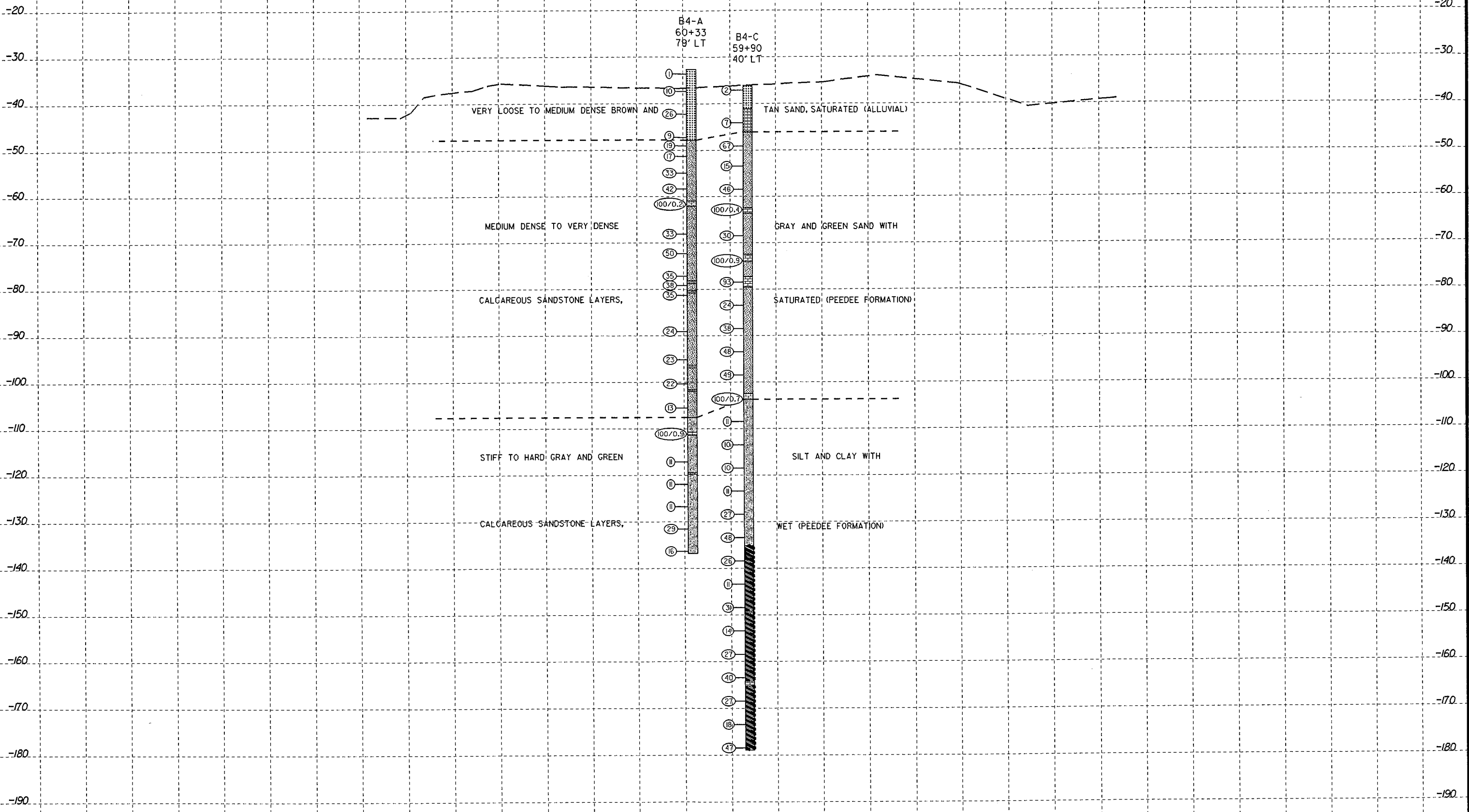
CROSS SECTION THROUGH B4 BENT LINE RIGHT LANE



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CROSS SECTION THROUGH B4 BENT LINE LEFT LANE



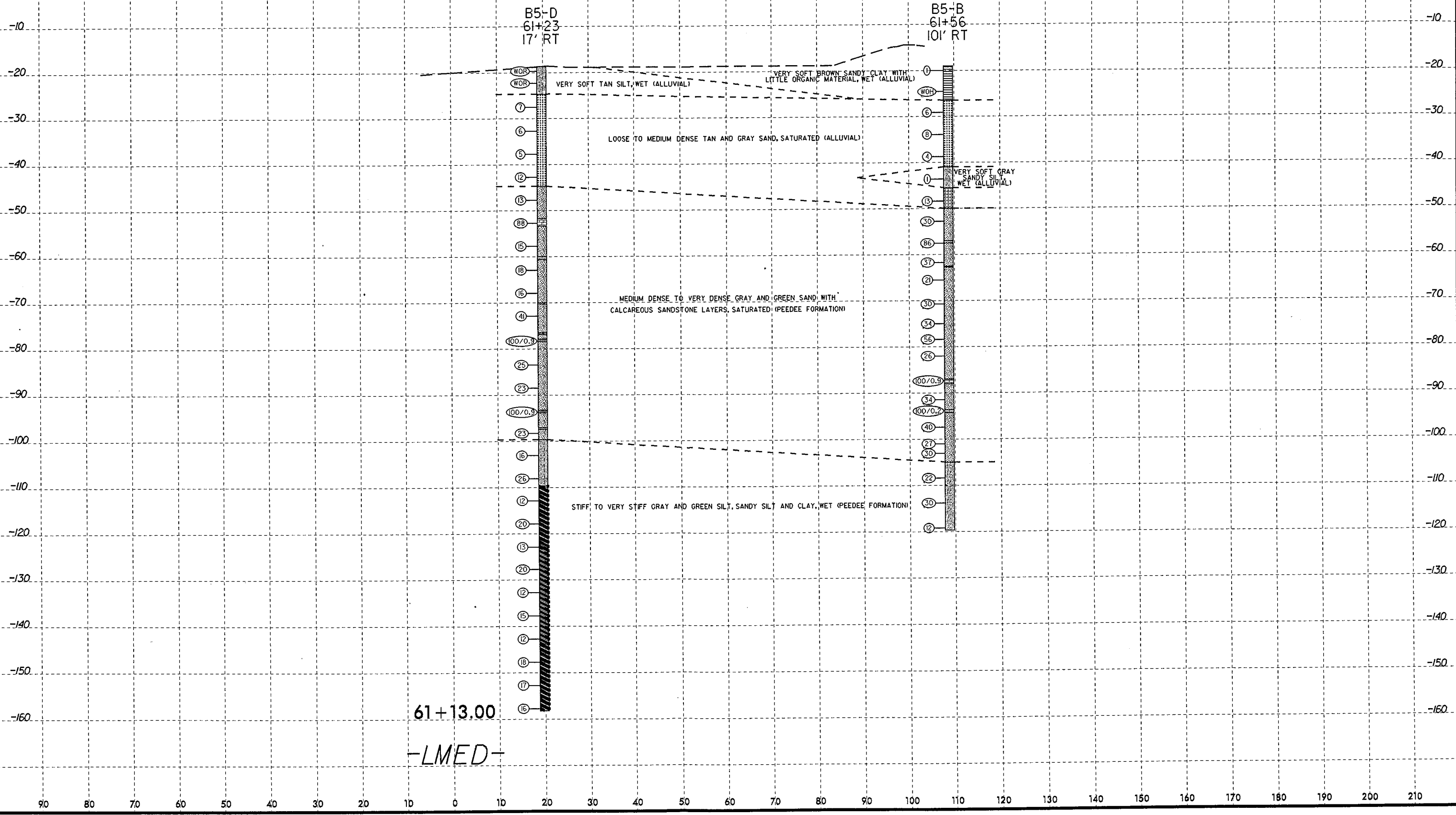
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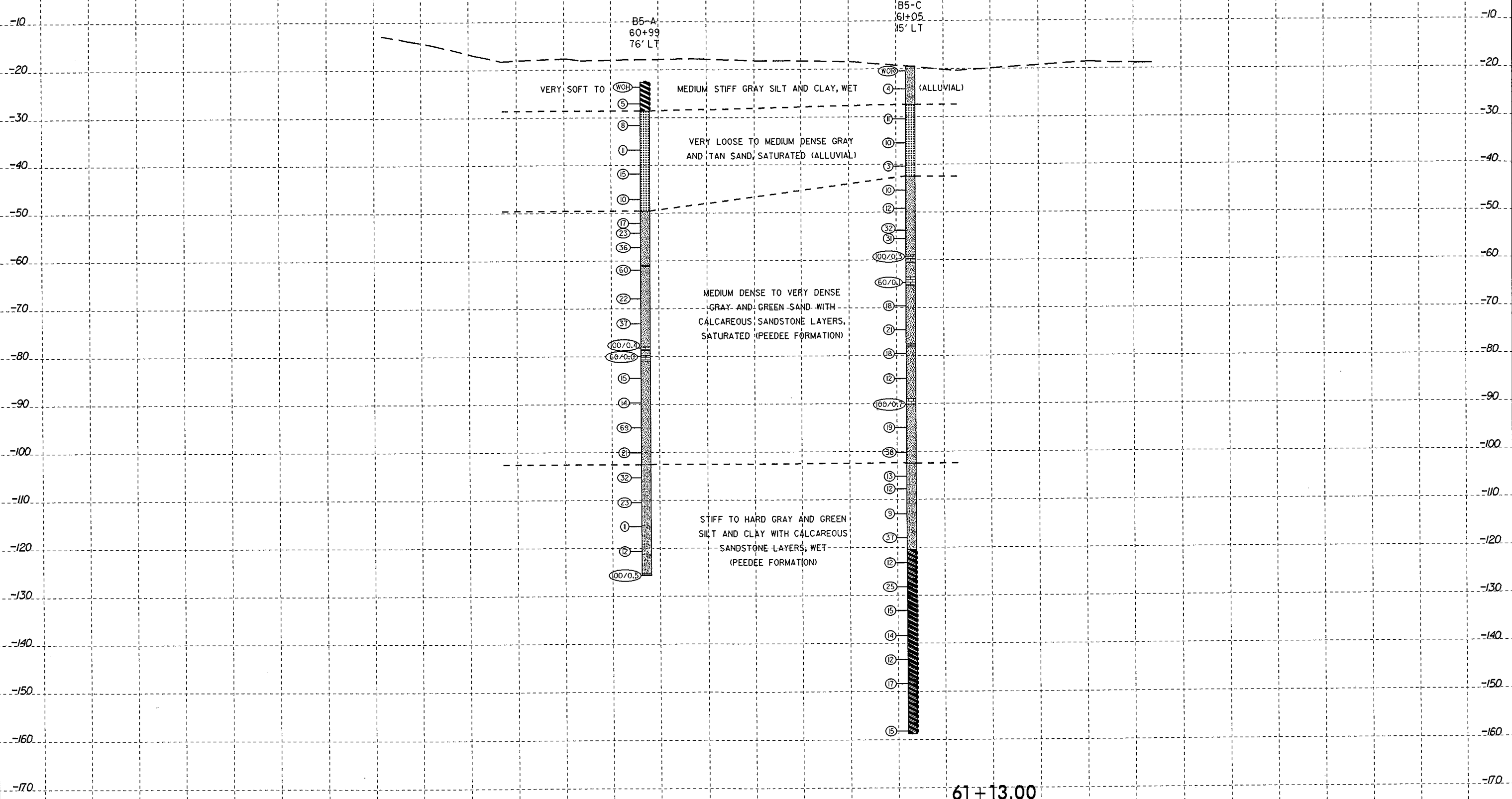


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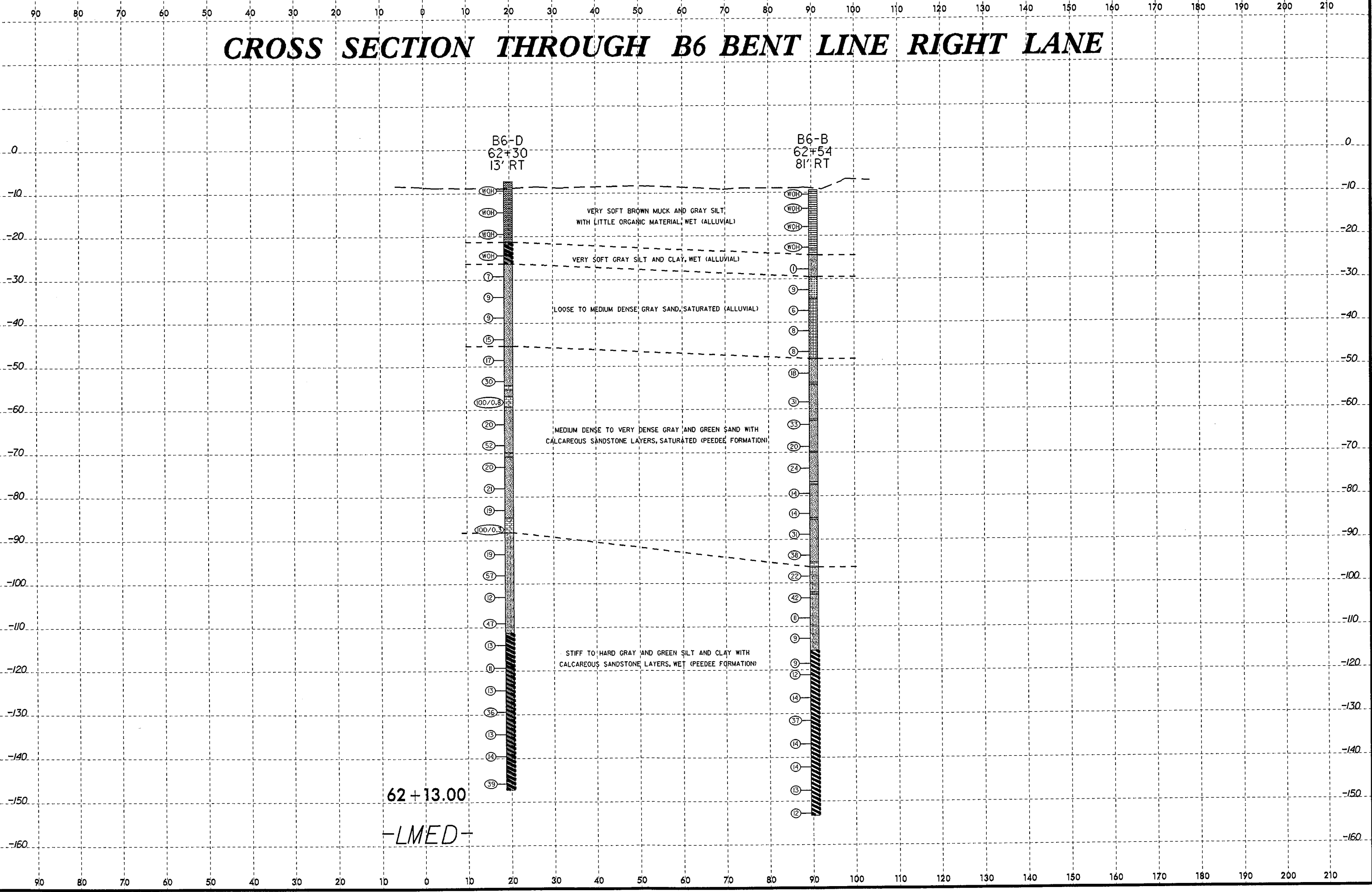
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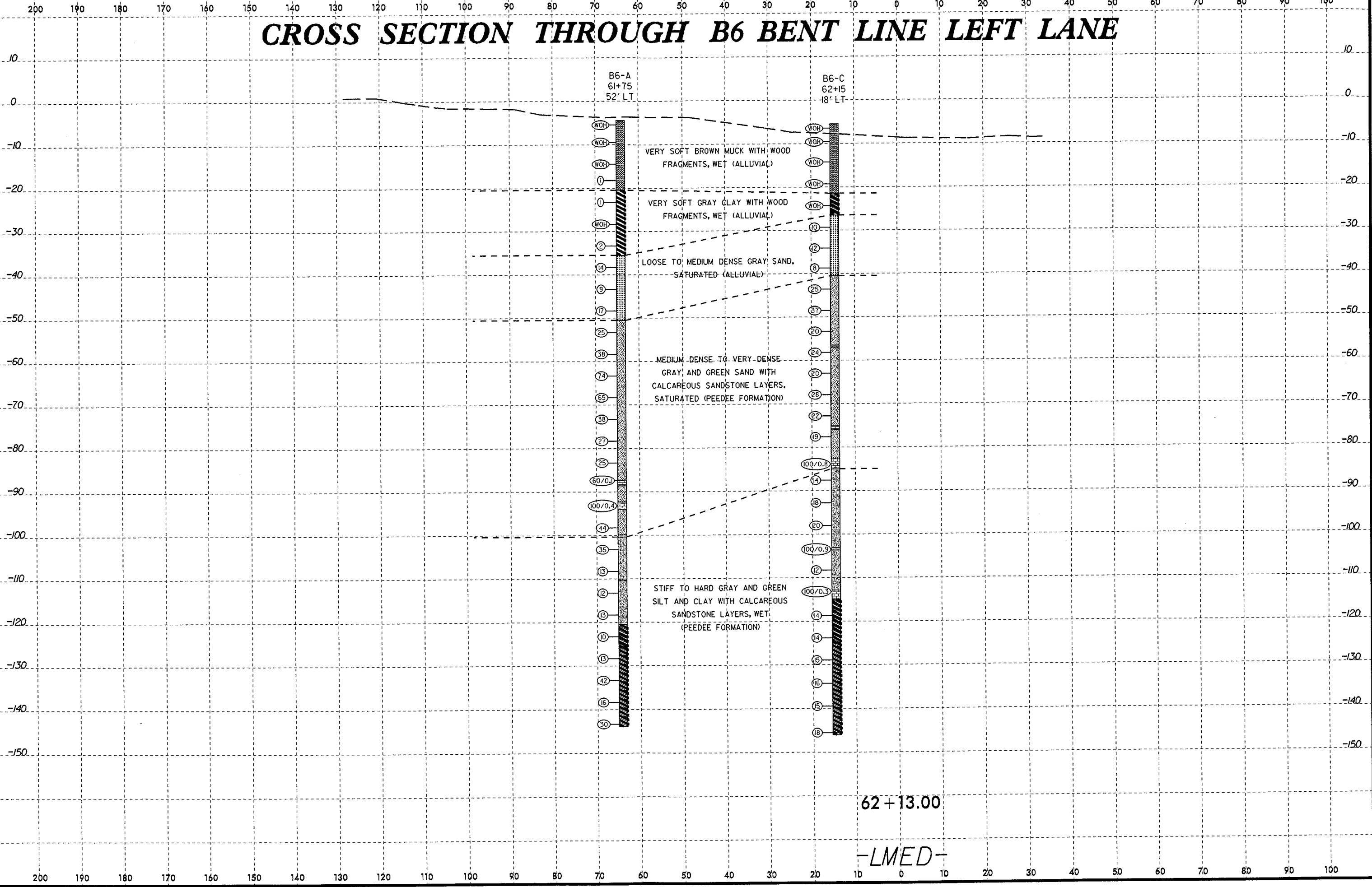
CROSS SECTION THROUGH B6 BENT LINE RIGHT LANE



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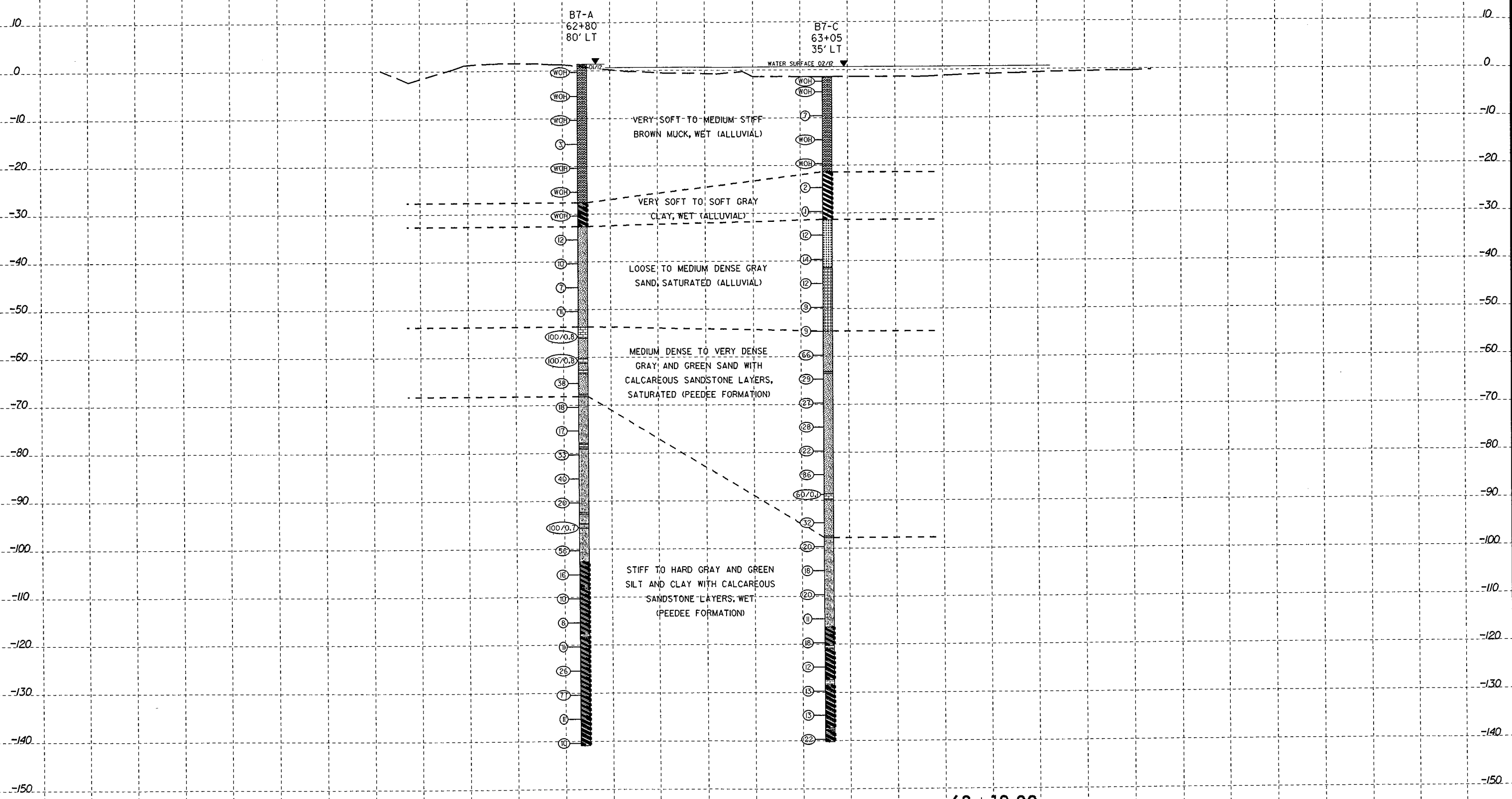


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-LMED-

CROSS SECTION THROUGH B7 BENT LINE LEFT LANE

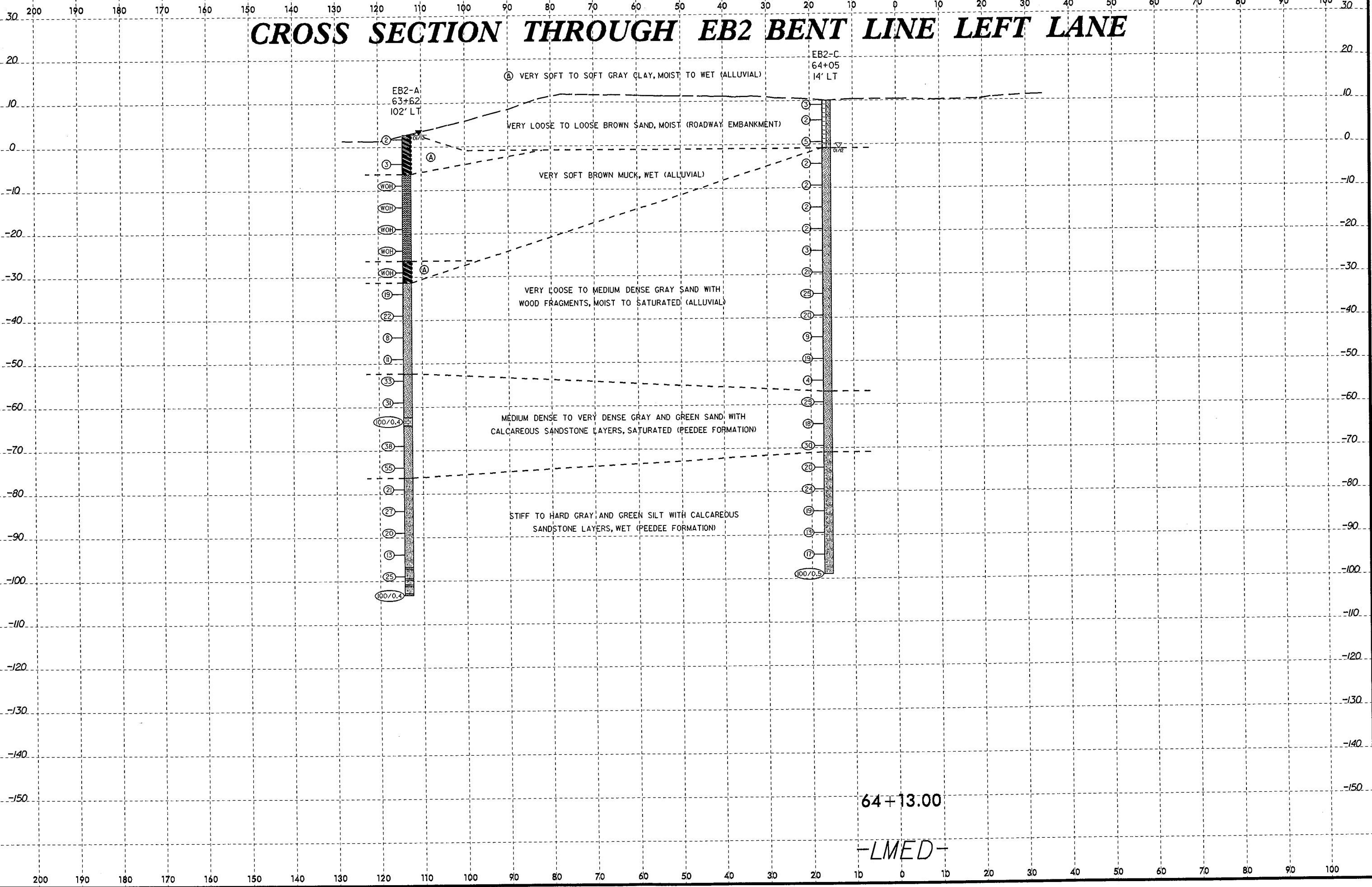


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CROSS SECTION THROUGH EB2 BENT LINE LEFT LANE



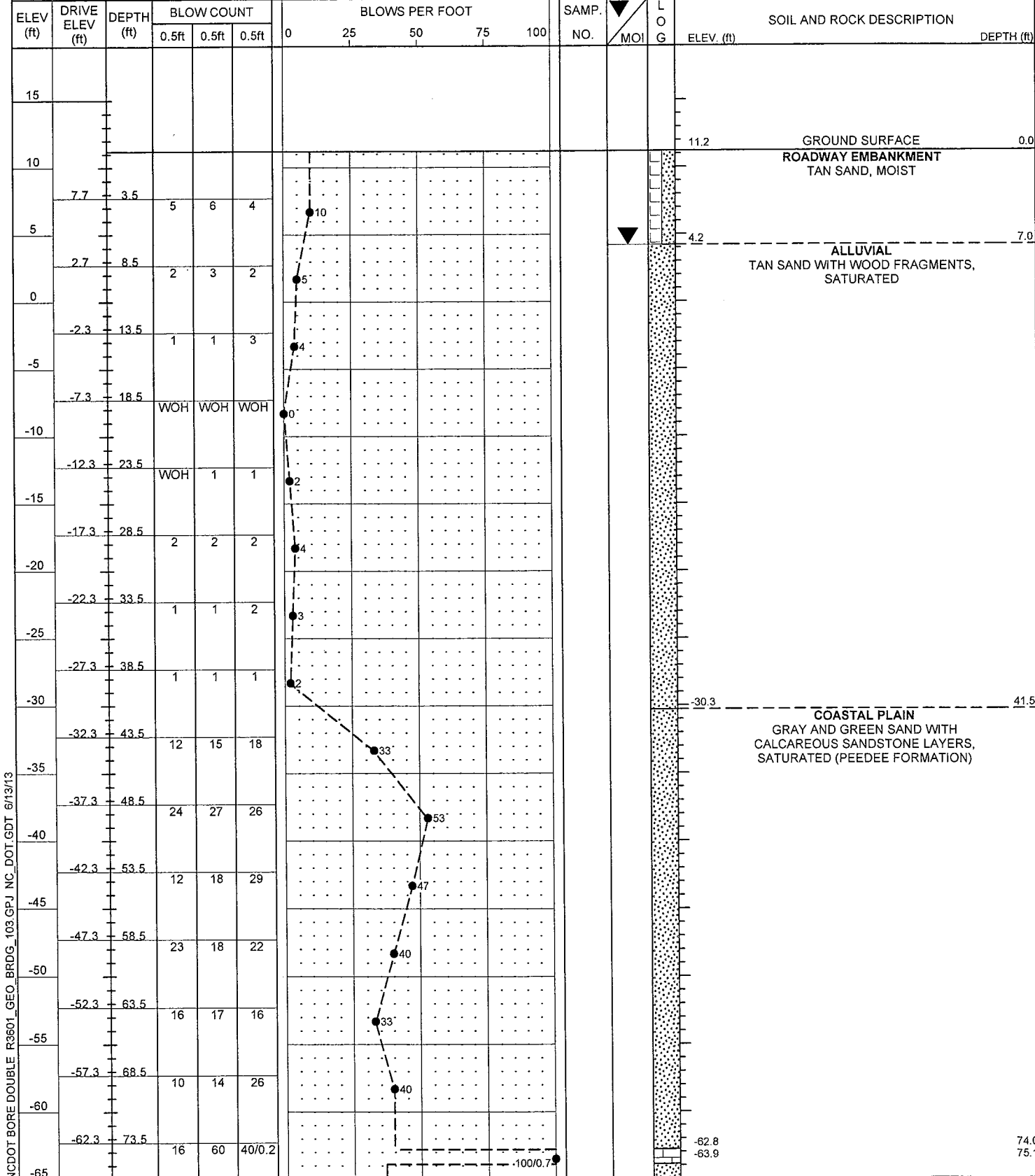
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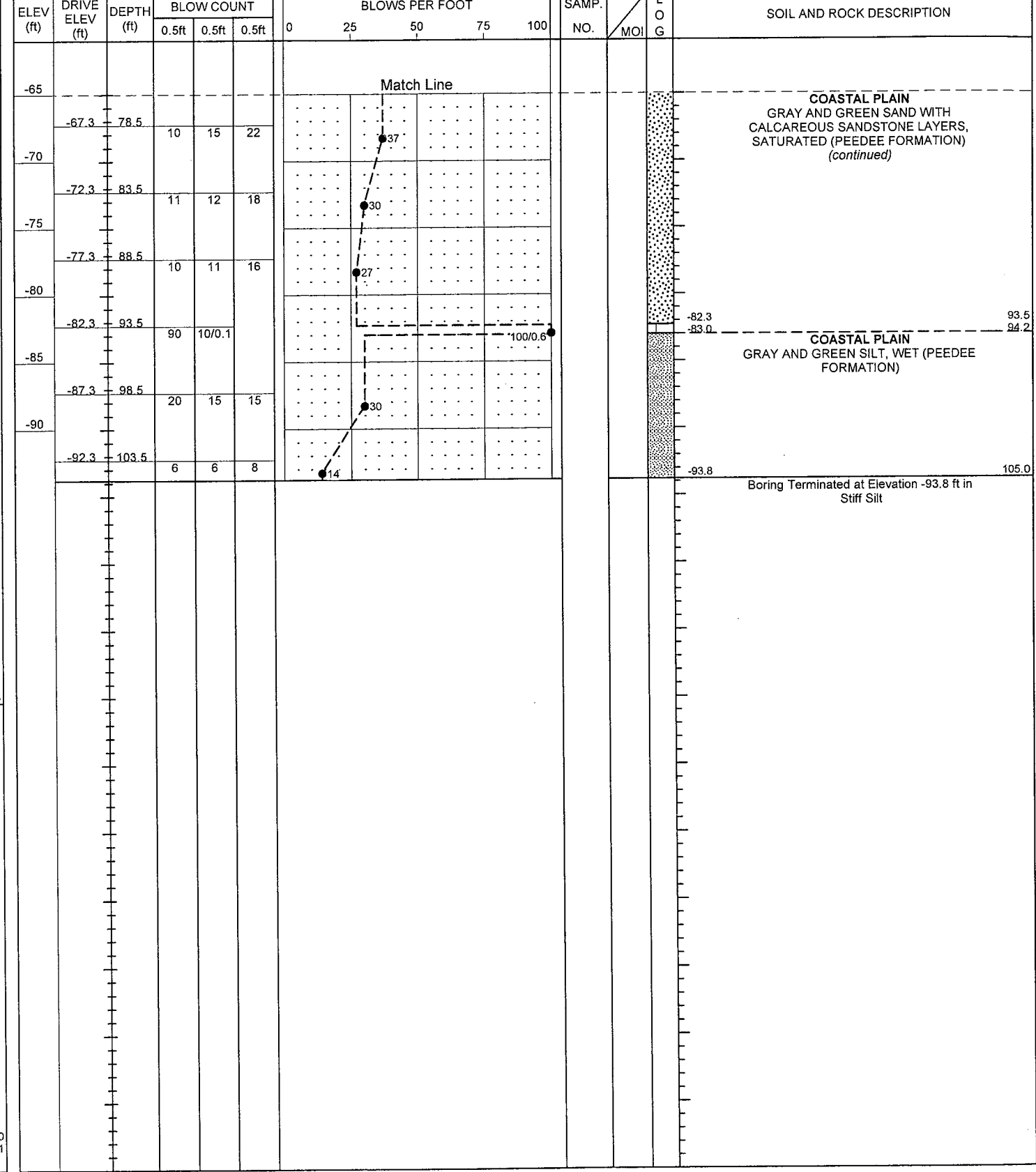
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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB1-D	STATION 56+15	OFFSET 14 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 11.2 ft	TOTAL DEPTH 105.0 ft	NORTHING 177,731	EASTING 2,306,041
DRILL RIG/HAMMER EFF./DATE SME R-2 DIEDRICH D-50 84% 11/01/2009			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/04/12	COMP. DATE 01/04/12	SURFACE WATER DEPTH N/A	



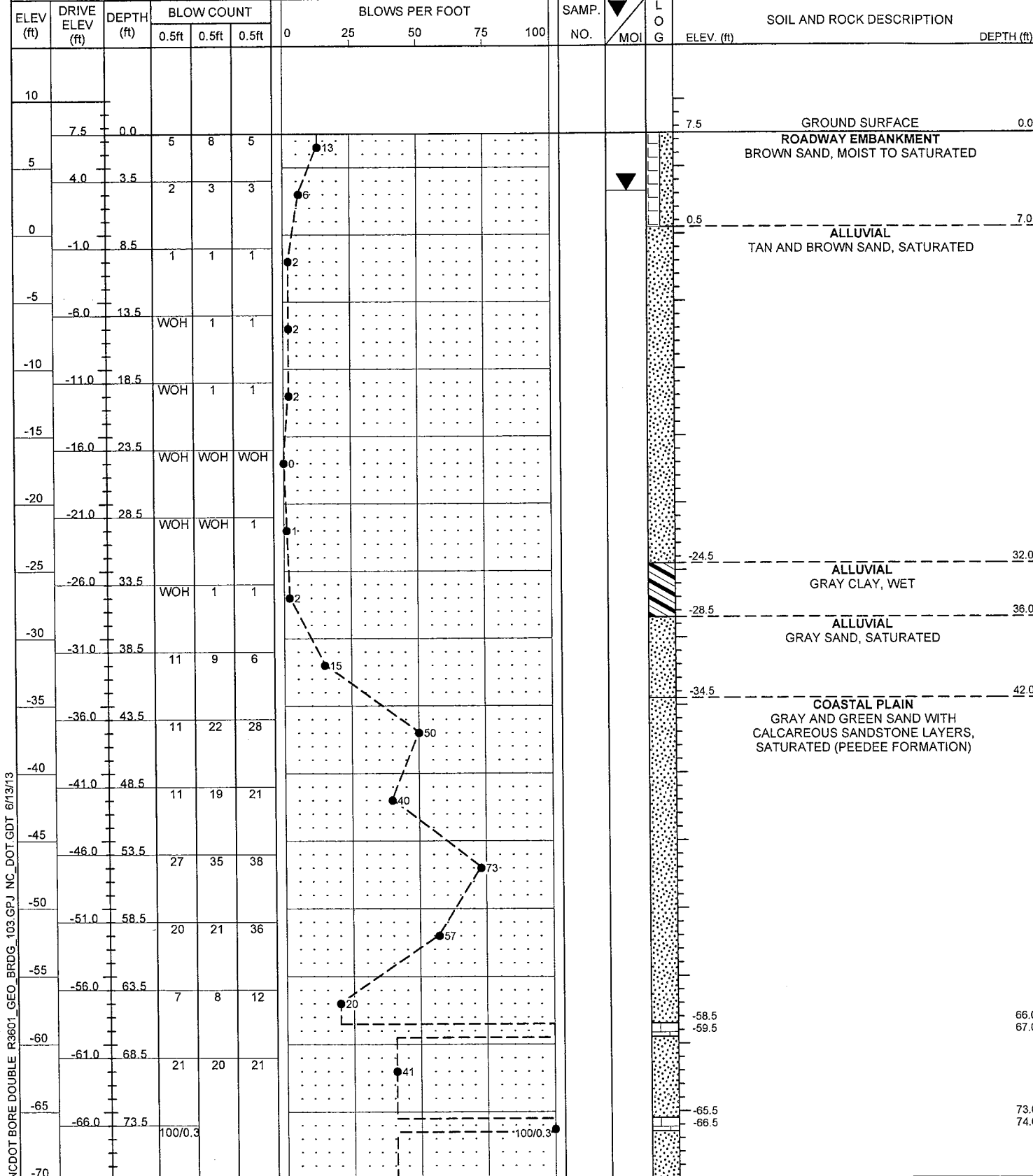
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SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB1-D	STATION 56+15	OFFSET 14 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 11.2 ft	TOTAL DEPTH 105.0 ft	NORTHING 177,731	EASTING 2,306,041
DRILL RIG/HAMMER EFF./DATE SME R-2 DIEDRICH D-50 84% 11/01/2009			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/04/12	COMP. DATE 01/04/12	SURFACE WATER DEPTH N/A	



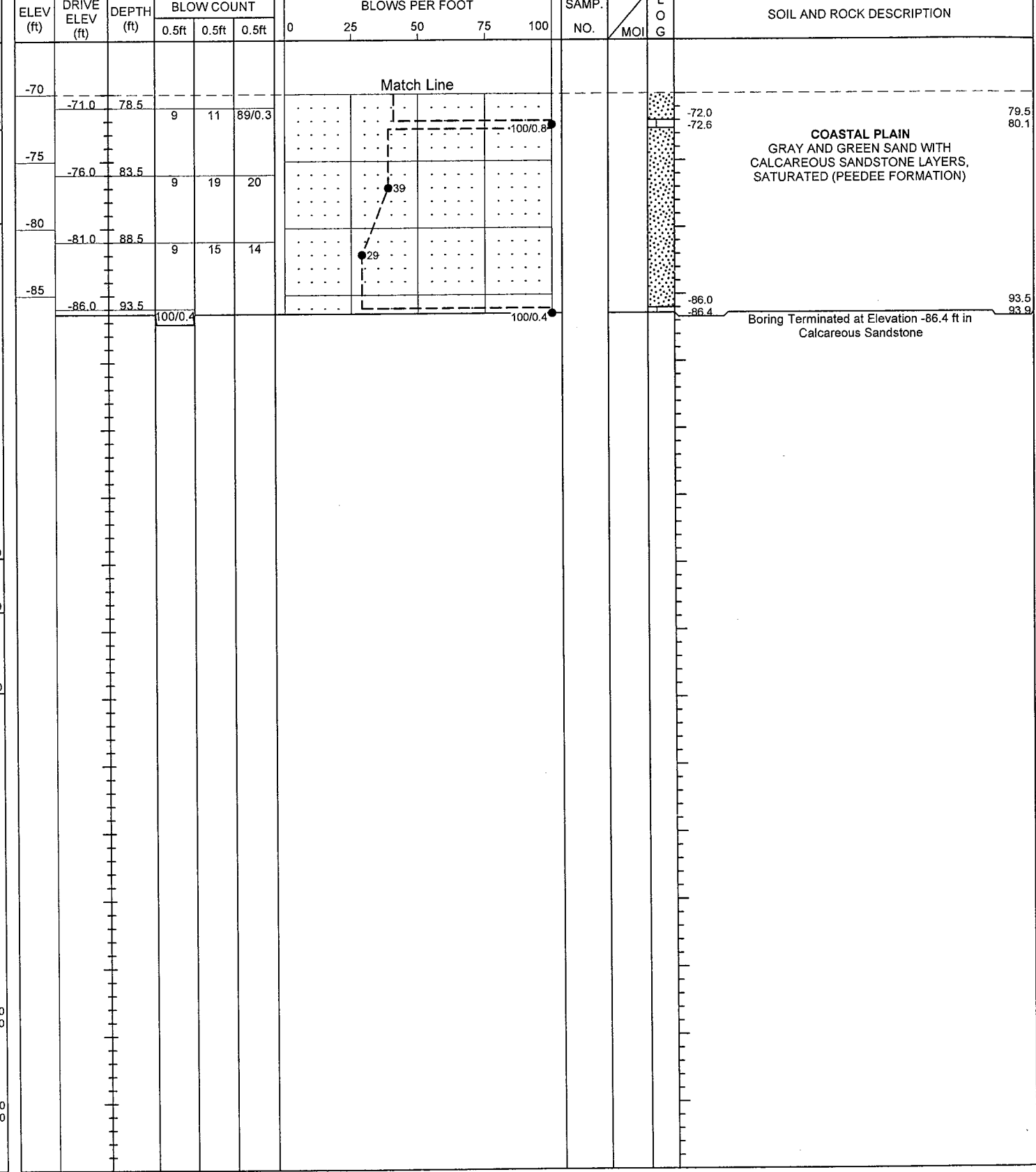
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB1-B	STATION 56+44	OFFSET 97 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 7.5 ft	TOTAL DEPTH 93.9 ft	NORTHING 177,655	EASTING 2,306,085
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/20/12	COMP. DATE 01/20/12	SURFACE WATER DEPTH N/A



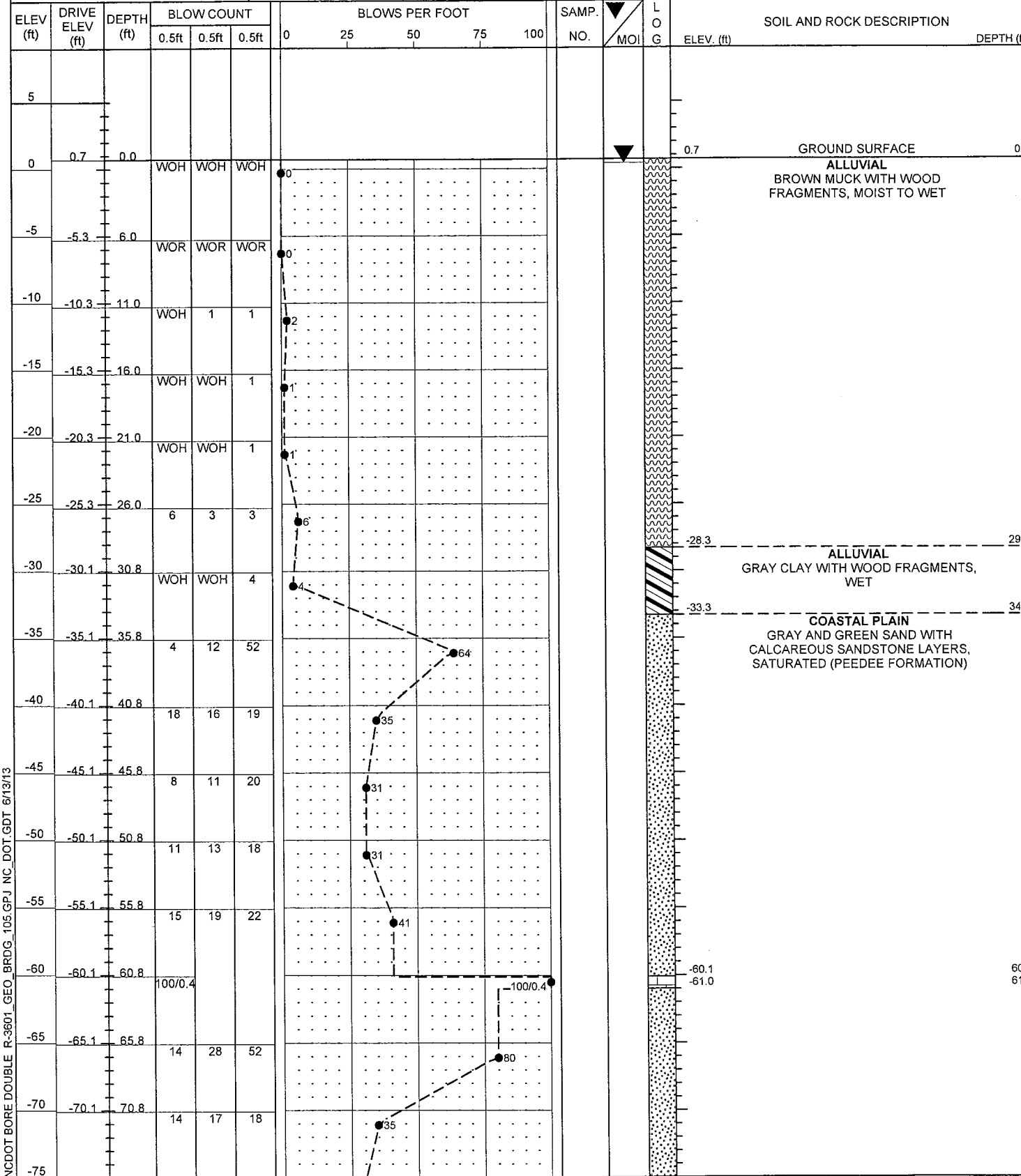
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SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB1-B	STATION 56+44	OFFSET 97 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 7.5 ft	TOTAL DEPTH 93.9 ft	NORTHING 177,655	EASTING 2,306,085
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/20/12	COMP. DATE 01/20/12	SURFACE WATER DEPTH N/A



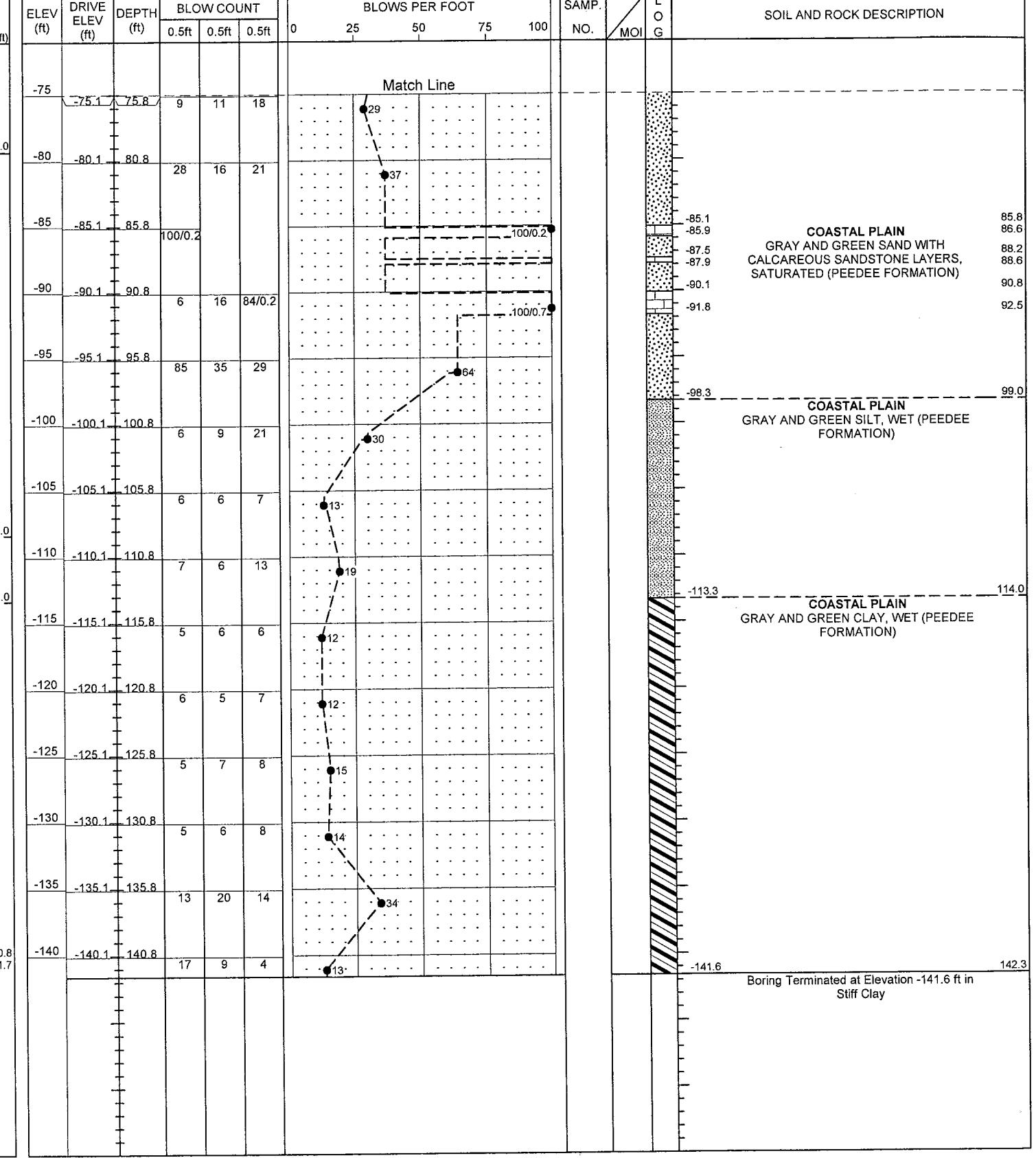
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-A	STATION 56+73	OFFSET 52 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 0.7 ft	TOTAL DEPTH 142.3 ft	NORTHING 177,807	EASTING 2,306,086
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/13/12	COMP. DATE 02/14/12	SURFACE WATER DEPTH N/A



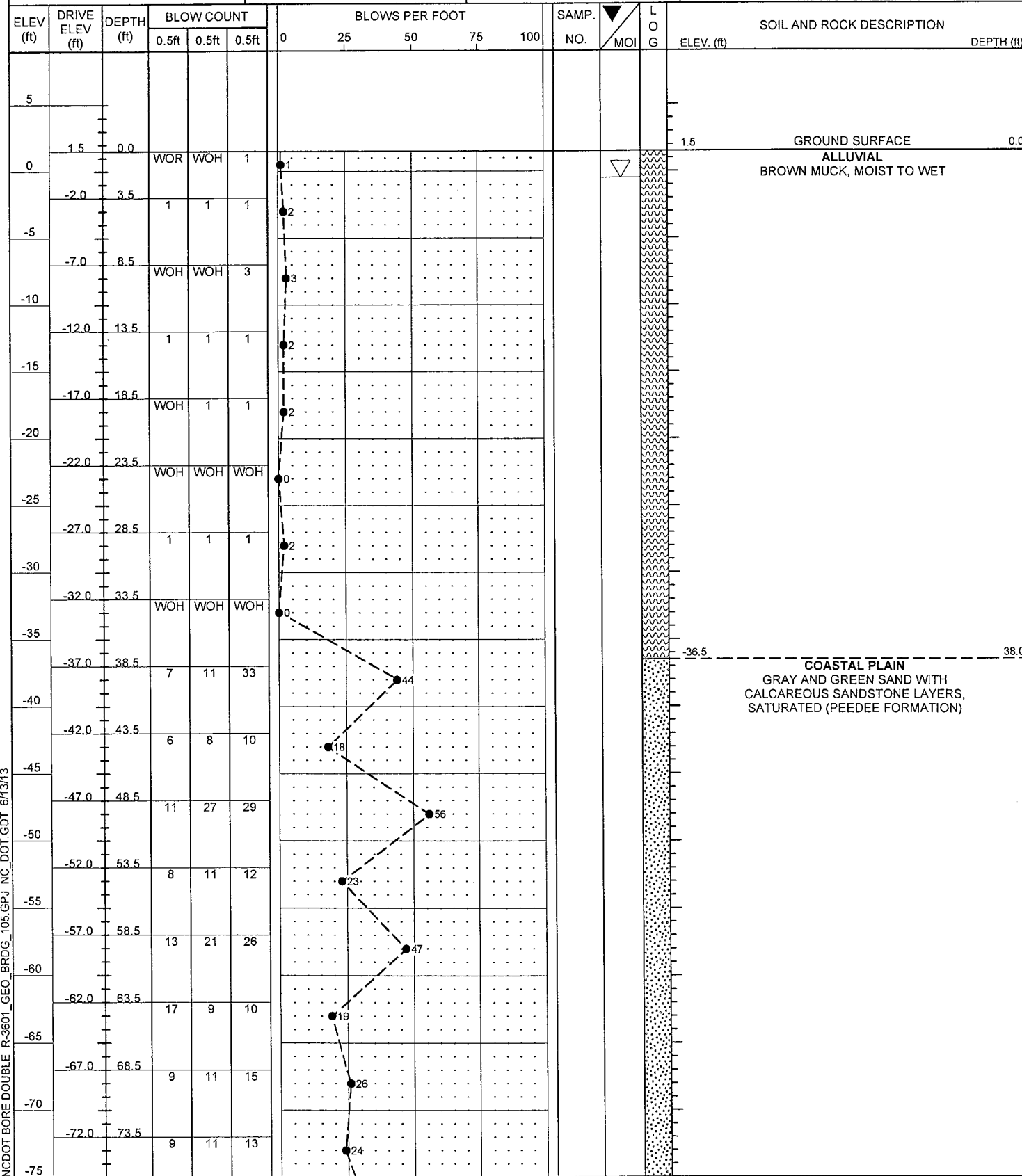
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-A	STATION 56+73	OFFSET 52 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 0.7 ft	TOTAL DEPTH 142.3 ft	NORTHING 177,807	EASTING 2,306,086
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/13/12	COMP. DATE 02/14/12	SURFACE WATER DEPTH N/A



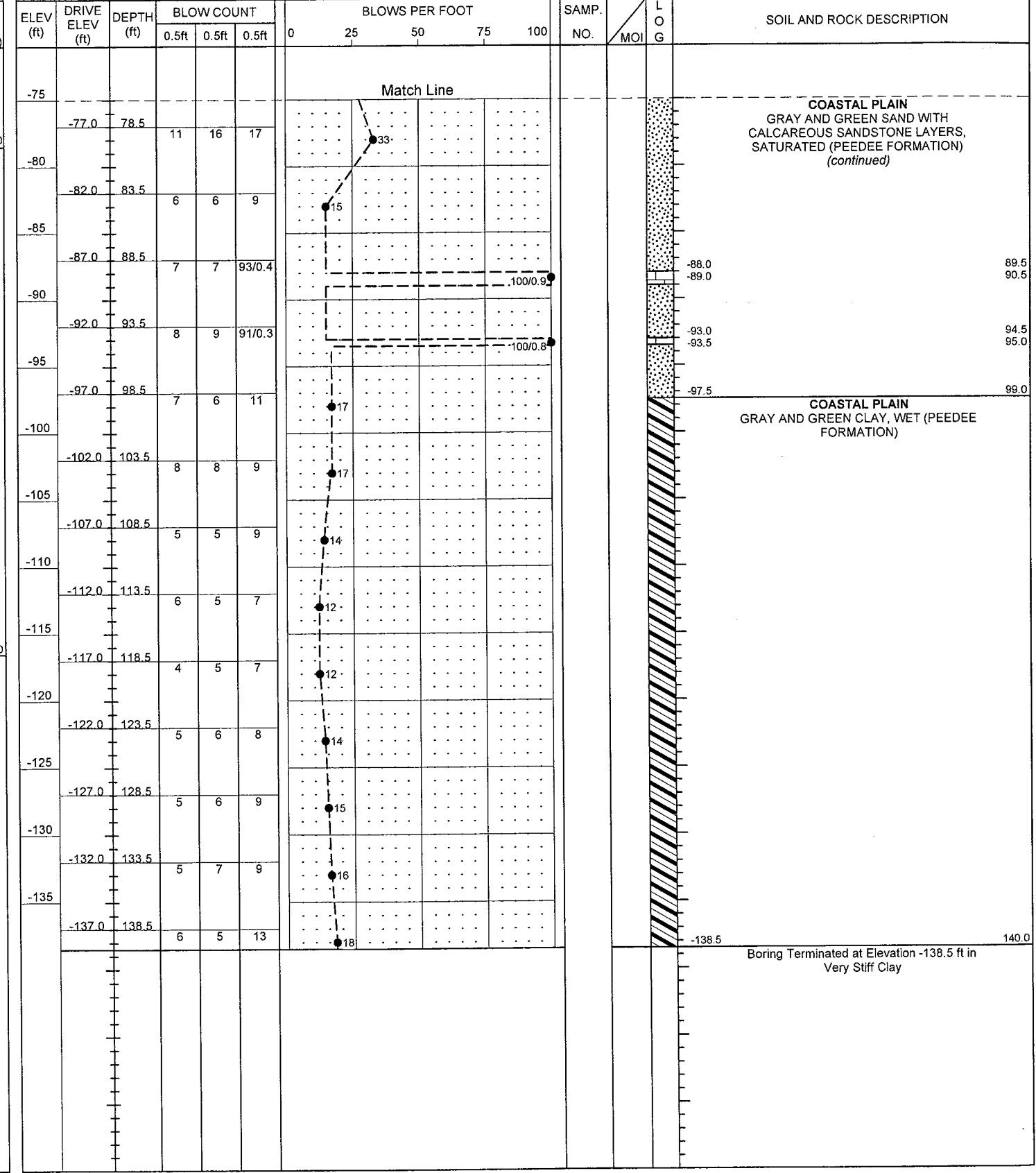
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-C	STATION 57+05	OFFSET 14 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 1.5 ft	TOTAL DEPTH 140.0 ft	NORTHING 177,775	EASTING 2,306,124
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/30/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-C	STATION 57+05	OFFSET 14 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 1.5 ft	TOTAL DEPTH 140.0 ft	NORTHING 177,775	EASTING 2,306,124
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/30/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A

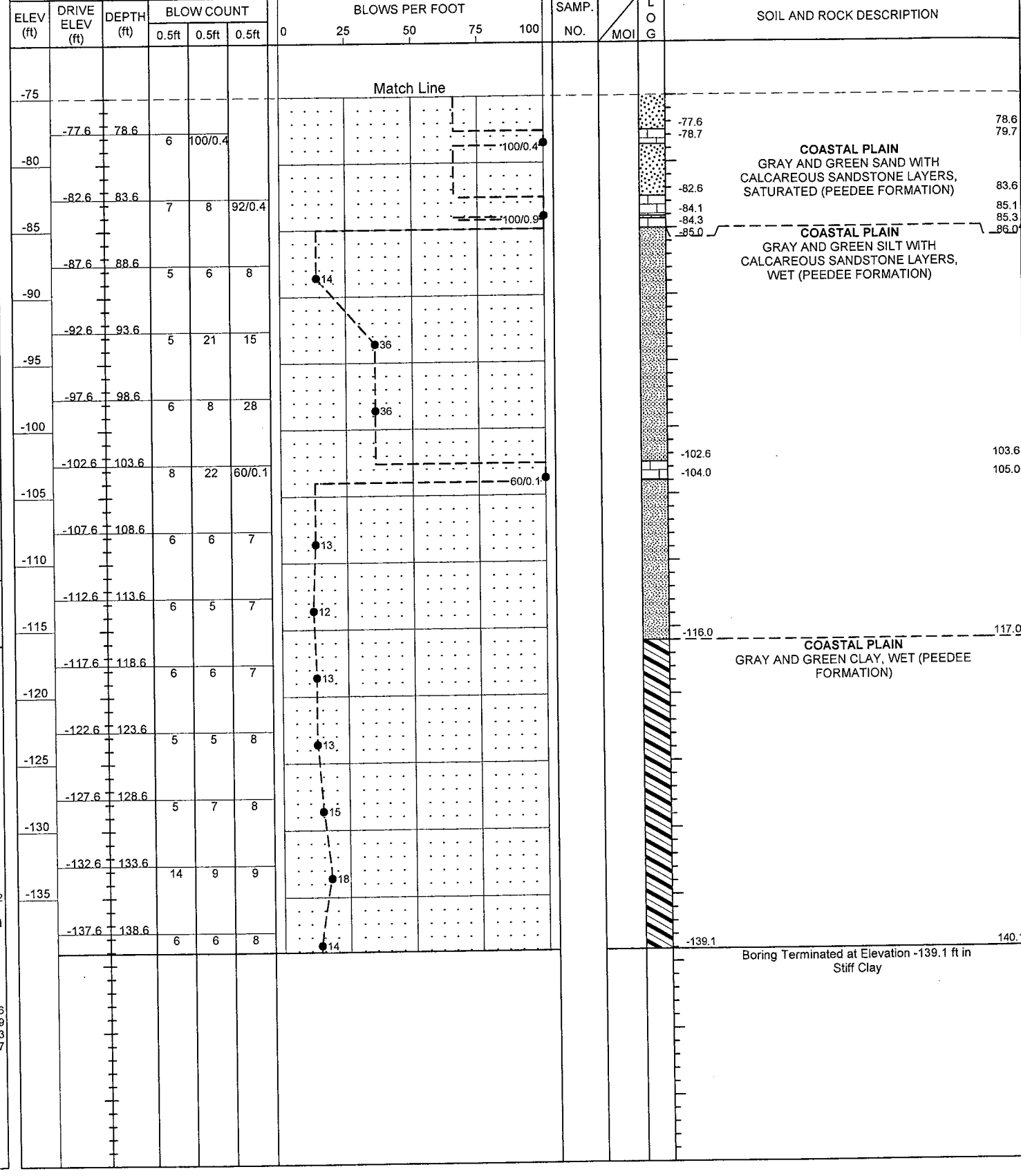
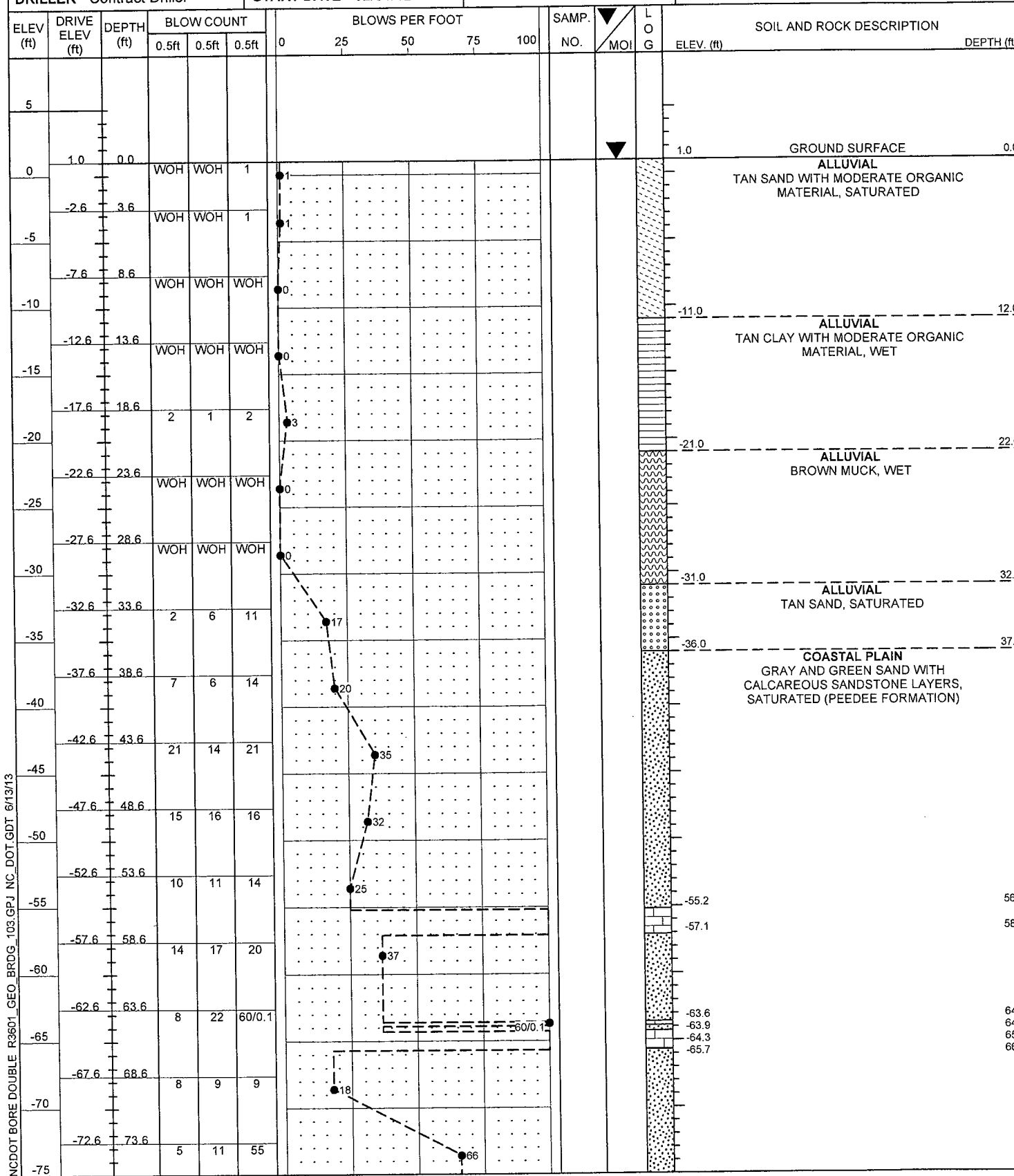


NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-B	STATION 57+60	OFFSET 85 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.0 ft	TOTAL DEPTH 140.1 ft	NORTHING 177,687	EASTING 2,306,196
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/01/12	COMP. DATE 02/02/12	SURFACE WATER DEPTH N/A

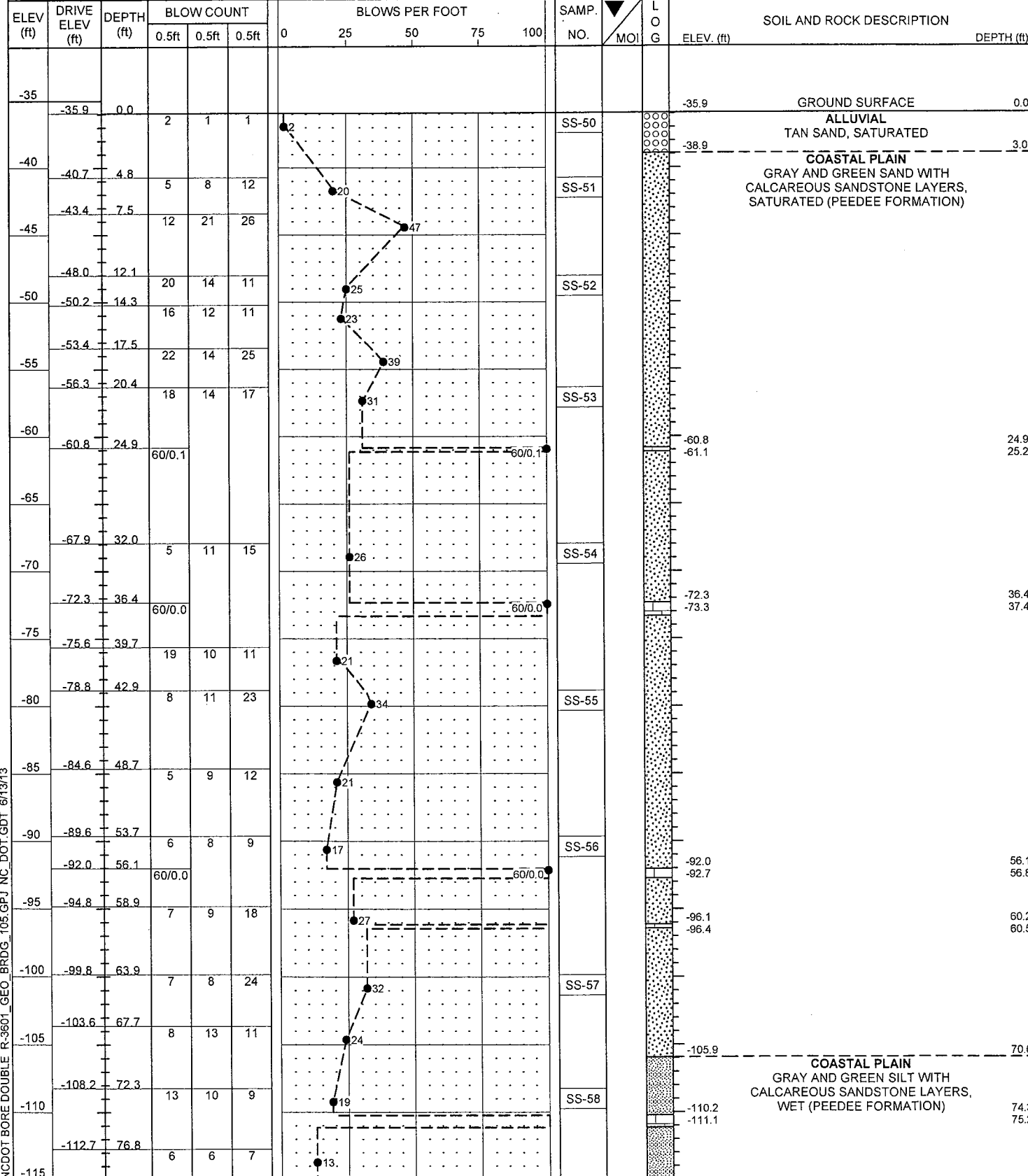
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SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B1-B	STATION 57+60	OFFSET 85 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.0 ft	TOTAL DEPTH 140.1 ft	NORTHING 177,687	EASTING 2,306,196
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/01/12	COMP. DATE 02/02/12	SURFACE WATER DEPTH N/A



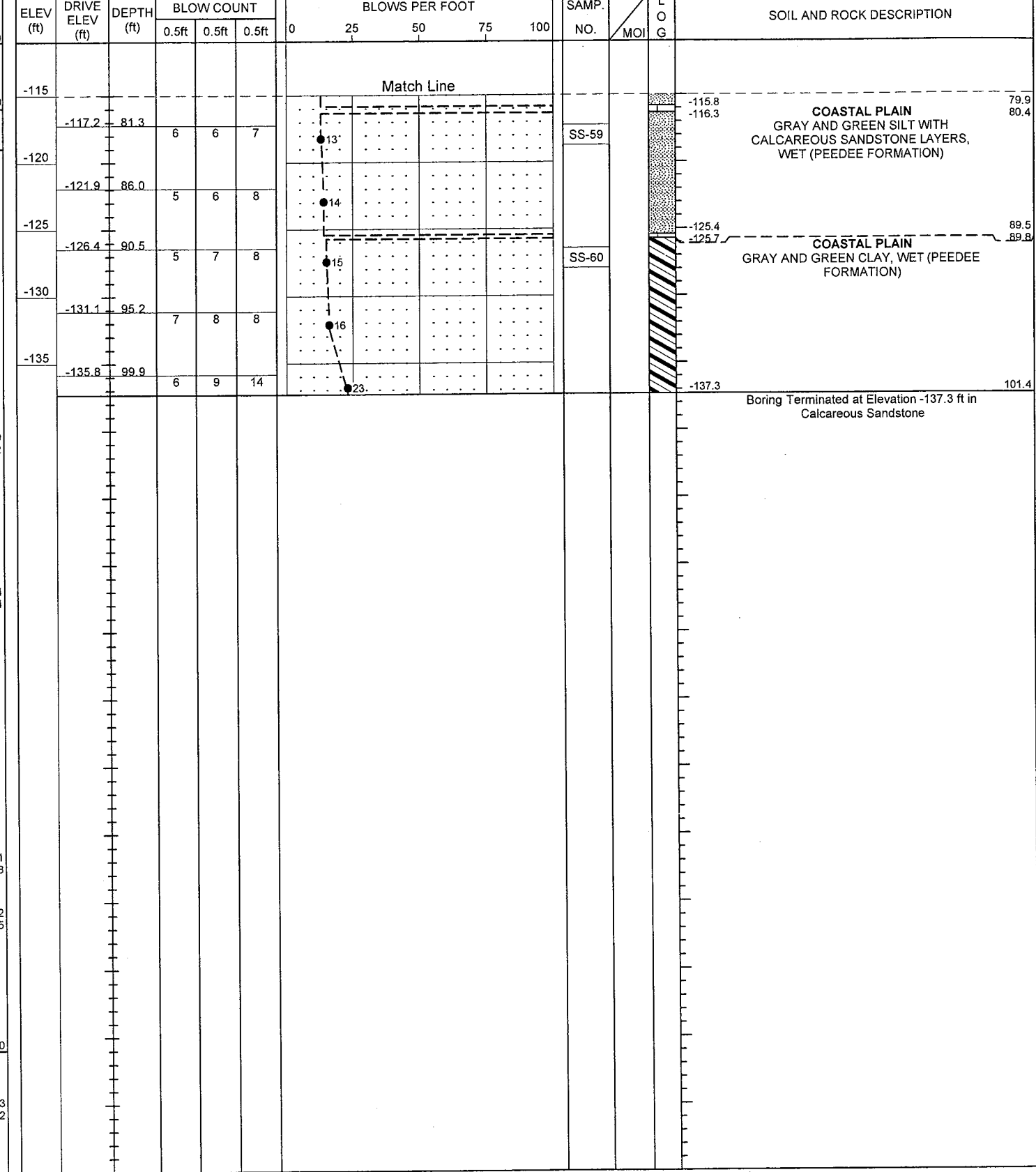
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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER				GROUND WTR (ft)
BORING NO. B2-A	STATION 58+16	OFFSET 80 ft LT	ALIGNMENT -LMED-	0 HR. N/A
COLLAR ELEV. -35.9 ft	TOTAL DEPTH 101.4 ft	NORTHING 177,859	EASTING 2,306,223	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 04/14/11	COMP. DATE 04/14/11	SURFACE WATER DEPTH 33.3ft	



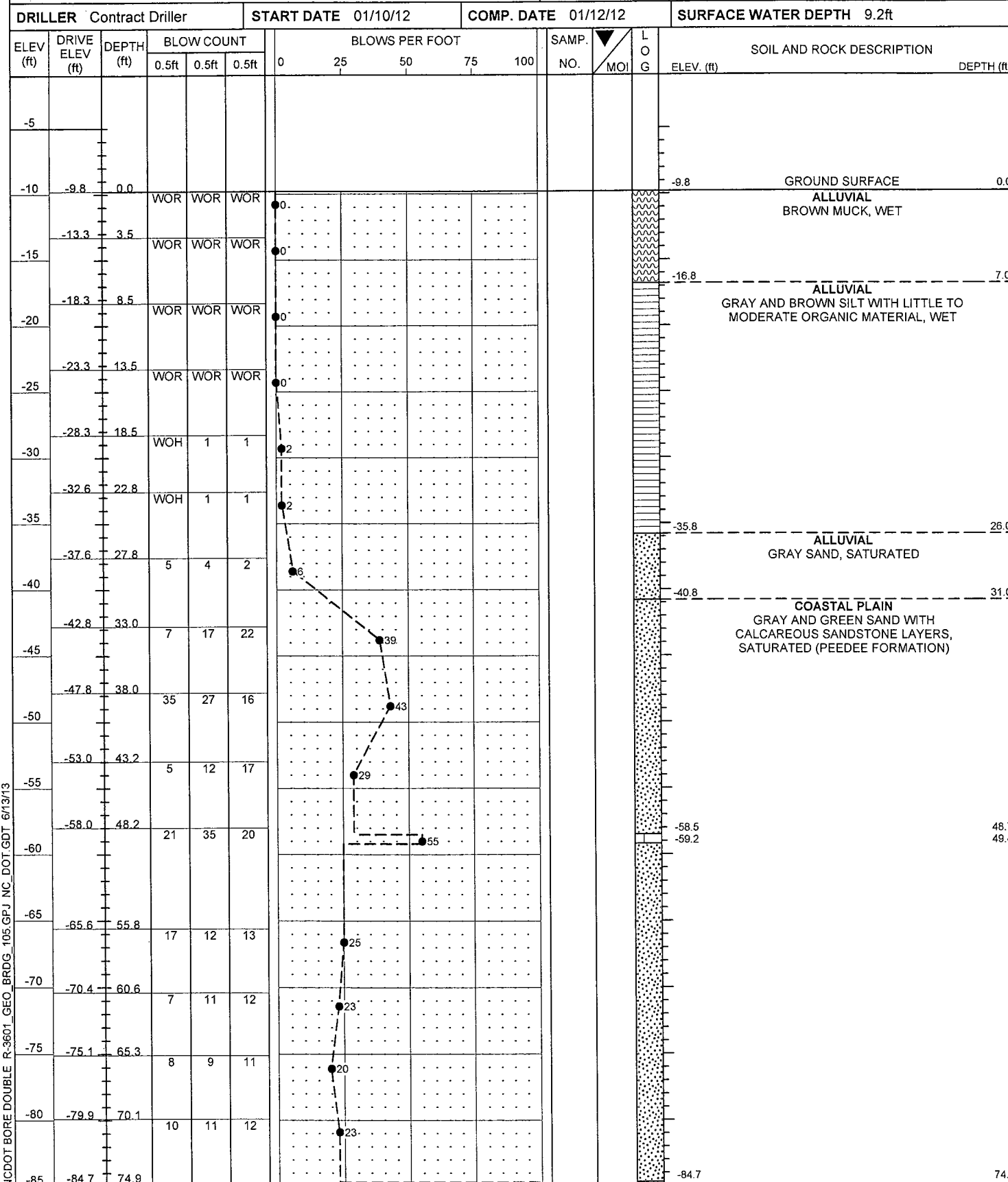
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SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER				GROUND WTR (ft)
BORING NO. B2-A	STATION 58+16	OFFSET 80 ft LT	ALIGNMENT -LMED-	0 HR. N/A
COLLAR ELEV. -35.9 ft	TOTAL DEPTH 101.4 ft	NORTHING 177,859	EASTING 2,306,223	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 04/14/11	COMP. DATE 04/14/11	SURFACE WATER DEPTH 33.3ft	



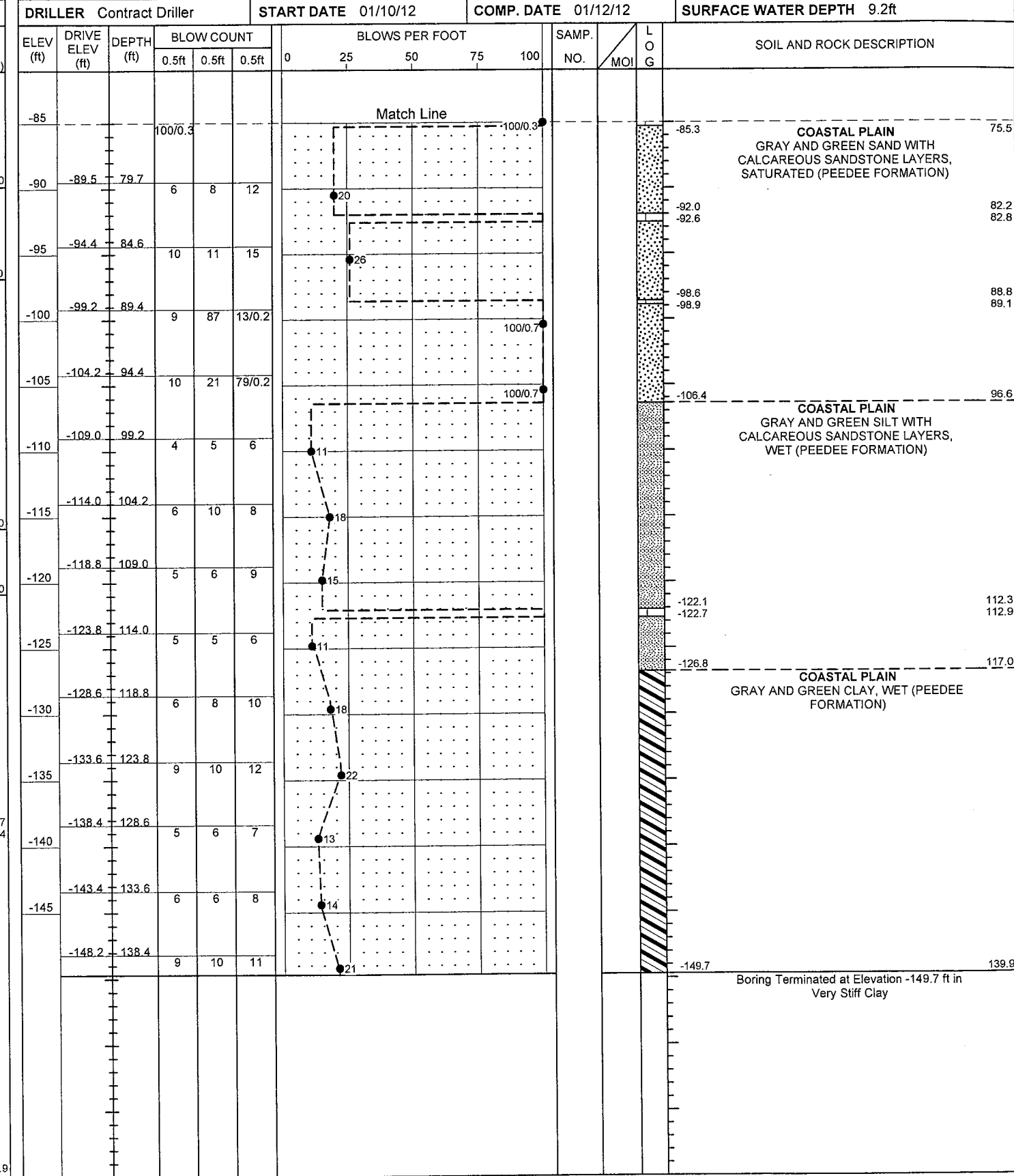
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NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B2-C	STATION 58+10	OFFSET 15 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -9.8 ft	TOTAL DEPTH 139.9 ft	NORTHING 177,794	EASTING 2,306,228
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/10/12	COMP. DATE 01/12/12	SURFACE WATER DEPTH 9.2ft



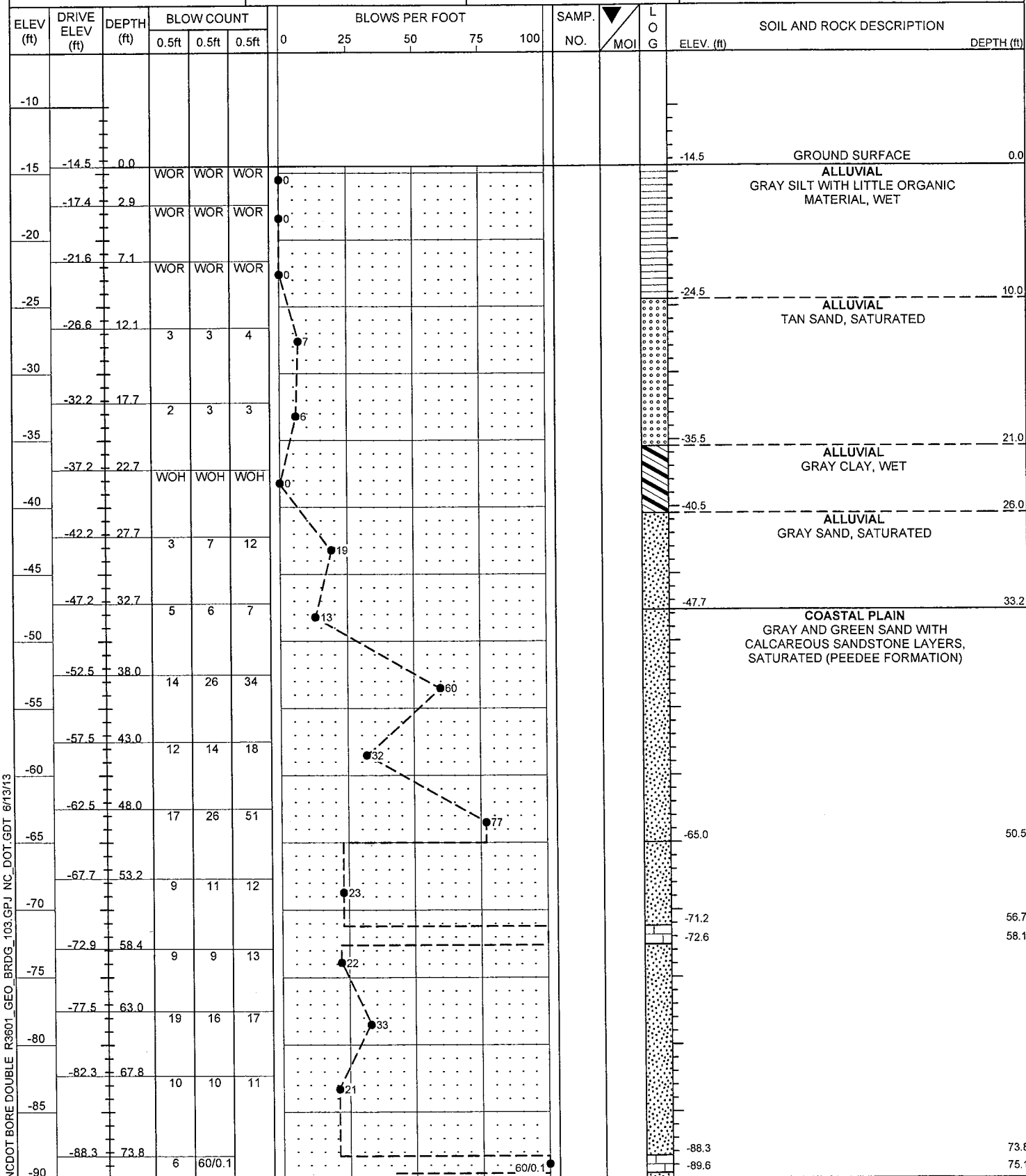
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SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B2-C	STATION 58+10	OFFSET 15 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -9.8 ft	TOTAL DEPTH 139.9 ft	NORTHING 177,794	EASTING 2,306,228
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/10/12	COMP. DATE 01/12/12	SURFACE WATER DEPTH 9.2ft



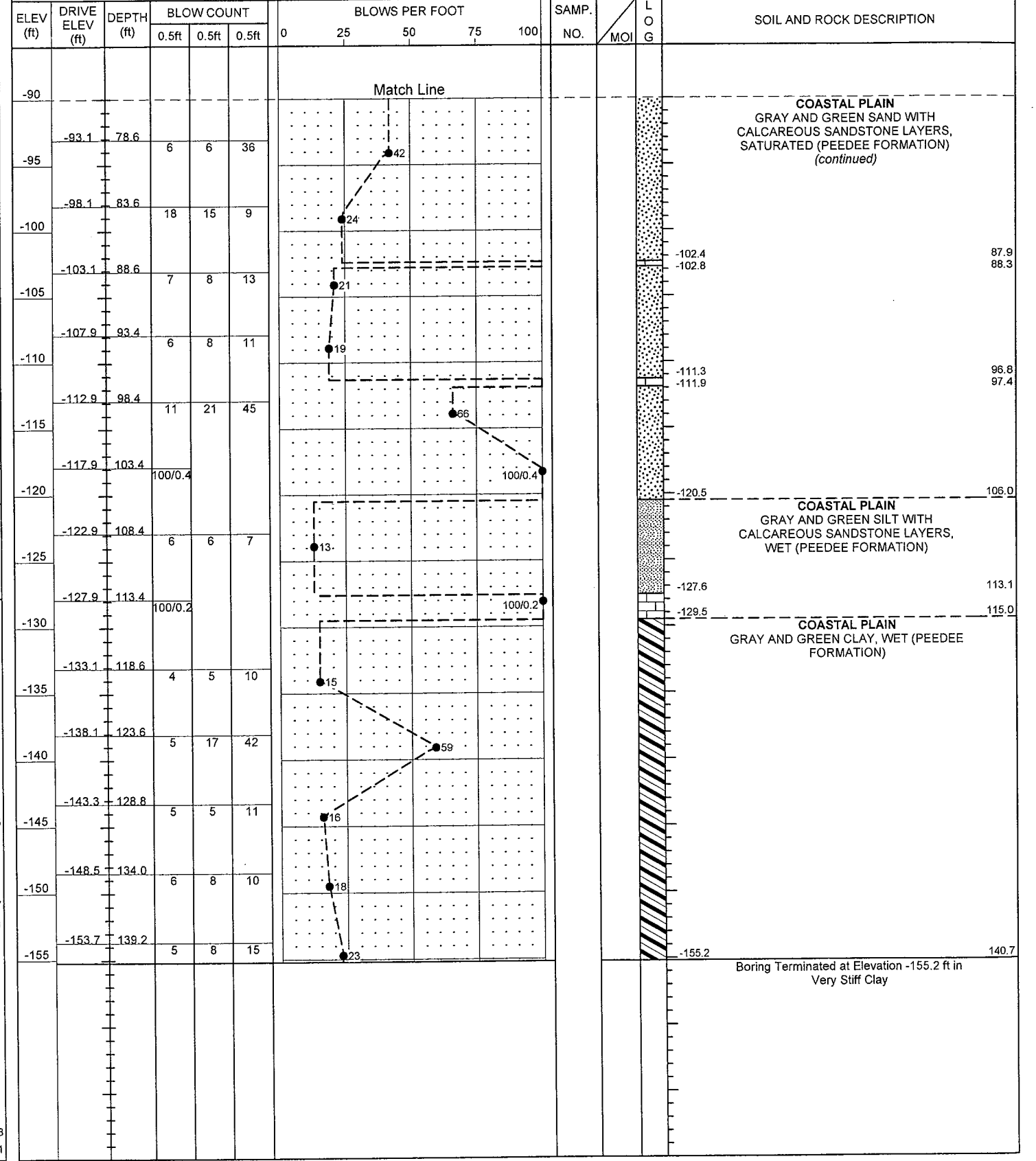
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT.GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B2-B	STATION 58+77	OFFSET 86 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -14.5 ft	TOTAL DEPTH 140.7 ft	NORTHING 177,704	EASTING 2,306,310
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/09/12	COMP. DATE 01/10/12	SURFACE WATER DEPTH 15.0ft



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B2-B	STATION 58+77	OFFSET 86 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -14.5 ft	TOTAL DEPTH 140.7 ft	NORTHING 177,704	EASTING 2,306,310
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/09/12	COMP. DATE 01/10/12	SURFACE WATER DEPTH 15.0ft

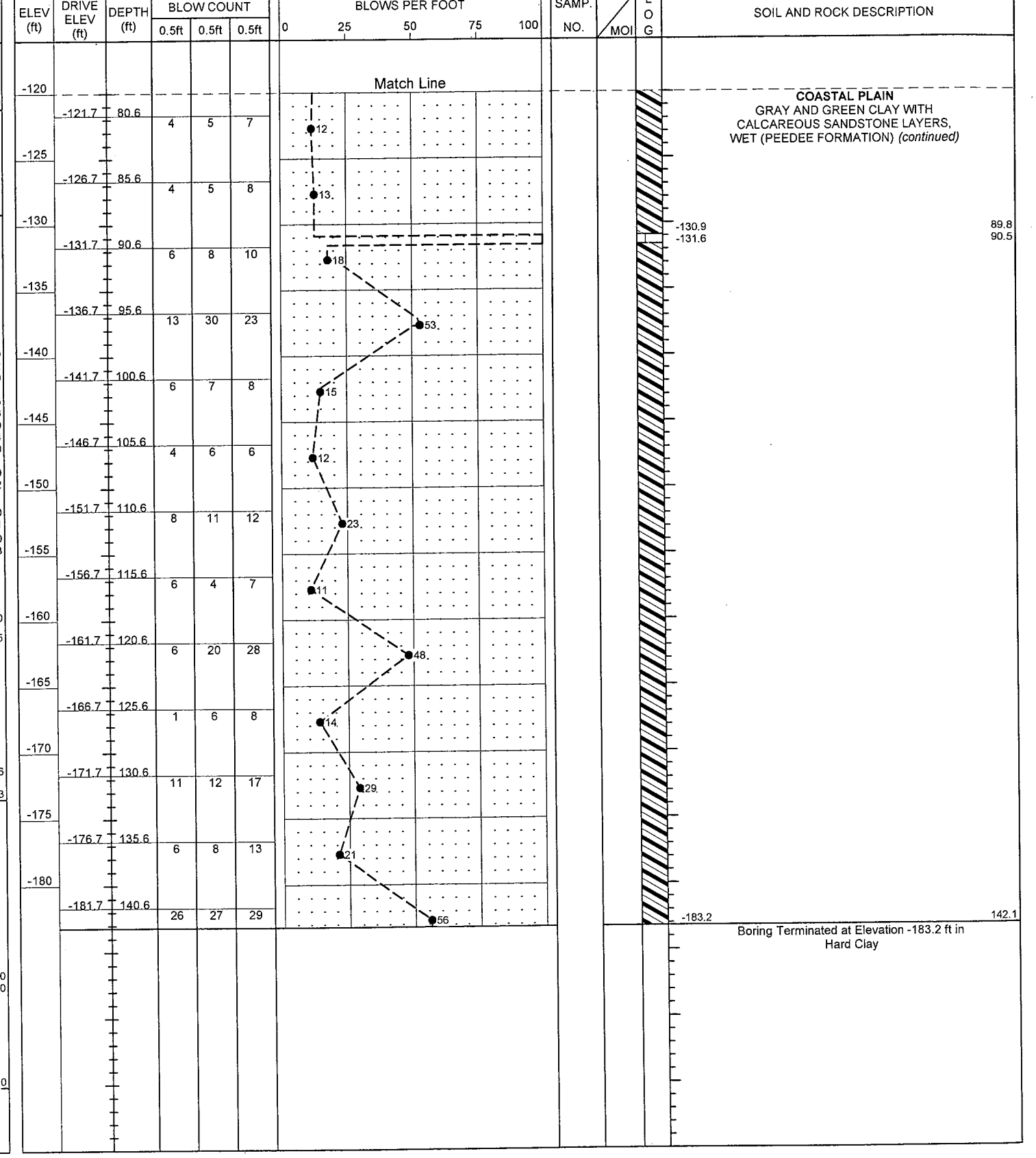
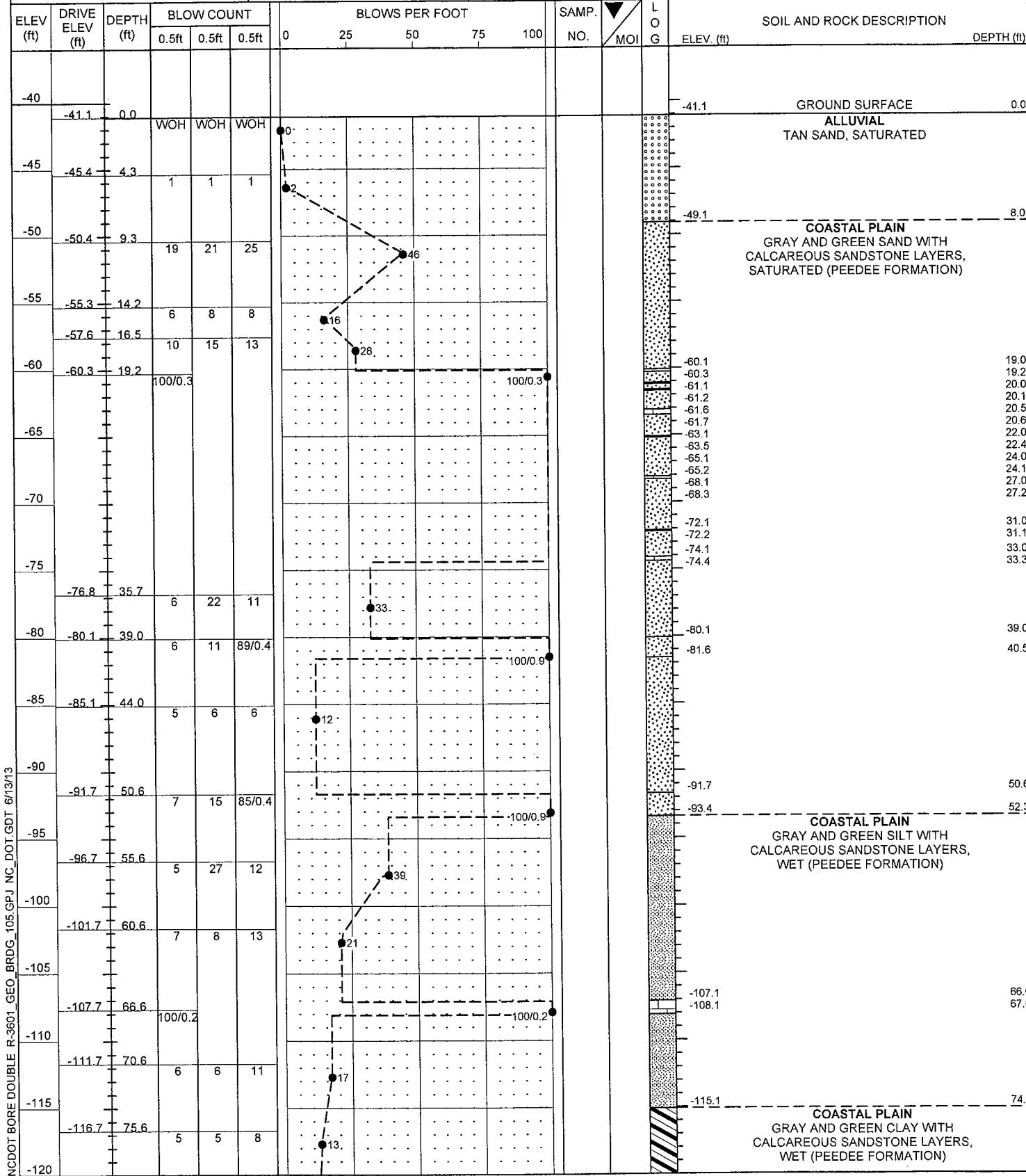


NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-C	STATION 58+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -41.1 ft	TOTAL DEPTH 142.1 ft	NORTHING 177,831	EASTING 2,306,303
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/31/12	COMP. DATE 02/22/12	SURFACE WATER DEPTH 43.5ft

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-C	STATION 58+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -41.1 ft	TOTAL DEPTH 142.1 ft	NORTHING 177,831	EASTING 2,306,303
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/31/12	COMP. DATE 02/22/12	SURFACE WATER DEPTH 43.5ft



NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-C	STATION 58+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -41.1 ft	TOTAL DEPTH 142.1 ft	NORTHING 177,831	EASTING 2,306,303
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/31/12	COMP. DATE 02/22/12	SURFACE WATER DEPTH 43.5ft

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-C	STATION 58+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -41.1 ft	TOTAL DEPTH 142.1 ft	NORTHING 177,831	EASTING 2,306,303
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD NW Casing W/SPT & Core	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/31/12	COMP. DATE 02/22/12	SURFACE WATER DEPTH 43.5ft

CORE SIZE NX-NQ				TOTAL RUN 16.2 ft				STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %			
-60.6											Begin Coring @ 19.5 ft	
-60.6	-61.8	19.5	1.2		(0.2) 17%	(0.0) 0%		(0.1) 100%	(0.0) 0%		20.0	
-65	-66.8	25.7	5.0		(0.5) 10%	(0.0) 0%		(0.1) 100%	(0.0) 0%		20.1	
-70	-71.8	30.7	5.0		(0.2) 4%	(0.0) 0%		(0.1) 100%	(0.0) 0%		20.5	
-75	-76.8	35.7	5.0		(0.4) 8%	(0.0) 0%		(0.2) 100%	(0.0) 0%		20.6	
-80								(0.3) 100%	(0.0) 0%		20.7	
-85											20.8	
-90											20.9	
-95											21.0	
-100											21.1	
-105											21.2	
-110											21.3	
-115											21.4	
-120											21.5	
-125											21.6	
-130											21.7	
-135											21.8	
-140											21.9	

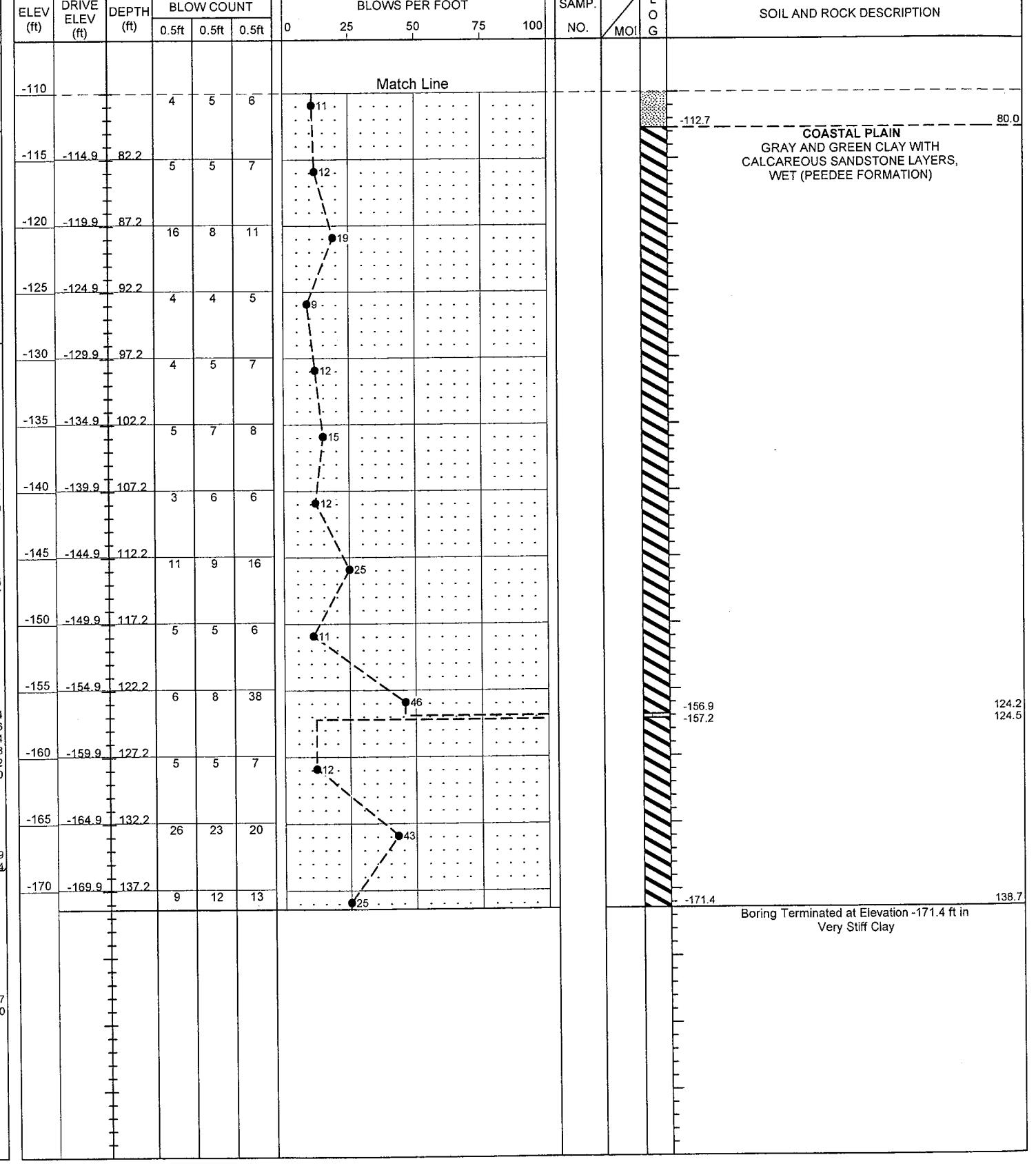
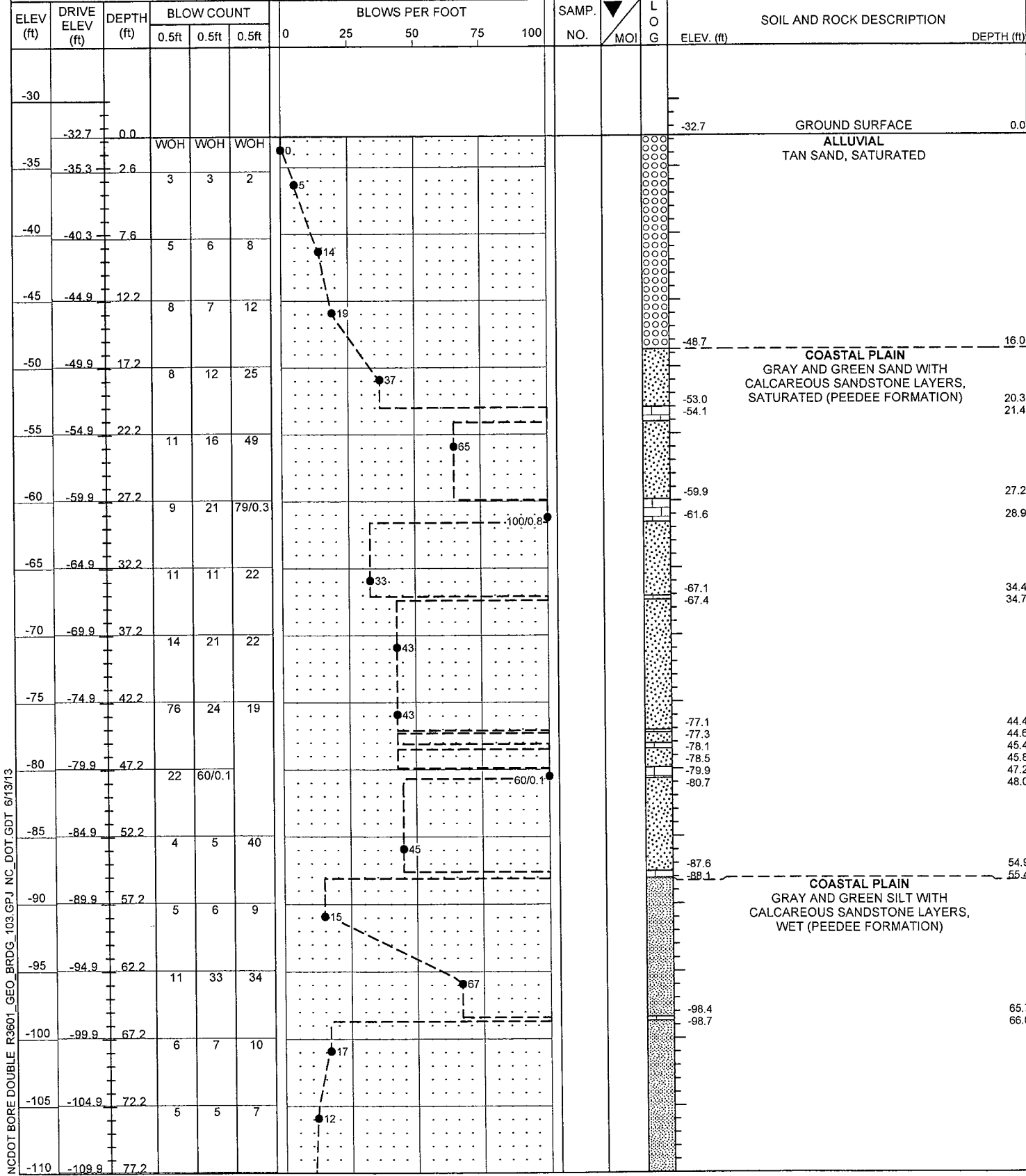
CORE SIZE NX-NQ				TOTAL RUN 16.2 ft				STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %			
-140.6											Begin Coring @ 99.5 ft	
-145											22.0	
-150											22.1	
-155											22.2	
-160											22.3	
-165											22.4	
-170											22.5	
-175											22.6	
-180											22.7	
-183.2											22.8	

NCDOT CORE DOUBLE R-3601_GEO_BRDG_105.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-D	STATION 59+33	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -32.7 ft	TOTAL DEPTH 138.7 ft	NORTHING 177,763	EASTING 2,306,357
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/28/12	COMP. DATE 02/29/12	SURFACE WATER DEPTH 34.0ft

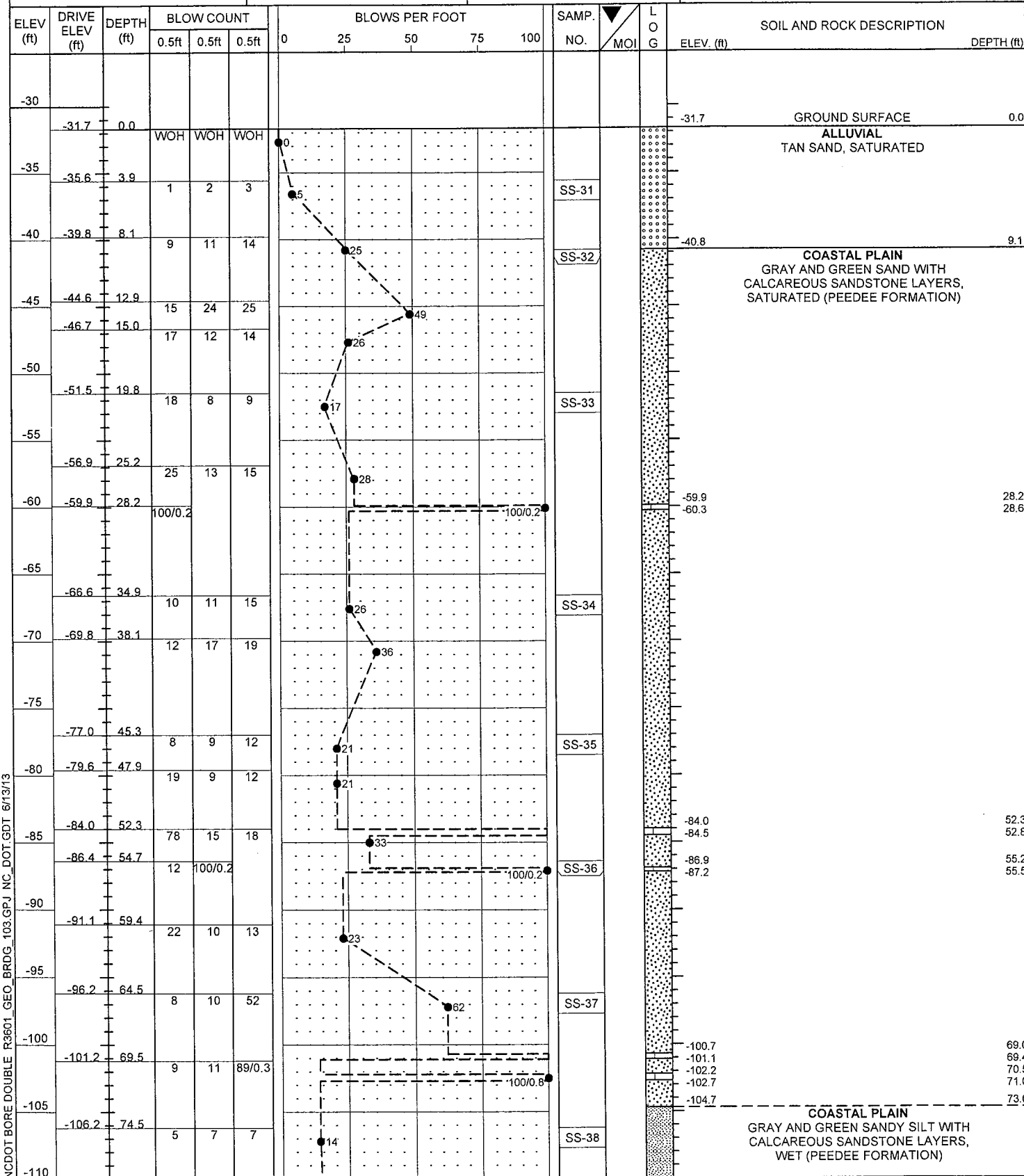
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-D	STATION 59+33	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -32.7 ft	TOTAL DEPTH 138.7 ft	NORTHING 177,763	EASTING 2,306,357
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/28/12	COMP. DATE 02/29/12	SURFACE WATER DEPTH 34.0ft



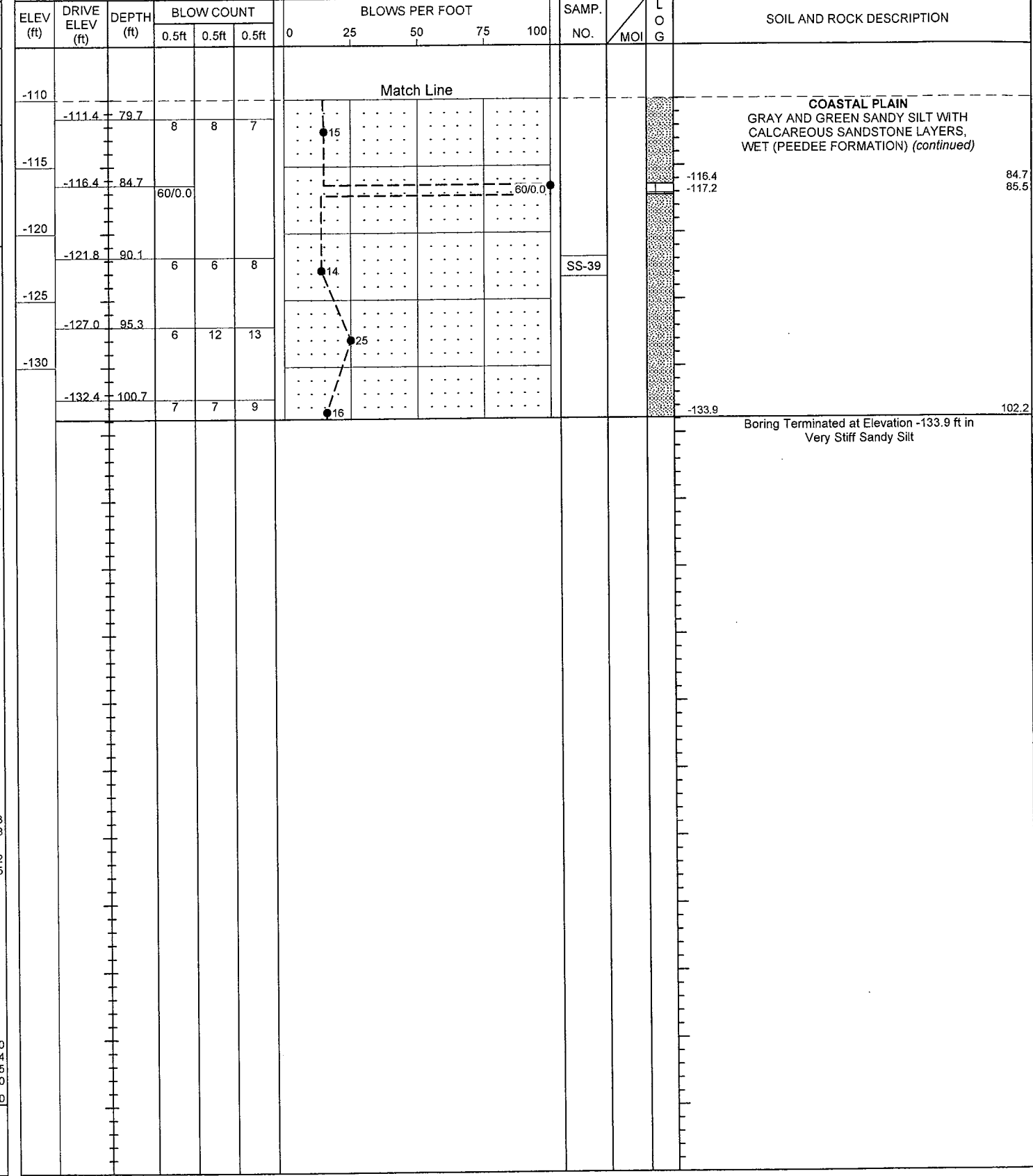
NCDOT BORE DOUBLE R3601_GEO_BRDG_103_GPI_NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-B	STATION 59+83	OFFSET 101 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -31.7 ft	TOTAL DEPTH 102.2 ft	NORTHING 177,706	EASTING 2,306,416
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/11/11	COMP. DATE 04/11/11	SURFACE WATER DEPTH 33.6ft



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B3-B	STATION 59+83	OFFSET 101 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -31.7 ft	TOTAL DEPTH 102.2 ft	NORTHING 177,706	EASTING 2,306,416
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/11/11	COMP. DATE 04/11/11	SURFACE WATER DEPTH 33.6ft

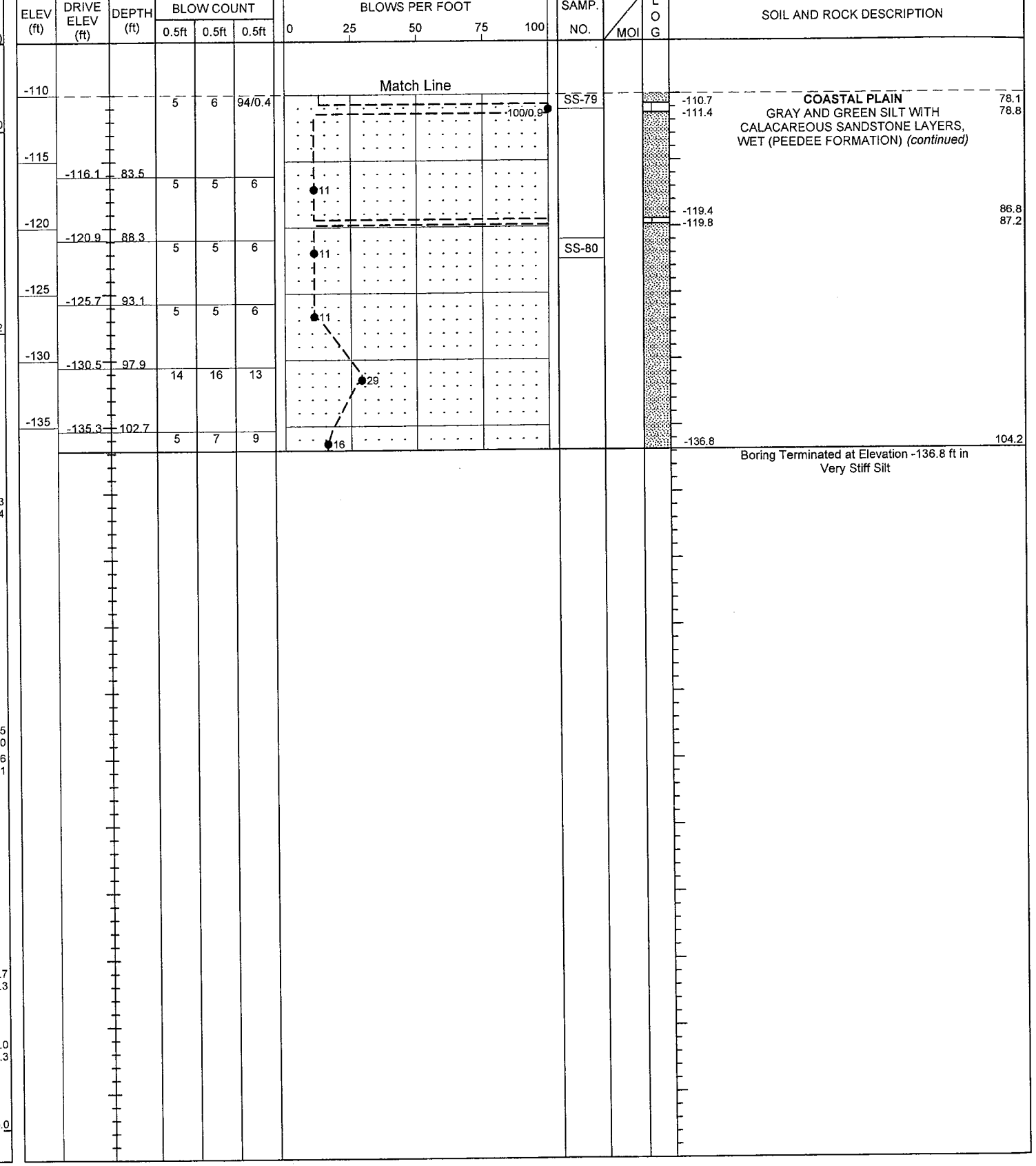
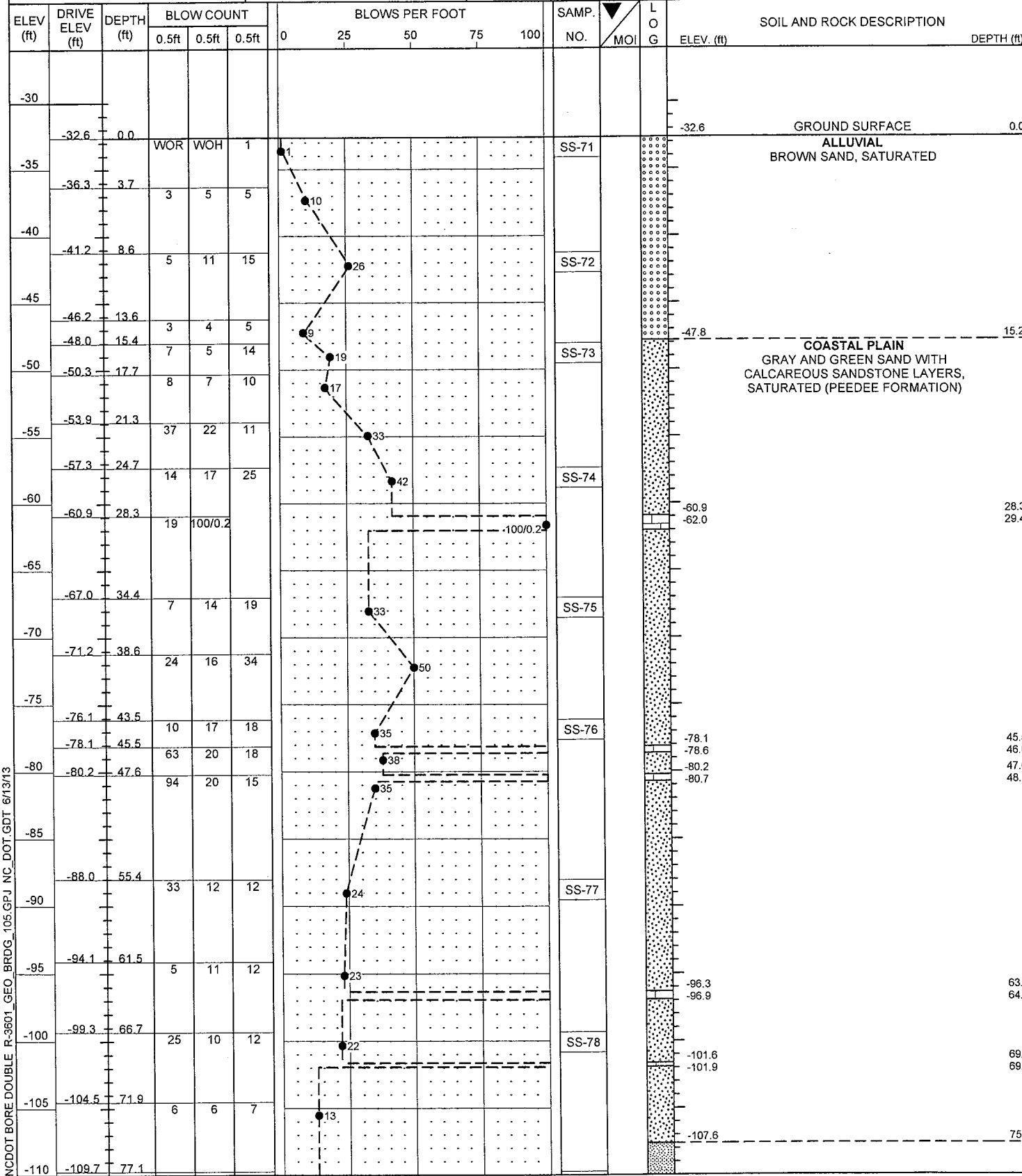


NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ_NC_DOT_GDI 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-A	STATION 60+33	OFFSET 79 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -32.6 ft	TOTAL DEPTH 104.2 ft	NORTHING 177,890	EASTING 2,306,440
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/18/11	COMP. DATE 04/19/11	SURFACE WATER DEPTH 34.1ft

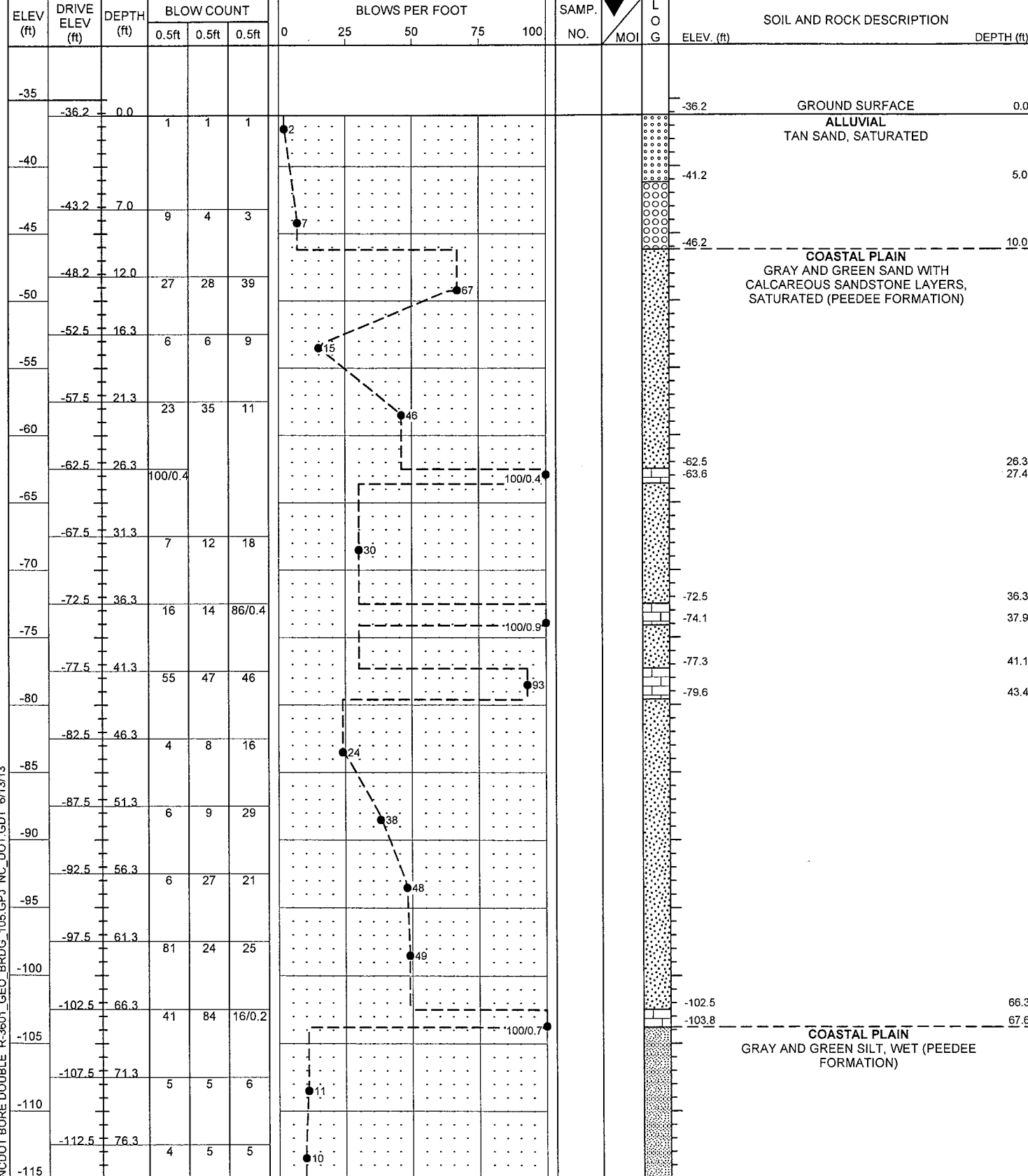
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-A	STATION 60+33	OFFSET 79 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -32.6 ft	TOTAL DEPTH 104.2 ft	NORTHING 177,890	EASTING 2,306,440
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/18/11	COMP. DATE 04/19/11	SURFACE WATER DEPTH 34.1ft



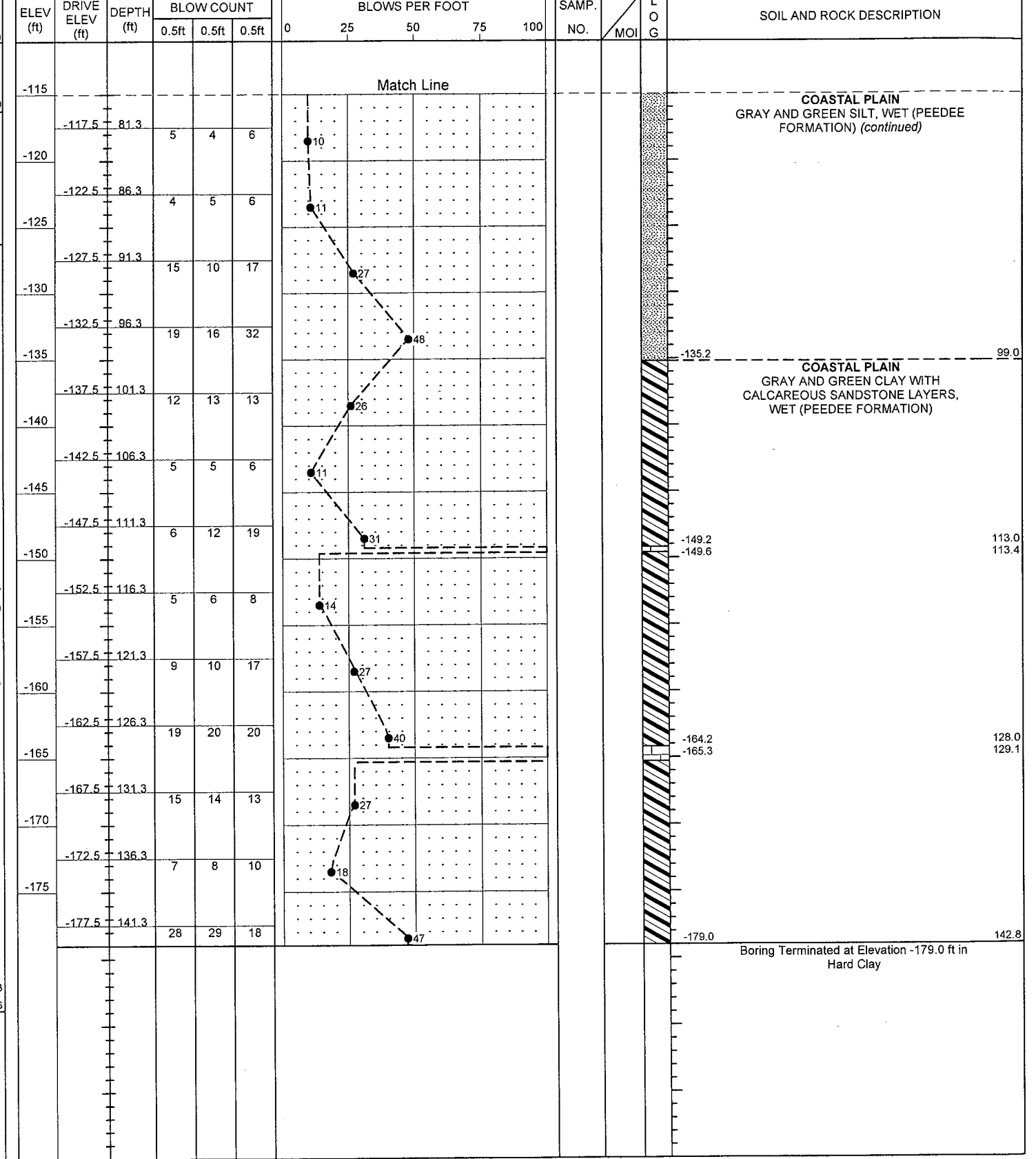
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-C	STATION 59+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -36.2 ft	TOTAL DEPTH 142.8 ft	NORTHING 177,846	EASTING 2,306,403
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/16/12	COMP. DATE 02/17/12	SURFACE WATER DEPTH 35.3ft



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-C	STATION 59+90	OFFSET 40 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -36.2 ft	TOTAL DEPTH 142.8 ft	NORTHING 177,846	EASTING 2,306,403
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/16/12	COMP. DATE 02/17/12	SURFACE WATER DEPTH 35.3ft

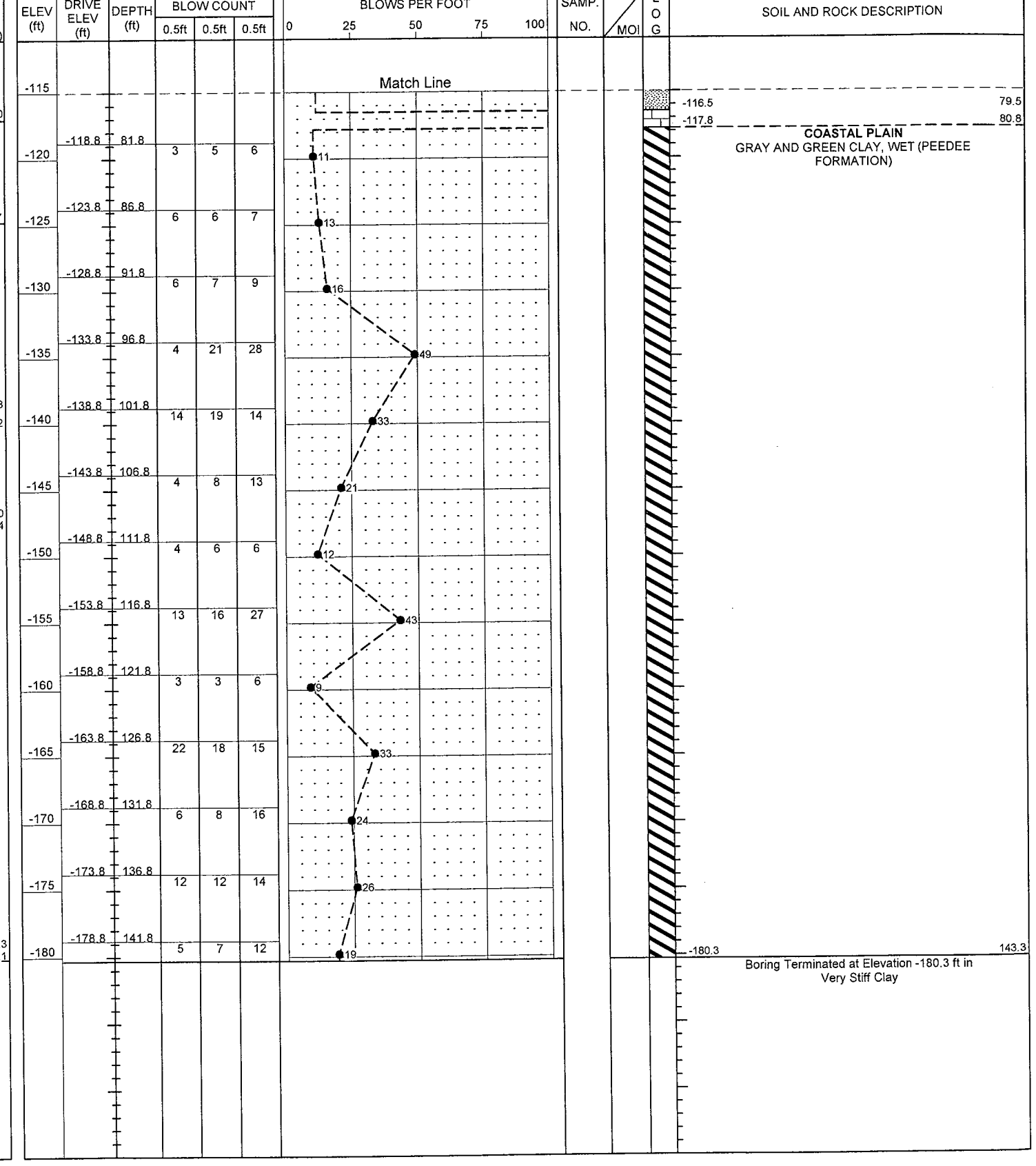
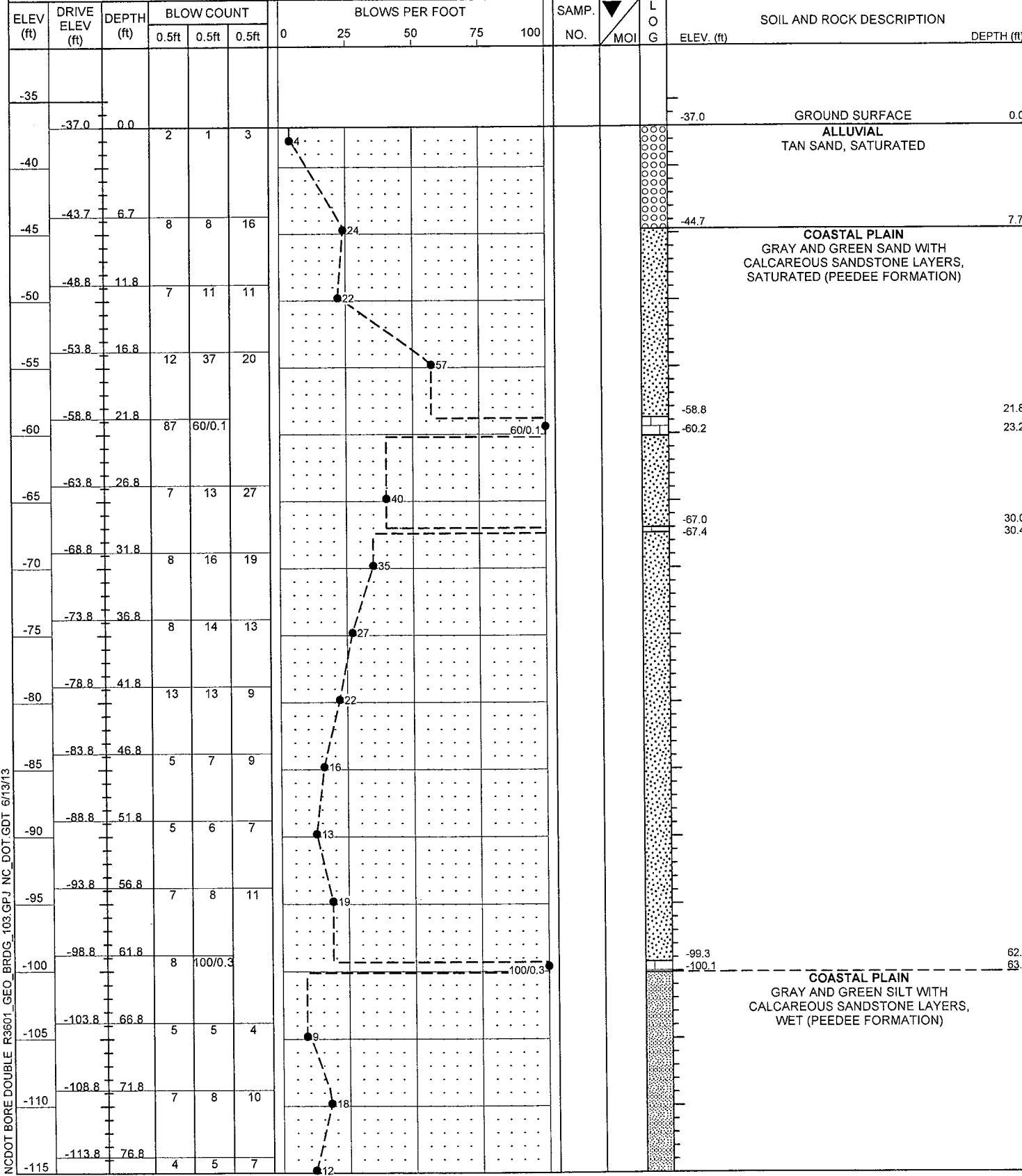


NCDOT BORE DOUBLE R-3601 GEO BRDG_105.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-D	STATION 60+35	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -37.0 ft	TOTAL DEPTH 143.3 ft	NORTHING 177,777	EASTING 2,306,458
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/27/12	COMP. DATE 02/28/12	SURFACE WATER DEPTH 35.0ft

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-D	STATION 60+35	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -37.0 ft	TOTAL DEPTH 143.3 ft	NORTHING 177,777	EASTING 2,306,458
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/27/12	COMP. DATE 02/28/12	SURFACE WATER DEPTH 35.0ft

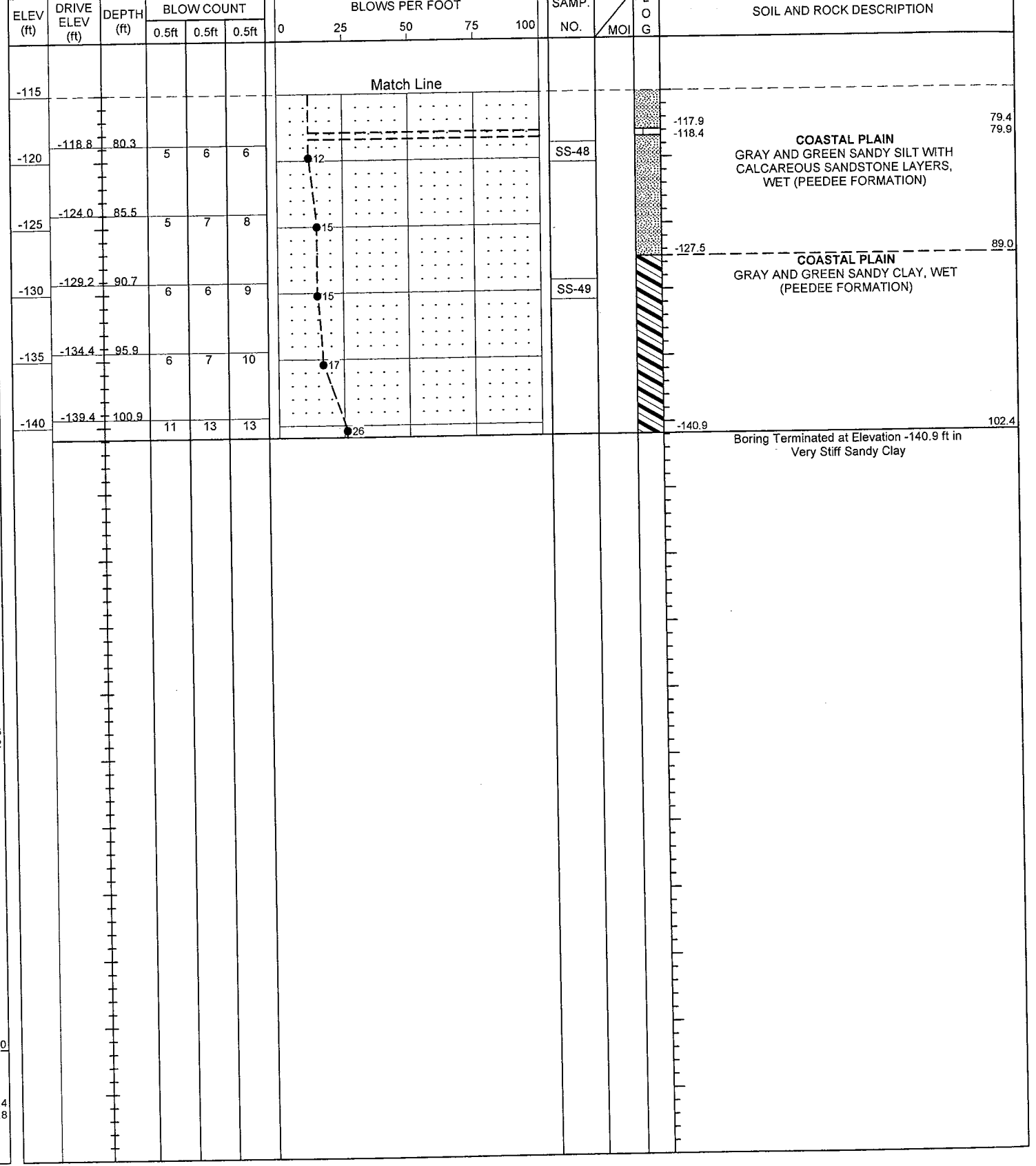
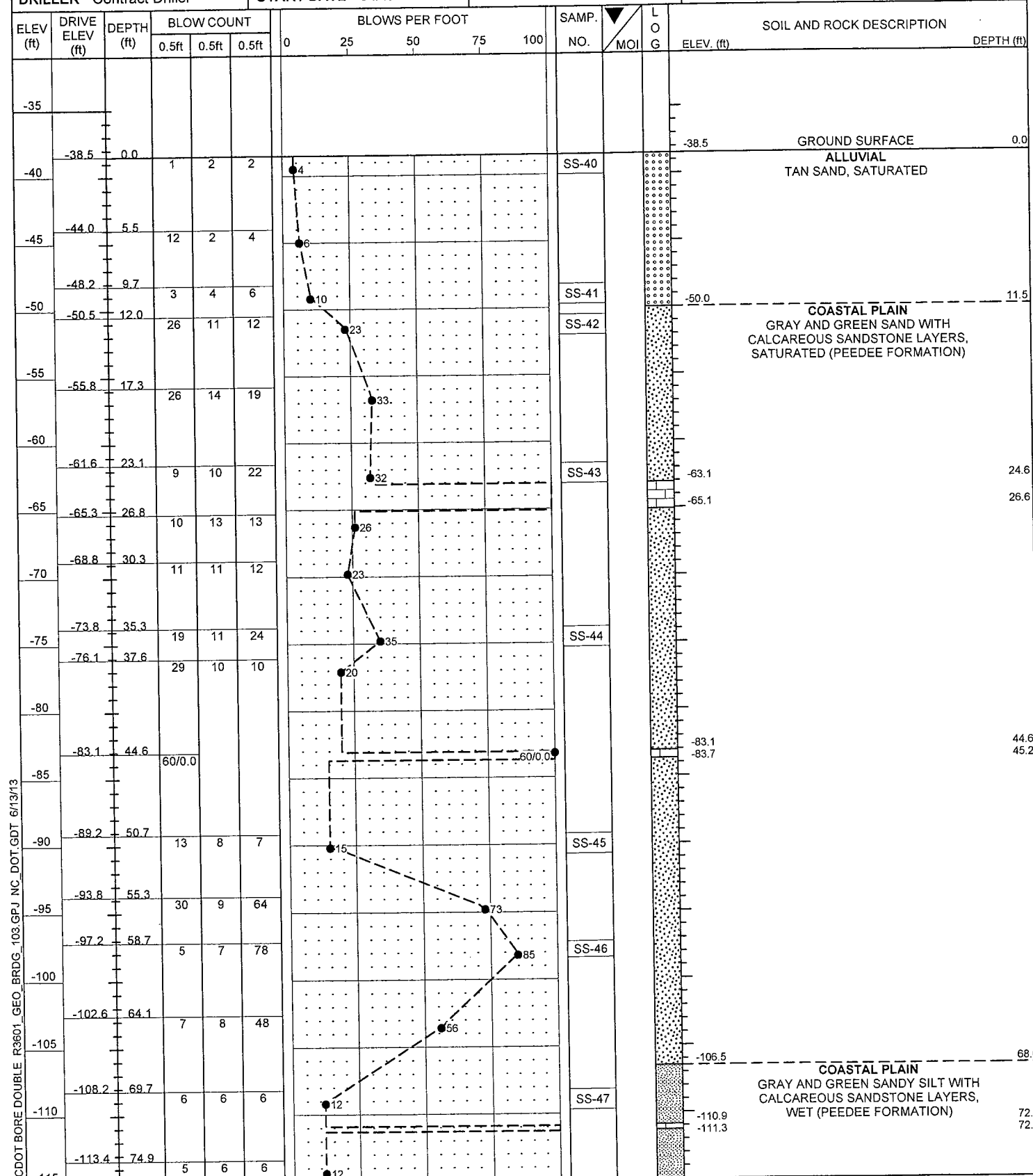


NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-B	STATION 60+36	OFFSET 93 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -38.5 ft	TOTAL DEPTH 102.4 ft	NORTHING 177,721	EASTING 2,306,466
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/12/11	COMP. DATE 04/13/11	SURFACE WATER DEPTH 36.1ft

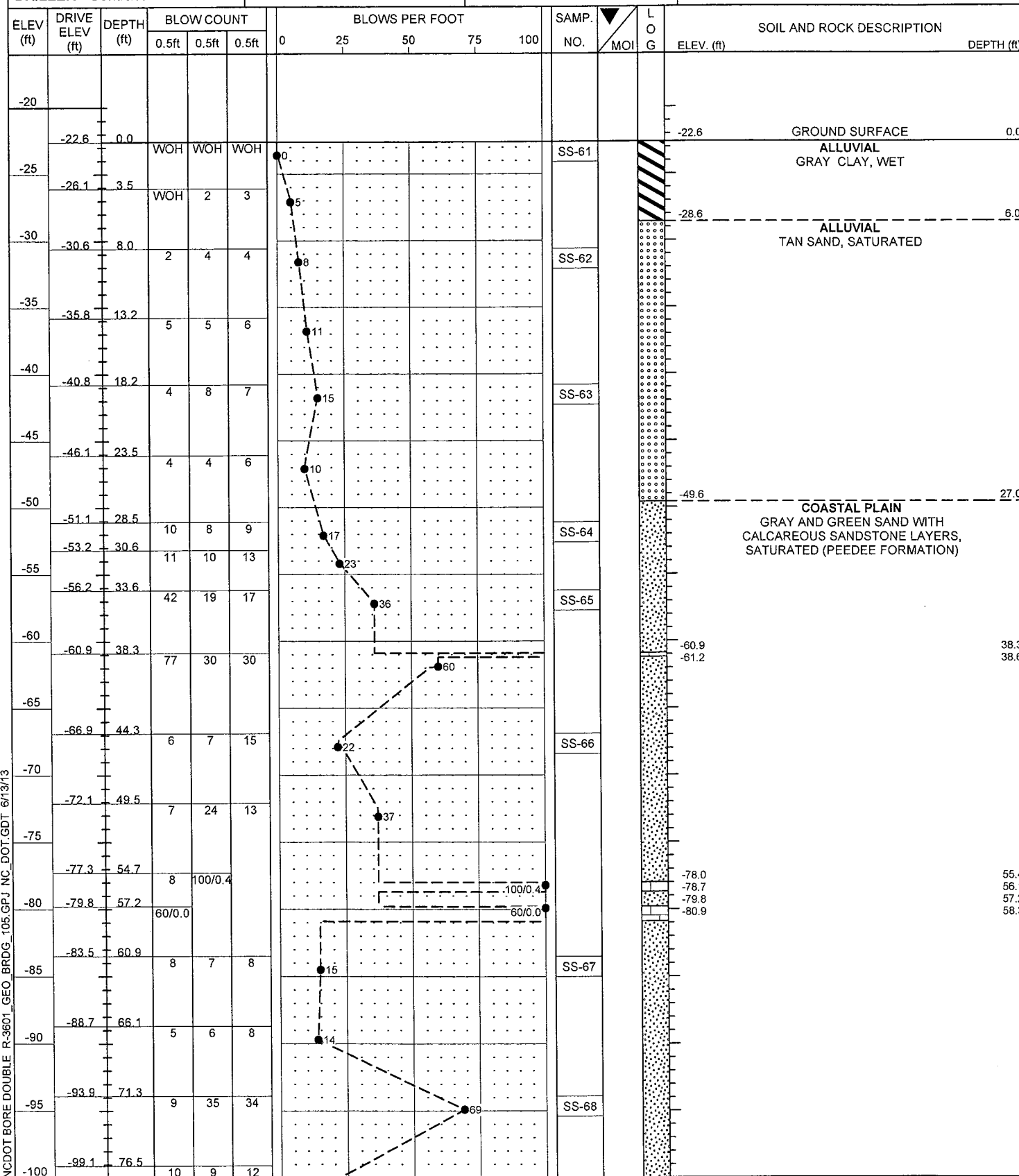
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B4-B	STATION 60+36	OFFSET 93 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -38.5 ft	TOTAL DEPTH 102.4 ft	NORTHING 177,721	EASTING 2,306,466
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/12/11	COMP. DATE 04/13/11	SURFACE WATER DEPTH 36.1ft



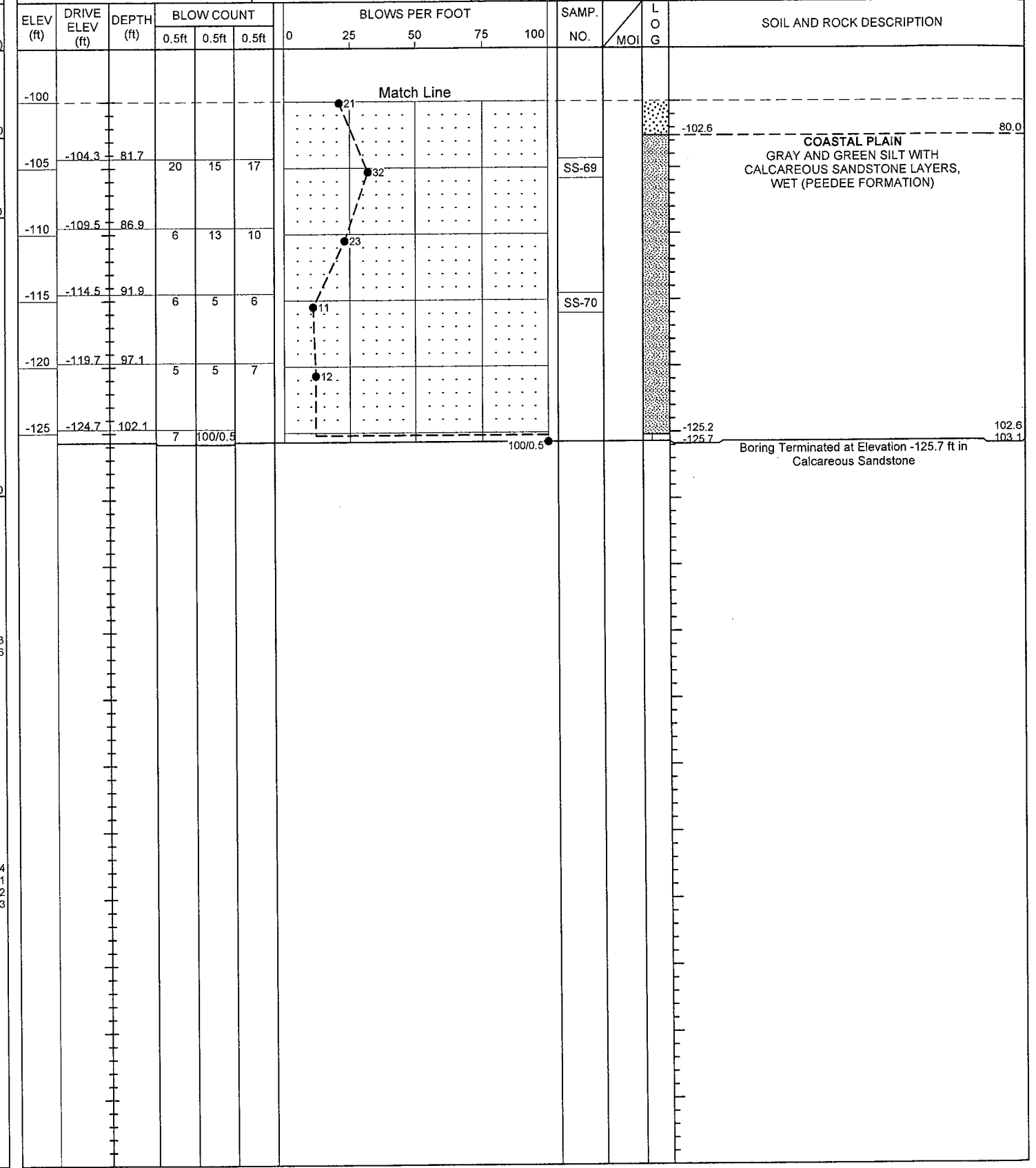
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B5-A	STATION 60+99	OFFSET 76 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -22.6 ft	TOTAL DEPTH 103.1 ft	NORTHING 177,897	EASTING 2,306,507
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/15/11	COMP. DATE 04/15/11	SURFACE WATER DEPTH 24.3ft



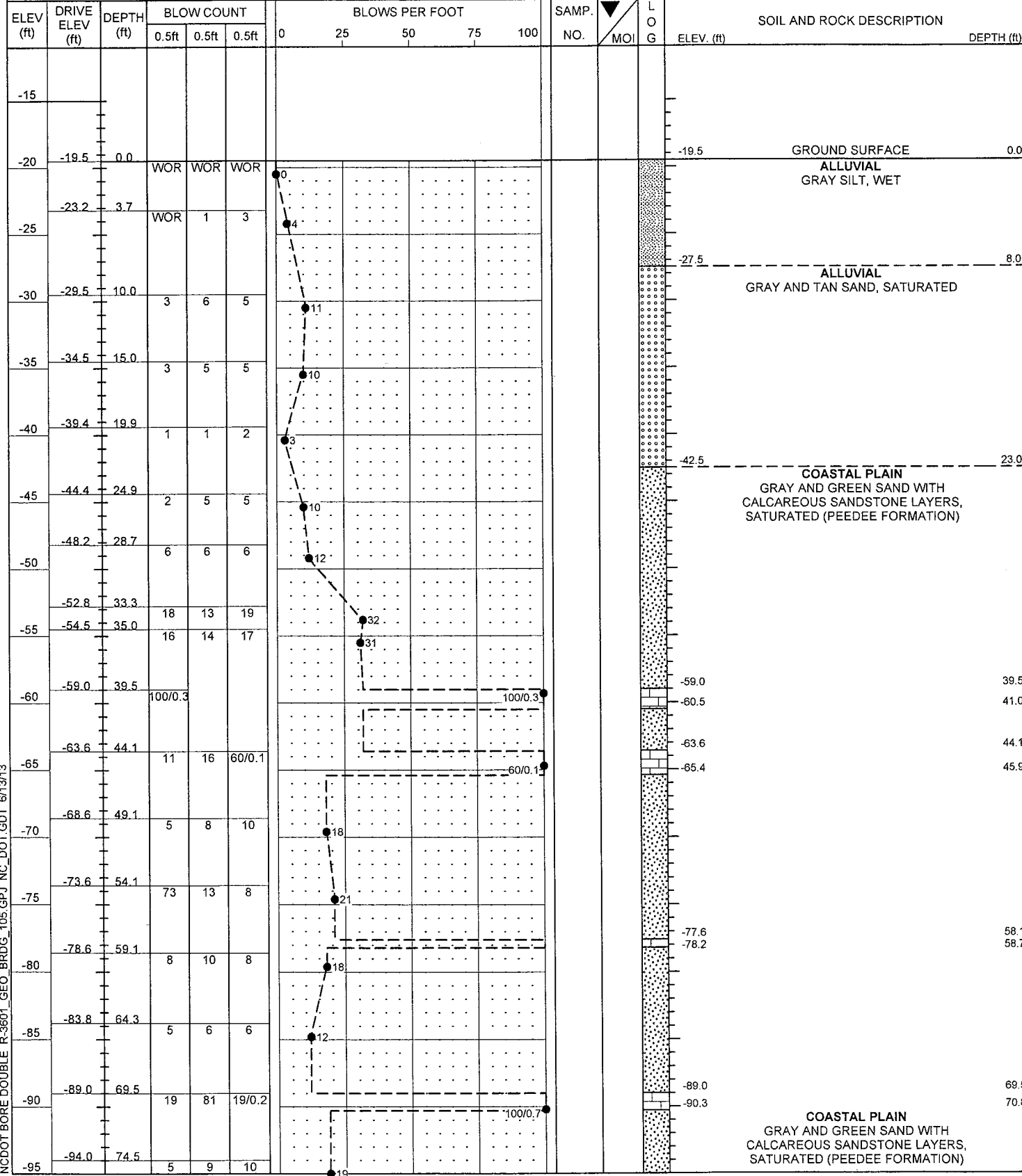
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B5-A	STATION 60+99	OFFSET 76 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -22.6 ft	TOTAL DEPTH 103.1 ft	NORTHING 177,897	EASTING 2,306,507
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 04/15/11	COMP. DATE 04/15/11	SURFACE WATER DEPTH 24.3ft



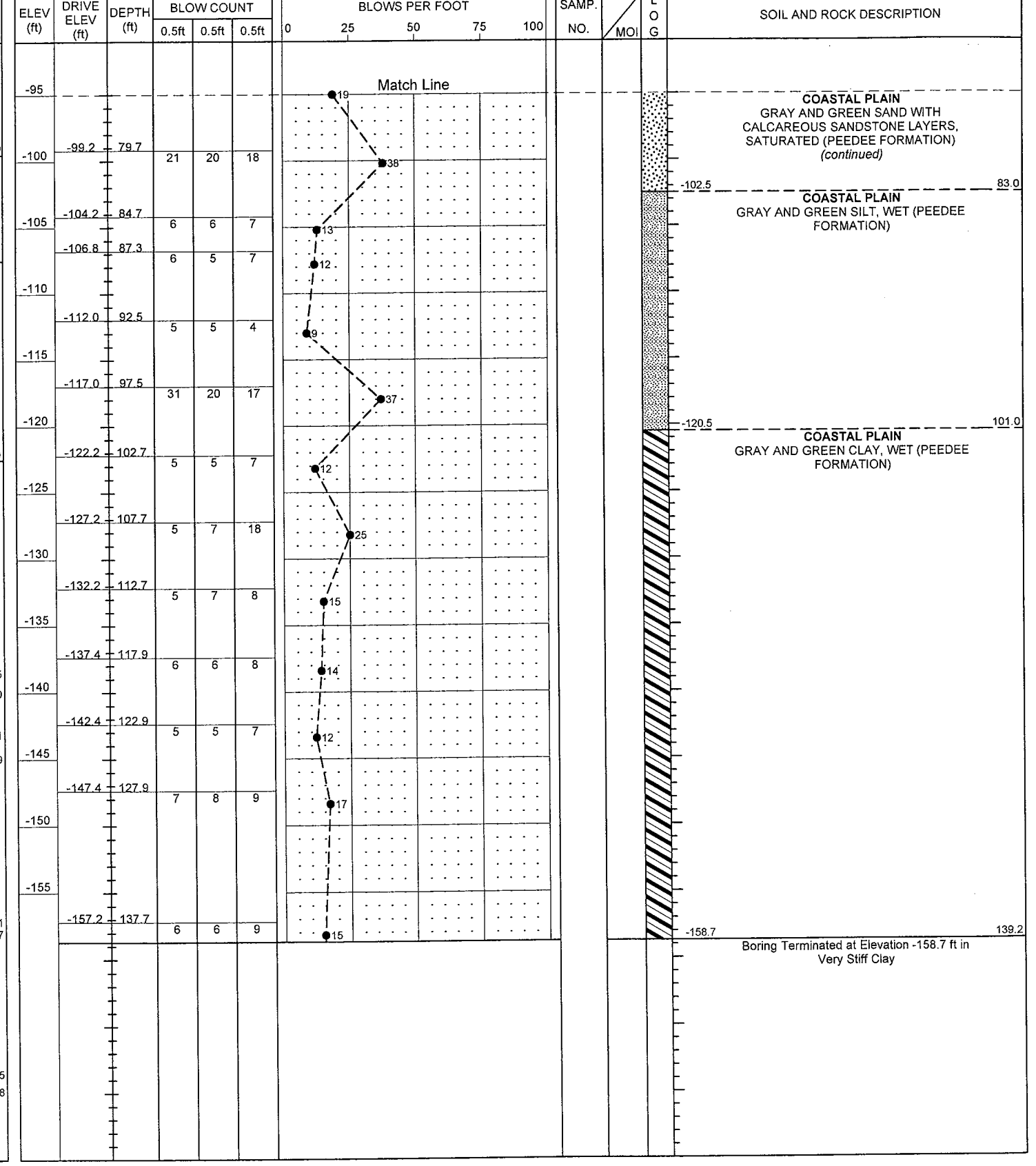
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B5-C	STATION 61+05	OFFSET 15 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -19.5 ft	TOTAL DEPTH 139.2 ft	NORTHING 177,837	EASTING 2,306,520
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/25/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH 23.8ft



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B5-C	STATION 61+05	OFFSET 15 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -19.5 ft	TOTAL DEPTH 139.2 ft	NORTHING 177,837	EASTING 2,306,520
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/25/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH 23.8ft

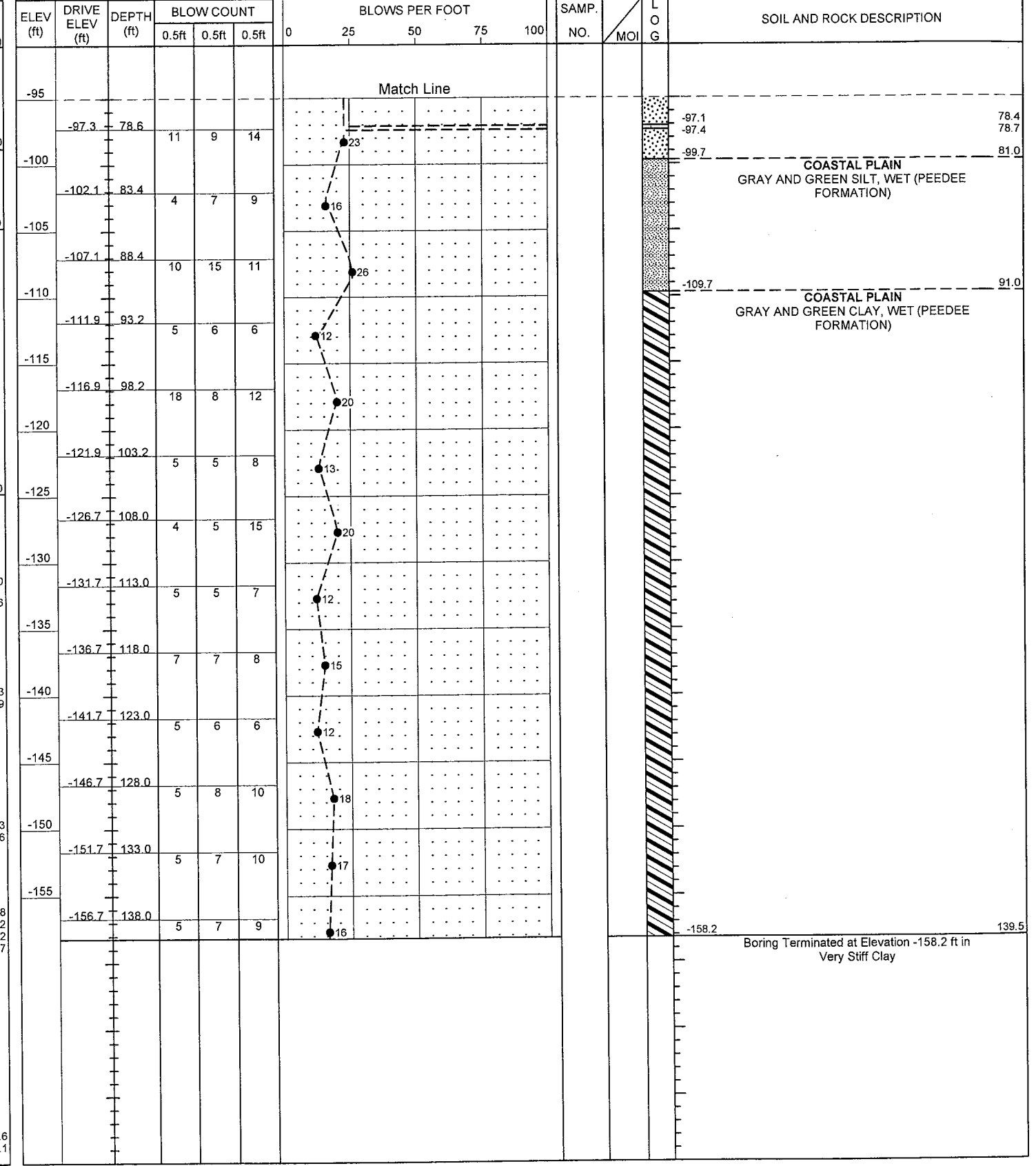
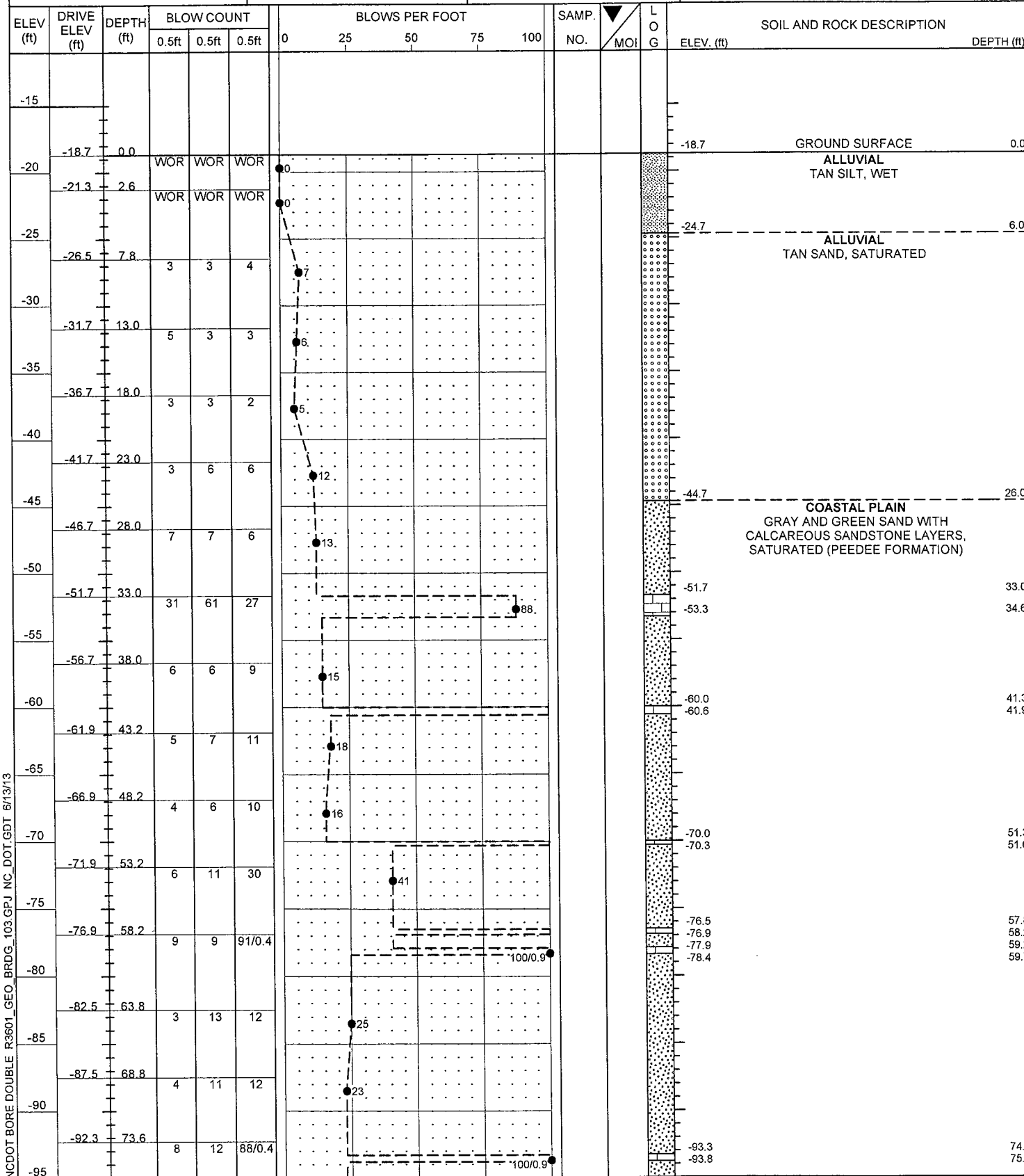


NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER				GROUND WTR (ft)
BORING NO. B5-D	STATION 61+23	OFFSET 17 ft RT	ALIGNMENT -LMED-	0 HR. N/A
COLLAR ELEV. -18.7 ft	TOTAL DEPTH 139.5 ft	NORTHING 177,807	EASTING 2,306,542	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 01/23/12	COMP. DATE 01/24/12	SURFACE WATER DEPTH 20.0ft	

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.	
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER				GROUND WTR (ft)
BORING NO. B5-D	STATION 61+23	OFFSET 17 ft RT	ALIGNMENT -LMED-	0 HR. N/A
COLLAR ELEV. -18.7 ft	TOTAL DEPTH 139.5 ft	NORTHING 177,807	EASTING 2,306,542	24 HR. N/A
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic	
DRILLER Contract Driller	START DATE 01/23/12	COMP. DATE 01/24/12	SURFACE WATER DEPTH 20.0ft	



NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDI 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

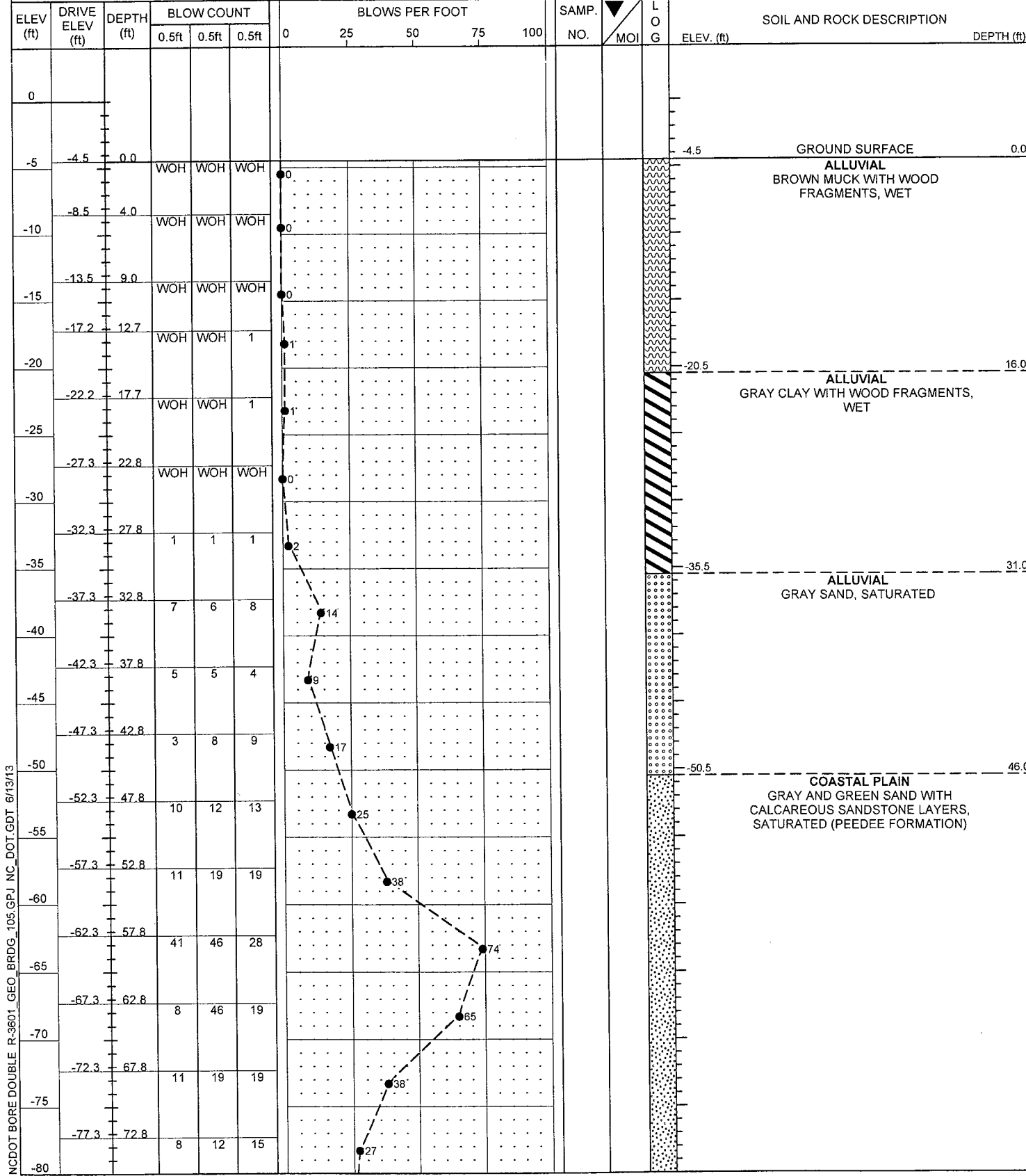
WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Wrike, C. M.										
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER						GROUND WTR (ft)										
BORING NO. B5-B		STATION 61+56		OFFSET 101 ft RT		ALIGNMENT -LMED-										
COLLAR ELEV. -19.2 ft		TOTAL DEPTH 100.7 ft		NORTHING 177,728		EASTING 2,306,585										
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/06/11		COMP. DATE 04/06/11		SURFACE WATER DEPTH 16.3ft										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
-15																
-20	-19.2	0.0	1	1	0											
-25	-23.8	4.6	WOH	WOH	WOH											
-30	-28.3	9.1	5	3	3											
-35	-33.1	13.9	WOH	4	4											
-40	-37.9	18.7	3	2	2											
-45	-42.8	23.6	WOH	WOH	1											
-50	-47.6	28.4	3	6	7											
-55	-52.0	32.8	8	11	19											
-60	-56.7	37.5	6	51	35											
-65	-60.9	41.7	13	16	21											
-70	-64.7	45.5	34	13	8											
-75	-69.9	50.7	29	13	17											
-80	-74.2	55.0	16	11	23											
-85	-77.6	58.4	56	36	20											
-90	-81.2	62.0	7	9	17											
-95	-86.2	67.0	6	7	93/0.4											
	-90.7	71.5	55	17	17											
	-93.9	74.7	100/0.2													

WBS 38868.1.1		TIP R-3601		COUNTY BRUNSWICK		GEOLOGIST Wrike, C. M.										
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER						GROUND WTR (ft)										
BORING NO. B5-B		STATION 61+56		OFFSET 101 ft RT		ALIGNMENT -LMED-										
COLLAR ELEV. -19.2 ft		TOTAL DEPTH 100.7 ft		NORTHING 177,728		EASTING 2,306,585										
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 04/06/11		COMP. DATE 04/06/11		SURFACE WATER DEPTH 16.3ft										
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						
-95																
-100	-96.6	77.4	7	10	30											
-105	-100.2	81.0	13	11	16											
-110	-102.3	83.1	23	12	18											
-115	-107.6	88.4	4	11	11											
-120	-113.0	93.8	36	13	17											
-125	-118.4	99.2	5	6	6											

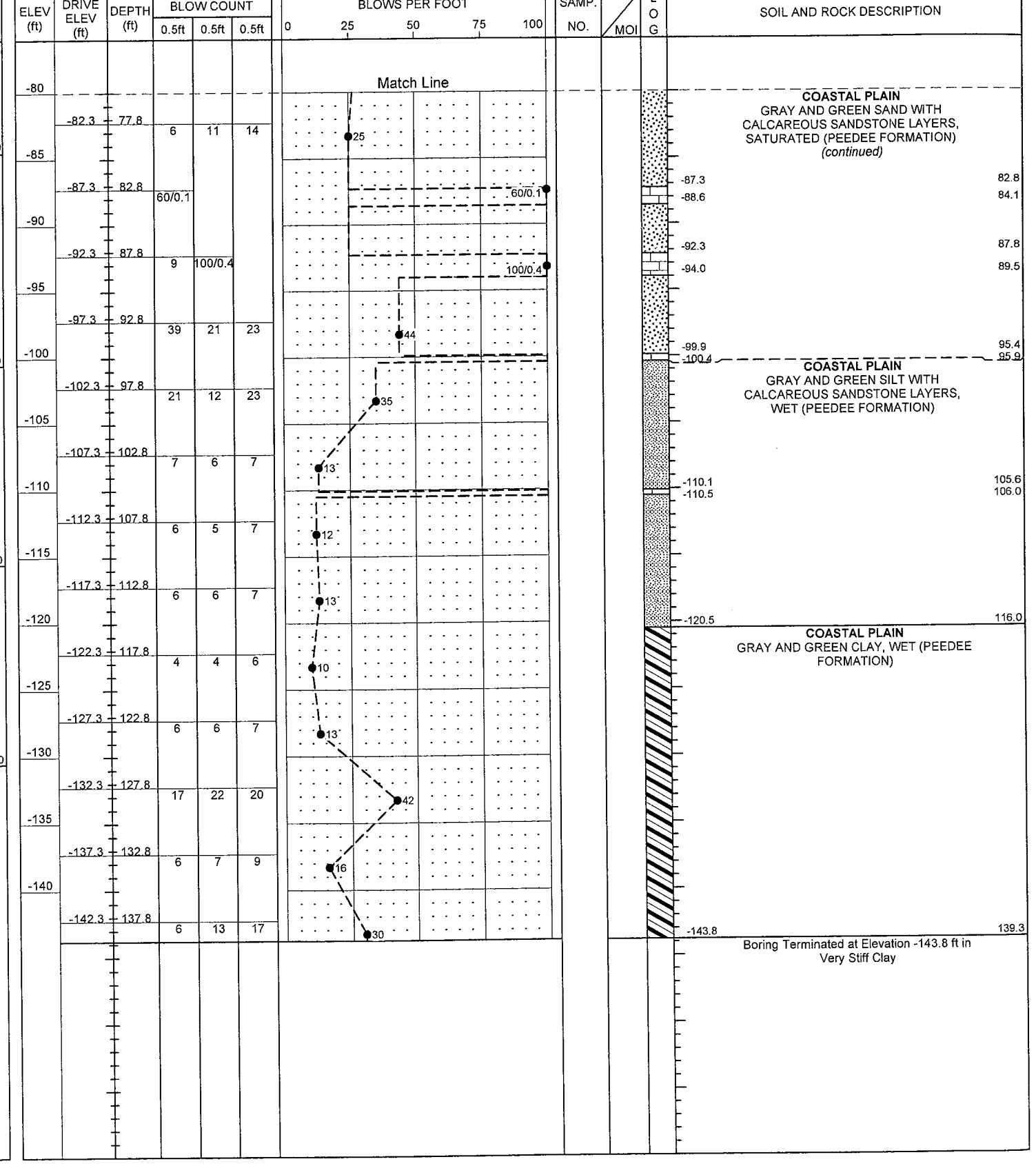
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ_NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-A	STATION 61+75	OFFSET 52 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -4.5 ft	TOTAL DEPTH 139.3 ft	NORTHING 177,882	EASTING 2,306,586
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/14/12	COMP. DATE 02/15/12	SURFACE WATER DEPTH 3.8ft



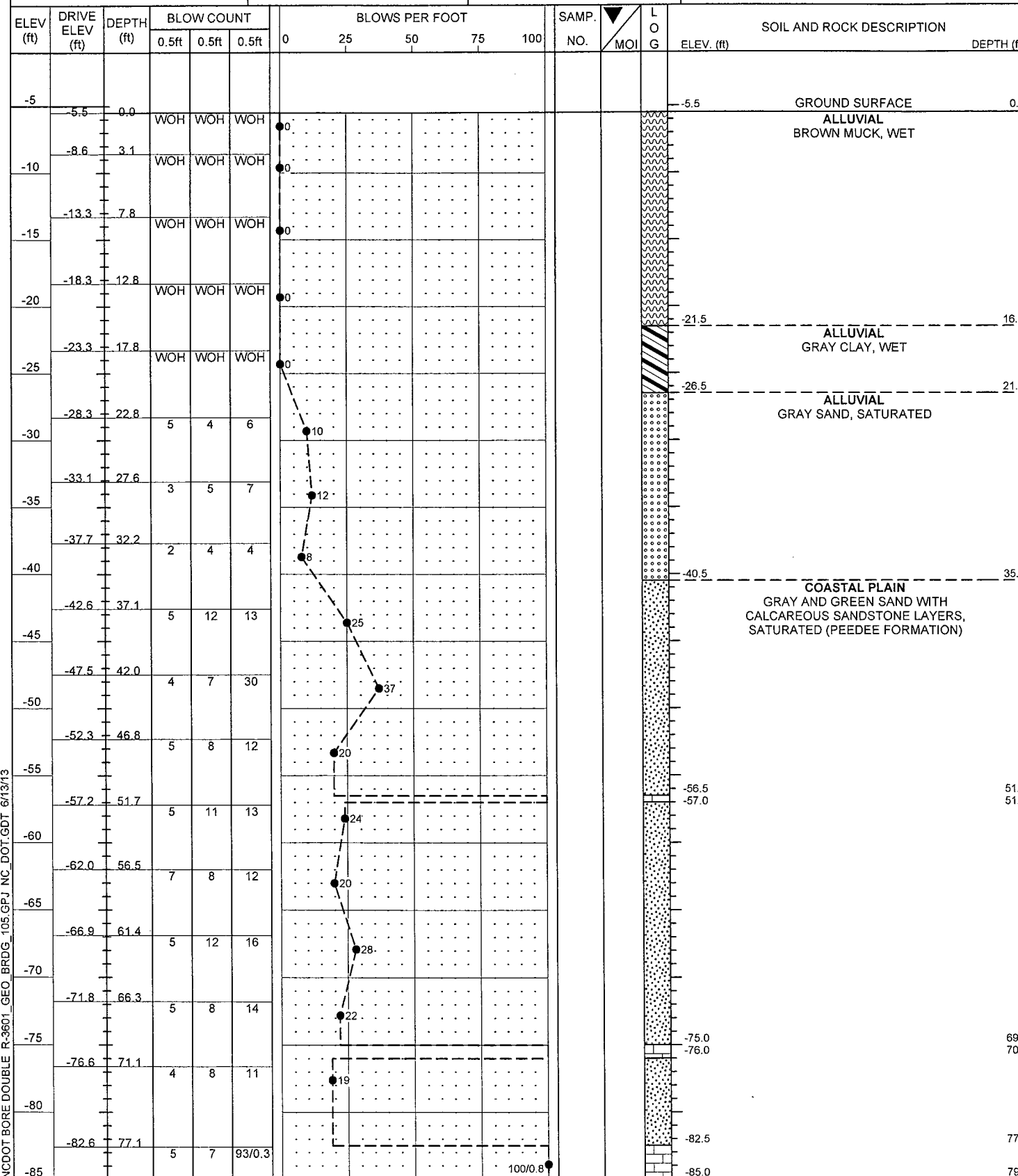
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-A	STATION 61+75	OFFSET 52 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -4.5 ft	TOTAL DEPTH 139.3 ft	NORTHING 177,882	EASTING 2,306,586
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/14/12	COMP. DATE 02/15/12	SURFACE WATER DEPTH 3.8ft



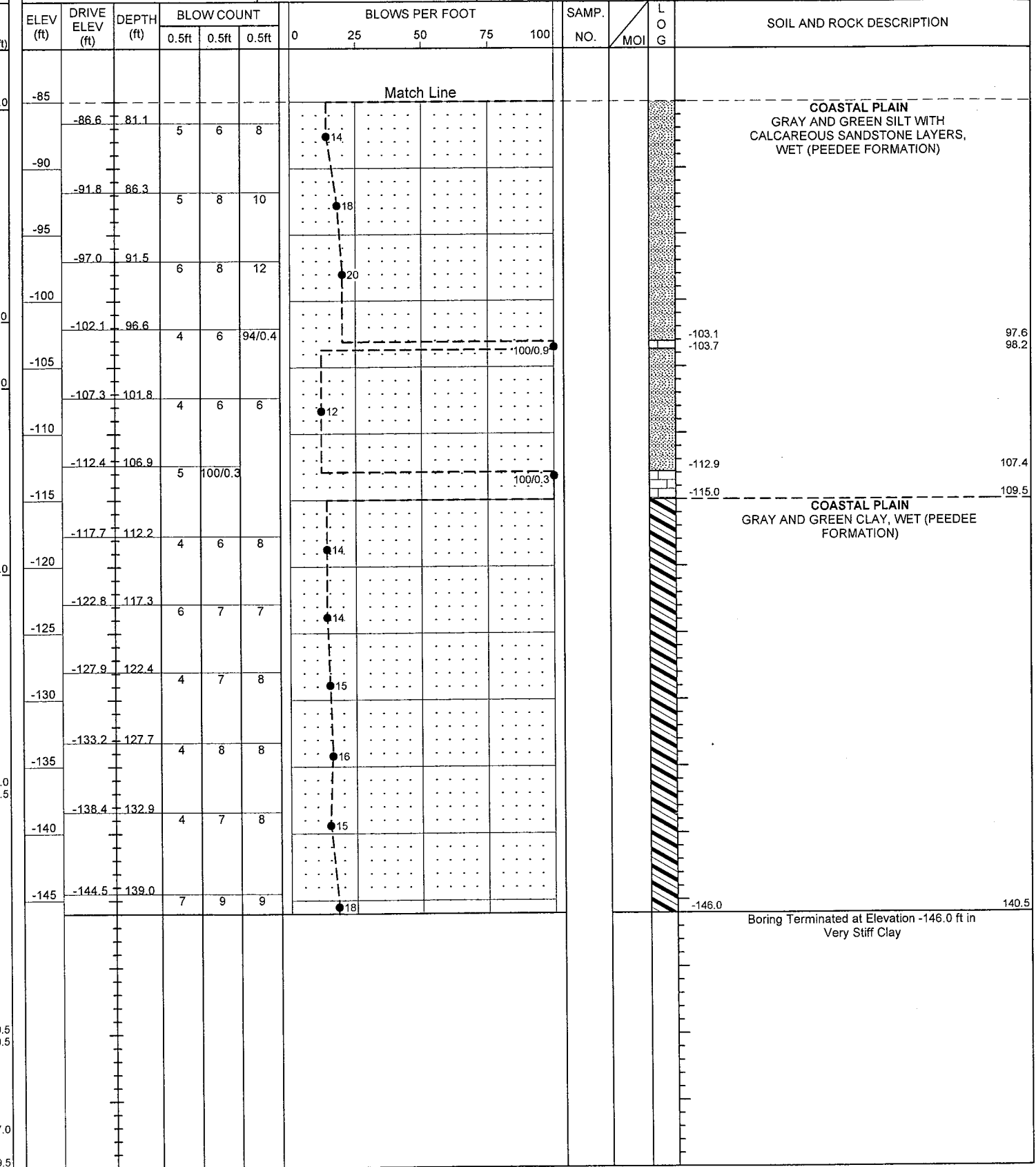
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-C	STATION 62+15	OFFSET 18 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -5.5 ft	TOTAL DEPTH 140.5 ft	NORTHING 177,853	EASTING 2,306,629
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/18/12	COMP. DATE 01/19/12	SURFACE WATER DEPTH 6.5ft



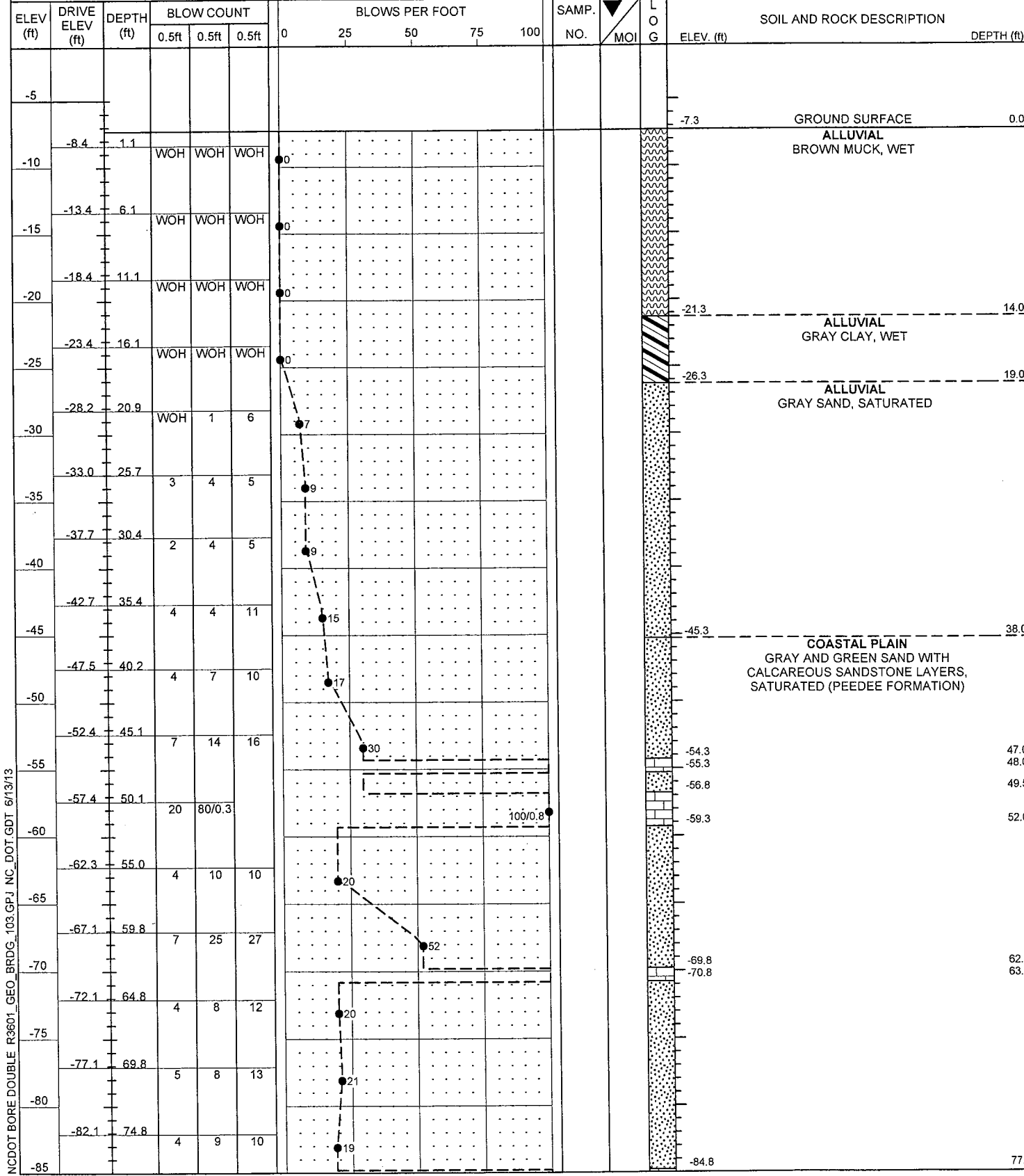
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-C	STATION 62+15	OFFSET 18 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -5.5 ft	TOTAL DEPTH 140.5 ft	NORTHING 177,853	EASTING 2,306,629
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 87% 07/22/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/18/12	COMP. DATE 01/19/12	SURFACE WATER DEPTH 6.5ft



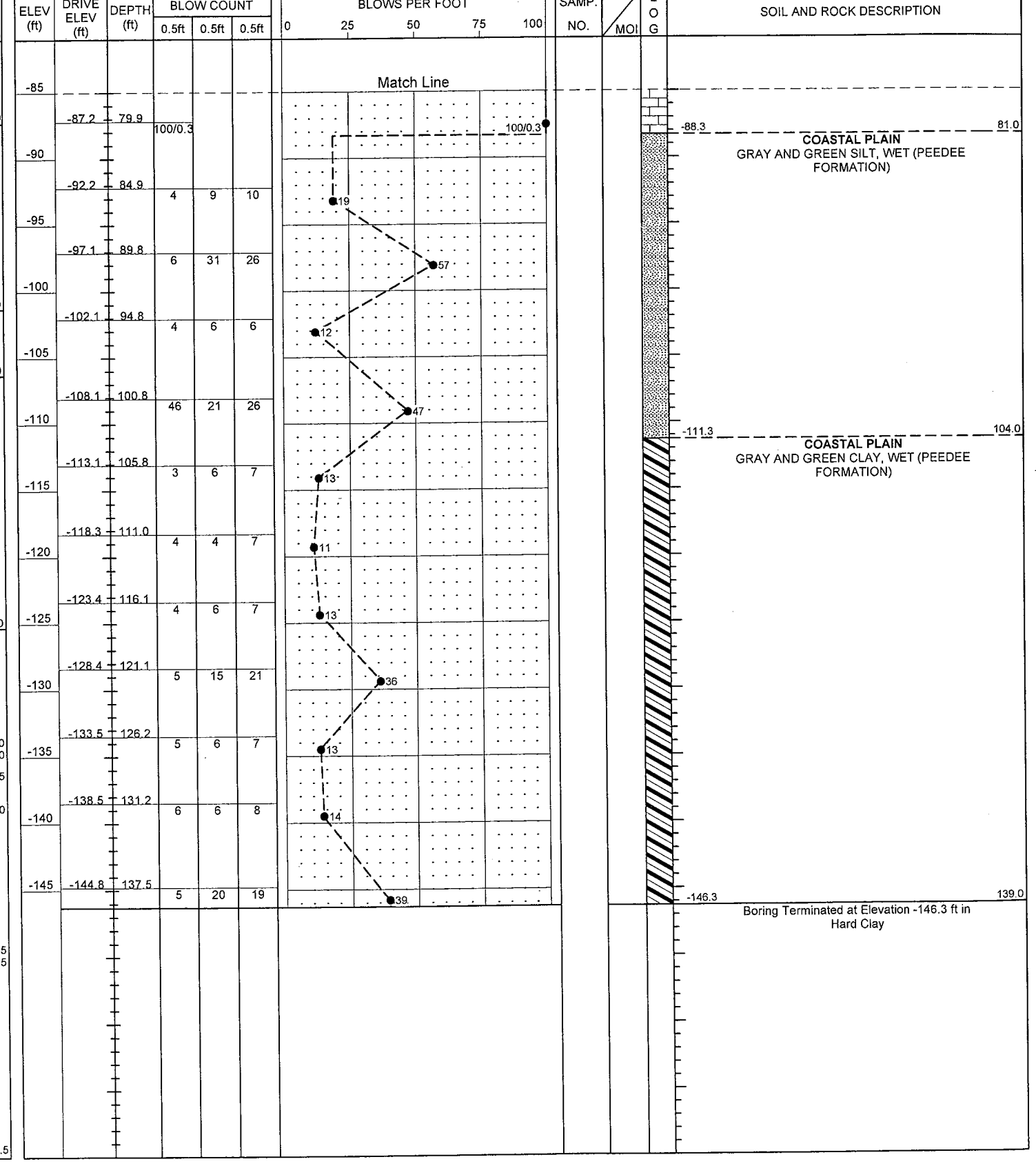
NCDOT BORE DOUBLE R-3601 GEO_BRDG_105.GPJ NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-D	STATION 62+30	OFFSET 13 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -7.3 ft	TOTAL DEPTH 139.0 ft	NORTHING 177,823	EASTING 2,306,648
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/17/12	COMP. DATE 01/18/12	SURFACE WATER DEPTH 11.0ft



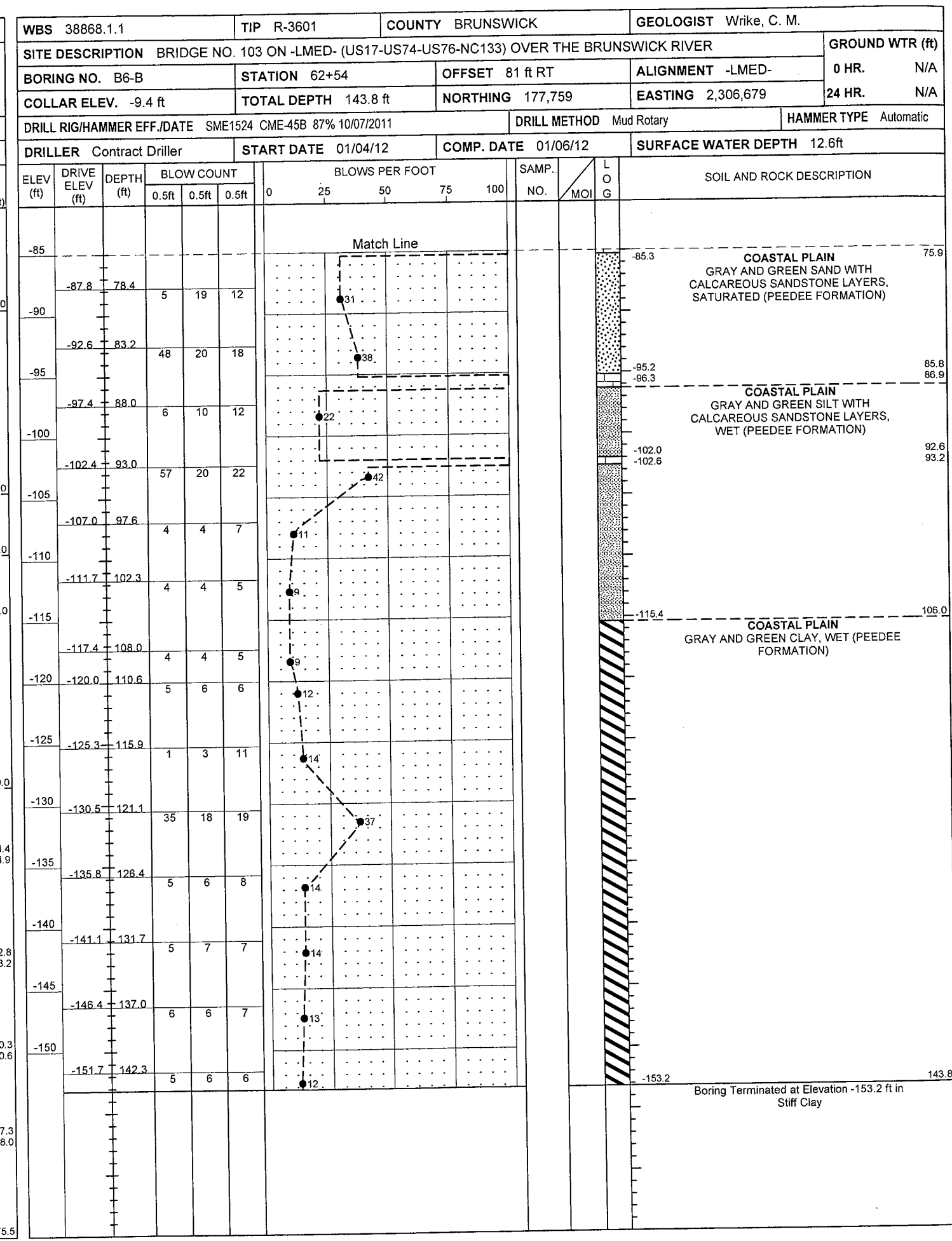
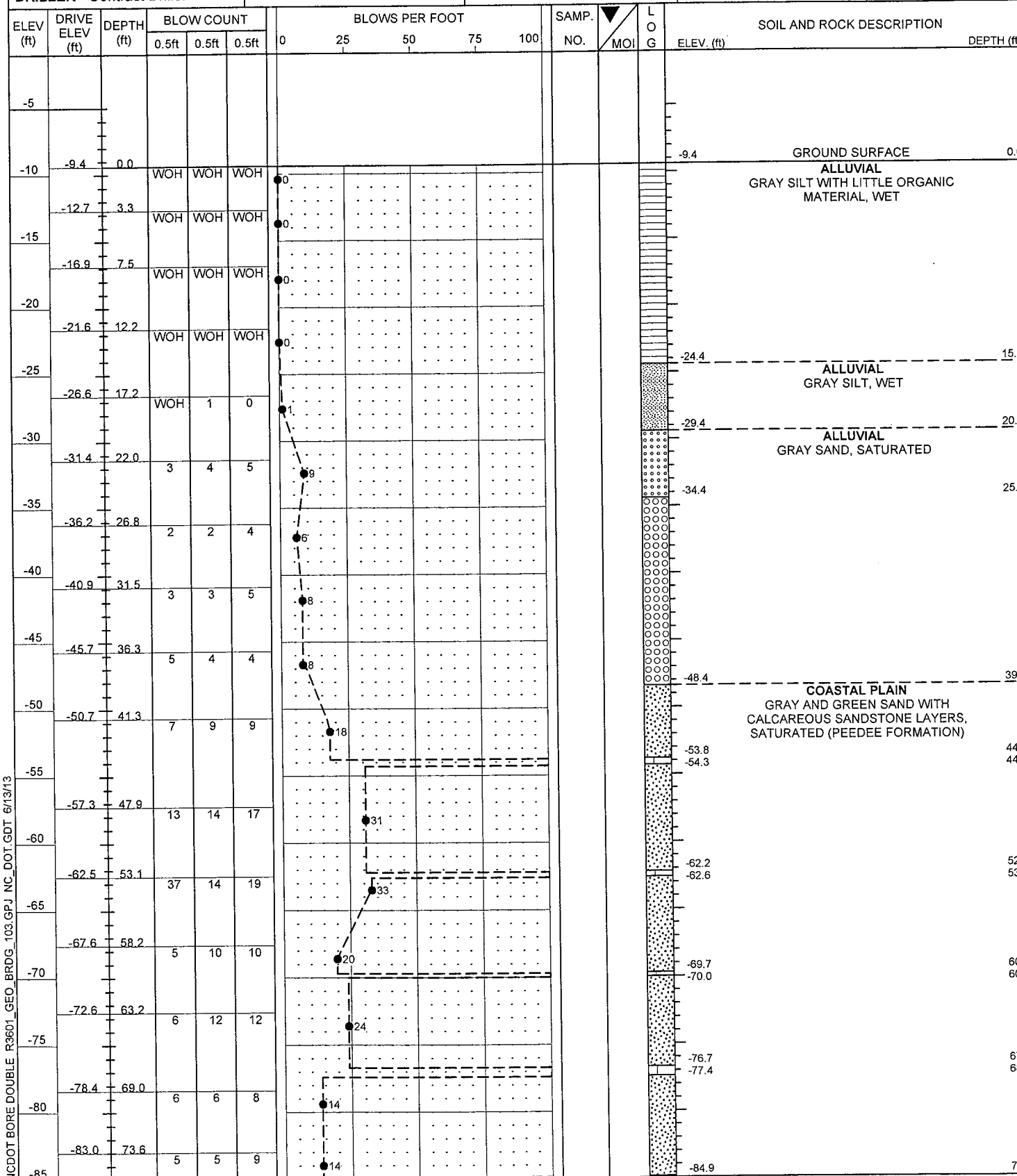
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-D	STATION 62+30	OFFSET 13 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -7.3 ft	TOTAL DEPTH 139.0 ft	NORTHING 177,823	EASTING 2,306,648
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/17/12	COMP. DATE 01/18/12	SURFACE WATER DEPTH 11.0ft



NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

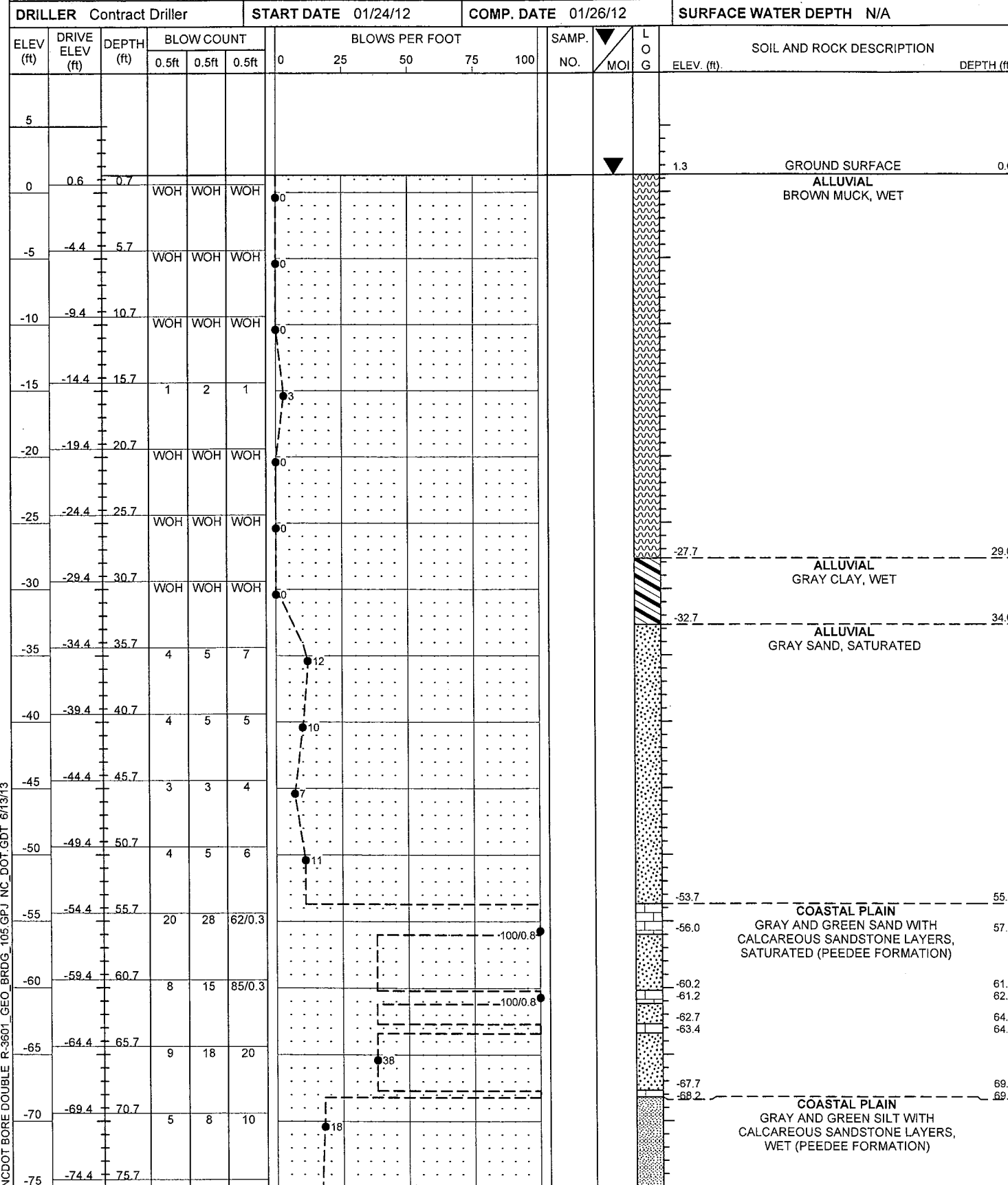
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B6-B	STATION 62+54	OFFSET 81 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. -9.4 ft	TOTAL DEPTH 143.8 ft	NORTHING 177,759	EASTING 2,306,679
DRILL RIG/HAMMER EFF./DATE SME1524 CME-45B 87% 10/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/04/12	COMP. DATE 01/06/12	SURFACE WATER DEPTH 12.6ft



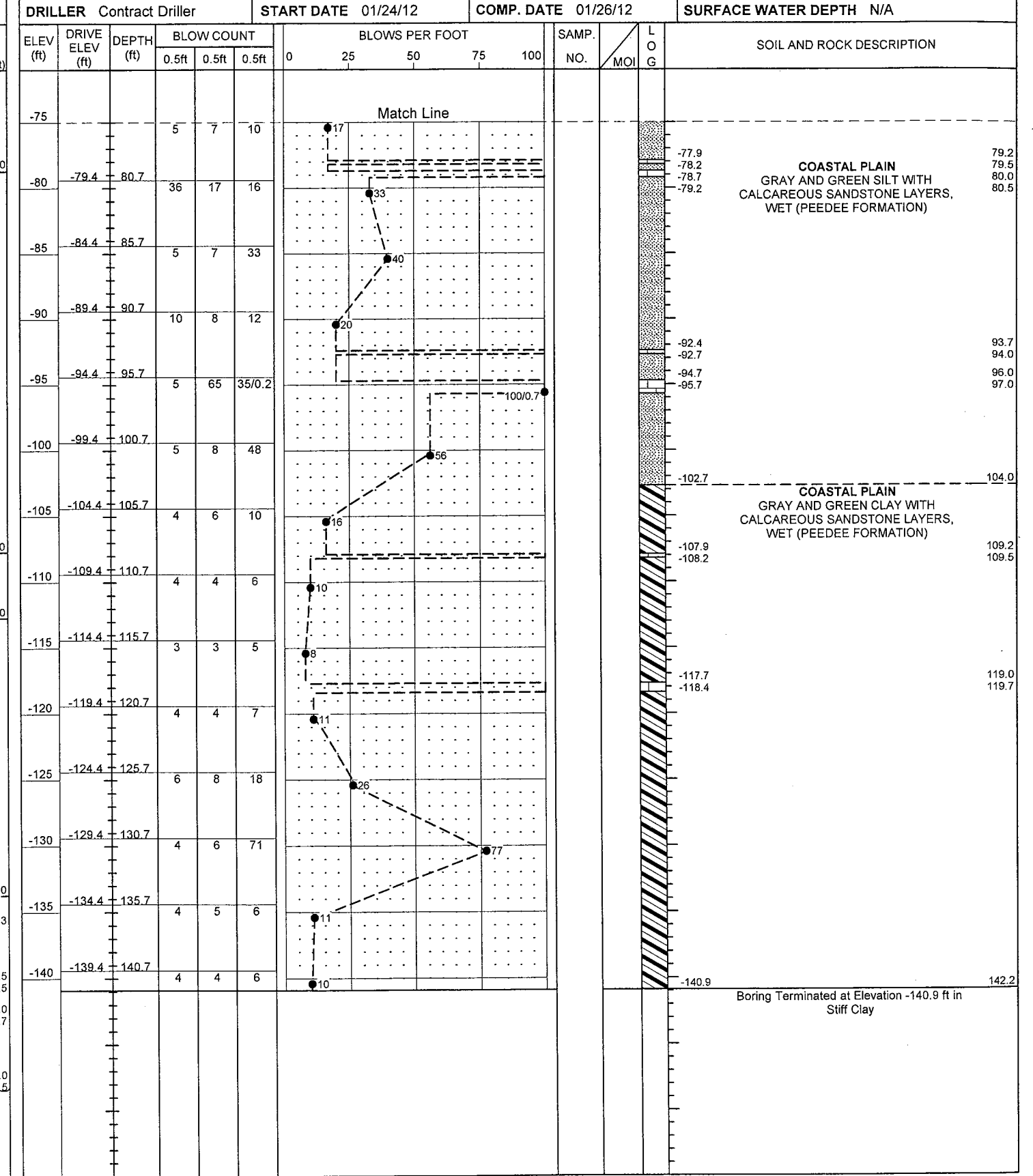
NCDOT BORE DOUBLE R3601_GEO BRDG_103.GPJ NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-A	STATION 62+80	OFFSET 80 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 1.3 ft	TOTAL DEPTH 142.2 ft	NORTHING 177,921	EASTING 2,306,688
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/24/12	COMP. DATE 01/26/12	SURFACE WATER DEPTH N/A



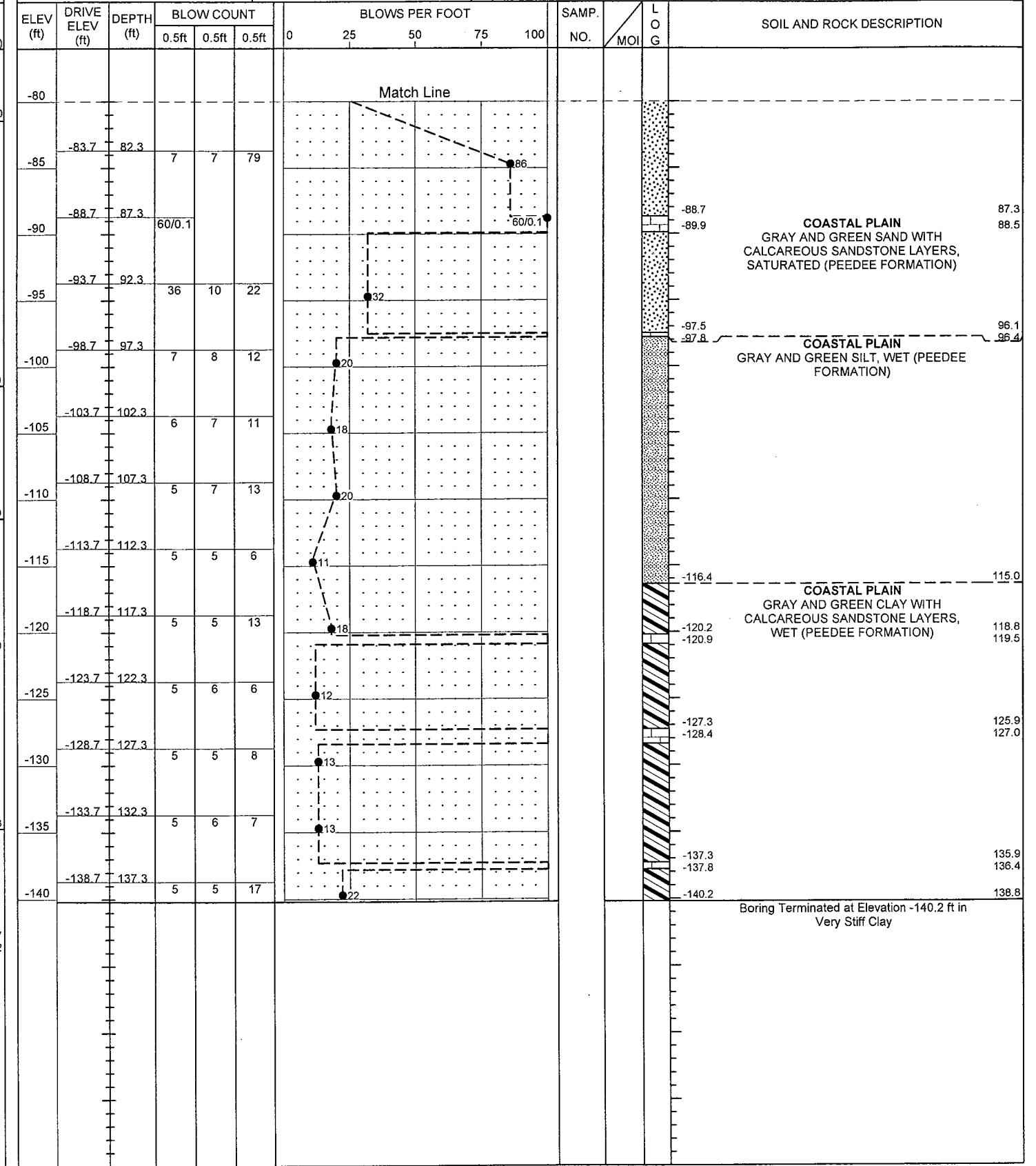
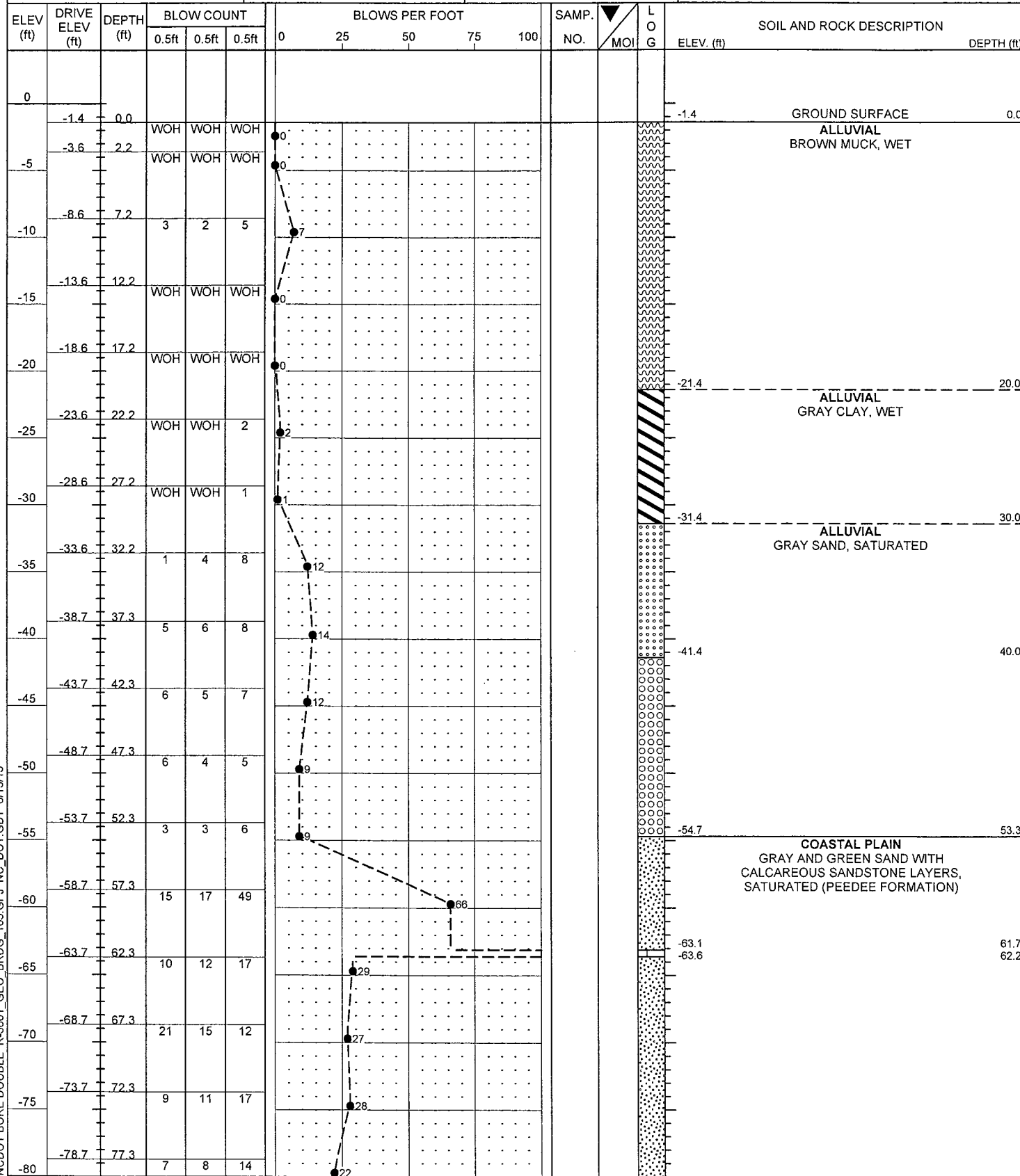
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-A	STATION 62+80	OFFSET 80 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 1.3 ft	TOTAL DEPTH 142.2 ft	NORTHING 177,921	EASTING 2,306,688
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/24/12	COMP. DATE 01/26/12	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT_GDT_6/13/13

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-C	STATION 63+05	OFFSET 35 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -1.4 ft	TOTAL DEPTH 138.8 ft	NORTHING 177,879	EASTING 2,306,717
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/20/12	COMP. DATE 02/20/12	SURFACE WATER DEPTH 2.0ft

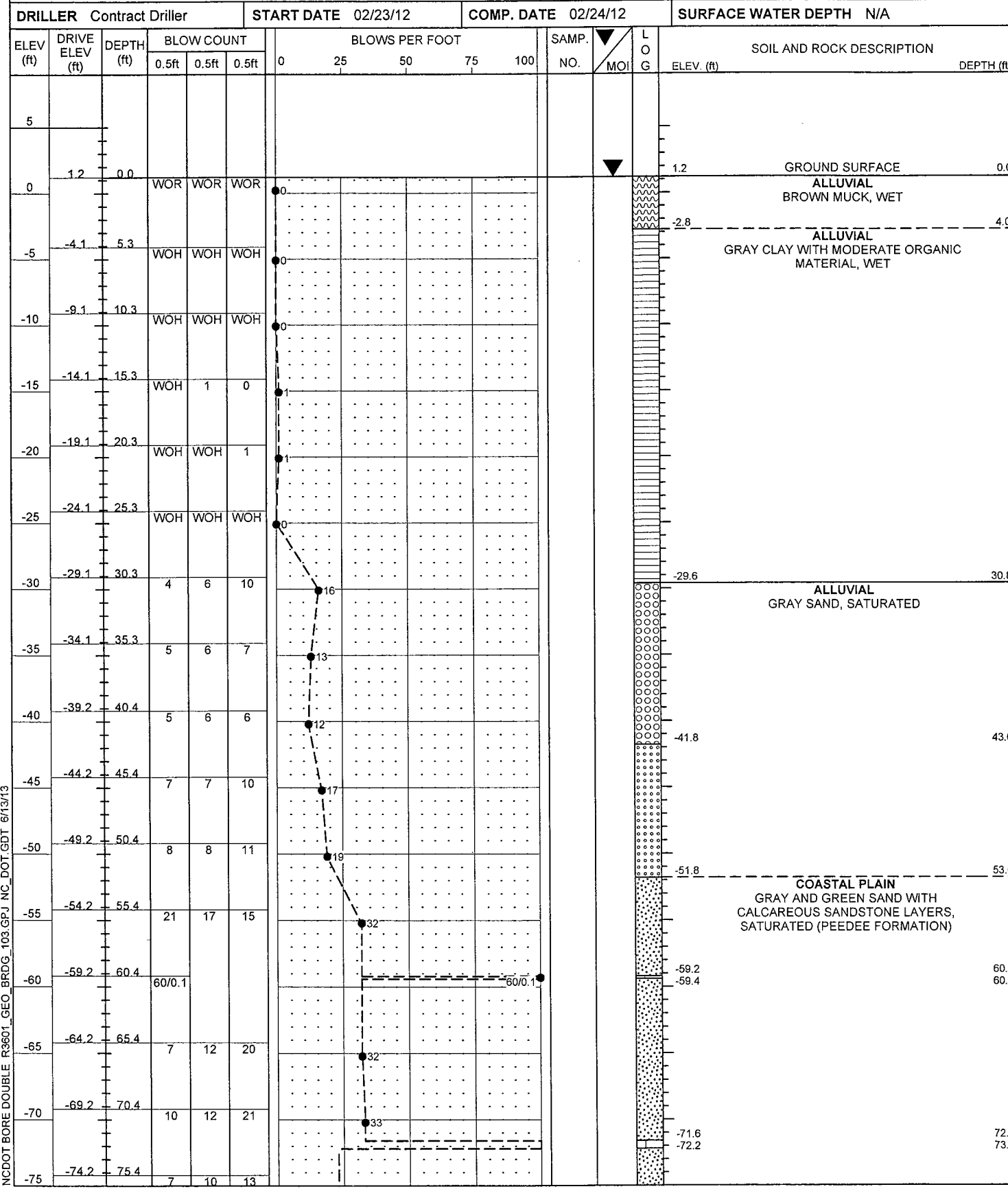
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-C	STATION 63+05	OFFSET 35 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. -1.4 ft	TOTAL DEPTH 138.8 ft	NORTHING 177,879	EASTING 2,306,717
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/20/12	COMP. DATE 02/20/12	SURFACE WATER DEPTH 2.0ft



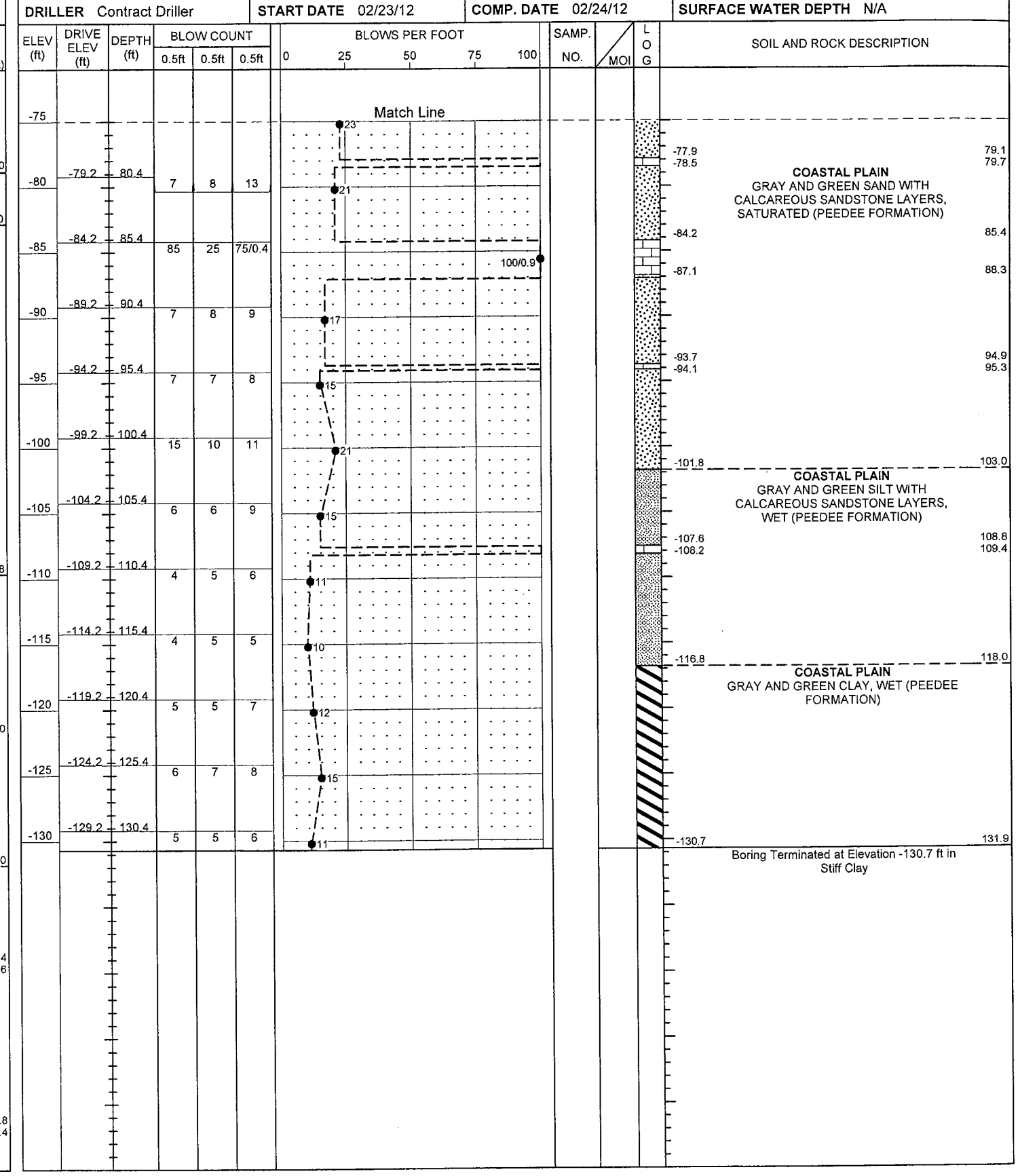
NCDOT BORE DOUBLE R-3601_GEO BRDG_105.GPJ_NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-D	STATION 63+30	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.2 ft	TOTAL DEPTH 131.9 ft	NORTHING 177,813	EASTING 2,306,750
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/23/12	COMP. DATE 02/24/12	SURFACE WATER DEPTH N/A



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Wrike, C. M.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-D	STATION 63+30	OFFSET 35 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.2 ft	TOTAL DEPTH 131.9 ft	NORTHING 177,813	EASTING 2,306,750
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 02/23/12	COMP. DATE 02/24/12	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ_NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-B	STATION 63+66	OFFSET 90 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.7 ft	TOTAL DEPTH 141.6 ft	NORTHING 177,761	EASTING 2,306,790
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/30/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
5														
0	1.7	0.0	WOH	WOH	WOH								GROUND SURFACE	0.0
-5	-3.4	5.1	WOH	WOH	WOH								ALLUVIAL BROWN MUCK WITH WOOD FRAGMENTS, WET	
-10	-8.4	10.1	WOH	WOH	WOH									
-15	-13.4	15.1	WOH	WOH	WOH									
-20	-18.4	20.1	WOH	WOH	WOH									
-25	-23.4	25.1	WOH	WOH	WOH								ALLUVIAL GRAY CLAY, WET	23.0
-30	-28.4	30.1	WOH	WOH	WOH								ALLUVIAL GRAY SAND, SATURATED	33.0
-35	-33.4	35.1	2	4	6									
-40	-38.4	40.1	2	4	6									
-45	-43.4	45.1	4	6	6									
-50	-48.4	50.1	5	5	9									
-55	-53.4	55.1	20	30	70/0.3								COASTAL PLAIN GRAY AND GREEN SAND WITH CALCAREOUS SANDSTONE LAYERS, SATURATED (PEEDEE FORMATION)	55.1
-60	-58.4	60.1	12	20	22									
-65	-63.4	65.1	5	7	13									
-70	-68.4	70.1	100/0.3											
-75	-73.4	75.1	5	10	10									

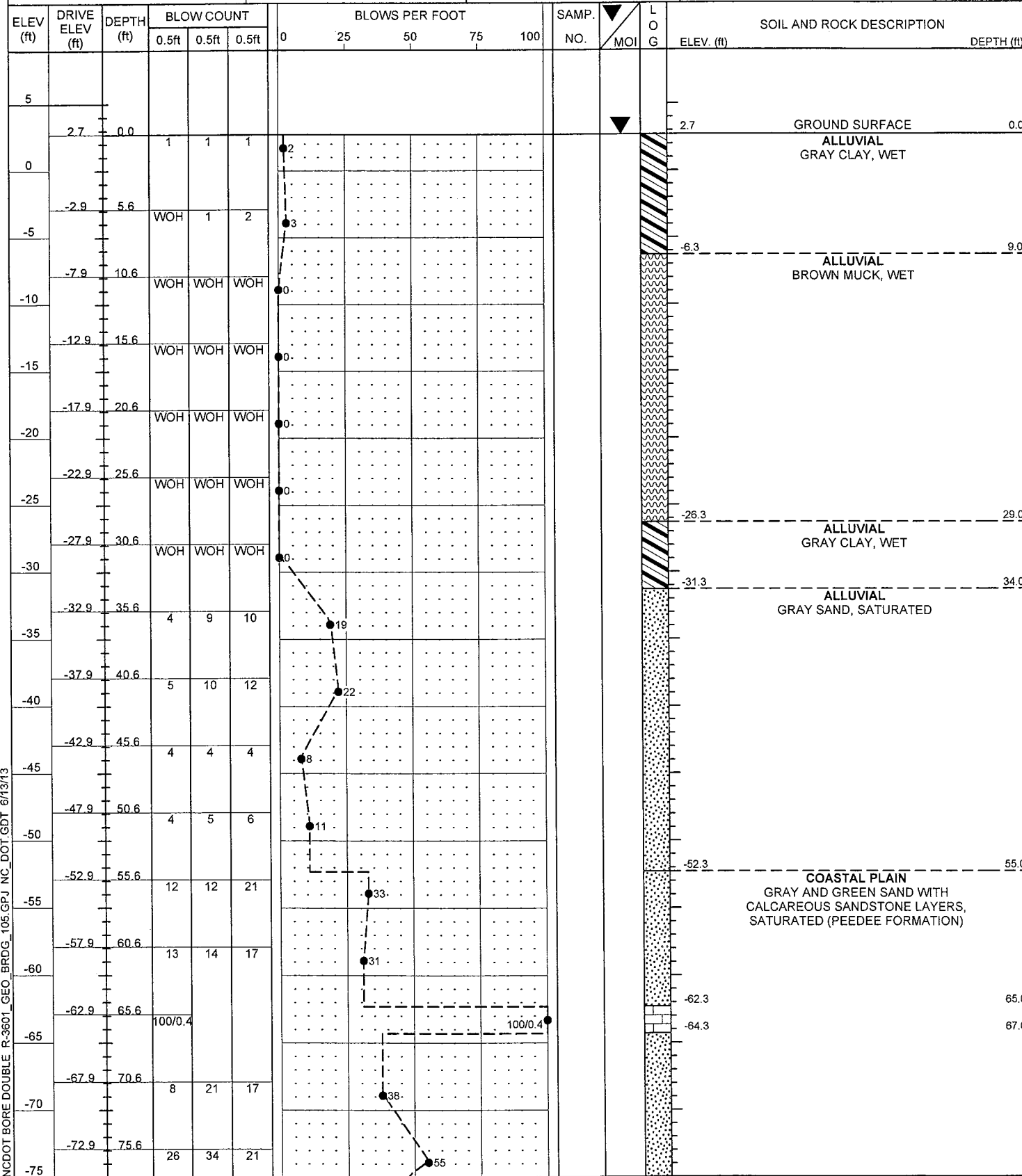
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. B7-B	STATION 63+66	OFFSET 90 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 1.7 ft	TOTAL DEPTH 141.6 ft	NORTHING 177,761	EASTING 2,306,790
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/30/12	COMP. DATE 01/31/12	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
-75														
-80	-78.4	80.1	7	7	8								Match Line	
-85	-83.4	85.1	7	9	11									
-90	-88.4	90.1	5	7	8									
-95	-93.4	95.1	5	6	8									
-100	-98.4	100.1	5	7	7									
-105	-103.4	105.1	6	8	8								COASTAL PLAIN GRAY AND GREEN SILT, WET (PEEDEE FORMATION)	103.0
-110	-108.4	110.1	35	16	17									
-115	-113.4	115.1	8	9	8									
-120	-118.4	120.1	40	12	17									
-125	-123.4	125.1	10	10	11									
-130	-128.4	130.1	4	5	7									
-135	-133.4	135.1	5	8	8									
-140	-138.4	140.1	4	6	6									
-141.6													Boring Terminated at Elevation -139.9 ft in Stiff Clay	141.6

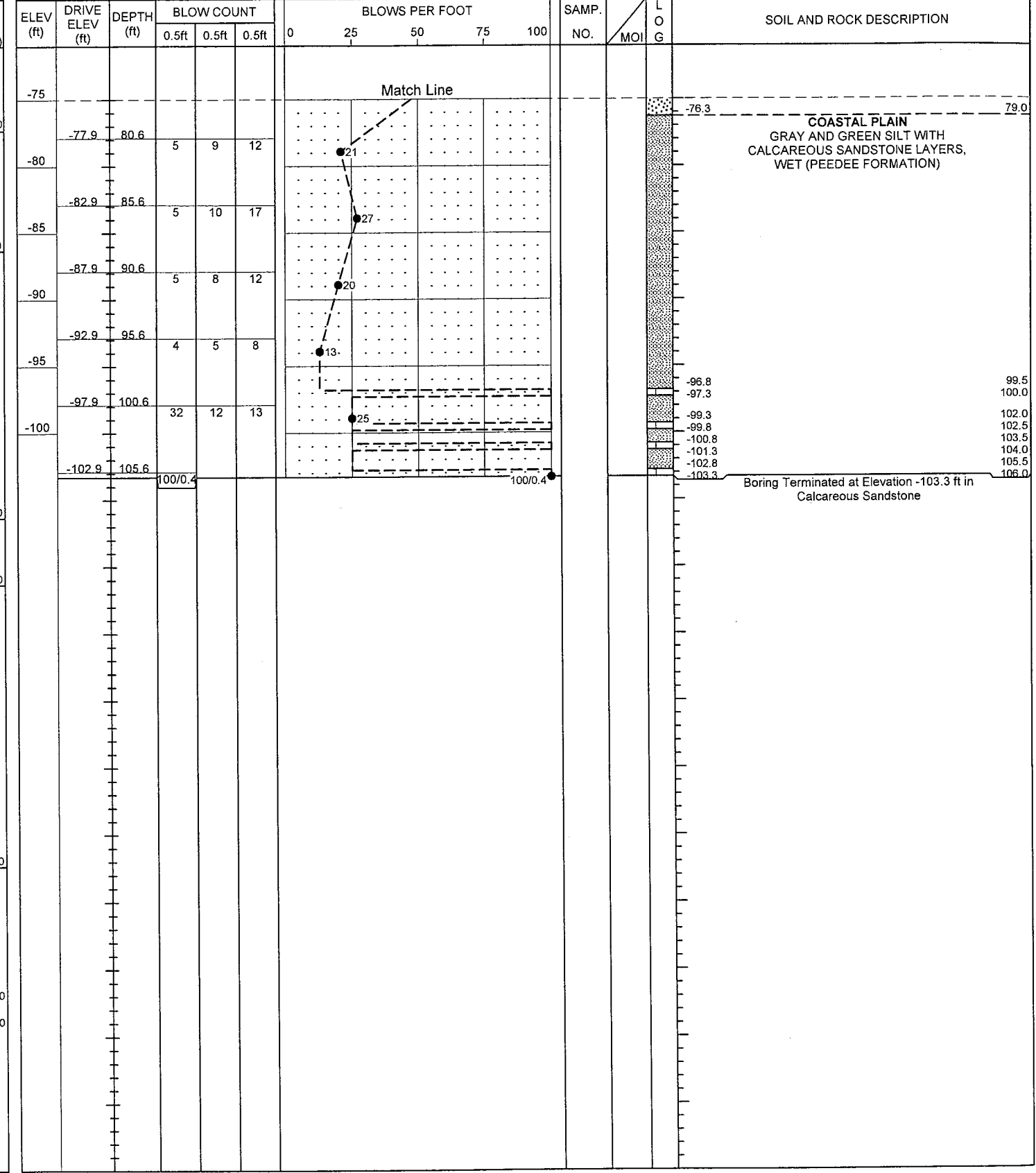
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-A	STATION 63+62	OFFSET 102 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 2.7 ft	TOTAL DEPTH 106.0 ft	NORTHING 177,951	EASTING 2,306,769
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/23/12		COMP. DATE 01/24/12	SURFACE WATER DEPTH N/A



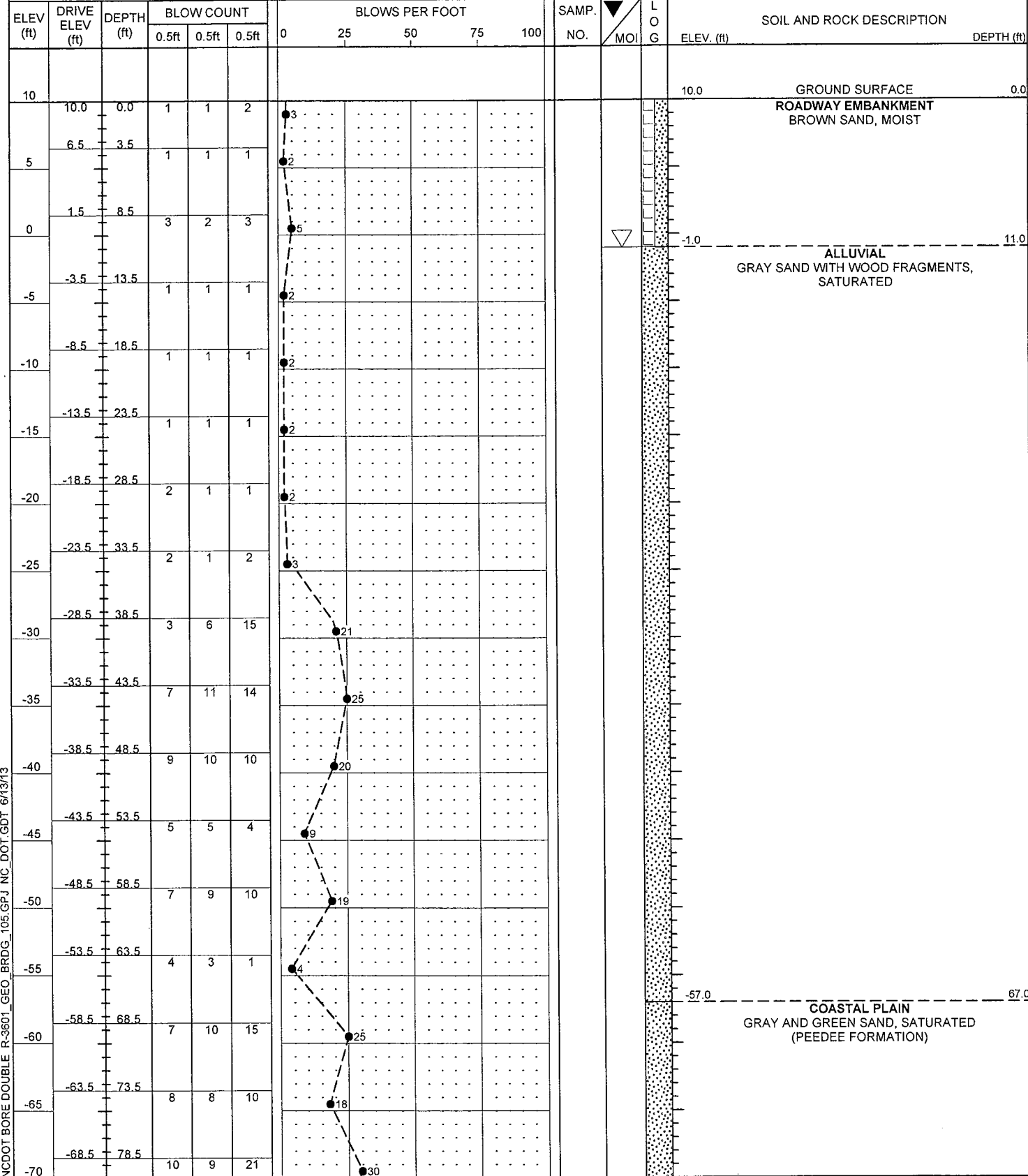
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Brandsen, J.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-A	STATION 63+62	OFFSET 102 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 2.7 ft	TOTAL DEPTH 106.0 ft	NORTHING 177,951	EASTING 2,306,769
DRILL RIG/HAMMER EFF./DATE MAD5003 D-25 73% 5/3/2011			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/23/12		COMP. DATE 01/24/12	SURFACE WATER DEPTH N/A



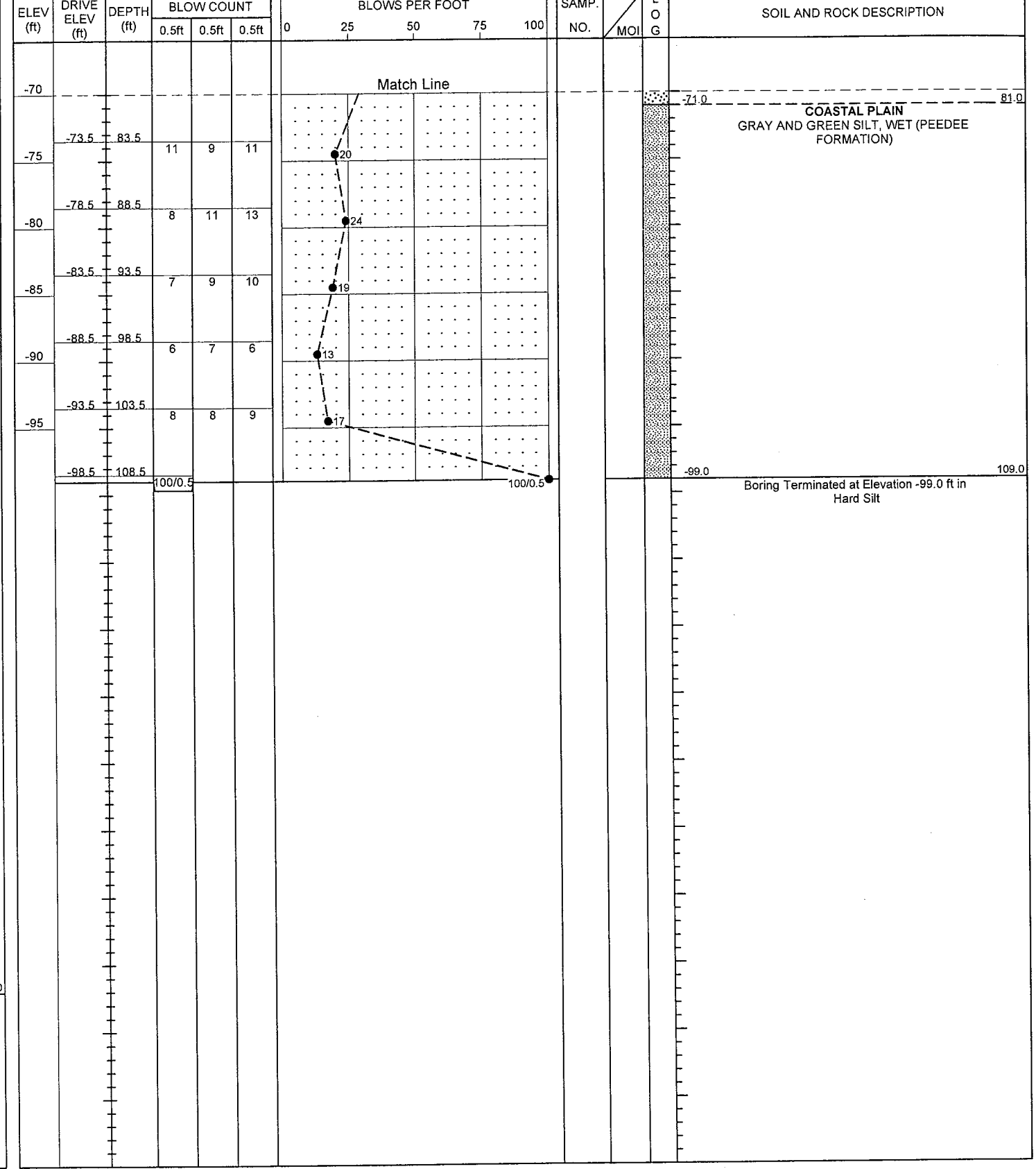
NCDOT BORE DOUBLE R-3601 GEO BRDG 105.GPJ NC_DOT_GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-C	STATION 64+05	OFFSET 14 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 10.0 ft	TOTAL DEPTH 109.0 ft	NORTHING 177,868	EASTING 2,306,819
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/18/12	COMP. DATE 01/18/12	SURFACE WATER DEPTH N/A



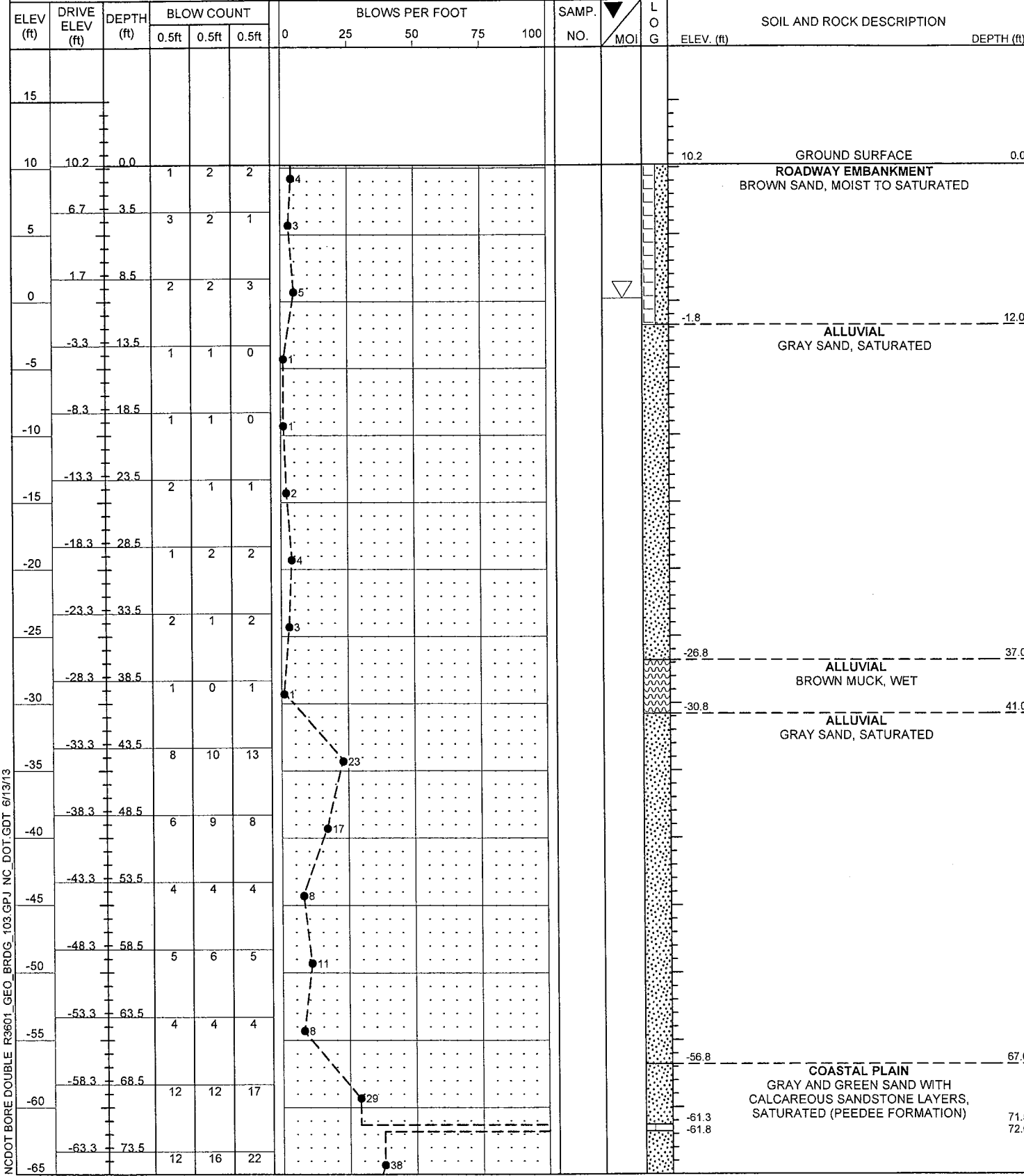
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-C	STATION 64+05	OFFSET 14 ft LT	ALIGNMENT -LMED-
COLLAR ELEV. 10.0 ft	TOTAL DEPTH 109.0 ft	NORTHING 177,868	EASTING 2,306,819
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/18/12	COMP. DATE 01/18/12	SURFACE WATER DEPTH N/A



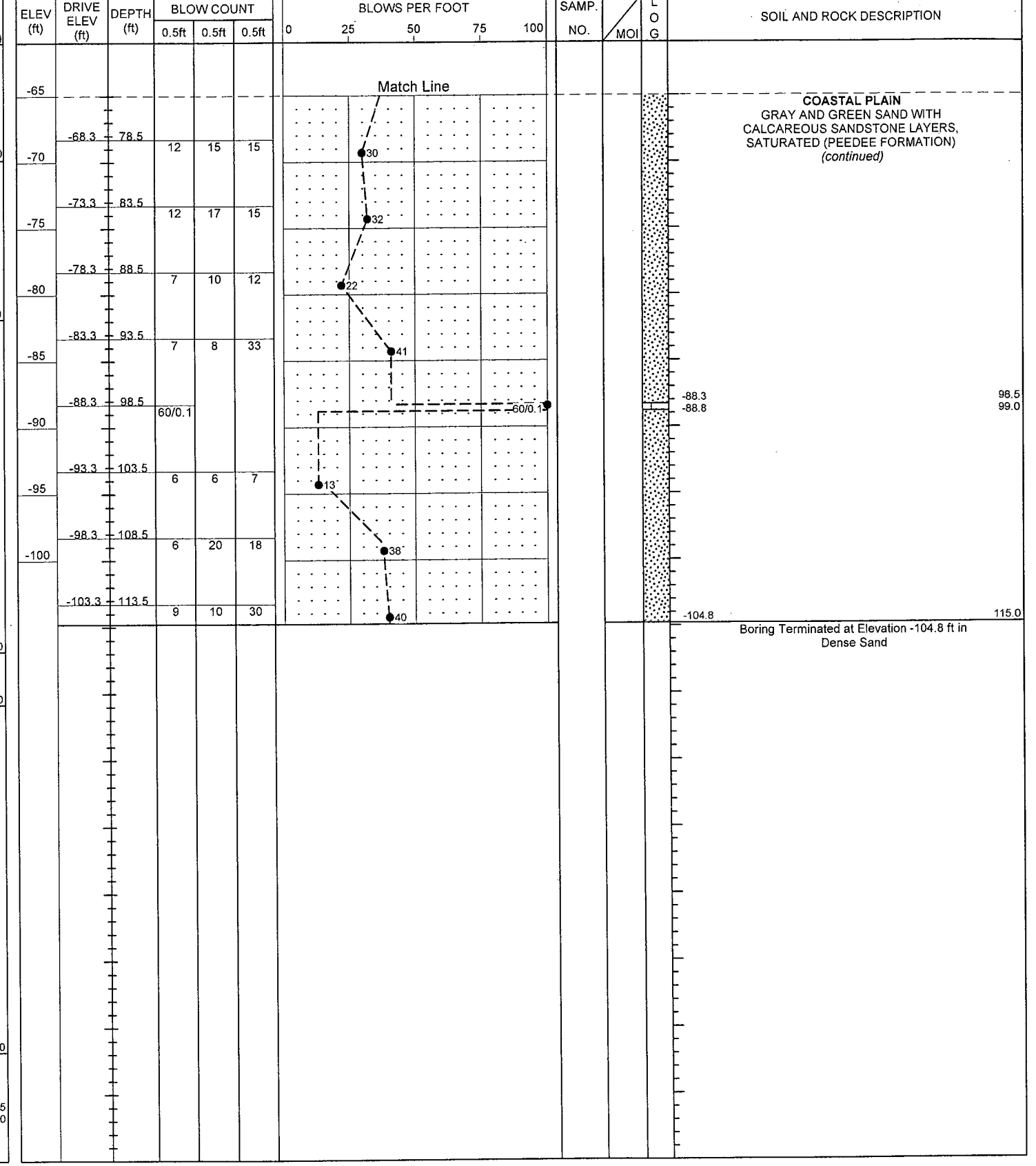
NCDOT BORE DOUBLE R-3601_GEO_BRDG_105.GPJ_NC_DOT.GDT 6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-D	STATION 64+28	OFFSET 10 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 10.2 ft	TOTAL DEPTH 115.0 ft	NORTHING 177,846	EASTING 2,306,844
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/17/12	COMP. DATE 01/17/12	SURFACE WATER DEPTH N/A



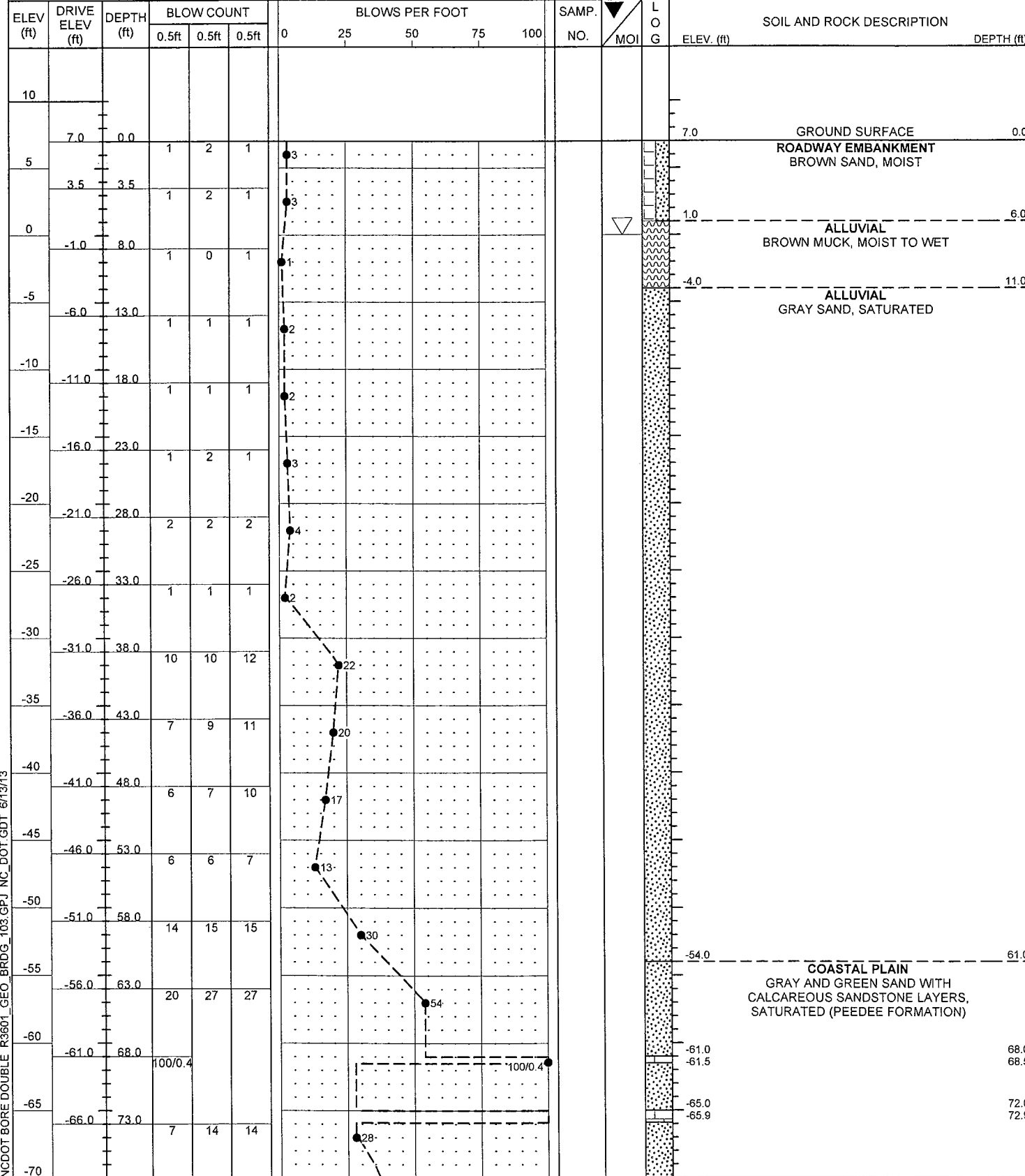
WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-D	STATION 64+28	OFFSET 10 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 10.2 ft	TOTAL DEPTH 115.0 ft	NORTHING 177,846	EASTING 2,306,844
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER Contract Driller	START DATE 01/17/12	COMP. DATE 01/17/12	SURFACE WATER DEPTH N/A



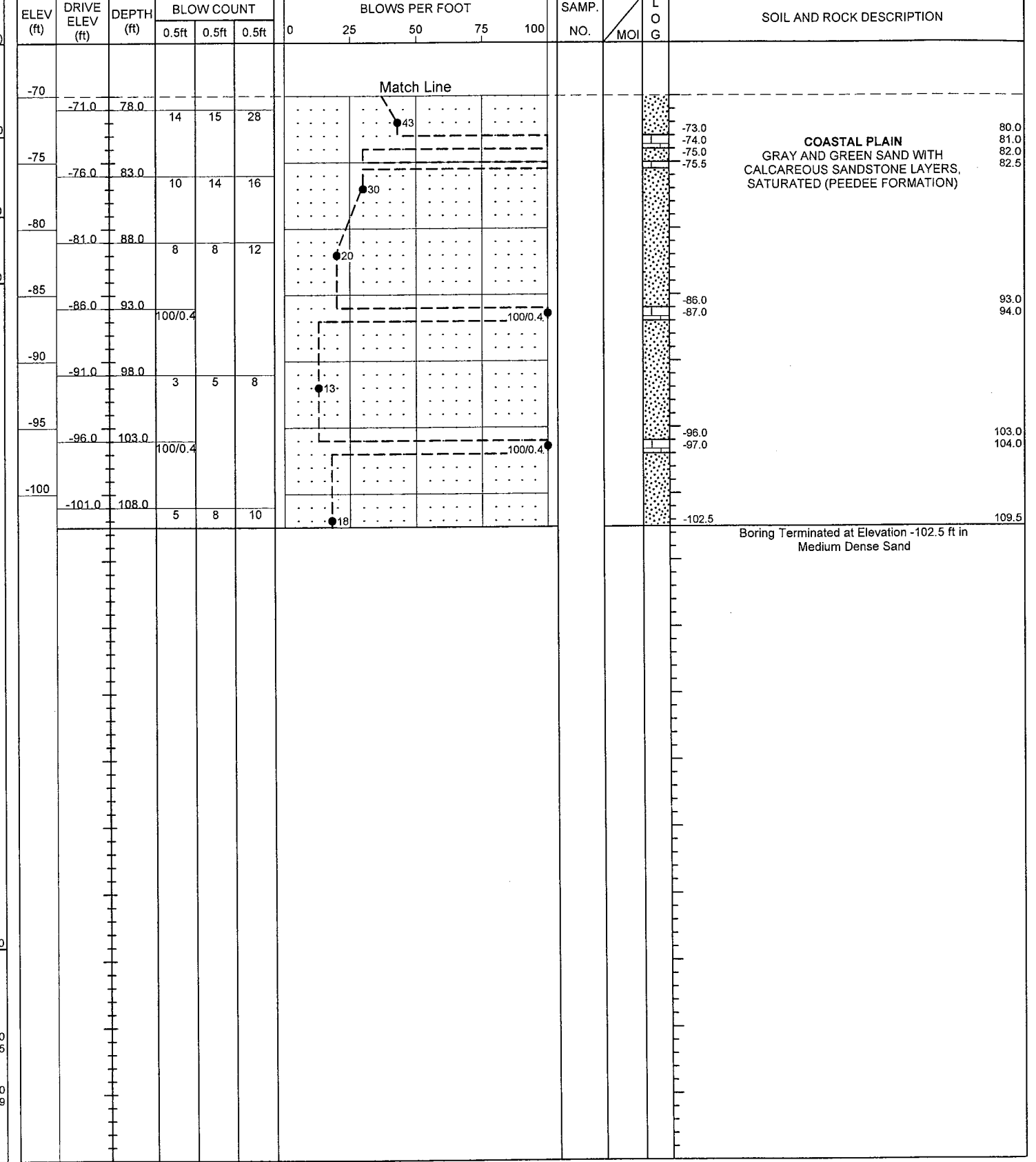
NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT_6/13/13

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-B	STATION 64+63	OFFSET 82 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 7.0 ft	TOTAL DEPTH 109.5 ft	NORTHING 177,777	EASTING 2,306,885
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/19/12		COMP. DATE 01/19/12	SURFACE WATER DEPTH N/A



WBS 38868.1.1	TIP R-3601	COUNTY BRUNSWICK	GEOLOGIST Mayr, E.
SITE DESCRIPTION BRIDGE NO. 103 ON -LMED- (US17-US74-US76-NC133) OVER THE BRUNSWICK RIVER			GROUND WTR (ft)
BORING NO. EB2-B	STATION 64+63	OFFSET 82 ft RT	ALIGNMENT -LMED-
COLLAR ELEV. 7.0 ft	TOTAL DEPTH 109.5 ft	NORTHING 177,777	EASTING 2,306,885
DRILL RIG/HAMMER EFF./DATE SME3193 CME-550X 80% 06/07/2011			DRILL METHOD Mud Rotary
DRILLER Contract Driller			HAMMER TYPE Automatic
START DATE 01/19/12		COMP. DATE 01/19/12	SURFACE WATER DEPTH N/A



NCDOT BORE DOUBLE R3601_GEO_BRDG_103.GPJ NC_DOT_GDT_6/13/13

38868.1.1

R-3601

BRIDGE NO.103 ON US 17 /US 74 /US 76 /NC 133 OVER THE BRUNSWICK RIVER AT -LMED- 60+32.7

B2-A SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-50	80 LT	58+16	0.0-1.5	A-1-b(0)	19	NP	88.0	7.7	2.3	2.0	100	41	5	-	-
SS-51	80 LT	58+16	4.8-6.3	A-2-4(0)	21	NP	6.0	77.0	8.9	8.1	97	96	18	-	-
SS-52	80 LT	58+16	12.1-13.6	A-2-4(0)	20	NP	9.3	74.4	8.2	8.1	88	85	16	-	-
SS-53	80 LT	58+16	20.4-21.9	A-2-4(0)	20	NP	14.9	71.8	6.3	7.1	100	98	16	-	-
SS-54	80 LT	58+16	32.0-33.5	A-2-4(0)	19	NP	2.4	75.5	11.9	10.1	100	100	24	-	-
SS-55	80 LT	58+16	42.9-44.4	A-2-4(0)	20	NP	1.3	81.0	9.6	8.1	100	100	20	-	-
SS-56	80 LT	58+16	53.7-55.2	A-2-4(0)	21	NP	0.5	78.1	12.2	9.1	100	100	24	-	-
SS-57	80 LT	58+16	63.9-65.4	A-2-4(0)	22	NP	2.6	70.6	14.6	12.1	100	100	32	-	-
SS-58	80 LT	58+16	72.3-73.8	A-4(0)	23	2	1.4	65.8	16.6	16.2	100	100	39	-	-
SS-59	80 LT	58+16	81.3-82.8	A-4(0)	28	7	1.4	65.6	12.8	20.2	100	100	40	-	-
SS-60	80 LT	58+16	90.5-92.0	A-6(2)	30	11	1.4	60.9	15.4	22.3	100	99	46	-	-

B3-A SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-81	71 LT	59+32	5.3-6.8	A-2-4(0)	21	NP	5.5	80.8	5.7	8.1	92	90	15	-	-
SS-82	71 LT	59+32	12.1-13.6	A-2-4(0)	19	NP	16.1	69.7	7.2	7.1	87	84	15	-	-
SS-83	71 LT	59+32	20.4-21.9	A-2-4(0)	18	NP	4.6	79.5	6.8	9.1	100	100	18	-	-
SS-84	71 LT	59+32	29.7-31.2	A-2-4(0)	20	NP	2.9	83.5	5.5	8.1	99	99	15	-	-
SS-85	71 LT	59+32	40.2-41.7	A-2-4(0)	21	NP	1.0	78.4	8.5	12.1	100	100	23	-	-
SS-86	71 LT	59+32	50.9-52.4	A-2-4(0)	20	NP	0.8	74.5	14.5	10.1	100	100	29	-	-
SS-87	71 LT	59+32	58.1-59.6	A-2-4(0)	22	NP	0.6	72.8	16.3	10.3	100	100	31	-	-
SS-88	71 LT	59+32	67.5-69.0	A-4(0)	22	NP	0.6	69.1	15.8	14.4	100	100	36	-	-
SS-89	71 LT	59+32	77.1-78.6	A-4(0)	27	6	0.8	63.0	15.6	20.6	100	100	43	-	-
SS-90	71 LT	59+32	86.7-88.2	A-6(4)	32	14	4.7	53.9	18.7	22.6	98	95	49	-	-
SS-91	71 LT	59+32	96.5-98.0	A-6(3)	30	13	1.0	57.4	16.9	24.7	100	100	51	-	-

B3-B SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-31	101 RT	59+83	3.9-5.4	A-3(0)	25	NP	88.5	8.2	2.3	1.0	98	57	4	-	-
SS-32	101 RT	59+83	9.1-9.6	A-2-4(0)	19	NP	12.1	76.1	5.7	6.1	90	85	13	-	-
SS-33	101 RT	59+83	19.8-21.3	A-2-4(0)	18	NP	10.5	73.8	7.6	8.1	82	79	15	-	-
SS-34	101 RT	59+83	34.9-36.4	A-2-4(0)	19	NP	3.2	79.8	7.9	9.1	100	100	19	-	-
SS-35	101 RT	59+83	45.3-46.8	A-2-4(0)	20	NP	1.2	82.9	8.8	7.1	100	100	18	-	-
SS-36	101 RT	59+83	54.7-55.4	A-2-4(0)	20	NP	1.8	69.8	18.2	10.1	100	99	32	-	-
SS-37	101 RT	59+83	64.5-66.0	A-2-4(0)	21	1	0.8	69.8	19.2	10.1	100	100	34	-	-
SS-38	101 RT	59+83	74.5-76.0	A-4(0)	22	1	0.8	66.6	20.4	12.1	100	100	38	-	-
SS-39	101 RT	59+83	90.1-91.6	A-4(1)	28	10	0.8	62.6	16.4	20.2	100	100	44	-	-

38868.1.1

R-3601

BRIDGE NO.103 ON US 17 /US 74 /US 76 /NC 133 OVER THE BRUNSWICK RIVER AT -LMED- 60+32.7

B4-A SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-71	79 LT	60+33	0.0-1.5	A-3(0)	23	NP	90.6	6.3	1.1	2.0	99	54	3	-	-
SS-72	79 LT	60+33	8.6-10.1	A-3(0)	24	NP	82.4	16.6	0.0	1.0	100	65	2	-	-
SS-73	79 LT	60+33	15.4-16.9	A-2-4(0)	20	NP	5.8	80.2	4.9	9.1	96	94	16	-	-
SS-74	79 LT	60+33	24.7-26.2	A-2-4(0)	17	NP	19.6	69.5	4.8	6.1	100	98	13	-	-
SS-75	79 LT	60+33	34.4-35.9	A-2-4(0)	18	NP	4.8	83.4	4.6	7.1	100	100	13	-	-
SS-76	79 LT	60+33	43.5-45.0	A-2-4(0)	20	NP	2.6	83.0	6.3	8.1	100	100	16	-	-
SS-77	79 LT	60+33	55.4-56.9	A-2-4(0)	20	NP	0.6	78.0	11.3	10.1	100	100	25	-	-
SS-78	79 LT	60+33	66.7-68.2	A-2-4(0)	21	NP	0.6	71.9	13.3	14.1	100	100	31	-	-
SS-79	79 LT	60+33	77.1-78.5	A-4(0)	23	2	1.0	68.1	16.8	14.1	100	100	37	-	-
SS-80	79 LT	60+33	88.3-89.8	A-4(0)	27	7	0.6	63.8	15.4	20.2	100	100	43	-	-

B4-B SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-40	93 RT	60+36	0.0-1.5	A-3(0)	22	NP	72.4	24.8	1.8	1.0	97	63	3	-	-
SS-41	93 RT	60+36	9.7-11.2	A-3(0)	24	NP	71.7	23.3	4.0	1.0	81	51	5	-	-
SS-42	93 RT	60+36	12.0-13.5	A-2-4(0)	20	NP	7.3	79.6	6.1	7.1	86	84	14	-	-
SS-43	93 RT	60+36	23.1-24.6	A-2-4(0)	21	NP	6.7	80.1	6.2	7.1	97	96	15	-	-
SS-44	93 RT	60+36	35.3-36.8	A-2-4(0)	21	NP	1.7	85.6	6.6	6.1	100	100	15	-	-
SS-45	93 RT	60+36	50.7-52.2	A-2-4(0)	22	NP	1.0	81.3	10.6	7.1	100	100	21	-	-
SS-46	93 RT	60+36	58.7-59.9	A-2-4(0)	21	NP	1.0	72.8	16.1	10.1	100	99	30	-	-
SS-47	93 RT	60+36	69.7-71.2	A-4(0)	25	4	0.4	68.2	19.2	12.1	100	100	37	-	-
SS-48	93 RT	60+36	80.3-81.8	A-4(0)	26	NP	0.6	63.6	15.6	20.2	100	100	43	-	-
SS-49	93 RT	60+36	90.7-92.2	A-6(4)	33	15	0.6	58.5	18.6	22.3	100	100	51	-	-

B5-A SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-61	76 LT	60+99	0.0-1.5	A-7-6(10)	44	22	3.2	42.6	23.8	30.3	100	99	56	-	-
SS-62	76 LT	60+99	8.0-9.5	A-3(0)	21	NP	83.3	14.2	0.4	2.0	100	69	3	-	-
SS-63	76 LT	60+99	18.2-19.7	A-3(0)	18	NP	78.5	19.3	0.2	2.0	100	79	3	-	-
SS-64	76 LT	60+99	28.5-30.0	A-2-4(0)	19	NP	6.2	79.2	5.6	9.1	99	97	17	-	-
SS-65	76 LT	60+99	33.6-35.1	A-2-4(0)	17	NP	16.2	64.6	7.1	12.1	81	77	18	-	-
SS-66	76 LT	60+99	44.3-45.8	A-2-4(0)	20	NP	4.3	75.9	9.7	10.1	99	99	22	-	-
SS-67	76 LT	60+99	60.9-62.4	A-2-4(0)	21	NP	1.6	79.8	8.5	10.1	100	100	22	-	-
SS-68	76 LT	60+99	71.3-72.8	A-2-4(0)	21	NP	1.6	71.7	14.5	12.1	100	99	31	-	-
SS-69	76 LT	60+99	81.7-83.2	A-4(0)	21	NP	0.6	65.3	22.0	12.1	100	100	39	-	-
SS-70	76 LT	60+99	91.9-93.4	A-4(0)	24	2	0.8	64.2	14.7	20.2	100	100	42	-	-

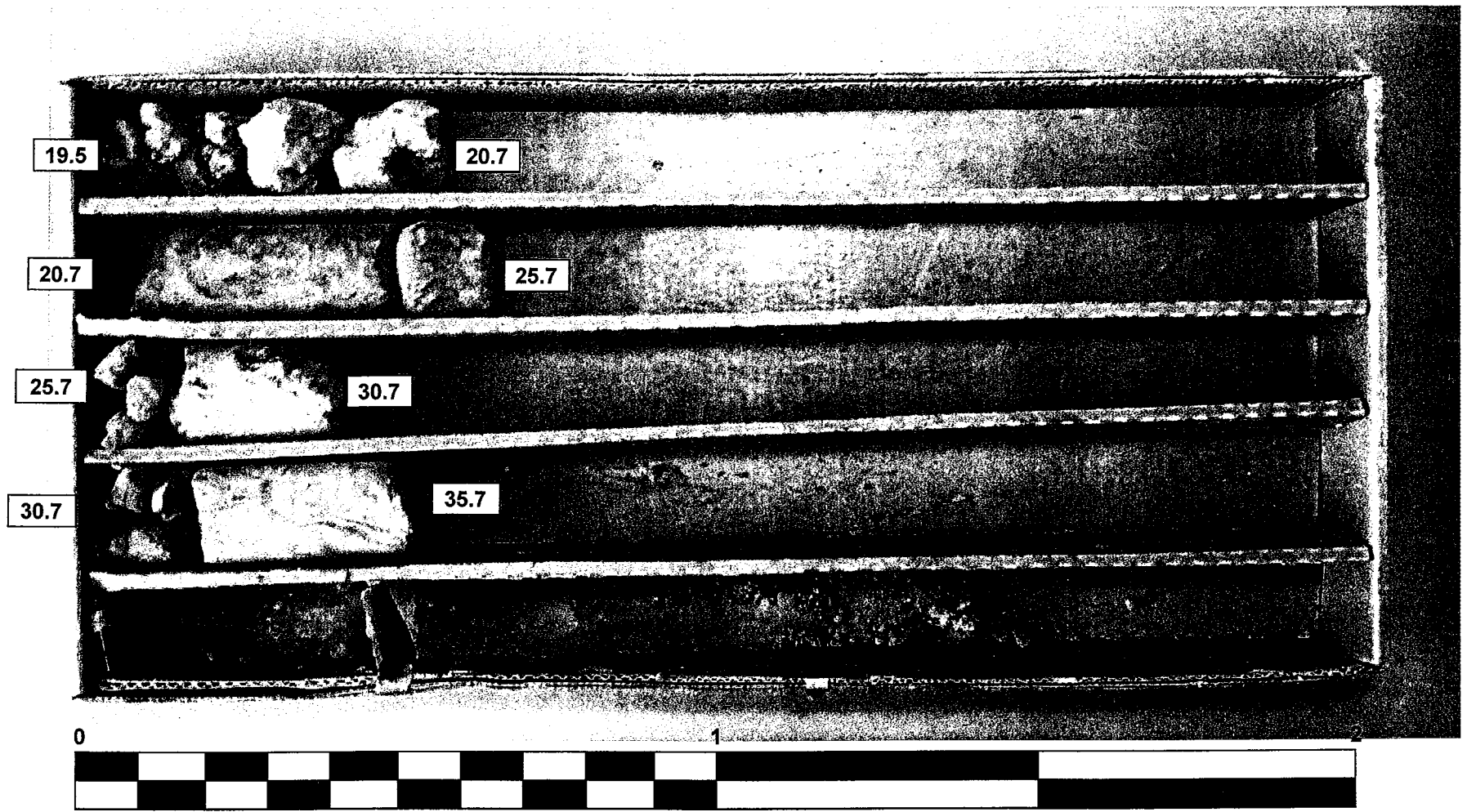
B5-B SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-11	101 RT	61+56	0.0-1.5	A-7-6(11)	45	21	7.9	31.3	36.6	24.2	98	95	62	130.7	7.6
SS-12	101 RT	61+56	9.1-10.6	A-3(0)	24	NP	76.2	20.6	1.2	2.0	100	87	4	-	-
SS-13	101 RT	61+56	18.7-20.2	A-3(0)	25	NP	78.2	20.0	1.8	0.0	100	83	2	-	-
SS-14	101 RT	61+56	23.6-25.1	A-4(0)	29	7	9.1	53.7	21.0	16.2	100	99	39	-	-
SS-15	101 RT	61+56	28.4-29.9	A-1-b(0)	19	NP	87.8	10.1	1.1	1.0	90	30	2	-	-
SS-16	101 RT	61+56	32.8-34.3	A-2-4(0)	19	NP	6.0	78.0	9.0	7.1	100	98	19	-	-
SS-17	101 RT	61+56	41.7-43.2	A-2-4(0)	20	NP	15.8	67.9	8.3	8.1	100	99	19	-	-
SS-18	101 RT	61+56	50.7-52.2	A-2-4(0)	17	NP	3.6	73.6	10.6	12.1	100	99	25	-	-
SS-19	101 RT	61+56	62.0-63.5	A-2-4(0)	22	NP	1.6	82.9	7.4	8.1	100	100	18	-	-
SS-20	101 RT	61+56	88.4-89.9	A-4(0)	21	2	8.7	56.8	20.4	14.1	100	93	41	-	-

CORE PHOTOGRAPH

B3-C

Box 1 of 1 (19.5' to 20.7', 20.7' to 25.7', 25.7' to 30.7', 30.7' to 35.7')



FEET