

REFERENCE: R-5738

PROJECT: 50196

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<u>SHEET NO.</u>	<u>DESCRIPTION</u>
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**STATE OF NORTH CAROLINA**  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 GEOTECHNICAL ENGINEERING UNIT

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY DARE  
 PROJECT DESCRIPTION BRIDGE NO. 40 ON -L- (SR 1208)  
OVER JEAN GUTE CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5738	1	5

**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. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 THE 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.

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

PERSONNEL

C.J. CORNETTE  
R.E. SMITH  
J.M. EDMONDSON

INVESTIGATED BY T.C. BOTTOMS  
 DRAWN BY T.C. BOTTOMS  
 CHECKED BY D.N. ARGENBRIGHT  
 SUBMITTED BY D.N. ARGENBRIGHT  
 DATE JUNE 2017



DocuSigned by:  
Tyler Bottoms 6/29/2017  
 48A2D3BD6807A70RE DATE

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION
SOIL IS CONSIDERED 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 THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586).

GRADATION
WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ROCK DESCRIPTION
HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.

TERMS AND DEFINITIONS
ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.

Table with columns for SOIL LEGEND AND AASHTO CLASSIFICATION, showing soil classes (A-1 to A-7), symbols, and percentages.

ANGULARITY OF GRAINS
THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION
MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSION
SLIGHTLY COMPRESSIBLE LL < 31
MODERATELY COMPRESSIBLE LL = 31 - 50
HIGHLY COMPRESSIBLE LL > 50

WEATHERED ROCK (WR)
NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.

CRYSTALLINE ROCK (CR)
FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.

NON-CRYSTALLINE ROCK (NCR)
FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED.

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.

Table for CONSISTENCY OR DENSENESS, showing primary soil type, compactness, and unconfined compressive strength.

MISCELLANEOUS SYMBOLS
ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
SOIL SYMBOL
ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

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.

ROCK HARDNESS (CONT.)
HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.

Table for TEXTURE OR GRAIN SIZE, showing U.S. STD. SIEVE SIZE and corresponding soil types.

RECOMMENDATION SYMBOLS
UNDERCUT
SHALLOW UNDERCUT
UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE

ROCK HARDNESS (CONT.)
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.

ROCK HARDNESS (CONT.)
MEDIUM HARD CAN BE GROVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.

Table for SOIL MOISTURE - CORRELATION OF TERMS, showing soil moisture scale and field moisture description.

ABBREVIATIONS
AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY

ROCK HARDNESS (CONT.)
SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE.

ROCK HARDNESS (CONT.)
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.

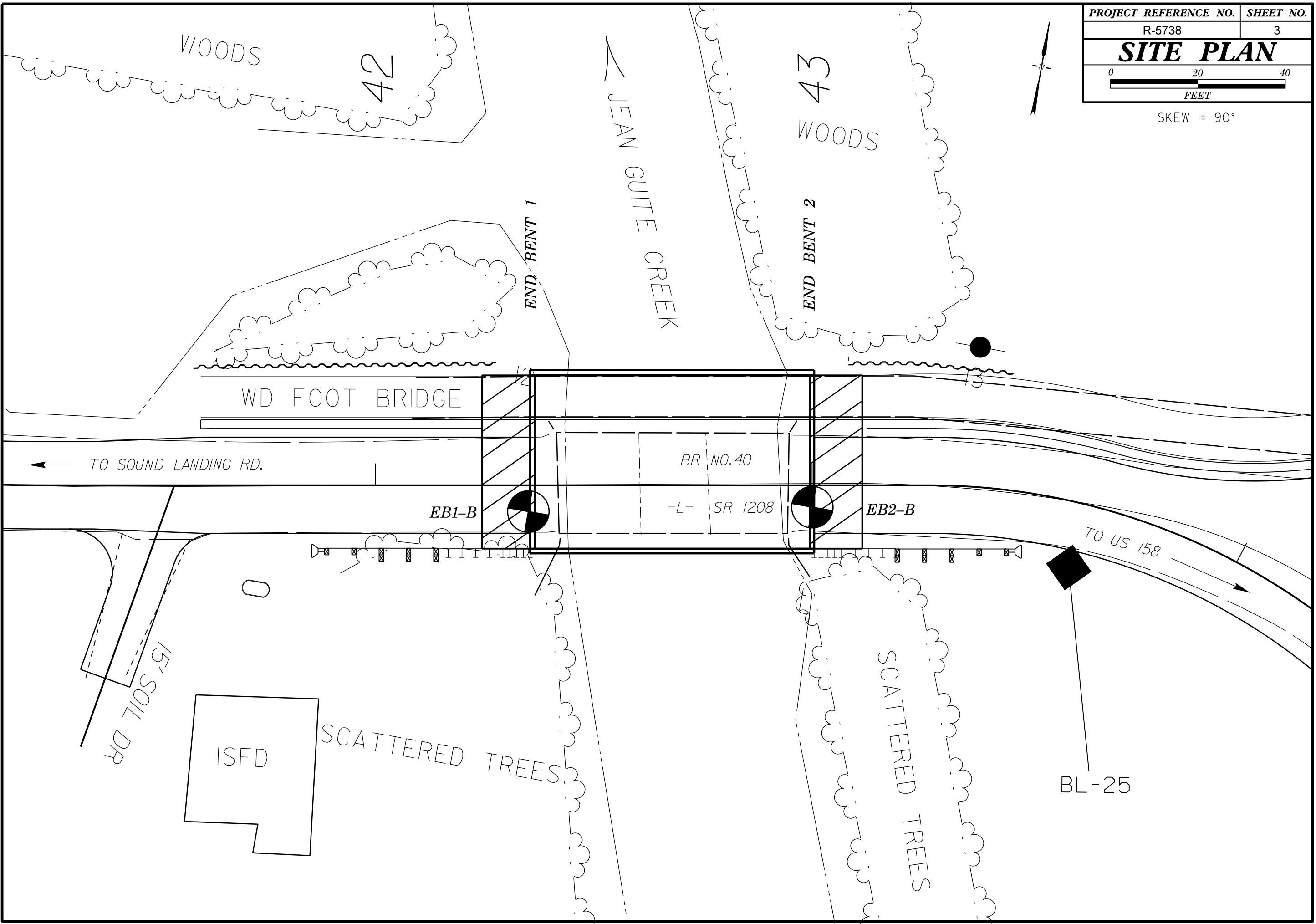
Table for PLASTICITY, showing plasticity index (PI) and dry strength.

EQUIPMENT USED ON SUBJECT PROJECT
DRILL UNITS:
CME-45C
CME-55
CME-550

INDURATION
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

NOTES:
BENCH MARK: BL-25
N 861289.6870 E 2966754.8890
ELEVATION: 1.70 FEET

SKREW = 90°

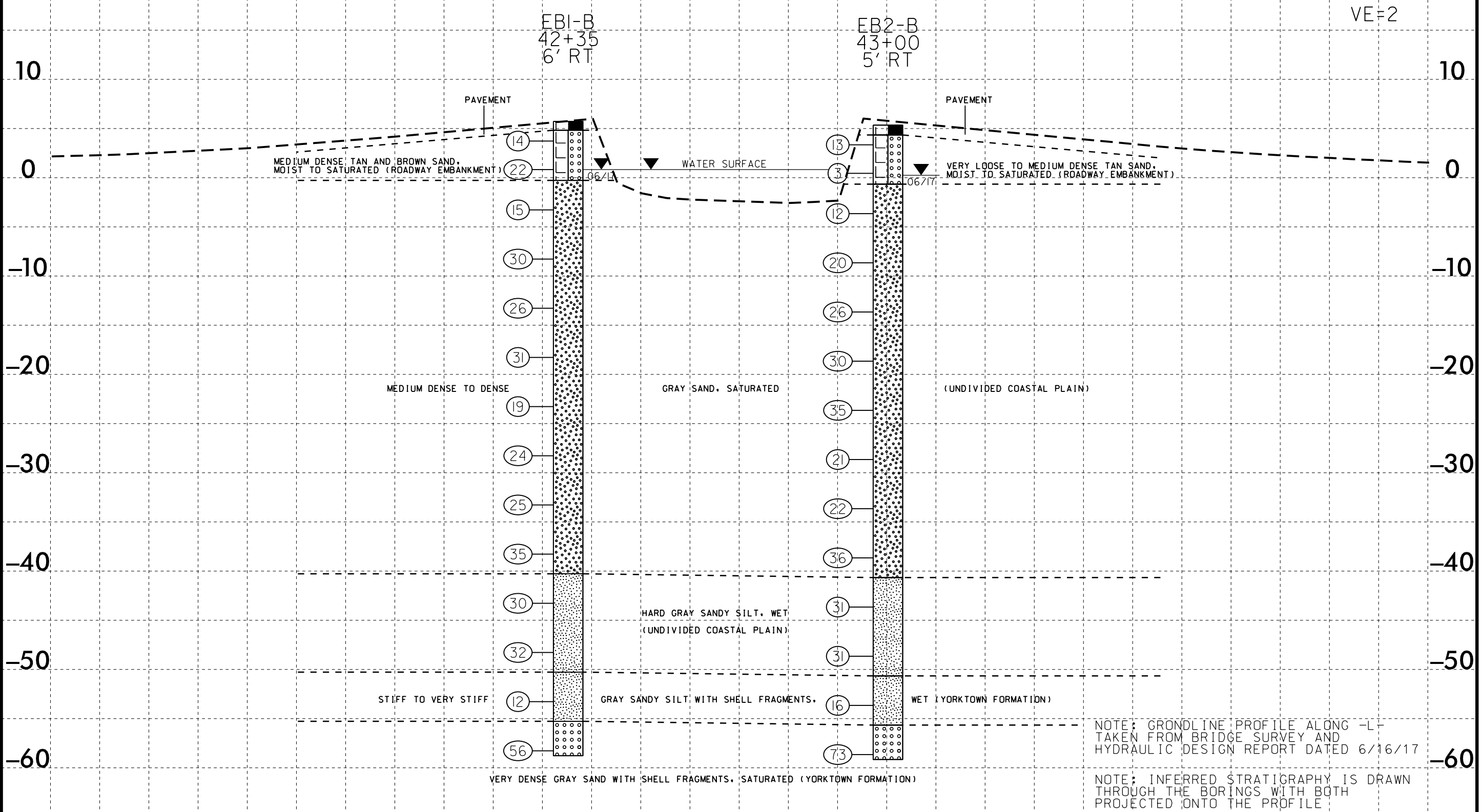


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PROJECT REFERENCE NO. <i>R-5738</i>	SHEET NO. <i>4</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	
<b>DOCUMENT NOT CONSIDERED FINAL</b> UNLESS ALL SIGNATURES COMPLETED	

# PROFILE THROUGH BORINGS PROJECTED ALONG -L-

VE=2



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NOTE: GRONLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 6/16/17

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

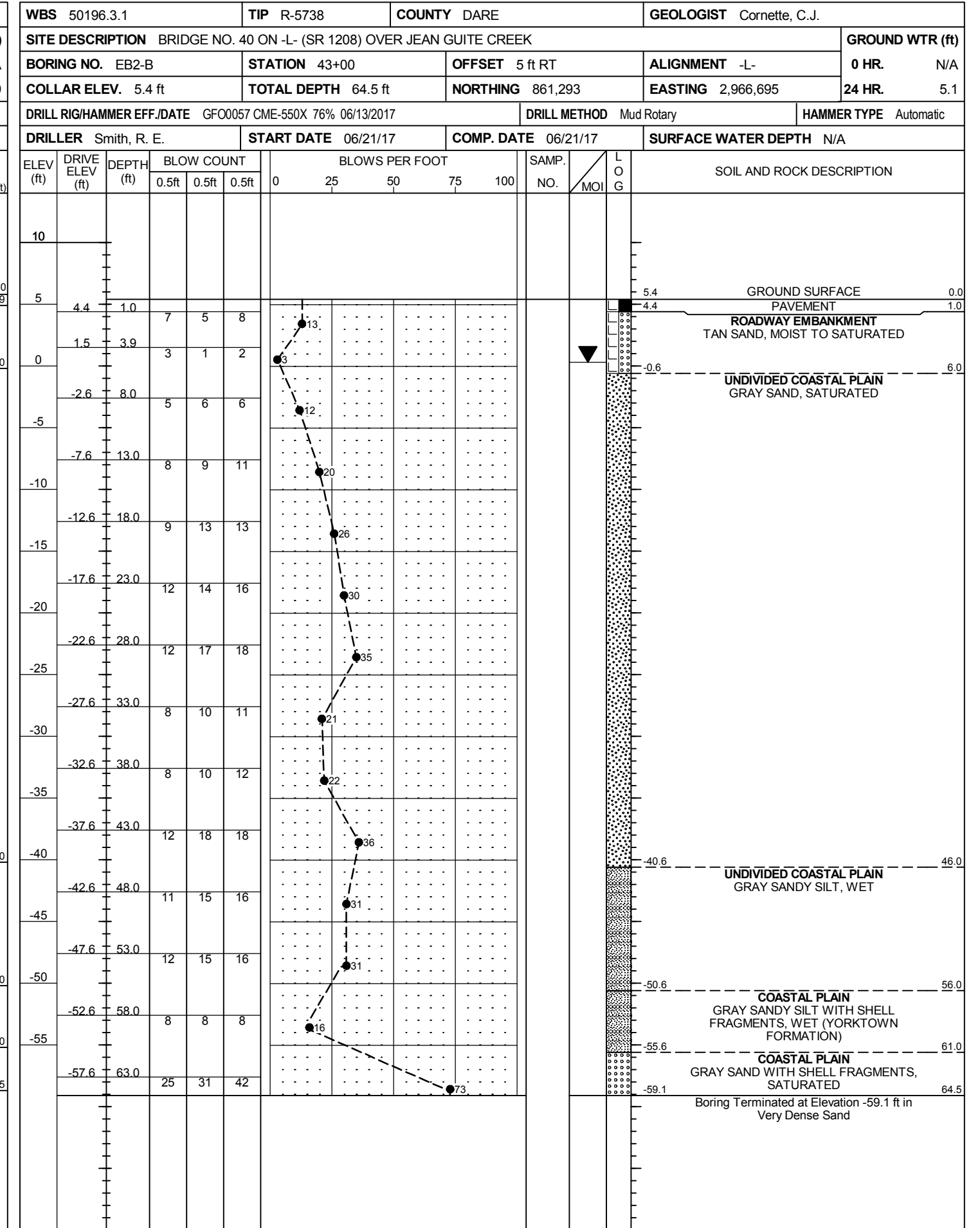
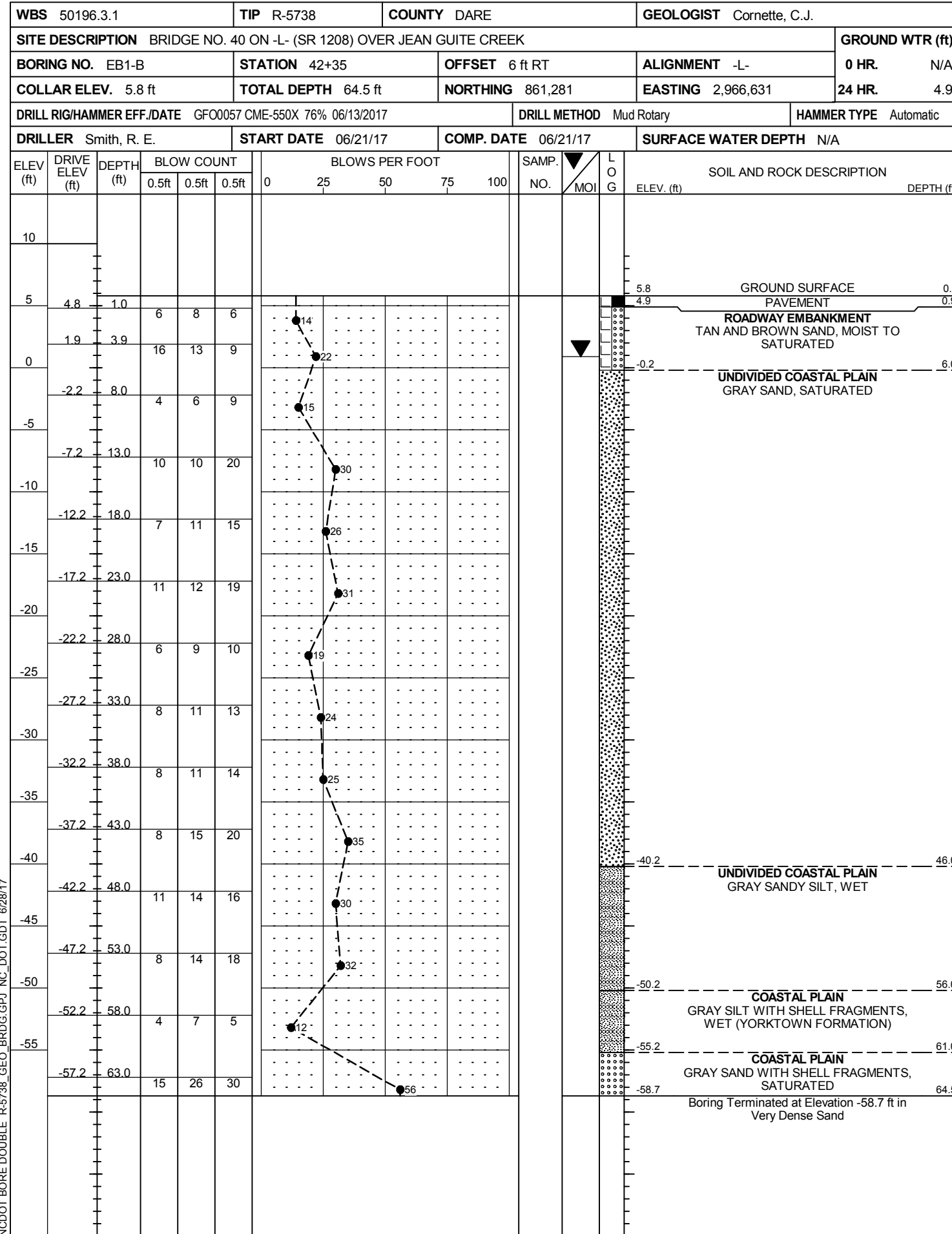
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# GEOTECHNICAL BORING REPORT

## BORE LOG



NCDOT BORE DOUBLE R-5738\_GEO\_BRDG.GPJ NC\_DOT.GDT 6/28/17