August 4, 2023

MEMORANDUM TO: Clark S. Morrison, PhD, PE
State Pavement Design Engineer
North Carolina Department of Transportation

FROM: Joshua D. Fregosi, PE
Program Manager
Kleinfelder, Inc

STATE PROJECT: 67015.1.1 (BR-0015)

COUNTY: Davidson

DESCRIPTION: Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)

SUBJECT: Pavement and Subgrade Investigation Report

Kleinfelder, Inc. has completed the evaluation of the pavement and subgrade investigation for this project and presents the following.

This project consists of the widening of US 29/US 70 (-L-) and replacement of Bridge No. 67 and No. 68 over SR 1192 (-Y1-). At the project location, US 29/US 70 is a four-lane highway consisting of two lanes in the northbound and southbound direction with a grass median dividing the highway. Additionally, the project consists of the widening of SR 1192 (-Y1-), Forest Rose Drive (-DRW1-), and US 29/US 70 northbound exit ramps (-RPD-,-RPD_RT-) to National Boulevard as well as a realignment of Murphy Drive (-Y2-), onramp to US 29/US70 southbound (-RPB-), and US 29/US 70 southbound exit ramp (-LPB-) to SR 1192.

The soils encountered beneath the existing roadway consisted of both roadway embankment and residual soils. Predominant soil types encountered consisted of silty clays (A-7) with lesser amounts of sandy silts (A-4).

Anticipated borrow will likely consist of soil types listed above that meet the Piedmont and Western Area criteria for Acceptance of Borrow Material, Table 1018-1 of the 2024 Standard Specification.

The existing pavement was observed to be in good condition on US 29/US 70 (-L-). Surface pavement distress was not observed on US 29/US 70. The existing pavement was observed to be in worse condition on West 5th Avenue (-Y1-) and Murphy Drive (-Y2-). Surface pavement distress on the West 5th Avenue is primarily characterized by low severity transverse and longitudinal cracking, moderate to high severity fatigue cracking, and rutting (with and without spalling). Transverse, longitudinal, and fatigue crack widths ranged from 3 to 10 mm. Rutting was encountered ranging from 3 to 6 mm deep. Surface pavement distress on Murphy Drive is primarily characterized by moderate to high severity fatigue cracking with spalling. Fatigue crack widths ranged from 6 to 13 mm. Rutting was encountered ranging from 3 to 6 mm deep.

The length of the mainline (US 29/US 70, -L-) is approximately 0.71 mile.

Areas of Special Geotechnical Interest

1. **Highly Plastic Soils Encountered Beneath the Existing Roadway and Grass Median**
   Highly plastic soils (PI > 25) were encountered at the following locations based on laboratory test results on the soils:

LINE	STATION AND OFFSET	PI
-L-	18+30 WB ISS	48
-L-	19+60 EB ISS	34
-L-	25+90 WB ISS	35
-L-	31+50 WB OSS	43
-L-	32+75 EB DECEL LN	33
-L-	38+70 WB ISS	39
-L-	42+80 EB ISL	37
-Y1-	15+70 RT LN	35
-Y2-	16+20 LT LN	34

2. **Groundwater:**
   Groundwater was not observed during this investigation.

3. **Samples Classified as Wet**
   The subgrade soils at the following locations were classified as wet based on the visual inspection and laboratory test results on the soils:

LINE	STATION AND OFFSET	MOISTURE (%)
-L-	31+50 WB OSS	35.0
-L-	38+70 WB ISS	25.9
-Y1-	15+70 RT LN	24.8
-Y2-	16+20 LT LN	32.8

Prepared by,
KLEINFELDER, INC.
NC Firm License No. F-1312

DocuSigned by:
Daniel H. Kubinski 08/30/2023
AB2F7FFB796A411...

Daniel H. Kubinski, PE
North Carolina License No. 046042

Joshua D. Fregosi, PE
Program Manager

Document Not Considered Final Unless All Signatures Are Completed

DHK/JDF:jrs

ATTACHMENT: Pavement and Subgrade Investigation
Pavement Core Evaluation

REFERENCE: BR-0015

PROJECT: 67015

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	1	

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *DAVIDSON*

PROJECT DESCRIPTION *BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)*

PAVEMENT AND SUBGRADE INVESTIGATION

CONTENTS

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.

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PERSONNEL

D. KUBINSKI

M. FOSTER

TRIGON EXPLORATION

INVESTIGATED BY *KLEINFELDER, INC*

DRAWN BY *D. KUBINSKI*

CHECKED BY *J. FREGOSI*

SUBMITTED BY *KLEINFELDER, INC*

DATE *AUGUST 2023*

Prepared in the Office of:

KLEINFELDER
422 Gallimore Dairy Road, Suite B
Greensboro, North Carolina 27409
NC Engineering Firm License No. F-1312

NORTH CAROLINA PROFESSIONAL SEAL 046042 ENGINEER DANIEL H. KUBINSKI

DocuSigned by:
Daniel H. Kubinski 08/30/2023
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0015	2

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). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

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	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX		50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	< 4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	> 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE		4	10	40	60	200	270
OPENING (MM)		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				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	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.

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.

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.

COMPRESSIBILITY

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

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT DMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

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
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT (4 INCH DIAMETER)
- [ ] _____

HAMMER TYPE:
- [ ] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [X] KESSLER DUAL MASS DCP

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. 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)	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. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

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 PEICES 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 FINGERNAIL.

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 FOOT
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 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.

TERMS AND DEFINITIONS

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, SUCH 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 DISLODGED 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 (N 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.

BENCH MARK: N/A

ELEVATION: N/A FEET

NOTES:

- PAVEMENT CORE WITH KESSLER DUAL MASS DCP TEST
- HAND AUGER WITH KESSLER DUAL MASS DCP TEST
- PAVEMENT CORE

DATE: 8-15-14

PROJECT REFERENCE NO.	SHEET NO.
BR–0015	2A

ABBREVIATIONS

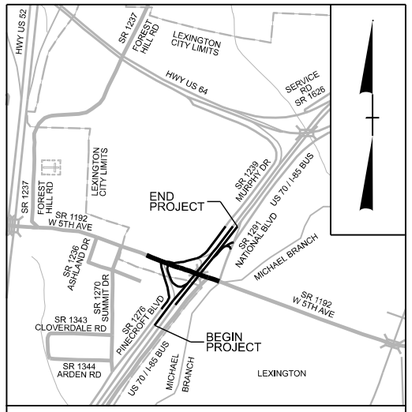
N/A - NOT APPLICABLE
NM - NOT MEASURED
KDCP - KESSLER DUAL MASS DCP
PS - PAVED SHOULDER
WB - WESTBOUND
EB - EASTBOUND
LT - LEFT
RT - RIGHT
OSS - OUTSIDE SHOULDER
ISS - INSIDE SHOULDER
OSL - OUTSIDE LANE
DECEL - DECELERATION
ACCEL - ACCELERATION
LN - LANE
WL - WHITE LINE
YL - YELLOW LINE
AG - AT GRADE
F - FILL
C - CUT
CR - CROWN
SU - SUPERELEVATION

09/08/99

PROJECT: BR-0015

CONTRACT: TBD

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	3	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
67015.1.1		PE
67015.2.1		R/W, UTIL
67015.3.1		CONST.

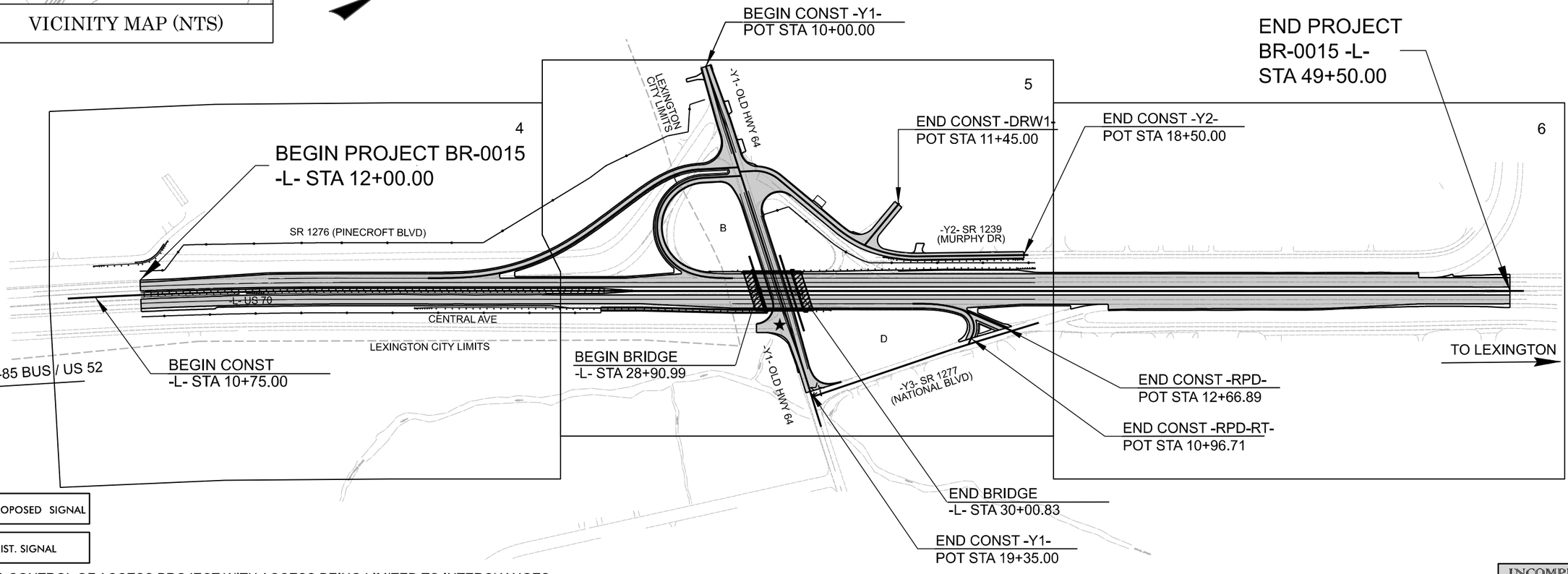
LOCATION: *BRIDGE 280067 AND 280068 REPLACEMENTS ON US 29/US 70. NB & SB OVER SR 1192 (W. 5TH AVE.)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING AND STRUCTURES*

STAGE 2 PLANS (2RD1)

Plans Developed with OpenRoads

NAD 83/2011



THIS IS A CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
A PORTION OF THIS PROJECT IS LOCATED WITHIN THE LIMITS OF THE CITY OF LEXINGTON.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
****A DESIGN EXCEPTION IS REQUIRED FOR -RPD- AND -RPD_RT- MAXIMUM GRADE.**

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 14500
ADT 2045 = 18700
K = 8 %
D = 55 %
T = 9 % *
V = 60 MPH
* TTST =5% DUAL 4%
FUNC CLASS =
PRINCIPAL ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

PROJECT LENGTHS FOR PROJECT BR-0015:

LENGTH ROADWAY PROJECT BR-0015	=	0.689 MILES
LENGTH STRUCTURES PROJECT BR-0015	=	0.021 MILES
TOTAL LENGTH PROJECT BR-0015	=	0.710 MILES

NCDOT Contact: DAVID STUTTS, PE

Prepared in the Office of: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 11/24/2023

LETTING DATE: 12/17/2024

JACOB H. DUKE, P.E.
PROJECT ENGINEER

ANDREA B. GORDON, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

5/26/20

BR-0015

1" = 100' | SHEET 4

CORE ID	L_1830_WB_ISS	L_1830_WB_OSL	L_1830_WB_OSS
ASPHALT	6.75"	7.25"	8.50"
CONCRETE	0.00"	9.25"	0.00"
ABC STONE	2.00"	4.50"	0.00"

CORE ID	L_1960_EB_ISS	L_1960_EB_OSL	L_1960_EB_OSS
ASPHALT	7.25"	8.25"	10.25"
CONCRETE	0.00"	9.25"	0.00"
ABC STONE	0.00"	4.75"	11.75"

5/26/20

BR-0015

1" = 100' | SHEET 5

CORE ID	Y1_1570_LT_PS	Y1_1570_LT_LN
ASPHALT	5.00"	6.00"
CONCRETE	0.00"	0.00"
ABC STONE	Not Measured	Not Measured

CORE ID	Y1_1570_RT_LN	Y1_1570_RT_PS
ASPHALT	7.00"	4.00"
CONCRETE	0.00"	0.00"
ABC STONE	0.00"	Not Measured

CORE ID	Y2_1620_LT_LN
ASPHALT	3.00"
CONCRETE	0.00"
ABC STONE	7.00"

CORE ID	L_3150_WB_OSS
ASPHALT	9.25"
CONCRETE	0.00"
ABC STONE	0.00"

CORE ID	L_2590_WB_ISS
ASPHALT	8.50"
CONCRETE	0.00"
ABC STONE	0.00"

CORE ID	L_3275_EB_DECEL_LN
ASPHALT	10.75"
CONCRETE	0.00"
ABC STONE	7.00"

NC GRID NAD 83 NA 2011

-RPB- END POT 19+28.28
-Y1- STA. POT 12+90.21
-Y2- START POT 10+00.00
-Y1- STA. POT 13+02.63
-LPB- END POT 15+91.10
-Y1- STA. POT 13+15.06
-Y2- PC 10+37.82
-RPB- PT 18+25.45
-RPB- SC 17+63.41
-RPB- TS 16+13.41
15+60.16
-Y1-
11+00
17+00
14+58
-RPB-
-LPB-
-LPB- PT 14+88.30
-Y2- PT 11+12.31
-DRW1- START POT 10+00.00
-Y2- STA. 14+09.40
-DRW1- END 11+50.00
-Y2- PC 13+18.73
11+00
-Y2-
-Y2- PT 15+59.76
-Y2- END POT 18+62.22
Y2_1620_LT_LN
18+00
Y1_1570_LT_PS
Y1_1570_LT_LN
Y1_1570_RT_LN
Y1_1570_RT_PS
-LPB- POT START 10+00.00
-LPB- SC 11+48.00
11+00
L_3150_WB_OSS
L_2590_WB_ISS
27+00
33+00
L_3275_EB_DECEL_LN
18+00
-Y3- POT
END 16+53.98
-RPD- POT 12+86.28
-Y3- POT 15+77.44
-RPD- START TS 10+00.00
-L- POT 33+13.65 (35.00' RT)
-RPD- SC 10+80.00
-Y3- PT 15+19.04
-RPD-RT- PT 10+86.46
-Y1- PC 18+08.44
-Y3- PC 13+59.59
-RPD-RT- START 10+00.00
-RPD- STA. POC 11+34.33
-RPD-RT- PT 11+61.70
-RPD-RT- END PT 11+14.18
-Y3- POT 14+52.60
-Y1- PT 19+20.47
-Y1- PC 19+47.81
-Y3- START PT 10+00.00
-Y2- POC 19+50.35
-Y1- END 20+35.82

5/26/20

BR-0015

1" = 100' | SHEET 6

CORE ID	L_3870_WB_ISS	L_3870_WB_DECEL_LN	L_3870_WB_OSS
ASPHALT	7.00"	11.00"	7.50"
CONCRETE	0.00"	0.00"	0.00"
ABC STONE	0.00"	7.00"	0.00"

CORE ID	L_4280_EB_ISL	L_4280_EB_ACCEL_LN	L_4280_EB_OSS
ASPHALT	8.50"	9.50"	7.00"
CONCRETE	9.50"	0.00"	0.00"
ABC STONE	5.00"	8.50"	0.00"

PAVEMENT INVESTIGATION DATA SHEET

TIP (WBS):	BR-0015 (67015.1.1)
County:	Davidson

Project:	Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)
Route:	I-85 Business, West 5th Avenue, Murphy Drive

Date:	May 2023
Notes By:	Dan Kubinski

		Width (ft)		(ft)		Pavement Section Thickness (in)							Subgrade									
Position (Sta.,Lane,Shldr.)	Cut/Fill	Lane(s)	Shoulder	Offset Distance	Crown or Superelevation	Gross to Top of Soil	Asphalt	Concrete	ABC Stone	PADL	Soil Stabilization	Sand	Moisture Sample No.	Sample No.	Description	AASHTO Classification	Soil Moisture (%)	Probe Depth (ft)	Asphalt Notes, Severity and Cracking Type	Northing	Easting
L_1830_WB_ISS	C	12.0	1.0 PS	0.0 YL		8.75	6.75	0.00	2.00	0.00	0.00	0.00	S-1		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	27.1	5.0	No pavement distress observed	757,186	1,621,293
L_1830_WB_OSL	C	12.0	4.5 PS	3.0 WL	CR	21.00	7.25	9.25	4.50	0.00	0.00	0.00	N/A		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	757,198	1,621,278
L_1830_WB_OSS	C	12.0	4.5 PS	1.0 WL		8.50	8.50	0.00	0.00	0.00	0.00	0.00	N/A		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	757,201	1,621,274
L_1960_EB_ISS	C	12.0	1.5 PS	0.5 YL		7.25	7.25	0.00	0.00	0.00	0.00	0.00	S-2		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	30.1	5.0	No pavement distress observed	757,274	1,621,392
L_1960_EB_OSL	C	12.0	4.0 PS	3.0 WL	CR	22.25	8.25	9.25	4.75	0.00	0.00	0.00	N/A		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	757,260	1,621,409
L_1960_EB_OSS	C	12.0	4.0 PS	2.0 WL		22.00	10.25	0.00	11.75	0.00	0.00	0.00	N/A		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	757,257	1,621,413
L_2590_WB_ISS	AG	12.0	1.0 PS	0.0 YL	CR	8.50	8.50	0.00	0.00	0.00	0.00	0.00	S-3		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	28.4	5.0	No pavement distress observed	757,786	1,621,759
L_3150_WB_OSS	AG	12.0	7.0 PS	4.0 WL	CR	9.25	9.25	0.00	0.00	0.00	0.00	0.00	S-4		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	35.0	5.0	No pavement distress observed	758,245	1,622,081
L_3275_EB_DECEL_LN	AG	12.0	3.5 PS	2.5 WL	CR	17.75	10.75	0.00	7.00	0.00	0.00	0.00	S-5		**RES:** Moist, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	26.7	5.0	No pavement distress observed	758,292	1,622,226
L_3870_WB_ISS	C	12.0	1.0 PS	0.5 YL		7.00	7.00	0.00	0.00	0.00	0.00	0.00	S-6		**RES:** Wet, Reddish Brown, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-6	25.9	5.0	No pavement distress observed	758,798	1,622,544
L_3870_WB_DECEL_LN	C	12.0	2.0 PS	6.5 WL	CR	18.00	11.00	0.00	7.00	0.00	0.00	0.00	N/A		**RES:** Wet, Reddish Brown, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	758,817	1,622,519
L_3870_WB_OSS	C	12.0	2.0 PS	1.5 WL		7.50	7.50	0.00	0.00	0.00	0.00	0.00	N/A		**RES:** Wet, Reddish Brown, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	758,821	1,622,514
L_4000^	C	N/A	N/A	N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S-18* N/A		**RES:** Moist, Olive Gray and Reddish Brown, Moderately Plastic, Silty CLAY (0.0 - 2.2'), Reddish Brown, Slightly Plastic to Non Plastic, Fine Sandy SILT, Trace Mica (2.2 - 6.8')	A-7-5 A-4	33.2 N/A	6.8	Hand auger boring performed for roadway investigation with KDCP test in center grass median	758,893	1,622,633
L_4280_EB_ISL	C	12.0	1.0 PS	1.0' YL		23.00	8.50	9.50	5.00	0.00	0.00	0.00	S-7		**RES:** Moist, Reddish Brown, Highly Plastic, Silty CLAY , Trace Mica (0.0 - 5.0')	A-7-5	38.4	5.0	No pavement distress observed	759,107	1,622,815
L_4280_EB_ACCEL_LN	C	12.0	4.0 PS	4.5 WL	CR	18.00	9.50	0.00	8.50	0.00	0.00	0.00	N/A		**RES:** Moist, Reddish Brown, Highly Plastic, Silty CLAY , Trace Mica (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	759,088	1,622,839
L_4280_EB_OSS	C	12.0	4.0 PS	2.0 WL		7.00	7.00	0.00	0.00	0.00	0.00	0.00	N/A		**RES:** Moist, Reddish Brown, Highly Plastic, Silty CLAY , Trace Mica (0.0 - 5.0')	A-7	N/A	5.0	No pavement distress observed	759,084	1,622,844
L_4600^	C	N/A	N/A	N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	S-20* N/A		**RES:** Moist, Reddish Brown, Moderately Plastic, Silty CLAY, Trace Mica (0.0 - 3.0'), Brown, Non Plastic, Coarse to Fine Sandy SILT, Trace Mica (3.0 - 6.5')	A-7-5 A-4	26.8	6.5	Hand auger boring performed for roadway investigation with KDCP test in center grass median	759,367	1,623,000
L_4800^	C	N/A	N/A	N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A N/A		**RES:** Moist, Yellowish Brown and Reddish Brown, Moderately Plastic, Silty CLAY (0.0 - 1.0'), Brown, Non Plastic, Coarse to Fine Sandy SILT, Trace Mica (1.0 - 6.7')	A-7 A-4	N/A N/A	6.7	Hand auger boring performed for roadway investigation with KDCP test in center grass median	759,525	1,623,123
Y1_1570_LT_PS	F	12.5	4.5 PS	1.0 WL		5.00	5.00	0.00	NM	0.00	0.00	0.00	N/A		No auger probe + KDCP test performed; Utility Conflicts	N/A	N/A	N/A	No pavement distress observed	758,098	1,621,920
Y1_1570_LT_LN	F	12.5	4.5 PS	2.5 WL	CR	6.00	6.00	0.00	NM	0.00	0.00	0.00	N/A		No auger probe + KDCP test performed; Utility Conflicts	N/A	N/A	N/A	Low transverse and longitudinal cracking (3 - 6 mm crack width); Moderate to high fatigue cracking (3 - 6 mm crack width); Rutting (3 - 6 mm depth)	758,095	1,621,919
Y1_1570_RT_LN	F	12.5	4.0 PS	3.0 WL		7.00	7.00	0.00	0.00	0.00	0.00	0.00	S-8		**RE:** Wet, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-6	24.8	5.0	Low transverse and longitudinal cracking (3 - 6 mm crack width); Moderate to high fatigue cracking with spalling (3 - 10 mm crack width); Rutting (3 mm depth)	758,077	1,621,912
Y1_1570_RT_PS	F	12.5	4.0 PS	1.0 WL		4.00	4.00	0.00	NM	0.00	0.00	0.00	N/A		No auger probe + KDCP test performed; Utility Conflicts	N/A	N/A	N/A	No pavement distress observed	758,073	1,621,911
Y2_1620_LT_LN	C	9.0	0.5 PS	2.0 WL	CR	10.00	3.00	0.00	7.00	0.00	0.00	0.00	S-9		**RES:** Wet, Red, Highly Plastic, Silty CLAY (0.0 - 5.0')	A-7-5	32.8	5.0	Moderate to high fatigue cracking with spalling (6 - 13 mm crack width); Rutting (4 mm depth)	758,472	1,622,178

Note(s):

N/A - Not Applicable
NM - Not Measured
KDCP - Kessler Dual Mass DCP
PS - Paved Shoulder

WB - Westbound
EB - Eastbound
LT - Left
RT - Right

OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration

ACCEL - Acceleration
LN - Lane
WL - White Line
YL - Yellow Line

AG - At Grade
F - Fill
C - Cut
CR - Crown

SU - Superelevation
^Based on Roadway Investigation Boring Number
*Based on Roadway Investigation Sample Number

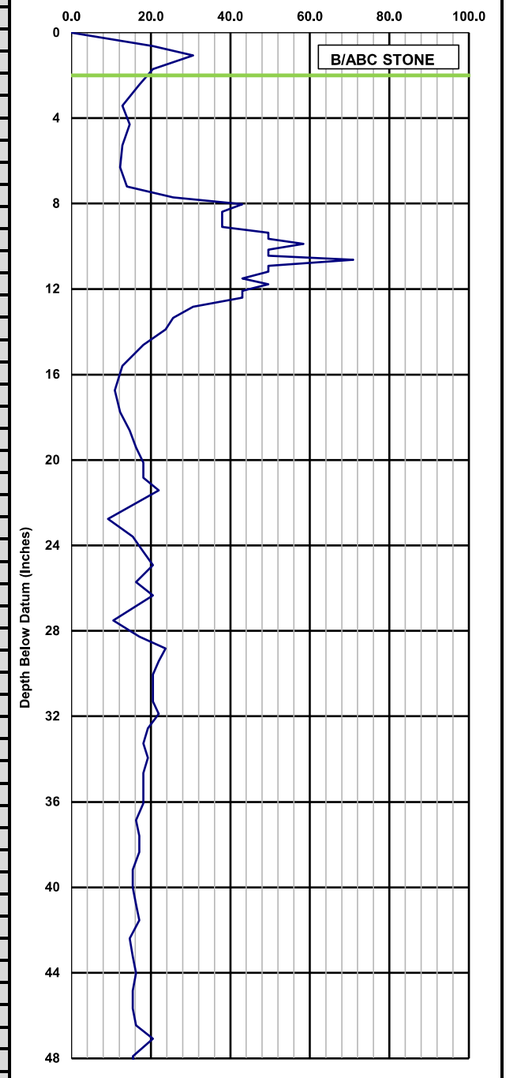
DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION	DATE PERFORMED
L_1830_WB_ISS	5/3/23

DATUM	CUT/FILL	NORTHING	EASTING
T/ABC	C	757,186	1,621,293

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.6	79.5	0.0	0.0	0.0	0.0
2.7	81.0	0.0	0.0	0.0	0.0
4.3	82.7	0.0	0.0	0.0	0.0
6.2	84.5	0.0	0.0	0.0	0.0
8.7	86.2	0.0	0.0	0.0	0.0
10.9	88.0	0.0	0.0	0.0	0.0
13.4	89.8	0.0	0.0	0.0	0.0
16.0	91.6	0.0	0.0	0.0	0.0
18.3	93.6	0.0	0.0	0.0	0.0
19.6	95.5	0.0	0.0	0.0	0.0
20.4	97.4	0.0	0.0	0.0	0.0
21.3	99.5	0.0	0.0	0.0	0.0
22.2	101.6	0.0	0.0	0.0	0.0
23.1	103.6	0.0	0.0	0.0	0.0
23.8	105.5	0.0	0.0	0.0	0.0
24.5	107.7	0.0	0.0	0.0	0.0
25.1	109.8	0.0	0.0	0.0	0.0
25.8	111.8	0.0	0.0	0.0	0.0
26.5	113.9	0.0	0.0	0.0	0.0
27.0	116.0	0.0	0.0	0.0	0.0
27.7	118.0	0.0	0.0	0.0	0.0
28.4	119.6	0.0	0.0	0.0	0.0
29.2	121.7	0.0	0.0	0.0	0.0
29.9	123.7	0.0	0.0	0.0	0.0
30.7	125.3	0.0	0.0	0.0	0.0
31.5	126.7	0.0	0.0	0.0	0.0
32.6	0.0	0.0	0.0	0.0	0.0
33.9	0.0	0.0	0.0	0.0	0.0
35.3	0.0	0.0	0.0	0.0	0.0
37.1	0.0	0.0	0.0	0.0	0.0
39.6	0.0	0.0	0.0	0.0	0.0
42.5	0.0	0.0	0.0	0.0	0.0
45.1	0.0	0.0	0.0	0.0	0.0
47.3	0.0	0.0	0.0	0.0	0.0
49.3	0.0	0.0	0.0	0.0	0.0
51.1	0.0	0.0	0.0	0.0	0.0
52.9	0.0	0.0	0.0	0.0	0.0
54.4	0.0	0.0	0.0	0.0	0.0
57.8	0.0	0.0	0.0	0.0	0.0
59.9	0.0	0.0	0.0	0.0	0.0
61.7	0.0	0.0	0.0	0.0	0.0
63.3	0.0	0.0	0.0	0.0	0.0
65.3	0.0	0.0	0.0	0.0	0.0
66.9	0.0	0.0	0.0	0.0	0.0
69.9	0.0	0.0	0.0	0.0	0.0
71.8	0.0	0.0	0.0	0.0	0.0
73.2	0.0	0.0	0.0	0.0	0.0
74.7	0.0	0.0	0.0	0.0	0.0
76.3	0.0	0.0	0.0	0.0	0.0
77.9	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

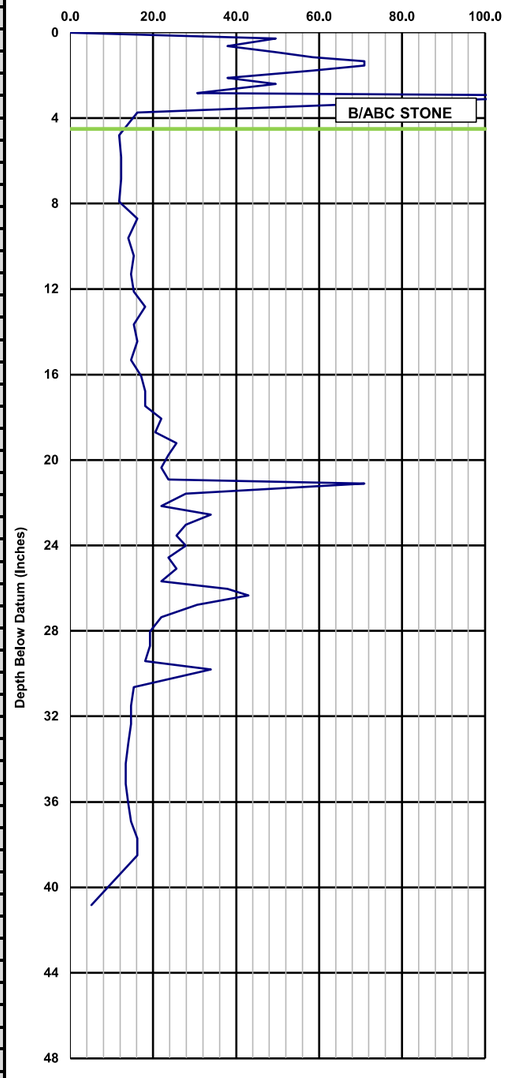
DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION	DATE PERFORMED
L_1830_WB_OSL	5/3/23

DATUM	CUT/FILL	NORTHING	EASTING
T/ABC	C	757,198	1,621,278

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
0.7	74.7	0.0	0.0	0.0	0.0
1.6	75.7	0.0	0.0	0.0	0.0
2.3	77.8	0.0	0.0	0.0	0.0
2.9	80.0	0.0	0.0	0.0	0.0
3.4	82.2	0.0	0.0	0.0	0.0
3.9	84.5	0.0	0.0	0.0	0.0
4.5	86.9	0.0	0.0	0.0	0.0
5.4	89.3	0.0	0.0	0.0	0.0
6.1	91.6	0.0	0.0	0.0	0.0
7.2	93.8	0.0	0.0	0.0	0.0
7.5	95.8	0.0	0.0	0.0	0.0
9.5	97.8	0.0	0.0	0.0	0.0
12.2	103.7	0.0	0.0	0.0	0.0
14.8	0.0	0.0	0.0	0.0	0.0
17.4	0.0	0.0	0.0	0.0	0.0
20.1	0.0	0.0	0.0	0.0	0.0
22.1	0.0	0.0	0.0	0.0	0.0
24.4	0.0	0.0	0.0	0.0	0.0
26.5	0.0	0.0	0.0	0.0	0.0
28.7	0.0	0.0	0.0	0.0	0.0
30.8	0.0	0.0	0.0	0.0	0.0
32.6	0.0	0.0	0.0	0.0	0.0
34.7	0.0	0.0	0.0	0.0	0.0
36.7	0.0	0.0	0.0	0.0	0.0
38.9	0.0	0.0	0.0	0.0	0.0
40.8	0.0	0.0	0.0	0.0	0.0
42.6	0.0	0.0	0.0	0.0	0.0
44.4	0.0	0.0	0.0	0.0	0.0
45.9	0.0	0.0	0.0	0.0	0.0
47.5	0.0	0.0	0.0	0.0	0.0
48.8	0.0	0.0	0.0	0.0	0.0
50.2	0.0	0.0	0.0	0.0	0.0
51.7	0.0	0.0	0.0	0.0	0.0
53.1	0.0	0.0	0.0	0.0	0.0
53.6	0.0	0.0	0.0	0.0	0.0
54.8	0.0	0.0	0.0	0.0	0.0
56.3	0.0	0.0	0.0	0.0	0.0
57.3	0.0	0.0	0.0	0.0	0.0
58.5	0.0	0.0	0.0	0.0	0.0
59.8	0.0	0.0	0.0	0.0	0.0
61.0	0.0	0.0	0.0	0.0	0.0
62.4	0.0	0.0	0.0	0.0	0.0
63.7	0.0	0.0	0.0	0.0	0.0
65.2	0.0	0.0	0.0	0.0	0.0
66.1	0.0	0.0	0.0	0.0	0.0
66.9	0.0	0.0	0.0	0.0	0.0
68.0	0.0	0.0	0.0	0.0	0.0
69.5	0.0	0.0	0.0	0.0	0.0
71.2	0.0	0.0	0.0	0.0	0.0
72.9	0.0	0.0	0.0	0.0	0.0



Note(s):

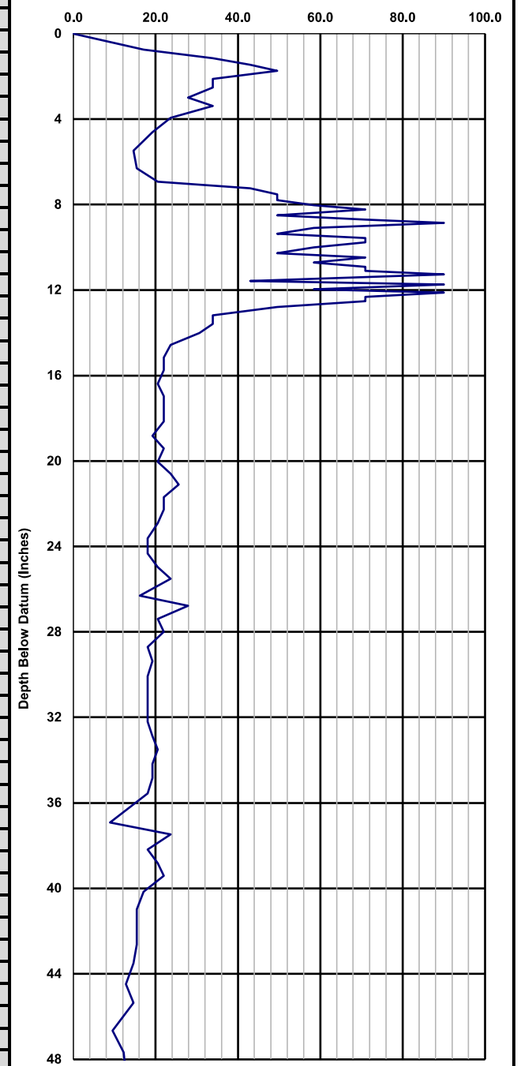
WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_1830_WB_OSS			5/3/23
DATUM	CUT/FILL	NORTHING	EASTING
SG	C	757,201	1,621,274

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.9	49.3	0.0	0.0	0.0	0.0
2.9	50.9	0.0	0.0	0.0	0.0
3.7	52.3	0.0	0.0	0.0	0.0
4.4	53.6	0.0	0.0	0.0	0.0
5.4	55.1	0.0	0.0	0.0	0.0
6.4	56.6	0.0	0.0	0.0	0.0
7.6	58.2	0.0	0.0	0.0	0.0
8.6	60.0	0.0	0.0	0.0	0.0
10.0	61.8	0.0	0.0	0.0	0.0
11.7	63.4	0.0	0.0	0.0	0.0
13.9	64.8	0.0	0.0	0.0	0.0
16.0	66.8	0.0	0.0	0.0	0.0
17.6	68.0	0.0	0.0	0.0	0.0
18.4	69.6	0.0	0.0	0.0	0.0
19.1	71.1	0.0	0.0	0.0	0.0
19.8	72.9	0.0	0.0	0.0	0.0
20.4	74.6	0.0	0.0	0.0	0.0
20.9	76.4	0.0	0.0	0.0	0.0
21.6	78.2	0.0	0.0	0.0	0.0
22.1	80.0	0.0	0.0	0.0	0.0
22.5	81.8	0.0	0.0	0.0	0.0
23.1	83.5	0.0	0.0	0.0	0.0
23.8	85.1	0.0	0.0	0.0	0.0
24.3	86.8	0.0	0.0	0.0	0.0
24.8	88.5	0.0	0.0	0.0	0.0
25.4	90.3	0.0	0.0	0.0	0.0
26.1	93.8	0.0	0.0	0.0	0.0
26.6	95.2	0.0	0.0	0.0	0.0
27.2	97.0	0.0	0.0	0.0	0.0
27.7	98.6	0.0	0.0	0.0	0.0
28.2	100.1	0.0	0.0	0.0	0.0
28.6	102.0	0.0	0.0	0.0	0.0
29.4	104.1	0.0	0.0	0.0	0.0
29.8	106.2	0.0	0.0	0.0	0.0
30.4	108.3	0.0	0.0	0.0	0.0
30.8	110.5	0.0	0.0	0.0	0.0
31.3	113.0	0.0	0.0	0.0	0.0
31.8	115.2	0.0	0.0	0.0	0.0
32.5	118.5	0.0	0.0	0.0	0.0
33.5	121.1	0.0	0.0	0.0	0.0
34.5	123.6	0.0	0.0	0.0	0.0
35.6	126.2	0.0	0.0	0.0	0.0
37.0	0.0	0.0	0.0	0.0	0.0
38.5	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0
41.6	0.0	0.0	0.0	0.0	0.0
43.1	0.0	0.0	0.0	0.0	0.0
44.6	0.0	0.0	0.0	0.0	0.0
46.1	0.0	0.0	0.0	0.0	0.0
47.8	0.0	0.0	0.0	0.0	0.0



Note(s):

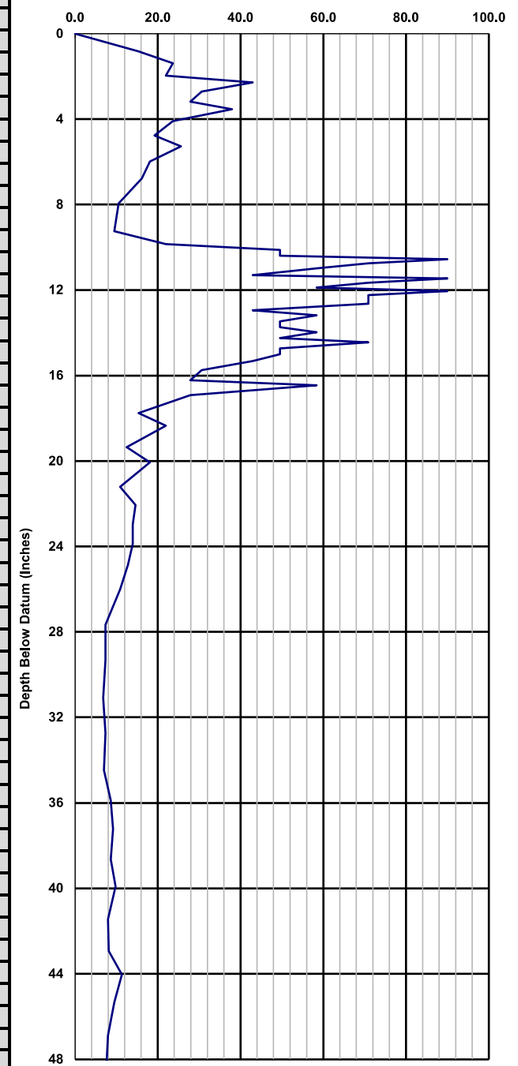
WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_1960_EB_ISS			5/2/23
DATUM	CUT/FILL	NORTHING	EASTING
SG	C	757,274	1,621,392

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
2.1	63.2	0.0	0.0	0.0	0.0
3.5	66.1	0.0	0.0	0.0	0.0
5.0	70.3	0.0	0.0	0.0	0.0
5.8	74.5	0.0	0.0	0.0	0.0
6.9	79.0	0.0	0.0	0.0	0.0
8.1	83.2	0.0	0.0	0.0	0.0
9.0	87.6	0.0	0.0	0.0	0.0
10.4	91.2	0.0	0.0	0.0	0.0
12.1	94.6	0.0	0.0	0.0	0.0
13.4	98.2	0.0	0.0	0.0	0.0
15.2	101.4	0.0	0.0	0.0	0.0
17.2	105.3	0.0	0.0	0.0	0.0
20.2	109.1	0.0	0.0	0.0	0.0
23.5	111.9	0.0	0.0	0.0	0.0
25.0	115.2	0.0	0.0	0.0	0.0
25.7	119.1	0.0	0.0	0.0	0.0
26.4	123.2	0.0	0.0	0.0	0.0
26.8	126.7	0.0	0.0	0.0	0.0
27.3	0.0	0.0	0.0	0.0	0.0
27.9	0.0	0.0	0.0	0.0	0.0
28.7	0.0	0.0	0.0	0.0	0.0
29.1	0.0	0.0	0.0	0.0	0.0
29.6	0.0	0.0	0.0	0.0	0.0
30.2	0.0	0.0	0.0	0.0	0.0
30.6	0.0	0.0	0.0	0.0	0.0
31.1	0.0	0.0	0.0	0.0	0.0
31.6	0.0	0.0	0.0	0.0	0.0
32.1	0.0	0.0	0.0	0.0	0.0
32.9	0.0	0.0	0.0	0.0	0.0
33.5	0.0	0.0	0.0	0.0	0.0
34.2	0.0	0.0	0.0	0.0	0.0
34.9	0.0	0.0	0.0	0.0	0.0
35.5	0.0	0.0	0.0	0.0	0.0
36.2	0.0	0.0	0.0	0.0	0.0
36.7	0.0	0.0	0.0	0.0	0.0
37.4	0.0	0.0	0.0	0.0	0.0
38.1	0.0	0.0	0.0	0.0	0.0
38.9	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0
41.2	0.0	0.0	0.0	0.0	0.0
41.8	0.0	0.0	0.0	0.0	0.0
43.0	0.0	0.0	0.0	0.0	0.0
45.1	0.0	0.0	0.0	0.0	0.0
46.6	0.0	0.0	0.0	0.0	0.0
49.2	0.0	0.0	0.0	0.0	0.0
51.0	0.0	0.0	0.0	0.0	0.0
53.9	0.0	0.0	0.0	0.0	0.0
56.1	0.0	0.0	0.0	0.0	0.0
58.4	0.0	0.0	0.0	0.0	0.0
60.7	0.0	0.0	0.0	0.0	0.0

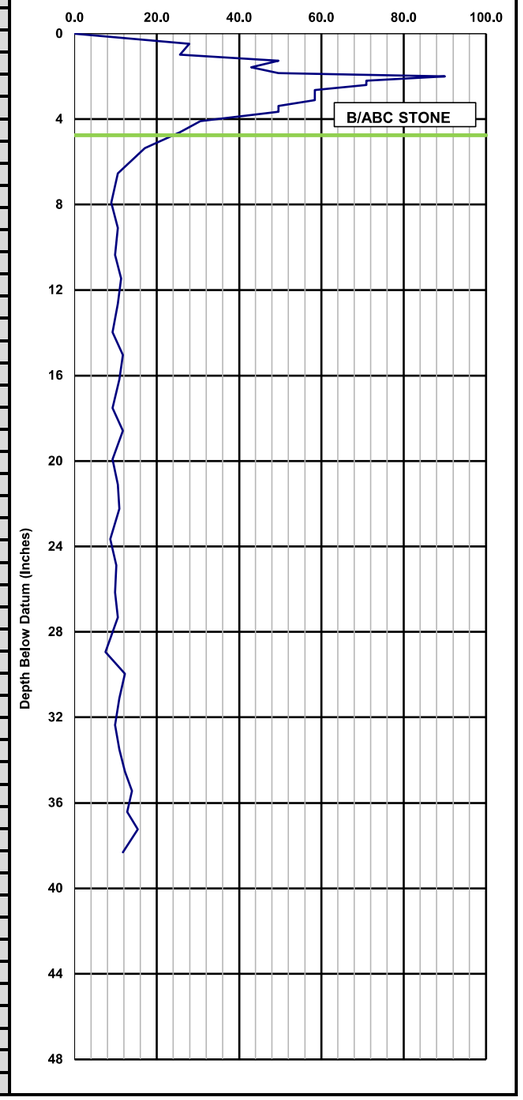


Note(s):

WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	US 29/US 70
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED	CORRELATED CBR VALUES	
L_1960_EB_OSL			5/2/23		
DATUM	CUT/FILL	NORTHING	EASTING		
T/ABC	C	757,260	1,621,409		

CUMULATIVE PENETRATION IN CENTIMETERS					
1.2	0.0	0.0	0.0	0.0	0.0
2.5	0.0	0.0	0.0	0.0	0.0
3.2	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
4.7	0.0	0.0	0.0	0.0	0.0
5.1	0.0	0.0	0.0	0.0	0.0
5.6	0.0	0.0	0.0	0.0	0.0
6.1	0.0	0.0	0.0	0.0	0.0
6.7	0.0	0.0	0.0	0.0	0.0
7.3	0.0	0.0	0.0	0.0	0.0
7.9	0.0	0.0	0.0	0.0	0.0
8.6	0.0	0.0	0.0	0.0	0.0
9.3	0.0	0.0	0.0	0.0	0.0
10.4	0.0	0.0	0.0	0.0	0.0
11.7	0.0	0.0	0.0	0.0	0.0
13.6	0.0	0.0	0.0	0.0	0.0
16.6	0.0	0.0	0.0	0.0	0.0
20.1	0.0	0.0	0.0	0.0	0.0
23.1	0.0	0.0	0.0	0.0	0.0
26.3	0.0	0.0	0.0	0.0	0.0
29.1	0.0	0.0	0.0	0.0	0.0
32.1	0.0	0.0	0.0	0.0	0.0
35.5	0.0	0.0	0.0	0.0	0.0
38.2	0.0	0.0	0.0	0.0	0.0
41.1	0.0	0.0	0.0	0.0	0.0
44.5	0.0	0.0	0.0	0.0	0.0
47.2	0.0	0.0	0.0	0.0	0.0
50.6	0.0	0.0	0.0	0.0	0.0
53.6	0.0	0.0	0.0	0.0	0.0
56.5	0.0	0.0	0.0	0.0	0.0
60.1	0.0	0.0	0.0	0.0	0.0
63.2	0.0	0.0	0.0	0.0	0.0
66.4	0.0	0.0	0.0	0.0	0.0
69.4	0.0	0.0	0.0	0.0	0.0
73.5	0.0	0.0	0.0	0.0	0.0
76.1	0.0	0.0	0.0	0.0	0.0
79.0	0.0	0.0	0.0	0.0	0.0
82.2	0.0	0.0	0.0	0.0	0.0
85.1	0.0	0.0	0.0	0.0	0.0
87.7	0.0	0.0	0.0	0.0	0.0
90.0	0.0	0.0	0.0	0.0	0.0
92.5	0.0	0.0	0.0	0.0	0.0
94.6	0.0	0.0	0.0	0.0	0.0
97.3	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0



Note(s):

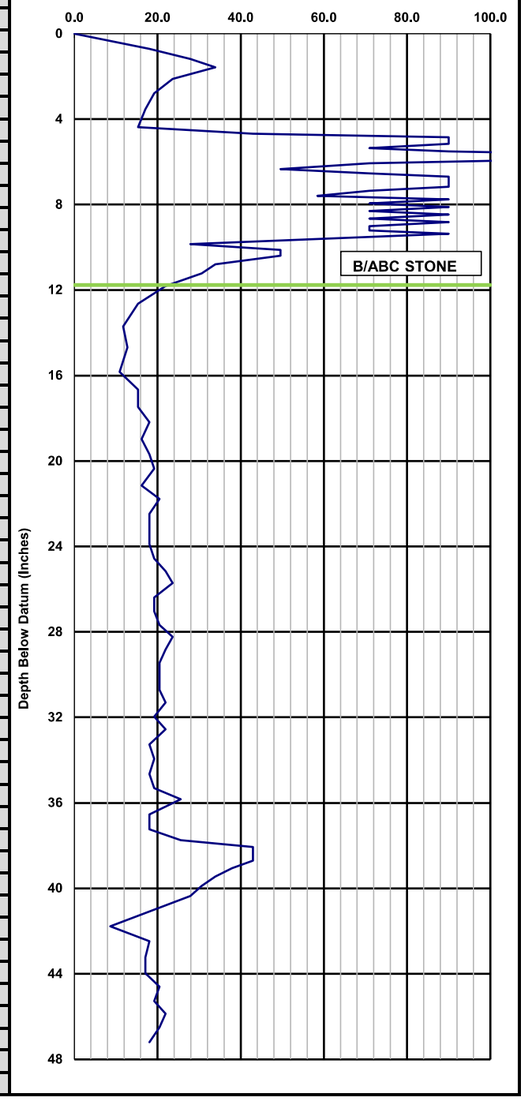
WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	US 29/US 70
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED	CORRELATED CBR VALUES	
L_1960_EB_OSS			5/2/23		
DATUM	CUT/FILL	NORTHING	EASTING		
T/ABC	C	757,257	1,621,413		

CUMULATIVE PENETRATION IN CENTIMETERS					
1.8	51.7	0.0	0.0	0.0	0.0
3.0	53.7	0.0	0.0	0.0	0.0
4.0	55.3	0.0	0.0	0.0	0.0
5.4	57.1	0.0	0.0	0.0	0.0
7.1	58.9	0.0	0.0	0.0	0.0
9.0	60.7	0.0	0.0	0.0	0.0
11.1	62.4	0.0	0.0	0.0	0.0
11.9	63.9	0.0	0.0	0.0	0.0
12.3	65.3	0.0	0.0	0.0	0.0
12.7	67.0	0.0	0.0	0.0	0.0
13.1	68.7	0.0	0.0	0.0	0.0
13.6	70.3	0.0	0.0	0.0	0.0
14.0	71.7	0.0	0.0	0.0	0.0
14.3	73.2	0.0	0.0	0.0	0.0
14.6	74.8	0.0	0.0	0.0	0.0
14.9	76.4	0.0	0.0	0.0	0.0
15.4	78.0	0.0	0.0	0.0	0.0
16.1	79.5	0.0	0.0	0.0	0.0
16.6	81.2	0.0	0.0	0.0	0.0
17.0	82.7	0.0	0.0	0.0	0.0
17.4	84.5	0.0	0.0	0.0	0.0
17.8	86.2	0.0	0.0	0.0	0.0
18.2	88.0	0.0	0.0	0.0	0.0
18.7	89.7	0.0	0.0	0.0	0.0
19.3	91.0	0.0	0.0	0.0	0.0
19.7	92.8	0.0	0.0	0.0	0.0
20.2	94.6	0.0	0.0	0.0	0.0
20.6	95.9	0.0	0.0	0.0	0.0
21.1	96.7	0.0	0.0	0.0	0.0
21.5	97.5	0.0	0.0	0.0	0.0
22.0	98.3	0.0	0.0	0.0	0.0
22.4	99.2	0.0	0.0	0.0	0.0
22.9	100.2	0.0	0.0	0.0	0.0
23.4	101.3	0.0	0.0	0.0	0.0
23.8	102.5	0.0	0.0	0.0	0.0
25.0	106.1	0.0	0.0	0.0	0.0
25.7	107.9	0.0	0.0	0.0	0.0
26.4	109.8	0.0	0.0	0.0	0.0
27.4	111.7	0.0	0.0	0.0	0.0
28.5	113.3	0.0	0.0	0.0	0.0
30.0	115.0	0.0	0.0	0.0	0.0
32.1	116.5	0.0	0.0	0.0	0.0
34.8	118.1	0.0	0.0	0.0	0.0
37.3	119.9	0.0	0.0	0.0	0.0
40.2	0.0	0.0	0.0	0.0	0.0
42.3	0.0	0.0	0.0	0.0	0.0
44.4	0.0	0.0	0.0	0.0	0.0
46.2	0.0	0.0	0.0	0.0	0.0
48.2	0.0	0.0	0.0	0.0	0.0
50.0	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

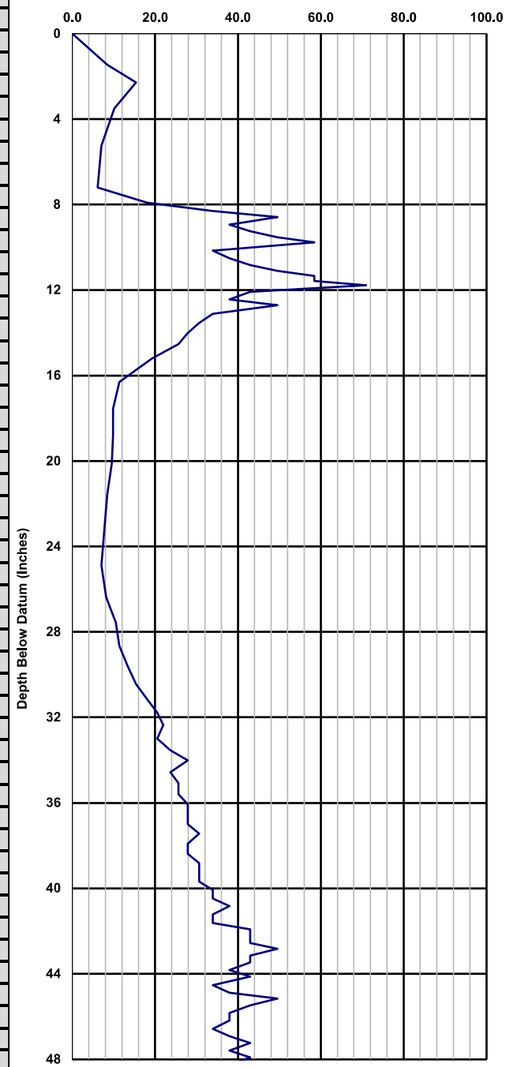
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED	
L_2590_WB_ISS			5/3/23	
DATUM	CUT/FILL	NORTHING	EASTING	
SG	AG	757,786	1,621,759	

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
3.7	94.0	0.0	0.0	0.0	0.0
5.8	95.1	0.0	0.0	0.0	0.0
8.9	96.3	0.0	0.0	0.0	0.0
13.3	97.5	0.0	0.0	0.0	0.0
18.3	98.6	0.0	0.0	0.0	0.0
20.1	99.7	0.0	0.0	0.0	0.0
21.1	100.8	0.0	0.0	0.0	0.0
21.8	101.8	0.0	0.0	0.0	0.0
22.7	102.8	0.0	0.0	0.0	0.0
23.5	103.7	0.0	0.0	0.0	0.0
24.2	104.7	0.0	0.0	0.0	0.0
24.8	105.7	0.0	0.0	0.0	0.0
25.8	106.5	0.0	0.0	0.0	0.0
26.7	107.3	0.0	0.0	0.0	0.0
27.5	108.1	0.0	0.0	0.0	0.0
28.2	108.8	0.0	0.0	0.0	0.0
28.8	109.6	0.0	0.0	0.0	0.0
29.4	110.4	0.0	0.0	0.0	0.0
29.9	111.3	0.0	0.0	0.0	0.0
30.7	112.1	0.0	0.0	0.0	0.0
31.6	113.1	0.0	0.0	0.0	0.0
32.3	114.0	0.0	0.0	0.0	0.0
33.3	114.7	0.0	0.0	0.0	0.0
34.4	115.5	0.0	0.0	0.0	0.0
35.6	116.4	0.0	0.0	0.0	0.0
36.9	117.3	0.0	0.0	0.0	0.0
38.6	118.3	0.0	0.0	0.0	0.0
41.4	119.2	0.0	0.0	0.0	0.0
44.6	120.0	0.0	0.0	0.0	0.0
47.8	120.9	0.0	0.0	0.0	0.0
51.1	121.7	0.0	0.0	0.0	0.0
54.8	122.6	0.0	0.0	0.0	0.0
58.8	123.3	0.0	0.0	0.0	0.0
63.2	124.2	0.0	0.0	0.0	0.0
67.0	125.1	0.0	0.0	0.0	0.0
70.0	126.2	0.0	0.0	0.0	0.0
72.8	0.0	0.0	0.0	0.0	0.0
75.2	0.0	0.0	0.0	0.0	0.0
77.3	0.0	0.0	0.0	0.0	0.0
79.1	0.0	0.0	0.0	0.0	0.0
80.7	0.0	0.0	0.0	0.0	0.0
82.2	0.0	0.0	0.0	0.0	0.0
83.8	0.0	0.0	0.0	0.0	0.0
85.2	0.0	0.0	0.0	0.0	0.0
86.4	0.0	0.0	0.0	0.0	0.0
87.8	0.0	0.0	0.0	0.0	0.0
89.1	0.0	0.0	0.0	0.0	0.0
90.4	0.0	0.0	0.0	0.0	0.0
91.6	0.0	0.0	0.0	0.0	0.0
92.8	0.0	0.0	0.0	0.0	0.0



Note(s):

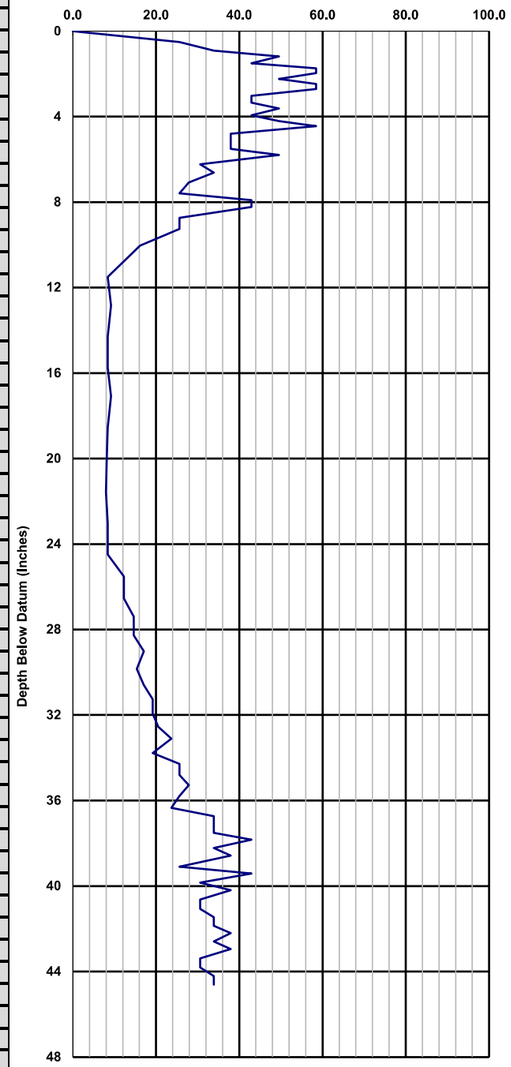
WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED	
L_3150_WB_OSS			5/3/23	
DATUM	CUT/FILL	NORTHING	EASTING	
SG	AG	758,245	1,622,081	

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.3	87.1	0.0	0.0	0.0	0.0
2.3	88.4	0.0	0.0	0.0	0.0
3.0	89.6	0.0	0.0	0.0	0.0
3.8	90.9	0.0	0.0	0.0	0.0
4.4	92.3	0.0	0.0	0.0	0.0
5.0	93.3	0.0	0.0	0.0	0.0
5.7	94.3	0.0	0.0	0.0	0.0
6.3	95.3	0.0	0.0	0.0	0.0
6.9	96.1	0.0	0.0	0.0	0.0
7.7	97.1	0.0	0.0	0.0	0.0
8.5	98.0	0.0	0.0	0.0	0.0
9.2	99.3	0.0	0.0	0.0	0.0
10.0	100.1	0.0	0.0	0.0	0.0
10.7	101.2	0.0	0.0	0.0	0.0
11.3	102.1	0.0	0.0	0.0	0.0
12.2	103.2	0.0	0.0	0.0	0.0
13.1	104.3	0.0	0.0	0.0	0.0
14.0	105.3	0.0	0.0	0.0	0.0
14.7	106.3	0.0	0.0	0.0	0.0
15.8	107.2	0.0	0.0	0.0	0.0
16.8	108.2	0.0	0.0	0.0	0.0
18.0	109.1	0.0	0.0	0.0	0.0
19.3	110.2	0.0	0.0	0.0	0.0
20.1	111.3	0.0	0.0	0.0	0.0
20.9	112.3	0.0	0.0	0.0	0.0
22.2	113.3	0.0	0.0	0.0	0.0
23.5	0.0	0.0	0.0	0.0	0.0
25.5	0.0	0.0	0.0	0.0	0.0
29.2	0.0	0.0	0.0	0.0	0.0
32.6	0.0	0.0	0.0	0.0	0.0
36.3	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0
43.4	0.0	0.0	0.0	0.0	0.0
47.1	0.0	0.0	0.0	0.0	0.0
50.9	0.0	0.0	0.0	0.0	0.0
54.8	0.0	0.0	0.0	0.0	0.0
58.5	0.0	0.0	0.0	0.0	0.0
62.2	0.0	0.0	0.0	0.0	0.0
64.8	0.0	0.0	0.0	0.0	0.0
67.4	0.0	0.0	0.0	0.0	0.0
69.6	0.0	0.0	0.0	0.0	0.0
71.8	0.0	0.0	0.0	0.0	0.0
73.7	0.0	0.0	0.0	0.0	0.0
75.8	0.0	0.0	0.0	0.0	0.0
77.7	0.0	0.0	0.0	0.0	0.0
79.4	0.0	0.0	0.0	0.0	0.0
81.1	0.0	0.0	0.0	0.0	0.0
82.7	0.0	0.0	0.0	0.0	0.0
84.1	0.0	0.0	0.0	0.0	0.0
85.8	0.0	0.0	0.0	0.0	0.0



Note(s):

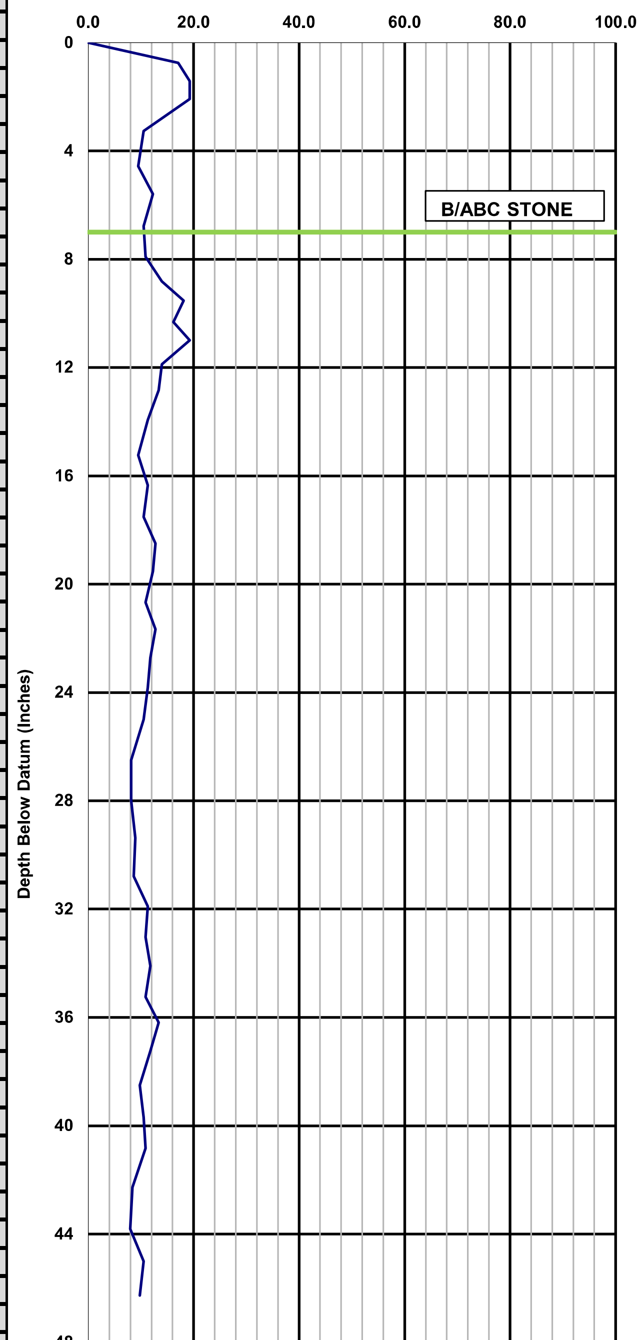
WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	US 29/US 70
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED		
L_3275_EB_DECEL_LN			5/2/23		
DATUM	CUT/FILL	NORTHING	EASTING		
T/ABC	AG	758,292	1,622,226		

CUMULATIVE PENETRATION IN CENTIMETERS

1.9	0.0	0.0	0.0	0.0	0.0
3.6	0.0	0.0	0.0	0.0	0.0
5.3	0.0	0.0	0.0	0.0	0.0
8.3	0.0	0.0	0.0	0.0	0.0
11.6	0.0	0.0	0.0	0.0	0.0
14.2	0.0	0.0	0.0	0.0	0.0
17.2	0.0	0.0	0.0	0.0	0.0
20.1	0.0	0.0	0.0	0.0	0.0
22.4	0.0	0.0	0.0	0.0	0.0
24.2	0.0	0.0	0.0	0.0	0.0
26.2	0.0	0.0	0.0	0.0	0.0
27.9	0.0	0.0	0.0	0.0	0.0
30.2	0.0	0.0	0.0	0.0	0.0
32.6	0.0	0.0	0.0	0.0	0.0
35.4	0.0	0.0	0.0	0.0	0.0
38.7	0.0	0.0	0.0	0.0	0.0
41.5	0.0	0.0	0.0	0.0	0.0
44.5	0.0	0.0	0.0	0.0	0.0
47.0	0.0	0.0	0.0	0.0	0.0
49.6	0.0	0.0	0.0	0.0	0.0
52.5	0.0	0.0	0.0	0.0	0.0
55.0	0.0	0.0	0.0	0.0	0.0
57.7	0.0	0.0	0.0	0.0	0.0
60.5	0.0	0.0	0.0	0.0	0.0
63.5	0.0	0.0	0.0	0.0	0.0
67.3	0.0	0.0	0.0	0.0	0.0
71.1	0.0	0.0	0.0	0.0	0.0
74.6	0.0	0.0	0.0	0.0	0.0
78.2	0.0	0.0	0.0	0.0	0.0
81.0	0.0	0.0	0.0	0.0	0.0
83.9	0.0	0.0	0.0	0.0	0.0
86.6	0.0	0.0	0.0	0.0	0.0
89.5	0.0	0.0	0.0	0.0	0.0
91.9	0.0	0.0	0.0	0.0	0.0
94.6	0.0	0.0	0.0	0.0	0.0
97.8	0.0	0.0	0.0	0.0	0.0
100.8	0.0	0.0	0.0	0.0	0.0
103.7	0.0	0.0	0.0	0.0	0.0
107.4	0.0	0.0	0.0	0.0	0.0
111.3	0.0	0.0	0.0	0.0	0.0
114.3	0.0	0.0	0.0	0.0	0.0
117.5	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

CORRELATED CBR VALUES



Note(s):

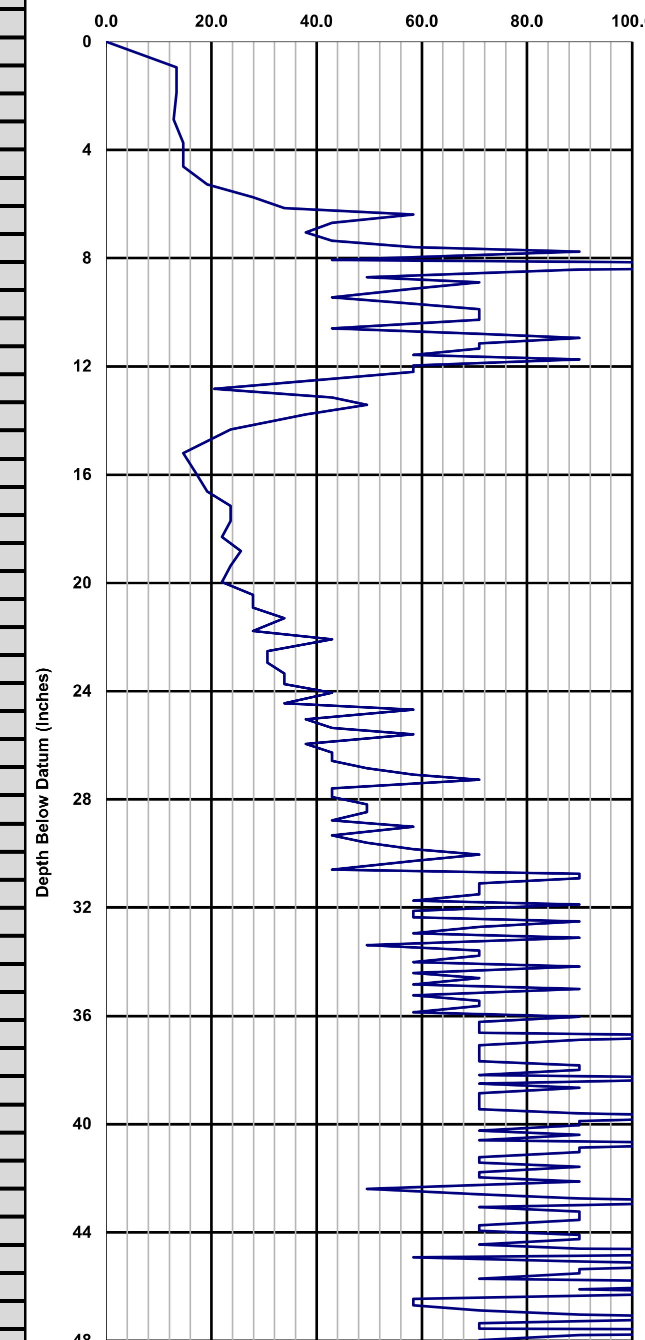
WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	US 29/US 70
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED		
L_3870_WB_ISS			5/3/23		
DATUM	CUT/FILL	NORTHING	EASTING		
SG	C	758,798	1,622,544		

CUMULATIVE PENETRATION IN CENTIMETERS

2.4	53.1	87.4	110.2	0.0	0.0
4.8	54.1	87.9	110.6	0.0	0.0
7.3	55.3	88.5	111.1	0.0	0.0
9.5	56.1	88.9	111.6	0.0	0.0
11.7	57.2	89.5	112.0	0.0	0.0
13.4	58.3	90.0	112.4	0.0	0.0
14.6	59.3	90.5	112.9	0.0	0.0
15.6	60.3	91.1	113.3	0.0	0.0
16.2	61.1	91.5	113.5	0.0	0.0
17.0	62.1	92.0	114.1	0.0	0.0
17.9	62.7	92.5	114.5	0.0	0.0
18.7	63.6	93.0	114.8	0.0	0.0
19.3	64.4	93.3	115.2	0.0	0.0
19.7	65.0	93.7	115.6	0.0	0.0
20.5	65.9	94.2	116.1	0.0	0.0
20.8	66.7	94.7	116.4	0.0	0.0
21.0	67.5	95.2	116.7	0.0	0.0
21.4	68.2	95.7	117.1	0.0	0.0
22.1	68.8	96.1	117.4	0.0	0.0
22.6	69.3	96.5	118.0	0.0	0.0
23.2	70.1	97.0	118.6	0.0	0.0
24.0	70.9	97.3	119.1	0.0	0.0
24.6	71.6	97.8	119.5	0.0	0.0
25.1	72.3	98.2	119.8	0.0	0.0
25.6	73.1	98.7	120.3	0.0	0.0
26.1	73.7	99.2	120.8	0.0	0.0
26.9	74.5	99.7	121.0	0.0	0.0
27.4	75.2	100.2	121.4	0.0	0.0
27.8	75.8	100.6	121.9	0.0	0.0
28.3	76.3	100.9	122.4	0.0	0.0
28.8	76.9	101.3	122.7	0.0	0.0
29.4	77.7	101.7	123.0	0.0	0.0
29.8	78.1	102.2	123.6	0.0	0.0
30.4	78.5	102.6	123.9	0.0	0.0
31.0	79.0	103.1	124.3	0.0	0.0
32.6	79.5	103.4	124.6	0.0	0.0
33.4	80.0	103.8	125.5	0.0	0.0
34.1	80.6	104.2	125.9	0.0	0.0
35.0	81.0	104.7	126.3	0.0	0.0
36.4	81.6	105.2	126.6	0.0	0.0
38.6	82.2	105.6	126.9	0.0	0.0
40.5	82.6	106.1	127.3	0.0	0.0
42.2	83.1	106.6	127.7	0.0	0.0
43.6	83.7	107.0	0.0	0.0	0.0
45.0	84.1	107.7	0.0	0.0	0.0
46.5	84.8	108.2	0.0	0.0	0.0
47.8	85.3	108.6	0.0	0.0	0.0
49.2	85.8	108.9	0.0	0.0	0.0
50.7	86.4	109.4	0.0	0.0	0.0
51.9	86.8	109.8	0.0	0.0	0.0

CORRELATED CBR VALUES



Note(s):

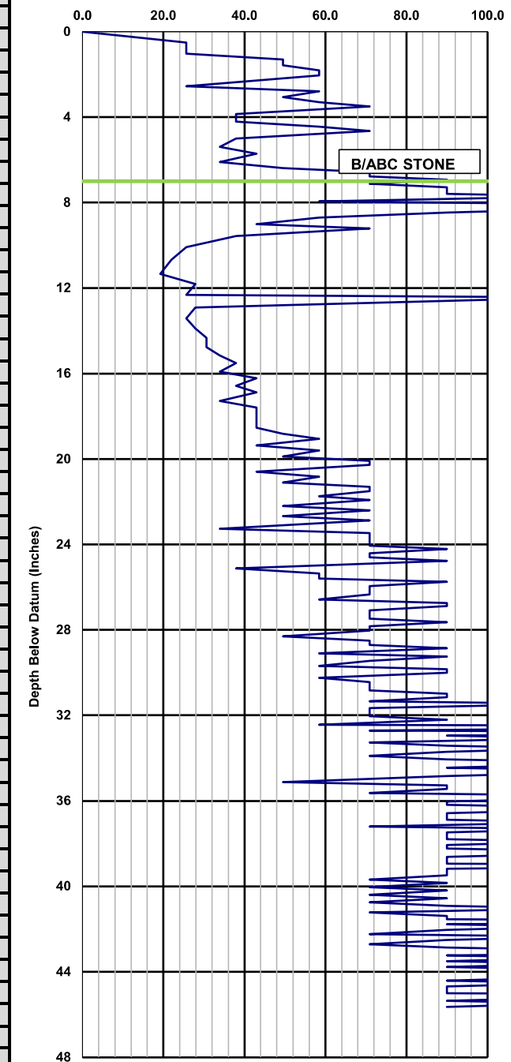
WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_3870_WB_DECEL_LN			5/3/23
DATUM	CUT/FILL	NORTHING	EASTING
T/ABC	C	758,817	1,622,519

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.3	40.4	70.7	92.2	111.2	0.0
2.6	41.2	71.2	92.5	111.5	0.0
3.3	42.1	71.9	92.9	111.8	0.0
4.0	42.9	72.4	93.3	112.1	0.0
4.6	43.9	72.9	93.7	112.4	0.0
5.2	44.7	73.3	94.0	112.8	0.0
6.5	45.5	73.9	94.5	113.1	0.0
7.1	46.3	74.3	94.8	113.5	0.0
7.8	47.1	74.8	95.2	113.9	0.0
8.4	47.8	75.4	95.6	114.3	0.0
8.9	48.4	75.8	96.0	114.5	0.0
9.8	49.2	76.2	96.3	114.8	0.0
10.7	49.8	76.8	96.7	115.2	0.0
11.3	50.5	77.3	97.1	115.5	0.0
11.8	51.0	77.8	97.4	115.9	0.0
12.7	51.5	78.3	97.7	0.0	0.0
13.7	52.3	78.7	98.1	0.0	0.0
14.5	52.9	79.1	98.5	0.0	0.0
15.5	53.6	79.6	98.9	0.0	0.0
16.2	54.1	79.9	99.1	0.0	0.0
16.7	54.6	80.4	99.5	0.0	0.0
17.2	55.2	80.9	99.9	0.0	0.0
17.6	55.7	81.4	100.3	0.0	0.0
18.1	56.4	81.8	100.8	0.0	0.0
18.5	56.9	82.4	101.2	0.0	0.0
18.9	57.6	82.6	101.7	0.0	0.0
19.3	58.1	83.1	102.1	0.0	0.0
19.6	59.1	83.3	102.6	0.0	0.0
20.2	59.6	83.7	103.0	0.0	0.0
20.5	60.1	84.0	103.5	0.0	0.0
20.8	60.6	84.5	103.9	0.0	0.0
21.1	61.1	84.9	104.2	0.0	0.0
21.5	61.5	85.2	104.7	0.0	0.0
22.1	62.0	85.6	105.1	0.0	0.0
22.9	62.5	86.1	105.5	0.0	0.0
23.4	62.9	86.5	105.7	0.0	0.0
24.3	63.8	86.8	106.1	0.0	0.0
25.6	64.4	87.1	106.4	0.0	0.0
27.1	65.0	87.5	106.8	0.0	0.0
28.8	65.4	87.8	107.3	0.0	0.0
30.0	65.9	88.1	107.6	0.0	0.0
31.3	66.4	88.5	108.0	0.0	0.0
31.6	66.9	89.2	108.5	0.0	0.0
32.8	67.5	89.6	108.9	0.0	0.0
34.1	67.9	90.0	109.2	0.0	0.0
35.3	68.3	90.5	109.4	0.0	0.0
36.4	68.8	90.8	109.8	0.0	0.0
37.5	69.3	91.1	110.1	0.0	0.0
38.5	69.8	91.5	110.5	0.0	0.0
39.4	70.2	91.9	110.8	0.0	0.0



Note(s):

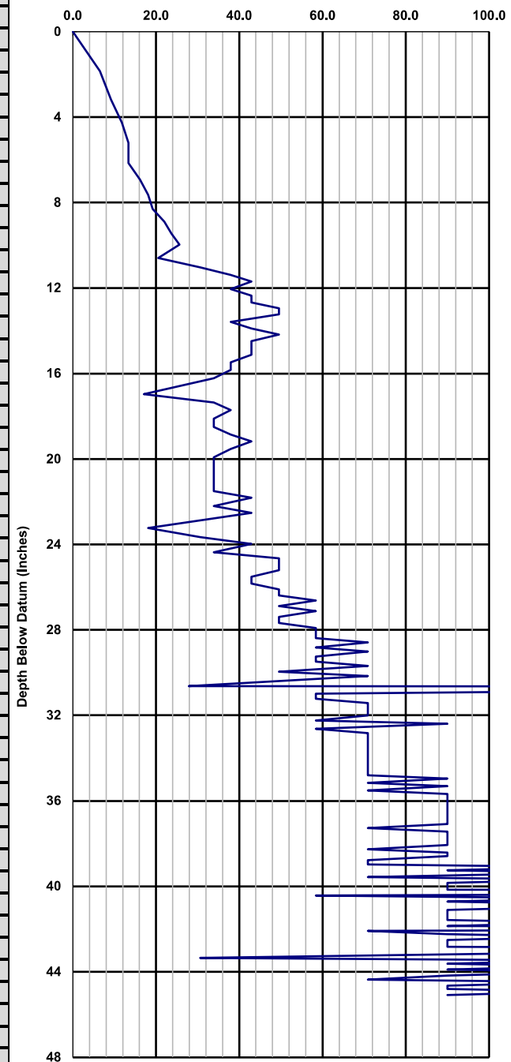
WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_3870_WB_OSS			5/4/23
DATUM	CUT/FILL	NORTHING	EASTING
SG	C	758,821	1,622,514

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
4.7	63.3	91.0	110.8	0.0	0.0
8.1	64.0	91.4	111.1	0.0	0.0
10.8	64.8	91.8	111.5	0.0	0.0
13.2	65.6	92.2	111.8	0.0	0.0
15.6	66.3	92.6	112.2	0.0	0.0
17.6	67.0	93.0	112.7	0.0	0.0
19.4	67.6	93.4	113.0	0.0	0.0
21.1	68.3	93.8	113.4	0.0	0.0
22.6	68.9	94.2	113.8	0.0	0.0
24.0	69.6	94.7	114.1	0.0	0.0
25.3	70.3	95.1	114.5	0.0	0.0
26.9	70.9	95.5	0.0	0.0	0.0
28.0	71.5	95.9	0.0	0.0	0.0
28.9	72.1	96.3	0.0	0.0	0.0
29.7	72.6	96.7	0.0	0.0	0.0
30.6	73.2	97.2	0.0	0.0	0.0
31.4	73.7	97.6	0.0	0.0	0.0
32.2	74.3	98.0	0.0	0.0	0.0
32.9	74.9	98.5	0.0	0.0	0.0
33.6	75.4	99.0	0.0	0.0	0.0
34.5	76.1	99.3	0.0	0.0	0.0
35.3	76.6	99.7	0.0	0.0	0.0
36.0	77.8	100.0	0.0	0.0	0.0
36.8	77.9	100.5	0.0	0.0	0.0
37.6	78.1	100.8	0.0	0.0	0.0
38.4	78.7	101.2	0.0	0.0	0.0
39.3	79.3	101.6	0.0	0.0	0.0
40.2	79.8	102.0	0.0	0.0	0.0
41.2	80.3	102.1	0.0	0.0	0.0
43.1	80.8	102.7	0.0	0.0	0.0
44.1	81.3	103.0	0.0	0.0	0.0
45.0	81.9	103.4	0.0	0.0	0.0
46.0	82.3	103.7	0.0	0.0	0.0
47.0	82.9	104.0	0.0	0.0	0.0
47.9	83.4	104.4	0.0	0.0	0.0
48.7	83.9	104.8	0.0	0.0	0.0
49.6	84.4	105.2	0.0	0.0	0.0
50.6	84.9	105.6	0.0	0.0	0.0
51.6	85.4	105.9	0.0	0.0	0.0
52.6	85.9	106.3	0.0	0.0	0.0
53.6	86.4	106.4	0.0	0.0	0.0
54.6	86.9	106.9	0.0	0.0	0.0
55.4	87.4	107.3	0.0	0.0	0.0
56.4	87.9	107.6	0.0	0.0	0.0
57.2	88.4	108.0	0.0	0.0	0.0
59.0	88.8	108.4	0.0	0.0	0.0
60.1	89.3	108.8	0.0	0.0	0.0
60.9	89.7	109.0	0.0	0.0	0.0
61.9	90.2	110.1	0.0	0.0	0.0
62.6	90.6	110.4	0.0	0.0	0.0



Note(s):

WB - Westbound	DECEL - Deceleration	C - Cut
EB - Eastbound	ACCEL - Acceleration	SG - Subgrade
OSS - Outside Shoulder	LN - Lane	T/ABC - Top of ABC Stone
ISS - Inside Shoulder	AG - At Grade	B/ABC - Bottom of ABC Stone
OSL - Outside Lane	F - Fill	Ex. Gr. - Existing Grade

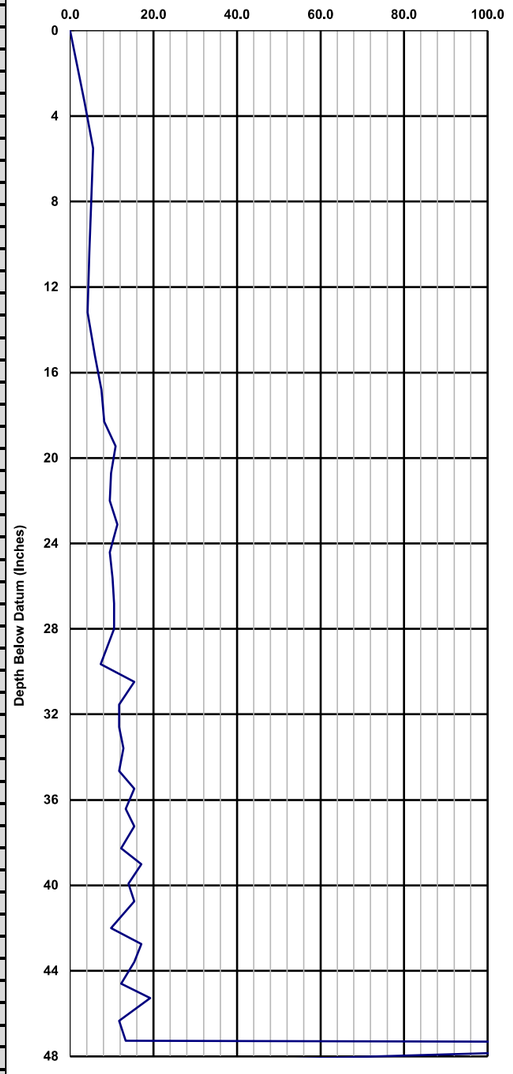
DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_4000			5/4/23
DATUM	CUT/FILL	NORTHING	EASTING
Ex. Gr.	C	758,893	1,622,633

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS

8.5	0.0	0.0	0.0	0.0	0.0
14.0	0.0	0.0	0.0	0.0	0.0
19.9	0.0	0.0	0.0	0.0	0.0
26.4	0.0	0.0	0.0	0.0	0.0
33.5	0.0	0.0	0.0	0.0	0.0
38.6	0.0	0.0	0.0	0.0	0.0
42.7	0.0	0.0	0.0	0.0	0.0
46.5	0.0	0.0	0.0	0.0	0.0
49.4	0.0	0.0	0.0	0.0	0.0
52.6	0.0	0.0	0.0	0.0	0.0
55.9	0.0	0.0	0.0	0.0	0.0
58.7	0.0	0.0	0.0	0.0	0.0
62.0	0.0	0.0	0.0	0.0	0.0
65.1	0.0	0.0	0.0	0.0	0.0
68.1	0.0	0.0	0.0	0.0	0.0
71.1	0.0	0.0	0.0	0.0	0.0
75.3	0.0	0.0	0.0	0.0	0.0
77.4	0.0	0.0	0.0	0.0	0.0
80.1	0.0	0.0	0.0	0.0	0.0
82.8	0.0	0.0	0.0	0.0	0.0
85.3	0.0	0.0	0.0	0.0	0.0
88.0	0.0	0.0	0.0	0.0	0.0
90.1	0.0	0.0	0.0	0.0	0.0
92.5	0.0	0.0	0.0	0.0	0.0
94.6	0.0	0.0	0.0	0.0	0.0
97.2	0.0	0.0	0.0	0.0	0.0
99.1	0.0	0.0	0.0	0.0	0.0
101.4	0.0	0.0	0.0	0.0	0.0
103.5	0.0	0.0	0.0	0.0	0.0
106.7	0.0	0.0	0.0	0.0	0.0
108.6	0.0	0.0	0.0	0.0	0.0
110.7	0.0	0.0	0.0	0.0	0.0
113.3	0.0	0.0	0.0	0.0	0.0
115.0	0.0	0.0	0.0	0.0	0.0
117.7	0.0	0.0	0.0	0.0	0.0
120.1	0.0	0.0	0.0	0.0	0.0
120.3	0.0	0.0	0.0	0.0	0.0
122.8	0.0	0.0	0.0	0.0	0.0
125.4	0.0	0.0	0.0	0.0	0.0
127.7	0.0	0.0	0.0	0.0	0.0
130.4	0.0	0.0	0.0	0.0	0.0
132.8	0.0	0.0	0.0	0.0	0.0
135.6	0.0	0.0	0.0	0.0	0.0
138.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

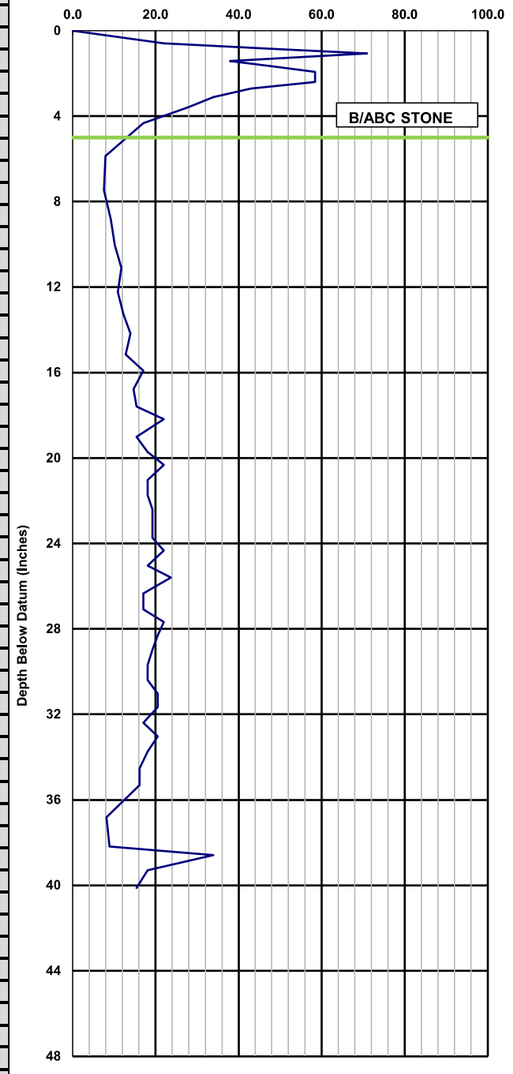
DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_4280_EB_ISL			5/2/23
DATUM	CUT/FILL	NORTHING	EASTING
T/ABC	C	759,107	1,622,815

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS

1.5	93.5	0.0	0.0	0.0	0.0
2.2	97.0	0.0	0.0	0.0	0.0
2.7	98.0	0.0	0.0	0.0	0.0
3.6	99.8	0.0	0.0	0.0	0.0
4.3	101.9	0.0	0.0	0.0	0.0
4.9	0.0	0.0	0.0	0.0	0.0
5.5	0.0	0.0	0.0	0.0	0.0
6.1	0.0	0.0	0.0	0.0	0.0
6.9	0.0	0.0	0.0	0.0	0.0
7.9	0.0	0.0	0.0	0.0	0.0
9.1	0.0	0.0	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.0	0.0
14.9	0.0	0.0	0.0	0.0	0.0
19.0	0.0	0.0	0.0	0.0	0.0
22.4	0.0	0.0	0.0	0.0	0.0
25.5	0.0	0.0	0.0	0.0	0.0
28.2	0.0	0.0	0.0	0.0	0.0
31.1	0.0	0.0	0.0	0.0	0.0
33.7	0.0	0.0	0.0	0.0	0.0
36.0	0.0	0.0	0.0	0.0	0.0
38.5	0.0	0.0	0.0	0.0	0.0
40.4	0.0	0.0	0.0	0.0	0.0
42.6	0.0	0.0	0.0	0.0	0.0
44.7	0.0	0.0	0.0	0.0	0.0
46.2	0.0	0.0	0.0	0.0	0.0
48.3	0.0	0.0	0.0	0.0	0.0
50.1	0.0	0.0	0.0	0.0	0.0
51.6	0.0	0.0	0.0	0.0	0.0
53.4	0.0	0.0	0.0	0.0	0.0
55.2	0.0	0.0	0.0	0.0	0.0
56.9	0.0	0.0	0.0	0.0	0.0
58.6	0.0	0.0	0.0	0.0	0.0
60.3	0.0	0.0	0.0	0.0	0.0
61.8	0.0	0.0	0.0	0.0	0.0
63.6	0.0	0.0	0.0	0.0	0.0
65.0	0.0	0.0	0.0	0.0	0.0
66.9	0.0	0.0	0.0	0.0	0.0
68.8	0.0	0.0	0.0	0.0	0.0
70.3	0.0	0.0	0.0	0.0	0.0
71.9	0.0	0.0	0.0	0.0	0.0
73.6	0.0	0.0	0.0	0.0	0.0
75.4	0.0	0.0	0.0	0.0	0.0
77.2	0.0	0.0	0.0	0.0	0.0
78.8	0.0	0.0	0.0	0.0	0.0
80.4	0.0	0.0	0.0	0.0	0.0
82.3	0.0	0.0	0.0	0.0	0.0
83.9	0.0	0.0	0.0	0.0	0.0
85.7	0.0	0.0	0.0	0.0	0.0
87.7	0.0	0.0	0.0	0.0	0.0
89.7	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

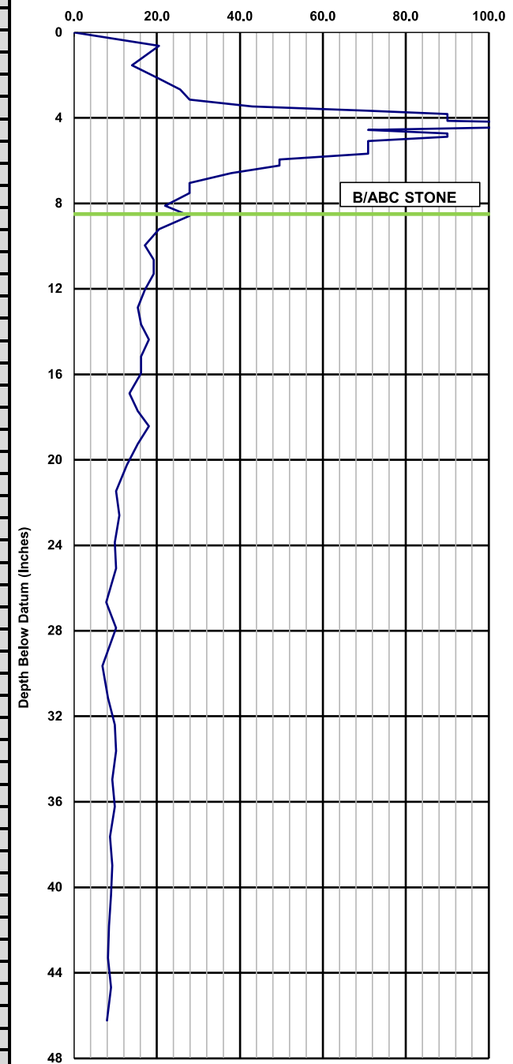
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_4280_EB_ACCEL_LN			5/2/23
DATUM	CUT/FILL	NORTHING	EASTING
T/ABC	C	759,088	1,622,839

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.6	85.4	0.0	0.0	0.0	0.0
3.9	88.8	0.0	0.0	0.0	0.0
5.5	92.0	0.0	0.0	0.0	0.0
6.8	95.6	0.0	0.0	0.0	0.0
8.0	99.0	0.0	0.0	0.0	0.0
8.8	102.5	0.0	0.0	0.0	0.0
9.3	106.2	0.0	0.0	0.0	0.0
9.7	110.0	0.0	0.0	0.0	0.0
10.1	113.5	0.0	0.0	0.0	0.0
10.5	117.4	0.0	0.0	0.0	0.0
10.8	0.0	0.0	0.0	0.0	0.0
11.1	0.0	0.0	0.0	0.0	0.0
11.6	0.0	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0	0.0
12.4	0.0	0.0	0.0	0.0	0.0
12.9	0.0	0.0	0.0	0.0	0.0
13.4	0.0	0.0	0.0	0.0	0.0
13.9	0.0	0.0	0.0	0.0	0.0
14.4	0.0	0.0	0.0	0.0	0.0
15.1	0.0	0.0	0.0	0.0	0.0
15.8	0.0	0.0	0.0	0.0	0.0
16.7	0.0	0.0	0.0	0.0	0.0
17.9	0.0	0.0	0.0	0.0	0.0
19.1	0.0	0.0	0.0	0.0	0.0
20.6	0.0	0.0	0.0	0.0	0.0
21.8	0.0	0.0	0.0	0.0	0.0
23.4	0.0	0.0	0.0	0.0	0.0
25.3	0.0	0.0	0.0	0.0	0.0
27.0	0.0	0.0	0.0	0.0	0.0
28.7	0.0	0.0	0.0	0.0	0.0
30.6	0.0	0.0	0.0	0.0	0.0
32.7	0.0	0.0	0.0	0.0	0.0
34.7	0.0	0.0	0.0	0.0	0.0
36.5	0.0	0.0	0.0	0.0	0.0
38.5	0.0	0.0	0.0	0.0	0.0
40.5	0.0	0.0	0.0	0.0	0.0
42.9	0.0	0.0	0.0	0.0	0.0
45.0	0.0	0.0	0.0	0.0	0.0
46.8	0.0	0.0	0.0	0.0	0.0
48.9	0.0	0.0	0.0	0.0	0.0
51.4	0.0	0.0	0.0	0.0	0.0
54.5	0.0	0.0	0.0	0.0	0.0
57.4	0.0	0.0	0.0	0.0	0.0
60.6	0.0	0.0	0.0	0.0	0.0
63.7	0.0	0.0	0.0	0.0	0.0
67.7	0.0	0.0	0.0	0.0	0.0
70.8	0.0	0.0	0.0	0.0	0.0
75.3	0.0	0.0	0.0	0.0	0.0
79.1	0.0	0.0	0.0	0.0	0.0
82.3	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

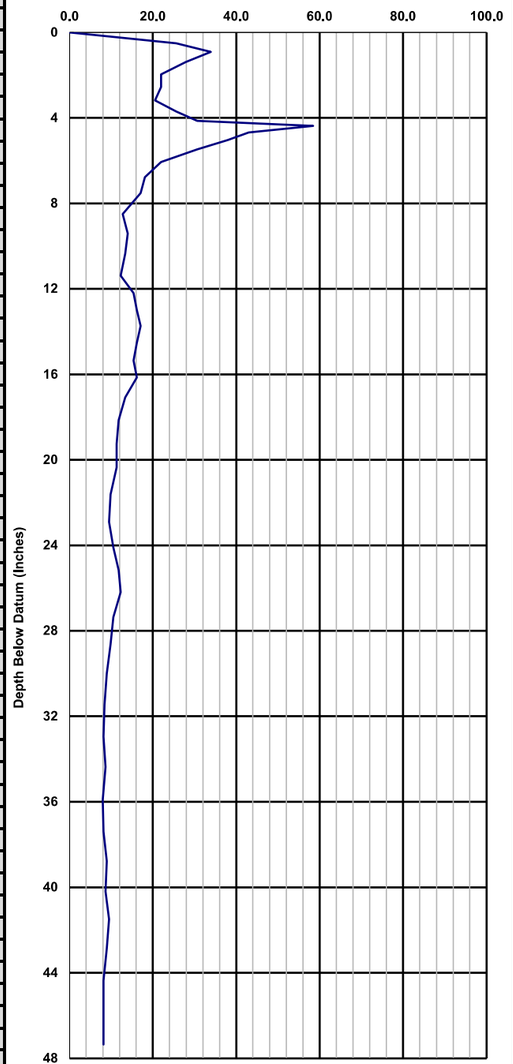
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR	PROJECT NUMBER	TIP	ROUTE
	67015.1.1	BR-0015	US 29/US 70
	COUNTY	FIELD PROFESSIONAL	CREW
	Davidson	Dan Kubinski	Trigon Exploration

TEST LOCATION DESCRIPTION			DATE PERFORMED
L_4280_EB_OSS			5/2/23
DATUM	CUT/FILL	NORTHING	EASTING
SG	C	759,084	1,622,844

CORRELATED CBR VALUES

CUMULATIVE PENETRATION IN CENTIMETERS					
1.3	0.0	0.0	0.0	0.0	0.0
2.3	0.0	0.0	0.0	0.0	0.0
3.5	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.5	0.0	0.0	0.0	0.0	0.0
8.1	0.0	0.0	0.0	0.0	0.0
9.4	0.0	0.0	0.0	0.0	0.0
10.5	0.0	0.0	0.0	0.0	0.0
11.1	0.0	0.0	0.0	0.0	0.0
11.9	0.0	0.0	0.0	0.0	0.0
12.8	0.0	0.0	0.0	0.0	0.0
13.9	0.0	0.0	0.0	0.0	0.0
15.4	0.0	0.0	0.0	0.0	0.0
17.2	0.0	0.0	0.0	0.0	0.0
19.1	0.0	0.0	0.0	0.0	0.0
21.6	0.0	0.0	0.0	0.0	0.0
23.9	0.0	0.0	0.0	0.0	0.0
26.3	0.0	0.0	0.0	0.0	0.0
28.9	0.0	0.0	0.0	0.0	0.0
31.0	0.0	0.0	0.0	0.0	0.0
33.0	0.0	0.0	0.0	0.0	0.0
34.9	0.0	0.0	0.0	0.0	0.0
36.9	0.0	0.0	0.0	0.0	0.0
39.0	0.0	0.0	0.0	0.0	0.0
41.0	0.0	0.0	0.0	0.0	0.0
43.4	0.0	0.0	0.0	0.0	0.0
46.1	0.0	0.0	0.0	0.0	0.0
48.9	0.0	0.0	0.0	0.0	0.0
51.7	0.0	0.0	0.0	0.0	0.0
54.9	0.0	0.0	0.0	0.0	0.0
58.2	0.0	0.0	0.0	0.0	0.0
61.2	0.0	0.0	0.0	0.0	0.0
63.9	0.0	0.0	0.0	0.0	0.0
66.5	0.0	0.0	0.0	0.0	0.0
69.5	0.0	0.0	0.0	0.0	0.0
72.7	0.0	0.0	0.0	0.0	0.0
76.2	0.0	0.0	0.0	0.0	0.0
79.9	0.0	0.0	0.0	0.0	0.0
83.7	0.0	0.0	0.0	0.0	0.0
87.3	0.0	0.0	0.0	0.0	0.0
91.2	0.0	0.0	0.0	0.0	0.0
95.0	0.0	0.0	0.0	0.0	0.0
98.5	0.0	0.0	0.0	0.0	0.0
102.1	0.0	0.0	0.0	0.0	0.0
105.4	0.0	0.0	0.0	0.0	0.0
108.9	0.0	0.0	0.0	0.0	0.0
112.7	0.0	0.0	0.0	0.0	0.0
116.5	0.0	0.0	0.0	0.0	0.0
120.3	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane

DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill

C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR

PROJECT NUMBER	TIP	ROUTE
67015.1.1	BR-0015	US 29/US 70
COUNTY	**FIELD PROFESSIONAL**	**CREW**
Davidson	Dan Kubinski	Trigon Exploration

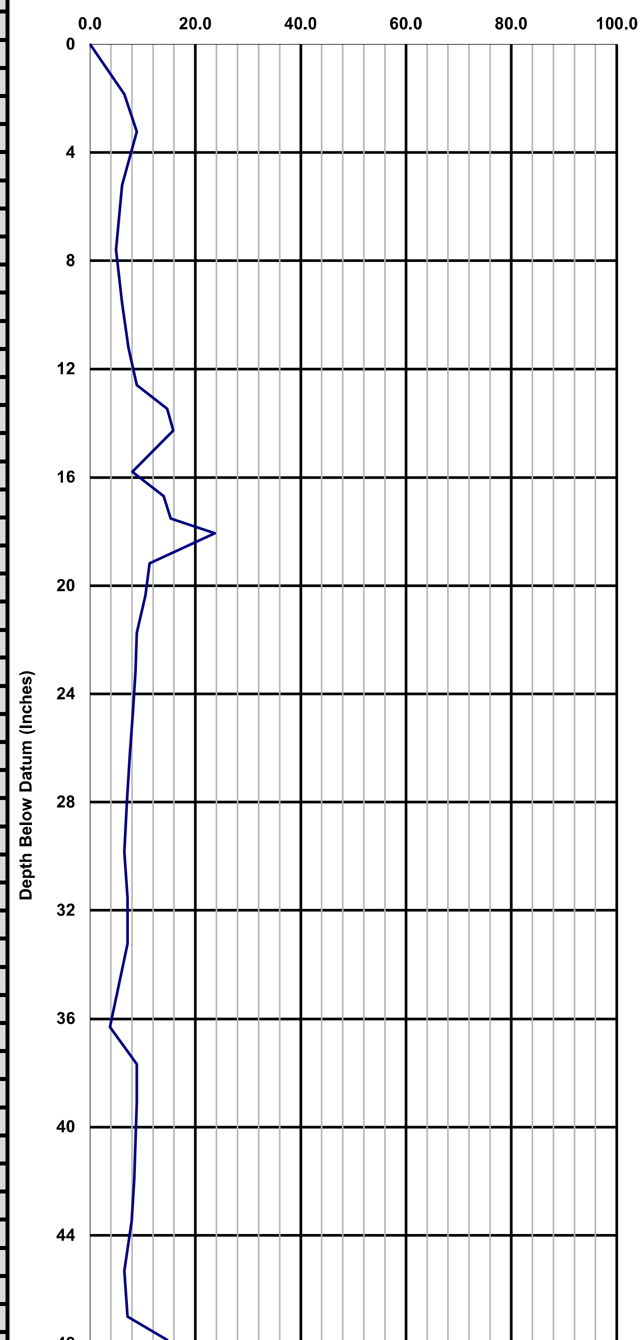
TEST LOCATION DESCRIPTION	DATE PERFORMED
L_4600	5/4/23

DATUM	CUT/FILL	NORTHING	EASTING
Ex. Gr.	C	759,367	1,623,000

CUMULATIVE PENETRATION IN CENTIMETERS

4.7	0.0	0.0	0.0	0.0	0.0
8.2	0.0	0.0	0.0	0.0	0.0
13.2	0.0	0.0	0.0	0.0	0.0
19.3	0.0	0.0	0.0	0.0	0.0
24.3	0.0	0.0	0.0	0.0	0.0
28.5	0.0	0.0	0.0	0.0	0.0
32.0	0.0	0.0	0.0	0.0	0.0
34.2	0.0	0.0	0.0	0.0	0.0
36.2	0.0	0.0	0.0	0.0	0.0
40.1	0.0	0.0	0.0	0.0	0.0
42.4	0.0	0.0	0.0	0.0	0.0
44.5	0.0	0.0	0.0	0.0	0.0
45.9	0.0	0.0	0.0	0.0	0.0
48.7	0.0	0.0	0.0	0.0	0.0
51.7	0.0	0.0	0.0	0.0	0.0
55.2	0.0	0.0	0.0	0.0	0.0
58.8	0.0	0.0	0.0	0.0	0.0
62.6	0.0	0.0	0.0	0.0	0.0
66.7	0.0	0.0	0.0	0.0	0.0
71.1	0.0	0.0	0.0	0.0	0.0
75.8	0.0	0.0	0.0	0.0	0.0
80.1	0.0	0.0	0.0	0.0	0.0
84.4	0.0	0.0	0.0	0.0	0.0
92.2	0.0	0.0	0.0	0.0	0.0
95.7	0.0	0.0	0.0	0.0	0.0
99.2	0.0	0.0	0.0	0.0	0.0
102.8	0.0	0.0	0.0	0.0	0.0
106.5	0.0	0.0	0.0	0.0	0.0
110.4	0.0	0.0	0.0	0.0	0.0
115.1	0.0	0.0	0.0	0.0	0.0
119.4	0.0	0.0	0.0	0.0	0.0
121.6	0.0	0.0	0.0	0.0	0.0
124.6	0.0	0.0	0.0	0.0	0.0
126.4	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

CORRELATED CBR VALUES



Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR

PROJECT NUMBER	TIP	ROUTE
67015.1.1	BR-0015	US 29/US 70
COUNTY	**FIELD PROFESSIONAL**	**CREW**
Davidson	Dan Kubinski	Trigon Exploration

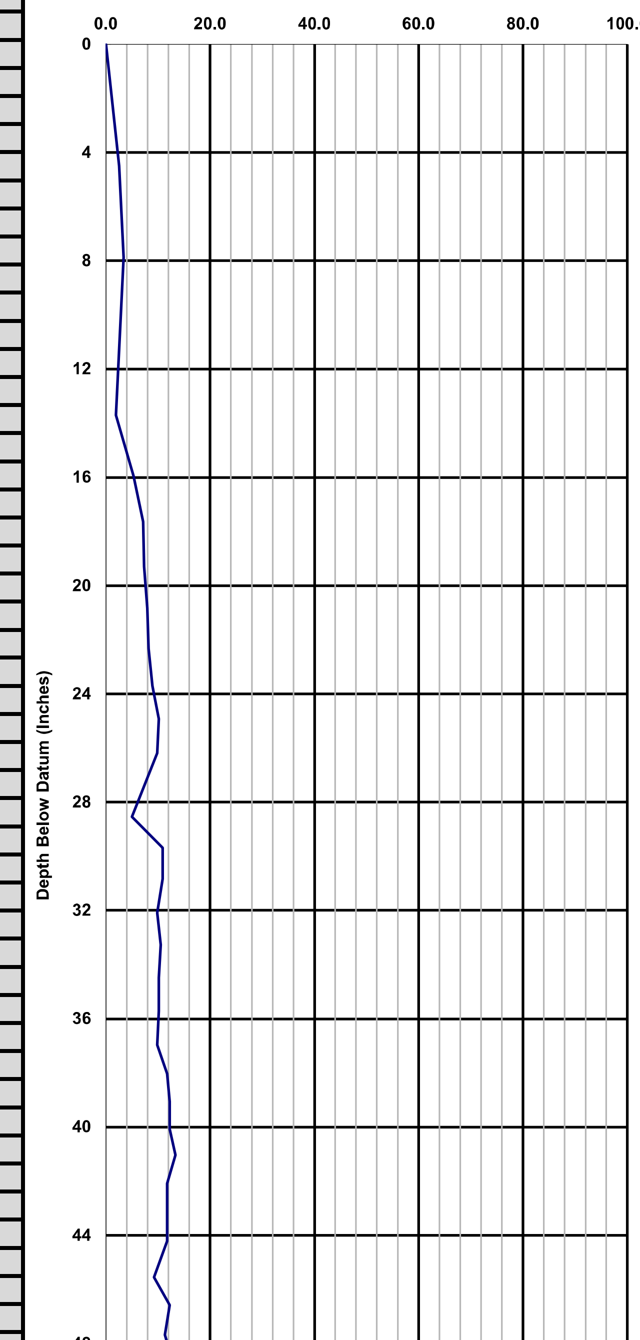
TEST LOCATION DESCRIPTION	DATE PERFORMED
L_4800	5/4/23

DATUM	CUT/FILL	NORTHING	EASTING
Ex. Gr.	C	759,525	1,623,123

CUMULATIVE PENETRATION IN CENTIMETERS

11.4	0.0	0.0	0.0	0.0	0.0
20.0	0.0	0.0	0.0	0.0	0.0
34.8	0.0	0.0	0.0	0.0	0.0
40.5	0.0	0.0	0.0	0.0	0.0
44.8	0.0	0.0	0.0	0.0	0.0
49.0	0.0	0.0	0.0	0.0	0.0
52.9	0.0	0.0	0.0	0.0	0.0
56.7	0.0	0.0	0.0	0.0	0.0
60.2	0.0	0.0	0.0	0.0	0.0
63.3	0.0	0.0	0.0	0.0	0.0
66.5	0.0	0.0	0.0	0.0	0.0
72.5	0.0	0.0	0.0	0.0	0.0
75.4	0.0	0.0	0.0	0.0	0.0
78.3	0.0	0.0	0.0	0.0	0.0
81.5	0.0	0.0	0.0	0.0	0.0
84.5	0.0	0.0	0.0	0.0	0.0
87.6	0.0	0.0	0.0	0.0	0.0
90.7	0.0	0.0	0.0	0.0	0.0
93.9	0.0	0.0	0.0	0.0	0.0
96.6	0.0	0.0	0.0	0.0	0.0
99.2	0.0	0.0	0.0	0.0	0.0
101.8	0.0	0.0	0.0	0.0	0.0
104.2	0.0	0.0	0.0	0.0	0.0
106.9	0.0	0.0	0.0	0.0	0.0
109.6	0.0	0.0	0.0	0.0	0.0
112.3	0.0	0.0	0.0	0.0	0.0
115.7	0.0	0.0	0.0	0.0	0.0
118.3	0.0	0.0	0.0	0.0	0.0
121.1	0.0	0.0	0.0	0.0	0.0
123.6	0.0	0.0	0.0	0.0	0.0
125.9	0.0	0.0	0.0	0.0	0.0
128.6	0.0	0.0	0.0	0.0	0.0
131.0	0.0	0.0	0.0	0.0	0.0
133.2	0.0	0.0	0.0	0.0	0.0
135.7	0.0	0.0	0.0	0.0	0.0
138.0	0.0	0.0	0.0	0.0	0.0
140.5	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

CORRELATED CBR VALUES



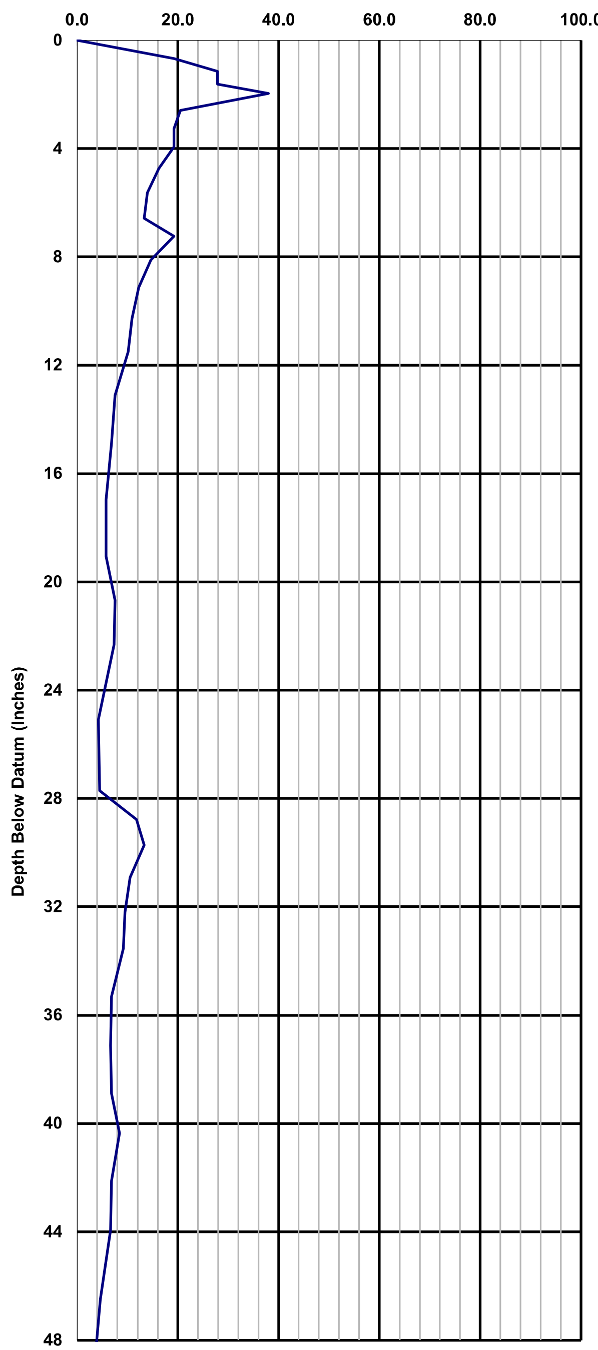
Note(s):

WB - Westbound
EB - Eastbound
OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane
AG - At Grade
F - Fill
C - Cut
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	West 5th Avenue
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED	CORRELATED CBR VALUES	
Y1_1570_RT_LN			5/4/23		
DATUM	CUT/FILL	NORTHING	EASTING		
SG	F	758,077	1,621,912		

CUMULATIVE PENETRATION IN CENTIMETERS

1.7	0.0	0.0	0.0	0.0	0.0
2.9	0.0	0.0	0.0	0.0	0.0
4.1	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.6	0.0	0.0	0.0	0.0	0.0
8.3	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0	0.0
14.3	0.0	0.0	0.0	0.0	0.0
16.7	0.0	0.0	0.0	0.0	0.0
18.4	0.0	0.0	0.0	0.0	0.0
20.6	0.0	0.0	0.0	0.0	0.0
23.2	0.0	0.0	0.0	0.0	0.0
26.1	0.0	0.0	0.0	0.0	0.0
29.2	0.0	0.0	0.0	0.0	0.0
33.3	0.0	0.0	0.0	0.0	0.0
37.8	0.0	0.0	0.0	0.0	0.0
43.1	0.0	0.0	0.0	0.0	0.0
48.4	0.0	0.0	0.0	0.0	0.0
52.5	0.0	0.0	0.0	0.0	0.0
56.7	0.0	0.0	0.0	0.0	0.0
63.7	0.0	0.0	0.0	0.0	0.0
70.4	0.0	0.0	0.0	0.0	0.0
73.1	0.0	0.0	0.0	0.0	0.0
75.5	0.0	0.0	0.0	0.0	0.0
78.5	0.0	0.0	0.0	0.0	0.0
81.8	0.0	0.0	0.0	0.0	0.0
85.2	0.0	0.0	0.0	0.0	0.0
89.7	0.0	0.0	0.0	0.0	0.0
94.3	0.0	0.0	0.0	0.0	0.0
98.8	0.0	0.0	0.0	0.0	0.0
102.5	0.0	0.0	0.0	0.0	0.0
107.0	0.0	0.0	0.0	0.0	0.0
111.6	0.0	0.0	0.0	0.0	0.0
118.1	0.0	0.0	0.0	0.0	0.0
131.5	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0



Note(s):

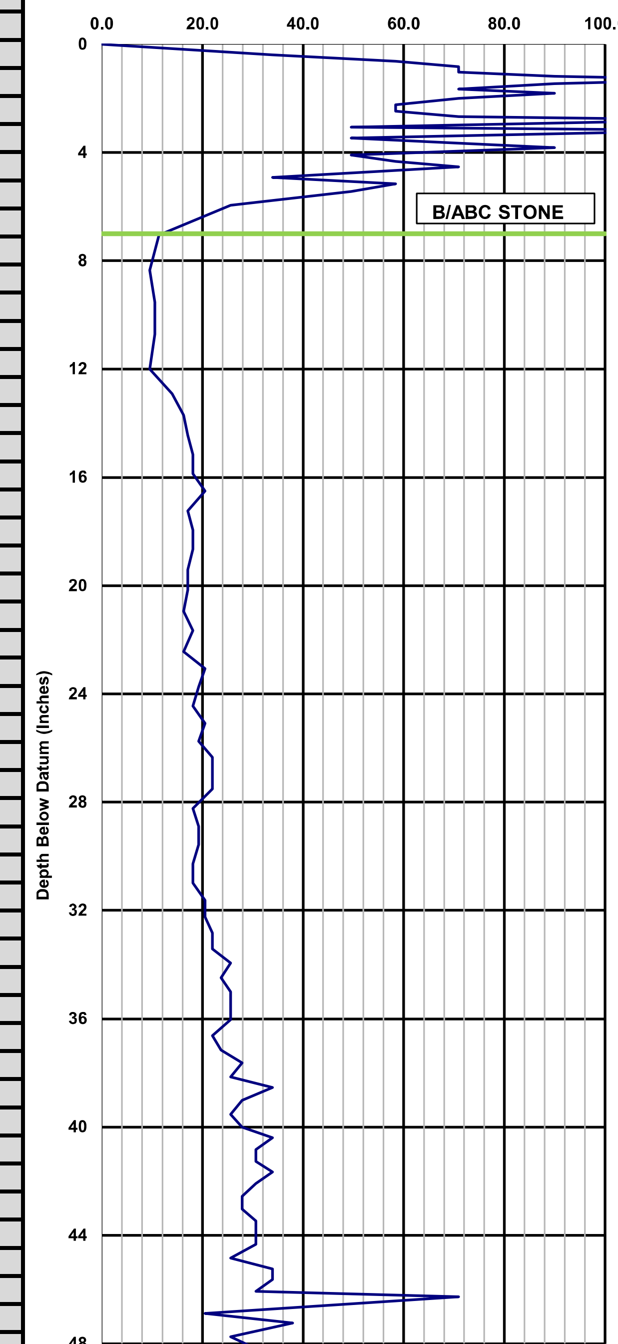
RT - Right
LN - Lane
AG - At Grade
F - Fill
C - Cut

PS - Paved Shoulder
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

DYNAMIC CONE PENETROMETER DATA AND IN-SITU CBR			PROJECT NUMBER	TIP	ROUTE
			67015.1.1	BR-0015	Murphy Drive
			COUNTY	FIELD PROFESSIONAL	CREW
			Davidson	Dan Kubinski	Trigon Exploration
TEST LOCATION DESCRIPTION			DATE PERFORMED	CORRELATED CBR VALUES	
Y2_1620_LT_LN			5/4/23		
DATUM	CUT/FILL	NORTHING	EASTING		
T/ABC	C	758,472	1,622,178		

CUMULATIVE PENETRATION IN CENTIMETERS

1.0	66.9	0.0	0.0	0.0	0.0
1.6	68.4	0.0	0.0	0.0	0.0
2.1	69.9	0.0	0.0	0.0	0.0
2.6	71.7	0.0	0.0	0.0	0.0
3.0	73.4	0.0	0.0	0.0	0.0
3.3	75.1	0.0	0.0	0.0	0.0
3.7	76.9	0.0	0.0	0.0	0.0
4.2	78.7	0.0	0.0	0.0	0.0
4.6	80.3	0.0	0.0	0.0	0.0
5.1	81.9	0.0	0.0	0.0	0.0
5.7	83.4	0.0	0.0	0.0	0.0
6.3	84.9	0.0	0.0	0.0	0.0
6.8	86.2	0.0	0.0	0.0	0.0
7.1	87.6	0.0	0.0	0.0	0.0
7.8	88.9	0.0	0.0	0.0	0.0
8.1	90.2	0.0	0.0	0.0	0.0
8.8	91.5	0.0	0.0	0.0	0.0
9.3	93.0	0.0	0.0	0.0	0.0
9.7	94.4	0.0	0.0	0.0	0.0
10.4	95.6	0.0	0.0	0.0	0.0
11.0	96.9	0.0	0.0	0.0	0.0
11.5	97.9	0.0	0.0	0.0	0.0
12.5	99.1	0.0	0.0	0.0	0.0
13.1	100.4	0.0	0.0	0.0	0.0
13.8	101.6	0.0	0.0	0.0	0.0
15.1	102.6	0.0	0.0	0.0	0.0
17.9	103.7	0.0	0.0	0.0	0.0
21.2	104.8	0.0	0.0	0.0	0.0
24.2	105.8	0.0	0.0	0.0	0.0
27.2	106.9	0.0	0.0	0.0	0.0
30.5	108.1	0.0	0.0	0.0	0.0
32.8	109.3	0.0	0.0	0.0	0.0
34.8	110.4	0.0	0.0	0.0	0.0
36.7	111.5	0.0	0.0	0.0	0.0
38.5	112.6	0.0	0.0	0.0	0.0
40.3	113.9	0.0	0.0	0.0	0.0
41.9	114.9	0.0	0.0	0.0	0.0
43.8	115.9	0.0	0.0	0.0	0.0
45.6	117.0	0.0	0.0	0.0	0.0
47.4	117.5	0.0	0.0	0.0	0.0
49.3	119.1	0.0	0.0	0.0	0.0
51.2	120.0	0.0	0.0	0.0	0.0
53.2	121.3	0.0	0.0	0.0	0.0
55.0	122.4	0.0	0.0	0.0	0.0
57.0	123.4	0.0	0.0	0.0	0.0
58.6	124.4	0.0	0.0	0.0	0.0
60.3	125.6	0.0	0.0	0.0	0.0
62.1	0.0	0.0	0.0	0.0	0.0
63.7	0.0	0.0	0.0	0.0	0.0
65.4	0.0	0.0	0.0	0.0	0.0



Note(s):

RT - Right
LN - Lane
AG - At Grade
F - Fill
C - Cut

PS - Paved Shoulder
SG - Subgrade
T/ABC - Top of ABC Stone
B/ABC - Bottom of ABC Stone
Ex. Gr. - Existing Grade

PAVEMENT CORE PHOTOGRAPHS

BR-0015 (67015.1.1)

Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)

BOX 1

L_1830_WB_ISS L_1830_WB_OSL

L_1830_WB_OSS L_1960_EB_ISS

0 1 1.5 2 2.5
FEET

BOX 2

L_1960_EB_OSL L_1960_EB_OSS

L_2590_WB_ISS L_3150_WB_OSS

0 1 1.5 2 2.5
FEET

BOX 3

L_3275_EB_DECEL_LN L_3870_WB_ISS

L_3870_WB_DECEL_LN L_3870_WB_OSS

0 1 1.5 2 2.5
FEET

BOX 4

L_4280_EB_ISL L_4280_EB_ACCEL_LN

L_4280_EB_OSS Y1_1570_LT_PS

0 1 1.5 2 2.5
FEET

PAVEMENT CORE PHOTOGRAPHS

BR-0015 (67015.1.1)

Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)

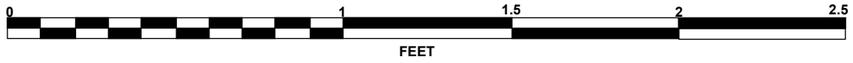
BOX 5

Y1_1570_LT_LN

Y1_1570_RT_LN

Y1_1570_RT_PS

Y2_1620_LT_LN



LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

WBS NO. (TIP NO.): 67015.1.1 (BR-0015)
PROJECT ID: 41620
COUNTY: DAVIDSON
DESCRIPTION: BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

									Atterberg Limits			Gradation Results							
Sample No.	Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	AASHTO Class.	N-Value (blows/ft)	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
S-1	L_1830_WB_ISS	-L-	18+30	12' LT	0.0 - 5.0	27.1	A-7-5	-	82	34	48	3.0	95.0	84.0	59.0	18.7	22.2	18.6	40.5
S-2	L_1960_EB_ISS	-L-	19+60	12' RT	0.0 - 5.0	30.1	A-7-5	--	68	34	34	0.0	99.0	93.0	64.0	13.6	26.7	29.1	30.6
S-3	L_2590_WB_ISS	-L-	25+90	12' LT	0.0 - 5.0	28.4	A-7-5	--	69	34	35	1.0	98.0	92.0	66.0	11.3	26.7	21.6	40.4
S-4	L_3150_WB_OSS	-L-	31+50	39' LT	0.0 - 5.0	35.0	A-7-5	--	76	33	43	1.0	98.0	94.0	76.0	6.1	23.4	21.6	48.9
S-5	L_3275_EB_DECEL_LN	-L-	32+75	47' RT	0.0 - 5.0	26.7	A-7-5	--	64	31	33	1.0	99.0	96.0	75.0	5.8	26.0	31.9	36.3
S-6	L_3870_WB_ISS	-L-	38+70	12' LT	0.0 - 5.0	25.9	A-7-6	--	59	20	39	2.0	96.0	89.0	72.0	12.8	15.7	15.0	56.5
S-18*	L_4000^	-L-	40+00	0' CL	1.0 - 1.5	33.2	A-7-5	--	65	40	25	0.0	99.1	94.7	73.2	10.1	20.9	23.9	45.1
S-7	L_4280_EB_ISL	-L-	42+80	13' RT	0.0 - 5.0	38.4	A-7-5	--	79	42	37	0.0	100.0	98.0	73.0	5.2	26.5	15.6	52.7
S-20*	L_4600^	-L-	46+00	0' CL	1.0 - 2.0	26.8	A-7-5	--	51	33	18	0.0	99.0	96.0	51.0	13.0	41.3	13.6	32.1
S-8	Y1_1570_RT_LN	-Y1-	15+70	10' RT	0.0 - 5.0	24.8	A-7-6	--	59	24	35	1.0	99.0	93.0	69.0	13.2	21.2	19.4	46.2
S-9	Y2_1620_LT_LN	-Y2-	16+20	6' LT	0.0 - 5.0	32.8	A-7-5	--	65	31	34	1.0	99.0	97.0	80.0	5.1	19.5	20.3	55.1
CBR-1*	L_1450^	-L-	14+50	88' LT	8.5 - 18.5	27.0	A-7-5	--	60	44	16	0.0	100.0	93.1	56.6	14.7	35.3	23.4	26.6
CBR-2*	L_1850^	-L-	18+50	89' LT	0.0 - 10.0	30.6	A-7-5	--	60	35	25	0.0	100.0	95.2	75.9	9.9	19.4	26.1	44.7
CBR-3*	L_4200^	-L-	42+00	0' CL	0.0 - 2.5	37.3	A-7-5	--	73	37	36	8.0	91.0	96.6	78.4	7.2	18.6	28.9	45.2

*Based on Roadway Investigation sample number

^Based on Roadway Investigation boring number

Michelle Stadel, P.E.
Lab Manager, NCDOT Certification No.: 111-02-1203

Victoria Siebert
Lab Technician, NCDOT Certification No.: 109-02-1003

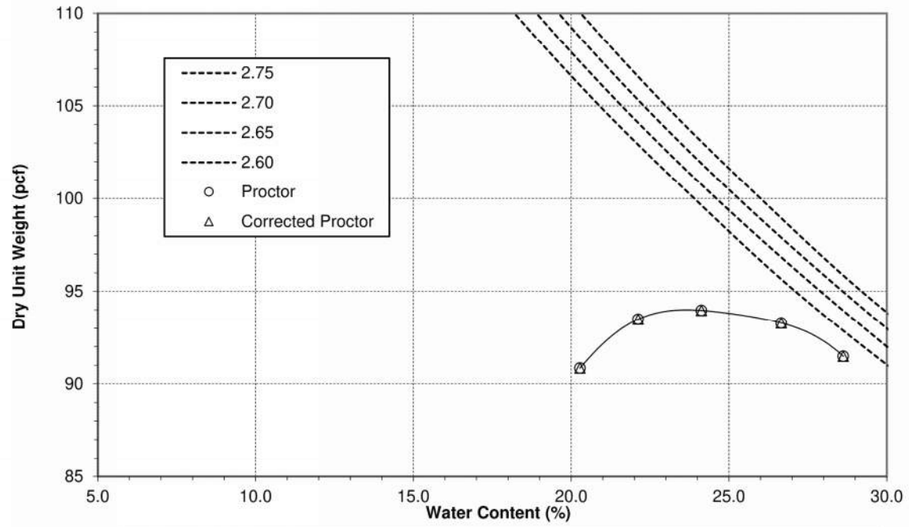
Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00649 Rev. 1**
Sampled by: **Mayson Foster**
Submitted by: **Dan Kubinski**

Issued: **6/9/2023**
Field ID: **L_1450, CBR-1**
Date: **5/8/2023**
Date: **5/15/2023**

Tested on **5/24/2023** by **C. Blalock**
Material Description: **Brown Sandy Silt (A-7-5)**
Location: **Boring No. L_1450, Alignment -L-, STA 14+50, 88' LT**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**94.0**	**na**
Optimum Water Content (%)	**23.6**	**na**
Oversize Fraction, retained on 3/4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Manual
Specimen Preparation: Moist

Remarks:
AASHTO T-100, Soil Specific Gravity @ 20°C: 2.747

Reviewed on 6/9/2023 by Michelle Stadel,

Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00649 Rev. 1**
Sampled by: **Mayson Foster**
Submitted by: **Dan Kubinski**

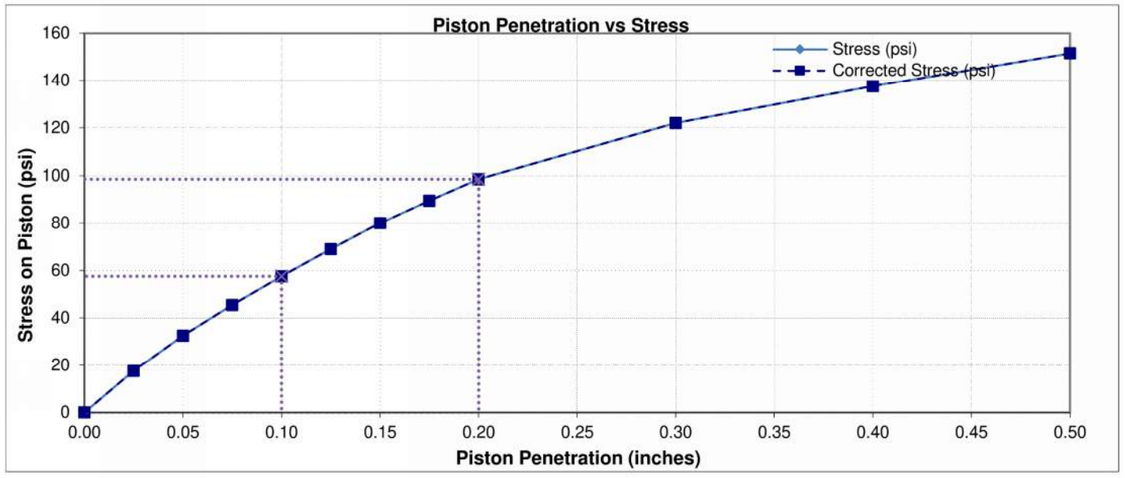
Issued: **6/9/2023**
Field ID: **L_1450, CBR-1**
Date: **5/8/2023**
Date: **5/15/2023**

Sample Source: **Boring No. L_1450, Alignment -L-, STA 14+50, 88' LT**
Sample ID: **CBR-1**
Sample Description: **Brown Sandy Silt (A-7-5)**
Material Used:
Surcharge Weight: **10 lbs**

Date Tested: **5/30/2023**
Tested By: **C. Blalock**
Condition of Sample: **Soaked**
Time Soaked: **96 hrs**

AASHTO T193 - Standard Test Method for The California Bearing Ratio (CBR)

Dry Unit Wgt Before Soaking (pcf):	**90.8**	Compaction Method:
Water Content Before Soaking (%):	**21.2**	**Manual**
Dry Unit Wgt After Soaking (pcf):	**101.1**	Max. Dry Unit Weight:
Water Content After Soak, Top in. (%):	**30.3**	**94.0 pcf**
Swell (%):	**5.65**	Optimum Water Content:
CBR (Corrected CBR) @ 0.1 in. Penetration:	**5.8 (5.8)**	**23.6 %**
CBR (Corrected CBR) @ 0.2 in. Penetration:	**6.6 (6.6)**	



Remarks:

Reviewed on 6/9/2023 by Michelle Stadel,

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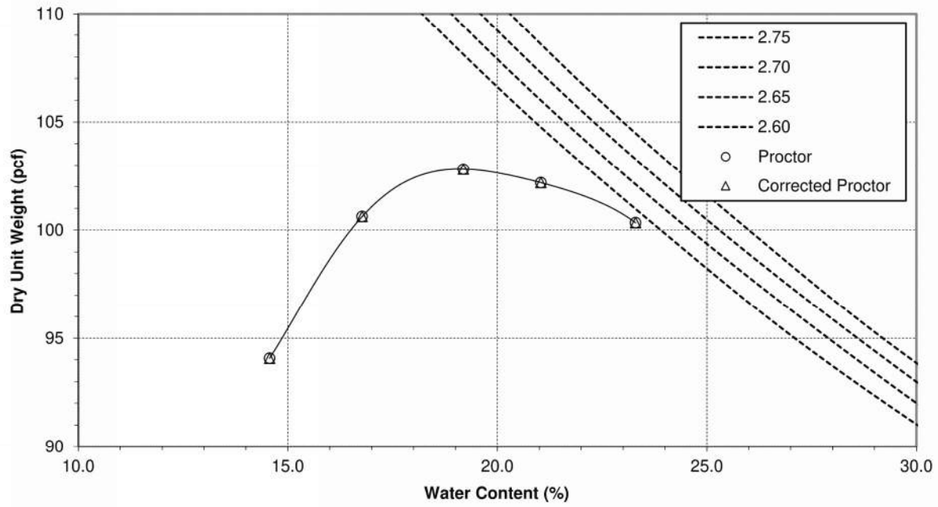
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00650 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1850, CBR-2
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/9/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Tested on **5/24/2023** by **C. Blalock**

Material Description: **Reddish Yellow Elastic Silt with Sand (A-7-5)**

Location: **Boring No. L_1850, -L-, STA 18+50, 89' LT**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	102.8	na
Optimum Water Content (%)	19.1	na
Oversize Fraction, retained on 3/4 (%)		<5
Bulk Specific Gravity of Oversize Fraction		na

Rammer Type: Manual

Specimen Preparation: Moist

Remarks:

AASHTO T-100, Soil Specific Gravity at 20°C: 2.678

Reviewed on 6/9/2023 by Michelle Stadel,

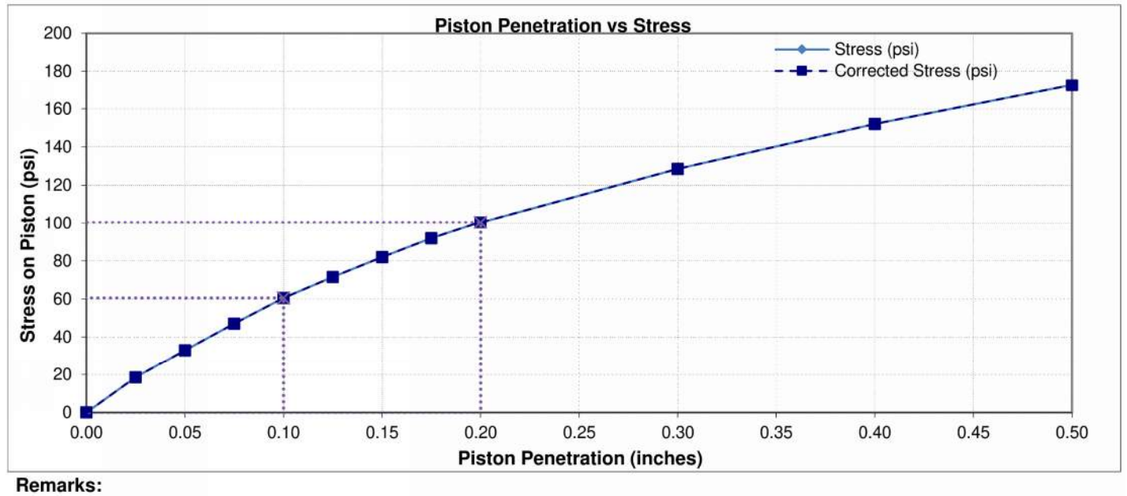
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00650 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1850, CBR-2
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/9/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Sample Source:	Boring No. L_1850, -L-, STA 18+50, 89' LT	Date Tested:	5/30/2023
Sample ID:	CBR-2	Tested By:	C. Blalock
Sample Description:	Reddish Yellow Elastic Silt with Sand (A-7-5)	Condition of Sample:	Soaked
Material Used:		Time Soaked:	96 hrs
Surcharge Weight:	10 lbs		

AASHTO T-193 - Standard Test Method for The California Bearing Ratio

Dry Unit Wgt Before Soaking (pcf):	100.6	Compaction Method:	
Water Content Before Soaking (%):	17.0	Manual	
Dry Unit Wgt After Soaking (pcf):	106.1	Max. Dry Unit Weight:	
Water Content After Soak, Top in. (%):	27.1	102.8 pcf	
Swell (%):	4.1	Optimum Water Content:	
CBR (Corrected CBR) @ 0.1 in. Penetration:	6.1 (6.1)	19.1 %	
CBR (Corrected CBR) @ 0.2 in. Penetration:	6.7 (6.7)		



Remarks:

Reviewed on 6/9/2023 by Michelle Stadel,

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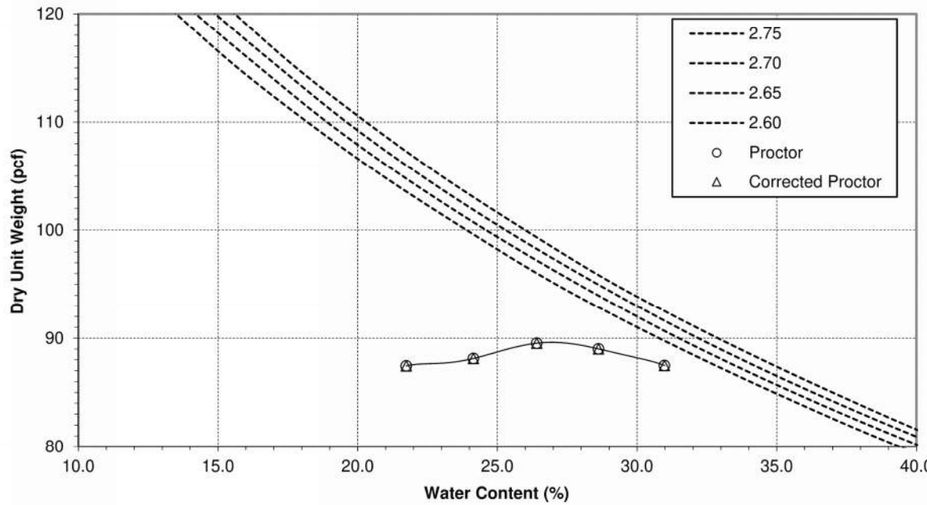
Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00649 Rev. 1**
Sampled by: **Mayson Foster**
Submitted by: **Dan Kubinski**

Issued: **6/9/2023**
Field ID: **L_1450, CBR-1**
Date: **5/8/2023**
Date: **5/15/2023**

Tested on **5/26/2023** by **C. Blalock**
Material Description: **Brown Sandy Silt (A-7-5)**
Location: **Boring No. L-1450, Alignment -L-, STA 14+50, 88' LT, CBR-1, 8.5' - 18.5'**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**89.6**	**na**
Optimum Water Content (%)	**26.9**	**na**
Oversize Fraction, retained on 3/4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Manual
Specimen Preparation: Dry

Remarks:
+4% Lime

Reviewed on 6/9/2023 by Michelle Stadel,

Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00649 Rev. 1**
Sampled by: **Mayson Foster**
Submitted by: **Dan Kubinski**

Issued: **6/9/2023**
Field ID: **L_1450, CBR-1**
Date: **5/8/2023**
Date: **5/15/2023**

Tested By : **C. Blalock**
Date Molded: **5/31/2023**
Sample Location: **Boring No. L-1450, CBR-1, 8.5' - 18.5'**
Alignment -L-, STA 14+50, 88' LT

ASTM D5102 - Modified, Unconfined Compressive Strength of Compacted Soil-Lime Mixtures

	A	B	C	D
Sample Preparation:	**AASHTO T99**	**AASHTO T99**	**AASHTO T99**	**AASHTO T99**
Water Content (%):	**25.7**	**26**	**25.9**	**26**
Height (in):	**4.632**	**4.619**	**4.644**	**4.62**
Diameter (in):	**4.00**	**4.00**	**3.999**	**4.002**
Cross-Sectional Area (in^2):	**12.57**	**12.59**	**12.56**	**12.58**
Test Date:	**6/7/2023**	**6/7/2023**	**6/7/2023**	**6/7/2023**
Age (days):	**7**	**7**	**7**	**7**
Maximum Load (lbf):	**860**	**830**	**850**	**850**
h/d Conversion Factor	**none**	**none**	**none**	**none**
Compressive Strength (psi):	**70**	**65**	**70**	**70**
Dry Unit Weight (pcf):	**89.6**	**89.2**	**88.4**	**88.5**

Curing Details: Samples extruded, placed in plastic bags, and cured for 7 days at 73°F ± 4°.
Specification: Per NCDOT, cast according to AASHTO T99 and broke per AASHTO T208.

Remarks:
(A) 3.0% Lime; Percent Strain = 2.0. (B) 3.0% Lime; Percent Strain = 2.4.
(C) 5% Lime; Percent Strain = 2.5. (D) 5% Lime; Percent Strain = 2.9.

Reviewed on 6/9/2023 by Michelle Stadel,

Limitations: Pursuant to applicable building codes, the results presented in this report are for the exclusive use of the client and the registered design professional in responsible charge. The results apply only to the samples tested. If changes to the specifications were made and not communicated to Kleinfelder, Kleinfelder assumes no responsibility for pass/fail statements (meets/did not meet), if provided. This report may not be reproduced, except in full, without written approval of Kleinfelder.

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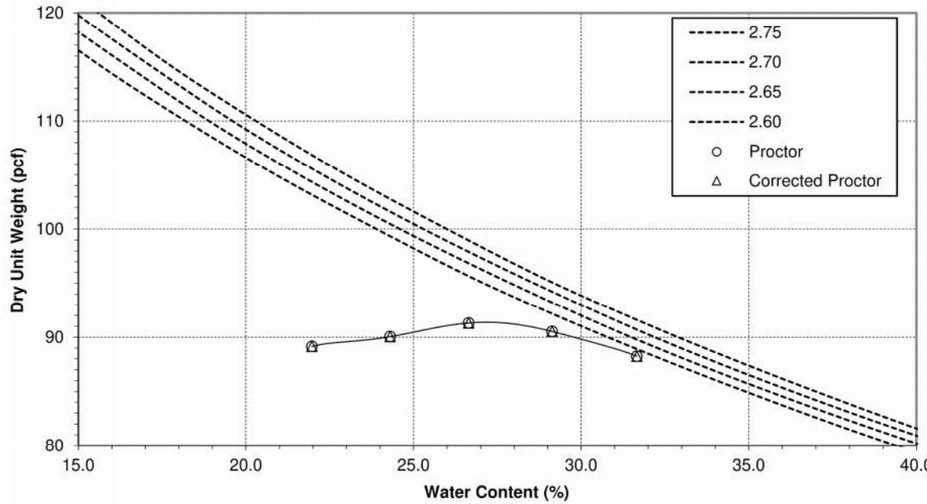
Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00651 Rev. 0**
Sampled by: **Dan Kubinski**
Submitted by: **Dan Kubinski**

Issued: **6/9/2023**
Field ID: **L-4200, CBR-3**
Date: **5/5/2023**
Date: **5/15/2023**

Tested on **5/25/2023** by **C. Blalock**
Material Description: **Reddish Brown Elastic Silt with Sand (A-7-5)**
Location: **Boring No. L-4200, Alignment -L-, STA 42+00, 0' CL, CBR-3, 0' - 2.5'**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**91.4**	**na**
Optimum Water Content (%)	**27.2**	**na**
Oversize Fraction, retained on 3/4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Manual
Specimen Preparation: Dry

Remarks:
+4% Lime

AASHTO T100, Soil Specific Gravity = 2.727

Reviewed on 6/9/2023 by Michelle Stadel,

Laboratory Test Report

Client: **North Carolina Dept. of Transportation**
Project: **20235702.001A**
NCDOT BR-0015 Roadway
02-000L - Lab

Report No.: **23-CLT-00651 Rev. 0**
Sampled by: **Dan Kubinski**
Submitted by: **Dan Kubinski**

Issued: **6/9/2023**
Field ID: **L-4200, CBR-3**
Date: **5/5/2023**
Date: **5/15/2023**

Tested By : **C. Blalock**
Date Molded: **5/31/2023**
Sample Location: **Boring No. L-4200, CBR-3, 0' - 2.5'**
Alignment -L-, STA 42+00, 0' CL

ASTM D5102 - Modified, Unconfined Compressive Strength of Compacted Soil-Lime Mixtures

	A	B	C	D
Sample Preparation:	**AASHTO T208**	**AASHTO T208**	**AASHTO T208**	**AASHTO T208**
Water Content (%):	**25.4**	**25.5**	**26.2**	**25.9**
Height (in):	**4.641**	**4.623**	**4.628**	**4.615**
Diameter (in):	**3.99**	**4.01**	**4**	**4**
Cross-Sectional Area (in^2):	**12.53**	**12.6**	**12.57**	**12.57**
Test Date:	**6/7/2023**	**6/7/2023**	**6/7/2023**	**6/7/2023**
Age (days):	**7**	**7**	**7**	**7**
Maximum Load (lbf):	**760**	**770**	**820**	**910**
h/d Conversion Factor	**none**	**none**	**none**	**none**
Compressive Strength (psi):	**60**	**60**	**65**	**70**
Dry Unit Weight (pcf):	**91.9**	**91.6**	**90.1**	**90.5**

Curing Details: Samples extruded, placed in plastic bags, and cured for 7 days at 73°F ± 4°.
Specification: Per NCDOT, cast according to AASHTO T99 and broke per AASHTO T208.

Remarks:
(A) 3.0% Lime; Percent Strain = 2.2. (B) 3.0% Lime; Percent Strain = 2.1.
(C) 5% Lime; Percent Strain = 2.1. (D) 5% Lime; Percent Strain = 2.4.

Reviewed on 6/9/2023 by Michelle Stadel,

Limitations: Pursuant to applicable building codes, the results presented in this report are for the exclusive use of the client and the registered design professional in responsible charge. The results apply only to the samples tested. If changes to the specifications were made and not communicated to Kleinfelder, Kleinfelder assumes no responsibility for pass/fail statements (meets/did not meet), if provided. This report may not be reproduced, except in full, without written approval of Kleinfelder.

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PAVEMENT CORE EVALUATION
BR-0015 (67015.1.1)
BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

LINE	STATION	ABC STONE (in)	LAYER THICKNESS (in)	PAVEMENT LAYERS	REMARKS
-L-	1830_WB_ISS 6.75" Asphalt	2.00	4.00	S	3 Lifts; Delamination between 2nd and 3rd lift; Low oxidation
			2.75	B	1 Lift; Low oxidation
-L-	1830_WB_OSL 7.25" Asphalt 9.25" Concrete	4.50	4.25	S	3 Lifts; Low oxidation
			3.00	B	1 Lift; Delamination between base asphalt and concrete layer; Low oxidation
			9.25	C	1 Lift
-L-	1830_WB_OSS 8.50" Asphalt	0.00	3.75	S	3 Lifts; Low oxidation
			4.75	B	2 Lifts; Low oxidation
-L-	1960_EB_ISS 7.25" Asphalt	0.00	4.25	S	3 Lifts; Delamination between 2nd and 3rd lift; Low oxidation
			3.00	B	1 Lift; Low oxidation
-L-	1960_EB_OSL 8.25" Asphalt 9.25" Concrete	4.75	3.00	S	2 Lifts; Delamination between surface asphalt and base asphalt layers; Low oxidation
			3.25	B	1 Lift; Low oxidation
			2.00	S	1 Lift; Delamination between surface asphalt and concrete layer; Low oxidation
			9.25	C	1 Lift
-L-	1960_EB_OSS 10.25" Asphalt	11.75	3.00	S	2 Lifts; Low oxidation
			7.25	B	2 Lifts; Low oxidation
-L-	2590_WB_ISS 8.50" Asphalt	0.00	4.50	S	3 Lifts; Delamination between 2nd and 3rd lift; Low oxidation
			4.00	B	1 Lift; Low oxidation
-L-	3150_WB_OSS 9.25" Asphalt	0.00	5.25	S	3 Lifts; Low oxidation
			2.50	B	1 Lift; Low oxidation
			1.50	S	1 Lift; Low oxidation
-L-	3275_EB_DECEL_LN 10.75" Asphalt	7.00	5.00	S	3 Lifts; Delamination between 2nd and 3rd lift; Low oxidation
			5.75	B	1 Lift; Low oxidation
-L-	3870_WB_ISS 7.00" Asphalt	0.00	4.00	S	2 Lifts; Low oxidation
			3.00	B	1 Lift; Low oxidation
-L-	3870_WB_DECEL_LN 11.00" Asphalt	7.00	4.00	S	2 Lifts; Low oxidation
			7.00	B	2 Lifts; Low oxidation
-L-	3870_WB_OSS 7.50" Asphalt	0.00	4.00	S	2 Lifts; Low oxidation
			3.50	B	1 Lift; Low oxidation

Note(s):

NM - Not Measured
PS - Paved Shoulder
WB - Westbound
EB - Eastbound
LT - Left
RT - Right

OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane

S - Asphalt Surface Course
I - Asphalt Intermediate Course
B - Asphalt Base Course
C - Concrete

PAVEMENT CORE EVALUATION
BR-0015 (67015.1.1)
BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

LINE	STATION	ABC STONE (in)	LAYER THICKNESS (in)	PAVEMENT LAYERS	REMARKS
-L-	4280_EB_ISL 8.50" Asphalt 9.50" Concrete	5.00	3.75	S	3 Lifts; Delamination between 2nd and 3rd lift; Low oxidation
			2.75	B	1 Lift; Low oxidation
			2.00	S	2 Lifts; Delamination between 1st and 2nd lift; Low oxidation
			9.50	C	
-L-	4280_EB_ACCEL_LN 9.50" Asphalt	8.50	3.75	S	3 Lifts; Low oxidation
			5.75	B	1 Lift; Low oxidation
-L-	4280_EB_OSS 7.00" Asphalt	0.00	3.50	S	3 Lifts; Low oxidation
			3.50	B	1 Lift; Low oxidation
-Y1-	1570_LT_PS 5.00" Asphalt	NM	2.50	S	1 Lift; Low oxidation
			2.50	I	1 Lift; Low oxidation
-Y1-	1570_LT_LN 6.00" Asphalt	NM	6.00	S	2 Lifts; Low oxidation; Cracked completely through 1st surface asphalt layer
-Y1-	1570_RT_LN 7.00" Asphalt	0.00	4.00	S	2 Lifts; Low oxidation
			3.00	I	1 Lift; Low oxidation
-Y1-	1570_RT_PS 4.00" Asphalt	NM	4.00	S	2 Lifts; Low oxidation
-Y2-	1620_LT_LN 3.00" Asphalt	7.00	3.00	S	2 Lifts; Low oxidation; Cracked completely through surface asphalt layer

Note(s):

NM - Not Measured
PS - Paved Shoulder
WB - Westbound
EB - Eastbound
LT - Left
RT - Right

OSS - Outside Shoulder
ISS - Inside Shoulder
OSL - Outside Lane
DECEL - Deceleration
ACCEL - Acceleration
LN - Lane

S - Asphalt Surface Course
I - Asphalt Intermediate Course
B - Asphalt Base Course
C - Concrete

REFERENCE: BR-0015

PROJECT: 67015

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

APPENDICES

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *DAVIDSON*

PROJECT DESCRIPTION *BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	1	

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.

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NOTES:
1. 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.
2. 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

M. FOSTER

J. KARDON

D. KUBINSKI

TRIGON EXPLORATION

INVESTIGATED BY *KLEINFELDER, INC*

DRAWN BY *D. KUBINSKI*

CHECKED BY *J. FREGOSI*

SUBMITTED BY *KLEINFELDER, INC*

DATE *AUGUST 2023*

Prepared in the Office of:

KLEINFELDER

422 Gallimore Dairy Road, Suite B
Greensboro, North Carolina 27409
NC Engineering Firm License No. F-1312

NORTH CAROLINA PROFESSIONAL SEAL 038602 ENGINEER JOSHUA D. FREGOSI

DocuSigned by:
Joshua D. Fregosi 08/08/2023
DA6130C3FB4C4F1... SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0015	2

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). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

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	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX		50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	< 4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	> 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE		4	10	40	60	200	270
OPENING (MM)		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				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	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.

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.

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.

COMPRESSIBILITY

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

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

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
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] CME-45C
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [X] TRICONE 2-15/16" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [X] DYNAMIC CONE PENETROMETER

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. 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)	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. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	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 (SLI.)	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. *IF TESTED, WOULD YIELD SPT REFUSAL*
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. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

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 PEICES 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 FINGERNAIL.

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 FOOT
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 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.

TERMS AND DEFINITIONS

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, SUCH 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 DISLODGED 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 (N 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.

BENCH MARK: GPS-2 (N. 758,007.44 FT, E. 1,621,938.93 FT)

ELEVATION: 732.299 FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

ROADWAY AND RETAINING WALL BORING ELEVATIONS TAKEN FROM PROJECT TIN FILE "BR0015.TIN" DATED 9/23/2022.

BRIDGE BORING ELEVATIONS WERE SURVEYED BY TRANSYSTEMS CORPORATION USING A SUB CENTIMETER GPS AND BASE STATION.

HAND AUGER AND DYNAMIC CONE PENETROMETER TEST

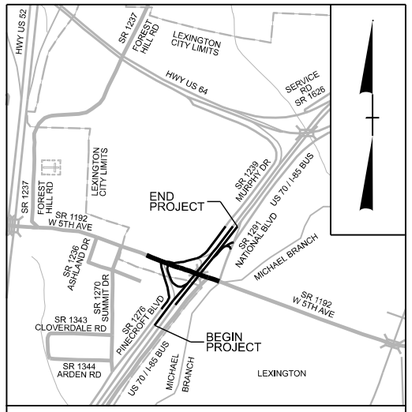
DATE: 8-15-14

09/08/99

PROJECT: BR-0015

CONTRACT: TBD

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	3	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
67015.1.1		PE
67015.2.1		R/W, UTIL
67015.3.1		CONST.

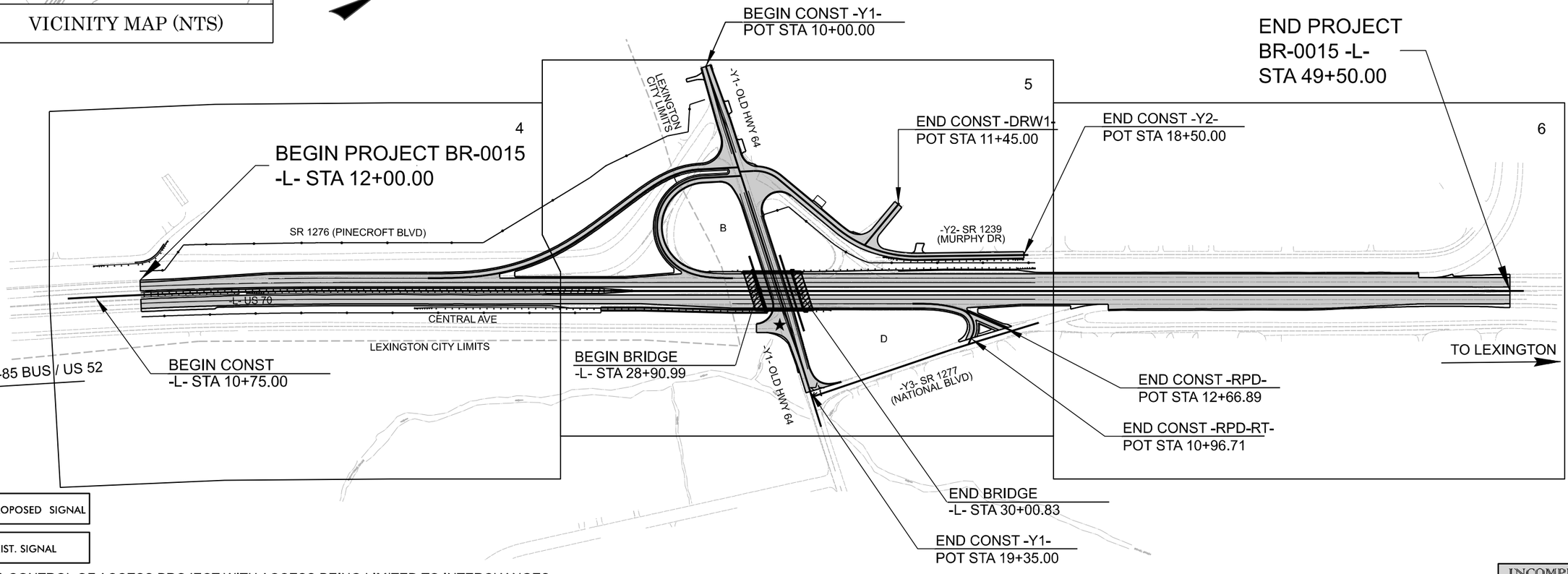
LOCATION: *BRIDGE 280067 AND 280068 REPLACEMENTS ON US 29/US 70. NB & SB OVER SR 1192 (W. 5TH AVE.)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING AND STRUCTURES*

STAGE 2 PLANS (2RD1)

Plans Developed with OpenRoads

NAD 83/2011



THIS IS A CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
A PORTION OF THIS PROJECT IS LOCATED WITHIN THE LIMITS OF THE CITY OF LEXINGTON.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
****A DESIGN EXCEPTION IS REQUIRED FOR -RPD- AND -RPD_RT- MAXIMUM GRADE.**

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 14500
ADT 2045 = 18700
K = 8 %
D = 55 %
T = 9 % *
V = 60 MPH
* TTST =5% DUAL 4%
FUNC CLASS =
PRINCIPAL ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

PROJECT LENGTHS FOR PROJECT BR-0015:

LENGTH ROADWAY PROJECT BR-0015	=	0.689 MILES
LENGTH STRUCTURES PROJECT BR-0015	=	0.021 MILES
TOTAL LENGTH PROJECT BR-0015	=	0.710 MILES

NCDOT Contact: DAVID STUTTS, PE

Prepared in the Office of: KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 11/24/2023

LETTING DATE: 12/17/2024

JACOB H. DUKE, P.E.
PROJECT ENGINEER

ANDREA B. GORDON, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

August 4, 2023
Kleinfelder File No. GSO23L155050

STATE PROJECT: 67015.1.1 (BR-0015)
COUNTY: Davidson
DESCRIPTION: Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)

SUBJECT: **GEOTECHNICAL REPORT - INVENTORY**

PROJECT DESCRIPTION

This project consists of the widening of US 29/US 70 (-L-) and replacement of Bridge No. 67 and No. 68 over SR 1192 (-Y1-). At the project location, US 29/US 70 is a four-lane highway consisting of two lanes in the northbound and southbound direction with a grass median dividing the highway. Additionally, the project consists of the widening of SR 1192 (-Y1-), Forest Rose Drive (-DRW1-), and US 29/US 70 northbound exit ramps (-RPD-, -RPD_RT-) to National Boulevard as well as a realignment of Murphy Drive (-Y2-), onramp to US 29/US 70 southbound (-RPB-), and US 29/US 70 southbound exit ramp (-LPB-) to SR 1192.

Bridge No. 67 and No. 68 will be approximately 110 feet long (W.P. # 1 to W.P. #2) and 109.3 feet wide (out to out). The bridge will consist of a concrete deck with precast concrete girders. Abutment MSE retaining walls are proposed at end bent no. 1 and end bent no. 2. At end bent no. 1, a retaining wall will extend along US 29/US 70 northbound from station 24+60.37 -L- (54’ RT) to 29+16.75 -L- (60’ RT) and turn to run parallel along SR 1192 from station 29+16.75 -L- (60’ RT) to 15+30.00 -Y1- (46’ RT). At end bent no. 2, a retaining wall will extend parallel to SR 1192 from station 15+53.00 -Y1- (34’ LT) to 17+73.00 -Y1- (34’ LT). Maximum cut and fill heights to achieve finished grade are anticipated to be approximately and 31 feet and 24 feet, respectively.

The geotechnical investigation was conducted in April and May 2023. Standard Penetration Test borings were advanced with a CME-55 drill rig with an automatic hammer. Hand augers were also performed in areas where the use of a drill rig was restricted, or overhead and underground utility conflicts were observed. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by Kleinfelder, Inc.

The following alignments, totaling 1.43 miles, were investigated. Plan sheets of these alignments are included in this report.

LINE	STATIONS
-L-	12+00.00 – 49+50.00
-Y1-	10+00.00 – 19+35.00
-Y2-	10+00.00 – 18+50.00
-RPB-	10+00.00 – 19+28.28
-RPD-	10+00.00 – 12+66.89
-RPD-RT-	10+00.00 – 10+96.71
-LPB-	10+00.00 – 15+92.00
-DRW1-	10+00.00 – 11+45.00

PHYSIOGRAPHY AND GEOLOGY

According to the 1985 Geologic Map of North Carolina, the project is located in the Charlotte Belt of the Piedmont Physiographic Province. The Charlotte Belt typically consists of metamorphosed igneous rocks and the bedrock unit encompassing the site is Metamorphosed Mafic Rock (PzZm). The Piedmont is characterized by gently rolling topography, well rounded hills, and long low ridges with a few hundred feet of elevation difference between the hills and valleys. It contains deeply weathered bedrock and relatively few rock outcrops. Erratic weathering of the rock can often result in varying depths of the residual soil profile. Additionally, it is not uncommon to encounter lenses or boulders of bedrock and zones of weathered rock within the residual soil, well above the general bedrock level.

The project corridor is comprised primarily of residential and rural properties. The general topography along the project is flat to gently sloping.

Surface water is drained from the corridor by the existing roadway ditches and culverts. Michael Branch runs along the east side of the project parallel to US 29/US 70.

SOIL PROPERTIES

Soils encountered during this investigation are separated into three categories based on origin. They consist of roadway embankment, alluvial soil, and residual soil.

Roadway embankment is defined as any material placed to raise grade for roadway construction and is present along the existing roadways on the project and inside exit/entry ramps. The roadway embankment encountered generally consist of moist to wet, soft to very stiff, fine sandy silts (A-4), clayey silts (A-5), and silty clays (A-7) with trace mica, gravel, and concrete fragments. The plasticity index of the roadway embankment clayey silt (A-5) tested is 9. The plasticity index of the roadway embankment silty clays (A-7) tested ranged from 22 to 38.

Alluvial soils are formed by deposition and are present underlying roadway embankment at the existing bridge abutments on US 29/US 70 (-L-), SR 1192 (-Y1-), and Central Avenue (-Y3-). The alluvial soils encountered generally consist of moist to saturated, very soft to stiff, silty clays (A-7) with trace mica and organic matter, and moist, loose, clayey fine to coarse sands (A-2-6).

The onsite residual soils are the product of the in-place chemical and mechanical weathering of the parent bedrock, and oftentimes maintain the same layering and lineation of the parent bedrock. Residual soils are derived from the weathering of underlying mafic metamorphic rock. The majority of the residual soil encountered consist of moist to saturated, soft to hard, fine and coarse to fine sandy silts (A-4), clayey silts (A-5), silty clays (A-7) with trace mica, rock fragments, and quartz fragments and wet, very dense, silty coarse to fine sands (A-2-4). The plasticity index of the residual silty clays (A-7) tested ranged from 12 to 44.

ROCK PROPERTIES

Weathered rock was encountered on and along US 29/US 70 (-L-) at the existing bridge abutments and Central Avenue (-Y3-) at elevations ranging from 666.4 to 691.5 feet Mean Sea Level (MSL). The weathered rock consists of Metagabbro. Crystalline rock was not encountered during the field investigation.

KLEINFELDER 422 Gallimore Dairy Road, Suite B, Greensboro NC, 27409 p | 336.668.0093

GROUNDWATER

Groundwater was encountered at elevations ranging from 694.9 to 722.1 feet. Typically, the groundwater depth ranges from 11.2 to 21.1 feet below the existing ground surface, where encountered.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

1) Highly Plastic Clays: Highly plastic clays (PI > 25) were encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L-	12+25 to 25+75	LT to RT
-L-	30+75 to 32+75	LT to RT
-L-	33+25 to 33+75	LT to RT
-L-	35+75 to 39+75	LT to RT
-L-	41+75 to 45+75	LT to RT
-Y1-	10+25 to 12+25	LT to RT
-Y1-	13+25 to 14+75	LT to RT
-Y2-	12+25 to 16+06	LT to RT
-RPB-	10+00 to 16+75	LT to RT
-RPB-	18+75 to 19+14	LT to RT
-LPB-	12+34 to 13+54	LT
-DRW1-	10+00 to 11+45	LT to RT

2) Groundwater: The following areas exhibit a high-water table, seasonal high groundwater, or the potential for groundwater related construction problems:

LINE	STATIONS	OFFSETS
-Y1-	15+75 to 17+50	LT to RT

3) Alluvial Soil: Alluvial soil was encountered on the project at the following locations:

LINE	STATIONS	OFFSETS
-L-	27+25 to 28+25	RT
-L-	28+25 to 29+25	LT to RT
-Y1-	14+50 to 17+50	RT

4) Wet Samples: Soils classified as wet based on visual inspection and laboratory test results were encountered at the following locations:

LINE	STATIONS	OFFSETS
-L-	20+50 to 22+25	LT
-L-	26+00 to 27+25	RT
-L-	42+00 to 45+75	LT to RT
-LPB-	12+84 to 15+25	RT

Prepared by,

KLEINFELDER, INC.
NC License No. F-1312

Daniel H. Kubinski, PE
Senior Professional

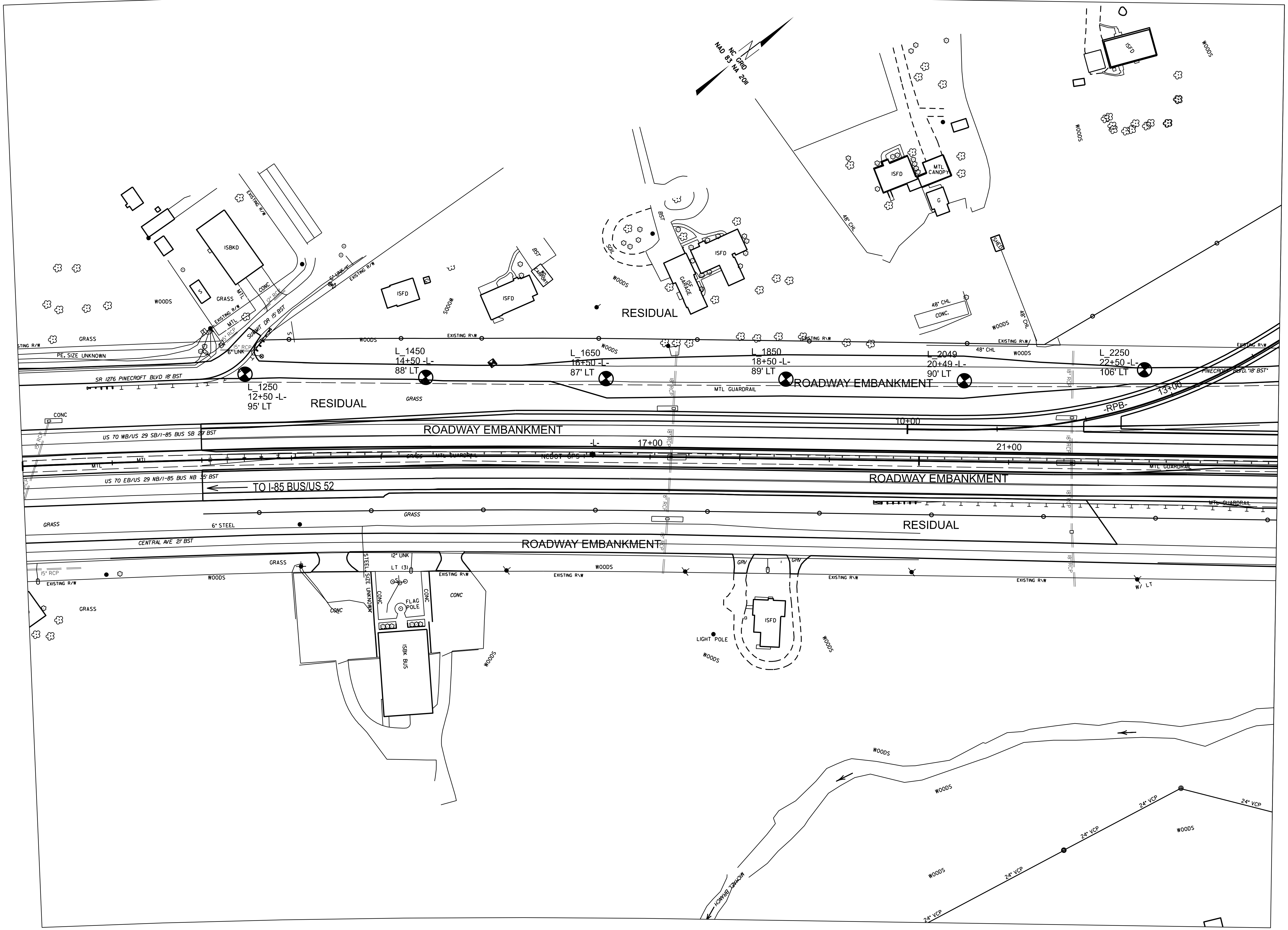
Joshua D. Fregosi, PE
Program Manager

DHK/JDF:jrs

Bulk Samples

Sample No.	Alignment	Station No.	Offset	Depth (ft)	Tests Performed
CBR-1	-L-	14+50	88’ LT	8.5 – 18.5	CBR
CBR-2	-L-	18+50	89’ LT	0.0 – 10.0	CBR
CBR-3	-L-	42+00	0’ CL	0.0 – 2.5	No Test

5/26/20



BR-0015

1" = 100' | SHEET 4

5/26/20

BR-0015

1" = 100' | SHEET 5

NC GRID NAD 83 NA 2011

Y1_1042
10+42 -Y1-
62' RT

Y1_1250
12+50 -Y1-
43' LT

Y2_1050
10+50 -Y2-
11' LT

DRW1_1050
10+50 -DRW1-
15' RT

Y2_1450
14+50 -Y2-
11' RT

RPB_1706
17+06 -RPB-
53' LT

RPB_1900
19+00 -RPB-
70' RT

RPB_1495
14+95 -RPB-
50' LT

LPB_1375
13+75 -LPB-
70' RT

LPB_1167
11+67 -LPB-
57' RT

Y1_1455
14+55 -Y1-
40' RT

Y1_1512
15+12 -Y-
46' RT

Y1_1550
15+50 -Y1-
45' LT

Y2_1250
12+50 -Y2-
20' RT

EB1-A
28+65 -L-
34' LT

EB2-A
29+72 -L-
68' LT

EB1-C
28+69 -L-
16' LT

EB2-C
30+12 -L-
15' LT

EB1-D
28+68 -L-
15' RT

EB2-D
30+28 -L-
19' RT

EB1-B
28+88 -L-
33' RT

EB2-B
30+22 -L-
33' RT

L_2700
27+00 -L-
31' RT

L_2492
24+92 -L-
26' RT

L_2599
25+99 -L-
35' RT

L_2460
24+60 -L-
90' RT

L_2550
25+50 -L-
90' RT

L_2650
26+50 -L-
90' RT

L_2750
27+50 -L-
90' RT

L_2800
28+00 -L-
29' RT

L_2850
28+50 -L-
93' RT

L_3200
32+00 -L-
60 'RT

L_3400
34+00 -L-
81' LT

L_3600
36+00 -L-
85' LT

L_3800
38+00 -L-
0' CL

Y1_1783
17+83 -Y1-
34' LT

Y1_1800
18+00 -Y1-
35' RT

Y1_1900
19+00 -Y1-
35' LT

RPD_1183
11+83 -RPD-
15' LT

RPD-RT_1055
10+55 -RPD-RT-
37' RT

BM2
N 758273 E 1622279
BL STATION 28+22.08
103.24' RT.
ELEV.- 727.83'
SPIKE IN BASE OF 8" POPLAR TREE

RESIDUAL

ROADWAY EMBANKMENT

ALLUVIAL

WOODS

EXISTING R/W

ISFBUS

ISFMTLBUS

ISBKBUS

SHED

BOLLARDS

BLK. WALL

FLAG

SAT. TV DISH

BRICK SIGN

BK. COL.

I-ISL'S GAS PUMP MTL CANOPY

GAS VALVES

MURPHY DR. '18' BST'

US 70 SB '28' BST'

US 70 NB '28' BST'

CENTRAL AVE. '2' BST'

SR 1277 '25' BST'

SR 1277 '27' BST'

AVONDALE DR. '35' BST'

INV=706.42'

INV=697.9'

INV=727.42'

5/26/20

BR-0015

1" = 100' | SHEET 6

NC GRID NAD 83 NA 2011

ROADWAY EMBANKMENT

SR 1239 MURPHY DR 18' BST

RESIDUAL

ROADWAY EMBANKMENT

US 70 EB/US 29 NB/I-85 BUS NB 34' BST

TO LEXINGTON

ROADWAY EMBANKMENT

SR 1291 NATIONAL BLVD 34' BST

RESIDUAL

ISBKB

-L- END 49+88.34

-BL-108

L_3800 38+00 -L- 0' CL

L_4000 40+00 -L- 0' CL

L_4200 42+00 -L- 0' CL

L_4400 44+00 -L- 0' CL

L_4600 46+00 -L- 0' CL

L_4800 48+00 -L- 0' CL

-L- 41+00

45+00

-BL-108

MTL GUARDRAIL

CONC BARRIER WALL

MTL

GRASS

WOODS

EXISTING R/W

WESTERN BLVD.

ISBKD

ISBKD W/BASEMENT

2" PLASTIC CONDUIT, CURRENTLY EMPTY PLANS CALL FOR 432 STRAND FIBER

TOP=759.80'

RAMP 16' BST

EQ EMPT

10' PVC

10' VCP

6' CMP

6' UNK

8' UNK

4' PVC

30" RCP

15" RCP

18" RCP

24" RCP

12" RCP

24" C&G

30" C&G

ASPH

CONC

2SBK BUS

1SBK BUS

NATIONAL BLVD. "27' BST"

BST

6' CHL

48" CHL

VENT PIPE

FLAG POLE

PIV

OUTLET

ICV (2)

PROJECT REFERENCE NO.	SHEET NO.
BR–0015	7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
BORE LOGS

REFERENCE: BR–0015

PROJECT: 67015

Prepared in the Office of:
KLEINFELDER
422 Gallimore Dairy Road, Suite B
Greensboro, North Carolina 27409
NC Engineering Firm License No. F-1312

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_1250	**STATION** 12+50	**OFFSET** 95 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 751.8 ft	**TOTAL DEPTH** 24.9 ft	**NORTHING** 756,770	**EASTING** 1,620,878	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/27/23	**COMP. DATE** 04/27/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
755											
	751.4	0.4	3	5	5	10	SS-1	30%		751.8 GROUND SURFACE	0.0
750										751.4 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.4 Foot)	0.4
	748.4	3.4	3	4	5	9		M		749.1 **RESIDUAL** Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Rock Fragments	2.7
745										Medium Stiff to Stiff, Reddish Brown to Yellowish Brown, Fine Sandy SILT, Trace Mica	
	743.4	8.4	2	3	5	8		M			
740											
	738.4	13.4	2	4	5	9		M			
735											
	733.4	18.4	2	4	5	9		M			
730											
	728.4	23.4	2	4	5	9		M		726.9	24.9
										Boring Terminated at Elevation 726.9 ft in RESIDUAL (Sandy SILT)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_1450	**STATION** 14+50	**OFFSET** 88 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 756.1 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 756,929	**EASTING** 1,621,002	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
	755.2	0.9	7	9	12	21		M		756.1 GROUND SURFACE 0.0
755										755.2 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 0.9 Foot) 0.9
	752.6	3.5	6	8	9	17	SS-2	24%		**RESIDUAL** Very Stiff, Highly Plastic, Reddish Brown, Silty CLAY
750										749.4 6.7
	747.6	8.5	2	4	4	8		M		Medium Stiff, Moderately Plastic, Yellowish Brown, Silty CLAY
745										
	742.6	13.5	2	3	4	7		27% M		
740										
	737.6	18.5	2	3	4	7		M		734.1 22.0
735										Medium Stiff, Yellowish Brown, Coarse to Fine Sandy SILT, Trace Mica
	732.6	23.5	2	3	4	7		M		731.1 25.0
										Boring Terminated at Elevation 731.1 ft in RESIDUAL (Sandy SILT)
										Other Samples: CBR-1 (8.5 - 18.5)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_1650	**STATION** 16+50	**OFFSET** 87 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 753.2 ft	**TOTAL DEPTH** 20.1 ft	**NORTHING** 757,089	**EASTING** 1,621,124	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
755										753.2 GROUND SURFACE	0.0
	752.2	1.0	4	10	8	18		M		752.2 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 1.0 Foot)	1.0
750	749.6	3.6	4	7	11	18	SS-3	27%		750.2 Very Stiff, Highly Plastic, Dark Reddish Brown and Brown, Silty CLAY, Trace Gravel **RESIDUAL**	3.0
745	744.6	8.6	4	5	5	10		M		Very Stiff to Stiff, Highly Plastic, Reddish Brown to Reddish Yellow, Silty CLAY	
740	739.6	13.6	2	3	4	7		M		741.5 Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica	11.7
735	734.6	18.6	2	3	4	7		M		733.1 Boring Terminated at Elevation 733.1 ft in RESIDUAL (Sandy SILT)	20.1

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_1850	**STATION** 18+50	**OFFSET** 89 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 753.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,249	**EASTING** 1,621,245	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
755										753.2 GROUND SURFACE	0.0
	752.2	1.0	3	8	5	13				752.2 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 1.0 Foot)	1.0
750	749.7	3.5	2	3	4	7		M 31%		750.2 Stiff, Moderately Plastic, Dark Brown and Dark Reddish Brown, Silty CLAY, Trace Gravel **RESIDUAL**	3.0
745	744.7	8.5	3	4	6	10		M		Medium Stiff to Stiff, Moderately Plastic, Reddish Brown, Silty CLAY	
740	739.7	13.5	2	5	5	10		M		741.4 Stiff to Medium Stiff, Reddish Yellow to Yellowish Brown, Fine Sandy SILT, Trace Mica	11.8
735	734.7	18.5	2	3	4	7		M		733.2 Boring Terminated at Elevation 733.2 ft in RESIDUAL (Sandy SILT)	20.0

Other Samples:
CBR-2 (0.0 - 10.0)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2049	**STATION** 20+49	**OFFSET** 90 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 755.8 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 757,407	**EASTING** 1,621,366	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
760										
755	754.8	1.0	6	5	6	11		M		755.8 GROUND SURFACE 0.0 754.8 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 1.0 Foot) 1.0
	752.3	3.5	5	8	10	18	SS-4	27%		752.8 Stiff, Reddish Brown and Dark Reddish Brown, Silty CLAY, Trace Gravel 3.0 **RESIDUAL**
750										749.0 Very Stiff, Highly Plastic, Reddish Brown, Silty CLAY 6.8
	747.3	8.5	4	5	7	12	SS-5	43%		Stiff, Moderately Plastic, Reddish Brown to Reddish Yellow, Silty CLAY, Trace Mica
745										
	742.3	13.5	3	5	6	11		W		
740										
	737.3	18.5	3	4	6	10		W		
735										733.8 Stiff, Yellowish Brown, Coarse to Fine Sandy SILT 22.0
	732.3	23.5	2	4	6	10		M		730.8 25.0 Boring Terminated at Elevation 730.8 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2250	**STATION** 22+50	**OFFSET** 106 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 757.2 ft	**TOTAL DEPTH** 35.0 ft	**NORTHING** 757,575	**EASTING** 1,621,477	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
760										
	757.2	0.0								757.2 GROUND SURFACE 0.0
755			3	8	9	17	SS-6	16%		**RESIDUAL** Very Stiff to Medium Stiff, Highly Plastic, Dark Reddish Brown to Reddish Yellow to Reddish Brown, Silty CLAY, Trace Mica and Rock Fragments
	753.7	3.5	3	3	4	7		M		
750	748.7	8.5	5	8	10	18	SS-7	32%		
745	743.7	13.5	2	2	3	5		M		
740	738.7	18.5	2	3	3	6	SS-8	43%		740.2 Medium Stiff, Slightly Plastic, Reddish Brown, Silty CLAY 17.0
735	733.7	23.5	2	2	3	5		M		735.4 Medium Stiff to Stiff, Yellowish Brown to Olive Brown and Pink, Coarse to Fine Sandy SILT, Trace Mica and Rock Fragments 21.8
730	728.7	28.5	2	3	5	8		M		
725	723.7	33.5	11	7	6	13		M		722.2 35.0 Boring Terminated at Elevation 722.2 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2460	**STATION** 24+60	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 722.0 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 757,621	**EASTING** 1,621,760	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
725										
										722.0 GROUND SURFACE 0.0
	721.0	1.0	2	4	2	6				721.0 **ROADWAY EMBANKMENT** 1.0 Asphalt (0.0 - 0.5 Foot)
720							SS-9	37%		719.0 ABC Stone (0.5 - 1.0 Foot) 3.0 Medium Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica
	718.5	3.5	3	5	6	11		M		**RESIDUAL**
715										715.0 Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica 7.0
	713.5	8.5	3	5	5	10		M		Stiff to Very Stiff, Olive Brown, Coarse to Fine Sandy SILT
710										
	708.5	13.5	2	4	5	9		M		
705										
	703.5	18.5	3	4	7	11		M		
700										
	698.5	23.5	5	10	12	22		M		
695										
	693.5	28.5	5	9	14	23		M		692.0 30.0
										Boring Terminated at Elevation 692.0 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2492	**STATION** 24+92	**OFFSET** 26 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 737.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,686	**EASTING** 1,621,729	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										
										737.7 GROUND SURFACE 0.0
	736.5	1.2	4	6	2	8		M		736.8 **ROADWAY EMBANKMENT** 0.9 Asphalt and ABC Stone (0.0 - 0.9 Foot)
735										734.6 Medium Stiff, Reddish Brown, Coarse to Fine Sandy SILT, Trace Mica 3.1
	734.2	3.5	1	2	2	4		M		Medium Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica
730										
	729.2	8.5	2	2	3	5		M		726.6 **RESIDUAL** 11.1
725										Medium Stiff to Stiff, Yellowish Brown to Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica
	724.2	13.5	2	3	5	8		M		
720										
	719.2	18.5	3	4	6	10		M		717.7 20.0
										Boring Terminated at Elevation 717.7 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2550	**STATION** 25+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 718.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 757,692	**EASTING** 1,621,815	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
720										718.8 GROUND SURFACE	0.0
	717.8	1.0						M		717.8 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot) Medium Stiff to Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	1.0
715	715.3	3.5	5	2	3	5		M		712.8 **RESIDUAL** Medium Stiff, Reddish Brown, Clayey SILT, Trace Mica	6.0
			2	4	6	10					
710	710.3	8.5	2	3	3	6		M		706.8 Stiff, Brown, Coarse to Fine Sandy SILT	12.0
705	705.3	13.5	3	5	6	11		M		703.8 Boring Terminated at Elevation 703.8 ft in RESIDUAL (Sandy SILT)	15.0

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2599	**STATION** 25+99	**OFFSET** 35 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 735.6 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 757,765	**EASTING** 1,621,802	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										735.6 GROUND SURFACE 0.0
735	734.6	1.0	3	2	3	5		M		734.9 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 0.7 Foot) 0.7
	732.0	3.6	2	2	3	5		M		733.3 Medium Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica 2.3
730										Medium Stiff, Reddish Brown, Fine Sandy SILT, Trace Mica
	727.1	8.5	3	3	5	8	SS-10	39%		728.1 **RESIDUAL** 7.5
725										Medium Stiff, Highly Plastic, Reddish Brown to Reddish Yellow, Silty CLAY
	722.1	13.5	1	3	4	7		W		
720										718.6 17.0
	717.1	18.5	2	4	4	8		M		Medium Stiff, Reddish Yellow and Light Brownish Gray to Yellowish Brown and Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica and Rock Fragments
715										
	712.1	23.5	2	2	4	6		M		710.6 25.0
										Boring Terminated at Elevation 710.6 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2650	**STATION** 26+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 715.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,771	**EASTING** 1,621,877	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
720											
715	714.9	1.0	3	3	4	7	SS-11	32%		715.9 GROUND SURFACE	0.0
										714.9 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot) Medium Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	1.0
	712.4	3.5	2	3	3	6		M			
710										708.9 **RESIDUAL** Stiff to Very Stiff, Yellowish Brown, Coarse to Fine Sandy SILT	7.0
	707.4	8.5	3	6	6	12		M			
705											
	702.4	13.5	3	6	9	15		M			
700											
	697.4	18.5	7	11	13	24		M		695.9 Boring Terminated at Elevation 695.9 ft in RESIDUAL (Sandy SILT)	20.0

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2700	**STATION** 27+00	**OFFSET** 31 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 734.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 757,847	**EASTING** 1,621,861	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
735											
										734.2 GROUND SURFACE	0.0
730	730.5	3.7	1	3	3	6	SS-12	33%		732.3 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 1.9 Feet) Medium Stiff to Stiff, Moderately Plastic, Reddish Brown to Dark Reddish Brown, Reddish Brown and Olive Gray, Silty CLAY, Trace Mica	1.9
725	725.7	8.5	2	3	4	7		W			
720	720.7	13.5	2	3	5	8		W			
715	715.7	18.5	3	5	5	10		W			
710	710.7	23.5	4	6	8	14		M		712.4 **RESIDUAL** Stiff to Very Stiff, Yellowish Brown to Gray, Fine Sandy SILT	21.8
705	705.7	28.5	7	8	12	20		M		704.2 Boring Terminated at Elevation 704.2 ft in RESIDUAL (Sandy SILT)	30.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2750	**STATION** 27+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 712.8 ft	**TOTAL DEPTH** 24.8 ft	**NORTHING** 757,850	**EASTING** 1,621,938	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
715										712.8 GROUND SURFACE 0.0
	711.8	1.0	2	3	2	5	SS-13	22%		711.8 **ROADWAY EMBANKMENT** 1.0 Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot) Medium Stiff to Stiff, Moderately Plastic, Red, Silty CLAY, Trace Mica
710	709.3	3.5	5	3	4	7		M		
705	704.3	8.5	4	6	5	11				
700	699.3	13.5	2	4	4	8		M		696.8 16.0 **ALLUVIAL** Loose, Gray, Clayey Fine to Coarse SAND
695	694.3	18.5	2	1	4	5		M		
690	689.3	23.5	15	46	54/0.3	100/0.8				688.3 24.5 688.0 24.8 **WEATHERED ROCK** Brown, METAGABBRO Boring Terminated at Elevation 688.0 ft in WEATHERED ROCK (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2800	**STATION** 28+00	**OFFSET** 29 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 733.4 ft	**TOTAL DEPTH** 35.0 ft	**NORTHING** 757,927	**EASTING** 1,621,920	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										733.4 GROUND SURFACE 0.0
	731.6	1.8								731.6 **ROADWAY EMBANKMENT** 1.8 Asphalt and ABC Stone (0.0 - 1.8 Feet) Medium Stiff, Reddish Brown, Fine Sandy SILT, Little Mica
730	729.9	3.5	2	2	3	5		M		
725	724.9	8.5	2	2	3	5		M		726.6 6.8 Medium Stiff, Moderately Plastic, Reddish Brown and Olive Gray to Reddish Brown to Olive Brown, Silty CLAY, Trace Mica
720	719.9	13.5	2	3	4	7	SS-14	30%		
715	714.9	18.5	2	4	4	8		M		
710	709.9	23.5	2	2	3	5		M		
705	704.9	28.5	1	3	6	9		M		706.4 27.0 **ALLUVIAL** Stiff, Highly Plastic, Dark Brown and Gray, Silty CLAY
700	699.9	33.5	2	4	5	9		M		701.6 31.8 **RESIDUAL** Stiff, Light Brownish Gray, Silty CLAY 698.4 35.0 Boring Terminated at Elevation 698.4 ft in RESIDUAL (Silty CLAY)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_2850	**STATION** 28+50	**OFFSET** 93 ft RT	**ALIGNMENT** -L-	**0 HR.** 17.0
COLLAR ELEV. 711.9 ft	**TOTAL DEPTH** 29.3 ft	**NORTHING** 757,927	**EASTING** 1,622,001	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
715											
										711.9	0.0
										GROUND SURFACE	
710	710.9	1.0								710.9	1.0
			2	3	3	6		M		**ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot) Medium Stiff to Soft, Red to Reddish Brown, Silty CLAY, Trace Mica	
	708.4	3.5									
			2	2	3	5		M			
705											
	703.3	8.6									
			1	1	2	3		M			
700										700.9	11.0
	698.3	13.6								**ALLUVIAL** Very Soft, Highly Plastic, Dark Brown and Dark Gray, Silty CLAY	
			WOH	1	1	2		M			
695								▽			
	693.3	18.6								694.9	17.0
			15	29	31	60		W		**RESIDUAL** Very Dense, Brown, Silty Coarse to Fine SAND	
690											
	688.3	23.6								687.3	24.6
			15	76	24/0.1	100/0.6				**WEATHERED ROCK** Gray, METAGABBRO	
685											
	683.3	28.6								682.6	29.3
			60	40/0.2		100/0.7				Boring Terminated at Elevation 682.6 ft in WEATHERED ROCK (METAGABBRO)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 28+65	**OFFSET** 34 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.4 ft	**TOTAL DEPTH** 54.3 ft	**NORTHING** 758,017	**EASTING** 1,621,910	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/19/23	**COMP. DATE** 04/19/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
										733.4 GROUND SURFACE 0.0
										732.4 **ROADWAY EMBANKMENT** 1.0
730	730.8	2.6								Asphalt & ABC Stone (0.0 - 1.0 Foot) Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
			3	3	3	6		M		
	728.9	4.5								
			2	2	2	4		M		
725										
	724.7	8.7								
			2	3	3	6		M		
720										722.4 11.0
	719.8	13.6								Soft to Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica
			WOH	1	2	3		M		
715										
	714.8	18.6								
			1	1	2	3		M		
710										
	709.8	23.6								706.9 26.5
			1	2	2	4		W		**ALLUVIAL** Medium Stiff, Dark Brown and Gray, Silty CLAY
705										
	704.8	28.6								
			1	3	4	7		W		
700										
	699.8	33.6								
			WOH	2	3	5		Sat.		
695										
	694.8	38.6								695.4 38.0
			32	35	50	85		Sat.		**RESIDUAL** Hard, Olive Brown, Coarse to Fine Sandy SILT, Trace Mica
690										
	689.8	43.6								688.8 44.6
			16	38	62/0.4	100/0.9				**WEATHERED ROCK** Olive Brown, METAGABBRO
685										
	684.8	48.6								
			62	38/0.1		100/0.6				
680										
	679.8	53.6								679.1 54.3
			57	43/0.2		100/0.7				Boring Terminated at Elevation 679.1 ft in Weathered Rock (METAGABBRO)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB1-D	**STATION** 28+68	**OFFSET** 15 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 58.9 ft	**NORTHING** 757,989	**EASTING** 1,621,951	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/01/23	**COMP. DATE** 05/01/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
735										733.2 GROUND SURFACE 0.0
										732.2 **ROADWAY EMBANKMENT** 1.0 Asphalt & ABC Stone (0.0 - 1.0 Foot) Medium Stiff, Reddish Brown and Brown, Silty CLAY, Trace Mica
730	729.7	3.5	2	3	2	5		M		
725	724.8	8.4	2	3	4	7		M		
720	719.9	13.3	WOH	2	2	4		M		
715	714.9	18.3	WOH	2	2	4		M		
710	709.9	23.3	WOH	2	2	4		M		
705	704.9	28.3	2	2	4	6		M		
700	699.9	33.3	1	4	4	8		M		
695	694.9	38.3	2	4	15	19		M		696.6 **RESIDUAL** 36.6 Very Stiff to Hard, Olive Brown and Olive Gray, Coarse to Fine Sandy SILT, Trace Mica
690	689.9	43.3	24	35	46	81		M		
685	684.9	48.3	47	53/0.3		100/0.8				686.7 **WEATHERED ROCK** 46.5 Olive Brown and Light Brownish Gray, METAGABBRO
680	679.9	53.3	50	50/0.1		100/0.6				
675	674.9	58.3	87	13/0.1		100/0.6				674.3 Boring Terminated at Elevation 674.3 ft in Weathered Rock (METAGABBRO) 58.9

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB1-C	**STATION** 28+69	**OFFSET** 16 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.1 ft	**TOTAL DEPTH** 73.5 ft	**NORTHING** 758,009	**EASTING** 1,621,927	**24 HR.** 21.1
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/20/23	**COMP. DATE** 04/20/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										733.1 GROUND SURFACE 0.0
										732.1 **ROADWAY EMBANKMENT** 1.0 Asphalt & ABC Stone (0.0 - 1.0 Foot) Medium Stiff, Reddish Brown to Dark Reddish Brown, Silty CLAY, Trace Mica
730	731.0	2.1	4	2	2	4		M		
	728.6	4.5	1	2	3	5		M		
725	724.7	8.4	1	2	2	4		M		
720	719.7	13.4	1	3	3	6				
715	714.7	18.4	1	2	2	4		W		
710	709.8	23.3	2	2	2	4		W		
705	704.8	28.3	3	3	3	6		W		
700	699.8	33.3	2	3	4	7		Sat.		
695	694.8	38.3	12	16	17	33		Sat.		694.6 **RESIDUAL** 38.5 Hard to Very Stiff, Olive Brown, Coarse to Fine Sandy SILT, Trace Mica
690	689.8	43.3	21	16	12	28		Sat.		
685	684.8	48.3	37	63/0.4		100/0.9				686.6 **WEATHERED ROCK** 46.5 Olive Brown, METAGABBRO
680	679.8	53.3	7	13	18	31		Sat.		682.1 **RESIDUAL** 51.0 Hard to Very Stiff, Olive Brown and Olive Gray, Coarse to Fine Sandy SILT, Trace Mica
675	674.8	58.3	8	14	14	28		Sat.		
670	669.8	63.3	100/0.4			100/0.4				671.6 **WEATHERED ROCK** 61.5 Olive Brown, METAGABBRO
665	664.8	68.3	66	34/0.1		100/0.6				
660	659.8	73.3	100/0.2			100/0.2				659.6 Boring Terminated at Elevation 659.6 ft in Weathered Rock (METAGABBRO) 73.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 28+88	**OFFSET** 33 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 53.9 ft	**NORTHING** 757,994	**EASTING** 1,621,977	**24 HR.** 15.7
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/24/23	**COMP. DATE** 04/24/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
735										
										733.2 / 0.0 GROUND SURFACE
										732.2 / 1.0 **ROADWAY EMBANKMENT** Asphalt & ABC Stone (0.0 - 1.0 Feet) / Medium Stiff, Reddish Brown, Olive Brown, and Brown, Silty CLAY, Trace Mica
730	729.8	3.4	1	2	3	5		M		
725	724.8	8.4	2	2	3	5		M		
720	719.9	13.3	2	2	2	4				
715	714.9	18.3	2	3	2	5		W		
710	709.9	23.3	2	2	2	4		W		
										706.7 / 26.5 **ALLUVIAL** Medium Stiff, Dark Reddish Brown, Dark Brown, and Gray, Silty CLAY, Trace Mica
705	704.9	28.3	3	3	3	6		Sat.		
700	699.9	33.3	3	3	3	6		Sat.		
										696.5 / 36.7 **RESIDUAL** Hard, Olive Gray, Coarse to Fine Sandy SILT
695	694.9	38.3	29	46	43	89		Sat.		
										691.5 / 41.7 **WEATHERED ROCK** Dark Gray to Olive Gray, METAGABBRO
690	689.9	43.3	100/0.5			100/0.5				
685	684.9	48.3	41	59/0.4		100/0.9				
680	679.9	53.3	49	51/0.1		100/0.6				679.3 / 53.9 Boring Terminated at Elevation 679.3 ft in Weathered Rock (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 29+72	**OFFSET** 68 ft LT	**ALIGNMENT** -L-	**0 HR.** 18.8
COLLAR ELEV. 718.8 ft	**TOTAL DEPTH** 54.1 ft	**NORTHING** 758,123	**EASTING** 1,621,949	**24 HR.** 12.4
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/18/23	**COMP. DATE** 04/18/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
720										
										718.8 / 0.0 GROUND SURFACE
	717.8	1.0	2	2	3	5		M		**ROADWAY EMBANKMENT** Medium Stiff, Reddish Brown, Silty CLAY
715	715.0	3.8	2	3	2	5		M		
										712.3 / 6.5 **RESIDUAL** Medium Stiff, Reddish Brown to Dark Reddish Brown, Silty CLAY
710	710.0	8.8	1	2	2	4		M		
705	705.0	13.8	1	2	4	6				
700	700.0	18.8	2	3	4	7		W		
695	695.0	23.8	5	8	9	17		Sat.		
										702.3 / 16.5 Medium Stiff to Hard, Reddish Brown, Gray, Brown, and Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica
690	690.0	28.8	4	7	8	15		Sat.		
685	685.0	33.8	3	5	4	9		Sat.		
680	680.0	38.8	9	19	34	53		Sat.		
										677.3 / 41.5 **WEATHERED ROCK** Olive Brown, METAGABBRO
675	675.0	43.8	46	54/0.3		100/0.8				
670	670.0	48.8	65	35/0.2		100/0.7				
665	665.0	53.8	100/0.3			100/0.3				664.7 / 54.1 Boring Terminated at Elevation 664.7 ft in Weathered Rock (METAGABBRO)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB2-C	**STATION** 30+12	**OFFSET** 15 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 732.9 ft	**TOTAL DEPTH** 73.9 ft	**NORTHING** 758,122	**EASTING** 1,622,015	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/21/23	**COMP. DATE** 04/21/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
735										
										732.9 GROUND SURFACE 0.0
										731.9 **ROADWAY EMBANKMENT** 1.0
730	729.5	3.4	2	2	2	4		M		Asphalt & ABC Stone (0.0 - 1.0 Foot) / Soft to Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
725	724.5	8.4	2	2	1	3		M		
720	719.6	13.3	1	2	2	4		M		
715	714.6	18.3	2	4	6	10		M		716.4 **RESIDUAL** 16.5 Stiff, Brown and Dark Brown, Silty CLAY
710	709.6	23.3	3	5	5	10		W		711.4 21.5 Medium Stiff to Hard, Brown, Gray, and Light Brownish Gray, Coarse to Fine Sandy SILT
705	704.6	28.3	2	2	5	7		Sat.		
700	699.6	33.3	2	4	6	10		Sat.		
695	694.6	38.3	3	5	8	13		Sat.		
690	689.6	43.3	4	9	12	21		M		
685	684.6	48.3	6	11	14	25		M		
680	679.6	53.3	6	24	27	51		M		
675	674.6	58.3	16	25	24	49		M		
670	669.6	63.3	13	25	36	61		M		
665	664.6	68.3	100/0.5			100/0.5				666.4 66.5 **WEATHERED ROCK** Olive Gray, METAGABBRO
660	659.6	73.3	66	34/0.1		100/0.6				659.0 73.9 Boring Terminated at Elevation 659.0 ft in Weathered Rock (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 30+22	**OFFSET** 33 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 54.8 ft	**NORTHING** 758,100	**EASTING** 1,622,059	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/25/23	**COMP. DATE** 04/25/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
										733.2 GROUND SURFACE 0.0
										732.2 **ROADWAY EMBANKMENT** 1.0
730	729.9	3.3	2	3	4	7		M		Asphalt & ABC Stone (0.0 - 1.0 Feet) / Medium Stiff, Reddish Brown, Silty CLAY
725	724.8	8.4	2	3	3	6		M		
720	719.9	13.3	3	5	7	12		M		721.6 **RESIDUAL** 11.6 Stiff, Reddish Yellow, Silty CLAY
715	714.9	18.3	5	7	11	18		M		716.6 16.6 Very Stiff to Hard, Yellowish Brown, Olive Brown, Olive, Coarse to Fine Sandy SILT, Trace to Little Mica, Trace Rock Fragments and Quartz
710	709.9	23.3	10	12	15	27		M		
705	704.9	28.3	9	14	18	32		M		
700	699.9	33.3	10	16	20	36		M		
695	694.9	38.3	8	13	17	30		M		
690	689.9	43.3	18	24	26	50		M		
685	684.9	48.3	20	27	47	74		M		
680	679.9	53.3	35	35	49	84		M		678.4 54.8 Boring Terminated at Elevation 678.4 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. EB2-D	**STATION** 30+28	**OFFSET** 19 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.3 ft	**TOTAL DEPTH** 64.2 ft	**NORTHING** 758,114	**EASTING** 1,622,052	**24 HR.** 11.2
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/26/23	**COMP. DATE** 04/26/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
735										
										733.3 GROUND SURFACE 0.0
										732.3 **ROADWAY EMBANKMENT** 1.0 Asphalt & ABC Stone (0.0 - 1.0 Foot) Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
730	730.0	3.3	2	3	3	6		M		
725	724.8	8.5	3	3	3	6		M		
										721.4 **RESIDUAL** 11.9 Medium Stiff to Stiff, Reddish Brown and Yellowish Brown, Silty CLAY, Trace Mica
720	720.0	13.3	3	4	4	8		M		
715	715.0	18.3	3	5	6	11		W		
										711.7 21.6 Medium Stiff to Hard, Reddish Yellow, Light Brownish Gray, Brown, and Pale Red, Coarse to Fine Sandy SILT, Trace Mica
710	710.0	23.3	3	3	4	7		W		
705	705.0	28.3	2	2	3	5		Sat.		
700	700.0	33.3	6	7	17	24		Sat.		
695	695.0	38.3	10	8	7	15		Sat.		
690	690.0	43.3	6	11	15	26		Sat.		
685	685.0	48.3	10	19	28	47		Sat.		
680	680.0	53.3	18	27	38	65		Sat.		
675	675.0	58.3	30	60	40/0.2	100/0.7		Sat.		
										674.0 59.3 **WEATHERED ROCK** Olive Gray and Light Brownish Gray, METAGABBRO
670	670.0	63.3	16	84/0.4		100/0.9				669.1 64.2 Boring Terminated at Elevation 669.1 ft in Weathered Rock (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_3200	**STATION** 32+00	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 731.9 ft	**TOTAL DEPTH** 9.9 ft	**NORTHING** 758,224	**EASTING** 1,622,190	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/24/23	**COMP. DATE** 04/24/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
										731.9 GROUND SURFACE 0.0
										RESIDUAL Very Stiff to Stiff, Yellowish Brown and Olive Gray to Reddish Brown and Reddish Yellow, Coarse to Fine Sandy SILT, Trace Mica and Rock Fragments
730	731.9	0.0	2	11	11	22		M		
725	728.5	3.4	3	4	6	10		M		
	723.5	8.4	2	4	5	9		M		
										722.0 9.9 Boring Terminated at Elevation 722.0 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_3400	**STATION** 34+00	**OFFSET** 81 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 742.6 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 758,469	**EASTING** 1,622,201	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										ELEV. (ft) DEPTH (ft)
	742.6	0.0	4	2	4	6	SS-15	26%		742.6 GROUND SURFACE 0.0
740	739.1	3.5	3	5	6	11		M		**RESIDUAL** Medium Stiff to Stiff, Moderately Plastic, Reddish Brown, Silty CLAY, Trace Mica
735	734.1	8.5	2	4	3	7		M		735.8 6.8 Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica
730	729.1	13.5	2	3	4	7		M		
725	724.1	18.5	2	3	5	8		M		722.6 20.0 Boring Terminated at Elevation 722.6 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_3600	**STATION** 36+00	**OFFSET** 85 ft LT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 748.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 758,629	**EASTING** 1,622,320	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
750										
	748.1	0.0	3	4	5	9		M		748.1 GROUND SURFACE 0.0 **RESIDUAL** Stiff, Highly Plastic, Dark Reddish Brown to Red to Reddish Yellow, Silty CLAY
745	744.6	3.5	4	5	8	13	SS-16	32%		
740	739.6	8.5	5	7	8	15		M		736.4 11.7 Stiff to Medium Stiff, Reddish Yellow, Fine Sandy SILT
735	734.6	13.5	3	4	6	10		M		
730	729.6	18.5	3	4	4	8		M		728.1 20.0 Boring Terminated at Elevation 728.1 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_3800	**STATION** 38+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 741.1 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 758,735	**EASTING** 1,622,510	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER M. Foster	**START DATE** 04/26/23	**COMP. DATE** 04/26/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										ELEV. (ft) DEPTH (ft)
										741.1 GROUND SURFACE 0.0
740							S-17	25% M		**RESIDUAL** Medium Stiff to Stiff, Highly Plastic, Reddish Brown to Yellowish Brown, Silty CLAY
735								M		734.1 7.0
										Boring Terminated at Elevation 734.1 ft in RESIDUAL (Silty CLAY)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_4000	**STATION** 40+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 744.6 ft	**TOTAL DEPTH** 6.8 ft	**NORTHING** 758,893	**EASTING** 1,622,633	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER M. Foster	**START DATE** 04/27/23	**COMP. DATE** 04/27/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
745										
										744.6 GROUND SURFACE 0.0
							S-18	33% M		**RESIDUAL** Soft to Medium Stiff, Moderately Plastic, Olive Gray to Reddish Brown, Silty CLAY, Trace Mica 2.2
740										742.4 Medium Stiff, Reddish Brown, Fine Sandy SILT, Trace Mica
								M		737.8 6.8
										Boring Terminated at Elevation 737.8 ft in RESIDUAL (Sandy SILT)

NOTE:

Kessler dual mass dynamic cone penetrometer test performed on 5/4/2023 adjacent to hand auger boring.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_4200	**STATION** 42+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 747.0 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 759,051	**EASTING** 1,622,755	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER M. Foster	**START DATE** 05/01/23	**COMP. DATE** 05/01/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
										747.0 GROUND SURFACE	0.0
745								37%		**RESIDUAL** Medium Stiff to Soft, Highly Plastic, Brown and Reddish Brown, Silty CLAY, Trace Mica	
								M		743.3 Soft, Reddish Yellow, Fine Sandy SILT, Trace Mica	3.7
740										740.0 Boring Terminated at Elevation 740.0 ft in RESIDUAL (Sandy SILT)	7.0

Other Samples:
CBR-3 (0.0 - 2.5)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_4400	**STATION** 44+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 747.3 ft	**TOTAL DEPTH** 6.5 ft	**NORTHING** 759,209	**EASTING** 1,622,878	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/02/23	**COMP. DATE** 05/02/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
750										
										747.3 GROUND SURFACE 0.0
745							S-19	30%		745.8 **RESIDUAL** Soft, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica 1.5
								M		Medium Stiff, Olive, Coarse to Fine Sandy SILT, Trace Mica
										740.8 Boring Terminated at Elevation 740.8 ft in RESIDUAL (Sandy SILT) 6.5

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_4600	**STATION** 46+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 746.7 ft	**TOTAL DEPTH** 6.5 ft	**NORTHING** 759,367	**EASTING** 1,623,000	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/02/23	**COMP. DATE** 05/02/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
750											
										746.7 GROUND SURFACE	0.0
745							S-20	27%		**RESIDUAL** Soft to Medium Stiff, Moderately Plastic, Reddish Brown, Silty CLAY, Trace Mica	
								M		743.7 Medium Stiff, Brown, Coarse to Fine Sandy SILT, Trace Mica	3.0
										740.2	6.5

Boring Terminated at Elevation 740.2 ft in RESIDUAL (Sandy SILT)

NOTE:

Kessler dual mass dynamic cone penetrometer test performed on 5/4/2023 adjacent to hand auger boring.

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. L_4800	**STATION** 48+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 744.6 ft	**TOTAL DEPTH** 6.7 ft	**NORTHING** 759,525	**EASTING** 1,623,123	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/03/23	**COMP. DATE** 05/03/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
745											
										744.6 GROUND SURFACE	0.0
								M		743.6 **RESIDUAL** Soft, Yellowish Brown and Reddish Brown, Silty CLAY	1.0
740										Soft to Medium Stiff, Brown, Coarse to Fine Sandy SILT, Trace Mica	
										737.9	6.7

Boring Terminated at Elevation 737.9 ft in RESIDUAL (Sandy SILT)

NOTE:

Kessler dual mass dynamic cone penetrometer test performed on 5/4/2023 adjacent to hand auger boring.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1042	**STATION** 10+42	**OFFSET** 62 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 753.3 ft	**TOTAL DEPTH** 24.8 ft	**NORTHING** 758,208	**EASTING** 1,621,398	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/10/23	**COMP. DATE** 05/10/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
755											
	753.3	0.0	3	5	7	12	SS-21	28%		753.3 GROUND SURFACE	0.0
750	750.0	3.3	4	6	6	12		M		**RESIDUAL** Stiff, Highly Plastic, Reddish Brown and Reddish Yellow, Silty CLAY, Trace Mica	
745	745.0	8.3	5	7	6	13		M		745.8 Stiff, Yellowish Brown, Coarse to Fine Sandy SILT, Trace Mica	7.5
740	740.0	13.3	4	6	7	13		M			
735	735.0	18.3	3	4	5	9		M			
730	730.0	23.3	3	4	5	9		M		728.5 Boring Terminated at Elevation 728.5 ft in RESIDUAL (Sandy SILT)	24.8

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1250	**STATION** 12+50	**OFFSET** 43 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 732.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 758,236	**EASTING** 1,621,629	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
	731.2	1.0	4	5	6	11	SS-22	31%		732.2 GROUND SURFACE 0.0 731.8 0.4 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.4 Foot) **RESIDUAL** Stiff, Moderately Plastic, Reddish Brown to Reddish Yellow, Silty CLAY
730	728.7	3.5	3	4	5	9		M		
725	723.7	8.5	2	3	3	6		M		725.4 6.8 Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica 722.2 10.0 Boring Terminated at Elevation 722.2 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1455	**STATION** 14+55	**OFFSET** 40 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 718.8 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 758,088	**EASTING** 1,621,794	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/08/23	**COMP. DATE** 05/08/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
720										
	718.8	0.0	1	2	3	5		M		718.8 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT** Medium Stiff, Highly Plastic, Reddish Brown and Olive Brown to Reddish Brown and Olive Gray, Silty CLAY, Trace Mica
715	715.3	3.5	2	3	3	6		M		
										711.3 7.5 **ALLUVIAL**
710	710.3	8.5	1	3	3	6		M		708.8 10.0 Medium Stiff, Gray, Silty CLAY, Trace Mica Boring Terminated at Elevation 708.8 ft in ALLUVIAL (Silty CLAY)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1512	**STATION** 15+12	**OFFSET** 46 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 715.1 ft	**TOTAL DEPTH** 19.9 ft	**NORTHING** 758,063	**EASTING** 1,621,845	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/10/23	**COMP. DATE** 05/10/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
	715.1	0.0	2	3	2	5		M		715.1 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT**
715	711.7	3.4	2	2	2	4	SS-23	39%		712.6 2.5 Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica and Gravel
710	706.7	8.4	WOH	1	3	4		M		711.0 4.1 Medium Stiff, Slightly Plastic, Reddish Yellow, Clayey SILT, Trace Mica **ALLUVIAL** Medium Stiff to Stiff, Highly Plastic, Dark Gray and Dark Brown to Dark Reddish Brown and Dark Brown, Silty CLAY, Trace Mica and Organic Matter (Topsoil, Wood Fragments)
705	701.7	13.4	WOH	2	2	4		W		
700	696.7	18.4	5	7	8	15		Sat.		695.2 19.9 Boring Terminated at Elevation 695.2 ft in ALLUVIAL (Silty CLAY)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1550	**STATION** 15+50	**OFFSET** 45 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 717.8 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 758,135	**EASTING** 1,621,912	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/18/23	**COMP. DATE** 04/18/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										ELEV. (ft) DEPTH (ft)
										717.8 GROUND SURFACE 0.0
	716.8	1.0	4	4	3	7		M		**ROADWAY EMBANKMENT** Stiff to Medium Stiff, Moderately Plastic, Reddish Brown, Silty CLAY
715	714.3	3.5	3	4	5	9	SS-24	29%		
710	709.3	8.5	2	2	2	4		M		
705										704.3 13.5
										Boring Terminated at Elevation 704.3 ft in ROADWAY EMBANKMENT (Silty CLAY)
										NOTE:
										No Sample taken at 13.5 ft due to potential obstruction on 54" RCP.

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1783	**STATION** 17+83	**OFFSET** 34 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 715.2 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 758,045	**EASTING** 1,622,127	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/02/23	**COMP. DATE** 05/02/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 1.75in	1.75in	1.75in	BLOWS PER INCREMENT 0 25	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
										715.2 GROUND SURFACE 0.0
715	714.2	1.0	11	12	12	12		M		**RESIDUAL** Medium Stiff to Stiff, Olive, Coarse to Fine Sandy SILT, Trace Mica
	713.2	2.0	7	8	13	11				
	712.2	3.0	9	9	12	11				
	711.2	4.0	22	25+		25				
710	710.2	5.0	19	23	25	24		M		
	709.2	6.0	13	25	25+	25				
	708.2	7.0	15	25+		25				
	707.2	8.0	25+			25				
	706.2	9.0	24	25+		25				
705	705.2	10.0	24	25+		25				
										704.9 10.3
										Boring Terminated at Elevation 704.9 ft in RESIDUAL (Sandy SILT)
										NOTE:
										Conventional dynamic cone penetrometer test performed at 1 foot intervals.

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1800	**STATION** 18+00	**OFFSET** 35 ft RT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 713.9 ft	**TOTAL DEPTH** 7.0 ft	**NORTHING** 757,975	**EASTING** 1,622,120	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
715											
										713.9 GROUND SURFACE	0.0
								M		**RESIDUAL** Medium Stiff to Stiff, Brown to Light Brownish Gray, Coarse to Fine Sandy SILT	
710								M		706.9	7.0
										Boring Terminated at Elevation 706.9 ft in RESIDUAL (Sandy SILT)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y1_1900	**STATION** 19+00	**OFFSET** 35 ft LT	**ALIGNMENT** -Y1-	**0 HR.** Dry
COLLAR ELEV. 705.9 ft	**TOTAL DEPTH** 6.7 ft	**NORTHING** 758,006	**EASTING** 1,622,238	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A	
DRILLER D. Kubinski	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710											
										705.9 GROUND SURFACE	0.0
705								M		**RESIDUAL** Soft to Medium Stiff, Light Brownish Gray, Coarse to Fine Sandy SILT	
700								M		699.2	6.7
										Boring Terminated at Elevation 699.2 ft in RESIDUAL (Sandy SILT)	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y2_1050	**STATION** 10+50	**OFFSET** 11 ft LT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 729.5 ft	**TOTAL DEPTH** 9.9 ft	**NORTHING** 758,225	**EASTING** 1,621,685	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/28/23	**COMP. DATE** 04/28/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
730	729.5	0.0	1	3	4	7		M		729.5 / 0.0 GROUND SURFACE **ROADWAY EMBANKMENT** Medium Stiff, Reddish Brown and Gray, Silty CLAY, Trace Mica and Concrete Fragments
725	726.0	3.5	21	3	4	7		M		
	721.1	8.4	3	2	2	4		W		722.8 / 6.7 Medium Stiff, Reddish Brown, Fine Sandy SILT 719.9 / 9.6 719.6 / 9.9 Medium Stiff, Highly Plastic, Brown, Silty CLAY Boring Terminated at Elevation 719.6 ft in ROADWAY EMBANKMENT (Silty CLAY)
720										

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y2_1250	**STATION** 12+50	**OFFSET** 20 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 730.5 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 758,259	**EASTING** 1,621,885	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										730.5 / 0.0 GROUND SURFACE
730	729.5	1.0	3	3	3	6	SS-25	31%		729.5 / 1.0 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot) Medium Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica
	727.0	3.5	2	4	4	8		M		
725	722.0	8.5	3	3	3	6		M		
720	717.0	13.5	2	2	3	5		M		715.5 / 15.0 Boring Terminated at Elevation 715.5 ft in ROADWAY EMBANKMENT (Silty CLAY)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. Y2_1450	**STATION** 14+50	**OFFSET** 11 ft RT	**ALIGNMENT** -Y2-	**0 HR.** Dry
COLLAR ELEV. 734.7 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 758,336	**EASTING** 1,622,074	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEPTH (ft)
735										
	734.2	0.5	5	9	3	12		M		734.7 GROUND SURFACE 0.0 **ROADWAY EMBANKMENT** 734.2 0.5 Asphalt (0.0 - 0.5 Foot)
	731.0	3.7								**RESIDUAL** 731.8 2.9 Stiff, Highly Plastic, Reddish Brown, Silty CLAY
730			3	5	6	11		M		Stiff to Medium Stiff, Reddish Yellow, Fine Sandy SILT, Trace Mica
	726.2	8.5								
725			2	4	4	8		M		724.7 10.0 Boring Terminated at Elevation 724.7 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. RPB_1495	**STATION** 14+95	**OFFSET** 50 ft LT	**ALIGNMENT** -RPB-	**0 HR.** Dry
COLLAR ELEV. 764.4 ft	**TOTAL DEPTH** 39.9 ft	**NORTHING** 757,777	**EASTING** 1,621,494	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/28/23	**COMP. DATE** 04/28/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
765										
	764.4	0.0	1	3	6	9		M		764.4 GROUND SURFACE 0.0
	760.9	3.5								**RESIDUAL**
760			5	9	10	19		M		Stiff to Very Stiff, Highly Plastic, Red, Silty CLAY
	756.0	8.4								757.4 7.0
755			3	5	7	12	SS-26	34%		Stiff, Moderately Plastic, Red, Silty CLAY
	751.0	13.4								752.7 11.7
750			2	3	4	7		M		Medium Stiff to Stiff, Red to Reddish Brown to Yellowish Brown to Light Brownish Gray, Fine Sandy SILT, Trace Mica
	746.0	18.4								
745			3	4	4	8		M		
	741.0	23.4								
740			2	5	6	11		M		
	736.0	28.4								
735			2	4	6	10		M		
	731.0	33.4								
730			2	4	5	9		M		
	726.0	38.4								
725			2	3	5	8		M		724.5 39.9 Boring Terminated at Elevation 724.5 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. RPB_1706	**STATION** 17+06	**OFFSET** 53 ft LT	**ALIGNMENT** -RPB-	**0 HR.** Dry
COLLAR ELEV. 758.9 ft	**TOTAL DEPTH** 39.8 ft	**NORTHING** 757,994	**EASTING** 1,621,500	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/28/23	**COMP. DATE** 04/28/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
760										
	758.9	0.0	WOH	WOH	2	2		M		758.9 0.0 GROUND SURFACE **RESIDUAL** Soft to Medium Stiff, Moderately Plastic, Reddish Brown, Silty CLAY, Trace Mica
755	755.6	3.3	4	6	2	8	SS-27	33%		
	750.4	8.5	2	3	4	7		M		747.4 11.5 Stiff, Reddish Brown to Red to Yellowish Brown, Fine Sandy SILT, Trace Mica and Manganese
750										
745	745.4	13.5	4	5	6	11		M		
740	740.4	18.5	4	7	7	14		M		
735	735.4	23.5	4	6	8	14		M		
730	730.4	28.5	5	6	8	14		M		
725	725.4	33.5	5	7	8	15		M		
720	720.6	38.3	3	6	7	13		M		719.1 39.8 Boring Terminated at Elevation 719.1 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. RPB_1900	**STATION** 19+00	**OFFSET** 70 ft RT	**ALIGNMENT** -RPB-	**0 HR.** Dry
COLLAR ELEV. 729.7 ft	**TOTAL DEPTH** 19.5 ft	**NORTHING** 758,118	**EASTING** 1,621,694	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/19/23	**COMP. DATE** 04/19/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										729.7 0.0 GROUND SURFACE
	728.7	1.0	2	3	3	6	SS-28	38%		**RESIDUAL** Medium Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica
725	726.7	3.0	2	3	3	6		M		724.2 5.5 Medium Stif to Soft, Reddish Yellow to Reddish Yellow and Light Brownish Gray to Reddish Yellow and Gray, Fine Sandy SILT, Trace Mica
	721.7	8.0	2	3	3	6		M		
720										
715	716.7	13.0	1	1	2	3		M		
	711.7	18.0	1	1	2	3		M		710.2 19.5 Boring Terminated at Elevation 710.2 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. RPD_1183	**STATION** 11+83	**OFFSET** 15 ft LT	**ALIGNMENT** -RPD-	**0 HR.** Dry
COLLAR ELEV. 734.7 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 758,463	**EASTING** 1,622,368	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/04/23	**COMP. DATE** 05/04/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
735											
	734.7	0.0	2	2	3	5		M		734.7 GROUND SURFACE	0.0
										RESIDUAL Medium Stiff, Brown, Coarse to Fine Sandy SILT, Trace Mica	
	731.2	3.5									
730			2	2	3	5		M			
	726.2	8.5									
725			2	3	4	7		M		724.7	10.0
										Boring Terminated at Elevation 724.7 ft in RESIDUAL (Sandy SILT)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. RPD-RT_1055	**STATION** 10+55	**OFFSET** 37 ft RT	**ALIGNMENT** -RPD-RT-	**0 HR.** Dry
COLLAR ELEV. 730.3 ft	**TOTAL DEPTH** 9.8 ft	**NORTHING** 758,395	**EASTING** 1,622,369	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 05/01/23	**COMP. DATE** 05/01/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										
730	730.3	0.0	1	2	2	4	SS-29	31%		730.3 GROUND SURFACE 0.0
										RESIDUAL
	727.0	3.3	1	2	3	5		M		727.9 Medium Stiff, Moderately Plastic, Reddish Brown, Silty CLAY, Trace Mica 2.4
725										Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica
	722.0	8.3	2	3	4	7		M		720.5 9.8
										Boring Terminated at Elevation 720.5 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. LPB_1167	**STATION** 11+67	**OFFSET** 57 ft RT	**ALIGNMENT** -LPB-	**0 HR.** Dry
COLLAR ELEV. 734.3 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 757,937	**EASTING** 1,621,744	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/19/23	**COMP. DATE** 04/19/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
735										ELEV. (ft) 734.3 GROUND SURFACE — DEPTH (ft) 0.0
	733.3	1.0	2	2	3	5		M		**RESIDUAL** Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
730	730.8	3.5	2	2	2	4		M		728.3 — 6.0
	725.8	8.5	3	4	4	8		M		Medium Stiff, Reddish Yellow, Sandy SILT, Trace Mica
725										724.3 — 10.0
										Boring Terminated at Elevation 724.3 ft in RESIDUAL (Sandy SILT)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. LPB_1375	**STATION** 13+75	**OFFSET** 70 ft RT	**ALIGNMENT** -LPB-	**0 HR.** Dry
COLLAR ELEV. 737.5 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,997	**EASTING** 1,621,665	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER R. Toothman	**START DATE** 04/19/23	**COMP. DATE** 04/19/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										737.5 GROUND SURFACE — 0.0
	736.4	1.1	2	3	3	6	SS-30	40%		**RESIDUAL** Medium Stiff, Moderately Plastic, Reddish Yellow, Silty CLAY
735	734.0	3.5	2	4	4	8		W		731.5 — 6.0
	729.0	8.5	2	4	5	9		M		Stiff to Medium Stiff, Reddish Yellow to Light Brownish Gray to Yellowish Brown, Fine Sandy SILT
730	724.0	13.5	3	3	5	8		M		
725	719.0	18.5	2	3	5	8		M		717.5 — 20.0
720										Boring Terminated at Elevation 717.5 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster	
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)				**GROUND WTR (ft)**
BORING NO. DRW1_1050	**STATION** 10+50	**OFFSET** 15 ft RT	**ALIGNMENT** -DRW1-	**0 HR.** Dry
COLLAR ELEV. 737.5 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 758,376	**EASTING** 1,622,037	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/25/23	**COMP. DATE** 04/25/23	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
740										ELEV. (ft) DEPTH (ft)
	737.5	0.0								737.5 GROUND SURFACE 0.0
735			3	7	5	12	SS-31	31%		**RESIDUAL** Stiff, Highly Plastic, Reddish Brown and Red, Silty CLAY
	734.0	3.5	3	5	6	11		M		
730										730.7 6.8
	729.0	8.5	2	4	4	8		M		Medium Stiff to Stiff, Reddish Brown to Yellowish Brown to Light Brown, Fine Sandy SILT, Trace Mica
725										
	724.0	13.5	2	4	5	9		M		
720										
	719.0	18.5	2	4	5	9		M		717.5 20.0
										Boring Terminated at Elevation 717.5 ft in RESIDUAL (Sandy SILT)

PROJECT REFERENCE NO.	SHEET NO.
BR–0015	34

REFERENCE: BR–0015

PROJECT: 67015

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX B
LABORATORY RESULTS

Prepared in the Office of:
KLEINFELDER
422 Gallimore Dairy Road, Suite B
Greensboro, North Carolina 27409
NC Engineering Firm License No. F-1312

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

WBS NO. (TIP NO.): 67015.1.1 (BR-0015)
PROJECT ID: 41620
COUNTY: DAVIDSON
DESCRIPTION: BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

									Atterberg Limits			Gradation Results							
Sample No.	Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	AASHTO Class.	N-Value (blows/ft)	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-1	L_1250	-L-	12+50	95' LT	0.4 - 1.9	30.3	A-7-6	10	74	34	40	0.0	98.8	85.5	68.7	19.9	14.4	11.9	53.8
SS-2	L_1450	-L-	14+50	88' LT	3.5 - 5.0	24.1	A-7-6	17	54	28	26	0.0	99.0	84.0	64.0	21.3	20.7	25.1	33.0
SS-3	L_1650	-L-	16+50	87' LT	3.6 - 5.1	26.7	A-7-5	18	76	33	43	0.0	99.0	93.8	79.2	11.5	11.5	36.4	40.6
SS-4	L_2049	-L-	20+49	90' LT	3.5 - 5.0	27.3	A-7-5	18	68	32	36	0.0	100.0	97.2	77.8	8.5	16.5	42.4	32.6
SS-5	L_2049	-L-	20+49	90' LT	8.5 - 10.0	42.8	A-7-5	12	58	40	18	0.0	100.0	97.3	65.0	12.2	29.2	26.3	32.3
SS-6	L_2250	-L-	22+50	106' LT	0.0 - 1.5	16.2	A-7-6	17	48	21	27	2.0	96.0	89.9	66.3	17.4	20.1	20.0	42.5
SS-7	L_2250	-L-	22+50	106' LT	8.5 - 10.0	31.5	A-7-5	18	86	42	44	16.0	100.0	95.5	81.8	9.0	11.7	19.0	60.3
SS-8	L_2250	-L-	22+50	106' LT	18.5 - 20.0	42.6	A-7-5	6	62	50	12	0.0	100.0	96.0	68.5	7.2	32.9	27.6	32.2
SS-9	L_2460	-L-	24+60	90' RT	1.0 - 2.5	37.1	A-7-5	6	78	45	33	0.0	100.0	97.8	86.5	4.2	13.2	23.4	59.2
SS-10	L_2599	-L-	25+99	35' RT	8.5 - 10.0	39.4	A-7-5	8	65	34	31	0.0	100.0	99.4	80.3	2.4	25.4	34.6	37.7
SS-11	L_2650	-L-	26+50	90' RT	1.0 - 2.5	32.1	A-7-5	7	73	35	38	2.0	97.0	94.5	79.0	8.8	16.4	21.4	53.4
SS-12	L_2700	-L-	27+00	31' RT	3.7 - 5.2	32.5	A-7-5	6	52	30	22	0.0	100.0	90.1	64.0	16.3	25.7	25.6	32.5
SS-13	L_2750	-L-	27+50	90' RT	1.0 - 2.5	21.7	A-7-5	5	56	31	25	3.0	92.0	88.3	63.3	18.1	24.2	23.0	34.6
SS-14	L_2800	-L-	28+00	29' RT	13.5 - 15.0	29.7	A-7-5	7	58	34	24	0.0	100.0	96.0	72.4	9.4	23.7	24.9	41.9
SS-15	L_3400	-L-	34+00	81' LT	0.0 - 1.5	25.8	A-7-5	6	64	44	20	14.0	94.0	85.0	60.0	14.4	28.8	23.9	32.9
SS-16	L_3600	-L-	36+00	85' LT	3.5 - 5.0	32.2	A-7-5	13	72	35	37	0.0	100.0	97.3	86.0	5.9	10.6	61.7	97.3
S-17	L_3800	-L-	38+00	0' CL	0.5 - 1.0	24.7	A-7-6	--	55	25	30	0.0	99.2	92.5	69.9	14.0	19.8	13.2	53.0
S-18	L_4000	-L-	40+00	0' CL	1.0 - 1.5	33.2	A-7-5	--	65	40	25	0.0	99.1	94.7	73.2	10.1	20.9	23.9	45.1
S-19	L_4400	-L-	44+00	0' CL	1.0 - 1.5	30.4	A-7-6	--	56	29	27	4.0	96.0	91.0	60.0	11.3	32.6	19.6	36.5
S-20	L_4600	-L-	46+00	0' CL	1.0 - 2.0	26.8	A-7-5	--	51	33	18	0.0	99.0	96.0	51.0	13.0	41.3	13.6	32.1
SS-21	Y1_1042	-Y1-	10+42	62' RT	0.0 - 1.5	27.7	A-7-5	12	69	37	32	0.0	100.0	95.2	76.1	10.9	16.2	20.3	52.6
SS-22	Y1_1250	-Y1-	12+50	43' LT	1.0 - 2.5	31.1	A-7-5	11	60	36	24	0.0	99.0	93.3	73.9	11.2	20.5	24.9	43.4
SS-23	Y1_1512	-Y1-	15+12	46' RT	3.4 - 4.1	38.7	A-5	4	50	41	9	0.0	99.0	94.3	66.6	11.8	28.5	25.9	33.8
SS-24	Y1_1550	-Y1-	15+50	45' LT	3.5 - 5.0	28.6	A-7-5	9	59	35	24	0.0	98.0	94.3	76.3	10.3	15.9	25.7	48.1
SS-25	Y2_1250	-Y2-	12+50	20' RT	1.0 - 2.5	31.3	A-7-5	6	67	33	34	0.0	100.0	96.8	77.3	7.2	20.7	23.3	48.8
SS-26	RPB_1495	-RPB-	14+95	50' LT	8.4 - 9.9	34.2	A-7-5	12	66	49	17	0.0	100.0	97.3	75.2	7.8	21.9	27.7	42.6
SS-27	RPB_1706	-RPB-	17+06	53' LT	3.3 - 4.8	32.7	A-7-5	13	64	43	21	0.0	99.9	96.1	73.2	9.4	22.0	16.1	52.5
SS-28	RPB_1900	-RPB-	19+00	70' RT	1.0 - 2.5	37.8	A-7-5	6	74	46	28	0.0	100.0	99.3	76.1	2.3	28.4	25.3	44.0
SS-29	RPD-RT_1055	-RPD-RT-	10+55	37' RT	0.0 - 1.5	30.7	A-7-5	4	51	31	20	1.0	97.0	89.7	64.7	16.0	25.8	33.5	24.7
SS-30	LPB_1375	-LPB-	13+75	70' RT	1.1 - 2.6	39.5	A-7-5	6	62	37	25	0.0	100.0	98.4	85.5	3.6	17.6	36.7	42.1
SS-31	DRW1_1050	-DRW1-	10+50	15' RT	0.0 - 1.5	30.7	A-7-5	12	62	34	28	0.0	99.4	92.2	72.4	13.8	17.3	21.8	47.1
CBR-1	L_1450	-L-	14+50	88' LT	8.5 - 18.5	27.0	A-7-5	--	60	44	16	0.0	100.0	93.1	56.6	14.7	35.3	23.4	26.6
CBR-2	L_1850	-L-	18+50	89' LT	0.0 - 10.0	30.6	A-7-5	--	60	35	25	0.0	100.0	95.2	75.9	9.9	19.4	26.1	44.7
CBR-3	L_4200	-L-	42+00	0' CL	0.0 - 2.5	37.3	A-7-5	--	73	37	36	8.0	91.0	96.6	78.4	7.2	18.6	28.9	45.2

Michelle Stadel, P.E.
Lab Manager, NCDOT Certification No.: 111-02-1203

Clifford Blalock
Lab Technician, NCDOT Certification No.: 111-03-1203

Matt Johnson
Lab Technician, NCDOT Certification No.: 111-01-1203

Victoria Siebert
Lab Technician, NCDOT Certification No.: 109-02-1003

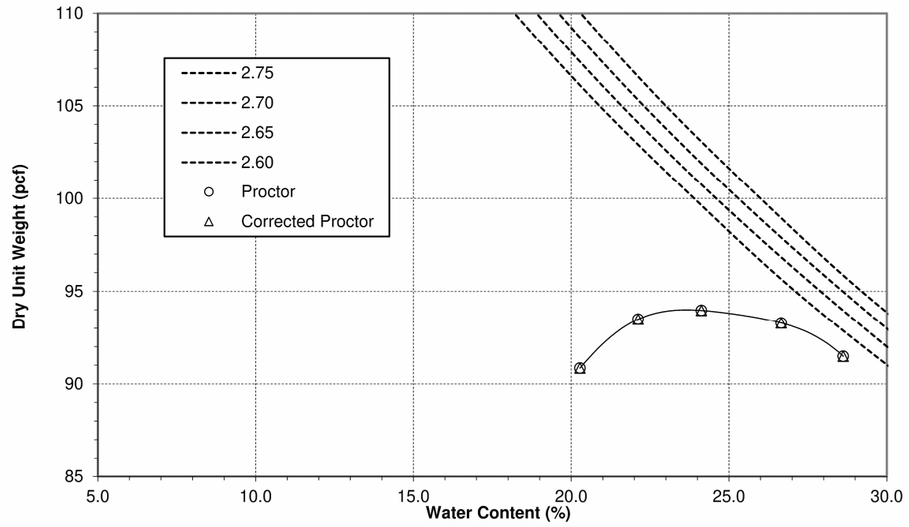
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00649 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1450, CBR-1
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/8/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Tested on **5/24/2023** by **C. Blalock**

Material Description: **Brown Sandy Silt (A-7-5)**

Location: **Boring No. L_1450, Alignment -L-, STA 14+50, 88' LT**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**94.0**	**na**
Optimum Water Content (%)	**23.6**	**na**
Oversize Fraction, retained on 3/4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Manual

Specimen Preparation: Moist

Remarks:

AASHTO T-100, Soil Specific Gravity @ 20°C: 2.747

Reviewed on 6/9/2023 by Michelle Stadel,

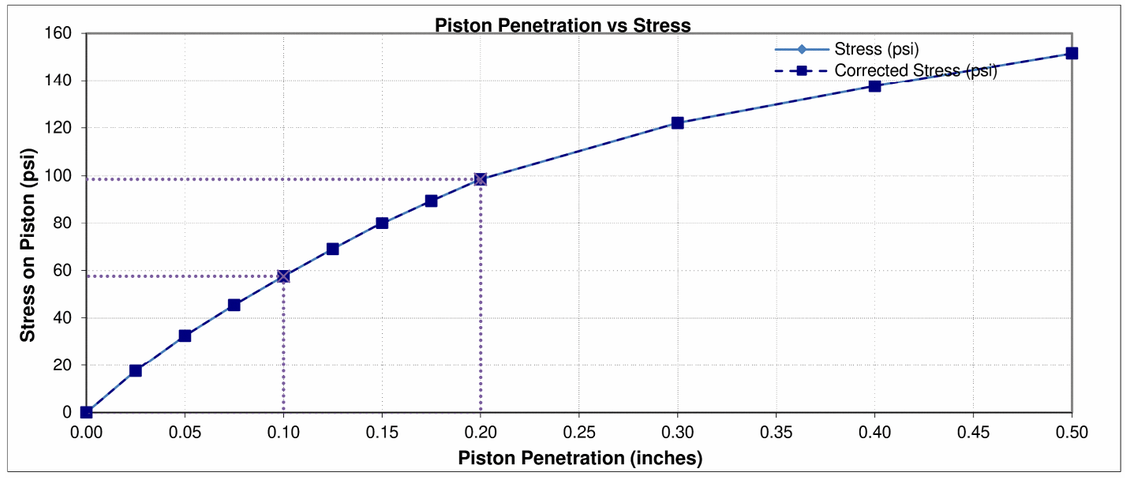
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00649 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1450, CBR-1
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/8/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Sample Source:	**Boring No. L_1450, Alignment -L-, STA 14+50, 88' LT**	Date Tested:	**5/30/2023**
Sample ID:	**CBR-1**	Tested By:	**C. Blalock**
Sample Description:	**Brown Sandy Silt (A-7-5)**	Condition of Sample:	**Soaked**
Material Used:		Time Soaked:	**96 hrs**
Surcharge Weight:	**10 lbs**		

AASHTO T193 - Standard Test Method for The California Bearing Ratio (CBR)

Dry Unit Wgt Before Soaking (pcf):	**90.8**	Compaction Method:
Water Content Before Soaking (%):	**21.2**	**Manual**
Dry Unit Wgt After Soaking (pcf):	**101.1**	Max. Dry Unit Weight:
Water Content After Soak, Top in. (%):	**30.3**	**94.0 pcf**
Swell (%):	**5.65**	Optimum Water Content:
CBR (Corrected CBR) @ 0.1 in. Penetration:	**5.8 (5.8)**	**23.6 %**
CBR (Corrected CBR) @ 0.2 in. Penetration:	**6.6 (6.6)**	



Remarks:

Reviewed on 6/9/2023 by Michelle Stadel,

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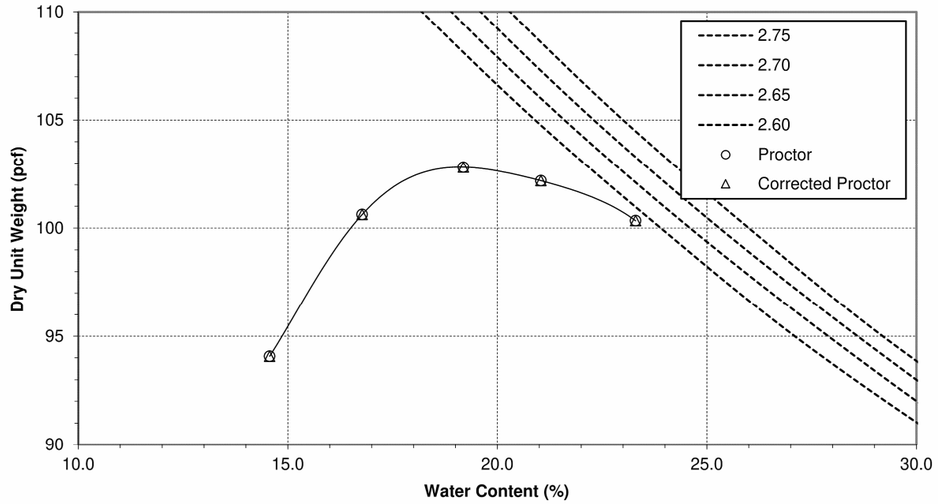
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00650 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1850, CBR-2
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/9/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Tested on **5/24/2023** by **C. Blalock**

Material Description: **Reddish Yellow Elastic Silt with Sand (A-7-5)**

Location: **Boring No. L_1850, -L-, STA 18+50, 89' LT**



Test Method: AASHTO T99 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	102.8	na
Optimum Water Content (%)	19.1	na
Oversize Fraction, retained on 3/4 (%)		<5
Bulk Specific Gravity of Oversize Fraction		na

Rammer Type: Manual

Specimen Preparation: Moist

Remarks:

AASHTO T-100, Soil Specific Gravity at 20°C: 2.678

Reviewed on 6/9/2023 by Michelle Stadel,

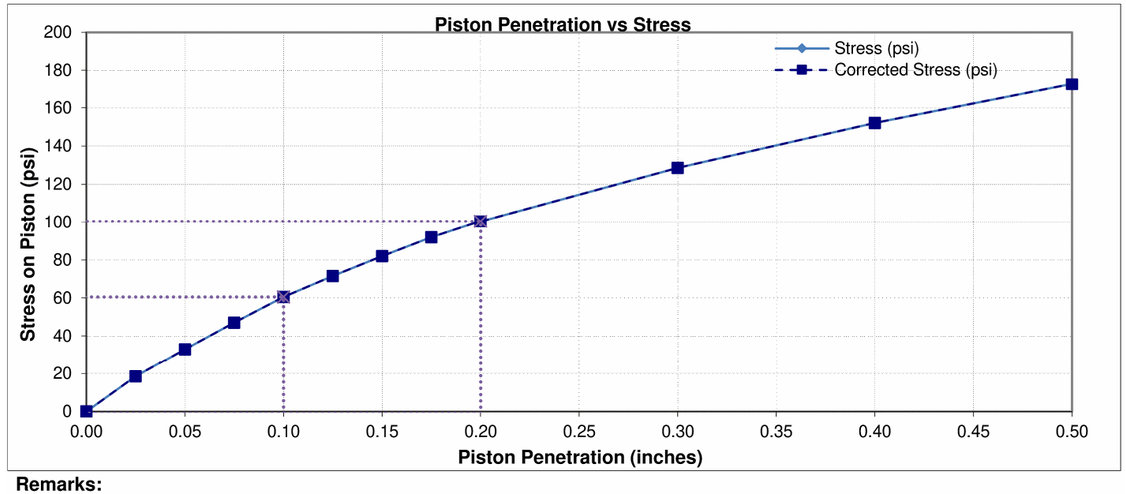
Laboratory Test Report

Client:	North Carolina Dept. of Transportation	Report No.:	23-CLT-00650 Rev. 1	Issued:	6/9/2023
Project:	20235702.001A			Field ID:	L_1850, CBR-2
	NCDOT BR-0015 Roadway	Sampled by:	Mayson Foster	Date:	5/9/2023
	02-000L - Lab	Submitted by:	Dan Kubinski	Date:	5/15/2023

Sample Source:	Boring No. L_1850, -L-, STA 18+50, 89' LT	Date Tested:	5/30/2023
Sample ID:	CBR-2	Tested By:	C. Blalock
Sample Description:	Reddish Yellow Elastic Silt with Sand (A-7-5)	Condition of Sample:	Soaked
Material Used:		Time Soaked:	96 hrs
Surcharge Weight:	10 lbs		

AASHTO T-193 - Standard Test Method for The California Bearing Ratio

Dry Unit Wgt Before Soaking (pcf):	100.6	Compaction Method:	
Water Content Before Soaking (%):	17.0	Manual	
Dry Unit Wgt After Soaking (pcf):	106.1	Max. Dry Unit Weight:	
Water Content After Soak, Top in. (%):	27.1	102.8 pcf	
Swell (%):	4.1	Optimum Water Content:	
CBR (Corrected CBR) @ 0.1 in. Penetration:	6.1 (6.1)	19.1 %	
CBR (Corrected CBR) @ 0.2 in. Penetration:	6.7 (6.7)		



Remarks:

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