B-4101

CONTRACT: C201757

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	17+00 TO 26+50	4	5	7-8
-DET-	10+00 TO 18+76.75	4	6	

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

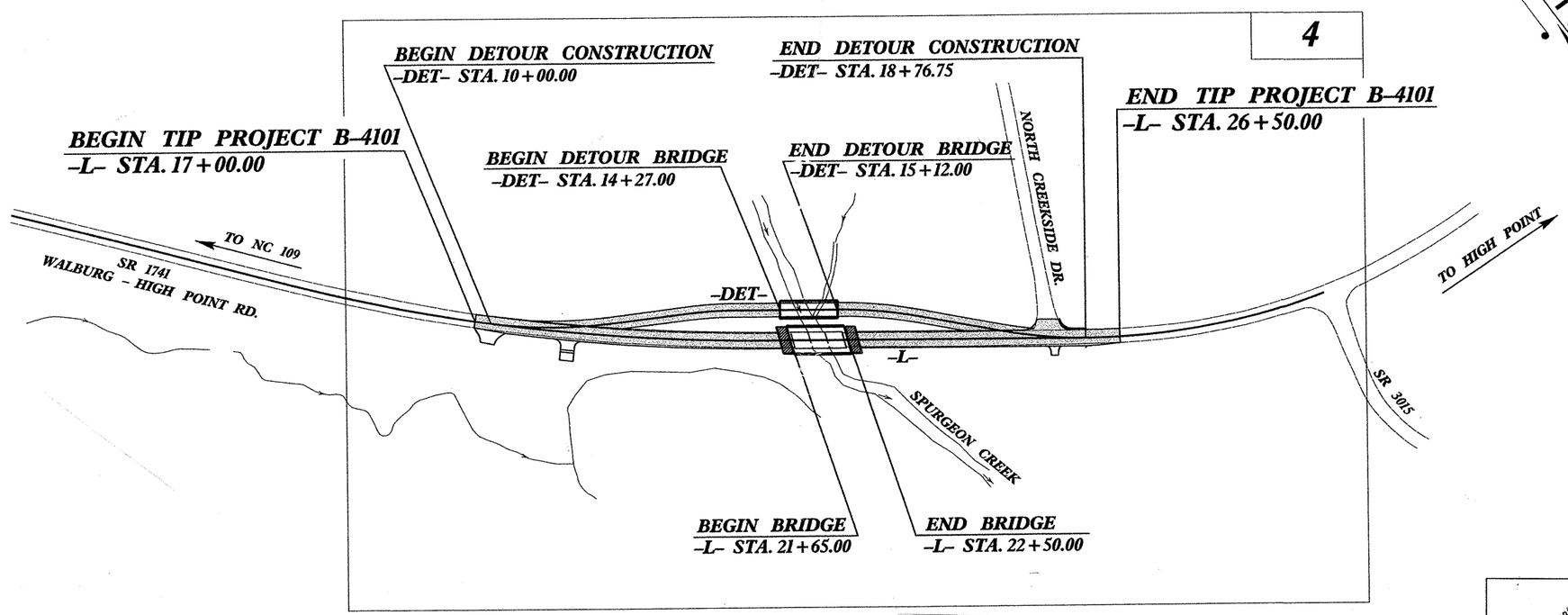
ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33457.1.1 (B-4101) F.A. PROJ. BRSTP-1741(3)

COUNTY DAVIDSON

PROJECT DESCRIPTION BRIDGE 141 OVER SPURGEON CREEK ON SR 1741

INVENTORY



NC GRID NAD 83/95

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4101	1	10

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
33457.1.1	BRSTP-1741(3)	P.E.
33457.2.1	BRSTP-1741(3)	R/W, UTIL
33457.3.1	BRSTP-1741(3)	CONST

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

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

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

PERSONNEL

LITTLE

MURRAY

ESTEP

HARPER

INVESTIGATED BY MURRAY

CHECKED BY LITTLE

SUBMITTED BY LITTLE

DATE APRIL 2006

NORTH CAROLINA LICENSED SEAL 1104 GEOLOGIST CLINTON B. LITTLE 5-17-06

DRAWN BY: LITTLE

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

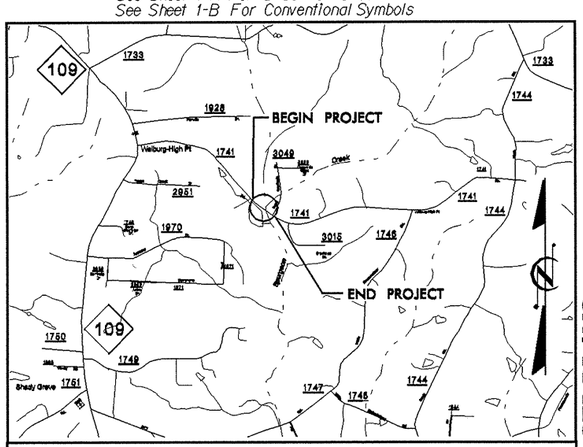
NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

09/08/99

TIP PROJECT: B-4101

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

(THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.)

CFI PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4101	1A	10
WBS NO.	F. A. PROJ. NO.	DESCRIPTION	
33457.1.1	BRSTP-1741(3)	PE	

LOCATION: BRIDGE NO. 141 OVER SPURGEON CREEK ON SR 1741 (WALBURG-HIGH POINT RD.) IN THOMASVILLE

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURES

NC GRID NAD 83/95

4

BEGIN TIP PROJECT B-4101
-L- STA. 17+00.00

END TIP PROJECT B-4101
-L- STA. 26+50.00

BEGIN BRIDGE
-DET- STA. 14+27.00

END BRIDGE
-DET- STA. 15+12.00

NORTH CREEKSIDE DR.

TO NC 109

SR 1741
WALBURG - HIGH POINT RD.

TO HIGH POINT

-DET-

-L-

SPURGEON CREEK

SR 3015

BEGIN BRIDGE
-L- STA. 21+65.00

END BRIDGE
-L- STA. 22+50.00

** DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT

NCDOT CONTACT: CATHY HOUSER, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 2,580
ADT 2027 = 4,380
DHV = 10 %
D = 55 %
T = 4 % *
** V = 60 MPH

* TTST 1% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4101	=	*0.164 MI.*
LENGTH STRUCTURES TIP PROJECT B-4101	=	*0.016 MI.*
TOTAL LENGTH OF TIP PROJECT B-4101	=	*0.180 MI.*

Prepared In the Office of:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 Schaub Dr. Suite 202 Raleigh NC 27606
(919) 851-6066

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 21, 2006

LETTING DATE: APRIL 17, 2007

DAVID C. WALLER, PE
PROJECT ENGINEER

STEPHEN R. WHITLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

12-APR-2006 08:31
d:\projects\b4101\geo_rdwy\CADD_ORIGINAL\Proj\b4101_rdy_tsh.dgn
glittle AT GEH22863

PROJECT REFERENCE NO.	SHEET NO.
B-4101	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 TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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
LIQUID LIMIT PLASTIC INDEX	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 A 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/FT²)
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 0.50
	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
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

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

MINERALOGICAL COMPOSITION

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

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [X] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

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

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

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, 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: BL-4
22+49.93 -L-
14.95' LT. ELEVATION: 783.30 FT.

NOTES:

REVISED 02/23/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 12, 2006

STATE PROJECT: 33457.1.1 (B-4101)
FEDERAL PROJECT: BRSTP-1741(3)
COUNTY: Davidson
DESCRIPTION: Bridge No. 141 over Spurgeon Creek
On SR 1741 (Walburg – High Point Road)

SUBJECT: Geotechnical Report - Inventory

PROJECT DESCRIPTION

The project is located in northeastern Davidson County, west of High Point. The project consists of a bridge replacement with an on-site detour. This report addresses the roadway approaches for the replacement bridge plus the detour roadway. The alignment runs west to east from Station 17+00 to 26+50 –L- and 10+00 to 18+76.75 –DET-, for a total length of lines investigated of 1826.75' or 0.346 miles.

The Geotechnical investigation consisted of four Standard Penetration Test (SPT) borings for the bridge foundation and one hand auger boring with Vane Shear Tests and two undisturbed (Shelby Tube) samples obtained by hand. An additional boring obtained for the preliminary planning documents is also included. It was located very close to boring EB1-A and is labeled "PDEA" on the plan and profile sheets. The PDEA boring was conducted in May 2004 with 8" Hollow Stem augers, the remaining borings were conducted in February 2006 with "NW" casing, roller cone, and water.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

Alluvial Soils: The alluvial soils on the western approach are very soft and saturated. The worst area is within the area delimited as wetlands on the roadway plans. The soils would not support the drill rig. Tests indicate the soils are weak and compressible. The AASHTO classification is A-7-5. The Group Index is 18 to 35 and the fines content is 78 to 91%.

PHYSIOGRAPHY AND GEOLOGY

The project is located in the piedmont region of North Carolina, within the Charlotte Geologic Belt. The rock units in the area are mapped as metamorphosed mafic igneous rocks and meta-granite. No rock cores were obtained during the investigation. Samples of saprolite were consistent with the mapped units. Elevations on the project range from highs of about 790 feet at either end, about 775 across the floodplain, and 768 in the stream channel.

SOIL PROPERTIES

Residual Soils

Residual soils occur below the alluvium and outside of the floodplain area. They were described as:

1) Olive-tan-brown micaceous silty or clayey sand with vertical foliation probably derived from mafic metavolcanics (altered basalts)
2) Tan-white or red-brown silty sands that appear granitic in nature.

The granitic soils were predominant. On the western approach, the residual soil layer was thin (2-4') and graded quickly to weathered rock. The soils were deeper on the eastern approach (20' to 30') and terminated abruptly on rock.

Artificial/Roadway Fill Soils

Existing fill soils average ten feet in height across the floodplain. They were described as red-brown medium stiff silty clay.

Alluvial Soils

The majority of the floodplain falls on the western side of the stream but alluvial soils were noted in the End Bent Two borings. Please refer to the section on Areas of Special Interest.

GROUNDWATER

Static groundwater was measured in the boreholes between elevations 770 – 775. Water was on the ground surface in the wetland area (Station 12+00 to 14+00 –DET-).

Respectfully submitted,

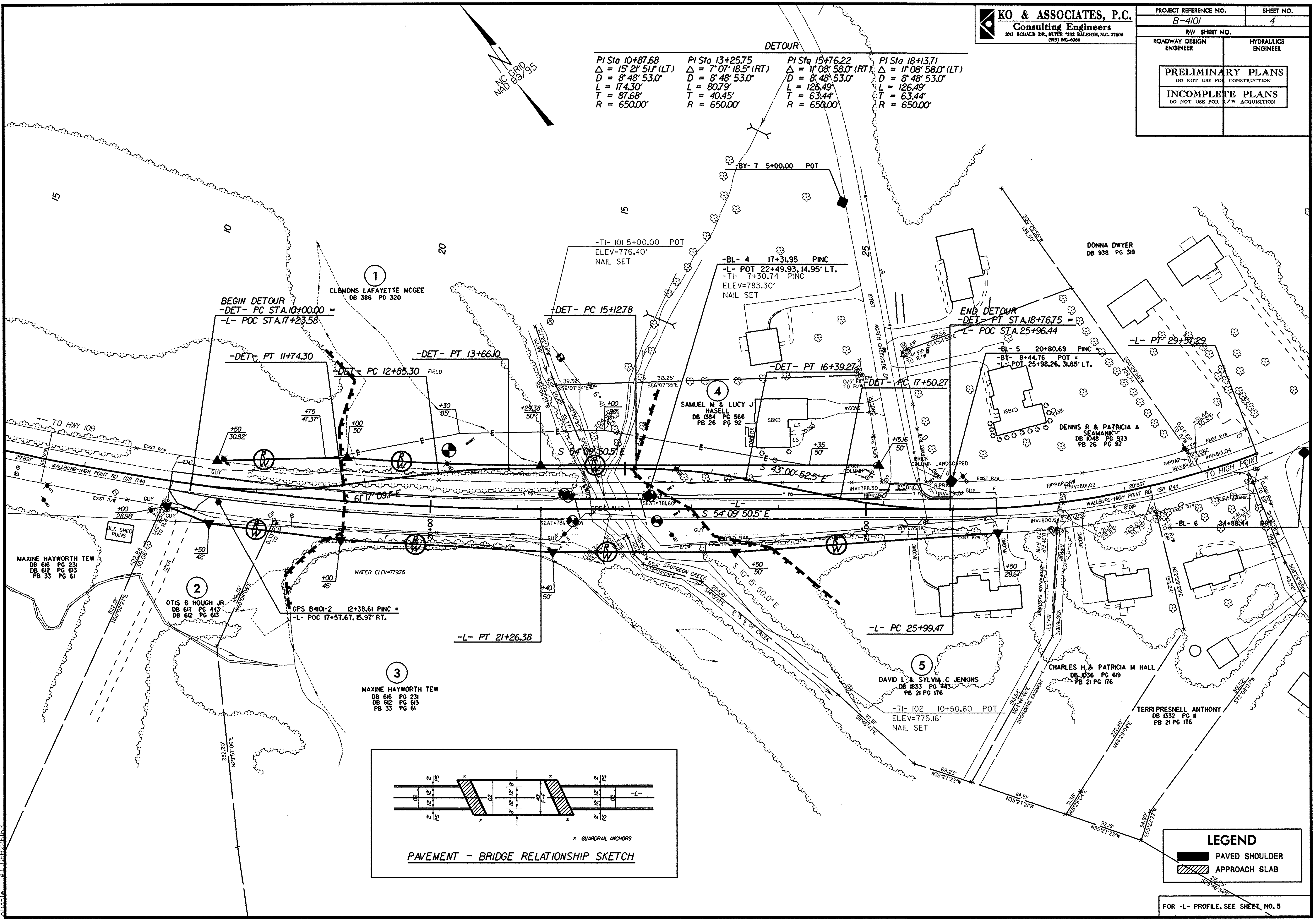
Clint Little
Regional Geologist

PROJECT B4101 COUNTY DAVIDSON

Volume in Cubic Yards

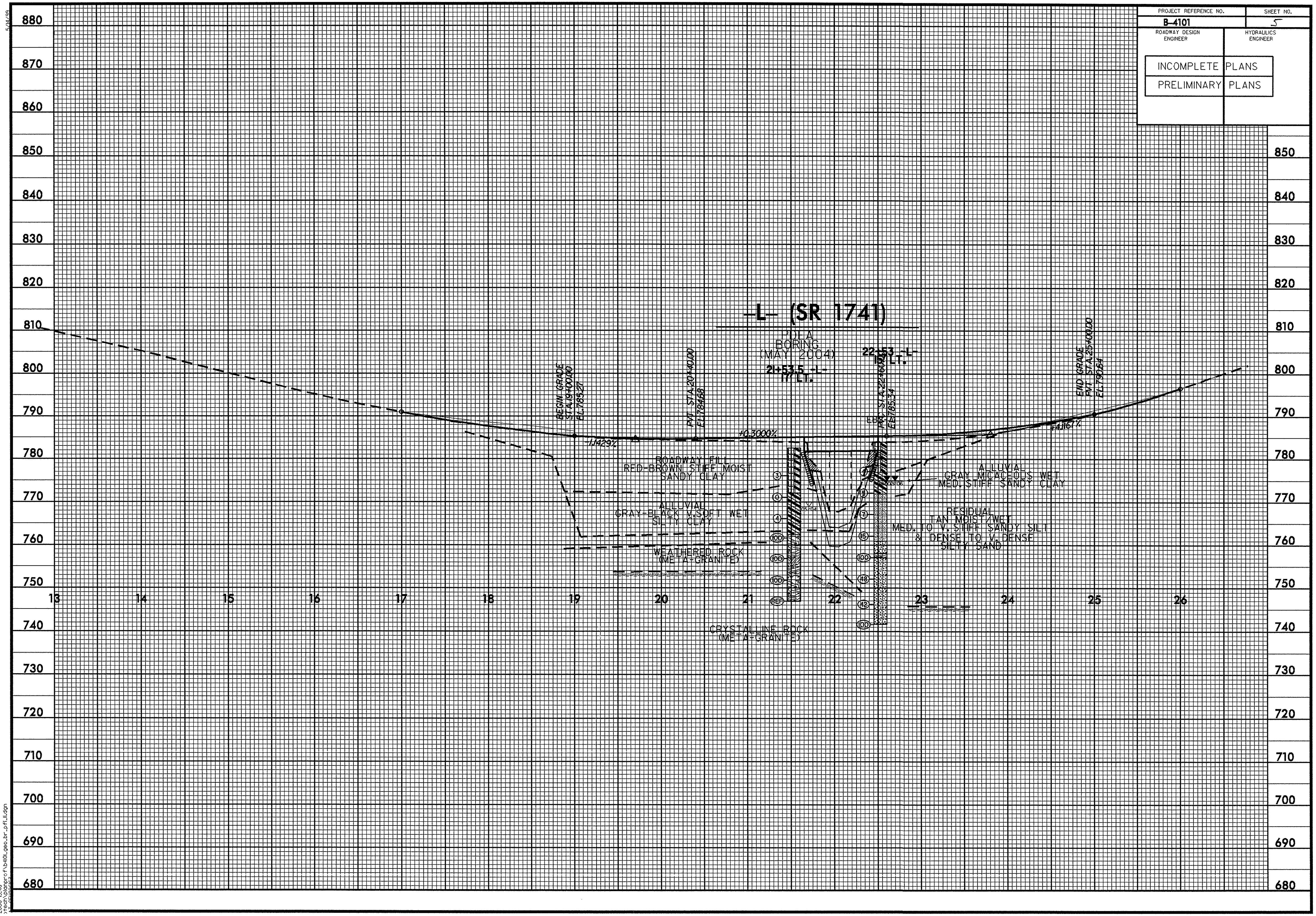
STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE		
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. (+) 15 %		ROCK	SUITABLE	UNSUIT.
SUMMARY NO. 1														
DETOUR (-L- 17+24 TO 21+50)		27				27	2395		2395	2755	2728			
TOTAL SUMMARY NO. 1		27				27	2395		2395	2755	2728			
SUMMARY NO. 2														
DETOUR (-L- 22+35 TO 25+25)		177				177	411		411	473	296			
TOTAL SUMMARY NO. 2		177				177	411		411	473	296			
SUB-TOTAL (SUMMARY 1 THRU 2)		204				204	2806		2806	3228	3024			
EST. BORROW FOR SHOULDER CONST.							207		207	239	239			
DETOUR TOTALS		204				204	3013		3013	3467	3263			
SUMMARY NO. 3														
-L- 17+00 TO 21+00 LEFT		4				4	88		88	102	98			
TOTAL SUMMARY NO. 3		4				4	88		88	102	98			
SUMMARY NO. 4														
-L- 17+00 TO 21+00 RIGHT		16				16	658		658	757	741			
TOTAL SUMMARY NO. 4		16				16	658		658	757	741			
SUMMARY NO. 5														
-L- 21+00 TO 21+65(BRIDGE)		0				0	278		278	320	320			
TOTAL SUMMARY NO. 5		0				0	278		278	320	320			
SUMMARY NO. 6														
-L- 22+50(BRIDGE) TO 24+00		0				0	614		614	707	707			
TOTAL SUMMARY NO. 6		0				0	614		614	707	707			
SUMMARY NO. 7														
-L- 24+00 TO 26+50 LEFT		5				5	1		1	2			3	
TOTAL SUMMARY NO. 7		5				5	1		1	2			3	
SUMMARY NO. 8														
-L- 24+00 TO 26+50 RIGHT		14				14	159		159	183	169			
TOTAL SUMMARY NO. 8		14				14	159		159	183	169			
SUB-TOTAL (SUMMARY 3 THRU 8)		39				39	1798		1798	2071	2035		3	
EST. BORROW IN LIEU OF WASTE											-3		-3	
-L- TOTALS		39				39	1798		1798	2071	2032			
SUMMARY NO. 9														
DETOUR REMOVAL(-L- 18+50 TO 21+50)		2181				2181	0		0	0			2181	
TOTAL SUMMARY NO. 9		2181				2181	0		0	0			2181	
SUMMARY NO. 10														
DETOUR REMOVAL(-L- 22+50 TO 25+50)		420				420	30		30	35			385	
TOTAL SUMMARY NO. 10		420				420	30		30	35			385	
SUB-TOTAL (SUMMARY 9 THRU 10)		2601				2601	30		30	35			2566	
DETOUR REMOVAL TOTALS		2601				2601	30		30	35			2566	
PROJECT TOTALS		2844				2844	4841		4841	5573	5295		2566	
ESTIMATE 5% TO REPLACE TOPSOIL IN BORROW PIT											265			
GRAND TOTAL		2844									5560		2566	
SAY		2850									5600		2600	

ADDITIONAL UNDERCUT = 1000 CY
SELECT GRANULAR MATERIAL = 1500 CY
DDE = 30 CY


KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR., SUITE *202 RALEIGH, N.C. 27606
(919) 863-6066
PROJECT REFERENCE NO. B-4101
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
NC GRID NAD 83/95
DETOUR
PI Sta 10+87.68 Δ = 15° 21' 51.1" (LT) D = 8° 48' 53.0" L = 174.30' T = 87.68' R = 650.00'
PI Sta 13+25.75 Δ = 7° 07' 18.5" (RT) D = 8° 48' 53.0" L = 80.79' T = 40.45' R = 650.00'
PI Sta 15+76.22 Δ = 11° 08' 58.0" (RT) D = 8° 48' 53.0" L = 126.49' T = 63.44' R = 650.00'
PI Sta 18+13.71 Δ = 11° 08' 58.0" (LT) D = 8° 48' 53.0" L = 126.49' T = 63.44' R = 650.00'
-BY- 7 5+00.00 POT
-TI- 101 5+00.00 POT
ELEV=776.40'
NAIL SET
-BL- 4 17+31.95 PINC
-L- POT 22+49.93, 14.95' LT.
-TI- 7+30.74 PINC
ELEV=783.30'
NAIL SET
CLEMONS LAFAYETTE MCGEE
DB 386 PG 320
BEGIN DETOUR
-DET- PC STA.10+00.00 =
-L- POC STA.17+23.58
-DET- PC 15+12.78
-DET- PT 11+74.30
-DET- PC 12+85.30
-DET- PT 13+66.10
-DET- PT 16+39.27
-DET- PC 17+50.27
END DETOUR
-DET- PT STA.18+76.75 =
-L- POC STA.25+96.44
-BL- 5 20+80.69 PINC
-BY- 8+44.76 POT =
-L- POT 25+98.26, 31.85' LT.
-L- PT 29+51.29
DONNA DWYER
DB 938 PG 319
SAMUEL M & LUCY J HASELL
DB 1384 PG 566
PB 26 PG 92
DENNIS R & PATRICIA A SEAMANIK
DB 1048 PG 973
PB 26 PG 92
TO HWY 109
TO HIGH POINT
WALLBURG-HIGH POINT RD (SR 1741)
S 54° 09' 50.5" E
S 43° 00' 52.5" E
61° 17' 09.1" E
S 10° 15' 50.0" E
-BL- 6 24+88.44 POT
MAXINE HAYWORTH TEW
DB 616 PG 231
DB 612 PG 613
PB 33 PG 61
OTIS B HOUGH JR.
DB 617 PG 443
DB 612 PG 613
GPS B4101-2 12+38.61 PINC =
-L- POC 17+57.67, 15.97' RT.
WATER ELEV=779.75
-L- PT 21+26.38
-L- PC 25+99.47
SPURGEON CREEK
-TI- 102 10+50.60 POT
ELEV=775.16'
NAIL SET
DAVID L & SYLVIA C JENKINS
DB 1833 PG 443
PB 21 PG 176
CHARLES H & PATRICIA M HALL
DB 1336 PG 619
PB 21 PG 176
TERRI PRESNELL ANTHONY
DB 1332 PG 11
PB 21 PG 176
GUARDRAIL ANCHORS
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
LEGEND
PAVED SHOULDER
APPROACH SLAB
FOR -L- PROFILE, SEE SHEET NO. 5
8/17/99
11-APR-2006 14:08

PROJECT REFERENCE NO.	SHEET NO.
B-4101	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE	PLANS
PRELIMINARY	PLANS



PROJECT REFERENCE NO.	SHEET NO.
B-4101	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

TEMP. DETOUR

FOR PLAN, SEE SHEET NO. 2-B

TEST RESULTS

Proj. Sample No		HA-1	HA-2	HA-3
Lab. Sample No.		727531	727532	727533
Retained #4 Sieve	%	-	-	-
Passing #10 Sieve	%	100	100	100
Passing #40 Sieve	%	99	95	99
Passing #200 Sieve	%	92	83	94

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%				
Coarse Sand Ret - #60	%	2.0	8.9	1.8
Fine Sand Ret - #270	%	9.1	12.9	7.1
Silt 0.05 - 0.005 mm	%	44.6	33.9	38.7
Clay < 0.005 mm	%	44.4	44.4	52.4
Passing #40 Sieve	%	-	-	-
Passing #200 Sieve	%	-	-	-

L. L		68	52	55
P. I.		30	18	21
AASHTO Classification		A-7-5(35)	A-7-5(18)	A-7-5(25)
Station		13+00	13+00	13+00
OFFSET		25 LT	25 LT	25 LT
Hole No.				
Depth (Ft)		0.00	1.00	3.00
	to	1.00	3.00	4.00

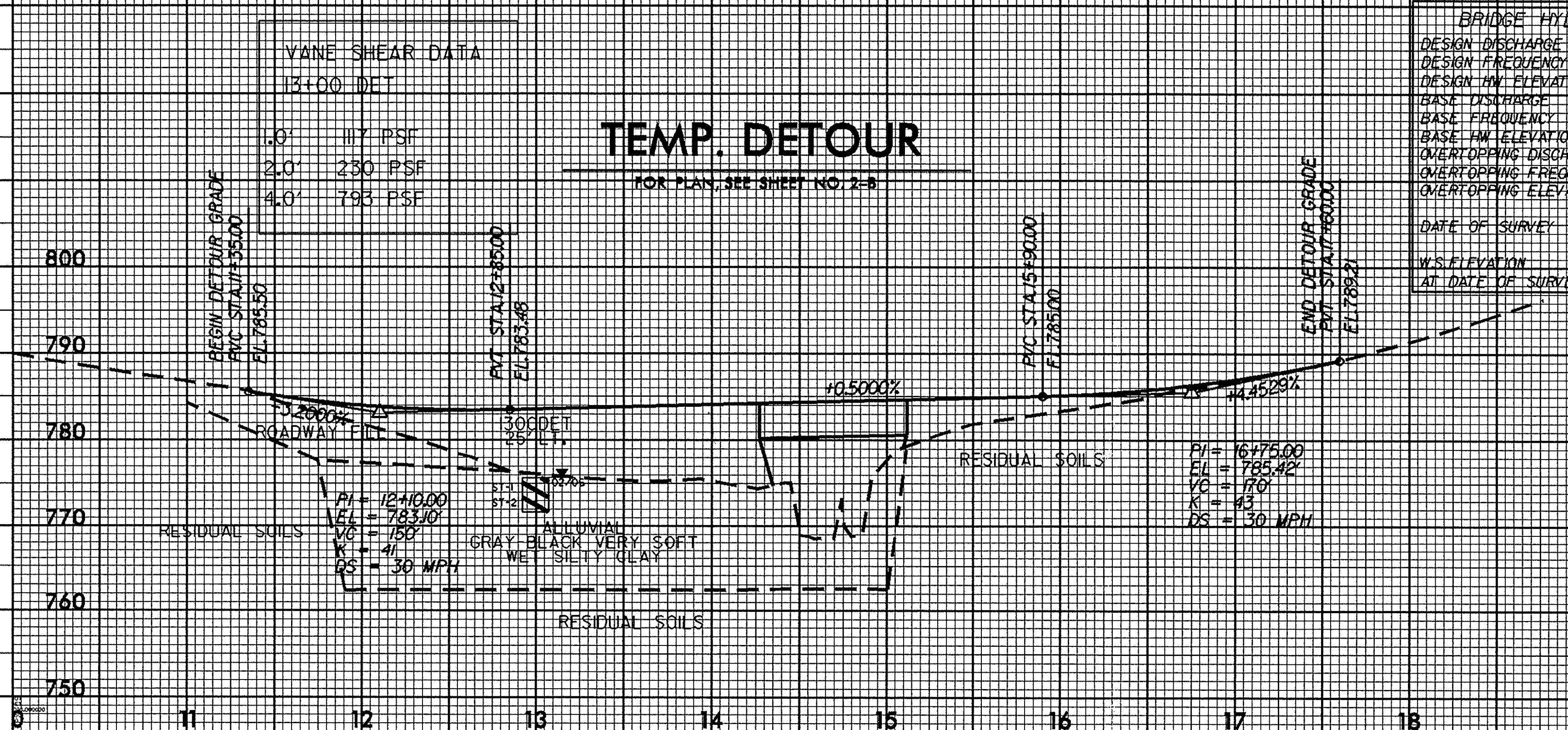
Proj. Sample No.		ST-1
Lab. Sample No.		728879
Retained #4 Sieve	%	
Passing #10 Sieve	%	100
Passing #40 Sieve	%	99
Passing #200 Sieve	%	89

SOIL MORTAR - 100%		
Coarse Sand Ret - #60	%	4.1
Fine Sand Ret - #270	%	11.1
Silt 0.05 - 0.005 mm	%	36.2
Clay < 0.005 mm	%	48.6
Passing #40 Sieve	%	
Passing #200 Sieve	%	

L. L.		53
P. I.		21
AASHTO Classification		A-7-5(22)
Station		20+25 -L-
OFFSET		57' LT.
Hole No.		
Depth (Ft)		1.9-3.9'
	to	

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	900	CFS
DESIGN FREQUENCY	=	5	YR
DESIGN HW ELEVATION	=	777.7	FT
BASE DISCHARGE	=	N/A	CFS
BASE FREQUENCY	=	N/A	YR
BASE HW ELEVATION	=	N/A	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	N/A	YR
OVERTOPPING ELEVATION	=	N/A	FT
DATE OF SURVEY	=	4-22-04	
W.S. ELEVATION AT DATE OF SURVEY	=	769.3	FT



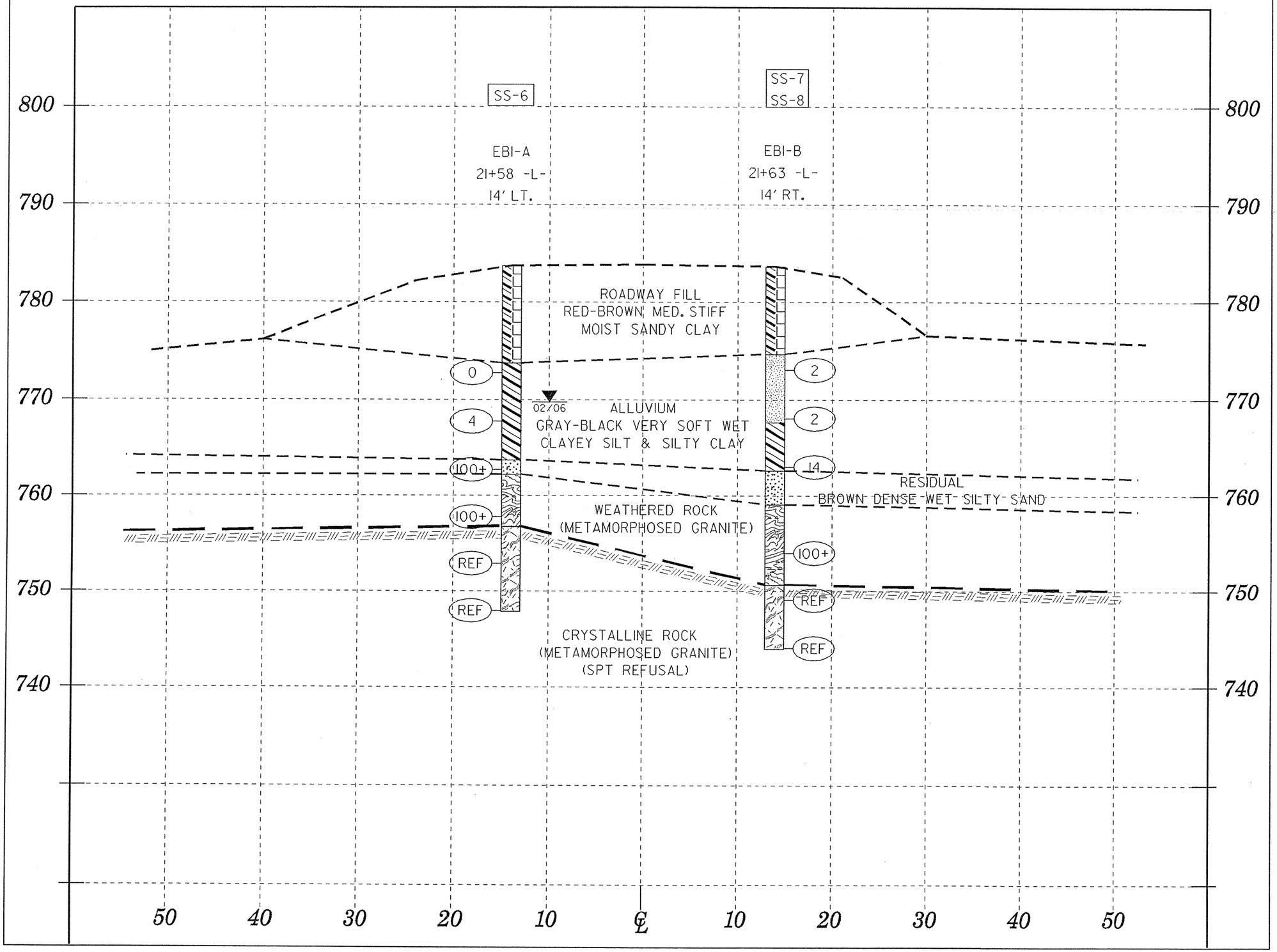
Elevation
890
880
870
860
850
840
830
820
810
800
790
780
770
760
750
740
730
720
710
700
690

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

5/14/99

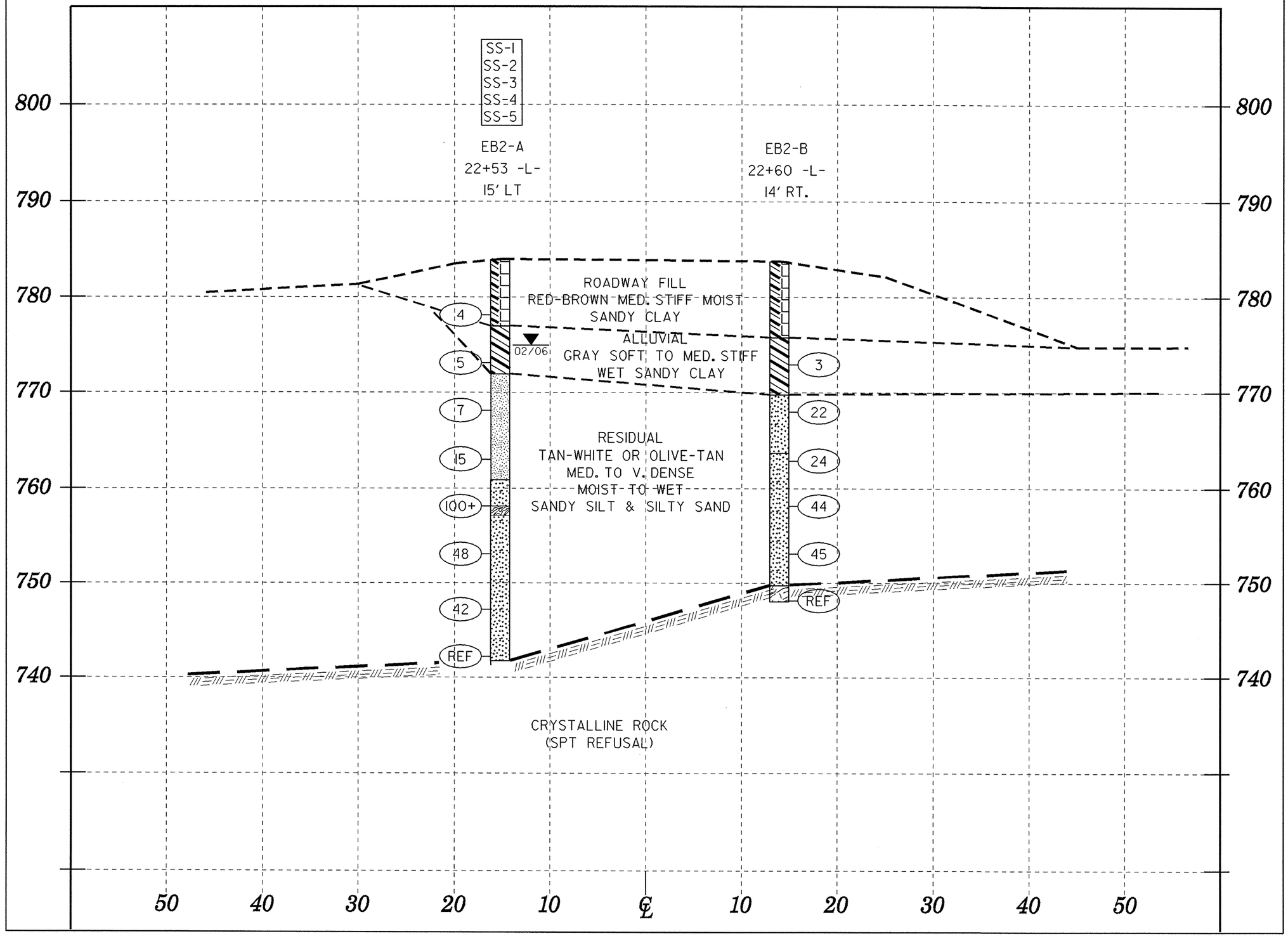
SECTION THROUGH EB1-A & EB1-B

PROJECT B-4101
COUNTY DAVIDSON



SECTION THROUGH EB2-A & EB2-B

PROJECT B-4101
COUNTY DAVIDSON



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. B-4101

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project	3345711	**County**	DAVIDSON	**Owner**	
Date: Sampled	2/8/06	**Received**	2/10/06	**Reported**	2/14/2006
Sampled from				**By**	C C MURRAY
Submitted by	N WAINAINA				1995 **Standard Specifications**

728287 TO 728294
3/6/06

TEST RESULTS

Proj. Sample No.		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
Lab. Sample No.		728287	728288	728289	728290	728291	728292
Retained #4 Sieve	%	1	-	-	-	-	-
Passing #10 Sieve	%	95	99	99	99	97	97
Passing #40 Sieve	%	71	87	92	92	81	80
Passing #200 Sieve	%	40	56	46	43	30	55

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	35.3	19.4	17.6	16.3	32.5	23.7
Fine Sand Ret - #270	%	27.4	31.7	46.4	50.7	43.1	23.7
Silt 0.05 - 0.005 mm	%	18.9	28.5	27.9	28.9	20.3	22.0
Clay < 0.005 mm	%	18.4	20.4	8.2	4.1	4.1	30.6
Passing #40 Sieve	%	-	-	-	-	-	-
Passing #200 Sieve	%	-	-	-	-	-	-

L. L.	37	38	36	35	31	33
P. I.	13	12	NP	NP	NP	15
AASHTO Classification	A-6(2)	A-6(5)	A-4(0)	A-4(0)	A-2-4(0)	A-6(5)
Station	22+53	22+53	22+53	22+53	22+53	21+58
OFFSET	15 LT	15 LT	15 LT	15 LT	15 LT	14 LT
ALIGNMENT	L	L	L	L	L	L
Depth (Ft)	5.80	10.80	15.80		30.80	11.00
to	7.30	12.30	17.30		32.30	12.50

cc: C C MURRAY
Soils File

Soils Engineer

7/10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. [redacted]

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project	3345711	**County**	DAVIDSON	**Owner**	
Date: Sampled	2/8/06	**Received**	2/10/06	**Reported**	2/14/2006
Sampled from				**By**	C C MURRAY
Submitted by	N WAINAINA				1995 **Standard Specifications**

728287 TO 728294
3/6/06

TEST RESULTS

Proj. Sample No.		SS-7	SS-8				
Lab. Sample No.		728293	728294				
Retained #4 Sieve	%	-	-				
Passing #10 Sieve	%	100	97				
Passing #40 Sieve	%	99	80				
Passing #200 Sieve	%	71	52				

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	5.9	25.5				
Fine Sand Ret - #270	%	31.7	25.7				
Silt 0.05 - 0.005 mm	%	35.9	20.1				
Clay < 0.005 mm	%	26.6	28.6				
Passing #40 Sieve	%	-	-				
Passing #200 Sieve	%	-	-				

L. L.	35	33				
P. I.	10	13				
AASHTO Classification	A-4(6)	A-6(4)				
Station	21+63	21+63				
	14 RT	14 RT				
Hole No.	L	L				
Depth (Ft)	10.60	15.60				
to	12.10	17.10				

Soils Engineer

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No. B-4101

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project 33457.1.1 **County** DAVIDSON **Owner**
Date: Sampled 3/20/06 **Received** 3/31/06 **Reported** 04/04/06
Sampled from BRIDGE **By** C B LITTLE
Submitted by R PRIVETTE T-4926 1995 **Standard Specifications**

728879 TO 728879
4/5/06

TEST RESULTS

Proj. Sample No.		ST-1					
Lab. Sample No.		728879					
Retained #4 Sieve	%	-					
Passing #10 Sieve	%	100					
Passing #40 Sieve	%	99					
Passing #200 Sieve	%	89					

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	4.1					
Fine Sand Ret - #270	%	11.1					
Silt 0.05 - 0.005 mm	%	36.2					
Clay < 0.005 mm	%	48.6					
Passing #40 Sieve	%	-					
Passing #200 Sieve	%	-					

L. L.	53					
P. I.	21					
AASHTO Classification	A-7-5(22)					
Station	20+25					
OFFSET	57 LT					
Hole No.						
Depth (Ft)						
to						

cc: R L PRIVETTE
STEVE BROWN
STEVE WIRTH
CHRIS CHEN
Soils File

Soils Engineer

M & T Form 503

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY
MATERIALS & TESTS UNIT
SOILS LABORATORY

T. I. P. No.

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project 33457.1.1 **County** DAVIDSON **Owner**
Date: Sampled 3/20/06 **Received** 4/17/06 **Reported** 4/19/06
Sampled from **By** C B LITTLE
Submitted by R L PRIVETTE T-4927 1995 **Standard Specifications**

729274 TO 729274
4/25/06

TEST RESULTS

Proj. Sample No.		ST-2					
Lab. Sample No.		729274					
Retained #4 Sieve	%	-					
Passing #10 Sieve	%	100					
Passing #40 Sieve	%	100					
Passing #200 Sieve	%	92					

MINUS NO. 10 FRACTION

SOIL MORTAR - 100%							
Coarse Sand Ret - #60	%	1.0					
Fine Sand Ret - #270	%	12.9					
Silt 0.05 - 0.005 mm	%	51.7					
Clay < 0.005 mm	%	34.3					
Passing #40 Sieve	%	-					
Passing #200 Sieve	%	-					

L. L.	48					
P. I.	18					
AASHTO Classification	A-7-5(20)					
Station	20+25					
OFFSET	55					
ALIGNMENT	L					
Depth (Ft)	2.00					
to	4.00					

cc: R L PRIVETTE
STEVE BROWN
STEVE WIRTH
CHRIS CHEN
Soils File

Soils Engineer

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