

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

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

| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | B-4117 | 1 | 12 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33472.1.1 | BRZ-1820(3) | PE | |
| 33472.2.1 | BRZ-1820(3) | RW, UTIL. | |
| 33472.3.1 | BRZ-1820(3) | CONST. | |

CONTENTS

| LINE | STATION | PLAN | PROFILE | XSECT |
|--------------------------|-------------------|------|---------|-------|
| -L- | 14+00 TO 28+25 | 4 | 5 | 6-II |
| -DRIVE2- | 10+12 TO 12+24.22 | 4 | 5 | - |
| - | - | - | - | - |
| SOIL SAMPLE TEST RESULTS | | | | 12 |

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 33472.1.1 F.A. PROJ. BRZ-1820(3)
COUNTY GASTON
PROJECT DESCRIPTION BRIDGE NO. 173 OVER
SAILOR'S BRANCH CREEK ON SR 1820

INVENTORY

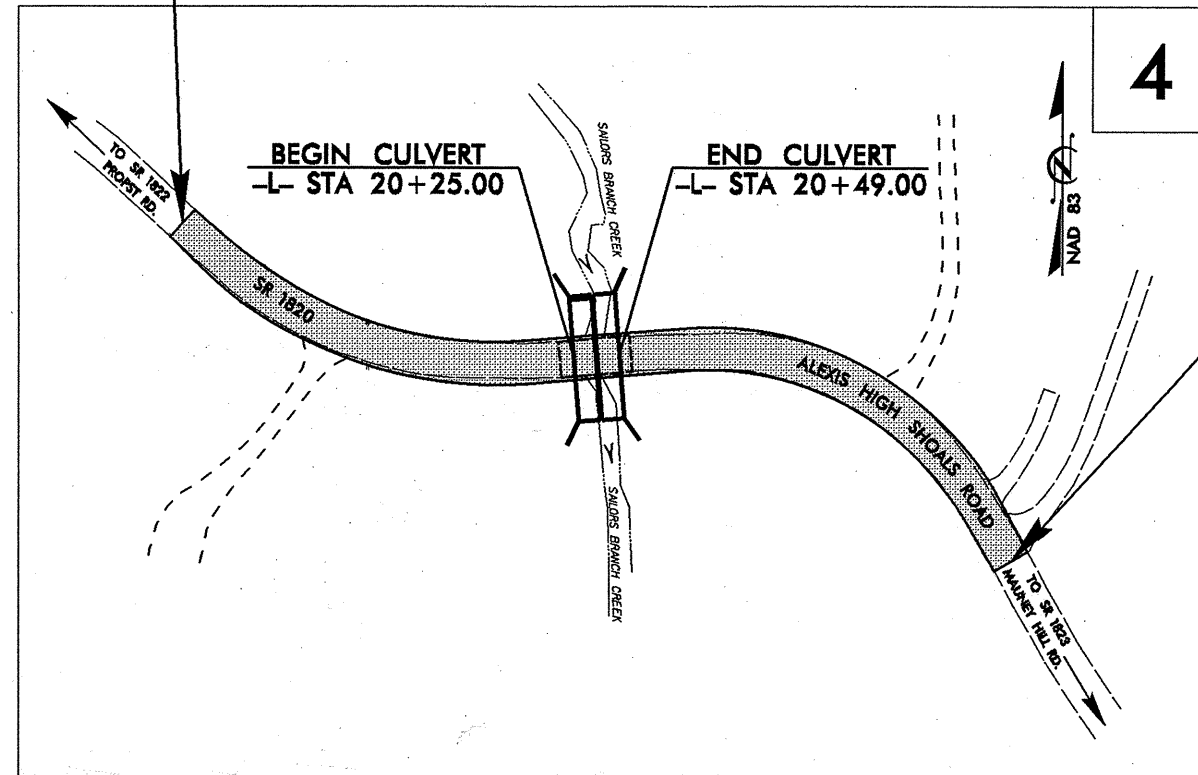
CAUTION NOTICE
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH 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.

CONTRACT: C202374 ID: B-4117

BEGIN TIP PROJECT B-4117
-L- STA. 18+00.00



END TIP PROJECT B-4117
-L- STA. 23+00.00

Design has been revised since the geotechnical investigation was performed

PERSONNEL
RW TODD
ML SMITH
AC SMITH

INVESTIGATED BY RWTCBL

CHECKED BY _____

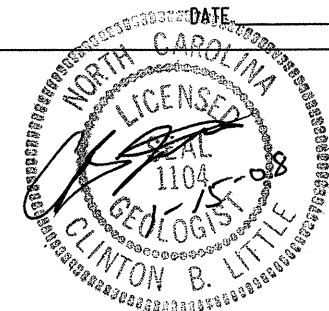
SUBMITTED BY CB LITTLE

JANUARY 2008

DRAWN BY: C 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

See Sheet 1 A For Index of Sheets

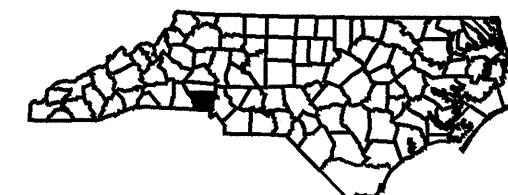
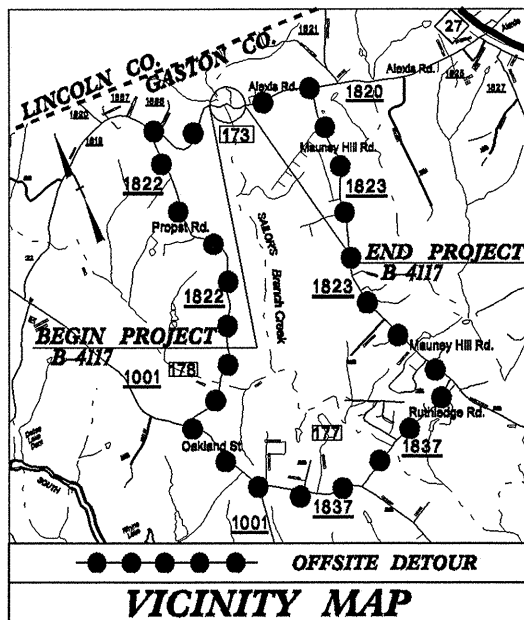
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GASTON COUNTY

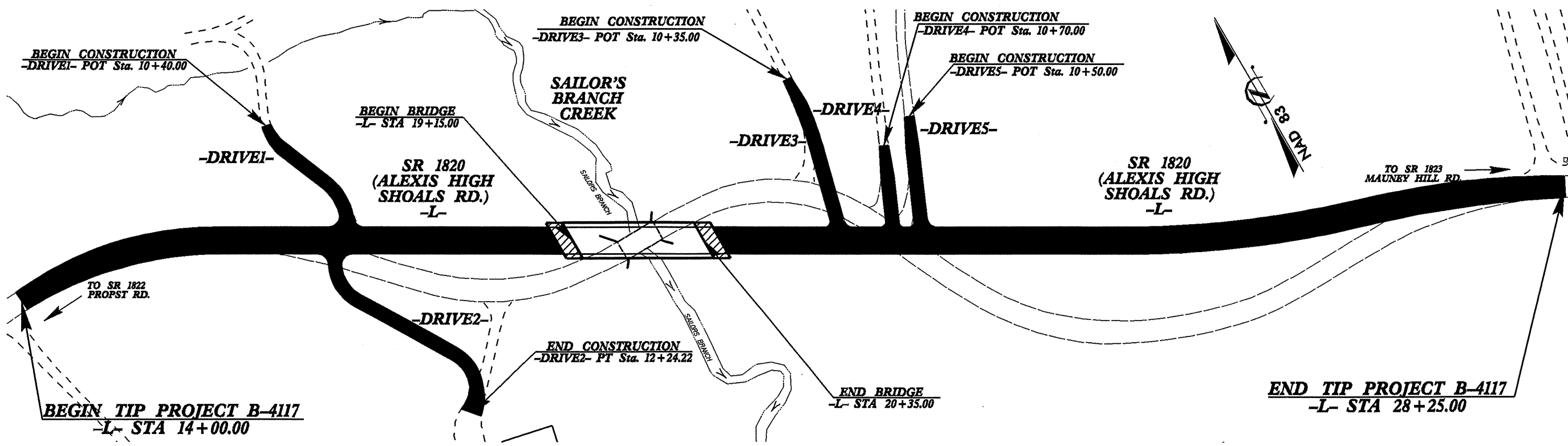
LOCATION: BRIDGE No. 173 OVER SAILOR'S BRANCH CREEK
ON SR 1820

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURES

| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | B-4117 | 1A | 1 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33472.1.1 | BRZ-1820(3) | PE | |
| | | | |
| | | | |
| | | | |



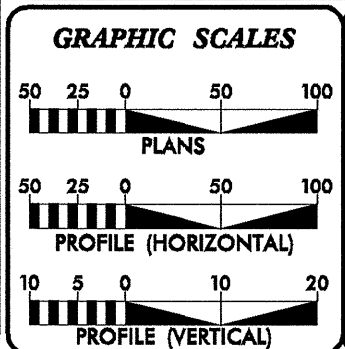
TIP PROJECT: B-4117



** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 30 MPH
THERE IS NO CONTROL OF ACCESS FOR THIS PROJECT
THIS PROJECT DOES NOT LIE WITHIN MUNICIPAL BOUNDARIES
CLEARING SHOULD BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD__.

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

CONTRACT:



DESIGN DATA

| | |
|------------|----------|
| ADT 2008 = | 1717 |
| ADT 2030 = | 3248 |
| DHV = | 10 % |
| D = | 60 % |
| T = | 4 % * |
| V** = | 60 MPH |
| * TTST 1 % | DUAL 3 % |

PROJECT LENGTH

| | |
|--|-------|
| LENGTH ROADWAY TIP PROJECT B-4117 = | 0.247 |
| LENGTH STRUCTURES TIP PROJECT B-4117 = | 0.023 |
| TOTAL LENGTH OF TIP PROJECT B-4117 = | 0.270 |

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 15, 2008

LETTING DATE:
AUGUST 18, 2009

TONY HOUSER, PE
PROJECT ENGINEER

JASON TALLEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: _____

SIGNATURE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

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c:\title AT 6EH226163

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

| | |
|------------------------------------|----------------|
| PROJECT REFERENCE NO. 33472.1.1 | SHEET NO. 2 |
|------------------------------------|----------------|

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

| SOIL DESCRIPTION | | GRADATION | | ROCK DESCRIPTION | | TERMS AND DEFINITIONS | | | | | |
|--|--|---|--|--|--|---|--|--|--|---|--|
| SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-6</i> | | WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. | | 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: | | 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 (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCREC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. | | | | | |
| SOIL LEGEND AND AASHTO CLASSIFICATION | | MINERALOGICAL COMPOSITION | | WEATHERING | | BENCH MARK: | | | | | |
| GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS | | MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. | | FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL.) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL.) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH, OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD.) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. 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. 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. 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. | | WEATHERED ROCK (WR) CRYSTALLINE ROCK (CR) NON-CRYSTALLINE ROCK (NCR) COASTAL PLAIN SEDIMENTARY ROCK (CP) | | NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC. | | ELEVATION: _____ FT. NOTES: | |
| GROUP CLASS. A-1, A-2, A-3, A-4, A-5, A-6, A-7 | | COMPRESSIBILITY | | ROCK HARDNESS | | EQUIPMENT USED ON SUBJECT PROJECT | | | | | |
| SYMBOL | | SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE | | 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 FINGER NAIL. | | LIQUID LIMIT LESS THAN 31 LIQUID LIMIT EQUAL TO 31-50 LIQUID LIMIT GREATER THAN 50 | | DRILL UNITS: <input type="checkbox"/> MOBILE B-____ <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-550 <input type="checkbox"/> PORTABLE HOIST | | ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG-CARBIDE INSERTS <input type="checkbox"/> CASING <input type="checkbox"/> W/ ADVANCER <input type="checkbox"/> TRICONE _____ * STEEL TEETH <input type="checkbox"/> TRICONE _____ * TUNG-CARB. <input type="checkbox"/> CORE BIT | |
| PERCENTAGE OF MATERIAL | | GROUND WATER | | FRACTURE SPACING | | BEDDING | | | | | |
| ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL | | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP | | 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 | | 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 | | | | | |
| TRACE OF ORGANIC MATTER 2 - 3% LITTLE ORGANIC MATTER 3 - 5% MODERATELY ORGANIC 5 - 10% HIGHLY ORGANIC > 10% | | WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP | | INDURATION | | FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS | | | | | |
| GROUP INDEX | | MISCELLANEOUS SYMBOLS | | FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC. | | FRAGILE 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. | | | | | |
| USUAL TYPES OF MAJOR MATERIALS | | ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD | | TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE 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 | | | | | |
| GEN. RATING AS A SUBGRADE | | ABBREVIATIONS | | HAMMER TYPE: <input checked="" type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL | | CORE SIZE: <input type="checkbox"/> B-____ <input type="checkbox"/> N-____ <input type="checkbox"/> H-____ | | | | | |
| PI OF A-7-5 SUBGROUP IS <= LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 | | 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 | | HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST | | CONCRETE | | | | | |
| CONSISTENCY OR DENSENESS | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| GENERAL SOFT MEDIUM STIFF STIFF VERY STIFF HARD | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| TEXTURE OR GRAIN SIZE | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| U.S. STD. SIEVE SIZE OPENING (MM) | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.) | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| GRAIN SIZE | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| SOIL MOISTURE - CORRELATION OF TERMS | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| LL - LIQUID LIMIT PL - PLASTIC LIMIT OM - OPTIMUM MOISTURE SL - SHRINKAGE LIMIT | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| PLASTICITY | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| COLOR | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |
| 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. | | CONCRETE | | CONCRETE | | CONCRETE | | | | | |

EARTHWORK BALANCE SHEET

PROJECT: B-4117 COUNTY: Gaston DATE: 6-Jan-10 Volumes in Cubic Yards COMPILED BY: _____ TO _____ SHEET 3 OF 12 SHEETS

| STATION | STATION | EXCAVATION | | | | | EMBANKMENT | | | | BORROW | WASTE | | | |
|----------|---|----------------|------|----------|------------------|-------------------|------------|------|-------|--------------|--------|-------|----------|---------|-------|
| | | TOTAL UNCLASS. | ROCK | UNDERCUT | UNSUIT. UNCLASS. | SUITABLE UNCLASS. | TOTAL | ROCK | EARTH | EMBANK. +20% | | ROCK | SUITABLE | UNSUIT. | TOTAL |
| 18+00.00 | 23+00.00 | 339 | | | | 339 | 764 | | 764 | 917 | 578 | | | | |
| | SUBTOTAL | 339 | | | | 339 | 764 | | 764 | 917 | 578 | | | | |
| | | | | | | | | | | | | | | | |
| | SUBTOTAL | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | SUBTOTAL | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | SUBTOTAL | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | SUBTOTAL | | | | | | | | | | | | | | |
| | TOTAL | 339 | | | | 339 | 764 | | 764 | 917 | 578 | | | | |
| | MATERIAL FOR SHOULDER CONSTRUCTION | | | | | | | | | | | | | | |
| | LOSS DUE TO CLEARING & GRUBBING | -50 | | | | -50 | | | | | 50 | | | | |
| | DRAINAGE DITCH EXCAVATION | | | | | | | | | | | | | | |
| | ROCK WASTE TO REPLACE BORROW | | | | | | | | | | | | | | |
| | ADJUST FOR ROCK WASTE | | | | | | | | | | | | | | |
| | WASTE IN LIEU OF BORROW | | | | | | | | | | | | | | |
| | PROJECT TOTAL | 289 | | | | 289 | 764 | | 764 | 917 | 628 | | | | |
| | EST. 5% TO REPLACE TOP SOIL ON BORROW PIT | | | | | | | | | | 31 | | | | |
| | GRAND TOTAL | 289 | | | | 289 | 764 | | 764 | 917 | 659 | | | | |
| | SAY | 300 | | | | | | | | | 680 | | | | |

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.
 DDE = 170 CUBIC YARDS
 PER GEOTECH RECOMMENDATION, ESTIMATED 250 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 11, 2008

STATE PROJECT: 33472.1.1 (B-4117)
FEDERAL PROJECT: BRZ-1820(3)
COUNTY: Gaston
DESCRIPTION: Bridge No. 173 over Sailor's Branch Creek on SR 1820
SUBJECT: Geotechnical Report - Inventory

PROJECT DESCRIPTION

The project is located in north-central Gaston County, south of Lincolnton and between the towns of Alexis and High Shoals. This is a bridge replacement project. The stream crossing is at approximately the current location, but there is some relocation of both approaches to improve alignment. The proposed embankment height over the floodplain is about ten feet. Maximum depth of proposed cut is about twenty feet within the relocated section near Station 24 -L-.

The Geotechnical investigation consisted of ten borings, four Standard Penetration Test (SPT) borings and six standard auger borings without tests. All borings were performed with a CME-550 drill rig using 8" hollow stem augers or 6" standard augers. The borings were conducted in November, 2007.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

There are no areas of particular geotechnical concern, but crystalline rock (as defined by auger refusal) was encountered above proposed grade in the cut interval from approximate Stations 24 to 26 -L-.

PHYSIOGRAPHY AND GEOLOGY

The site is in the Piedmont Physiographic Province, Kings Mountain Geologic Belt. The area is mapped as High Shoals Granite. We did not obtain any rock core samples and no outcrops were present. The saprolite samples were more consistent with schist or meta-volcanic rock, both common within the Kings Mountain Belt.

Project elevations range from a low in the stream channel of about 720' to a high at the end of the project of about 780'. The floodplain elevation is near 730'. The floodplain along the centerline of -L- runs from approximate Station 18+40 to 21+20.

SOIL PROPERTIES

Residual Soils

There appear to be three rather distinct groupings of residual soil. From the beginning of the project to the stream (14+00 to 19+50 -L-), the soil is hard, dry, sandy clay, 15' to 20' thick with an abrupt transition to rock. From there ahead to Station 23+50, the soil is gray-white or brown, medium to very dense silty sand with mica. These borings were advanced to 20' or more below proposed grade and did not encounter rock. At Station 24+00, there is an abrupt change to a very dense gray-white coarse sand. These coarse sands grade to weathered rock within three to eight feet. Crystalline rock (auger refusal) occurred above proposed grade in the borings at Stations 24+00, 24+50, and 25+00 -L-.

Artificial/Roadway Fill Soils

Artificial fills were not encountered. The existing roadway embankment has a maximum height of about eight feet. The fill is present only in the vicinity of the existing bridge. We did not test or sample the fill soils.

Alluvial Soils

The alluvial deposit within the floodplain is eight to twelve feet thick with an upper layer of medium stiff silty clay, 2' to 6' thick, and a lower layer of loose sand.

ROCK

Crystalline rock defined by auger refusal was encountered above proposed grade from approximate station 23+50 to 25+50 -L-. The borings and interpolated rock line are shown on the attached cross-sections. One boring conducted 60' right of -Drive2- also encountered rock, at an elevation about four feet above the proposed grade. The location of this boring is actually outside of the proposed slope stake limits. It may or may not be indicative of the conditions on the alignment.

GROUNDWATER

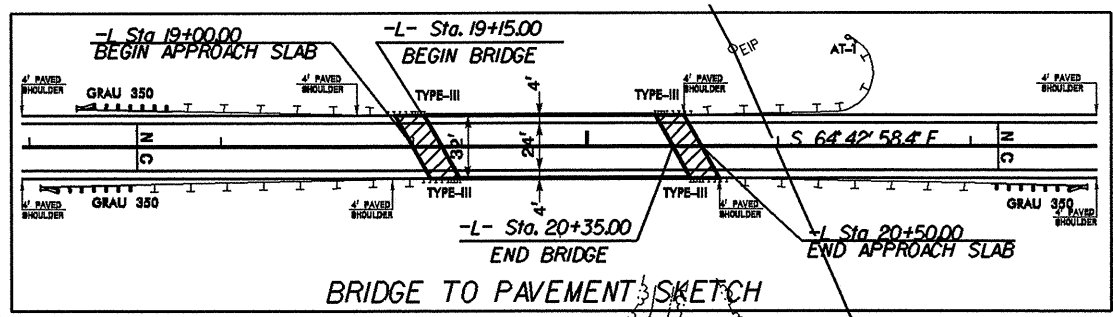
Groundwater was encountered only in the floodplain borings, at depths of 5 to 7 feet (Elevation 721-723').

Respectfully submitted,

Clint Little
Regional Geological Engineer

| | |
|---|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| B-417 | 4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| | |
| INCOMPLETE PLANS DO NOT USE FOR ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 30 MPH
 ** SEE DRIVEWAY INTERSECTION DETAIL SHEET 2-A FOR DRIVEWAY ALIGNMENT INFORMATION



BEGIN TIP PROJECT B-417
 POT Sta. 14+00.00

BEGIN CONSTRUCTION
 -DRIVE1- POT Sta. 10+40.00
 -BL-1 STA 8+14.77 PINC=
 -L- STA 15+98.28 (15.99' LT)
 -L- PT Sta. 15+89.39

1
 THURSTON T. HICKS
 & NATALIE B. HICKS
 DB 1090 PG 19
 DB 1928 PG 247

-L- Sta. 19+15.00
BEGIN BRIDGE

-L- Sta. 19+00.00
BEGIN APPROACH SLAB

6
 JEM A. JONES
 & TANYA JONES
 DB 3915 PG 814-816
BEGIN CONSTRUCTION
 -DRIVE3- POT Sta. 10+35.00

7
 HELEN L. CLONINGER
 DB 094E PG 258

BEGIN CONSTRUCTION
 -DRIVE4- POT Sta. 10+70.00

BEGIN CONSTRUCTION
 -DRIVE5- POT Sta. 10+50.00

-BL-4 STA 20+51.96 POT=
 -L- STA 27+74.60 (14.73' LT)

8
 WILLIAM T. &
 BETSY R. McPHERSON
 DB 2463 PG 655

-L- PRC Sta. 26+34.86

-L- Sta. 19+15.00
BEGIN BRIDGE

-L- Sta. 19+00.00
BEGIN APPROACH SLAB

-L- Sta. 20+35.00
END BRIDGE

-L- Sta. 20+50.00
END APPROACH SLAB

-DRIVE5- POT Sta. 11+63.43=
 -L- Sta. 22+34.64

BM #3
 -BL- STA 20+42.96
 28.50' LEFT
 ELEV.=780.80'
 -L- STA 27+56.64
 38.21' LEFT

RESIDUAL
 -DRIVE1- POT Sta. 11+75.04=
 -L- Sta. 17+10.00

-L- Sta. 20+35.00
END BRIDGE

-L- Sta. 20+50.00
END APPROACH SLAB

-DRIVE4- POT Sta. 11+56.46=
 -L- Sta. 22+08.93

-DRIVE3- POT Sta. 11+90.57=
 -L- Sta. 21+61.22

-L- PT Sta. 28+13.71
 S 66°55'07.9" E

END TIP PROJECT B-417
 -L- POT Sta. 28+25.00

-BL-3 STA 16+81.67 PINC=
 -L- STA 24+34.88 (100.49' RT)
 -L- PC Sta. 24+20.41

5
 CAROLYN FASSOUX STAMBAUGH
 DB 1745 PG 878

-DRIVE2- POT Sta. 10+00.00=
 -L- Sta. 16+98.00

END CONSTRUCTION
 -DRIVE2- PT Sta. 12+24.22

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY MDDOT FOR MONUMENT STATION 84117-1 WITH HAD 1983 STATE PLANE GRID COORDINATES OF NORTHING: 6080344.49 (N) EASTING: 1358487.94 (E) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.999845000 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM 84117-1 TO L- STATION 14+0000 IS N 46° 13' 16.43" 1273.568' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

| | |
|---------------------------------------|----------------------|
| | PAVEMENT REMOVAL |
| | BRIDGE APPROACH SLAB |
| FOR -L- PROFILE, SEE SHEET NO. 5 | |
| FOR -DRIVE1- PROFILE, SEE SHEET NO. 5 | |
| FOR -DRIVE2- PROFILE, SEE SHEET NO. 5 | |
| FOR -DRIVE3- PROFILE, SEE SHEET NO. 6 | |
| FOR -DRIVE4- PROFILE, SEE SHEET NO. 6 | |
| FOR -DRIVE5- PROFILE, SEE SHEET NO. 6 | |

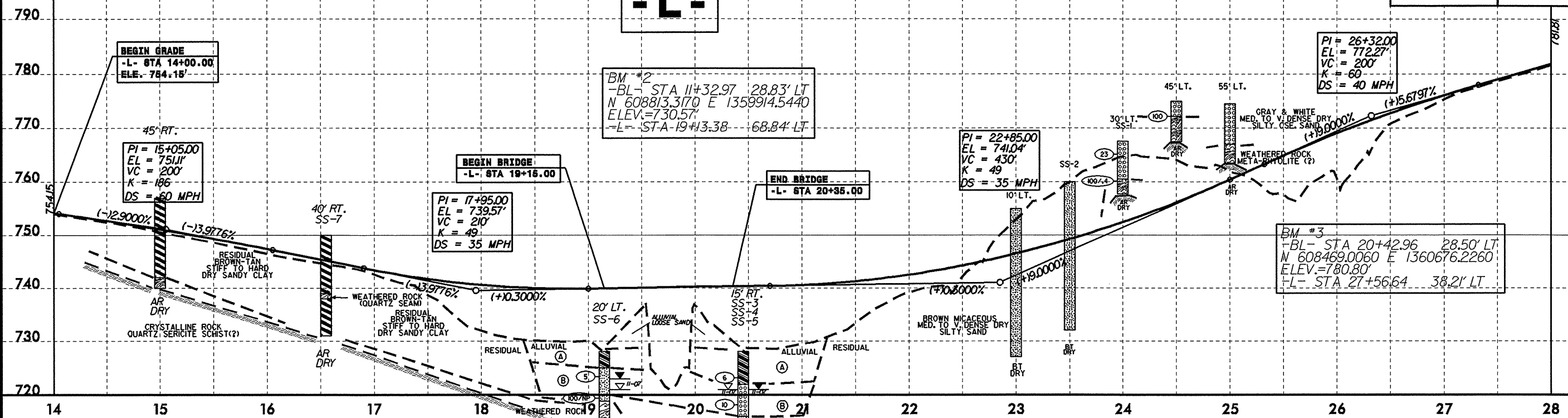
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5/28/99

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|--|---------------------|
| PROJECT REFERENCE NO. B-417 | SHEET NO. 5 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

** DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 60 MPH TO 30 MPH

-L-

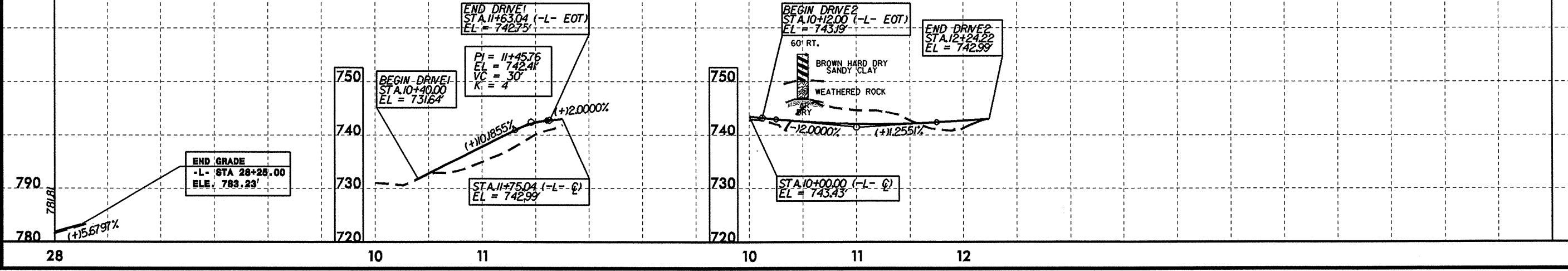


SEE SHEET 4 FOR -L- ALIGNMENT
SEE SHEET 4 FOR -DRIVE1- ALIGNMENT
SEE SHEET 4 FOR -DRIVE2- ALIGNMENT

-L-

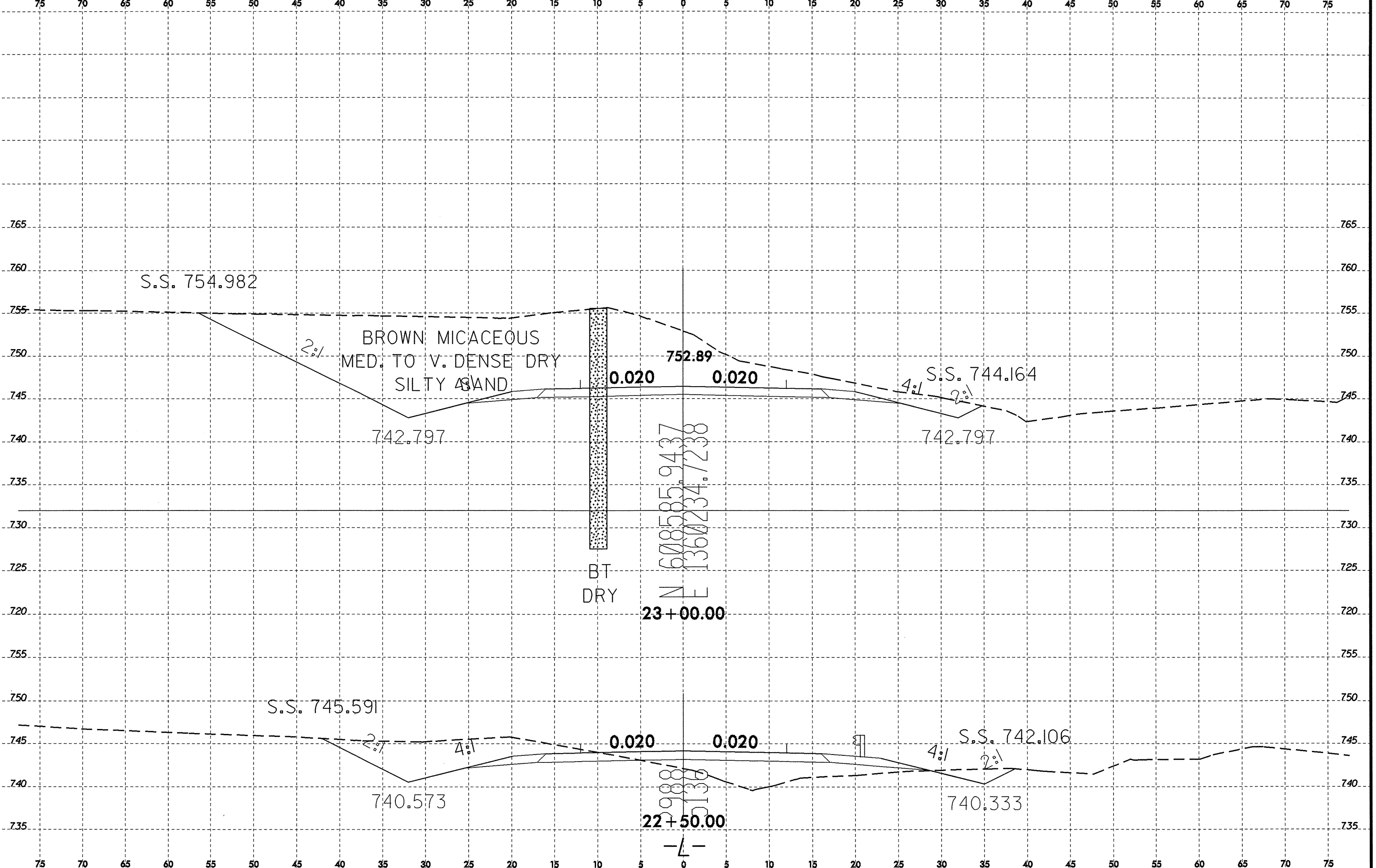
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-DRIVE2-



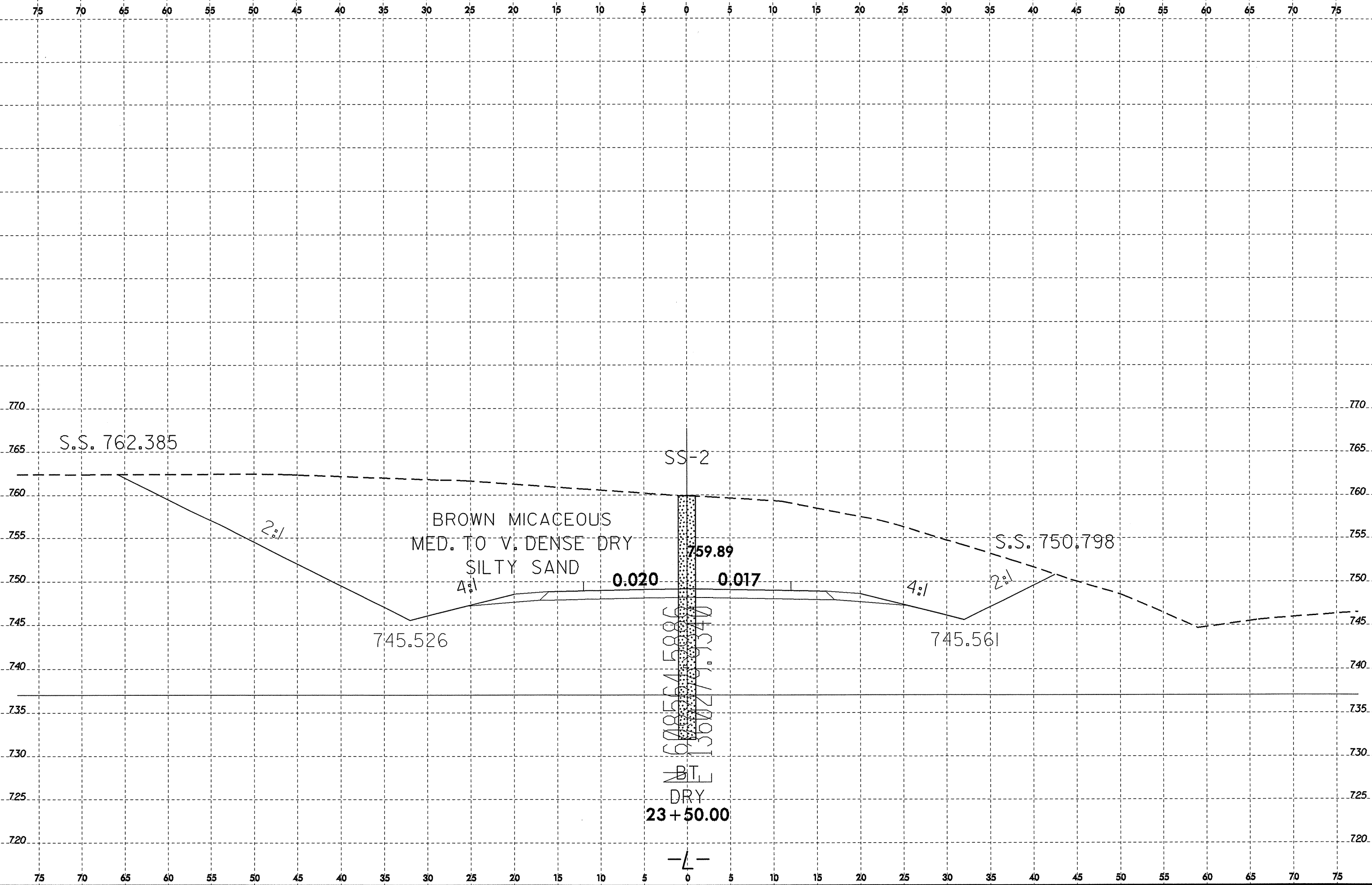
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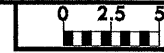


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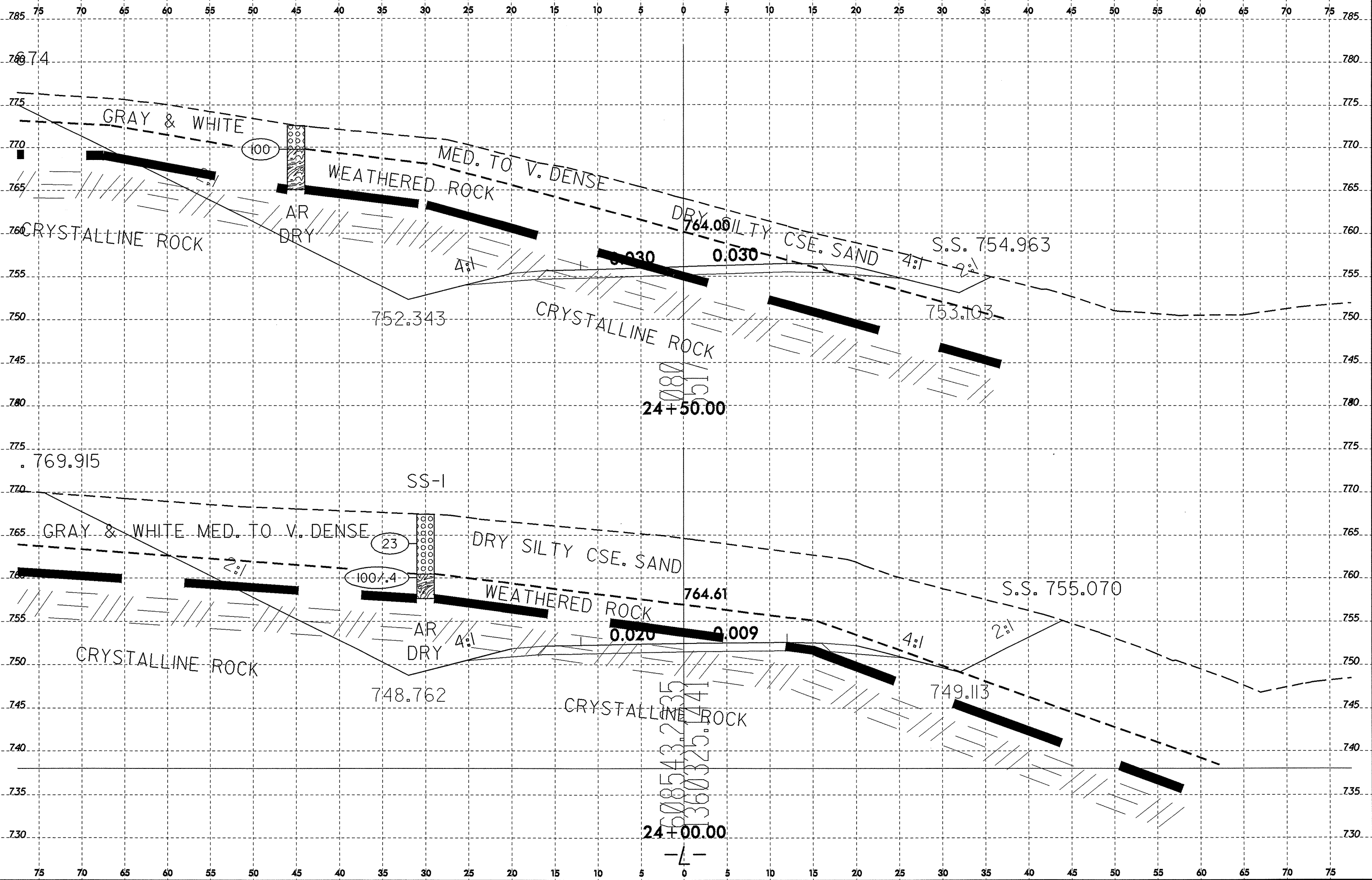
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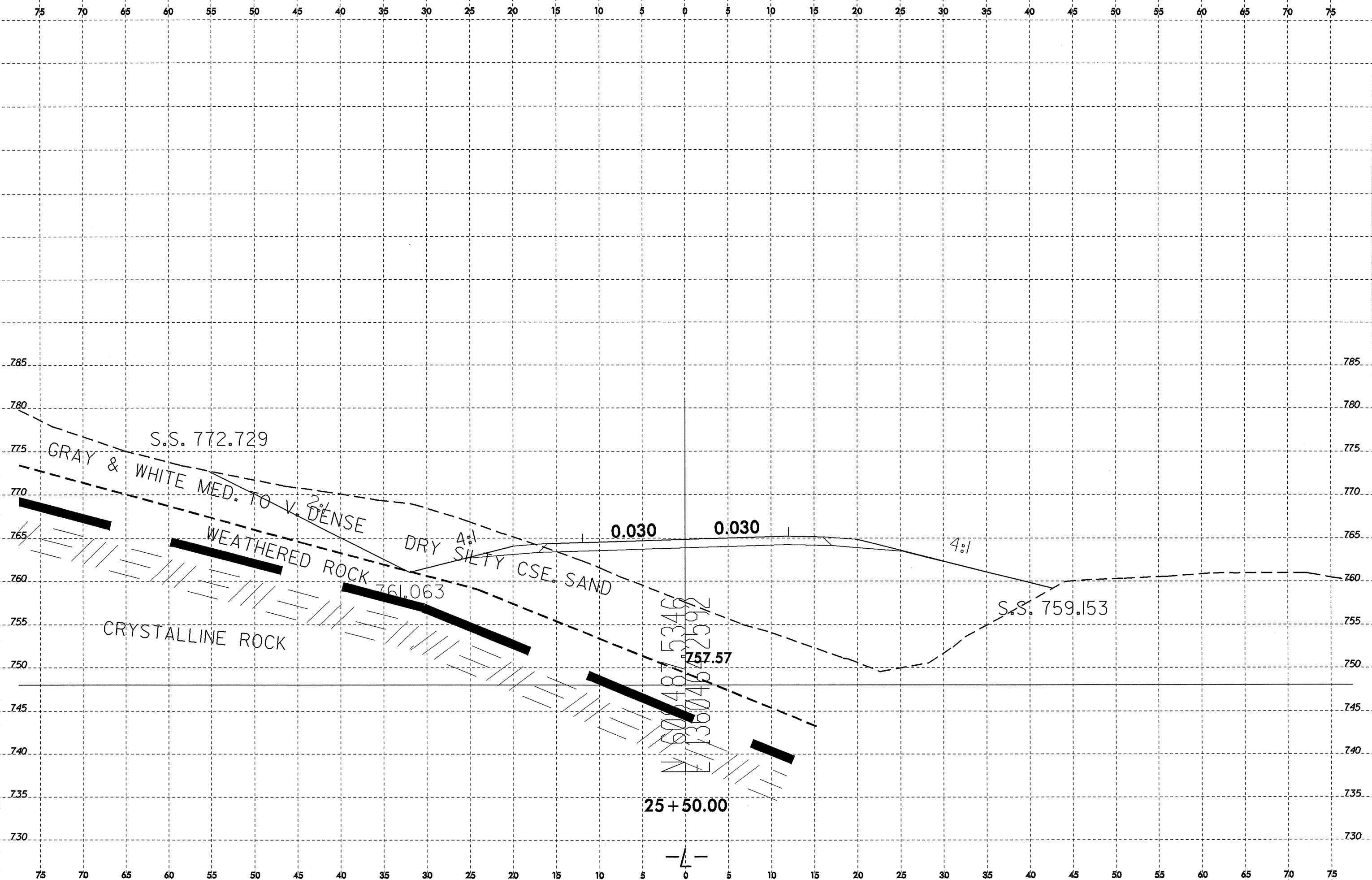
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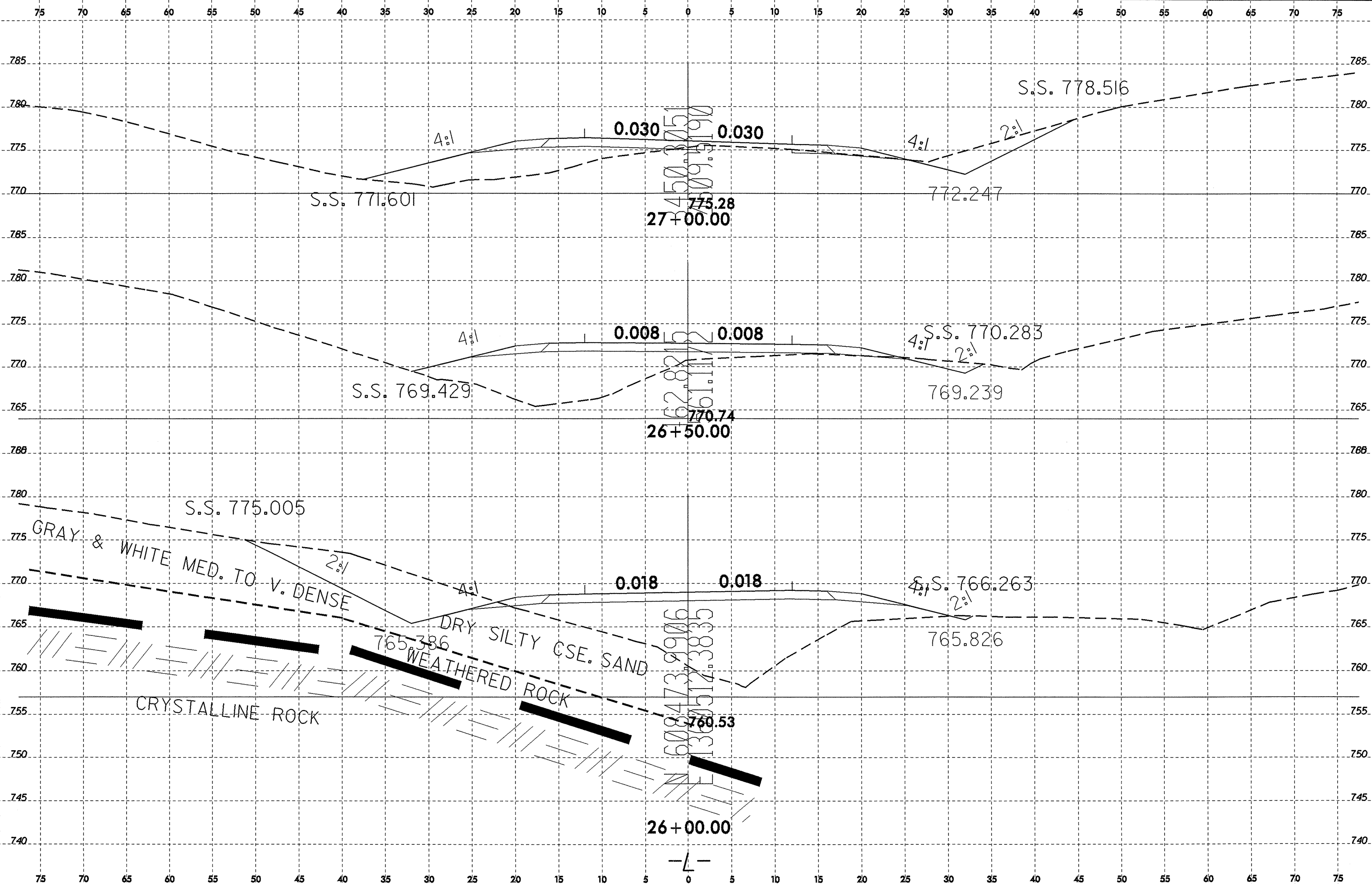
PROJ. REFERENCE NO. B-4117 SHEET NO. 8



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

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

T. I. P. No. B-4117

T. I. P. No. B-4117

REPORT ON SAMPLES OF SOILS FOR QUALITY

REPORT ON SAMPLES OF SOILS FOR QUALITY

Project 33472.1.1 County GASTON Owner _____
 Date: Sampled 11/7/07 Received 12/3/07 Reported 12/6/06
 Sampled from ROADWAY By J P ROGERS
 Submitted by N WAINAINA 1995 Standard Specifications

Project 33472.1.1 County GASTON Owner _____
 Date: Sampled 11/7/07 Received 12/3/07 Reported 12/6/06
 Sampled from ROADWAY By J P ROGERS
 Submitted by N WAINAINA 1995 Standard Specifications

742488 TO 742494
1/11/08

742488 TO 742494
1/11/08

TEST RESULTS

| Proj. Sample No. | SS-1 | SS-2 | SS-3 | SS-4 | SS-5 | SS-6 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Lab. Sample No. | 742488 | 742489 | 742490 | 742491 | 742492 | 742493 |
| Retained #4 Sieve % | 16 | 2 | - | 7 | 4 | - |
| Passing #10 Sieve % | 68 | 85 | 100 | 88 | 80 | 94 |
| Passing #40 Sieve % | 45 | 59 | 96 | 35 | 53 | 61 |
| Passing #200 Sieve % | 16 | 30 | 83 | 8 | 24 | 26 |

TEST RESULTS

| Proj. Sample No. | SS-7 | | | | | |
|----------------------|--------|--|--|--|--|--|
| Lab. Sample No. | 742494 | | | | | |
| Retained #4 Sieve % | - | | | | | |
| Passing #10 Sieve % | 98 | | | | | |
| Passing #40 Sieve % | 76 | | | | | |
| Passing #200 Sieve % | 52 | | | | | |

MINUS NO. 10 FRACTION

| SOIL MORTAR - 100% | | | | | | |
|-------------------------|------|------|------|------|------|------|
| Coarse Sand Ret - #60 % | 47.6 | 43.2 | 6.0 | 75.9 | 47.0 | 46.6 |
| Fine Sand Ret - #270 % | 33.9 | 25.9 | 15.9 | 16.9 | 27.2 | 30.4 |
| Silt 0.05 - 0.005 mm % | 14.5 | 20.9 | 46.0 | 4.2 | 20.7 | 15.0 |
| Clay < 0.005 mm % | 4.0 | 10.0 | 32.1 | 3.0 | 5.0 | 8.0 |
| Passing #40 Sieve % | - | - | - | - | - | - |
| Passing #200 Sieve % | - | - | - | - | - | - |

MINUS NO. 10 FRACTION

| SOIL MORTAR - 100% | | | | | | |
|-------------------------|------|--|--|--|--|--|
| Coarse Sand Ret - #60 % | 31.4 | | | | | |
| Fine Sand Ret - #270 % | 18.7 | | | | | |
| Silt 0.05 - 0.005 mm % | 13.8 | | | | | |
| Clay < 0.005 mm % | 36.2 | | | | | |
| Passing #40 Sieve % | - | | | | | |
| Passing #200 Sieve % | - | | | | | |

| | | | | | | |
|-----------------------|----------|----------|---------|----------|----------|----------|
| L. L. | 23 | 35 | 39 | 21 | 42 | 23 |
| P. I. | NP | NP | 14 | NP | NP | 2 |
| AASHTO Classification | A-1-b(0) | A-2-4(0) | A-6(12) | A-1-b(0) | A-2-5(0) | A-2-4(0) |
| Station | 24+00 | 23+50 | 20+45 | 20+45 | 20+45 | 19+15 |
| OFFSET | 30 LT | CL | 15 RT | 15 RT | 15 RT | 20 LT |
| ALIGNMENT | L | L | L | L | L | L |
| Depth (Ft) | 2.40 | 0.00 | 3.80 | 8.80 | 13.80 | 3.60 |
| to | 3.90 | 28.00 | 5.30 | 10.30 | 15.30 | 5.10 |

| | | | | | | |
|-----------------------|----------|--|--|--|--|--|
| L. L. | 43 | | | | | |
| P. I. | 17 | | | | | |
| AASHTO Classification | A-7-6(6) | | | | | |
| Station | 16+55 | | | | | |
| OFFSET | 40 RT | | | | | |
| ALIGNMENT | L | | | | | |
| Depth (Ft) | 0.00 | | | | | |
| to | 11.00 | | | | | |

cc: J P ROGERS
Soils File

Soils Engineer

Soils Engineer