REFERENCE

**CONTENTS** 

**DESCRIPTION** 

TITLE SHEET LEGEND (SOIL & ROCK)

SITE PLAN

BORE LOG SITE PHOTO

SHEET NO.

4

## STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

## **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY JOHNSTON

PROJECT DESCRIPTION NC 210 FROM SR 1309 (OLD FAIRGROUND RD.) TO NC 50 AND NC 210 WEST OF I-40 EASTBOUND RAMPS

SITE DESCRIPTION TEMPORARY SHORING FOR CULVERT AT CAMP BRANCH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTA SHEET
N.C.	W-5204D	1	5

### **CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 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 METHOL. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS NIDICATED IN THE SUBSURFACE OR 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 INTERRETATIONS 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 OF AN PREASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- 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.

  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.

D.G. PINTER

J.M. EDMONSON

R.E. SMITH

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J.R. SWARTLEY

INVESTIGATED BY J.R. SWARTLEY

DRAWN BY J.R. SWARTLEY

CHECKED BY \_N.T. ROBERSON

SUBMITTED BY N.T. ROBERSON

DATE NOVEMBER 2016



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

PROJECT REFERENCE NO. SHEET NO.

W-5204D

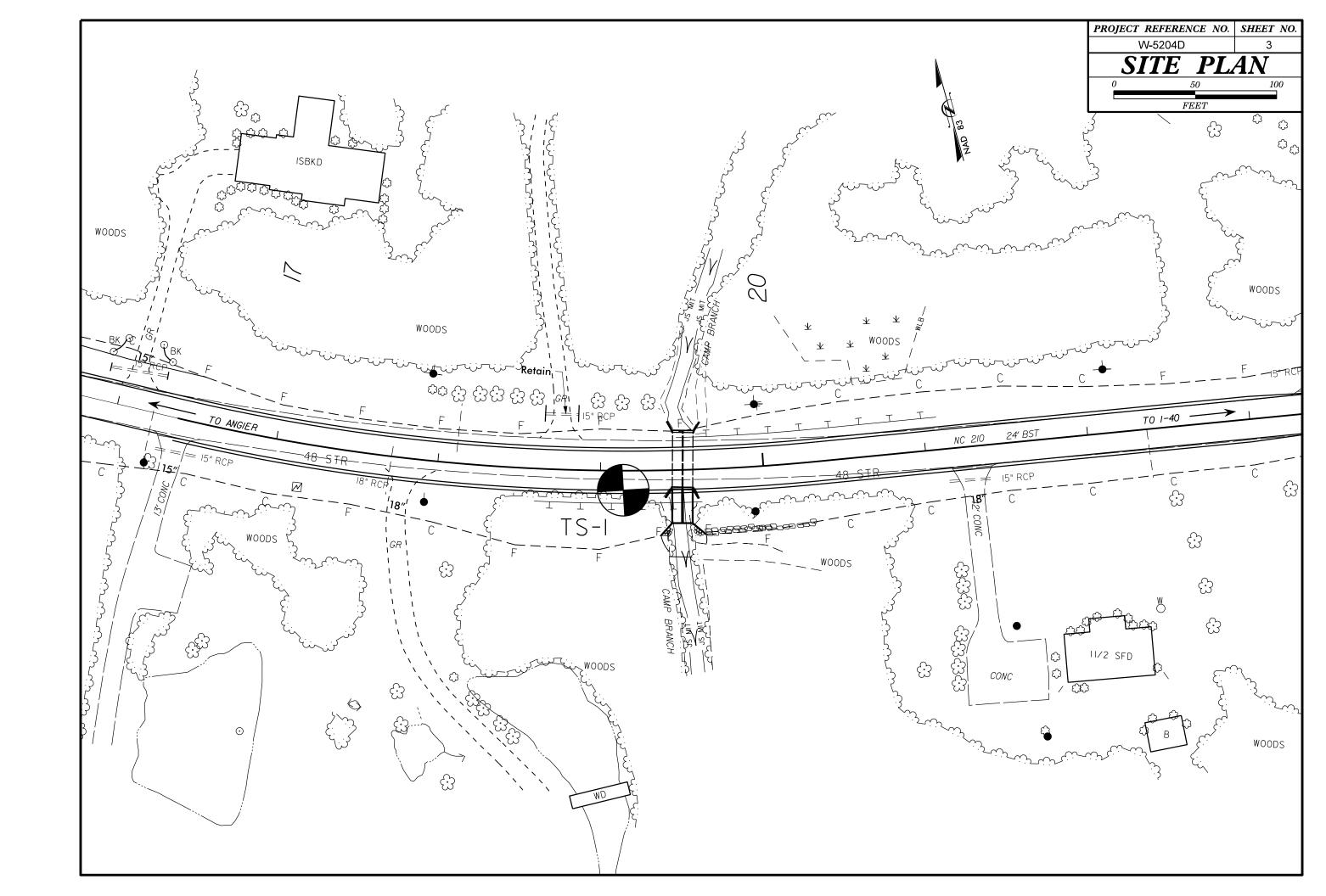
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# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

# SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION  HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED	TERMS AND DEFINITIONS		
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	<u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.		
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	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	AQUIFER - A WATER BEARING FORMATION OR STRATA.		
IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.		
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,  VERY STIFF.GRAY.SULTY CLAY.MOIST WITH INTERBEDDED FINE SAND LAYERS.HIGHLY PLASTIC.A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING		
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED WON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.		
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS COMMUNICATION	MINERALOGICAL COMPOSITION	CONCTAILINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	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		
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	POCY (CP) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	SURFACE.		
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	SINE TO COAPES CRAIM METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.		
CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-7-6 A-3 A-6, A-7	COMPRESSIBILITY	PROCE (NICE) SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM		
SYMBOL 0000000000	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.		
7. PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL ROCK TYPE INCLUDES LIMESTONE SANDSTONE CEMENTED	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.		
■10 50 MX GRANULAR SILI- MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT		
*40 30 MX 50 MX 51 MN SOILS SO	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL		ROCKS OR CUTS MASSIVE ROCK.		
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE		
PASSING #40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	HORIZONTAL.		
LL 40 MX 41 MN LITTLE OR	MODERATELY ORGANIC	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.		
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE ORGANIC	GROUND WATER	OF A CRYSTALLINE NATURE.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE		
GROUP INDEX W W 4 MX 8 MX 12 MX 16 MX NU MX AMUUNTS UF SOILS		SLIGHT 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	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.		
USUAL TYPES STUNE HAGES. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	▼ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	CRYSTALS ARE DULL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.		
MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM		
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR POOR POOR UNSUITABLE	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) 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	PARENT MATERIAL.		
AS SUBURALE POUR	O-∭► SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM		
PI OF A-7-5 SUBGROUP IS S LL - 30 :PI OF A-7-6 SUBGROUP IS S LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.		
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.		
PRIMARY SOIL TYPE COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO		
CONSISTENCY CONSISTENCY (N-VALUE) (TONS/FT <sup>2</sup> )	WITH SOIL DESCRIPTION → OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	ITS LATERAL EXTENT.		
GENERALLY VERY LOOSE < 4	SOIL SYMBOL  SPT DET DOT TEST BORING  SLOPE INDICATOR INSTALLATION	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.		
GRANULAR MEDIUM DENSE 10 TO 30 N/A	M	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS		
MATERIAL DENSE 30 TO 50	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING CONE PENETROMETER	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.		
AELL DENZE > 200		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.		
VERY SOFT         < 2	— INFERRED SOIL BOUNDARY — CORE BORING SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, WOULD YIELD SPT N VALUES &lt; 100 BPF</i>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.		
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING WITH CORE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF		
MATERIAL   STIFF   8 TO 15   1 TO 2	A PIEZOMETER	SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE		
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.		
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.		
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION -	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND		
		SEVENIE NAME SECTION OF THE SESSESSION STREET			
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	USED IN THE TOP 2 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO		
COARSE FINE	USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.		
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.  MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT		
BOULDER COBBLE GRAVEL SAND SILT CLAY (BLDR.) (CDB.) (GR.) (CSE. SD.) (F SD.) (SL.)	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL  ABBRE VIATIONS	TO DETACH HAND SPECIMEN.  MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. <u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.		
BOULDER (BLDR.)         COBBLE (COB.)         GRAVEL (GR.)         COARSE SAND (GSE. SD.)         FINE SAND (F SD.)         SILT (SL.)         CLAY (CL.)           GRAIN MM 305         75         2.0         0.25         0.05         0.005	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.  MODERATELY 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.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT		
BOULDER (BLOR.)         COBBLE (COB.)         CRAVEL (GR.)         COARSE SAND (GSE. SD.)         FINE SAND (F SD.)         SILT (SL.)         CLAY (CL.)           GRAIN SIZE         MM         305         75         2.0         0.25         0.05         0.005	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL  ABBRE VIATIONS  AR - AUGER REFUSAL BT - BORING TERMINATED MICA - MICACEOUS CL CLAY MOD MODERATELY	TO DETACH HAND SPECIMEN.  MODERATELY HARD  EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.  MEDIUM  CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD  CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE	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 REDUIRED TO PRODUCE A PENETRATION OF I FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL		
BOULDER   COBBLE   GRAVEL   SAND   SAND   SILT   CLAY	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL  ABBREVIATIONS  AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA - MICACEOUS WEA WEATHERED CL CLAY MODE - MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC 7 - DRY UNIT WEIGHT	TO DETACH HAND SPECIMEN.  MODERATELY  AN 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  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 I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	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.		
BOULDER (BLDR.)         COBBLE (COB.)         GRAVEL (GR.)         COARSE SAND (GSE. SD.)         FINE SAND (F SD.)         SILT (SL.)         CLAY (CL.)           GRAIN SIZE IN.         12         3         2.0         0.25         0.05         0.005	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL  ABBREVIATIONS  AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY CPT - COME PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	TO DETACH HAND SPECIMEN.  MODERATELY  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  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 I 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	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 REDUIRED TO PRODUCE A PENETRATION OF I FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL		
BOULDER   COBBLE   GRAVEL   COARSE   SAND	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL  ABBREVIATIONS  AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	TO DETACH HAND SPECIMEN.  MODERATELY  AN 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  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 I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SICKENSIDE - 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 STRATAM AND EXPRESSED AS A PERCENTAGE.		
BOULDER   COBBLE   GRAVEL   SAND   SAND   SILT   CLAY	SHALLOW UNDERCUT UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL  AR - AUGER REFUSAL MED MEDLOM VST - VANE SHEAR TEST BORING TERMINATED MICA MICACEOUS WEA WEATHERED CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST DPT - DYNAMIC PENETRATION TEST SAP. SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPILIT SPOON	TO DETACH HAND SPECIMEN.  MODERATELY  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  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 I 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  CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH	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 (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY		
BOULDER COBBLE GRAVEL SAND SAND SLIT CLAY (CSE. SD.) (F SD.) (CSE. SD.) (F SD.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SIZE IN. 12 3  SOIL MOISTURE - CORRELATION OF TERMS  SOIL MOISTURE SCALE (ATTERBERG LIMITS) DESCRIPTION  (CSE. SD.) (F SD.) (F SD.) (CL.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SOIL MOISTURE - CORRELATION OF TERMS  OUIDE FOR FIELD MOISTURE DESCRIPTION  - SATURATED - USUALLY LIQUID, VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE	SHALLOW UNDERCUT   WINDERCUT   WINDERCUT	TO DETACH HAND SPECIMEN.  MODERATELY  CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HAND BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.  MEDIUM  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 I 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 PICES CAN BE BROKEN BY FINGER PRESSURE.  VERY  CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH SOFT  OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	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 DUALITY DESIGNATION (SRDD) - 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.		
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BOULDER COBBLE (COB.) GRAVEL SAND SAND SLT CLAY (CSE. SD.) (F SD.) SAND SAND SLT CLAY (CL.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SIZE IN. 12 3  SOIL MOISTURE - CORRELATION OF TERMS  SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION  - SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE  PLASTIC BANGE - WET - (W) SEMISOLID; REQUIRES DRYING TO	SHALLOW UNDERCUT   WINDERCUT   WINDERCUT	TO DETACH HAND SPECIMEN.  MODERATELY  AN 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 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 I 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 CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.  FRACTURE SPACING BEDDING	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 DUALITY DESIGNATION (SROD) - 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.		
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BOULDER COBBLE (GRAVEL SAND SAND SILT CLAY (CDE, D) (CSE, SD.) (F SD.) (F SD.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SOIL MOISTURE - CORRELATION OF TERMS  SOIL MOISTURE SCALE (ATTERBERG LIMITS)  FIELD MOISTURE DESCRIPTION  CSATURATED - (SAT.) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE  PLASTIC RANGE  (PI) PL PLASTIC LIMIT  OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	SHALLOW UNDERCUT  WINDERCUT  WIND	TO DETACH HAND SPECIMEN.  MODERATELY AN 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 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 I 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 FRAMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT, SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.  VERY CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.  FRACTURE SPACING  TERM SPACING TERM THICKNESS  VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 1.55 - 4 FEET  WIDE 3 TO 10 FEET THICKLY BEDDED 1.55 - 4 FEET	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 (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.  TOPSOIL (TIS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.  BENCH MARK: *See note		
BOULDER (COB). GRAVEL SAND SAND (SL.) (CSE. SD.) (F SD.) (SL.) (CL.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SIZE IN. 12 3  SOIL MOISTURE - CORRELATION OF TERMS  SOIL MOISTURE SCALE (ATTERBERG LIMITS)  FIELD MOISTURE DESCRIPTION  CSATUPATED - (SAT.) FROM BELOW THE GROUND WATER TABLE  PLASTIC RANGE (PI) PL PLASTIC LIMIT  OM OPTIMUM MOISTURE SHRINKAGE LIMIT  OPTIMUM MOISTURE SHRINKAGE LIMIT  OPTIMUM MOISTURE SHRINKAGE LIMIT  COBBLE GRAVEL SAND SAND SAND SAND SAND SAND SAND SAND	SHALLOW UNDERCUT  WINDERCUT  WIND	TO DETACH HAND SPECIMEN.  MODERATELY  AN 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 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 I 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 CAN BE CARVED WITH KNIFE, CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES I 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 VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 0.15 - 4 FEET THICKLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THICKLY BEDDED 0.03 - 0.16 FEET THINLY BEDDED 0.03 - 0.16 FEET THINLY BEDDED 0.03 - 0.16 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET THINLY BEDDED 0.06 FEET THINLY BEDDED 0.06 TEET THIN	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SILEKENSIDE - 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 I FOOT INTO SOIL WITH A 2 INCH DUTSIDE 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 (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF STRATA MADE EXPRESSED AS A PERCENTAGE.  STRATA LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.  TOPSOIL (TIS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.  BENCH MARK: *See note		
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