TIP PROJECT: X-0002BC*

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	49+80-74+80	4-11	25-32	
-L-	74+80-76+20	11	32	71-76
-L-	76+20-83+40	11-13	32-34	
-COL 2-	49+03-51+40	4	65	
-CDR-	49+52-71+85	4-10	42-48	
-RPCDR-	10+00-17+22	4-7	49-50	
-FLYOVER-	10+00-31+83	5-8, 15-16	59-64	
-SPUR B-	11+94-18+10	7-8, 16	54	
-RPB-	10+00-15+67	7-8	52-53	
-LPB-	10+00-13+13	8	53	
-RPC-	10+60-15+72	7-8	55-56	
-LPC-	10+00-13+66	8	57-58	
-Y1-	15+87-29+80	8, 14-16	35-37	
-Y1-	29+80-30+40	8	37	77-80
-Y1-	30+40-35+09	8, 17	37	
-Y2-	10+00-34+98	18-24	38-41	
-TT7-	14+10-39+02	4-8, 14-16	66-70	

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *35196.1.3 (X-0002B)** F.A. PROJ. *NHF-DPR0100 (002)*

COUNTY *CUMBERLAND*

PROJECT DESCRIPTION *NC 24 EXTENSION (FAYETTEVILLE OUTER LOOP) FROM NC 24 TO 1.3 MILES EAST OF NC 87 - 210*

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002BC *	1	80

TIP NO.	F.A. PROJ. NO.	DESCRIPTION
35196.1.3	NHF-DPR-0100(002)	PE
35196.2.3		ROW; Util
	NHF-0100(018)	CONSTRUCTION

CAUTION NOTICE

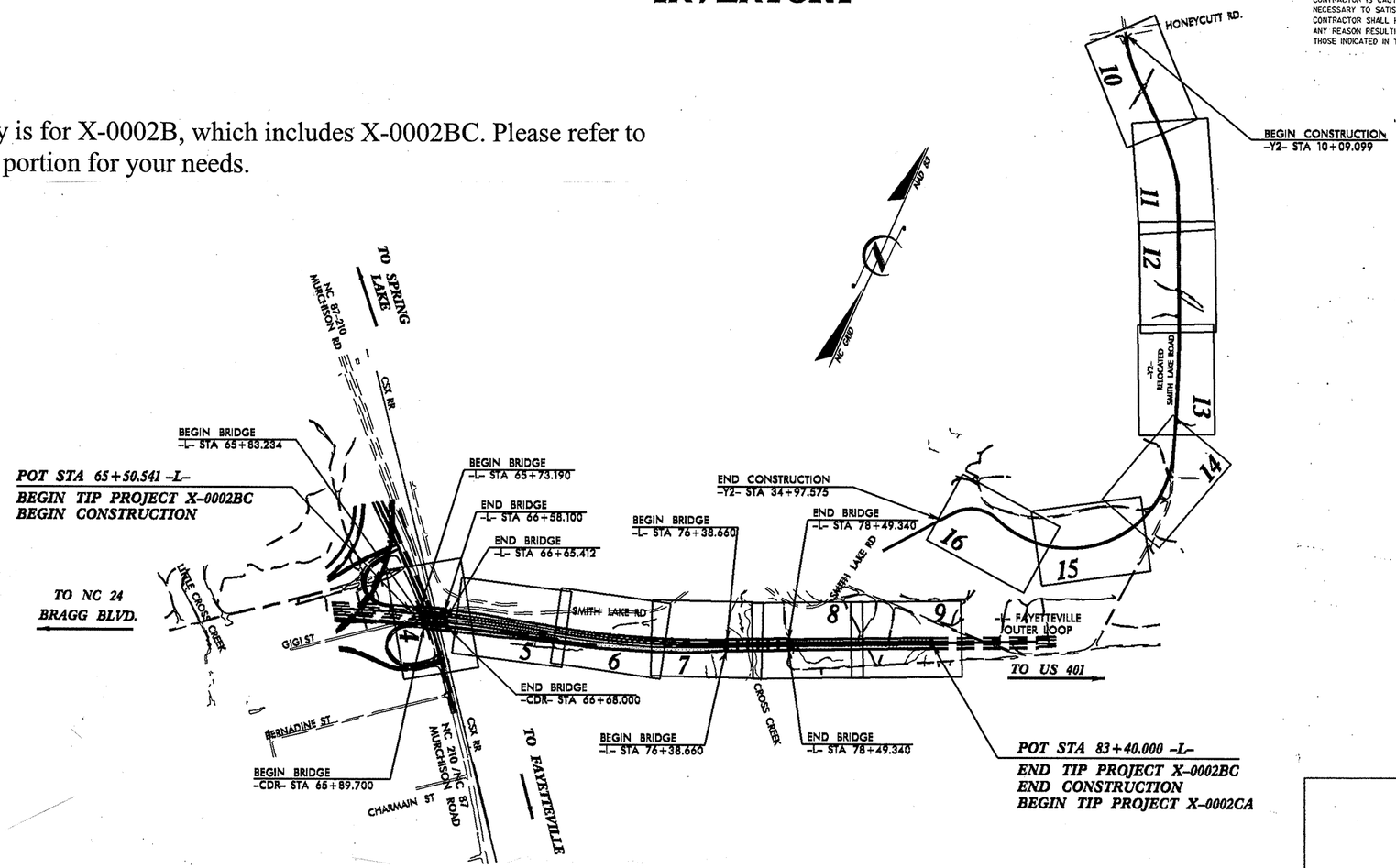
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING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

INVENTORY

* This inventory is for X-0002B, which includes X-0002BC. Please refer to the respective portion for your needs.



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MACTEC

S&ME

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CHECKED BY *N. T. ROBERSON*

SUBMITTED BY *N. T. ROBERSON*

DATE *FEBRUARY, 2007*

NORTH CAROLINA LICENSED SEAL 1912 GEOLOGIST NEIL T. ROBERSON

2/17/07

DRAWN BY: *W.D. FIELDS*

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.

PROJECT REFERENCE NO.	SHEET NO.
35196.1.3 (X-0002B)	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 30 CM 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	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
# 40	30 MX	50 MX	51 MN											
# 200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
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 (kN/m^2)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	<4 4 TO 10 10 TO 30 30 TO 50 >50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<25 25 TO 50 50 TO 100 100 TO 200 200 TO 400 >400

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
GRAIN SIZE 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:
- [X] MOBILE B-57
- [X] BK-51
- [ ] CME-45C
- [X] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [X] 152mm CONTINUOUS FLIGHT AUGER
- [X] 203mm HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE ____ mm STEEL TEETH
- [ ] TRICONE ____ mm TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [ ] AUTOMATIC [X] 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 3 CM 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 30 CM 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 BLOWS PER 30 CM*
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 BLOWS PER 30 CM*
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 6 MM 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 13 MM DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 25 MM 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 25 MM OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 3 M
WIDE	3 TO 10 M
MODERATELY CLOSE	30 TO 100 CM
CLOSE	5 TO 30 CM
VERY CLOSE	LESS THAN 5 CM

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 1 M
THICKLY BEDDED	0.5 - 1 M
THINLY BEDDED	0.05 - 0.5 M
VERY THINLY BEDDED	10 - 50 MM
THICKLY LAMINATED	2.5 - 10 MM
THINLY LAMINATED	< 2.5 MM

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 10 CM 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) OF A 63.5 KG HAMMER FALLING 0.76 M REQUIRED TO PRODUCE A PENETRATION OF 30 CM INTO SOIL WITH A 5 CM OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 3 CM 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 10 CM DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

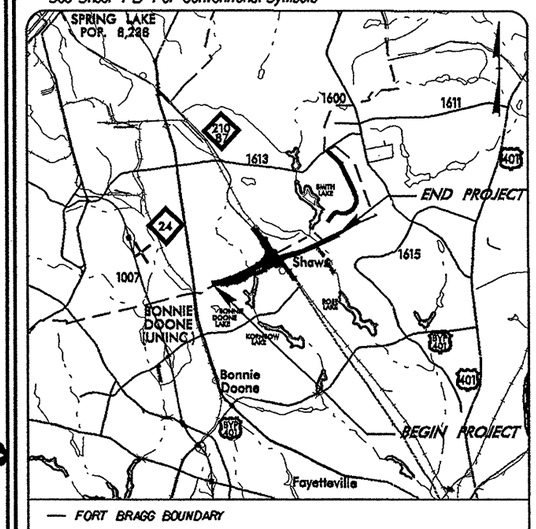
BENCH MARK: N/A

ELEVATION: N/A

NOTES:

CONTRACT: TIP PROJECT: X-0002B

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

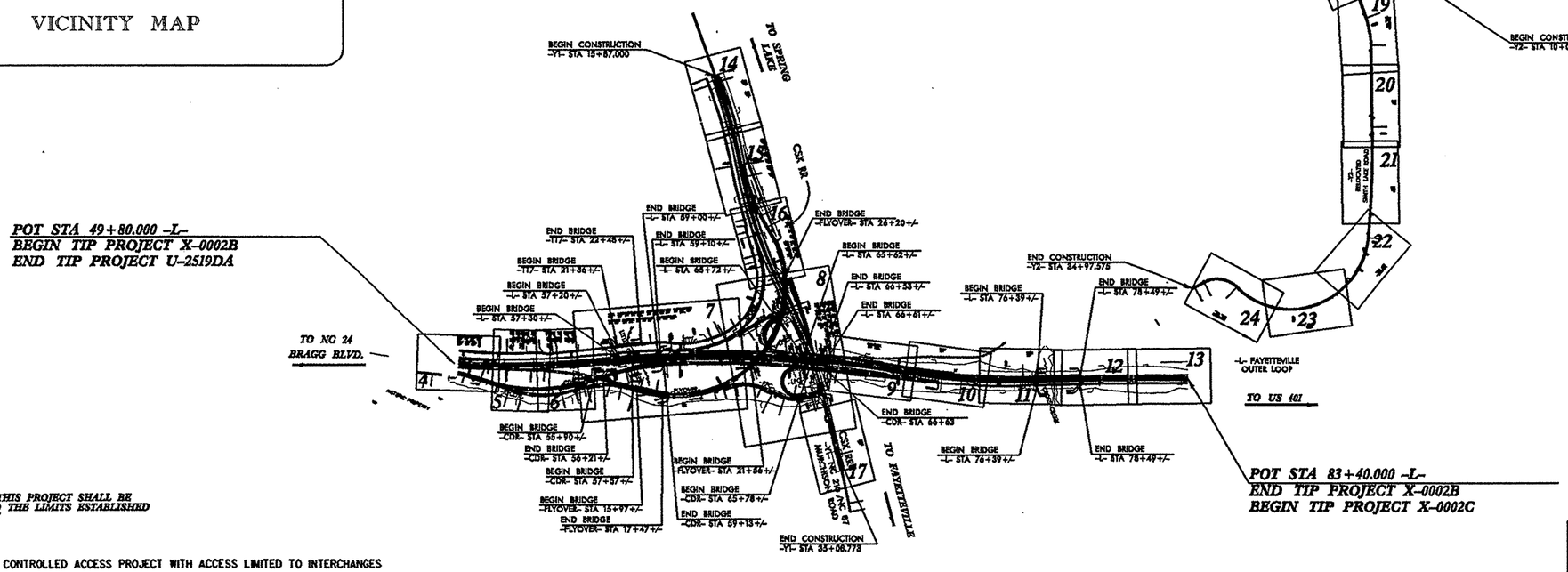
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002B	2A	80

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35196.1.3	NHF-DPR-0100(002)	P.E.

CUMBERLAND COUNTY

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF NC 24 (BRAGG BLVD.) TO 1.74 km EAST OF NC 87 /NC 210 (MURCHISON RD.)

TYPE OF WORK: GRADING, STRUCTURES, PAVING, GUARDRAIL, CURB AND GUTTER, DRAINAGE, SIGNALS, AND SIGNING



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

NOTE: THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES

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

GRAPHIC SCALE

5 0 10
PLANS
5 0 10
PROFILE (HORIZONTAL)
1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 57,500
ADT 2030 = 74,300
DHV = 9 %
D = 55 %
T = 12 % *
V = 110 km/h
* TTST 4% + DUAL 8%
FUNC. CLASS = INTERSTATE

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE

PROJECT LENGTH

LENGTH OF ROADWAY, TIP PROJECT X-0002B = 2.879 km
LENGTH OF STRUCTURES, TIP PROJECT X-0002B = 0.481 km
TOTAL LENGTH, TIP PROJECT X-0002B = 3.360 km

*NOTE: LENGTH BASED ON WBL BRIDGES

Prepared In the Office of:
Ralph Whitehead Associates, Inc.
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: May, 2006
LETTING DATE: June 17, 2008

JOHN E. ALFORD, P.E.
PROJECT ENGINEER
GERALD M. BARBOUR
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

March 22, 2007

STATE PROJECT: 35196.1.3 (X-0002B)
FEDERAL PROJECT: NHF-DPR-0100 (002)
COUNTY: Cumberland

DESCRIPTION: NC 24 Extension (Fayetteville Outer Loop) from NC 24 to 1.3 miles east of NC 87/210

SUBJECT: Geotechnical Report - Inventory

Project Description

This project consists of the construction on new location of NC 24, Fayetteville Outer Loop (-L-), along with several -Y- lines. The proposed facility will consist of a four to five-lane, divided roadway and the interchange and tie-in with existing NC 87/210, Murchison Road. Bridges are to be constructed over Little Cross Creek (see plan sheet No. 7), Cross Creek (see plan sheet No.11) and NC 87/210 (see plan sheet No. 8).

A geotechnical investigation was conducted during May - July 2006. ATV-mounted B-57, BK 51 and CME-550 drill machines with manual hammers were used during the investigation. Standard Penetration Tests were performed at selected locations and additional borings were advanced using continuous flight augers or using rotary with bentonite drilling fluid. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit. The following alignments were investigated.

-L-	49+80.000 to 83+40.000
-COL2-	49+03.337 to 51+40.000
-CDR-	49+51.881 to 71+85.206
-RPCDR-	10+36.408 to 17+21.946
-FLYOVER-	10+00.000 to 31+83.011
-SPURB-	11+93.738 to 18+10.466
-RPB-	10+00.000 to 15+66.870
-LPB-	10+00.000 to 13+13.158
-RPC-	10+60.000 to 15+71.878
-LPC-	10+00.000 to 13+65.804
-Y1-	15+87.000 to 35+08.773
-Y2-	10+00.000 to 34+97.575
-TT7-	14+09.933 to 39+02.001

Areas of Special Geotechnical Interest

1) Highly Plastic Clays: Highly plastic clays were encountered on the project at the following intervals:

Line	Stations
-L-	57+00 to 59+20
-L-	70+40 to 72+80
-L-	74+50 to 76+15
-L-	76+30 to 78+60
-L-	80+80 to 81+20
-Y1-	23+80 to 24+20
-Y1-	29+90 to 30+40
-CDR-	58+80 to 59+40
-CDR-	65+50 to 66+00
-CDR-	68+20 to 71+85
-SPURB-	15+60 to 16+20
-SPURB-	17+20 to 17+60
-RPC-	11+40 to 13+40
-LPC-	10+00 to 10+90
-RPD-	10+45 to 12+40
-FLYOVER-	10+40 to 11+20
-FLYOVER-	14+00 to 15+40
-FLYOVER-	20+30 to 21+80
-COL2-	48+40 to 50+40
-TT7-	22+00 to 22+80
-TT7-	38+00 to 39+00

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

Line	Station	Offset (m)
-TT7-	35+74 +/-	CL

3) Lakes and Ponds: Pond within or in close proximity of right of way is noted at the following location.

Line	Station	Offset (m)
-L-	71+60 to 72+40+/-	CL

Physiography and Geology

The project is located in the Coastal Plain Physiographic Province. Land use along the project corridor consists of a combination of wooded land, wetlands, homes and businesses. Geologically, the site is located within the Middendorf Formation underlain by the Cape Fear Formation.

Soil Properties

Soils encountered during this investigation consist of roadway embankment, alluvial, Coastal Plain, and artificial fill soils.

Roadway Embankment soils were encountered in small amounts associated with several existing roadways on the project. These soils are similar to and derived from the Coastal Plain soils encountered elsewhere on the project.

Alluvial soils are present in the floodplains of the Little Cross Creek and Cross Creek, that crosses the project corridor. These soils consist primarily of tan to tan-gray and orange, saturated, loose, fine and silty sand (A-3, A-2-4).

Coastal Plain soils were encountered in the Middendorf and the Cape Fear Formations. Middendorf Formation soils consist primarily of orange-brown to tan-orange, tan and gray, moist to saturated, very loose to very dense, coarse and fine sand, silty and clayey sand (A-1-b, A-3, A-2-4, A-2-6, A-2-7). Red-brown to tan-brown and gray, moist, soft to very stiff, highly plastic, sandy and silty clay (A-6, A-7) are also present.

Artificial Fill soils consist of gray and red, moist, loose to medium dense, silty sand (A-2-4). Asphalt is present in the artificial fill located along the proposed -CDR- between Sta. 68+50 and Sta. 69+70+/- and ranges from surface to a depth of 9.00 meters.

Prepared by,

Joseph I. Milkovits, Jr.
Project Engineering Geologist

BULK SAMPLES

The following bulk samples were taken for tests to determine the engineering properties of the soil.

Sample No.	Location	Depth (m)	Test
CBR-1	52+20, 5m RT, -CDR-	0.30 - 2.13 m	California Bearing Ratio
CBR-2	54+20, CL, -L-	0.30 - 2.00 m	California Bearing Ratio
CBR-3	12+80, 10m LT, -LPB-	0.00 - 3.00 m	California Bearing Ratio
CBR-500	81+60, CL, -L-	9.00 - 13.39 m	California Bearing Ratio
CBR-505	20+80, CL, -Y1-	0.00 – 3.00 m	California Bearing Ratio

3-B

Earthwork Balance Sheet
Volumes in Cubic Meters

PROJECT: X-0002BC COUNTY: Cumberland DATE: 10/21/10 COMPILED BY: STV SHEET_OF SHEETS

STATION	STATION	EXCAVATION TOTAL UNCLASS.	EXCAVATION ROCK	EXCAVATION UNDERCUT	EXCAVATION UNSUIT. UNCLASS.	EXCAVATION SUITABLE UNCLASS.	EMBANKMENT TOTAL	EMBANKMENT ROCK	EMBANKMENT EARTH	EMBANKMENT EMBANK. +25%	BORROW	WASTE ROCK	WASTE SUITABLE	WASTE UNSUIT.	WASTE TOTAL
-L- 65+50.541	-L- 76+20.000	17,040		2,523	16,643	397	586,967		586,967	733,709	733,312			19,166	19,166
-CDR- 66+73.974	-CDR- 71+85.206	INCLUDED IN -L- VOLUMES (SEE XSC'S)													
125 mm Extra Material for Grading							4,402		4,402	5,503	5,503				
	SUBTOTAL 1	17,040		2,523	16,643	397	591,369		591,369	739,211	738,814			19,166	19,166
-L-78+60.000	-L- 83+40.000	239,289				239,289	3,964		3,964	4,955			234,334		234,334
125 mm Extra Material for Grading							1,675		1,675	2,094	2,094				
	SUBTOTAL 2	239,289				239,289	5,639		5,639	7,049	2,094		234,334		234,334
-Y2- 10+20.000	-Y2- 19+20.000	4,323				4,323	2,140		2,140	2,675			1,648		1,648
	SUBTOTAL 3	4,323				4,323	2,140		2,140	2,675			1,648		1,648
-Y2- 19+20.000	-Y2- 28+20.000	3,774				3,774	5,343		5,343	6,679	2,905				
	SUBTOTAL 4	3,774				3,774	5,343		5,343	6,679	2,905				
-Y2- 28+20.000	-Y2- 34+80.000	3,111				3,111	1,869		1,869	2,336			775		775
	SUBTOTAL 5	3,111				3,111	1,869		1,869	2,336			775		775
TOTAL		267,537		2,523	16,643	250,894	606,360		606,360	757,950	743,813		236,757	19,166	255,923
* -L- LINE STATION 78+60.000 TO 83+40.000 (LT & RT		-239,289				-239,289	-3,964		-3,964	-4,955			-234,334		-234,334
PROJECT SUBTOTAL		28,248		2,523	16,643	11,605	602,396		602,396	752,995	743,813		2,423	19,166	21,589
SELECT GRANULAR MATERIAL IN LIEU OF BORROW										-2,750	-2,750				
MATERIAL FOR SHOULDER CONSTRUCTION							750		750	938	938				
LOSS DUE TO CLEARING & GRUBBING		-2,350				-2,350					2,350				
ADDITIONAL UNDERCUT				1,250			1,250		1,250	1,563	1,563			1,250	1,250
WASTE IN LIEU OF BORROW											-2,423		-2,423		-2,423
PROJECT TOTAL		25,898		3,773	16,643	9,255	604,396		604,396	752,746	743,490			20,416	20,416
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											37,175				
GRAND TOTAL		25,898		3,773	16,643	9,255	604,396		604,396	752,746	780,666			20,416	20,416
SAY		26,000		3,800							781,000				

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.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Estimated DDE			4540												
Slope & Embankment Stability Undercut (Contingency)			250												
Grade Point Undercut			500												
Subgrade Undercut (Contingency)			500												
Select Granular Material, Class II OR III			2750												
Subgrade Stability - Stabilizer Aggregate			2500												

***THE UNCLASSIFIED EXCAVATION SHOWN IN THE EARTHWORK SUMMARY FROM -L- STATION 78+60.000 TO 83+40.000 (LT & RT) HAS BEEN REMOVED, THUS NO LONGER AVAILABLE. AREA HAS BEEN GRADED TO PLAN, CROSS-SECTION, AND PROFILE AS SHOWN IN PLANS.**

* This Earthwork Balance Sheet is for X-0002BC. This inventory is for X-0002B, which includes X-0002BC. Please refer to the respective portion for your needs.

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	4
R/W SHEET NO.	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36434
CHARLOTTE, NORTH CAROLINA 28236

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR GPS MONUMENT "X2D8" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 154807.5364(m) EASTING: 625333.9514(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999874791
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "X2D8" TO -L- POC STATION 49+80.000 IS
S 73° 54' 20.62" W 11,931.171 (m)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

END TIP PROJECT U-2519DA
BEGIN TIP PROJECT X-0002B
BEGIN CONSTRUCTION -L- POC Sta. 49+80.000
BEGIN CONSTRUCTION -COL2- POC Sta. 49+03.337
BEGIN CONSTRUCTION -TT7- POC Sta. 14+09.933
BEGIN CONSTRUCTION -CDR- POC Sta. 49+51.881

-CDR-
PI Sta 46+72.084
Δ = 14° 24' 28.8" (LT)
L = 271.601
T = 135.867
R = 3,530.300
SE = RC

PIs Sta 48+86.159
θs = 3° 16' 26.6"
Ls = 80.000
LT = 53.342
ST = 26.675

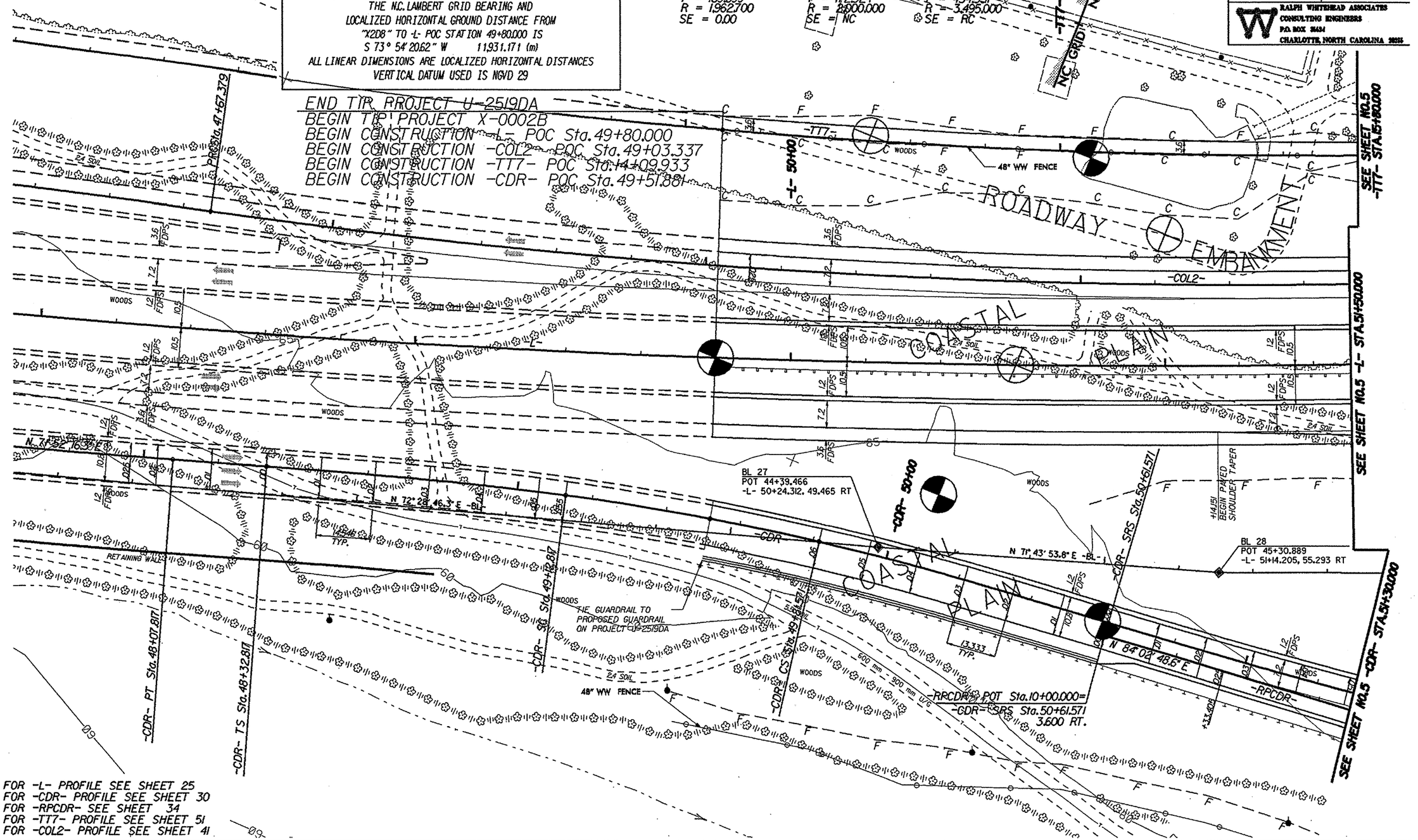
PI Sta 49+47.221
Δ = 5° 37' 39.2" (RT)
L = 68.754
T = 34.404
R = 700.000
SE = .06
RUNOFF = 80.000

PIs Sta 50+08.245
θs = 3° 16' 26.6"
Ls = 80.000
LT = 53.342
ST = 26.675

-TT7-
PI Sta 14+62.371
Δ = 9° 52' 59.7" (LT)
L = 338.556
T = 169.699
R = 1,962.700
SE = 0.00

-COL2-
PI Sta 49+55.070
Δ = 9° 52' 59.7" (LT)
L = 344.990
T = 172.924
R = 2,000.000
SE = NC

-L-
PI Sta 50+03.492
Δ = 14° 10' 30.7" (LT)
L = 864.676
T = 434.557
R = 3,495.000
SE = RC



FOR -L- PROFILE SEE SHEET 25
FOR -CDR- PROFILE SEE SHEET 30
FOR -RPCDR- SEE SHEET 34
FOR -TT7- PROFILE SEE SHEET 51
FOR -COL2- PROFILE SEE SHEET 41

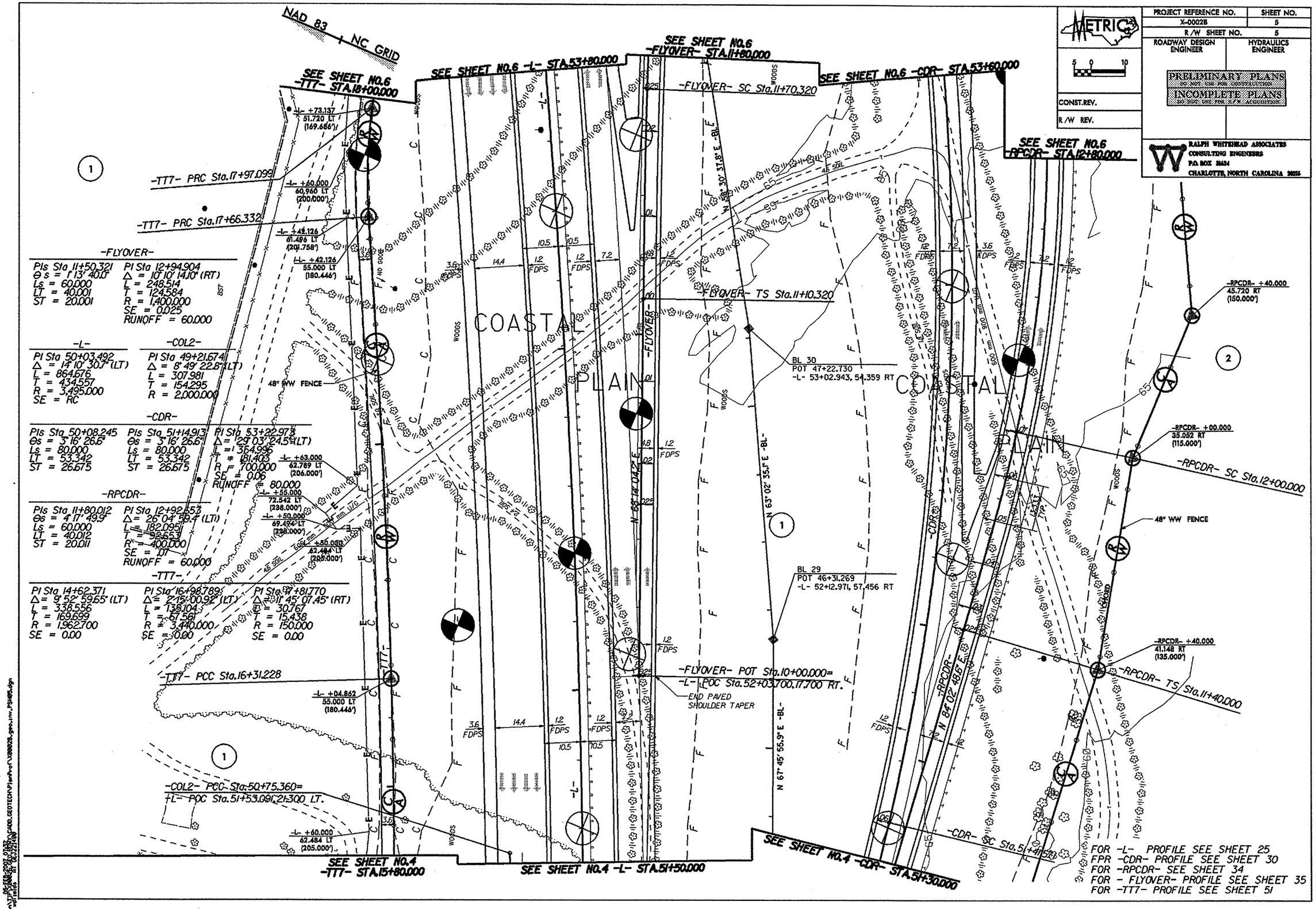
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	5
R/W SHEET NO.	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26434
CHARLOTTE, NORTH CAROLINA 28215



-FLYOVER-

Pls Sta 11+50.321	Pl Sta 12+94.904
Θs = 1° 13' 40.0"	Δ = 10° 10' 14.10" (RT)
Ls = 60.000	L = 248.514
LT = 40.001	T = 124.584
ST = 20.001	R = 1,400.000
	SE = 0.025
	RUNOFF = 60.000

-L-

Pl Sta 50+03.492
Δ = 14° 10' 30.7" (LT)
L = 864.676
T = 434.557
R = 3,495.000
SE = RC

-COL2-

Pl Sta 49+21.674
Δ = 8° 49' 22.8" (LT)
L = 307.981
T = 154.295
R = 2,000.000

-CDR-

Pls Sta 50+08.245	Pls Sta 51+14.913	Pl Sta 53+22.978
Θs = 3° 16' 26.6"	Θs = 3° 16' 26.6"	Δ = 129° 03' 24.5" (LT)
Ls = 80.000	Ls = 80.000	L = 1,364.996
LT = 53.342	LT = 53.342	T = 181.403
ST = 26.675	ST = 26.675	R = 700.000
		SE = 0.06
		RUNOFF = 80.000

-RPCDR-

Pls Sta 11+80.012	Pl Sta 12+92.553
Θs = 4° 17' 49.9"	Δ = 26° 04' 55.4" (LT)
Ls = 60.000	L = 182.095
LT = 40.012	T = 92.653
ST = 20.011	R = 400.000
	SE = .07
	RUNOFF = 60.000

-TT7-

Pl Sta 14+62.371	Pl Sta 16+98.789	Pl Sta 17+81.770
Δ = 9° 52' 59.65" (LT)	Δ = 2° 15' 00.92" (LT)	Δ = 11° 45' 07.45" (RT)
L = 338.556	L = 136.104	L = 30.767
T = 169.699	T = 67.561	T = 15.438
R = 1,962.700	R = 3,440.000	R = 150.000
SE = 0.00	SE = 0.00	SE = 0.00

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	6
R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

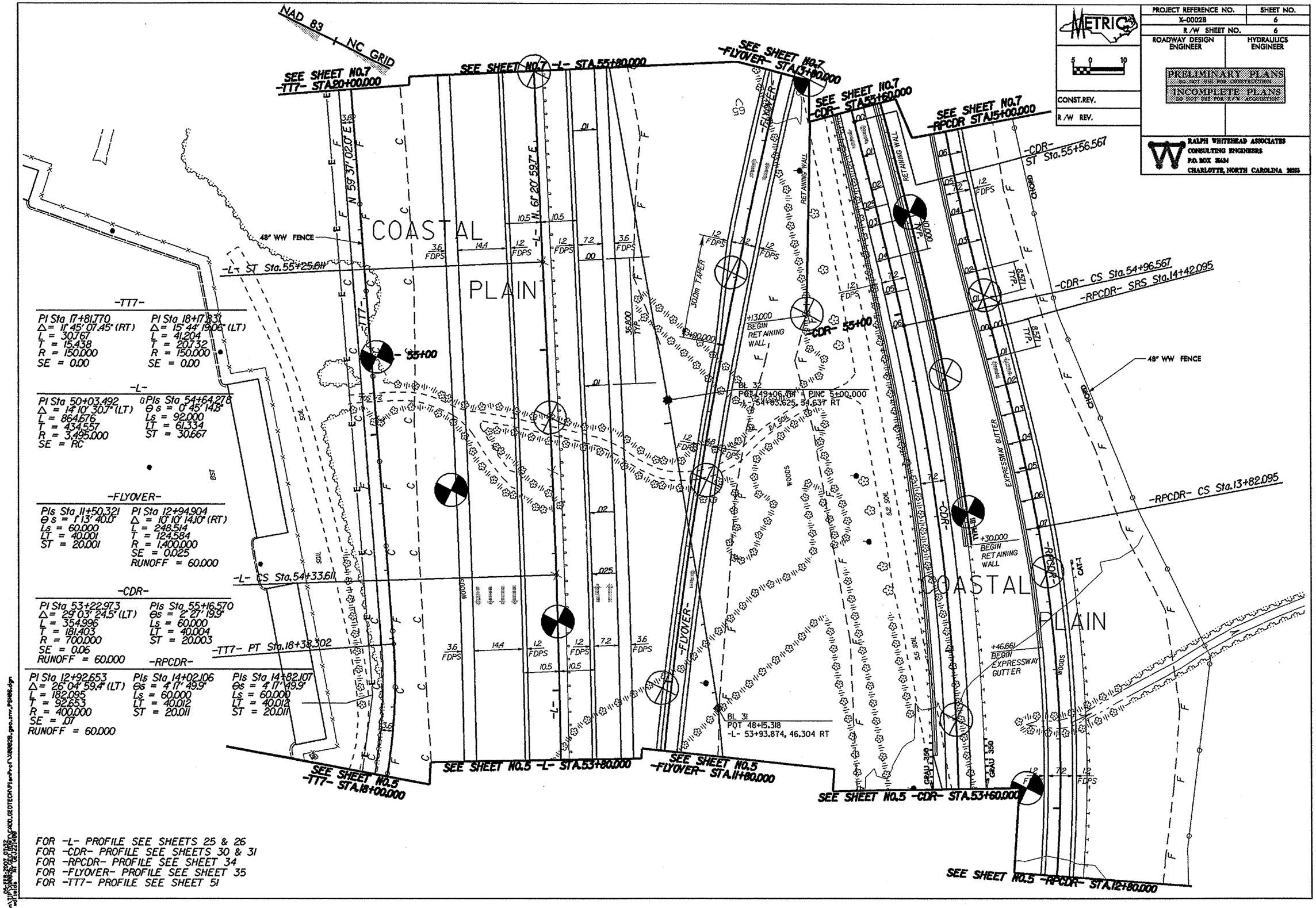
5 0 10

CONST. REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36434
CHARLOTTE, NORTH CAROLINA 28236



FOR -L- PROFILE SEE SHEETS 25 & 26
FOR -CDR- PROFILE SEE SHEETS 30 & 31
FOR -RPCDR- PROFILE SEE SHEET 34
FOR -FLYOVER- PROFILE SEE SHEET 35
FOR -TT7- PROFILE SEE SHEET 51

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	7
R/W SHEET NO.	7

METRIC

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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

CONST.REV.
R/W REV.

RALPH WHITEHEAD ASSOCIATES
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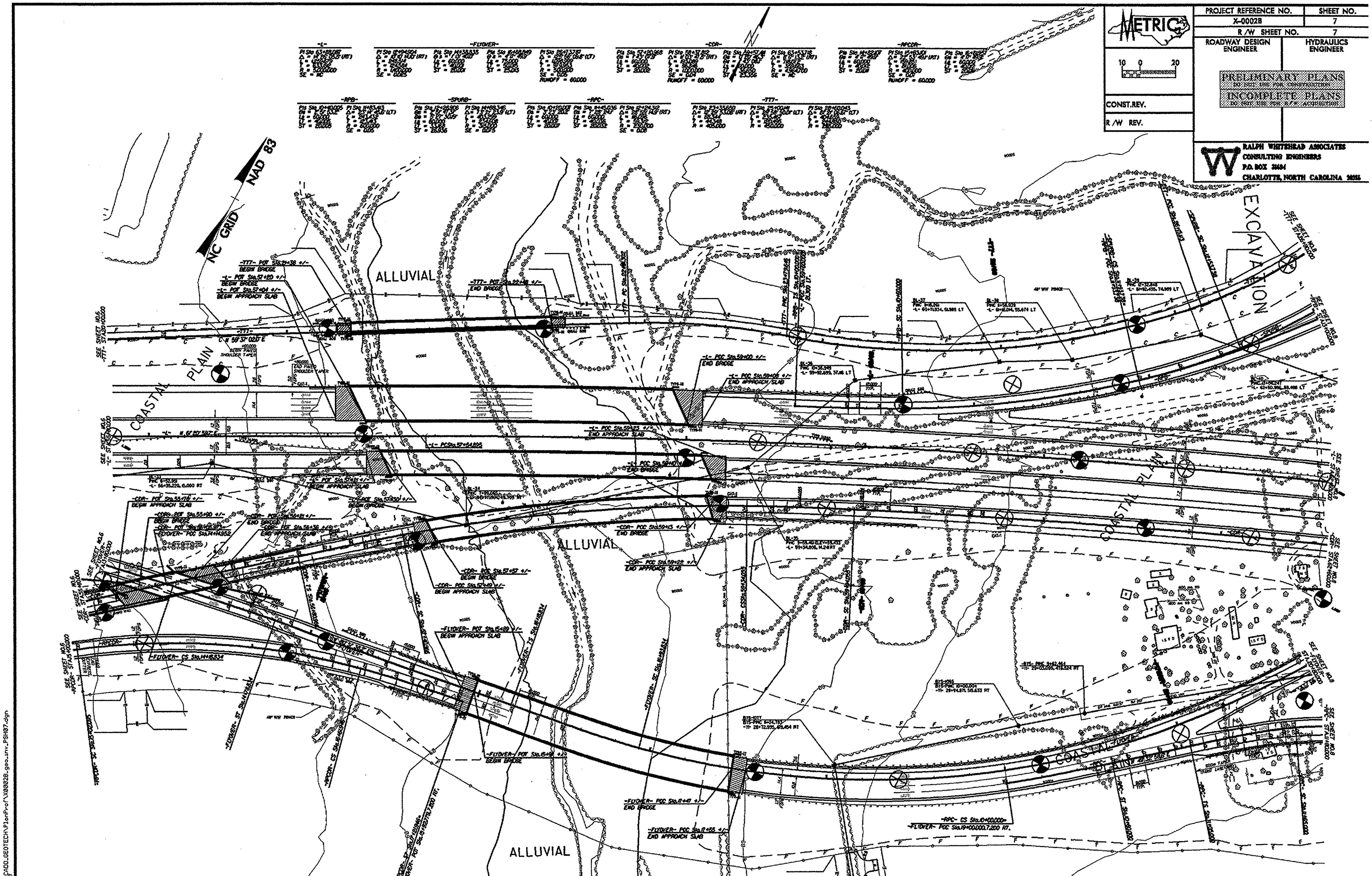
P.O. BOX 35624
CHARLOTTE, NORTH CAROLINA 28235



FOR -L- PROFILE SEE SHEETS 26 & 27
FOR -CDR- PROFILE SEE SHEETS 31 & 32
FOR -RPCDR- PROFILE SEE SHEET 34
FOR -FLYOVER- PROFILE SEE SHEETS 35 & 36
FOR -RPB- PROFILE SEE SHEET 39
FOR -RPC- PROFILE SEE SHEET 40
FOR -SPURB- PROFILE SEE SHEET 43
FOR -TT7- PROFILE SEE SHEETS 51 & 52
FOR BRIDGE SKETCHES SEE SHEET 2F

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	8
R /W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

10 0 20

CONST.REV.

R /W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
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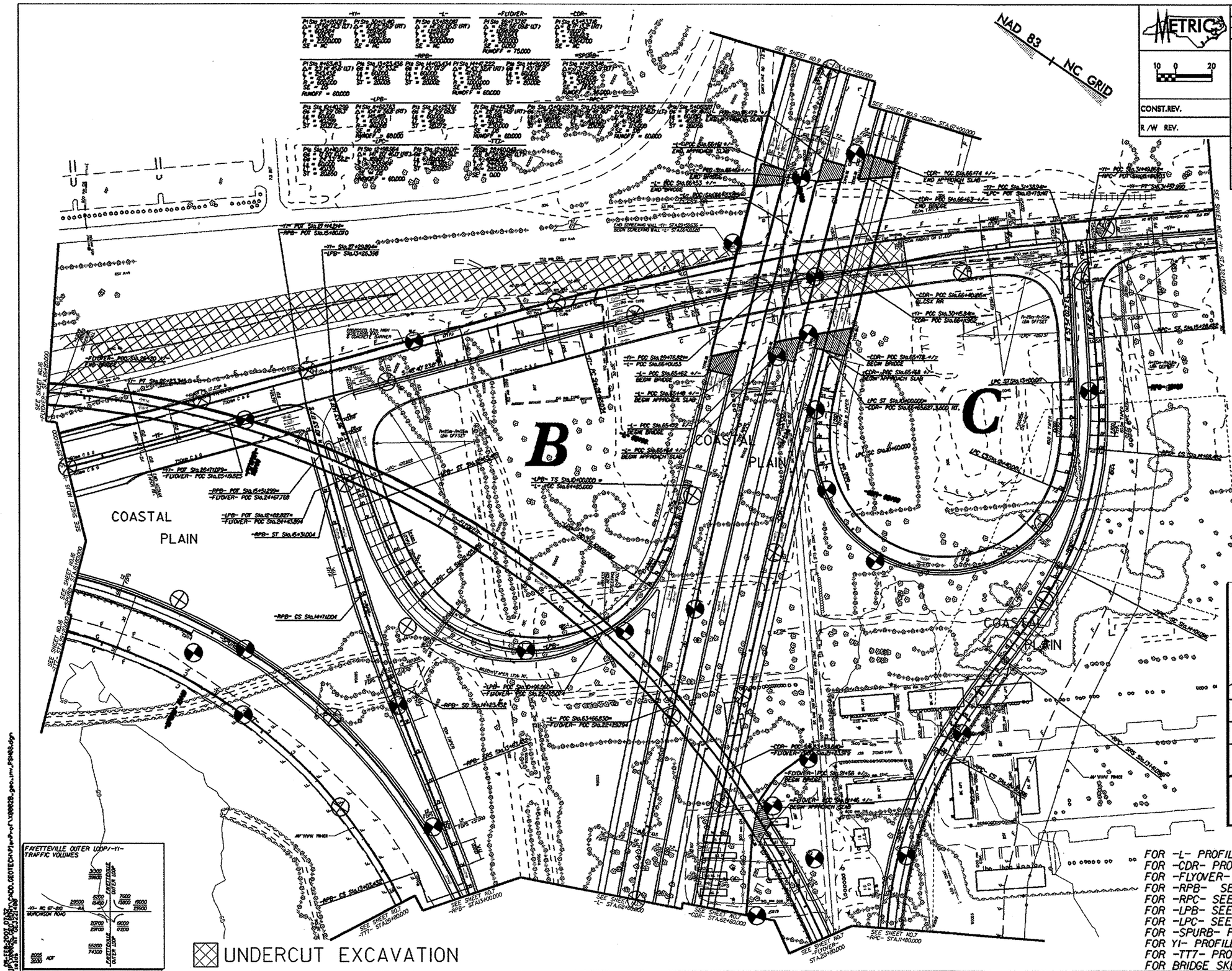
CHARLOTTE, NORTH CAROLINA 28235



FOR -L- PROFILE SEE SHEET 27
FOR -CDR- PROFILE SEE SHEET 32
FOR -FLYOVER- PROFILE SEE SHEETS 36 & 37
FOR -RPB- SEE SHEET 39
FOR -RPC- SEE SHEET 40
FOR -LPB- SEE SHEET 41
FOR -LPC- SEE SHEET 42
FOR -SPURB- PROFILE SEE SHEET 43
FOR Y1- PROFILE SEE SHEETS 45 & 46
FOR -TT7- PROFILE SEE SHEETS 52 & 53
FOR BRIDGE SKETCHES SEE SHEET 21

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	9
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

R/W REV.

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

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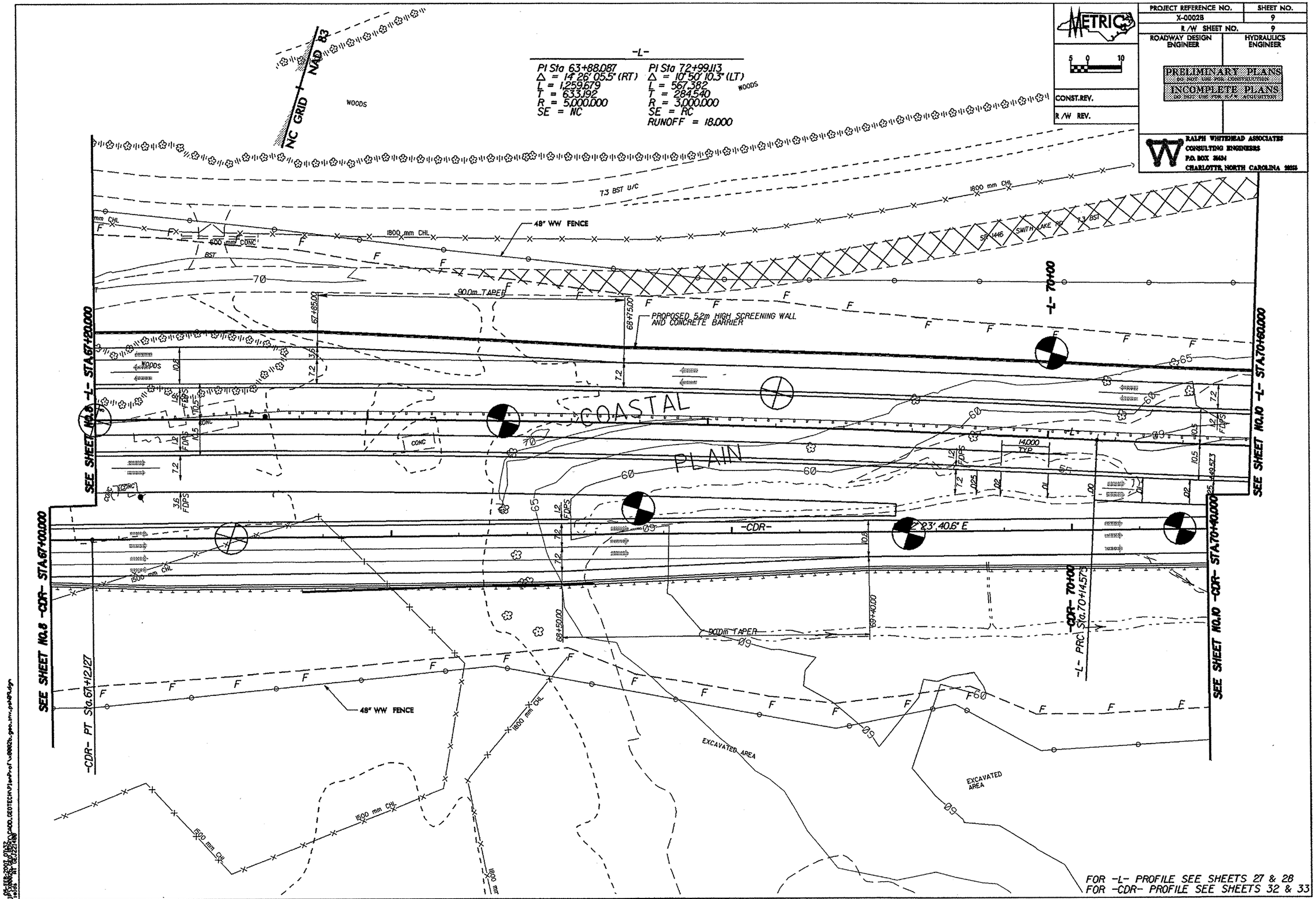
P.O. BOX 35434
CHARLOTTE, NORTH CAROLINA 28235



FOR -L- PROFILE SEE SHEETS 27 & 28
FOR -CDR- PROFILE SEE SHEETS 32 & 33

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36634
CHARLOTTE, NORTH CAROLINA 28236

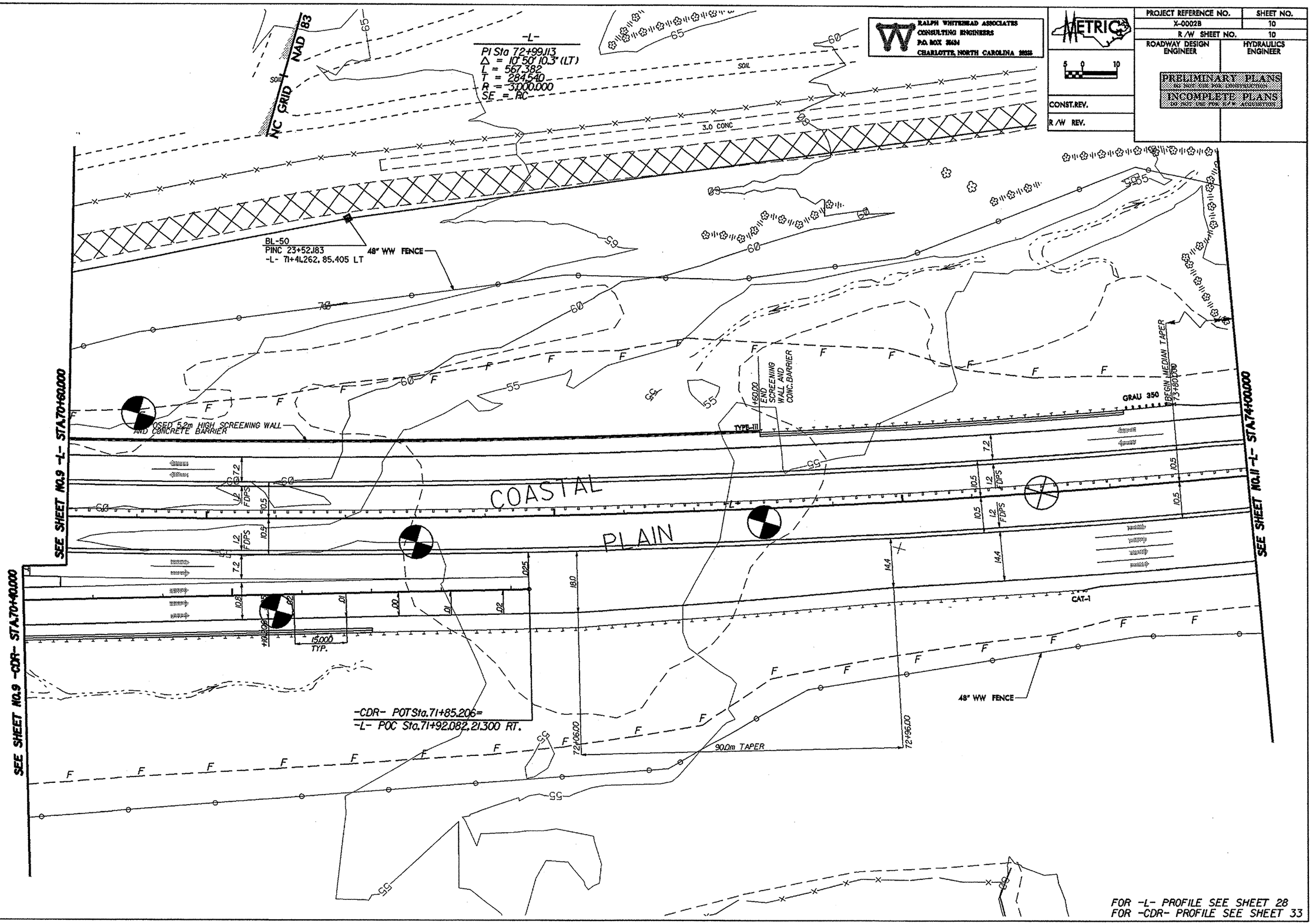
METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	10
R/W SHEET NO.	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.



FOR -L- PROFILE SEE SHEET 28
FOR -CDR- PROFILE SEE SHEET 33

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	11
R/W SHEET NO.	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

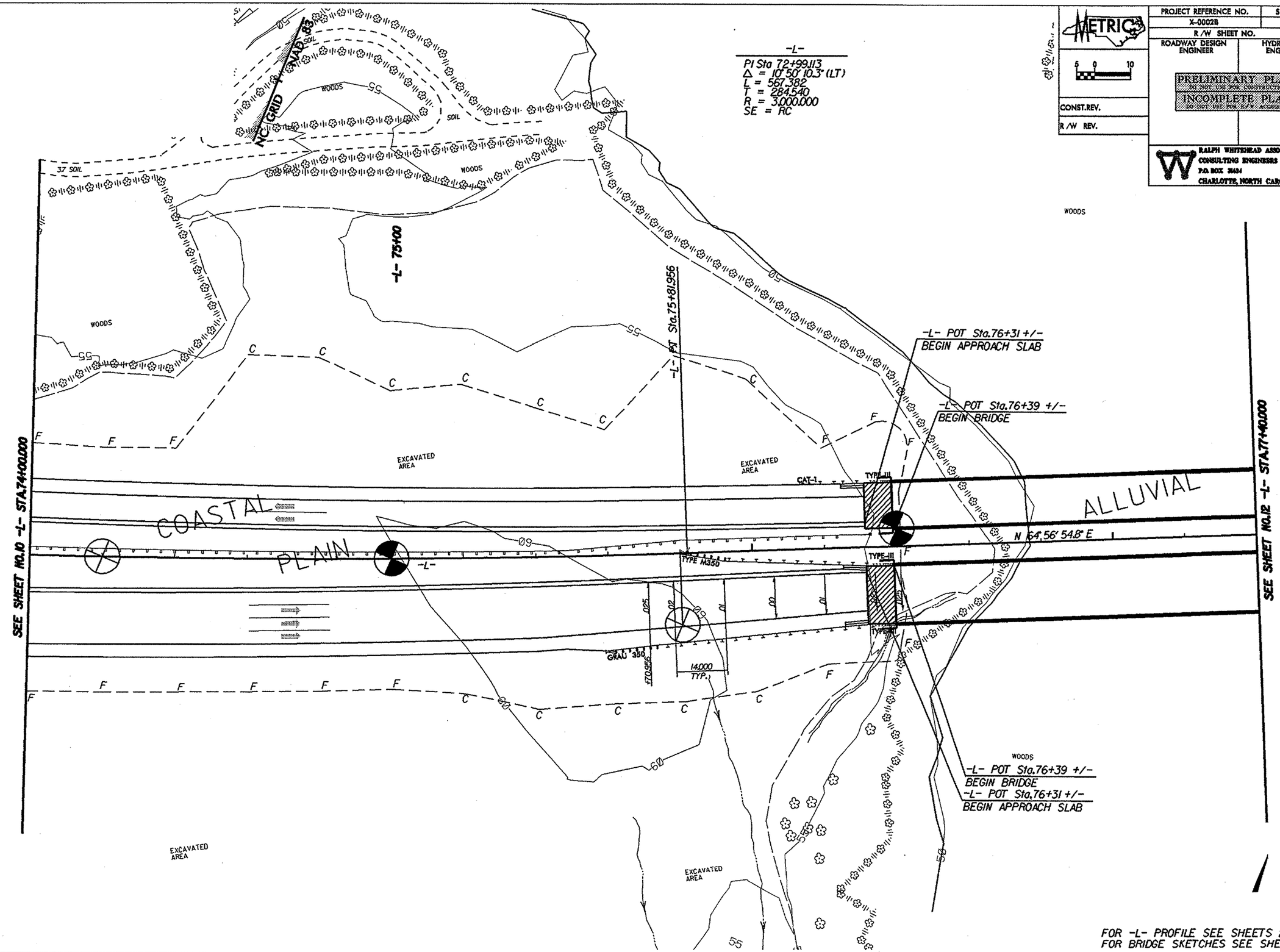
5 0 10

CONST. REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36434
CHARLOTTE, NORTH CAROLINA 28235



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	12
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

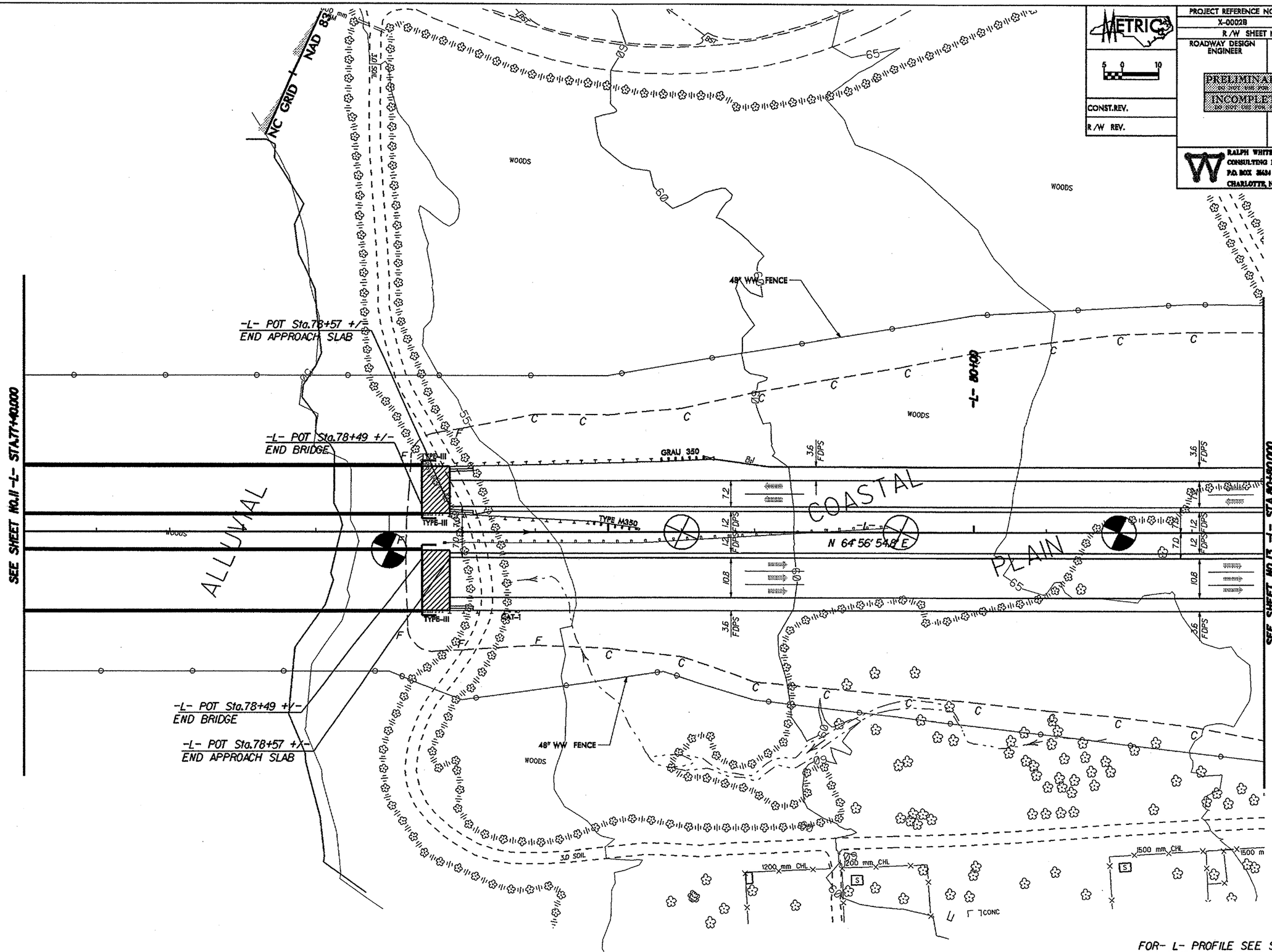
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26534
CHARLOTTE, NORTH CAROLINA 28256



FOR- L- PROFILE SEE SHEET 29
FOR BRIDGE SKETCHES SEE SHEET 2F

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	13
R/W SHEET NO.	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

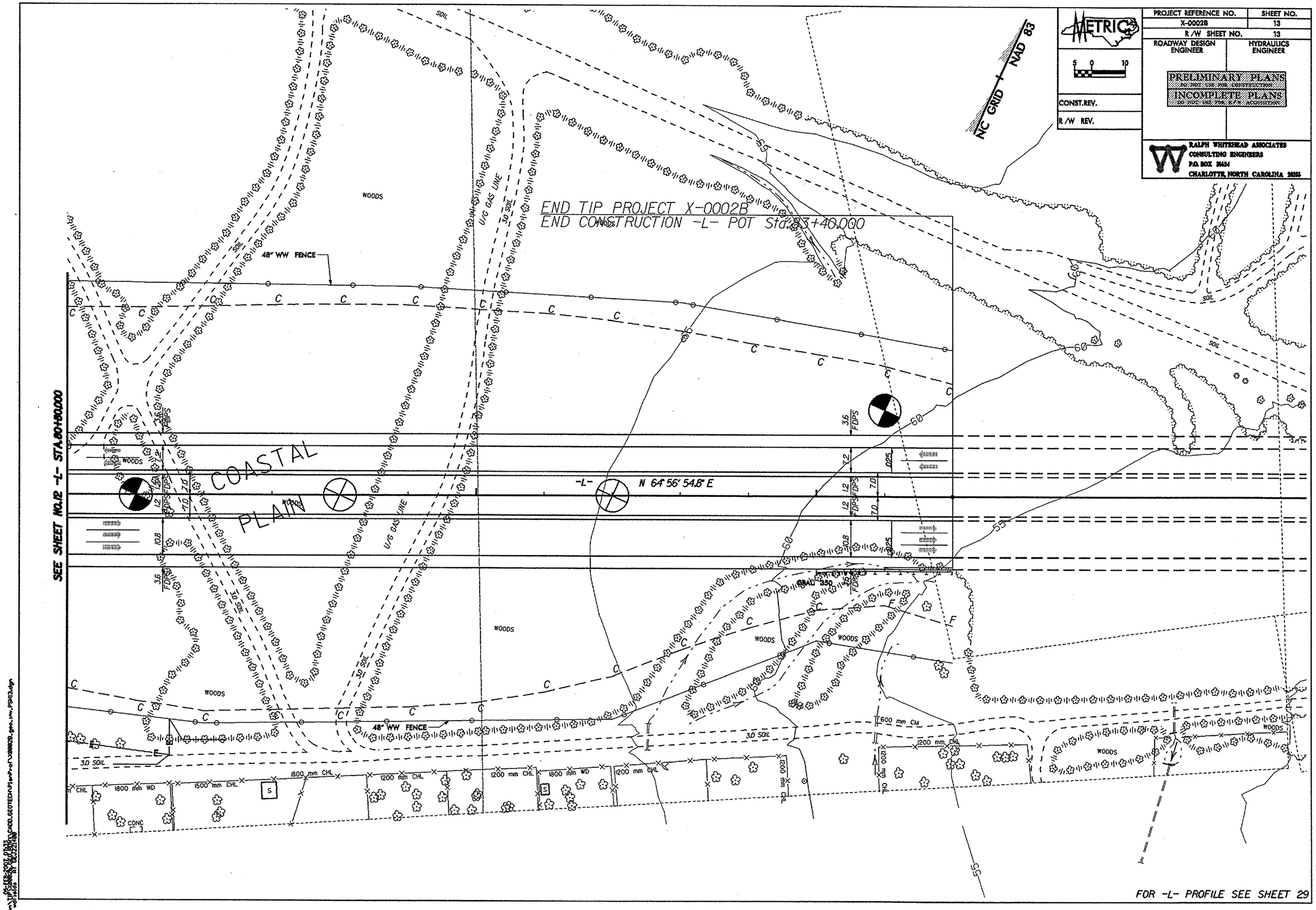
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26424
CHARLOTTE, NORTH CAROLINA 28226



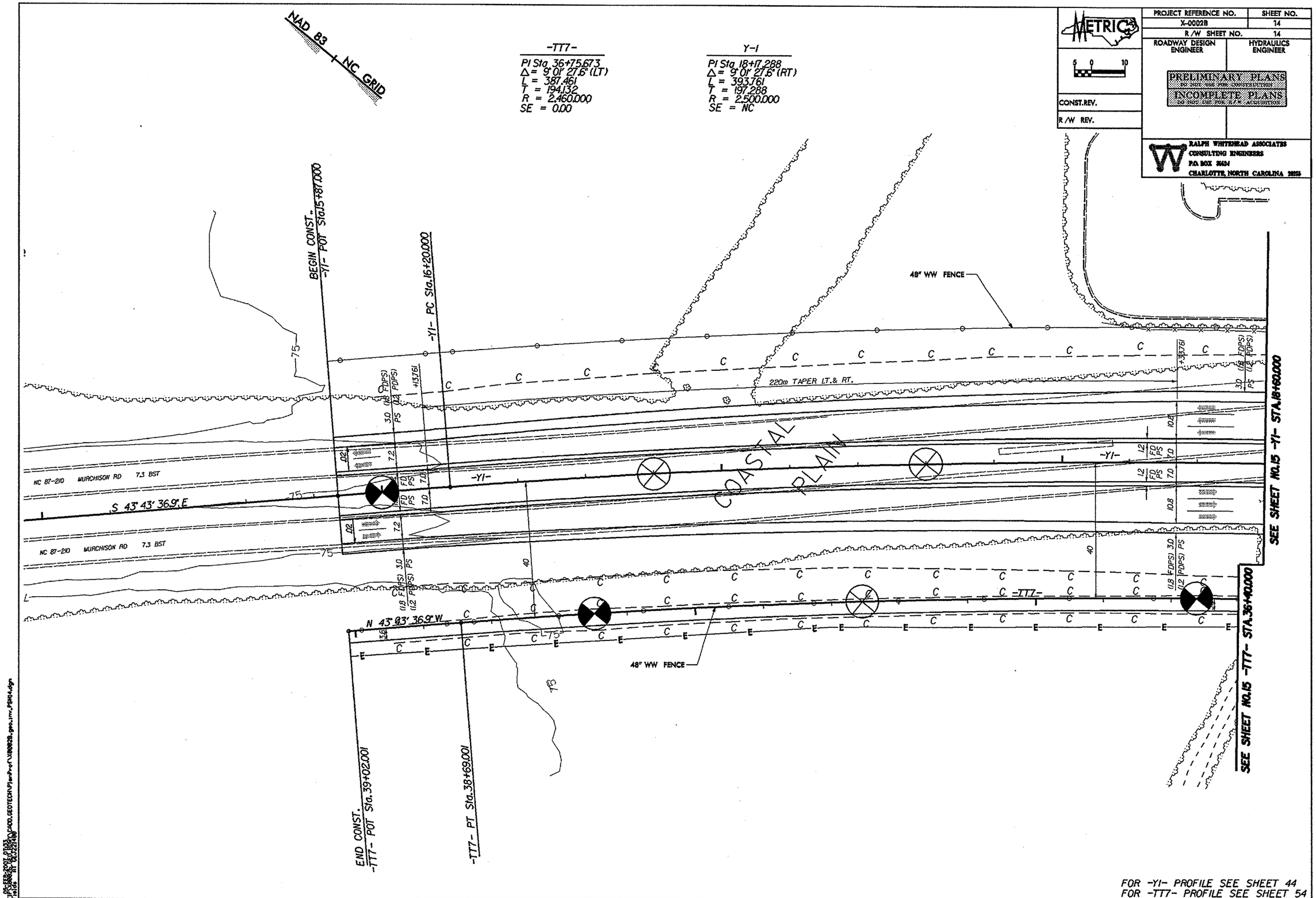
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	14
R/W SHEET NO.	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26424
CHARLOTTE, NORTH CAROLINA 28255



FOR -Y1- PROFILE SEE SHEET 44
FOR -TT7- PROFILE SEE SHEET 54

Y-1		-FLYOVER-		-TT7-	
PI Sta. 18+17.288	PI Sta. 23+20.072	PI Sta. 30+25.909	PIs Sta. 31+47.886	PI Sta. 36+75.673	PI Sta. 33+54.526
Δ = 9° 01' 27.6" (RT)	Δ = 13° 58' 14.3" (LT)	Δ = 13° 58' 42.8" (RT)	Θs = 0° 41' 29.0"	Δ = 9° 01' 27.59" (LT)	Δ = 5° 44' 06.22" (RT)
L = 393.761	L = 609.584	L = 195.178	Θs = 2° 06' 55.2"	L = 387.461	L = 254.243
T = 197.288	T = 306.311	T = 98.076	Ls = 60.000	T = 194.132	T = 127.228
R = 2,500.000	R = 2,500.000	R = 800.000	LT = 35.137	R = 2,460.000	R = 2,540.000
SE = NC	SE = NC	SE = 0.04	ST = 24.875	SE = 0.00	SE = 0.00
	RUNOFF = 60.000				

METRIC

5 0 10

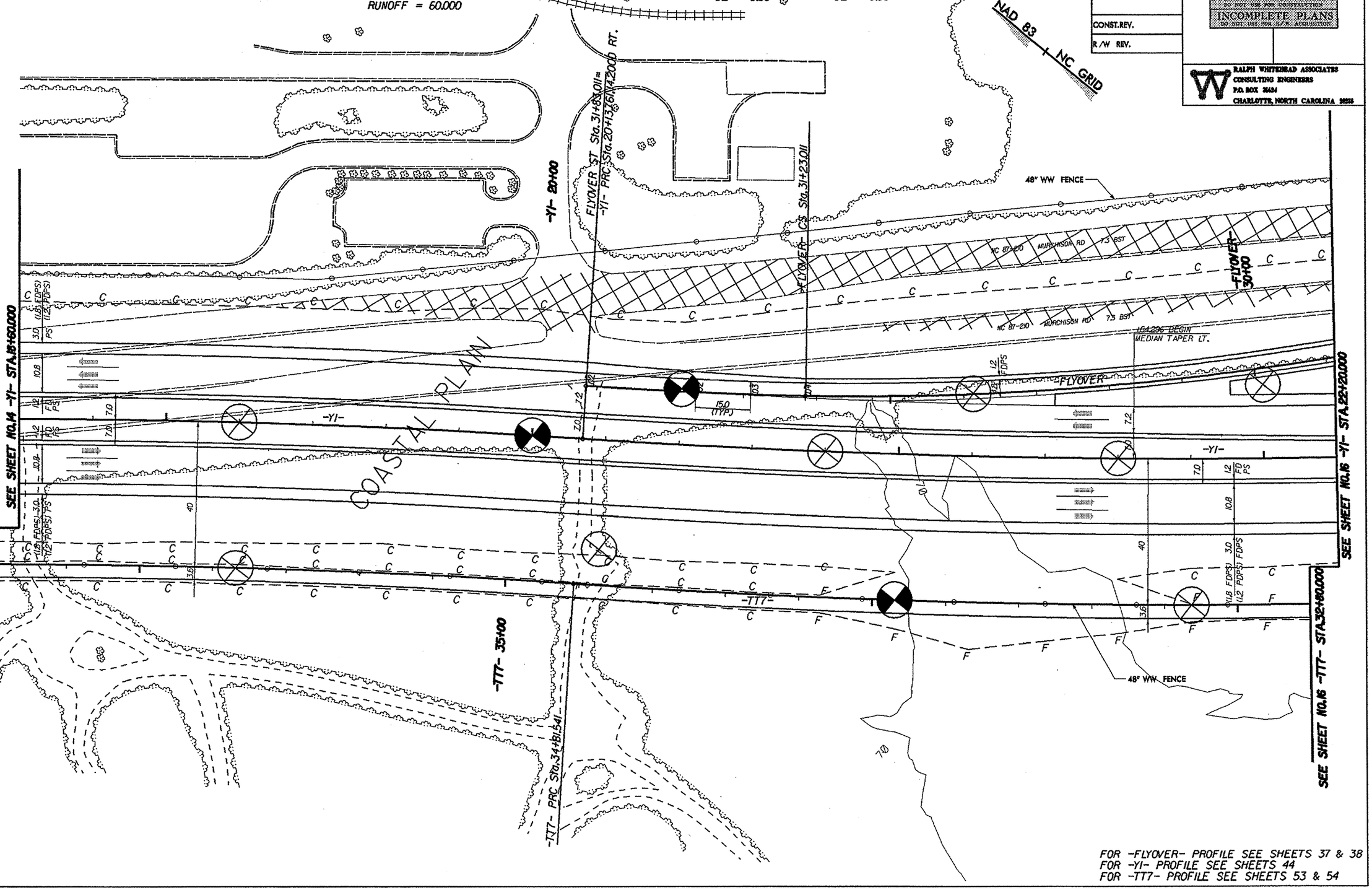
CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	15
R/W SHEET NO.	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26454
CHARLOTTE, NORTH CAROLINA 28234



FOR -FLYOVER- PROFILE SEE SHEETS 37 & 38
FOR -Y1- PROFILE SEE SHEETS 44
FOR -TT7- PROFILE SEE SHEETS 53 & 54

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	16
R/W SHEET NO.	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

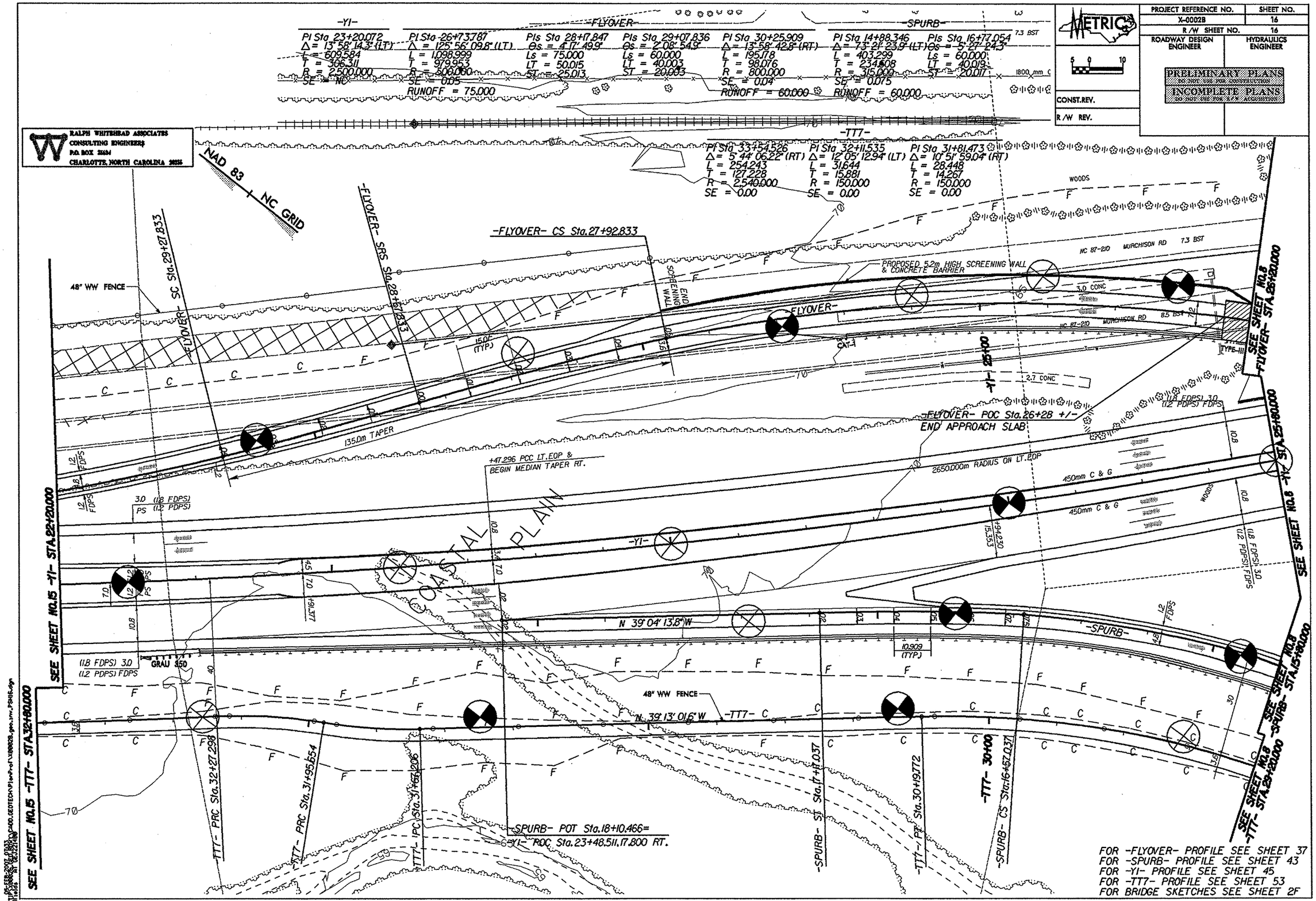
5 0 10

CONST. REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 22434
CHARLOTTE, NORTH CAROLINA 28226



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	17
R/W SHEET NO.	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

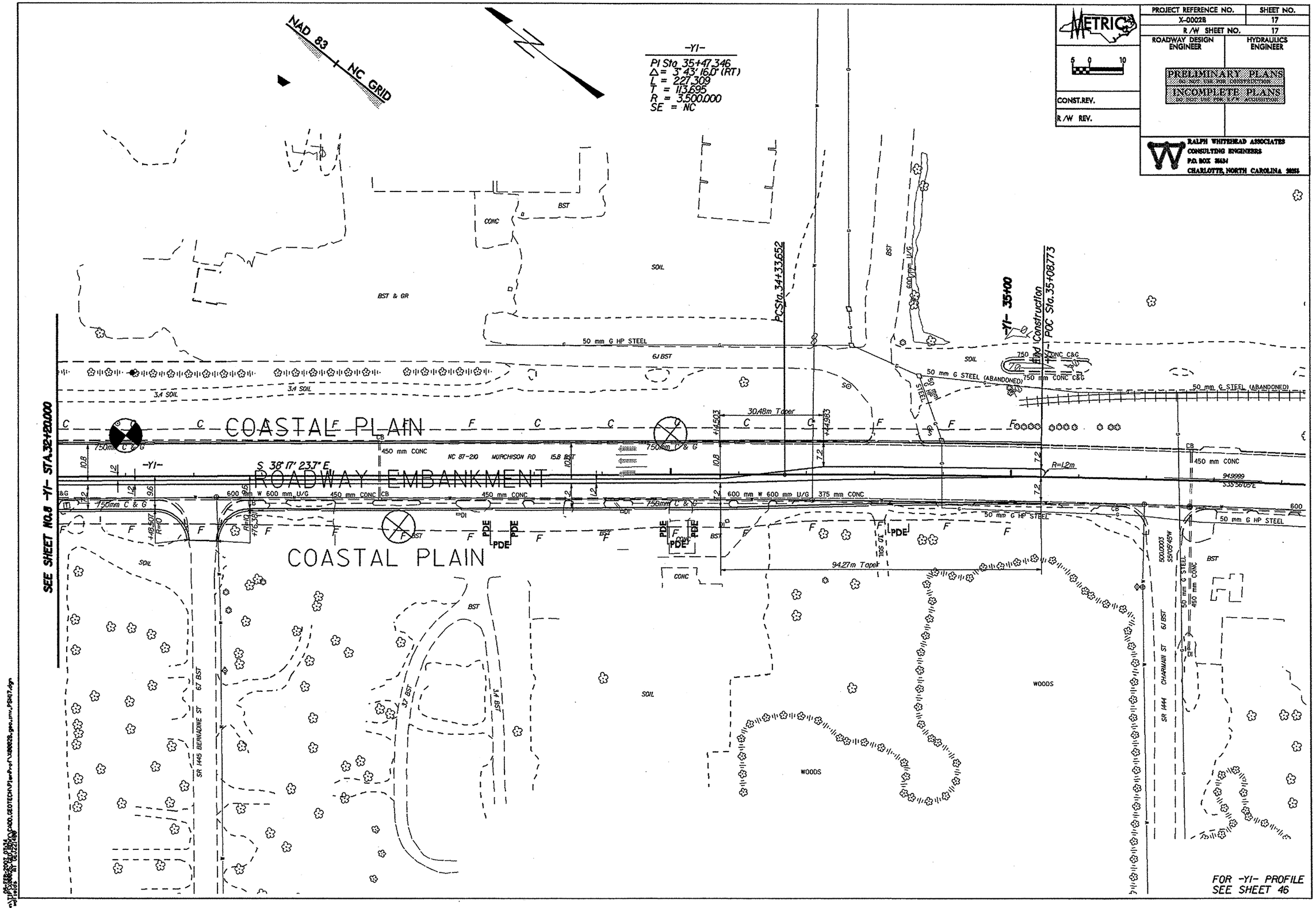
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26434
CHARLOTTE, NORTH CAROLINA 28256



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	18
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

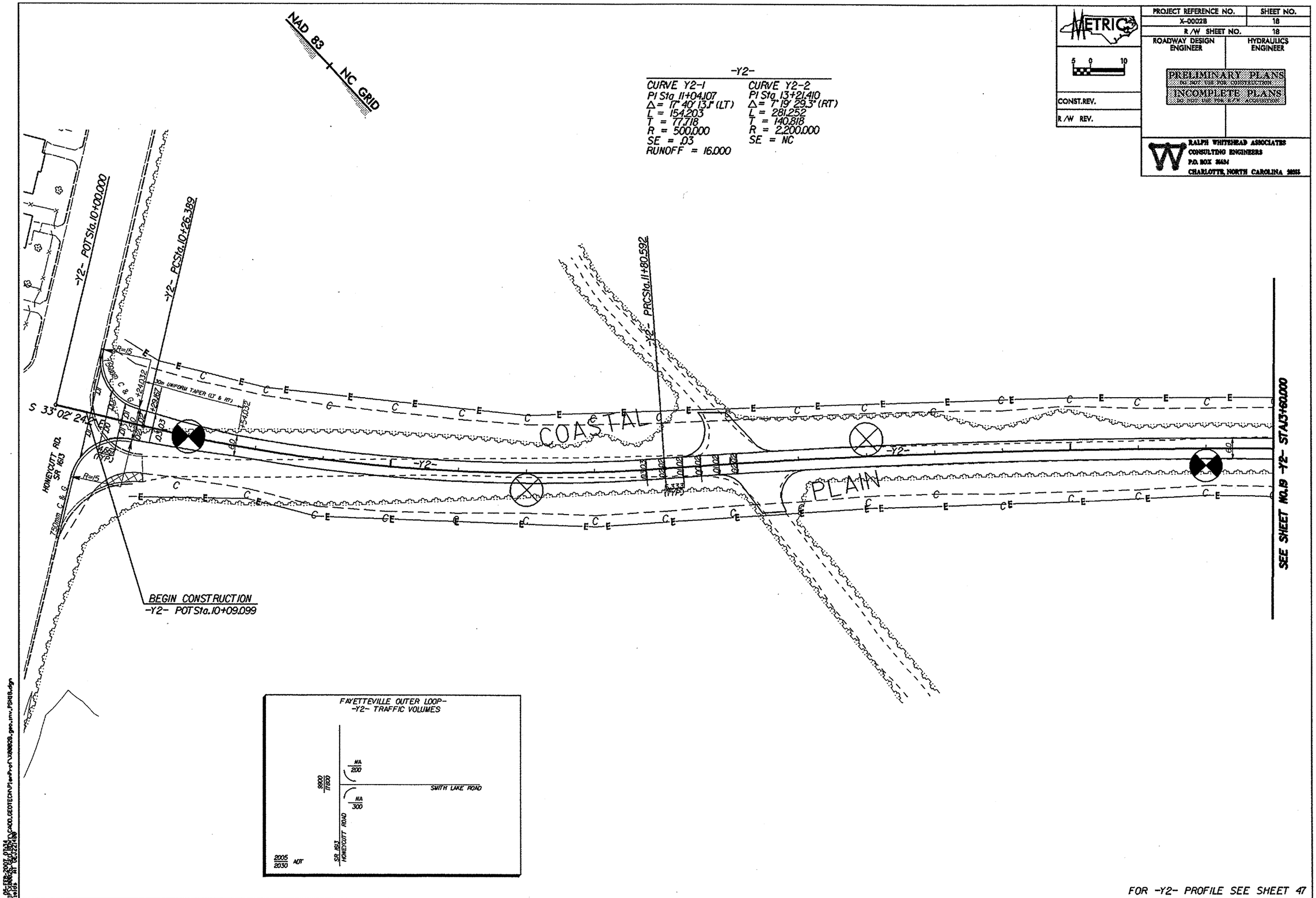
5 0 10

CONST. REV.

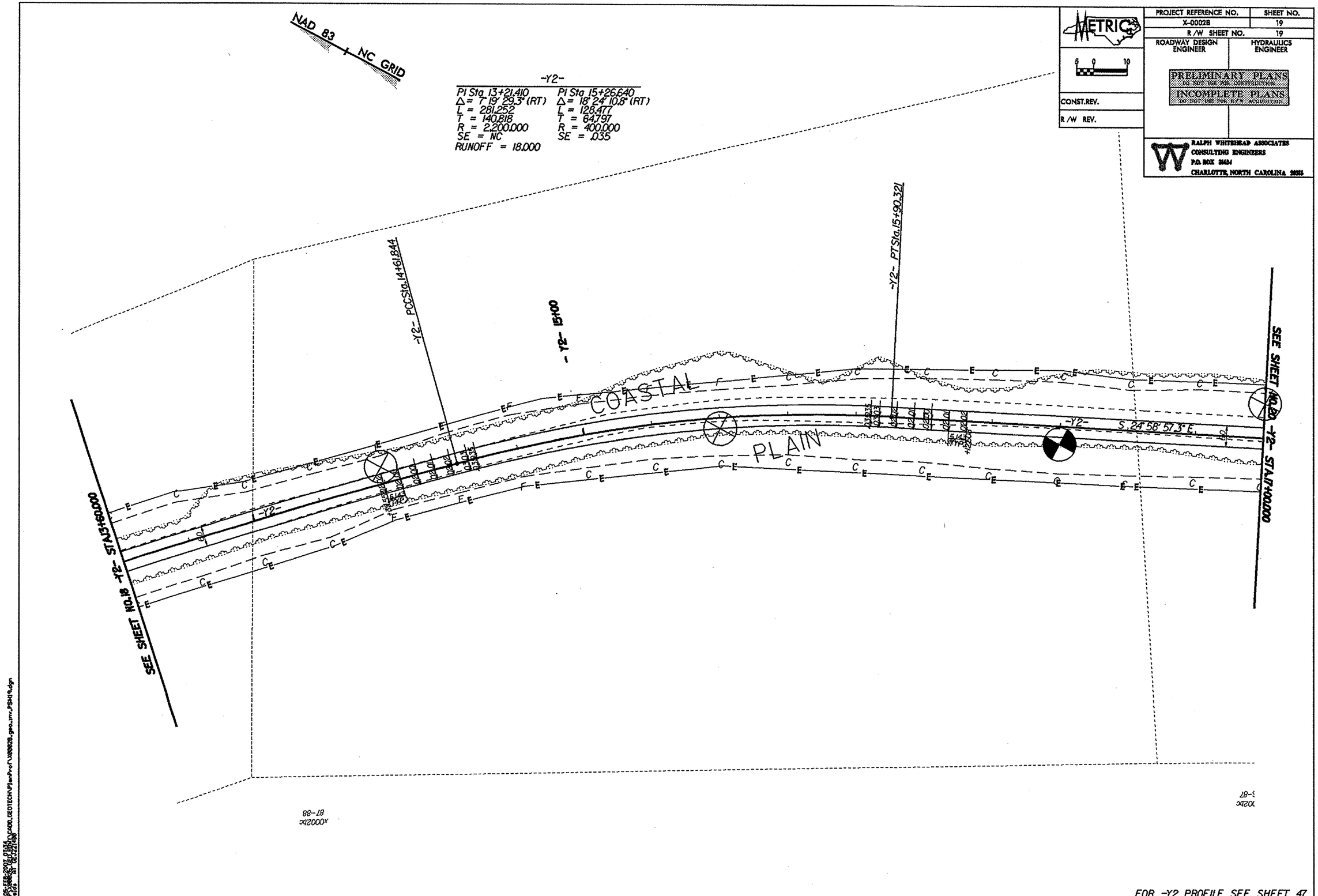
R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36434
CHARLOTTE, NORTH CAROLINA 28235



FOR -Y2- PROFILE SEE SHEET 47


NAD 83
NC GRID
-Y2-
PI Sta 13+21.410
Δ= 7° 19' 29.3" (RT)
L = 281.252
T = 140.818
R = 2,200.000
SE = NC
RUNOFF = 18.000
PI Sta 15+26.640
Δ= 18° 24' 10.8" (RT)
L = 128.477
T = 64.797
R = 400.000
SE = .035
-Y2- PCCSta.14+61.844
-Y2- 15+00
-Y2- PTSta.15+90.321
COASTAL
PLAIN
-Y2-
S 24° 58' 57.3" E
SEE SHEET NO.18 -Y2- STA.13+60.000
SEE SHEET NO.20 -Y2- STA.17+00.000
METRIC
5 0 10
CONST.REV.
R/W REV.
PROJECT REFERENCE NO.
X-0002B
SHEET NO.
19
R/W SHEET NO.
19
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36434
CHARLOTTE, NORTH CAROLINA 28235
FOR -Y2 PROFILE SEE SHEET 47

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	20
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

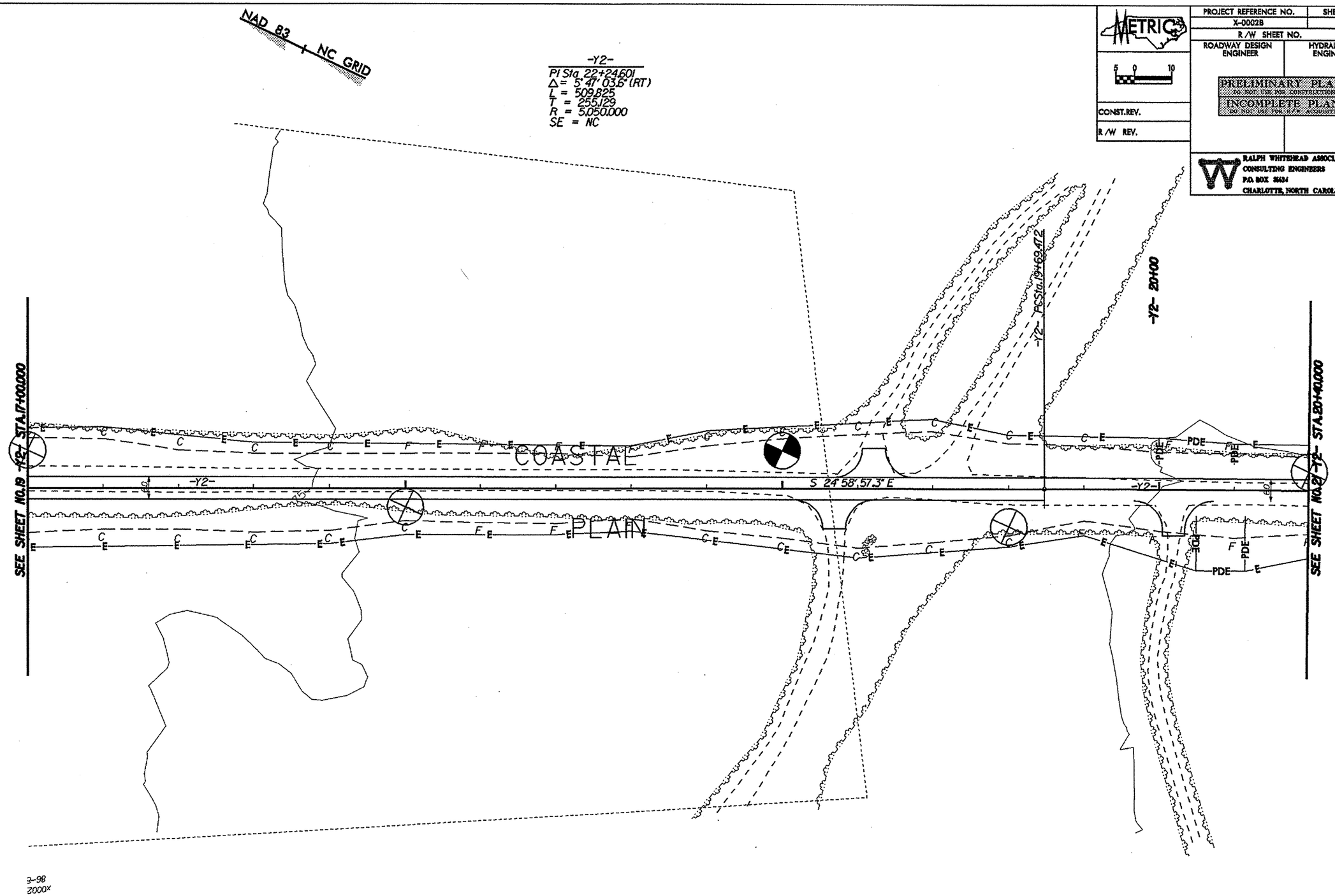
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 36634
CHARLOTTE, NORTH CAROLINA 28235



FOR -Y2- PROFILE SEE SHEETS 47 & 48

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	21
R/W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

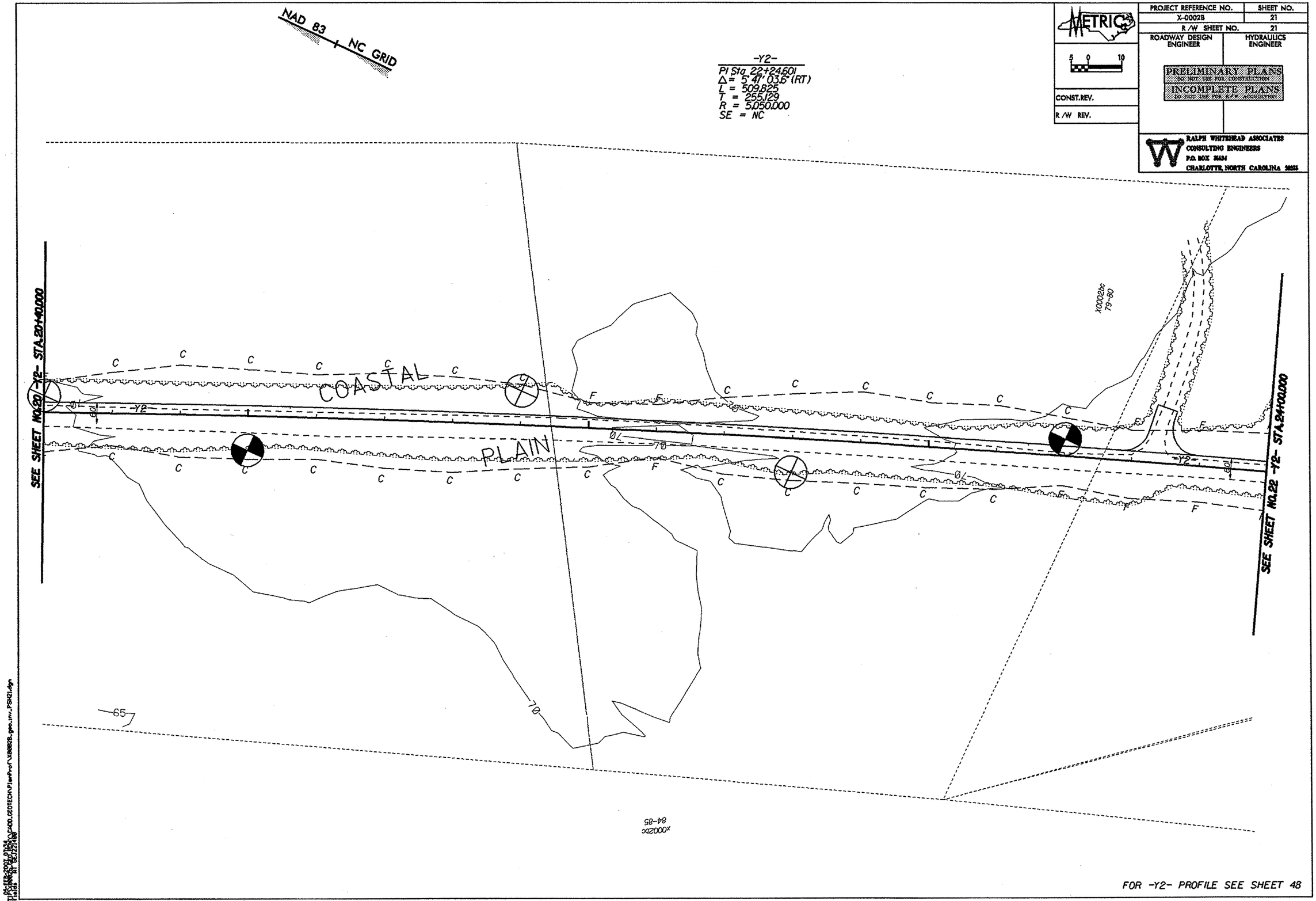
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26434
CHARLOTTE, NORTH CAROLINA 28213



FOR -Y2- PROFILE SEE SHEET 48

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	22
R /W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

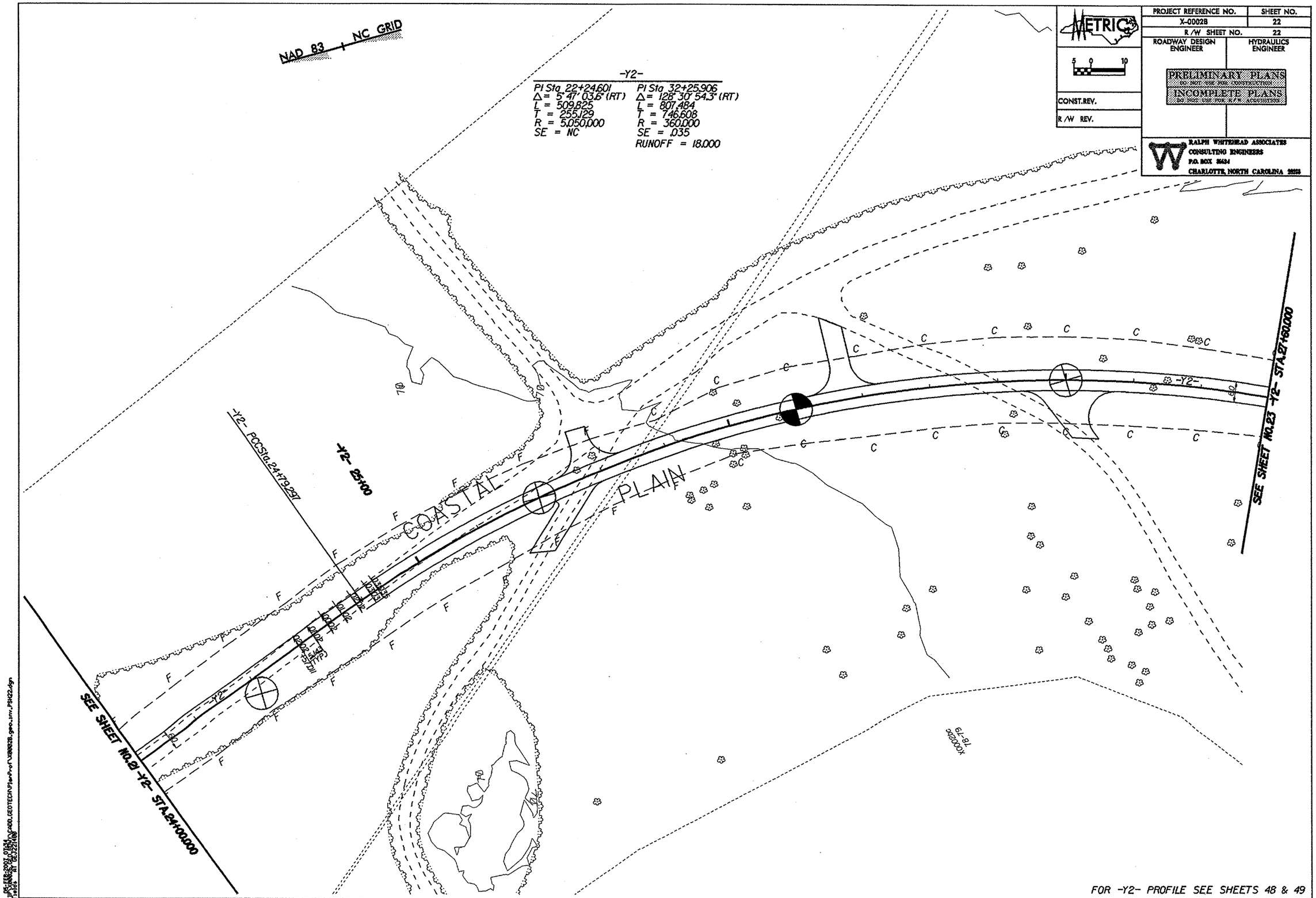
METRIC

5 0 10

CONST.REV.

R /W REV.

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26434
CHARLOTTE, NORTH CAROLINA 28228



FOR -Y2- PROFILE SEE SHEETS 48 & 49

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	23
R/W SHEET NO.	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

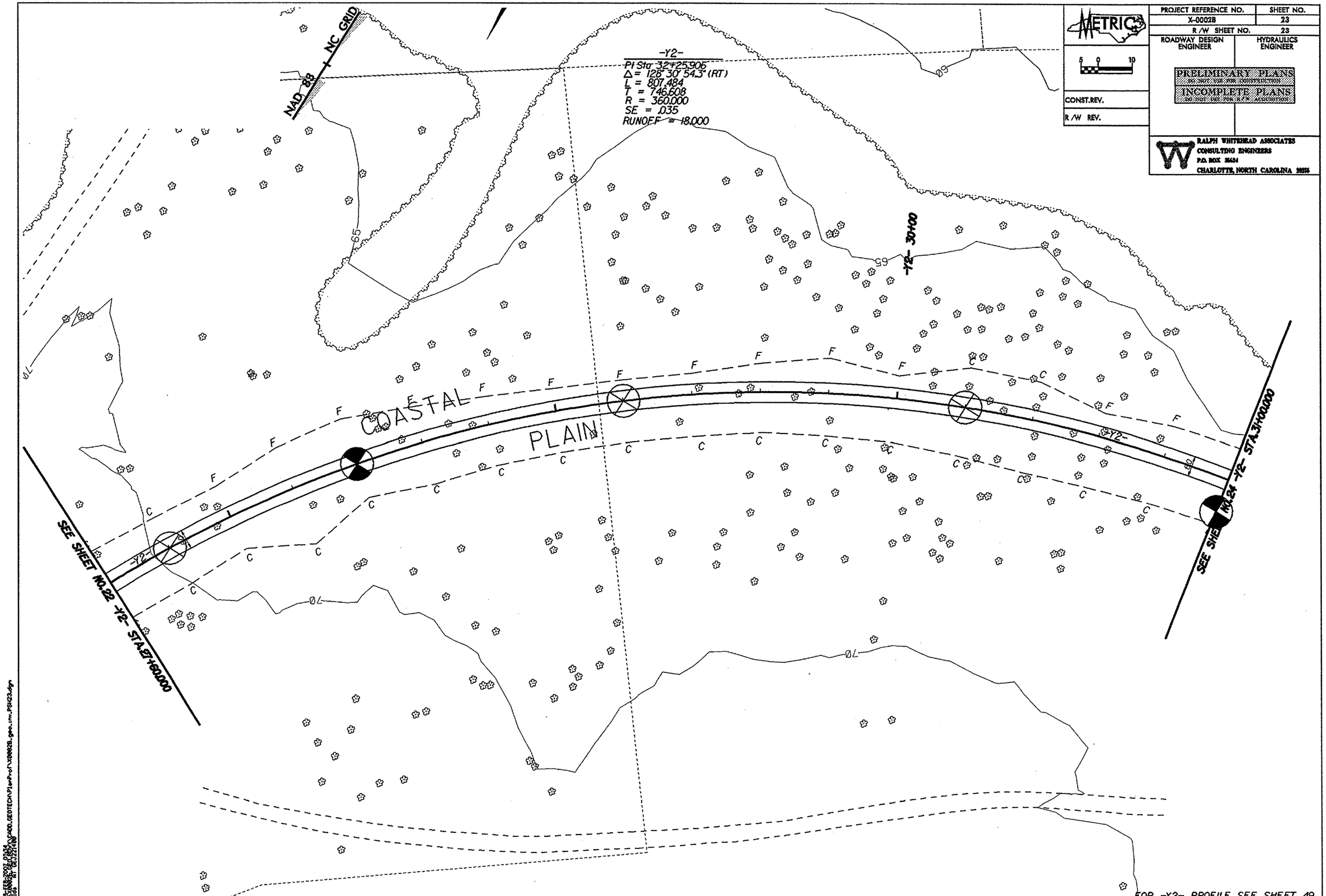
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26424
CHARLOTTE, NORTH CAROLINA 28236



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	24
R/W SHEET NO.	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

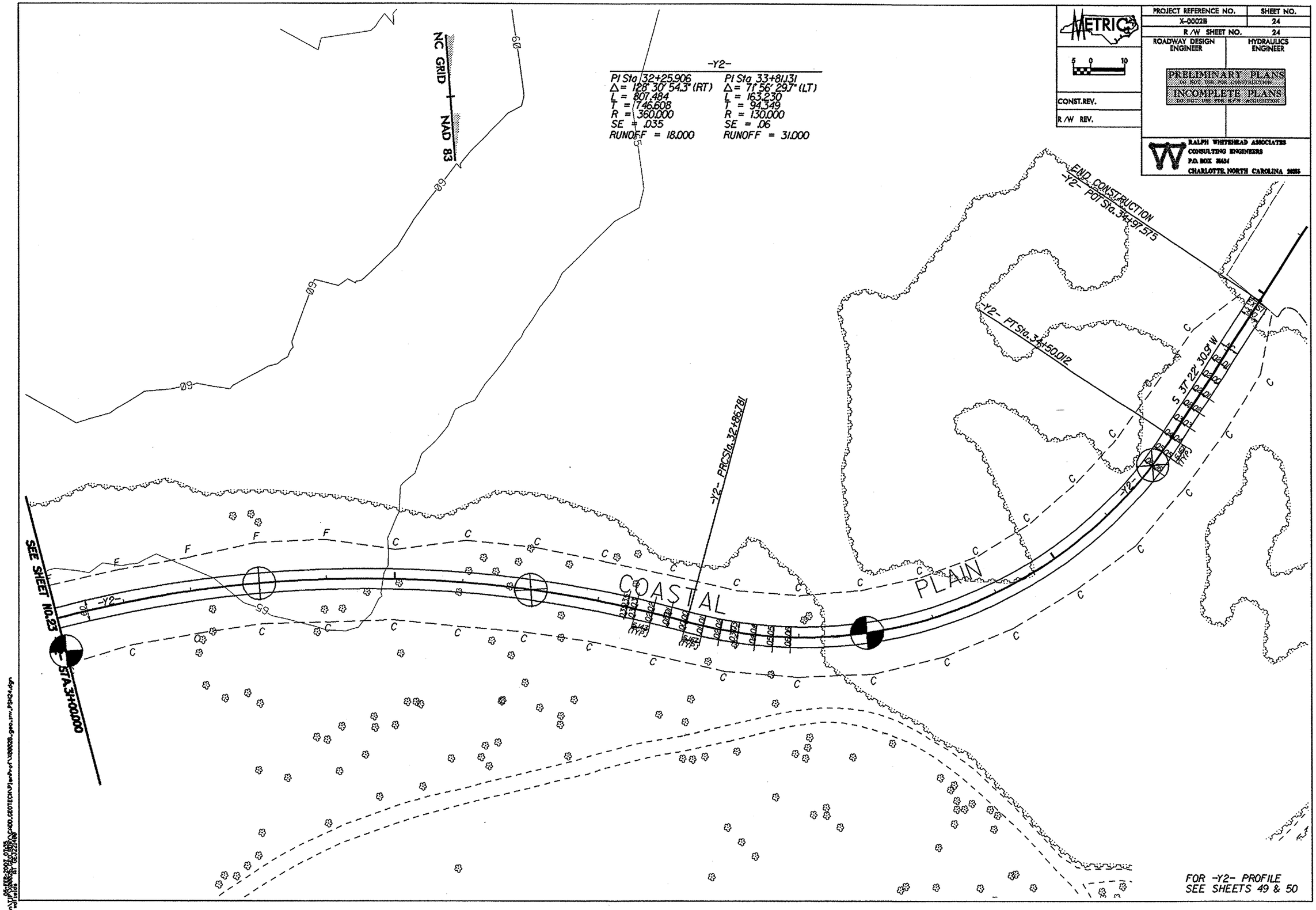
5 0 10

CONST.REV.

R/W REV.

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

RALPH WHITEHEAD ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 26434
CHARLOTTE, NORTH CAROLINA 28226



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

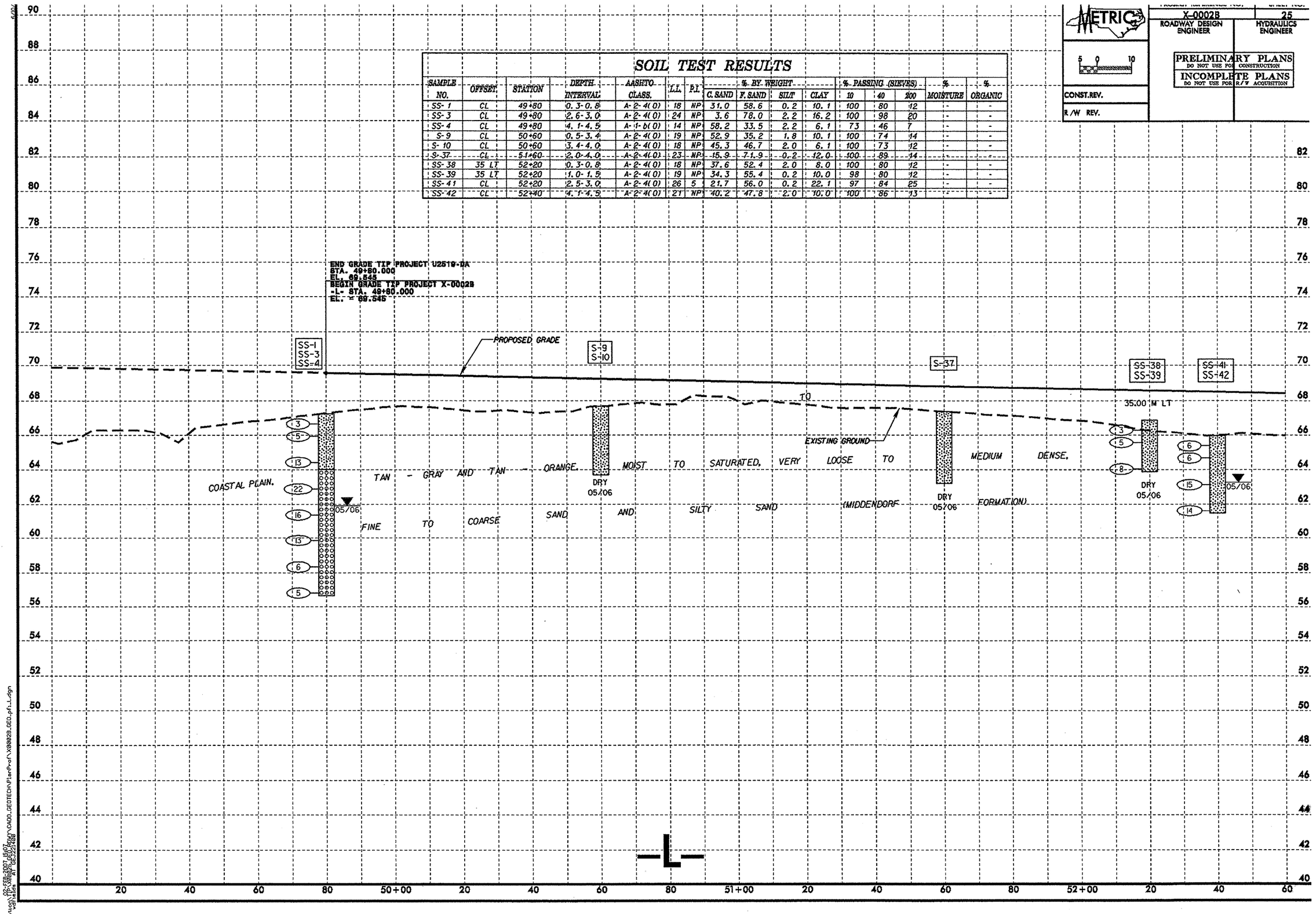
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	CL	49+80	0.3-0.8	A-2-4(0)	18	NP	31.0	58.6	0.2	10.1	100	80	12	-	-
SS-3	CL	49+80	2.6-3.0	A-2-4(0)	24	NP	3.6	78.0	2.2	16.2	100	98	20	-	-
SS-4	CL	49+80	4.1-4.5	A-1-b(0)	14	NP	58.2	33.5	2.2	6.1	73	46	7	-	-
S-9	CL	50+60	0.5-3.4	A-2-4(0)	19	NP	52.9	35.2	1.8	10.1	100	74	14	-	-
S-10	CL	50+60	3.4-4.0	A-2-4(0)	18	NP	45.3	46.7	2.0	6.1	100	73	12	-	-
S-37	CL	51+60	2.0-4.0	A-2-4(0)	23	NP	15.9	71.9	0.2	12.0	100	89	14	-	-
SS-38	35 LT	52+20	0.3-0.8	A-2-4(0)	18	NP	37.6	52.4	2.0	8.0	100	80	12	-	-
SS-39	35 LT	52+20	1.0-1.5	A-2-4(0)	19	NP	34.3	55.4	0.2	10.0	98	80	12	-	-
SS-41	CL	52+20	2.5-3.0	A-2-4(0)	26	5	21.7	56.0	0.2	22.1	97	84	25	-	-
SS-42	CL	52+40	4.1-4.5	A-2-4(0)	21	NP	40.2	47.8	2.0	10.0	100	86	13	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

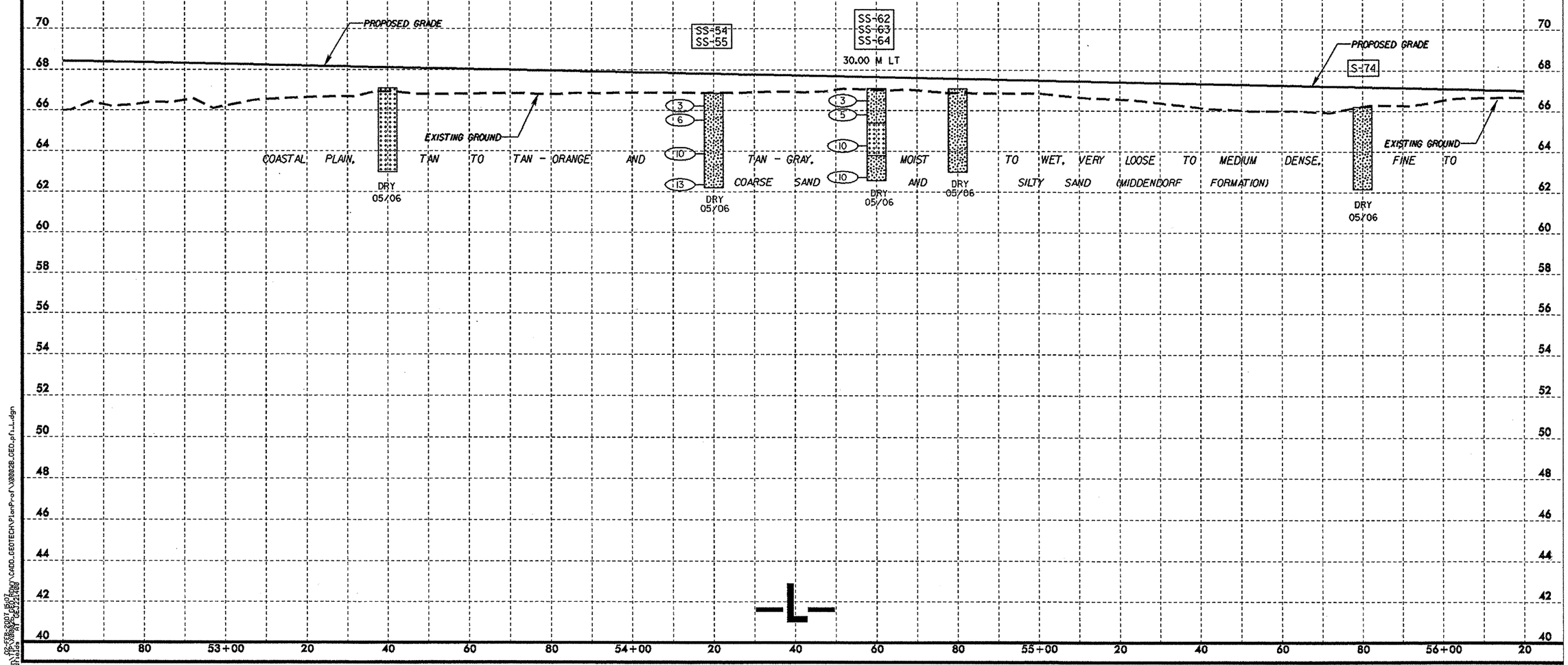
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-54	CL	54+20	0.3-0.8	A-2-4(0)	18	NP	33.5	54.2	0.2	12.0	100	88	14	-	-
SS-55	CL	54+20	1.0-1.5	A-2-4(0)	19	NP	35.5	54.6	1.8	8.0	100	86	11	-	-
SS-62	30 LT	54+60	1.0-1.5	A-2-4(0)	20	NP	45.8	43.6	0.6	10.0	100	77	12	-	-
SS-63	30 LT	54+60	2.5-3.0	A-3(0)	23	NP	40.8	56.2	1.0	2.0	100	88	4	-	-
SS-64	30 LT	54+60	4.0-4.5	A-2-4(0)	23	NP	1.2	81.9	0.8	16.1	100	100	22	-	-
S-74	CL	55+80	1.0-2.0	A-2-4(0)	21	NP	9.3	71.4	1.0	18.3	97	93	22	-	-



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wallields
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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

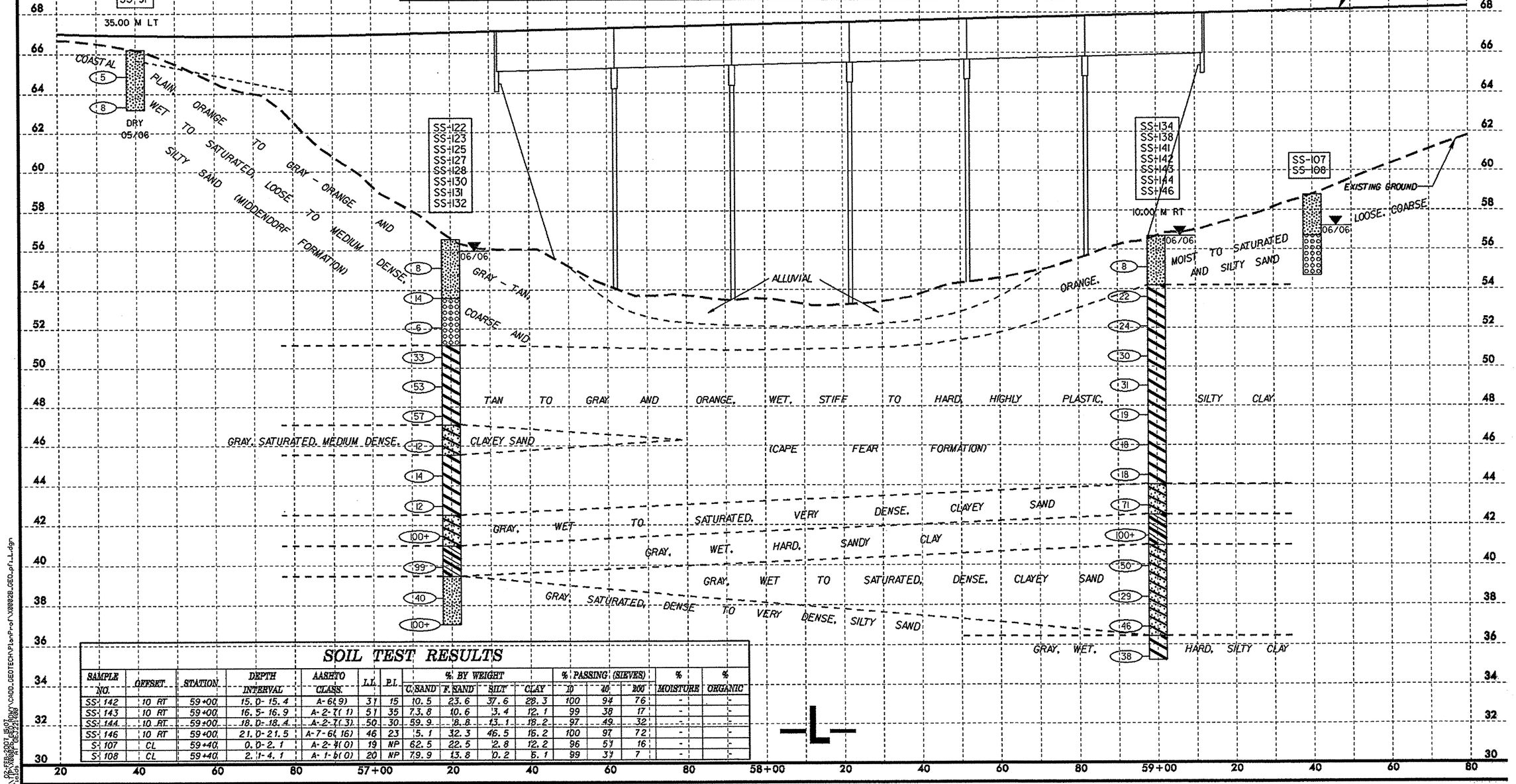
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-90	35 LT	56+40	1.0-1.5	A-2-4(0)	20	NP	21.5	68.0	4.5	6.1	98	89	13	-	-
SS-91	35 LT	56+40	2.6-3.0	A-2-4(0)	21	NP	6.3	83.2	4.5	6.1	100	97	16	-	-
SS-122	1.34 LT	57+20	1.2-1.6	A-2-4(0)	20	NP	48.4	36.5	2.9	12.1	94	66	16	-	-
SS-123	1.34 LT	57+20	2.7-3.1	A-1-b(0)	21	NP	83.8	9.5	2.7	4.0	100	47	7	-	-
SS-125	1.34 LT	57+20	7.2-7.7	A-7-6(17)	41	22	8.8	17.7	27.3	46.2	100	94	80	-	-
SS-127	1.34 LT	57+20	10.3-10.7	A-2-6(1)	35	21	59.3	15.9	4.5	20.2	93	55	24	-	-
SS-128	1.34 LT	57+20	11.8-12.2	A-7-6(22)	47	33	3.2	28.9	19.5	48.4	100	99	72	-	-
SS-130	1.34 LT	57+20	14.8-15.3	A-2-6(0)	38	12	52.1	26.0	7.8	14.1	100	73	25	-	-
SS-131	1.34 LT	57+20	16.4-16.8	A-6(6)	30	16	24.4	26.6	26.9	22.0	100	86	56	-	-
SS-132	1.34 LT	57+20	17.9-18.3	A-2-4(0)	24	NP	40.2	43.6	4.1	12.0	100	87	17	-	-
SS-134	10 RT	59+00	1.3-1.7	A-2-4(0)	20	NP	46.3	44.2	3.4	6.1	100	89	12	-	-
SS-138	10 RT	59+00	8.9-9.3	A-7-6(7)	43	26	36.4	19.2	8.1	36.4	97	71	46	-	-
SS-141	10 RT	59+00	13.4-13.9	A-2-6(2)	39	19	36.2	33.3	8.3	22.2	100	88	33	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-142	10 RT	59+00	15.0-15.4	A-6(9)	31	15	10.5	23.6	37.6	28.3	100	94	76	-	-
SS-143	10 RT	59+00	16.5-16.9	A-2-7(1)	51	35	7.3.8	10.6	3.4	12.1	99	38	17	-	-
SS-144	10 RT	59+00	18.0-18.4	A-2-7(3)	50	30	59.9	8.8	13.1	18.2	97	49	32	-	-
SS-146	10 RT	59+00	21.0-21.5	A-7-6(16)	46	23	5.1	32.3	46.5	16.2	100	97	72	-	-
S-107	CL	59+40	0.0-2.1	A-2-4(0)	19	NP	62.5	22.5	2.8	12.2	96	51	16	-	-
S-108	CL	59+40	2.1-4.1	A-1-b(0)	20	NP	79.9	13.8	0.2	6.1	99	31	7	-	-

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

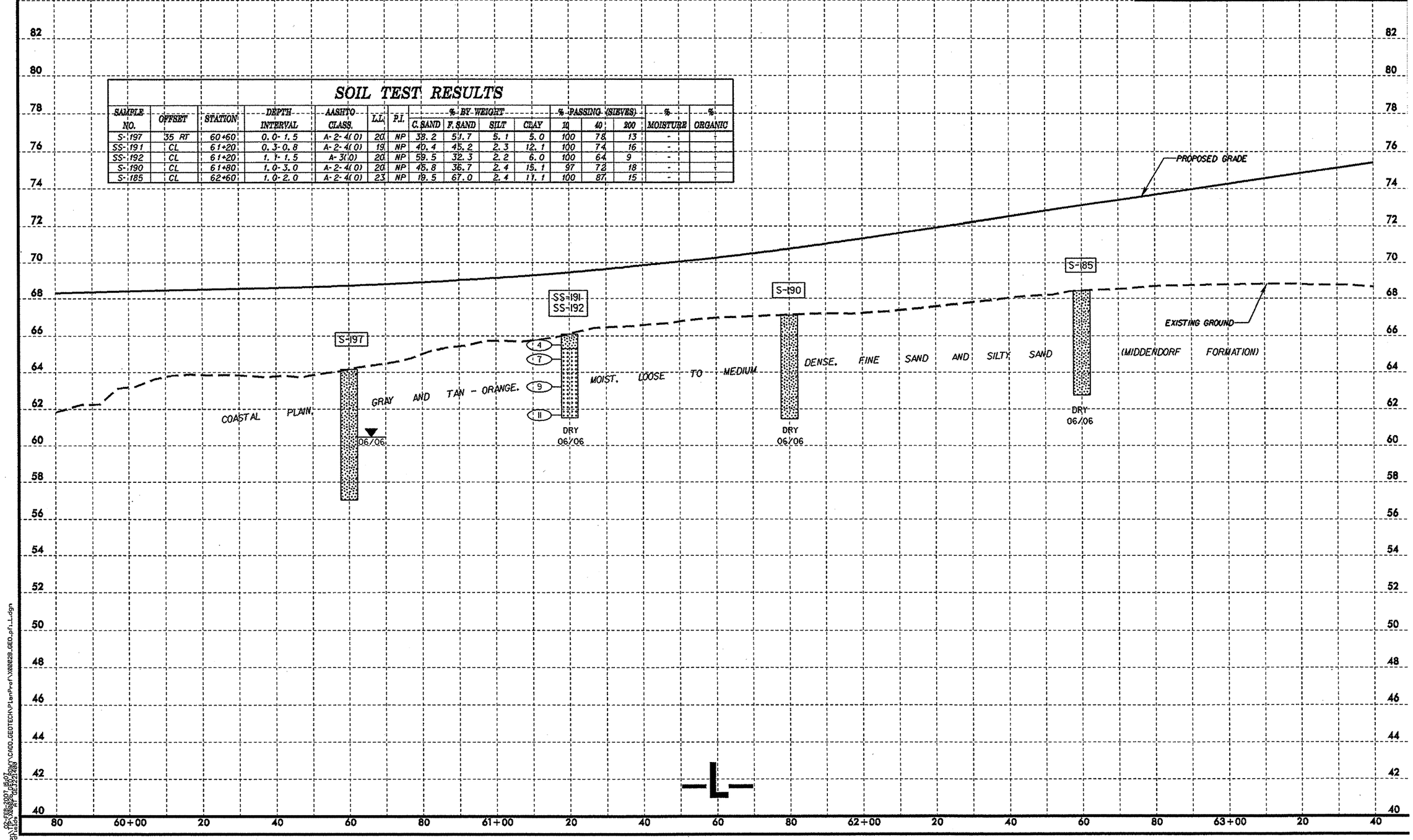
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-197	35 RT	60+60	0.0-1.5	A-2-4(0)	20	NP	38.2	51.7	5.1	5.0	100	78	13	-	-
SS-191	CL	61+20	0.3-0.8	A-2-4(0)	19	NP	40.4	45.2	2.3	12.1	100	74	16	-	-
SS-192	CL	61+20	1.1-1.5	A-3(0)	20	NP	59.5	32.3	2.2	6.0	100	64	9	-	-
S-190	CL	61+80	1.0-3.0	A-2-4(0)	20	NP	45.8	36.7	2.4	15.1	97	72	18	-	-
S-185	CL	62+60	1.0-2.0	A-2-4(0)	23	NP	19.5	67.0	2.4	11.1	100	87	15	-	-



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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

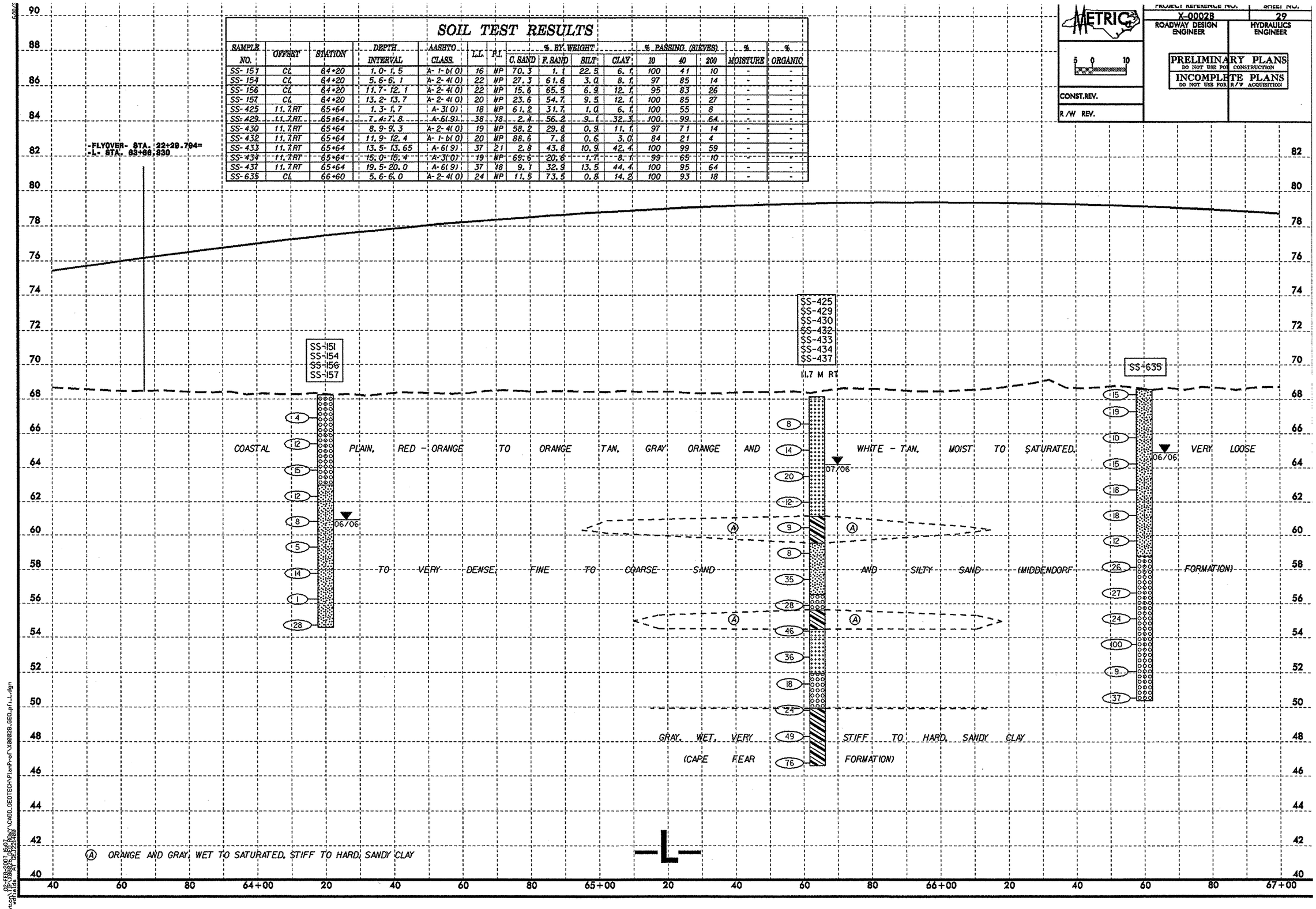
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-151	CL	64+20	1.0-1.5	A-1-b(0)	16	NP	70.3	1.1	22.5	6.1	100	41	10	-	-
SS-154	CL	64+20	5.6-6.1	A-2-4(0)	22	NP	27.3	61.6	3.0	8.1	97	85	14	-	-
SS-156	CL	64+20	11.7-12.1	A-2-4(0)	22	NP	15.6	65.5	6.9	12.1	95	83	26	-	-
SS-157	CL	64+20	13.2-13.7	A-2-4(0)	20	NP	23.6	54.7	9.5	12.1	100	85	27	-	-
SS-425	11.7 RT	65+64	1.3-1.7	A-3(0)	18	NP	61.2	31.7	1.0	6.1	100	55	8	-	-
SS-429	11.7 RT	65+64	7.4-7.8	A-6(9)	38	18	2.4	56.2	9.1	32.3	100	99	64	-	-
SS-430	11.7 RT	65+64	8.9-9.3	A-2-4(0)	19	NP	58.2	29.8	0.9	11.1	97	71	14	-	-
SS-432	11.7 RT	65+64	11.9-12.4	A-1-b(0)	20	NP	88.6	7.8	0.6	3.0	84	21	4	-	-
SS-433	11.7 RT	65+64	13.5-13.65	A-6(9)	37	21	2.8	43.8	10.9	42.4	100	99	59	-	-
SS-434	11.7 RT	65+64	15.0-15.4	A-3(0)	19	NP	69.6	20.6	1.7	8.1	99	65	10	-	-
SS-437	11.7 RT	65+64	19.5-20.0	A-6(9)	37	18	9.1	32.9	13.5	44.4	100	95	64	-	-
SS-635	CL	66+60	5.6-6.0	A-2-4(0)	24	NP	11.5	73.5	0.8	14.2	100	93	18	-	-



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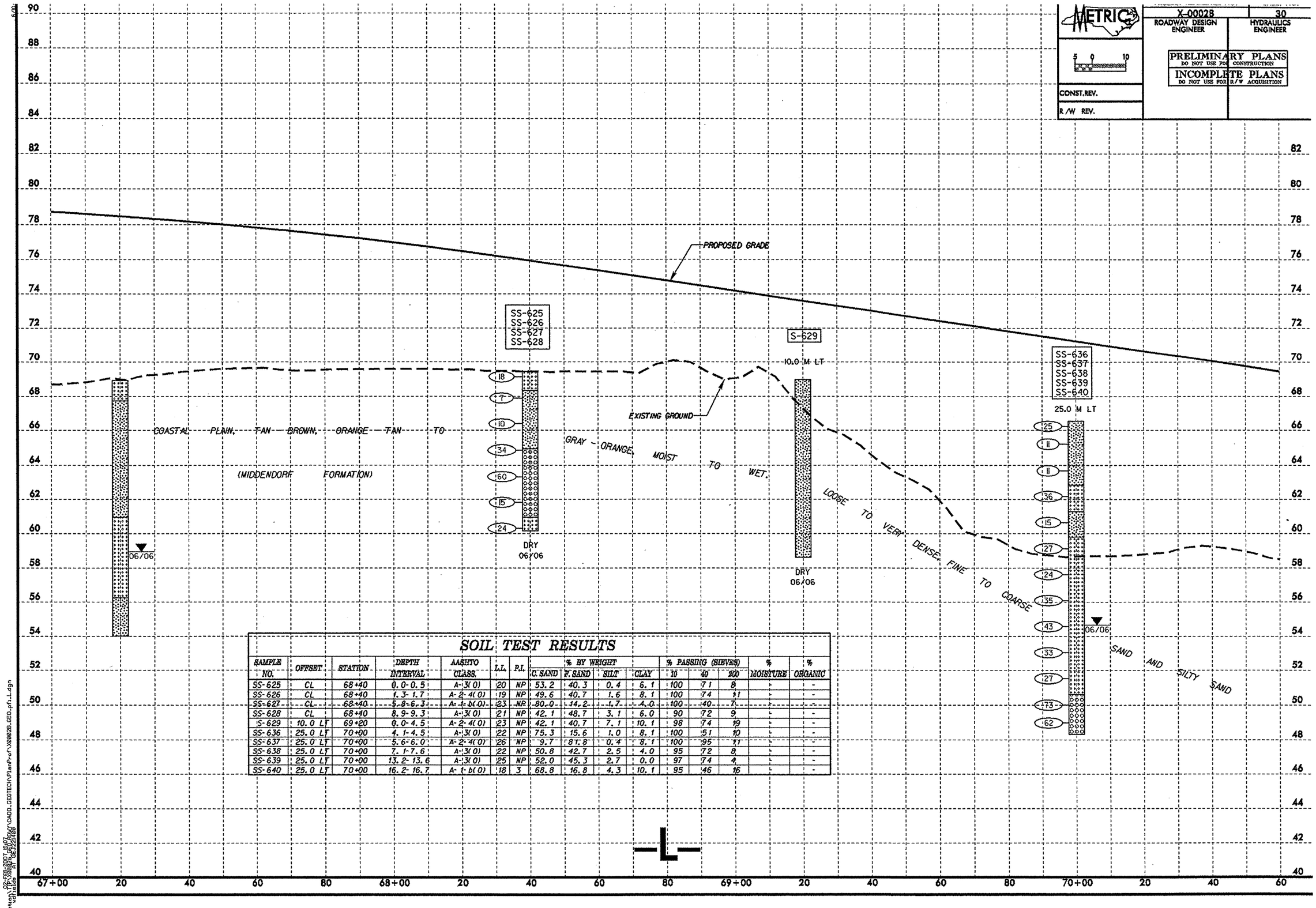
METRIC	X-0002B ROADWAY DESIGN ENGINEER	30 HYDRAULICS ENGINEER
5 0 10	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
R/W REV.		



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-625	CL	68+40	0.0-0.5	A-3(0)	20	NP	53.2	40.3	0.4	6.1	100	71	8	-	-
SS-626	CL	68+40	1.3-1.7	A-2-4(0)	19	NP	49.6	40.7	1.6	8.1	100	74	11	-	-
SS-627	CL	68+40	5.8-6.3	A-4(8)	23	NP	80.0	14.2	1.7	4.0	100	40	7	-	-
SS-628	CL	68+40	8.9-9.3	A-3(0)	21	NP	42.1	48.7	3.1	6.0	90	72	9	-	-
S-629	10.0 LT	69+20	0.0-4.5	A-2-4(0)	23	NP	42.1	40.7	7.1	10.1	98	74	19	-	-
SS-636	25.0 LT	70+00	4.1-4.5	A-3(0)	22	NP	75.3	15.6	1.0	8.1	100	51	10	-	-
SS-637	25.0 LT	70+00	5.6-6.0	A-2-4(0)	26	NP	9.7	81.8	0.4	8.1	100	95	11	-	-
SS-638	25.0 LT	70+00	7.1-7.6	A-3(0)	22	NP	50.8	42.7	2.5	4.0	95	72	8	-	-
SS-639	25.0 LT	70+00	13.2-13.6	A-3(0)	25	NP	52.0	45.3	2.7	0.0	97	74	4	-	-
SS-640	25.0 LT	70+00	16.2-16.7	A-1-b(0)	18	3	68.8	16.8	4.3	10.1	95	46	16	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

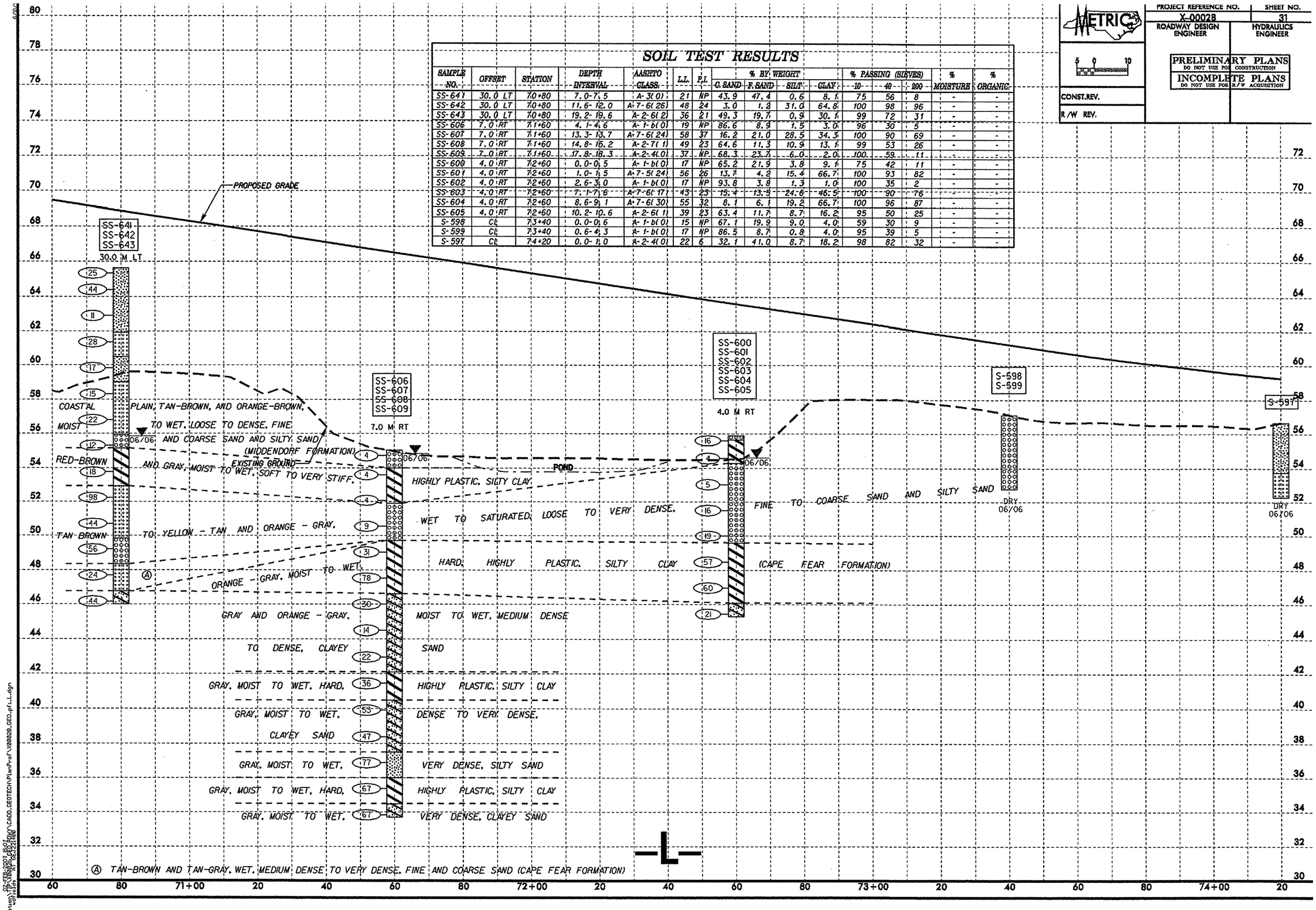
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT G. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-641	30.0 LT	70+80	7.0-7.5	A-3(0)	21	NP	43.9	47.4	0.6	8.1	75	56	8	-	-
SS-642	30.0 LT	70+80	11.6-12.0	A-7-6(26)	48	24	3.0	1.2	31.0	64.8	100	98	96	-	-
SS-643	30.0 LT	70+80	19.2-19.6	A-2-6(2)	36	21	49.3	19.7	0.9	30.1	99	72	31	-	-
SS-606	7.0 RT	71+60	4.1-4.6	A-1-b(0)	19	NP	86.6	8.9	1.5	3.0	96	30	5	-	-
SS-607	7.0 RT	71+60	13.3-13.7	A-7-6(24)	58	37	16.2	21.0	28.5	34.3	100	90	69	-	-
SS-608	7.0 RT	71+60	14.8-16.2	A-2-7(1)	49	23	64.6	11.3	10.9	13.1	99	53	26	-	-
SS-609	7.0 RT	71+60	17.8-18.3	A-2-4(0)	37	NP	68.3	23.7	6.0	2.0	100	59	11	-	-
SS-600	4.0 RT	72+60	0.0-0.5	A-1-b(0)	17	NP	65.2	21.9	3.8	9.1	75	42	11	-	-
SS-601	4.0 RT	72+60	1.0-1.5	A-7-5(24)	56	26	13.7	4.2	15.4	66.7	100	93	82	-	-
SS-602	4.0 RT	72+60	2.6-3.0	A-1-b(0)	17	NP	93.8	3.8	1.3	1.0	100	35	2	-	-
SS-603	4.0 RT	72+60	7.1-7.6	A-7-6(17)	43	23	15.4	13.5	24.6	46.5	100	90	76	-	-
SS-604	4.0 RT	72+60	8.6-9.1	A-7-6(30)	55	32	8.1	6.1	19.2	66.7	100	96	87	-	-
SS-605	4.0 RT	72+60	10.2-10.6	A-2-6(1)	39	23	63.4	11.7	8.7	16.2	95	50	25	-	-
S-598	CL	73+40	0.0-0.6	A-1-b(0)	15	NP	67.1	19.9	9.0	4.0	59	30	9	-	-
S-599	CL	73+40	0.6-4.3	A-1-b(0)	17	NP	86.5	8.7	0.8	4.0	95	39	5	-	-
S-597	CL	74+20	0.0-1.0	A-2-4(0)	22	6	32.1	41.0	8.7	18.2	98	82	32	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

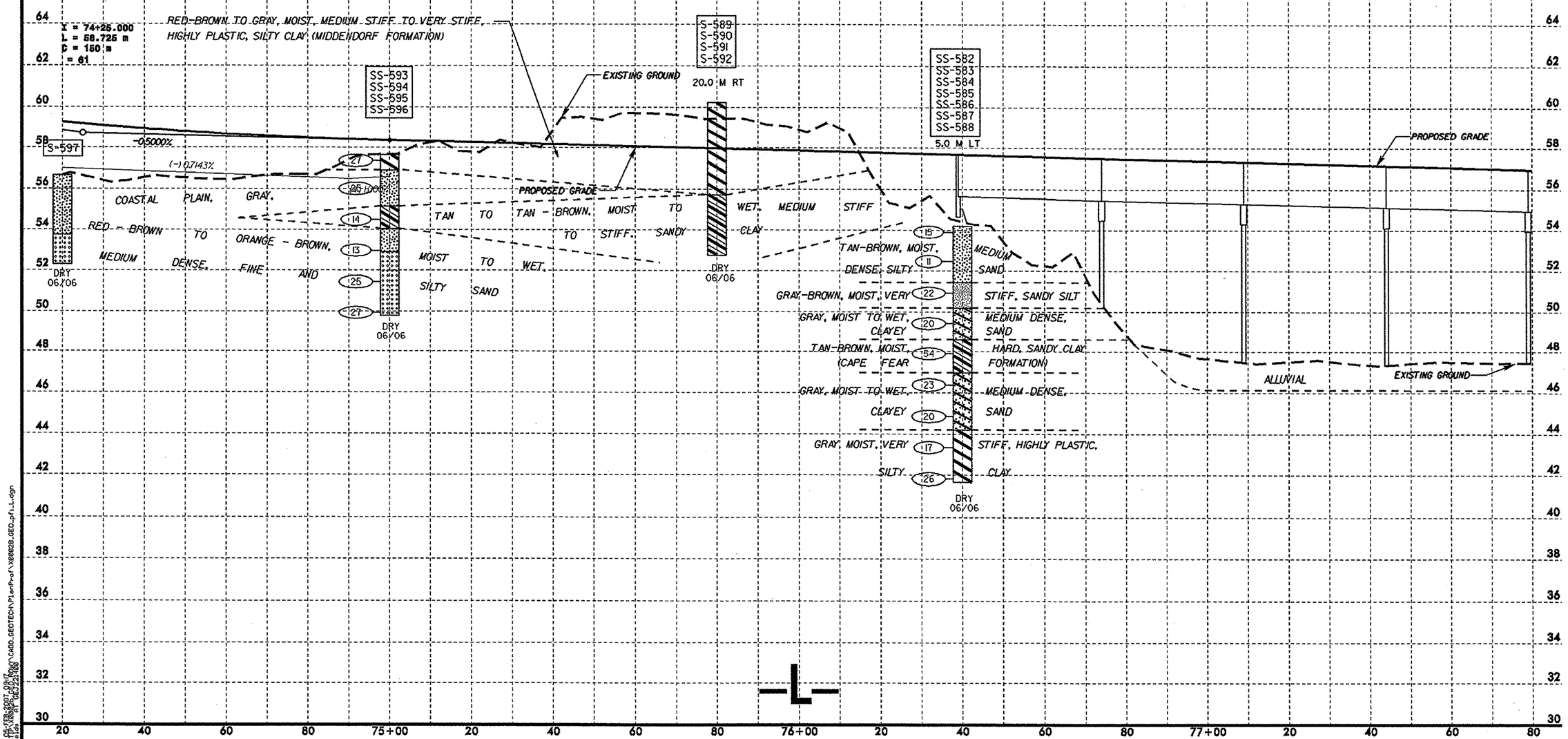
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST. REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-597	CL	74+20	0.0- 1.0	A-2-4(0)	22	6	32.1	41.0	8.7	18.2	98	82	32	-	-
SS-593	CL	75+00	1.3- 1.8	A-2-4(0)	23	4	12.2	75.8	5.9	16.2	100	99	30	-	-
SS-594	CL	75+00	2.9- 3.3	A-6(2)	39	19	32.7	35.4	5.7	26.3	100	82	37	-	-
SS-595	CL	75+00	4.4- 4.8	A-2-4(0)	21	NP	43.4	43.4	5.1	8.1	100	77	17	-	-
SS-596	CL	75+00	5.9- 6.4	A-3(0)	21	NP	61.8	30.9	5.3	2.0	100	61	8	-	-
S-589	20.0 RT	75+80	0.0- 0.8	A-7-6(11)	46	27	21.0	30.7	11.9	36.4	97	87	54	-	-
S-590	20.0 RT	75+80	0.8- 3.0	A-7-6(17)	48	29	10.5	32.5	16.6	40.4	100	96	65	-	-
S-591	20.0 RT	75+80	3.0- 4.5	A-7-6(37)	71	45	8.7	17.4	11.3	62.6	100	97	78	-	-
S-592	20.0 RT	75+80	4.5- 7.5	A-6(6)	31	15	6.1	46.5	19.2	28.3	100	98	60	-	-
SS-582	5.0 LT	76+40	0.0- 0.5	A-2-4(0)	20	1	42.6	39.2	6.1	12.1	94	72	21	-	-
SS-583	5.0 LT	76+40	1.5- 1.9	A-2-4(0)	17	NP	49.9	35.8	6.3	8.1	96	69	18	-	-
SS-584	5.0 LT	76+40	3.0- 3.4	A-4(0)	22	4	8.1	59.6	16.2	16.2	100	99	44	-	-
SS-585	5.0 LT	76+40	4.5- 4.9	A-2-7(3)	43	27	46.5	19.2	14.0	30.3	97	72	34	-	-
SS-586	5.0 LT	76+40	6.0- 6.5	A-6(15)	38	19	4.6	19.0	23.8	52.5	100	98	83	-	-
SS-587	5.0 LT	76+40	7.5- 8.0	A-2-6(0)	31	14	48.9	24.0	14.8	22.2	94	68	27	-	-
SS-588	5.0 LT	76+40	10.6- 11.0	A-7-6(28)	51	32	5.1	16.8	23.6	54.5	100	97	84	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

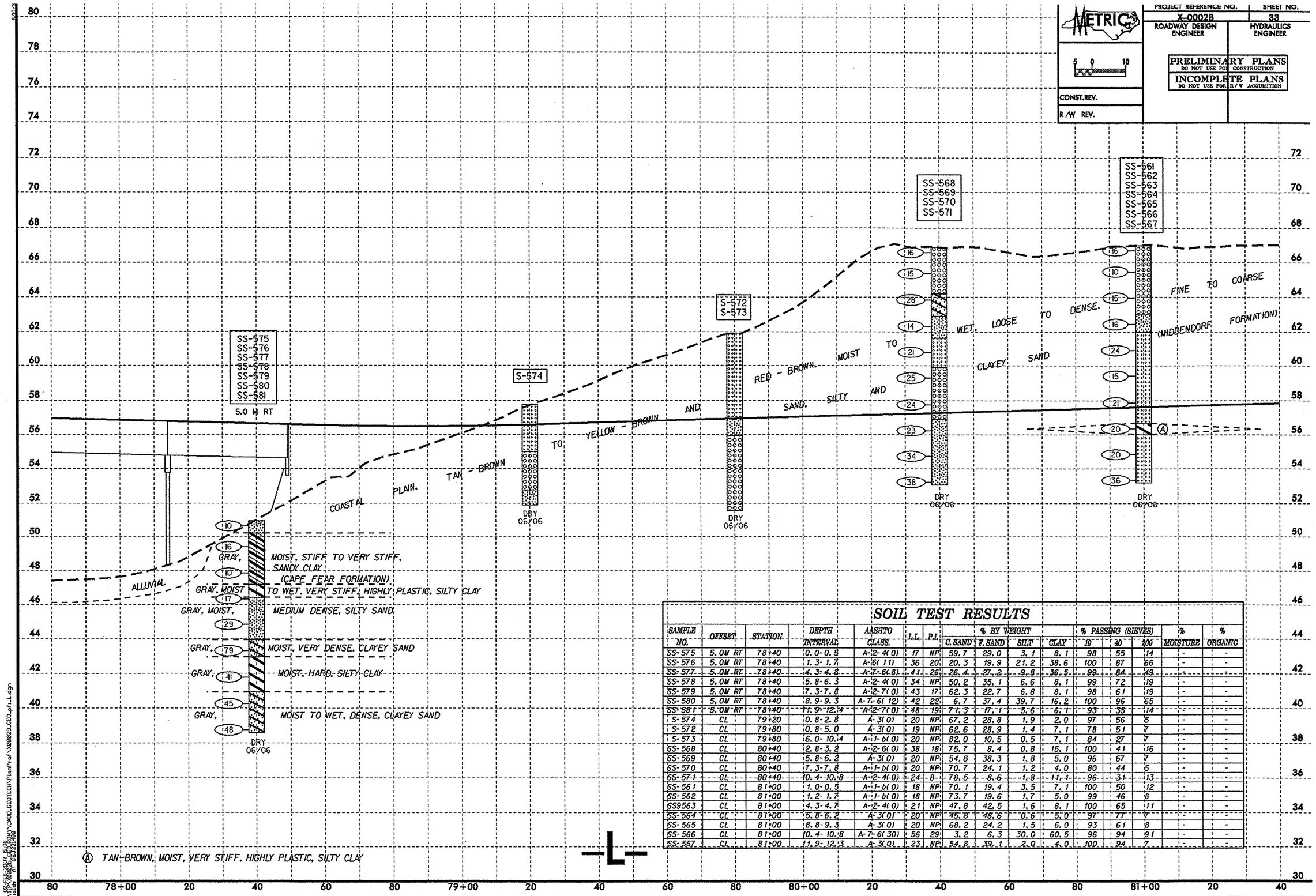
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-575	5.0M RT	78+40	0.0-0.5	A-2-4(0)	17	NP	59.7	29.0	3.1	8.1	98	55	14	-	-
SS-576	5.0M RT	78+40	1.3-1.7	A-6(11)	36	20	20.3	19.9	21.2	38.6	100	87	66	-	-
SS-577	5.0M RT	78+40	4.3-4.8	A-7-6(8)	41	26	26.4	27.2	9.8	36.5	99	84	49	-	-
SS-578	5.0M RT	78+40	5.8-6.3	A-2-4(0)	34	NP	50.2	35.1	6.6	8.1	99	72	19	-	-
SS-579	5.0M RT	78+40	7.3-7.8	A-2-7(0)	43	17	62.3	22.7	6.8	8.1	98	61	19	-	-
SS-580	5.0M RT	78+40	8.9-9.3	A-7-6(12)	42	22	6.7	37.4	39.7	16.2	100	96	65	-	-
SS-581	5.0M RT	78+40	11.9-12.4	A-2-7(0)	48	19	71.3	17.1	5.6	6.1	93	35	14	-	-
S-574	CL	79+20	0.8-2.8	A-3(0)	20	NP	67.2	28.8	1.9	2.0	97	56	5	-	-
S-572	CL	79+80	0.8-5.0	A-3(0)	19	NP	62.6	28.9	1.4	7.1	78	51	7	-	-
S-573	CL	79+80	6.0-10.4	A-1-b(0)	20	NP	82.0	10.5	0.5	7.1	84	27	7	-	-
SS-568	CL	80+40	2.8-3.2	A-2-6(0)	38	18	75.7	8.4	0.8	15.1	100	41	16	-	-
SS-569	CL	80+40	5.8-6.2	A-3(0)	20	NP	54.8	38.3	1.8	5.0	96	67	7	-	-
SS-570	CL	80+40	7.3-7.8	A-1-b(0)	20	NP	70.7	24.1	1.2	4.0	80	44	5	-	-
SS-571	CL	80+40	10.4-10.8	A-2-4(0)	24	8	78.5	8.6	1.8	11.1	96	31	13	-	-
SS-561	CL	81+00	1.0-0.5	A-1-b(0)	18	NP	70.1	19.4	3.5	7.1	100	50	12	-	-
SS-562	CL	81+00	1.2-1.7	A-1-b(0)	18	NP	73.7	19.6	1.7	5.0	99	46	8	-	-
SS9563	CL	81+00	4.3-4.7	A-2-4(0)	21	NP	47.8	42.5	1.6	8.1	100	65	11	-	-
SS-564	CL	81+00	5.8-6.2	A-3(0)	20	NP	45.8	48.6	0.6	5.0	97	77	7	-	-
SS-565	CL	81+00	8.8-9.3	A-3(0)	20	NP	68.2	24.2	1.5	6.0	93	61	8	-	-
SS-566	CL	81+00	10.4-10.8	A-7-6(30)	56	29	3.2	6.3	30.0	60.5	96	94	91	-	-
SS-567	CL	81+00	11.9-12.3	A-3(0)	23	NP	54.8	39.1	2.0	4.0	100	94	7	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

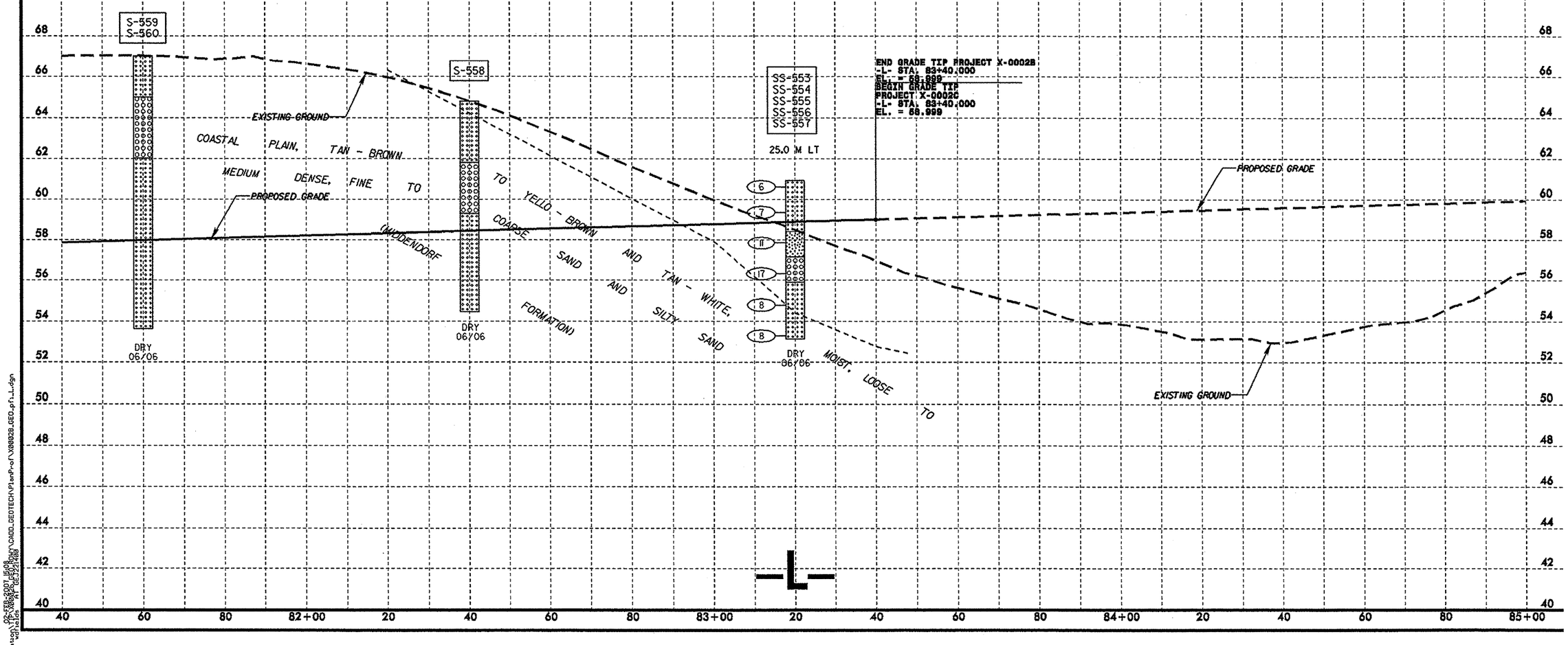
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-559	CL	81+60	5.0-9.0	A-3(0)	19	NP	45.8	47.3	1.9	5.0	99	78	8	-	-
S-560	CL	81+60	9.0-13.4	A-3(0)	21	NP	68.6	21.6	1.7	8.1	94	54	10	-	-
S-558	CL	82+40	5.5-10.3	A-3(0)	21	NP	63.8	28.0	1.1	7.1	92	61	8	-	-
SS-553	25.0 LT	83+20	0.0-0.5	A-3(0)	19	NP	54.0	37.1	3.8	5.0	100	64	10	-	-
SS-554	25.0 LT	83+20	1.2-1.7	A-3(0)	20	NP	52.7	40.8	1.4	5.0	95	64	7	-	-
SS-555	25.0 LT	83+20	2.8-3.2	A-2-4(0)	21	NP	55.5	31.7	0.7	12.1	99	79	13	-	-
SS-556	25.0 LT	83+20	4.3-4.7	A-1-b(0)	21	NP	76.4	14.5	0.1	9.0	95	46	9	-	-
SS-557	25.0 LT	83+20	5.8-6.3	A-3(0)	23	NP	16.3	78.2	1.4	4.0	100	96	6	-	-



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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

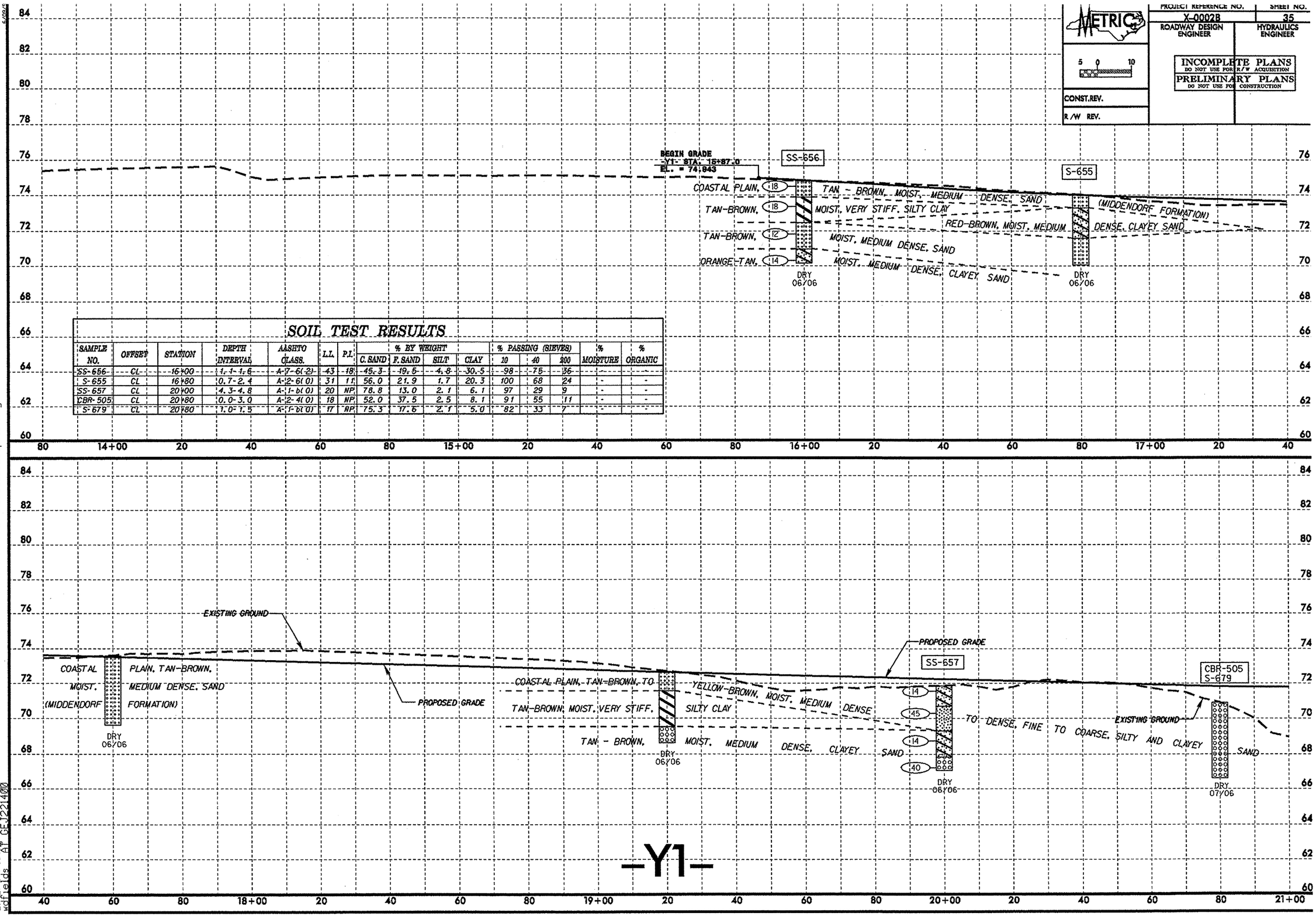
METRIC

5 0 10

CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-656	CL	16+00	1.1-1.6	A-7-6(2)	43	18	46.3	19.5	4.8	30.5	98	75	36	-	-
S-655	CL	16+80	0.7-2.4	A-2-6(0)	31	11	56.0	21.9	1.7	20.3	100	68	24	-	-
SS-657	CL	20+00	4.3-4.8	A-1-b(0)	20	NP	78.8	13.0	2.1	6.1	97	29	9	-	-
CBR-505	CL	20+80	0.0-3.0	A-2-4(0)	18	NP	52.0	37.5	2.5	8.1	91	55	11	-	-
S-679	CL	20+80	1.0-1.5	A-1-b(0)	17	NP	75.3	17.6	2.1	5.0	82	33	7	-	-

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wdfields AT GEJ221400

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-669	CL	22+40	0.0-0.5	A-2-4(0)	14	NP	55.9	31.4	5.6	7.0	100	72	16	-	-
SS-670	CL	22+40	1.1-1.5	A-2-6(0)	32	13	52.0	23.0	1.8	23.1	99	72	27	-	-
SS-671	CL	22+40	4.1-4.5	A-3(0)	24	NP	50.6	44.5	0.9	4.0	99	58	7	-	-
SS-667	CL	25+00	5.8-6.2	A-2-4(0)	22	NP	39.4	49.5	2.9	8.1	98	87	12	-	-
S-660	CL	27+60	2.5-4.2	A-3(0)	21	NP	58.3	38.8	0.9	2.0	100	68	3	-	-

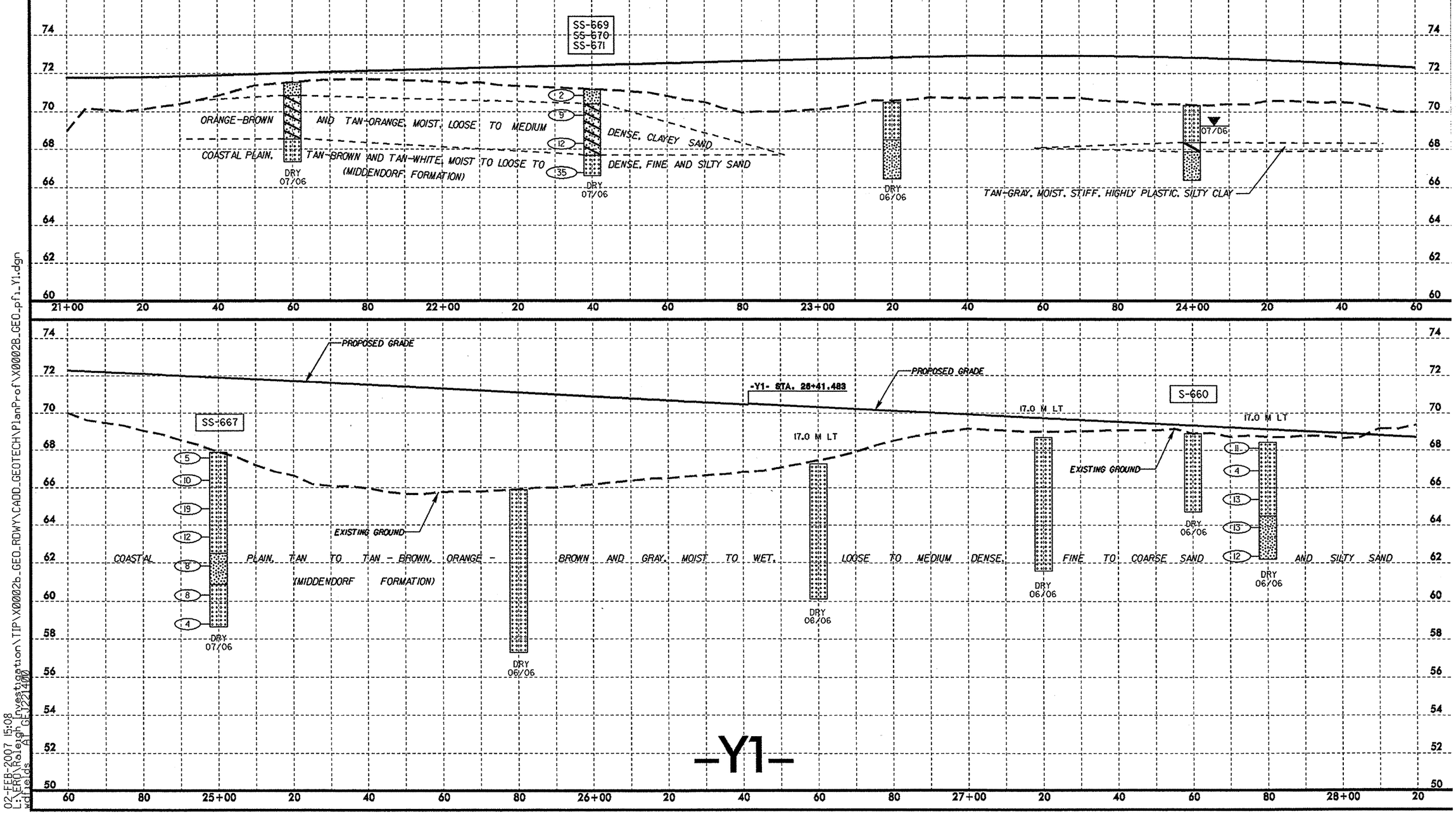
METRIC 5 0 10

CONST.REV.

R/W REV.

X-0002B	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



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wdfields AT GE.0221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

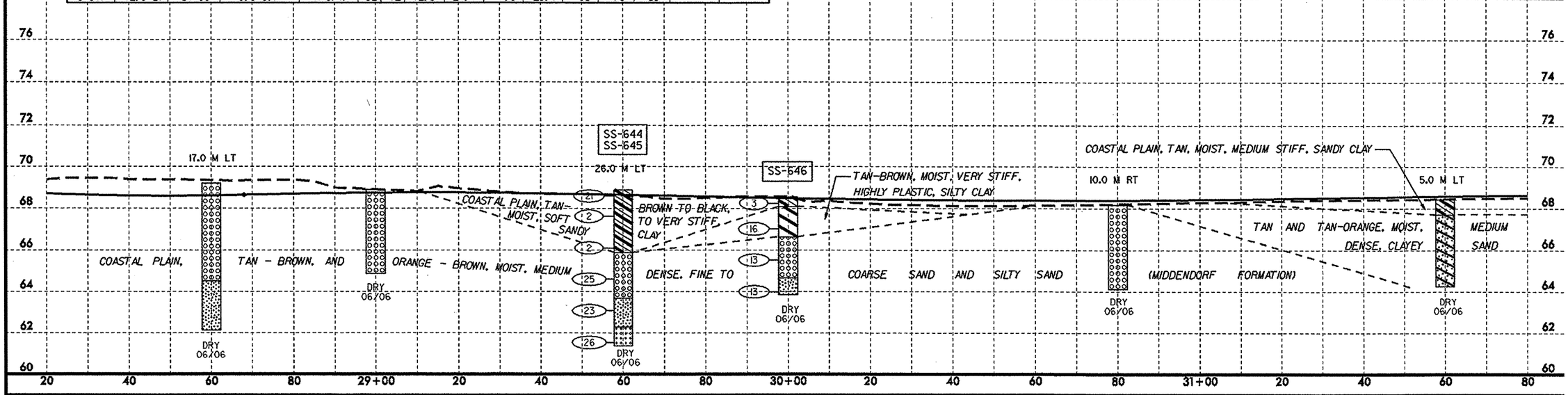
CONST.REV.

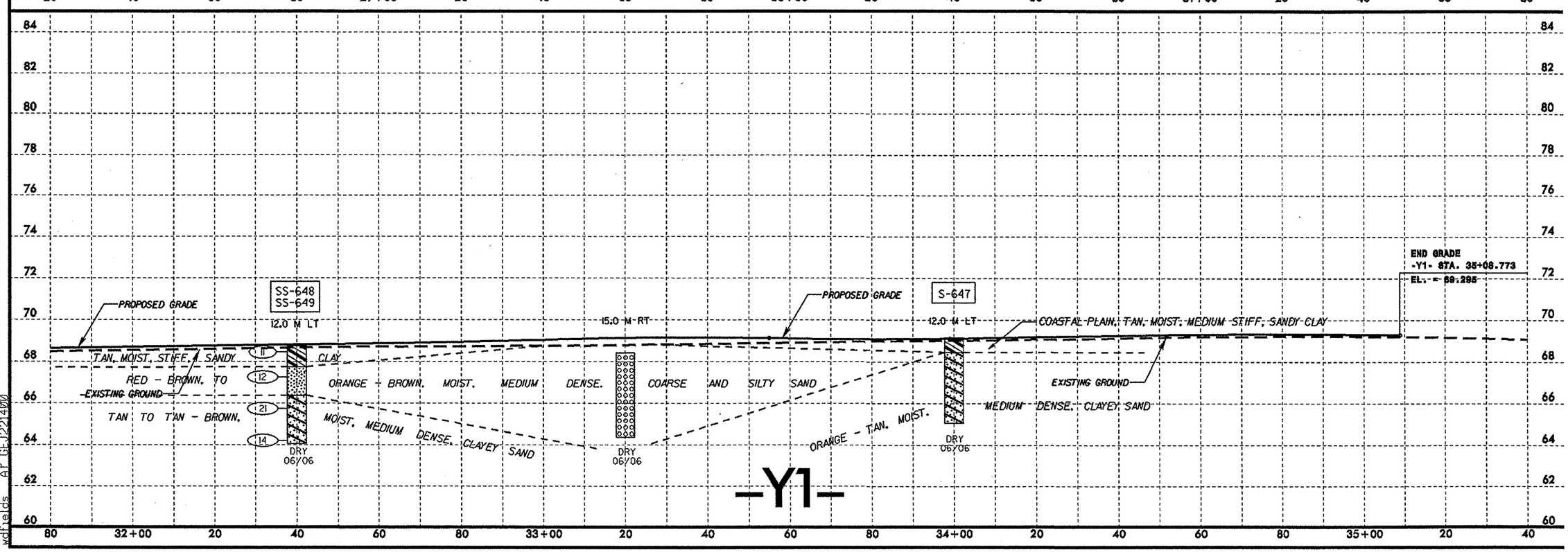
R/W REV.

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-644	26.0 LT	29+60	0.0-0.5	A-6(3)	34	17	43.1	17.0	7.5	32.4	97	69	42	-	-
SS-645	26.0 LT	29+60	4.0-4.5	A-1-b(0)	19	NP	81.6	13.2	1.1	4.0	99	41	5	-	-
SS-646	CL	30+00	1.2-1.7	A-7-6(9)	58	34	35.8	23.1	2.6	38.5	98	73	42	-	-
SS-648	12.0 LT	32+40	1.2-1.6	A-2-4(0)	26	9	37.6	35.5	6.6	20.3	99	77	32	-	-
SS-649	12.0 LT	32+40	2.7-3.2	A-2-7(0)	43	22	79.8	8.1	1.9	10.2	100	30	13	-	-
S-647	12.0 LT	34+00	0.0-0.7	A-6(1)	32	12	42.6	21.1	7.8	28.4	98	70	39		





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wdfields AT GEJ221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

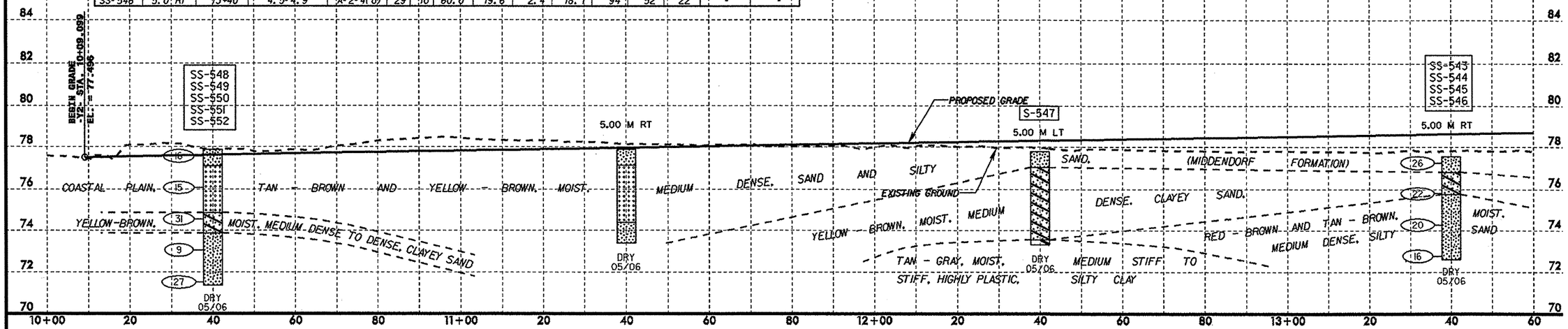
CONST.REV.

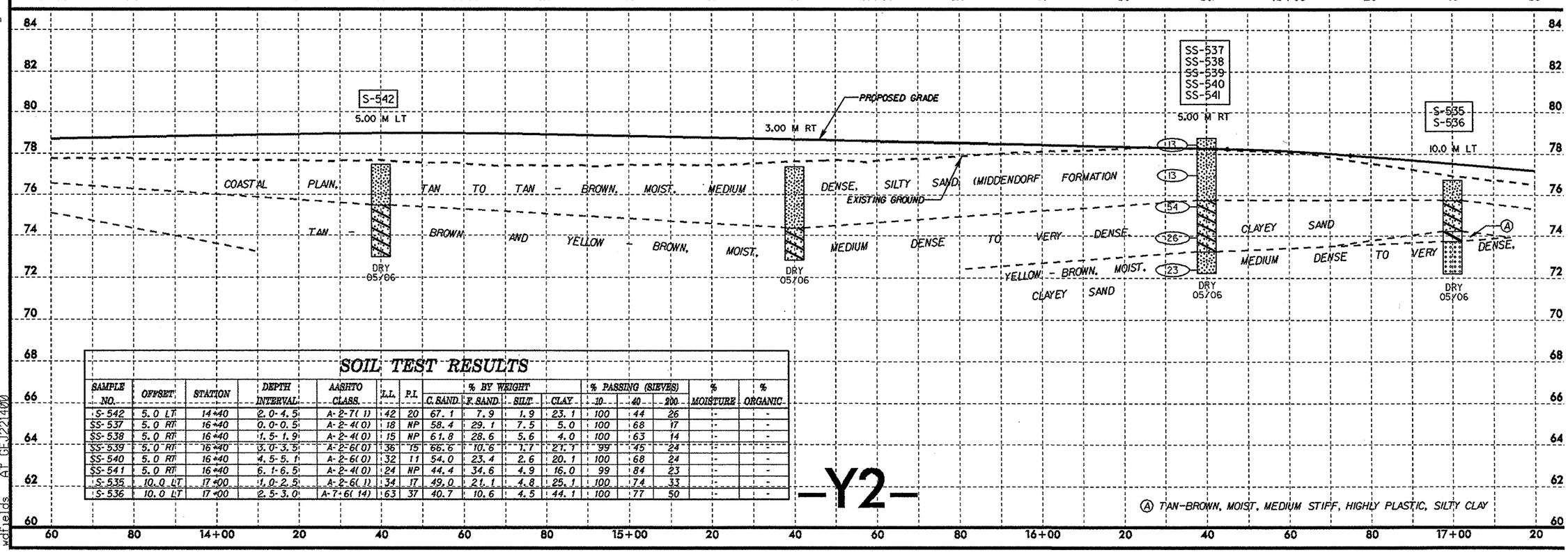
R/W REV.

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-548	CL	10+40	0.0-0.5	A-2-4(0)	17	NP	63.4	25.3	3.3	8.0	100	64	13	-	-
SS-549	CL	10+40	1.5-1.9	A-3(0)	17	NP	62.3	31.6	3.1	3.0	99	66	9	-	-
SS-550	CL	10+40	3.0-3.5	A-2-6(0)	30	11	65.0	13.8	1.1	20.1	100	63	22	-	-
SS-551	CL	10+40	4.5-5.0	A-2-4(0)	25	NP	30.3	48.4	2.2	19.1	100	84	22	-	-
SS-552	CL	10+40	6.0-6.5	A-2-4(0)	21	NP	66.9	20.3	1.8	11.0	100	62	14	-	-
S-547	5.0 LT	12+40	4.3-4.5	A-7-6(14)	55	31	34.7	10.4	6.7	48.1	99	79	55	-	-
SS-543	5.0 RT	13+40	0.0-0.5	A-2-4(0)	17	NP	61.8	27.1	5.1	6.0	99	65	13	-	-
SS-544	5.0 RT	13+40	1.5-1.9	A-2-6(1)	35	15	52.3	18.7	2.0	27.1	95	63	29	-	-
SS-545	5.0 RT	13+40	3.0-3.4	A-2-4(0)	31	10	73.8	9.7	1.4	15.0	99	42	17	-	-
SS-546	5.0 RT	13+40	4.5-4.9	A-2-4(0)	29	10	60.0	19.6	2.4	18.1	94	52	22	-	-





SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-542	5.0 LT	14+40	2.0-4.5	A-2-7(1)	42	20	67.1	7.9	1.9	23.1	100	44	26	-	-
SS-537	5.0 RT	16+40	0.0-0.5	A-2-4(0)	18	NP	58.4	29.1	7.5	5.0	100	68	17	-	-
SS-538	5.0 RT	16+40	1.5-1.9	A-2-4(0)	15	NP	61.8	28.6	5.6	4.0	100	63	14	-	-
SS-539	5.0 RT	16+40	3.0-3.5	A-2-6(0)	36	15	66.6	10.6	1.7	21.1	99	45	24	-	-
SS-540	5.0 RT	16+40	4.5-5.1	A-2-6(0)	32	11	54.0	23.4	2.6	20.1	100	68	24	-	-
SS-541	5.0 RT	16+40	6.1-6.5	A-2-4(0)	24	NP	44.4	34.6	4.9	16.0	99	84	23	-	-
S-535	10.0 LT	17+00	1.0-2.5	A-2-6(1)	34	17	49.0	21.1	4.8	25.1	100	74	33	-	-
S-536	10.0 LT	17+00	2.5-3.0	A-7-6(14)	63	37	40.7	10.6	4.5	44.1	100	77	50	-	-

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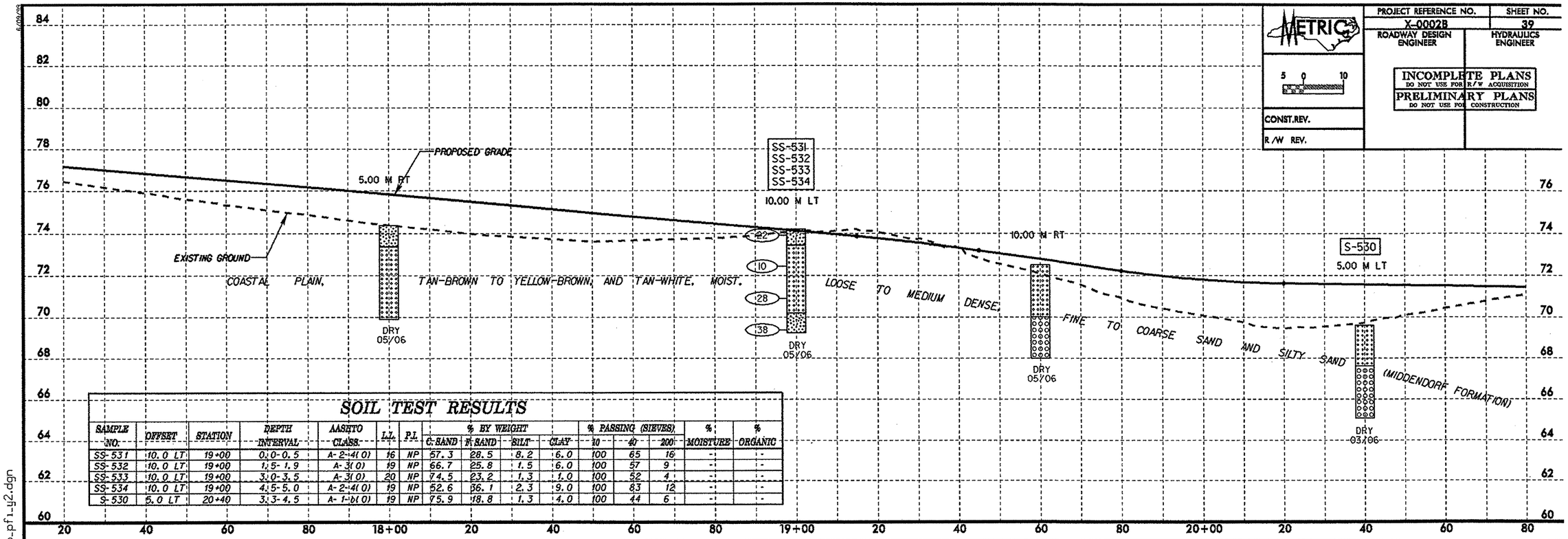
wdfields AT GEJ221400

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X-0002B	39
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	INCOMPLETE PLANS — DO NOT USE FOR R/W ACQUISITION	
R/W REV.	PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION	

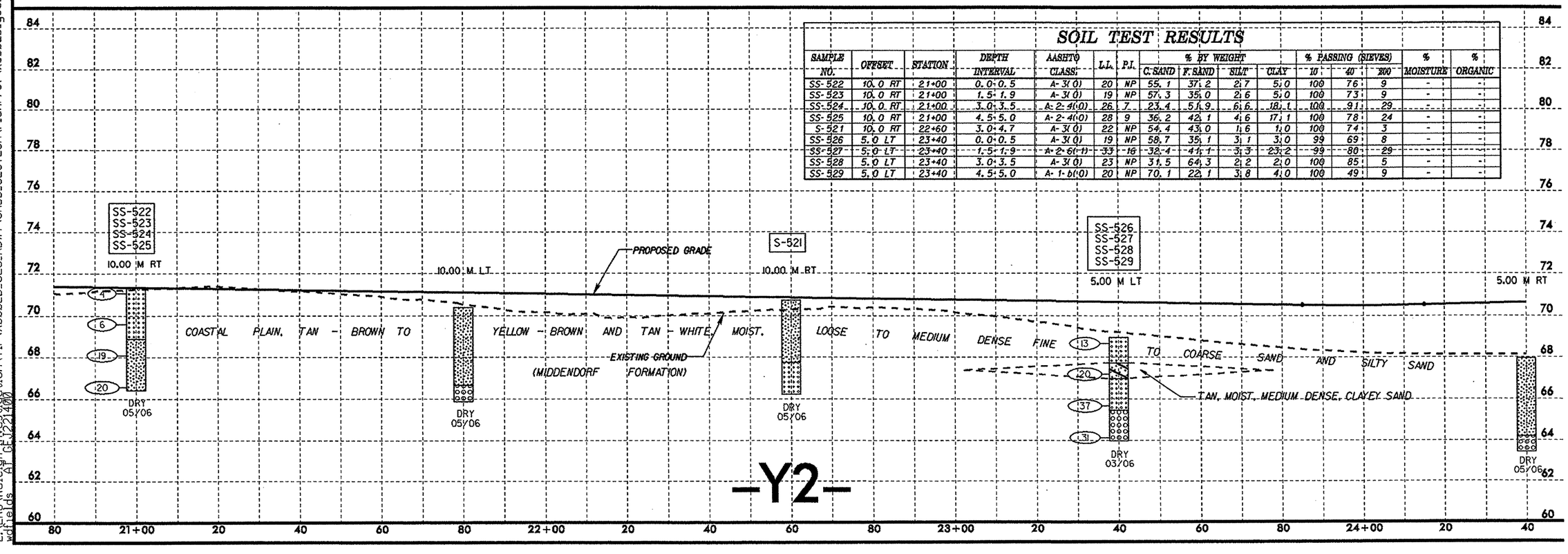


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-531	10.0 LT	19+00	0.0-0.5	A-2-4(0)	16	NP	57.3	28.5	8.2	6.0	100	65	16	-	-
SS-532	10.0 LT	19+00	1.5-1.9	A-3(0)	19	NP	66.7	25.8	1.5	6.0	100	57	9	-	-
SS-533	10.0 LT	19+00	3.0-3.5	A-3(0)	20	NP	74.5	23.2	1.3	1.0	100	52	4	-	-
SS-534	10.0 LT	19+00	4.5-5.0	A-2-4(0)	19	NP	52.6	36.1	2.3	9.0	100	83	12	-	-
S-530	5.0 LT	20+40	3.3-4.5	A-1-b(0)	19	NP	75.9	18.8	1.3	4.0	100	44	6	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-522	10.0 RT	21+00	0.0-0.5	A-3(0)	20	NP	55.1	37.2	2.7	5.0	100	76	9	-	-
SS-523	10.0 RT	21+00	1.5-1.9	A-3(0)	19	NP	57.3	35.0	2.6	5.0	100	73	9	-	-
SS-524	10.0 RT	21+00	3.0-3.5	A-2-4(0)	26	7	23.4	51.9	6.6	18.1	100	91	29	-	-
SS-525	10.0 RT	21+00	4.5-5.0	A-2-4(0)	28	9	36.2	42.1	4.6	17.1	100	78	24	-	-
S-521	10.0 RT	22+60	3.0-4.7	A-3(0)	22	NP	54.4	43.0	1.6	1.0	100	74	3	-	-
SS-526	5.0 LT	23+40	0.0-0.5	A-3(0)	19	NP	58.7	35.1	3.1	3.0	99	69	8	-	-
SS-527	5.0 LT	23+40	1.5-1.9	A-2-6(1)	33	16	32.4	41.1	3.3	23.2	99	80	29	-	-
SS-528	5.0 LT	23+40	3.0-3.5	A-3(0)	23	NP	31.5	64.3	2.2	2.0	100	85	5	-	-
SS-529	5.0 LT	23+40	4.5-5.0	A-1-b(0)	20	NP	70.1	22.1	3.8	4.0	100	49	9	-	-



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wdfields AT GEN221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

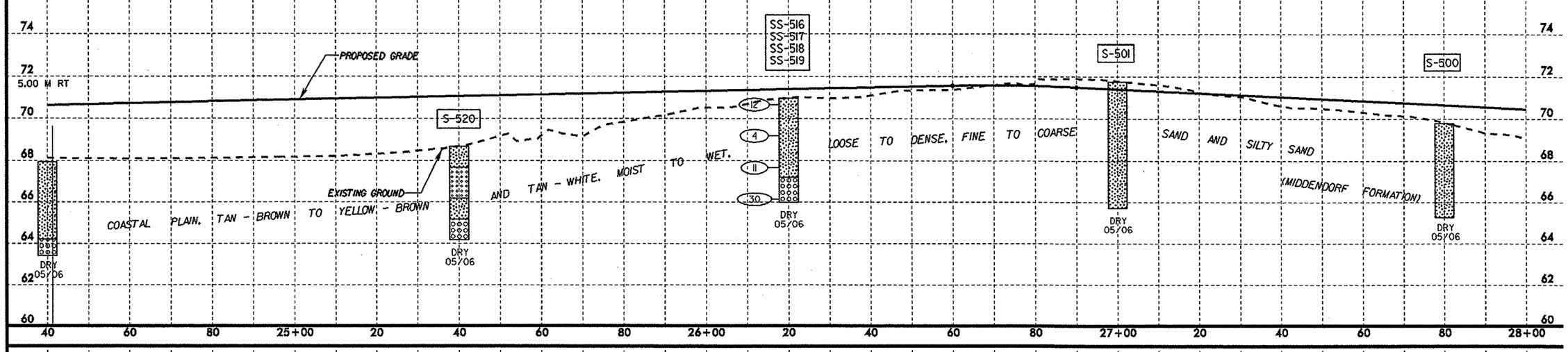
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

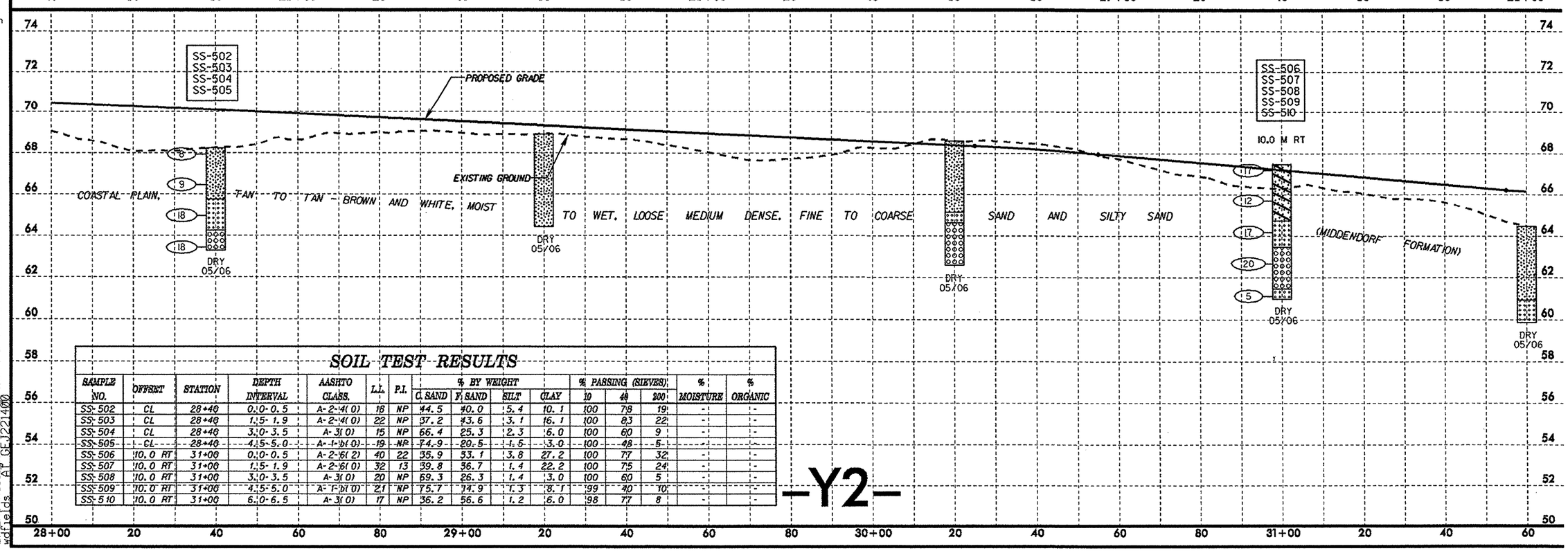
CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-520	CL	25+40	1.0-2.5	A-3(0)	18	NP	58.1	33.1	3.7	5.0	100	65	10	-	-
SS-516	CL	26+20	0.0-0.5	A-2-4(0)	19	NP	56.8	33.2	3.9	6.0	100	72	12	-	-
SS-517	CL	26+20	1.5-1.9	A-2-4(0)	18	NP	56.7	33.9	3.3	6.0	100	66	11	-	-
SS-518	CL	26+20	3.0-3.5	A-2-4(0)	20	NP	61.8	24.8	2.3	11.1	100	61	15	-	-
SS-519	CL	26+20	4.5-5.0	A-1-b(0)	19	NP	88.5	6.1	2.3	3.0	100	21	6	-	-
S-501	CL	27+00	0.6-6.0	A-2-4(0)	19	NP	50.8	40.1	3.1	6.0	100	75	11	-	-
S-500	CL	27+80	0.0-0.3	A-2-4(0)	17	NP	51.9	35.8	3.3	9.1	100	74	14	-	-





SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-502	CL	28+40	0.0-0.5	A-2-4(0)	16	NP	44.5	40.0	5.4	10.1	100	78	19	-	-
SS-503	CL	28+40	1.5-1.9	A-2-4(0)	22	NP	37.2	43.6	3.1	16.1	100	83	22	-	-
SS-504	CL	28+40	3.0-3.5	A-3(0)	15	NP	66.4	25.3	2.3	6.0	100	60	9	-	-
SS-505	CL	28+40	4.5-5.0	A-1-b(0)	19	NP	74.9	20.5	1.5	3.0	100	48	5	-	-
SS-506	10.0 RT	31+00	0.0-0.5	A-2-6(2)	40	22	35.9	53.1	3.8	27.2	100	77	32	-	-
SS-507	10.0 RT	31+00	1.5-1.9	A-2-6(0)	32	13	39.8	36.7	1.4	22.2	100	75	24	-	-
SS-508	10.0 RT	31+00	3.0-3.5	A-3(0)	20	NP	69.3	26.3	1.4	3.0	100	60	5	-	-
SS-509	10.0 RT	31+00	4.5-5.0	A-1-b(0)	21	NP	75.7	14.9	1.3	8.1	99	40	10	-	-
SS-510	10.0 RT	31+00	6.0-6.5	A-3(0)	17	NP	36.2	56.6	1.2	6.0	98	77	8	-	-

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wdfields
AT GE.J221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

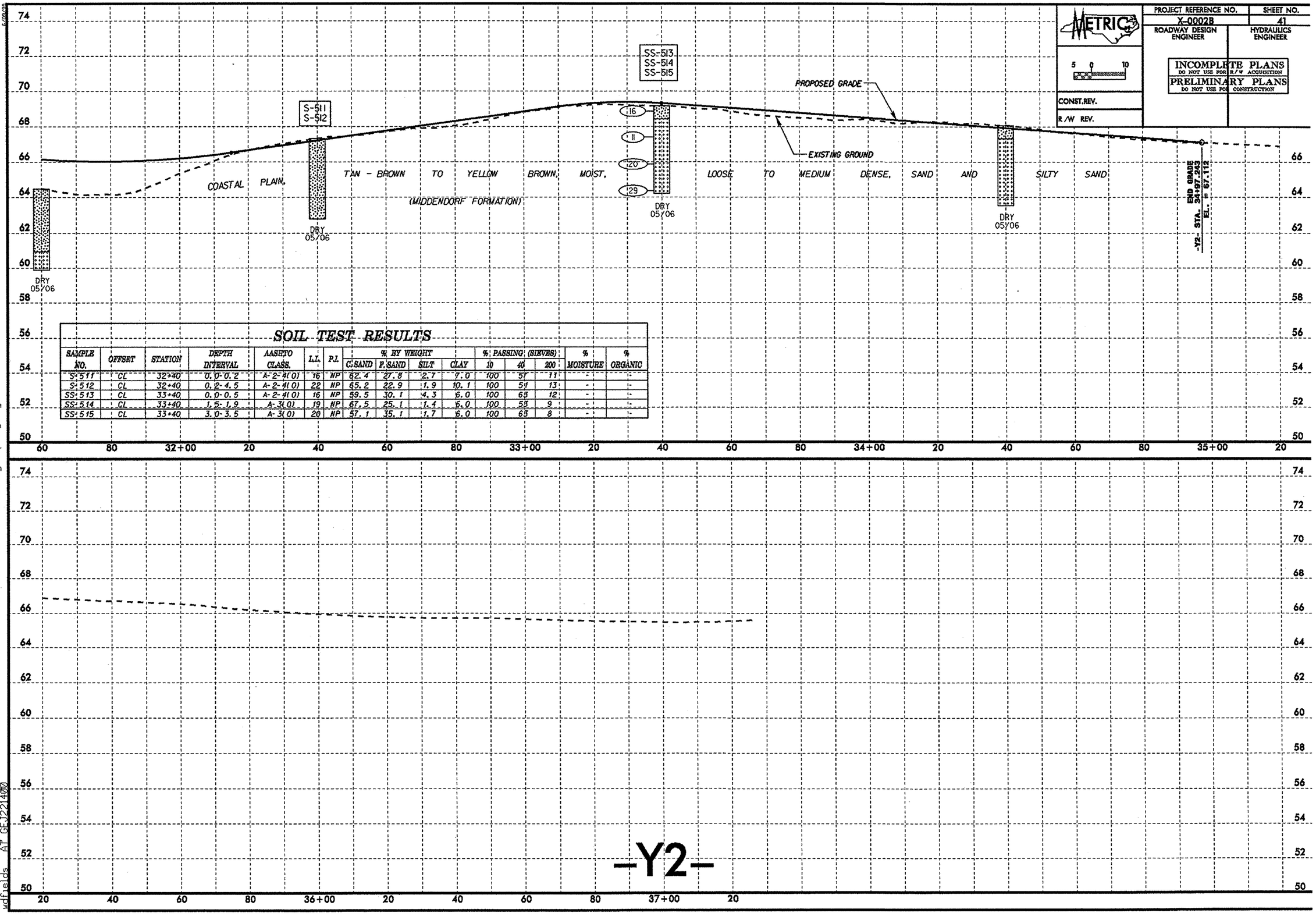
METRIC

5 0 10

CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-511	CL	32+40	0.0-0.2	A-2-4(0)	16	NP	62.4	27.8	2.7	7.0	100	51	11	-	-
S-512	CL	32+40	0.2-4.5	A-2-4(0)	22	NP	65.2	22.9	1.9	10.1	100	51	13	-	-
SS-513	CL	33+40	0.0-0.5	A-2-4(0)	16	NP	59.5	30.1	4.3	6.0	100	65	12	-	-
SS-514	CL	33+40	1.5-1.9	A-3(0)	19	NP	67.5	25.1	1.4	6.0	100	53	9	-	-
SS-515	CL	33+40	3.0-3.5	A-3(0)	20	NP	57.1	35.1	1.7	6.0	100	63	8	-	-

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wdfields AP GEJ221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

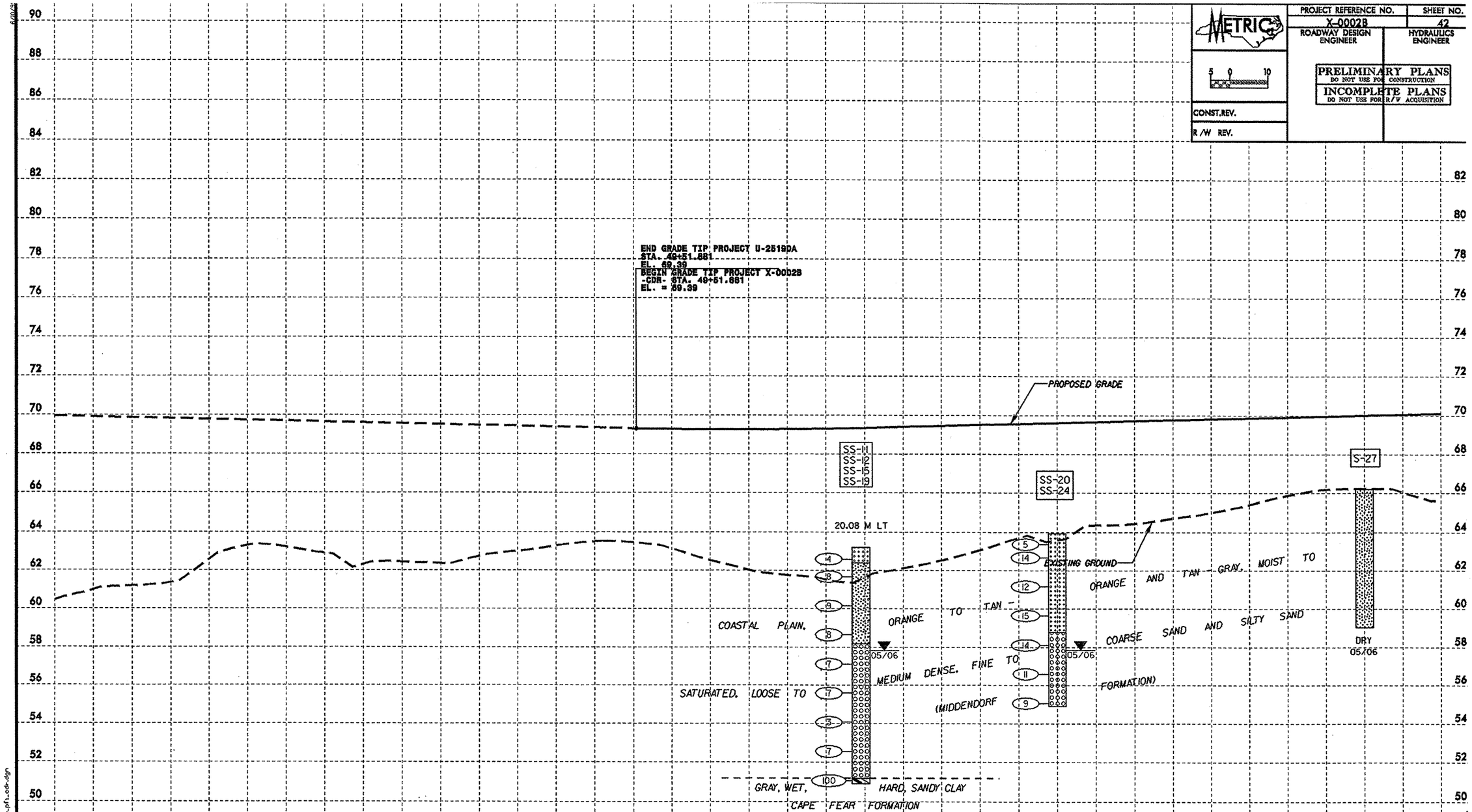
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-11	35 RT	50+40	0.3-0.8	A-3(0)	19	NP	44.6	48.9	0.4	6.1	100	76	10	-	-
SS-12	35 RT	50+40	1.2-1.7	A-2-4(0)	19	NP	36.8	46.1	1.0	16.2	98	79	21	-	-
SS-15	35 RT	50+40	5.8-6.2	A-1-b(0)	19	NP	80.4	13.3	0.2	6.1	95	43	6	-	-
SS-19	35 RT	50+40	11.9-12.3	A-6(15)	39	21	8.5	18.6	24.4	48.5	100	96	78	-	-
SS-20	CL	50+60	0.3-0.8	A-3(0)	17	NP	44.4	47.3	2.2	6.1	91	66	10	-	-
SS-24	CL	50+60	5.5-6.0	A-1-b(0)	17	NP	76.8	16.4	0.8	6.1	96	50	7	-	-
S-27	CL	51+40	1.5-3.0	A-2-4(0)	28	4	6.2	69.3	0.4	24.1	95	91	27	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

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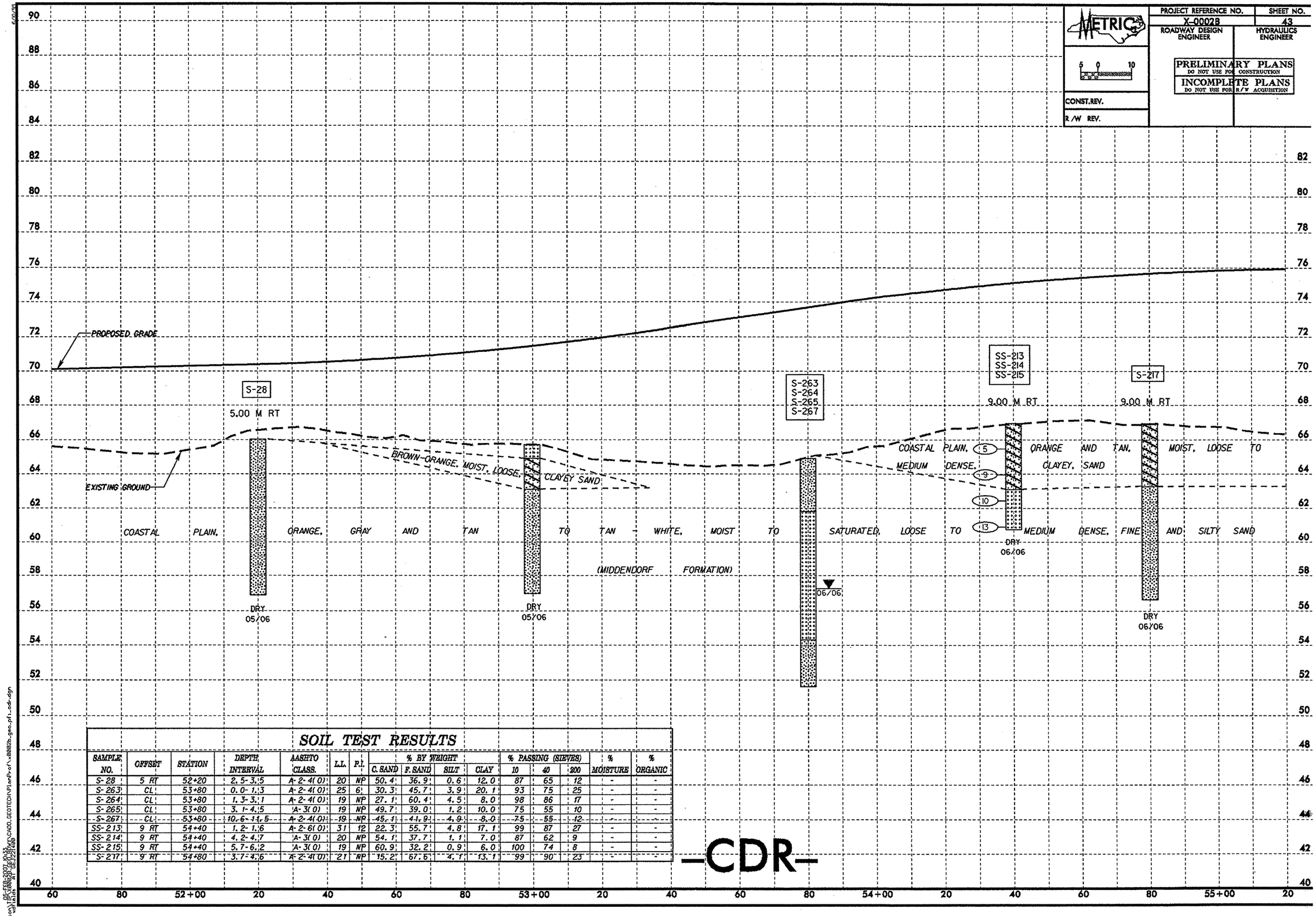
CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-28	5 RT	52+20	2.5-3.5	A-2-4(0)	20	NP	50.4	36.9	0.6	12.0	87	65	12	-	-
S-263	CL	53+80	0.0-1.3	A-2-4(0)	25	6	30.3	45.7	3.9	20.1	93	75	25	-	-
S-264	CL	53+80	1.3-3.1	A-2-4(0)	19	NP	27.1	60.4	4.5	8.0	98	86	17	-	-
S-265	CL	53+80	3.1-4.5	A-3(0)	19	NP	49.7	39.0	1.2	10.0	75	55	10	-	-
S-267	CL	53+80	10.6-11.5	A-2-4(0)	19	NP	45.1	41.9	4.9	8.0	75	55	12	-	-
SS-213	9 RT	54+40	1.2-1.6	A-2-6(0)	31	12	22.3	55.7	4.8	17.1	99	87	27	-	-
SS-214	9 RT	54+40	4.2-4.7	A-3(0)	20	NP	54.1	37.7	1.1	7.0	87	62	9	-	-
SS-215	9 RT	54+40	5.7-6.2	A-3(0)	19	NP	60.9	32.2	0.9	6.0	100	74	8	-	-
S-217	9 RT	54+80	3.7-4.6	A-2-4(0)	21	NP	15.2	67.6	4.1	13.1	99	90	23	-	-

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wetlands
DESIGN\CADD\GEOTECH\PlanProf\x0002b_geo_pf1.dgn

X-0002B	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

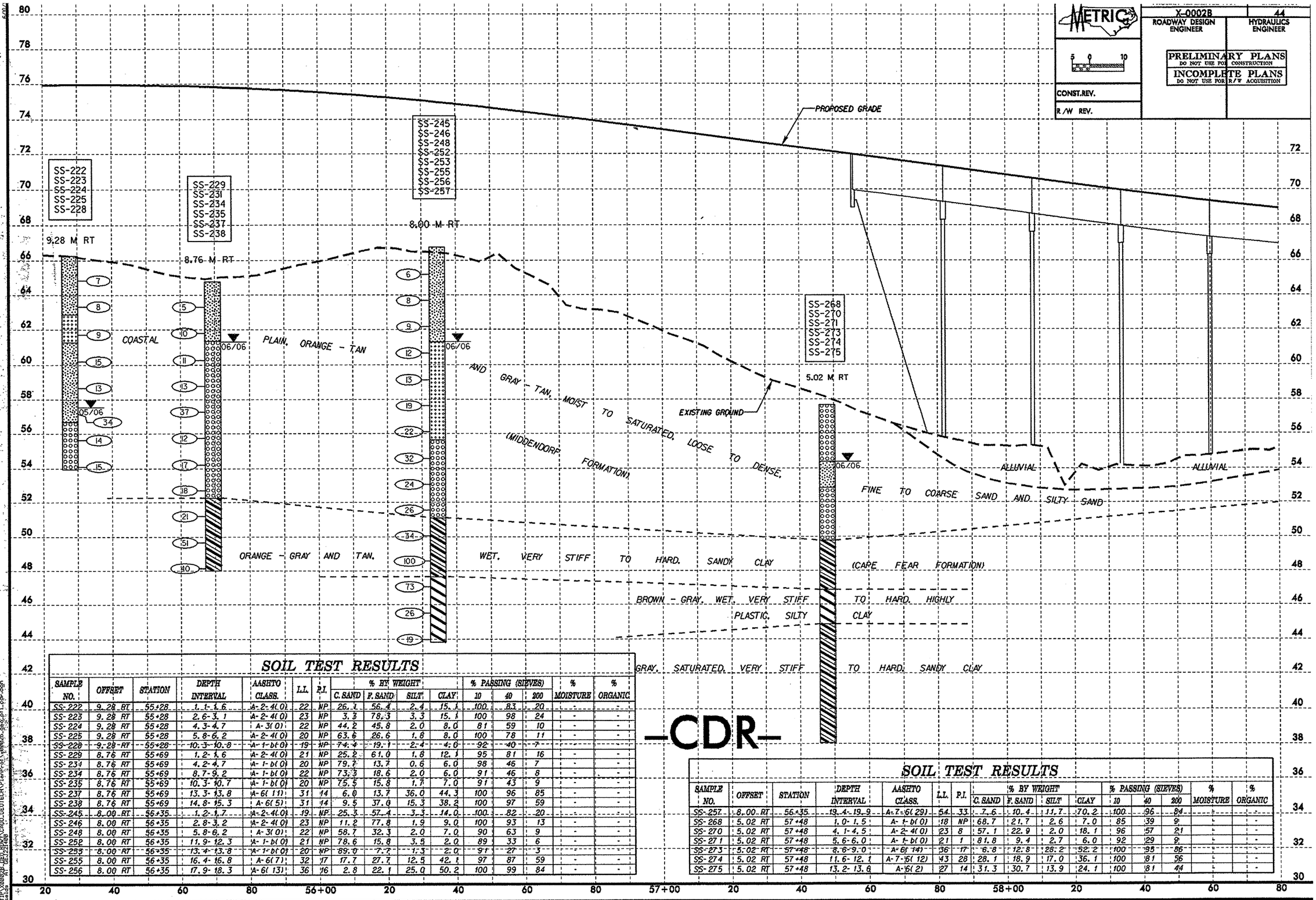
METRIC 5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-222	9.28 RT	55+28	1.1-1.6	A-2-4(0)	22	NP	26.1	56.4	2.4	15.1	100	83	20	-	-
SS-223	9.28 RT	55+28	2.6-3.1	A-2-4(0)	23	NP	3.3	78.3	3.3	15.1	100	98	24	-	-
SS-224	9.28 RT	55+28	4.3-4.7	A-3(0)	22	NP	44.2	45.8	2.0	8.0	81	59	10	-	-
SS-225	9.28 RT	55+28	5.8-6.2	A-2-4(0)	20	NP	63.6	26.6	1.8	8.0	100	78	11	-	-
SS-228	9.28 RT	55+28	10.3-10.8	A-1-b(0)	19	NP	74.4	19.1	2.4	4.0	92	40	7	-	-
SS-229	8.76 RT	55+69	1.2-1.6	A-2-4(0)	21	NP	25.2	61.0	1.8	12.1	95	81	16	-	-
SS-231	8.76 RT	55+69	4.2-4.7	A-1-b(0)	20	NP	79.7	13.7	0.6	6.0	98	46	7	-	-
SS-234	8.76 RT	55+69	8.7-9.2	A-1-b(0)	22	NP	73.3	18.6	2.0	6.0	91	46	8	-	-
SS-235	8.76 RT	55+69	10.3-10.7	A-1-b(0)	20	NP	75.5	15.8	1.7	7.0	91	43	9	-	-
SS-237	8.76 RT	55+69	13.3-13.8	A-6(11)	31	14	6.0	13.7	36.0	44.3	100	96	85	-	-
SS-238	8.76 RT	55+69	14.8-15.3	A-6(5)	31	14	9.5	37.0	15.3	38.2	100	97	59	-	-
SS-245	8.00 RT	56+35	1.2-1.7	A-2-4(0)	19	NP	25.3	57.4	3.3	14.0	100	82	20	-	-
SS-246	8.00 RT	56+35	2.8-3.2	A-2-4(0)	23	NP	11.2	77.8	1.9	9.0	100	93	13	-	-
SS-248	8.00 RT	56+35	5.8-6.2	A-3(0)	22	NP	58.7	32.3	2.0	7.0	90	63	9	-	-
SS-252	8.00 RT	56+35	11.9-12.3	A-1-b(0)	21	NP	78.6	15.8	3.5	2.0	89	33	6	-	-
SS-253	8.00 RT	56+35	13.4-13.8	A-1-b(0)	20	NP	89.0	7.7	1.3	2.0	91	27	3	-	-
SS-255	8.00 RT	56+35	16.4-16.8	A-6(7)	32	17	17.7	27.7	12.5	42.1	97	87	59	-	-
SS-256	8.00 RT	56+35	17.9-18.3	A-6(13)	36	16	2.8	22.1	25.0	50.2	100	99	84	-	-

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SOIL TEST RESULTS

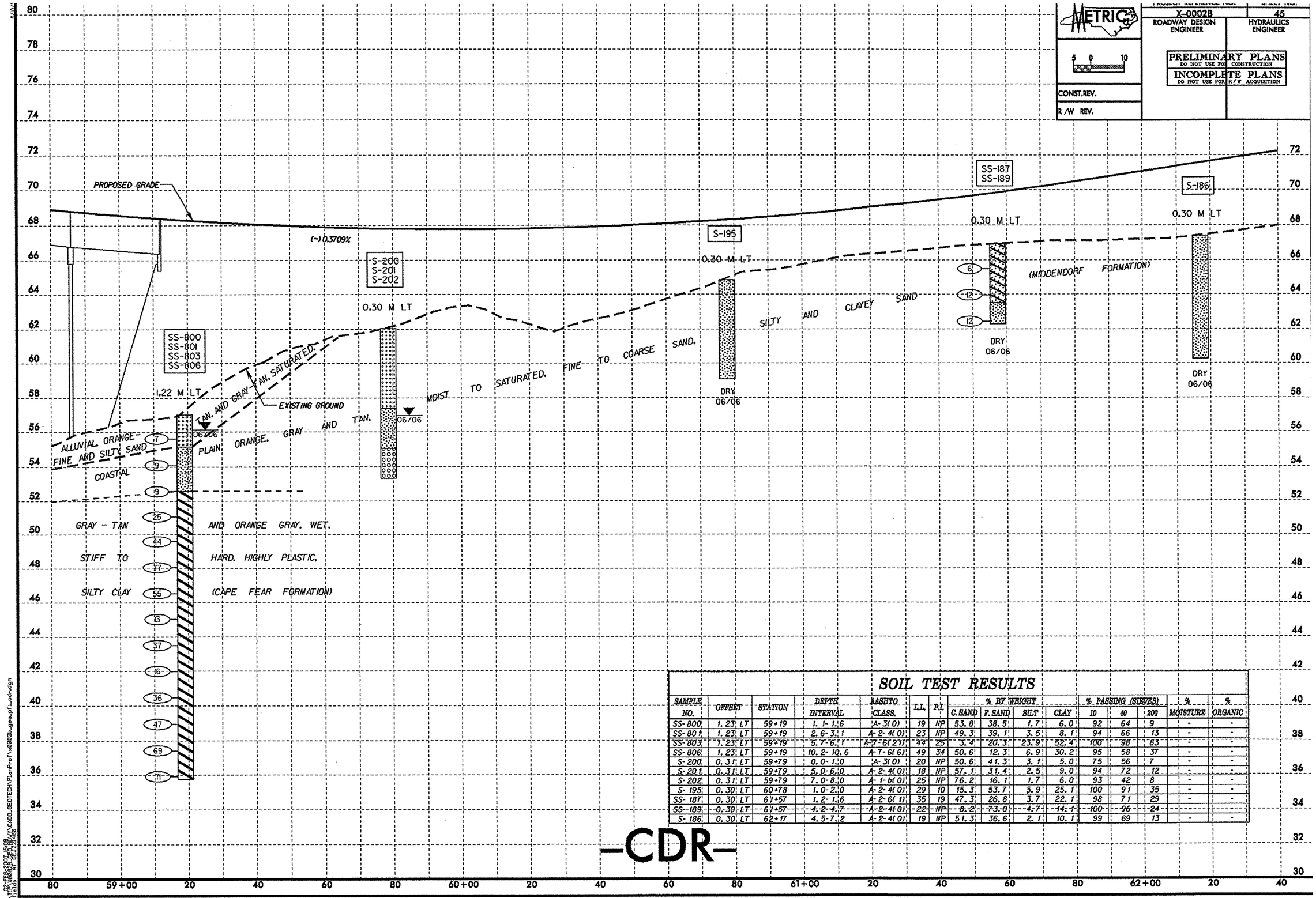
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-257	8.00 RT	56+35	19.4-19.9	A-7-6(29)	54	33	7.6	10.4	11.7	70.2	100	96	84	-	-
SS-268	5.02 RT	57+48	1.0-1.5	A-1-b(0)	18	NP	68.7	21.7	2.6	7.0	85	39	9	-	-
SS-270	5.02 RT	57+48	4.1-4.5	A-2-4(0)	23	8	57.1	22.9	2.0	18.1	96	57	21	-	-
SS-271	5.02 RT	57+48	5.6-6.0	A-1-b(0)	21	1	81.8	9.4	2.7	6.0	92	29	9	-	-
SS-273	5.02 RT	57+48	8.6-9.0	A-6(14)	36	17	6.8	12.8	28.2	52.2	100	95	86	-	-
SS-274	5.02 RT	57+48	11.6-12.1	A-7-6(12)	43	28	28.1	18.9	17.0	36.1	100	81	56	-	-
SS-275	5.02 RT	57+48	13.2-13.6	A-6(2)	27	14	31.3	30.7	13.9	24.1	100	81	44	-	-

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.



SOIL TEST RESULTS

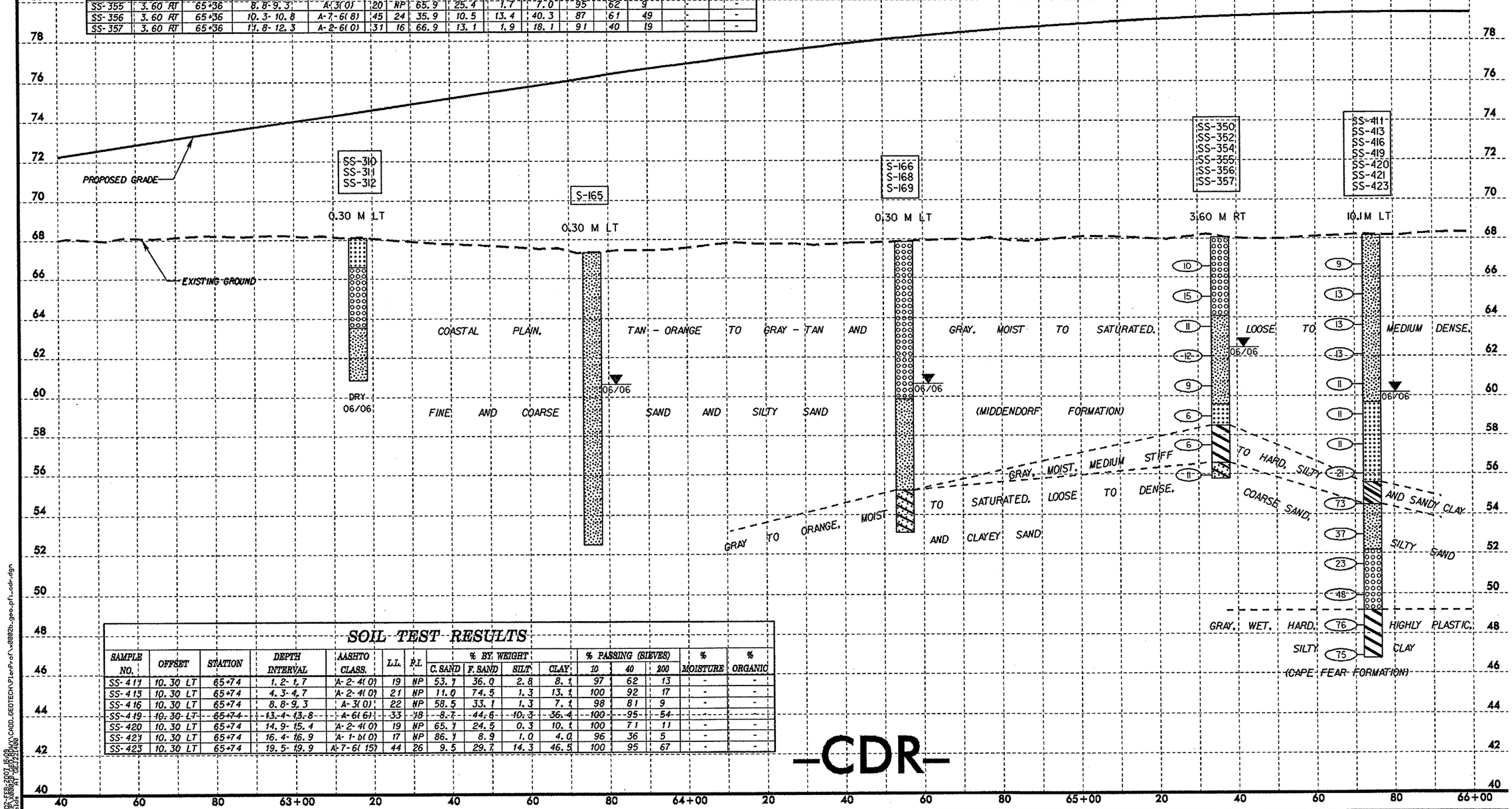
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-800	1.23 LT	59+19	1.1-1.6	A-3(0)	19	NP	53.8	38.5	1.7	6.0	92	64	9	-	-
SS-801	1.23 LT	59+19	2.6-3.1	A-2-4(0)	23	NP	49.3	39.1	3.5	8.1	94	66	13	-	-
SS-803	1.23 LT	59+19	5.7-6.1	A-7-6(21)	44	25	3.4	20.3	23.9	52.4	100	98	83	-	-
SS-806	1.23 LT	59+19	10.2-10.6	A-7-6(61)	49	34	50.6	12.3	6.9	30.2	95	58	37	-	-
S-200	0.31 LT	59+79	0.0-1.0	A-3(0)	20	NP	50.6	41.3	3.1	5.0	75	56	7	-	-
S-201	0.31 LT	59+79	5.0-6.0	A-2-4(0)	18	NP	57.1	31.4	2.5	9.0	94	72	12	-	-
S-202	0.31 LT	59+79	7.0-8.0	A-1-b(0)	25	NP	76.2	16.1	1.7	6.0	93	42	8	-	-
S-195	0.30 LT	60+78	1.0-2.0	A-2-4(0)	29	10	15.3	53.7	5.9	25.1	100	91	35	-	-
SS-187	0.30 LT	61+57	1.2-1.6	A-2-6(1)	35	19	47.3	26.8	3.7	22.1	98	71	29	-	-
SS-189	0.30 LT	61+57	4.2-4.7	A-2-4(0)	22	NP	8.2	73.0	4.7	14.1	100	96	24	-	-
S-186	0.30 LT	62+17	4.5-7.2	A-2-4(0)	19	NP	51.3	36.6	2.1	10.1	99	69	13	-	-

-CDR-

METRIC	X-0002B ROADWAY DESIGN ENGINEER	46 HYDRAULICS ENGINEER
5 0 10	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
R/W REV.		

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-310	0.30 LT	63+16	0.0-1.5	A-3(0)	15	NP	67.1	25.0	1.9	6.0	100	55	9	-	-
SS-311	0.30 LT	63+16	2.5-3.5	A-1-b(0)	18	NP	74.7	17.3	1.9	6.0	100	39	9	-	-
SS-312	0.30 LT	63+16	4.5-5.5	A-2-4(0)	22	NP	8.5	79.0	0.5	12.1	100	94	15	-	-
S-165	0.30 LT	63+76	10.0-12.0	A-2-4(0)	20	NP	53.3	35.4	2.3	9.0	97	75	12	-	-
S-166	0.30 LT	64+55	1.0-2.0	A-1-b(0)	16	NP	67.7	23.1	3.1	6.0	100	50	10	-	-
S-168	0.30 LT	64+55	9.0-10.0	A-2-4(0)	18	NP	51.7	35.2	4.1	9.0	98	78	14	-	-
S-169	0.30 LT	64+55	12.7-13.7	A-2-6(1)	32	16	55.4	19.9	2.6	22.1	98	60	25	-	-
SS-350	3.60 RT	65+36	1.2-1.7	A-1-b(0)	18	NP	70.9	21.2	1.8	6.0	100	41	9	-	-
SS-352	3.60 RT	65+36	4.2-4.7	A-2-4(0)	23	NP	7.5	81.7	1.8	9.1	100	95	12	-	-
SS-354	3.60 RT	65+36	7.3-7.7	A-2-4(0)	25	NP	18.1	71.7	2.1	8.1	90	81	13	-	-
SS-355	3.60 RT	65+36	8.8-9.3	A-3(0)	20	NP	65.9	25.4	1.7	7.0	95	62	9	-	-
SS-356	3.60 RT	65+36	10.3-10.8	A-7-6(8)	45	24	35.9	10.5	13.4	40.3	87	61	49	-	-
SS-357	3.60 RT	65+36	11.8-12.3	A-2-6(0)	31	16	66.9	13.1	1.9	18.1	91	40	19	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-411	10.30 LT	65+74	1.2-1.7	A-2-4(0)	19	NP	53.1	36.0	2.8	8.1	97	62	13	-	-
SS-413	10.30 LT	65+74	4.3-4.7	A-2-4(0)	21	NP	11.0	74.5	1.3	13.1	100	92	17	-	-
SS-416	10.30 LT	65+74	8.8-9.3	A-3(0)	22	NP	58.5	33.1	1.3	7.1	98	81	9	-	-
SS-419	10.30 LT	65+74	13.4-13.8	A-6(6)	33	18	8.7	44.6	10.3	36.4	100	95	54	-	-
SS-420	10.30 LT	65+74	14.9-15.4	A-2-4(0)	19	NP	65.1	24.5	0.3	10.1	100	71	11	-	-
SS-421	10.30 LT	65+74	16.4-16.9	A-1-b(0)	17	NP	86.1	8.9	1.0	4.0	96	36	5	-	-
SS-423	10.30 LT	65+74	19.5-19.9	A-7-6(15)	44	26	9.5	29.7	14.3	46.5	100	95	67	-	-

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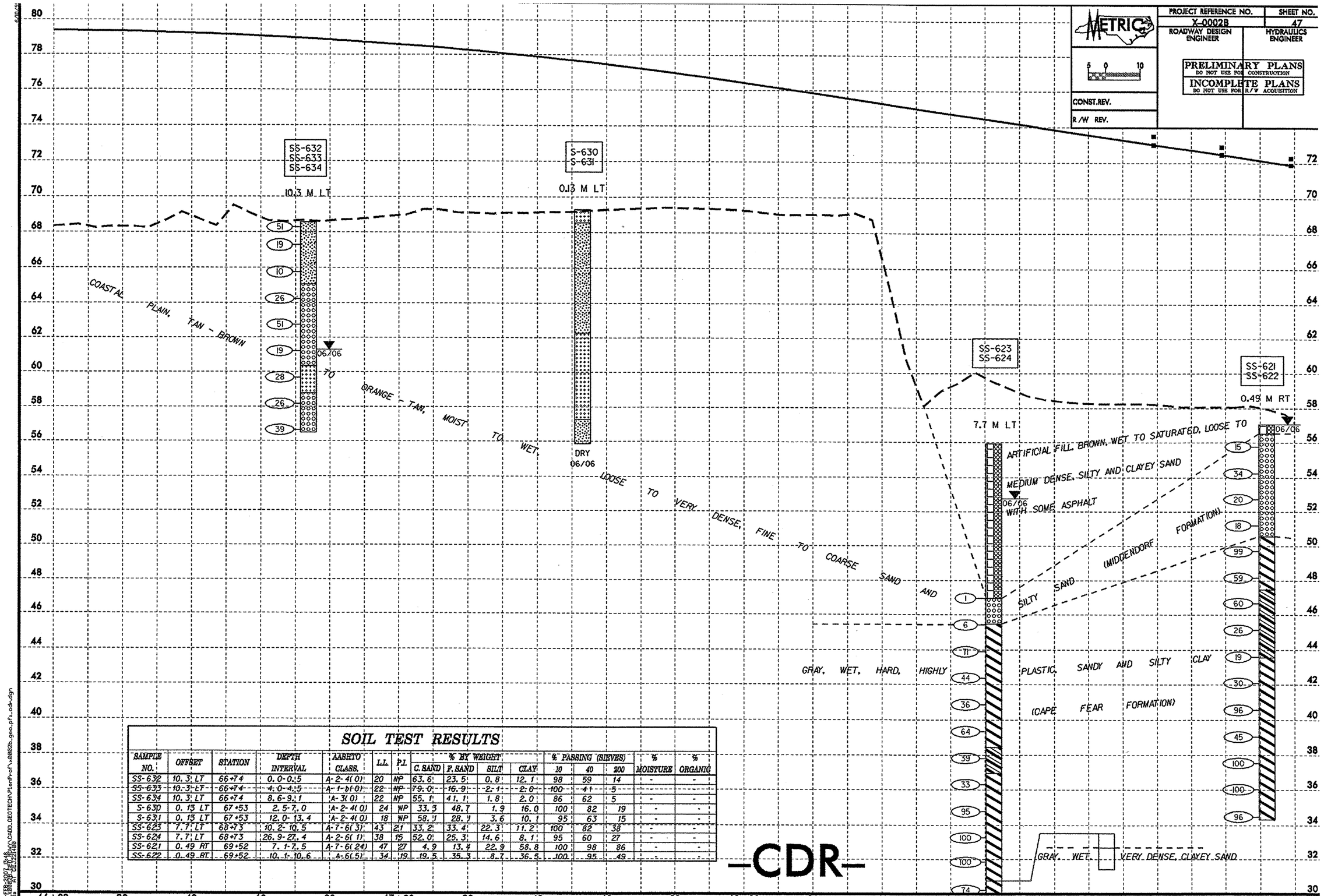
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-632	10.3 LT	66+74	0.0-0.5	A-2-4(0)	20	NP	63.6	23.5	0.8	12.1	98	59	14	-	-
SS-633	10.3 LT	66+74	4.0-4.5	A-1-b(0)	22	NP	79.0	16.9	2.1	2.0	100	41	5	-	-
SS-634	10.3 LT	66+74	8.6-9.1	A-3(0)	22	NP	55.1	41.1	1.8	2.0	86	62	5	-	-
S-630	0.13 LT	67+53	2.5-7.0	A-2-4(0)	24	NP	33.3	48.7	1.9	16.0	100	82	19	-	-
S-631	0.13 LT	67+53	12.0-13.4	A-2-4(0)	18	NP	58.1	28.1	3.6	10.1	95	63	15	-	-
SS-623	7.7 LT	68+73	10.2-10.5	A-7-6(3)	43	21	33.2	33.4	22.3	11.2	100	82	38	-	-
SS-624	7.7 LT	68+73	26.9-27.4	A-2-6(1)	38	15	52.0	25.3	14.6	8.1	95	60	27	-	-
SS-621	0.49 RT	69+52	7.1-7.5	A-7-6(24)	47	27	4.9	13.4	22.9	58.8	100	98	86	-	-
SS-622	0.49 RT	69+52	10.1-10.6	A-6(5)	34	19	19.5	35.3	8.7	36.5	100	95	49	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

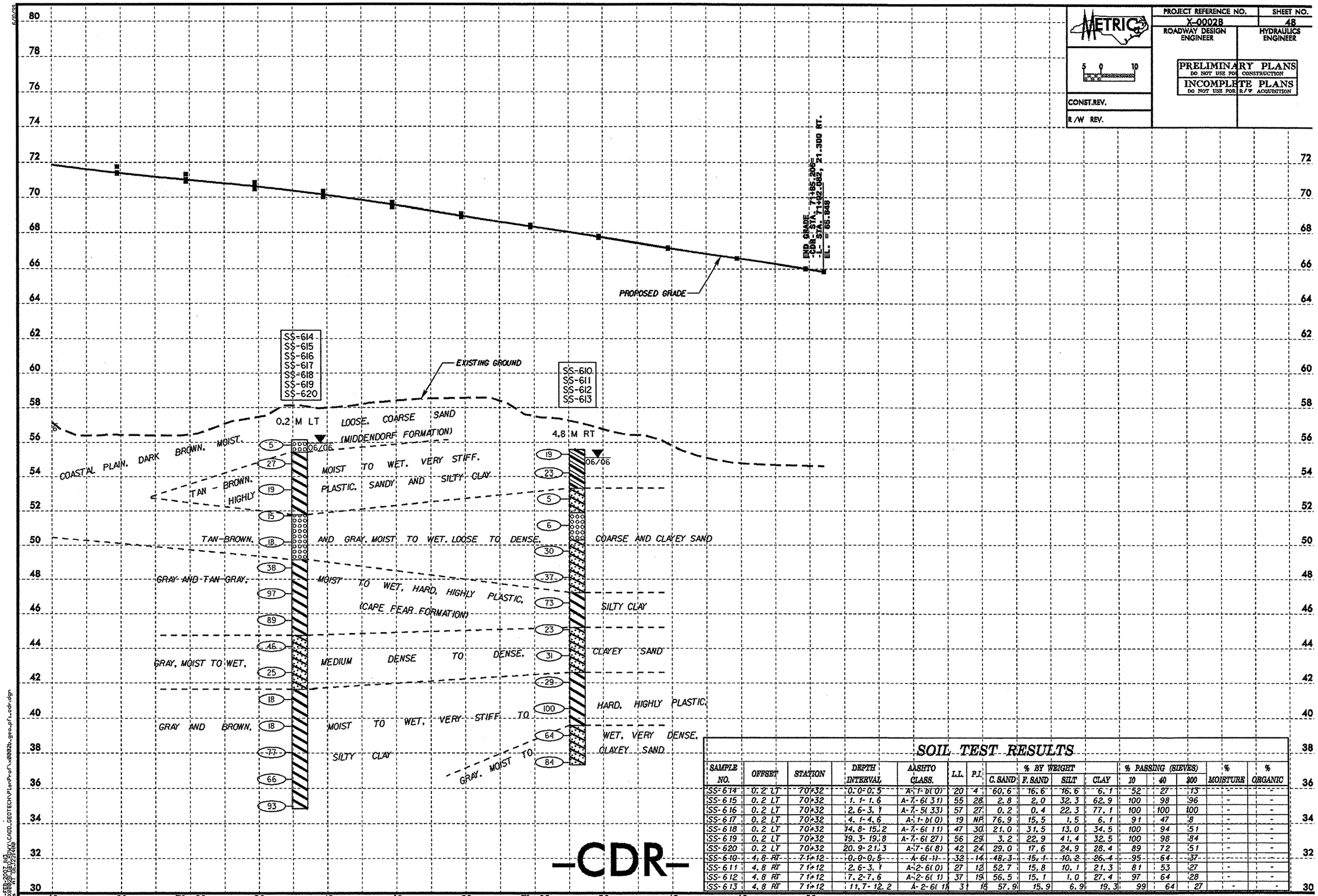
METRIC

5 0 10

CONST.REV.

R/W REV.

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



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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-614	0.2 LT	70+32	0.0-0.5	A-1-b(0)	20	4	60.6	16.6	16.6	6.1	52	27	13	-	-
SS-615	0.2 LT	70+32	1.1-1.6	A-7-6(31)	55	28	2.8	2.0	32.3	62.9	100	98	96	-	-
SS-616	0.2 LT	70+32	2.6-3.1	A-7-5(33)	57	27	0.2	0.4	22.3	77.1	100	100	100	-	-
SS-617	0.2 LT	70+32	4.1-4.6	A-1-b(0)	19	NP	76.9	15.5	1.5	6.1	91	47	8	-	-
SS-618	0.2 LT	70+32	14.8-15.2	A-7-6(11)	47	30	21.0	31.5	13.0	34.5	100	94	51	-	-
SS-619	0.2 LT	70+32	19.3-19.8	A-7-6(27)	56	29	3.2	22.9	41.4	32.5	100	98	84	-	-
SS-620	0.2 LT	70+32	20.9-21.3	A-7-6(8)	42	24	29.0	17.6	24.9	28.4	89	72	51	-	-
SS-610	4.8 RT	71+12	0.0-0.5	A-6(1)	32	14	48.3	15.1	10.2	26.4	95	64	37	-	-
SS-611	4.8 RT	71+12	2.6-3.1	A-2-6(0)	27	12	52.7	15.8	10.1	21.3	81	53	27	-	-
SS-612	4.8 RT	71+12	7.2-7.6	A-2-6(1)	37	19	56.5	15.1	1.0	27.4	97	64	28	-	-
SS-613	4.8 RT	71+12	11.7-12.2	A-2-6(1)	31	15	57.9	15.9	6.9	19.3	99	64	27	-	-

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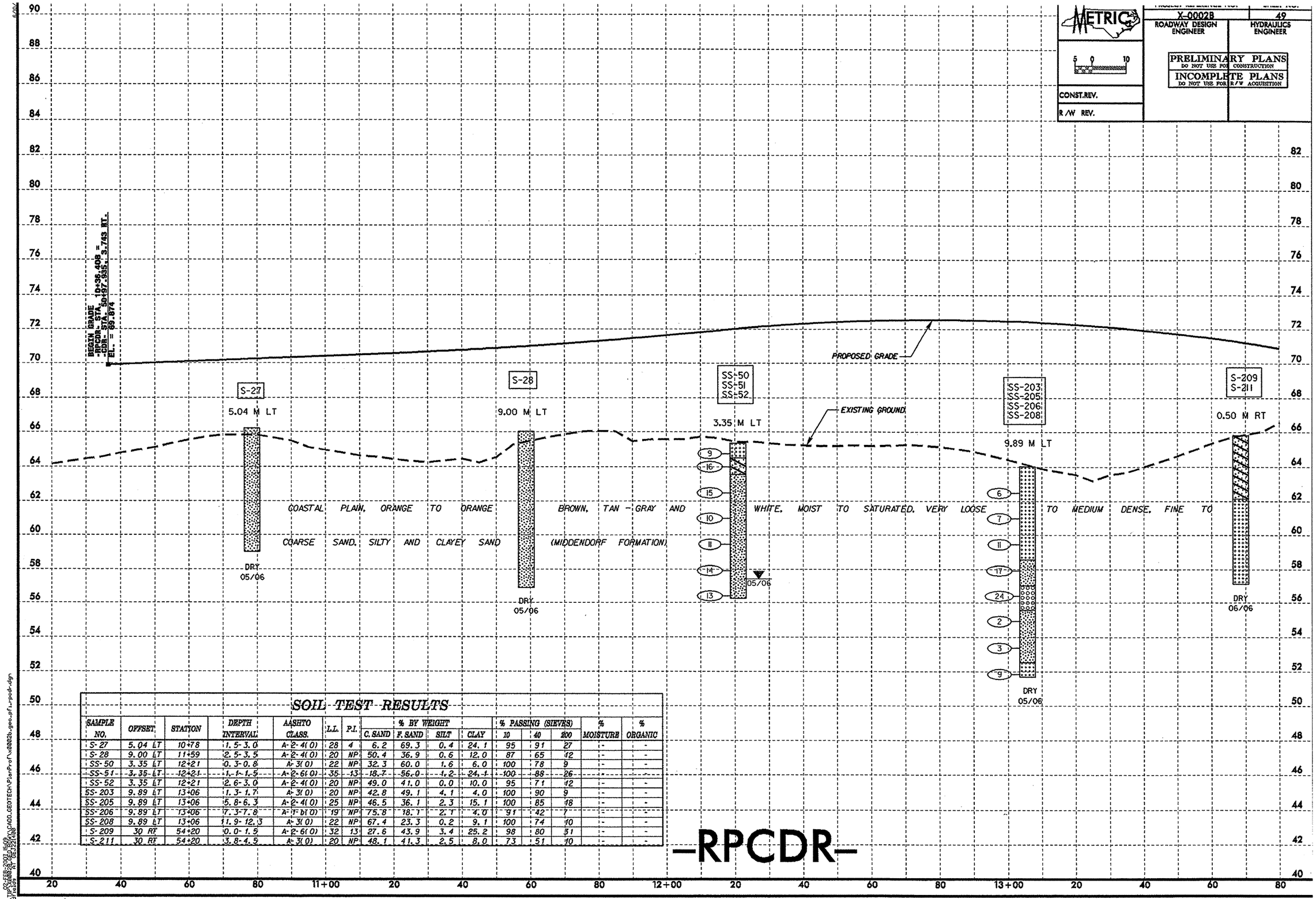
wallace
AT DESIGN

METRIC	X-0002B	49
5 0 10	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-27	5.04 LT	10+78	1.5-3.0	A-2-4(0)	28	4	6.2	69.3	0.4	24.1	95	91	27	-	-
S-28	9.00 LT	11+59	2.5-3.5	A-2-4(0)	20	NP	50.4	36.9	0.6	12.0	87	65	12	-	-
SS-50	3.35 LT	12+21	0.3-0.8	A-3(0)	22	NP	32.3	60.0	1.6	6.0	100	78	9	-	-
SS-51	3.35 LT	12+21	1.1-1.5	A-2-6(0)	35	13	18.7	56.0	1.2	24.1	100	88	26	-	-
SS-52	3.35 LT	12+21	2.6-3.0	A-2-4(0)	20	NP	49.0	41.0	0.0	10.0	95	71	12	-	-
SS-203	9.89 LT	13+06	1.3-1.7	A-3(0)	20	NP	42.8	49.1	4.1	4.0	100	90	9	-	-
SS-205	9.89 LT	13+06	5.8-6.3	A-2-4(0)	25	NP	46.5	36.1	2.3	15.1	100	85	18	-	-
SS-206	9.89 LT	13+06	7.3-7.8	A-1-b(0)	19	NP	75.8	18.1	2.1	4.0	91	42	7	-	-
SS-208	9.89 LT	13+06	11.9-12.3	A-3(0)	22	NP	67.4	23.3	0.2	9.1	100	74	10	-	-
S-209	30 RT	54+20	0.0-1.5	A-2-6(0)	32	13	27.6	43.9	3.4	25.2	98	80	51	-	-
S-211	30 RT	54+20	3.8-4.5	A-3(0)	20	NP	48.1	41.3	2.5	8.0	73	51	10	-	-

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ed: 02/02/2007

METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10

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

CONST.REV.

R/W REV.

END GRADE
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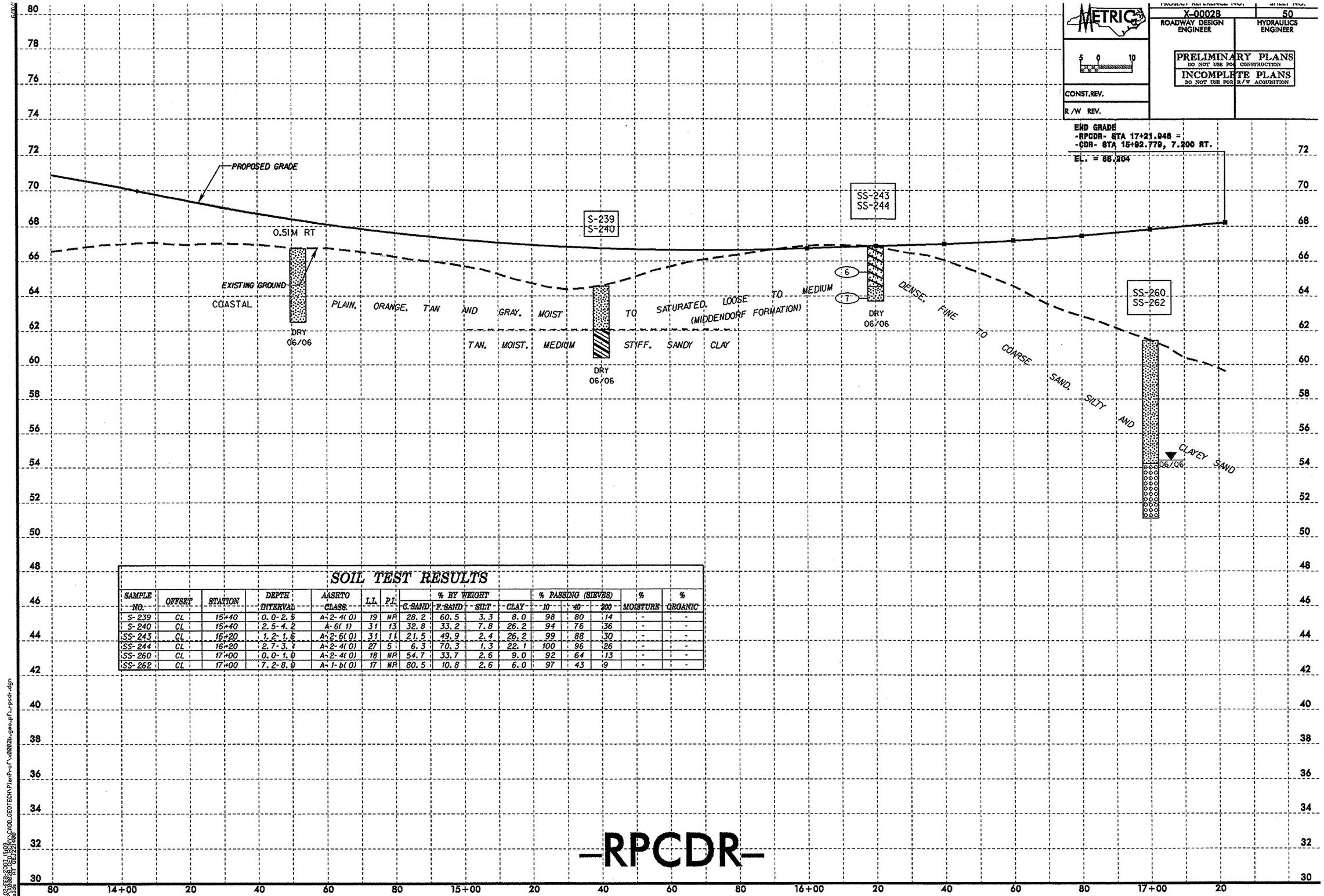
-CDR- STA 15+92.779, 7.200 RT.
EL. = 68.204



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-239	CL	15+40	0.0-2.5	A-2-4(0)	19	NP	28.2	60.5	3.3	8.0	98	80	14	-	-
S-240	CL	15+40	2.5-4.2	A-6(1)	31	13	32.8	33.2	7.8	26.2	94	76	36	-	-
SS-243	CL	16+20	1.2-1.6	A-2-6(0)	31	11	21.5	49.9	2.4	26.2	99	88	30	-	-
SS-244	CL	16+20	2.7-3.1	A-2-4(0)	27	5	6.3	70.3	1.3	22.1	100	96	26	-	-
SS-260	CL	17+00	0.0-1.0	A-2-4(0)	18	NP	54.7	33.7	2.6	9.0	92	64	13	-	-
SS-262	CL	17+00	7.2-8.0	A-1-b(0)	17	NP	80.5	10.8	2.6	6.0	97	43	9	-	-

-RPCDR-

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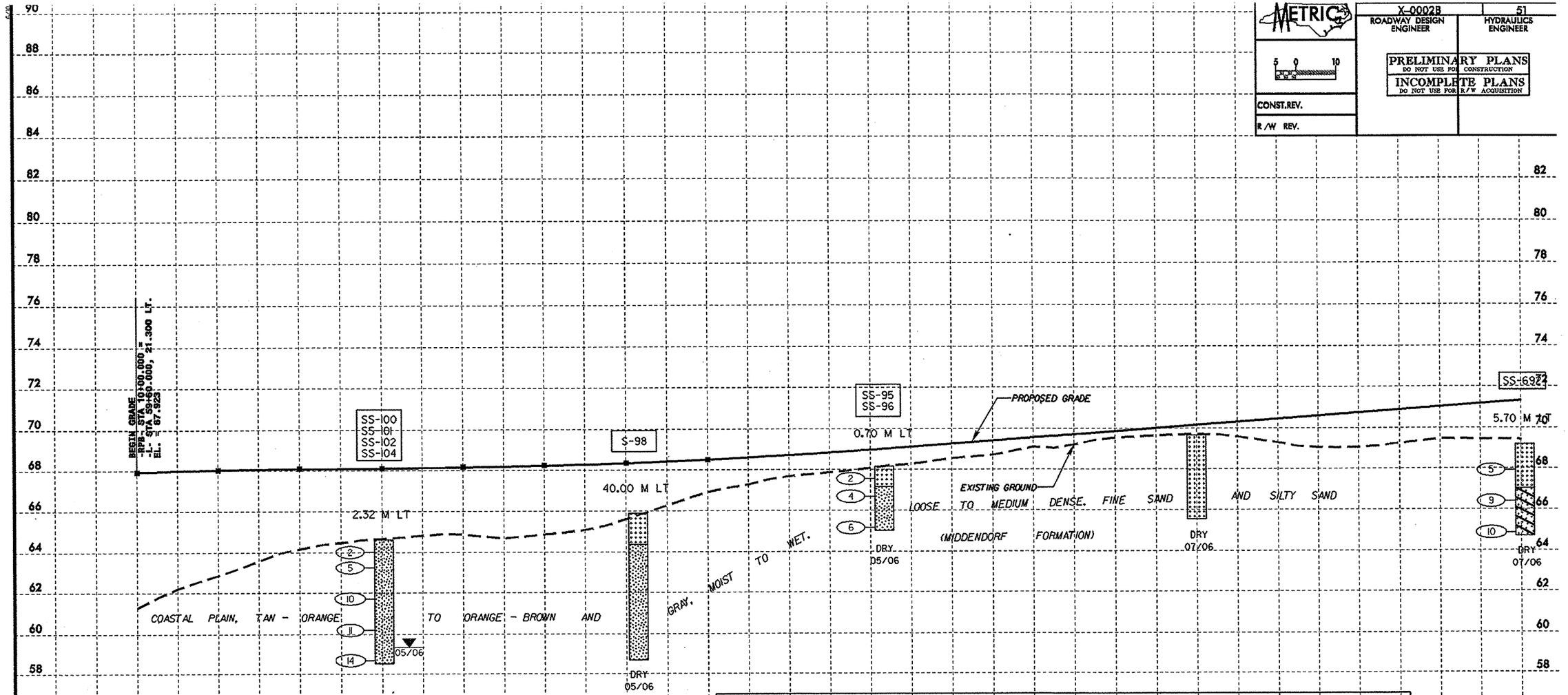
METRIC	X-0002B	51
5 0 10	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



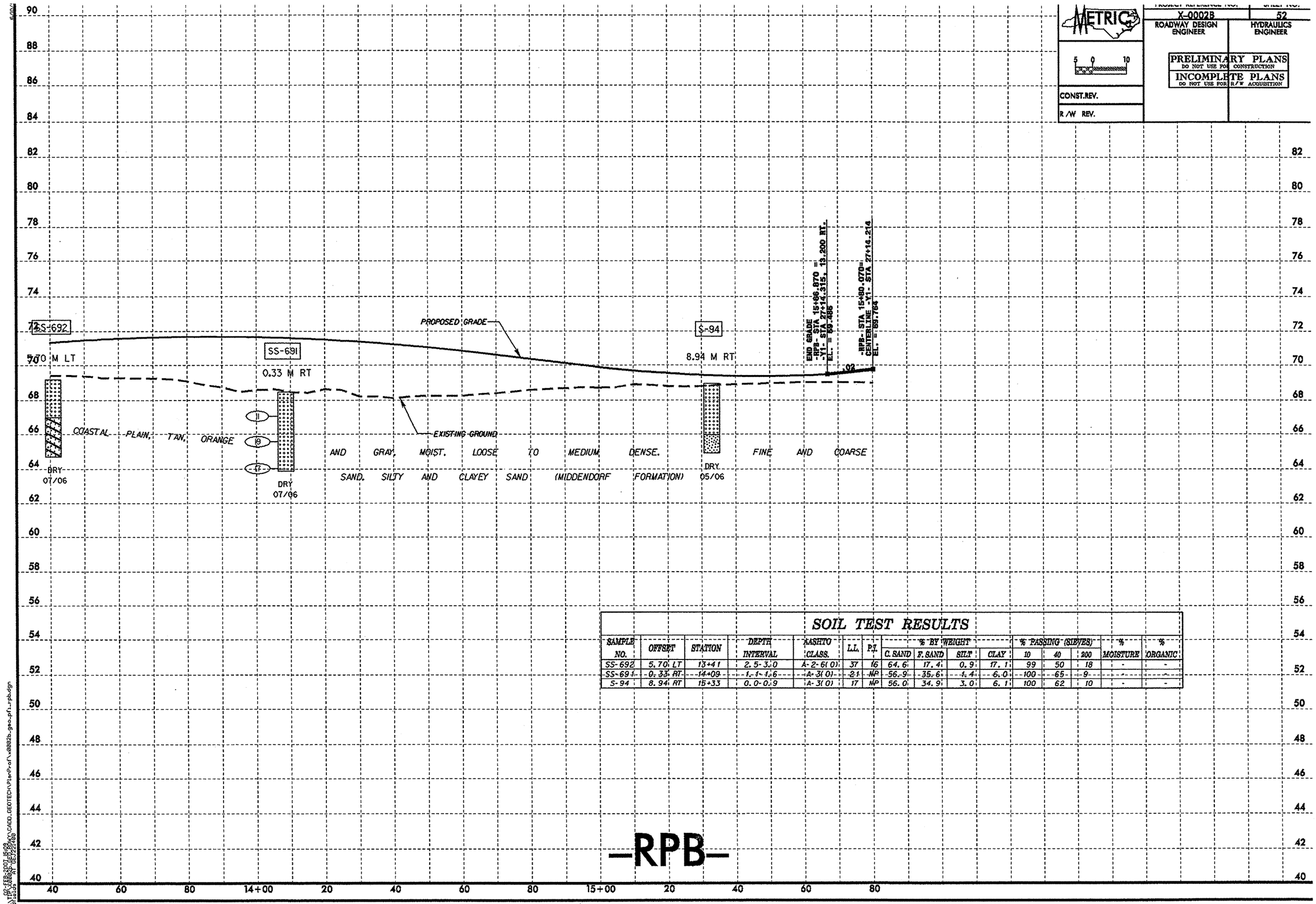
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-100	2.32 LT	10+60	0.3-0.8	A-2-4(0)	18	NP	46.0	42.6	1.2	10.1	100	71	13	-	-
SS-101	2.32 LT	10+60	1.1-1.5	A-2-4(0)	20	NP	47.7	42.0	2.2	8.1	98	65	12	-	-
SS-102	2.32 LT	10+60	2.6-3.1	A-2-4(0)	22	NP	38.1	49.5	2.2	10.1	97	81	15	-	-
SS-104	2.32 LT	10+60	5.6-6.1	A-2-4(0)	24	NP	52.7	31.6	1.4	14.2	99	87	16	-	-
S-98	9.95 LT	11+23	1.5-5.2	A-2-4(0)	21	NP	31.8	59.0	1.0	8.1	99	84	11	-	-
SS-95	0.69 LT	11+93	0.3-0.8	A-3(0)	21	NP	34.5	59.4	2.0	4.1	100	85	7	-	-
SS-96	0.69 LT	11+93	2.7-3.1	A-2-4(0)	21	NP	36.5	53.1	2.2	8.1	100	79	12	-	-
SS-692	5.70 LT	13+41	2.5-3.0	A-2-6(0)	37	16	64.6	17.4	0.9	17.1	99	50	18	-	-

X-0002B	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R/W REV.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-692	5.70 LT	13+41	2.5-3.0	A-2-6(0)	37	16	64.6	17.4	0.9	17.1	99	50	18	-	-
SS-691	0.33 RT	14+09	1.1-1.6	A-3(0)	21	NP	56.9	35.6	1.4	6.0	100	65	9	-	-
S-94	8.94 RT	15+33	0.0-0.9	A-3(0)	17	NP	56.0	34.9	3.0	6.1	100	62	10	-	-

-RPB-

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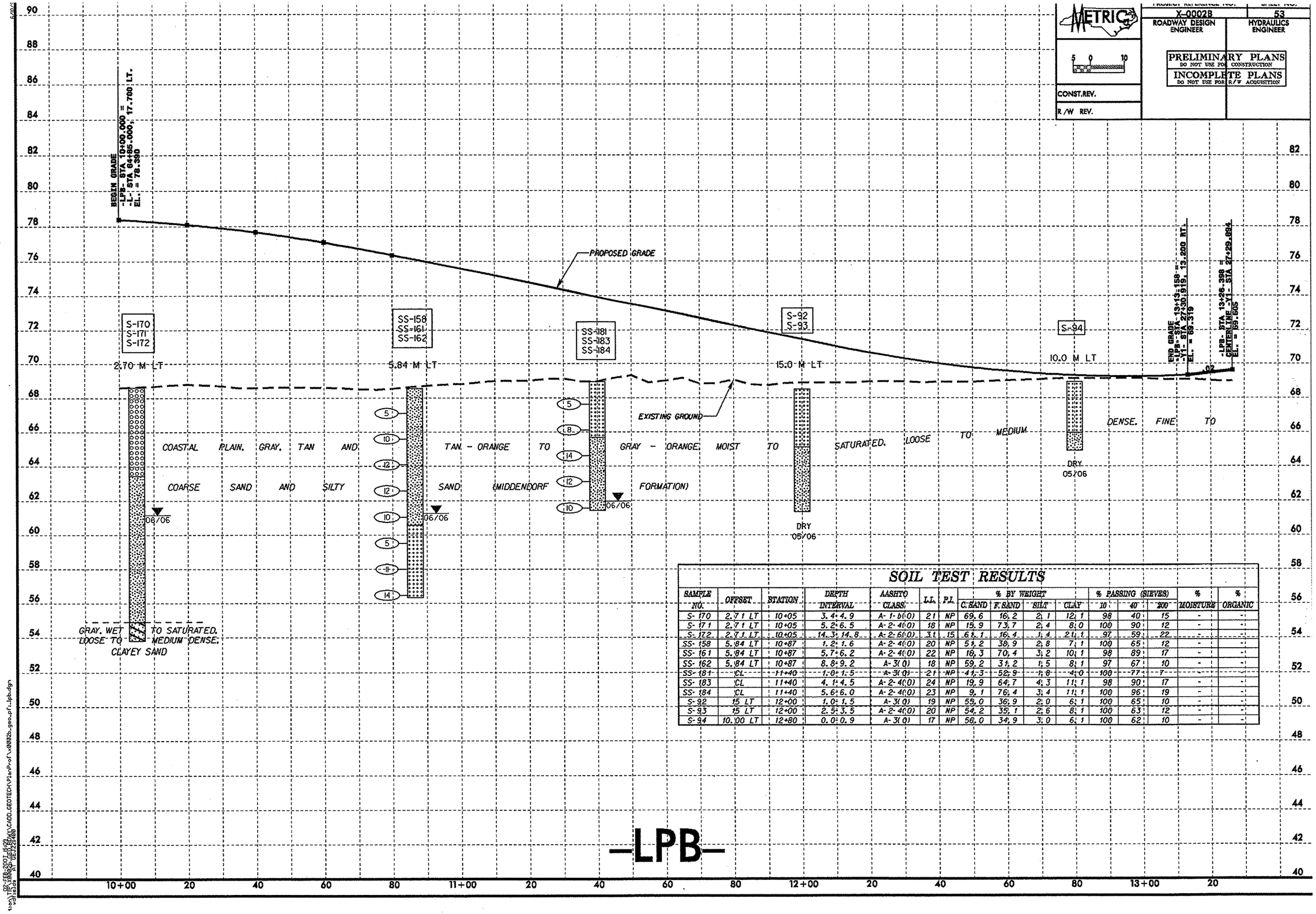
METRIC	X-0002B	53
5 0 10	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-170	2.71 LT	10+05	3.4-4.9	A-1-b(0)	21	NP	69.6	16.2	2.1	12.1	98	40	15	-	-
S-171	2.71 LT	10+05	5.2-6.5	A-2-4(0)	18	NP	15.9	73.7	2.4	8.0	100	90	12	-	-
S-172	2.71 LT	10+05	14.3-14.8	A-2-6(0)	31	15	61.1	16.4	1.4	21.1	97	59	22	-	-
SS-158	5.84 LT	10+87	1.2-1.6	A-2-4(0)	20	NP	51.2	38.9	2.8	7.1	100	65	12	-	-
SS-161	5.84 LT	10+87	5.7-6.2	A-2-4(0)	22	NP	16.3	70.4	3.2	10.1	98	89	17	-	-
SS-162	5.84 LT	10+87	8.8-9.2	A-3(0)	18	NP	59.2	31.2	1.5	8.1	97	67	10	-	-
SS-181	CL	11+40	1.0-1.5	A-3(0)	21	NP	41.3	52.9	1.8	4.0	100	77	7	-	-
SS-183	CL	11+40	4.1-4.5	A-2-4(0)	24	NP	19.9	64.7	4.3	11.1	98	90	17	-	-
SS-184	CL	11+40	5.6-6.0	A-2-4(0)	23	NP	9.1	76.4	3.4	11.1	100	96	19	-	-
S-92	15 LT	12+00	1.0-1.5	A-3(0)	19	NP	55.0	36.9	2.0	6.1	100	65	10	-	-
S-93	15 LT	12+00	2.5-3.5	A-2-4(0)	20	NP	54.2	35.1	2.6	8.1	100	63	12	-	-
S-94	10.00 LT	12+80	0.0-0.9	A-3(0)	17	NP	56.0	34.9	3.0	6.1	100	62	10	-	-

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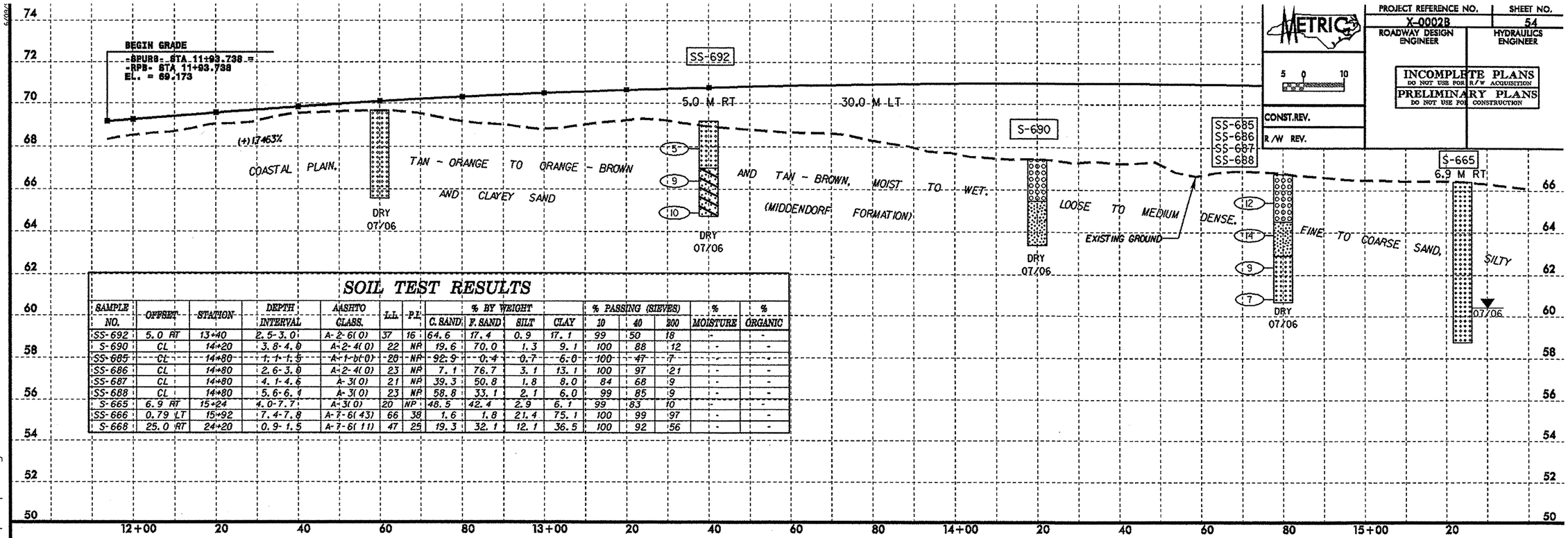
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

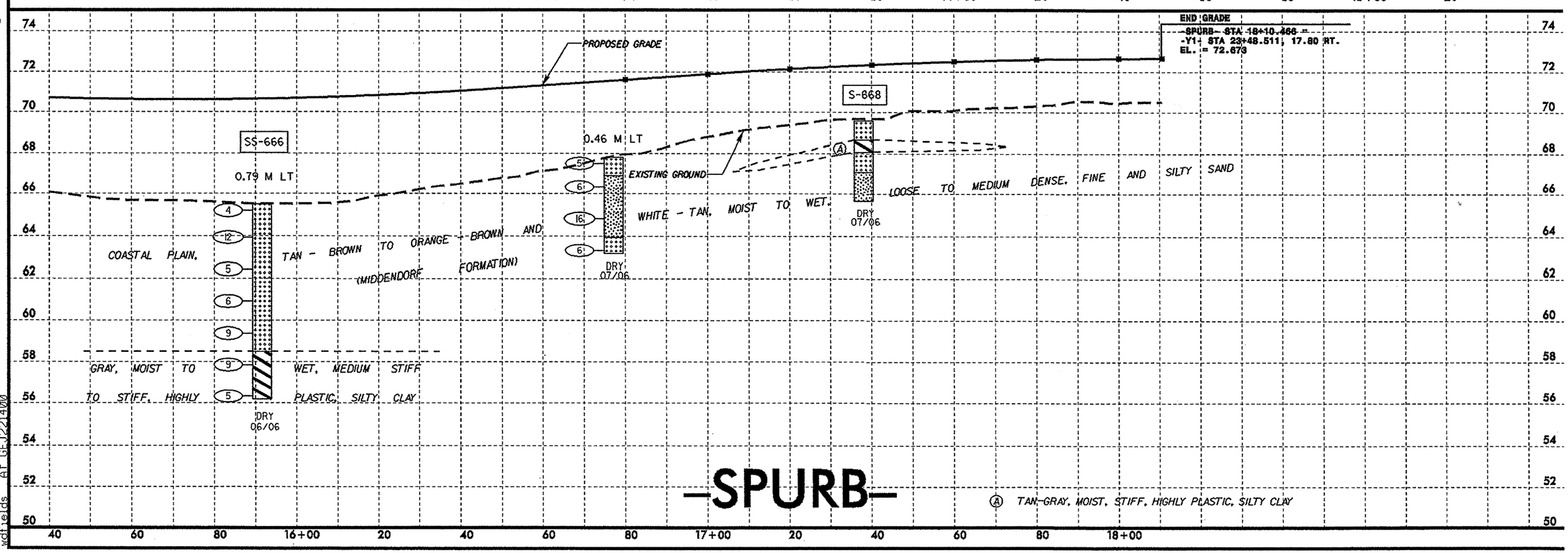
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-692	5.0 RT	13+40	2.5-3.0	A-2-6(0)	37	16	64.6	17.4	0.9	17.1	99	50	18	-	-
S-690	CL	14+20	3.8-4.0	A-2-4(0)	22	NP	19.6	70.0	1.3	9.1	100	88	12	-	-
SS-685	CL	14+80	1.1-1.5	A-1-b(0)	28	NP	92.9	0.4	0.7	6.0	100	47	7	-	-
SS-686	CL	14+80	2.6-3.0	A-2-4(0)	23	NP	7.1	76.7	3.1	13.1	100	97	21	-	-
SS-687	CL	14+80	4.1-4.6	A-3(0)	21	NP	39.3	50.8	1.8	8.0	84	68	9	-	-
SS-688	CL	14+80	5.6-6.1	A-3(0)	23	NP	58.8	33.1	2.1	6.0	99	85	9	-	-
S-665	6.9 RT	15+24	4.0-7.7	A-3(0)	20	NP	48.5	42.4	2.9	6.1	99	83	10	-	-
SS-666	0.79 LT	15+92	7.4-7.8	A-7-6(43)	66	38	1.6	1.8	21.4	75.1	100	99	97	-	-
S-668	25.0 RT	24+20	0.9-1.5	A-7-6(11)	47	25	19.3	32.1	12.1	36.5	100	92	56	-	-



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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

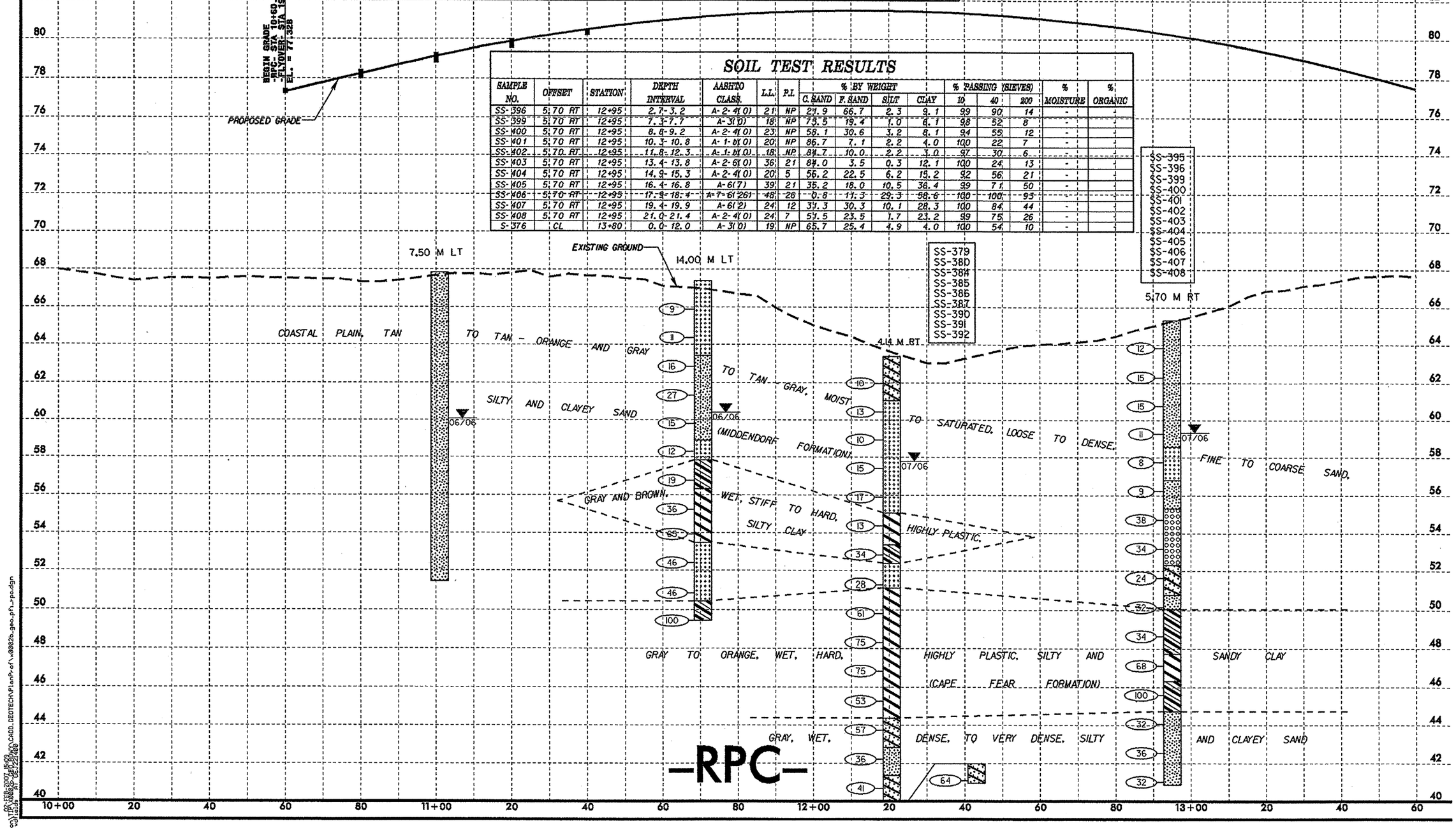
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

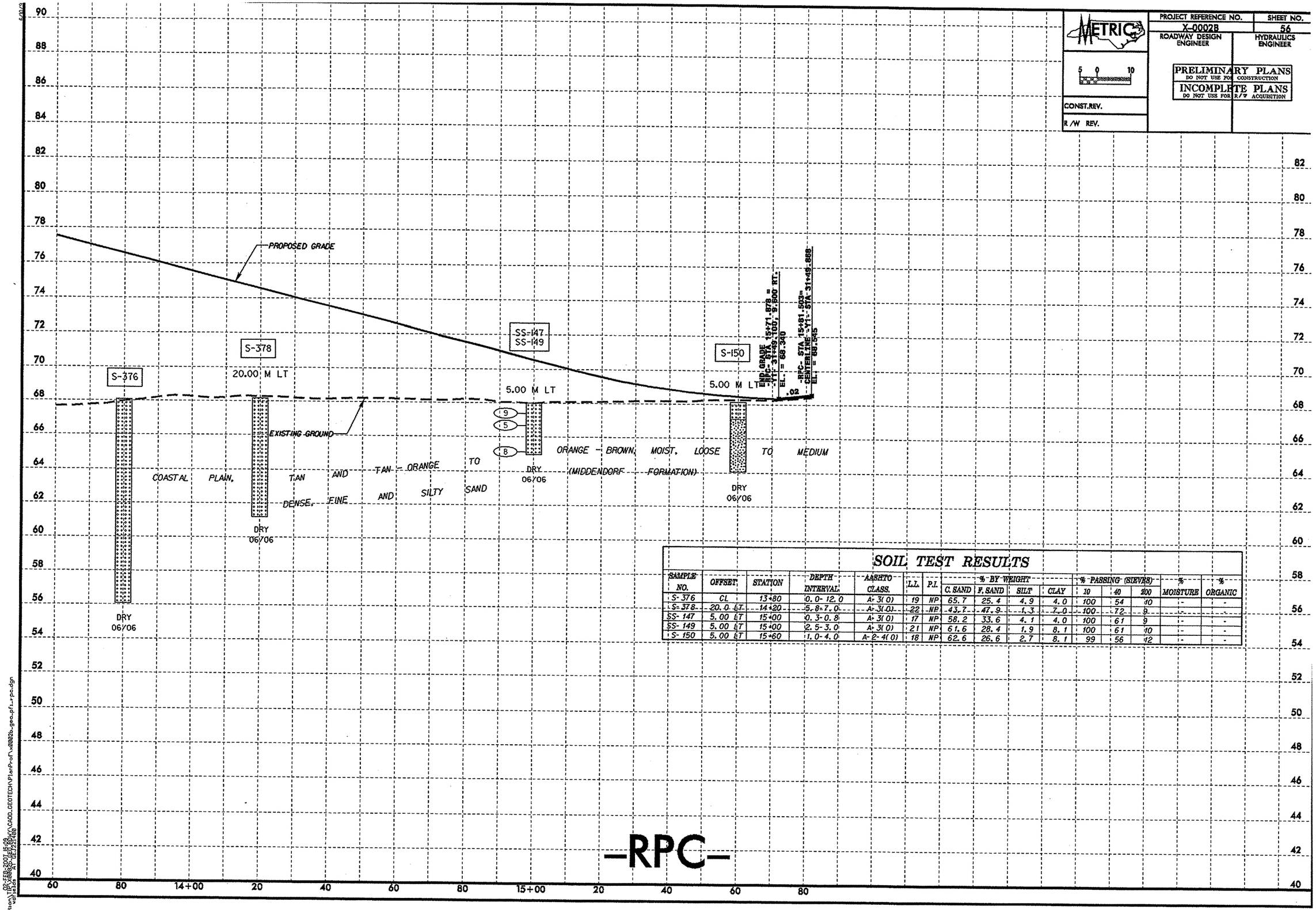
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-379	4.14 RT	12+21	1.1-1.6	A-2-6(0)	32	12	24.4	46.7	2.7	26.2	100	85	31	-	-
SS-380	4.14 RT	12+21	2.6-3.1	A-3(0)	21	NP	52.6	39.1	2.3	6.0	83	60	7	-	-
SS-384	4.14 RT	12+21	8.7-9.2	A-7-6(17)	43	21	15.4	8.3	25.9	50.5	100	90	79	-	-
SS-385	4.14 RT	12+21	10.0-10.7	A-6(5)	33	15	35.4	13.7	16.6	34.3	99	76	54	-	-
SS-386	4.14 RT	12+21	11.7-12.2	A-3(0)	18	NP	66.3	26.0	1.7	6.1	100	66	10	-	-
SS-387	4.14 RT	12+21	13.3-13.7	A-7-6(20)	43	25	4.0	23.4	20.0	52.5	100	98	81	-	-
SS-390	4.14 RT	12+21	17.8-18.3	A-7-6(19)	50	32	21.4	16.6	9.5	52.5	100	89	65	-	-
SS-391	4.14 RT	12+21	19.3-19.8	A-2-6(1)	35	18	52.5	20.3	1.9	25.3	100	73	28	-	-
SS-392	4.14 RT	12+21	20.9-21.3	A-2-4(0)	25	9	37.0	37.7	6.2	19.2	100	79	30	-	-
SS-395	5.70 RT	12+95	1.2-1.6	A-2-4(0)	19	NP	60.2	29.7	2.0	8.1	100	60	11	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-396	5.70 RT	12+95	2.7-3.2	A-2-4(0)	21	NP	21.9	66.7	2.3	9.1	99	90	14	-	-
SS-399	5.70 RT	12+95	7.3-7.7	A-3(0)	18	NP	73.5	19.4	1.0	6.1	98	52	8	-	-
SS-400	5.70 RT	12+95	8.8-9.2	A-2-4(0)	23	NP	58.1	30.6	3.2	8.1	94	55	12	-	-
SS-401	5.70 RT	12+95	10.3-10.8	A-1-b(0)	20	NP	86.7	7.1	2.2	4.0	100	22	7	-	-
SS-402	5.70 RT	12+95	11.8-12.3	A-1-b(0)	18	NP	84.7	10.0	2.2	3.0	97	30	6	-	-
SS-403	5.70 RT	12+95	13.4-13.8	A-2-6(0)	36	21	84.0	3.5	0.3	12.1	100	24	13	-	-
SS-404	5.70 RT	12+95	14.9-15.3	A-2-4(0)	20	5	56.2	22.5	6.2	15.2	92	56	21	-	-
SS-405	5.70 RT	12+95	16.4-16.8	A-6(7)	39	21	35.2	18.0	10.5	36.4	99	71	50	-	-
SS-406	5.70 RT	12+95	17.9-18.4	A-7-6(26)	48	26	0.8	11.3	29.3	58.6	100	100	93	-	-
SS-407	5.70 RT	12+95	19.4-19.9	A-6(2)	24	12	31.3	30.3	10.1	28.3	100	84	44	-	-
SS-408	5.70 RT	12+95	21.0-21.4	A-2-4(0)	24	7	51.5	23.5	1.7	23.2	99	75	26	-	-
S-376	CL	13+80	0.0-12.0	A-3(0)	19	NP	65.7	25.4	4.9	4.0	100	54	10	-	-



METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X-0002B	56
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-376	CL	13+80	0.0-12.0	A-3(0)	19	NP	65.7	25.4	4.9	4.0	100	54	10	-	-
S-378	20.0 LT	14+20	5.8-7.0	A-3(0)	22	NP	43.7	47.9	1.3	7.0	100	72	9	-	-
SS-147	5.00 LT	15+00	0.3-0.8	A-3(0)	17	NP	58.2	33.6	4.1	4.0	100	61	9	-	-
SS-149	5.00 LT	15+00	2.5-3.0	A-3(0)	21	NP	61.6	28.4	1.9	8.1	100	61	10	-	-
S-150	5.00 LT	15+60	1.0-4.0	A-2-4(0)	18	NP	62.6	26.6	2.7	8.1	99	56	12	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

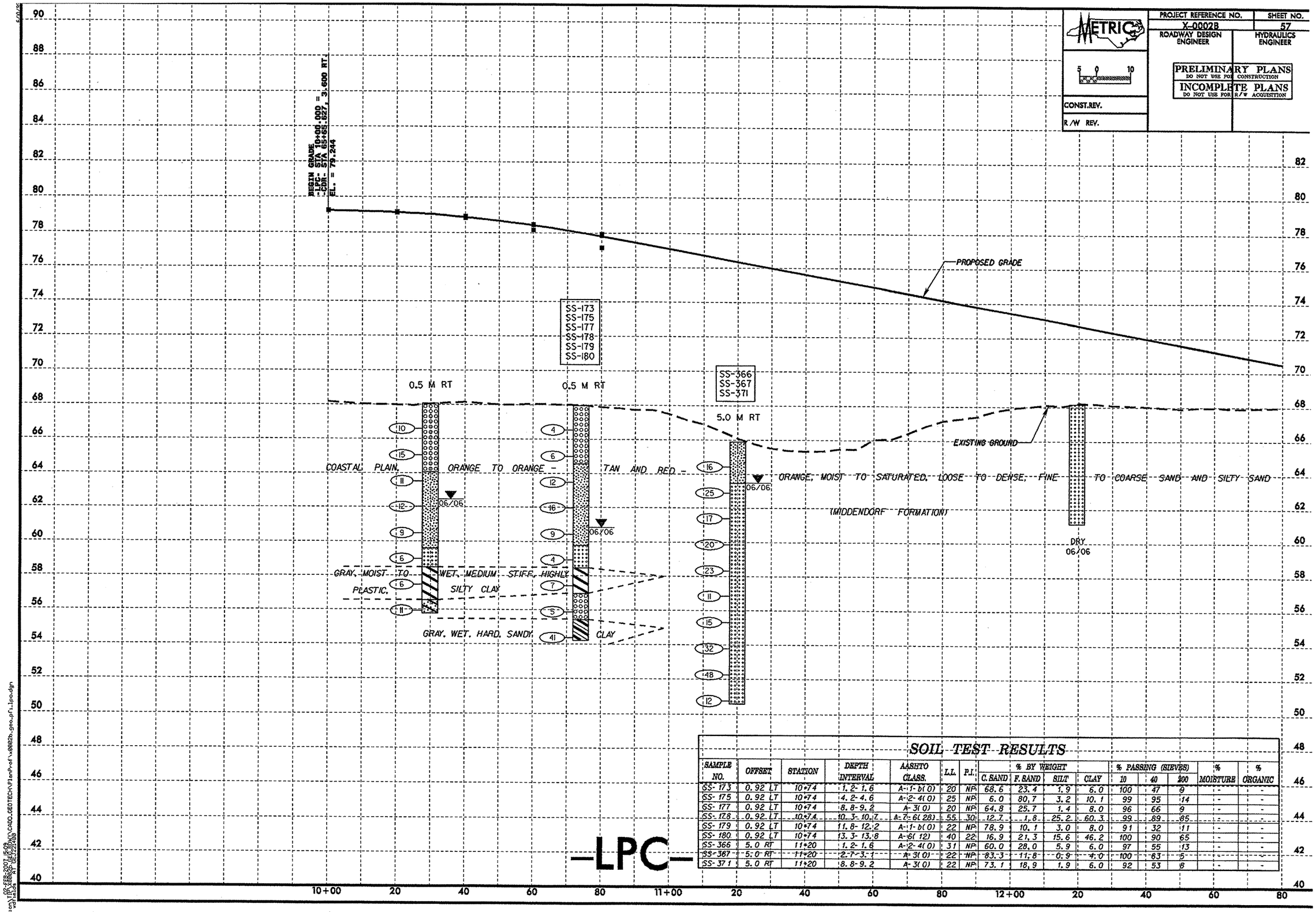
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-173	0.92 LT	10+74	1.2-1.6	A-1-b(0)	20	NP	68.6	23.4	1.9	6.0	100	47	9	-	-
SS-175	0.92 LT	10+74	4.2-4.6	A-2-4(0)	25	NP	6.0	80.7	3.2	10.1	99	95	14	-	-
SS-177	0.92 LT	10+74	8.8-9.2	A-3(0)	20	NP	64.8	25.7	1.4	8.0	96	66	9	-	-
SS-178	0.92 LT	10+74	10.3-10.7	A-7-6(28)	55	30	12.7	1.8	25.2	60.3	99	89	85	-	-
SS-179	0.92 LT	10+74	11.8-12.2	A-1-b(0)	22	NP	78.9	10.1	3.0	8.0	91	32	11	-	-
SS-180	0.92 LT	10+74	13.3-13.8	A-6(12)	40	22	16.9	21.3	15.6	46.2	100	90	65	-	-
SS-366	5.0 RT	11+20	1.2-1.6	A-2-4(0)	31	NP	60.0	28.0	5.9	6.0	97	55	13	-	-
SS-367	5.0 RT	11+20	2.7-3.1	A-3(0)	22	NP	83.3	11.8	0.9	4.0	100	63	5	-	-
SS-371	5.0 RT	11+20	8.8-9.2	A-3(0)	22	NP	73.1	18.9	1.9	6.0	92	53	8	-	-

-LPC-

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

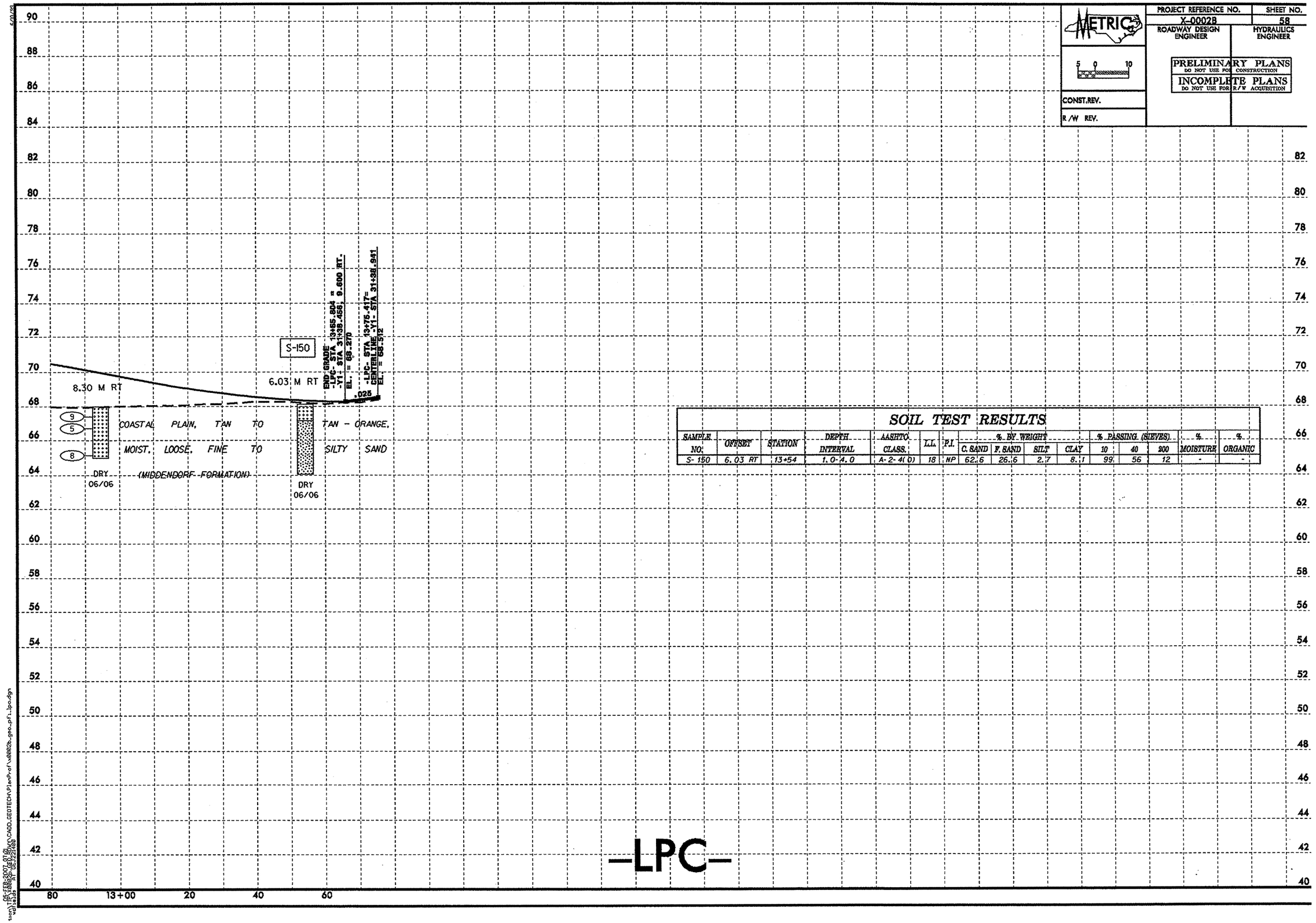
METRIC

5 0 10

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

CONST.REV.

R/W REV.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-150	6.03 RT	13+54	1.0-4.0	A-2-4(0)	18	NP	62.6	26.6	2.7	8.1	99	56	12	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

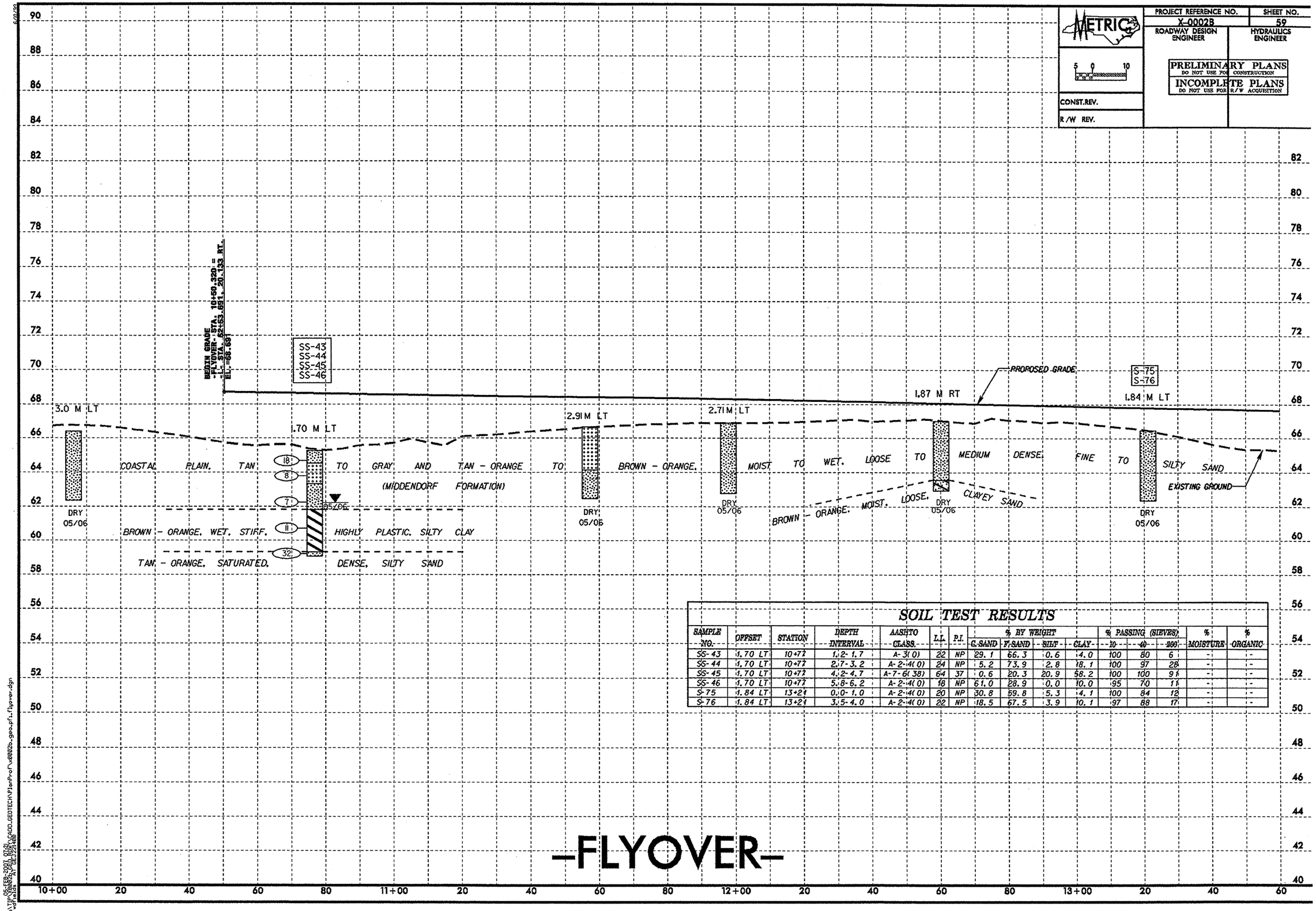
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-43	1.70 LT	10+77	1.2-1.7	A-3(0)	22	NP	29.1	66.3	0.6	4.0	100	80	6	-	-
SS-44	1.70 LT	10+77	2.7-3.2	A-2-4(0)	24	NP	5.2	73.9	2.8	18.1	100	97	28	-	-
SS-45	1.70 LT	10+77	4.2-4.7	A-7-6(38)	64	37	0.6	20.3	20.9	58.2	100	100	91	-	-
SS-46	1.70 LT	10+77	5.8-6.2	A-2-4(0)	18	NP	61.0	28.9	0.0	10.0	95	70	11	-	-
S-75	1.84 LT	13+21	0.0-1.0	A-2-4(0)	20	NP	30.8	59.8	5.3	4.1	100	84	12	-	-
S-76	1.84 LT	13+21	3.5-4.0	A-2-4(0)	22	NP	18.5	67.5	3.9	10.1	97	88	17	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

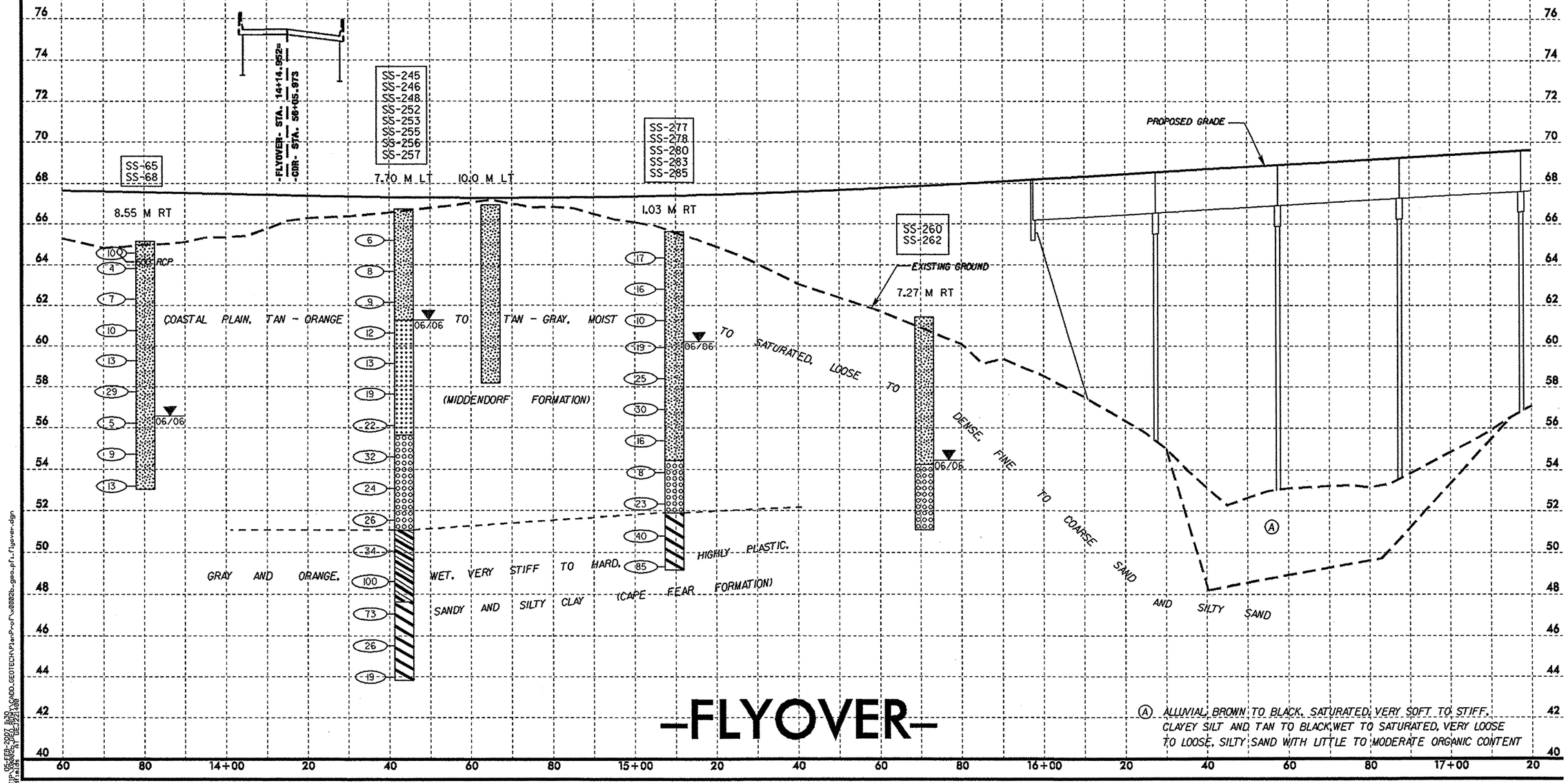
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-65	8.55 RT	13+80	0.3-0.8	A-2-4(0)	19	NP	26.5	62.7	2.8	8.0	100	87	13	-	-
SS-68	8.55 RT	13+80	4.1-4.5	A-2-4(0)	21	NP	61.8	24.1	2.0	12.0	90	64	14	-	-
SS-245	7.70 LT	14+44	1.2-1.7	A-2-4(0)	19	NP	25.3	57.4	3.3	14.0	100	82	20	-	-
SS-246	7.70 LT	14+44	2.8-3.2	A-2-4(0)	23	NP	41.2	47.8	1.9	9.0	100	93	13	-	-
SS-248	7.70 LT	14+44	5.8-6.2	A-3(0)	22	NP	58.7	32.3	2.0	7.0	90	63	9	-	-
SS-252	7.70 LT	14+44	11.9-12.3	A-1-b(0)	21	NP	78.6	15.8	3.5	2.0	89	33	6	-	-
SS-253	7.70 LT	14+44	13.4-13.8	A-1-b(0)	20	NP	89.0	7.7	1.3	2.0	91	27	3	-	-
SS-255	7.70 LT	14+44	16.4-16.8	A-6(7)	32	17	47.7	27.7	12.5	42.1	97	87	59	-	-
SS-256	7.70 LT	14+44	17.9-18.3	A-6(13)	36	16	2.8	22.1	25.0	50.2	100	99	84	-	-
SS-257	7.70 LT	14+44	19.4-19.9	A-7-6(29)	54	33	7.6	10.4	11.7	70.2	100	96	84	-	-
SS-277	1.03 RT	15+10	1.0-1.5	A-2-4(0)	27	8	26.4	48.7	2.7	22.2	98	82	27	-	-
SS-278	1.03 RT	15+10	2.5-3.0	A-2-4(0)	23	NP	5.8	75.7	2.3	16.1	100	97	24	-	-
SS-280	1.03 RT	15+10	5.4-5.9	A-2-4(0)	21	NP	60.1	28.0	1.8	10.1	97	70	13	-	-
SS-283	1.03 RT	15+10	11.5-11.9	A-1-b(0)	24	NP	87.4	8.6	2.0	2.0	95	25	4	-	-
SS-285	1.03 RT	15+10	14.5-15.0	A-7-6(42)	67	45	4.4	14.5	14.6	66.5	100	97	86	-	-
SS-260	7.27 RT	15+71	0.0-1.0	A-2-4(0)	18	NP	54.7	33.7	2.6	9.0	92	64	13	-	-
SS-262	7.27 RT	15+71	7.2-8.0	A-1-b(0)	17	NP	80.5	10.8	2.6	6.0	97	43	9	-	-



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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

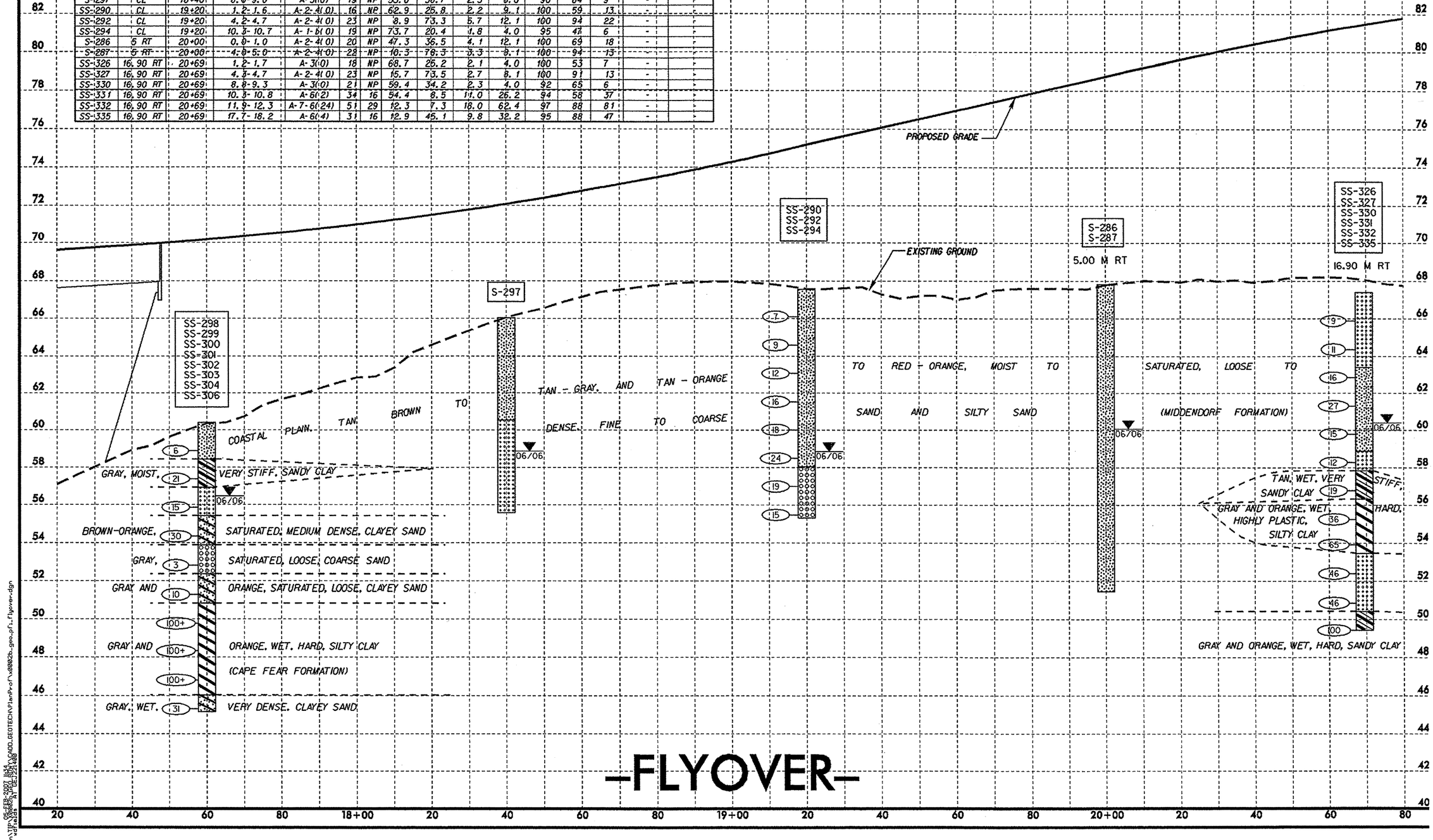
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-298	CL	17+60	1.2- 1.7	A-2-4(0)	17	NP	57.7	31.6	5.6	5.0	100	64	15	-	-
SS-299	CL	17+60	2.7- 3.2	A-6(3)	38	19	36.7	27.0	6.1	30.2	100	79	40	-	-
SS-300	CL	17+60	4.3- 4.7	A-3(0)	21	NP	36.8	58.7	1.1	4.0	100	89	8	-	-
SS-301	CL	17+60	5.8- 6.2	A-2-6(0)	29	13	59.2	20.3	4.3	16.1	99	73	21	-	-
SS-302	CL	17+60	7.3- 7.8	A-1-b(0)	17	NP	86.9	7.8	1.3	4.0	99	44	6	-	-
SS-303	CL	17+60	8.8- 9.3	A-2-6(1)	35	21	66.3	10.5	3.1	20.1	97	58	23	-	-
SS-304	CL	17+60	10.3- 10.8	A-7-6(19)	42	23	4.8	18.7	24.1	52.4	100	97	82	-	-
SS-306	CL	17+60	14.8- 15.3	A-2-6(1)	29	14	41.1	26.6	4.1	28.2	95	70	33	-	-
S-297	CL	18+40	8.0- 9.0	A-3(0)	19	NP	53.0	38.7	2.3	6.0	90	64	9	-	-
SS-290	CL	19+20	1.2- 1.6	A-2-4(0)	16	NP	62.9	25.8	2.2	9.1	100	59	13	-	-
SS-292	CL	19+20	4.2- 4.7	A-2-4(0)	23	NP	8.9	73.3	5.7	12.1	100	94	22	-	-
SS-294	CL	19+20	10.3- 10.7	A-1-b(0)	19	NP	73.7	20.4	1.8	4.0	95	47	6	-	-
S-286	5 RT	20+00	0.0- 1.0	A-2-4(0)	20	NP	47.3	36.5	4.1	12.1	100	69	18	-	-
S-287	5 RT	20+00	4.0- 5.0	A-2-4(0)	28	NP	10.3	78.3	3.3	8.1	100	94	13	-	-
SS-326	16.90 RT	20+69	1.2- 1.7	A-3(0)	18	NP	68.7	26.2	2.1	4.0	100	53	7	-	-
SS-327	16.90 RT	20+69	4.3- 4.7	A-2-4(0)	23	NP	15.7	73.5	2.7	8.1	100	91	13	-	-
SS-330	16.90 RT	20+69	8.8- 9.3	A-3(0)	21	NP	59.4	34.2	2.3	4.0	92	65	6	-	-
SS-331	16.90 RT	20+69	10.3- 10.8	A-6(2)	34	16	54.4	8.5	11.0	26.2	94	58	37	-	-
SS-332	16.90 RT	20+69	11.9- 12.3	A-7-6(24)	51	29	12.3	7.3	18.0	62.4	97	88	81	-	-
SS-335	16.90 RT	20+69	17.7- 18.2	A-6(4)	31	16	12.9	45.1	9.8	32.2	95	88	47	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002B	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

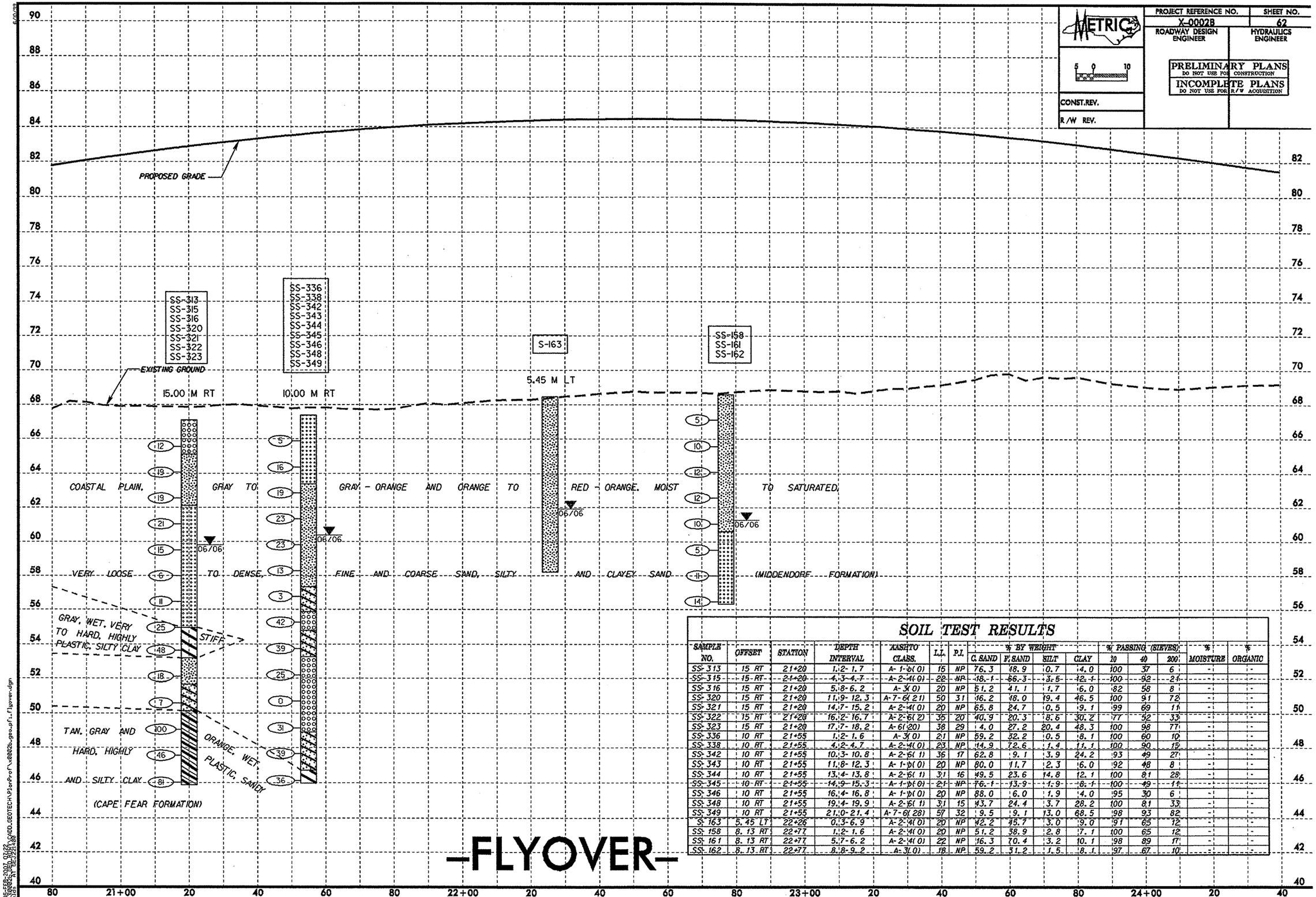
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-313	15 RT	21+20	1.2-1.7	A-1-b(0)	15	NP	76.3	18.9	0.7	4.0	100	37	6	-	-
SS-315	15 RT	21+20	4.3-4.7	A-2-4(0)	22	NP	18.1	66.3	3.5	12.1	100	92	21	-	-
SS-316	15 RT	21+20	5.8-6.2	A-3(0)	20	NP	51.2	41.1	1.7	6.0	82	58	8	-	-
SS-320	15 RT	21+20	11.9-12.3	A-7-6(21)	50	31	16.2	18.0	19.4	46.5	100	91	72	-	-
SS-321	15 RT	21+20	14.7-15.2	A-2-4(0)	20	NP	65.8	24.7	0.5	9.1	99	69	11	-	-
SS-322	15 RT	21+20	16.2-16.7	A-2-6(2)	35	20	40.9	20.3	8.6	30.2	77	52	33	-	-
SS-323	15 RT	21+20	17.7-18.2	A-6(20)	38	29	4.0	27.2	20.4	48.3	100	98	77	-	-
SS-336	10 RT	21+55	1.2-1.6	A-3(0)	21	NP	59.2	32.2	0.5	8.1	100	60	10	-	-
SS-338	10 RT	21+55	4.2-4.7	A-2-4(0)	23	NP	14.9	72.6	1.4	11.1	100	90	15	-	-
SS-342	10 RT	21+55	10.3-10.8	A-2-6(1)	36	17	62.8	9.1	3.9	24.2	93	49	27	-	-
SS-343	10 RT	21+55	11.8-12.3	A-1-b(0)	20	NP	80.0	11.7	2.3	6.0	92	48	8	-	-
SS-344	10 RT	21+55	13.4-13.8	A-2-6(1)	31	16	49.5	23.6	14.8	12.1	100	81	28	-	-
SS-345	10 RT	21+55	14.9-15.3	A-1-b(0)	21	NP	76.1	13.9	1.9	8.1	100	49	11	-	-
SS-346	10 RT	21+55	16.4-16.8	A-1-b(0)	20	NP	88.0	6.0	1.9	4.0	95	30	6	-	-
SS-348	10 RT	21+55	19.4-19.9	A-2-6(1)	31	15	43.7	24.4	3.7	28.2	100	81	33	-	-
SS-349	10 RT	21+55	21.0-21.4	A-7-6(28)	57	32	9.5	9.1	13.0	68.5	98	93	82	-	-
S-163	5.45 LT	22+26	0.3-6.9	A-2-4(0)	20	NP	42.2	45.7	3.0	9.0	91	65	12	-	-
SS-158	8.13 RT	22+77	1.2-1.6	A-2-4(0)	20	NP	51.2	38.9	2.8	7.1	100	65	12	-	-
SS-161	8.13 RT	22+77	5.7-6.2	A-2-4(0)	22	NP	16.3	70.4	3.2	10.1	98	89	17	-	-
SS-162	8.13 RT	22+77	8.8-9.2	A-3(0)	18	NP	59.2	31.2	1.5	8.1	97	67	10	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

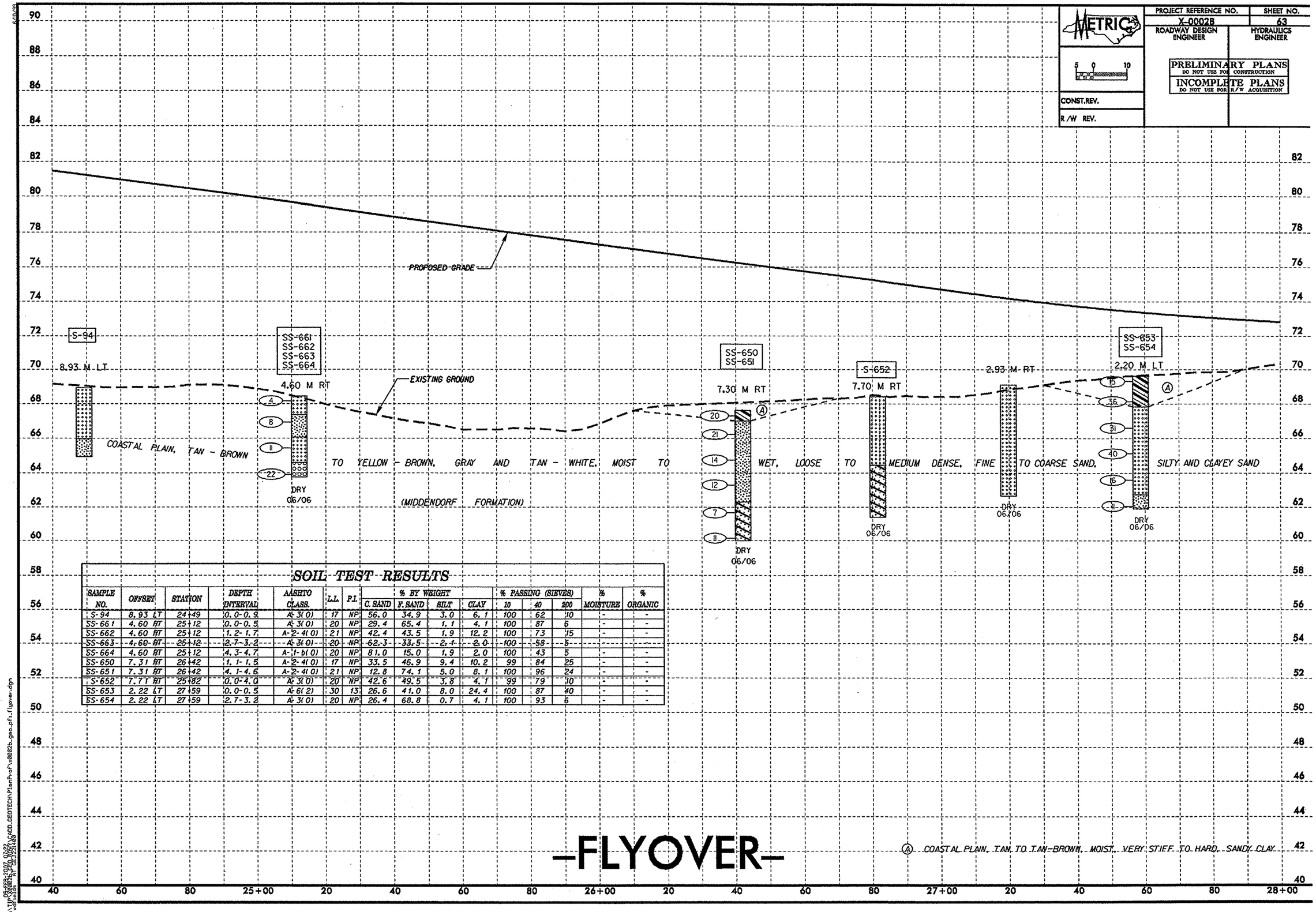
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-94	8.93 LT	24+49	0.0-0.9	A-3(0)	17	NP	56.0	34.9	3.0	6.1	100	62	10	-	-
SS-661	4.60 RT	25+12	0.0-0.5	A-3(0)	20	NP	29.4	65.4	1.1	4.1	100	87	6	-	-
SS-662	4.60 RT	25+12	1.2-1.7	A-2-4(0)	21	NP	42.4	43.5	1.9	12.2	100	73	15	-	-
SS-663	4.60 RT	25+12	2.7-3.2	A-3(0)	20	NP	62.3	33.5	2.1	2.0	100	58	5	-	-
SS-664	4.60 RT	25+12	4.3-4.7	A-1-b(0)	20	NP	81.0	15.0	1.9	2.0	100	43	5	-	-
SS-650	7.31 RT	26+42	1.1-1.5	A-2-4(0)	17	NP	33.5	46.9	9.4	10.2	99	84	25	-	-
SS-651	7.31 RT	26+42	4.1-4.6	A-2-4(0)	21	NP	12.8	74.1	5.0	8.1	100	96	24	-	-
S-652	7.71 RT	25+82	0.0-4.0	A-3(0)	20	NP	42.6	49.5	3.8	4.1	99	79	10	-	-
SS-653	2.22 LT	27+59	0.0-0.5	A-6(2)	30	13	26.6	41.0	8.0	24.4	100	87	40	-	-
SS-654	2.22 LT	27+59	2.7-3.2	A-3(0)	20	NP	26.4	68.8	0.7	4.1	100	93	6	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

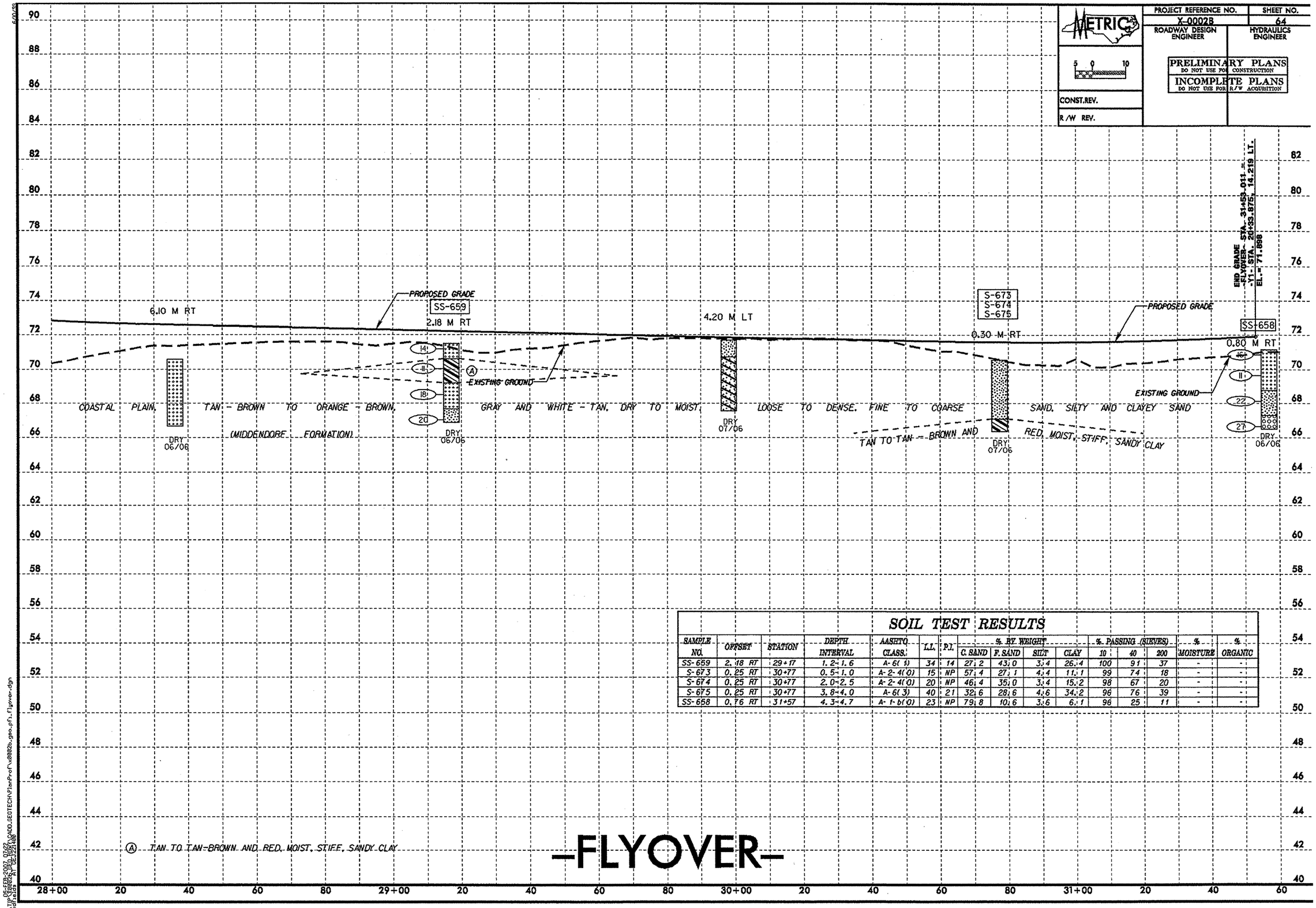
5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-659	2.18 RT	29+17	1.2-1.6	A-6(1)	34	14	27.2	43.0	3.4	26.4	100	91	37	-	-
S-673	0.25 RT	30+77	0.5-1.0	A-2-4(0)	15	NP	57.4	27.1	4.4	11.1	99	74	18	-	-
S-674	0.25 RT	30+77	2.0-2.5	A-2-4(0)	20	NP	46.4	35.0	3.4	15.2	98	67	20	-	-
S-675	0.25 RT	30+77	3.8-4.0	A-6(3)	40	21	32.6	28.6	4.6	34.2	96	76	39	-	-
SS-658	0.76 RT	31+57	4.3-4.7	A-1-b(0)	23	NP	79.8	10.6	3.6	6.1	96	25	11	-	-

(A) TAN TO TAN-BROWN AND RED, MOIST, STIFF, SANDY CLAY

-FLYOVER-

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

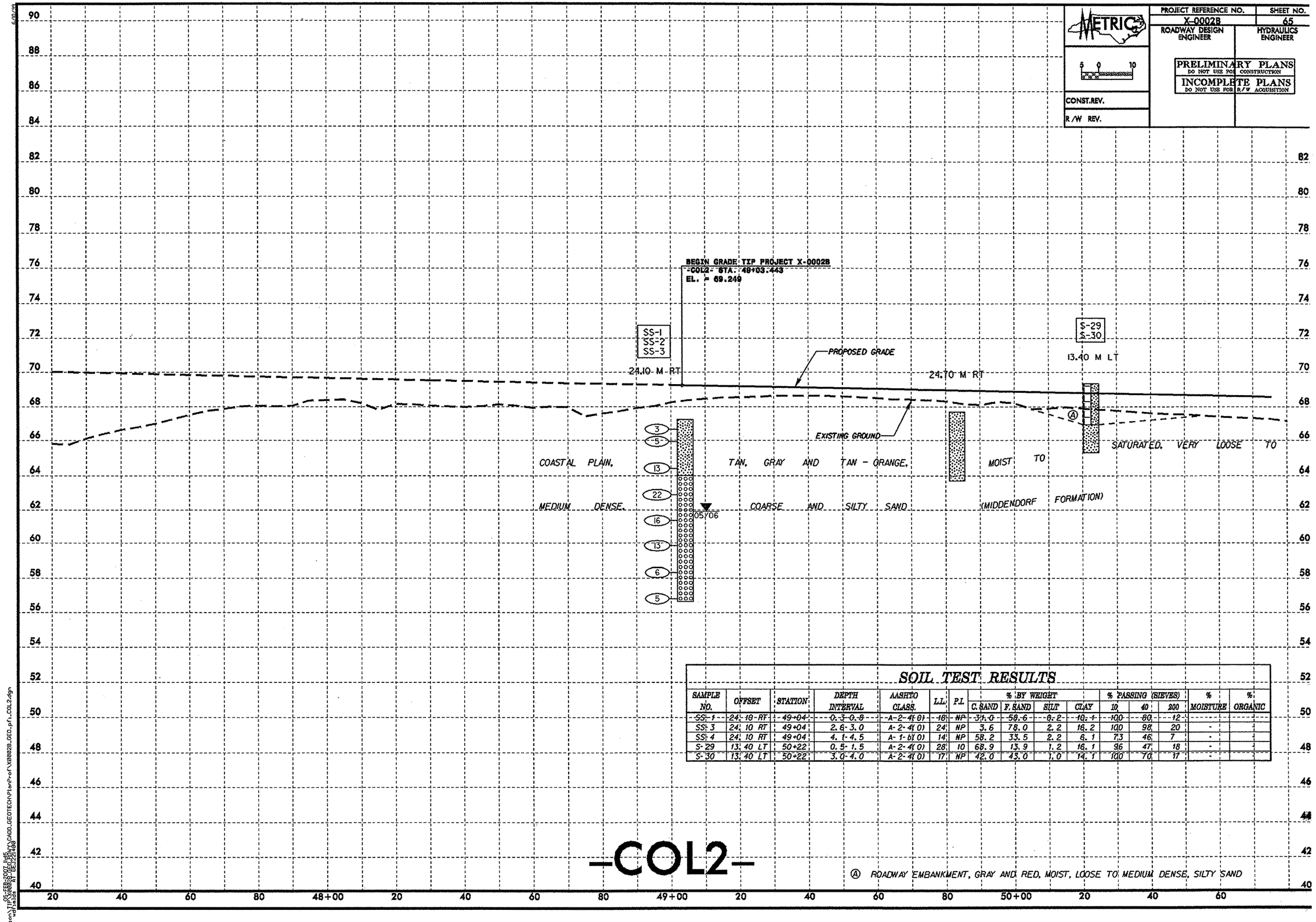
5 0 10

CONST.REV.

R/W REV.

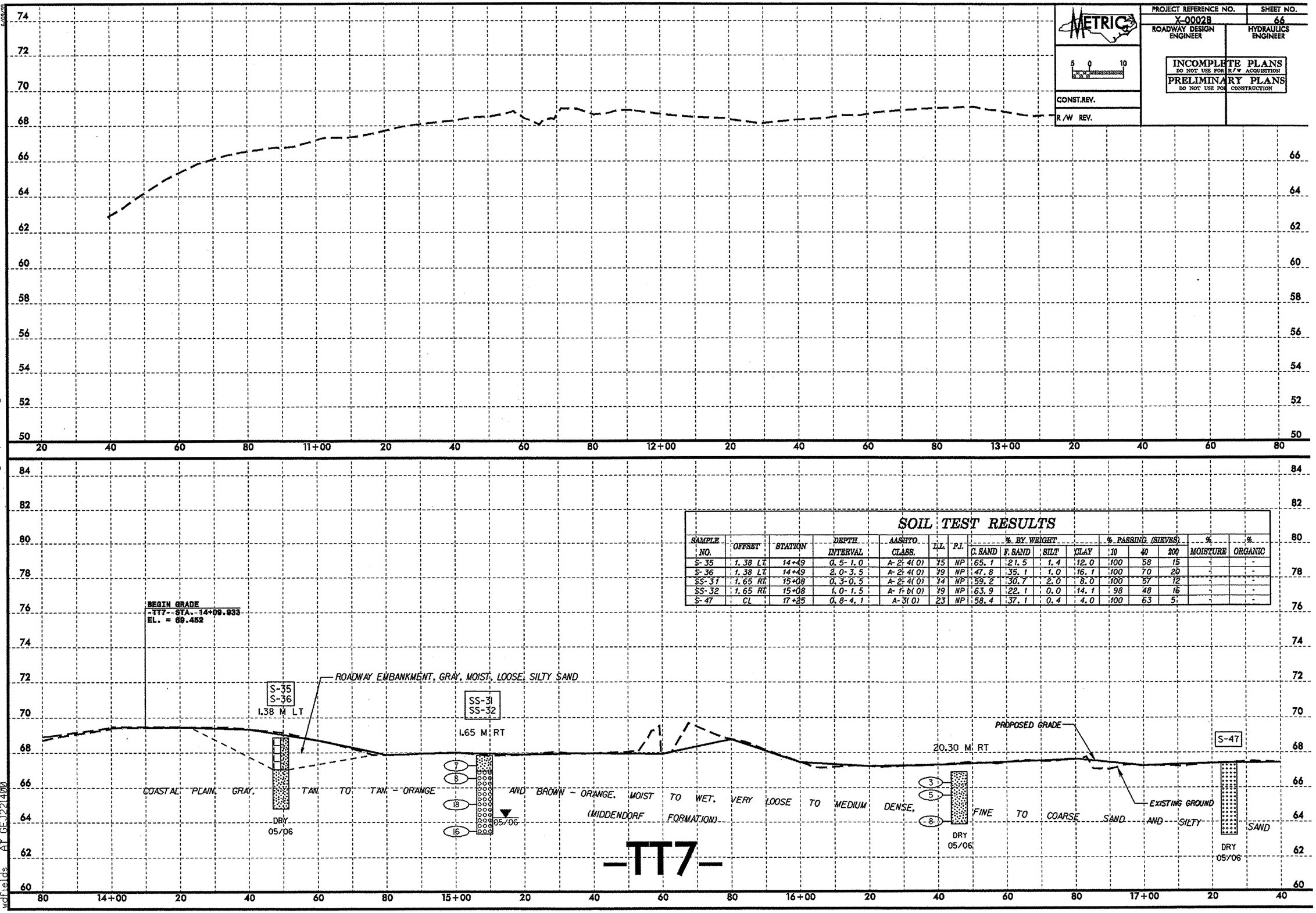
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	24.10 RT	49+04	0.3-0.8	A-2-4(0)	18	NP	31.0	58.6	8.2	10.1	100	80	12	-	-
SS-3	24.10 RT	49+04	2.8-3.0	A-2-4(0)	24	NP	3.6	78.0	2.2	16.2	100	98	20	-	-
SS-4	24.10 RT	49+04	4.1-4.5	A-1-b(0)	14	NP	58.2	33.5	2.2	6.1	73	46	7	-	-
S-29	13.40 LT	50+22	0.5-1.5	A-2-4(0)	28	10	68.9	13.9	1.2	16.1	96	47	18	-	-
S-30	13.40 LT	50+22	3.0-4.0	A-2-4(0)	17	NP	42.0	45.0	1.0	14.1	100	70	17	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-35	1.38 LT	14+49	0.5-1.0	A-2-4(0)	15	NP	65.1	21.5	1.4	12.0	100	58	15	-	-
S-36	1.38 LT	14+49	2.0-3.5	A-2-4(0)	19	NP	47.8	35.1	1.0	16.1	100	70	20	-	-
SS-31	1.65 RT	15+08	0.3-0.5	A-2-4(0)	14	NP	59.2	30.7	2.0	8.0	100	67	12	-	-
SS-32	1.65 RT	15+08	1.0-1.5	A-1-b(0)	19	NP	63.9	22.1	0.0	14.1	98	48	16	-	-
S-47	CL	17+25	0.8-4.1	A-3(0)	23	NP	58.4	37.1	0.4	4.0	100	63	5	-	-

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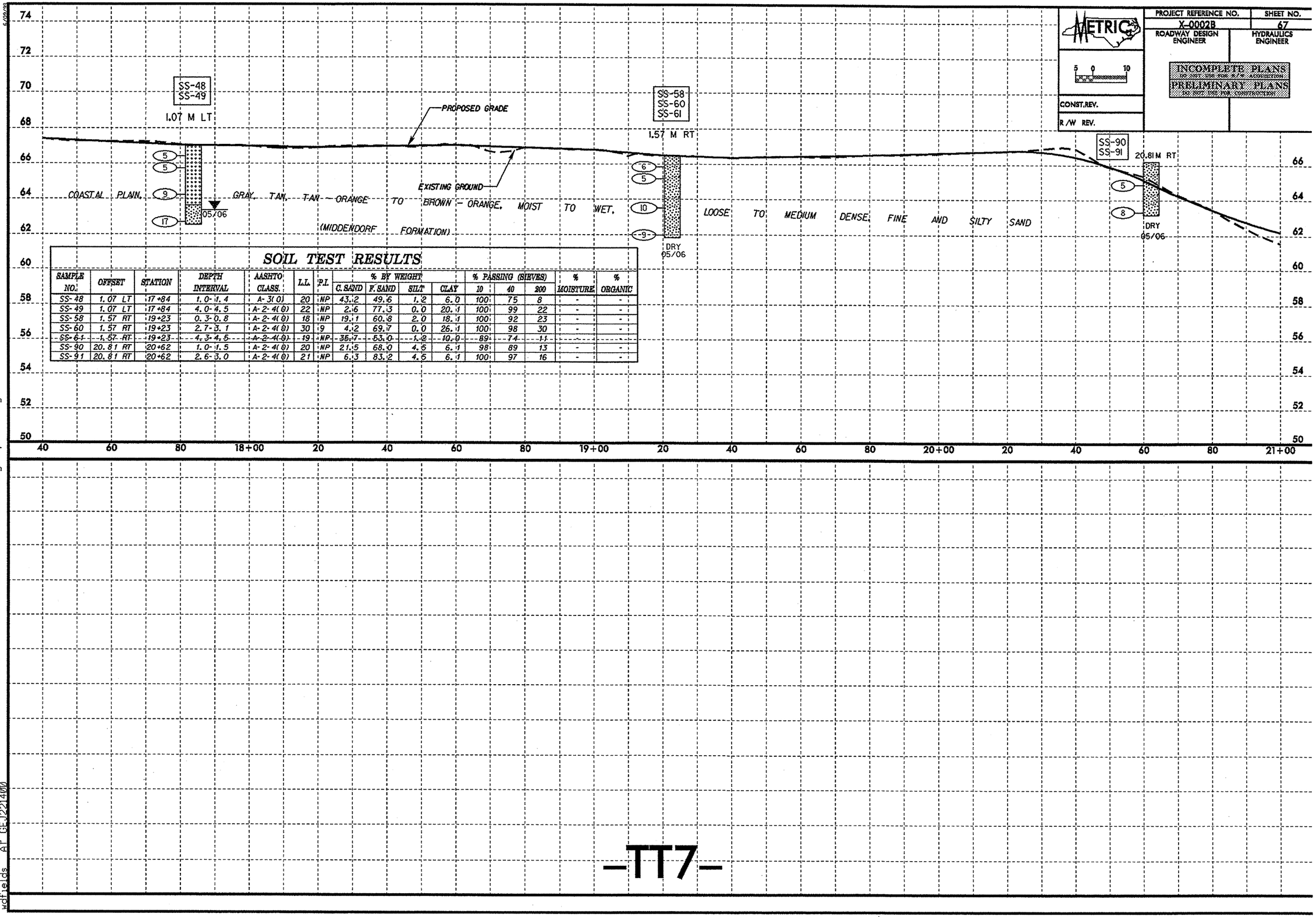

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-48	1.07 LT	17+84	1.0-1.4	A-3(0)	20	NP	43.2	49.6	1.2	6.0	100	75	8	-	-
SS-49	1.07 LT	17+84	4.0-4.5	A-2-4(0)	22	NP	2.6	77.3	0.0	20.1	100	99	22	-	-
SS-58	1.57 RT	19+23	0.3-0.8	A-2-4(0)	18	NP	19.1	60.8	2.0	18.1	100	92	23	-	-
SS-60	1.57 RT	19+23	2.7-3.1	A-2-4(0)	30	9	4.2	69.7	0.0	26.1	100	98	30	-	-
SS-61	1.57 RT	19+23	4.3-4.5	A-2-4(0)	19	NP	35.7	53.0	1.2	10.0	89	74	11	-	-
SS-90	20.81 RT	20+62	1.0-1.5	A-2-4(0)	20	NP	21.5	68.0	4.5	6.1	98	89	13	-	-
SS-91	20.81 RT	20+62	2.6-3.0	A-2-4(0)	21	NP	6.3	83.2	4.5	6.1	100	97	16	-	-

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wdfields AT GEJ221400

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

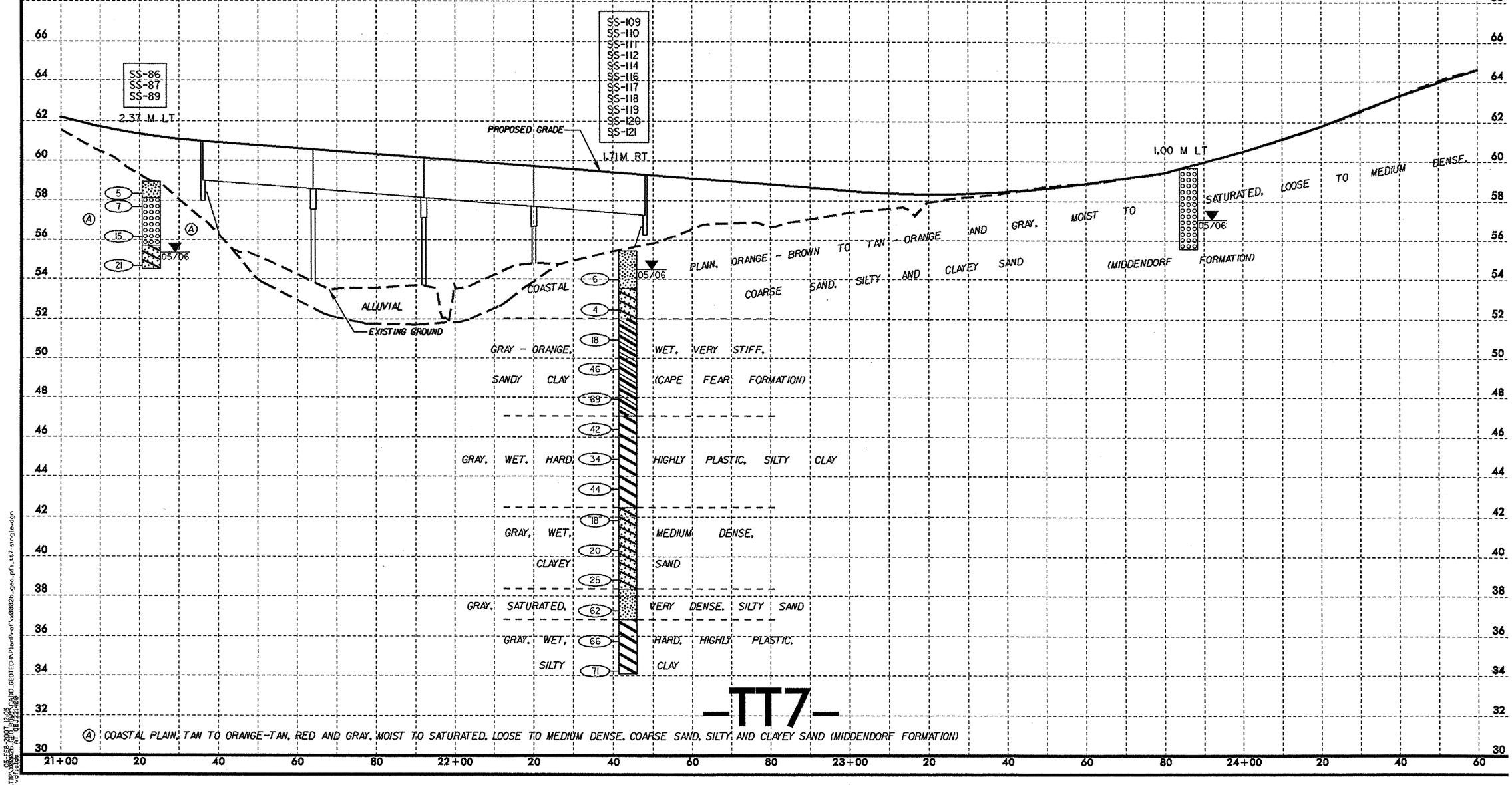
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-86	2.37 LT.	21+23	0.3-0.8	A-2-4(0)	19	NP	40.6	44.4	2.8	12.2	87	66	15	-	-
SS-87	2.37 LT.	21+23	0.9-1.4	A-1-b(0)	21	NP	75.7	12.0	4.3	8.1	93	47	12	-	-
SS-89	2.37 LT.	21+23	4.0-4.4	A-2-6(0)	28	11	48.9	29.2	1.6	20.3	98	72	22	-	-
SS-109	1.71 RT.	22+44	1.2-1.6	A-2-4(0)	19	NP	67.1	18.5	4.3	10.1	90	51	14	-	-
SS-110	1.71 RT.	22+44	2.7-3.1	A-2-7(1)	42	22	72.2	5.7	3.9	18.3	94	34	22	-	-
SS-111	1.71 RT.	22+44	4.2-4.7	A-6(6)	31	14	24.5	18.1	22.9	34.5	98	82	62	-	-
SS-112	1.71 RT.	22+44	5.7-6.2	A-6(10)	31	16	7.1	25.6	29.0	38.3	100	96	75	-	-
SS-114	1.71 RT.	22+44	8.8-9.2	A-7-6(23)	47	26	2.8	22.6	26.1	48.4	100	99	84	-	-
SS-116	1.71 RT.	22+44	10.3-10.7	A-7-6(22)	47	27	4.6	22.2	22.7	50.5	100	98	80	-	-
SS-117	1.71 RT.	22+44	13.3-13.8	A-2-6(2)	37	23	59.3	12.1	2.3	26.2	97	62	29	-	-
SS-118	1.71 RT.	22+44	16.4-16.8	A-6(5)	27	14	25.2	23.0	29.6	22.2	100	86	58	-	-
SS-119	1.71 RT.	22+44	17.9-18.3	A-2-4(0)	26	4	63.4	24.8	3.7	8.1	97	56	12	-	-
SS-120	1.71 RT.	22+44	19.4-19.9	A-7-6(8)	61	33	44.0	15.5	8.2	32.3	99	73	41	-	-
SS-121	1.71 RT.	22+44	20.9-21.4	A-7-6(17)	48	25	11.7	23.8	36.2	28.3	100	95	72	-	-



Ⓐ COASTAL PLAIN, TAN TO ORANGE-TAN, RED AND GRAY, MOIST TO SATURATED, LOOSE TO MEDIUM DENSE, COARSE SAND, SILTY AND CLAYEY SAND (MIDDENDORF FORMATION)

-TT7-

PROJECT REFERENCE NO.	SHEET NO.
X-0002B	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

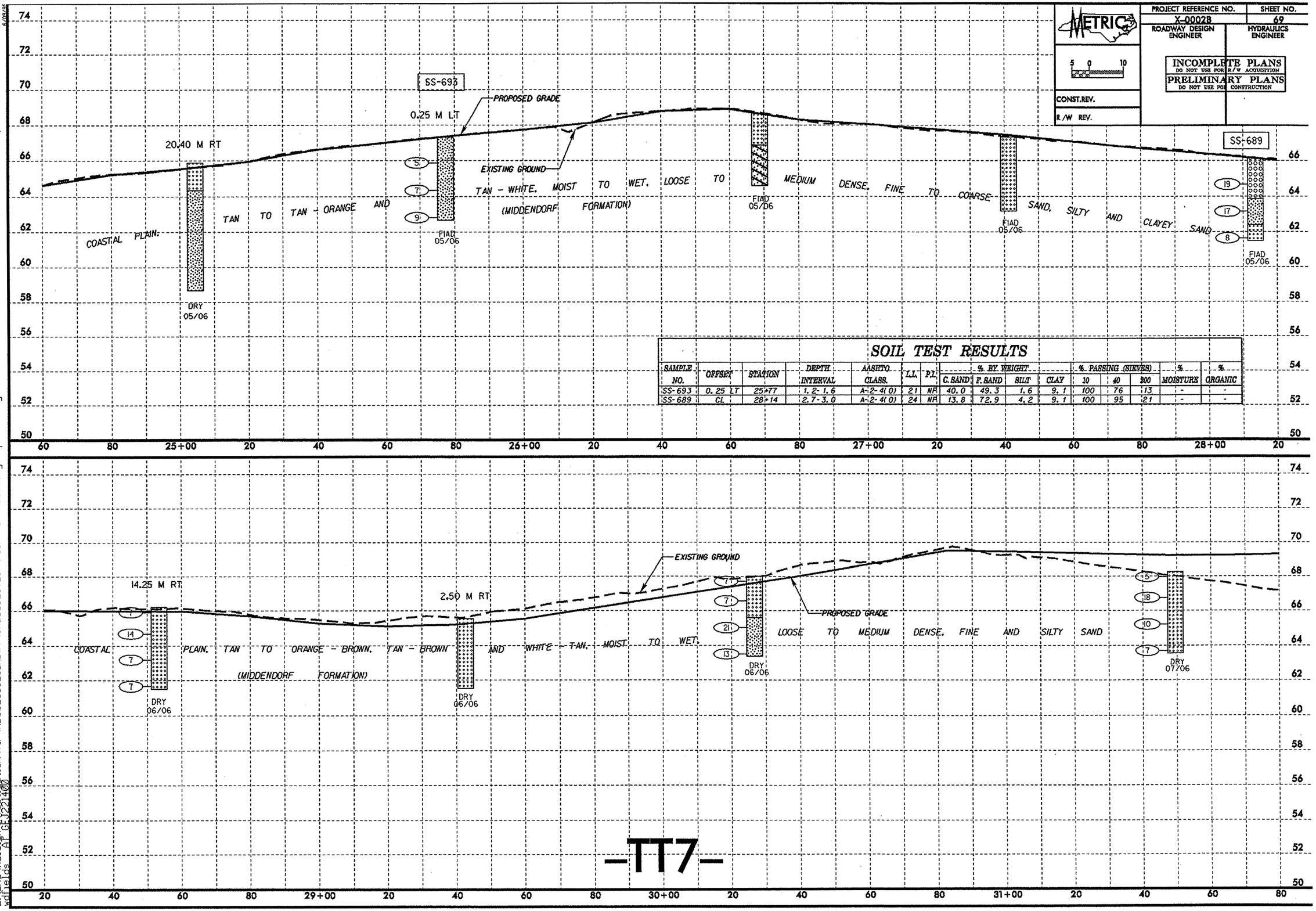
METRIC

5 0 10

CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-693	0.25 LT	25+77	1.2-1.6	A-2-4(0)	21	NP	40.0	49.3	1.6	9.1	100	76	13	-	-
SS-689	CL	28+14	2.7-3.0	A-2-4(0)	24	NP	13.8	72.9	4.2	9.1	100	95	21	-	-

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PROJECT REFERENCE NO.	SHEET NO.
X-0002B	70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

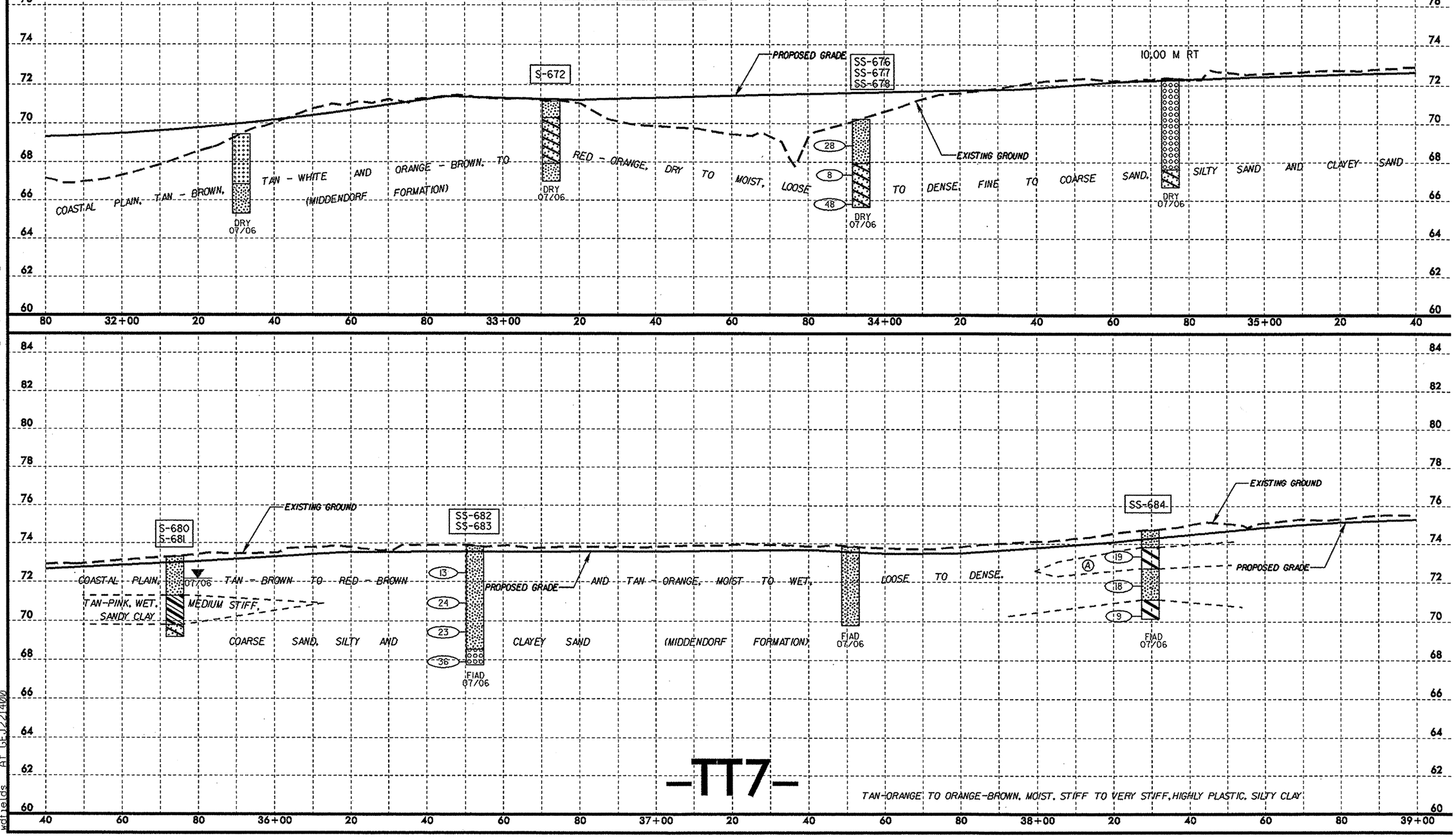
R/W REV.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-672	CL	33+13	3.5-4.0	A-2-4(0)	22	NP	32.0	58.4	1.6	8.0	99	75	12	-	-
SS-676	CL	33+94	1.1-1.6	A-2-4(0)	25	NP	52.7	31.8	4.4	11.1	97	56	17	-	-
SS-677	CL	33+94	2.6-3.1	A-2-6(1)	39	19	44.9	26.8	1.8	26.4	96	71	28	-	-
SS-678	CL	33+94	4.1-4.6	A-2-6(0)	35	14	78.3	8.8	3.9	9.1	93	27	14	-	-
S-680	CL	35+74	0.5-1.0	A-2-4(0)	15	NP	61.5	26.2	3.3	9.1	100	64	15	-	-
S-681	CL	35+74	2.5-3.0	A-6(2)	34	18	42.5	25.6	3.8	28.2	100	78	36	-	-
SS-682	CL	36+53	1.1-1.5	A-2-4(0)	17	NP	65.6	18.3	4.0	12.1	92	55	16	-	-
SS-683	CL	36+53	5.7-6.1	A-1-b(0)	20	NP	87.1	6.3	0.5	6.0	95	16	7	-	-
SS-684	CL	38+30	1.1-1.5	A-7-5(7)	56	26	41.0	17.1	3.6	38.2	99	74	43	-	-



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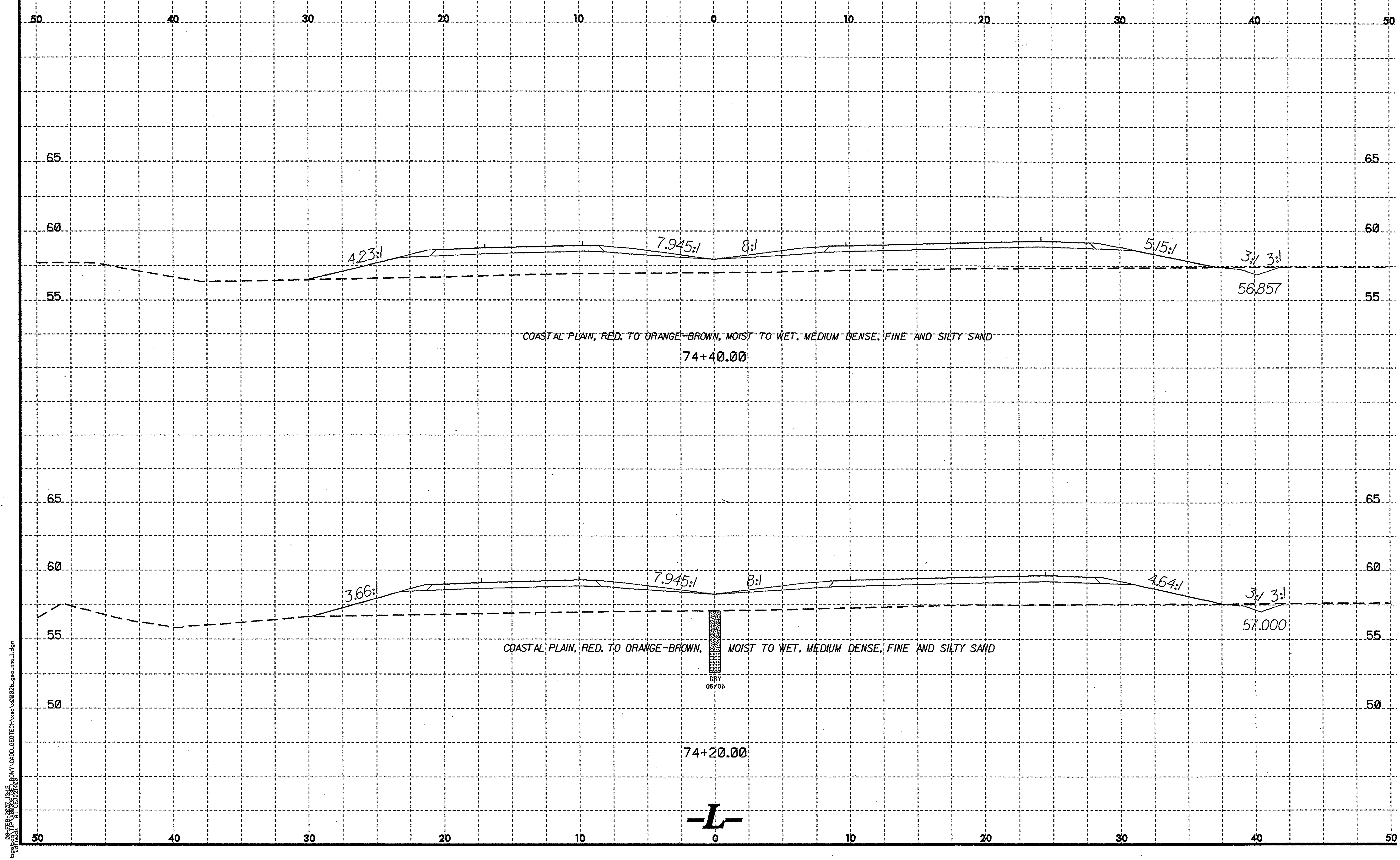
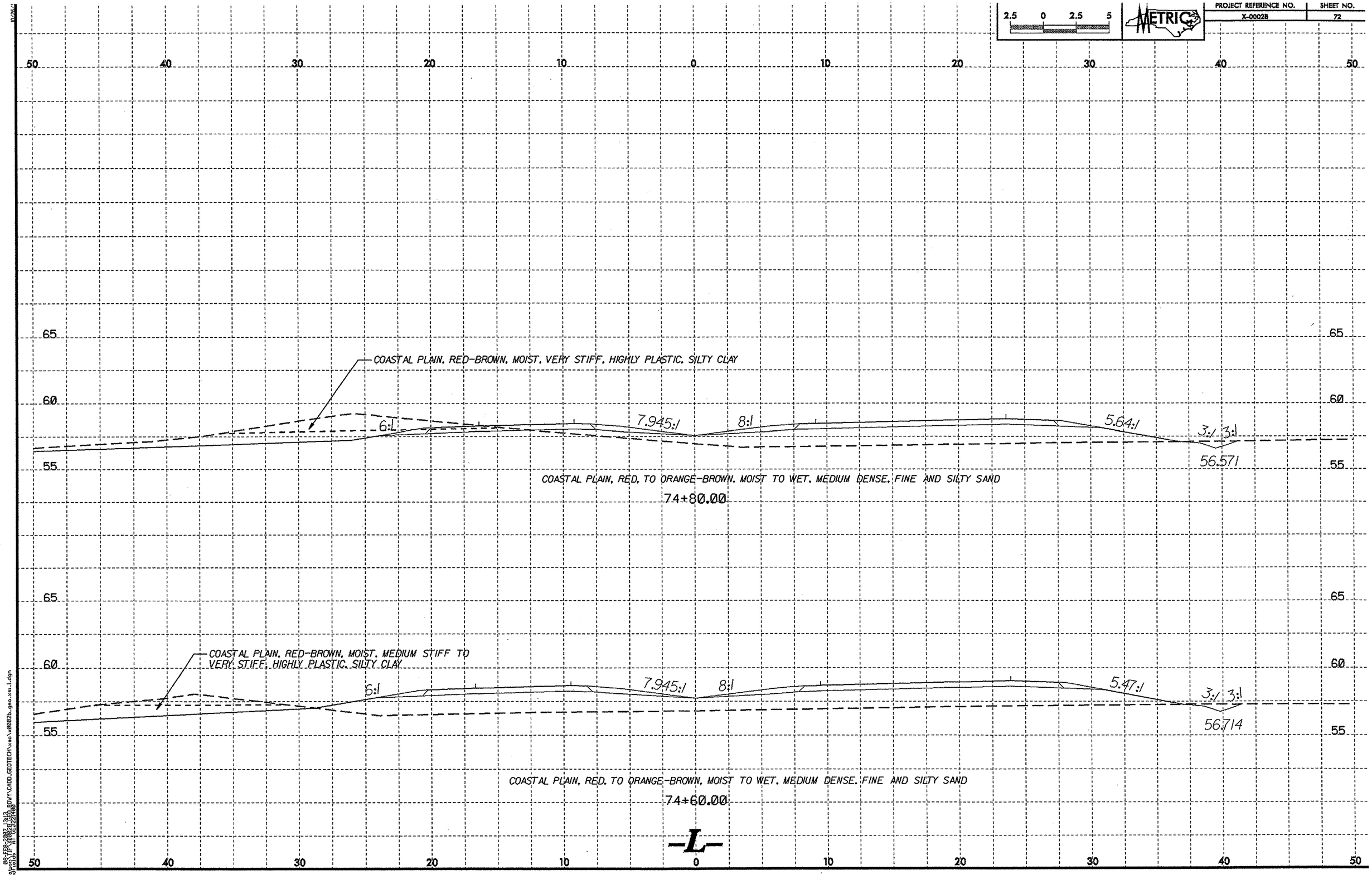
wdfields AT GEJ221400

PROJECT REFERENCE NO. X-0002B | SHEET NO. 71

METRIC

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PROJECT REFERENCE NO.
X-0002B
SHEET NO.
72
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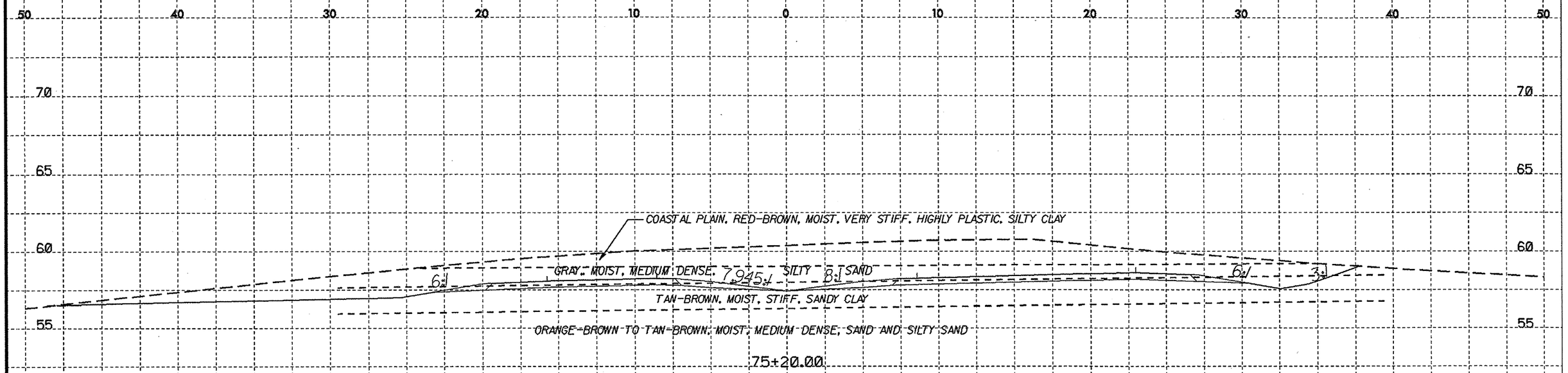
65
60
55
COASTAL PLAIN, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
6:1
7.945:1
8:1
5.64:1
3:1
3:1
56.571
COASTAL PLAIN, RED, TO ORANGE-BROWN, MOIST TO WET, MEDIUM DENSE, FINE AND SILTY SAND
74+80.00
COASTAL PLAIN, RED-BROWN, MOIST, MEDIUM STIFF TO VERY STIFF, HIGHLY PLASTIC, SILTY CLAY
6:1
7.945:1
8:1
5.47:1
3:1
3:1
56.714
COASTAL PLAIN, RED, TO ORANGE-BROWN, MOIST TO WET, MEDIUM DENSE, FINE AND SILTY SAND
74+60.00
-L-

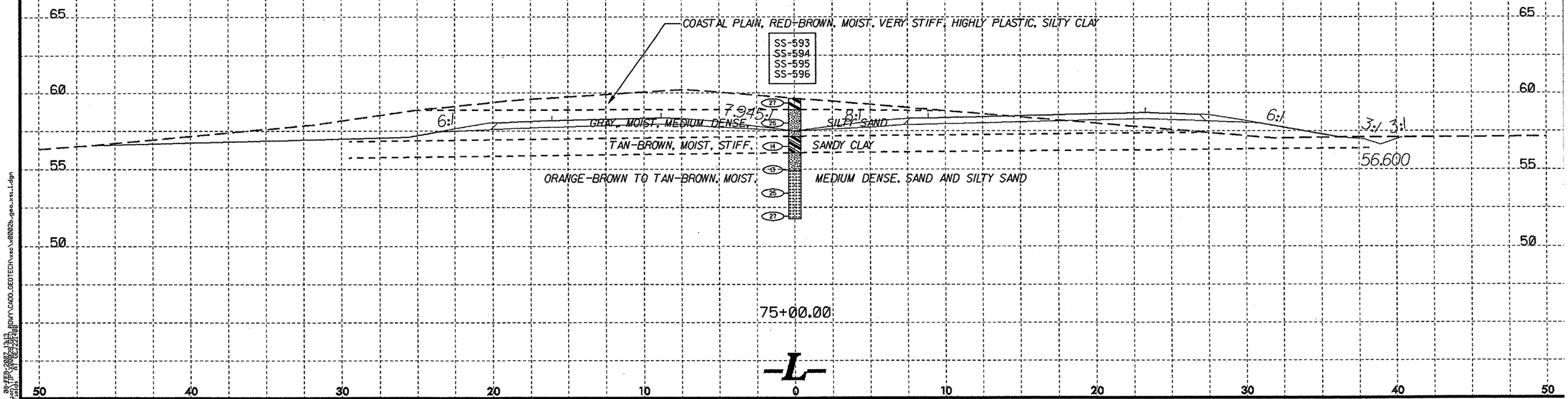
2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-593	CL	75+00	1.3-1.8	A-2-4(0)	23	4	2.2	75.8	5.9	16.2	100	99	30	-	-
SS-594	CL	75+00	2.9-3.3	A-6(2)	39	19	32.7	35.4	5.7	26.3	100	82	37	-	-
SS-595	CL	75+00	4.4-4.8	A-2-4(0)	21	NP	43.4	43.4	5.1	8.1	100	77	17	-	-
SS-596	CL	75+00	5.9-6.4	A-3(0)	21	NP	61.8	30.9	5.3	2.0	100	61	8	-	-



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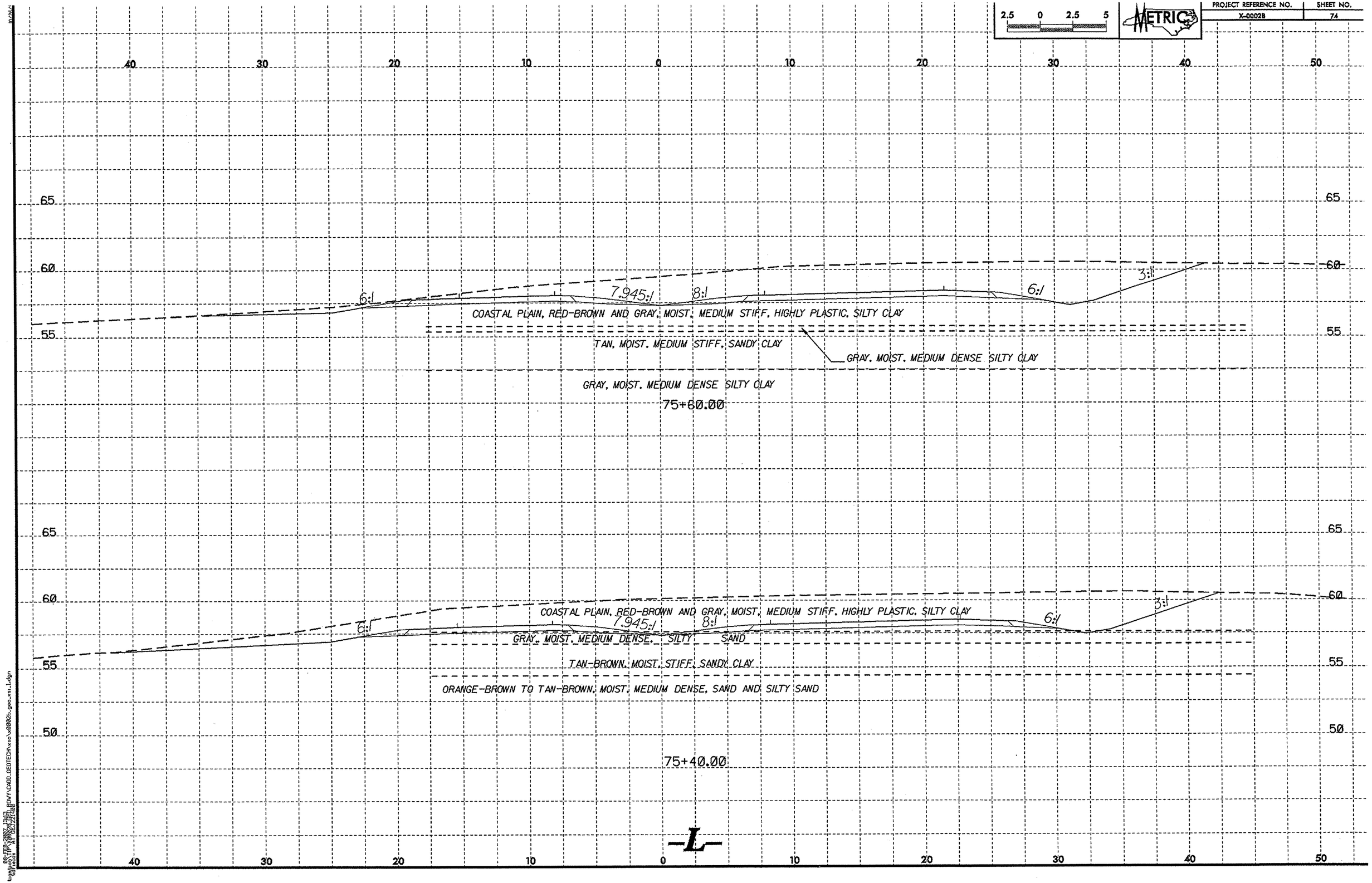
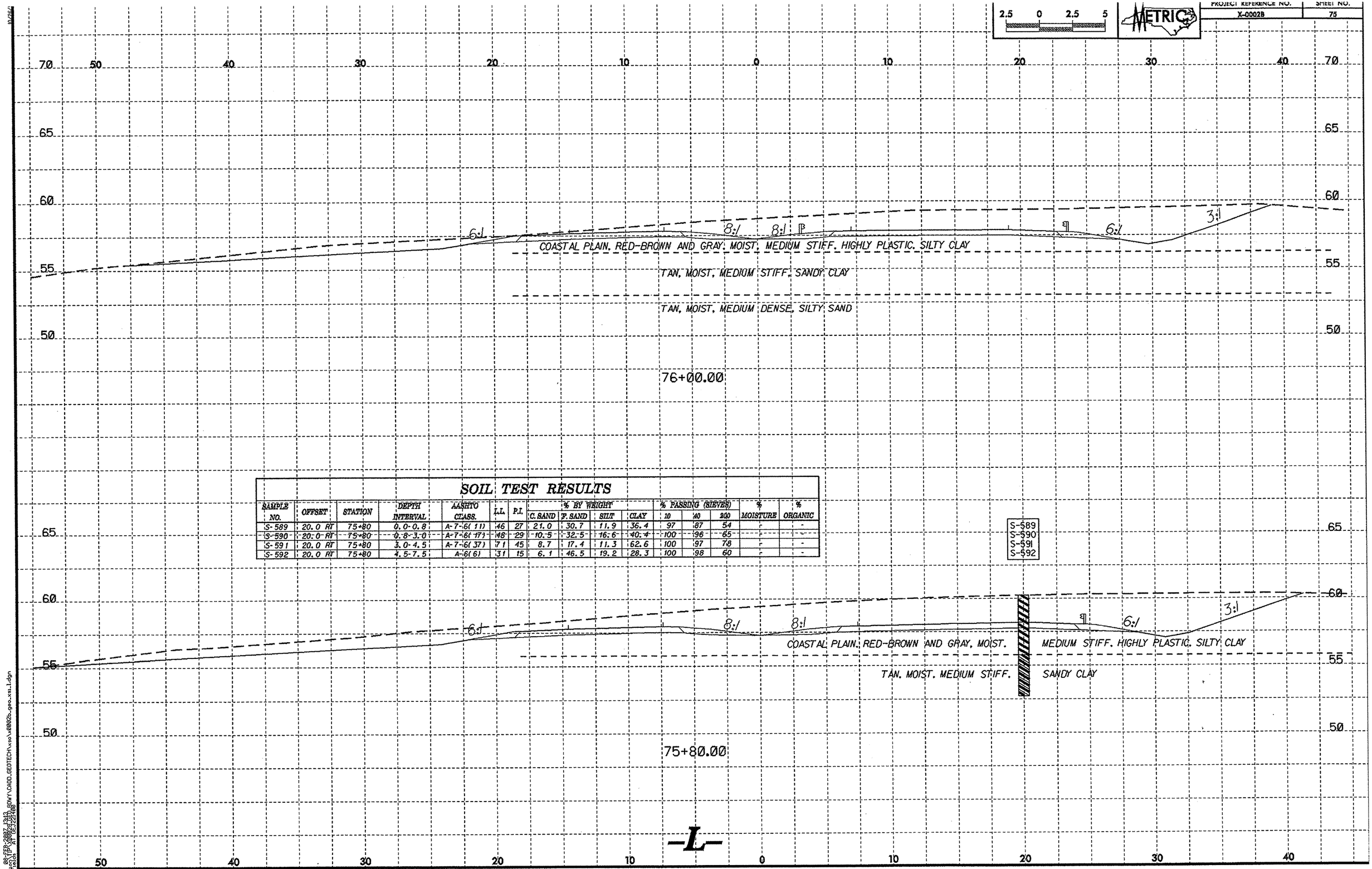
tugelfelds
NT GEV22R108



2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002B
SHEET NO.
74
40 30 20 10 0 10 20 30 40 50
65
60
55
50
6:1
7.945:1
8:1
6:1
3:1
COASTAL PLAIN, RED-BROWN AND GRAY, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
TAN, MOIST, MEDIUM STIFF, SANDY CLAY
GRAY, MOIST, MEDIUM DENSE SILTY CLAY
GRAY, MOIST, MEDIUM DENSE SILTY CLAY
75+60.00
COASTAL PLAIN, RED-BROWN AND GRAY, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY
GRAY, MOIST, MEDIUM DENSE, SILTY SAND
TAN-BROWN, MOIST, STIFF, SANDY CLAY
ORANGE-BROWN TO TAN-BROWN, MOIST, MEDIUM DENSE, SAND AND SILTY SAND
75+40.00
-L-

2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-589	20.0 RT	75+80	0.0-0.8	A-7-6(11)	46	27	21.0	30.7	11.9	36.4	97	87	54	-	-
S-590	20.0 RT	75+80	0.8-3.0	A-7-6(17)	48	29	10.5	32.5	16.6	40.4	100	96	65	-	-
S-591	20.0 RT	75+80	3.0-4.5	A-7-6(37)	71	45	8.7	17.4	11.3	62.6	100	97	78	-	-
S-592	20.0 RT	75+80	4.5-7.5	A-6(6)	31	15	6.1	46.5	19.2	28.3	100	98	60	-	-

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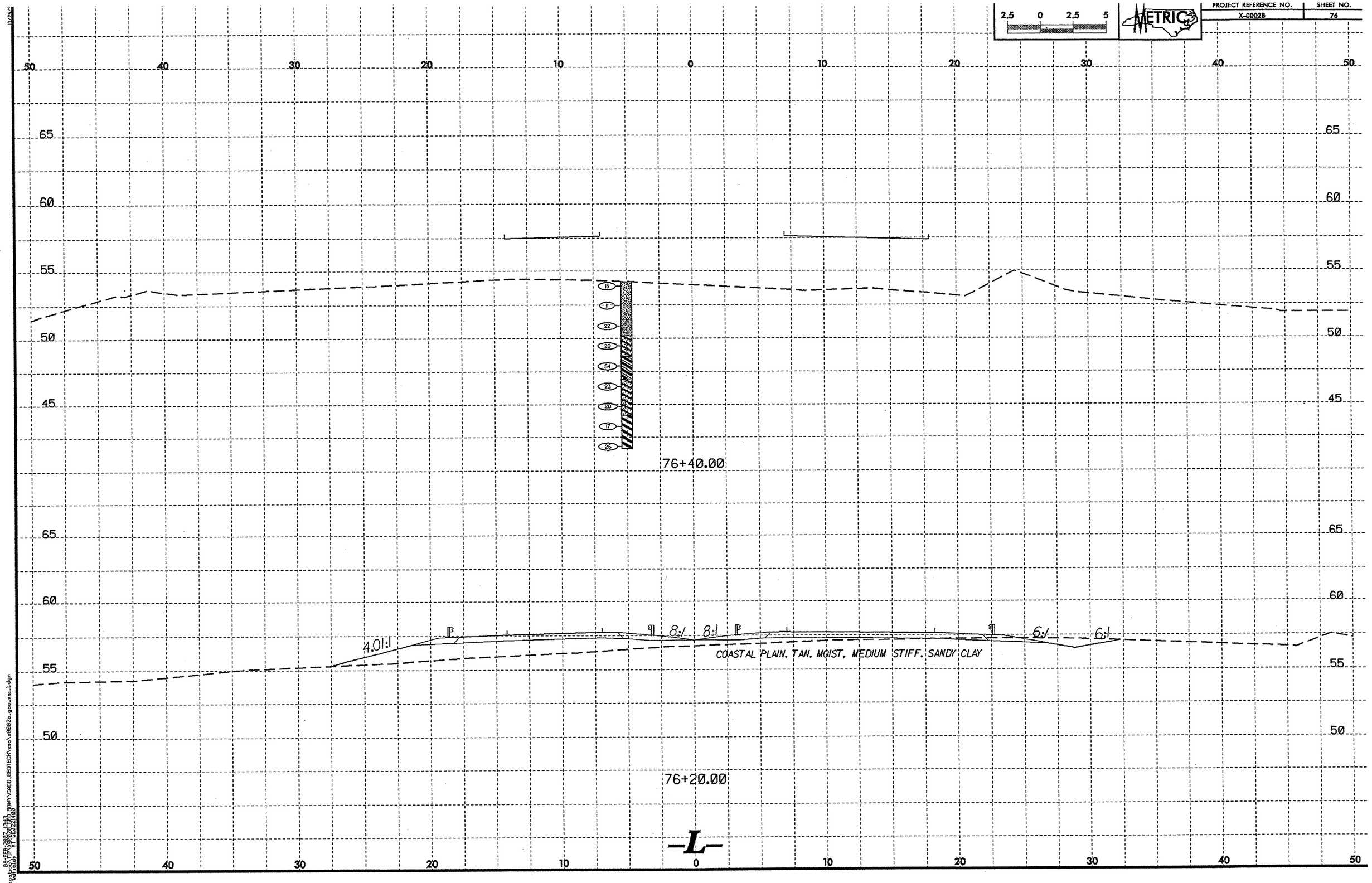
2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002B
SHEET NO.
76
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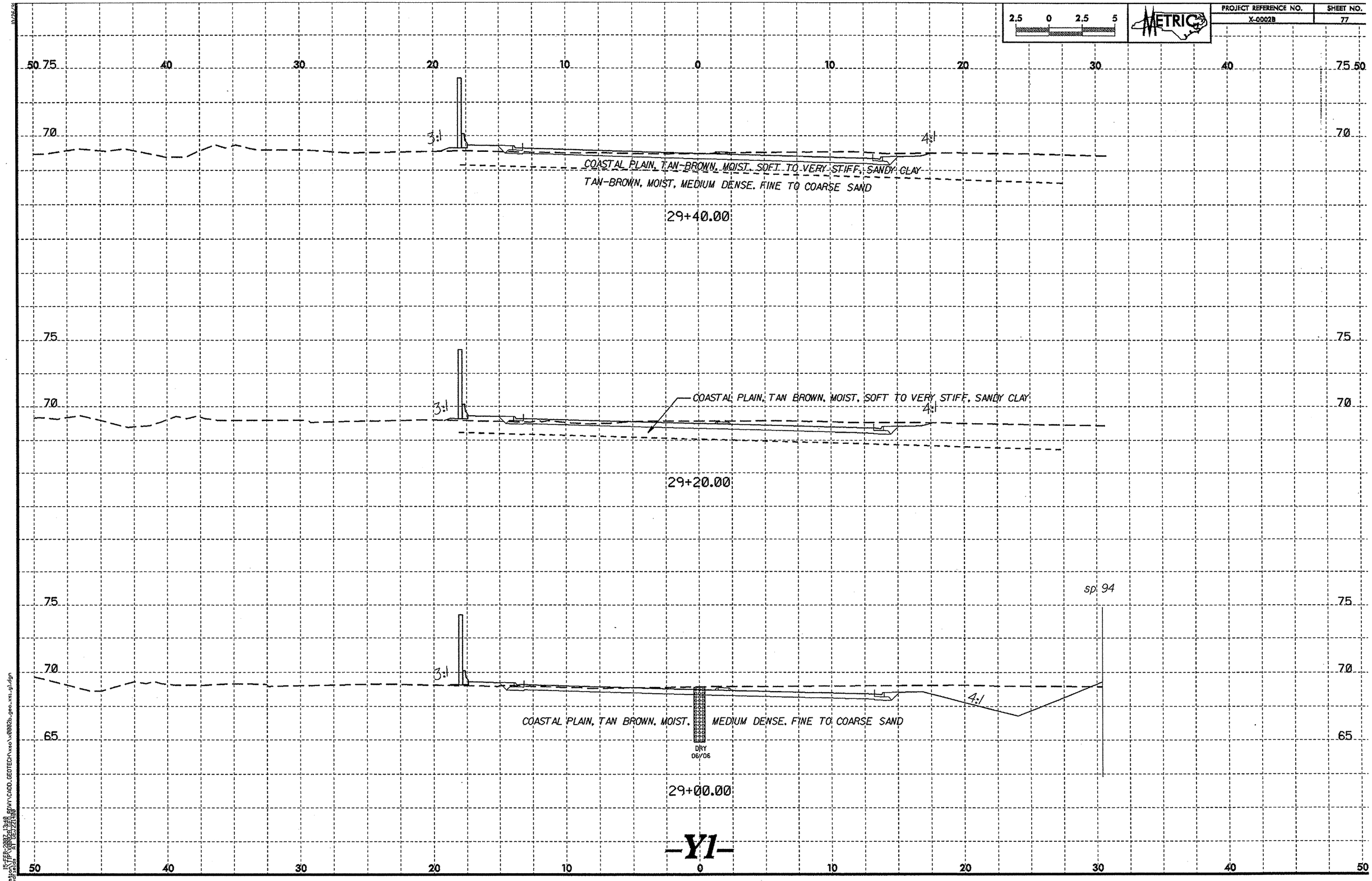
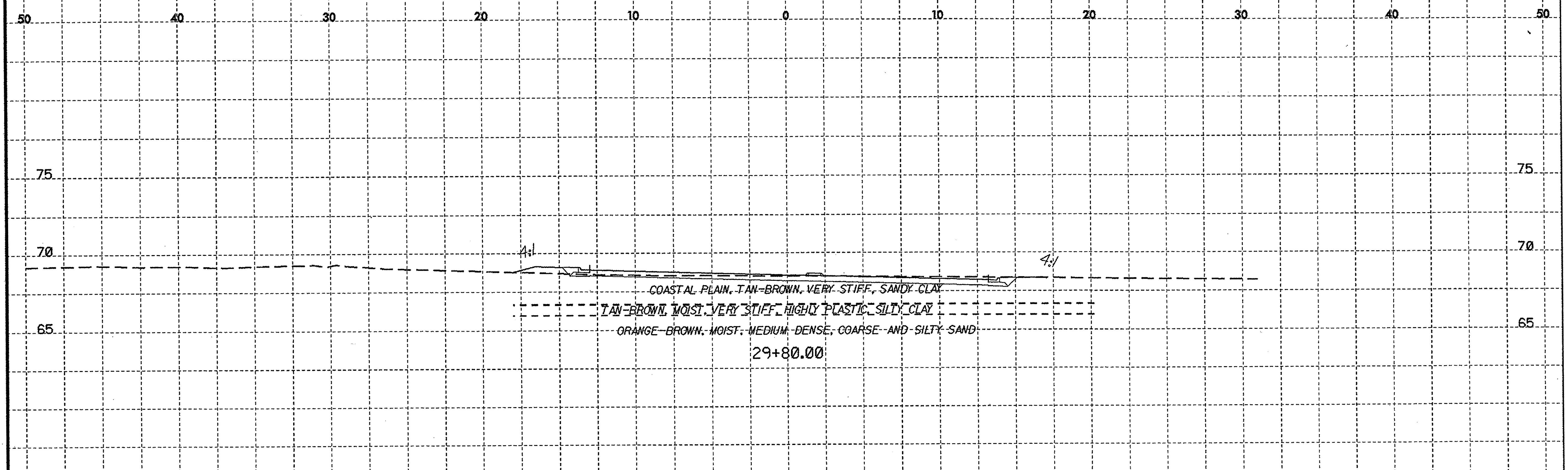
65
60
55
50
45
15
8
22
20
54
23
20
17
26
76+40.00
4.01:1
8:1
8:1
6:1
6:1
COASTAL PLAIN, TAN, MOIST, MEDIUM STIFF, SANDY CLAY
76+20.00
-L-

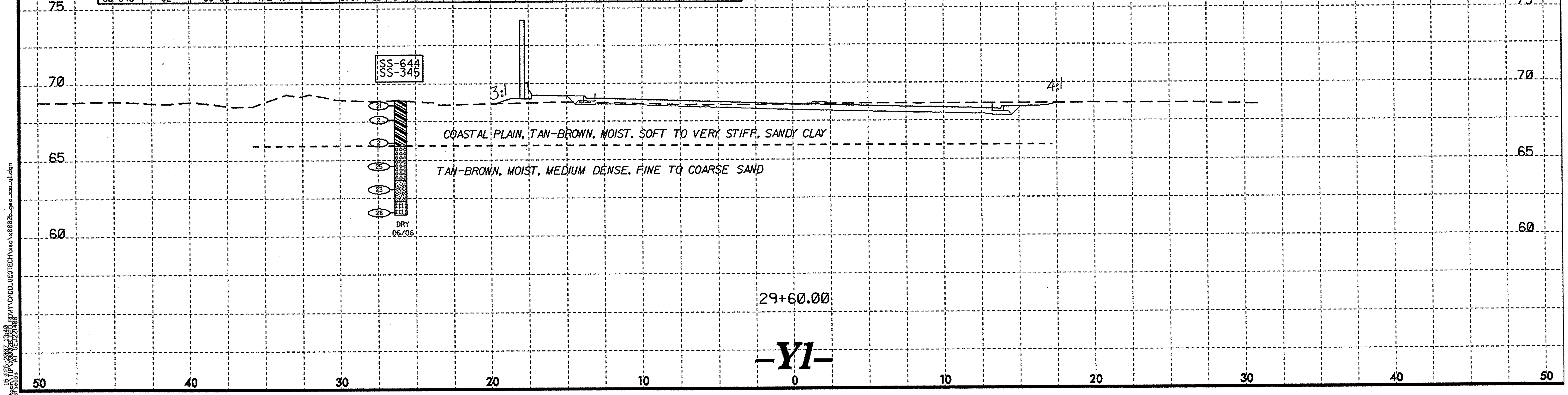
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	77





SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-645	26.0 LT	29+60	4.0-4.5	A-1-b(0)	19	NP	81.6	13.2	1.1	4.0	99	41	5	-	-
SS-646	CL	30+00	1.2-1.7	A-7-6(9)	58	34	35.8	23.1	2.6	38.5	98	73	42	-	-



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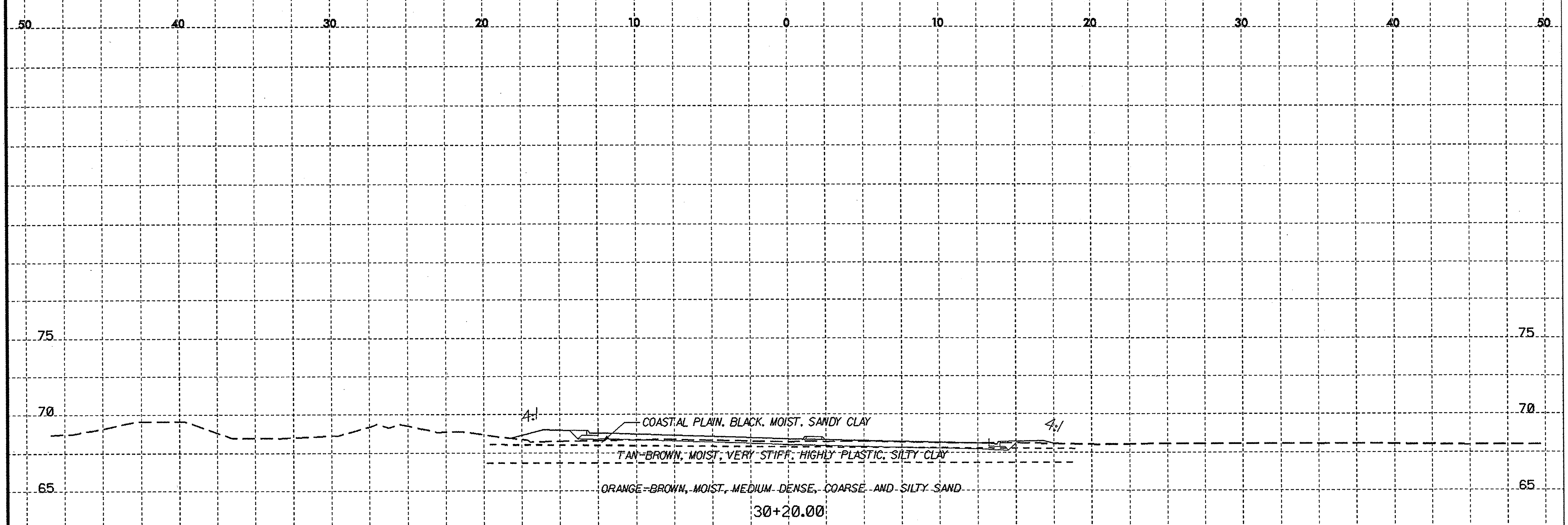
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	79

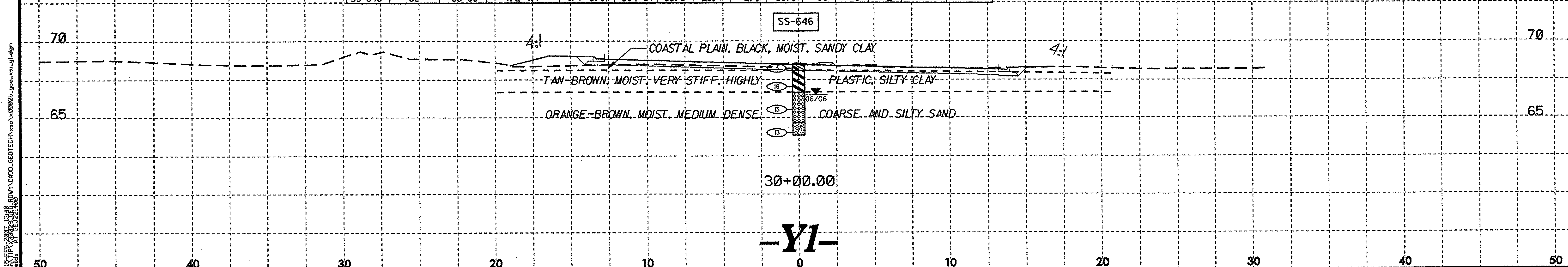
METRIC

2.5 0 2.5 5



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-646	CL	30+00	1.2-1.7	A-7-6(9)	58	34	35.8	23.1	2.6	38.5	98	73	42	-	-



-Y1-

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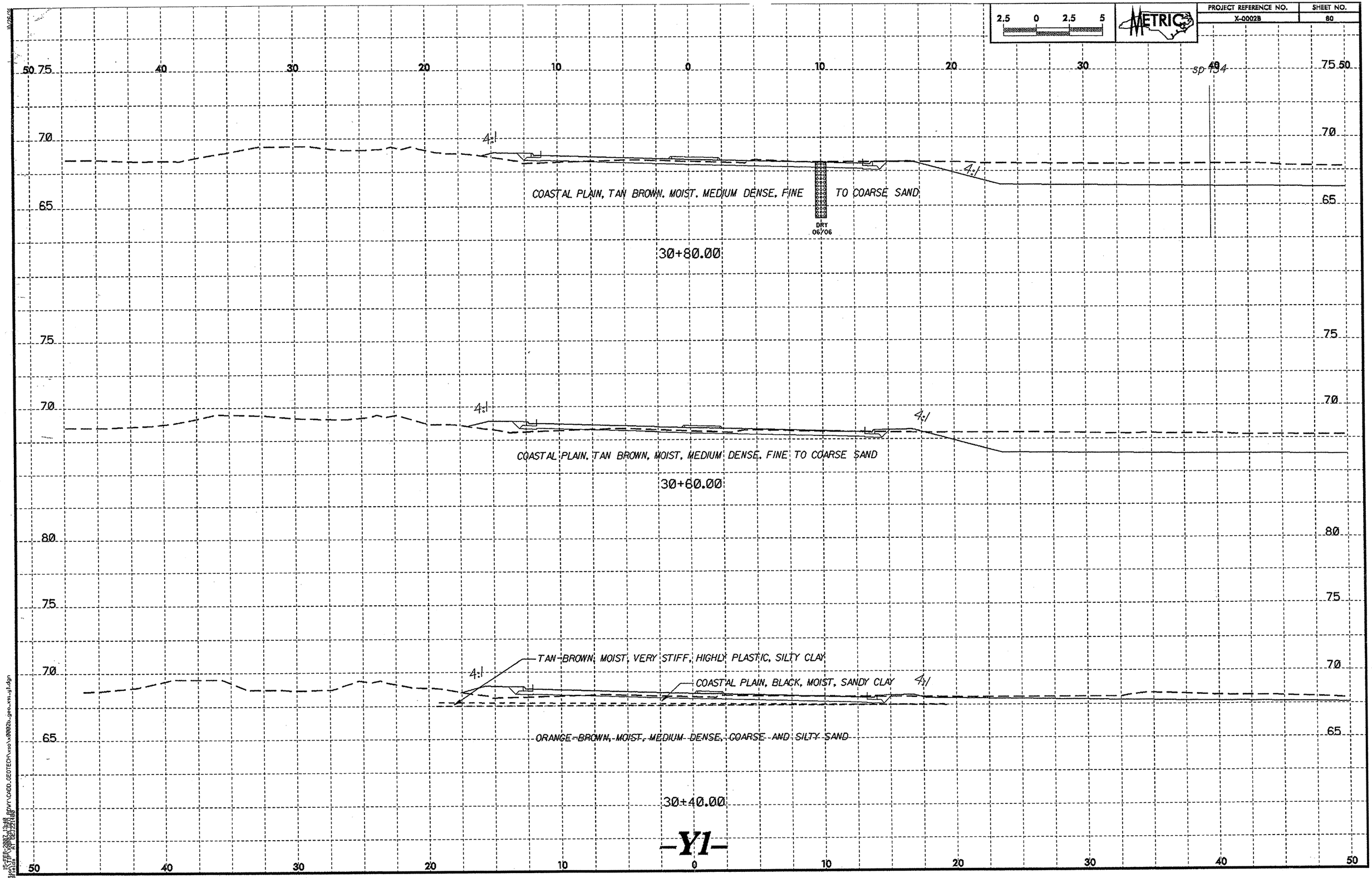
PROJECT REFERENCE NO.	SHEET NO.
X-0002B	80



TIP PROJECT: X-0002CA*

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	83+40 TO 149+10	4-25	32-51
-Y-	9+75 TO 11+20	27	52
-Y-	22+57 TO 25+60	29	55-56
-YREV-	11+20 TO 22+57	10-11, 27-29	52-55
-YRPA-	0+00 TO 4+00	11-12	68
-YRPB-	0+00 TO 7+42	9-11	69-70
-YLPB-	0+00 TO 4+86	10-11	71
-YRPC-	0+00 TO 5+06	9-10	72
-YRPD-	0+00 TO 6+45	10, 12	73
-YLPD-	0+00 TO 4+45	10	74
-Y1-	11+62 TO 15+20	11, 26	57-58
-Y2-	12+55 TO 14+45	13	59
-Y4-	10+14 TO 10+82	10	60
-Y5-	10+47 TO 12+70	30-31	61
-Y6-	10+00 TO 11+59	31	62
-Y7-	11+59 TO 12+10	13	63
-Y8REV-	10+44 TO 12+92	13-14	64
-Y9-	11+90 TO 15+03	23-24	65
-Y11-	7+62 TO 8+20	27	66
-Y11-	13+01 TO 13+22	31	66
-Y14-	10+00 TO 10+60	27	67
-Y12RPB-	0+00 TO 8+64	22-24	75-76
-Y12RPBI-	7+27 TO 8+49	24	77
-Y12RPC-	0+00 TO 9+04	22-24	78-80
-Y12RPCI-	7+01 TO 8+10	24	81

LINE	STATION	XSECT
-L-	97+40 TO 98+20	82-83
-L-	101+20 TO 102+60	84-86
-L-	125+40 TO 135+20	87-96
-L-	138+60 TO 140+80	97-102
-L-	141+60 TO 144+00	103-107
-YRPB-	0+45 TO 1+25	82-83
-YRPC-	0+20 TO 1+01	82-83
-YLPB-	0+19 TO 1+01	84-86
-YLPB-	1+20 TO 1+80	111
-Y9-	12+00 TO 12+40	108
-Y9-	13+60 TO 14+80	109-110
-Y12RPB-	0+40 TO 2+60	97-102
-Y12RPB-	3+40 TO 5+80	103-107
-Y12RPC-	0+60 TO 2+80	97-102
-Y12RPC-	3+60 TO 6+00	103-107

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35196.1.2 (X-0002C) * F.A. PROJ. NHF-DPR-0100(002)

COUNTY CUMBERLAND

PROJECT DESCRIPTION FAYETTEVILLE OUTER LOOP FROM 2.09KM EAST OF NC 87-210 TO US 401

INVENTORY

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002CA *	1	111

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
35196.1.2	NHF-DPR-0100(002)	P.E.
35196.2.4		ROW & UTIL
	NHF-0100(19)	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.

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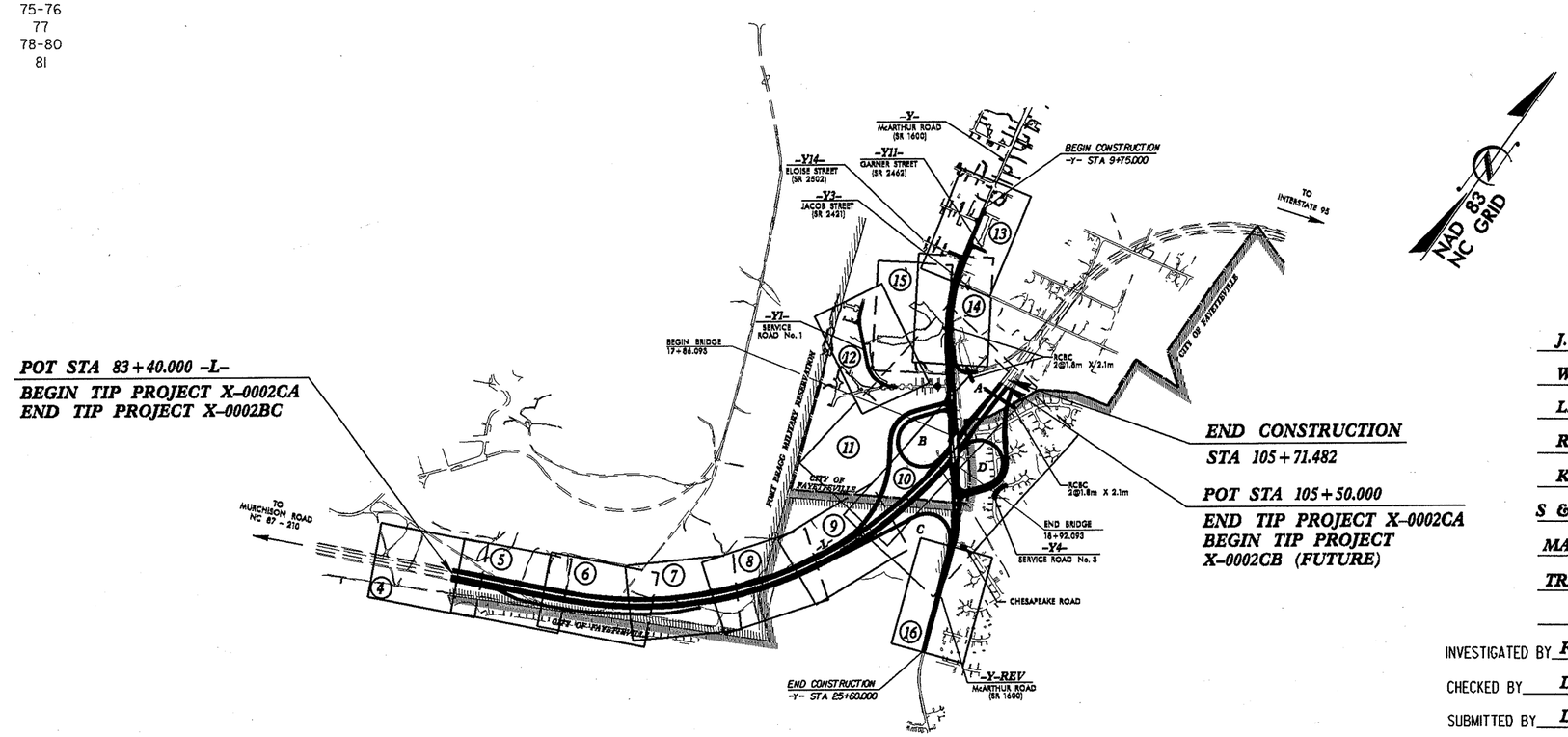


PERSONNEL

J. L. STONE

W. N. CHERRY

L. W. DAIL

R. E. SMITH

K. B. QUICK

S & ME PERSONNEL

MACTEC PERSONNEL

TRIGON PERSONNEL

INVESTIGATED BY F. M. WESCOTT III

CHECKED BY D. N. ARGENBRIGHT

SUBMITTED BY D. N. ARGENBRIGHT

DATE MARCH, 2008

NORTH CAROLINA LICENSED SEAL 1050 GEOLOGIST D. N. ARGENBRIGHT

8-26-08

* This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs.

DRAWN BY: C. M. KENT

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.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	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 30 CM 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	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
# 40	30 MX	50 MX	51 MN											
# 200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
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 (kN/m^2)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	<4 4 TO 10 10 TO 30 30 TO 50 >50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	<2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 >30	<25 25 TO 50 50 TO 100 100 TO 200 200 TO 400 >400

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
GRAIN SIZE 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 PODRLY 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	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

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

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP & DIP DIRECTION OF ROCK STRUCTURES
- 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:
- [X] MOBILE B- 57
- [X] BK-51
- [X] CME-45C
- [X] CME-550
- [X] CME-850
- [X] CME-45B
- [X] GO- TRACT

ADVANCING TOOLS:
- [X] CLAY BITS
- [X] 152mm CONTINUOUS FLIGHT AUGER
- [X] 203mm HOLLOW AUGERS
- [X] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 75 mm STEEL TEETH
- [ ] TRICONE ___ mm TUNG.-CARB.
- [ ] CORE BIT
- [ ] ___

HAMMER TYPE:
- [X] AUTOMATIC [X] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [X] 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 3 CM 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 30 CM 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 BLOWS PER 30 CM*
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 BLOWS PER 30 CM*
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 6 MM 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 13 MM DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 25 MM 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 25 MM OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 3 M
WIDE	3 TO 10 M
MODERATELY CLOSE	30 TO 100 CM
CLOSE	5 TO 30 CM
VERY CLOSE	LESS THAN 5 CM

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 1 M
THICKLY BEDDED	0.5 - 1 M
THINLY BEDDED	0.05 - 0.5 M
VERY THINLY BEDDED	10 - 50 MM
THICKLY LAMINATED	2.5 - 10 MM
THINLY LAMINATED	< 2.5 MM

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 ND 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 10 CM 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) OF A 63.5 KG HAMMER FALLING 0.76 M REQUIRED TO PRODUCE A PENETRATION OF 30 CM INTO SOIL WITH A 5 CM OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 3 CM 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 10 CM DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: _
_
_ ELEVATION: _ M

NOTES:
-

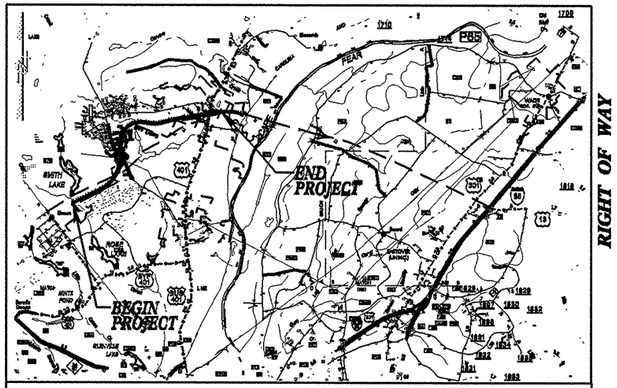
APPROXIMATE LIMITS OF ORGANIC SOILS

REVISED 02/23/06

TIP PROJECT: X-0002C

CONTRACT:

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



VICINITY MAP

RIGHT OF WAY

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: FAYETTEVILLE OUTER LOOP FROM 2.09km EAST OF NC87-NC210 TO US401

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS AND STRUCTURES

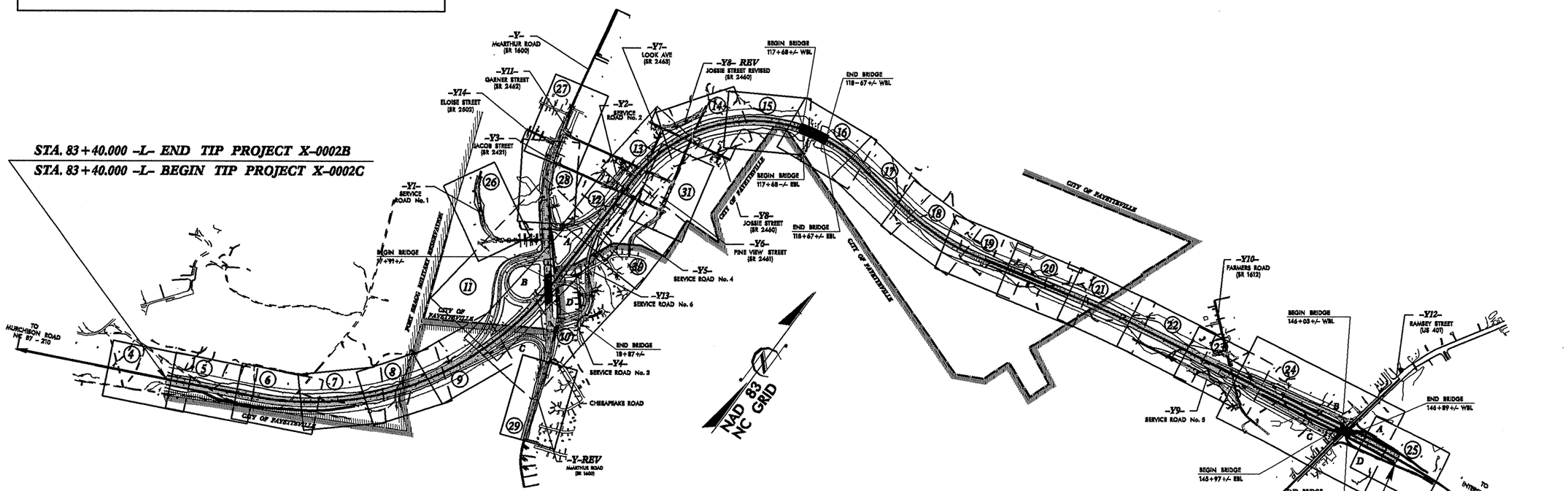
METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002C	2A	111

STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION
35196.1.2	NHF-DPR-0100(002)	PE
35196.2.4		ROW; Util

STA. 83+40.000 -L- END TIP PROJECT X-0002B
STA. 83+40.000 -L- BEGIN TIP PROJECT X-0002C



STA. 149+10.035 -L- END TIP PROJECT X-0002C
STA. 149+10.035 -L- BEGIN TIP PROJECT X-0002DA

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

A PORTION OF THE PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES

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

GRAPHIC SCALES

5 0 10 PLANS

5 0 10 PROFILE (HORIZONTAL)

1 0 2 PROFILE (VERTICAL)

DESIGN DATA

ADT 2008	=	34,700
ADT 2030	=	59,600
DHV	=	9 %
D	=	55 %
T	=	10 % *
V	=	11 km/h

* (TTST 4 % DUAL 6 %)
FUNC. CLASS = INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT X-0002C	=	6.385 km
LENGTH STRUCTURES TIP PROJECT X-0002C	=	0.185 km*
TOTAL LENGTH OF TIP PROJECT X-0002C	=	6.570 km

* NOTE: LENGTH BASED ON WBL BRIDGES

Prepared In the Office of:
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 31, 2006

LETTING DATE: MAY 20, 2008

T.R. REID, P.E.
PROJECT ENGINEER

T.E. HUFFMAN, P.E.
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.

9/09/99

17-JAN-2008 15:58

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 26, 2008

STATE PROJECT: 35196.1.2 X-0002C
F. A. PROJECT: NHF-DPR-0100 (002)
COUNTY: Cumberland
DESCRIPTION: Fayetteville Outer Loop From 2.09km East of NC 87-210 to US 401

SUBJECT: Geotechnical Report – Inventory

Project Description

The project consists of constructing a four lane divided facility along a new location. The project begins approximately 2.09 kilometers east of NC 87-210 and proceeds 6.4 kilometers in an easterly direction to US 401. The western terminus ties in with project X-0002B and the eastern terminus ties in with project X-0002DA. The geotechnical investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base line were investigated for this project:

Line	Station(±)
-L-	83+40 to 149+10
-Y-	9+75 to 11+20
-Y-	22+57 to 25+60
-YREV-	11+20 to 22+57
-YRPA-	0+00 to 4+00
-YRPB-	0+00 to 7+42
-YLPB-	0+00 to 4+86
-YRPC-	0+00 to 5+06
-YRPD-	0+00 to 6+45
-YLPD-	0+00 to 4+45
-Y1-	11+62 to 15+20
-Y2-	12+55 to 14+45
-Y4-	10+14 to 10+82

MAILING ADDRESS:
EASTERN REGIONAL OFFICE
GEOTECHNICAL ENGINEERING UNIT
1570 MAIL SERVICE CENTER
RALEIGH NC 27699-1570

TELEPHONE: 919-662-4710
FAX: 919-662-3095

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
3301 JONES SAUSAGE RD., SUITE 100
GARNER, NC 27529-9489

-Y5-	10+47 to 12+70
-Y6-	10+00 to 11+59
-Y7-	11+59 to 12+10
-Y8REV-	10+44 to 12+92
-Y9-	11+90 to 15+03
-Y11-	7+62 to 8+20
-Y11-	13+01 to 13+22
-Y14-	10+00 to 10+60
-Y12RPB-	0+00 to 8+64
-Y12RPB1-	7+27 to 8+49
-Y12RPC-	0+00 to 9+04
-Y12RPC1-	7+01 to 8+10

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

Line	Station (±)
-L-	83+40 to 85+65
-L-	87+70 to 88+33
-L-	97+71 to 98+31
-L-	101+39 to 103+11
-L-	104+03 to 106+90
-L-	107+63 to 108+50
-L-	110+70 to 111+30
-L-	113+80 to 119+33
-L-	125+25 to 130+82
-L-	131+75 to 135+37
-L-	135+74 to 136+22
-L-	136+39 to 149+10
-YREV-	17+64 to 18+87
-Y1-	13+08 to 13+63
-Y6-	10+00 to 11+21
-Y9-	11+90 to 15+03
-YRPA-	0+87 to 3+32
-YRPB-	6+51 to 7+42
-YLPB-	0+00 to 1+95
-YLPB-	3+90 to 4+86
-YRPD-	1+07 to 1+38
-YRPD-	2+50 to 3+06
-Y12RPB-	0+00 to 5+20
-Y12RPB-	5+68 to 6+50
-Y12RPB1-	7+60 to 8+49
-Y12RPC-	0+00 to 6+48
-Y12RPC1-	7+70 to 8+10

2) The following section contain relatively soft organic soils which have the potential for subgrade problems during construction:

Line	Station(±)
-L-	141+57 to 141+70
-L-	143+15 to 143+65
-L-	144+25 to 144+70
-Y1-	13+07 to 13+63
-Y12RPB-	5+16 to 5+33
-Y12RPC-	5+30 to 5+50

Physiography, Geology and Ground Water

The project is located in the Coastal Plain Physiographic Province. Topography at the site is nearly flat to moderately sloping. Elevations along the proposed new location range from 36± to 78± meters.

The geology of the project consists of Recent age coastal plain sediments overlying marine deposits of Cretaceous age. The project lies within the Cape Fear River Drainage system. Drainage along the project is provided by McPherson Creek and small branches that flow into the Cape Fear River. Surface drainage is generally good in areas with moderate relief and fair to poor in low lying portions of the project.

Ground water data was collected primarily from December 2005 to June 2006 during above average rainfall conditions. Typically, ground water levels were measured at depths of 1± to 9± meters below the natural ground surface. Ground water levels should fall 1± meter or more during dry summer conditions.

Soils

Soils encountered during this investigation are separated into four major categories based on origin and occurrence. These categories are surficial soils, undivided coastal plain soils, organic soils and Cretaceous age marine deposits.

Surficial soils are found in the top 1 to 2 meters of the soil profile. Typically, they consist of very loose to medium dense sand (A-2-4, A-3). The granular material generally exhibits good to excellent engineering properties.

The undivided coastal plain soils generally underlie the surficial soils at depths up to 11± meters. These deposits typically consist of loose to dense sand (A-2-4, A-2-6, A-3) and very soft to stiff sandy and silty clay (A-6, A-7-6). Moisture content of tested cohesive samples ranged from 16 to 42 percent. The granular soils typically exhibit good to excellent engineering properties. However, the cohesive soils generally have poor engineering properties due to a very soft consistency, relatively high moisture contents, medium to high plasticity indices and 50 percent or more passing the 75 μm sieve. These soils have the potential to cause subgrade stability problems or embankment stability/settlement problems.

Organic deposits were found along areas on the eastern end of the project. Soils within the areas consisted of very soft to medium stiff sandy silt and clay with little organic matter, muck and peat. Organic content of tested samples ranged from 9 to 34 percent. Moisture content of tested organic samples ranged from 102 to 262 percent. These soils have poor engineering properties and have the potential to cause subgrade stability problems or embankment stability/settlement problems.

The Cretaceous age Cape Fear Formation underlies the coastal plain soils at elevations ranging from 48 to 56 meters. Cohesive soils within this formation typically consist of beds of stiff to hard silty and sandy clay (A-6, A-7-6) and clayey silt (A-4, A-5). These soils exhibit fair to poor engineering properties. Granular soils within this formation typically consist of beds of medium dense to very dense sand (A-2-4, A-3). These soils exhibit good to excellent engineering properties. Due to its depth of occurrence, the Cape Fear Formation should not affect the roadway portion of this project.

Culvert at -L- Station 105+03 and –RPD- Station 2+05

Based on the Culvert Survey and Hydraulic Design Report dated May 10, 2006, a dual 1.8m x 2.1m RCBC is proposed for -L- over a Tributary to McPherson Creek at -L- station 105+03 and -RPD- station 2+05. An SPT boring performed at the proposed culvert site shows up to 3.5 meters of very loose to medium dense sand (A-2-4, A-3) underlain by alternating layers of stiff to hard sandy and silty clay (A-6, A-7-6) and medium dense to very dense sand (A-2-4, A-3) at the site. Ground water was measured at elevations ranging from 58.0± to 58.4± meters.

Pedestrian Culvert at –L- Station 130+30

A pedestrian culvert is proposed for -L- at station 130+30. An SPT boring performed near the proposed culvert site shows 5.2 meters of loose to medium dense sand and clayey sand (A-1-b, A-2-4, A-2-6) underlain by stiff to very stiff silt (A-4) and silty clay (A-7-6) at the site. Ground water was measured at an elevation of 59.2± meters.

Culvert at -YREV- Station 14+14

Based on the Culvert Survey and Hydraulic Design Report dated May 26, 2006, a dual 1.8m x 2.1m RCBC is proposed for -YREV- over a Tributary to McPherson Creek at station 14+14. An auger boring performed near the proposed culvert site shows up to 4.5 meters of loose to medium dense sand (A-1-b, A-2-4) at the site. Ground water was measured at an elevation of 63± meters.

Culvert at -YRPA- Station 2+98

Based on the Culvert Survey and Hydraulic Design Report dated May 10, 2006, a dual 1.8m x 2.1m RCBC is proposed for -YRPA- over a Tributary to McPherson Creek at station 2+98. An SPT boring performed at the proposed culvert site shows up to 5.2 meters of very loose to medium dense sand (A-2-4). A 1.4 meter thick very soft clayey silt layer was encountered at elevation 60.6 meters. Ground water was measured at an elevation of 61.5± meters.

Prepared by:

Fred M Wescott III
Project Geological Engineer

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

3C

PROJECT X-0002CA COUNTY Cumberland DATE 10/19/2010 SHEET 1 OF 2 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. 25%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	83+40.000	93+40.000	189,811	0	0	0	189,811	63,736	0	63,736	79,670	0	110,141	0	110,141
-L-	93+40.000	96+80.000	174	0	0	0	174	18,798	0	18,798	23,498	23,324	0	0	0
125mm EXTRA MAT'L FROM GRADING ONLY								7,312		7,312	9,140	9,140	0	0	0
SUBTOTAL SUMMARY No. 1			189,985	0	0	0	189,985	89,846	0	89,846	112,308	32,464	110,141	0	110,141
-L-	96+80.000	105+50.000	56,292	0	4,416	28,535	27,757	65,371	0	60,955	81,714	53,957	0	32,951	32,951
-Y-RPA	2+70.000	3+40.000	0	0	0	0	0	7,580	0	7,580	9,475	9,475	0	0	0
-Y-RPB	2+00.000	7+00.000	32,660	0	0	0	32,660	4,656	0	4,656	5,820	0	26,840	0	26,840
-Y-RPC	3+00.000	4+00.000	1	0	0	0	1	1,536	0	1,536	1,920	1,919	0	0	0
-Y-RPD	1+60.000	6+00.000	7,122	0	0	0	7,122	49,204	0	49,204	61,505	54,383	0	0	0
-Y-LPB	1+20.000	2+20.000	10,473	0	0	6,400	4,073	0	0	0	0	0	4,073	6,400	10,473
-Y-LPD	1+00.000	1+80.000	7,338	0	0	0	7,338	0	0	0	0	0	7,338	0	7,338
-Y-	9+75.000	11+20.000	368	0	0	0	368	19	0	19	24	0	344	0	344
		LINE BACK													
-Y-REV	11+20.000	17+86.093	4,188	0	0	0	4,188	45,507	0	45,507	56,884	52,696	0	0	0
	LINE AHEAD	BEGIN BRIDGE													
-Y-REV	18+92.093	22+48.815	451	0	0	0	451	43,403	0	43,403	54,254	53,803	0	0	0
	END BRIDGE	LINE BACK													
-Y-	22+57.111	25+60.000	3,098	0	0	0	3,098	24	0	24	30	0	3,068	0	3,068
	LINE AHEAD														
-Y1-	11+62.382	15+20.000	681	0	0	0	681	7,338	0	7,338	9,173	8,492	0	0	0
-Y4-	10+14.327	10+82.584	111	0	0	0	111	1,783	0	1,783	2,229	2,118	0	0	0
-Y11-	7+71.932	8+20.000	255	0	0	0	255	0	0	0	0	0	255	0	255
-Y14-	10+09.785	10+60.000	360	0	0	0	360	3	0	3	4	0	356	0	356
125mm EXTRA MAT'L FROM GRADING ONLY								9,844		9,844	12,305	12,305	0	0	0
SUBTOTAL SUMMARY No. 2			123,398	0	4,416	34,935	88,463	236,268	0	231,852	295,337	249,148	42,274	39,351	81,625
SUBTOTAL SUMMARIES 1 & 2			313,383	0	4,416	34,935	278,448	326,114	0	321,698	407,645	281,612	152,415	39,351	191,766

* This Earthwork Balance Sheet is for X-0002CA. This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs.

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

3D

PROJECT X-0002CA COUNTY Cumberland DATE 10/19/2010 SHEET 2 OF 2 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. 25%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
SHEET 1 TOTALS			313,383	0	4,416	34,935	278,448	326,114	0	321,698	407,645	281,612	152,415	39,351	191,766
SUBTOTAL SUMMARIES 1&2			313,383	0	4,416	34,935	278,448	326,114	0	321,698	407,645	281,612	152,415	39,351	191,766
ADDITIONAL UNDERCUT					2,350			2,350		2,350	2,938	2,938		2,350	2,350
SHOULDER MATERIAL								2,390		2,390	2,988	2,988			
WASTE IN LIEU OF BORROW												-152,415	-152,415		-152,415
LOSS DUE TO CLEARING AND GRUBBING			-3,000				-3,000					3,000			
SELECT MAT'L - CLASS II OR III IN LIEU OF BORROW											-4,766	-4,766			
PROJECT SUBTOTALS			310,383	0	6,766	34,935	275,448	330,854	0	326,438	408,805	133,357	0	41,701	41,701
EST 5% TO REPLACE TOP SOIL ON BORROW PIT												6,668			
X-0002CA GRAND TOTALS			310,383	0	6,766	34,935	275,448	330,854	0	326,438	408,805	140,025	0	41,701	41,701
X-0002CA SAY TOTALS			**310,400**		**6,800**							**140,100**			

ESTIMATED DDE	1,600 M3
PAVEMENT STRUCTURE VOLUME (-Y- & -YREV-)	4,137 M3
SHALLOW UNDERCUT (CONTINGENCY)	200 M3
GRADE POINT UNDERCUT	2,000 M3
SUBGRADE UNDERCUT (CONTINGENCY)	350 M3
SELECT GRANULAR MAT'L, CLASS II OR III	4,766 M3 (TO BE USED AS BACKFILL IN SUBGRADE UNDERCUT AREAS, PER GEOTECH)
SUBGRADE STAB - STABILIZER AGGREGATE	2,950 MTNS
CLASS IV SUBGRADE STABILIZATION	450 MTNS

* This Earthwork Balance Sheet is for X-0002CA. This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	4
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS NOT FOR CONSTRUCTION

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

REVISIONS

NAD 83 NC GRID

WOODS

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

FUTURE R/W & C/A FENCE (X-0002B)

FUTURE DITCH (X-0002B)

FUTURE SLOPE STAKE LINE (X-0002B)

U/G GAS LINE

30 SOIL

STA 83+40.000 END TIP PROJECT X-0002B

STA 83+40.000 BEGIN TIP PROJECT X-0002C

FUTURE CONSTRUCTION UNDER CONTRACT X-0002B

- L -

FAYETTEVILLE OUTER LOOP

N 64° 56' 54.8" E

STA 83+40 TO 83+80 -L- LT

BERM DITCH

+40 -L- 55m LT (180.446')

STA 83+80 TO STA 84+56 -L- LT

LAT 'V' DITCH SEE DETAIL #1

PROP. R/W & C/A

BEGIN 84" C.L. FENCE w/ 3-STRAND BARBED WIRE

PROP. SLOPE STAKE LINE

PROP. CABLE GUIDERAIL

WLB

PROP. GUARDRAIL

BEGIN EXPRESSWAY GUTTER -L- STA 83+20 RT

BEGIN SOUND BARRIER WALL

BEGIN 48" WW FENCE

600 mm CM

FORT BRAGG MILITARY RESERVATION

1200 mm CHL

1800 mm CHL

1500 mm CHL

1800 mm WD

CONC

LAT 0.6m BASE DITCH STA 83+40 TO STA 83+76 -L- RT SEE DETAIL #6

CL 'B' RIP RAP +/- 3 MTONS

DAYLIGHT

ARTHUR DOOLEY
DB 4467 PG 633
PB 56 PG 24

JANET HERRING
DB 3772 PG 826
PB 56 PG 24

MATCHLINE STA 84+00 SEE SHEET 5

55.0m

3.6m FDPS

7.2m

7.0m

10.8m

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 32

0002c-rdeps1801.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	5
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

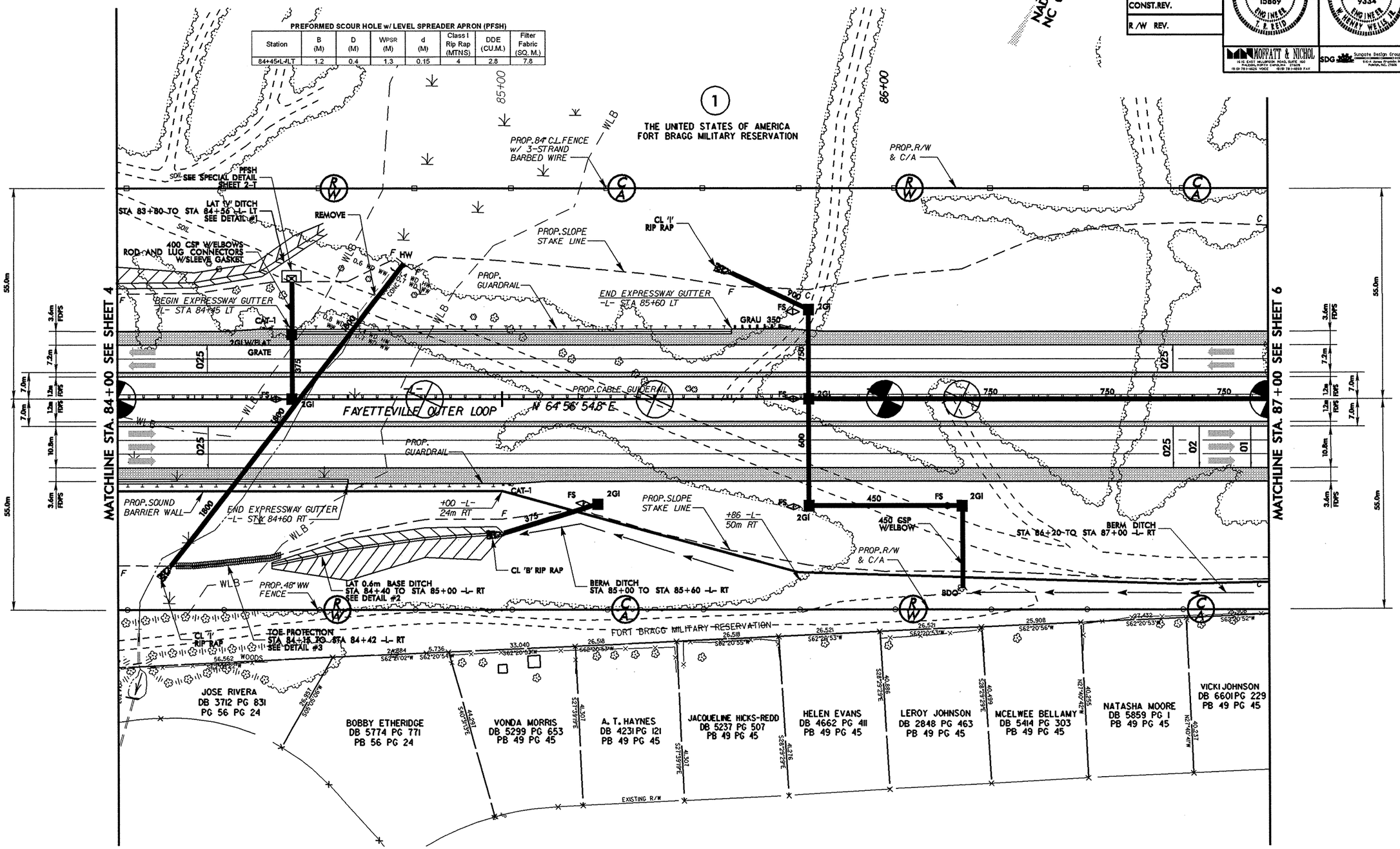
PRELIMINARY PLANS NOT FOR CONSTRUCTION

MORRATT & NICHOL

SDG Sungate Design Group, P.A.

PFSH

Station	B (M)	D (M)	WPSR (M)	d (M)	Class I Rip Rap (MTNS)	DDE (CU.M.)	Filter Fabric (SQ. M.)
84+45-L-/LT	1.2	0.4	1.3	0.15	4	2.8	7.8



FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 32

REVISIONS

8/17/99

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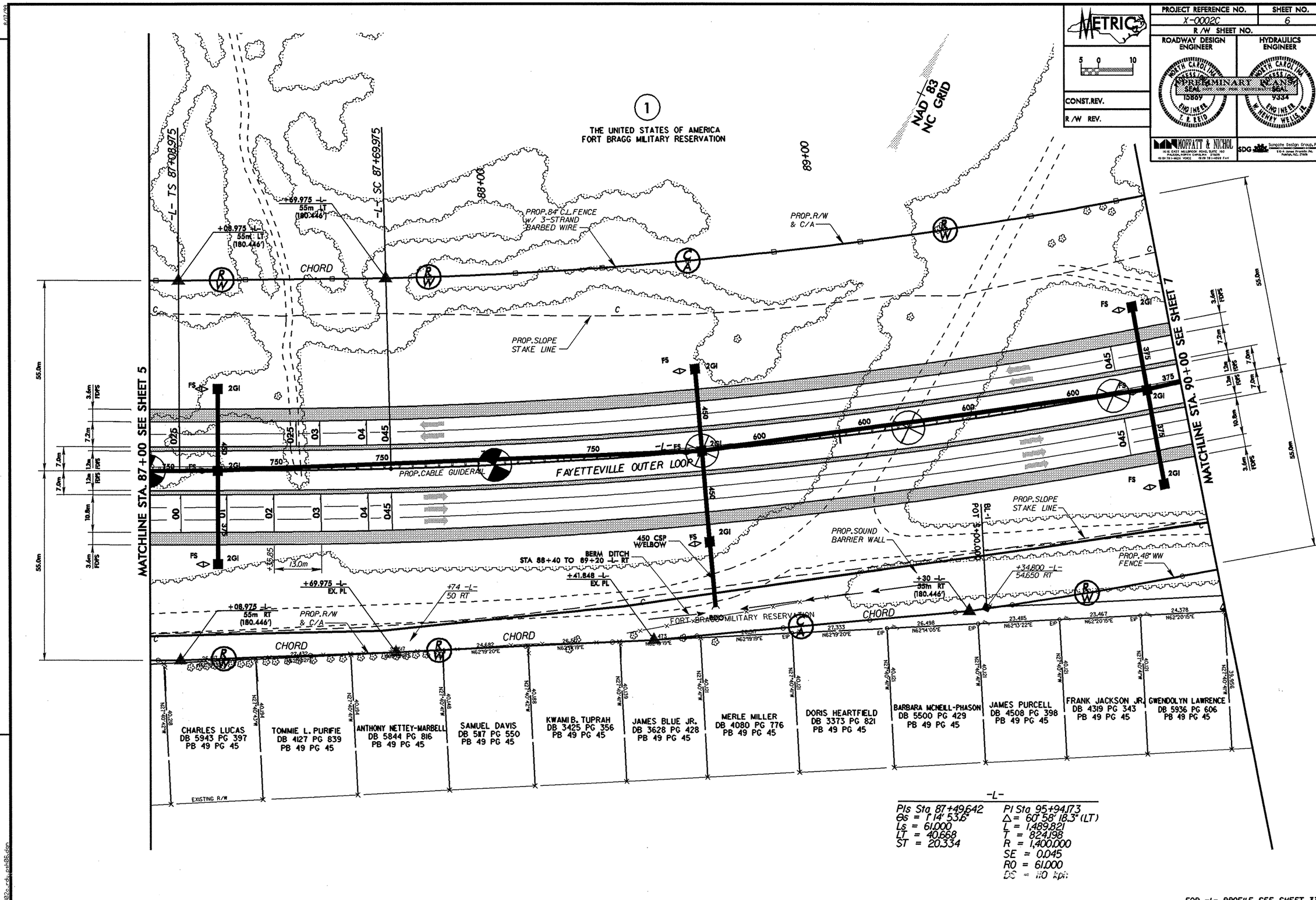
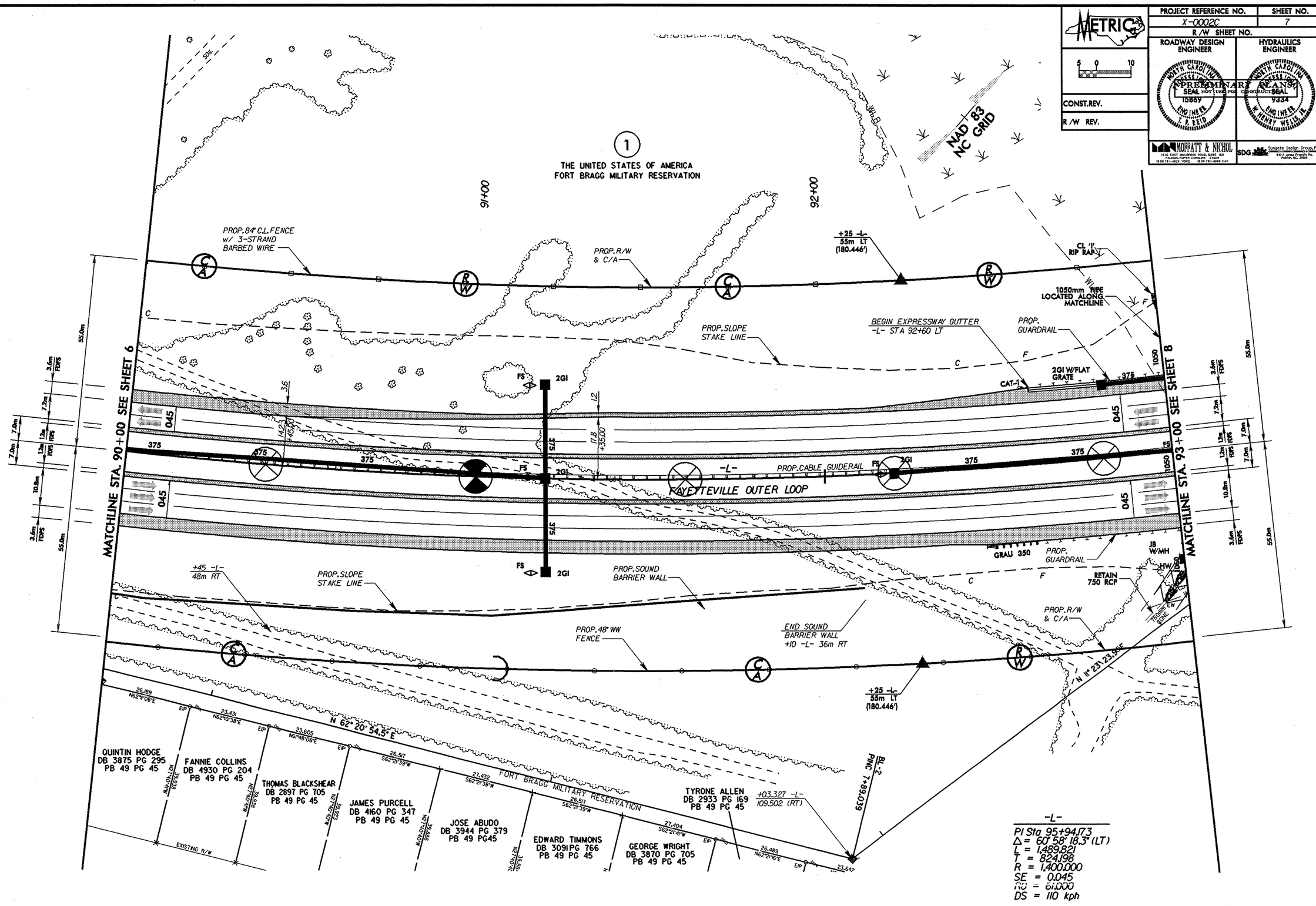


METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG
THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION
NAD 83
NC GRID
-L- TS 87+08.975
-L- SC 87+69.975
88+00
89+00
PROP.84" C.L.FENCE w/ 3-STRAND BARBED WIRE
PROP.R/W & C/A
PROP.SLOPE STAKE LINE
CHORD
FAYETTEVILLE OUTER LOOP
PROP.CABLE GUIDERAIL
MATCHLINE STA. 87+00 SEE SHEET 5
MATCHLINE STA. 90+00 SEE SHEET 7
PROP.SOUND BARRIER WALL
PROP.48" WW FENCE
450 CSP W/ELBOW
BERM DITCH STA 88+40 TO 89+20 -L- RT
+69.975 -L- EX. PL
+74 -L- 50 RT
+41.848 -L- EX. PL
+30 -L- 55m RT (180.446')
+34.800 -L- 54.650 RT
+08.975 -L- 55m RT (180.446')
+69.975 -L- 55m LT (180.446')
FORT BRAGG MILITARY RESERVATION
CHARLES LUCAS DB 5943 PG 397 PB 49 PG 45
TOMMIE L. PURIFIE DB 4127 PG 839 PB 49 PG 45
ANTHONY NETTEY-MARBELL DB 5844 PG 816 PB 49 PG 45
SAMUEL DAVIS DB 5117 PG 550 PB 49 PG 45
KWAMI B. TUPRAH DB 3425 PG 356 PB 49 PG 45
JAMES BLUE JR. DB 3628 PG 428 PB 49 PG 45
MERLE MILLER DB 4080 PG 776 PB 49 PG 45
DORIS HEARTFIELD DB 3373 PG 821 PB 49 PG 45
BARBARA MCNEILL-PHASON DB 5500 PG 429 PB 49 PG 45
JAMES PURCELL DB 4508 PG 398 PB 49 PG 45
FRANK JACKSON JR. DB 4319 PG 343 PB 49 PG 45
GWENDOLYN LAWRENCE DB 5936 PG 606 PB 49 PG 45
EXISTING R/W
-L-
PIs Sta 87+49.642
Θs = 1°14'53.6"
Ls = 61.000
LT = 40.668
ST = 20.334
PI Sta 95+94.173
Δ = 60°58'18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RO = 61.000
DS = 110 kph
FOR -L- PROFILE SEE SHEET 33
REVISIONS



METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG
1
THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION
NAD 83
NC GRID
91+00
92+00
PROP.84" C.L.FENCE w/ 3-STRAND BARBED WIRE
PROP.R/W & C/A
+25 -L- 55m LT (180.446')
CL 'I' RIP RAP
1050mm PIPE LOCATED ALONG MATCHLINE
BEGIN EXPRESSWAY GUTTER -L- STA 92+60 LT
PROP. GUARDRAIL
PROP.SLOPE STAKE LINE
2GI W/FLAT GRATE
CAT-1
MATCHLINE STA. 90+00 SEE SHEET 6
MATCHLINE STA. 93+00 SEE SHEET 8
FS
2GI
-L-
PROP.CABLE GUIDERAIL
FAYETTEVILLE OUTER LOOP
GRAU 350
JB W/MH
HW
RETAIN 750 RCP
+45 -L- 48m RT
PROP.SOUND BARRIER WALL
PROP.48" WW FENCE
END SOUND BARRIER WALL +10 -L- 36m RT
N 11° 23' 23.90" E
N 62° 20' 54.5" E
FORT BRAGG MILITARY RESERVATION
QUINTIN HODGE DB 3875 PG 295 PB 49 PG 45
FANNIE COLLINS DB 4930 PG 204 PB 49 PG 45
THOMAS BLACKSHEAR DB 2897 PG 705 PB 49 PG 45
JAMES PURCELL DB 4160 PG 347 PB 49 PG 45
JOSE ABUDO DB 3944 PG 379 PB 49 PG45
EDWARD TIMMONS DB 3091PG 766 PB 49 PG 45
GEORGE WRIGHT DB 3870 PG 705 PB 49 PG 45
TYRONE ALLEN DB 2933 PG 169 PB 49 PG 45
+03.327 -L- 109.502 (RT)
BL-2 PINC 7+89.039
EXISTING R/W
-L-
PI Sta 95+94.173
Δ = 60° 58' 18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RO = 61.000
DS = 110 kph
FOR -L- PROFILE SEE SHEET 33
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	8
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

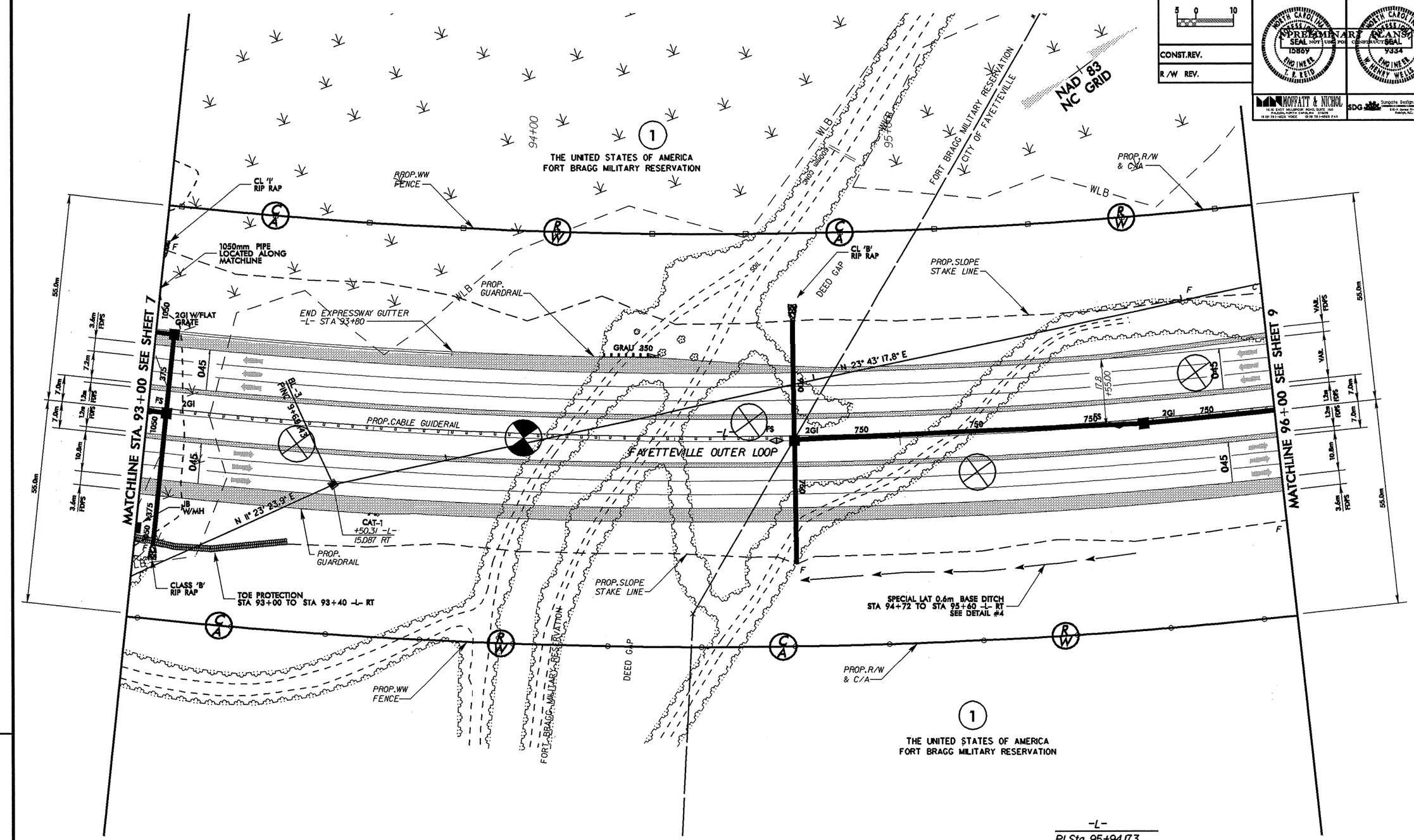
PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4628 FAX

SDG Sungate Design Group, P.A.
PROFESSIONAL ENGINEERING • LANDSCAPE ARCHITECTURE
516-A Jones Franklin Rd.
Raleigh, N.C. 27606

REVISIONS

8/17/99

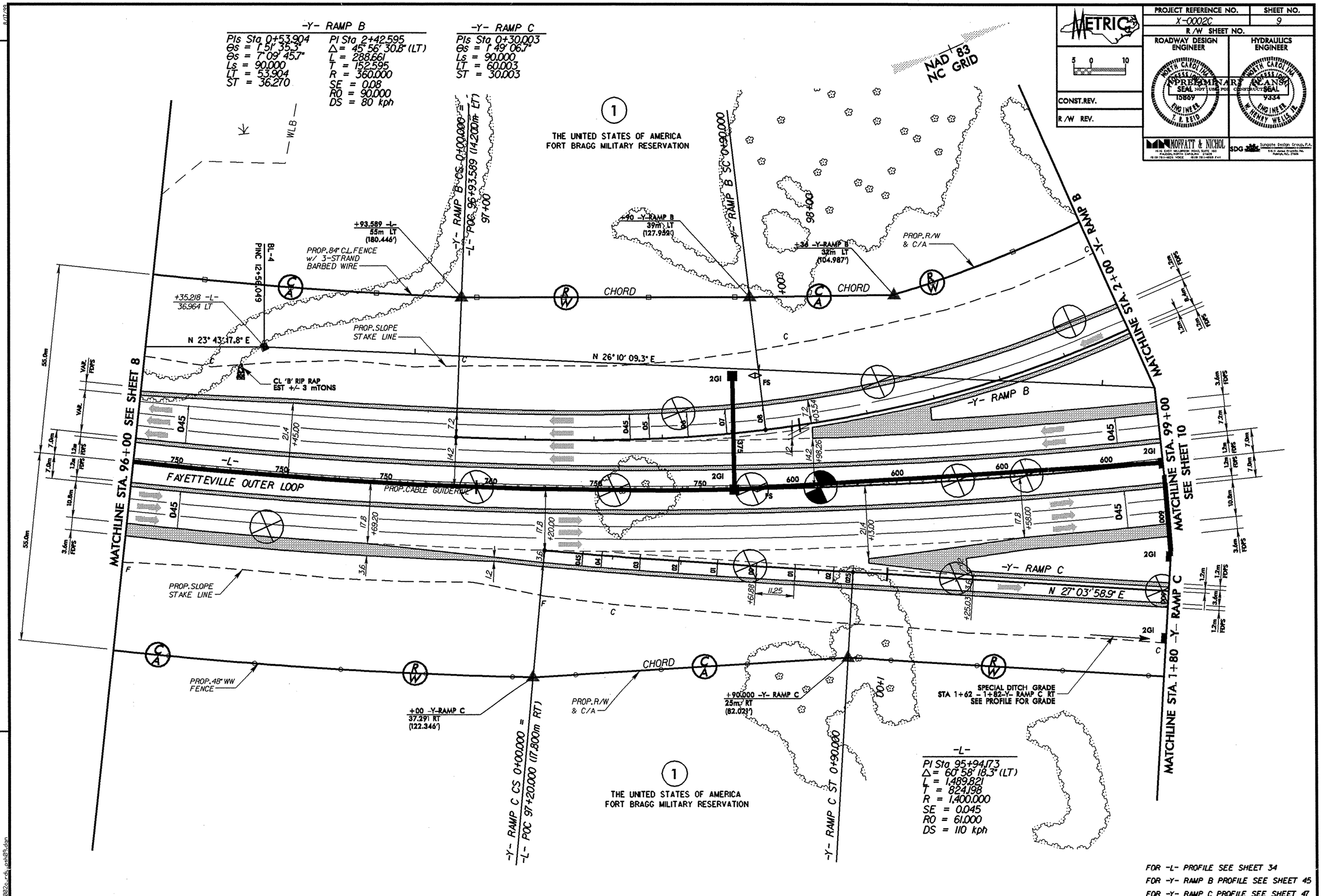


-L-

PI Sta 95+94.173
Δ = 60° 58' 18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RO = 61.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 34

8902c_rdy sh08.dgn



METRIC	PROJECT REFERENCE NO.	SHEET NO.
	X-0002C	9
	R/W SHEET NO.	
CONST. REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	PRELIMINARY PLANS	

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

REVISIONS

FOR -L- PROFILE SEE SHEET 34
FOR -Y- RAMP B PROFILE SEE SHEET 45
FOR -Y- RAMP C PROFILE SEE SHEET 47

REVISIONS

-Y- LOOP B	
PI Sta. 21+49.905	
Δ = 90°00'00" (LT)	
D = 63.662°	
L = 50.000	
LT = 50.000	
R = 90.000	
ST = 50.000	

-Y- RAMP B	
PI Sta. 21+49.905	
Δ = 45°00'00" (LT)	
D = 6.366°	
L = 150.000	
LT = 78.539	
R = 360.000	
SE = 0.05	
RO = 600m	
DS = 90 kph	

-L-	
PI Sta. 99+94.73	
Δ = 14°36'55" (LT)	
D = 1.146°	
L = 1000.000	
LT = 127.335	
R = 1000.000	
SE = 0.05	
RO = 640.000m	
DS = 110 kph	

-Y- REV		
PI Sta. 19+92.324	PI Sta. 19+92.324	PI Sta. 19+92.183
Δ = 14°36'55" (RT)	Δ = 14°36'55" (RT)	Δ = 14°36'55" (RT)
D = 1.146°	D = 1.146°	D = 1.146°
L = 1000.000	L = 1000.000	L = 1000.000
LT = 127.335	LT = 127.335	LT = 127.335
R = 1000.000	R = 1000.000	R = 1000.000
SE = 0.05	SE = 0.05	SE = 0.05
RO = 640.000m	RO = 640.000m	RO = 640.000m
DS = 110 kph	DS = 110 kph	DS = 110 kph

-Y- RAMP C		
PI Sta. 31+20.934	PI Sta. 41+15.966	PI Sta. 41+17.630
Δ = 21°37'42" (LT)	Δ = 21°37'42" (RT)	Δ = 21°37'42" (RT)
D = 1.146°	D = 1.146°	D = 1.146°
L = 1000.000	L = 1000.000	L = 1000.000
LT = 191.135	LT = 191.135	LT = 191.135
R = 1000.000	R = 1000.000	R = 1000.000
SE = 0.05	SE = 0.05	SE = 0.05
RO = 640.000m	RO = 640.000m	RO = 640.000m
DS = 90 kph	DS = 90 kph	DS = 90 kph

-Y-		
PI Sta. 10+49.659	PI Sta. 11+85.106	PI Sta. 10+22.193
Δ = 9°06'00" (RT)	Δ = 9°06'00" (RT)	Δ = 9°06'00" (RT)
D = 0.716°	D = 0.716°	D = 0.716°
L = 1000.000	L = 1000.000	L = 1000.000
LT = 79.656	LT = 79.656	LT = 79.656
R = 1600.000	R = 1600.000	R = 1600.000

-Y-		
PI Sta. 10+34.775	PI Sta. 11+70.226	PI Sta. 10+07.314
Δ = 9°06'00" (RT)	Δ = 9°06'00" (RT)	Δ = 9°06'00" (LT)
D = 0.716°	D = 0.716°	D = 0.716°
L = 1000.000	L = 1000.000	L = 1000.000
LT = 79.656	LT = 79.656	LT = 79.656
R = 1600.000	R = 1600.000	R = 1600.000

NAD 83
NC GRID

TRAFFIC DIAGRAM	
-L-	-Y-
6/70 7/00	7/00 7/00
6/70 7/00	7/00 7/00
-Y-	-L-
6/70 10/00	8/00 10/00
6/70 10/00	8/00 10/00
-Y-	-Y-
8/00	9/70
8/00	9/70

-Y- LOOP D		
PI Sta. 0+00.000	PI Sta. 7+60.604	PI Sta. 3+37.44
Δ = 0°00'00"	Δ = 90°00'00.5" (RT)	Δ = 90°00'00" (RT)
D = 0.000°	D = 63.662°	D = 63.662°
L = 00.000	L = 50.000	L = 50.000
LT = 00.000	LT = 50.000	LT = 50.000
R = 00.000	R = 90.000	R = 90.000
ST = 00.000	ST = 50.354	ST = 50.373
SE = 0.05	SE = 0.05	SE = 0.05
RO = 600m	RO = 600m	RO = 600m
DS = 90 kph	DS = 90 kph	DS = 90 kph

-Y- RAMP D		
PI Sta. 2+47.17	PI Sta. 3+37.93	PI Sta. 4+48.40
Δ = 90°00'00" (LT)	Δ = 90°00'00" (RT)	Δ = 90°00'00" (RT)
D = 57.296°	D = 63.662°	D = 63.662°
L = 50.000	L = 50.000	L = 50.000
LT = 50.000	LT = 50.000	LT = 50.000
R = 100.000	R = 90.000	R = 90.000
ST = 100.000	ST = 50.000	ST = 50.256
SE = 0.05	SE = 0.05	SE = 0.05
RO = 600m	RO = 600m	RO = 600m
DS = 100 kph	DS = 90 kph	DS = 90 kph

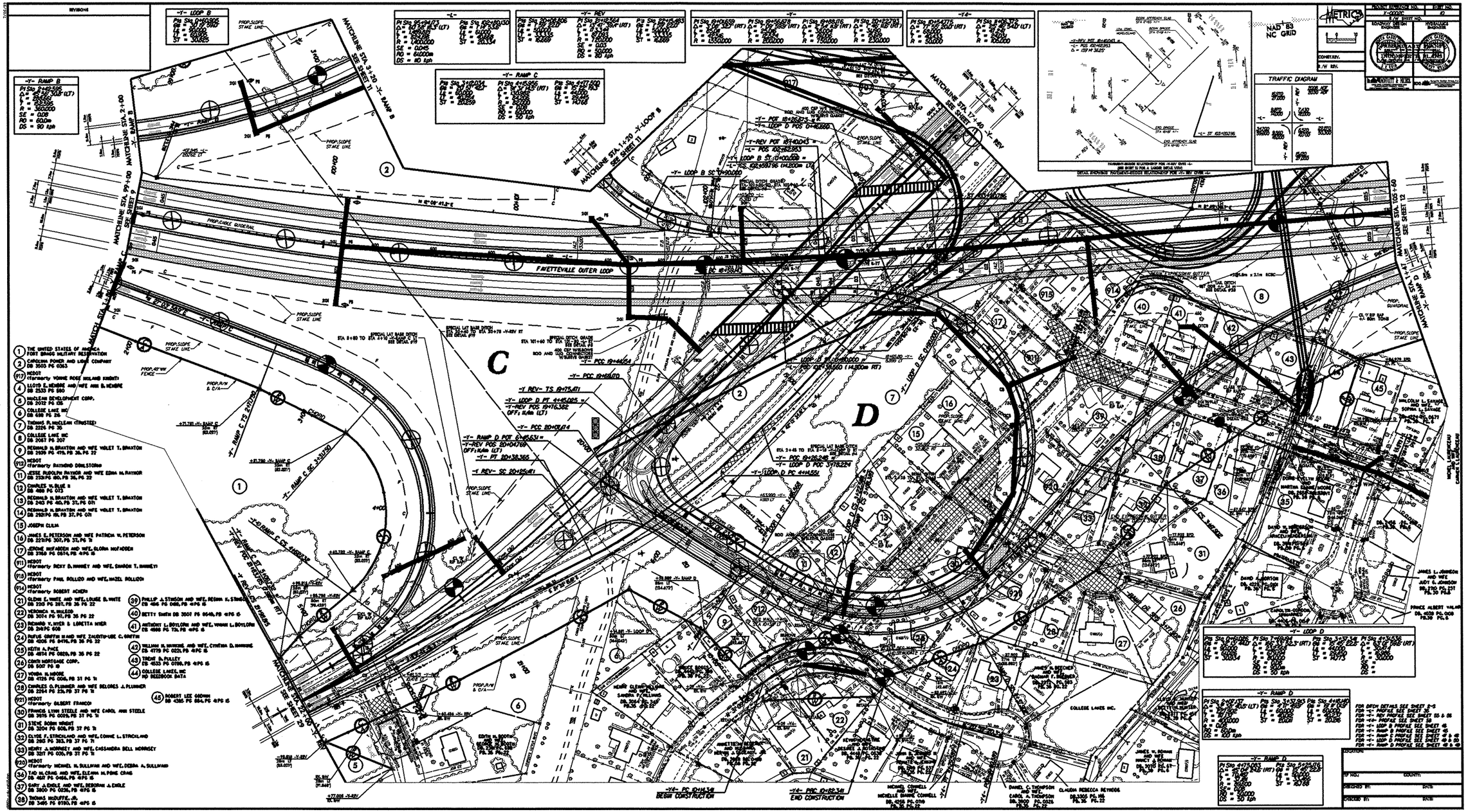
-Y- RAMP D		
PI Sta. 4+73.03	PI Sta. 5+25.03	PI Sta. 5+25.03
Δ = 90°00'00" (RT)	Δ = 90°00'00" (RT)	Δ = 90°00'00" (RT)
D = 57.296°	D = 57.296°	D = 57.296°
L = 50.000	L = 50.000	L = 50.000
LT = 50.000	LT = 50.000	LT = 50.000
R = 100.000	R = 100.000	R = 100.000
ST = 100.000	ST = 100.000	ST = 100.000
SE = 0.05	SE = 0.05	SE = 0.05
RO = 600m	RO = 600m	RO = 600m
DS = 100 kph	DS = 100 kph	DS = 100 kph

FOR DITCH DETAILS SEE SHEET 5-5
FOR -Y- PROFILE SEE SHEET 5E-5
FOR -Y- REV PROFILE SEE SHEET 5D & 5E
FOR -Y-A- PROFILE SEE SHEET 5B
FOR -Y-B- LOOP B PROFILE SEE SHEET 4E
FOR -Y-C- RAMP C PROFILE SEE SHEET 4D
FOR -Y-D- RAMP D PROFILE SEE SHEET 4B & 4C
FOR -Y-E- LOOP D PROFILE SEE SHEET 4B & 4D
FOR -Y-F- RAMP D PROFILE SEE SHEET 4B & 4D

LOCATIONS

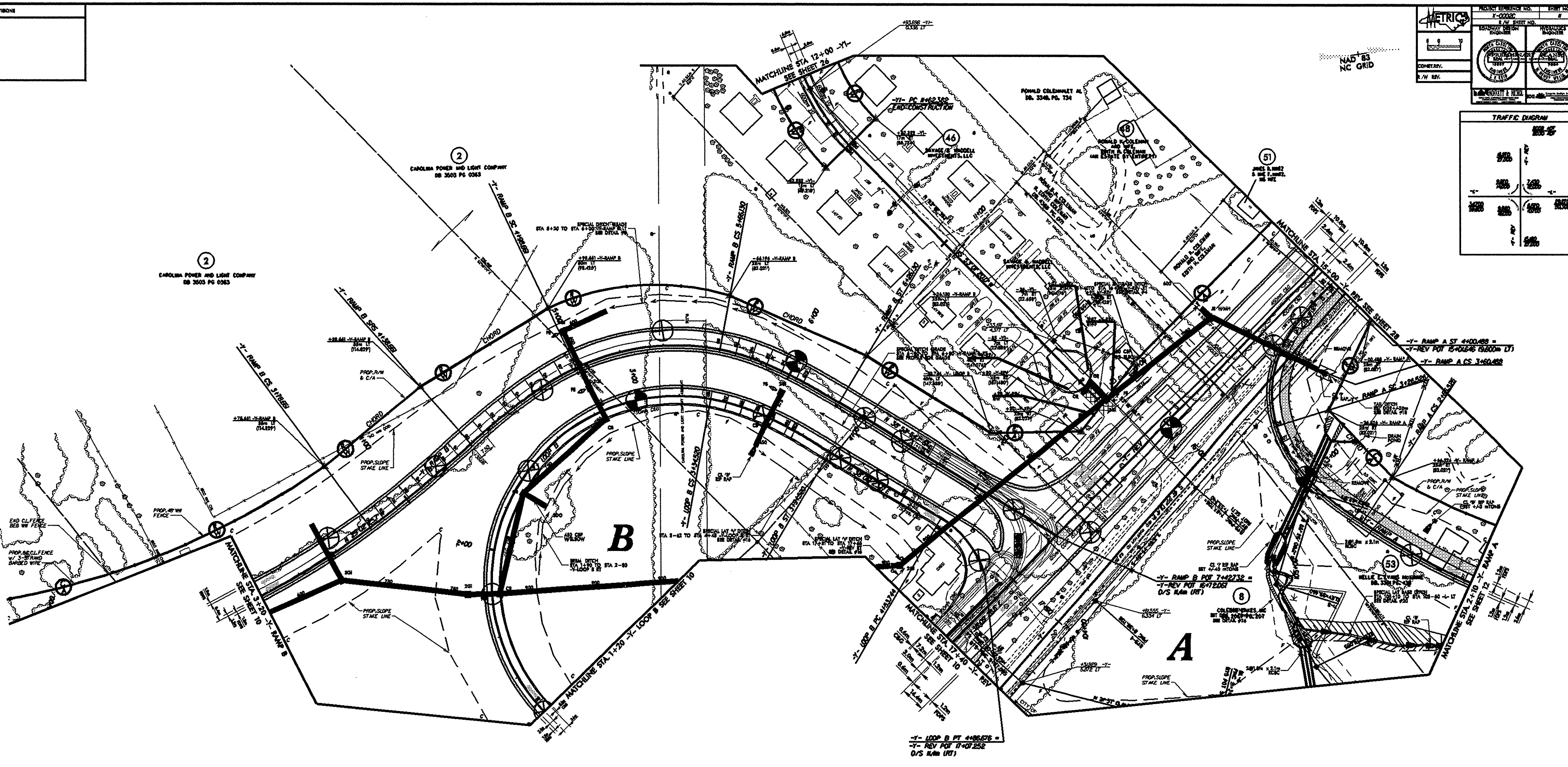
TIP NO.	COUNTY:
DESIGNED BY:	DATE:
CHECKED BY:	DATE:

PROJECT REFERENCE NO. 7-0002C
SHEET NO. 10
TOTAL SHEETS 100



1. THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION
2. CAROLINA POWER AND LIGHT COMPANY DB 3600 PG 0063
917. NCDOT (formerly VONNIE ROSE HOLMES KNIGHT)
4. LLOYD E. HENDRIX AND WIFE ANN S. HENDRIX DB 2533 PG 600
5. McCLEAN DEVELOPMENT CORP. DB 3072 PG 025
6. COLLEGE LAKES INC DB 698 PG 26
7. THOMAS R. McCLEAN (TRUSTEE) DB 2224 PG 30
8. COLLEGE LAKES INC DB 2087 PG 307
9. McDONALD M. BRAXTON AND WIFE VIOLET T. BRAXTON DB 2930 PG 479, PB 36, PG 22
912. NCDOT (formerly RAYMOND DANLSTORM)
11. JESSE RUDOLPH RAYNOR AND WIFE EDNA M. RAYNOR DB 2539 PG 180, PB 36, PG 22
12. CHARLES W. BLUE II DB 4080 PG 073
13. McDONALD M. BRAXTON AND WIFE VIOLET T. BRAXTON DB 2940 PG 460, PB 37, PG 071
14. McDONALD M. BRAXTON AND WIFE VIOLET T. BRAXTON DB 2929 PG 156, PB 37, PG 071
15. JOSEPH CLIM
16. JAMES E. PETERSON AND WIFE PATRICIA W. PETERSON DB 2278 PG 307, PB 37, PG 71
17. JEROME McFADDEN AND WIFE, GLORIA McFADDEN DB 3768 PG 0614, PB 41 PG 15
911. NCDOT (formerly RICKY D. HINNEY AND WIFE, SHARON T. HINNEY)
918. NCDOT (formerly PAUL BOLLICO AND WIFE, HAZEL BOLLICO)
914. NCDOT (formerly ROBERT ACHEN)
21. GLENN E. WHITE AND WIFE, LOUISE B. WHITE DB 2230 PG 287, PB 36 PG 22
22. MORGANTON ALLEN DB 3074 PG 0179, PB 36 PG 22
23. RICHARD V. HYER & LORETTA HYER DB 2469 PG 600
24. PAFUS SMITH III AND WIFE ZALOTH-LEE C. SMITH DB 4206 PG 0476, PB 36 PG 22
25. KEITH A. PACK DB 4814 PG 0820, PB 36 PG 22
26. CONTI MORTGAGE CORP. DB 5007 PG 19
27. LINDA M. HOWINE DB 4728 PG 0206, PB 37 PG 71
28. CHARLES O. PLUMMER AND WIFE DELORES J. PLUMMER DB 2264 PG 236, PB 37 PG 71
921. NCDOT (formerly GILBERT FRANCO)
30. FRANCIS LYNN STEELE AND WIFE CAROL ANN STEELE DB 3915 PG 0009, PB 37 PG 71
31. STEVE ROBIN WRIGHT DB 3204 PG 606, PB 37 PG 71
32. CLYDE F. STRICKLAND AND WIFE, CONNIE L. STRICKLAND DB 2982 PG 353, PB 37 PG 71
33. HENRY A. HORNSEY AND WIFE, CASSANDRA BELL HORNSEY DB 3207 PG 0005, PB 37 PG 71
920. NCDOT (formerly MICHAEL M. SULLIVAN AND WIFE, DEBRA A. SULLIVAN)
34. FRED M. CRAIG AND WIFE, ELEANA M. PONE CRAIG DB 4621 PG 0462, PB 38 PG 15
37. GARY A. DIBLE AND WIFE, DEBORAH A. DIBLE DB 3600 PG 0036, PB 40 PG 15
38. THOMAS HOUFFE, JR. DB 3486 PG 0180, PB 40 PG 15
39. PHILLIP A. STINSON AND WIFE, DEBRA K. STINSON DB 4166 PG 0486, PB 40 PG 15
40. BETTY SMITH DB 3601 PG 0648, PB 40 PG 15
41. ANTHONY L. BOYLORN AND WIFE, VIVIAN L. BOYLORN DB 4686 PG 731, PB 40 PG 15
42. WILLIAM M. HUNNICUTT AND WIFE, CYNTHIA D. HUNNICUTT DB 4779 PG 0223, PB 40 PG 15
43. TRENE D. PULLEY DB 4533 PG 0799, PB 40 PG 15
44. COLLEGE LAKES, INC NO DEEDBOOK DATA
46. ROBERT LEE GOSWIN DB 4365 PG 884, PB 40 PG 15

REVISIONS



-Y- LOOP B

Pts Sta 0+60.905	PI Sta 7+28.019	Pts Sta 3+54.760
θs = 30°19'59.0"	Δ = 164°48'22.5" (RT)	θs = 20°13'19.3"
Ls = 90.000	L = 244.520	Ls = 60.000
LT = 60.905	T = 638.019	LT = 40.264
ST = 30.825	R = 85.000	ST = 20.240
	e = 0.08	
	RO = 60.0m	
	DS = 50 kph	

-Y1-

PI Sta 4+70.987
Δ = 41°55'49.4" (RT)
L = 32.932
T = 17.243
R = 45.000
e = 0.08
RO = 34.0m
DS = 40 kph

-Y- RAMP B

PI Sta 2+42.595	Pts Sta 3+98.675	Pts Sta 4+78.824	PI Sta 5+33.638	Pts Sta 5+86.371
Δ = 45°56'30.8" (LT)	θs = 4°46'28.1"	θs = 15°54'55.8"	Δ = 35°47'36.2" (RT)	θs = 20°13'19.3"
L = 288.661	Ls = 60.000	Ls = 60.000	L = 67.469	Ls = 60.000
T = 152.566	LT = 40.015	LT = 40.163	T = 34.876	LT = 40.264
R = 360.000	ST = 20.013	ST = 20.148	R = 108.000	ST = 20.240
e = 0.08			e = 0.08	
RO = 60.0 m			RO = 60.0m	
DS = 90 kph			DS = 50 kph	

-Y- RAMP A

Pts Sta 3+05.217	PI Sta 3+44.192	Pts Sta 3+74.026
θs = 4°3'51.5"	Δ = 35°55'03.4" (RT)	θs = 22°55'05.9"
θs = 34°37'10.1"	L = 33.852	Ls = 40.000
Ls = 60.000	T = 17.565	LT = 26.684
LT = 35.690	R = 50.000	ST = 13.340
ST = 23.478	e = 0.08	
	RO = 50.0m	
	DS = 40 kph	

FOR DITCH DETAILS SEE SHEET 2-6
FOR -Y- REV PROFILE SEE SHEET 55
FOR -Y1- PROFILE SEE SHEET 57
FOR -Y- RAMP A PROFILE SEE SHEET 44
FOR -Y- RAMP B PROFILE SEE SHEET 45 & 46
FOR -Y- LOOP B PROFILE SEE SHEET 46 & 47

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY: DATE:
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	12
R/W SHEET NO.	

METRIC 5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.

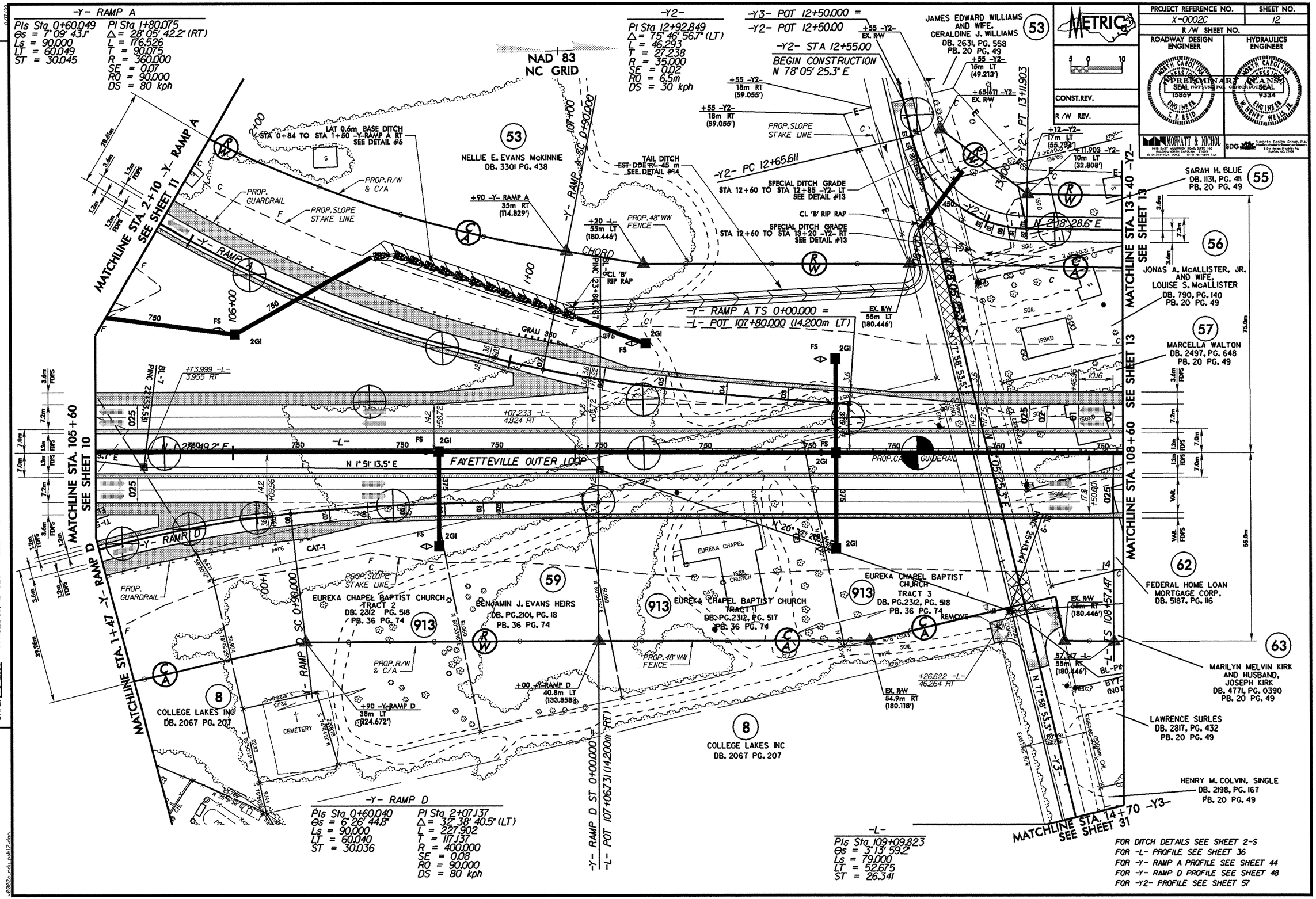
PRELIMINARY PLANS — SEAL NOT USED FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE (919) 781-4699 FAX

SDG Sungate Design Group, P.A. — Transportation Consultants, 516-a Jones Franklin Rd., Raleigh, NC 27606

REVISIONS

DATE: 8-3-2006 - PARCEL 58 AND 60 REVISED PARCEL NUMBER TO 913
DATE: 8-3-2006 - PARCEL 913 REVISED PARCEL NAME TO EUREKA CHAPEL BAPTIST CHURCH
DATE: 8-3-2006 - PARCEL 59 REVISED PARCEL NAME TO BENJAMIN J. EVANS HEIRS



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	13
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER J. R. REID — PRELIMINARY PLANS NOT FOR CONSTRUCTION

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS III — PRELIMINARY PLANS NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, 919 781-4626 VOICE, 919 781-4696 FAX

SDG Sungate Design Group, P.A. — 510-A James Kerr Blvd., Raleigh, NC 27603

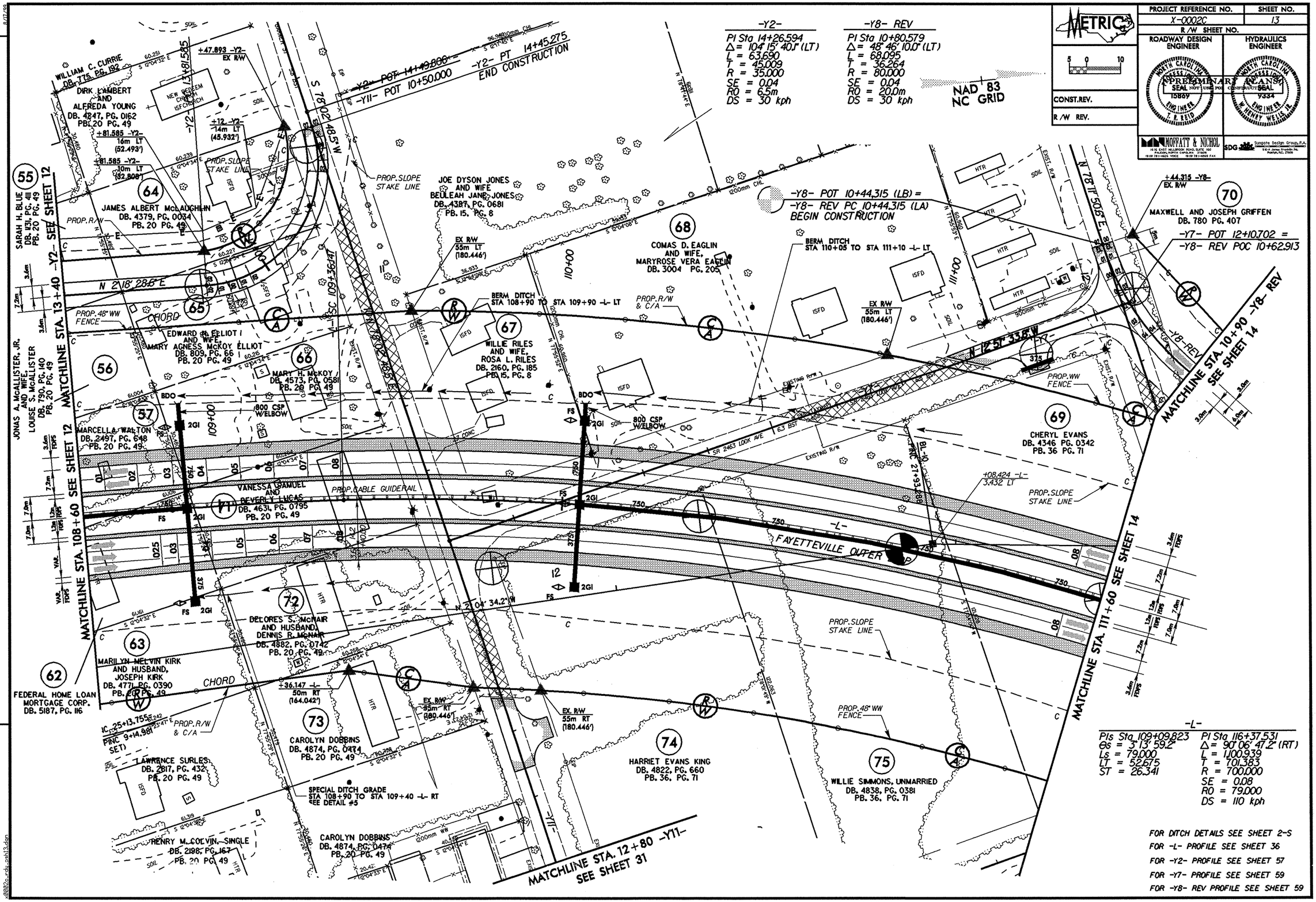
REVISIONS

8/17/09

-Y2-
PI Sta 14+26.594
Δ = 104° 15' 40.1" (LT)
L = 63.690
T = 45.009
R = 35.000
SE = 0.04
R0 = 6.5m
DS = 30 kph

-Y8- REV
PI Sta 10+80.579
Δ = 48° 46' 10.0" (LT)
L = 68.095
T = 36.264
R = 80.000
SE = 0.04
R0 = 20.0m
DS = 30 kph

NAD 83
NC GRID



-L-

PIs Sta 109+09.823	PI Sta 116+37.531
θs = 3° 13' 59.2"	Δ = 90° 06' 47.2" (RT)
Ls = 79.000	L = 1,100.939
LT = 52.675	T = 701.383
ST = 26.341	R = 700.000
	SE = 0.08
	R0 = 79.000
	DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 36
FOR -Y2- PROFILE SEE SHEET 57
FOR -Y7- PROFILE SEE SHEET 59
FOR -Y8- REV PROFILE SEE SHEET 59

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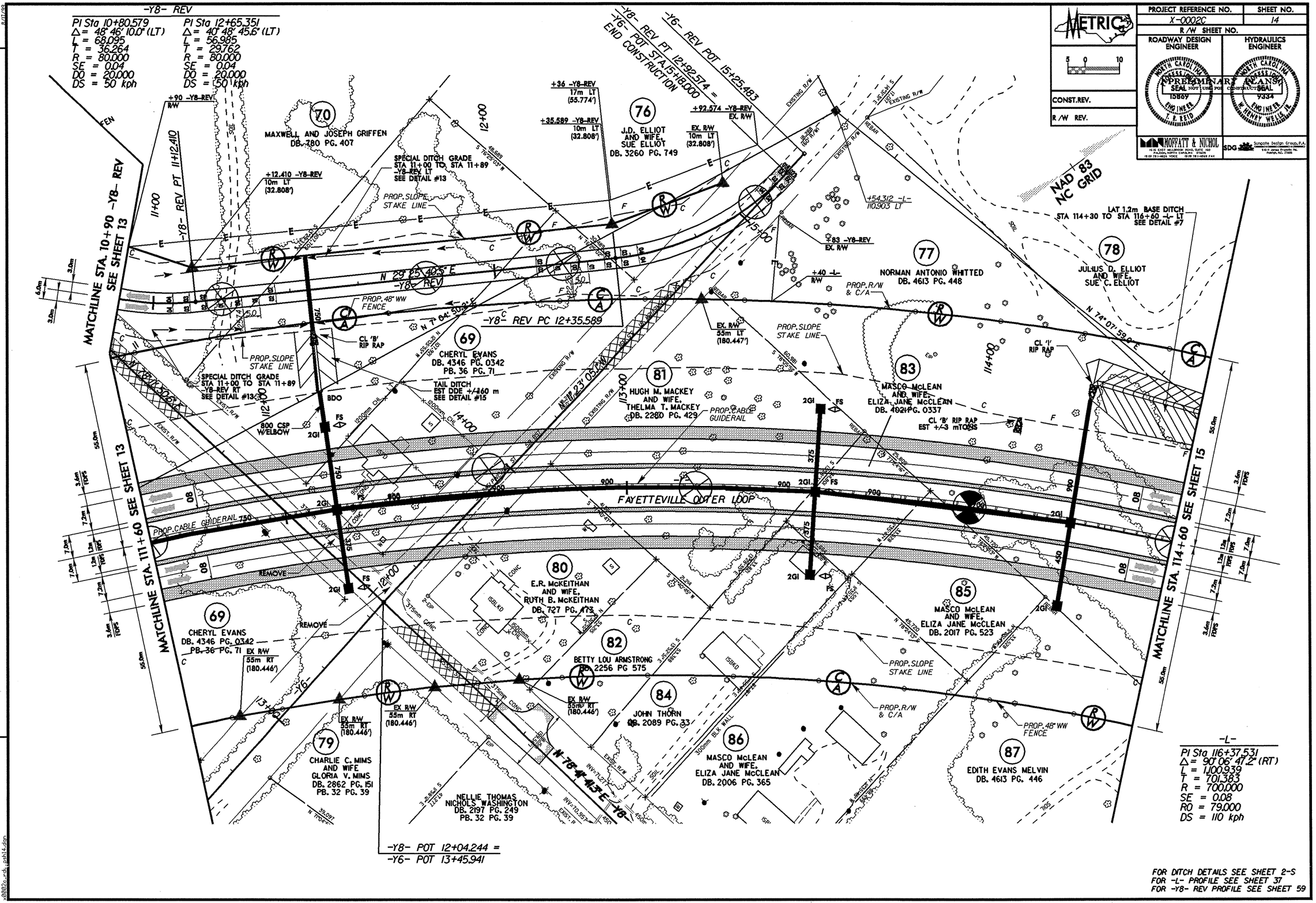


PROJECT REFERENCE NO.	SHEET NO.
X-0002C	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
MOFFATT & NICHOL	SDG

METRIC

CONST. REV.

R/W REV.

REVISIONS

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 37
FOR -Y8- REV PROFILE SEE SHEET 59

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

R/W REV.

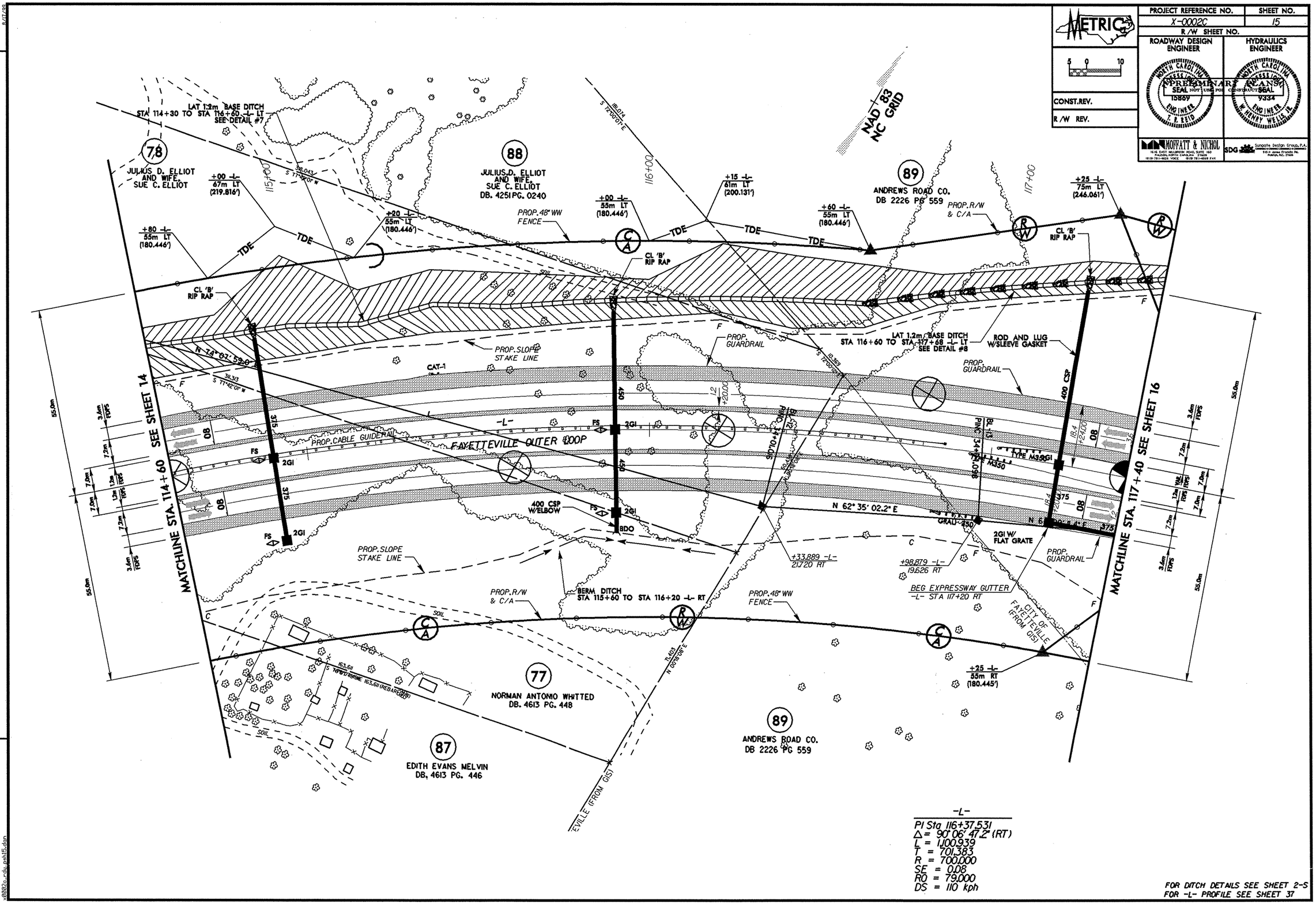
PRELIMINARY PLANS
NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15869 T. R. REID

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 W. HENRY WELLS, JR.

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4659 FAX

SDG Sungate Design Group, P.A.
9104 Jones Branch Rd.
Raleigh, N.C. 27606



-L-

PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 37

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST.REV.

R/W REV.

PRELIMINARY PLANS
NOT USED FOR CONSTRUCTION

MOFFATT & NICHOL

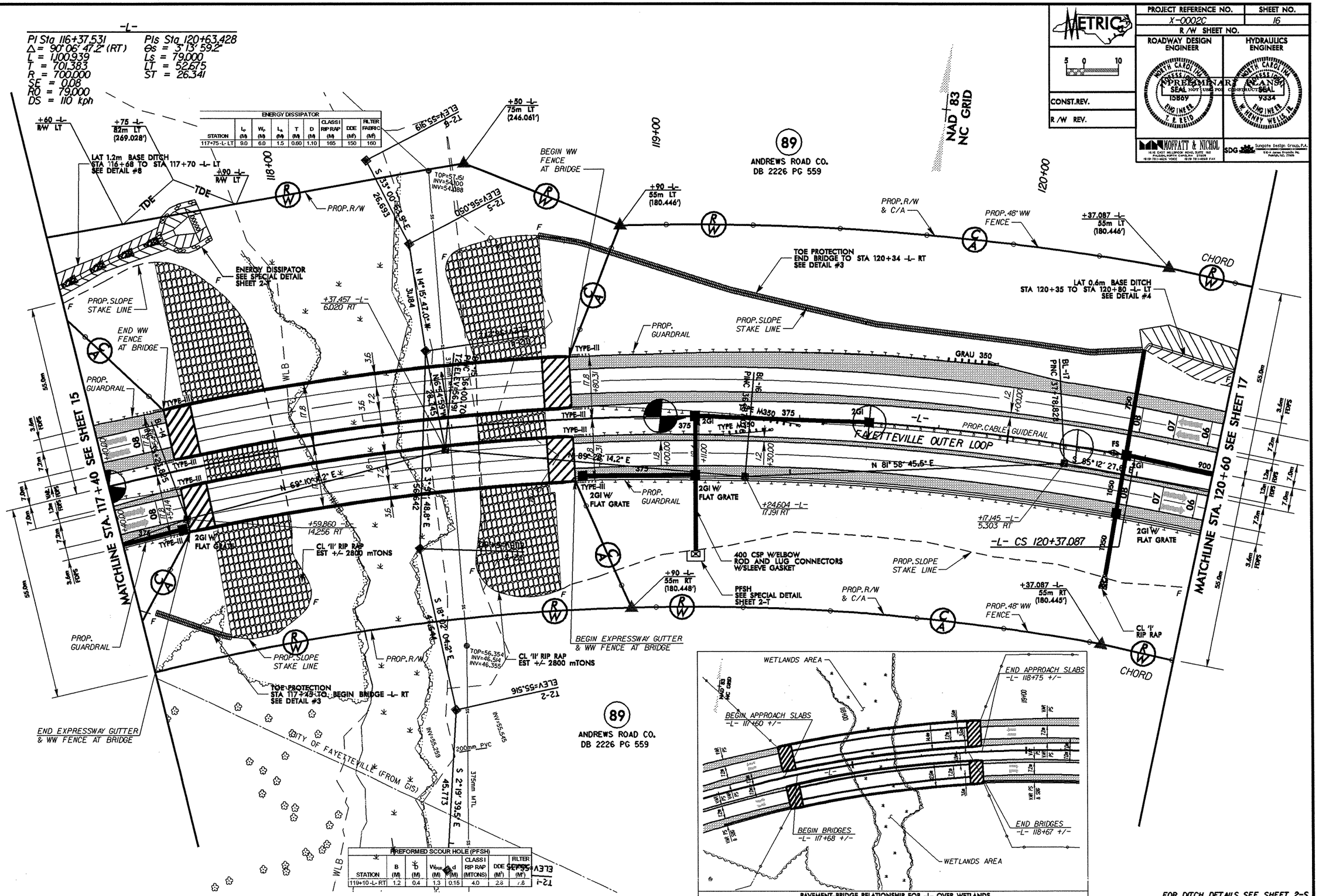
SDG Sungate Design Group, P.A.

-L-

PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

PIs Sta 120+63.428
Θs = 3° 13' 59.2"
Ls = 79.000
LT = 52.675
ST = 26.341

ENERGY DISSIPATOR								
STATION	L_P (M)	W_P (M)	L_A (M)	T (M)	D (M)	CLASS I RIP RAP (M)	DDE (M^2)	FILTER FABRIC (M^2)
117+75-L-LT	9.0	6.0	1.5	0.60	1.10	165	150	160



PREFORMED SCOUR HOLE (PFSH)							
STATION	B (M)	D (M)	W_{PSH} (M)	d (M)	CLASS I RIP RAP (MTONS)	DDE (M^2)	FILTER FABRIC (M^2)
119+10-L-RT	1.2	0.4	1.3	0.15	4.0	2.8	7.8

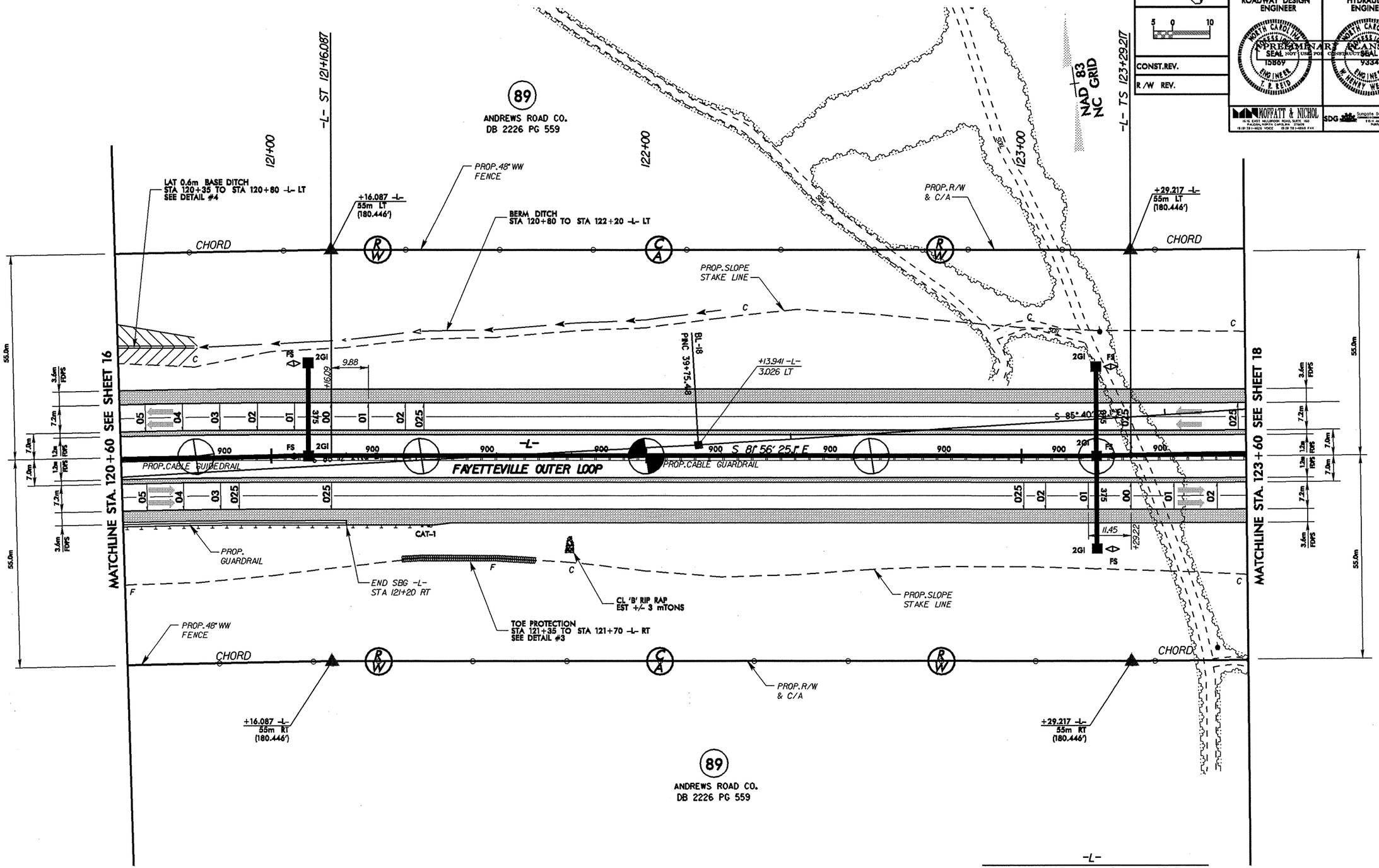
PAVEMENT-BRIDGE RELATIONSHIP FOR -L- OVER WETLANDS
(SEE SHEET 2K FOR A LARGER DETAIL VEIW)

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 38

REVISIONS

8/17/99

x0002c_rdy_psh16.dgn



-L-

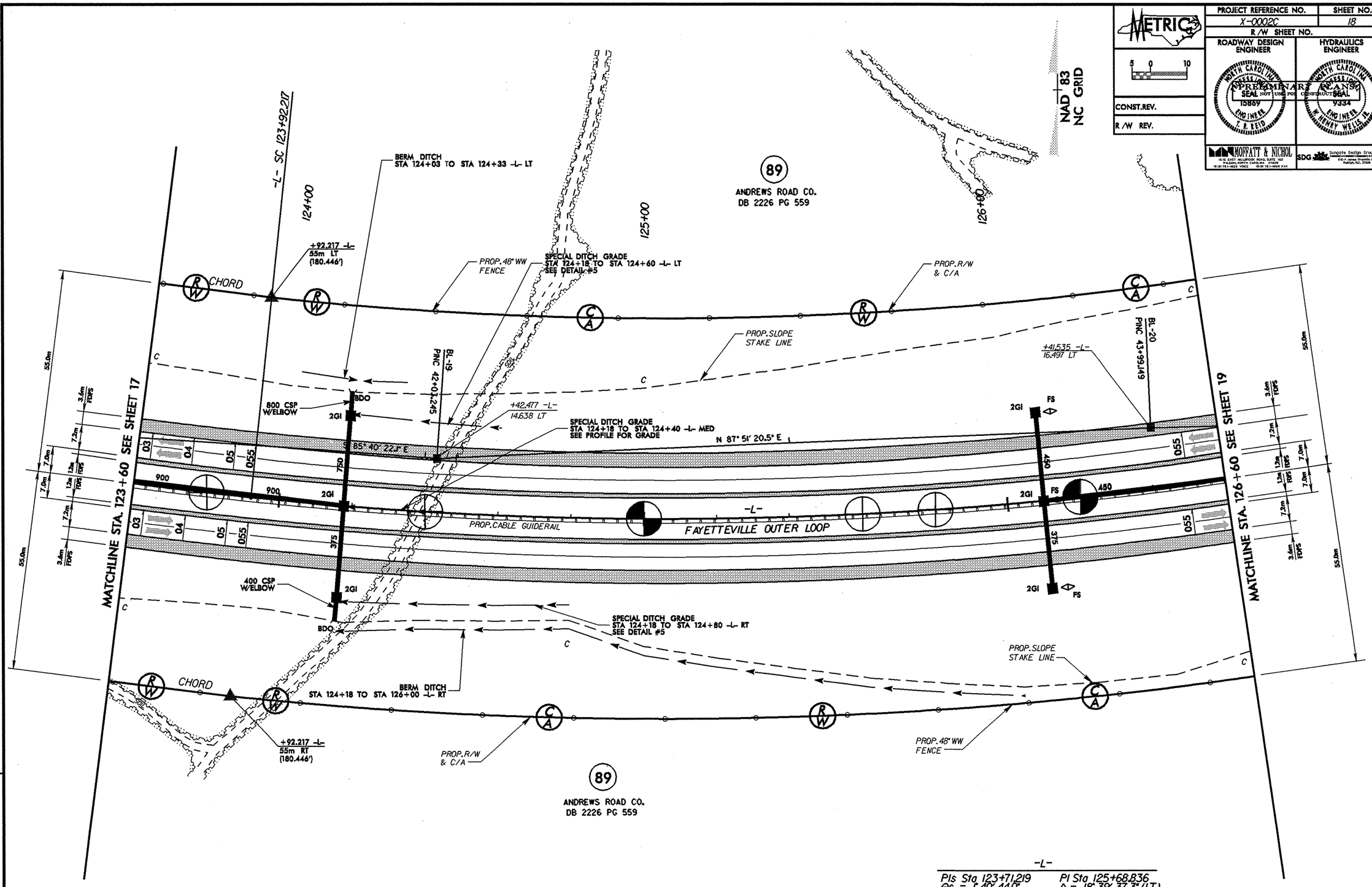
PIs Sta 120+63.428	PIs Sta 123+71.219
Θs = 3° 13' 59.2"	Θs = 1° 40' 44.0"
Ls = 79.000	Ls = 63.000
LT = 52.675	LT = 42.002
ST = 26.341	ST = 21.002

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 39

REVISIONS

8/17/99

x0002c_rdy_psh17.dgn



-L-

PIs Sta 123+71.219	PI Sta 125+68.836
Θs = 1° 40' 44.0"	Δ = 18° 39' 37.3" (LT)
Ls = 63.000	L = 350.111
LT = 42.002	T = 176.620
ST = 21.002	R = 1,075.000
	SE = 0.055
	RO = 63.000
	DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 39

REVISIONS

x0002c_rdy_psh18.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	19
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

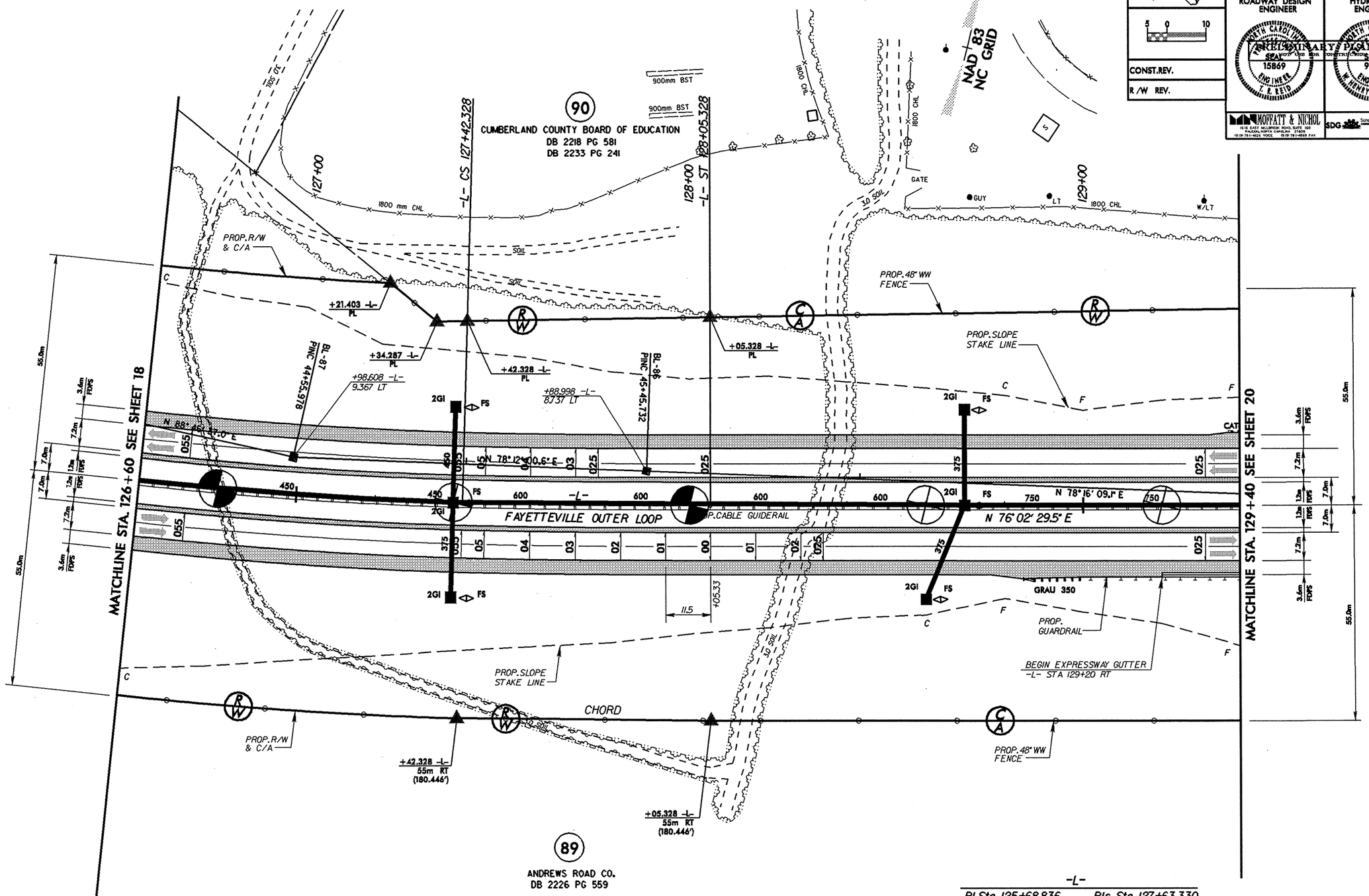
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A. 310-A Jones Franklin Rd. Raleigh, N.C. 27606

REVISIONS



-L-

PI Sta 125+68.836	PIs Sta 127+63.330
Δ = 18° 39' 37.3" (LT)	θs = 1° 40' 44.0"
L = 350.111	Ls = 63.000
T = 176.620	LT = 42.002
R = 1,075.000	ST = 21.002
SE = 0.055	
RO = 63.000	
DS = 110 kph	

FOR -L- PROFILE SEE SHEET 40

x0002c_rdy_psh19.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	20
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15867 ENGINEER T. R. REID

PRELIMINARY NOT FOR CONSTRUCTION

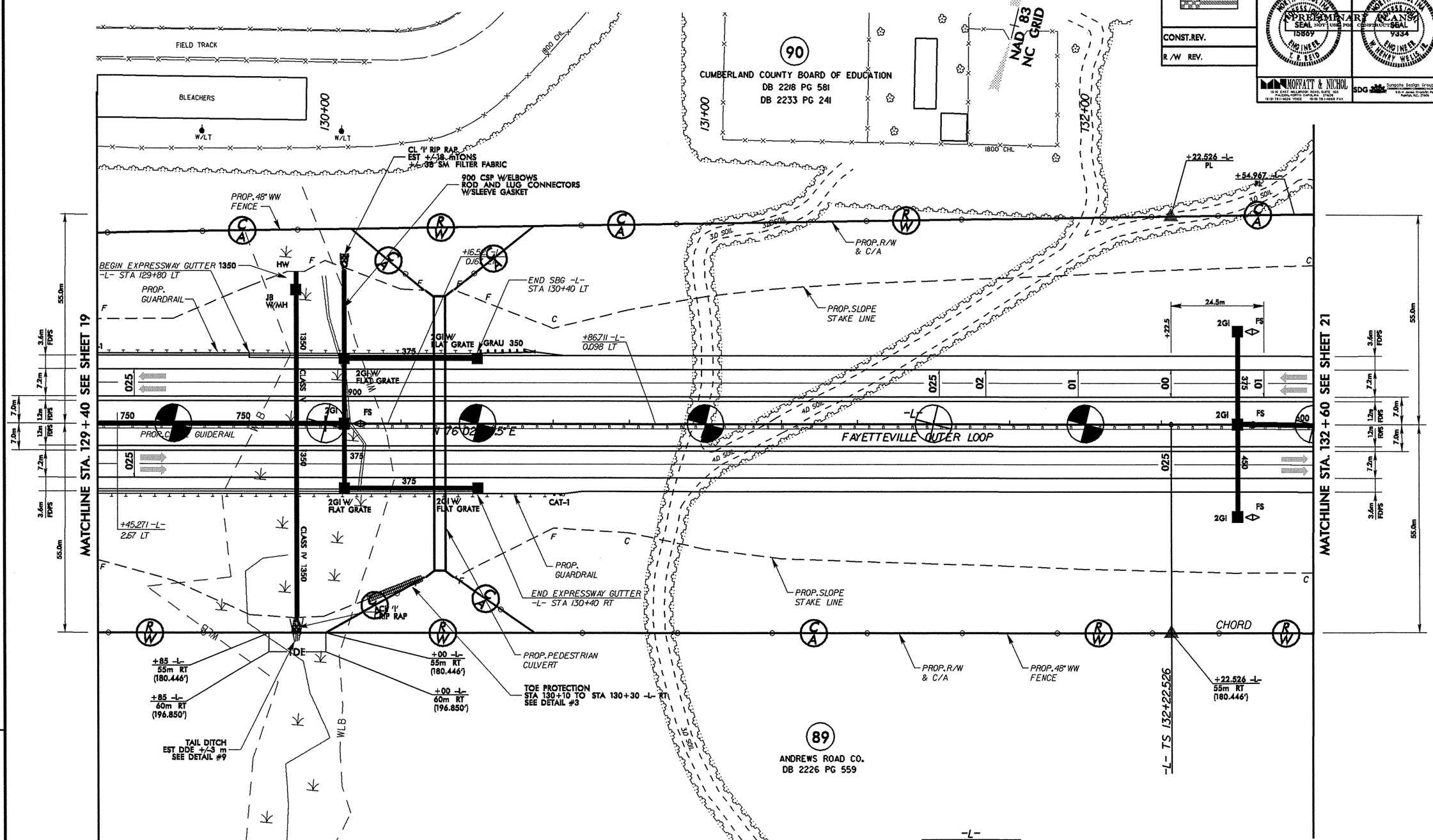
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, III

MOFFATT & NICHOL
1616 E. EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4659 FAX

SDG Sungate Design Group, P.A.
PROFESSIONAL ENGINEERING FIRM P-0776
816-A James Drive
Garner, NC 27529

REVISIONS



-L-
PIs Sta 132+63.193
Θs = 0° 30' 00.0"
Ls = 61.000
LT = 40.667
ST = 20.333

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 40

8/17/99

x0002c_rdw_psh20.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	21
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

PRELIMINARY PLANS NOT FOR CONSTRUCTION

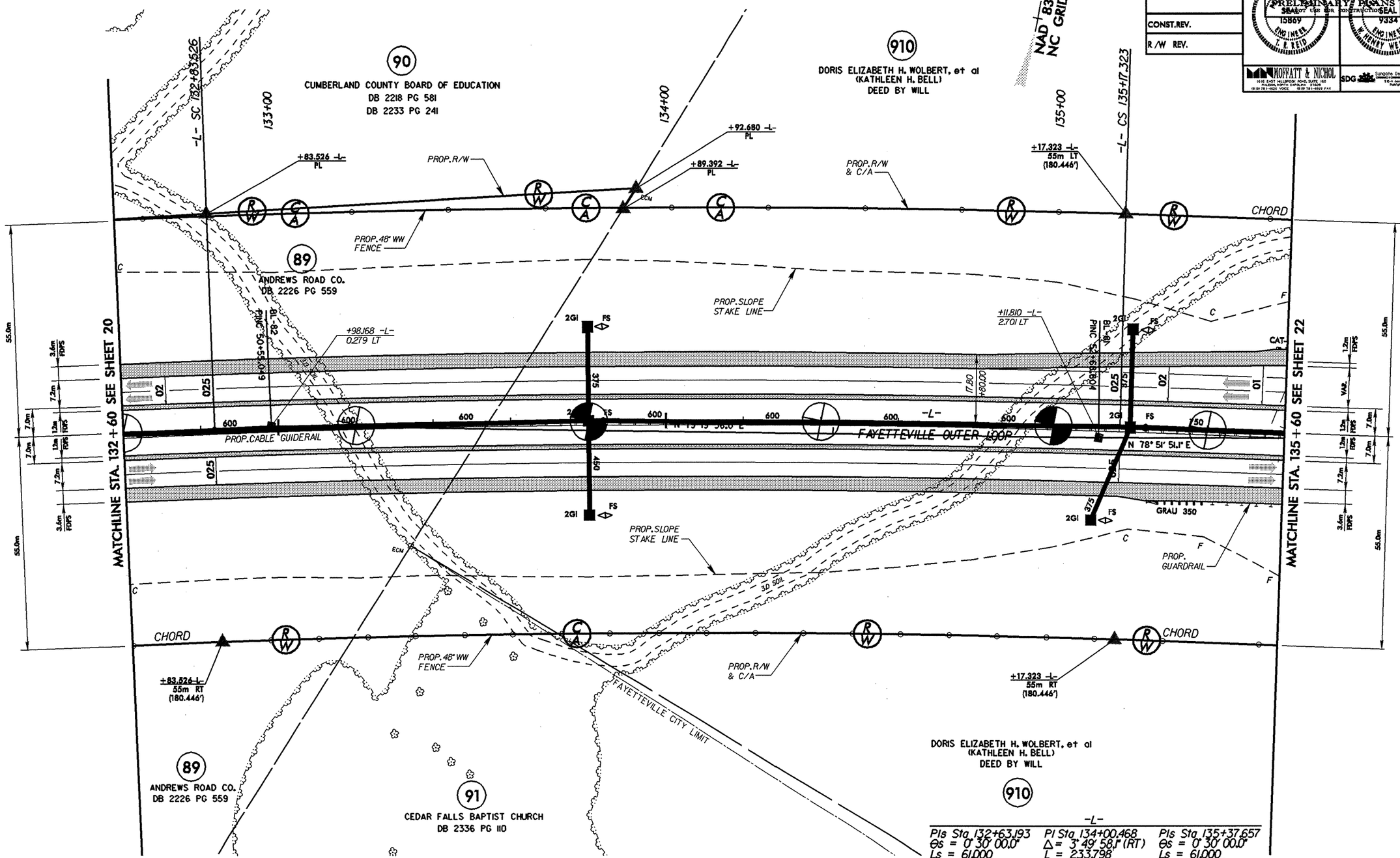
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, III

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4959 FAX

SDG Sungate Design Group, P.A.
719-A Jones Franklin Rd.
Raleigh, NC 27606

REVISIONS



-L-

PIs Sta 132+63.193	PI Sta 134+00.468	PIs Sta 135+37.657
Θs = 0° 30' 00.0"	Δ = 3° 49' 58.1" (RT)	Θs = 0° 30' 00.0"
Ls = 61.000	L = 233.798	Ls = 61.000
LT = 40.667	T = 116.942	LT = 40.667
ST = 20.333	R = 3,495.000	ST = 20.333
	SE = 0.025	
	RO = 61.000	
	DS = 110 kph	

FOR -L- PROFILE SEE SHEET 41

x0002c-rdy_psh21.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST.REV.

R/W REV.

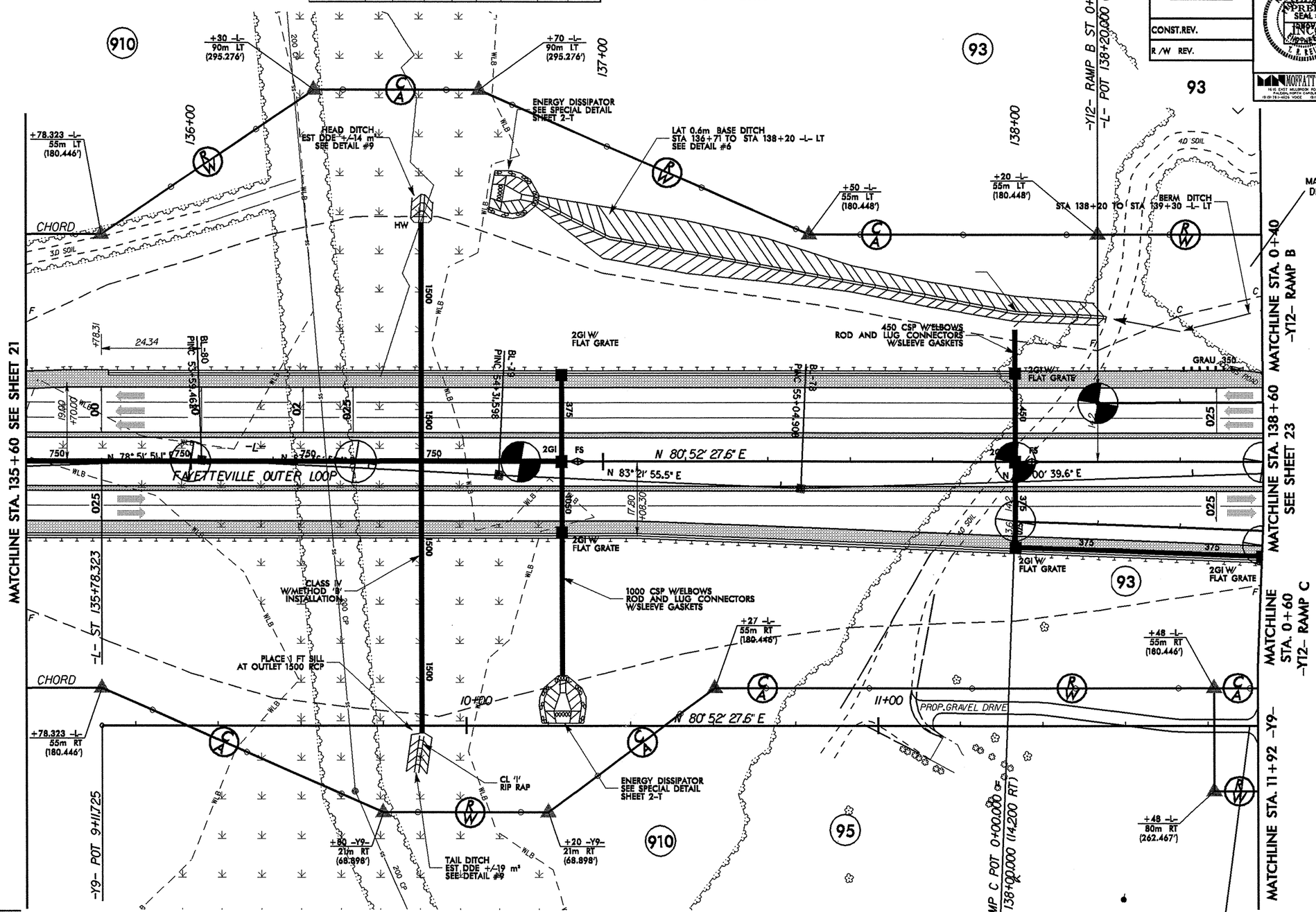
PRELIMINARY PLANS
INCOMPLETE PLANS

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

ENERGY DISSIPATOR								
STATION	L_P (M)	W_P (M)	L_A (M)	T (M)	D (M)	CLASS I RIP RAP (M)	DDE (M^3)	FILTER FABRIC (M^2)
136+80 -L- LT	7.5	5.0	1.5	0.60	0.90	130	105	125
136+90 -L- RT	9.5	6.0	3.5	0.75	1.10	235	200	185

-Y12- RAMP B
PIs Sta 0+40.001
Θs = 0° 58' 56.0"
Ls = 60.000
LT = 40.001
ST = 20.001



-L-
PIs Sta 135+37.657
Θs = 0° 30' 00.0"
Ls = 61.000
LT = 40.667
ST = 20.333

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 41
FOR -Y9- PROFILE SEE SHEET 59
FOR -12- RAMP B PROFILE SEE SHEET 51
FOR -Y12- RAMP C PROFILE SEE SHEET 52

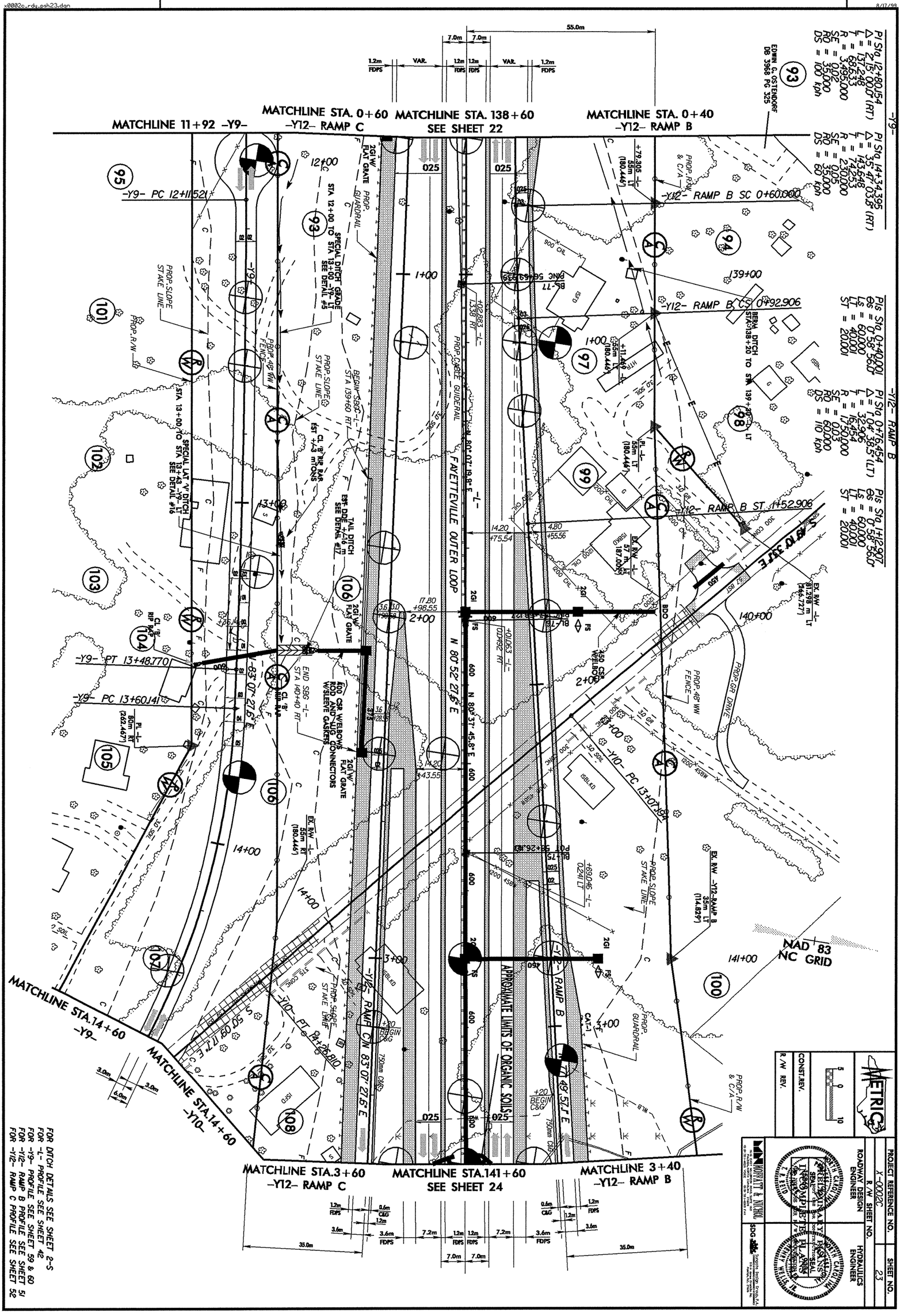
REVISIONS

-PARCEL 910 - ADDED NCDOT TO OWNER
-PARCEL 96 - CHANGED TO 93

x0002c_rdy_psh22.dgn

REVISIONS
12/15/06 -PARCEL 96 - CHANGED TO 93

x0002c_rdy_psh23.dgn 8/17/99



REVISIONS

10/26/06 -PARCEL 111 - CHANGED TO 110

PAVEMENT-BRIDGE RELATIONSHIP FOR -L- OVER -112-
(SEE SHEET 2L FOR A LARGER DETAIL VIEW)

-112- RAMP A
PI Sta 14+34.305
Δ = 90° 00' 00.0" (RT)
L = 74.558
T = 47.000
R = 270.000
SE = 0.070
RS = 30.000
DS = 60 kph

-112- RAMP A1
PI Sta 15+05.089
Δ = 90° 00' 00.0" (LT)
L = 74.558
T = 47.000
R = 270.000

-112- RAMP B
-112- RAMP B1
-112- RAMP C
-112- RAMP C1
-112- RAMP D
-112- RAMP D1

METRIC

PROJECT REFERENCE NO.	SHEET NO.
Y-4002B	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COUNTY:
F/W NO.:

NAD 83
NC GRID

TRAFFIC DIAGRAM

28,600 / 30,300	2006 ADT / 2030 ADT
8,920 / 13,400	10,040 / 13,200
29,270 / 50,300	12,600 / 17,200 — 17,020 / 26,300 — 28,820 / 49,400
	23,350 / 32,300

A
B
C
D

FAYETTEVILLE OUTER LOOP

MATCHLINE STA. 3+40 -112- RAMP B
MATCHLINE STA. 141+60 SEE SHEET 23
MATCHLINE STA. 3+60 -112- RAMP C
MATCHLINE STA. 144+60 -112-
MATCHLINE STA. 3+02 -112- RAMP A & A1
MATCHLINE STA. 147+60 SEE SHEET 25
MATCHLINE STA. 3+47 -112- RAMP D

-112- PT 15+03.399 (LB) =
-112- PT 15+03.399 (LA)
-112- STA 15+03.399
END CONSTRUCTION

FOR DITCH DETAILS SEE SHEET 3-5
FOR -L- PROFILE SEE SHEET 4E AND 4S
FOR -112- PROFILE SEE SHEET 6D
FOR -112- RAMP B PROFILE SEE SHEET 5A & 5E
FOR -112- RAMP B1 PROFILE SEE SHEET 5E
FOR -112- RAMP C PROFILE SEE SHEET 6S
FOR -112- RAMP C1 PROFILE SEE SHEET 6S

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY: DATE:
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

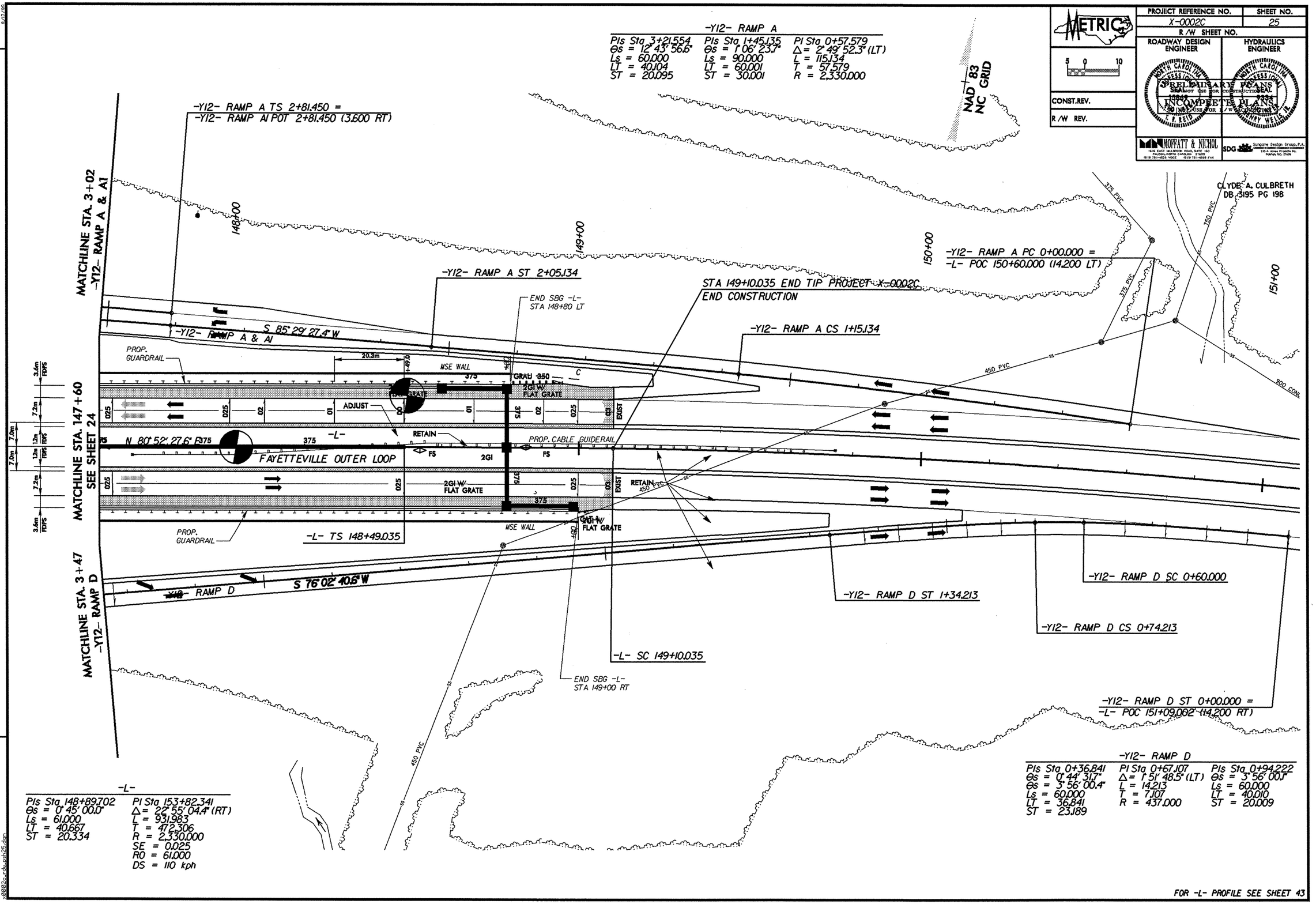
CONST.REV.

R/W REV.

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

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4628 FAX

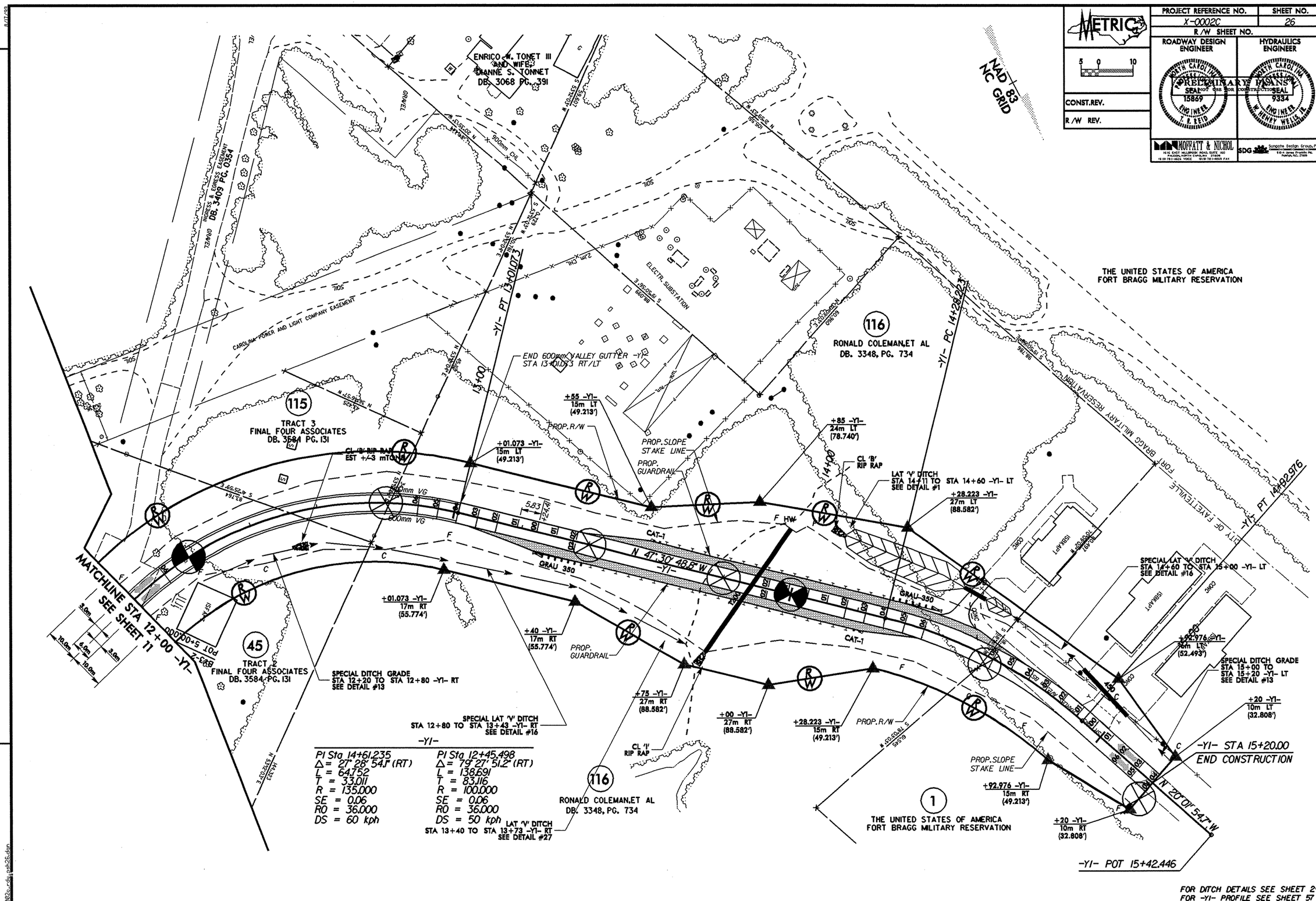
SDG Sungate Design Group, P.A.
1614 Jones Franklin Rd.
Raleigh, NC 27606



REVISIONS

FOR -L- PROFILE SEE SHEET 43

x0002c_rdu_psh25.dgn



METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
26
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT USE FOR CONSTRUCTION
SEAL 15869
SEAL 9334
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG
NAD 83 NC GRID
ENRICO W. TONET III AND WIFE, DIANNE S. TONNET DB. 3068 PG. 391
INGRESS & EGRESS EASEMENT DB. 3409 PG. 0354
CAROLINA POWER AND LIGHT COMPANY EASEMENT
ELECTR. SUBSTATION
THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION
116
RONALD COLEMAN,ET AL DB. 3348, PG. 734
115
TRACT 3 FINAL FOUR ASSOCIATES DB. 3584 PG. 131
45
TRACT 2 FINAL FOUR ASSOCIATES DB. 3584 PG. 131
1
THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION
MATCHLINE STA 12+00 -Y1- SEE SHEET 11
-Y1- PT 13+01.073
-Y1- PC 14+28.223
-Y1- PT 14+92.976
-Y1- STA 15+20.00 END CONSTRUCTION
-Y1- POT 15+42.446
END 600mm VALLEY GUTTER -Y1- STA 13+01.073 RT/LT
+55 -Y1- 15m LT (49.213')
+01.073 -Y1- 15m LT (49.213')
+85 -Y1- 24m LT (78.740')
CL 'B' RIP RAP
LAT 'V' DITCH STA 14+11 TO STA 14+60 -Y1- LT SEE DETAIL #1
+28.223 -Y1- 27m LT (88.582')
SPECIAL LAT 'V' DITCH STA 14+60 TO STA 15+00 -Y1- LT SEE DETAIL #16
+92.976 -Y1- 16m LT (52.493')
SPECIAL DITCH GRADE STA 15+00 TO STA 15+20 -Y1- LT SEE DETAIL #13
+20 -Y1- 10m LT (32.808')
+92.976 -Y1- 15m RT (49.213')
+20 -Y1- 10m RT (32.808')
+01.073 -Y1- 17m RT (55.774')
+40 -Y1- 17m RT (55.774')
+75 -Y1- 27m RT (88.582')
+00 -Y1- 27m RT (88.582')
+28.223 -Y1- 15m RT (49.213')
CL 'I' RIP RAP
CL 'B' RIP RAP EST +/-3 mTONS
SPECIAL DITCH GRADE STA 12+20 TO STA 12+80 -Y1- RT SEE DETAIL #13
SPECIAL LAT 'V' DITCH STA 12+80 TO STA 13+43 -Y1- RT SEE DETAIL #16
LAT 'V' DITCH STA 13+40 TO STA 13+73 -Y1- RT SEE DETAIL #27
PROP. R/W
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
N 47°30' 48.8" W
N 20°01' 54.7" W
GRAU 350
CAT-1
F HW
-Y1-
PI Sta 14+61.235
Δ = 27° 28' 54.1" (RT)
L = 64.752
T = 33.011
R = 135.000
SE = 0.06
RO = 36.000
DS = 60 kph
PI Sta 12+45.498
Δ = 79° 27' 51.2" (RT)
L = 138.691
T = 83.116
R = 100.000
SE = 0.06
RO = 36.000
DS = 50 kph
FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y1- PROFILE SEE SHEET 57
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	27
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLING III

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 8510 E. EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27616, (919) 781-4626 VOICE (919) 781-4899 FAX

SDG Sungate Design Group, P.A. — 1514 Jones Franklin Rd., Raleigh, NC 27606

METRIC 5 0 10

CONST. REV.

R/W REV.

REVISIONS

NAD 83 NC GRID

-Y- PI Sta 9+24.882 Δ = 1° 34' 47.4" (LT) L = 27.573 T = 13.787 R = 1,000.000

-Y- PI Sta 11+13.563 Δ = 1° 23' 41.6" (LT) L = 170.064 T = 85.036 R = 6,985.515

-Y11- PI Sta 8+09.408 Δ = 1° 26' 31.2" (LT) L = 25.168 T = 12.585 R = 1,000.000

-Y- POT 9+75.000 BEGIN CONSTRUCTION

-Y11- POC 8+20.000 END CONSTRUCTION

-Y14- POT 10+00.135 = -Y-REV POS 11+63.632

-Y14- POT 10+60.000 END CONSTRUCTION

-Y11- POT 7+62.319 = -Y- POC 11+09.186

-Y11- POT 11+20.000 (LB) = -Y-REV- POT 11+20.000 (LB)

-Y- REV Pls Sta 11+89.954 Θs = 2° 10' 13.1" Ls = 50.000 LT = 33.336 ST = 16.669

MATCHLINE STA. 12+00 -Y- REV SEE SHEET 28

S 12° 55' 49.4" E

S 14° 19' 53.4" E

S 77° 54' 34.2" W

HARRIET KING DB 658 PG 27 PB 96 PG 53

RIET KING 658 PG 27 96 PG 53

117 W. C. COLEMAN DB 4253 PG 130 PB 15 PG 8

118 JUDITH DYER MERCER DB. 3562 PG. 539 PB. 15 PG. 08

119 MABEL LOUISE COOPER WILLIAMS DB. 2756 PG. 117 PB. 20 PG. 49

120 EDGARDO F. JOSE DB. 4080 PG. 0855

121 JOE D. JONES DB. 2850 PG. 173

122 ANNIE LOU BROCK DB 4204 PG 795 PB 17 PG 51

123 CAROLINA TELEPHONE AND TELEGRAPH CO. DB. 4242 PG. 451 PB. 18 PG. 40

124 ANNIE R. HASSAN DB. 5532 PG. 892 PB. 18 PG. 40

125 JAN J. STREK AND WIFE, FREIDA STREK DB. 814 PG. 76

JO ANN CAPPS DB 4204 PG 781 PB 17 PG 51

EDWARD SMITH DB 3072 PG 825 PB 17 PG 51

FOR -Y- PROFILE SEE SHEET 54
FOR -Y- REV PROFILE SEE SHEET 54
FOR -Y11- PROFILE SEE SHEET 60
FOR -Y14- PROFILE SEE SHEET 61

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST. REV.

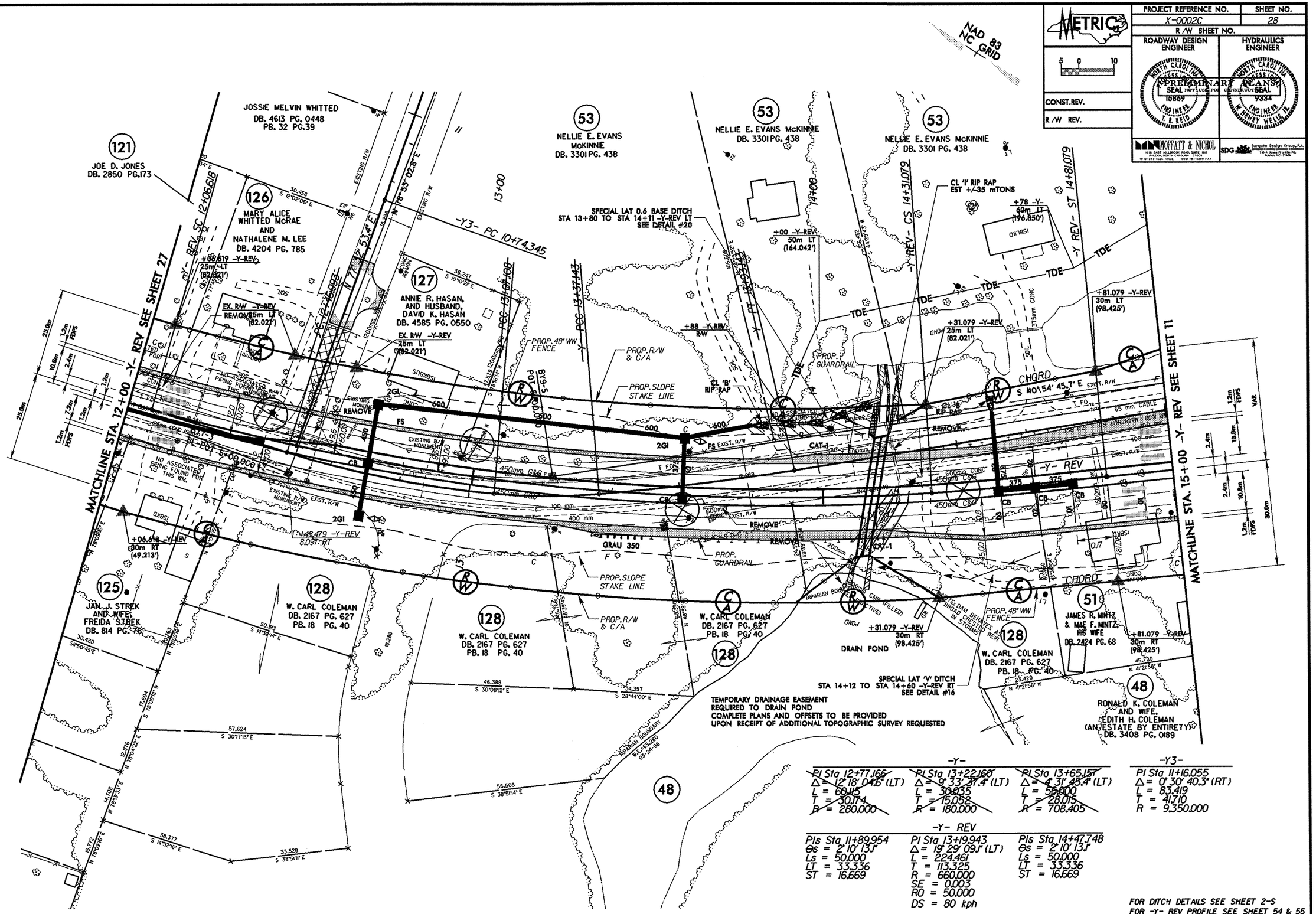
R/W REV.

PRELIMINARY PLANS

NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.



-Y-

PI Sta 12+77.166	PI Sta 13+22.160	PI Sta 13+65.157
Δ = 12° 18' 04.6" (LT)	Δ = 9° 33' 37.4" (LT)	Δ = 4° 31' 45.4" (LT)
L = 60.115	L = 30.035	L = 56.000
T = 30.174	T = 15.052	T = 28.015
R = 280.000	R = 180.000	R = 708.405

-Y3-

PI Sta 11+16.055
Δ = 0° 30' 40.3" (RT)
L = 83.419
T = 41.710
R = 9,350.000

-Y- REV

PIs Sta 11+89.954	PI Sta 13+19.943	PIs Sta 14+47.748
θs = 2° 10' 13.1"	Δ = 19° 29' 09.1" (LT)	θs = 2° 10' 13.1"
Ls = 50.000	L = 224.461	Ls = 50.000
LT = 33.336	T = 113.325	LT = 33.336
ST = 16.669	R = 660.000	ST = 16.669
	SE = 0.003	
	RO = 50.000	
	DS = 80 kph	

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y- REV PROFILE SEE SHEET 54 & 55

REVISIONS

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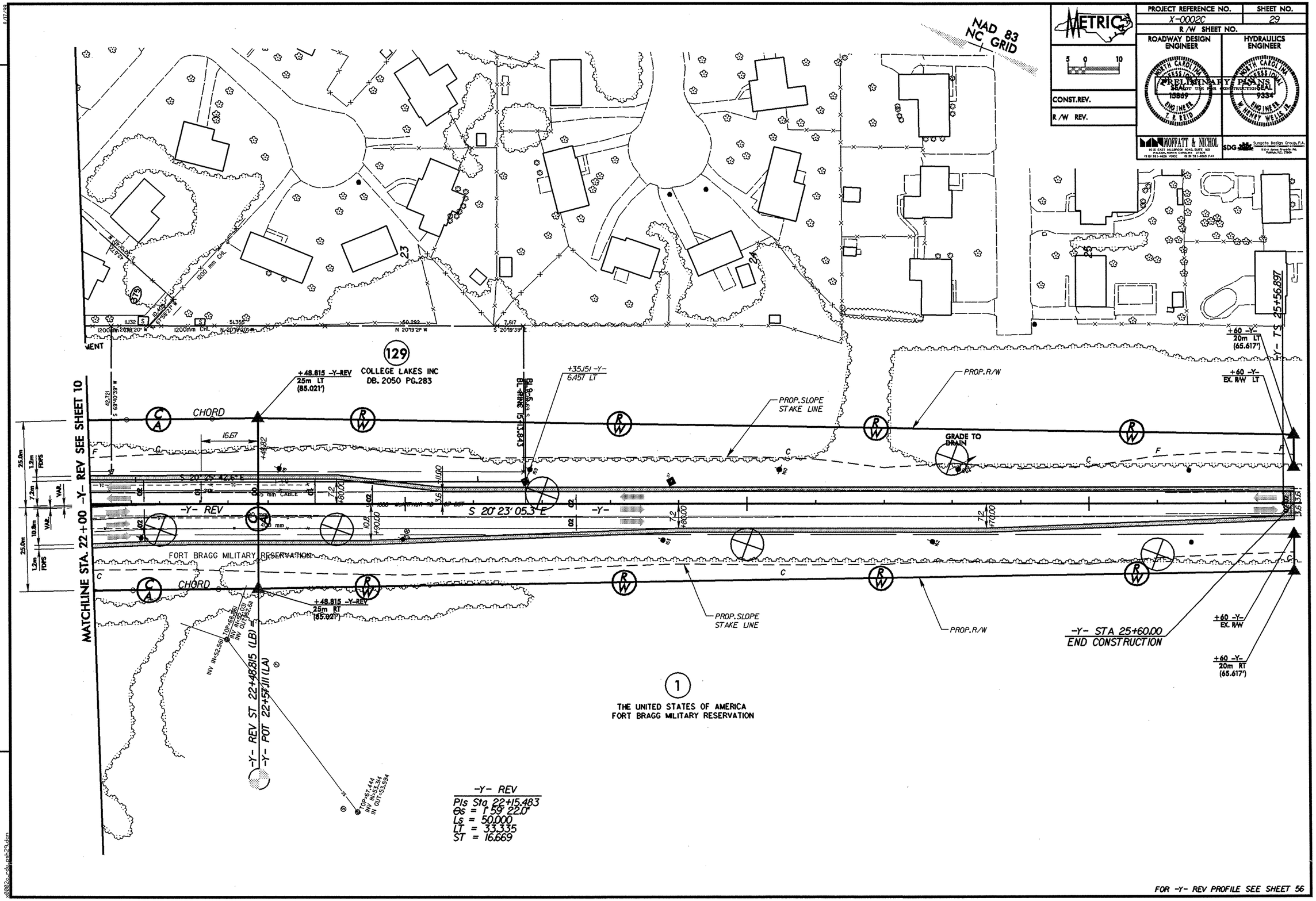


METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
29
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG
NAD 83 NC GRID
129
COLLEGE LAKES INC
DB. 2050 PG.283
+48.815 -Y-REV
25m LT
(85.021')
+35.151 -Y-
6.457 LT
PROP.SLOPE STAKE LINE
PROP.R/W
GRADE TO DRAIN
+60 -Y-
20m LT
(65.617')
+60 -Y-
EX. R/W LT
-Y- TS 25+56.897
CHORD
-Y- REV
S 20° 23' 05.3" E
FORT BRAGG MILITARY RESERVATION
MATCHLINE STA. 22+00 -Y- REV SEE SHEET 10
+48.815 -Y-REV
25m RT
(85.021')
-Y- REV ST 22+48.815 (LB)
-Y- POT 22+57.111 (LA)
-Y- STA 25+60.00
END CONSTRUCTION
+60 -Y-
EX. R/W
+60 -Y-
20m RT
(65.617')
1
THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION
-Y- REV
Pls Sta 22+15.483
Θs = 1° 59' 22.0"
Ls = 50.000
LT = 33.335
ST = 16.669
REVISIONS
FOR -Y- REV PROFILE SEE SHEET 56

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
MOFFATT & NICHOL	SDG Sungate Design Group, P.A.

METRIC

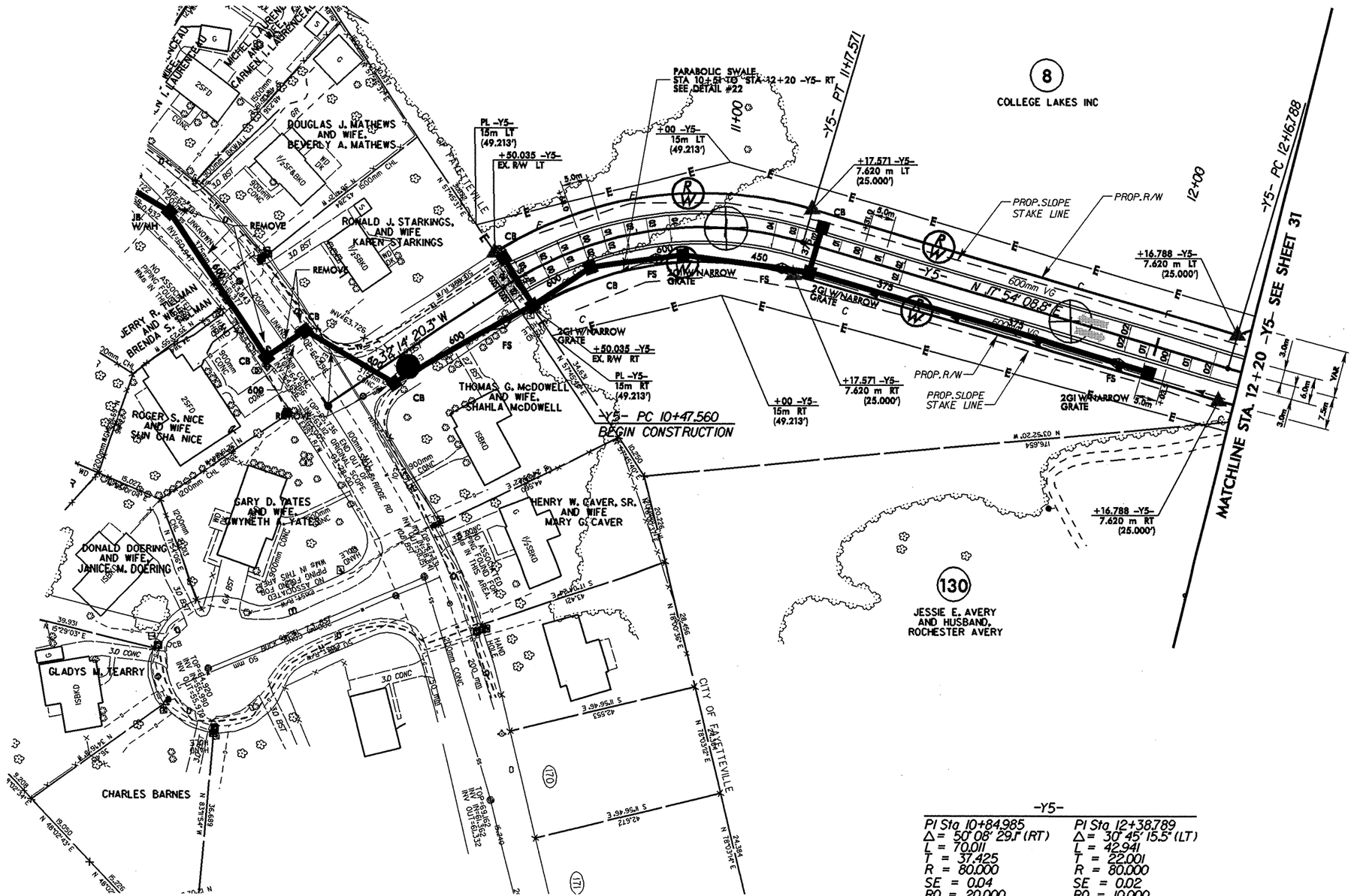
5 0 10

CONST.REV.

R/W REV.

NAD 83
NC GRID

REVISIONS



-Y5-

PI Sta 10+84.985	PI Sta 12+38.789
Δ = 50° 08' 29.1" (RT)	Δ = 30° 45' 15.5" (LT)
L = 70.011	L = 42.941
T = 37.425	T = 22.001
R = 80.000	R = 80.000
SE = 0.04	SE = 0.02
RO = 20.000	RO = 10.000
DS = 60 kph	DS = 40 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y5- PROFILE SEE SHEET 58

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	31
R/W SHEET NO.	

METRIC

5 0 10

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

PRELIMINARY PLANS NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609; (919) 781-4626 VOICE, (919) 781-4628 FAX

SDG Sungate Design Group, P.A. — 310-A Jones Franklin Rd., Raleigh, N.C. 27606

NAD 83 NC GRID

MATCHLINE STA. 14+70 -Y3-
SEE SHEET 12

-Y3- STA 15+29.74
BEGIN CONSTRUCTION

-Y11- STA 13+01.25
BEGIN CONSTRUCTION

-Y6- STA 11+59.52
END CONSTRUCTION

MATCHLINE STA. 12+80 -Y11-
SEE SHEET 13

MATCHLINE STA. 12+20 -Y5- SEE SHEET 30

9
COLLEGE LAKES INC
DB. 2067 PG. 207

HENRY W. COLVIN, SINGLE
DB. 2198, PG. 167
PB. 20 PG. 49

CLEANOUT EXIST ROADWAY DITCH

131
MACEO JAMES
DB. 971, PG. 59
PB. 20 PG. 49

132
MACEO JAMES
DB. 1004, PG. 657
PB. 20 PG. 49

133
HARRIET EVANS KING
DB. 4822, PG. 660
PB. 36, PG. 71

+61.188 -Y5-
20.161 m LT
(66.145')

+26 -Y5-
R/W LT

PROP. SLOPE STAKE LINE

PROP. R/W

EX. R/W -Y6-
12m LT
(39.370')

EX. R/W -Y6-
12m RT
(39.370')

PL -Y6-
12m RT
(39.370')

N 12° 51' 06.7" W

SR 2461 PINE VIEW ST SOIL

EXIST. R/W

-Y6- STA 11+37.73 =
-Y11- STA 13+22.44

134
JOHN A. McGREGOR
DB. 4817 PG. 0887
PB. 36, PG. 74

+40 -Y5-
17m RT
(55.774')

SPECIAL LAT 'V' DITCH
STA 12+20 TO
STA 12+50 -Y5- RT
SEE DETAIL #21

EX. R/W -Y5-
20m RT
(65.617')

130
JESSIE E. AVERY
AND HUSBAND,
ROCHESTER AVERY
DB. 907 PG. 315
PB. 36 PG. 74

-Y5- PT 12+59.729

-Y5- POT 12+70.359 =
-Y6- POT 10+00.000 =
-Y3- POT 15+52.90

-Y3- POT STA. 15+75.18
END CONSTRUCTION

-Y5-
PI Sta 12+38.789
Δ = 30° 45' 15.5" (LT)
L = 42.941
T = 22.001
R = 80.000
SE = 0.02
R0 = 10.000
DS = 40 kph

TEDDY P. PATRICK
DB. 2622, PG. 668
PB. 32, PG. 39

JUANITA C. FULLER
DB. 2225 PG. 609
PB. 32 PG. 39

MABEL LOUISE
COOPER WILLIAMS
DB. 2756 PG. 117
PB. 32 PG. 39

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y5- PROFILE SEE SHEET 58
FOR -Y6- PROFILE SEE SHEET 58

REVISIONS

8/17/2012

2002c_rdy_psh31.dgn

PROJECT REFERENCE NO.	SHEET NO.
X0002C	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

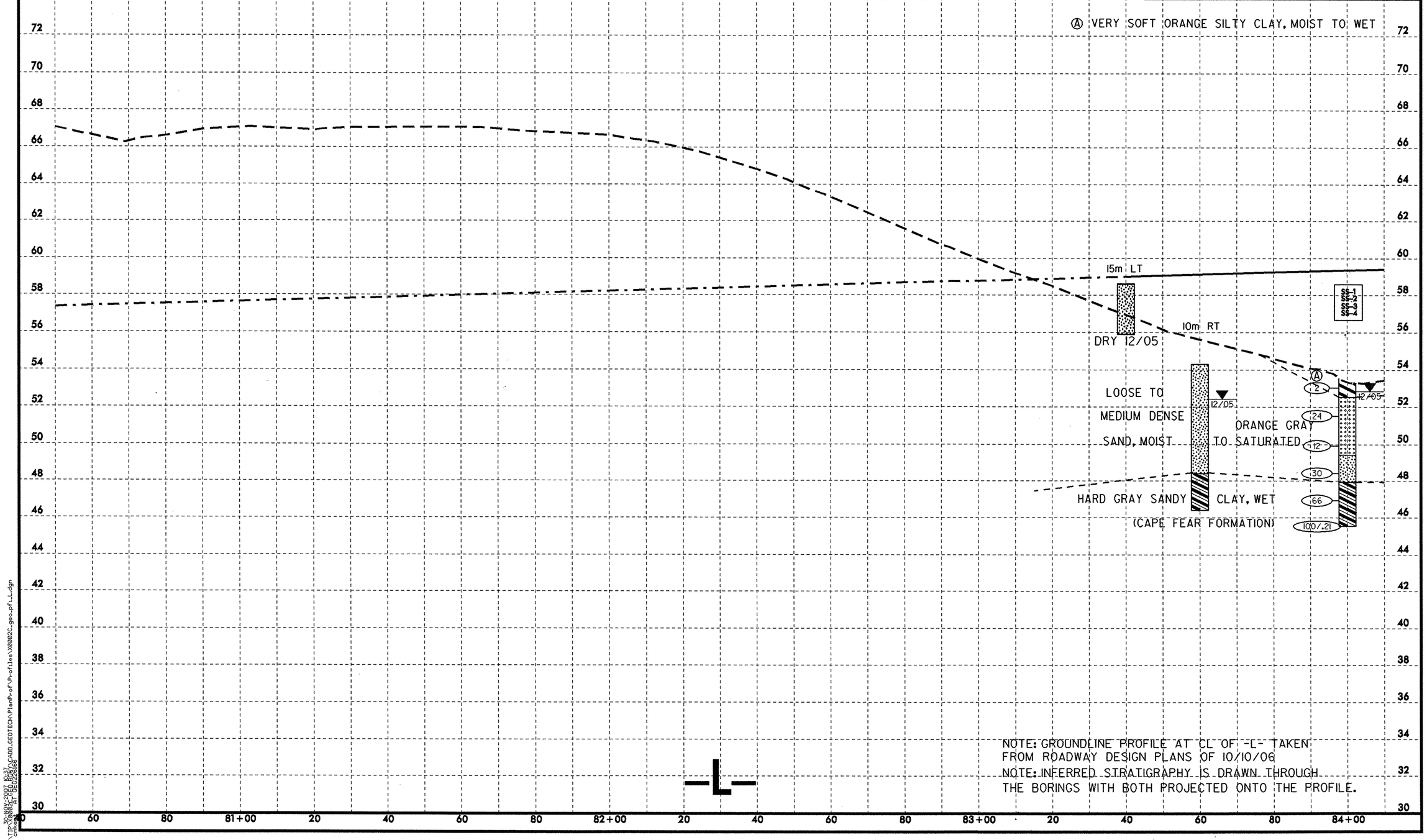
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	CL	84+00	0.00-0.45	A-7-5(35)	67	35	7.4	7.4	25.1	60.1	100	95	86	-	-
SS-2	CL	84+00	1.50-1.95	A-3(0)	19	NP	55.3	39.3	1.4	4.0	100	66	7	-	-
SS-3	CL	84+00	4.60-5.05	A-2-4(0)	23	8	81.6	6.2	3.2	9.0	100	33	13	-	-
SS-4	CL	84+00	6.10-6.55	A-6(3)	34	17	15.2	42.9	9.8	32.1	100	98	43	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

30-NOV-2007 10:37

PROJECT REFERENCE NO.	SHEET NO.
X0002C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

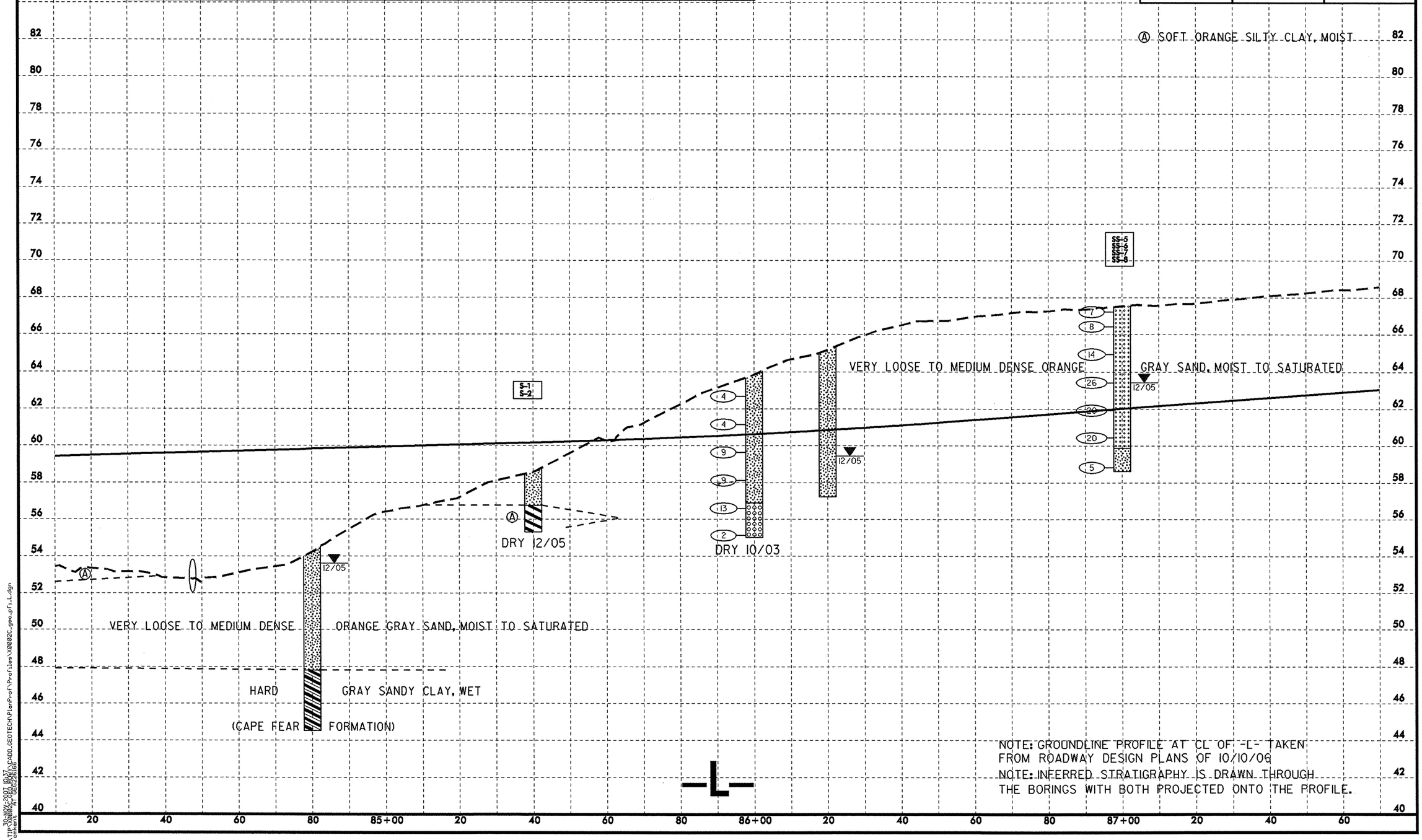
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-1	CL	85+40	0.00-1.80	A-2-4(0)	17	NP	62.5	22.4	1.0	14.0	99	59	15	-	-
S-2	CL	85+40	1.80-3.30	A-7-6(34)	68	39	12.8	7.6	23.4	56.1	99	59	15	38.4	-
SS-5	CL	87+00	0.00-0.45	A-3(0)	16	NP	68.5	22.5	2.9	6.0	100	55	10	-	-
SS-6	CL	87+00	2.30-2.75	A-3(0)	19	NP	70.8	24.3	2.8	2.0	100	53	6	-	-
SS-7	CL	87+00	5.30-5.75	A-3(0)	22	NP	58.8	32.2	2.0	7.0	100	51	10	-	-
SS-8	CL	87+00	8.40-8.85	A-2-4(0)	22	NP	38.0	49.0	4.0	9.0	97	76	14	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

5/10/02

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cmkent
ATT GEO25B16B

PROJECT REFERENCE NO.	SHEET NO.
X0002C	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

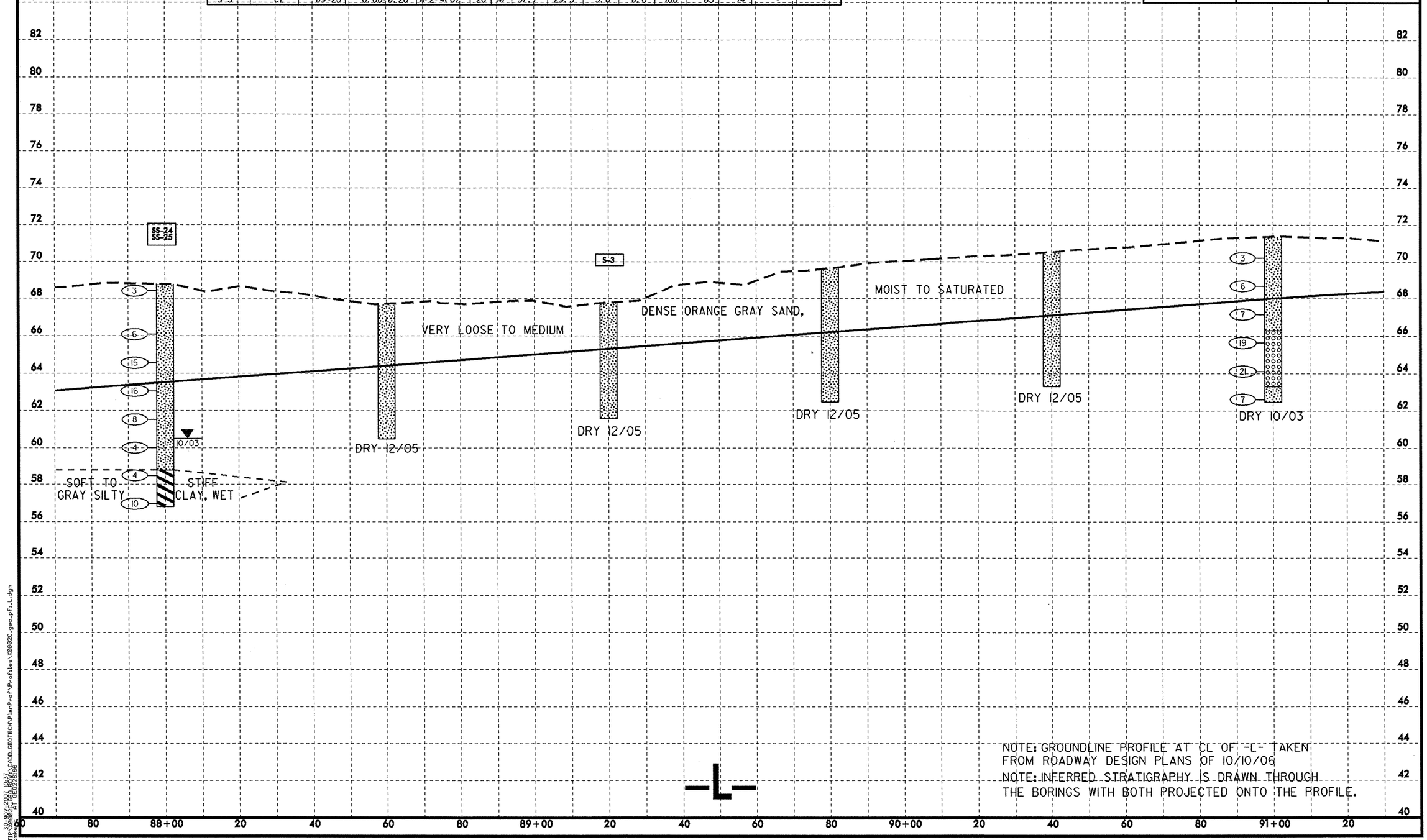
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-24	CL	88+00	2.32-2.77	A-2-4(0)	24	4	49.4	34.2	2.3	14.0	100	69	18	-	-
SS-25	CL	88+00	9.92-10.37	A-7-6(12)	45	23	25.3	11.6	14.9	48.1	95	81	61	-	-
S-3	CL	89+20	0.00-6.20	A-2-4(0)	20	NP	57.7	29.3	5.0	8.0	100	63	14	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

5/10/02

30-NOV-2007 10:37
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

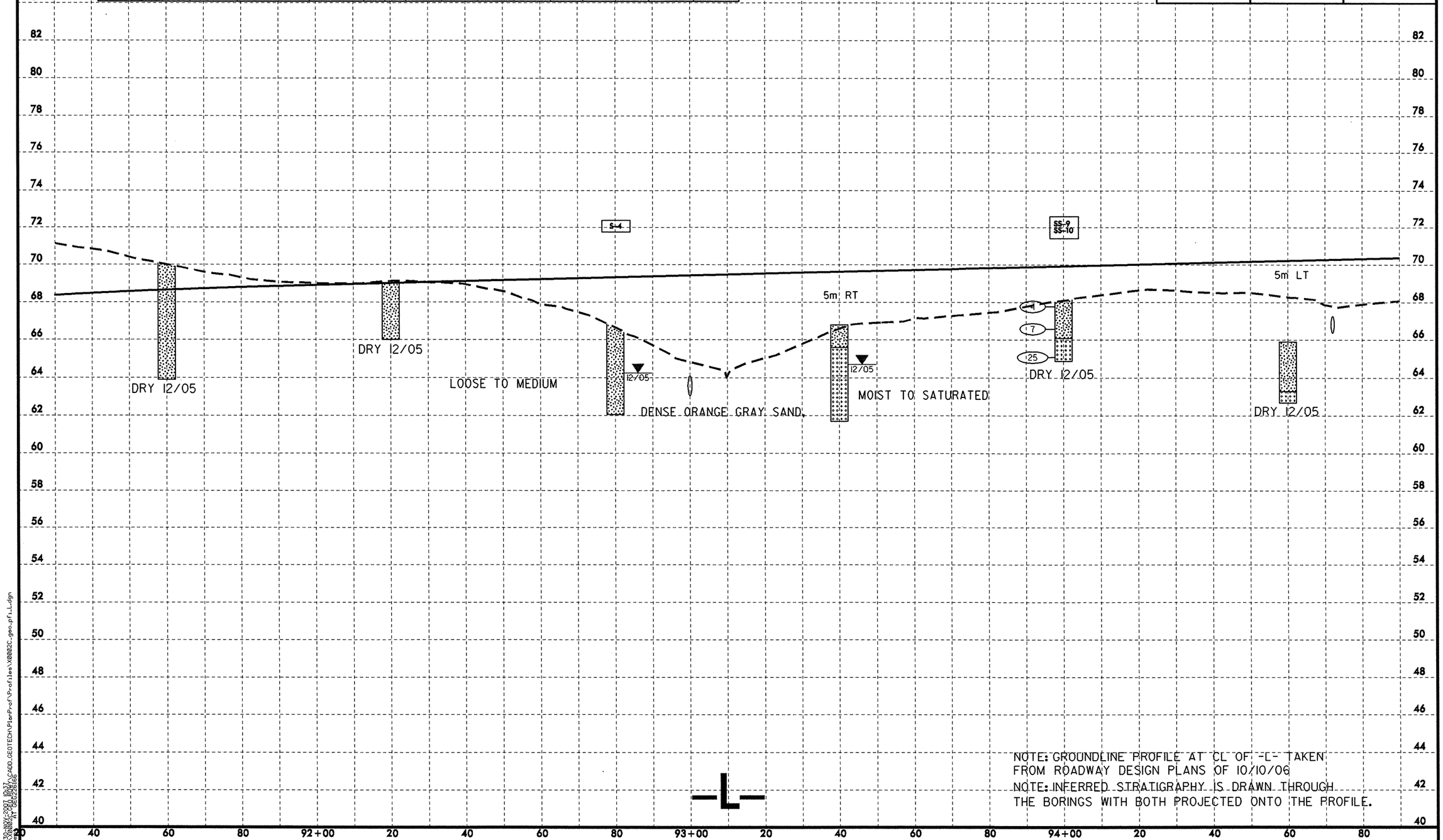
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-4	CL	92+80	0.00-4.60	A-2-4(0)	20	NP	62.1	24.0	1.8	12.0	100	56	15	-	-
SS-9	CL	94+00	0.00-0.45	A-2-4(0)	15	NP	46.6	38.8	7.6	7.0	100	74	18	-	-
SS-10	CL	94+00	2.70-3.15	A-3(0)	21	NP	55.0	38.1	1.9	5.0	100	65	7	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

E/10/32
20:10:06 2007.06.27
cmkeen \TIP\X0002C\PROJECT\CADD\GEOTECH\PlanProf\Profiles\X0002C-geo-pfl-L.dgn
AT 0E0226166

PROJECT REFERENCE NO.	SHEET NO.
X0002C	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

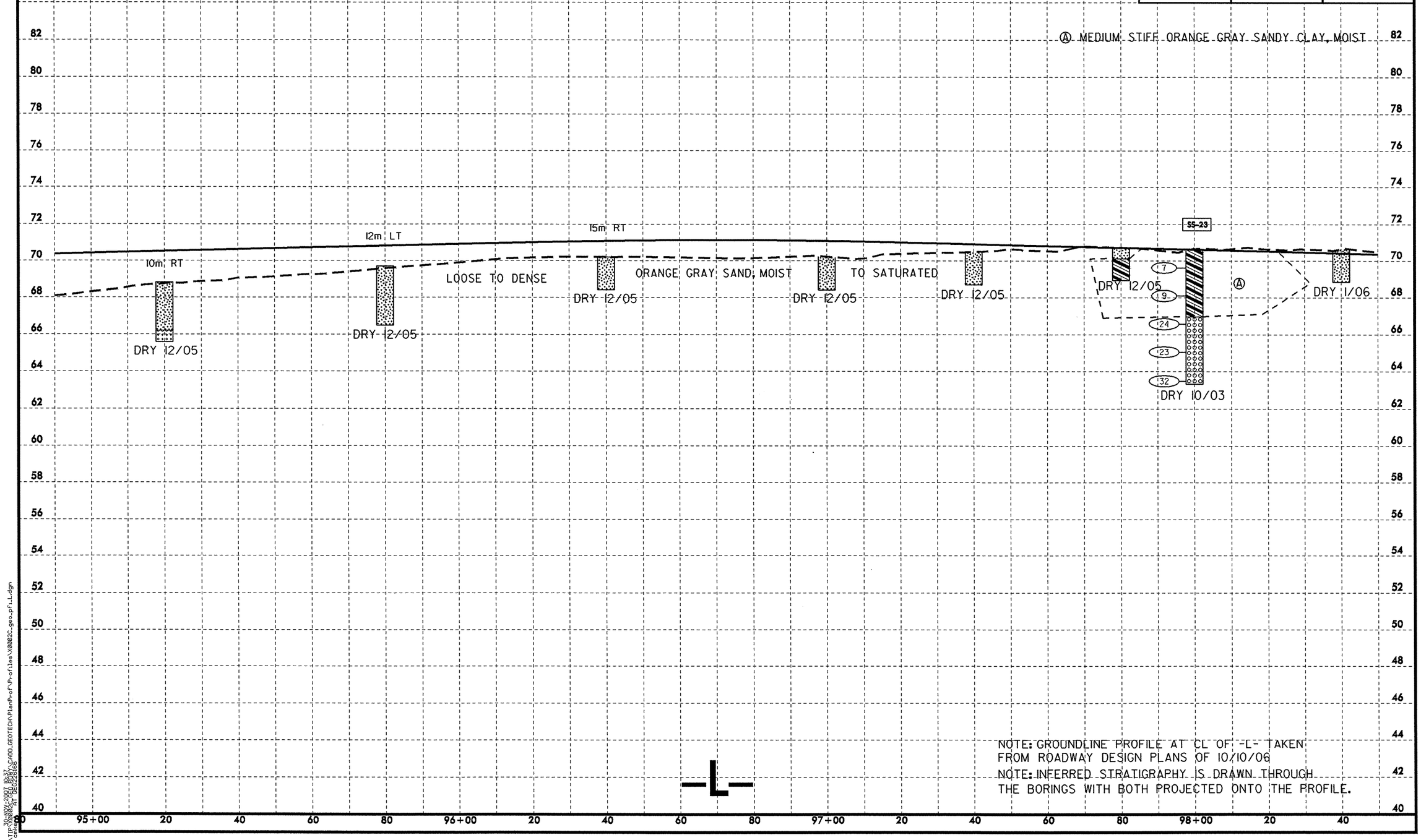
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-23	CL	98+00	0.74-1.19	A-6(11)	33	13	23.5	41.7	6.7	28.1	100	86	39	-	-



PROJECT REFERENCE NO.	SHEET NO.
X0002C	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

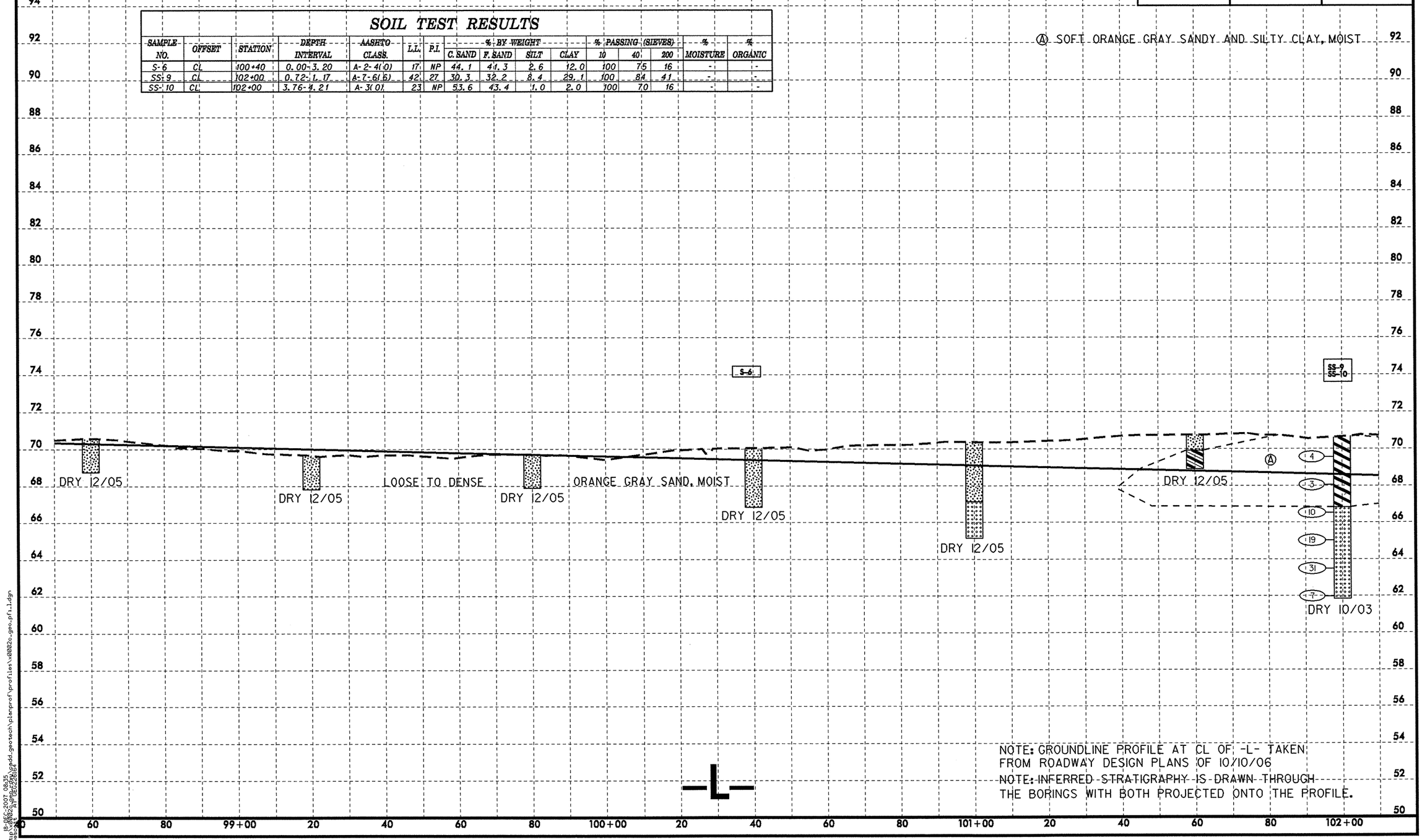
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-6	CL	100+40	0.00-3.20	A-2-4(0)	17	NP	44.1	41.3	2.6	12.0	100	75	16	-	-
SS-9	CL	102+00	0.72-1.17	A-7-6(6)	42	27	30.3	32.2	8.4	29.1	100	84	41	-	-
SS-10	CL	102+00	3.76-4.21	A-3(0)	23	NP	53.6	43.4	1.0	2.0	100	70	16	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

6/10/99

18-DEC-2007 08:25
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pwbsdt AT DEV22B1GH

PROJECT REFERENCE NO.	SHEET NO.
X0002C	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

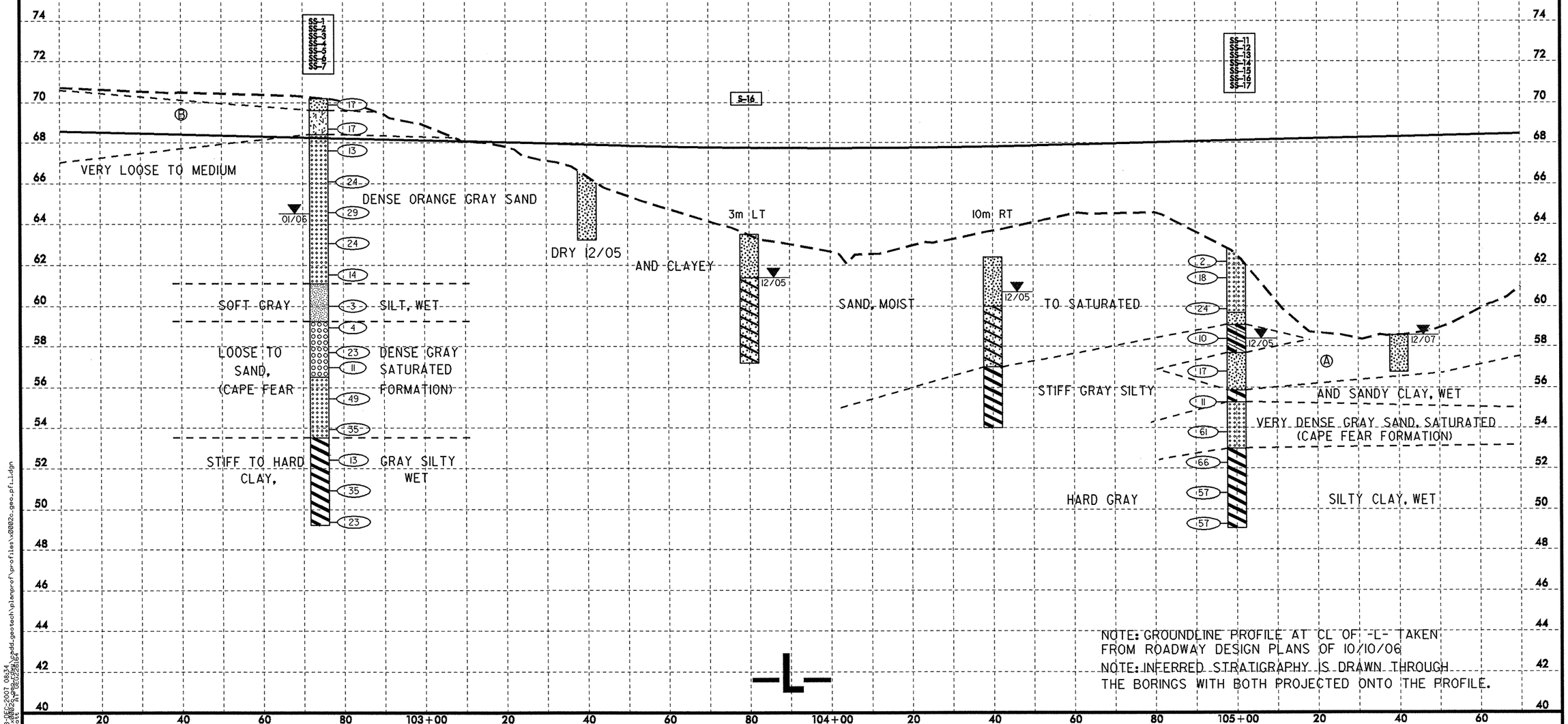
CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-16	3 LT	103+80	2.10-6.30	A-2-4(0)	19	2	33.1	44.1	8.8	14.0	99	83	30	-	-
SS-1	CL	102+74	1.22-1.67	A-5(7)	50	9	9.5	29.5	12.4	48.5	100	95	63	13.9	-
SS-2	CL	102+74	2.29-2.74	NOT ENOUGH SAMPLE											
SS-3	CL	102+74	6.85-7.30	A-3(0)	21	NP	70.8	25.9	1.3	2.0	99	56	4	-	-
SS-4	CL	102+74	9.89-10.34	A-4(1)	28	7	28.7	35.2	17.9	18.2	99	85	46	14.4	-
SS-5	CL	102+74	10.97-11.42	A-1-b(0)	23	NP	90.4	7.3	0.3	2.0	83	13	2	-	-
SS-6	CL	102+74	14.45-14.90	A-3(0)	19	NP	75.0	20.6	0.3	4.0	99	53	6	-	-
SS-7	CL	102+74	17.64-18.09	A-7-5(12)	42	12	4.9	14.8	25.8	54.6	100	97	85	14.4	-
SS-11	CL	105+00	0.00-0.45	A-3(0)	23	NP	40.6	53.5	1.9	4.0	97	74	7	-	-
SS-12	CL	105+00	2.30-2.75	A-2-4(0)	21	NP	34.5	48.5	5.0	12.0	100	81	19	-	-
SS-13	CL	105+00	3.80-4.25	A-6(10)	38	14	2.2	33.5	22.2	42.1	100	99	76	-	-
SS-14	CL	105+00	5.40-5.85	A-2-4(0)	23	NP	57.7	32.3	2.0	8.0	97	58	11	-	-
SS-15	CL	105+00	6.90-7.35	A-7-6(48)	69	43	2.2	3.6	22.0	72.1	100	98	96	-	-
SS-16	CL	105+00	8.40-8.85	A-3(0)	20	NP	29.9	61.1	1.0	8.0	100	95	10	-	-
SS-17	CL	105+00	10.40-10.85	A-7-6(32)	55	34	3.8	14.0	22.0	60.1	100	98	88	-	-

Ⓐ MEDIUM DENSE GRAY SAND, SATURATED
Ⓑ VERY STIFF GRAY SANDY SILTY CLAY AND SANDY CLAYEY SILT, MOIST



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

6/10/99

19-DEC-2007 08:34
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jessoc AT DEC2281E4

PROJECT REFERENCE NO.	SHEET NO.
X0002C	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

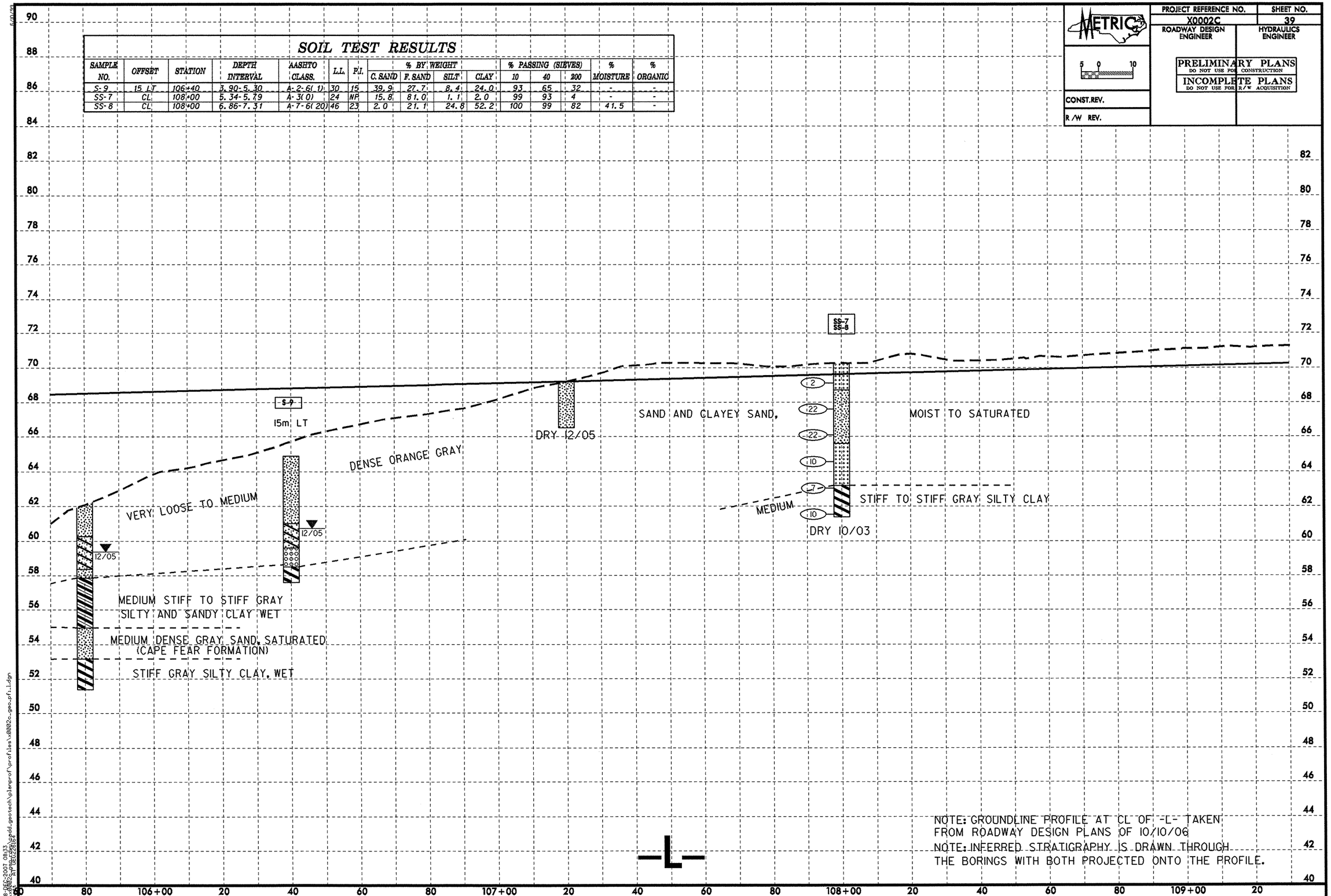
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-9	15 LT	106+40	3.90-5.30	A-2-6(1)	30	15	39.9	27.7	8.4	24.0	93	65	32	-	-
SS-7	CL	108+00	5.34-5.79	A-3(0)	24	NP	15.8	81.0	1.1	2.0	99	93	4	-	-
SS-8	CL	108+00	6.86-7.31	A-7-6(20)	46	23	2.0	21.1	24.8	52.2	100	99	82	41.5	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

5/0/99

10-OCT-2007 08:33
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twisdom RH GEO228164

PROJECT REFERENCE NO.	SHEET NO.
X0002C	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

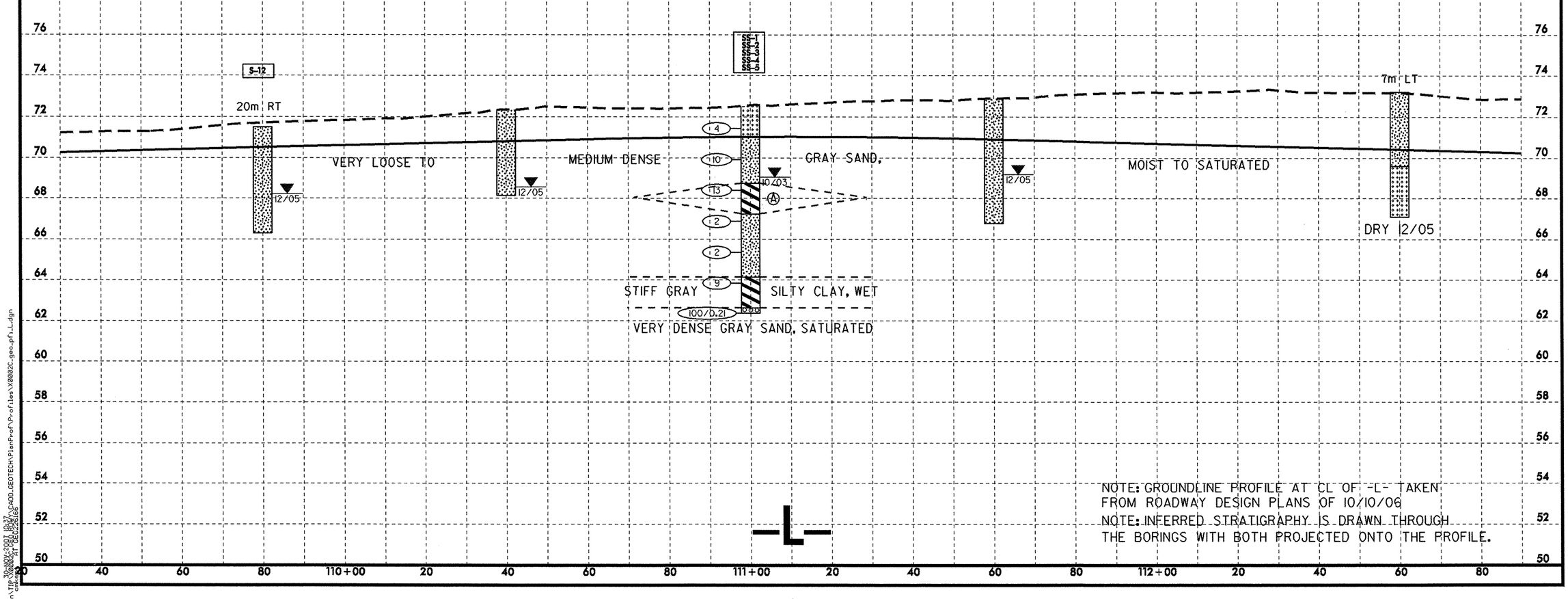
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-12	20 RT	109+80	0.00-5.30	A-2-4(0)	17	NP	58.5	30.1	3.4	8.0	100	72	13	-	-
SS-1	CL	111+00	0.80-1.25	A-3(0)	17	NP	64.7	29.9	3.4	2.0	100	65	8	-	-
SS-2	CL	111+00	2.32-2.87	A-2-4(0)	26	8	57.8	19.6	3.6	19.1	100	70	24	-	-
SS-3	CL	111+00	3.84-4.29	A-7-5(52)	85	54	10.6	6.2	12.9	70.2	100	94	85	-	-
SS-4	CL	111+00	5.36-5.81	A-2-4(0)	22	NP	67.8	22.6	2.6	7.0	100	65	11	-	-
SS-5	CL	111+00	8.40-8.85	A-7-6(33)	61	41	8.0	15.4	18.4	58.2	100	96	78	-	-



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Design Date: DEC-2006
Drawn by: ADD
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

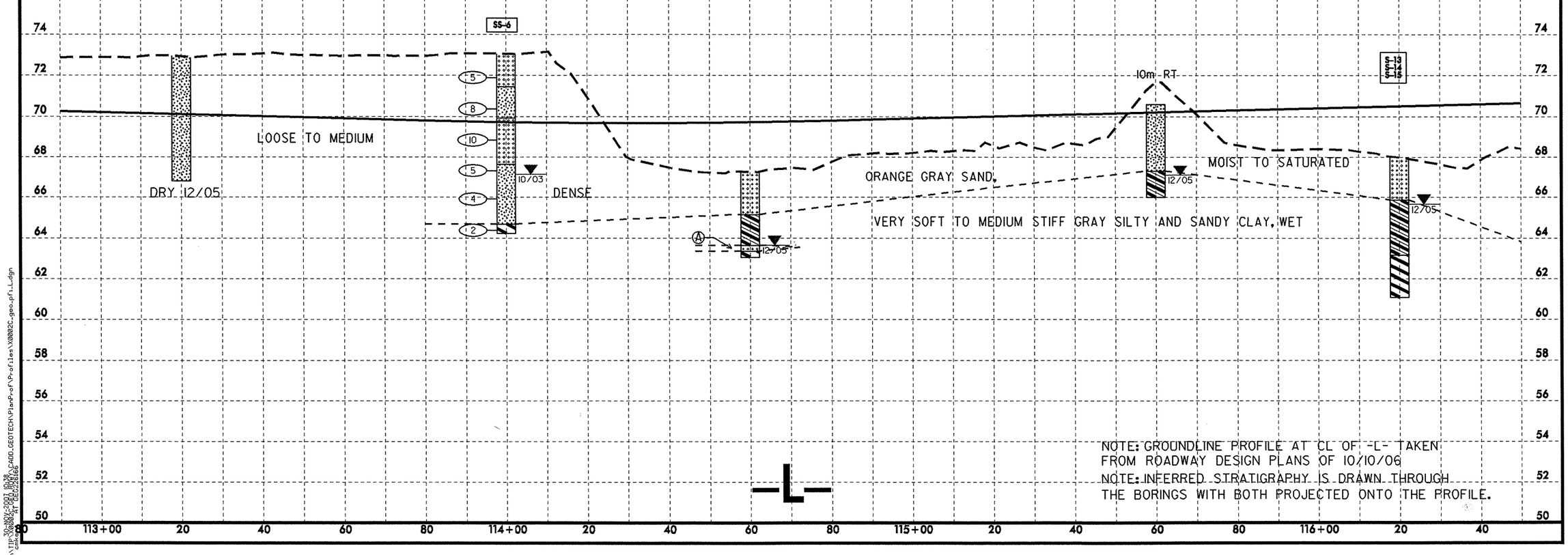
CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-6	CL	114+00	8.35-8.80	A-7-6(45)	68	44	3.4	3.6	24.8	68.2	98	95	93	-	-
S-13	CL	116+20	0.00-2.10	A-3(0)	18	NP	53.1	38.1	0.8	8.0	95	71	9	-	-
S-14	CL	116+20	2.10-4.80	A-6(5)	35	16	27.1	25.9	14.6	32.4	99	82	52	-	-
S-15	CL	116+20	4.80-7.60	A-7-6(28)	61	35	18.4	8.1	24.9	48.6	98	82	76	-	-

Ⓐ MEDIUM DENSE GRAY SAND, SATURATED



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

5/10/99

30-NOV-2007 10:38
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CHK GEOTECH
RT GEO2016G

PROJECT REFERENCE NO.	SHEET NO.
X0002C	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

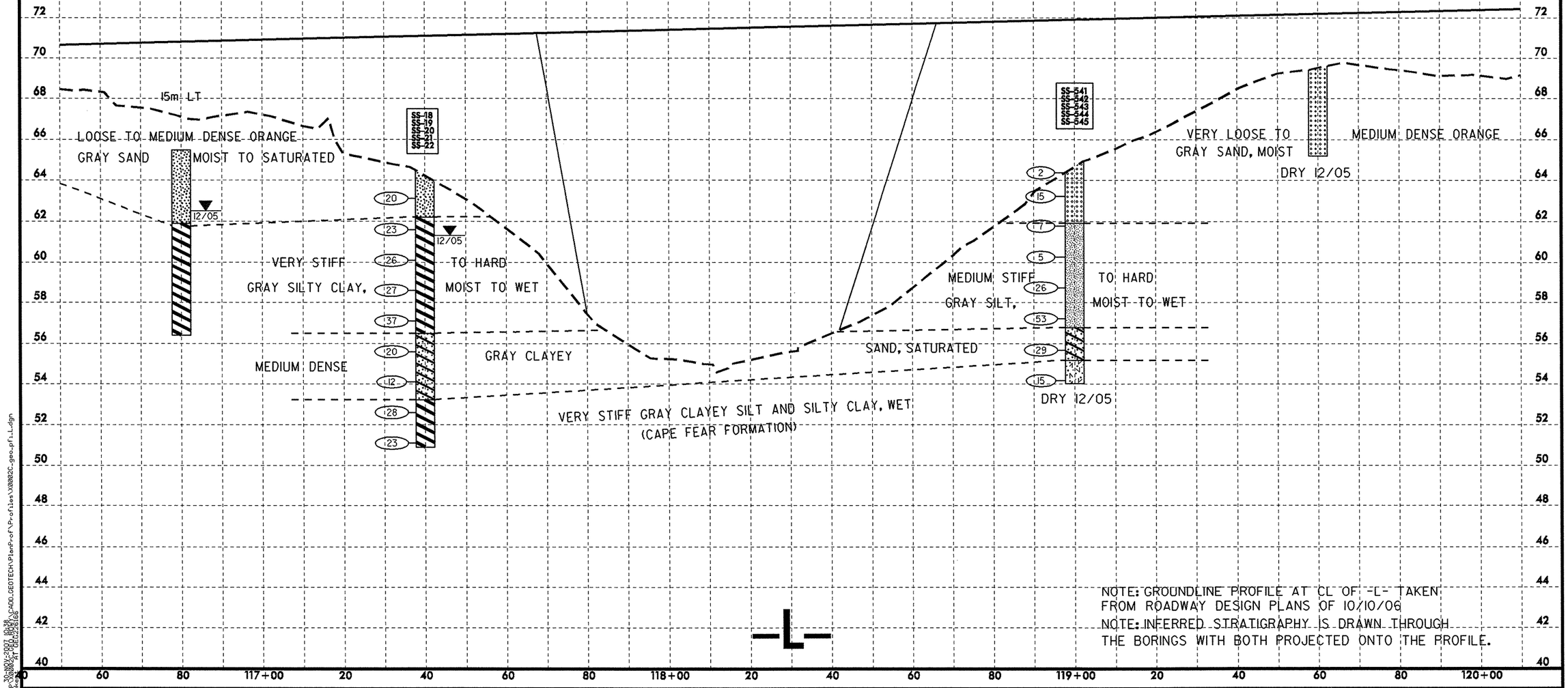
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-18	CL	117+40	0.80-1.25	A-2-4(0)	21	NP	37.9	44.3	3.8	14.0	100	81	21	-	-
SS-19	CL	117+40	2.30-2.75	A-7-6(15)	43	21	11.0	23.8	21.0	44.1	100	95	73	-	-
SS-20	CL	117+40	5.30-5.75	A-7-6(4)	41	22	39.9	19.6	4.0	36.4	96	72	41	-	-
SS-21	CL	117+40	8.30-8.75	A-2-6(1)	37	21	61.9	12.1	1.8	24.2	100	65	27	-	-
SS-22	CL	117+40	10.30-10.75	A-7-6(36)	61	40	7.7	14.9	20.9	56.5	100	95	84	-	-
SS-541	CL	119+00	1.17-1.62	A-3(0)	13	NP	56.3	41.1	1.9	0.6	100	66	5	-	-
SS-542	CL	119+00	2.75-3.20	A-4(1)	37	4	35.1	19.7	8.2	37.1	100	74	50	-	-
SS-543	CL	119+00	5.64-6.09	A-4(2)	39	4	24.1	18.0	12.7	45.2	100	85	61	-	-
SS-544	CL	119+00	8.69-9.14	A-2-6(0)	35	13	59.8	14.2	5.2	20.9	100	65	26	-	-
SS-545	CL	119+00	10.21-10.66	A-5(5)	45	3	2.4	28.2	14.1	55.3	100	99	75	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

5/10/99

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RT DEC/2B1B5

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

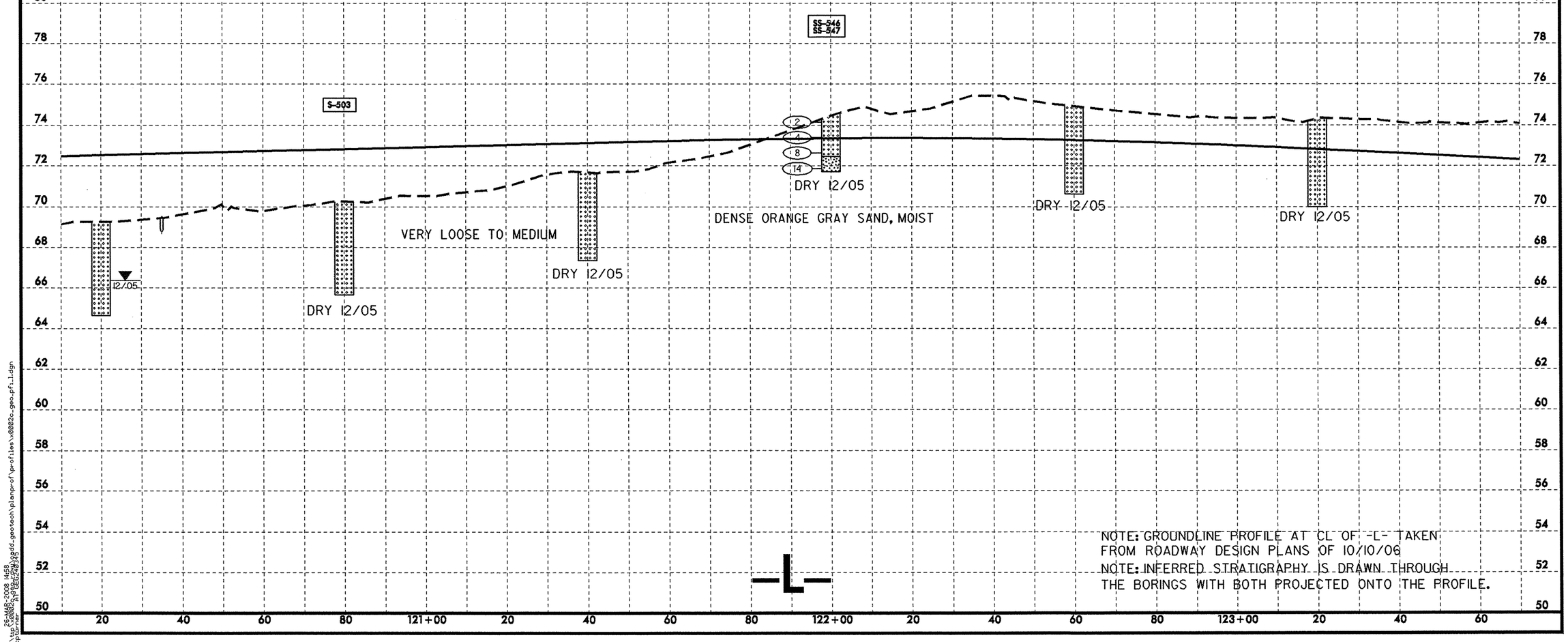
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-503	CL	120+80	0.30-4.60	A-3(0)	14	NP	63.2	33.0	1.1	2.6	100	65	5	-	-
SS-546	CL	122+00	0.76-1.21	A-3(0)	18	NP	52.5	41.3	1.5	4.7	100	75	8	-	-
SS-547	CL	122+00	2.29-2.74	A-2-4(0)	30	5	58.6	25.7	0.9	14.8	100	64	18	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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cpburner AT DEC2005\$\$

PROJECT REFERENCE NO.	SHEET NO.
X0002C	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

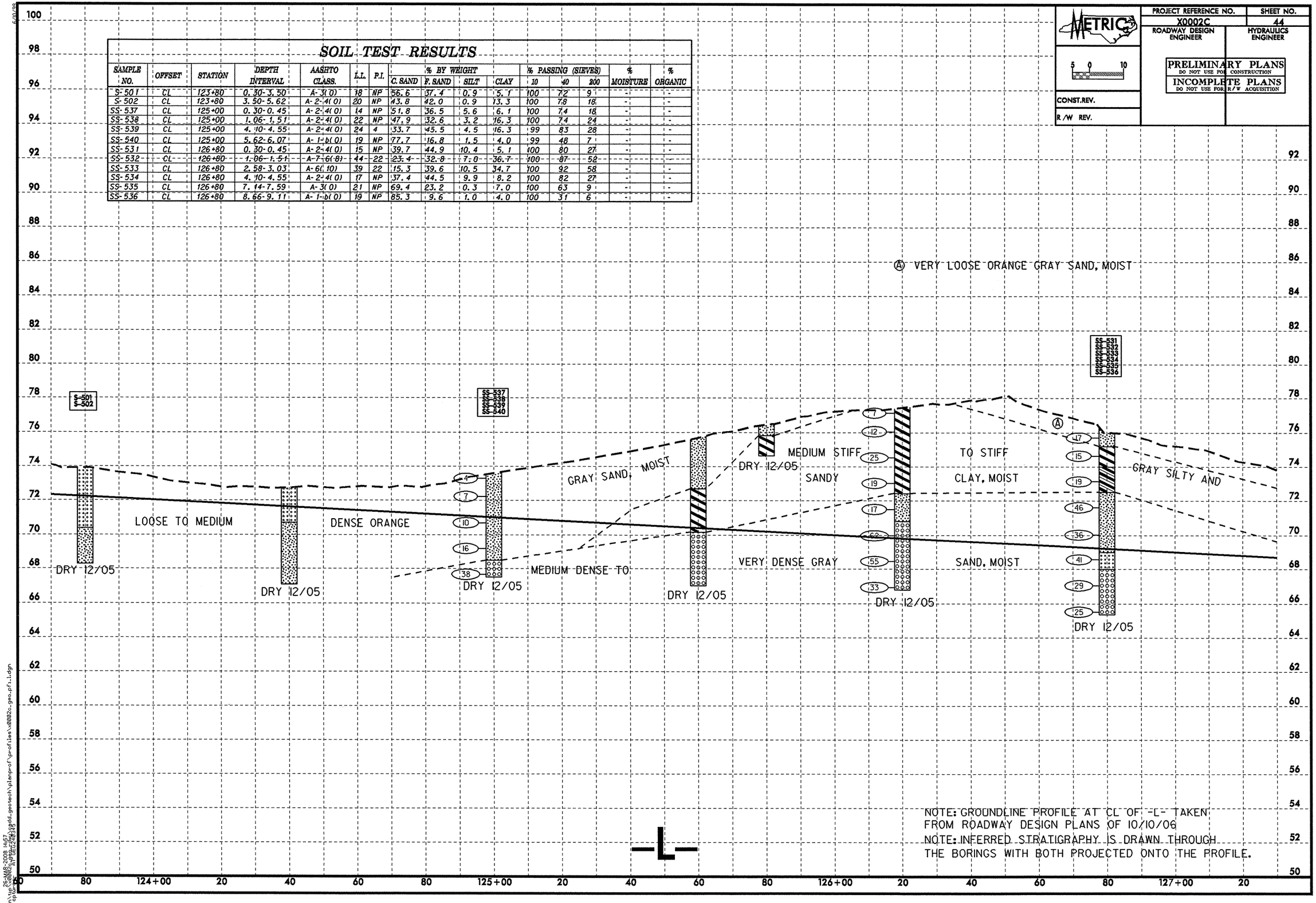
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-501	CL	123+80	0.30-3.50	A-3(0)	18	NP	56.6	37.4	0.9	5.1	100	72	9	-	-
S-502	CL	123+80	3.50-5.62	A-2-4(0)	20	NP	43.8	42.0	0.9	13.3	100	78	18	-	-
SS-537	CL	125+00	0.30-0.45	A-2-4(0)	14	NP	51.8	36.5	5.6	6.1	100	74	18	-	-
SS-538	CL	125+00	1.06-1.51	A-2-4(0)	22	NP	47.9	32.6	3.2	16.3	100	74	24	-	-
SS-539	CL	125+00	4.10-4.55	A-2-4(0)	24	4	33.7	45.5	4.5	16.3	99	83	28	-	-
SS-540	CL	125+00	5.62-6.07	A-1-b(0)	19	NP	77.7	16.8	1.5	4.0	99	48	7	-	-
SS-531	CL	126+80	0.30-0.45	A-2-4(0)	15	NP	39.7	44.9	10.4	5.1	100	80	27	-	-
SS-532	CL	126+80	1.06-1.51	A-7-6(8)	44	22	23.4	32.8	7.0	36.7	100	87	52	-	-
SS-533	CL	126+80	2.58-3.03	A-6(10)	39	22	15.3	39.6	10.5	34.7	100	92	58	-	-
SS-534	CL	126+80	4.10-4.55	A-2-4(0)	17	NP	37.4	44.5	9.9	8.2	100	82	27	-	-
SS-535	CL	126+80	7.14-7.59	A-3(0)	21	NP	69.4	23.2	0.3	7.0	100	63	9	-	-
SS-536	CL	126+80	8.66-9.11	A-1-b(0)	19	NP	85.3	9.6	1.0	4.0	100	31	6	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

26-MAR-2008 14:57
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cpsaxton

PROJECT REFERENCE NO.	SHEET NO.
X0002C	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

-5- 0 10

CONST.REV. _____

R/W REV. _____

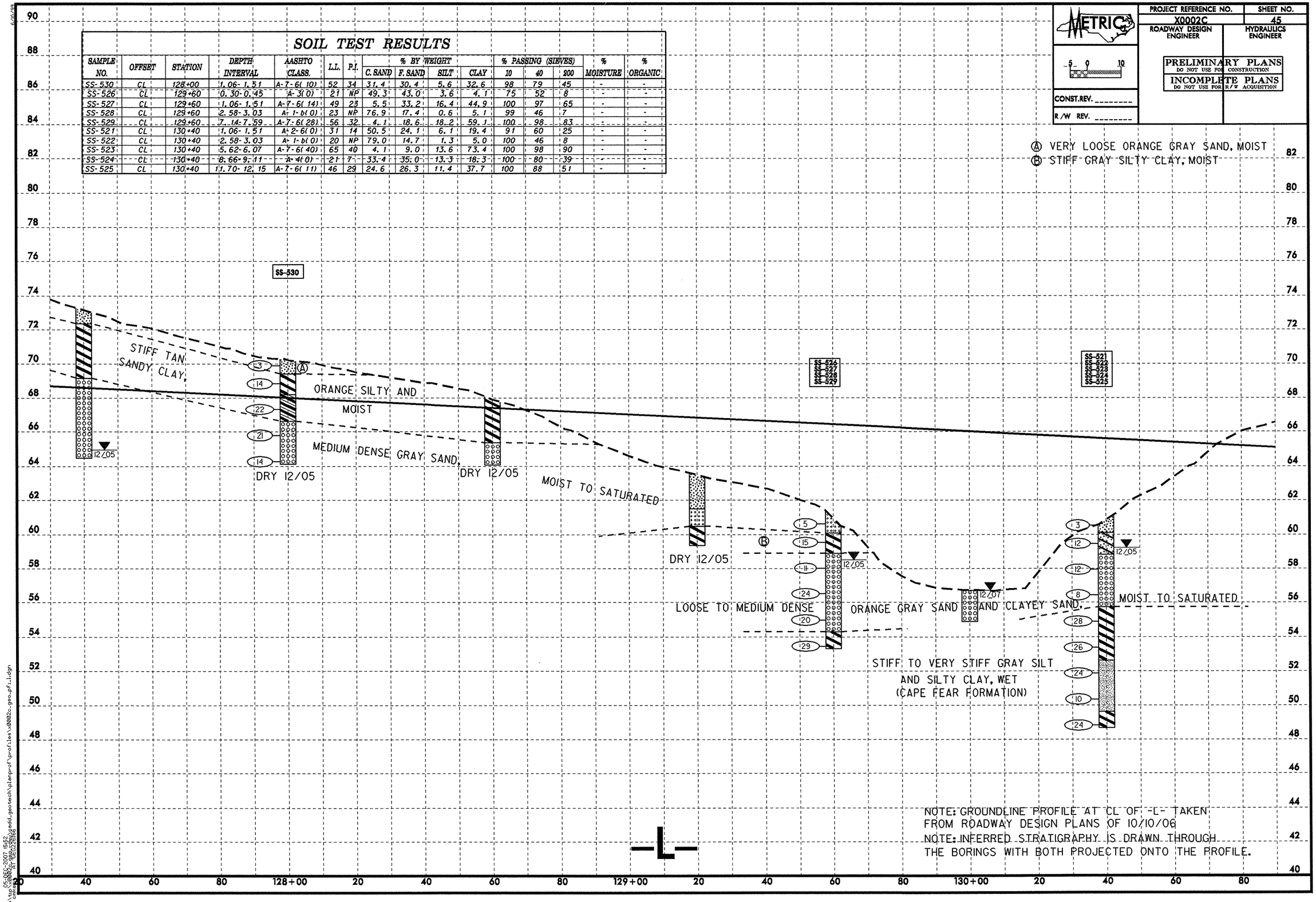
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-530	CL	128+00	1.06-1.51	A-7-6(10)	52	34	31.4	30.4	5.6	32.6	98	79	45	-	-
SS-526	CL	129+60	0.30-0.45	A-3(0)	21	NP	49.3	43.0	3.6	4.1	75	52	8	-	-
SS-527	CL	129+60	1.06-1.51	A-7-6(14)	49	23	5.5	33.2	16.4	44.9	100	97	65	-	-
SS-528	CL	129+60	2.58-3.03	A-1-b(0)	23	NP	76.9	17.4	0.6	5.1	99	46	7	-	-
SS-529	CL	129+60	7.14-7.59	A-7-6(28)	56	32	4.1	18.6	18.2	59.1	100	98	83	-	-
SS-521	CL	130+40	1.06-1.51	A-2-6(0)	31	14	50.5	24.1	6.1	19.4	91	60	25	-	-
SS-522	CL	130+40	2.58-3.03	A-1-b(0)	20	NP	79.0	14.7	1.3	5.0	100	46	8	-	-
SS-523	CL	130+40	5.62-6.07	A-7-6(40)	65	40	4.1	9.0	13.6	73.4	100	98	90	-	-
SS-524	CL	130+40	8.66-9.11	A-4(0)	21	7	33.4	35.0	13.3	18.3	100	80	39	-	-
SS-525	CL	130+40	11.70-12.15	A-7-6(11)	46	29	24.6	26.3	11.4	37.7	100	88	51	-	-

Ⓐ VERY LOOSE ORANGE GRAY SAND, MOIST
Ⓑ STIFF GRAY SILTY CLAY, MOIST



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-L-

5/10/99

05-05-2007 15:52
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

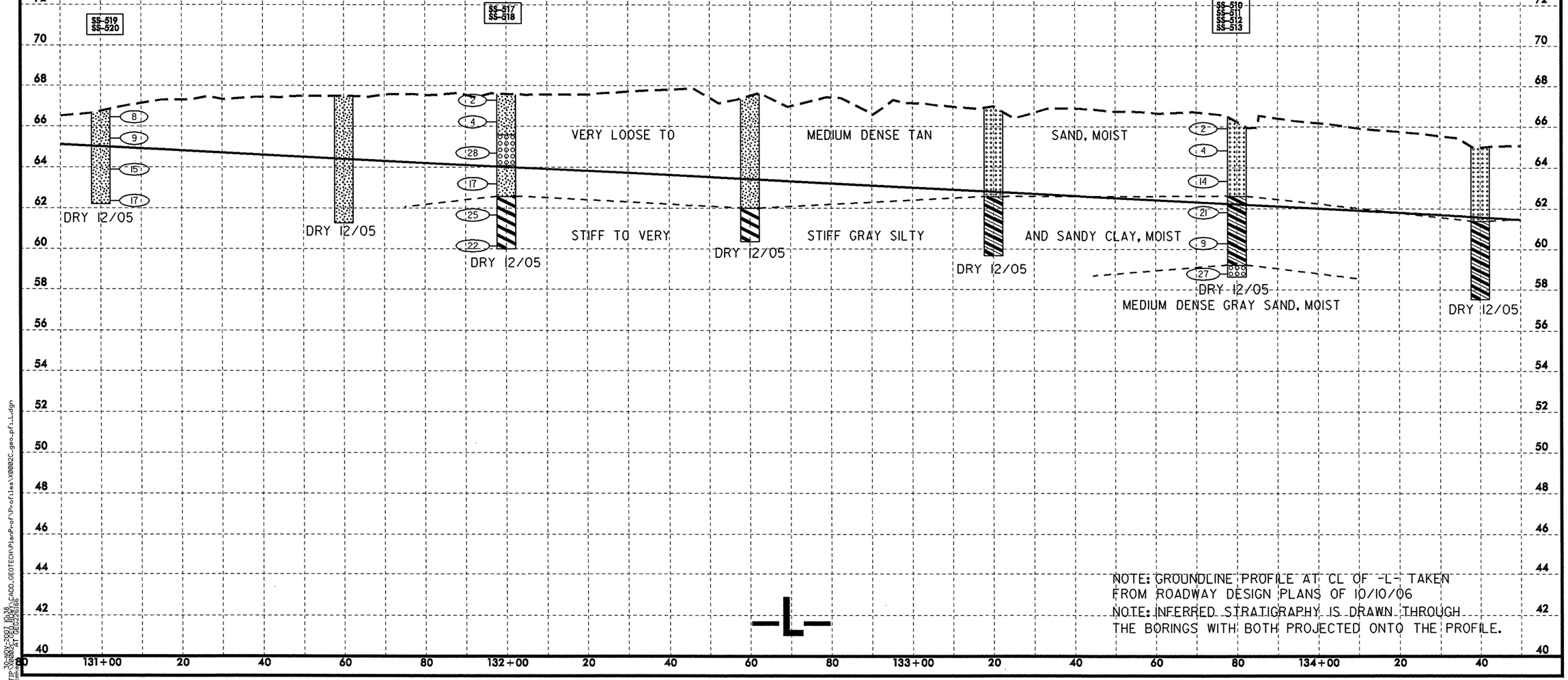
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-519	CL	131+00	0.30-0.45	A-2-4(0)	17	NP	65.7	21.9	4.2	8.2	99	54	15	-	-
SS-520	CL	131+00	2.88-3.33	A-2-4(0)	19	NP	66.6	22.2	1.0	10.2	97	57	12	-	-
SS-517	CL	132+00	5.62-6.07	A-7-6(26)	58	30	5.3	11.6	24.0	59.1	93	91	80	-	-
SS-518	CL	132+00	7.14-7.59	A-7-6(11)	47	23	30.0	13.7	13.6	42.8	98	84	57	-	-
SS-510	CL	133+80	0.30-0.45	A-3(0)	17	NP	60.6	31.7	3.7	4.1	100	72	10	-	-
SS-511	CL	133+80	2.58-3.03	A-3(0)	24	NP	55.8	41.2	1.0	2.0	98	85	4	-	-
SS-512	CL	133+80	4.10-4.55	A-6(1)	32	15	35.4	26.1	6.9	31.6	90	84	36	-	-
SS-513	CL	133+80	7.14-7.59	A-1-b(0)	20	NP	81.3	11.3	0.2	7.1	100	44	8	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

6/10/99

30-NOV-2007 10:36
cmccann
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

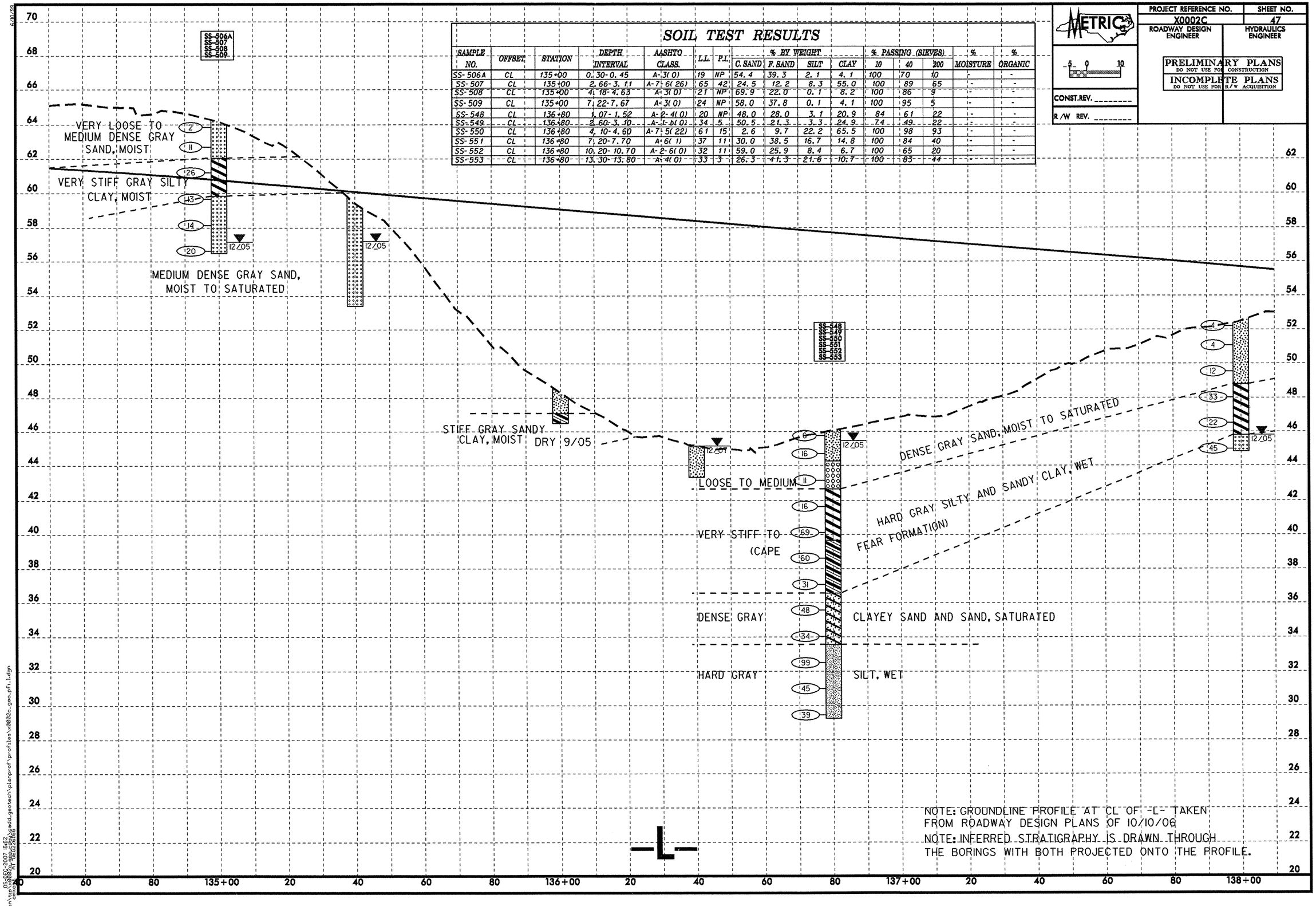
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV. _____

R/W REV. _____

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-506A	CL	135+00	0.30-0.45	A-3(0)	19	NP	54.4	39.3	2.1	4.1	100	70	10	-	-
SS-507	CL	135+00	2.66-3.11	A-7-6(26)	65	42	24.5	12.2	8.3	55.0	100	89	65	-	-
SS-508	CL	135+00	4.18-4.63	A-3(0)	21	NP	69.9	22.0	0.1	8.2	100	86	9	-	-
SS-509	CL	135+00	7.22-7.67	A-3(0)	24	NP	58.0	37.8	0.1	4.1	100	95	5	-	-
SS-548	CL	136+80	1.07-1.52	A-2-4(0)	20	NP	48.0	28.0	3.1	20.9	84	61	22	-	-
SS-549	CL	136+80	2.60-3.10	A-4-1-b(0)	34	5	50.5	21.3	3.3	24.9	74	49	22	-	-
SS-550	CL	136+80	4.10-4.60	A-7-5(22)	61	15	2.6	9.7	22.2	65.5	100	98	93	-	-
SS-551	CL	136+80	7.20-7.70	A-6(1)	37	11	30.0	38.5	16.7	14.8	100	84	40	-	-
SS-552	CL	136+80	10.20-10.70	A-2-6(0)	32	11	59.0	25.9	8.4	6.7	100	65	20	-	-
SS-553	CL	136+80	13.30-13.80	A-4(0)	33	3	26.3	41.3	21.6	10.7	100	85	44	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

6/10/99

05-DEC-2007 15:52
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

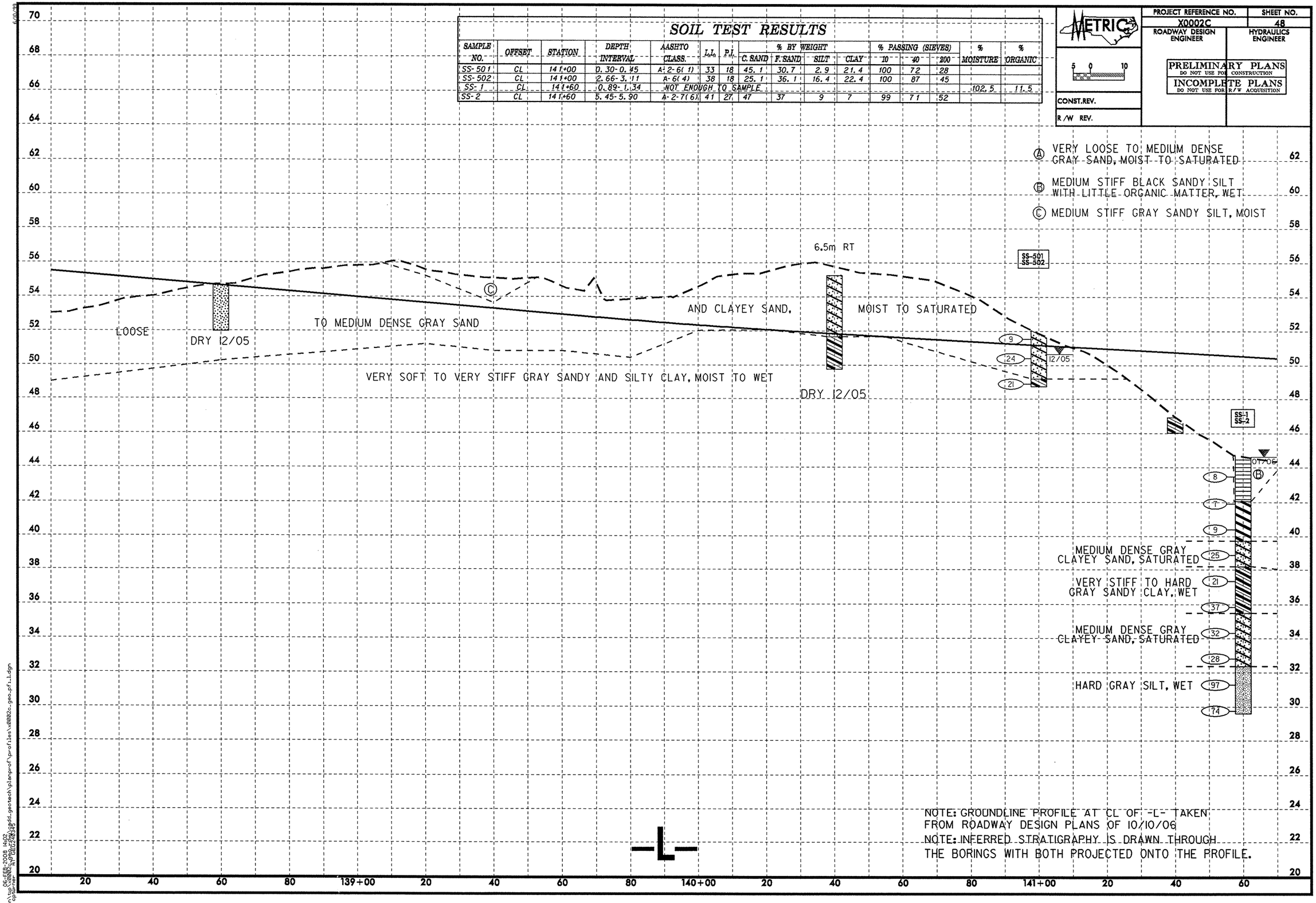
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-501	CL	141+00	0.30-0.45	A-2-6(1)	33	18	45.1	30.7	2.9	21.4	100	72	28		
SS-502	CL	141+00	2.66-3.11	A-6(4)	38	18	25.1	36.1	16.4	22.4	100	87	45		
SS-1	CL	141+60	0.89-1.34	NOT ENOUGH TO SAMPLE										102.5	11.5
SS-2	CL	141+60	5.45-5.90	A-2-7(6)	41	27	47	37	9	7	99	71	52		



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

06-FEB-2008 14:02
cpowell

PROJECT REFERENCE NO.	SHEET NO.
X0002C	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-6	CL	142+20	5.77-6.22	A-2-4(0)	23	NP	54.9	28.0	2.0	16.0	100	66	46	-	-
SS-9	CL	142+80	2.61-3.06	A-2-4(0)	22	14	41.0	38.0	4.0	11.0	96	76	57	-	-
SS-14	9.5 LT	144+44	5.76-6.21	NOT ENOUGH SAMPLE										262.7	34.3
SS-22	CL	145+20	4.61-5.06	A-7-6(16)	45	31	5.0	23.0	40.0	32.0	100	96	95	-	-

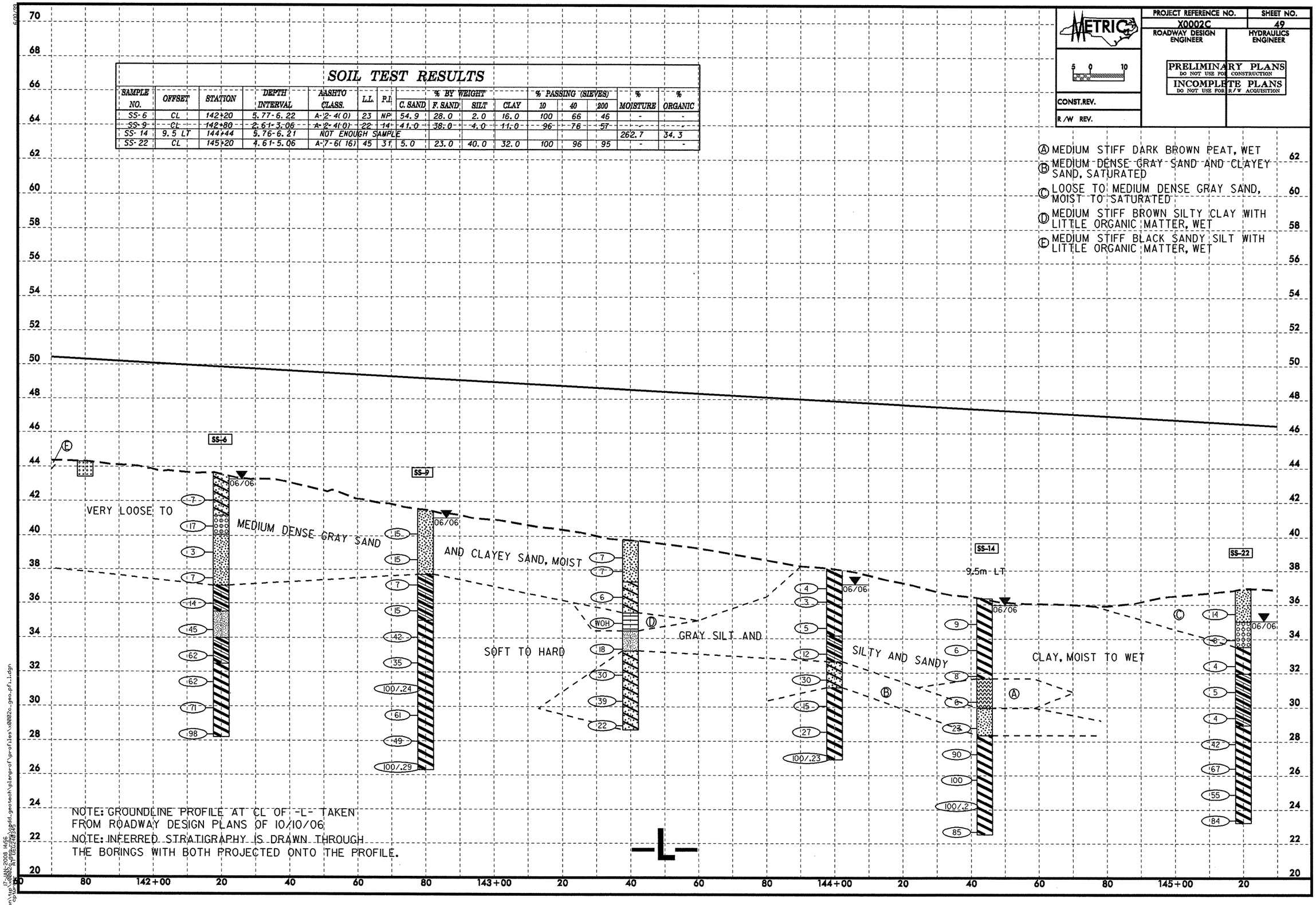
Ⓐ MEDIUM STIFF DARK BROWN PEAT, WET

Ⓑ MEDIUM DENSE GRAY SAND AND CLAYEY SAND, SATURATED

Ⓒ LOOSE TO MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

Ⓓ MEDIUM STIFF BROWN SILTY CLAY WITH LITTLE ORGANIC MATTER, WET

Ⓔ MEDIUM STIFF BLACK SANDY SILT WITH LITTLE ORGANIC MATTER, WET



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

PROJECT REFERENCE NO.	SHEET NO.
X0002C	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

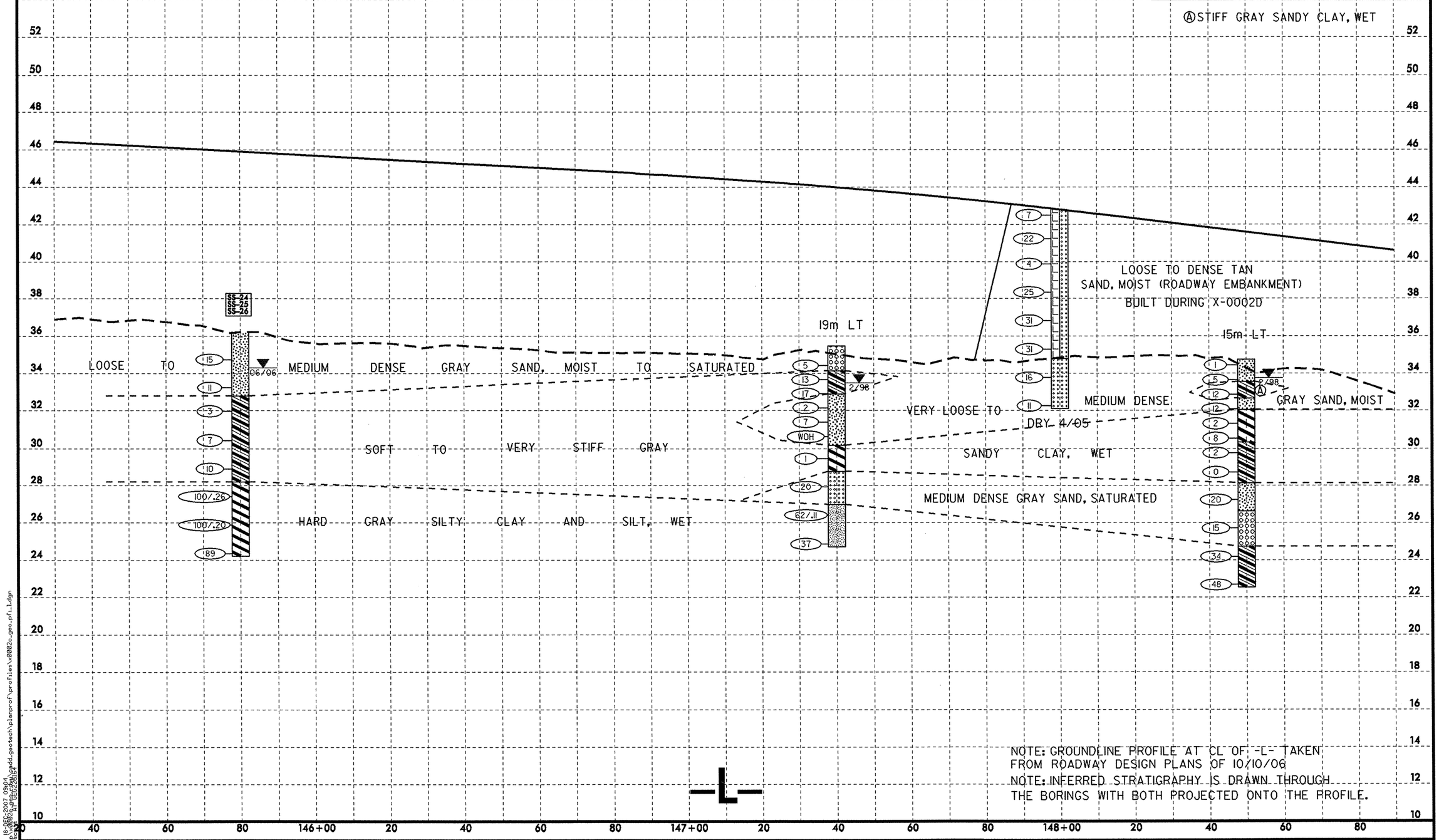
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-24	CL	145+80	2.67-3.15	A-2-4(0)	18	15	49	33	4	14	100	68	52	-	-
SS-25	CL	145+80	5.46-5.91	A-6(18)	40	22	0	11	47	42	100	100	100	27.3	-
SS-26	CL	145+80	10.02-10.22	A-7-6(19)	45	25	4	12	53	31	100	98	96	19.5	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

6/01/99

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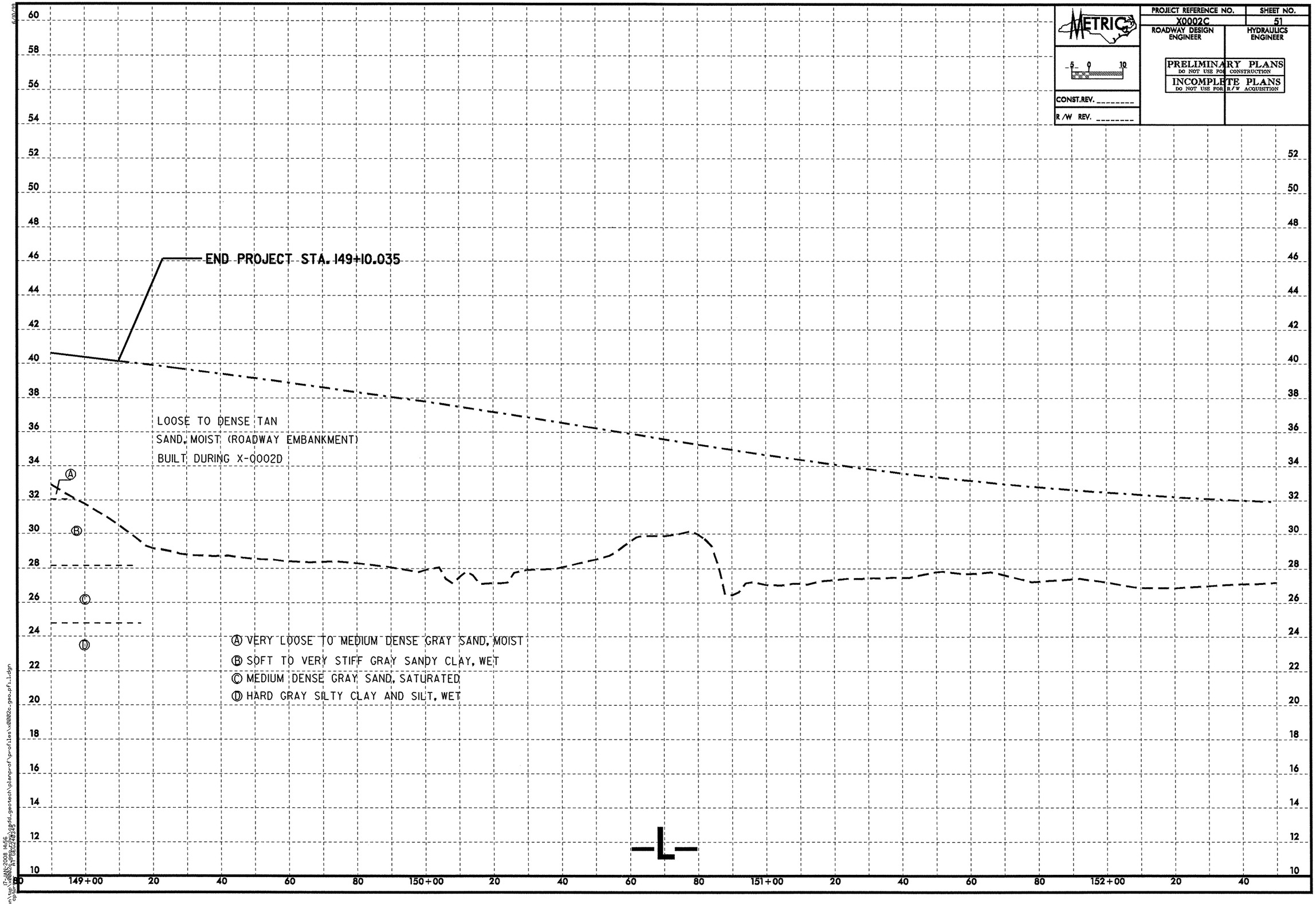


METRIC
PROJECT REFERENCE NO.
X0002C
SHEET NO.
51
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
END PROJECT STA. 149+10.035
LOOSE TO DENSE TAN
SAND, MOIST (ROADWAY EMBANKMENT)
BUILT DURING X-0002D
Ⓐ VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
Ⓑ SOFT TO VERY STIFF GRAY SANDY CLAY, WET
Ⓒ MEDIUM DENSE GRAY SAND, SATURATED
Ⓓ HARD GRAY SILTY CLAY AND SILT, WET
-L-
149+00
150+00
151+00
152+00

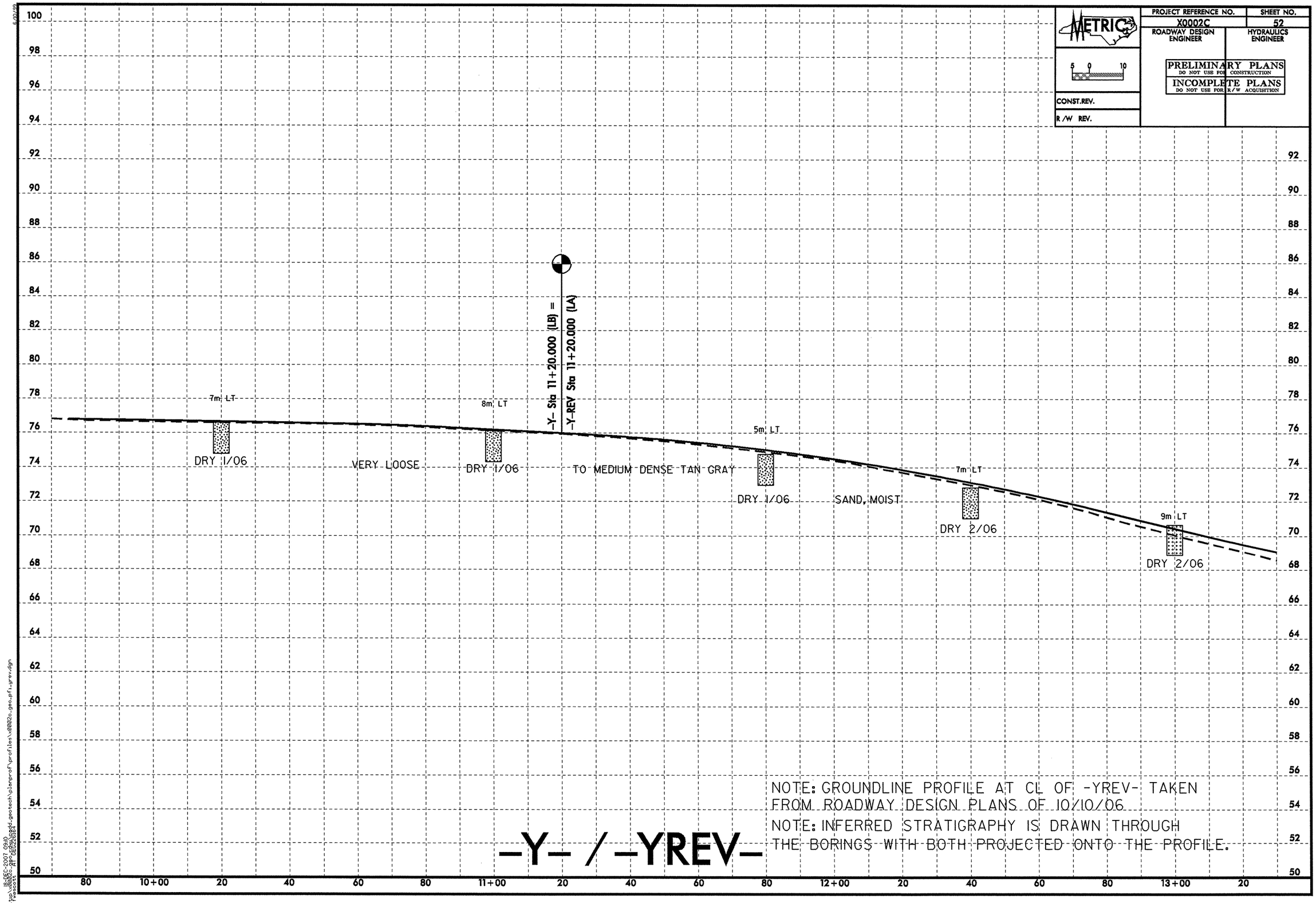
PROJECT REFERENCE NO.	SHEET NO.
X0002C	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

-Y- / -YREV-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

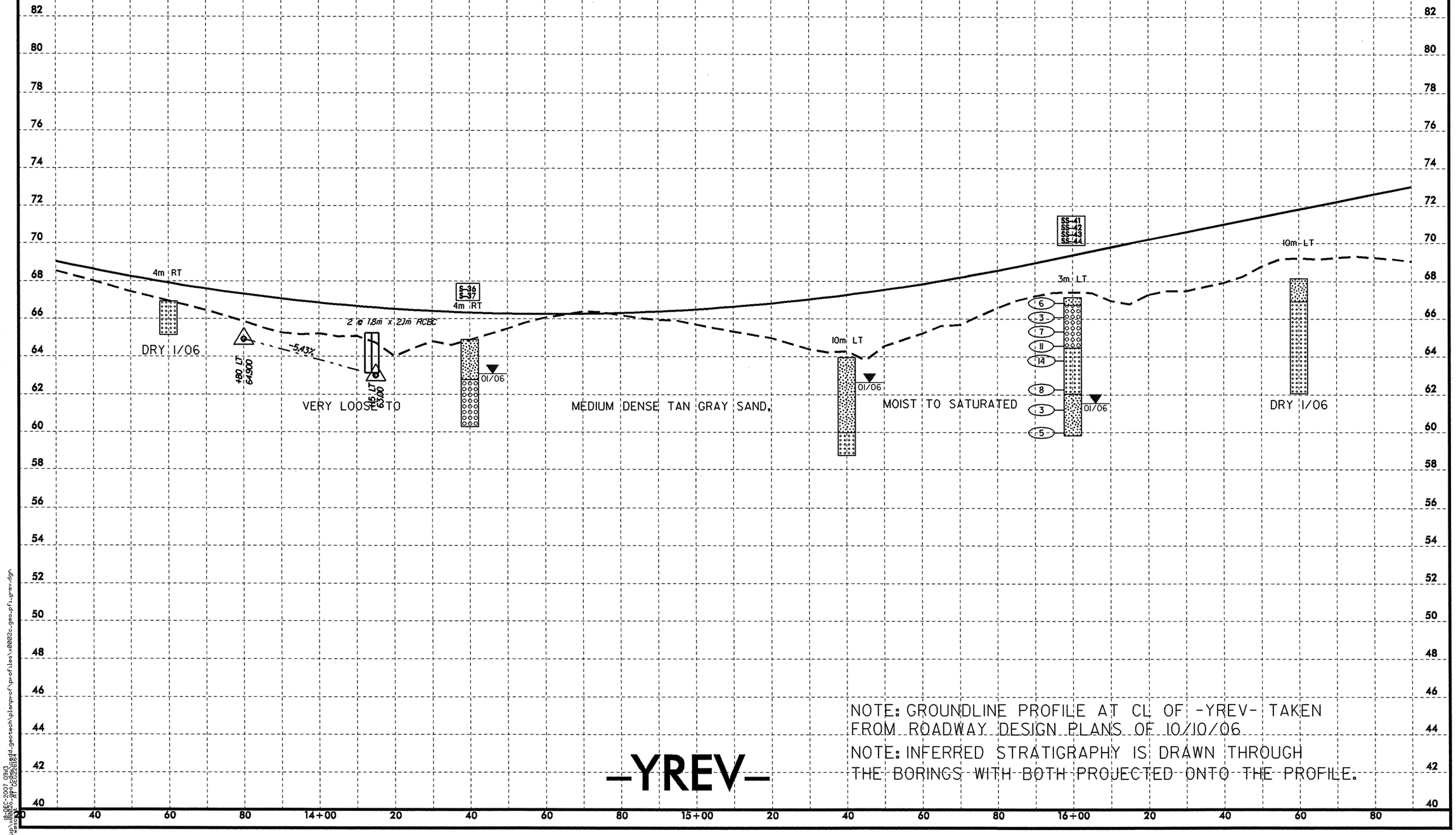
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-36	4 m Rt	14+40	0.30-2.10	A-2-4(0)	19	NP	16.7	62.4	2.8	18.1	100	87	23	-	-
S-37	4 m Rt	14+40	2.10-4.60	A-1-b(0)	18	NP	88.7	7.8	1.4	2.0	65	12	2	-	-
SS-41	3m Lt	16+00	0.76-1.21	A-1-b(0)	16	NP	88.6	7.5	1.9	2.0	100	24	4	-	-
SS-42	3m Lt	16+00	3.05-3.50	A-3(0)	13	NP	56.0	42.7	1.3	0.0	97	66	2	-	-
SS-43	3m Lt	16+00	5.43-5.88	A-2-4(0)	23	NP	35.6	52.8	3.5	8.1	98	78	14	-	-
SS-44	3m Lt	16+00	6.86-7.31	A-2-4(0)	26	8	73.8	12.7	3.3	10.1	65	26	9	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

-YREV-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

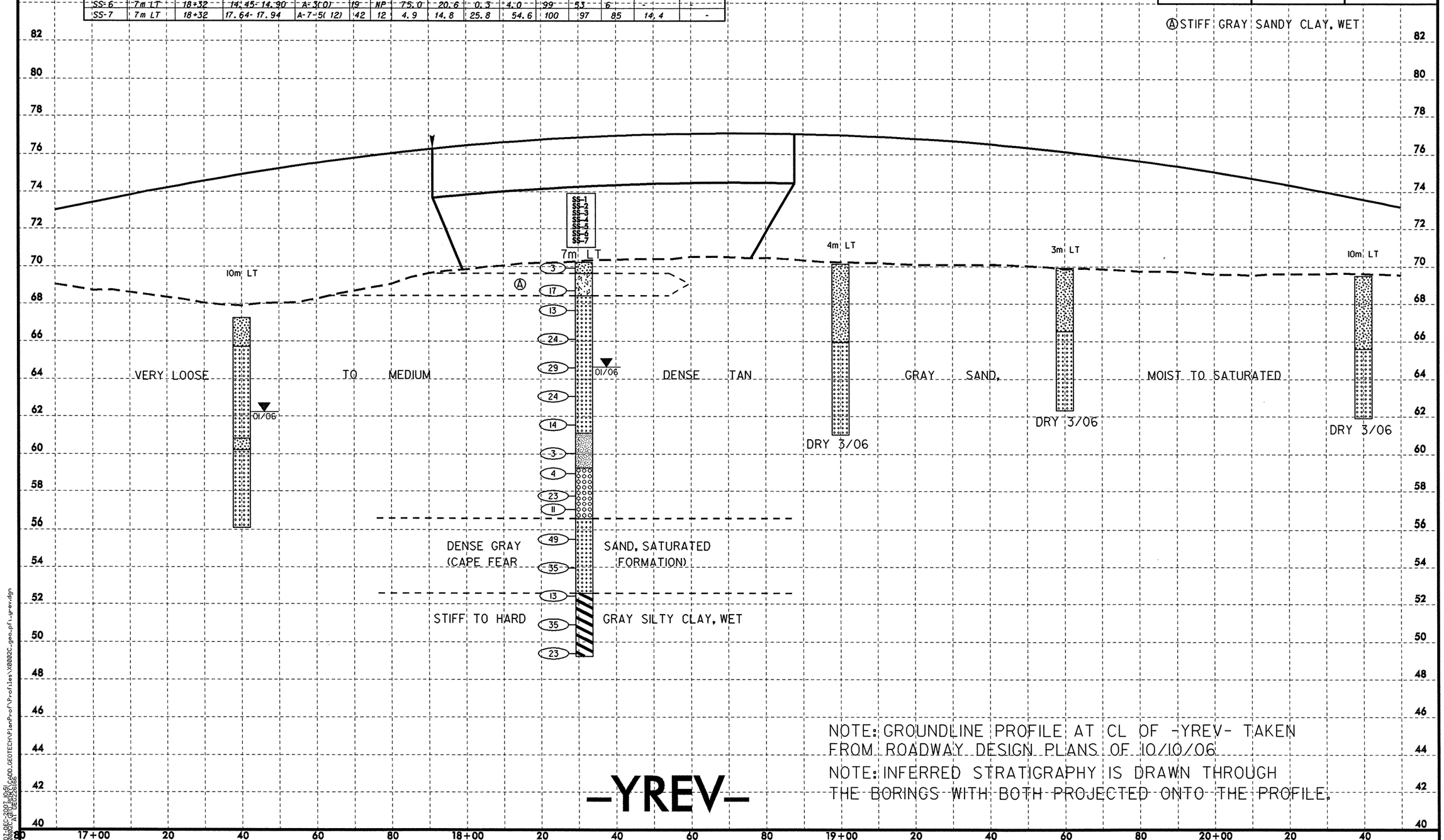
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-1	7m LT	18+32	1.22-1.67	A-5(7)	50	9	9.5	29.5	12.4	48.5	100	95	63	13.9	-
SS-2	7m LT	18+32	2.29-2.74	NOT	ENOUGH		SAMPLE								
SS-3	7m LT	18+32	6.85-7.30	A-3(0)	21	NP	70.8	25.9	1.3	2.0	99	56	4	-	-
SS-4	7m LT	18+32	9.89-10.34	A-4(1)	28	7	28.7	35.2	17.9	18.2	99	85	46	14.4	-
SS-5	7m LT	18+32	10.97-11.24	A-1-b(0)	23	NP	90.4	7.3	0.3	2.0	83	13	2	-	-
SS-6	7m LT	18+32	14.45-14.90	A-3(0)	19	NP	75.0	20.6	0.3	4.0	99	53	6	-	-
SS-7	7m LT	18+32	17.64-17.94	A-7-5(12)	42	12	4.9	14.8	25.8	54.6	100	97	85	14.4	-



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

-YREV-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

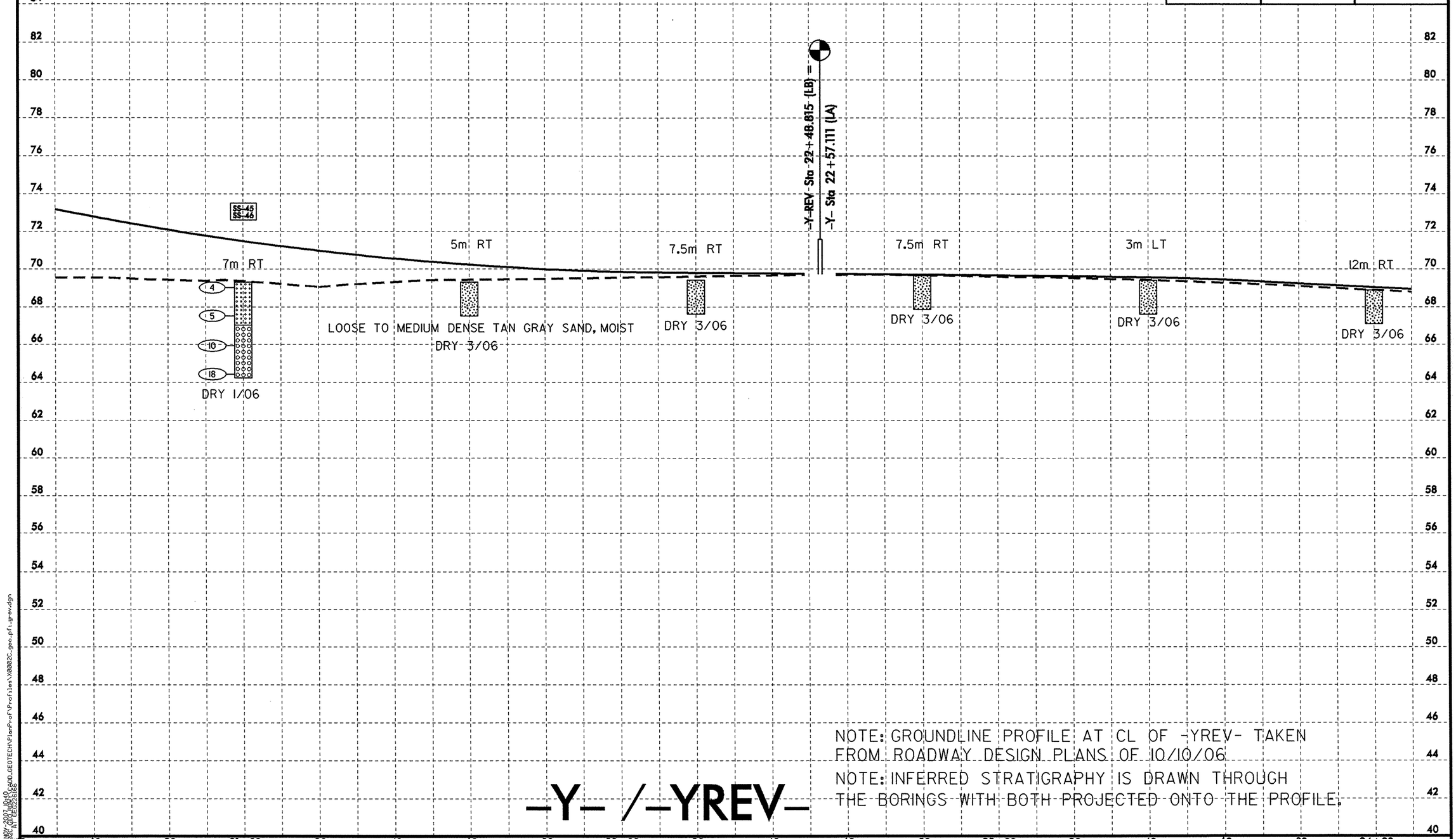
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-45	7 m Rt	21+00	0.30-0.45	A-3(0)	13	NP	67.0	25.4	3.6	4.0	100	55	9	-	-
SS-46	7 m Rt	21+00	3.10-3.55	A-1-b(0)	22	NP	80.5	13.7	1.8	4.0	100	42	6	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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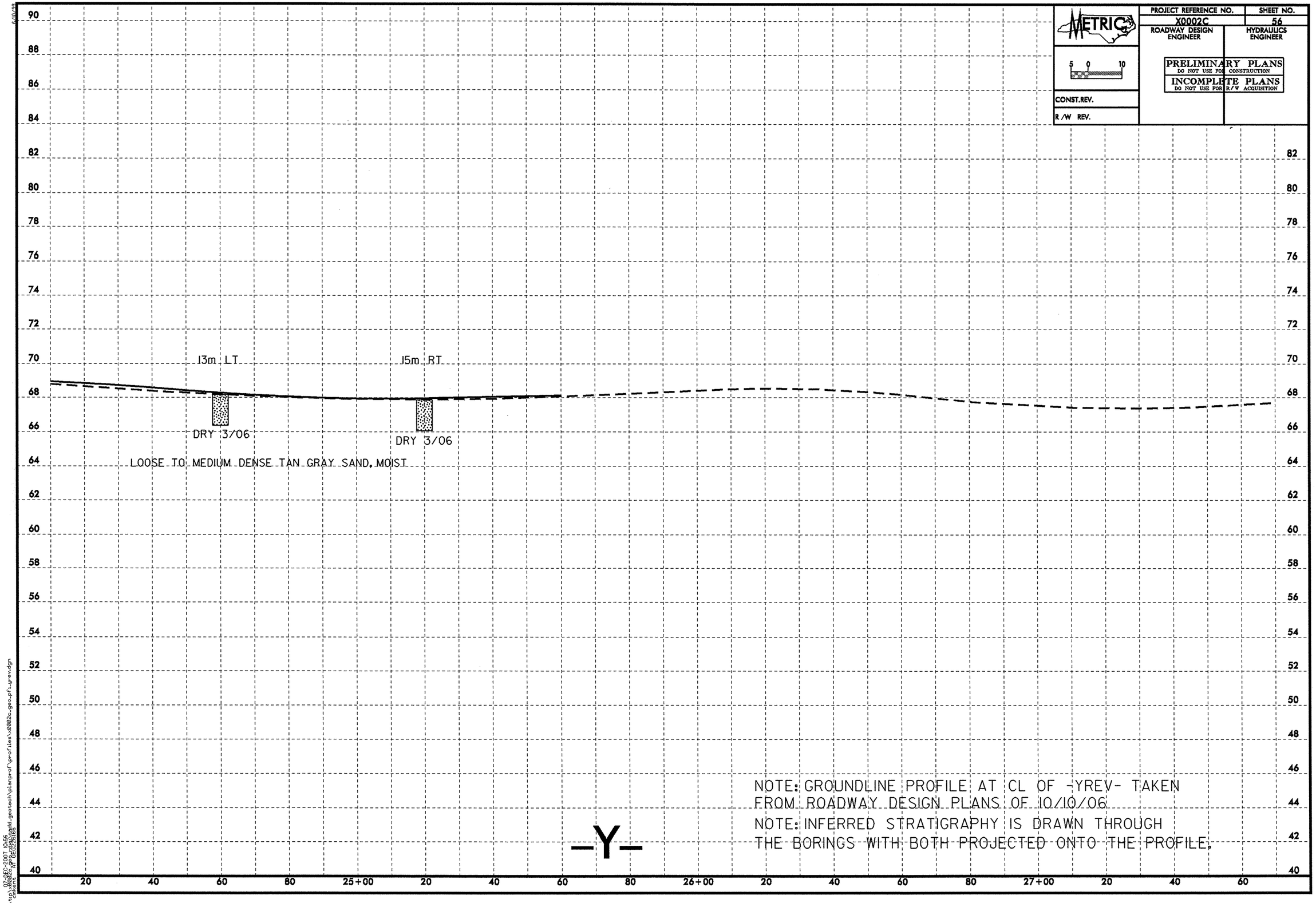

METRIC
5 0 10
PROJECT REFERENCE NO.
X0002C
SHEET NO.
56
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
13m LT
15m RT
DRY 3/06
DRY 3/06
LOOSE TO MEDIUM DENSE TAN GRAY SAND, MOIST
NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
-Y-
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26+00
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27+00
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60

PROJECT REFERENCE NO.	SHEET NO.
X0002C	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

CONST.REV.

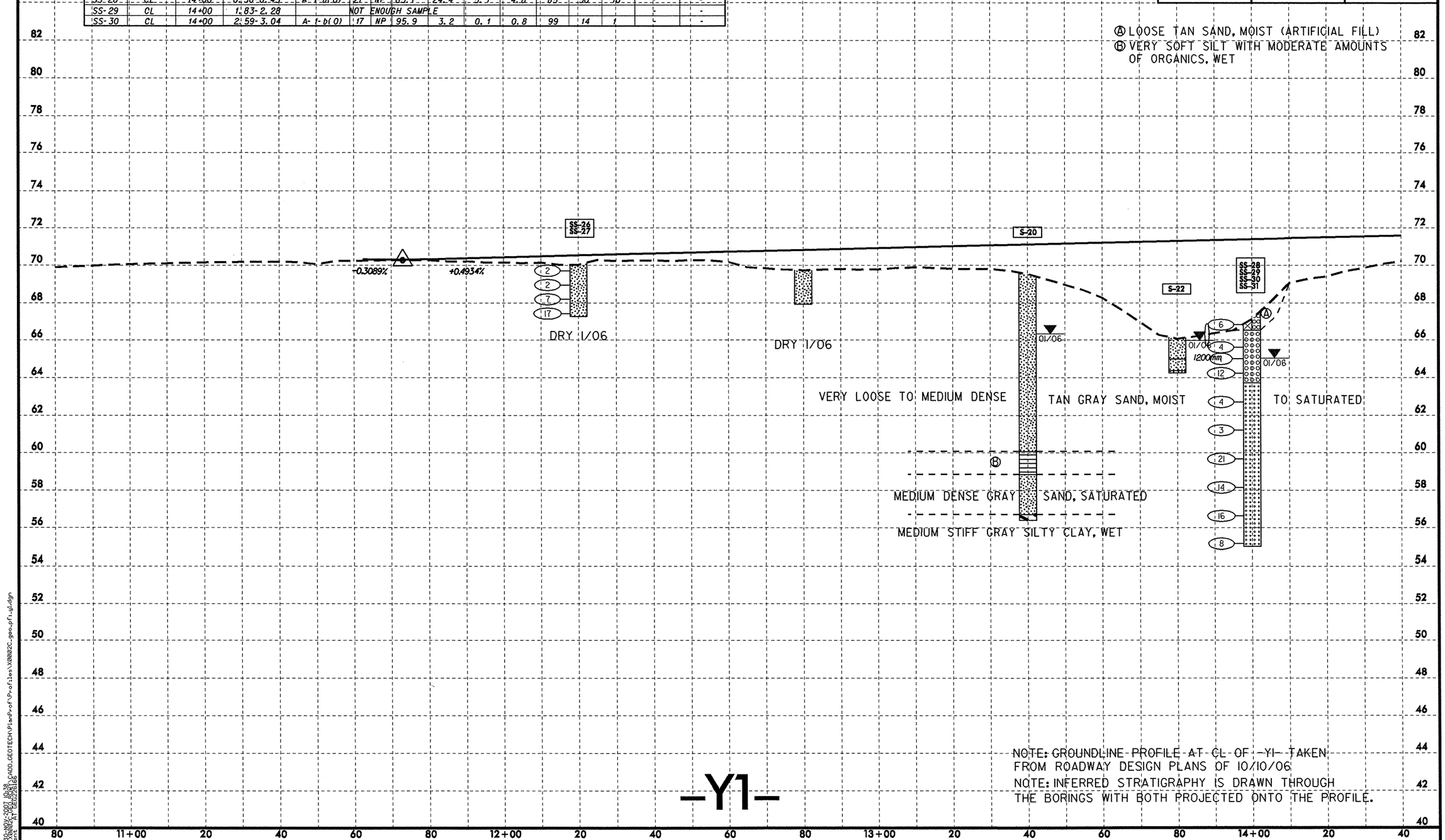
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-26	CL	12+20	0.76-1.21	A-2-4(0)	16	NP	44.5	44.1	2.5	8.9	100	79	14	-	-
SS-27	CL	12+20	2.29-2.74	A-2-4(0)	26	5	49.5	27.6	5.9	16.9	100	68	24	-	-
S-20	CL	13+40	9.45-10.67	A-4(2)	28	9	33.4	17.9	13.6	35.1	98	74	54	-	-
S-22	CL	13+80	1.07-1.68	A-2-5(0)	45	NP	35.7	44.4	9.3	10.6	100	75	22	-	-
SS-28	CL	14+00	0.30-0.45	A-1-b(0)	27	NP	65.7	24.4	5.1	4.8	85	50	10	-	-
SS-29	CL	14+00	1.83-2.28		NOT ENOUGH SAMPLE									-	-
SS-30	CL	14+00	2.59-3.04	A-1-b(0)	17	NP	95.9	3.2	0.1	0.8	99	14	1	-	-



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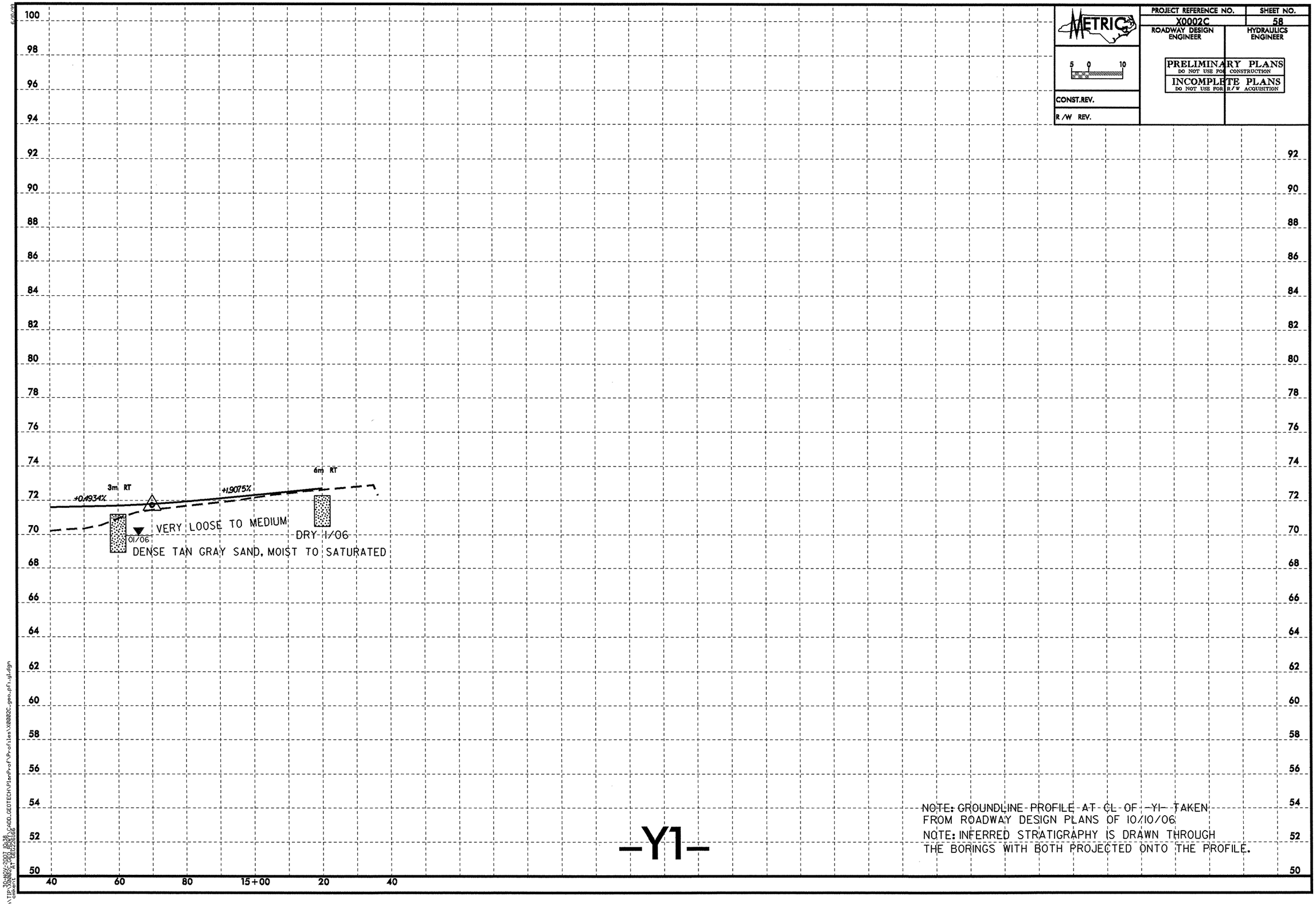


METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NOTE: GROUNDLINE PROFILE AT CL OF -Y1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

PROJECT REFERENCE NO.	SHEET NO.
X0002C	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

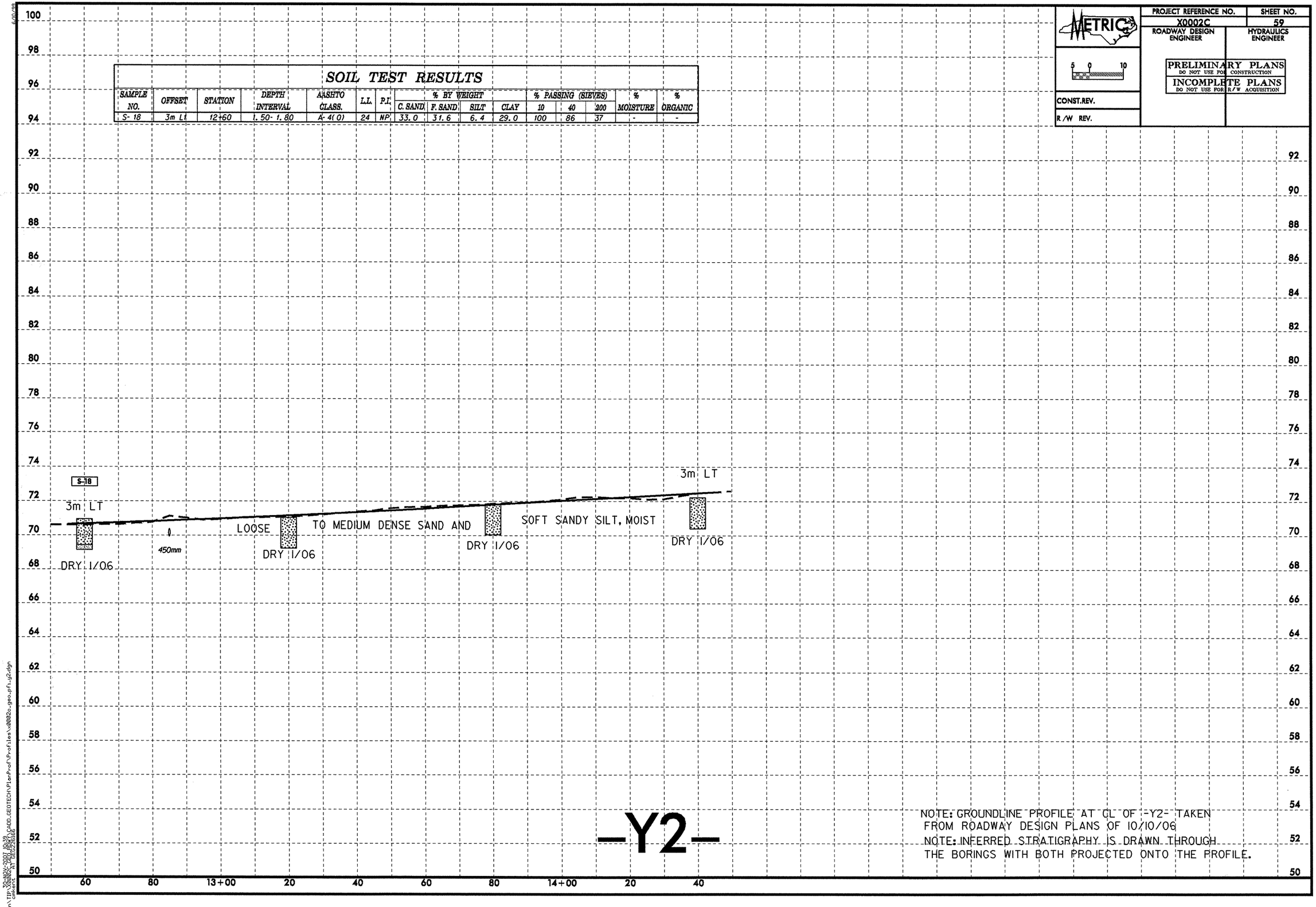
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-18	3m Lt	12+60	1.50-1.80	A-4(0)	24	NP	33.0	31.6	6.4	29.0	100	86	37	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -Y2- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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cmkent AT GEO226166

PROJECT REFERENCE NO.	SHEET NO.
X0002C	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

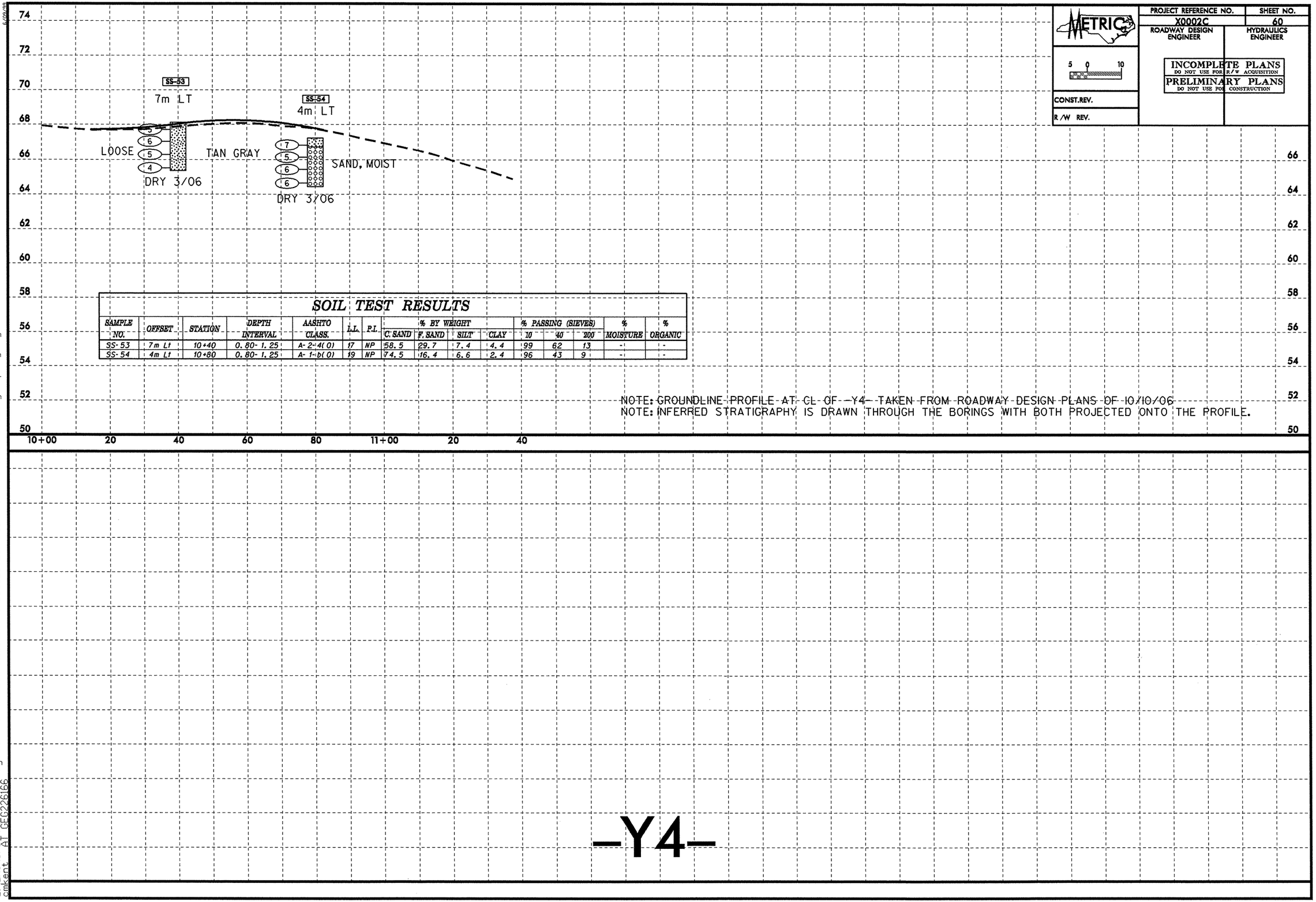
METRIC

5 0 10

CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-53	7m Lt	10+40	0.80- 1.25	A-2-4(0)	17	NP	58.5	29.7	7.4	4.4	99	62	13	-	-
SS-54	4m Lt	10+80	0.80- 1.25	A-1-b(0)	19	NP	74.5	16.4	6.6	2.4	96	43	9	-	-

NOTE: GROUNDLINE PROFILE AT CL OF -Y4- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y4-

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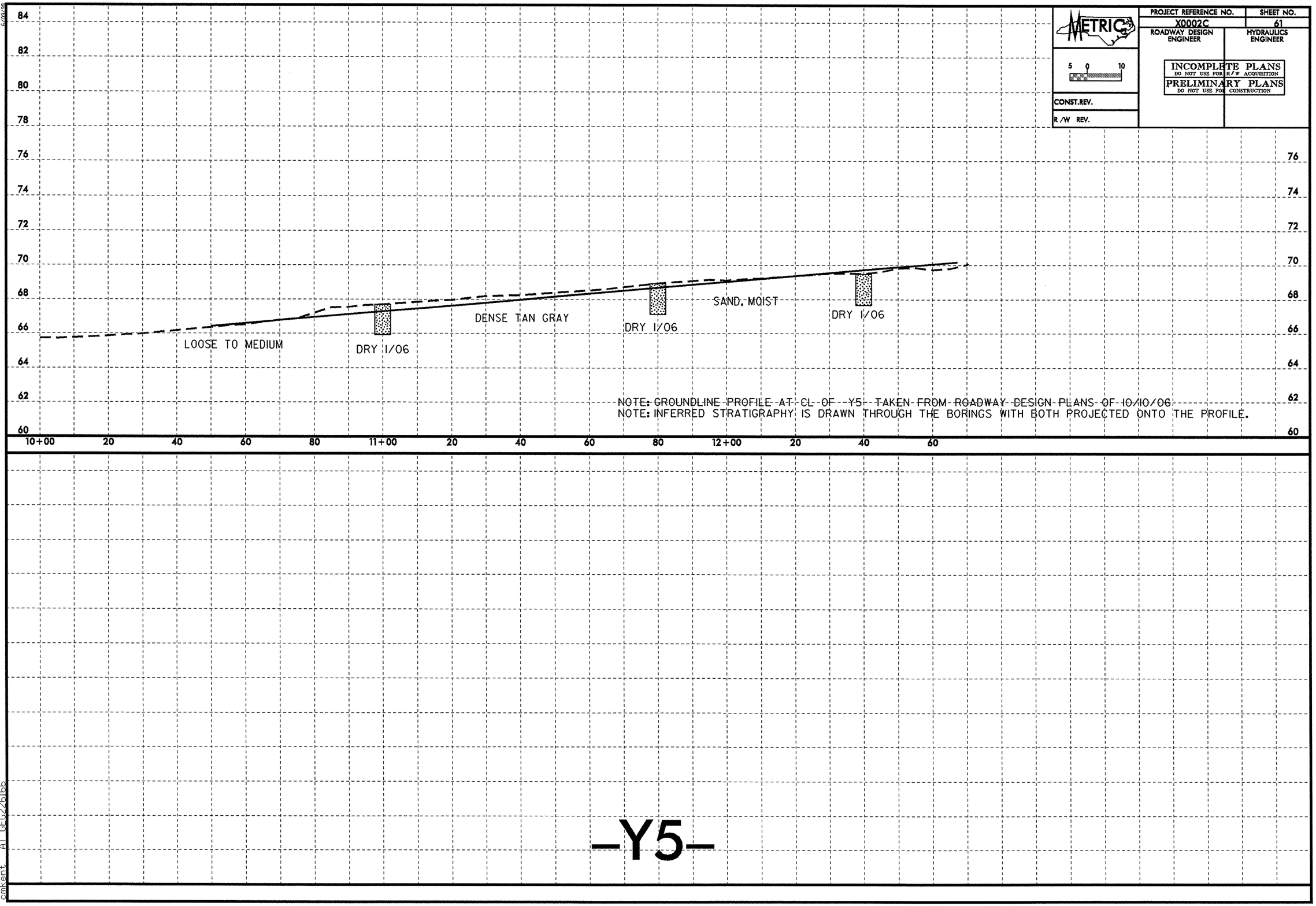

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

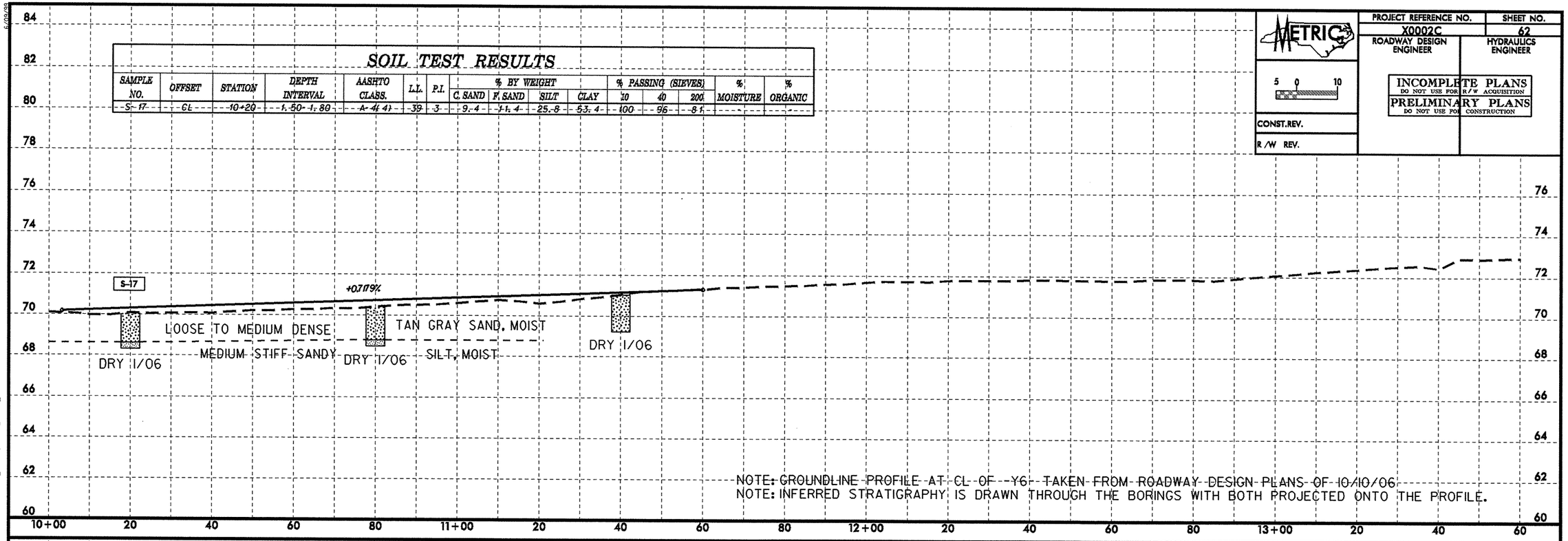
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-17	CL	10+20	1.50-1.80	A-4(4)	39	3	9.4	11.4	25.8	53.4	100	96	81		



NOTE: GROUNDLINE PROFILE AT CL OF -Y6- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y6-

30-NOV-2007 10:39
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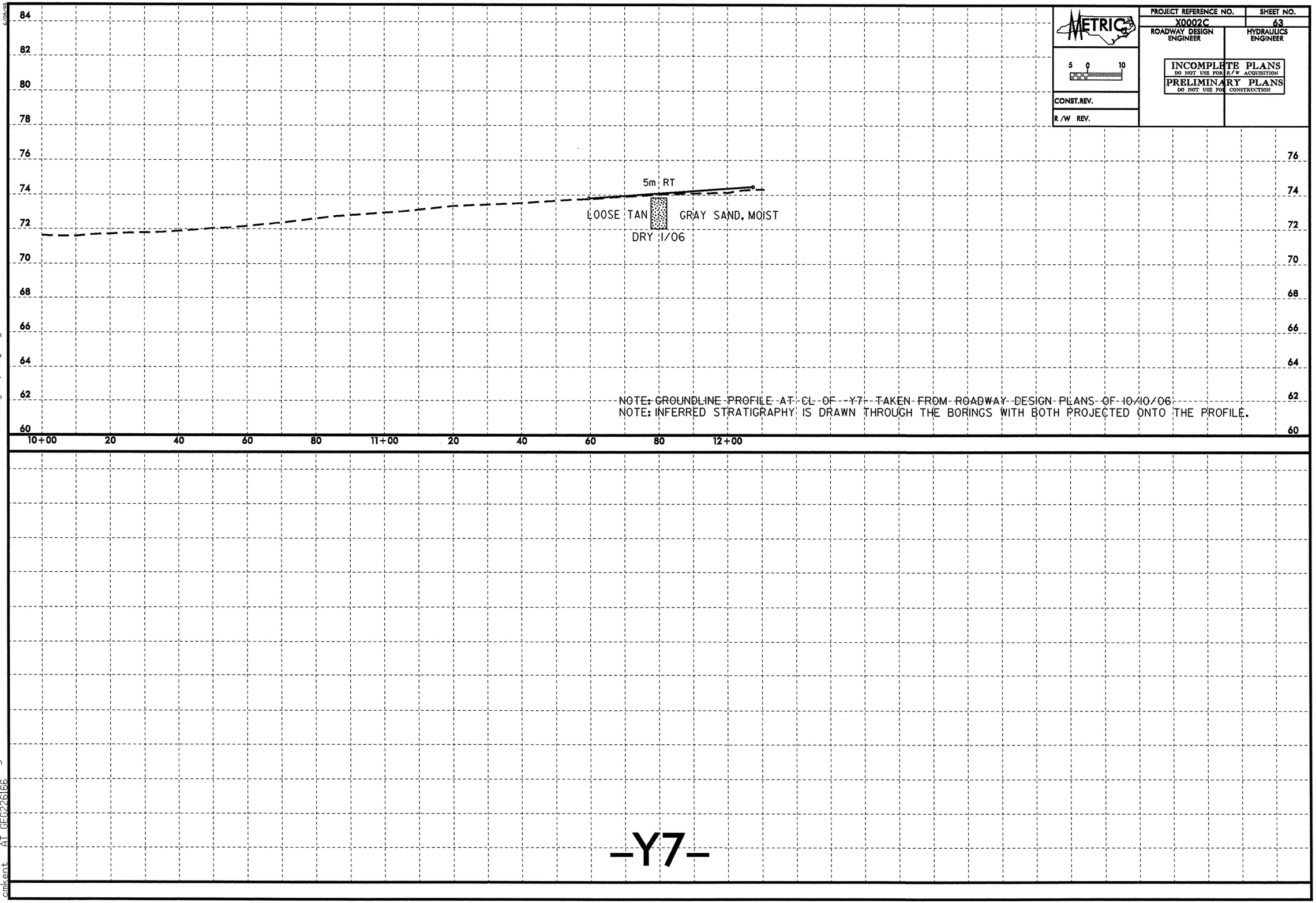

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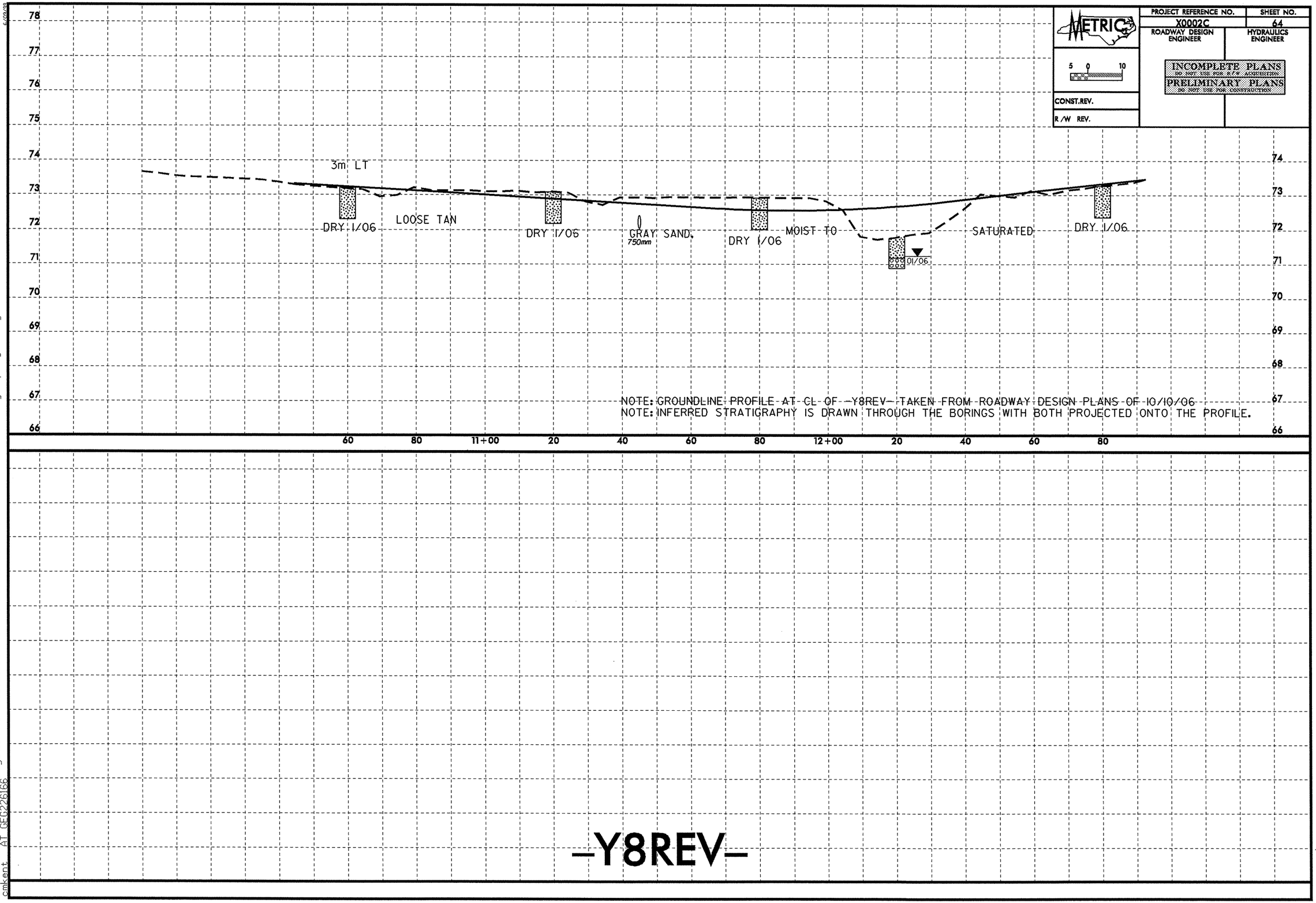

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cmkent AT GEG226166

PROJECT REFERENCE NO.	SHEET NO.
X0002C	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

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

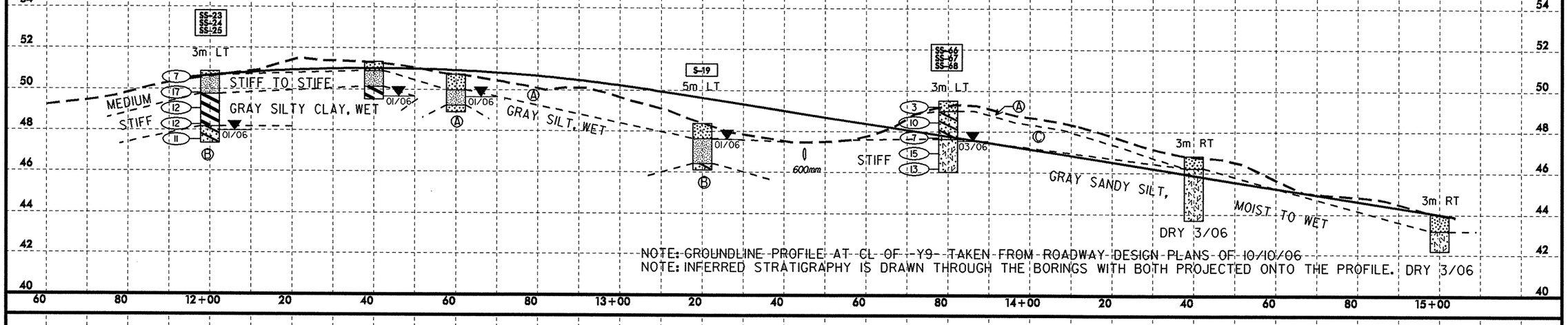
CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-23	3m Lt	12+00	0.76-1.21	A-4(0)	29	2	39.9	25.2	8.0	27.0	100	75	38	-	-
SS-24	3m Lt	12+00	1.52-1.97	A-7-6(15)	48	27	20.1	19.7	17.0	43.1	100	88	64	-	-
SS-25	3m Lt	12+00	3.05-3.50	A-2-6(1)	33	16	50.4	17.3	9.4	23.0	100	69	34	-	-
S-19	5m Lt	13+20	1.22-1.98	A-4(0)	25	NP	35.7	26.1	9.3	29.0	96	75	39	-	-
SS-66	3m Lt	13+80	0.30-0.45	A-2-4(0)	17	NP	43.1	45.7	8.8	2.4	90	68	16	-	-
SS-67	3m Lt	13+80	0.80-1.25	A-2-6(0)	37	13	40.7	30.3	6.6	22.4	93	71	29	-	-
SS-68	3m Lt	13+80	2.30-2.75	A-5(12)	53	10	5.6	18.0	21.8	54.5	100	97	80	-	-

Ⓐ LOOSE TAN SAND, MOIST
Ⓑ MEDIUM DENSE GRAY CLAYEY SAND, SATURATED
Ⓒ LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST



NOTE: ~~GROUNDLINE PROFILE AT CL OF -Y9- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06~~
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE. DRY 3/06

-Y9-

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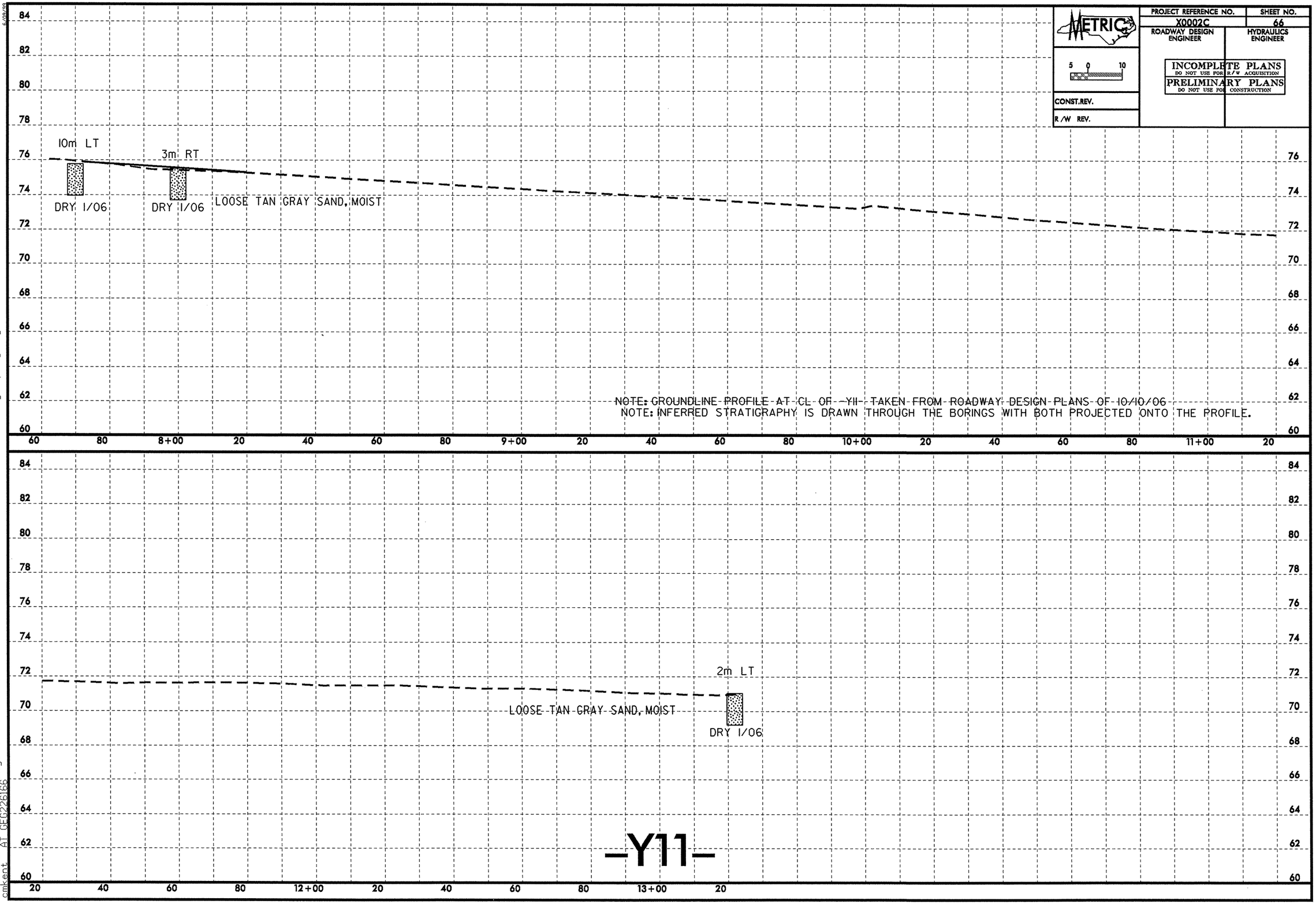

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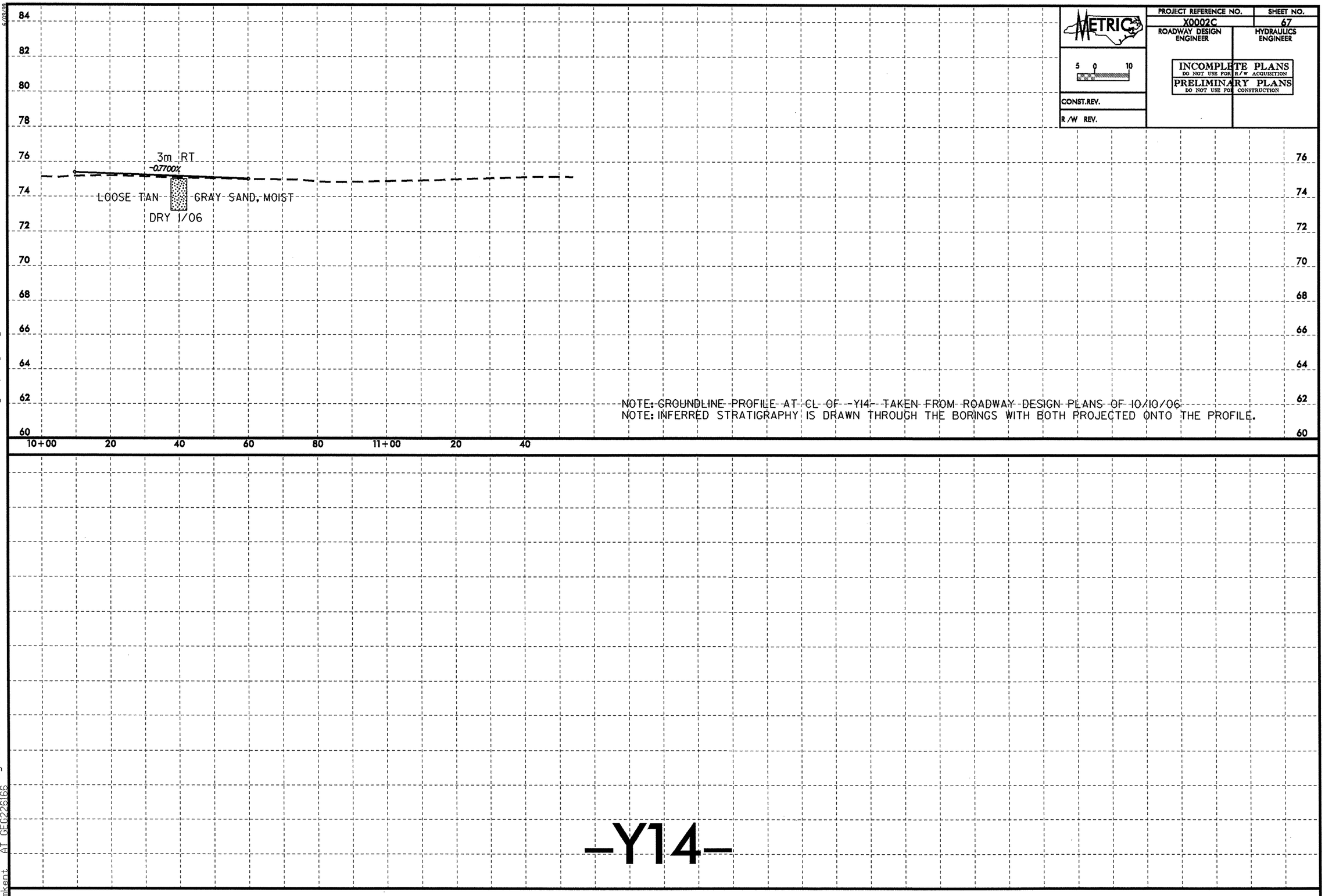
cmkent AT GEO226166



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cmkent AT GEG226166

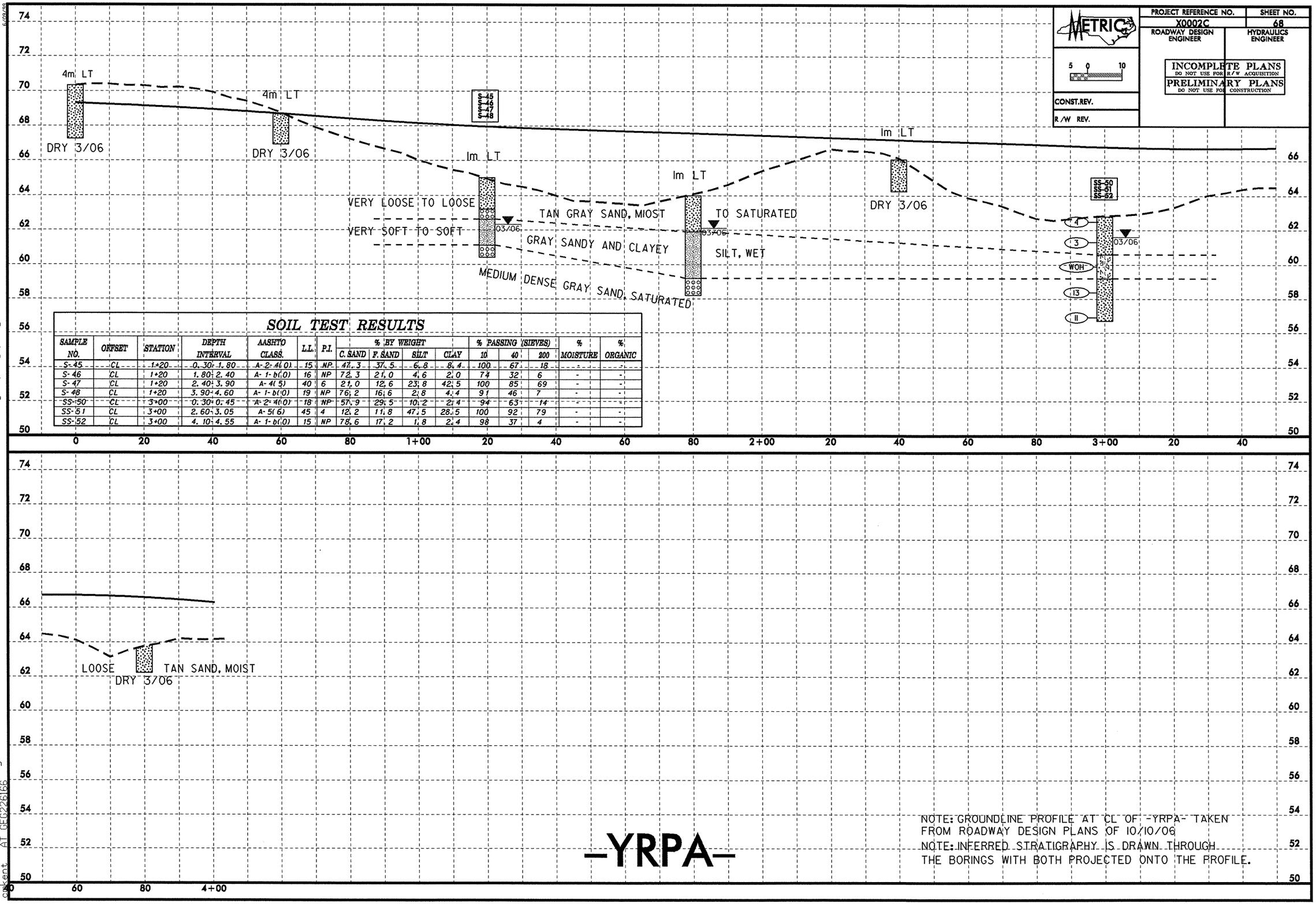
PROJECT REFERENCE NO.	SHEET NO.
X0002C	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

CONST.REV.

R/W REV.

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



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-45	CL	1+20	0.30-1.80	A-2-4(0)	15	NP	42.3	37.5	6.8	8.4	100	67	18	-	-
S-46	CL	1+20	1.80-2.40	A-1-b(0)	16	NP	72.3	21.0	4.6	2.0	74	32	6	-	-
S-47	CL	1+20	2.40-3.90	A-4(5)	40	6	21.0	12.6	23.8	42.5	100	85	69	-	-
S-48	CL	1+20	3.90-4.60	A-1-b(0)	19	NP	76.2	16.6	2.8	4.4	91	46	7	-	-
SS-50	CL	3+00	0.30-0.45	A-2-4(0)	18	NP	57.9	29.5	10.2	2.4	94	63	14	-	-
SS-51	CL	3+00	2.60-3.05	A-5(6)	45	4	12.2	11.8	47.5	28.5	100	92	79	-	-
SS-52	CL	3+00	4.10-4.55	A-1-b(0)	15	NP	78.6	17.2	1.8	2.4	98	37	4	-	-

NOTE: GROUNDLINE PROFILE AT CL OF -YRPA- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

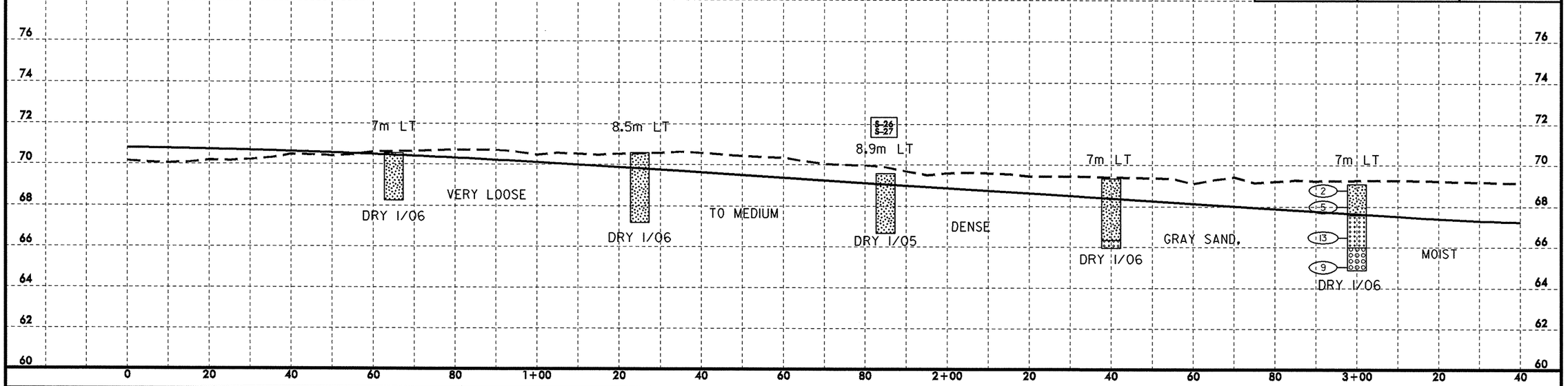
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

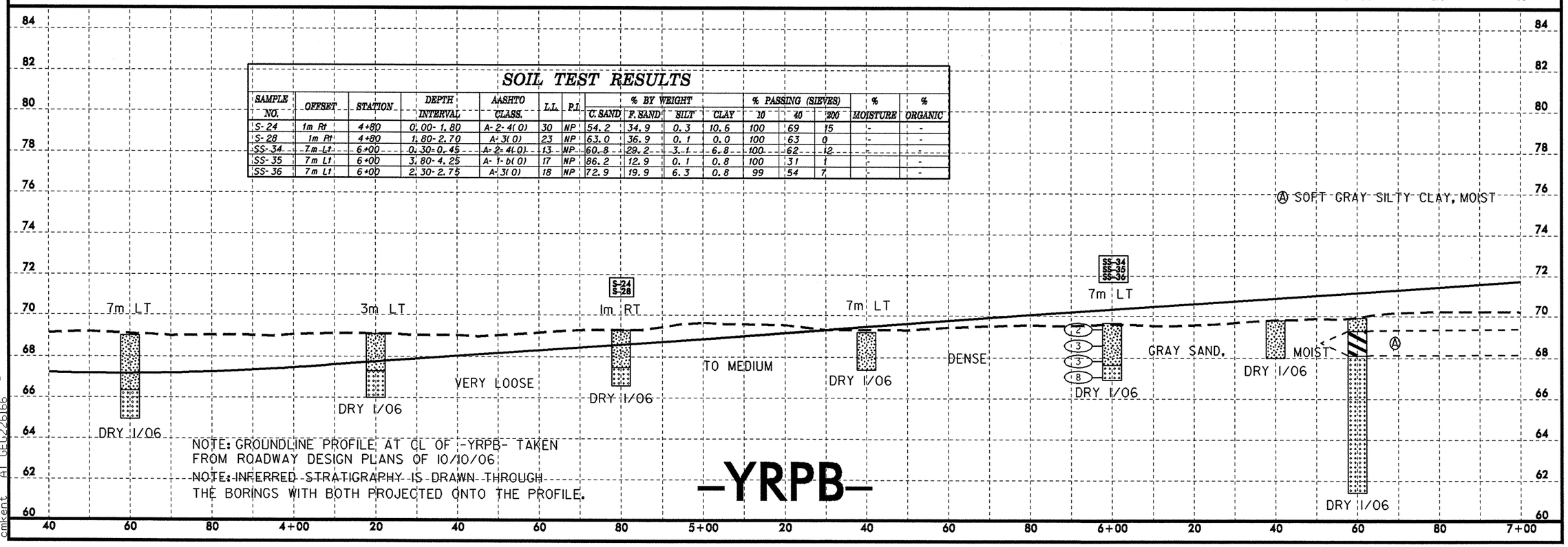
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-26	9m Lt	1+85.7	0.00- 1.50	A-2-4(0)	14	NP	45.7	39.8	5.0	8.6	100	72	16	-	-
S-27	9m Lt	1+85.7	1.50- 2.90	A-2-4(0)	32	NP	43.0	25.5	22.9	8.6	100	74	32	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-24	1m Rt	4+80	0.00- 1.80	A-2-4(0)	30	NP	54.2	34.9	0.3	10.6	100	69	15	-	-
S-28	1m Rt	4+80	1.80- 2.70	A-3(0)	23	NP	63.0	36.9	0.1	0.0	100	63	0	-	-
SS-34	7m Lt	6+00	0.30- 0.45	A-2-4(0)	13	NP	60.8	29.2	3.1	6.8	100	62	12	-	-
SS-35	7m Lt	6+00	3.80- 4.25	A-1-b(0)	17	NP	86.2	12.9	0.1	0.8	100	31	1	-	-
SS-36	7m Lt	6+00	2.30- 2.75	A-3(0)	18	NP	72.9	19.9	6.3	0.8	99	54	7	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YRPB- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06.
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-YRPB-

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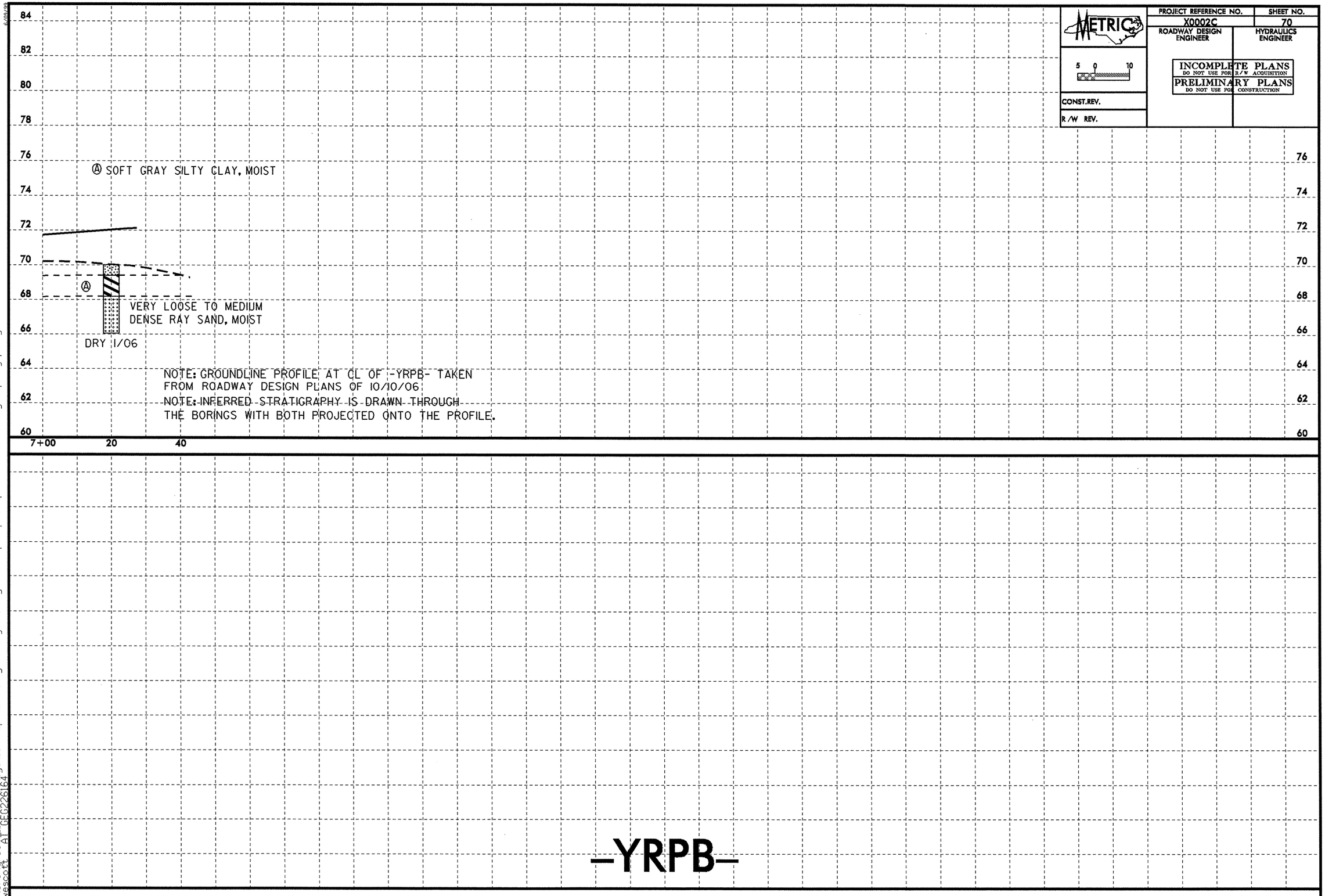
cmkent AT GEO226166



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fwescott AT GEG226164

PROJECT REFERENCE NO.	SHEET NO.
X0002C	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

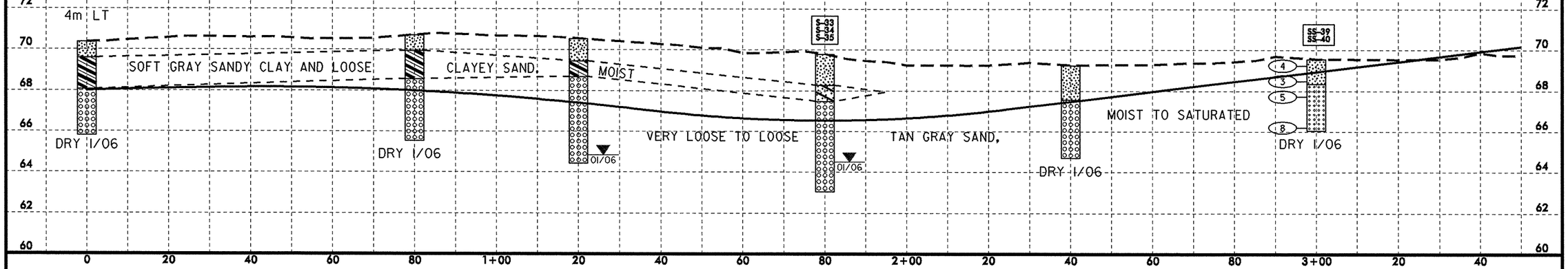
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

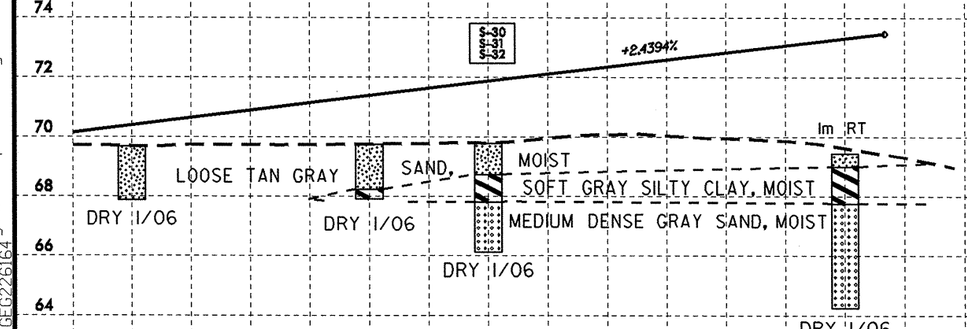
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-33	CL	1+80	0.30-1.52	A-2-4(0)	20	4	45.1	37.4	7.4	10.1	99	72	19	-	-
S-34	CL	1+80	1.52-2.29	A-2-6(1)	39	14	39.0	30.7	10.0	20.2	100	77	31	-	-
S-35	CL	1+80	2.29-6.71	A-1-b(0)	20	NP	74.0	24.3	1.7	0.0	99	45	2	-	-
SS-39	CL	3+00	0.76-1.21	A-2-4(0)	16	NP	45.9	45.1	0.9	8.1	100	74	11	-	-
SS-40	CL	3+00	1.52-1.97	A-3(0)	16	NP	58.0	39.8	0.1	2.0	100	66	3	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-30	CL	4+20	0.00-1.07	A-2-4(0)	13	NP	43.7	45.3	7.0	4.0	100	75	14	-	-
S-31	CL	4+20	1.07-1.98	A-7-6(2)	43	15	29.5	35.0	7.2	28.3	97	80	37	-	-
S-32	CL	4+20	1.98-3.66	A-3(0)	21	NP	53.4	37.4	1.1	6.1	100	62	8	-	-



-YLPB-

NOTE: GROUNDLINE PROFILE AT CL OF -YLPB- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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rescott
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PROJECT REFERENCE NO.	SHEET NO.
X0002C	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

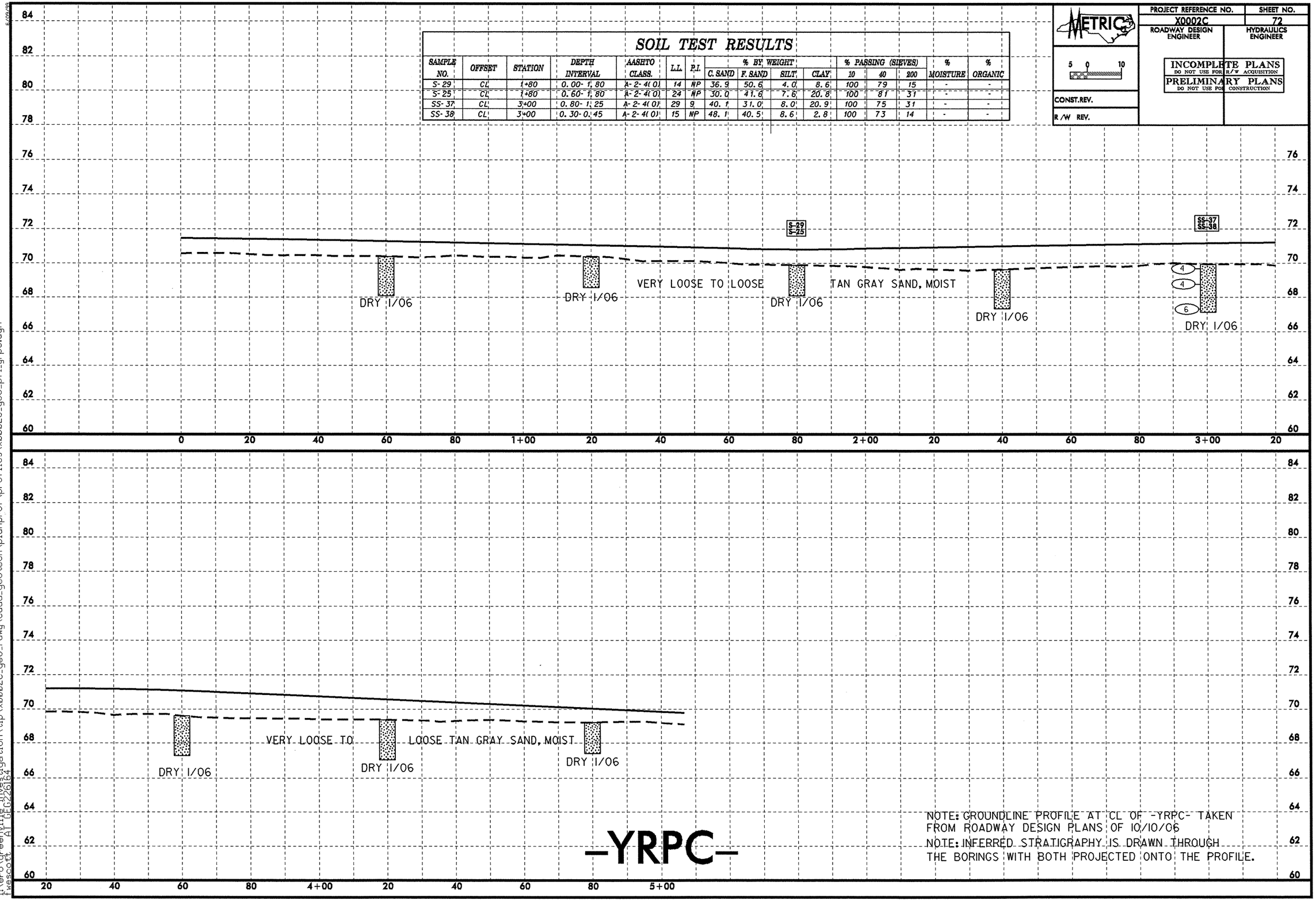
R/W REV.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-29	CL	1+80	0.00-1.80	A-2-4(0)	14	NP	36.9	50.6	4.0	8.6	100	79	15	-	-
S-25	CL	1+80	0.60-1.80	A-2-4(0)	24	NP	30.0	41.6	7.6	20.8	100	81	31	-	-
SS-37	CL	3+00	0.80-1.25	A-2-4(0)	29	9	40.1	31.0	8.0	20.9	100	75	31	-	-
SS-38	CL	3+00	0.30-0.45	A-2-4(0)	15	NP	48.1	40.5	8.6	2.8	100	73	14	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YRPC- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

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AT GEO26164

PROJECT REFERENCE NO.	SHEET NO.
X0002C	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

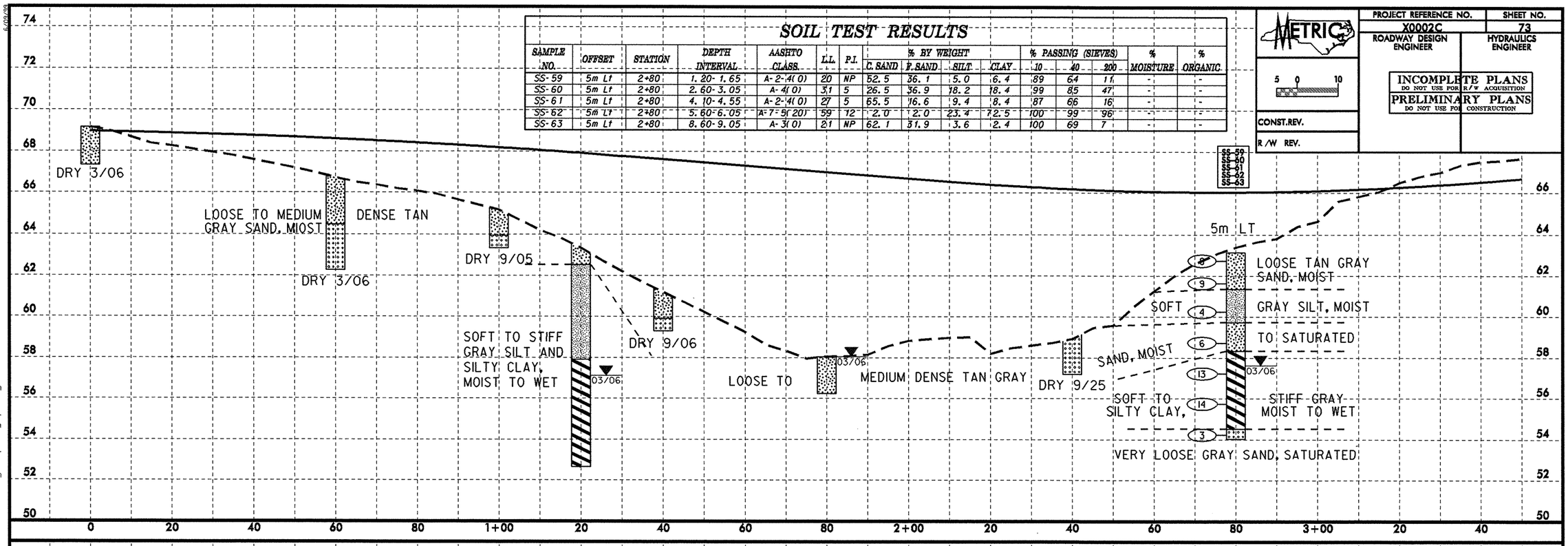
CONST.REV.

R/W REV.

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-59	5m Lt	2+80	1.20-1.65	A-2-4(0)	20	NP	52.5	36.1	5.0	6.4	89	64	11	-	-
SS-60	5m Lt	2+80	2.60-3.05	A-4(0)	31	5	26.5	36.9	18.2	18.4	99	85	47	-	-
SS-61	5m Lt	2+80	4.10-4.55	A-2-4(0)	27	5	65.5	16.6	9.4	8.4	87	66	16	-	-
SS-62	5m Lt	2+80	5.60-6.05	A-7-5(20)	59	12	2.0	2.0	23.4	72.5	100	99	96	-	-
SS-63	5m Lt	2+80	8.60-9.05	A-3(0)	21	NP	62.1	31.9	3.6	2.4	100	69	7	-	-

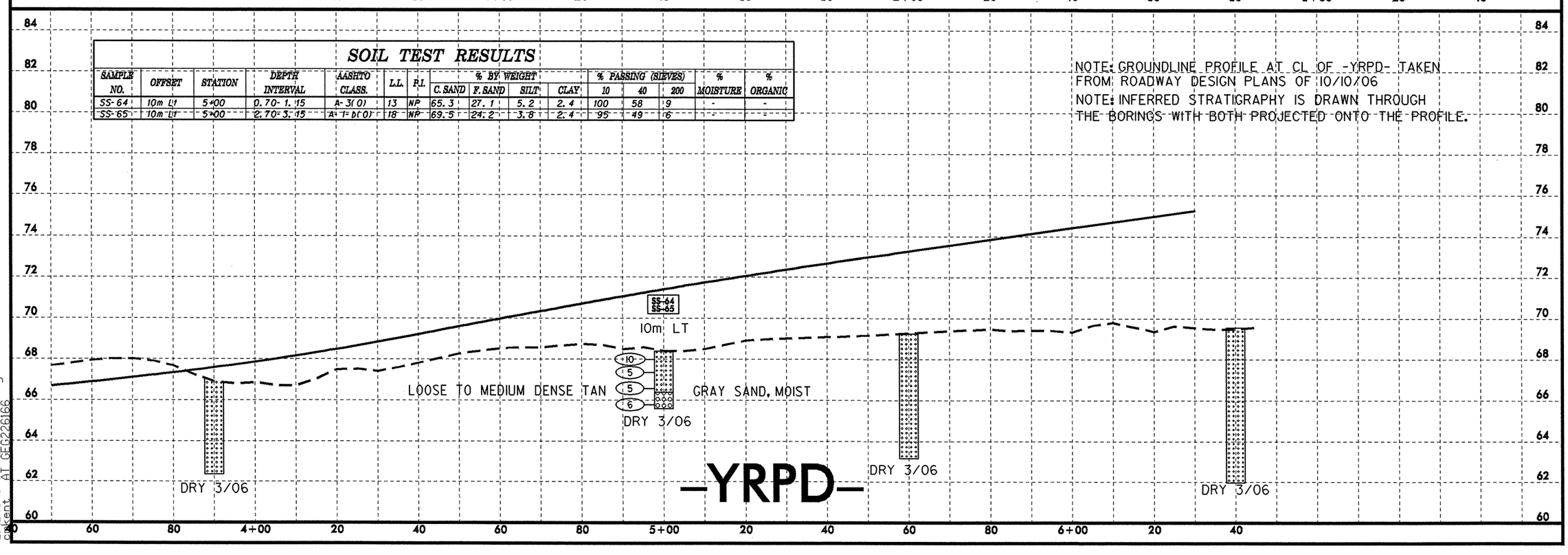


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-64	10m Lt	5+00	0.70-1.15	A-3(0)	13	NP	65.3	27.1	5.2	2.4	100	58	9	-	-
SS-65	10m Lt	5+00	2.70-3.15	A-1-b(0)	18	NP	69.5	24.2	3.8	2.4	95	49	6	-	-

NOTE: GROUNDLINE PROFILE AT CL OF -YRPD- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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



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cmkent AT GEG226166

PROJECT REFERENCE NO.	SHEET NO.
X0002C	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

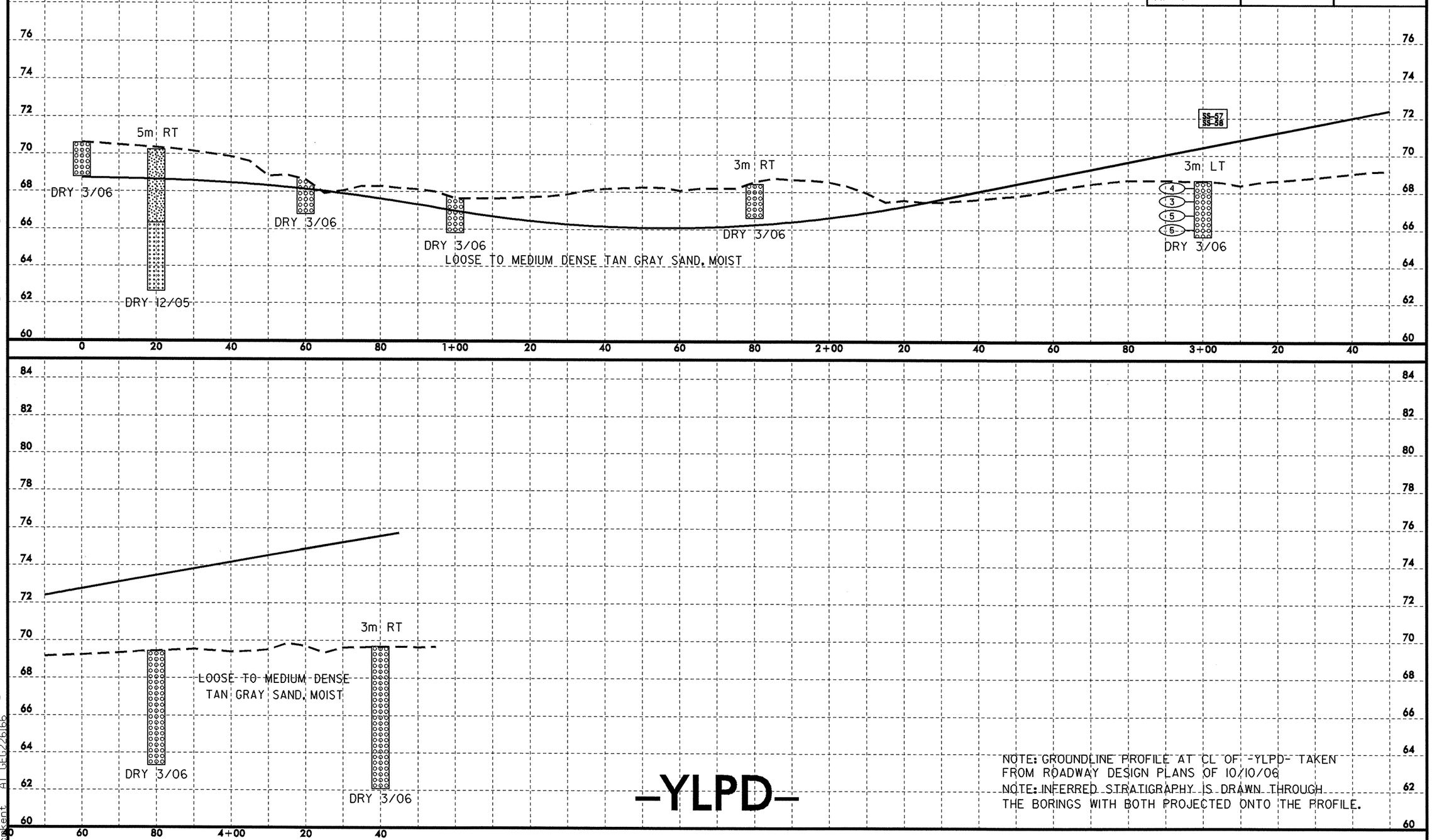
CONST.REV.

R/W REV.

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

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-57	3m Lt	3+00	0.30-0.45	A-1-b(0)	16	NP	72.7	15.4	7.4	4.4	100	46	13	-	-
SS-58	3m Lt	3+00	1.52-1.97	A-1-b(0)	14	NP	78.4	16.0	5.2	0.4	98	41	6	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YLPD- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

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

-YLPD-

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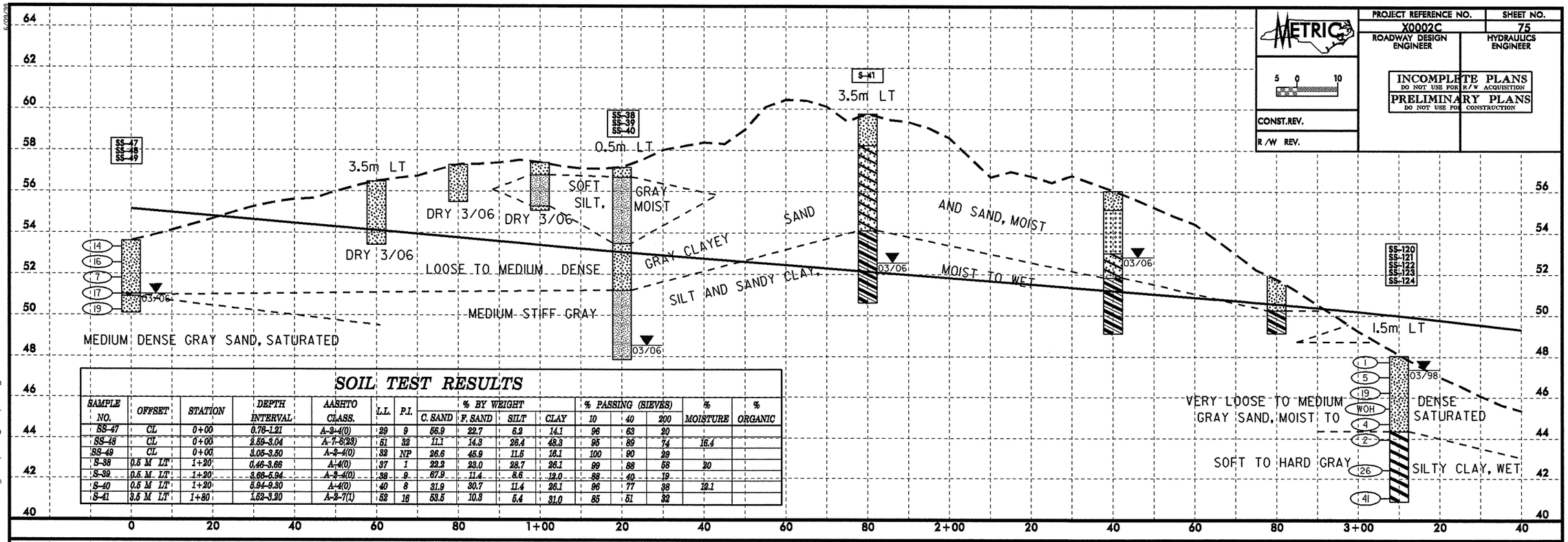
PROJECT REFERENCE NO.	SHEET NO.
X0002C	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

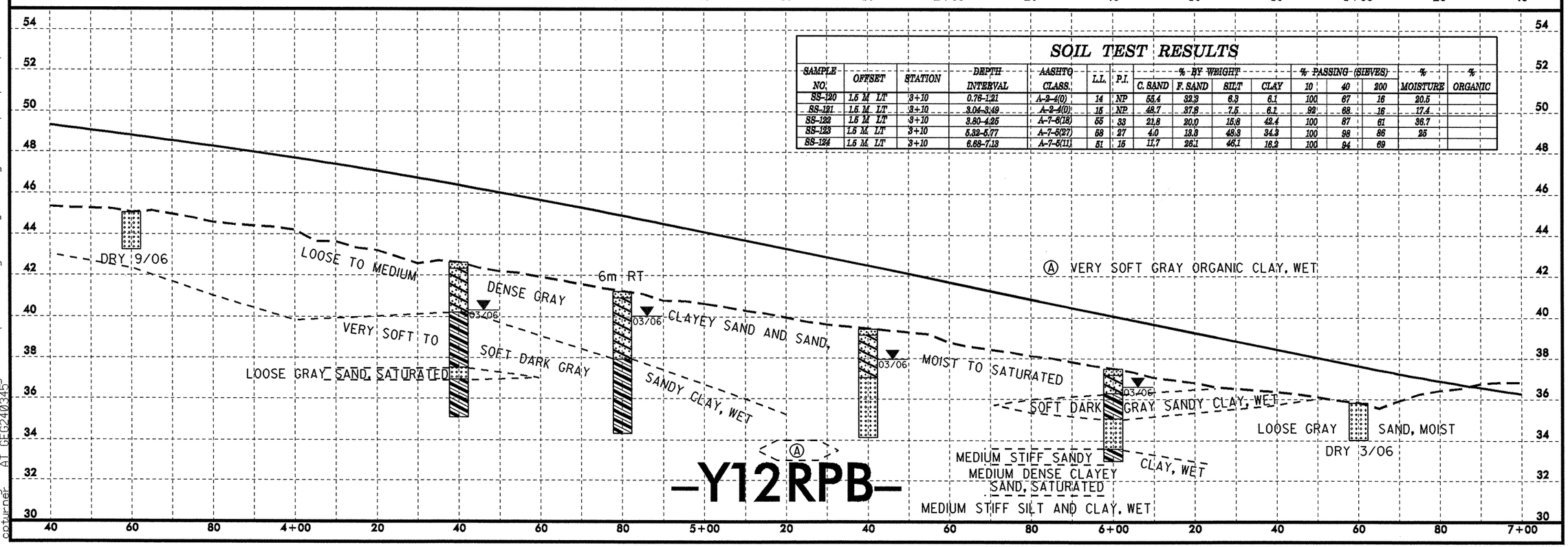
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-47	CL	0+00	0.76-1.21	A-2-4(0)	29	9	56.9	22.7	6.2	14.1	96	63	20		
SS-48	CL	0+00	2.59-3.04	A-7-6(23)	51	32	11.1	14.3	26.4	48.3	95	89	74	16.4	
SS-49	CL	0+00	3.05-3.50	A-2-4(0)	32	NP	26.6	45.9	11.5	16.1	100	90	29		
S-38	0.5 M LT	1+20	0.46-3.66	A-4(0)	37	1	22.2	23.0	28.7	26.1	99	88	58	20	
S-39	0.5 M LT	1+20	3.66-5.94	A-2-4(0)	38	9	67.9	11.4	8.6	12.0	88	40	19		
S-40	0.5 M LT	1+20	5.94-9.30	A-4(0)	40	8	31.9	30.7	11.4	26.1	96	77	38	19.1	
S-41	3.5 M LT	1+80	1.52-3.20	A-2-7(1)	52	16	53.5	10.3	5.4	31.0	85	51	32		



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-120	1.5 M LT	3+10	0.76-1.21	A-2-4(0)	14	NP	55.4	32.3	6.3	6.1	100	67	16	20.5	
SS-121	1.5 M LT	3+10	3.04-3.49	A-2-4(0)	15	NP	48.7	37.8	7.5	6.1	92	68	16	17.4	
SS-122	1.5 M LT	3+10	3.80-4.25	A-7-6(18)	55	33	21.8	20.0	15.8	42.4	100	87	61	36.7	
SS-123	1.5 M LT	3+10	5.32-5.77	A-7-5(27)	53	27	4.0	13.3	48.3	34.3	100	98	86	25	
SS-124	1.5 M LT	3+10	6.88-7.13	A-7-5(11)	51	15	11.7	26.1	46.1	16.2	100	94	69		

—Y12RPB—

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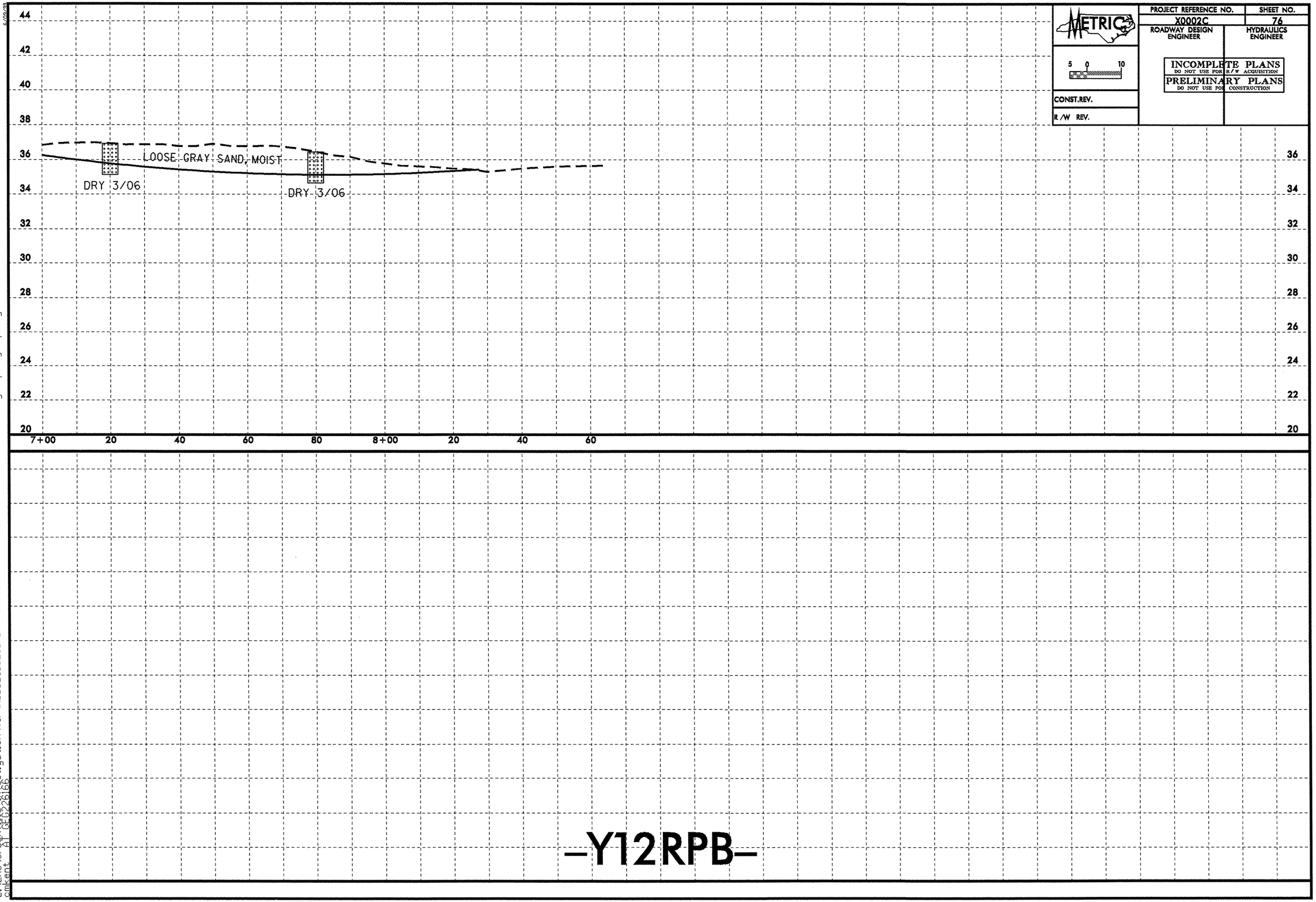

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

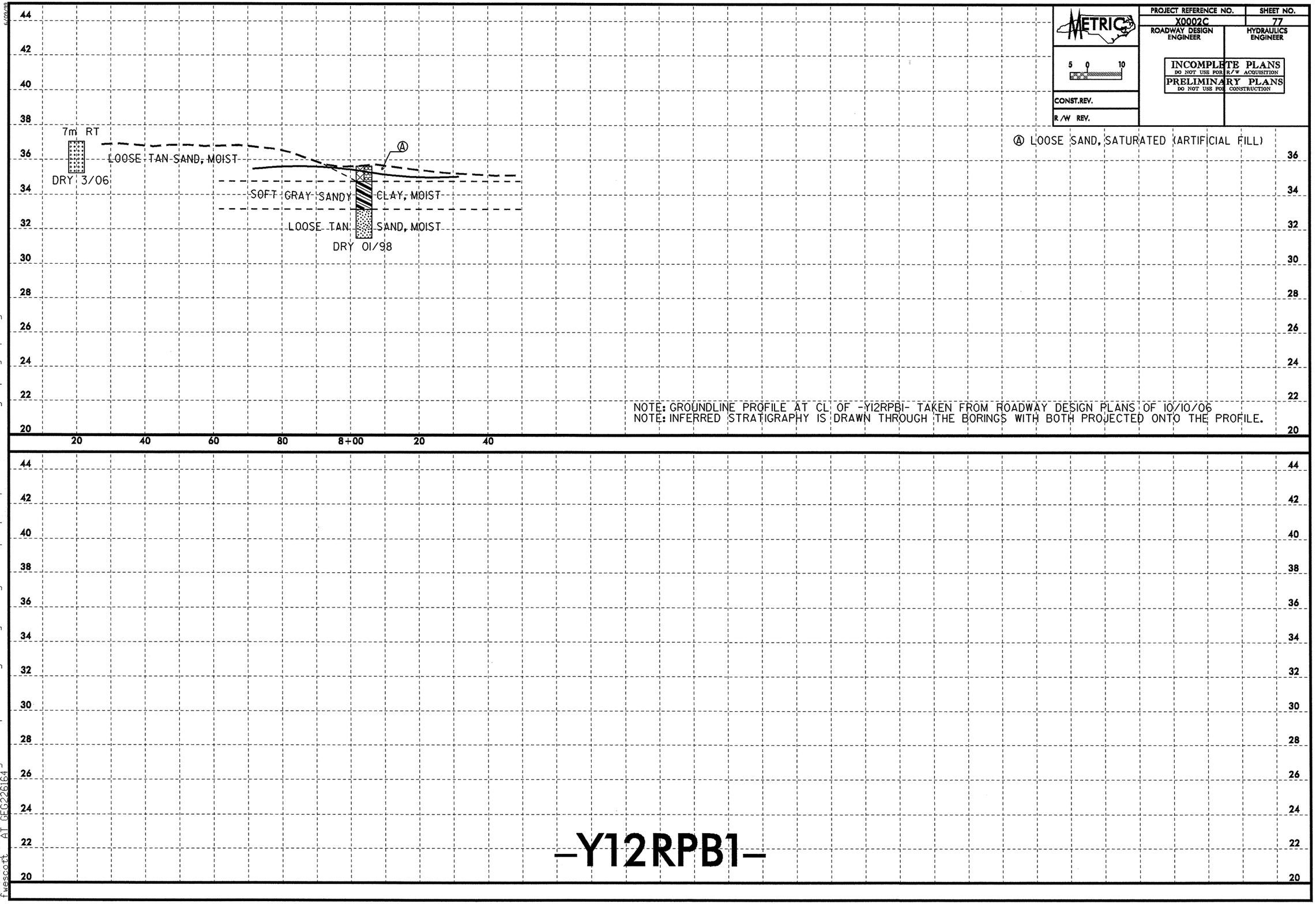
METRIC

5 0 10

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

CONST.REV.

R/W REV.



NOTE: GROUNDLINE PROFILE AT CL OF -Y12RPB1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	78
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

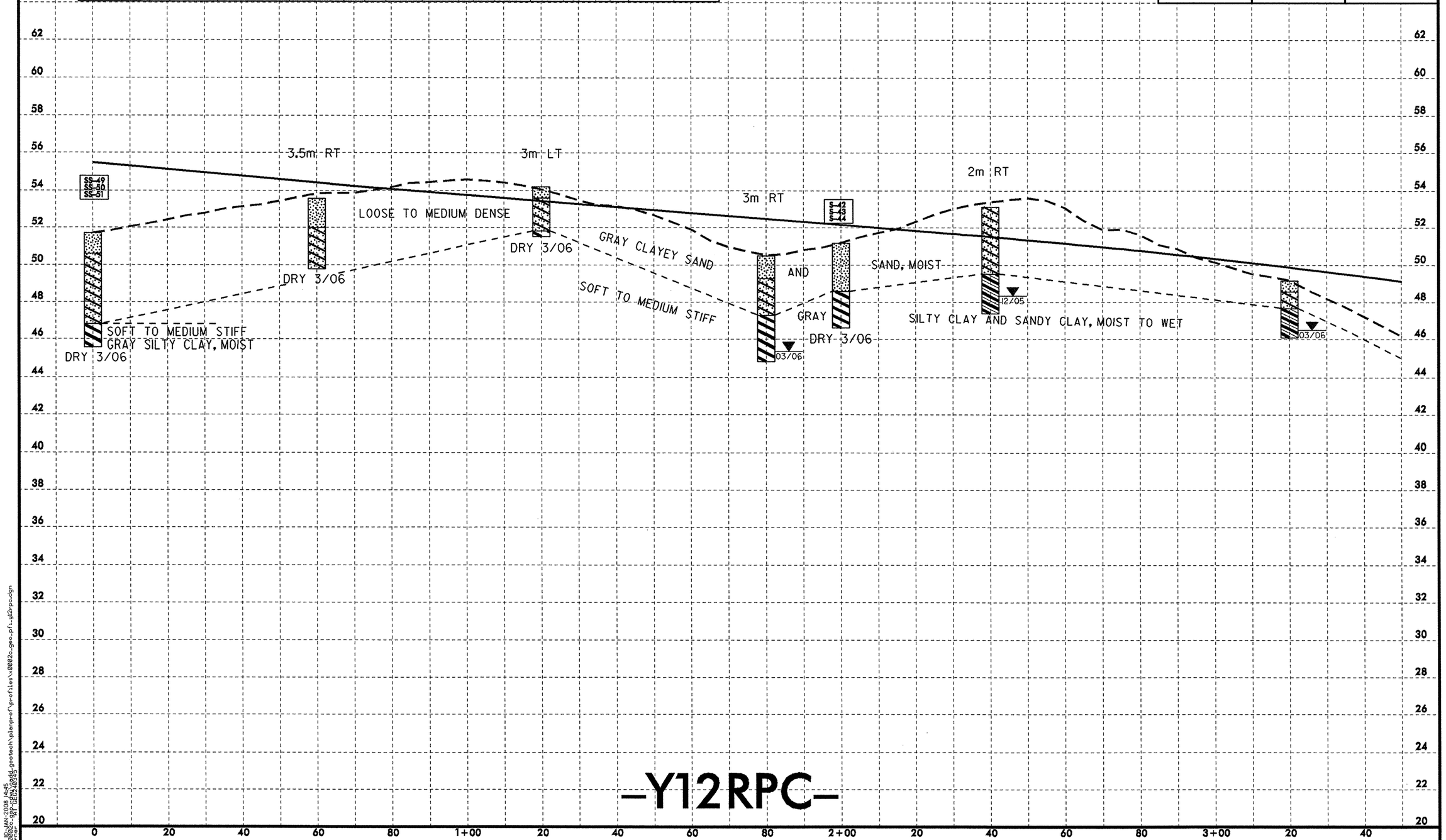
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-49	CL	0+00	0.30-1.10	A-2-4(0)	24	6	58.5	20.6	8.4	12.4	89	55	21	-	-
S-50	CL	0+00	1.10-4.90	A-2-6(0)	35	11	51.3	22.4	7.8	18.4	96	67	27	-	-
S-51	CL	0+00	4.90-6.10	A-4(1)	34	10	30.5	32.1	19.0	18.4	100	80	42	-	-
S-42	CL	2+00	0.30-1.37	A-2-4(0)	17	NP	39.6	43.7	6.6	10.1	98	78	22	-	-
S-43	CL	2+00	1.37-2.59	A-2-4(0)	36	5	45.1	24.3	10.5	20.1	96	70	31	-	-
S-44	CL	2+00	2.59-4.57	A-7-5(14)	59	14	17.5	9.7	20.5	52.3	100	88	75	-	-



-Y12RPC-

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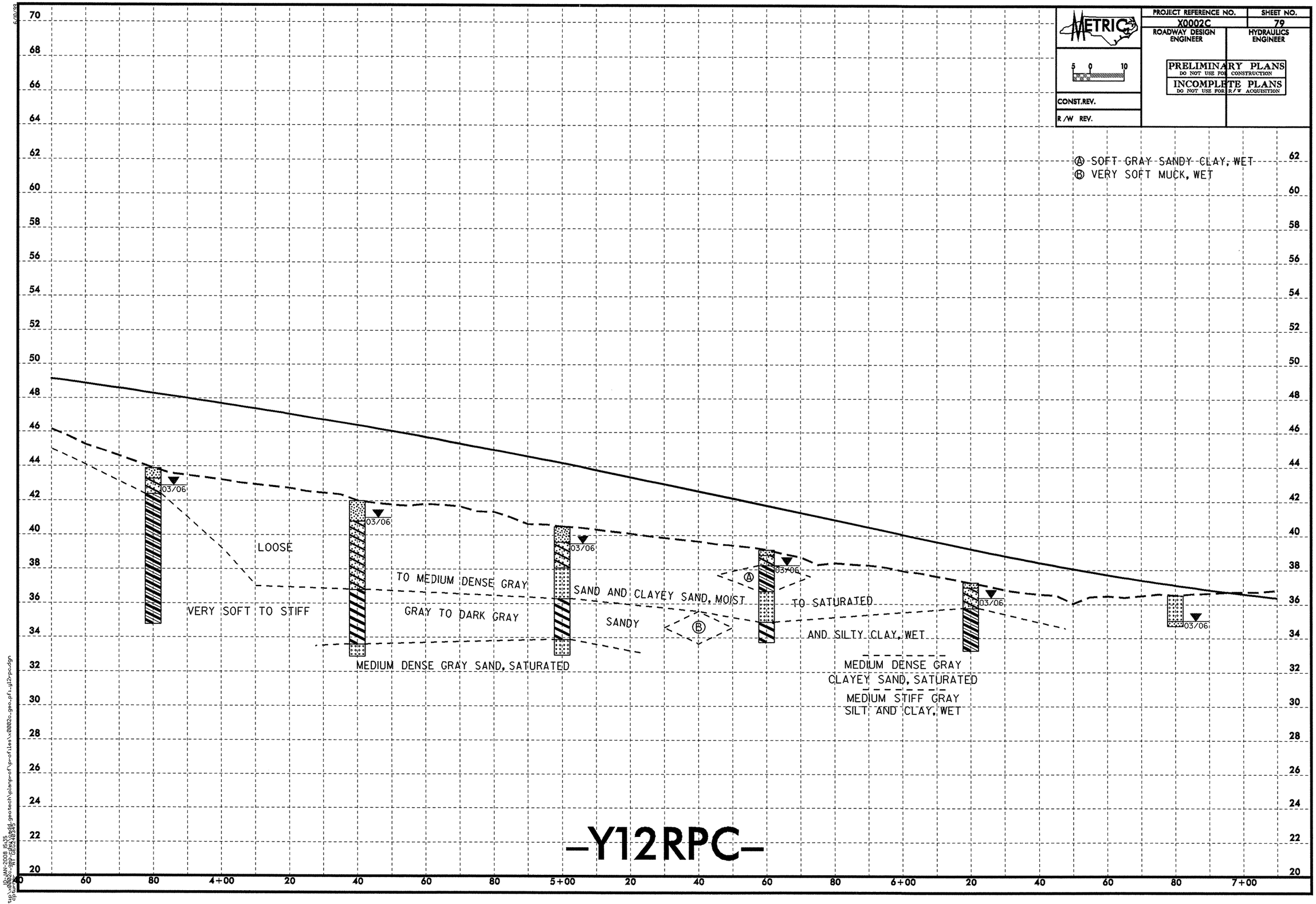
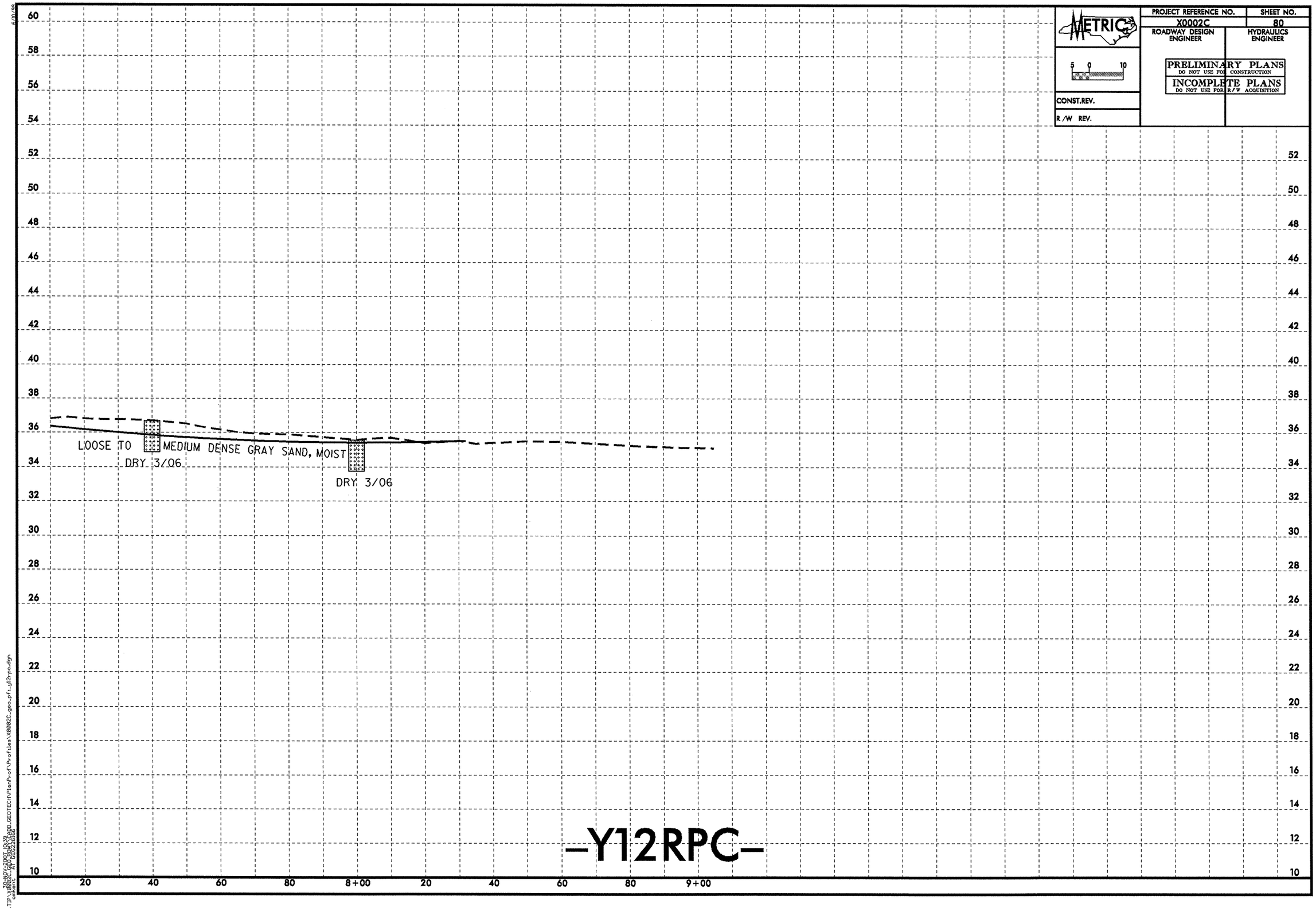


METRIC
PROJECT REFERENCE NO.
X0002C
SHEET NO.
79
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
Ⓐ SOFT GRAY SANDY CLAY, WET
Ⓑ VERY SOFT MUCK, WET
LOOSE
VERY SOFT TO STIFF
TO MEDIUM DENSE GRAY
GRAY TO DARK GRAY
SAND AND CLAYEY SAND, MOIST
SANDY
TO SATURATED
AND SILTY CLAY, WET
MEDIUM DENSE GRAY SAND, SATURATED
MEDIUM DENSE GRAY
CLAYEY SAND, SATURATED
MEDIUM STIFF GRAY
SILT AND CLAY, WET
03/06
-Y12RPC-


METRIC
5 0 10
CONST.REV.
R /W REV.
PROJECT REFERENCE NO.
X0002C
SHEET NO.
80
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
60
58
56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
DRY 3/06
DRY 3/06
20
40
60
80
8+00
20
40
60
80
9+00
-Y12RPC-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

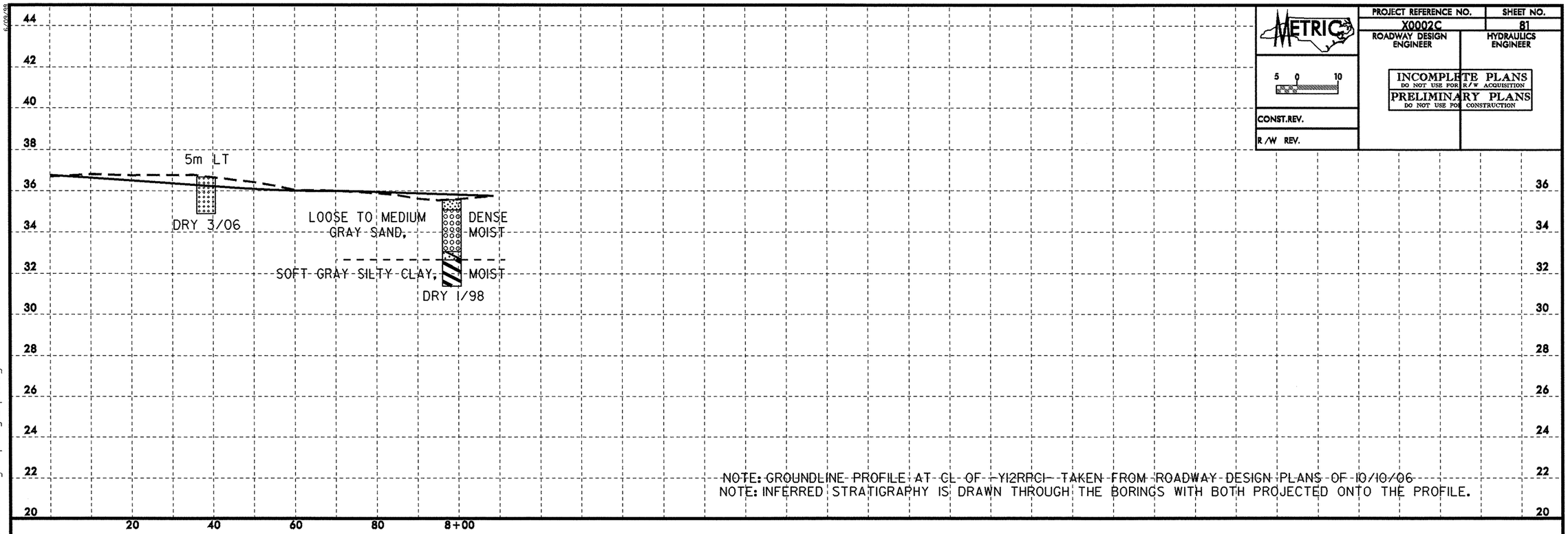
METRIC

5 0 10

CONST.REV.

R/W REV.

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



NOTE: GROUNDLINE PROFILE AT CL OF -Y12RPC1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

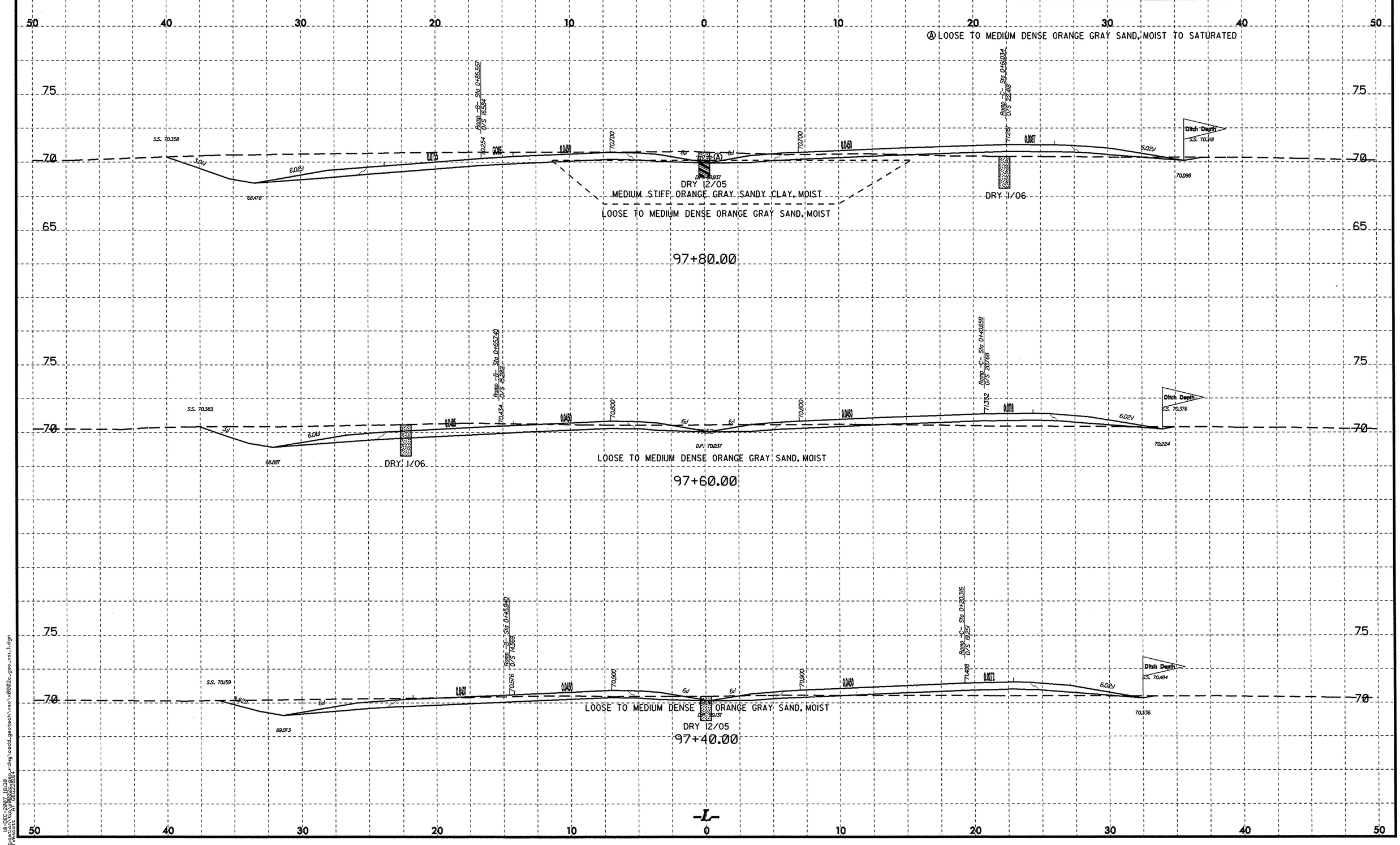
-Y12RPC1-

30-NOV-2007 10:39
L:\ERO\Greenville Investigation\TIP\X0002C_GEO_RDWY\CADD_GEOTECH\PlanProf\Profiles\x0002c_geo_pfi_y12rpc1.dgn
cmkent AT GEG226166

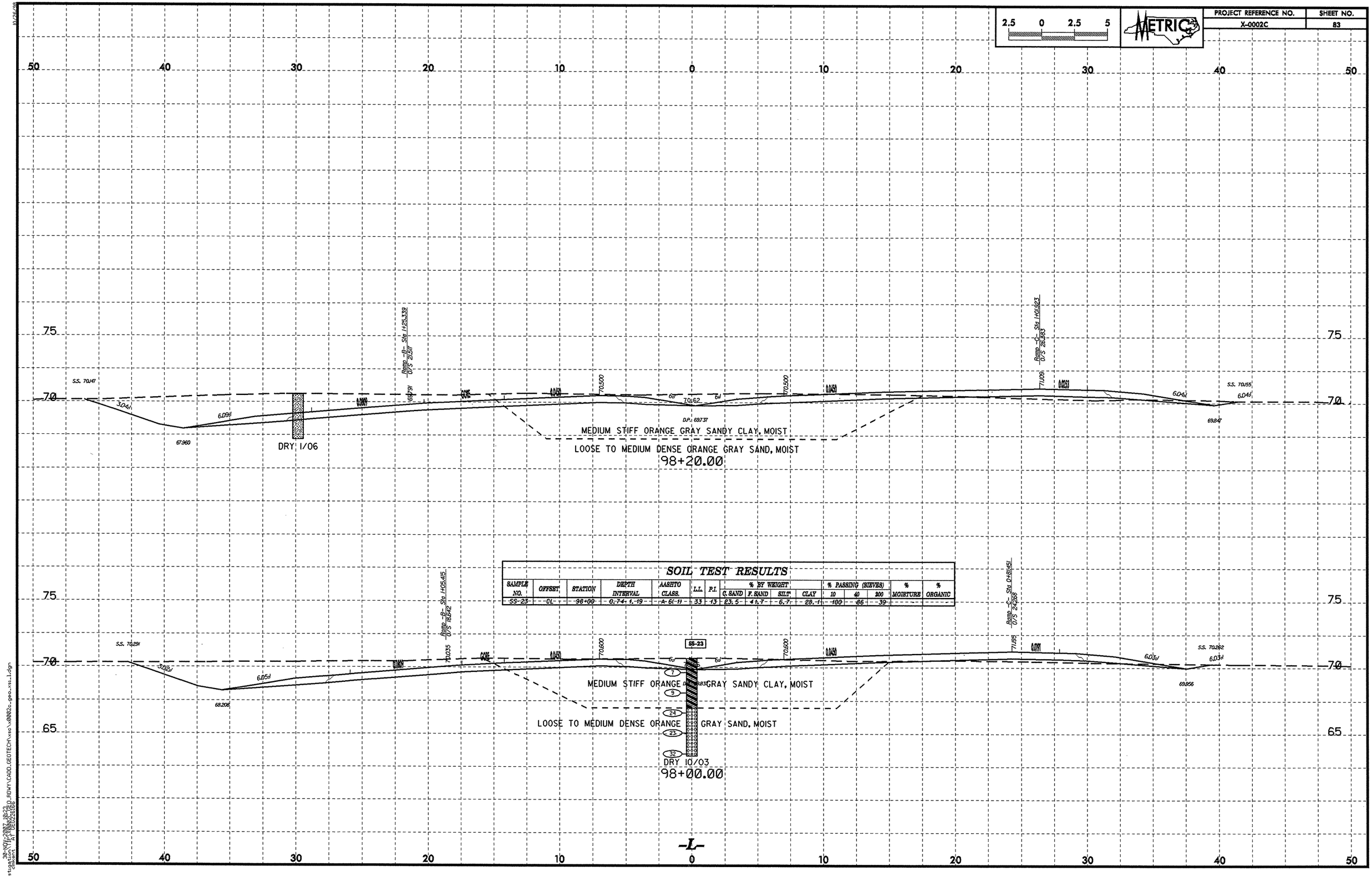
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	82

2.5 0 2.5 5

METRIC

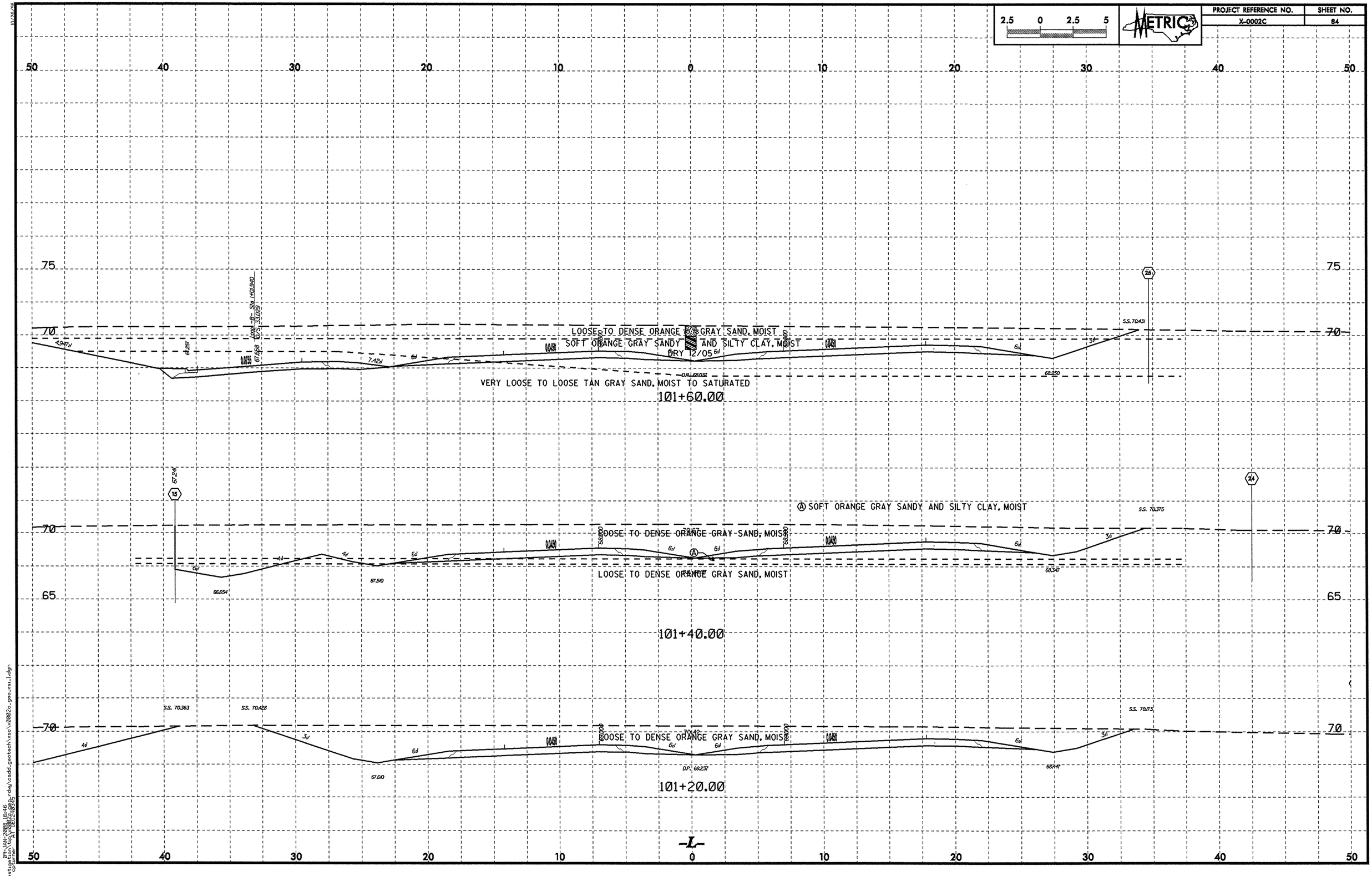


PROJECT REFERENCE NO.	SHEET NO.
X-0002C	83

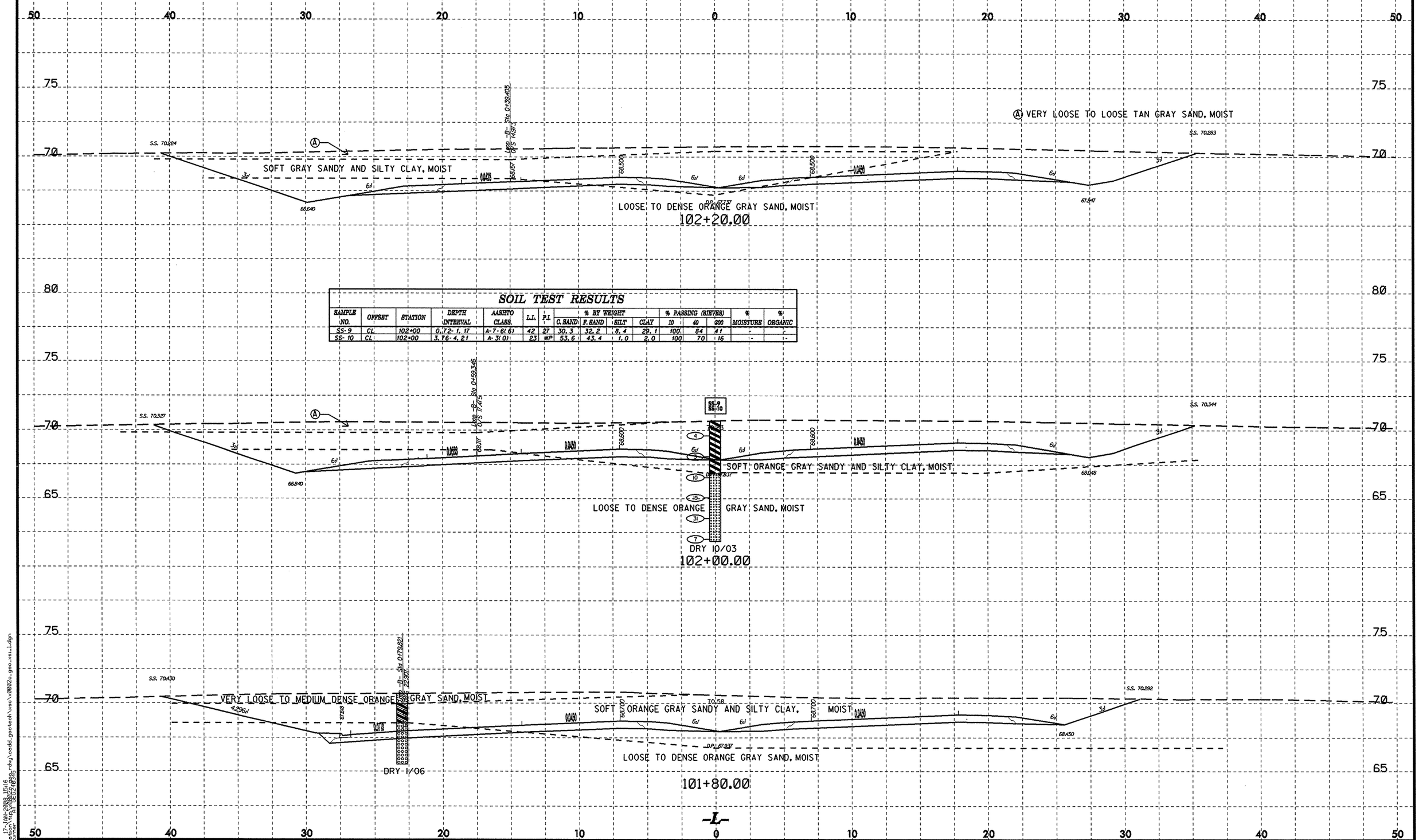


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-23	CL	98+00	0.74-1.19	A-6(-1)	33	13	23.5	41.7	6.7	28.1	100	86	39		

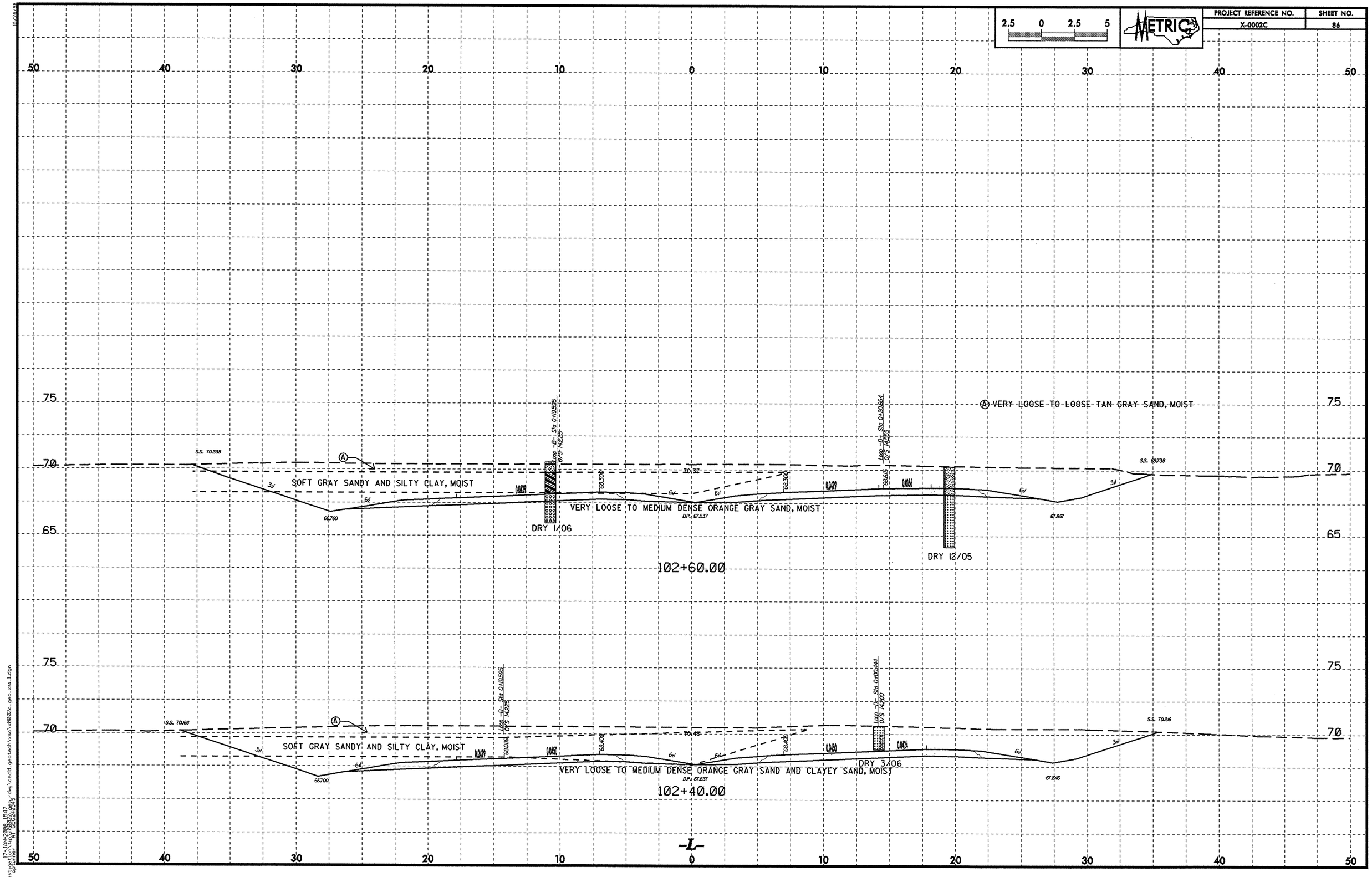

2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
84
50 40 30 20 10 0 10 20 30 40 50
75
70
65
LOOSE TO DENSE ORANGE & GRAY SAND, MOIST
SOFT ORANGE GRAY SANDY AND SILTY CLAY, MOIST
DRY 12/05
VERY LOOSE TO LOOSE TAN GRAY SAND, MOIST TO SATURATED
101+60.00
SOFT ORANGE GRAY SANDY AND SILTY CLAY, MOIST
LOOSE TO DENSE ORANGE GRAY SAND, MOIST
LOOSE TO DENSE ORANGE GRAY SAND, MOIST
101+40.00
LOOSE TO DENSE ORANGE GRAY SAND, MOIST
101+20.00
-L-

2.5 0 2.5 5

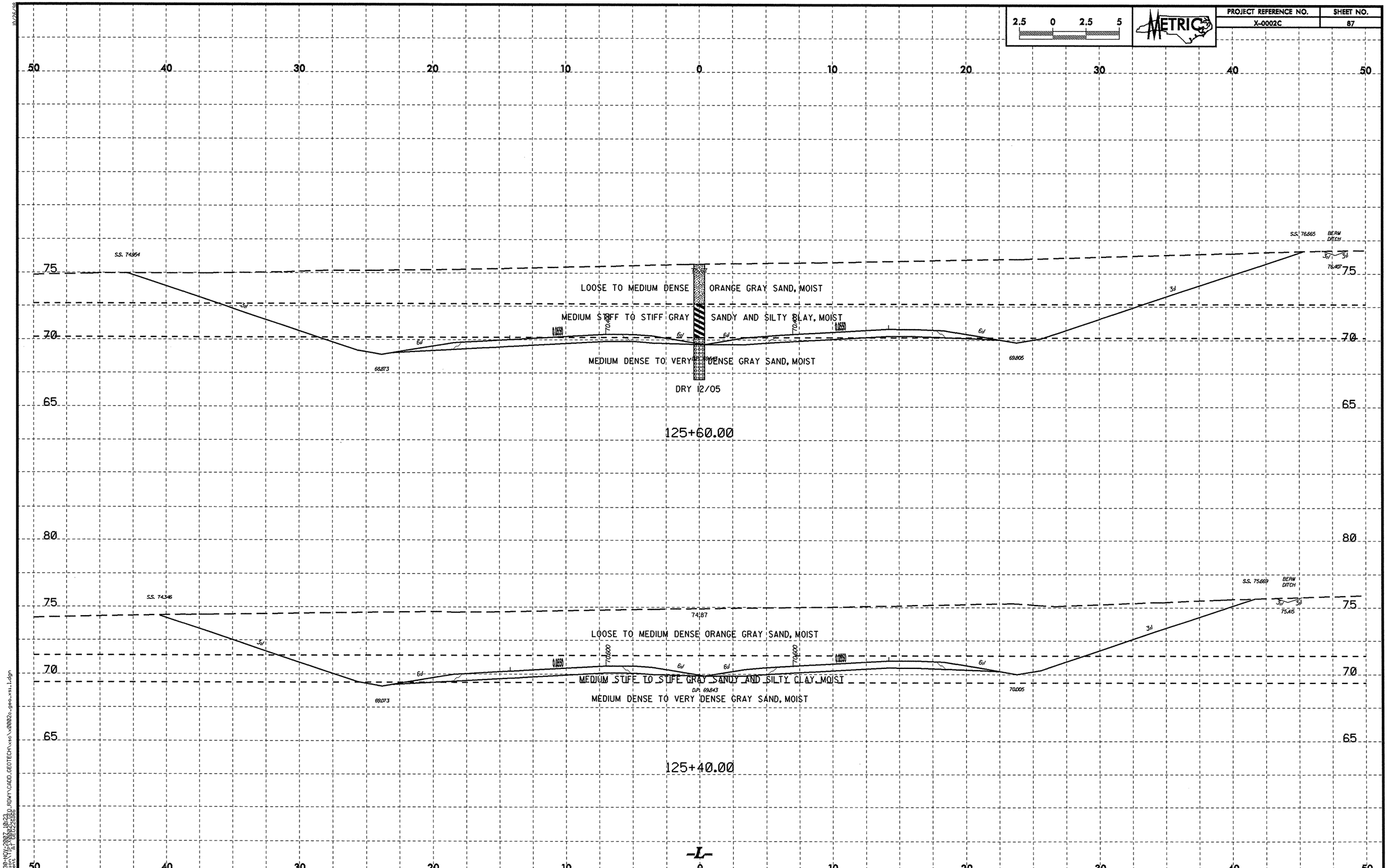


SOIL TEST RESULTS

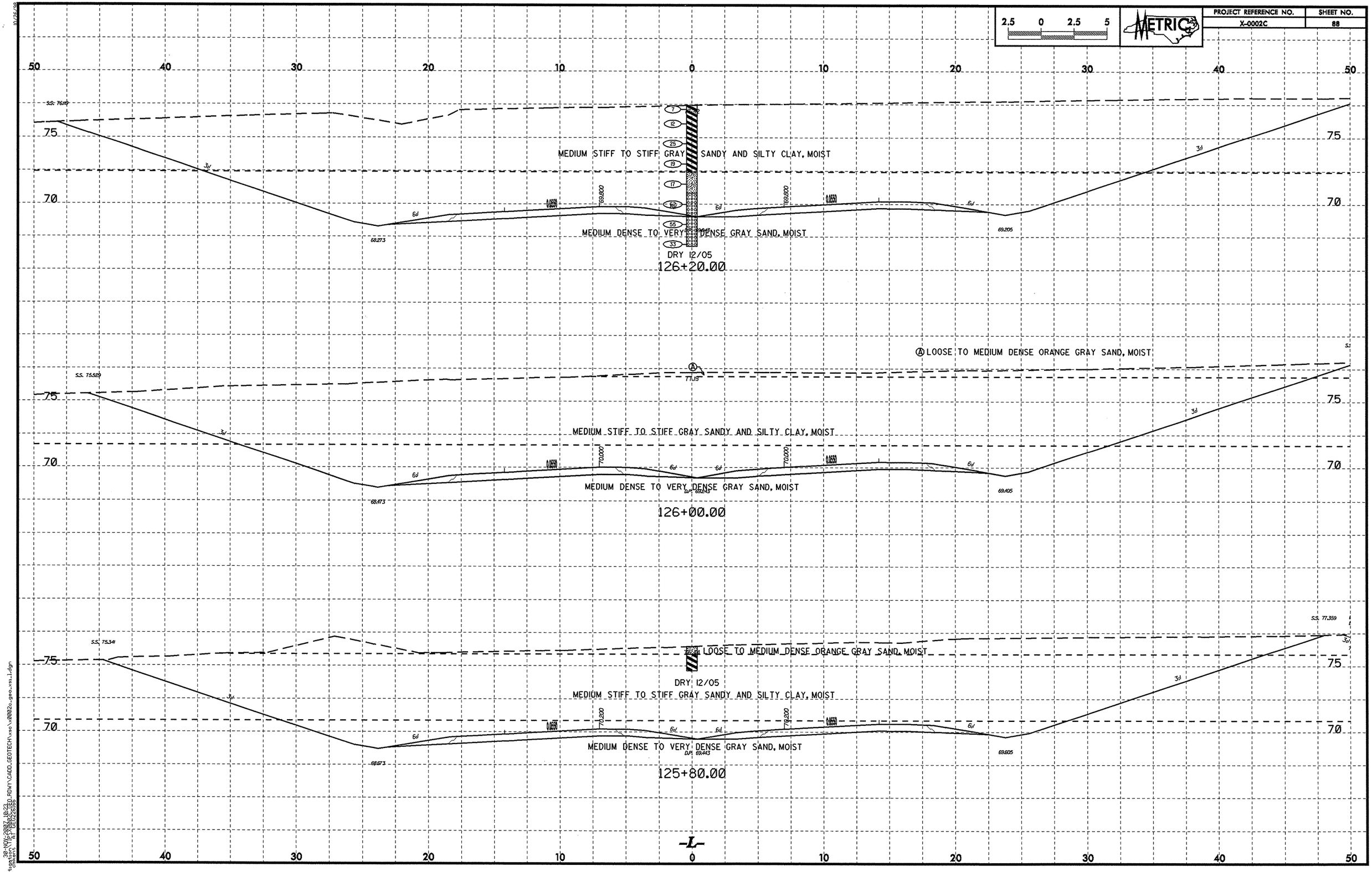
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-9	CL	102+00	0.72-1.17	A-7-6(6)	42	27	30.3	32.2	8.4	29.1	100	84	41	-	-
SS-10	CL	102+00	3.76-4.21	A-3(0)	23	NP	53.6	43.4	1.0	2.0	100	70	16	-	-



2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
86
50 40 30 20 10 0 10 20 30 40 50
75
70
65
Ⓐ VERY LOOSE TO LOOSE TAN GRAY SAND, MOIST
S.S. 70.238
S.S. 69.738
SOFT GRAY SANDY AND SILTY CLAY, MOIST
VERY LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
DRY 1/06
DRY 12/05
102+60.00
S.S. 70.168
S.S. 70.216
SOFT GRAY SANDY AND SILTY CLAY, MOIST
VERY LOOSE TO MEDIUM DENSE ORANGE GRAY SAND AND CLAYEY SAND, MOIST
DRY 3/06
102+40.00
-L-



PROJECT REFERENCE NO.
X-0002C
SHEET NO.
87
METRIC
2.5 0 2.5 5
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
DRY 12/05
125+60.00
S.S. 74.954
S.S. 76.665
BERM DITCH
68.873
69.805
76.407
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
D.P. 69.843
125+40.00
S.S. 74.346
S.S. 75.669
BERM DITCH
74.87
69.073
70.005
75.415
-L-

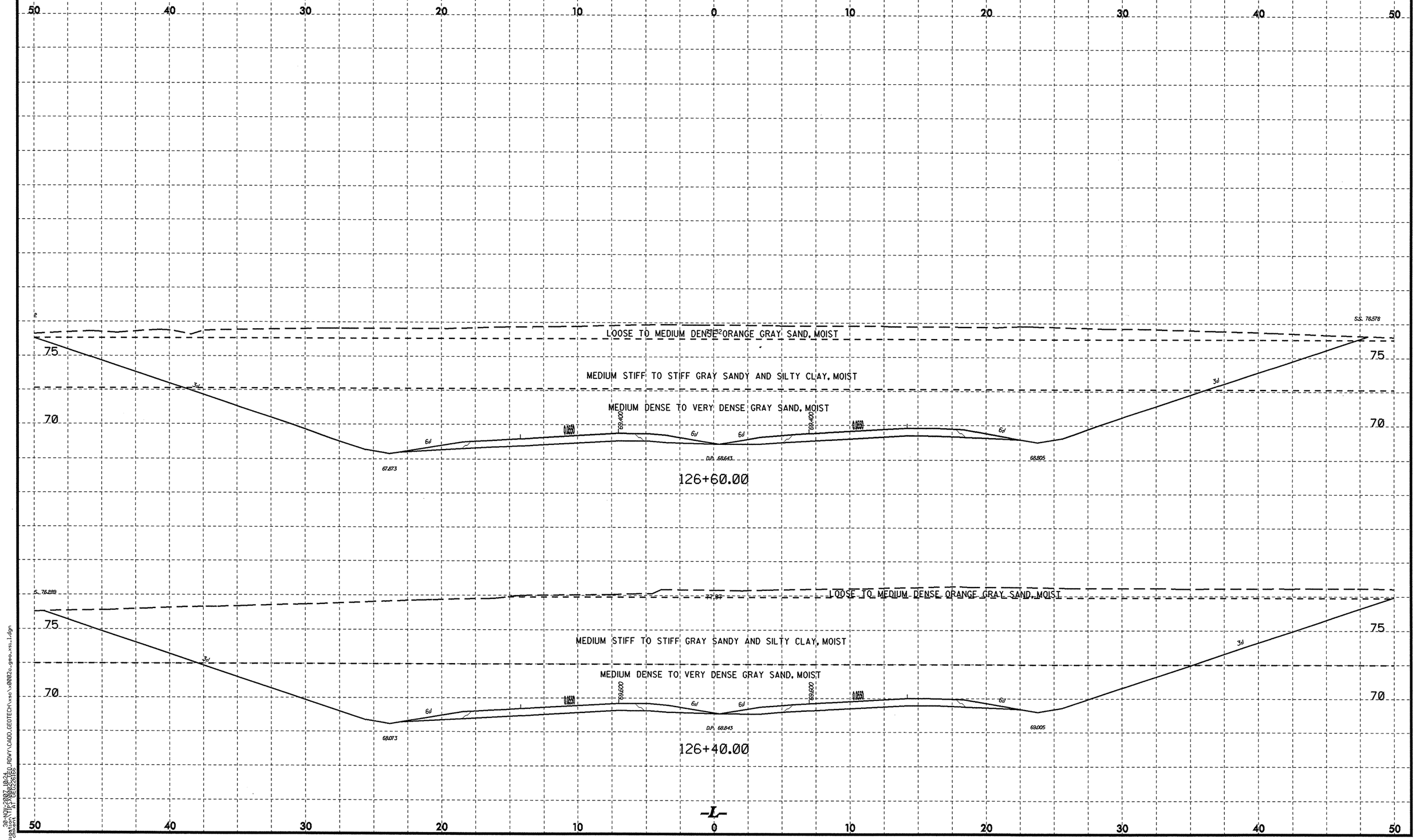


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
88
METRIC
2.5 0 2.5 5
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
DRY 12/05
126+20.00
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
126+00.00
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
DRY 12/05
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
125+80.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	89

2.5 0 2.5 5

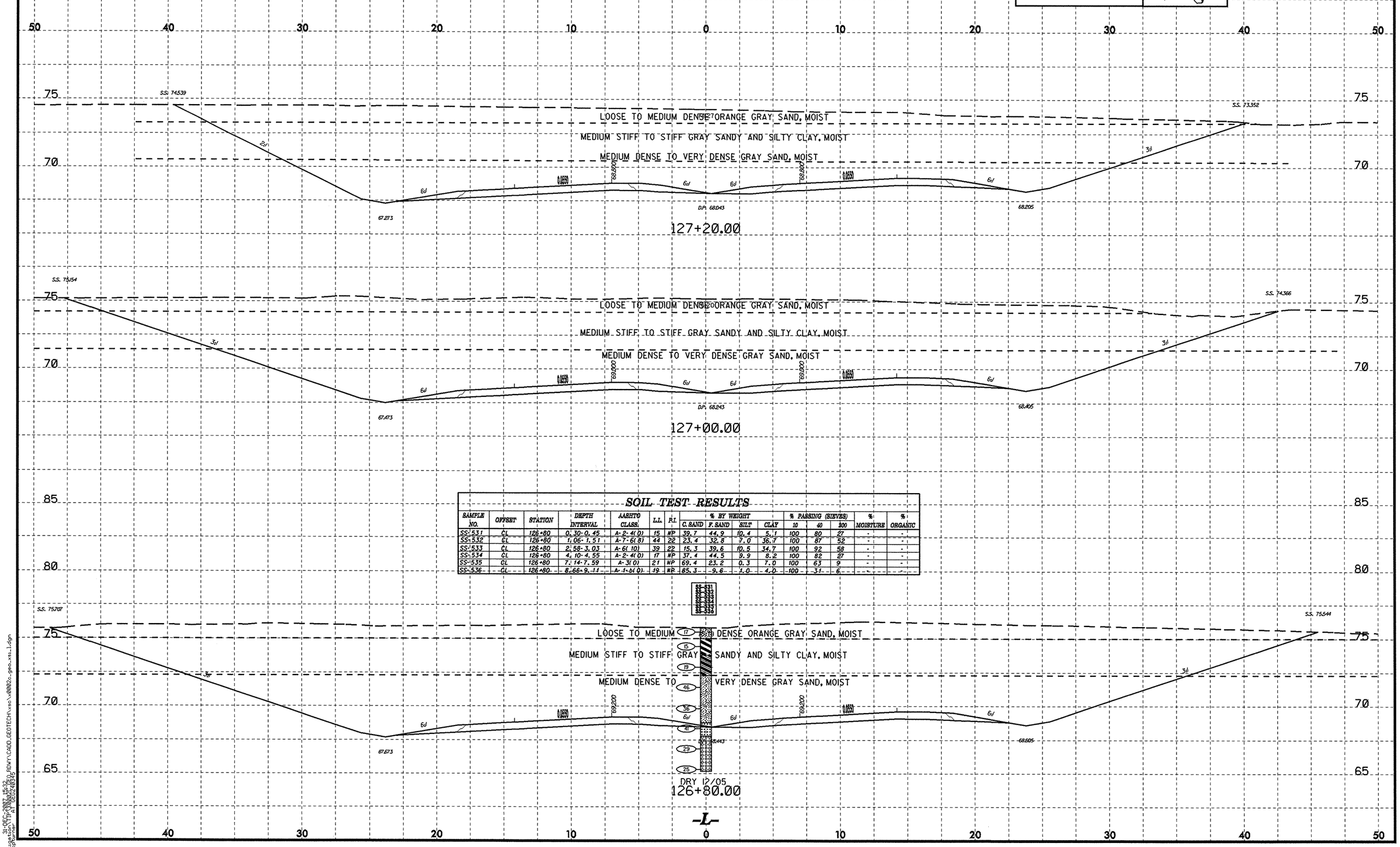
METRIC



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	90

2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-531	CL	126+80	0.30-0.45	A-2-4(0)	15	NP	39.7	44.9	10.4	5.1	100	80	27	-	-
SS-532	CL	126+80	1.06-1.51	A-7-6(8)	44	22	23.4	32.8	7.0	36.7	100	87	52	-	-
SS-533	CL	126+80	2.58-3.03	A-6(10)	39	22	15.3	39.6	10.5	34.7	100	92	58	-	-
SS-534	CL	126+80	4.10-4.55	A-2-4(0)	17	NP	37.4	44.5	9.9	8.2	100	82	27	-	-
SS-535	CL	126+80	7.14-7.59	A-3(0)	21	NP	69.4	23.2	0.3	7.0	100	63	9	-	-
SS-536	CL	126+80	8.66-9.11	A-4-6(0)	19	NP	85.3	9.6	1.0	4.0	100	31	6	-	-

31-DEC-2007 15:32
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pgstigeson AT 0002C48315

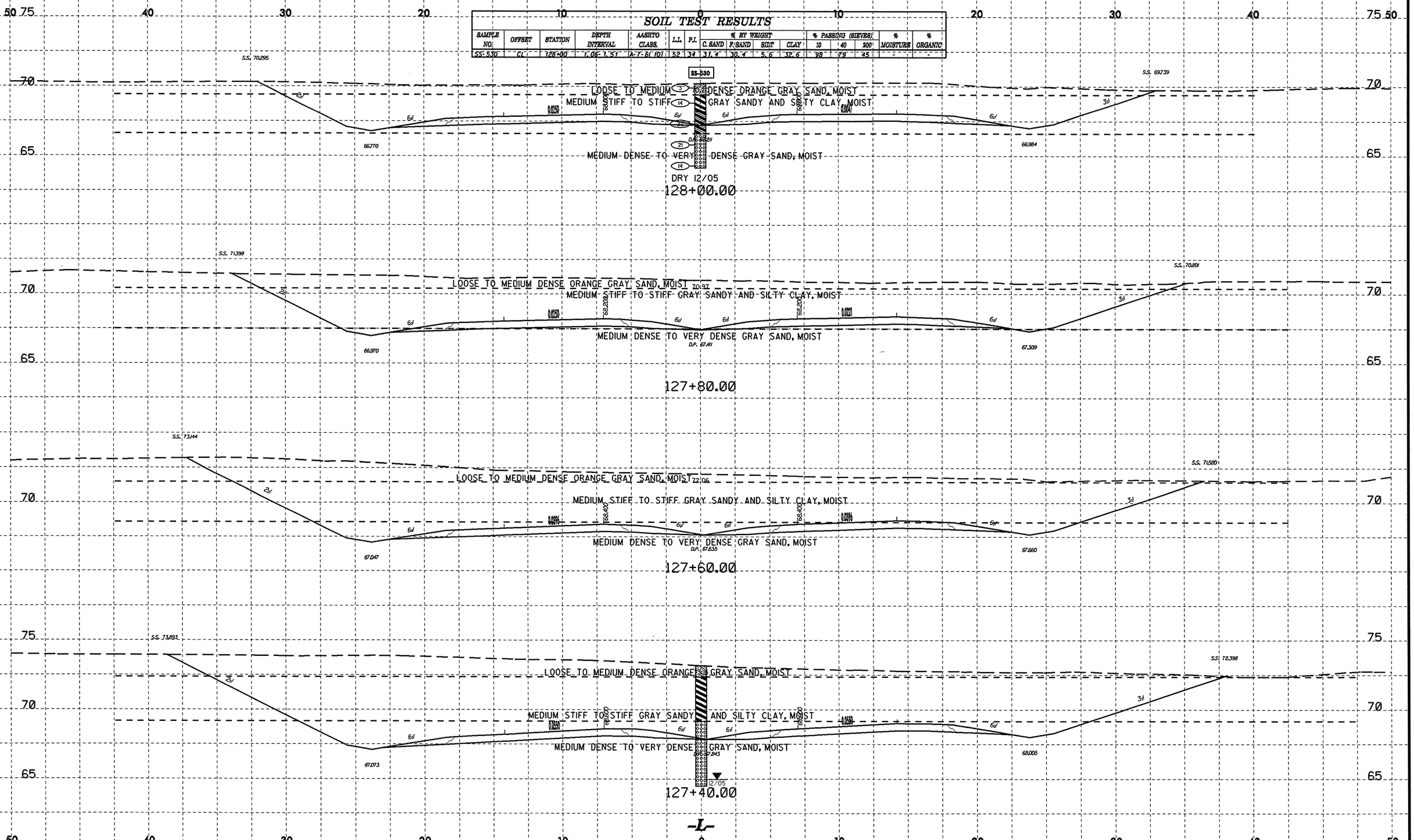
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	91

2.5 0 2.5 5

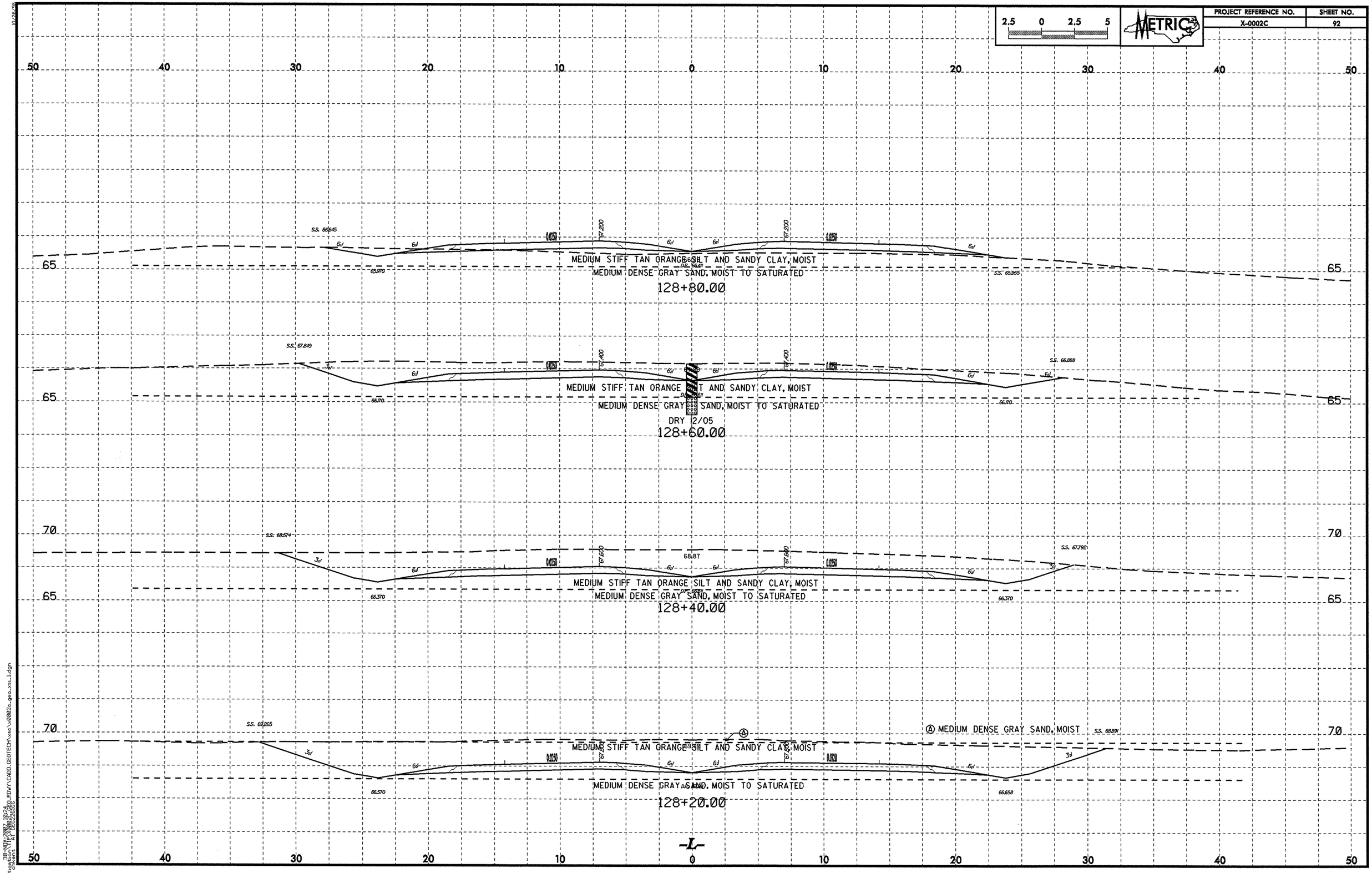
METRIC

SOIL TEST RESULTS

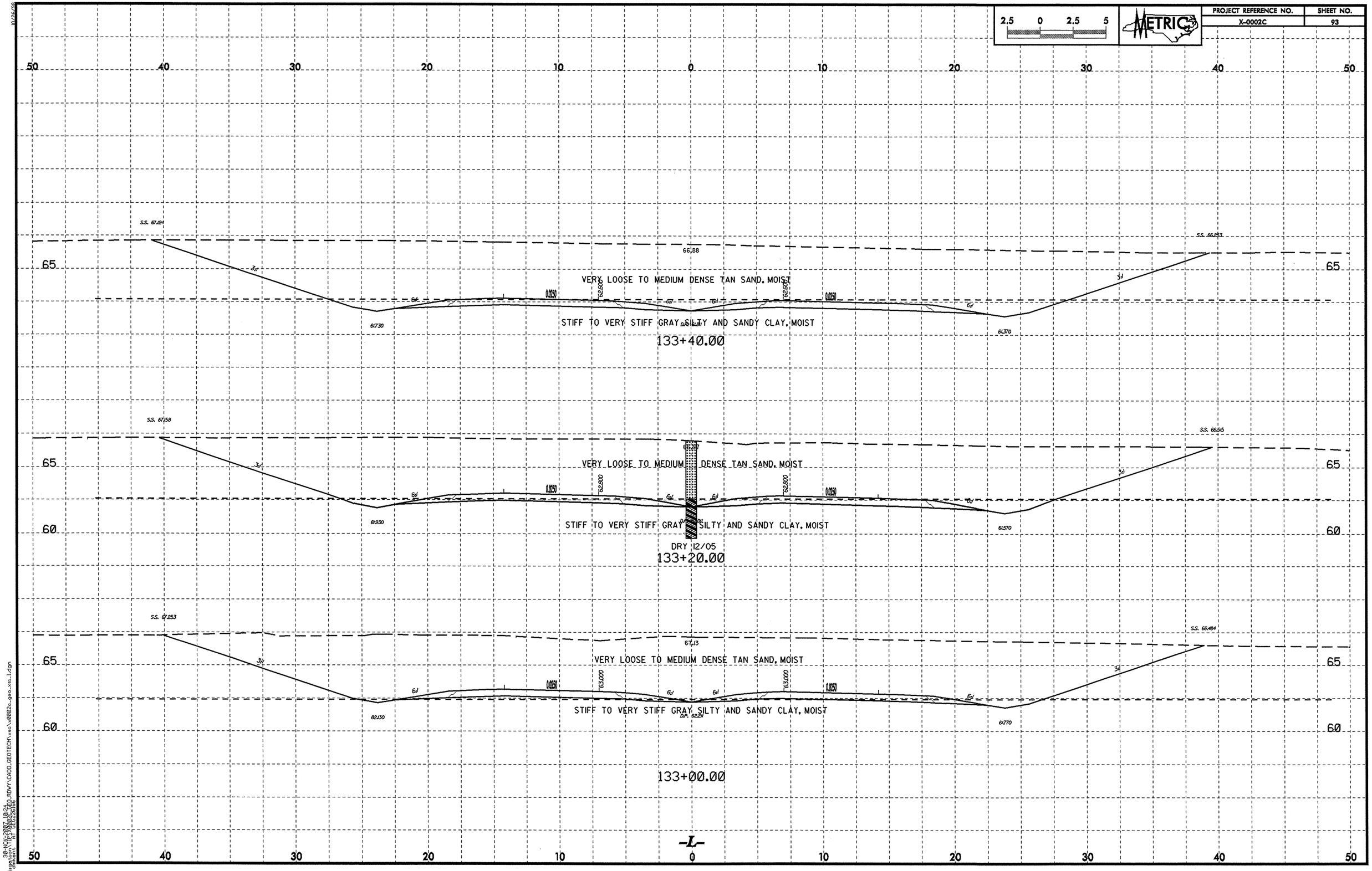
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-530	CL	128+00	1.06-3.51	A-7-6(10)	52	34	31.4	30.4	5.6	32.6	98	79	45	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	92

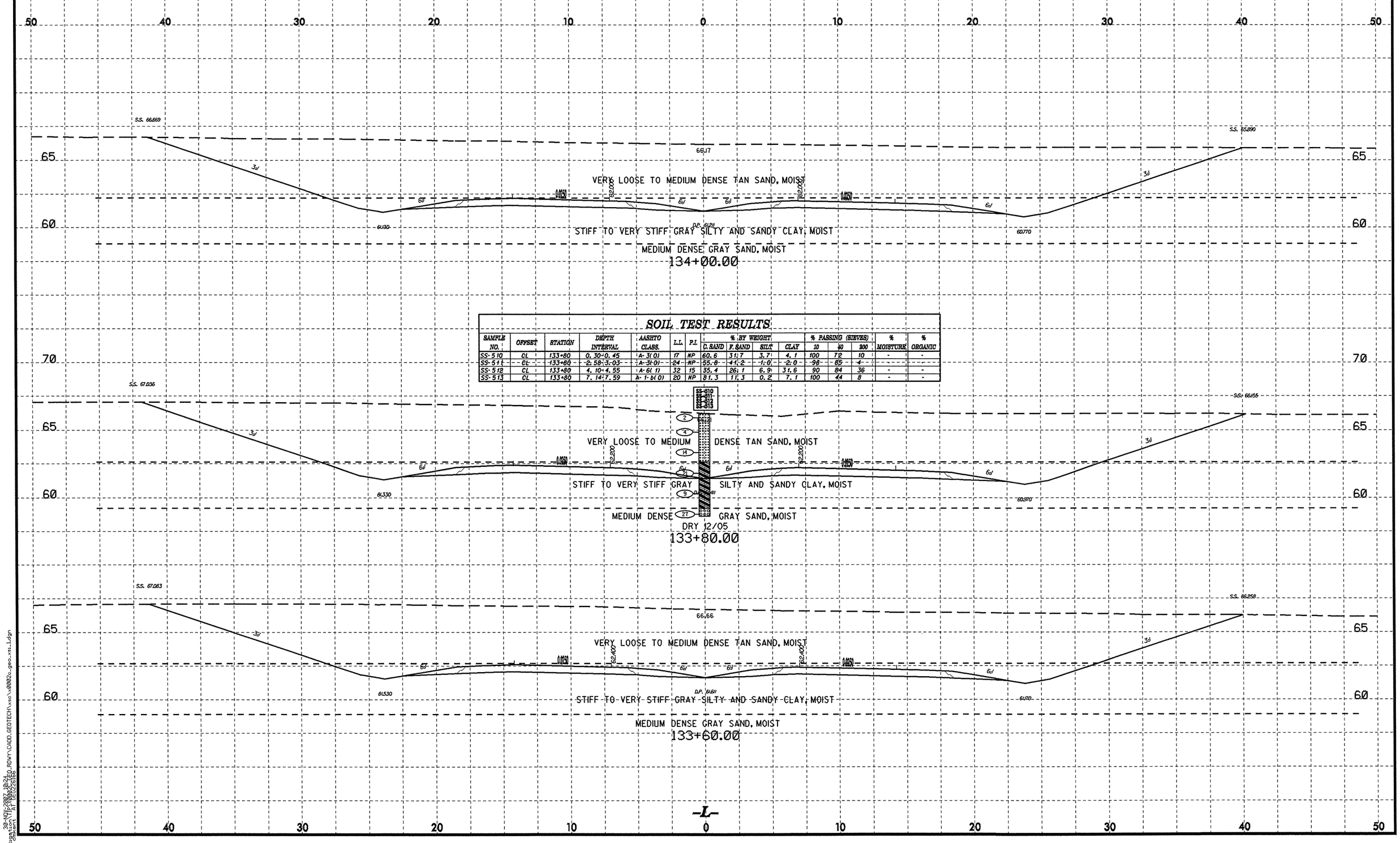


PROJECT REFERENCE NO.	SHEET NO.
X-0002C	93



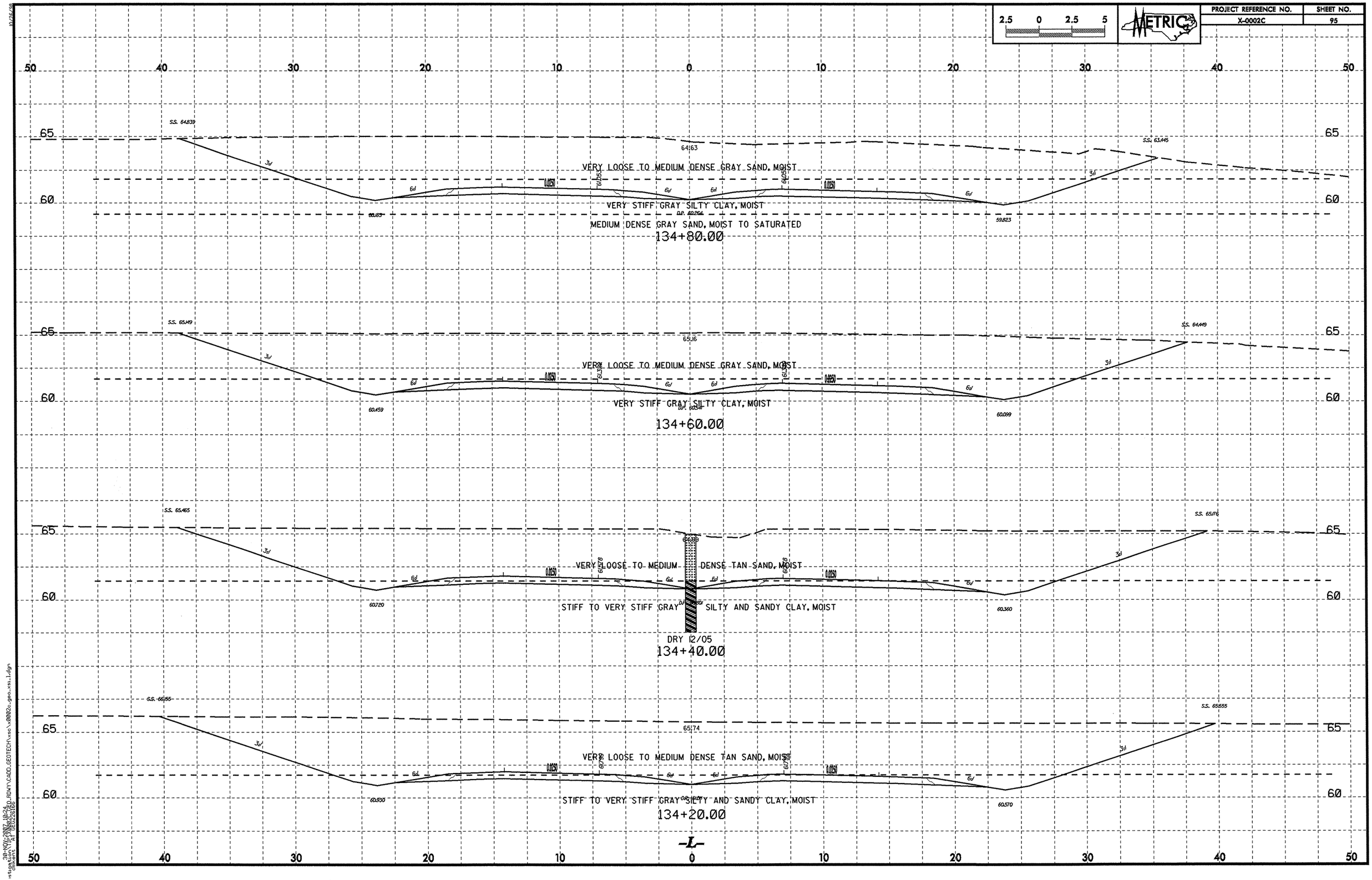
2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-510	CL	133+80	0.30-0.45	A-3(0)	17	NP	60.6	31.7	3.7	4.1	100	72	10	-	-
SS-511	CL	133+80	2.58-3.03	A-3(0)	24	NP	55.8	41.2	1.0	2.0	98	85	4	-	-
SS-512	CL	133+80	4.10-4.55	A-6(1)	32	15	35.4	26.1	6.9	31.6	90	84	36	-	-
SS-513	CL	133+80	7.14-7.59	A-1-b(0)	20	NP	81.3	11.3	0.2	7.1	100	44	8	-	-

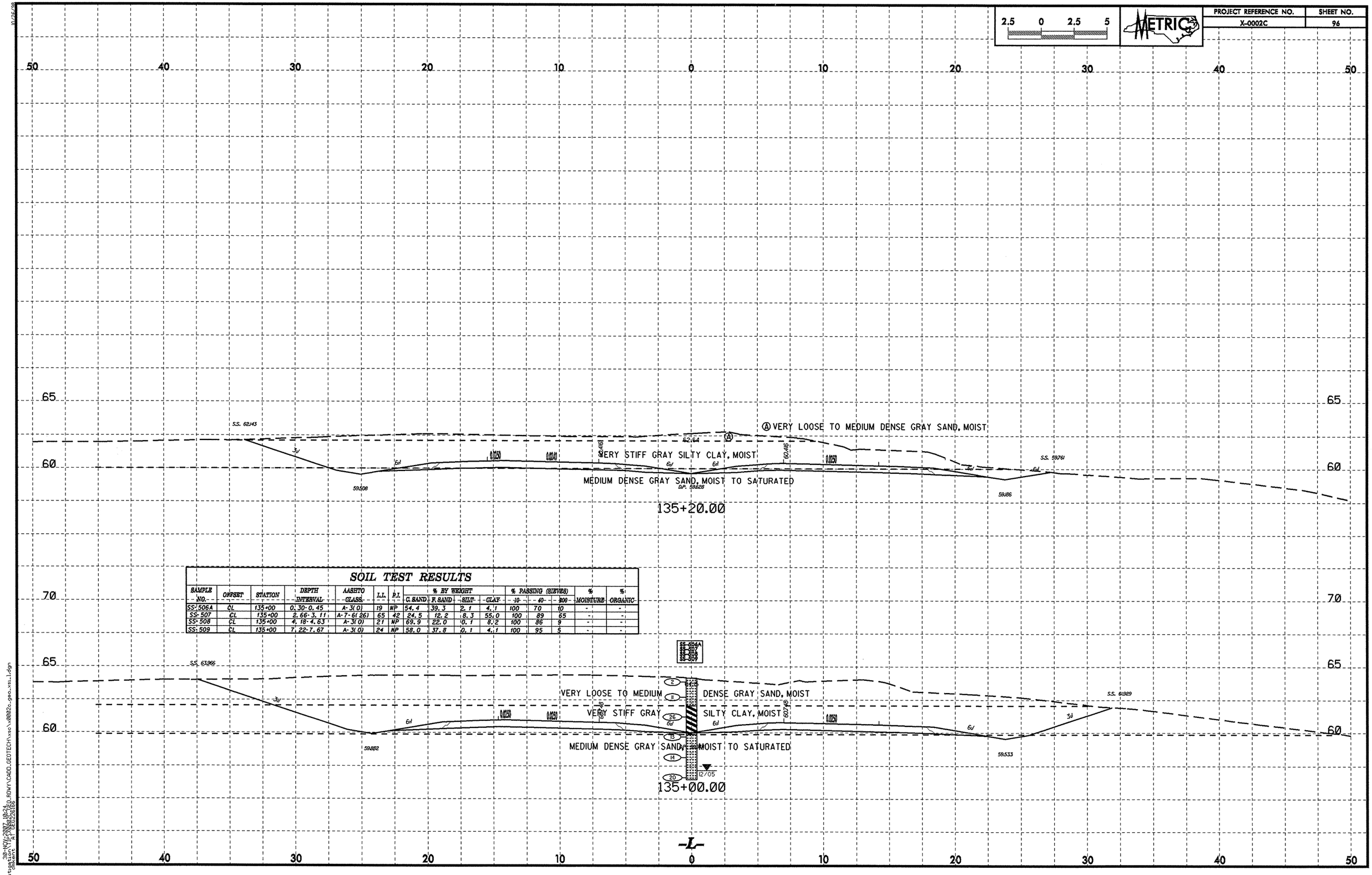


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
95
METRIC
2.5 0 2.5 5
VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
VERY STIFF GRAY SILTY CLAY, MOIST
MEDIUM DENSE GRAY SAND, MOIST TO SATURATED
134+80.00
VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
VERY STIFF GRAY SILTY CLAY, MOIST
134+60.00
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
DRY 12/05
134+40.00
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
134+20.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	96

2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-506A	CL	135+00	0.30-0.45	A-3(0)	19	NP	54.4	39.3	2.1	4.1	100	70	10	-	-
SS-507	CL	135+00	2.66-3.11	A-7-6(26)	65	42	24.5	12.2	8.3	55.0	100	89	65	-	-
SS-508	CL	135+00	4.18-4.63	A-3(0)	21	NP	69.9	22.0	0.1	8.2	100	86	9	-	-
SS-509	CL	135+00	7.22-7.67	A-3(0)	24	NP	58.0	37.8	0.1	4.1	100	95	5	-	-

10/26/99
30-NW(P)-2002 10-24
stage 3 2-50.RDWY\CADD.GEOTECH\xsc\u0002c_geo_xs_1.dgn
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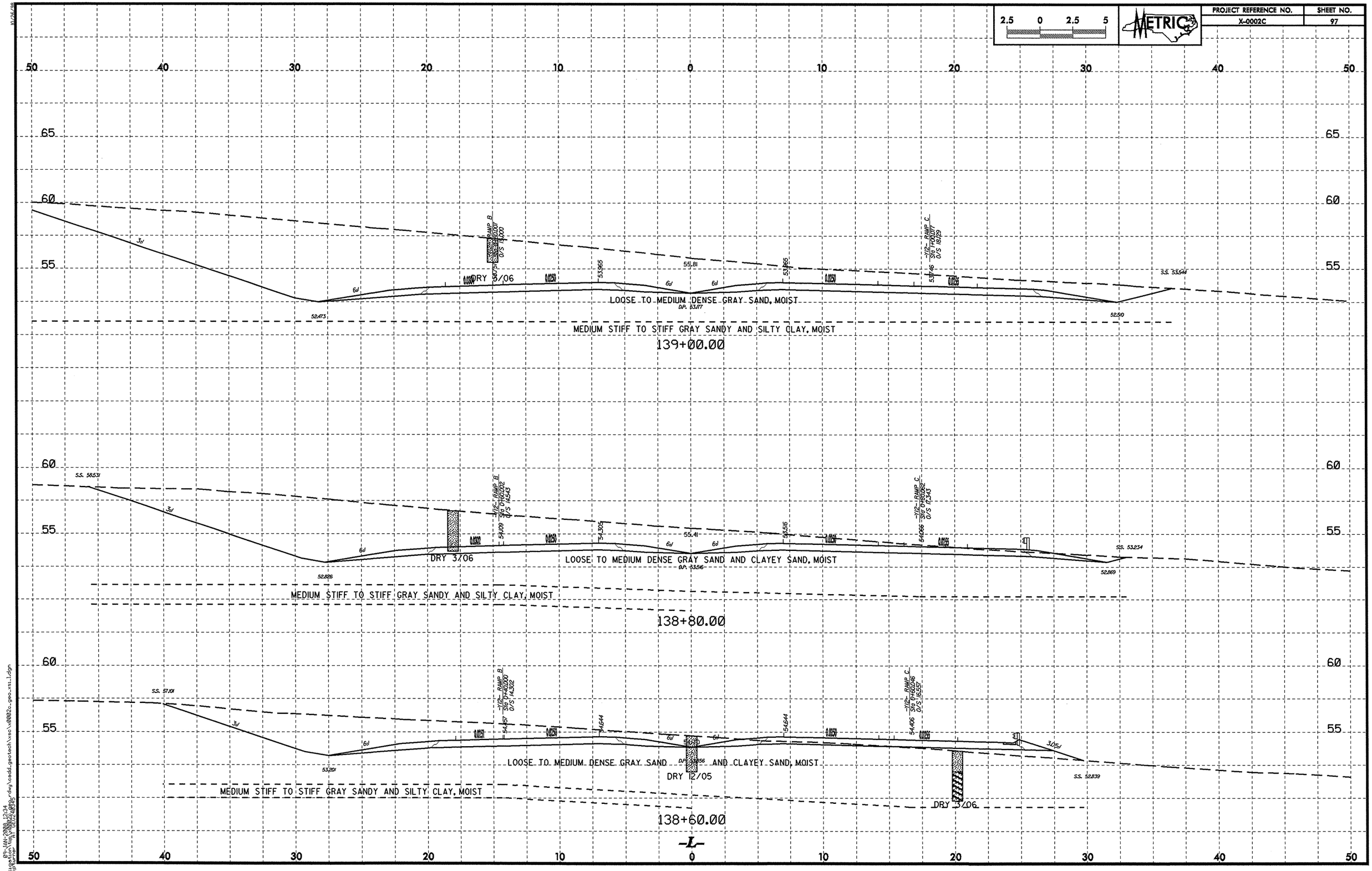
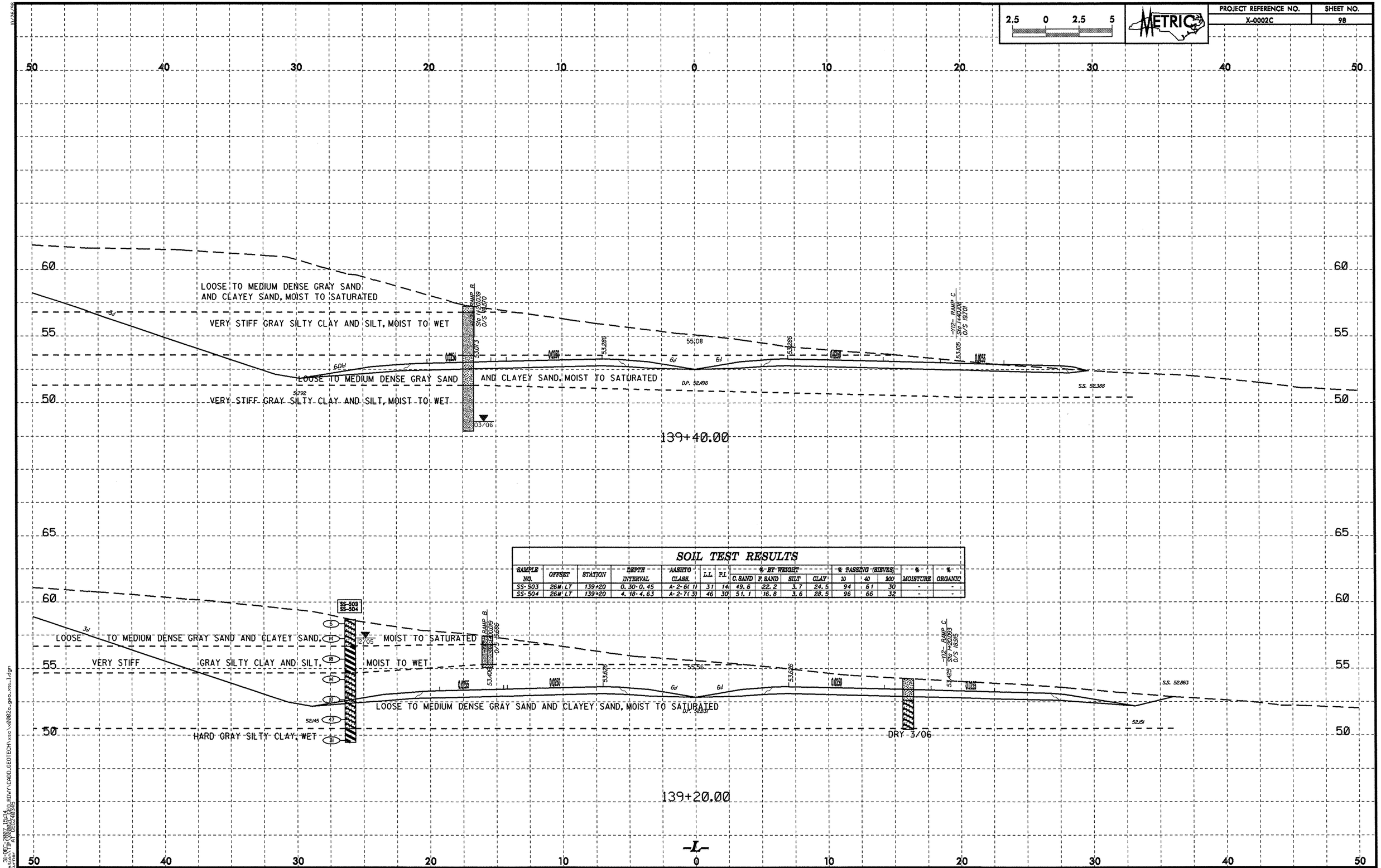
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	97

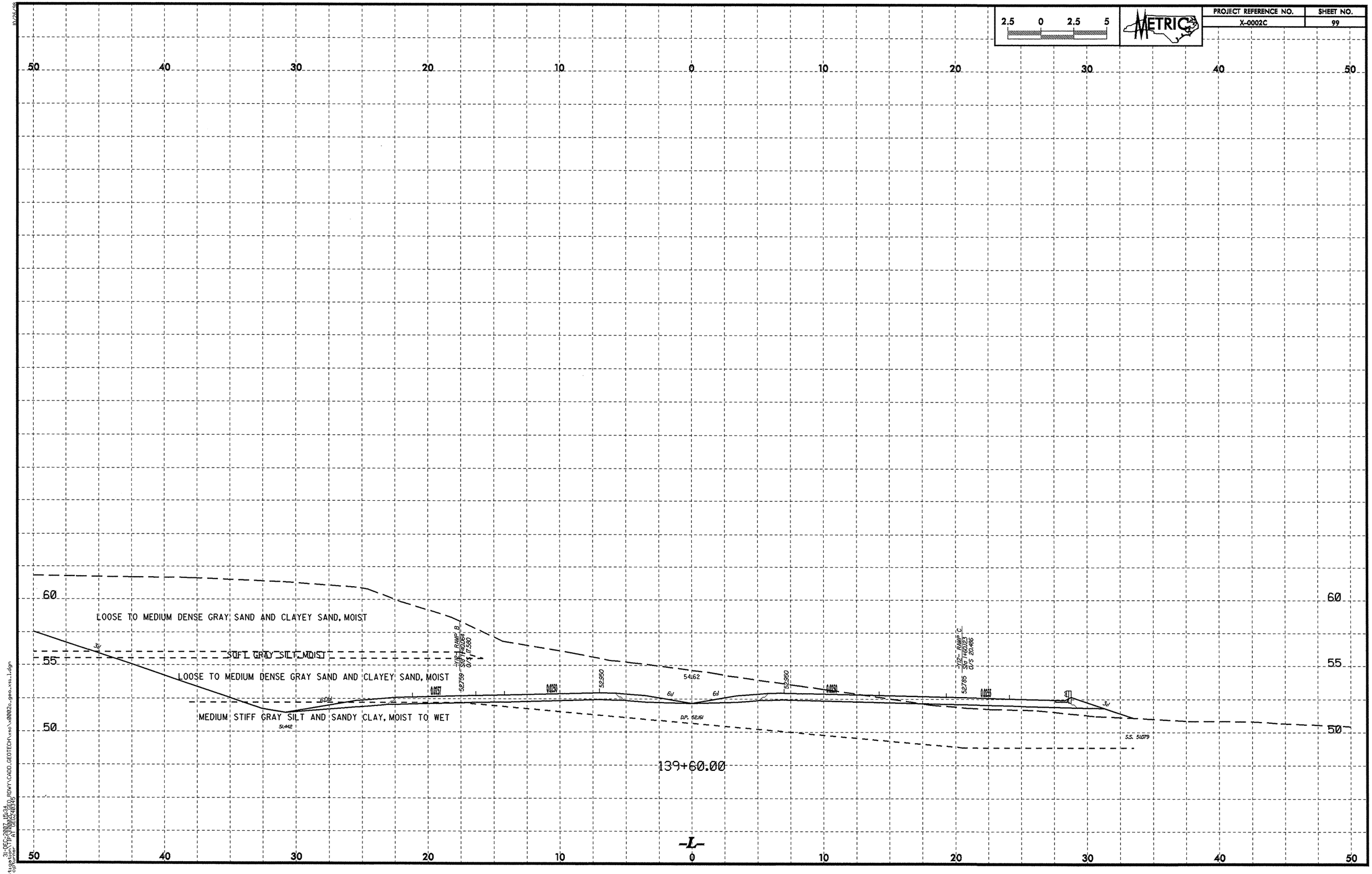


PROJECT REFERENCE NO.	SHEET NO.
X-0002C	98

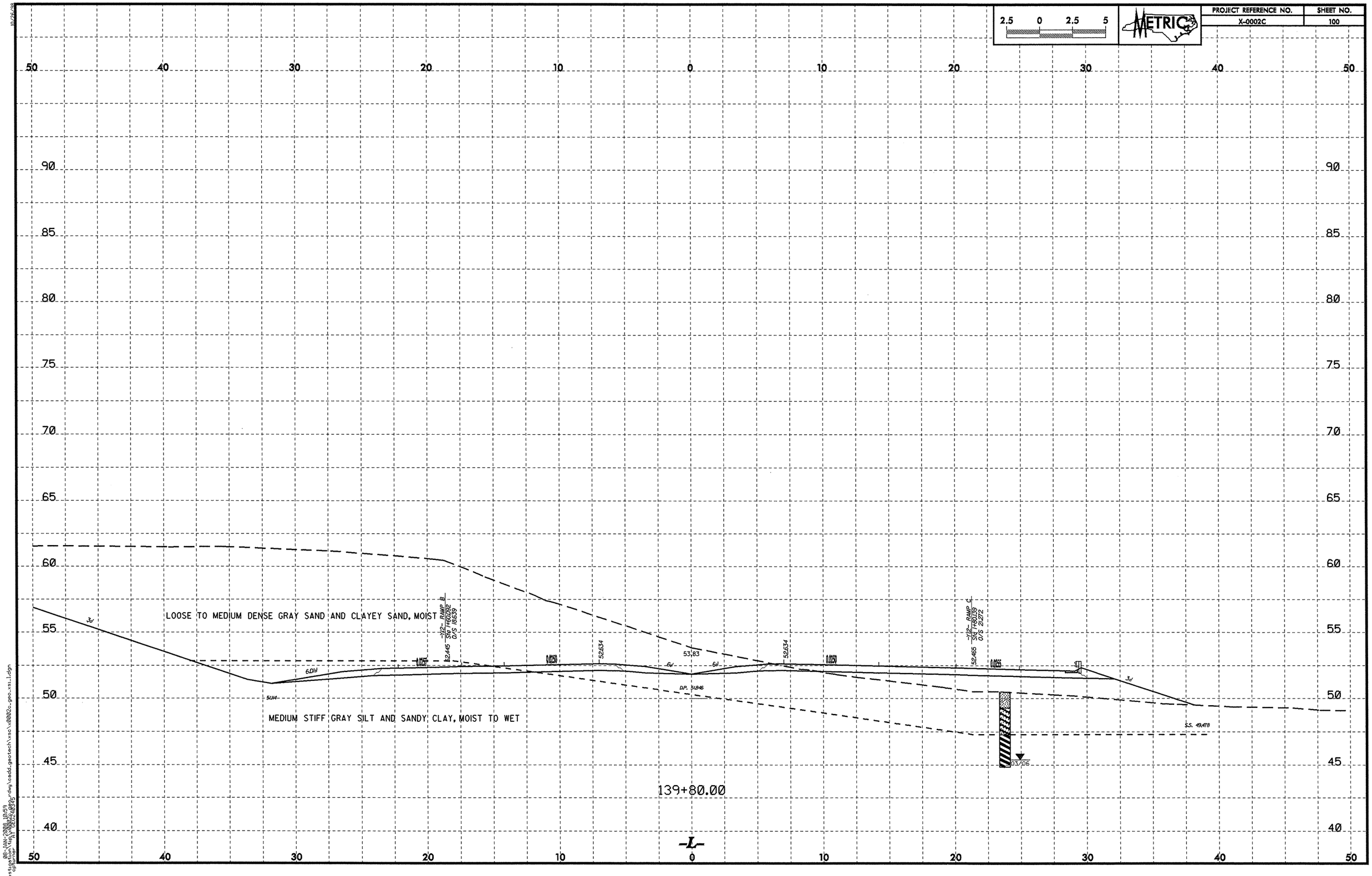


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-503	26M' LT	139+20	0.30-0.45	A-2-6(11)	31	14	49.6	22.2	3.7	24.5	94	61	30	-	-
SS-504	26M' LT	139+20	4.18-4.63	A-2-7(3)	46	30	51.1	16.8	3.6	28.5	96	66	32	-	-

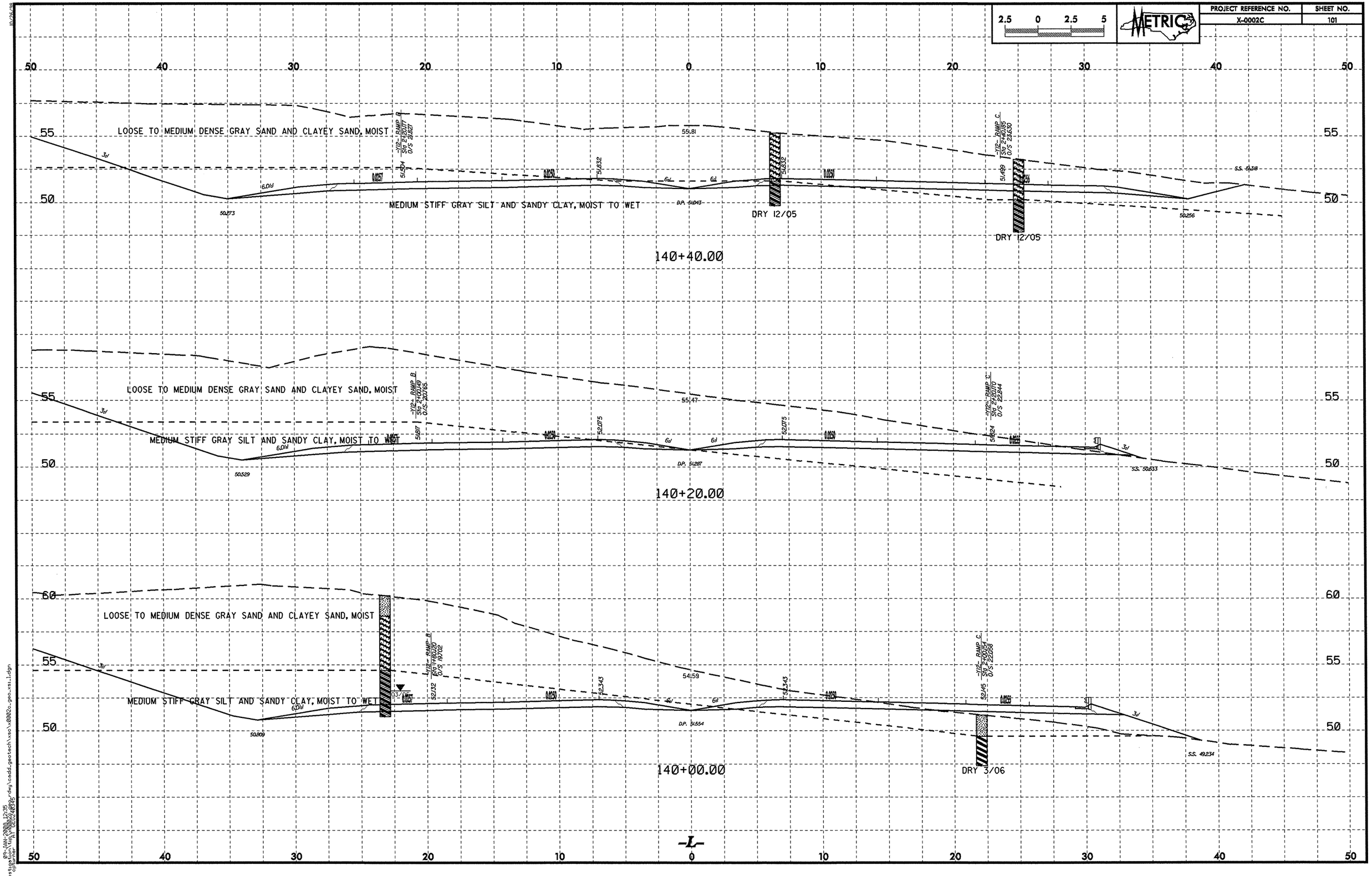


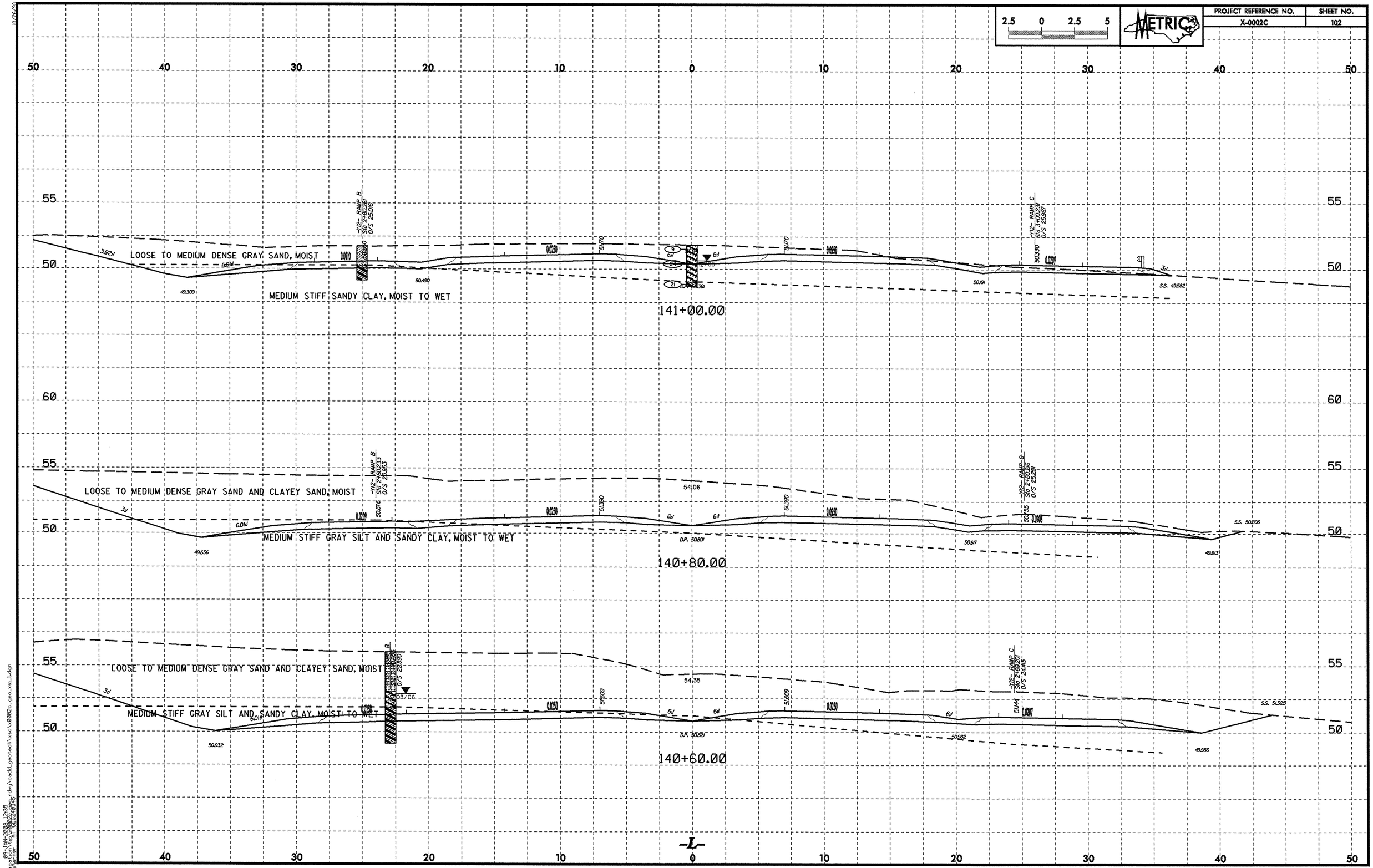
2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
99
50 40 30 20 10 0 10 20 30 40 50
60
55
50
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
SOFT GRAY SILT, MOIST
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
-Y12- RAMP B
Sta 1+40.064
O/S 17.580
-Y12- RAMP C
Sta 1+60.123
O/S 20.486
52.759
52.950
52.950
52.785
54.162
51.442
D.P. 52.161
S.S. 51.079
0.0257
0.0250
0.0250
0.0255
139+60.00
-L-



2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
100
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
-Y12- RAMP B
Sta 1+60.092
O/S 18.639
-Y12- RAMP C
Sta 1+80.139
O/S 21.272
52.445
52.634
52.465
53.83
0.0250
0.0255
D.P. 51.846
S.S. 49.478
03/06
139+80.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	101



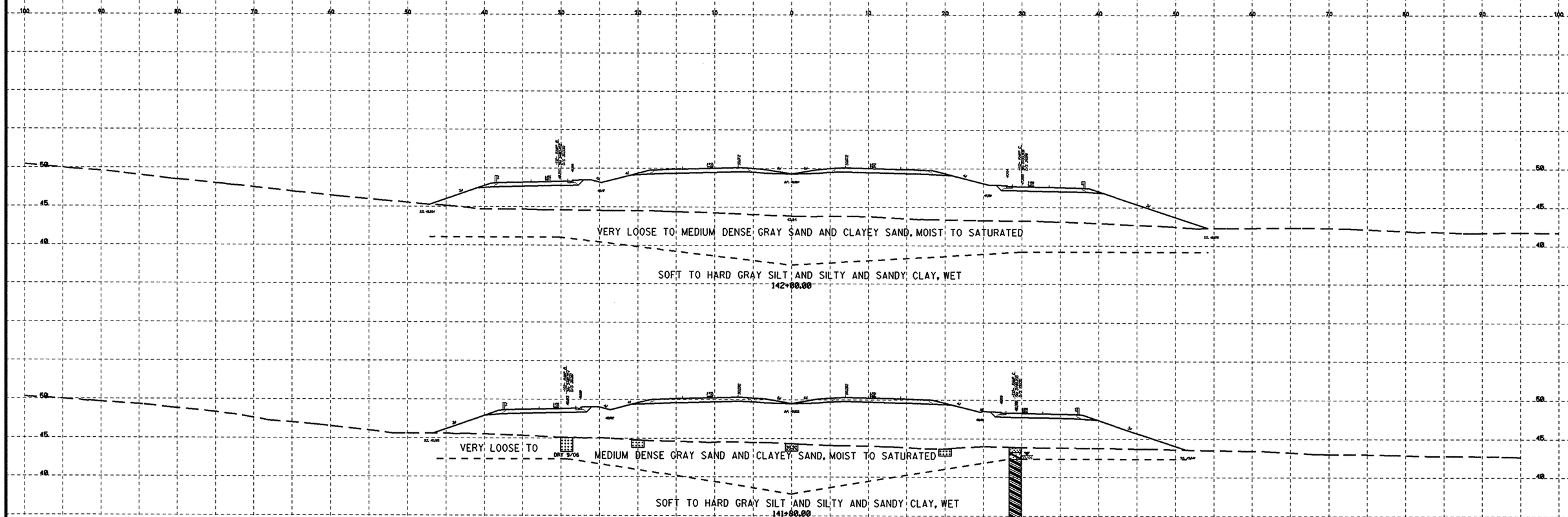


2.5 0 2.5 5
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
102
LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
MEDIUM STIFF SANDY CLAY, MOIST TO WET
141+00.00
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
140+80.00
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
140+60.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	103

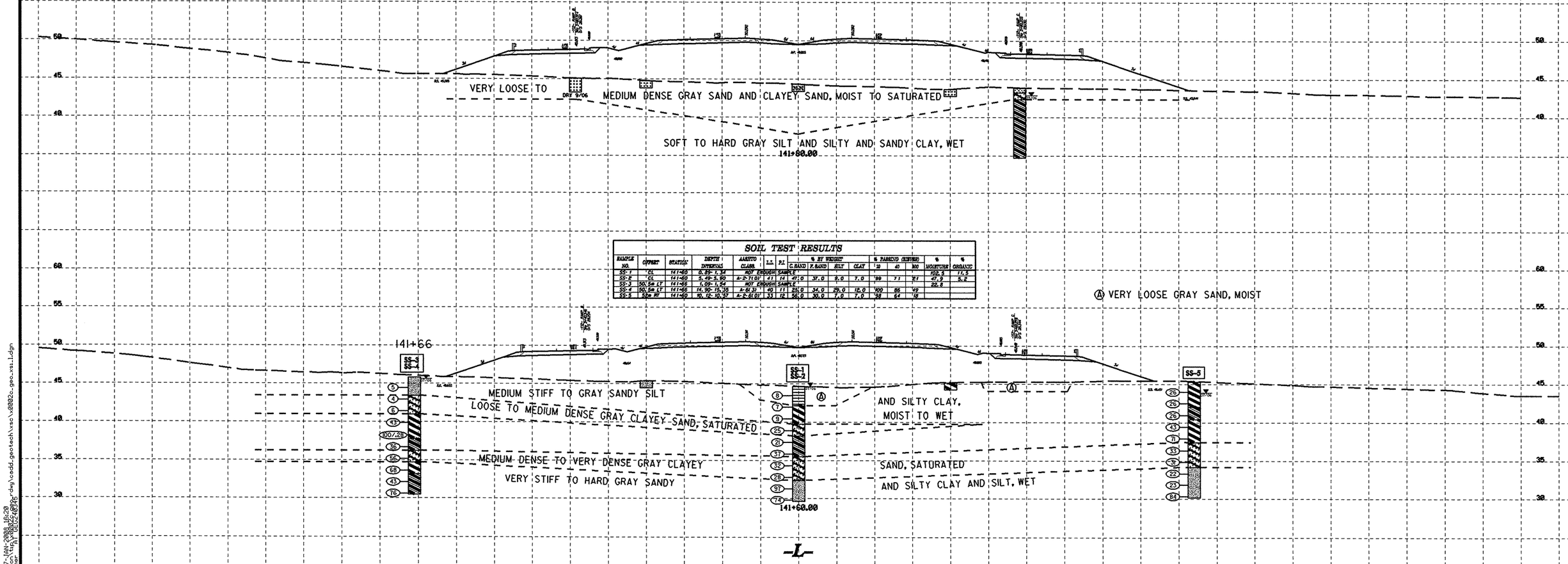
2.5 0 2.5 5

METRIC



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVE) #10	#40	#200	% MOISTURE	% ORGANIC
SS-1	1' CL	141+60	0.89-1.34	NOT ENOUGH SAMPLE										102.4	11.5
SS-2	1' CL	141+60	5.49-5.90	A-2-7(0)	41	14	47.0	37.0	9.0	7.0	99	71	27	47.9	5.2
SS-3	50' Sm LT	141+66	1.09-1.54	NOT ENOUGH SAMPLE										22.8	
SS-4	50' Sm LT	141+66	14.90-15.35	A-6(3)	40	11	25.0	34.0	29.0	12.0	100	86	49		
SS-5	52m RT	141+60	10.12-10.57	A-2-6(0)	33	12	56.0	30.0	7.0	7.0	94	64	19		



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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	104

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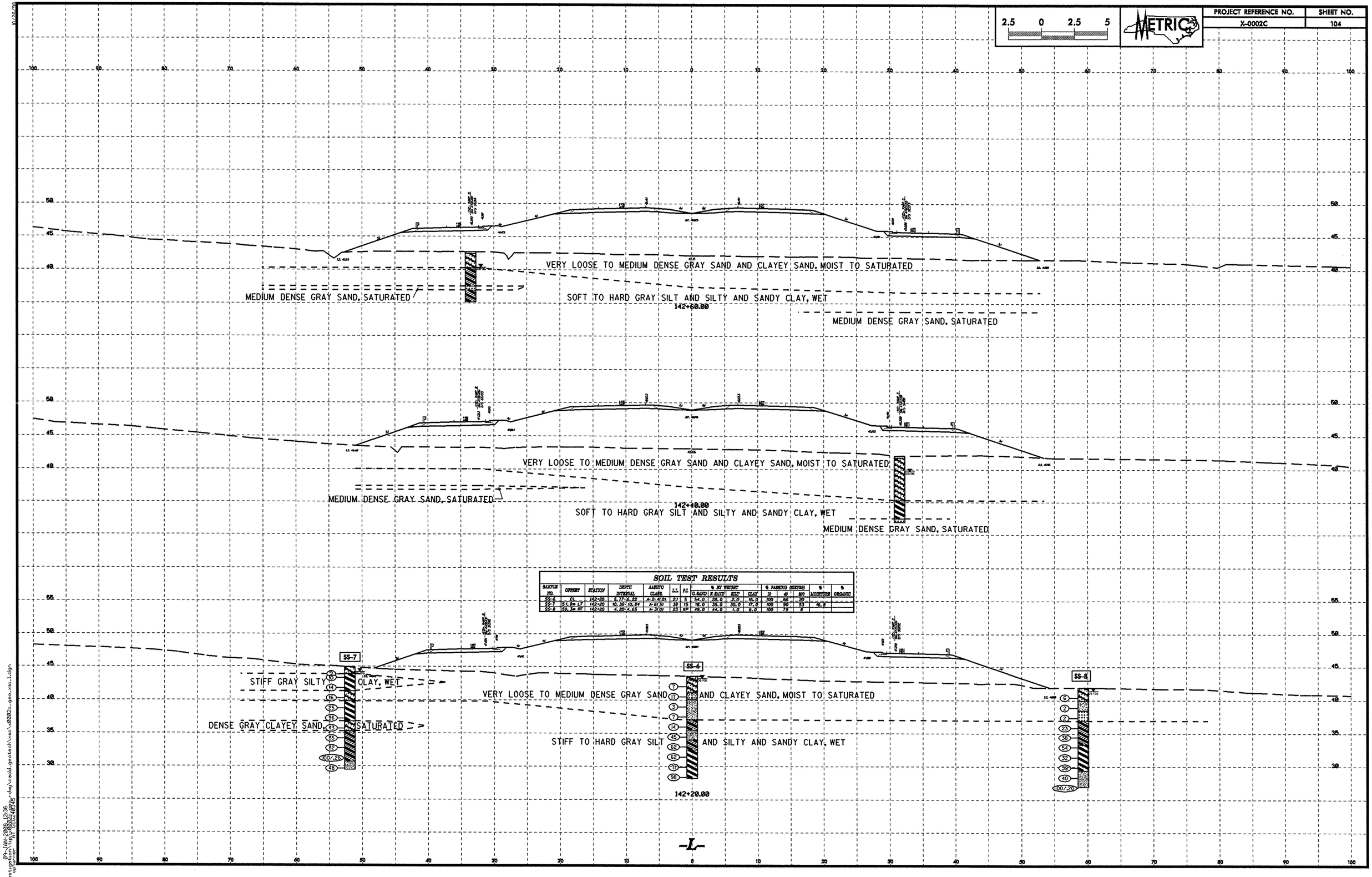

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C SAND	F SAND	SILT	CLAY	% PASSING (SIEVE) 10	40	200	% MOISTURE	% ORGANIC
SS-6	CL	142+20	5.17-6.22	A-2-4(0)	21	5	54.0	28.0	2.0	16.0	100	66	20		
SS-7	51.9m LT	142+20	10.39-10.84	A-6(5)	39	15	16.0	35.0	30.0	17.0	100	90	53	16.8	
SS-8	59.5m RT	142+20	4.20-4.65	A-3(0)	23	NP	49.0	44.0	1.0	6.0	100	79	8		

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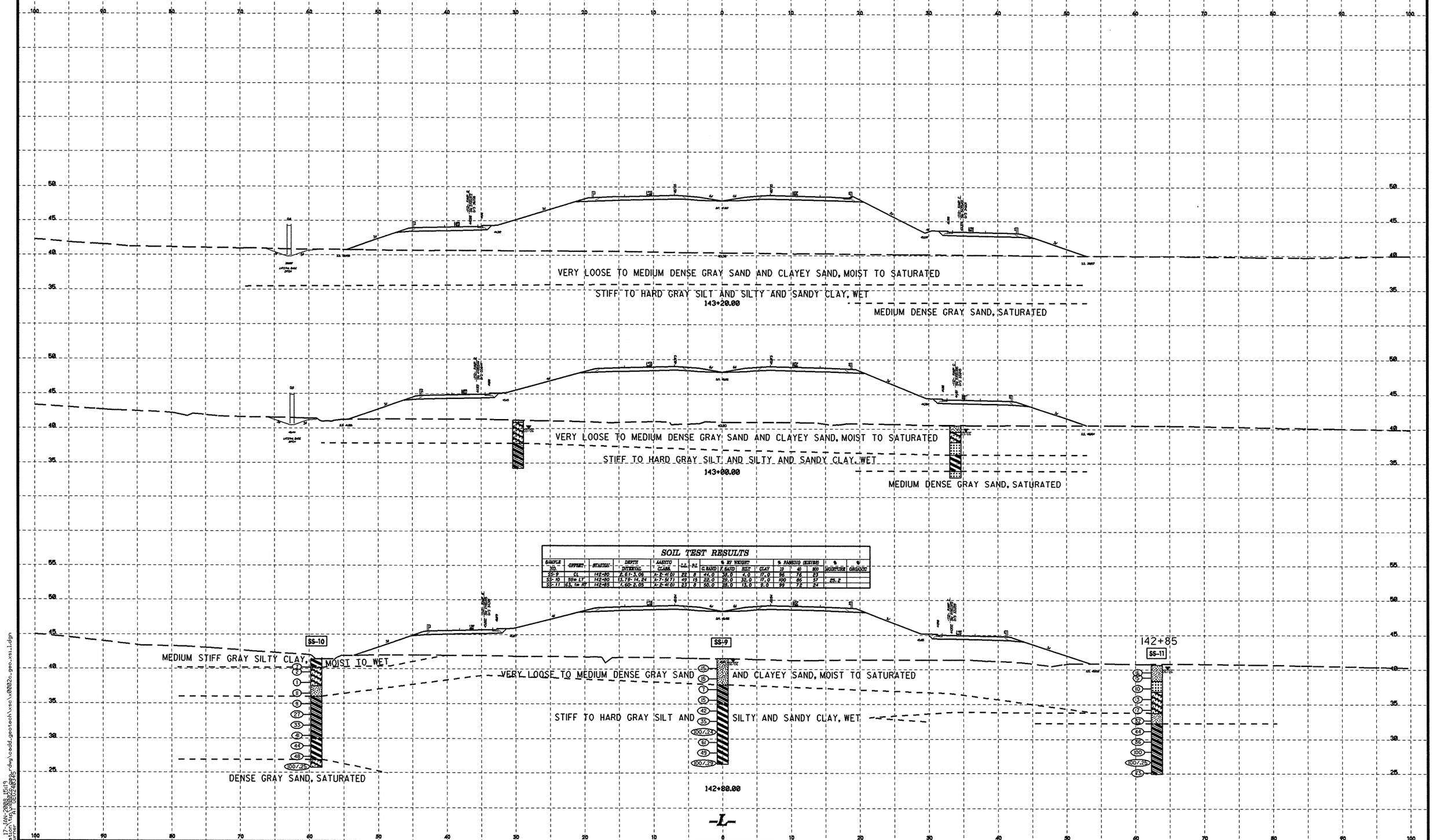

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-9	CL	142+80	2.61-3.06	A-2-4(0)	22	8	44.0	38.0	4.0	17.0	96	76	23		
SS-10	59m LT	142+80	13.79-14.24	A-7-5(7)	49	15	25.0	39.0	32.0	17.0	100	86	57	25.2	
SS-11	63.1m RT	142+85	1.60-2.05	A-2-4(0)	23	8	50.0	28.0	13.0	9.0	99	72	24		

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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	106

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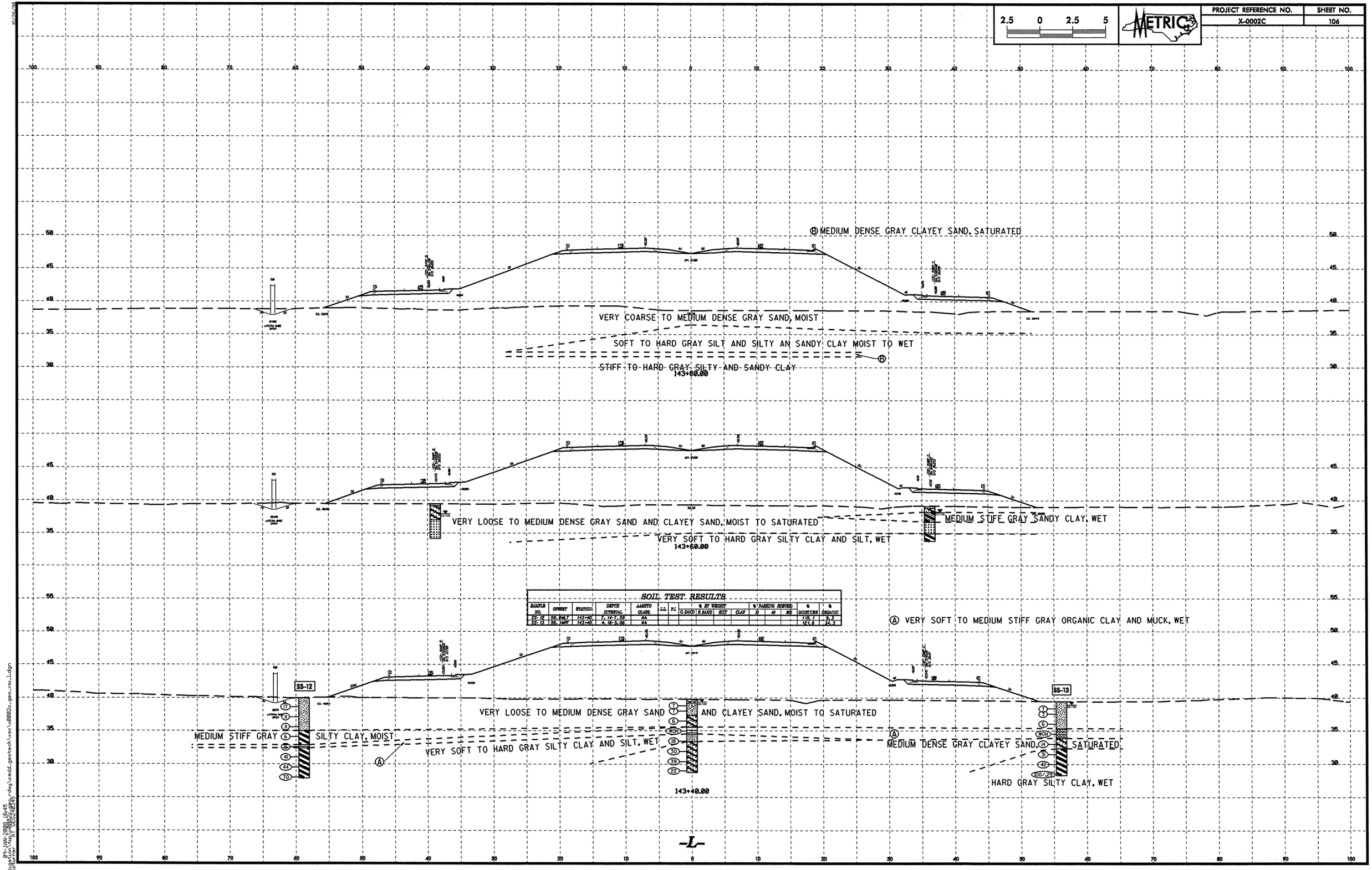
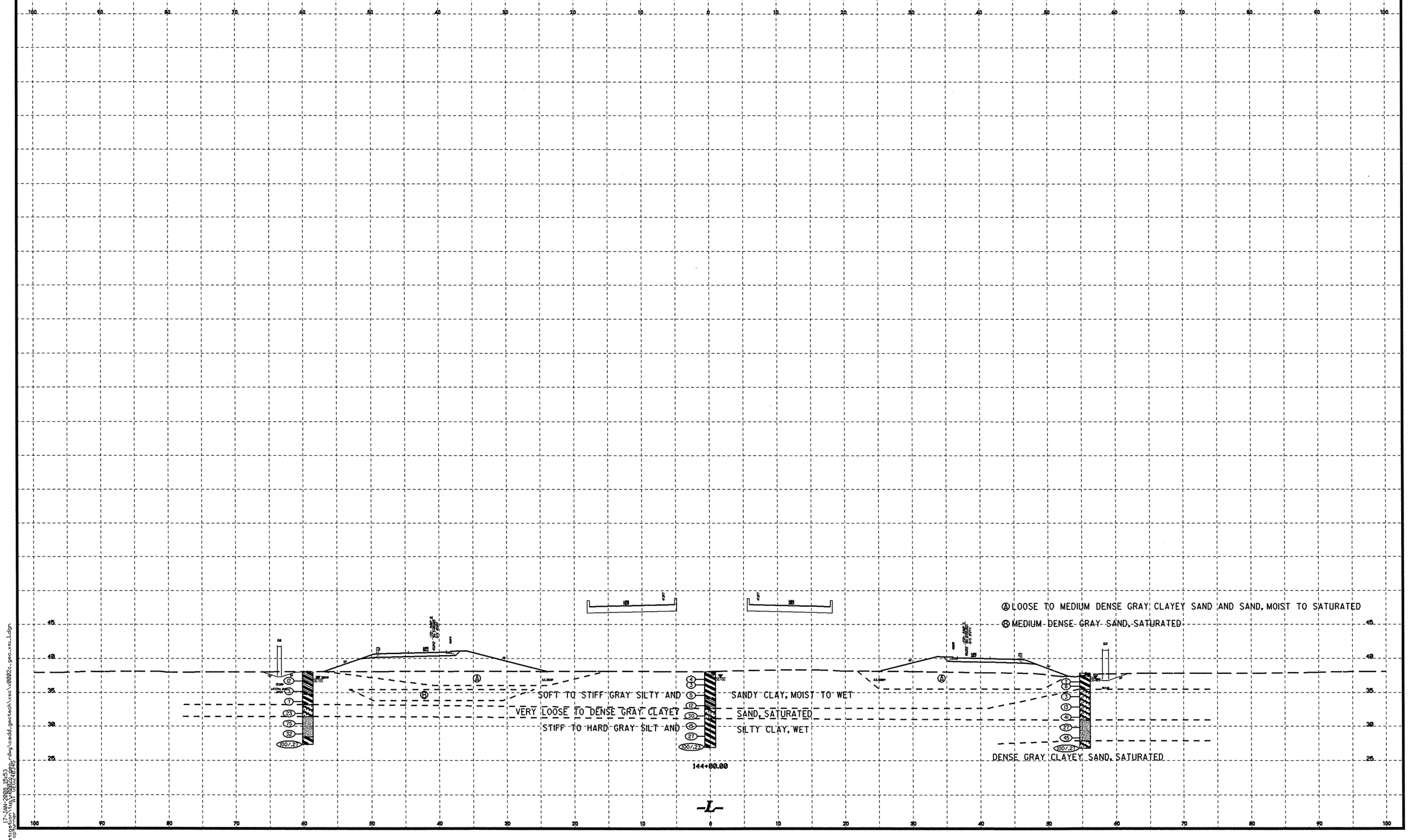


SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT G. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 20	40	200	% MOISTURE	% ORGANIC
SS-12	56.8MLT	143+40	7.14-7.59	NA										115.1	9.3
SS-13	56.1MRT	143+40	4.16-5.06	NA										121.6	34.5

2.5 0 2.5 5

METRIC



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	108

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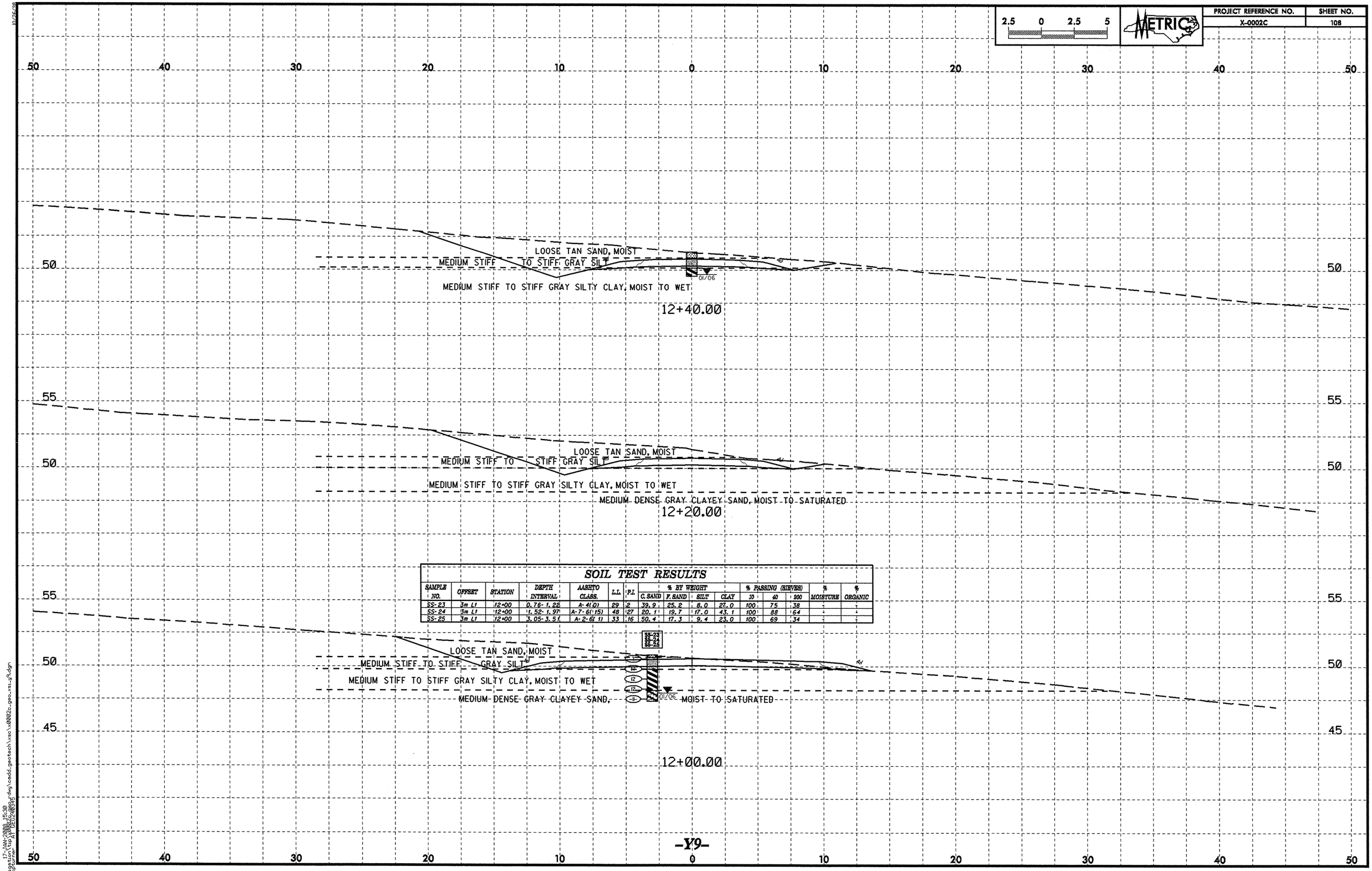

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-23	3m Lt	12+00	0.76- 1.22	A-4(0)	29	2	39.9	25.2	8.0	27.0	100	75	38	-	-
SS-24	3m Lt	12+00	1.52- 1.97	A-7-6(15)	48	27	20.1	19.7	17.0	43.1	100	88	64	-	-
SS-25	3m Lt	12+00	3.05- 3.51	A-2-6(1)	33	16	50.4	17.3	9.4	23.0	100	69	34	-	-

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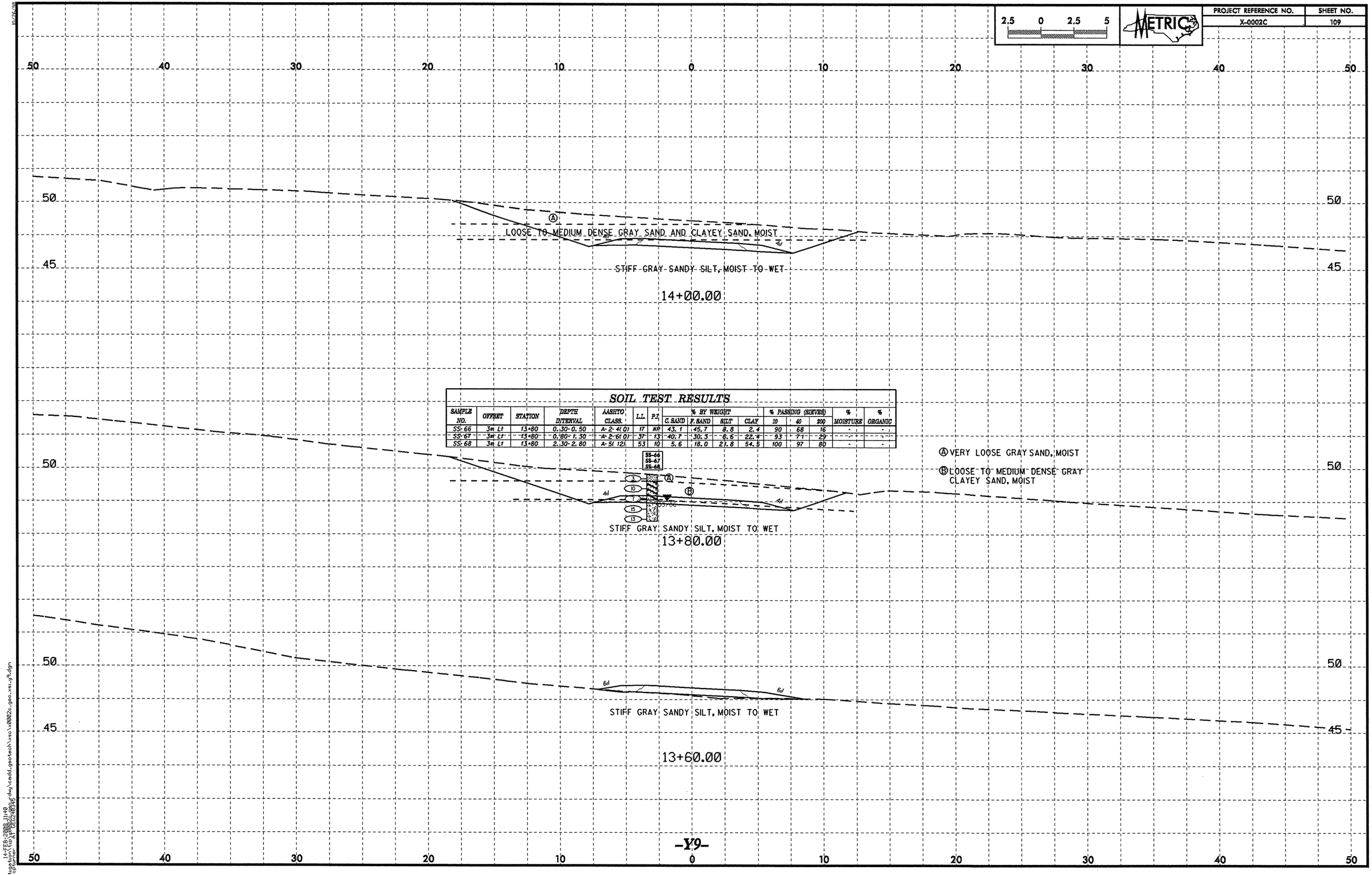
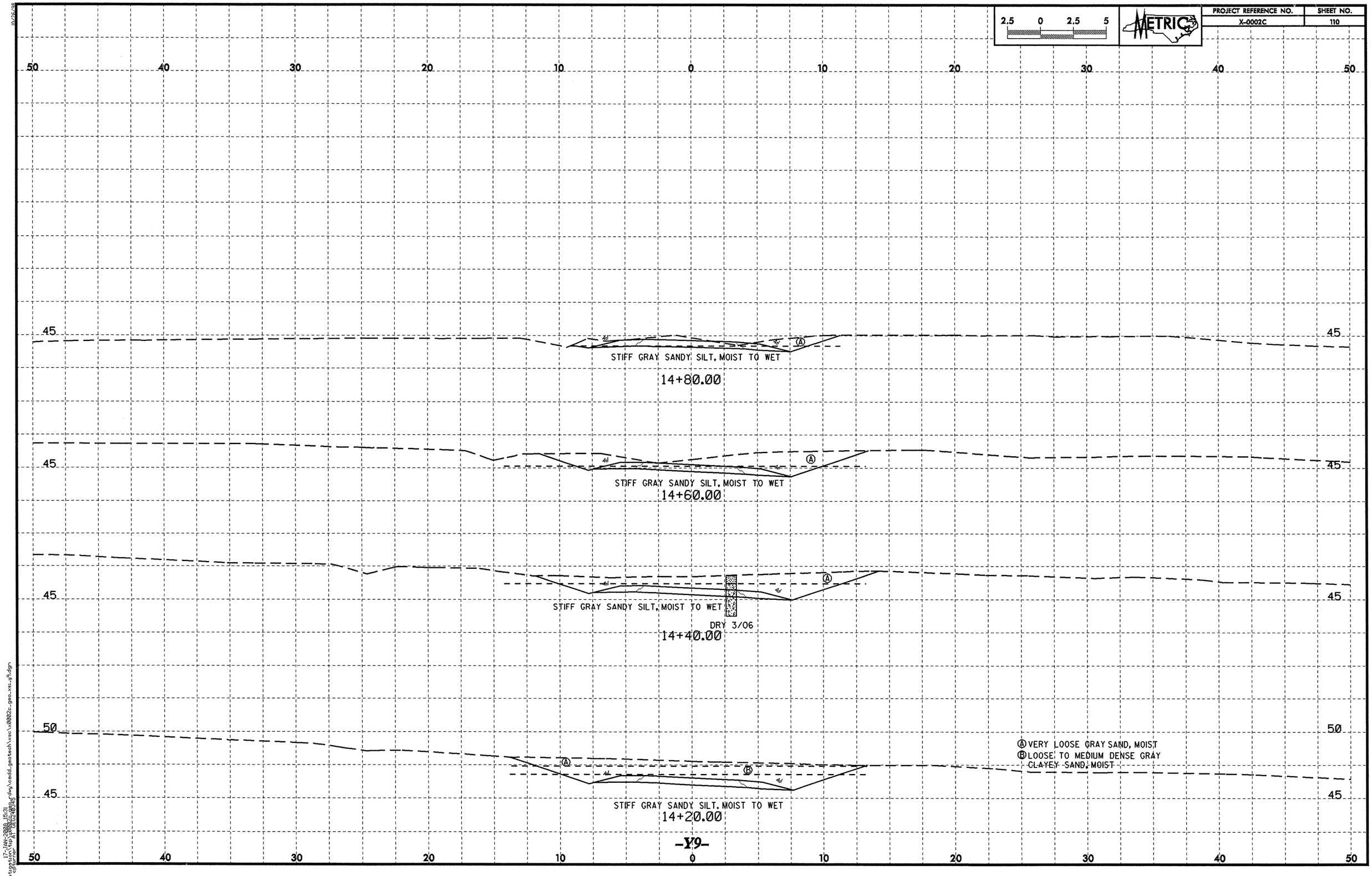
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	109



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-66	3m Lt	13+80	0.30-0.50	A-2-4(0)	17	NP	43.1	45.7	8.8	2.4	90	68	16	-	-
SS-67	3m Lt	13+80	0.80-1.30	A-2-6(0)	37	13	40.7	30.3	6.6	22.4	93	71	29	-	-
SS-68	3m Lt	13+80	2.30-2.80	A-5(12)	53	10	5.6	18.0	21.8	54.5	100	97	80	-	-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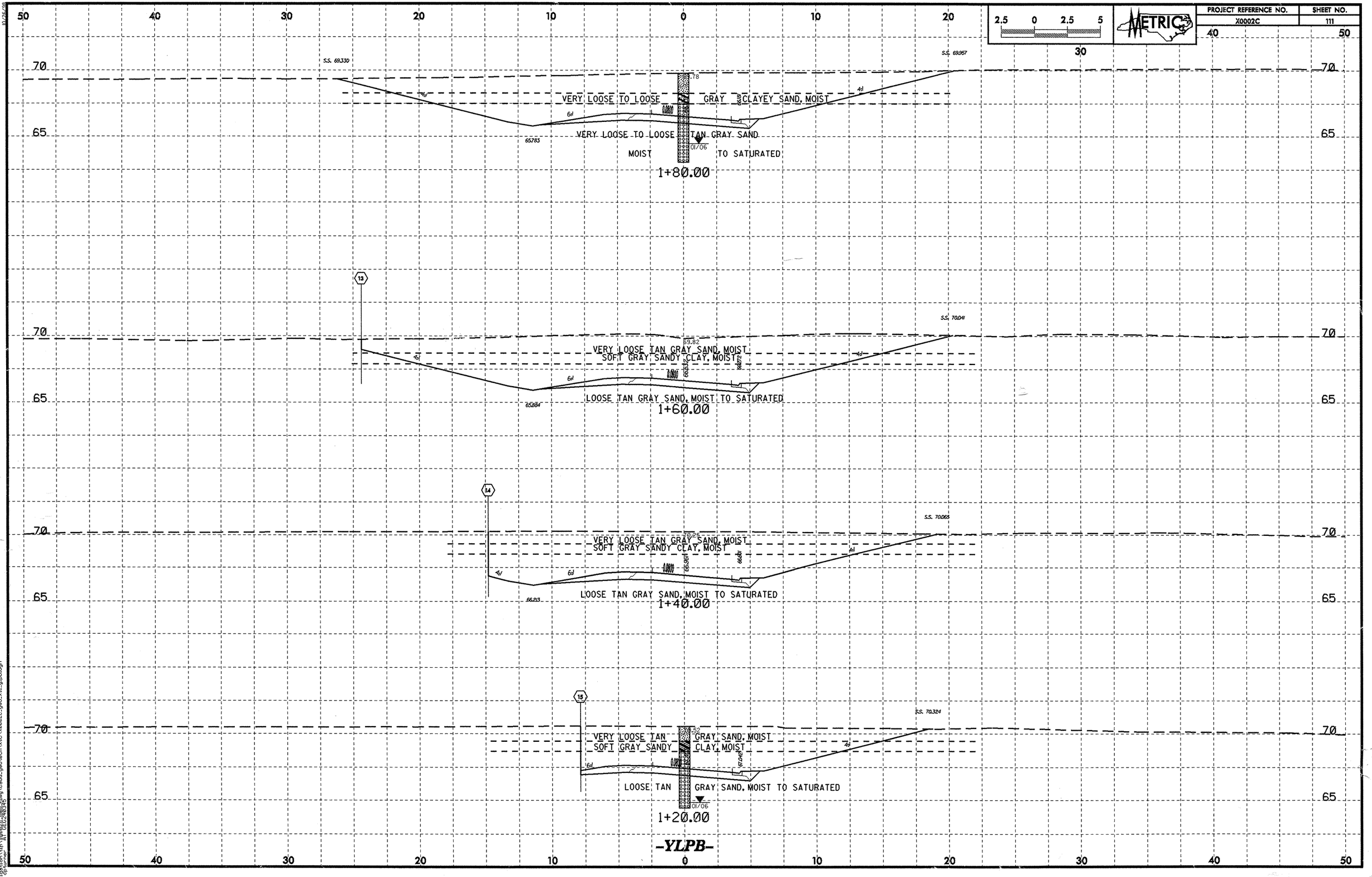
METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
110
50 40 30 20 10 0 10 20 30 40 50
45
STIFF GRAY SANDY SILT, MOIST TO WET
14+80.00
STIFF GRAY SANDY SILT, MOIST TO WET
14+60.00
STIFF GRAY SANDY SILT, MOIST TO WET
DRY 3/06
14+40.00
50
STIFF GRAY SANDY SILT, MOIST TO WET
14+20.00
Ⓐ VERY LOOSE GRAY SAND, MOIST
Ⓑ LOOSE TO MEDIUM DENSE GRAY CLAYEY SAND, MOIST

PROJECT REFERENCE NO.	SHEET NO.
X0002C	111

2.5 0 2.5 5

METRIC



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