ID: R-2554A

CONTRACT No.: C202837

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	177

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

SUBSURFACE INVESTIGATION

STATE PROJECT 34461.1.3 I.D. NO. R-2554A

F.A. PROJECT NHF-70(30)

COUNTY WAYNE

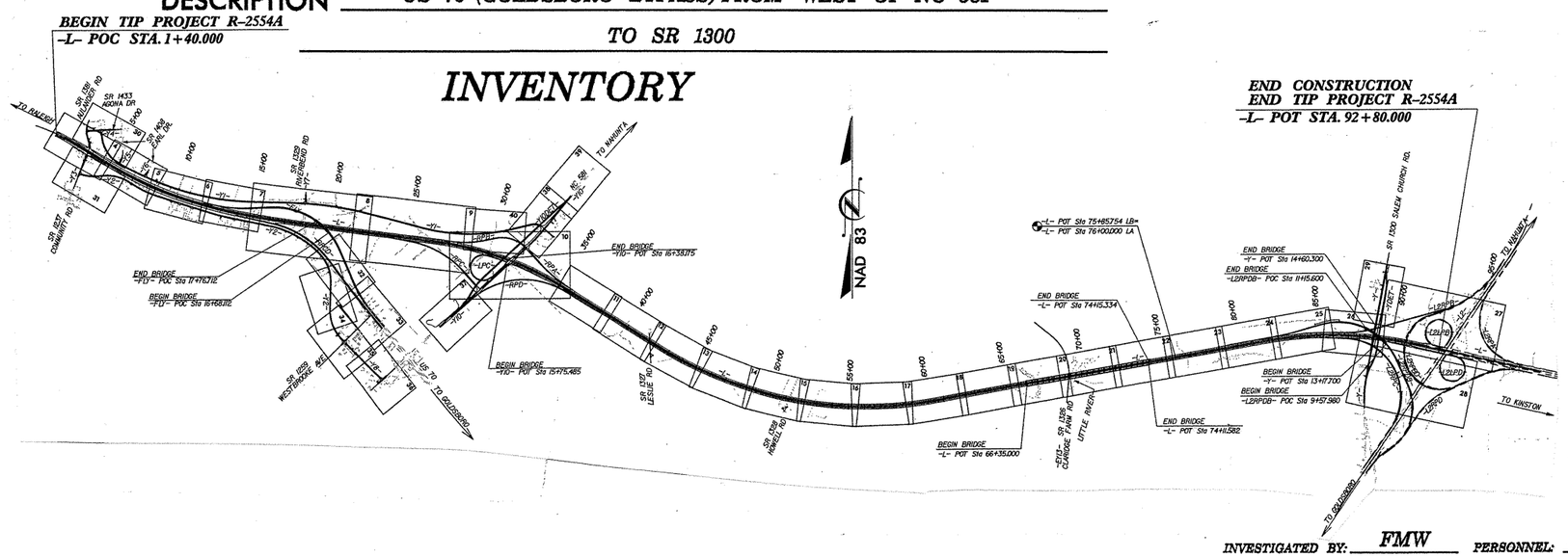
DESCRIPTION US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300

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

LINE	STATION	SHEET NO.
-L-	1+80 TO 97+00	4-29, 43-57
-Y-	10+00 TO 18+20	26,28,31, 81-82
-Y1-	10+03 TO 40+03	5-9, 32, 40, 42, 70-74
-Y2-	10+02 TO 32+10	5-8, 33, 34, 36, 37, 75-78
-Y3-	10+40 TO 13+80	4, 33, 34, 79
-Y4-	10+03 TO 11+80	32, 74
-Y5-	10+45 TO 10+82	5, 80
-Y6-	10+80 TO 11+15	5, 80
-Y7-	10+10 TO 10+63	8, 80
-Y8-	10+03 TO 13+34	37, 38, 78
-Y10-	10+00 TO 21+60	10, 39-41, 68, 69
-RPA-	10+00 TO 13+88	10, 11, 63
-RPB-	10+00 TO 15+16	9, 10, 64
-RPC-	10+00 TO 16+10	9, 10, 65
-RPD-	10+00 TO 17+07	10, 11, 39, 66
-RPCD-	10+00 TO 22+18	7, 8, 34, 35, 58, 59
-LPC-	10+00 TO 14+16	10, 57
-FLY-	9+75 TO 24+83	6-8, 34, 35, 60-62
-L2RPB-	2+20 TO 8+52	25,27,83, 84
-L2RPC-	0+00 TO 7+80	25,26,28,30,85,86
-L2RPDB-	4+50 TO 18+04	24-28,30,87-89
-L2LPD-	0+00 TO 4+00	27,28,90
-DWY1-	10+00 TO 10+83	40, 74
-DWY2-	10+00 TO 10+50	32, 79
-Y10DET-	10+00 TO 21+02	91-94
-YDET-	10+00 TO 17+34	95-97

X-SECTS:	STATION	SHEET NO.
-L-	19+75 TO 21+40	98,99
-L-	30+00 TO 35+60	100-108
-L-	37+20 TO 38+00	109
-L-	39+80 TO 43+40	110-113
-L-	44+00 TO 54+60	114-118
-L-	56+20 TO 58+00	119,120
-L-	77+80 TO 81+20	121-126
-L-	86+80 TO 89+20	127-134
-Y1-	10+00 TO 14+11	135-139
-Y1-	17+10 TO 23+40	140-147
-Y2-	10+40 TO 12+40	148-150
-Y2-	12+90 TO 14+78	151-153
-Y2-	26+40 TO 28+30	154,155
-Y2-	30+50 TO 31+80	156,157
-Y4-	10+03 TO 11+60	158,159
-Y8-	11+80 TO 12+50	160-162
-Y10-	10+00 TO 12+90	163-165
-Y10-	26+70 TO 21+60	166-167
-RPA-	10+45 TO 11+90	105,107
-RPC-	12+90 TO 14+61	170-172
-RPD-	10+00 TO 12+90	103,106,108,165,173
-RPCD-	17+30 TO 18+40	168,169
-L2RPB-	5+60 TO 7+91	120,128-131
-L2RPC-	2+80 TO 3+60	128,132-134,174
-FLY-	16+00 TO 17+20	175-177

INVENTORY



CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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.

INVESTIGATED BY: FMW PERSONNEL: JLS, MMH, KBQ, RES, WNC, LWD

CHECKED BY: DNA

SUBMITTED BY: DNA

DATE: August, 2006

DRAWN BY: FMW, JLS

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.

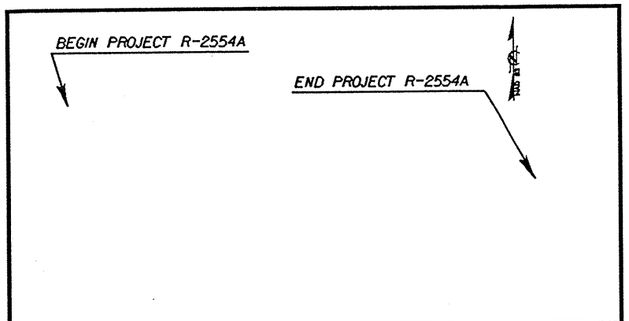
NORTH CAROLINA LICENSED SEAL 1050 GEOLOGIST D. N. ARGENBRIGHT

8-17-06

TIP PROJECT: R-2554A

CONTRACT No.:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

METRIC

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

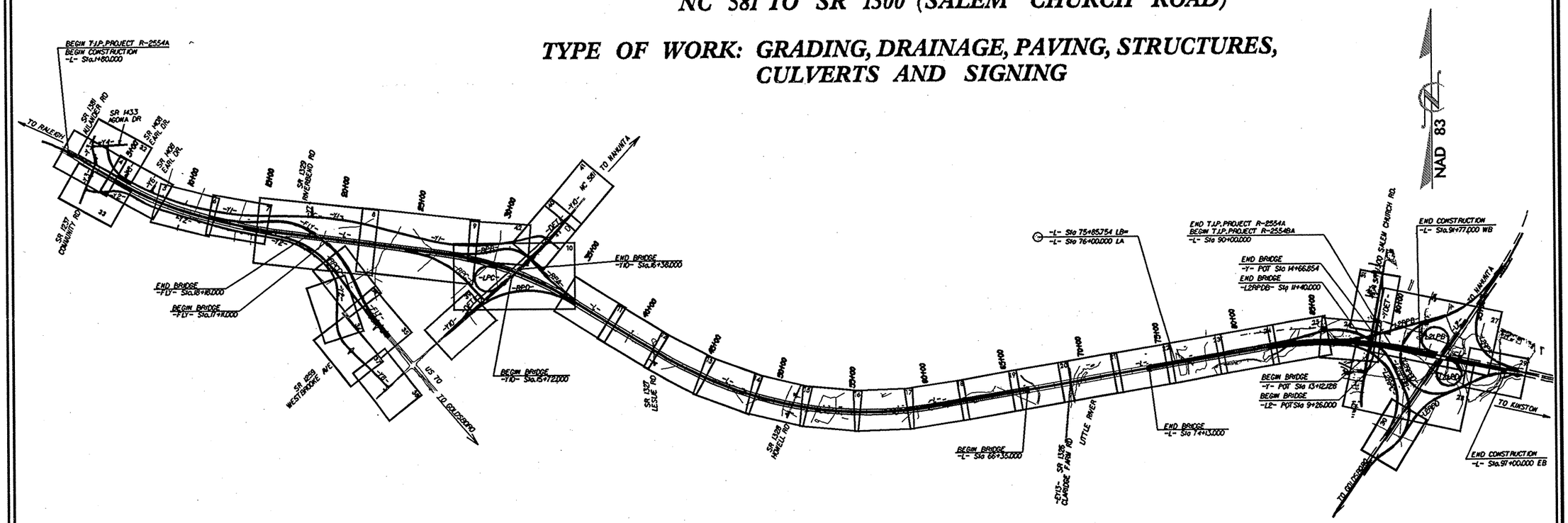
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1A	177

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.2.4		R/W, UTIL

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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



THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2007	=	21,600
ADT 2027	=	39,000
DHV	=	10 %
D	=	55 %
T	=	9 % *
V	=	110 km/h

* TTST 5 % + DUAL 4 %

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607
PREPARED FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: JULY 21, 2009

D. J. MORY, P.E.
PROJECT ENGINEER

W. E. TILLITT, E.I.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, P.E.
ROADWAY DESIGN - PROJECT 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

FILE: SPILES
DATE: SDATES
STIMES

ID	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
R-2554A	34461.1.3	2	177

METRIC

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL 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 WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS 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 AND 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		N.P.	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

P.I. OF A-7-5 ≤ L.L. - 30 : P.I. OF A-7-6 > L.L. - 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	2.0	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 SL - SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- 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, YEL-BRN, 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 ARE 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 30
MODERATELY COMPRESSIBLE	LIQUID LIMIT 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 SEEPAGE

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS
- INFERRED SOIL BOUNDARIES
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 DIP/DIP DIRECTION OF ROCK STRUCTURES
- SOUNDING ROD
- SPT DPT VST DMT PHT TEST BORING
- AUGER BORING
- CORE BORING
- WELL 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 - CBR 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
FRAGS. - FRAGMENTS
MED. - MEDIUM
PMT - PRESSUREMETER TEST
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT
W - MOISTURE CONTENT
V. - VERY
VST - VANE SHEAR TEST

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [x] CME-45B
- [x] CME-45C
- [ ] PORTABLE HOIST
- [ ] OTHER_____
- [ ] OTHER_____

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

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

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

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN 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 2.5 cm PER 50 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 FOLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT YIELDS SPT N VALUES > 100 BLOWS PER 30 cm.
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 2.5 cm. 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 ROCKS 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 GEOLOGISTS 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 GEOLOGISTS PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 1 mm DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 25 mm MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGISTS PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL CENTIMETERS 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	1 TO 3 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 WHICH 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 IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS WHICH 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 (F.P.) - 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 SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL WHICH 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, WHICH 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 METERS REQUIRED TO PRODUCE A PENETRATION OF 30 cm INTO SOIL WITH A 5 cm OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 2.5 cm PENETRATION WITH 50 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

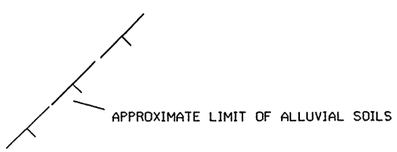
STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK:

ELEVATION:

NOTES:



2A

EARTHWORK BALANCE SHEET

IN CUBIC METERS

SHEET 1

Project: R-2554A

County: WAYNE / LENOIR

STATION	UNCLASSIFIED EXCAVATION					EMBANKMENT				BORROW	WASTE			
	TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUITABLE UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	TOTAL EMBANK. 25%		ROCK	SUITABLE	UNSUIT.	TOTAL
MAINLINE CONSTRUCTION														
-L- 1+80.000 TO -L- 11+80.000	4,444		3,198		4,444	38,275		38,275	47,844	43,400			3,198	3,198
-Y1- 10+20.204 TO -Y1- 11+20.000	463		753	223	240	878		878	1,098	858			976	976
-Y2- 10+19.059 TO -Y2- 11+92.000	132		413	54	78	1,709		1,709	2,136	2,058			467	467
-Y3- 10+35.000 TO -Y3- 11+54.020	119				119	294		294	368	249				
-Y3- 12+48.372 TO -Y3- 13+26.044	98				98	158		158	198	100				
-Y4- 10+13.698 TO -Y4- 11+80.000	775		1,240	310	464	1,254		1,254	1,568	1,104			1,550	1,550
SUBTOTAL: SUMMARY #1	6,030		5,604	587	5,443	42,569		42,569	53,212	47,769			6,191	6,191
SUMMARY #2														
-L- 11+80.000 TO -L- 21+80.000	3,623		3,995	1,512	2,111	46,365		46,365	57,957	55,846			5,507	5,507
-FLY- 9+75.000 TO -FLY- 16+68.112 (BRIDGE)	1,658		5,300		1,658	84,628		84,628	105,785	104,127			5,300	5,300
-FLY- 17+76.712 (BRIDGE) TO -FLY- 22+20.000	224		939		224	56,125		56,125	70,156	69,932			939	939
-RPCD- 14+14.000 TO -RPCD- 18+32.000	2,460		130		2,460	1,687		1,687	2,109			351	130	481
-Y1- 24+02.000 TO -Y1- 28+40.000	813				813	3,007		3,007	3,759	2,946				
-Y2- 27+30.000 TO -Y2- 32+17.226	851		1,261	702	149	4,200		4,200	5,250	5,101			1,963	1,963
-Y5- 10+45.000 TO -Y5- 10+77.647	38				38	83		83	104	66				
-Y6- 10+80.000 TO -Y6- 11+02.498						52		52	66	66				
-Y7- 10+10.000 TO -Y7- 10+51.698	59				59	148		148	185	126				
-Y8- 10+02.950 TO -Y8- 13+33.900	781		1,525	729	52	2,398		2,398	2,998	2,946			2,253	2,253
-EY3A- 10+36.393 TO -EY3A- 10+55.000	19				19	33		33	42	23				
SUBTOTAL: SUMMARY #2	10,527		13,150	2,942	7,584	198,728		198,728	248,411	241,178		351	16,092	16,443
SUMMARY #3														
-L- 21+80.000 TO -L- 31+80.000	4,554		1,849	2,248	2,306	58,146		58,146	72,683	70,377			4,097	4,097
-RPC- 12+80.000 TO -RPC- 16+00.000	5,220		850	728	4,492	4,970		4,970	6,212	1,720			1,578	1,578
-Y1- 28+40.000 TO -Y1- 34+23.000						9,100		9,100	11,375	11,375				
-Y1- 34+23.000 TO -Y1- 40+00.000						8,091		8,091	10,114	10,114				
-RPB- 12+40.000 TO -RPB- 15+00.000						16,167		16,167	20,209	20,209				
-LPC- 10+93.000 TO -LPC- 13+00.000						6,347		6,347	7,934	7,934				
-Y10- 10+00.000 TO -Y10- 15+72.000	1,489		2,252	557	933	53,367		53,367	66,708	65,775			2,809	2,809
SUBTOTAL: SUMMARY #3	11,263		4,952	3,532	7,731	156,189		156,189	195,235	187,504			8,484	8,484

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EARTHWORK BALANCE SHEET

IN CUBIC METERS

Project: R-2554A

STATION	UNCLASSIFIED EXCAVATION					EMBANKMENT				BORROW	WASTE			
	TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUITABLE UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	TOTAL EMBANK. 25%		ROCK	SUITABLE	UNSUIT.	TOTAL
MAINLINE CONSTRUCTION														
SUMMARY #4														
-L- 31+80.000 TO -L- 41+80.000	154,514		12,838	105,898	48,616	34,892		34,892	43,615			5,001	118,736	123,737
-RPD- 12+53.000 TO -RPD- 15+69.500	619		252	617	2	11,521		11,521	14,401	14,399			869	869
-RPA- 12+60.000 TO -RPA- 13+80.000						14,197		14,197	17,747	17,747				
-Y10- 16+38.000 TO -Y10- 21+60.000	86		181	35	51	54,033		54,033	67,542	67,491			216	216
SUBTOTAL: SUMMARY #4	155,219		13,272	106,550	48,669	114,643		114,643	143,305	99,637		5,001	119,822	124,823
SUMMARY #5														
-L- 41+80.000 TO -L- 51+80.000	4,492		668	1,188	3,304	47,755		47,755	59,693	56,389			1,855	1,855
SUBTOTAL: SUMMARY #5	4,492		668	1,188	3,304	47,755		47,755	59,693	56,389			1,855	1,855
SUMMARY #6														
-L- 51+80.000 TO -L- 61+80.000	5,427				5,427	78,020		78,020	97,525	92,098				
SUBTOTAL: SUMMARY #6	5,427				5,427	78,020		78,020	97,525	92,098				
SUMMARY #7														
-L- 61+80.000 TO -L- 66+35.000 BRIDGE						58,468		58,468	73,085	73,085				
SUBTOTAL: SUMMARY #7						58,468		58,468	73,085	73,085				
SUMMARY #8														
-L- 74+13.000 (BRIDGE) TO -L- 84+20.000	73,585		7,412	65,237	8,348	83,793		83,793	104,741	96,394			72,649	72,649
-L2RPDB- 8+60.000 TO -L2RPDB- 9+57.980 (BRIDGE)						66,108		66,108	82,635	82,635				
-L2RPDB- 11+15.600 (BRIDGE) TO -L2RPDB- 16+09.802	854				854	145,007		145,007	181,259	180,405				
SUBTOTAL: SUMMARY #8	74,439		7,412	65,237	9,202	294,907		294,907	368,635	359,433			72,649	72,649
SUMMARY #9														
-L- 84+20.000 TO -L- 90+43.346	76,480		6,602	67,518	8,962	22,805		22,805	28,506	19,544			74,120	74,120
-Y- 9+80.000 TO -Y- 13+17.700 (BRIDGE)	737				737	4,354		4,354	5,443	4,706				
-Y- 14+60.300 (BRIDGE) TO -Y- 18+48.000	229				229	16,863		16,863	21,079	20,850				
-L2RPB- 5+00.000 TO -L2RPB- 5+60.000	436				436	518		518	648	212				
-L2RPC- 3+12.000 TO -L2RPC- 4+40.000	2,425		582		2,425	8,259		8,259	10,324	7,899			582	582
RET. WALL NO. 1 -W1- 10+00.000 TO 10+87.300 (SURCHARGE)						16,200		16,200	20,250	20,250				
RET. WALL NO. 1 -W1- 10+00.000 TO 10+87.300 (REMOVAL)	14,580				14,580							14,580		14,580
RET. WALL NO. 2 -W2- 10+00.000 TO 11+20.865 (SURCHARGE)						20,800		20,800	26,000	26,000				
RET. WALL NO. 2 -W2- 10+00.000 TO 11+20.865 (REMOVAL)	18,720				18,720							18,720		18,720
SUBTOTAL: SUMMARY #9	113,607		7,184	67,518	46,089	89,800		89,800	112,250	99,461		33,300	74,702	108,002

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2C

EARTHWORK BALANCE SHEET

IN CUBIC METERS

SHEET 3

Project: R-2554A

STATION	UNCLASSIFIED EXCAVATION					EMBANKMENT				BORROW	WASTE			
	TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUITABLE UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	TOTAL EMBANK. 25%		ROCK	SUITABLE	UNSUIT.	TOTAL
MAINLINE CONSTRUCTION														
SUMMARY #10														
-Y10DET- 11+44.217 TO -Y10DET- 21+02.207	8,878				8,878	9,111		9,111	11,389	2,511				
-YDET- 10+00.000 TO -YDET- 17+34.034	9,103				9,103	5,996		5,996	7,495			1,608		1,608
-Y10DET- REMOVAL	17,752				17,752	12		12	15			17,737		17,737
-YDET- REMOVAL	9,103				9,103	5,996		5,996	7,495			1,608		1,608
SUBTOTAL: SUMMARY #10	44,835				44,835	21,116		21,116	26,394	2,511		20,952		20,952
PROJECT SUBTOTALS	425,838		52,241	247,554	178,284	1,102,194		1,102,194	1,377,745	1,259,066		59,604	299,795	359,399
MATERIAL FOR SHOULDER CONSTRUCTION						36,100		36,100	45,125	45,125				
LOSS DUE TO CLEARING & GRUBBING	-800				-800					800				
ADDITIONAL UNDERCUT EXCAVATION			8,500			8,500		8,500	10,625	10,625			8,500	8,500
WASTE TO BE USED IN LIEU OF BORROW										-59,604		-59,604		-59,604
SELECT MATERIAL IN LIEU OF BACKFILL FOR UNDERCUT						-60,741		-60,741	-75,926	-75,926				
PROJECT TOTAL	425,038		60,741	247,554	177,484	1,086,053		1,086,053	1,357,569	1,180,086			308,295	308,295
ESTIMATE 5% TO REPLACE TOPSOIL IN BORROW PITS										59,004				
GRAND TOTAL	425,038		60,741	247,554	177,484	1,086,053		1,086,053	1,357,569	1,239,090			308,295	308,295
SAY	425,100		64,300							1,239,100				
SHALLOW UNDERCUT EXCAVATION	1,000													
BERM DITCH EXCAVATION	400													
DRAINAGE DITCH EXCAVATION	20,100													
SELECT MATERIAL, CLASS II OR CLASS III	64,300													
PAVEMENT STRUCTURE VOLUME = m3	98,300													

ALTERNATE PAVEMENT EARTHWORK BALANCE SHEET

IN CUBIC METERS

PROJECT SUBTOTALS	425,838		52,241	247,554	178,284	1,102,194		1,102,194	1,377,745	1,259,066		59,604	299,795	359,399
ADJUTMENT FOR ALTERNATE PAVEMENT DESIGN	-38,119			-28,485	-9,634	68,161		68,161	85,199	94,833			-28,485	-28,485
ADJUSTED PROJECT SUBTOTALS	387,719		52,241	219,069	168,650	1,170,355		1,170,355	1,462,944	1,353,899		59,604	271,310	330,914
MATERIAL FOR SHOULDER CONSTRUCTION						36,100		36,100	45,125	45,125				
LOSS DUE TO CLEARING & GRUBBING	-800				-800					800				
ADDITIONAL UNDERCUT EXCAVATION			8,500			8,500		8,500	10,625	10,625			8,500	8,500
WASTE TO BE USED IN LIEU OF BORROW										-59,604		-59,604		-59,604
SELECT MATERIAL IN LIEU OF BACKFILL FOR UNDERCUT						-60,741		-60,741	-75,926	-75,926				
PROJECT TOTAL	386,919		60,741	219,069	167,850	1,154,214		1,154,214	1,442,768	1,274,919			279,810	279,810
ESTIMATE 5% TO REPLACE TOPSOIL IN BORROW PITS										63,746				
GRAND TOTAL	386,919		60,741	219,069	167,850	1,154,214		1,154,214	1,442,768	1,338,664			279,810	279,810
SAY	387,000		64,300							1,338,700				
SHALLOW UNDERCUT EXCAVATION	1,000													
BERM DITCH EXCAVATION	400													
DRAINAGE DITCH EXCAVATION	20,100													
SELECT MATERIAL, CLASS II OR CLASS III	64,300													
PAVEMENT STRUCTURE VOLUME = m3	70,800													

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 11, 2006

STATE PROJECT:	34461.1.3 R-2554A
FEDERAL PROJECT:	NHF-70(30)
COUNTY:	Wayne
DESCRIPTION:	US 70 (Goldsboro Bypass) from West of NC 581 to US 117
SUBJECT:	Geotechnical Report - Inventory

Project Description

The project consists of constructing a four lane divided facility along a new location. The project begins approximately 2.9 kilometers west of NC 581 and proceeds 7.4 kilometers in an easterly direction to a point 0.7 kilometers east of SR 1326 (Claridge Farm Rd.). The western terminus ties in with the existing US 70 and the eastern terminus ties in with project R-2554B. 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-	1+80 to 97+00
-Y-	10+00 to 18+20
-Y1-	10+03 to 40+03
-Y2-	10+02 to 32+10
-Y3-	10+40 to 13+80
-Y4-	10+03 to 11+80
-Y6-	10+80 to 11+15
-Y8-	10+03 to 13+34
-Y10-	10+00 to 21+60
-RPA-	10+00 to 13+88
-RPB-	10+00 to 15+16

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

-RPC-	10+00 to 16+10
-RPD-	10+00 to 17+07
-RPCD-	10+00 to 22+18
-LPC-	10+00 to 14+16
-FLY-	9+75 to 24+83
-L2RPB-	2+20 to 8+52
-L2RPC-	0+00 to 7+80
-L2RPDB-	4+50 to 18+04
-L2LPD-	0+00 to 4+00
-DWY1-	10+00 to 10+83
-DWY2-	10+03 to 10+50
-Y10DET-	10+00 to 21+02
-YDET-	10+00 to 17+34

Areas of Special Geotechnical Interest

1) Cohesive soils that have the potential for subgrade failure and embankment stability and/or long term settlement problems were encountered on this project. The entire project contains silt-clay soils which typically have medium to high plasticity indices, 40 percent or more passing the 75um sieve and or high moisture contents except in the following areas:

Line	Station (±)
-L-	40+00 to 41+20
-L-	46+60 to 51+00
-L-	56+20 to 57+00
-L-	76+40 to 77+90
-Y-	16+40 to 17+50
-L2RPDB-	16+50 to 18+04
-YDET-	12+70 to 14+60
-Y10DET-	18+80 to 21+02

2) The following intervals were found to exhibit a high water table, seasonal high ground water or the potential for ground water related construction problems:

Line	Station(±)
-L-	1+80 to 4+50
-L-	7+80 to 32+00
-L-	34+80 to 37+80
-L-	39+70 to 66+20
-L-	85+00 to 90+00
-Y1-	11+20 to 12+20
-Y1-	16+60 to 17+40
-Y1-	19+00 to 24+20

-Y1-	26+80 to 40+03
-Y2-	10+02 to 32+10
-Y3-	12+40 to 13+80
-Y4-	10+03 to 11+80
-Y6-	10+80 to 11+15
-Y8-	10+03 to 13+34
-Y10-	10+00 to 21+60
-RPA-	10+00 to 13+88
-RPB-	10+00 to 15+16
-RPC-	10+00 to 16+10
-RPD-	10+00 to 17+07
-RPCD-	10+00 to 22+18
-LPC-	10+00 to 14+16
-FLY-	9+75 to 24+83
-L2RPB-	5+40 to 8+52
-L2RPC-	1+00 to 3+20
-Y10DET-	10+60 to 15+40
-Y10DET-	18+80 to 20+40

3) Water wells located within or in close proximity to the proposed right-of-way were noted at the following locations:

Line	Station(±)
-L-	15+00, 17m LT
-L-	15+02, 1m LT
-Y1-	11+80, 27m LT
-Y2-	23+80, 20m RT
-Y2-	26+48, 53m RT
-Y2-	27+66, 7m RT
-Y4-	10+67, 60m LT
-Y4-	11+60, 35m RT
-Y10-	18+82, 18m LT
-RPCD-	20+57, 45m RT

Additional water wells not listed above may be present within the proposed right-of-way.

Physiography and Geology

The project corridor is located in the Middle Coastal Plain Physiographic Province. Topography is gently sloping to level and typical of the region. Elevations range from 25± meters on the Little River/Neuse River terrace at the projects eastern terminus to a high of 42 to 43 meters on the upland areas in the western portion of the project. Elevations of upland areas along the remainder of the project typically range from 32 to 40 meters and gradually decrease in an easterly direction.

The geology of the project basically consist of Pleistocene to Recent age fluvial and coastal plain sediments overlying marine to marginal marine sediments of the Pliocene age Yorktown Formation and deltaic sediments of the Upper Cretaceous age Black Creek

Formation. The boundary between the Pleistocene to Recent coastal plain sediments and underlying Yorktown Formation sediments is generally difficult to determine due the similar composition and degree of weathering. Therefore, no distinction is made between the two on the accompanying soil profile sheets. The Black Creek Formation was primarily encountered in deep borings along the project. The project is drained by the Little River, which lies within the Neuse River drainage system.

Ground Water

Ground water data was collected primarily from May 2004 to November 2004 during above average rainfall conditions. Typically, ground water levels were measured at depths of 0.5± to 2.0± meters below the natural ground surface in nearly level areas and 2 to 3 meters or more below the natural ground surface in moderately well drained upland areas. Ground water levels should fall 1± meters or more during dry summer conditions.

Soils

Soils occurring along the project are derived from marine and fluvial sediments deposited in the geologic past. Based on origin and occurrence, soils encountered during this investigation are separated into three major categories. The categories are surficial upland soils, coastal plain and Yorktown Formation soils, and Black Creek Formation soils.

Surficial upland soils are found in the top 1 to 2 meters of the soil profile. Typically, they consist of very loose to dense fine to coarse sand (A-2-4), clayey sand (A-2-6), soft to stiff sandy and silty clay (A-6, A-7-6) or clayey and sandy silt (A-4). The granular material generally exhibits good to excellent engineering properties. However, the cohesive soils generally exhibit fair to poor engineering properties which include relatively high moisture contents, medium high plasticity indices and 50 percent of more passing the 75 μm sieve. These soils have the potential to cause subgrade stability problems.

The Pleistocene and Yorktown Formation generally underlie the surficial soils at a depth of 1 to 2 meters. Soils within this formation typically consist of beds of loose to dense sand or clayey sand (A-1-b, A-2-4, A-2-6, A-3) and very soft to stiff silty sandy clay (A-6, A-7-6) or clayey sandy silt (A-4). 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 75μm sieve. These soils have the potential to cause subgrade stability problems or embankment stability/settlement problems.

The Black Creek Formation underlies the Yorktown formation and the alluvial soils on the Little River Terrace. Cohesive soils within this formation typically consist of beds of very stiff to hard silty and sandy clay (A-6, A-7-6) or clayey sandy silt (A-4). These soils exhibit fair to poor engineering properties. Granular soils within this formation typically consist of beds of medium dense to very dense fine to coarse sand (A-1-b, A-2-4, A-3). These soils

exhibit good to excellent engineering properties. Due to its depth of occurrence, the Black Creek Formation should not affect the roadway portion of this project.

California Bearing Ratio (CBR) Samples

Bulk samples were taken at the following locations and submitted for CBR testing:

Sample No.	Station	Depth(m)
CBR-1	-L-, 12+80	0.3-1.8
CBR-2	-L-, 32+20	0.3-0.5
CBR-3	-FLY-, 23+80	0.3-3.5
*CBR-1	-L-, 78+10	0.3-3.3

*Taken from R-2245B investigation.

Undisturded Samples

Sample No.	Station	Depth(m)	Test
ST-1	-L2RPDB, 6+15	7.53-8.13	Triaxial CU, Consolidation
ST-2	-Y-, 14+83	10.36-10.96	Triaxial CU, Consolidation
ST-4	-L-, 93+60	8.97-9.57	Triaxial CU, Consolidation
ST-5	-L2RPDB-, 12+00	7.5-8.1	Triaxial CU
ST-10	-L2RPDB-, 11+40	8.0-8.6	Consolidation

All of these samples were submitted under R-2554B.

Culvert at -L- Station 39+85.6

Based on the Culvert Survey and Hydraulic Design Report dated September 7, 2004, a dual 2.13m x 2.13m RCBC is proposed for -L- over a tributary to Little River at station 39+85.6. Hand auger borings performed at the proposed culvert site shows 0.3 to 1.5 meters of soft sandy silt (A-4) underlain by loose to medium dense sand (A-3) is present at the site. Ground water was measured at an elevation of 29 meters.

Prepared by:

Fred M Wescott III
Project Geological Engineer

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

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

CONST.REV.

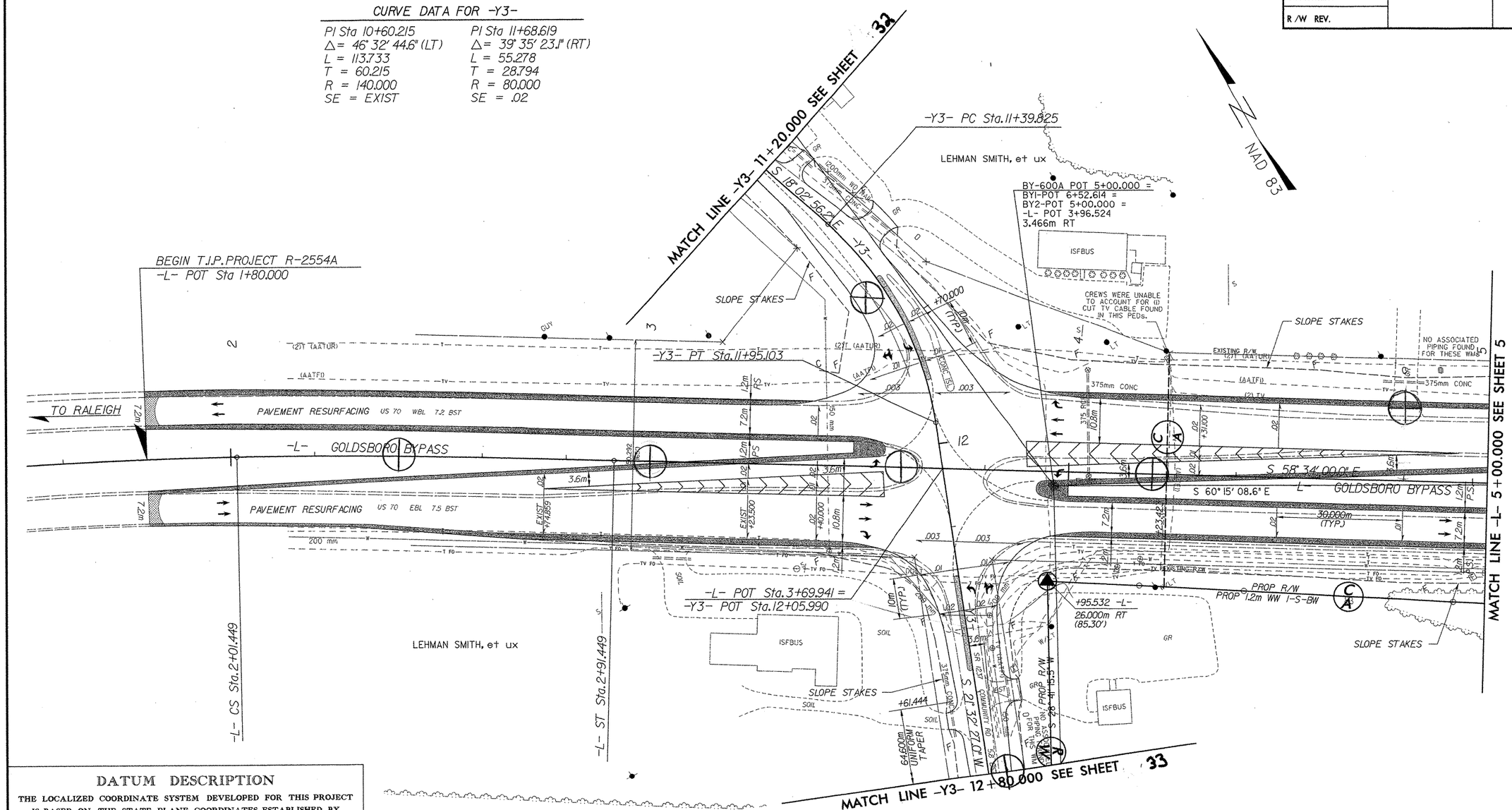
R/W REV.

CURVE DATA FOR -L-

PI Sta 1+01.007	PIs Sta 2+31.454	PIs Sta 5+69.943	PI Sta 7+81.015
Δ= 10° 29' 34.4" (RT)	Θs = 2° 20' 38.1"	Θs = 1° 17' 21.0"	Δ= 10° 20' 47.5" (LT)
L = 201.449	Ls = 90.000	Ls = 90.000	L = 361.162
T = 101.007	LT = 60.005	LT = 60.002	T = 181.073
R = 1,100.000	ST = 30.005	ST = 30.001	R = 2,000.000
SE = .05			SE = .03

CURVE DATA FOR -Y3-

PI Sta 10+60.215	PI Sta 11+68.619
Δ= 46° 32' 44.6" (LT)	Δ= 39° 35' 23.1" (RT)
L = 113.733	L = 55.278
T = 60.215	T = 28.794
R = 140.000	R = 80.000
SE = EXIST	SE = .02



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R1030A-5"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 186378.708(m) EASTING: 700646.586(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987745
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R1030A-5" TO -L- STATION (supplied by roadway) IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 68 FOR -Y3- PROFILE
SEE SHEET 2-G FOR INT. DETAILS

FILE: H:\2554a\Roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH04.dgn
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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

-Y5-
PI Sta 10+33.530
Δ = 31° 13' 20.0" (RT)
L = 65.392
T = 33.530
R = 120.000

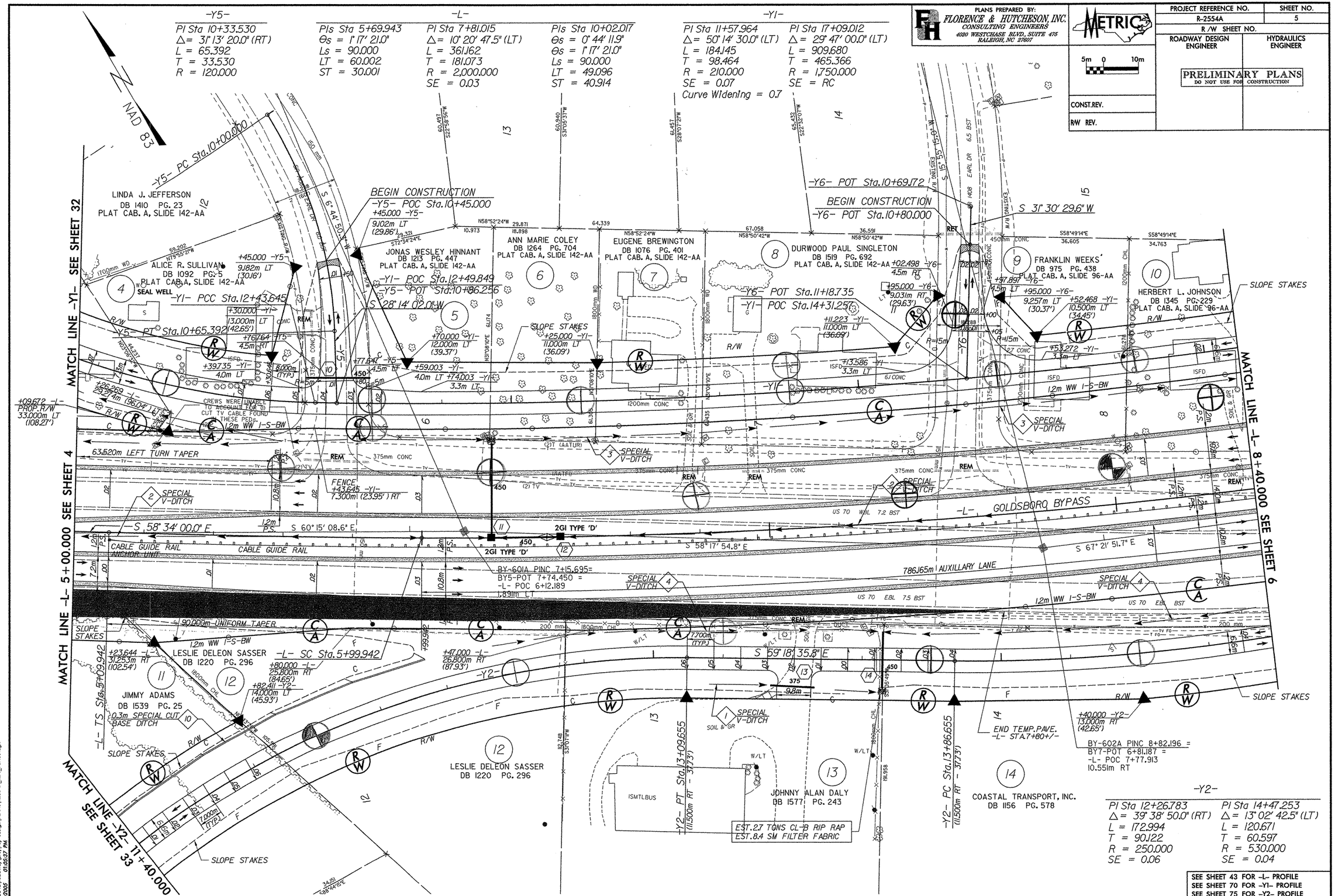
-L-
PIs Sta 5+69.943
Θs = 1° 17' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001

PI Sta 7+81.015
Δ = 10° 20' 47.5" (LT)
L = 361.162
T = 181.073
R = 2,000.000
SE = 0.03

PIs Sta 10+02.017
Θs = 0° 44' 11.9"
Θs = 1° 17' 21.0"
Ls = 90.000
LT = 49.096
ST = 40.914

-Y1-
PI Sta 11+57.964
Δ = 50° 14' 30.0" (LT)
L = 184.145
T = 98.464
R = 210.000
SE = 0.07
Curve Widening = 0.7

PI Sta 17+09.012
Δ = 29° 47' 00.0" (LT)
L = 909.680
T = 465.366
R = 1,750.000
SE = RC



-Y2-

PI Sta 12+26.783	PI Sta 14+47.253
Δ = 39° 38' 50.0" (RT)	Δ = 13° 02' 42.5" (LT)
L = 172.994	L = 120.671
T = 90.122	T = 60.597
R = 250.000	R = 530.000
SE = 0.06	SE = 0.04

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 70 FOR -Y1- PROFILE
SEE SHEET 75 FOR -Y2- PROFILE
SEE SHEET 80 FOR -Y5- PROFILE
SEE SHEET 80 FOR -Y6- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R/W REV.

5m 0 10m

CURVE DATA FOR -L-

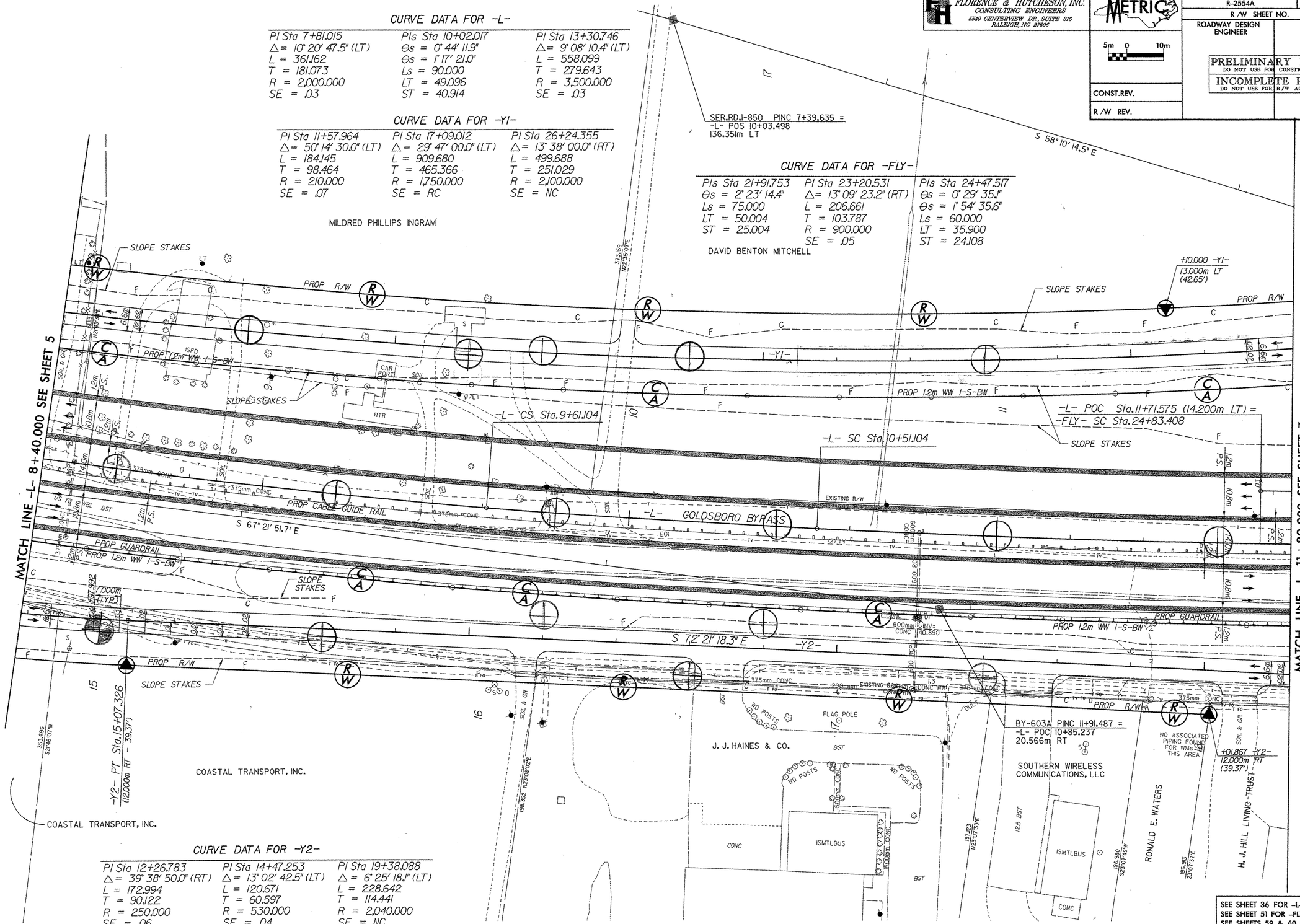
PI Sta 7+81.015	PIs Sta 10+02.017	PI Sta 13+30.746
Δ= 10° 20' 47.5" (LT)	Θs = 0° 44' 11.9"	Δ= 9° 08' 10.4" (LT)
L = 361.162	Θs = 1° 17' 21.0"	L = 558.099
T = 181.073	Ls = 90.000	T = 279.643
R = 2,000.000	LT = 49.096	R = 3,500.000
SE = .03	ST = 40.914	SE = .03

CURVE DATA FOR -Y1-

PI Sta 11+57.964	PI Sta 17+09.012	PI Sta 26+24.355
Δ= 50° 14' 30.0" (LT)	Δ= 29° 47' 00.0" (LT)	Δ= 13° 38' 00.0" (RT)
L = 184.145	L = 909.680	L = 499.688
T = 98.464	T = 465.366	T = 251.029
R = 210.000	R = 1,750.000	R = 2,100.000
SE = .07	SE = RC	SE = NC

CURVE DATA FOR -FLY-

PIs Sta 21+91.753	PI Sta 23+20.531	PIs Sta 24+47.517
Θs = 2° 23' 14.4"	Δ= 13° 09' 23.2" (RT)	Θs = 0° 29' 35.1"
Ls = 75.000	L = 206.661	Θs = 1° 54' 35.6"
LT = 50.004	T = 103.787	Ls = 60.000
ST = 25.004	R = 900.000	LT = 35.900
	SE = .05	ST = 24.108



CURVE DATA FOR -Y2-

PI Sta 12+26.783	PI Sta 14+47.253	PI Sta 19+38.088
Δ= 39° 38' 50.0" (RT)	Δ= 13° 02' 42.5" (LT)	Δ= 6° 25' 18.1" (LT)
L = 172.994	L = 120.671	L = 228.642
T = 90.122	T = 60.597	T = 114.441
R = 250.000	R = 530.000	R = 2,040.000
SE = .06	SE = .04	SE = NC

SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 51 FOR -FLY- PROFILE
SEE SHEETS 59 & 60 FOR -Y1- PROFILE
SEE SHEETS 64 & 65 FOR -Y2- PROFILE

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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R/W REV.

CURVE DATA FOR -L-

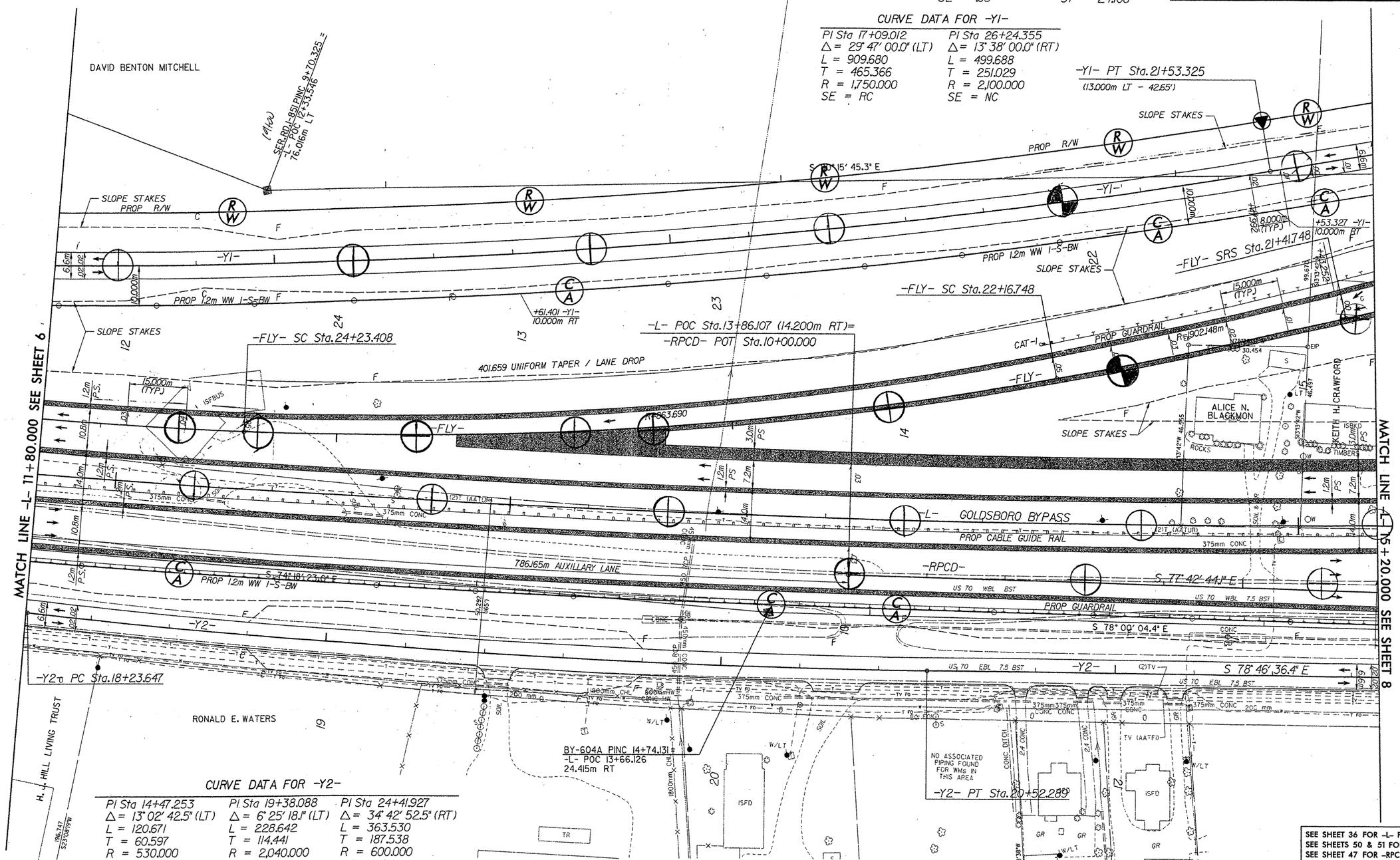
PIs Sta 10+02.017	PI Sta 13+30.746	PIs Sta 16+39.204
Θs = 0° 44' 11.9"	Δ = 9° 08' 10.4" (LT)	Θs = 0° 44' 12.0"
Θs = 1° 17' 21.0"	L = 558.099	Ls = 90.000
Ls = 90.000	T = 279.643	LT = 60.001
LT = 49.096	R = 3,500.000	ST = 30.000
ST = 40.914	SE = .03	

CURVE DATA FOR -FLY-

PIs Sta 20+61.834	PIs Sta 21+91.753	PI Sta 23+20.531	PIs Sta 24+47.517
Θs = 8° 35' 39.7"	Θs = 2° 23' 14.4"	Δ = 13° 09' 23.2" (RT)	Θs = 0° 29' 35.1"
Ls = 120.000	Ls = 75.000	L = 206.661	Θs = 1° 54' 35.6"
LT = 80.094	LT = 50.004	T = 103.787	Ls = 60.000
ST = 40.086	ST = 25.004	R = 900.000	LT = 35.900
		SE = .05	ST = 24.108

CURVE DATA FOR -Y1-

PI Sta 17+09.012	PI Sta 26+24.355
Δ = 29° 47' 00.0" (LT)	Δ = 13° 38' 00.0" (RT)
L = 909.680	L = 499.688
T = 465.366	T = 251.029
R = 1,750.000	R = 2,100.000
SE = RC	SE = NC



CURVE DATA FOR -Y2-

PI Sta 14+47.253	PI Sta 19+38.088	PI Sta 24+41.927
Δ = 13° 02' 42.5" (LT)	Δ = 6° 25' 18.1" (LT)	Δ = 34° 42' 52.5" (RT)
L = 120.671	L = 228.642	L = 363.530
T = 60.597	T = 114.441	T = 187.538
R = 530.000	R = 2,040.000	R = 600.000
SE = .04	SE = NC	SE = .04

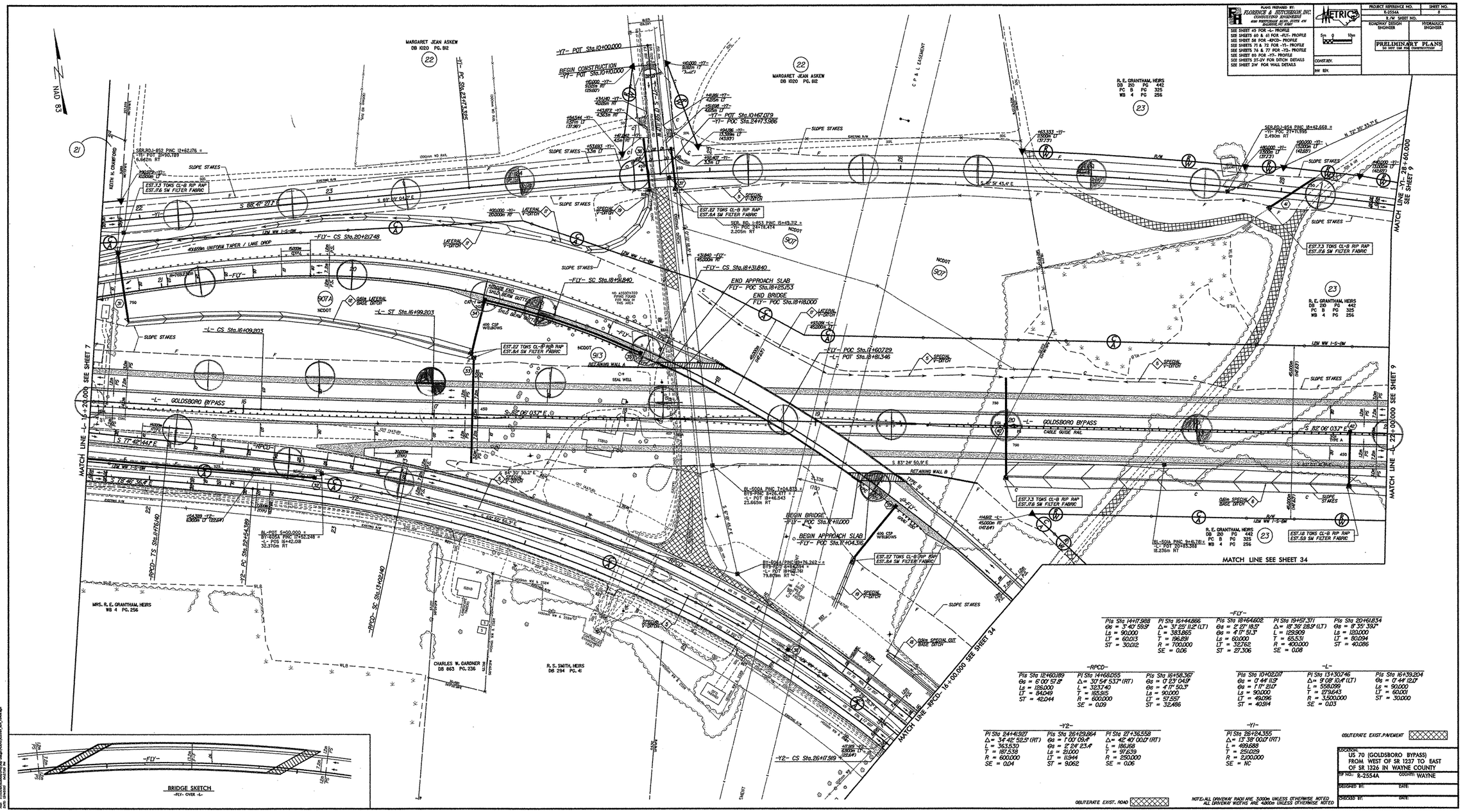
SEE SHEET 36 FOR -L- PROFILE
SEE SHEETS 50 & 51 FOR -FLY- PROFILE
SEE SHEET 47 FOR -RPCD- PROFILE
SEE SHEET 60 FOR -Y1- PROFILE
SEE SHEET 65 FOR -Y2- PROFILE

FILE: I:\r2554\roadway\Prel\Rdy Design\PLANS\R2554A_RDY_PSH07.dgn
DATE: 04282004 03:54:30 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
AND ASSOCIATES IN SERVICE FOR
METRIC ENGINEERS

PROJECT REFERENCE NO. R-2554A	R/W SHEET NO.	SHEET NO. 8
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
CONST.ENV.		
SW ENV.		

SEE SHEET 4A FOR -L- PROFILE
SEE SHEETS 60 & 61 FOR -ALY- PROFILE
SEE SHEET 58 FOR -RPCD- PROFILE
SEE SHEETS 71 & 72 FOR -Y1- PROFILE
SEE SHEETS 74 & 77 FOR -Y2- PROFILE
SEE SHEET 69 FOR -Y7- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 2W FOR WALL DETAILS



-FLY-

PIs Sta 14+17.988	PI Sta 16+44.866	PIs Sta 18+64.602	PI Sta 19+97.371	PIs Sta 20+61.834
Es = 3' 40' 59.9"	Δ = 31' 25' 11.2" (LT)	Es = 2' 27' 18.5"	Δ = 18' 36' 28.9" (LT)	Es = 8' 35' 39.7"
Ls = 90.000	L = 383.865	Es = 4' 17' 51.3"	L = 129.909	Ls = 120.000
LT = 60.013	T = 196.891	Ls = 60.000	T = 65.531	LT = 80.094
ST = 30.012	R = 700.000	LT = 32.762	R = 400.000	ST = 40.086
	SE = 0.06	ST = 27.306	SE = 0.08	

-RPCD-

PIs Sta 12+60.189	PI Sta 14+68.055	PIs Sta 16+58.367
Es = 6' 00' 51.2"	Δ = 30' 54' 53.7" (RT)	Es = 0' 23' 04.9"
Ls = 126.000	L = 323.740	Es = 4' 17' 50.3"
LT = 84.040	T = 165.915	Ls = 90.000
ST = 42.044	R = 600.000	LT = 57.557
	SE = 0.09	ST = 32.486

-L-

PIs Sta 10+02.017	PI Sta 13+30.746	PIs Sta 16+39.204
Es = 0' 44' 11.9"	Δ = 9' 08' 10.4" (LT)	Es = 0' 44' 12.0"
Es = 1' 17' 21.0"	L = 558.099	Ls = 90.000
Ls = 90.000	T = 279.643	LT = 60.001
LT = 49.096	R = 3,500.000	ST = 30.000
ST = 40.914	SE = 0.03	

-Y2-

PI Sta 24+41.927	PIs Sta 26+29.864	PI Sta 27+36.558
Δ = 34' 42' 52.5" (RT)	Es = 1' 00' 09.4"	Δ = 42' 40' 00.0" (RT)
L = 363.530	Es = 2' 24' 23.4"	L = 186.168
T = 187.538	Ls = 21.000	T = 97.639
R = 600.000	LT = 11.944	R = 250.000
SE = 0.04	ST = 9.062	SE = 0.06

-Y1-

PI Sta 26+24.355
Δ = 13' 38' 00.0" (RT)
L = 499.688
T = 251.029
R = 2,100.000
SE = NC

OBLITERATE EXIST.PAVEMENT

OBLITERATE EXIST. ROAD

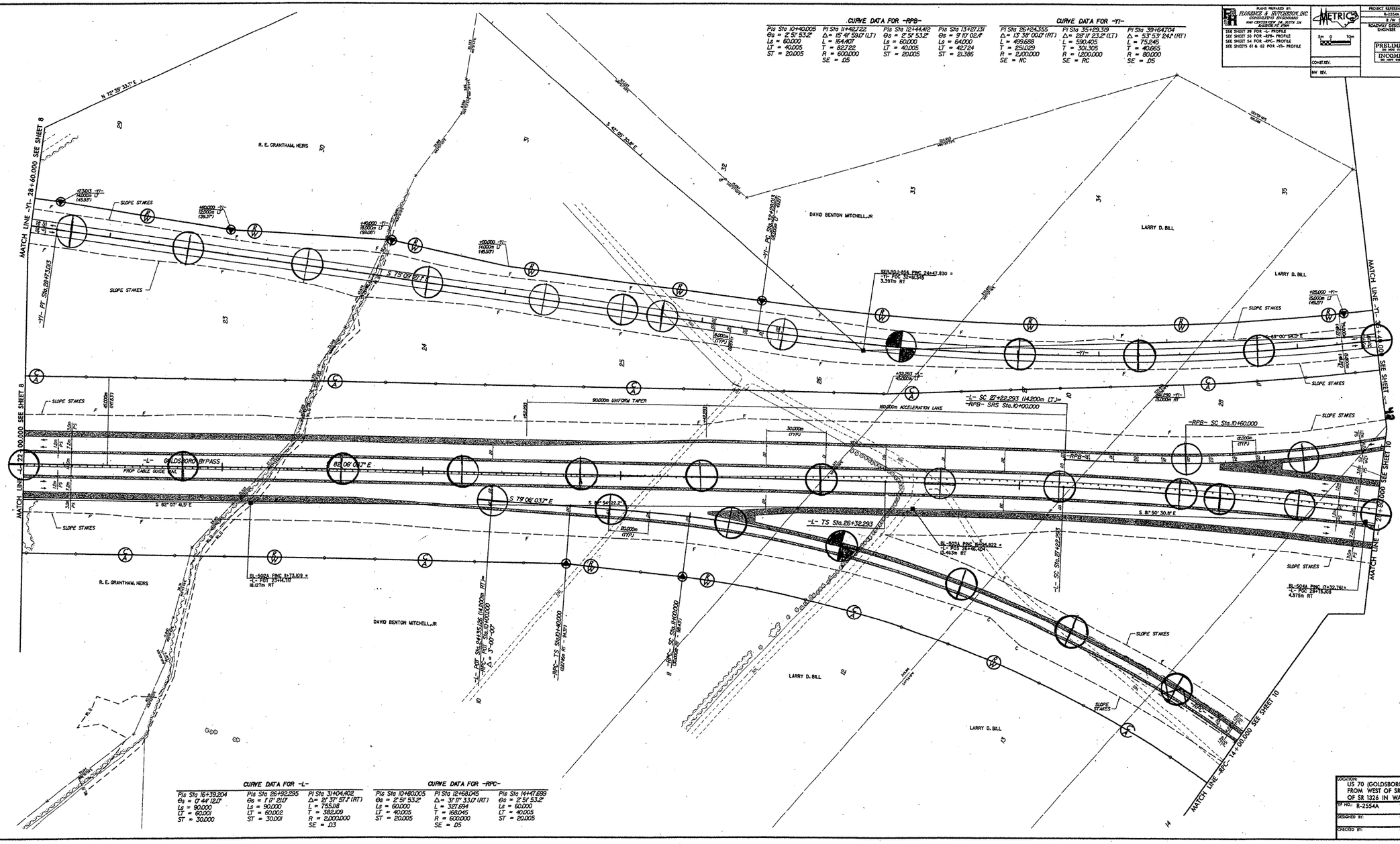
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF SR 1237 TO EAST OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:



CURVE DATA FOR -RPB-

Pls Sta 10+40.005	Pl Sta 11+42.722	Pls Sta 12+44.412	Pls Sta 13+27.131
Θs = 2° 51' 53.2"	Δ = 15° 41' 59.0" (LT)	Θs = 2° 51' 53.2"	Θs = 9° 10' 02.4"
Ls = 60.000	L = 164.407	Ls = 60.000	Ls = 64.000
LT = 40.005	T = 82.722	LT = 40.005	LT = 42.724
ST = 20.005	R = 600.000	ST = 20.005	ST = 21.386
	SE = .05		

CURVE DATA FOR -Y1-

Pl Sta 26+24.355	Pl Sta 35+29.319	Pl Sta 39+64.704
Δ = 13° 38' 00.0" (RT)	Δ = 28° 11' 23.2" (LT)	Δ = 53° 53' 24.1" (RT)
L = 499.688	L = 590.405	L = 75.245
T = 251.029	T = 301.305	T = 40.665
R = 2,100.000	R = 1,200.000	R = 80.000
SE = NC	SE = RC	SE = .05

CURVE DATA FOR -L-

Pls Sta 16+39.204	Pls Sta 26+92.295	Pl Sta 31+04.402
Θs = 0° 44' 12.0"	Θs = 1° 17' 21.0"	Δ = 21° 37' 57.1" (RT)
Ls = 90.000	Ls = 90.000	L = 755.118
LT = 60.001	LT = 60.002	T = 382.109
ST = 30.000	ST = 30.001	R = 2,000.000
		SE = .03

CURVE DATA FOR -RPC-

Pls Sta 10+80.005	Pl Sta 12+68.045	Pls Sta 14+47.699
Θs = 2° 51' 53.2"	Δ = 31° 17' 33.0" (RT)	Θs = 2° 51' 53.2"
Ls = 60.000	L = 327.694	Ls = 60.000
LT = 40.005	T = 168.045	LT = 40.005
ST = 20.005	R = 600.000	ST = 20.005
	SE = .05	

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
AND CONTENTS OF DIVISION 24
RALEIGH, NC 27606

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 53 FOR -RPB- PROFILE
SEE SHEET 54 FOR -RPC- PROFILE
SEE SHEETS 61 & 62 FOR -Y1- PROFILE

METRIC

5m 0 10m

CONST. REV.
BW REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

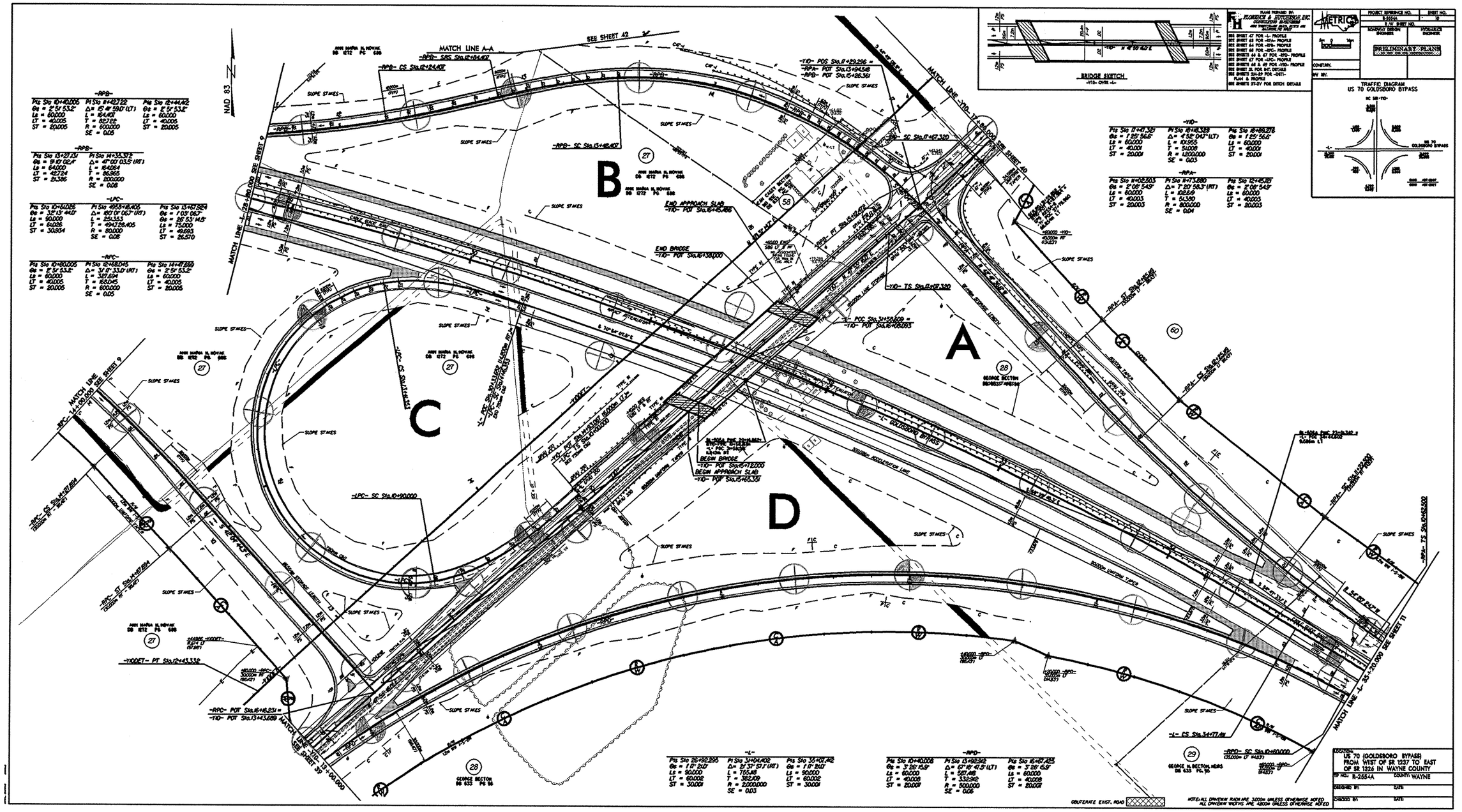
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:


NAD 83
MATCH LINE A-A
SEE SHEET 42
SEE SHEET 40
SEE SHEET 9
SEE SHEET 37
SEE SHEET 11
MATCH LINE -L- 85+20.000
A
B
C
D
-RPB-
Pts Sta 10+40.005
θs = 2° 5' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005
Pt Sta 11+42.722
Δ= 15° 18' 59.0" (LT)
L = 154.401
T = 82.722
R = 600.000
SE = 0.05
Pts Sta 12+44.462
θs = 2° 5' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005
-RPB-
Pts Sta 13+27.134
θs = 9° 01' 02.4"
Ls = 64.004
LT = 42.724
ST = 21.386
Pt Sta 14+35.372
Δ= 47° 07' 03.5" (RT)
L = 164.004
T = 86.965
R = 200.000
SE = 0.08
-LPC-
Pts Sta 10+60.005
θs = 3° 2' 13" 44.0"
Ls = 90.000
LT = 60.005
ST = 30.004
Pt Sta 11+58.405
Δ= 150° 01' 06.7" (RT)
L = 254.353
T = 494.128.405
R = 80.000
SE = 0.08
Pts Sta 13+07.924
θs = 1° 03' 06.7"
θs = 26° 53' 14.5"
Ls = 75.000
LT = 49.893
ST = 26.570
-RPC-
Pts Sta 10+60.005
θs = 2° 5' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005
Pt Sta 12+68.045
Δ= 31° 11' 33.0" (RT)
L = 327.694
T = 168.045
R = 600.000
SE = 0.05
Pts Sta 14+47.699
θs = 2° 5' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005
-RPA-
Pts Sta 11+41.321
θs = 1° 25' 56.6"
Ls = 60.000
LT = 40.001
ST = 20.001
Pt Sta 18+18.339
Δ= 4° 58' 04.7" (LT)
L = 101.955
T = 51.008
R = 1,200.000
SE = 0.03
Pts Sta 19+86.276
θs = 1° 25' 56.6"
Ls = 60.000
LT = 40.001
ST = 20.001
-RPA-
Pts Sta 11+08.203
θs = 2° 08' 54.9"
Ls = 60.000
LT = 40.003
ST = 20.003
Pt Sta 17+73.880
Δ= 7° 20' 58.3" (RT)
L = 102.669
T = 51.380
R = 800.000
SE = 0.04
Pts Sta 12+41.381
θs = 2° 08' 54.9"
Ls = 60.000
LT = 40.003
ST = 20.003
-L-
Pts Sta 26+92.295
θs = 1° 11' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001
Pt Sta 34+04.402
Δ= 21° 31' 51.1" (RT)
L = 765.148
T = 382.109
R = 2,000.000
SE = 0.03
Pts Sta 35+07.412
θs = 1° 11' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001
-RPD-
Pts Sta 10+40.008
θs = 3° 26' 15.9"
Ls = 60.000
LT = 40.008
ST = 20.001
Pt Sta 13+52.512
Δ= 67° 16' 47.5" (LT)
L = 587.416
T = 332.912
R = 500.000
SE = 0.06
Pts Sta 15+87.425
θs = 3° 26' 15.9"
Ls = 60.000
LT = 40.008
ST = 20.001
-RPD- SC Sta.10+60.000
(35.000= LT #4837)
-RPD- PT Sta.12+43.332
-110DET- PT Sta.12+43.332
-RPC- POT Sta.16+16.231 =
-110- POT Sta.13+43.689
-110- POS Sta.11+29.296 =
-RPA- POT Sta.13+94.548
-RPB- POT Sta.15+26.361
-RPB- SC Sta.13+48.407
-RPB- CS Sta.12+24.407
-RPB- SRS Sta.12+84.407
-110- SC Sta.17+47.320
-110- TS Sta.17+07.320
END APPROACH SLAB
-110- POT Sta.16+42.486
END BRIDGE
-110- POT Sta.16+38.000
BEGIN BRIDGE
-110- POT Sta.15+72.000
BEGIN APPROACH SLAB
-110- POT Sta.15+68.331
-LPC- SC Sta.10+90.000
-RPC- CS Sta.14+27.924
-RPC- ST Sta.14+67.924
-RPA- ST Sta.12+54.548
-RPA- CS Sta.10+52.548
-RPA- SC Sta.11+52.548
-RPA- TS Sta.10+52.548
-L- CS Sta.34+77.414
-L- GOLDSBORO BYPASS
BRIDGE SKETCH
-110- OVER -L-
TRAFFIC DIAGRAM
US 70 GOLDSBORO BYPASS
NC 58-110-
US 70 GOLDSBORO BYPASS
OBJECTIVE EXIST. ROAD
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 7.000m UNLESS OTHERWISE NOTED
PROJECT REFERENCE NO. R-2554A
SHEET NO. 19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DESCRIPTION
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST OF SR 1326 IN WAYNE COUNTY
TIP NO. R-2554A
COUNTY WAYNE
DESIGNED BY:
DATE:
CHECKED BY:
DATE:

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	11
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

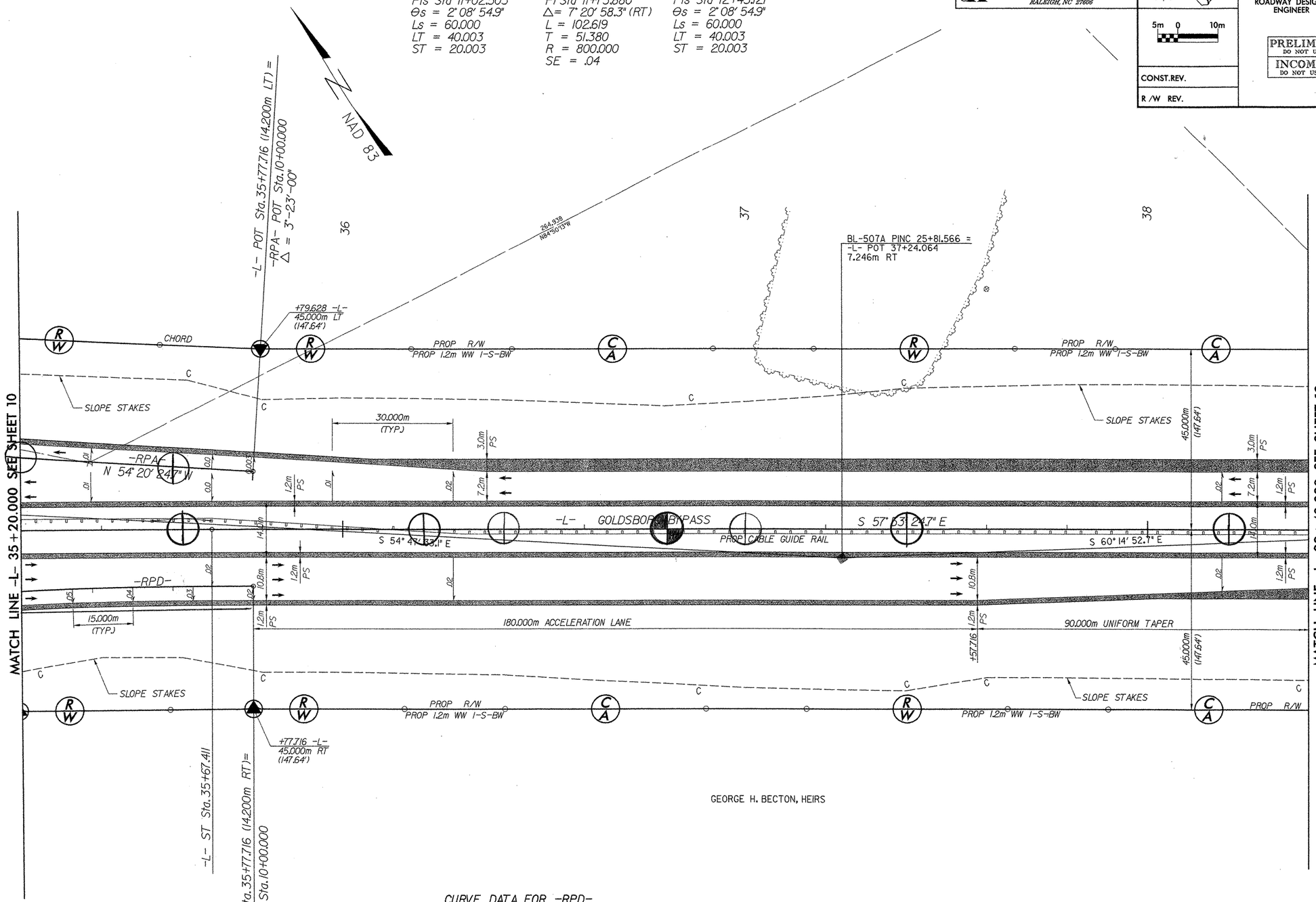
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

CURVE DATA FOR -RPA-

PIs Sta 11+02.503	PI Sta 11+73.880	PIs Sta 12+45.121
Θs = 2° 08' 54.9"	Δ= 7° 20' 58.3" (RT)	Θs = 2° 08' 54.9"
Ls = 60.000	L = 102.619	Ls = 60.000
LT = 40.003	T = 51.380	LT = 40.003
ST = 20.003	R = 800.000	ST = 20.003
	SE = .04	



CURVE DATA FOR -RPD-

PIs Sta 10+40.008	PI Sta 13+92.912	PIs Sta 16+67.425
Θs = 3° 26' 15.9"	Δ= 67° 18' 47.5" (LT)	Θs = 3° 26' 15.9"
Ls = 60.000	L = 587.418	Ls = 60.000
LT = 40.008	T = 332.912	LT = 40.008
ST = 20.007	R = 500.000	ST = 20.007
	SE = .06	

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 52 FOR -RPA- PROFILE
SEE SHEET 55 FOR -RPD- PROFILE

FILE: t:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_SH11.dgn
DATE: 04/28/2004 03:10:34 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

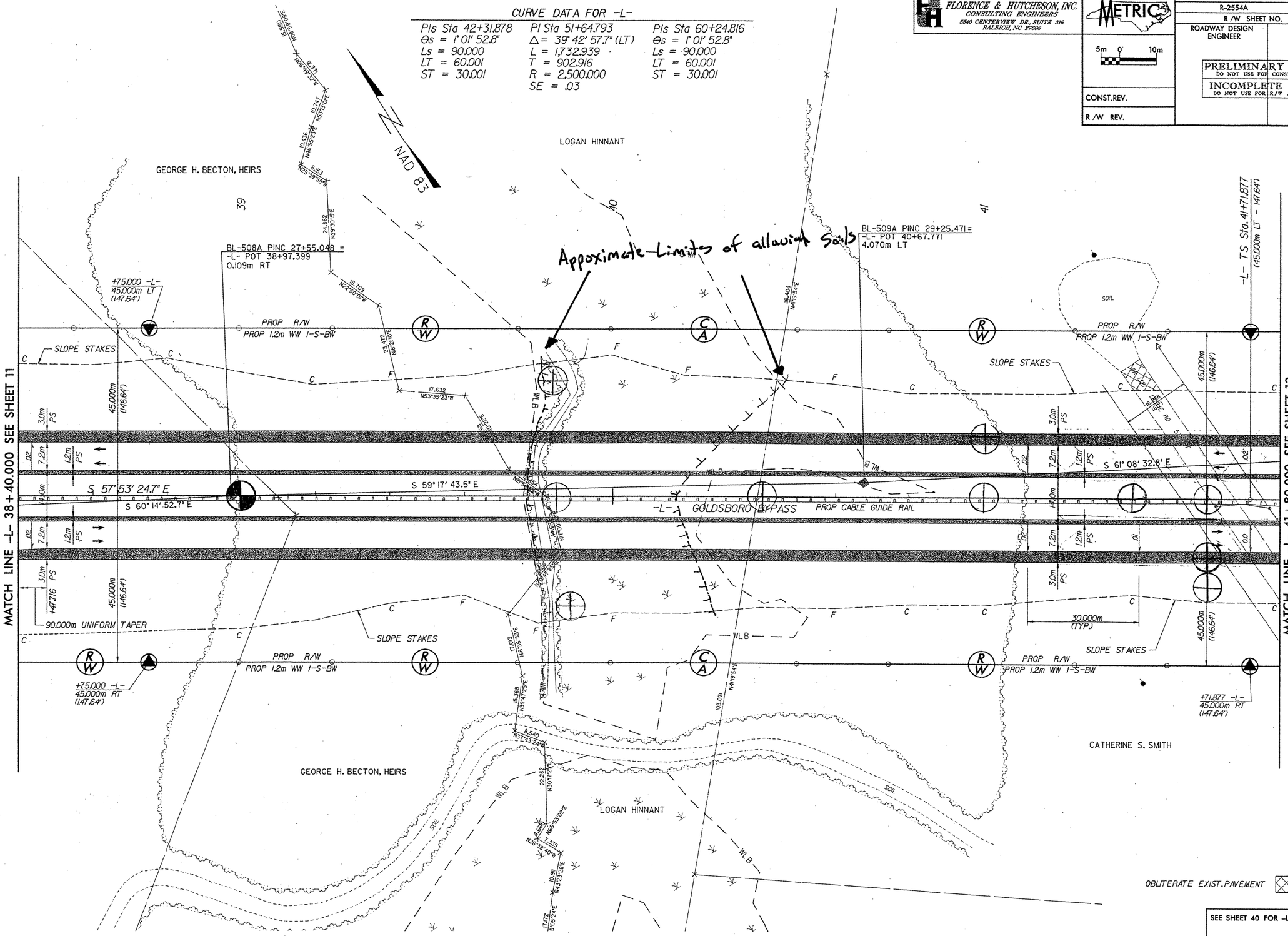
CONST.REV.

R/W REV.

5m 0 10m

CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	



SEE SHEET 40 FOR -L- PROFILE

FILE: I:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH12.dgn
DATE: 04/29/2004 04:30:24 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5m 0 10m

CONST.REV.

R /W REV.

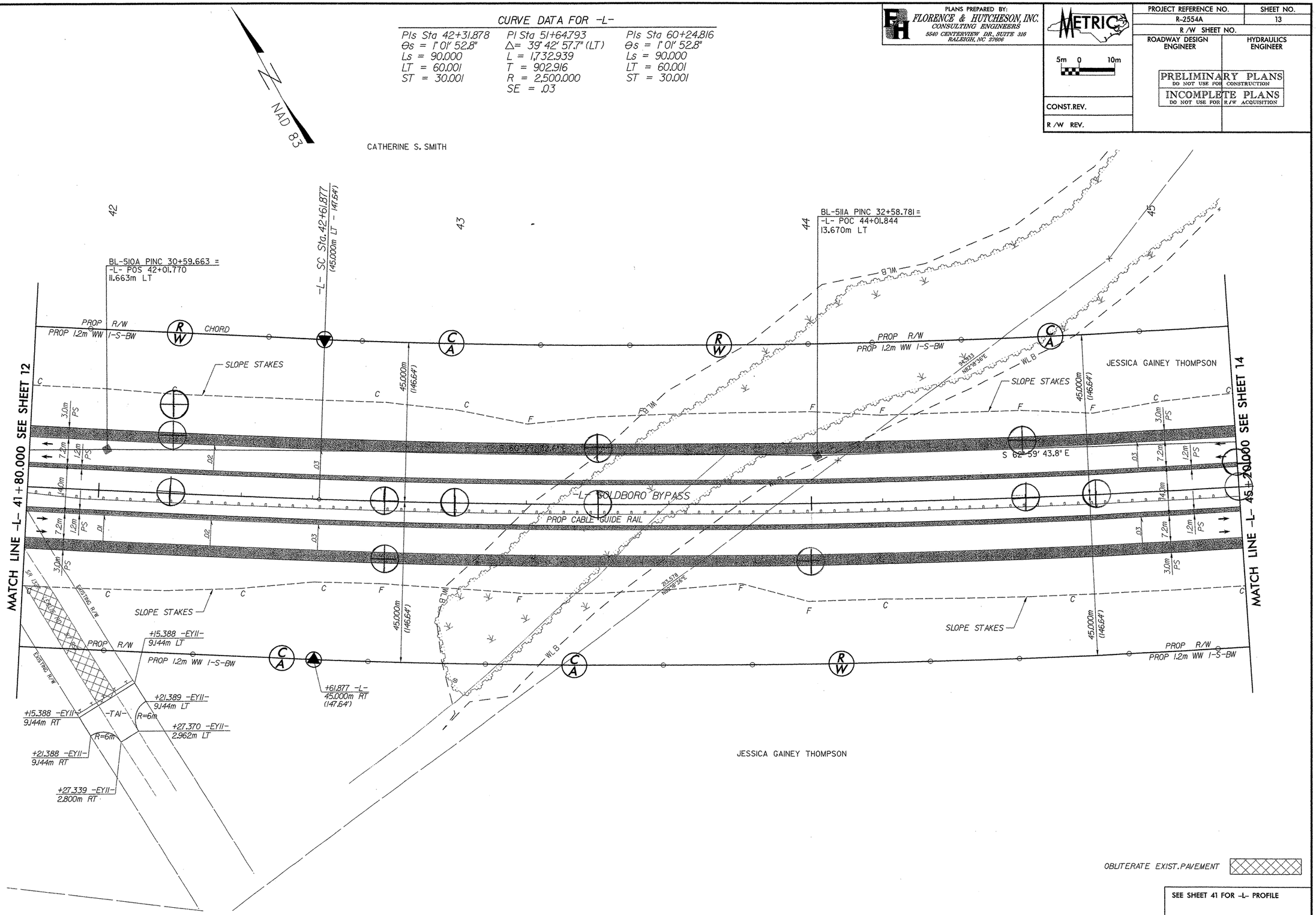
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	13
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	



SEE SHEET 41 FOR -L- PROFILE

FILE: I:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH13.dgn
DATE: 04282004 04:44:28 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	14
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

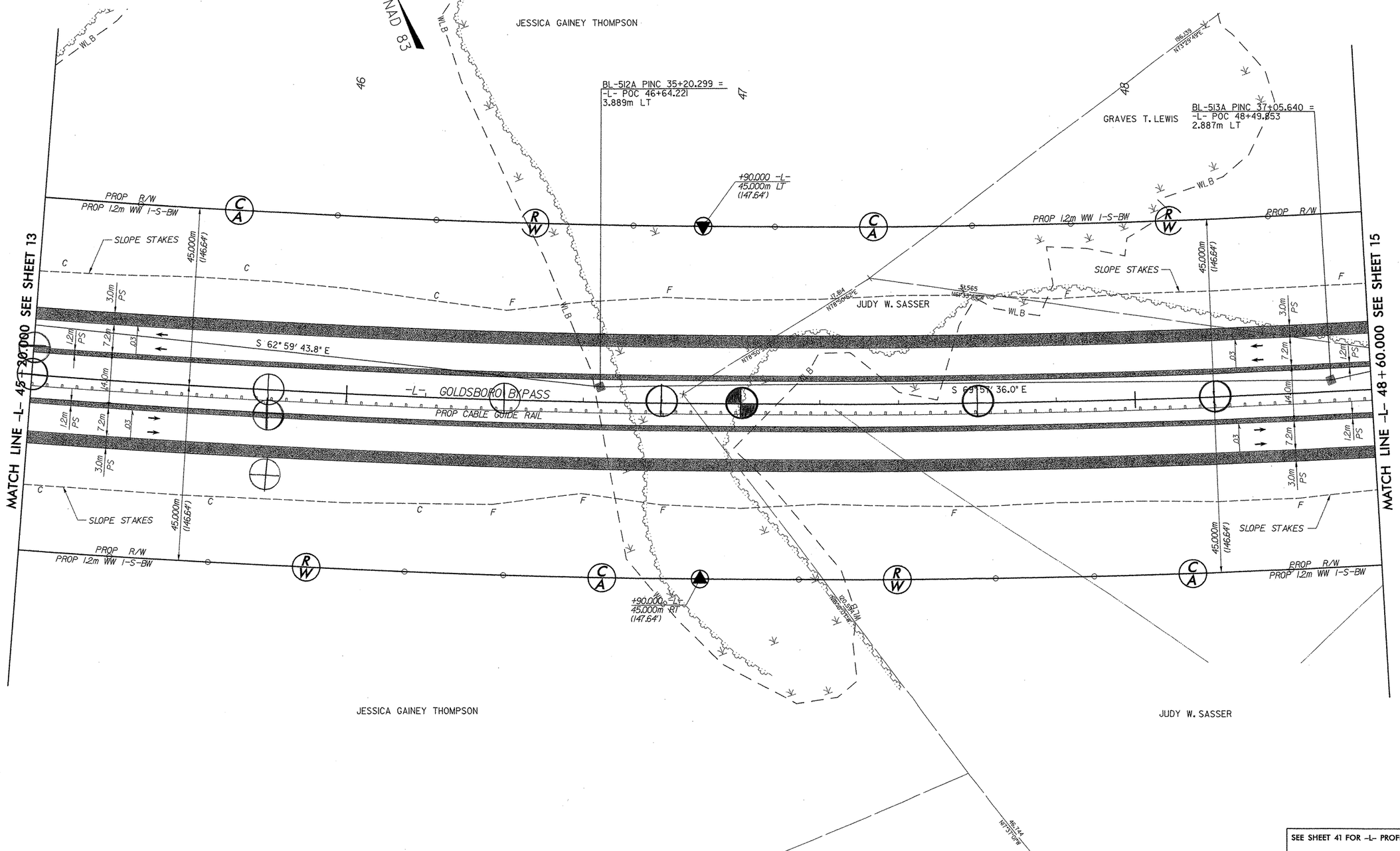
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	



SEE SHEET 41 FOR -L- PROFILE

FILE: f:\r2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH14.dgn
DATE: 04/28/2004 04:46:36 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

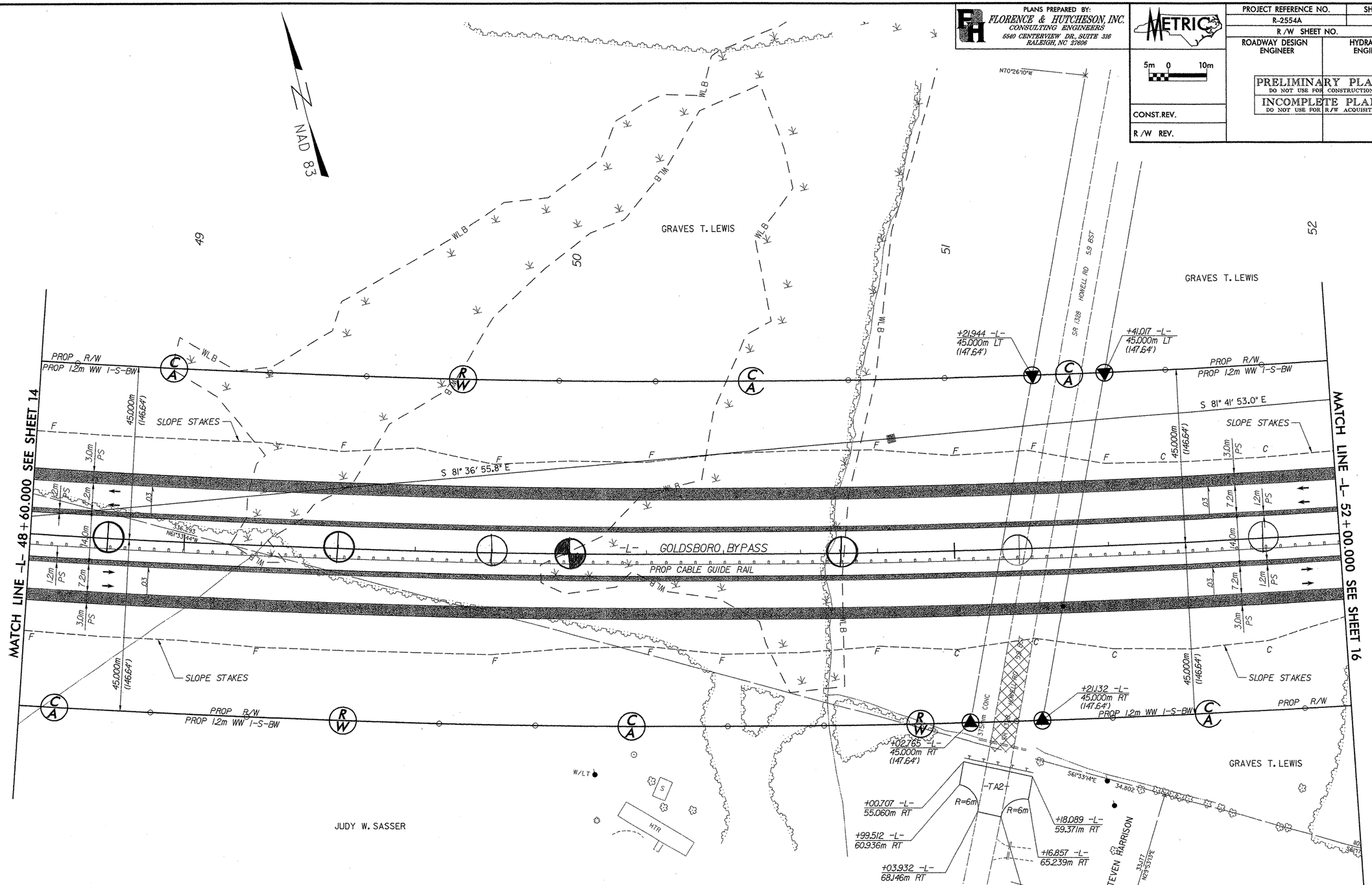
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

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

CONST.REV.

R/W REV.



CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	

SEE SHEET 42 FOR -L- PROFILE

FILE: I:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH15.dgn
DATE: 04282004 04:47:38 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

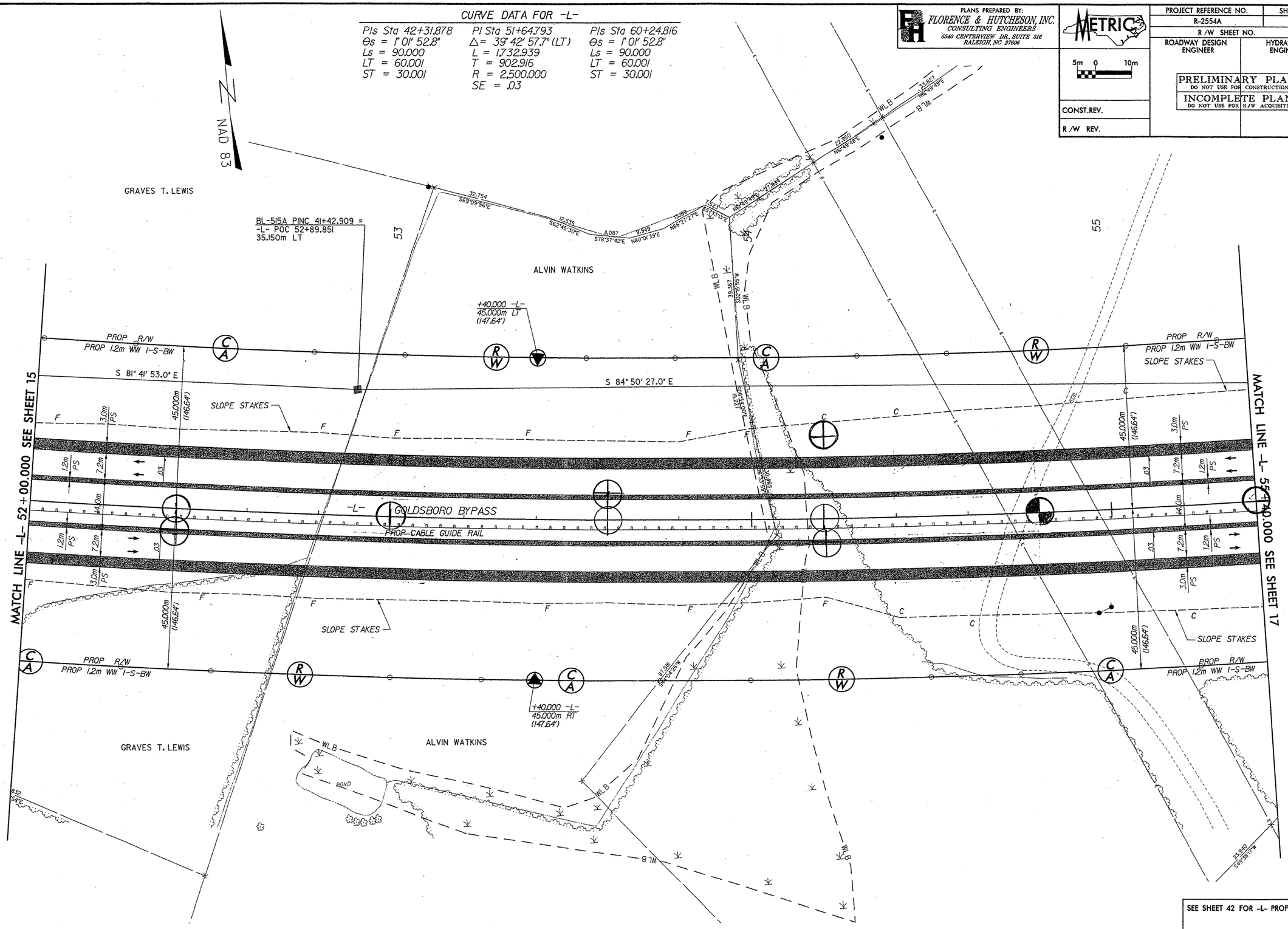
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	



SEE SHEET 42 FOR -L- PROFILE

FILE: I:\r2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH16.dgn
DATE: 04/29/2014 04:48:55 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

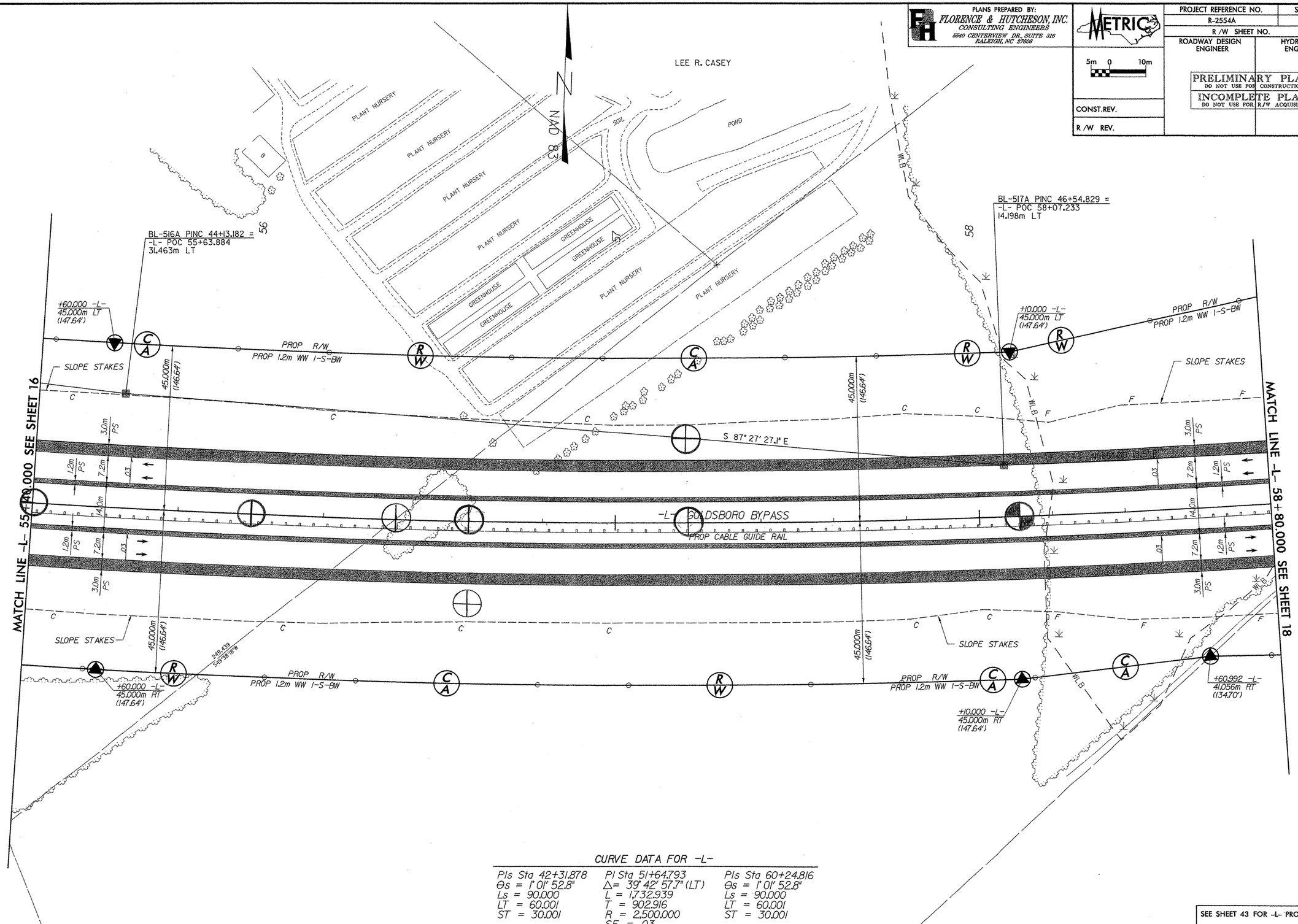
METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	17
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R /W REV.



CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	

SEE SHEET 43 FOR -L- PROFILE

FILE: r:\r2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PLN17.dgn
DATE: 04/29/2004 04:58:38 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5640 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	18
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

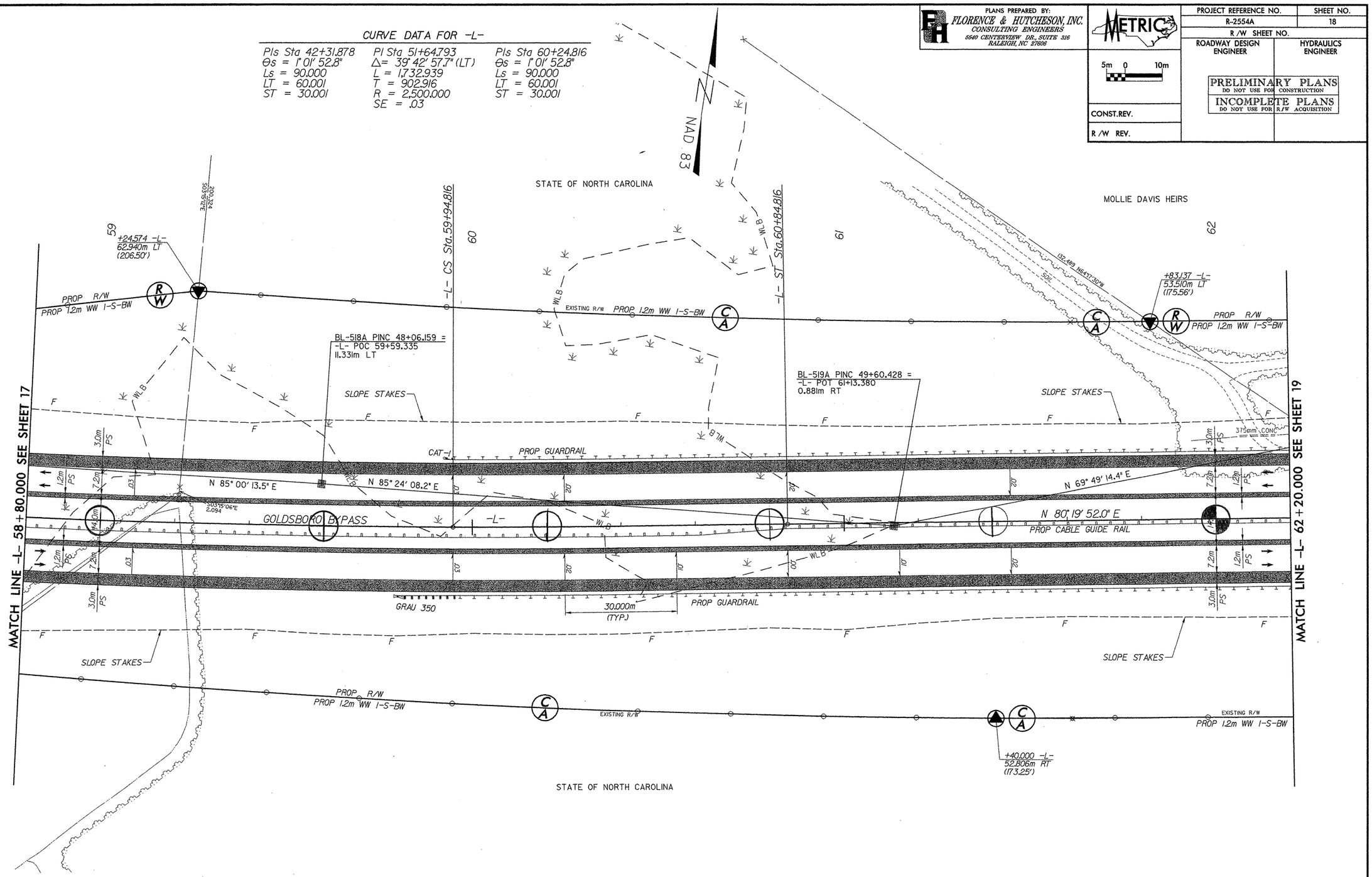
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

CURVE DATA FOR -L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.816
Θs = 1° 01' 52.8"	Δ= 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = .03	



SEE SHEET 43 FOR -L- PROFILE

FILE: t:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH18.dgn
DATE: 04/28/2004 04:51:40 PM

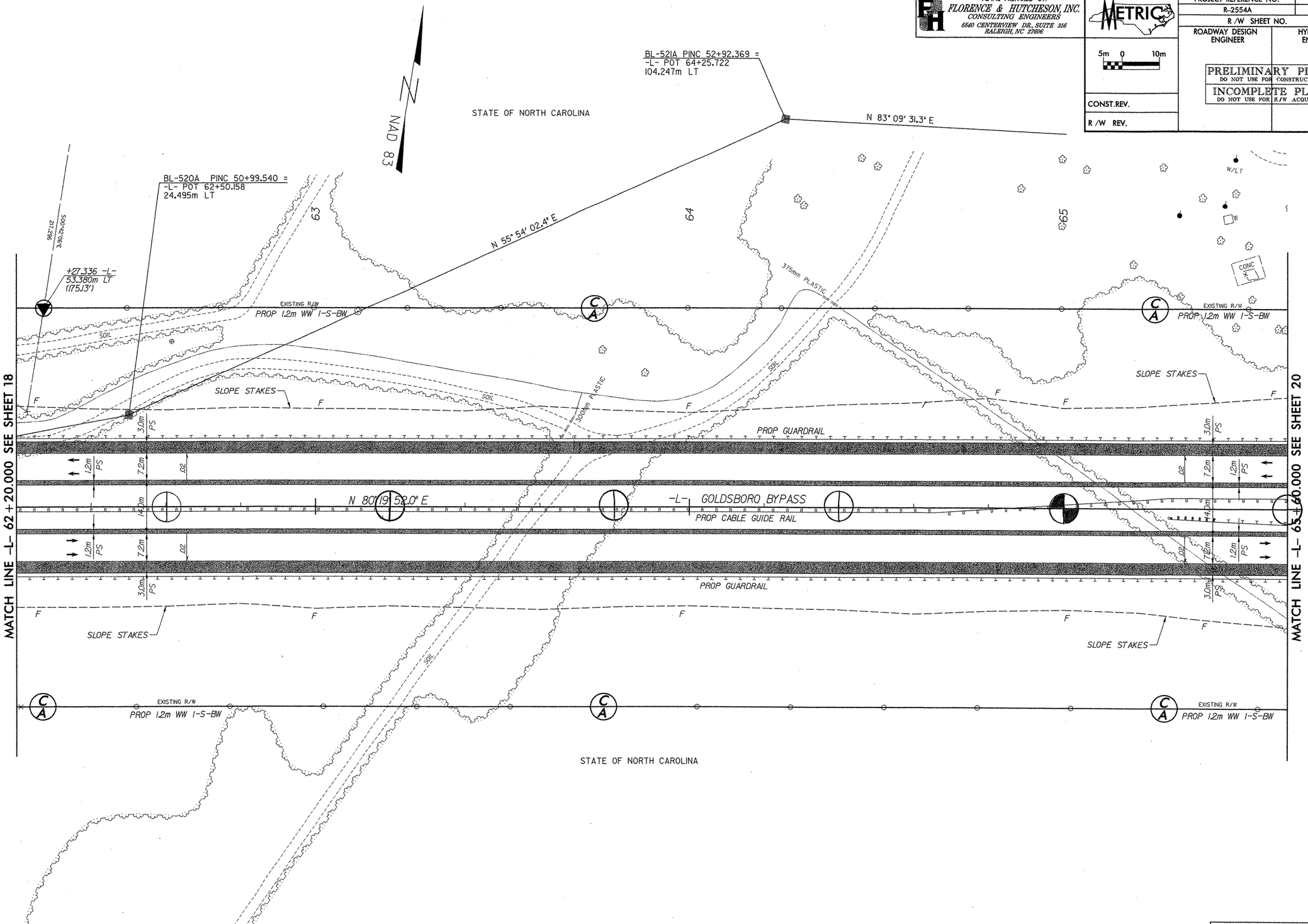
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	19
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R /W REV.



SEE SHEET 44 FOR -L- PROFILE

FILE: R:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH19.dgn
DATE: 04/28/2004 04:55:53 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

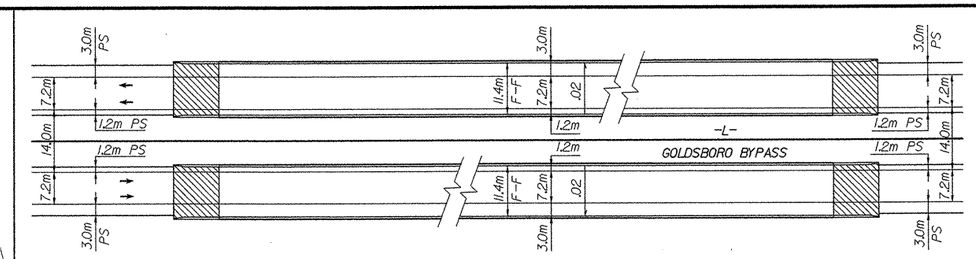
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

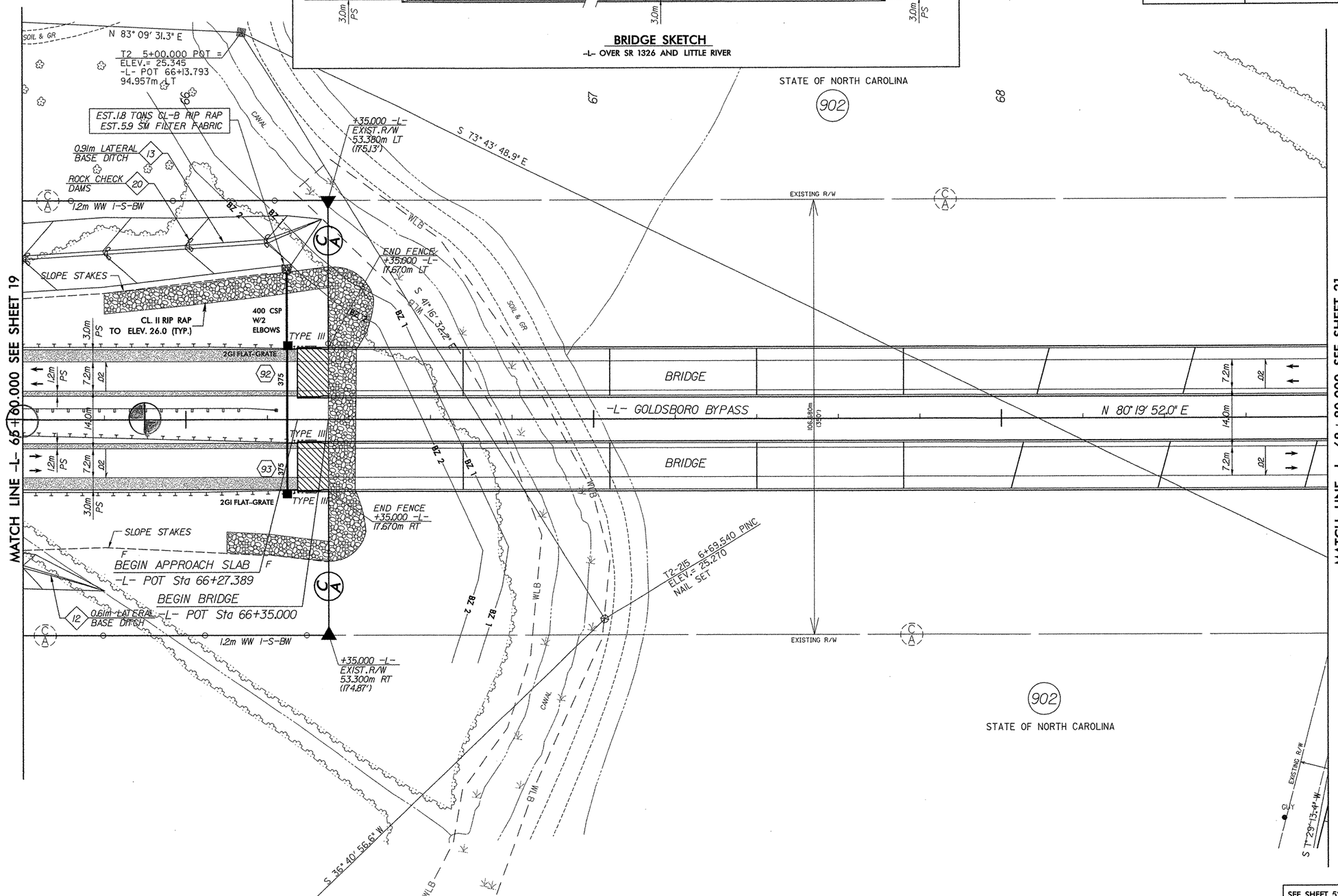
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 52 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: n:\2554a\Roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH20.dgn
DATE: 12/14/2005 03:16:24 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

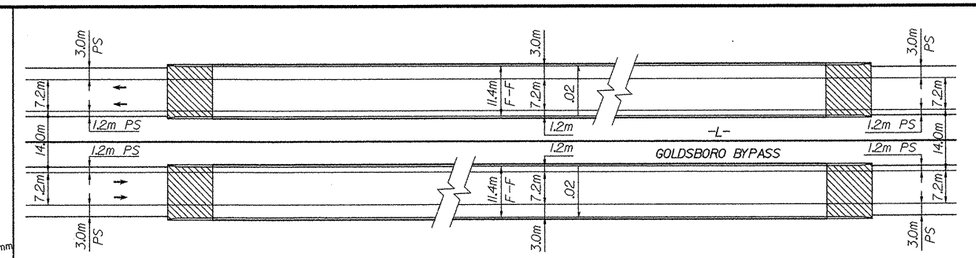
METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	21
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

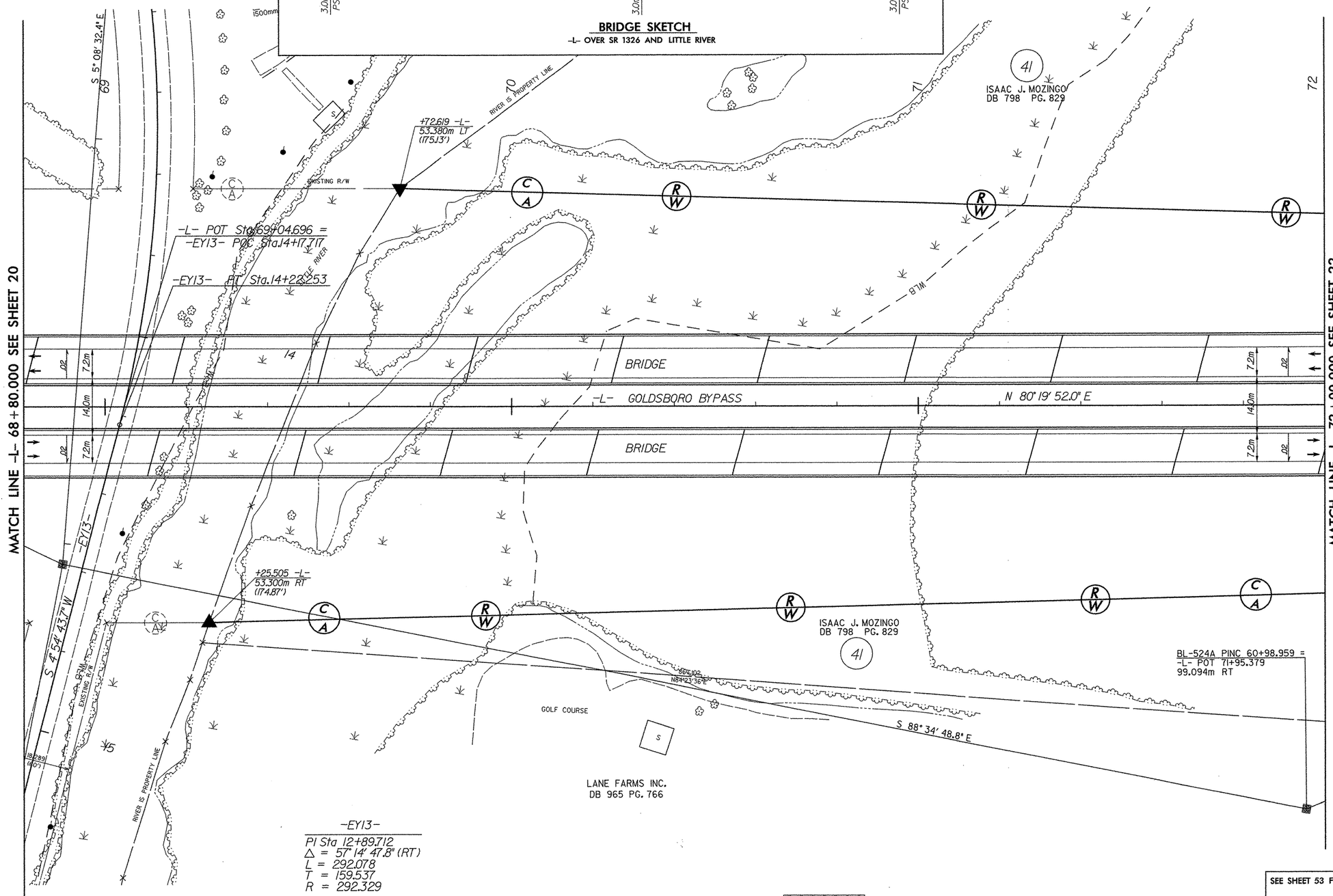
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE

FILE: $FILE$
DATE: $DATE$ $TIME$

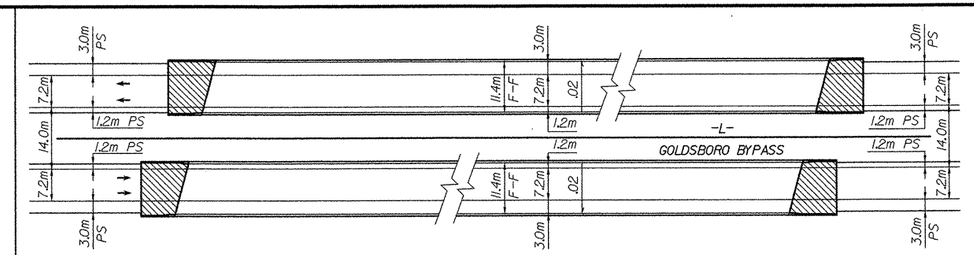
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

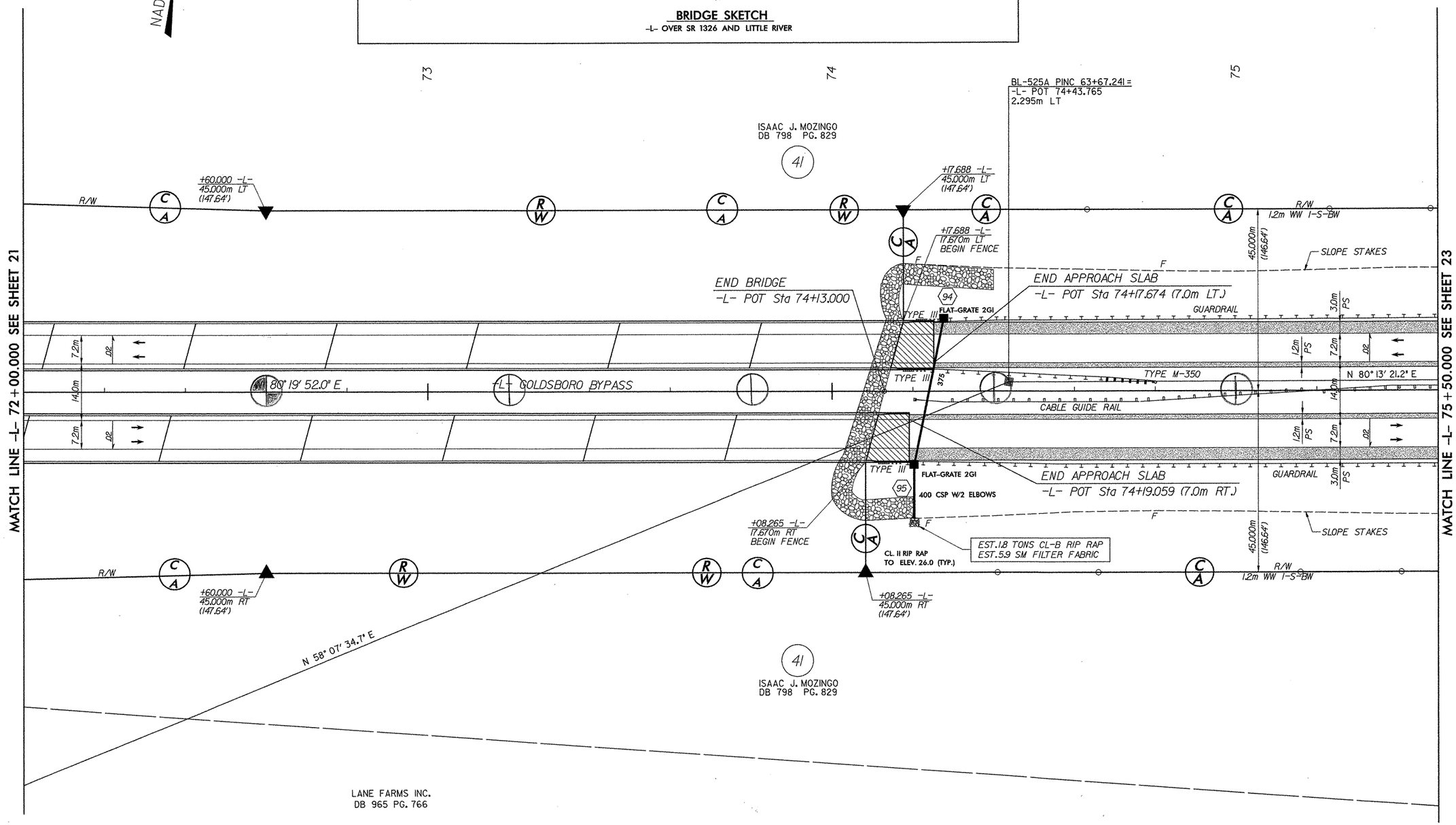
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES
DATE: $DATES $TIMES

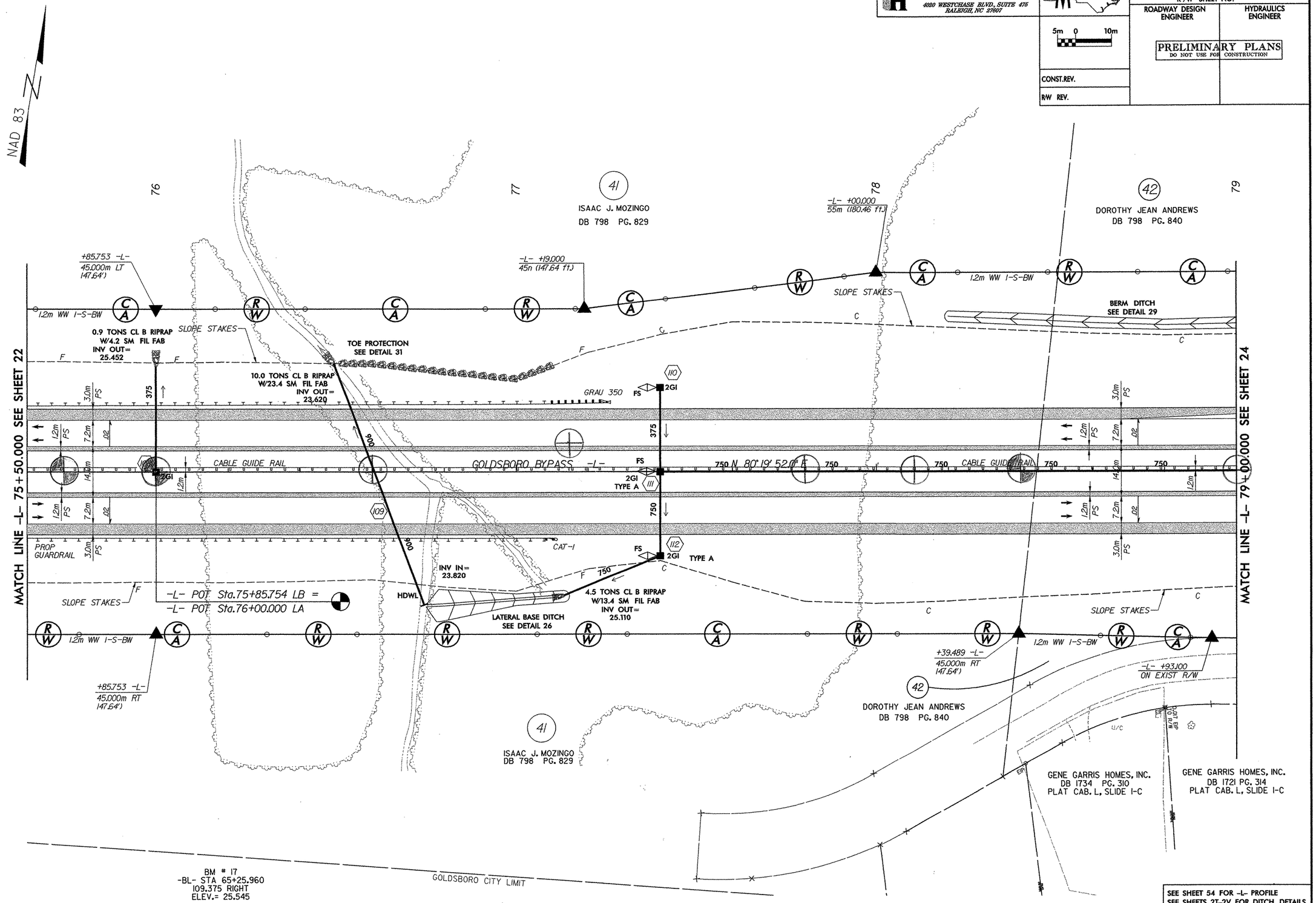
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 54 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: r:\2554a\roadway\proj\rdy design\plans\R2554A_RDY_RSH23.dgn
DATE: 12/14/2005 09:58:32 AM

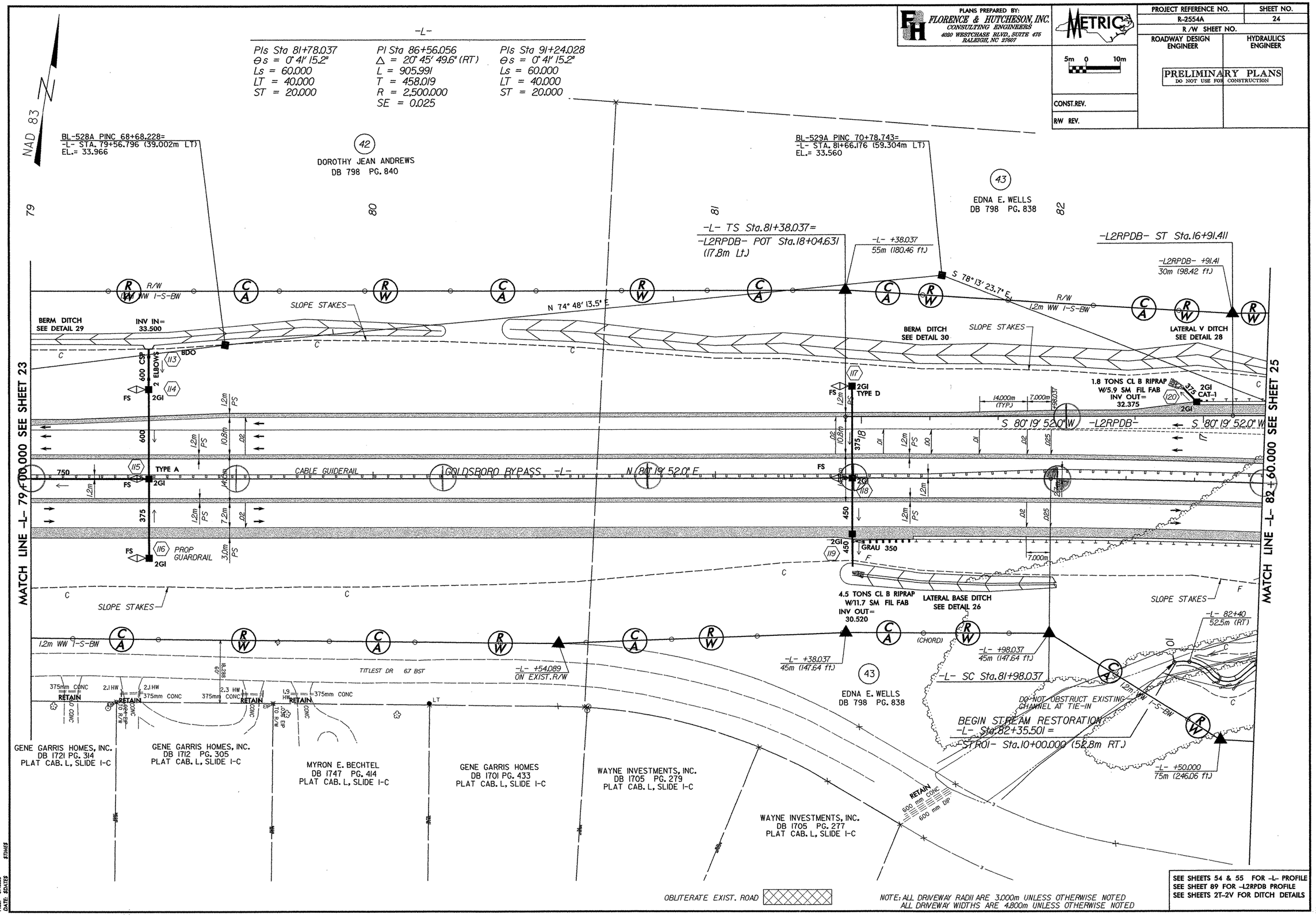
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 54 & 55 FOR -L- PROFILE
SEE SHEET 89 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$ $TIME$

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 476
RALEIGH, NC 27607

METRIC

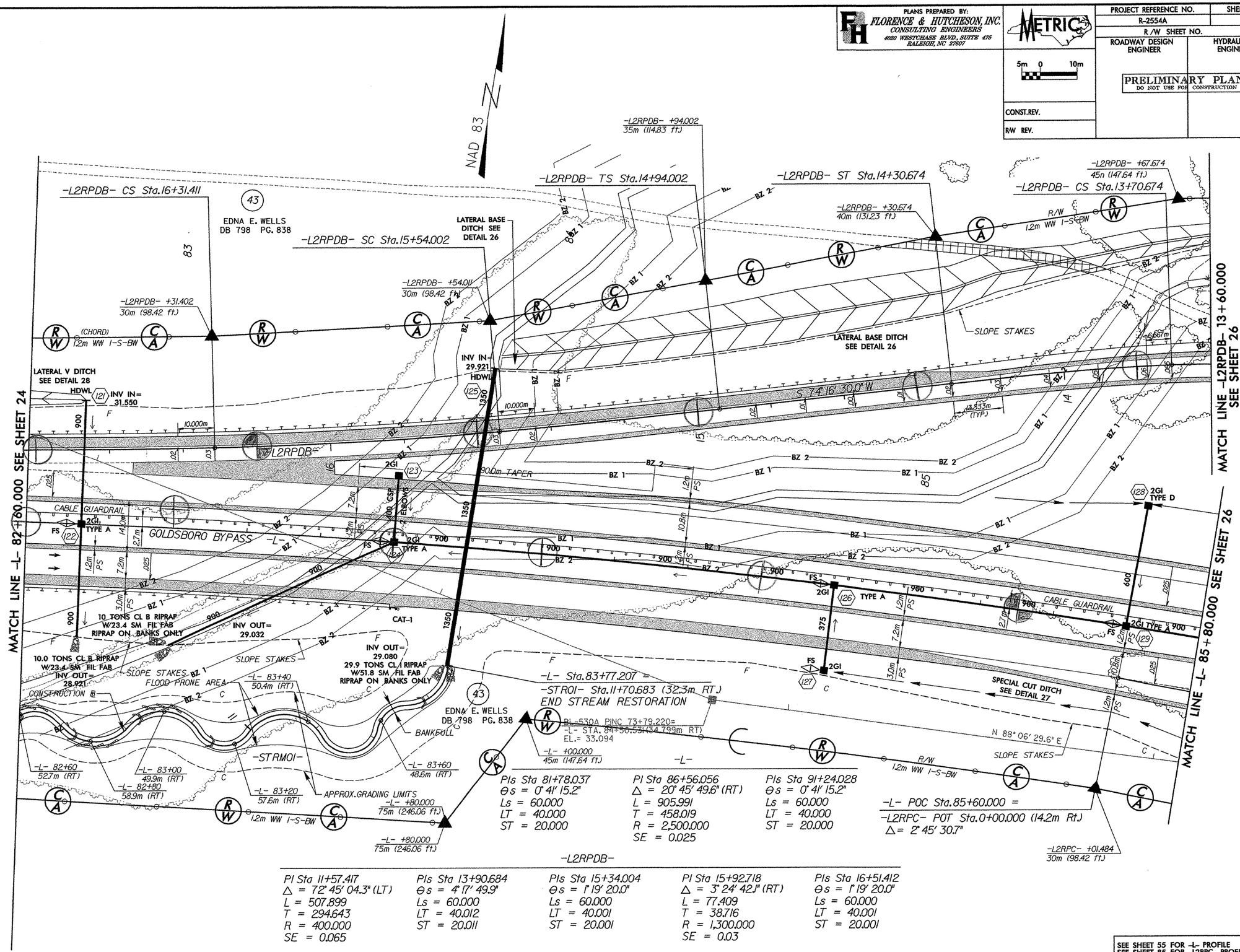
5m 0 10m

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 55 FOR -L- PROFILE
SEE SHEET 85 FOR -L2RPC- PROFILE
SEE SHEETS 88 & 89 FOR -L2RPDB- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: r:\2554\roadway\proj\Rdy Design\PLANS\R2554A_RDY_PR\25.dgn
DATE: 12/14/2005 10:16:22 AM

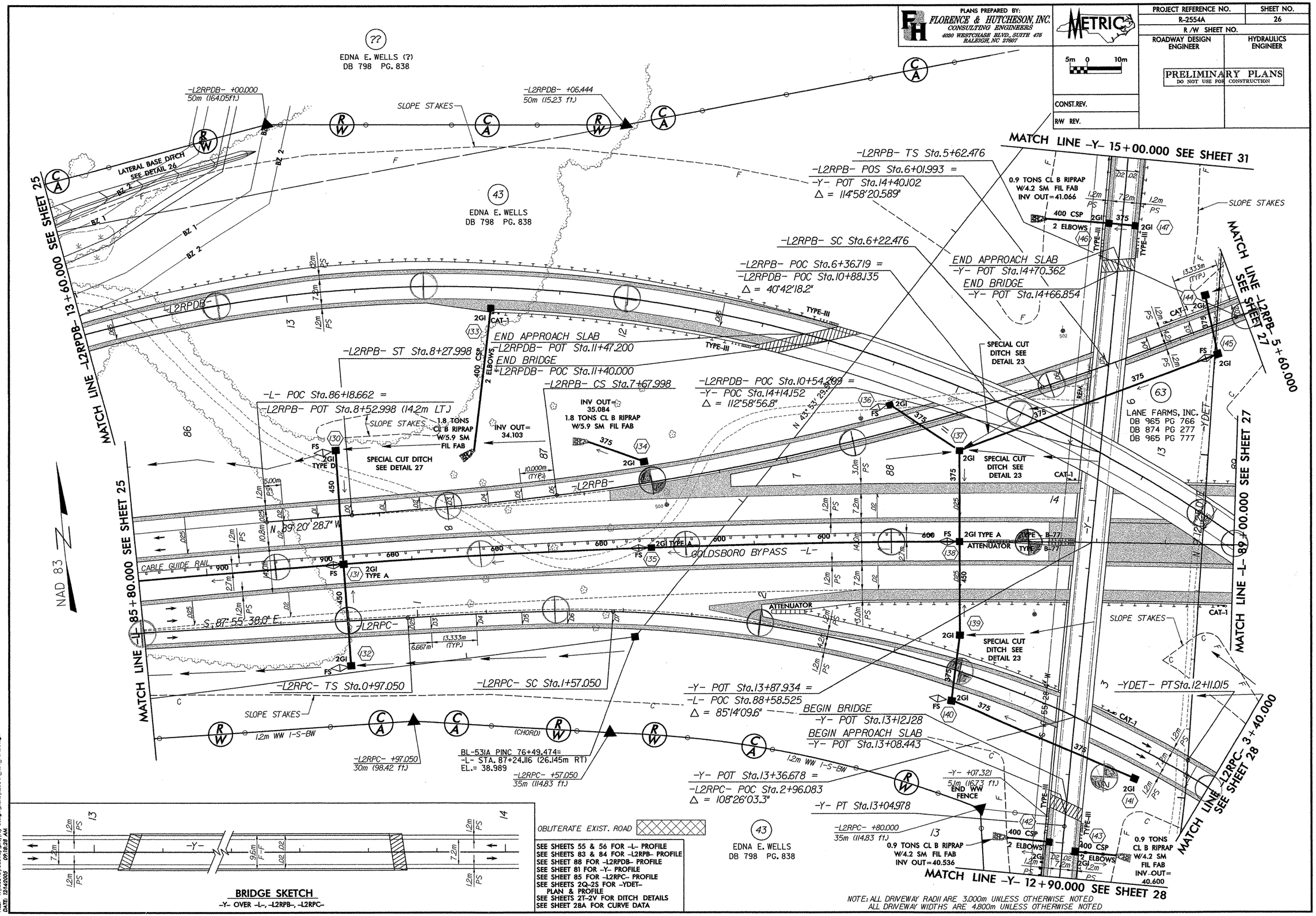
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4030 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



BRIDGE SKETCH
-Y- OVER -L-, -L2RPB-, -L2RPC-

OBLITERATE EXIST. ROAD

SEE SHEETS 55 & 56 FOR -L- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPB- PROFILE
SEE SHEET 88 FOR -L2RPDB- PROFILE
SEE SHEET 81 FOR -Y- PROFILE
SEE SHEET 85 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

FILE: r:\2554a\roadway\proj\rdy-design\plans\R2554A_RDY_PS026.dgn
DATE: 12/14/2005 09:18:28 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
3000 WINSTON ROAD, SUITE 170
RALEIGH, NC 27610

METRIC

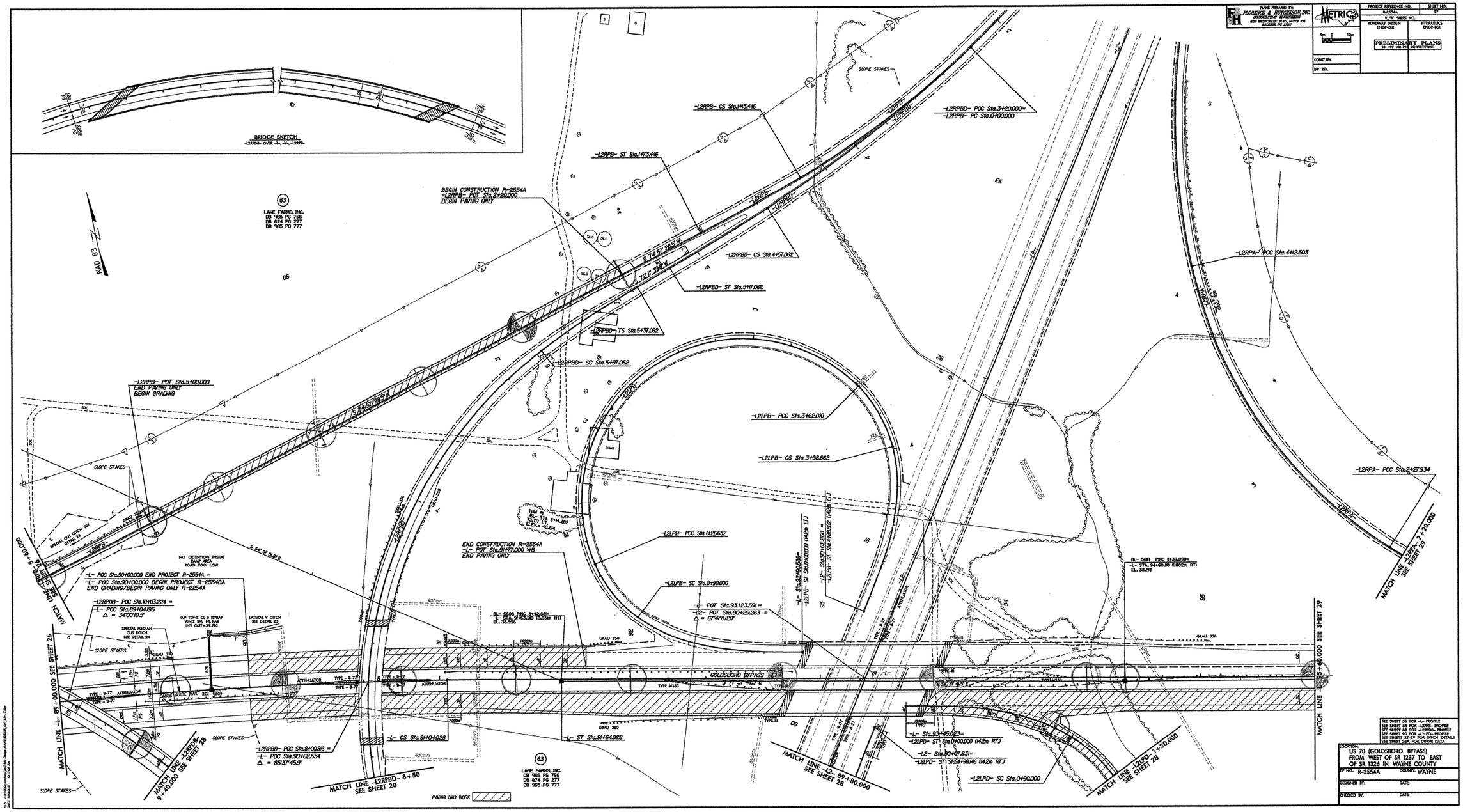
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONSTR. ENG.

R/W ENG.



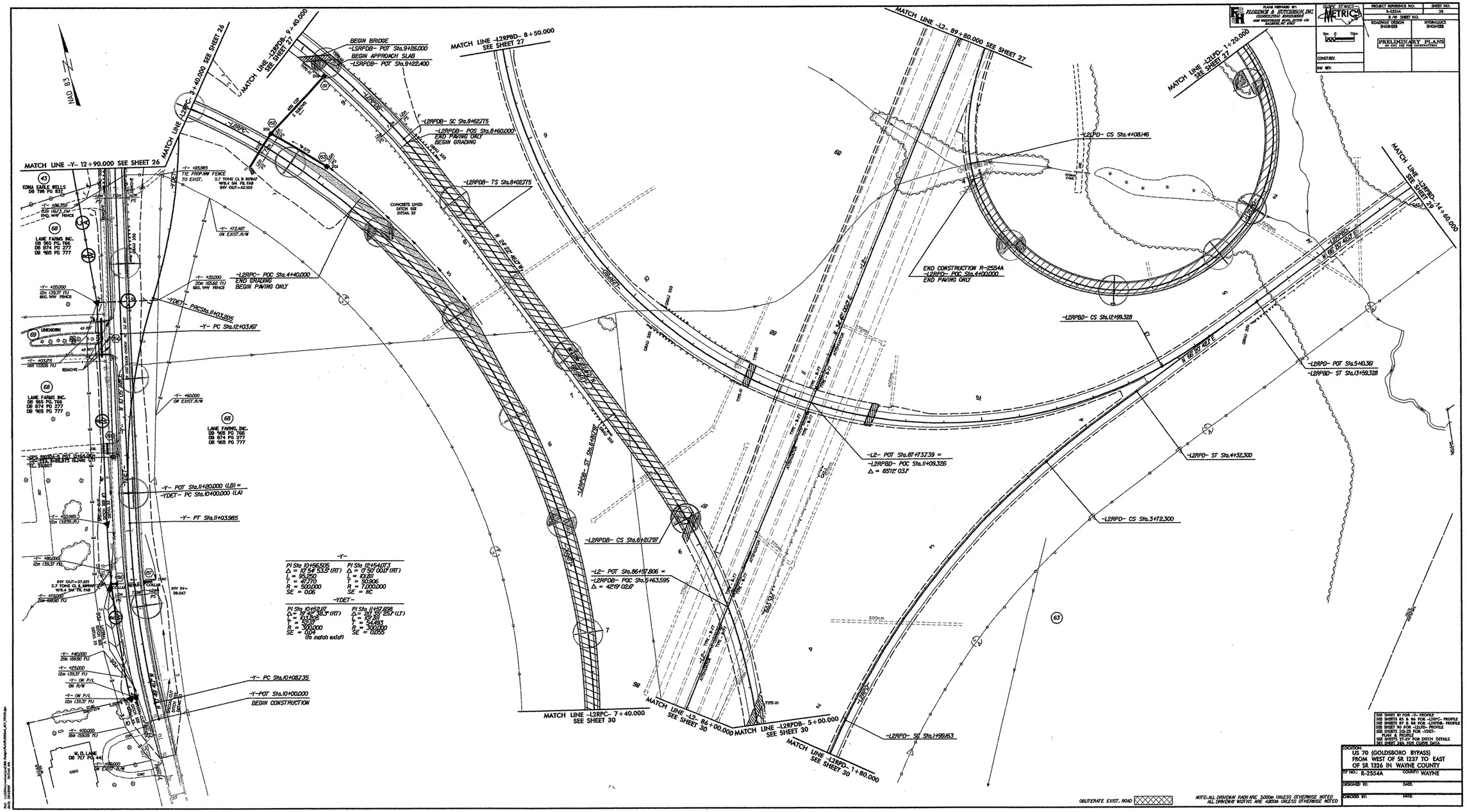
SEE SHEET 34 FOR -L- PROFILE
SEE SHEET 83 FOR -L2RPB- PROFILE
SEE SHEET 88 FOR -L2RPDA- PROFILE
SEE SHEET 90 FOR -L2LPB- PROFILE
SEE SHEET 91 FOR HYDRAULIC DETAILS
SEE SHEET 93A FOR CURVE DATA

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:


PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
AND WASTEWATER SUPPLY SYSTEM FOR
SUGARLOAF, INC.
SCALE STAKES
METRIC
PROJECT REFERENCE NO.
R-2554A
SHEET NO.
28
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONSTR. REV.
R/W REV.
NAD 83
MATCH LINE -L2RPDB- 9+40.000 SEE SHEET 27
MATCH LINE -L2RPC- 3+40.000 SEE SHEET 26
MATCH LINE -L2RPDB- 8+50.000 SEE SHEET 27
MATCH LINE -L2- 89+80.000 SEE SHEET 27
MATCH LINE -L2RPD- 1+20.000 SEE SHEET 27
MATCH LINE -L2RPD- 14+60.000 SEE SHEET 29
MATCH LINE -Y- 12+90.000 SEE SHEET 26
BEGIN BRIDGE
-LSRPDB- POT Sta.9+26.000
BEGIN APPROACH SLAB
-LSRPDB- POT Sta.9+22.400
-L2RPDB- SC Sta.8+62.775
-L2RPDB- POC Sta.8+60.000
END PAVING ONLY
BEGIN GRADING
-L2RPDB- TS Sta.8+02.775
-L2RPC- POC Sta.4+40.000
END GRADING
BEGIN PAVING ONLY
-Y- PC Sta.12+03.167
-Y- POT Sta.11+80.000 (LB) =
-YDET- PC Sta.10+00.000 (LA)
-Y- PT Sta.11+03.985
-Y- PC Sta.10+08.735
-Y- POT Sta.10+00.000
BEGIN CONSTRUCTION
-L2PPD- CS Sta.4+08.146
END CONSTRUCTION R-2554A
-L2RPD- POC Sta.4+00.000
END PAVING ONLY
-L2RPBD- CS Sta.12+99.328
-L2RPD- POT Sta.5+10.361
-L2RPBD- ST Sta.13+59.328
-L2RPD- ST Sta.4+32.300
-L2RPD- CS Sta.3+72.300
-L2- POT Sta.81+73.739 =
-L2RPBD- POC Sta.11+09.326
Δ = 85°12' 03.1"
-L2RPDB- CS Sta.6+21.797
-L2- POT Sta.86+57.806 =
-L2RPDB- POC Sta.5+63.595
Δ = 42°19' 02.6"
-L2RPD- SC Sta.1+99.163
MATCH LINE -L2RPC- 7+40.000 SEE SHEET 30
MATCH LINE -L2- 86+00.000 SEE SHEET 30
MATCH LINE -L2RPDB- 5+00.000 SEE SHEET 30
MATCH LINE -L2RPD- 1+80.000 SEE SHEET 30
-Y-
PI Sta 10+56.505
Δ = 10°54' 53.5" (RT)
L = 95.250
T = 47.770
R = 500.000
SE = 0.06
PI Sta 12+54.073
Δ = 0°50' 00.0" (RT)
L = 101.81
T = 50.906
R = 7,000.000
SE = NC
-YDET-
PI Sta 10+52.017
Δ = 19°49' 18.5" (RT)
L = 103.515
T = 52.173
R = 300.000
SE = 0.03
(to match exist)
PI Sta 11+57.698
Δ = 19°19' 25.1" (LT)
L = 101.81
T = 51.283
R = 300.000
SE = 0.055
EDNA EARLE WELLS
DB 796 PG 831
LANE FARMS INC.
DB 965 PG 765
DB 974 PG 277
DB 965 PG 777
UNKNOWN
REMOVE
LANE FARMS, INC.
DB 965 PG 765
DB 974 PG 277
DB 965 PG 777
CONCRETE LINED DITCH SEE DETAIL 32
V. D. LANE
DB 717 PG. 441
OBLITERATE EXIST. ROAD
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED
SEE SHEET 81 FOR -Y- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPC- PROFILE
SEE SHEETS 87 & 88 FOR -L2RPDB- PROFILE
SEE SHEET 90 FOR -L2LPD- PROFILE
SEE SHEETS 20-23 FOR -YDET- PLAN & PROFILE
SEE SHEETS 21-24 FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA
LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY
TIP NO.: R-2554A
COUNTY: WAYNE
DESIGNED BY:
DATE:
CHECKED BY:
DATE:

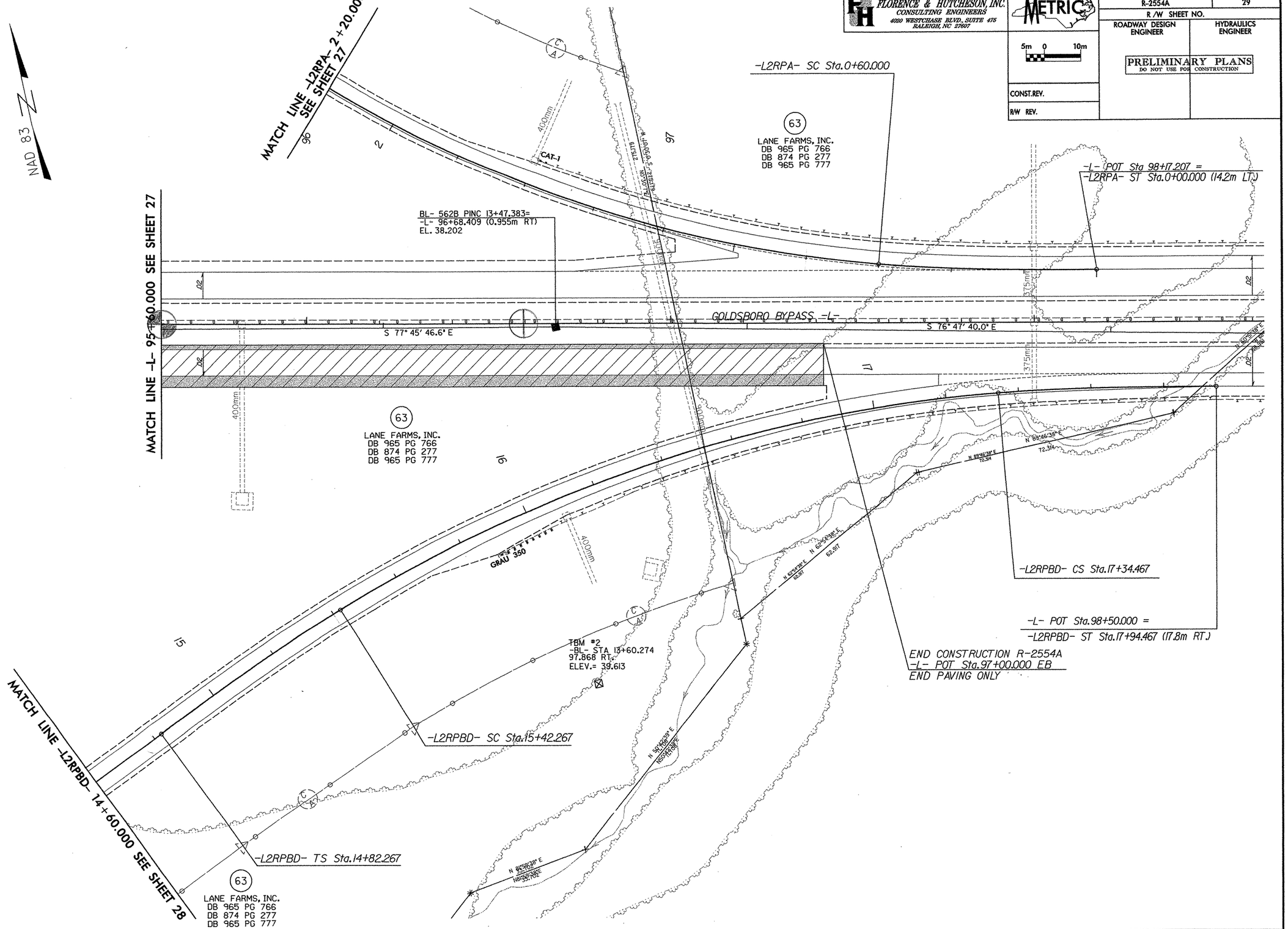
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.



SEE SHEETS 56 & 57 FOR -L- PROFILE

FILE: n:\2554a\roadway\proj\rdy design\plans\R2554A_RDY_PS029.dgn
DATE: 12/14/2005 09:35:46 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

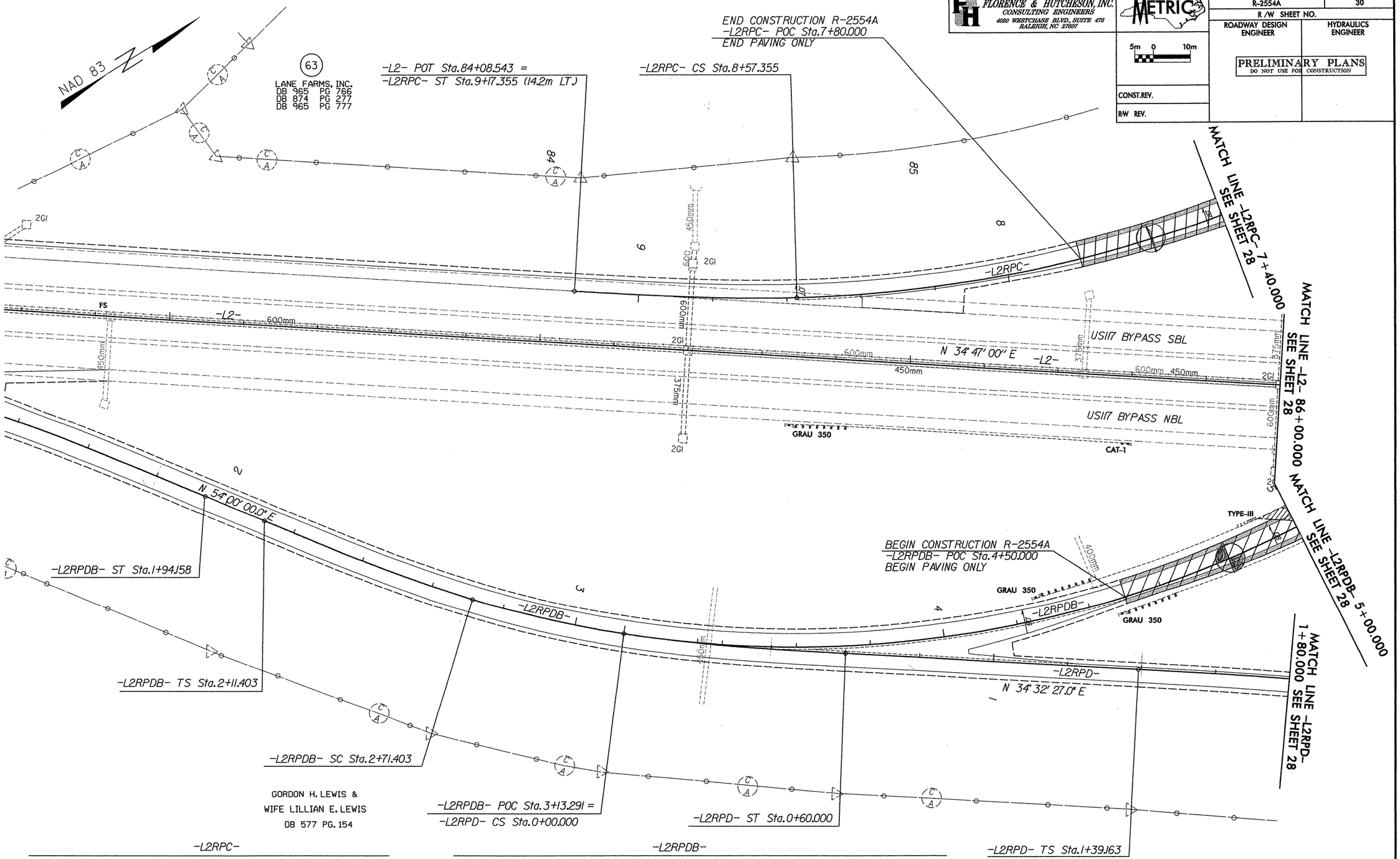
METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.



-L2RPC-

PIs Sta 1+37.065	PI Sta 6+93.669	PIs Sta 8+77.368
Θs = 4° 50' 30.8"	Δ = 113° 01' 36.3" (RT)	Θs = 4° 50' 30.8"
Ls = 60.000	L = 700.305	Ls = 60.000
LT = 40.015	T = 536.619	LT = 40.015
ST = 20.014	R = 355.000	ST = 20.014
	SE = 0.07	

-L2RPDB-

PIs Sta 1+54.168	PIs Sta 2+51.424	PI Sta 4+69.669	PIs Sta 6+41.816
Θs = 4° 17' 49.9"	Θs = 5° 43' 46.5"	Δ = 66° 55' 13.0" (LT)	Θs = 5° 43' 46.5"
Ls = 60.000	Ls = 60.000	L = 350.394	Ls = 60.000
LT = 40.012	LT = 40.021	T = 198.266	LT = 40.021
ST = 20.011	ST = 20.019	R = 300.000	ST = 20.019
		SE = 0.08	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 86 FOR -L2RPC- PROFILE
SEE SHEET 87 FOR -L2RPDB- PROFILE

FILE: c:\r2554a\roadway\proj\rdy design\plans\R2554A_RDY_PRH30.dgn
DATE: 12/14/2005 09:41:18 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

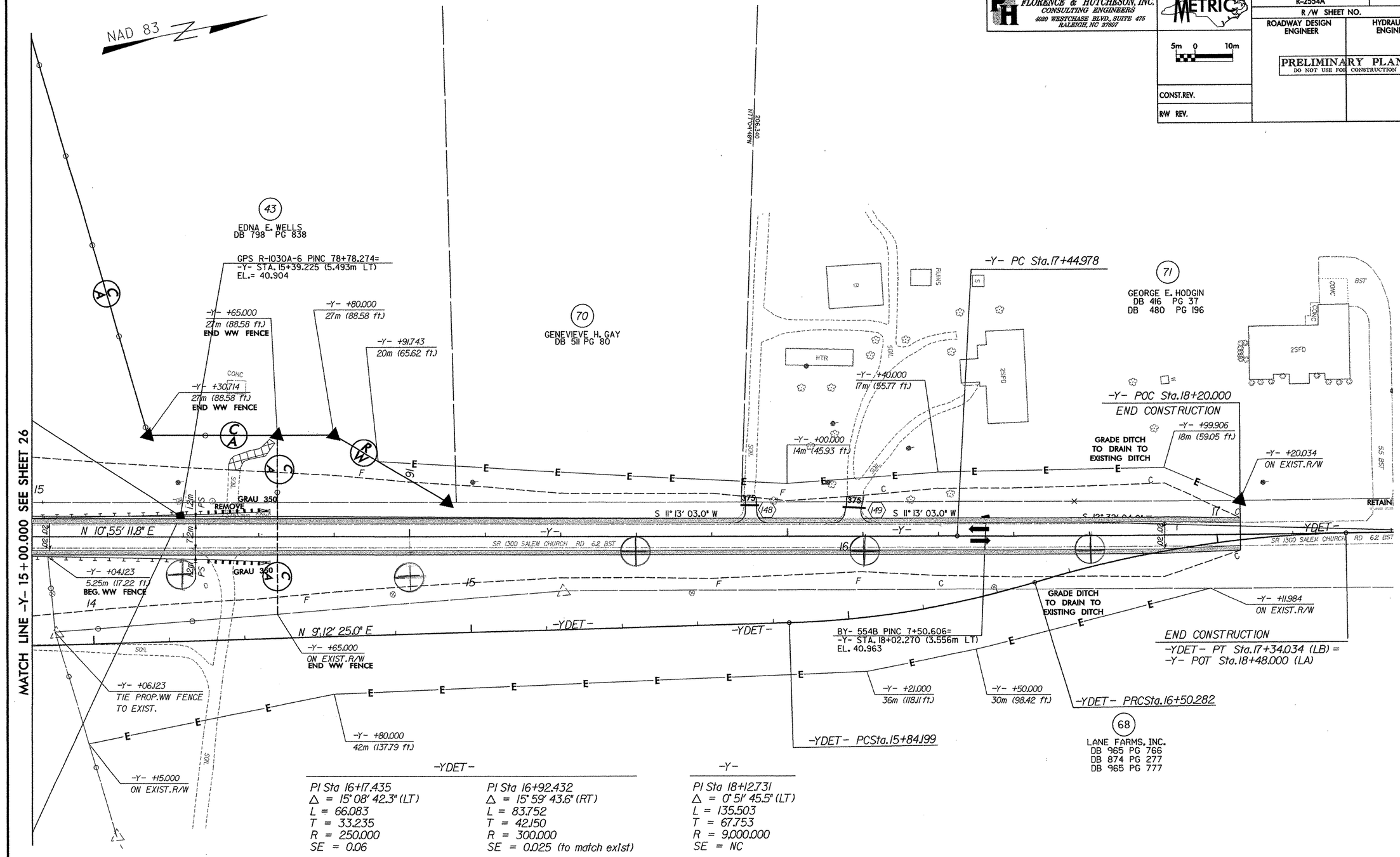
5m 0 10m

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	31
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-YDET-

PI Sta 16+17.435
Δ = 15° 08' 42.3" (LT)
L = 66.083
T = 33.235
R = 250.000
SE = 0.06

PI Sta 16+92.432
Δ = 15° 59' 43.6" (RT)
L = 83.752
T = 42.150
R = 300.000
SE = 0.025 (to match exist)

-Y-

PI Sta 18+12.731
Δ = 0° 51' 45.5" (LT)
L = 135.503
T = 67.753
R = 9,000.000
SE = NC

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 81 & 82 FOR -Y- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: r:\2554a\roadway\proj\rdy design\plans\R2554A_RDY_PS1931.dgn
DATE: 10/12/2015 10:22:37 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

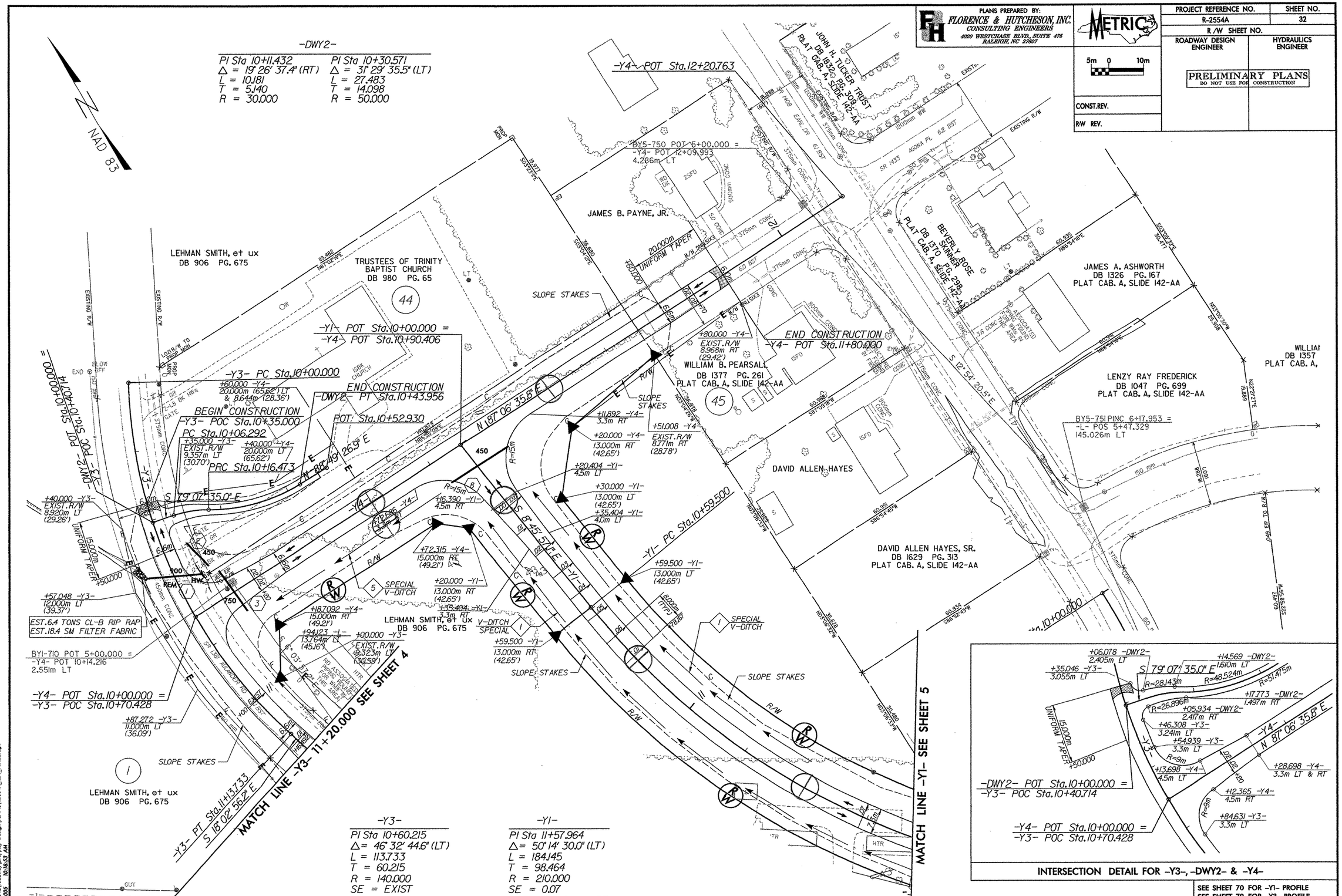
METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



SEE SHEET 70 FOR -Y1- PROFILE
SEE SHEET 79 FOR -Y3- PROFILE
SEE SHEET 74 FOR -Y4- PROFILE
SEE SHEET 79 FOR -DWY2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: r:\2554a\roadway\proj\Rdy Design\PLANS\R2554_RDY_PSH32.dgn
DATE: 12/14/2005 10:18:53 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

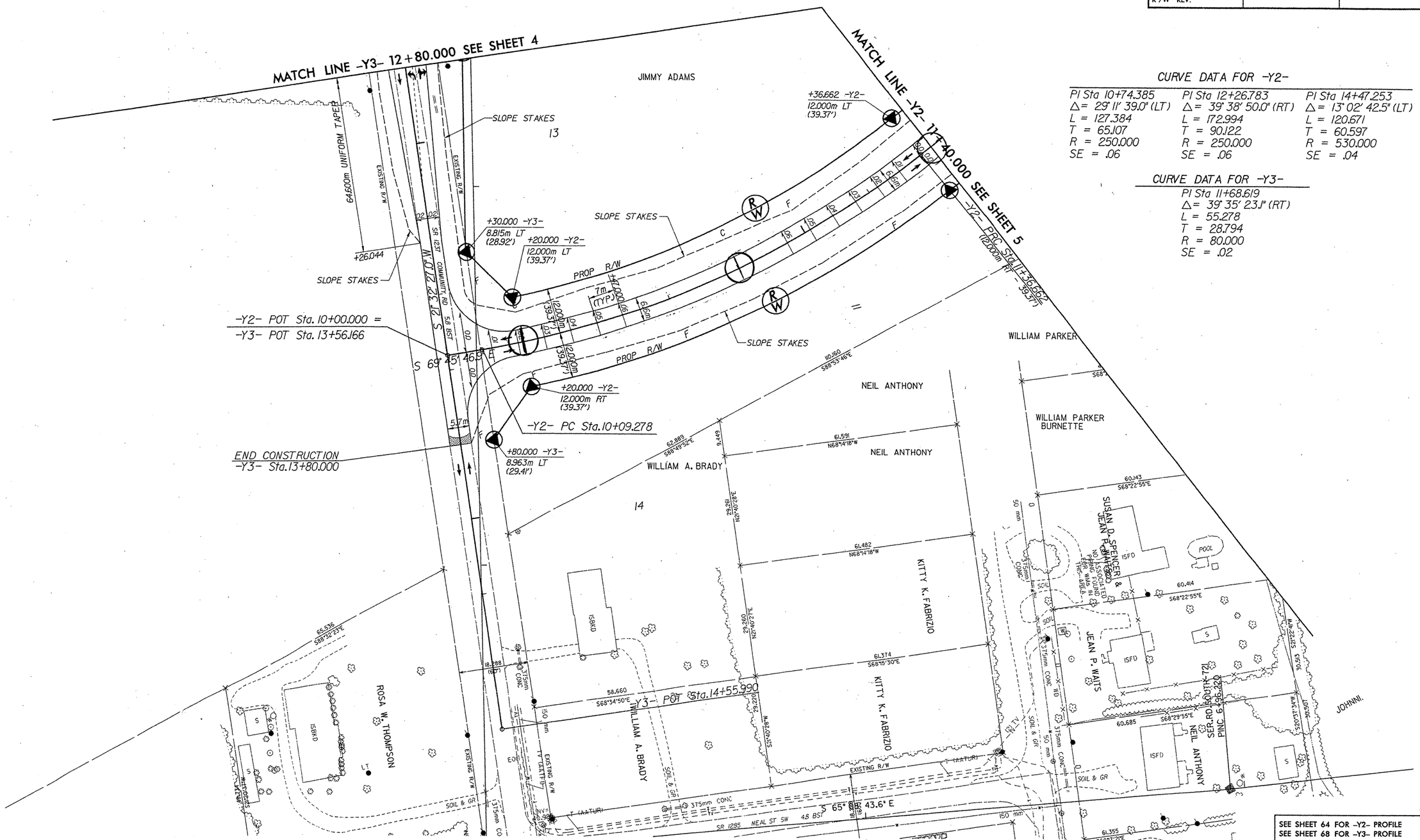
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	33
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R /W REV.



CURVE DATA FOR -Y2-

PI Sta 10+74.385	PI Sta 12+26.783	PI Sta 14+47.253
Δ= 29° 11' 39.0" (LT)	Δ= 39° 38' 50.0" (RT)	Δ= 13° 02' 42.5" (LT)
L = 127.384	L = 172.994	L = 120.671
T = 65.107	T = 90.122	T = 60.597
R = 250.000	R = 250.000	R = 530.000
SE = .06	SE = .06	SE = .04

CURVE DATA FOR -Y3-

PI Sta 11+68.619
Δ= 39° 35' 23.1" (RT)
L = 55.278
T = 28.794
R = 80.000
SE = .02

SEE SHEET 64 FOR -Y2- PROFILE
SEE SHEET 68 FOR -Y3- PROFILE

FILE: f:\2554a\Roadway\Proj\Rdy Design\PLANS\R2554A_RDY_FH025.dgn
DATE: 04292004 01:28:07 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5m 0 10m

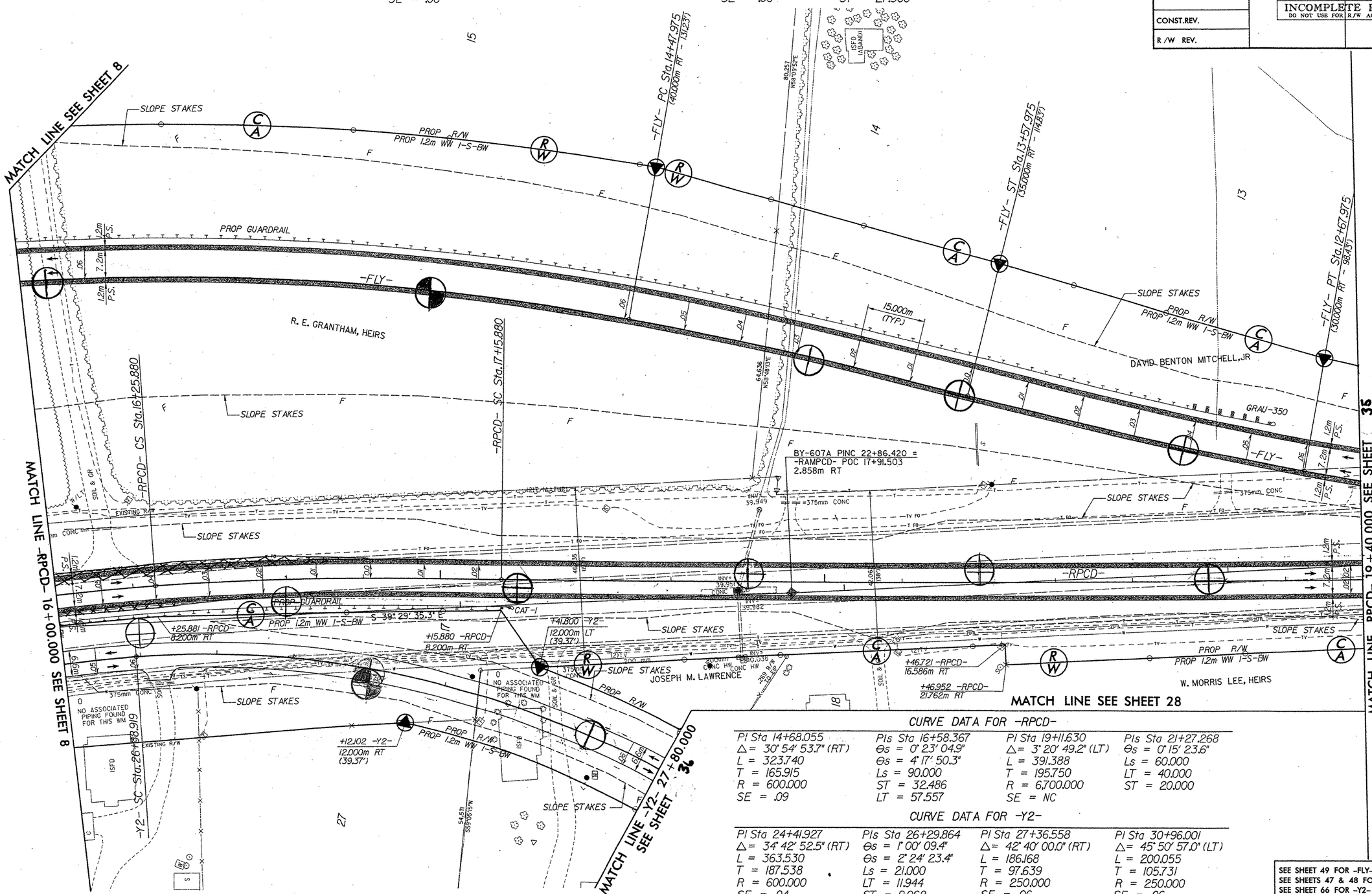
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	34
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R /W REV.

CURVE DATA FOR -FLY-

PIs Sta 11+20.004	PI Sta 12+04.166	PIs Sta 12+97.987	PI Sta 14+17.988	PI Sta 16+44.866	PIs Sta 18+64.602
Θs = 2° 27' 19.9"	Δ = 10° 28' 29.6" (RT)	Θs = 3° 40' 59.9"	Θs = 3° 40' 59.9"	Δ = 31° 25' 11.2" (LT)	Θs = 2° 27' 18.5"
Ls = 60.000	L = 127.975	Ls = 90.000	Ls = 90.000	L = 383.865	Θs = 4° 17' 51.3"
LT = 40.004	T = 64.166	LT = 60.013	LT = 60.013	T = 196.891	Ls = 60.000
ST = 20.003	R = 700.000	ST = 30.012	ST = 30.012	R = 700.000	LT = 32.762
	SE = .06			SE = .06	ST = 27.306



CURVE DATA FOR -RPCD-

PI Sta 14+68.055	PIs Sta 16+58.367	PI Sta 19+11.630	PIs Sta 21+27.268
Δ = 30° 54' 53.7" (RT)	Θs = 0° 23' 04.9"	Δ = 3° 20' 49.2" (LT)	Θs = 0° 15' 23.6"
L = 323.740	Θs = 4° 17' 50.3"	L = 391.388	Ls = 60.000
T = 165.915	Ls = 90.000	T = 195.750	LT = 40.000
R = 600.000	ST = 32.486	R = 6,700.000	ST = 20.000
SE = .09	LT = 57.557	SE = NC	

CURVE DATA FOR -Y2-

PI Sta 24+41.927	PIs Sta 26+29.864	PI Sta 27+36.558	PI Sta 30+96.001
Δ = 34° 42' 52.5" (RT)	Θs = 1° 00' 09.4"	Δ = 42° 40' 00.0" (RT)	Δ = 45° 50' 57.0" (LT)
L = 363.530	Θs = 2° 24' 23.4"	L = 186.168	L = 200.055
T = 187.538	Ls = 21.000	T = 97.639	T = 105.731
R = 600.000	LT = 11.944	R = 250.000	R = 250.000
SE = .04	ST = 9.062	SE = .06	SE = .06

SEE SHEET 49 FOR -FLY- PROFILE
SEE SHEETS 47 & 48 FOR -RPCD- PROFILE
SEE SHEET 66 FOR -Y2- PROFILE

FILE: t:\2554a\roadway\proj\rdy design\PLANS\R2554A_RDY_PSH26.dgn
DATE: 04/29/2014 04:29:42 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

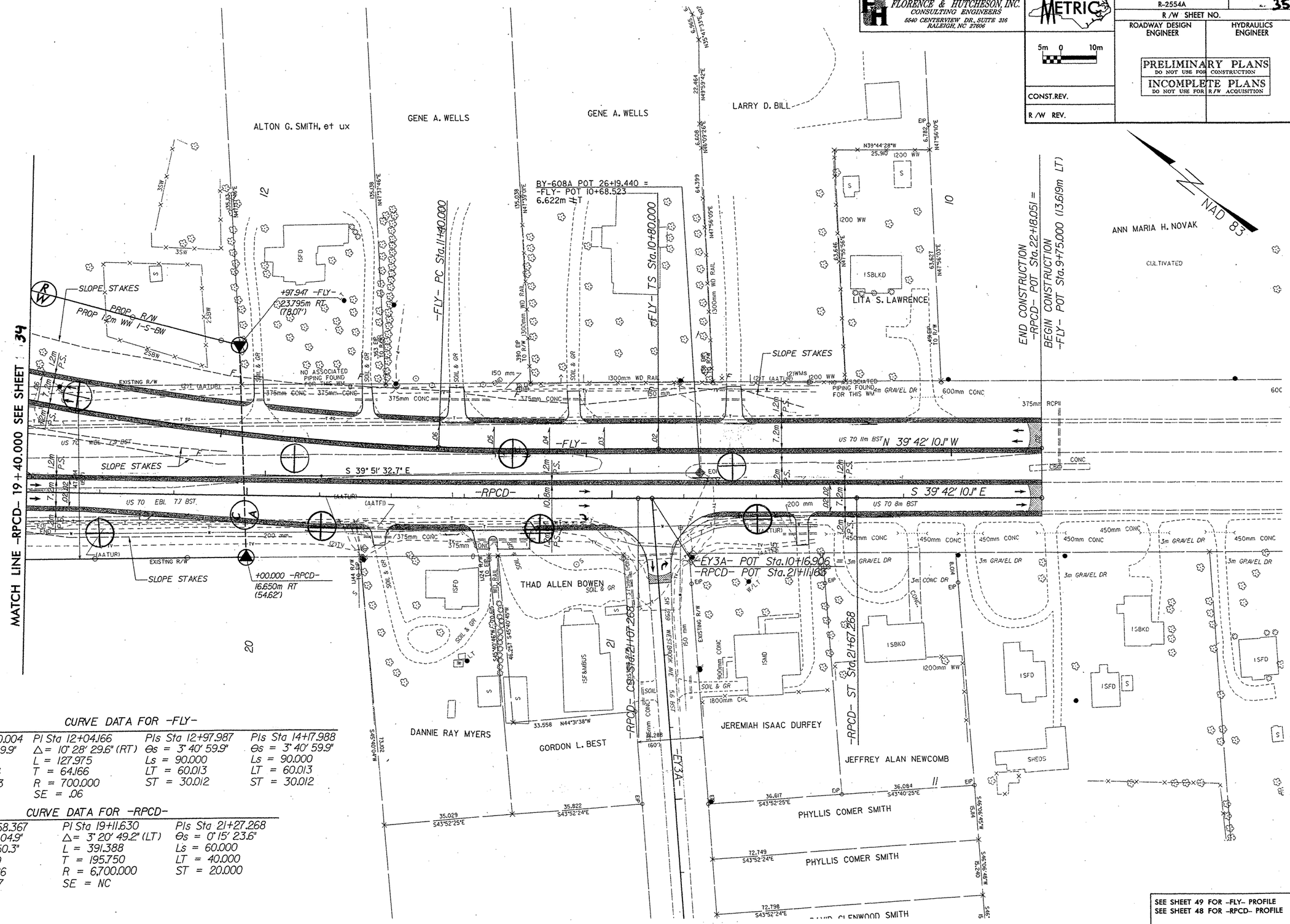
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.



CURVE DATA FOR -FLY-

PIs Sta 11+20.004	PI Sta 12+04.166	PIs Sta 12+97.987	PIs Sta 14+17.988
Θs = 2° 27' 19.9"	Δ = 10° 28' 29.6" (RT)	Θs = 3° 40' 59.9"	Θs = 3° 40' 59.9"
Ls = 60.000	L = 127.975	Ls = 90.000	Ls = 90.000
LT = 40.004	T = 64.166	LT = 60.013	LT = 60.013
ST = 20.003	R = 700.000	ST = 30.012	ST = 30.012
	SE = .06		

CURVE DATA FOR -RPCD-

PIs Sta 16+58.367	PI Sta 19+11.630	PIs Sta 21+27.268
Θs = 0° 23' 04.9"	Δ = 3° 20' 49.2" (LT)	Θs = 0° 15' 23.6"
Θs = 4° 17' 50.3"	L = 391.388	Ls = 60.000
Ls = 90.000	T = 195.750	LT = 40.000
ST = 32.486	R = 6,700.000	ST = 20.000
LT = 57.557	SE = NC	

SEE SHEET 49 FOR -FLY- PROFILE
SEE SHEET 48 FOR -RPCD- PROFILE

FILE: I:\2554a\roadway\Proj\Rdy Design\PLANS\R2554A_RD1_PSH27.dgn
DATE: 04292004 08:18:14 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

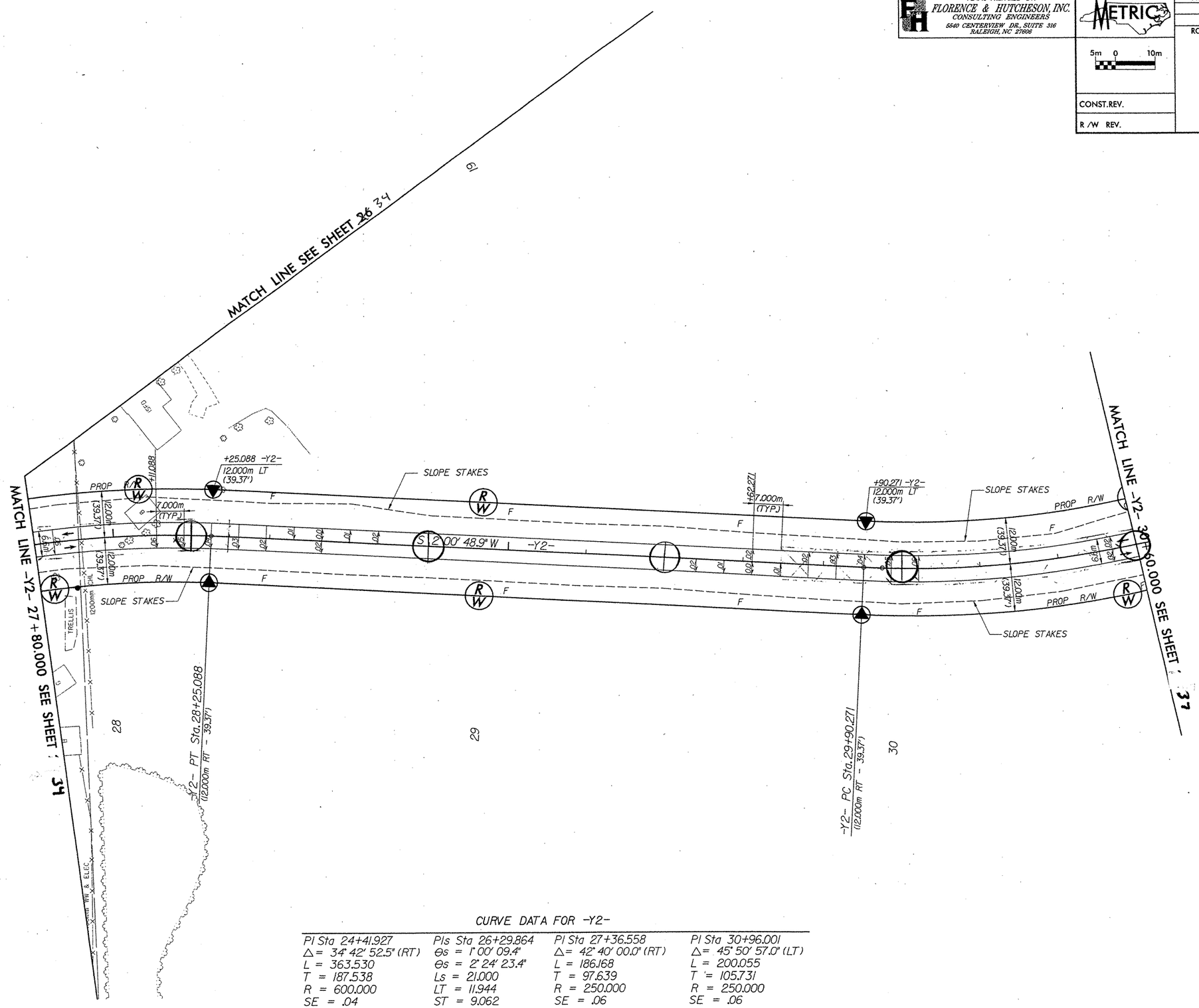
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	36
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R /W REV.



CURVE DATA FOR -Y2-

PI Sta 24+41.927	PIs Sta 26+29.864	PI Sta 27+36.558	PI Sta 30+96.001
Δ = 34° 42' 52.5" (RT)	θs = 1° 00' 09.4"	Δ = 42° 40' 00.0" (RT)	Δ = 45° 50' 57.0" (LT)
L = 363.530	θs = 2° 24' 23.4"	L = 186.168	L = 200.055
T = 187.538	Ls = 21.000	T = 97.639	T = 105.731
R = 600.000	LT = 11.944	R = 250.000	R = 250.000
SE = .04	ST = 9.062	SE = .06	SE = .06

SEE SHEETS 66 & 67 FOR -Y2- PROFILE

FILE: I:\2554A\roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PH28.dgn
DATE: 04292004 03:06:17 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

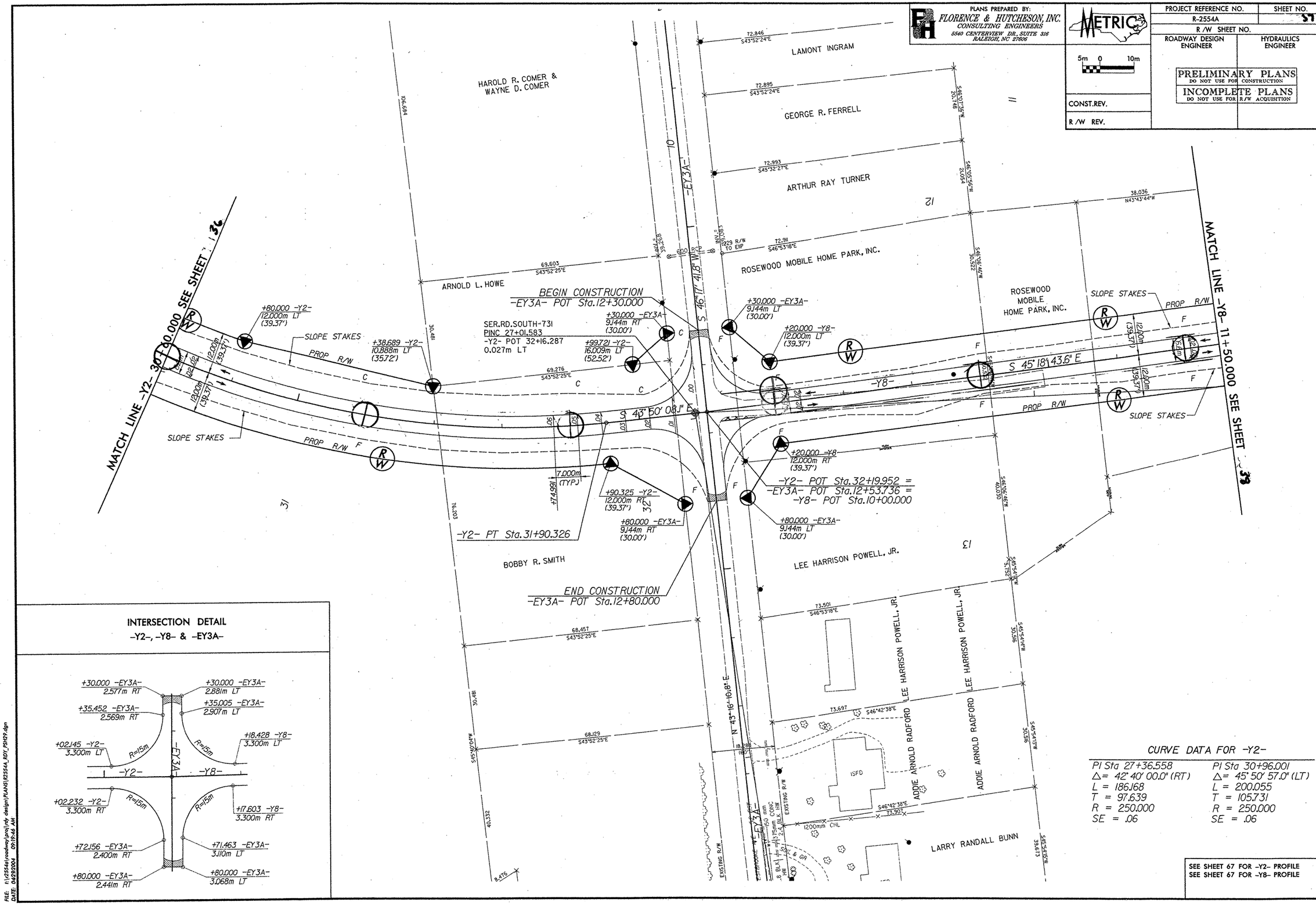
METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	57
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.

R /W REV.

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



INTERSECTION DETAIL
-Y2-, -Y8- & -EY3A-

CURVE DATA FOR -Y2-

PI Sta 27+36.558	PI Sta 30+96.001
Δ= 42° 40' 00.0" (RT)	Δ= 45° 50' 57.0" (LT)
L = 186.168	L = 200.055
T = 97.639	T = 105.731
R = 250.000	R = 250.000
SE = .06	SE = .06

SEE SHEET 67 FOR -Y2- PROFILE
SEE SHEET 67 FOR -Y8- PROFILE

FILE: f:\2554a\roadway\proj\rdy design\PLANS\R2554A_RDY_PS57P.dgn
DATE: 04/29/2004 09:19:46 AM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5m 0 10m

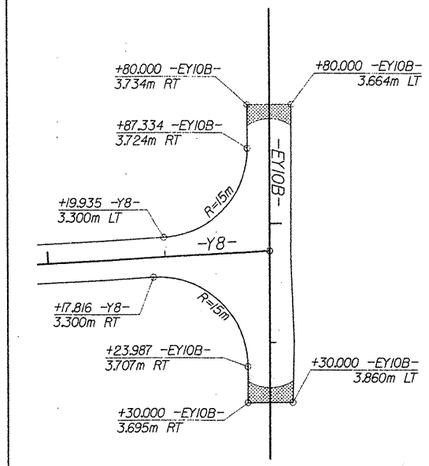
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

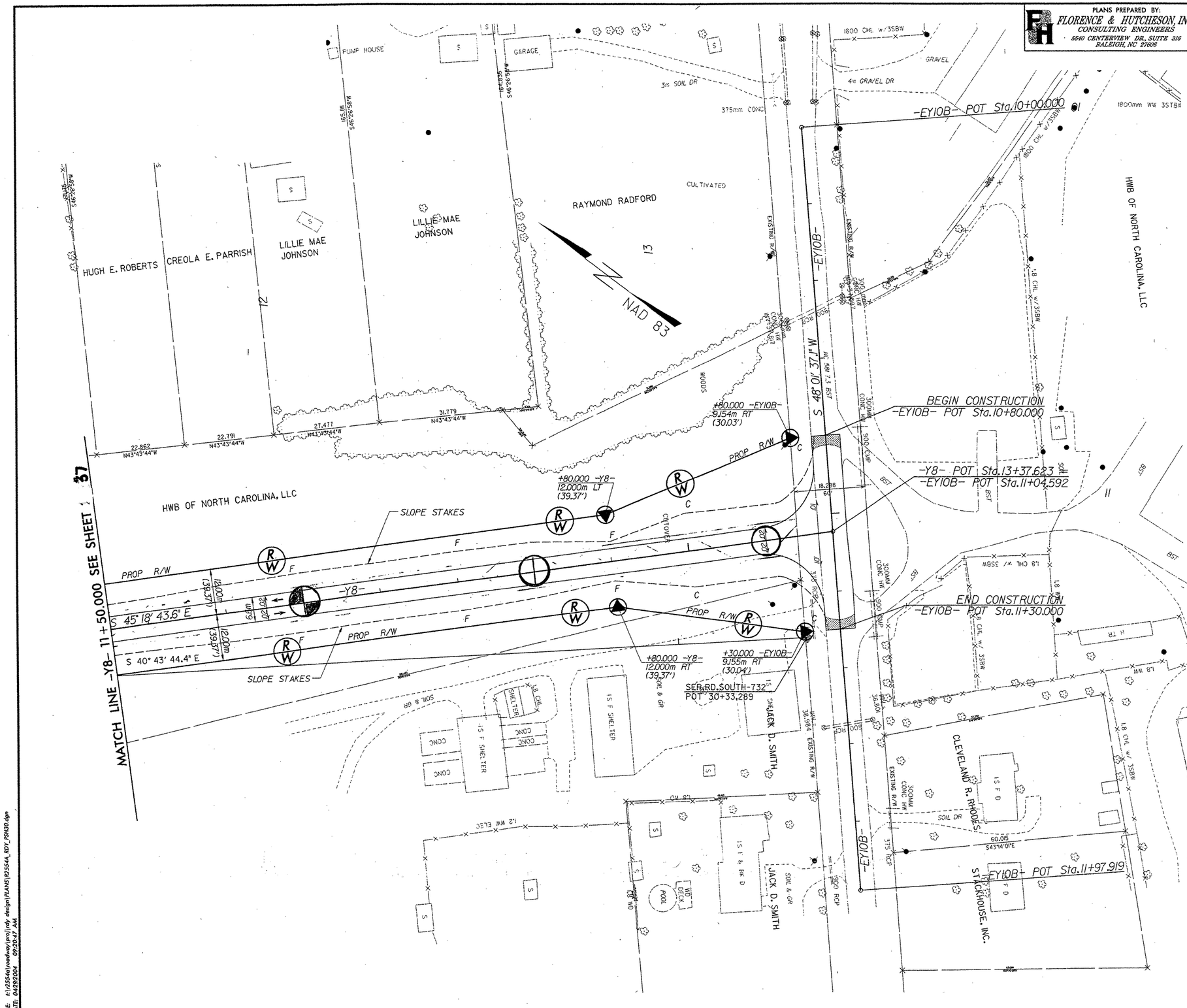
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

INTERSECTION DETAILS
-Y8- & -EY10B-





SEE SHEET 67 FOR -Y8- PROFILE

FILE: t:\r2554a\roadway\proj\rdy design\PLANS\R2554A_RDY_PSH30.dgn
DATE: 04/29/2004 09:30:47 AM

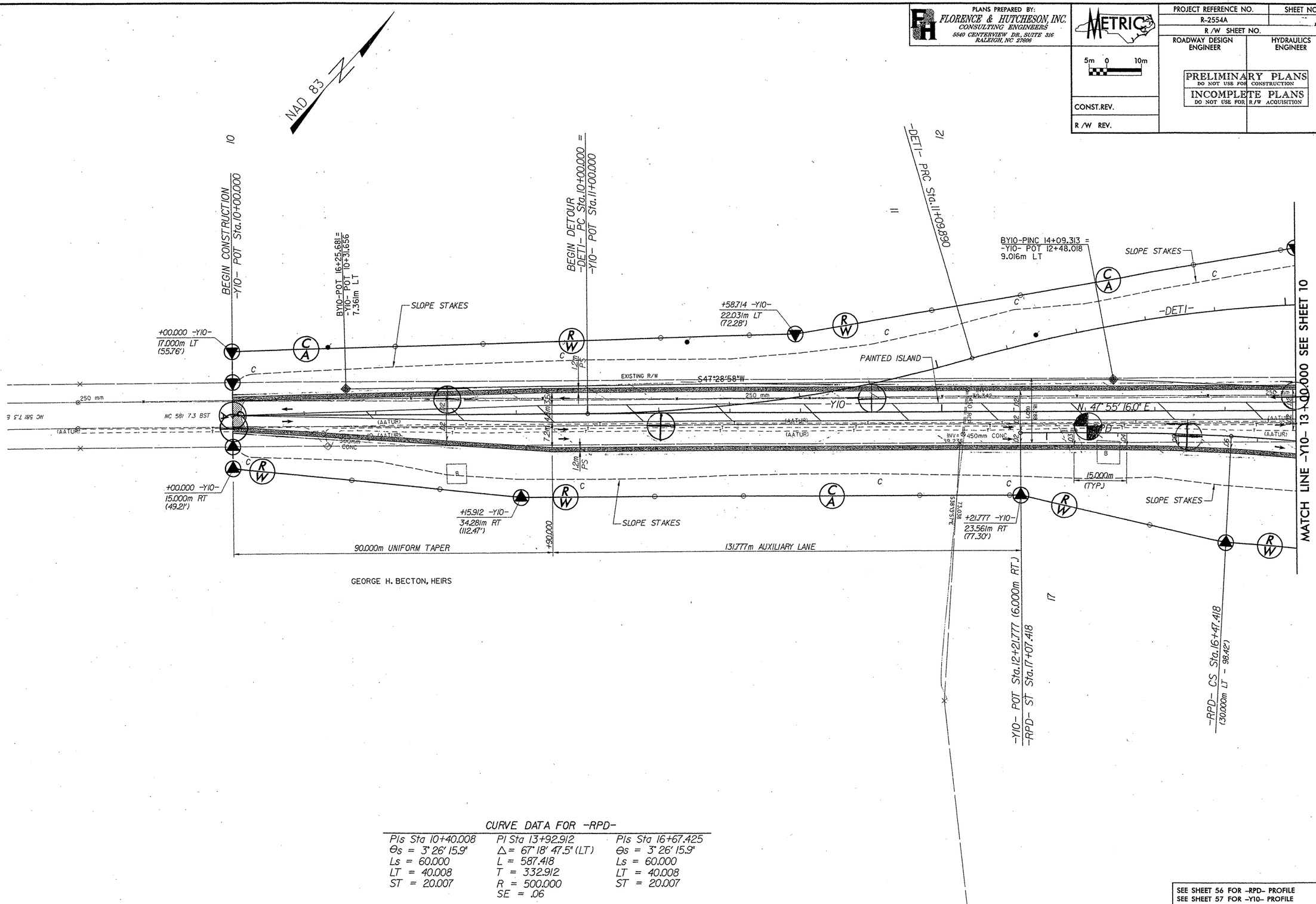
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5m 0 10m

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	39
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



CURVE DATA FOR -RPD-

PIs Sta 10+40.008	PI Sta 13+92.912	PIs Sta 16+67.425
Θs = 3° 26' 15.9"	Δ = 67° 18' 47.5" (LT)	Θs = 3° 26' 15.9"
Ls = 60.000	L = 587.418	Ls = 60.000
LT = 40.008	T = 332.912	LT = 40.008
ST = 20.007	R = 500.000	ST = 20.007
	SE = .06	

SEE SHEET 56 FOR -RPD- PROFILE
SEE SHEET 57 FOR -Y10- PROFILE
SEE SHEET 2-Q THRU 2-T
FOR -DETI- PLAN & PROFILE

FILE: I:\2554a\roadway\proj\rdy design\PLANS\R2554A_RDY_RSH31.dgn
DATE: 04/29/2004 02:23:40 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

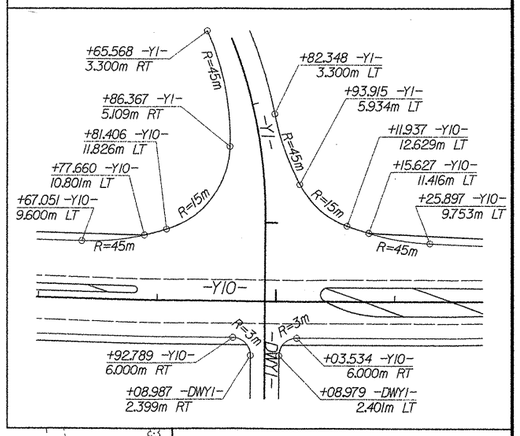
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

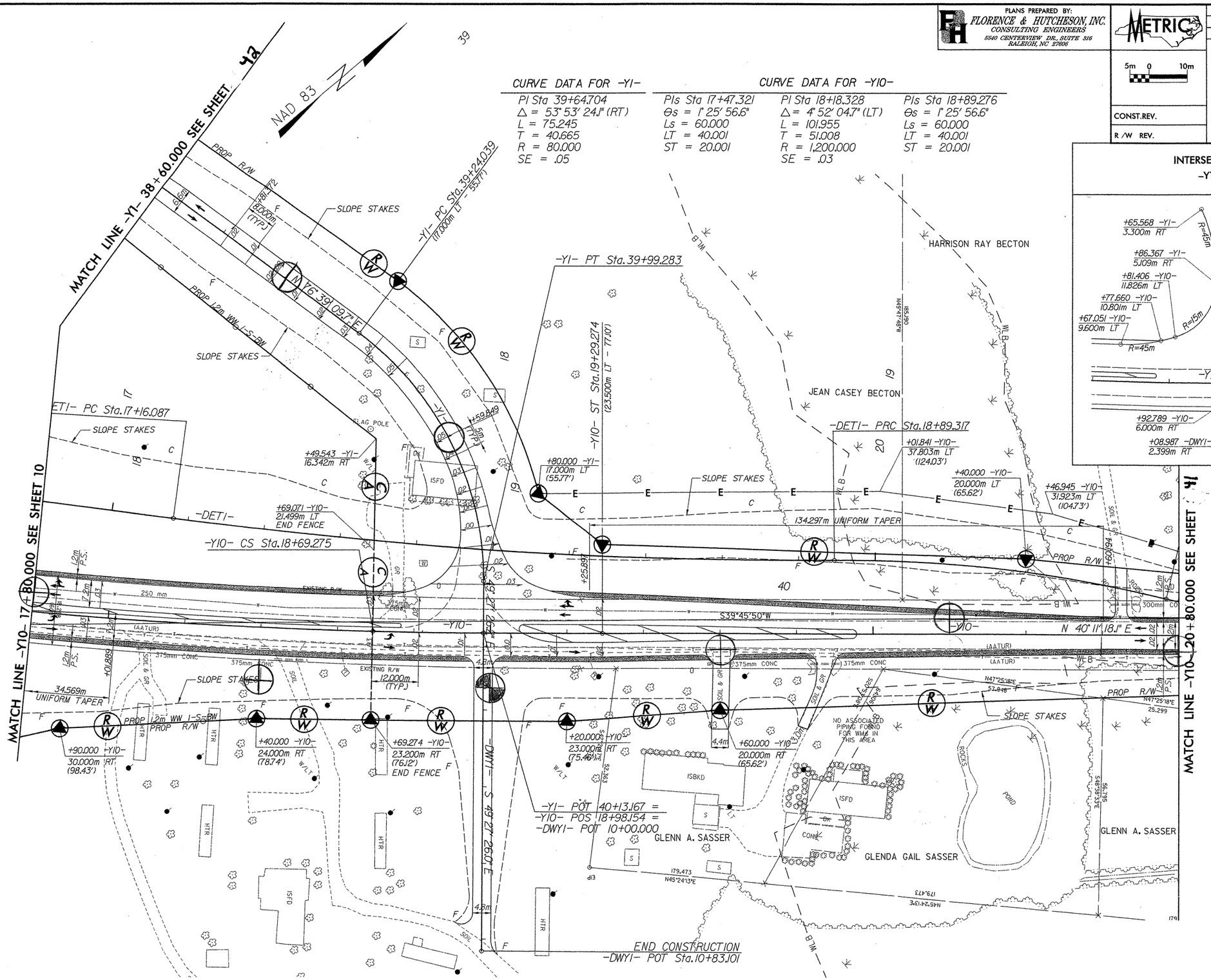
CONST.REV.

R/W REV.

5m 0 10m

INTERSECTION DETAILS
-Y1- & -Y10-





SEE SHEET 63 FOR -Y1- PROFILE
SEE SHEET 58 FOR -Y10- PROFILE
SEE SHEET 63 FOR -DWY1- PROFILE
SEE SHEET 2-Q THRU 2-T
FOR -DET1- PLAN & PROFILE

FILE: n:\2554a\Roadway\Proj\Rdy Design\PLANS\R2554A_RDY_PSH32.dgn
DATE: 04/29/2004 12:04:56 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

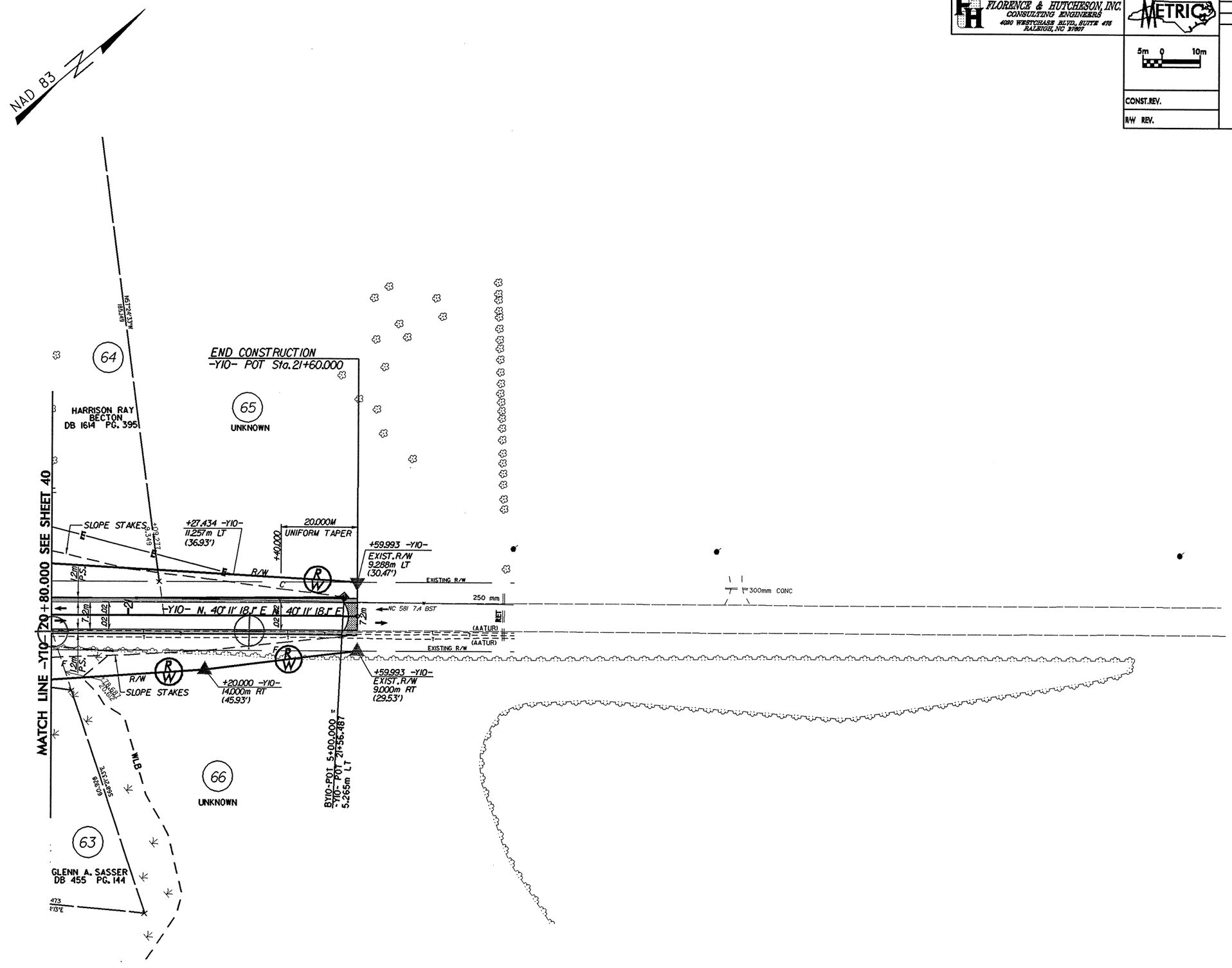
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 69 FOR -Y10- PROFILE
SEE SHEETS 2M-2P FOR -DET1-
PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

DATE: 5/24/13 SIMES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5m 0 10m

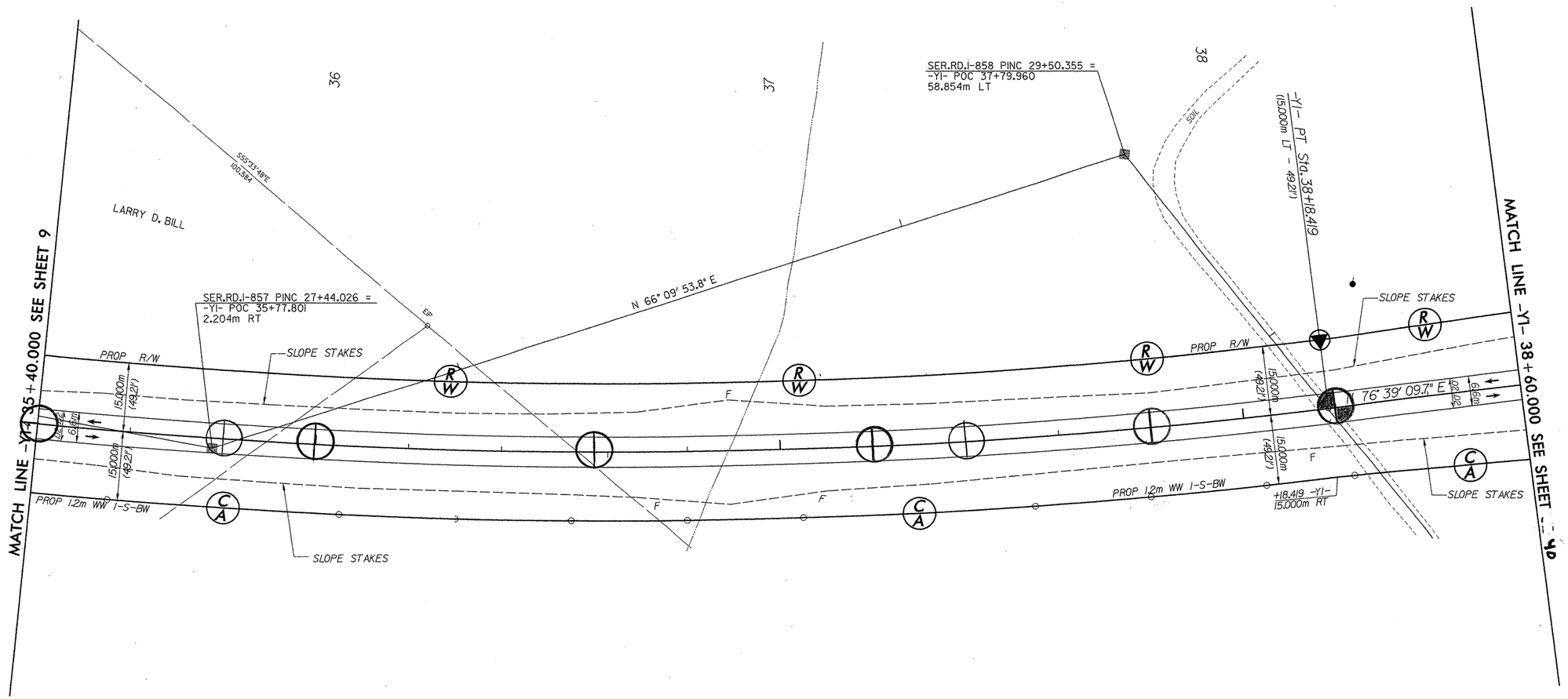
CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	43
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



CURVE DATA FOR -Y1-

PI Sta 26+24.355	PI Sta 35+29.319	PI Sta 39+64.704
Δ = 13° 38' 00.0" (RT)	Δ = 28° 11' 23.2" (LT)	Δ = 53° 53' 24.1" (RT)
L = 499.688	L = 590.405	L = 75.245
T = 251.029	T = 301.305	T = 40.665
R = 2,100.000	R = 1,200.000	R = 80.000
SE = NC	SE = RC	SE = .05

SEE SHEETS 62 & 63 FOR -Y1- PROFILE

FILE: t:\2554a\roadway\Proj\Rdy Design\PLANS\2554A_RDY_RSH34.dgn
DATE: 04/29/2004 02:59:06 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	43
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

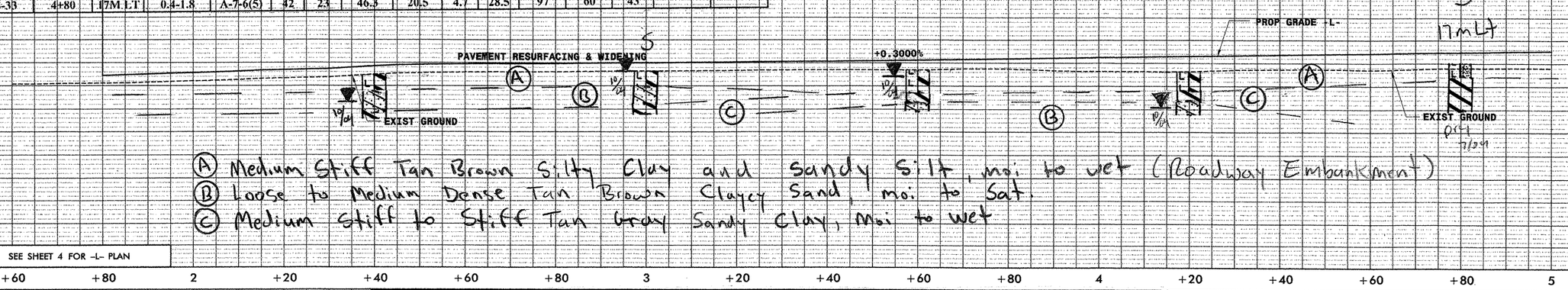
-L-

BEGIN PROJECT R-2554A
STA. 11+80.000
BEGIN RESURFACING

END RESURFACING
STA. 3+40.000
BEGIN GRADE
EL = 43.064

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-182	3+00	C1	0.3-0.7	A-7-6(6)	45	19	42.5	10.8	8.6	38.1	100	68	48	22.1	
S-183	3+00	C1	0.7-1.4	A-2-7(3)	61	37	73.7	2.0	0.2	24.0	100	37	26		
S-184	3+00	C1	1.4-1.8	A-7-6(3)	46	23	54.3	10.0	1.6	34.1	100	57	37		
S-32	4+80	17M LT	0.3-0.4	A-4(0)	19	3	40.9	25.6	19.2	14.2	99	74	37.0		
S-33	4+80	17M LT	0.4-1.8	A-7-6(5)	42	23	46.3	20.5	4.7	28.5	97	60	43		



(A) Medium Stiff Tan Brown Silty Clay and Sandy Silt, moi to wet (Roadway Embankment)
(B) Loose to Medium Dense Tan Brown Clayey Sand, moi. to Sat.
(C) Medium Stiff to Stiff Tan Gray Sandy Clay, Moi to wet

SEE SHEET 4 FOR -L- PLAN

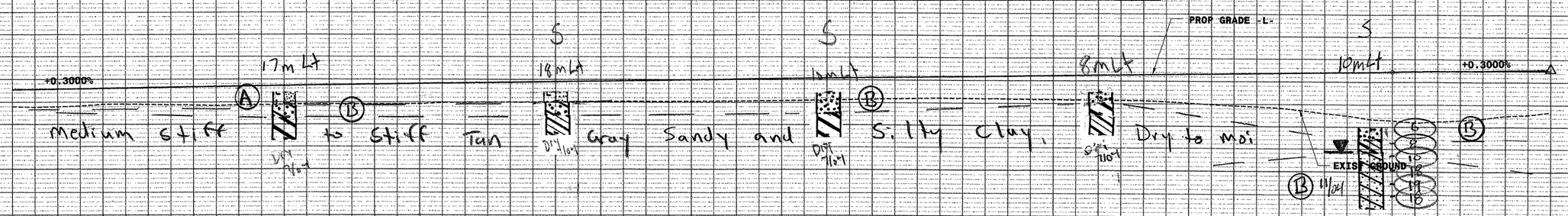
+60 +80 2 +20 +40 +60 +80 3 +20 +40 +60 +80 4 +20 +40 +60 +80 5

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-261	6+20	18M LT	0.4-1.0	A-2-6(1)	27	15	60.8	13.3	6.7	19.3	91	48	25		
S-262	6+20	18M LT	1.0-1.8	A-6(8)	40	28	43.5	10.9	14.2	31.4	99	67	47	23.5	
S-263	6+80	10M LT	0.4-1.0	A-2-4(0)	16	3	58.9	18.2	10.8	12.2	94	52	24		
S-264	6+80	10M LT	1.0-1.8	A-7-6(9)	52	30	46.1	9.5	10.9	33.5	97	60	45		
SS-312	8+00	10M LT	0.76-1.2	A-6(6)	38	23	43.0	12.4	16.5	28.1	99	68	46		
SS-313	8+00	10M LT	1.5-1.95	A-2-6(3)	39	24	55.6	12.9	9.4	22.1	99	59	33		
SS-314	8+00	10M LT	2.3-2.6	A-7-6(19)	59	36	30.7	9.4	17.1	42.2	98	75	60		
SS-315	8+00	10M LT	3.1-3.55	A-2-6(1)	35	18	49.8	23.7	7.4	19.1	94	62	28		

-L-

PI = 8+40.000
EL = 44.564 m
VC = 70 m
K = 117



Medium Stiff to Stiff Tan Gray Sandy and Silty Clay, Dry to Moi

(A) Loose Tan Brown Silty Sand Dry (Roadway Embankment)
(B) Loose to Medium Dense Tan Gray Clayey Sand and Fine to Coarse Sand Dry to Sat.

SEE SHEET 5 FOR -L- PLAN

5 +20 +40 +60 +80 6 +20 +40 +60 +80 7 +20 +40 +60 +80 8 +20 +40

FILE: I:\R2554A\Roadway\Proj\Rdy Design\PROFILES\R2554A_SHT35_1_PRO.dgn
DATE: 04/26/2004 04:13:43 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

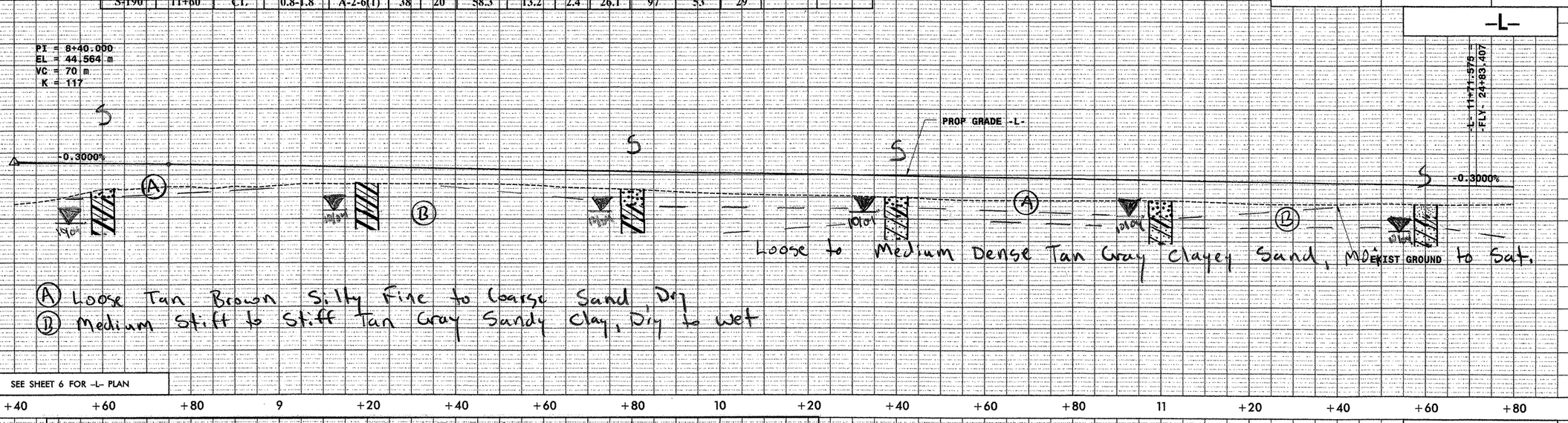
METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	44
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

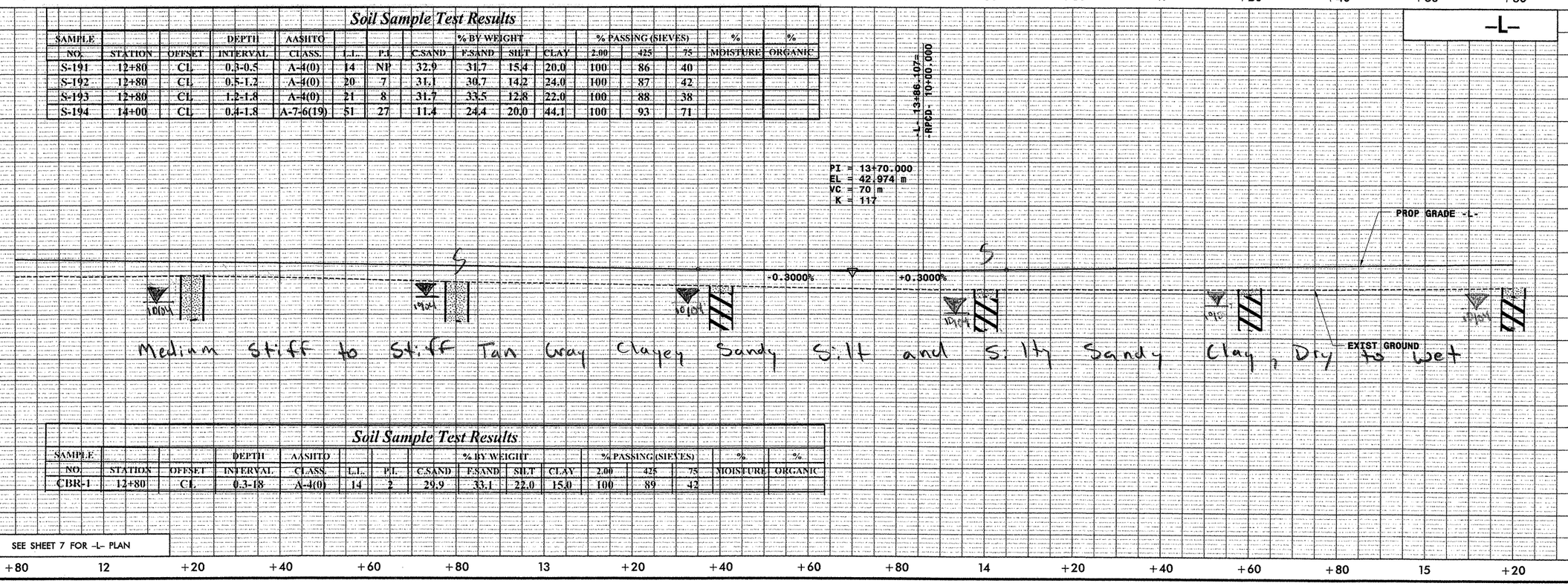
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-185	8+60	CL	1.4-1.8	A-7-6(5)	51	27	46.5	16.2	3.2	34.1	100	69	38		
S-186	9+80	CL	0.3-0.6	A-2-4(0)	14	NP	49.7	29.3	7.0	14.0	100	72	24		
S-187	9+80	CL	0.6-1.3	A-6(3)	39	19	42.9	19.2	3.8	34.1	100	72	39		
S-188	9+80	CL	1.3-1.8	A-7-6(8)	52	35	37.1	23.0	1.8	38.1	100	82	41		
S-189	10+40	CL	0.8-1.8	A-2-6(1)	29	14	50.1	16.6	5.2	28.1	100	64	35		
S-190	11+60	CL	0.8-1.8	A-2-6(1)	38	20	58.3	13.2	2.4	26.1	97	53	29		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-191	12+80	CL	0.3-0.5	A-4(0)	14	NP	32.9	31.7	15.4	20.0	100	86	40		
S-192	12+80	CL	0.5-1.2	A-4(0)	20	7	31.1	30.7	14.2	24.0	100	87	42		
S-193	12+80	CL	1.2-1.8	A-4(0)	21	8	31.7	33.5	12.8	22.0	100	88	38		
S-194	14+00	CL	0.4-1.8	A-7-6(19)	51	27	11.4	24.4	20.0	44.1	100	93	71		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
CBR-1	12+80	CL	0.3-1.8	A-4(0)	14	2	29.9	33.1	22.0	15.0	100	89	42		

FILE: t:\R2554A\Roadway\Proj\Rdy Design\PROFILES\R2554A_SHT36_L_PRO.dgn
DATE: 04/26/2004 04:16:20 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

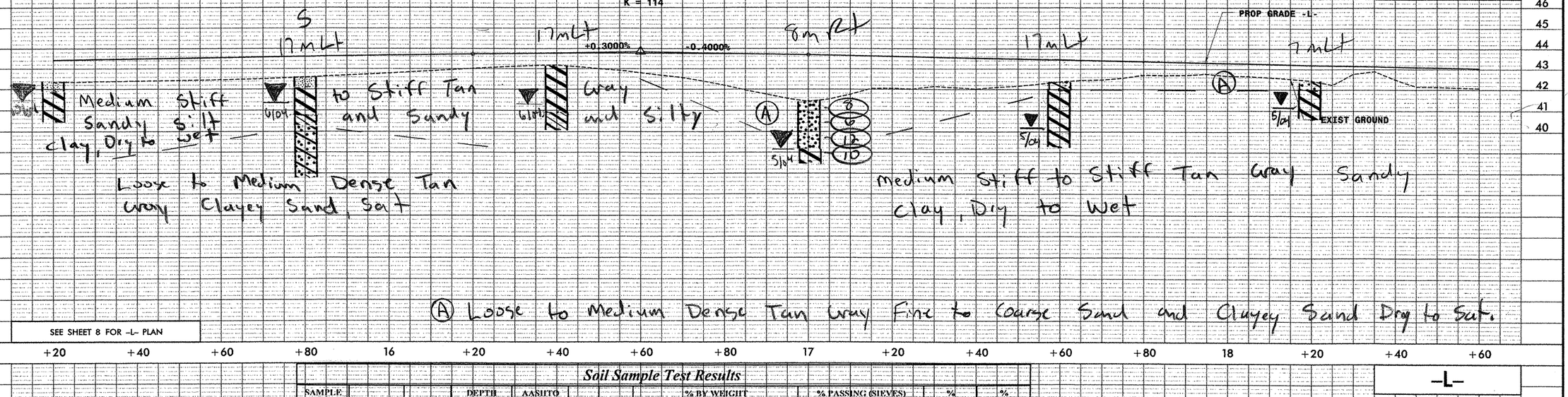
METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	45
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

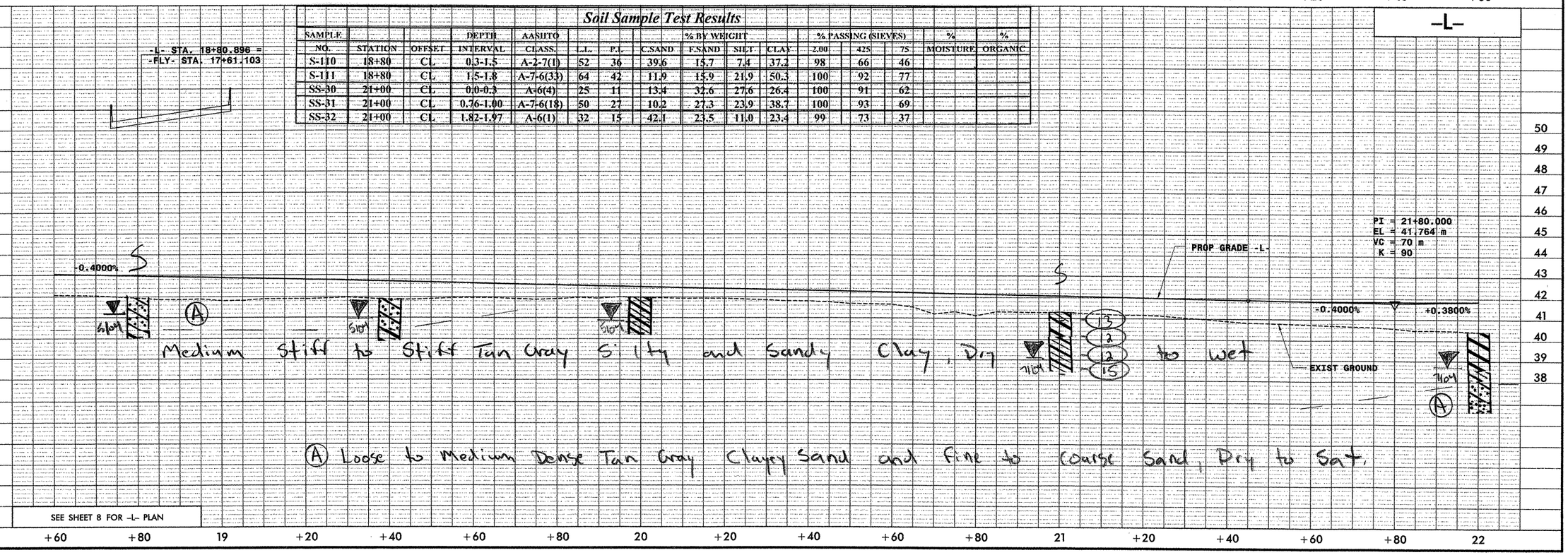
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-25	15+80	17M LT	0.3-0.5	A-4(0)	17	NP	24.7	40.2	25.1	10.0	98	84	44		
S-26	15+80	17M LT	0.5-1.8	A-7-6(15)	45	28	20.3	21.9	21.7	36.1	99	85	62	21.8	
S-27	15+80	17M LT	1.8-2.1	A-6(2)	32	14	42.8	23.5	13.7	20.1	99	69	39		
S-28	15+80	17M LT	2.1-4.6	A-2-6(0)	34	12	80.2	8.9	2.8	8.1	99	28	12		
SS-33	17+00	8M RT	0.3-0.45	A-2-4(0)	15	NP	66.5	21.9	5.6	6.0	100	63	14		
SS-34	17+00	8M RT	1.52-1.97	A-2-4(0)	18	NP	56.8	26.1	9.0	8.0	100	67	20		
SS-35	17+00	8M RT	2.28-2.73	A-7-6(5)	41	24	40.0	21.7	10.2	28.1	100	72	42		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-110	18+80	CL	0.3-1.5	A-2-7(1)	52	36	39.6	15.7	7.4	37.2	98	66	46		
S-111	18+80	CL	1.5-1.8	A-7-6(33)	64	42	11.9	15.9	21.9	50.3	100	92	77		
SS-30	21+00	CL	0.0-0.3	A-6(4)	25	11	13.4	32.6	27.6	26.4	100	91	62		
SS-31	21+00	CL	0.76-1.00	A-7-6(18)	50	27	10.2	27.3	23.9	38.7	100	93	69		
SS-32	21+00	CL	1.82-1.97	A-6(1)	32	15	42.1	23.5	11.0	23.4	99	73	37		



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DATE: 04/24/2004 05:10:52 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR. SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

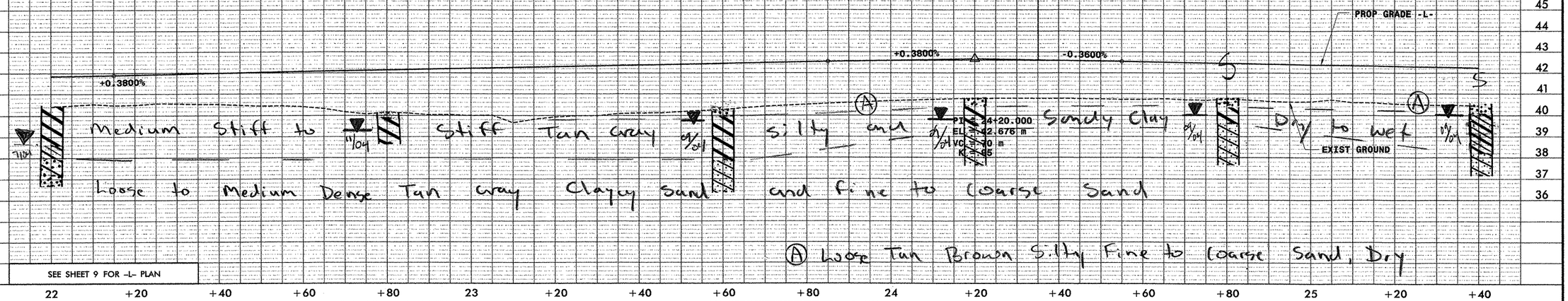
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-129	24+80	CL	0.0-0.3	A-2-4(0)	18	NP	42.0	32.2	19.7	6.1	100	77	33		
S-130	24+80	CL	0.3-1.2	A-7-6(11)	43	30	32.3	21.2	14.9	31.5	100	81	51		
S-131	24+80	CL	1.2-3.1	A-2-7(1)	47	30	7.0	8.5	2.7	18.3	100	49	22		
S-132	25+40	CL	2.2-3.1	A-2-7(0)	42	26	74.2	7.8	2.7	15.2	94	38	18		

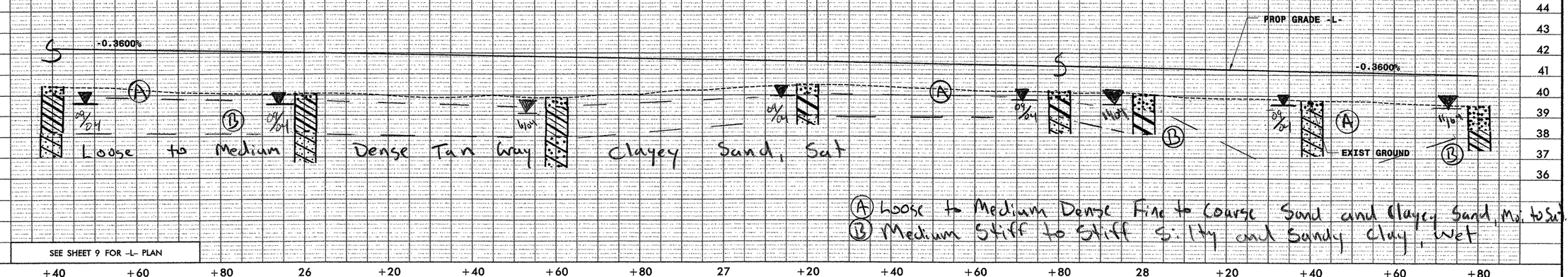
-L- 24+35.126 =
-RPC- 10+00.000



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-132	25+40	CL	2.2-3.1	A-2-7(0)	42	26	74.2	7.8	2.7	15.2	94	38	18		
S-126	27+80	CL	0.1-0.3	A-2-4(0)	19	NP	54.5	21.7	16.7	7.1	99	62	27		
S-127	27+80	CL	0.3-1.2	A-7-6(8)	45	28	41.4	14.5	13.6	30.5	100	72	46		
S-128	27+80	CL	1.2-1.8	A-2-7(4)	47	32	50.4	16.2	9.0	24.4	100	66	35		

-L- 27+22.293 =
-RPB- 10+00.000



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

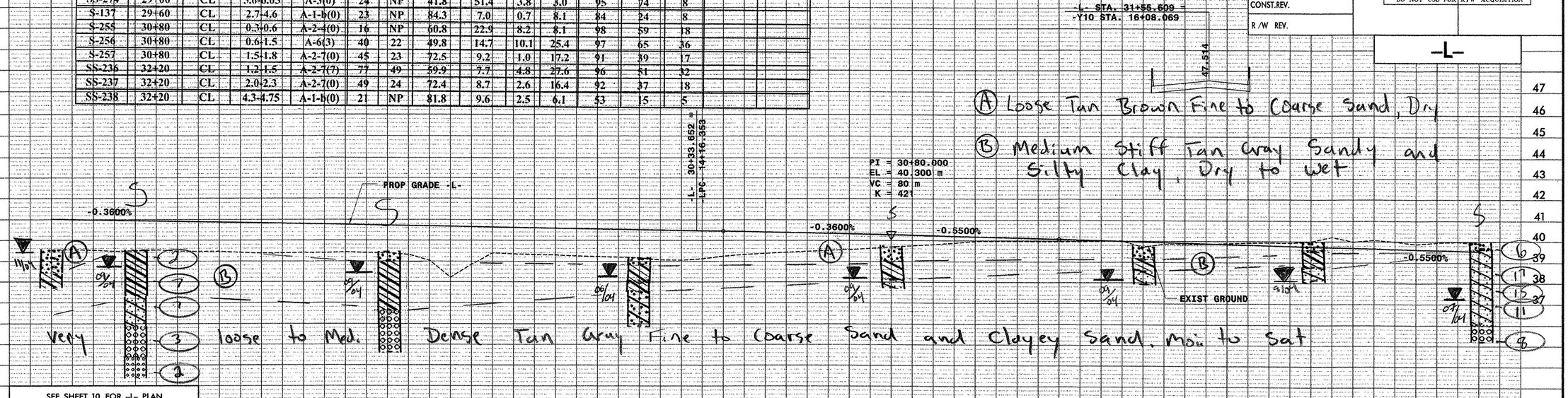
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	47
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.
R /W REV.

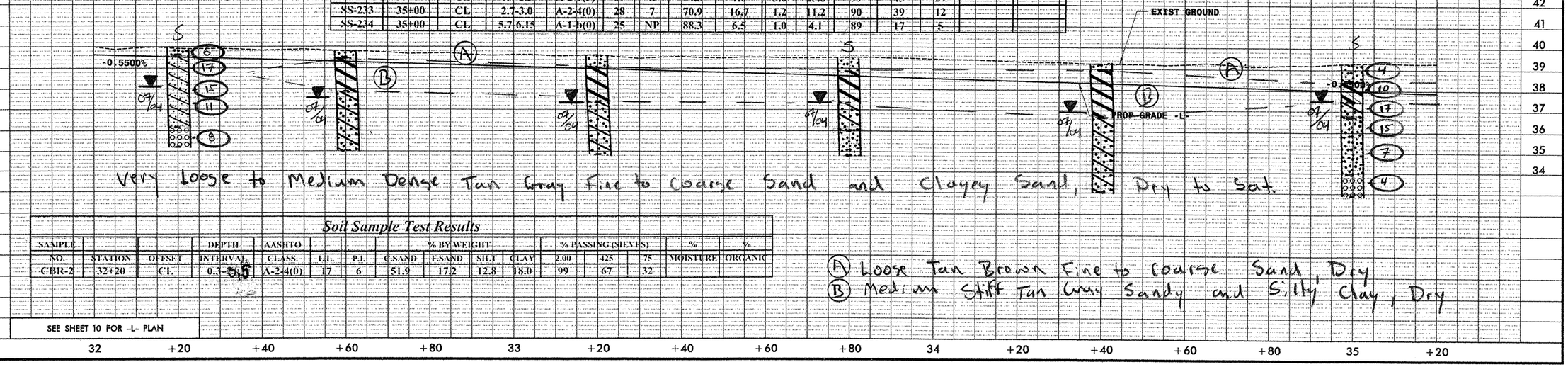
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-271	29+00	CL	0.15-0.45	A-6(5)	26	12	23.6	12.0	24.2	40.1	99	83	66		
SS-272	29+00	CL	2.5-2.95	A-2-7(1)	49	31	75.8	4.5	1.7	18.0	98	39	20		
SS-273	29+00	CL	4.1-4.4	A-1-b(0)	20	NP	87.8	5.7	1.5	5.0	92	24	9		
SS-274	29+00	CL	5.6-6.05	A-3(0)	24	NP	41.8	51.4	3.8	3.0	95	74	8		
S-137	29+60	CL	2.7-4.6	A-1-b(0)	23	NP	84.3	7.0	0.7	8.1	84	24	8		
S-255	30+80	CL	0.3-0.6	A-2-4(0)	16	NP	60.8	22.9	8.2	8.1	98	59	18		
S-256	30+80	CL	0.6-1.5	A-6(3)	40	22	49.8	14.7	10.1	25.4	97	65	36		
S-257	30+80	CL	1.5-1.8	A-2-7(0)	45	23	72.5	9.2	1.0	17.2	91	39	17		
SS-236	32+20	CL	1.2-1.5	A-2-7(7)	77	49	59.9	7.7	4.8	27.6	96	51	32		
SS-237	32+20	CL	2.0-2.3	A-2-7(0)	49	24	72.4	8.7	2.6	16.4	92	37	18		
SS-238	32+20	CL	4.3-4.75	A-1-b(0)	21	NP	81.8	9.6	2.5	6.1	53	15	5		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-236	32+20	CL	1.2-1.5	A-2-7(7)	77	49	59.9	7.7	4.8	27.6	96	51	32		
SS-237	32+20	CL	2.0-2.3	A-2-7(0)	49	24	72.4	8.7	2.6	16.4	92	37	18		
SS-238	32+20	CL	4.3-4.75	A-1-b(0)	21	NP	81.8	9.6	2.5	6.1	53	15	5		
S-251	33+80	CL	0.3-0.6	A-2-4(0)	15	3	47.5	23.3	12.0	17.2	98	69	31		
S-252	33+80	CL	0.6-2.2	A-7-6(5)	51	31	51.5	11.6	7.5	29.4	96	60	37		
S-253	33+80	CL	2.2-3.4	A-2-7(2)	53	35	71.6	6.6	3.5	18.3	96	38	22		
S-254	33+80	CL	3.4-6.0	A-2-4(0)	27	7	78.7	10.4	2.7	8.1	83	29	10		
SS-235	35+00	CL	0.3-0.45	A-2-4(0)	18	NP	34.3	40.6	11.9	13.3	98	68	27		
SS-231	35+00	CL	1.1-1.55	A-7-6(8)	56	36	48.2	11.1	7.0	33.7	96	60	40		
SS-232	35+00	CL	1.9-2.3	A-2-7(5)	69	45	64.5	7.0	3.0	25.6	99	43	29		
SS-233	35+00	CL	2.7-3.0	A-2-4(0)	28	7	70.9	16.7	1.2	11.2	90	39	12		
SS-234	35+00	CL	5.7-6.15	A-1-b(0)	25	NP	88.3	6.5	1.0	4.1	89	17	5		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
CBR-2	32+20	CL	0.3-0.5	A-2-4(0)	17	6	51.9	17.2	12.8	18.0	99	67	32		

Ⓐ Loose Tan Brown Fine to coarse Sand, Dry
Ⓑ Medium Stiff Tan Gray Sandy and Silty Clay, Dry

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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	48
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

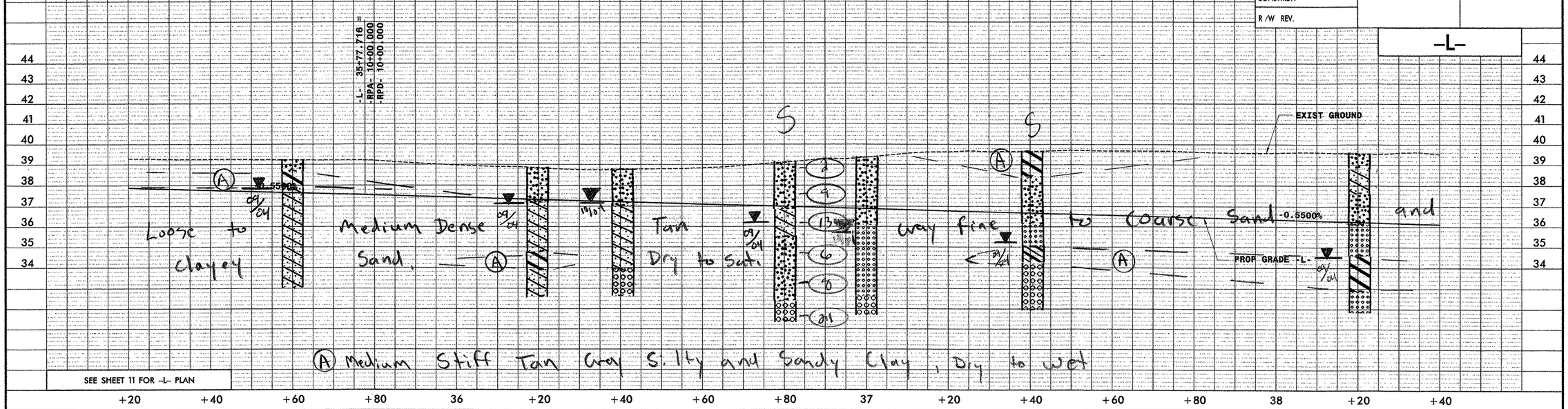
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.
R /W REV.

BENCHMARK - (TBM-L)
-BL- STA 26+20.342 (65.746 LT)
-L- 37+60.103 (60.039m LT)
EL 39.284

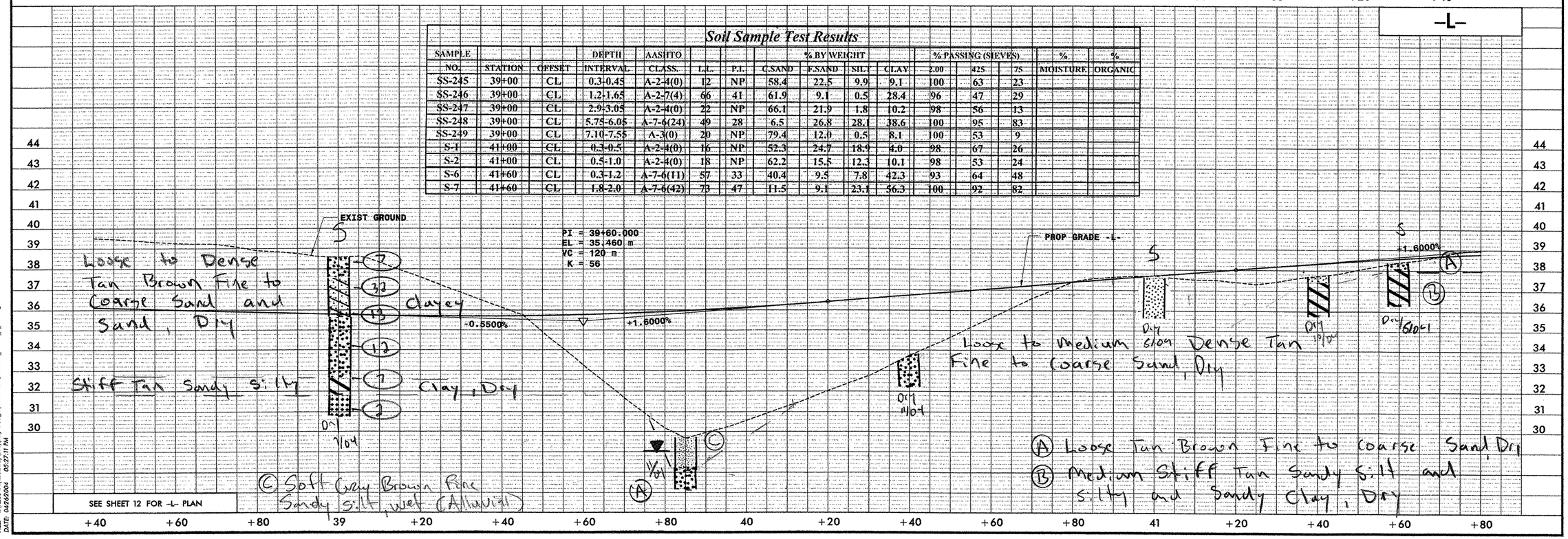
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-257	36+80	CL	0.3-0.45	A-2-4(0)	13	NP	63.4	21.1	11.4	4.0	97	56	17		
SS-258	36+80	CL	2.6-2.9	A-2-6(0)	34	17	61.2	18.5	6.1	14.1	89	48	19		
SS-259	36+80	CL	4.1-4.55	A-2-4(0)	22	NP	56.1	32.7	3.1	8.1	95	61	12		
SS-260	36+80	CL	7.2-7.65	A-1-b(0)	20	NP	71.4	24.2	2.4	2.0	100	50	5		
S-125	37+40	CL	0.3-1.2	A-7-6(11)	61	40	45.4	10.0	6.0	38.6	95	61	44		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-245	39+00	CL	0.3-0.45	A-2-4(0)	12	NP	58.4	22.5	9.9	9.1	100	63	23		
SS-246	39+00	CL	1.2-1.65	A-2-7(4)	66	41	61.9	9.1	0.5	28.4	96	47	29		
SS-247	39+00	CL	2.9-3.05	A-2-4(0)	22	NP	66.1	21.9	1.8	10.2	98	56	13		
SS-248	39+00	CL	5.75-6.05	A-7-6(24)	49	28	6.5	26.8	28.1	38.6	100	95	83		
SS-249	39+00	CL	7.10-7.55	A-3(0)	20	NP	79.4	12.0	0.5	8.1	100	53	9		
S-1	41+00	CL	0.3-0.5	A-2-4(0)	16	NP	52.3	24.7	18.9	4.0	98	67	26		
S-2	41+00	CL	0.5-1.0	A-2-4(0)	18	NP	62.2	15.5	12.3	10.1	98	53	24		
S-6	41+60	CL	0.3-1.2	A-7-6(11)	57	33	40.4	9.5	7.8	42.3	93	64	48		
S-7	41+60	CL	1.8-2.0	A-7-6(42)	73	47	11.5	9.1	23.1	56.3	100	92	82		



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BENCHMARK - (TBM-M)
-BL- STA 31+57.726 (64.346 RT)
-L- 43+00.938 (49.780m RT)
EL 39.030

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	49
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

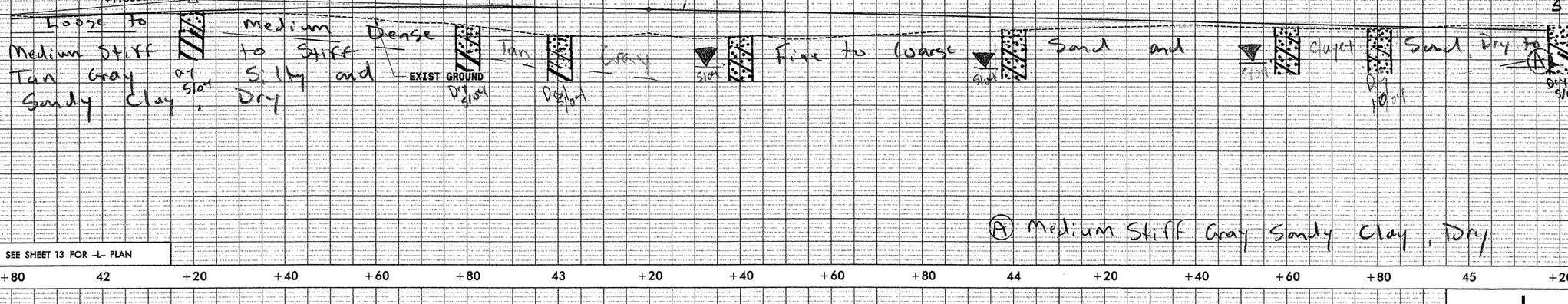
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-8	42+80	CL	0.2-0.6	A-2-4(0)	11	NP	56.7	21.5	11.0	10.1	98	62	24		
S-9	42+80	CL	0.6-1.2	A-2-6(1)	27	14	54.3	16.8	8.7	20.2	97	59	30		
S-10A	42+80	CL	1.2-2.0	A-7-6(4)	48	28	48.5	13.1	8.2	30.2	94	62	37		
S-112	45+20	CL	1.2-1.6	A-7-6(3)	45	24	47.9	16.6	3.0	32.5	100	75	36		
S-113	45+20	CL	1.6-1.8	A-2-7(1)	46	27	71.0	10.2	1.5	17.2	98	46	19		

-L-

PI = 42+20.000
EL = 39.620 m
VC = 200 m
K = 98



SEE SHEET 13 FOR -L- PLAN

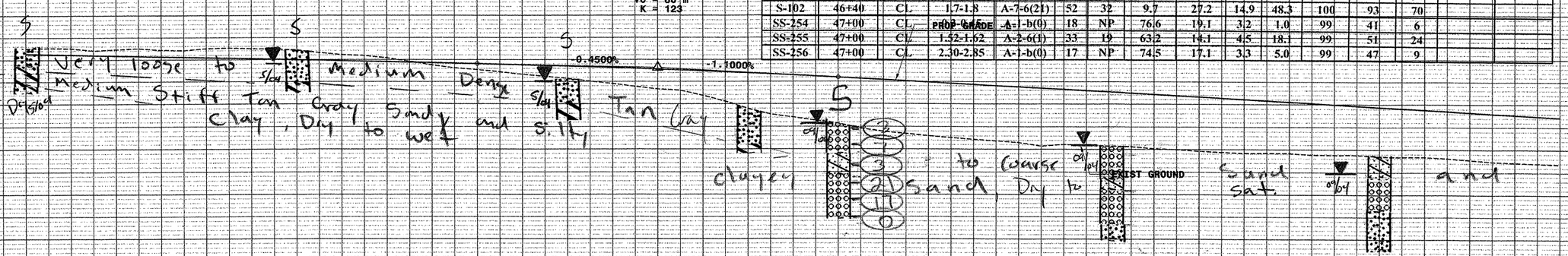
+80 42 +20 +40 +60 +80 43 +20 +40 +60 +80 44 +20 +40 +60 +80 45 +20

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-112	45+20	CL	1.2-1.6	A-7-6(3)	45	24	47.9	16.6	3.0	32.5	100	75	36		
S-113	45+20	CL	1.6-1.8	A-2-7(1)	46	27	71.0	10.2	1.5	17.2	98	46	19		
S-100	45+80	CL	0.3-1.7	A-2-4(0)	12	NP	64.5	20.1	7.3	8.0	98	55	17		
S-101	45+80	CL	1.7-1.8	A-7-6(3)	43	24	50.7	13.8	2.3	33.2	100	72	36		
S-102	46+40	CL	1.7-1.8	A-7-6(21)	52	32	9.7	27.2	14.9	48.3	100	93	70		
SS-254	47+00	CL	0.3-0.45	A-1-b(0)	18	NP	76.6	19.1	3.2	1.0	99	41	6		
SS-255	47+00	CL	1.52-1.62	A-2-6(1)	33	19	63.2	14.1	4.5	18.1	99	51	24		
SS-256	47+00	CL	2.30-2.85	A-1-b(0)	17	NP	74.5	17.1	3.3	5.0	99	47	9		

-L-

PI = 46+60.000
EL = 37.640 m
VC = 80 m
K = 123



SEE SHEET 14 FOR -L- PLAN

+20 +40 +60 +80 46 +20 +40 +60 +80 47 +20 +40 +60 +80 48 +20 +40 +60

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6/09/99

BENCHMARK - (TBM-N)
-BL- STA 39+17.490 (185.157 LT)
-L- 50+46.181 (212.541m LT)
EL 29.060

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE No.

DRAINAGE AREA (HECTARES)	=	10.9 HA
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	0.45 CMS
DESIGN HW ELEVATION	=	32.91 m
100 YR DISCHARGE	=	0.54 CMS
100 YR HW ELEVATION	=	33.02 m
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	1.35 CMS
OVERTOPPING ELEVATION	=	34.98 m

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-122	48+80	CL	0.3-1.3	A-2-4(0)	23	9	58.0	16.1	11.7	14.2	97	53	28		
S-123	48+80	CL	1.8-3.4	A-1-b(0)	37	NP	73.8	11.0	7.1	8.1	83	30	10		
S-124	48+80	CL	3.4-4.0	A-2-4(0)	29	NP	11.5	63.1	8.1	17.3	99	92	26		
SS-250	50+00	CL	0.3-0.45	A-1-b(0)	17	NP	63.8	21.3	7.8	7.0	99	50	16		
SS-251	50+00	CL	0.76-1.21	A-1-b(0)	19	NP	67.3	28.4	3.3	1.0	90	47	5		
SS-252	50+00	CL	1.52-1.97	A-4(0)	21	NP	18.2	58.1	6.5	17.3	100	100	56		
SS-253	50+00	CL	3.10-3.55	A-2-4(0)	25	NP	9.7	71.1	5.1	14.4	98	92	20		
S-103	51+80	CL	0.3-0.6	A-2-4(0)	11	NP	52.6	19.9	13.4	14.1	98	63	30		
S-104	51+80	CL	0.6-1.2	A-6(2)	34	20	50.1	14.7	10.1	25.2	97	61	36		
S-105	51+80	CL	1.2-1.8	A-7-6(8)	51	30	45.9	12.1	7.8	34.2	98	63	48		

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE No.

DRAINAGE AREA (HECTARES)	=	38.4 HA
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	1.25 CMS
DESIGN HW ELEVATION	=	30.33 m
100 YR DISCHARGE	=	1.51 CMS
100 YR HW ELEVATION	=	30.41 m
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	4.4 CMS
OVERTOPPING ELEVATION	=	33.82 m

PI = 50+80.000
EL = 33.020 m
VC = 80 m
K = 55

-L-

PROP GRADE -L-
-1.1000%
-1.1000%
-1.1000%
+0.3500%
+0.3500%
+0.3500%
500mm RCP
EXIST GROUND
1000mm RCP
Very Loose to Medium Dense Tan Gray Fine to Coarse Sand, Dry to Sat
Sand, Dry to Sat
Very Soft to Medium Stiff Tan Gray Sandy Silt and Silty Sandy Clay, Dry to Wet
BEGIN LATERAL V-DITCH RT 51+60.000 EL 32.400
LATERAL BASE DITCH RT 52+00.000 EL 31.914

SEE SHEET 15 FOR -L- PLAN

+60 +80 49 +20 +40 +60 +80 50 +20 +40 +60 +80 51 +20 +40 +60 +80 52

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-106	52+40	CL	1.2-1.7	A-7-6(10)	47	28	26.8	24.5	14.5	34.2	99	80	51		
S-107	53+60	CL	0.9-1.5	A-2-7(2)	55	34	70.2	6.6	0.0	23.1	98	45	23		
SS-27	54+80	CL	0.3-0.45	A-2-4(0)	15	NP	60.1	19.7	13.2	7.1	99	57	23		
SS-28	54+80	CL	0.76-1.20	A-6(7)	32	17	30.2	6.3	56.4	7.1	90	70	58		
SS-29	54+80	CL	2.3-2.7	A-2-7(1)	52	26	61.5	8.5	6.7	23.3	77	38	24		
SS-207	54+80	CL	3.10-3.55	A-2-4(0)	29	NP	11.0	70.4	8.6	10.1	100	92	20		
SS-208	54+80	CL	3.80-4.25	A-2-4(0)	27	NP	32.7	49.8	9.5	8.1	98	74	19		
SS-210	54+80	CL	4.60-5.10	A-2-4(0)	26	NP	1.8	70.4	7.7	20.2	100	99	30		
S-120	55+40	CL	2.0-3.2	A-2-7(1)	62	43	30.0	8.4	4.1	31.5	72	40	26		
S-121	55+40	CL	3.2-3.8	A-2-4(0)	26	NP	12.4	70.7	2.6	14.2	94	85	17		

-L-

PI = 55+00.000
EL = 34.490 m
VC = 300 m
K = 133

+0.3500%
-1.9000%
+0.3500%
PROP GRADE -L-
EXIST GROUND
450mm RCP
600mm RCP
LATERAL V-DITCH RT 52+00.000 EL 31.914
END LATERAL V-DITCH RT 52+80.000 EL 31.027
BEGIN SPECIAL BASE DITCH RT 55+40.000 EL 31.547
BEGIN SPECIAL BASE DITCH RT 55+40.000 EL 31.022
Loose to Medium Dense Tan Brown Fine to Coarse Sand, Dry
Medium Stiff to Stiff Tan Gray Silty and Sandy Clay, Dry to Wet
Loose to Medium Dense Tan Gray Sandy Fine to Coarse Sand, Dry to Sat

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE No.

DRAINAGE AREA (HECTARES)	=	4.5 HA
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	0.20 CMS
DESIGN HW ELEVATION	=	31.51 m
100 YR DISCHARGE	=	0.24 CMS
100 YR HW ELEVATION	=	31.56 m
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	0.70 CMS
OVERTOPPING ELEVATION	=	33.54 m

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE No.

DRAINAGE AREA (HECTARES)	=	8.9 HA
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	0.36 CMS
DESIGN HW ELEVATION	=	30.98 m
100 YR DISCHARGE	=	0.44 CMS
100 YR HW ELEVATION	=	31.07 m
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	0.62 CMS
OVERTOPPING ELEVATION	=	32.66 m

SEE SHEET 16 FOR -L- PLAN

+60 +80 52 +20 +40 +60 +80 53 +20 +40 +60 +80 54 +20 +40 +60 +80 55 +20 +40

FILE: $FILES
DATE: $DATES
STIMES

Soil Sample Test Results

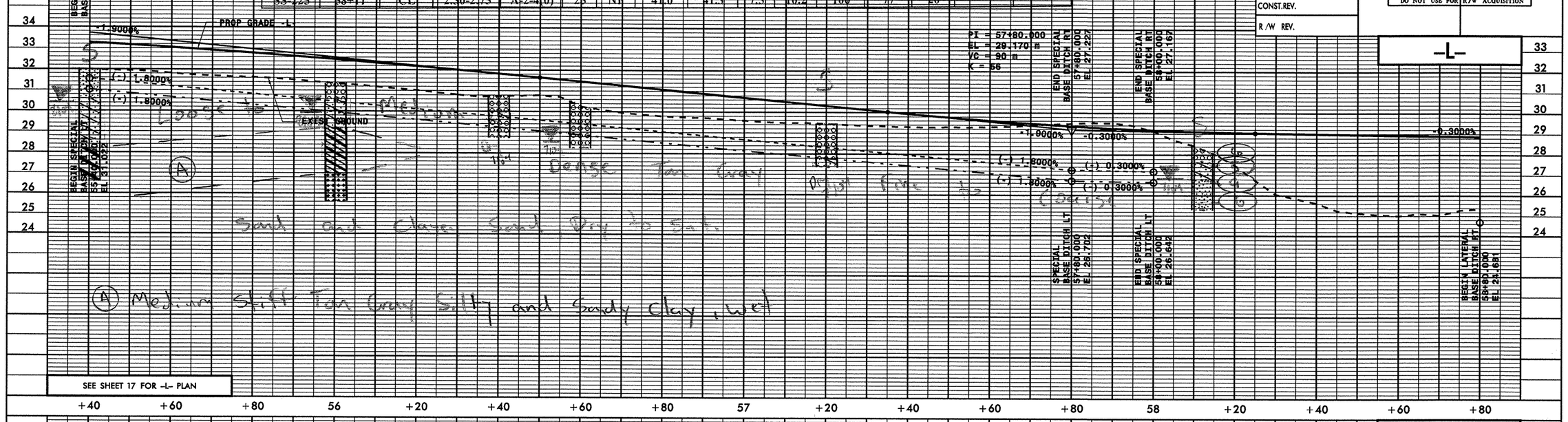
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-120	55+40	CL	2.0-3.2	A-2-7(4)	62	43	56.0	8.4	4.1	31.5	72	40	26		
S-121	55+40	CL	3.2-3.8	A-2-4(0)	26	NP	12.4	70.7	2.6	14.2	94	85	17		
S-241	57+20	CL	0.3-1.6	A-1-b(0)	28	5	58.4	19.9	7.5	14.2	88	49	20		
S-242	57+20	CL	1.6-1.8	A-2-7(0)	49	33	68.7	10.9	2.2	18.3	60	27	13		
SS-223	58+11	CL	0.3-0.45	A-1-b(0)	16	NP	58.3	27.4	7.2	7.2	86	49	14		
SS-224	58+11	CL	0.76-1.20	A-2-7(2)	43	20	38.7	33.4	3.4	24.5	97	65	28		
SS-225	58+11	CL	2.30-2.75	A-2-4(0)	25	NP	41.0	41.3	7.5	10.2	100	77	20		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 476
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

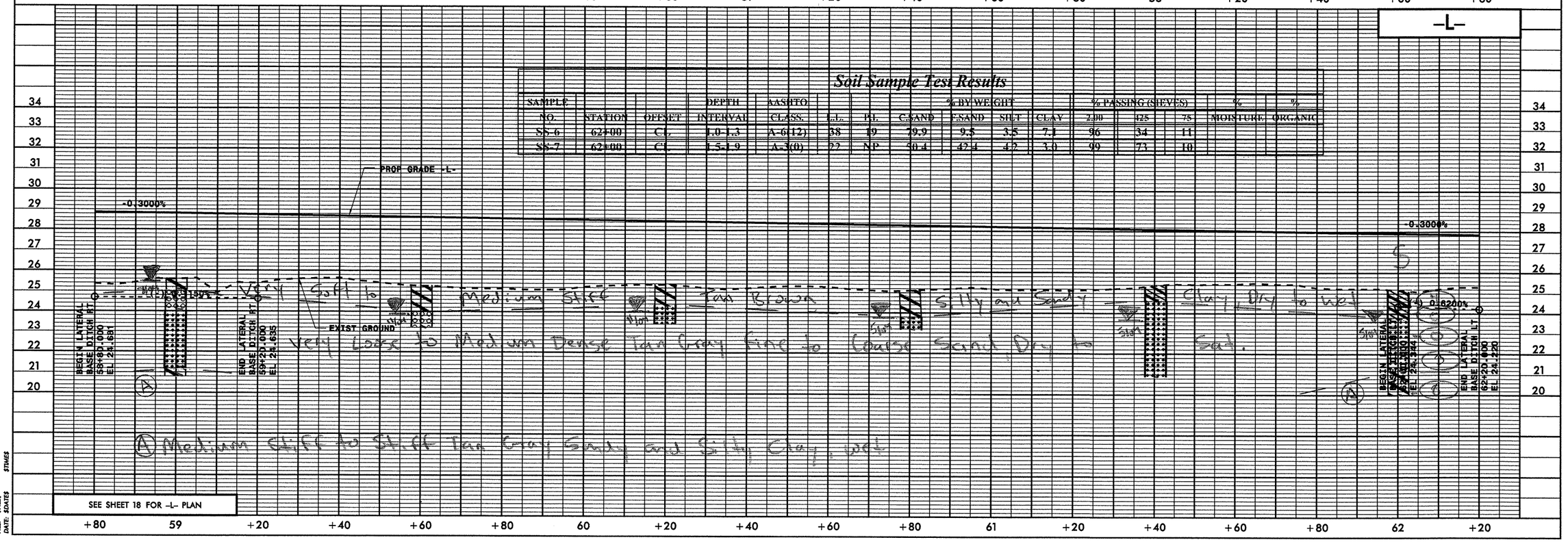
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	31
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-6	62+00	CL	1.0-1.3	A-6(12)	38	19	79.9	9.5	3.5	7.1	96	34	11		
SS-7	62+00	CL	1.5-1.9	A-3(0)	22	NP	50.4	42.4	4.2	3.0	99	73	10		



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DATE: $DATES
$TIMES

BENCHMARK - (TBM-O)
-BL- STA 51+18.163 (13.409 LT)
-L- 62+61.567 (44.406m LT)
EL 25.367

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

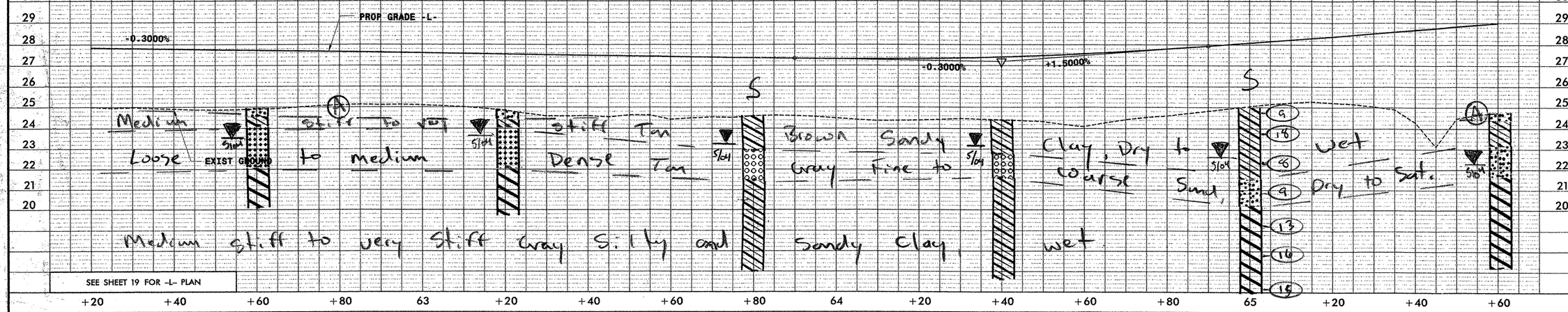
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-17	63+80	CL	0.3-1.7	A-6(8)	35	18	20.9	21.5	29.4	28.2	97	81	61	19.1	
S-18	63+80	CL	1.7-3.1	A-1-b(0)	17	NP	75.4	14.2	3.4	7.0	95	43	11		
S-19	63+80	CL	3.1-7.5	A-6(10)	33	16	4.6	40.8	26.4	28.2	98	94	72		
SS-3	65+00	CL	1.10-1.55	A-6(7)	28	12	1.2	39.0	37.6	22.1	98	97	78		
SS-4	65+00	CL	3.90-4.35	A-2-4(0)	22	NP	28.0	50.9	7.0	14.1	100	96	25		
SS-5	65+00	CL	5.40-5.85	A-7-6(250	48	26	3.8	12.7	53.3	30.2	100	98	89		

-L-

PI = 64+40.000
EL = 27.190 m
VC = 100 m
K = 56

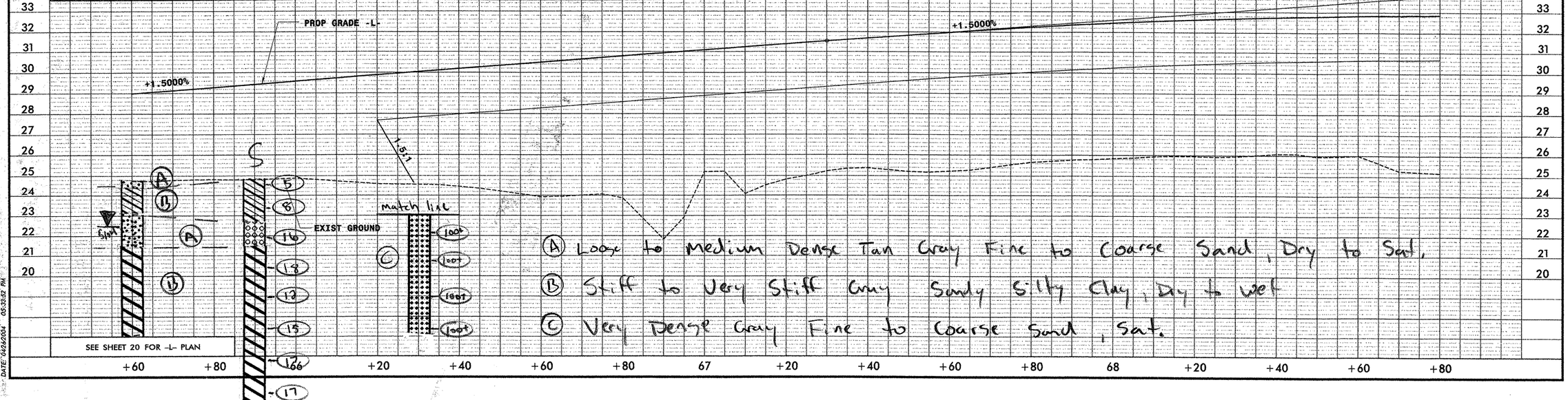


BENCHMARK - (TBM-P)
-BL- STA 58+20.500 (239.019 RT)
-L- 68+76.148 (280.096m RT)
EL 25.167

-L-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-8	65+90	CL	1.10-1.50	A-6(8)	32	11	1.2	28.6	43.8	26.4	100	99	82	21.6	
SS-9	65+90	CL	2.50-2.90	A-1-b(0)	20	NP	84.0	12.8	1.2	2.0	66	22	3		
SS-10	65+90	CL	5.50-5.90	A-7-6(31)	55	29	2.0	8.5	44.8	44.8	100	99	93		
SS-11	65+90	CL	10.1-10.5	A-7-6(27)	46	26	0.4	10.3	52.7	36.5	100	100	95		
SS-12	65+90	CL	11.6-12.0	A-3(0)	20	NP	46.7	46.9	3.4	3.0	97	79	8		
SS-13	65+90	CL	14.7-15.1	A-3(0)	21	NP	60.5	33.3	3.1	3.0	98	80	8		



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD, SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

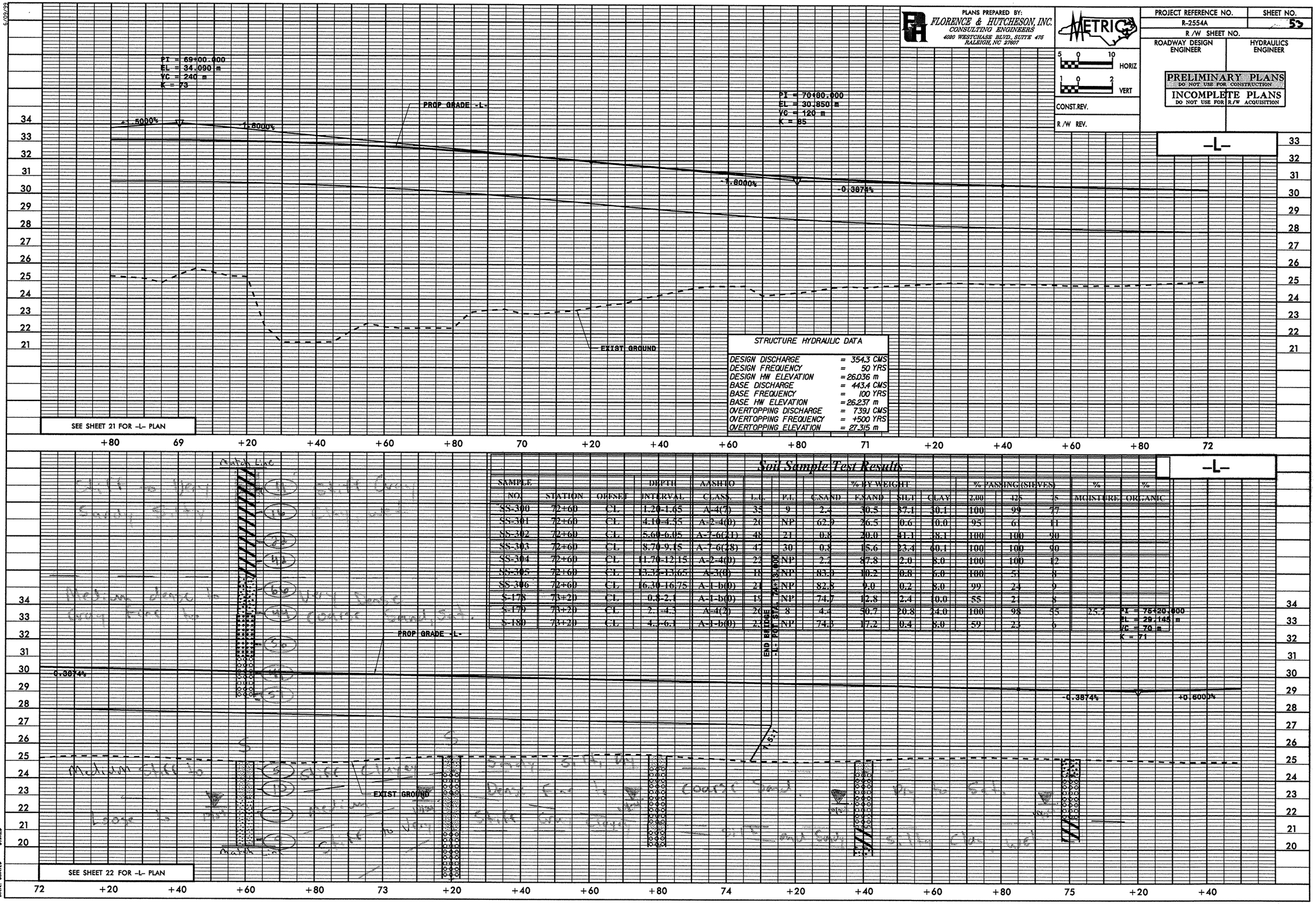
CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	53
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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

-L-



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-300	72+60	CL	1.20-1.65	A-4(7)	35	9	2.4	30.5	37.1	30.1	100	99	77		
SS-301	72+60	CL	4.10-4.55	A-2-4(0)	20	NP	62.9	26.5	9.6	10.0	95	61	11		
SS-302	72+60	CL	5.60-6.05	A-7-6(11)	48	21	0.8	20.0	41.1	38.1	100	100	90		
SS-303	72+60	CL	8.70-9.15	A-7-6(18)	47	30	0.8	15.6	23.4	60.1	100	100	90		
SS-304	72+60	CL	11.70-12.15	A-2-4(0)	22	NP	2.2	87.8	2.0	8.0	100	100	12		
SS-305	72+60	CL	13.35-13.65	A-3(0)	18	NP	83.0	10.2	0.8	6.0	100	5	8		
SS-306	72+60	CL	16.30-16.75	A-1-b(0)	21	NP	82.8	9.0	0.2	8.0	99	24	9		
S-178	73+20	CL	0.8-2.1	A-1-b(0)	19	NP	74.7	12.8	2.4	10.0	55	21	8		
S-179	73+20	CL	2.7-4.3	A-4(2)	26	8	4.4	50.7	20.8	24.0	100	98	55	25.7	
S-180	73+20	CL	4.3-6.1	A-3-b(0)	23	NP	74.3	17.2	0.4	8.0	59	23	6		

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PLANS PREPARED BY:
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CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	54
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.

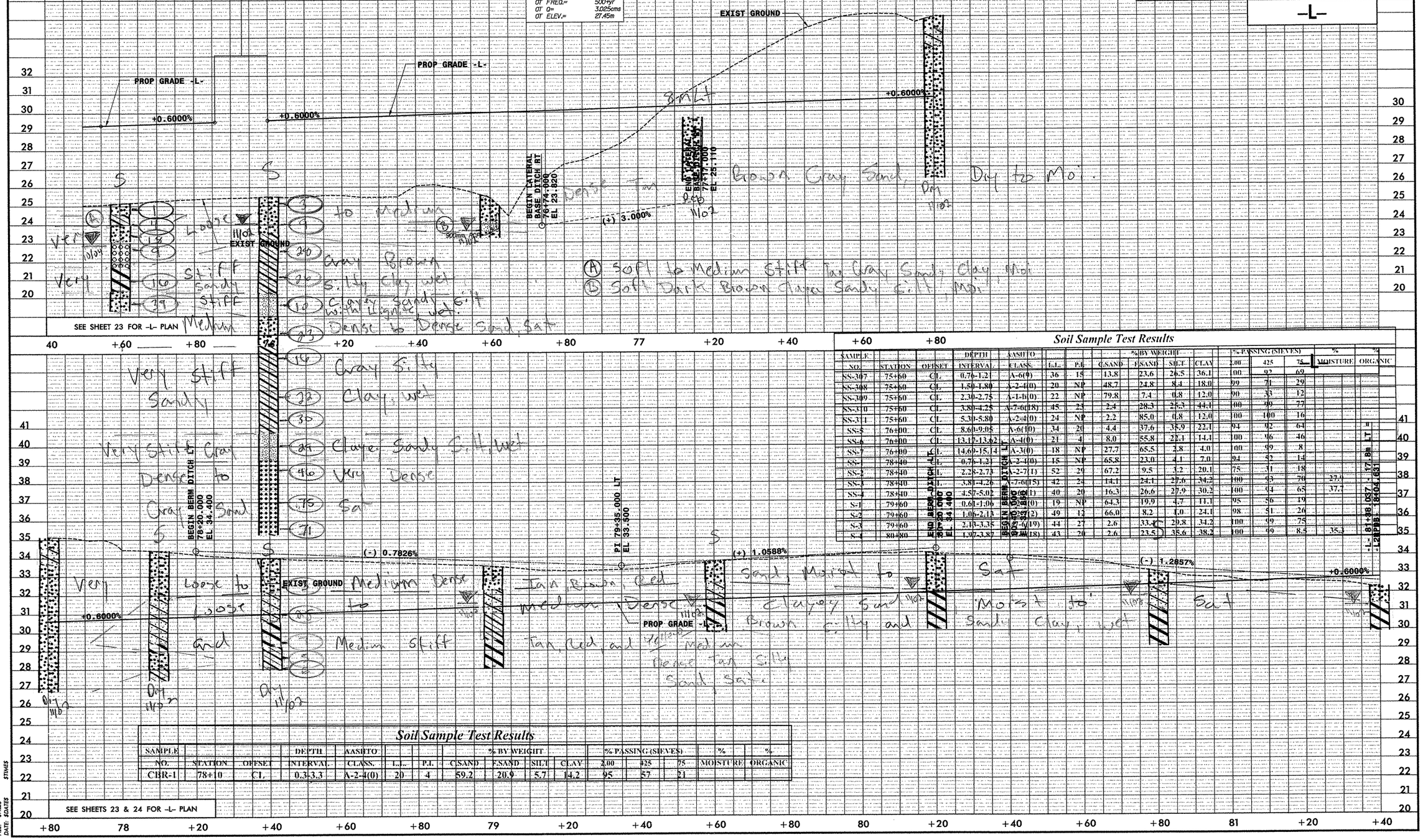
-L-

BENCHMARK - (TBM-Q)
-BL- STA 65+25.960 (109.375 RT)
-L- 76+16.937 (106.779m RT)
EL 25.545

PIPE HYDRAULIC DATA
*399: 900mm RCP
-L- STA 76+62 RT

D.A.=	8.584ha
DES.FREQ.=	500yr
DES.Q=	1.110cms
DES.HW ELEV.=	24.78m
100YR Q=	1.290cms
100YR HW ELEV=	24.94m
OT FREQ.=	500+yr
OT Q=	3.025cms
OT ELEV.=	27.45m

-L- STA 75+85.754 (LB) EL 29.540 =
-L- STA 76+00.000 (LA) EL 29.540 =



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-307	75+60	CL	0.70-1.2	A-6(9)	36	15	13.8	23.6	26.5	36.1	100	92	69		
SS-308	75+60	CL	1.50-1.80	A-2-4(0)	20	NP	48.7	24.8	8.4	18.0	99	71	29		
SS-309	75+60	CL	2.30-2.75	A-1-b(0)	22	NP	79.8	7.4	0.8	12.0	90	33	12		
SS-310	75+60	CL	3.80-4.25	A-7-6(18)	45	25	2.4	28.3	25.3	44.1	100	99	77		
SS-311	75+60	CL	5.30-5.80	A-2-4(0)	24	NP	2.2	85.0	0.8	12.0	100	100	16		
SS-5	76+00	CL	8.60-9.05	A-6(10)	34	20	4.4	37.6	35.9	22.1	94	92	64		
SS-6	76+00	CL	13.17-13.62	A-4(0)	21	4	8.0	55.8	22.1	14.1	100	96	46		
SS-7	76+00	CL	14.69-15.14	A-3(0)	18	NP	27.7	65.5	2.8	4.0	100	99	8		
SS-1	78+40	L	0.76-1.2	A-2-4(0)	15	NP	65.8	23.0	4.1	7.0	94	52	14		
SS-2	78+40	L	2.28-2.73	A-2-7(1)	52	29	67.2	9.5	3.2	20.1	75	31	18		
SS-3	78+40	L	3.80-4.26	A-7-6(15)	42	24	14.1	24.1	27.6	34.2	100	93	70	27.9	
SS-4	78+40	L	4.57-5.02	A-6(11)	40	20	16.3	26.6	27.9	30.2	100	94	65	37.7	
S-1	79+60	L	0.61-1.06	A-3(0)	19	NP	64.3	19.9	4.7	11.1	95	56	19		
S-2	79+60	L	1.06-2.13	A-2-7(2)	49	12	66.0	8.2	1.0	24.1	98	51	26		
S-3	79+60	L	2.13-3.35	A-7-6(19)	44	27	2.6	33.4	20.8	34.2	100	99	75		
S-4	80+80	L	1.97-3.82	A-7-6(18)	43	20	2.6	23.5	35.6	38.2	100	99	8.5	35.3	

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
CBR-1	78+10	CL	0.3-3.3	A-2-4(0)	20	4	59.2	20.9	5.7	14.2	95	57	21		

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DATE: $DATE$ $TIMES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4030 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	55
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

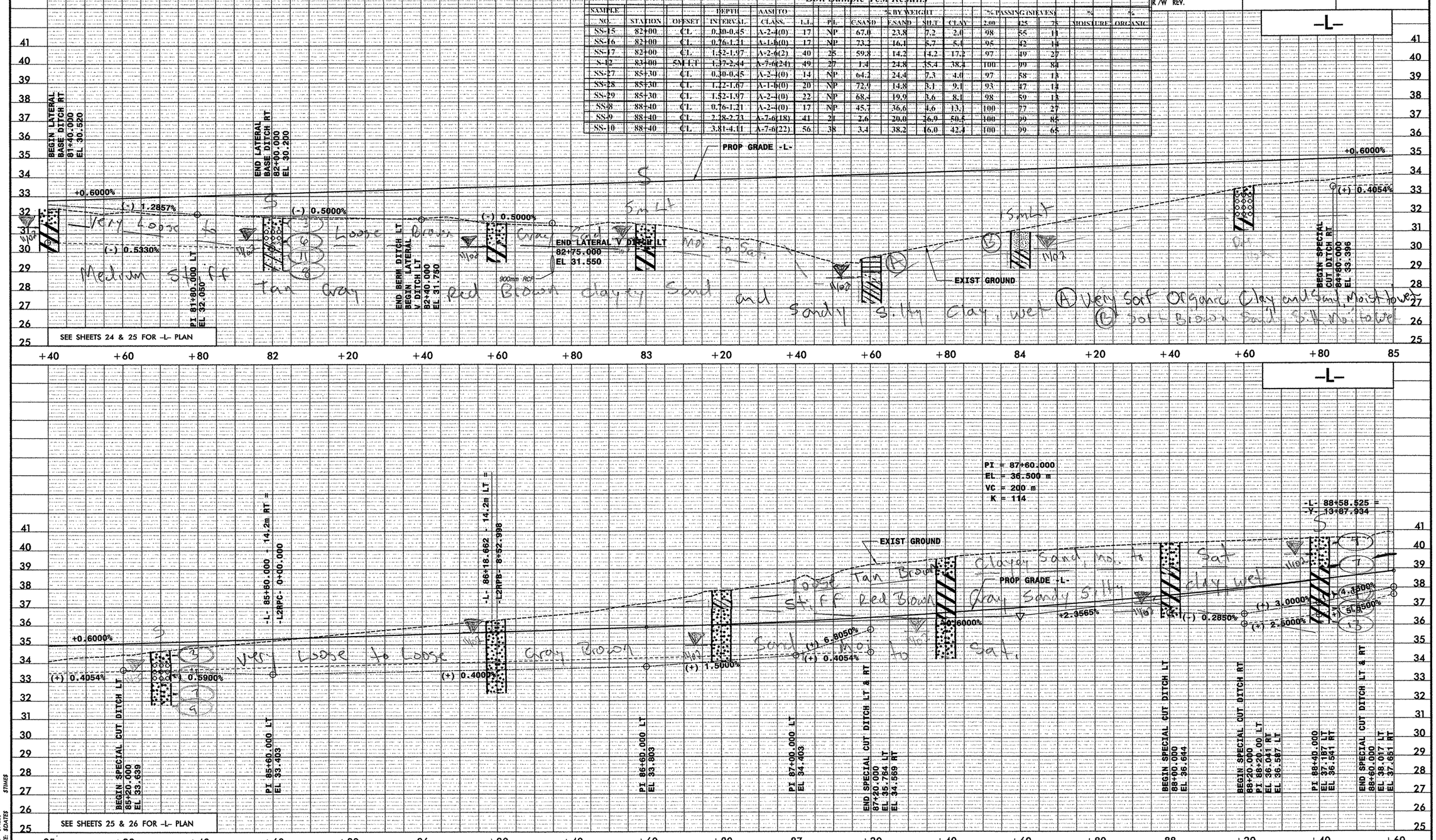
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
*408: 900mm RCP
-L- STA 82+75 LT

D.A.=	6.89ha
DES.FREQ.=	50yr
DES.Q=	0.890cms
DES.HW ELEV.=	32.38m
100YR Q=	1.030cms
100YR HW ELEV=	32.41m
OT FREQ.=	500yr
OT Q=	2.010cms
OT ELEV.=	33.16m

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING SIEVES 2.00	425	75	% MOISTURE	% ORGANIC
SS-15	82+00	CL	0.30-0.45	A-2-4(0)	17	NP	67.0	23.8	7.2	2.0	98	55	11		
SS-16	82+00	CL	0.76-1.21	A-1-b(0)	17	NP	73.2	16.1	5.7	5.1	95	42	11		
SS-17	82+00	CL	1.52-1.97	A-2-6(2)	40	25	59.8	14.2	14.2	17.2	97	49	27		
S-12	83+00	SM LT	1.37-2.44	A-7-6(24)	49	27	1.4	24.8	35.4	38.4	100	99	84		
SS-27	85+30	CL	0.30-0.45	A-2-4(0)	14	NP	64.2	24.4	7.3	4.0	97	58	13		
SS-28	85+30	CL	1.22-1.67	A-1-b(0)	20	NP	72.9	14.8	3.1	9.1	93	47	14		
SS-29	85+30	CL	1.52-1.97	A-2-4(0)	22	NP	68.4	19.9	3.6	8.1	98	59	13		
SS-8	88+40	CL	0.76-1.21	A-2-4(0)	17	NP	45.7	36.6	4.6	13.1	100	77	27		
SS-9	88+40	CL	2.28-2.73	A-7-6(18)	41	21	2.6	20.0	26.9	50.5	100	99	85		
SS-10	88+40	CL	3.81-4.11	A-7-6(22)	56	38	3.4	38.2	16.0	42.4	100	99	65		



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DATE: $DATES
$TIMES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD. SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	56
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R /W REV.

-L-

PIPE HYDRAULIC DATA
*24:750mm RCP
-L- STA 90+20 LT

D.A.=	4.300ha
DES.FREQ.=	50yr
DES.Q=	0.570cms
DES.HW ELEV.=	39.68m
100YR Q=	0.670cms
100YR HW ELEV=	39.73m
OT FREQ.=	500yr
OT Q=	1.897cms
OT ELEV.=	41.71m

BM #1: RR SPIKE IN BASE OF 460mm (18") PINE
-BL- STA 8+14.282 (72.717 LT)
-L- STA 91+67 (77 LT)
EL 40.614

END PROJECT R-2554A
BEGIN PROJECT R-2554BA
-L- STA 90+00.000

END GRADING
BEGIN PAVING ONLY

END CONSTRUCTION R-2554A
-L- STA 91+77.000 WB
END PAVING ONLY

* See Sheet 57 for Sample Results

-L- 89+04.224 = -L2PPDB- 10+03.224

BEGIN SPECIAL MEDIAN CUT DITCH
89+40.000
EL 40.112

PI SPECIAL MEDIAN CUT DITCH
90+00.000
EL 40.022

END SPECIAL MEDIAN CUT DITCH
90+20.000
EL 41.447

-L- 90+62.554 = -L2PPDD- 8+00.816

PI = 89+90.000
EL = 41.920 m
VC = 200 m
K = 359

+2.3565%
+1.8000%
(-) 0.150%
(+) 7.125%
(-) 1.7500%
+1.8000%
PROP GRADE -L-
EXIST GROUND

BEGIN LATERAL V DITCH LT
90+00.000
EL 39.350

END LATERAL V DITCH LT
90+20.000
EL 39.000

750mm RCP (TO BE PLACED UNDER PROJECT R-2554B)

SEE SHEETS 26 & 27 FOR -L- PLAN

Match Line

Soft Dark Gray Sandy Silt, wet
Loose Dark Gray Sand, Sat.
Very Stiff to Hard Silty Sandy Clay, wet
Very Loose to Medium Loose Gray Sand, Sat.
Stiff to Stiff Red Brown Sandy Silt
Loose to Medium Dense Tan Gray Clayey Sand with Gravel Sat
Very Soft Dark Gray Silt, wet
Sandy Silt, wet
Loose to Medium Dense Gray Sand, Sat
Clay and Clayey Sandy Silt, Mo. to wet

+60 +80 89 +20 +40 +60 +80 90 +20 +40 +60 +80 91 +20 +40 +60 +80 92 +20

Match Line

Medium Dense to Dense Gray Sand, Sat.
Very Stiff to Hard Sandy Silty Clay, wet
Medium Gray Sandy and Silty Clay, wet

PI = 92+90.000
EL = 47.320 m
VC = 200 m
K = 87.2

-0.5000%
PROP GRADE -L-

-L- 92+90.886 = -L2PPB- 0+00.000 14.2m LT
-L- 93+23.591 = -L2- 90+29.263
-L- 93+45.023 = -L2PPD- 0+00.000 14.2m RT

ST-4

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
ST-4	93+60	CL	8.97-9.57	A-6(1)	28	11	29.7	36.0	20.2	14.1	89	70	39		

Loose Brown Silty Sand, Mo.
Soft to Very Stiff Red Brown Sandy Silty Clay, Sandy
Very Loose to Medium Dense Tan Gray Sand and Clayey Sand, Sat.
Very Soft to Medium Stiff Gray Sandy Silty Clay and Sandy Silt, wet

EXIST GROUND

SEE SHEETS 27 & 29 FOR -L- PLAN

+20 +40 +60 +80 93 +20 +40 +60 +80 94 +20 +40 +60 +80 95 +20 +40 +60 +80

Match Line

FILE: $FILES
DATE: $DATES
$TIMES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	57
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

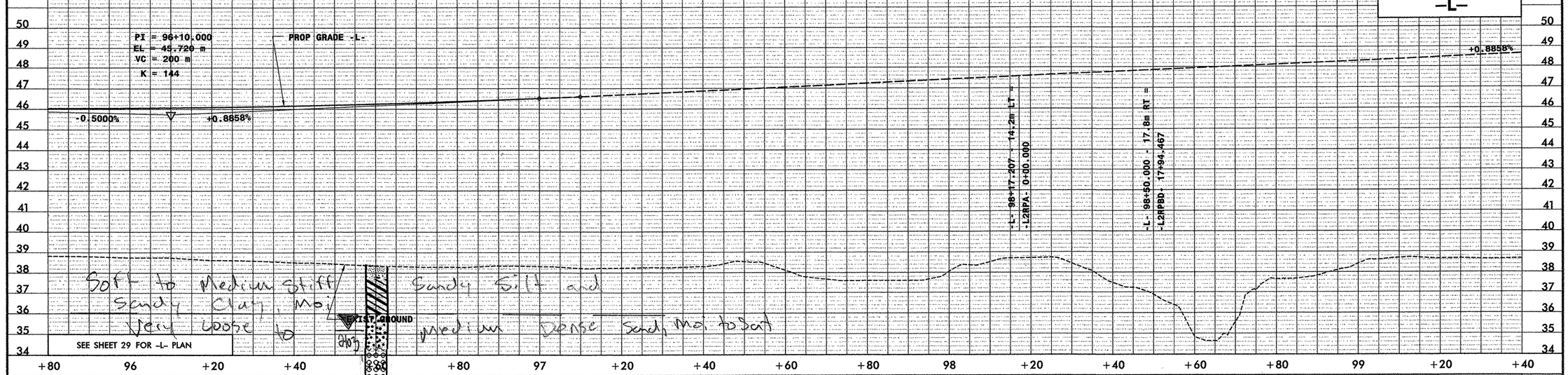
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

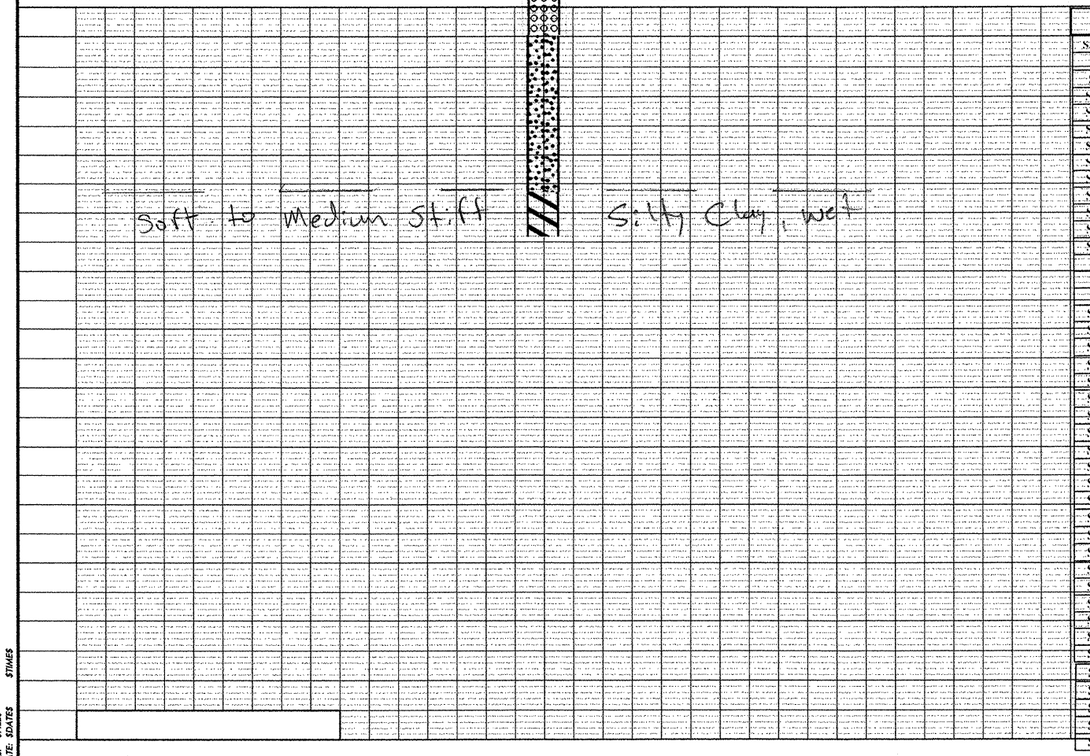
BM #2: RR SPIKE IN BASE OF 610mm (24") OAK
-BL- STA 13+60.274 (97.868 RT)
-L- STA 96+80 (99 RT)
EL 39.613

BM #3: RR SPIKE IN BASE OF 300mm (12") OAK
-BL- STA15+81.681 (61.854 LT)
-L- STA 99+13 (57 LT)
EL 39.107

END CONSTRUCTION R-2554A
-L- STA 97+00.000 EB
END PAVING ONLY

CONSTRUCTION BY OTHERS (R-2554BA)





Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#35	#75	% MOISTURE	% ORGANIC
SS-99	89+00	CL	0.30-0.45	A-2-4(0)	22	10	47.9	25.4	8.6	18.1	100	71	30		
SS-100	89+00	CL	0.76-1.21	A-2-4(0)	27	10	54.6	24.0	6.3	15.1	100	66	23		
SS-101	89+00	CL	1.52-1.97	A-7-6(16)	49	31	24.2	20.3	23.3	32.2	99	81	61	20.9	
SS-102	89+00	CL	4.16-4.61	A-2-6(0)	36	18	70.7	10.5	0.7	18.1	94	58	18		
SS-103	89+00	CL	5.67-6.12	A-1-b(0)	23	NP	81.3	10.0	1.1	7.0	92	39	8		
SS-104	89+00	CL	8.72-9.17	A-4(0)	28	9	5.9	51.0	12.4	20.1	97	87	37		
SS-105	89+00	CL	11.22-11.77	A-4(0)	30	NP	1.9	55.8	24.3	8.1	100	95	37		
SS-106	89+00	CL	13.29-13.74	A-2-4(0)	22	5	51.4	20.9	19.6	8.1	100	88	31		
SS-107	89+00	CL	14.81-15.26	A-7-6(37)	59	37	0.5	10.5	48.8	30.2	100	93	83	26.3	
SS-108	89+00	CL	17.86-18.31	A-7-6(21)	45	25	1.3	6.1	46.4	26.2	99	92	80		
SS-109	89+00	CL	19.39-19.84	A-6(7)	34	10	7.7	41.5	38.8	12.1	98	93	62		
SS-96	90+20	CL	0.76-1.21	A-4(5)	24	10	8.3	23.6	38.0	30.2	100	96	74	17.1	
SS-97	90+20	CL	1.52-1.97	A-7-6(25)	47	31	4.2	20.1	29.3	46.3	100	98	81		
SS-98	90+20	CL	2.28-2.73	A-6(6)	32	19	16.7	36.9	16.2	30.2	100	94	51		
SS-110	92+80	CL	0.30-0.45	A-6(6)	26	11	4.6	27.0	38.2	30.2	100	98	76	19.6	
SS-111	92+80	CL	0.76-1.21	A-7-6(37)	68	42	2.2	20.5	24.9	52.4	100	99	91	26.6	
SS-112	92+80	CL	2.68-3.13	A-3(0)	22	NP	62.1	29.0	0.8	8.1	100	76	10		
SS-113	92+80	CL	4.21-4.66	A-1-b(0)	18	NP	75.8	14.2	2.9	7.0	88	44	10		
SS-114	92+80	CL	7.25-7.70	A-7-6(35)	65	38	9.9	10.3	41.6	38.3	100	95	81	72.7	
SS-115	92+80	CL	10.3-10.75	A-6(7)	33	15	14.7	27.6	43.6	14.1	96	88	61		
SS-116	92+80	CL	11.83-12.28	A-2-4(0)	28	NP	41.7	30.4	10.9	14.4	100	97	36		
SS-117	92+80	CL	13.35-13.80	A-7-6(23)	53	25	3.4	11.1	47.2	38.3	100	98	89	26.4	
SS-118	92+80	CL	16.40-16.85	A-7-6(18)	42	22	6.4	18.1	45.2	30.2	100	96	82		
SS-119	92+80	CL	17.93-18.37	A-6(21)	39	25	6.6	14.5	40.6	38.3	100	97	86		
SS-253	93+60	CL	0.15-0.45	A-6(15)	36	20	2.9	22.2	42.3	32.7	100	99	83		
SS-254	93+60	CL	1.52-1.97	A-7-6(33)	53	34	1.2	3.5	38.4	46.9	100	99	91		
SS-255	93+60	CL	3.81-4.26	A-1-b(0)	19	NP	74.2	20.5	1.0	4.1	88	39	6		
SS-256	93+60	CL	6.85-7.30	A-2-4(0)	25	NP	24.6	63.2	9.2	3.1	100	90	18		
SS-257	93+60	CL	8.37-8.82	A-4(1)	27	8	4.1	57.8	30.0	8.2	100	98	48		
SS-258	93+60	CL	11.41-11.86	A-1-b(0)	25	NP	82.0	12.0	0.8	5.1	92	30	7		
SS-259	93+60	CL	12.93-13.38	A-7-6(23)	52	25	2.2	24.9	46.3	26.5	100	99	83		
SS-260	93+60	CL	15.97-16.42	A-7-6(18)	47	20	5.5	16.3	43.5	34.7	100	97	84		
SS-133	95+60	CL	0.30-0.45	A-4(0)	14	NP	7.9	45.7	36.4	10.1	100	97	57		
SS-134	95+60	CL	0.91-1.21	A-6(7)	28	15	3.2	35.4	35.2	26.3	100	99	69		
SS-135	95+60	CL	1.52-1.97	A-4(1)	23	8	2.8	33.1	21.8	22.2	100	99	52		
SS-136	95+60	CL	2.68-3.13	A-2-4(0)	21	NP	38.2	50.2	2.5	9.1	100	79	14		
SS-137	95+60	CL	4.21-4.66	A-7-6(14)	48	27	32.1	7.5	7.9	52.5	100	83	61		
SS-138	95+60	CL	5.73-6.18	A-1-b(0)	32	NP	79.4	13.5	4.0	3.0	86	34	7		
SS-139	95+60	CL	7.25-7.60	A-2-6(0)	26	11	50.4	21.8	19.7	8.1	93	62	28		
SS-140	95+60	CL	8.78-9.23	A-1-b(0)	26	5	77.4	13.1	2.4	7.1	80	26	8		

FILE: SFILES
DATE: SDATES
STIMES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

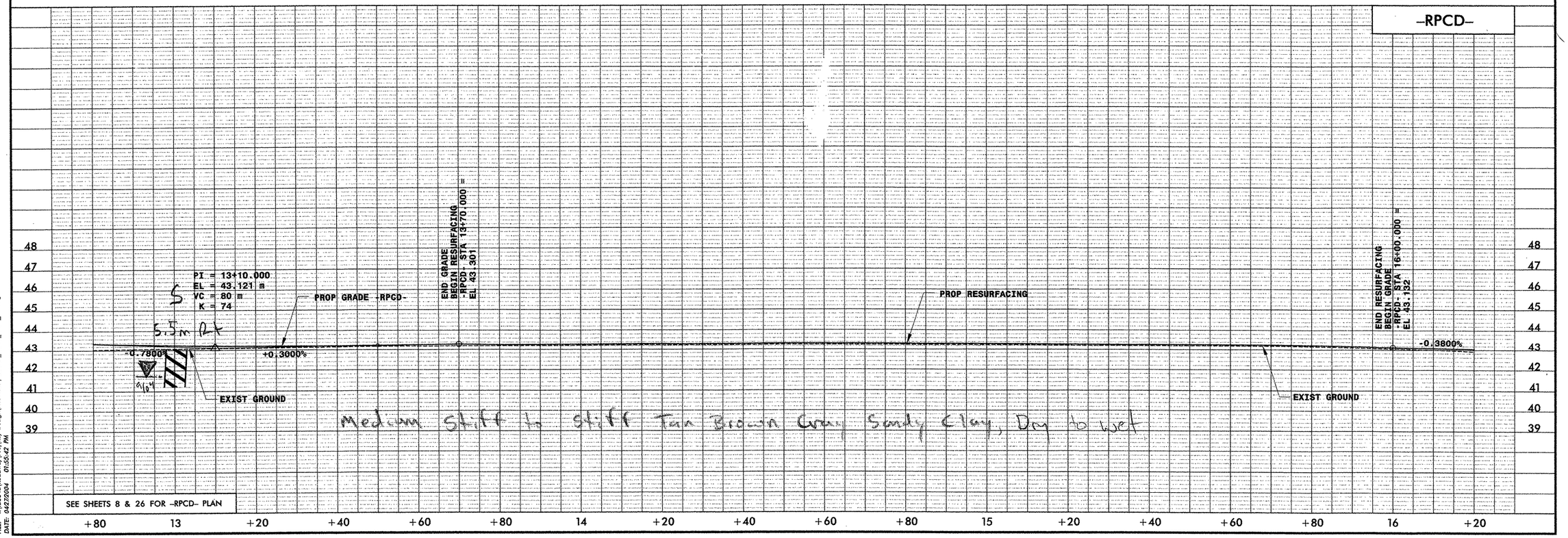
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	58
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-156A	11+80	6.0M LT	0.5-1.30	A-4(0)	20	3	20.1	35.6	28.0	16.3	100	88	54		
S-157	13+00	5.5M RT	0.3-1.8	A-7-6(10)	44	28	29.3	23.8	12.4	34.6	100	84	51		



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Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-265	17+80	15M RT	0.3-1.2	A-6(3)	25	11	18.7	29.5	27.1	24.7	99	86	58		
S-266	17+80	15M RT	1.2-1.8	A-7-6(21)	49	32	12.8	25.7	24.4	37.1	100	91	71		
S-267	20+80	8M RT	0.3-1.6	A-6(6)	27	11	9.7	24.9	40.7	24.7	100	93	74	20.7	
S-238	20+80	8M RT	1.6-1.8	A-7-6(33)	54	38	5.4	15.7	35.7	43.3	100	96	85		

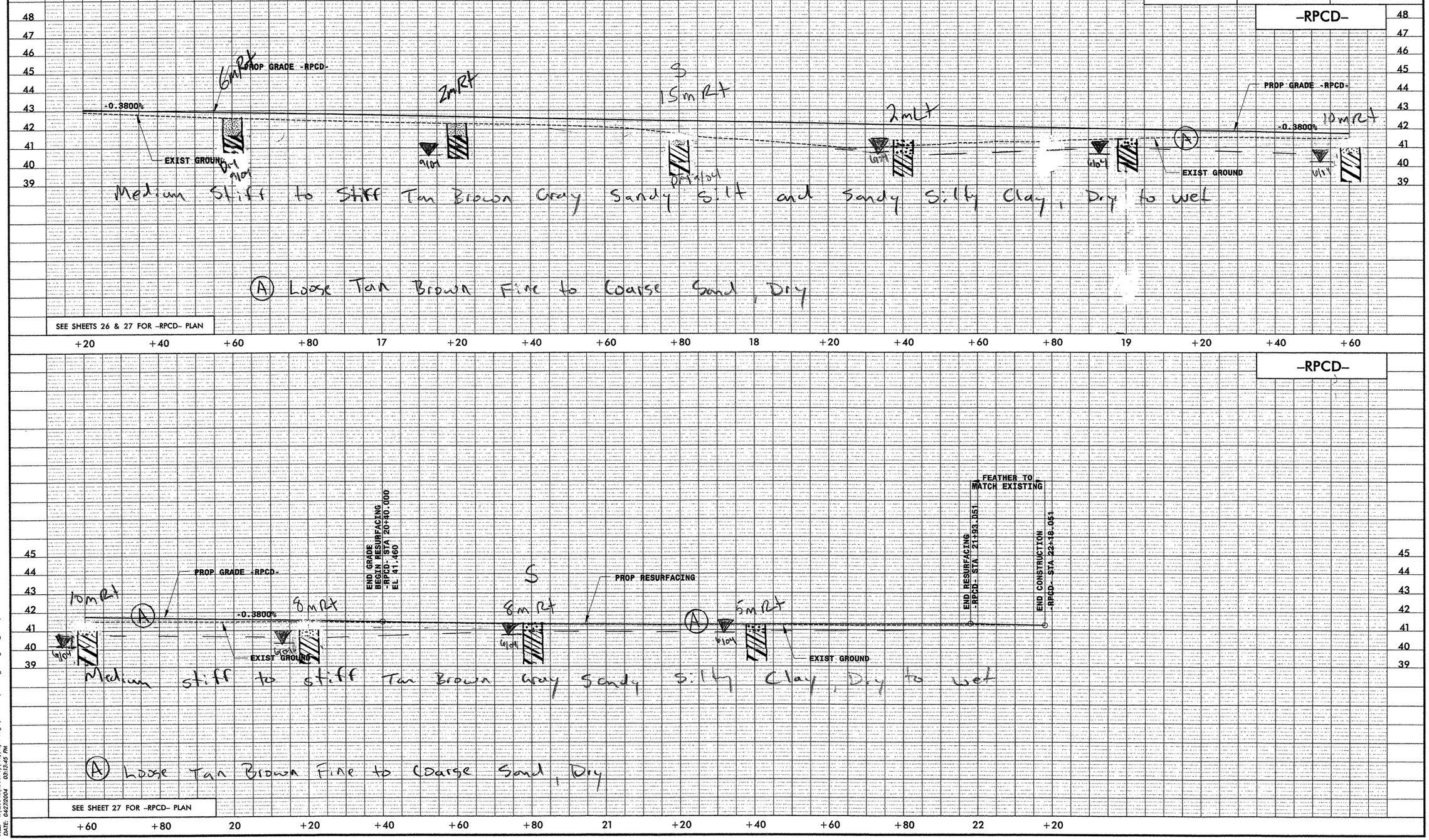
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	57
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

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



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	60
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

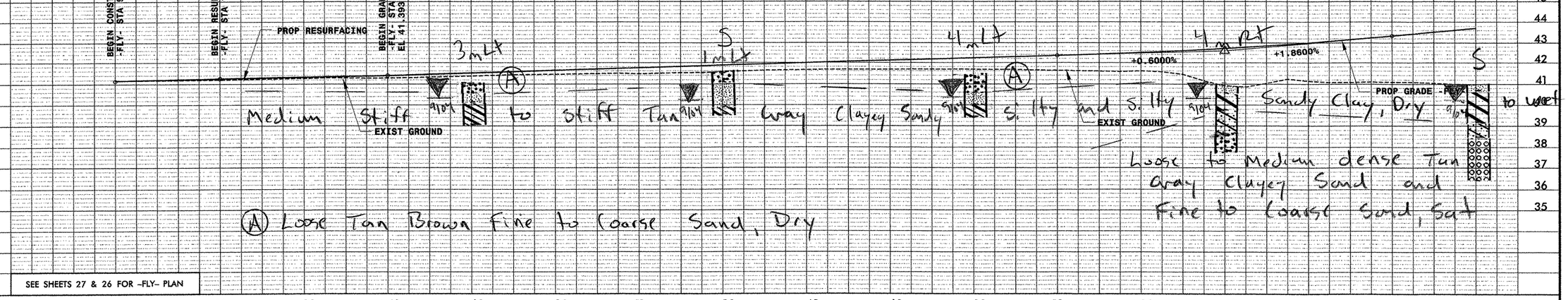
BENCHMARK - (TBM-H)
-BY- STA 26+54.292 (25.664 RT)
-FLY- 10+33.578 (31.097m LT)
EL 41.413

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-138	11+20	1M LT	0.3-0.9	A-2-4(0)	22	6	60.5	19.4	3.9	16.1	91	52	20		
S-139	11+20	1M LT	0.9-1.5	A-4(3)	22	10	18.6	27.9	31.4	22.2	100	88	62		
S-140	11+20	1M LT	1.5-1.8	A-6(10)	31	17	10.9	23.2	33.6	32.3	100	93	74		
S-133	13+00	CL	0.1-0.3	A-4(0)	17	NP	9.8	17.4	66.8	6.1	100	93	79		
S-134	13+00	CL	0.3-1.8	A-7-6(21)	41	25	6.9	11.1	65.8	16.3	100	95	86		
S-135	13+00	CL	1.8-2.5	A-2-7(4)	44	31	50.9	18.7	9.0	21.3	95	60	32		
S-136	13+00	CL	2.5-4.6	A-1-b(0)	21	NP	76.4	14.2	2.2	7.1	97	37	11		

-FLY-

PI = 12+40.000
EL = 42.593 m
VC = 80 m
K = 63



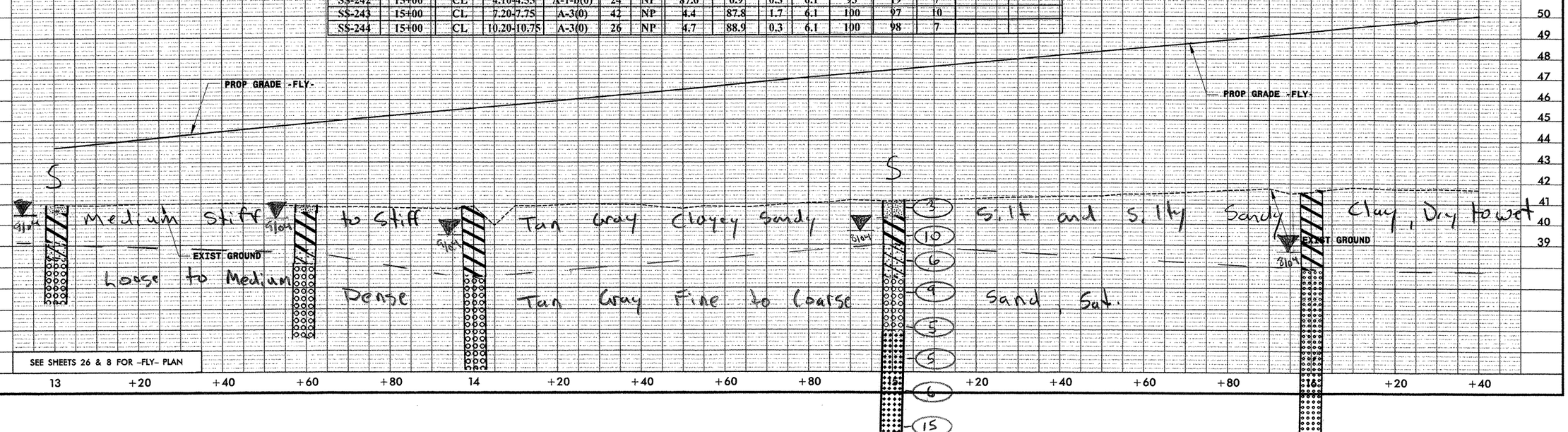
SEE SHEETS 27 & 26 FOR -FLY- PLAN

+80 10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40 +60 +80 13

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-133	13+00	CL	0.0-0.3	A-4(0)	17	NP	9.8	17.4	66.8	6.1	100	93	79		
S-134	13+00	CL	0.3-1.8	A-7-6(21)	41	25	6.9	11.1	65.8	16.3	100	95	86		
S-135	13+00	CL	1.8-2.5	A-2-7(4)	44	31	50.9	18.7	9.0	21.3	95	60	32		
S-136	13+00	CL	2.5-4.6	A-1-b(0)	21	NP	76.4	14.2	2.2	7.1	97	37	11		
SS-239	15+00	CL	0.3-0.45	A-4(2)	23	8	23.1	26.6	29.9	23.0	99	84	59		
SS-240	15+00	CL	1.3-1.85	A-7-6(19)	47	33	19.5	22.9	25.1	32.5	100	87	65	17.1	
SS-241	15+00	CL	2.60-2.75	A-2-7(3)	62	42	64.3	10.4	1.0	24.4	95	49	25		
SS-242	15+00	CL	4.10-4.55	A-1-b(0)	24	NP	87.6	6.9	0.3	6.1	93	19	7		
SS-243	15+00	CL	7.20-7.75	A-3(0)	42	NP	4.4	87.8	1.7	6.1	100	97	10		
SS-244	15+00	CL	10.20-10.75	A-3(0)	26	NP	4.7	88.9	0.3	6.1	100	98	7		

-FLY-



SEE SHEETS 26 & 8 FOR -FLY- PLAN

13 +20 +40 +60 +80 14 +20 +40 +60 +80 15 +20 +40 +60 +80 16 +20 +40

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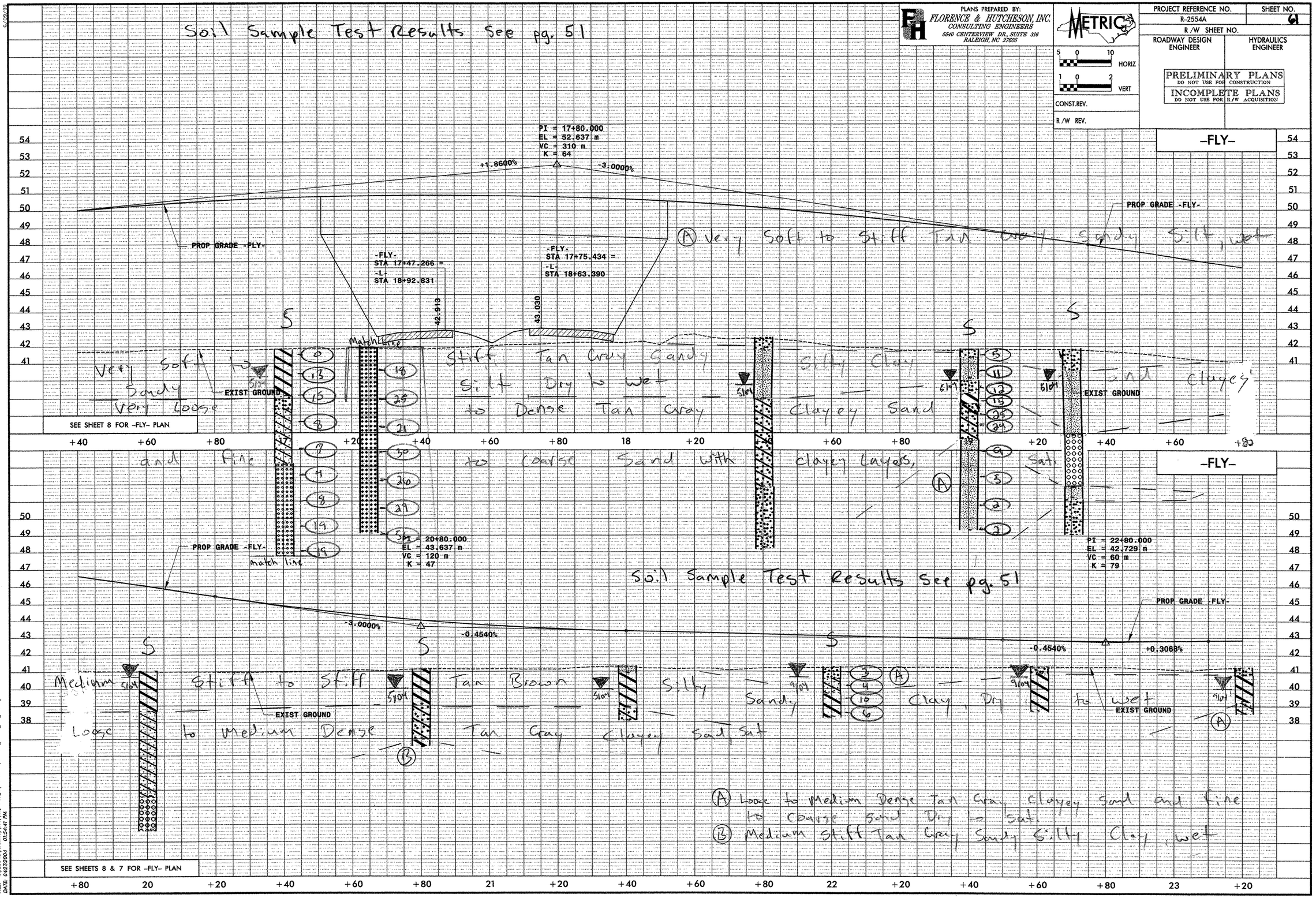
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	6
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

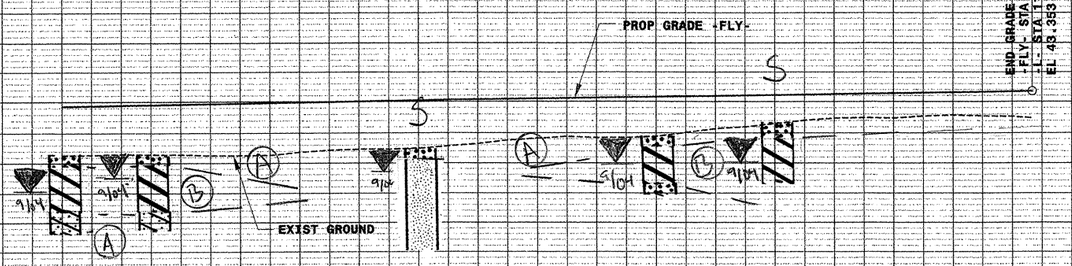
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	63
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
CBR-3	23+80	CL	0.3-3.5	A-4(0)	13	NP	34.0	33.6	20.4	12.0	99	85	39		



-FLY-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-142	23+80	CL	0.0-0.3	A-2-4(0)	15	NP	39.7	35.2	13.0	12.1	100	84	28		
S-143	24+40	CL	0.4-1.8	A-7-6(11)	46	27	28.5	22.2	13.0	36.3	100	85	53		

(A) Loose to Medium Dense Tan Gray fine to Coarse Sand, Sandy Silt and Clayey Sand, Moist to Sat

(B) Medium Stiff Tan Gray Sandy Clay, Dry to wet

SEE SHEETS 7 & 6 FOR -FLY- PLAN

+20 +40 +60 +80 24 +20 +40 +60 +80

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-262	17+00	CL	1.20-1.65	A-7-6(38)	67	47	5.8	21.3	24.5	48.3	100	97	79	25.8	
SS-263	17+00	CL	2.50-3.00	A-2-4(0)	28	8	25.2	46.1	10.6	18.1	100	88	35		
SS-264	17+00	CL	4.00-4.45	A-2-7(0)	45	25	86.9	3.8	1.2	8.1	99	16	10		
SS-265	17+00	CL	7.00-7.45	A-3(0)	25	NP	6.3	85.8	1.8	6.0	100	96	9		
SS-266	17+00	CL	10.10-10.55	A-3(0)	25	NP	6.4	88.1	3.4	2.0	100	100	6		
SS-267	17+00	CL	13.10-13.55	A-3(0)	23	NP	26.3	66.6	3.1	4.0	100	99	8		
SS-268	17+00	CL	16.20-16.65	A-3(0)	24	NP	41.9	51.8	3.3	3.0	100	92	7		
SS-269	17+00	CL	19.70-20.15	A-7-6(13)	41	25	18.1	15.9	31.7	34.2	89	76	64		
SS-270	17+00	CL	20.80-21.25	A-7-5(14)	47	15	5.8	17.7	56.3	20.1	94	90	81		
SS-14	19+00	CL	1.13-1.58	A-4(0)	26	10	40.4	29.4	12.0	18.3	98	73	36	15.0	
SS-15	19+00	CL	2.65-3.10	A-7-6(26)	59	38	15.8	17.6	19.9	46.7	99	89	71	24.0	
SS-16	19+00	CL	3.41-3.86	A-2-6(0)	29	11	67.1	17.0	3.8	12.1	95	49	17		
SS-17	19+00	CL	5.52-5.82	A-4(0)	24	NP	23.7	42.4	15.6	18.3	100	96	37		
SS-18	19+00	CL	7.04-7.34	A-4(5)	28	9	3.0	36.1	36.5	24.3	100	99	75	41.0	
S-24	19+30	CL	4.9-7.9	A-1-b(0)	24	NP	80.7	8.6	4.6	6.0	97	27	11		
S-141	20+00	CL	1.5-1.8	A-1-b(0)	22	NP	81.9	9.1	2.9	6.1	100	31	10		
S-20	20+80	CL	0.3-2.1	A-7-6(12)	44	26	22.9	21.3	21.3	34.5	99	84	59		
S-21	20+80	CL	2.1-3.4	A-2-6(0)	28	12	32.7	36.1	7.9	23.3	100	89	34		
S-22	20+80	CL	3.4-4.1	A-2-6(0)	29	11	79.9	9.5	3.5	7.1	96	34	11		
S-23	20+80	CL	4.1-4.5	A-7-6(38)	60	36	3.9	3.7	41.8	50.7	100	97	94		
SS-275	22+00	CL	0.3-0.45	A-2-4(0)	15	NP	51.7	29.1	5.2	14.0	96	64	23		
SS-276	22+00	CL	0.76-1.21	A-2-7(1)	45	27	65.8	13.7	1.4	19.0	92	48	19		
SS-277	22+00	CL	1.50-1.45	A-7-6(36)	66	45	14.0	10.8	19.0	56.1	100	91	78		
SS-278	22+00	CL	2.30-2.75	A-7-6(23)	60	42	27.1	16.2	14.6	42.1	100	80	61	46.9	

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6/03/99

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5640 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5 0 10 HORIZ
1 0 2 VERT

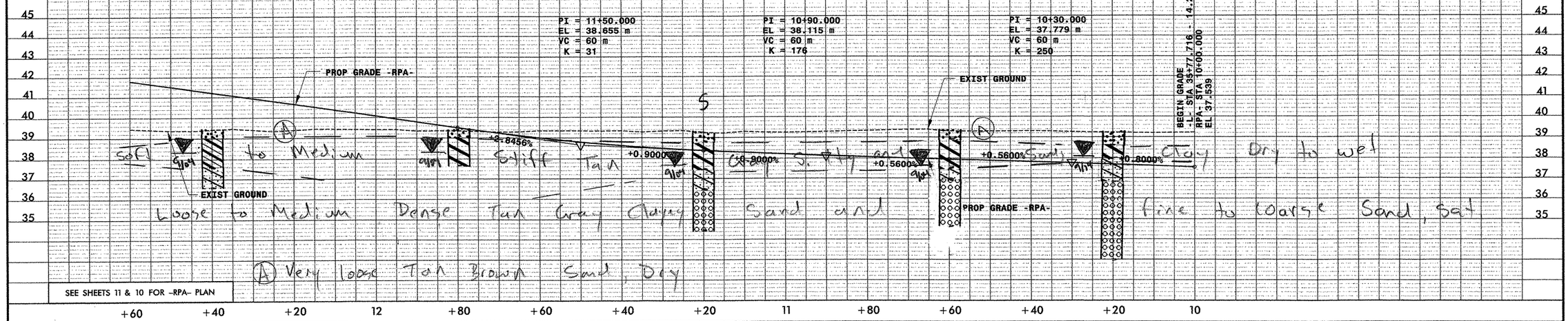
CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	63
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-RPA-

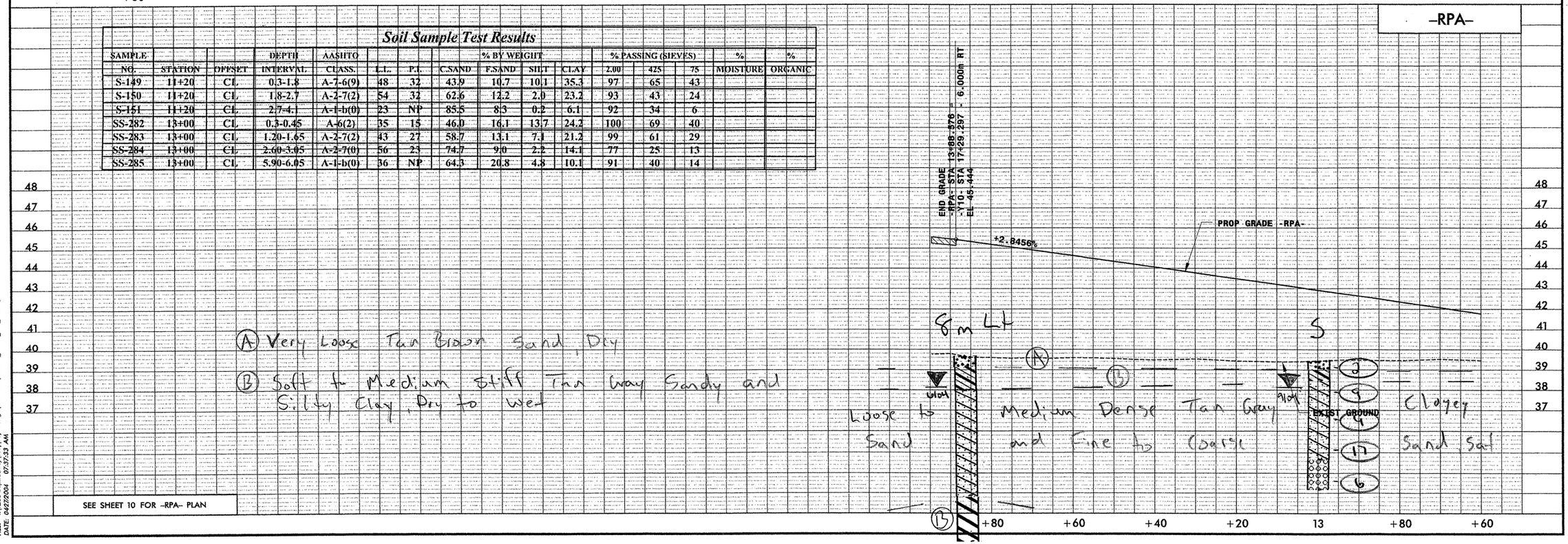


-RPA-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-149	11+20	CL	0.3-1.8	A-7-6(9)	48	32	43.9	10.7	10.1	35.3	97	65	43		
S-150	11+20	CL	1.8-2.7	A-2-7(2)	54	32	62.6	12.2	2.0	23.2	93	43	24		
S-151	11+20	CL	2.7-4.1	A-1-b(0)	23	NP	85.5	8.3	0.2	6.1	92	34	6		
SS-282	13+00	CL	0.3-0.45	A-6(2)	35	15	46.0	16.1	13.7	24.2	100	69	40		
SS-283	13+00	CL	1.20-1.65	A-2-7(2)	43	27	58.7	13.1	7.1	21.2	99	61	29		
SS-284	13+00	CL	2.60-3.05	A-2-7(0)	56	23	74.7	9.0	2.2	14.1	77	25	13		
SS-285	13+00	CL	5.90-6.05	A-1-b(0)	36	NP	64.3	20.8	4.8	10.1	91	40	14		

-RPA-



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PLANS PREPARED BY:
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CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

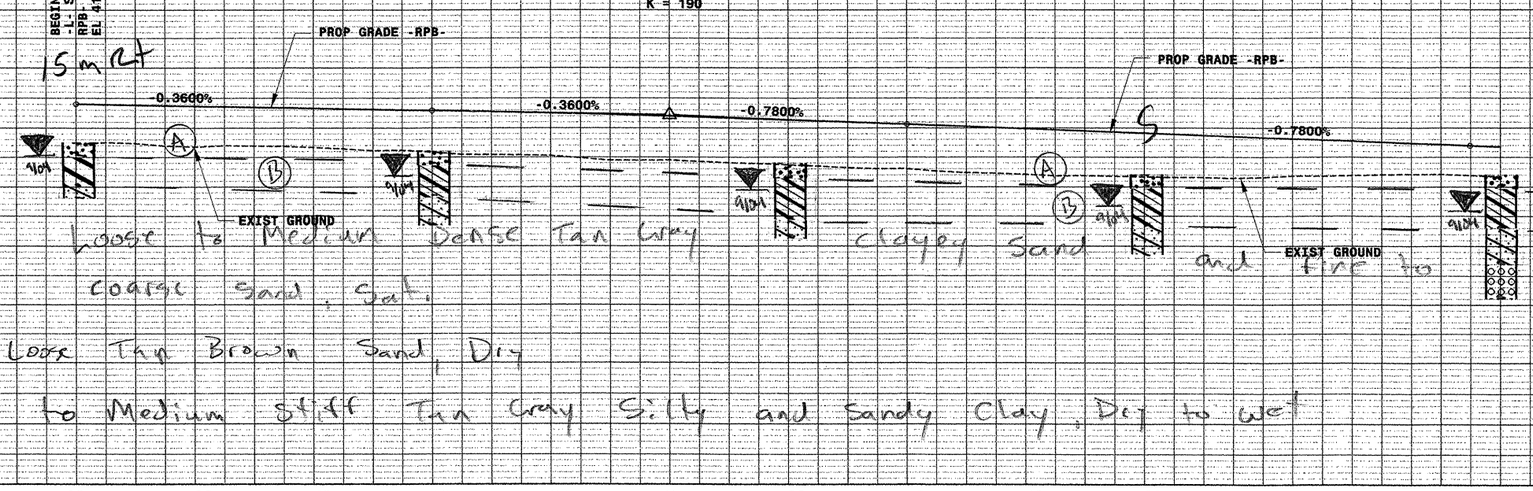
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	64
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-RPB-

BEGIN GRADE
-L- STA 27+22.293 = 14.200m LT
RPB- STA 10+00.000
EL 41.804

PI = 11+00.000
EL = 41.444 m
VC = 80 m
K = 190



SEE SHEETS 9 & 10 FOR -RPB- PLAN

10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40

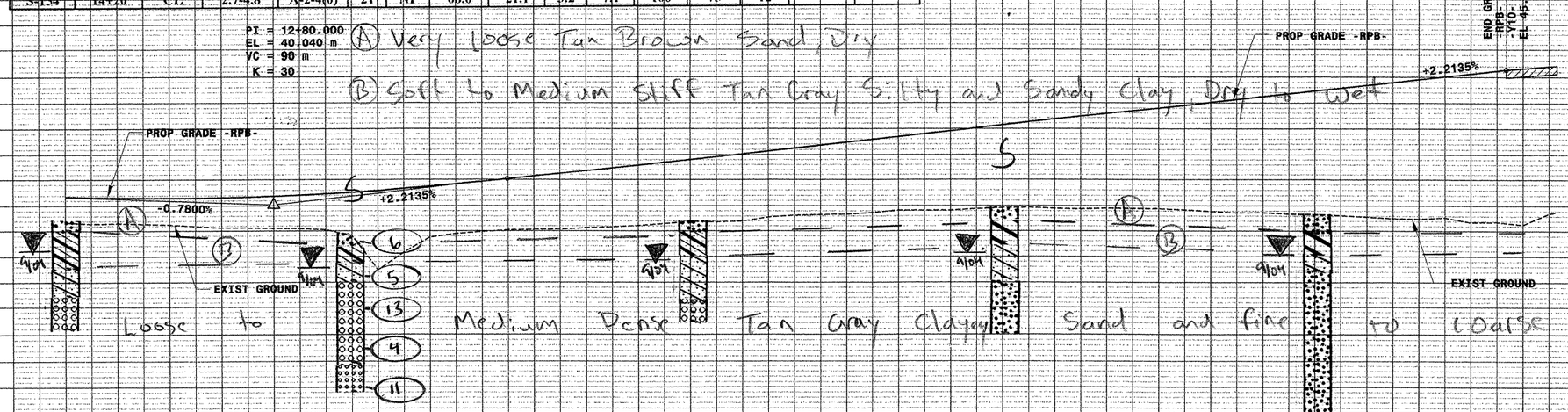
-RPB-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-155	11+80	CL	0.3-1.6	A-6(6)	36	16	36.1	11.1	24.6	28.2	97	70	53		
S-156	11+80	CL	1.6-2.6	A-2-7(2)	45	29	60.1	14.2	4.5	21.2	95	55	25		
SS-286	13+00	CL	1.20-1.65	A-2-6(1)	34	20	62.5	10.1	6.3	21.2	95	51	27		
SS-287	13+00	CL	2.50-2.95	A-1-b(0)	18	NP	64.3	23.7	4.9	7.1	91	49	13		
SS-288	13+00	CL	4.00-4.45	A-1-b(0)	18	NP	87.2	7.0	1.8	4.0	86	19	6		
SS-289	13+00	CL	5.80-5.95	A-3(0)	20	NP	42.2	55.6	0.1	2.0	96	76	10		
S-152	14+20	CL	0.4-1.2	A-7-6(6)	44	19	37.3	16.1	12.3	34.3	99	76	49	12.7	
S-153	14+20	CL	1.2-2.7	A-2-7(3)	59	30	53.7	14.0	5.0	27.2	86	48	29		
S-154	14+20	CL	2.7-4.8	A-2-4(0)	21	NP	68.6	21.1	3.2	7.1	100	75	12		

END GRADE
-RPB- STA 15+16.774 =
-Y10- STA 17+28.657 - 9.600m LT
EL 45.281

PI = 12+80.000
EL = 40.040 m
VC = 90 m
K = 30



SEE SHEET 10 FOR -RPB- PLAN

+40 +60 +80 13 +20 +40 +60 +80 14 +20 +40 +60 +80 15 +20

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BENCHMARK - (TBM-1)
-BL- STA 14+69.795 (29.111 RT)
-RAMPC- 11+80.262 (9.385m RT)
EL 39.821

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CONSULTING ENGINEERS
8540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	65
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-200	11+[illegible]	CL	0.3-0.45	A-7-6(14)	43	24	24.6	10.1	21.0	44.4	100	83	67		
SS-201	11+[illegible]	CL	0.76-1.21	A-7-6(21)	58	38	30.0	8.7	14.9	46.4	99	79	62		
SS-202	11+[illegible]	CL	1.67-2.12	A-2-7(3)	55	34	67.3	5.9	2.5	24.2	96	49	26		
SS-203	11+[illegible]	CL	3.04-3.49	A-1-b(0)	22	NP	83.6	9.2	2.2	5.0	95	29	8		

-RPC-

BEGIN GRADE
-L- STA 24+35.126 = 14.200m RT
RPC- STA 10+00.000
EL 42.457

PI = 10+30.000
EL = 42.367 m
VC = 60 m
K = 200

PROP GRADE -RPC-

-0.3000% -0.6000%

PI = 12+20.000
EL = 41.227 m
VC = 60 m
K = 67

PROP GRADE -RPC-

-0.6000% +0.3000%

45 44 43 42 41 40 39 38 37 36 35

(A) Medium Stiff to Very Stiff Tan Brown Silty and Sandy Clay and Sandy Silt, Dry to Wet

EXIST GROUND

Loose to Medium Dense Tan Gray Clayey Sand and Fine to Coarse Sand Sat

EXIST GROUND

(A) Very loose Tan Brown Sand, Dry

SEE SHEET 9 FOR -RPC- PLAN

10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40 +60 +80 13

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-235	13+60	CL	0.3-0.9	A-7-6(12)	46	27	31.0	15.5	13.1	40.3	100	82	56		
S-236	13+60	CL	0.9-1.8	A-7-6(9)	62	34	50.4	7.7	5.6	36.3	99	63	42		
S-237	15+40	CL	0.0-0.2	A-4(0)	18	NP	40.7	26.4	24.8	8.1	100	76	37		
S-238	15+40	CL	0.2-0.8	A-7-6(16)	47	29	22.0	18.1	13.5	46.4	100	89	63	21.3	
S-239	15+40	CL	0.8-2.0	A-7-6(22)	60	38	22.2	15.9	13.5	48.4	100	88	64		
S-240	15+40	CL	2.0-2.4	A-2-6(1)	37	17	31.9	40.0	3.9	24.2	100	90	30		

-RPC-

PI = 13+40.000
EL = 41.587 m
VC = 100 m
K = 125

PI = 14+80.000
EL = 40.887 m
VC = 60 m
K = 47

END GRADE
-RPC- STA 16+10.231 = 6.000m LT
-Y10- STA 13+43.689
EL 41.882

PROP GRADE -RPC-

+0.3000% -0.5000%

PROP GRADE -RPC-

-0.5000% +0.7640%

45 44 43 42 41 40 39 38 37 36 35

(A) Medium Stiff and Sandy Silt, Dry to Wet to Very Stiff Tan Brown Gray Silty and Sandy Clay

EXIST GROUND

EXIST GROUND

(A) Very Loose Tan Brown Sand, Dry
(B) Loose to Medium Dense Tan Gray Clayey Sand, Sat

SEE SHEETS 9 & 10 FOR -RPC- PLAN

13 +20 +40 +60 +80 14 +20 +40 +60 +80 15 +20 +40 +60 +80 16

FILE: t:\R2554A\Roadway\Proj\Rdy Design\PROFILES\R2554A_SHT54_RPC_PRO.dgn
DATE: 04/27/2004 07:38:24 AM

6/09/99

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
6540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

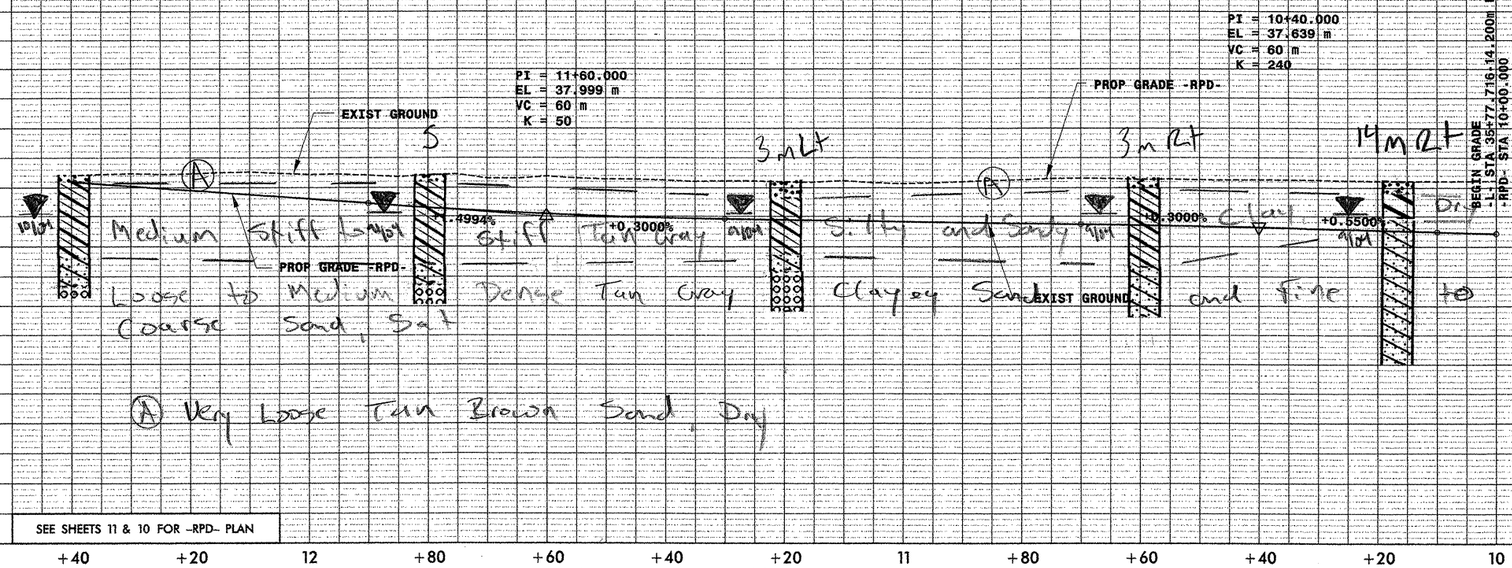
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	66
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-RPD-

Soil Sample Test Results

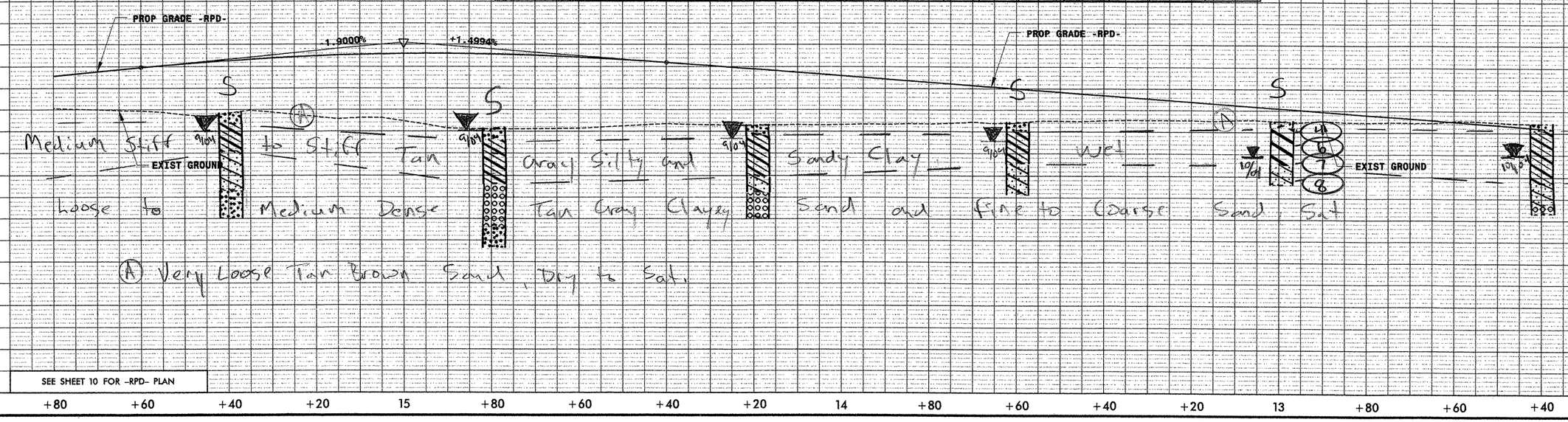
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-33A	11+80	CL	0.2-3.0	A-6(2)	32	15	46.4	14.3	11.8	27.5	95	61	39	11.9	
S-34	11+80	CL	3.0-3.6	A-2-6(0)	30	14	65.4	17.1	3.3	14.2	94	48	18		
S-35	11+80	CL	3.6-4.2	A-1-b(0)	23	NP	80.3	9.9	1.7	8.1	94	36	10		



-RPD-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-228	13+00	CL	0.3-0.45	A-7-6(7)	42	25	41.1	13.3	12.9	32.7	95	65	45		
SS-229	13+00	CL	1.5-1.9	A-7-6(6)	51	34	49.9	12.4	7.1	30.7	96	61	37		
S-146	13+60	CL	0.0-0.3	A-2-4(0)	19	2	40.1	30.7	18.2	11.1	96	62	31		
S-147	13+60	CL	0.3-1.8	A-6(3)	31	19	47.3	14.3	13.1	25.2	92	58	38		
S-148	13+60	CL	1.8-3.1	A-2-7(2)	41	27	61.3	14.1	2.4	22.2	95	50	24		
S-145	14+80	CL	2.3-4.4	A-1-b(0)	25	5	82.8	8.0	1.1	8.1	74	21	7		
S-144	15+40	CL	3.4-4.6	A-2-4(0)	23	NP	18.0	67.3	4.6	10.1	100	97	18		



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6/09/99

PLANS PREPARED BY:
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CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	67
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-RPD-

END GRADE
-RPD- STA 17+07.418=
-Y10- STA 12+21.771 - 6.000m RT
EL 40.555

PI = 16+20.000
EL = 40.817 m
VC = 60 m
K = 38

PROP GRADE -RPD-

-0.3000%

-1.9000%

EXIST GROUND

Soft to Stiff Clay Dry to Wet Tan Gray Sandy Silt

Loose to Medium Dense Tan Gray Sand and Clayey Sand, Sat

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-279	16+00	CL	0.3-0.45	A-6(8)	37	24	27.7	26.9	15.4	30.1	100	85	50		
SS-280	16+00	CL	1.50-1.95	A-7-6(12)	45	27	16.7	32.0	12.2	39.1	100	89	58		
SS-281	16+00	CL	2.60-2.75	A-2-4(0)	26	9	52.0	26.1	5.9	16.0	99	61	25		
S-258	16+60	2M LT	0.0-0.4	A-4(0)	20	7	23.2	36.4	22.1	18.3	100	89	47		
S-259	16+60	2M LT	0.4-1.4	A-6(6)	30	16	19.3	29.4	18.9	32.5	100	90	57	17.3	
S-260	16+60	2M LT	1.4-1.8	A-2-7(1)	43	24	65.8	11.0	1.9	21.3	100	73	24	15.7	

SEE SHEETS 10 & 21 FOR -RPD- PLAN

17 +80 +60 +40 +20 16 +80

-LPC-

BEGIN GRADE
-LPC- STA 4+93.067 - 6.000m LT=
-LPC- STA 10+00.000
EL 45.617

PI = 10+50.000
EL = 44.317 m
VC = 60 m
K = 59

PROP GRADE -LPC-

-2.6000%

-3.6200%

-3.6200%

-0.7600%

PI = 11+20.000
EL = 41.783 m
VC = 80 m
K = 28

EXIST GROUND

Medium Stiff and Sandy Clay, Dry to Wet

Very Loose to Medium Dense Tan Gray Clayey Sand and fine to Coarse Sand, Sat

Tan Gray Sandy Silt

SEE SHEET 10 FOR -LPC- PLAN

10 +20 +40 +60 +80 11 +20 +40

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-218	10+33	CL	0.3-0.45	A-4(0)	22	6	38.7	17.1	28.0	16.1	98	73	46		
SS-219	10+33	CL	1.25-1.70	A-6(7)	40	25	42.1	13.9	15.7	28.2	98	67	46		
SS-220	10+33	CL	2.53-2.98	A-2-7(2)	47	30	66.6	8.7	4.5	20.2	90	41	23		
SS-221	10+33	CL	4.05-4.50	A-1-b(0)	19	NP	85.6	8.5	1.9	4.0	81	29	5		
SS-222	10+33	CL	7.10-7.55	A-1-b(0)	27	NP	71.0	22.3	5.7	1.0	100	43			
S-155A	11+00	CL	4.1-4.9	A-2-4(0)	20	NP	61.4	29.0	3.6	6.1	96	61	11		
SS-290	13+00	CL	0.76-1.20	A-7-6(16)	57	32	33.7	10.4	13.2	42.7	100	75	58		
SS-291	13+00	CL	2.30-2.75	A-2-7(3)	63	43	61.8	11.1	0.7	26.4	81	39	23		
S-243	13+00	CL	2.4-4.6	A-3(0)	20	NP	76.1	14.2	1.6	8.1	97	60	10		

-LPC-

PI = 12+50.000
EL = 40.795 m
VC = 60 m
K = 139

PROP GRADE -LPC-

-0.7600%

-0.7600%

-0.3270%

PROP GRADE -LPC-

END GRADE
-LPC- STA 14+16.353=
-L- STA 30+33.652 - 14.200m RT
EL 40.251

EXIST GROUND

Soft to Very Stiff Tan Gray Sandy Silt and Sandy Clay, Dry to Wet

Loose to Medium Dense Tan Gray Clayey Sand and fine to Coarse Sand, Sat

SEE SHEET 10 FOR -LPC- PLAN

+40 +60 +80 12 +20 +40 +60 +80 13 +20 +40 +60 +80 14

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6/03/99

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
8540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

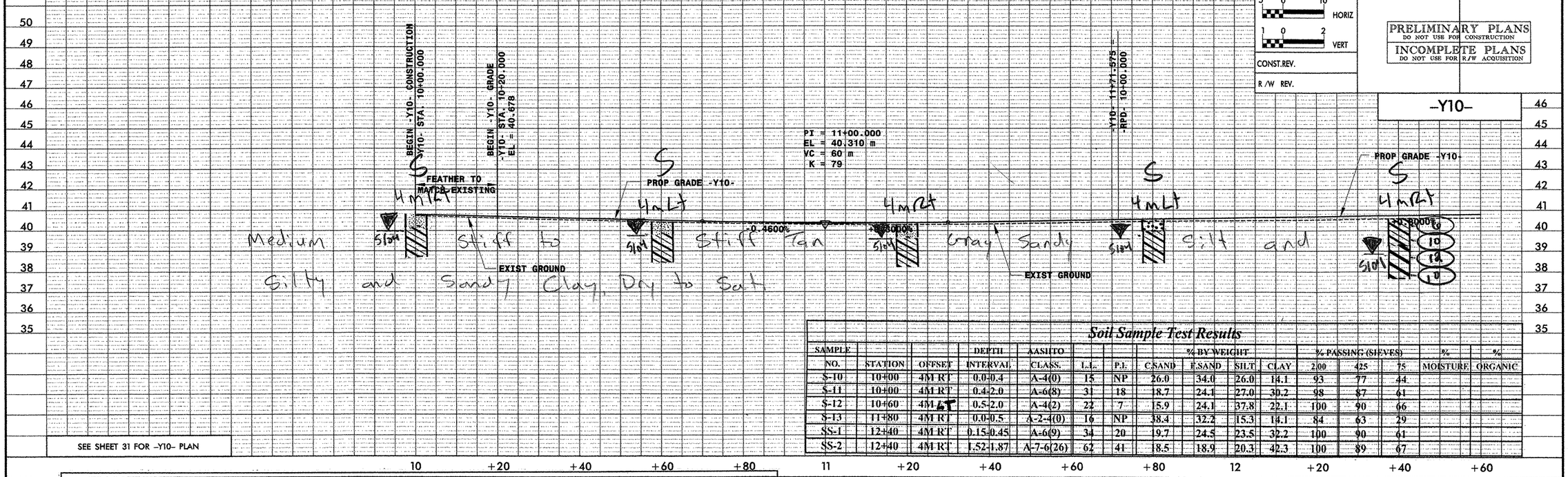
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	68
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

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

-Y10-

BENCHMARK - (TBM-J)
-BY10- STA 16+20.018 (14.130 LT)
-Y10- 10+37.426 (6.721m RT)
EL 41.499



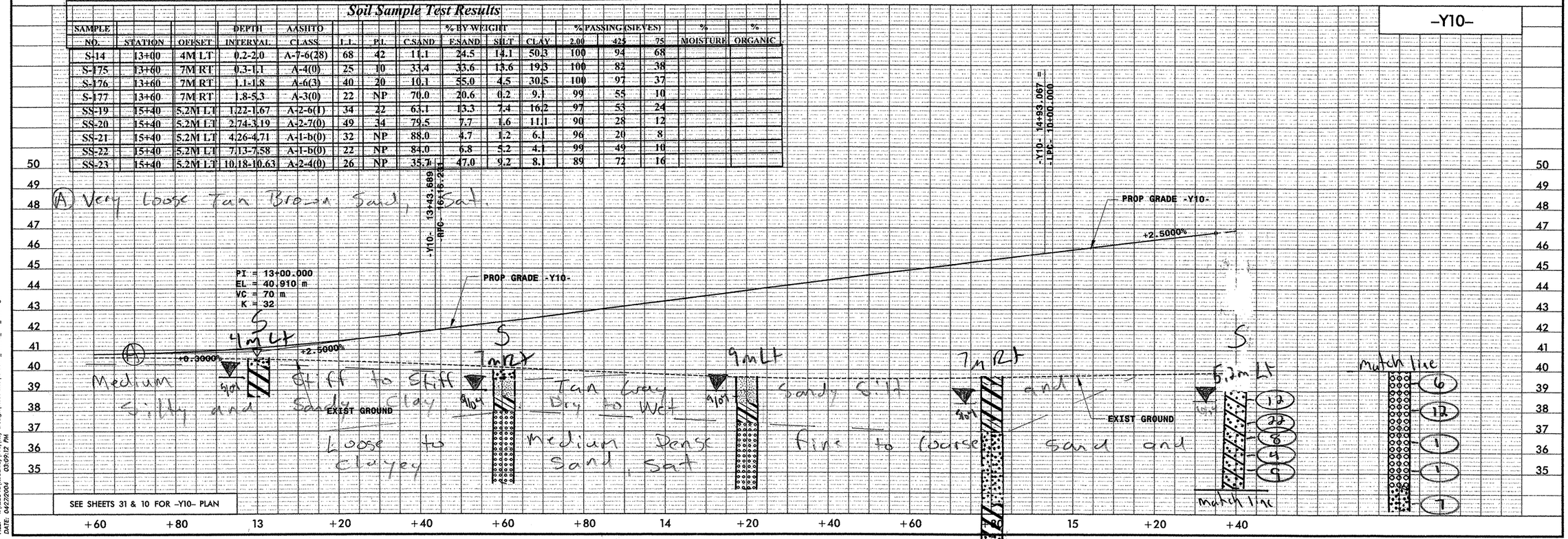
SEE SHEET 31 FOR -Y10- PLAN

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-10	10+00	4M RT	0.0-0.4	A-4(0)	15	NP	26.0	34.0	26.0	14.1	93	77	44		
S-11	10+00	4M RT	0.4-2.0	A-6(8)	31	18	18.7	24.1	27.0	30.2	98	87	61		
S-12	10+60	4M LT	0.5-2.0	A-4(2)	22	7	15.9	24.1	37.8	22.1	100	90	66		
S-13	11+80	4M RT	0.0-0.5	A-2-4(0)	16	NP	38.4	32.2	15.3	14.1	84	63	29		
SS-1	12+40	4M RT	0.15-0.45	A-6(9)	34	20	9.7	24.5	23.5	32.2	100	90	61		
SS-2	12+40	4M RT	1.52-1.87	A-7-6(26)	62	41	8.5	18.9	20.3	42.3	100	89	67		

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-14	13+00	4M LT	0.2-2.0	A-7-6(28)	68	42	11.1	24.5	14.1	50.3	100	94	68		
S-175	13+60	7M RT	0.3-1.1	A-4(0)	25	10	33.4	33.6	13.6	19.3	100	82	38		
S-176	13+60	7M RT	1.1-1.8	A-6(3)	40	20	10.1	55.0	4.5	30.5	100	97	37		
S-177	13+60	7M RT	1.8-5.3	A-3(0)	22	NP	70.0	20.6	0.2	9.1	99	55	10		
SS-19	15+40	5.2M LT	1.22-1.67	A-2-6(1)	34	22	63.1	13.3	7.4	16.2	97	53	24		
SS-20	15+40	5.2M LT	2.74-3.19	A-2-7(0)	49	34	79.5	7.7	1.6	11.1	90	28	12		
SS-21	15+40	5.2M LT	4.26-4.71	A-1-b(0)	32	NP	88.0	4.7	1.2	6.1	96	20	8		
SS-22	15+40	5.2M LT	7.13-7.58	A-1-b(0)	22	NP	84.0	6.8	5.2	4.1	99	49	10		
SS-23	15+40	5.2M LT	10.18-10.63	A-2-4(0)	26	NP	35.7	47.0	9.2	8.1	89	72	16		



SEE SHEETS 31 & 10 FOR -Y10- PLAN

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Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-19	15+40	5.2M LT	1.22-1.67	A-2-6(1)	34	22	63.1	13.3	7.4	16.2	97	53	24		
SS-20	15+40	5.2M LT	2.74-3.19	A-2-7(0)	49	34	79.5	7.7	1.6	11.1	90	28	12		
SS-21	15+40	5.2M LT	4.26-4.71	A-1-b(0)	32	NP	88.0	4.7	1.2	6.1	96	20	8		
SS-22	15+40	5.2M LT	7.13-7.58	A-1-b(0)	22	NP	84.0	6.8	5.2	4.1	99	49	10		
SS-23	15+40	5.2M LT	10.18-10.63	A-2-4(0)	26	NP	35.7	47.0	9.2	8.1	89	72	16		
S-36	17+80	5M LT	0.3-0.76	A-2-4(0)	18	5	48.6	22.1	19.1	10.1	91	61	30		
S-37	17+80	5M LT	0.76-2.74	A-6(4)	35	22	50.3	12.4	17.1	20.3	98	62	39	15.3	
S-38	17+80	5M LT	2.74-7.62	A-1-b(0)	22	NP	77.3	12.9	2.0	8.1	87	37	10		

PI = 16+15.000
EL = 48.785 m
VC = 160 m
K = 30

-Y10- 17+29.297 =
-RPA- 13+94.518
-RPB- 15+26.362

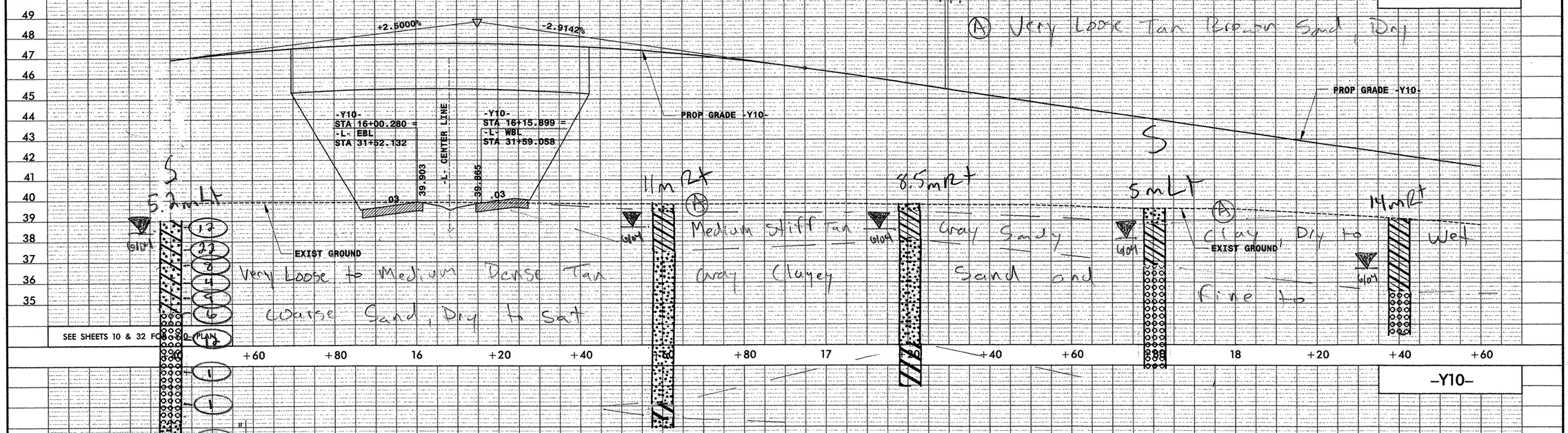
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	69
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

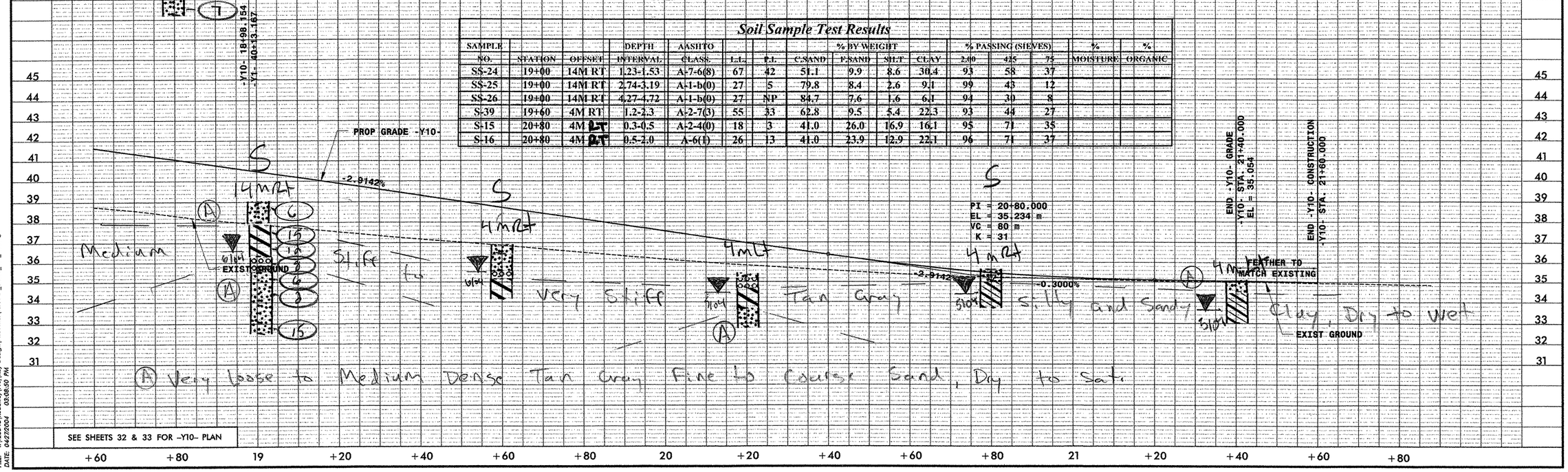
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

-Y10-



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-24	19+00	14M RT	1.23-1.53	A-7-6(8)	67	42	51.1	9.9	8.6	30.4	93	58	37		
SS-25	19+00	14M RT	2.74-3.19	A-1-b(0)	27	5	79.8	8.4	2.6	9.1	99	43	12		
SS-26	19+00	14M RT	4.27-4.72	A-1-b(0)	27	NP	84.7	7.6	1.6	6.1	94	30	8		
S-39	19+60	4M RT	1.2-2.3	A-2-7(3)	55	33	62.8	9.5	5.4	22.3	93	44	27		
S-15	20+80	4M LT	0.3-0.5	A-2-4(0)	18	3	41.0	26.0	16.9	16.1	95	71	35		
S-16	20+80	4M LT	0.5-2.0	A-6(1)	26	13	41.0	23.9	12.9	22.1	96	71	37		



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	70
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-232	10+80	CL	0.3-0.6	A-4(0)	25	2	27.0	24.9	33.7	14.4	100	83	56		
S-233	10+80	CL	0.6-1.6	A-7-6(12)	42	21	22.5	18.7	23.8	35.0	100	85	65		
S-234	10+80	CL	1.6-1.8	A-6(4)	33	21	40.8	23.9	16.8	18.5	100	71	42		
S-212	11+40	CL	0.3-1.6	A-7-6(11)	49	24	36.7	11.1	19.8	32.4	100	71	55		
S-213	11+40	CL	1.6-1.8	A-2-7(1)	44	26	71.5	7.7	2.5	18.2	99	45	21		

-Y1-

BEGIN GRADE
-Y4- STA. 10+90.746 - 3.300m RT
-Y1- STA. 10+03.317
EL = 42.240

-Y2- STA 12+49.701
-Y5- STA 10+00.000

PI = 13+20.000
EL = 43.190 m
VC = 60 m
K = 100

+0.3000%

PROP. GRADE

EXIST GROUND

Medium Stiff to Stiff Tan Gray Sandy Silt and Silty and Sandy Clay Dry to Wet

Loose to Medium Dense Clayey Sand and fine to Coarse Sand, Sat

Very Loose Tan Brown Sand, Dry

SEE SHEETS 24 & 5 FOR -Y1- PLAN

10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40 +60 +80 13 +20

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-214	13+80	7.5M LT	0.3-0.6	A-2-4(0)	21	NP	55.3	16.4	20.2	8.1	98	56	31		
S-215	13+80	7.5M LT	0.6-1.6	A-7-6(6)	45	29	49.4	11.1	13.1	26.3	96	56	40	26.1	
S-216	13+80	7.5M LT	1.6-1.8	A-2-7(4)	67	43	68.1	3.4	4.2	24.3	92	37	26		
S-218	14+40	CL	0.9-1.8	A-6(6)	31	19	37.3	14.8	25.6	22.3	100	75	52		
S-160	14+80	CL	1.2-1.8	A-6(9)	39	21	31.3	14.8	21.3	32.5	100	78	57		
S-217	15+60	CL	0.5-1.8	A-2-6(1)	35	20	62.6	14.0	7.2	16.2	100	61	25		
S-161	16+40	CL	0.3-1.4	A-7-6(4)	43	23	47.4	15.8	8.4	28.5	100	69	38		
S-162	16+40	CL	1.4-1.8	A-2-6(1)	40	22	54.0	19.9	1.7	24.4	100	66	27		

-Y1-

-Y2- STA 14+31.643=
-Y6- STA 10+00.000

PI = 13+20.000
EL = 43.190 m
VC = 60 m
K = 100

-0.3000%

PROP. GRADE

EXIST GRO.

Very Loose to Medium Stiff to Medium Dense Stiff Tan Gray Silty Clay, Dry and Sandy Tan Gray Fine to Coarse Clayey Sand, Sand and Dry

Medium Stiff Tan Gray Sandy Clay, Dry

SEE SHEETS 5 & 6 FOR -Y1- PLAN

+20 +40 +60 +80 14 +20 +40 +60 +80 15 +20 +40 +60 +80 16 +20 +40 +60

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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

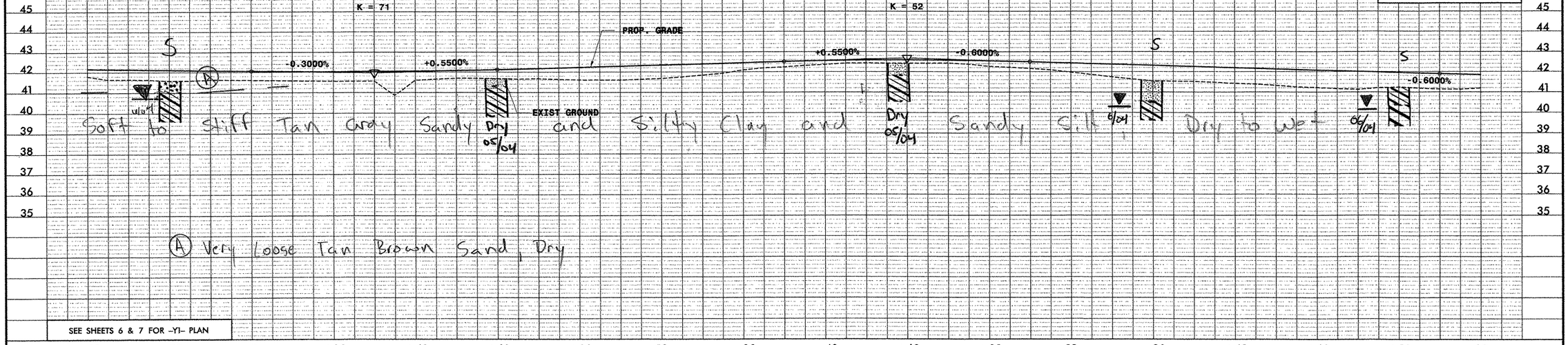
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	91
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R/W REV.

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

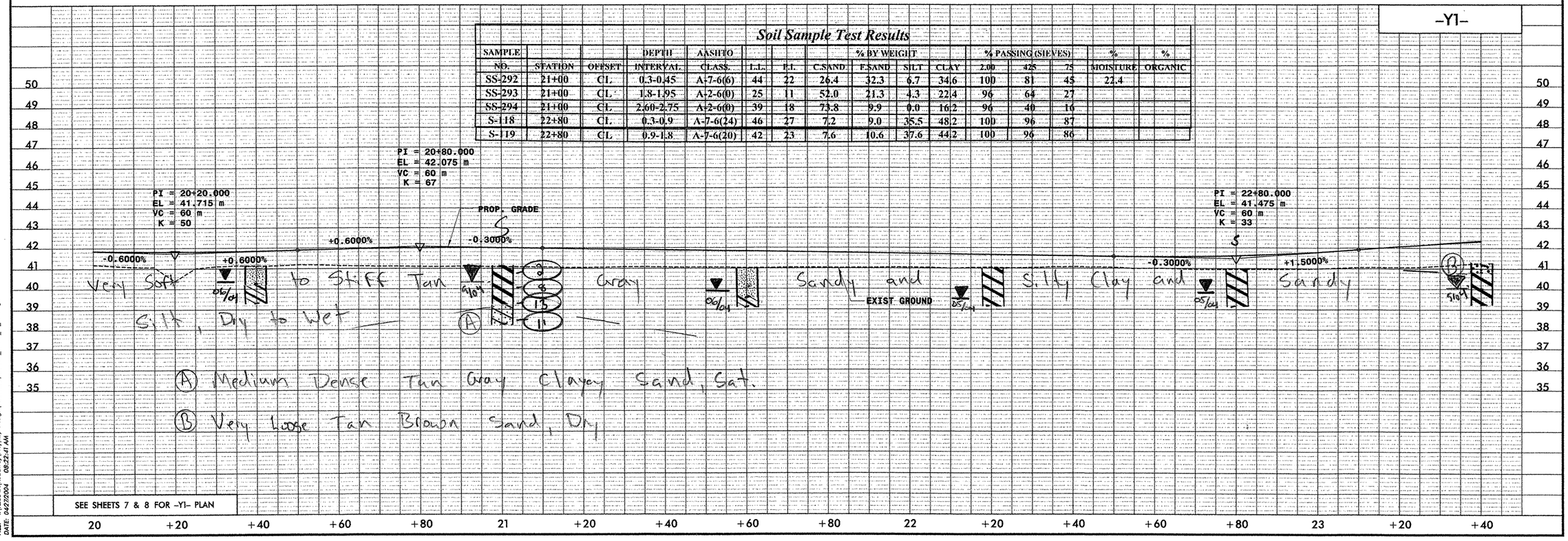
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-219	16+80	CL	0.3-1.8	A-6(7)	37	20	36.3	12.4	18.9	32.4	100	74	53		
S-206	19+20	CL	0.3-1.0	A-4(1)	21	10	33.9	29.9	16.1	20.1	100	85	40		
S-207	19+20	CL	1.0-2.0	A-6(2)	31	17	33.3	31.9	12.7	22.1	100	86	38		
S-204	19+80	CL	0.3-0.8	A-6(11)	32	17	15.3	13.7	34.9	36.1	100	90	75		
S-250	19+80	CL	0.8-2.0	A-7-6(13)	41	27	25.9	16.1	23.9	34.1	100	85	61		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-292	21+00	CL	0.3-0.45	A-7-6(6)	44	22	26.4	32.3	6.7	34.6	100	81	45	22.4	
SS-293	21+00	CL	1.8-1.95	A-2-6(0)	25	11	52.0	21.3	4.3	22.4	96	64	27		
SS-294	21+00	CL	2.60-2.75	A-2-6(0)	39	18	73.8	9.9	0.0	16.2	96	40	16		
S-118	22+80	CL	0.3-0.9	A-7-6(24)	46	27	7.2	9.0	35.5	48.2	100	96	87		
S-119	22+80	CL	0.9-1.8	A-7-6(20)	42	23	7.6	10.6	37.6	44.2	100	96	86		



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Soil Sample Test Results

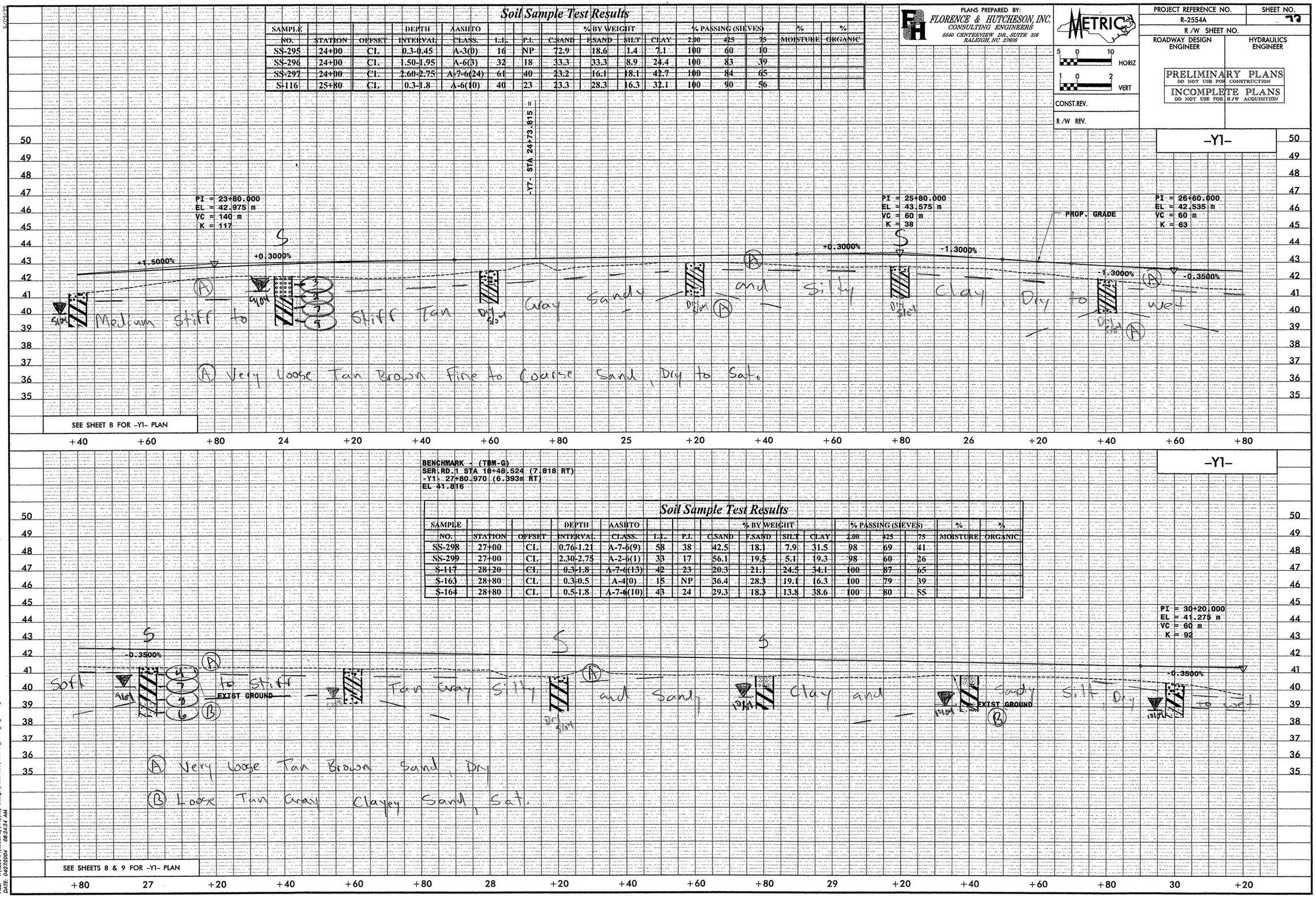
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-295	24+00	CL	0.3-0.45	A-3(0)	16	NP	72.9	18.6	1.4	7.1	100	60	10		
SS-296	24+00	CL	1.50-1.95	A-6(3)	32	18	33.3	33.3	8.9	24.4	100	83	39		
SS-297	24+00	CL	2.60-2.75	A-7-6(24)	61	40	23.2	16.1	18.1	42.7	100	84	65		
S-116	25+80	CL	0.3-1.8	A-6(10)	40	23	23.3	28.3	16.3	32.1	100	90	56		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	7B
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



BENCHMARK - (TBM-G)
SER.RD.1 STA 18+48.524 (7.818 RT)
-Y1- 27+80.970 (6.393m RT)
EL 41.816

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-298	27+00	CL	0.76-1.21	A-7-6(9)	58	38	42.5	18.1	7.9	31.5	98	69	41		
SS-299	27+00	CL	2.30-2.75	A-2-6(1)	33	17	56.1	19.5	5.1	19.3	98	60	26		
S-117	28+20	CL	0.3-1.8	A-7-6(13)	42	23	20.3	21.1	24.5	34.1	100	87	65		
S-163	28+80	CL	0.3-0.5	A-4(0)	15	NP	36.4	28.3	19.1	16.3	100	79	39		
S-164	28+80	CL	0.5-1.8	A-7-6(10)	43	24	29.3	18.3	13.8	38.6	100	80	55		

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Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-165	30+60	CL	0.3-0.4	A-2-4(0)	14	NP	42.3	31.9	9.6	16.3	100	74	29		
S-166	30+60	CL	0.4-1.3	A-7-6(9)	51	28	30.9	23.4	5.1	40.7	100	82	47		
S-167	30+60	CL	1.3-1.8	A-2-7(4)	69	44	64.3	9.1	1.1	25.4	97	46	26		
S-168	31+60	CL	0.3-1.2	A-7-6(10)	43	27	37.4	12.0	14.0	36.6	99	72	52		
S-169	31+60	CL	1.2-1.7	A-7-6(17)	60	31	30.5	8.9	9.8	50.8	99	78	61		
S-170	31+60	CL	1.7-2.1	A-7-6(8)	51	28	45.5	9.3	8.5	36.6	98	63	45		
S-208	31+80	CL	0.3-0.6	A-6(2)	26	13	40.8	16.9	18.3	24.1	99	72	45		
S-209	31+80	CL	0.6-1.2	A-7-6(17)	68	41	40.6	8.0	9.2	42.2	98	69	52		
S-210	31+80	CL	1.2-2.7	A-2-7(1)	43	26	68.1	8.6	3.2	20.1	95	48	23		
S-211	31+80	CL	2.7-4.5	A-2-6(0)	28	12	84.5	6.0	3.4	8.0	92	22	10		
SS-320	33+00	CL	0.3-0.45	A-2-4(0)	16	NP	59.4	23.5	11.0	6.0	100	65	20		
SS-321	33+00	CL	0.76-1.20	A-7-6(22)	74	41	38.4	10.4	11.0	40.2	100	75	52		
SS-322	33+00	CL	2.30-2.80	A-2-7(2)	56	36	72.9	6.7	6.3	16.1	98	37	21		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

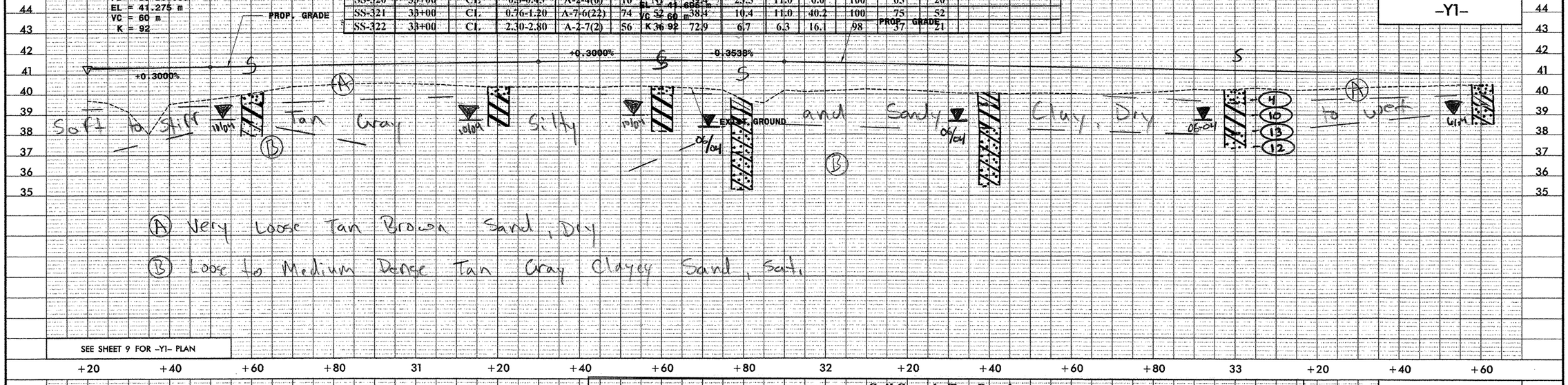
METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	T2
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

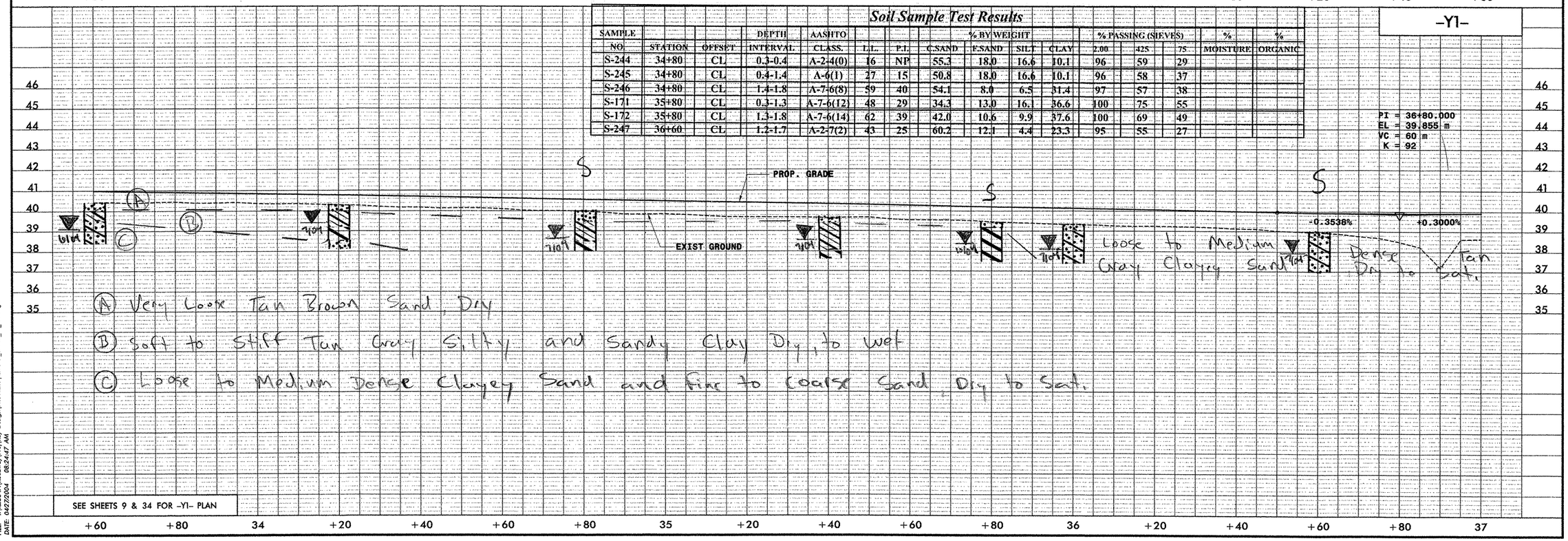
-Y1-



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-244	34+80	CL	0.3-0.4	A-2-4(0)	16	NP	55.3	18.0	16.6	10.1	96	59	29		
S-245	34+80	CL	0.4-1.4	A-6(1)	27	15	50.8	18.0	16.6	10.1	96	58	37		
S-246	34+80	CL	1.4-1.8	A-7-6(8)	59	40	54.1	8.0	6.5	31.4	97	57	38		
S-171	35+80	CL	0.3-1.3	A-7-6(12)	48	29	34.3	13.0	16.1	36.6	100	75	55		
S-172	35+80	CL	1.3-1.8	A-7-6(14)	62	39	42.0	10.6	9.9	37.6	100	69	49		
S-247	36+60	CL	1.2-1.7	A-2-7(2)	43	25	60.2	12.1	4.4	23.3	95	55	27		

-Y1-



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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

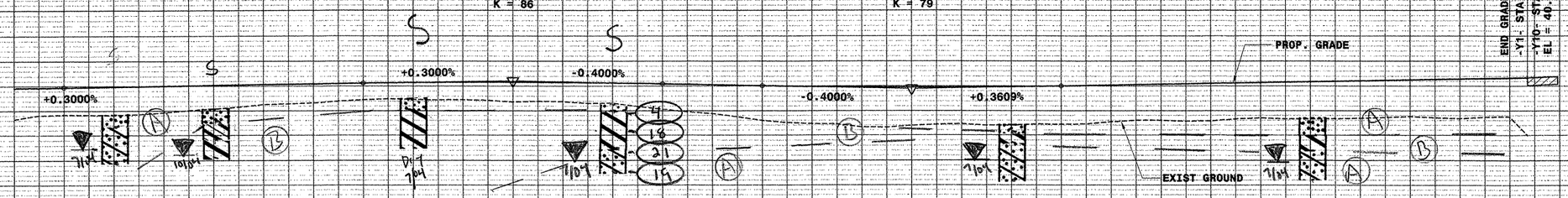
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	79
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-173	37+40	CL	0.5-1.1	A-6(4)	39	17	40.9	16.9	11.8	30.5	96	65	43		
S-174	37+40	CL	1.1-1.8	A-7-6(8)	52	30	43.9	12.1	8.4	35.6	96	64	44		
~~S-248~~	~~37+80~~	~~CL~~	~~0.3-0.4~~	~~A-2-4(0)~~	~~14~~	~~NP~~	~~48.0~~	~~27.8~~	~~15.1~~	~~9.1~~	~~99~~	~~70~~	~~28~~		
S-249	37+80	CL	0.4-1.5	A-7-6(6)	41	23	30.2	17.6	13.6	38.5	98	78	44		
S-250	37+80	CL	1.5-1.8	A-7-6(11)	64	47	44.4	14.8	6.3	34.5	95	65	40		
SS-226	38+20	CL	0.76-1.21	A-7-5(5)	57	24	48.1	11.2	5.9	34.8	98	69	41		
SS-227	38+20	CL	2.30-2.75	A-2-7(1)	63	39	76.0	5.7	0.9	17.4	88	30	17		

-Y1-

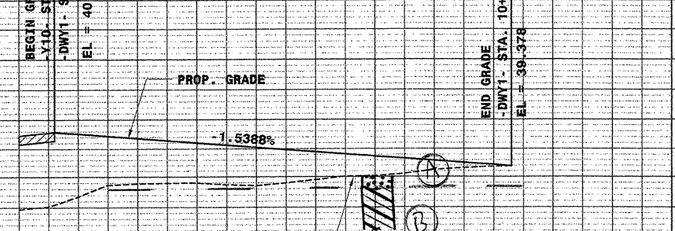


(A) Very Loose to Medium Dense Tan Brown Gray Fine to Coarse Sand and Clayey Sand Dry to Sat.
(B) Soft to Stiff Tan Gray Silty and Sandy Clay, Dry to Wet.

SEE SHEETS 34 & 32 FOR -Y1- PLAN

37 +20 +40 +60 +80 38 +20 +40 +60 +80 39 +20 +40 +60 +80 40

-DWY1-



(A) Very Loose Tan Brown Sand, Dry
(B) Medium Stiff Tan Gray Sandy Clay, Dry

SEE SHEET 32 FOR -DWY1- PLAN

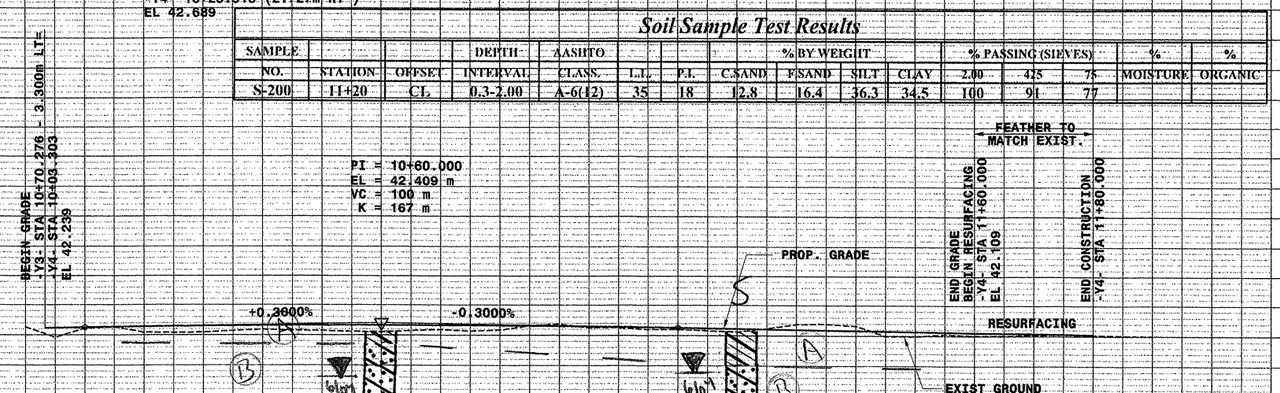
10 +20 +40 +60 +80

-Y4-

BENCHMARK - (TBM-A)
-BY1- STA 5+05.919 (11.391 LT)
-Y4- 10+25.918 (2.727m RT)
EL 42.689

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-200	11+20	CL	0.3-2.00	A-6(12)	35	18	12.8	16.4	36.3	34.5	100	91	77		



(A) Soft to Medium Stiff Tan Brown Gray Silty Sandy Clay, Dry
(B) Loose to Medium Dense Tan Gray Clayey Sand, Dry to Sat.

SEE SHEET 24 FOR -Y4- PLAN

10 +20 +40 +60 +80 11 +20 +40 +60 +80

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PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

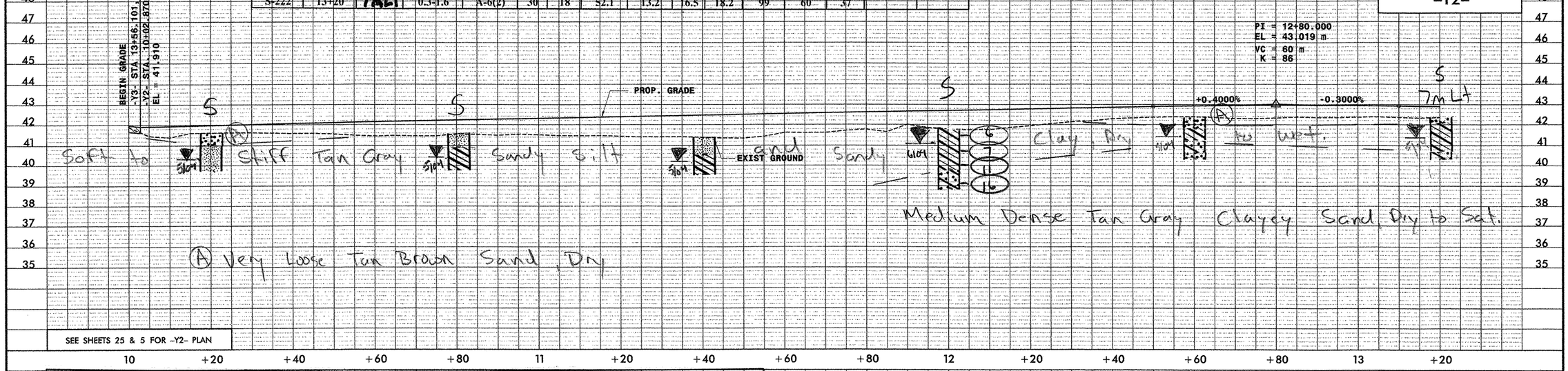
METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	75
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-269	10+20	CL	0.5-2.0	A-4(4)	24	10	17.4	17.6	34.5	30.4	100	90	69		
S-114	10+80	CL	0.3-0.6	A-4(0)	20	4	18.5	23.3	35.9	22.3	100	88	64		
S-115	10+80	CL	0.6-1.8	A-6(9)	29	14	11.6	16.0	33.9	38.5	100	93	77	24.1	
SS-211	12+00	CL	0.3-0.45	A-6(3)	32	18	50.1	13.7	17.0	19.2	99	61	39		
SS-212	12+00	CL	2.30-2.75	A-2-6(1)	33	17	41.1	27.8	6.9	24.2	100	80	33		
S-222	13+20	7m LT	0.3-1.6	A-6(2)	30	18	52.1	13.2	16.5	18.2	99	60	37		

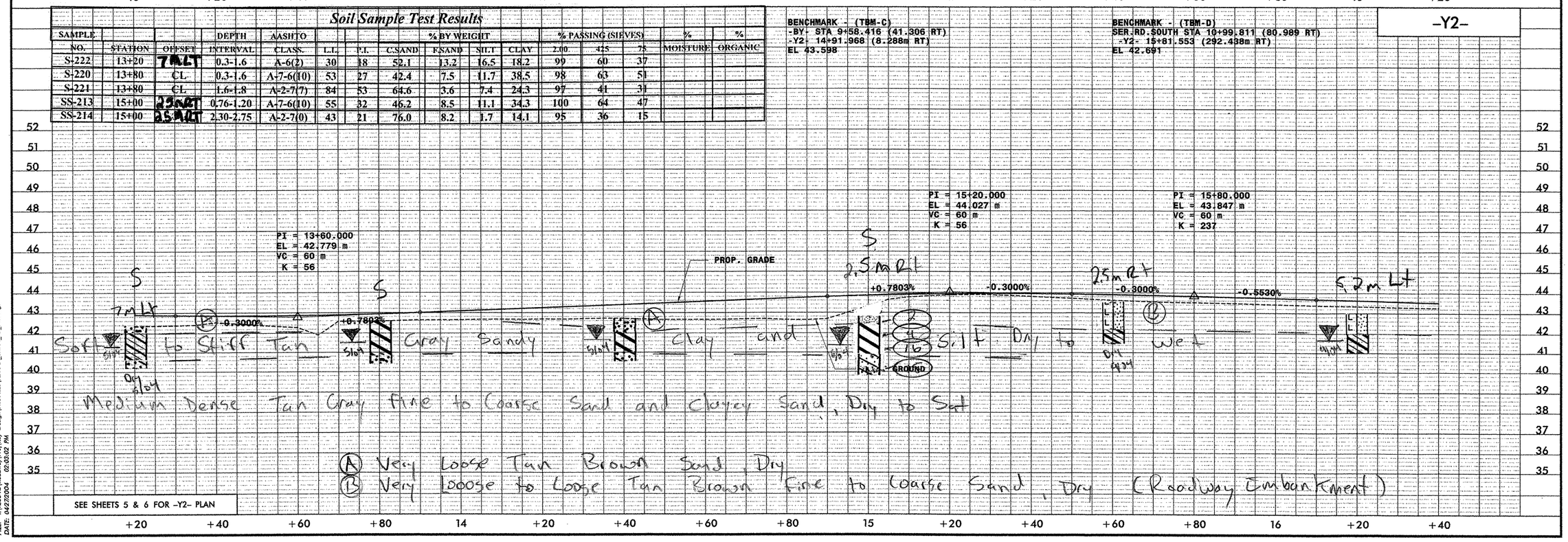


Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-222	13+20	7m LT	0.3-1.6	A-6(2)	30	18	52.1	13.2	16.5	18.2	99	60	37		
S-220	13+80	CL	0.3-1.6	A-7-6(10)	53	27	42.4	7.5	11.7	38.5	98	63	51		
S-221	13+80	CL	1.6-1.8	A-2-7(7)	84	53	64.6	3.6	7.4	24.3	97	41	31		
SS-213	15+00	23m RT	0.76-1.20	A-7-6(10)	55	32	46.2	8.5	11.1	34.3	100	64	47		
SS-214	15+00	25m RT	2.30-2.75	A-2-7(0)	43	21	76.0	8.2	1.7	14.1	95	36	15		

BENCHMARK - (TBM-C)
-BY- STA 9+58.416 (41.306 RT)
-Y2- 14+91.968 (8.288m RT)
EL 43.598

BENCHMARK - (TBM-D)
SER.RD.SOUTH STA 10+99.811 (80.989 RT)
-Y2- 15+81.553 (292.438m RT)
EL 42.691



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Soil Sample Test Results

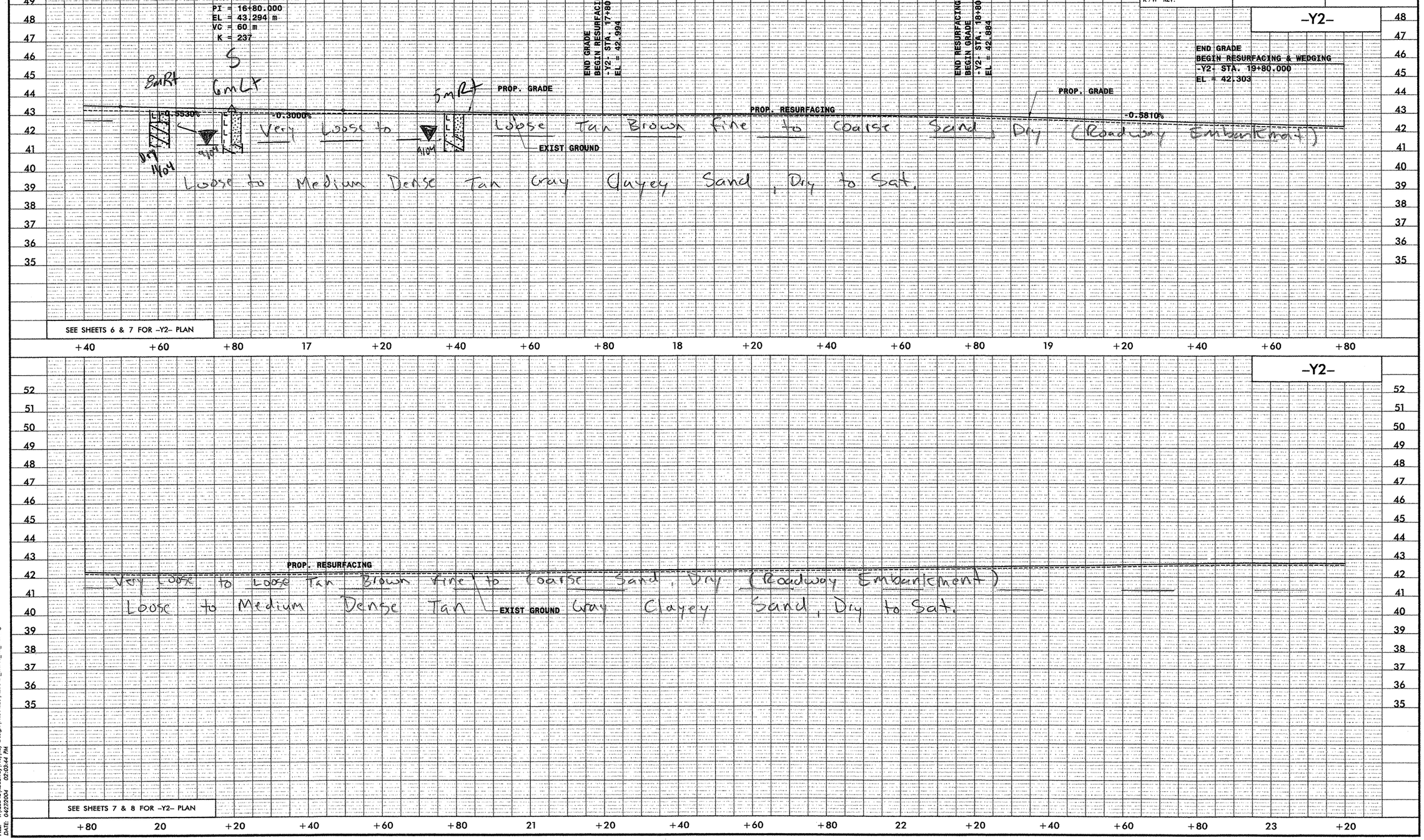
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-158	16+80	6M LT	0.3-1.6	A-2-4(0)	16	NP	40.0	29.9	19.9	10.2	95	70	34		
S-159	16+80	6M LT	1.6-1.8	A-2-7(2)	46	22	53.5	14.2	6.9	25.4	99	60	34		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR. SUITE 316
RALEIGH, NC 27606

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	76
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



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BENCHMARK - (TBM-E)
-BY- STA 18+52.042 (18.957 RT)
-Y2- 23+88.656 (8.989m RT)
EL 42.695

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CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	77
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-Y2-

END RESURFACING & WEDGING
BEGIN GRADE
-Y2- STA. 26+20.000
EL = 42.442

PROP. RESURFACING

PROP. GRADE

6m Lt

-0.3000%

EXIST GROUND

Very Loose to Loose Tan Brown Fine to Coarse Sand, Dry to Sat.
Medium Stiff to Stiff Tan Gray Silty and Sandy Clay, Dry to wet

SEE SHEETS 8 & 26 FOR -Y2- PLAN

+20 +40 +60 +80 24 +20 +40 +60 +80 25 +20 +40 +60 +80 26 +20 +40 +60

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-215	27+00	4M RT	0.3-0.45	A-7-6(21)	53	37	18.3	21.0	22.4	38.3	100	90	65		
SS-216	27+00	4M RT	1.50-1.95	A-2-6(1)	35	16	35.6	35.4	5.8	23.2	100	82	32		
SS-217	27+00	4M RT	2.30-2.75	A-2-6(0)	38	21	70.9	11.4	0.6	17.1	99	47	18		
S-228	28+80	CL	0.0-0.2	A-4(0)	19	NP	28.2	34.2	27.3	10.3	100	83	44		
S-229	28+80	CL	0.2-1.8	A-7-6(17)	46	32	18.9	21.6	22.3	37.1	100	88	58		
S-227	29+40	CL	1.6-1.8	A-7-6(4)	44	28	42.2	23.9	11.2	22.7	100	68	36		

PI = 27+60.000
EL = 41.902 m
VC = 60 m
K = 73

PI = 28+20.000
EL = 42.213 m
VC = 60 m
K = 70

S
4m Rt

PROP. GRADE

-0.3000% +0.5190% +0.5190% -0.3420%

Very Soft to Soft Tan Gray Silty and Sandy Clay and Sandy Silt
Dry to Wet

EXIST GROUND

Ⓐ Loose to Medium Dense Tan Gray Clayey Sand, Sat.

SEE SHEETS 26 & 28 FOR -Y2- PLAN

+60 +80 27 +20 +40 +60 +80 28 +20 +40 +60 +80 29 +20 +40 +60 +80 30

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DATE: 04/27/2004 02:04:05 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
5540 CENTERVIEW DR., SUITE 316
RALEIGH, NC 27606

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	78
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R/W REV.

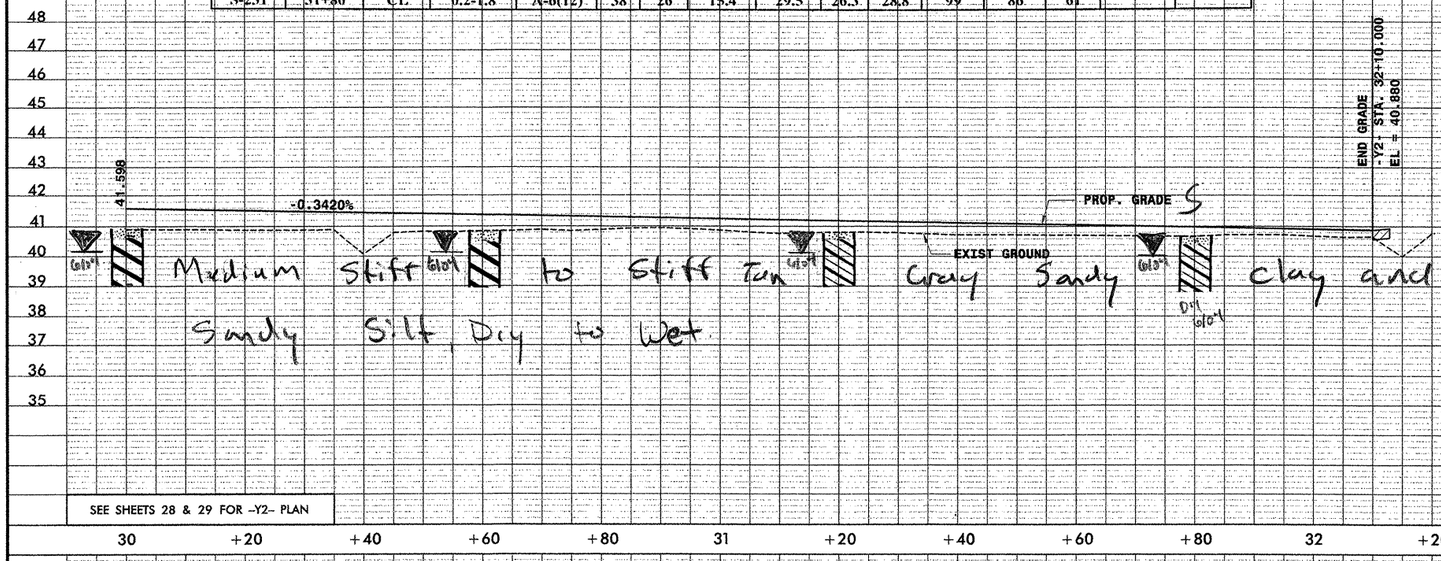
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

BENCHMARK - (TBM-F)
SER.RD.SOUTH STA 21+96.194 (10.536 RT)
-Y2- 30+68.312 (339.483m RT)
EL 39.494

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-230	31+80	CL	0.0-0.2	A-4(0)	17	NP	14.4	36.9	34.3	14.4	100	89	58		
S-231	31+80	CL	0.2-1.8	A-6(12)	38	26	15.4	29.5	26.3	28.8	99	86	61		

-Y2-

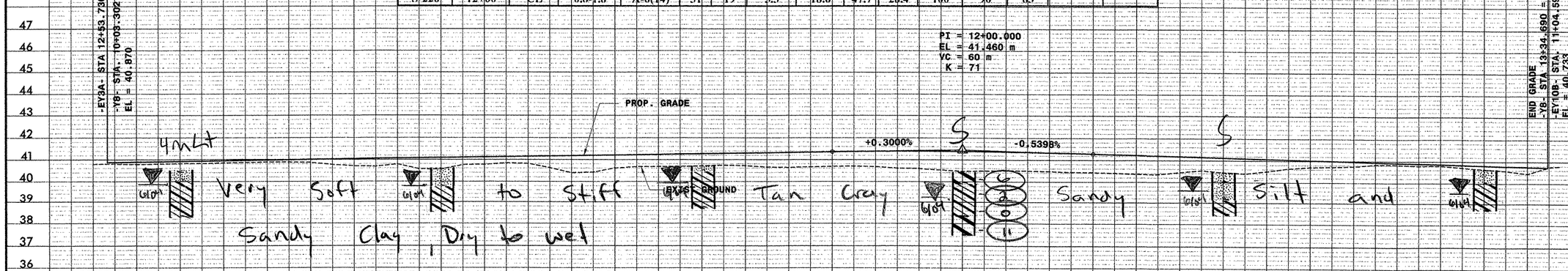


SEE SHEETS 28 & 29 FOR -Y2- PLAN

-Y8-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-204	12+00	CL	0.3-0.45	A-7-6(19)	43	25	5.0	23.2	31.5	40.3	100	97	77		
SS-205	12+00	CL	0.76-1.21	A-6(16)	37	23	5.4	24.6	31.7	38.3	100	97	77	22.7	
SS-206	12+00	CL	2.30-2.75	A-7-6(12)	43	24	19.4	24.4	20.0	36.3	100	92	60		
S-223	12+60	CL	0.3-0.4	A-4(0)	18	3	20.3	40.5	25.0	14.2	98	87	45		
S-224	12+60	CL	0.4-0.5	A-1-b(0)	23	4	72.5	11.3	8.0	8.1	76	31	13		
S-225	12+60	CL	0.5-0.8	A-4(0)	17	3	10.5	27.2	48.1	14.2	98	91	70		
S-226	12+60	CL	0.8-1.8	A-6(14)	31	19	5.3	18.6	47.7	28.4	100	96	83		



SEE SHEETS 29 & 30 FOR -Y8- PLAN

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DATE: 04/27/2004 02:04:31 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

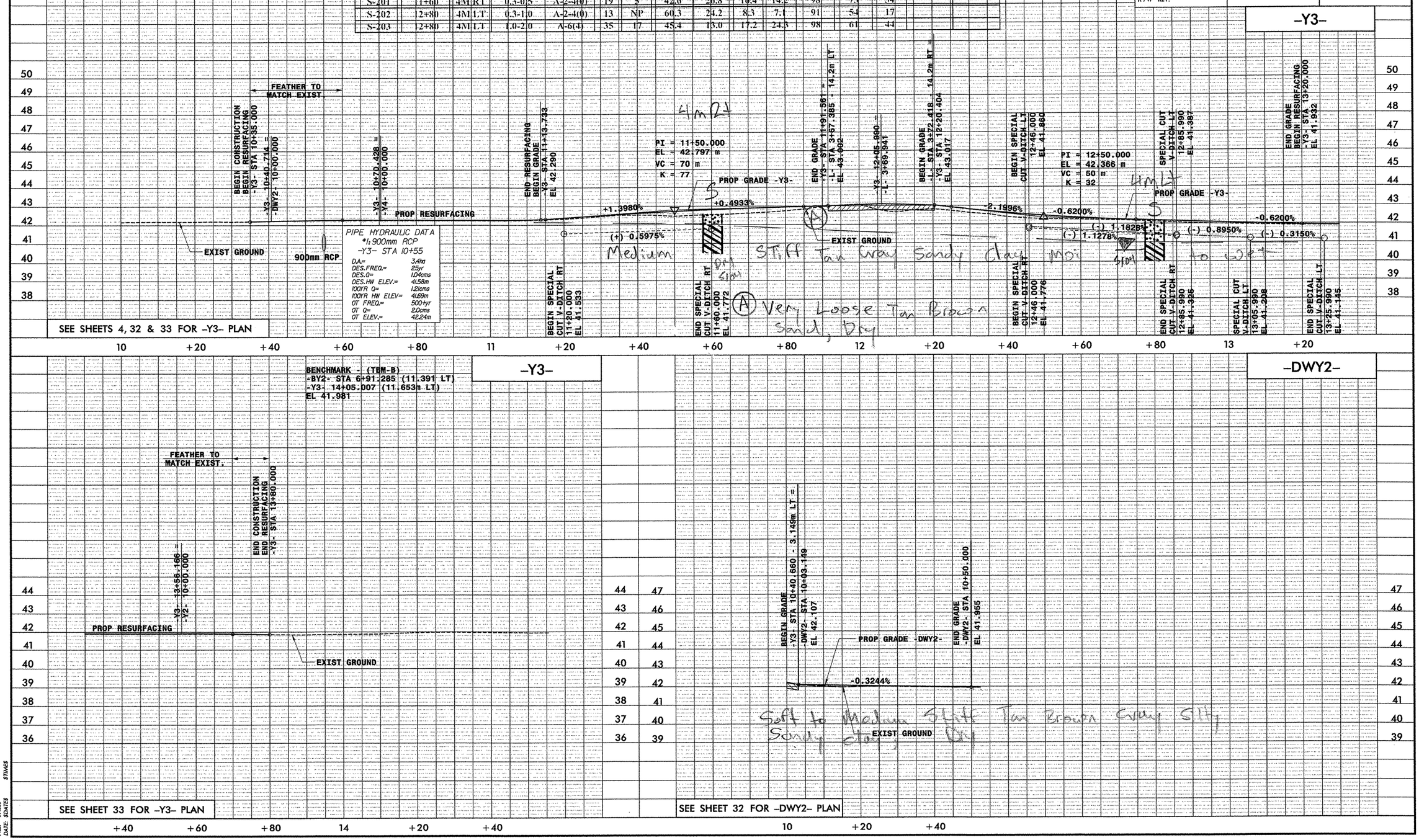
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	79
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING SIEVES 2.00	425	75	% MOISTURE	% ORGANIC
S-201	1+60	4M RT	0.3-0.5	A-2-4(0)	19	5	42.6	26.8	16.4	14.2	98	73	34		
S-202	2+80	4M LT	0.3-1.0	A-2-4(0)	13	NP	60.3	24.2	8.3	7.1	91	54	17		
S-203	2+80	4M LT	1.0-2.0	A-6(4)	35	17	45.4	13.0	17.2	24.3	98	61	44		



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DATE: $DATE$
$TIMES

6/09/99

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD. SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

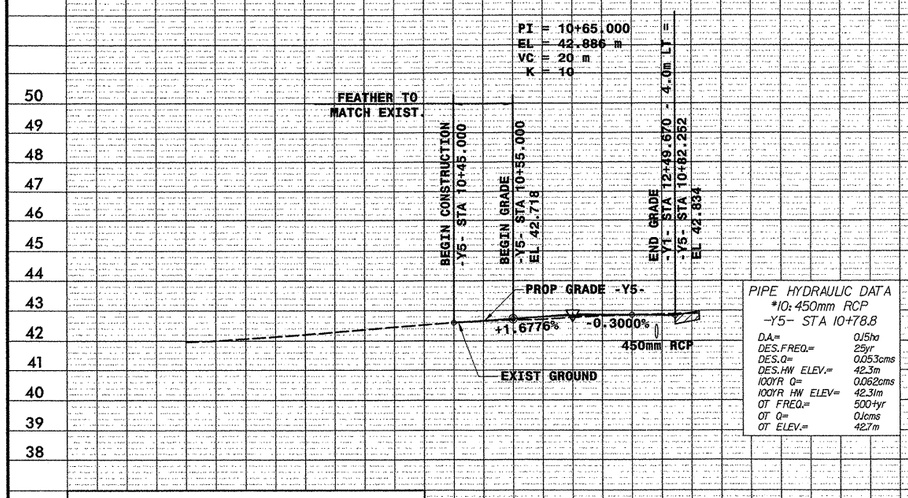
CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	80
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5-



PIPE HYDRAULIC DATA
*10: 450mm RCP
-Y5- STA 10+78.8

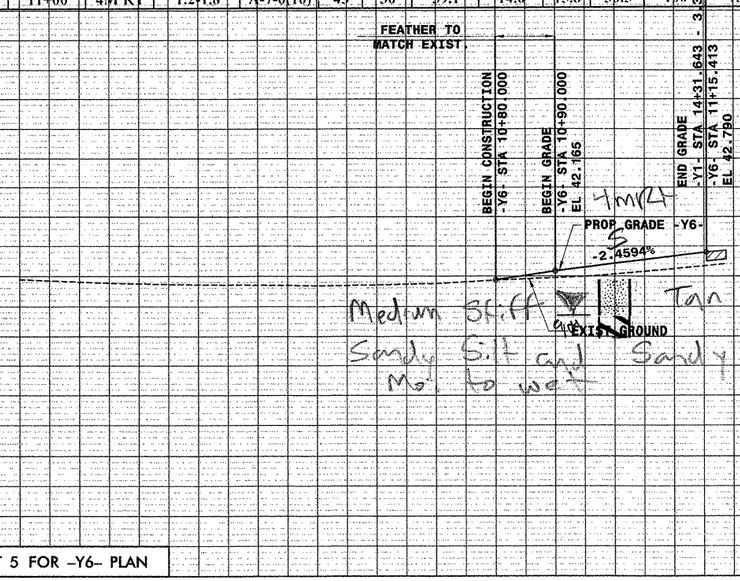
D.A.=	0.15ha
DES.FREQ.=	25yr
DES.Q=	0.053cms
DES.HW ELEV.=	42.3m
100YR Q=	0.082cms
100YR HW ELEV=	42.31m
OT FREQ.=	500+yr
OT Q=	0.1cms
OT ELEV.=	42.7m

SEE SHEET 5 FOR -Y5- PLAN

-Y6-

Soil Sample Test Results

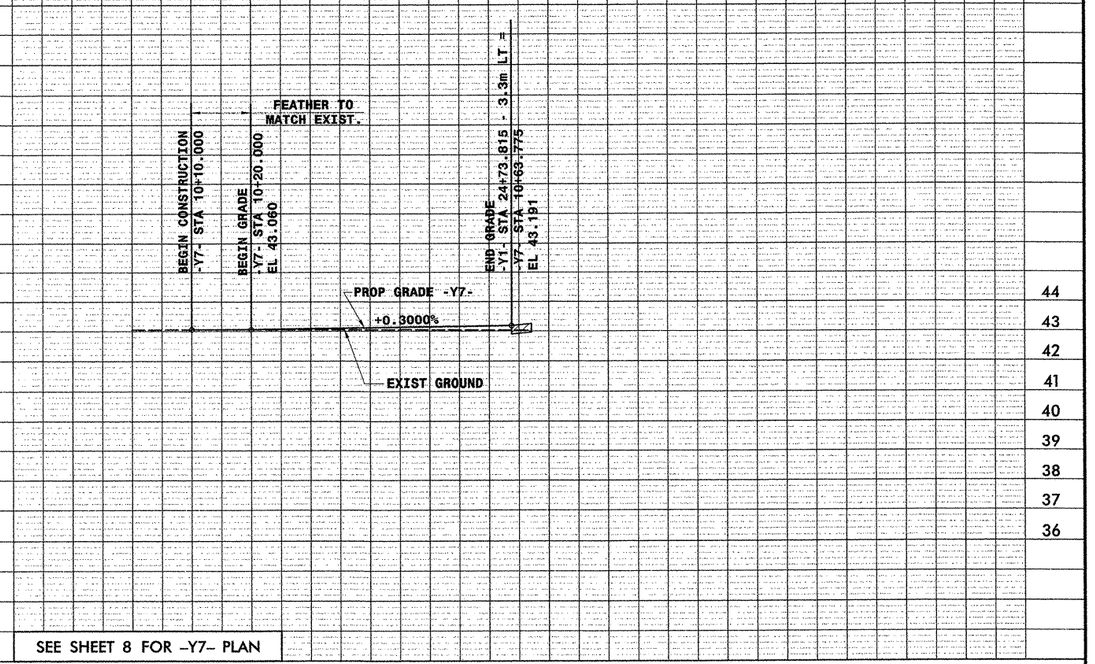
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
					% BY WEIGHT										
S-29	11+00	45M RT	0.3-0.6	A-4(0)	17	NP	42.7	21.0	24.1	12.2	100	72	40		
S-30	11+00	45M RT	0.6-1.2	A-4(0)	20	8	41.1	17.9	16.6	24.4	100	72	44		
S-31	11+00	45M RT	1.2-1.8	A-7-6(10)	45	30	39.1	14.6	15.8	30.5	100	73	49		



Medium Stiff Tan Gray
Sandy Silt and Sandy clay
Mo. to wet

SEE SHEET 5 FOR -Y6- PLAN

-Y7-



SEE SHEET 8 FOR -Y7- PLAN

FILE: $FILES $TIMES
DATE: $DATES

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	81
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

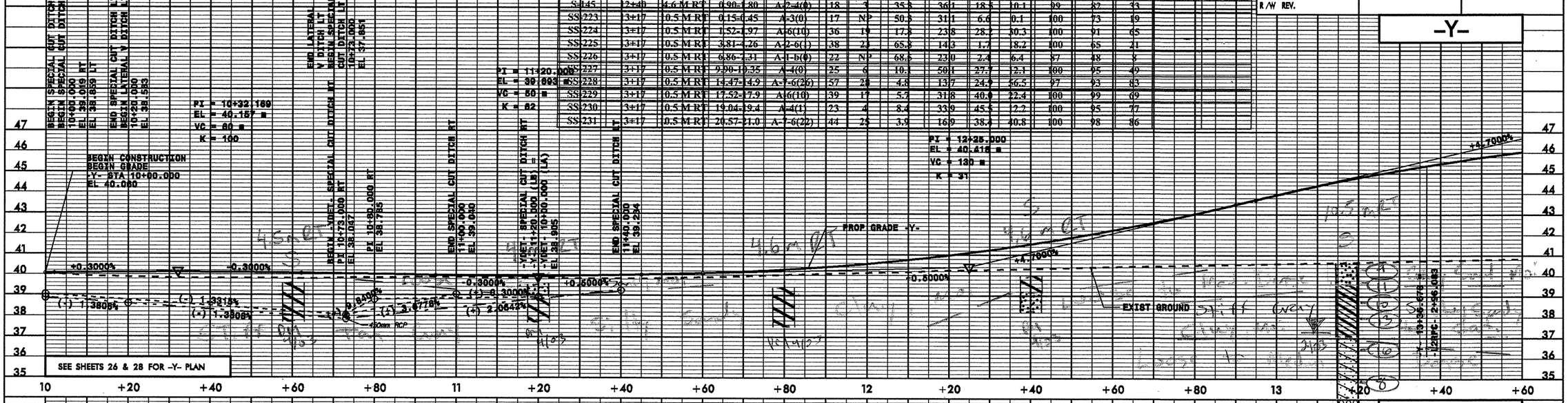
-Y-

PIPE HYDRAULIC DATA
18" 450mm RCP
-Y- STA 10+73 RT

D.A.=	0.783ha
DES.FREQ.=	25yr
DES.Q=	0.216cms
DES.HW ELEV.=	38.52m
100YR Q=	0.250cms
100YR HW ELEV=	38.6m
OT FREQ.=	500+yr
OT Q=	0.507cms
OT ELEV.=	39.45m

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#25	#75	% MOISTURE	% ORGANIC
S-142	10+60	4.5M RT	0.15-0.91	A-7-6(13)	42	26	10.5	35.1	24.5	30.3	100	95	62		
S-143	10+60	4.5 M RT	0.91-1.81	A-7-6(20)	46	27	4.2	28.1	33.9	34.3	100	98	76		
S-144	2+40	4.6 M RT	0.00-0.90	A-7-6(28)	54	35	8.3	15.9	29.4	46.4	100	97	80		
S-145	2+40	4.6 M RT	0.90-1.80	A-2-4(0)	18	3	35.8	36.1	18.5	10.1	99	87	33		
SS-223	3+17	0.5 M RT	0.15-0.45	A-3(0)	17	NP	50.3	31.1	6.6	0.1	100	73	19		
SS-224	3+17	0.5 M RT	1.52-1.97	A-6(10)	36	19	17.3	23.8	28.2	30.3	100	91	65		
SS-225	3+17	0.5 M RT	3.81-4.26	A-2-6(1)	38	23	65.8	14.3	1.7	18.2	100	65	21		
SS-226	3+17	0.5 M RT	6.86-7.31	A-1-b(0)	22	NP	68.5	23.0	2.4	6.4	87	48	8		
SS-227	3+17	0.5 M RT	9.90-10.35	A-4(0)	25	6	10.3	50.1	27.7	2.1	100	95	49		
SS-228	3+17	0.5 M RT	14.47-14.9	A-7-6(26)	57	28	4.8	13.7	24.9	56.5	97	93	83		
SS-229	3+17	0.5 M RT	17.52-17.9	A-6(10)	39	17	5.7	31.8	40.0	22.4	100	99	69		
SS-230	3+17	0.5 M RT	19.04-19.4	A-4(1)	23	4	8.4	33.9	45.5	2.2	100	95	77		
SS-231	3+17	0.5 M RT	20.57-21.0	A-7-6(22)	44	25	3.9	16.9	38.4	40.8	100	98	86		

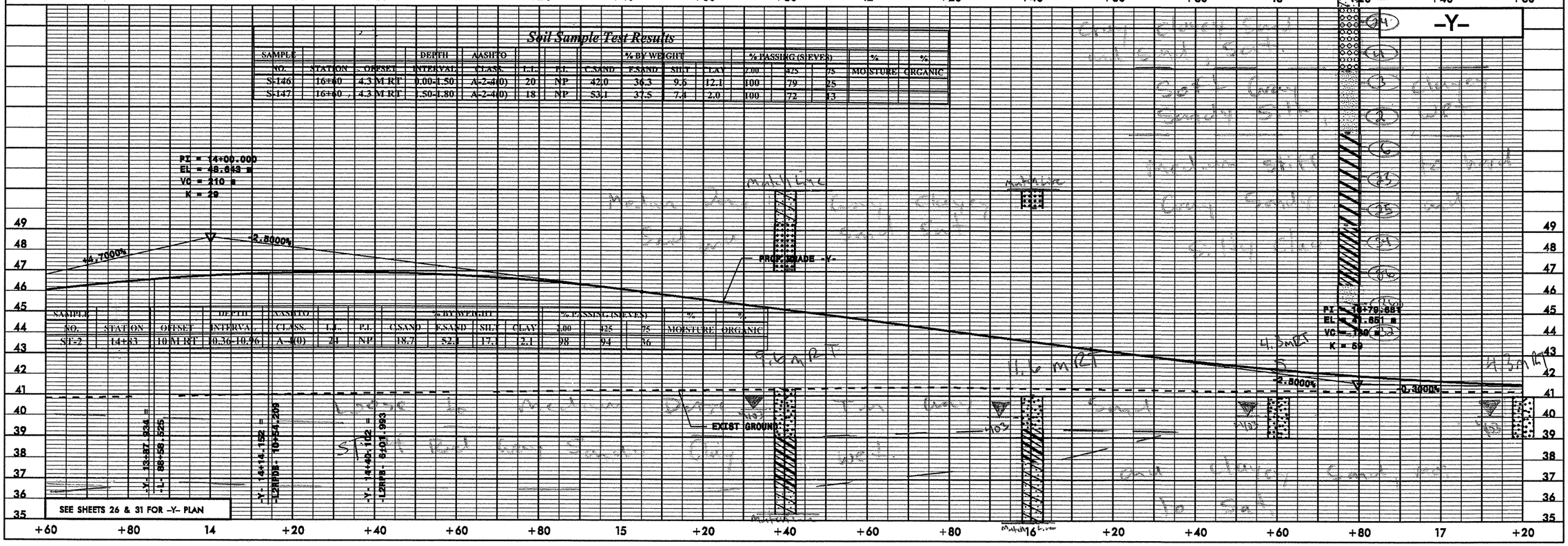


-Y-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#25	#75	% MOISTURE	% ORGANIC
S-146	16+60	4.3 M RT	0.00-1.50	A-2-4(0)	20	NP	42.0	36.3	9.6	12.1	100	79	25		
S-147	16+60	4.3 M RT	1.50-1.80	A-2-4(0)	18	NP	53.1	37.5	7.4	2.0	100	72	13		

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#25	#75	% MOISTURE	% ORGANIC
SF-2	14+83	10 M RT	0.36-10.96	A-4(0)	24	NP	18.7	52.5	17.3	12.1	98	94	36		



PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4080 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

5 0 10 HORIZ
1 0 2 VERT

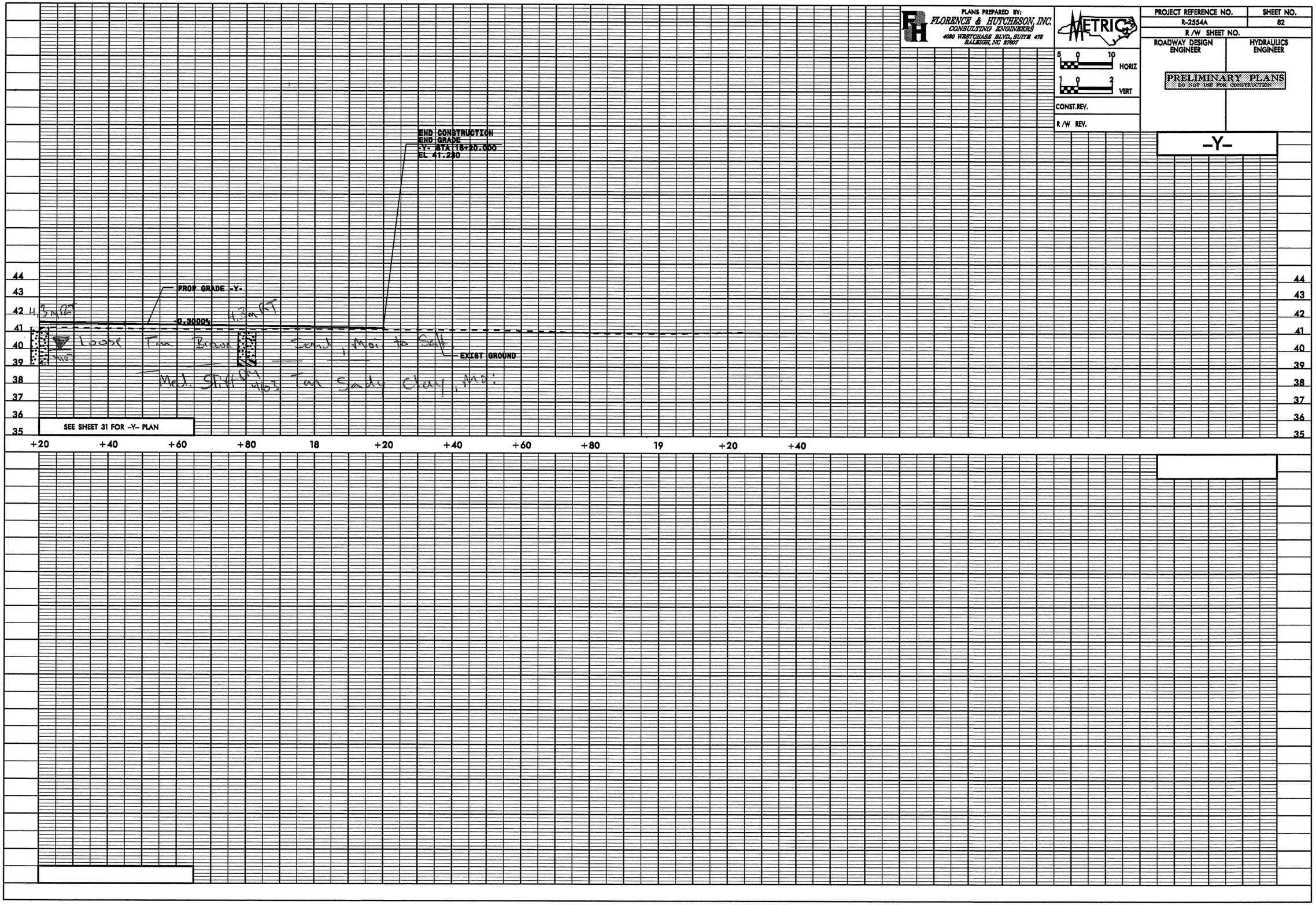
CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	82
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y-



PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
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4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	83
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

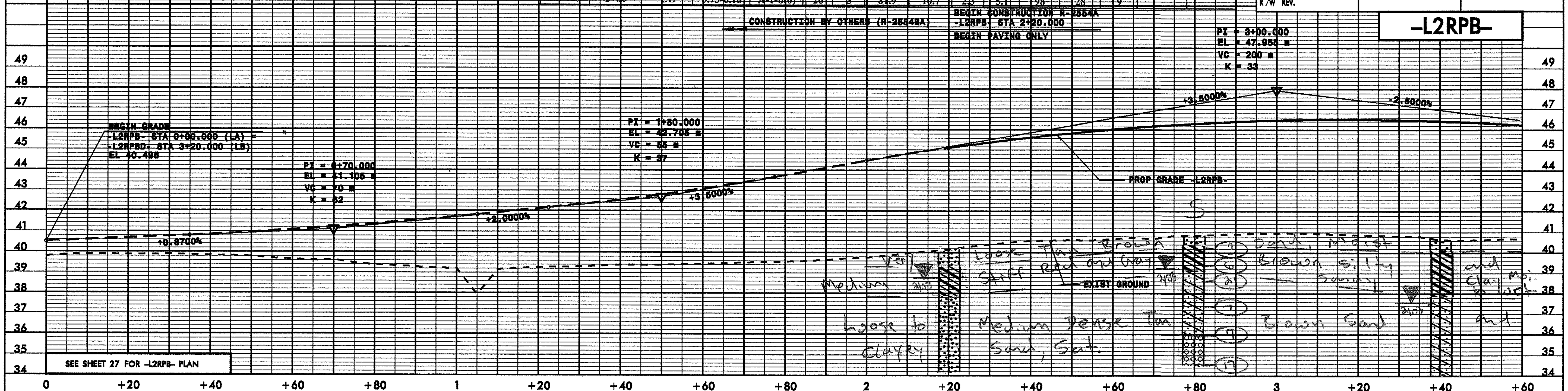
HORIZ 5 0 10
VERT 1 0 2
CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2RPB-

Soil Sample Test Results

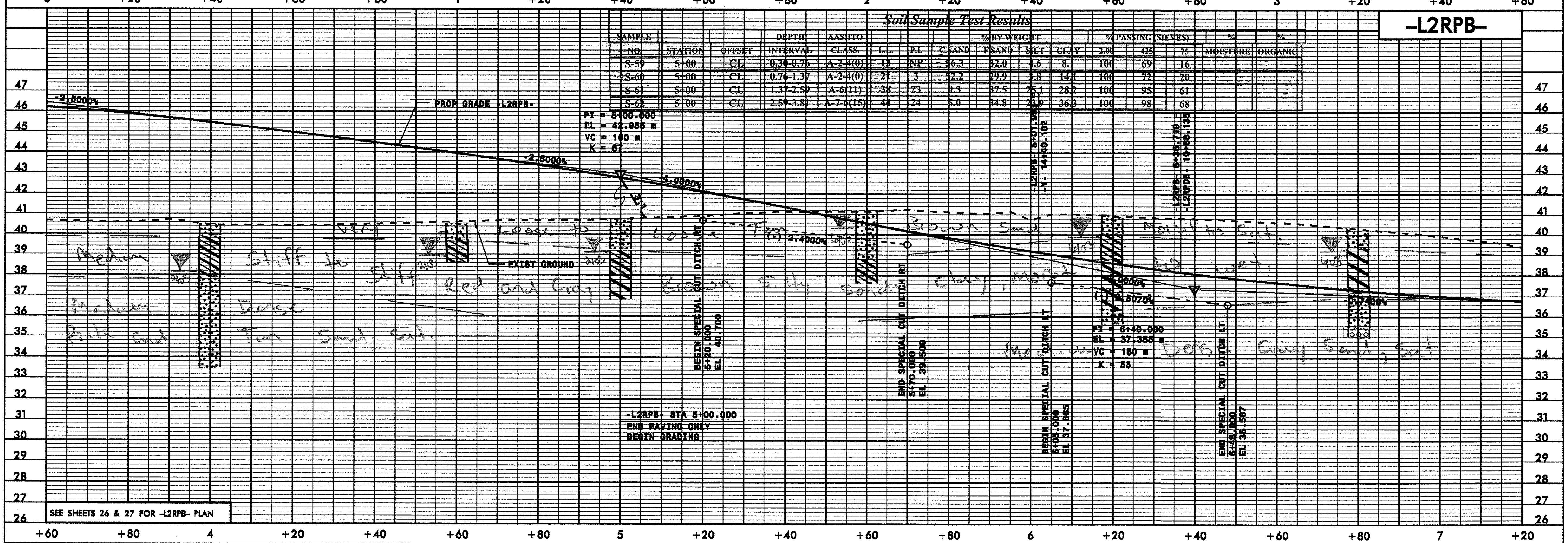
SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	.425	.75	% MOISTURE	% ORGANIC
SS-120	2+80	CL	0.30-0.76	A-6(9)	39	20	18.6	29.1	13.9	38.4	100	91	58	22.8	
SS-121	2+80	CL	1.52-1.97	A-2-6(0)	39	19	64.2	16.6	2.0	17.2	98	53	20		
SS-122	2+80	CL	4.21-4.66	A-2-6(0)	27	12	65.1	16.2	4.6	14.1	98	49	20		
SS-123	2+80	CL	5.73-6.18	A-1-b(0)	26	5	81.9	10.7	2.3	5.1	98	28	9		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	.425	.75	% MOISTURE	% ORGANIC
S-59	5+00	CL	0.30-0.76	A-2-4(0)	13	NP	56.3	32.0	4.6	8.1	100	69	16		
S-60	5+00	CL	0.76-1.37	A-2-4(0)	21	3	52.2	29.9	3.8	14.1	100	72	20		
S-61	5+00	CL	1.37-2.59	A-6(11)	38	23	9.3	37.5	25.1	28.2	100	95	61		
S-62	5+00	CL	2.59-3.81	A-7-6(15)	44	24	5.0	34.8	23.9	36.3	100	98	68		

-L2RPB-



PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4080 WESTCHASE BLVD, SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

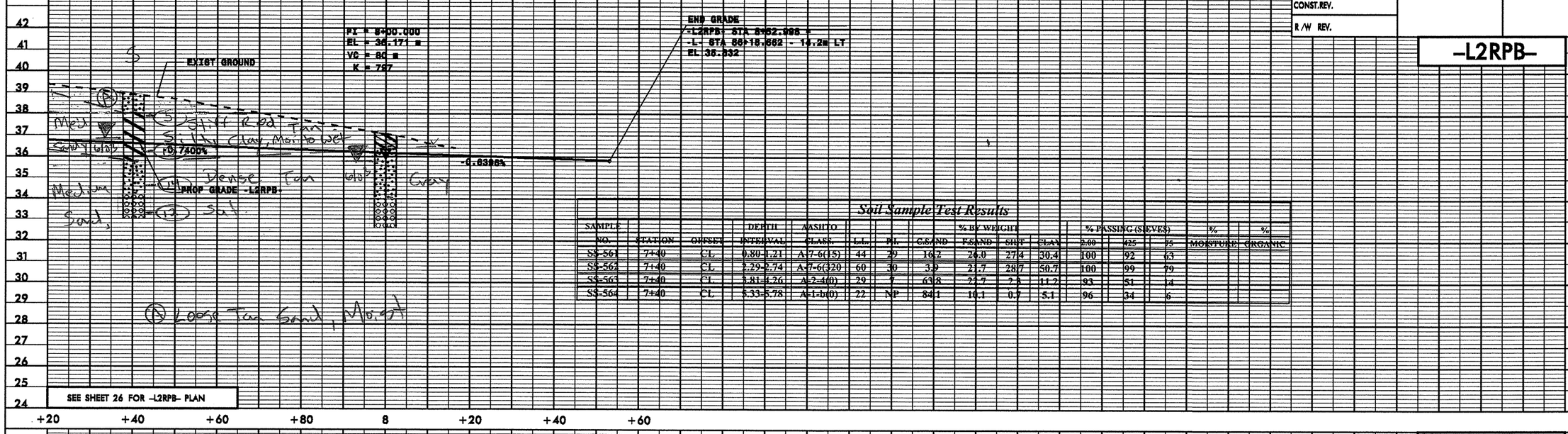
CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	84
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2RPB-



SEE SHEET 26 FOR -L2RPB- PLAN

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-561	7+40	CL	0.80-1.21	A-7-6(15)	44	29	16.2	26.0	27.4	30.4	100	92	63		
SS-562	7+40	CL	2.29-2.74	A-7-6(320)	60	30	3.9	21.7	28.7	50.7	100	99	79		
SS-563	7+40	CL	3.81-4.26	A-2-4(0)	29	7	63.8	22.7	2.3	11.2	93	51	4		
SS-564	7+40	CL	5.33-5.78	A-1-b(0)	22	NP	84.1	10.1	0.7	5.1	96	34	6		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4030 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

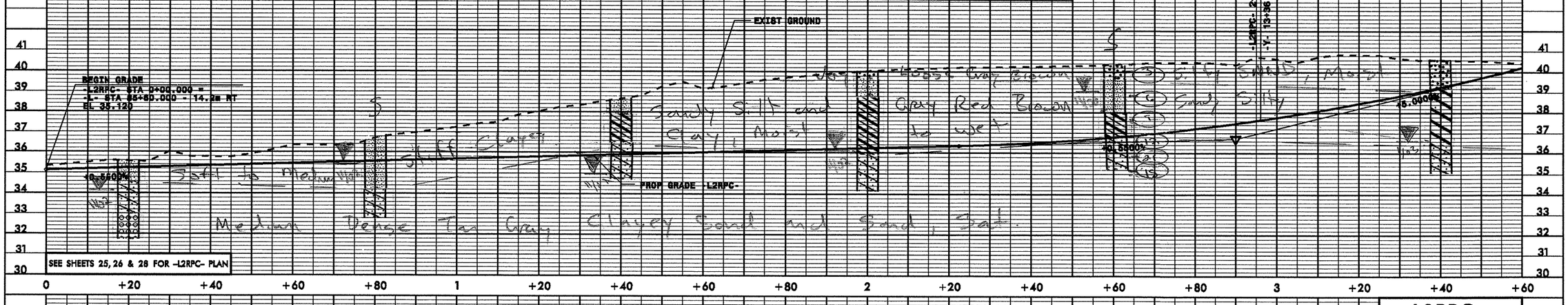
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	85
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2RPC-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-7	0+50	CL	0.30-0.61	A-4(0)	16	3	23.3	38.5	23.0	14.1	100	84	42		
S-8	0+50	CL	0.61-1.22	A-4(0)	19	5	33.9	38.3	15.6	15.2	98	79	36		
S-9	0+50	CL	1.22-2.44	A-2-6(1)	39	22	65.2	12.1	2.5	20.2	97	57	24		
S-10	0+50	CL	2.44-3.81	A-2-6(2)	36	19	73.5	11.9	4.4	10.1	90	37	14		
SS-24	2+60	CL	0.76-1.21	A-4(0)	21	6	47.2	29.7	10.9	14.4	100	75	38		
SS-25	2+60	CL	1.52-1.97	A-6(13)	35	19	9.9	20.8	37.0	32.3	100	94	76	22.1	
SS-26	2+60	CL	2.81-4.26	A-2-6(2)	40	23	71.4	11.7	3.7	18.1	92	44	16		



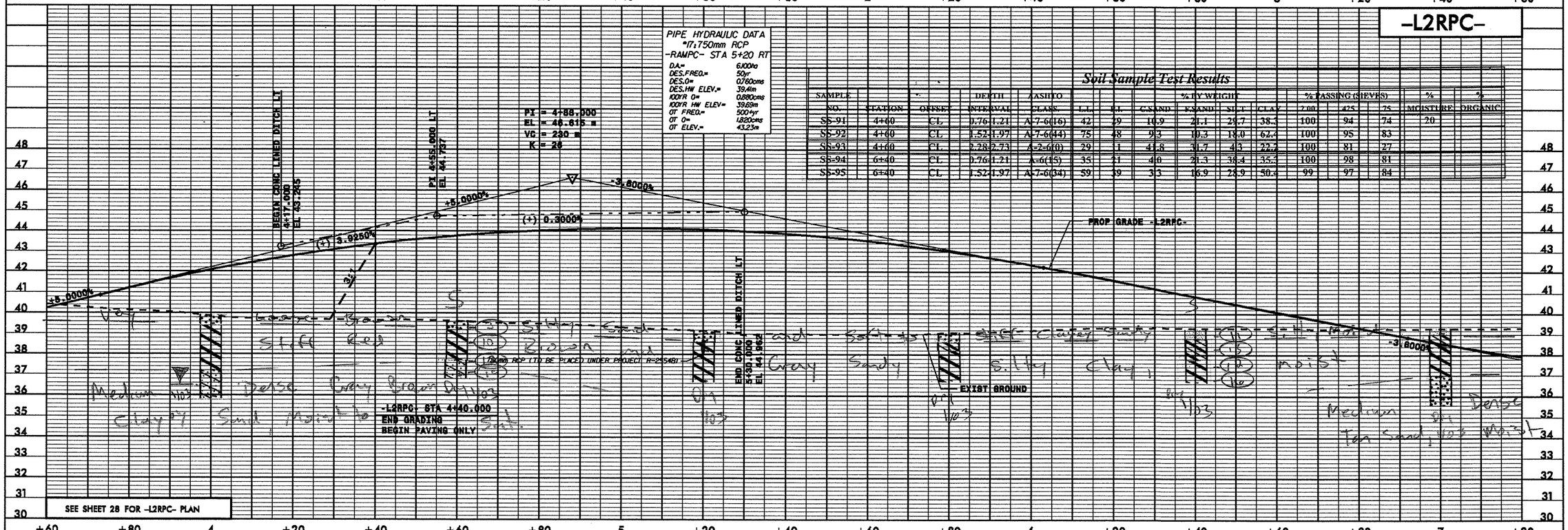
-L2RPC-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-91	4+60	CL	0.76-1.21	A-7-6(16)	42	29	10.9	21.1	29.7	38.3	100	94	74	20	
SS-92	4+60	CL	1.52-1.97	A-7-6(44)	75	48	9.3	10.3	19.0	62.4	100	95	83		
SS-93	4+60	CL	2.28-2.73	A-2-6(0)	29	11	41.8	31.7	4.3	22.2	100	81	27		
SS-94	6+40	CL	0.76-1.21	A-6(15)	35	21	4.0	21.3	38.4	35.3	100	98	81		
SS-95	6+40	CL	1.52-1.97	A-7-6(34)	59	39	3.3	16.9	29.9	50.4	99	97	84		

PIPE HYDRAULIC DATA
*17: 750mm RCP
-RAMPC- STA 5+20 RT

D.A.=	6.100ha
DES.FREQ.=	50yr
DES.Q=	0.760cms
DES.HW ELEV.=	39.41m
100YR Q=	0.880cms
100YR HW ELEV=	39.63m
OT FREQ.=	500yr
OT Q=	1.820cms
OT ELEV.=	43.23m



PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4080 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

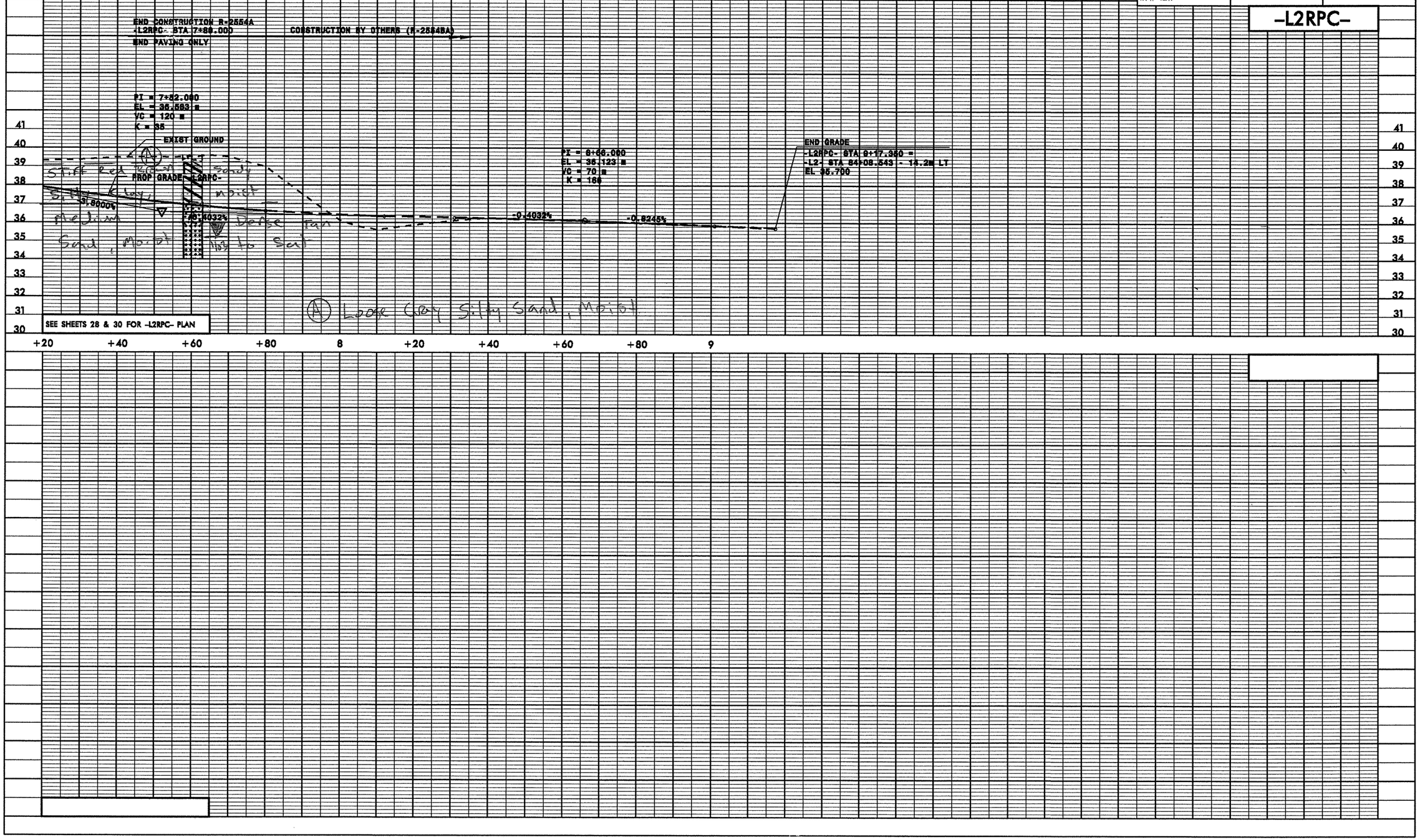
CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	86
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2RPC-



PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 470
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

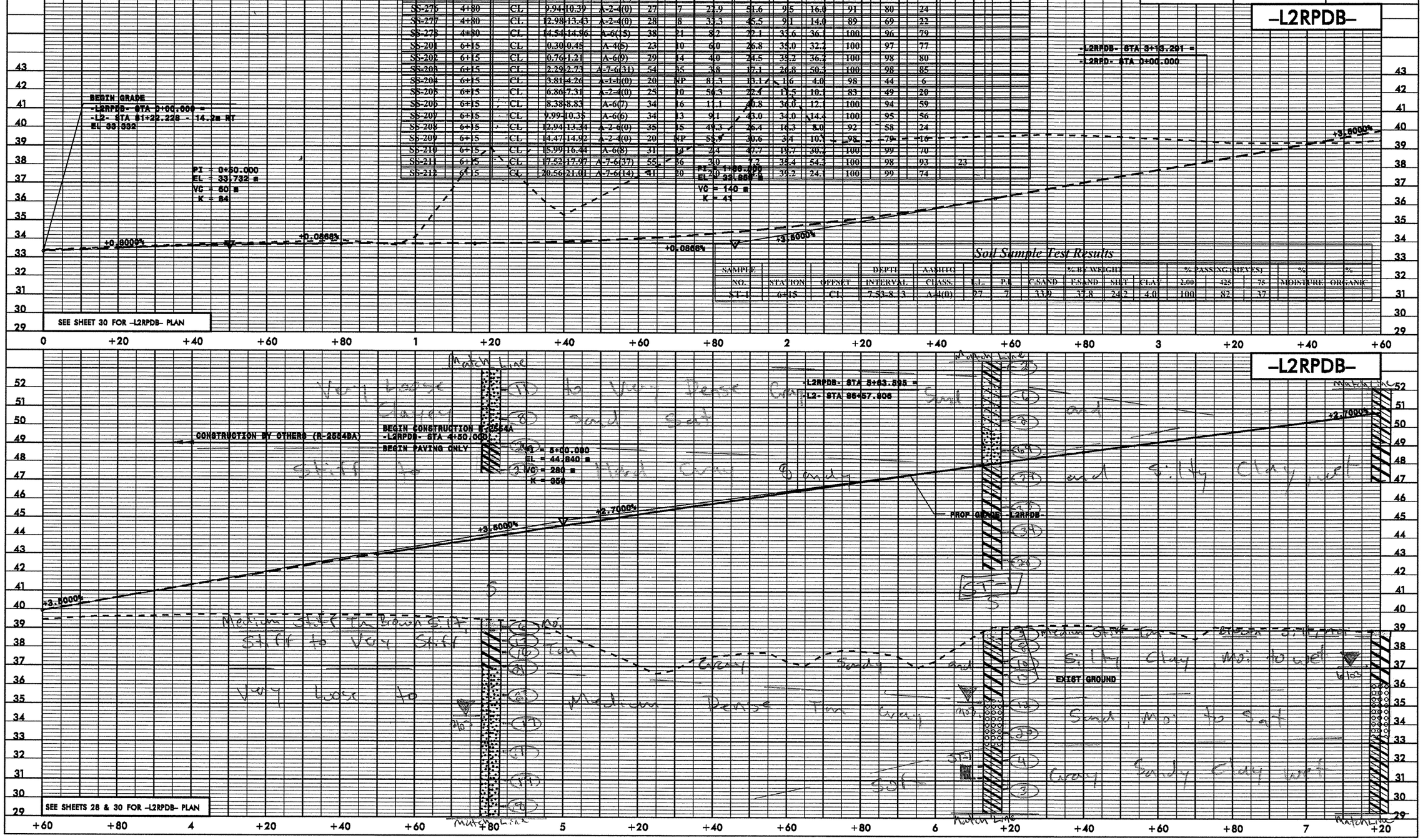
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	87
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2RPDB-

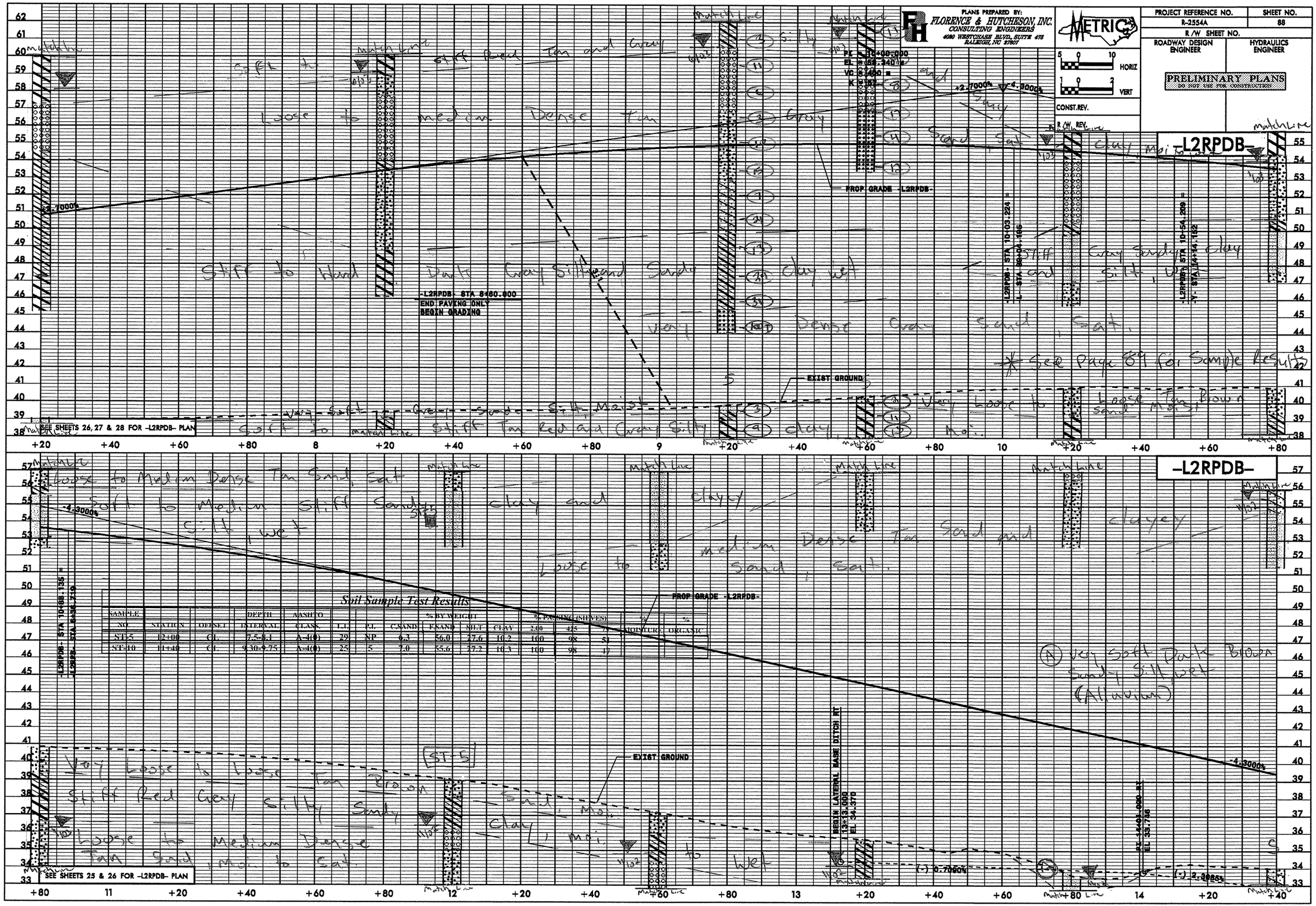
Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-273	4+80	CL	0.76-1.21	A-7-6(17)	41	22	2.2	26.3	35.4	36.1	100	99	79		
SS-274	4+80	CL	3.84-4.29	A-2-4(0)	22	NP	55.6	34.7	3.7	6.8	100	95	12		
SS-275	4+80	CL	6.89-7.34	A-2-4(0)	28	8	50.4	34.9	6.7	8.0	95	60	17		
SS-276	4+80	CL	9.94-10.39	A-2-4(0)	27	7	22.9	51.6	9.5	16.0	91	80	24		
SS-277	4+80	CL	12.98-13.43	A-2-4(0)	28	8	33.3	45.5	9.1	14.0	89	69	22		
SS-278	4+80	CL	14.54-14.96	A-6(15)	38	21	8.2	27.1	33.6	36.1	100	96	79		
SS-201	6+15	CL	0.30-0.45	A-4(5)	23	10	6.0	26.8	35.0	32.2	100	97	77		
SS-202	6+15	CL	0.76-1.21	A-6(9)	29	14	4.0	24.5	35.2	36.3	100	98	80		
SS-203	6+15	CL	2.29-2.75	A-7-6(31)	54	35	3.8	17.1	26.8	50.3	100	98	85		
SS-204	6+15	CL	3.81-4.26	A-1-b(0)	20	NP	81.3	13.1	1.6	4.0	98	44	6		
SS-205	6+15	CL	6.86-7.31	A-2-4(0)	25	10	56.3	22.4	11.5	10.1	83	49	20		
SS-206	6+15	CL	8.38-8.83	A-6(7)	34	16	11.1	40.8	36.0	12.1	100	94	59		
SS-207	6+15	CL	9.99-10.35	A-6(6)	34	13	9.1	43.0	34.0	14.8	100	95	56		
SS-208	6+15	CL	12.94-13.34	A-2-6(0)	35	15	49.3	26.4	16.3	8.0	92	58	24		
SS-209	6+15	CL	14.47-14.92	A-2-4(0)	20	NP	55.9	30.6	3.4	10.1	98	79	16		
SS-210	6+15	CL	15.99-16.44	A-6(8)	31	12	2.4	47.7	19.7	30.2	100	99	70		
SS-211	6+15	CL	17.52-17.97	A-7-6(37)	55	36	3.0	7.2	35.4	54.3	100	98	93	23	
SS-212	6+15	CL	20.56-21.01	A-7-6(14)	41	20	2.0	24.8	39.2	24.1	100	99	74		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
ST-1	6+15	CL	7.53-8.3	A-4(0)	27	7	33.0	37.8	24.2	4.0	100	82	37		



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	% BY WEIGHT L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
ST-5	12+00	CL	7.5-8.1	A-4(0)	29	NP	6.3	56.0	27.6	10.2	100	98	51		
ST-10	11+40	CL	9.30-9.75	A-4(0)	25	5	7.0	55.6	27.2	10.3	100	98	47		

PLANS PREPARED BY:
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CONSULTING ENGINEERS
4080 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	89
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

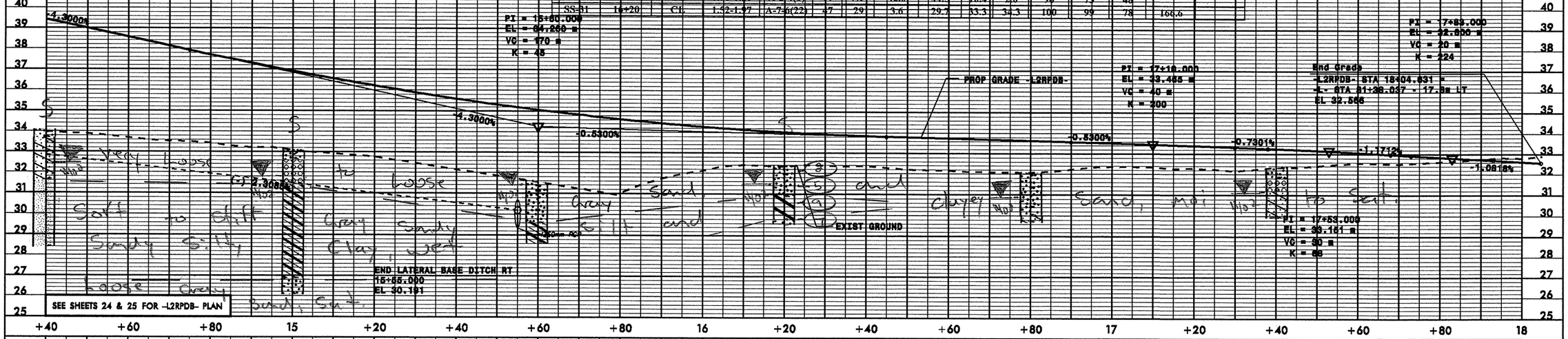
-L2RPDB-

PIPE HYDRAULIC DATA
*422A: 1350mm RCP
-RAMPDB- STA 15+55 RT

D.A.=	20.000ha
DES.FREQ.=	50yr
DES.Q=	2.040cms
DES.HW ELEV.=	31.32m
100YR Q=	2.37cms
100YR HW ELEV=	31.43m
OT FREQ.=	500yr
OT Q=	6.740cms
OT ELEV.=	34.62m

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-11	14+40	CL	0.30-2.29	A-2-6(0)	31	13	71.5	11.9	5.5	11.1	93	40	17		
S-5	15+00	CL	1.82-3.35	A-6(11)	36	15	2.4	36.8	32.5	28.3	100	98	77	26.8	
S-5	15+00	CL	3.35-6.10	A-6(7)	35	13	10.1	29.9	39.8	20.2	100	95	67		
SS-30	16+20	CL	0.76-1.21	A-2-4(0)	7	NP	42.0	44.5	10.4	2.0	96	73	48		
SS-31	16+20	CL	1.52-1.97	A-7-6(22)	47	29	3.6	29.7	33.3	33.3	100	99	78	160.6	



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
SS-583	9+20	CL	1.20-1.65	A-7-6(27)	61	44	11.9	27.1	18.8	42.2	100	94	66		
SS-584	9+20	CL	2.58-3.03	A-6(3)	34	17	2.6	60.3	11.0	26.1	100	99	42		
SS-585	9+20	CL	4.10-4.55	A-1-b(0)	21	NP	73.6	12.1	1.3	6.0	87	41	7		
SS-586	9+20	CL	11.72-12.10	A-2-6(1)	38	19	57.1	18.4	8.4	16.1	100	54	28		
SS-587	9+20	CL	14.77-15.20	A-7-6(30)	52	30	2.0	8.6	41.1	48.2	100	99	92		
SS-588	9+20	CL	19.34-19.70	A-3(0)	21	NP	36.2	55.8	4.0	4.0	100	99	92		
SS-129	9+60	CL	0.30-0.45	A-2-4(0)	14	NP	49.2	35.5	8.3	7.1	100	73	19		
SS-130	9+60	CL	1.52-1.97	A-7-6(25)	58	36	11.7	23.6	20.2	44.4	100	93	71		
SS-131	9+60	CL	4.16-4.61	A-1-b(0)	22	NP	77.9	13.9	2.1	5.1	96	44	8		
SS-132	9+60	CL	7.29-7.64	A-3(0)	19	NP	56.6	35.8	1.0	5.1	100	80	8		
S-14	14+40	CL	0.30-7.29	A-2-6(0)	31	13	71.5	11.9	5.5	11.1	93	40	17		

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4080 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

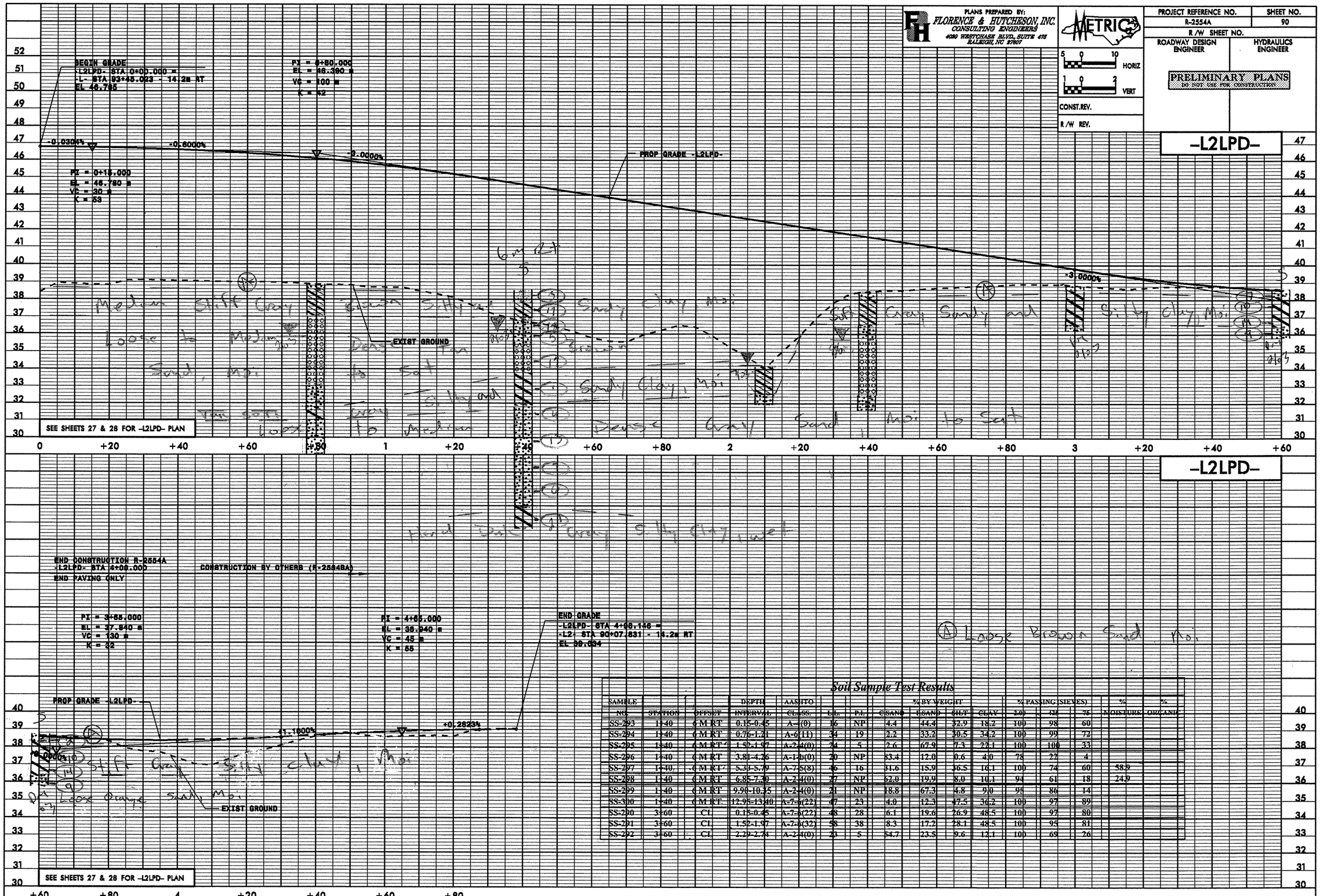
CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	90
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L2LPD-



Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 3.00	1.18	.75	% MOISTURE	% ORGANIC
SS-293	1+40	6 M RT	0.15-0.45	A-4(0)	16	NP	4.4	44.4	32.9	18.2	100	98	60		
SS-294	1+40	6 M RT	0.76-1.21	A-6(11)	34	19	2.2	33.2	30.5	34.2	100	99	72		
SS-295	1+40	6 M RT	1.52-1.97	A-2-4(0)	24	5	2.6	67.9	7.3	22.1	100	100	33		
SS-296	1+40	6 M RT	3.81-4.26	A-1-b(0)	20	NP	83.4	12.0	0.6	4.0	78	22	4		
SS-297	1+40	6 M RT	5.33-5.79	A-7-5(8)	46	16	31.6	15.9	36.5	16.1	100	74	60	58.9	
SS-298	1+40	6 M RT	6.85-7.30	A-2-4(0)	27	NP	62.0	19.9	8.0	10.1	94	61	18	24.9	
SS-299	1+40	6 M RT	9.90-10.35	A-2-4(0)	21	NP	18.8	67.3	4.8	9.0	95	86	14		
SS-300	1+40	6 M RT	12.95-13.40	A-7-6(22)	47	23	4.0	12.3	47.5	36.2	100	97	89		
SS-290	3+60	CL	0.15-0.45	A-7-6(22)	48	28	6.1	19.6	26.9	48.5	100	97	80		
SS-291	3+60	CL	1.52-1.97	A-7-6(37)	58	38	8.3	17.2	28.1	48.5	100	95	81		
SS-292	3+60	CL	2.29-2.74	A-2-4(0)	23	5	54.7	23.5	9.6	12.1	100	69	26		

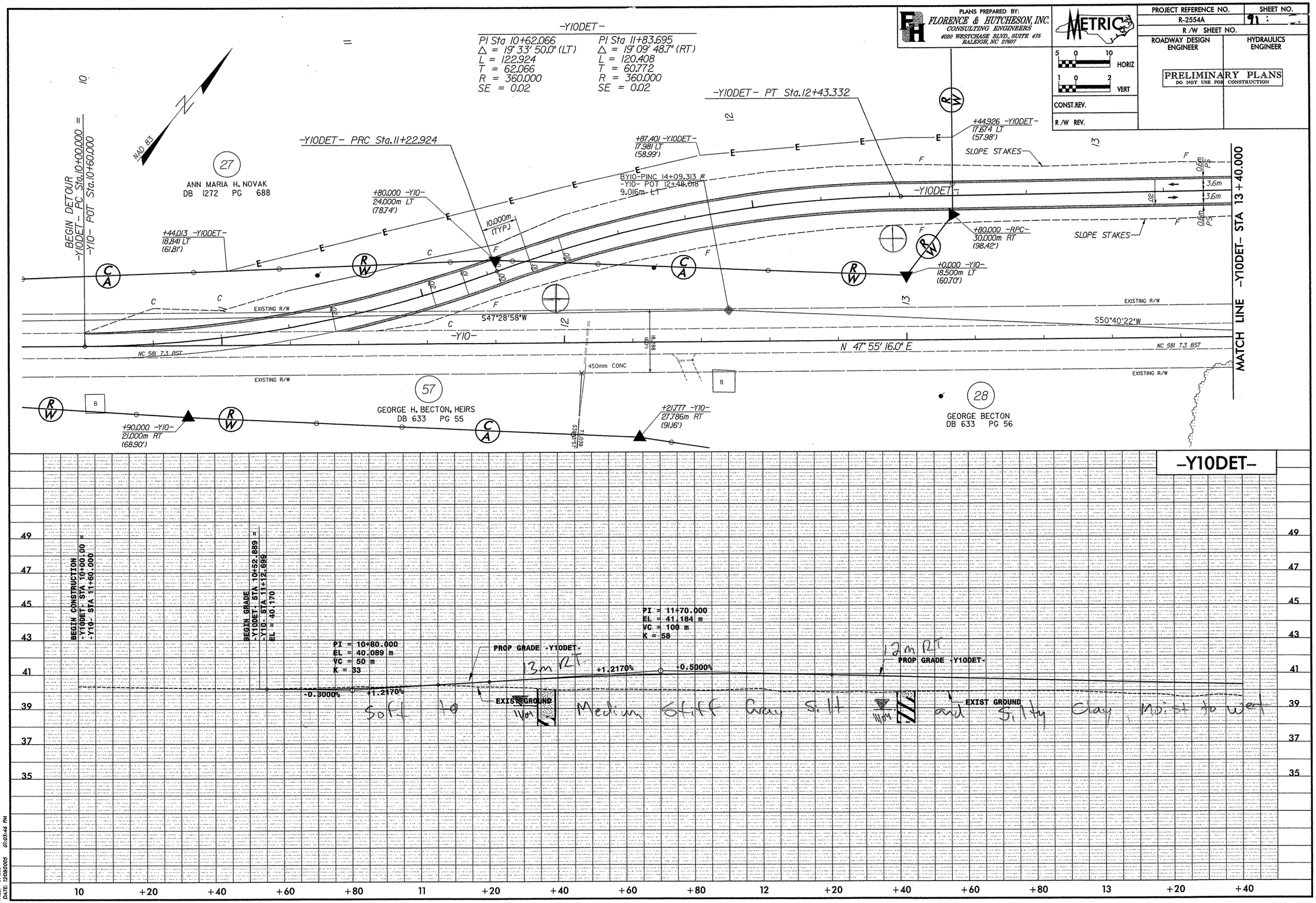
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	91
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FILE: STILES
DATE: 12/09/2005 01:03:46 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

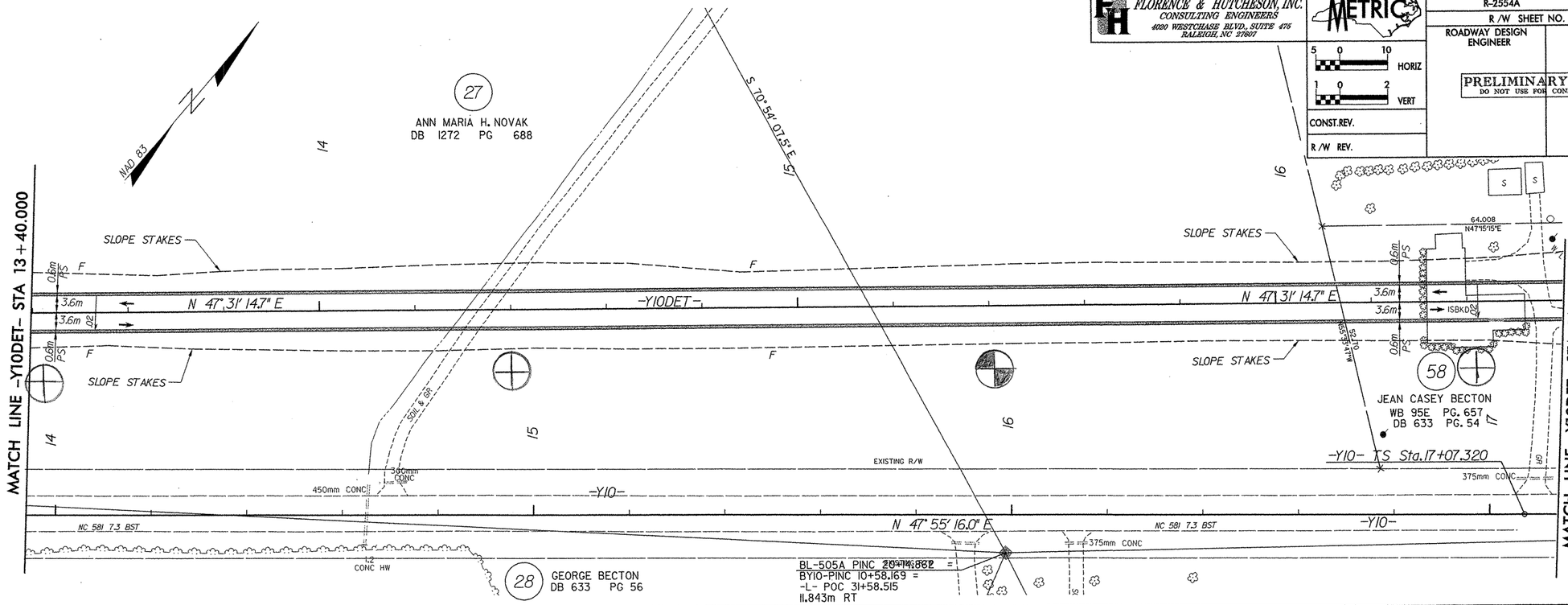
METRIC

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

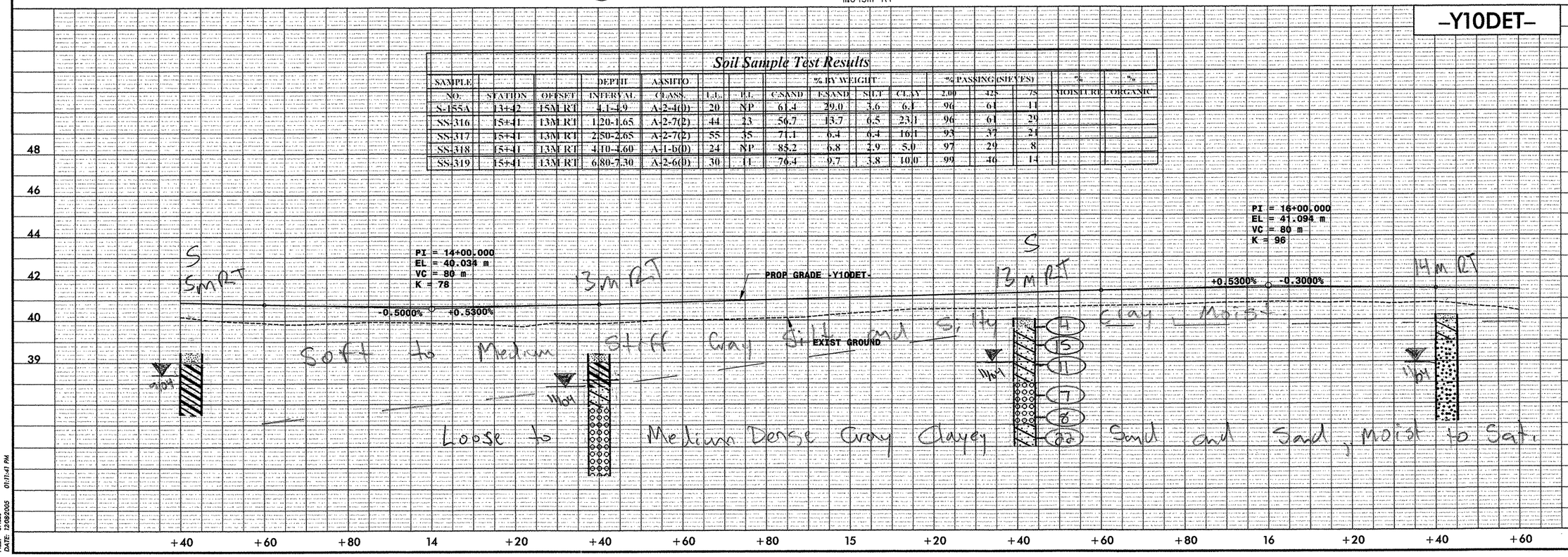
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y10DET-

Soil Sample Test Results

SAMPLE NO.	STATION	OFFSET	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 2.00	425	75	% MOISTURE	% ORGANIC
S-155A	13+42	15M RT	4.1-4.9	A-2-4(0)	20	NP	61.4	29.0	3.6	6.1	96	61	11		
SS-316	15+41	13M RT	1.20-1.65	A-2-7(2)	44	23	56.7	13.7	6.5	23.1	96	61	29		
SS-317	15+41	13M RT	2.50-2.65	A-2-7(2)	55	35	71.1	6.4	6.4	16.1	93	37	21		
SS-318	15+41	13M RT	4.10-4.60	A-1-b(0)	24	NP	85.2	6.8	2.9	5.0	97	29	8		
SS-319	15+41	13M RT	6.80-7.30	A-2-6(0)	30	11	76.4	9.7	3.8	10.0	99	46	14		



FILE: SFILES
DATE: 12/29/2005 01:11:41 PM

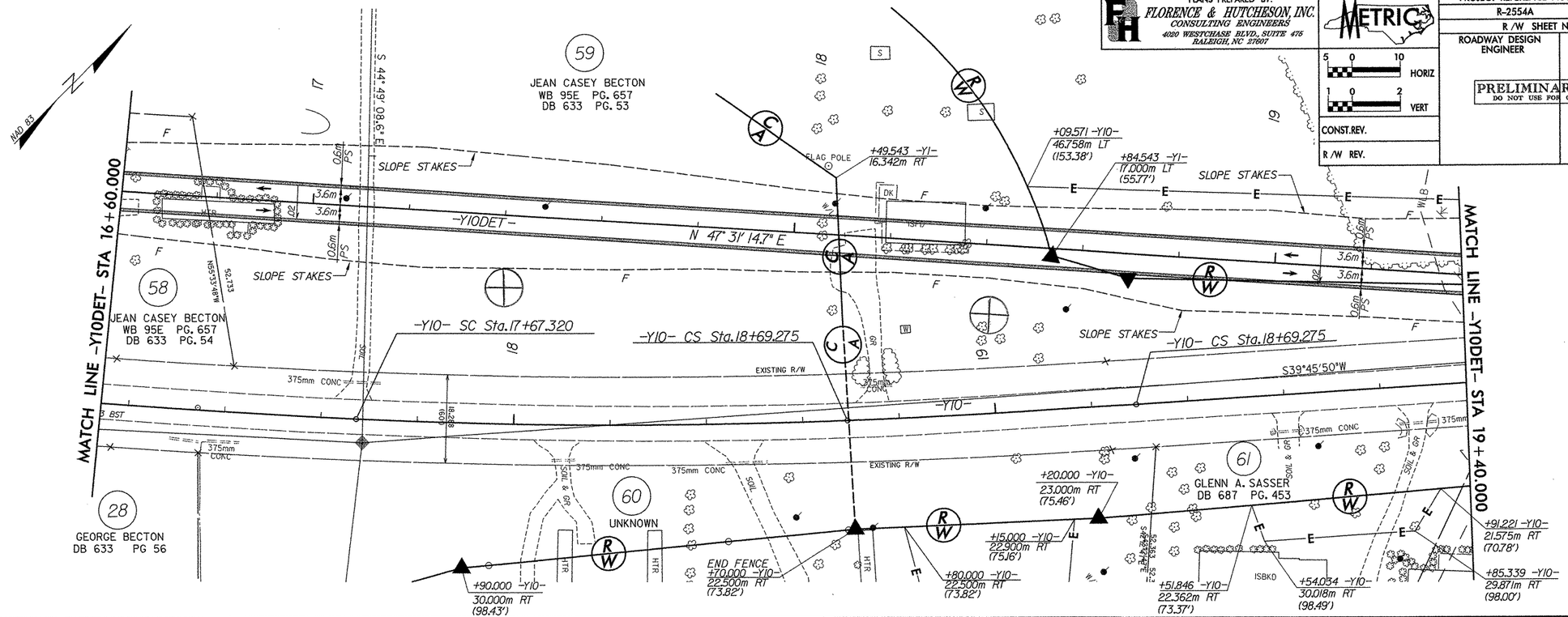
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 476
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

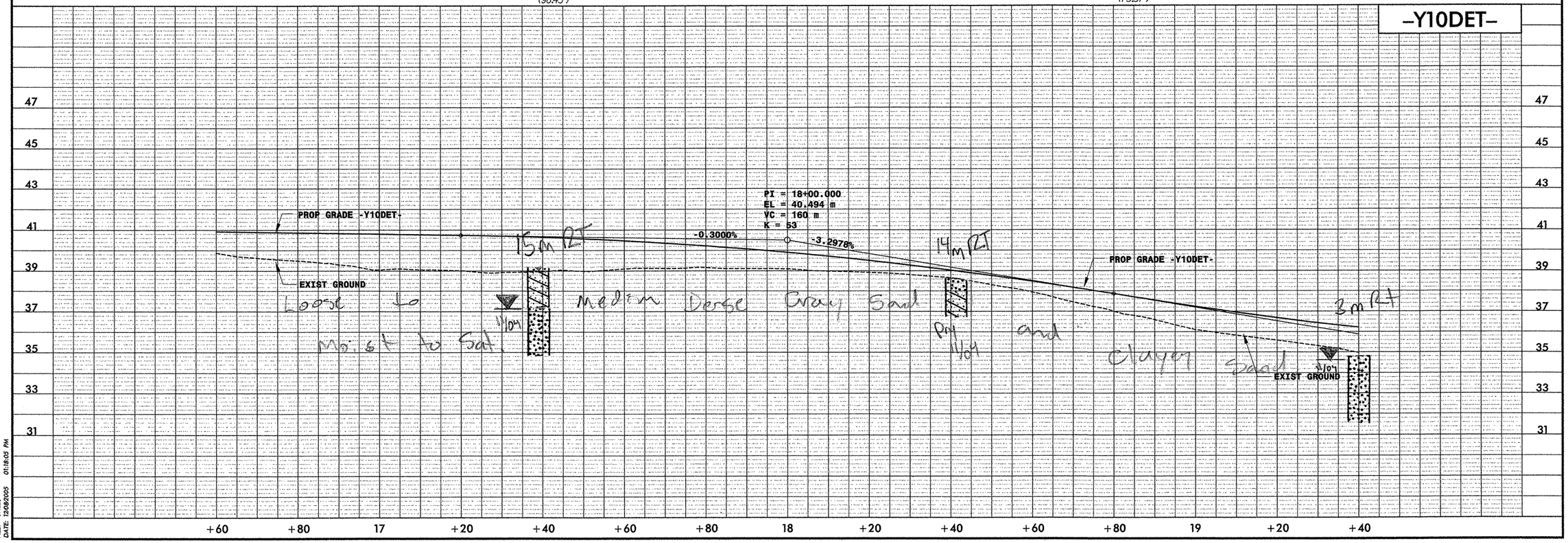
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	93
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y10DET-



FILE: SFILE2
DATE: 12/08/2005 01:18:05 PM

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC

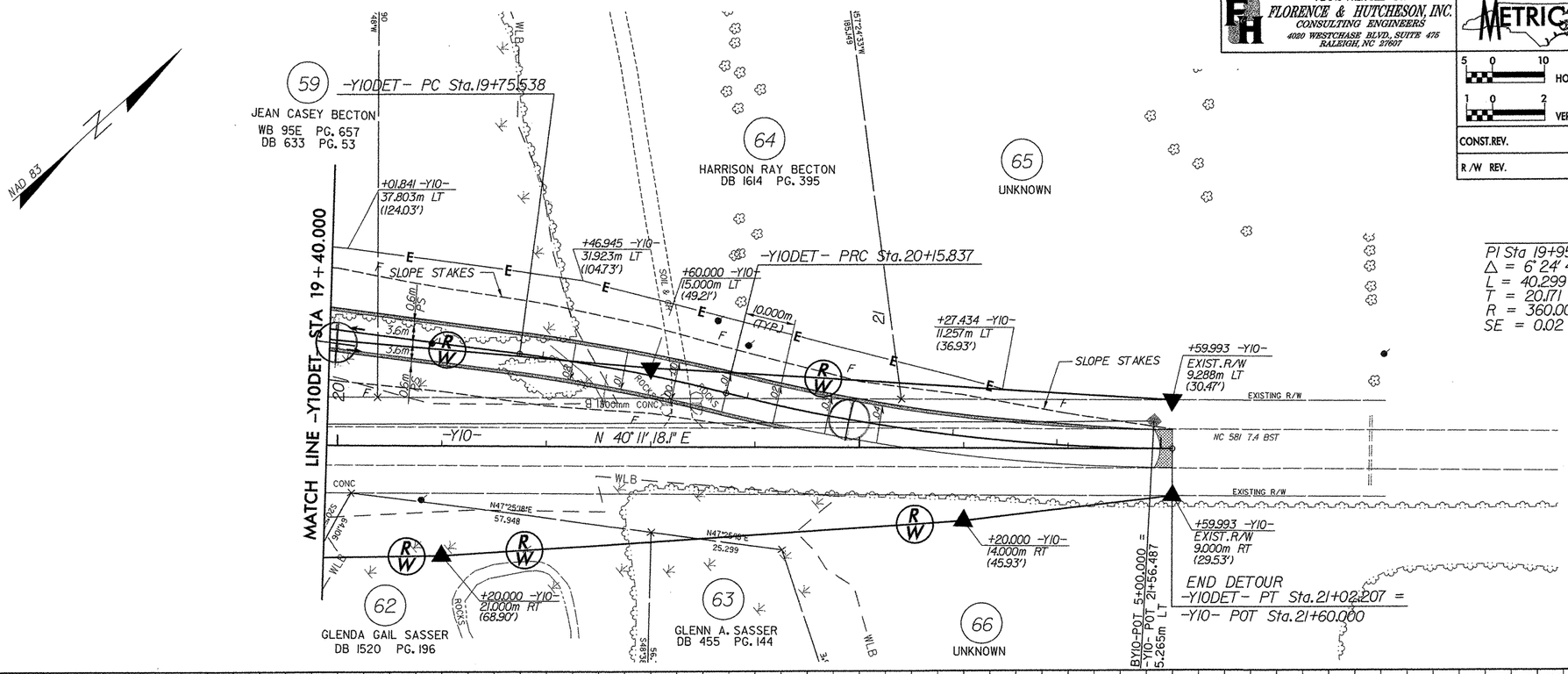
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	99
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.

R /W REV.

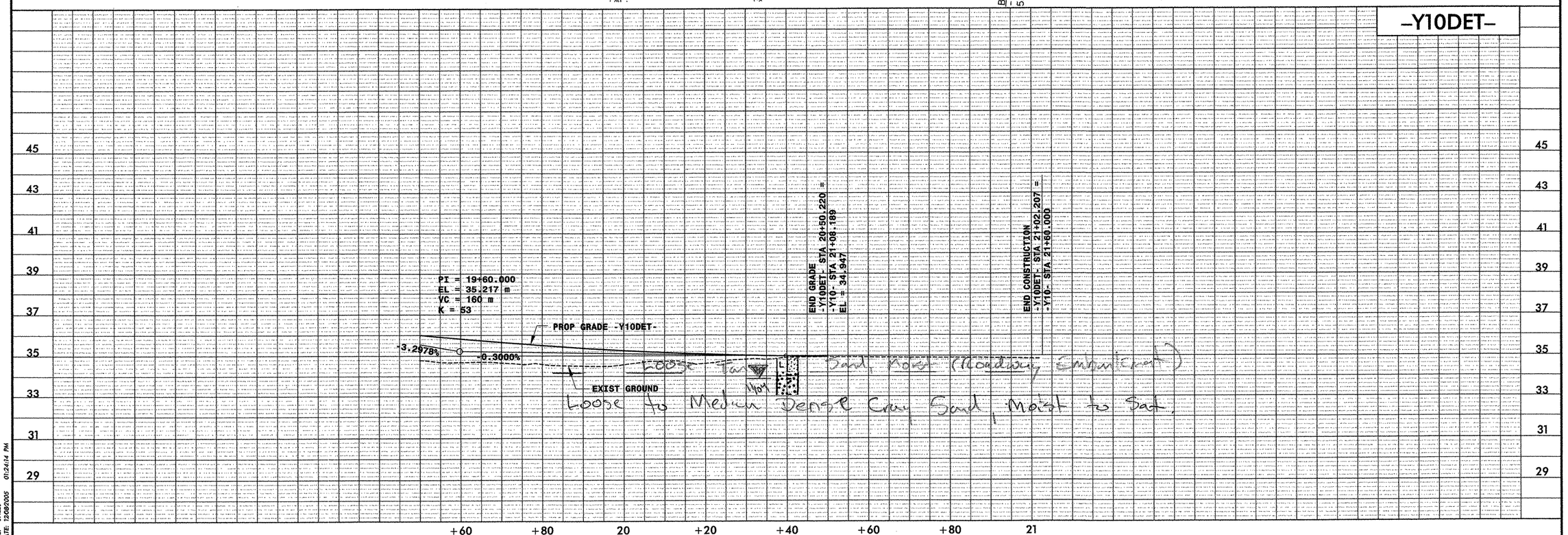
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y10DET-

PI Sta 19+95.708	PI Sta 20+59.230
Δ = 6° 24' 49.8" (RT)	Δ = 13° 44' 46.4" (LT)
L = 40.299	L = 86.370
T = 20.171	T = 43.393
R = 360.000	R = 360.000
SE = 0.02	SE = 0.02

-Y10DET-



FILE: SFILES
DATE: 12/08/2005 01:24:14 PM

PLANS PREPARED BY:
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CONSULTING ENGINEERS
4020 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

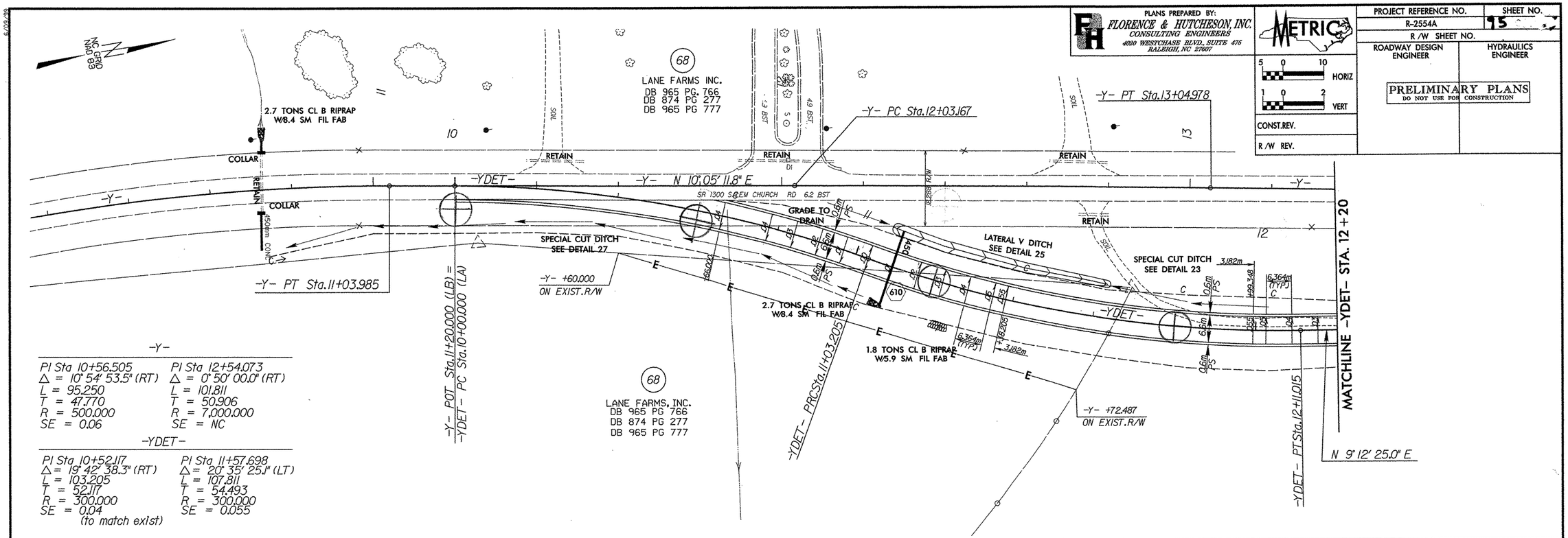
METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y-

PI Sta 10+56.505	PI Sta 12+54.073
Δ = 10° 54' 53.5" (RT)	Δ = 0° 50' 00.0" (RT)
L = 95.250	L = 101.811
T = 47.770	T = 50.906
R = 500.000	R = 7,000.000
SE = 0.06	SE = NC

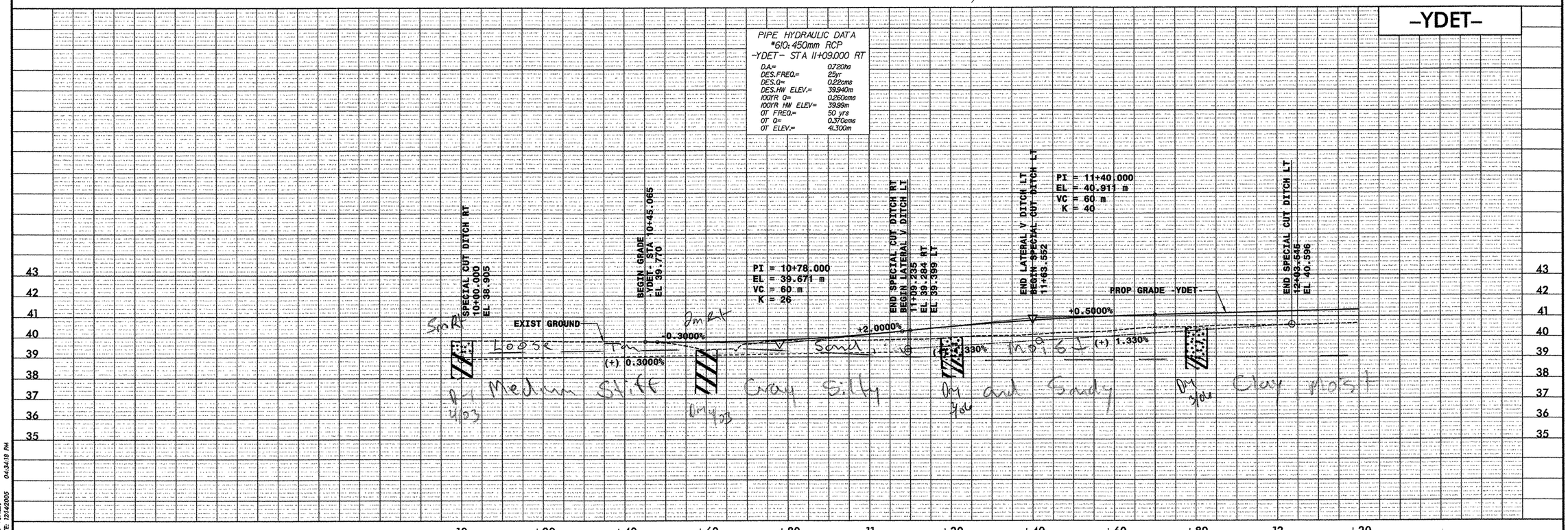
-YDET-

PI Sta 10+52.117	PI Sta 11+57.698
Δ = 19° 42' 38.3" (RT)	Δ = 20° 35' 25.1" (LT)
L = 103.205	L = 107.811
T = 52.117	T = 54.493
R = 300.000	R = 300.000
SE = 0.04 (to match exist)	SE = 0.055

PIPE HYDRAULIC DATA
*610: 450mm RCP
-YDET- STA 11+09.000 RT

D.A.=	0.720ha
DES.FREQ.=	25yr
DES.Q=	0.22cms
DES.HW ELEV.=	39.940m
100YR Q=	0.260cms
100YR HW ELEV=	39.99m
OT FREQ.=	50 yrs
OT Q=	0.370cms
OT ELEV.=	41.300m

-YDET-



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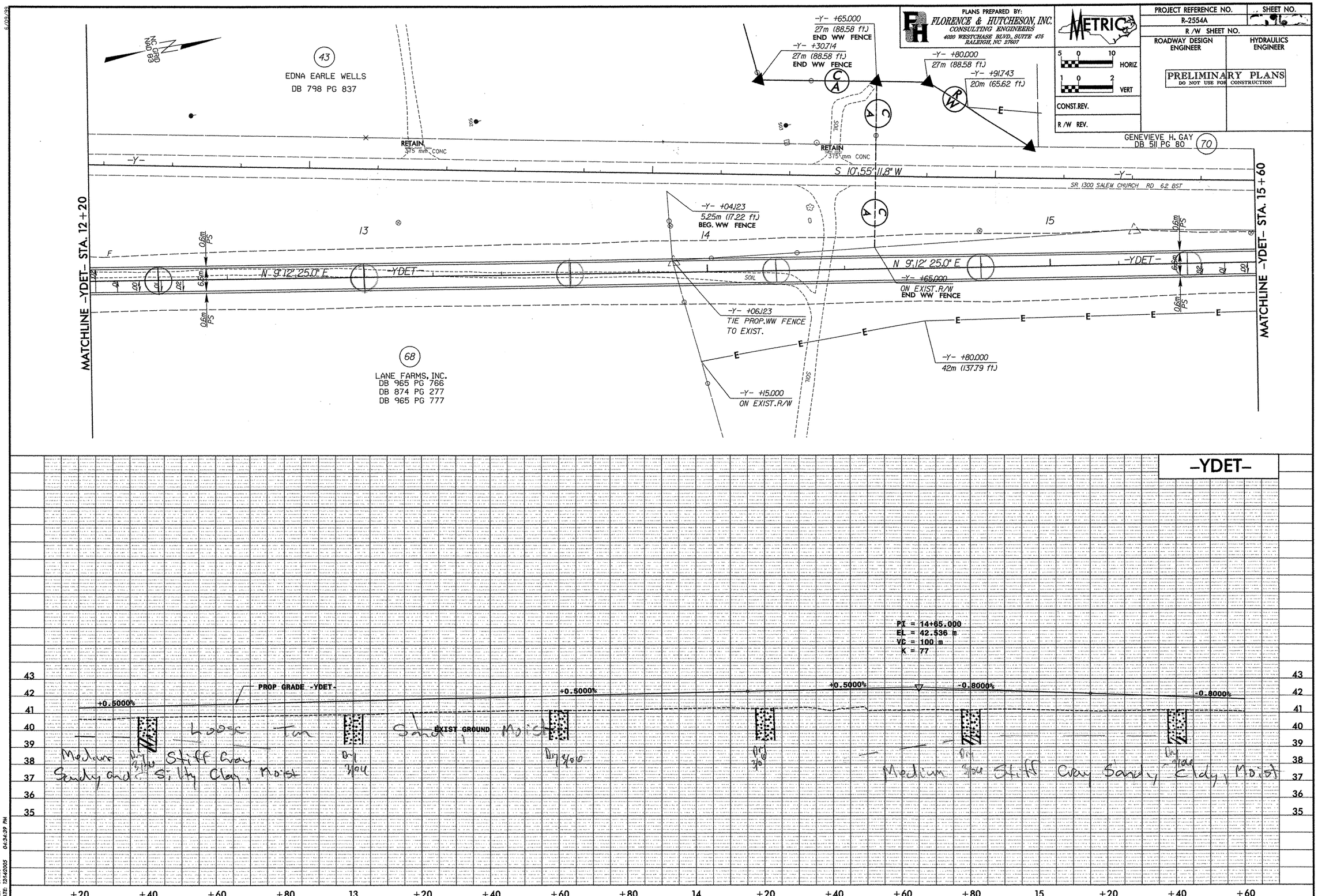

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DATE: 12/14/2005 04:34:39 PM

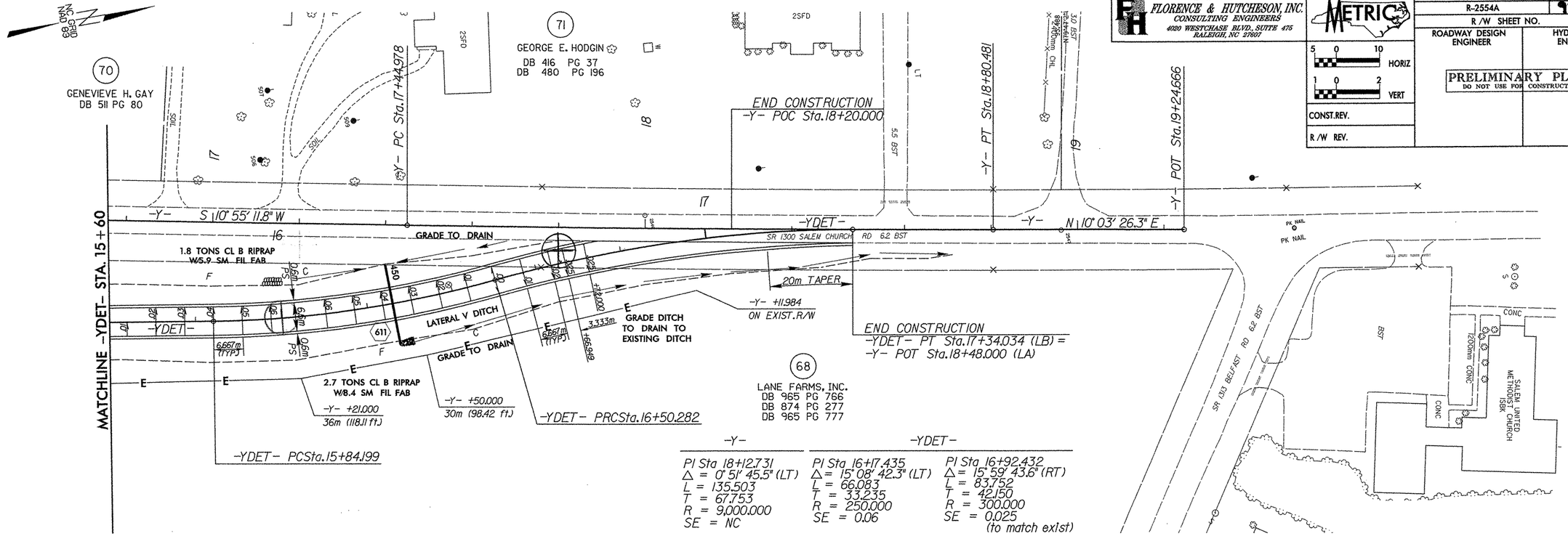
PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
4080 WESTCHASE BLVD., SUITE 475
RALEIGH, NC 27607

METRIC
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	97
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

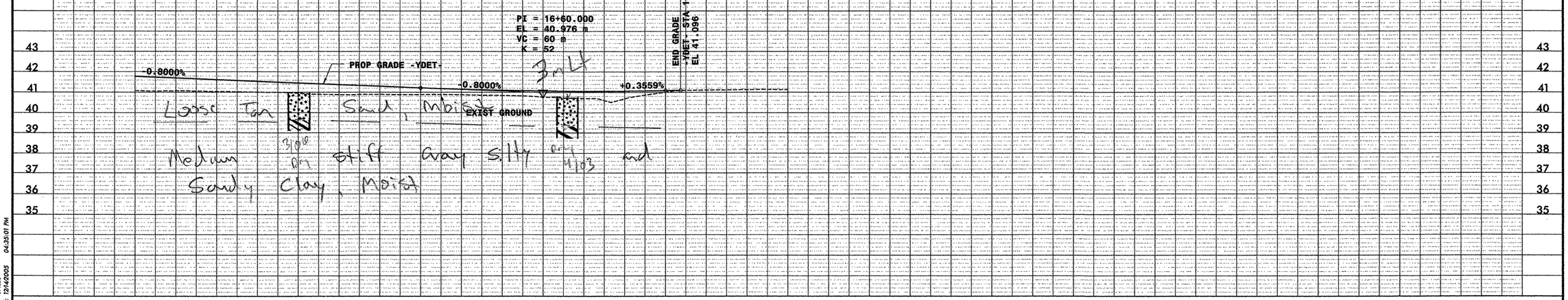
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PIPE HYDRAULIC DATA
*611: 450mm RCP
-YDET- STA 16+26.000 RT

D.A.=	0.440ha
DES.FREQ.=	25yr
DES.Q=	0.14cms
DES.HW ELEV.=	40.760m
100YR Q=	0.170cms
100YR HW ELEV=	40.81m
OT FREQ.=	50 yrs
OT Q=	0.260cms
OT ELEV.=	41.400m

-YDET-



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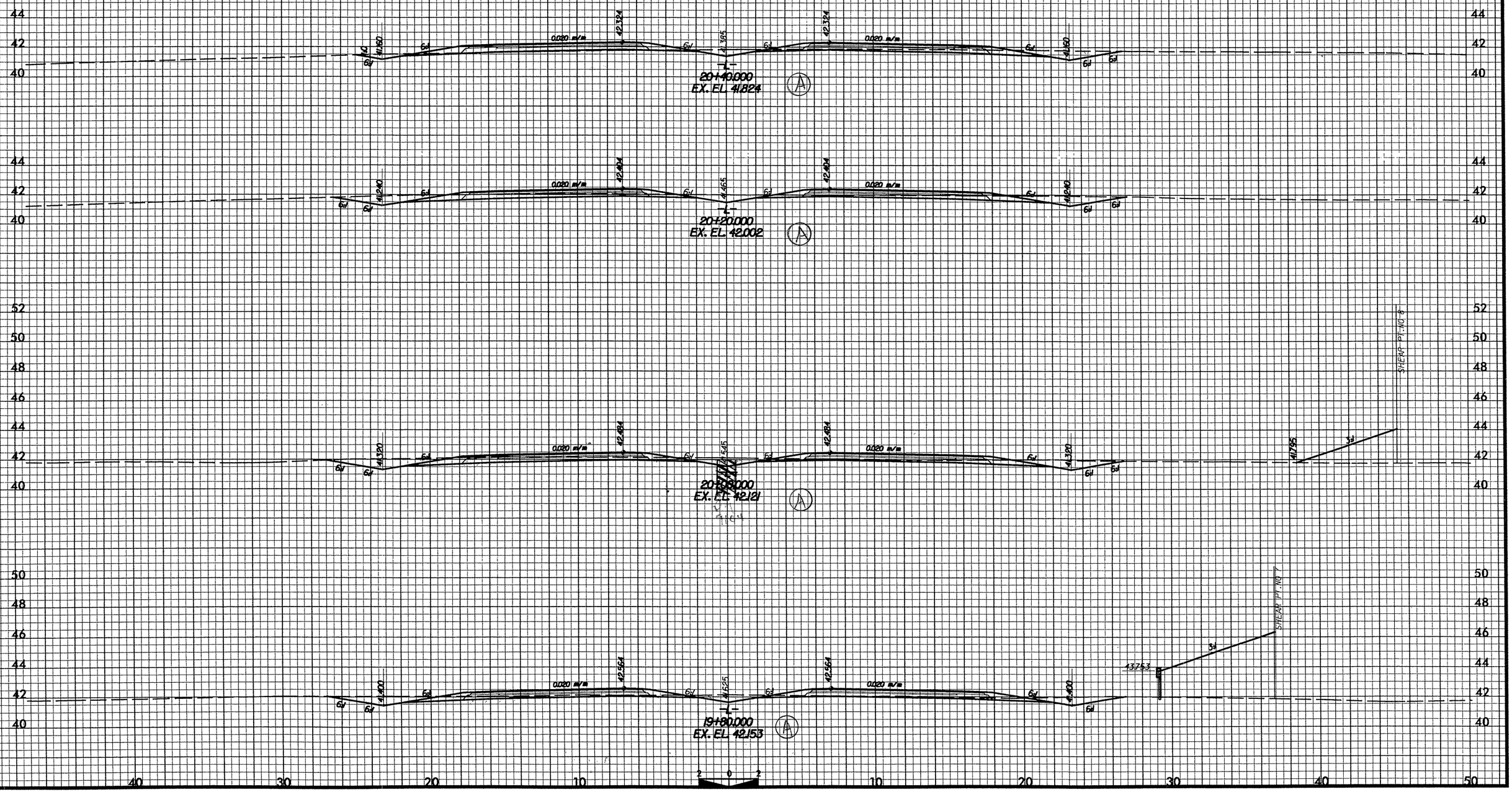
DATE: 12/14/2005 04:35:01 PM

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	46
GOLDSBORO BYPASS	

METRIC

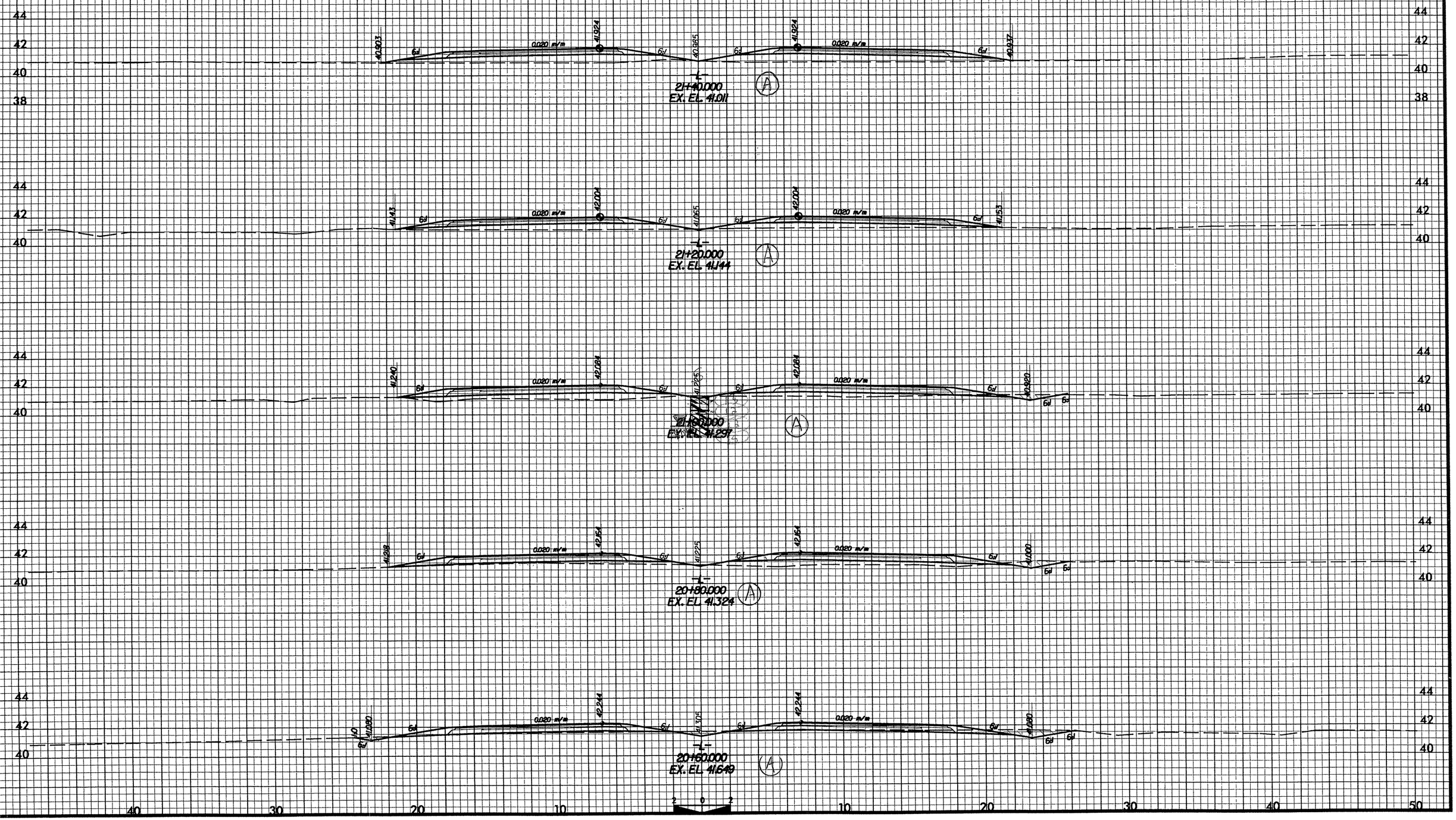
(A) MEDIUM STIFF TO STIFF TAN GRAY SILTY SANDY CLAY, DRY TO WET



FILE: H:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L1820 2400.DGN

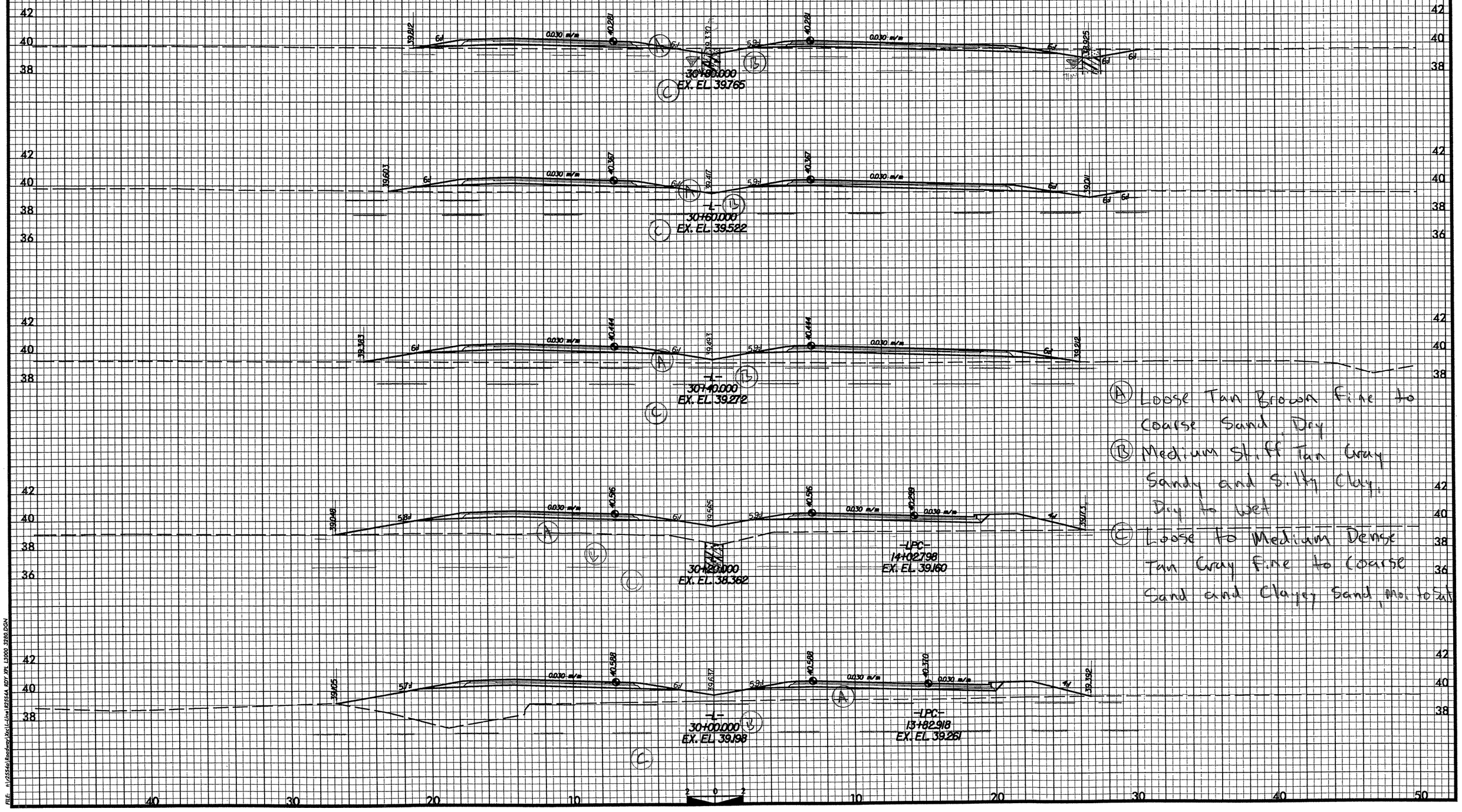
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	69
GOLDSBORO BYPASS	

(A) MEDIUM STIFF TO STIFF TAN GRAY SILTY SANDY CLAY, DRY TO WET



FILE: f:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L1820 2400.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	100
GOLDSBORO BYPASS	



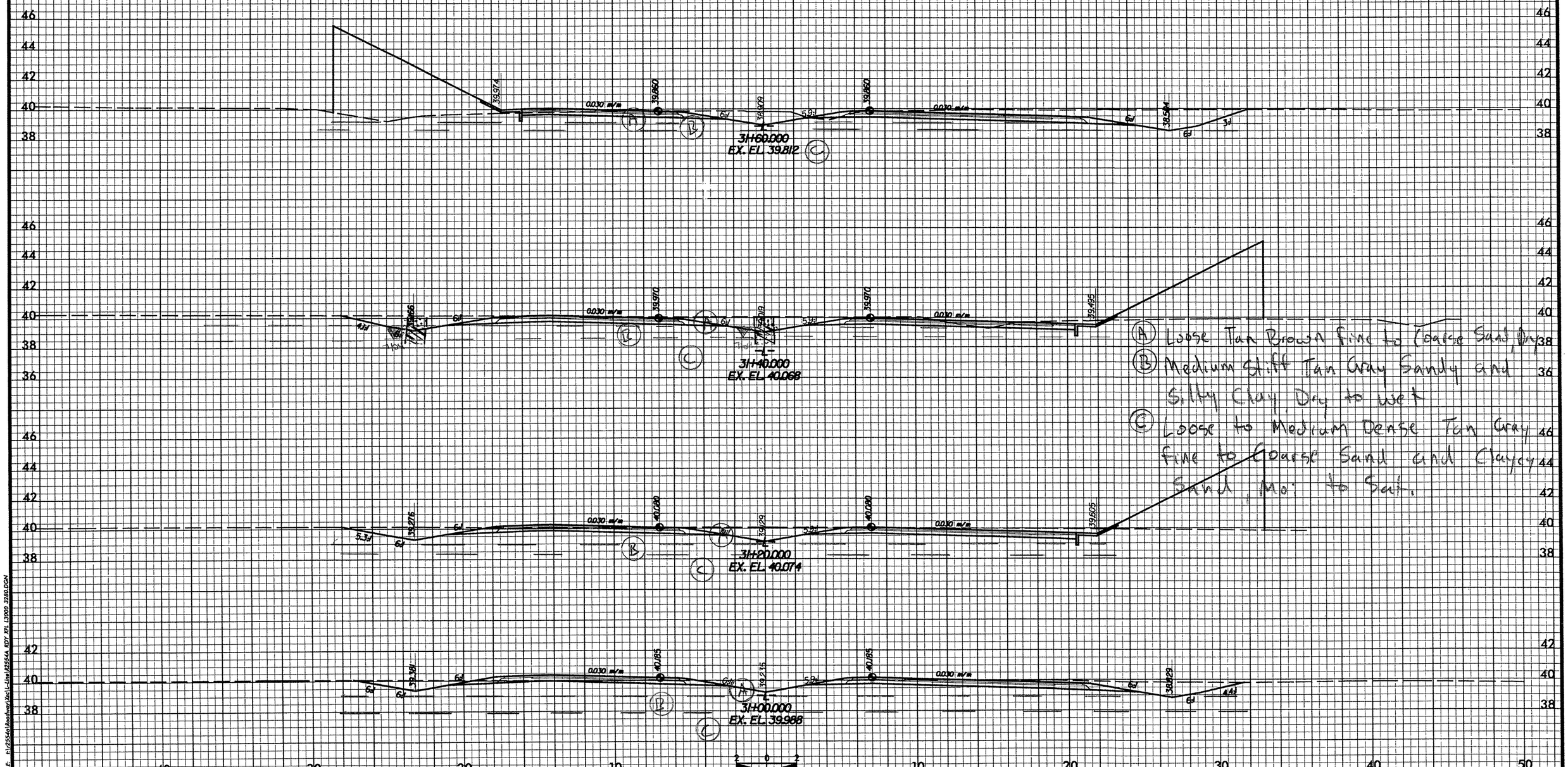
(A) Loose Tan Brown Fine to Coarse Sand, Dry

(B) Medium Stiff Tan Gray Sandy and Silty Clay, Dry to Wet

(C) Loose to Medium Dense Tan Gray Fine to Coarse Sand and Clayey Sand, Mo. to Wet

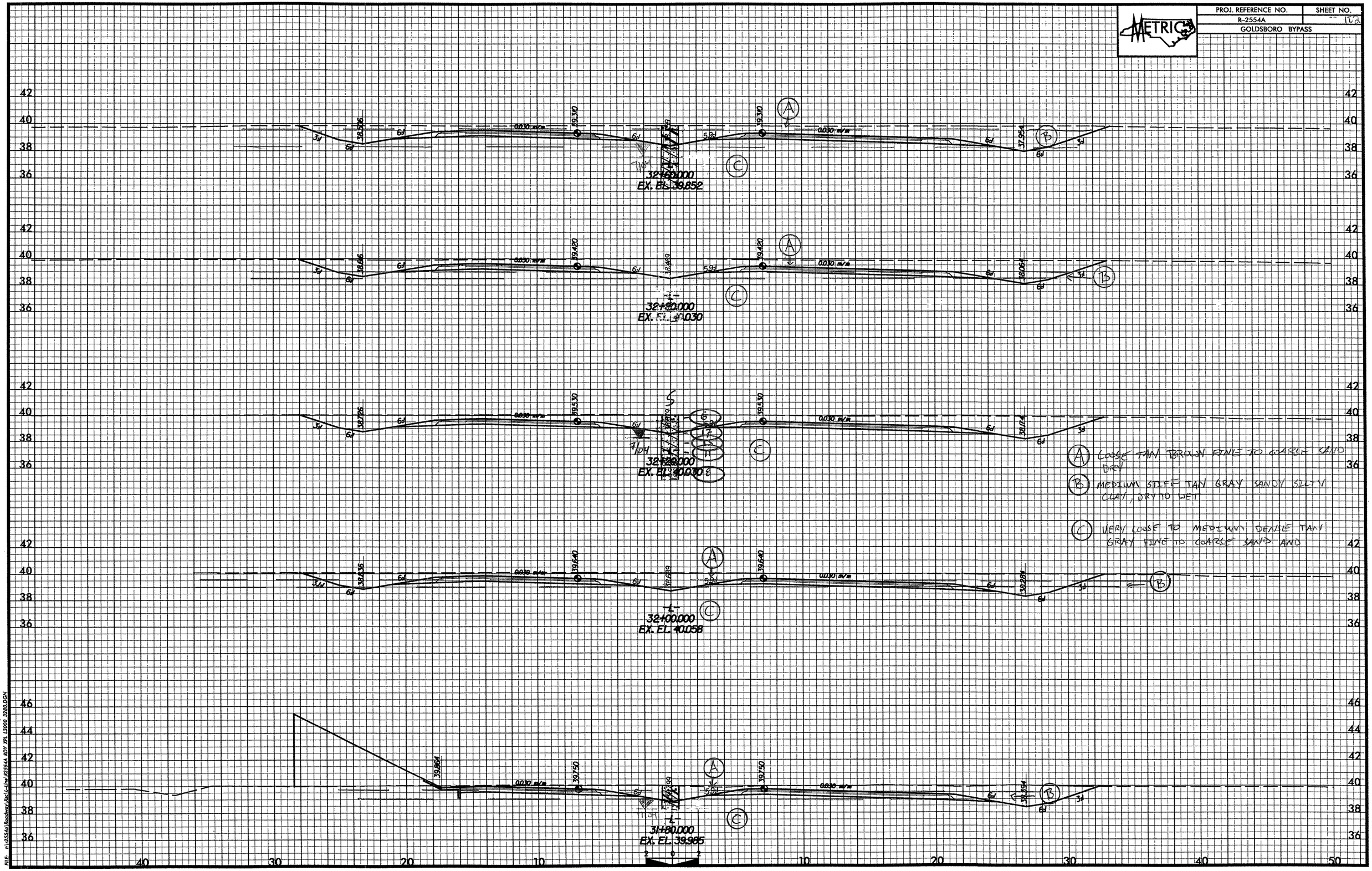
FILE: t:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3000 3280.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	12A
GOLDSBORO BYPASS	



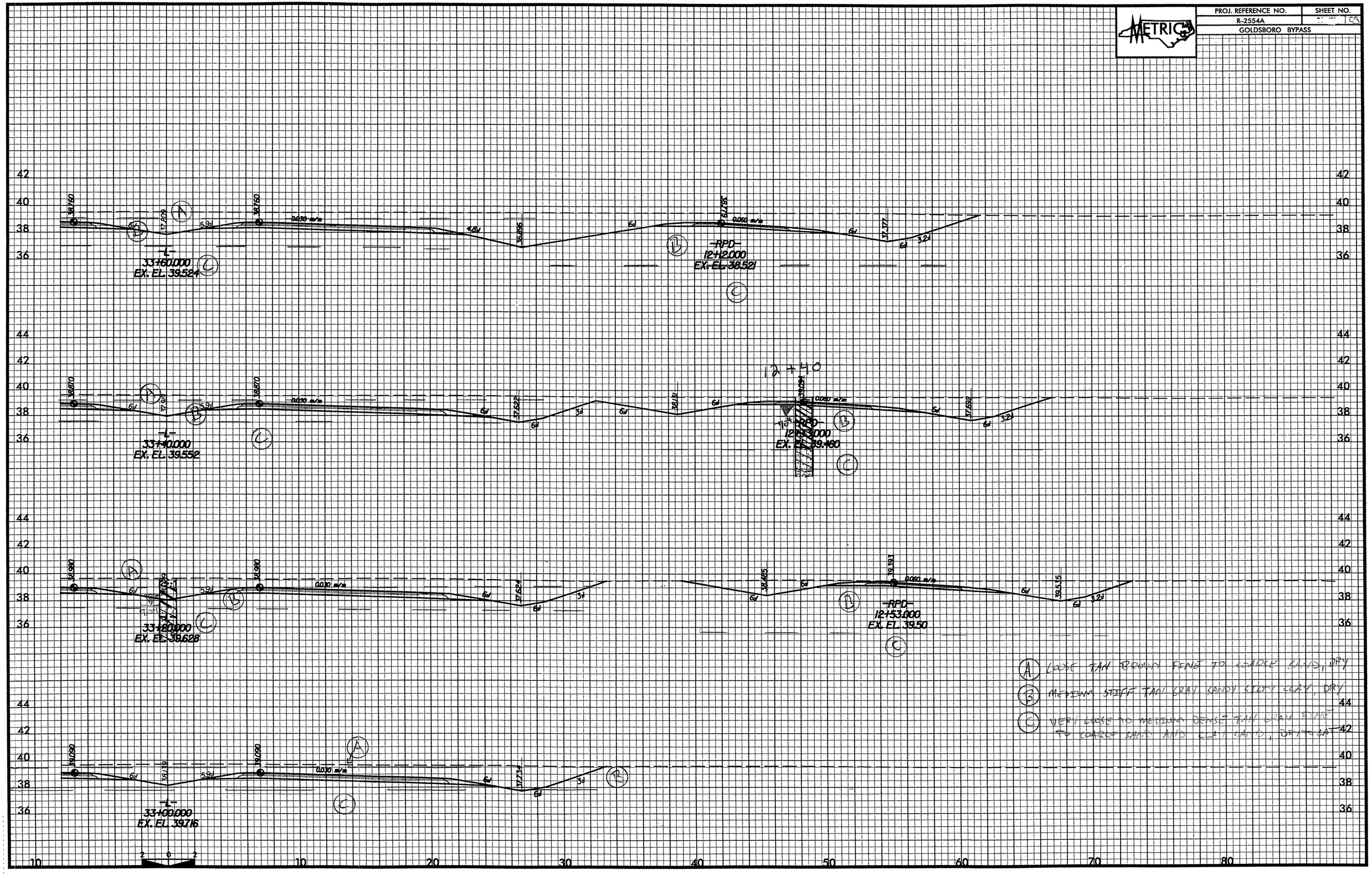
FILE: k:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3000 3280.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	102
GOLDSBORO BYPASS	

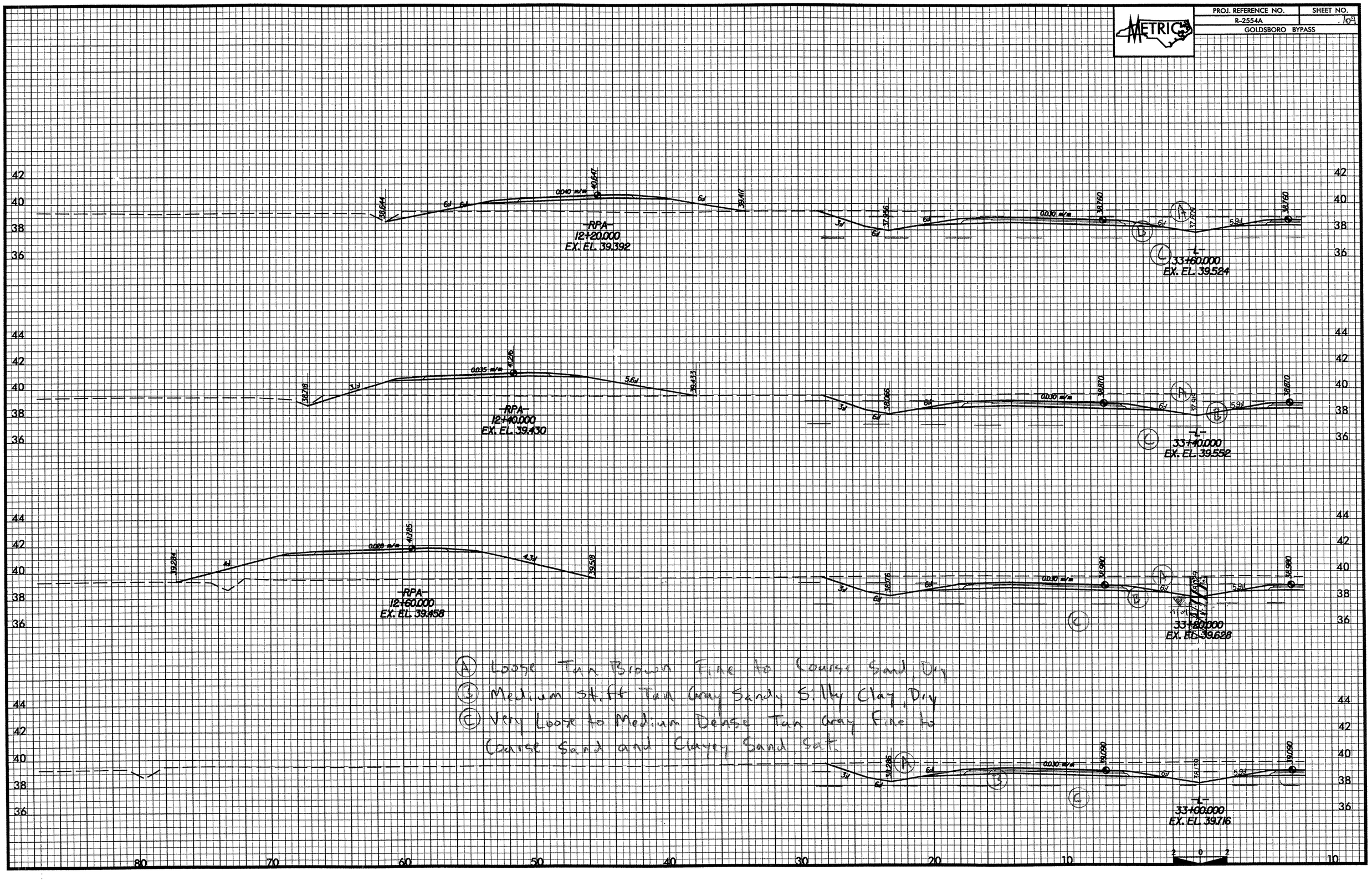


FILE: f:\r2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3000 3280.DGN

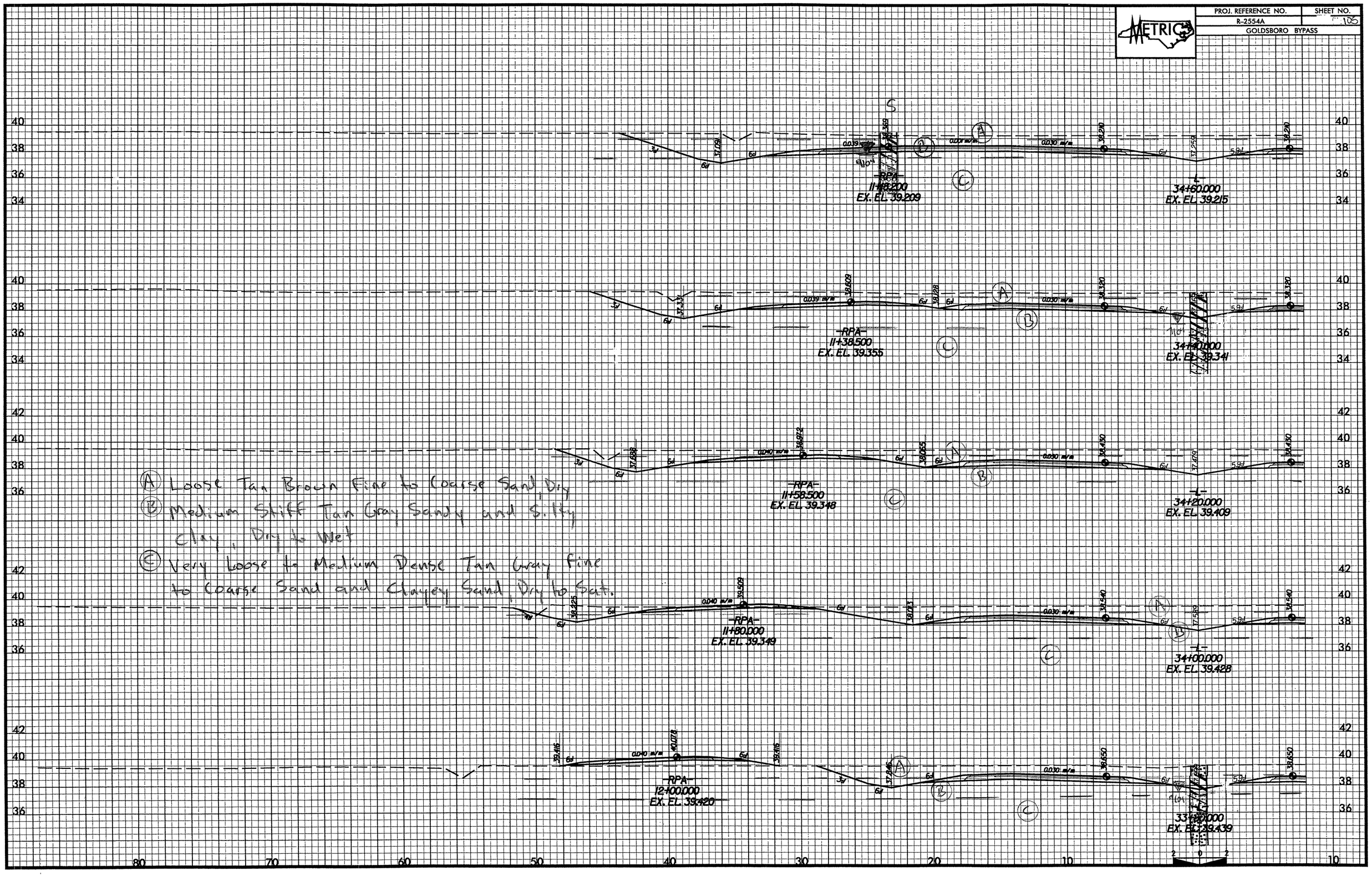
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	



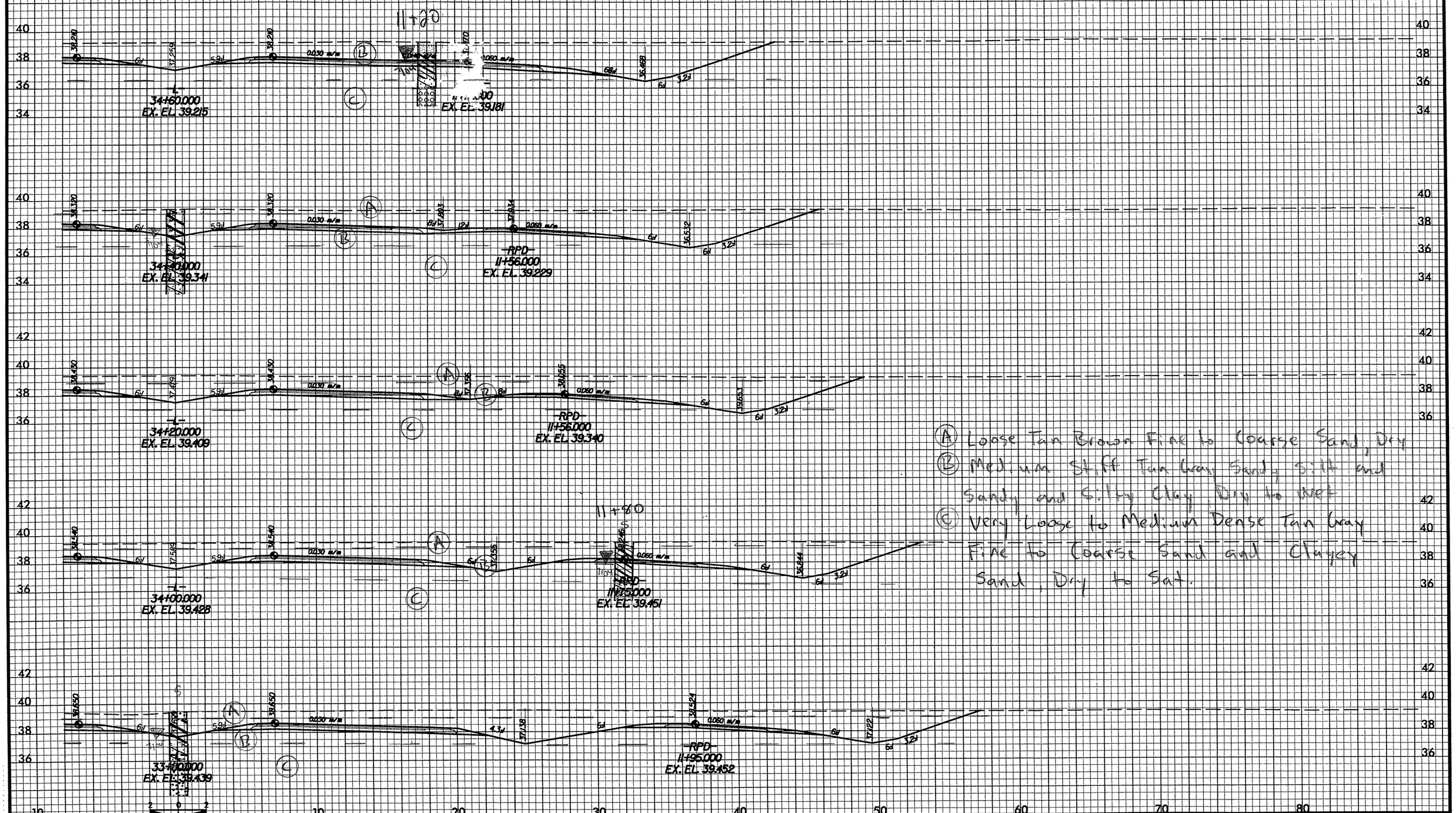
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	10A
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
R-2554A	105
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
R-2554A	10
GOLDSBORO BYPASS	

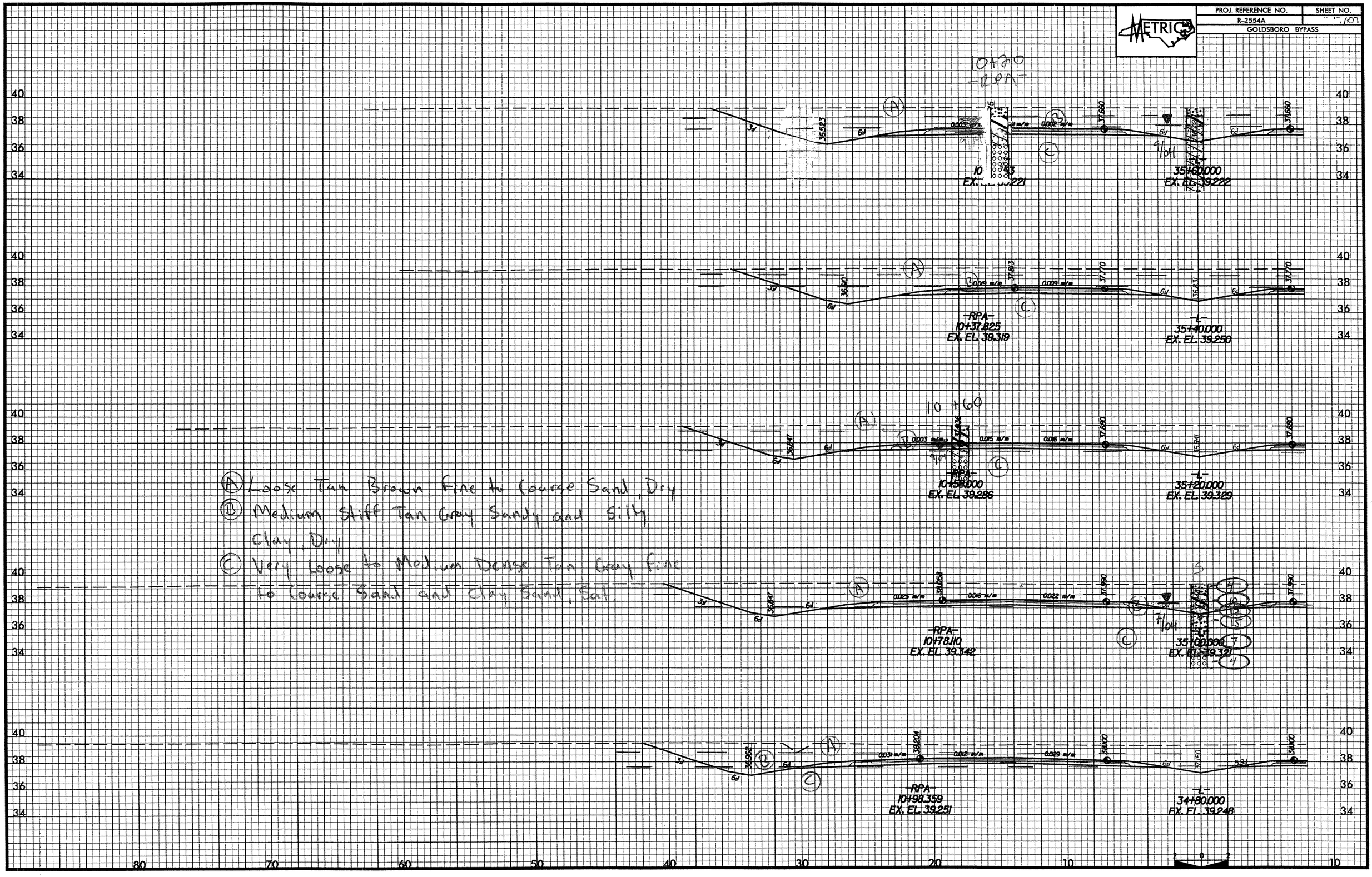


(A) Loose Tan Brown Fine to Coarse Sand, Dry

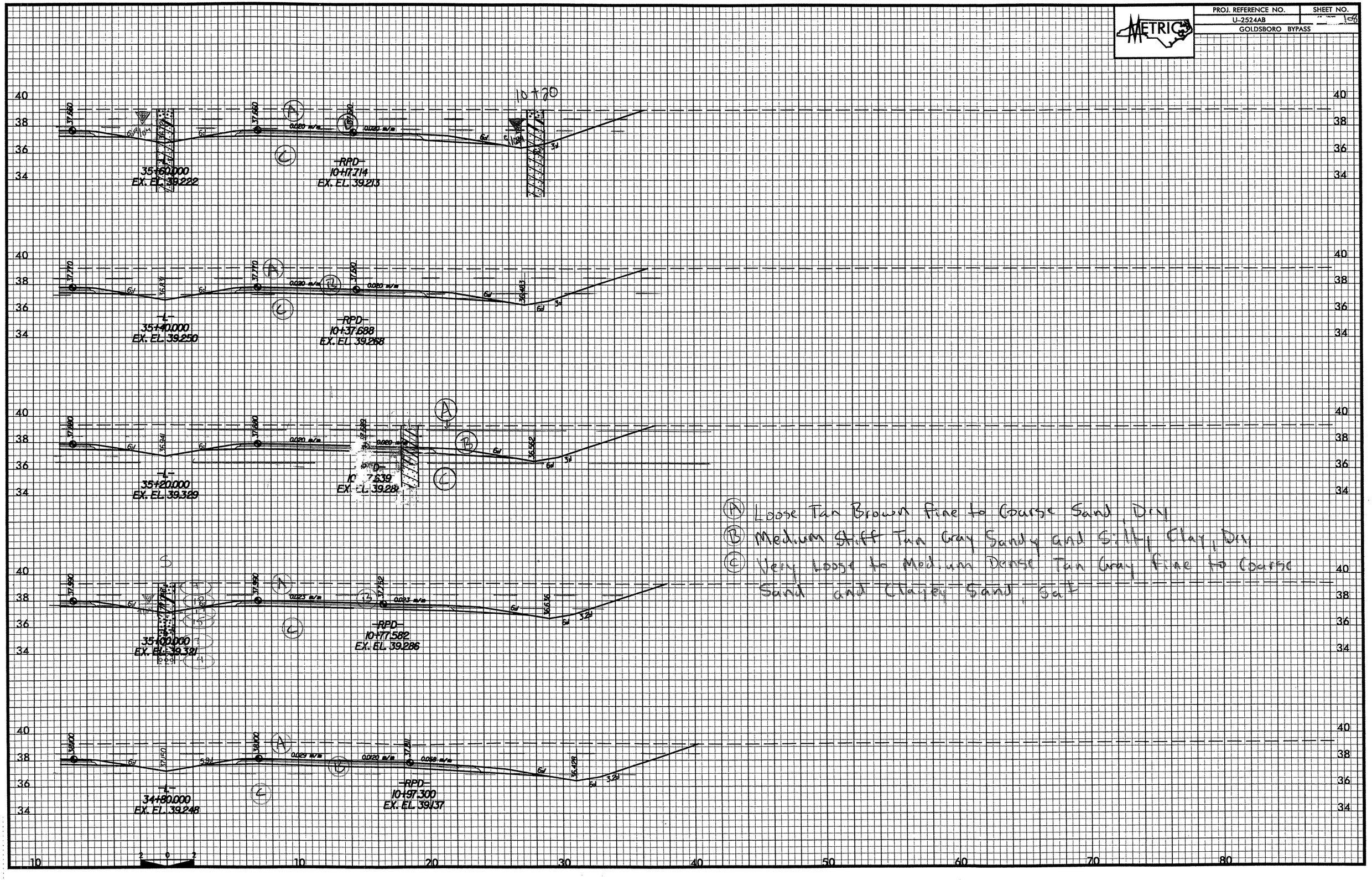
(B) Medium Stiff Tan Gray Sandy Silt and Sandy and Silty Clay, Dry to Wet

(C) Very Loose to Medium Dense Tan Gray Fine to Coarse Sand and Clayey Sand, Dry to Sat.

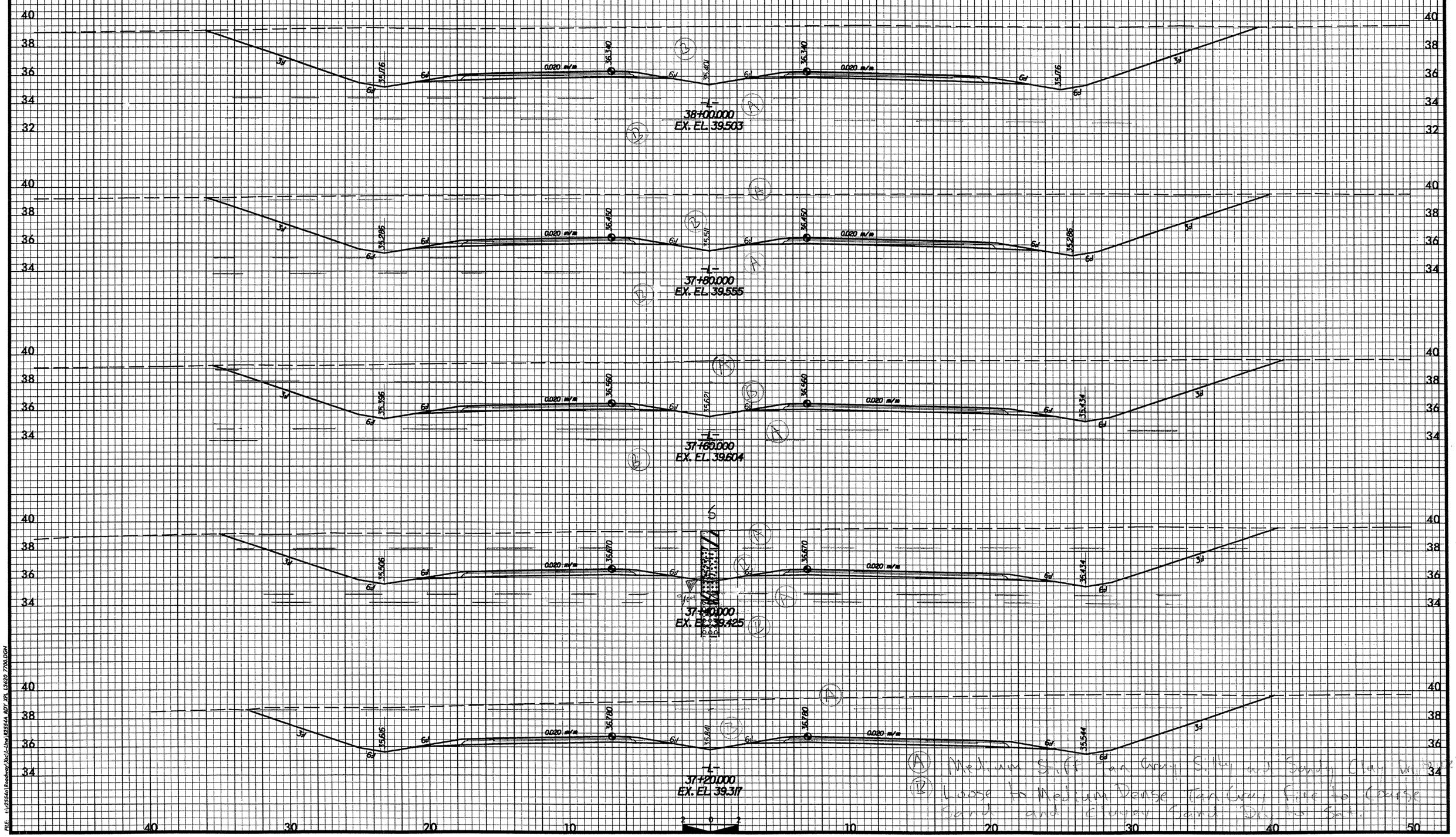
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	1/07
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
U-2524AB	
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
R-2554A	159
GOLDSBORO BYPASS	

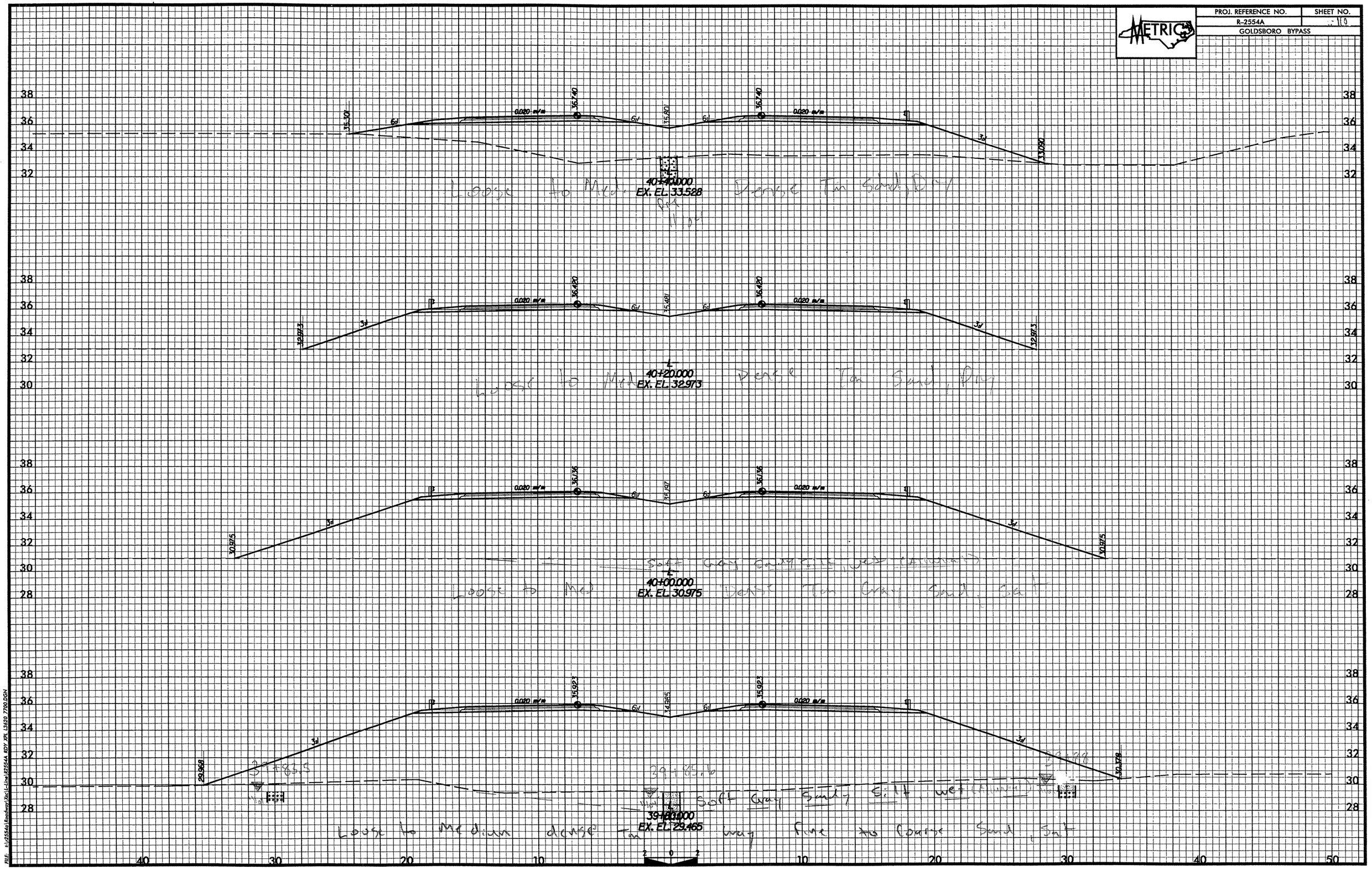


(A) Medium Stiff Tan Green Silty and Sandy Clay w/ Sand

(B) Loose to Medium Dense Tan Green Fine to Coarse Sand and Clayey Sand Dry to Sat.

FILE: h:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3420 7700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	110
GOLDSBORO BYPASS	



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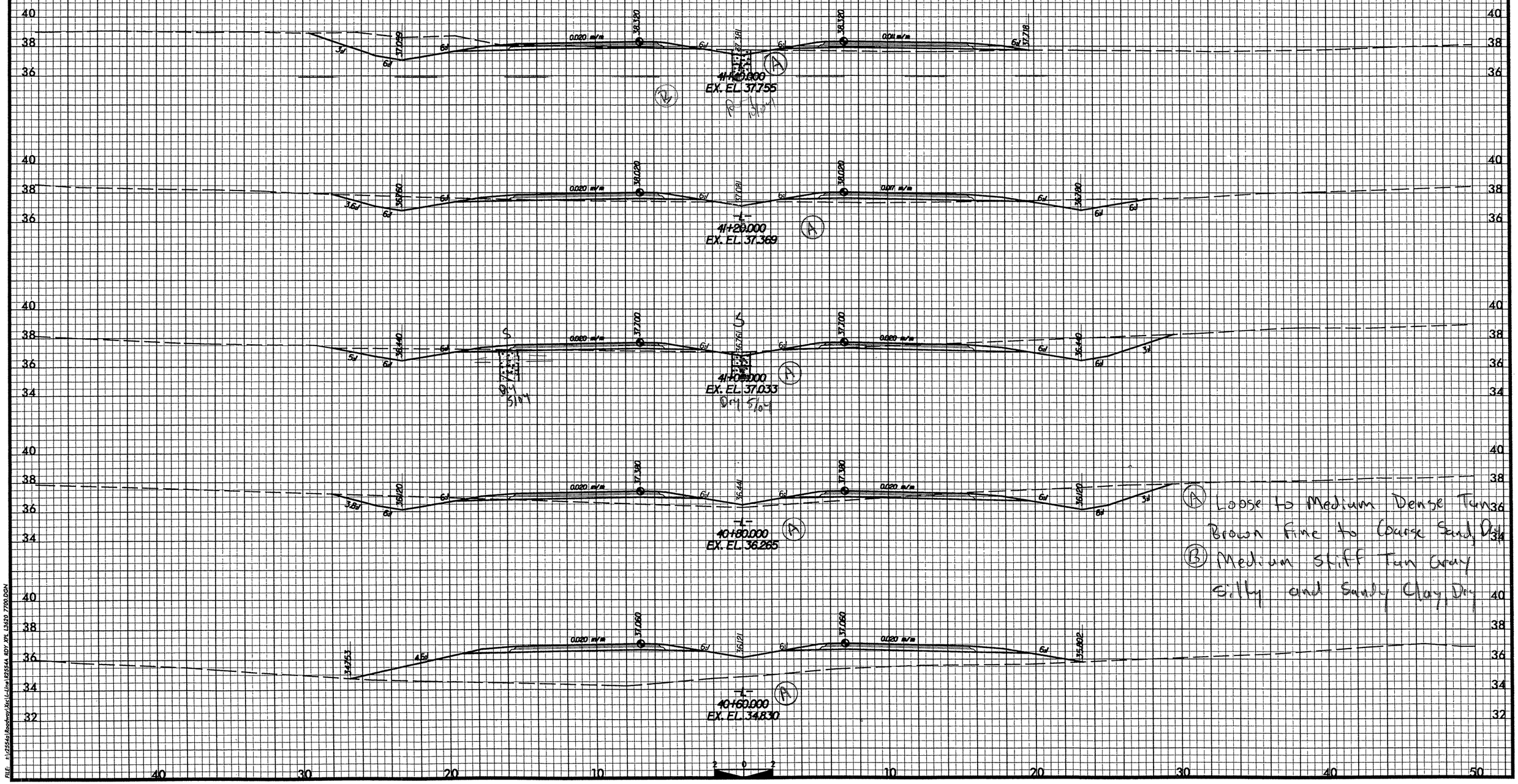
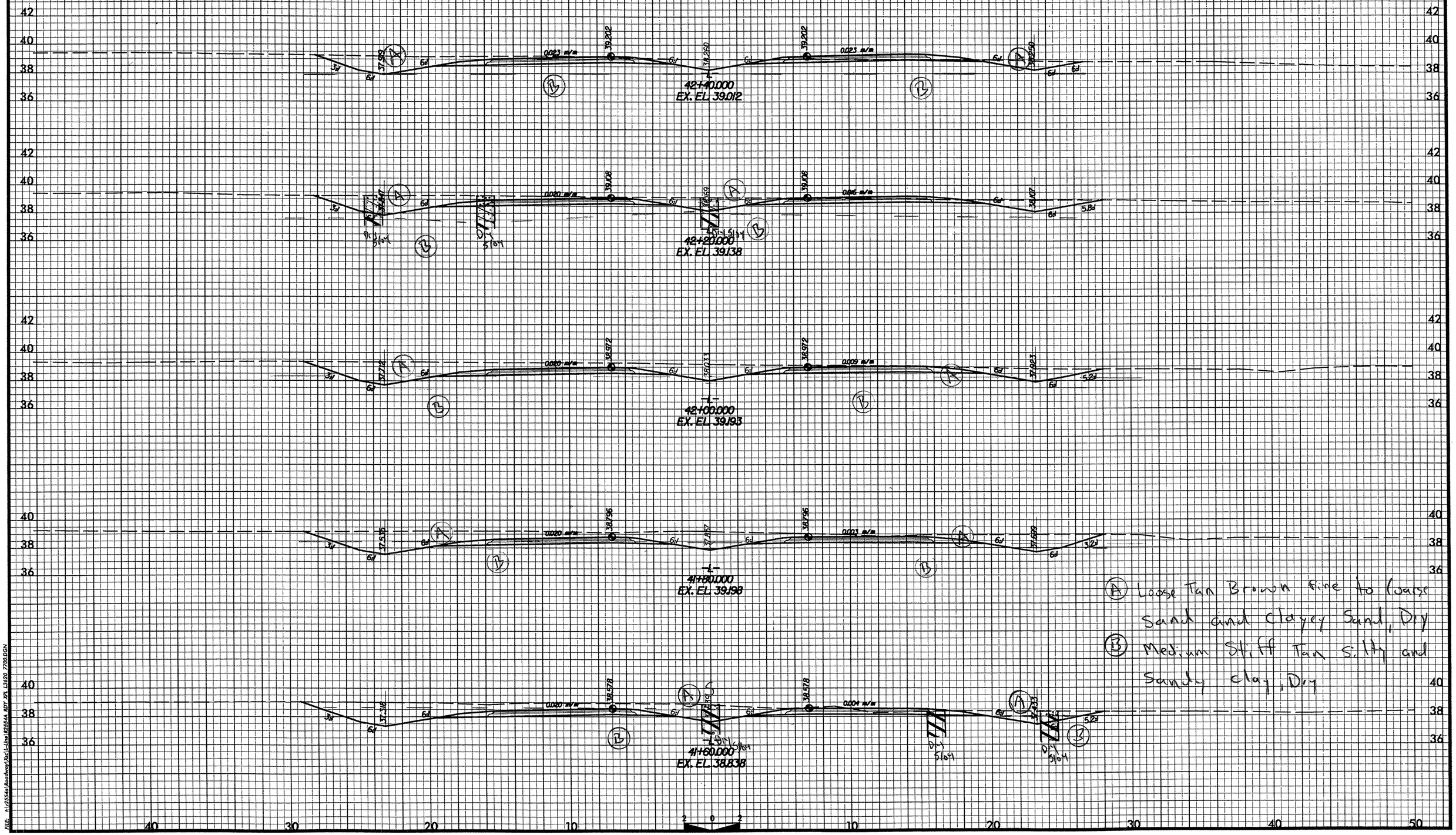
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	11
GOLDSBORO BYPASS	



FILE: t:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3630 1700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	116
GOLDSBORO BYPASS	

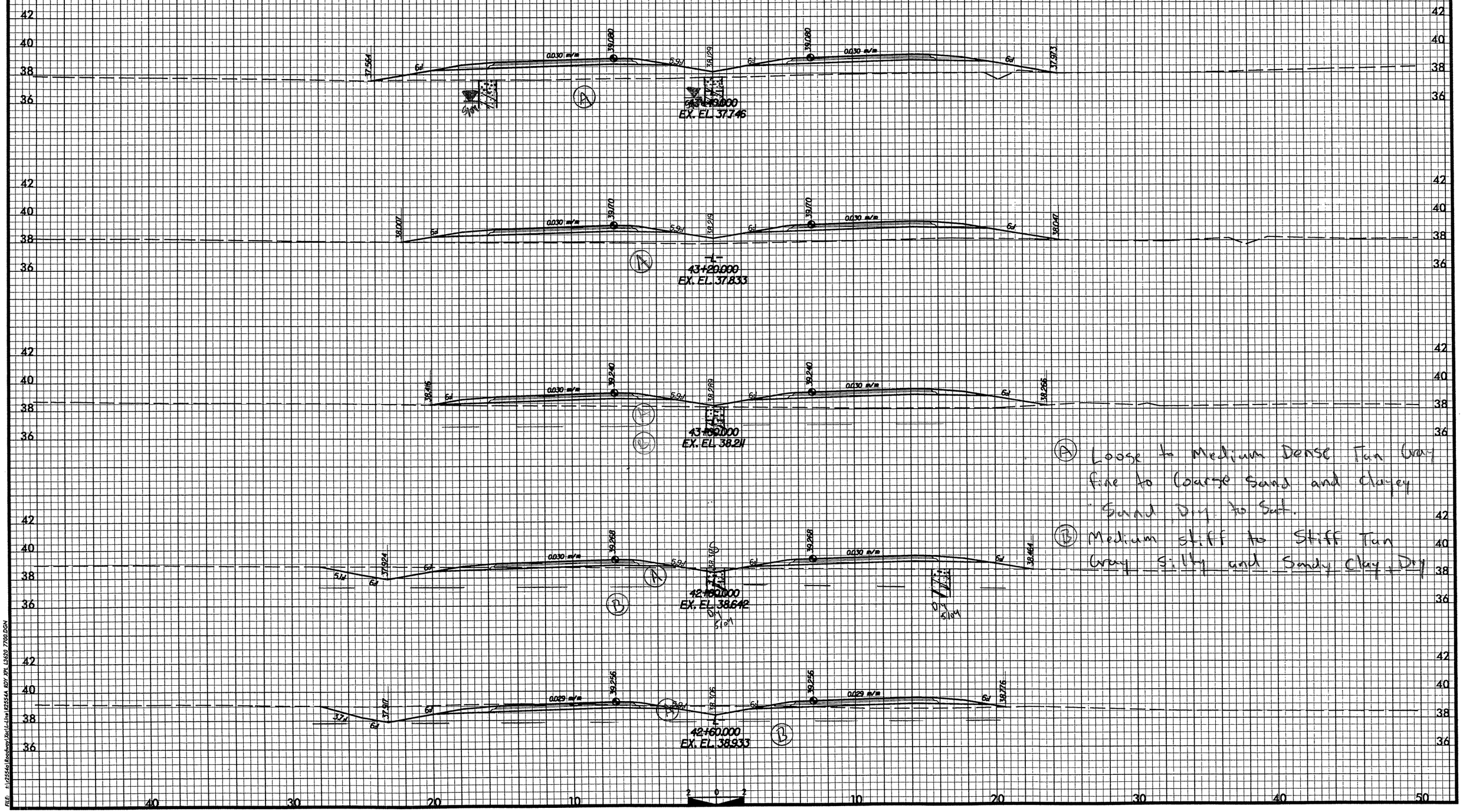


(A) Loose Tan Brown fine to Coarse Sand and clayey Sand, Dry

(B) Medium Stiff Tan Silty and Sandy clay, Dry

FILE: H:\2554a\Roadway\Xcs\Lline\R2554A BDY XPL L3620 7700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	113
GOLDSBORO BYPASS	

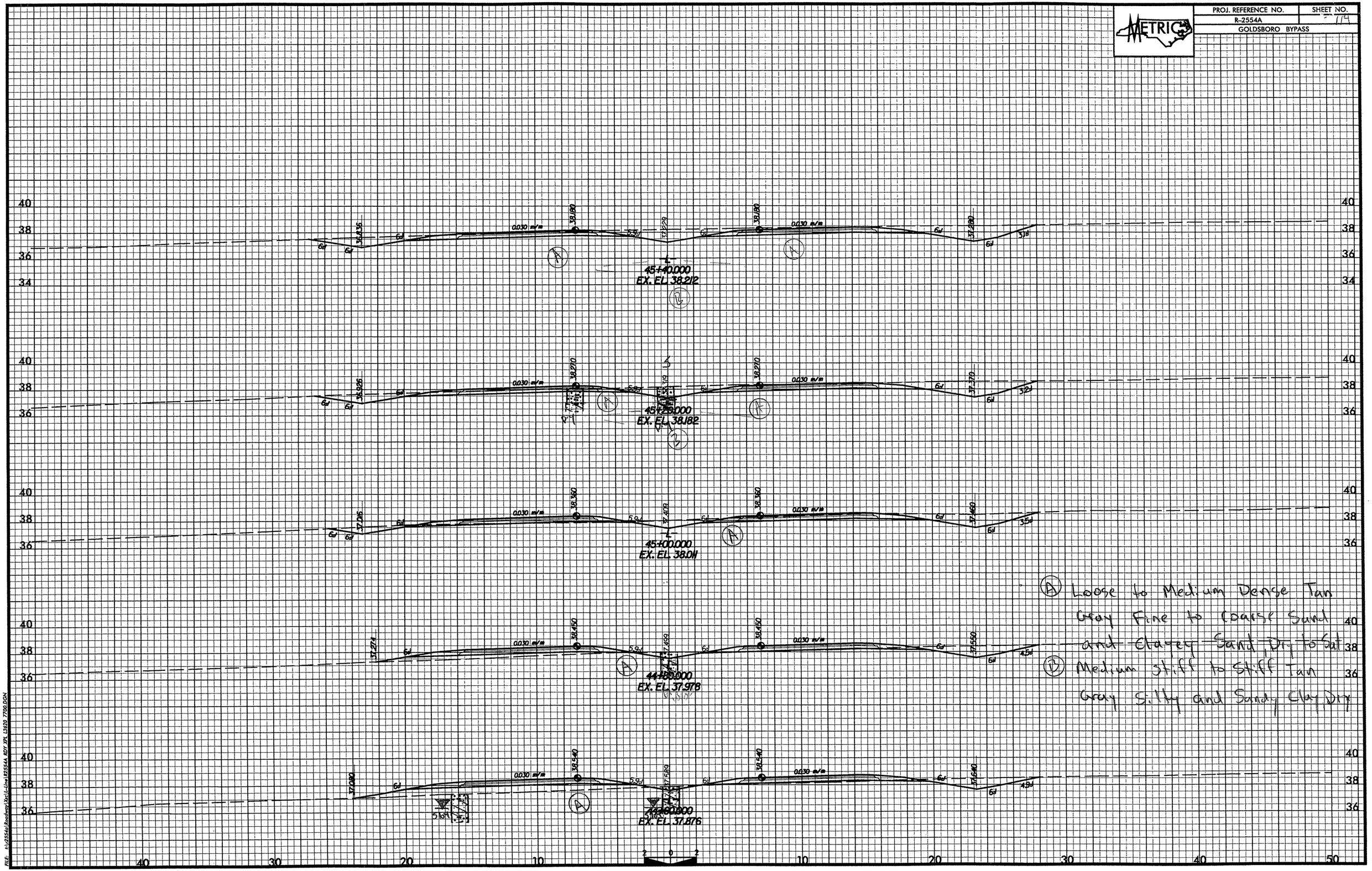


(A) Loose to Medium Dense Tan Gray Fine to Coarse Sand and Clayey Sand Dry to Sat.

(B) Medium Stiff to Stiff Tan Gray Silty and Sandy Clay, Dry

FILE: f:\2554a\Roadway\Xsc\L-line\R2554A RDY XPL L3630 7700.DGN

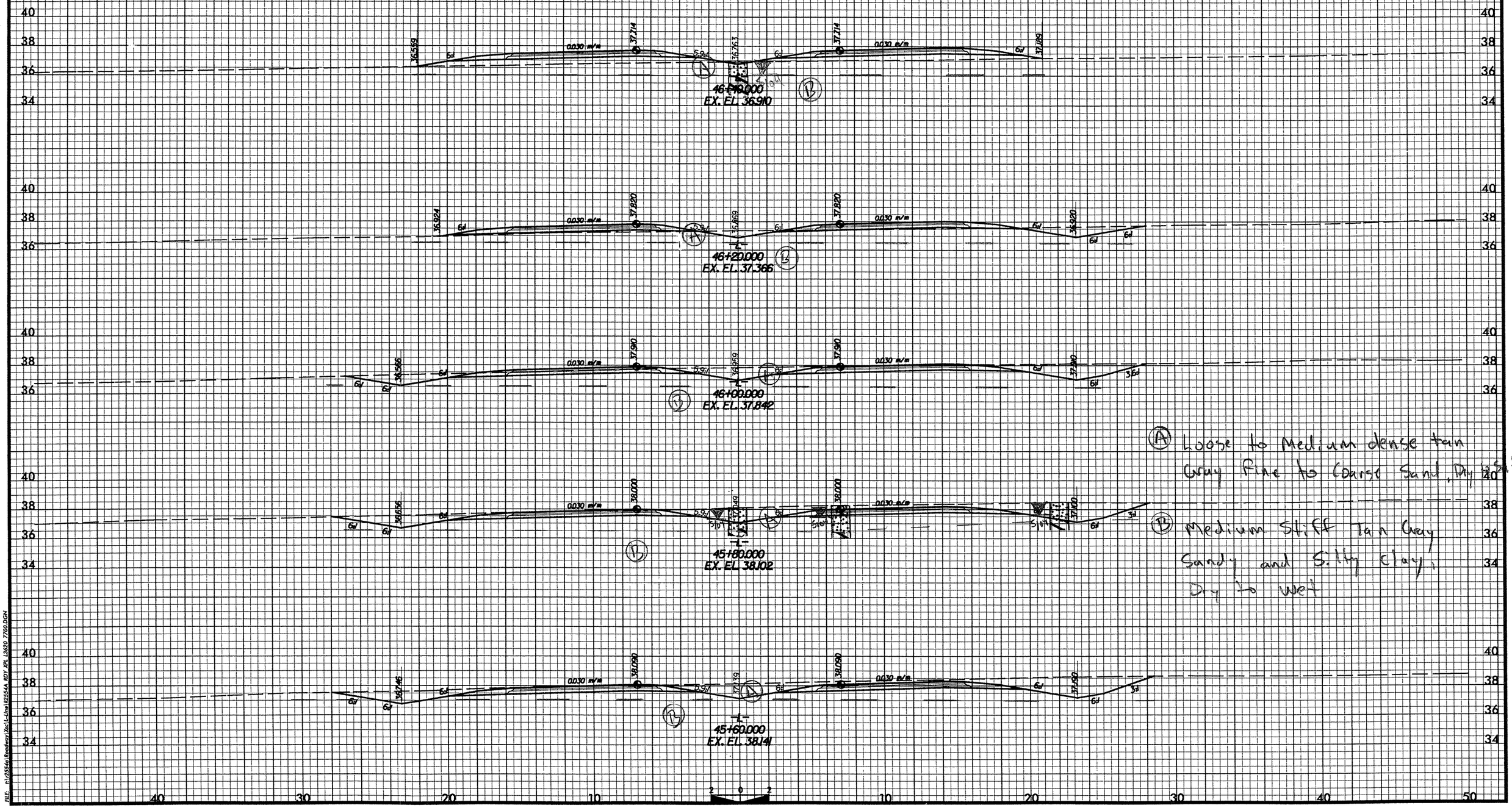
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	114
GOLDSBORO BYPASS	



(A) Loose to Medium Dense Tan Gray Fine to Coarse Sand and Clayey Sand, Dry to Sat

(B) Medium Stiff to Stiff Tan Gray Silty and Sandy Clay, Dry

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	70 B5
GOLDSBORO BYPASS	

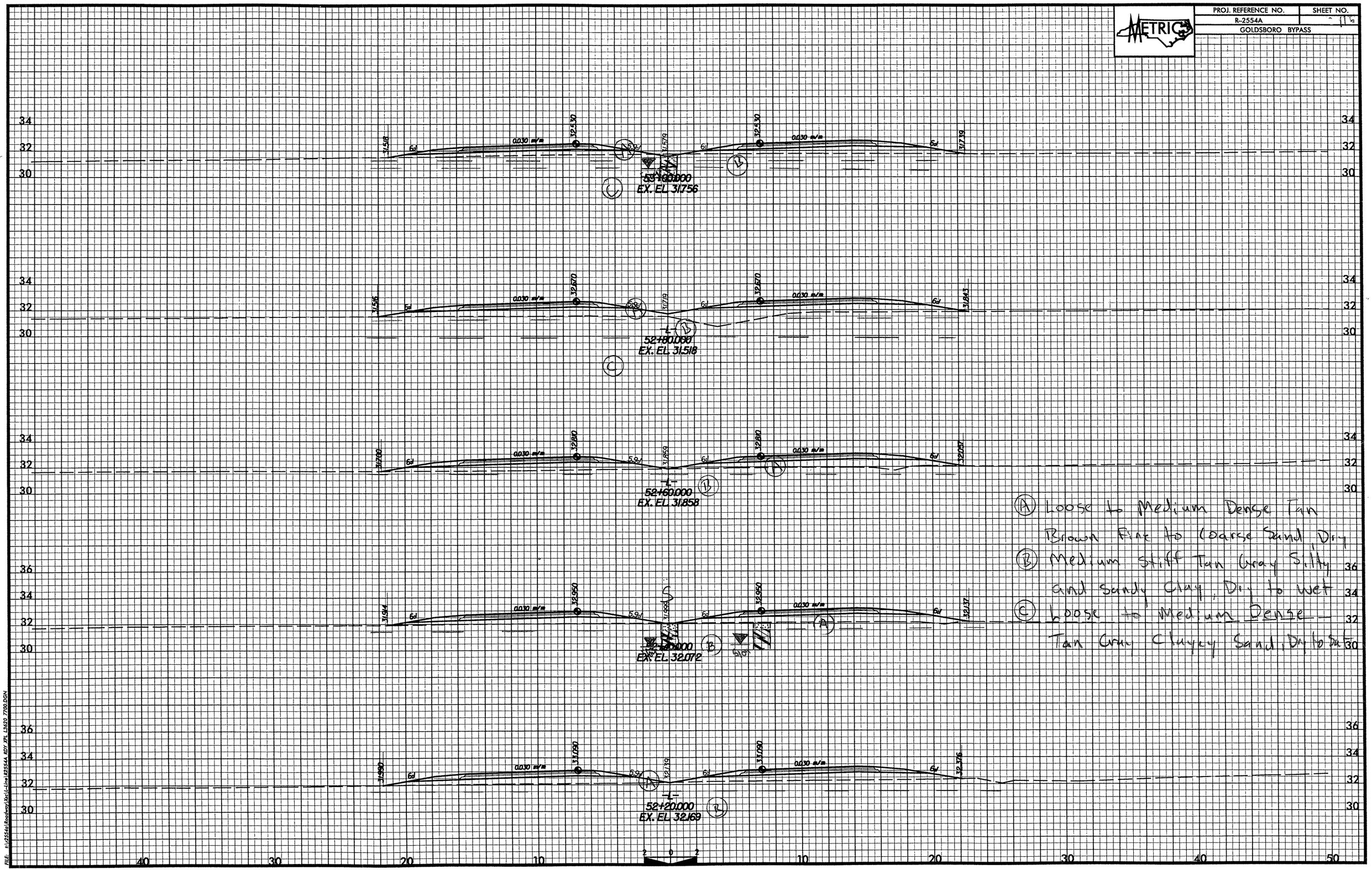


(A) Loose to Medium dense tan Gray Fine to Coarse Sand, Dry to wet

(B) Medium Stiff Tan Gray Sandy and Silty Clay, Dry to wet

FILE: h:\2554a\Roadway\Xsl\L-line\R2554A_RDY_XPL_L3430_7700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	11
GOLDSBORO BYPASS	



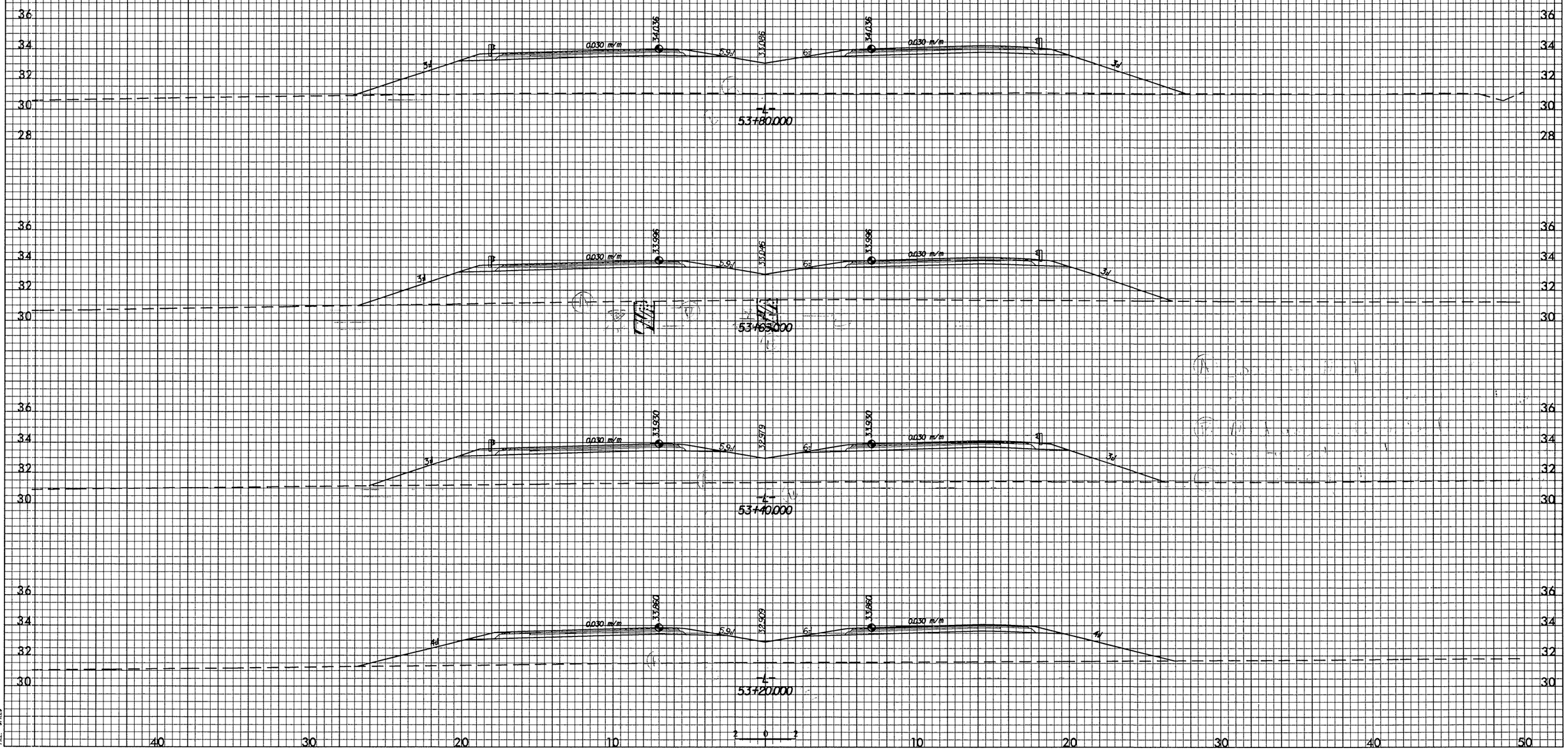
(A) Loose to Medium Dense Tan Brown Fine to Coarse Sand, Dry

(B) Medium Stiff Tan Gray Silty and Sandy Clay, Dry to wet

(C) Loose to Medium Dense Tan Gray Clayey Sand, Dry to Sat

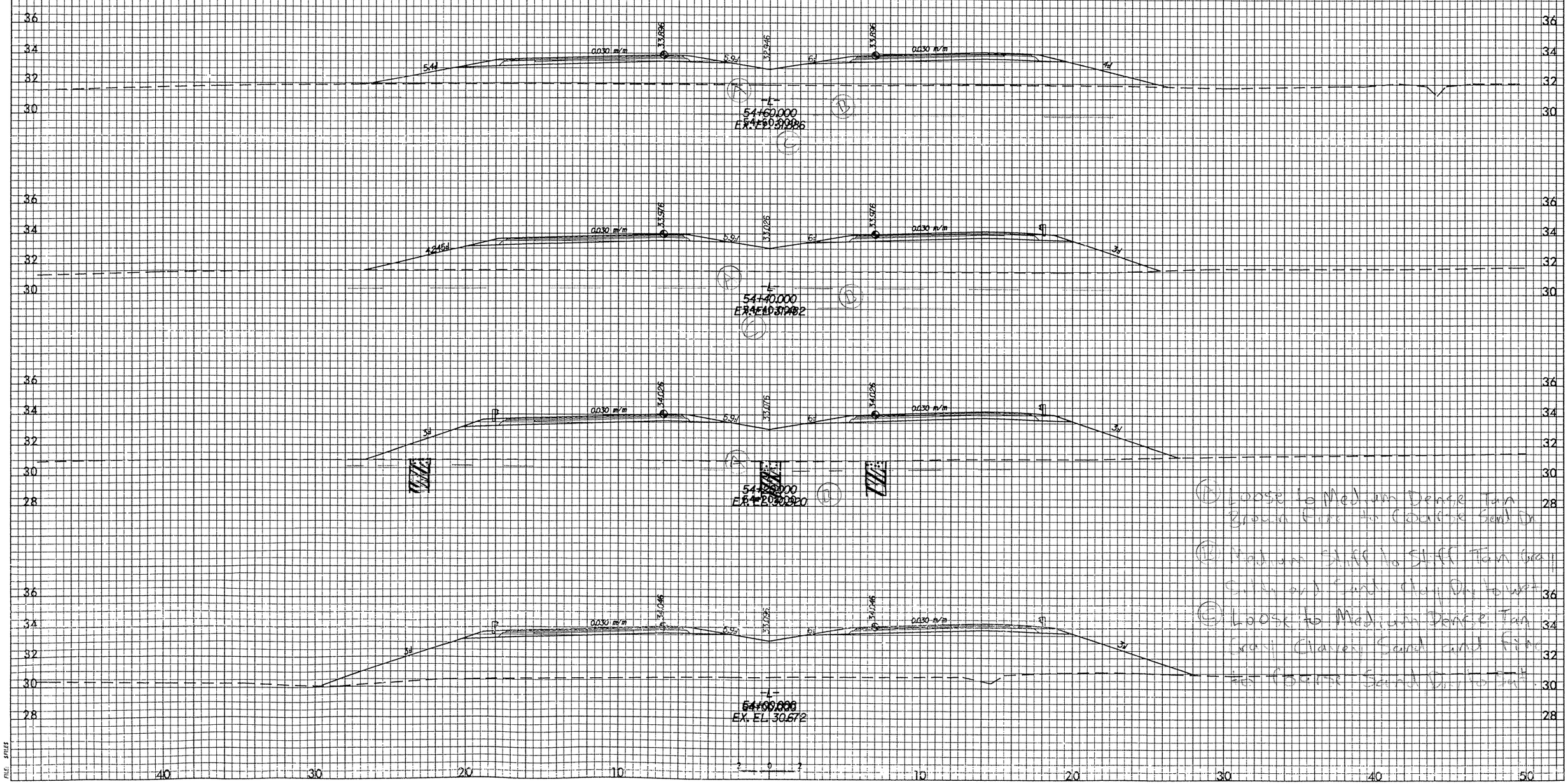
FILE: h:\2554a\Roadway\Xsc\L-Line\R2554A RDY XPL L3620 7700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	11
GOLDSBORO BYPASS	



FILE: SFILES

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	118
GOLDSBORO BYPASS	

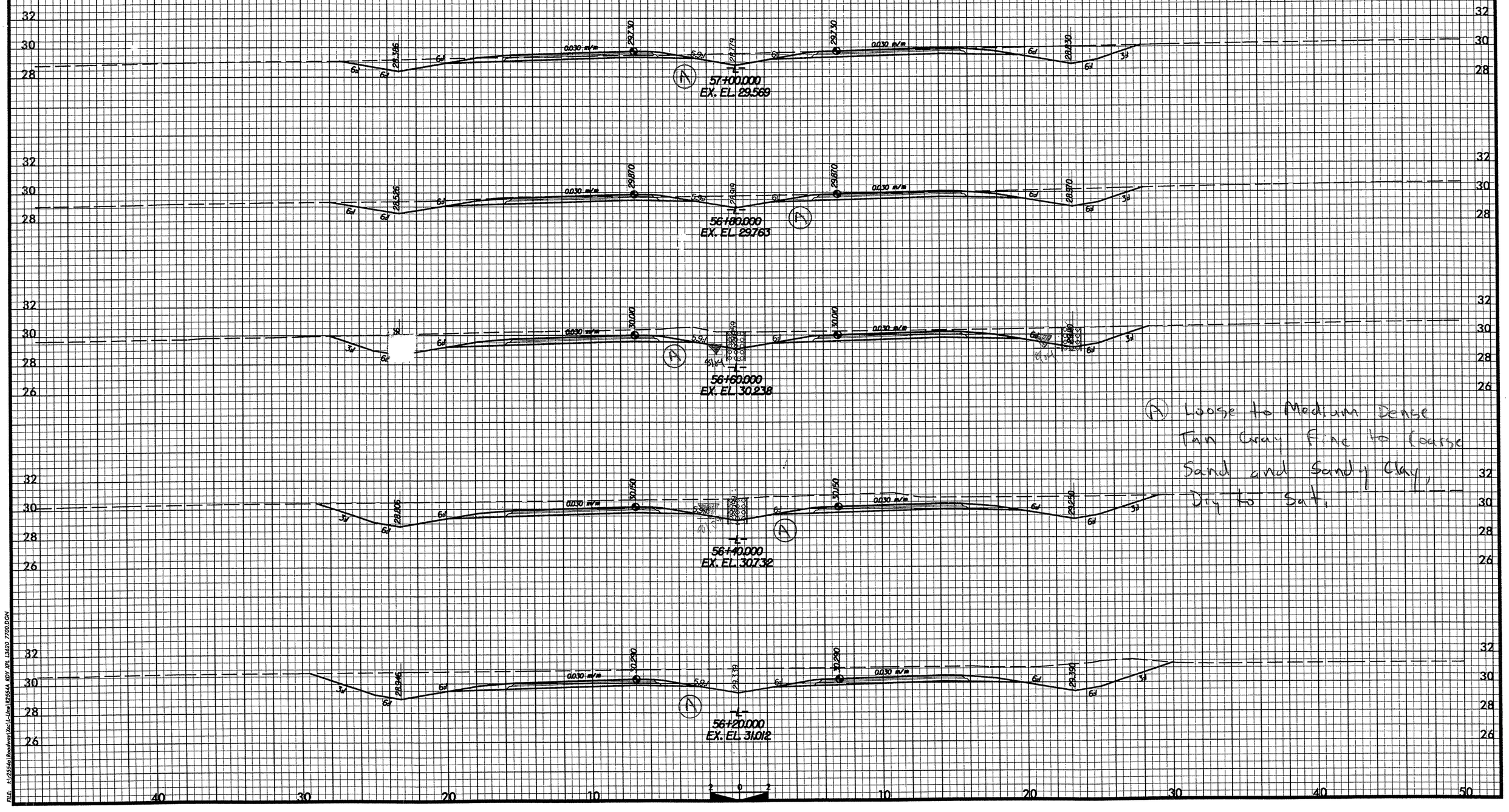


(A) Loose to Medium Dense Tan Brown Fine to Coarse Sand Dry

(B) Medium Stiff to Stiff Tan Gray Silty and Sand Clay Dry to Wet

(C) Loose to Medium Dense Tan Gray Clayey Sand and Fine to Coarse Sand Dry to Dark

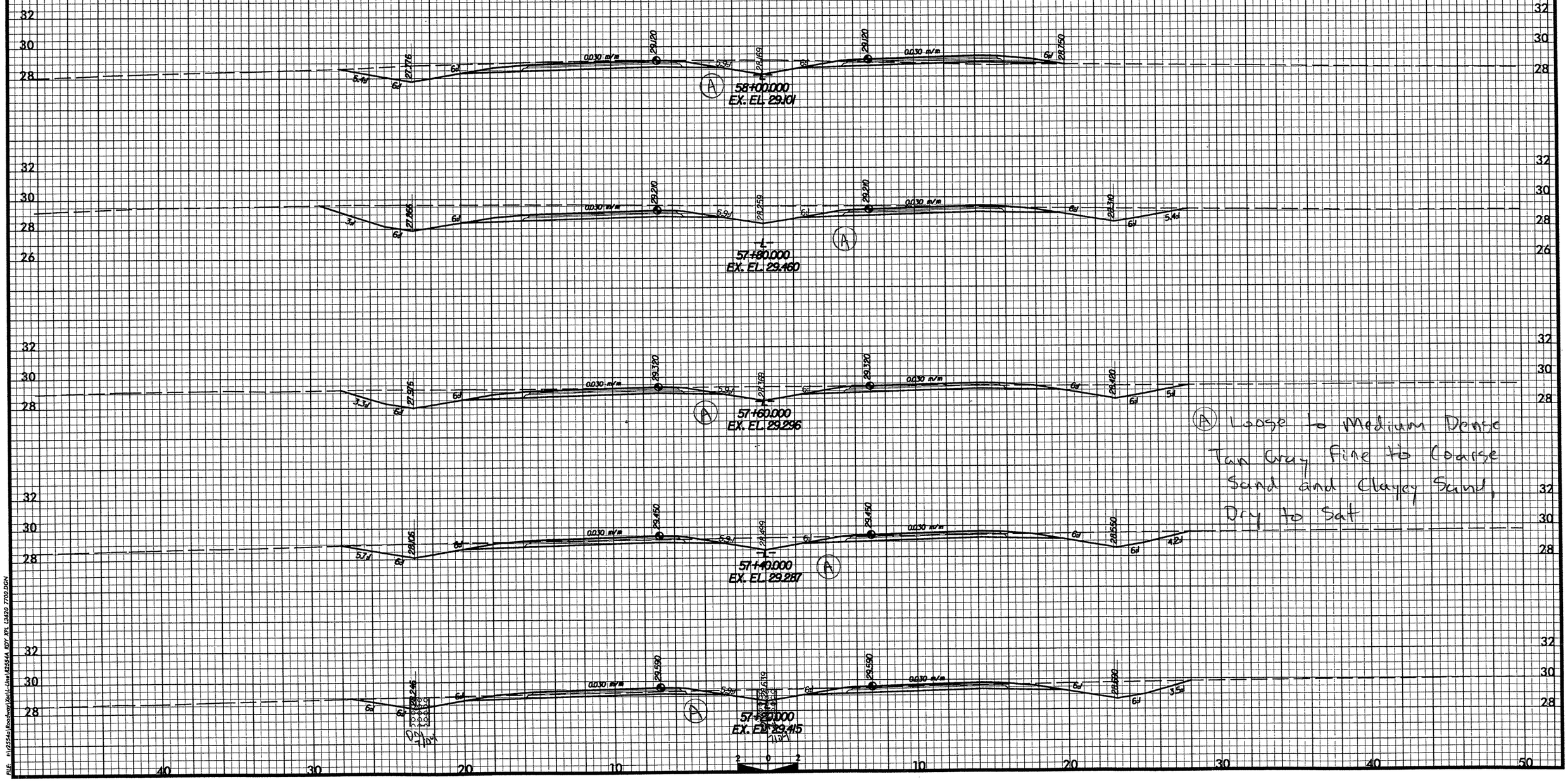
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	19
GOLDSBORO BYPASS	



(A) Loose to Medium Dense Tan Gray Fine to Coarse Sand and Sandy Clay, Dry to Sat.

FILE: h:\2554a\Roadway\Xsc\Line\R2554A_RDY_YPL_L3820_7700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	120
GOLDSBORO BYPASS	

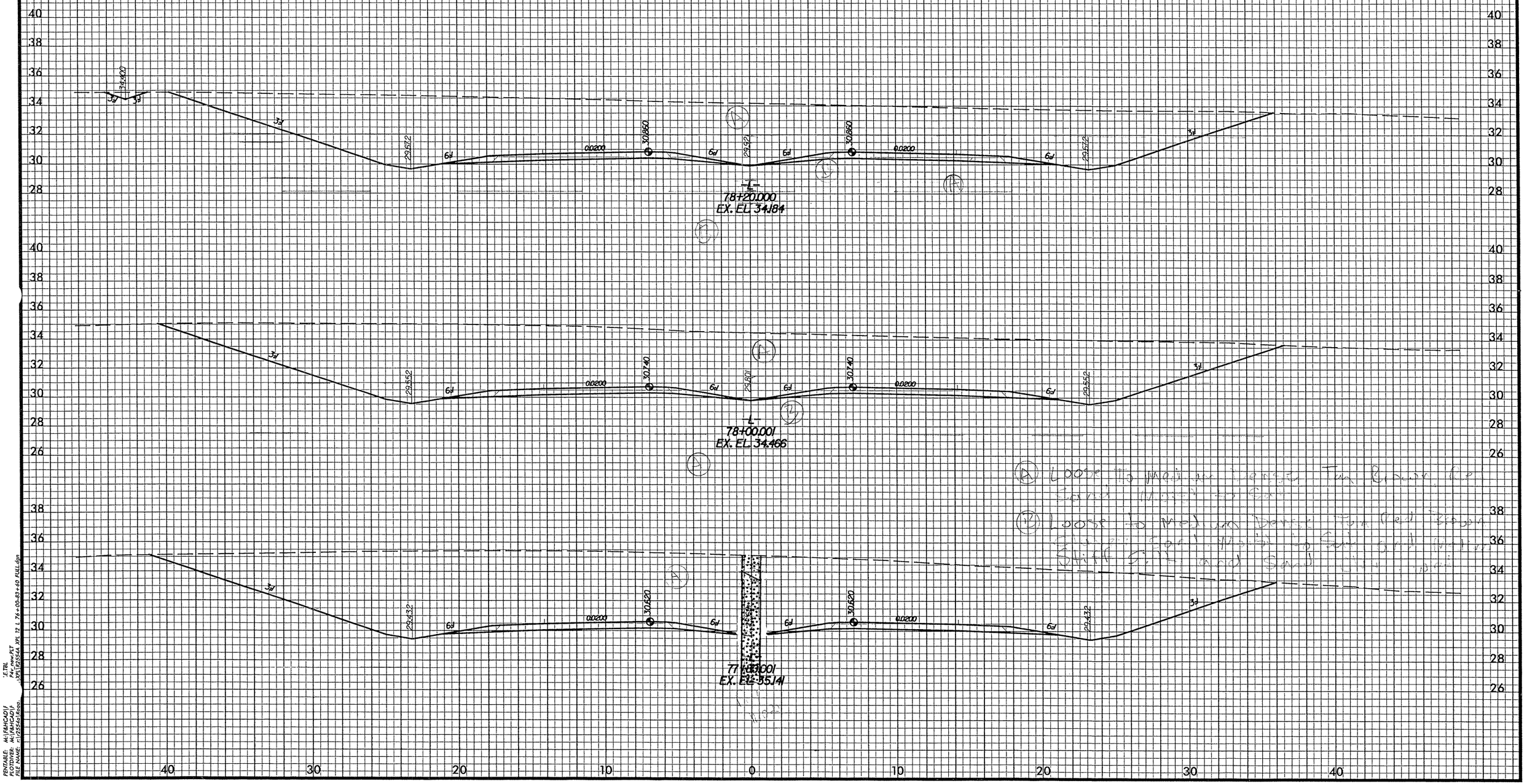


Loose to Medium Dense
Tan Gray Fine to Coarse
Sand and Clayey Sand,
Dry to Sat

FILE: H:\2554a\Roadway\Xsl\L-Line\R2554A BDY XPL L3620 1700.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	X- 121
GOLDSBORO BYPASS	

2m 0 2m
SCALE

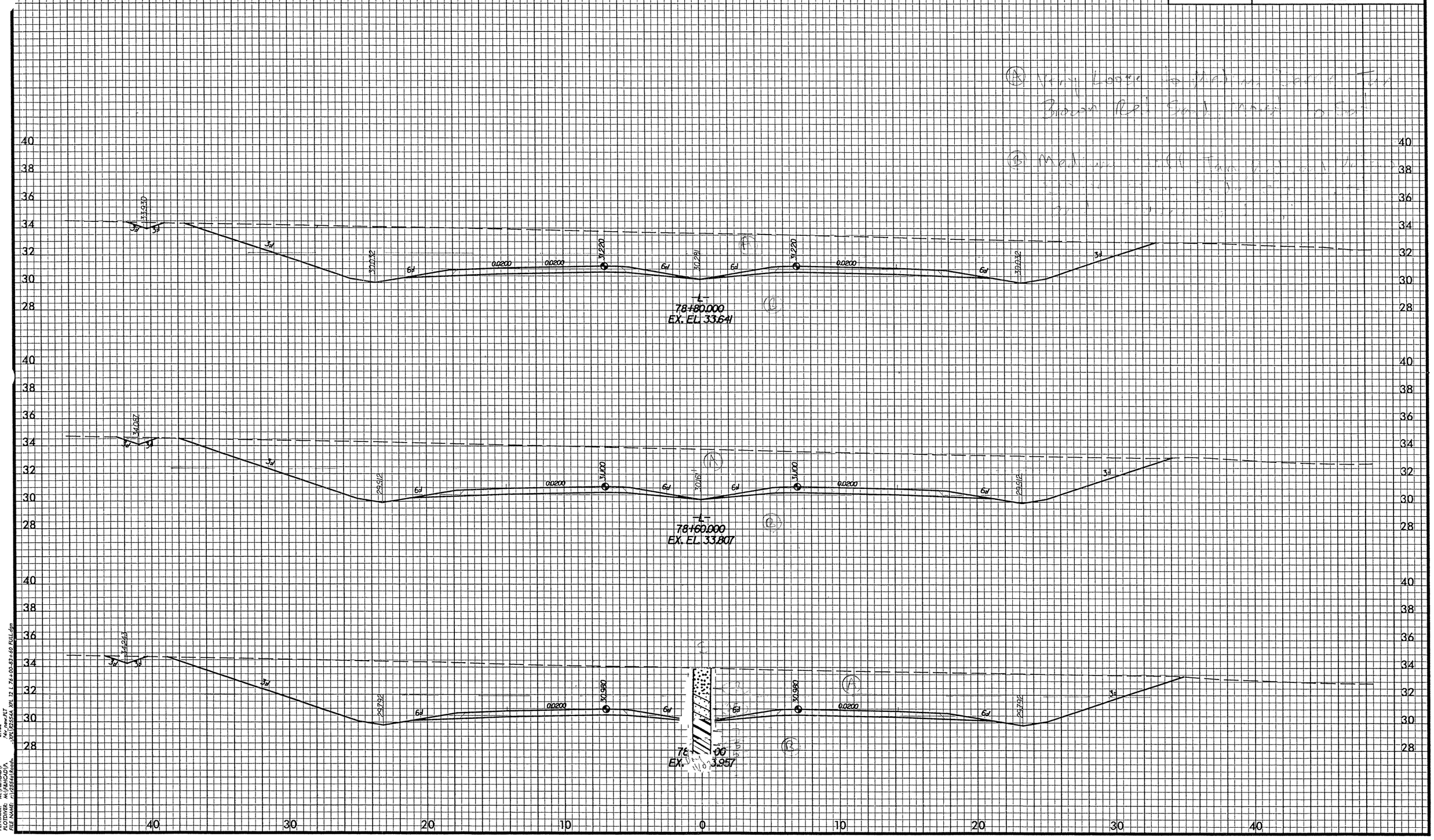


(A) Loose to Medium Dense Tan Brown Red Sand Moist to Sat

(B) Loose to Medium Dense Tan Red Brown Silty Sand Moist to Sat and Medium Stiff Silt and Sand Clay Moist

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

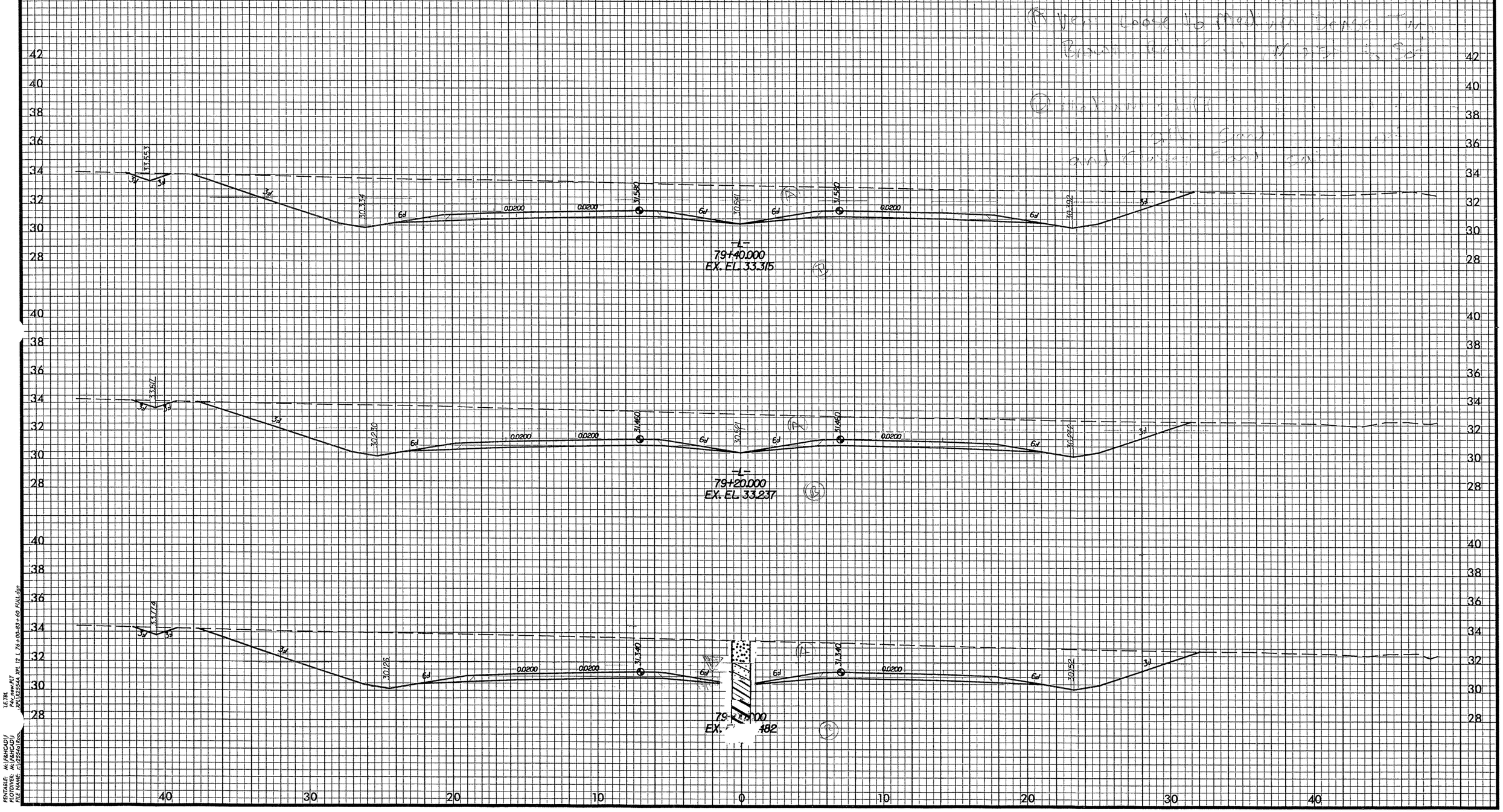
2m 0 2m
SCALE



PENTABLE: M:\F&HCAD\P
PLOTDIVER: M:\F&HCAD\P
FILE NAME: r:\r2554a\Road
E.TBL
-4v_new.PLT
XPL 12 L 76+00-83+60 FULL.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

2m 0 2m
SCALE



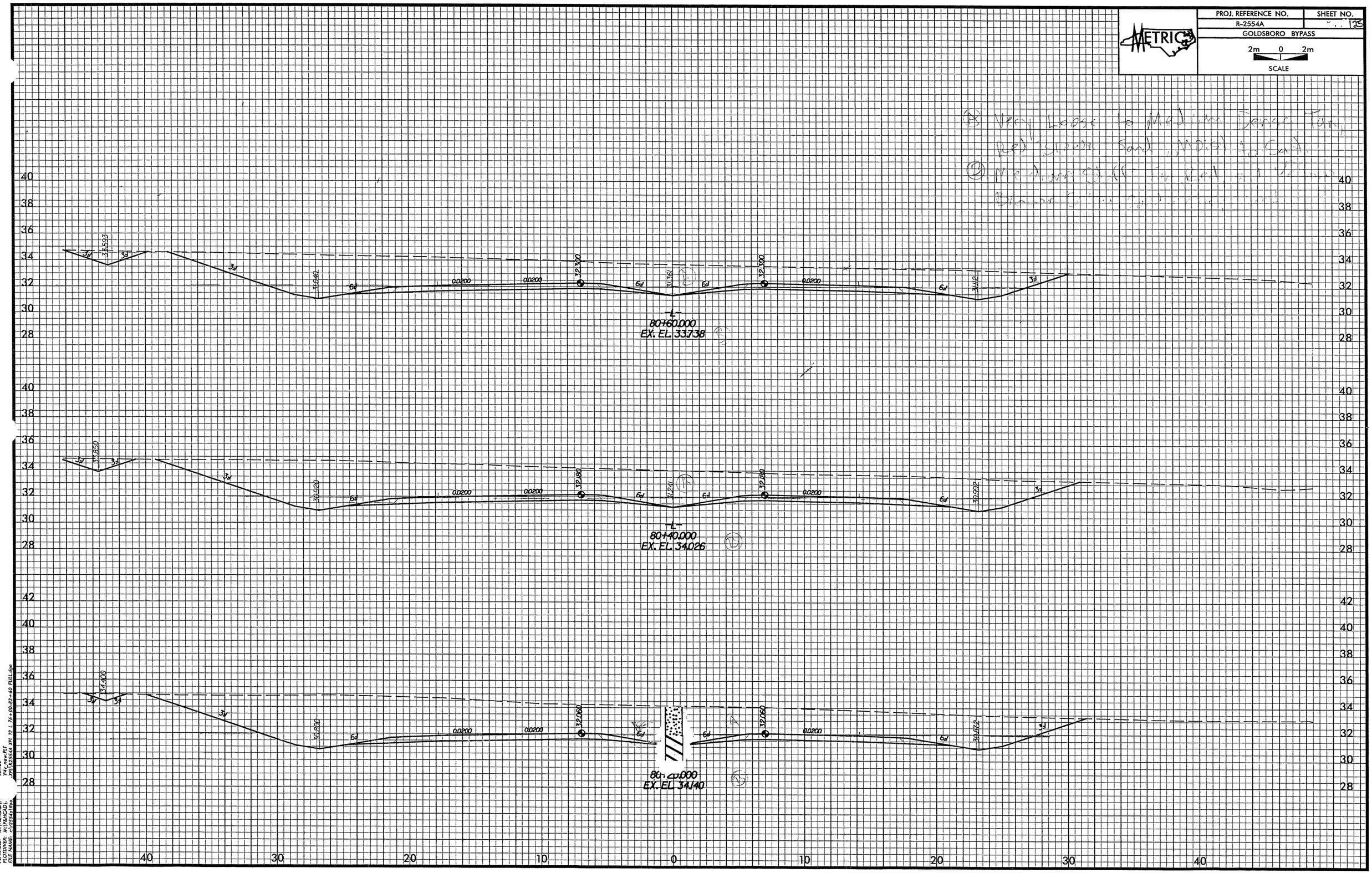
PENTABLE: M:\F&HCAD\
PLOTDIVER: M:\F&HCAD\
FILE NAME: r:\2554a\Roa

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

2m 0 2m
SCALE

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	125
GOLDSBORO BYPASS	

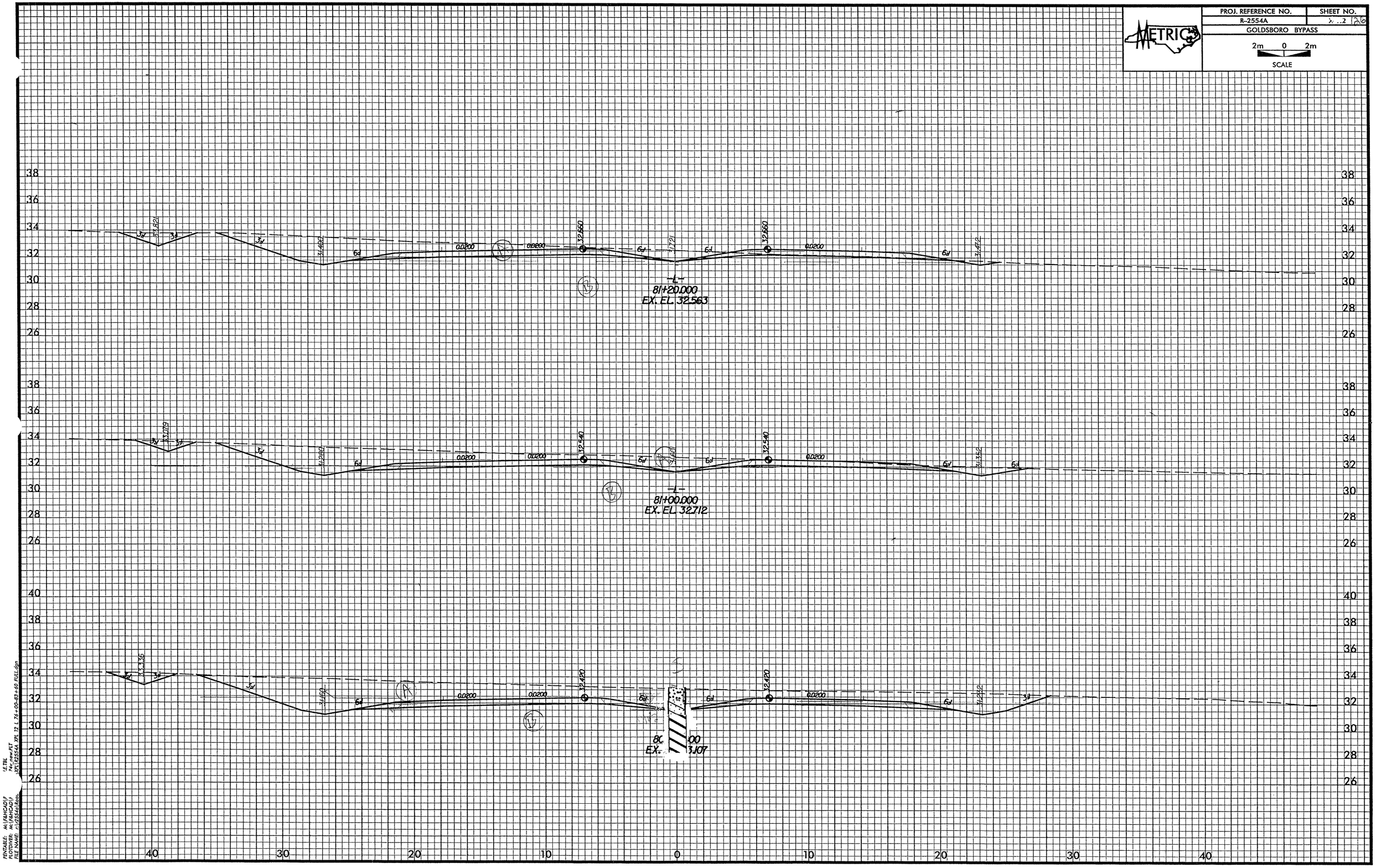
2m 0 2m
SCALE



PENTABLE: M:\F&HCAD\
PLOTDIVER: M:\F&HCAD\
FILE NAME: r:\2554a\Roa

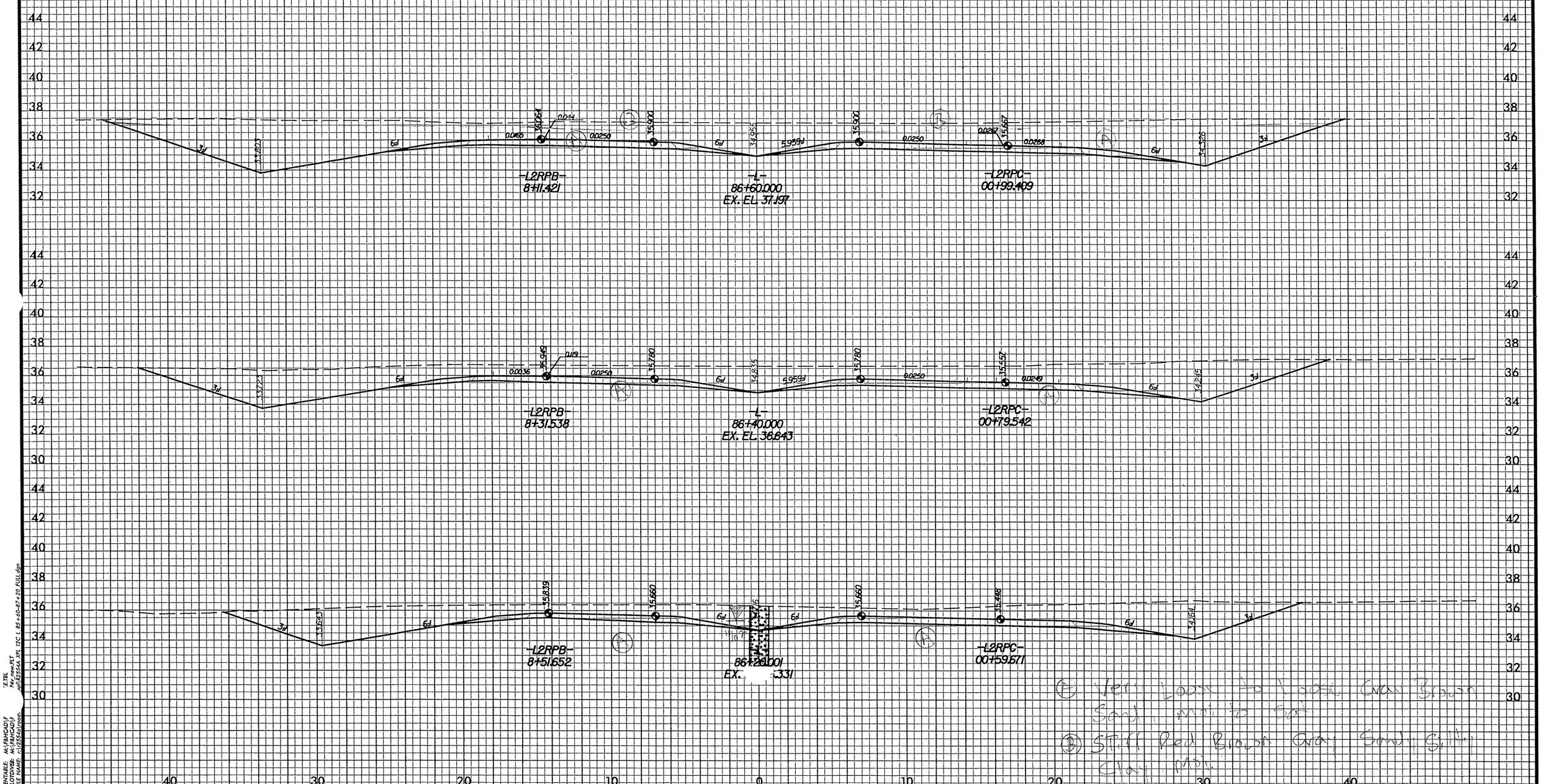
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	2
GOLDSBORO BYPASS	

2m 0 2m
SCALE



PROJ. REFERENCE NO.	SHEET NO
R-2554A	127
GOLDSBORO BYPASS	

2m 0 2m
SCALE



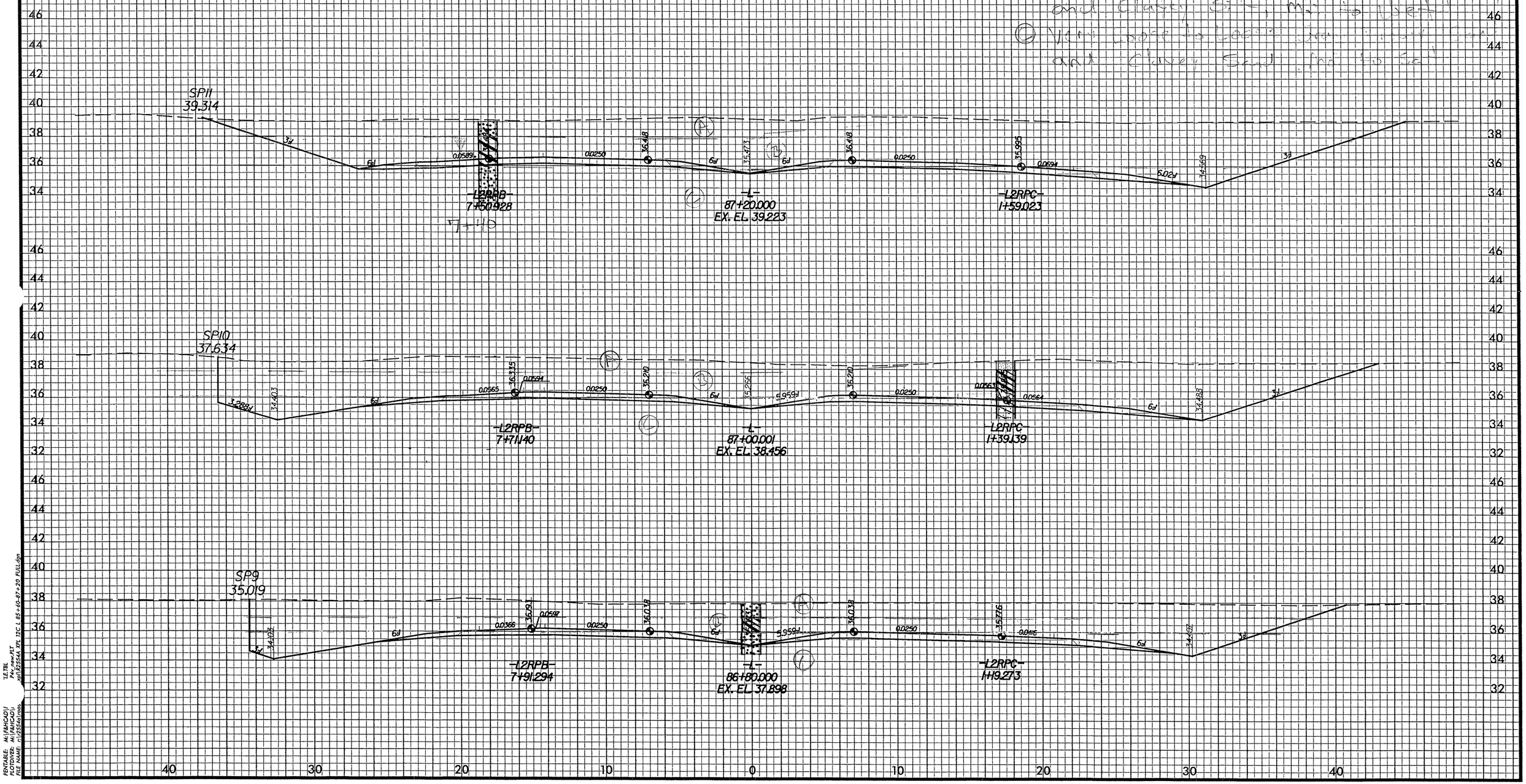
(A) Very Loose to Loose Gray Brown Sand, moi to Sat

(B) Stiff Red Brown Gray Sandy Silty Clay Moi.

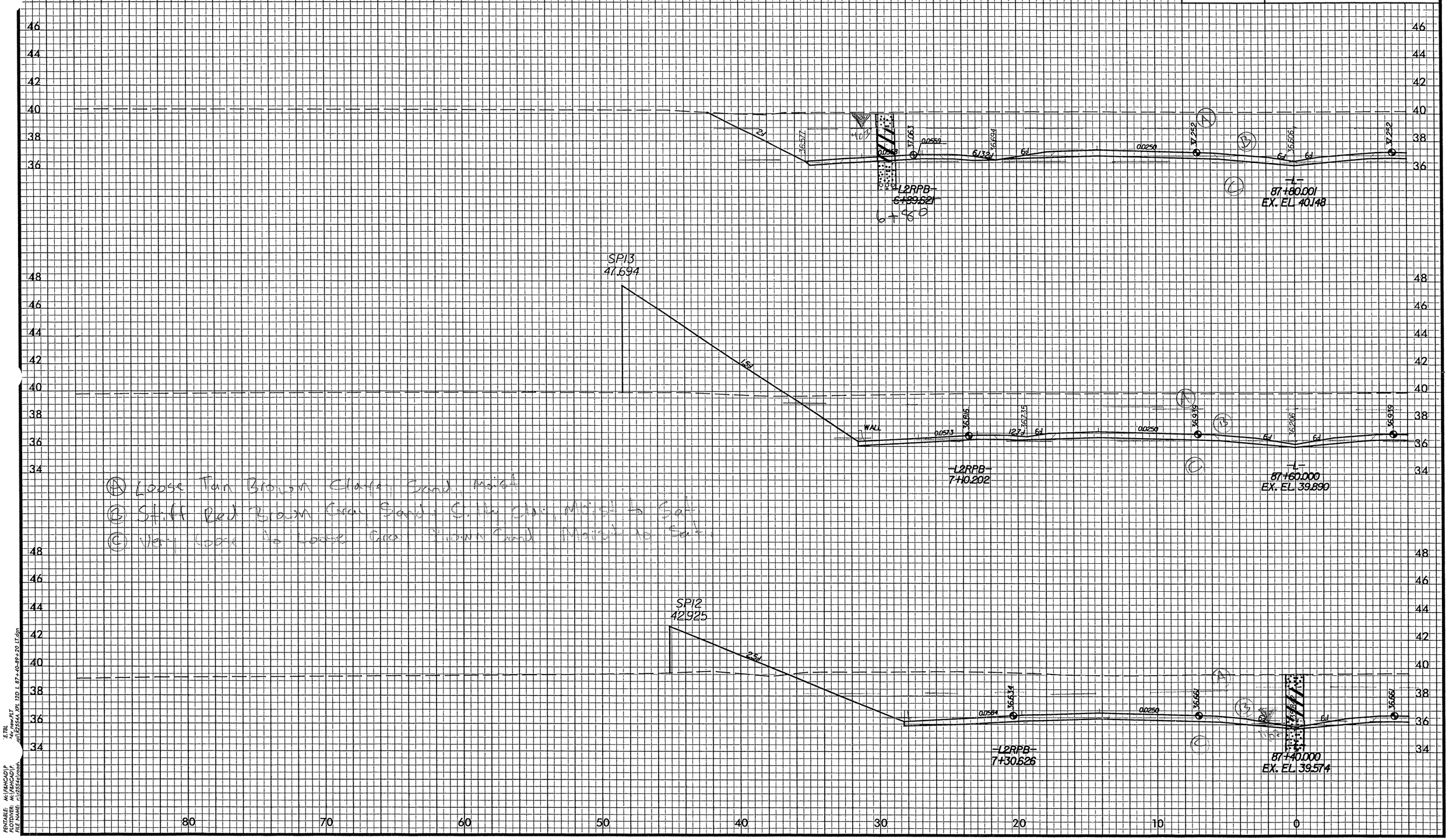
PENTABLE: M:\F&HCAD\P
PLOTDIVER: M:\F&HCAD\P
FILE NAME: r:\r2554a\roads

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

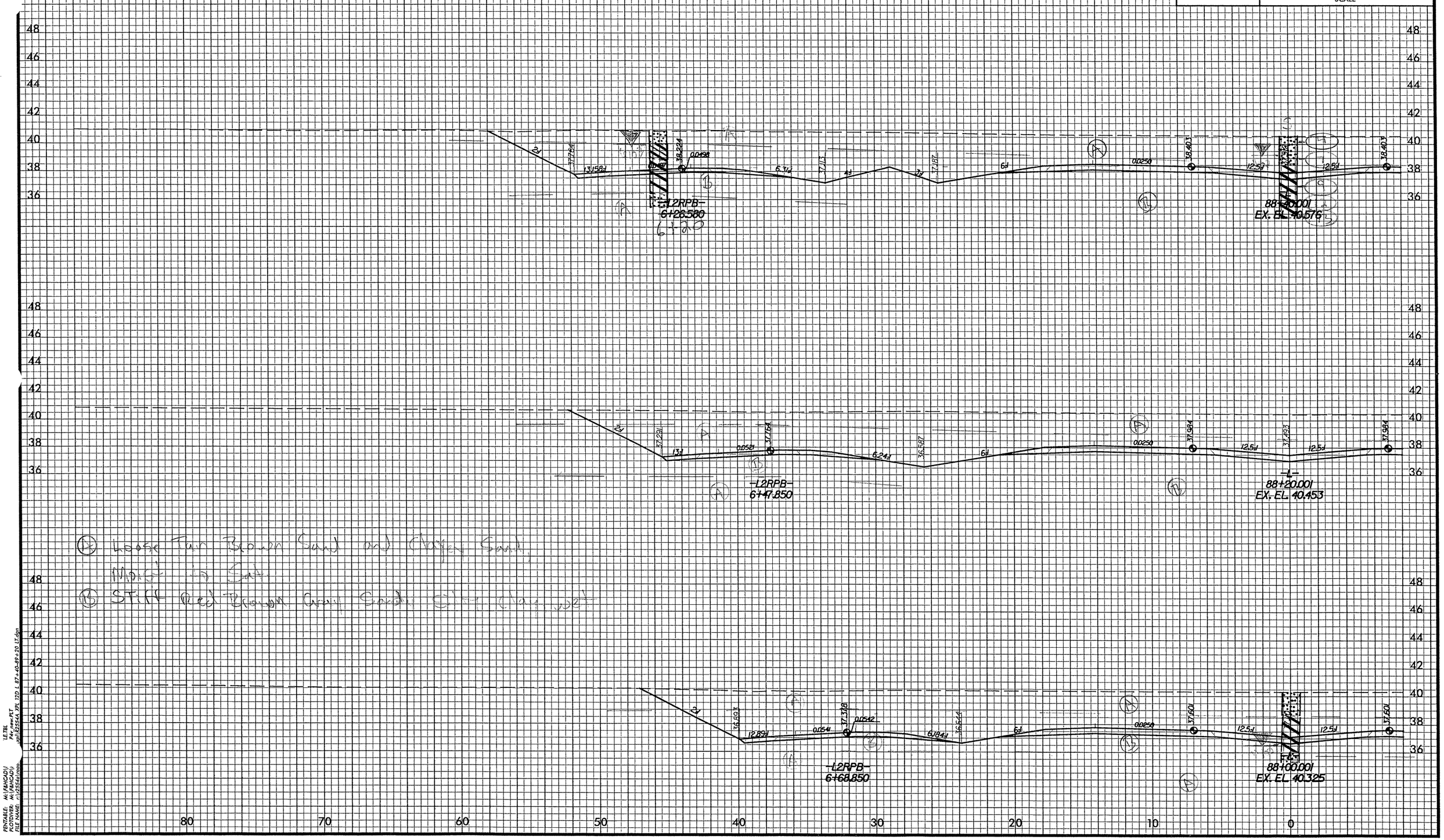
2m 0 2m
SCALE



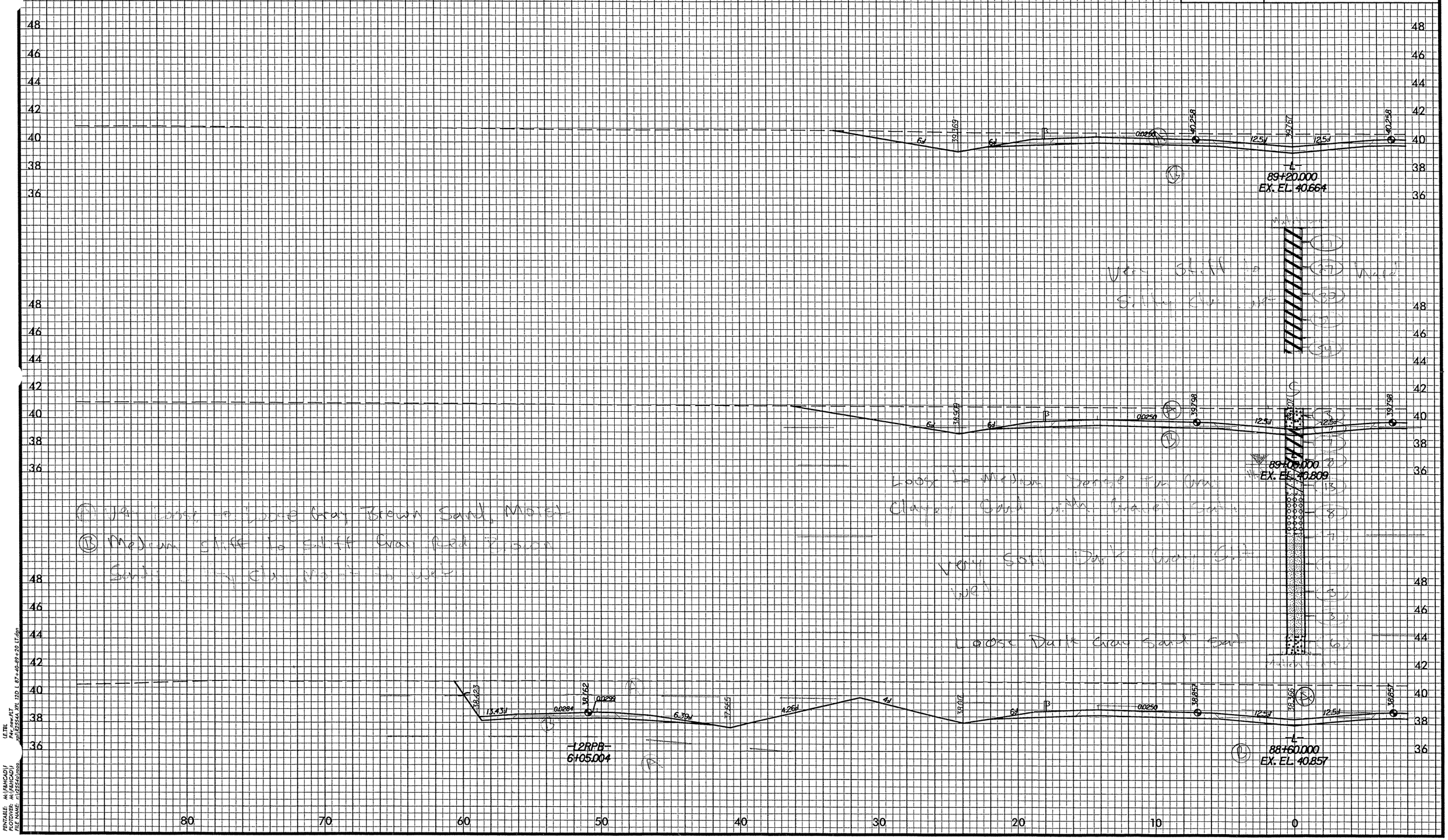
PENTABLE: M:\F&HCAD\
PLOTDIVER: M:\F&HCAD\
FILE NAME: r:\r2554a\roads



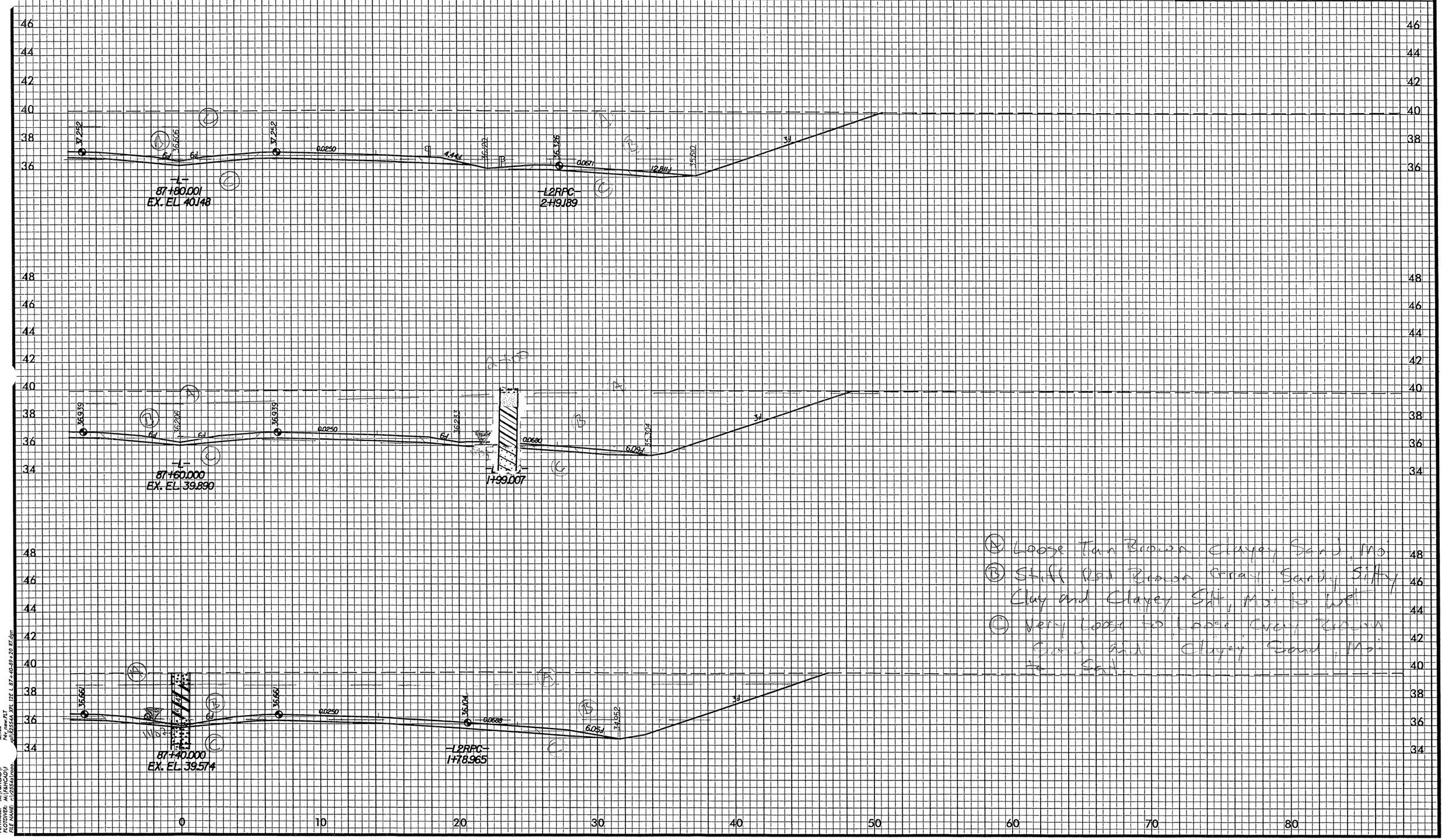
PROJ. REFERENCE NO.
R-2554A
SHEET NO.
GOLDSBORO BYPASS
2m 0 2m
SCALE
METRIC
L2RPB
6+89.621
6+80
87+80.001
EX. EL 40.148
SP13
47.694
WALL
L2RPB
7+10.202
87+60.000
EX. EL 39.890
SP12
42.925
L2RPB
7+30.626
87+40.000
EX. EL 39.574
Ⓐ Loose Tan Brown Clayey Sand, Moist
Ⓑ Stiff Red Brown Gray Sandy Silty Clay, Moist to Sat.
Ⓒ Very Loose to Loose Gray Brown Sand, Moist to Sat.



PROJ. REFERENCE NO.
R-2554A
SHEET NO.
GOLDSBORO BYPASS
2m 0 2m
SCALE
METRIC
-L2RPB-
6+26.580
6+20
88+40.001
EX. EL. 40.576
-L2RPB-
6+47.850
-L-
88+20.001
EX. EL. 40.453
-L2RPB-
6+68.850
88+00.001
EX. EL. 40.325
Ⓐ Loose Tan Brown Sand and Clayey Sand, Moist to Sat.
Ⓑ Stiff Red Brown Gray Sandy Silty Clay wet



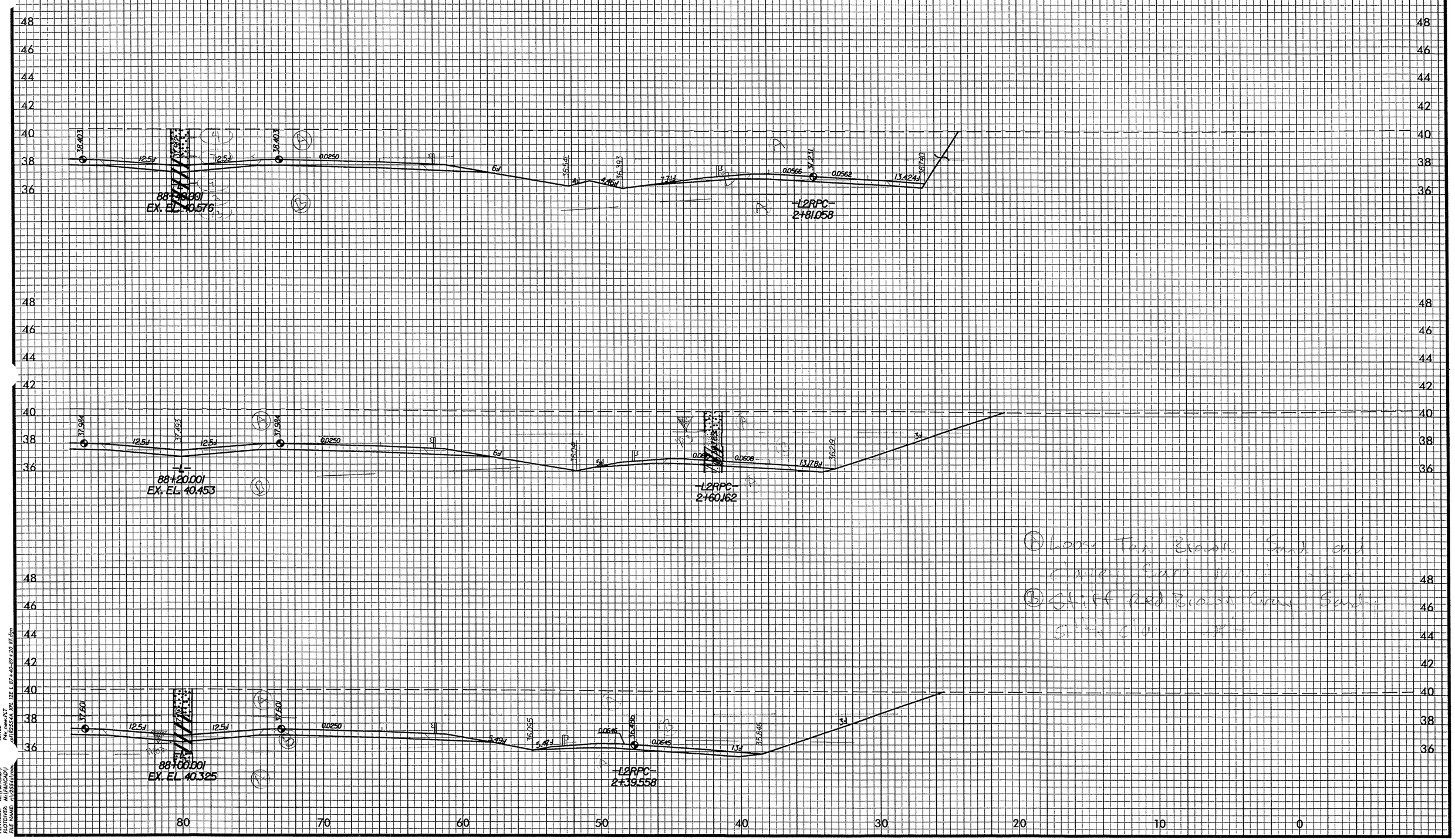
PROJ. REFERENCE NO.
R-2554A
SHEET NO.
GOLDSBORO BYPASS
2m 0 2m
SCALE
METRIC
-L-
89+20.000
EX. EL. 40.664
89+09.000
EX. EL. 40.809
-L-
88+60.000
EX. EL. 40.857
-L2RPB-
6+05.004
Very Stiff to Hard
Silty Clay Wet
Loose to Medium Dense Fine Gray
Clayey Sand with Gravel Sat
Very Soft Dark Gray Silt
Wet
Loose Dark Gray Sand Sat
Very Loose to Loose Gray Brown Sand, Moist
Medium Stiff to Stiff Gray Red Brown
Sandy Silty Clay Moist to Wet



PROJ. REFERENCE NO.
R-2554A
SHEET NO.
GOLDSBORO BYPASS
2m 0 2m
SCALE
METRIC
-L-
87+80.001
EX. EL 40.148
-L2RPC-
2+19.189
-L-
87+60.000
EX. EL 39.890
-L-
1+99.007
87+40.000
EX. EL 39.574
-L2RPC-
1+78.965
0.0250
0.0671
0.0680
0.0688
0.0250
0.0250
Ⓐ Loose Tan Brown Clayey Sand, Moi
Ⓑ Stiff Red Brown Gray Sandy Silty Clay and Clayey Silt, Moi to Wet
Ⓒ Very Loose to Loose Gray Brown Sand and Clayey Sand, Moi to Sat

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

2m 0 2m
SCALE

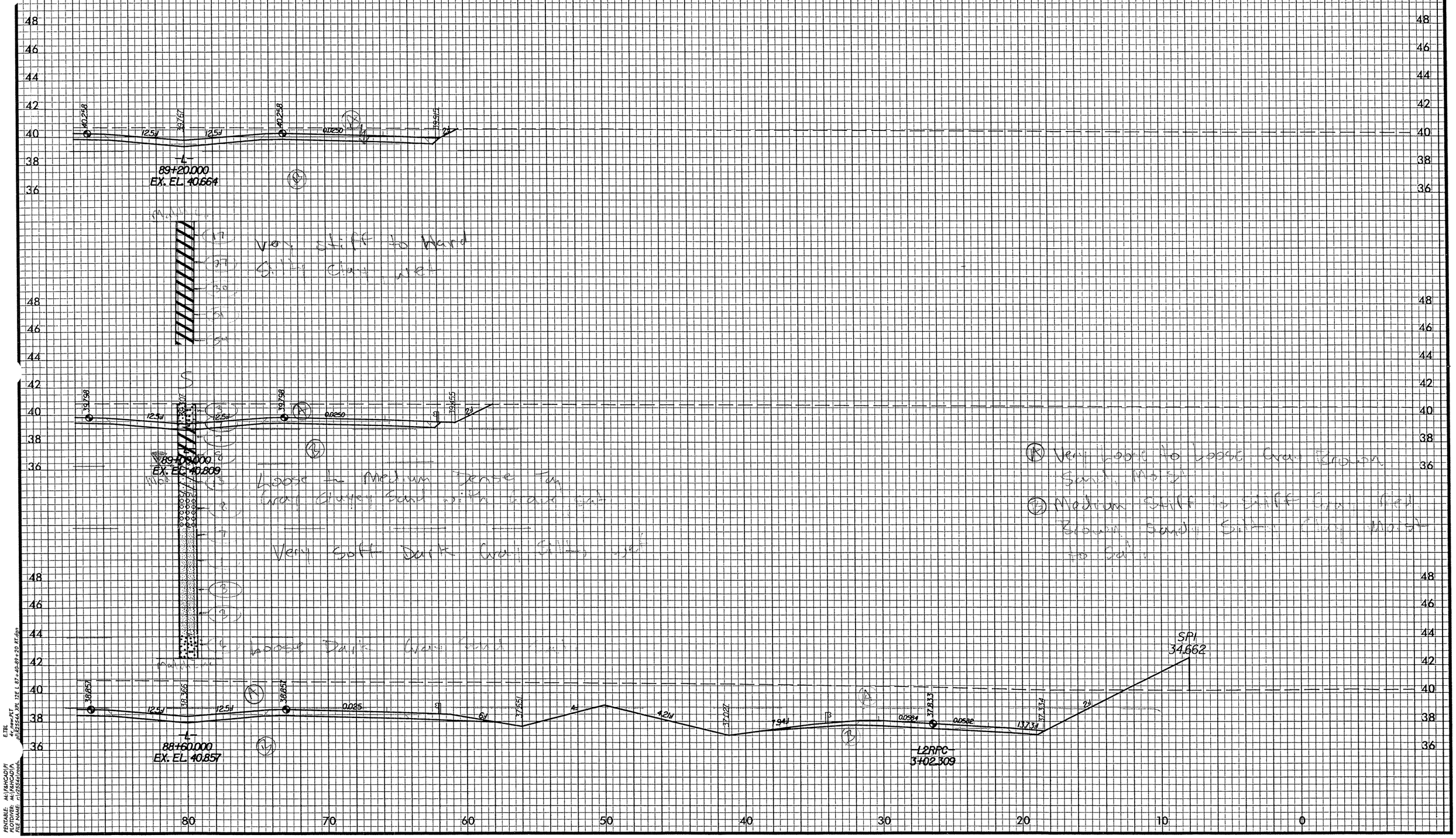


(A) Loose Tan Brown Sand and Clayey Sand Moist to Wet

(B) Stiff Red Brown Gray Sandy Silty Clay Wet

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	134
GOLDSBORO BYPASS	

2m 0 2m
SCALE

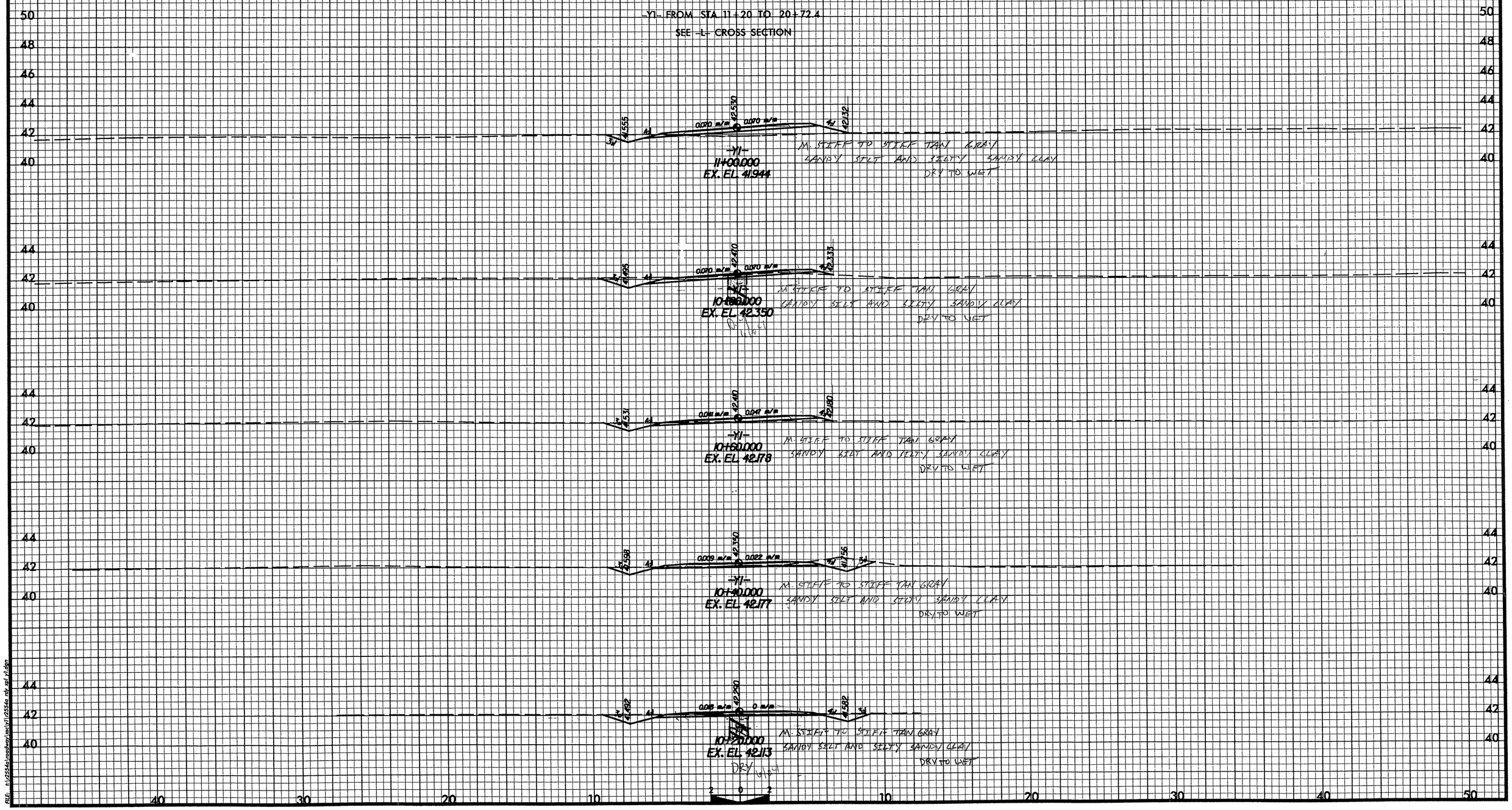


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	135
GOLDSBORO BYPASS	

METRIC

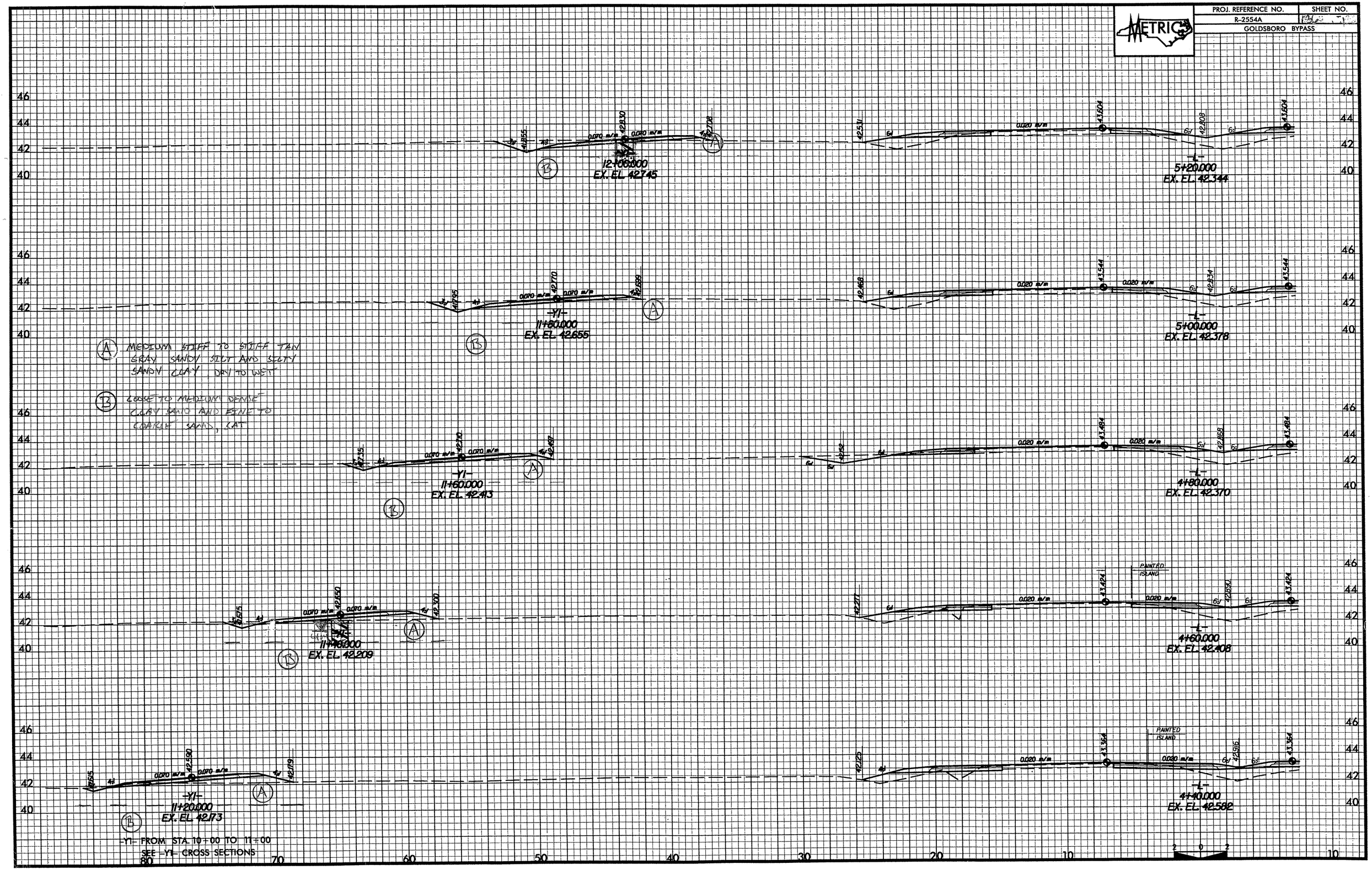
-Y1- FROM STA 11+20 TO 20+72.4

SEE -L- CROSS SECTION

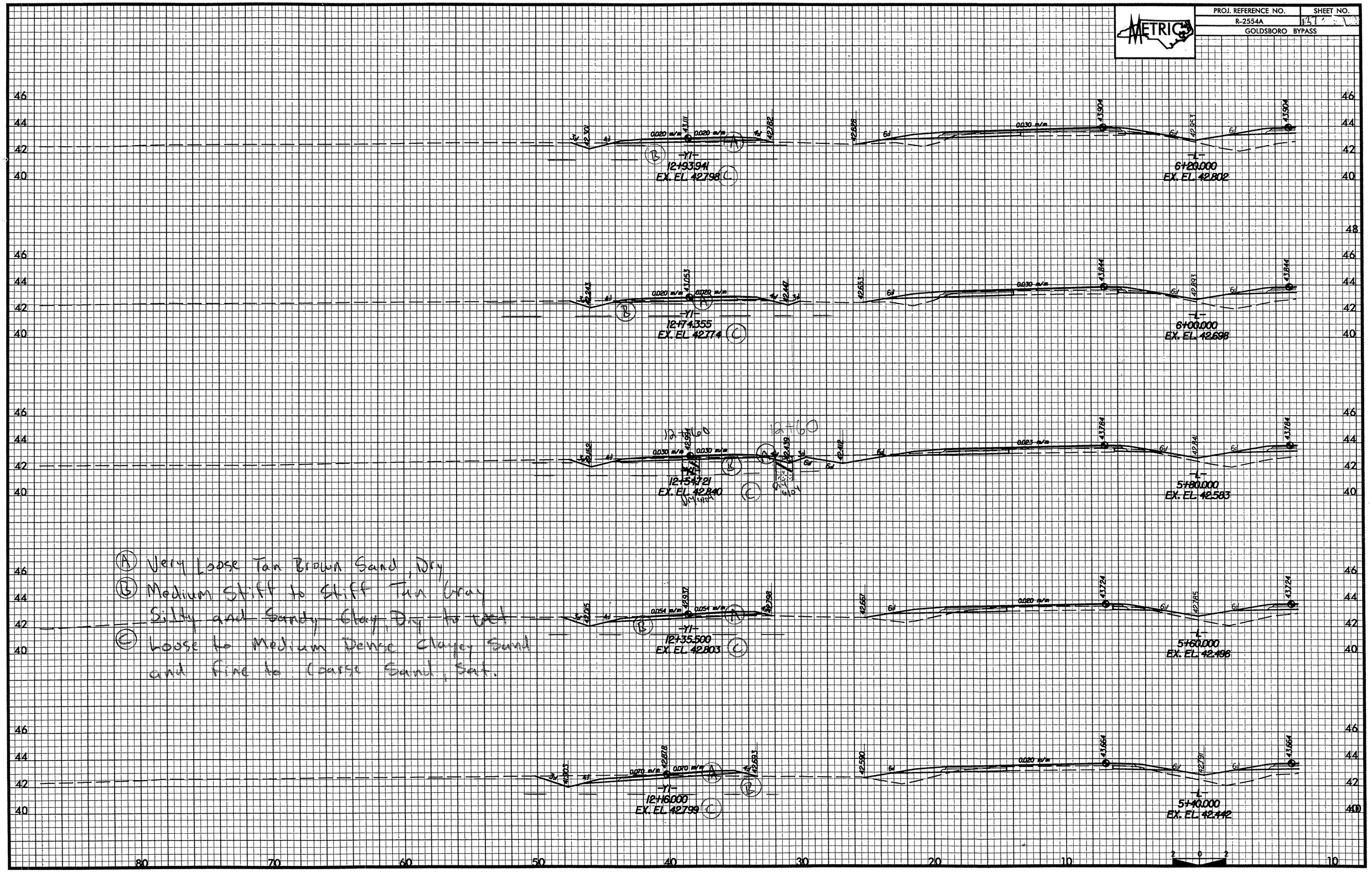


FILE: t:\2554a\roadway\sc\y1\2554a_rdy_xsl_y1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	

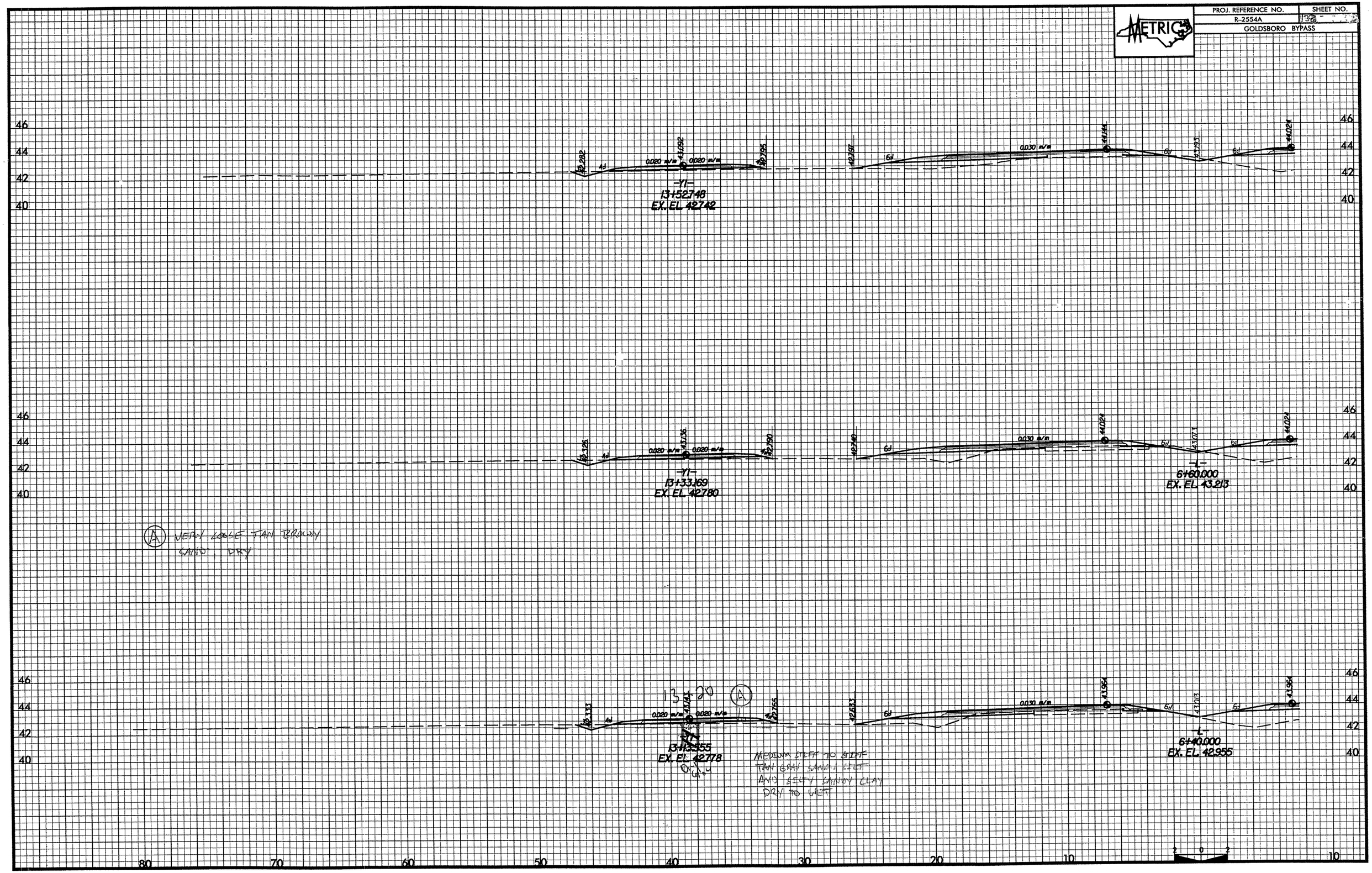


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	151
GOLDSBORO BYPASS	



(A) Very Loose Tan Brown Sand, Dry
(B) Medium Stiff to Stiff Tan Gray Silty and Sandy Clay, Dry to wet
(C) Loose to Medium Dense clayey Sand and fine to Coarse Sand, Sat.

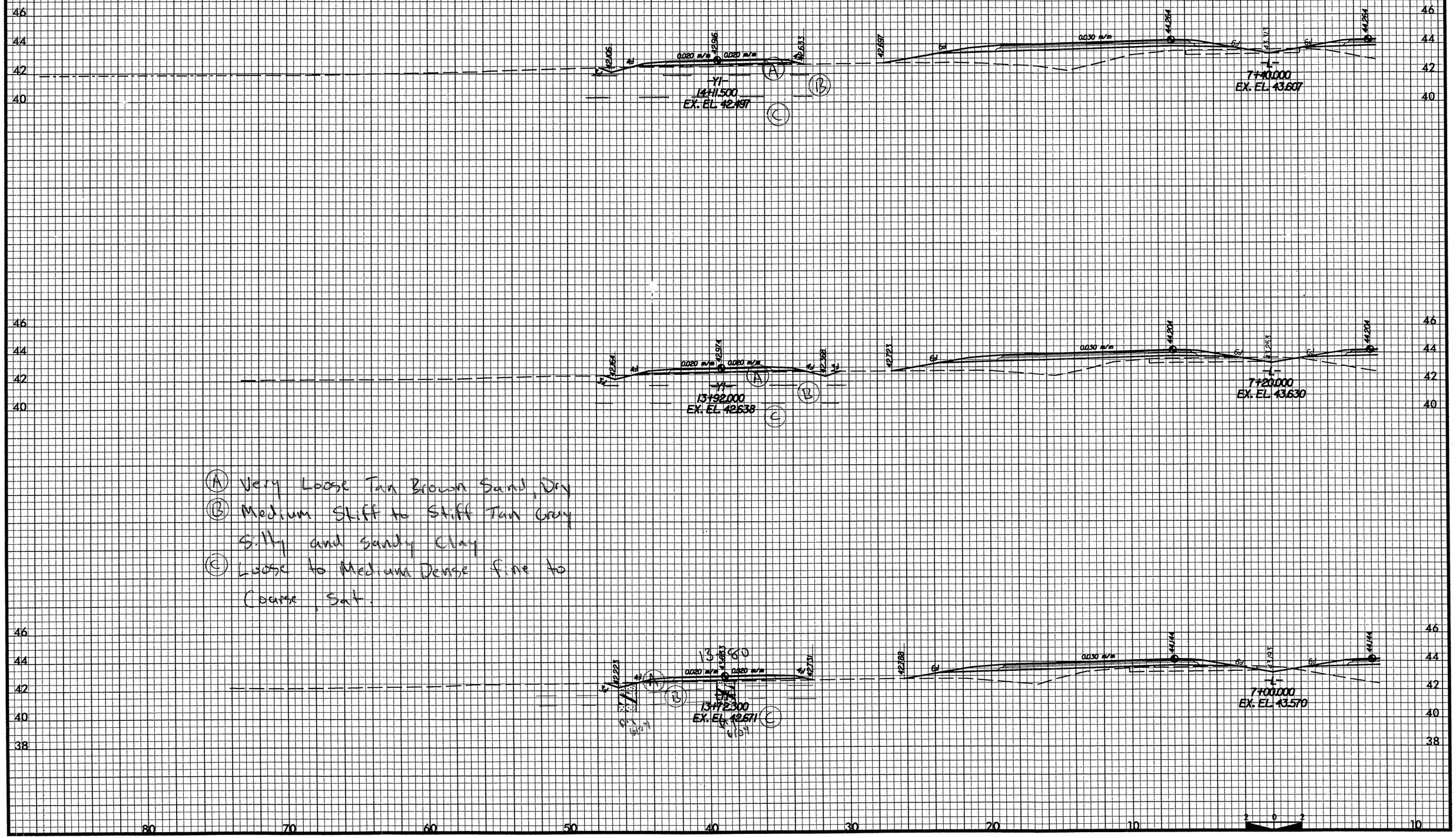
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	13
GOLDSBORO BYPASS	



A VERY LOOSE TAN BROWN SAND DRY

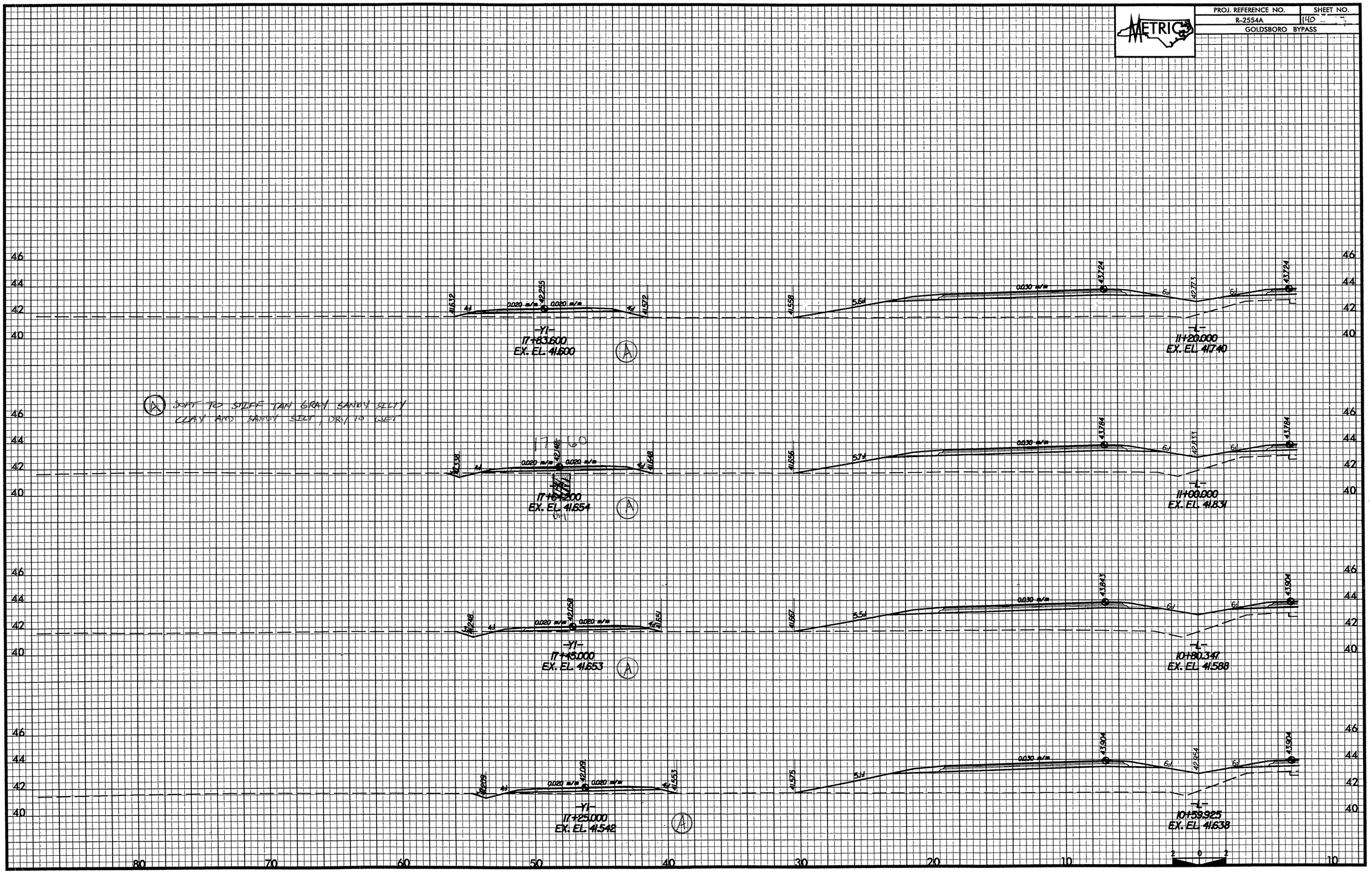
MEDIUM STIFF TO STIFF TAN GRAY SANDY SILT AND SILTY SANDY CLAY DRY TO WET

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	139
GOLDSBORO BYPASS	

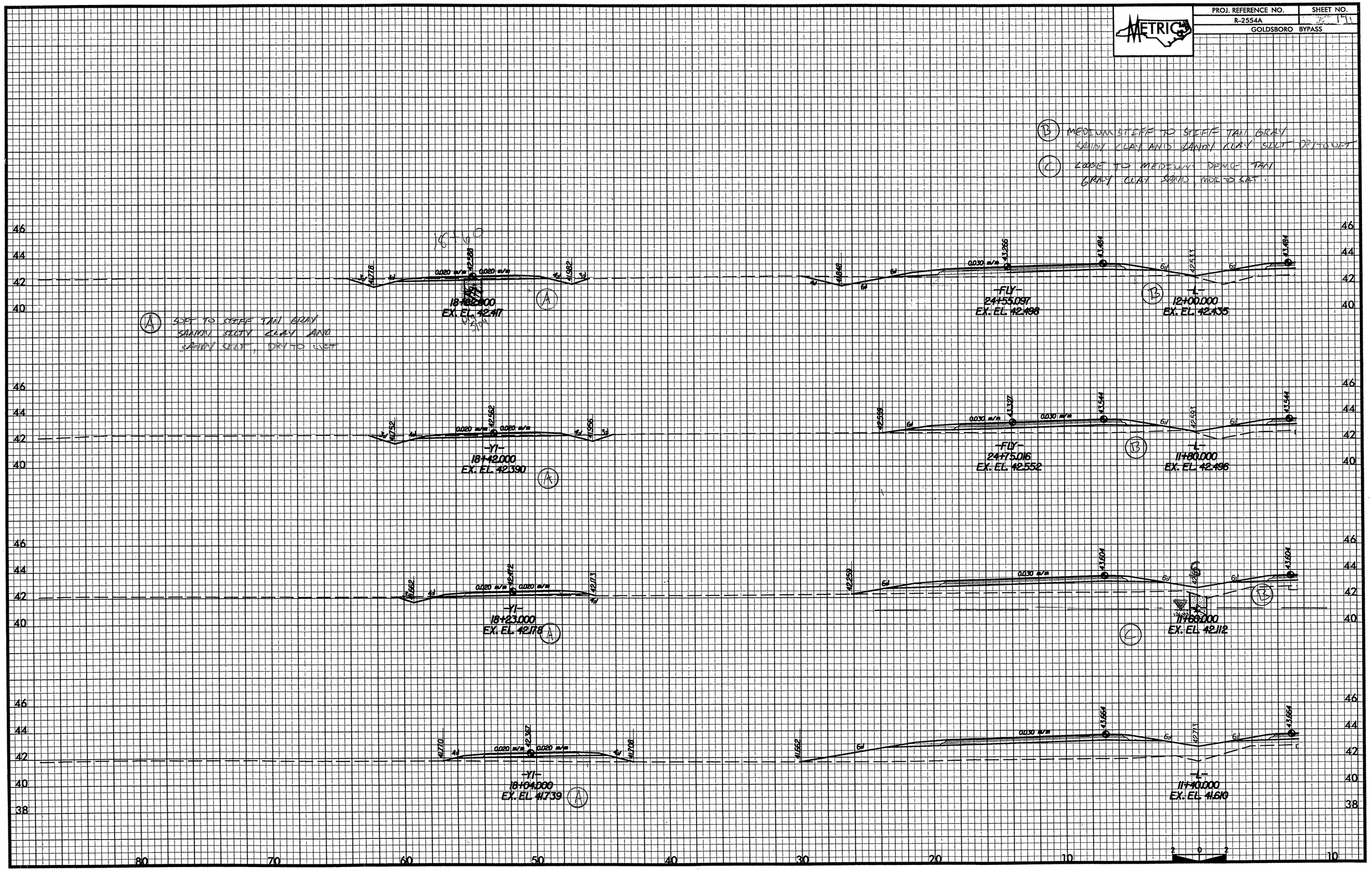


(A) Very Loose Tan Brown Sand, Dry
(B) Medium Stiff to Stiff Tan Gray Silty and Sandy Clay
(C) Loose to Medium Dense Fine to Coarse, Sat.

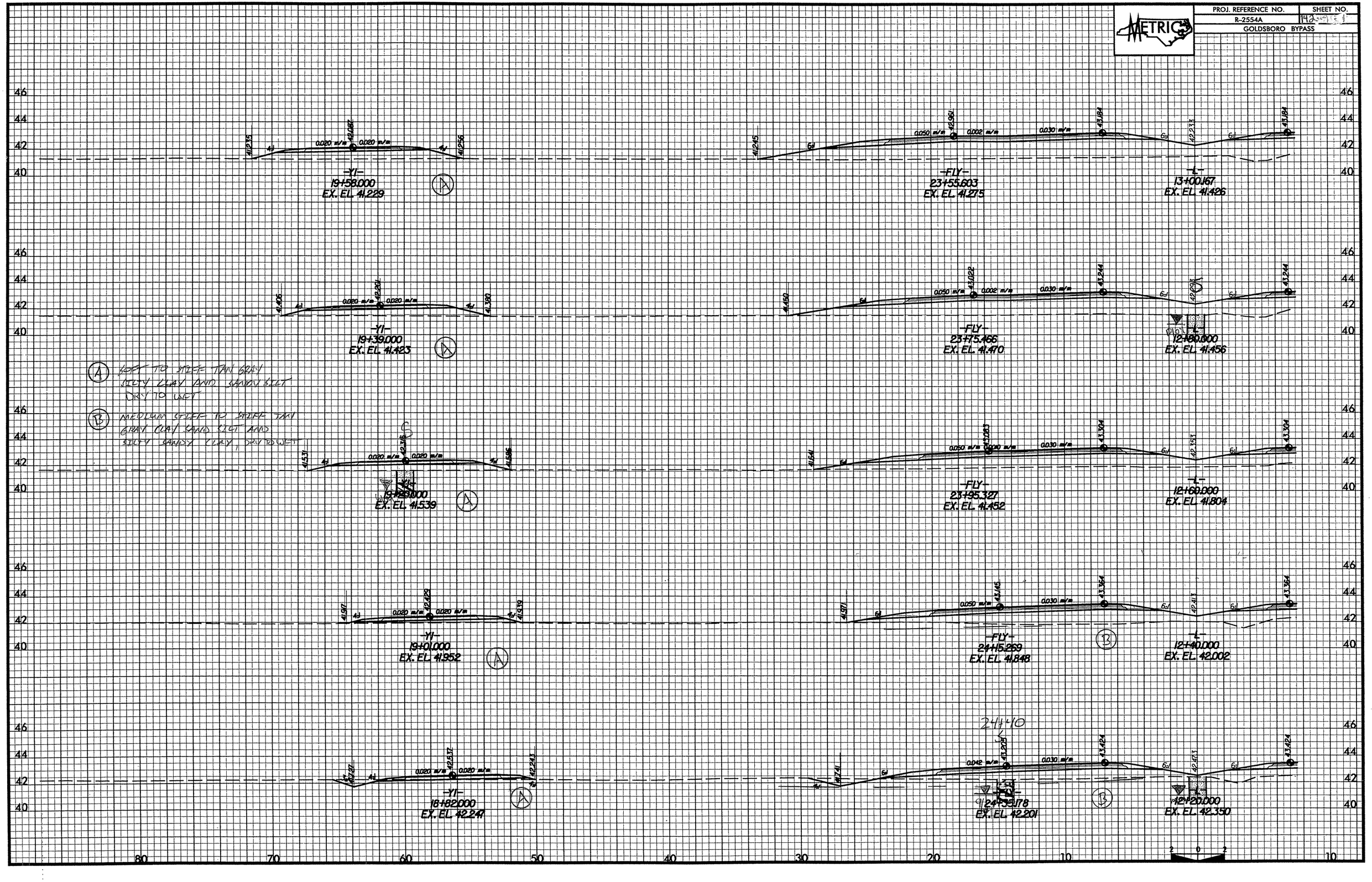
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	14D
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	

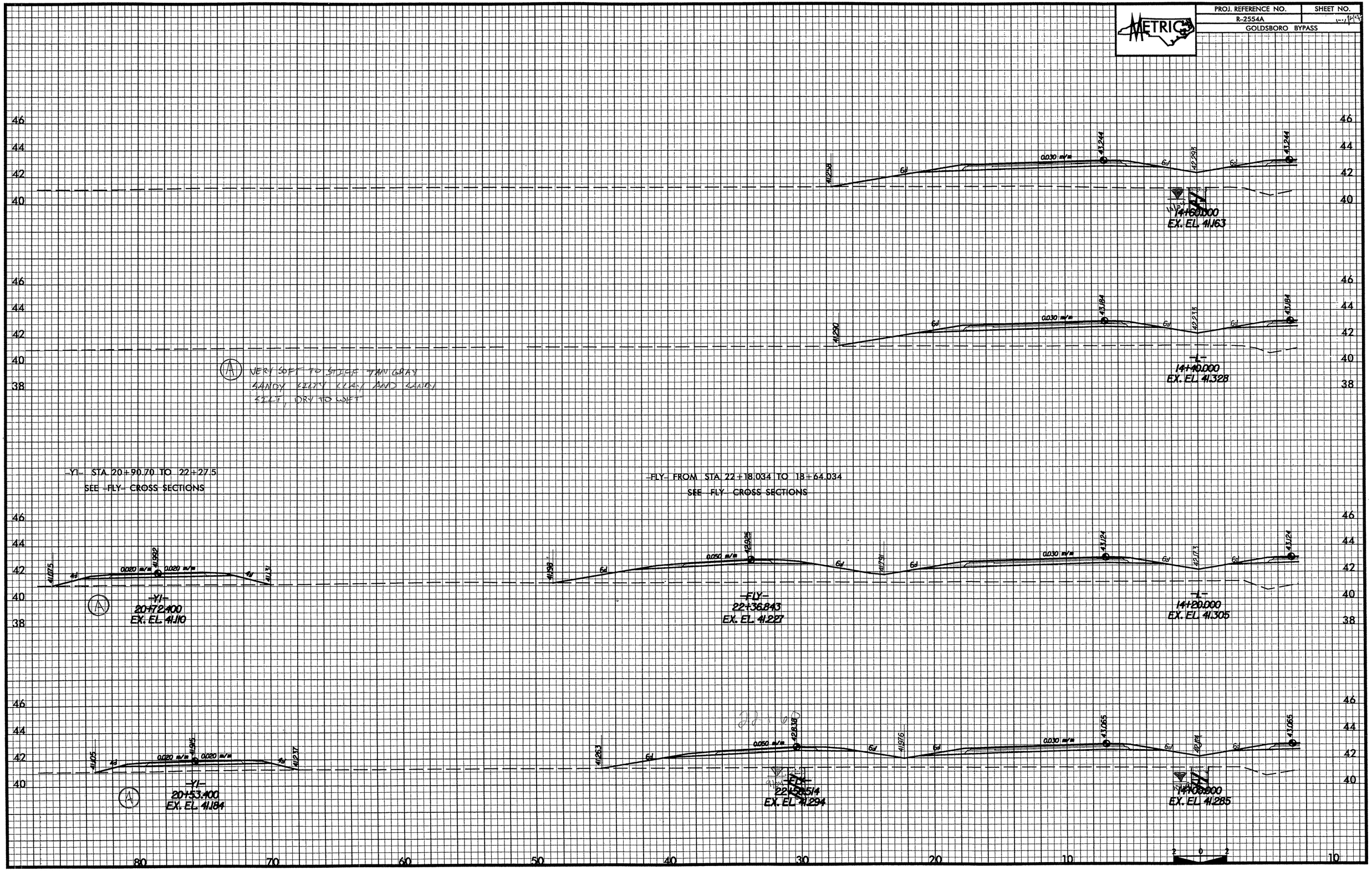


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	142
GOLDSBORO BYPASS	

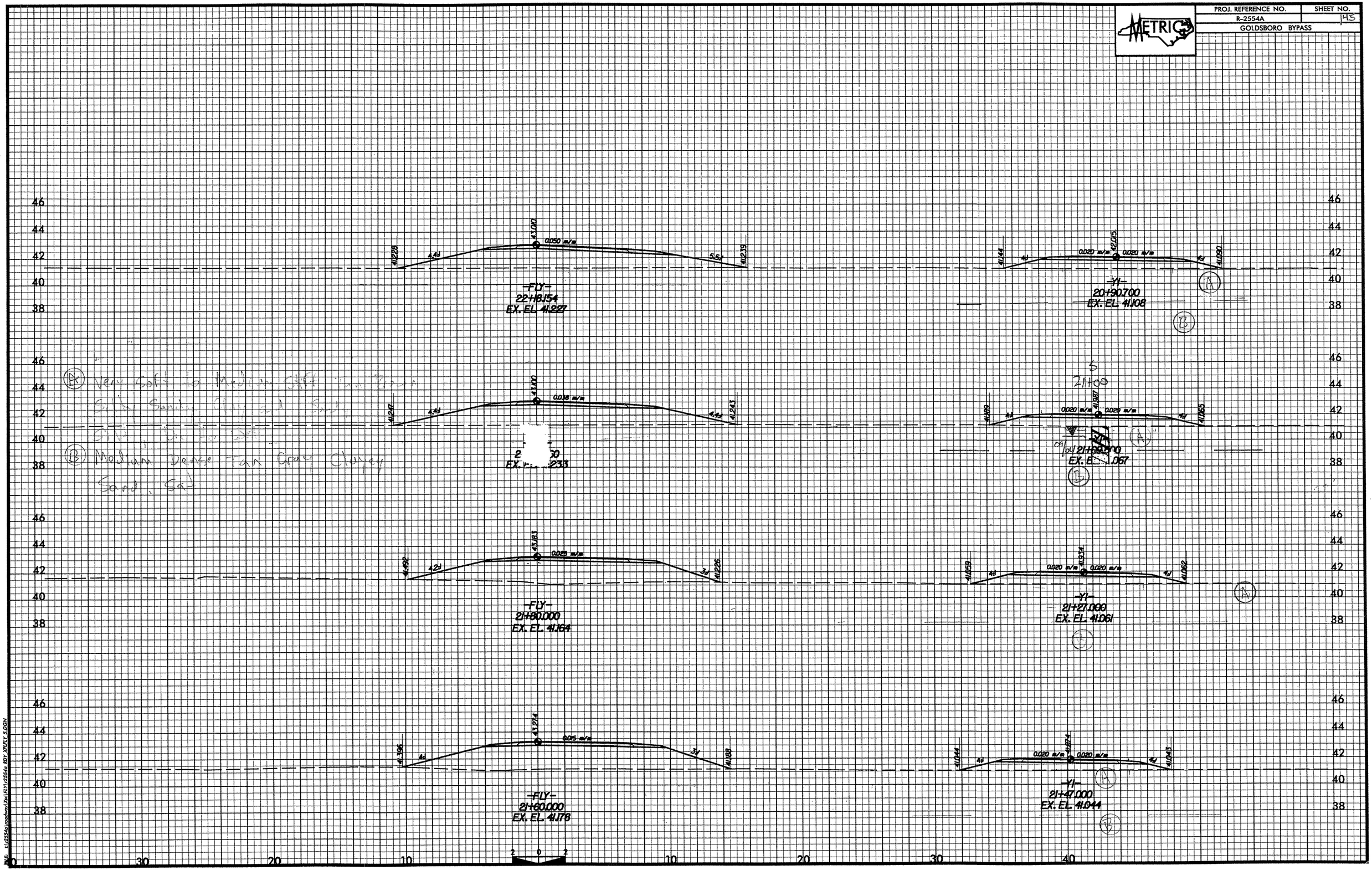


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	



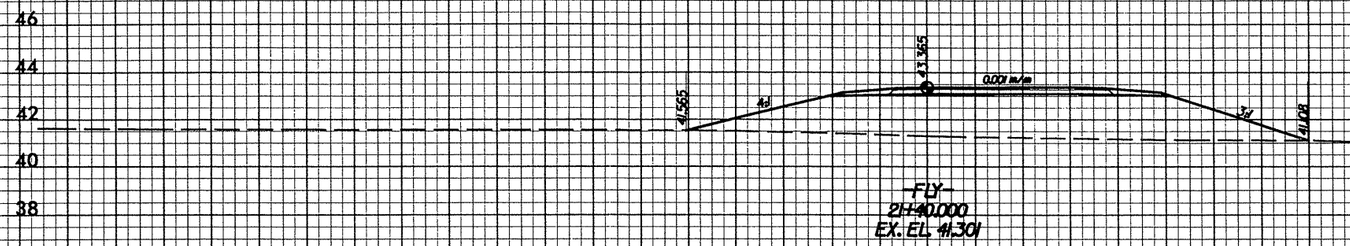
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	45
GOLDSBORO BYPASS	

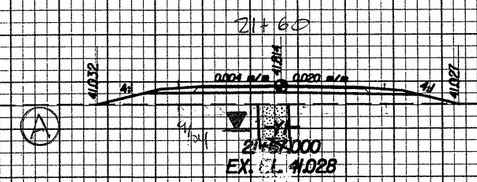


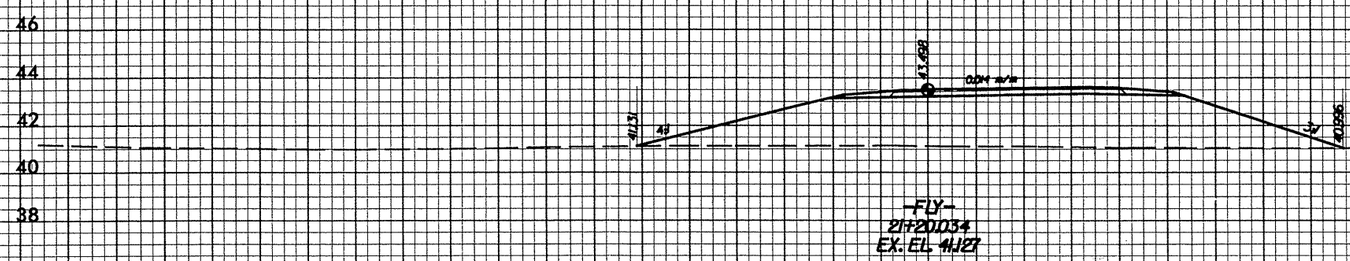
(A) Very Soft to Medium Stiff Tan Brown Silty Sandy Clay and Sand Silty Tan to Wet

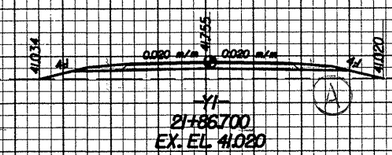
(B) Medium Dense Tan Gray Clayey Sand, Sat

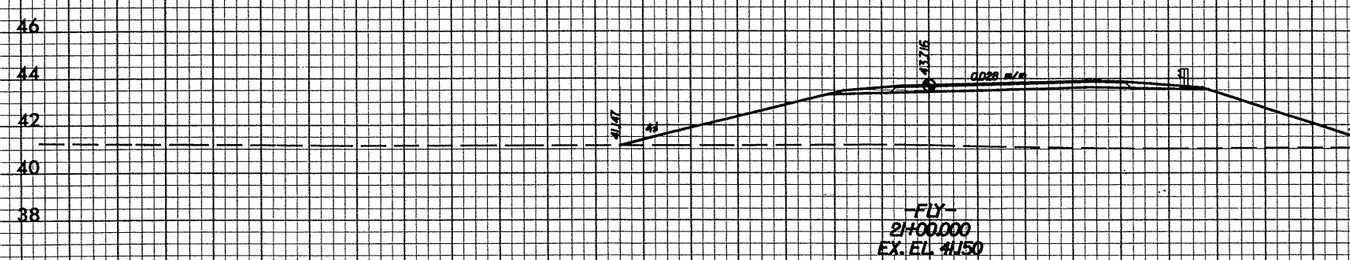
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	16
GOLDSBORO BYPASS	

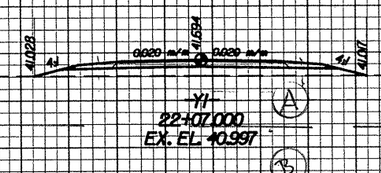


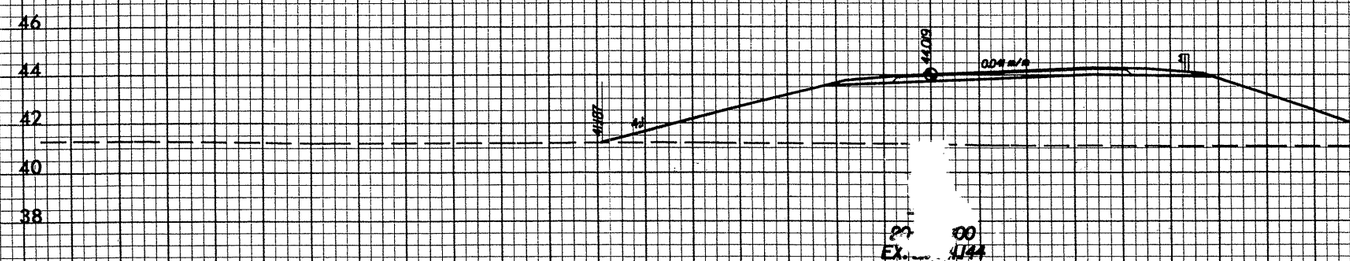


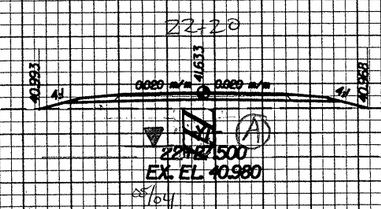






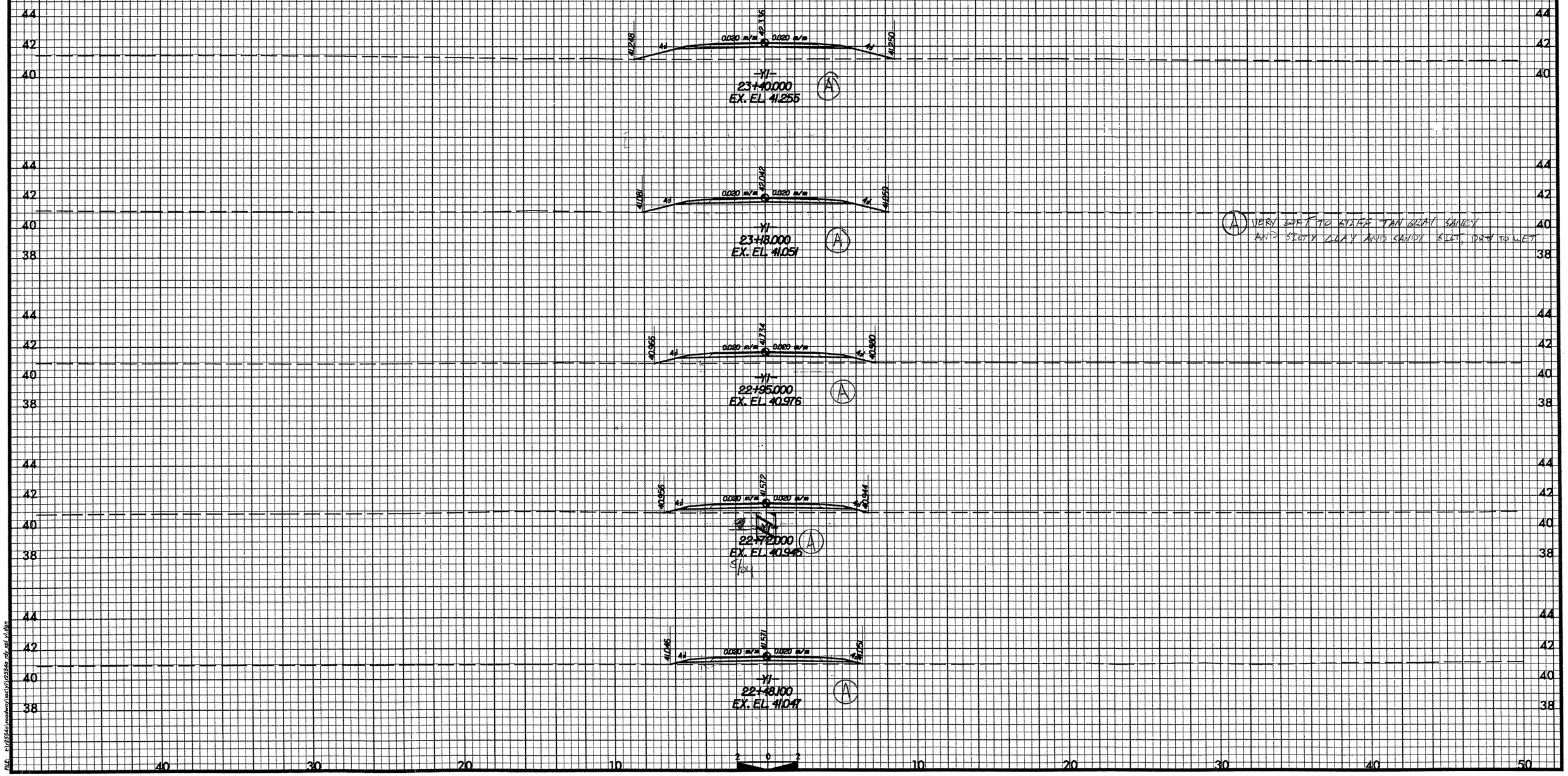






FILE: t:\2554a\roadway\xs\FLY\2554a RDY XPFLY 5.DGN

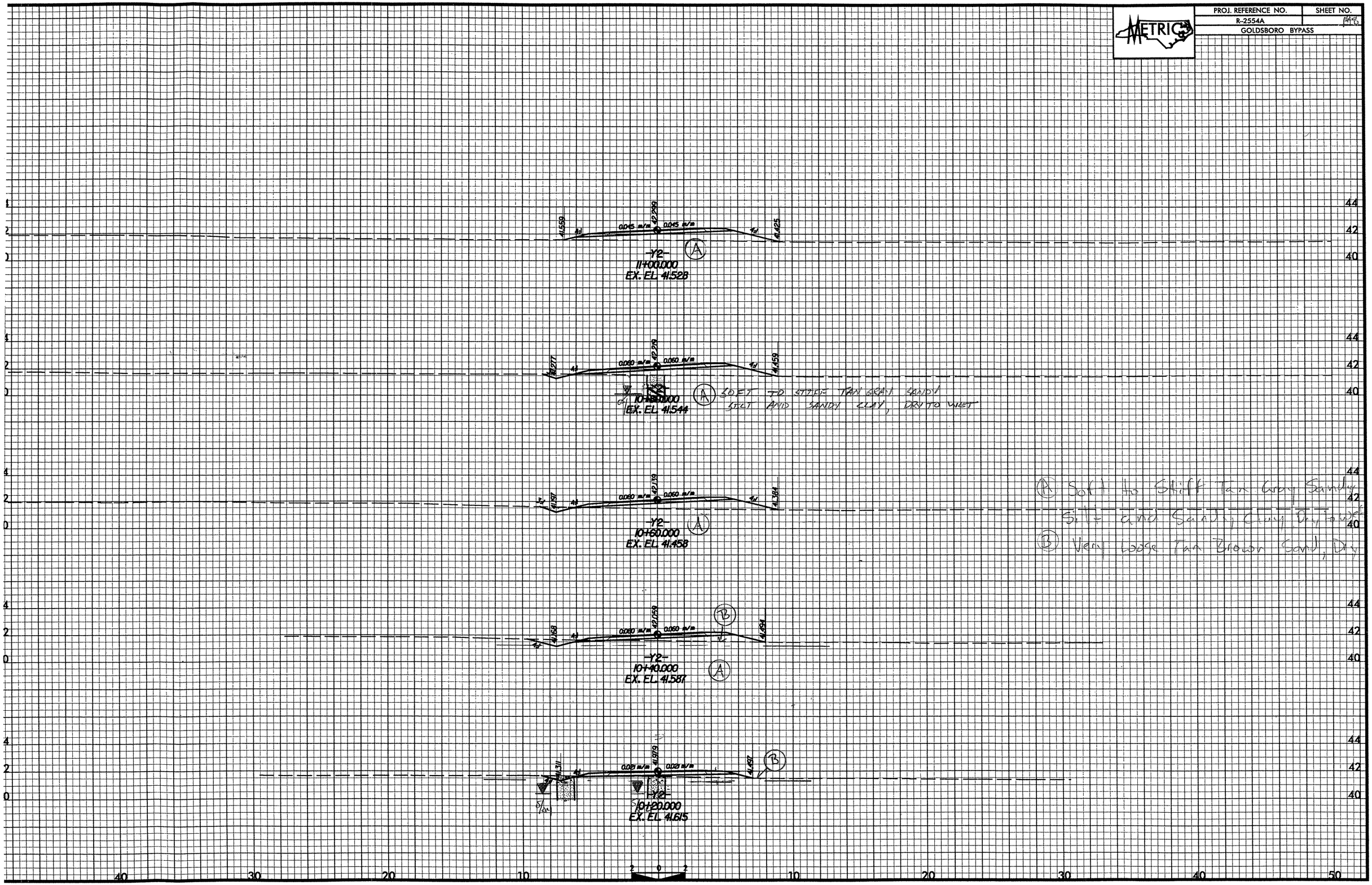
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	19
GOLDSBORO BYPASS	



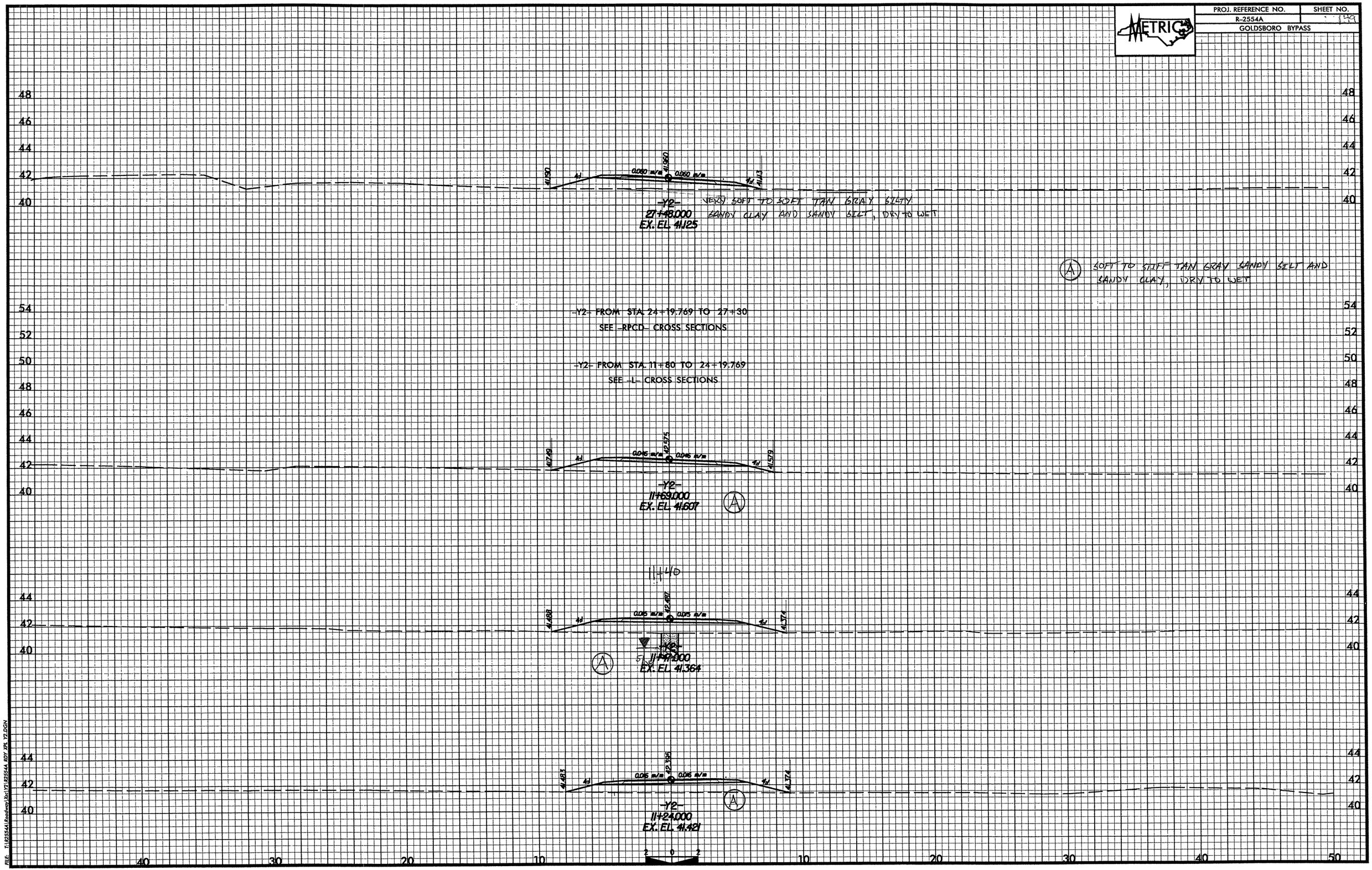
A VERY SOFT TO STIFF TAN GRAY SANDY AND SILTY CLAY AND SANDY SILT, DRY TO WET

FILE: f:\2554a\roadway\sec\y1\2554a rdy sel y1.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	148
GOLDSBORO BYPASS	

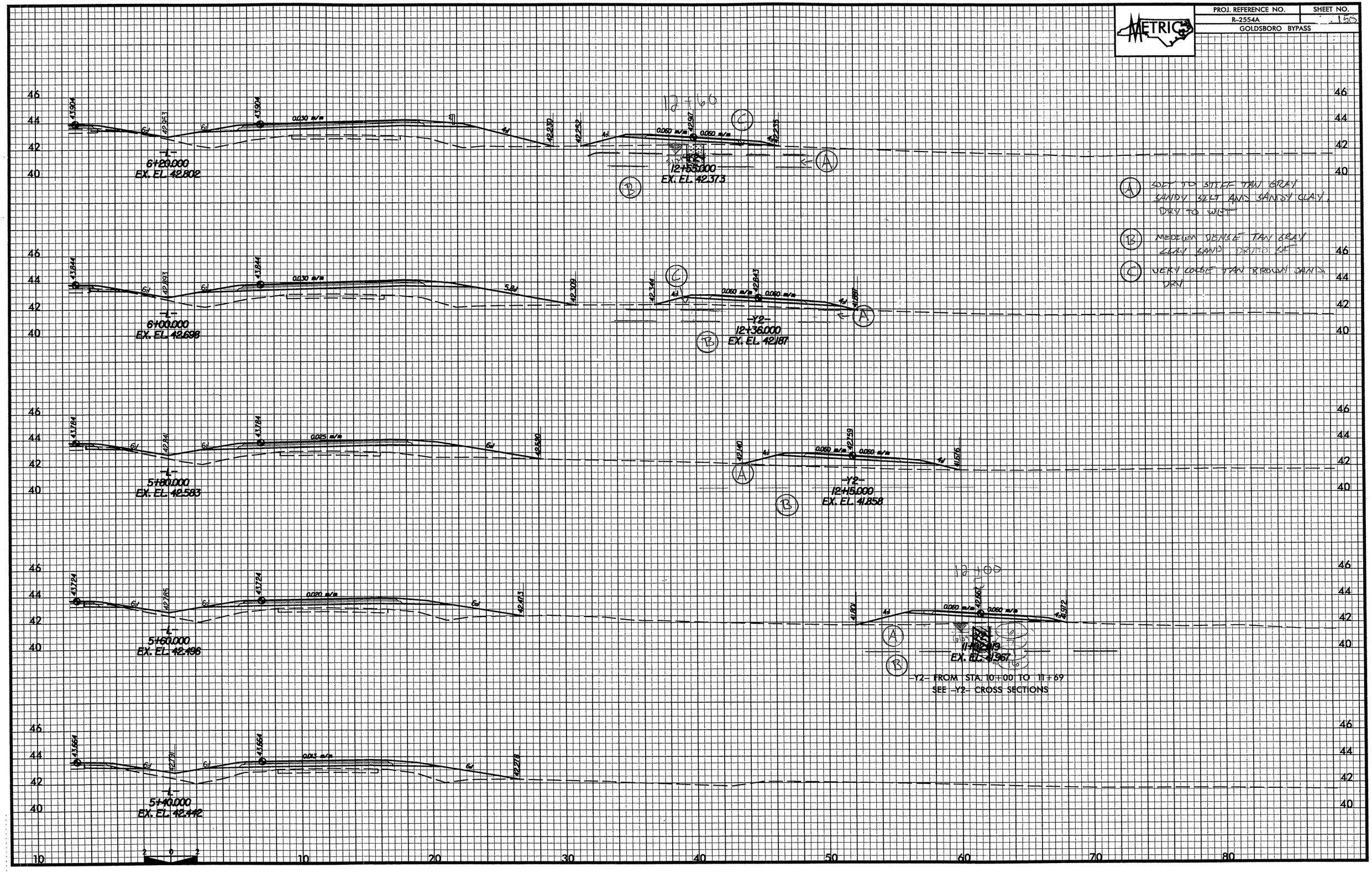


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	129
GOLDSBORO BYPASS	

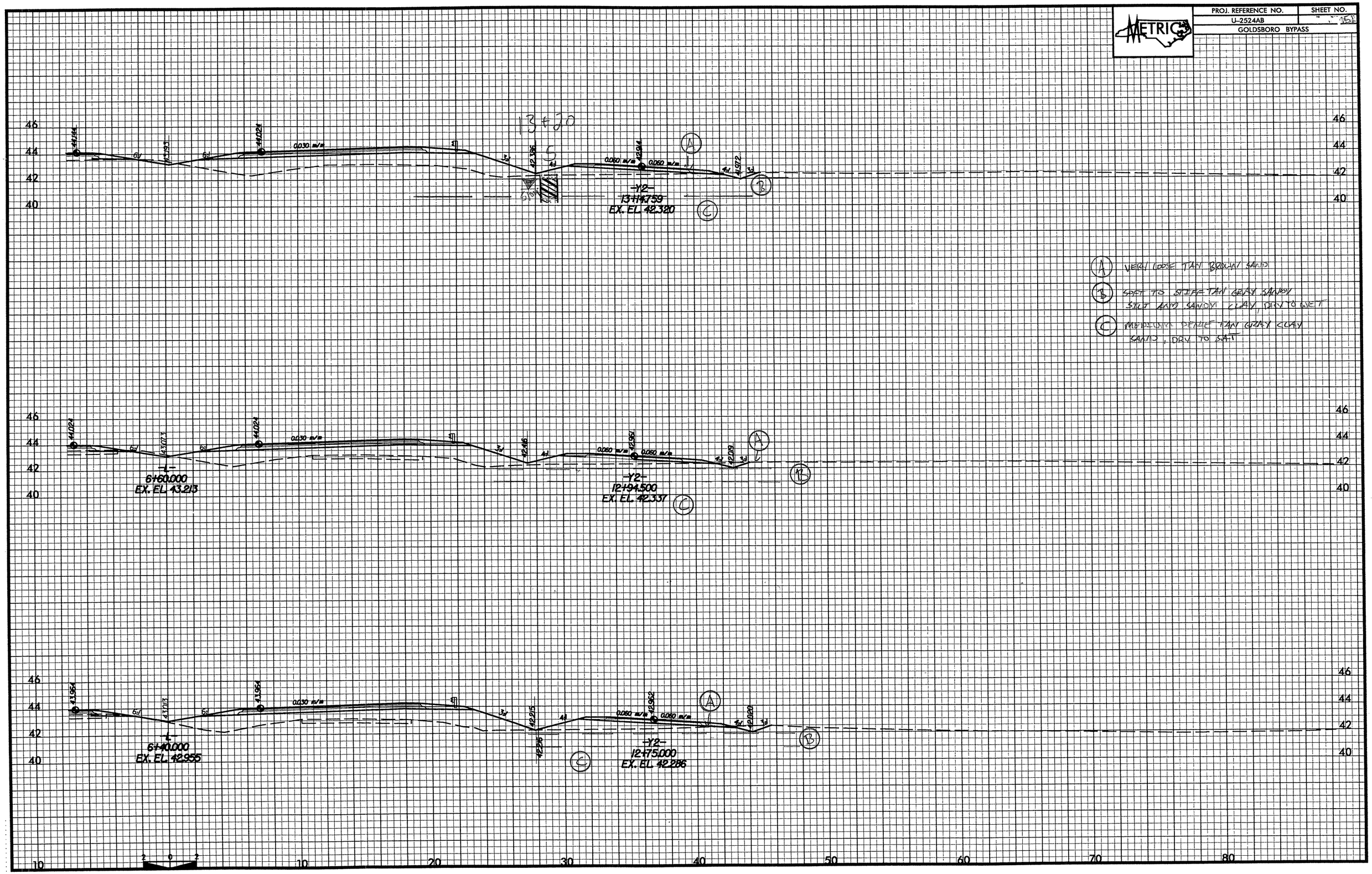


FILE: T:\R2554A\Roadway\Xsc\Y2\R2554A RDY 1PL Y2.DGN

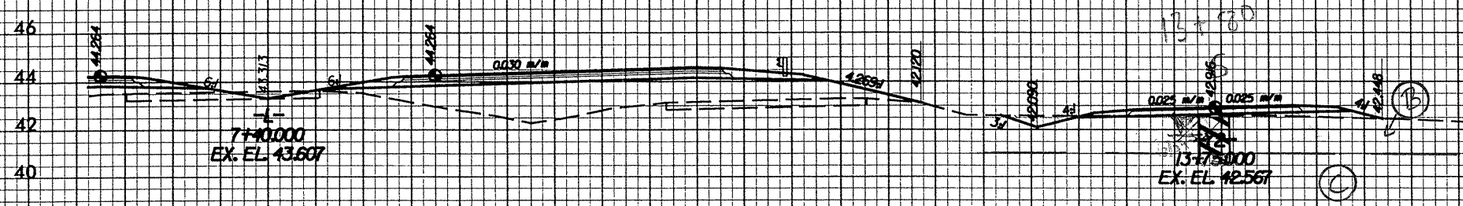
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	150
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
U-2524AB	
GOLDSBORO BYPASS	



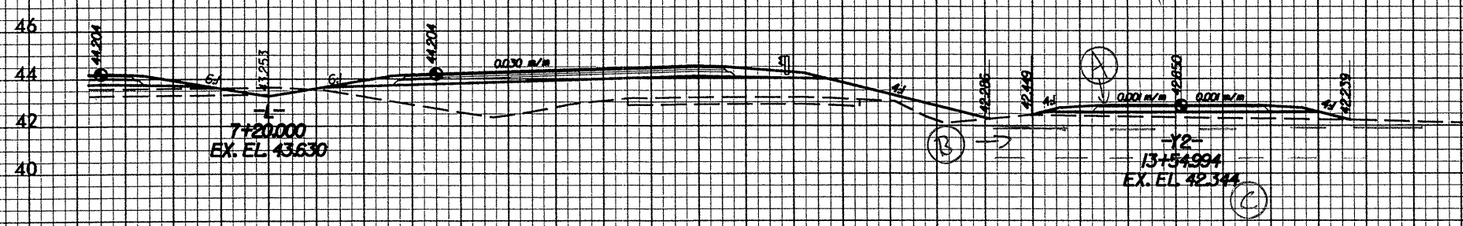
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	15
GOLDSBORO BYPASS	

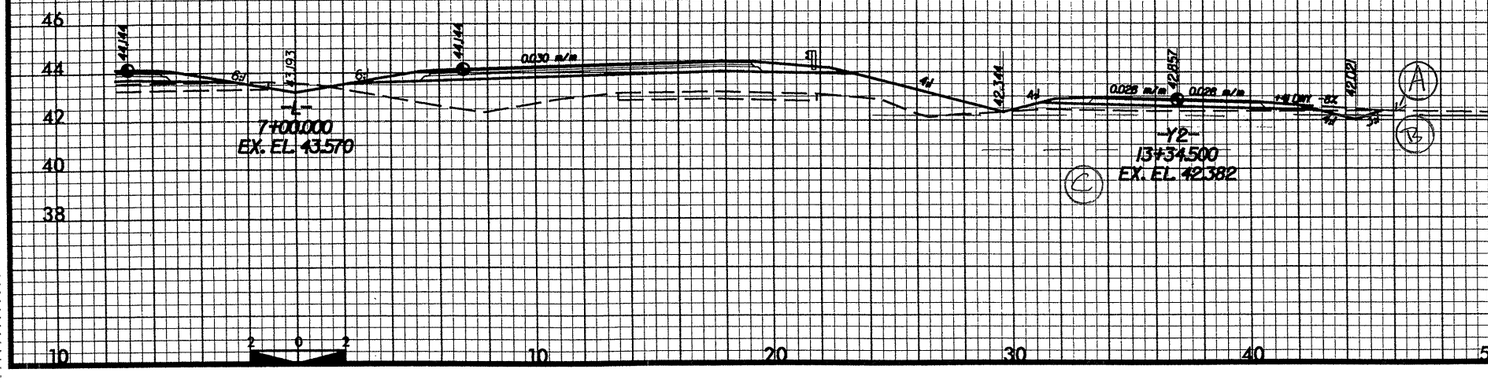


A VERY COARSE TAN BROWN SAND, DRY

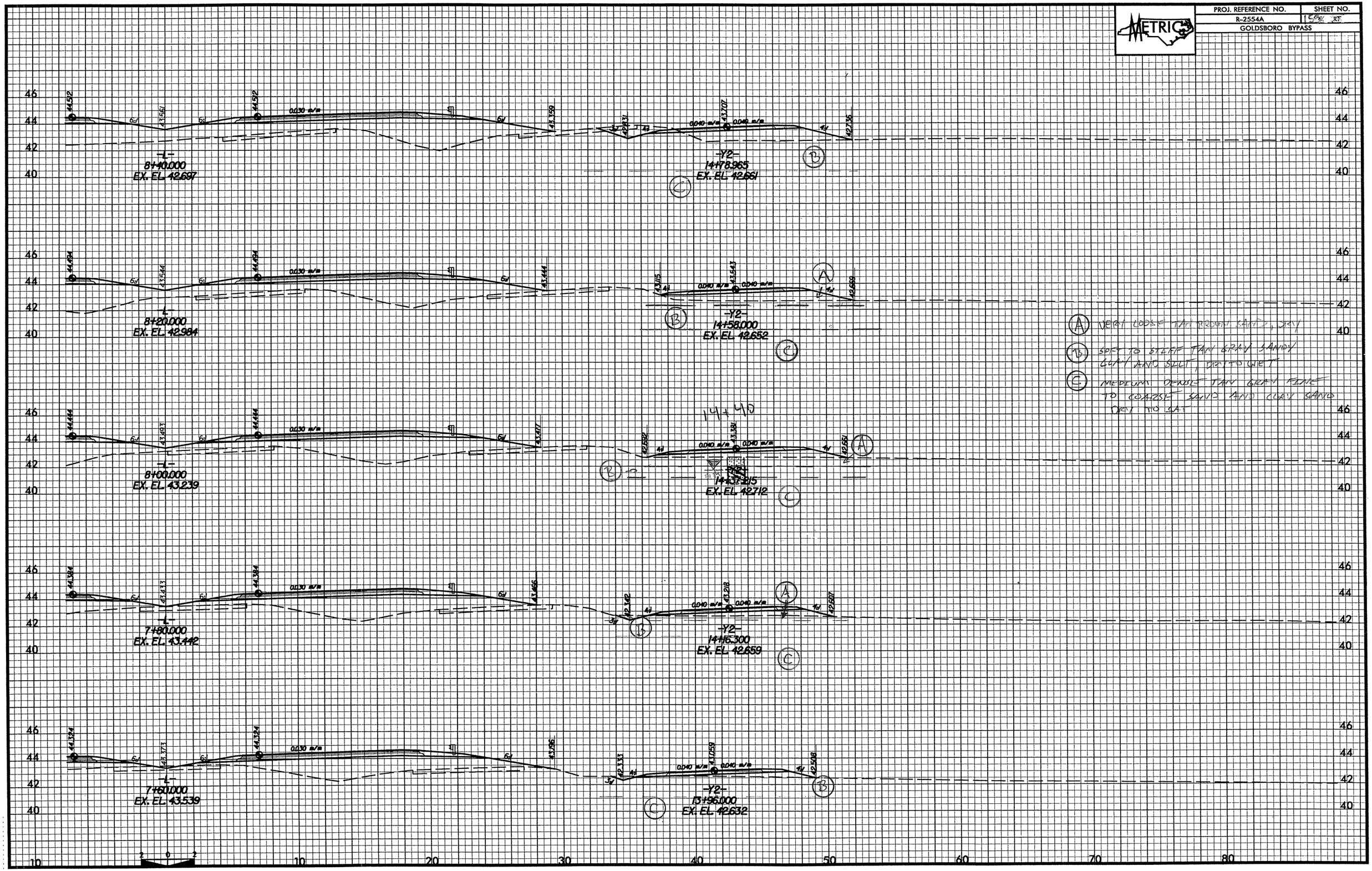
B SOFT TO STIFF TAN GRAY SANDY CLAY AND SILT, DRY TO WET

C MEDIUM DENSE TAN GRAY FINE TO COARSE SAND AND CLAY SAND, DRY TO SAT

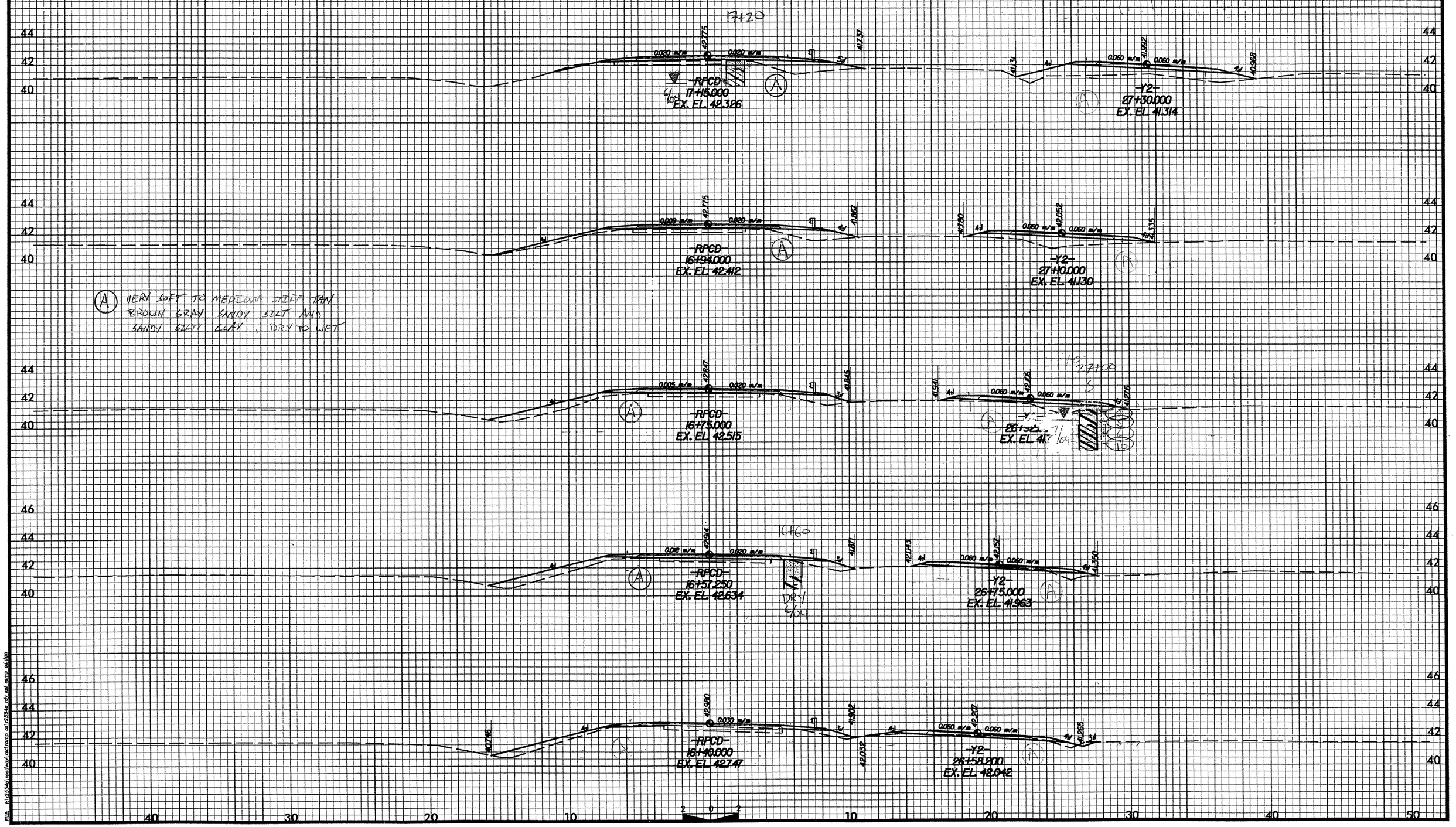




PROJ. REFERENCE NO.	SHEET NO.
R-2554A	15B
GOLDSBORO BYPASS	

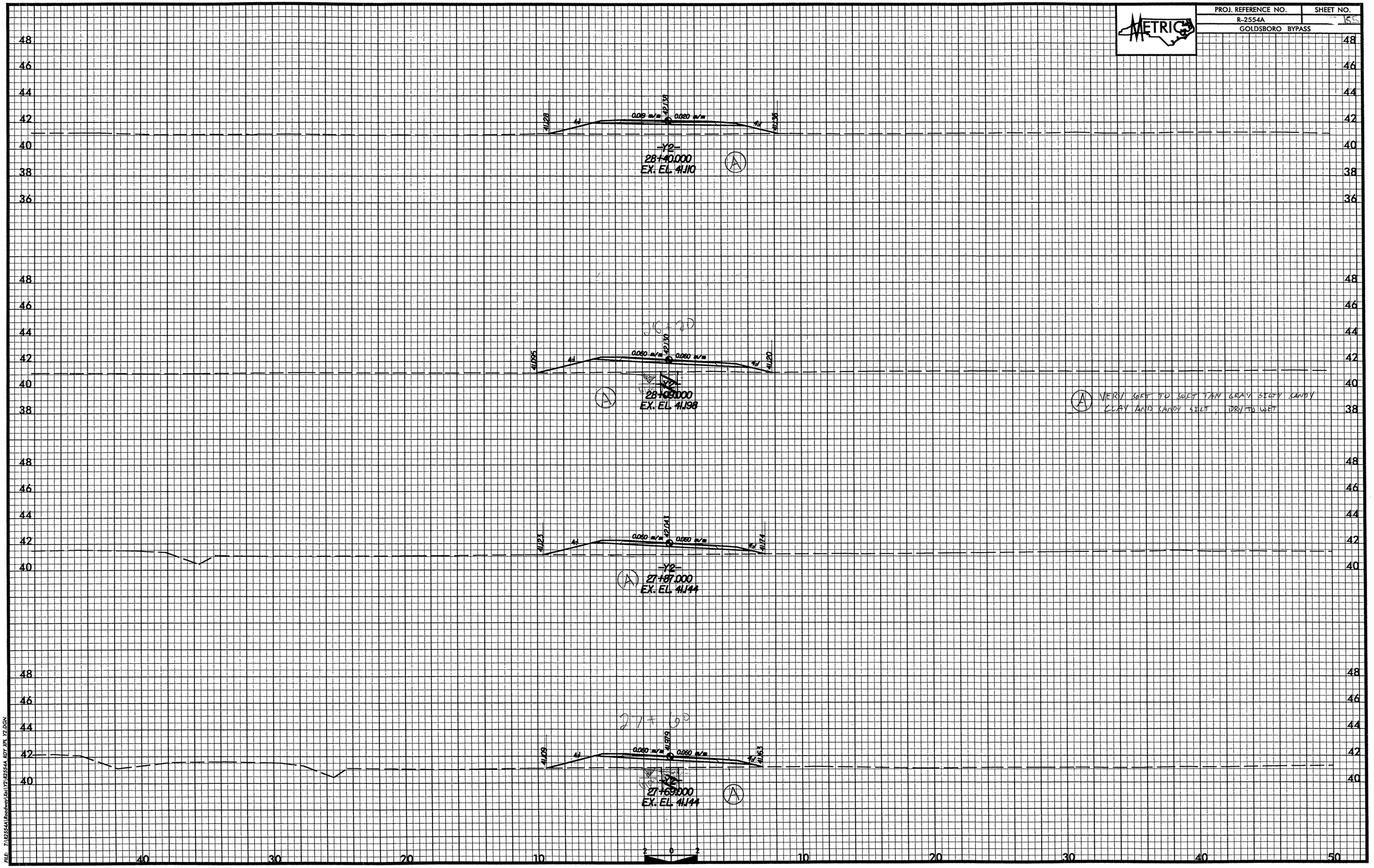


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	15A
GOLDSBORO BYPASS	



(A) VERY SOFT TO MEDIUM STIFF TAN BROWN GRAY SANDY SILT AND SANDY SILTY CLAY, DRY TO WET

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	55
GOLDSBORO BYPASS	



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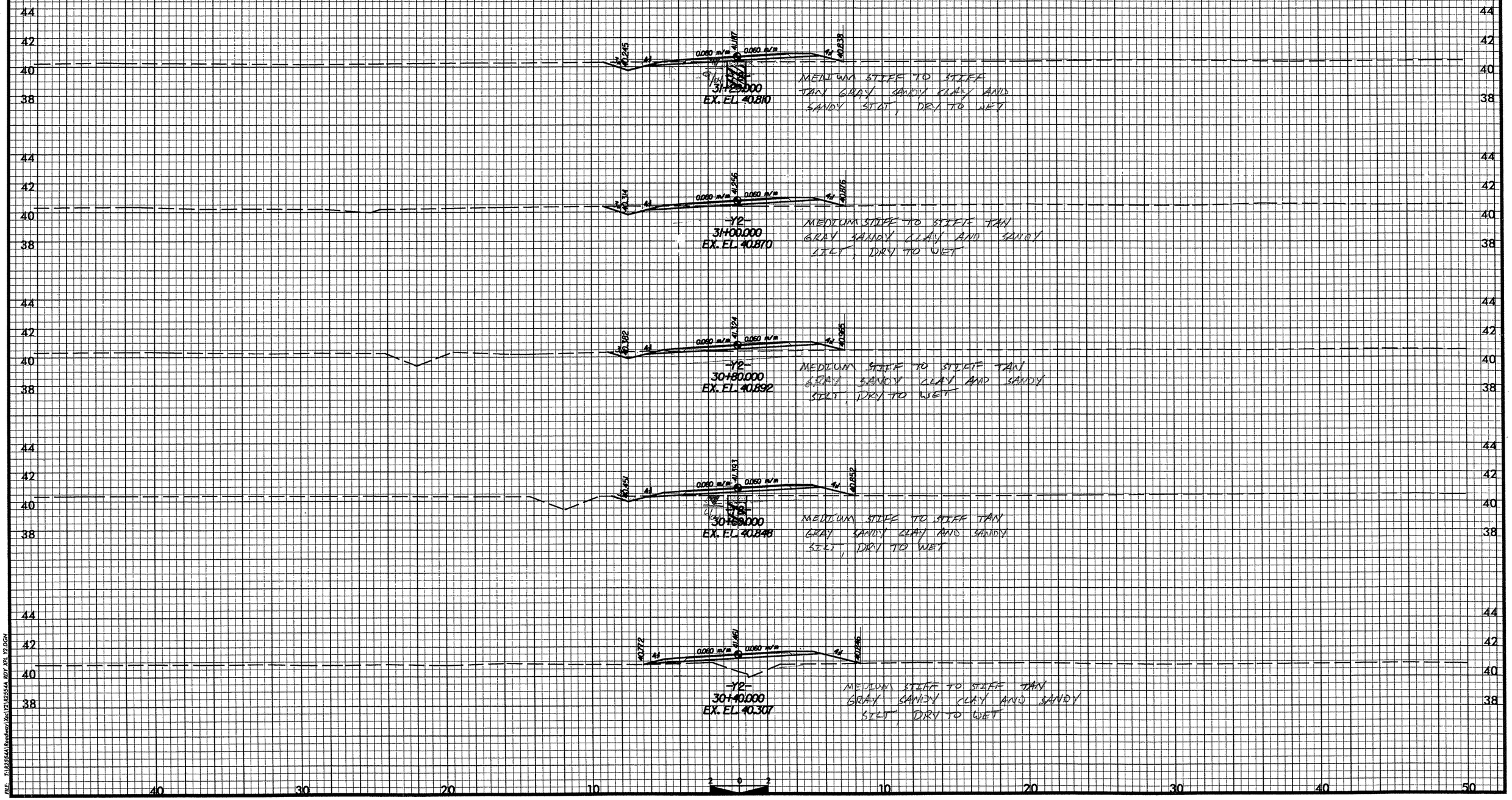
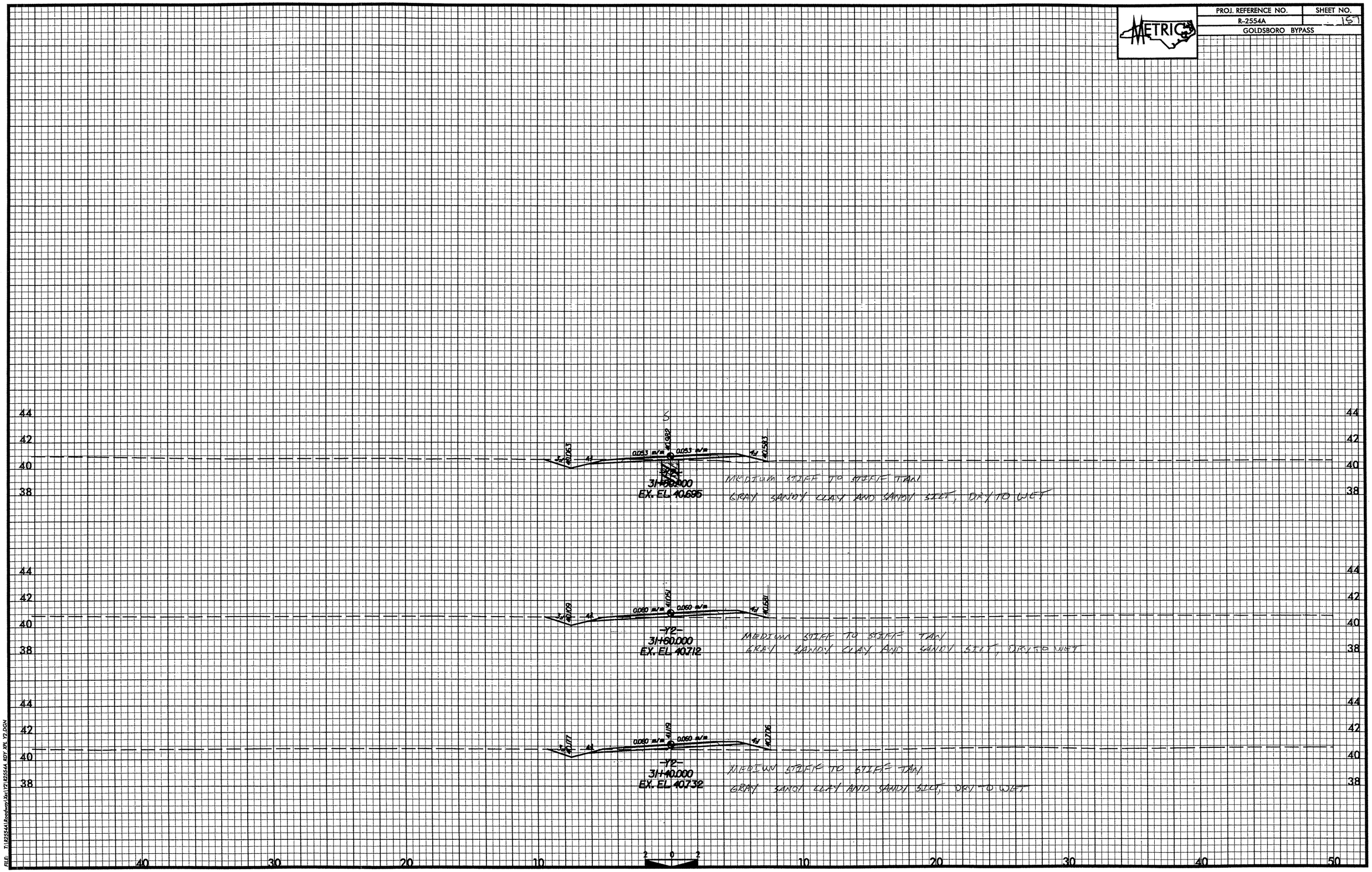
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	30
GOLDSBORO BYPASS	



FILE: T:\R2554A\Roadway\Xs\Y2\R2554A_RDY_XPL_Y2.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	15
GOLDSBORO BYPASS	



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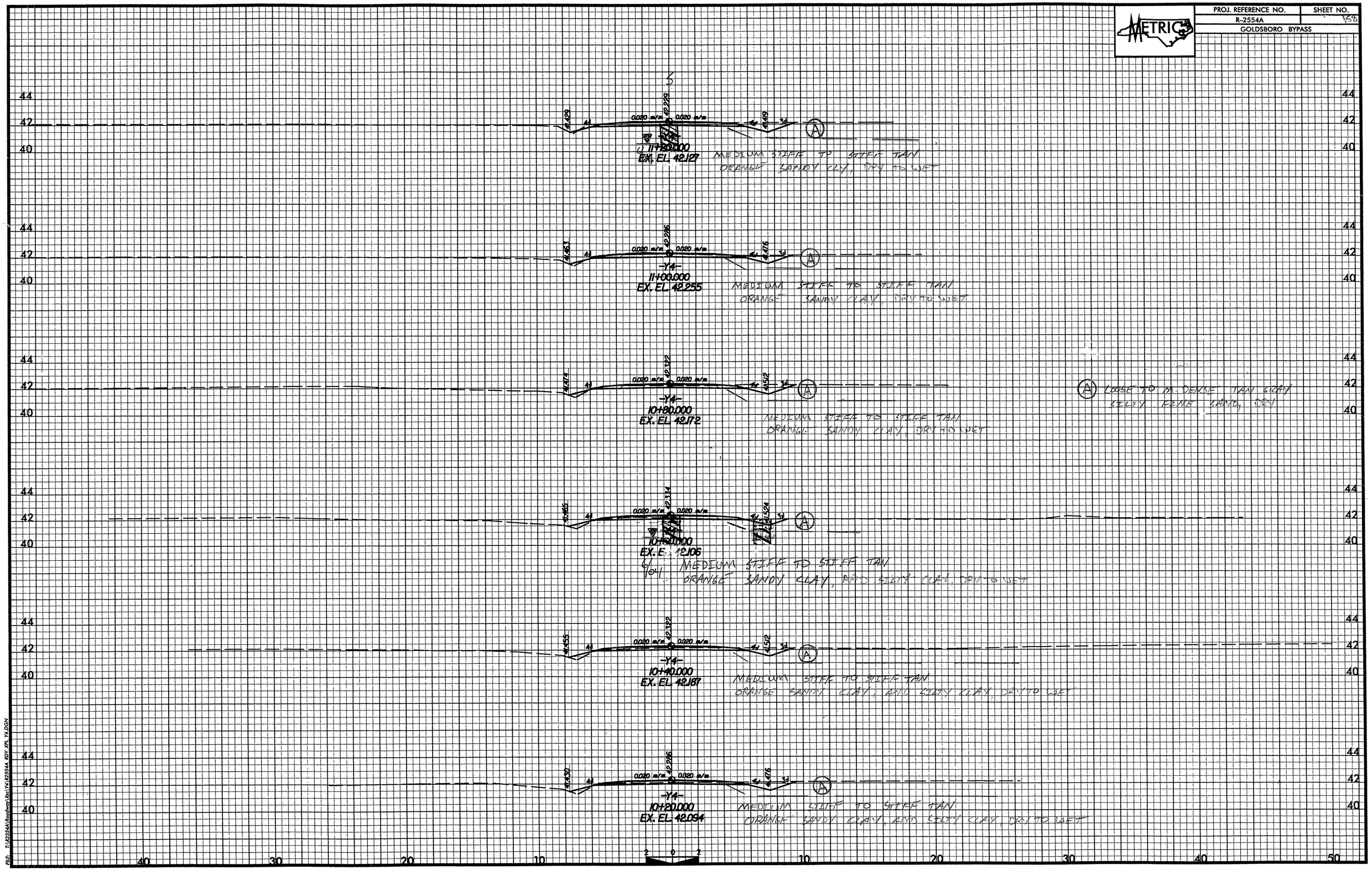

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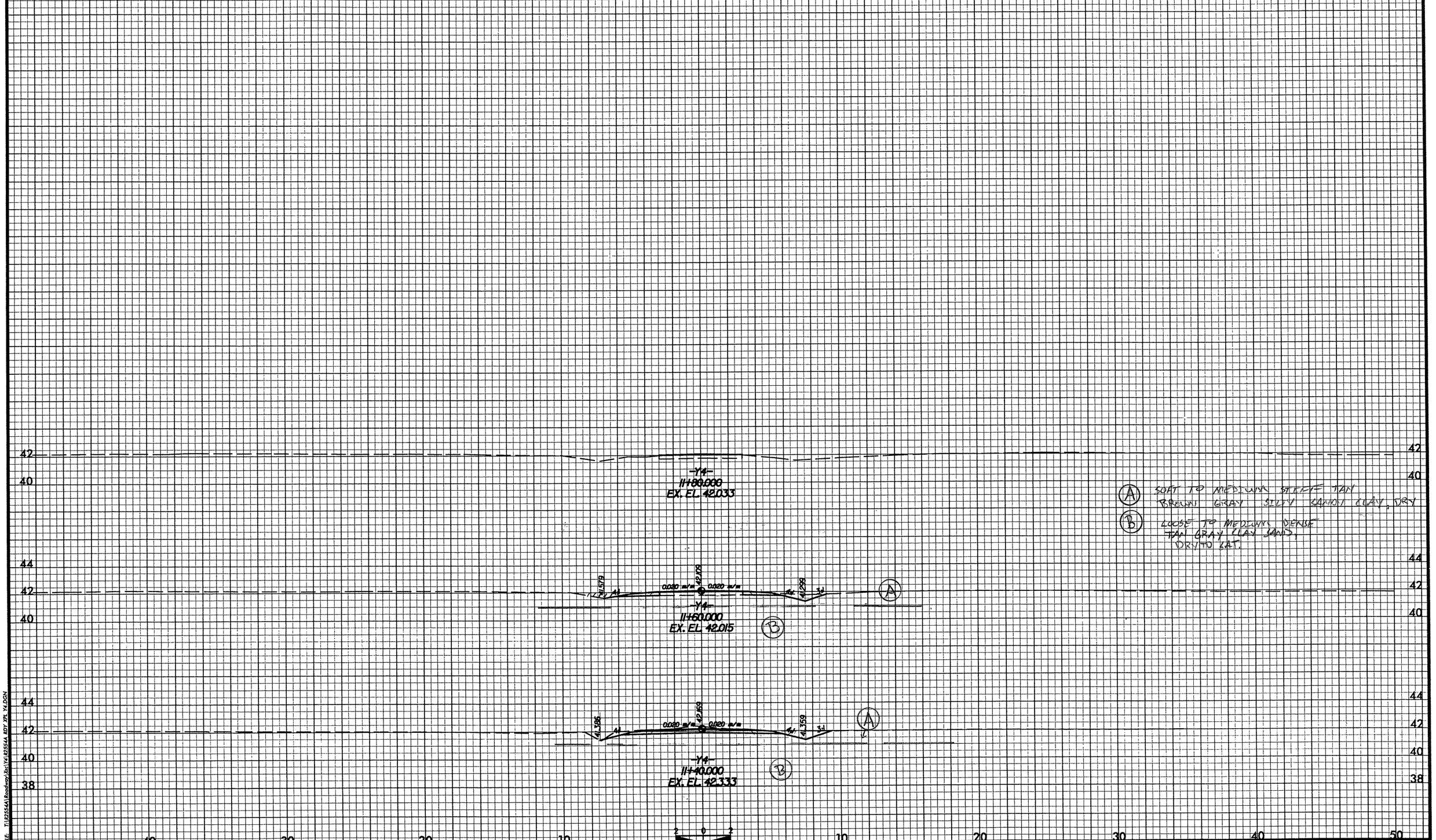
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	159
GOLDSBORO BYPASS	



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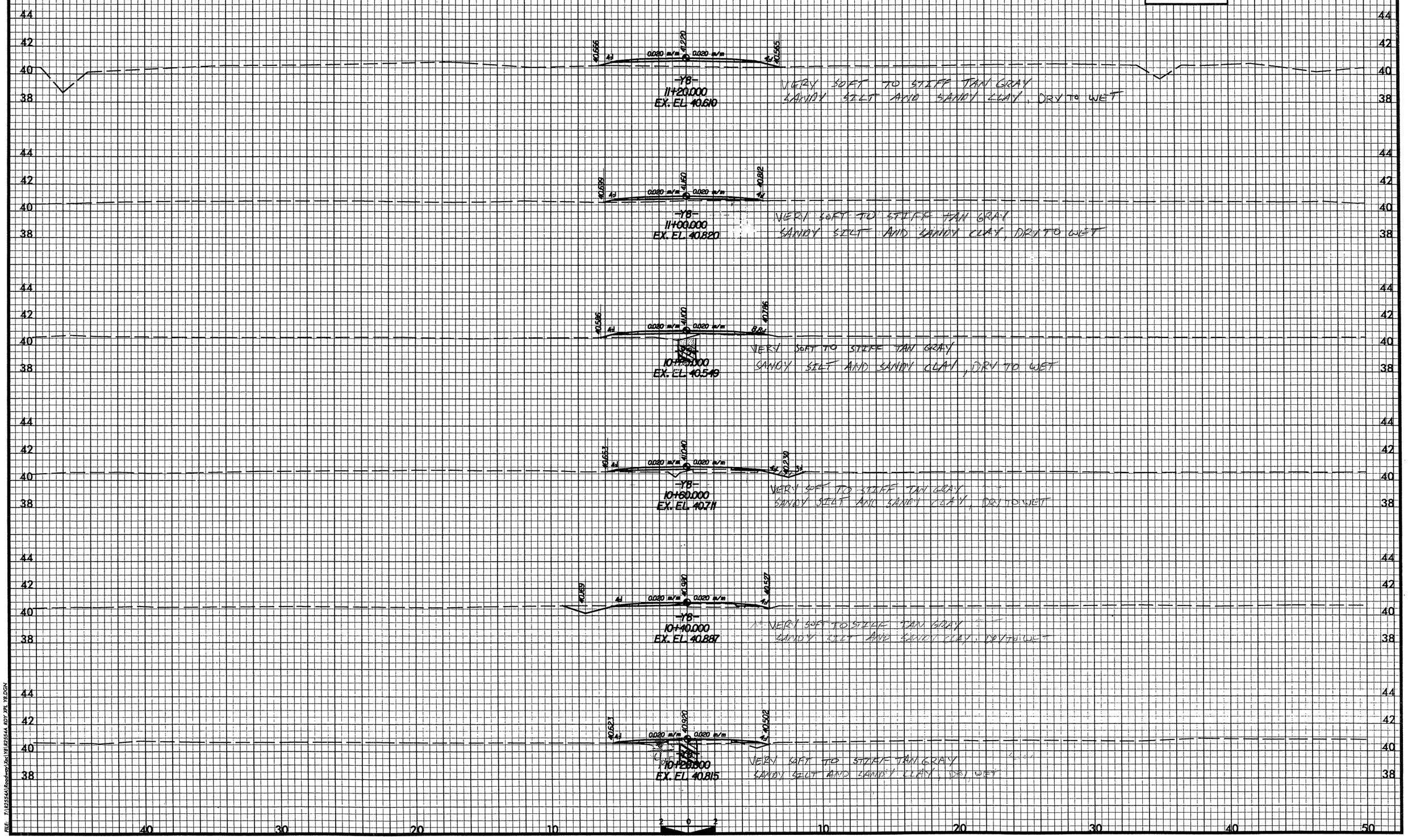
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	169
GOLDSBORO BYPASS	



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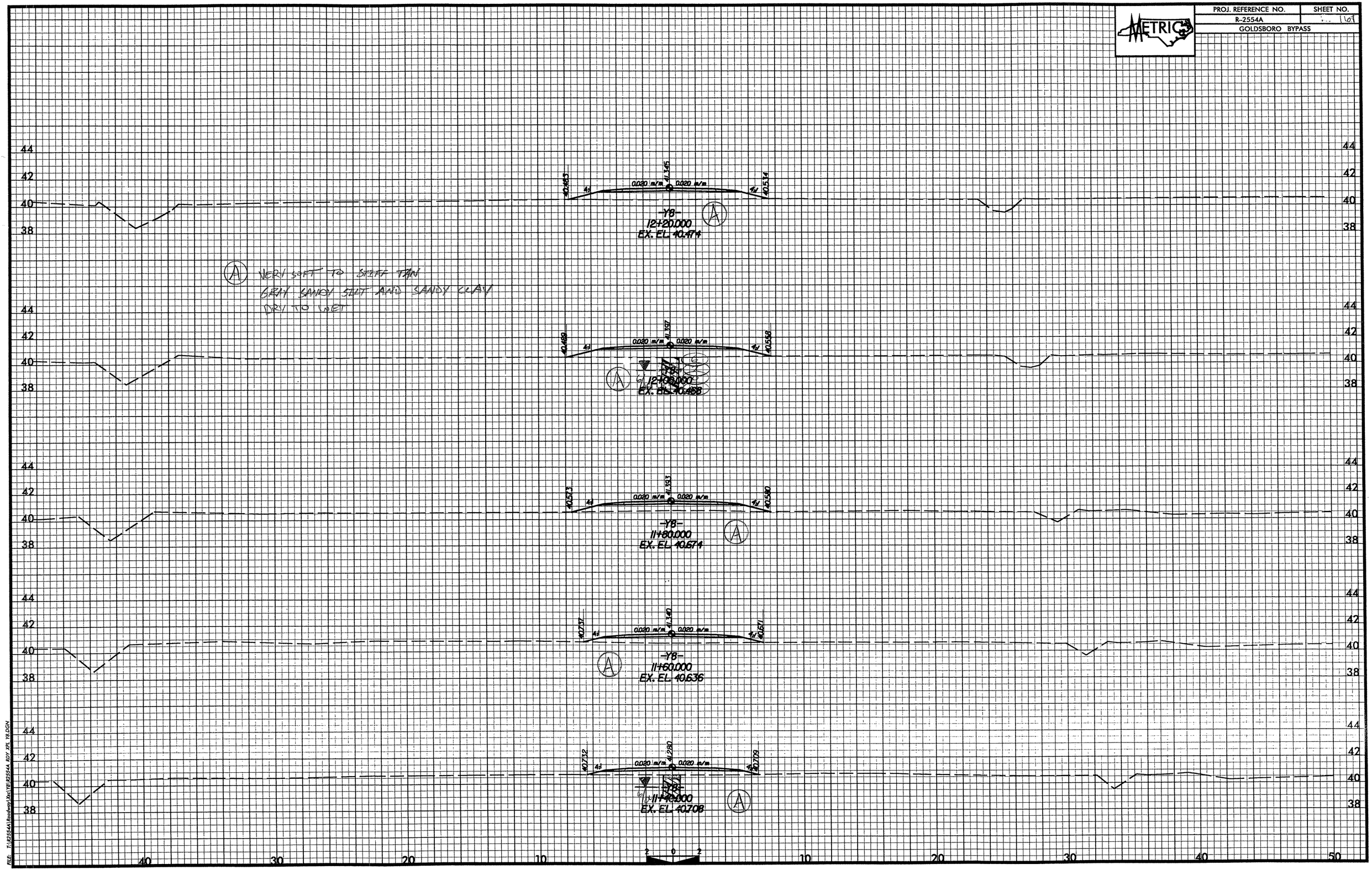
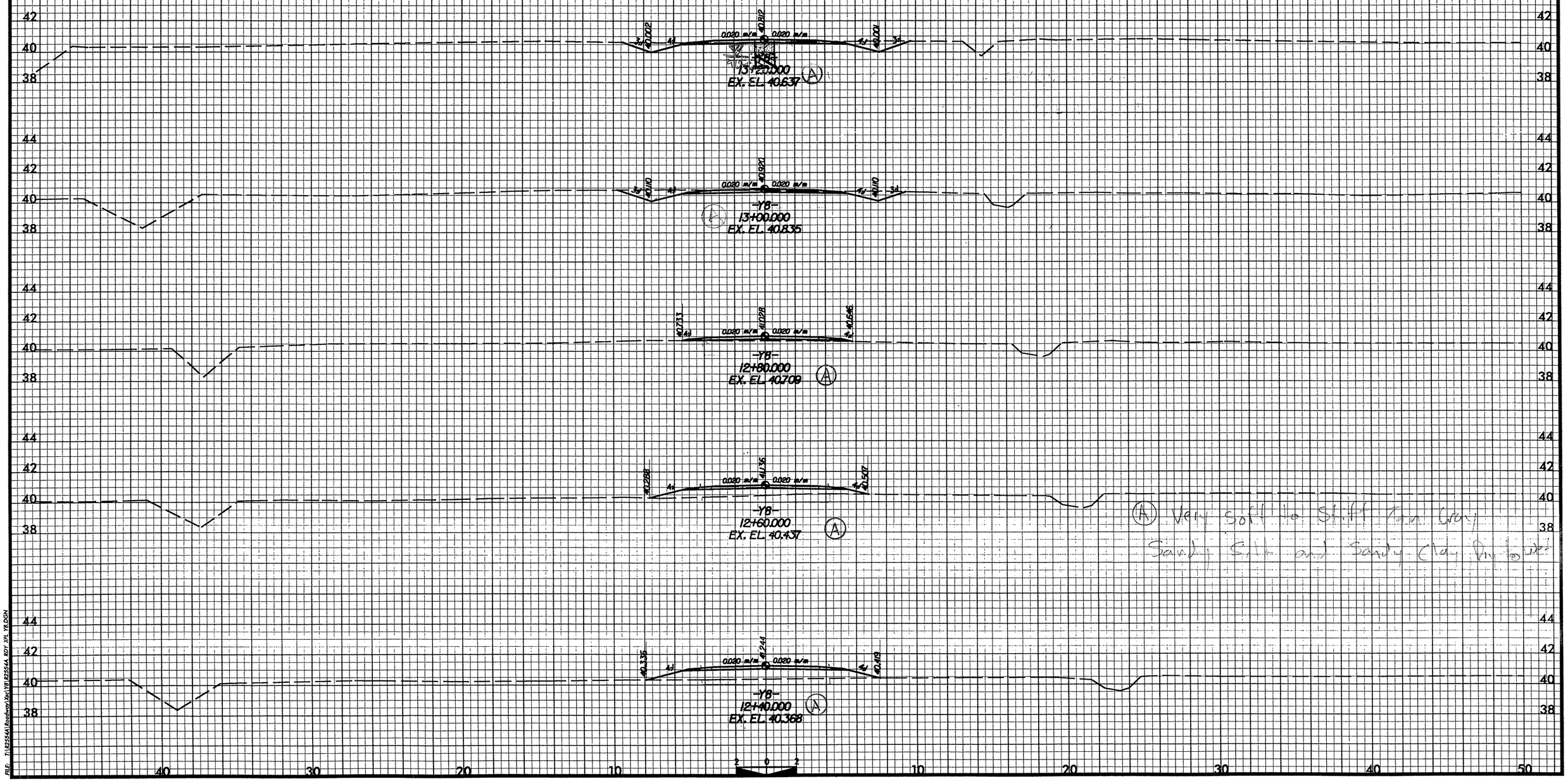
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	161
GOLDSBORO BYPASS	



FILE: T:\R2554A\Roadway\Xsc\Y8\R2554A_RDY_XPL_Y8.DGN

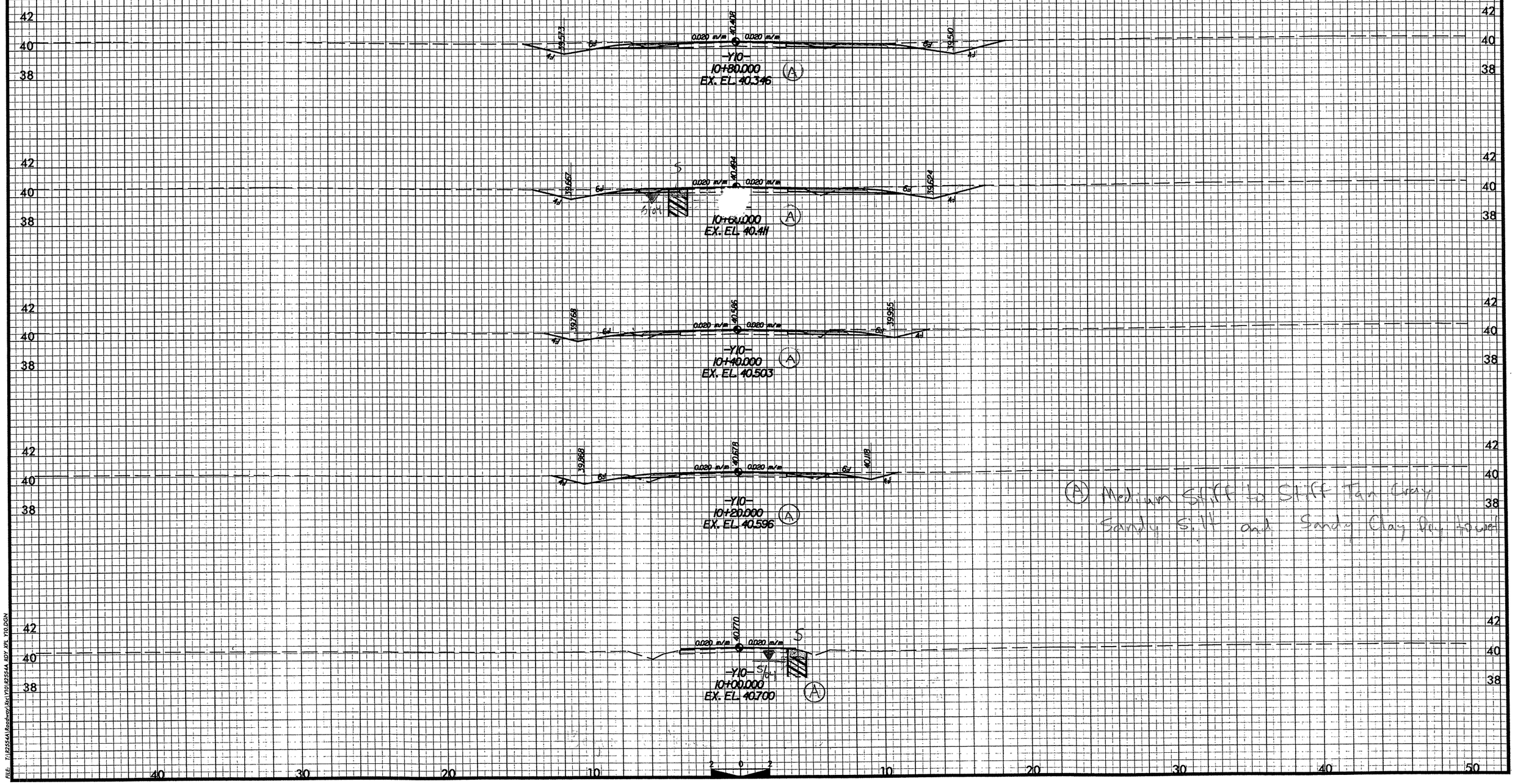
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	



(A) Very soft to Stiff Tan Gray Sandy Silt and Sandy Clay Dry to wet

FILE: T:\R2554A\Roadway\Xsc\Y8\R2554A_RDY_XPL_Y8.DGN

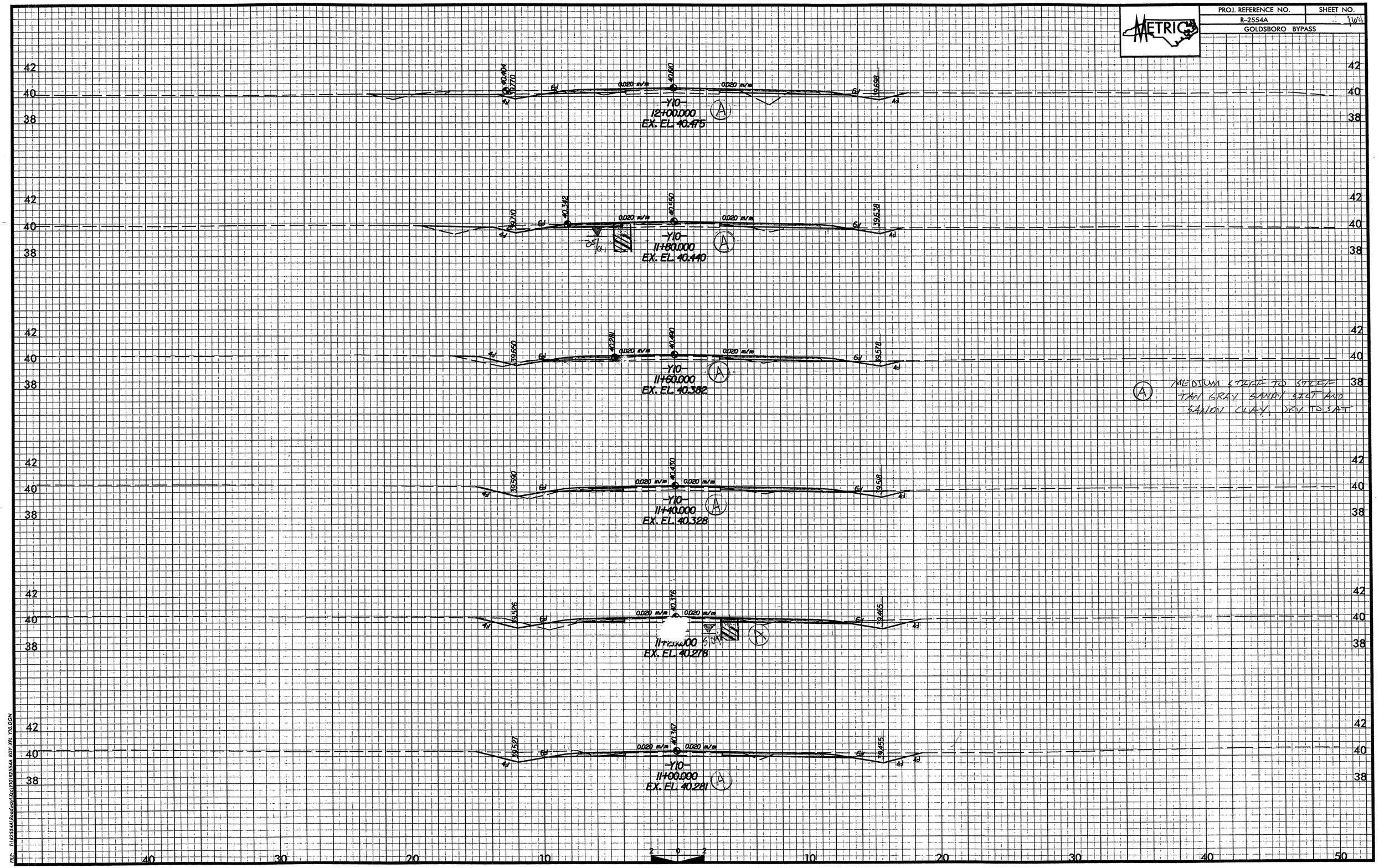
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	163
GOLDSBORO BYPASS	



A Medium Stiff to Stiff Tan Gray Sandy Silt and Sandy Clay Dry Hard

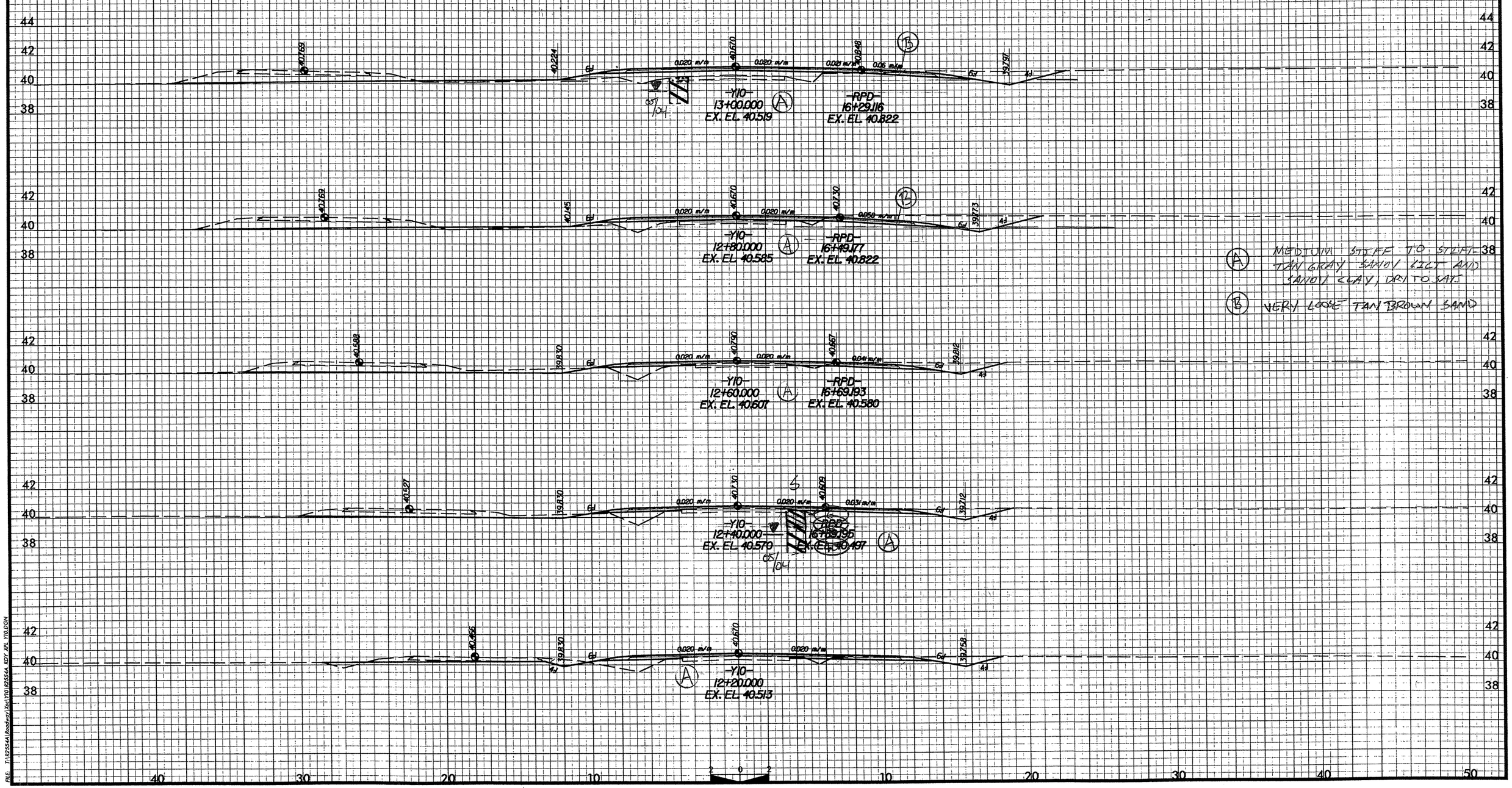
FILE: T:\R2554A\Roadway\Xcs\Y10\R2554A_BDY_XPL_Y10.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	10
GOLDSBORO BYPASS	



FILE: T:\R2554A\Roadway\Xcs\Y10\R2554A_RDY_YPL_Y10.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	165
GOLDSBORO BYPASS	

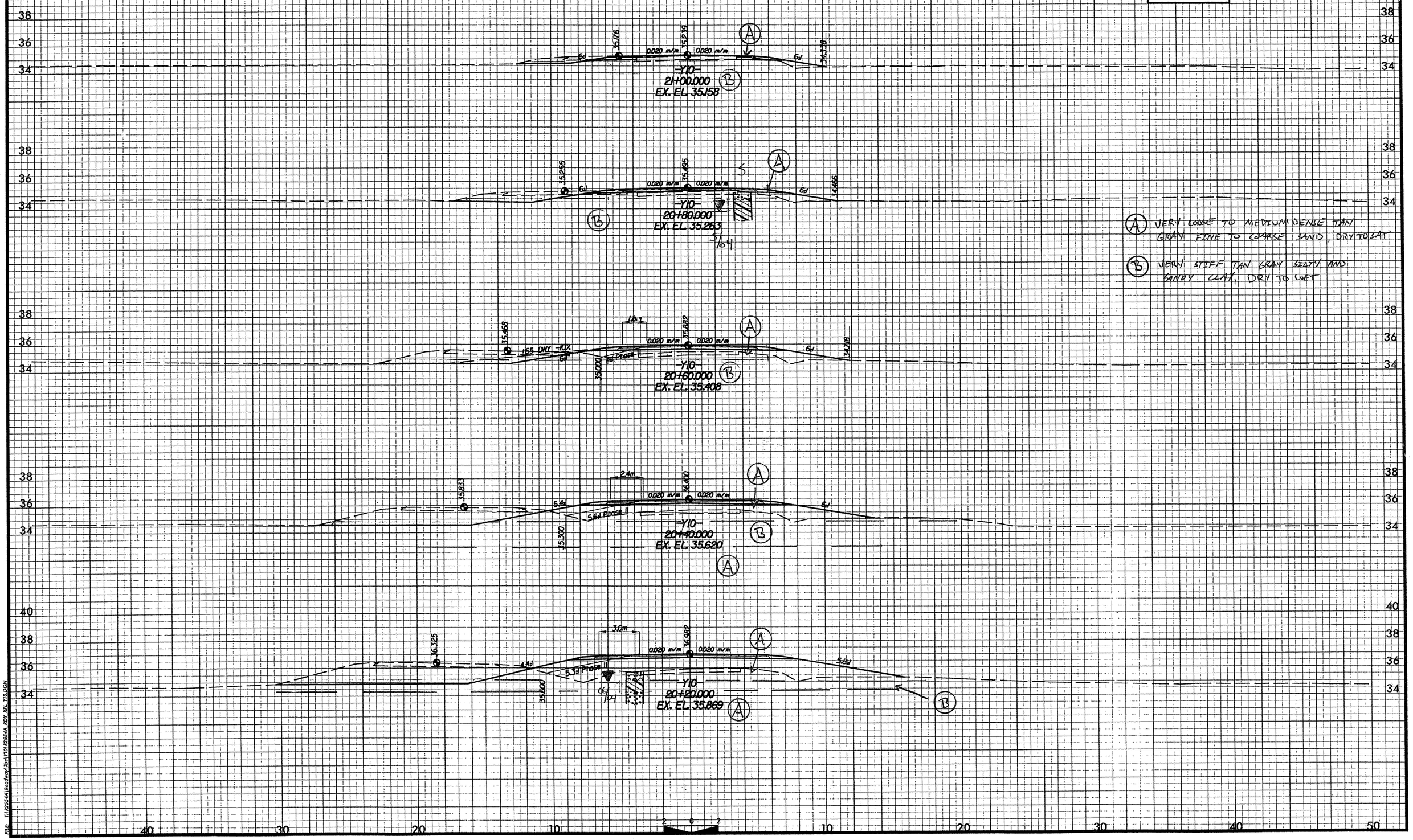


(A) MEDIUM STIFF TO STIFF TAN GRAY SANDY LICT AND SANDY CLAY, DRY TO SAT.

(B) VERY LOOSE TAN BROWN SAND

FILE: T:\R2554A\Roadway\Sec\Y10\R2554A_RDY_XPL_Y10.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	1010
GOLDSBORO BYPASS	

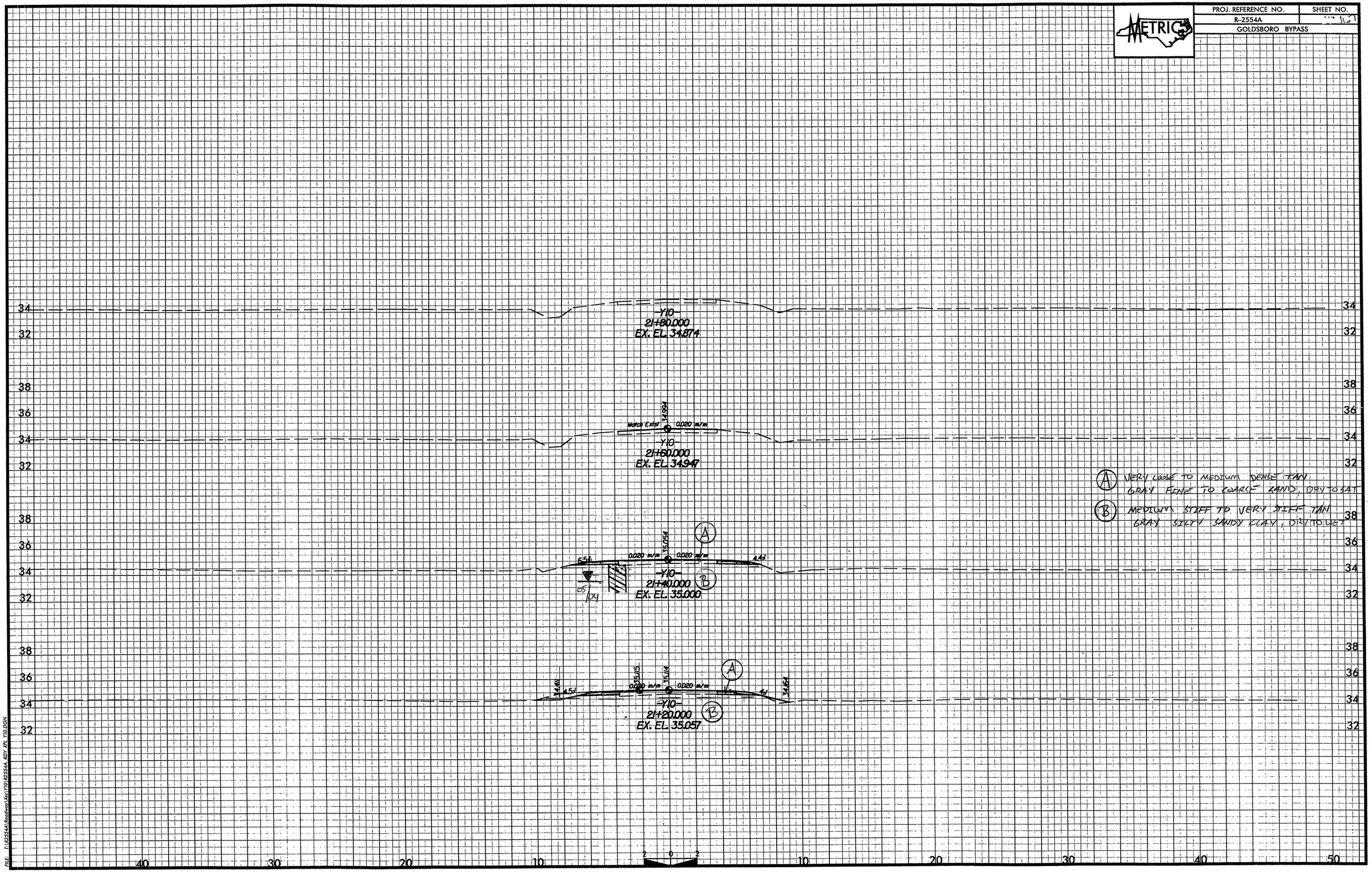


(A) VERY LOOSE TO MEDIUM DENSE TAN GRAY FINE TO COARSE SAND, DRY TO SAT

(B) VERY STIFF TAN GRAY SILTY AND SANDY CLAY, DRY TO WET

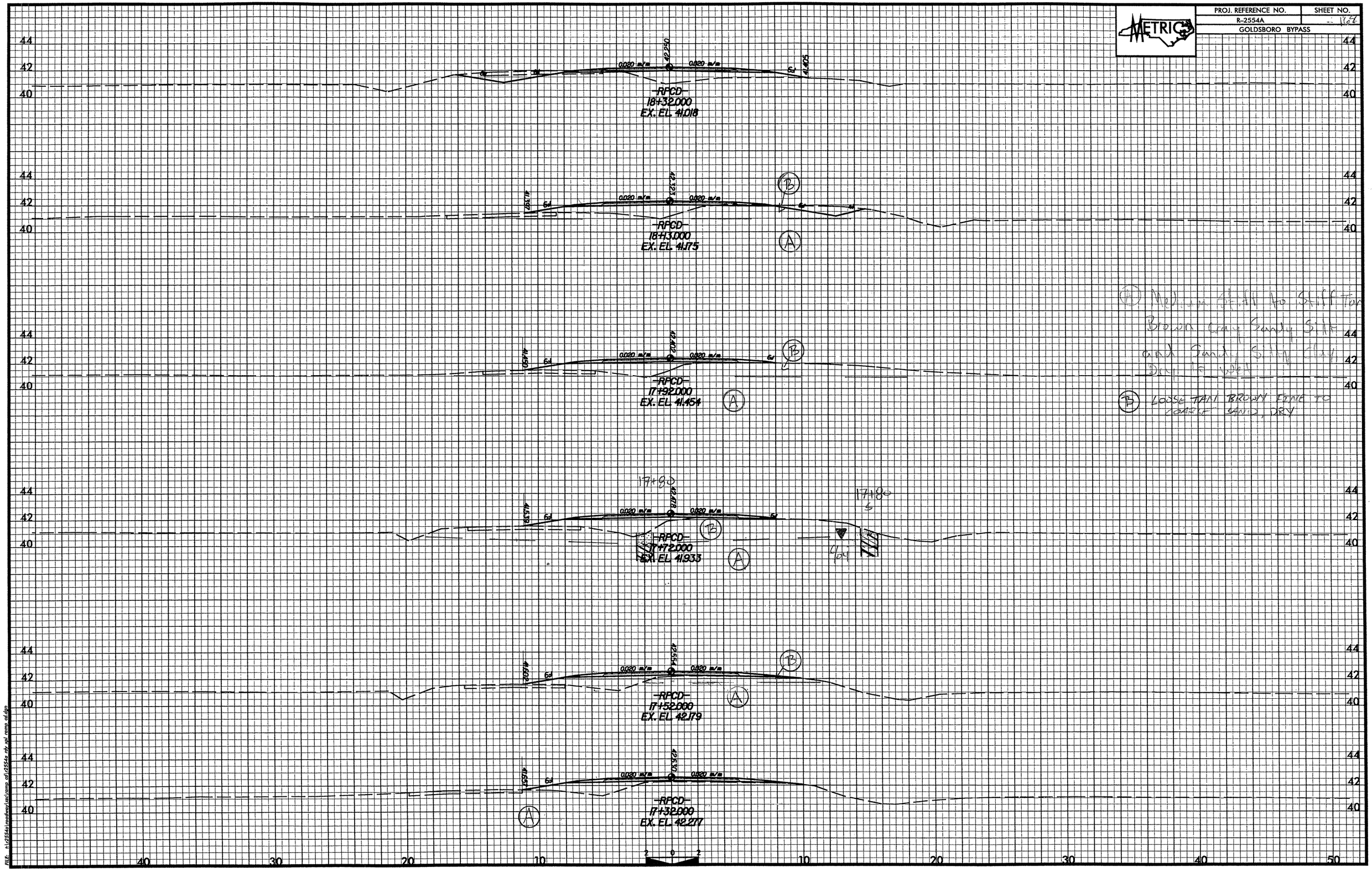
FILE: T:\R2554A\Roadway\Xsts\Y10\R2554A_RDY_XPL_Y10.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	[illegible]
GOLDSBORO BYPASS	



FILE: T:\R2554A\Roadway\Xsc\Y10\R2554A_RDY_XPL_Y10.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	168
GOLDSBORO BYPASS	

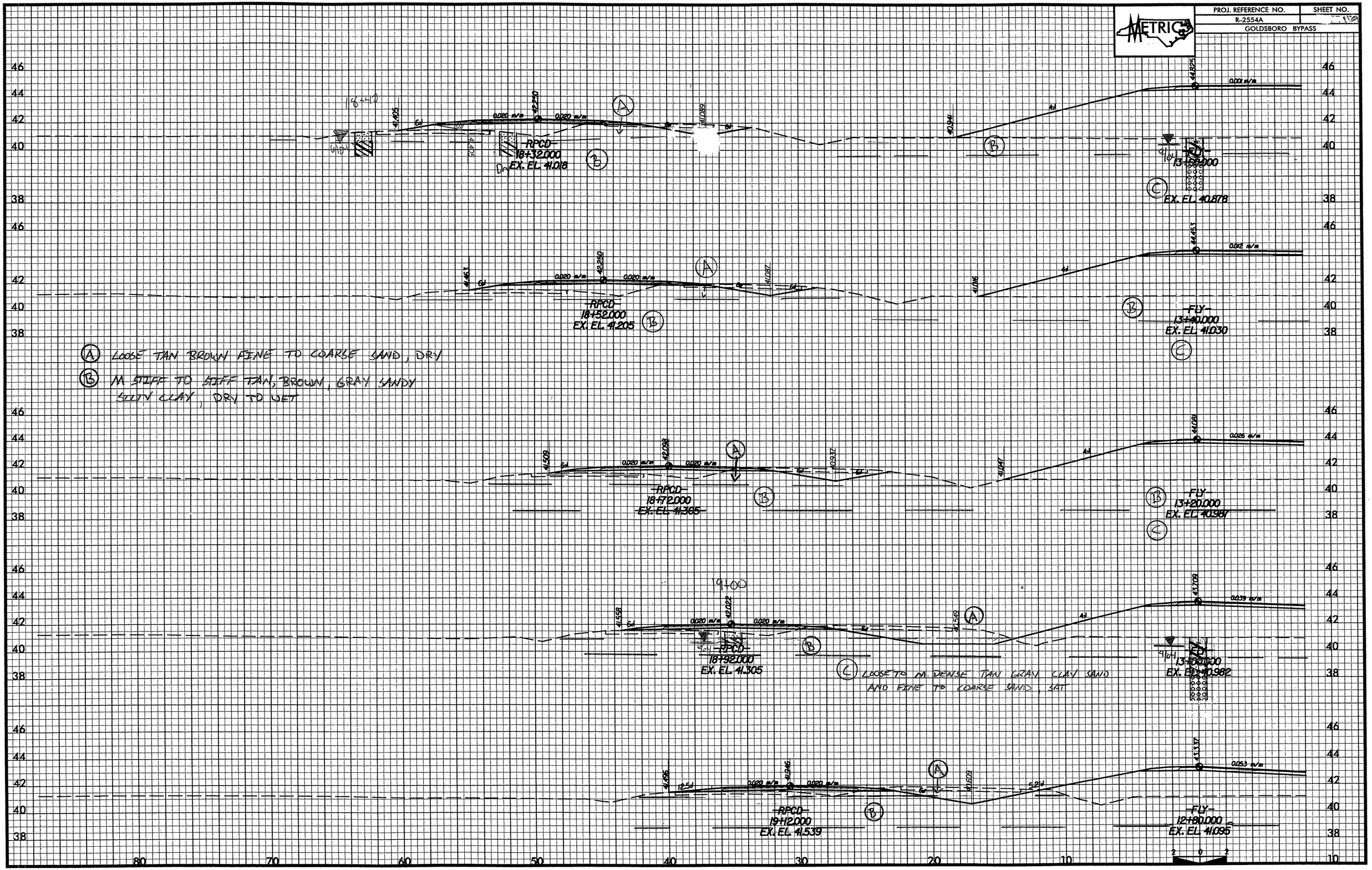


(A) Medium Stiff to Stiff Tan Brown Gray Sandy Silt and Sandy Silty Clay Dry to Wet

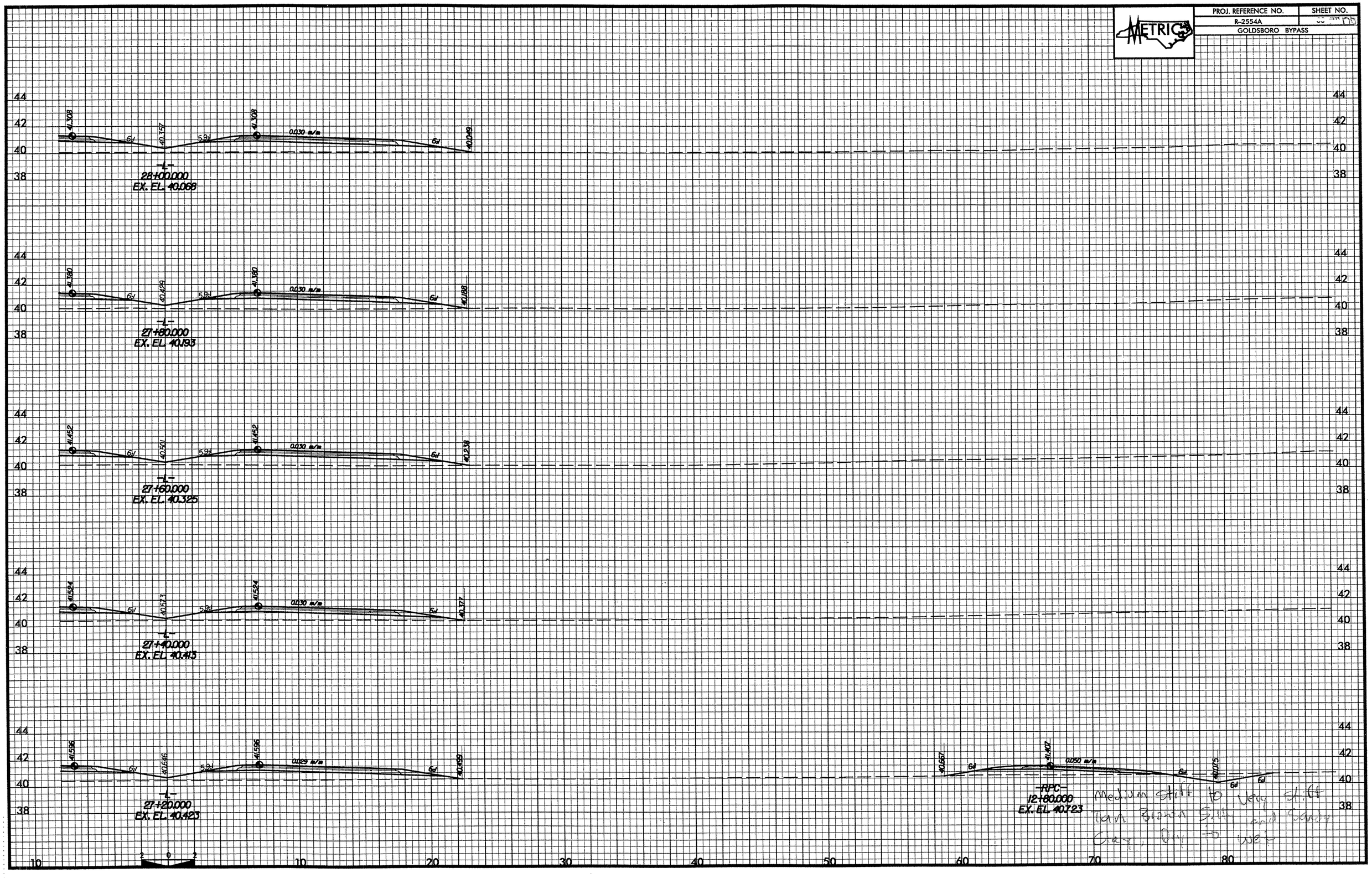
(B) LOOSE TAN BROWN FINE TO COARSE SAND, DRY

FILE: t:\r2554a\roadway\xsc\ramp cd\r2554a rdy xpl ramp cd.dgn

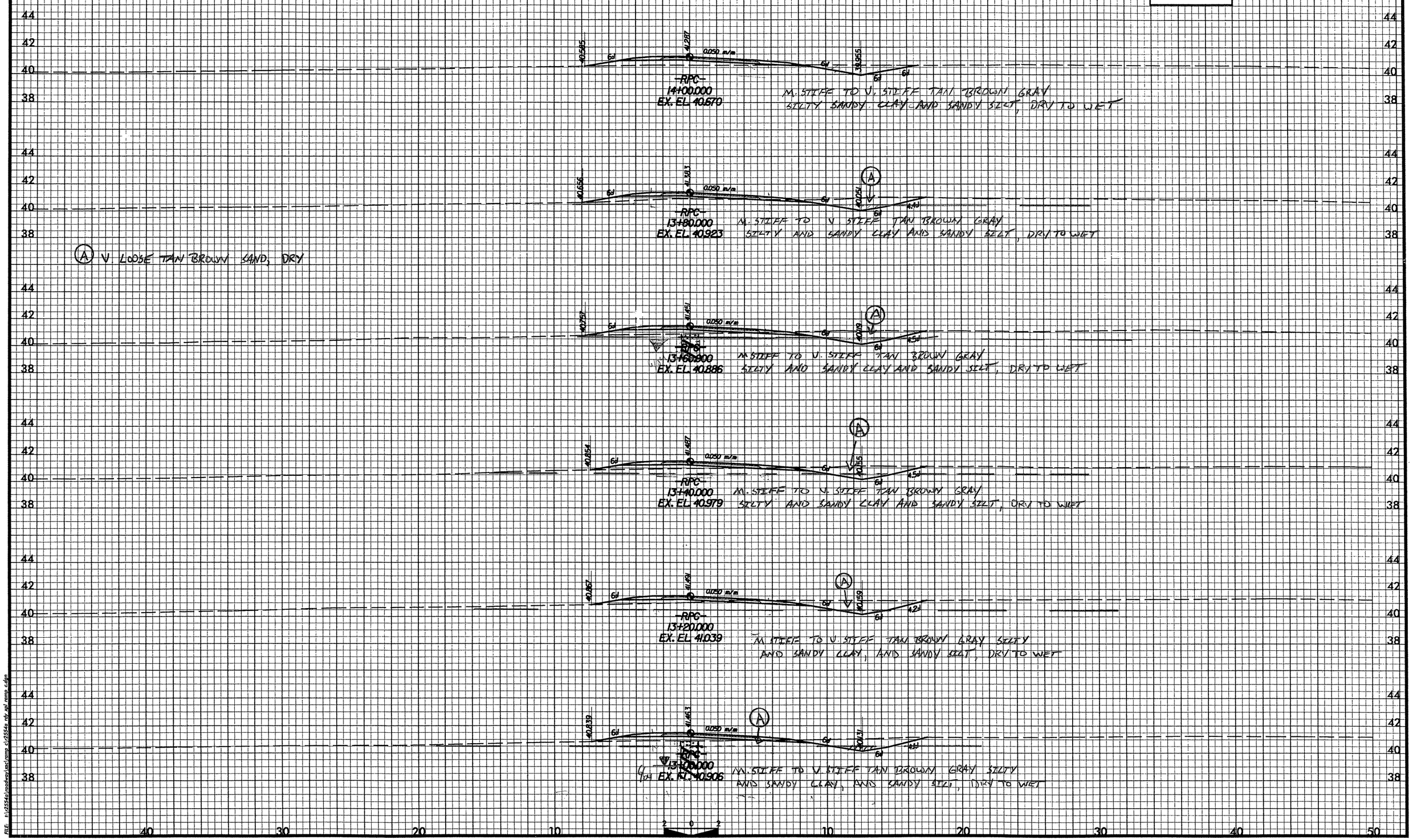
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	



PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	

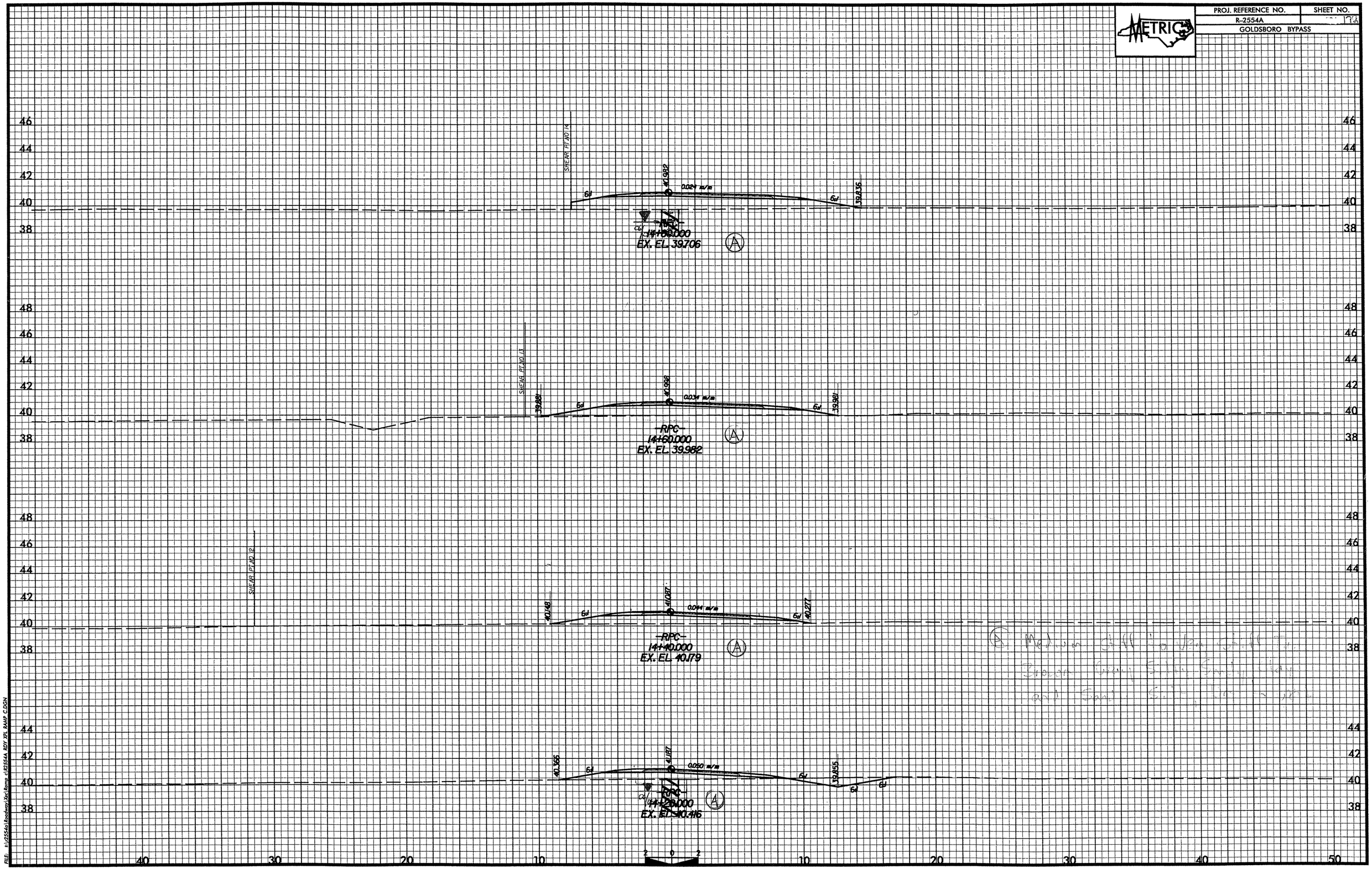


PROJ. REFERENCE NO.	SHEET NO.
R-2554A	171
GOLDSBORO BYPASS	



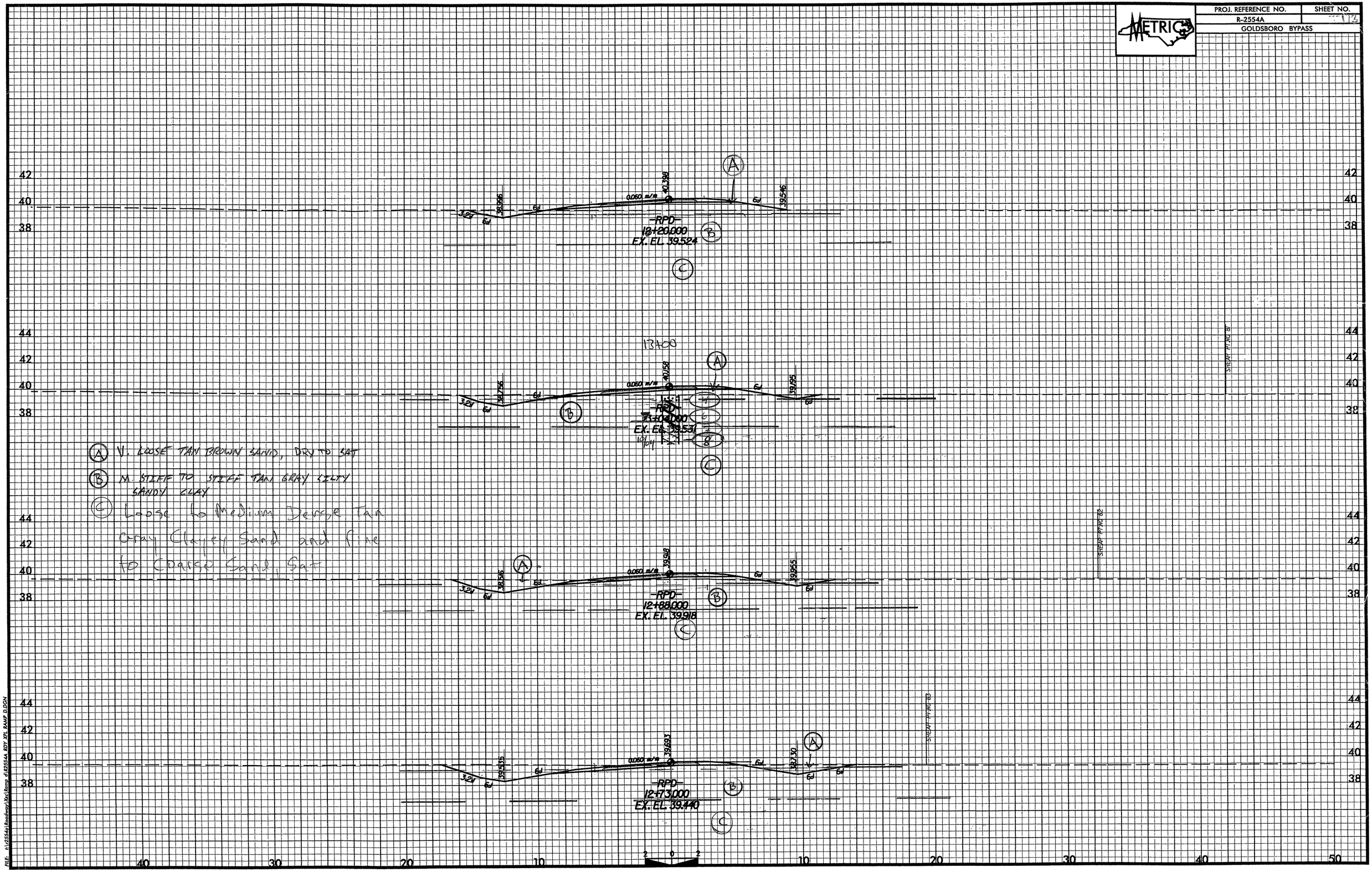
FILE: t:\r2554a\roadway\xsc\ramp c\r2554a rdy xpl ramp c.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	73
GOLDSBORO BYPASS	



FILE: I:\2554a\Roadway\Xsl\Ramp c\R2554A RDY XSL RAMP C.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	



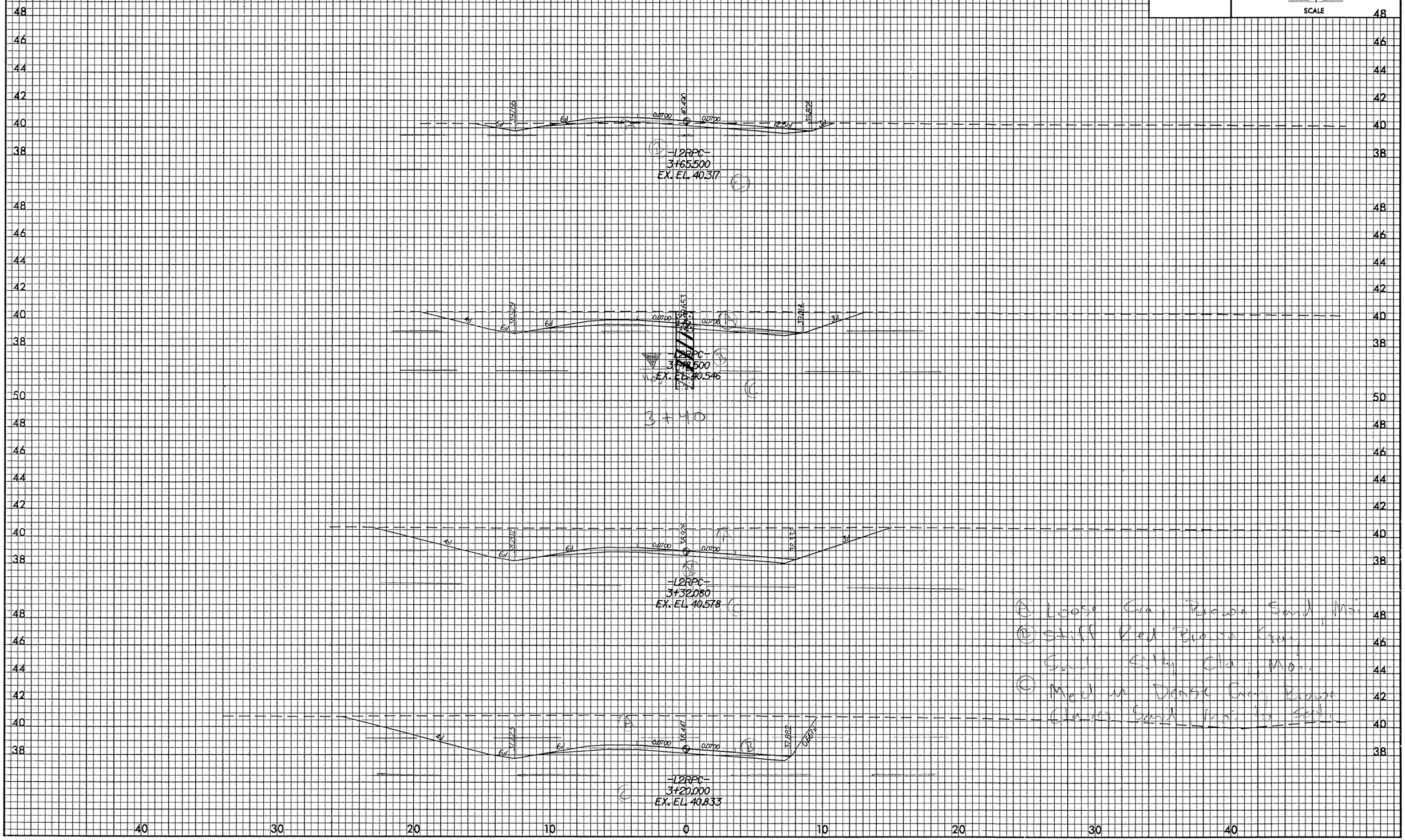
(A) V. LOOSE TAN BROWN SAND, DRY TO SAT

(B) M. STIFF TO STIFF TAN GRAY SILTY SANDY CLAY

(C) Loose to Medium Dense Tan Gray Clayey Sand and Fine to Coarse Sand, Sat

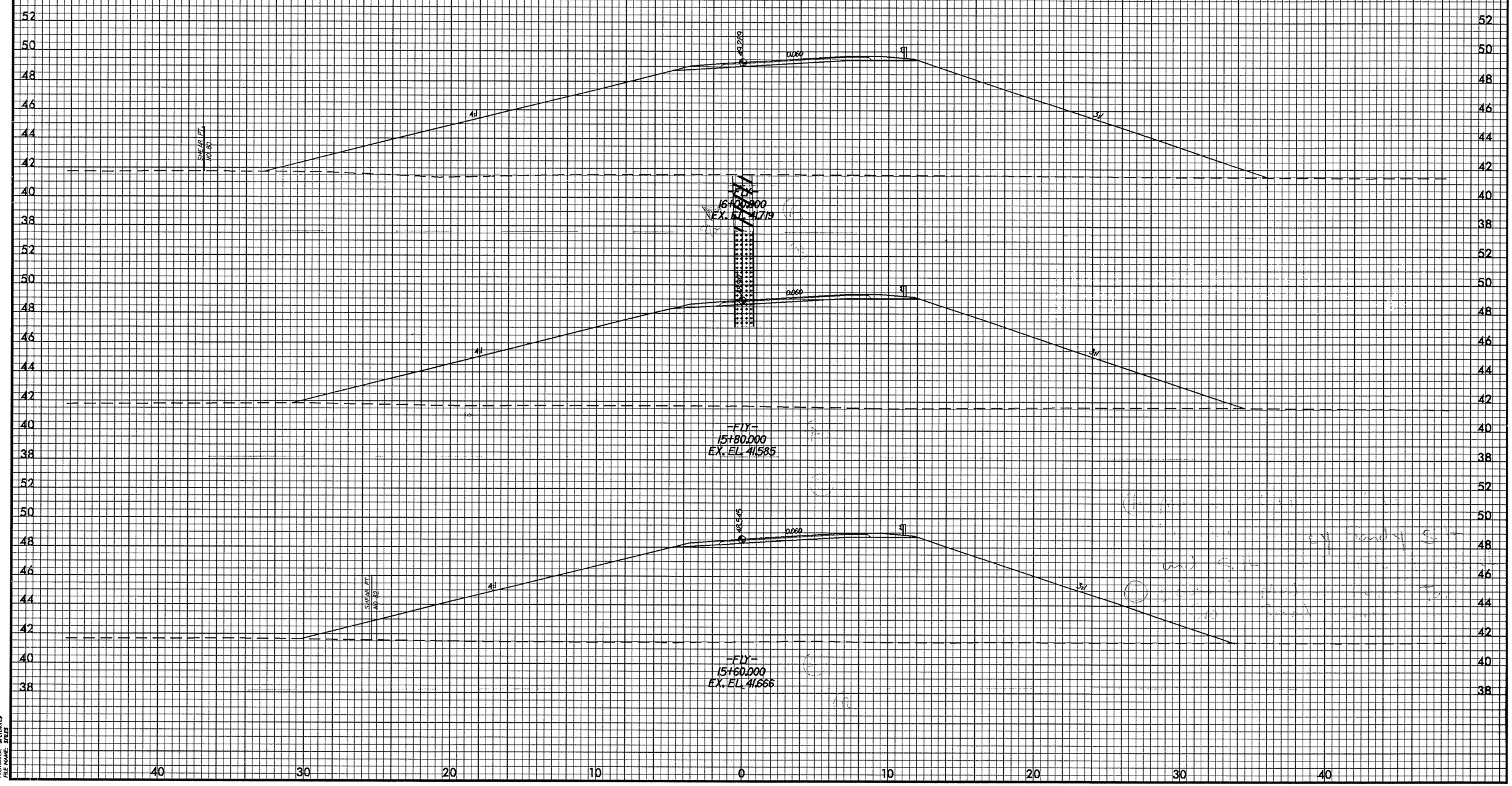
FILE: t:\2554a\Roadway\Xsections\Ramp d\2554A RDY XPL RAMP D.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	179
GOLDSBORO BYPASS	
2m 0 2m SCALE	



Ⓐ Loose Gray Brown Sand
Ⓑ Stiff Red Brown Gray Sandy Silty Clay
Ⓒ Med to Dense Gray Brown Clayey Sand

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	15
GOLDSBORO BYPASS	
2m 0 2m SCALE	

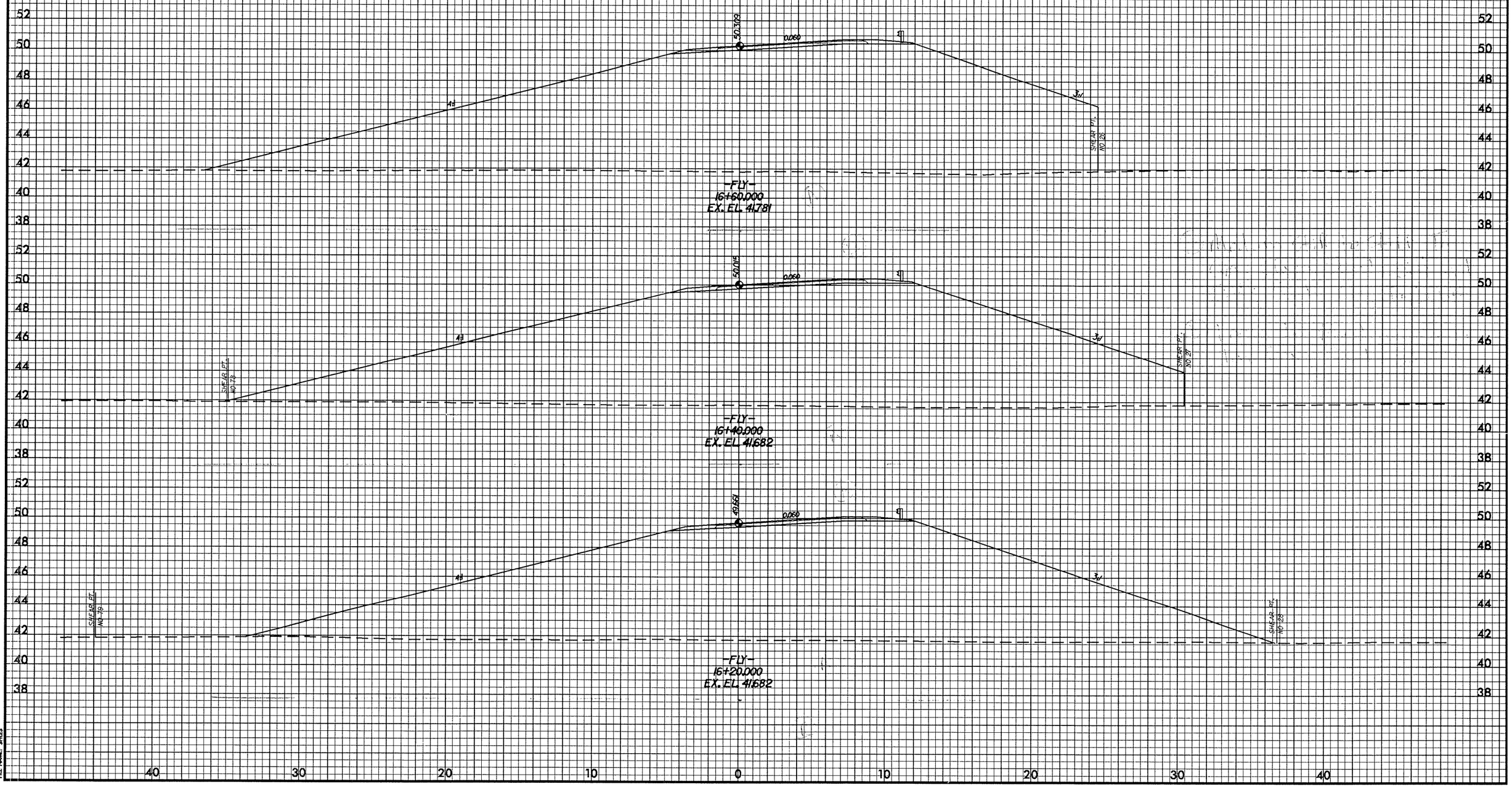


PENNAME: $PENTITLE
PLOTDATE: $PLTDATE
FILE NAME: $FILES

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	

2m 0 2m

SCALE



PENTABLE: $PENTBLL$
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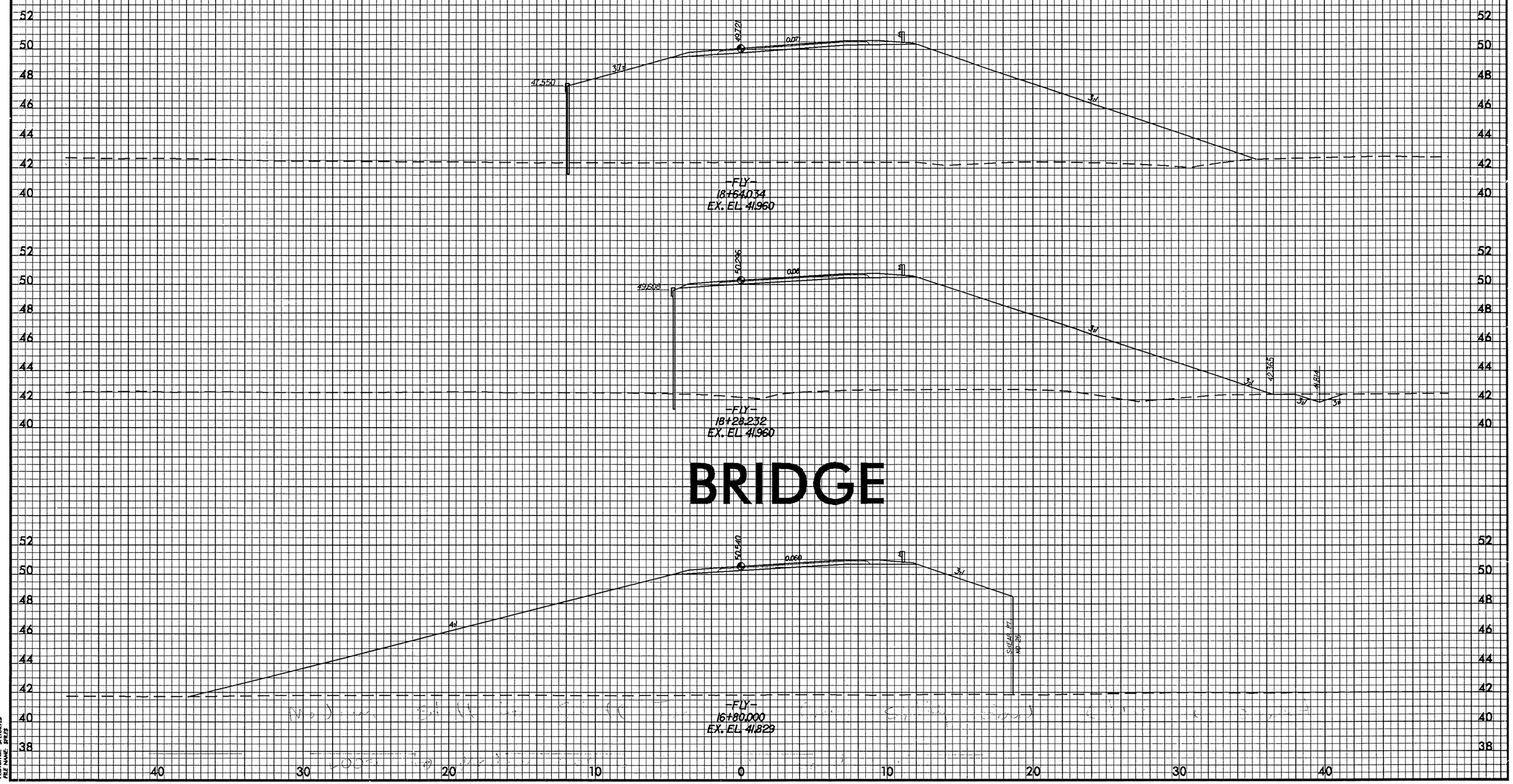
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	

2m 0 2m

SCALE



PENTABLE: SPENTBILLS
PLOTOVER: SPLTOVRLS
FILE NAME: SFRLES