

CONTRACT: ID: R-5525

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

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	10+00 - 35-70.55	4-5	6-7	10-22
-Y1-	10+00 - 21+00.00	4	8	-
-Y2-	10+00 - 13+68.09	4	8	23-26
-Y3-	10+00 - 21+42.80	5	9	27-31

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

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. R-5525 F.A. PROJ. _____
 COUNTY WATAUGA
 PROJECT DESCRIPTION BLOWING ROCK POST ACUTE CARE
FACILITY ACCESS RD./US 321

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5525	1	49
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
		P.E.	
		RW & UTIL.	

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN BALDWIN BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6650. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE, THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACED) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INDICATED 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 BORING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

C. V. NORVILLE

J. R. HAMM

W. S. HUNSBERGER

T. E. EVANS

INVESTIGATED BY TEE / WSH

CHECKED BY CVN

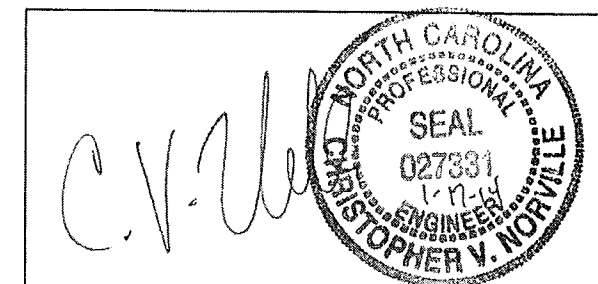
SUBMITTED BY FALCON

DATE January 2014

DRAWN BY: JRH

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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 DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

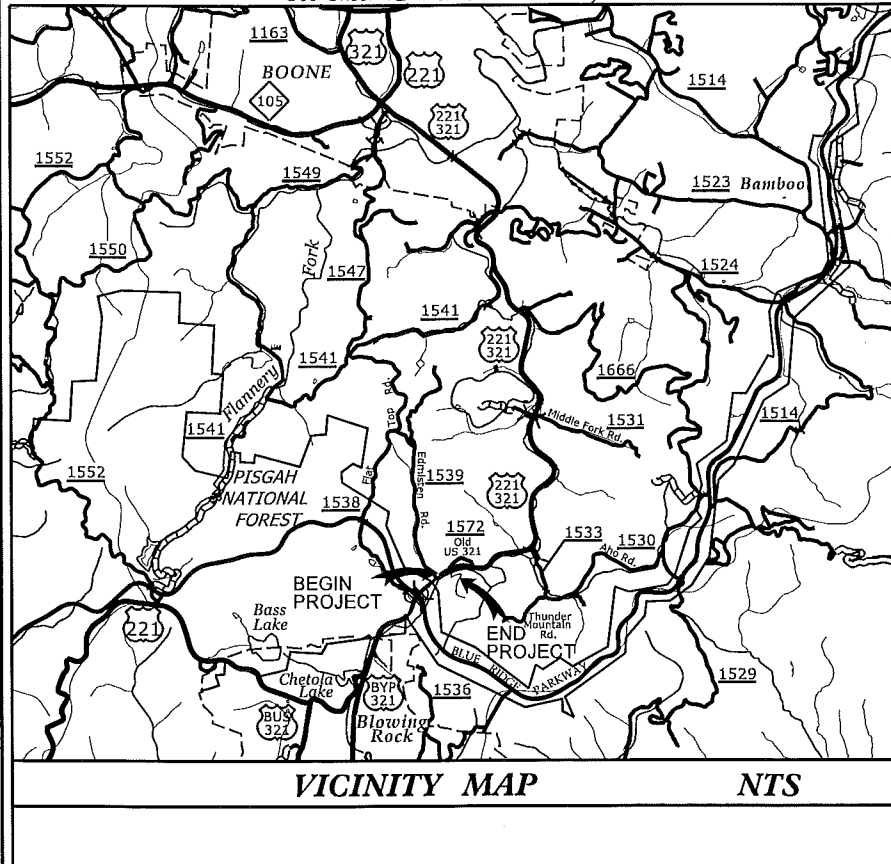
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

PROJECT REFERENCE NO. R-5525	SHEET NO. 2
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SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (ASHTO T208, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, MOD. PLASTIC, A-7-6</i>	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR , SUBANGULAR , SUBROUNDED , OR ROUNDED .	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS: WEATHERED ROCK (WR) - NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR) - FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) - FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD 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.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERALOGICAL COMPOSITION	WEATHERING	
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	FRESH - ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SL) - ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SL) - ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD) - SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i> SEVERE (SEV) - ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i> 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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i> 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.	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. 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SOIL LEGEND AND AASHTO CLASSIFICATION	COMPRESSIONIBILITY	GROUND WATER	
GROUP CLASS. A-1, A-1-b, A-2, A-2-4, A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, A-1, A-2, A-3, A-4, A-5, A-6, A-7	SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP	
PERCENTAGE OF MATERIAL	MISCELLANEOUS SYMBOLS		
ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES	SPT TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION CONE PENETROMETER TEST SOUNDING ROD	
CONSISTENCY OR DENSENESS	ABBREVIATIONS	ROCK HARDNESS	
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)	AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HL - HIGHLY MED. - MEDIUM MICA. - MICA MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY VST - VANE SHEAR TEST WEA. - WEATHERED UNIT WEIGHT DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO	VERY HARD - CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD - CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD - CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD - CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT - CAN BE GROUDED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT - CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.	
TEXTURE OR GRAIN SIZE	EQUIPMENT USED ON SUBJECT PROJECT	FRACTURE SPACING	BEDDING
U.S. STD. SIEVE SIZE OPENING (MM) 4 10 40 60 200 270 4.75 2.00 0.42 0.25 0.075 0.053	DRILL UNITS: <input checked="" type="checkbox"/> MOBILE B-57 <input type="checkbox"/> BK-51 <input type="checkbox"/> CME-45C <input checked="" type="checkbox"/> CME-550X <input type="checkbox"/> PORTABLE HOIST	VERY WIDE - MORE THAN 10 FEET WIDE - 3 TO 10 FEET MODERATELY CLOSE - 1 TO 3 FEET CLOSE - 0.15 TO 1 FEET VERY CLOSE - LESS THAN 0.16 FEET	VERY THICKLY BEDDED - > 4 FEET THICKLY BEDDED - 1.5 - 4 FEET THINLY BEDDED - 0.16 - 1.5 FEET VERY THINLY BEDDED - 0.03 - 0.16 FEET THICKLY LAMINATED - 0.008 - 0.03 FEET THINLY LAMINATED - < 0.008 FEET
SOIL MOISTURE - CORRELATION OF TERMS	ADVANCING TOOLS: <input type="checkbox"/> CLAY BITS <input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER <input checked="" type="checkbox"/> 8" HOLLOW AUGERS <input type="checkbox"/> HARD FACED FINGER BITS <input type="checkbox"/> TUNG.-CARBIDE INSERTS <input checked="" type="checkbox"/> CASING w/ ADVANCER <input checked="" type="checkbox"/> TRICONE 2 1/8" STEEL TEETH <input type="checkbox"/> TRICONE " TUNG.-CARB. <input checked="" type="checkbox"/> CORE BIT	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.	INDURATION
PLASTICITY	HAND TOOLS: <input type="checkbox"/> POST HOLE DIGGER <input type="checkbox"/> HAND AUGER <input checked="" type="checkbox"/> SOUNDING ROD <input type="checkbox"/> VANE SHEAR TEST	INDURATION	INDURATION
COLOR			
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.			
			BENCH MARK: ELEVATION: _____ FT. NOTES: FIAD - FILLED-IN AFTER DRILLING

09/08/09

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



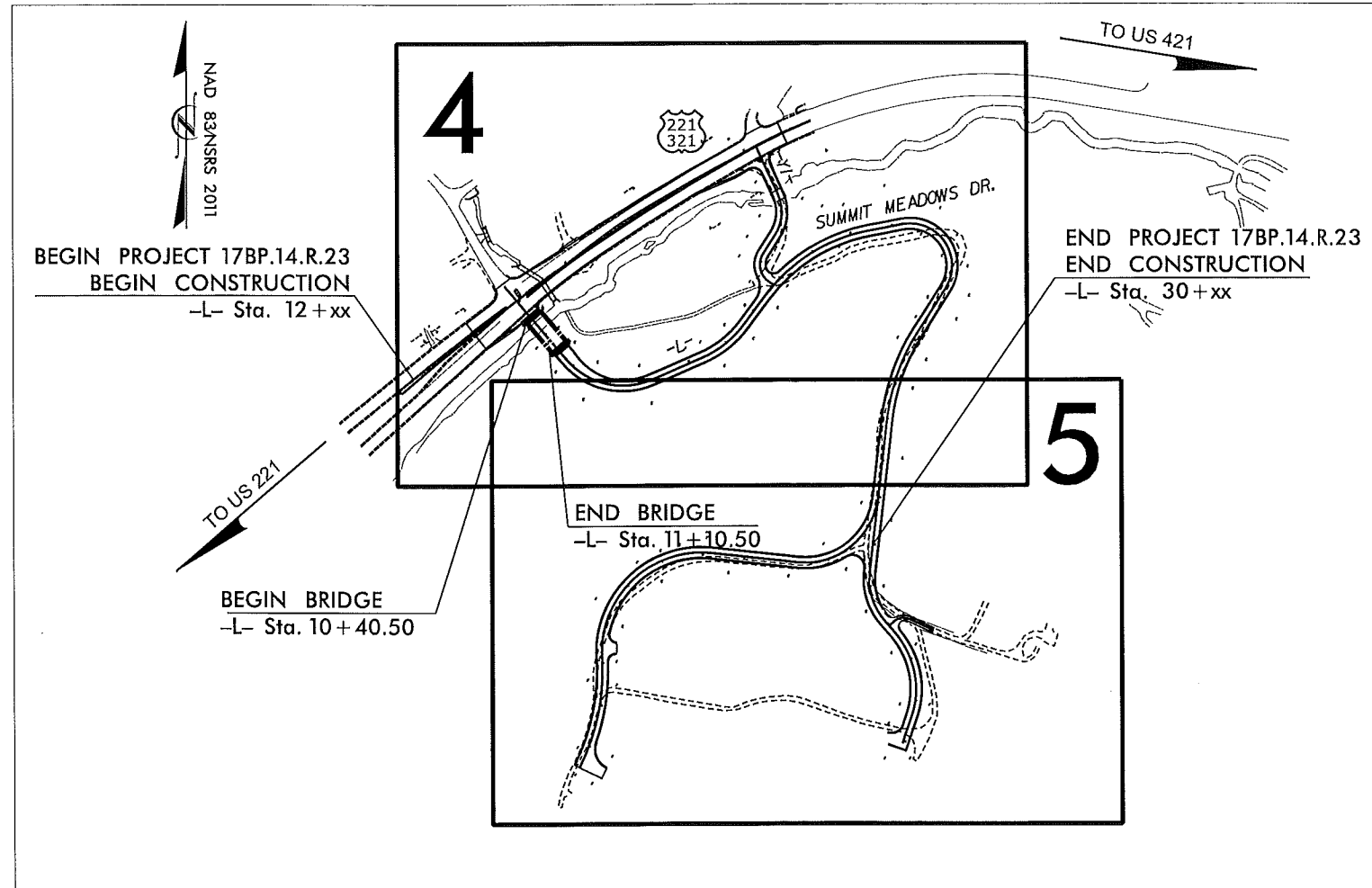
25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

LOCATION: BLOWING ROCK POST ACUTE CARE FACILITY ACCESS RD./US 321
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5525	2a	49
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

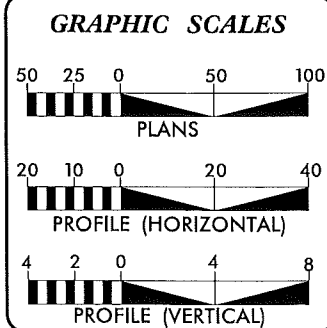


NCDOT CONTACT:
JAMI GYNN
HIGHWAY DIVISION 11
BRIDGE MANAGER
336-903-9220

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

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

CONTRACT:



DESIGN DATA

ADT	=	
DHV	=	%
D	=	%
T	=	% *
V	=	MPH
* TTST	=	DUAL
FUNC CLASS	=	

PROJECT LENGTH

LENGTH ROADWAY PROJECT	=	0.xxx MILES
LENGTH STRUCTURES PROJECT	=	0.xxx MILES
TOTAL LENGTH PROJECT	=	0.xxx MILES

Prepared In the Office of:
THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DEAN D. HATFIELD, PE
PROJECT ENGINEER

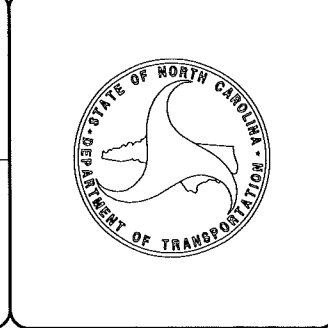
LETTING DATE: WILLIAM E. TILLITT, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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Roadway Subsurface Investigation Report - Inventory

Blowing Rock Post Acute Care Facility
Access Road / US 321
Watauga County, North Carolina
TIP: R-5525
Falcon Project No.: G13036.00

Prepared for:

Louis Berger Group, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605

Submitted by:

Falcon Engineering, Inc.
1210 Trinity Road, Suite 110
Raleigh, North Carolina 27607
(919) 871-0800
www.falconengineers.com

October 16, 2013

PREFACE

This roadway subsurface investigation was conducted from April to June 2013 in general accordance with our Proposal to Provide Supplemental Geotechnical Engineering Services, dated April 15, 2013. The recommendations provided in this report are based solely on our site reconnaissance, soil test borings and laboratory test data, engineering evaluation of these data, and generally accepted soil and foundation engineering practices and principles.

A total of twenty-eight (22) Standard Penetration Test (SPT) borings were drilled for the new roadway alignments. Additional borings were drilled for the bridge structure and are included in a separate Structure Inventory Report. The end bent borings have been utilized in this report since they provide additional pertinent subsurface information relating to approach embankments. All borings were drilled using a CME-550X or Mobile B-57 all-terrain-vehicle (ATV) mounted drill rig equipped with 2 1/4-inch inside diameter hollow-stem augers and an automatic hammer. Representative soil samples, collected with a split-barrel sampler, were selected for laboratory testing to verify visual field classifications.

Falcon appreciates the opportunity to have provided our geotechnical engineering services for the above referenced project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

FALCON ENGINEERING, INC.

Report Prepared By:

Report Reviewed By:

Jeremy R. Hamm, PE
Geotechnical Engineering Manager

Christopher V. Norville, PE
Director of Geotechnical Services





WBS: 43761.1.1
TIP: R-5525
COUNTY: Watauga
DESCRIPTION: Blowing Rock Post Acute Care Facility
 Access Road / US 321
SUBJECT: Roadway Subsurface Investigation – Inventory

PROJECT DESCRIPTION

This project consist of the construction of a new access road for the Blowing Rock Post Acute Care Facility currently under development. The road will provide access to the facility off of US 321 north of Blowing Rock, North Carolina. The intersection with US 321 will be located opposite the existing intersection with Edmisten Road, and follows predominantly new location, utilizing portions of Summit Meadow Lane as well as privately owned gravel driveways. The project also includes realignment and paving of Summit Meadow Lane to tie into the access road, and a partial loop road around the new facility. Some limited widening (new turn lanes) will be conducted along US 321. A new two-span bridge structure will carry -L- across a creek paralleling US 321, and an existing culvert will be utilized to carry -Y2- across do the same creek.

The following alignments, totaling approximately 5,182 feet (.98 miles) were investigated. Subsurface profiles and cross sections of these alignments are included in this report.

<u>Alignment</u>	<u>Station</u>
Access Road (-L-)	10+00 – 35+70.55
US 321 (-Y1-)	10+00 – 21+00.00
Summit Meadows Lane (-Y2-)	10+00 – 13+68.09
Partial Loop Road (-Y3-)	10+00 – 21+42.80

Subsurface profiles and cross sections showing the existing and proposed grades along these alignments are included in this report.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

The following areas contained topsoil and/or rootmat exceeding four (4) inches in thickness:

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	12+86	31 ft RT

-L-	14+01	36 ft RT
-L-	22+47	5 ft LT
-L-	24+97	16 ft RT
-L-	34+00	CL
-Y2-	11+67	61 ft LT
-Y3-	13+04	20 ft RT
-Y3-	15+00	35 ft LT
-Y3-	16+48	1 ft LT
-Y3-	17+94	35 ft LT
-Y3-	19+99	3 ft RT

The following areas contained rock within 6 feet of proposed grades, which may be difficult to excavate.

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	12+86	31 ft RT
-L-	14+01	36 ft RT
-L-	16+56	19 ft RT
-L-	27+88	3 ft RT

Roadway widening sliver fills will be placed atop loose, wet, sandy floodplain alluvial soils. These soils may not adequately support construction equipment or fill placement. The following areas contained loose, wet sandy soils near the ground surface which may also be encountered elsewhere.

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-Y2-	10+46	18 ft RT
-Y2-	11+67	61 ft LT
-Y2-	12+43	33 ft RT

Steep (1.5:1) rock plated cut slopes are proposed along a portion of the project. Subsurface conditions at the following locations should be evaluated for stability of the proposed slopes.

<u>Alignment</u>	<u>Station</u>	<u>Offset</u>
-L-	12+80	31 ft RT
-L-	14+05	36 ft RT
-L-	15+28	29 ft LT





PHYSIOGRAPHY AND GEOLOGY

The project site is in the Grandfather Mountain Window of the Mountain Physiographic Provinces of North Carolina. According to the **Geologic Map of North Carolina** (1985), the site is underlain by an unconformity known as Blowing Rock Gneiss (Ybrg) which is noted as white potassic feldspar megacrysts in finely banded biotite schist, locally calcareous, and interlayered with quartz feldspar schist, calcareous biotite schist, phyllite, black slate, calcareous quartzite, sulfidic greenstone, and siliceous tuff.

Existing site topography is relatively steep. The majority of slopes are on the order of 4:1, with some 3:1 slopes and isolated short, steeper slopes. The new access road traverses up a small mountain to the new facility being constructed atop it. Immediately southeast of the intersection with US 321, the alignment traverses a creek which parallels the existing highway before climbing up the mountain.

A portion of -L- and most of -Y2- follow existing Summit Meadows Lane, which currently existing as a narrow (1.5 lane) gravel road which winds up the mountain.

SOIL PROPERTIES

The pavement section along US 321 (outside northbound lane) consists of 6 to 7 inches of bituminous concrete (asphalt) over 12 to 14 inches of aggregate base course. Summit Meadows Lane and private drives consist of 4 to 12 inches of compacted aggregate.

In general, the subsurface soil conditions encountered across the site consist of residuum at the ground surface, underlain by weathered rock and rock at various, often shallow depths. Within the existing floodplain and near existing roads, alluvium or roadway embankment soils were encountered atop the residuum.

Artificial fill soils were encountered at the ground surface along the existing private gravel drive and consisted of up to 9 feet of silty coarse to fine sand (A-1-b, A-2-4) with gravel and trace organics.

Roadway Embankment soils were encountered at the ground surface near existing roadways and consisted of up to 8 feet of loose medium dense, silty and clayey sands (A-1-b, A-2-4) with gravel.

Alluvial soils were encountered at the ground surface or beneath roadway embankments. These soils consisted of up to 10 feet of very loose to loose silty sands (A-1-b, A-2-4) with organics and gravel.

Residual soils were encountered in all borings at the ground surface or below embankments and/or alluvial soils, consisting of very loose to very dense silty sands (A-1-b, A-2-4) with localized occurrences of an approximately 2-3 foot layer of soft to medium stiff sandy silts (A-4, A-5) at the ground surface.

Weathered rock was encountered at various depths, including in thin layers within residuum, and in thicker layers eventually transitioning to crystalline rock. Crystalline rock, indicated by SPT and/or auger refusal and in some cases by rock core samples, was encountered at various elevations beneath weathered rock. Frequently, the boreholes encountered interlayered weathered rock and residuum before encountering competent crystalline rock.

The rock consists of blowing rock gneiss, with some layers of variable rock materials. Within some of these layers, small voids (i.e. geodes) were cored through within the rock. These formations are caused by gas bubbles during the formation of the rock or dissolution of minerals within the rock.

GROUNDWATER PROPERTIES

Groundwater levels were measured at the time of boring completion. Borings were backfilled immediately after completion due to safety considerations. Groundwater was observed at shallow depths in bridge borings and roadway borings located near the creek. None of the upland borings encountered groundwater within the depths explored. Detailed groundwater measurement data are included in the boring logs.

It should be noted that a small stream (potentially originating from a nearby spring) crosses -L- at approximate station 16+30. A small pipe currently carries the flows beneath the access drive for maintenance of a billboard located near the proposed bridge structure. We understand no pipe or culvert crossing is currently proposed in this area, and drainage will be facilitated otherwise.



EARTHWORK BALANCE SHEET

Volumes in Cubic Yards

PROJECT TIP # R-5525

COUNTY Watauga

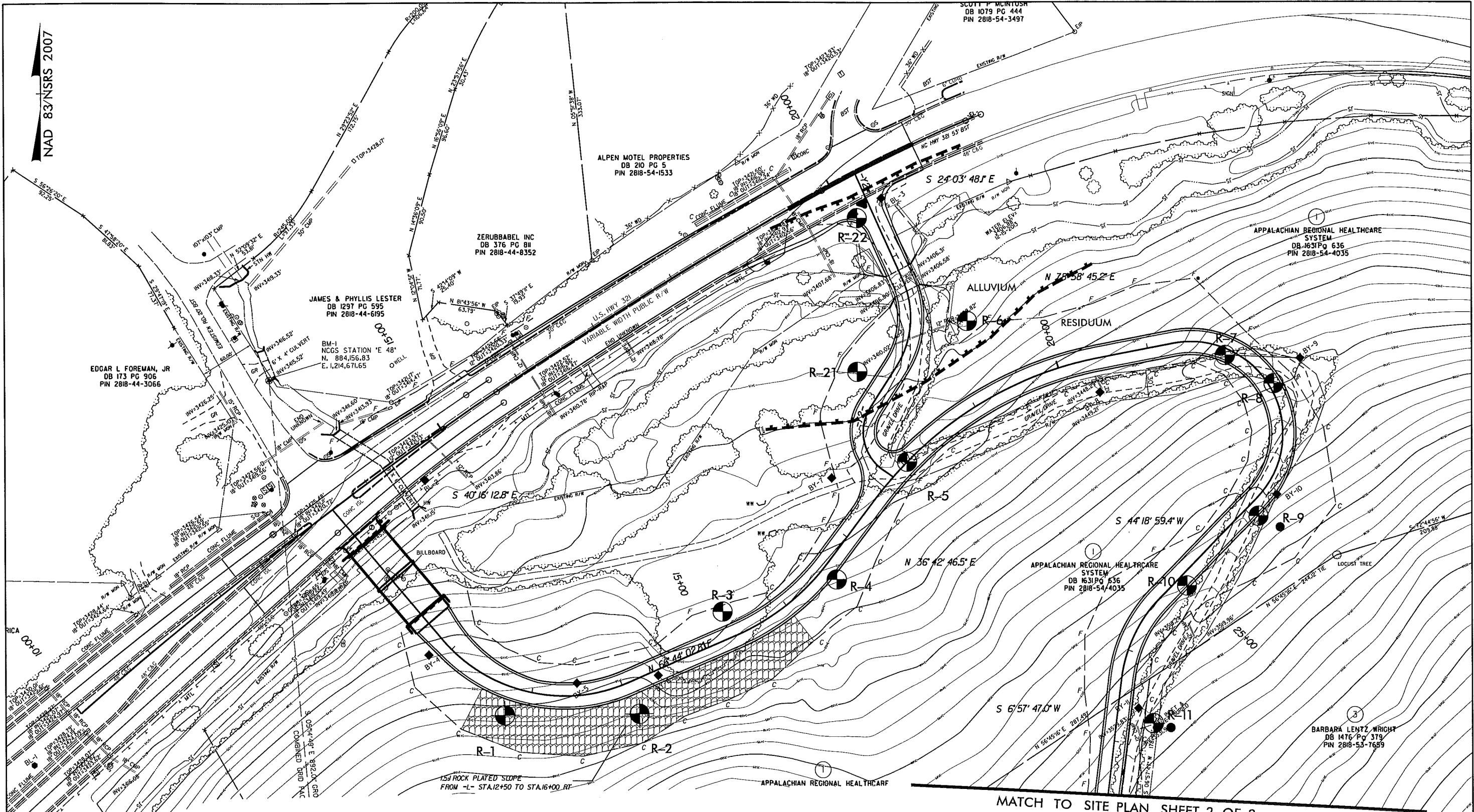
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SHEET_1_OF_1_SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. 15%	BORROW	SUITABLE ROCK WASTE	SUITABLE EARTH WASTE	UNSUIT. WASTE	TOTAL WASTE
-Y2TEMP-	12+00.00	18+22.74	2,300	0	0	0	2,300	2,651	0	2,651	3,049	749		0	0	0
-L-	11+51.38	18+00.00	14,978	100	0	0	14,878	791	100	691	895	0		14,083	0	14,083
-L-	18+00.00	29+50.00	8,250	150	0	0	8,100	3,972	150	3,822	4,545	0		3,705	0	3,705
-L-	29+50.00	35+92.00	5,281	0	0	0	5,281	11	0	11	13	0		5,268	0	5,268
SUBTOTAL			30,809	250	0	0	30,559	7,425	250	7,175	8,502	749		23,056	0	23,056
-Y1-	18+50.00	21+00.00	0	0	0	0	0	0	0	0	0	0		0	0	0
-Y3-	10+00.00	21+28.00	7,640	1,500	0	0	6,140	553	553	0	553	0	947	6,140	0	7,087
SUBTOTAL			7,640	1,500	0	0	6,140	553	553	0	553	0	947	6,140	0	7,087
PROJECT SUBTOTAL			38,449	1,750	0	0	36,699	7,978	803	7,175	9,055	749	947	29,196	0	30,143
ROCK WASTE TO REPLACE BORROW									651	-651		-651	-651			-651
ADJUST FOR ROCK WASTE											-98	-98				
ROCK WAST TO REPLACE EARTH EMBANKMENT									296	-296			-296	296		
ADJUST FOR ROCK WASTE											-44			44		44
PROJECT TOTAL			38,449	1,750	0	0	36,699	7,978	1,750	6,228	8,913	0		29,536	0	29,536
GRAND TOTAL			38,449	1,750								0				
SAY			39,000									0				

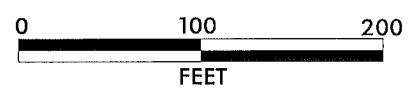
* EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

NAD 83/NRSR 2007



MATCH TO SITE PLAN SHEET 2 OF 2

NOTES:
 PLANS ADOPTED FROM ELECTRONIC FILES RECEIVED FROM THE LOUIS BERGER GROUP IN JUNE 2013.



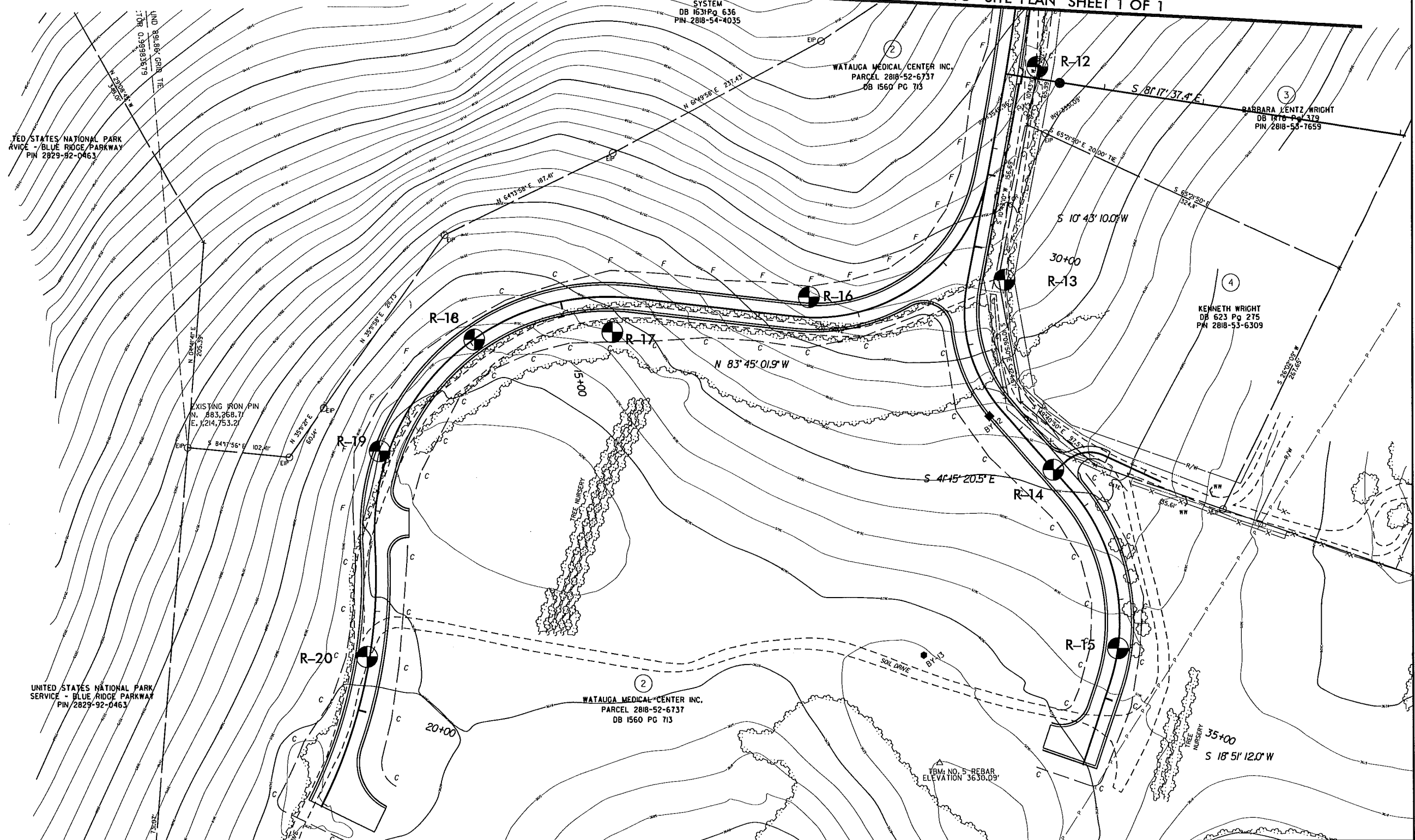
FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

SITE PLAN

BLOWING ROCK POST ACUTE CARE FACILITY
 ACCESS ROAD / US 321
 WATAUGA COUNTY, NC
 FALCON PROJECT NO.: G13036.00

NAD 83/NSRS 2007

MATCH TO SITE PLAN SHEET 1 OF 1



NOTES:
 PLANS ADOPTED FROM ELECTRONIC FILES RECEIVED FROM THE LOUIS BERGER GROUP IN JUNE 2013.



FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
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SITE PLAN

BLOWING ROCK POST ACUTE CARE FACILITY
 ACCESS ROAD / US 321
 WATAUGA COUNTY, NC
 FALCON PROJECT NO.: G13036.00

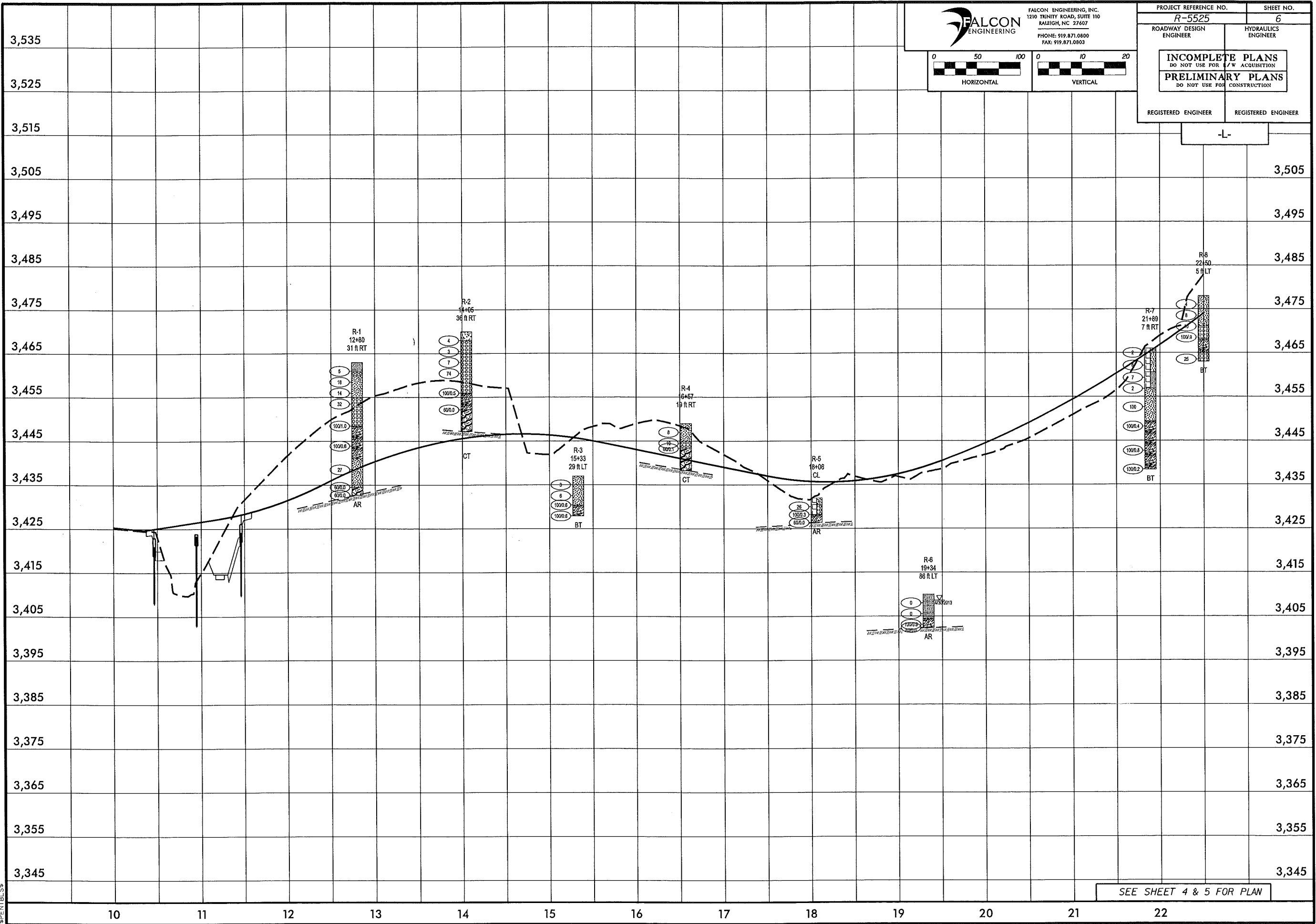
FALCON ENGINEERING
 FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

0 50 100
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 VERTICAL

PROJECT REFERENCE NO. R-5525	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
REGISTERED ENGINEER	REGISTERED ENGINEER

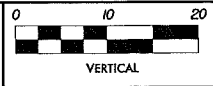
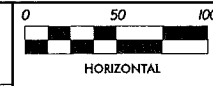
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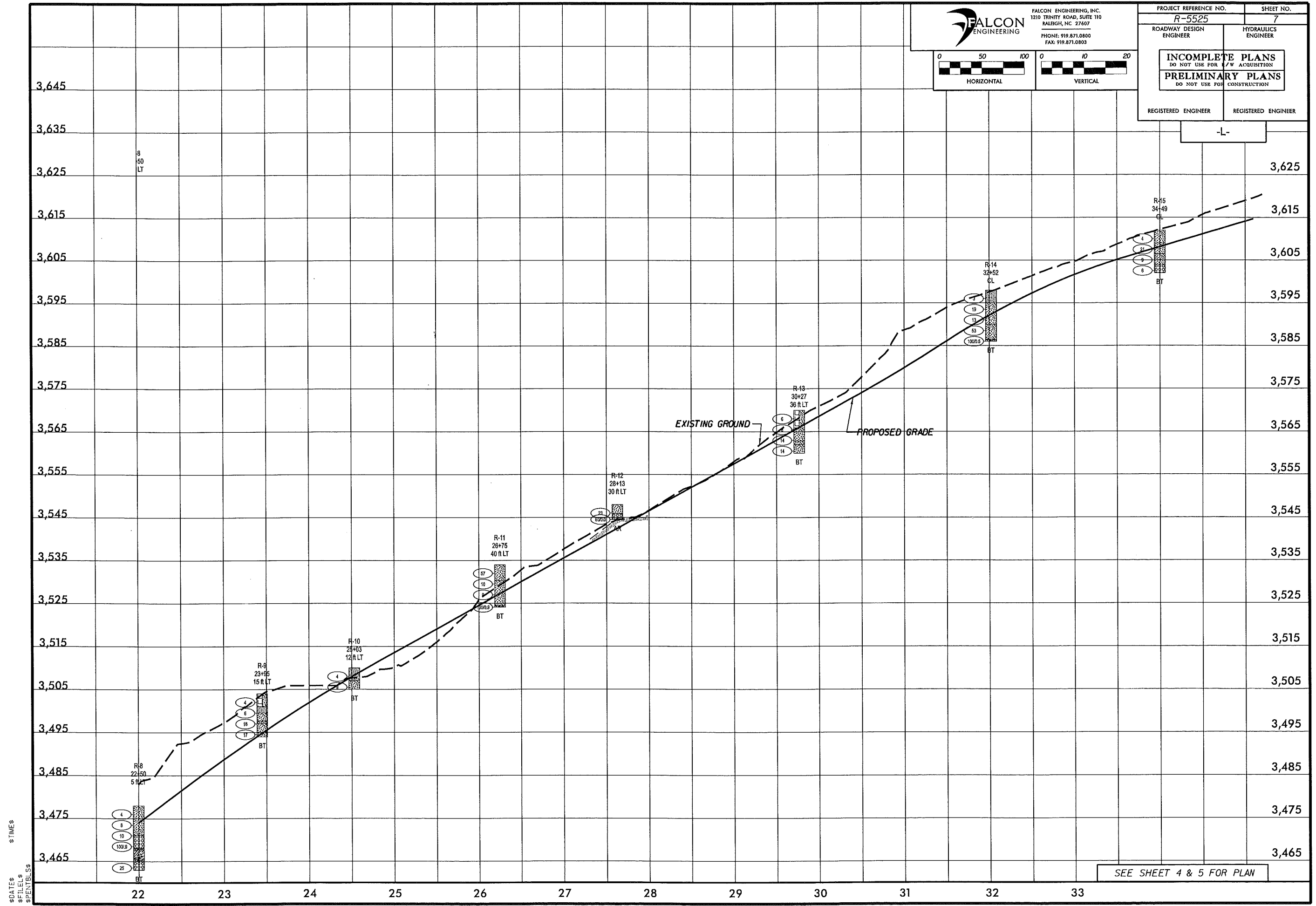


FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

PROJECT REFERENCE NO. R-5525	SHEET NO. 7
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PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
REGISTERED ENGINEER	REGISTERED ENGINEER



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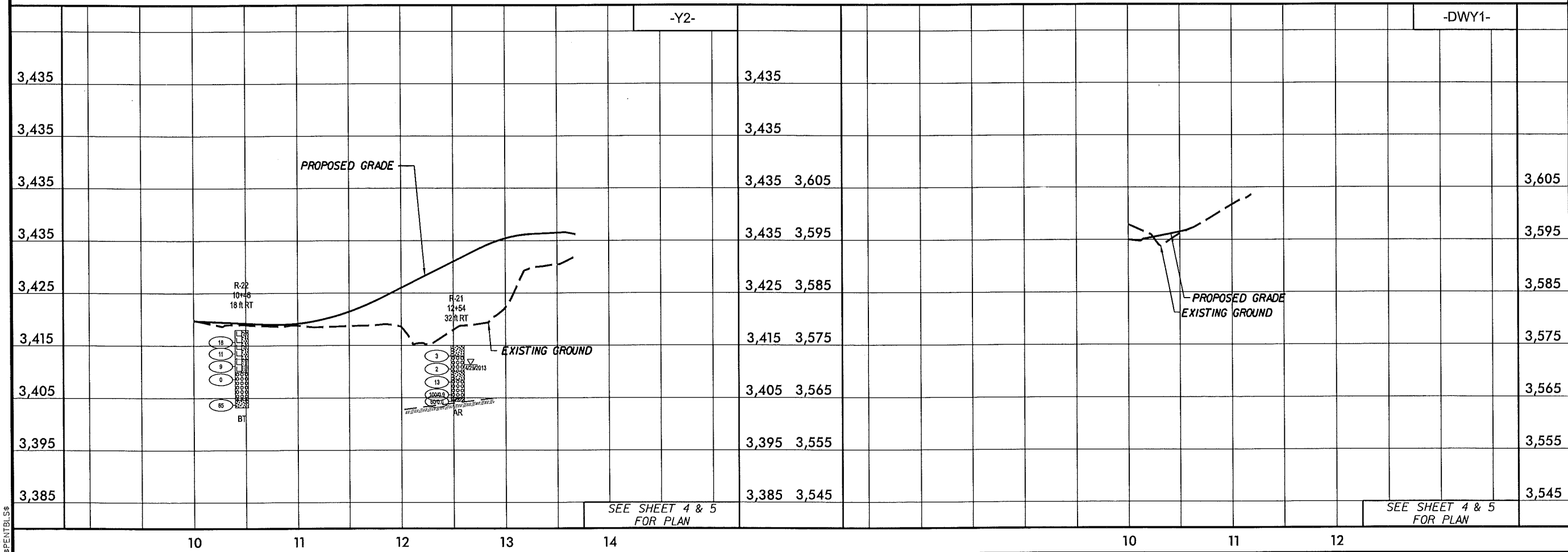
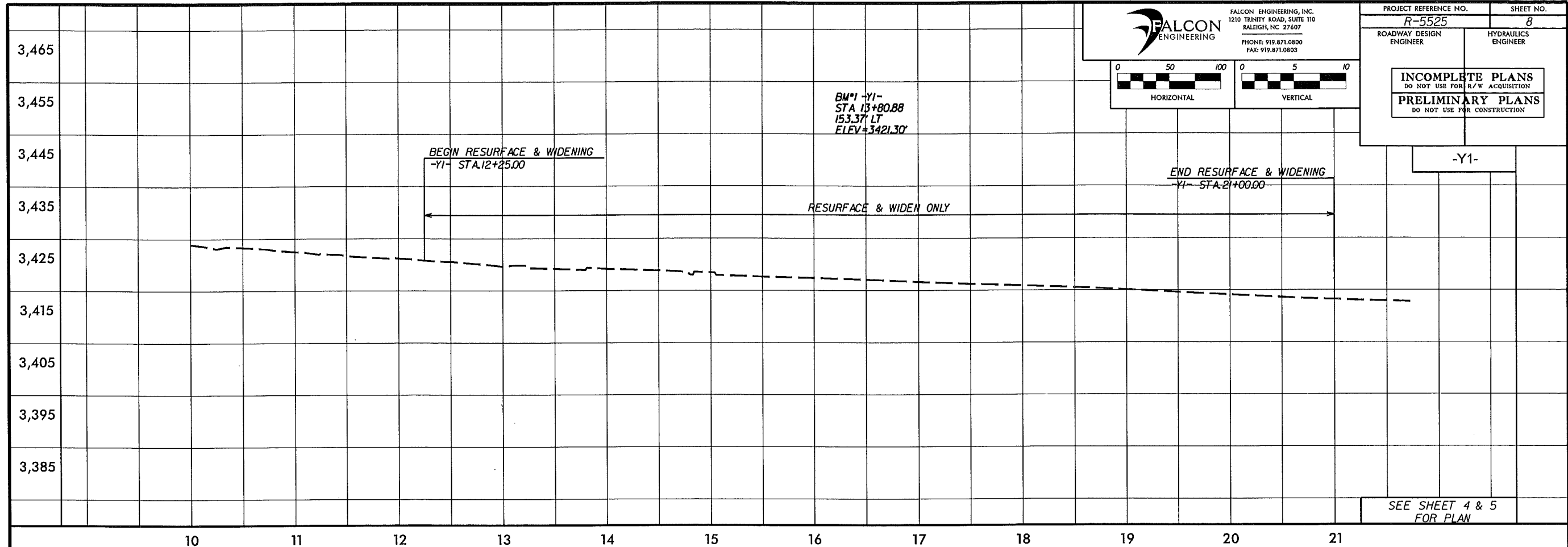
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SEE SHEET 4 & 5 FOR PLAN

FALCON ENGINEERING
 FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

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PROJECT REFERENCE NO. R-5525	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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FALCON ENGINEERING
 FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

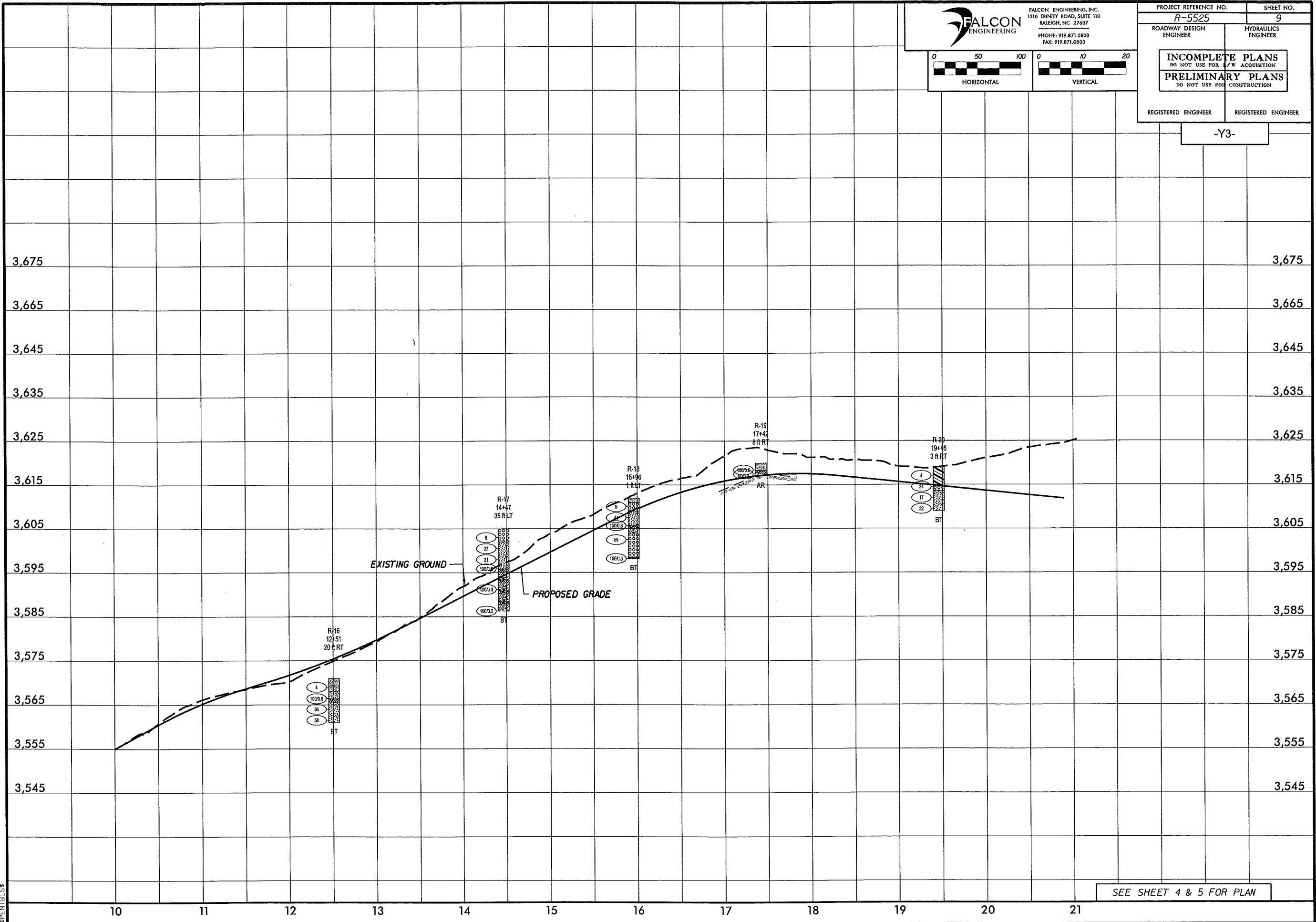
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PROJECT REFERENCE NO. R-5525	SHEET NO. 9
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PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
REGISTERED ENGINEER	REGISTERED ENGINEER

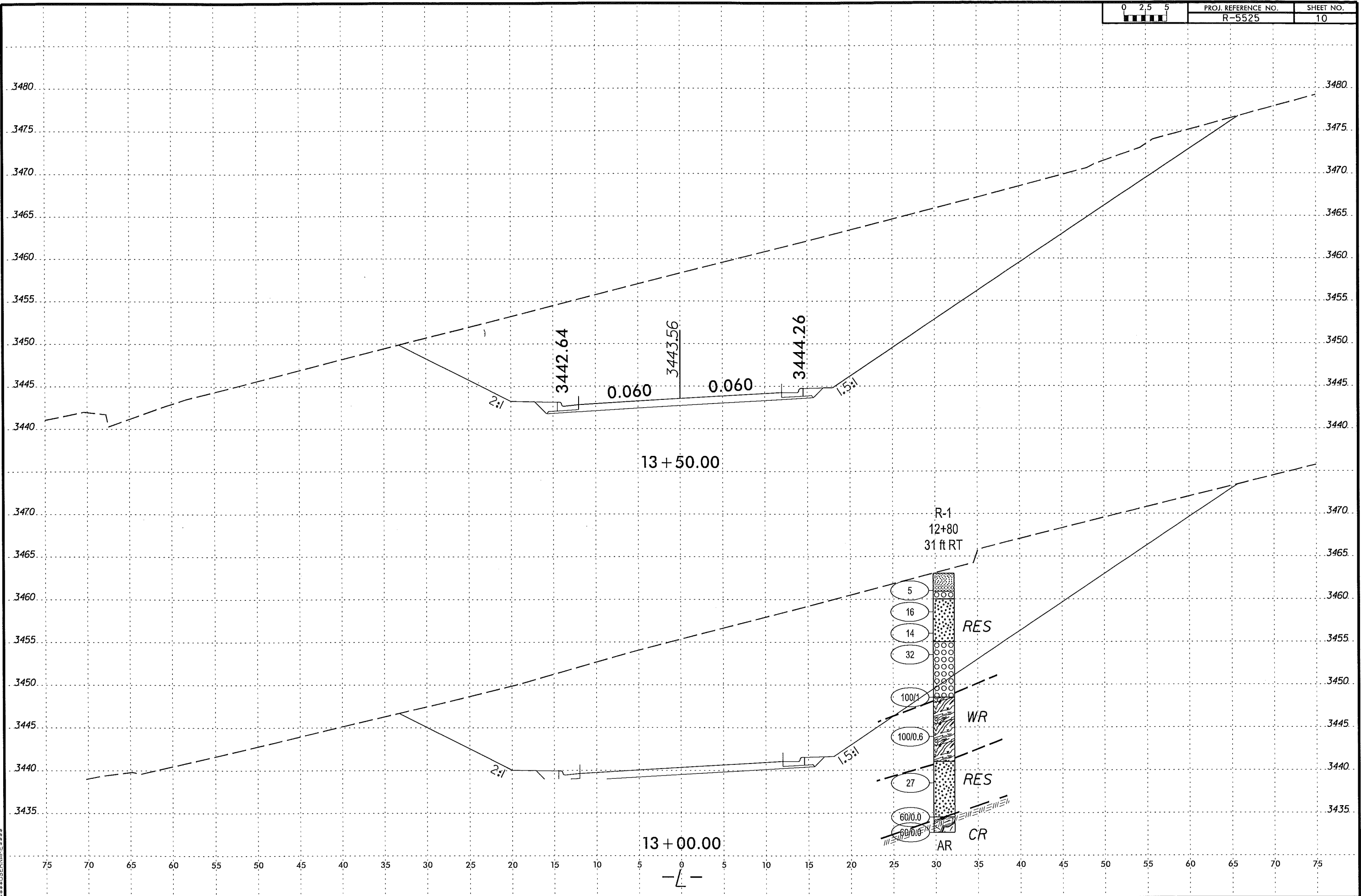
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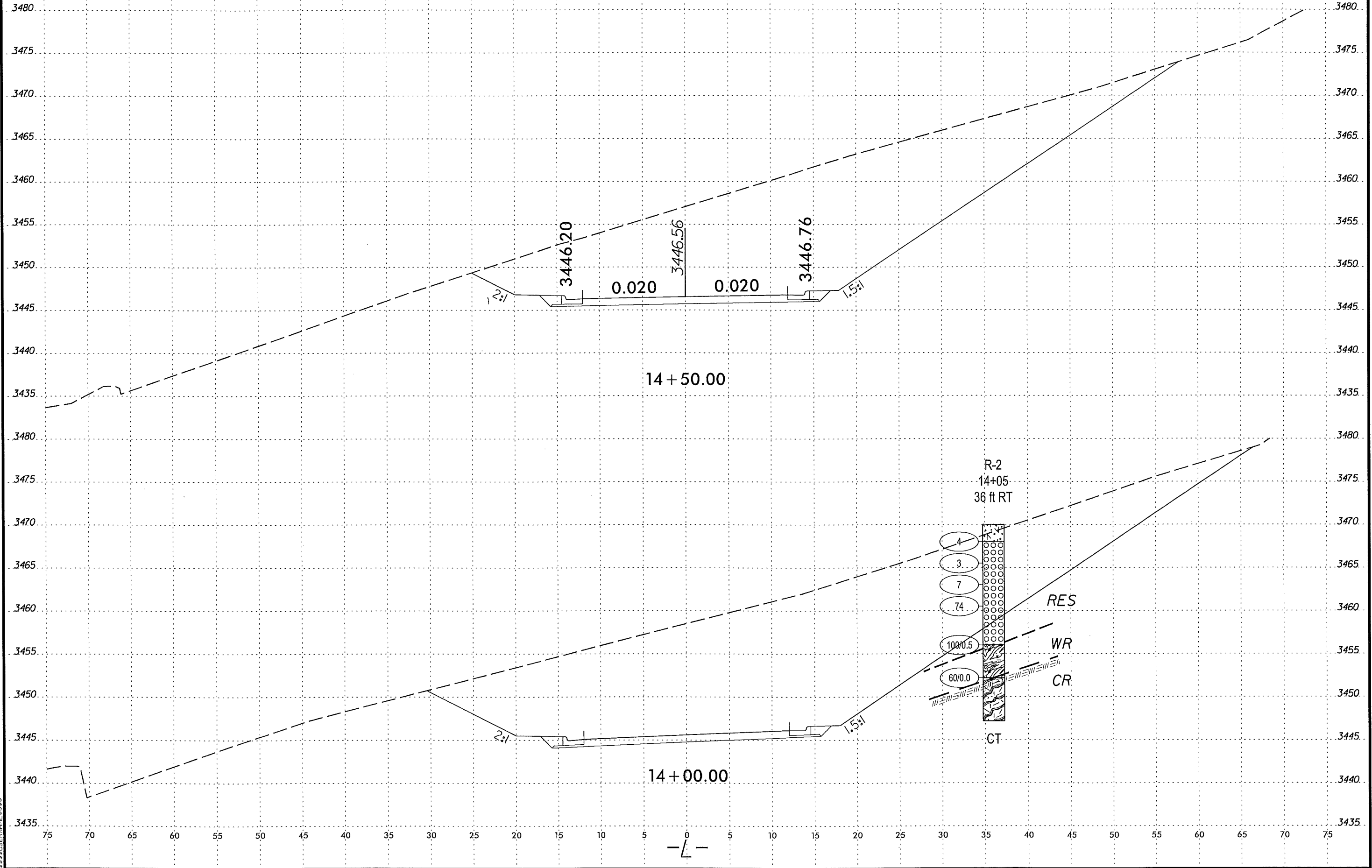


SEE SHEET 4 & 5 FOR PLAN

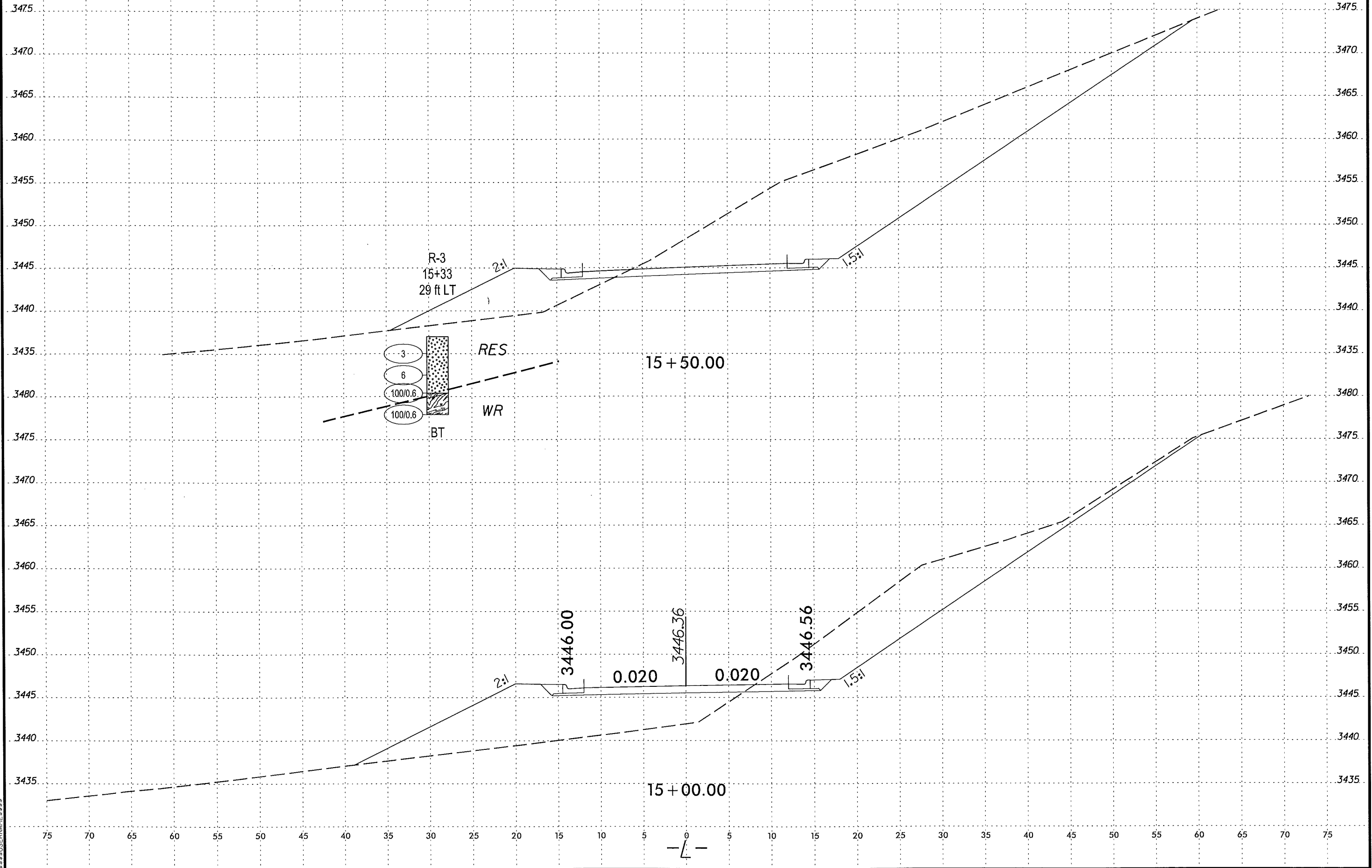
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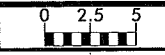
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PROJECT: R-5525
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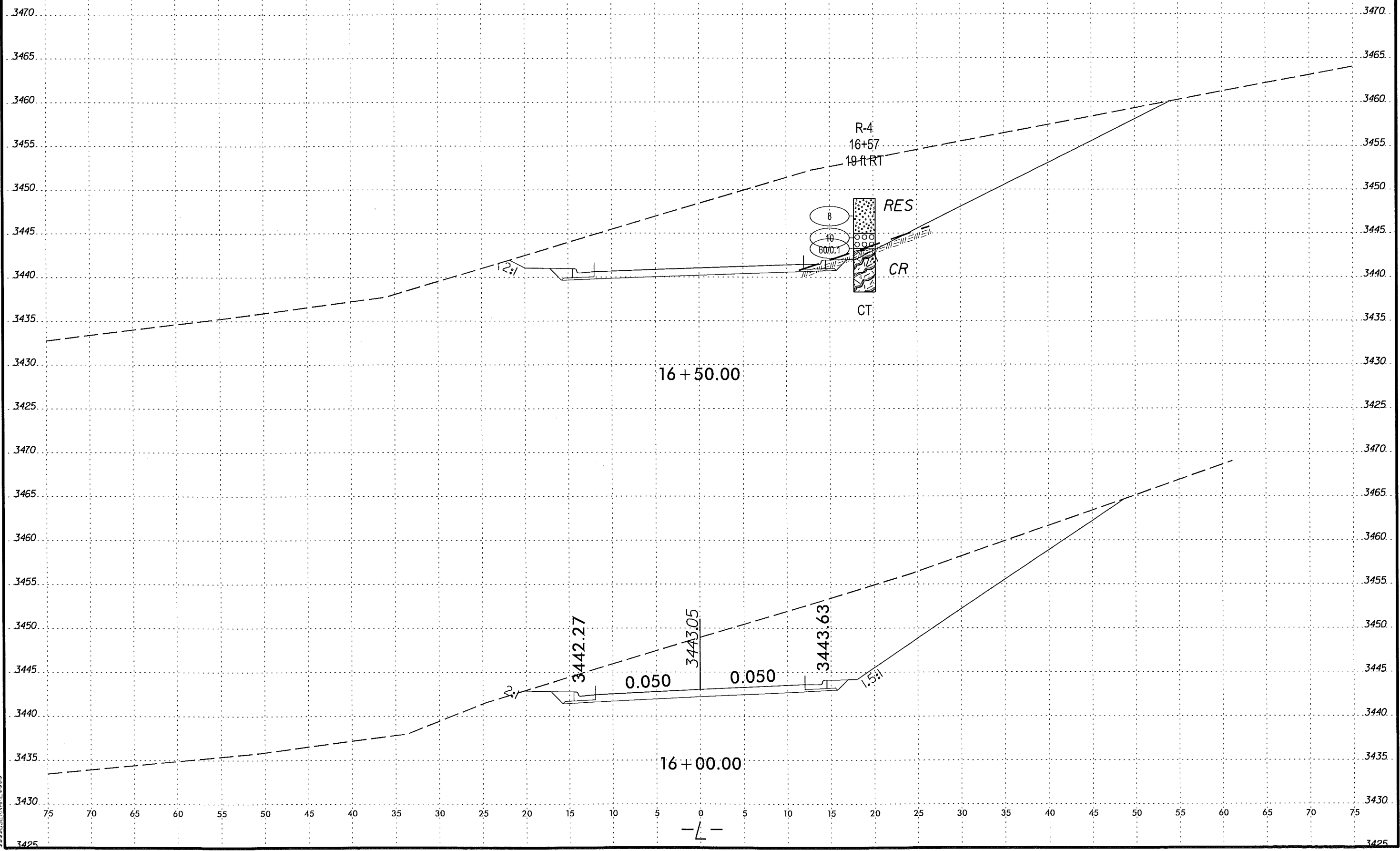
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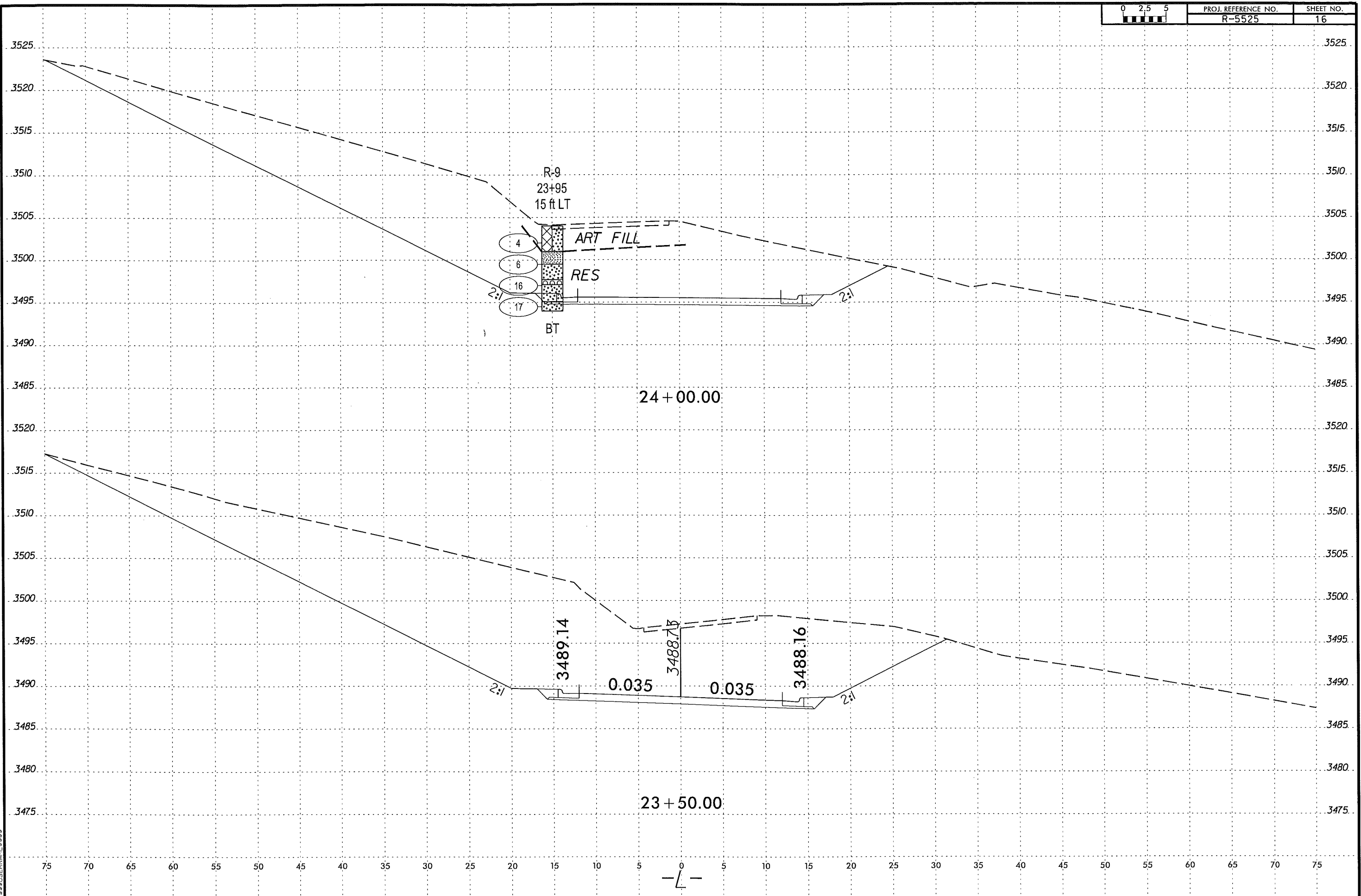
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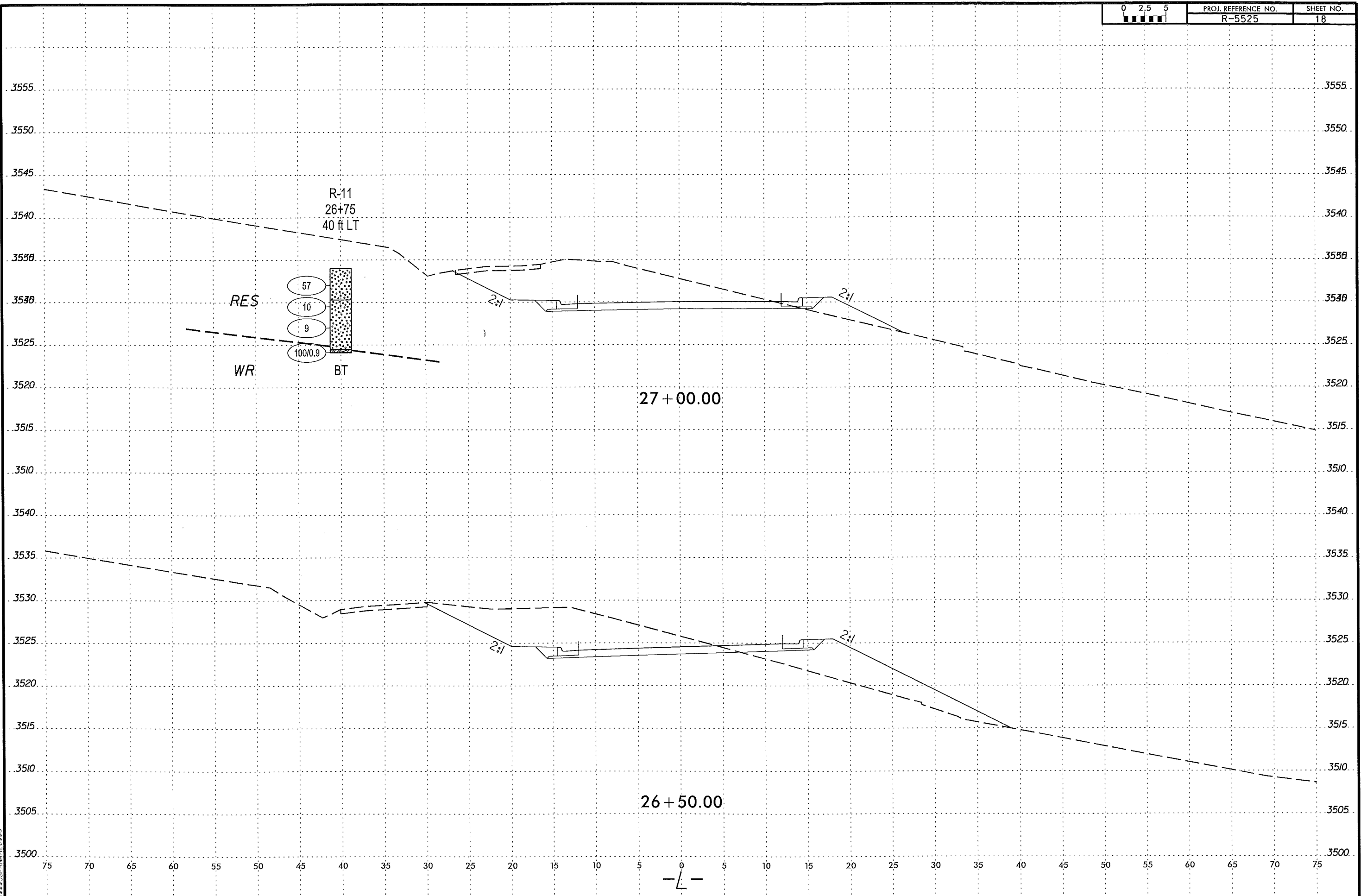
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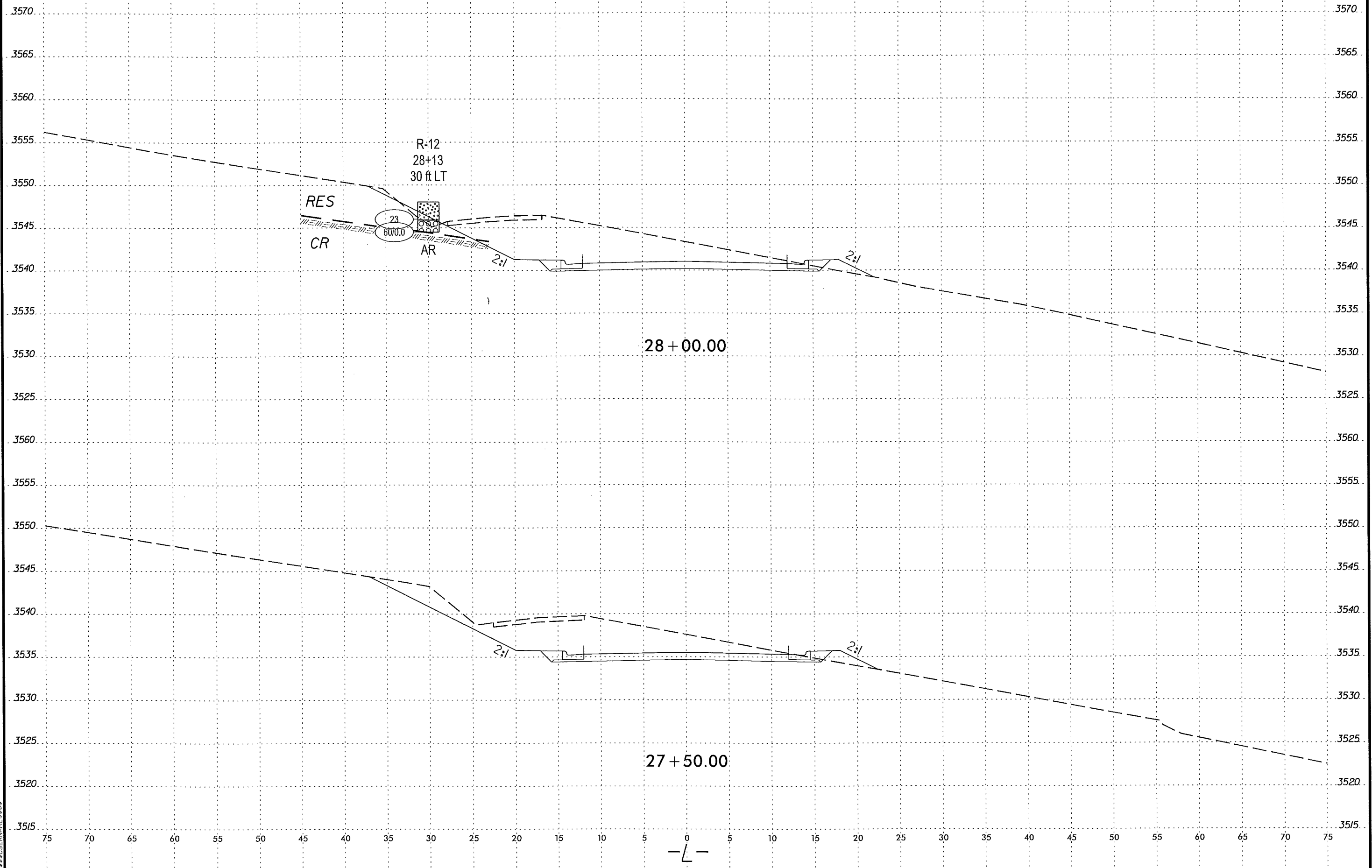
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DISTRICT ENGINEER
STATE OF TEXAS
HIGHWAY DEPARTMENT
DALLAS OFFICE

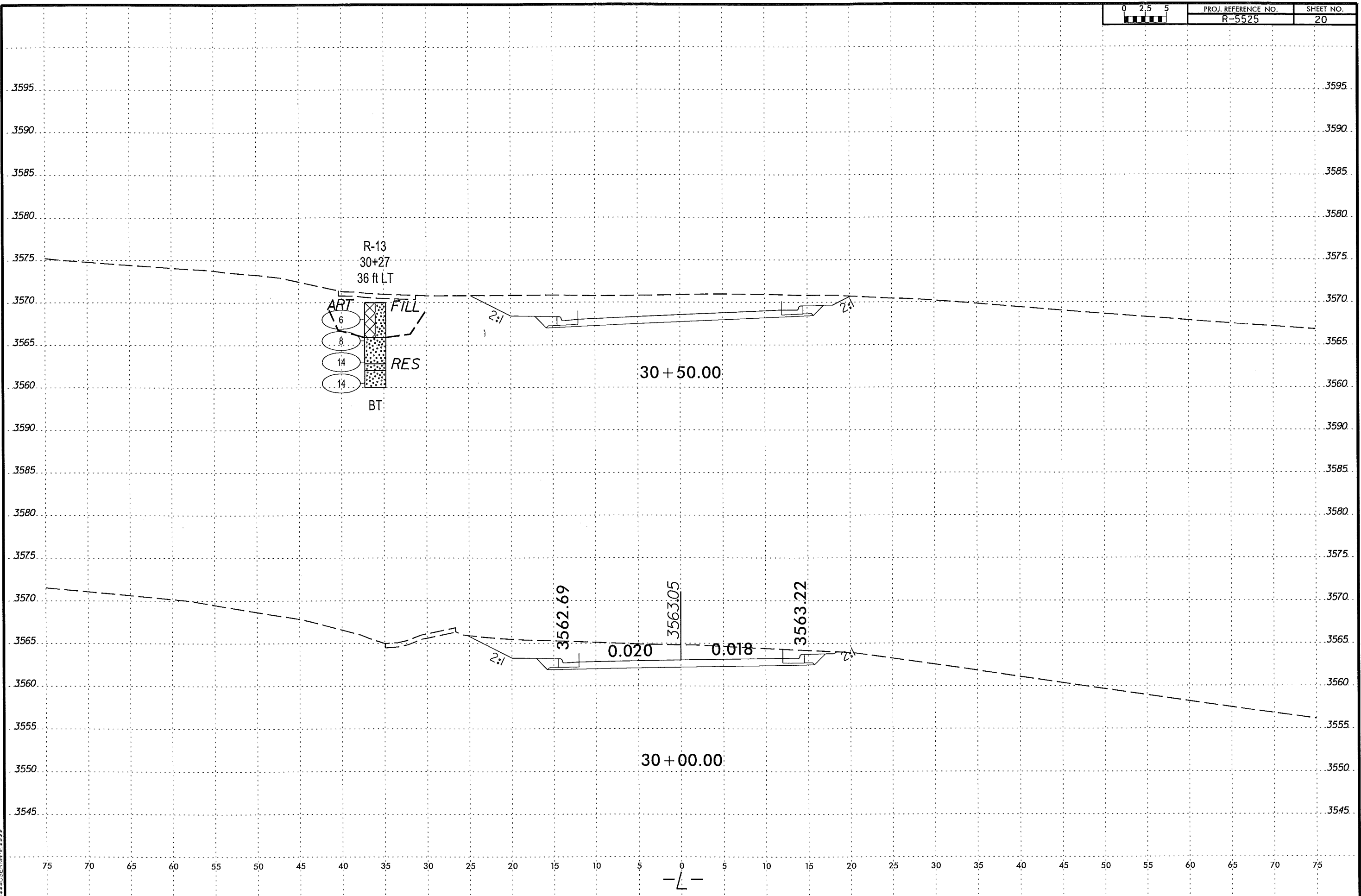


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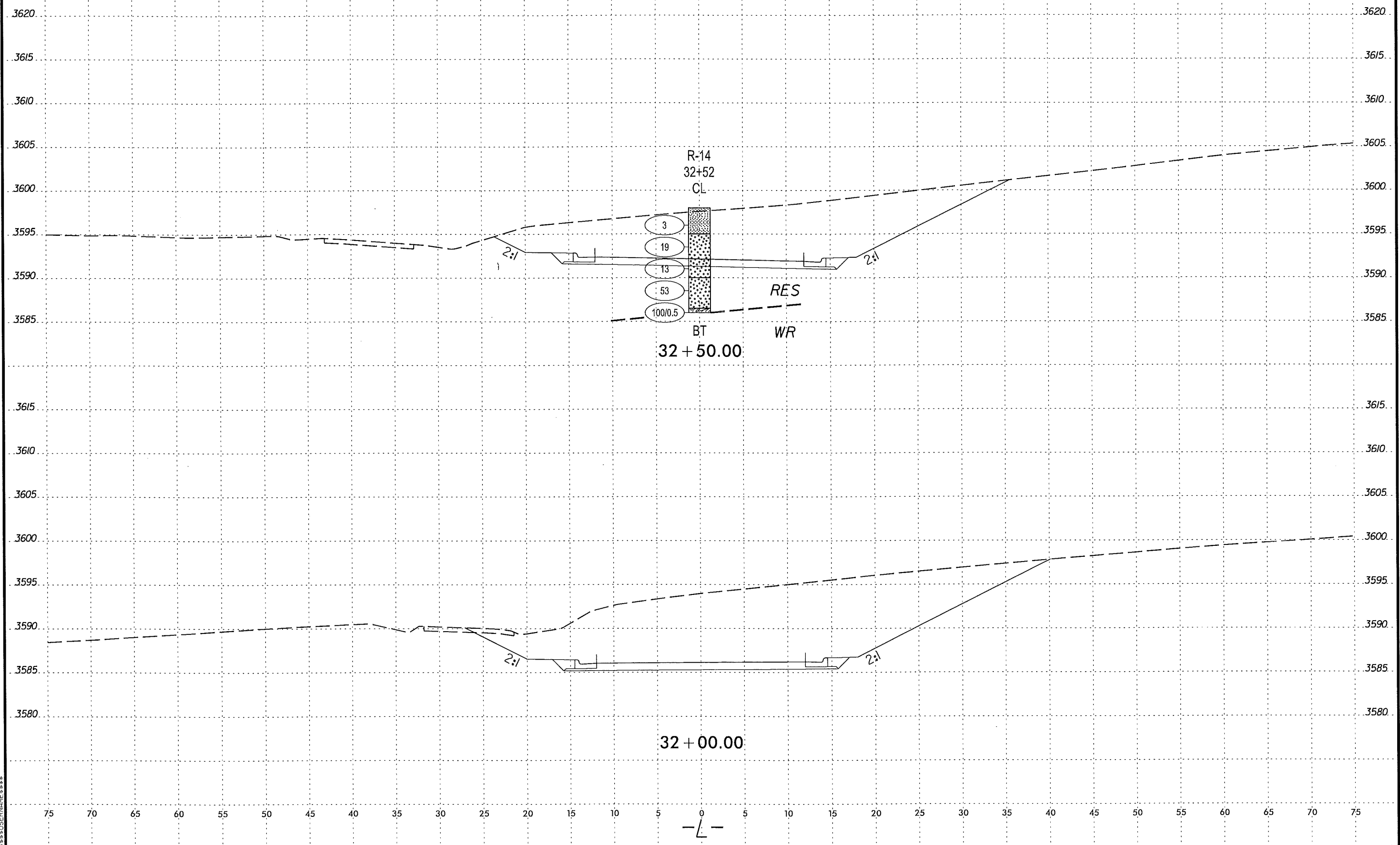


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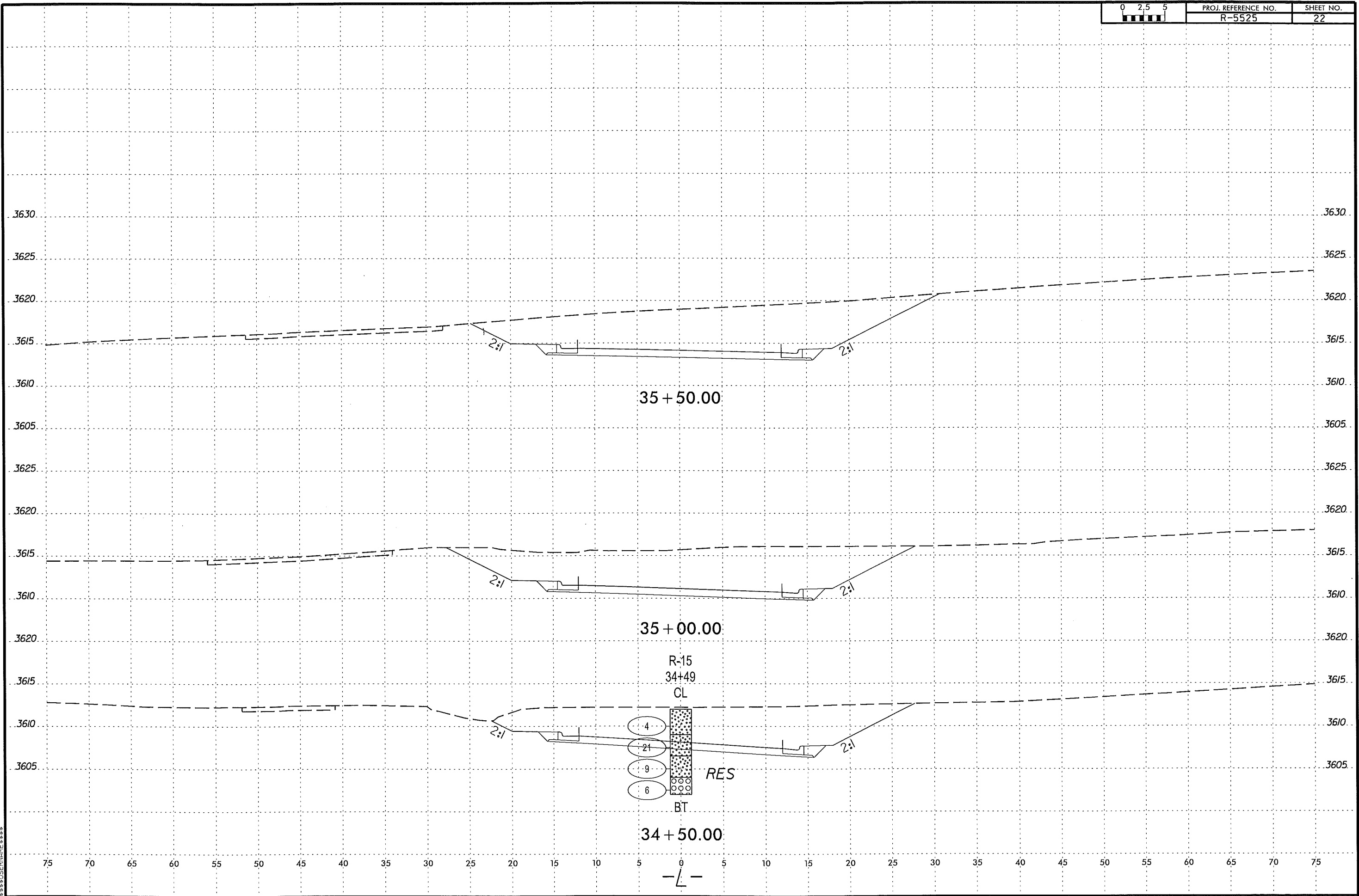
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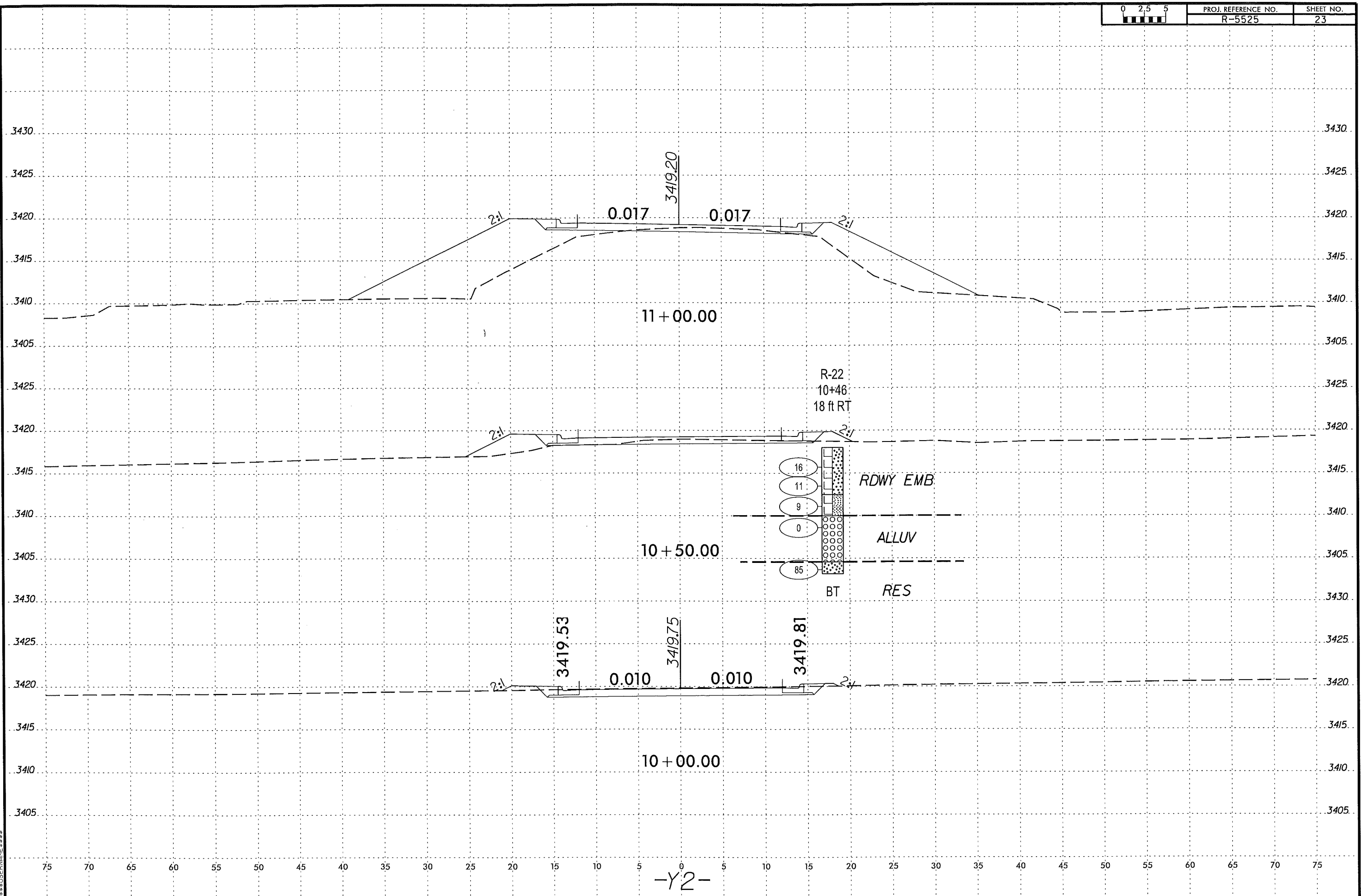
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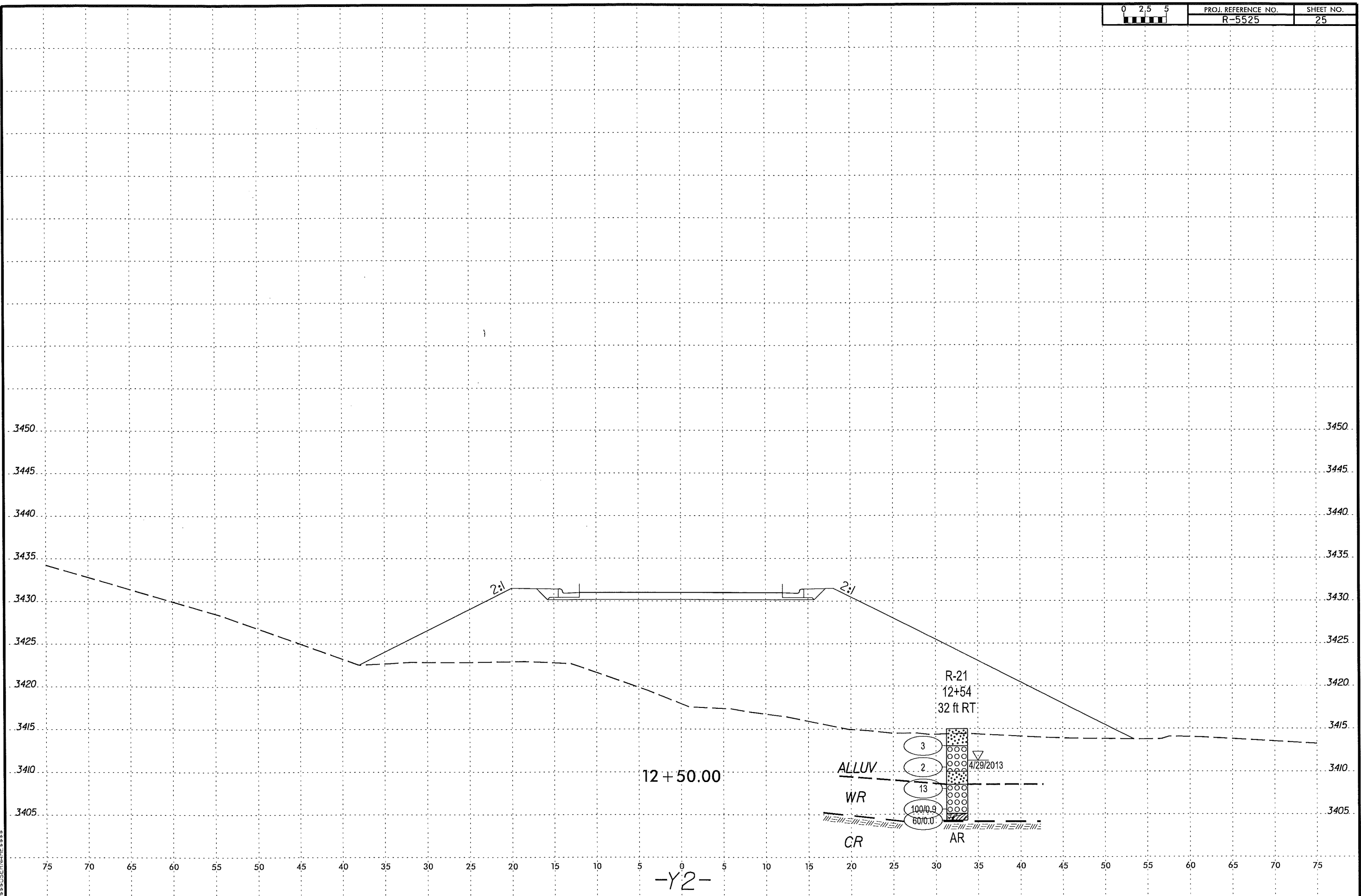


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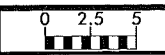


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TIME: 10:00 AM
DRAWN BY: J. W. BROWN
CHECKED BY: J. W. BROWN
SCALE: AS SHOWN

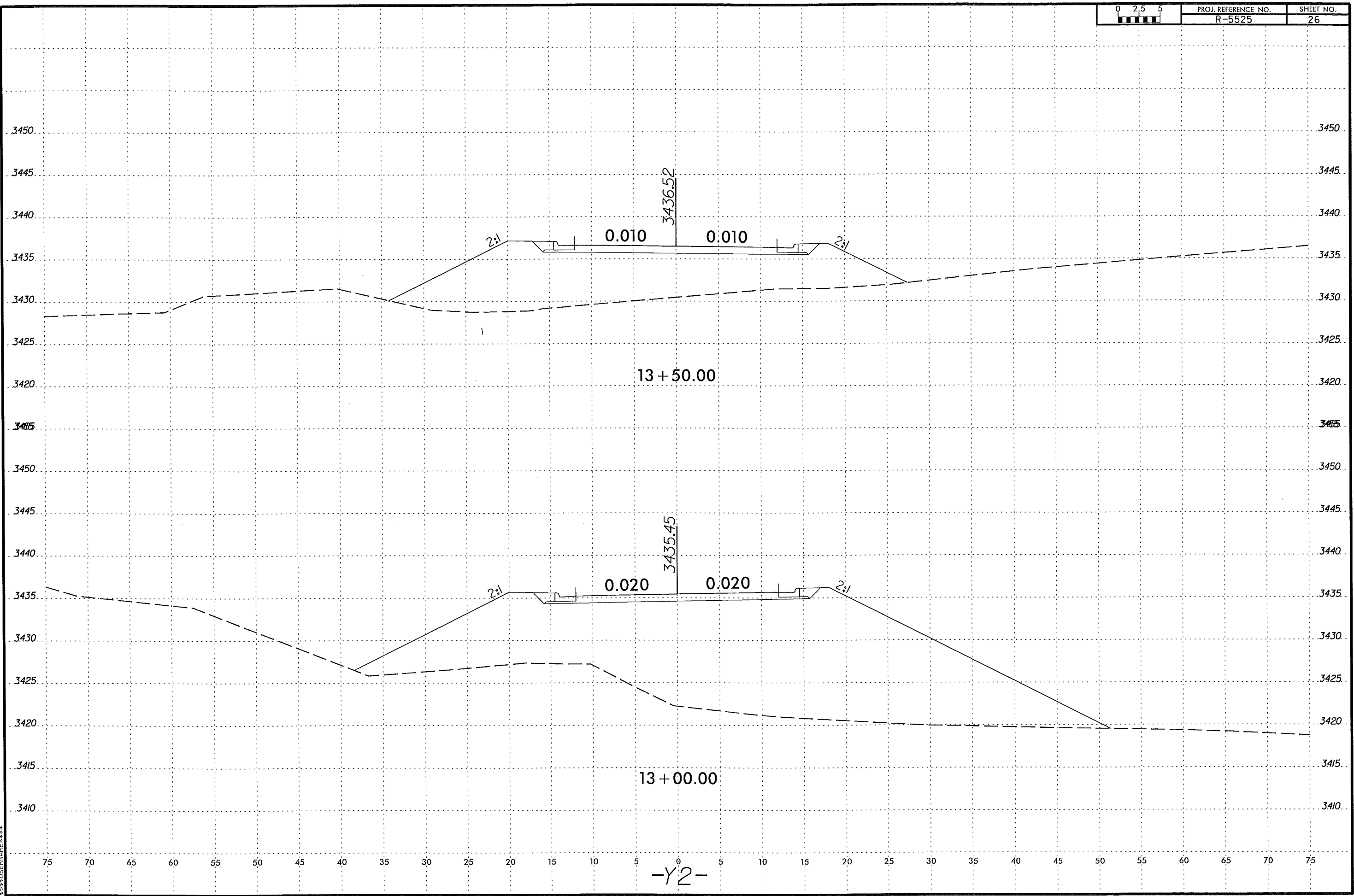
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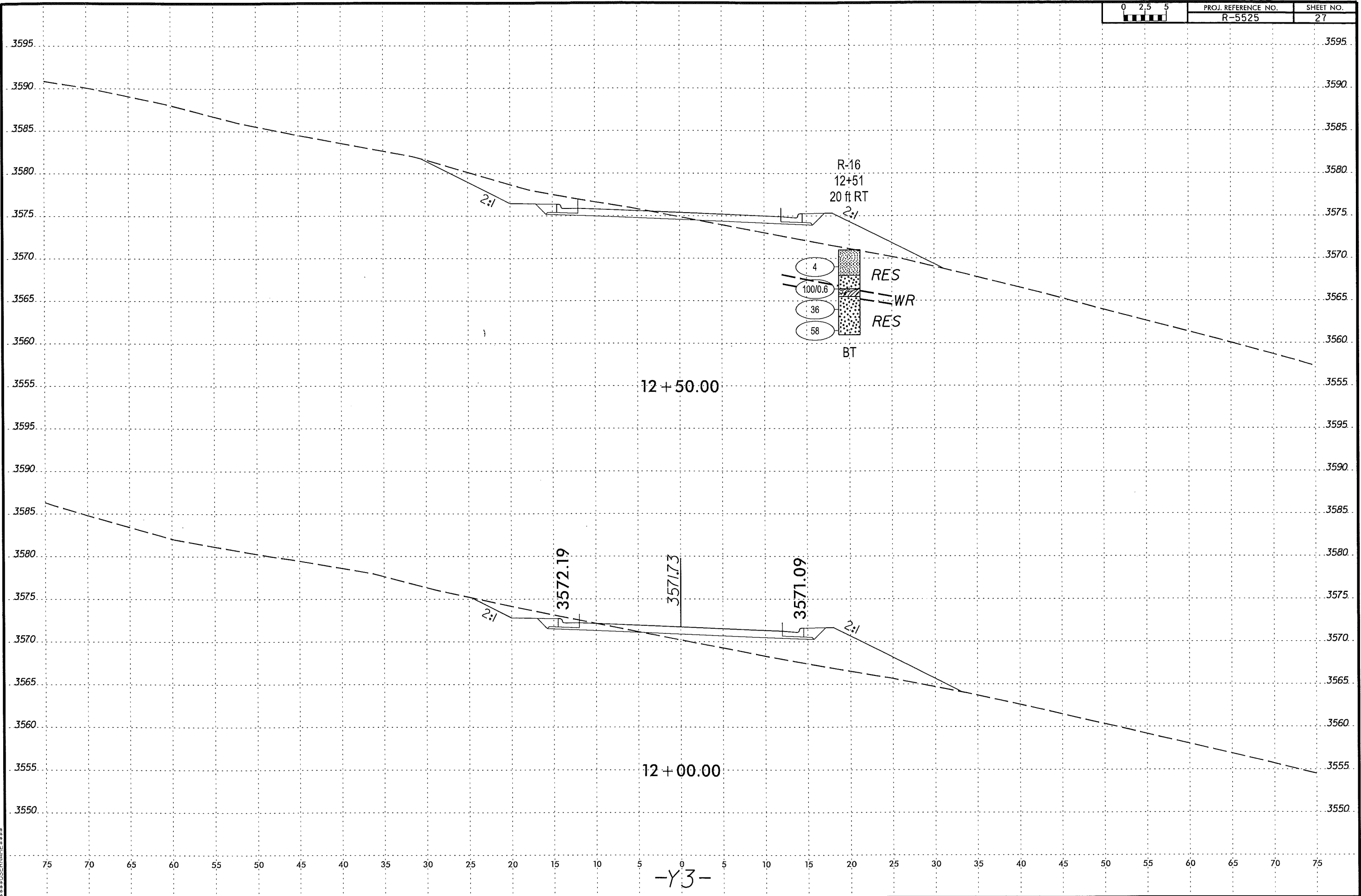
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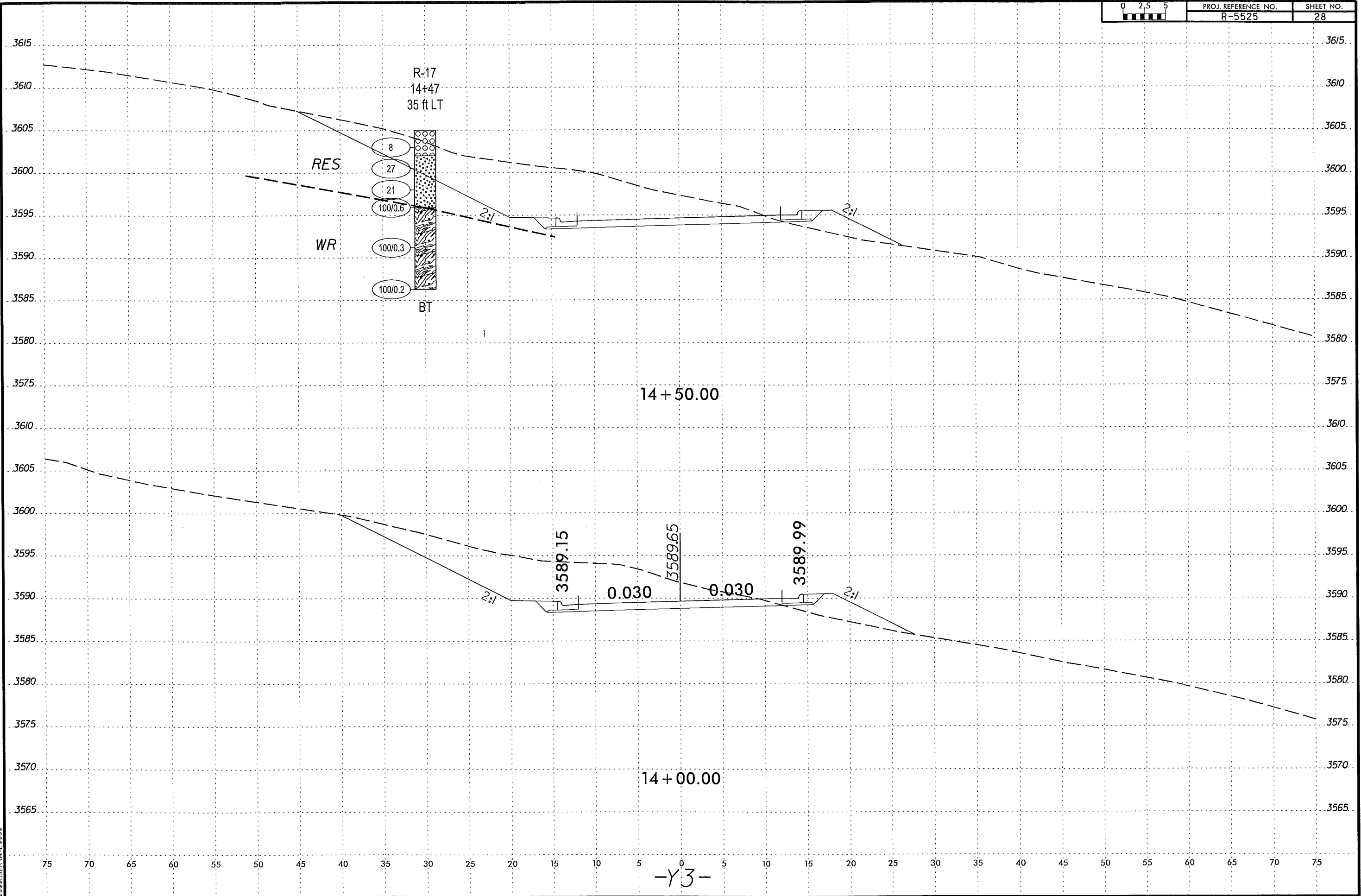
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PROJ. REFERENCE NO. R-5525



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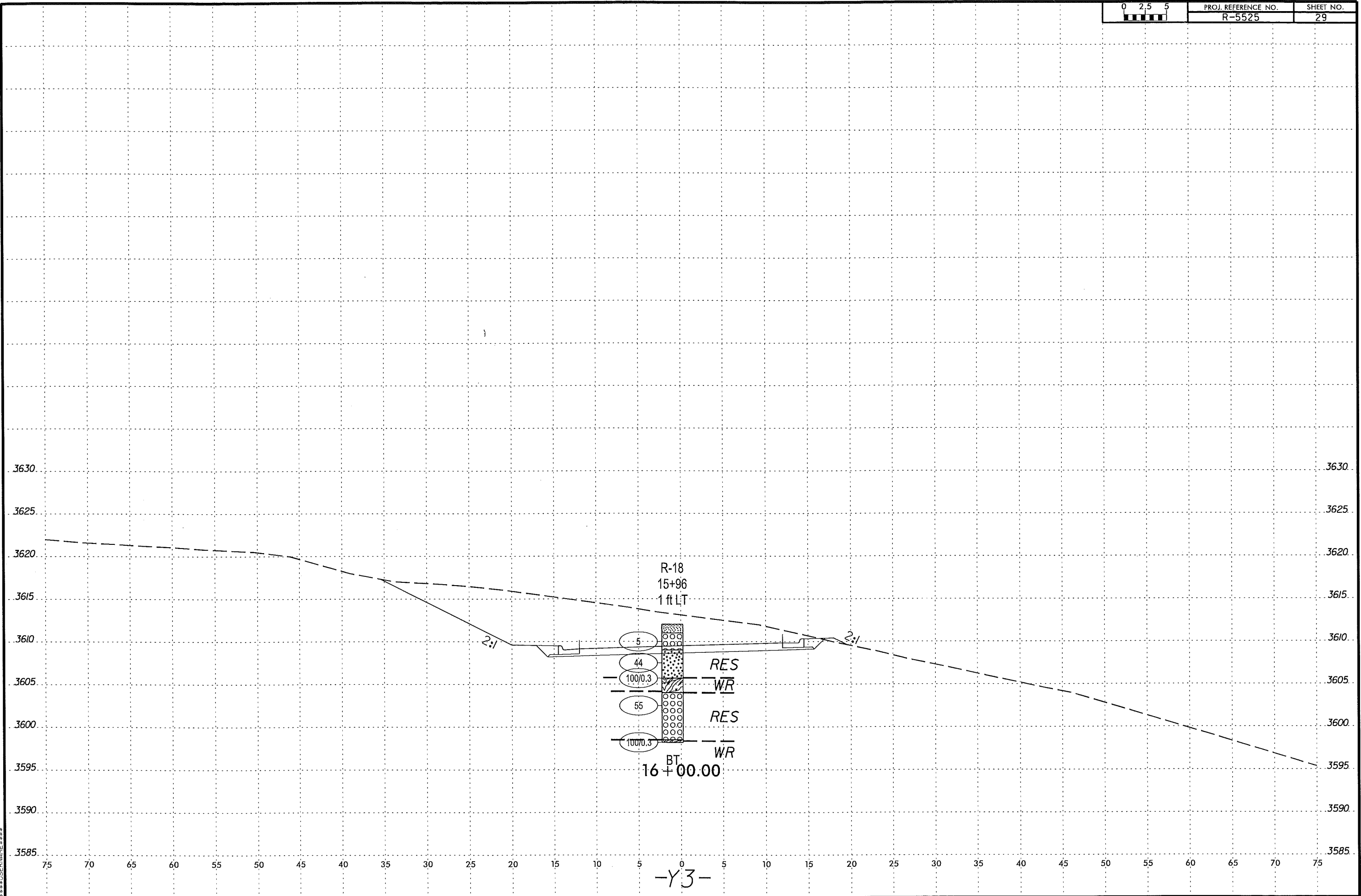


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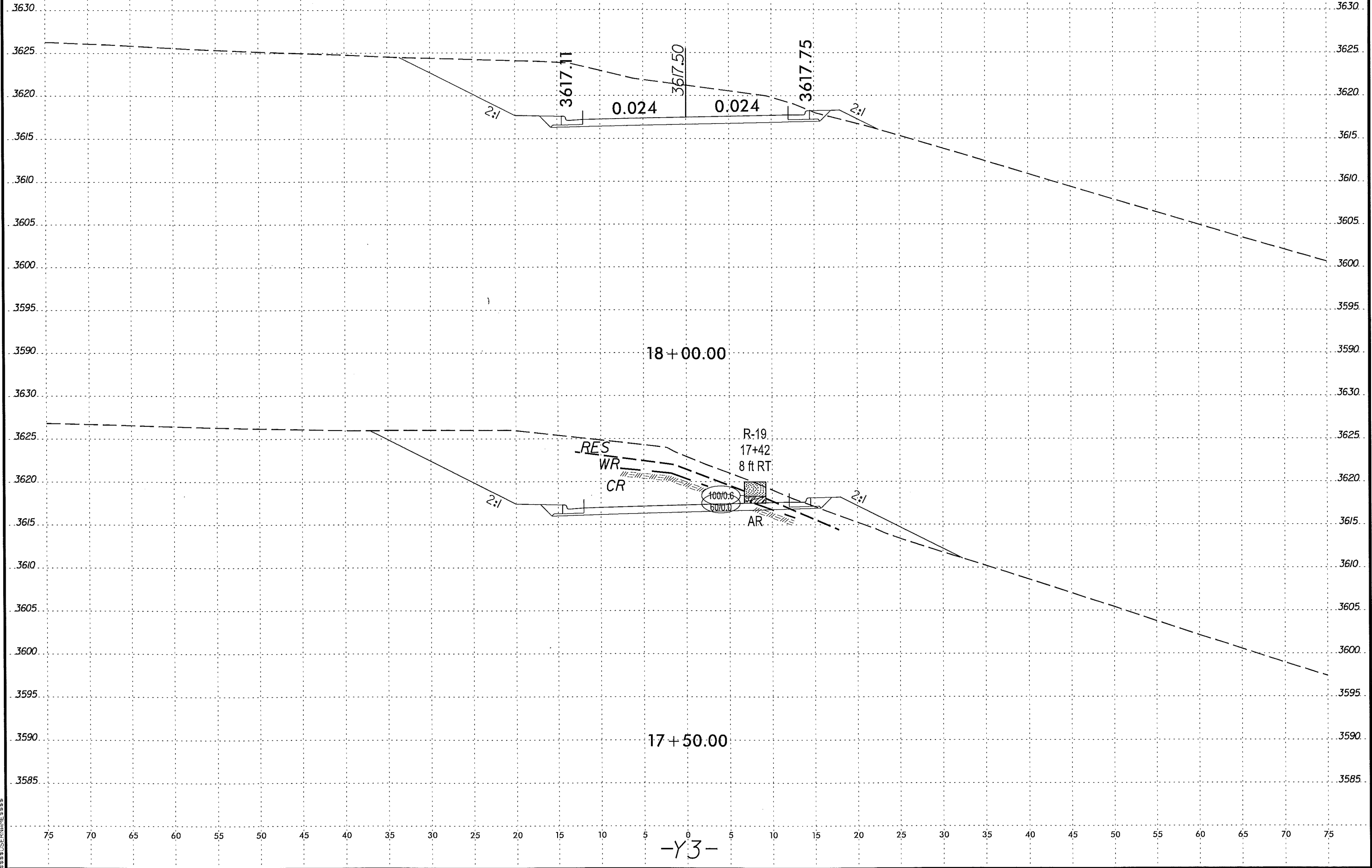
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AS SHOWN
ON SHEET
R-5525

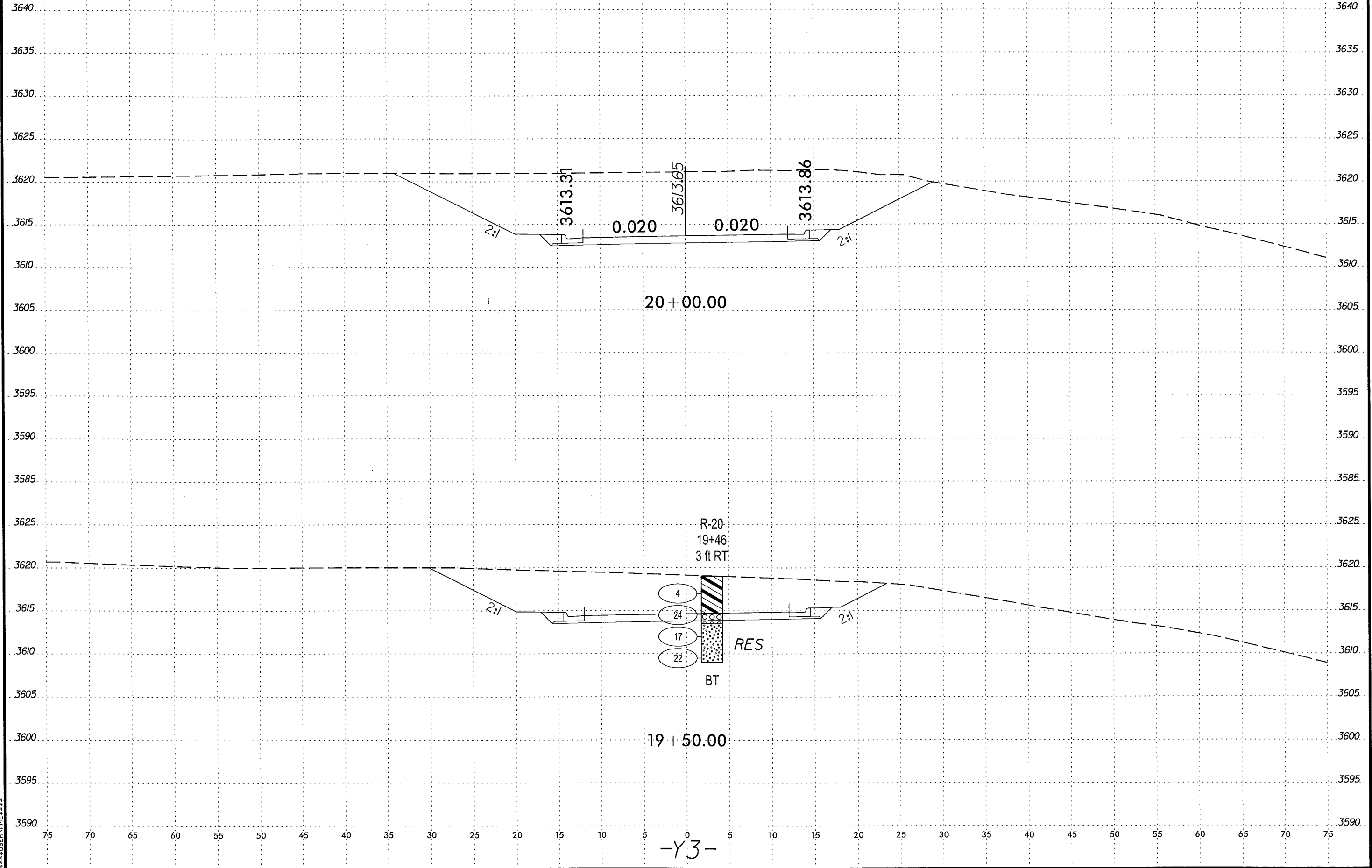


-Y3-

8/23/99
DATE PLOTTED
BY: J. W. BROWN
PROJECT NO. R-5525
SHEET NO. 30



8/23/99
CONSTRUCTION



20 + 00.00

19 + 50.00

R-20
19+46
3 ft RT

4
24
17
22
BT

RES

-Y3-



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.											
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)										
BORING NO. R-1		STATION 12+80		OFFSET 31 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 3,463.0 ft		TOTAL DEPTH 30.3 ft		NORTHING 883,793		EASTING 1,414,928											
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic													
DRILLER J. CAIN		START DATE 05/02/13		COMP. DATE 05/02/13		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
3465															3,463.0	7" TOPSOIL	0.0
	3,462.0	1.0	2	2	3										3,460.9	RESIDUAL TAN F. SANDY SILT (A-4)	2.1
3460	3,459.5	3.5	4	8	8										3,460.0	GRAY AND TAN, SILTY CSE. SAND (A-1-b) W/ ROCK FRAGMENTS	3.0
	3,457.0	6.0	9	8	6											GRAY AND TAN, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	
3455	3,454.5	8.5	11	9	23										3,455.0	GRAY AND TAN, SILTY CSE. SAND (A-1-b) W/ ROCK FRAGMENTS	8.0
	3,449.5	13.5	36	64/0.5											3,448.5	WEATHERED ROCK WHITE GRAY AND TAN, WEATHERED GRANITIC GNEISS	14.5
3445	3,444.5	18.5	75	25/0.1													
	3,439.5	23.5	12	13	14										3,441.0	RESIDUAL GRAY BROWN AND WHITE, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	22.0
3435	3,434.5	28.5	60/0.0												3,434.5	CRYSTALLINE ROCK GRAY AND WHITE GRANITIC GNEISS	28.5
	3,432.7	30.3	60/0.0												3,432.7	CRYSTALLINE ROCK GRAY AND WHITE GRANITIC GNEISS	30.3
																	Boring Terminated by Auger Refusal at Elevation 3,432.7 ft on Crystalline Rock

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.											
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)										
BORING NO. R-2		STATION 14+05		OFFSET 36 ft RT		ALIGNMENT -L-											
COLLAR ELEV. 3,470.0 ft		TOTAL DEPTH 22.8 ft		NORTHING 883,795		EASTING 1,215,074											
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic													
DRILLER Cain, J.		START DATE 05/01/13		COMP. DATE 05/01/13		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
3470															3,470.0	6" TOPSOIL	0.0
	3,469.0	1.0	6	2	2										3,468.0	RESIDUAL TAN AND BROWN, F. SANDY SILT (A-5) W/ ORGANICS	2.0
	3,466.5	3.5	2	1	2											TAN AND WHITE, SILTY CSE. SAND (A-1-b) W/ ROCK FRAGMENTS	
3465	3,464.0	6.0	3	3	4												
	3,461.5	8.5	5	32	42												
3460																	
	3,456.5	13.5	93	7/0.0											3,456.0	WEATHERED ROCK WHITE AND GRAY, WEATHERED GNEISS	14.0
3455	3,452.2	17.8	60/0.0												3,452.2	CRYSTALLINE ROCK BROWN GRAY AND WHITE, V. SEV. TO MOD. SEV. WEATHERED, SOFT TO MOD. HARD, V. CLOSE TO CLOSELY FRACTURED, FINE GRAINED GRANITIC GNEISS	17.8
3450															3,447.2	CRYSTALLINE ROCK BROWN GRAY AND WHITE, V. SEV. TO MOD. SEV. WEATHERED, SOFT TO MOD. HARD, V. CLOSE TO CLOSELY FRACTURED, FINE GRAINED GRANITIC GNEISS	22.8
																	Boring Terminated at Elevation 3,447.2 ft in Crystalline Rock

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ NC_DOT.GDT 10/16/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO.	STATION	OFFSET	ALIGNMENT				0 HR. Dry									
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING				24 HR. FIAD									
DRILL RIG/HAMMER EFF./DATE Mobile B-57				DRILL METHOD HSA		HAMMER TYPE Automatic										
DRILLER Gower, S.		START DATE 04/30/13	COMP. DATE 04/30/13	SURFACE WATER DEPTH N/A												
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3440																
	3,437.0														4" TOPSOIL	0.0
3435	3,436.0	1.0	5	1	2							SS-2	32%	RESIDUAL GRAY TAN AND WHITE, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS		
	3,433.5	3.5	1	1	5											
3430	3,431.0	6.0	70	30/0.1												
	3,428.5	8.5	61	39/0.1										WEATHERED ROCK GRAY TAN AND WHITE, WEATHERED GRANITIC GNEISS	9.1	
															Boring Terminated at Elevation 3,427.9 ft in Weathered Rock	

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO.	STATION	OFFSET	ALIGNMENT				0 HR. Dry									
COLLAR ELEV.	TOTAL DEPTH	NORTHING	EASTING				24 HR. FIAD									
DRILL RIG/HAMMER EFF./DATE CME-550X				DRILL METHOD HSA		HAMMER TYPE Automatic										
DRILLER Cain, J.		START DATE 05/02/13	COMP. DATE 05/02/13	SURFACE WATER DEPTH N/A												
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3450																
	3,449.0														4" ROOTMAT	0.0
	3,448.0	1.0	2	3	5									RESIDUAL TAN, SILTY MED. SAND (A-2-4) W/ ROCK FRAGMENTS		
3445	3,445.5	3.5	4	4	6									TAN AND GRAY, SILTY CSE. SAND (A-1-b) W/ ROCK FRAGMENTS	4.0	
	3,443.4	5.6	60/0.1											CRYSTALLINE ROCK LIGHT AND DARK GRAY BROWN AND WHITE, MOD. TO SLI. WEATHERED, MED. TO MOD. HARD, CLOSELY FRACTURED, GRANITIC GNEISS WITH BANDED SCHIST	5.7	
3440																
	3,438.3															10.7
															Boring Terminated at Elevation 3,438.3 ft in Crystalline Rock	

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ_NC_DOT.GDT 10/16/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)								
BORING NO. R-5		STATION 18+06		OFFSET CL		ALIGNMENT -L-									
COLLAR ELEV. 3,432.0 ft		TOTAL DEPTH 5.6 ft		NORTHING 884,068		EASTING 1,215,367									
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic											
DRILLER Cain, J.		START DATE 05/02/13		COMP. DATE 05/02/13		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
3435															
3430	3,431.0	1.0	2	18	8								M	3,432.0 4" COMPACTED AGGREGATE ROAD	0.0
	3,428.5	3.5												3,430.5 ARTIFICIAL FILL TAN AND GRAY, SILTY F. SAND (A-2-4) W/ GRAVEL	1.5
	3,426.4	5.6												3,428.2 WHITE AND TAN, SILTY CSE. SAND (A-1-B) W/ GRAVEL	3.8
														3,426.4 WEATHERED ROCK GRAY, WEATHERED GRANITIC GNEISS	5.6
Boring Terminated by Auger Refusal at Elevation 3,426.4 ft on Crystalline Rock															

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.									
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)								
BORING NO. R-6		STATION 19+34		OFFSET 86 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 3,410.0 ft		TOTAL DEPTH 7.6 ft		NORTHING 884,220		EASTING 1,215,432									
DRILL RIG/HAMMER EFF./DATE Mobile B-57		DRILL METHOD HSA		HAMMER TYPE Automatic											
DRILLER Gower, S.		START DATE 04/30/13		COMP. DATE 04/30/13		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	L O G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
3410														3,410.0 1" TOPSOIL	0.0
	3,409.0	1.0	WOH	WOH	WOH									ALLUVIAL TAN, F. SANDY SILT (A-4) W/ MICABROWN AND GRAY, SILTY F. SAND (A-2-4) W/ ORGANICS	
	3,406.5	3.5	WOH	WOH	WOH								SS-3 61%	3,404.5	5.5
	3,404.0	6.0	42	58/0.4										WEATHERED ROCK LIGHT AND DARK GRAY AND WHITE, WEATHERED GRANITIC GNEISS	7.6
	3,402.4	7.6	60/0.0											Boring Terminated by Auger Refusal at Elevation 3,402.4 ft on Crystalline Rock	

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ NC_DOT.GDT 10/16/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-11		STATION 26+75		OFFSET 40 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 3,534.0 ft		TOTAL DEPTH 9.9 ft		NORTHING 883,784		EASTING 1,515,635										
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Cain, J.		START DATE 05/03/13		COMP. DATE 05/03/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3535														3,534.0	6" COMPACTED AGGREGATE ROAD	0.0
	3,533.0	1.0		11	32	25							M		RESIDUAL	
3530	3,530.5	3.5		3	5	5							M	3,530.3	TAN WHITE AND GRAY, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	3.7
	3,528.0	6.0		4	4	5							D		TAN AND BROWN, SILTY F. SAND (A-2-4)	
3525	3,525.5	8.5		10	39	61/0.4								3,524.5	WEATHERED ROCK	9.5
														3,524.1	WHITE AND GRAY, WEATHERED GRANITIC GNEISS	9.9
Boring Terminated at Elevation 3,524.1 ft in Weathered Rock																

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-12		STATION 28+13		OFFSET 30 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 3,548.0 ft		TOTAL DEPTH 3.5 ft		NORTHING 883,648		EASTING 1,215,606										
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Cain, J.		START DATE 05/03/13		COMP. DATE 05/03/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3550														3,548.0	9" COMPACTED AGGREGATE ROAD	0.0
	3,547.0	1.0		3	5	18							M	3,545.9	RESIDUAL	
3545	3,544.5	3.5												3,544.5	TAN, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	2.1
															TAN AND WHITE, SILTY CSE. SAND (A-1-b)	3.5
Boring Terminated by Auger Refusal at Elevation 3,544.5 ft on Crystalline Rock																

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ_NC_DOT.GDT 10/16/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-13		STATION 30+27		OFFSET 36 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 3,570.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 883,435		EASTING 1,215,573										
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Cain, J.		START DATE 05/03/13		COMP. DATE 05/03/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3570														3,570.0	10" COMPACTED AGGREGATE ROAD	0.0
	3,569.0	1.0	2	2	4								M		ARTIFICIAL FILL RED-BROWN, SILTY SAND (A-2-4)	
	3,566.5	3.5	5	4	4								M		RESIDUAL TAN AND BROWN, SILTY F. SAND (A-2-4)	4.1
	3,564.0	6.0	3	4	10								D		TAN AND BROWN, SILTY F. SAND (A-2-4) MICA.	7.2
	3,561.5	8.5	4	5	9								D		TAN GRAY AND WHITE, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	8.2
3580															TAN AND BROWN SILTY F. SAND (A-2-4)	10.0
Boring Terminated at Elevation 3,560.0 ft in Residuum																

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-14		STATION 32+52		OFFSET CL		ALIGNMENT -L-										
COLLAR ELEV. 3,598.0 ft		TOTAL DEPTH 12.0 ft		NORTHING 883,245		EASTING 1,515,621										
DRILL RIG/HAMMER EFF./DATE Mobile B-57		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Gower, S.		START DATE 05/01/13		COMP. DATE 05/01/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3600														3,598.0	5" TOPSOIL	0.0
	3,597.0	1.0	1	1	2								SS-7	33%	RESIDUAL TAN, F. SANDY SILT (A-4)	
	3,594.5	3.5	2	6	13								M		GRAY TAN AND BROWN, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	3.0
	3,592.0	6.0	4	5	8								M		GRAY TAN AND BROWN, SILTY F. SAND (A-2-4)	8.0
	3,589.5	8.5	6	18	35								M		GRAY TAN AND BROWN, SILTY F. SAND (A-2-4)	8.0
	3,586.5	11.5	100	0.5											Boring Terminated at Elevation 3,586.0 ft in Weathered Rock	12.0

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ NC_DOT.GDT 10/16/13



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO.	STATION	OFFSET	CL	ALIGNMENT	-L-	0 HR.	Dry									
COLLAR ELEV.	TOTAL DEPTH	NORTHING	883,067	EASTING	1,215,686	24 HR.	FIAD									
DRILL RIG/HAMMER EFF./DATE Mobile B-57				DRILL METHOD HSA		HAMMER TYPE Automatic										
DRILLER Gower, S.		START DATE 05/01/13		COMP. DATE 05/01/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3615																
3610	3,611.0	1.0	1	1	3									M	6" TOPSOIL	0.0
	3,608.5	3.5	5	7	14									M	TAN AND BROWN, SILTY SAND (A-2-4) RESIDUAL	3.0
	3,606.0	6.0	4	4	5									M	TAN AND GRAY, SILTY SAND (A-2-4) W/ ROCK FRAGMENTS	5.5
3605	3,603.5	8.5	3	3	3									M	TAN GRAY AND BROWN, SILTY SAND (A-2-4)	8.0
														M	TAN AND GRAY, SILTY CSE. SAND (A-1-b)	10.0
Boring Terminated at Elevation 3,602.0 ft in Residuum																

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.											
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)										
BORING NO.	STATION	OFFSET	CL	ALIGNMENT	-Y3-	0 HR.	Dry										
COLLAR ELEV.	TOTAL DEPTH	NORTHING	883,418	EASTING	1,215,377	24 HR.	FIAD										
DRILL RIG/HAMMER EFF./DATE CME-550X				DRILL METHOD HSA		HAMMER TYPE Automatic											
DRILLER Cain, J.		START DATE 05/03/13		COMP. DATE 05/03/13		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
3575																	
3570	3,570.0	1.0	1	2	2									SS-8	23%	5" TOPSOIL	0.0
	3,567.5	3.5	16	73	270.1											TAN, F. SANDY SILT (A-4) W/ ROCK FRAGMENTS	3.0
	3,565.0	6.0	11	6	30											TAN AND BROWN, SILTY F. SAND (A-2-4)	4.6
3565	3,562.5	8.5	20	29	29											WEATHERED ROCK	5.5
																GRAY AND TAN, WEATHERED GRANITIC GNEISS	
																RESIDUAL	
																GRAY AND TAN, SILTY F. SAND (A-2-4) W/ ROCK FRAGMENTS, SAPROLITIC	10.0
Boring Terminated at Elevation 3,561.0 ft in Residuum																	

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ NC_DOT.GDT 10/16/13

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-21		STATION 12+54		OFFSET 32 ft RT		ALIGNMENT -Y2-										
COLLAR ELEV. 3,415.0 ft		TOTAL DEPTH 10.7 ft		NORTHING 884,165		EASTING 1,215,313										
DRILL RIG/HAMMER EFF./DATE Mobile B-57		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Gower, S.		START DATE 04/29/13		COMP. DATE 04/29/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3415														3,415.0	2" TOPSOIL	0.0
	3,414.0	1.0	2	1	2									3,413.0	ALLUVIAL BROWN AND TAN, SILTY F. SAND (A-2-4) W/ ROCK FRAGMENTS	2.0
	3,411.5	3.5	1	1	1									3,410.0	GRAY, SILTY MED. SAND (A-1-b)	5.0
3410	3,409.0	6.0	5	5	8									3,408.5	GRAY, SILTY F. SAND (A-2-4)	6.5
	3,407.0	8.0	8	40	60/0.4									3,405.1	RESIDUAL GRAY ORANGE AND TAN, SILTY CSE. SAND (A-1-b) W/ ROCK FRAGMENTS	9.9
3405	3,404.3	10.7												3,404.3	WEATHERED ROCK TAN AND WHITE, WEATHERED GRANITIC GNEISS	10.7
Boring Terminated by Auger Refusal at Elevation 3,404.3 ft on Crystalline Rock																

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Evans, T. E.										
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)									
BORING NO. R-22		STATION 10+46		OFFSET 18 ft RT		ALIGNMENT -Y2-										
COLLAR ELEV. 3,418.0 ft		TOTAL DEPTH 14.8 ft		NORTHING 884,332		EASTING 1,215,313										
DRILL RIG/HAMMER EFF./DATE Mobile B-57		DRILL METHOD HSA		HAMMER TYPE Automatic												
DRILLER Gower, S.		START DATE 05/03/13		COMP. DATE 05/03/13		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
3420														3,418.0	12" COMPACTED AGGREGATE ROAD	0.0
	3,416.7	1.3	4	7	9									3,415.5	ROADWAY EMBANKMENT BROWN GRAY AND TAN, SILTY F. SAND (A-2-4) W/ GRAVEL	1.3
3415	3,414.5	3.5	3	5	6									3,412.5	GRAY, SLI. SILTY SAND (A-1-b) W/ GRAVEL, MICACEOUS	5.5
	3,412.1	5.9	5	5	4									3,410.0	ALLUVIAL GRAY, SLI. SILTY SAND (A-1-b)	8.0
3410	3,409.6	8.4	WOH	WOH	WOH									3,404.6	RESIDUAL GRAY TAN AND BROWN, SILTY SAND (A-2-4) W/ROCK FRAGMENTS, MICACEOUS, SAPROLITIC	13.4
3405	3,404.7	13.3	16	37	48									3,403.2	Boring Terminated at Elevation 3,403.2 ft in Residuum	14.8

NCDOT BORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ_NC_DOT.GDT 10/16/13

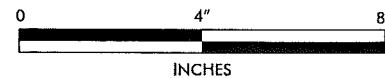
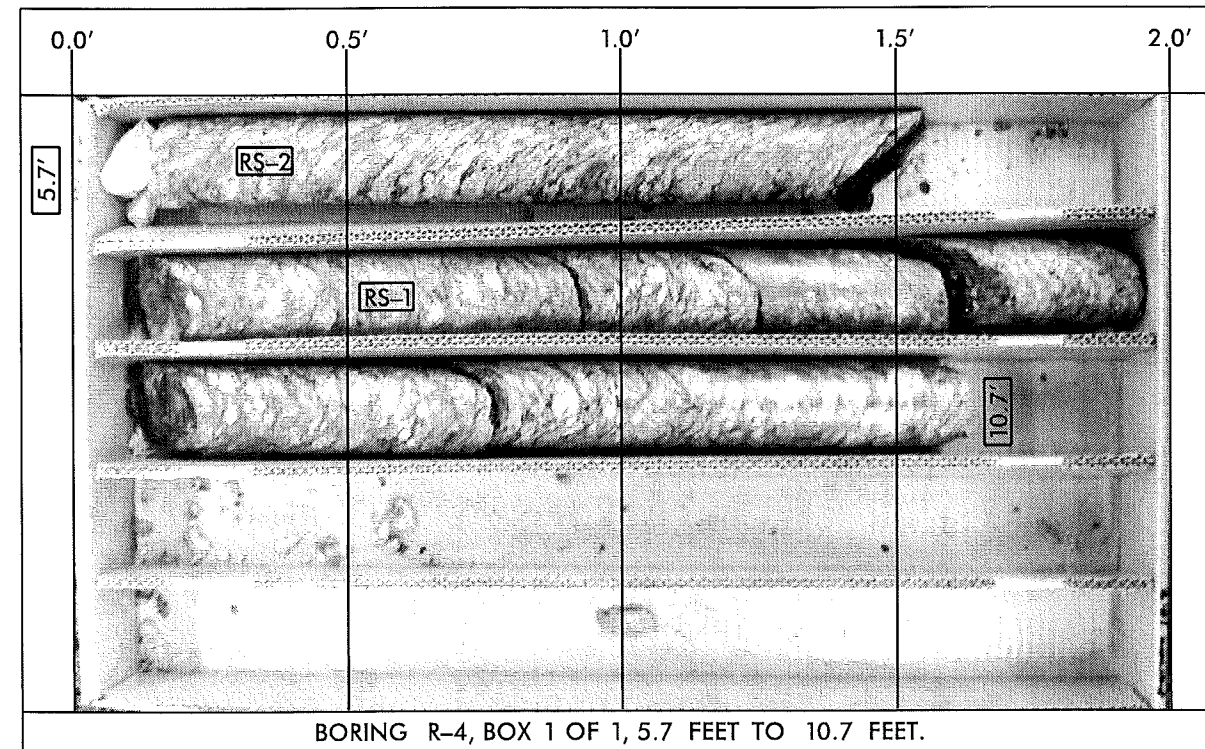
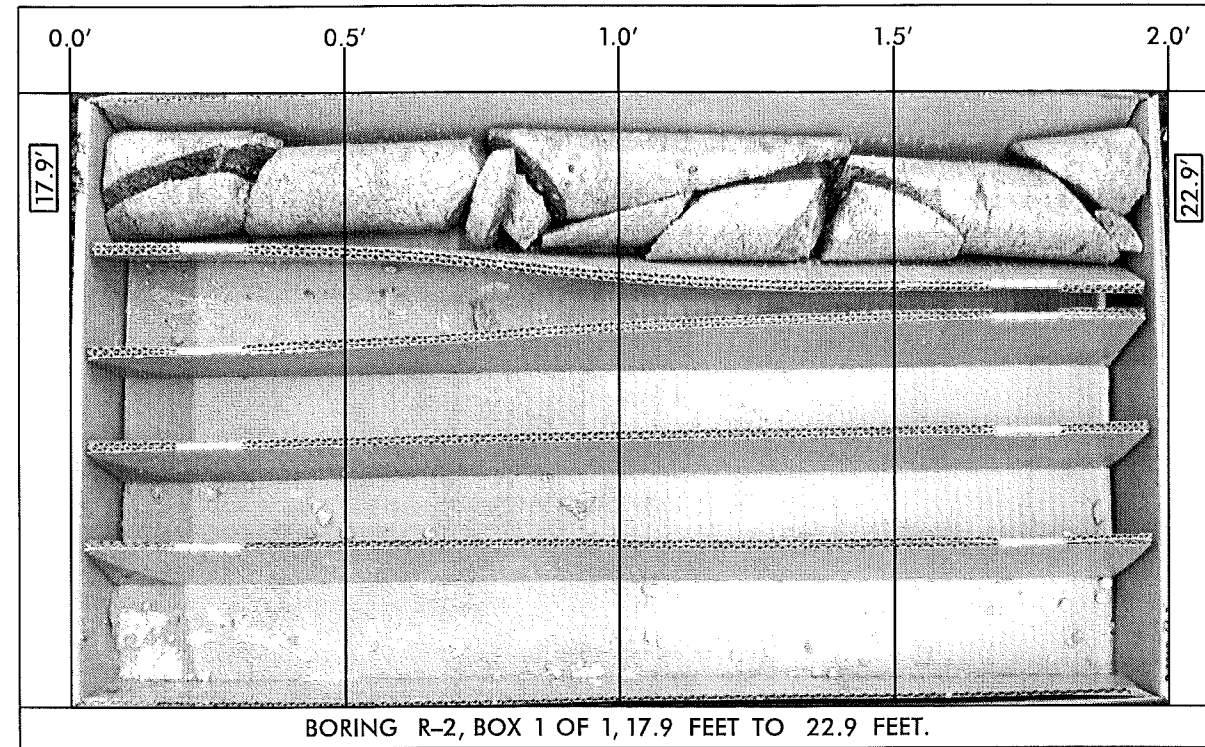


**NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT**

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.						
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)					
BORING NO. R-2		STATION 14+05		OFFSET 36 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 3,470.0 ft		TOTAL DEPTH 22.8 ft		NORTHING 883,795		EASTING 1,215,074						
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic								
DRILLER Cain, J.		START DATE 05/01/13		COMP. DATE 05/01/13		SURFACE WATER DEPTH N/A						
CORE SIZE NQ		TOTAL RUN 5.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
3452.2											Begin Coring @ 17.8 ft	
	3,452.2	17.8	5.0	N=60/0.0 0:37/1.0 0:49/1.0 1:06/1.0 0:46/1.0 0:58/1.0	(2.7) 54%	(0.9) 18%					CRYSTALLINE ROCK	17.8
	3,447.2	22.8									BROWN GRAY AND WHITE, V. SEV. TO MOD. SEV. WEATHERED, SOFT TO MOD. HARD, V. CLOSE TO CLOSELY FRACTURED, FINE GRAINED GRANITIC GNEISS	22.8
											Boring Terminated at Elevation 3,447.2 ft in Crystalline Rock	

WBS 43761.1.1		TIP R-5525		COUNTY WATAUGA		GEOLOGIST Hunsberger, W. S.						
SITE DESCRIPTION Blowing Rock Post Acute Care Facility Access Road / US 321							GROUND WTR (ft)					
BORING NO. R-4		STATION 16+57		OFFSET 19 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 3,449.0 ft		TOTAL DEPTH 10.7 ft		NORTHING 883,940		EASTING 1,215,290						
DRILL RIG/HAMMER EFF./DATE CME-550X		DRILL METHOD HSA		HAMMER TYPE Automatic								
DRILLER Cain, J.		START DATE 05/02/13		COMP. DATE 05/02/13		SURFACE WATER DEPTH N/A						
CORE SIZE NQ		TOTAL RUN 5.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	RQD (ft) %	LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
											Begin Coring @ 5.7 ft	
	3,443.3	5.7	5.0	1:37/1.0 1:22/1.0 1:07/1.0 1:04/1.0 1:14/1.0	(4.9) 98%	(3.9) 78%					CRYSTALLINE ROCK	5.7
	3,440										LIGHT AND DARK GRAY BROWN AND WHITE, MOD. TO SLI. WEATHERED, MED. TO MOD. HARD, CLOSELY FRACTURED, GRANITIC GNEISS WITH BANDED SCHIST	10.7
	3,438.3	10.7									Boring Terminated at Elevation 3,438.3 ft in Crystalline Rock	

NCDOT CORE DOUBLE R-5525 BLOWING ROCK_GINTLOGS.GPJ NC_DOT.GDT 10/16/13



FALCON
 FALCON ENGINEERING, INC.
 1210 TRINITY ROAD, SUITE 110
 RALEIGH, NC 27607
 PHONE: 919.871.0800
 FAX: 919.871.0803

ROCK CORE PHOTOGRAPHS

BLOWING ROCK ACUTE CARE FACILITY ACCESS ROAD
 WATAUGA COUNTY, NORTH CAROLINA
 WBS.: 17BP.14.R.23, TIP.: R-5525
 FALCON PROJECT NO.: G13036.00

AASHTO SOIL CLASSIFICATION AND GRADATION SHEET
 BLOWING ROCK POST ACUTE CARE FACILITY ACCES ROAD / US 321

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES
 BLOWING ROCK POST ACUTE CARE FACILITY ACCES ROAD / US 321

TIP NO.: R-5525

TIP NO.: R-5525

WATAUGA COUNTY, NORTH CAROLINA
 FALCON ENGINEERING, INC. PROJECT NO: G11036.00

WATAUGA COUNTY, NORTH CAROLINA
 FALCON ENGINEERING, INC. PROJECT NO: G11036.00

BORING			SAMPLE			TOTAL SAMPLE			Atterberg Limit Test Results			Natural Moisture Content	Optimum Moisture Content	Standard Proctor Maximum Dry Density	California Bearing Ratio Corrected at 0.1 inch
AASHTO Classification			PERCENT PASSING			LL	PL	PI	%	%	pcf				
STATION	OFFSET (FEET)	DEPTH (FEET)	#10	#40	#200										
R-1			BS-1			88	67	40	23	NP	NP	17.9	11.9	114.0	19.6
A-4															
12+80 -L-	31' RT	0-10													
R-2			BS-2			80	52	29	23	0	NP	14.3	11.5	116.1	24.3
A-2-4															
14+05 -L-	36' RT	0-10													
R-14			BS-3			88	84	48	19	0	NP	18.1	16.1	107.1	11.7
A-4															
32+52 -L-	CL	0-10													
R-17			BS-4			89	61	31	18	0	NP	12.8	9.1	118.2	14.8
A-2-4															
14+47 -Y3-	35' LT	0-10													
R-2			SS-1			66	55	46	46	26	10	29.1	-	-	-
A-5															
14+05 -L-	36' RT	1.0 - 2.5													
R-3			SS-2			73	51	31	40	NP	NP	32.3	-	-	-
A-2-4															
15+33 -L-	29' LT	1.0 - 2.5													
R-6			SS-3			85	66	27	35	NP	NP	61.0	-	-	-
A-2-4															
19+34 -L-	86' LT	3.5 - 5.0													
R-7			SS-4			69	50	34	38	29	9	23.2	-	-	-
A-2-4															
21+89 -L-	7' RT	5.7 - 7.2													
R-10			SS-5			88	74	55	34	NP	NP	25.7	-	-	-
A-4															
25+03 -L-	12' LT	1.0 - 2.5													
R-8			SS-6			47	32	23	37	30	7	18.7	-	-	-
A-2-4															
22+50 -L-	5' LT	1.0 - 2.5													
R-14			SS-7			100	96	74	37	NP	NP	33.2	-	-	-
A-4															
32+52 -L-	CL	1.0 - 2.5													
R-16			SS-8			78	68	45	34	NP	NP	22.5	-	-	-
A-4															
12+51 -Y3-	20' RT	1.0 - 2.5													
R-18			SS-9			61	38	21	26	NP	NP	13.7	-	-	-
A-7-5															
15+96 -Y3-	1' LT	1.0 - 2.5													
R-20			SS-10			78	65	47	34	27	7	21.4	-	-	-
A-4															
19+46 -Y3-	3' RT	1.0 - 2.5													
R-9			SS-11			68	58	38	30	NP	NP	22.6	-	-	-
A-4															
23+95 -L-	15' LT	3.5 - 5.0													
R-2			SS-12			65	44	24	41	NP	NP	33.3	-	-	-
A-5															
14+05 -L-	36' RT	3.5 - 5.0													

Sample No.	Boring	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Unit Weight (PCF)	Unconfined Compressive Strength (PSI)	Young's Modulus (PSI)	Splitting Tensile Strength (PSI)
RS-1	R-4	5.7 - 6.1	Blowing Rock Gneiss	(Ybrg)	78%	165.1	3,519	898,600	-
RS-2	R-4	7.2 - 8.5	Blowing Rock Gneiss	(Ybrg)	78%	-	-	-	892