

REFERENCE: B-5348

PROJECT: 46062

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5348	1	11

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY ORANGE
PROJECT DESCRIPTION BRIDGE NO. 85 OVER PHIL'S CREEK ON SR 1005 (OLD GREENSBORO ROAD)

CONTENTS

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CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST 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 THE 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.

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

M. BAHIRADHAN

J. WHITT

C. BUTLER

TRIGON EXP.

INVESTIGATED BY J. WHITT

DRAWN BY C. BUTLER

CHECKED BY M. BAHIRADHAN

SUBMITTED BY SCHNABEL ENG.

DATE AUGUST 2016



DocuSigned by:
Mahalingam Bahiradham
4DEAD34569264A2
SIGNATURE DATE

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

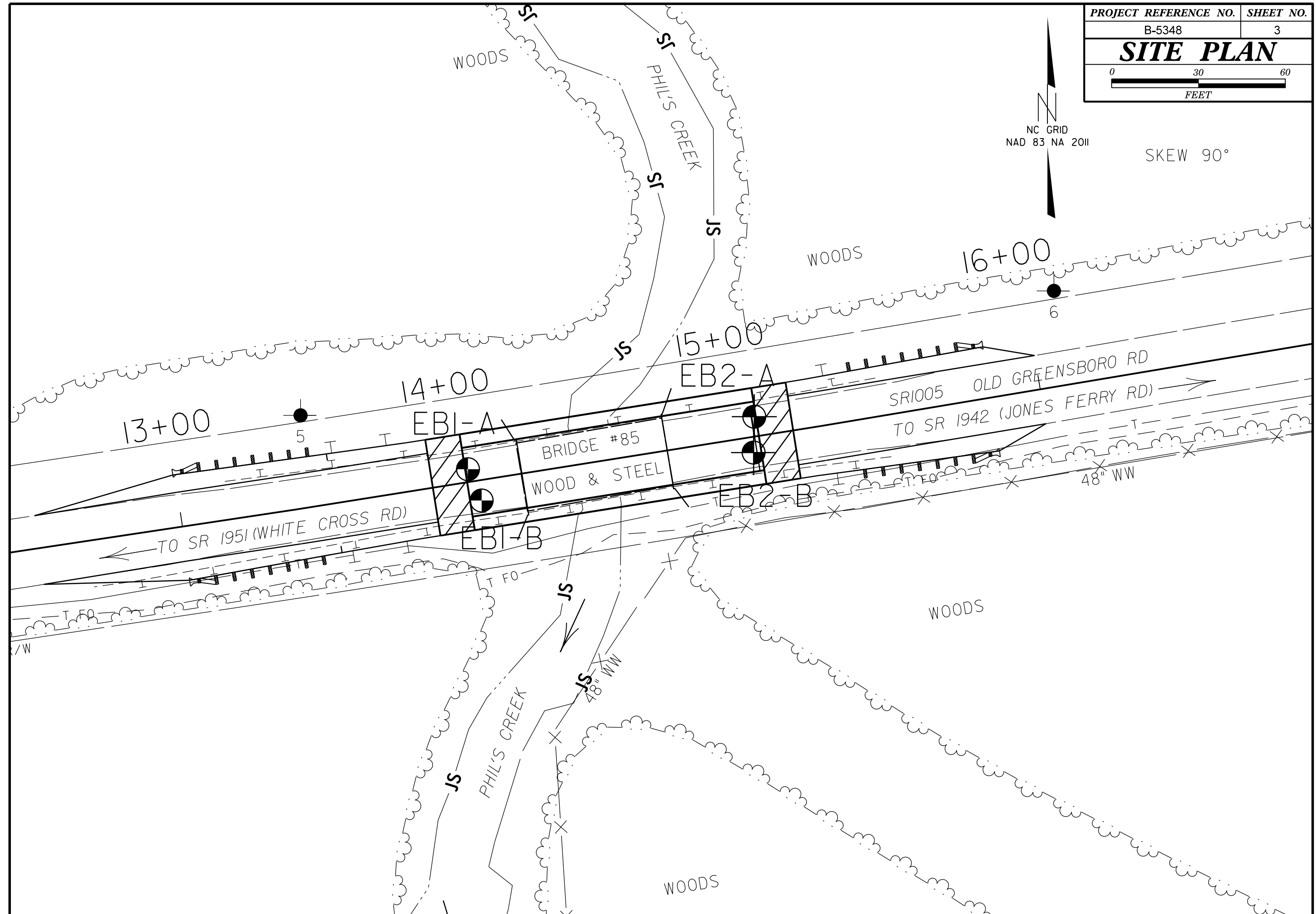
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

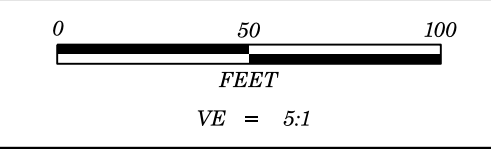
Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, and INDURATION.

PROJECT REFERENCE NO.	SHEET NO.
B-5348	3
SITE PLAN	
 0 30 60 FEET	

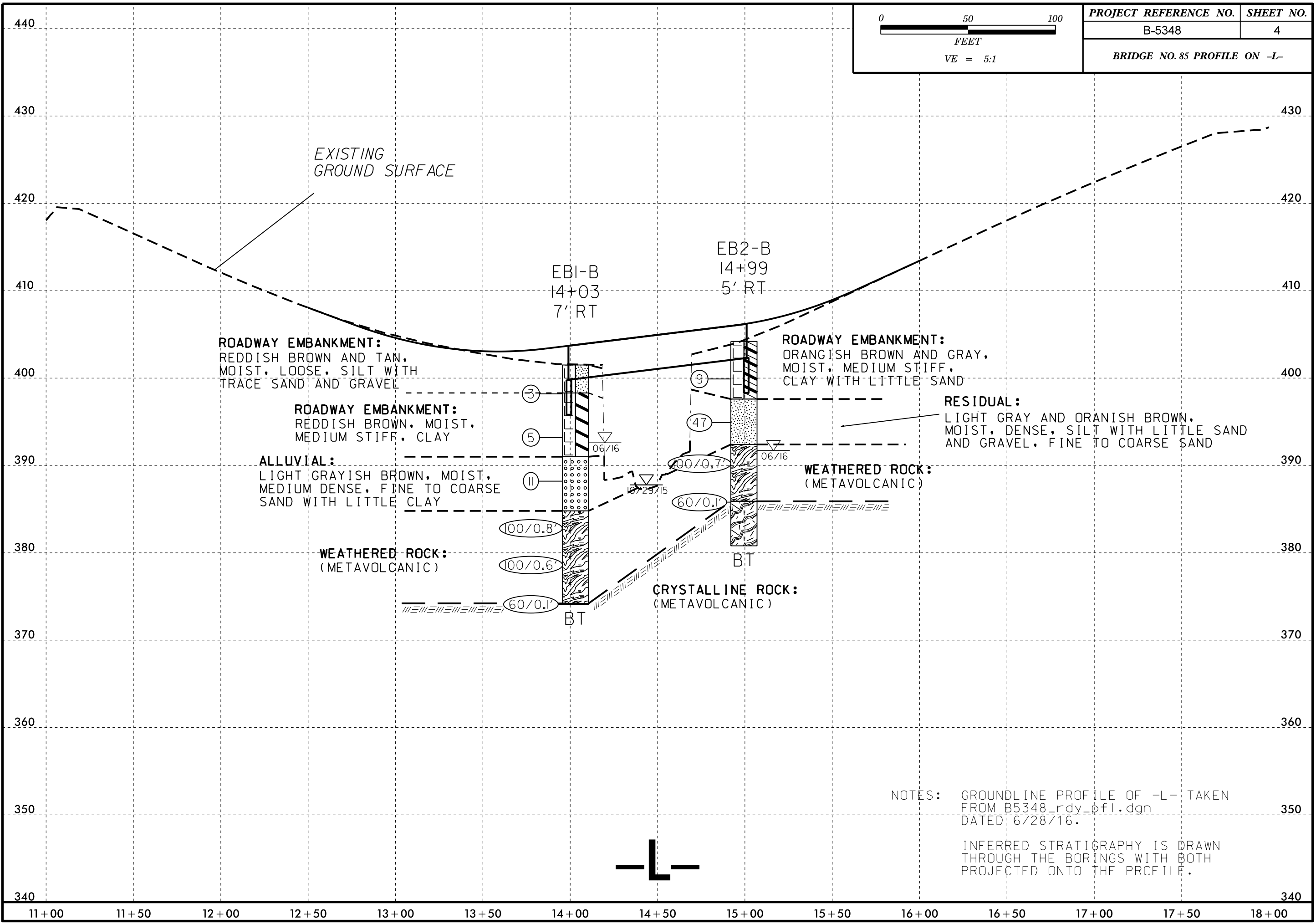
NC GRID
NAD 83 NA 2011

SKREW 90°





PROJECT REFERENCE NO.	SHEET NO.
B-5348	4
BRIDGE NO. 85 PROFILE ON -L-	



EXISTING
GROUND SURFACE

EB1-B
14+03
7' RT

EB2-B
14+99
5' RT

ROADWAY EMBANKMENT:
REDDISH BROWN AND TAN,
MOIST, LOOSE, SILT WITH
TRACE SAND AND GRAVEL

ROADWAY EMBANKMENT:
REDDISH BROWN, MOIST,
MEDIUM STIFF, CLAY

ALLUVIAL:
LIGHT GRAYISH BROWN, MOIST,
MEDIUM DENSE, FINE TO COARSE
SAND WITH LITTLE CLAY

WEATHERED ROCK:
(METAVOLCANIC)

CRYSTALLINE ROCK:
(METAVOLCANIC)

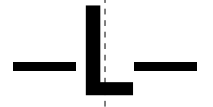
ROADWAY EMBANKMENT:
ORANGISH BROWN AND GRAY,
MOIST, MEDIUM STIFF,
CLAY WITH LITTLE SAND

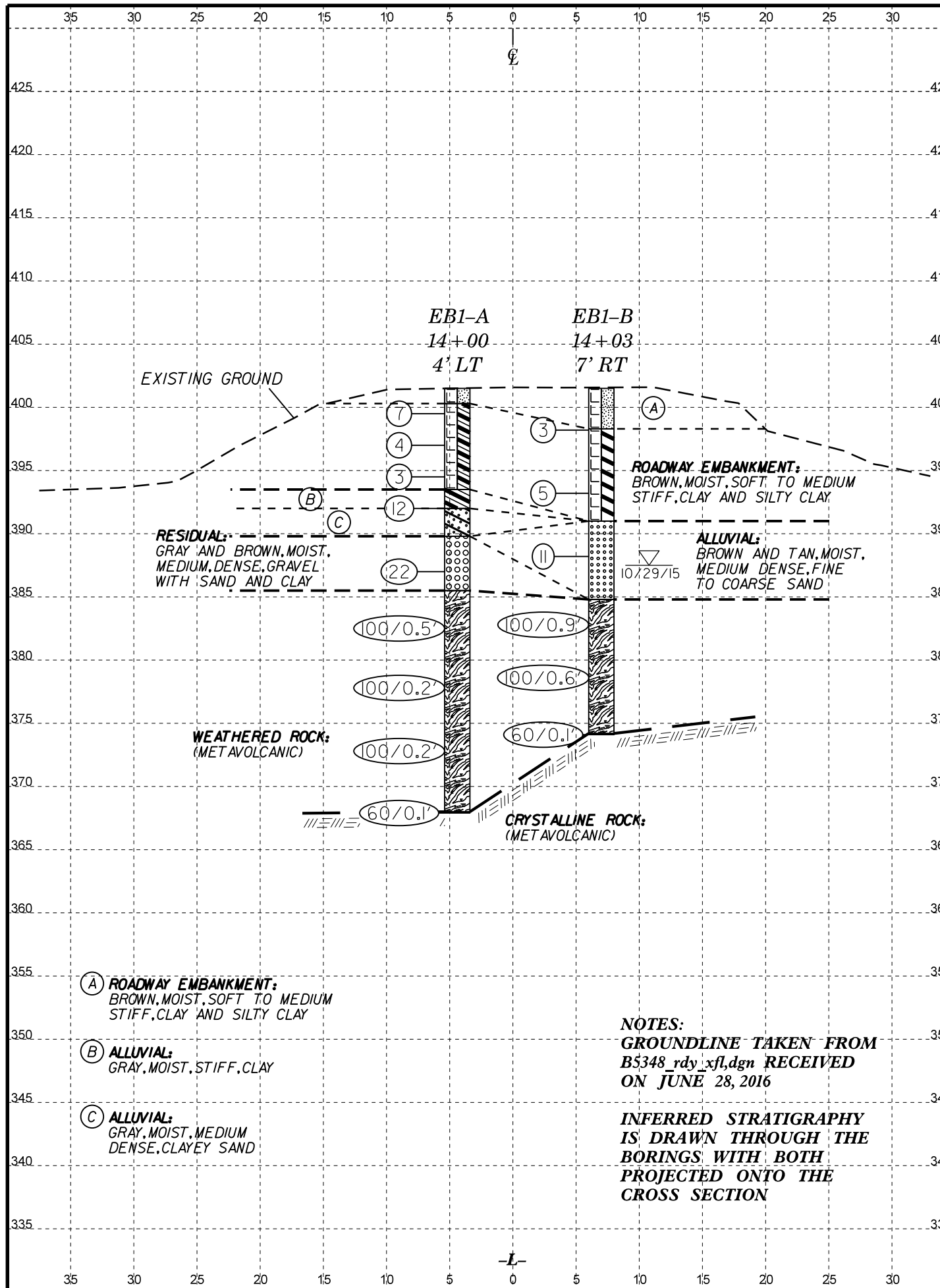
RESIDUAL:
LIGHT GRAY AND ORANGISH BROWN,
MOIST, DENSE, SILT WITH LITTLE SAND
AND GRAVEL, FINE TO COARSE SAND

WEATHERED ROCK:
(METAVOLCANIC)

NOTES: GROUNDLINE PROFILE OF -L- TAKEN
FROM B5348_rdy_pfl.dgn
DATED 6/28/16.

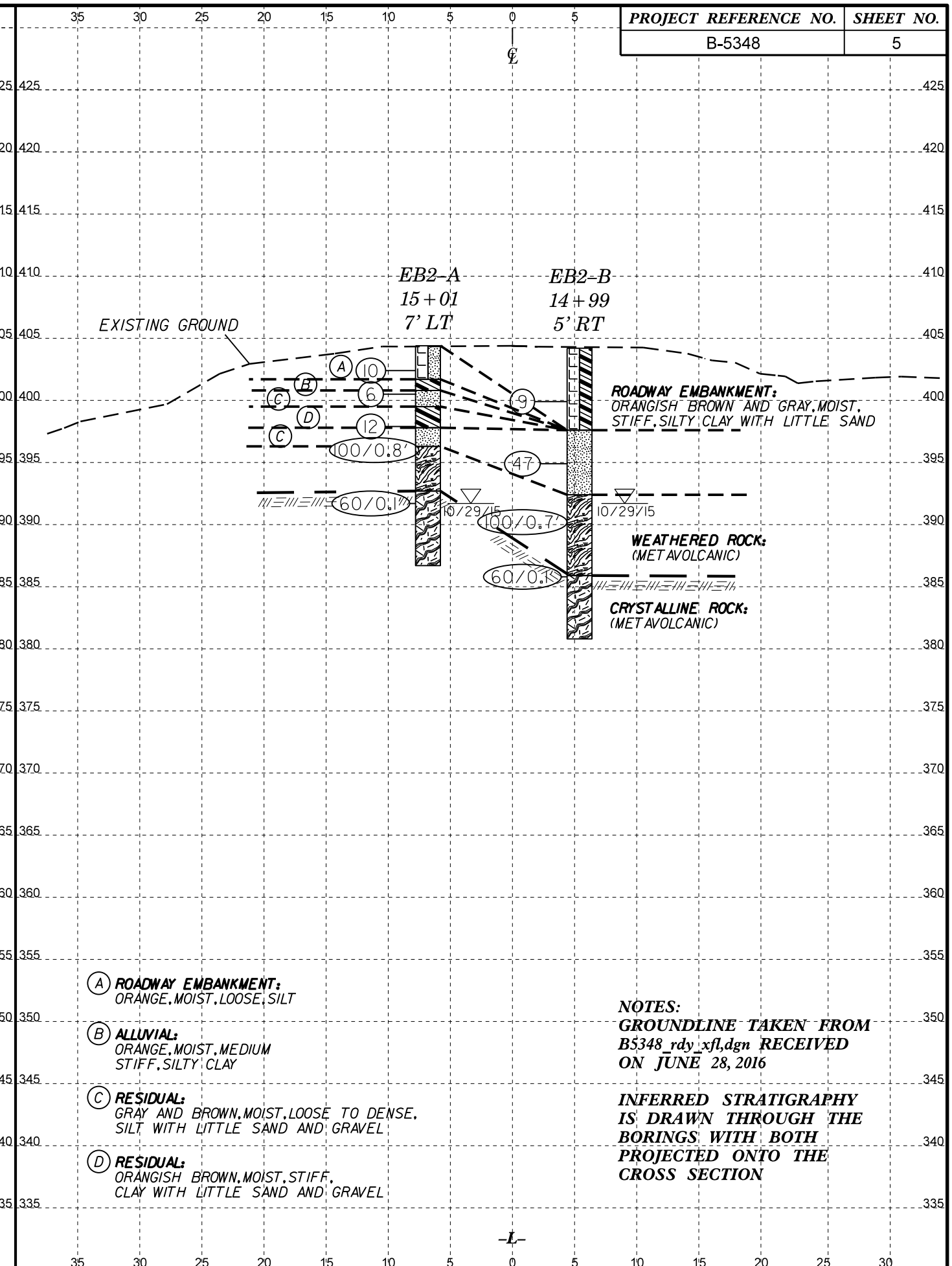
INFERRED STRATIGRAPHY IS DRAWN
THROUGH THE BORINGS WITH BOTH
PROJECTED ONTO THE PROFILE.





HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

END BENT NO. 1 CROSS SECTION AT STA. 14+00



HORIZ. SCALE 0 10 20 (FEET) VE = 1:1

END BENT NO. 2 CROSS SECTION AT STA. 15+01

GEOTECHNICAL BORING REPORT

BORE LOG

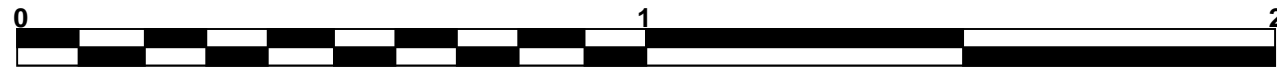
WBS 46062.1.1		TIP B-5348		COUNTY ORANGE		GEOLOGIST Whitt, J.									
SITE DESCRIPTION Bridge 85 on SR 1005 over Phil's Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 14+00		OFFSET 4 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 401.5 ft		TOTAL DEPTH 33.6 ft		NORTHING 784,575		EASTING 1,965,576									
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 93% 09/19/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Eklund, M.		START DATE 06/20/16		COMP. DATE 06/20/16		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
405															
400	400.5	1.0	4	3	4								M	ROADWAY EMBANKMENT LIGHT BROWN AND REDDISH BROWN, SILT	1.2
	398.0	3.5	1	2	2								M	ORANGISH BROWN, SILTY CLAY	
395	395.5	6.0	2	1	2								M		
	393.0	8.5	2	5	7								M	ALLUVIAL GRAY AND DARK GRAY, CLAY WITH LITTLE SAND, FINE SAND	9.5
390	388.0	13.5	3	5	17								M	GRAY, CLAYEY SAND, FINE SAND, ANGULAR ROCK FRAGMENT AT 10.0'	11.7
	383.0	18.5	100/0.5										W	RESIDUAL DARK GRAY AND LIGHT BROWN, GRAVEL WITH LITTLE SAND AND CLAY, FINE TO COARSE SAND	16.0
380	378.0	23.5	100/0.2											WEATHERED ROCK WEATHERED ROCK (METAVOLCANIC)	
375	373.0	28.5	100/0.2												
370	368.0	33.5	60/0.1											CRYSTALLINE ROCK CRYSTALLINE ROCK (METAVOLCANIC) Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 367.9 ft IN CRYSTALLINE ROCK (METAVOLCANIC)	33.5

WBS 46062.1.1		TIP B-5348		COUNTY ORANGE		GEOLOGIST Whitt, J.									
SITE DESCRIPTION Bridge 85 on SR 1005 over Phil's Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 14+03		OFFSET 7 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 401.5 ft		TOTAL DEPTH 27.4 ft		NORTHING 784,564		EASTING 1,965,581									
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 93% 09/19/2015			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Eklund, M.		START DATE 06/22/16		COMP. DATE 06/22/16		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
405															
400	399.2	2.3	2	1	2								M	ROADWAY EMBANKMENT REDDISH BROWN AND TAN, SILT WITH TRACE SAND AND GRAVEL	3.2
395	394.2	7.3	2	3	2								M	REDDISH BROWN, CLAY AT 8.0: REDDISH BROWN AND BROWNISH GRAY, WITH SOME SAND AND GRAVEL, FINE TO COARSE SAND	
390	389.2	12.3	6	5	6								M	ALLUVIAL LIGHT GRAYISH BROWN AND TAN, FINE TO COARSE SAND WITH LITTLE CLAY	10.5
385	384.2	17.3	25	31	69/0.4									WEATHERED ROCK WEATHERED ROCK (METAVOLCANIC) AT 22.8': 21 MORE BLOWS WERE PERFORMED TO DETERMINE IF CRYSTALLINE ROCK WAS BEING ENCOUNTERED (60 TOTAL BLOWS)	16.7
380	379.2	22.3	61	39/0.1											
375	374.2	27.3	60/0.1											CRYSTALLINE ROCK CRYSTALLINE ROCK (METAVOLCANIC) Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 374.1 ft IN CRYSTALLINE ROCK (METAVOLCANIC)	27.3

NCDOT BORE DOUBLE B5348_GEO_BRDG0085.GPJ NC_DOT.GDT 8/2/16

CORE PHOTOGRAPH
BRIDGE NO. 85 OVER PHIL'S CREEK ON SR 1005

EB2-A
BOX 1 OF 1: 12.7 - 17.7 FEET



APPROXIMATE SCALE IN FEET

GEOTECHNICAL BORING REPORT BORE LOG

WBS 46062.1.1		TIP B-5348		COUNTY ORANGE		GEOLOGIST Whitt, J.													
SITE DESCRIPTION Bridge 85 on SR 1005 over Phil's Creek							GROUND WTR (ft)												
BORING NO. EB2-B		STATION 14+99		OFFSET 5 ft RT		ALIGNMENT -L-													
COLLAR ELEV. 404.2 ft		TOTAL DEPTH 23.4 ft		NORTHING 784,581		EASTING 1,965,674													
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 93% 09/19/2015		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic															
DRILLER Eklund, M.		START DATE 06/21/16		COMP. DATE 06/22/16		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									
405															404.2	GROUND SURFACE	0.0		
																ROADWAY EMBANKMENT ORANGISH BROWN AND GRAY, SILTY CLAY WITH LITTLE SAND, FINE TO COARSE SAND			
400	400.9	3.3	7	5	4									M					
395	395.9	8.3	20	27	20									M		RESIDUAL LIGHT GRAY AND ORANGISH BROWN, SILT WITH LITTLE SAND AND GRAVEL, FINE TO COARSE SAND	6.6		
390	390.9	13.3	39	61/0.2										▽		WEATHERED ROCK WEATHERED ROCK (METAVOLCANIC)	11.8		
385	385.9	18.3	60/0.1													CRYSTALLINE ROCK CRYSTALLINE ROCK (METAVOLCANIC)	18.3		
																	380.8	Boring Terminated at Elevation 380.8 ft IN CRYSTALLINE ROCK (METAVOLCANIC)	23.4

NCDOT BORE SINGLE B5348_GEO_BRDG0085.GPJ NC_DOT.GDT 7/12/16

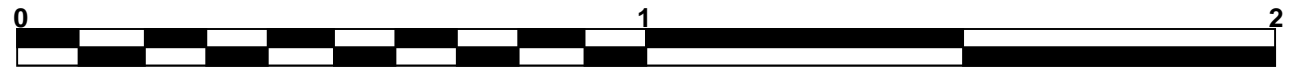
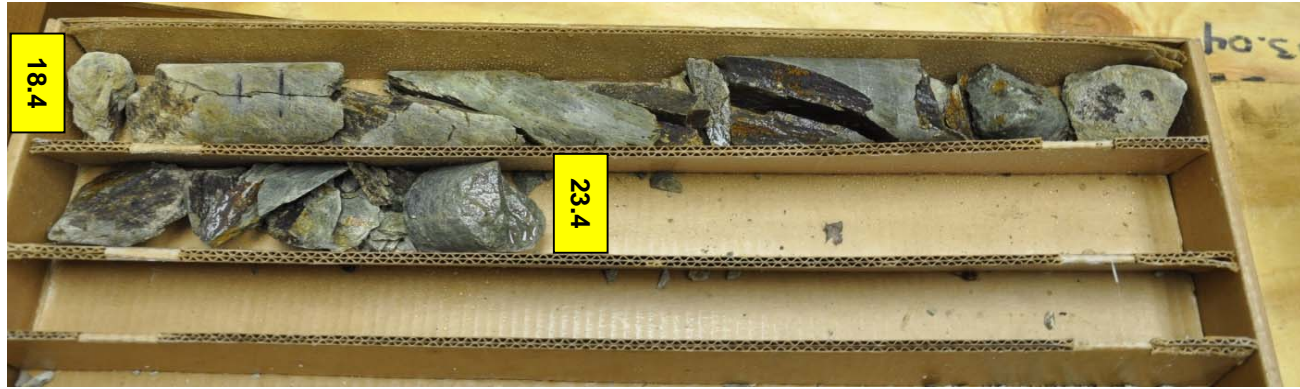
GEOTECHNICAL BORING REPORT CORE LOG

WBS 46062.1.1		TIP B-5348		COUNTY ORANGE		GEOLOGIST Whitt, J.						
SITE DESCRIPTION Bridge 85 on SR 1005 over Phil's Creek							GROUND WTR (ft)					
BORING NO. EB2-B		STATION 14+99		OFFSET 5 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 404.2 ft		TOTAL DEPTH 23.4 ft		NORTHING 784,581		EASTING 1,965,674						
DRILL RIG/HAMMER EFF./DATE TER346 DIEDRICH D-50 93% 09/19/2015		DRILL METHOD Mud Rotary		HAMMER TYPE Automatic								
DRILLER Eklund, M.		START DATE 06/21/16		COMP. DATE 06/22/16		SURFACE WATER DEPTH N/A						
CORE SIZE 2"		TOTAL RUN 5.0 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (%)	RQD (%)		REC. (%)	RQD (%)			
385.82	385.8	18.4	5.0	4:04/1.0 5:17/1.0 6:19/1.0 8:49/1.0 3:48/1.0	(2.8)	(0.0)					Begin Coring @ 18.4 ft CRYSTALLINE ROCK METAVOLCANIC, MODERATE WEATHERING, HARD, CLOSE TO VERY CLOSE FRACTURING (ABUNDANT NEARLY VERTICAL FRACTURES), GRAY AND BLuish GRAY (continued)	23.4
	380.8	23.4									Boring Terminated at Elevation 380.8 ft IN CRYSTALLINE ROCK (METAVOLCANIC)	

NCDOT CORE SINGLE B5348_GEO_BRDG0085.GPJ NC_DOT.GDT 8/2/16

CORE PHOTOGRAPH
BRIDGE NO. 85 OVER PHIL'S CREEK ON SR 1005

EB2-B
BOX 1 OF 1: 18.4 - 23.4 FEET



APPROXIMATE SCALE IN FEET

SITE PHOTOGRAPHS
REPLACE BRIDGE NO. 85 OVER PHIL'S CREEK ON SR 1005



View of SR 1005 looking east



View of Bridge No. 85 looking east