

GENERAL INFORMATION

INTRODUCTION

THIS PROJECT IS LOCATED IN WARREN COUNTY, OHIO AND INVOLVES THE WIDENING OF INTERSTATE 75 (IR 75) INTO THE EXISTING MEDIAN AND THE RECONFIGURATION OF THE STATE ROUTE 122 (SR 122) INTERCHANGE WITH IR 75. THE PROJECT BEGINS APPROXIMATELY 0.70 MILE SOUTH OF SR 122 INTERCHANGE AND CONTINUES NORTHWARD TO THE WARREN COUNTY-MONTGOMERY COUNTY LINE FOR AN OVERALL LENGTH OF APPROXIMATELY 8.80 MILES. THE WIDENING OF IR 75 AND RECONFIGURATION OF THE SR 122 INTERCHANGE WILL REQUIRE THE REPLACEMENT AND/OR REHABILITATION OF 17 BRIDGES/STRUCTURES. OF THE 17 STRUCTURES IDENTIFIED FOR THE PROJECT, 15 OF THE STRUCTURES WILL EITHER BE REPLACED WITH NEW STRUCTURES OR WIDENED. THE REMAINING 2 BRIDGES WILL REQUIRE DECK REPLACEMENT ALONG WITH OTHER MISCELLANEOUS SUPERSTRUCTURE WORK.

IN ADDITION TO THE NEW AND WIDENED STRUCTURES, THE PROJECT WILL ALSO INCLUDE THE RECONFIGURATION OF THE SR 122 INTERCHANGE, NEW NORTHBOUND EXIT AND ENTRANCE RAMPS, LANE ADDTIONS TO THE SOUTHBOUND RAMPS AND WIDENING OF SR 122.

GEOLOGY OF THE SITE

THE PROJECT SITE LIES WITHIN THE SOUTHERN OHIO LOAMY TILL PLAIN. THE OVERBURDEN SOILS IN THIS REGION ARE FORMED PRIMARILY IN WISCONSIN-AGE GLACIAL TILLS AND GROUND MORAINES. THESE GLACIAL SOILS CONSIST OF UNSTRATIFIED LAYERS OF INTERMIXED CLAY, SILT, SAND, AND GRAVEL WHOSE COMPOSITION VARIES BOTH Laterally AND VERTICALLY. IN ADDITION, A BURIED VALLEY OF GLACIAL OUTWASH CONSISTING OF SAND AND GRAVEL INTERBEDDED WITH GLACIAL TILL IS LOCATED WHERE IR 75 CROSSES CLEAR CREEK.

THE SOIL OVERBURDEN IS UNDERLAIN BY ORDOVICIAN-AGE SEDIMENTARY ROCK CONSISTING OF INTERBEDDED SHALE AND LIMESTONE OF THE GRANT LAKE FORMATION.

EXPLORATION

THE TEST BORINGS FOR THIS PROJECT WERE DRILLED BETWEEN JUNE 2005 TO APRIL 2006. THE BORINGS WERE DRILLED AT THE APPROXIMATE STATIONS AND OFFSETS INDICATED ON THE ATTACHED SHEETS.
















INVESTIGATION FINDINGS AND OBSERVATIONS







THE GENERAL SUBSURFACE CONDITIONS AT EACH OF THE ROADWAYS AND RAMPS ARE BEING DISCUSSED SEPARATELY IN THE FOLLOWING PARAGRAPHS. REFER TO THE APPENDED SOIL PROFILE SHEETS FOR SPECIFIC DETAILS OF THE SURFACE COVER AND SUBSURFACE CONDITIONS AT THE TEST BORING LOCATIONS.






SR 122

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS SANDY SILT, CLAYEY SILT, SILT AND CLAY OR CLAY. THESE SOILS AND WERE CLASSIFIED AS A-4a, A-6a, A-6b OR A-7-6 ACCORDING TO ODOT SOIL CLASSIFICATION SYSTEM. BORING P-7 ENCOUNTERED GRAVEL FILL OF THE A-1-b SOIL CATEGORY TO A DEPTH OF 2.5 FEET. BORING P-10 EXHIBITED A-4b SOILS TO A DEPTH OF 3.0 FEET BELOW EXISTING GRADE.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS 141 SAMPLES TESTED

DESCRIPTION	CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
 GRAVEL	A-1-a	68	11	7	8	6	NP	NP	17	2
 GRAVEL WITH SAND	A-1-b	46	16	20	11	7	NP	NP	10	11
 COARSE AND FINE SAND	A-3a	8	21	42	17	12	-	-	11	1
 GRAVEL WITH SAND AND SILT	A-2-4	36	14	23	13	14	23	6	14	7
 GRAVEL WITH SAND AND CLAY	A-2-6	54	6	7	14	19	30	11	12	2
 SANDY SILT	A-4a	17	11	18	26	28	22	7	11	44
 SILT	A-4b	8	3	8	62	16	25	7	17	5
 SILT AND CLAY	A-6a	15	9	14	28	34	30	13	15	43
 SILTY CLAY	A-6b	10	5	10	40	35	35	17	16	13
 CLAY	A-7-6	7	6	10	31	46	46	22	21	13
 CLAY SHALE										VISUAL CLASSIFICATION
 RANDOM FILL										VISUAL CLASSIFICATION
 WEATHERED SHALE										VISUAL CLASSIFICATION
 SHALE										VISUAL CLASSIFICATION
 LIMESTONE										VISUAL CLASSIFICATION

-  SOD AND/OR TOP SOIL = X = APPROXIMATE DEPTH
-  BERM MATERIAL
-  AUGER BORING - PLAN VIEW
-  DRIVE SAMPLE AND/OR CORE BORING - PLAN VIEW
-  ROADWAY OR AUGER BORING PLOTTED TO VERTICAL SCALE ONLY
-  DRIVE SAMPLE AND/OR CORE BORING PLOTTED TO VERTICAL SCALE ONLY

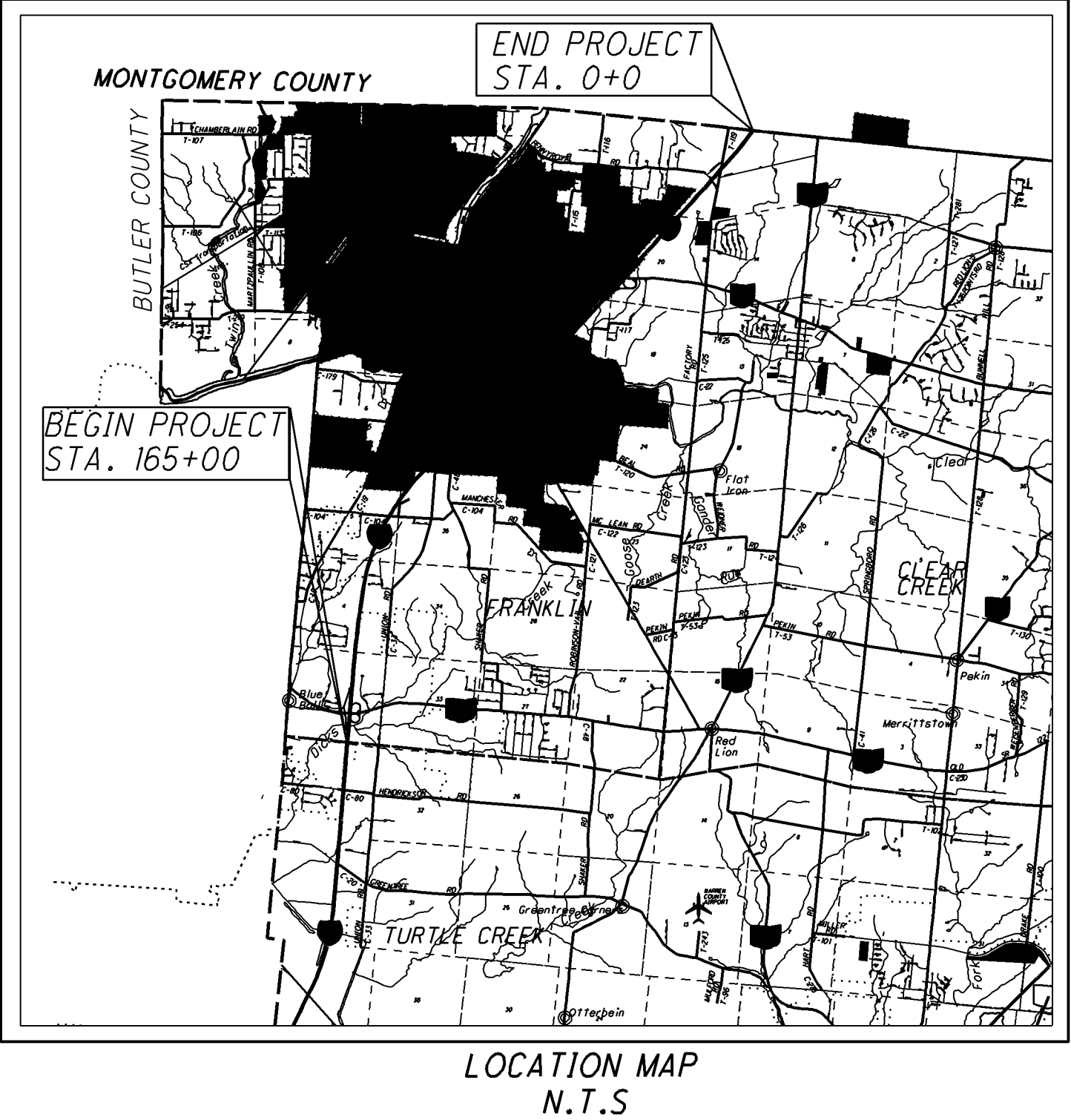
-  WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT
-  INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT
-  FREE WATER
-  STATIC WATER LEVEL
-  NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
- X = NUMBER OF BLOWS FOR FIRST 6"

Y = NUMBER OF BLOWS FOR SECOND 6"

Z = NUMBER OF BLOWS FOR THIRD 6"

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. e.g. 15

PROJECT INDEX				
STATIONS FROM TO		PLAN/PROFILE SHEET	CUT MAX. @ CL	FILL MAX. @ CL
I-75				
178+00	196+00	14	<0.5'	-
S.R. 122				
25+00	69+00	15 TO 17	<1.0'	<2.0'
S.R. 122 RAMP A				
208+00	218+00	18	<2.0'	-
S.R. 122 RAMP B				
217+00	225+00	19	<1.0'	<1.0'
S.R. 122 RAMP C				
217+00	233+00	20	<12.0'	<16.0'
S.R. 122 RAMP D				
196+00	217+00	21, 22	<2.0'	<12.0'
S.R. 122 RAMP E				
196+00	217+00	23	<13.0'	
COMMERCE DR.				
10+00	19+00	24	<2.6'	<4.5'
PENNYROYAL RD.				
9+00	33+00	25	-	<7.5'
0+00	4+00	26	<1.0'	-
CLEARCREEK-FRANKLIN RD.				
1+00	3+00	27	-	<3.0'



CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

CALCULATED
DATE
04/25/06

CHECKED

REVIEWED
MP

DRAWN
B.R.U.

SOIL PROFILE

WAR-75-3.40

1 / 35

NO BEDROCK WAS ENCOUNTERED IN THE SHALLOW TEST BORINGS DRILLED FOR THIS ROADWAY. HOWEVER, BEDROCK WAS ENCOUNTERED IN THE STRUCTURE TEST BORINGS DRILLED FOR THE STRUCTURES AT IR 75 AND AT DICK'S CREEK. THE DEPTH TO THE TOP OF BEDROCK IN THE STRUCTURE BORINGS LOCATED NEAR THE PROPOSED IMPROVEMENTS RANGED FROM 9.5 FEET TO 31.5 FEET.

NO GROUNDWATER WAS ENCOUNTERED IN THE SHALLOW BORINGS DRILLED FOR THIS ROADWAY. HOWEVER, GROUNDWATER WAS ENCOUNTERED IN THE STRUCTURE TEST BORINGS DRILLED FOR THE STRUCTURES AT IR 75 AND AT DICK'S CREEK.

RAMP A

THE BORINGS ENCOUNTERED LAYERS OF SILT AND CLAY OR SILTY CLAY OF THE A-6a AND A-6b SOILS CATEGORIES. GRAVEL FILL FROM THE A-2-6 SOILS CATEGORY WAS ENCOUNTERED IN BORING B-10 BETWEEN DEPTHS OF 5.5 AND 10.5 FEET.

NO BEDROCK WAS ENCOUNTERED IN THE SHALLOW TEST BORINGS DRILLED FOR THIS RAMP. HOWEVER, BEDROCK WAS ENCOUNTERED AT DEPTHS RANGING FROM 20.5 TO 31.5 FEET IN THE STRUCTURE TEST BORINGS DRILLED FOR THE STRUCTURE OVER DICK'S CREEK.

NO GROUNDWATER WAS ENCOUNTERED IN THE SHALLOW BORINGS DRILLED FOR THIS RAMP. HOWEVER, GROUNDWATER WAS ENCOUNTERED IN THE STRUCTURE TEST BORINGS DRILLED FOR THE STRUCTURE AT DICK'S CREEK.

RAMP B

THE BORINGS ENCOUNTERED LAYERS OF SANDY SILT, SILT AND CLAY OR CLAY OF THE A-4a, A-6a, OR A-7-6 SOILS CATEGORIES.

NO BEDROCK WAS ENCOUNTERED IN THE TEST BORINGS, WHICH WERE DRILLED TO A MAXIMUM DEPTH OF 5.5 FEET BELOW EXISTING GRADE.

NO GROUNDWATER WAS NOTED IN THE TEST BORINGS DRILLED FOR THIS RAMP.

RAMP C

THE BORINGS ENCOUNTERED LAYERS OF GRAVEL, SANDY SILT, SILT AND CLAY, SILTY CLAY AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1-b, A-2-4, A-4a, A-6a, A-6b AND A-7-6 ACCORDING TO THE ODOT CLASSIFICATION SYSTEM.

NO BEDROCK WAS ENCOUNTERED IN THE TEST BORINGS FOR THIS RAMP, WHICH WERE EXTENDED TO A MAXIMUM DEPTH OF 18 FEET BELOW EXISTING GRADE. HOWEVER, ROCK FRAGMENTS WERE ENCOUNTERED AT A DEPTH OF ABOUT 6.1 FEET IN BORING S-2. THIS BORING WAS PERFORMED IN A PROPOSED FILL AREA.

GROUNDWATER WAS MEASURED IN BORING S-5 AT A DEPTH OF 8.5 FEET BELOW EXISTING GRADE. NO GROUNDWATER WAS NOTED IN THE REMAINING TEST BORINGS AT ANY TIME DURING THE FIELDWORK.

RAMP D

THE TEST BORINGS (L-1, L-2 AND L-3) ENCOUNTERED LAYERS OF GRAVEL, SANDY SILT, SILT AND CLAY AND SILT. THESE SOILS WERE CLASSIFIED AS A-1-a, A-4a AND A-6a ACCORDING TO THE ODOT CLASSIFICATION SYSTEM.

NO BEDROCK WAS ENCOUNTERED IN THE TEST BORINGS FOR THIS RAMP WHICH WERE EXTENDED TO A MAXIMUM DEPTH OF 7 FEET BELOW EXISTING GRADE.

NO GROUNDWATER WAS NOTED IN THESE TEST BORINGS AT ANY TIME DURING THE FIELDWORK.

RAMP E

THE BORINGS ENCOUNTERED LAYERS OF GRAVEL, SANDY SILT, SILT AND CLAY, SILTY CLAY AND CLAY OF THE A-4a, A-6a, A-6b AND A-7-6 SOILS CATEGORIES.

BEDROCK WAS ENCOUNTERED IN BORINGS R-1 THROUGH R-4 AT DEPTHS IN THE RANGE OF 1.5 TO 9.0 FEET BELOW GRADE. BEDROCK WAS ALSO ENCOUNTERED IN THE STRUCTURE TEST BORINGS DRILLED FOR THE STRUCTURE OVER DICK'S CREEK. THE DEPTH TO THE TOP OF BEDROCK IN THESE STRUCTURE TEST BORINGS RANGED FROM 3.5 TO 7.5 FEET BELOW EXISTING GRADE.

GROUNDWATER LEVELS WERE NOTED IN BORINGS R-3 AND R-5 AT DEPTHS RANGING FROM 8.5 TO 9.0 FEET AND IN BORING A-3 AT A DEPTH OF 3.0 FEET. NO GROUNDWATER WAS NOTED IN THE REMAINING TEST BORINGS DRILLED FOR THIS RAMP.

MAINLINE BACKSLOPES (I-75)

THE TEST BORINGS (K-1 AND K-4) ENCOUNTERED LAYERS OF SANDY SILT, SILT AND CLAY AND SILTY CLAY. THOSE SOILS WERE CLASSIFIED AS A-4a AND A-6b ACCORDING TO THE ODOT CLASSIFICATION SYSTEM. BORING K-1 EXHIBITED A-4b (SILT) SOILS BETWEEN DEPTHS OF 5.5 AND 8.0 FEET.

BEDROCK WAS ENCOUNTERED IN BORINGS K-1, K-2 AND K-4 AT DEPTHS OF 8.0, 22.5 AND 8.0 FEET, RESPECTIVELY. NO BEDROCK WAS NOTED IN BORING K-3, WHICH WAS DRILLED TO A DEPTH OF 40 FEET.

NO GROUNDWATER WAS NOTED IN BORINGS AT ANY TIME DURING THE FIELD INVESTIGATION.

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

CALCULATED

CHECKED

DATE
04/25/06

REVIEWED
MP

DRAWN
B.R.U.

SOIL PROFILE

WAR-75-3.40

2 / 35

COMMERCE DRIVE

THE BORINGS ENCOUNTERED LAYERS OF GRAVEL, SANDY SILT, SILT, AND SILT AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1-b, A-2-4, A-4a AND A-6a ACCORDING TO THE ODOT CLASSIFICATION SYSTEM. A FUEL ODOR WAS NOTED IN BORING W-2 BETWEEN DEPTHS OF ABOUT 4.0 AND 5.5 FEET.

BEDROCK WAS ENCOUNTERED IN BORINGS W-2 AND W-3, AT DEPTHS OF 8.0 AND 14.5 FEET, RESPECTIVELY. NO BEDROCK WAS NOTED IN BORINGS W-1 OR W-4, WHICH WERE DRILLED TO DEPTHS OF 5.5 AND 10.0 FEET, RESPECTIVELY.

GROUNDWATER WAS NOTED IN BORINGS W-2 AND W-3 AT A DEPTH OF 9.0 FEET BELOW GRADE. NO GROUNDWATER WAS NOTED IN BORINGS W-1 OR W-4.

PENNYROYAL ROAD

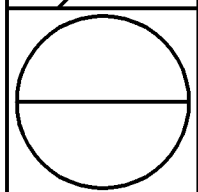
THE TEST BORINGS (J-1 THROUGH J-6) ENCOUNTERED LAYERS OF GRAVEL, SANDY SILT, SILT, SILT AND CLAY AND SILTY CLAY OF THE A-4A, A-6A, A-6B, AND A-7-6 SOILS CATEGORIES.

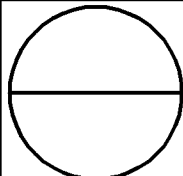
NO BEDROCK WAS ENCOUNTERED IN BORINGS J-1 THROUGH J-6, WHICH WERE DRILLED TO A MAXIMUM DEPTH OF 7.0 FEET. HOWEVER, BEDROCK WAS ENCOUNTERED IN STRUCTURE BORINGS G-1, G-2 AND G-3 AT APPROXIMATE ELEVATIONS RANGING FROM 940 TO 942 FEET.

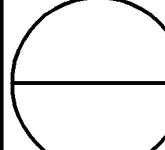
NO GROUNDWATER WAS NOTED IN BORINGS J-1 THROUGH J-6. HOWEVER, GROUNDWATER WAS NOTED IN BORINGS G-1 AND G-2 AT APPROXIMATE ELEVATIONS RANGING.

NOTE

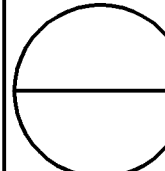
ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS, SOIL TESTS, AND BEDROCK BORINGS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

	3 / 35	WAR-75-3.40	SOIL PROFILE	DRAWN	REVIEWED	DATE	CALCULATED	CTL ENGINEERING, INC. 422 WARDS CORNER RD., STE. E LOVELAND, OHIO 45140 PHONE: 513-722-8665 FAX: 513-722-8669
				B.R.U.	MP	04/25/06	CHECKED	

SUMMARY OF SOIL TEST DATA																						CTL ENGINEERING, INC. 422 WARDS CORNER RD., STE. E LOVELAND, OHIO 45140 PHONE: 513-722-8665 FAX: 513-722-8669					
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																											
I-75																											
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class						
K-1 179+85.39, 139.65' Rt. I-75	0.0'-0.8'	Topsoil (9")										K-4 194+97.31, 181.70' Rt. I-75	0.0'-0.8'	Topsoil (10")										22	VISUAL		
	0.8'-2.3'	Brown, stiff, SILTY CLAY, trace sand, trace roots <1/8" diameter, moist											0.8'-2.3'	Brown, medium stiff, SILT AND CLAY, trace sand, damp													
	3.0'-4.5'	0	0	5	63	32	34	16	18	A-6b	3.0'-4.5'		Light brown, medium stiff, SANDY SILT, little clay, trace gravel, damp										15			VISUAL	
	5.5'-7.0'	0	0	3	72	25	29	10	9	A-4b	5.5'-7.0'		28	9	13	18	32	18	6	9	A-4a						
	8.5'-10.0'	Olive, very stiff, CLAYSHALE, with limestone seams, damp											8.5'-10.0'	SHALE, gray, with interbedded limestone, augered													VISUAL
	13.0'-14.0'	SHALE, gray, with interbedded LIMESTONE, augered											13.0'-14.0'	SHALE, gray, with interbedded limestone, augered													
K-2 184+23.78, 124.63' Rt. I-75	0.0'-0.8'	Topsoil (8")										S.R. 122											11	VISUAL			
	0.8'-2.3'	Brown, medium stiff, SANDY SILT, little clay, trace gravel, damp										0.0'-1.5'	5	15	22	27	31	30	14	15	A-6a						
	3.0'-4.5'	Brown, stiff, SANDY SILT, some clay, little gravel, damp, till										1.5'-3.0'	2	4	9	47	38	34	16	19	A-6b						
	5.5'-7.0'	14	11	24	29	22	NP	NP	10	A-4a	3.0'-4.5'	Gray to black, very stiff, SILTY CLAY, trace gravel, little sand, with organics, damp, fill										17			VISUAL		
	8.5'-10.0'	Brown, hard, SANDY SILT, little clay, trace gravel, damp, till										P-2 30+30.4, 11.9' Rt. S.R. 122	0.0'-0.1'	Topsoil (1")										14		A-4a	
	13.5'-15.0'	25	9	12	23	31	17	5	8	A-4a	0.1'-1.5'		14	15	22	27	22	24	9	11							
	18.5'-20.0'	Gray, hard, SANDY SILT, some gravel, some clay, with cobbles, damp, till											1.5'-3.0'	11	13	17	24	35	28	13	10	A-6a					
K-3 190+41.18, 146.38' Rt. I-75	23.5'-25.0'	SHALE, gray, augered										3.0'-4.5'	Brown to black, hard, SILT AND CLAY, little gravel, some sand, damp, fill										15	VISUAL			
	0.0'-0.8'	Topsoil (9")										P-3 34+47.4, 59.8' Lt. S.R. 122	0.0'-1.5'	9	10	15	29	37	29	13	10	A-6a					
	0.8'-2.3'	Brown, medium stiff, SILT AND CLAY, trace sand, damp											1.5'-3.0'	3	6	12	27	52	36	16	13	A-6b					
	3.0'-4.5'	6	5	12	46	31	23	7	16	A-4a	3.0'-4.5'		Brown, very stiff, SILTY CLAY, trace gravel, little sand, damp										11		VISUAL		
	5.5'-7.0'	Brown, medium stiff, SANDY SILT, trace gravel, trace clay, damp, till										P-4 38+73.2, 41.5' Rt. S.R. 122	0.0'-0.3'	Asphalt concrete (3")										10		VISUAL	
	8.5'-10.0'	Brown, very stiff, SANDY SILT, little clay, little gravel, damp, till											0.3'-1.0'	Portland cement concrete (9")													
	13.5'-15.0'	Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till											1.0'-2.5'	21	14	23	18	24	24	10	10	A-4a					
	18.5'-20.0'	Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till											2.5'-4.0'	0	1	7	45	47	50	27	22	A-7-6					
	23.5'-15.0'	Gray, very stiff, SANDY SILT, little gravel, little clay, with cobbles, damp, till											4.0'-5.5'	Brown, stiff, SANDY SILT, moist											17		VISUAL
	28.5'-30.0'	Brown, very stiff, SANDY SILT, little clay, trace gravel, damp, till																									
	38.5'-40.0'	Gray, hard, SANDY SILT, little gravel, little clay, with cobbles, damp, till																									
4 / 35																											

SUMMARY OF SOIL TEST DATA																																					
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																																					
S.R. 122																																					
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class															
P-5 42+35.4, 48.7' Lt. S.R. 122	0.0'-1.5'		Brown, very stiff, SANDY SILT, with cobbles, with grass, damp, fill							8	VISUAL	H-4 A CONTD.	18.5'-20.0'	9	8	10	38	35	30	13	15	A-6a															
													20.0'-21.5'		SHALE, gray, augered							12	VISUAL														
	1.5'-3.0'		Gray, hard, SANDY SILT, with cobbles, damp, fill								VISUAL		21.5'-23.0'		SHALE, gray, augered							12	VISUAL														
													23.5'-25.0'		SHALE, gray, augered							15	VISUAL														
	3.0'-4.5'	14	17	23	21	25	NP	NP	8	A-4a			25.0'-30.0'		SHALE (77%), dark gray, soft, with interbedded LIMESTONE (23%), medium gray, moderately hard								VISUAL														
P-6 46+48.0, 19.9' Rt. S.R. 122	0.0'-0.9'		Asphalt concrete (10")								VISUAL	H-4 B 50+86.81, 20.18 Rt.* S.R. 122	30.0'-40.0'		No Recovery								NO RECOVERY														
	0.9'-2.0'	6	4	10	49	31	26	11	16	A-6a			40.0'-45.0'		SHALE (60%), gray, moderately soft, with interbedded LIMESTONE (40%), gray, moderately hard								VISUAL														
	2.0'-3.5'	10	15	19	29	27	24	9	11	A-4a																											
	4.0'-5.5'		Brown, stiff, SILT AND CLAY, little sand, trace gravel, with rock fragments, damp, fill							14	VISUAL		30.0'-35.0'		SHALE (66%), light gray, soft, with interbedded LIMESTONE (34%), light gray, moderately hard								VISUAL														
P-7 50+52.8, 17.9' Lt. S.R. 122	0.0'-0.8'		Asphalt concrete (10")								VISUAL	H-1 51+48.43, 37.78' Lt. S.R. 122	35.0'-40.0'		SHALE (69%), dark gray, moderately soft, with interbedded LIMESTONE (31%), dark gray, moderately hard, fractured								VISUAL														
	0.8'-2.3'	32	25	24	10	9	NP	NP	11	A-1-b																											
	2.5'-4.0'	19	13	16	26	26	23	8	8	A-4a			0.0'-1.0'		Sand, gravel, with cobbles, fill								VISUAL														
	4.0'-5.5'		Brown, stiff, SANDY SILT, little gravel, some clay, moist							15	VISUAL		1.0'-2.5'	5	5	9	47	34	26	10	12	A-4a															
H-4 A 50+85.81, 19.18 Rt.* S.R. 122												H-4 A 50+85.81, 19.18 Rt.* S.R. 122	3.5'-5.0'		Brown, medium stiff, SANDY SILT, some clay, trace gravel, damp							13	VISUAL														
													6.0'-7.5'		Brown, medium stiff, SANDY SILT, some clay, trace gravel, damp							11	VISUAL														
													8.5'-10.0'		Brownish gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp							8	VISUAL														
	0.0'-0.6'		Asphalt concrete (7")								VISUAL		13.5'-15.0'	51	16	11	14	8	NP	NP	11	A-1-b															
	0.6'-1.5'		Road base (12")								VISUAL		15.0'-16.5		Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp							10	VISUAL														
	1.5'-3.0'		Brown and black, very stiff, SILTY CLAY, trace sand, trace gravel, damp, fill							3	VISUAL		16.5'-18.0'		Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp							8	VISUAL														
	3.0'-4.5'	9	2	4	45	40	39	18	17	A-6b			18.0'-19.5'		Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp								VISUAL														
	5.5'-7.0'		Brownish black, stiff, SILTY CLAY, trace sand, trace gravel, fill (assumed)							NO RECOVERY			19.5'-20.5'		Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp							13	VISUAL														
	8.5'-10.0'		Gray, soft,SILT, some clay, trace gravel, and sand, moist							20	VISUAL		20.5'-22.0'		Brown and gray, dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, little clay, damp							8	VISUAL														
	11.0'-12.5'	7	8	28	34	23	23	8	21	A-4a			22.0'-23.0'		Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH							8	VISUAL														
	12.5'-14.0'		Gray, stiff,SILT, little clay, trace gravel, and sand, moist							16	VISUAL																										
	14.0'-15.5'		Brown and gray, very stiff, SILT AND CLAY, little sand, trace gravel, with limestone seams, damp							12	VISUAL																										
	15.5'-17.0'		Brown and gray, hard, SILT AND CLAY, little sand, trace gravel, with limestone seams, damp							12	VISUAL																										
	17.0'-18.5'		Brown and gray, hard, SILT AND CLAY, little sand, trace gravel, with limestone seams, damp								VISUAL																										
												SOIL PROFILE										WAR-75-3.40															
																						5 / 35															
																																					

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

SUMMARY OF SOIL TEST DATA																							
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																							
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		
H-1 CONTD.	23.0'-24.5'	SAND, little silt, little clay, damp								7	VISUAL	H-2 CONTD.	18.0'-19.5'	Brown, hard, SANDY SILT, some clay, with cobbles, damp								6	VISUAL
	25.5'-27.0'	SHALE, gray, augered								14	VISUAL		19.5'-20.5'	SHALE, gray, augered								6	VISUAL
	28.0'-29.5'	SHALE, gray, augered								15	VISUAL		20.5'-22.0'	SHALE, gray, augered									VISUAL
	30.5'-32.0'	SHALE, gray, augered								7	VISUAL		22.0'-23.5'	SHALE, gray, augered								9	VISUAL
	33.0'-34.5'	SHALE, gray, augered								10	VISUAL		23.5'-25.0'	SHALE, gray, augered								8	VISUAL
	35.0'-40.0'	SHALE (83%), medium gray, moderately soft, with interbedded LIMESTONE (17%), light to medium gray, moderately hard									VISUAL		25.0'-30.0'	SHALE (80%), medium gray, moderately soft, with interbedded LIMESTONE (20%), light to dark gray, moderately hard									VISUAL
	40.0'-45.0'	SHALE (74%), dark gray, moderately hard, with interbedded LIMESTONE (26%), light to dark gray, moderately hard									VISUAL		30.0'-35.0'	SHALE (72%), medium gray, moderately hard, with interbedded LIMESTONE (28%), light to dark gray, moderately hard									VISUAL
H-5 50+78.39, 139.82' Rt. S.R. 122	0.0'-0.5'	Topsoil (6")										H-3 52+17.38, 93.75' Lt. S.R. 122	0.0'-0.3'	Topsoil (3")									
	1.0'-2.5'	22	12	23	29	14	32	15	18	A-6a	0.3'-1.8'		Portland concrete cement (12"), fill									NO RECOVERY	
	3.5'-5.0'	Brown, stiff, SILT AND CLAY, some sand, little gravel, damp								13	VISUAL		3.0'-4.5'	56	13	12	11	8	18	18	9	A-1-b	
	6.0'-7.5'	Brown, hard, SILT AND CLAY, some sand, little gravel (assumed)									NO RECOVERY		5.5'-7.0'	Brown, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, trace								7	VISUAL
	8.5'-10.0'	Brown, hard, SILT AND CLAY, some sand, little gravel, damp								16	VISUAL		8.5'-10.0'	4	5	15	45	31	33	14	22	A-6a	
	13.5'-14.5'	SHALE, gray and brown, limestone seams, augered									VISUAL		11.0'-12.5'	Brown, stiff, SILT AND CLAY,some sand, trace gravel, moist fill								23	VISUAL
	14.5'-19.5'	SHALE (80%), gray, with brown staining, soft, with interbedded LIMESTONE (20%), gray, moderately hard									VISUAL		13.5'-15.0'	30	16	16	20	18	27	10	17	A-4a	
	19.5'-24.5'	SHALE (74%), gray, with brown staining, soft, with interbedded LIMESTONE (26%), gray, moderately hard									VISUAL		16.0'-17.5'	Brown, soft, SANDY SILT, some clay, some gravel, moist								26	VISUAL
H-2 51+97.76, 34.57' Rt. S.R. 122	0.0'-0.8'	Topsoil (10")										18.5'-20.0'	Brown, very stiff, SANDY SILT, some clay, some gravel, moist								11	VISUAL	
	1.0'-2.5'	Brown, medium stiff, SILTY CLAY, some sand, trace gravel, damp								18	VISUAL	21.0'-22.5'	SHALE, gray, augered								13	VISUAL	
	3.5'-5.0'	5	6	15	37	37	38	18	24	A-6b	23.5'-25.0'	SHALE, gray, augered								16	VISUAL		
	6.0'-7.5'	8	6	11	32	43	36	15	20	A-6a	26.0'-27.5'	SHALE, gray, augered								18	VISUAL		
	8.5'-10.0'	Brown, stiff, SILT AND CLAY, little sand, trace gravel, damp								21	VISUAL	28.5'-30.0'	SHALE, gray, augered								16	VISUAL	
	13.5'-15.0'	Brown, hard, SANDY SILT, some clay, with cobbles, damp								18	VISUAL	33.5'-35.0'	SHALE, gray, augered								10	VISUAL	
	15.0'-16.5'	Brown, hard, SANDY SILT, some clay, with cobbles, damp								14	VISUAL	35.0'-40.0'	SHALE (73%), medium to dark gray, soft, with interbedded LIMESTONE (27%), gray, moderately hard									VISUAL	
	16.5'-18.0'	Brown, hard, SANDY SILT, some clay, with cobbles, damp								10	VISUAL	40.0'-45.0'	SHALE (56%), dark gray, moderately soft, with interbedded LIMESTONE (44%), gray, moderately hard									VISUAL	
	SOIL PROFILE																						
	WAR-75-3.40																						
6 / 35																							
																							

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

S.R. 122

STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
H-6 53+28.17, 63.92' Lt. S.R. 122	0.0'-0.7'		Topsoil (8")							
	1.0'-2.5'		Brown, stiff, SANDY SILT, little gravel, trace clay, damp						12	VISUAL
	3.5'-5.0'	20	11	17	44	8	20	6	18	A-4a
	6.0'-7.5'		Gray, soft, SILT AND CLAY, little sand, little gravel, wet						33	VISUAL
	8.5'-10.0'		Gray, very soft, SILT AND CLAY, little sand, little gravel, wet						48	VISUAL
	13.5'-15.0'	48	15	18	16	3	NP	NP	8	A-1-b
	18.5'-19.5'		SHALE, brown and gray, weathered, augered						28	VISUAL
	19.5'-24.5'		SHALE (75%), dark gray, moderately soft, with interbedded LIMESTONE (25%), gray, moderately hard							VISUAL
24.5'-29.5'		SHALE (62%), gray to olive, moderately soft, with interbedded LIMESTONE (38%), gray, moderately hard							VISUAL	
P-8 54+49.3, 31.9' Rt. S.R. 122	0.0'-0.8'		Gray, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, damp, fill							VISUAL
	0.8'-2.3'	16	9	15	41	19	31	16	9	A-6b
	2.5'-4.0'	21	11	17	31	20	25	10	10	A-4a
	4.0'-5.5'		Gray, hard, SANDY SILT, some gravel, little clay, moist						16	VISUAL
P-9 57+97.6, 17.2' Lt. S.R. 122	0.0'-0.8'		Asphalt concrete (10")							VISUAL
	0.8'-2.3'	14	11	15	28	32	32	13	17	A-6a
	2.5'-4.0'	24	18	17	23	18	25	8	12	A-4a
	4.0'-5.5'		Brown, stiff, SANDY SILT, trace gravel, little clay, damp						11	VISUAL
P-14 59+05.22, 67.54' Rt. S.R. 122	0.5'-2.0'		Brown, medium stiff, SILT AND CLAY, little sand, trace gravel, damp, fill						9	VISUAL
	3.0'-4.5'		Brown, medium stiff, SANDY SILT, trace gravel, some clay, with trace root hairs, possible fill, moist						18	VISUAL
	5.5'-7.0'		Brown, medium stiff, SANDY SILT, trace gravel, some clay, possible fill, moist						15	VISUAL
	8.5'-10.0'	6	8	15	38	33	23	8	13	A-4a
	13.5'-15.0'		Brown, soft, SANDY SILT, trace gravel, some clay, possible fill, (assumed)							NO RECOVER
	18.5'-20.0'		Gray, hard, SANDY SILT, little gravel, some clay, damp, till						9	VISUAL
	23.5'-25.0'		Gray, hard, SANDY SILT, little gravel, some clay, damp, till						9	VISUAL

STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	
P-15 61+49.81, 70.32' Lt. S.R. 122	0.0'-0.7'	Topsoil (8")									
	0.7'-2.2'	Brown, medium stiff, SILT AND CLAY, little sand, damp, possible fill								20	VISUAL
	3.0'-4.5'	Brown, stiff, SANDY SILT, some clay, trace gravel, damp								16	VISUAL
	5.5'-7.0'	1	1	5	26	67	43	20	21	A-7-6	
	8.5'-10.0'	Light brown, very stiff, CLAY, some silt, trace gravel, trace sand, damp								20	VISUAL
	13.5'-15.0'	Brown, very stiff, SANDY SILT, some clay, with sand seams, with silt seams, damp								15	VISUAL
	18.5'-20.0'	0	0	13	60	27	NP	NP	18	A-4b	
	23.5'-25.0'	Gray, very stiff, SILT, with clay seams, varved, damp								17	VISUAL
P-10 61+99.2, 23.5' Rt. S.R. 122	0.0'-1.5'	28	2	3	53	14	25	5	19	A-4b	
	1.5'-3.0'	0	1	2	75	22	NP	NP	21	A-4b	
	3.0'-4.5'	Gray, very stiff, SANDY SILT, damp								17	VISUAL
P-11 65+88.7, 26.8' Lt. S.R. 122	0.0'-1.5'	0	1	5	43	51	45	23	23	A-7-6	
	1.5'-3.0'	2	3	15	33	47	47	26	20	A-7-6	
	3.0'-4.5'	Brown and gray, stiff, SILTY CLAY, little sand, with roots, damp								14	VISUAL
P-12 69+98.9, 9.0' Rt. S.R. 122	0.0'-0.8'	Asphalt concrete (10")									VISUAL
	0.8'-2.3'	8	11	19	34	28	22	8	17	A-4a	
	2.5'-4.0'	16	12	14	31	27	24	8	10	A-4a	
	4.0'-5.5'	Brown, very stiff, SANDY SILT, with sand seams, damp								13	VISUAL
P-13 71+97.2, 7.9' Lt. S.R. 122	0.0'-0.8'	Asphalt concrete (10")									VISUAL
	0.8'-2.3'	9	12	22	27	30	28	13	16	A-6a	
	2.5'-4.0'	14	13	21	32	20	20	7	11	A-4a	
	4.0'-5.5'	Brown, very stiff, SANDY SILT, little gravel, little clay, moist								16	VISUAL

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

CHECKED

1/25/0

MP

B.R.U.

SOIL PROFILE

WAR-15-3.40

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

RAMP A

STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
B-7	0.0'-0.6'		Topsoil (7")							
209+12.6, 45.6' Rt. RAMP A	0.6'-2.1'	26	15	11	21	27	30	11	15	A-6a
	3.0'-4.5'		Brown, very stiff, SILT AND CLAY, some sand, some gravel, with cobbles, damp, fill							VISUAL
	5.5'-7.0'	23	13	14	18	32	33	14	14	A-6a
	8.5'-10.0'		Brown, very stiff, SILT AND CLAY, some sand, some gravel, with cobbles, damp, fill							VISUAL
	11.0'-12.5'		Brown, very stiff, SILT AND CLAY, some sand, some gravel, damp, fill						11	VISUAL
	13.5'-15.0'	10	3	7	16	64	35	14	13	A-6a
	16.0'-17.5'		Brown, hard, SILT AND CLAY, little sand, little gravel (assumed)							NO RECOVERY
	18.5'-20.0'		Gray, hard, CLAY, with clay shale fragments, damp						16	VISUAL
	21.0'-22.5'		CLAY SHALE, gray, severely to moderately weathered, moderately hard, with clay seams, augered							VISUAL
	23.5'-25.0'		CLAY SHALE, gray, severely to moderately weathered, moderately hard, with clay seams, augered							VISUAL
	28.5'-29.0'		CLAY SHALE, gray, severely to moderately weathered, moderately hard, with clay seams, augered							VISUAL
	29.0'-34.0'		SHALE (72%), medium gray, moderately hard, with interbedded LIMESTONE (28%), light gray, slightly weathered, moderately hard							VISUAL
	34.0'-39.0'		SHALE (68%), medium gray, moderately hard, with interbedded LIMESTONE (32%), light gray, slightly weathered, moderately hard							VISUAL
B-8	0.0'-0.8'		Portland cement concrete (10") (Bridge deck)							
209+71.26, 10.0' Lt. RAMP A	0.8'-19.0'		Boring drilled through bridge deck							
	19.0'-20.5'	65	12	9	8	6	NP	NP	27	A-1-a
	20.5'-22.0'		Brown, loose, GRAVEL AND/OR STONE FRAGMENTS, some sand, trace silt, trace clay, (assumed)							NO RECOVERY
	22.0'-23.5'	37	18	15	20	10	33	6	22	A-2-4

STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
B-8 CONTD.	23.5'-25.0'		Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, trace clay, (assumed)							NO RECOVERY
	25.0'-26.5'		Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, trace clay, damp							VISUAL
	26.5'-28.0'	33	3	4	24	36	41	19	6	A-7-6
	28.0'-29.5'	53	8	5	17	17	30	11	11	A-2-6
	30.0'-35.0'		SHALE (85%), medium gray, moderately hard, with interbedded LIMESTONE (15%), gray, severely weathered, moderately hard							VISUAL
	35.0'-40.0'		SHALE (82%), medium gray, moderately hard, with interbedded LIMESTONE (18%), gray, severely weathered, moderately hard							VISUAL
B-9 210+30.87, 11.2' Rt. RAMP A	0.0'-0.9'		Portland cement concrete (11") (Bridge deck)							VISUAL
	0.9'-20.0'		Boring drilled through bridge deck							
	20.0'-21.5'	18	4	19	38	21	32	10	24	A-4a
	21.5'-23.0'		Gray, medium stiff, SANDY SILT, some clay, little gravel, fill (assumed)							NO RECOVERY
	23.0'-24.5'	42	8	11	25	14	30	11	19	A-6a
	24.5'-26.0'		Gray, soft, SILT AND CLAY, and gravel, little sand, with cobbles, damp, fill							VISUAL
	26.0'-27.5'	74	4	6	10	6	NP	NP	15	A-1-b
	27.5'-29.0'	7	6	35	33	19	26	7	24	A-4a
	29.0'-30.5'		SHALE, gray, soft, with interbedded LIMESTONE, gray, severely weathered, medium hard, augered							VISUAL
	31.5'-33.0'		SHALE, gray, soft, with interbedded LIMESTONE, gray, severely weathered, medium hard, augered							VISUAL
	33.0'-38.0'		SHALE (85%), medium gray, moderately hard, with interbedded LIMESTONE (15%), gray, severely weathered, hard							VISUAL
	38.0'-43.0'		SHALE (68%), medium gray, moderately hard, with interbedded LIMESTONE (32%), gray, slightly weathered, hard							VISUAL

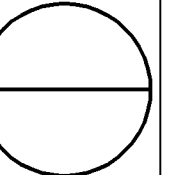
CIL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

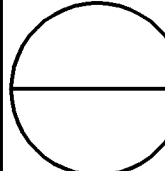
B.R.U.	MP	04/25/06	CHECKED
--------	----	----------	---------

SOIL PROFILE

WAR-15-3.40

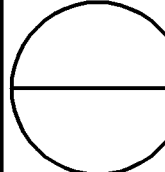
8	35
---	----



SUMMARY OF SOIL TEST DATA																															
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																															
RAMP A											RAMP B																				
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class										
B-10 210+88.08, 8.8' Lt. RAMP A	0.0'-0.8'	Asphalt concrete (10")								VISUAL	T-1 217+92.5, 25.7' Rt. RAMP B	0.0'-0.7'	Asphalt concrete (9")								VISUAL										
	1.5'-3.0'	22	12	12	25	29	30	13	11	A-6a		0.7'-1.0'	GRAVEL AND/OR STONE FRAGMENTS WITH SAND, base course (4")								VISUAL										
	3.0'-4.5'	Brownish gray, medium stiff, SILT AND CLAY, some sand, some gravel, with cobbles/boulders, fill								12		VISUAL	1.0'-2.5'	12	13	16	28	31	28	13	13	A-6a									
	5.5'-7.0'	54	4	9	12	21	29	11	13	A-2-6		2.5'-4.0'	15	8	10	25	42	53	31	26	A-7-6										
	8.5'-10.0'	Brownish gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT, AND CLAY, with cobbles/boulders, fill (assumed)								NO RECOVERY		4.0'-5.5'	Brown, very stiff, CLAY, some silt, little sand, little gravel, damp								20	VISUAL									
	11.0'-12.5'	31	5	12	19	33	30	13	13	A-6a	T-2 220+08.7, 16.2' Lt. RAMP B	0.0'-0.8'	Portland cement concrete (9")								VISUAL										
	13.5'-15.0'	37	1	12	20	30	35	17	11	A-6b		0.8'-1.3'	GRAVEL AND/OR STONE FRAGMENTS WITH SAND, base course (6")								VISUAL										
	16.0'-17.5'	Gray, very stiff, SILTY CLAY, and gravel, little sand, with cobbles/boulders, damp								11		VISUAL	1.5'-3.0'	25	9	10	23	33	28	13	12	A-6a									
	18.5'-20.0'	66	3	16	7	8	NP	NP	15	A-1-b		3.0'-4.5'	29	10	12	20	29	26	12	11	A-6a										
	23.5'-25.0'	23	8	32	19	18	26	9	8	A-4a		T-3 223+98.8, 30.0' Lt. RAMP B	0.0'-0.1'	Topsoil (1")																	
28.5'-30.0'	Gray, hard, SANDY SILT, some gravel, with cobbles/boulders, damp								5	VISUAL	0.1'-1.5'		Brown, very stiff, dark brown SANDY SILT, some gravel, some clay, damp								10	VISUAL									
33.5'-34.0'	SHALE, gray, moderately hard, with LIMESTONE seams, augered								10	VISUAL	1.5'-3.0'		33	8	12	22	25	24	10	10	A-4a										
34.0'-39.0'	SHALE (87%), medium gray, moderately hard, with interbedded LIMESTONE (13%), dark gray, moderately weathered, hard									VISUAL	3.0'-4.5'		17	12	13	28	30	25	11	10	A-6a										
39.0'-44.0'	SHALE (85%), medium gray, hard, with interbedded LIMESTONE (15%), dark gray, moderately weathered, hard									VISUAL																					
V-1 217+01.8, 30.3' Lt. RAMP A	0.0'-0.1'	Topsoil (1")									S-1 44+96.6, 62.36' Lt. RAMP C	0.0'-0.2'	Topsoil (2")																		
	0.1'-1.5'	28	6	10	23	33	31	15	15	A-6a		0.2'-1.5'	Brown, very stiff, SILT AND CLAY, some sand, little gravel, with roots, moist, possible fill								17	VISUAL									
	1.5'-3.0'	21	8	11	24	36	33	16	15	A-6b		1.5'-3.0'	14	13	17	24	32	30	14	12	A-6a										
	3.0'-4.5'	Gray, very stiff, SILTY CLAY, some gravel, little sand, moist, fill								-		VISUAL	3.0'-4.5'	32	26	12	17	13	19	6	10	A-2-4									
											8.5'-10.0'											Brown, medium stiff, SANDY SILT, little gravel, little clay, moist, till								22	VISUAL
SOIL PROFILE																															
WAR-75-3.40																															
9 / 35																															
																															

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

SUMMARY OF SOIL TEST DATA																							
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																							
RAMP C																							
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	
S-2 219+26.97, 4.07' Lt. RAMP C	0.0'-0.1'	Topsoil (1")										S-6 233+50.91, 37.43' Lt. RAMP C	0.0'-1.5'	31	6	9	16	38	33	17	19	A-6b	
	0.1'-1.5'	20	9	10	27	34	29	14	10	A-6a			1.5'-3.0'	12	14	28	19	27	21	9	10	A-4a	
	1.5'-3.0'	Brown, hard, SILT AND CLAY, little gravel, little sand, damp, till								12	VISUAL		3.0'-4.5'	Brown, stiff, SANDY SILT, some clay, little gravel, damp							8	VISUAL	
	3.0'-4.5'	12	9	11	33	35	26	12	9	A-6a			4.5'-6.0'	Brown, stiff, SANDY SILT, some clay, little gravel, damp							13	VISUAL	
	5.5'-6.1'	Brown, hard, SILT AND CLAY, little gravel, little sand, with rock fragments, damp, till								8	VISUAL		6.0'-7.0'	Gray, stiff, SILTY CLAY, damp							13	VISUAL	
S-3 222+47.96, 6.82' Lt. RAMP C	0.0'-0.1'	Topsoil (1")										S-7 237+22.07, 36.48' Lt. RAMP C	7.0'-8.5'	Gray, stiff, SANDY SILT, trace organics, moist							24	VISUAL	
	0.1'-1.6'	11	7	13	36	33	33	16	13	A-6b			8.5'-10.0'	Brown, stiff, SANDY SILT, trace clay, moist							23	VISUAL	
	1.6'-3.0'	Brown and gray, hard, SILTY CLAY, little gravel, little sand, damp								7	VISUAL		0.0'-1.5'	53	16	11	17	3	NP	NP	5	A-1-b	
	3.0'-4.5'	Brown and gray, very stiff, SILTY CLAY, little gravel, little sand, damp								8	VISUAL		1.5'-3.0'	11	11	21	13	44	18	7	12	A-4a	
	8.5'-10.0'	12	11	16	33	28	22	8	10	A-4a			3.0'-4.5'	Brown, stiff, SANDY SILT, and clay, little gravel, damp							10	VISUAL	
S-4 226+35.17, 24.84' Lt. RAMP C	13.5'-15.0'	Brown and gray, very stiff, SANDY SILT, some clay, little gravel, damp, till								12	VISUAL	S-8 241+53.73, 19.73' Lt. RAMP C	4.5'-6.0'	Brown, very stiff, SANDY SILT, (assumed from cuttings)							NO RECOVERY		
	16.5'-18.0'	Brown and gray, hard, SANDY SILT, some clay, little gravel, damp, till								9	VISUAL		6.0'-7.5'	Gray, medium stiff SANDY SILT, little gravel, trace clay, damp							4	VISUAL	
	0.0'-0.5'	Topsoil (6")											8.5'-10.0'	Gray, very stiff SANDY SILT, little gravel, trace clay, moist							18	VISUAL	
	0.5'-1.5'	4	5	13	21	57	43	19	23	A-7-6			0.0'-0.5'	45	11	10	22	12	21	7	9	A-2-4	
	1.5'-3.0'	17	8	12	22	41	22	7	12	A-4a			0.5'-1.5'	10	3	3				38	18	17	A-6b
S-5 229+53.94, 39.43' Lt. RAMP C	3.0'-4.5'	Brown, very stiff, SANDY SILT, and clay, little gravel, damp								9	VISUAL	S-8 241+53.73, 19.73' Lt. RAMP C	1.5'-2.5'	Gray, stiff, SILTY CLAY, trace sand, trace gravel, damp							7	VISUAL	
	4.5'-6.0'	Brown, very stiff, SANDY SILT, and clay, little gravel, damp								12	VISUAL		2.5'-3.0'	Brown, stiff, SILTY CLAY, trace sand, trace gravel, damp							12	VISUAL	
	6.0'-7.5'	Gray, very stiff, SANDY SILT, damp								14	VISUAL		3.0'-4.5'	19	12	23	21	25	22	8	12	A-4a	
	8.5'-10.0'	Gray, very stiff, SANDY SILT, damp								16	VISUAL		4.5'-6.0'	Gray, stiff, SILTY CLAY, little gravel, damp							13	VISUAL	
	0.0'-0.2'	Topsoil (2")											6.0'-7.0'	Gray, stiff, SANDY SILT, damp							20	VISUAL	
S-5 229+53.94, 39.43' Lt. RAMP C	0.2'-1.5'	Brown, very stiff, SILT AND CLAY, some sand, little gravel, with roots, moist, possible fill								15	VISUAL	S-8 241+53.73, 19.73' Lt. RAMP C	7.0'-8.5'	Brown, stiff, SILT AND CLAY, little gravel, moist							24	VISUAL	
	1.5'-3.0'	11	9	16	20	44	30	15	10	A-6a			8.5'-9.0'	Brown, stiff, SILT AND CLAY, little gravel, moist							15	VISUAL	
	3.0'-4.5'	Brown, very stiff, SILT AND CLAY, some sand, little gravel, with roots, damp, possible fill									VISUAL		9.0'-10.0'	Brown, stiff, SANDY SILT, trace clay, trace gravel, damp							12	VISUAL	
	8.5'-10.0'	Brown, very stiff, SILT AND CLAY, some sand, little gravel, with roots, with wet sand seams, damp, possible fill									VISUAL												
												SOIL PROFILE											
												WAR-75-3.40											
												10 / 35											
												CTL ENGINEERING, INC. 422 WARDS CORNER RD., STE. E LOVELAND, OHIO 45140 PHONE: 513-722-8665 FAX: 513-722-8669											

SUMMARY OF SOIL TEST DATA																									
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																									
RAMP D																									
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class			
L-1 202+87.69, 9.72' Rt. RAMP D	0.0'-0.3'	Topsoil (4")										R-3 204+54.0, 0.3' Rt. RAMP E	0.0'-0.1'	Topsoil (1")											
	1.0'-2.5'	71	10	6	8	5	NP	NP	7	A-1-a			0.1'-1.5'	Brown, stiff, SANDY SILT, little gravel, little clay, damp, possible fill							12	VISUAL			
	2.5'-4.0'	26	12	21	15	26	14	3	7	A-4a			1.5'-3.0'	3	4	13	35	45	43	23	22	A-7-6			
	4.0'-5.5'	Brown, hard, SANDY SILT, some gravel, some clay, with cobbles, damp								6	VISUAL			3.0'-4.5'	6	7	26	27	34	27	10	13	A-4a		
	5.5'-7.0'	Brown, hard, SANDY SILT, some gravel, some clay, with cobbles, damp								6	VISUAL			8.5'-9.0'	Brown and gray, very dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, damp							7	VISUAL		
L-2 207+07.70, 0.33' Lt. RAMP D	0.0'-0.3'	Topsoil (3")										R-4 207+91.6, 14.8' Lt. RAMP E	9.0'-10.0'	SHALE, gray, augered											
	0.3'-1.5'	Brown, dark brown, and gray, stiff, SILT AND CLAY, some gravel, some sand, damp, fill								12	VISUAL			0.0'-0.2'	Topsoil (2")										
	1.5'-3.0'	23	10	14	16	37	27	11	11	A-6a			0.2'-1.5'	Brown, hard, SANDY SILT, little gravel, little clay, damp, possible fill							12	VISUAL			
	3.0'-4.5'	26	11	15	16	32	24	9	9	A-4a			1.5'-3.0'	2	3	9	42	44	41	17	24	A-7-6			
	4.5'-6.0'	Gray, stiff, SANDY SILT, some gravel, some clay, damp, till								6	VISUAL			3.0'-4.5'	3	5	12	32	48	49	22	17	A-7-6		
L-3 211+05.85, 5.12' Rt. RAMP D	0.0'-0.3'	Berm material (3")										A-1 208+28.09, 16.78' Lt. RAMP E	0.0'-0.2'	Topsoil (2")											
	0.3'-1.5'	19	15	18	16	32	20	6	8	A-4a			0.2'-1.0'	Cobbles (10")											
	1.5'-3.0'	38	6	7	21	28	27	12	10	A-6a			1.0'-2.5'	Gray, hard, SANDY SILT, some gravel, some clay, with cobbles, damp, fill							4	VISUAL			
	3.0'-4.5'	Gray, stiff, SILT AND CLAY, and gravel, little sand, damp, till								13	VISUAL			3.5'-5.0'	37	11	11	19	22	21	6	9	A-4a		
	4.5'-6.0'	Gray, very stiff, SILT AND CLAY, and gravel, little sand, damp, till								10	VISUAL			6.0'-7.5'	Brownish gray, stiff, SILT AND CLAY, damp, fill							15	VISUAL		
RAMP E																									
R-1 196+60.8, 8.3' Rt. RAMP E	0.0'-0.3'	Topsoil (3")										WAR-75-3.40	7.5'-9.0'	SHALE, gray, augered										5	VISUAL
	0.3'-1.5'	21	9	16	19	35	31	14	10	A-6a			10.5'-12.0'	SHALE, gray, augered							14	VISUAL			
	1.5'-3.0'	SHALE, gray, augered								10	VISUAL			12.0'-13.5'	LIMESTONE, gray, augered								VISUAL		
	3.0'-4.5'	SHALE, gray, augered								7	VISUAL			13.5'-15.0'	SHALE, gray, augered								VISUAL		
														15.0'-16.5'	SHALE, gray, augered (assumed)							NO RECOVERY			
R-2 200+57.8, 3.9' Lt. RAMP E	0.0'-0.1'	Topsoil (1")											16.5'-18.0'	LIMESTONE, gray, augered								VISUAL			
	0.1'-1.5'	10	9	16	16	49	33	15	15	A-6a		18.0'-23.0'	SHALE (80%), medium to dark gray, moderately hard, with interbedded LIMESTONE (20%), dark to light gray, moderately hard								VISUAL				
	1.5'-3.0'	Brown and gray, hard, SILT AND CLAY, some sand, trace gravel, with roots, moist								19	VISUAL		23.0'-28.0'	SHALE (87%), medium to dark gray, with interbedded LIMESTONE (13%), medium to light gray								VISUAL			
												SOIL PROFILE													
												WAR-75-3.40													
												11 / 35													
																									

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

SUMMARY OF SOIL TEST DATA																												
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																												
RAMP E																												
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class	STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class							
A-5 208+39.41, 82.14' Lt. RAMP E	0.0'-0.7'	Topsoil (8")										A-4 CONTD.	7.0'-12.0'	SHALE (74%), gray, moderately hard, with interbedded LIMESTONE (26%), gray, moderately hard, crystalline										VISUAL				
	1.0'-2.5'	13	21	42	14	10	NP	NP	11	A-3a		12.0'-17.0'	SHALE (61%), dark gray, moderately soft, with interbedded LIMESTONE (39%), gray, moderately hard										VISUAL					
	3.5'-5.0'	15	2	4	37	42	39	17	21	A-6b																		
	6.0'-7.5'	CLAY SHALE, gray, augered										14	VISUAL															
	8.5'-9.0'	SHALE, light gray, augered											VISUAL	R-5 212+54.5, 4.0' Lt. RAMP E	0.0'-0.3'	Topsoil (3")												
	9.0'-14.0'	SHALE (80%), gray, moderately soft, with interbedded LIMESTONE (20%), gray, moderately hard											VISUAL		0.3'-1.5'	4	8	13	46	29	30	11	16	A-6a				
														1.5'-3.0'		Brown, very stiff, SILT AND CLAY, some sand, trace gravel, with roots, damp										18	VISUAL	
													3.0'-4.5'	0	2	10	43	45	38	17	17	A-6b						
	14.0'-19.0'	SHALE (61%), dark gray, moderately soft, with interbedded LIMESTONE (39%), gray, moderately hard											VISUAL		8.5'-10.0'		Brown, hard, SANDY SILT, little gravel, with sand seams, damp, till										14	VISUAL
	19.0'-24.0'	SHALE (69%), dark gray, moderately hard, with interbedded LIMESTONE (31%), moderately hard											VISUAL		13.5'-15.0'		Brown, hard, SANDY SILT, little gravel, with sand seams, till, (assumed)										NO RECOVERY	
A-3 208+57.55, 33.96' Rt. RAMP E	0.0'-0.5'	Topsoil (6")										R-5A 212+65.5, 4.0' Lt. RAMP E	0.0'-0.8'	Topsoil (9")														
	1.0'-2.5'	0	1	24	28	47	37	14	30	A-6a		3.5'-5.0'	Brown, loose, COARSE AND FINE SAND, little silt, trace clay, moist										12	VISUAL				
	3.5'-5.0'	SHALE, dark gray, augered										10	VISUAL		8.5'-10.0'	32	9	14	18	27	16	3	4	A-4a				
	5.0'-10.0'	SHALE (73%), dark to medium gray, moderately soft, with interbedded LIMESTONE (27%), medium gray, moderately soft, crystalline											VISUAL		10.0'-11.5'	16	9	16	37	22	17	4	8	A-4a				
														11.5'-13.0'		Gray, hard, SANDY SILT, little gravel, some clay, damp, till										1	VISUAL	
		10.0'-15.0'	SHALE (73%), dark to medium gray, moderately soft, with interbedded LIMESTONE (27%), medium gray, moderately hard											VISUAL		13.0'-14.5'		SHALE, gray, soft, with interbedded limestone, augered										4
													17.0'-18.5'		SHALE, gray, soft, with interbedded limestone, augered										8	VISUAL		
A-2 208+92.56, 4.99' Lt. RAMP E	0.0'-0.5'	Topsoil (6")										R-6 216+06.8, 2.3' Rt RAMP E	0.0'-0.3'	Topsoil (3")														
	0.5'-2.0'	41	12	20	13	14	27	7	28	A-2-4		0.3'-1.5'	2	8	14	39	37	52	26		15	A-7-6						
	3.5'-5.0'	Gray, dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, with cobbles, damp, fill										5	VISUAL		1.5'-3.0'		Brown and gray, very stiff, CLAY, and silt, some sand, trace gravel, with roots, damp										14	VISUAL
	5.0'-6.0'	SHALE, gray, augered										18	VISUAL		3.0'-4.5'	9	9	14	24	44	29	13	13	A-6a				
	6.0'-7.5'	SHALE, gray, augered										14	VISUAL		8.5'-10.0'		Brown and gray, hard, SILT AND CLAY, some sand, trace gravel, with roots, damp										12	VISUAL
	7.5'-9.0'	SHALE, gray, augered										9	VISUAL	COMMERCE DRIVE														
	9.0'-10.0'	SHALE, gray, augered										10	VISUAL		0.0'-0.6'		Topsoil (7")											
	10.0'-15.0'	SHALE (72%), dark gray, moderately hard, with interbedded, LIMESTONE (28%), light to dark gray, moderately hard											VISUAL		0.6'-1.5'	8	7	11	36	38	37	15	21	A-6a				
		15.0'-20.0'	SHALE (60%), dark gray, moderately hard, with interbedded, LIMESTONE (40%), light to dark gray, moderately hard											VISUAL		1.5'-3.0'	0	1	3	43	53	36	15	24	A-6a			
													3.0'-4.5'		Brown, medium stiff,SILT AND CLAY, trace gravel, trace sand, moist, possible till										19	VISUAL		
A-4 209+34.86, 50.46' Lt. RAMP E	0.0'-0.8'	Topsoil (9")											4.5'-6.0'	Brown, medium stiff,SILT AND CLAY, trace gravel, trace sand, moist, possible till										23	VISUAL			
	1.0'-2.5'	Dark brown, stiff, SILT AND CLAY, with broken chert fragments, damp, possible										18	VISUAL		6.0'-7.5'		Dark gray, medium stiff, SANDY SILT, little gravel, damp, till										25	VISUAL
	3.5'-5.0'	Light brown, very stiff, SILT AND CLAY, with rock fragments, damp										16	VISUAL		8.5'-10.0'		Dark gray, stiff, SILT, little sand, damp										22	VISUAL
	6.0'-7.0'	SHALE, gray, augered										16	VISUAL															

CTL ENGINEERING, INC.
422 WARD'S CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

CALCULATED

CHECKED

DATE

04/25/06

REVIEWED

MP

DRAWN

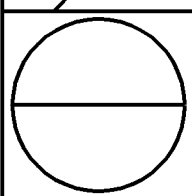
B.R.U.

SOIL PROFILE

WAR-75-3.40

12

35



CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

CALCULATED

CHECKED

DATE

04/25/06

REVIEWED

MP

DRAWN

B.R.L.

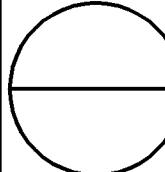
SOIL PROFILE

WAR-75-3.40

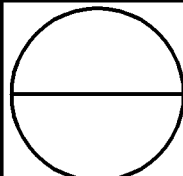
12

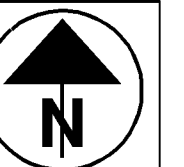
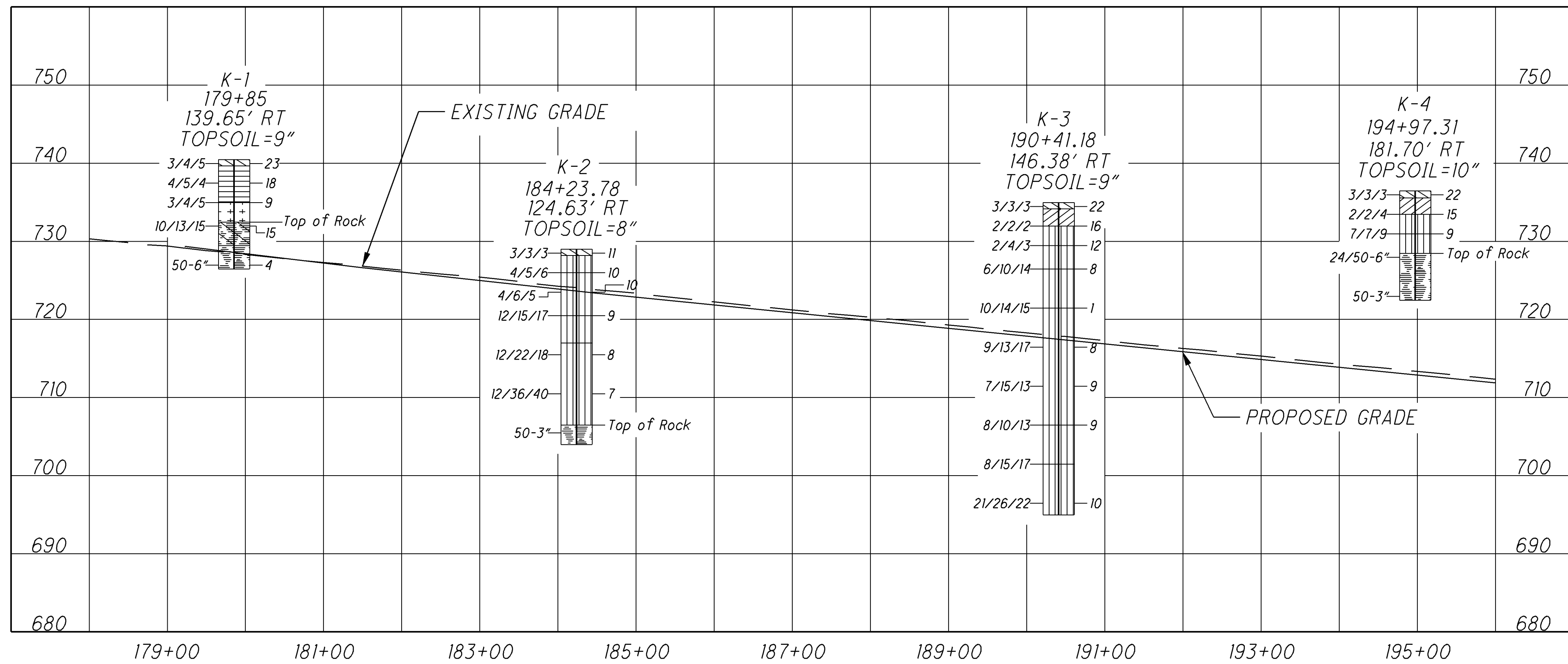
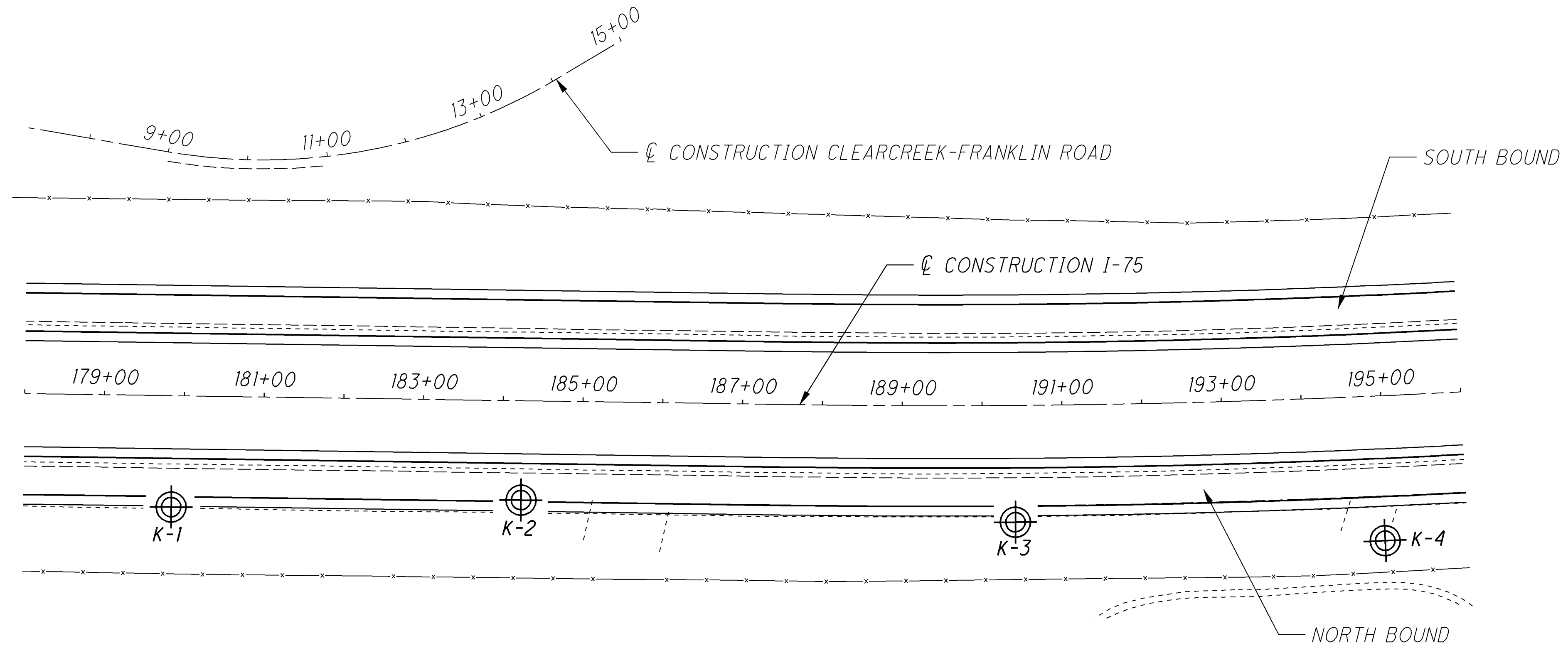
35



SUMMARY OF SOIL TEST DATA																										
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																										
COMMERCE DRIVE																										
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class				
W-3 12+73.6, 29.86' Lt. COMMERCE DRIVE	0.0'-0.7'		Topsoil (9")									J-1 10+04.41, 9.31' Rt. PENNYROYAL ROAD	0.0'-1.0'		Asphalt concrete (12")								VISUAL			
	1.0'-2.0'		Brown, stiff, SANDY SILT, little gravel, damp								12		1.0'-2.5'	6	6	18	23	47	32	15	18	A-6a				
	3.5'-5.0'		Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS W/ SAND AND SILT, little clay, damp, till								10		2.5'-4.0'	8	6	15	27	44	23	9	11	A-4a				
													4.0'-5.5'		Brown and gray, stiff, SANDY SILT, trace clay, trace gravel, damp, fill								VISUAL			
	6.0'-7.5'	32	19	18	14	17	14	2	8	A-2-4			5.5'-7.0'		Brown and gray, stiff, SANDY SILT, trace clay, trace gravel, damp, fill								VISUAL			
	7.5'-9.0'	12	13	16	20	39	17	4	9	A-4a		J-2 13+99.6, 6.91' Rt. PENNYROYAL ROAD	0.0'-0.9'		Asphalt concrete (11")								VISUAL			
	9.0'-10.5'		Gray, very stiff, SANDY SILT, little gravel, and clay, damp, till								16		1.0'-2.5'	8	4	31	28	29	14	2	9	A-4a				
	10.5'-12.0'		Brown, hard, SANDY SILT, little gravel, little clay, damp, till								15		2.5'-4.0'	17	8	18	22	35	23	9	10	A-4a				
	12.0'-13.5'		Brown, very stiff, SANDY SILT, little gravel, little clay, damp, till								16		4.0'-5.5'		Brown, stiff, SANDY SILT, little gravel, some clay, damp, till								VISUAL			
	14.5'-16.0'		SHALE, gray, augered								9		5.5'-7.0'		Brown, stiff, SANDY SILT, little gravel, some clay, damp, till								VISUAL			
17.0'-18.5'		SHALE, gray, augered									VISUAL		J-3 25+81.99, 10.66' Lt. PENNYROYAL ROAD	0.0'-0.9'		Asphalt concrete (11")								VISUAL		
W-2 14+96.15, 0.15' Lt. COMMERCE DRIVE	1.0'-2.5'		Brown, very stiff, SANDY SILT, little gravel, damp								12	1.0'-2.5'		16	5	15	27	37	37	18	12	A-6b				
	2.5'-4.0'	18	14	6	28	34	32	14	25	A-6a		2.5'-4.0'		9	7	16	26	42	33	14	26	A-6a				
	4.0'-5.5'	13	39	35	8	5	NP	NP	13	A-1-b		4.0'-5.5'			Brown, stiff, SILT, little sand, trace gravel, damp								VISUAL			
												5.5'-7.0'			Brown and black, loose, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, strong fertilizer odor, moist								VISUAL			
	5.5'-7.0'		Light brown, very stiff, SILT AND CLAY, damp								25	VISUAL			J-4 29+15.87, 5.28' Lt. PENNYROYAL ROAD	0.0'-1.0'		Asphalt concrete (12")								VISUAL
	8.0'-9.5'		SHALE, gray, augered								8	VISUAL				1.0'-1.3'		Crushed Base (4")								VISUAL
W-1 18+27.5, 6.4' Rt. COMMERCE DRIVE	0.0'-0.7'		Asphalt concrete (8")									PENNYROYAL ROAD	1.3'-2.5'	9	8	16	28	39	18	5	12	A-4a				
	0.7'-1.0'		GRAVEL AND/OR STONE FRAGMENTS WITH SAND, base course (4")										2.5'-4.0'	1	2	8	31	58	50	29	24	A-7-6				
	1.0'-2.5'	11	11	14	30	34	27	12	12	A-6a			4.0'-5.5'		Mottled light brown and light gray, stiff, SANDY SILT, little clay, trace gravel, damp								VISUAL			
	2.5'-4.0'	16	9	13	31	31	27	12	12	A-6a			5.5'-7.0'		Brown, stiff, SANDY SILT, trace gravel, trace clay, damp, till								VISUAL			
	4.0'-5.5'		Brown and gray, stiff, SILT AND CLAY, some sand, little gravel, moist, fill*								20		VISUAL													
PENNYROYAL ROAD																										
J-5 2+04.59, 7.39' Lt. PENNYROYAL ROAD	0.0'-1.1'		Asphalt concrete (13")									PENNYROYAL ROAD	0.0'-1.1'										VISUAL			
	1.1'-2.5'	12	9	18	30	31	16	4	12	A-4a			1.1'-2.5'													
	2.5'-4.0'	20	11	16	22	31	20	7	11	A-4a			2.5'-4.0'													
	4.0'-5.5'		Dark brown, stiff, SANDY SILT, little gravel, trace clay, damp, possible fill								12		4.0'-5.5'													
	5.5'-7.0'		Brown, stiff, SANDY SILT, little gravel, little clay, moist, possible till								12		5.5'-7.0'													
WAR-75-3.40																										
13 / 35																										
																										

CTL ENGINEERING, INC.
422 WARDS CORNER RD., STE. E
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

SUMMARY OF SOIL TEST DATA																																	
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC. * DENOTES SAMPLE TAKEN AT OR NEAR GRADE.																																	
STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class		STATION & OFFSET	DEPTH FROM-TO	% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class											
PENNYROYAL ROAD																																	
G-1 170+16.41, 180.1' Lt. PENNYROYAL ROAD	0.0'-0.1'	Asphalt concrete (1")								VISUAL		G-3 169+31.19, 183.1' Rt. PENNYROYAL ROAD										0.0'-0.2'	Asphalt concrete (2")								VISUAL		
	0.1'-0.9'	Portland cement concrete (10") (Bridge deck)								VISUAL												0.2'-0.8'	Portland cement concrete (Bridge deck)								VISUAL		
	0.9'-10.0'	Boring drilled through Bridge Deck																				1.0'-10.0'	Boring drilled through Bridge Deck										
	10.0'-11.0'	Slag, fill								VISUAL												10.0'-11.0'	Slag, fill								VISUAL		
	11.0'-12.5'	27	20	19	16	18	20	5	11	A-2-4											11.0'-12.5'	Brown TO brown Gray SILTY CLAY (TILL)								12	VISUAL		
	13.5'-15.0'	Brown SILTY SAND, fill								VISUAL												13.5'-15.0'	11	12	17	19	41	19	4	11	A-4a		
	16.0'-17.5'	35	9	11	19	26	22	6	15	A-4a											16.0'-17.5'	Brown TO Brown AND Gray SILTY CLAY with cobbles, till								12	VISUAL		
	18.5'-19.5'	Brown SILTY SAND and GRAVEL, fill								12	VISUAL											18.5'-20.0'	Brown TO Brown and Gray SILTY CLAY with cobbles, till								9	VISUAL	
	19.5'-21.0'	Gray SANDY SILT, till								11	VISUAL											21.0'-22.5'	19	10	15	21	35	24	6	10	A-4a		
	21.0'-22.5'	14	18	10	26	32	22	7	12	A-4a											23.5'-25.0'	11	25	6	15	43	41	14	23	A-7-6			
	23.5'-24.0'	Gray SANDY SILT, till								12	VISUAL											26.0'-27.5'	7	20	4	54	15	24	3	20	A-4b		
	24.0'-24.5'	Gray FINE and COARSE SAND								11	VISUAL											28.5'-30.0'	19	19	13	27	22	22	6	13	A-4a		
	24.5'-26.0'	3	5	1	59	32	NP	NP	20	A-4b											31.0'-32.5'	Gray WEATHERED SHALE and LIMESTONE layers								8	VISUAL		
	26.0'-26.5'	Gray SILT								13	VISUAL											33.5'-35.0'	Gray WEATHERED SHALE and LIMESTONE layers								8	VISUAL	
	26.5'-28.0'	23	16	10	13	38	25	7	11	A-4a											38.5'-40.0'	Gray WEATHERED SHALE and LIMESTONE layers								3	VISUAL		
	28.5'-30.0'	Gray WEATHERED SHALE with LIMESTONE layers								VISUAL												43.5'-45.0'	Gray WEATHERED SHALE and LIMESTONE layers								10	VISUAL	
	33.5'-35.0'	Gray WEATHERED SHALE with LIMESTONE layers								VISUAL												48.5'-50.0'	Gray WEATHERED SHALE and LIMESTONE layers								VISUAL		
	38.5'-39.0'	Gray WEATHERED SHALE WITH LIMESTONE layers								VISUAL												53.5'-55.0'	Gray WEATHERED SHALE and LIMESTONE layers								VISUAL		
39.0'-49.0'	LIMESTONE (90%) light gray, fine grained, crystalline, modular, and wavy bedding, Hand with interbedded SHALE (10%) seams medium gray, silty, soft, very Thinly bedded								VISUAL												57.0'-62.0'	LIMESTONE, light gray fine grained crystalline modular and wavy bedding hard with interbedded SHALE (30%), medium gray, silty, wavy, bedding soft								VISUAL			
												CLEARCREEK-FRANKLIN ROAD																					
												J-6 2+32.45, 6.31' Lt. PENNYROYAL ROAD										0.0'-0.8'	Asphalt concrete (9")								VISUAL		
																						0.8'-1.1'	Base course (4")								VISUAL		
																						1.1'-2.5'	11	9	18	24	38	17	4	11	A-4a		
																						2.5'-4.0'	8	7	17	30	38	25	11	18	A-6a		
																						4.0'-5.0'	Mottled gray and black, very stiff, SILT AND CLAY, little gravel, trace sand, damp, possible fill								13	VISUAL	
																						5.0'-6.5'	Gray, stiff, SILT AND CLAY, little sand, trace gravel, damp								3	VISUAL	
																																14 / 35	
																																	
																						CTL ENGINEERING, INC. 422 WARDS CORNER RD., STE. E 45140 LOVELAND, OHIO PHONE: 513-722-8665 FAX: 513-722-8669											



CALCULATED 0
CHECKED

DATE 08/31/06

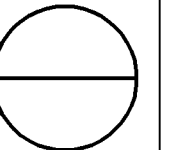
REVIEWED NT

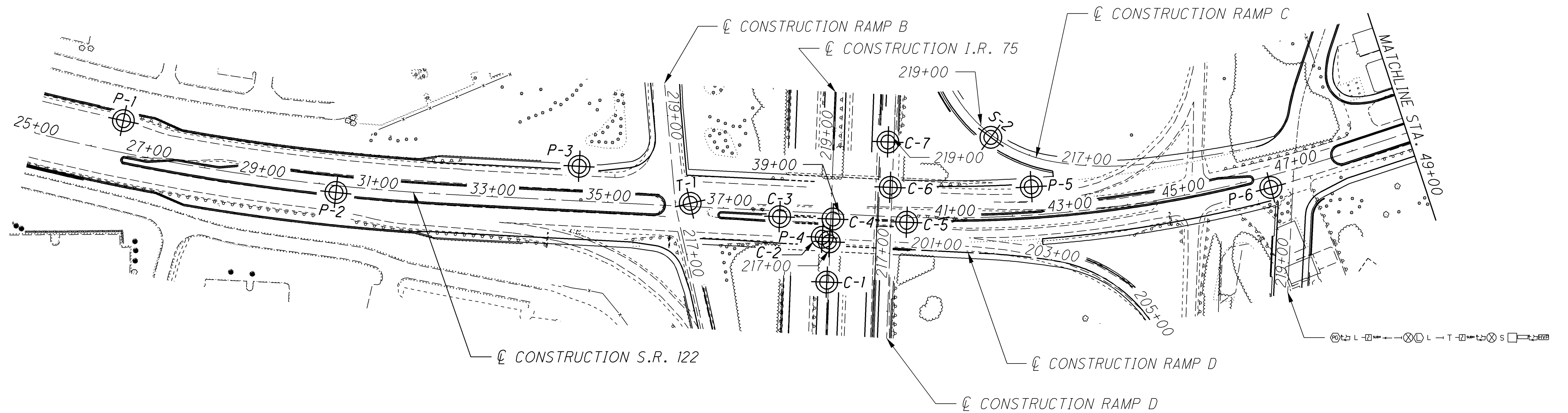
DRAWN C.N.

SOIL PROFILE I-75
STA. 178+00 TO 196+00

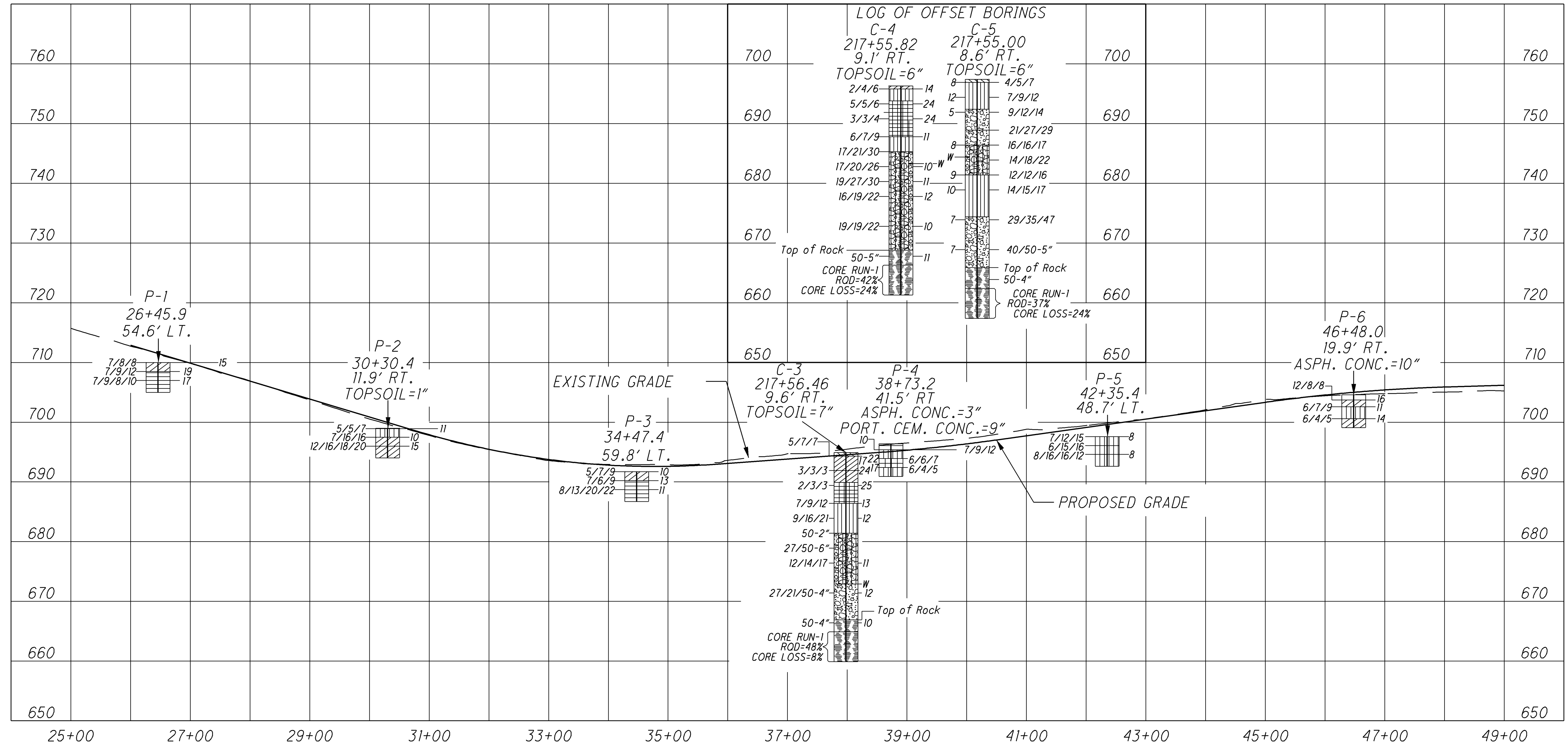
WAR-75-3.40

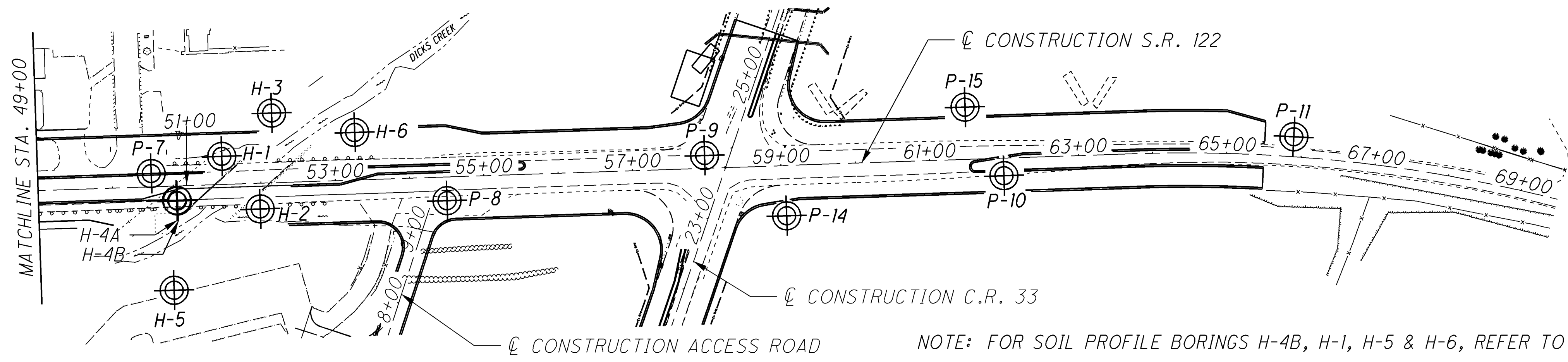
15 35



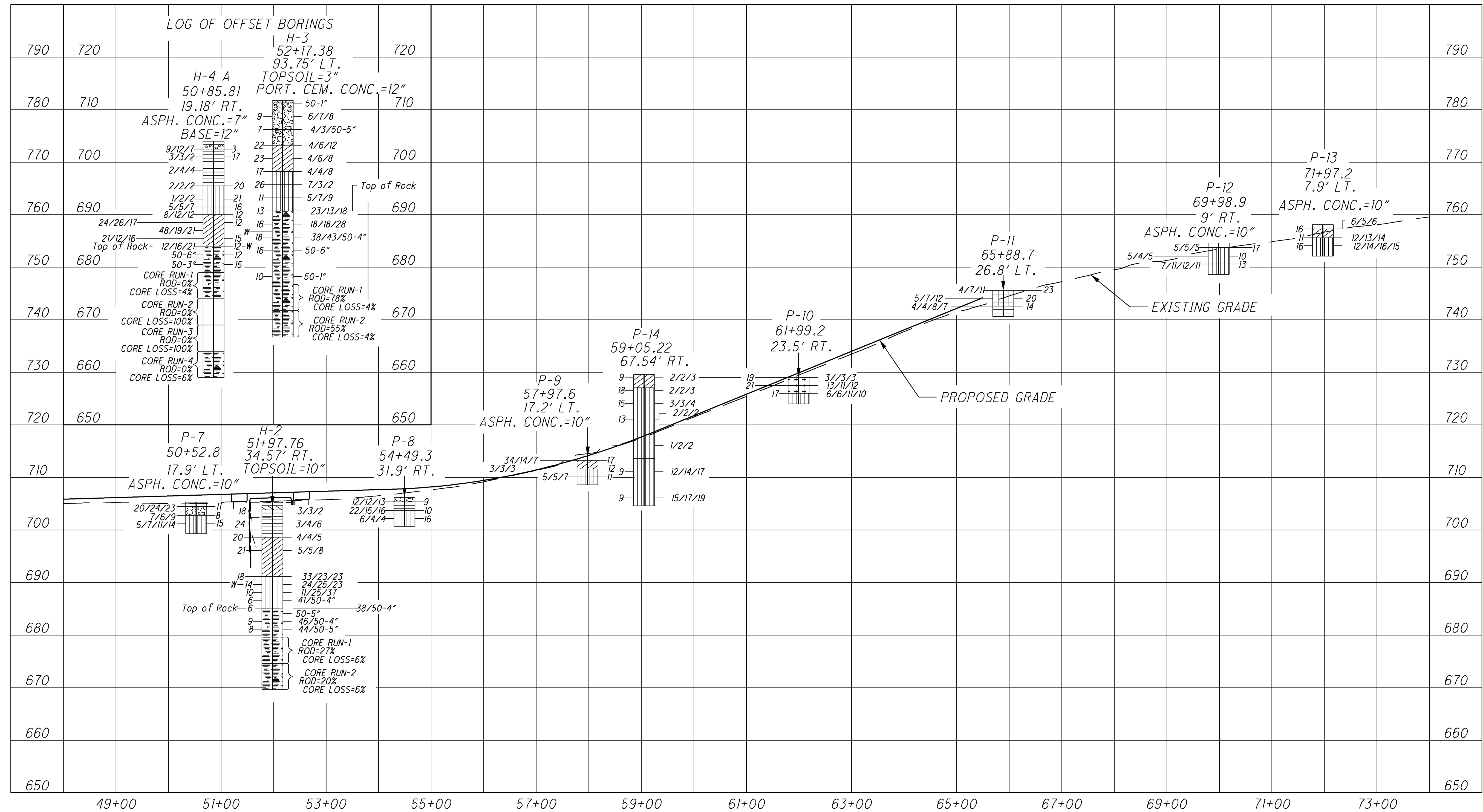


NOTE: FOR SOIL PROFILE BORINGS C-2, C-1, C-7& C-6, REFER TO STRUCTURE FOUNDATION SHEETS.





NOTE: FOR SOIL PROFILE BORINGS H-4B, H-1, H-5 & H-6, REFER TO 19 OF 35.



100
50
0

HORIZONTAL
SCALE IN FEET

CALCULATED

DATE

REVIEWED

DRAWN

08/31/06

NT

CHECKED

C.N.

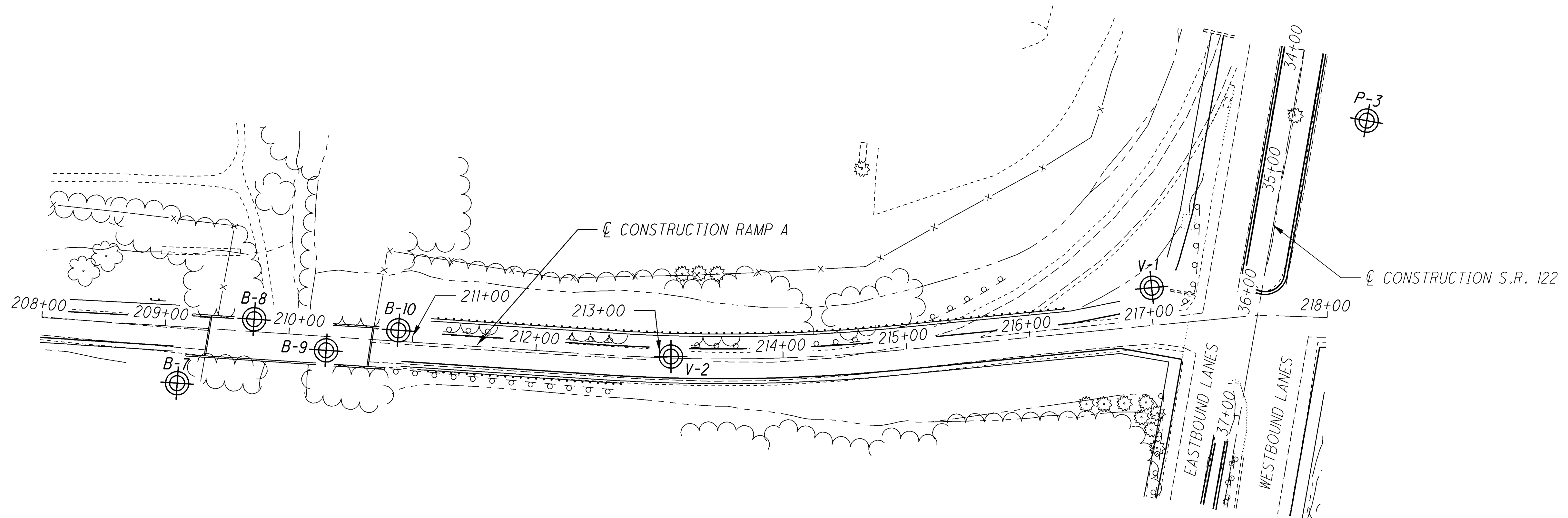
WAR-75-3.40

17

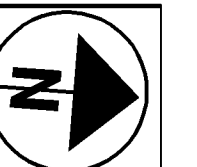
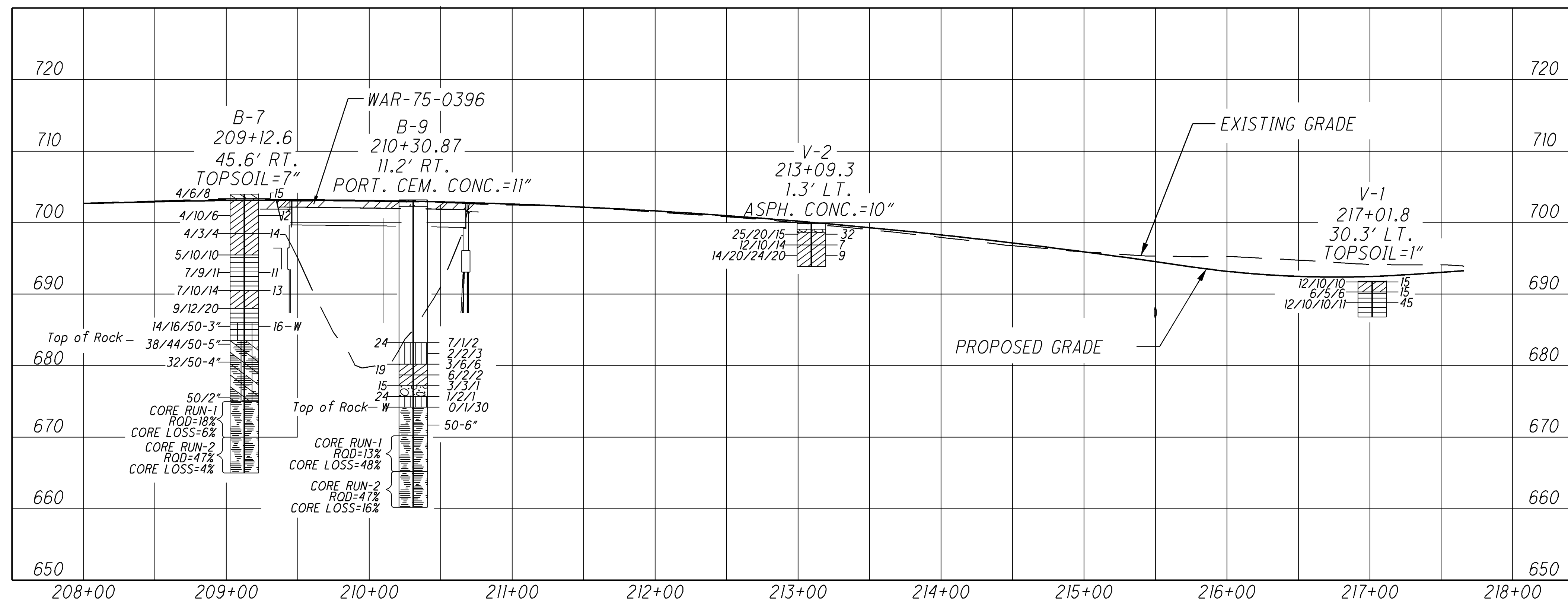
35

SOIL PROFILE S.R. 122

STA. 49+00 TO 69+00



NOTE: FOR PROFILE OF BORING P-3, REFER TO SHEET 17 OF 35



CALCULATED 0

DATE 08/31/06

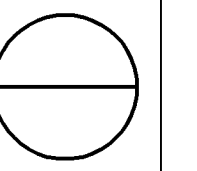
REVIEWED NT

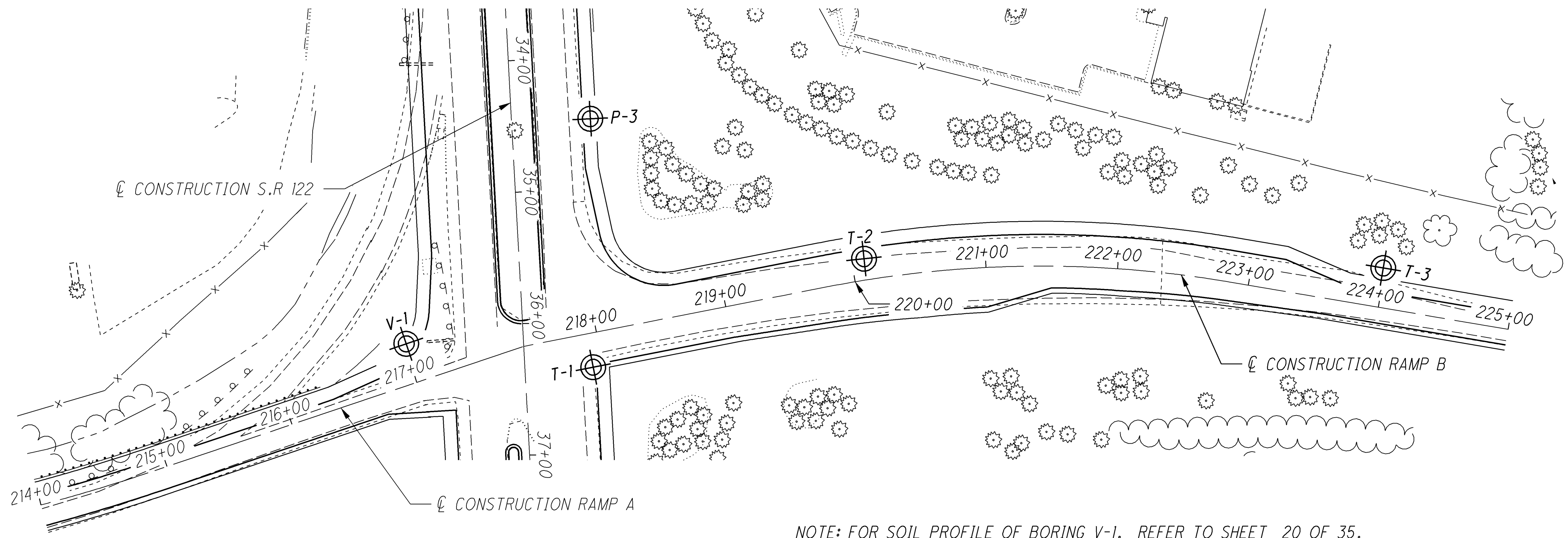
DRAWN C.N.

SOIL PROFILE S.R. 122 RAMP A
STA. 208+00 TO 218+00

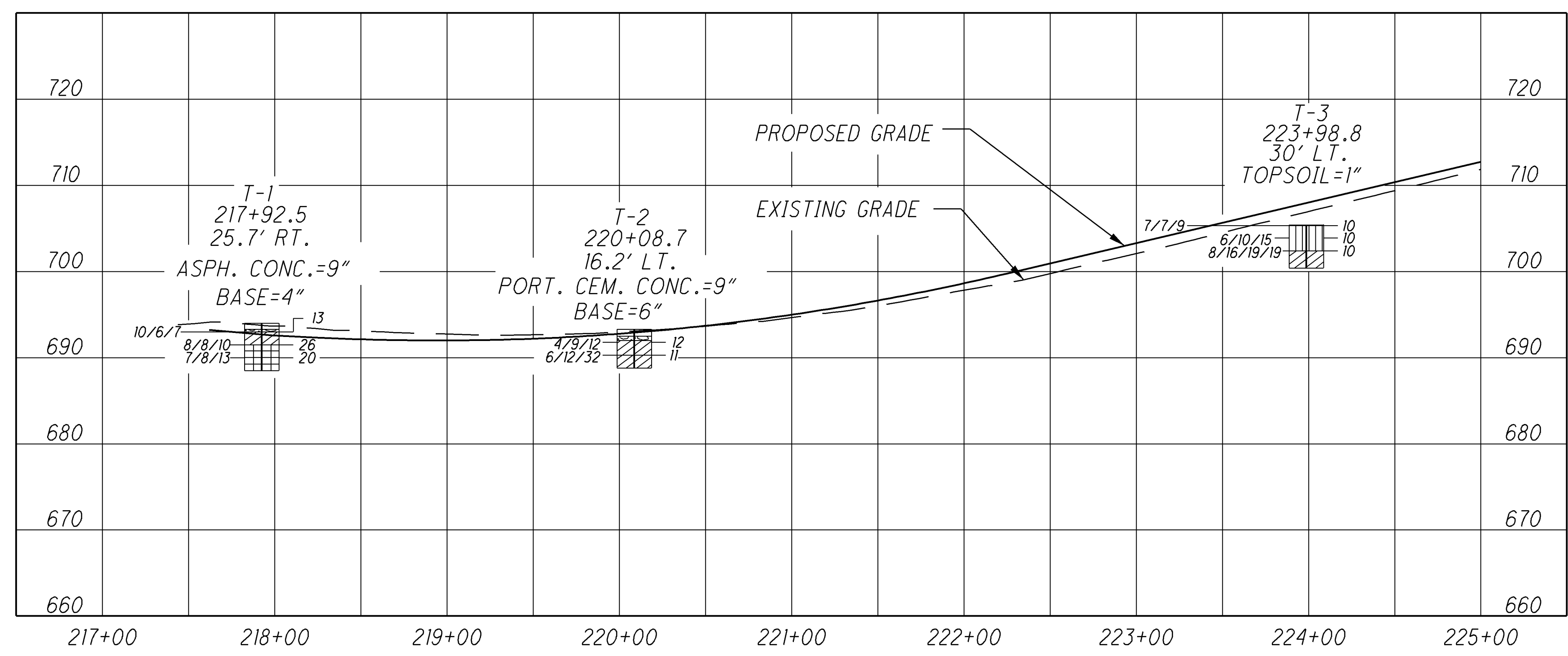
WAR-75-3.40

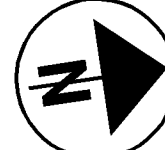
19 35





NOTE: FOR SOIL PROFILE OF BORING V-1, REFER TO SHEET 20 OF 35.





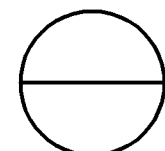
50
25
0
HORIZONTAL
SCALE IN FEET

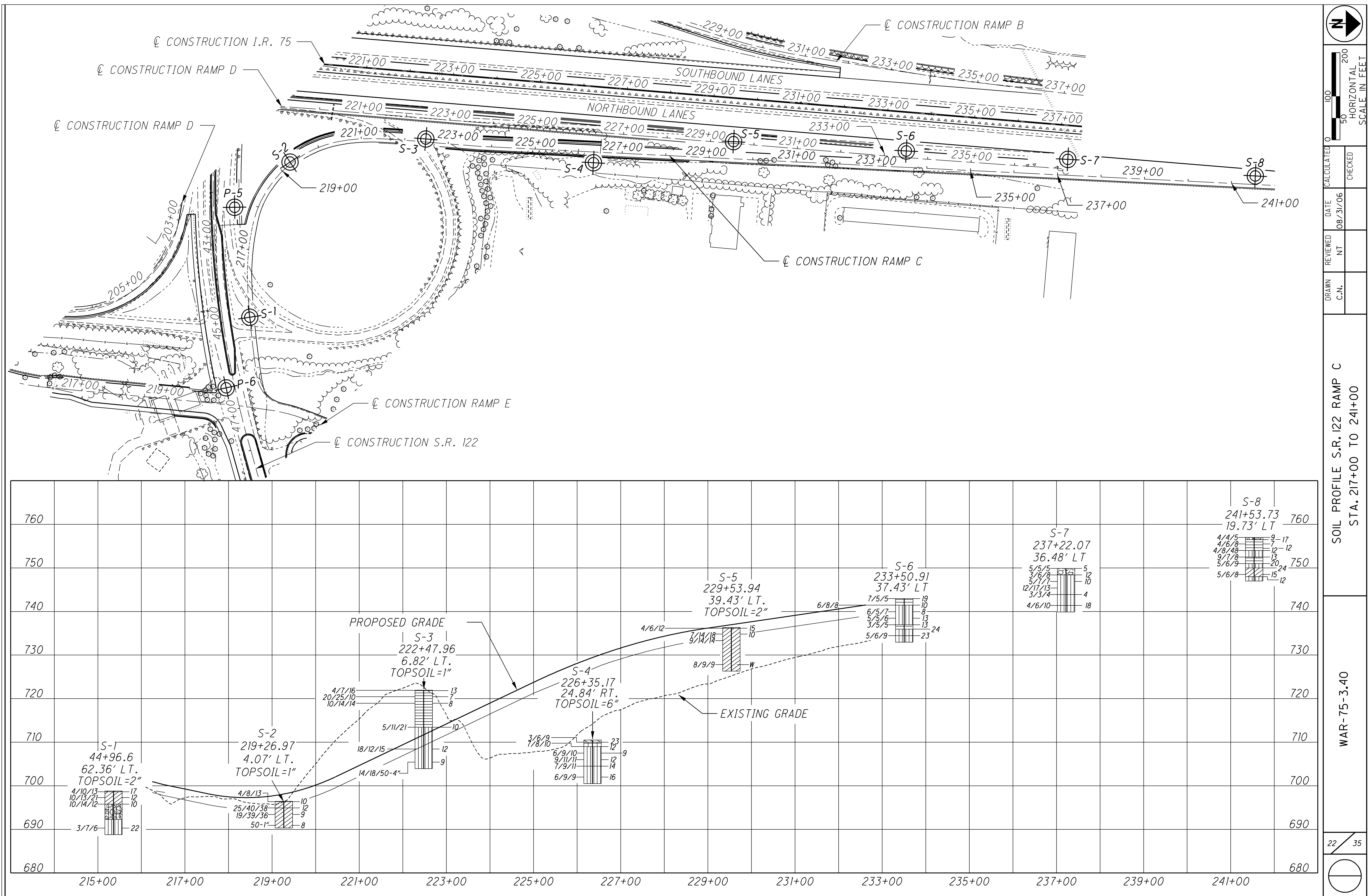
DRAWN C.N.	REVIEWED NT	DATE 08/31/06	CALCULATED 0	CHECKED
---------------	----------------	------------------	-----------------	---------

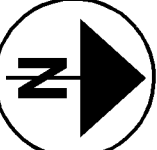
SOIL PROFILE S.R. 122 RAMP B
STA. 217+00 TO 225+00

WAR-75-3.40

21 / 35







100

50

200

HORIZONTAL
SCALE IN FEET

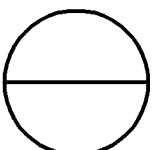
CALCULATED BY	CHECKED
DATE	08/31/06
REVIEWED	NT
DRAWN	C.N.

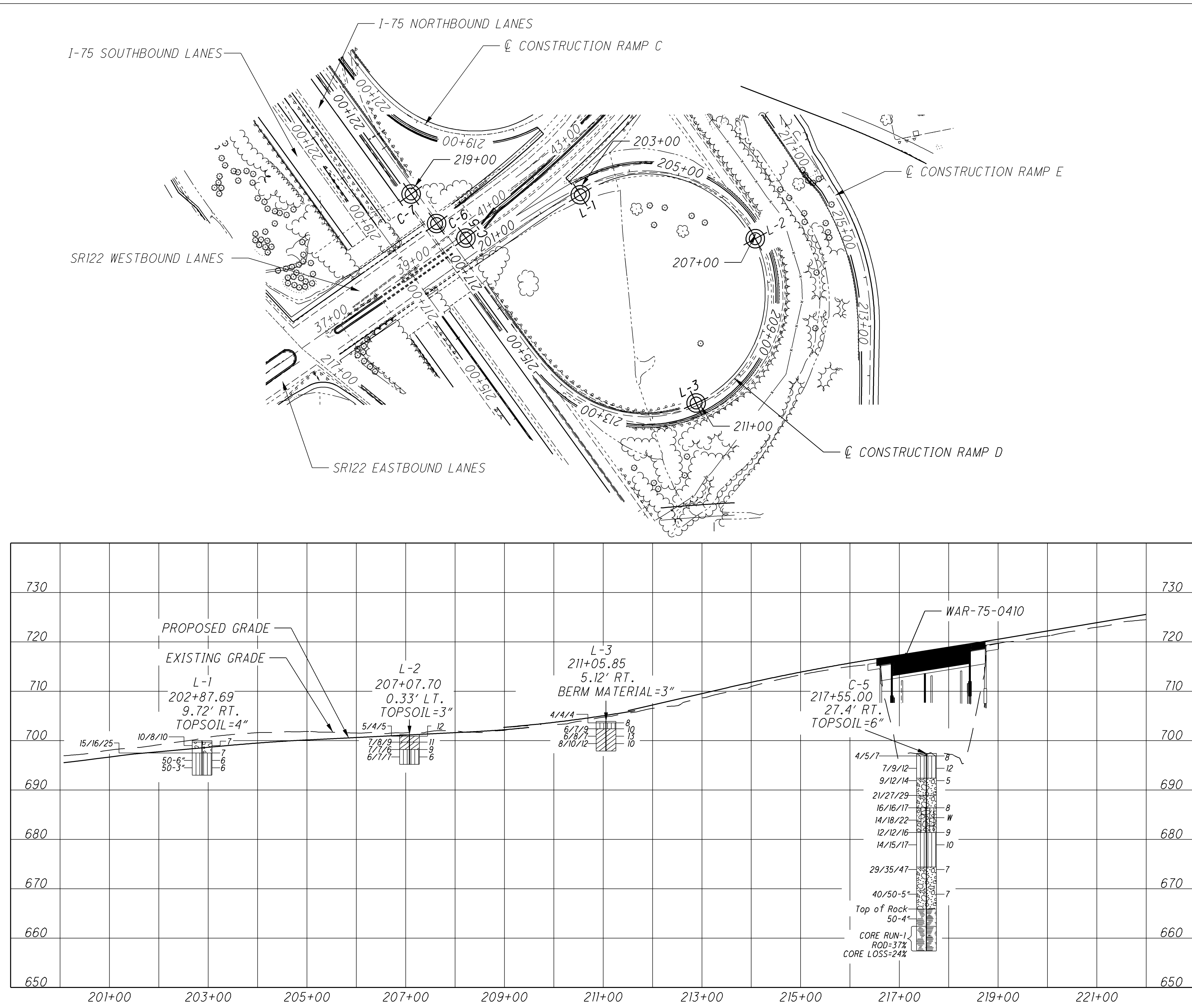
SOIL PROFILE S.R. 122 RAMP C
STA. 217+00 TO 241+00

WAR-75-3.40

22

35





0100200

50

HORIZONTAL SCALE IN FEET

CALCULATED

DATE

REVIEWED

DRAWN

08/31/06

NT

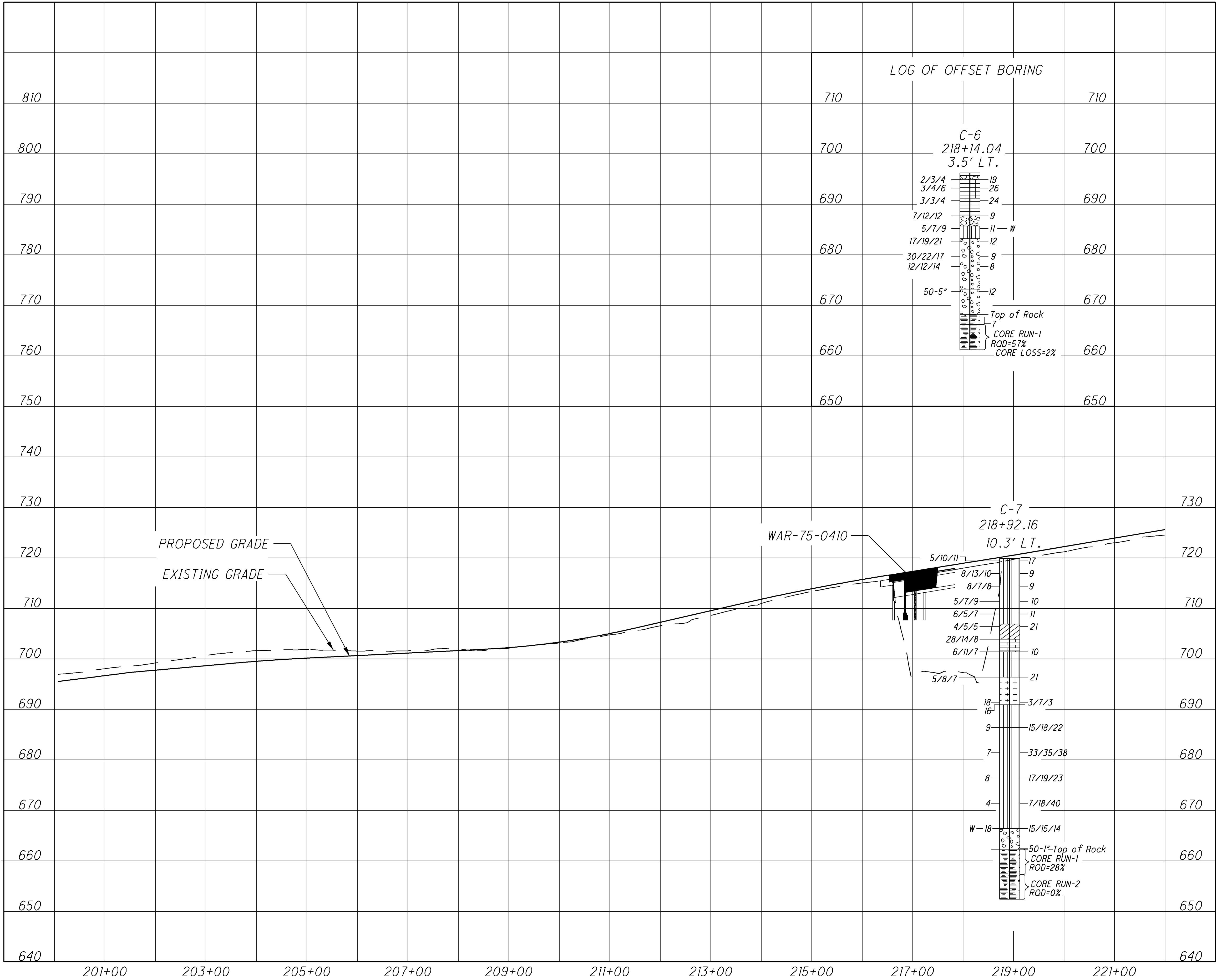
C.N.

CHECKED

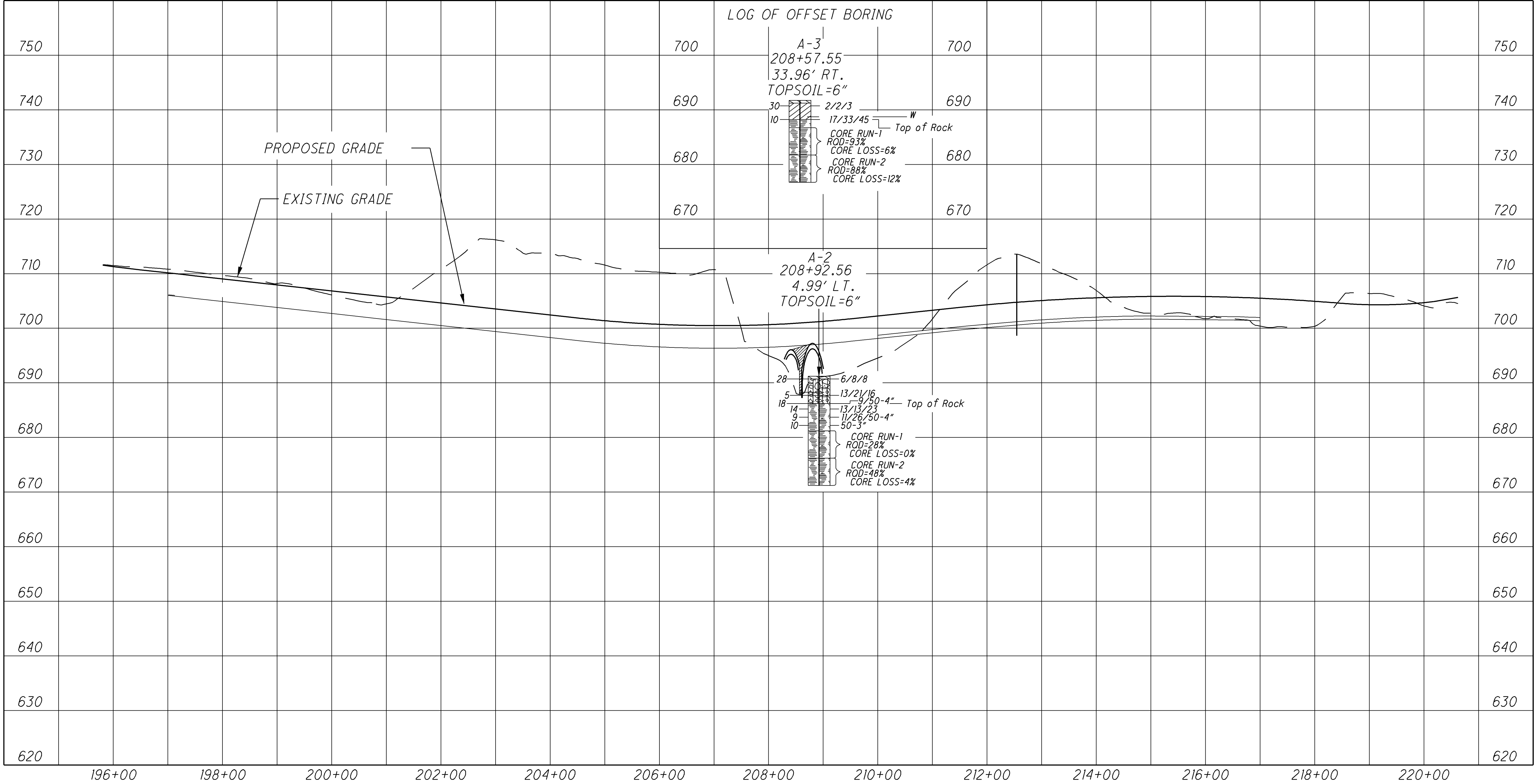
SOIL PROFILE S.R. 122 RAMP D
STA. 201+00 TO 221+00

WAR-75-3.40

2335



DRAWN C.N.		REVIEWED NT	DATE 08/31/06	CALCULATED O	 HORIZONTAL SCALE IN FEET
				CHECKED	
SOIL PROFILE S.R. I22 RAMP D STA. 201+00 TO 221+00					
WAR-75-3.40					
24 / 35					



26

35

WAR-75-3.40

SOIL PROFILE S.R. I22 RAMP E

STA. 196+00 TO 220+00

DRAWN

REVIEWED

DATE

CALCULATED

NT

NT

08/31/06

0

CHECKED

100

50

0

HORIZONTAL

SCALE IN FEET

200

100

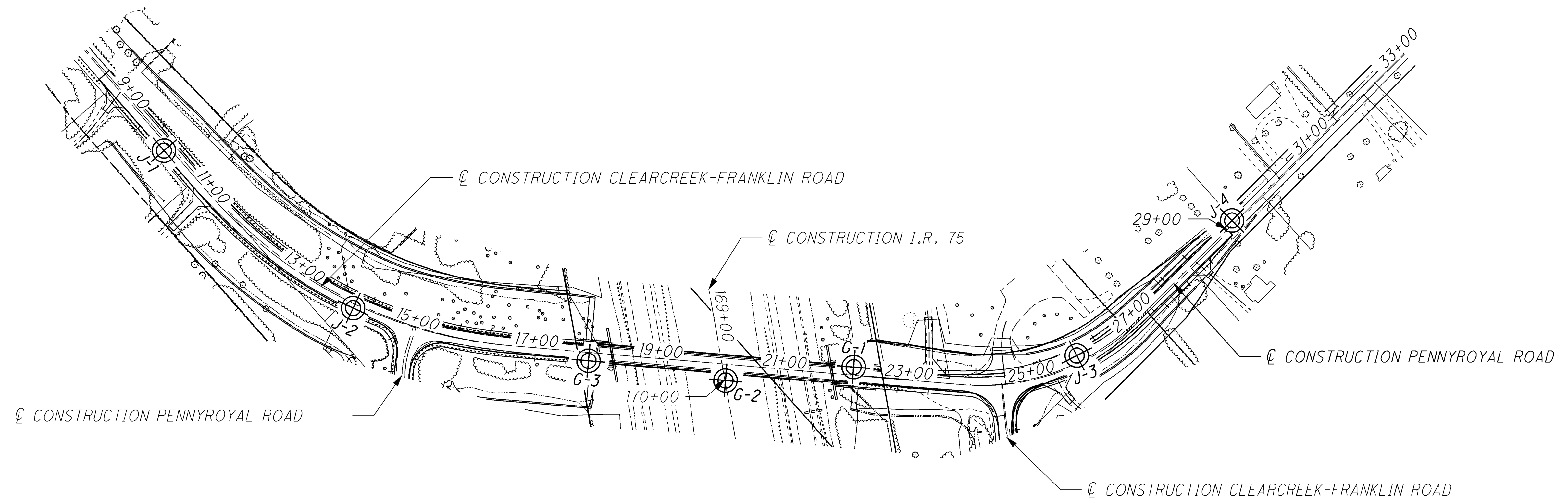
50

0

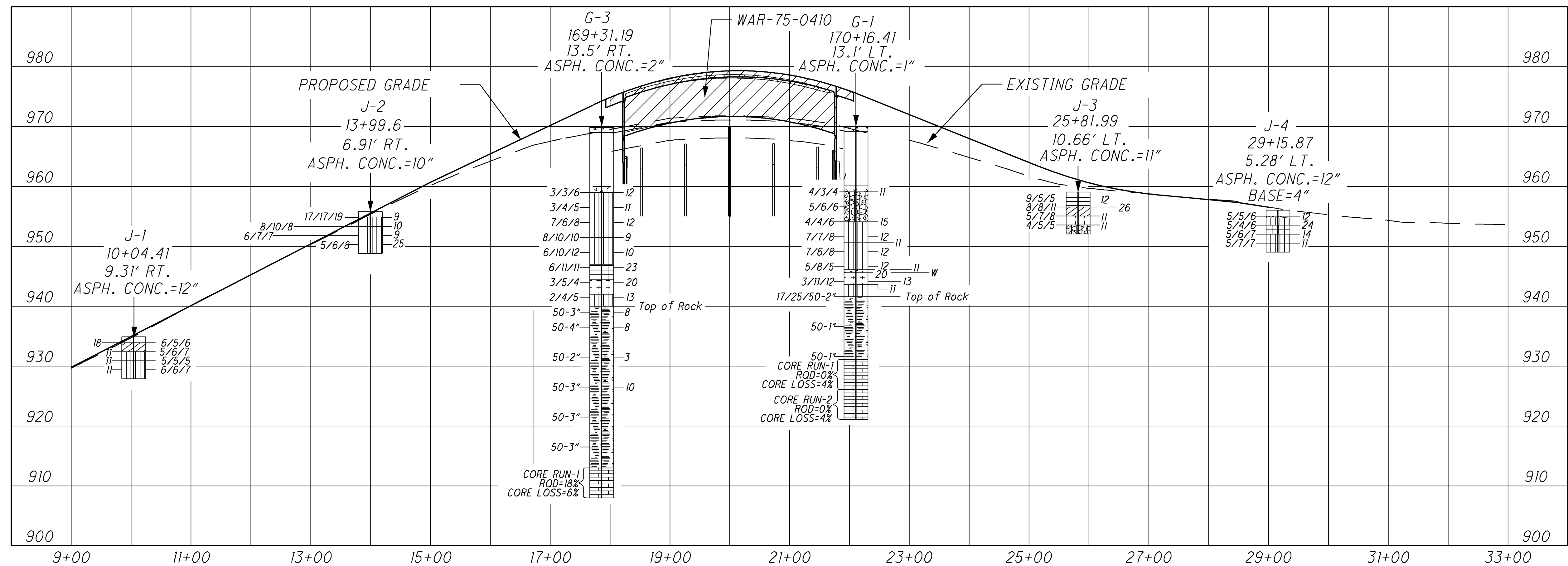
HORIZONTAL

SCALE IN FEET

200



NOTE: FOR SOIL PROFILE OF BORING G-2, REFER TO STRUCTURE FOUNDATION INVESTIGATION SHEETS.

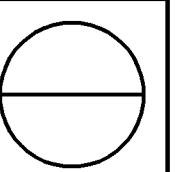


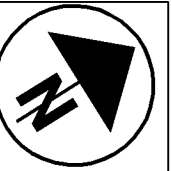
CALCULATED	0	CHECKED
DATE	08/31/06	
REVIEWED	NT	
DRAWN	C.N.	

SOIL PROFILE PENNYROYAL ROAD
STA. 9+00 TO 33+00

WAR-75-3.40

28 35





CHECKED

DATE	08/31/06
------	----------

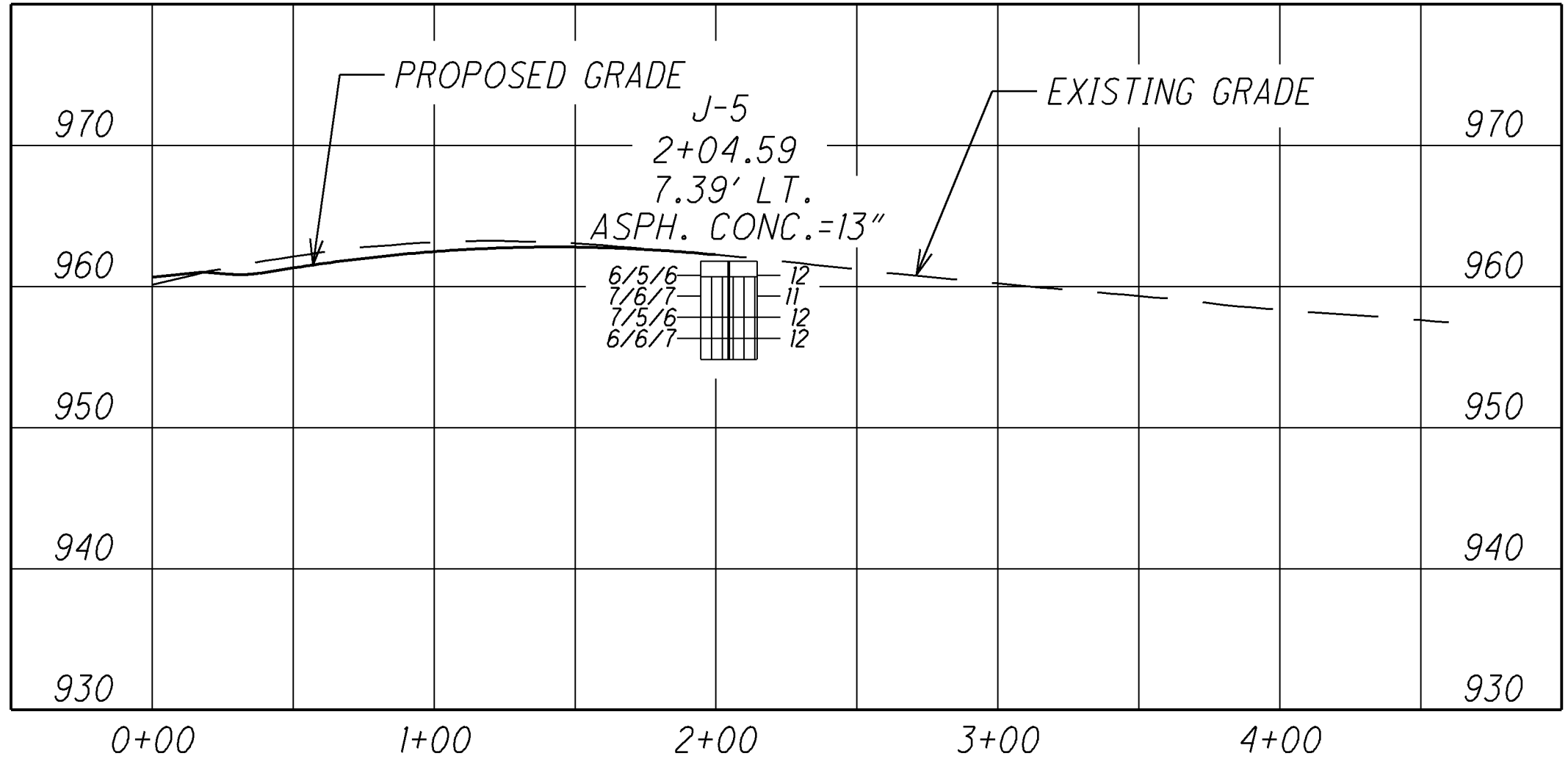
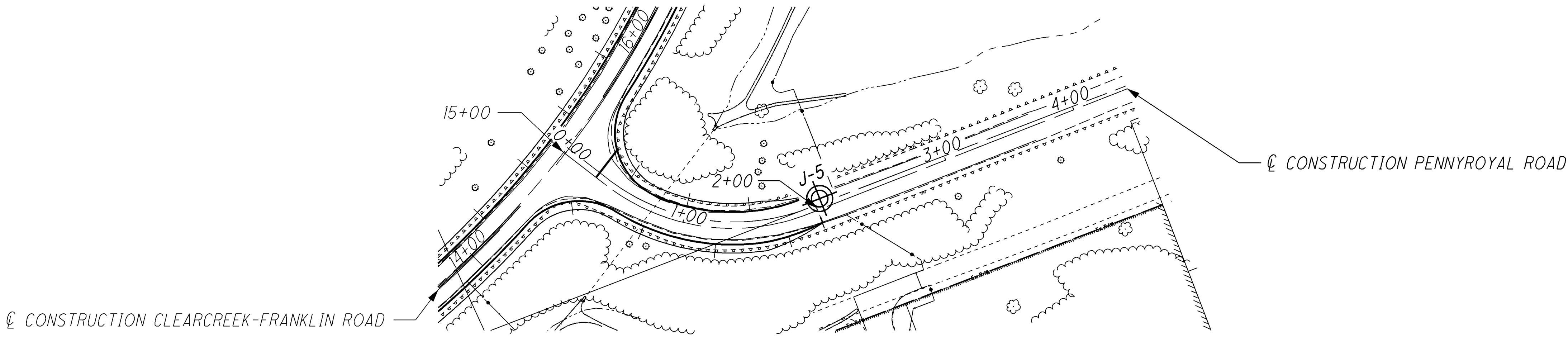
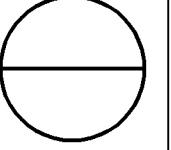
REVIEWED	MP
----------	----

DRAWN	C.N.
-------	------

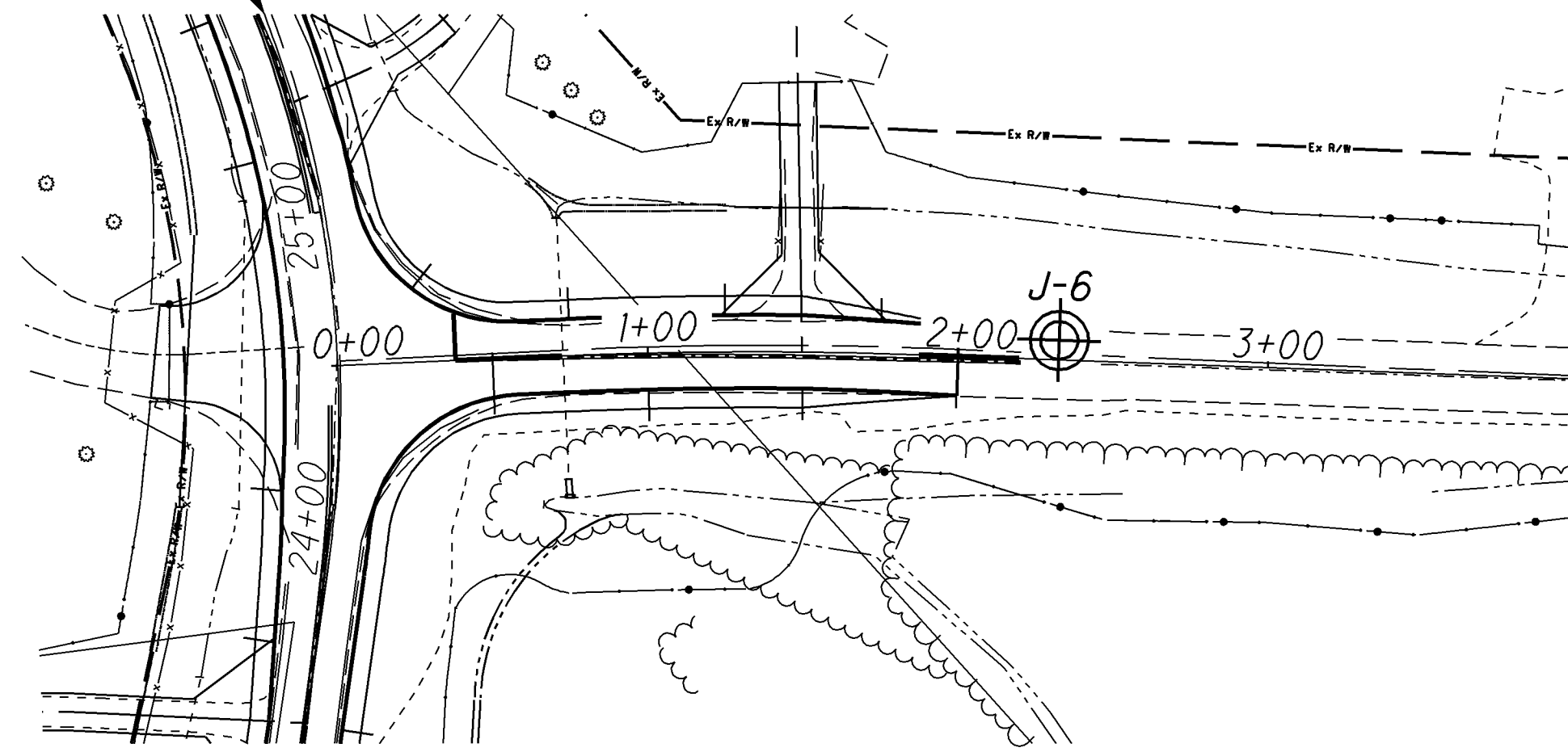
SOIL PROFILE PENNYROYAL ROAD
STA. 0+00 TO 4+00

WAR-75-3.40

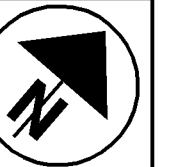
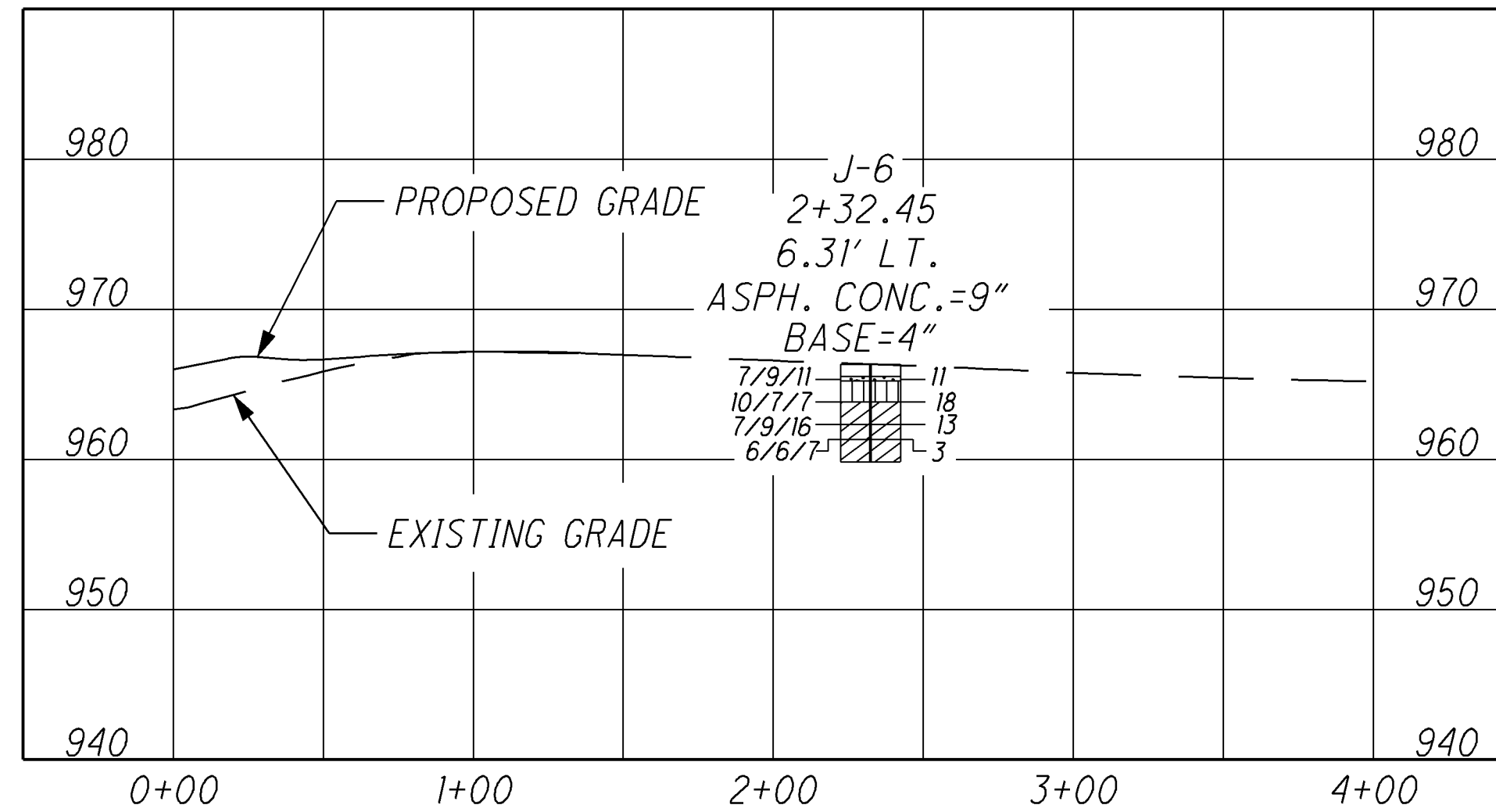
29 / 35



℄ CONSTRUCTION PENNYROYAL ROAD -



℄ CONSTRUCTION CLEARCREEK-FRANKLIN ROAD



CALCULATED 0
CHECKED

DATE
08/31/06

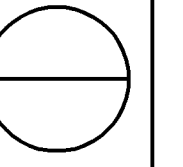
REVIEWED
NT

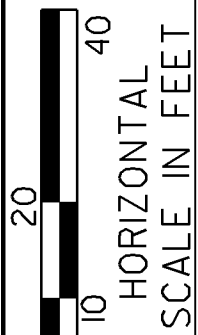
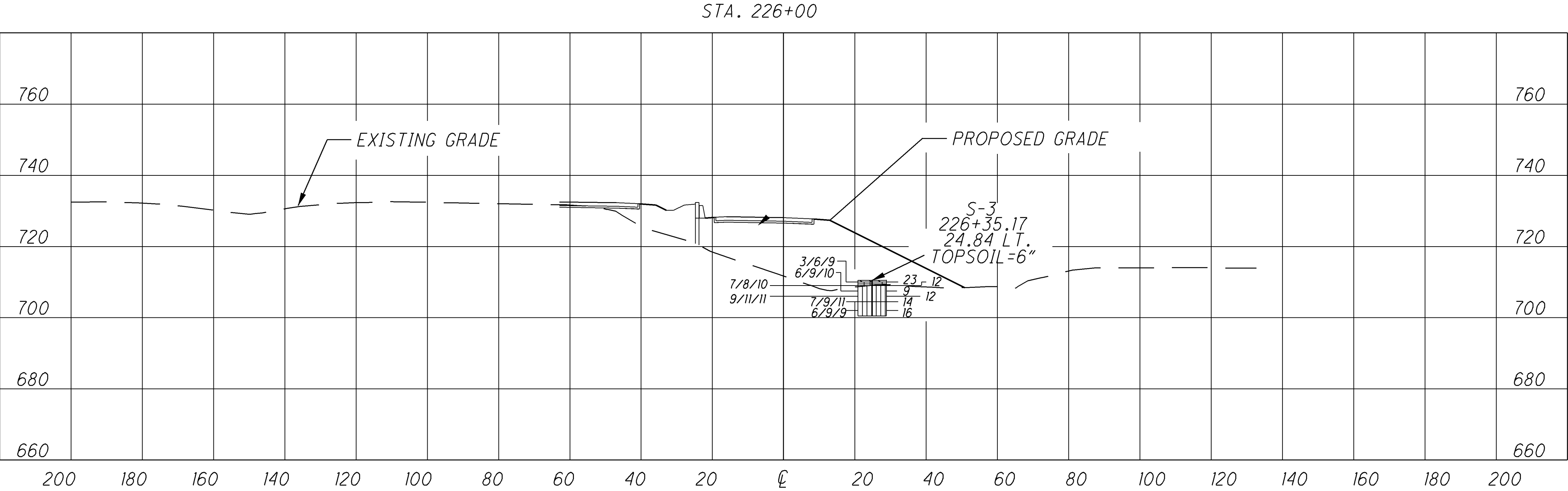
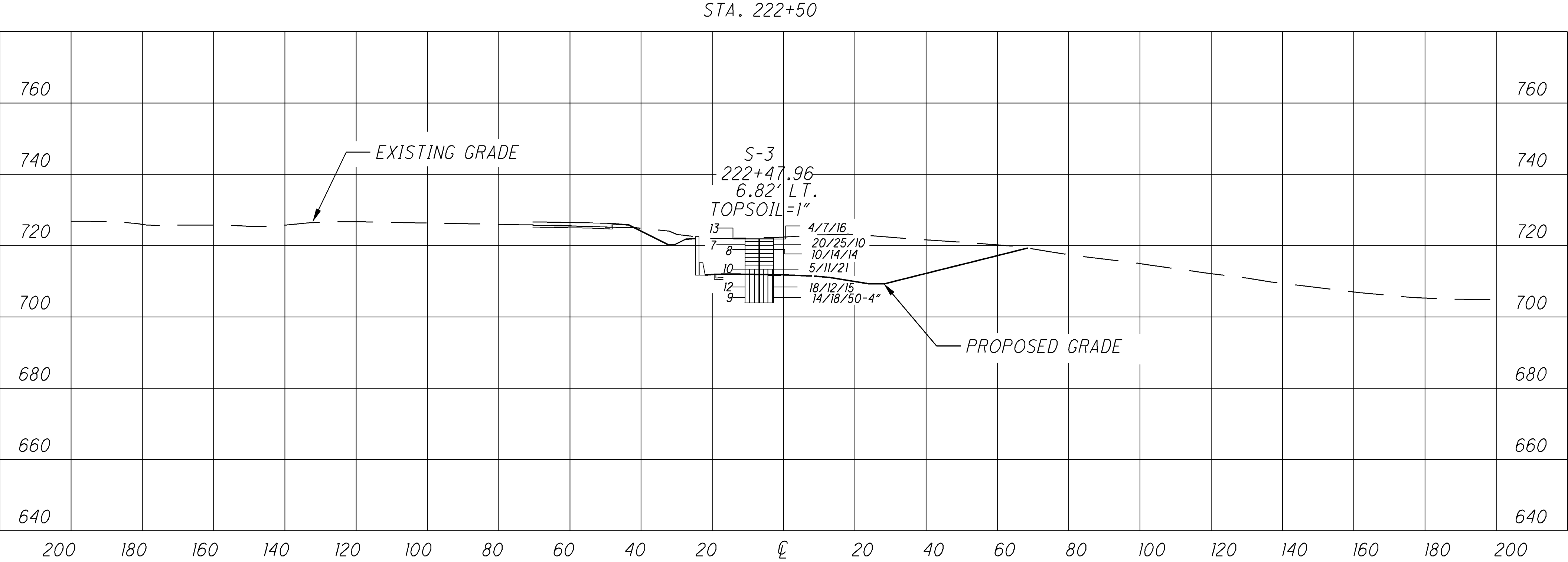
DRAWN
C.N.

SOIL PROFILE CLEARCREEK-FRANKLIN ROAD
STA. 01+00 TO 03+00

WAR-75-3.40

30 35





CHECKED

DATE
08/31/06

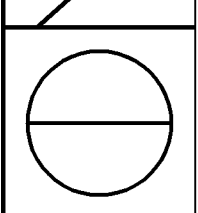
REVIEWED
NT

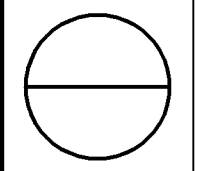
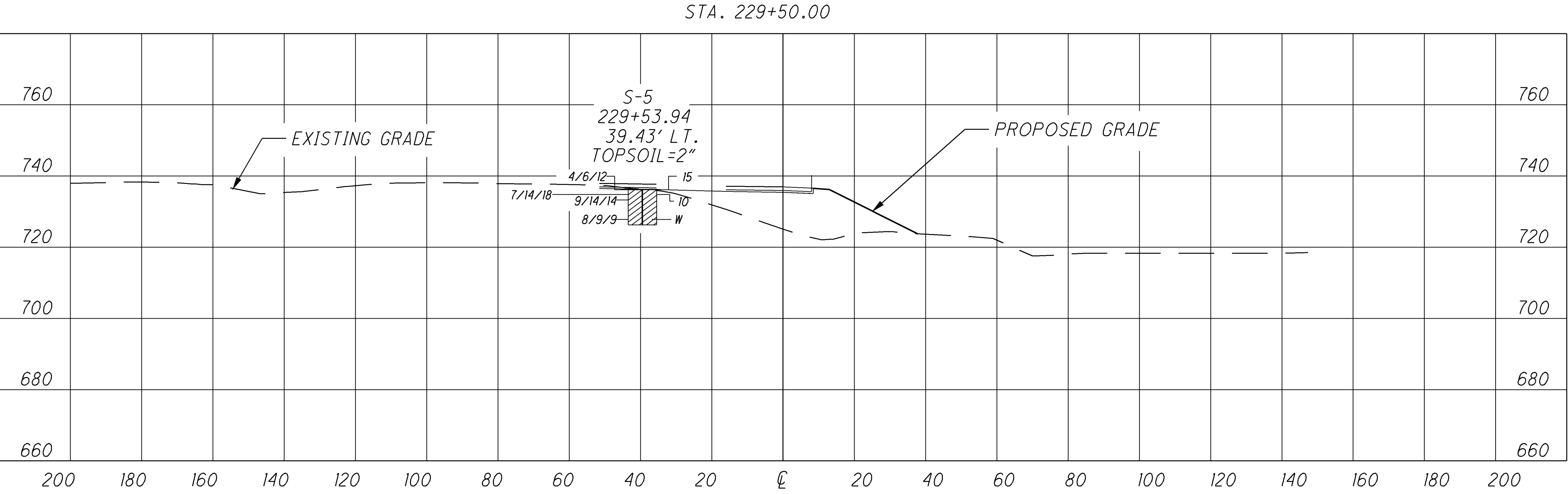
DRAWN
N.K.S

CROSS SECTIONS (RAMP C)

WAR-75-3.40

31/35





32 / 35

WAR-75-3.40

CROSS SECTIONS (RAMP C)

DRAWN
N.K.S.

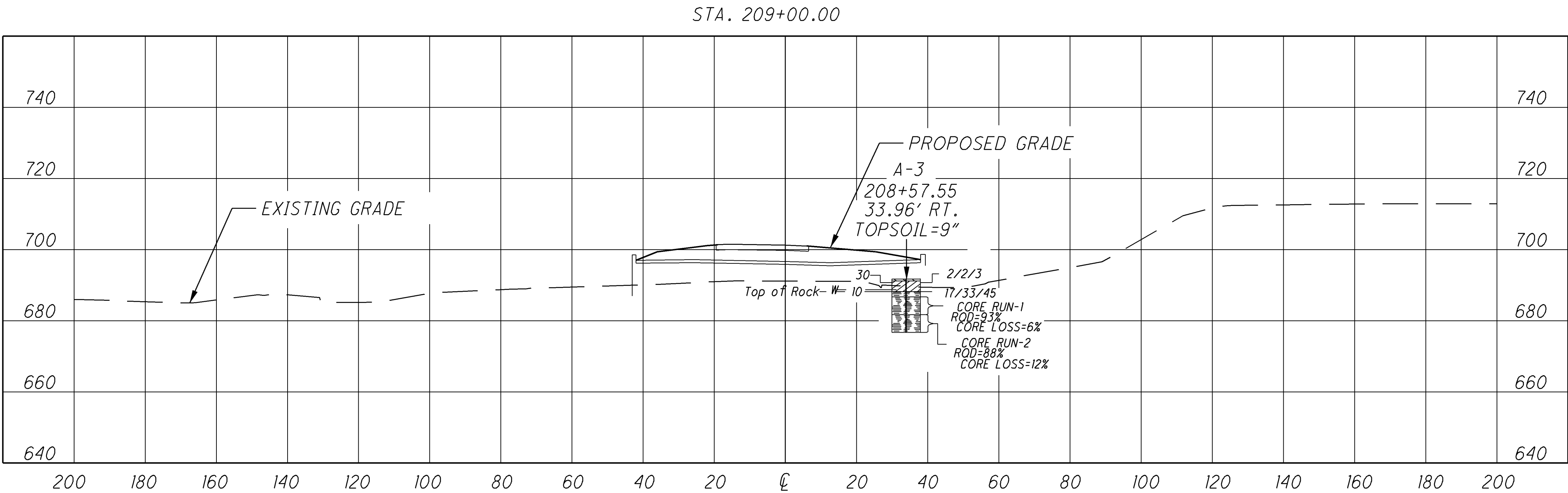
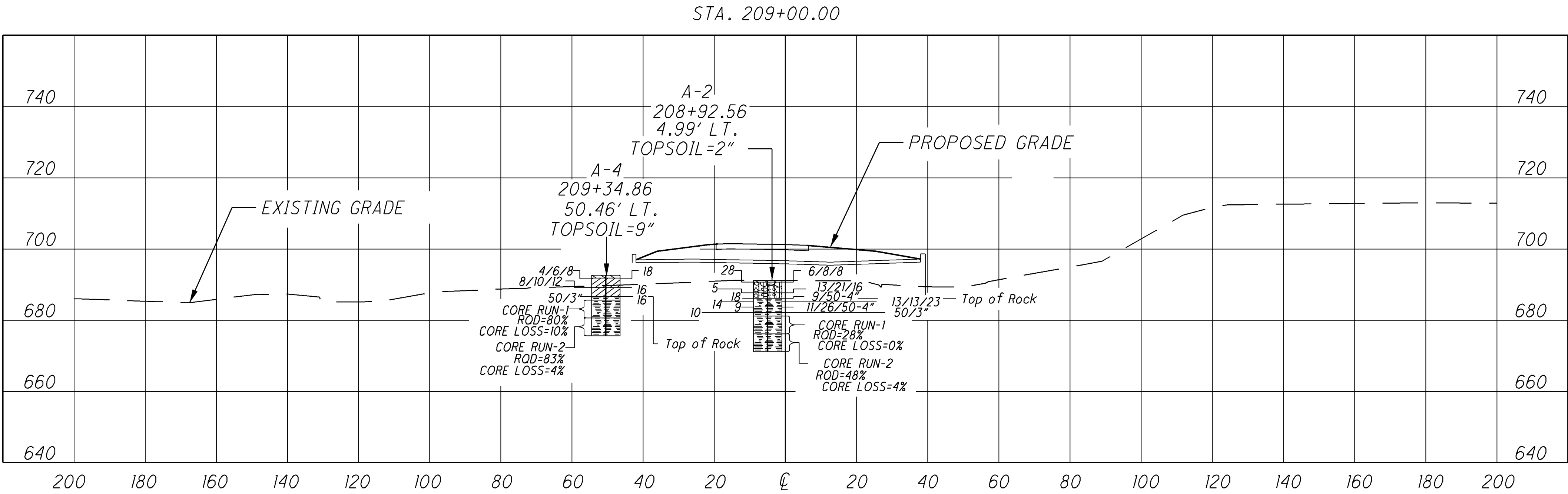
REVIEWED
NT

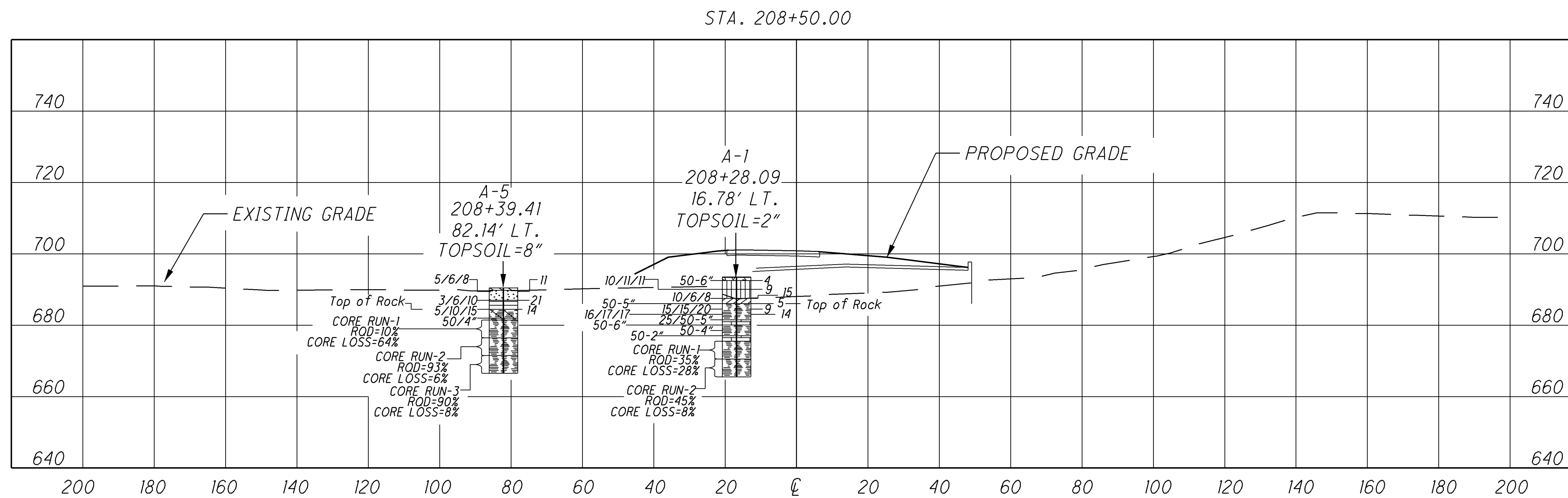
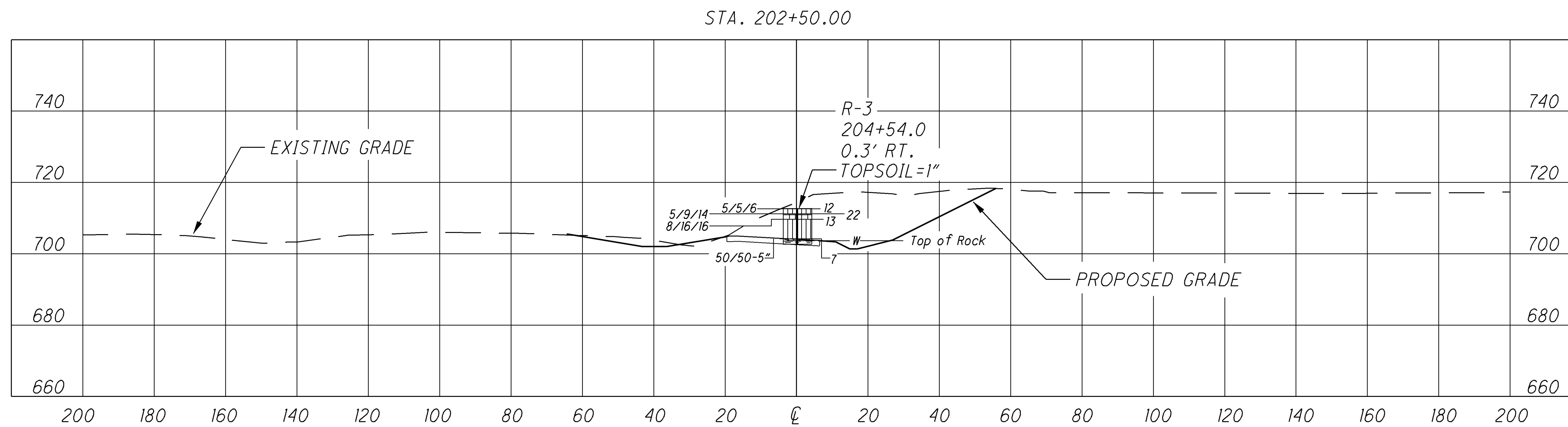
DATE
08/31/06

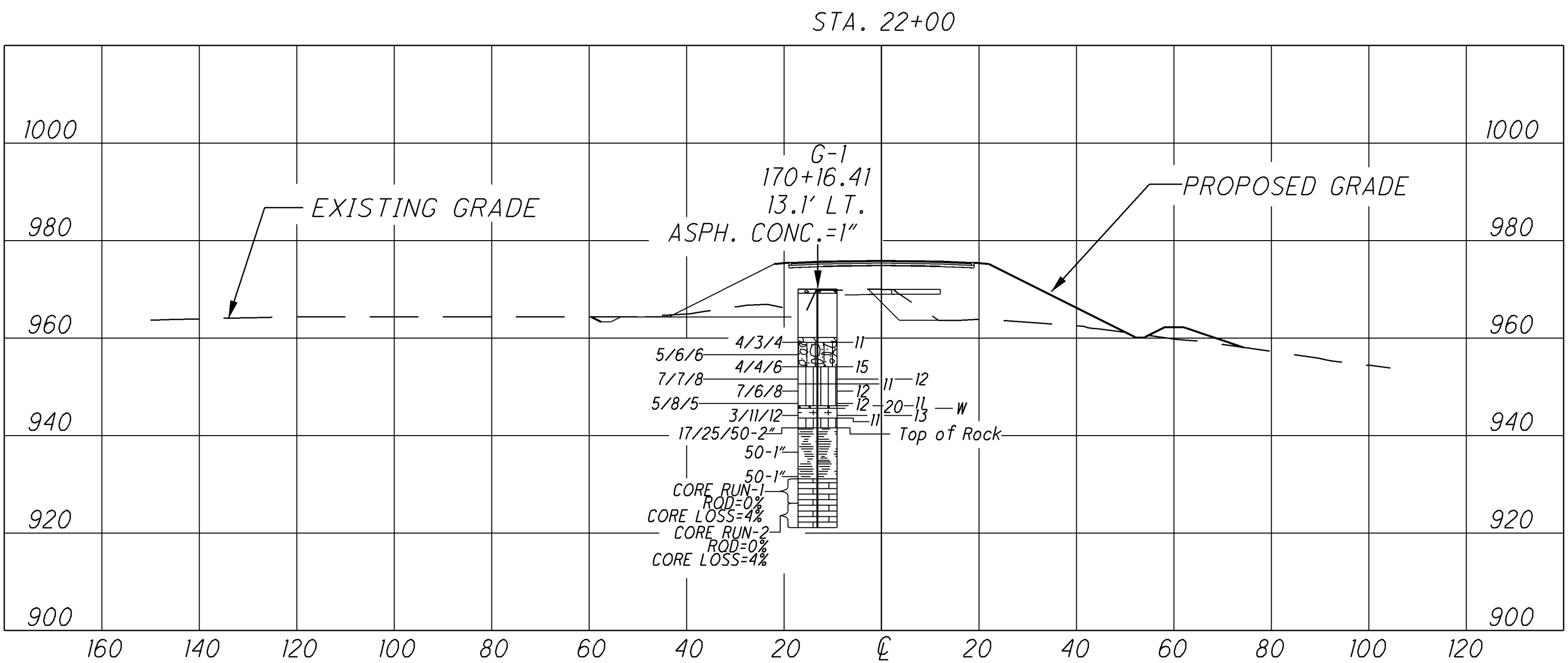
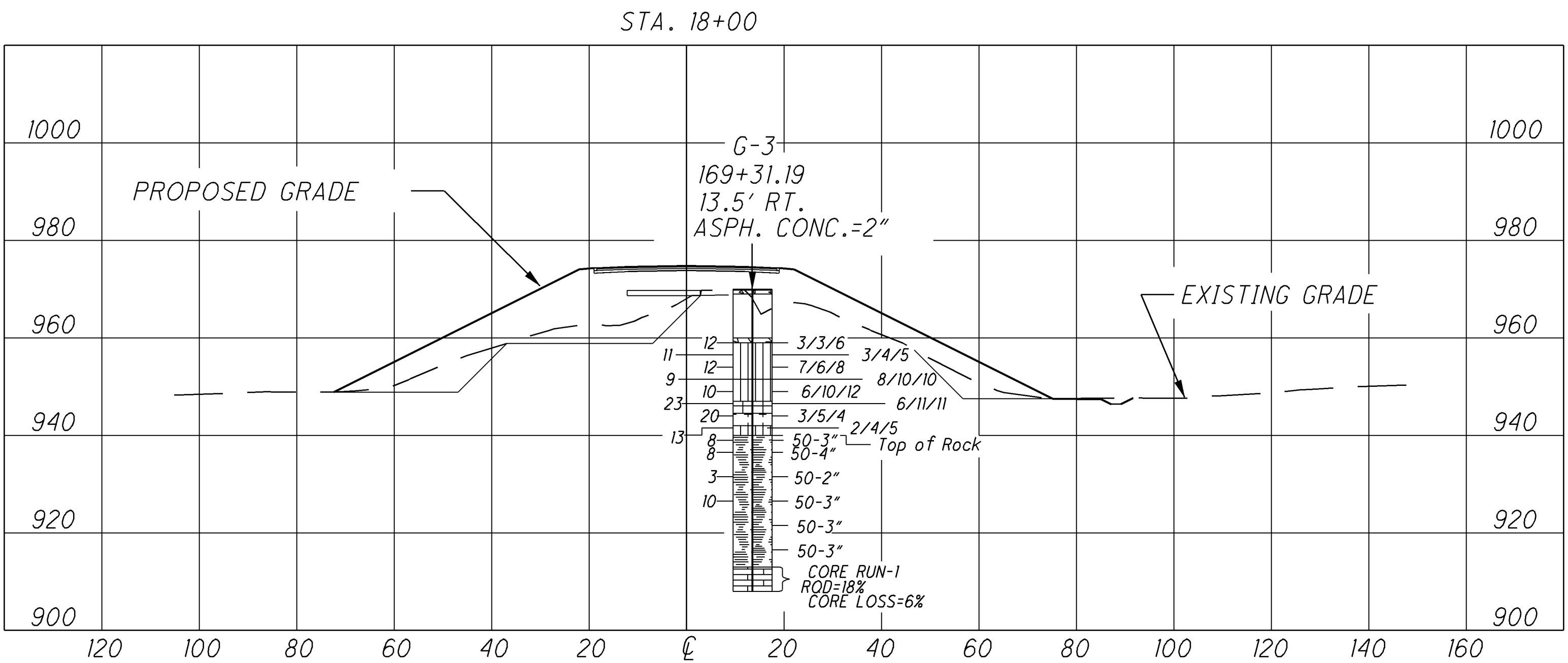
CALCULATED
0

CHECKED

0 10 20
HORIZONTAL
SCALE IN FEET







NOTE : BORINGS G-1 AND G-3 WERE DRILLED THROUGH THE BRIDGE DECK

INTRODUCTION

THIS PROJECT IS LOCATED IN WARREN COUNTY, OHIO AND INVOLVES THE WIDENING OF INTERSTATE 75 (IR 75) INTO THE EXISTING MEDIAN AND THE RECONFIGURATION OF THE STATE ROUTE 122 (SR 122) INTERCHANGE WITH IR 75. THE PROJECT BEGINS APPROXIMATELY 0.70 MILE SOUTH OF SR 122 INTERCHANGE AND CONTINUES NORTHWARD TO THE WARREN COUNTY-MONTGOMERY COUNTY LINE FOR AN OVERALL LENGTH OF APPROXIMATELY 8.80 MILES.

THE WIDENING OF IR 75 AND RECONFIGURATION OF THE SR 122 INTERCHANGE WILL REQUIRE THE REPLACEMENT AND/OR REHABILITATION OF SEVENTEEN BRIDGES/STRUCTURES ALONG IR 75 AND SR 122. THE RECONFIGURED SR 122 INTERCHANGE WILL ALSO REQUIRE THE CONSTRUCTION OF NEW ROADWAYS, WIDEINED ROADWAYS AND THE CONSTRUCTION OF TEMPORARY AND PERMANANET RETAINING WALLS.

THIS PROJECT ALSO INCLUDES THE CONSTRUCTION OF NOISE WALLS AT THREE LOCATIONS ALONG SOUTHBOUND IR 75. THE SUSBURFACE INFORMATION FOR THE THREE NOISE WALLS ARE PRESENTED ON THE FOLLOWING SHEETS. THE APPROXIMATE LOCATIONS OF THE NOISE WALLS ARE: NOISE WALL #1 - FROM STATION 223+00 (ALONG RAMP B) TO 245+50; NOISE WALL #2 - FROM STATION 363+40 TO 384+50 (TO SHAKER ROAD) AND NOISE WALL #3-FROM STATION 24+00 TO 48+00 (TO LOWER SPRINGBORO ROAD).

GEOLOGY OF THE SITE

THE PROJECT SITE LIES WITHIN THE SOUTHERN OHIO LOAMY TILL PLAIN. THE OVERBURDEN SOILS IN THIS REGION ARE FORMED PRIMARILY IN WISCONSIN-AGE GLACIAL TILLS AND GROUND MORAINES. THESE GLACIAL SOILS CONSIST OF UNSTRATIFIED LAYERS OF INTERMIXED CLAY, SILT, SAND, AND GRAVEL WHOSE COMPOSITION VARIES BOTH Laterally and VERTICALLY. IN ADDITION, A BURIED VALLEY OF GLACIAL OUTWASH CONSISTING OF SAND AND GRAVEL INTERBEDDED WITH GLACIAL TILL IS LOCATED WHERE IR 75 CROSSES CLEAR CREEK. THE SOIL OVERBURDEN IS UNDERLAIN BY ORDOVICIAN-AGE SEDIMENTARY ROCK CONSISTING OF INTERBEDDED SHALE AND LIMESTONE.

MAPPING OF THE BEDROCK TOPOGRAPHY INDICATES THE ELEVATION OF THE ROCK SURFACE RANGES FROM ABOUT 725 FEET MSL AT THE SOUTHERN LIMIT OF THE PROJECT CORRIDOR AND CONTINUES TO RISE TO ABOUT 925 FEET MSL AT THE NORTHERN LIMIT. THE EXCEPTION IS WHERE SHAKER ROAD CROSSES IR 75, SOUTH OF THE IR 75/SR 123 INTERCHANGE, WHERE THE ROCK SURFACE BEGINS TO FALL IN ELEVATION FROM ABOUT 800 FEET MSL TO ABOUT 550 FEET MSL AT CLEAR CREEK. FROM CLEAR CREEK, THE ROCK SURFACE ELEVATION RISES AS THE PROJECT CONTINUES NORTHWARD TO THE NORTHERN LIMIT AT THE MONTGOMERY COUNTY LINE.

THE DEPTH TO ROCK IS LESS THAN 20 FEET AT THE SOUTHERN END OF THE PROJECT NEAR THE NORTH BRANCH OF DICKS CREEK. THE THICKNESS OF THE SOIL OVERBURDEN INCREASES AS THE PROJECT CONTINUES NORTHWARD FROM THE NORTH BRANCH DICKS CREEK TO WHERE IT REACHES ITS MAXIMUM THICKNESS ON THE ORDER OF 150 FEET AT CLEAR CREEK. AS THE PROJECT CONTINUES NORTH FROM CLEAR CREEK, THE DEPTH TO ROCK DECREASES TO LESS THAN 20 FEET, SOUTH OF WHERE PENNYROYAL ROAD/ CROSSES IR 75. THE DEPTH TO ROCK IS TYPICALLY LESS THAN 50 FEET FROM THIS POINT TO THE NORTHERN LIMIT OF THE PROJECT AT THE MONTGOMERY COUNTY LINE.

EXPLORATION

A TOTAL OF TWENTY-THREE STRUCTURE TEST BORINGS WERE DRILLED FOR THE THREE NOISE WALLS (NW-1 THROUGH NW-23) IN THIS PROJECT DURING APRIL 2006. EIGHT TEST BORINGS WERE DRILLED FOR NOISE WALL #1 (NW-1 THROUGH NW-8), ALONG THE WEST SIDE OF RAMP "B" AND SOUTHBOUND IR 75, NORTH OF THE SR 122/IR 75 INTERCHANGE, FROM APPROXIMATE STATION 223+00 TO 245+50. SEVEN TEST BORINGS WERE DRILLED FOR NOISE WALL #2 (NW-9 THROUGH NW-15) ALONG THE WEST SIDE OF SOUTHBOUND IR 75 FROM APPROXIMATE STATION 363+50 TO 384+50 (SHAKER ROAD). EIGHT TEST BORINGS WERE DRILLED FOR NOISE WALL #3 (NW-16 THROUGH NW-23) ALONG THE WEST SIDE OF SOUTHBOUND IR 75 FROM APPROXIMATE STATION 24+00 TO 48+00 (LOWER SPRINGBORO ROAD). THE BORINGS WERE DRILLED AT THE APPROXIMATE STATIONS AND OFFSETS INDICATED ON THE ATTACHED SHEETS.

INVESTIGATION FINDINGS AND OBSERVATIONS

THE GENERAL SUBSURFACE CONDITIONS AT EACH OF THE NOISE WALL LOCATIONS ARE DISCUSSED SEPARATELY IN THE FOLLOWING PARAGRAPHS. REFER TO THE TEST BORING RECORD SHEETS FOR SPECIFIC DETAILS OF THE SURFACE COVER AND SUBSURFACE CONDITIONS AT THE TEST BORING LOCATIONS.

NOISE WALL #1

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS SANDY SILT, SILT AND CLAY, SILTY CLAY, ELASTIC CLAY OR CLAY. THESE SOILS WERE CLASSIFIED AS A-4A, A-6A, A-6B, A-7-5 OR A-7-6 ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. TEST BORINGS NW-01, NW-04, NW-05 AND NW-06 ENCOUNTERED BERM MATERIAL EITHER AT THE GROUND SURFACE OR BENEATH THE PAVEMENT MATERIALS TO DEPTHS RANGING FROM 1.1 FEET TO 3.5 FEET BELOW THE GROUND SURFACE.

BEDROCK CONSISTING OF GRAY SHALE WAS ENCOUNTERED IN TEST BORINGS NW-07 AND NW-08 AT A DEPTH OF 16 FEET AND 8.5 FEET, RESPECTIVELY. AUGER REFUSAL WAS ENCOUNTERED IN TEST BORING NW-01 AT A DEPTH OF 20 FEET BELOW THE GROUND SURFACE.

GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS NW-02 AND NW-08 AT DEPTHS OF 10 AND 11 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

NOISE WALL #2

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL WITH SAND AND SILT, COARSE AND FINE SAND, SANDY SILT, SILT AND CLAY, SILTY CLAY, CLAY AND. THESE SOILS WERE CLASSIFIED AS A-2-4, A-3A, A-4A, A-6A, A-6B, OR A-7-6 ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM.

BEDROCK CONSISTING OF GRAY CLAYSHALE AND SHALE WITH LIMESTONE WAS ENCOUNTERED IN TEST BORINGS NW-13, NW-14, AND NW-15 AT DEPTHS RANGING FROM 13.5 TO 18.5. AUGER REFUSAL WAS NOT ENCOUNTERED IN THE TEST BORINGS.

GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS NW-09, NW-10 AND NW-11 AT DEPTHS OF 14.0, 6.0 AND 12.5 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

NOISE WALL #3

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL, GRAVEL WITH SAND AND SILT, COARSE AND FINE SAND, SANDY SILT, SILT AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1A, A-2-4, A-3A, A-4A, AND A-6A ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM.

BEDROCK WAS NOT ENCOUNTERED IN THE TEST BORINGS. AUGER REFUSAL WAS NOT ENCOUNTERED IN TEST THE BORINGS.

GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS NW-16 THROUGH NW-21 AT DEPTHS RANGING FROM 7.5 TO 18.5 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO

SYMBOLS OF ROCK TYPES

Coal

Fire Clay or Underclay

Weathered Mudstone

Mudstone

Weathered Shale

Shale

Weathered Clay-Shale

Clay-Shale

Boulders or Cobbles

Weathered Siltstone

Siltstone

Weathered Sandstone

Sandstone

Leached Dolomite

Dolomite

Leached Limestone

Limestone

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG EMPLOYING A 2 INCH O.D., 1-3/8" I.D. SPLIT SPOON SAMPLING DEVICE, AT 2-1/2 AND/OR 5 FOOT DEPTH INTERVALS, DRIVEN BY MEANS OF A 140 lb. HAMMER WITH A FREE FALL OF 30 INCHES. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLING DEVICE THREE 6 INCH INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY POWERED ROTARY-TYPE DRILLING MACHINE, EMPLOYING A 3 INCH O.D. THIN WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOUS UNIFORM PRESSURE APPLIED BY THE DRILLING MACHINE.

CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILLING MACHINE, EMPLOYING AN NQ CORE BARREL WITH AN INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS DISPLAY A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, THE STANDARD PENETRATION TEST READINGS IN THREE 6 INCH INCREMENTS, DEPTH AND ELEVATION OF PRESS SAMPLES, FIELD NUMBER ASSIGNED TO SAMPLE, SAMPLE DESCRIPTION-BASED ON LABORATORY TESTS UTILIZING GRADATION, PLASTICITY AND MOISTURE CONTENT DETERMINATIONS. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, WILL APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY AND A VISUAL CLASSIFICATION BASED ON TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING ACID REACTION AND OTHER QUALIFYING FACTORS.

AT DEPTHS WHERE MATERIALS ARE BOULDERY OR GRAVELLY TO THE EXTENT THAT A SAMPLER CANNOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTICS OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

DESIGNED

CHECKED

DRAWN

REVISED

REVIEWED

STRUCTURE FILE NUMBER

DATE

05-04-06

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

STRUCTURE FOUNDATION INVESTIGATION

NOISE WALL

WAR-75-3.40

2

28

LEGEND

AUGER BORING LOCATION

PRESS SAMPLE, DRIVE SAMPLE,
AND/OR CORE BORING LOCATION

TR

TOP OF ROCK

W

INDICATES FREE WATER ELEVATION

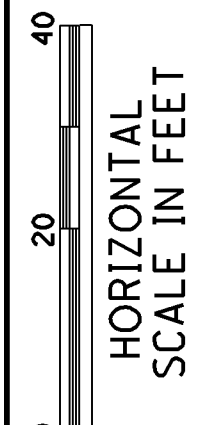
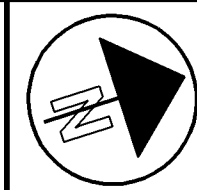
INDICATES STATIC WATER ELEVATION

HORIZONTAL BAR ON BORING INDICATES
THE DEPTH THE SAMPLE WAS TAKEN - PROFILE VIEW

FIGURES BESIDE THE BORING IN PROFILE
INDICATE THE NUMBER OF BLOWS FOR STANDARD
PENETRATION TEST

X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES

...104120056G_NW_Firstpage.dgn 3/28/2008 12:56:03 PM



DATE
05-04-06

REVIEWED
MP
STRUCTURE FILE NUMBER

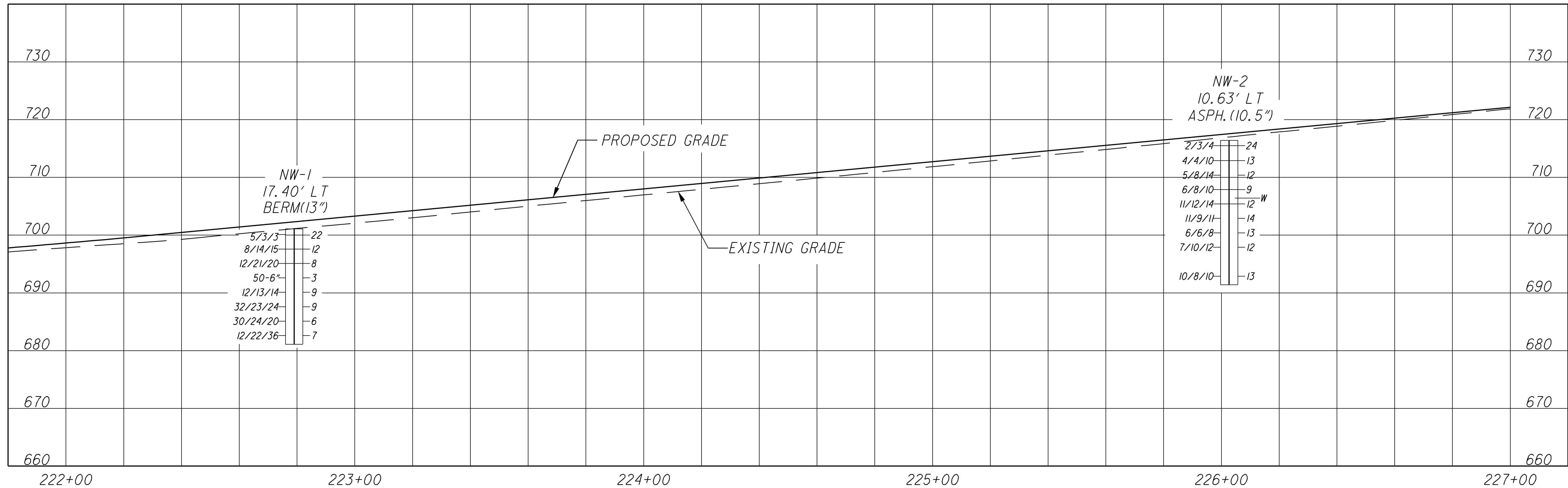
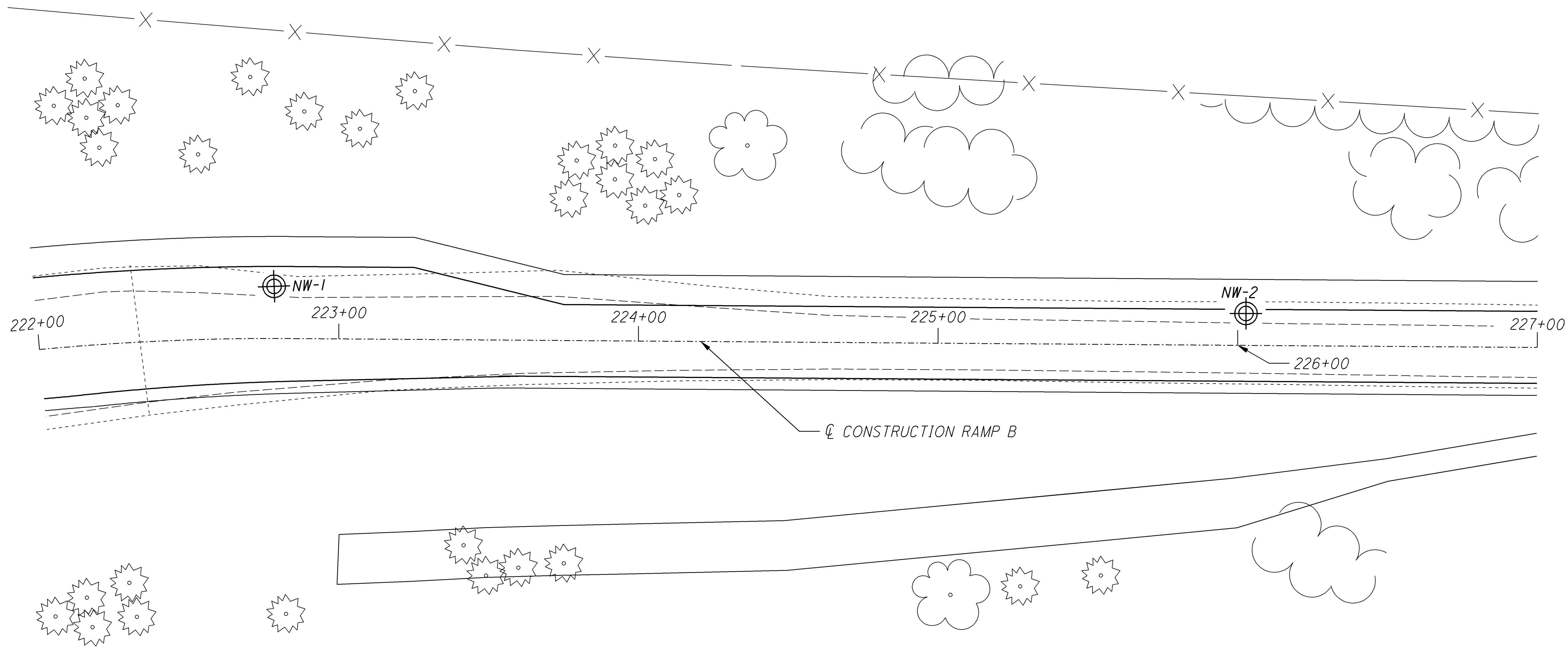
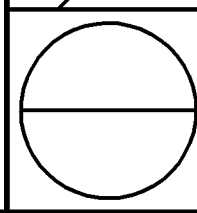
DRAWN
C.N.
REVISED

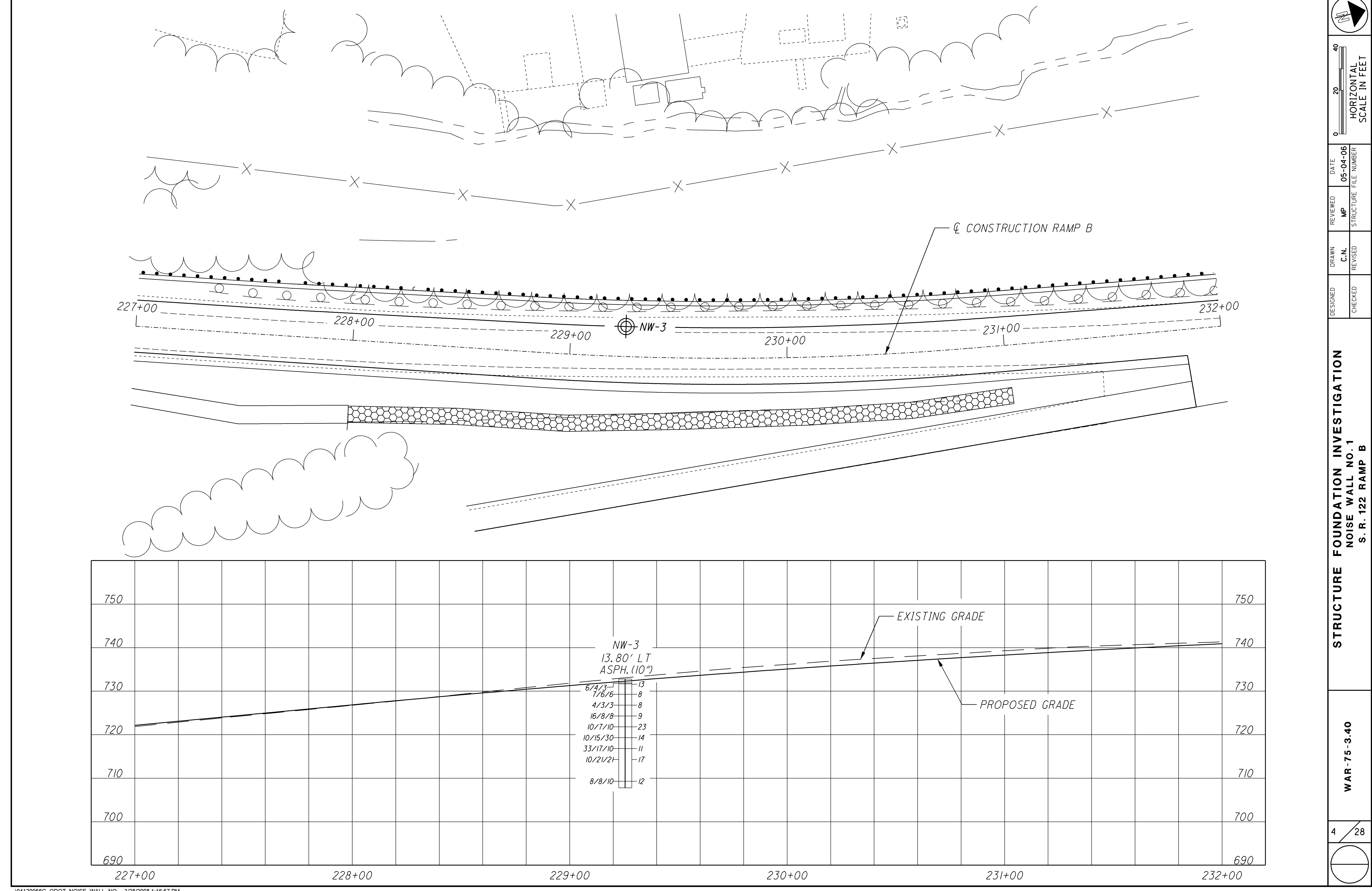
DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 1
S. R. 122 RAMP B

WAR-75-3.40

3 / 28





02040

HORIZONTAL
SCALE IN FEET

DATE
05-04-06

REVISED
MP

DRAWN
C.N.

DESIGNED
CHECKED

STRUCTURE FILE NUMBER

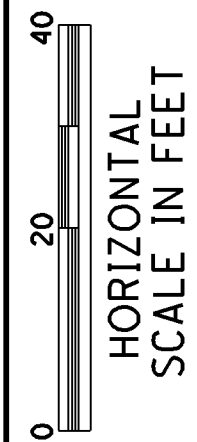
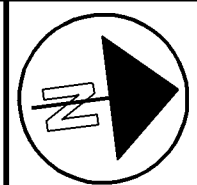
STRUCTURE

NOISE WALL NO. 1

S. R. 122 RAMP B

WAR-75-3.40

428

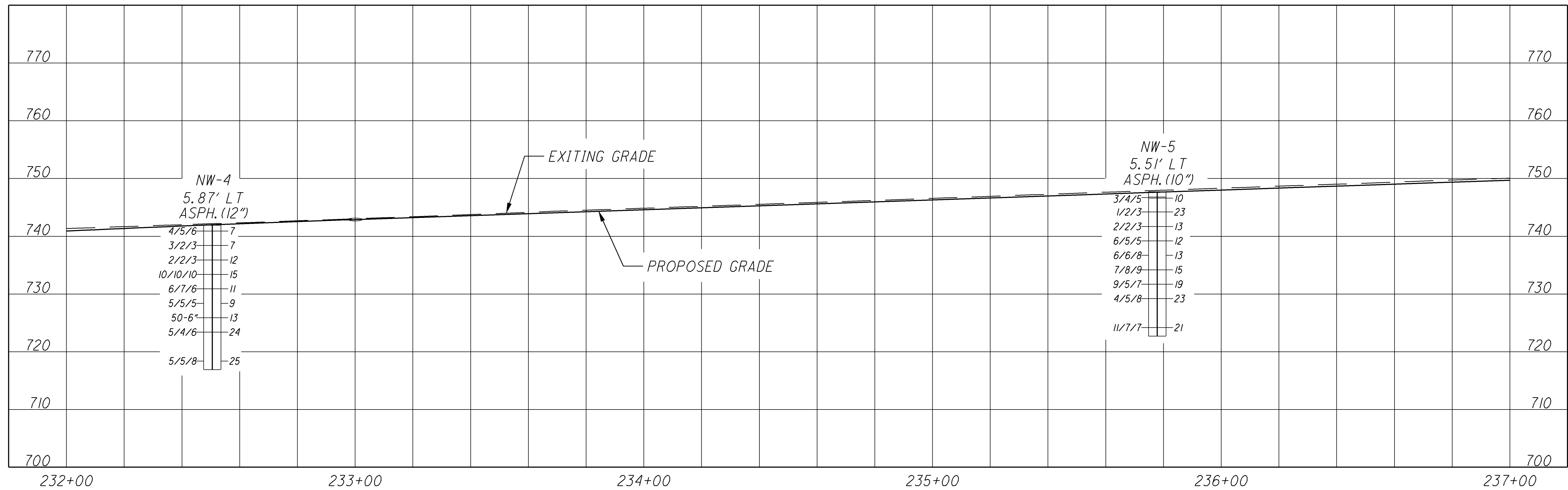
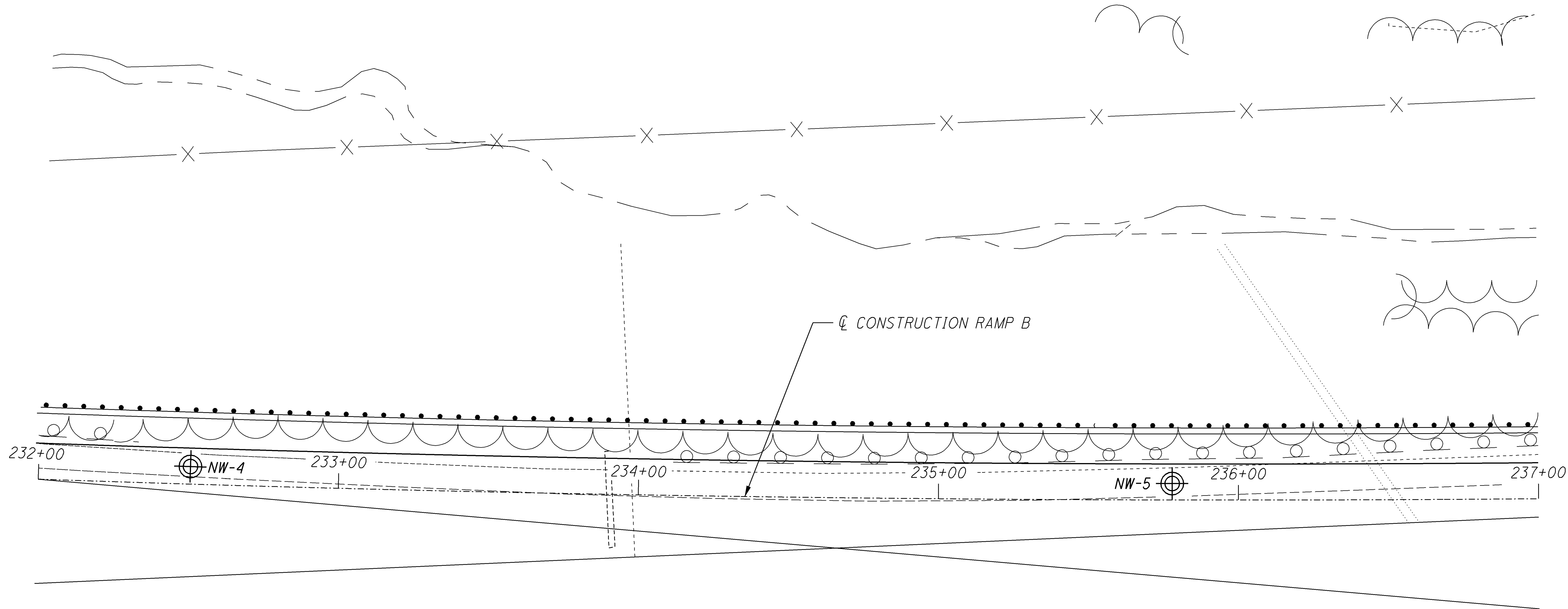
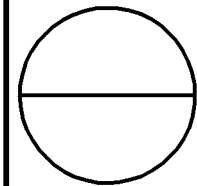


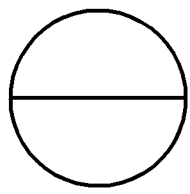
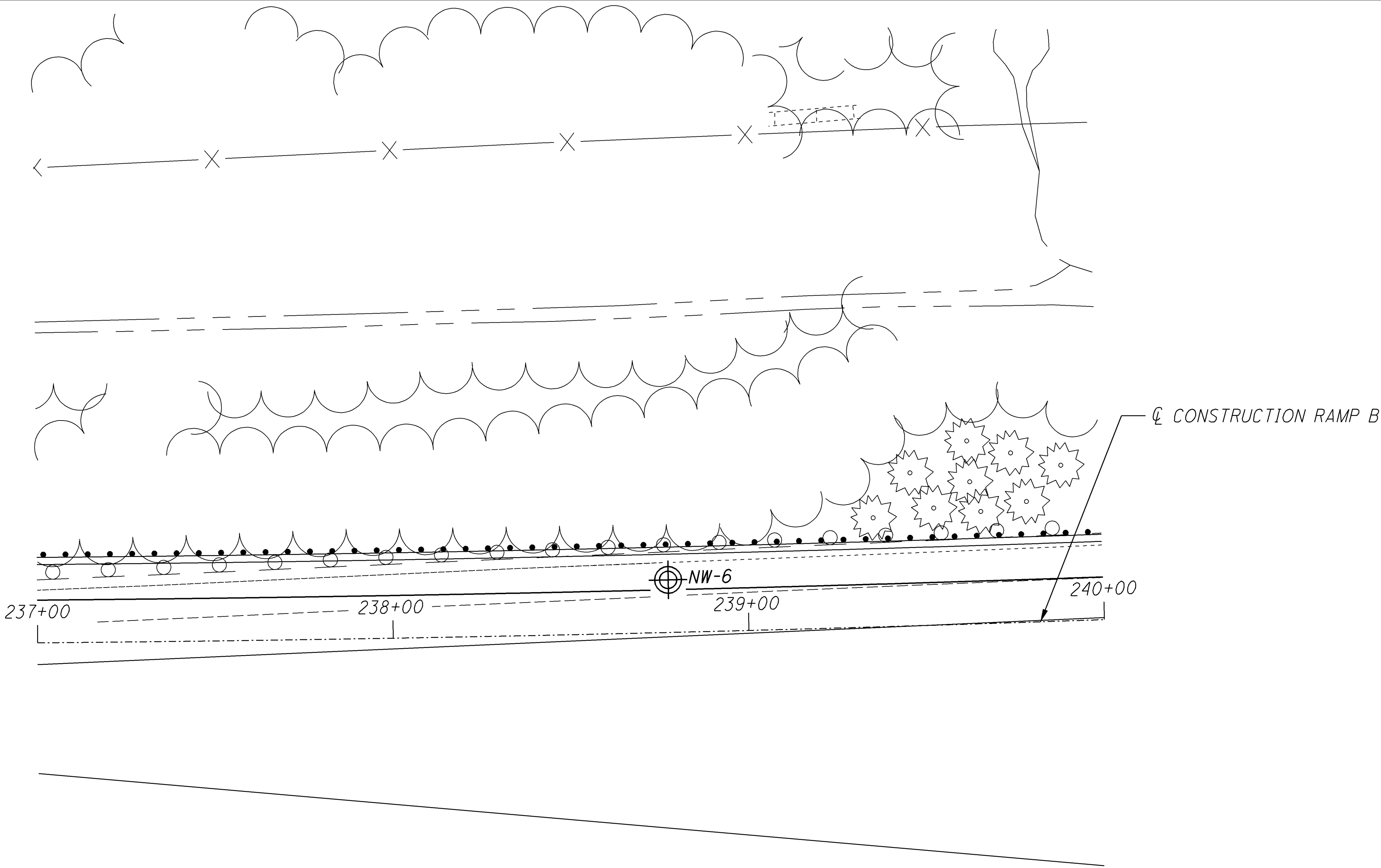
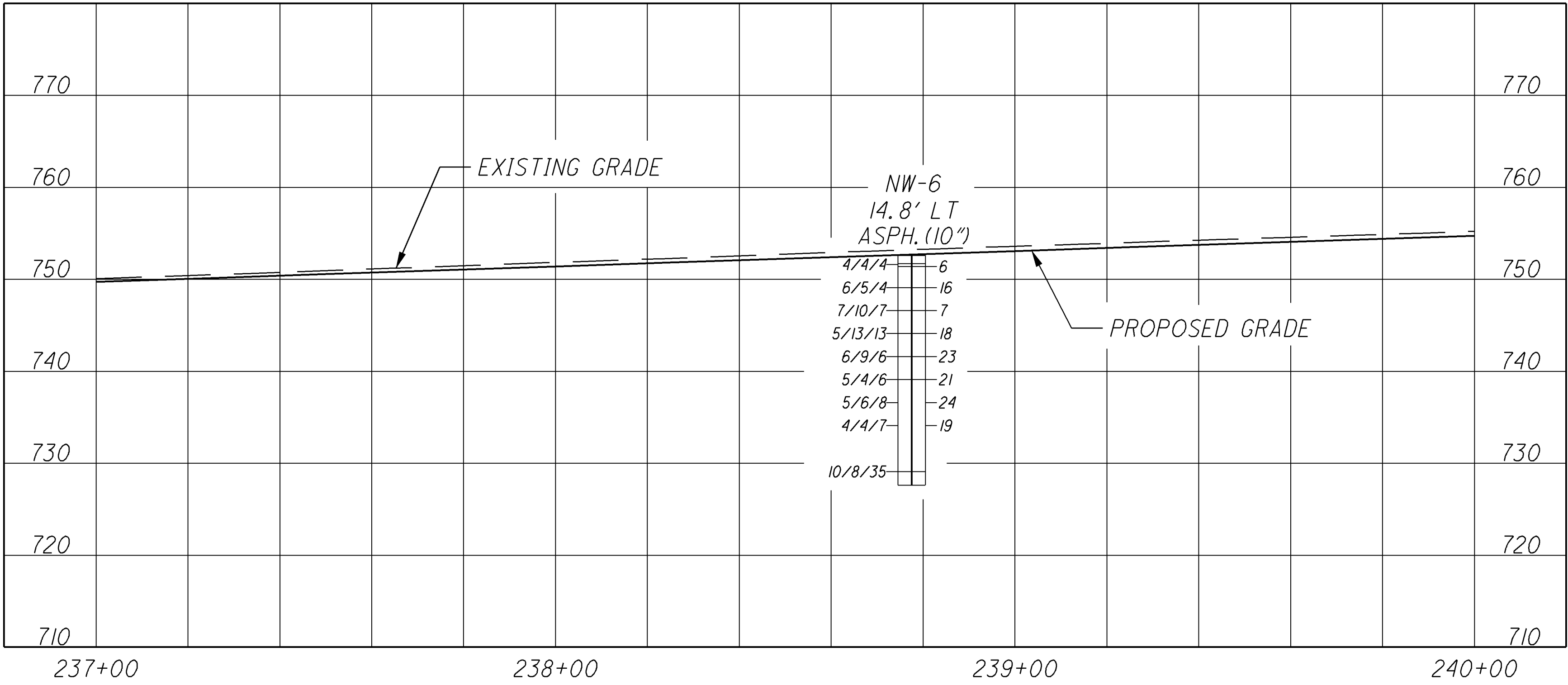
DESIGNED	DRAWN	REVIEWED	DATE
CHECKED	C.N.	MP	05-04-06
STRUCTURE FILE NUMBER			

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 1
S. R. 122 RAMP B

WAR-75-3.40

5/28





6/28

WAR-75-3.40

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 1
S. R. 122 RAMP B

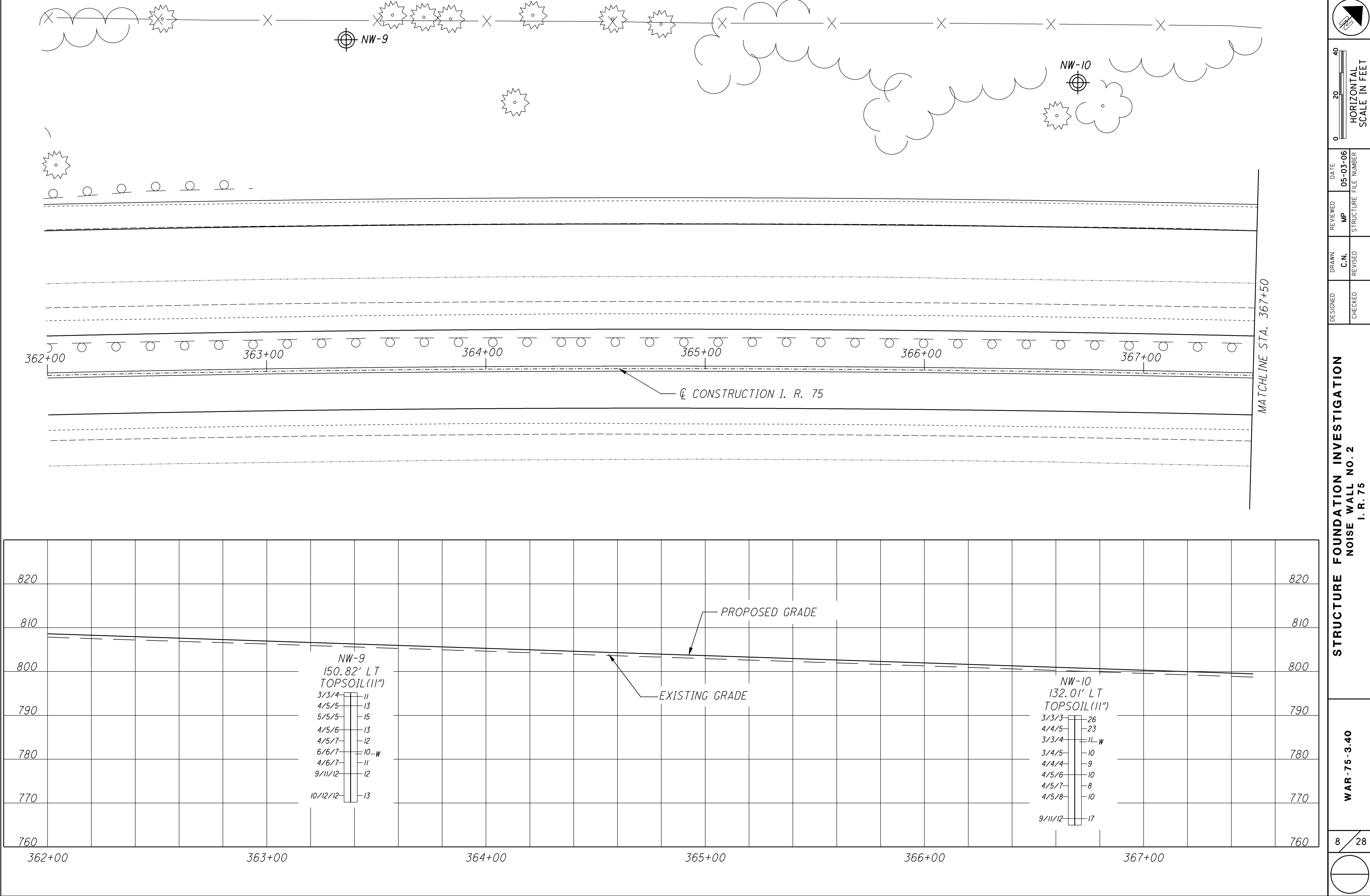
DESIGNED
CHECKED

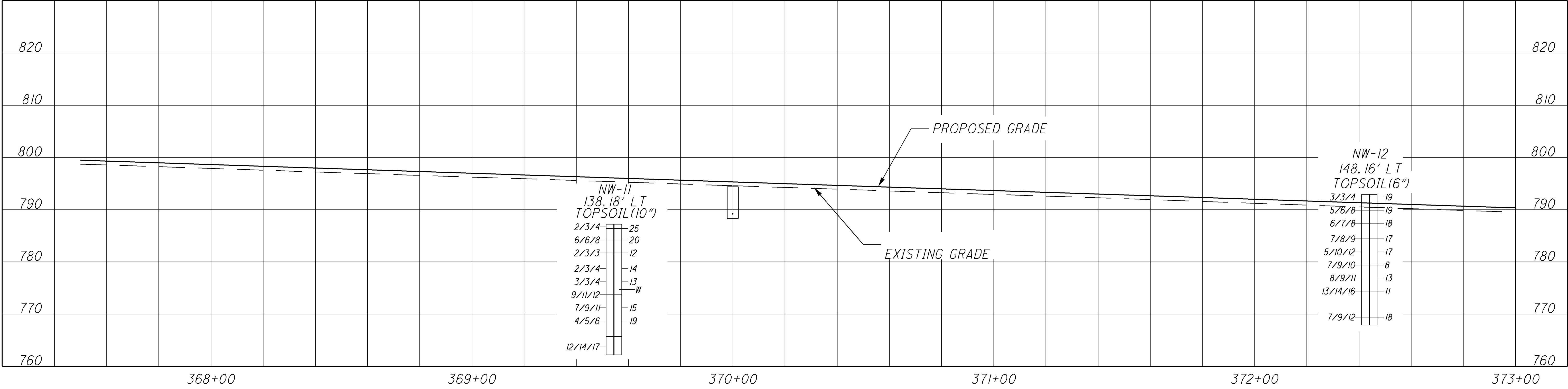
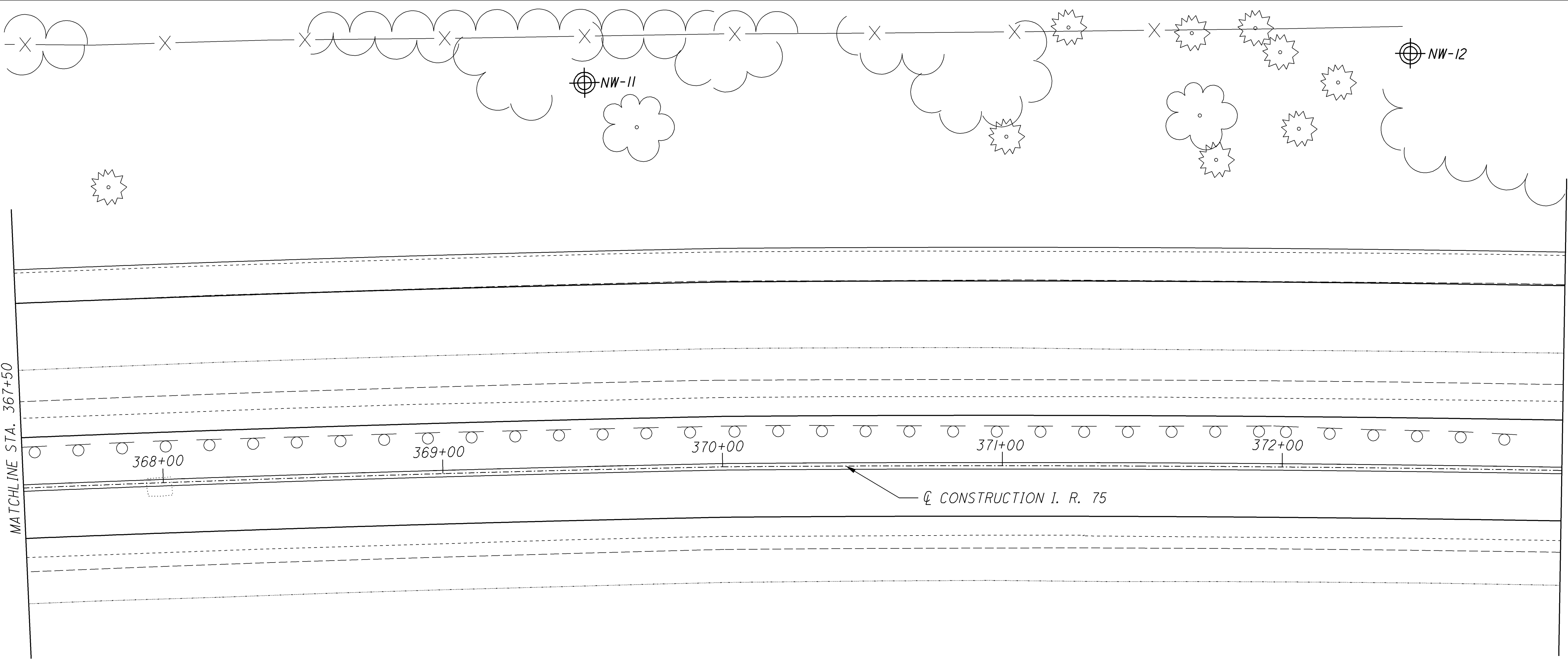
DRAWN
C.N.

REVIEWED
MP

DATE
05-04-06

0 20 40
HORIZONTAL
SCALE IN FEET





02040

HORIZONTAL SCALE IN FEET

DATE

05-03-06

REVIEWED

MP

STRUCTURE FILE NUMBER

DRAWN

C.N.

REVIS

DESIGNED

CHECKED

STRUCTURE FOUNDATION INVESTIGATION

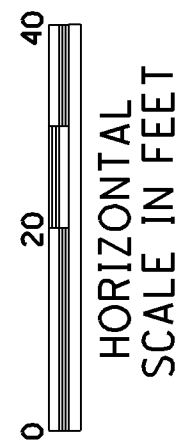
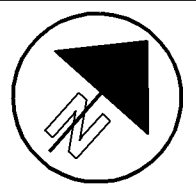
NOISE WALL NO. 2

I. R. 75

WAR-75-3.40

9

28



DATE	05-03-06
REVIEWED	MP
DRAWN	C.N.
DESIGNED	CHECKED

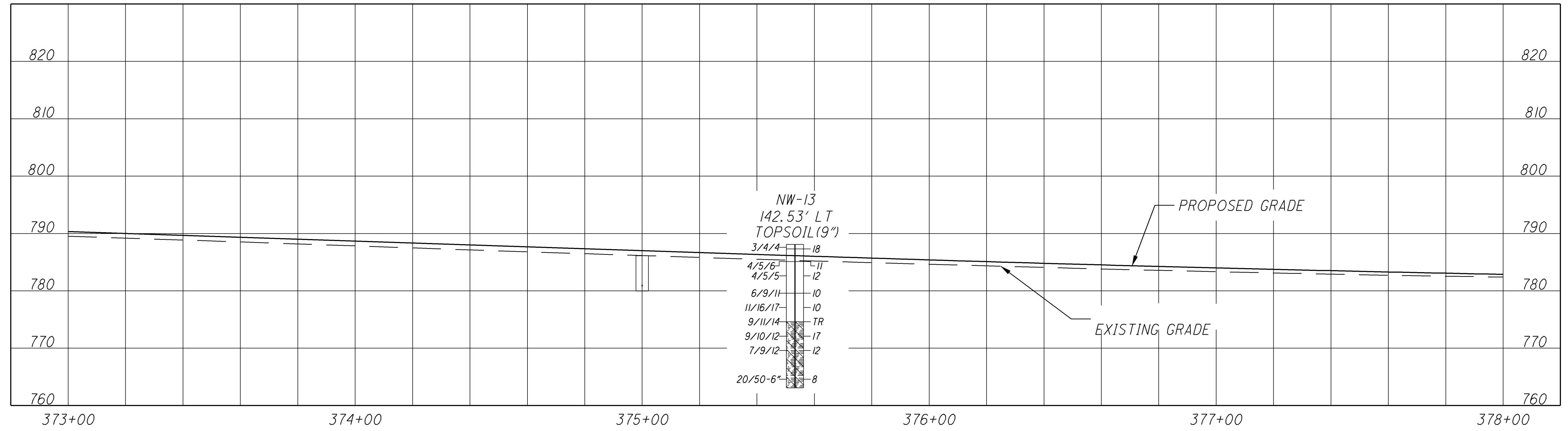
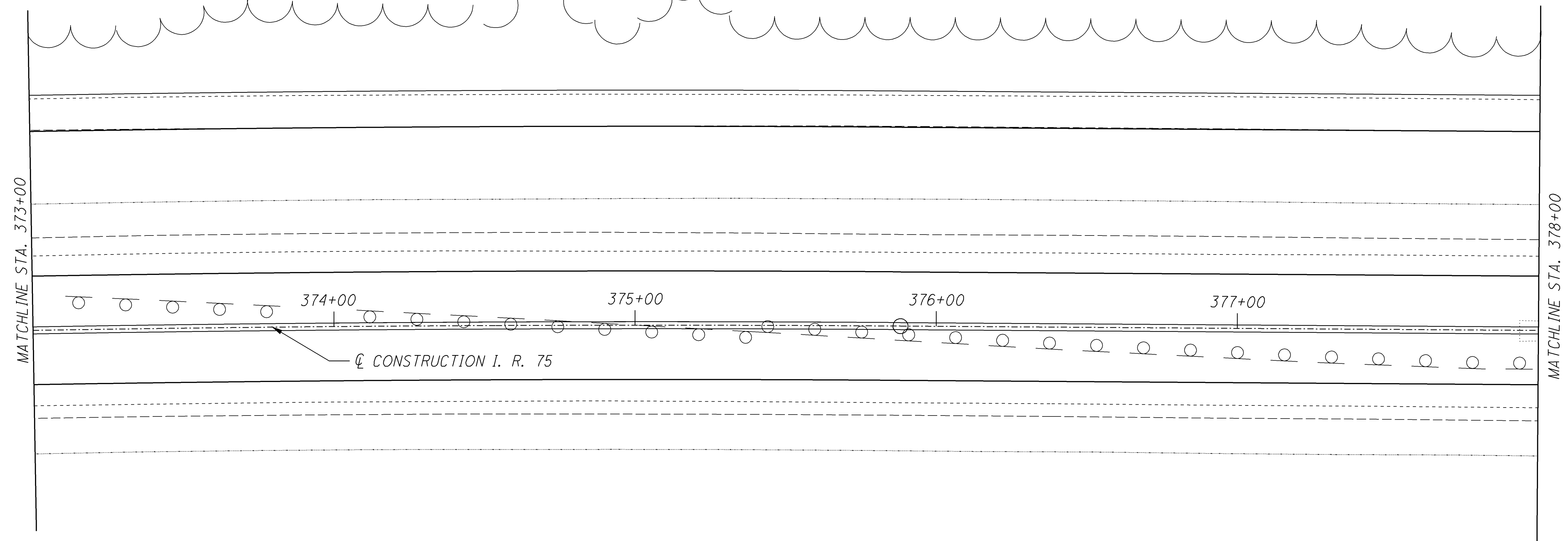
STRUCTURE	FILE NUMBER
NOISE WALL	NO. 2
I. R. 75	

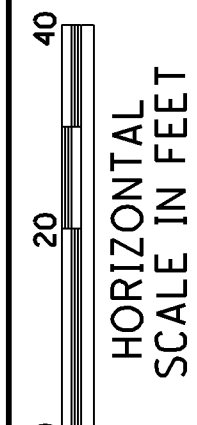
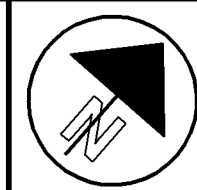
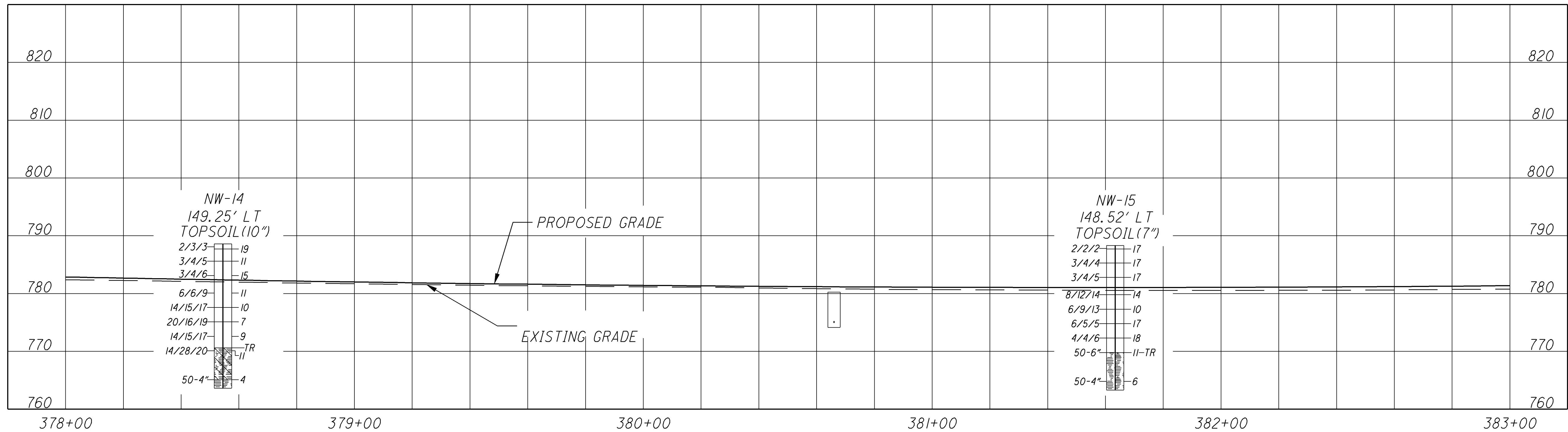
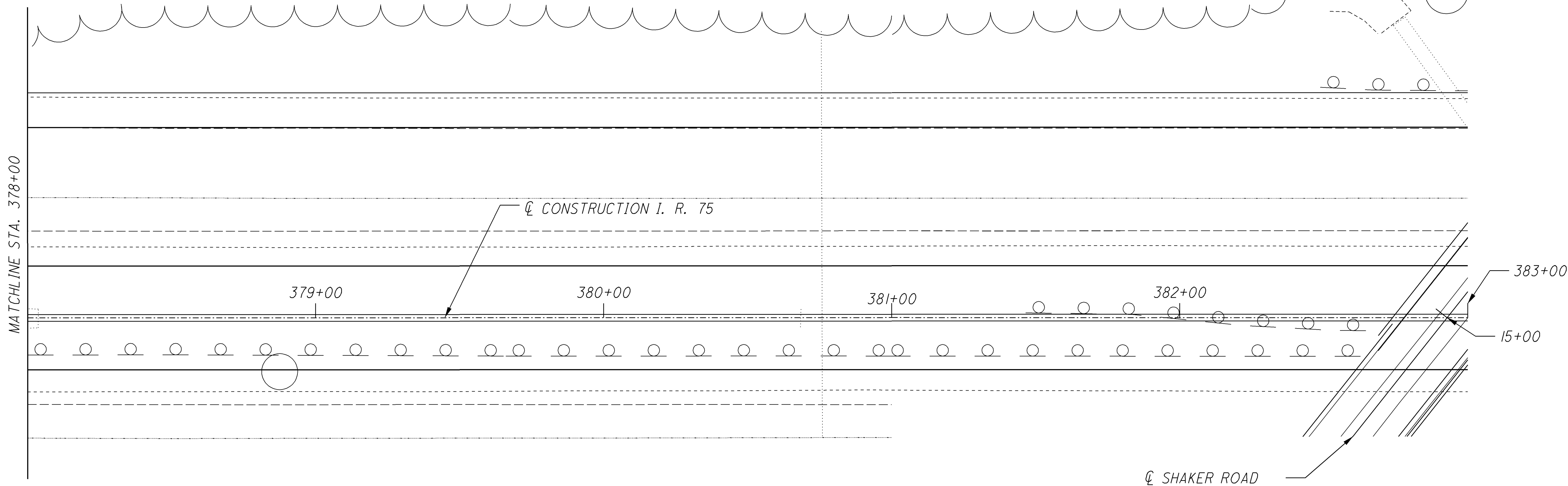
STRUCTURE FOUNDATION INVESTIGATION

WAR-75-3.40

10/28

NW-13





DATE
05-03-06

REVIEWED
MP
STRUCTURE FILE NUMBER

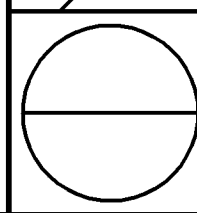
DRAWN
C.N.
REVISED

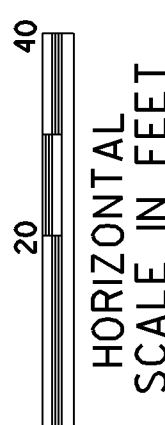
DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 2
I. R. 75

WAR-75-3.40

11/28





DATE
05-03-06

REVIEWED
MP

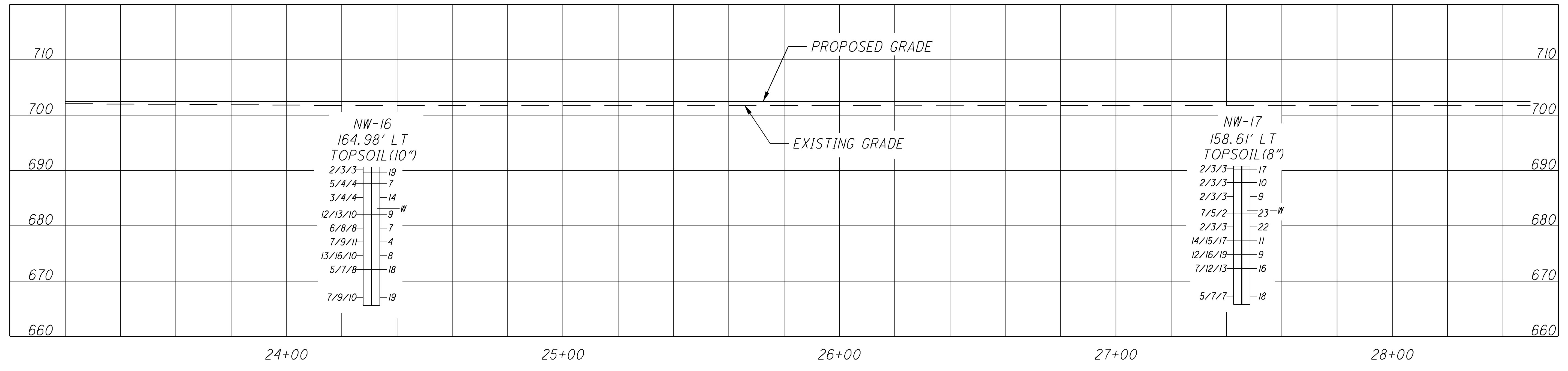
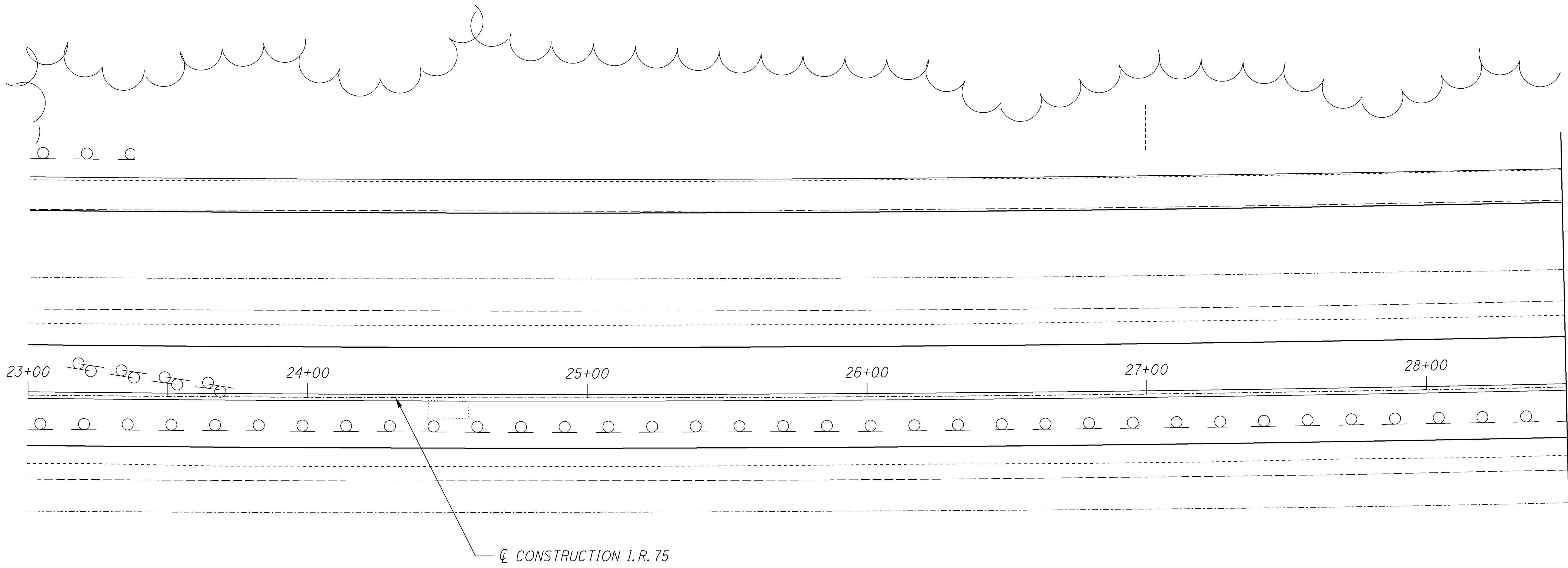
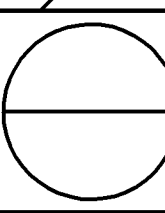
DRAWN
C.N.

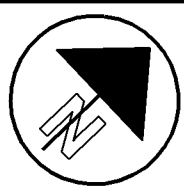
DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 3
I. R. 75

WAR-75-3.40

12 / 28





0 20 40
HORIZONTAL
SCALE IN FEET

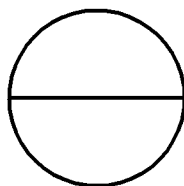
DATE
05-03-06
REVIEWED
MP
STRUCTURE FILE NUMBER

DRAWN
C.N.
REVIS
DESIGNED
CHECKED

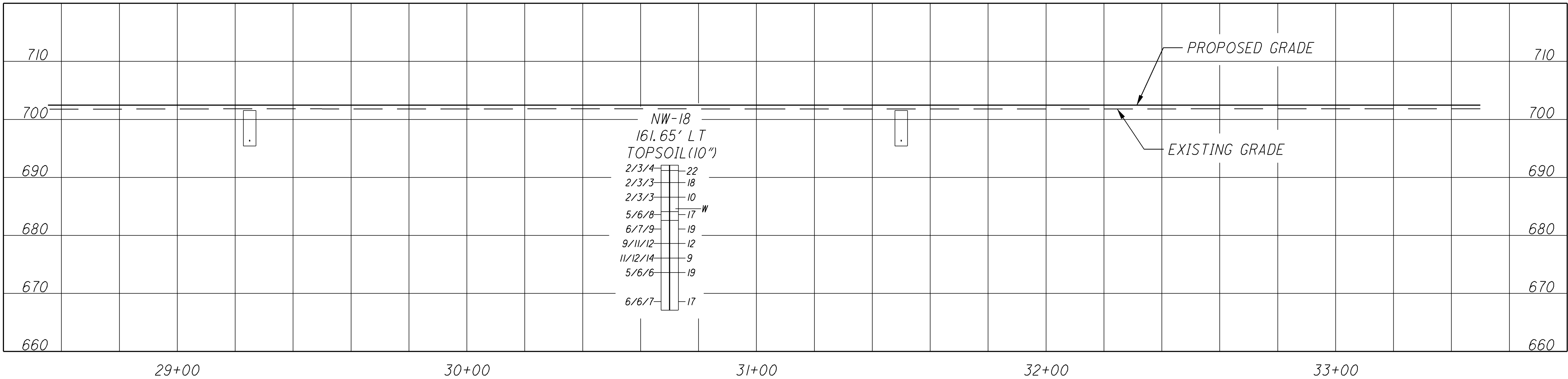
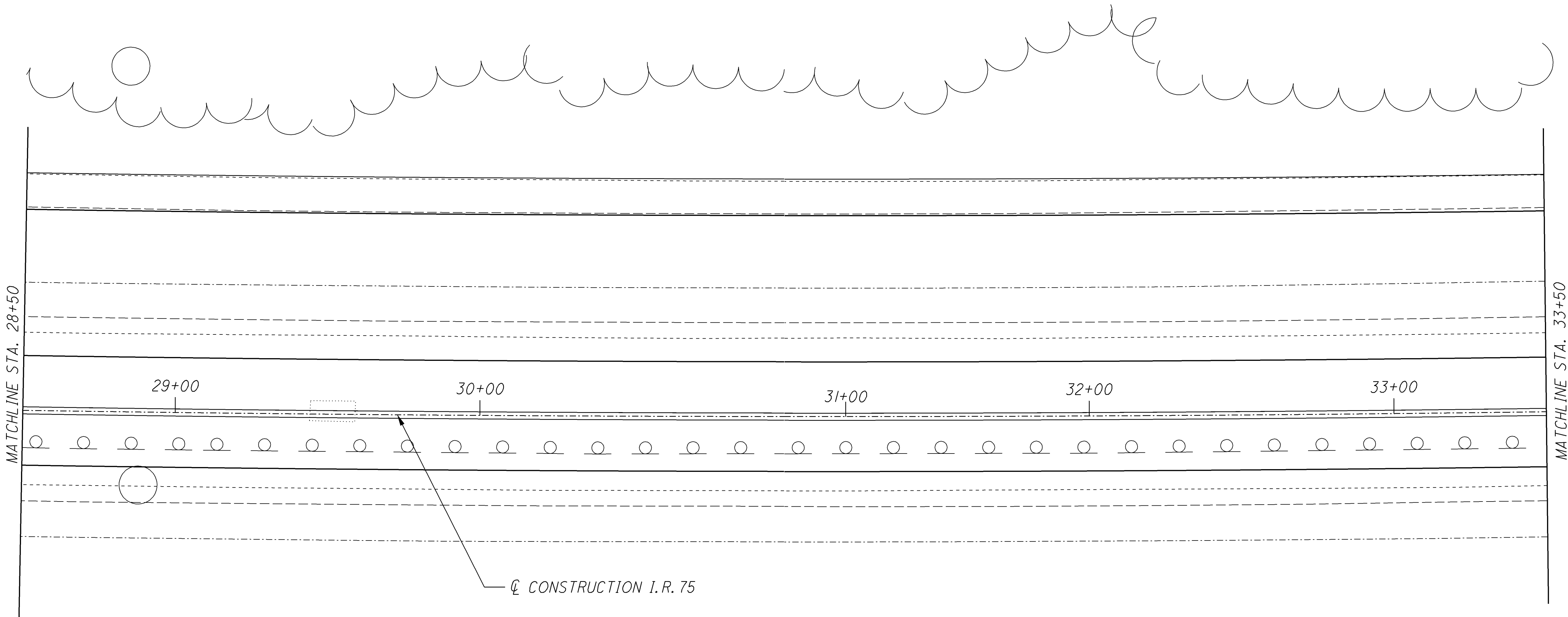
STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL NO. 3
I. R. 75

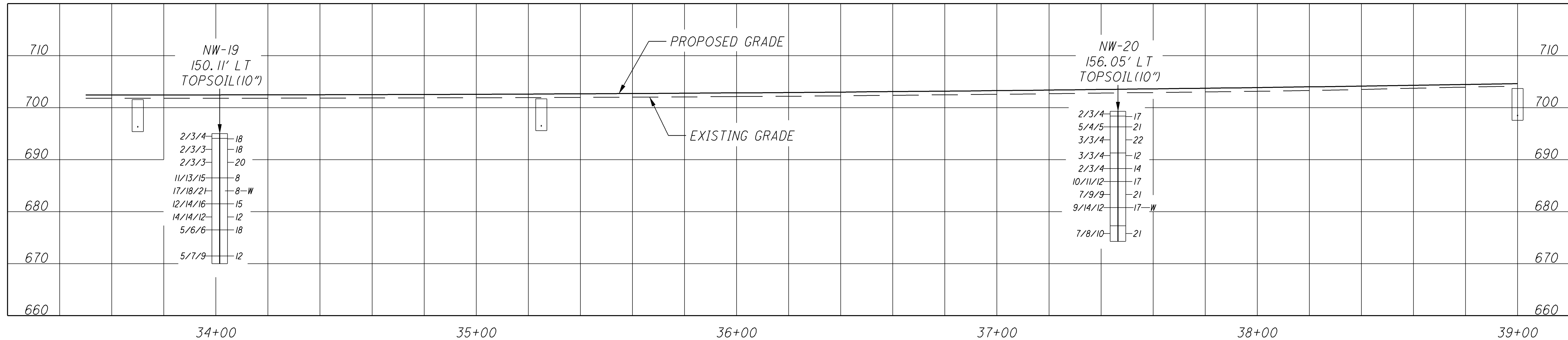
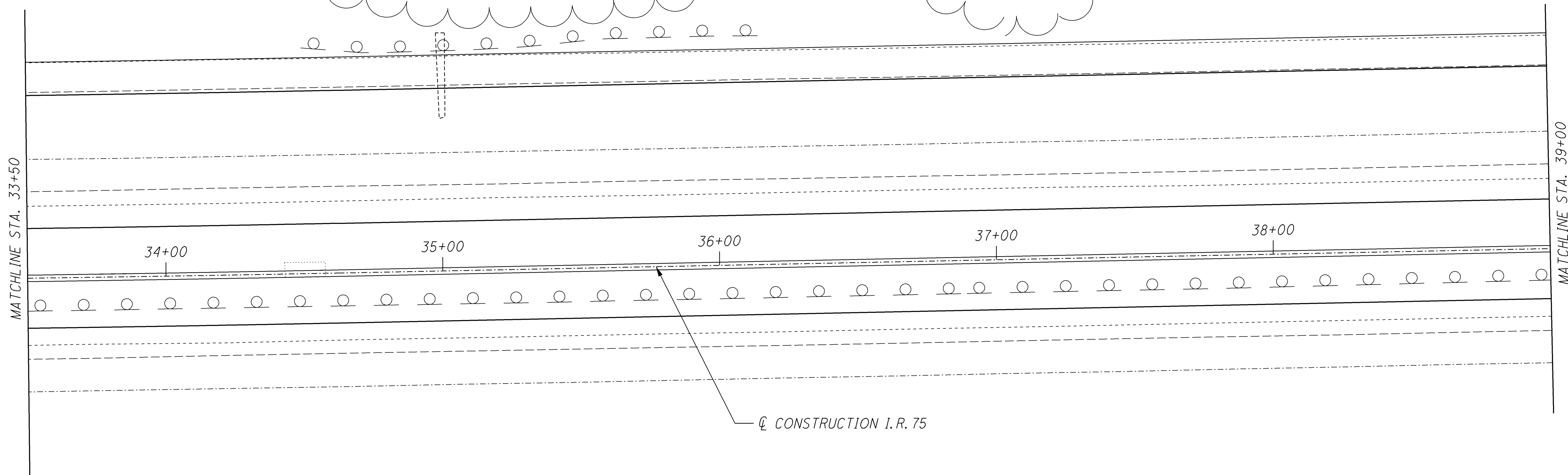
WAR-75-3.40

13 / 28



NW-18





DATE	05-03-06
REVIEWED	MP
DRAWN	C.N.
DESIGNED	CHECKED

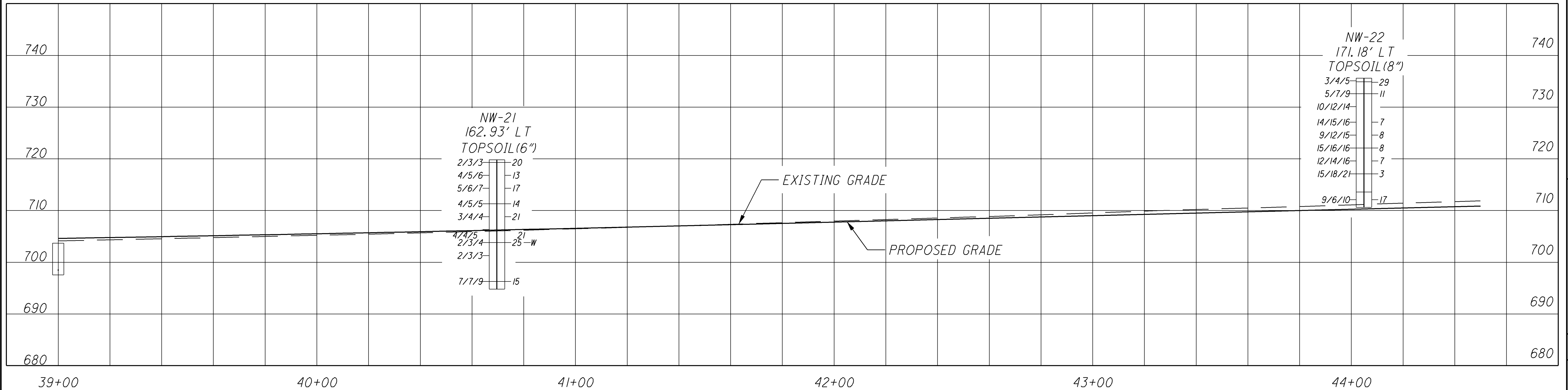
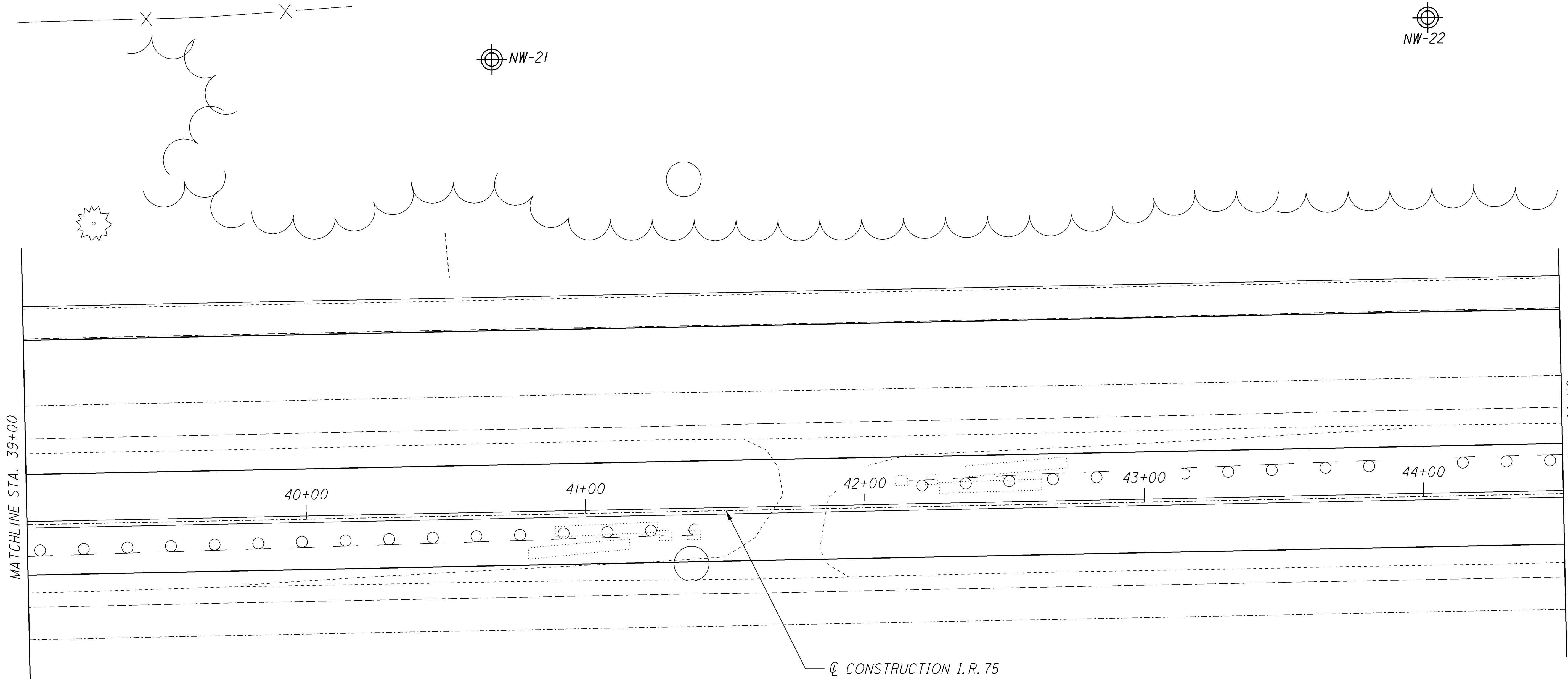
STRUCTURE FOUNDATION INVESTIGATION

NOISE WALL NO. 3

I. R. 75

WAR-75-3.40

14 / 28



02040

HORIZONTAL
SCALE IN FEET

DATE

05-03-06

REVIEWED

MP

STRUCTURE FILE NUMBER

DESIGNED

CHECKED

DRAWN

C.N.

REVISED

STRUCTURE FOUNDATION INVESTIGATION

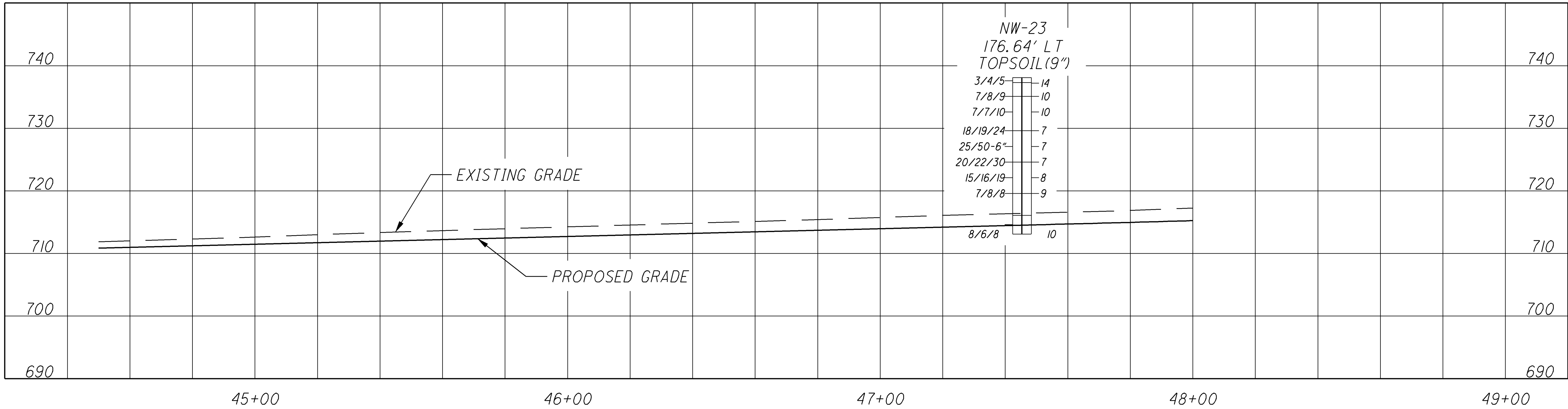
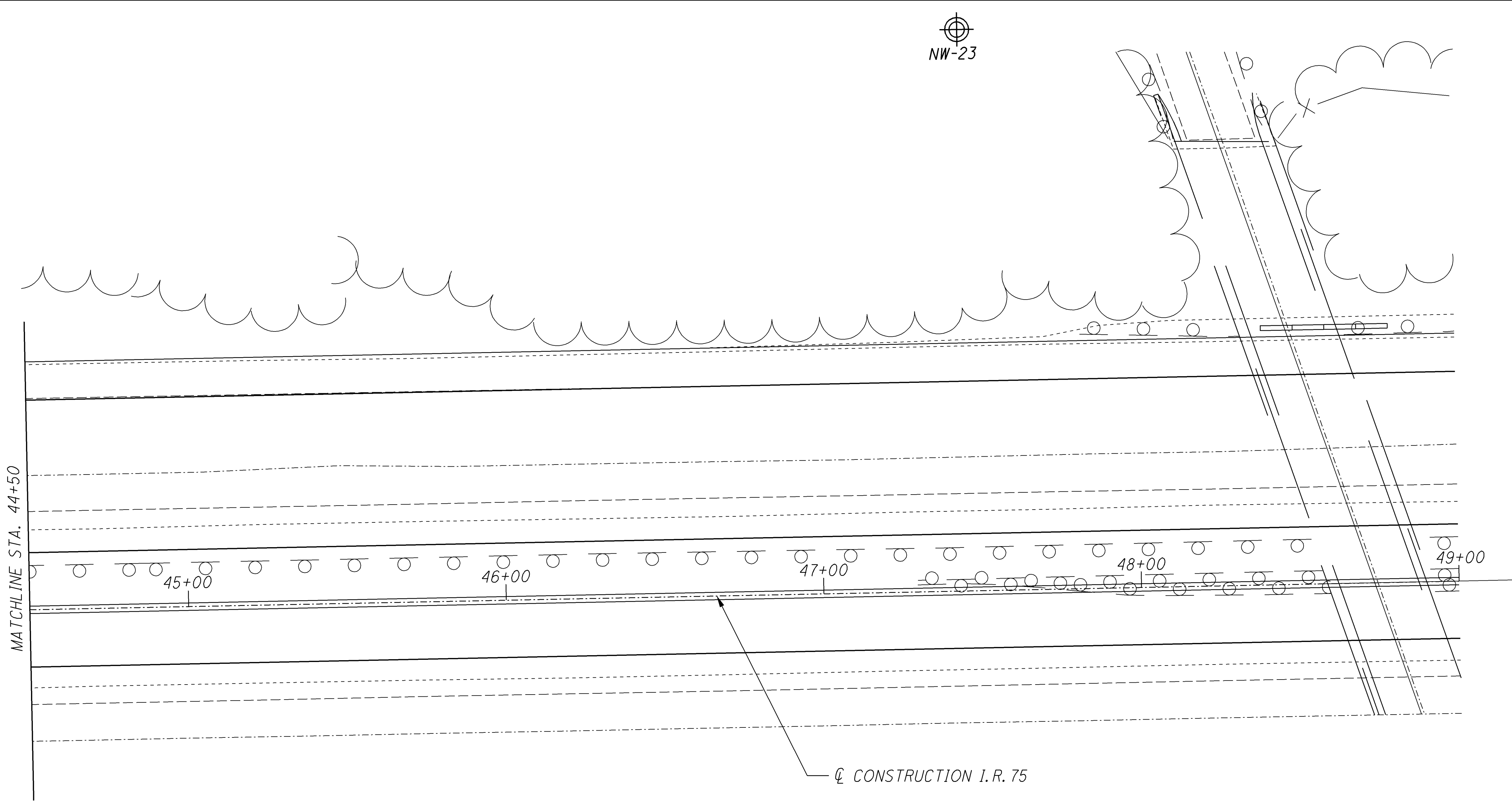
NOISE WALL NO. 3

I. R. 75

WAR-75-3.40

15

28



LOG OF BORING

Date Started 4/25/06
Date Completed 4/25/06

Sampler: Type SS Dia. 1.375"
Casing: Length 20ft Dia. 3.25"

Boring No. NW-01 Station & Offset 222+79.03, 17.40' Lt, Ramp B Water Elev. Dry
Surface Elev. 701.1ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
701.1	0					Berm (13")										
700.1		5/3/3			1.1'	Dark brown, medium stiff, SILT AND CLAY, trace sand, with root hairs, moist	1								22	VIS.
697.6	2															
	4	8/14/15			3.5'	Brownish gray, very stiff, SILT AND CLAY, some gravel, some sand, with cobbles, possible fill, damp	2	34	6	18	17	25	28	12	12	A-6a
695.1	6	12/21/20			6.0'	Gray, hard, SANDY SILT, some gravel, some clay, damp, till	3								8	VIS.
692.6	8	50-6"				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	4								3	VIS.
	10															
690.1	12	12/13/14				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	5								9	VIS.
687.6	14	32/23/24				Gray, hard, SANDY SILT, some gravel, some clay, damp, till	6	23	7	19	20	31	22	8	9	A-4a
685.1	16	30/24/20				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	7								6	VIS.
682.6	18	12/22/36				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	8								7	VIS.
681.1	20				20.0'											

AUGER REFUSAL @ 20'
BOTTOM OF BORING

LOG OF BORING

Date Started 4/25/06
Date Completed 4/25/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-02 Station & Offset 226+02.70, 10.63' Lt Ramp B Water Elev. 706.4ft
Surface Elev. 716.4ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
716.4	0					Asphalt (10.5")										
715.5		2/3/4			0.9'	Brown, medium stiff, SILT AND CLAY, little sand, damp	1								24	VIS.
	2															
712.9	4	4/4/10			3.5'	Brown, stiff, SANDY SILT, little gravel, little clay, silt lenses, damp, possible fill	2								13	VIS.
710.4	6	5/8/14				Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible fill	3								12	VIS.
707.9	8	6/8/10			8.5'	Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible till	4								9	VIS.
	10															
705.4	12	11/12/14			11.0'	Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	5	23	8	22	24	23	19	5	12	A-4a
702.9	14	11/9/11				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	6								14	VIS.
700.4	16	6/6/8				Gray, stiff, SANDY SILT, some gravel, some clay, damp, till	7								13	VIS.
697.9	18	7/10/12				Gray, very stiff, SANDY SILT, some gravel, some clay, with sand lenses, damp, till	8								12	VIS.
692.9	24	10/8/10				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	9								13	VIS.
691.4					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/25/06
Date Completed 4/25/06

Sampler: Type SS Dia. 1.375"
Casing: Length 20ft Dia. 3.25"

Boring No. NW-01 Station & Offset 222+79.03, 17.40' Lt, Ramp B Water Elev. Dry
Surface Elev. 701.1ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
701.1	0					Berm (13")										
700.1		5/3/3			1.1'	Dark brown, medium stiff, SILT AND CLAY, trace sand, with root hairs, moist	1								22	VIS.
697.6	2															
	4	8/14/15			3.5'	Brownish gray, very stiff, SILT AND CLAY, some gravel, some sand, with cobbles, possible fill, damp	2	34	6	18	17	25	28	12	12	A-6a
695.1	6	12/21/20			6.0'	Gray, hard, SANDY SILT, some gravel, some clay, damp, till	3								8	VIS.
692.6	8	50-6"				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	4								3	VIS.
	10															
690.1	12	12/13/14				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	5								9	VIS.
687.6	14	32/23/24				Gray, hard, SANDY SILT, some gravel, some clay, damp, till	6	23	7	19	20	31	22	8	9	A-4a
685.1	16	30/24/20				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	7								6	VIS.
682.6	18	12/22/36				Gray, hard, SANDY SILT, some gravel, some clay, damp, with cobbles, till	8								7	VIS.
681.1	20				20.0'											

AUGER REFUSAL @ 20'
BOTTOM OF BORING

LOG OF BORING

Date Started 4/25/06
Date Completed 4/25/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-02 Station & Offset 226+02.70, 10.63' Lt Ramp B Water Elev. 706.4ft
Surface Elev. 716.4ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
716.4	0					Asphalt (10.5")										
715.5		2/3/4			0.9'	Brown, medium stiff, SILT AND CLAY, little sand, damp	1								24	VIS.
	2															
712.9	4	4/4/10			3.5'	Brown, stiff, SANDY SILT, little gravel, little clay, silt lenses, damp, possible fill	2								13	VIS.
	6	5/8/14				Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible fill	3								12	VIS.
710.4	8															
707.9	10	6/8/10			8.5'	Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible till	4								9	VIS.
	12	11/12/14			11.0'	Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	5	23	8	22	24	23	19	5	12	A-4a
705.4	14	11/9/11				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	6								14	VIS.
702.9	16	6/6/8				Gray, stiff, SANDY SILT, some gravel, some clay, damp, till	7								13	VIS.
700.4	18	7/10/12				Gray, very stiff, SANDY SILT, some gravel, some clay, with sand lenses, damp, till	8								12	VIS.
697.9	20				25.0'											
	22															
692.9	24	10/8/10				Gray, very stiff, SANDY SILT, some gravel, some clay, damp, till	9								13	VIS.
691.4																

BOTTOM OF BORING

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

17/28

LOG OF BORING

Date Started 4/25/06
Date Completed 4/25/06

Sampler: Type	<u>SS</u>	Dia.	<u>1.375"</u>
Casing: Length	<u>25ft</u>	Dia.	<u>3.25"</u>

Water Elev.	706.4ft
Surface Elev.	716.4ft

Boring No. NW-02

Station & Offset 226+02.70, 10.63' Lt Ramp B

[illegible]

BOTTOM OF BORING

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-03 Station & Offset 229+25.52,13.80' Lt Ramp B

Water Elev. Dry
Surface Elev. 732.8ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
732.8	0					Asphalt (10")										
732.8		6/4/3			0.9' 1.1'	Base Course (4")										
731.9						Brown, medium stiff, SANDY SILT, trace clay, damp, fill	1								13	VIS.
731.8	2															
729.3	4	7/6/6			3.5'	Gray and brown, stiff, SANDY SILT, trace gravel, trace clay, with cobbles, with asphalt fragments, damp, fill	2								8	VIS.
726.8	6	4/3/3			6.0'	Gray, medium stiff, SANDY SILT, little gravel, trace clay, with cobbles, with asphalt fragments, damp, fill	3								8	VIS.
724.3	8	16/8/8			8.5'	Gray, very stiff, SANDY SILT, trace gravel, little clay, damp, fill	4								9	VIS.
721.8	10	10/7/10			11.0'	Brown, very stiff, CLAY, some silt, little sand, trace gravel, moist	5	2	3	15	28	52	43	21	23	A-7-6
719.3	12															
719.3	14	10/15/30			13.5'	Brown, hard, SILT AND CLAY, trace gravel, little sand, with cobbles, till	6								14	VIS.
716.8	16	33/17/10			16.0'	Brown, very stiff, SANDY SILT, trace gravel, little clay, damp, with cobbles, with gray silt lenses, till	7								11	VIS.
714.3	18	10/21/21				Brown, hard, SANDY SILT, trace gravel, little clay, damp, till	8								17	VIS.
709.3	20															
709.3	22															
709.3	24	8/8/10			23.5'	Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, trace clay, damp	9								12	VIS.
707.8	25.0'				25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-04 Station & Offset 232+50.54, 5.87' Lt Ramp B

Water Elev. Dry
Surface Elev. 741.9ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
741.9	0					Asphalt (12")										
740.9		4/5/6			1.0'	Brown, loose, berm material	1								7	VIS.
738.4	2															
735.9	4	3/2/3			3.5'	Gray, medium stiff, SILTY CLAY, blocky, damp, possible highly weathered shale fragments, fill	2								7	VIS.
733.4	6	2/2/3			6.0'	Brown and gray, loose, GRAVEL AND/OR STONE FRAGMENTS, with brick, asphalt, and glass fragments, damp, fill	3								12	VIS.
730.9	8	10/10/10			8.5'	Gray, very stiff, SILT AND CLAY, some gravel, little sand, with cobbles, damp, fill	4	29	4	12	16	39	29	11	15	A-6a
728.4	10	6/7/6			11.0'	Gray, stiff, SANDY SILT, trace gravel, trace clay, damp, fill	5								11	VIS.
725.9	12															
723.4	14	5/5/5				Gray, stiff, SANDY SILT, trace gravel, trace clay, damp, fill	6								9	VIS.
723.4	16	50-6"			16.0'	Brown and gray, hard, SILTY CLAY, some gravel, little sand, damp, fill	7	28	10	11	17	34	34	16	13	A-6b
718.4	18	5/4/6			18.5'	Brown, stiff, SILT AND CLAY, trace gravel, little sand, damp	8								24	VIS.
716.9	20															
716.9	22															
716.9	24	5/5/8				Brown, stiff, SILT AND CLAY, trace gravel, little sand, damp	9								25	VIS.
716.9	25.0'				25.0'											

BOTTOM OF BORING

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED

CHECKED

STRUCTURE FILE NUMBER

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

18/28

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type	<u>SS</u>	Dia.	<u>1.375"</u>
Casing: Length	<u>25ft</u>	Dia.	<u>3.25"</u>

Water Elev.	Dry
Surface Elev.	<u>732.8ft</u>

Boring No. NW-03

Station & Offset 229+25.52, 13.80' Lt Ramp B[illegible]

BOTTOM OF BORING

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. Dry
Surface Elev. 741.9ft

Boring No. NW-04 Station & Offset 232+50.54, 5.87' Lt Ramp B

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
741.9	0					Asphalt (12")										
741.9 740.9		4/5/6			1.0'	Brown, loose, berm material	1								7	VIS.
	2															
738.4		3/2/3			3.5'	Gray, medium stiff, SILTY CLAY, blocky, damp, possible highly weathered shale fragments, fill	2								7	VIS.
	4															
735.9		2/2/3			6.0'	Brown and gray, loose, GRAVEL AND/OR STONE FRAGMENTS, with brick, asphalt, and glass fragments, damp, fill	3								12	VIS.
	6															
733.4		10/10/10			8.5'	Gray, very stiff, SILT AND CLAY, some gravel, little sand, with cobbles, damp, fill	4	29	4	12	16	39	29	11	15	A-6a
	8															
730.9		6/7/6			11.0'	Gray, stiff, SANDY SILT, trace gravel, trace clay, damp, fill	5								11	VIS.
	10															
728.4		5/5/5			16.0'	Gray, stiff, SANDY SILT, trace gravel, trace clay, damp, fill	6								9	VIS.
	12															
725.9		50-6"			18.5'	Brown and gray, hard, SILTY CLAY, some gravel, little sand, damp, fill	7	28	10	11	17	34	34	16	13	A-6b
	14															
723.4		5/4/6			18.5'	Brown, stiff, SILT AND CLAY, trace gravel, little sand, damp	8								24	VIS.
	16															
	18															
718.4		5/5/8			25.0'	Brown, stiff, SILT AND CLAY, trace gravel, little sand, damp	9								25	VIS.
	20															
	22															
716.9																

BOTTOM OF BORING

LOG OF BORING

Date Started4/24/06

Date Completed4/24/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-05

Station & Offset235+77.86, 5.51' Lt Ramp B

Water Elev.Dry

Surface Elev.747.7ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aq	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
747.7	0					Asphalt (10")											
747.7		3/4/5			0.9'	Base Course (3")	1								10	VIS.	
746.8	2					Brown, loose, berm material											
746.6																	
744.2	4	1/2/3			3.5'	Black and gray, medium stiff, SILT AND CLAY, trace gravel, trace sand, moist, fill	2	7	3	8	30	52	29	11	23	A-6a	
741.7	6	2/2/3			6.0'	Brown and gray, medium stiff, SANDY SILT, trace gravel, little clay, damp, fill	3								13	VIS.	
739.2	8	6/5/5			8.5'	Gray, stiff, SILT AND CLAY, trace gravel, trace sand, damp, fill	4	8	3	7	26	56	35	15	12	A-6a	
736.7	10	6/6/8				Gray, stiff, SILT AND CLAY, trace gravel, trace sand, damp, fill	5								13	VIS.	
734.2	12	7/8/9			13.5'	Brown and gray, very stiff, SILT AND CLAY, trace gravel, little sand, damp, fill	6								15	VIS.	
731.7	14	9/5/7			16.0'	Brown and gray, stiff, SANDY SILT, little gravel, little clay, moist, fill	7								19	VIS.	
729.2	16	4/5/8			18.5'	Dark brown, stiff, SILT AND CLAY, trace sand, strong organic odor, damp	8								23	VIS.	
724.2	18																
722.7	20																
	22																
	24	11/7/7			23.5'	Brown, stiff, SANDY SILT, little clay, damp	9								21	VIS.	
					25.0'												
BOTTOM OF BORING																	

LOG OF BORING

Date Started4/24/06

Date Completed4/24/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-06

Station & Offset238+77.54,14.80' Lt Ramp B

Water Elev.Dry

Surface Elev.752.6ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aq	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
752.6	0					Asphalt (10")											
751.7		4/4/4			0.9'	Base course (4")	1									6	VIS.
751.4	2					Brown, loose, berm material											
749.1	4	6/5/4			3.5'	Gray and brown, stiff, SANDY SILT, trace gravel, little clay, moist, fill	2								16	VIS.	
746.6	6	7/10/7			6.0'	Brown, very stiff, SANDY SILT, trace gravel, little clay, with sand seams, damp, fill	3								7	VIS.	
744.1	8	5/13/13			8.5'	Gray, very stiff, SILT AND CLAY, trace gravel, little sand, blocky, with shale fragments, damp, fill	4	7	4	11	22	56	34	14	18	A-6a	
741.6	10	6/9/6			11.0'	Gray with black staining, stiff, SILT AND CLAY, trace sand, moist, possible fill	5	0	0	2	50	48	34	14	23	A-6a	
739.1	12	5/4/6			13.5'	Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp, possible fill	6								21	VIS.	
736.6	14	5/6/8				Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp, with root hairs, possible fill	7								24	VIS.	
734.1	16	4/4/7				Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp	8								19	VIS.	
729.1	18																
727.6	20																
	22																
	24	10/8/35			23.5'	Drove on cobbles	9										VIS.
					25.0'												
BOTTOM OF BORING																	

CTI ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE05-04-06

REVIEWEDMP

DRAWNVJ

DESIGNEDCHECKED

STRUCTURE FILE NUMBER

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

1928

...104120056G_NW_TBR_ALL.dgn 3/28/2008 1:00:27 PM

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. Dry
Surface Elev. 747.7ft

Boring No. NW-05 Station & Offset 235+77.86, 5.51' Lt Ramp B

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
747.7	0															
747.7		3/4/5			0.9'	Asphalt (10")										
746.8					1.1'	Base Course (3")										
746.7						Brown, loose, berm material	1								10	VIS.
746.6	2															
		1/2/3														
744.2					3.5'											
	4					Black and gray, medium stiff, SILT AND CLAY, trace gravel, trace sand, moist, fill	2	7	3	8	30	52	29	11	23	A-6a
		2/2/3														
741.7					6.0'											
	6					Brown and gray, medium stiff, SANDY SILT, trace gravel, little clay, damp, fill	3								13	VIS.
		6/5/5														
739.2					8.5'											
	8					Gray, stiff, SILT AND CLAY, trace gravel, trace sand, damp, fill	4	8	3	7	26	56	35	15	12	A-6a
		6/6/8														
736.7																
	10					Gray, stiff, SILT AND CLAY, trace gravel, trace sand, damp, fill	5								13	VIS.
		7/8/9														
734.2					13.5'											
	12					Brown and gray, very stiff, SILT AND CLAY, trace gravel, little sand, damp, fill	6								15	VIS.
		9/5/7														
731.7					16.0'											
	16					Brown and gray, stiff, SANDY SILT, little gravel, little clay, moist, fill	7								19	VIS.
		4/5/8														
729.2					18.5'											
	18					Dark brown, stiff, SILT AND CLAY, trace sand, strong organic odor, damp	8								23	VIS.
		11/7/7														
724.2					23.5'											
	20					Brown, stiff, SANDY SILT, little clay, damp	9								21	VIS.
722.7	24				25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-06

Station & Offset 238+77.54,14.80' Lt Ramp B

Water Elev. Dry
Surface Elev. 752.6ft

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
752.6	0					Asphalt (10")											
752.6		4/4/4			0.9'												
751.7					1.2'	Base course (4")											
751.6						Brown, loose, berm material	1								6	VIS.	
751.4	2																
		6/5/4			3.5'												
749.1	4					Gray and brown, stiff, SANDY SILT, trace gravel, little clay, moist, fill	2								16	VIS.	
		7/10/7			6.0'												
746.6	6					Brown, very stiff, SANDY SILT, trace gravel, little clay, with sand seams, damp, fill	3								7	VIS.	
	8																
744.1		5/13/13			8.5'												
	10					Gray, very stiff, SILT AND CLAY, trace gravel, little sand, blocky, with shale fragments, damp, fill	4	7	4	11	22	56	34	14	18	A-6a	
741.6		6/9/6			11.0'												
	12					Gray with black staining, stiff, SILT AND CLAY, trace sand, moist, possible fill	5	0	0	2	50	48	34	14	23	A-6a	
739.1		5/4/6			13.5'												
	14					Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp, possible fill	6								21	VIS.	
736.6	16	5/6/8															
						Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp, with root hairs, possible fill	7								24	VIS.	
	18																
734.1		4/4/7															
	20					Brownish gray, stiff, SANDY SILT, trace gravel, little clay, damp	8								19	VIS.	
	22																
		10/8/35			23.5'												
729.1	24					Drove on cobbles	9									VIS.	
727.6								25.0'									

BOTTOM OF BORING

LOG OF BORING

Date Started4/24/06

Date Completed4/24/06

Sampler: TypeSSDia.1.375"

Casing: Length25ftDia.3.25"

Boring No.NW-07

Station & Offset241+75.89, 82.34' Lt.

Water Elev.Dry

Surface Elev.757.8ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
757.8	0					Asphalt (11")											
757.8		4/4/4			0.9' 1.2'	Base course (4")											
756.9							Gray, medium stiff, SILT AND CLAY, little sand, blocky, damp, fill	1									12
756.8	2				3.5'												
756.5																	
754.3	4	6/7/8				Brown and gray, stiff, SANDY SILT, little gravel, little clay, damp, fill	2									11	VIS.
751.8	6	8/9/11			8.5'	Brown and gray, very stiff, SANDY SILT, little gravel, little clay, damp, fill	3	16	13	35	15	21	22	7	9		A-4a
749.3	8																
749.3	10	5/6/10				Dark brownish gray, very stiff, SANDY SILT, trace gravel, little clay, damp	4									20	VIS.
746.8	12	20/7/13			11.0'												
744.3							Brown and gray, very stiff, SANDY SILT, trace gravel, little clay, with cobbles, damp	5									9
744.3	14	14/20/21			13.5'	CLAYSHALE, brown and gray, augered	6									11	VIS.
741.8	16	44/24/21															
739.3	18					SHALE, gray, augered	7										
739.3	20	15/45/50-4"			16.0'												
734.3	22						SHALE, gray, augered	8									
734.3	24	50-6"			25.0'												
732.8						SHALE, gray, augered	9										
BOTTOM OF BORING																	

LOG OF BORING

Date Started4/24/06

Date Completed4/24/06

Sampler: TypeSSDia.1.375"

Casing: Length15ftDia.3.25"

Boring No.NW-08

Station & Offset245+90.82, 71.45' Lt.

Water Elev.753.7ft

Surface Elev.764.7ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
764.7	0					Topsoil (14")											
764.7		5/4/5			1.2'												
763.5							Dark brown, stiff, SILT AND CLAY, little sand, damp	1									26
761.2	2				3.5'												
761.2	4	8/8/10				Brown, very stiff, ELASTIC CLAY, trace gravel, little sand, some silt, damp, possible till	2	4	4	16	27	49	45	15	24		A-7-5
758.7	6	12/10/12			8.5'	Brown, very stiff, ELASTIC CLAY, trace gravel, little sand, some silt, damp, possible till	3									16	VIS.
756.2	8																
756.2	10	10/20/36				SHALE, gray, augered	4										VIS.
753.7	12	37/50-5"			15.0'												
753.7							SHALE, gray, augered	5									
751.2	14	38/50-4"				SHALE, gray, augered	6										VIS.
749.7						BOTTOM OF BORING											

WAR-75-3.40

20/28

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

DESIGNED
CHECKED

DRAWN
REVISED

DATE
05-04-06

MP
STRUCTURE FILE NUMBER

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

...104120056G_NW_TBR_ALL.dgn 3/28/2008 1:01:44 PM

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type	<u>SS</u>	Dia.	<u>1.375"</u>
Casing: Length	25ft	Dia.	3.25"

Boring No. NW-07

Station & Offset 241+75.89, 82.34' Lt.

Water Elev.	Dry
Surface Elev.	757.8ft

[illegible]

BOTTOM OF BORING

LOG OF BORING

Date Started 4/24/06
Date Completed 4/24/06

Sampler: Type SS Dia. 1.375"
Casing: Length 15ft Dia. 3.25"

Water Elev. 753.7ft
Surface Elev. 764.7ft

Boring No. NW-08 Station & Offset 245+90.82, 71.45' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
764.7	0															
764.7		5/4/5			1.2'	Topsoil (14")										
763.7						Dark brown, stiff, SILT AND CLAY, little sand, damp	1								26	VIS.
763.5	2															
		8/8/10			3.5'											
761.2	4					Brown, very stiff, ELASTIC CLAY, trace gravel, little sand, some silt, damp, possible till	2	4	4	16	27	49	45	15	24	A-7-5
		12/10/12														
758.7	6					Brown, very stiff, ELASTIC CLAY, trace gravel, little sand, some silt, damp, possible till	3								16	VIS.
		10/20/36			8.5'											
756.2	8					SHALE, gray, augered	4									VIS.
	10															
753.7		37/50-5"				SHALE, gray, augered	5									VIS.
	12															
751.2		38/50-4"				SHALE, gray, augered	6									VIS.
	14															
749.7					15.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started4/18/06

Date Completed4/18/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-09

Station & Offset363+38.28, 150.82' Lt.

Water Elev.781.2ft

Surface Elev.795.2ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
795.2	0					Topsoil (II")												
795.2		3/3/4			0.9'	Brown, medium stiff, SANDY SILT, little gravel, little clay, damp	1									II	VIS.	
794.7	2																	
794.3		4/5/5			3.0'	Brown and gray, stiff, SANDY SILT, little gravel, some clay, moist, possible till	2									13	VIS.	
792.2	4																	
789.7	6	5/5/5				Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, possible till	3	29	9	25	16	21	15	3	15		A-4a	
789.7																		
786.7	8																	
786.7		4/5/6			8.5'	Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, till	4									13	VIS.	
786.7	10																	
784.2		4/5/7				Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, till	5	21	7	24	27	21	14	3	12		A-4a	
784.2	12																	
781.7		6/6/7			13.5'	Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	6									10	VIS.	
781.7	14																	
779.2		4/6/7				Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	7									11	VIS.	
779.2	16																	
776.7		9/11/12			18.5'	Gray, very stiff, SILT AND CLAY, trace gravel, trace sand, with silt seams, damp	8									12	VIS.	
776.7	18																	
776.7	20																	
776.7																		
776.7	22																	
776.7																		
771.7		10/12/12				Gray, very stiff, SILT AND CLAY, trace gravel, trace sand, with silt seams, damp	9									13	VIS.	
771.7	24																	
770.2					25.0'													
BOTTOM OF BORING																		

LOG OF BORING

Date Started4/17/06

Date Completed4/17/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-10

Station & Offset366+68.63, 132.01' Lt.

Water Elev.784.0ft

Surface Elev.790.0ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
790.0	0					Topsoil (II")												
790.0		3/3/3			0.9'	Brown, medium stiff, CLAY, little sand, some silt, moist	1										26	VIS.
789.5	2																	
789.1		4/4/5				Brown, stiff, CLAY, little sand, some silt, moist	2	0	0	16	32	52	44	26	23		A-7-6	
787.0	4																	
784.5		3/3/4			5.5'	Brown, medium stiff, SANDY SILT, little gravel, some clay, with silt seams, moist, possible till	3	14	1	27	23	35	14	4	11		A-4a	
784.5	6																	
781.5		3/4/5				Brown, stiff, SANDY SILT, little gravel, some clay, with silt seams, moist, possible till	4									10	VIS.	
781.5	8																	
781.5	10																	
779.0		4/4/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, with silt seams, damp, possible till	5									9	VIS.	
779.0	12																	
776.5		4/5/6			13.5'	Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	6										10	VIS.
776.5	14																	
774.0		4/5/7				Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	7										8	VIS.
774.0	16																	
771.5		4/5/8				Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	8										10	VIS.
771.5	18																	
771.5	20																	
771.5																		
771.5	22																	
771.5																		
766.5		9/11/12			23.5'	Brown, very stiff, SILT AND CLAY, trace sand, damp	9										17	VIS.
766.5	24																	
765.0					25.0'													
BOTTOM OF BORING																		

CTI ENGINEERING, INC.
1451 S.R. 28 BLOC. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE05-04-06

REVIEWEDMP

DRAWNVJ

DESIGNED

CHECKED

STRUCTURE FILE NUMBER

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

21/28

LOG OF BORING

Date Started 4/18/06
Date Completed 4/18/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 781.2ft
Surface Elev. 795.2ft

Boring No. NW-09 Station & Offset 363+38.28, 150.82' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
795.2	0																
795.2 794.7 794.3		3/3/4			0.9'	Topsoil (11")											
	2					Brown, medium stiff, SANDY SILT, little gravel, little clay, damp	1								11		VIS.
792.2		4/5/5			3.0'											13	VIS.
	4					Brown and gray, stiff, SANDY SILT, little gravel, some clay, moist, possible till	2										
789.7		5/5/5															
	6					Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, possible till	3	29	9	25	16	21	15	3	15		A-4a
786.7	8																
		4/5/6			8.5'											13	VIS.
	10					Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, till	4										
784.2		4/5/7															
	12					Brown and gray, stiff, SANDY SILT, some gravel, some clay, moist, till	5	21	7	24	27	21	14	3	12		A-4a
781.7		6/6/7			13.5'												
	14					Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	6									10	VIS.
779.2		4/6/7															
	16					Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	7									11	VIS.
776.7	18																
		9/11/12			18.5'											12	VIS.
	20					Gray, very stiff, SILT AND CLAY, trace gravel, trace sand, with silt seams, damp	8										
	22																
771.7		10/12/12															
	24					Gray, very stiff, SILT AND CLAY, trace gravel, trace sand, with silt seams, damp	9									13	VIS.
770.2					25.0'												

BOTTOM OF BORING

LOG OF BORING

Date Started 4/17/06
Date Completed 4/17/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 784.0ft
Surface Elev. 790.0ft

Boring No. NW-10 Station & Offset 366+68.63, 132.01' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
790.0	0															
790.0 789.5 789.1		3/3/3			0.9'	Topsoil (11")										
	2					Brown, medium stiff, CLAY, little sand, some silt, moist	1								26	VIS.
787.0		4/4/5				Brown, stiff, CLAY, little sand, some silt, moist	2	0	0	16	32	52	44	26	23	A-7-6
	4															
784.5		3/3/4			5.5'	Brown, medium stiff, SANDY SILT, little gravel, some clay, with silt seams, moist, possible till	3	14	1	27	23	35	14	4	11	A-4a
	6															
	8															
781.5		3/4/5				Brown, stiff, SANDY SILT, little gravel, some clay, with silt seams, moist, possible till	4								10	VIS.
	10															
779.0		4/4/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, with silt seams, damp, possible till	5								9	VIS.
	12															
776.5		4/5/6			13.5'	Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	6								10	VIS.
	14															
774.0		4/5/7				Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	7								8	VIS.
	16															
	18															
771.5		4/5/8				Gray, stiff, SANDY SILT, little gravel, little clay, damp, till	8								10	VIS.
	20															
	22															
766.5		9/11/12			23.5'	Brown, very stiff, SILT AND CLAY, trace sand, damp	9								17	VIS.
	24															
765.0					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/17/06
Date Completed 4/17/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-II Station & Offset 369+54.44, 138.18' Lt. Water Elev. 774.7ft
Surface Elev. 787.2ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
787.2	0					Topsoil (10")										
787.2 786.7 786.4		2/3/4			0.8'	Brown, medium stiff, SILT AND CLAY, little sand, damp, possible fill	1								25	VIS.
784.2	2															
	4	6/6/8			3.0'	Brown, stiff, SANDY SILT, trace gravel, little clay, damp	2								20	VIS.
781.7	6	2/3/3			5.5'	Brown, medium stiff, SANDY SILT, little gravel, some clay, moist, possible till	3								12	VIS.
778.7	8															
	10	2/3/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, wet, possible till	4	14	7	29	24	26	14	4	14	A-4a
776.2	12	3/3/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, moist, possible till	5								13	VIS.
773.7	14	9/11/12			13.5'	Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	6									NO REC.
771.2	16	7/9/11				Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	7	2	2	11	44	41	15	4	15	A-4a
768.7	18	4/5/6				Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	8								19	VIS.
	20															
	22				21.5'											
763.7	24	12/14/17				Gray, dense, COARSE AND FINE SAND, little gravel, heaving sand	9									NO REC.
762.2					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/13/06
Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-12 Station & Offset 372+43.98, 148.16' Lt. Water Elev. Dry
Surface Elev. 792.9ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
792.9	0					Topsoil (6")										
792.9 792.4		3/3/4			0.5'	Brown, medium stiff, SILT AND CLAY, trace sand, damp	1								19	VIS.
789.9	2															
	4	5/6/8			3.0'	Brown, stiff, SILT AND CLAY, trace gravel, trace sand, damp	2	0	0	3	19	78	35	13	19	A-6a
787.4	6	6/7/8			5.5'	Mottled brown and gray, stiff, SANDY SILT, little clay, moist	3								18	VIS.
784.4	8															
	10	7/8/9			8.5'	Brown, very stiff, SANDY SILT, and clay, moist	4								17	VIS.
781.9	12	5/10/12				Brown, very stiff, SANDY SILT, and clay, moist	5	0	0	31	32	37	17	4	17	A-4a
779.4	14	7/9/10			13.5'	Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	6								8	VIS.
776.9	16	8/9/11				Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	7								13	VIS.
774.4	18	13/14/16			18.5'	Gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS W/ SAND AND SILT, trace clay, moist	8								11	VIS.
	20															
	22															
769.4	24	7/9/12			23.5'	Gray, very stiff, SILT AND CLAY, little sand, damp, till	9								18	VIS.
767.9					25.0'											

BOTTOM OF BORING

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

22/28

LOG OF BORING

Date Started 4/17/06
Date Completed 4/17/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 774.7ft
Surface Elev. 787.2ft

Boring No. NW-II Station & Offset 369+54.44, 138.18' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
787.2	0															
787.2 786.7 786.4		2/3/4			0.8'	Topsoil (10")										
	2					Brown, medium stiff, SILT AND CLAY, little sand, damp, possible fill	1								25	VIS.
784.2		6/6/8			3.0'											
	4					Brown, stiff, SANDY SILT, trace gravel, little clay, damp	2								20	VIS.
781.7		2/3/3			5.5'											
	6					Brown, medium stiff, SANDY SILT, little gravel, some clay, moist, possible till	3								12	VIS.
	8															
778.7		2/3/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, wet, possible till	4	14	7	29	24	26	14	4	14	A-4a
	10															
776.2		3/3/4				Brown, medium stiff, SANDY SILT, little gravel, some clay, moist, possible till	5								13	VIS.
	12															
773.7		9/11/12			13.5'	Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	6									NO REC.
	14															
771.2		7/9/11				Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	7	2	2	11	44	41	15	4	15	A-4a
	16															
768.7		4/5/6				Gray, very stiff, SANDY SILT, trace gravel, and clay, wet, till	8								19	VIS.
	18															
	20															
	22				21.5'											
763.7		12/14/17														
	24					Gray, dense, COARSE AND FINE SAND, little gravel, heaving sand	9									NO REC.
762.2					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/13/06
Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-12

Station & Offset 372+43.98, 148.16' Lt.

Water Elev. Dry
Surface Elev. 792.9ft

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
792.9	0															
792.9		3/3/4			0.5'	Topsoil (6")										
792.4								Brown, medium stiff, SILT AND CLAY, trace sand, damp	1							
	2															
789.9		5/6/8			3.0'											
	4							Brown, stiff, SILT AND CLAY, trace gravel, trace sand, damp	2	0	0	3	19	78	35	13
787.4		6/7/8			5.5'											
	6							Mottled brown and gray, stiff, SANDY SILT, little clay, moist	3							
	8															
784.4		7/8/9			8.5'											
	10							Brown, very stiff, SANDY SILT, and clay, moist	4							
781.9		5/10/12														
	12							Brown, very stiff, SANDY SILT, and clay, moist	5	0	0	31	32	37	17	4
779.4		7/9/10			13.5'											
	14							Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	6							
776.9		8/9/11														
	16							Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	7							
	18															
774.4		13/14/16			18.5'											
	20							Gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS W/ SAND AND SILT, trace clay, moist	8							
	22															
769.4		7/9/12			23.5'											
	24							Gray, very stiff, SILT AND CLAY, little sand, damp, till	9							
767.9					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started4/14/06

Date Completed4/14/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-13

Station & Offset375+53.26, 142.53' Lt.

Water Elev.Dry

Surface Elev.788.1ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
788.1	0					Topsoil (9")												
788.1		3/4/4			0.8'	Brown, medium stiff, SILT AND CLAY, trace gravel, little sand, damp	1									18	VIS.	
787.6	2																	
787.3		4/5/6			3.0'	Brown, stiff, SANDY SILT, little gravel, some clay, damp, possible till	2	13	8	23	25	31	18	6	11	A-4a		
785.1	4																	
782.6		4/5/5				Brown, stiff, SANDY SILT, little gravel, some clay, damp, possible till	3									12	VIS.	
779.6	6																	
779.6	8																	
777.1		6/9/11			8.5'	Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible till	4									10	VIS.	
777.1	10																	
774.6		11/16/17				Brown, hard, SANDY SILT, little gravel, little clay, damp, possible till	5									10	VIS.	
774.6	12																	
774.6		9/11/14			13.5'	CLAYSHALE, gray, moderately soft, with limestone rock fragments, augered	6											NO REC.
772.1	14																	
772.1		9/10/12					7									17	VIS.	
769.6	16																	
769.6		7/9/12					8									12	VIS.	
764.6	18																	
764.6	20																	
764.6		20/50-6"					9									8	VIS.	
763.1	22																	
763.1	24																	
763.1					25.0'													
BOTTOM OF BORING																		

LOG OF BORING

Date Started4/14/06

Date Completed4/14/06

Sampler: TypeSS

Dia.1.375"

Casing: Length25ft

Dia.3.25"

Boring No.NW-14

Station & Offset378+54.50, 149.25' Lt.

Water Elev.Dry

Surface Elev.788.6ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
788.6	0					Topsoil (10")												
788.6		2/3/3			0.9'	Brown, medium stiff, SILT AND CLAY, trace gravel, little sand, with roots and root hairs, moist	1										19	VIS.
788.1	2																	
787.7		3/4/5			3.0'	Brown, stiff, SANDY SILT, little gravel, some clay, damp, till	2										11	VIS.
785.6	4																	
783.1		3/4/6				Brown, stiff, SANDY SILT, little gravel, some clay, moist, till	3	14	6	21	29	30	19	6	15	A-4a		
780.1	6																	
780.1	8																	
780.1		6/6/9				Brown, stiff, SANDY SILT, little gravel, some clay, damp, till	4										11	VIS.
777.6	10																	
777.6		14/15/17			11.0'	Brown, dense, COARSE AND FINE SAND, little gravel, trace silt, trace clay, damp	5	20	25	38	9	8	NP	NP	10	A-3a		
775.1	12																	
775.1		20/16/19			13.5'	Gray, hard, SANDY SILT, trace gravel, little clay, damp, till	6									7	VIS.	
772.6	14																	
772.6		14/15/17				Gray, hard, SANDY SILT, trace gravel, little clay, damp, till	7									9	VIS.	
770.1	16																	
770.1	18																	
770.1		14/28/20			18.0'	SHALE, gray, moderately soft, augered	8										11	VIS.
765.1	20																	
765.1																		
765.1	22																	
765.1		50-4"			23.5'	SHALE, gray, moderately soft, with interbedded limestone, augered	9									4	VIS.	
763.6	24																	
763.6					25.0'													
BOTTOM OF BORING																		

CTI ENGINEERING, INC.
1451 S.R. 28 BLOC. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED
CHECKED

STRUCTURE
FILE NUMBER

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

23/28

LOG OF BORING

Date Started 4/14/06
Date Completed 4/14/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-13

Station & Offset 375+53.26, 142.53' Lt.

Water Elev. Dry
Surface Elev. 788.1ft

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
788.1	0															
788.1		3/4/4			0.8'	Topsoil (9")										
787.6						Brown, medium stiff, SILT AND CLAY, trace gravel, little sand, damp	1								18	VIS.
787.3	2															
		4/5/6			3.0'											
785.1						Brown, stiff, SANDY SILT, little gravel, some clay, damp, possible till	2	13	8	23	25	31	18	6	11	A-4a
	4															
		4/5/5														
782.6						Brown, stiff, SANDY SILT, little gravel, some clay, damp, possible till	3								12	VIS.
	6															
		6/9/11			8.5'											
779.6						Brown, very stiff, SANDY SILT, little gravel, little clay, damp, possible till	4								10	VIS.
	8															
		11/16/17														
777.1						Brown, hard, SANDY SILT, little gravel, little clay, damp, possible till	5								10	VIS.
	10															
		9/11/14			13.5'											
774.6						CLAYSHALE, gray, moderately soft, with limestone rock fragments, augered	6									NO REC.
	12															
		9/10/12														
772.1							7									17
	14															
		7/9/12														
769.6							8									12
	16															
		20/50-6"														
	18															
	20															
	22															
764.6																
	24															
763.1					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/14/06
Date Completed 4/14/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-14 Station & Offset 378+54.50, 149.25' Lt.

Water Elev. Dry
Surface Elev. 788.6ft

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
788.6	0															
788.6 788.1 787.7		2/3/3			0.9'	Topsoil (10")										
	2					Brown, medium stiff, SILT AND CLAY, trace gravel, little sand, with roots and root hairs, moist	1								19	VIS.
785.6		3/4/5			3.0'											
	4					Brown, stiff, SANDY SILT, little gravel, some clay, damp, till	2								11	VIS.
783.1	6	3/4/6				Brown, stiff, SANDY SILT, little gravel, some clay, moist, till	3	14	6	21	29	30	19	6	15	A-4a
	8															
780.1		6/6/9				Brown, stiff, SANDY SILT, little gravel, some clay, damp, till	4								11	VIS.
	10															
777.6		14/15/17			11.0'											
	12					Brown, dense, COARSE AND FINE SAND, little gravel, trace silt, trace clay, damp	5	20	25	38	9	8	NP	NP	10	A-3a
775.1		20/16/19			13.5'											
	14					Gray, hard, SANDY SILT, trace gravel, little clay, damp, till	6								7	VIS.
772.6	16	14/15/17														
	18				18.0'											
770.1		14/28/20				SHALE, gray, moderately soft, augered	8								11	VIS.
	20															
	22															
765.1		50-4"			23.5'											
	24					SHALE, gray, moderately soft, with interbedded limestone, augered	9								4	VIS.
763.6					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/14/06
Date Completed 4/14/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-15 Station & Offset 381+63.38, 148.52' Lt. Water Elev. Dry
Surface Elev. 788.3ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
788.3	0					Topsoil (7")										
788.3 787.8 787.7	— 2	2/2/2			0.6'	Brown, soft, SILT AND CLAY, trace gravel, some sand, damp	1								17	VIS.
785.3	4	3/4/4			3.0'	Brown, medium stiff, SILT AND CLAY, trace gravel, some sand, damp	2								17	VIS.
782.8	6	3/4/5			5.5'	Brown, stiff, SANDY SILT, trace gravel, and clay, moist	3	0	1	35	28	36	22	7	17	A-4a
779.8	8	8/12/14			8.5'	Brown, very stiff, SILT AND CLAY, some sand, damp	4								14	VIS.
777.3	10	6/9/13			11.0'	Brown, very stiff, SANDY SILT, trace clay, damp	5								10	VIS.
774.8	12	6/5/5			13.5'	Brown and gray, stiff, SANDY SILT, trace clay, moist	6								17	VIS.
772.3	14	4/4/6			16.0'	Gray, stiff, SILT AND CLAY, trace gravel, some sand, damp	7								18	VIS.
769.8	16	50-6"			18.5'	SHALE, gray, with interbedded limestone, augered	8								11	VIS.
764.8	18															
763.3	20															
	22															
	24	50-4"					9								6	VIS.
					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/13/06
Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-16 Station & Offset 24+30.78, 164.98' Lt. Water Elev. 683.1ft
Surface Elev. 690.6ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
690.6	0					Topsoil (10")										
690.6 690.1 689.7	— 2	2/3/3			0.9'	Brown, medium stiff, SANDY SILT, little sand, damp	1								19	VIS.
687.6	4	5/4/4			3.0'	Brown, loose, COARSE AND FINE SAND, trace silt, little clay, trace gravel, damp	2								7	VIS.
685.1	6	3/4/4			8.5'	Brown, loose, COARSE AND FINE SAND, trace silt, little clay, trace gravel, damp	3	3	38	38	6	15	NP	NP	14	A-3a
682.1	8	12/13/10				Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS , some sand, trace silt, trace clay, with cobbles, damp	4	65	12	10	7	6	NP	NP	9	A-1-a
679.6	10	6/8/8				Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS , some sand, trace silt, trace clay, with cobbles, damp	5								7	VIS.
677.1	12	7/9/11				Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS , some sand, trace silt, trace clay, with cobbles, damp	6								4	VIS.
674.6	14	13/16/10				Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS , some sand, trace silt, trace clay, with cobbles, damp	7								8	VIS.
672.1	16	5/7/8			18.5'	Gray, stiff, SILT AND CLAY, trace sand, damp	8								18	VIS.
667.1	18															
665.6	20															
	22															
	24	7/9/10				Gray, very stiff, SILT AND CLAY, trace sand, damp	9								19	VIS.
					25.0'											

BOTTOM OF BORING

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-340

24 / 28



LOG OF BORING

Date Started 4/14/06
Date Completed 4/14/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. Dry
Surface Elev. 788.3ft

Boring No. NW-15 Station & Offset 381+63.38, 148.52' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
788.3	0																
788.3		2/2/2			0.6'	Topsoil (7")											
787.8						Brown, soft, SILT AND CLAY, trace gravel, some sand, damp	1									17	VIS.
787.7	2																
785.3		3/4/4			3.0'	Brown, medium stiff, SILT AND CLAY, trace gravel, some sand, damp	2									17	VIS.
	4																
782.8		3/4/5			5.5'	Brown, stiff, SANDY SILT, trace gravel, and clay, moist	3	0	1	35	28	36	22	7	17		A-4a
	6																
	8																
779.8		8/12/14			8.5'	Brown, very stiff, SILT AND CLAY, some sand, damp	4									14	VIS.
	10																
777.3		6/9/13			11.0'	Brown, very stiff, SANDY SILT, trace clay, damp	5									10	VIS.
	12																
774.8		6/5/5			13.5'	Brown and gray, stiff, SANDY SILT, trace clay, moist	6									17	VIS.
	14																
772.3		4/4/6			16.0'	Gray, stiff, SILT AND CLAY, trace gravel, some sand, damp	7									18	VIS.
	16																
769.8		50-6"			18.5'	SHALE, gray, with interbedded limestone, augered	8									11	VIS.
	18																
	20																
	22																
764.8		50-4"					9									6	VIS.
	24																
763.3					25.0'												

BOTTOM OF BORING

LOG OF BORING

Date Started 4/13/06

Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"

Casing: Length 25ft Dia. 3.25"

Water Elev. 683.1ft

Surface Elev. 690.6ft

Boring No. NW-16

Station & Offset 24+30.78, 164.98' Lt.

[illegible]

BOTTOM OF BORING

LOG OF BORING

Date Started 4/13/06
Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-17 Station & Offset 27+45.56, 158.61' Lt. Water Elev. 682.8ft
Surface Elev. 690.8ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
690.8	0					Topsoil (8")										
690.8		2/3/3			0.7'	Brown, medium stiff, SANDY SILT, little clay, damp	1								17	VIS.
690.3	2															
687.8		2/3/3			3.0'	Brown, loose, COARSE AND FINE SAND, trace silt, some clay, trace gravel, damp	2	0	10	63	4	23	NP	NP	10	A-3a
685.3	4														9	VIS.
685.3	6	2/3/3				Brown, loose, COARSE AND FINE SAND, little gravel, little silt, trace clay, damp	3									
682.3	8															
682.3		7/5/2			8.5'	Gray, medium stiff, SANDY SILT, and clay, wet	4	0	1	1	43	55	22	7	23	A-4a
679.8	10														22	VIS.
679.8	12	2/3/3				Gray, medium stiff, SANDY SILT, and clay, wet	5									
677.3																
677.3	14	14/15/17			13.5'	Gray, dense, GRAVEL AND/OR STONE FRAGMENTS W/ SAND AND SILT, trace clay, moist	6								11	VIS.
674.8	16														9	VIS.
674.8		12/16/19			16.0'	Gray, dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, little silt, trace clay, moist	7									
672.3	18														16	VIS.
672.3		7/12/13			18.5'	Gray, very stiff, SILT AND CLAY, little sand, damp	8									
667.3	20														18	VIS.
667.3																
667.3	22															
667.3																
667.3	24	5/7/7				Gray, stiff, SILT AND CLAY, little sand, damp	9									
665.8					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/12/06
Date Completed 4/12/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Boring No. NW-18 Station & Offset 30+70.04, 161.65' Lt. Water Elev. 684.6ft
Surface Elev. 692.1ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
692.1	0					Topsoil (10")										
692.1		2/3/4			0.9'	Dark brown, medium stiff, SILT AND CLAY, some sand, damp	1								22	VIS.
691.6	2															
689.1		2/3/3			3.0'	Brown, medium stiff, SANDY SILT, little clay, damp	2								18	VIS.
689.1	4															
686.6		2/3/3			5.5'	Brown, loose, COARSE AND FINE SAND, little gravel, little silt, little clay, damp	3	14	22	32	17	15	NP	NP	10	A-3a
686.6	6															
683.6	8															
683.6		5/6/8			9.5'	Brown, stiff, SILT AND CLAY, damp	4								17	VIS.
681.1	10															
681.1		6/7/9				Gray, very stiff, SANDY SILT, and clay, trace gravel, moist	5	0	0	1	38	61	21	5	19	A-4a
678.6	12															
678.6		9/11/12			13.5'	Gray, medium dense, COARSE AND FINE SAND, trace silt, trace gravel, trace clay, wet	6								12	VIS.
676.1	14															
676.1		11/12/14			16.0'	Gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, trace silt, trace clay, wet	7								9	VIS.
673.6	16															
673.6		5/6/6			18.5'	Gray, stiff, SILT AND CLAY, damp	8								19	VIS.
668.6	18															
668.6																
668.6	20															
668.6																
668.6	22															
668.6																
668.6	24	6/6/7				Gray, stiff, SILT AND CLAY, damp	9								17	VIS.
667.1					25.0'											

BOTTOM OF BORING

CTL ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE
05-04-06

REVIEWED
MP

DRAWN
VJ

DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

25/28



LOG OF BORING

Date Started 4/13/06

Date Completed 4/13/06

Sampler: Type SS Dia. 1.375"

Casing: Length 25ft Dia. 3.25"

Water Elev. 682.8ft

Surface Elev. 690.8ft

Boring No. NW-17

Station & Offset 27+45.56, 158.61' Lt.

[illegible]

BOTTOM OF BORING

LOG OF BORING

Date Started 4/12/06
Date Completed 4/12/06

Sampler: Type	<u>SS</u>	Dia.	<u>1.375"</u>
Casing: Length	<u>25ft</u>	Dia.	<u>3.25"</u>

Water Elev.	<u>684.6ft</u>
Surface Elev.	<u>692.1ft</u>

Boring No. NW-18

Station & Offset 30+70.04, 161.65' Lt.[illegible]

BOTTOM OF BORING

LOG OF BORING																
Date Started <u>4/12/06</u>			Sampler: Type <u>SS</u> Dia. <u>1.375"</u>			Date Completed <u>4/12/06</u>			Casing: Length <u>25ft</u> Dia. <u>3.25"</u>			Water Elev. <u>684.0ft</u>				
Boring No. <u>NW-19</u>			Station & Offset <u>34+01.48, 150.11' Lt.</u>			Surface Elev. <u>695.0ft</u>										
Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
695.0	0					Topsoil (10")										
695.0 694.5 694.0	2	2/3/4			0.9'	Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	1								18	VIS.
692.0	4	2/3/3				Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	2								18	VIS.
689.5	6	2/3/3				Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	3	1	0	21	43	35	22	7	20	A-4a
686.5	8															
686.5	10	11/13/15			8.5'	Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS, and sand, trace silt, trace clay, moist	4								8	VIS.
684.0	12	17/18/21				Brown, dense, GRAVEL AND/OR STONE FRAGMENTS, and sand, trace silt, trace clay, with cobbles, moist	5	56	22	14	5	3	NP	NP	8	A-1-a
681.5	14	12/14/16			13.5'	Brown, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	6								15	VIS.
679.0	16	14/14/12				Brown, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	7								12	VIS.
676.5	18															
676.5	20	5/6/6			18.5'	Gray, stiff, SILT AND CLAY, trace sand, damp	8								18	VIS.
	22															
671.5	24	5/7/9			23.5'	Gray, very stiff, SANDY SILT, some clay, trace gravel, moist, till	9								12	VIS.
670.0					25.0'											
BOTTOM OF BORING																

LOG OF BORING																
Date Started <u>4/12/06</u>			Sampler: Type <u>SS</u> Dia. <u>1.375"</u>			Date Completed <u>4/12/06</u>			Casing: Length <u>25ft</u> Dia. <u>3.25"</u>			Water Elev. <u>680.8ft</u>				
Boring No. <u>NW-20</u>			Station & Offset <u>37+46.49, 156.05' Lt.</u>			Surface Elev. <u>699.3ft</u>										
Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
699.3	0					Topsoil (10")										
699.3 698.8 698.3	2	2/3/4			0.9'	Dark brown, medium stiff, SILT AND CLAY, trace sand, damp	1								17	VIS.
696.3	4	5/4/5			3.0'	Brown, stiff, SANDY SILT, some clay, little gravel, moist	2								21	VIS.
693.8	6	3/3/4				Brown, medium stiff, SANDY SILT, some clay, little gravel, moist	3	13	4	29	18	36	24	10	22	A-4a
690.8	8	3/3/4			8.0'	Brown with dark brown (rust) stains, medium stiff, SANDY SILT, little gravel, little clay, damp	4								12	VIS.
688.3	10	2/3/4			11.0'	Brown, loose, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, trace clay, moist	5								14	VIS.
685.8	14	10/11/12			13.5'	Gray, very stiff, SANDY SILT, and clay, moist	6	0	0	0	37	63	18	3	17	A-4a
683.3	16	7/9/9				Gray, very stiff, SANDY SILT, and clay, wet	7								21	VIS.
680.8	18	9/14/12			18.5'	Gray, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, wet	8								17	VIS.
	20				22.0'											
	22															
675.8	24	7/8/10				Gray, very stiff, SILT AND CLAY, trace sand, damp	9								21	VIS.
674.3					25.0'											
BOTTOM OF BORING																

LOG OF BORING

Date Started 4/12/06
Date Completed 4/12/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 684.0ft
Surface Elev. 695.0ft

Boring No. NW-19 Station & Offset 34+01.48, 150.11' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
695.0	0															
695.0 694.5 694.0		2/3/4			0.9'	Topsoil (10")										
	2					Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	1								18	VIS.
692.0		2/3/3				Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	2								18	VIS.
	4															
689.5	6	2/3/3				Brown, medium stiff, SANDY SILT, some clay, trace gravel, moist	3	1	0	21	43	35	22	7	20	A-4a
	8															
686.5		11/13/15			8.5'	Brown, medium dense, GRAVEL AND/OR STONE FRAGMENTS, and sand, trace silt, trace clay, moist	4								8	VIS.
	10															
684.0		17/18/21				Brown, dense, GRAVEL AND/OR STONE FRAGMENTS, and sand, trace silt, trace clay, with cobbles, moist	5	56	22	14	5	3	NP	NP	8	A-1-a
	12															
681.5	14	12/14/16			13.5'	Brown, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	6								15	VIS.
	16															
679.0		14/14/12				Brown, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	7								12	VIS.
	18															
676.5		5/6/6			18.5'	Gray, stiff, SILT AND CLAY, trace sand, damp	8								18	VIS.
	20															
	22															
671.5																
	24	5/7/9			23.5'	Gray, very stiff, SANDY SILT, some clay, trace gravel, moist, till	9								12	VIS.
670.0					25.0'											

BOTTOM OF BORING

LOG OF BORING

Date Started 4/12/06
Date Completed 4/12/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 680.8ft
Surface Elev. 699.3ft

Boring No. NW-20 Station & Offset 37+46.49, 156.05' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
699.3	0																
699.3 698.8 698.3		2/3/4			0.9'	Topsoil (10")											
	2					Dark brown, medium stiff, SILT AND CLAY, trace sand, damp	1									17	VIS.
696.3		5/4/5			3.0'												
	4					Brown, stiff, SANDY SILT, some clay, little gravel, moist	2									21	VIS.
693.8		3/3/4															
	6					Brown, medium stiff, SANDY SILT, some clay, little gravel, moist	3	13	4	29	18	36	24	10		22	A-4a
	8				8.0'												
690.8		3/3/4														12	VIS.
	10					Brown with dark brown (rust) stains, medium stiff, SANDY SILT, little gravel, little clay, damp	4										
688.3		2/3/4			11.0'												
	12					Brown, loose, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, trace clay, moist	5									14	VIS.
685.8		10/11/12			13.5'												
	14					Gray, very stiff, SANDY SILT, and clay, moist	6	0	0	0	37	63	18	3		17	A-4a
683.3		7/9/9															
	16					Gray, very stiff, SANDY SILT, and clay, wet	7									21	VIS.
	18				18.5'												
680.8		9/14/12														17	VIS.
	20					Gray, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, wet	8										
	22				22.0'												
675.8		7/8/10															
	24					Gray, very stiff, SILT AND CLAY, trace sand, damp	9									21	VIS.
674.3					25.0'												

BOTTOM OF BORING

LOG OF BORING

Date Started4/11/06

Sampler: TypeSSDia.1.375"

Date Completed4/11/06

Casing: Length25ftDia.3.25"

Boring No.NW-21

Station & Offset40+69.64, 162.93' Lt.

Water Elev.703.8ft

Surface Elev.719.8ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
719.8	0					Topsoil (6")											
719.3		2/3/3			0.5'	Brown, medium stiff, SANDY SILT, some clay, damp	1								20	VIS.	
716.8	2																
	4	4/5/6				Brown, stiff, SANDY SILT, some clay, damp	2	0	0	40	31	29	NP	NP	13	A-4a	
714.3	6																
	8	5/6/7				Brown, stiff, SANDY SILT, some clay, damp	3								17	VIS.	
711.3	10				8.5'												
	12	4/5/5				Gray, stiff, SANDY SILT, and clay, damp	4								14	VIS.	
708.8	14																
	16	3/4/4				Gray, medium stiff, SANDY SILT, and clay, wet	5	0	0	0	41	59	20	5	21	A-4a	
706.3	18																
	20	4/4/5				Gray, stiff, SANDY SILT, and clay, wet	6								21	VIS.	
703.8	22				16.0'												
	24	2/3/4				Gray, medium stiff, SILT, some sand, trace clay, wet	7								25	VIS.	
701.3	26																
	28	2/3/3					8									NO REC.	
696.3	30				23.5'												
	32	7/7/9				Gray, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	9								15	VIS.	
694.8	34				25.0'												
BOTTOM OF BORING																	

LOG OF BORING

Date Started4/12/06

Sampler: TypeSSDia.1.375"

Date Completed4/12/06

Casing: Length25ftDia.3.25"

Boring No.NW-22

Station & Offset44+04.88, 171.18' Lt.

Water Elev.Dry

Surface Elev.735.6ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class	
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.		
735.6	0					Topsoil (8")											
734.8		3/4/5			0.7'	Brown, stiff, SILT AND CLAY, some sand, damp	1								29	VIS.	
732.6	2																
	4	5/7/9			3.0'	Brown, very stiff, SILT AND CLAY, some sand, trace gravel, damp, possible till	2								11	VIS.	
730.1	6																
	8	10/12/14					3									NO REC.	
727.1	10																
	12	14/15/16				Brown, hard, SILT AND CLAY, some sand, trace gravel, damp, possible till	4	8	6	26	28	32	27	14	7	A-6a	
724.6	14																
	16	9/12/15				Brown, very stiff, SILT AND CLAY, some sand, trace gravel, damp, possible till	5								8	VIS.	
722.1	18																
	20	15/16/16			13.5'	Gray, hard, SANDY SILT, little gravel, little clay, damp, till	6								8	VIS.	
719.6	22																
	24	12/14/16				Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	7								7	VIS.	
717.1	26																
	28	15/18/21			18.5'	Brown, dense, COARSE AND FINE SAND, little gravel, trace silt, trace clay, damp	8								3	VIS.	
712.1	30																
	32	9/6/10			22.0'												
710.6	34				25.0'	Gray, very stiff, SILT AND CLAY, trace sand, damp	9								17	VIS.	
BOTTOM OF BORING																	

CTI ENGINEERING, INC.
1451 S.R. 28 BLDG. B-NORTH
LOVELAND, OHIO 45140
PHONE: 513-722-8665 FAX: 513-722-8669

DATE05-04-06

REVIEWEDMP

DRAWNVJ

DESIGNEDCHECKED

STRUCTURE FOUNDATION INVESTIGATION
NOISE WALL

WAR-75-3.40

27/28

LOG OF BORING

Date Started 4/11/06
Date Completed 4/11/06

Sampler: Type SS Dia. 1.375"
Casing: Length 25ft Dia. 3.25"

Water Elev. 703.8ft
Surface Elev. 719.8ft

Boring No. NW-21 Station & Offset 40+69.64, 162.93' Lt.

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class		
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
719.8	0																
719.8		2/3/3			0.5'	Topsoil (6")											
719.3						Brown, medium stiff, SANDY SILT, some clay, damp	1									20	VIS.
	2																
716.8		4/5/6				Brown, stiff, SANDY SILT, some clay, damp	2	0	0	40	31	29	NP	NP	13	A-4a	
	4																
714.3		5/6/7				Brown, stiff, SANDY SILT, some clay, damp	3									17	VIS.
	6																
	8																
711.3		4/5/5			8.5'	Gray, stiff, SANDY SILT, and clay, damp	4									14	VIS.
	10																
708.8		3/4/4				Gray, medium stiff, SANDY SILT, and clay, wet	5	0	0	0	41	59	20	5	21	A-4a	
	12																
706.3		4/4/5				Gray, stiff, SANDY SILT, and clay, wet	6									21	VIS.
	14																
703.8	16	2/3/4			16.0'												
	18																
701.3		2/3/3					8										NO REC.
	20																
	22																
696.3		7/7/9			23.5'												
	24																
694.8					25.0'	Gray, medium dense, COARSE AND FINE SAND, trace gravel, trace silt, trace clay, moist	9									15	VIS.

BOTTOM OF BORING

LOG OF BORING

Date Started 4/12/06

Date Completed 4/12/06

Sampler: Type SS Dia. 1.375"

Casing: Length 25ft Dia. 3.25"

Water Elev. Dry

Surface Elev. 735.6ft

Boring No. NW-22

Station & Offset 44+04.88, 171.18' Lt.[illegible]

BOTTOM OF BORING

LOG OF BORING																
Date Started		4/12/06		Sampler: Type		SS		Dia.		1.375"						
Date Completed		4/12/06		Casing: Length		25ft		Dia.		3.25"						
Boring No.		NW-23		Station & Offset		47+45.34, 176.64' Lt.		Water Elev.		Dry						
								Surface Elev.		738.1ft						
Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class
								% Aqg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
738.1	0					Topsoil (9")										
738.1 737.6 737.2		3/4/5			0.8'	Brown, stiff, SANDY SILT, little gravel, trace clay, damp, possible till	1								14	VIS.
	2															
735.1		7/8/9			3.0'	Brown, very stiff, SANDY SILT, some clay, trace gravel, damp, till	2								10	VIS.
	4															
732.6		7/7/10				Brown, very stiff, SANDY SILT, some clay, trace gravel, damp, till	3	8	12	23	25	32	16	5	10	A-4a
	6															
	8															
729.6		18/19/24			8.5'	Brown, hard, SANDY SILT, some clay, trace gravel, with cobbles, damp, till	4								7	VIS.
	10															
727.1		25/50-6"				Brown, hard, SANDY SILT, some clay, trace gravel, with cobbles, damp, till	5								7	VIS.
	12															
724.6		20/22/30			13.5'	Gray, hard, SANDY SILT, little gravel, little clay, damp, till	6								7	VIS.
	14															
722.1		15/16/19				Gray, hard, SANDY SILT, little gravel, little clay, damp, till	7								8	VIS.
	16															
719.6		7/8/8			18.5'	Gray, very stiff, SANDY SILT, little gravel, little clay, damp, till	8								9	VIS.
	18															
	20															
	22				22.0'											
714.6		8/6/8				Gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, trace clay, damp	9								10	VIS.
713.1					25.0'	BOTTOM OF BORING										

INTRODUCTION

THIS PROJECT IS LOCATED IN WARREN COUNTY, OHIO AND INVOLVES THE WIDENING OF INTERSTATE 75 (IR 75) INTO THE EXISTING MEDIAN AND THE RECONFIGURATION OF THE STATE ROUTE 122 (SR 122) INTERCHANGE WITH IR 75. THE PROJECT BEGINS APPROXIMATELY 0.70 MILE SOUTH OF SR 122 INTERCHANGE AND CONTINUES NORTHWARD TO THE WARREN COUNTY-MONTGOMERY COUNTY LINE FOR AN OVERALL LENGTH OF APPROXIMATELY 8.80 MILES. THE WIDENING OF IR 75 AND RECONFIGURATION OF THE SR 122 INTERCHANGE WILL REQUIRE THE REPLACEMENT AND/OR REHABILITATION OF SEVENTEEN BRIDGES/STRUCTURES ALONG IR 75 AND SR 122. THE PROJECT ALSO INCLUDES THE CONSTRUCTION OF NOISE WALLS AT THREE LOCATIONS ALONG SOUTHBOUND IR 75.

IN ADDITION TO THE NEW AND WIDENED STRUCTURES, THE PROJECT WILL ALSO INCLUDE THE RECONFIGURATION OF THE SR 122/IR 75 INTERCHANGE. THE RECONFIGURATION OF THE SR 122/IR 75 INTERCHANGE INCLUDES NEW AND WIDENED ROADWAYS FOR THE EXIT AND ENTRANCE RAMPS AND ALSO THE WIDENING OF SR 122. THIS WORK WILL REQUIRE THE CONSTRUCTION OF FIVE RETAINING WALLS ALONG RAMPS C, D, AND E AND ALSO ALONG THE SOUTH SIDE OF SR 122, EAST AND WEST OF IR 75. THE SUSBURFACE INFORMATION FOR THE RETAINING WALLS ARE PRESENTED ON THE FOLLOWING SHEETS.

GEOLOGY OF THE SITE

THE PROJECT SITE LIES WITHIN THE SOUTHERN OHIO LOAMY TILL PLAIN. THE OVERBURDEN SOILS IN THIS REGION ARE FORMED PRIMARILY IN WISCONSIN-AGE GLACIAL TILLS AND GROUND MORAINES. THESE GLACIAL SOILS CONSIST OF UNSTRATIFIED LAYERS OF INTERMIXED CLAY, SILT, SAND, AND GRAVEL WHOSE COMPOSITION VARIES BOTH Laterally and vertically. In addition, a buried valley of glacial outwash consisting of sand and gravel interbedded with glacial till is located where IR 75 crosses Clear Creek. The soil overburden is underlain by Ordovician-age sedimentary rock consisting of interbedded shale and limestone.

MAPPING OF THE BEDROCK TOPOGRAPHY INDICATES THE ELEVATION OF THE ROCK SURFACE RANGES FROM ABOUT 725 FEET MSL AT THE SOUTHERN LIMIT OF THE PROJECT CORRIDOR AND CONTINUES TO RISE TO ABOUT 925 FEET MSL AT THE NORTHERN LIMIT. THE EXCEPTION IS WHERE SHAKER ROAD CROSSES IR 75, SOUTH OF THE IR 75/SR 123 INTERCHANGE, WHERE THE ROCK SURFACE BEGINS TO FALL IN ELEVATION FROM ABOUT 800 FEET MSL TO ABOUT 550 FEET MSL AT CLEAR CREEK. THE DEPTH TO ROCK IS LESS THAN 20 FEET AT THE SOUTHERN END OF THE PROJECT NEAR THE NORTH BRANCH OF DICKS CREEK. THE THICKNESS OF THE SOIL OVERBURDEN INCREASES AS THE PROJECT CONTINUES NORTHWARD FROM THE NORTH BRANCH DICKS CREEK TO WHERE IT REACHES ITS MAXIMUM THICKNESS ON THE ORDER OF 150 FEET AT CLEAR CREEK.

EXPLORATION

A TOTAL OF TWENTY-ONE STRUCTURE TEST BORINGS WERE DRILLED FOR FIVE RETAINING WALLS (RW-1 THROUGH RW-21) IN THIS PROJECT DURING MARCH 2006. FOUR TEST BORINGS (RW-1 THROUGH RW-4) WERE DRILLED FOR RETAINING WALL #1 ALONG RAMP E, FROM APPROXIMATE STATION 201+50 TO 207+50. FIVE TEST BORINGS WERE DRILLED FOR RETAINING WALL #2 (RW-5 THROUGH RW-9) ALONG THE SOUTH SIDE OF SR 122, EAST OF THE INTERCHANGE, FROM APPROXIMATE STATION 24+25 TO 30+50. RETAINING WALL #3 HAD THREE TEST BORINGS (RW-10 THROUGH RW-12) DRILLED ALONG THE SOUTH SIDE OF SR 122, EAST OF THE INTERCHANGE, FROM APPROXIMATE STATION 47+30 TO 50+16. FIVE TEST BORINGS WERE DRILLED FOR RETAINING WALL #4 (RW-13 THROUGH RW-17), NORTH OF SR 122, BETWEEN THE EAST SIDE OF RAMP "D" AND THE WEST SIDE OF NEW RAMP "C", FROM APPROXIMATE STATION 220+50 TO 226+50. RETAINING WALL #5 HAD FOUR TEST BORINGS (RW-18 THROUGH RW-21) DRILLED ALONG THE EAST SIDE OF RAMP "C" FROM APPROXIMATE STATION 223+50 TO 228+50. THE TEST BORINGS WERE DRILLED AT THE APPROXIMATE STATIONS AND OFFSETS INDICATED ON THE ATTACHED SHEETS.

INVESTIGATION FINDINGS AND OBSERVATIONS

THE GENERAL SUBSURFACE CONDITIONS AT EACH OF THE RETAINING WALLS ARE DISCUSSED SEPARATELY IN THE FOLLOWING PARAGRAPHS. REFER TO THE TEST BORING RECORD SHEETS FOR SPECIFIC DETAILS OF THE SURFACE COVER AND SUBSURFACE CONDITIONS AT THE TEST BORING LOCATIONS.

RETAINING WALL #1

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS SANDY SILT, SILT AND CLAY, AND SILTY CLAY. THESE SOILS WERE CLASSIFIED AS A-4A, A-6A, A-6B, ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. BEDROCK CONSISTING OF GRAY SHALE WITH INTERBEDDED LIMESTONE LAYERS WAS ENCOUNTERED IN ALL FOUR TEST BORINGS DEPTHS RANGING FROM 7.5 TO 8.0 FEET BELOW TH EGROUND SURFACE. AUGER REFUSAL WAS NOT ENCOUNTERED IN THE TEST BORINGS. GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS RW-3 AT A DEPTH OF 12 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

RETAINING WALL #2

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL, COARSE AND FINE SAND, SANDY SILT, SILT AND CLAY, SILTY CLAY, AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1A, A-3A, A-4A, A-6A, A-6B, OR A-7-6 ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. BEDROCK WAS NOT ENCOUNTERED IN THESE TEST BORINGS. AUGER REFUSAL WAS NOT ENCOUNTERED IN THE TEST BORINGS. GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS RW-5, RW-6, AND RW-7 AND RW-10 AT DEPTHS RANGING FROM 36 TO 48 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

RETAINING WALL #3

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL, GRAVEL WITH SAND, GRAVEL WITH SAND AND SILT, SANDY SILT, SILT, SILT AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1A, A-1B, A-2-4, A-4A, A-4B, A-6A ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. FILL MATERIAL WAS ENCOUNTERED IN TEST BORINGS IN RW-11 AND RW-12 AT DEPTHS OF 13.5 AND 8.5 FEET BELOW THE GROUND SURFACE, REPSECTIVELY. BEDROCK WAS ENCOUNTERED IN THE TEST BORINGS RW-11 AND RW-12 AT DEPTHS OF 29 AND 25 FEET BELOW THE GROUND SURFACE. AUGER REFUSAL WAS ENCOUNTERED IN TEST BORING RW-10 AT A DEPTH OF 28.5 FEET BELOW THE GROUND SURFACE. GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS RW-10 AT A DEPTH OF 16 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

RETAINING WALL #4

THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL, GRAVEL WITH SAND, COARSE AND FINE SAND, SANDY SILT, SILT, SILT AND CLAY, AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1A, A-1B, A-3A, A-4A, A-4B, A-6A, A-6B, OR A-7-6 ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. FILL MATERIAL WAS ENCOUNTERED IN TEST BORINGS RW-13, RW-14, RW-15 AND RW-17 AT DEPTHS RANGING FROM 11 TO 28.5 FEET BELOW THE GROUND SURFACE. BEDROCK WAS NOT ENCOUNTERED IN THESE TEST BORINGS. AUGER REFUSAL WAS NOT ENCOUNTERED IN THE TEST BORINGS. GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS RW-13, RW-14, RW-15 AND RW-17 AT DEPTHS RANGING FROM 33.5 TO 46 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

RETAINING WALL #5






THE BORINGS GENERALLY ENCOUNTERED SOILS DESCRIBED AS GRAVEL, COARSE AND FINE SAND, SANDY SILT, SILTY CLAY, AND CLAY. THESE SOILS WERE CLASSIFIED AS A-1A, A-1B, A-2-4, A-2-6, A-3A, A-4A, A-6B, OR A-7-6 ACCORDING TO THE ODOT SOIL CLASSIFICATION SYSTEM. BEDROCK WAS ENCOUNTERED IN TEST BORING RW-20 AT A DEPTH 48.5 FEET. AUGER REFUSAL WAS NOT ENCOUNTERED IN THE TEST BORINGS. GROUNDWATER WAS ENCOUNTERED IN TEST BORINGS RW-18 THROUGH RW-20 AT DEPTHS RANGING FROM 8.5 TO 16 FEET BELOW THE GROUND SURFACE AT THE TIME OF DRILLING.

STRUCTURE FOUNDATION INVESTIGATION RETAINING WALL	DATE	CTI ENGINEERING, INC. 1451 S.R. 28 BLDG. B-NORTH LOVELAND, OHIO 45140 PHONE: 513-722-8665 FAX: 513-722-8669
	REVIEWED MP	FILE NUMBER
WAR-75-3.40	DRAWN VJ	REVISD
	DESIGNED	CHECKED
1 / 27		

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO



SYMBOLS OF ROCK TYPES

	<i>Coal</i>		<i>Weathered Siltstone</i>
	<i>Fire Clay or Underclay</i>		<i>Siltstone</i>
	<i>Weathered Mudstone</i>		<i>Weathered Sandstone</i>
	<i>Mudstone</i>		<i>Sandstone</i>
	<i>Weathered Shale</i>		<i>Leached Dolomite</i>
	<i>Shale</i>		<i>Dolomite</i>
	<i>Weathered Clay-Shale</i>		<i>Leached Limestone</i>
	<i>Clay-Shale</i>		<i>Limestone</i>
	<i>Boulders or Cobbles</i>		

PARTICLE SIZE DEFINITIONS

	300 mm	75 mm	2.0 mm	0.42 mm	0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

LEGEND

	AUGER BORING LOCATION
	PRESS SAMPLE, DRIVE SAMPLE, AND/OR CORE BORING LOCATION
TR	TOP OF ROCK
W ———	INDICATES FREE WATER ELEVATION
▼ ———	INDICATES STATIC WATER ELEVATION
⊢	HORIZONTAL BAR ON BORING INDICATES THE DEPTH THE SAMPLE WAS TAKEN - PROFILE VIEW
FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST	
X = NUMBER OF BLOWS FOR FIRST 6 INCHES	
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES	
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES	

GENERAL INFORMATION

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILL RIG EMPLOYING A 2 INCH O.D., 1-3/8" I.D. SPLIT SPOON SAMPLING DEVICE, AT 2-1/2 AND/OR 5 FOOT DEPTH INTERVALS, DRIVEN BY MEANS OF A 140 lb. HAMMER WITH A FREE FALL OF 30 INCHES. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLING DEVICE THREE 6 INCH INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY POWERED ROTARY-TYPE DRILLING MACHINE, EMPLOYING A 3 INCH O.D. THIN WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOUS UNIFORM PRESSURE APPLIED BY THE DRILLING MACHINE.

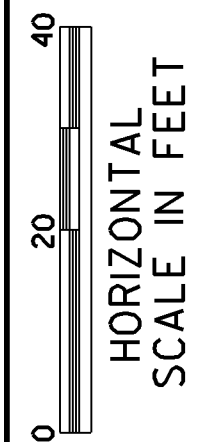
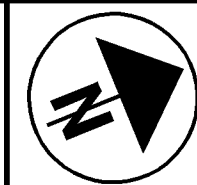
CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED, ROTARY-TYPE DRILLING MACHINE, EMPLOYING AN NQ CORE BARREL WITH AN INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS DISPLAY A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, THE STANDARD PENETRATION TEST READINGS IN THREE 6 INCH INCREMENTS, DEPTH AND ELEVATION OF PRESS SAMPLES, FIELD NUMBER ASSIGNED TO SAMPLE, SAMPLE DESCRIPTION-BASED ON LABORATORY TESTS UTILIZING GRADATION, PLASTICITY AND MOISTURE CONTENT DETERMINATIONS. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, WILL APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY AND A VISUAL CLASSIFICATION BASED ON TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING ACID REACTION AND OTHER QUALIFYING FACTORS.

AT DEPTHS WHERE MATERIALS ARE BOULDERY OR GRAVELLY TO THE EXTENT THAT A SAMPLER CANNOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTICS OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

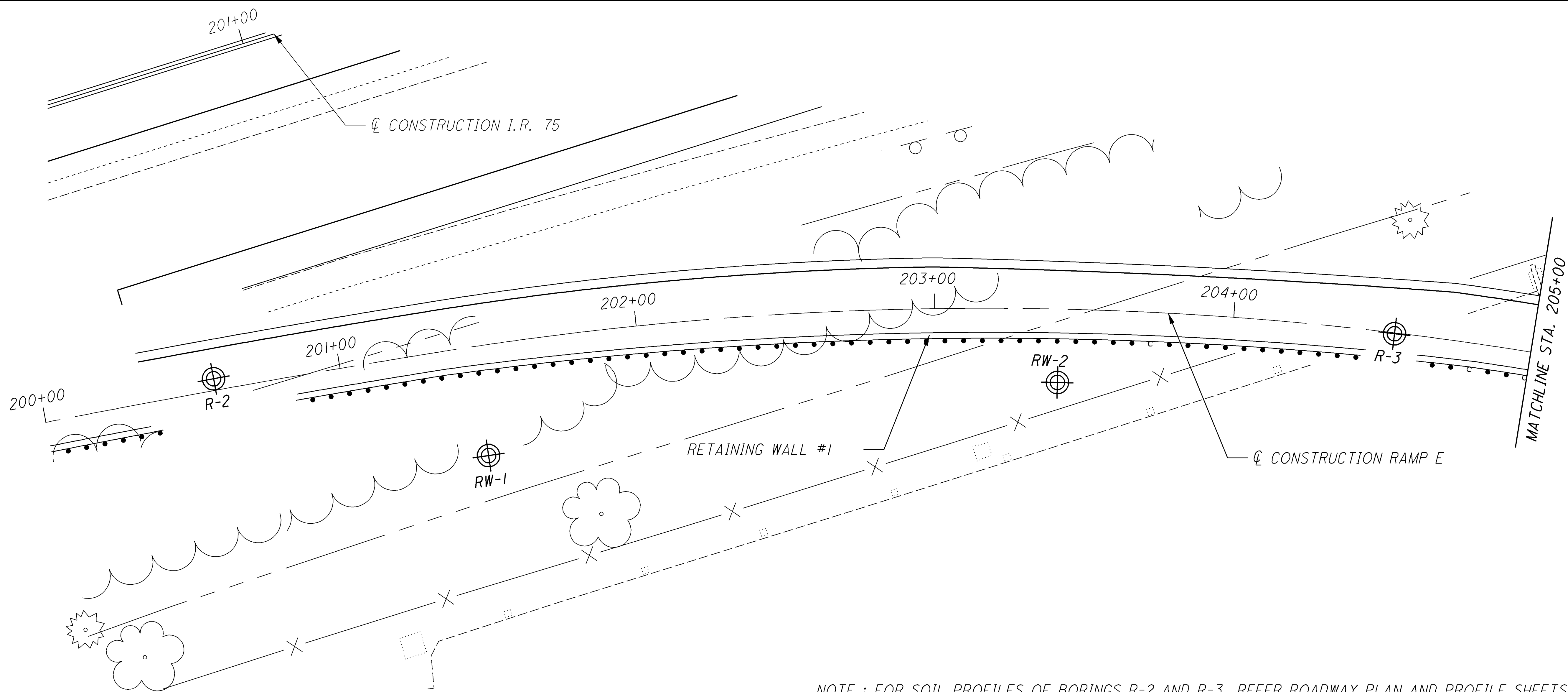


DESIGNED	DRAWN	REVIEWED	DATE
CHECKED	C.N.	MP	08/31/06
	REVISED	STRUCTURE FILE NUMBER	

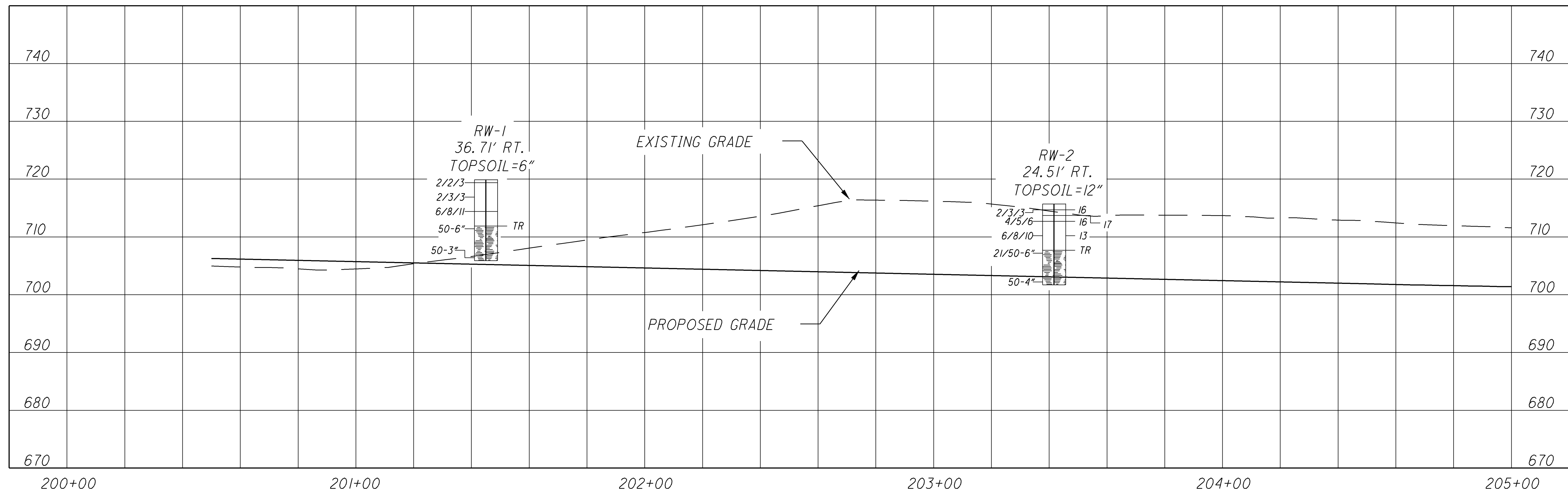
STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 1
S.R. 122 RAMP E

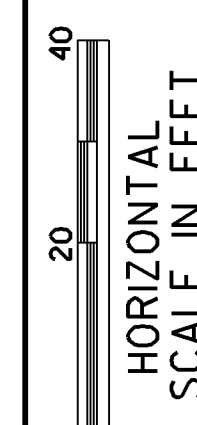
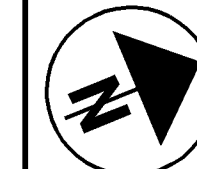
WAR-75-3.40

3/27



NOTE : FOR SOIL PROFILES OF BORINGS R-2 AND R-3, REFER ROADWAY PLAN AND PROFILE SHEETS



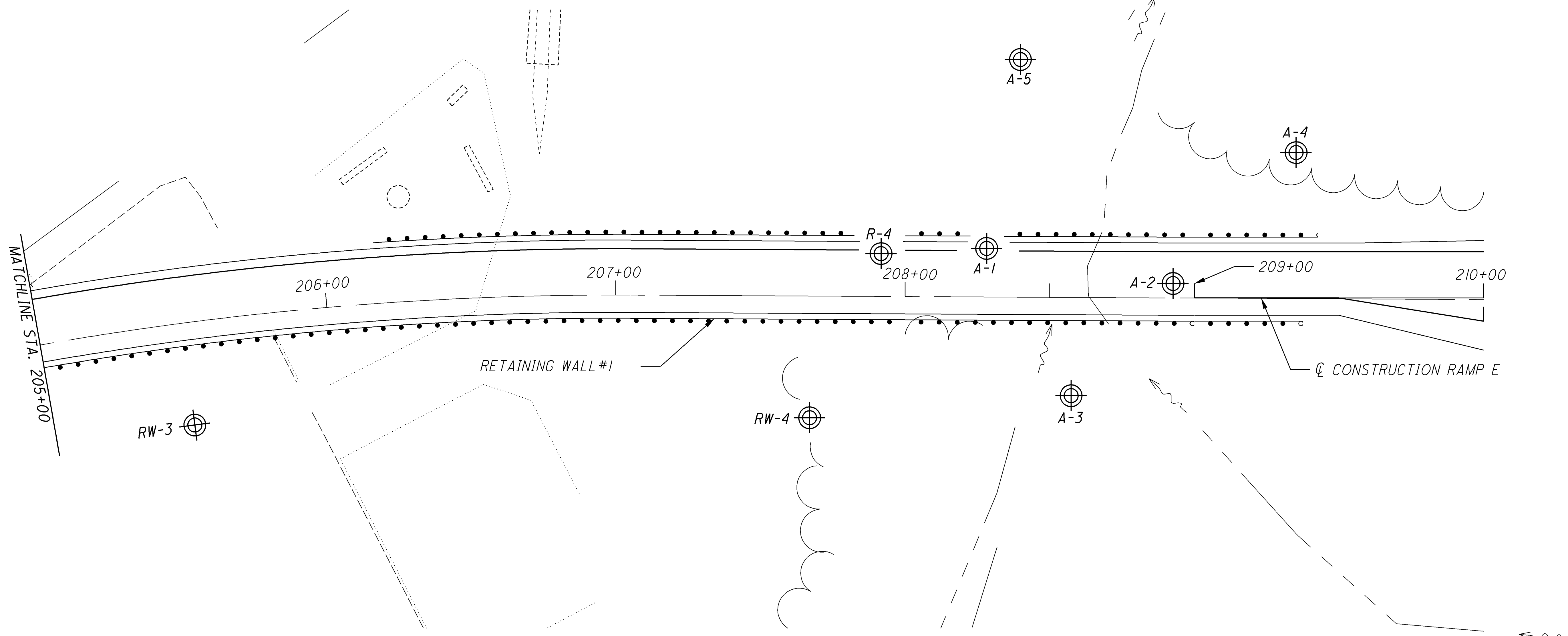


DATE	08/31/06
REVIEWED	MP
DRAWN	C.N.
DESIGNED	CHECKED
STRUCTURE FILE NUMBER	

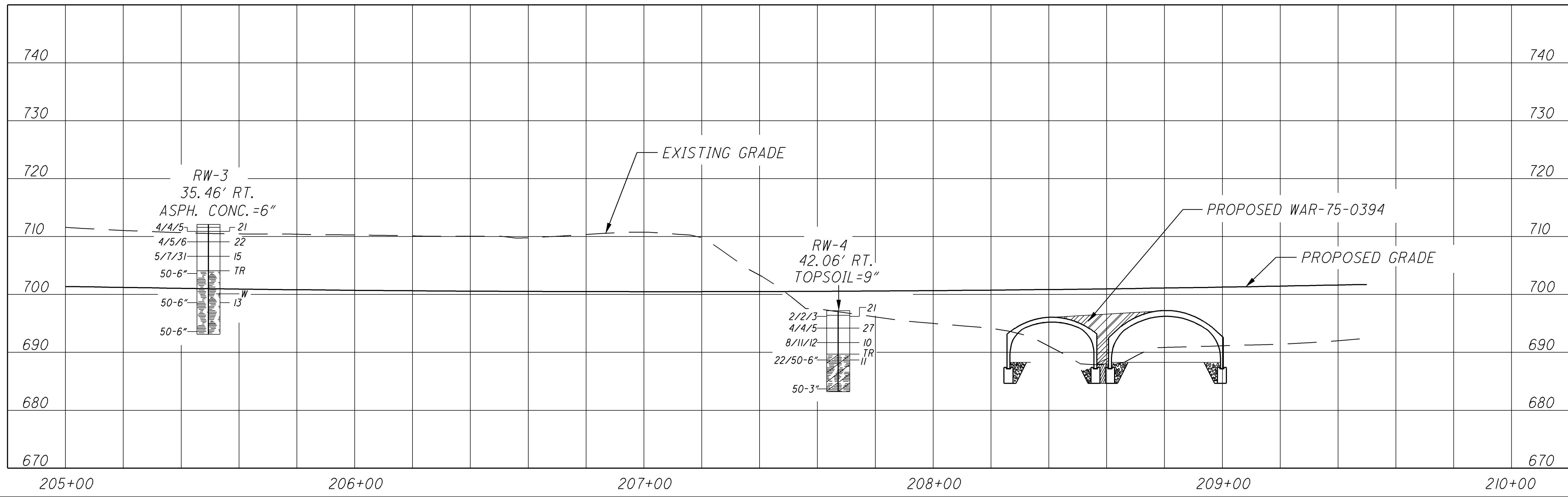
STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 1
S.R. 122 RAMP E

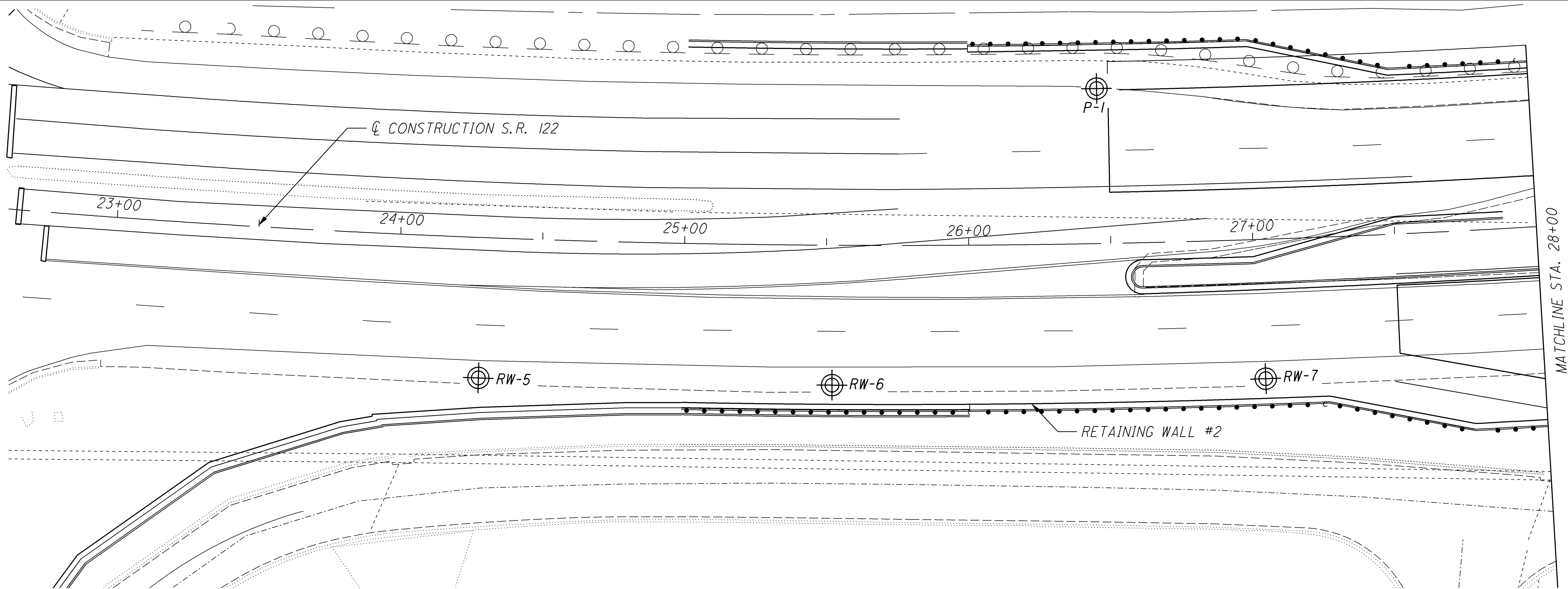
WAR-75-3.40

4 / 27

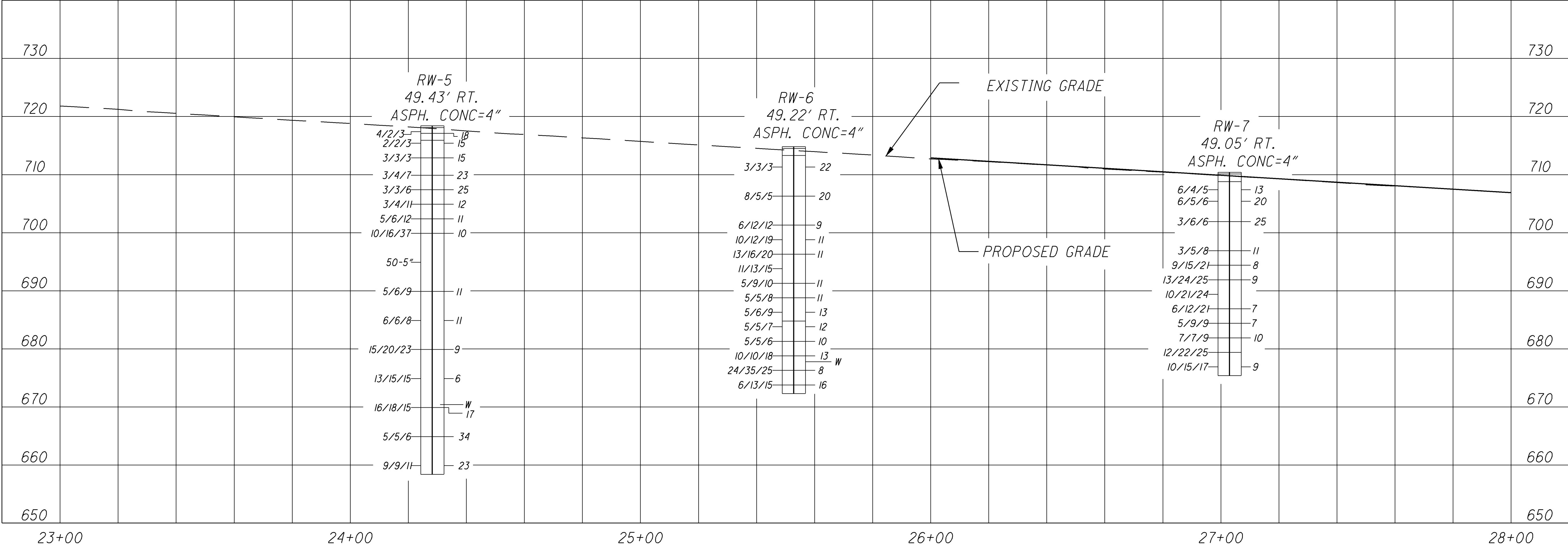


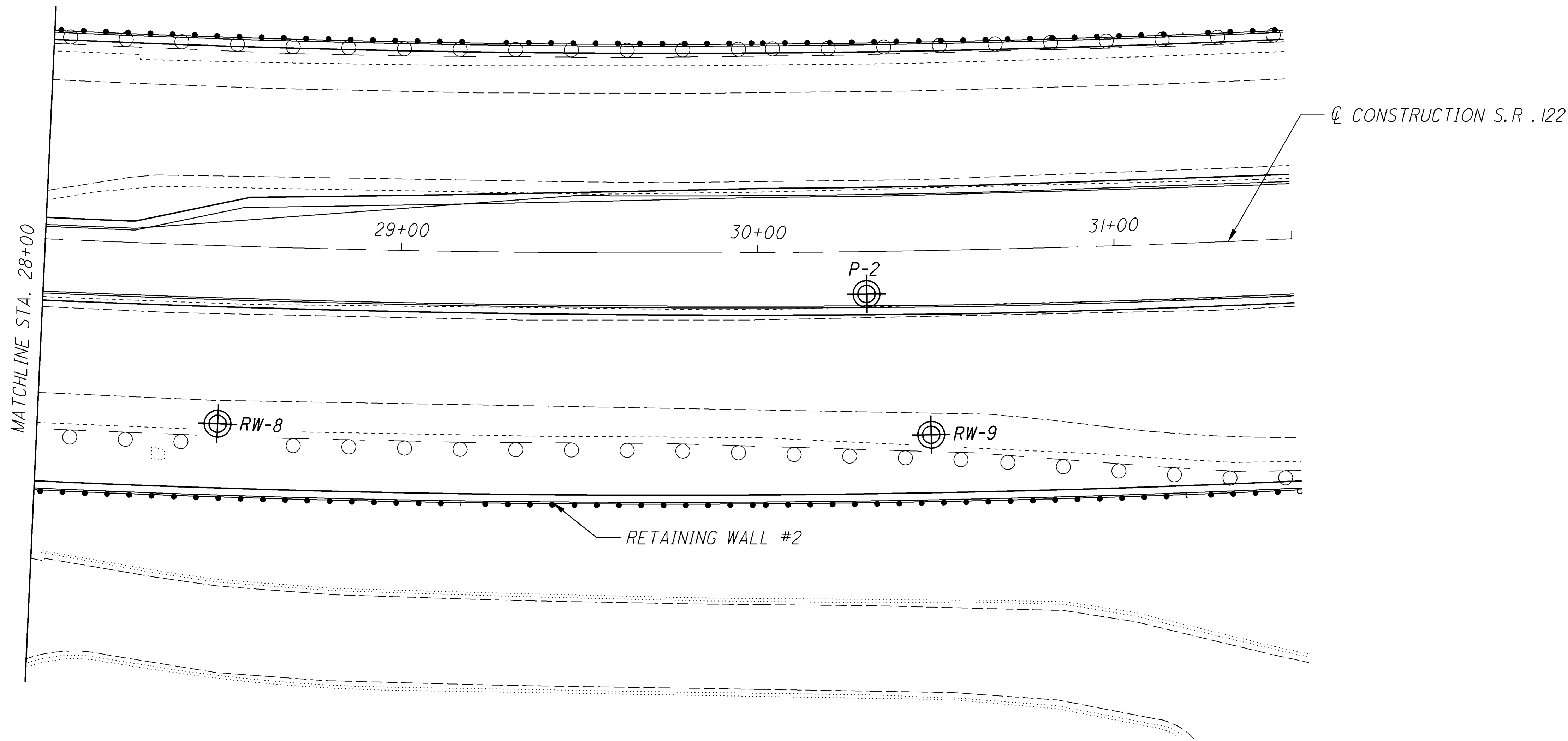
NOTE : FOR SOIL PROFILES OF BORINGS A-1 THROUGH A-5, REFER TO STRUCTURE INVESTIGATION SHEETS
NOTE : FOR SOIL PROFILE OF BORING R-4, REFER TO ROADWAY PLAN AND PROFILE SHEETS



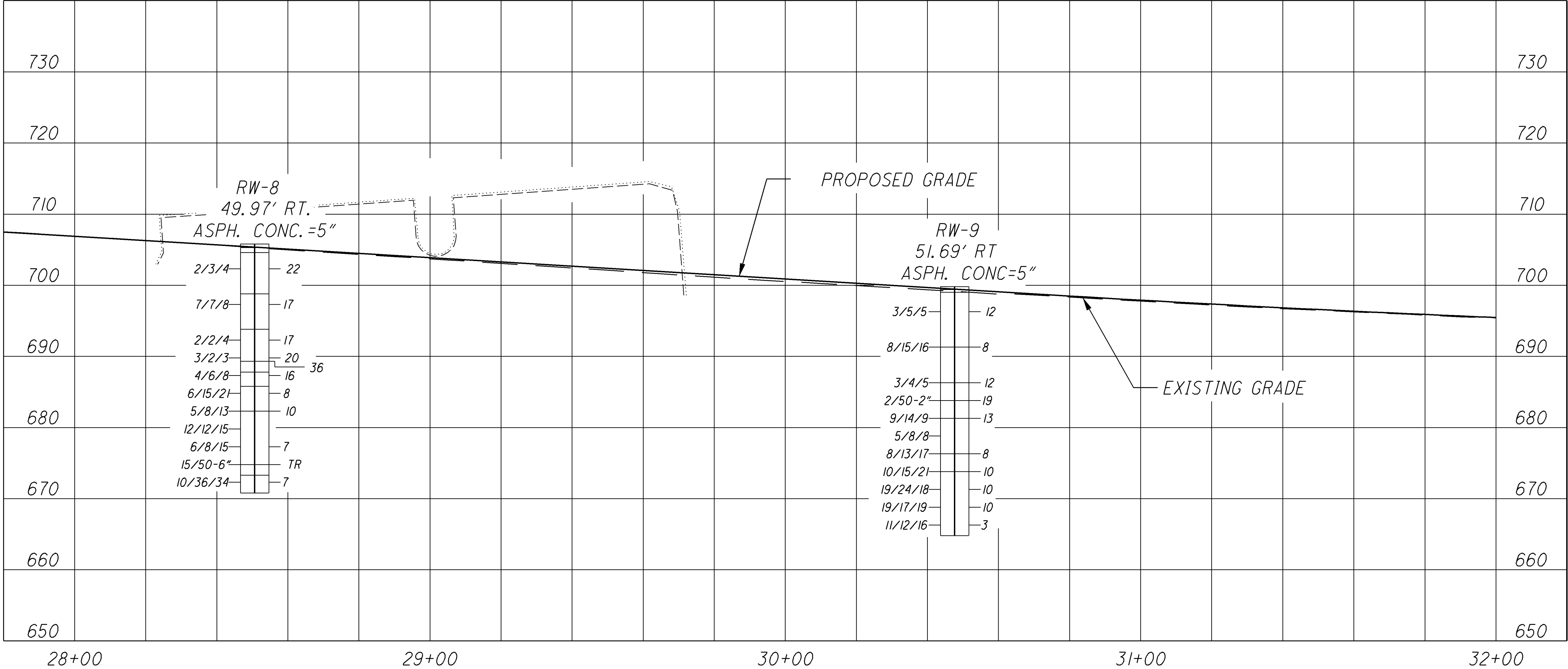


NOTE : FOR SOIL PROFILE OF BORING P-1, REFER TO ROADWAY PLAN AND PROFILE SHEETS





NOTE : FOR SOIL PROFILE OF BORING P-2 REFER TO ROADWAY PLAN AND PROFILE SHEETS



0 20 40

HORIZONTAL
SCALE IN FEET

DESIGNED

CHECKED

DRAWN
C.N.

REVIEWED
NT

DATE
08/31/06

STRUCTURE FILE NUMBER

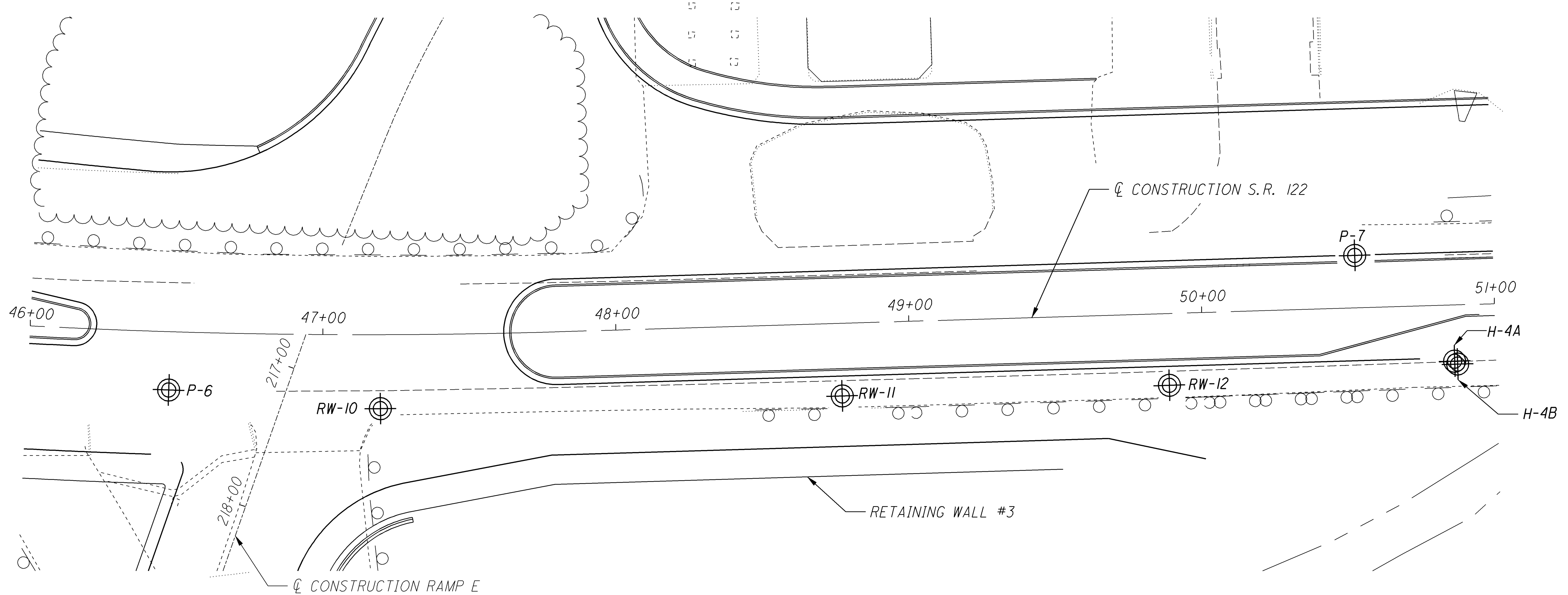
STRUCTURE FOUNDATION INVESTIGATION

RETAINING WALL NO. 2

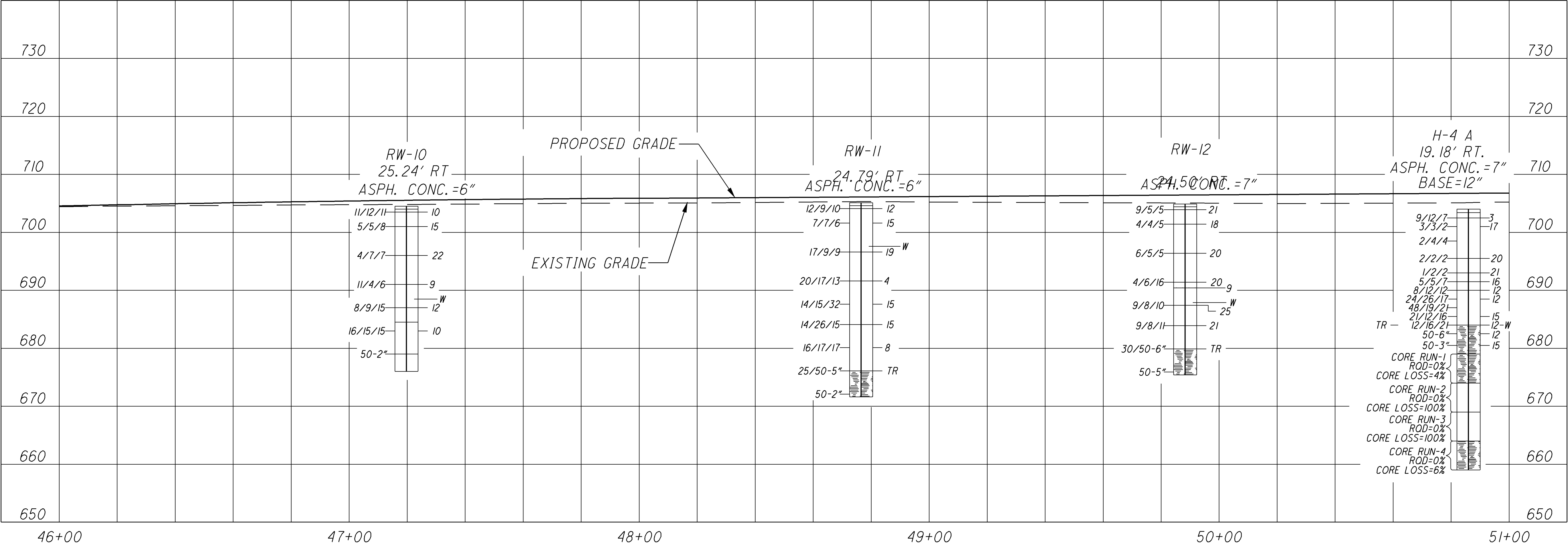
S.R. 122 EASTBOUND AT CULBERTSON ROAD

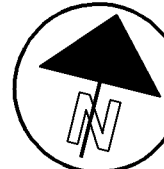
WAR-75-3.40

6 27



NOTE : FOR SOIL PROFILES OF BORINGS P-6 AND P-7, REFER TO ROADWAY PLAN AND PROFILE SHEETS





02040

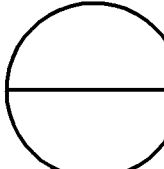
HORIZONTAL
SCALE IN FEET

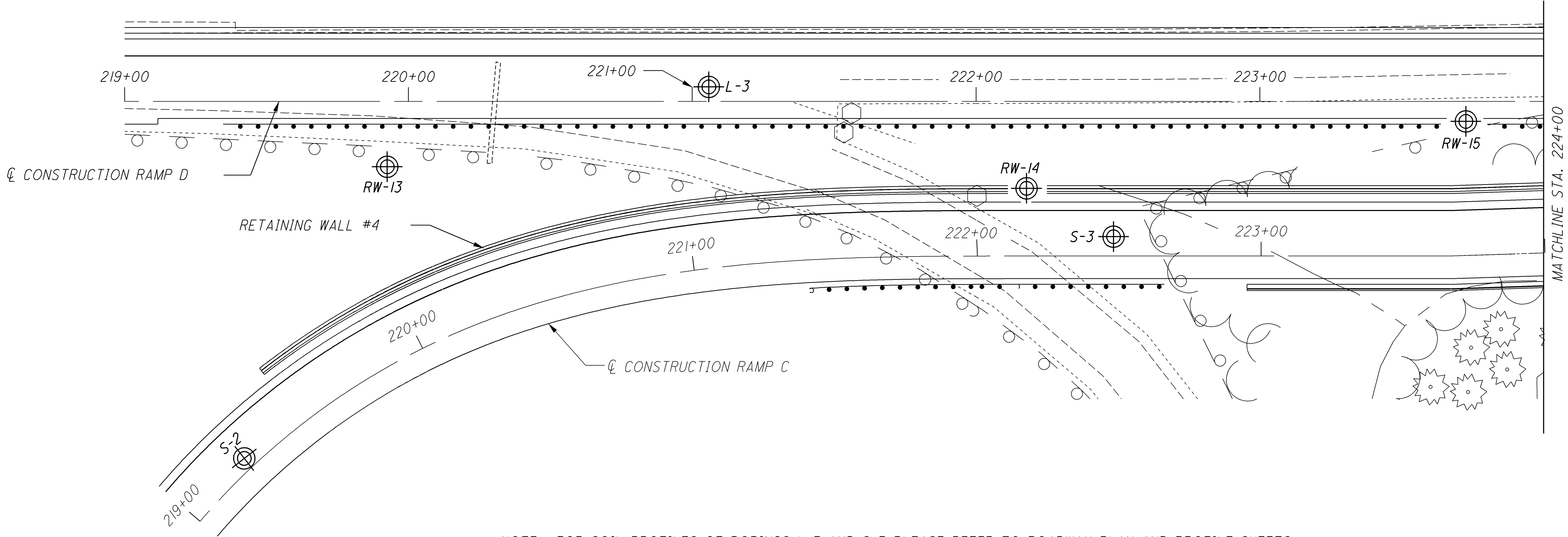
DATE	08/31/06
REVIEWED	NT
DRAWN	C.N.
DESIGNED	CHECKED
STRUCTURE FILE NUMBER	

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 3
S.R. 122 EASTBOUND AT DICKS CREEK

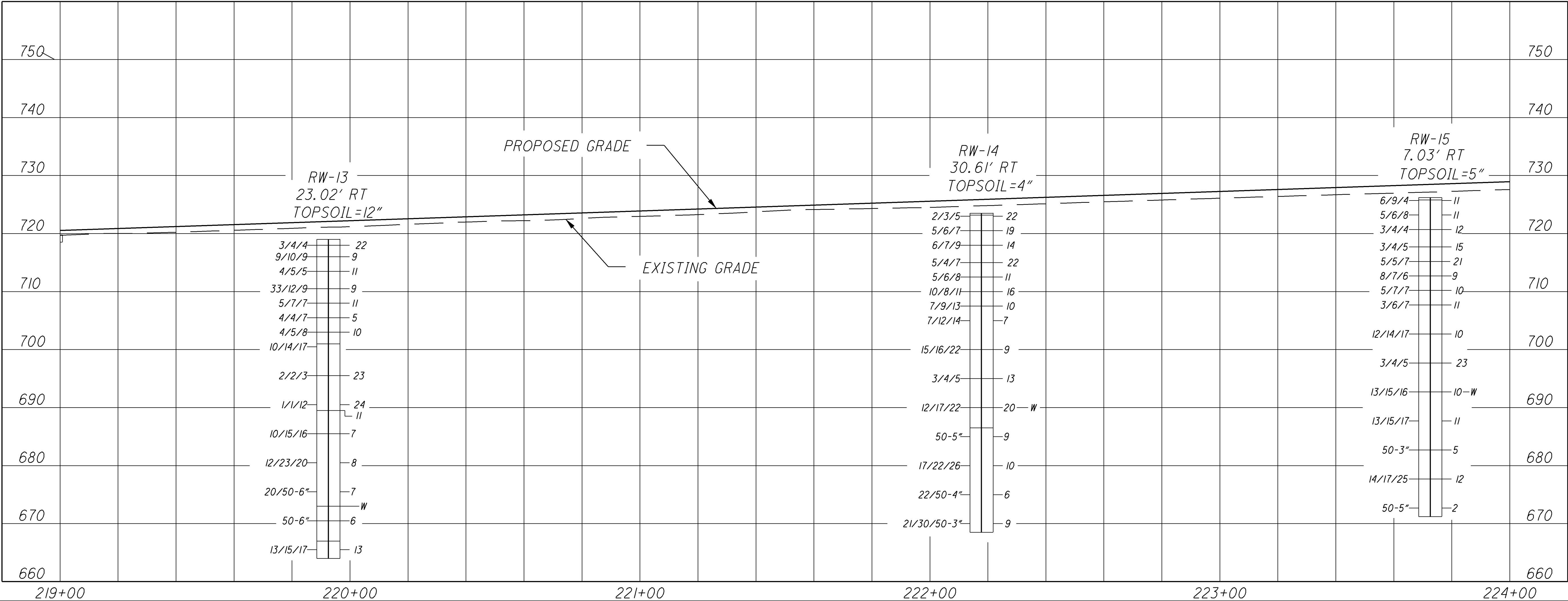
WAR-75-3.40

7/27





NOTE : FOR SOIL PROFILES OF BORINGS L-3 AND S-3 PLEASE REFER TO ROADWAY PLAN AND PROFILE SHEETS



DATE	08/31/06
REVIEWED	MP
DRAWN	C.N.
DESIGNED	CHECKED

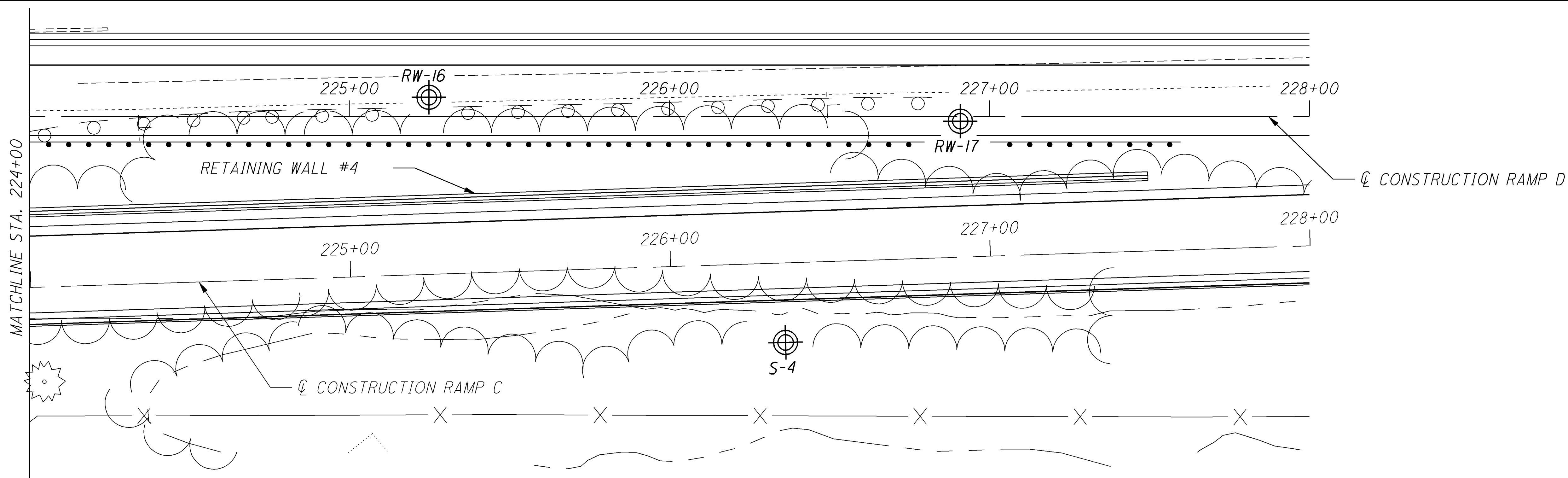
STRUCTURE FOUNDATION INVESTIGATION

RETAINING WALL NO. 4

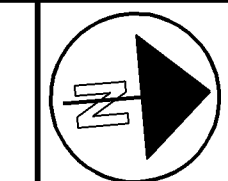
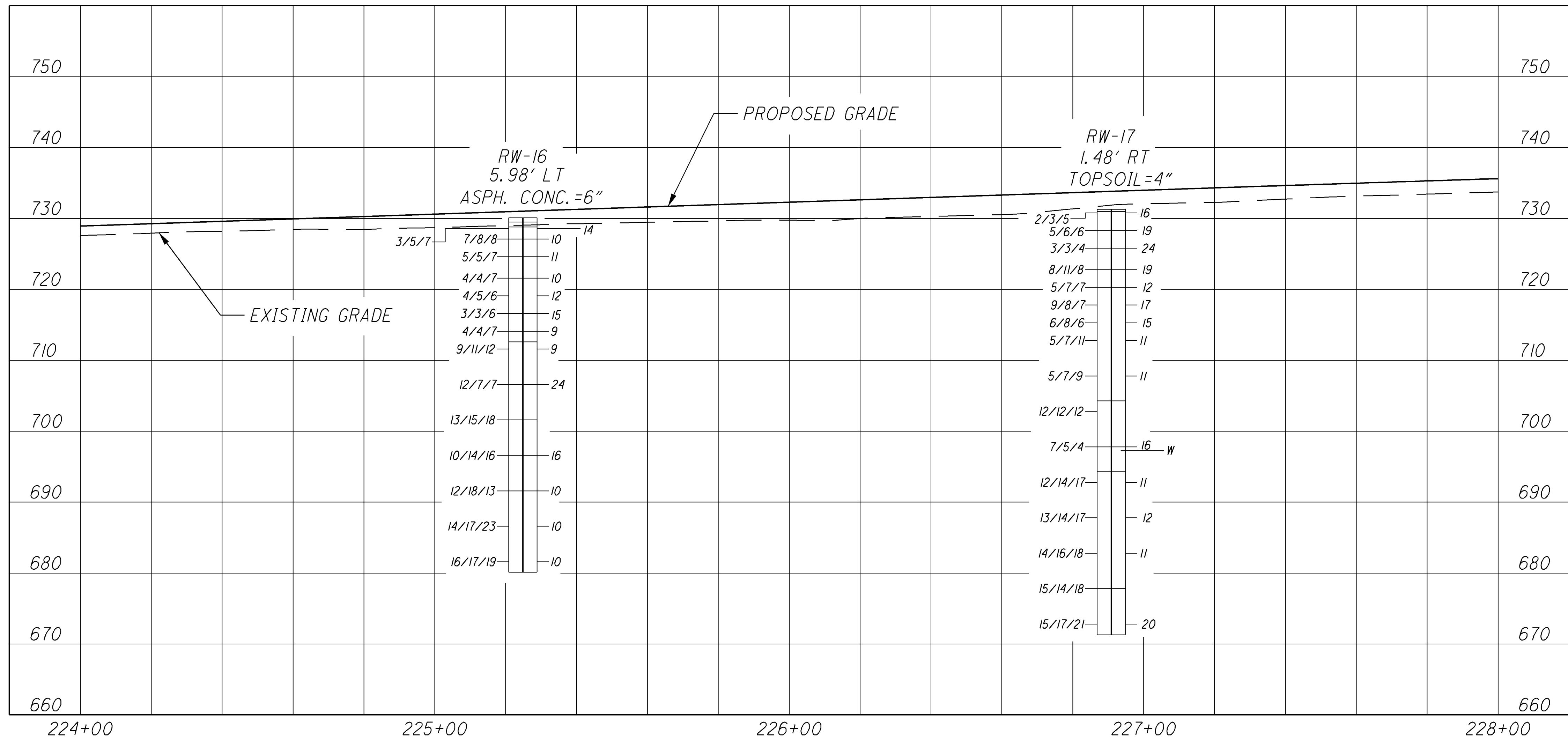
S.R. 122 RAMP D

WAR-75-3.40

8 / 27



NOTE : FOR SOIL PROFILE OF BORING S-4 PLEASE REFER TO SHEET 10 OF 27



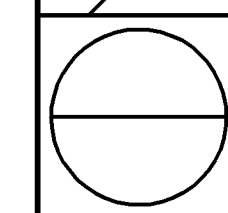
0 20 40
HORIZONTAL
SCALE IN FEET

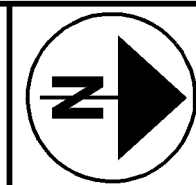
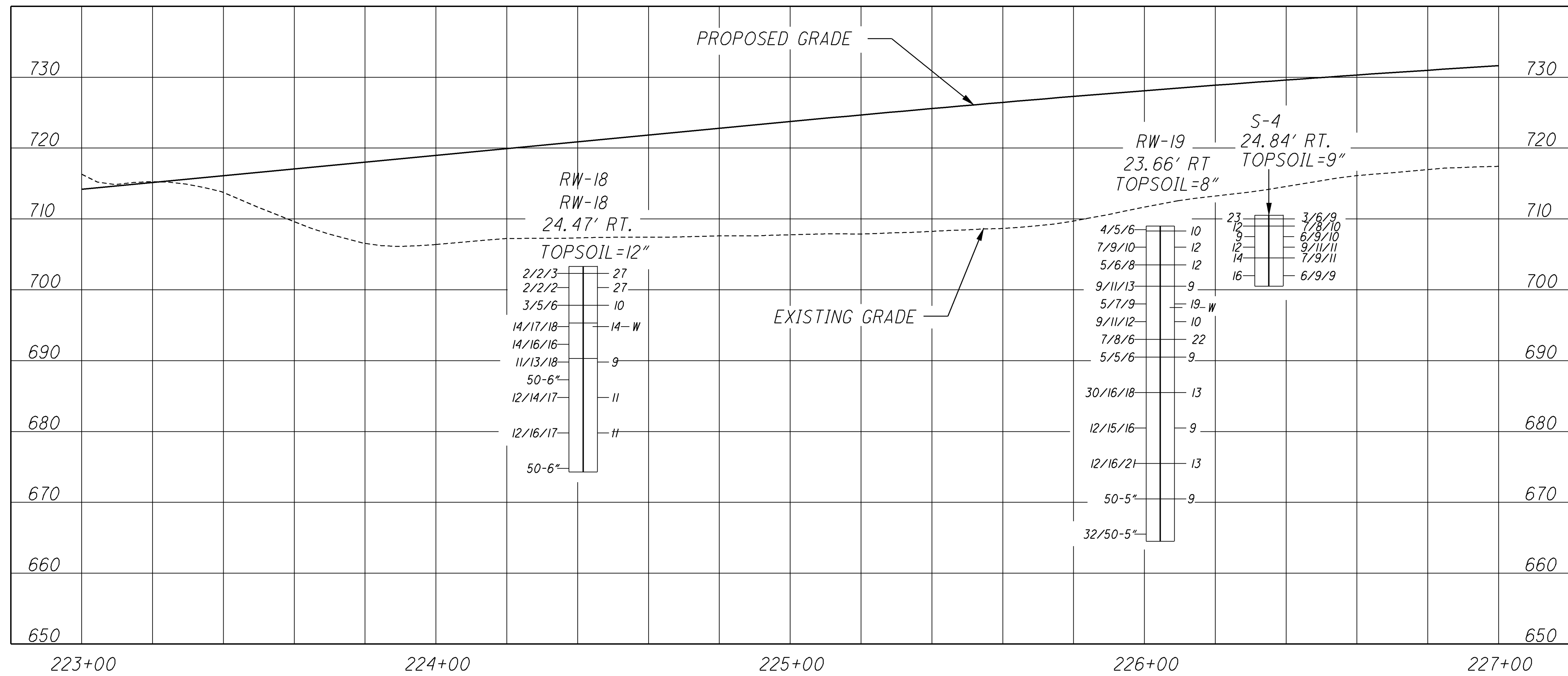
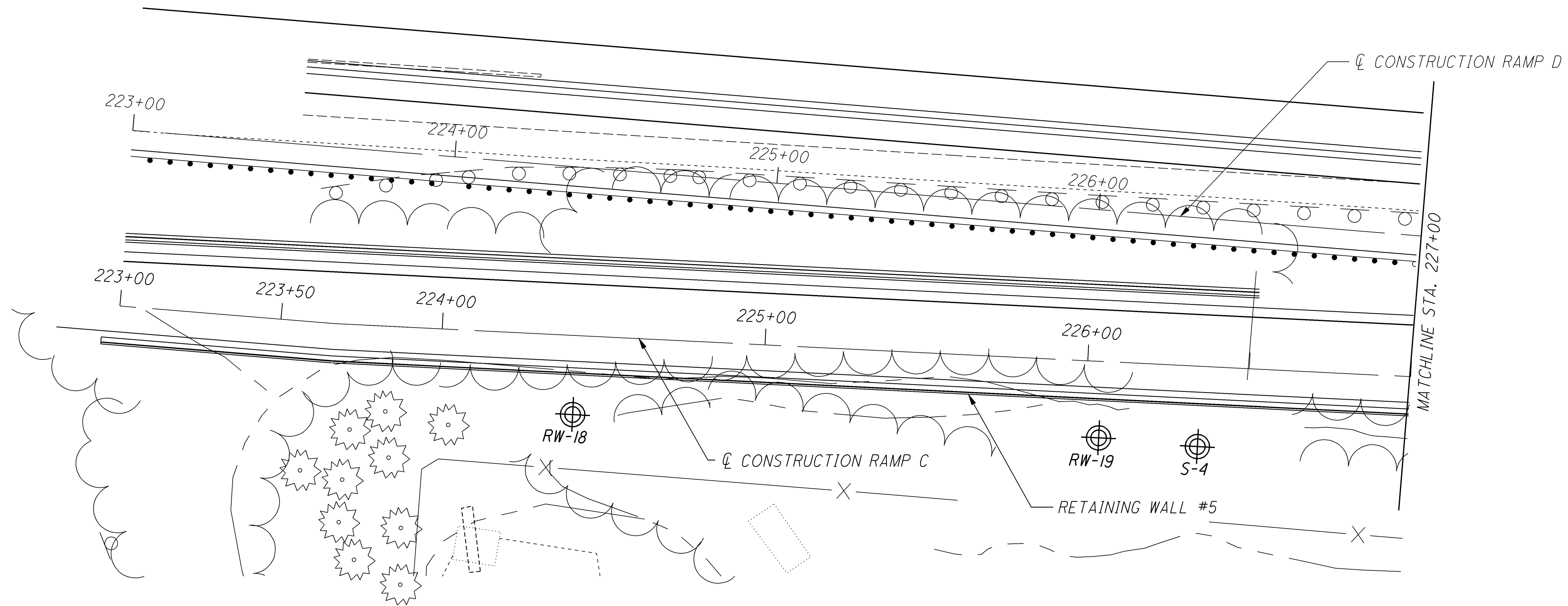
DATE
08/31/06
REVIEWED
MP
STRUCTURE FILE NUMBER
DRAWN
C.N.
REVIS
DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 4
S.R. 122 RAMP D

WAR-75-3.40

9/27





0 20 40
HORIZONTAL
SCALE IN FEET

DATE
08/31/06

REVIEWED
MP
STRUCTURE FILE NUMBER

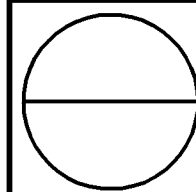
DRAWN
C.N.
REVISED

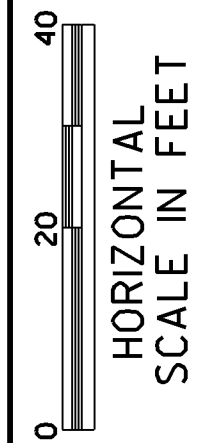
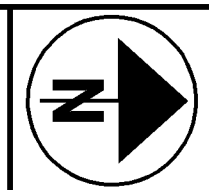
DESIGNED
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 5
S.R. 122 RAMP C

WAR-75-3.40

10 27



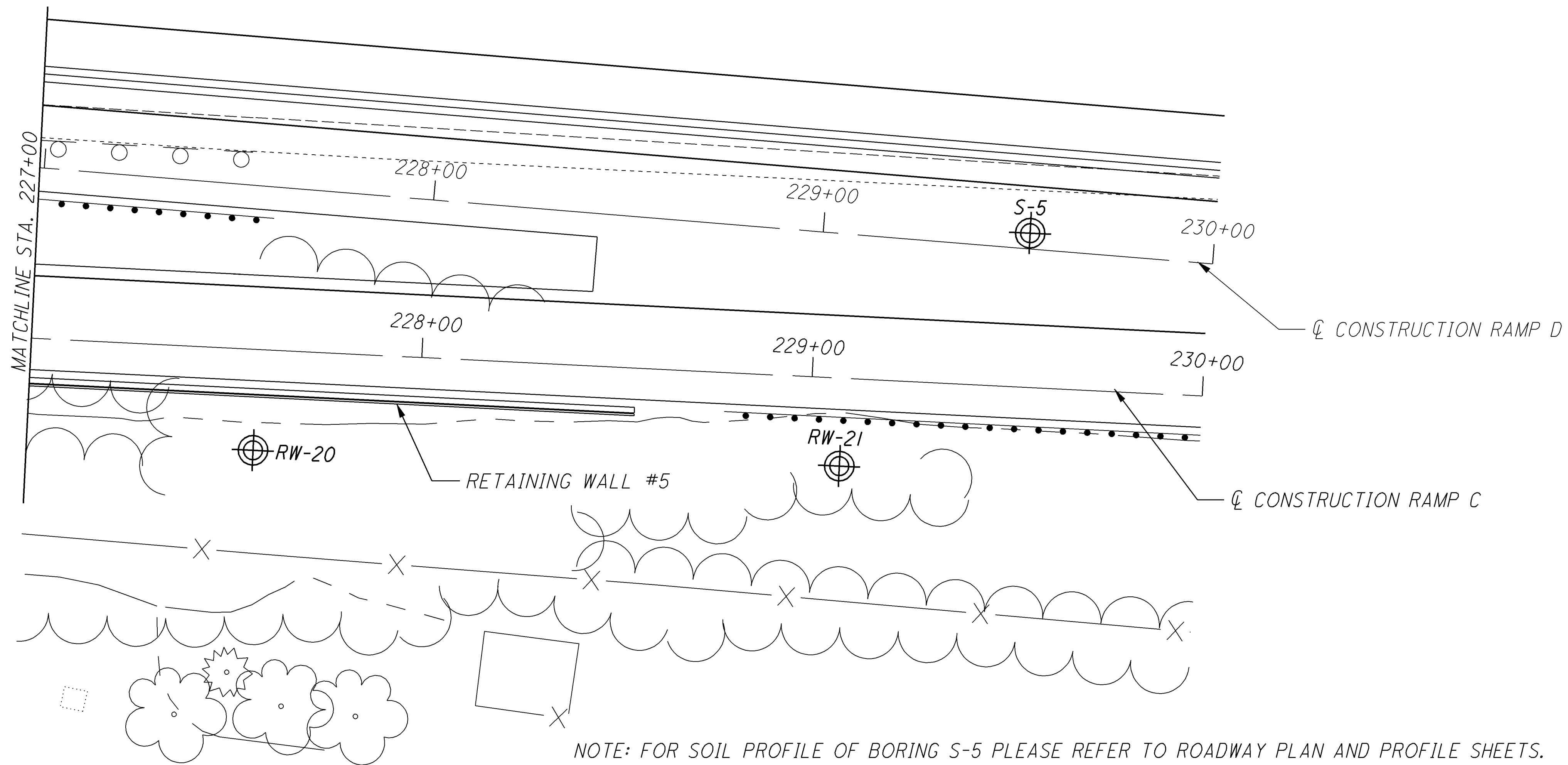
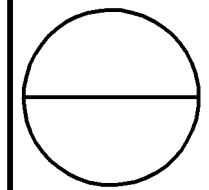


DATE	08/31/06
REVIEWED	MP
DRAWN	C.N.
DESIGNED	CHECKED
STRUCTURE FILE NUMBER	

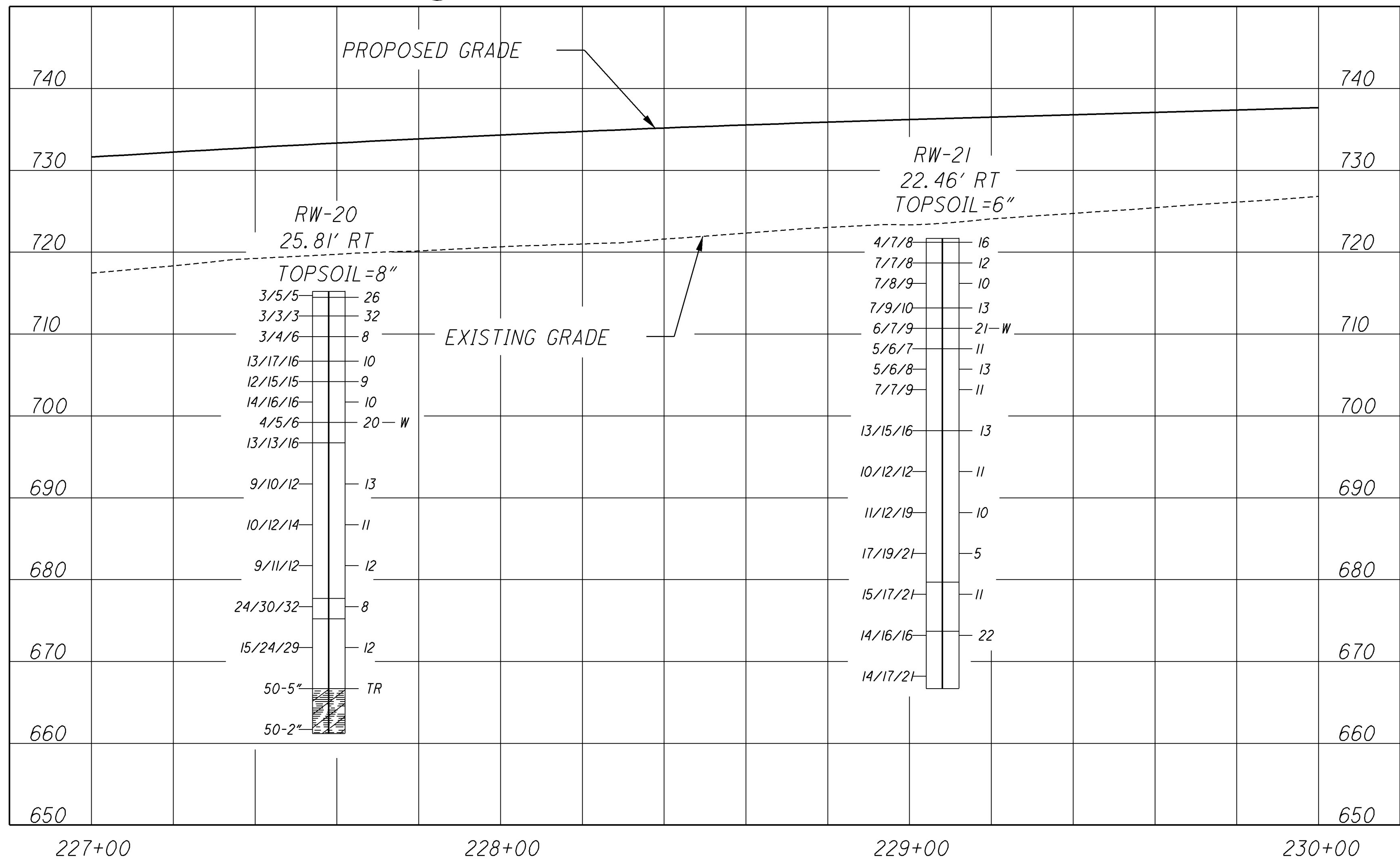
STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL NO. 5
S.R. 122 RAMP C

WAR-75-3.40

11/27



NOTE: FOR SOIL PROFILE OF BORING S-5 PLEASE REFER TO ROADWAY PLAN AND PROFILE SHEETS.



Date Started3/7/06

Sampler: TypeSSDia.1.375"

Date Completed3/7/06

Casing: Length14ftDia.3.25"

Boring No.RW- 1

Station & Offset201+45.04, 36.71'Rt.

Water Elev.Dry

Surface Elev.719.9ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
719.9	0															
719.9		2/2/3			0.5'	Topsoil (6")										
719.4						Brown, medium stiff, SILT AND CLAY, trace sand, damp, possible fill	1	0	0	5	48	47	38	12		A-6a
	2															
716.9		2/3/3					2									NO REC.
	4															
714.4		6/8/11			5.5'											
	6					Brown, very stiff, SANDY SILT, trace gravel, and clay, with cobbles, damp	3	0	1	30	25	44	24	10		A-4a
711.9	8				8.0'											
711.4		50-6"				SHALE, gray, with limestone layers, augered	4									VIS.
	10															
	12															
706.4																
705.9	14	50-3"			14.0'		5									NO REC.

BOTTOM OF BORING

Date Started3/7/06

Sampler: TypeSSDia.1.375"

Date Completed3/7/06

Casing: Length14ftDia.3.25"

Boring No.RW- 2

Station & Offset203+41.69, 24.51' Rt.

Water Elev.Dry

Surface Elev.715.7ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics								ODOT Class			
								% Agg	% C.S.	% F. S.	% Silt	% Clay	L.L.	P.I.	W.C.				
715.7	0	2/3/3			1.0'	Topsoil (12 inches)													
715.7						1A									16	VIS.			
714.7							Brown, medium stiff, SANDY SILT, little gravel, little sand, damp, possible fill												
713.7	2	4/5/6			2.0'	Brown and dark brown, medium stiff, SILT AND CLAY, little sand, damp	1B						42	22	17	VIS.			
712.7						2	Brown, stiff, SANDY SILT, little gravel, some clay, moist, till		14	11	19	27	29	17	4	16	A-4a		
	4																		
710.2		6/8/10			3.0'	Brown, very stiff, SANDY SILT, little gravel, some clay, moist, till	3									13	VIS.		
	6																		
707.7	8	21/50-6"			8.0'	SHALE, gray, with limestone layers, augered	4										VIS.		
707.2																			
	10																		
		50-4"			14.0'														
	12																		
702.2		50-4"			14.0'														
701.7	14																		

BOTTOM OF BORING

LOG OF BORING

Date Started 3/7/06

Sampler: Type SS Dia. 1.375"

Date Completed 3/7/06

Casing: Length 14ft Dia. 3.25"

Water Elev. Dry

Boring No. RW- 1

Station & Offset 201+45.04, 36.71'Rt.

Surface Elev. 719.9ft

[illegible]

LOG OF BORING

Date Started 3/7/06
Date Completed 3/7/06

Sampler: Type SS Dia. 1.375"
Casing: Length 14ft Dia. 3.25"

Boring No. RW- 2

Station & Offset 203+41.69, 24.51' Rt.

Water Elev. Dry
Surface Elev. 715.7ft

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)		Description	Sample No.	Physical Characteristics							ODOT Class	
								% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.
715.7	0					Topsoil (12 inches)										
715.7		2/3/3			1.0'	Brown, medium stiff, SANDY SILT, little gravel, little sand, damp, possible fill	1A								16	VIS.
714.7					2.0'	Brown and dark brown, medium stiff, SILT AND CLAY, little sand, damp	1B						42	22	17	VIS.
713.7	2	4/5/6			3.0'	Brown, stiff, SANDY SILT, little gravel, some clay, moist, till	2	14	11	19	27	29	17	4	16	A-4a
712.7																
	4	6/8/10				Brown, very stiff, SANDY SILT, little gravel, some clay, moist, till	3								13	VIS.
710.2																
	6															
707.7	8	21/50-6"			8.0'	SHALE, gray, with limestone layers, augered	4									VIS.
707.2																
	10															
	12	50-4"														
702.2																
701.7	14				14.0'		5									VIS.

BOTTOM OF BORING

Date Started 3/7/06
Date Completed 3/7/06

Sampler: Type SS Dia. 1.375"
Casing: Length 19ft Dia. 3.25"

Boring No. RW- 3
Station & Offset 205+49.46, 35.46' Rt.

Water Elev. 700.1ft
Surface Elev. 712.1ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)			Description	Sample No.	Physical Characteristics								ODOT Class
									% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
712.1	0					0.5'	Asphalt concrete (6")										
711.6						1.2'	Crushed stone base (8 inches)										
710.9		4/4/5					Brown, stiff, SILT AND CLAY, trace gravel, little sand, moist, possible fill	1								21	VIS.
709.1	2					3.0'											
708.6		4/5/6					Brown, stiff, SILT AND CLAY, trace gravel, some sand, moist, till	2	5	7	18	36	34	30	12	22	A-6a
706.6	4					5.5'											
	6	5/7/31					Brown and gray, hard, SANDY SILT, little gravel, some clay, damp	3	11	9	19	32	29	26	6	15	A-4a
704.1	8					8.0'											
703.6		50-6"					SHALE, gray, with limestone layers, augered	4									VIS.
	10																
	12																
698.6	14	50-6"						5								13	VIS.
	16																
	18																
693.6		50-6"				19.0'		6									VIS.
693.1							BOTTOM OF BORING										

Date Started 3/7/06
Date Completed 3/7/06

Sampler: Type SS Dia. 1.375"
Casing: Length 14ft Dia. 3.25"

Boring No. RW- 4
Station & Offset 207+67.20, 42.06' Rt.

Water Elev. Dry
Surface Elev. 697.2ft

Elev. (ft)	Depth (ft)	Std. Pen. ROD	Rec. (ft)	Loss (ft)			Description	Sample No.	Physical Characteristics								ODOT Class
									% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
697.2	0						Topsoil (9 inches)										
696.4		2/2/3			0.8'		Dark brown, medium stiff, SILTY CLAY, trace gravel, little sand, with root hairs, moist, fill	1								21	VIS.
696.2	2																
694.2		4/4/5			3.0'		Dark brown and black, stiff, SILTY CLAY, trace gravel, little sand, with root hairs, moist, fill	2	5	4	13	32	46	40	17	27	A-6b
691.7	4																
689.7	6	8/11/12			5.5'		Brown and gray, medium dense, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, damp, possible fill	3	51	12	10	15	12			10	A-2-4
688.7	8				7.5'		SHALE, gray, with limestone layers, augered	4								11	VIS.
683.7	10																
683.2	12																
683.2	14	50-3"			14.0'			5									NO REC.
BOTTOM OF BORING																	

