

FHWA REGION	STATE	PROJECT	DATE
	OHIO	PROPOSED RETAINING WALLS ALONG STATE ROUTE 174	11-5-93

LAKE COUNTY LAK-174

GENERAL INFORMATION

INTRODUCTION

THIS REPORT SUMMARIZES THE RESULTS OF SUBSURFACE EXPLORATION STUDIES CONDUCTED IN CONNECTION WITH THREE RETAINING WALLS, DESIGNATED AS STATION NOS. 43 + 39, 38 + 13 AND 33 + 01, PROPOSED TO BE CONSTRUCTED ALONG STATE ROUTE #174 IN THE CITY OF WILLOUGHBY, LAKE COUNTY, OHIO.

SITE GEOLOGY

LAKE COUNTY OCCUPIES PARTS OF TWO PHYSIOGRAPHIC PROVINCES: THE GLACIATED ALLEGHENY PLATEAU OF THE APPALACHIAN PLATEAUS PROVINCE IN THE SOUTH AND THE EASTERN LAKE SECTION OF THE CENTRAL LOWLAND PROVINCE IN THE NORTH. THE BEDROCK IS DEVONIAN OR MISSISSIPPIAN IN AGE, AND CONSISTS PRIMARILY OF SHALES AND SANDSTONES. THE OVERBURDEN SOILS ARE GLACIAL IN ORIGIN, INVOLVING GROUND MORRAINE DEPOSITS IN THE SOUTH AND LAKE DEPOSITS IN THE NORTH. THE DRIFT IS OF WISCONSINIAN AGE.

EXPLORATION

STRUCTURAL TEST BORINGS WERE ADVANCED BY ROTARY-DRIVE DRILLING PROCEDURES EMPLOYING 6.0-INCH O.D., 3.25-INCH I.D. HOLLOW STEM CONTINUOUS FLIGHT AUGERS. REPRESENTATIVE SAMPLES OF THE AREA'S VARIOUS SUBSURFACE FORMATIONS WERE TAKEN BY MEANS OF A TWO (2)-INCH O.D. SPLIT SPOON SAMPLING DEVICE, DRIVEN BY A 140-POUND HAMMER, FREE FALLING THROUGH A DISTANCE OF THIRTY (30) INCHES.

IN THE LABORATORY, REPRESENTATIVE SAMPLES OF THE SUBSURFACE SOILS WERE CLASSIFIED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION TESTING LABORATORY CLASSIFICATION OF SOILS PROCEDURES. PARTICLE SIZE ANALYSIS AND ATTERBERG LIMITS DETERMINATIONS TESTS WERE PERFORMED IN ACCORDANCE WITH APPLICABLE ASTM STANDARD METHODS.

DESCRIPTION OF SUBSURFACE MATERIALS

THE RESULTS OF THE FIELD DRILLING OPERATIONS HAVE BEEN DETAILED ON THE TEST BORING LOGS AND CAN BE SUMMARIZED AS FOLLOWS:

AT THE BORING LOCATIONS B-1 THROUGH B-8, THE EXISTING PAVEMENT STRUCTURES CONSIST OF ASPHALT CONCRETE SURFACE COURSE OVERLYING BASE COURSE. THE THICKNESS OF THE ASPHALT CONCRETE SURFACE COURSE VARIES BETWEEN ABOUT SIX (6) AND TWELVE (12) INCHES WHILE THE UNDERLYING SAND AND GRAVEL WAS FOUND TO BE FOUR (4) TO TWELVE (12) INCHES IN THICKNESS.

UNDERLYING BASE COURSE AT BORING LOCATIONS B-1, B-2, B-3, B-4, B-5, B-6 AND B-8, BROWN SAND AND/OR SILTY SAND CONTAINING VARIABLE FRACTIONS OF GRAVEL WERE ENCOUNTERED UP TO DEPTHS OF BETWEEN FOUR (4) AND EIGHT (8) FEET BELOW THE SURFACE GRADES.

UNDERLYING BASE COURSE AT BORING LOCATIONS B-2 AND B-7, BROWN/GRAY SILTY CLAY CONTAINING VARIABLE FRACTIONS OF SAND WAS FOUND TO BE PRESENT UP TO DEPTHS OF ABOUT FOUR AND ONE-HALF (4 1/2) AND EIGHT (8) FEET BELOW THE SURFACE GRADES.

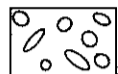
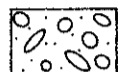

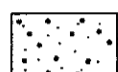

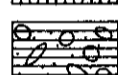

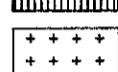
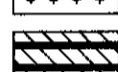

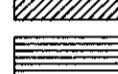

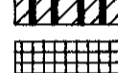
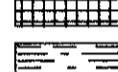



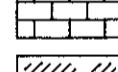
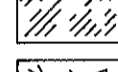
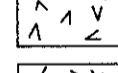
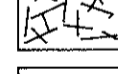
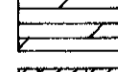
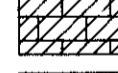
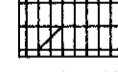

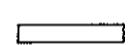



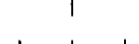


AT BORINGS B-1 THROUGH B-8, THE BOTTOMMOST FORMATION CONSISTS OF GRAY WEATHERED SHALE/SHALE.

THE SUBSURFACE COHESIVE MATERIALS EXHIBITED STIFF STRUCTURAL STATES WHILE GRANULAR MATERIALS EXHIBITED LOOSE TO MEDIUM DENSE RELATIVE DENSITY. CONSISTENCIES OF THE SUBSURFACE MATERIALS WERE FOUND TO RANGE FROM MOIST TO WET.

NOTE

INFORMATION SHOWN ON THIS PROFILE SHEET WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA, AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLAN GOVERNING CONSTRUCTION OF THIS PROJECT.

LEGEND

	Gravel and/or Stone Fragments	(A - 1 - a)	
	Gravel and/or Stone Fragments with Sand	(A - 1 - b)	
	Fine Sand	(A - 3)	
	Coarse and Fine Sand	(A - 3a)	
	Gravel and/or Stone Fragments with Sand and Silt	(A - 2 - 4) & (A - 2 - 5)	
	Gravel and/or Stone Fragments with Sand, Silt and Clay	(A - 2 - 6) & (A - 2 - 7)	
	Sandy Silt	(A - 4a)	
	Silt	(A - 4b)	
	Elastic Silt and Clay	(A - 5)	
	Silt and Clay	(A - 6a)	
	Silty Clay	(A - 6b)	
	Elastic Clay	(A - 7 - 5)	
	Clay	(A - 7 - 6)	
	Shale		
	Weathered Shale		
	Sandstone		
	Limestone		
	Mudstone		
	Random Fill		
	Various Other Materials		
	Dolomite		
	Leached Limestone		
	Leached Dolomite		
	Peat		
	Sod and/or Topsoil		
	Berm Material		
	Auger Boring-Plan View		
	Drive Sample and/or Core Boring-Plan View		
	Auger Boring Plotted to Vertical Scale Only		
	Drive Sample and/or Core Boring Plotted to Vertical Scale Only		
	X	Number of Blows for 12"	
	Static Water Level		

PSI Professional Service Industries, Inc.
Geotechnical • Environmental Services • Engineering
Materials Testing • Roof Consulting • Analytical Services
5555 Canal Rd., Cleveland, Ohio 44125 (216) 447-1335

SCALE : NTS	APPROVED BY :	DRAWN BY : MTG
DATE : 1-7-94	A. V.	REVISED : 4-25-94
CLIENT : CT CONSULTANTS		
PROJECT NAME : PROPOSED RETAINING WALLS STATION Nos. 43+39, 38+13 AND 33+01	DRAWING NUMBER : 142-35023	