STORMWATER INFILTRATION STUDY

BUCK LAKE ROAD RESURFACING
LEON COUNTY, FLORIDA

Prepared For:

BASKERVILLE-DONOVAN, INC.
2804 REMINGTON GREEN CIRCLE
TALLAHASSEE, FL 32308

Prepared By:

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BOULEVARD
SUITE C
TALLAHASSEE, FLORIDA 32308
(850) 386-1253

JANUARY 1998
FILE NUMBER: 16-03-98

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

File Number: 16-03-98

January 30, 1998

Baskerville-Donovan, Inc.
2804 Remington Green Circle
Tallahassee, FL 32308

ATTN: Steve Nichols, P.E.
Project Manager

SUBJECT: Transmittal of Stormwater Infiltration Study Report
Buck Lake Road Resurfacing
Leon County, Florida

Dear Steve:

Enclosed are three (3) copies of the above referenced report. The Report contains a summary of the field activities, results from field and laboratory testing, subsurface investigation, literature survey and recommendations for infiltration values.

If you have any questions concerning the information contained in this report, please call me.

Very truly yours,

Environmental and Geotechnical Specialists, Inc.

Myron L. Hayden 1-30-98
Myron L. Hayden, Ph.D., P.E.
Senior Engineer
FL P.E. No.: 34067

Enclosure: Stormwater Infiltration Study Report

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (CON'T)

LIST OF APPENDICES

1.0 INTRODUCTION

This Report contains a summary of the field activities conducted by Environmental and Geotechnical Specialists, Inc. (**EGS**) as authorized for the evaluation of the five (5) areas proposed for stormwater ponds and two (2) swale areas. This study included a search of the available literature for reported infiltration rates, a subsurface investigation, field testing, laboratory testing and recommendations for appropriate infiltration rates.

2.0 LOCATION AND SITE CONDITIONS

The potential stormwater pond areas evaluated in this study may be needed as a result of the proposed widening and resurfacing of Buck Lake Road. The portion of Buck Lake Road included in this study begins at the intersection of Buck Lake Road and Mahan Drive (U.S. 90) and extends east to the intersection of Buck Lake Road and Pedrick Road. The road and potential stormwater areas are located within Leon County. A Site Location Map has been provided as **Figure 1**.

It is **EGS**'s understanding there are five (5) areas being considered for the creation of stormwater ponds and two (2) areas being considered for stormwater treatment through the use of infiltration swales. The preliminary stormwater ponds being proposed for this project consist of three (3) vertical infiltration ponds (Stormwater Ponds 1 through 3) and two (2) lateral infiltration ponds (Stormwater Ponds 4 through 5) which will utilize a sand filter.

2.1 Stormwater Pond No. 1

Stormwater Pond No. 1 is to be located northwest of Pedrick Road and Buck Lake Road. The location of the proposed stormwater pond is shown in **Figure 2**. Photographs taken of the proposed stormwater pond area are shown in **Figures 3** and **4**. As can be seen in these **Figures**, the site consists of small trees and underbrush. Currently there is some trash on the site which is visible in **Figure 4**.

2.2 Stormwater Pond No. 2

Stormwater Pond No. 2 is to be located on the north side of Buck Lake Road immediately east of Highland Drive. The location of the proposed stormwater

pond is shown in **Figure 5**. Photographs taken of the proposed stormwater pond area are shown in **Figures 6** and **7**. As can be seen in these **Figures**, the site has been cleared, except for a couple of trees. Currently, the proposed site is located in a depression which collects and infiltrates stormwater naturally.

2.3 Stormwater Pond No. 3

Stormwater Pond No. 3 is to be located on the south side of Buck Lake Road immediately east of Davis Drive. The location of the proposed stormwater pond is shown in **Figure 8**. Photographs taken of the proposed stormwater pond area are shown in **Figures 9** and **10**. As can be seen in these **Figures**, the site has been cleared, except for landscaping boundary plants. Currently, the site is occupied by two (2) single family residences which will be removed prior to the creation of the Stormwater Pond.

2.4 Stormwater Pond Nos. 4 and 5

Stormwater Pond Nos. 4 and 5 are located on the south side of Buck Lake Road and west of Highland Drive. The location of the proposed stormwater ponds are shown in **Figures 11** and **12**. Photographs taken of the proposed stormwater ponds are shown in **Figures 13** and **14**. As can be seen in these **Figures**, a portion of Stormwater Pond No. 4 has been cleared, while the area for Stormwater Pond No. 5 has not been cleared. The existing vegetation consists primarily of small diameter hardwoods with some larger diameter trees and undergrowth.

3.0 FIELD INVESTIGATION

3.1 Stormwater Ponds

At each proposed stormwater pond two (2) cased hole infiltration tests were conducted. One (1) test was conducted at a depth of two and one-half (2 1/2) to five (5) feet below the bottom of the pond and the other test was conducted at a depth of seven and one (7 1/2) to ten (10) feet below the pond bottom. The purpose of the tests were to estimate the horizontal and vertical infiltration rates.

Each "cased" hole test was conducted using a temporary monitoring well installed in a soil boring. The temporary wells were constructed of two (2) inch PVC "Tri-

Lock" well screen and solid riser. The well screens consisted of 0.010 inch (No. 10) slotted pipe surrounded with a 20/30 graded sand filter. The sand filter extended six (6) inches above the well screen and was sealed with three (3) feet of a cement-bentonite mixture. The cement-bentonite was used to prevent water from flowing vertically "upward" along side the riser.

The test was conducted by adding water and measuring the time required for the water level in the temporary well to drop one (1) foot. This process was repeated for a period of six (6) hours. A period of six (6) hours was used to provide for sufficient time for the surrounding soils to become saturated and the well materials to hydrate. The infiltration rates determined at various times are recorded and plotted versus time; thus enabling the long-term steady-state infiltration rate to be determined. Because of the depth of the ponds, double ring infiltration tests were not used. The vertical infiltration rate was estimated using two-thirds (2/3) of the horizontal rate. This estimate is normally reasonable unless the deposit is highly stratified, which was not the case at these stormwater pond locations. The Location Data for these tests and soil borings are provided in **TABLE 1**.

In addition to the "cased" hole tests, soil borings were installed at each proposed stormwater pond location to estimate the depth to seasonal high groundwater, existing groundwater and the presence of a confining layer. The depth of these soil borings varied from fifteen (15) to twenty-five (25) feet. Soil samples were collected in each soil boring and transported to the geotechnical laboratory where select soil samples were tested. The soil samples were tested in the laboratory for grain-size characteristics and plasticity. All soil samples were classified both in the field and verified in the laboratory with respect to the Unified Soil Classification System (**UNIFIED**) and the American Association of State Highway and Transportation Officials (**ASSHTO**).

3.2 Stormwater Swales

At two (2) locations double ring infiltration tests were conducted to evaluate the vertical infiltration rate of the existing swales. Each double ring infiltration test was conducted for a period of six (6) hours, in accordance with **ASTM** recommended guidelines. At the completion of the test a six (6) feet auger boring was installed at the location of the double ring to check for nonuniformity of anomalies within the soils tested.

4.0 SUBSURFACE MATERIALS

4.1 Stormwater Pond 1

Two (2) soil borings, **SP1-1** and **SP1-2**, were installed to depths of twenty-three (23) and twenty-five (25) feet, respectively. The log of the soil borings are provided in **APPENDIX A** with the location of the soil borings shown in **Figure 2**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

Based on the results of the subsurface exploration program, a "Generalized Soil Profile" of the soils beneath the proposed stormwater pond was developed and is shown as **Figure 16**. As can be seen in **Figure 16**, the subsurface generally consists of about ten (10) feet of a silty fine sand (**SM/A-4**) which is underlain by a silty fine sand (**SM/A-2-4**) to a depth of about twenty-five (25) feet. Below the silty fine sand (**SM/A-2-4**) is another layer of silty fine sand (**SM/A-4**) to a depth of at least twenty-six (26) feet. The depth to groundwater was measured to be at a depth of about twenty-three (23) feet below the ground surface on December 4, 1997. According to the USDA Soil Survey for Leon County this soil is classified as an Orangeburg Fine Sandy Loam.

4.2 Stormwater Pond 2

Five (5) soil borings, **SP2-1** through **SP2-5**, were installed to depths varying from eleven and one-half (11 1/2) to twenty-five (25) feet. The log of the soil borings are provided in **APPENDIX A** with the location of the soil borings shown in **Figure 5**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

Five (5) soil borings were installed because a change in the material was noted within the proposed stormwater pond area. As can be seen in the boring logs for Soil Boring **SP2-1** and **SP2-5** a sandy silt confining layer extends over the southwest portion of the proposed site. A review of the USDA Soil Survey for Leon County confirms the likely difference in soil types. The soil in the southwestern portion of the site is a Norfolk Clayey Sand, while the rest of the

proposed site is underlain by a Lucy Silty Fine Sand. **EGS** installed the additional borings to map the extent of the Norfolk Clayey Sand. The approximate limits of this relatively impermeable material is shown in **Figure. 17**. **EGS recommends the proposed stormwater pond be moved to the east**, since infiltration through the Norfolk Clayey Sand will be very slow.

A "Generalized Soil Profile" of the soils beneath the proposed stormwater pond was developed and is shown as **Figure 18, assuming the stormwater pond is moved to the east as EGS recommended**. As can be seen in **Figure 18**, the subsurface generally consists of about seven (7) feet of a silty fine sand (**SM/A-4**) which is underlain by a clayey fine sand (**SC/A-6**) to a depth of about ten and one-half (10 1/2) feet. Below the clayey fine sand is a layer of silty fine sand (**SM/A-2-4**) to a depth of at least twenty-five (25) feet. The depth to groundwater was measured to greater than twenty-five (25) feet on November 3, 1997.

4.3 Stormwater Pond 3

Only one (1) soil boring, **SP3-1**, was installed at this location because of the existing residences, landscaping and relative high groundwater. The log of this soil boring has been provided in **APPENDIX A** with the location of the soil borings shown in **Figure 8**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

Based on the results of the subsurface exploration program, a "Generalized Soil Profile" of the soils beneath the proposed stormwater pond has been developed and is shown as **Figure 19**. As can be seen in **Figure 19**, the subsurface generally consists of about six (6) feet of a silty fine sand (**SM/A-2-4**) which is underlain by a silty fine sand (**SM/A-4**) to a depth of about ten and one-half (10 1/2) feet. Below the silty fine sand (**SM/A-4**) is a layer of plastic sandy silt (**MH/A-7-5**) to a depth of at least thirteen and one-half (13 1/2) feet. The depth to groundwater was measured to be at a depth of about seven and one-half (7 1/2) feet on January 5, 1998. According to the USDA Soil Survey for Leon County this soil is classified as an Orangeburg Fine Sandy Loam.

4.4 Stormwater Pond 4

Five (5) soil borings, **SP4-1** through **SP4-5**, were installed to depths varying from ten and one-half (10 1/2) to twenty-five (25) feet. The log of the soil borings are provided in **APPENDIX A** with the location of the soil borings shown in **Figure 11**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

Five (5) soil borings were installed because a confining layer was encountered at a depth of about twelve (12) feet within the proposed stormwater pond area. As can be seen in the boring logs for Soil Boring **SP4-1** and **SP4-2,** a layer of plastic silt (**MH/A-7-5**) extends beneath large portions of the proposed stormwater pond. A review of the USDA Soil Survey for Leon County indicates this proposed stormwater pond area is composed of both Orangeburg Fine Sandy Loam and Lynchburg Fine Loam.

A "Generalized Soil Profile" of the soils beneath the proposed stormwater pond was developed and is shown as **Figure 20**. As can be seen in **Figure 20**, the subsurface over the area generally consists of about seven (7) feet of a silty fine sand (**SM/A-2-4**) which is underlain by a more silty fine sand (**SM/A-4**) to a depth of about twelve (12) feet. Below the silty fine sand is a layer of plastic sandy silt (**MH/A-7-5**) to a depth of about sixteen (16) feet. Below about sixteen (16) feet to a depth of at least twenty-five (25) feet is a silty fine sand (**SM/A-2-4**). The depth to groundwater was measured to be at a depth of sixteen (16) feet on November 3, 1997.

4.5 Stormwater Pond 5

Only one (1) soil boring, **SP5-1**, was installed at this location because of the relatively small size of the proposed pond. The log of this soil boring has been provided in **APPENDIX A** with the location of the soil borings shown in **Figure 12**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

Based on the results of the subsurface exploration program, a "Generalized Soil Profile" of the soils beneath the proposed stormwater pond was developed and is shown as **Figure 21**. As can be seen in **Figure 21**, the subsurface generally consists of about five (5) feet of a silty fine sand (**SM/A-2-4**) which is underlain by a silty fine sand (**SM/A-4**) to a depth of about eight and one-half (8 1/2) feet. Below the silty fine sand is a plastic sandy silt (**MH/A-7-5**) which extends to a depth of about twelve (12) feet. Beneath the plastic sandy silt is a layer of silty fine sand (**SM/A-4**) which extends to a depth of at least thirteen and one-half (13 1/2) feet. The depth to groundwater was measured to be at a depth of about ten (10) feet on November 4, 1997. According to the USDA Soil Survey for Leon County this soil is classified as an Orangeburg Fine Sandy Loam.

4.6 Stormwater Swales

A six (6) feet deep soil boring was installed at both double ring locations after the infiltration tests were completed. A log of the soil borings, **DR-1** and **DR-2**, is provided in **APPENDIX A** with the location of the soil borings shown in **Figure 15**. Soil samples were collected on one (1) foot centers and tested in the laboratory for classification purposes. The results of the testing are summarized on the Soil Classification Data Sheet provided in **APPENDIX B** and included on the boring logs shown in **APPENDIX A**.

As can be seen in the Boring Logs, the subsurface soils at both locations consisted of about five (5) feet of a fine silty sand (**SM/A-4**) which was underlain by a silty fine sand (**SM/A-2-4**) to a depth of at least six (6) feet. According to the USDA Soil Survey for Leon County this soil is classified as an Orangeburg Fine Sandy Loam.

5.0 INFILTRATION RATES

5.1 Stormwater Ponds

At each of the five (5) stormwater ponds "cased" infiltration tests were conducted. The "cased" hole tests were conducted at two (2) different depths to evaluate the infiltration rates of the subsurface soils to a depth of ten (10) feet below the bottom of the stormwater ponds. The results of the infiltration testing have been provided as **APPENDIX C**. As a "check" of the infiltration rates measured in the field, **EGS** correlated these test results with the grain-size characteristics of the

subsurface soils. In addition to the grain-size correlation, **EGS** correlated the Soil Types identified in the USDA Soil Survey for Leon County with the infiltration test results.

The results of the correlations have been summarized in **TABLES 2** through **7** for each of the proposed stormwater ponds and swale areas. As can be seen in these **TABLES**, good correlation exists between the infiltration test results, infiltration values estimated from grain-size and the infiltration values reported in the USDA Soil Survey for Leon County. Based on the correlations shown in **TABLES 2** through **7** and the "Generalized Soil Profiles, previously described, Recommended Design Parameters for the proposed stormwater pond areas were developed. These Recommended Design Parameters are shown in **TABLES 8** through **12**. It should be noted that the Recommended Design Parameters shown in **TABLES 8** through **12** **do not include a factor of safety** and represent the infiltration values for each soil layer encountered. The appropriate infiltration value for the specific location should be based on numeric modeling of the pond area using both horizontal and vertical infiltration values coupled with changes in material properties with depth.

5.2 Stormwater Swales

The results of the double ring infiltration tests are provided in **APPENDIX C**. The infiltration test results have been correlated with infiltration rates estimated from grain-size distribution relationships and those values reported in the USDA Soil Survey for Leon County. These correlations are summarized in **TABLE 13**. As can be seen in **TABLE 13**, good correlation exists between the field test results and those reported and estimated.

6.0 CLOSURE

The data, results, and conclusions presented in this Report are intended for use by **Baskerville-Donovan, Inc.** and **Leon County Department of Public Works** for the design of the five (5) proposed stormwater ponds and stormwater swales, specified herein. This Report is not intended for any other use and will likely not be applicable. This Report was prepared in accordance with the procedures generally accepted by geotechnical consulting professionals. Should additional information become available, **Environmental and Geotechnical Specialists, Inc.** reserves the right to evaluate and modify, if necessary, the conclusions and recommendations. The conclusions are based upon the data noted herein. The client recognizes that the scope of the work rendered under this agreement is limited to those identified in this report.

7.0 SIGNATURE

Environmental and Geotechnical Specialists, Inc.

Myron L. Hayden 1-30-08

Myron L. Hayden, Ph.D., P.E.
Florida Engineer No. 34067

TABLES

TABLE 1
TEST LOCATION DATA
STORMWATER PONDS
BUCK LAKE ROAD

TEST NUMBER	DEPTH* (FEET)	STATIONING (FEET)	ELEVATION** (FEET NGVD)	OFFSET (FEET FROM CENTERLINE)
		STORMWATER POND NO. 1		
SOIL BORINGS				
SP1-1	23.5	120+20	82.5	145 FEET NORTH
SP1-2	25.5	120+03	83.5	245 FEET NORTH
CASED HOLE				
CH-9	5.0	121+10	76.8	200 FEET NORTH
CH-10	10.5	120+10	80.0	110 FEET NORTH
		STORMWATER POND NO. 2		
SOIL BORINGS				
SP2-1	25.0	99+35	124.5	160 FEET NORTH
SP2-2	25.0	100+70	124.3	155 FEET NORTH
SP2-3	11.5	99+80	124.4	78 FEET NORTH
SP2-4	15.5	99+40	124.6	110 FEET NORTH
SP2-5	13.5	99+05	124.8	175 FEET NORTH
CASED HOLE				
CH-7	5.0	99+30	124.6	100 FEET NORTH
CH-8	10.0	100+80	124.2	120 FEET NORTH
		STORMWATER POND NO. 3		
SOIL BORINGS				
SP3-1	13.5	65+70	82.8	128 FEET SOUTH
CASED HOLE				
CH-5	5.5	66+91	80.6	68 FEET SOUTH
CH-6	10.5	65+15	81.4	102 FEET SOUTH
		STORMWATER POND NO. 4		
SOIL BORINGS				
SP4-1	25.0	60+35	85.1	789 FEET SOUTH
SP4-2	25.0	60+65	83.8	731 FEET SOUTH
SP4-3	15.5	60+35	85.8	850 FEET SOUTH
SP4-4	10.5	60+37	85.5	834 FEET SOUTH
SP4-5	15.5	60+05	82.8	661 FEET SOUTH
CASED HOLE				
CH-1	10.5	60+40	83.8	760 FEET SOUTH
CH-2	5.0	60+30	83.0	630 FEET SOUTH
		STORMWATER POND NO. 5		
SOIL BORINGS				
SP5-1	13.5	58+90	77.5	537 FEET SOUTH
CASED HOLE				
CH-3	10.5	59+00	76.2	665 FEET SOUTH
CH-4	6.6	58+80	78.8	545 FEET SOUTH
		SWALES		
DOUBLE RINGS				
DR-1	6.0	118+65	90.4	48 FEET NORTH
DR-2	6.0	119+80	82.5	47 FEET SOUTH

NOTES: * DEPTHS ARE BELOW THE GROUND SURFACE
** ELEVATIONS WERE PROVIDED BY BASKERVILLE-DONOVAN, INC.

TABLE 2
INFILTRATION VALUES - POND NO. 1
PROPOSED STORMWATER POND

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
0.0 - 10.0	0.0009	1.2	0.0010	1.4	**0.0009**	**1.3**	0.0006	0.8	0.0007	0.9	0.0004	0.6	**0.0006**	**0.8**
10.0 - 25.0	0.0038	5.4	0.0030	4.2	**0.0034**	**4.8**	0.0025	3.6	0.0020	2.8	--	--	**0.0023**	**3.2**
25.0 - 26.0	--	--	0.0010	1.4	**0.0010**	**1.4**	0.0006	0.8	0.0007	0.9	--	--	**0.0006**	**0.9**

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 3
INFILTRATION VALUES - POND NO. 2
PROPOSED STORMWATER POND

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
0.0 - 7.0	0.0009	1.3	0.0004	0.6	**0.0007**	**1.0**	0.0006	0.9	0.0003	0.4	0.0004	0.6	**0.0004**	**0.6**
7.0 - 10.5	0.0004	0.6	0.0001	0.1	**0.0003**	**0.4**	0.0002	0.3	0.0001	0.1	--	--	**0.0001**	**0.1**
10.5 - 25.0	--	--	0.0004	0.6	**0.0004**	**0.6**	--	--	0.0003	0.4	--	--	**0.0003**	**0.4**

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 4
INFILTRATION VALUES - POND NO. 3
PROPOSED STORMWATER POND

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
0.0 - 6.0	0.0027	3.8	0.0020	2.8	**0.0023**	**3.3**	0.0018	2.6	0.0012	1.7	0.0014	2.0	**0.0015**	**2.1**
6.0 - 10.5	0.0018	2.6	0.0008	1.2	**0.0013**	**1.9**	0.0012	1.7	0.0006	0.8	0.0004	0.6	**0.0007**	**1.0**
10.5 - 13.5	--	--	0.0000	<0.01	**0.0000**	**<0.01**	--	--	0.0000	<0.01	--	--	**0.0000**	**<0.01**

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 5
INFILTRATION VALUES - POND NO. 4
PROPOSED STORMWATER POND

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
0.0 - 7.0	0.0030	4.2	0.0035	5.0	**0.0032**	**4.6**	0.0020	2.8	0.0023	3.3	0.0014	2.0	**0.0019**	**2.7**
7.0 - 12.0	-	--	0.0010	1.4	**0.0010**	**1.4**	--	--	0.0007	0.9	--	--	**0.0007**	**0.9**
12.0 - 16.0	-	--	0.0000	<0.01	**0.0000**	**<0.01**	--	--	0.0000	<0.01	--	--	**0.0000**	**<0.01**
16.0 - 25.0	0.0028	3.9	0.0020	2.8	**0.0020**	**2.8**	0.0018	2.6	0.0013	1.9	--	--	**0.0016**	**2.2**

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 6
INFILTRATION VALUES - POND NO. 5
PROPOSED STORMWATER POND

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
0.0 - 5.0	0.0015	2.10	0.0020	2.80	**0.0017**	**2.45**	0.0010	1.4	0.0013	1.88	0.0026	3.7	**0.0016**	**2.33**
5.0 - 8.5	0.0010	1.40	0.0002	0.28	**0.0006**	**0.84**	0.0006	0.9	0.0001	0.19	0.0004	0.6	**0.0004**	**0.56**
8.5 - 12.0	--	--	0.0000	<0.01	**0.0000**	**<0.01**	--	--	0.0000	<0.01	--	--	**0.0000**	**<0.01**
12.0 - 13.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 7
INFILTRATION VALUES
PROPOSED STORMWATER SWALES

DEPTH	HORIZONTAL INFILTRATION RATE						VERTICAL INFILTRATION RATE							
	MEASURED*		ESTIMATED**		RECOMMENDED		MEASURED		ESTIMATED***		REPORTED****		RECOMMENDED	
(feet)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)	(cm/sec)	(in/hr)
DR - 1														
0.0 - 5.0	--	--	--	--	--	--	0.0002	0.3	0.0001	0.2	0.0004	0.6	**0.0002**	**0.3**
5.0 - 6.0	--	--	--	--	--	--	0.0000		0.0007	1.0	--	--	**0.0007**	**1.0**
DR - 2														
0.0 - 5.0	--	--	--	--	--	--	0.0002	0.3	0.0001	0.2	0.0004	0.6	**0.0002**	**0.3**
5.0 - 6.0	--	--	--	--	--	--	0.0000		0.0007	1.0	--	--	**0.0007**	**1.0**

NOTES: * Measurements Based on Infiltration Tests
** Estimate Based on Grain-Size Distribution
*** Estimate Is 2/3 of Grain-Size Distribution Value
**** Based on USDA Soil Survey
-- Values Not Measured

TABLE 8
RECOMMENDED DESIGN PARAMETERS
PROPOSED STORMWATER POND 1

PARAMETER	AVERAGE ELEVATION (FEET, NGVD)		VALUE	UNITS
	FROM	TO		
VERTICAL INFILTRATION RATE	83.0 73.0 58.0	73.0 58.0 57.0	0.8 3.2 0.8	INCHES/HOUR INCHES/HOUR INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT	83.0 73.0 58.0	73.0 58.0 57.0	0.10 0.15 0.10	- - - - - -
ELEVATION OF CONFINING LAYER			58.0	FEET, NGVD
ELEVATION OF EXISTING GROUNDWATER*			60.0	FEET, NGVD
ELEVATION OF SEASONAL HIGH GROUNDWATER			65.0	FEET, NGVD
AVERAGE HORIZONTAL CONDUCTIVITY	83.0 73.0 58.0	73.0 58.0 57.0	1.3 4.8 1.4	INCHES/HOUR INCHES/HOUR INCHES/HOUR
SPECIFIC YIELD	83.0 73.0 58.0	73.0 58.0 57.0	10% 15% 10%	- - - - - -

NOTES: * GROUNDWATER ELEVATION ON DATE TESTED
- - VALUES NOT RECOMMENDED

TABLE 9
RECOMMENDED DESIGN PARAMETERS
PROPOSED STORMWATER POND 2

PARAMETER	AVERAGE ELEVATION (FEET, NGVD)		VALUE	UNITS
	FROM	TO		
VERTICAL INFILTRATION RATE	124.5 117.5 114.0	117.5 114.0 99.5	0.6 0.1 2.3	INCHES/HOUR INCHES/HOUR INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT	124.5 117.5 114.0	117.5 114.0 99.5	0.10 0.05 0.15	- - - - - -
ELEVATION OF CONFINING LAYER			<99.5	FEET, NGVD
ELEVATION OF EXISTING GROUNDWATER*			<99.5	FEET, NGVD
ELEVATION OF SEASONAL HIGH GROUNDWATER			<99.5	FEET, NGVD
AVERAGE HORIZONTAL CONDUCTIVITY	124.5 117.5 114.0	117.5 114.0 99.5	1.0 0.4 2.5	INCHES/HOUR INCHES/HOUR INCHES/HOUR
SPECIFIC YIELD	124.5 117.5 114.0	117.5 114.0 99.5	10% 5% 15%	- - - - - -

NOTES: * GROUNDWATER ELEVATION ON DATE TESTED
- - VALUES NOT RECOMMENDED

TABLE
RECOMMENDED DESIGN PARAMETERS
PROPOSED STORMWATER POND 3

PARAMETER	AVERAGE ELEVATION (FEET, NGVD)		VALUE	UNITS
	FROM	TO		
VERTICAL INFILTRATION RATE	81.6 75.6 71.1	75.6 71.1 68.1	2.1 1.0 <0.01	INCHES/HOUR INCHES/HOUR INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT	81.6 75.6 71.1	75.6 71.1 68.1	0.15 0.10 0.00	-- -- --
ELEVATION OF CONFINING LAYER			71.1	FEET, NGVD
ELEVATION OF EXISTING GROUNDWATER*			74.1	FEET, NGVD
ELEVATION OF SEASONAL HIGH GROUNDWATER			76.0	FEET, NGVD
AVERAGE HORIZONTAL CONDUCTIVITY	81.6 75.6 71.1	75.6 71.1 68.1	3.3 1.9 <0.01	INCHES/HOUR INCHES/HOUR INCHES/HOUR
SPECIFIC YIELD	81.6 75.6 71.1	75.6 71.1 68.1	15% 10% 0%	-- -- --

NOTES: * GROUNDWATER ELEVATION ON DATE TESTED
-- VALUES NOT RECOMMENDED

TABLE 11
RECOMMENDED DESIGN PARAMETERS
PROPOSED STORMWATER POND 4

PARAMETER	AVERAGE ELEVATION (FEET, NGVD)		VALUE	UNITS
	FROM	TO		
VERTICAL INFILTRATION RATE	85.8 78.8 73.8 69.8	78.8 73.8 69.8 60.8	2.7 0.9 <0.01 2.2	INCHES/HOUR INCHES/HOUR INCHES/HOUR INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT	85.8 78.8 73.8 69.8	78.8 73.8 69.8 60.8	0.15 0.10 0.00 0.15	-- -- --
ELEVATION OF CONFINING LAYER			73.8	FEET, NGVD
ELEVATION OF EXISTING GROUNDWATER*			68.5	FEET, NGVD
ELEVATION OF SEASONAL HIGH GROUNDWATER			73.8	FEET, NGVD
AVERAGE HORIZONTAL CONDUCTIVITY	85.8 78.8 73.8 69.8	78.8 73.8 69.8 60.8	4.6 1.4 0.0 2.8	INCHES/HOUR INCHES/HOUR INCHES/HOUR INCHES/HOUR
SPECIFIC YIELD	85.8 78.8 73.8 69.8	78.8 73.8 69.8 60.8	15% 10% 0% 15%	-- -- -- --

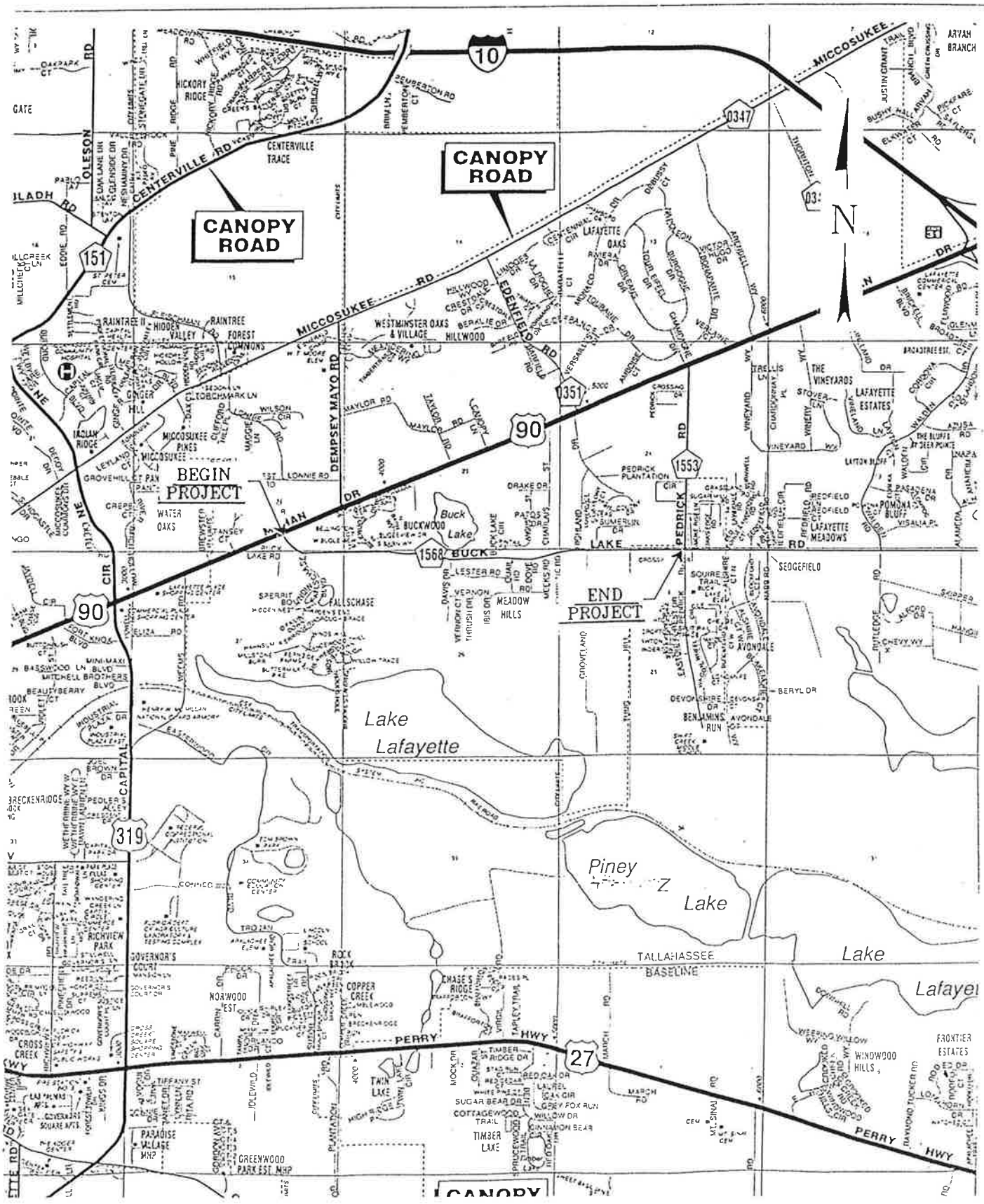
NOTES: * GROUNDWATER ELEVATION ON DATE TESTED
-- VALUES NOT RECOMMENDED

TABLE 12
RECOMMENDED DESIGN PARAMETERS
PROPOSED STORMWATER POND 5

PARAMETER	AVERAGE ELEVATION (FEET, NGVD)		VALUE	UNITS
	FROM	TO		
VERTICAL INFILTRATION RATE	77.5 72.5 69.0 65.5	72.5 69.0 65.5 64.0	2.3 0.6 <0.0001 - -	INCHES/HOUR INCHES/HOUR INCHES/HOUR INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT	77.5 69.0	69.0 64.0	0.15 0.00	- - - -
ELEVATION OF CONFINING LAYER			69.0	FEET, NGVD
ELEVATION OF EXISTING GROUNDWATER*			67.5	FEET, NGVD
ELEVATION OF SEASONAL HIGH GROUNDWATER			74.0	FEET, NGVD
AVERAGE HORIZONTAL CONDUCTIVITY	77.5 72.5 69.0 65.5	72.5 69.0 65.5 64.0	2.5 0.8 <0.0001 - -	INCHES/HOUR INCHES/HOUR INCHES/HOUR INCHES/HOUR
SPECIFIC YIELD	77.5 69.0	69.0 64.0	10% 0%	- - - -

NOTES: * GROUNDWATER ELEVATION ON DATE TESTED
- - VALUES NOT RECOMMENDED

FIGURES



DRAWN:	S. WRANOSKY
REVISED:	S. WRANOSKY
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	K. KUCHIBHOTLA
SR.ENGINEER:	M. HAYDEN, P.E.
PROJ.NO.:	16-03-97

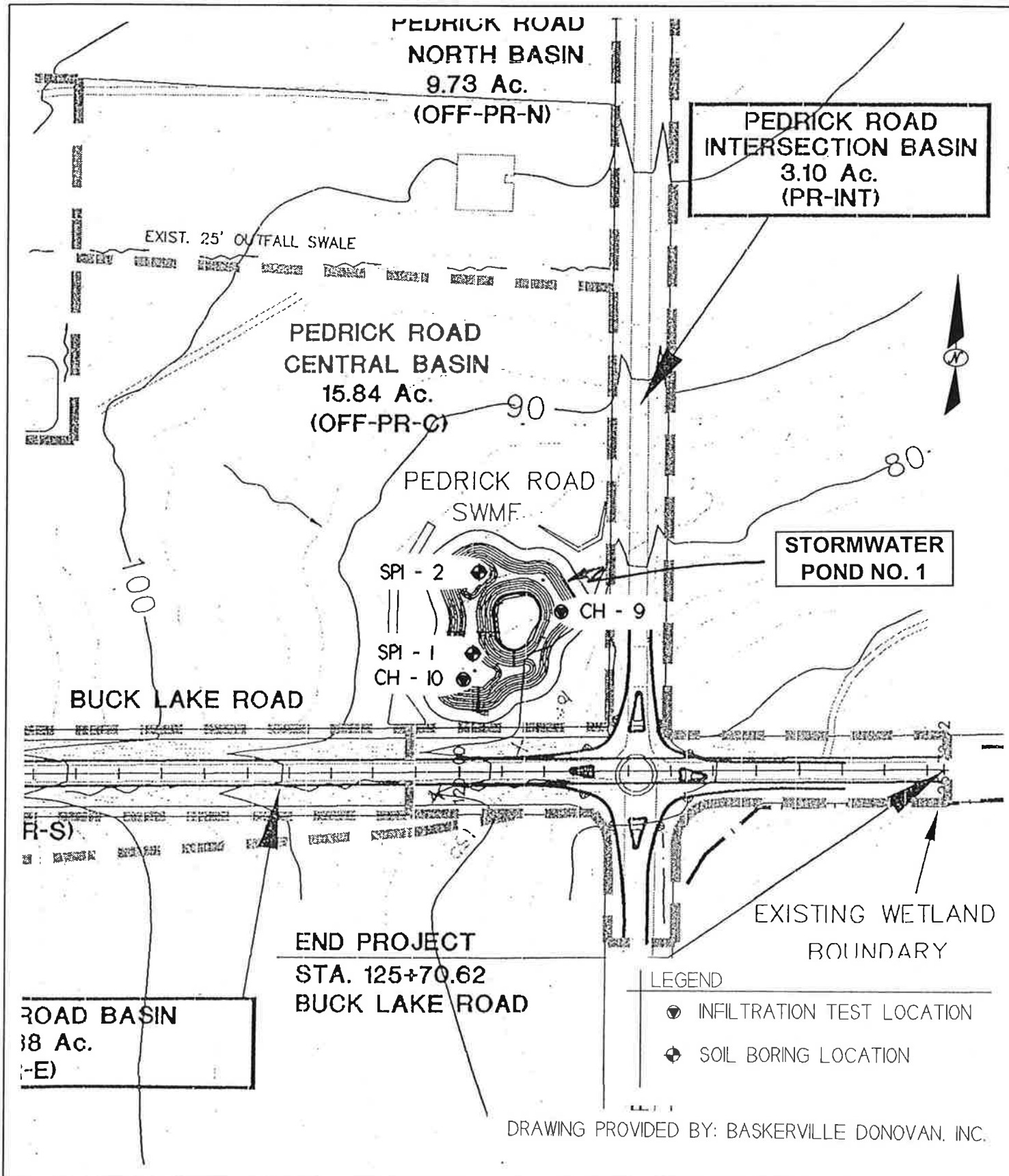
EGS

Environmental & Geotechnical Specialists, Inc.
2012 North Point Blvd. Suite C
Tallahassee, Florida 32308
Office #: (904) 386-1253 Fax #: (904) 385-8050

TITLE:

SITE LOCATION
Buck Lake Road
Leon County, Florida

SCALE:	DATE: April 1997
FILE NO.: 16-03-97	FIG. NO.: 1



DRAWING PROVIDED BY: BASKERVILLE DONOVAN, INC.

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

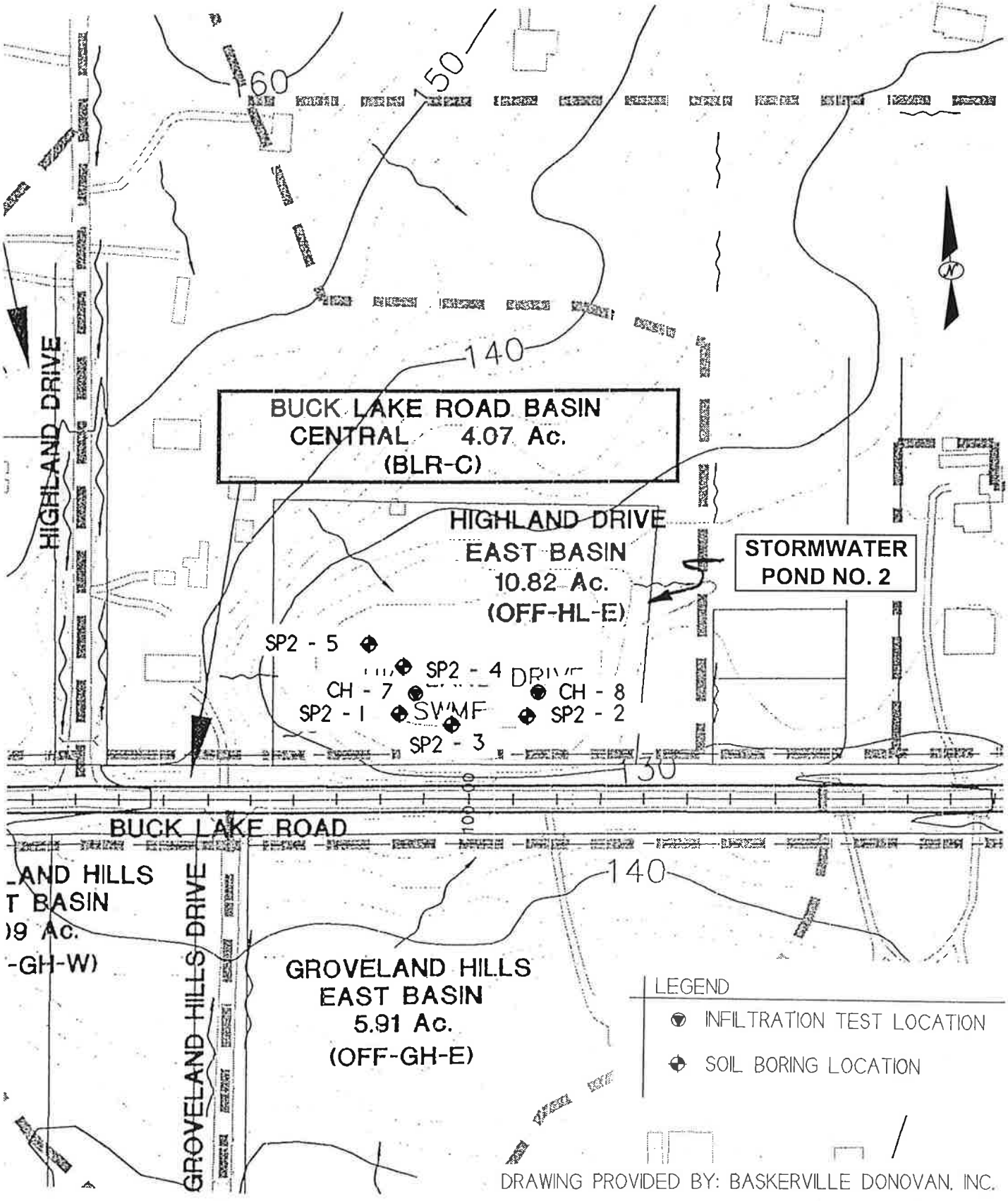
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

BORING AND INFILTRARION
TEST LOCATION MAP
Buck Lake Road Stormwater Pond 1
Leon County, Florida

SCALE:	DATE: December 1997
PROJ. NO.: 16-10-97	FIG. NO.: 2

Figure 3. View of Looking North at the Proposed Stormwater Pond. No. 1 Location

Figure 4. View of Looking West at the Proposed Stormwater Pond. No. 1 Location



DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
REG. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

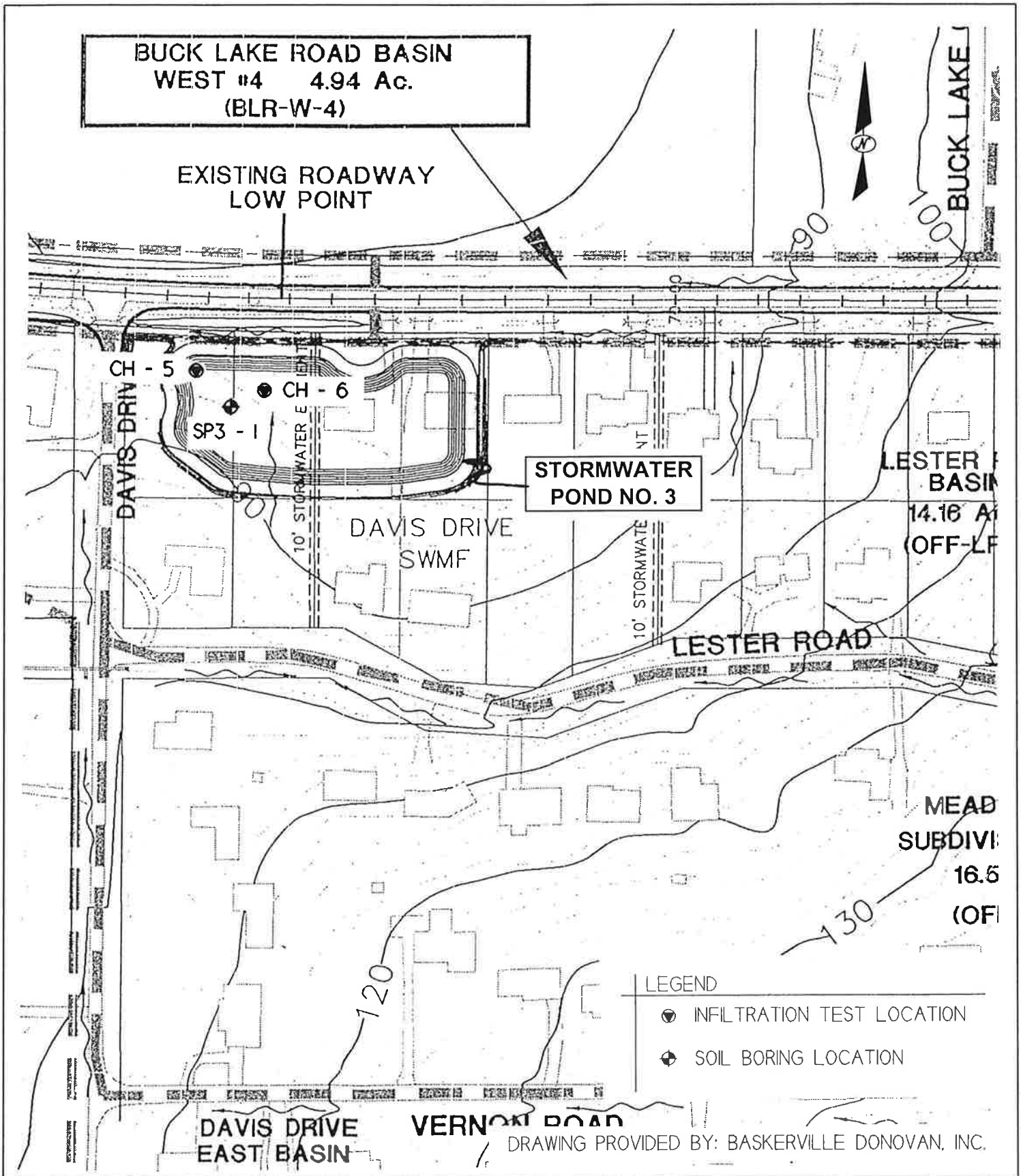
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

BORING AND INFILTRARION TEST LOCATION MAP
Buck Lake Road Stormwater Pond 2
Leon County, Florida

SCALE:	DATE: December 1997
PROJ. NO.: 16-10-97	FIG. NO.: 5

Figure 6. View Looking Northeast at Stormwater Pond No. 2

Figure 7. View Looking Northwest at Stormwater Pond No. 2



DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

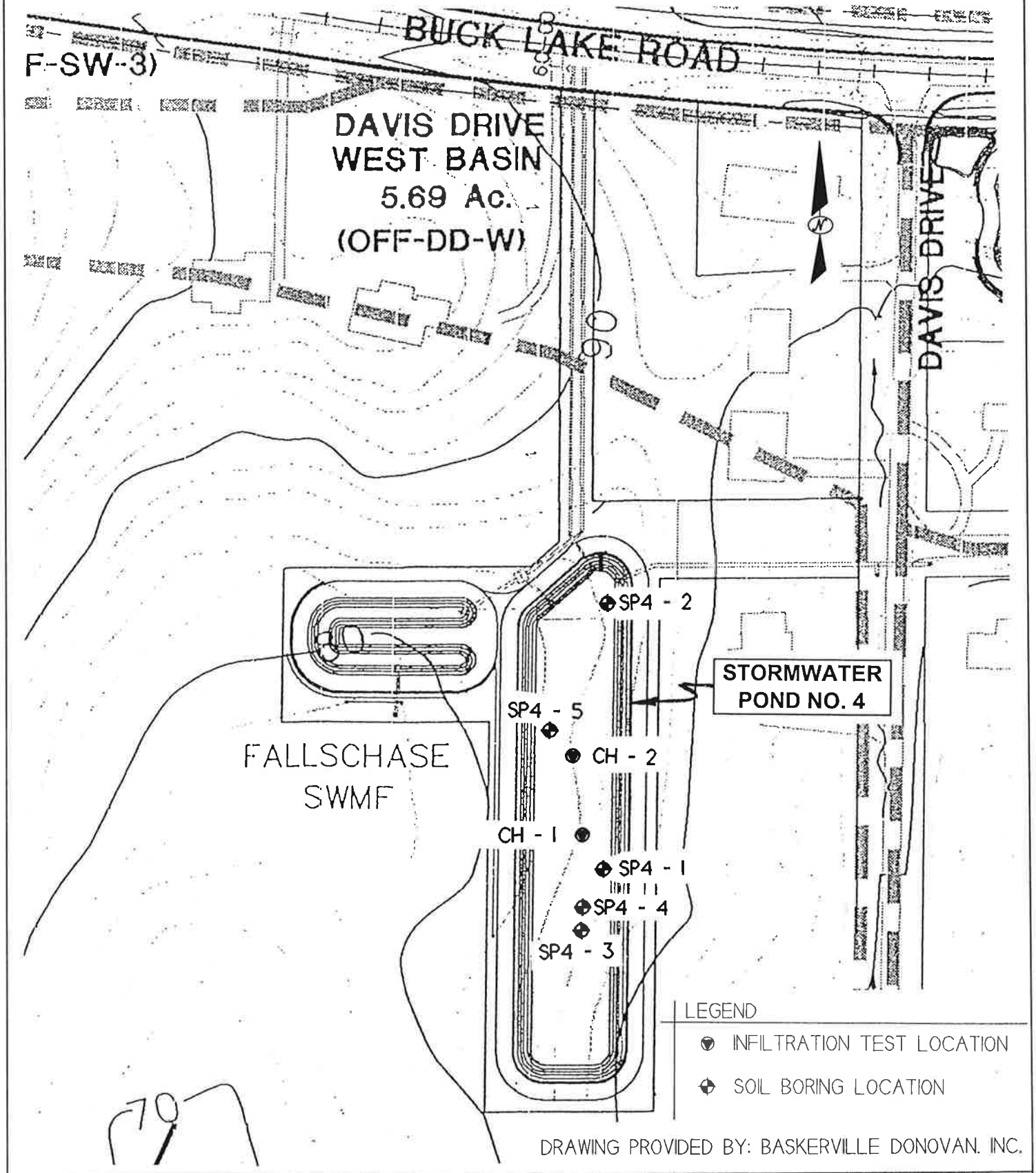
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

BORING AND INFILTRARION
TEST LOCATION MAP
Buck Lake Road Stormwater Pond 3
Leon County, Florida

SCALE:	DATE: December 1997
PROJ. NO.: 16-10-97	FIG. NO.: 8

Figure 9. View looking South at the Stormwater Pond No. 3 Location

Figure 10. View looking Southeast at the Stormwater Pond No. 3 Location



DRAWING PROVIDED BY: BASKERVILLE DONOVAN. INC.

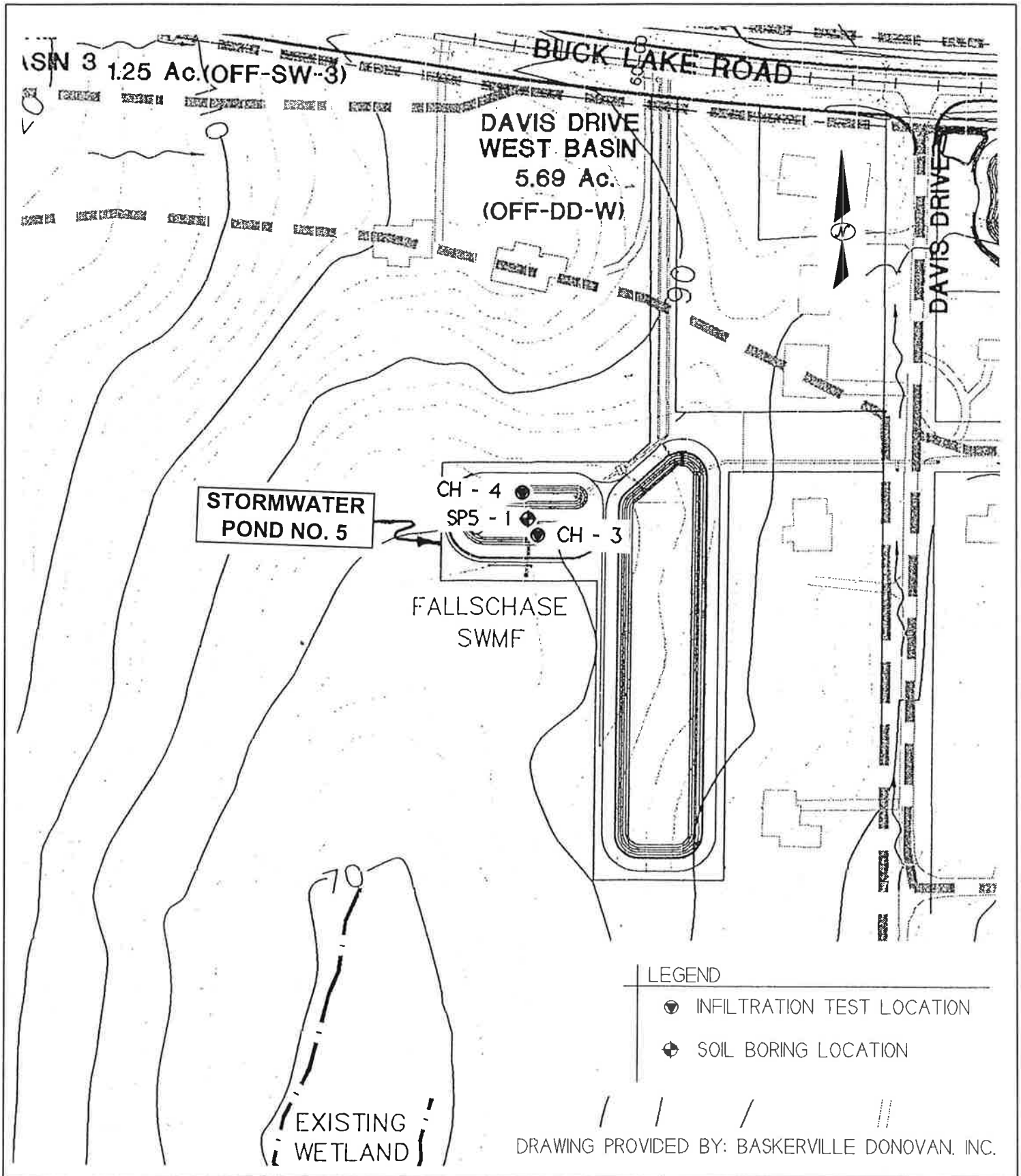
DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

BORING AND INFILTRARION
TEST LOCATION MAP
Buck Lake Road Stormwater Pond 4
Leon County, Florida

SCALE:	DATE: December 1997
PROJ. NO.: 16-10-97	FIG. NO.: 11



DRAWING PROVIDED BY: BASKERVILLE DONOVAN, INC.

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

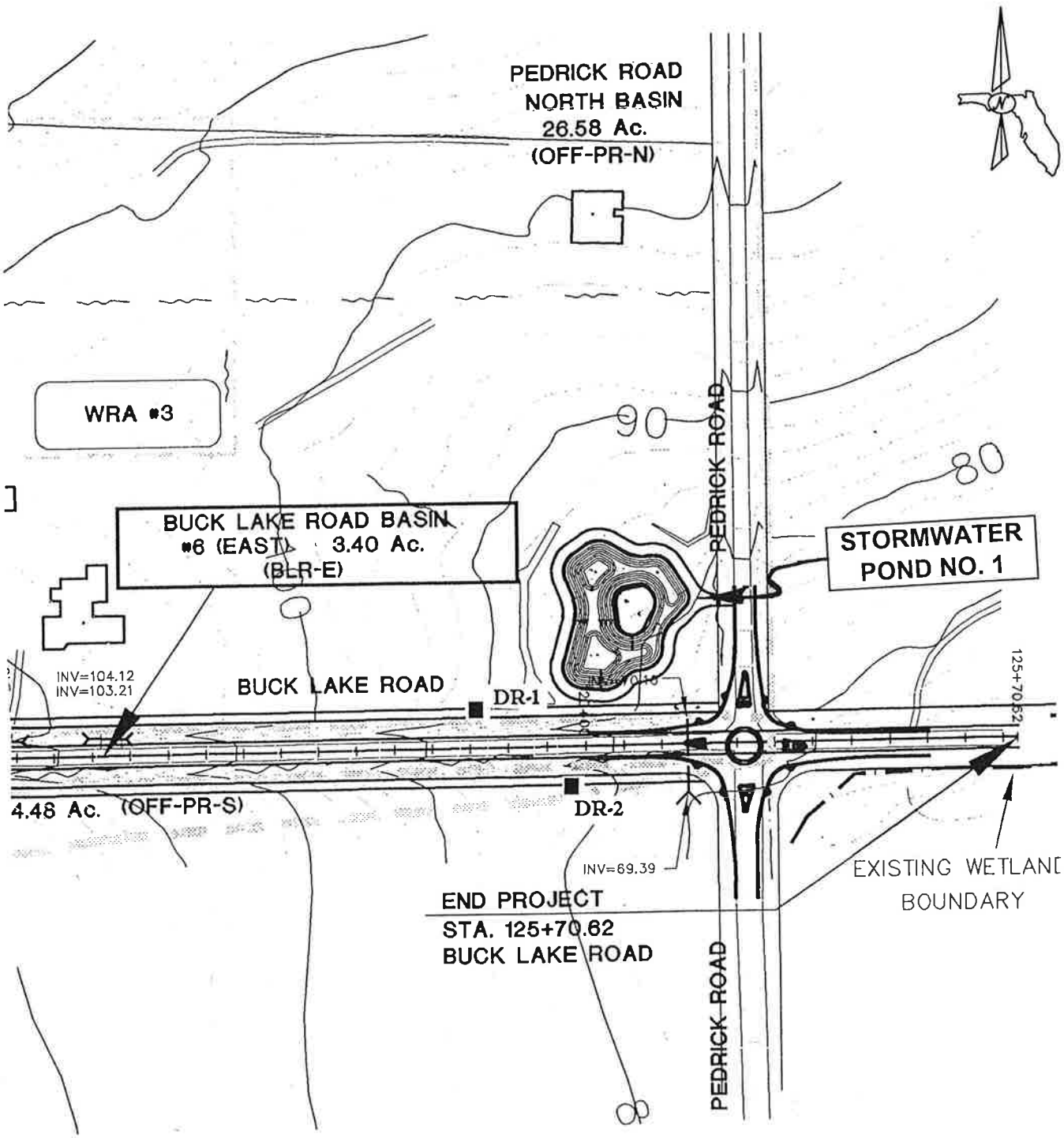
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

BORING AND INFILTRARION TEST LOCATION MAP
Buck Lake Road Stormwater Pond 5
Leon County, Florida

SCALE:	DATE: December 1997
PROJ. NO.: 16-10-97	FIG. NO.: 12

Figure 13. View looking South at Stormwater Pond No. 4

Figure 14. View looking Southeast at the Stormwater Pond No. 5



LEGEND

■ INFILTRATION TEST LOCATION

DRAWING PROVIDED BY: BASKERVILLE DONOVAN

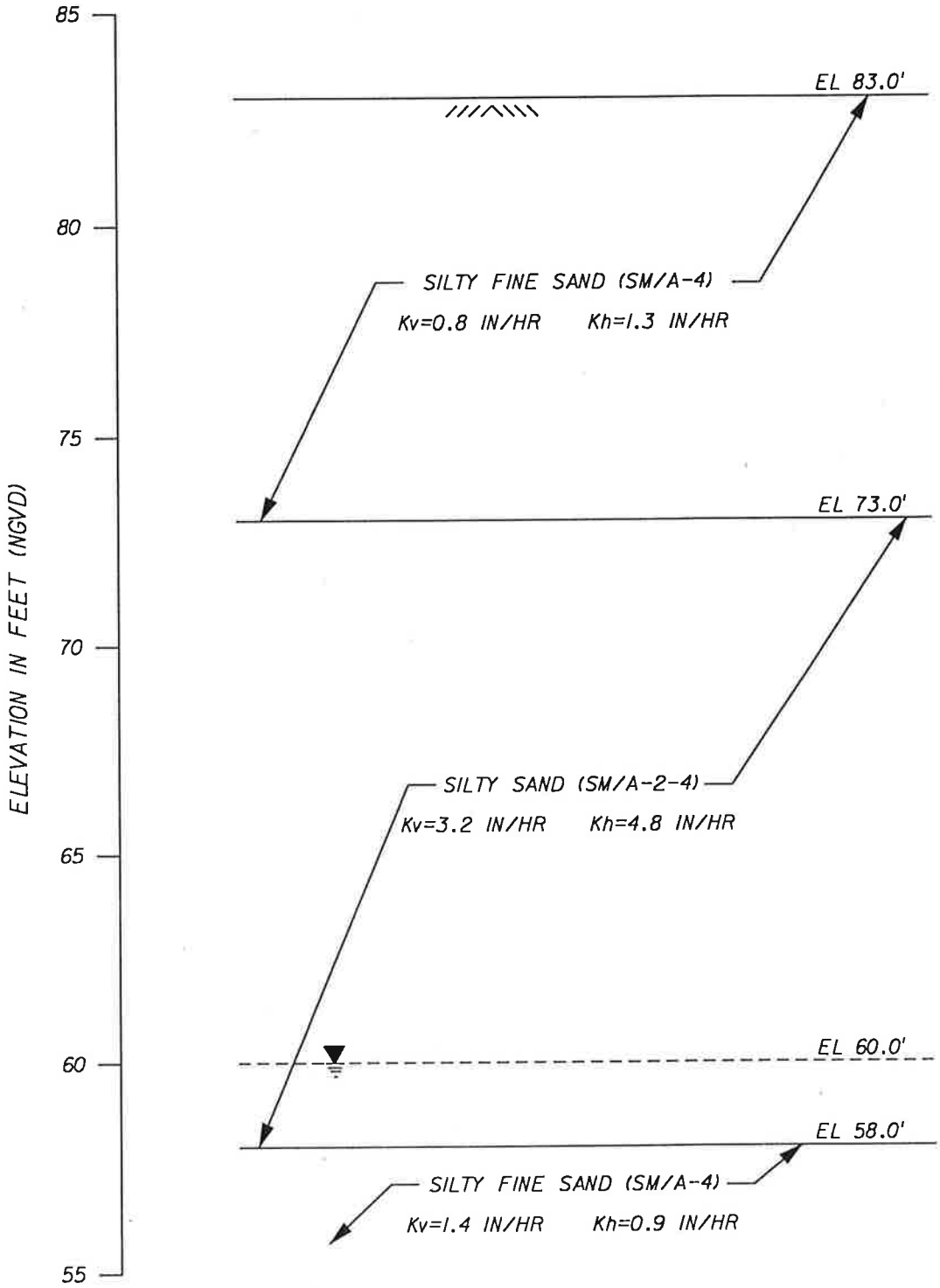
DRAWN BY:	D. ROBERSON
REVISED:	D. ROBERSON
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-10-97

EGS

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

INFILTRATION TEST LOCATIONS
STORMWATER SWALES
Leon County, Florida

SCALE:	DATE: January 1998
PROJ. NO.: 16-10-97	FIG. NO.: 15



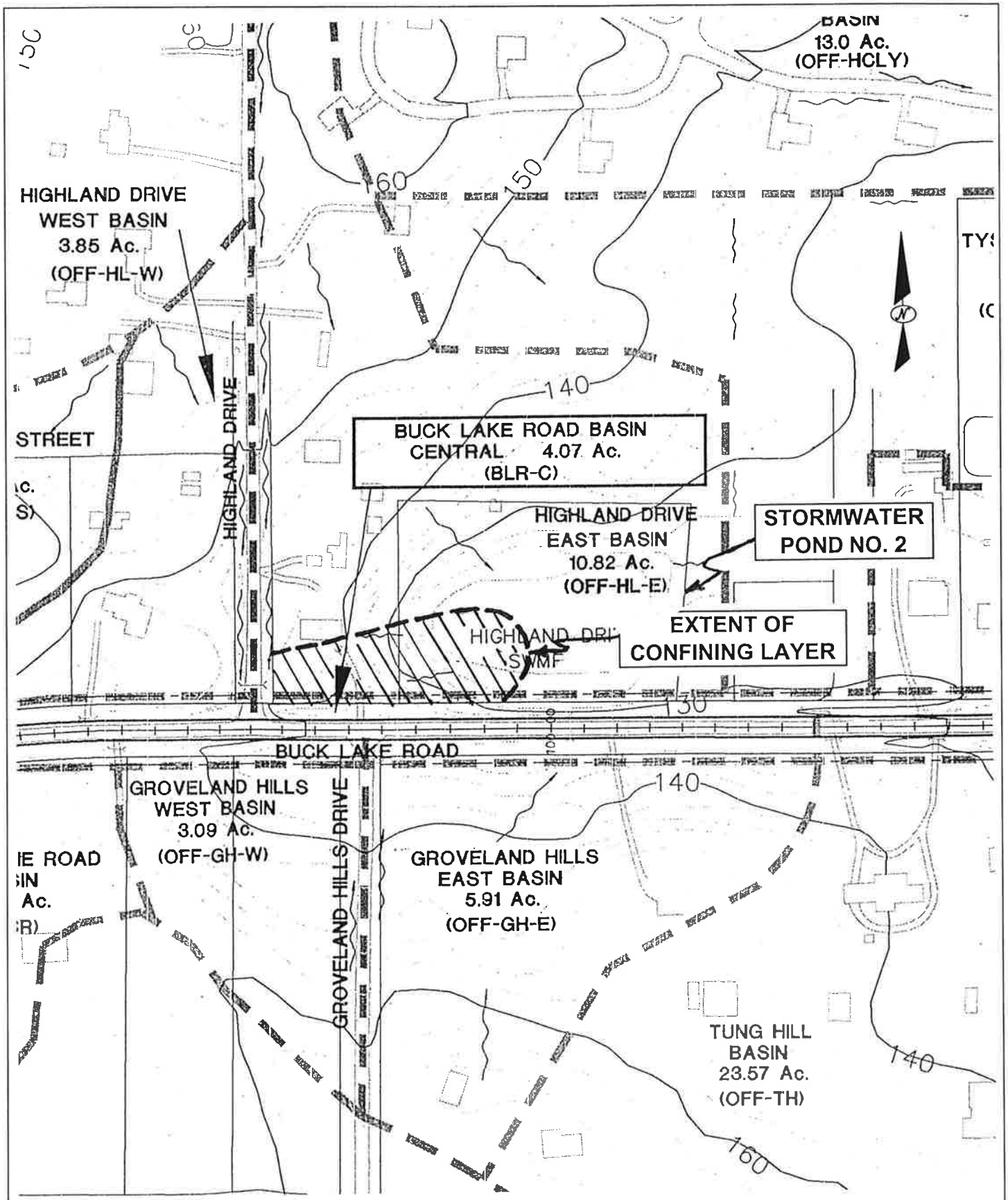
GENERALIZED SOIL PROFILE
(ORANGEBURG SILTY FINE SAND)
STORMWATER POND I

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-03-97

EGS
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

GENERALIZED SOIL PROFILE
STORMWATER POND No. 1
Buck Lake Stormwater Ponds
Leon County, Florida

SCALE:	1" = 4'	DATE:	February 1998
PROJ. NO.:	16-03-97	FIG. NO.:	16



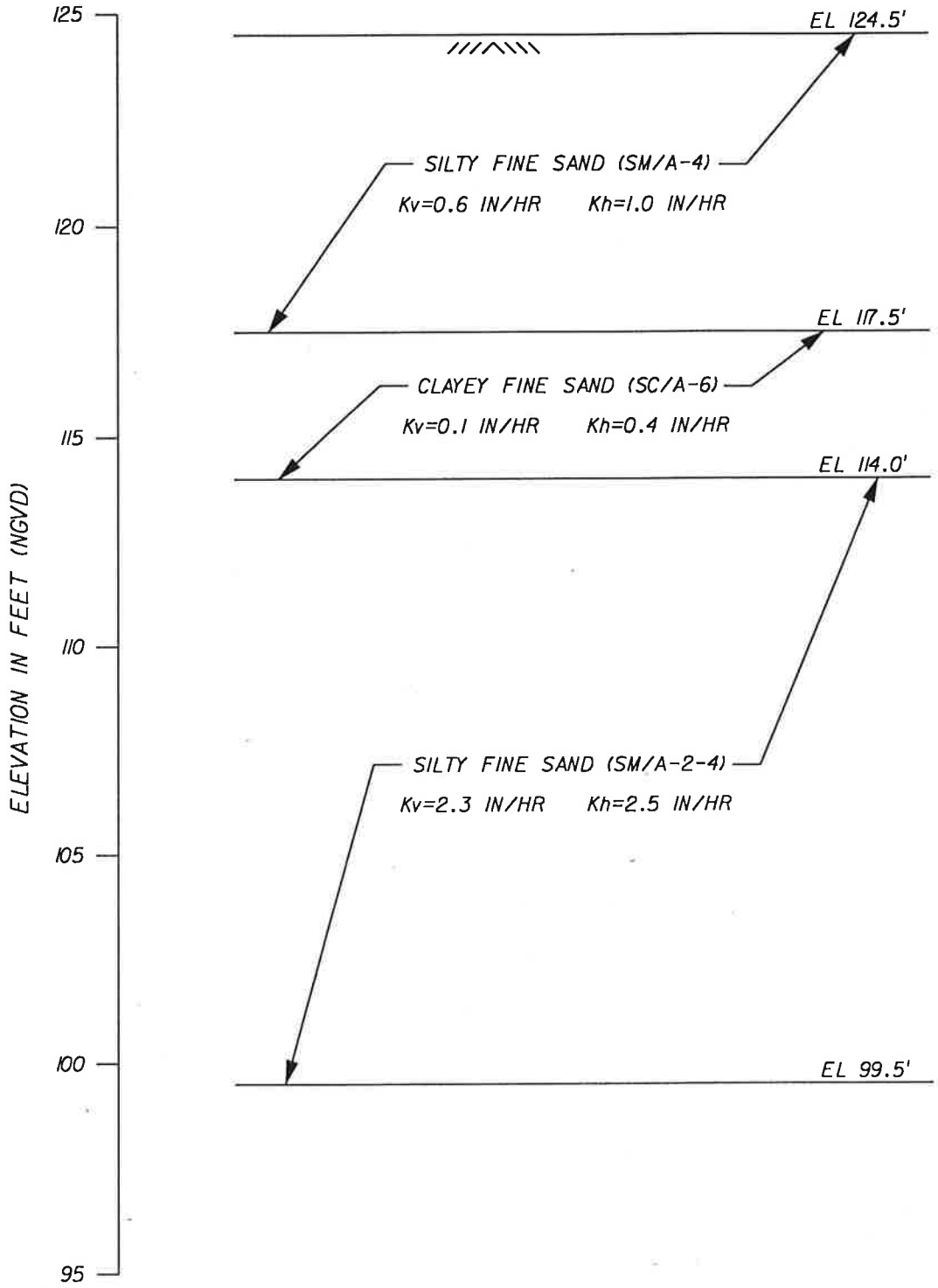
DRAWN:	S. WRANOSKY
REVISED:	S. WRANOSKY
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR.ENGINEER:	M. HAYDEN, P.E.
PROJ.NO.:	16-10-97

EGS

Environmental & Geotechnical Specialists, Inc.
2012 North Point Blvd. Suite C
Tallahassee, Florida 32308
Office #: (904) 386-1253 Fax #: (904) 385-8050

TITLE: APPROXIMATE EXTENT OF CONFINING LAYER
Buck Lake Road Stormwater Pond 2
Leon County, Florida

SCALE:	DATE: DECEMBER 1997
FILE NO.: 16-10-97	FIG. NO.: 17



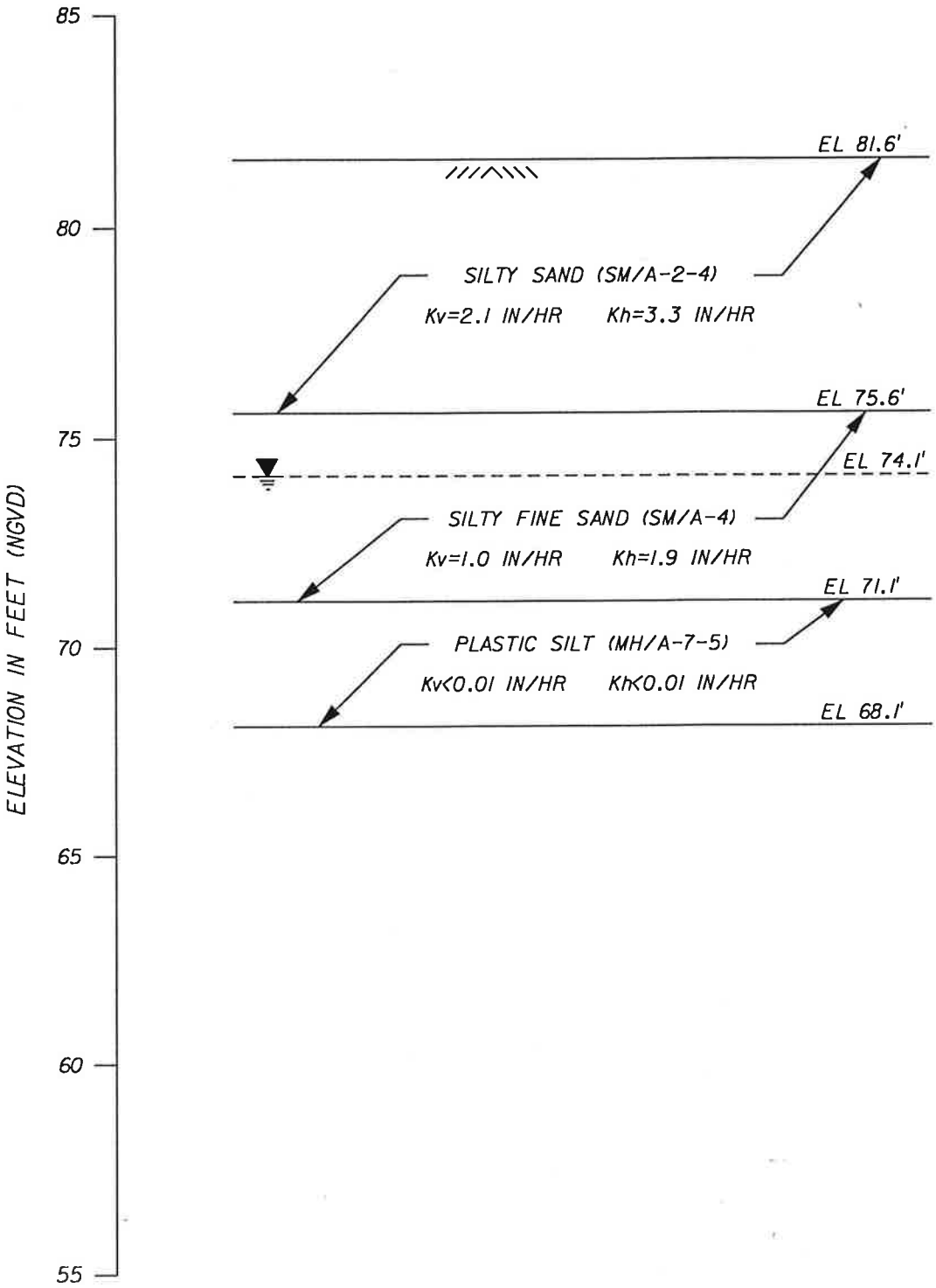
GENERALIZED SOIL PROFILE
(LUCY SILTY FINE SAND)
STORMWATER POND 2

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-03-97

EGS
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

GENERALIZED SOIL PROFILE
STORMWATER POND No. 2
Buck Lake Stormwater Ponds
Leon County, Florida

SCALE:	1" = 4'	DATE:	February 1998
PROJ. NO.:	16-03-97	FIG. NO.:	18



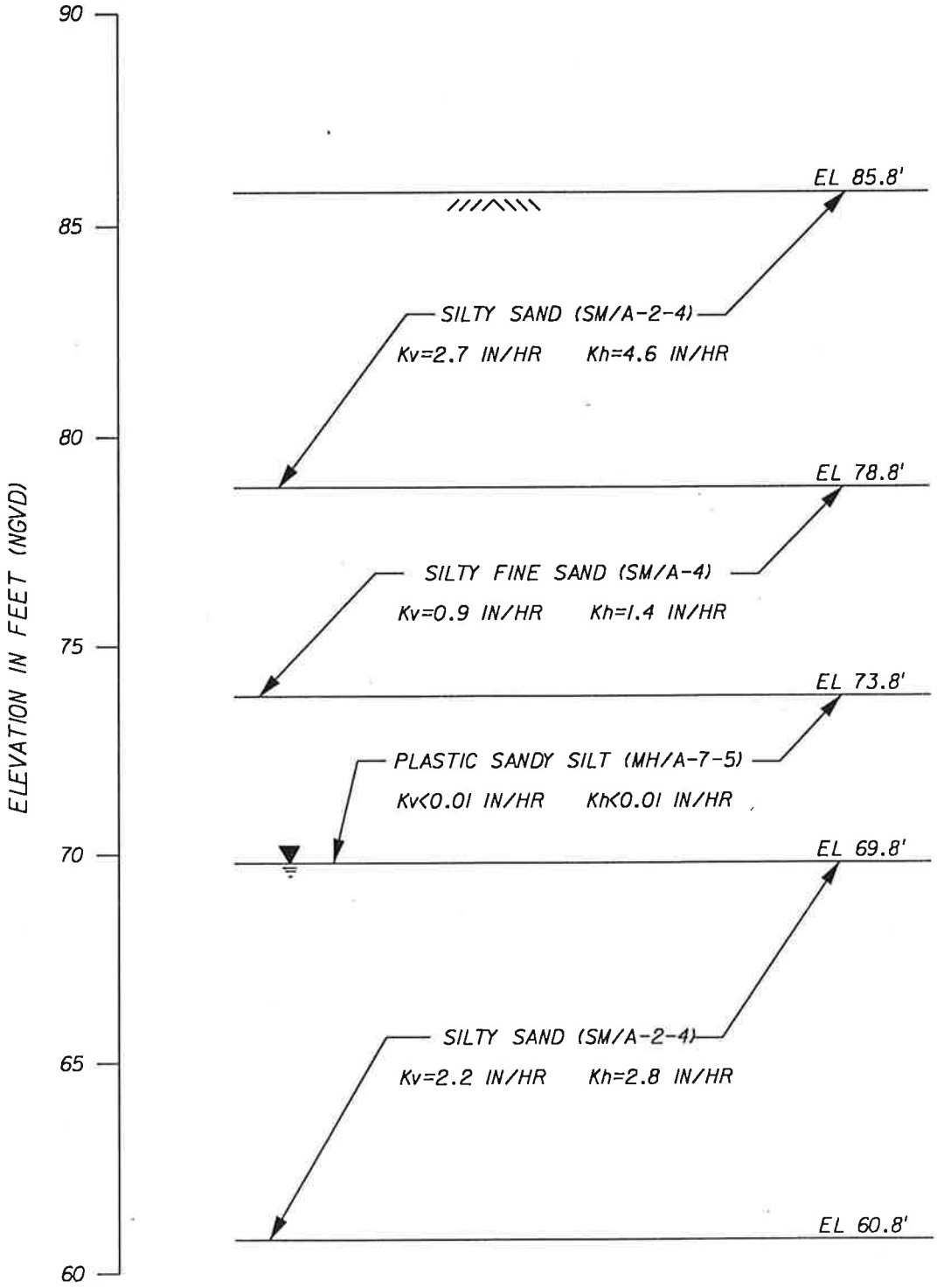
GENERALIZED SOIL PROFILE
(ORANGEBURG SILTY FINE SAND)
STORMWATER POND 3

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-03-97

EGS
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

GENERALIZED SOIL PROFILE
STORMWATER POND No. 3
Buck Lake Stormwater Ponds
Leon County, Florida

SCALE:	1" = 4'	DATE:	February 1998
PROJ. NO.:	16-03-97	FIG. NO.:	19



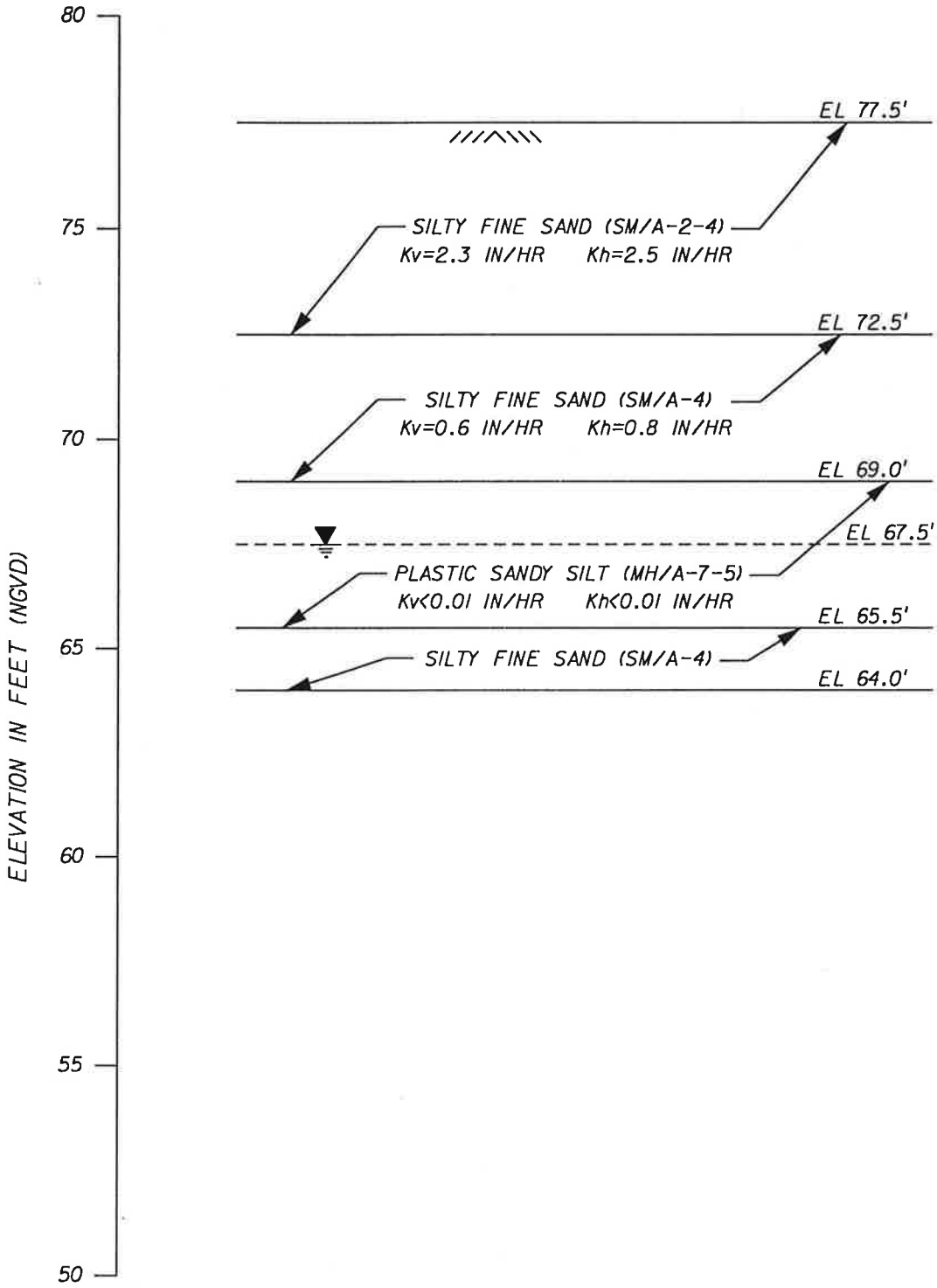
GENERALIZED SOIL PROFILE
(LYNCHBURG FINE SAND)
STORMWATER POND 4

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
SR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-03-97

EGS
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

GENERALIZED SOIL PROFILE
STORMWATER POND No. 4
Buck Lake Stormwater Ponds
Leon County, Florida

SCALE:	1" = 4'	DATE:	February 1998
PROJ. NO.:	16-03-97	FIG. NO.:	20



GENERALIZED SOIL PROFILE
(ORANGEBURG SILTY FINE SAND)
STORMWATER POND 5

DRAWN BY:	J. SMITH
REVISED:	J. SMITH
CHECKED:	M. HAYDEN, P.E.
ENGINEER:	M. HAYDEN, P.E.
BR. ENGINEER:	M. HAYDEN, P.E.
PROJ. NO.:	16-03-97

EGS
ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.
2012 NORTH POINT BLVD. SUITE C
TALLAHASSEE, FLORIDA 32308
OFFICE : (850) 386-1253 FAX : (850) 385-8050

GENERALIZED SOIL PROFILE
STORMWATER POND No. 5
Buck Lake Stormwater Ponds
Leon County, Florida

SCALE:	1" = 4'	DATE:	February 1998
PROJ. NO.:	16-03-97	FIG. NO.:	21

APPENDIX A

BORING LOGS

STORMWATER POND NO. 1

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO.1) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 12/04/97

BORING NO.: SPI - 1 BORING LOCATION: 120+20 (145ft NORTH OF ℄) ELEVATION 82.50ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			REDDISH BROWN SILTY FINE SAND	SM (A-2-4)		13 16 14 10 13 15 15 15 13 11 11	-200=33% -200=34%	
2m									
3m	10'								
4m	15'			GREENISH BROWN SILTY FINE SAND	SM (A-2-4)		11 12 11		
5m				TAN SILTY FINE SAND	SM (A-2-4)		13 14 12 11 11 12 16 13 19	-200=31%	
6m	20'								
7m	▼								
8m	25'								
9m	30'								
10m	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE - DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 5) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-04-97

BORING NO.: SP5 - 1 BORING LOCATION: 58+90 (537 ft SOUTH OF ℄) ELEVATION 77.5 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m				BROWN SILTY FINE SAND	SM (A-2-4)		11	-200=19%	
					SM (A-2-4)		11		
							11		
	5'						18		
2m				REDDISH BROWN SILTY SAND	SM (A-4)		20	-200=41% LL=37 PI=8	
					SM (A-4)		19		
							20		
							23		
3m	10'			GRAY PLASTIC SILT	MH (A-7-5)		20	-200=80% LL=95 PI=42	
							34		
							38		
4m				GRAYISH BROWN SILTY SAND	SM (A-4)		26	-200=36%	
							31		
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

• N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS (POND NO. 5) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: CH - 3 BORING LOCATION: 59+00 (665 ft SOUTH OF ℄) ELEVATION 76.2 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
1m	5'			BROWN SILTY FINE SAND	SM (A-2-4)		9	ORG.-0.9%		
					SM (A-2-4)		10 9	-200-16%		
2m					SM (A-2-4)		7 8			
					SM (A-2-4)		14 14			
3m	10'			BROWN AND GRAY SILTY SAND	SM (A-4)		18 17	LL-28 -200-36% PI-2		
4m	15'						28	-200-36%		
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK

STICK UP: 2'10"

PREPARED FOR BASKERVILLE DONOVAN, INC.

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS (POND NO. 5) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: CH - 4 BORING LOCATION: 58+80 (545 ft SOUTH OF ℄) ELEVATION 78.8 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
1m				BROWN SILTY FINE SAND	SM (A-2-4)		10			
							13	-200-17%		
					SM (A-2-4)		11			
	5'						14			
2m				GRAY AND BROWN HIGHLY PLASTIC SILT	MH (A-7-5)		25	-200-50% PI-15 LL-44 LL-106		
							39	-200-81% PI-72		
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK

STICK UP 1'8"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER SWALES

EXPLORATION LOG

PROJECT: BUCK LAKE STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 01/05/97

BORING NO.: DR-1 — BORING LOCATION: 118+65 (48 FT NORTH OF C_L) — ELEVATION 90.4

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
				REDDISH BROWN SILTY SAND	SM (A-4)		22	-200-36% LL - 28 PI - 9	
1m							20		
					SM (A-4)		21		
	5'						21		
				REDDISH BROWN SILTY SAND	SM (A-2-4)		16	-200-28% LL - 23 PI - 6	
2m							16		
3m	10'								
4m									
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 01/05/97

BORING NO.: DR-2 — BORING LOCATION: 119+80 (47 FT SOUTH OF $\mathbb{C}_L$) — ELEVATION 82.5

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			REDDISH BROWN SILTY SAND	SM (A-4)		22	-200-39%	
					SM (A-4)		21 20 20		
2m				REDDISH BROWN SILTY SAND	SM (A-2-4)		18 18	-200-32%	
3m	10'								
4m									
5m	15'								
6m	20'								
7m									
8m	25'								
9m	30'								
10m									
	35'								

• N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO.1) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 12/04/97

BORING NO.: SPT - 2 BORING LOCATION: 120+03 (245ft NORTH OF ℄) ELEVATION 83.50ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m							14		
							16		
							18		
							19	-200-44% LL=34 PI=7	
	5'			REDDISH BROWN SILTY SAND	SM (A-4)		17		
2m							14		
							14		
							13		
3m	10'						13		
							12		
							7		
4m							8		
							8		
	15'						8		
							11		
5m							5		
				LIGHT BROWN SILTY FINE SAND	SM (A-2-4)		5		
							5	-200-16%	
6m	20'						6		
							7		
							7		
7m							7		
							9		
							11		
	25'			GRAY SILT WITH LOW PLASTICITY	ML (A-4)		15	-200-52% LL=30 PI=4	
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE - DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS (POND NO.1) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: CH - 9 BORING LOCATION: 121+10 (200 ft NORTH OF ℄) ELEVATION 79.30 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
1m				REDDISH BROWN SILTY SAND	SM (A-4)		18 20 17	LL=29 -200=41% PI=6		
	5'			REDDISH BROWN SILTY FINE SAND	SM (A-2-4)		15 13	-200=27%		
2m										
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'7"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS (POND NO.1) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: CH - 10 BORING LOCATION: 120+10 (110 ft NORTH OF C$\underline{\ell}$ ELEVATION 82.65 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
				REDDISH BROWN SILTY FINE SAND	SM (A-2-4)		12 14			
1m							21			
	5'			REDDISH BROWN SILTY SAND	SM (A-4)		20	-200=48%		
2m					SM (A-4)		15 14			
							16			
					SM (A-4)		16	-200=41% LL=35 PI=8		
3m	10'			REDDISH BROWN SILTY FINE SAND	SM (A-2-4)		15 13	-200=24%		
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in. SCREEN & RISER 2in TRI-LOCK STICK UP 2'8"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER POND NO. 2

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-03-97

BORING NO.: SP2 - 1 — BORING LOCATION: STORMWATER POND #2 — ELEVATION

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
				LOOSE BROWN SILTY SAND	SM (A-4)	2	19	(1-1-1) -200=45%	●
1m	5'			STIFF GRAYISH BROWN PLASTIC SILT	MH (A-7-5)	29	14	(6-12-16)	●
2m									
3m	10'			MEDIUM STIFF GRAYISH BROWN PLASTIC SILT	MH (A-7-5)	11	16	(5-5-6)	●
4m									
	15'				MH (A-7-5)	5	21	(3-3-2)	●
5m									
6m	20'				MH (A-7-5)	4	19	(3-2-2) -200=76%	●
7m									
	25'				MH (A-7-5)	4	16	(2-2-2)	●
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 2) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: SP2 - 2 BORING LOCATION: 100+70 (155 FT NORTH OF ℄) ELEVATION 124.3 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			BROWN LOW PLASTIC SILT	ML (A-4)	7	24	(2-3-4) -200=54% LL=39 PI=9	●
2m					ML (A-4)	25	18	(3-9-16) -200=57%	●
3m	10'			DENSE BROWN SILTY SAND	SM (A-4)	22	15	(7-12-10) -200=38% LL=29 PI=7	●
4m									
5m	15'				SM (A-4)	21	14	(8-11-10)	●
6m	20'			DENSE BROWN SILTY FINE SAND	SM (A-2-4)	14	12	(7-7-7)	●
7m									
	25'				SM (A-2-4)	20	11	(7-9-11) -200=16%	●
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 2) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 12/05/97

BORING NO.: SP2-3 BORING LOCATION: 99+80 (78 ft NORTH OF ℄) ELEVATION 124.4 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m				GRAYISH BROWN SILTY SAND	SM (A-4)		17 18 19 23	-200-36% LL-24 PI-6 LL-28 -200-39% PI-6	
	5'								
2m				GRAY CLAYEY SAND	SC (A-6)		18 14 13	-200-41% LL-32 PI-13	
3m	10'			GRAY SILTY FINE SAND	SM (A-2-4)		13 14 15 14	-200-24%	
4m									
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE - DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 2) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 12/05/97

BORING NO.: SP2-4 BORING LOCATION: 99+40 (110 ft NORTH OF ℄) ELEVATION 124.6 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			GRAY AND BROWN SILTY SAND	SM (A-4)		21 21 23 15 14	-200=49% LL=33 PI=10 -200=39%	
2m							16		
3m	10'			GRAY AND BROWN SILT WITH LOW PLASTICITY	ML (A-6)		18 17 17 17	LL=39 -200=53% PI=14	
4m	15'			GRAY AND ORANGISH BROWN SILTY FINE SAND	SM (A-2-4)		15 16 15 19 15	-200=29%	
5m									
6m	20'								
7m									
8m	25'								
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE - DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 2) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 12/05/97

BORING NO.: SP2-5 BORING LOCATION: 99+05 (175 ft NORTH OF ℄) ELEVATION 124.8 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			GRAY AND BROWN SILT WITH LOW PLASTICITY	ML (A-7-5)		16 17 20 19 19 20 17 18	-200=58% LL=48 PI=17	
3m	10'			GRAY AND BROWN SILTY SAND	SM (A-4)		17 16 15 23 15	-200=36% LL=32 PI=10 -200=39% LL=27 PI=6 -200=38%	
4m									
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE - DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-04-97

BORING NO.: CH - 7 — BORING LOCATION: 99+30 (100 ft NORTH OF ℄) — ELEVATION 124.56 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
				BROWN SILTY FINE SAND	SM (A-2-4)		22 23	-200=25% -200=33% ORG.=2.5%		
1m	5'			GRAY AND BROWN SILTY SAND	SM (A-4)		20 15 16	LL=24 -200=38% PI=4 LL=30 -200=45% PI=7		
2m										
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST — WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'2"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-04-97

BORING NO.: CH - 8 — BORING LOCATION: 100+80 (120 ft NORTH OF ℄) — ELEVATION 124.00 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
				BROWN SILTY FINE SAND	SM (A-2-4)		21 17	-200=34% -200=32%		
1m 2m	5'			BROWN SILTY AND	SM (A-4) SM (A-4)		18 17 16 14 15	-200=36%		
3m	10'			GRAY AND BROWN CLAYEY SAND	SC (A-6)		17 18 20	-200=49% LL=36 PI=11		
4m	15'									
5m										
6m	20'									
7m	25'									
8m										
9m	30'									
10m	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST — WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'3"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER POND NO. 3

EXPLORATION LOG

PROJECT: BUCK LAKE STORMWATER PONDS (POND NO. 3) PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 01/05/97

BORING NO.: SP3-1 BORING LOCATION: 65+70 (128 FT SOUTH OF ℄) ELEVATION 82.8 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m				BROWN SILTY FINE SAND	SM (A-2-4)		11		
					SM (A-2-4)		12		
							13		
	5'			GRAY AND BROWN SILTY SAND	SM (A-4)		20		
2m							21	-200=36% LL=34 PI=10	
					SM (A-4)		22		
							24		
					SM (A-4)		23		
3m	10'						25		
				GRAY AND BROWN PLASTIC SILT	MH (A-7-5)		29		
							32		
4m					MH (A-7-5)		32	-200=72% LL=59 PI=12	
							60		
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-06-97

BORING NO.: CH - 5 — BORING LOCATION: 64+48 (90 ft SOUTH OF LC) — ELEVATION 80.61 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
				BROWN SILTY FINE SAND	SM (A-2-4)		10 16	-200-26%		
1m	5'			GRAY CLAYEY SAND	SC (A-7-6)		20 21 20	-200=41% LL=45 -200=46% PI=18		
2m										
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST — WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'1"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-06-97

BORING NO.: CH - 6 — BORING LOCATION: 65+15 (102 ft SOUTH OF ℄) — ELEVATION 81.40 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
					SM (A-2-4)		10			
1m							9			
				TAN AND GRAY SILTY FINE SAND	SM (A-2-4)		10	-200=20%		
	5'						14			
					SM (A-2-4)		14			
2m							12			
					SM (A-2-4)		16			
							16	-200=33%		
3m	10'			TAN AND GRAY SILTY SAND	SM (A-4)		22	LL=35		
							26	-200=42% PI=9		
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST — WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'7"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER POND NO. 4

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 4) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: SP4 - 1 BORING LOCATION: 60+35 (789 ft SOUTH OF ℄) ELEVATION 85.1 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m				LOOSE REDDISH BROWN SILTY FINE SAND	SM (A-2-4)	2	15	(1-1-1)	●
2m	5'			REDDISH BROWN CEMENTED SILTY FINE SAND	SM (A-2-4)	28	11	(6-12-16)	●
3m	10'			STIFF GRAYISH BROWN PLASTIC SILT	MH (A-7-5)	11	24	(5-5-6) -200=56% LL=60 PI=18	●
4m									
5m	15' ▼			LOOSE GRAYISH TAN SILTY FINE SAND	SM (A-2-4)	5	26	(3-3-2)	●
6m	20'				SM (A-2-4)	4	24	(3-2-2) -200=17%	●
7m									
8m	25'				SM (A-2-4)	4	26	(2-2-2)	●
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 4) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: SP4 - 2 BORING LOCATION: ELEVATION 83.8 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m				LOOSE DARK BROWN SILTY FINE SAND	SM (A-2-4)	3	11	(1-1-2) -200=18%	●
2m	5'			DENSE REDDISH BROWN SILTY FINE SAND	SM (A-2-4)	25	11	(6-11-14)	●
3m	10'				SM (A-2-4)	16	9	(6-9-7)	●
4m									
5m	15' ▼			MEDIUM STIFF GRAY PLASTIC SILT	MH (A-7-5)	10	34	(4-5-5) -200=72% LL=85 PI=29	●
6m	20'			MEDIUM DENSE GRAYISH TAN SILTY FINE SAND	SM (A-2-4)	7	26	(3-3-4)	●
7m	25'				SM (A-2-4)	9	30	(3-4-5) -200=13%	●
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 4) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 10-27-97

BORING NO.: SP4 - 3 BORING LOCATION: ELEVATION

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			BROWN SILTY FINE SAND	SM (A-2-4)		7		
					SM (A-2-4)		9		
					SM (A-2-4)		12		
2m					SM (A-2-4)		14	-200=30%	
					SM (A-2-4)		13		
					SM (A-2-4)		13		
3m	10'				SM (A-2-4)		11		
					SM (A-2-4)		9		
					SM (A-2-4)		8		
4m					SM (A-2-4)		7		
	15'				SM (A-2-4)		8		
5m					SM (A-2-4)		8		
					SM (A-2-4)		8		
					SM (A-2-4)		12		
6m	20'				SM (A-2-4)		13	-200=25%	
7m	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 4) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 10-24-97

BORING NO.: SP4 - 4 BORING LOCATION: ELEVATION

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE * 10^0 10^1 10^2
					SM (A-4)		12		
					SM (A-4)		14	-200=38% LL=31 PL=7	
1m					SM (A-4)		14		
	5'			BROWN SILTY SAND	SM (A-4)		12		
2m					SM (A-4)		11		
					SM (A-4)		10		
					SM (A-4)		11		
					SM (A-4)		10		
3m	10'				SM (A-4)		10	-200=39%	
							9		
4m									
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 4) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 10-24-97

BORING NO.: SP4 - 5 BORING LOCATION: ELEVATION

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
1m	5'			BROWN SILTY FINE SAND	SM (A-2-4)		5		
					SM (A-2-4)		8		
2m					SM (A-2-4)		12		
					SM (A-2-4)		13		
					SM (A-2-4)		12	-200=34%	
3m	10'				SM (A-2-4)		12		
					SM (A-2-4)		12		
					SM (A-2-4)		11		
4m					SM (A-2-4)		10		
					SM (A-2-4)		10		
	15'				SM (A-2-4)		10	-200=21%	
5m							11		
					SM (A-2-4)		11		
6m	20'						9		
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-03-97

BORING NO.: CH - 1 — BORING LOCATION: 60+40 (760 ft SOUTH OF ℄) — ELEVATION 83.04 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA
				BROWN SILTY FINE SAND	SM (A-2-4)		12	
							12	-200=22%
1m					SM (A-2-4)		14	
							12	
	5'			ORANGISH BROWN CLAYEY SAND	SC (A-6)		16	LL=30
2m							15	-200-38% PI=11
				ORANGISH BROWN SILTY FINE SAND	SM (A-2-4)		11	
							11	-200-26%
3m	10'				SM (A-2-4)		11	LL=28
							13	-200-25% PI=6
4m								
	15'							
5m								
6m	20'							
7m								
	25'							
8m								
9m	30'							
10m								
	35'							

D VALUE: 10^0 10^1 10^2

WCD

* D VALUE FOR DYNAMIC PENETRATION TEST

WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'10"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 11-03-97

BORING NO.: CH - 2 — BORING LOCATION: 60+30 (630 ft SOUTH OF ℄) — ELEVATION 82.93 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
1m				ORANGISH BROWN SILTY FINE SAND	SM (A-2-4)		11 11 15	-200=21% -200=26%		
	5'			ORANGISH BROWN SILTY SAND	SM (A-4)		14 13	LL=30 -200=36% PI=7		
2m										
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST — WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 2'8"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER POND NO. 5

EXPLORATION LOG

PROJECT: BUCK LAKE ROAD STORMWATER POND (POND NO. 5) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-04-97

BORING NO.: SP5 - 1 BORING LOCATION: 58+90 (537 ft SOUTH OF ℄) ELEVATION 77.5 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
				BROWN SILTY FINE SAND	SM (A-2-4)		11		
1m					SM (A-2-4)		11	-200=19%	
							11		
	5'						18		
				REDDISH BROWN SILTY SAND	SM (A-4)		20		
2m							19	-200=41% LL=37 PI=8	
					SM (A-4)		20		
							23		
3m	10'			GRAY PLASTIC SILT	MH (A-7-5)		20		
							34	-200=80% LL=95 PI=42	
							38		
4m				GRAYISH BROWN SILTY SAND	SM (A-4)		26	-200=36%	
	15'						31		
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

EXPLORATION AND WELL LOG

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS (POND NO. 5) PAGE 1 OF 1

PROJECT NUMBER: 16-10-97 SITE LOCATION: LEON COUNTY, FLORIDA DATE: 11-03-97

BORING NO.: CH - 4 BORING LOCATION: 58+80 (545 ft SOUTH OF ℄) ELEVATION 78.8 ft

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	D	Wc %	OTHER DATA	D VALUE 10^0 10^1 10^2	WCD
1m				BROWN SILTY FINE SAND	SM (A-2-4)		10			
							13	-200=17%		
					SM (A-2-4)		11			
	5'						14			
2m				GRAY AND BROWN HIGHLY PLASTIC SILT	MH (A-7-5)		25	-200=50% PI=15 LL=44 LL=106		
							39	-200=81% PI=72		
3m	10'									
4m										
	15'									
5m										
6m	20'									
7m										
	25'									
8m										
9m	30'									
10m										
	35'									

* D VALUE FOR DYNAMIC PENETRATION TEST WCD = WELL CONSTRUCTION DETAIL

SCREEN 0.010 SLOTS FILTER 20/30 SAND SEAL BENTONITE HOLE SIZE 3in SCREEN & RISER 2in TRI-LOCK STICK UP 1'8"

PREPARED FOR BASKERVILLE DONOVAN, INC

PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC

STORMWATER SWALES

EXPLORATION LOG

PROJECT: BUCK LAKE STORMWATER PONDS — PAGE 1 OF 1

PROJECT NUMBER: 16-09-97 — SITE LOCATION: LEON COUNTY, FLORIDA — DATE: 01/05/97

BORING NO.: DR-1 — BORING LOCATION: 118+65 (48 FT NORTH OF C_L) — ELEVATION 90.4

DEPTH METER	DEPTH FEET	SAMPLE	SYMBOLS	DESCRIPTION	USCS (AASHTO)	N	Wc %	OTHER DATA	N VALUE 10^0 10^1 10^2
				REDDISH BROWN SILTY SAND	SM (A-4)		22	-200=36% LL = 28 PI = 9	
1m							20		
	5'				SM (A-4)		21		
							21		
				REDDISH BROWN SILTY SAND	SM (A-2-4)		16	-200=28% LL = 23 PI = 6	
2m							16		
3m	10'								
4m									
	15'								
5m									
6m	20'								
7m									
	25'								
8m									
9m	30'								
10m									
	35'								

* N VALUE FOR STANDARD PENETRATION TEST

PREPARED FOR: BASKERVILLE DONOVAN, INC.

PREPARED BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

APPENDIX B

SOIL CLASSIFICATION DATA

STORMWATER POND NO. 1

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-1
BUCK LAKE RD/PEDRICK RD
SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP1-1	0.3 - 0.5	1.0 - 1.5	13										SM	A-2-4
SP1-1	0.6 - 0.8	2.0 - 2.5	16										SM	A-2-4
SP1-1	0.9 - 1.1	3.0 - 3.5	14										SM	A-2-4
SP1-1	1.2 - 1.4	4.0 - 4.5	10	100	100	99	87	44	33				SM	A-2-4
SP1-1	1.5 - 1.7	5.0 - 5.5	13										SM	A-2-4
SP1-1	1.8 - 2.0	6.0 - 6.5	15										SM	A-2-4
SP1-1	2.1 - 2.3	7.0 - 7.5	15										SM	A-2-4
SP1-1	2.4 - 2.6	8.0 - 8.5	15										SM	A-2-4
SP1-1	2.7 - 2.9	9.0 - 9.5	13										SM	A-2-4
SP1-1	3.0 - 3.2	10.0 - 10.5	11	100	100	99	89	47	34				SM	A-2-4
SP1-1	3.4 - 3.5	11.0 - 11.5	11										SM	A-2-4
SP1-1	3.7 - 3.8	12.0 - 12.5	11										SM	A-2-4
SP1-1	4.0 - 4.1	13.0 - 13.5	12										SM	A-2-4
SP1-1	4.3 - 4.4	14.0 - 14.5	11										SM	A-2-4
SP1-1	4.6 - 4.7	15.0 - 15.5	13										SM	A-2-4
SP1-1	4.9 - 5.0	16.0 - 16.5	14										SM	A-2-4
SP1-1	5.2 - 5.3	17.0 - 17.5	12										SM	A-2-4
SP1-1	5.5 - 5.6	18.0 - 18.5	11										SM	A-2-4
SP1-1	5.8 - 5.9	19.0 - 19.5	11										SM	A-2-4
SP1-1	6.1 - 6.3	20.0 - 20.5	12										SM	A-2-4
SP1-1	6.4 - 6.6	21.0 - 21.5	16										SM	A-2-4
SP1-1	6.7 - 6.9	22.0 - 22.5	13										SM	A-2-4
SP1-1	7.0 - 7.2	23.0 - 23.5	19	100	100	99	91	45	31				SM	A-2-4
SP1-2	0.3 - 0.5	1.0 - 1.5	14										SM	A-4
SP1-2	0.6 - 0.8	2.0 - 2.5	16										SM	A-4
SP1-2	0.9 - 1.1	3.0 - 3.5	18										SM	A-4
SP1-2	1.2 - 1.4	4.0 - 4.5	19	100	100	99	90	57	44	34	7		SM	A-4
SP1-2	1.5 - 1.7	5.0 - 5.5	17										SM	A-4
SP1-2	1.8 - 2.0	6.0 - 6.5	14										SM	A-4
SP1-2	2.1 - 2.3	7.0 - 7.5	14										SM	A-4
SP1-2	2.4 - 2.6	8.0 - 8.5	13										SM	A-4
SP1-2	2.7 - 2.9	9.0 - 9.5	13										SM	A-4
SP1-2	3.0 - 3.2	10.0 - 10.5	12										SM	A-2-4
SP1-2	3.4 - 3.5	11.0 - 11.5	7										SM	A-2-4
SP1-2	3.7 - 3.8	12.0 - 12.5	8										SM	A-2-4
SP1-2	4.0 - 4.1	13.0 - 13.5	8										SM	A-2-4
SP1-2	4.3 - 4.4	14.0 - 14.5	8										SM	A-2-4
SP1-2	4.6 - 4.7	15.0 - 15.5	11										SM	A-2-4
SP1-2	4.9 - 5.0	16.0 - 16.5	5										SM	A-2-4
SP1-2	5.2 - 5.3	17.0 - 17.5	5										SM	A-2-4
SP1-2	5.5 - 5.6	18.0 - 18.5	5	100	100	99	83	27	16				SM	A-2-4
SP1-2	5.8 - 5.9	19.0 - 19.5	6										SM	A-2-4
SP1-2	6.1 - 6.3	20.0 - 20.5	7										SM	A-2-4
SP1-2	6.4 - 6.6	21.0 - 21.5	7										SM	A-2-4
SP1-2	6.7 - 6.9	22.0 - 22.5	7										SM	A-2-4
SP1-2	7.0 - 7.2	23.0 - 23.5	9										SM	A-2-4
SP1-2	7.3 - 7.5	24.0 - 24.5	11										SM	A-2-4
SP1-2	7.6 - 7.8	25.0 - 25.5	15	100	100	99	91	63	52	30	4		ML	A-4

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-1

BUCK LAKE RD/PEDRICK RD

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
CH-9	0.3 - 0.5	1.0 - 1.5	18										SM	A-4
CH-9	0.6 - 0.8	2.0 - 2.5	20	100	100	99	91	54	41	29	6		SM	A-4
CH-9	0.9 - 1.1	3.0 - 3.5	17										SM	A-4
CH-9	1.2 - 1.4	4.0 - 4.5	15										SM	A-2-4
CH-9	1.5 - 1.7	5.0 - 5.5	13	100	100	99	90	46	27				SM	A-2-4
CH-10	0.3 - 0.5	1.0 - 1.5	12										SM	A-2-4
CH-10	0.6 - 0.8	2.0 - 2.5	14										SM	A-2-4
CH-10	0.9 - 1.1	3.0 - 3.5	21										SM	A-4
CH-10	1.2 - 1.4	4.0 - 4.5	20	100	100	99	91	61	48				SM	A-4
CH-10	1.5 - 1.7	5.0 - 5.5	15										SM	A-4
CH-10	1.8 - 2.0	6.0 - 6.5	14										SM	A-4
CH-10	2.1 - 2.3	7.0 - 7.5	16										SM	A-4
CH-10	2.4 - 2.6	8.0 - 8.5	16	100	100	99	89	50	41	35	8		SM	A-4
CH-10	2.7 - 2.9	9.0 - 9.5	15										SM	A-4
CH-10	3.0 - 3.2	10.0 - 10.5	13	100	100	99	97	44	24				SM	A-2-4

STORMWATER POND NO. 2

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-2

BUCK LAKE RD/HIGHLAND DR

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP2-1	0.0 - 0.5	0.0 - 1.5	19	100	100	100	92	55	45				SM	A-4
SP2-1	1.5 - 2.0	5.0 - 6.5	14										MH	A-7-5
SP2-1	3.0 - 3.5	10.0 - 11.5	16										MH	A-7-5
SP2-1	4.6 - 5.0	15.0 - 16.5	21										MH	A-7-5
SP2-1	6.1 - 6.6	20.0 - 21.5	19	100	100	100	97	96	76				MH	A-7-5
SP2-1	7.2 - 7.6	23.5 - 25.0	16										MH	A-7-5
SP2-2	0.0 - 0.5	0.0 - 1.5	24	100	100	100	94	63	54	39	9		ML	A-4
SP2-2	1.5 - 2.0	5.0 - 6.5	18	100	100	98	98	73	57				ML	A-4
SP2-2	3.0 - 3.5	10.0 - 11.5	15	100	100	100	99	59	38	29	7		SM	A-4
SP2-2	4.6 - 5.0	15.0 - 16.5	14										SM	A-4
SP2-2	6.1 - 6.6	20.0 - 21.5	12										SM	A-2-4
SP2-2	7.2 - 7.6	23.5 - 25.0	11	100	99	90	40	19	16				SM	A-2-4
CH-7	0.3 - 0.5	1.0 - 1.5	22	100	100	98	91	44	25				SM	A-2-4
CH-7	0.6 - 0.8	2.0 - 2.5	23	100	100	98	90	46	33			2.5	SM	A-2-4
CH-7	0.9 - 1.1	3.0 - 3.5	20	100	100	99	92	55	38	24	4		SM	A-4
CH-7	1.2 - 1.4	4.0 - 4.5	15										SM	A-4
CH-7	1.5 - 1.7	5.0 - 5.5	16	100	100	99	94	52	45	30	7		SM	A-4
CH-8	0.3 - 0.5	1.0 - 1.5	21	100	100	98	91	46	34				SM	A-2-4
CH-8	0.6 - 0.8	2.0 - 2.5	17	100	100	98	91	45	32				SM	A-2-4
CH-8	0.9 - 1.1	3.0 - 3.5	18										SM	A-4
CH-8	1.2 - 1.4	4.0 - 4.5	17										SM	A-4
CH-8	1.5 - 1.7	5.0 - 5.5	16	100	100	99	94	50	36				SM	A-4
CH-8	1.8 - 2.0	6.0 - 6.5	14										SM	A-4
CH-8	2.1 - 2.3	7.0 - 7.5	15										SM	A-4
CH-8	2.4 - 2.6	8.0 - 8.5	17										SC	A-6
CH-8	2.7 - 2.9	9.0 - 9.5	18	100	100	99	96	63	49	36	11		SC	A-6
CH-8	3.0 - 3.2	10.0 - 10.5	20										SC	A-6

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

SP2-3 THROUGH SP2-5

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP2-3	0.3 - 0.5	1.0 - 1.5	17										SM	A-4
SP2-3	0.6 - 0.8	2.0 - 2.5	18	100	98	97	91	45	36	24	6		SM	A-4
SP2-3	0.9 - 1.1	3.0 - 3.5	19										SM	A-4
SP2-3	1.2 - 1.4	4.0 - 4.5	23	100	99	99	95	42	39	28	6		SM	A-4
SP2-3	1.5 - 1.7	5.0 - 5.5	18										SC	A-6
SP2-3	1.8 - 2.0	6.0 - 6.5	14	100	100	100	99	46	41	32	13		SC	A-6
SP2-3	2.1 - 2.3	7.0 - 7.5	12										SC	A-6
SP2-3	2.4 - 2.6	8.0 - 8.5	12										SM	A-2-4
SP2-3	2.7 - 2.9	9.0 - 9.5	14	100	100	98	72	25	24				SM	A-2-4
SP2-3	3.0 - 3.2	10.0 - 10.5	15										SM	A-2-4
SP2-3	3.4 - 3.5	11.0 - 11.5	14										SM	A-2-4
SP2-4	0.3 - 0.5	1.0 - 1.5	21										SM	A-4
SP2-4	0.6 - 0.8	2.0 - 2.5	21										SM	A-4
SP2-4	0.9 - 1.1	3.0 - 3.5	23	100	100	99	94	57	49	33	10		SM	A-4
SP2-4	1.2 - 1.4	4.0 - 4.5	15										SM	A-4
SP2-4	1.5 - 1.7	5.0 - 5.5	14	100	100	95	94	50	39				SM	A-4
SP2-4	1.8 - 2.0	6.0 - 6.5	16										SM	A-4
SP2-4	2.1 - 2.3	7.0 - 7.5	18										ML	A-6
SP2-4	2.4 - 2.6	8.0 - 8.5	17										ML	A-6
SP2-4	2.7 - 2.9	9.0 - 9.5	17	100	100	100	97	61	53	39	14		ML	A-6
SP2-4	3.0 - 3.2	10.0 - 10.5	17										ML	A-6
SP2-4	3.4 - 3.5	11.0 - 11.5	15										SM	A-2-4
SP2-4	3.7 - 3.8	12.0 - 12.5	16										SM	A-2-4
SP2-4	4.0 - 4.1	13.0 - 13.5	15	100	100	94	90	44	29				SM	A-2-4
SP2-4	4.3 - 4.4	14.0 - 14.5	19										SM	A-2-4
SP2-4	4.6 - 4.7	15.0 - 15.5	15										SM	A-2-4
SP2-5	0.3 - 0.5	1.0 - 1.5	16										ML	A-7-5
SP2-5	0.6 - 0.8	2.0 - 2.5	17										ML	A-7-5
SP2-5	0.9 - 1.1	3.0 - 3.5	20										ML	A-7-5
SP2-5	1.2 - 1.4	4.0 - 4.5	19	100	100	100	97	66	58	48	17		ML	A-7-5
SP2-5	1.5 - 1.7	5.0 - 5.5	19										ML	A-7-5
SP2-5	1.8 - 2.0	6.0 - 6.5	20										ML	A-7-5
SP2-5	2.1 - 2.3	7.0 - 7.5	17										ML	A-7-5
SP2-5	2.4 - 2.6	8.0 - 8.5	18										ML	A-7-5
SP2-5	2.7 - 2.9	9.0 - 9.5	17	100	100	95	91	50	36	32	10		SM	A-4
SP2-5	3.0 - 3.2	10.0 - 10.5	16										SM	A-4
SP2-5	3.4 - 3.5	11.0 - 11.5	15										SM	A-4
SP2-5	3.7 - 3.8	12.0 - 12.5	23	100	100	100	95	49	39	27	6		SM	A-4
SP2-5	4.0 - 4.1	13.0 - 13.5	15	100	100	99	99	45	38				SM	A-4

STORMWATER POND NO. 3

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-3

BUCK LAKE RD/DAVIS DR

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP3-1	0.3 - 0.5	1.0 - 1.5	11										SM	A-2-4
SP3-1	0.6 - 0.8	2.0 - 2.5	12										SM	A-2-4
SP3-1	0.9 - 1.1	3.0 - 3.5	13										SM	A-2-4
SP3-1	1.2 - 1.4	4.0 - 4.5	20										SM	A-4
SP3-1	1.5 - 1.7	5.0 - 5.5	21	98	98	97	91	53	36	34	10		SM	A-4
SP3-1	1.8 - 2.0	6.0 - 6.5	22										SM	A-4
SP3-1	2.1 - 2.3	7.0 - 7.5	24										SM	A-4
SP3-1	2.4 - 2.6	8.0 - 8.5	23										SM	A-4
SP3-1	2.7 - 2.9	9.0 - 9.5	25										SM	A-4
SP3-1	3.0 - 3.2	10.0 - 10.5	29										MH	A-7-5
SP3-1	3.4 - 3.5	11.0 - 11.5	32										MH	A-7-5
SP3-1	3.7 - 3.8	12.0 - 12.5	52	100	100	100	100	90	72	59	12		MH	A-7-5
SP3-1	4.0 - 4.1	13.0 - 13.5	60										MH	A-7-5
CH-5	0.3 - 0.5	1.0 - 1.5	10										SM	A-2-4
CH-5	0.6 - 0.8	2.0 - 2.5	16	100	100	99	88	39	26				SM	A-2-4
CH-5	0.9 - 1.1	3.0 - 3.5	20	100	100	99	92	59	41				SC	A-7-6
CH-5	1.2 - 1.4	4.0 - 4.5	21										SC	A-7-6
CH-5	1.5 - 1.7	5.0 - 5.5	20	100	100	100	92	58	46	45	18		SC	A-7-6
CH-6	0.3 - 0.5	1.0 - 1.5	10										SM	A-2-4
CH-6	0.6 - 0.8	2.0 - 2.5	9										SM	A-2-4
CH-6	0.9 - 1.1	3.0 - 3.5	10	100	100	98	90	40	20				SM	A-2-4
CH-6	1.2 - 1.4	4.0 - 4.5	14										SM	A-2-4
CH-6	1.5 - 1.7	5.0 - 5.5	14										SM	A-2-4
CH-6	1.8 - 2.0	6.0 - 6.5	12										SM	A-2-4
CH-6	2.1 - 2.3	7.0 - 7.5	16										SM	A-2-4
CH-6	2.4 - 2.6	8.0 - 8.5	16	100	100	99	91	47	33				SM	A-2-4
CH-6	2.7 - 2.9	9.0 - 9.5	22										SM	A-4
CH-6	3.0 - 3.2	10.0 - 10.5	26	100	100	100	99	62	42	35	9		SM	A-4

STORMWATER POND NO. 4

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-4

FALLSCHASE

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP4-1	0.0 - 0.5	0.0 - 1.5	15										SM	A-2-4
SP4-1	1.5 - 2.0	5.0 - 6.5	11										SM	A-2-4
SP4-1	3.0 - 3.5	10.0 - 11.5	24	100	98	98	98	84	56	60	18		MH	A-7-5
SP4-1	4.6 - 5.0	15.0 - 16.5	26										SM	A-2-4
SP4-1	6.1 - 6.6	20.0 - 21.5	24	98	97	96	93	28	17				SM	A-2-4
SP4-1	7.2 - 7.6	23.5 - 25.0	26										SM	A-2-4
SP4-2	0.0 - 0.5	0.0 - 1.5	11	98	98	96	82	41	18				SM	A-2-4
SP4-2	1.5 - 2.0	5.0 - 6.5	11										SM	A-2-4
SP4-2	3.0 - 3.5	10.0 - 11.5	9										SM	A-2-4
SP4-2	4.6 - 5.0	15.0 - 16.5	34	100	100	100	100	89	72	85	29		MH	A-7-5
SP4-2	6.1 - 6.6	20.0 - 21.5	26										SM	A-2-4
SP4-2	7.2 - 7.6	23.5 - 25.0	30	100	99	88	42	14	13				SM	A-2-4
SP4-3	0.3 - 0.5	1.0 - 1.5	7										SM	A-2-4
SP4-3	0.6 - 0.8	2.0 - 2.5	9										SM	A-2-4
SP4-3	0.9 - 1.1	3.0 - 3.5	12										SM	A-2-4
SP4-3	1.2 - 1.4	4.0 - 4.5	14	100	100	99	89	43	30				SM	A-2-4
SP4-3	1.5 - 1.7	5.0 - 5.5	13										SM	A-2-4
SP4-3	1.8 - 2.0	6.0 - 6.5	13										SM	A-2-4
SP4-3	2.1 - 2.3	7.0 - 7.5	11										SM	A-2-4
SP4-3	2.4 - 2.6	8.0 - 8.5	9										SM	A-2-4
SP4-3	2.7 - 2.9	9.0 - 9.5	8										SM	A-2-4
SP4-3	3.0 - 3.2	10.0 - 10.5	7										SM	A-2-4
SP4-3	3.4 - 3.5	11.0 - 11.5	8										SM	A-2-4
SP4-3	3.7 - 3.8	12.0 - 12.5	8										SM	A-2-4
SP4-3	4.0 - 4.1	13.0 - 13.5	8										SM	A-2-4
SP4-3	4.3 - 4.4	14.0 - 14.5	12										SM	A-2-4
SP4-3	4.6 - 4.7	15.0 - 15.5	13	100	100	92	75	42	25				SM	A-2-4
SP4-4	0.3 - 0.5	1.0 - 1.5	12										SM	A-4
SP4-4	0.6 - 0.8	2.0 - 2.5	14	100	100	99	89	53	38	31	7		SM	A-4
SP4-4	0.9 - 1.1	3.0 - 3.5	14										SM	A-4
SP4-4	1.2 - 1.4	4.0 - 4.5	12										SM	A-4
SP4-4	1.5 - 1.7	5.0 - 5.5	11										SM	A-4
SP4-4	1.8 - 2.0	6.0 - 6.5	10										SM	A-4
SP4-4	2.1 - 2.3	7.0 - 7.5	11										SM	A-4
SP4-4	2.4 - 2.6	8.0 - 8.5	10										SM	A-4
SP4-4	2.7 - 2.9	9.0 - 9.5	10	100	98	98	91	58	39				SM	A-4
SP4-4	3.0 - 3.2	10.0 - 10.5	9										SM	A-4

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-4

FALLSCHASE

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP4-5	0.0 - 0.2	0.0 - 0.5	12										SM	A-2-4
SP4-5	0.6 - 0.8	2.0 - 2.5	7	100	100	98	90	35	16				SM	A-2-4
SP4-5	1.2 - 1.4	4.0 - 4.5	19										SM	A-7-5
SP4-5	1.8 - 2.0	6.0 - 6.5	23	100	100	98	95	66	45	49	15		SM	A-7-5
SP4-5	2.4 - 2.6	8.0 - 8.5	23										SM	A-2-4
SP4-5	3.0 - 3.2	10.0 - 10.5	26	100	100	99	96	26	23				SM	A-2-4
SP4-5	3.4 - 3.5	11.0 - 11.5	27	100	100	98	96	26	23				SM	A-2-4
SP4-5	3.7 - 3.8	12.0 - 12.5	29										SM	A-2-4
CH-1	0.3 - 0.5	1.0 - 1.5	12										SM	A-2-4
CH-1	0.6 - 0.8	2.0 - 2.5	12	100	100	98	91	42	22				SM	A-2-4
CH-1	0.9 - 1.1	3.0 - 3.5	14										SM	A-2-4
CH-1	1.2 - 1.4	4.0 - 4.5	12										SM	A-2-4
CH-1	1.5 - 1.7	5.0 - 5.5	16										SC	A-4
CH-1	1.8 - 2.0	6.0 - 6.5	15	100	100	99	92	55	38	30	9		SC	A-4
CH-1	2.1 - 2.3	7.0 - 7.5	11										SM	A-2-4
CH-1	2.4 - 2.6	8.0 - 8.5	11	100	100	98	91	44	26				SM	A-2-4
CH-1	2.7 - 2.9	9.0 - 9.5	11										SM	A-2-4
CH-1	3.0 - 3.2	10.0 - 10.5	13	100	99	96	88	44	25	28	6		SM	A-2-4
CH-2	0.3 - 0.5	1.0 - 1.5	11										SM	A-2-4
CH-2	0.6 - 0.8	2.0 - 2.5	11	100	100	98	91	43	21				SM	A-2-4
CH-2	0.9 - 1.1	3.0 - 3.5	15	100	100	98	91	45	26				SM	A-2-4
CH-2	1.2 - 1.4	4.0 - 4.5	14										SM	A-4
CH-2	1.5 - 1.7	5.0 - 5.5	13	100	100	98	92	53	36	30	7		SM	A-4

STORMWATER POND NO. 5

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

STORMWATER POND-5

FALLSCHASE

SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
SP5-1	0.3 - 0.5	1.0 - 1.5	11										SM	A-2-4
SP5-1	0.6 - 0.8	2.0 - 2.5	11	100	100	98	86	36	19				SM	A-2-4
SP5-1	0.9 - 1.1	3.0 - 3.5	11										SM	A-2-4
SP5-1	1.2 - 1.4	4.0 - 4.5	18										SM	A-2-4
SP5-1	1.5 - 1.7	5.0 - 5.5	20										SM	A-4
SP5-1	1.8 - 2.0	6.0 - 6.5	19	100	100	99	93	57	41	37	8		SM	A-4
SP5-1	2.1 - 2.3	7.0 - 7.5	21										SM	A-4
SP5-1	2.4 - 2.6	8.0 - 8.5	20										SM	A-4
SP5-1	2.7 - 2.9	9.0 - 9.5	23										MH	A-7-5
SP5-1	3.0 - 3.5	10.0 - 11.5	34	100	100	100	99	95	80	95	42		MH	A-7-5
SP5-1	3.0 - 3.5	10.0 - 11.5	38										MH	A-7-5
SP5-1	3.7 - 3.8	12.0 - 12.5	26	100	100	100	97	36	36				SM	A-4
SP5-1	4.0 - 4.1	13.0 - 13.5	21										SM	A-4
CH-3	0.3 - 0.5	1.0 - 1.5	9									0.9	SM	A-2-4
CH-3	0.6 - 0.8	2.0 - 2.5	10										SM	A-2-4
CH-3	0.9 - 1.1	3.0 - 3.5	9	100	100	99	89	33	16				SM	A-2-4
CH-3	1.2 - 1.4	4.0 - 4.5	7										SM	A-2-4
CH-3	1.5 - 1.7	5.0 - 5.5	8										SM	A-2-4
CH-3	1.8 - 2.0	6.0 - 6.5	14										SM	A-2-4
CH-3	2.1 - 2.3	7.0 - 7.5	14										SM	A-2-4
CH-3	2.4 - 2.6	8.0 - 8.5	18										SM	A-4
CH-3	2.7 - 2.9	9.0 - 9.5	17	100	100	99	91	49	36	28	2		SM	A-4
CH-3	3.0 - 3.2	10.0 - 10.5	28	100	100	99	90	49	36				SM	A-4
CH-4	0.3 - 0.5	1.0 - 1.5	10										SM	A-2-4
CH-4	0.6 - 0.8	2.0 - 2.5	13										SM	A-2-4
CH-4	0.9 - 1.1	3.0 - 3.5	11	100	100	98	86	36	17				SM	A-2-4
CH-4	1.2 - 1.4	4.0 - 4.5	14										SM	A-2-4
CH-4	1.5 - 1.7	5.0 - 5.5	25	100	100	99	96	60	50	44	15		MH	A-7-5
CH-4	1.8 - 2.0	6.0 - 6.5	39	100	100	100	99	93	81	106	72		MH	A-7-5

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

DR-1 AND DR-2
SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
DR-1	0.3 - 0.5	1.0 - 1.5	22	100	99	98	90	44	36	28	9		SM	A-4
DR-1	0.6 - 0.8	2.0 - 2.5	20										SM	A-4
DR-1	0.9 - 1.1	3.0 - 3.5	21										SM	A-4
DR-1	1.2 - 1.4	4.0 - 4.5	21										SM	A-4
DR-1	1.5 - 1.7	5.0 - 5.5	16	100	99	98	89	33	28	23	6		SM	A-2-4
DR-1	1.8 - 2.0	6.0 - 6.5	16										SM	A-2-4
DR-2	0.3 - 0.5	1.0 - 1.5	22										SM	A-4
DR-2	0.6 - 0.8	2.0 - 2.5	21	100	100	99	91	50	39				SM	A-4
DR-2	0.9 - 1.1	3.0 - 3.5	20										SM	A-4
DR-2	1.2 - 1.4	4.0 - 4.5	20										SM	A-4
DR-2	1.5 - 1.7	5.0 - 5.5	18	100	100	95	88	43	32				SM	A-2-4
DR-2	1.8 - 2.0	6.0 - 6.5	16										SM	A-2-4

STORMWATER SWALES

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

DR-1 AND DR-2
SOIL CLASSIFICATION DATA

LOCATION			W	MECHANICAL ANALYSIS (%) PASSING						ATTERBERG LIMIT		ORG.	CLASSIFICATION	
BORING	METERS	FEET	(%)	4	10	20	40	100	200	LIQUID LIMIT	PLASTICITY INDEX	(%)	UNIFIED	AASHTO
DR-1	0.3 - 0.5	1.0 - 1.5	22	100	99	98	90	44	36	28	9		SM	A-4
DR-1	0.6 - 0.8	2.0 - 2.5	20										SM	A-4
DR-1	0.9 - 1.1	3.0 - 3.5	21										SM	A-4
DR-1	1.2 - 1.4	4.0 - 4.5	21										SM	A-4
DR-1	1.5 - 1.7	5.0 - 5.5	16	100	99	98	89	33	28	23	6		SM	A-2-4
DR-1	1.8 - 2.0	6.0 - 6.5	16										SM	A-2-4
DR-2	0.3 - 0.5	1.0 - 1.5	22										SM	A-4
DR-2	0.6 - 0.8	2.0 - 2.5	21	100	100	99	91	50	39				SM	A-4
DR-2	0.9 - 1.1	3.0 - 3.5	20										SM	A-4
DR-2	1.2 - 1.4	4.0 - 4.5	20										SM	A-4
DR-2	1.5 - 1.7	5.0 - 5.5	18	100	100	95	88	43	32				SM	A-2-4
DR-2	1.8 - 2.0	6.0 - 6.5	16										SM	A-2-4

APPENDIX C

INFILTRATION VALUES

STORMWATER POND NO. 1

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE: 11-18-97 TIME: 08:55 AM

PROJECT NO: 16-09-97 TEST NO: CH-9

DEPTH: 2.5 - 5.0' TESTED BY: S.W.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-2-4)

WEATHER CONDITIONS: COOL (58 DEGREES)

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS

DEPTH TO GROUNDWATER: NOT ENCOUNTERED

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 123.95
H2 = Head at Finish of Test (cm) = 93.47

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	124.0	0.08	0.00220	3.1
2	157.1	0.17	0.00174	2.5
3	181.6	0.25	0.00150	2.1
4	204.6	0.33	0.00133	1.9
5	219.3	0.42	0.00124	1.8
6	**226.8**	**0.50**	**0.00120**	**1.7**
7	236.8	0.58	0.00115	1.6
8	240.1	0.67	0.00114	1.6
9	246.4	0.75	0.00111	1.6
10	250.6	0.83	0.00109	1.5
11	254.0	0.92	0.00107	1.5
12	**255.3**	**1.00**	**0.00107**	**1.5**
13	257.1	1.08	0.00106	1.5
14	261.1	1.17	0.00105	1.5
15	263.4	1.25	0.00104	1.5
16	265.1	1.33	0.00103	1.5
17	265.5	1.42	0.00103	1.5
18	**267.8**	**1.50**	0.00102	1.4
19	268.3	1.58	0.00102	1.4
20	269.9	1.67	0.00101	1.4
21	270.9	1.75	0.00101	1.4
22	272.1	1.83	0.00100	1.4
23	274.3	1.92	0.00099	1.4
24	**275.5**	**2.00**	0.00099	1.4
25	275.9	2.08	0.00099	1.4
26	281.5	2.17	0.00097	1.4
27	279.6	2.25	0.00098	1.4
28	277.3	2.33	0.00098	1.4
29	280.0	2.42	0.00097	1.4
30	**283.2**	**2.50**	0.00096	1.4
31	285.3	2.58	0.00096	1.4
32	287.3	2.67	0.00095	1.3
33	289.3	2.75	0.00094	1.3
34	290.6	2.83	0.00094	1.3
35	292.8	2.92	0.00093	1.3
36	**293.0**	3.00	0.00093	1.3

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	293.0	3.08	0.00093	1.3
38	296.8	3.17	0.00092	1.3
39	298.7	3.25	0.00091	1.3
40	301.5	3.33	0.00090	1.3
41	306.5	3.42	0.00089	1.3
42	**306.8**	**3.50**	**0.00089**	**1.3**
43	307.4	3.58	0.00089	1.3
44	308.2	3.67	0.00089	1.3
45	309.0	3.75	0.00088	1.3
46	310.0	3.83	0.00088	1.2
47	311.6	3.92	0.00088	1.2
48	**311.8**	**4.00**	**0.00088**	**1.2**
49	312.3	4.08	0.00087	1.2
50	313.1	4.17	0.00087	1.2
51	312.8	4.25	0.00087	1.2
52	313.0	4.33	0.00087	1.2
53	313.0	4.42	0.00087	1.2
54	**313.5**	**4.50**	**0.00087**	**1.2**
55	312.9	4.58	0.00087	1.2
56	312.7	4.67	0.00087	1.2
57	313.0	4.75	0.00087	1.2
58	313.4	4.83	0.00087	1.2
59	312.7	4.92	0.00087	1.2
60	**313.3**	**5.00**	**0.00087**	**1.2**
61	313.0	5.08	0.00087	1.2
62	313.6	5.17	0.00087	1.2
63	313.0	5.25	0.00087	1.2
64	312.8	5.33	0.00087	1.2
65	313.1	5.42	0.00087	1.2
66	**313.5**	**5.50**	**0.00087**	**1.2**
67	313.0	5.58	0.00087	1.2
68	312.6	5.67	0.00087	1.2
69	313.0	5.75	0.00087	1.2
70	313.6	5.83	0.00087	1.2
71	313.0	5.92	0.00087	1.2
72	**313.0**	**6.00**	**0.00087**	**1.2**

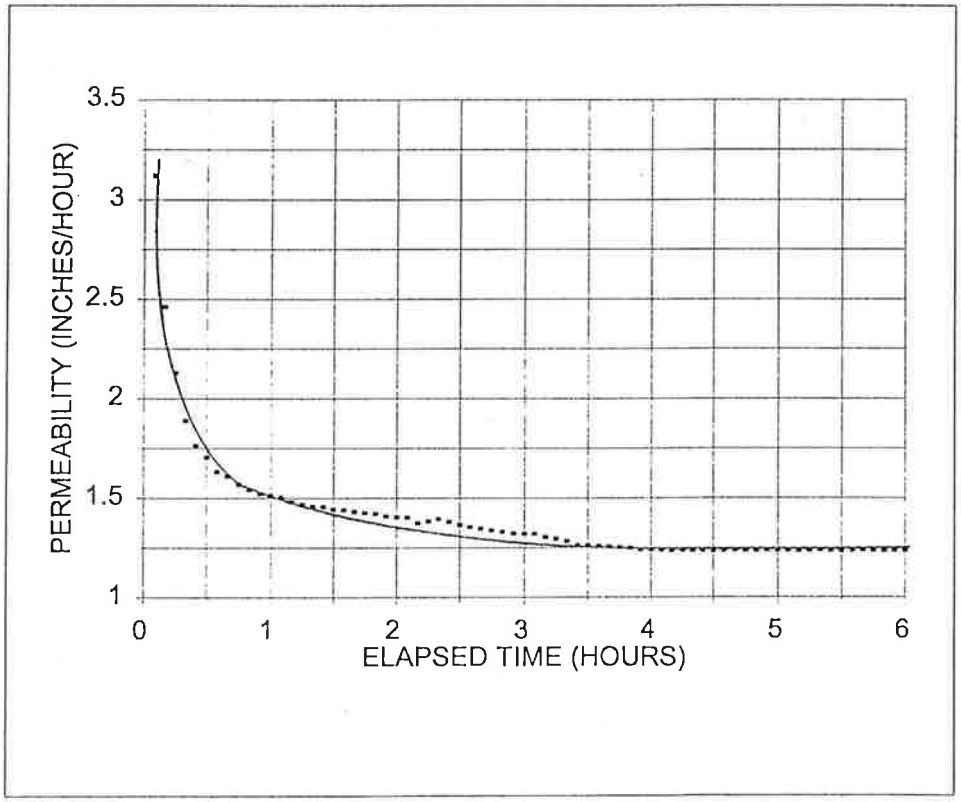
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-18-97	TIME:	08:55 AM
PROJECT NO:	16-09-97	TEST NO:	CH-9
DEPTH:	2.5 - 5.0'	TESTED BY:	S.W.
SOIL DESCRIPTION:	REDDISH BROWN SILTY SAND (SM/A-2-4)		
WEATHER CONDITIONS:	COOL (58 DEGREES)		
PROJECT DESCRIPTION:	BUCK LAKE ROAD STORMWATER PONDS		
DEPTH TO GROUNDWATER:	NOT ENCOUNTERED		

GRAPHICAL PRESENTATION:

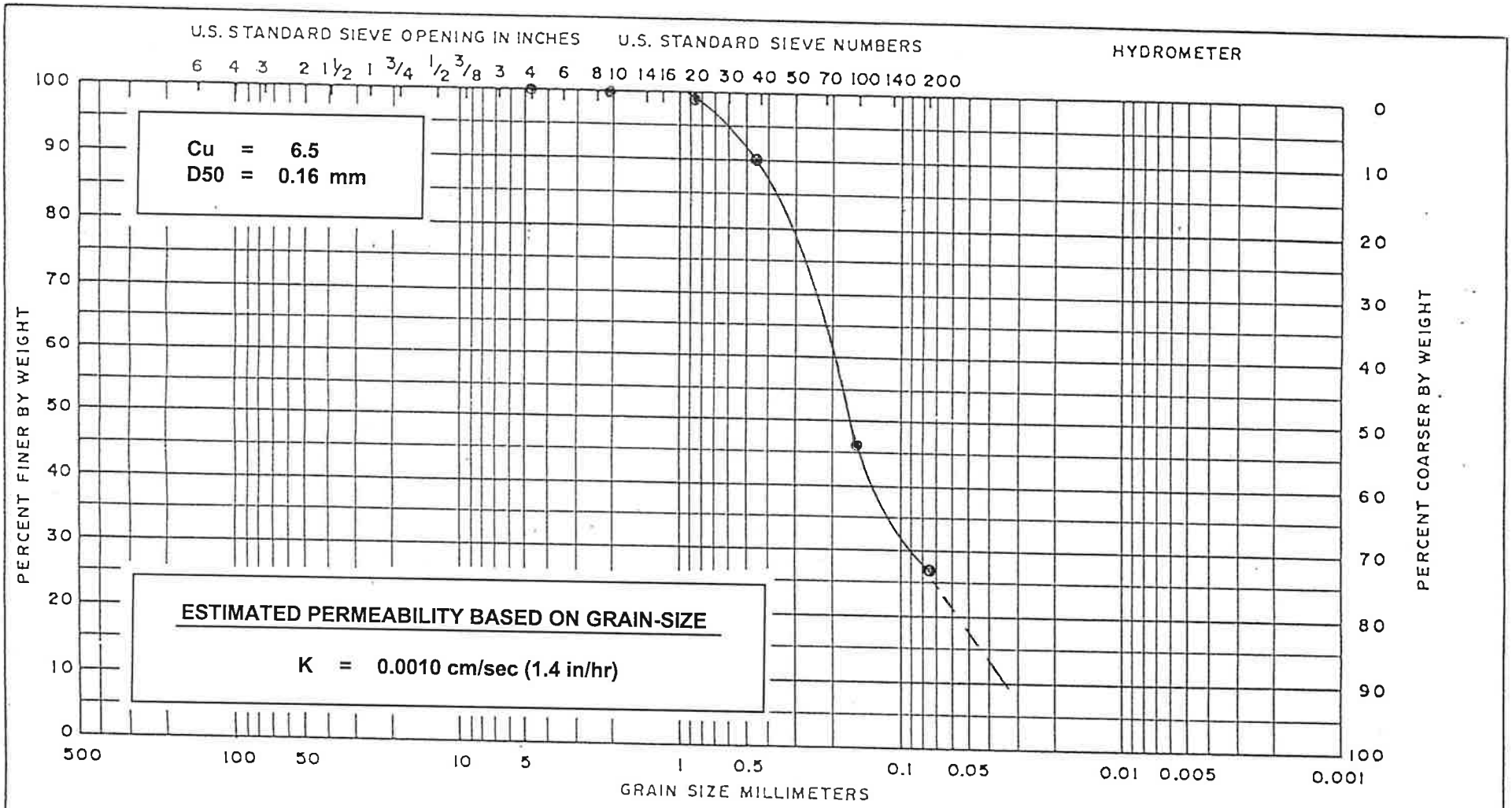


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 1.24 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 0.82 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-9	2.5-5.0'	SILTY SAND (A-2-4)	13			

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-9
BUCK LAKE & PEDRICK ROAD

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE: 11-10-97 TIME: 09:40 AM

PROJECT NO: 16-09-97 TEST NO: CH-10

DEPTH: 10.0-10.5' TESTED BY: S.W.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-2-4)

WEATHER CONDITIONS: COOL (70 DEGREES)

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS

DEPTH TO GROUNDWATER: NOT ENCOUNTERED

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 266.70
H2 = Head at Finish of Test (cm) = 236.22

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	12.2	0.08	0.00962	13.6
2	13.1	0.17	0.00896	12.7
3	18.4	0.25	0.00638	9.0
4	19.7	0.33	0.00596	8.4
5	20.0	0.42	0.00587	8.3
6	22.2	0.50	0.00528	7.5
7	23.2	0.58	0.00506	7.2
8	24.2	0.67	0.00485	6.9
9	25.2	0.75	0.00466	6.6
10	26.0	0.83	0.00451	6.4
11	26.3	0.92	0.00446	6.3
12	26.8	1.00	0.00438	6.2
13	27.0	1.08	0.00435	6.2
14	27.4	1.17	0.00428	6.1
15	27.6	1.25	0.00425	6.0
16	27.8	1.33	0.00422	6.0
17	28.0	1.42	0.00419	5.9
18	27.9	1.50	0.00421	6.0
19	28.3	1.58	0.00415	5.9
20	28.9	1.67	0.00406	5.8
21	28.7	1.75	0.00409	5.8
22	28.5	1.83	0.00412	5.8
23	28.9	1.92	0.00406	5.8
24	29.1	2.00	0.00403	5.7
25	29.4	2.08	0.00399	5.7
26	29.3	2.17	0.00400	5.7
27	29.0	2.25	0.00405	5.7
28	29.3	2.33	0.00400	5.7
29	28.7	2.42	0.00409	5.8
30	28.9	2.50	0.00406	5.8
31	28.4	2.58	0.00413	5.9
32	28.9	2.67	0.00406	5.8
33	29.1	2.75	0.00403	5.7
34	29.3	2.83	0.00400	5.7
35	29.6	2.92	0.00396	5.6
36	29.7	3.00	0.00395	5.6

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	29.7	3.08	0.00395	5.6
38	29.8	3.17	0.00394	5.6
39	30.1	3.25	0.00390	5.5
40	30.5	3.33	0.00385	5.5
41	30.4	3.42	0.00386	5.5
42	30.2	3.50	0.00388	5.5
43	30.4	3.58	0.00386	5.5
44	30.1	3.67	0.00390	5.5
45	30.1	3.75	0.00390	5.5
46	30.4	3.83	0.00386	5.5
47	30.5	3.92	0.00385	5.5
48	30.5	4.00	0.00385	5.5
49	30.1	4.08	0.00390	5.5
50	30.6	4.17	0.00383	5.4
51	30.3	4.25	0.00387	5.5
52	30.8	4.33	0.00381	5.4
53	30.8	4.42	0.00381	5.4
54	30.1	4.50	0.00390	5.5
55	30.8	4.58	0.00381	5.4
56	30.7	4.67	0.00382	5.4
57	30.4	4.75	0.00386	5.5
58	30.7	4.83	0.00382	5.4
59	30.5	4.92	0.00385	5.5
60	30.7	5.00	0.00382	5.4
61	30.9	5.08	0.00380	5.4
62	30.8	5.17	0.00381	5.4
63	30.4	5.25	0.00386	5.5
64	30.8	5.33	0.00381	5.4
65	30.6	5.42	0.00383	5.4
66	30.8	5.50	0.00381	5.4
67	30.7	5.58	0.00382	5.4
68	30.7	5.67	0.00382	5.4
69	30.8	5.75	0.00381	5.4
70	30.6	5.83	0.00383	5.4
71	30.4	5.92	0.00386	5.5
72	30.6	6.00	0.00384	5.4

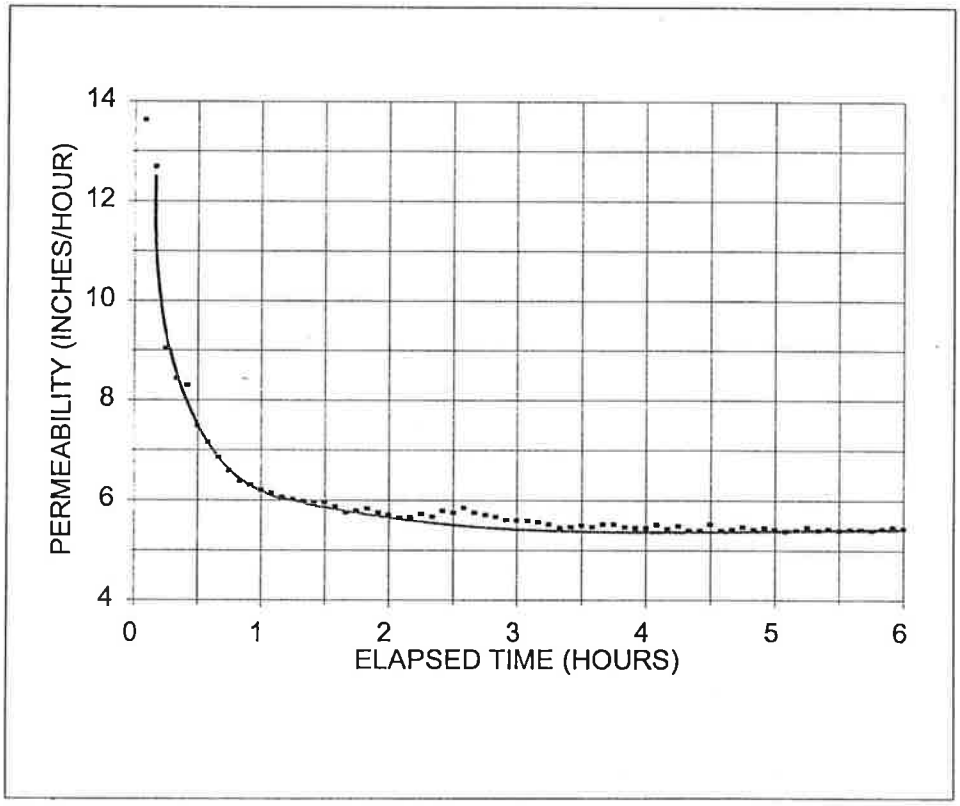
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-10-97	TIME:	09:40 AM
PROJECT NO:	16-09-97	TEST NO:	CH-10
DEPTH:	10.0-10.5'	TESTED BY:	S.W.
SOIL DESCRIPTION:	REDDISH BROWN SILTY SAND (SM/A-2-4)		
WEATHER CONDITIONS:	COOL (70 DEGREES)		
PROJECT DESCRIPTION:	BUCK LAKE ROAD STORMWATER PONDS		
DEPTH TO GROUNDWATER:	NOT ENCOUNTERED		

GRAPHICAL PRESENTATION:

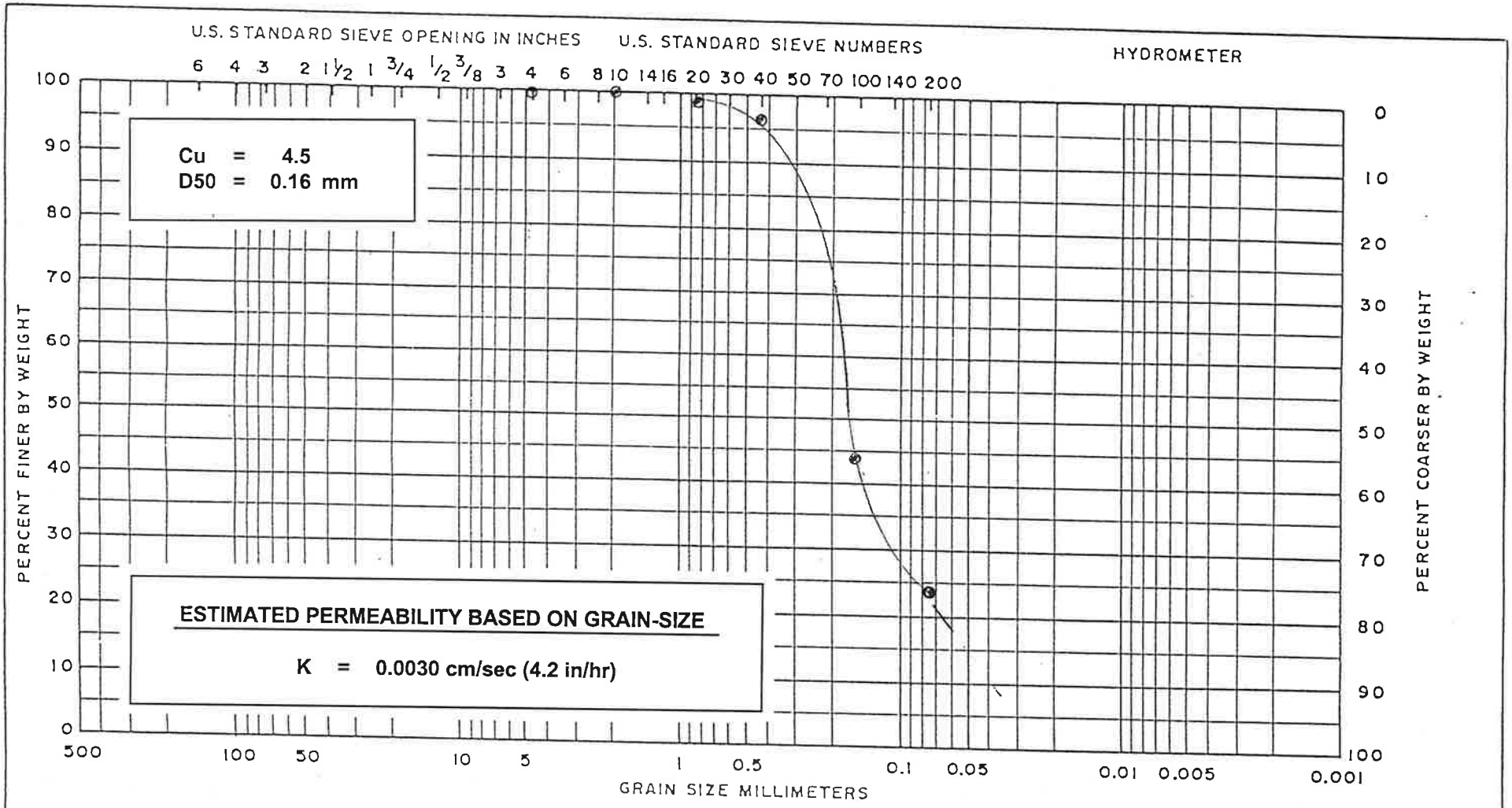


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 5.42 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 3.61 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-10	10.0-10.5'	SILTY SAND (A-2-4)	13			

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-10

BUCK LAKE AND PEDRICK ROAD

TESTED BY	CHECKED BY	PROJ. NO
A.M.	M.H.	16-03-97
	DATE	

STORMWATER POND NO. 2

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-14-97	TIME:	10:15 AM
PROJECT NO:	16-10-97	TEST NO:	CH-7
DEPTH:	2.5 - 5.0	TESTED BY:	S.W.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: COOL (78 DEGREES)

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS

DEPTH TO GROUNDWATER: 4.23 FEET

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 137.72
H2 = Head at Finish of Test (cm) = 104.24

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	146.4	0.08	0.00184	2.6
2	181.2	0.17	0.00149	2.1
3	195.6	0.25	0.00138	2.0
4	207.3	0.33	0.00130	1.8
5	217.4	0.42	0.00124	1.8
6	**234.8**	**0.50**	**0.00115**	**1.6**
7	258.6	0.58	0.00104	1.5
8	266.7	0.67	0.00101	1.4
9	271.6	0.75	0.00099	1.4
10	278.3	0.83	0.00097	1.4
11	281.6	0.92	0.00096	1.4
12	**282.3**	**1.00**	**0.00095**	**1.4**
13	282.4	1.08	0.00095	1.4
14	282.7	1.17	0.00095	1.3
15	283.1	1.25	0.00095	1.3
16	284.1	1.33	0.00095	1.3
17	283.8	1.42	0.00095	1.3
18	**283.6**	**1.50**	0.00095	1.3
19	283.6	1.58	0.00095	1.3
20	284.7	1.67	0.00095	1.3
21	284.5	1.75	0.00095	1.3
22	284.1	1.83	0.00095	1.3
23	284.5	1.92	0.00095	1.3
24	**284.8**	**2.00**	0.00095	1.3
25	284.5	2.08	0.00095	1.3
26	284.3	2.17	0.00095	1.3
27	285.9	2.25	0.00094	1.3
28	285.4	2.33	0.00094	1.3
29	284.4	2.42	0.00095	1.3
30	**285.1**	**2.50**	0.00094	1.3
31	286.1	2.58	0.00094	1.3
32	286.4	2.67	0.00094	1.3
33	286.1	2.75	0.00094	1.3
34	286.3	2.83	0.00094	1.3
35	286.4	2.92	0.00094	1.3
36	**287.7**	**3.00**	0.00094	1.3

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	286.7	3.08	0.00094	1.3
38	286.5	3.17	0.00094	1.3
39	287.1	3.25	0.00094	1.3
40	286.6	3.33	0.00094	1.3
41	286.9	3.42	0.00094	1.3
42	**286.3**	**3.50**	**0.00094**	**1.3**
43	287.6	3.58	0.00094	1.3
44	287.3	3.67	0.00094	1.3
45	286.9	3.75	0.00094	1.3
46	286.1	3.83	0.00094	1.3
47	286.3	3.92	0.00094	1.3
48	**287.1**	**4.00**	**0.00094**	**1.3**
49	286.8	4.08	0.00094	1.3
50	287.3	4.17	0.00094	1.3
51	286.8	4.25	0.00094	1.3
52	287.1	4.33	0.00094	1.3
53	286.5	4.42	0.00094	1.3
54	**287.2**	**4.50**	**0.00094**	**1.3**
55	287.4	4.58	0.00094	1.3
56	287.5	4.67	0.00094	1.3
57	287.3	4.75	0.00094	1.3
58	287.1	4.83	0.00094	1.3
59	287.6	4.92	0.00094	1.3
60	**286.9**	**5.00**	**0.00094**	**1.3**
61	287.1	5.08	0.00094	1.3
62	287.4	5.17	0.00094	1.3
63	287.3	5.25	0.00094	1.3
64	287.4	5.33	0.00094	1.3
65	287.3	5.42	0.00094	1.3
66	**287.0**	**5.50**	**0.00094**	**1.3**
67	287.1	5.58	0.00094	1.3
68	287.6	5.67	0.00094	1.3
69	287.9	5.75	0.00094	1.3
70	287.5	5.83	0.00094	1.3
71	287.3	5.92	0.00094	1.3
72	**287.4**	**6.00**	**0.00094**	**1.3**

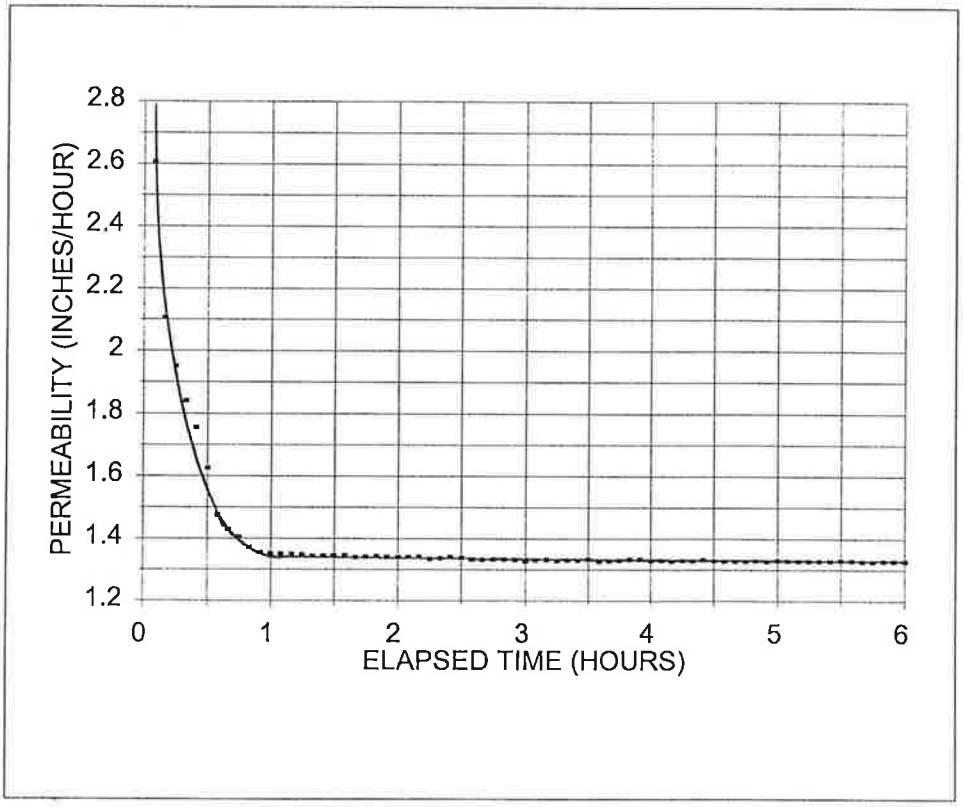
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-14-97	TIME:	10:15 AM
PROJECT NO:	16-10-97	TEST NO:	CH-7
DEPTH:	2.5 - 5.0	TESTED BY:	S.W.
SOIL DESCRIPTION:	REDDISH BROWN SILTY SAND (SM/A-4)		
WEATHER CONDITIONS:	COOL (78 DEGREES)		
PROJECT DESCRIPTION:	BUCK LAKE ROAD STORMWATER PONDS		
DEPTH TO GROUNDWATER:	4.23 FEET		

GRAPHICAL PRESENTATION:

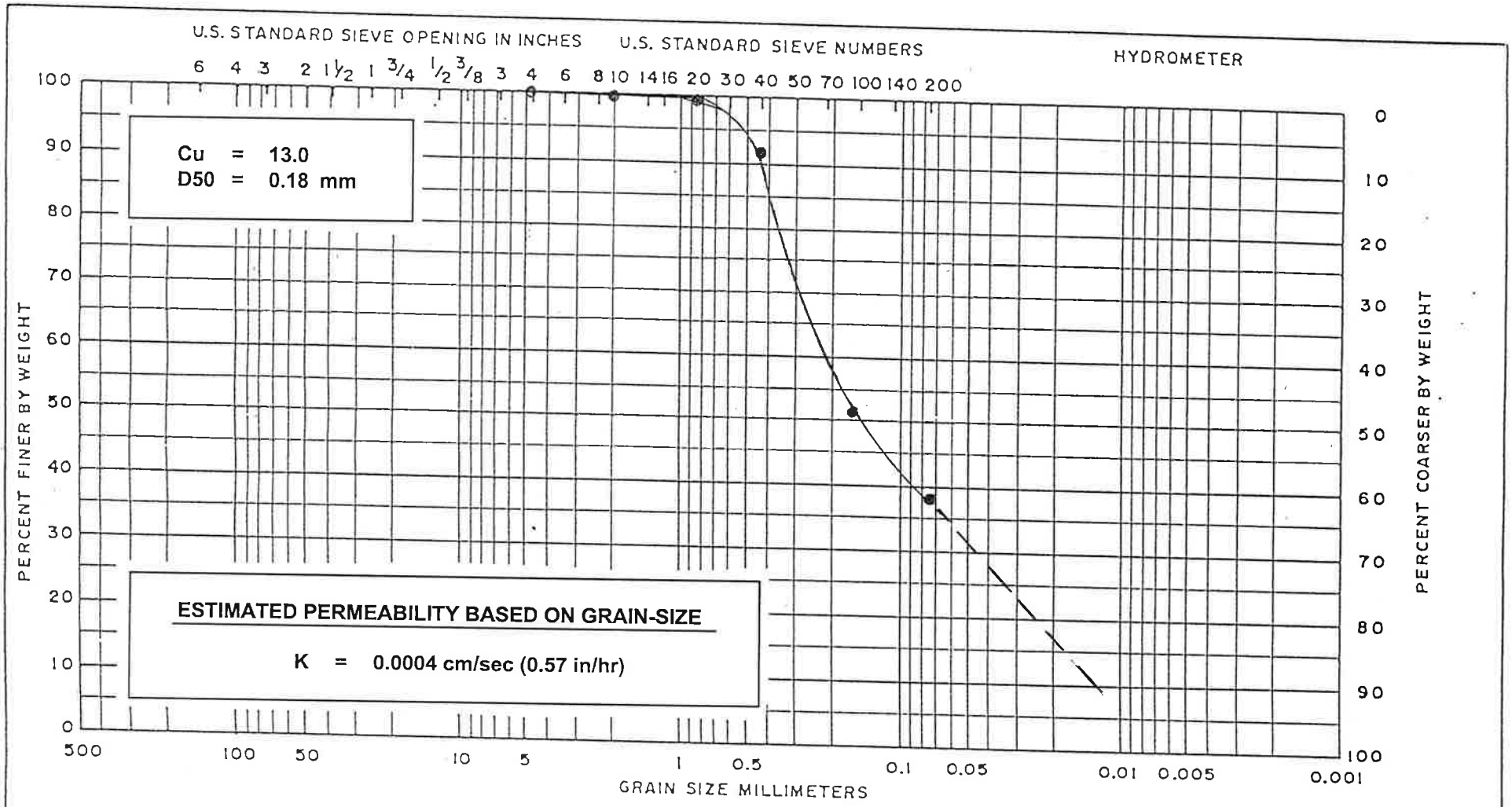


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 1.33 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 0.89 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-7	3.0-3.5	SILTY SAND (SM/A-4)	20	24	20	4

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-7

HIGHLAND AND BUCK LAKE ROAD

TESTED BY	CHECKED BY	PROJ NO.
A.M.	M.H.	16-02-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE: 11-13-97 TIME: 08:55 AM

PROJECT NO: 16-10-97 TEST NO: CH-8

DEPTH: 7.5 - 10.0 TESTED BY: S.W.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-6)

WEATHER CONDITIONS: COOL (80 DEGREES)

PROJECT DESCRIPTION: BUCK LAKE ROAD STORMWATER PONDS

DEPTH TO GROUNDWATER: 8.54 FEET

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 249.63
H2 = Head at Finish of Test (cm) = 219.15

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	102.6	0.08	0.00123	1.74
2	109.4	0.17	0.00115	1.63
3	110.9	0.25	0.00114	1.61
4	119.0	0.33	0.00106	1.50
5	135.3	0.42	0.00093	1.32
6	159.3	0.50	0.00079	1.12
7	187.5	0.58	0.00067	0.95
8	200.9	0.67	0.00063	0.89
9	210.7	0.75	0.00060	0.85
10	222.3	0.83	0.00057	0.80
11	240.0	0.92	0.00052	0.74
12	256.4	1.00	0.00049	0.70
13	271.3	1.08	0.00046	0.66
14	273.6	1.17	0.00046	0.65
15	276.1	1.25	0.00046	0.65
16	286.3	1.33	0.00044	0.62
17	290.2	1.42	0.00043	0.61
18	297.1	1.50	0.00042	0.60
19	300.8	1.58	0.00042	0.59
20	295.8	1.67	0.00043	0.60
21	300.4	1.75	0.00042	0.59
22	301.6	1.83	0.00042	0.59
23	301.2	1.92	0.00042	0.59
24	302.5	2.00	0.00042	0.59
25	301.9	2.08	0.00042	0.59
26	303.1	2.17	0.00042	0.59
27	303.6	2.25	0.00041	0.59
28	304.5	2.33	0.00041	0.59
29	303.9	2.42	0.00041	0.59
30	304.9	2.50	0.00041	0.59
31	306.4	2.58	0.00041	0.58
32	305.8	2.67	0.00041	0.58
33	307.1	2.75	0.00041	0.58
34	306.7	2.83	0.00041	0.58
35	307.5	2.92	0.00041	0.58
36	307.3	3.00	0.00041	0.58

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	308.1	3.08	0.00041	0.58
38	307.5	3.17	0.00041	0.58
39	307.8	3.25	0.00041	0.58
40	306.8	3.33	0.00041	0.58
41	307.8	3.42	0.00041	0.58
42	306.9	3.50	0.00041	0.58
43	308.5	3.58	0.00041	0.58
44	307.9	3.67	0.00041	0.58
45	307.8	3.75	0.00041	0.58
46	308.4	3.83	0.00041	0.58
47	307.8	3.92	0.00041	0.58
48	310.0	4.00	0.00041	0.58
49	308.9	4.08	0.00041	0.58
50	308.9	4.17	0.00041	0.58
51	307.8	4.25	0.00041	0.58
52	306.4	4.33	0.00041	0.58
53	309.6	4.42	0.00041	0.58
54	310.5	4.50	0.00041	0.57
55	307.6	4.58	0.00041	0.58
56	307.9	4.67	0.00041	0.58
57	310.8	4.75	0.00041	0.57
58	307.9	4.83	0.00041	0.58
59	307.5	4.92	0.00041	0.58
60	309.5	5.00	0.00041	0.58
61	307.9	5.08	0.00041	0.58
62	308.6	5.17	0.00041	0.58
63	307.8	5.25	0.00041	0.58
64	307.8	5.33	0.00041	0.58
65	310.6	5.42	0.00041	0.57
66	307.9	5.50	0.00041	0.58
67	307.9	5.58	0.00041	0.58
68	308.6	5.67	0.00041	0.58
69	308.7	5.75	0.00041	0.58
70	310.2	5.83	0.00041	0.58
71	306.9	5.92	0.00041	0.58
72	309.9	6.00	0.00041	0.58

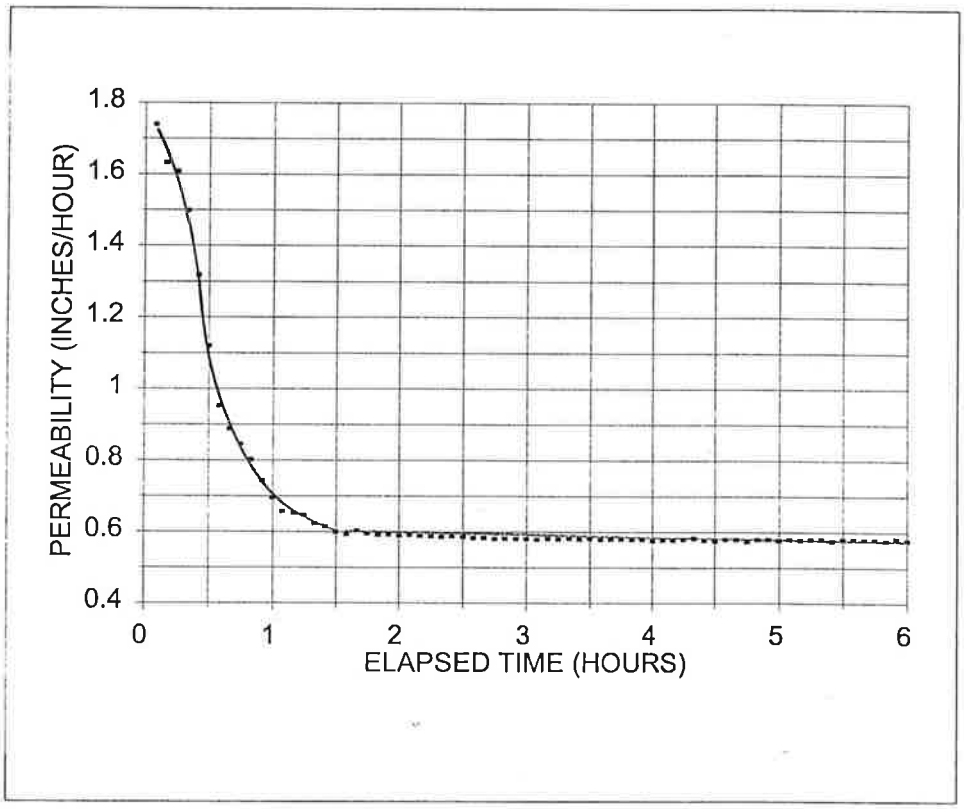
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-13-97	TIME:	08:55 AM
PROJECT NO:	16-10-97	TEST NO:	CH-8
DEPTH:	7.5 - 10.0	TESTED BY:	S.W.
SOIL DESCRIPTION:	REDDISH BROWN SILTY SAND (SM/A-6)		
WEATHER CONDITIONS:	COOL (80 DEGREES)		
PROJECT DESCRIPTION:	BUCK LAKE ROAD STORMWATER PONDS		
DEPTH TO GROUNDWATER:	8.54 FEET		

GRAPHICAL PRESENTATION:

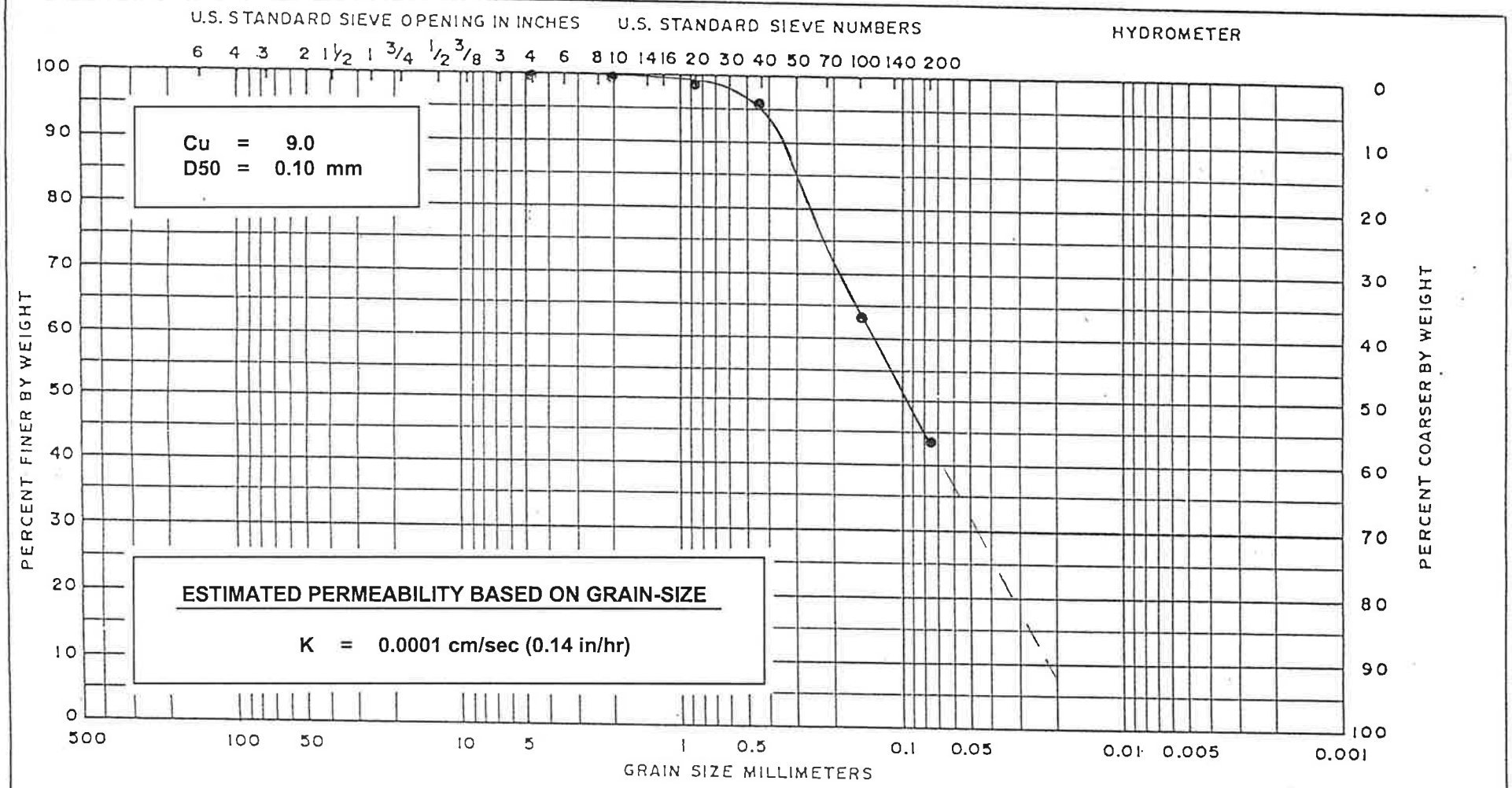


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 0.58 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 0.39 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-8	9.0-9.5	CLAYEY SAND (SC/A-6)	18	36	25	11

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-8

HIGHLAND AND BUCK LAKE ROAD

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-02-97
	DATE	

STORMWATER POND NO. 3

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-7-97	TIME:	09:00 AM
PROJECT NO:	16-11-97	TEST NO:	CH-6
DEPTH:	8.0 - 10.5 FEET	TESTED BY:	S.W.

SOIL DESCRIPTION: REDDISH BROWN SILTY FINE SAND (SM/A-4)

WEATHER CONDITIONS: OVERCAST (62 degrees)

PROJECT DESCRIPTION: BUCKLAKE STORMWATER PONDS - B

DEPTH TO GROUNDWATER: 7.74 FEET

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec)	=	COMPUTED	T2 - T1 = Duration of Test (sec)	=	VARIES
d = Dia of Piezometer (cm)	=	5.08	H1 = Head at Start of Test (cm)	=	266.70
D = Dia of Piezometer Filter (cm)	=	7.62	H2 = Head at Finish of Test (cm)	=	236.22

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	31.7	0.08	0.0037	5.2
2	34.4	0.17	0.0034	4.8
3	35.0	0.25	0.0034	4.8
4	36.7	0.33	0.0032	4.5
5	37.2	0.42	0.0032	4.5
6	**38.4**	**0.50**	**0.0031**	**4.3**
7	39.3	0.58	0.0030	4.2
8	39.8	0.67	0.0029	4.2
9	40.1	0.75	0.0029	4.1
10	40.8	0.83	0.0029	4.1
11	41.8	0.92	0.0028	4.0
12	**42.9**	**1.00**	**0.0027**	**3.9**
13	44.0	1.08	0.0027	3.8
14	46.3	1.17	0.0025	3.6
15	47.4	1.25	0.0025	3.5
16	49.0	1.33	0.0024	3.4
17	50.5	1.42	0.0023	3.3
18	**51.6**	**1.50**	**0.0023**	**3.2**
19	52.3	1.58	0.0022	3.2
20	54.0	1.67	0.0022	3.1
21	55.2	1.75	0.0021	3.0
22	56.1	1.83	0.0021	3.0
23	57.8	1.92	0.0020	2.9
24	**58.6**	**2.00**	**0.0020**	**2.8**
25	58.1	2.08	0.0020	2.9
26	60.2	2.17	0.0019	2.8
27	60.8	2.25	0.0019	2.7
28	61.3	2.33	0.0019	2.7
29	61.7	2.42	0.0019	2.7
30	**62.0**	**2.50**	**0.0019**	**2.7**
31	62.1	2.58	0.0019	2.7
32	62.5	2.67	0.0019	2.7
33	62.7	2.75	0.0019	2.7
34	63.0	2.83	0.0019	2.6
35	62.9	2.92	0.0019	2.6
36	**63.0**	**3.00**	**0.0019**	**2.6**

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	63.3	3.08	0.0019	2.6
38	63.4	3.17	0.0019	2.6
39	63.6	3.25	0.0018	2.6
40	64.1	3.33	0.0018	2.6
41	63.6	3.42	0.0018	2.6
42	**63.8**	**3.50**	**0.0018**	**2.6**
43	63.7	3.58	0.0018	2.6
44	64.1	3.67	0.0018	2.6
45	63.0	3.75	0.0019	2.6
46	63.6	3.83	0.0018	2.6
47	63.2	3.92	0.0019	2.6
48	**63.9**	**4.00**	**0.0018**	**2.6**
49	63.4	4.08	0.0019	2.6
50	64.0	4.17	0.0018	2.6
51	63.7	4.25	0.0018	2.6
52	63.8	4.33	0.0018	2.6
53	63.5	4.42	0.0018	2.6
54	**63.9**	**4.50**	**0.0018**	**2.6**
55	64.0	4.58	0.0018	2.6
56	63.2	4.67	0.0019	2.6
57	63.7	4.75	0.0018	2.6
58	63.5	4.83	0.0018	2.6
59	64.3	4.92	0.0018	2.6
60	**63.9**	**5.00**	**0.0018**	**2.6**
61	63.4	5.08	0.0019	2.6
62	63.8	5.17	0.0018	2.6
63	63.5	5.25	0.0018	2.6
64	63.9	5.33	0.0018	2.6
65	63.7	5.42	0.0018	2.6
66	**63.2**	**5.50**	**0.0019**	**2.6**
67	63.8	5.58	0.0018	2.6
68	64.0	5.67	0.0018	2.6
69	63.5	5.75	0.0018	2.6
70	63.8	5.83	0.0018	2.6
71	63.3	5.92	0.0019	2.6
72	**63.2**	**6.00**	**0.0019**	**2.6**

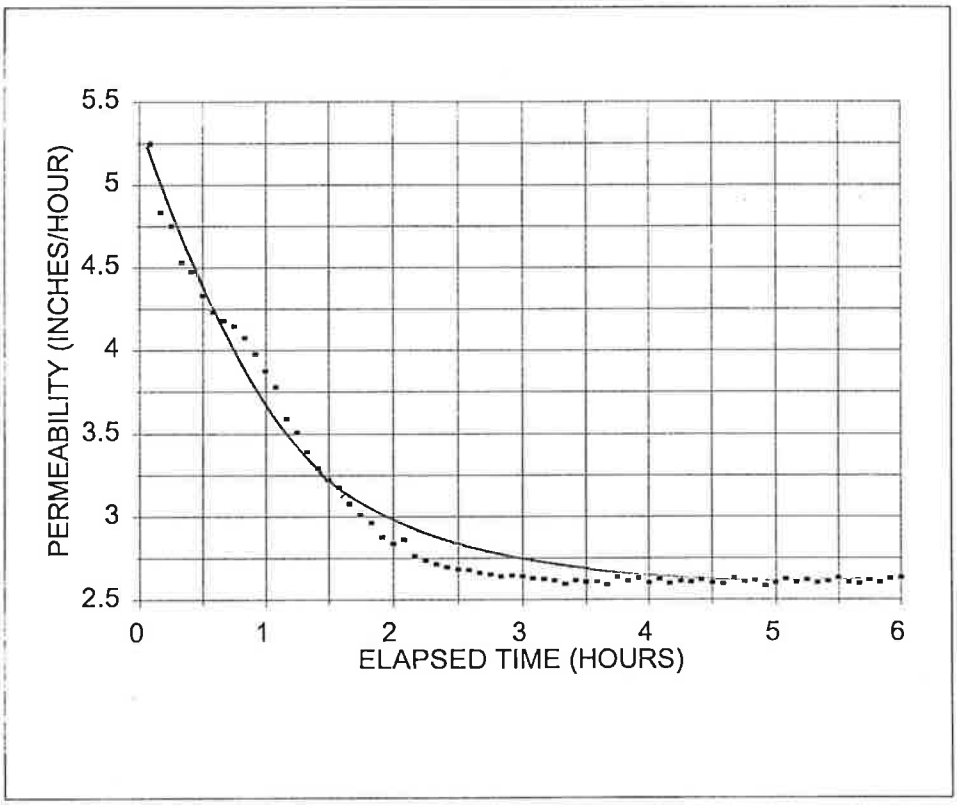
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-7-97	TIME:	09:00 AM
PROJECT NO:	16-11-97	TEST NO:	CH-6
DEPTH:	8.0 - 10.5 FEET	TESTED BY:	S.W.
SOIL DESCRIPTION:	REDDISH BROWN SILTY FINE SAND (SM/A-4)		
WEATHER CONDITIONS:	OVERCAST (62 degrees)		
PROJECT DESCRIPTION:	BUCKLAKE STORMWATER PONDS - B		
DEPTH TO GROUNDWATER:	7.74 FEET		

GRAPHICAL PRESENTATION:

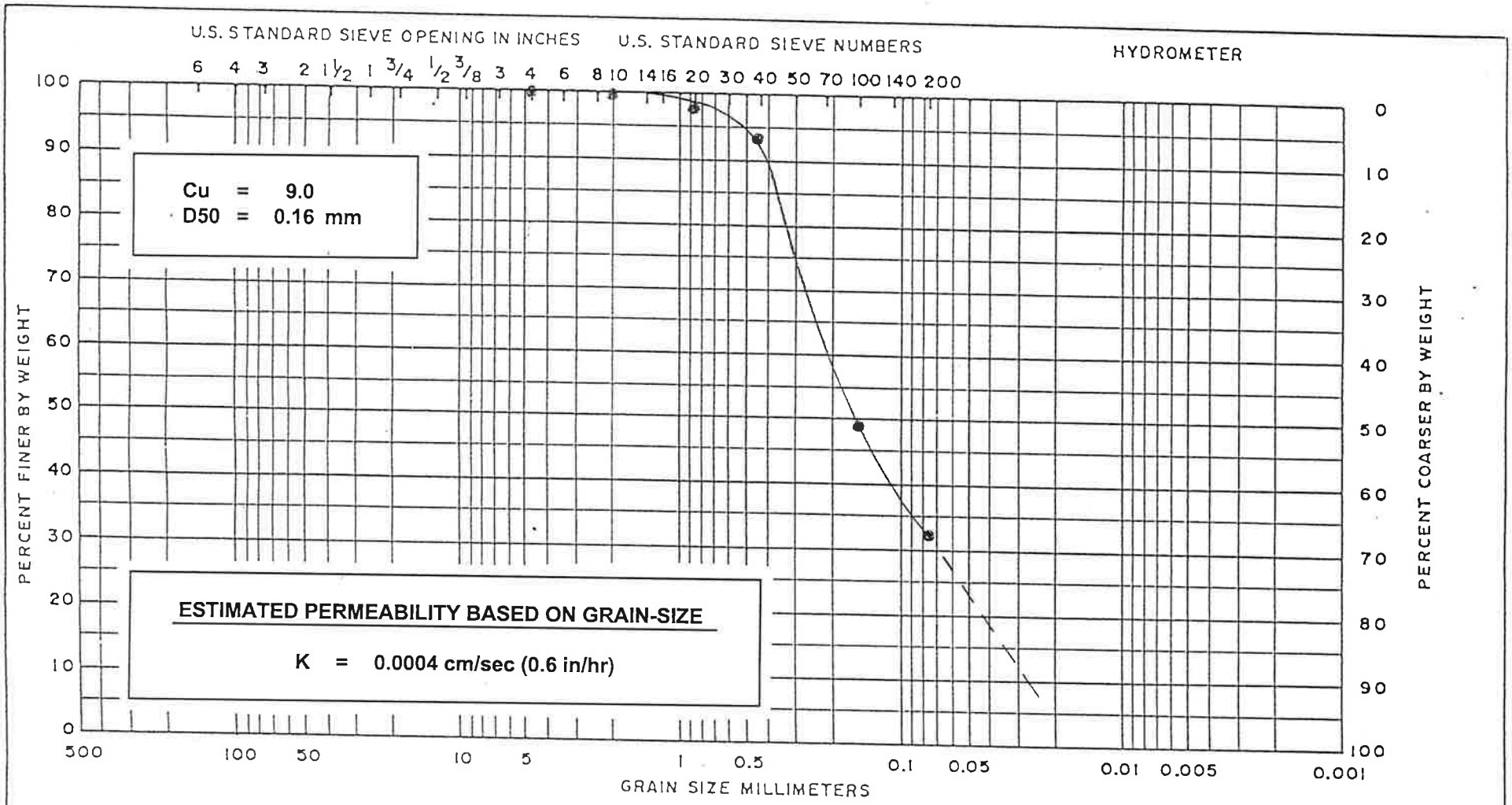


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 2.6 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 1.7 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

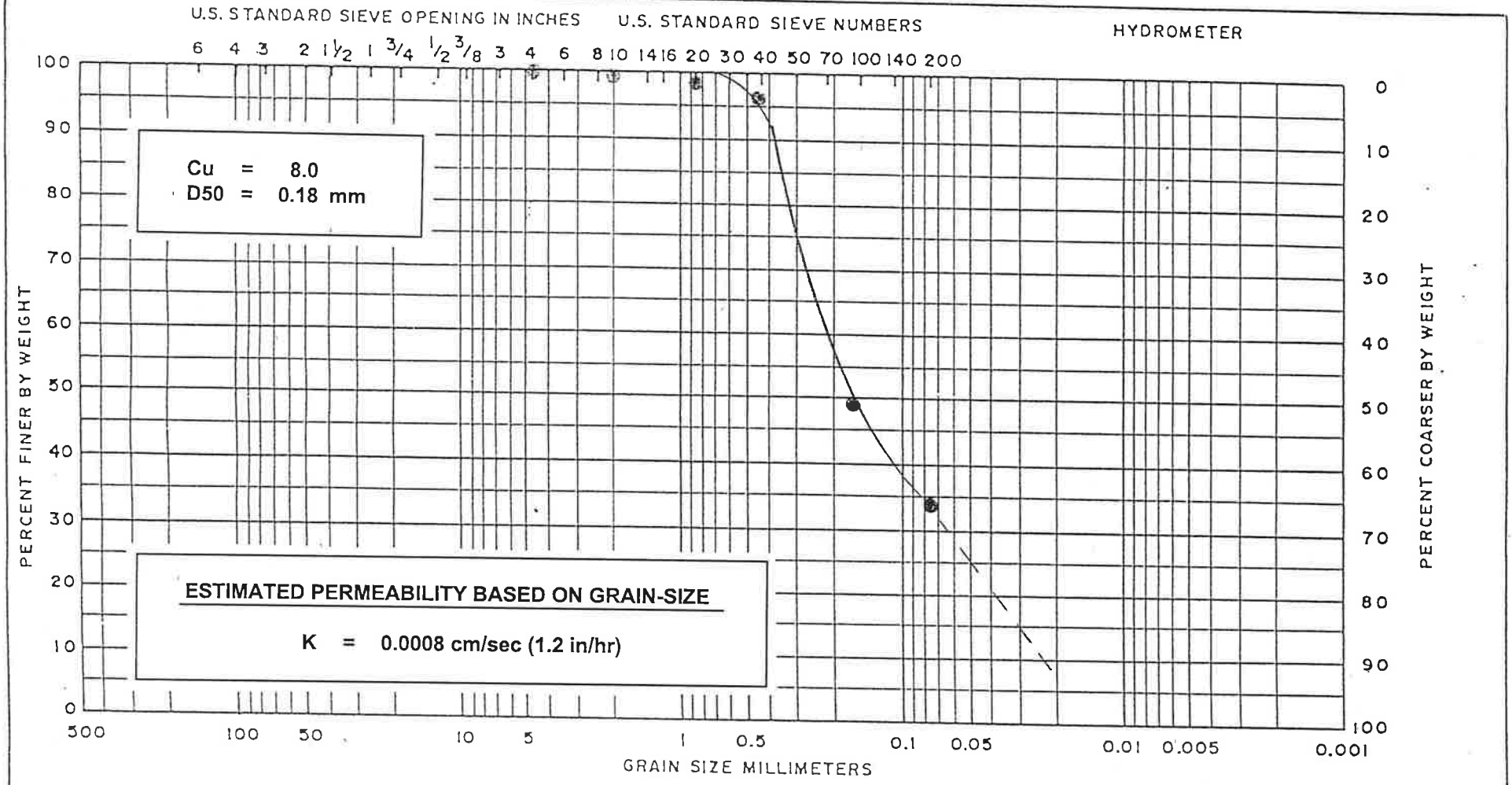
SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-6	7.0-7.5'	SILTY SAND (SM/A-4)				

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-6

DAVIS AND BUCK LAKE ROAD POND

TESTED BY	CHECKED BY	PROJ. NO.
A.M.	M.H.	16-02-97
	DATE	



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-6	9.0-9.5'	SILTY SAND (SM/A-2-4)				

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-6

DAVIS AND BUCK LAKE ROAD POND

TESTED BY	CHECKED BY	PROJ. NO.
A.M.	M.H.	16-02-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-7-97	TIME:	12:40 PM
PROJECT NO:	16-11-97	TEST NO:	CH-5
DEPTH:	3.0 - 5.5 FEET	TESTED BY:	S.M.

SOIL DESCRIPTION: REDDISH BROWN SILTY FINE SAND (SM/A-4)

WEATHER CONDITIONS: OVERCAST (62 degrees)

PROJECT DESCRIPTION: BUCKLAKE STORMWATER PONDS - B

DEPTH TO GROUNDWATER: - -

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec)	=	COMPUTED	T2 - T1 = Duration of Test (sec)	=	VARIES
d = Dia of Piezometer (cm)	=	5.08	H1 = Head at Start of Test (cm)	=	114.30
D = Dia of Piezometer Filter (cm)	=	7.62	H2 = Head at Finish of Test (cm)	=	83.82

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	66.8	0.08	0.0045	6.4
2	78.3	0.17	0.0038	5.4
3	83.4	0.25	0.0036	5.1
4	87.5	0.33	0.0034	4.9
5	90.6	0.42	0.0033	4.7
6	**93.4**	**0.50**	**0.0032**	**4.5**
7	95.7	0.58	0.0031	4.4
8	97.9	0.67	0.0031	4.3
9	98.3	0.75	0.0031	4.3
10	99.3	0.83	0.0030	4.3
11	100.2	0.92	0.0030	4.2
12	**101.0**	**1.00**	**0.0030**	**4.2**
13	101.4	1.08	0.0030	4.2
14	101.3	1.17	0.0030	4.2
15	101.4	1.25	0.0030	4.2
16	102.3	1.33	0.0029	4.2
17	103.0	1.42	0.0029	4.1
18	**103.0**	**1.50**	**0.0029**	**4.1**
19	103.4	1.58	0.0029	4.1
20	103.8	1.67	0.0029	4.1
21	104.0	1.75	0.0029	4.1
22	104.4	1.83	0.0029	4.1
23	105.1	1.92	0.0029	4.0
24	**104.6**	**2.00**	**0.0029**	**4.1**
25	105.1	2.08	0.0029	4.0
26	105.3	2.17	0.0028	4.0
27	105.4	2.25	0.0028	4.0
28	105.8	2.33	0.0028	4.0
29	106.0	2.42	0.0028	4.0
30	**106.3**	**2.50**	**0.0028**	**4.0**
31	106.5	2.58	0.0028	4.0
32	107.2	2.67	0.0028	4.0
33	107.0	2.75	0.0028	4.0
34	107.3	2.83	0.0028	4.0
35	107.8	2.92	0.0028	3.9
36	**108.0**	**3.00**	**0.0028**	**3.9**

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	108.4	3.08	0.0028	3.9
38	108.6	3.17	0.0028	3.9
39	109.1	3.25	0.0027	3.9
40	109.3	3.33	0.0027	3.9
41	109.5	3.42	0.0027	3.9
42	**109.7**	**3.50**	**0.0027**	**3.9**
43	109.9	3.58	0.0027	3.9
44	110.1	3.67	0.0027	3.9
45	110.3	3.75	0.0027	3.9
46	110.3	3.83	0.0027	3.9
47	110.5	3.92	0.0027	3.8
48	**110.6**	**4.00**	**0.0027**	**3.8**
49	110.1	4.08	0.0027	3.9
50	110.3	4.17	0.0027	3.9
51	111.0	4.25	0.0027	3.8
52	110.8	4.33	0.0027	3.8
53	110.6	4.42	0.0027	3.8
54	**110.9**	**4.50**	**0.0027**	**3.8**
55	110.4	4.58	0.0027	3.8
56	110.8	4.67	0.0027	3.8
57	110.1	4.75	0.0027	3.9
58	111.0	4.83	0.0027	3.8
59	110.9	4.92	0.0027	3.8
60	**111.2**	**5.00**	**0.0027**	**3.8**
61	110.5	5.08	0.0027	3.8
62	110.6	5.17	0.0027	3.8
63	110.9	5.25	0.0027	3.8
64	111.0	5.33	0.0027	3.8
65	111.2	5.42	0.0027	3.8
66	**110.8**	**5.50**	**0.0027**	**3.8**
67	110.6	5.58	0.0027	3.8
68	111.0	5.67	0.0027	3.8
69	110.9	5.75	0.0027	3.8
70	110.7	5.83	0.0027	3.8
71	111.3	5.92	0.0027	3.8
72	**110.9**	**6.00**	**0.0027**	**3.8**

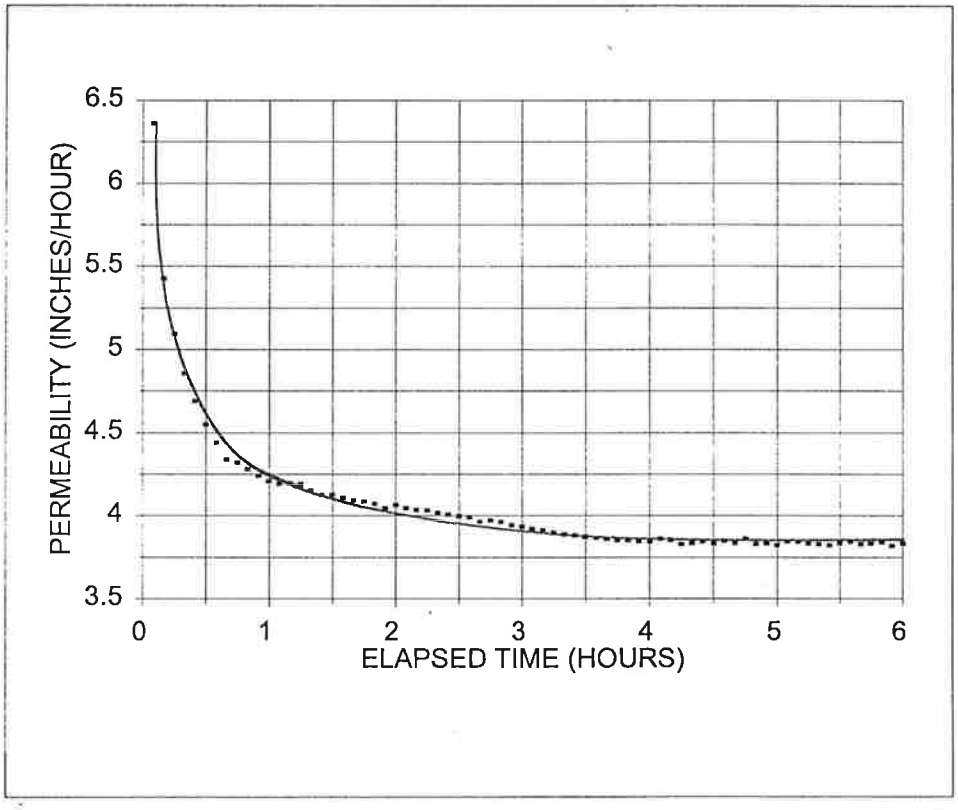
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-7-97	TIME:	12:40 PM
PROJECT NO:	16-11-97	TEST NO:	CH-5
DEPTH:	3.0 - 5.5 FEET	TESTED BY:	S.M.
SOIL DESCRIPTION:	REDDISH BROWN SILTY FINE SAND (SM/A-4)		
WEATHER CONDITIONS:	OVERCAST (62 degrees)		
PROJECT DESCRIPTION:	BUCKLAKE STORMWATER PONDS - B		
DEPTH TO GROUNDWATER:	--		

GRAPHICAL PRESENTATION:

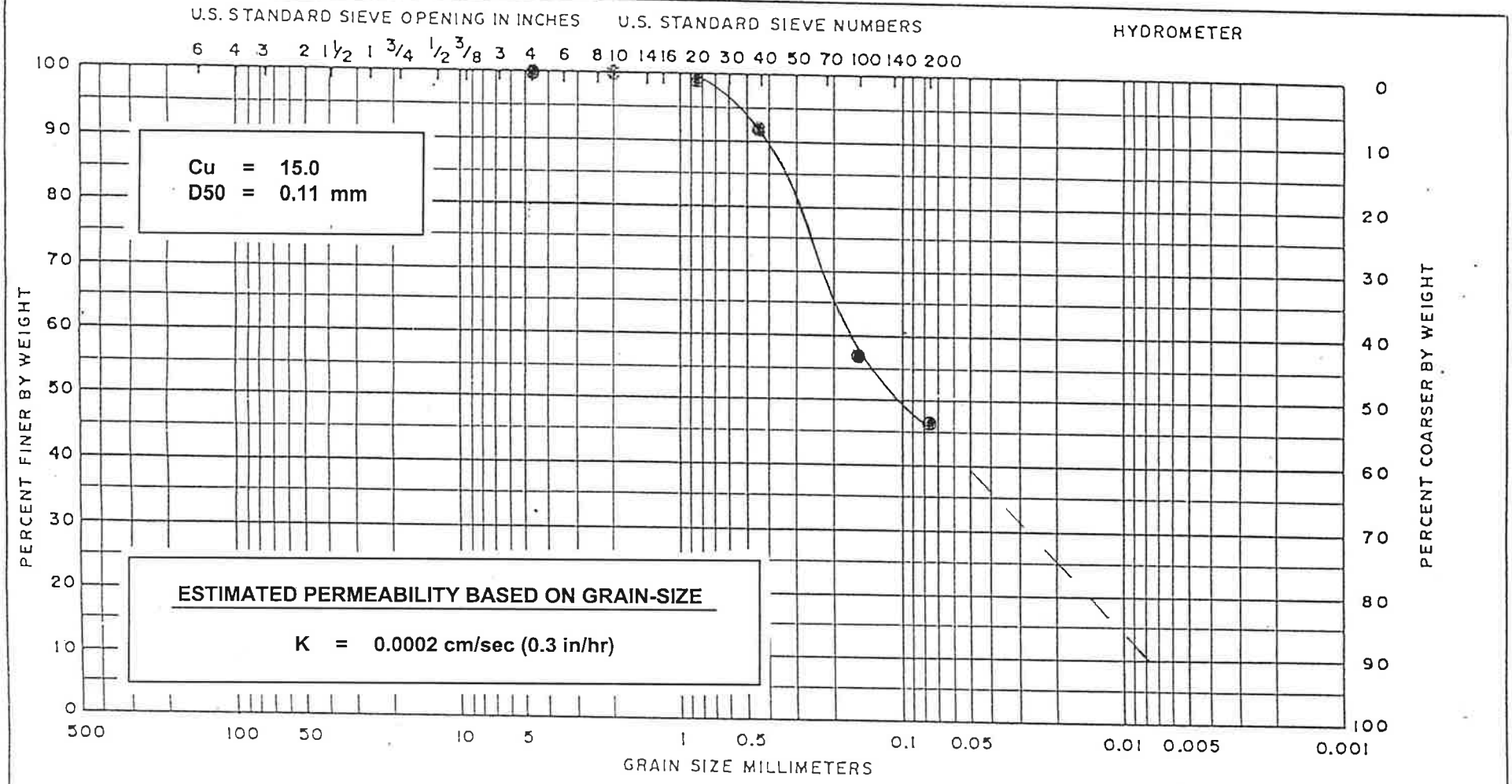


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 3.8 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 2.6 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

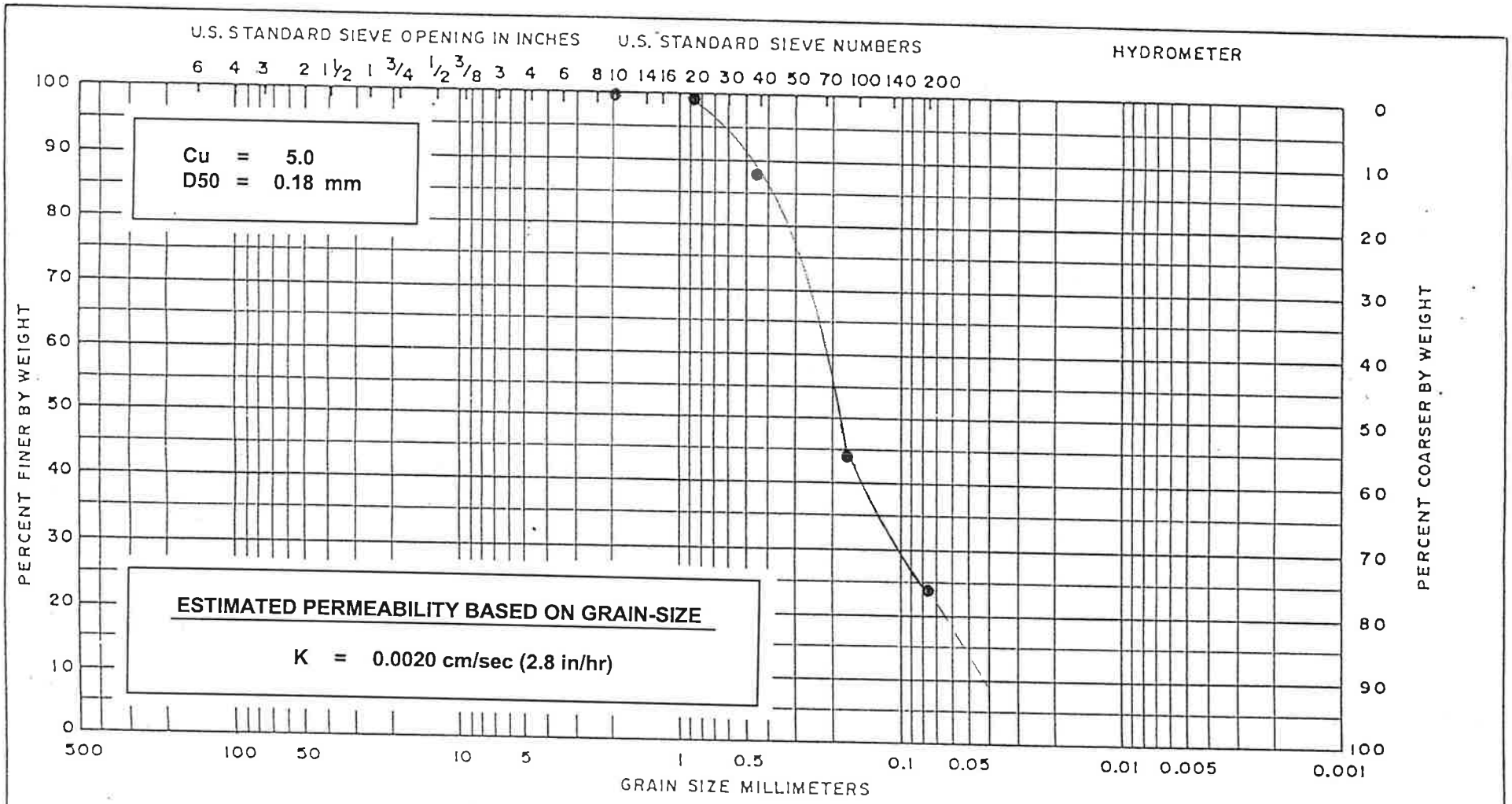
SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-5	4.0-4.5'	SILTY SAND (SM/A-4)				

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-5

DAVIS AND BUCK LAKE ROAD POND

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-02-97
	DATE	



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-5	2.0-2.5'	SILTY SAND (SM/A-2-4)				

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-5

DAVIS AND BUCK LAKE ROAD POND

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-02-97
	DATE	

STORMWATER POND NO. 4

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-5-97	TIME:	09:55 AM
PROJECT NO:	16-03-97	TEST NO:	CH-1
DEPTH:	7.5 - 10.0'	TESTED BY:	S.W.

SOIL DESCRIPTION: ORANGE BROWN SILTY FINE SAND (SM/A-2-4)

WEATHER CONDITIONS: OVERCAST (60 degrees)

PROJECT DESCRIPTION: BUCK LAKE STORMWATER PONDS

DEPTH TO GROUNDWATER: NOT ENCOUNTERED

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 263.04
H2 = Head at Finish of Test (cm) = 232.56

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	9.4	0.08	0.01267	17.95
2	18.4	0.17	0.00647	9.17
3	20.7	0.25	0.00575	8.15
4	21.9	0.33	0.00544	7.71
5	23.0	0.42	0.00518	7.34
6	**23.7**	**0.50**	**0.00502**	**7.12**
7	24.6	0.58	0.00484	6.86
8	25.2	0.67	0.00472	6.70
9	26.5	0.75	0.00449	6.37
10	27.1	0.83	0.00439	6.23
11	27.5	0.92	0.00433	6.14
12	**28.0**	**1.00**	**0.00425**	**6.03**
13	28.4	1.08	0.00419	5.94
14	28.6	1.17	0.00416	5.90
15	29.2	1.25	0.00408	5.78
16	29.4	1.33	0.00405	5.74
17	29.6	1.42	0.00402	5.70
18	**29.9**	**1.50**	**0.00398**	**5.64**
19	30.4	1.58	0.00392	5.55
20	30.6	1.67	0.00389	5.51
21	30.8	1.75	0.00387	5.48
22	31.0	1.83	0.00384	5.44
23	31.2	1.92	0.00382	5.41
24	**31.9**	**2.00**	**0.00373**	**5.29**
25	32.1	2.08	0.00371	5.26
26	32.6	2.17	0.00365	5.18
27	33.3	2.25	0.00358	5.07
28	34.0	2.33	0.00350	4.96
29	34.6	2.42	0.00344	4.88
30	**35.0**	**2.50**	**0.00340**	**4.82**
31	35.3	2.58	0.00337	4.78
32	35.7	2.67	0.00334	4.73
33	36.1	2.75	0.00330	4.67
34	36.8	2.83	0.00324	4.59
35	37.2	2.92	0.00320	4.54
36	**37.7**	**3.00**	**0.00316**	**4.48**

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	38.0	3.08	0.00313	4.44
38	38.1	3.17	0.00312	4.43
39	38.3	3.25	0.00311	4.41
40	38.4	3.33	0.00310	4.39
41	38.3	3.42	0.00311	4.41
42	**39.1**	**3.50**	**0.00305**	**4.32**
43	38.6	3.58	0.00308	4.37
44	39.2	3.67	0.00304	4.30
45	38.9	3.75	0.00306	4.34
46	39.2	3.83	0.00304	4.30
47	39.3	3.92	0.00303	4.29
48	**39.1**	**4.00**	**0.00305**	**4.32**
49	39.5	4.08	0.00301	4.27
50	39.3	4.17	0.00303	4.29
51	40.0	4.25	0.00298	4.22
52	40.2	4.33	0.00296	4.20
53	40.4	4.42	0.00295	4.18
54	**40.4**	**4.50**	**0.00295**	**4.18**
55	40.3	4.58	0.00295	4.19
56	40.5	4.67	0.00294	4.17
57	40.4	4.75	0.00295	4.18
58	40.7	4.83	0.00293	4.15
59	40.4	4.92	0.00295	4.18
60	**40.3**	**5.00**	**0.00295**	**4.19**
61	40.6	5.08	0.00293	4.16
62	40.5	5.17	0.00294	4.17
63	40.3	5.25	0.00295	4.19
64	40.6	5.33	0.00293	4.16
65	40.4	5.42	0.00295	4.18
66	**40.3**	**5.50**	**0.00295**	**4.19**
67	40.6	5.58	0.00293	4.16
68	40.5	5.67	0.00294	4.17
69	40.3	5.75	0.00295	4.19
70	40.2	5.83	0.00296	4.20
71	40.4	5.92	0.00295	4.18
72	**40.5**	**6.00**	**0.00294**	**4.17**

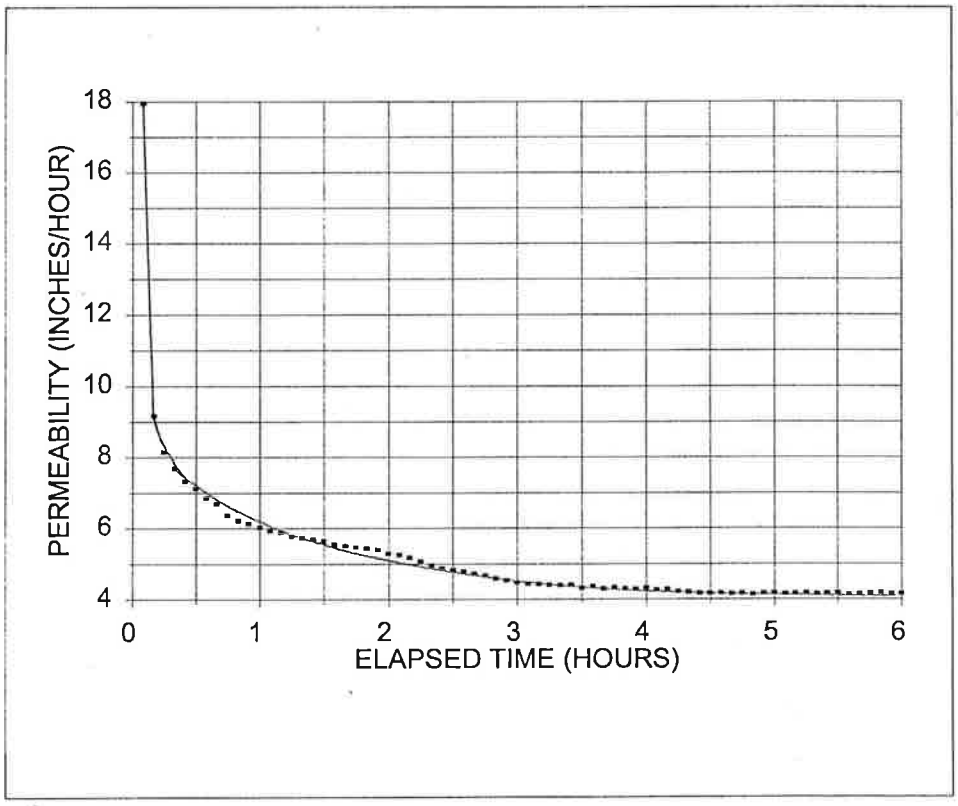
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-5-97	TIME:	09:55 AM
PROJECT NO:	16-03-97	TEST NO:	CH-1
DEPTH:	7.5 - 10.0'	TESTED BY:	S.W.
SOIL DESCRIPTION:	ORANGE BROWN SILTY FINE SAND (SM/A-2-4)		
WEATHER CONDITIONS:	OVERCAST (60 degrees)		
PROJECT DESCRIPTION:	BUCK LAKE STORMWATER PONDS		
DEPTH TO GROUNDWATER:	NOT ENCOUNTERED		

GRAPHICAL PRESENTATION:

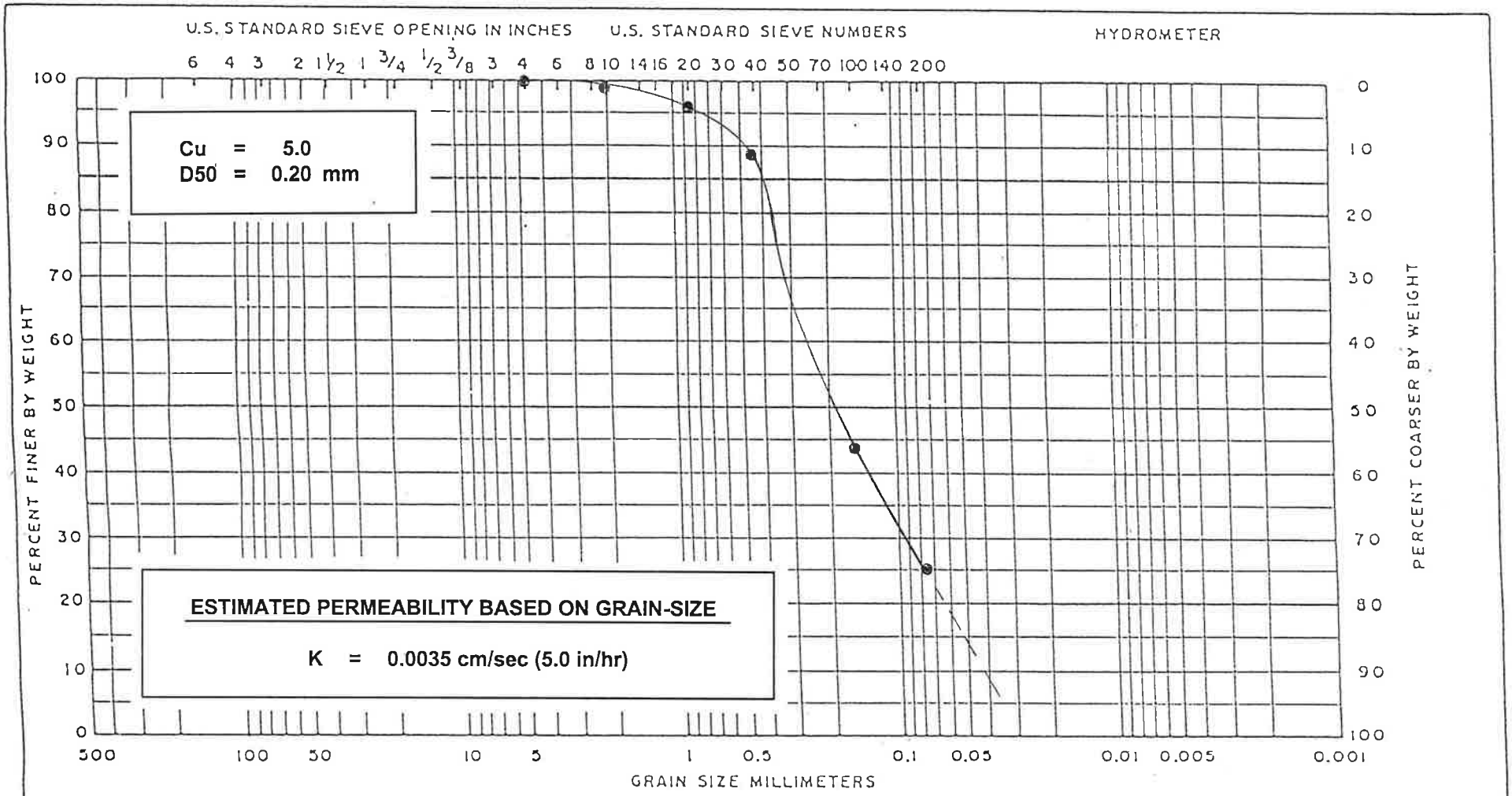


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 4.2 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 2.8 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-1	10.0-10.5	SILTY SAND (SM/A-2-4)	13	28	22	6

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-1

BUCK LAKE STORMWATER PONDS

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-6-97	TIME:	09:30 AM
PROJECT NO:	16-03-97	TEST NO:	CH-2
DEPTH:	3.0 - 5.5	TESTED BY:	S.W.

SOIL DESCRIPTION: ORANGE BROWN SILTY FINE SAND (SM/A-2-4)

WEATHER CONDITIONS: OVERCAST (63 degrees)

PROJECT DESCRIPTION: BUCK LAKE STORMWATER PONDS

DEPTH TO GROUNDWATER: NOT ENCOUNTERED

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 92.59
H2 = Head at Finish of Test (cm) = 62.18

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	128.3	0.08	0.00300	4.25
2	131.0	0.17	0.00294	4.16
3	130.8	0.25	0.00294	4.17
4	130.9	0.33	0.00294	4.17
5	131.3	0.42	0.00293	4.15
6	132.2	0.50	0.00291	4.13
7	132.2	0.58	0.00291	4.13
8	132.7	0.67	0.00290	4.11
9	132.8	0.75	0.00290	4.11
10	133.2	0.83	0.00289	4.10
11	133.7	0.92	0.00288	4.08
12	133.8	1.00	0.00288	4.08
13	133.9	1.08	0.00287	4.07
14	134.1	1.17	0.00287	4.07
15	134.8	1.25	0.00286	4.05
16	134.3	1.33	0.00287	4.06
17	134.5	1.42	0.00286	4.06
18	134.8	1.50	0.00286	4.05
19	134.6	1.58	0.00286	4.05
20	135.1	1.67	0.00285	4.04
21	135.7	1.75	0.00284	4.02
22	135.3	1.83	0.00284	4.03
23	135.4	1.92	0.00284	4.03
24	135.8	2.00	0.00283	4.02
25	136.0	2.08	0.00283	4.01
26	136.1	2.17	0.00283	4.01
27	136.2	2.25	0.00283	4.01
28	136.7	2.33	0.00282	3.99
29	136.9	2.42	0.00281	3.98
30	137.0	2.50	0.00281	3.98
31	137.2	2.58	0.00281	3.98
32	137.5	2.67	0.00280	3.97
33	137.3	2.75	0.00280	3.97
34	137.8	2.83	0.00279	3.96
35	137.9	2.92	0.00279	3.96
36	138.0	3.00	0.00279	3.95

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	138.1	3.08	0.00279	3.95
38	138.5	3.17	0.00278	3.94
39	138.4	3.25	0.00278	3.94
40	138.3	3.33	0.00278	3.94
41	138.6	3.42	0.00278	3.94
42	138.7	3.50	0.00278	3.93
43	139.0	3.58	0.00277	3.92
44	138.7	3.67	0.00278	3.93
45	138.9	3.75	0.00277	3.93
46	139.2	3.83	0.00277	3.92
47	139.0	3.92	0.00277	3.92
48	138.8	4.00	0.00277	3.93
49	139.0	4.08	0.00277	3.92
50	139.0	4.17	0.00277	3.92
51	139.3	4.25	0.00276	3.92
52	139.0	4.33	0.00277	3.92
53	138.5	4.42	0.00278	3.94
54	138.9	4.50	0.00277	3.93
55	139.3	4.58	0.00276	3.92
56	139.0	4.67	0.00277	3.92
57	139.0	4.75	0.00277	3.92
58	139.4	4.83	0.00276	3.91
59	138.9	4.92	0.00277	3.93
60	139.0	5.00	0.00277	3.92
61	139.3	5.08	0.00276	3.92
62	139.0	5.17	0.00277	3.92
63	139.1	5.25	0.00277	3.92
64	138.9	5.33	0.00277	3.93
65	139.2	5.42	0.00277	3.92
66	139.0	5.50	0.00277	3.92
67	139.3	5.58	0.00276	3.92
68	139.0	5.67	0.00277	3.92
69	139.2	5.75	0.00277	3.92
70	138.9	5.83	0.00277	3.93
71	139.2	5.92	0.00277	3.92
72	139.1	6.00	0.00277	3.92

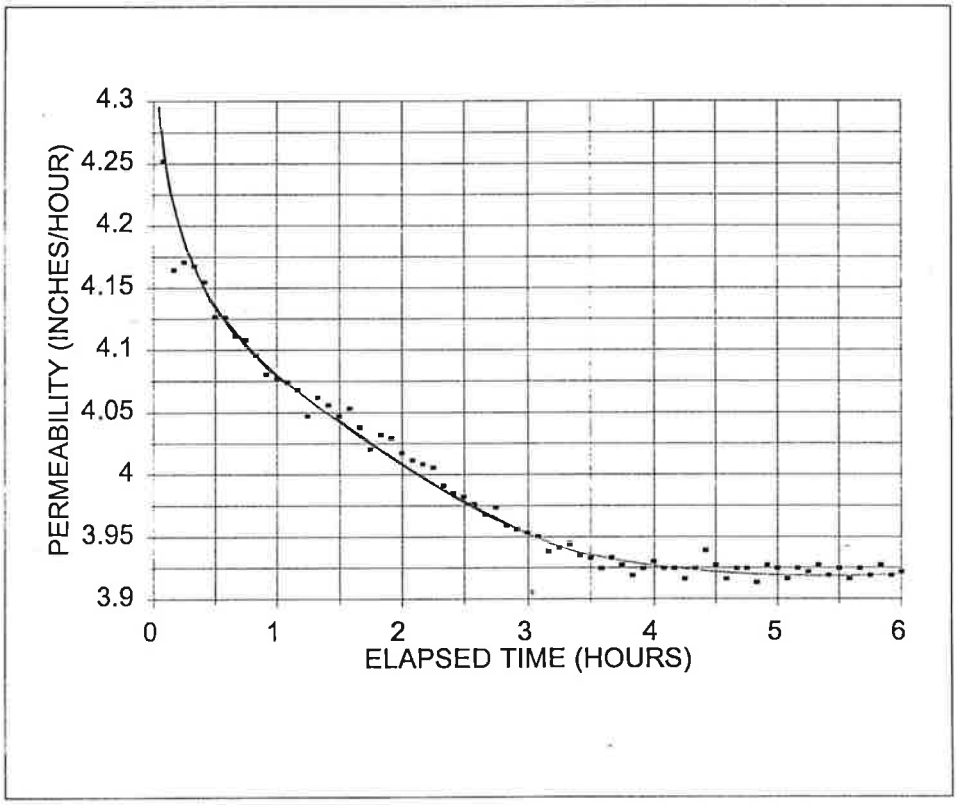
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-6-97	TIME:	09:30 AM
PROJECT NO:	16-03-97	TEST NO:	CH-2
DEPTH:	3.0 - 5.5	TESTED BY:	S.W.
SOIL DESCRIPTION:	ORANGE BROWN SILTY FINE SAND (SM/A-2-4)		
WEATHER CONDITIONS:	OVERCAST (63 degrees)		
PROJECT DESCRIPTION:	BUCK LAKE STORMWATER PONDS		
DEPTH TO GROUNDWATER:	NOT ENCOUNTERED		

GRAPHICAL PRESENTATION:

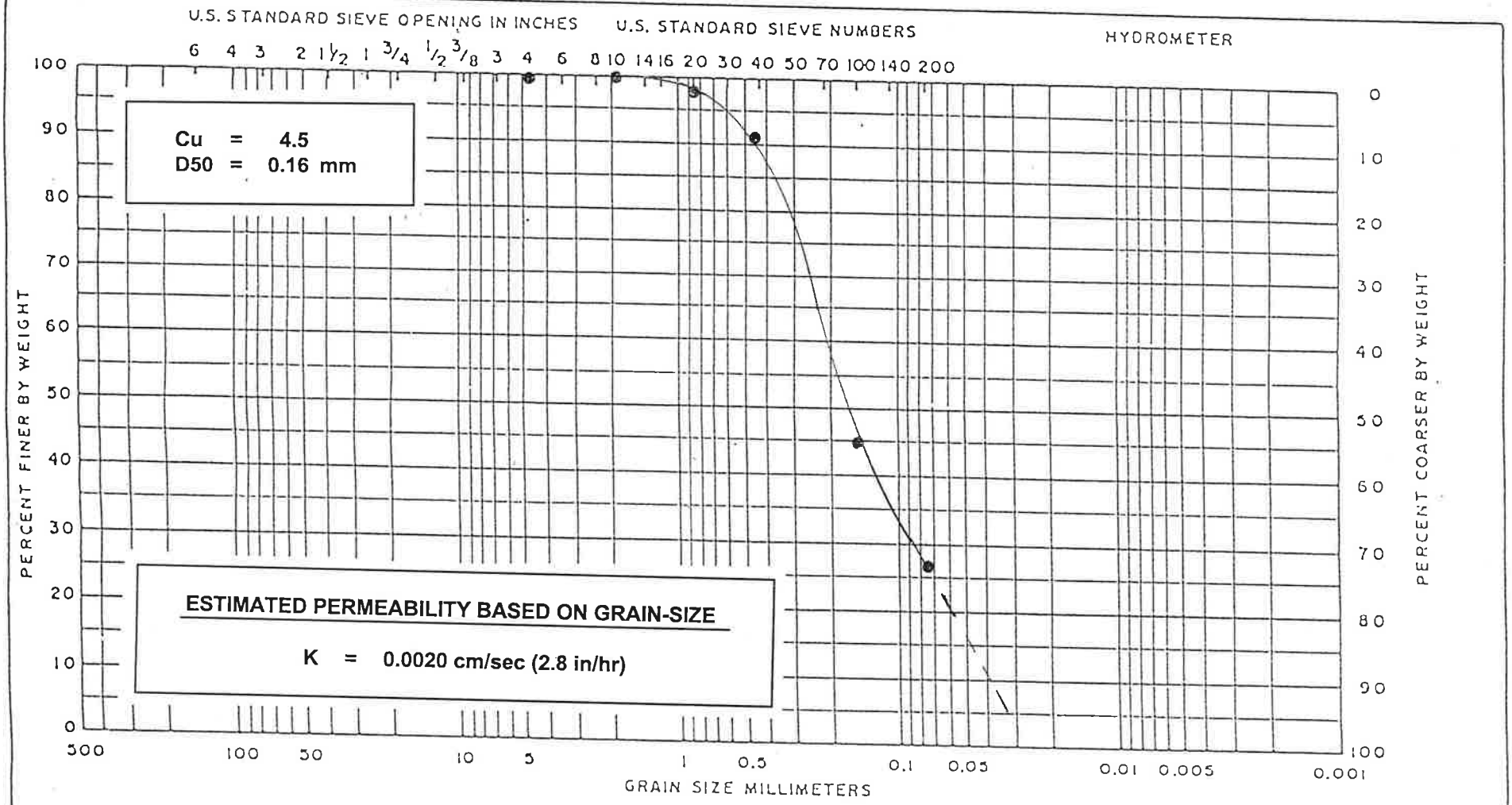


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 3.9 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 2.6 INCHES/HOUR**



SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-2	3.0-5.5'	SILTY SAND (SM/A-2-4)	15			

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-2

BUCK LAKE STORMWATER PONDS

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-6-97	TIME:	09:55 AM
PROJECT NO:	16-03-97	TEST NO:	CH-3
DEPTH:	7.5 - 10.0	TESTED BY:	S.W.

SOIL DESCRIPTION: ORANGE BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: OVERCAST (63 degrees)

PROJECT DESCRIPTION: BUCK LAKE STORMWATER PONDS

DEPTH TO GROUNDWATER: 8.1 FEET DELOW GROUND SURFACE

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 253.29
H2 = Head at Finish of Test (cm) = 222.81

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	92.5	0.08	0.00134	1.90
2	93.7	0.17	0.00132	1.87
3	94.4	0.25	0.00131	1.86
4	96.7	0.33	0.00128	1.82
5	97.4	0.42	0.00127	1.80
6	**98.1**	**0.50**	**0.00126**	**1.79**
7	98.6	0.58	0.00126	1.78
8	100.3	0.67	0.00124	1.75
9	100.4	0.75	0.00123	1.75
10	100.8	0.83	0.00123	1.74
11	101.3	0.92	0.00122	1.73
12	**101.9**	**1.00**	**0.00122**	**1.72**
13	102.4	1.08	0.00121	1.72
14	102.6	1.17	0.00121	1.71
15	103.1	1.25	0.00120	1.70
16	103.3	1.33	0.00120	1.70
17	103.7	1.42	0.00120	1.69
18	**104.2**	**1.50**	**0.00119**	**1.69**
19	104.4	1.58	0.00119	1.68
20	105.2	1.67	0.00118	1.67
21	104.4	1.75	0.00119	1.68
22	106.6	1.83	0.00116	1.65
23	107.0	1.92	0.00116	1.64
24	**107.4**	**2.00**	**0.00115**	**1.64**
25	107.8	2.08	0.00115	1.63
26	108.2	2.17	0.00115	1.62
27	108.6	2.25	0.00114	1.62
28	108.9	2.33	0.00114	1.61
29	109.3	2.42	0.00113	1.61
30	**109.6**	**2.50**	**0.00113**	**1.60**
31	109.9	2.58	0.00113	1.60
32	110.2	2.67	0.00112	1.59
33	110.6	2.75	0.00112	1.59
34	110.8	2.83	0.00112	1.59
35	112.3	2.92	0.00110	1.56
36	**112.6**	**3.00**	**0.00110**	**1.56**

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	112.9	3.08	0.00110	1.56
38	113.0	3.17	0.00110	1.55
39	114.3	3.25	0.00108	1.54
40	114.8	3.33	0.00108	1.53
41	115.0	3.42	0.00108	1.53
42	**115.3**	**3.50**	**0.00108**	**1.52**
43	117.7	3.58	0.00105	1.49
44	118.0	3.67	0.00105	1.49
45	118.4	3.75	0.00105	1.48
46	119.1	3.83	0.00104	1.48
47	119.6	3.92	0.00104	1.47
48	**120.2**	**4.00**	**0.00103**	**1.46**
49	120.8	4.08	0.00103	1.45
50	121.6	4.17	0.00102	1.44
51	122.3	4.25	0.00101	1.44
52	122.7	4.33	0.00101	1.43
53	123.3	4.42	0.00101	1.42
54	**123.9**	**4.50**	**0.00100**	**1.42**
55	124.2	4.58	0.00100	1.41
56	124.6	4.67	0.00099	1.41
57	125.1	4.75	0.00099	1.40
58	125.3	4.83	0.00099	1.40
59	126.3	4.92	0.00098	1.39
60	**126.9**	**5.00**	**0.00098**	**1.38**
61	126.9	5.08	0.00098	1.38
62	127.5	5.17	0.00097	1.38
63	127.8	5.25	0.00097	1.37
64	128.1	5.33	0.00097	1.37
65	128.6	5.42	0.00096	1.37
66	**129.0**	**5.50**	**0.00096**	**1.36**
67	129.4	5.58	0.00096	1.36
68	129.4	5.67	0.00096	1.36
69	129.1	5.75	0.00096	1.36
70	129.3	5.83	0.00096	1.36
71	128.9	5.92	0.00096	1.36
72	**129.1**	**6.00**	**0.00096**	**1.36**

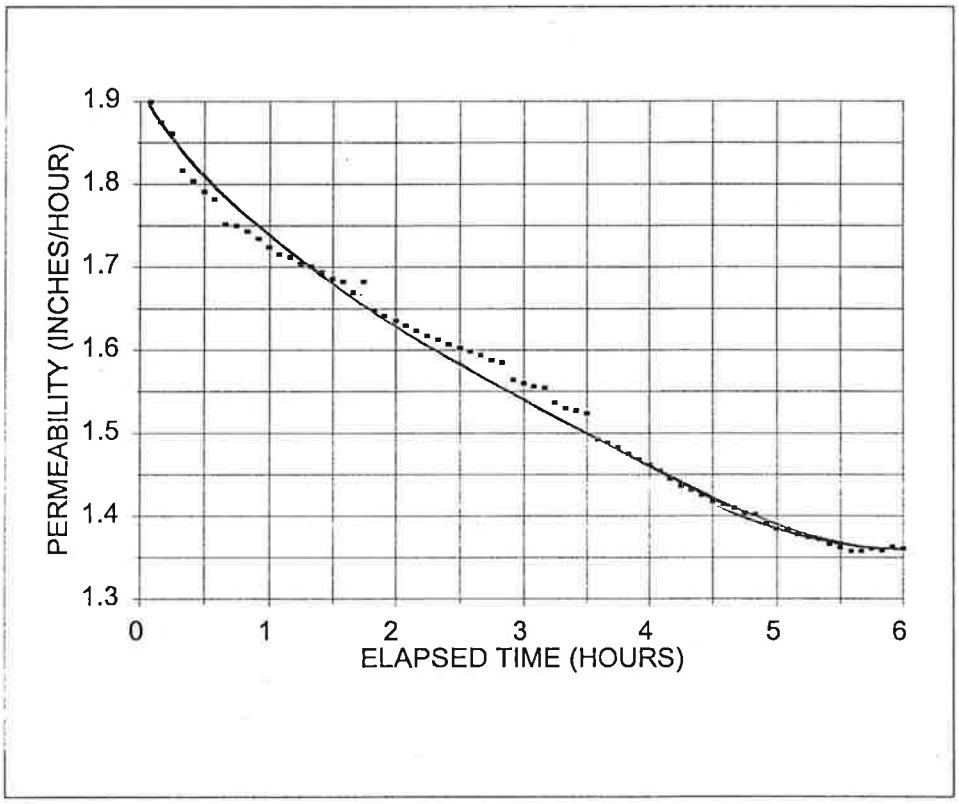
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-6-97	TIME:	09:55 AM
PROJECT NO:	16-03-97	TEST NO:	CH-3
DEPTH:	7.5 - 10.0	TESTED BY:	S.W.
SOIL DESCRIPTION:	ORANGE BROWN SILTY SAND (SM/A-4)		
WEATHER CONDITIONS:	OVERCAST (63 degrees)		
PROJECT DESCRIPTION:	BUCK LAKE STORMWATER PONDS		
DEPTH TO GROUNDWATER:	8.1 FEET DELOW GROUND SURFACE		

GRAPHICAL PRESENTATION:

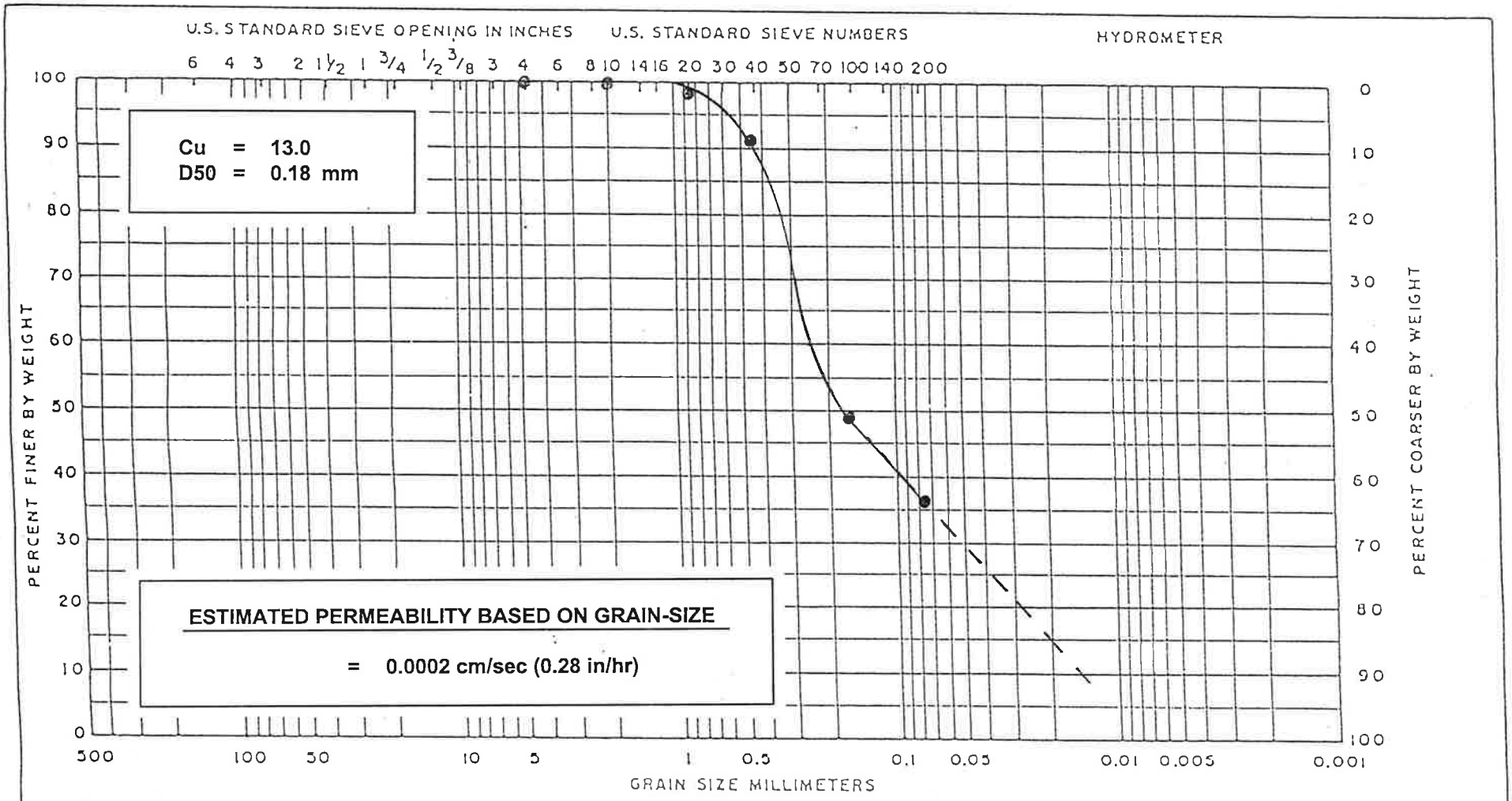


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 1.4 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 0.9 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-3	9.0-9.5'	SILTY SAND (SM/A-4)	17	28	26	2

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-3

BUCK LAKE STORMWATER PONDS

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-12-97	TIME:	11:00 AM
PROJECT NO:	16-03-97	TEST NO:	CH-4
DEPTH:	3.0 - 5.5	TESTED BY:	S.W.

SOIL DESCRIPTION: ORANGE BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: WARM (78 degrees)

PROJECT DESCRIPTION: BUCK LAKE STORMWATER PONDS

DEPTH TO GROUNDWATER: NOT ENCOUNTERED

EQUATION:

$$k = \frac{(\pi)(d)(d)}{(11)(D)(t2 - t1)} \ln \frac{H1}{H2}$$

where:

k = Permeability (cm/sec) = COMPUTED
d = Dia of Piezometer (cm) = 5.08
D = Dia of Piezometer Filter (cm) = 7.62
T2 - T1 = Duration of Test (sec) = VARIES
H1 = Head at Start of Test (cm) = 156.97
H2 = Head at Finish of Test (cm) = 126.94

TEST RESULTS:

TEST NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
1	122.2	0.08	0.00168	2.38
2	124.4	0.17	0.00165	2.34
3	125.8	0.25	0.00163	2.31
4	126.8	0.33	0.00162	2.29
5	126.9	0.42	0.00162	2.29
6	**127.1**	**0.50**	**0.00162**	**2.29**
7	127.4	0.58	0.00161	2.28
8	127.4	0.67	0.00161	2.28
9	127.3	0.75	0.00161	2.29
10	127.9	0.83	0.00160	2.27
11	128.2	0.92	0.00160	2.27
12	**128.6**	**1.00**	**0.00160**	**2.26**
13	128.8	1.08	0.00159	2.26
14	129.2	1.17	0.00159	2.25
15	129.6	1.25	0.00158	2.24
16	129.7	1.33	0.00158	2.24
17	130.4	1.42	0.00157	2.23
18	**131.3**	**1.50**	**0.00156**	**2.22**
19	131.6	1.58	0.00156	2.21
20	132.3	1.67	0.00155	2.20
21	133.2	1.75	0.00154	2.18
22	133.6	1.83	0.00154	2.18
23	133.8	1.92	0.00153	2.17
24	**134.3**	**2.00**	**0.00153**	**2.17**
25	134.6	2.08	0.00153	2.16
26	135.4	2.17	0.00152	2.15
27	135.1	2.25	0.00152	2.15
28	135.3	2.33	0.00152	2.15
29	135.8	2.42	0.00151	2.14
30	**136.2**	**2.50**	**0.00151**	**2.14**
31	137.4	2.58	0.00149	2.12
32	137.8	2.67	0.00149	2.11
33	139.2	2.75	0.00147	2.09
34	139.5	2.83	0.00147	2.09
35	139.9	2.92	0.00147	2.08
36	**140.1**	**3.00**	**0.00147**	**2.08**

NO	T2 - T1 (sec)	ELAPSED TIME (hr)	PERMEABILITY (cm/sec)	PERMEABILITY (in/hr)
37	140.2	3.08	0.00146	2.08
38	140.3	3.17	0.00146	2.07
39	140.5	3.25	0.00146	2.07
40	140.2	3.33	0.00146	2.08
41	140.6	3.42	0.00146	2.07
42	**140.8**	**3.50**	**0.00146**	**2.07**
43	141.0	3.58	0.00146	2.06
44	140.8	3.67	0.00146	2.07
45	141.3	3.75	0.00145	2.06
46	140.0	3.83	0.00147	2.08
47	141.2	3.92	0.00145	2.06
48	**140.3**	**4.00**	**0.00146**	**2.07**
49	140.8	4.08	0.00146	2.07
50	141.0	4.17	0.00146	2.06
51	141.3	4.25	0.00145	2.06
52	141.5	4.33	0.00145	2.06
53	141.0	4.42	0.00146	2.06
54	**141.6**	**4.50**	**0.00145**	**2.05**
55	140.8	4.58	0.00146	2.07
56	141.2	4.67	0.00145	2.06
57	141.0	4.75	0.00146	2.06
58	140.7	4.83	0.00146	2.07
59	140.6	4.92	0.00146	2.07
60	**140.9**	**5.00**	**0.00146**	**2.06**
61	140.7	5.08	0.00146	2.07
62	141.3	5.17	0.00145	2.06
63	141.0	5.25	0.00146	2.06
64	141.3	5.33	0.00145	2.06
65	141.2	5.42	0.00145	2.06
66	**141.3**	**5.50**	**0.00145**	**2.06**
67	141.8	5.58	0.00145	2.05
68	141.5	5.67	0.00145	2.06
69	141.8	5.75	0.00145	2.05
70	141.3	5.83	0.00145	2.06
71	141.0	5.92	0.00146	2.06
72	**141.2**	**6.00**	**0.00145**	**2.06**

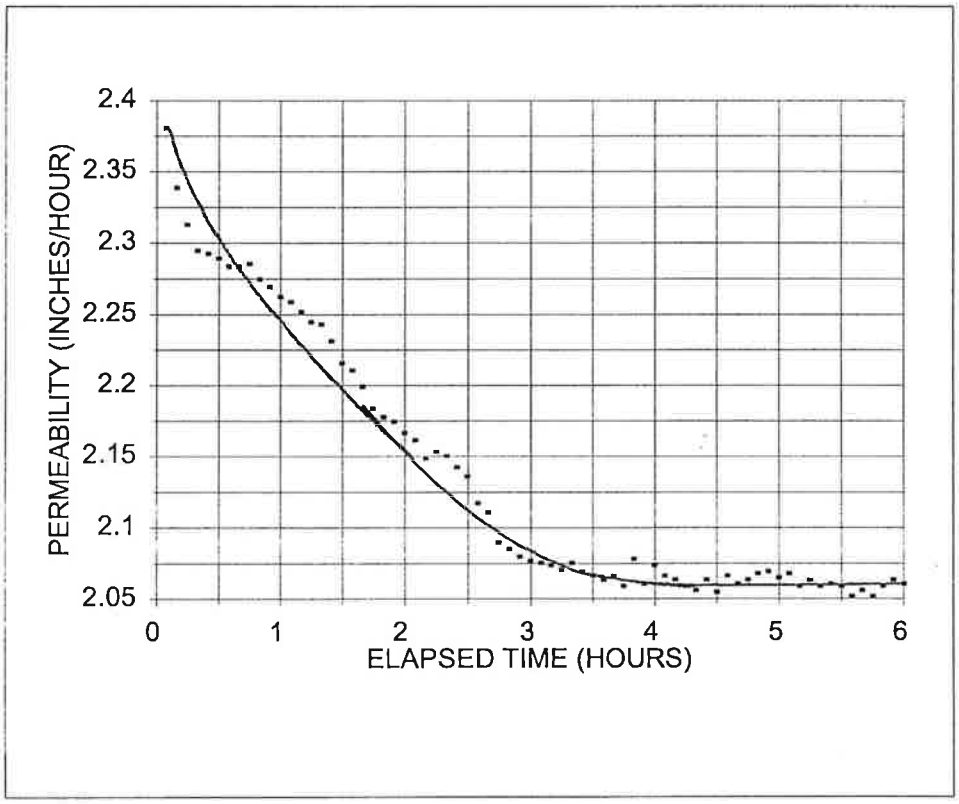
DATA SHEET

"CASED HOLE" PIEZOMETER ANALYSIS

TEST IDENTIFICATION:

DATE:	11-12-97	TIME:	11:00 AM
PROJECT NO:	16-03-97	TEST NO:	CH-4
DEPTH:	3.0 - 5.5	TESTED BY:	S.W.
SOIL DESCRIPTION:	ORANGE BROWN SILTY SAND (SM/A-4)		
WEATHER CONDITIONS:	WARM (78 degrees)		
PROJECT DESCRIPTION:	BUCK LAKE STORMWATER PONDS		
DEPTH TO GROUNDWATER:	NOT ENCOUNTERED		

GRAPHICAL PRESENTATION:

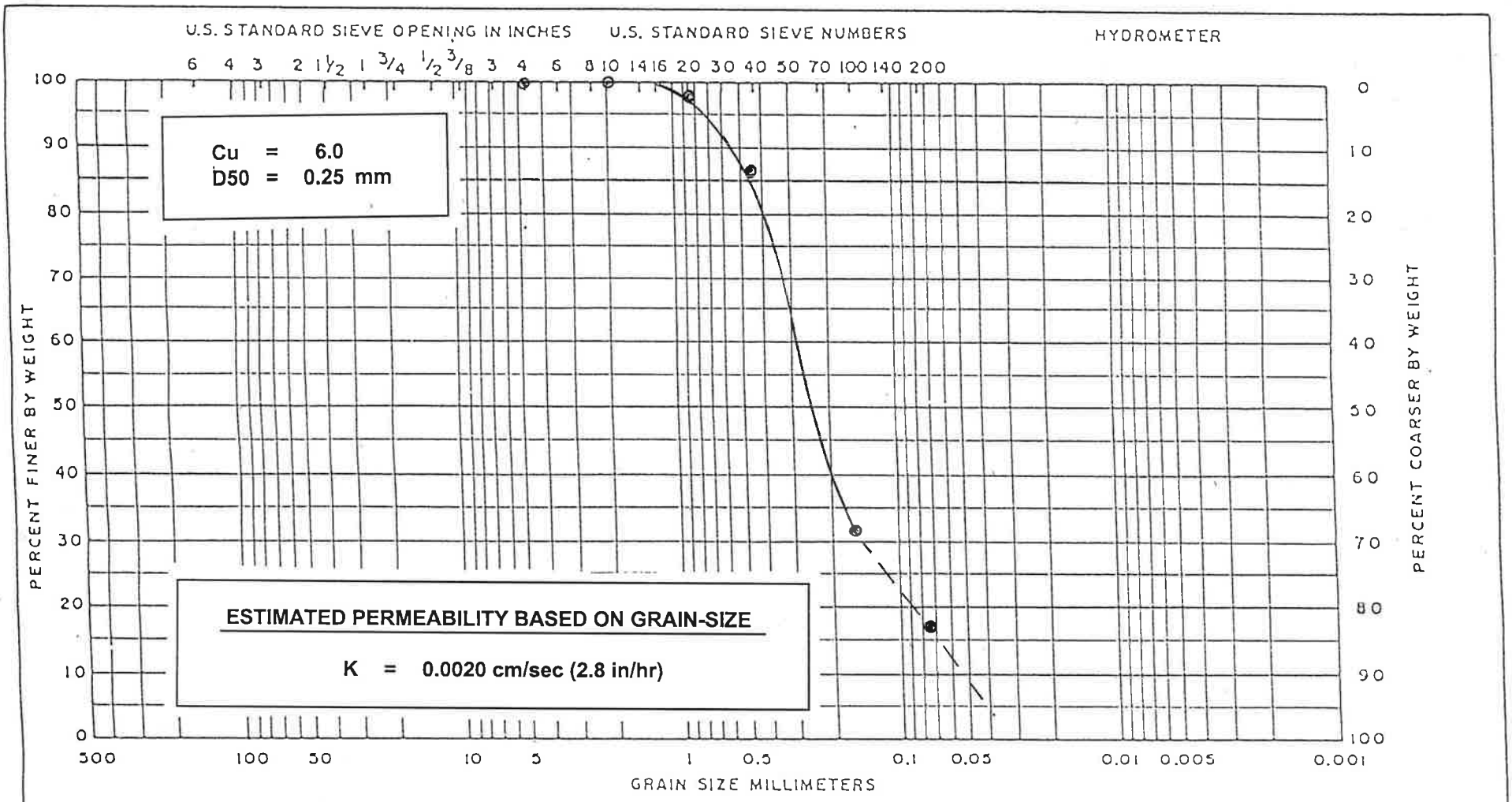


MEASURED "STEADY STATE" HORIZONTAL PERMEABILITY

AVERAGE OF LAST HOUR **Kh = 2.1 INCHES/HOUR**

ESTIMATED OF "STEADY STATE" VERTICAL PERMEABILITY

AVERAGE OF LAST HOUR **Kv = 1.4 INCHES/HOUR**



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
CH-4	3.0-3.5'	SILTY SAND (SM/A-2-4)	11			

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST CH-4

BUCK LAKE STORMWATER PONDS

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

STORMWATER SWALES

DATA SHEET

DOUBLE RING INFILTRATION TEST DATA

TEST IDENTIFICATION:

DATE: 12-18-97 TIME: 08:50 AM

PROJECT NO: 16-09-97 TEST NO: DR-1

DEPTH: 1.0 - 1.5' TESTED BY: S.M.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: COOL (60 deg)

TEST DATA:

TIME	VOLUME OF WATER ADDED (ML)	HEIGHT OF WATER ADDED (IN)	ELAPSED TIME		INFILTRATION RATE (IN/HR)
			INCREMENT (MIN)	TOTAL (HR)	
08:50 AM					
09:05 AM		0.25	15	0.25	1.0
09:20 AM		0.19	15	0.50	0.7
09:35 AM		0.13	15	0.75	0.5
09:50 AM		0.06	15	1.00	0.2
10:05 AM		0.06	15	1.25	0.2
10:20 AM		0.06	15	1.50	0.2
10:35 AM		0.06	15	1.75	0.2
10:50 AM		0.06	15	2.00	0.2
11:05 AM		0.06	15	2.25	0.2
11:20 AM		0.06	15	2.50	0.2
11:35 AM		0.06	15	2.75	0.2
11:50 AM		0.06	15	3.00	0.2
12:05 PM		0.06	15	3.25	0.2
12:20 PM		0.06	15	3.50	0.3
12:35 PM		0.06	15	3.75	0.2
12:50 PM		0.06	15	4.00	0.2
01:05 PM		0.06	15	4.25	0.2
01:20 PM		0.06	15	4.50	0.2
01:35 PM		0.06	15	4.75	0.2
01:50 PM		0.06	15	5.00	0.2
02:05 PM		0.06	15	5.25	0.2
02:20 PM		0.06	15	5.50	0.2
02:35 PM		0.06	15	5.75	0.2
02:50 PM		0.06	15	6.00	0.2

DATA SHEET

DOUBLE RING INFILTRATION TEST DATA

TEST IDENTIFICATION:

DATE: 12-18-97 TIME: 08:50 AM

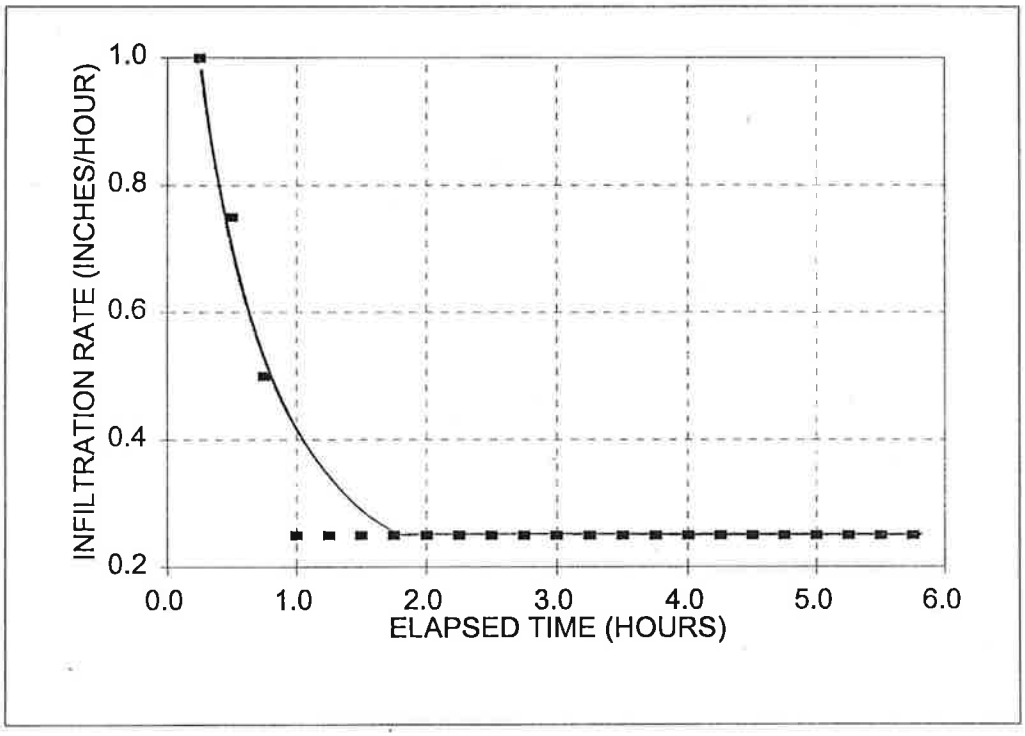
PROJECT NO: 16-09-97 TEST NO: DR-1

DEPTH: 1.0 - 1.5' TESTED BY: S.M.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: COOL (60 deg)

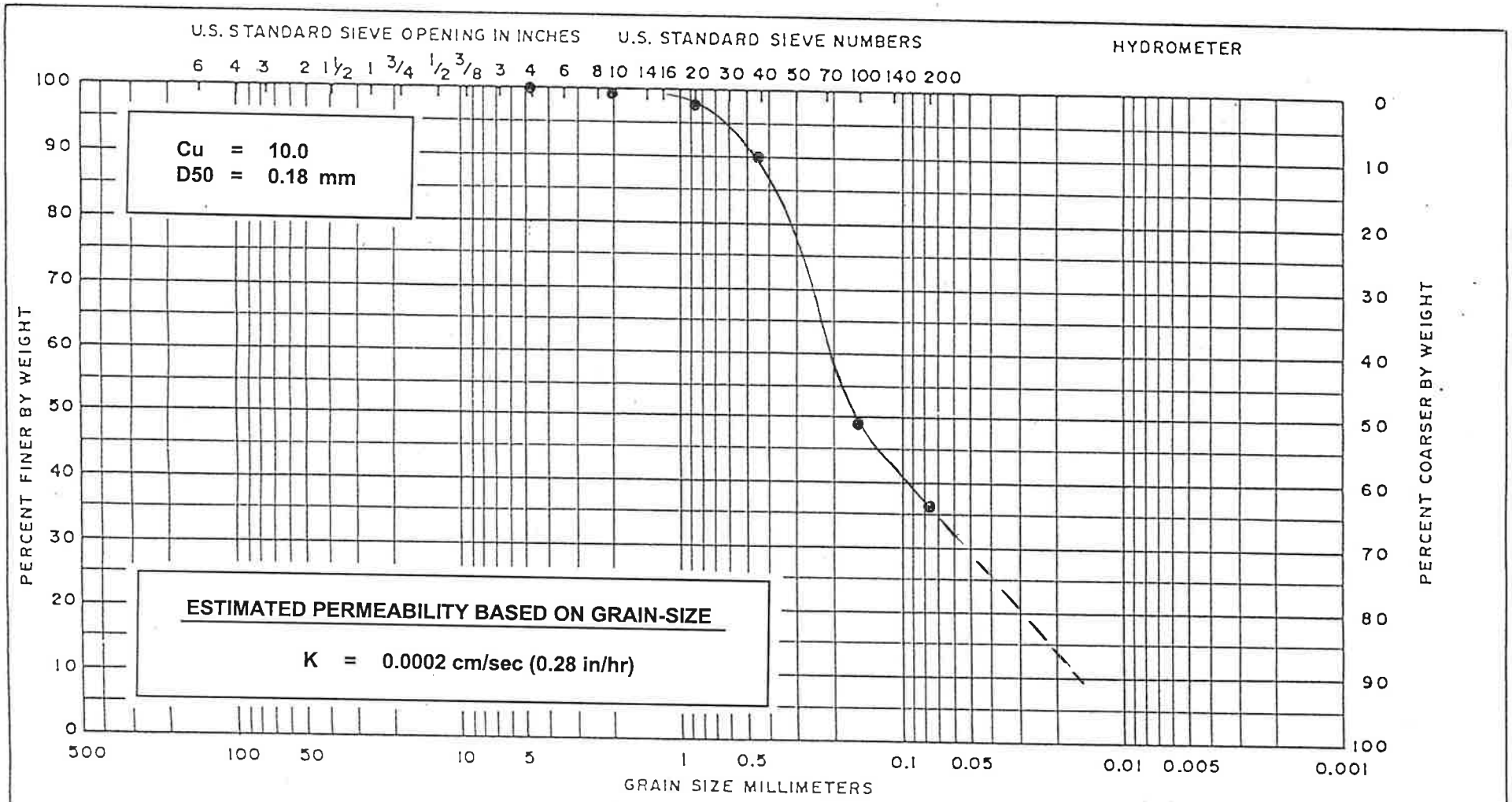
GRAPHICAL PRESENTATION



"STEADY STATE" VERTICAL INFILTRATION FOR LAST HOUR 0.25 IN/HR

NOTES:

RECORDED MEASUREMENTS ARE FOR INNER RING



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
DR-1	1.0-1.5'	SILTY SAND (A-4)	22	28	19	9

GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST DR-1

BUCK LAKE ROAD SWALES

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-09-97
	DATE	

DATA SHEET

DOUBLE RING INFILTRATION TEST DATA

TEST IDENTIFICATION:

DATE: 12-19-97 TIME: 09:15 AM

PROJECT NO: 16-09-97 TEST NO: DR-2

DEPTH: 1.0 - 1.5' TESTED BY: S.M.

SOIL DESCRIPTION: REDDISH BROWN SILTY SAND (SM/A-4)

WEATHER CONDITIONS: COOL (65 deg)

TEST DATA:

TIME	VOLUME OF WATER ADDED (ML)	HEIGHT OF WATER ADDED (IN)	ELAPSED TIME		INFILTRATION RATE (IN/HR)
			INCREMENT (MIN)	TOTAL (HR)	
09:15 AM					
09:30 AM		0.38	15	0.25	1.5
09:45 AM		0.31	15	0.50	1.2
10:00 AM		0.25	15	0.75	1.0
10:15 AM		0.19	15	1.00	0.7
10:30 AM		0.13	15	1.25	0.5
10:45 AM		0.06	15	1.50	0.2
11:00 AM		0.06	15	1.75	0.2
11:15 AM		0.06	15	2.00	0.2
11:30 AM		0.06	15	2.25	0.2
11:45 AM		0.06	15	2.50	0.2
12:00 PM		0.06	15	2.75	0.2
12:15 PM		0.06	15	3.00	0.2
12:30 PM		0.06	15	3.25	0.2
12:45 PM		0.06	15	3.50	0.2
01:00 PM		0.06	15	3.75	0.2
01:15 PM		0.06	15	4.00	0.2
01:30 PM		0.06	15	4.25	0.2
01:45 PM		0.06	15	4.50	0.2
02:00 PM		0.06	15	4.75	0.2
02:15 PM		0.06	15	5.00	0.2
02:30 PM		0.06	15	5.25	0.2
02:45 PM		0.06	15	5.50	0.2
03:00 PM		0.06	15	5.75	0.2
03:15 PM		0.06	15	6.00	0.2

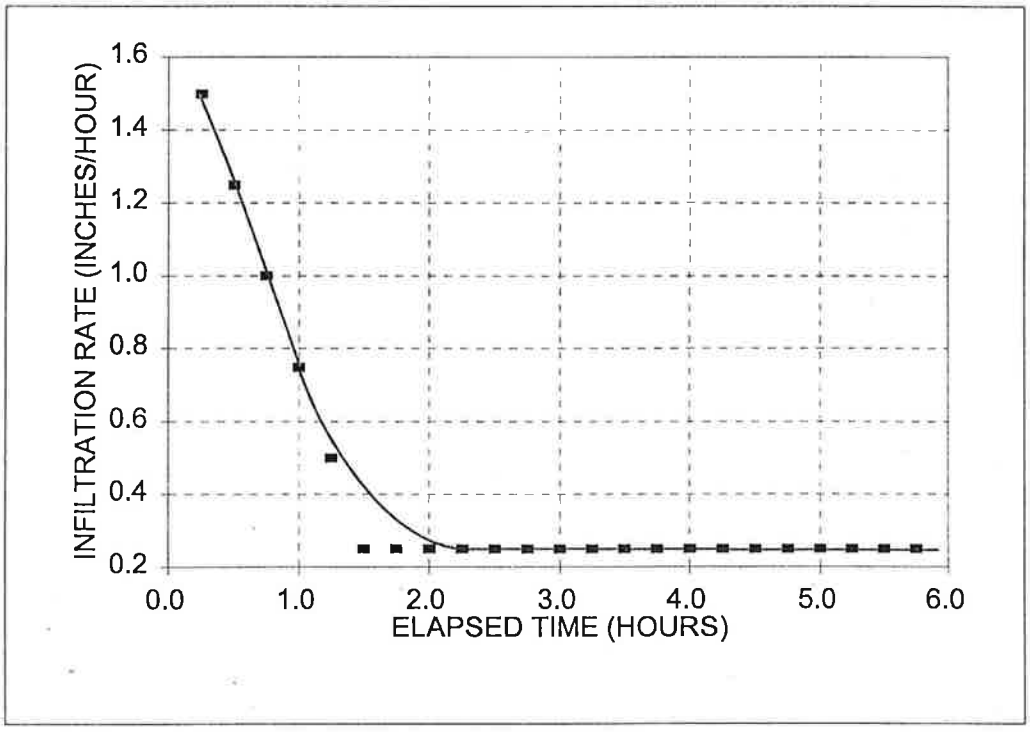
DATA SHEET

DOUBLE RING INFILTRATION TEST DATA

TEST IDENTIFICATION:

DATE:	12-19-97	TIME:	09:15 AM
PROJECT NO:	16-09-97	TEST NO:	DR-2
DEPTH:	1.0 - 1.5'	TESTED BY:	S.M.
SOIL DESCRIPTION:	REDDISH BROWN SILTY SAND (SM/A-4)		
WEATHER CONDITIONS:	COOL (65 deg)		

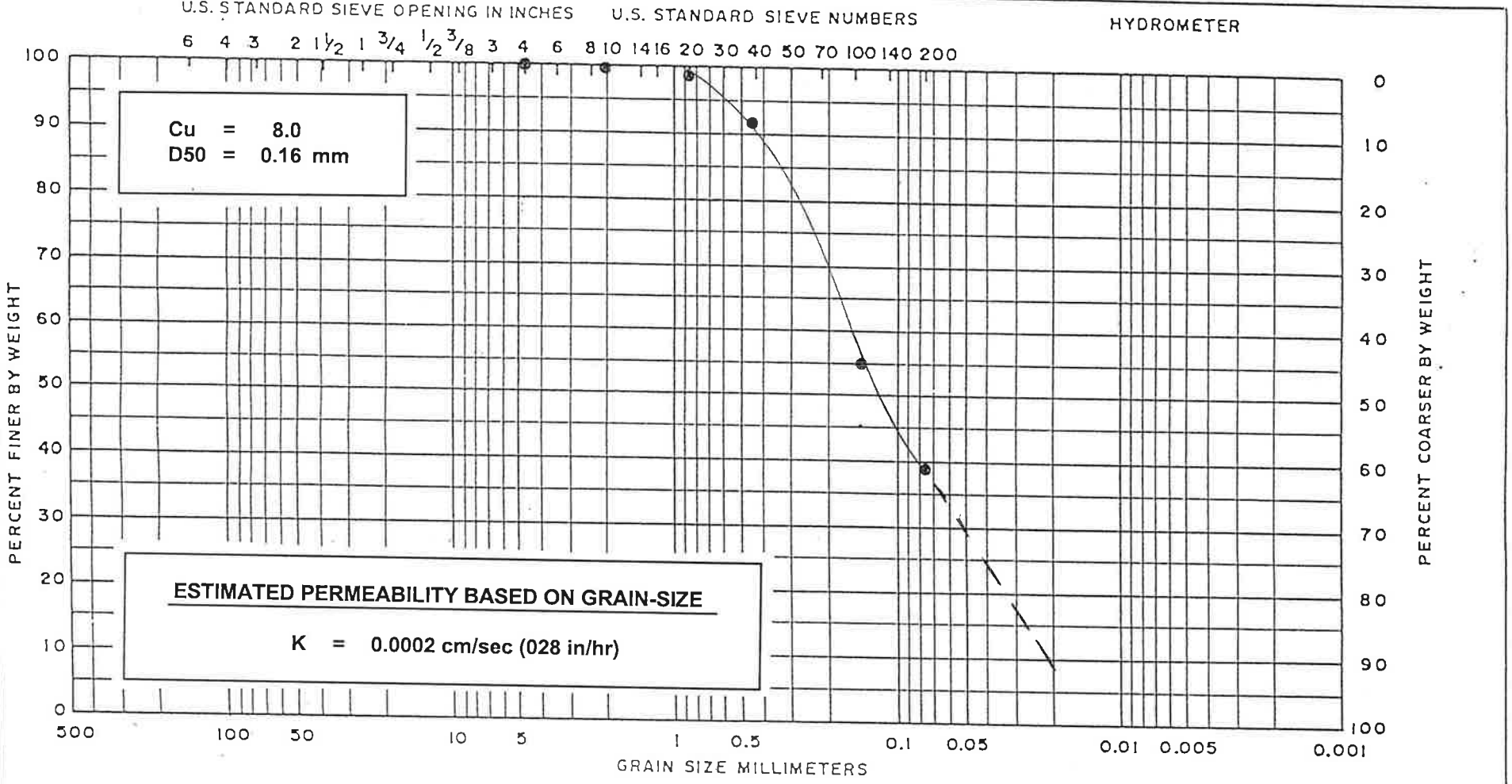
GRAPHICAL PRESENTATION



"STEADY STATE" VERTICAL INFILTRATION FOR LAST HOUR 0.25 IN/HR

NOTES:

RECORDED MEASUREMENTS ARE FOR INNER RING



COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
DR-2	1.0-1.5'	SILTY SAND (A-4)	22			

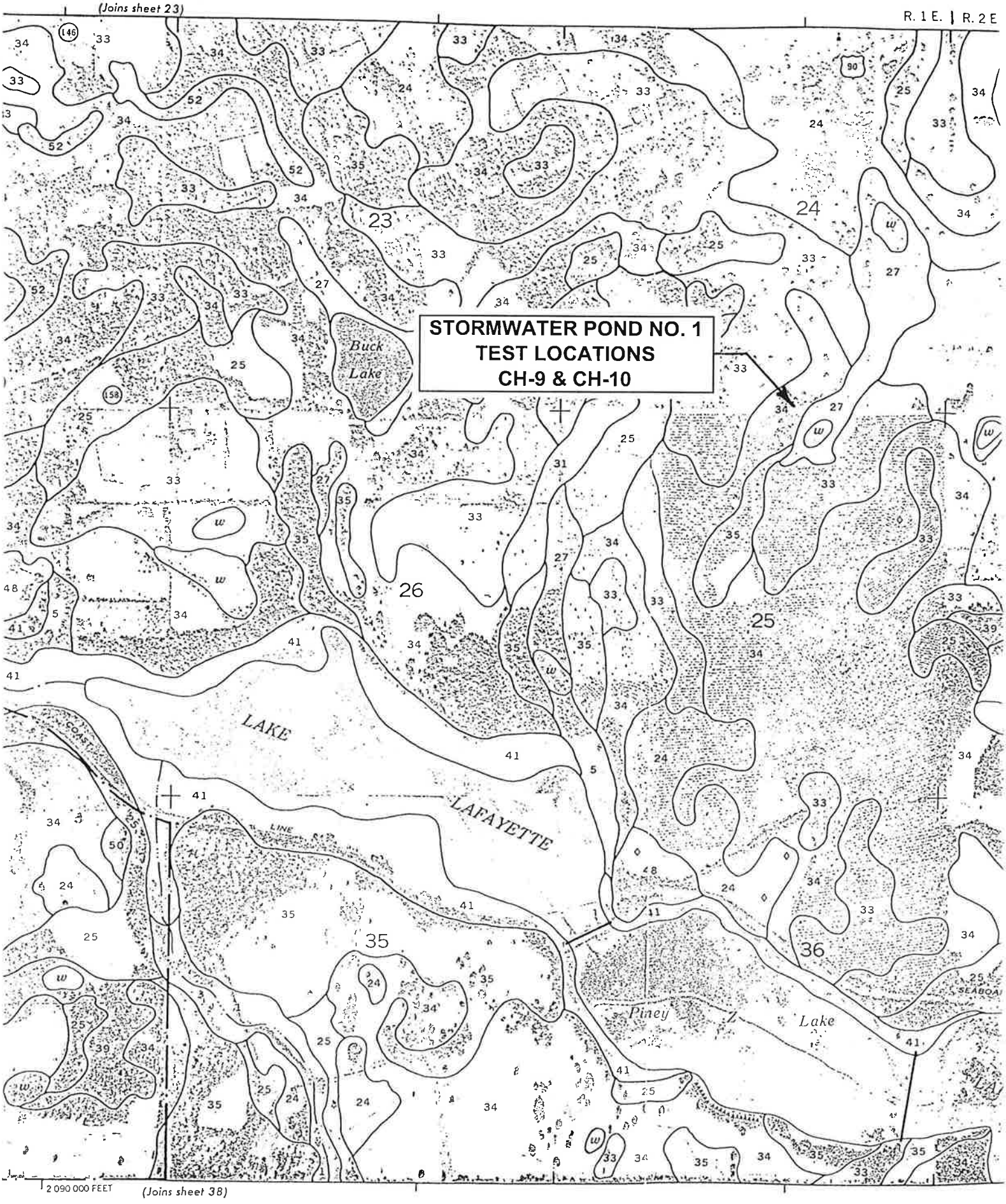
GRAIN SIZE DISTRIBUTION CURVES

INFILTRATION TEST DR-2

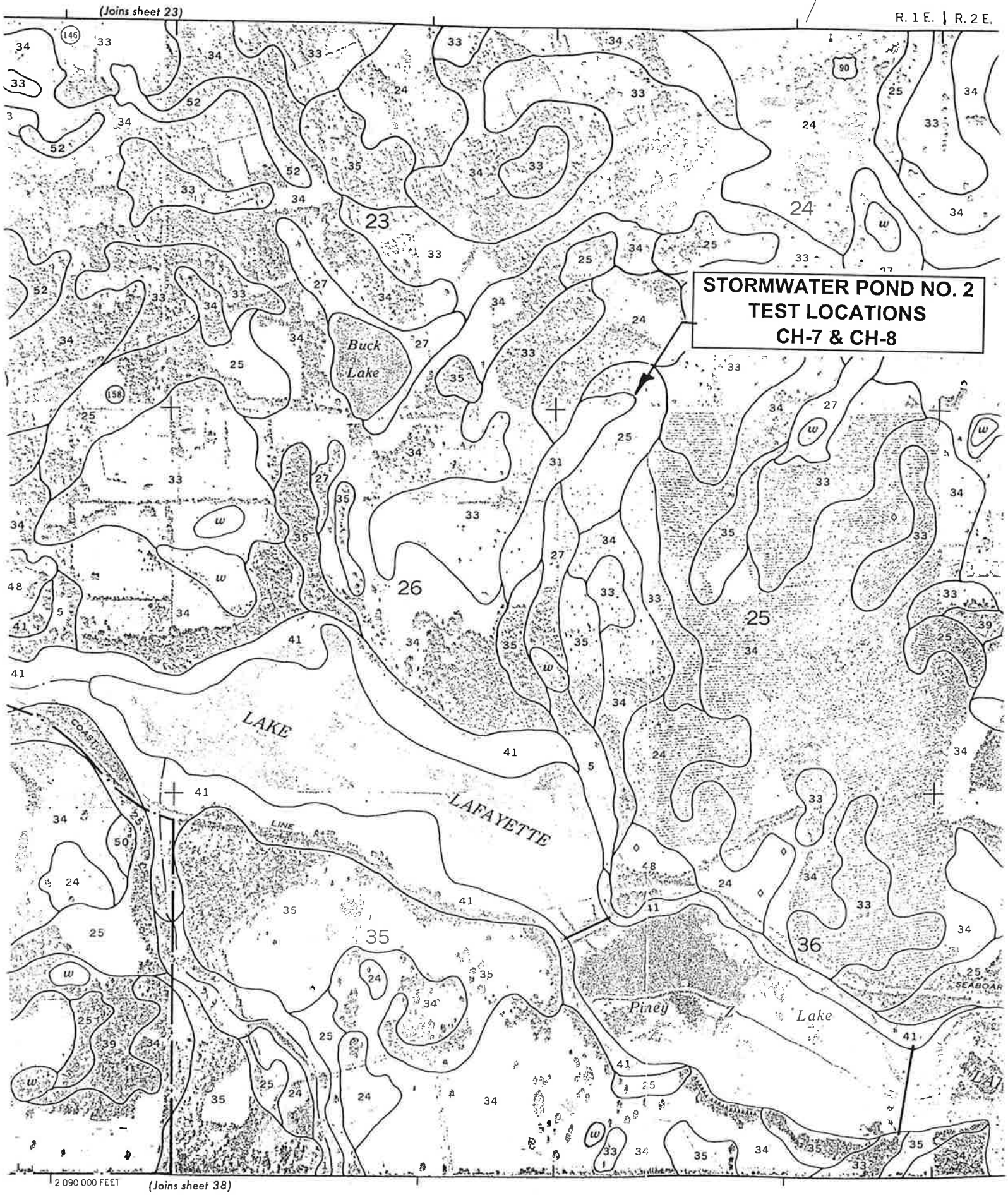
BUCK LAKE SWALES

TESTED BY	CHECKED BY	PROJ NO
A.M.	M.H.	16-03-97
	DATE	

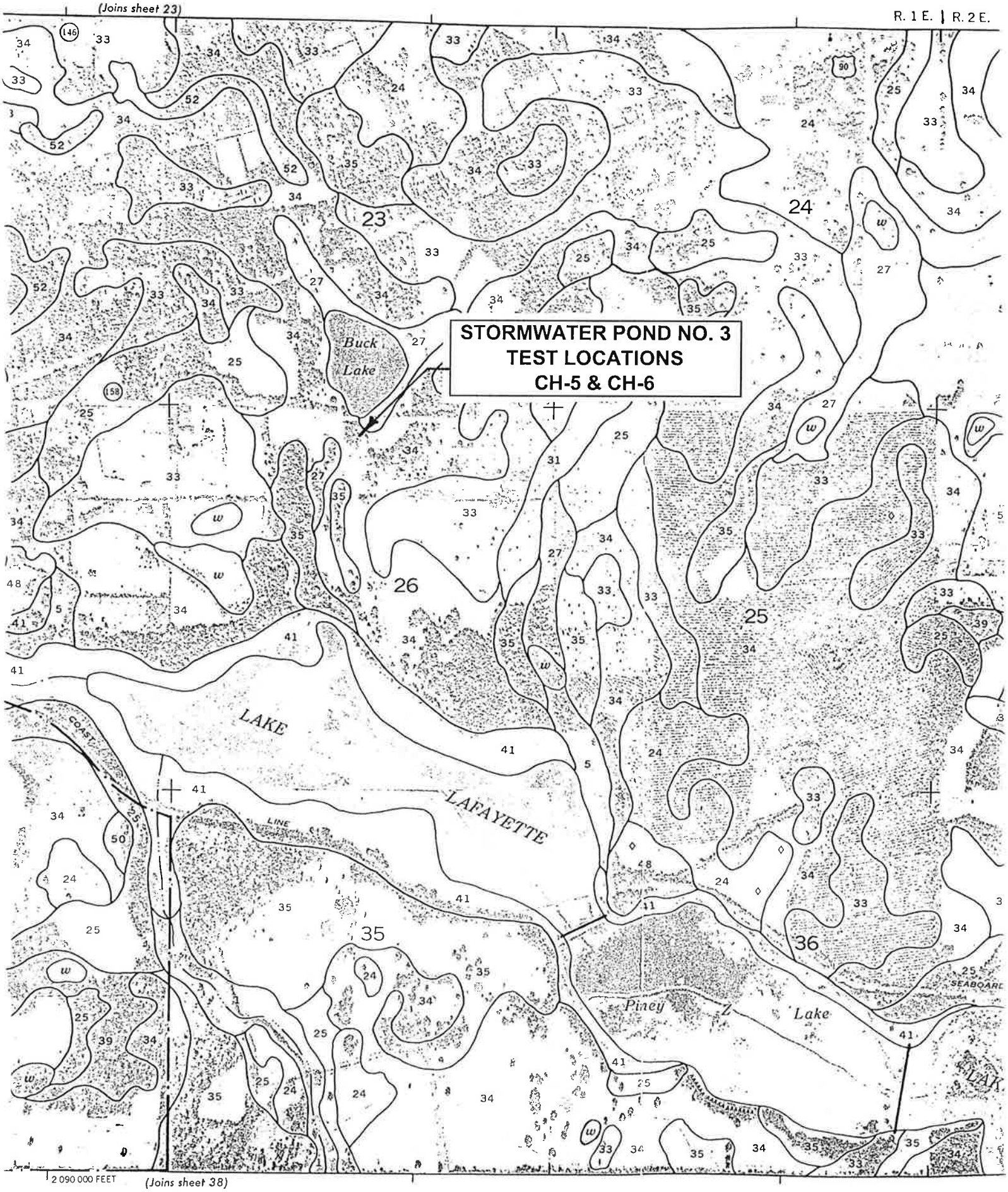
LEON COUNTY
USDA SOIL SURVEY

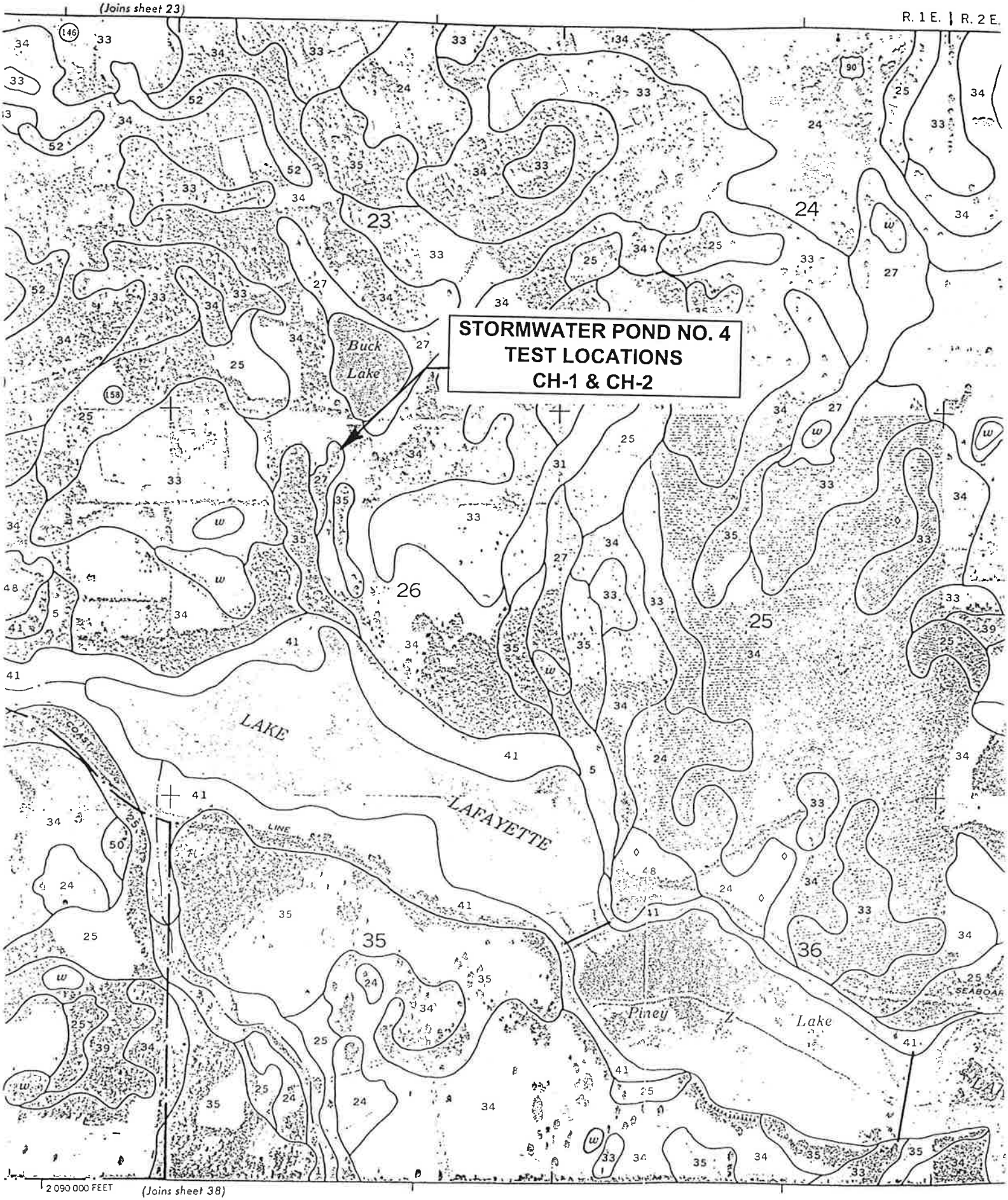

(Joins sheet 23)
R. 1 E.
R. 2 E
STORMWATER POND NO. 1
TEST LOCATIONS
CH-9 & CH-10
Buck Lake
LAKE
LAFAYETTE
COAST LINE
Piney Z Lake
SEABOA
23
24
25
26
35
36
2 090 000 FEET
(Joins sheet 38)

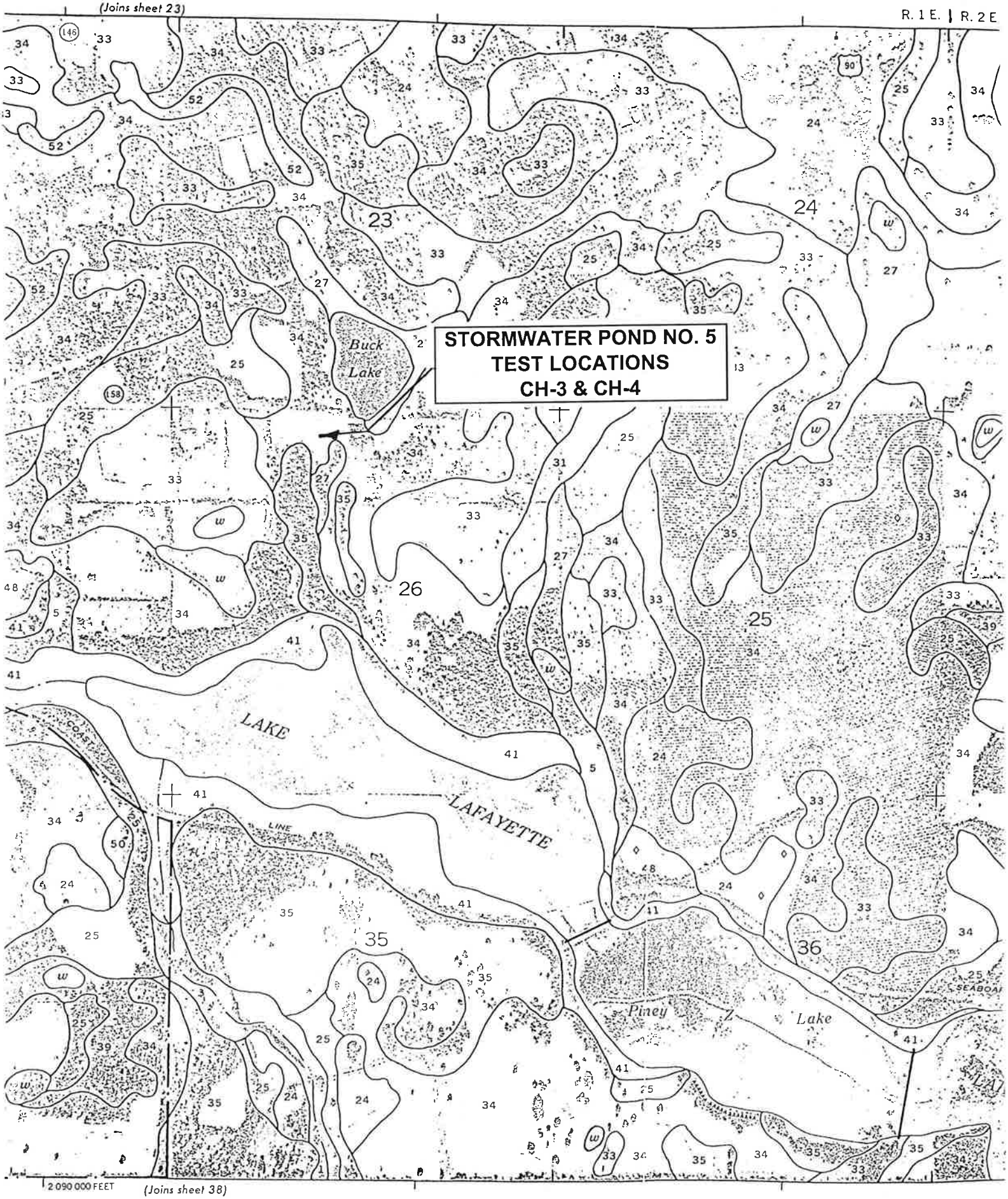
LEON COUNTY, FLORIDA — SHEET NUMBER 30



LEON COUNTY, FLORIDA — SHEET NUMBER 30




(Joins sheet 23)
R. 1 E.
R. 2 E.
STORMWATER POND NO. 4
TEST LOCATIONS
CH-1 & CH-2
Buck Lake
LAKE LAFAYETTE
Piney Z Lake
23
24
25
26
35
36
2 090 000 FEET
(Joins sheet 38)


(Joins sheet 23)
R. 1 E.
R. 2 E
STORMWATER POND NO. 5
TEST LOCATIONS
CH-3 & CH-4
Buck Lake
LAKE LAFAYETTE
Piney Z Lake
23
24
25
26
35
36
2 090 000 FEET
(Joins sheet 38)

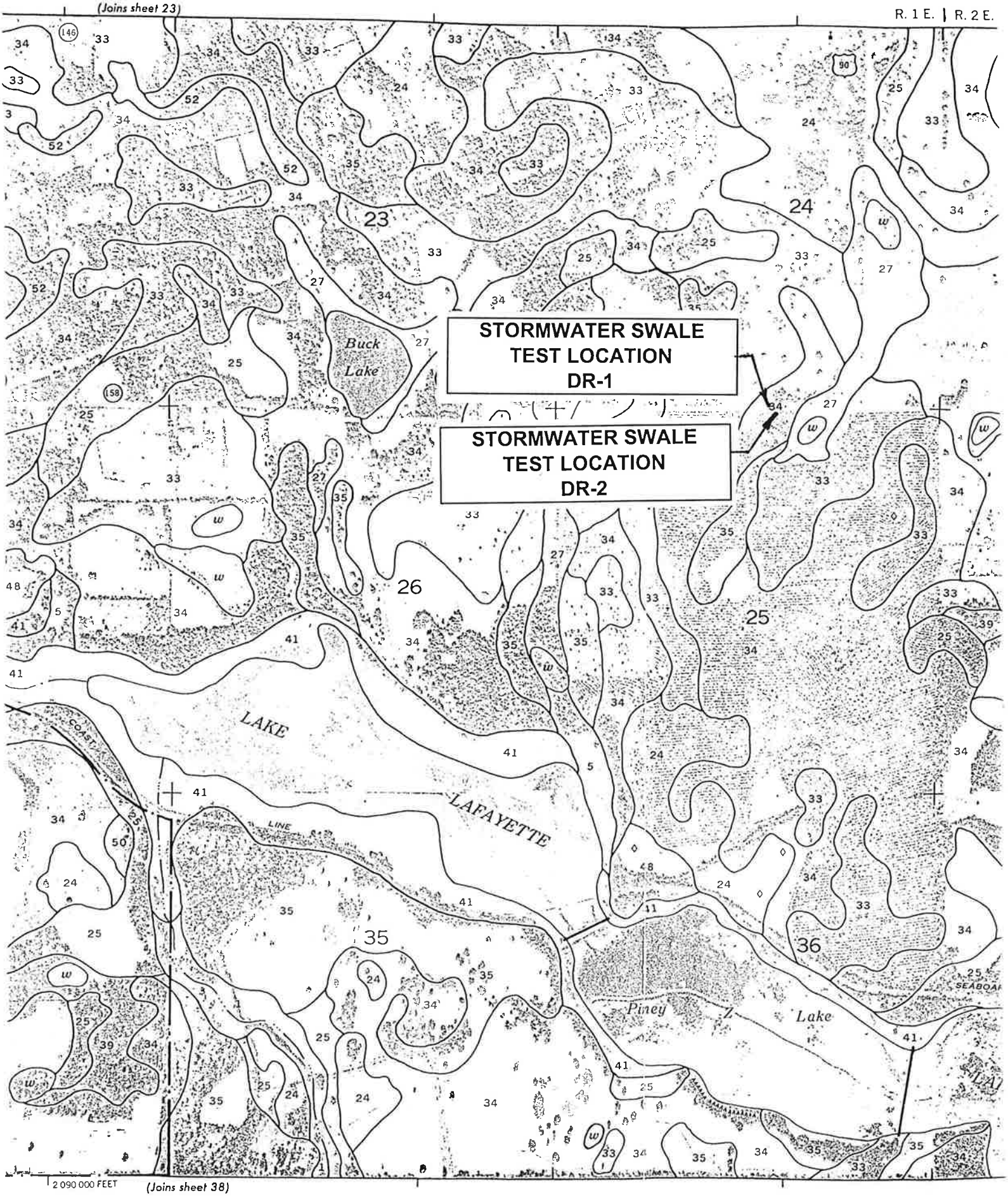

(Joins sheet 23)
R. 1 E. | R. 2 E.
STORMWATER SWALE TEST LOCATION DR-1
STORMWATER SWALE TEST LOCATION DR-2
Buck Lake
LAKE LAFAYETTE
Piney Z Lake
23
24
25
26
35
36
2 090 000 FEET
(Joins sheet 38)

TABLE 14.--ENGINEERING INDEX PROPERTIES

[Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1---------- Albany	0-50	Loamy sand------	SM	A-2	0	100	100	75-90	12-23	---	NP
	50-63	Sandy loam------	SM	A-2	0	100	100	75-92	22-30	---	NP
	63-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	25-50	<40	NP-17
2:*											
Albany----------	0-50	Loamy sand------	SM	A-2	0	100	100	75-90	12-23	---	NP
	50-63	Sandy loam------	SM	A-2	0	100	100	75-92	22-30	---	NP
	63-78	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	70-100	25-50	<40	NP-17
Urban land.											
3---------- Alpin	0-4	Sand----------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-55	Fine sand, sand	SP-SM	A-3, A-2-4	0	95-100	90-100	60-100	5-12	---	NP
	55-90	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
4.* Arents											
5---------- Blanton	0-52	Fine sand-------	SP-SM	A-3, A-2-4	0	100	100	65-100	5-12	---	NP
	52-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	100	69-95	25-50	18-23	4-12
6---------- Bonifay	0-42	Fine sand-------	SP-SM, SM	A-3, A-2-4	0	98-100	98-100	60-95	5-20	---	NP
	42-53	Sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2-4, A-4	0	95-100	90-100	63-95	23-50	<30	NP-12
	53-80	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A-7	0	95-100	90-100	60-95	30-50	25-45	5-22
7---------- Chaires	0-28	Fine sand-------	SP, SP-SM	A-3	0	100	100	80-100	2-10	---	NP
	28-54	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-20	---	NP
	54-68	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6	0	100	100	85-100	20-35	<40	NP-20
	68-80	Sandy clay loam, sandy clay.	SC	A-2-6, A-2-7, A-6, A-7	0	100	100	85-100	25-50	25-50	10-30

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
8---------- Chipley	0-15	Fine sand-------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	15-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
9---------- Dorovan	0-5	Mucky peat------	Pt	---	0	---	---	---	---	---	---
	5-65	Muck------------	Pt	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
10, 11---------- Dothan	0-13	Loamy fine sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	13-46	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
	46-75	Sandy clay loam, sandy clay.	SM-SC, SC, SM	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-50	25-45	4-18
12, 13, 14---------- Faceville	0-13	Sandy loam------	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-5
	13-80	Sandy clay, clay, clay loam.	CL, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
15---------- Foxworth	0-46	Sand------------	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	46-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	50-100	1-12	---	NP
16, 17---------- Fuquay	0-37	Fine sand-------	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-20	---	NP
	37-64	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	60-80	23-45	<35	NP-18
	64-80	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	20-39	8-25
18, 19---------- Kershaw	0-80	Sand------------	SP, SP-SM	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
20:* Kershaw---------- Urban land.	0-80	Sand------------	SP, SP-SM	A-2, A-3	0	98-100	98-100	50-80	1-7	---	NP
21---------- Lakeland	0-78	Sand------------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	78-91	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
22---------- Leefield	0-36	Loamy sand------	SM, SW-SM, SP-SM	A-2	0	98-100	95-100	65-95	10-20	---	NP
	36-51	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	93-100	65-95	20-40	<40	NP-16
	51-80	Sandy loam, sandy clay loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	95-100	95-100	65-90	20-40	<40	NP-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
23---------- Leon	0-25	Sand----------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	25-41	Sand, fine sand	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	41-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
24, 25---------- Lucy	0-30	Fine sand-------	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	30-36	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	10-30	NP-15
	36-80	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	5-20
26---------- Lutterloh	0-59	Fine sand-------	SP, SP-SM, SM	A-3, A-2-4	0	100	100	85-95	2-15	---	NP
	59-71	Fine sandy loam, very fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	100	85-95	20-40	<35	NP-20
	71-80	Sandy clay loam, sandy clay.	SC, CL, CH	A-6, A-7	0	100	100	90-100	40-60	35-70	20-42
27---------- Lynchburg	0-18	Fine sandy loam	SM, ML	A-2, A-4	0	92-100	90-100	75-100	25-65	<30	NP-7
	18-65	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	92-100	90-100	70-100	25-67	15-40	4-18
	65-80	Variable---------	---	---	---	---	---	---	---	---	---
28*---------- Meggett	0-12	Very fine sandy loam	SM	A-2, A-4	0	100	90-100	85-100	13-41	---	NP
	12-50	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-70	20-40
	50-80	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6, A-2	0	90-100	65-100	50-100	40-60	<40	NP-25
29, 30---------- Norfolk	0-8	Loamy fine sand	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	8-58	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	58-80	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6	0	100	98-100	65-98	36-72	20-45	4-22
31---------- Norfolk	0-7	Loamy sand------	SM	A-2-4	0	95-100	95-100	85-95	13-25	---	NP
	7-14	Sandy loam------	SM, SM-SC	A-2-4	0	95-100	95-100	85-95	13-35	<23	NP-7
	14-64	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2-4, A-2-6, A-4, A-6	0	95-100	95-100	85-95	30-55	20-40	4-20
	64-80	Sandy clay, clay	CH	A-7	0	95-100	95-100	85-100	51-100	50-100	23-60

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
32----------	0-29	Sand----------	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
Ocilla	29-80	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
33, 34, 35---------	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
Orangeburg	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
36:*											
Orangeburg--------	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
Urban land.											
37----------	0-10	Sand----------	SP, SP-SM	A-3	0	100	100	90-100	3-8	---	NP
Ortega	10-99	Fine sand, sand	SP, SP-SM	A-3	0	100	100	90-100	2-7	---	NP
38:*											
Pamlico----------	0-32	Muck----------	Pt	---	0	---	---	---	---	---	---
	32-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-20	---	NP
Dorovan----------	0-5	Mucky peat------	Pt	---	0	---	---	---	---	---	---
	5-65	Muck----------	Pt	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
39----------	0-26	Fine sand--------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
Pelham	26-80	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
40.*											
Pits											
41----------	0-61	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
Plummer	61-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
42----------	0-60	Mucky fine sand	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
Plummer	60-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
43, 44*----------	0-23	Loamy fine sand	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	<25	NP
Rutlege	23-82	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Pl ti in
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
45---------- Sapelo	0-14	Fine sand-------	SM, SP, SP-SM	A-2, A-3	0	100	100	90-100	4-20	---	N
	14-26	Fine sand, sand	SM, SP-SM	A-2, A-3	0	100	100	95-100	8-20	---	N
	26-43	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	90-100	4-20	---	N
	43-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	90-100	20-50	<40	NP
46---------- Surrency	0-36	Loamy sand------	SM	A-2	0	100	95-100	50-75	15-26	---	N
	36-65	Sandy clay loam	SM, SC, SM-SC	A-2, A-6, A-4	---	100	95-100	80-98	30-44	<34	NP
47---------- Talquin	0-25	Fine sand-------	SP, SM, SP-SM	A-3, A-2-4	0	100	100	80-100	2-15	---	N
	25-37	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	80-100	5-20	---	N
	37-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	N
48---------- Troup	0-44	Fine sand-------	SM	A-2, A-4	0	100	100	65-90	15-40	---	NP
	44-80	Sandy clay loam, sandy loam.	SC, SM-SC, CL-ML, CL	A-4, A-2	0	95-100	95-100	70-90	24-55	19-30	4-
49.* Urban land											
50, 51---------- Wagram	0-31	Loamy fine sand	SM	A-2	0	100	98-100	50-85	15-35	---	NP
	31-62	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6	0	100	98-100	80-95	31-49	21-40	8-
52---------- Yonges	0-9	Fine sandy loam	SM, ML	A-2, A-4	0	100	100	90-100	25-55	<30	NP-
	9-71	Sandy clay loam, clay loam.	CL-ML, CL, SC, SM-SC	A-4, A-6, A-7	0	100	100	95-100	40-70	25-45	6-
	71-80	Fine sandy loam, sandy clay loam.	CL, ML, SC, SM	A-4, A-6	0	100	100	80-100	40-65	20-40	3-

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm3	In/hr	In/in	pH					Pct
1----------	0-50	2-12	1.45-1.65	6.0-20	0.02-0.04	3.6-5.5	Low----------	0.17	5	2	2-5
Albany	50-63	14-20	1.55-1.90	2.0-6.0	0.08-0.10	4.5-5.5	Low----------	0.20			
	63-78	15-35	1.60-1.90	0.6-2.0	0.10-0.16	4.5-5.5	Low----------	0.24			
2:*											
Albany----------	0-50	2-12	1.45-1.65	6.0-20	0.02-0.04	3.6-5.5	Low----------	0.17	5	2	2-5
	50-63	14-20	1.55-1.90	2.0-6.0	0.08-0.10	4.5-5.5	Low----------	0.20			
	63-78	15-35	1.60-1.90	0.6-2.0	0.10-0.16	4.5-5.5	Low----------	0.24			
Urban land.											
3----------	0-4	3-7	1.35-1.55	>20	0.05-0.10	4.5-6.0	Very low-----	0.10	5	2	>.5
Alpin	4-55	3-7	1.40-1.55	>20	0.03-0.07	4.5-6.0	Very low-----	0.10			
	55-90	5-8	1.45-1.60	>20	0.06-0.09	4.5-6.0	Very low-----	0.10			
4.*											
Arents											
5----------	0-52	2-7	1.35-1.60	6.0-20	0.03-0.07	4.5-6.0	Very low-----	0.17	5	2	.5-1
Blanton	52-80	12-30	1.60-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.32			
6----------	0-42	3-9	1.35-1.60	6.0-20	0.03-0.08	4.5-6.5	Low----------	0.17	5	2	1-3
Bonifay	42-53	15-35	1.50-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24			
	53-80	20-45	1.50-1.70	0.2-0.6	0.10-0.15	4.5-5.5	Low----------	0.24			
7----------	0-28	<3	1.35-1.45	6.0-20	0.02-0.05	3.6-5.5	Low----------	0.17	5	1	1-3
Chaires	28-54	2-13	1.45-1.60	0.6-2.0	0.05-0.10	3.6-5.5	Low----------	0.20			
	54-68	15-35	1.50-1.70	0.2-0.6	0.10-0.15	4.5-7.3	Low----------	0.37			
	68-80	20-40	1.50-1.70	0.06-0.2	0.12-0.17	4.5-7.3	Moderate-----	0.32			
8----------	0-15	1-5	1.35-1.45	6.0-20	0.05-0.10	4.5-6.5	Very low-----	0.17	5	2	2-5
Chipley	15-80	2-7	1.45-1.80	6.0-20	0.03-0.08	4.5-6.5	Very low-----	0.17			
9----------	0-5	---	0.25-0.40	0.6-2.0	0.25-0.50	3.6-5.0	----------	----	---	2	---
Dorovan	5-65	---	0.35-0.55	0.6-2.0	0.25-0.50	3.6-5.0	----------	----			
	65-80	5-20	1.40-1.65	6.0-20	0.05-0.08	3.6-5.0	Low----------	----			
10, 11----------	0-13	5-15	1.50-1.60	2.0-6.0	0.06-0.10	4.5-5.5	Very low-----	0.20	4	2	<.5
Dothan	13-46	18-35	1.60-1.70	0.6-2.0	0.10-0.14	4.5-6.0	Low----------	0.28			
	46-75	18-40	1.60-1.70	0.2-0.6	0.08-0.12	4.5-6.0	Low----------	0.28			
12, 13, 14-------	0-13	15-20	1.60-1.70	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.28	5	3	1-3
Faceville	13-80	35-60	1.55-1.65	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.37			
15----------	0-46	2-8	1.35-1.60	>20	0.05-0.10	4.5-5.5	Low----------	0.17	5	2	>1
Foxworth	46-80	2-6	1.40-1.60	>20	0.03-0.08	4.5-5.5	Low----------	0.17			
16, 17----------	0-37	2-7	1.40-1.50	>6.0	0.04-0.09	4.5-5.5	Low----------	0.20	5	1	1-3
Fuquay	37-64	15-35	1.60-1.70	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.20			
	64-80	20-35	1.60-1.70	0.06-0.2	0.10-0.13	4.5-5.5	Low----------	0.20			
18, 19----------	0-80	1-5	1.35-1.55	>20	0.02-0.05	4.5-6.0	Very low-----	0.15	5	1	<.5
Kershaw											

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organ matt
								K	T		
	In	Pct	G/cm³	In/hr	In/in	pH					Pct
20:*											
Kershaw	0-80	1-5	1.35-1.55	>20	0.02-0.05	4.5-6.0	Very low	0.15	5	1	<.5
Urban land.											
21	0-78	2-8	1.35-1.55	>20	0.05-0.08	4.5-6.0	Low	0.17	5	2	>1
Lakeland	78-91	2-6	1.50-1.60	>20	0.03-0.08	4.5-6.0	Low	----			
22	0-36	8-12	1.30-1.65	6.0-20	0.04-0.07	4.5-6.0	Low	0.10	5	2	2-5
Leefield	36-51	15-35	1.40-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.15			
	51-80	15-35	1.60-1.70	0.2-0.6	0.08-0.12	4.5-5.5	Low	0.10			
23	0-25	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-5.5	Very low	0.20	5	1	.5-1
Leon	25-41	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	Very low	0.20			
	41-80	1-6	1.40-1.65	>20	0.02-0.05	3.6-5.5	Very low	0.17			
24, 25	0-30	2-12	1.35-1.65	6.0-20	0.06-0.10	5.1-5.5	Low	0.20	5	1	.5-1
Lucy	30-36	20-30	1.60-1.70	2.0-6.0	0.10-0.12	4.5-5.5	Low	0.24			
	36-80	20-35	1.55-1.70	0.6-2.0	0.12-0.14	4.5-5.5	Low	0.28			
26	0-59	<5	1.35-1.55	6.0-20	0.02-0.05	5.1-6.0	Low	0.24	5	1	<3
Lutterloh	59-71	15-30	1.60-1.70	0.6-2.0	0.10-0.15	5.1-6.0	Low	0.32			
	71-80	30-55	1.60-1.70	<0.2	0.10-0.15	5.1-6.0	High	0.37			
27	0-18	5-20	1.60-1.70	2.0-6.0	0.09-0.13	4.5-5.5	Low	0.20	4	3	2-5
Lynchburg	18-65	18-35	1.55-1.70	0.6-2.0	0.12-0.16	4.5-5.5	Low	0.20			
	65-80	---	---	---	---	---	---	----			
28*	0-12	5-20	1.25-1.60	2.0-6.0	0.10-0.15	4.5-6.5	Low	0.24	4	3	2-8
Meggett	12-50	40-60	1.50-1.70	0.06-0.2	0.13-0.18	4.5-6.5	High	0.32			
	50-80	25-50	1.60-1.70	0.2-2.0	0.12-0.16	4.5-6.5	Moderate	0.28			
29, 30	0-8	2-10	1.40-1.70	6.0-20	0.06-0.10	4.5-6.0	Low	0.17	5	2	.5-2
Norfolk	8-58	18-35	1.30-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24			
	58-80	20-40	1.20-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.24			
31	0-7	5-12	1.50-1.60	2.0-6.0	0.05-0.10	5.1-6.5	Low	0.17	5	2	.5-2
Norfolk	7-14	10-20	1.50-1.65	2.0-6.0	0.05-0.10	4.5-5.5	Low	0.20			
	14-64	22-35	1.62-1.80	0.6-2.0	0.10-0.15	4.5-5.5	Moderate	0.32			
	64-80	35-80	1.30-1.65	<0.06	0.10-0.15	3.6-5.5	Very high	0.37			
32	0-29	2-7	1.40-1.50	2.0-20	0.05-0.08	3.6-5.5	Low	0.17	5	1	1-3
Ocilla	29-80	15-35	1.60-1.70	0.6-2.0	0.09-0.12	4.5-5.5	Low	0.24			
33, 34, 35	0-10	5-20	1.40-1.70	2.0-6.0	0.07-0.10	4.5-6.0	Low	0.24	5	3	1-3
Orangeburg	10-80	20-35	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.24			
36:*											
Orangeburg	0-10	5-20	1.40-1.70	2.0-6.0	0.07-0.10	4.5-6.0	Low	0.24	5	3	1-3
	10-80	20-35	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low	0.24			
Urban land.											
37	0-10	1-3	1.20-1.55	6.0-20	0.05-0.08	4.5-6.5	Low	0.15	5	2	1-2
Ortega	10-99	<3	1.35-1.60	6.0-20	0.03-0.06	4.5-6.5	Low	0.15			
38:*											
Pamlico	0-32	---	0.25-0.40	0.6-2.0	0.24-0.26	3.6-4.4	---	----	---	2	---
	32-80	5-20	1.40-1.65	6.0-20	0.03-0.06	3.6-5.5	Low	----			
Dorovan	0-5	---	0.25-0.40	0.6-2.0	0.25-0.50	4.5-5.5	---	----	---	2	---
	5-65	---	0.35-0.55	0.6-2.0	0.25-0.50	4.5-5.5	---	----			
	65-80	5-20	1.40-1.65	6.0-20	0.05-0.08	4.5-5.5	Low	----			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	G/cm³	In/hr	In/in	pH					Pct
39----------	0-26	2-7	1.10-1.60	6.0-20	0.05-0.08	4.5-5.5	Very low-----	0.10	5	1	1-3
Pelham	26-80	15-35	1.60-1.80	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24			
40.*											
Pits											
41----------	0-61	2-7	1.30-1.80	2.0-6.0	0.03-0.08	4.5-6.0	Very low-----	0.10	5	1	1-3
Plummer	61-80	15-30	1.50-1.90	0.6-2.0	0.10-0.13	4.5-5.5	Very low-----	0.15			
42----------	0-60	2-7	1.30-1.80	2.0-6.0	0.03-0.08	4.5-6.0	Very low-----	0.10	5	2	3-15
Plummer	60-80	15-30	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Very low-----	0.15			
43, 44*----------	0-23	<10	1.25-1.40	6.0-20	0.15-0.20	3.6-5.5	Low----------	0.17	5	2	3-15
Rutlege	23-82	<10	1.45-1.70	6.0-20	0.04-0.08	3.6-5.0	Low----------	0.17			
45----------	0-14	1-5	1.35-1.50	6.0-20	0.03-0.07	4.5-5.5	Low----------	0.17	5	1	1-3
Sapelo	14-26	4-7	1.50-1.70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.15			
	26-43	3-6	1.45-1.60	6.0-20	0.03-0.07	4.5-5.5	Low----------	0.17			
	43-80	15-30	1.55-1.90	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.24			
46----------	0-36	8-12	1.35-1.50	6.0-20	0.15-0.20	3.6-5.0	Low----------	0.10	5	2	3-12
Surrency	36-65	20-35	1.55-1.70	0.6-2.0	0.10-0.15	3.6-5.0	Low----------	0.15			
47----------	0-25	<6	1.35-1.60	6.0-20	0.02-0.05	3.6-5.5	Low----------	0.15	5	1	<2
Talquin	25-37	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	Low----------	0.17			
	37-80	<6	1.40-1.65	>6.0	0.02-0.05	3.6-5.5	Low----------	0.15			
48----------	0-44	2-7	1.45-1.65	6.0-20	0.05-0.10	4.5-5.5	Very low-----	0.17	5	1	1-2
Troup	44-80	15-30	1.50-1.70	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.20			
49.*											
Urban land											
50, 51----------	0-31	2-12	1.40-1.65	6.0-20	0.05-0.08	4.5-5.5	Low----------	0.15	5	2	1-2
Wagram	31-62	15-35	1.60-1.70	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.20			
52----------	0-9	2-20	1.35-1.70	0.6-6.0	0.09-0.14	3.6-7.8	Low----------	0.15	5	3	1-3
Yonges	9-71	20-35	1.60-1.70	0.2-0.6	0.13-0.18	5.6-8.4	Low----------	0.17			
	71-80	15-35	1.20-1.70	0.6-2.0	0.12-0.16	6.1-8.4	Low----------	0.20			

* See description of the map unit for composition and behavior characteristics of the map unit.

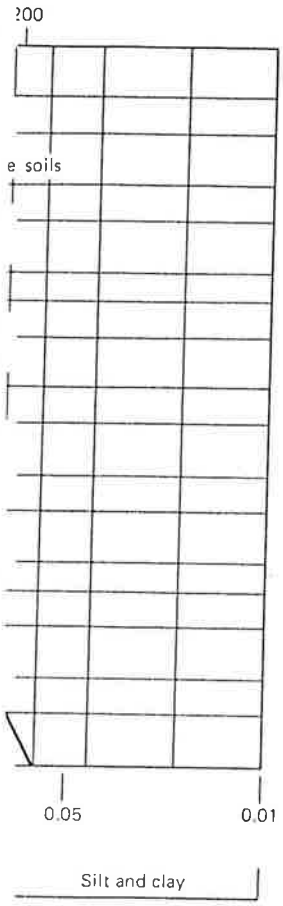
REFERENCE

Construction Dewatering

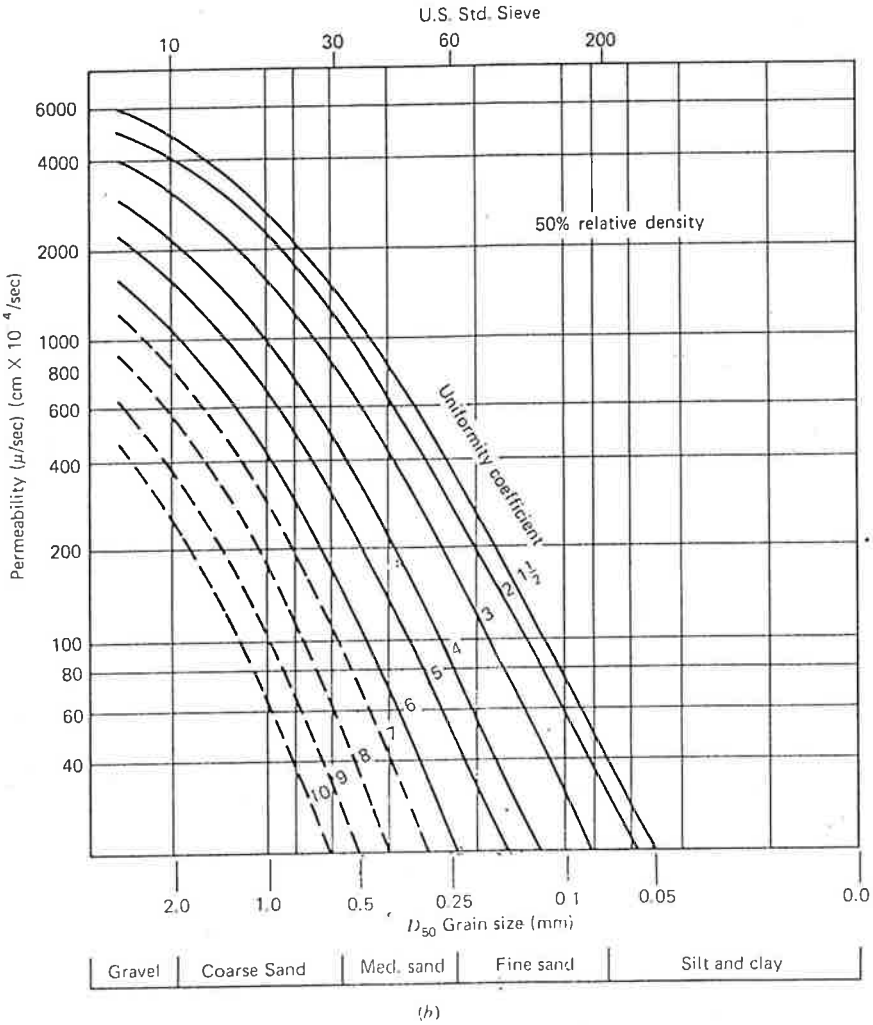
A GUIDE TO THEORY AND PRACTICE

J. Patrick Powers, P.E.
Vice President-Engineering
Moretrench American Corporation

A WILEY-INTERSCIENCE PUBLICATION
JOHN WILEY & SONS
New York • Chichester • Brisbane • Toronto • Singapore



merican Corporation. (*a*)
) for loose soils.



(*b*)

Fig. 3.4 (Continued)

al orders of magnitude.
se of permeability data

to layers of higher and
ctonic movement, the
ve expect most soils to
is significantly higher
er of silt, with $K = 0.1$ μ/sec, is sandwiched between two layers of sand with $K = 300$ μ/sec, the horizontal permeability will be essentially that of the sand, and the vertical will be only somewhat larger than the silt. The anisotrophy can be of great significance in dewatering, and test procedures which fail to consider it can result in gross errors.

Permeability has been tested *in situ* by means of pump-in tests in boreholes. In the author's experience, with this method gross errors can result from only slight imperfections in technique (38). The procedure is not