UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
PAGE: B-228

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-31** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 86.70 DATE STARTED: 1/21/05
WATER TABLE (ft): NE DATE FINISHED: 1/21/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1						Brown poorly graded SAND [SP]						
2	X	1-2-3	5			Loose dark brown to orange clayey SAND [SC]						
4	X	2-3-4	7									
5	X	2-3-3	6			Loose brown...						
6	X	2-4-4	8									
8	X	4-5-7	12			Medium dense dark brown to orange...						
9	X	4-5-7	12			Medium dense brown to orange...						
14	X	3-5-6	11			Medium dense...						
19	X	3-4-4	8			Loose tan to orange...	21				3	
24	X	4-4-4	8			Loose...						
29	X	3-2-2	4			Very loose tan to yellow...						
34	X	1-1-1	2			Very loose...						
37						LIMESTONE						
39	X	3-5-4	9									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-32** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 84.87 DATE STARTED: 1/20/05
WATER TABLE (ft): NE DATE FINISHED: 1/20/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0–1						Brown poorly graded SAND, with silt [SP-SM]						
1–2	X	2-2-2	4			Dark brown to orange...						
3–4	X	2-3-3	6			Loose...						
4–5	X	3-4-4	8									
6–7	X	3-4-5	9									
7–8	X	4-5-5	10									
9–10	X	4-5-6	11			Medium dense...						
10						Dark brown clayey SAND [SC]						
14–15	X	3-5-6	11			Medium dense gray and orange...	28				2	
19–20	X	5-7-7	14									
22						Light green and orange silty SAND [SM]						
24–25	X	5-7-8	15			Medium dense...						
27						Very stiff gray CLAY [CH], with limestone fragments						
29–30	X	4-8-25	33			LIMESTONE						
34–35	X	7-12-15	27									
39–40	X	8-15-15	30									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-33** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 79.50 DATE STARTED: 1/19/05
WATER TABLE (ft): NE DATE FINISHED: 1/19/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Brown poorly graded SAND [SP]						
1						Loose dark brown clayey SAND [SC]						
2	X	4-4-4	8									
3	X	4-5-6	11			Medium dense...						
5	X	6-7-8	15									
6	X	6-8-10	18			Medium dense light brown...						
8	X	6-9-11	20									
9	X	6-11-11	22									
14	X	4-7-6	13			Medium dense tan to yellow...	45				1	
18						Tan weathered LIMESTONE						
19	X	6-6-6	12									
24	X	10-11-4	15									
29	X	10-14-29	43									
34	X	10-12-15	27									
39	X	12-20-20	40									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-34** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 88.70 DATE STARTED: 1/25/05
WATER TABLE (ft): NE DATE FINISHED: 1/25/05
DATE OF READING: NA DRILLED BY: M. BOATRIGHT
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0–1						Very loose dark brown clayey SAND [SC]						
1–2	X	1-1-1	2									
3–4	X	1-1-1	2									
4–5	X	1-2-2	4			Loose...						
6–7	X	1-2-2	4									
7–8	X	3-4-4	8			Loose dark brown...						
8–10	X	3-4-5	9									
11.5						Stiff green and orange sandy fat CLAY [CH]						
13.5–15	X	4-5-8	13			Stiff light green and orange...						
18.5–20	X	4-4-5	9									
21.5						Medium dense orange and tan silty SAND [SM]						
23.5–25	X	7-7-6	13									
28.5–30	X	4-6-8	14			Medium dense...						
32						Medium dense tan and orange clayey SAND [SC]						
33.5–35	X	4-9-8	17									
38.5–40	X	5-6-12	18			Medium dense gray, tan and orange...						
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-35** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 86.17 DATE STARTED: 1/21/05
WATER TABLE (ft): NE DATE FINISHED: 1/21/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1–2	X	1-2-2	4			Very loose dark brown to orange poorly graded SAND, with silt [SP-SM]						
3–4	X	2-2-3	5			Loose...						
4–5	X	3-3-4	7									
5–6	X	4-4-4	8									
7–8	X	3-4-7	11			Medium dense brown clayey SAND [SC]						
8–10	X	3-5-7	12			Medium dense...						
14–15	X	4-5-6	11			Medium dense...						
19–20	X	1-2-2	4			Very loose...						
22						Orange clayey SAND [SC]						
24–25	X	3-4-2	6			Loose...						
28						Loose brown poorly graded SAND [SP]						
29–30	X	3-3-3	6									
32						Orange clayey SAND [SC]						
34–35	X	2-3-4	7			Loose...						
39–40	X	1-2-3	5			Loose brown...						
40						Boring terminated at 40'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-36** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 83.66 DATE STARTED: 1/20/05
WATER TABLE (ft): NE DATE FINISHED: 1/20/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Brown poorly graded SAND [SP]						
1						Dark brown to orange clayey SAND [SC]						
2	X	2-2-3	5									
3–4	X	2-3-3	6			Loose...						
5	X	3-4-4	8									
6–7	X	3-4-5	9			Loose dark brown...						
8	X	4-5-6	11			Medium dense...						
9–10	X	5-6-6	12									
14–15	X	4-6-8	14			Medium dense gray and orange...						
19–20	X	5-6-7	13			Medium dense...						
24–25	X	6-7-12	19			LIMESTONE						
29–30	X	10-15-10	25									
34–35	X	10-10-15	25									
39–40	X	8-10-21	31									
40						Boring terminated at 40'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-37** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 78.86 DATE STARTED: 1/19/05
WATER TABLE (ft): NE DATE FINISHED: 1/19/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1						Brown poorly graded SAND [SP]						
2	X	2-2-2	4			Very loose dark brown clayey SAND [SC]						
3–4	X	2-2-2	4									
5	X	2-2-3	5			Loose...						
6–7	X	2-3-4	7									
8	X	3-4-4	8			Loose light gray and orange...						
9–10	X	3-5-7	12									
14–15	X	2-2-4	6			Loose...						
19–20	X	4-5-6	11			Medium dense gray and orange...						
22						LIMESTONE						
24–25	X	16-5-23	28									
29–30	X	30-50/5"	50/5"									
34–35	X	25-50/4"	50/4"									
39–40	X	33-50/3"	50/3"									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-38** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 88.75 DATE STARTED: 1/25/05
WATER TABLE (ft): NE DATE FINISHED: 1/25/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1						Loose brown clayey SAND [SC]						
2	X	2-2-3	5			Loose dark brown to orange....						
3	X	2-3-4	7									
4–6	X	3-3-4	7			Firm orange and brown sandy fat CLAY [CH]						
6	X	3-4-4	8									
7–8	X	6-7-8	15			Medium dense orange and brown clayey SAND [SC]						
9	X	6-8-8	16									
13–15	X	4-5-6	11			Stiff light green and orange sandy fat CLAY [CH]						
18–20	X	5-6-7	13			Medium dense light green and orange silty SAND [SM]						
24–25	X	3-5-6	11									
26						LIMESTONE						
29–30	X	5-4-3	7									
34–35	X	17-23-20	43									
39–40	X	20-32-30	62									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-39** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 84.62 DATE STARTED: 1/20/05
WATER TABLE (ft): NE DATE FINISHED: 1/20/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1–2	X	2-2-2	4			Dark brown to orange clayey SAND [SC] Loose...						
3–4	X	1-2-2	4									
4–5	X	1-2-3	5			Loose...						
6–7	X	3-4-5	9									
7–8	X	4-5-6	11			Medium dense brown to orange...						
9–10	X	6-6-6	12									
12						Layered tan and orange poorly graded SAND [SP]						
14–15	X	4-5-5	10			Loose...						
19–20	X	6-5-6	11			Medium dense tan to light green...						
24–25	X	10-15-28	43			LIMESTONE						
29–30	X	15-18-29	47									
34–35	X	18-18-33	51									
39–40	X	25-33-30	63									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **P-40** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 81.94 DATE STARTED: 1/20/05
WATER TABLE (ft): NE DATE FINISHED: 1/20/05
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0–4	X	2-1-1	2			Dark brown to orange poorly graded SAND [SP] Very loose...						
	X	1-1-1	2									
4–17	X	2-2-3	5			Loose dark brown clayey SAND [SC]						
	X	3-3-5	8									
	X	6-7-8	15			Medium dense gray and orange...						
	X	7-8-9	17									
	X	6-6-8	14			Loose...						
17–22	X	4-3-4	7			Tan to light green silty SAND [SM]						
22–29	X	4-4-5	9			Gray and orange sandy fat CLAY [CH] Stiff...						
29–40	X	8-9-10	19			LIMESTONE						
	X	10-20-20	40									
	X	18-20-21	41									
40						Boring terminated at 40'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **P-41** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 78.51
DATE STARTED: 1/20/05
WATER TABLE (ft): NE
DATE FINISHED: 1/20/05
DATE OF READING: NA
DRILLED BY: J. STILLSON
EST. WSWT (ft): NA
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0–2						Brown poorly graded SAND [SP]						
2	X	7-4-4	8			Loose dark brown to orange slightly clayey SAND [SM]						
3–4	X	3-3-2	5			Loose dark brown to orange clayey SAND [SC]						
5	X	1-1-1	2			Very loose...						
6	X	1-2-2	4									
7–8	X	3-4-5	9			Loose...						
9	X	4-4-5	9									
12						Tan to yellow silty SAND [SM]						
14–15	X	6-6-6	12			Medium dense...						
18						LIMESTONE						
19–20	X	25-50/5"	50/5"									
24–25	X	20-20-18	38									
29–30	X	10-18-23	41									
34–35	X	15-25-17	42									
39–40	X	15-17-16	33									
40						Boring terminated at 40'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING NO: **PB-1** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 79.25 DATE STARTED: 4/27/06

WATER TABLE (ft): NE DATE FINISHED: 4/27/06

DATE OF READING: NA DRILLED BY: R. WOODARD

EST. WSWT (ft): 5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1						Very loose tan SAND [SP]						
2	X	1-0-1	1									
3	X	1-2-1	3									
4												
5	X	1-2-2	4	▽								
6	X	2-3-5	8			Loose gray and orange clayey SAND [SC]						
7												
8	X	7-10-5	15			Medium dense light brown slightly clayey SAND [SP-SC]						
9	X	5-7-8	15			Medium dense...						
10												
11												
12												
13												
14	X	2-3-4	7			Loose gray and orange...						
15						Boring terminated at 15'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **PB-2** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 78.36 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 4 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose tan silty SAND [SM]						
2	X	1-0-1	1									
3–4	X	1-0-1	1	▽			14				13	
5	X	1-2-2	4			Loose light brown and orange clayey SAND [SC]						
6	X	2-2-3	5									
8	X	4-6-4	10			Medium dense brown slightly clayey SAND [SC]						
9	X	5-5-5	10									
13						Loose gray clayey SAND [SC]						
14	X	2-2-3	5									
15						Boring terminated at 15'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **PB-3** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): NA DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): >6 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1						Very loose tan SAND, with silt [SP-SM]						
2	X	1-1-1	2									
3	X	1-1-0	1									
4												
5	X	2-2-3	5			Loose brown and gray SAND, with clay [SP-SC]						
6	X	4-4-5	9			Loose brown and gray clayey SAND [SC]						
7												
8	X	6-6-5	11			Stiff gray and orange CLAY, with trace of sand [CH]						
9	X	6-8-8	16			Very stiff...						
10												
11												
12						Loose orange and gray clayey SAND, with lenses of clay [SC]						
13												
14	X	3-3-4	7									
15						Boring terminated at 15'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **PB-4** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 79.26 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 6 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1						Very loose tan SAND, with silt [SP-SM]						
2	X	1-0-1	1									
3												
4	X	1-0-1	1									
5	X	1-1-2	3				9				22	
6				▽		Medium dense brown clayey SAND [SC]						
7	X	5-6-6	12				16				4	
8	X	7-6-6	12									
9												
10	X	6-7-6	13			Medium dense...						
11												
12												
13												
14												
15	X	2-4-3	7			Loose...						
						Boring terminated at 15'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **PB-5** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 79.50 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): >6 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Loose brown SAND, with silt [SP-SM]						
2	X	3-4-5	9									
3	X	2-2-1	3			Very loose tan SAND [SP]						
4	X					Very loose brown SAND, with clay [SP-SC]						
5	X	2-1-2	3									
6	X	3-5-6	11									
7	X											
8	X	7-7-6	13									
9	X											
10		5-6-5	11			Medium dense...						
11												
12												
13						Medium dense brown, gray and orange clayey SAND [SC]						
14	X											
15		5-6-7	13									
						Boring terminated at 15'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **PB-6** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 77.95 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1						Loose light brown slightly clayey SAND [SP-SC]						
2	X	2-2-2	4									
3	X	2-2-2	4			Very loose...						
5	X	2-1-2	3	▽		Very loose tan clayey SAND [SC]	18				1	
6	X	2-1-2	3									
8	X	2-3-3	6			Loose...						
9	X	5-7-6	13			Medium dense tan and orange clayey SAND [SC], with trace of limestone fragments						
13						Very stiff gray and tan CLAY [CH]						
14	X	4-6-15	21									
15						Tan LIMESTONE						
						Boring terminated at 15'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-1** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 110.92 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Light brown SAND [SP]						
2												
3	X					Light brown slightly clayey SAND [SP-SC]						
4												
5	X					Gray and orange clayey SAND [SC]						
6												
7												
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-2** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 110.99 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown slightly clayey SAND [SP-SC]						
2	X					Brown very clayey SAND [SC]						
3												
4												
5	X											
6												
7												
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-3** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 112.03 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0–1.5	X					Brown slightly clayey SAND [SP-SC]						
1.5–6	X					Gray and brown clayey SAND [SC]						
6–10	X X					Gray and orange CLAY, with sand [CH]						
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-4** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 109.72 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND [SP]						
2												
3												
4												
5	X					Brown slightly clayey SAND [SP-SC]						
6	X					Gray and brown clayey SAND [SC]						
7	X											
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-5** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 106.79 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown clayey SAND [SC]						
2												
3	X					Brown and orange CLAY, with trace of sand [CH]						
4												
5	X					Gray and orange...						
6												
7	X											
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-6** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 103.28 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0												
1	X					Brown clayey SAND [SC]						
2												
3												
4	X					Brown and orange CLAY [CH]						
5	X					Gray sandy CLAY [CH]						
6												
7												
8	X					Gray and orange CLAY [CH]						
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-7** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 100.23 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND, with trace of clay [SP-SC]						
2												
3												
4												
5	X					Brown and gray very clayey SAND [SC]						
6	X					Gray and orange sandy CLAY [CH]						
7												
8												
9	X					Gray and orange CLAY [CH]						
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-8** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 97.21 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Brown SAND [SP]						
1	X											
2												
3	X					Brown clayey SAND [SC]						
4												
5	X					Gray and brown sandy CLAY [CH]						
6												
7	X											
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-9** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 93.79 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brownish-orange clayey SAND [SC]						
2												
3												
4												
5												
6	X					Gray and orange sandy CLAY [CH]						
7	X					Green, gray and orange CLAY [CH]						
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-10** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 87.81 DATE STARTED: 4/27/06
WATER TABLE (ft): NE DATE FINISHED: 4/27/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND, with trace of clay [SP-SC]						
2												
3												
4												
5												
6						Gray and brown clayey SAND [SC]						
7	X											
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-11** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 91.77 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT / DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND, with silt [SP-SM]						
2												
3												
4												
5	X					Brown and orange clayey SAND [SC]						
6												
7	X					Gray and orange CLAY [CH]						
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-12** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 89.32 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND, with silt [SP-SM]						
2						Light brown...						
3	X					Brown SAND, with trace of clay [SP-SC]						
4												
5												
6												
7												
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-13** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 86.24 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND [SP]						
2						Light brown...						
3												
4	X					Light brown slightly clayey SAND [SP-SC]						
5												
6												
7												
8												
9												
10						Boring terminated at 10'						

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ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-14** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 92.55 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0–8	X (1–2)					Brown clayey SAND [SC]						
8–10	X (8.5–9.5)					Brown and orange sandy CLAY [CH]						
10						Boring terminated at 10'						

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S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-15** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 93.34 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT / DAY)	ORG. CONT. (%)
0												
1						Brown and tan clayey SAND [SC]						
2	X											
3												
4												
5	X					Gray, tan and orange sandy CLAY [CH]						
6												
7												
8												
9												
10						Boring terminated at 10'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-16** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 93.17 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown clayey SAND [SC]						
2	X											
3												
4												
5												
6												
7	X					Brown and orange sandy CLAY [CH]						
8	X					Gray and orange CLAY [CH]						
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-17** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 92.92 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown clayey SAND [SC]						
2												
3												
4												
5												
6												
7												
8	X					Brown and orange clayey SAND [SC]						
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-18** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 91.33
WATER TABLE (ft): NE
DATE OF READING: NA
EST. WSWT (ft): NA

DATE STARTED: 4/28/06
DATE FINISHED: 4/28/06
DRILLED BY: R. WOODARD
TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown clayey SAND [SC]						
2												
3												
4												
5												
6												
7												
8												
9	X											
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1211903
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-19** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 90.53 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown clayey SAND [SC]						
2												
3												
4												
5												
6												
7												
8												
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-20** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 90.56 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1						Light brown clayey SAND [SC]						
2	X											
3												
4												
5												
6												
7												
8												
9	X					Brown and orange clayey SAND [SC]						
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
PAGE: B-265

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-21** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 88.90 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Light brown SAND, with silt [SP-SM]						
2												
3	X					Brown clayey SAND [SC]						
4												
5												
6												
7	X											
8												
9	X					Gray and orange CLAY, with trace of sand [CH]						
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-22** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 84.80 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Light brown SAND, with silt [SP-SM]						
2												
3	X					Brown clayey SAND [SC]						
4												
5												
6												
7												
8	X											
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-23** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 81.74 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Light brown and tan SAND, with silt [SP-SM]						
2												
3												
4												
5	X					Brown clayey SAND [SC]						
6												
7												
8	X					Gray and orange sandy CLAY [CH]						
9												
10						Boring terminated at 10'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-24** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 80.78 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X					Brown SAND, with silt [SP-SM]						
2	X					Light brown and tan...						
3												
4												
5	X					Brown, gray and orange clayey SAND [SC]						
6												
7												
8												
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-25** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 81.14 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Light brown and tan SAND, with silt [SP-SM]						
2												
3												
4	X					Brown, gray and orange clayey SAND [SC]						
5												
6												
7												
8	X					Gray and orange CLAY, with trace of sand [CH]						
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1211903
PAGE: B-270

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-26** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): NA DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1	X					Brown, gray and orange clayey SAND [SC]						
2												
3	X											
4	X					Brown and tan sandy CLAY [CH]						
5												
6												
7												
8												
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1211903
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-27** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 79.80 DATE STARTED: 4/28/06
WATER TABLE (ft): NE DATE FINISHED: 4/28/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT / DAY)	ORG. CONT. (%)
0												
1	X					Brown and orange clayey SAND [SC]						
2	X											
3												
4												
5	X					Brown and tan....						
6												
7												
8												
9												
10						Boring terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-28** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 92.85 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0 – 1.5	X (0–1)			▽ (1)		Brown SAND, with trace of clay [SP-SC]						
1.5 – 5	X (1.5–2.5)					Brown clayey SAND [SC]						
5 – 10	X (5–6)					Light brown and orange sandy CLAY [CH]						
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES BORING LOG	
PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1211903
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-29** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 93.13 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 4 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Brown silty SAND [SM]						
1	X											
2												
3												
4				▽								
5	X					Brown clayey SAND [SC]						
6												
7												
8	X					Gray, orange and brown very sandy CLAY [CH]						
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **RA-30** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 99.69 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 0.5 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0				∇		Brown clayey SAND [SC], with trace of limerock						
1–2	X						25	13				
2						Brown clayey SAND [SC]						
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING NO: **RA-31** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 104.06 DATE STARTED: 3/10/15

WATER TABLE (ft): NE DATE FINISHED: 3/10/15

DATE OF READING: NA DRILLED BY: R. WOODARD

EST. WSWT (ft): 4 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Brown silty SAND [SM]						
1	X											
2												
3												
4	X			∇								
5												
5.5						Brown silty clayey SAND [SM-SC]						
6	X											
7												
8												
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-32** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 109.30 DATE STARTED: 3/10/15

WATER TABLE (ft): NE DATE FINISHED: 3/10/15

DATE OF READING: NA DRILLED BY: R. WOODARD

EST. WSWT (ft): 0.5 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0				▽		Brown silty clayey SAND [SM-SC]						
1	X											
2							23	10				
3												
4												
5												
6												
7												
8	X					Orange and tan very clayey SAND to sandy CLAY [SC/CH]						
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-33** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 115.47 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 0.5 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0				▽		Light brown silty clayey SAND [SM-SC]						
1	X											
2												
3												
4												
5	X					Light brown and orange very sandy CLAY [CH]						
6												
7												
8												
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-34** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 122.00 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 2 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0						Brown silty SAND [SM]						
1	X											
2	X			∇		Brown clayey SAND [SC]	16	8				
3												
4												
5												
6												
7	X					Light gray and orange sandy CLAY [CH]						
8												
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-35** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 127.62 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 2 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Light brown silty SAND [SM]						
1	X											
2	X			▽		Brown very clayey SAND [SC]						
3												
4												
5	X					Orange and gray sandy CLAY [CH]						
6												
7												
8												
9												
10						Boring Terminated at 10'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1211903
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-36** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 132.57 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0	X					Brown silty SAND [SM]						
1												
2	X			∇		Brown and orange clayey SAND to sandy CLAY [SC/CH]	44	26	47	29		
3												
4	X					Green, orange and gray CLAY, with trace of sand [CH]						
5												
6												
7												
8												
9												
10						Boring Terminated at 10'						

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BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE #3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **RA-37** SHEET: 1 of 1

SECTION: 37 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 135.62 DATE STARTED: 3/10/15
WATER TABLE (ft): NE DATE FINISHED: 3/10/15
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Brown SAND, with trace of silt [SP-SM]						
1				∇		Brown, orange and gray sandy CLAY [CH]						
2												
3												
4												
5												
6						Light gray and orange sandy CLAY [CH]						
7												
8												
9												
10						Boring Terminated at 10'						

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BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 775047
PAGE: B-272

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-1** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 99.80
WATER TABLE (ft): NE
DATE OF READING: NA
EST. WSWT (ft): 1

DATE STARTED: 5/1/08
DATE FINISHED: 5/1/08
DRILLED BY: R. WOODARD
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-0	1									
3	X	WOH	WOH									
4						Very loose dark brown silty SAND [SM]						
5	X	WOH-1-0	1									
6	X	1-1-1	2									
7												
8	X	1-1-1	2									
9	X	1-2-2	4									
10												
11												
12												
13												
14	X	2-2-2	4									
15												
16												
17						Loose light brown poorly graded SAND, with silt [SP-SM]						
18												
19	X	2-2-3	5									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA
CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-2** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 99.86 DATE STARTED: 5/1/08
WATER TABLE (ft): NE DATE FINISHED: 5/1/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 3 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1						Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	WOH	WOH									
3				∇								
4	X	WOH-1	1			Very loose dark brown silty SAND [SM]						
5	X	1-0-1	1									
6						Very loose dark brown poorly graded SAND, with clay [SP-SC]						
7	X	1-1-1	2									
8	X	1-2-1	3									
9	X	1-2-1	3									
10												
11												
12												
13												
14	X	1-2-2	4									
15												
16												
17												
18						Loose light brown poorly graded SAND [SP]						
19	X	2-2-3	5									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-3** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS: Shelby tube sample taken from 17' to 19'

GS ELEVATION(ft): 100.24 DATE STARTED: 5/1/08
WATER TABLE (ft): NE DATE FINISHED: 5/1/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				∇		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	2-1-2	3									
3	X	1-1-1	2									
4						Very loose dark brown poorly graded SAND, with clay [SP-SC]						
5	X	1-1-1	2									
6	X	1-1-2	3									
8	X	1-1-1	2									
9	X	1-1-1	2									
13						Firm light brown sandy lean CLAY [CL]						
14	X	2-3-4	7									
17	Shelby tube					Stiff brown, green and orange sandy fat CLAY [CH]	52	26	74	57		
19	X	2-5-7	12									
20						Boring Terminated at 20'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-4** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 100.29 DATE STARTED: 5/1/08
WATER TABLE (ft): NE DATE FINISHED: 5/1/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 0.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0				∇								
1						Loose brown clayey SAND [SC]						
2	X	2-2-3	5									
3	X	2-1-2	3									
5	X	3-4-4	8									
6						Medium dense gray, orange and green fat sandy CLAY [CH]						
7	X	5-5-7	12									
8	X	9-9-8	17				66	27	79	46		
9	X	7-8-8	16									
12						Loose tan clayey SAND [SC]						
14	X	3-4-5	9									
19	X	3-3-5	8									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS: Shelby tube sample taken from 5' to 7'

BORING NO: **W-5** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 99.96 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 0.5 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0				▽								
1						Loose brown clayey SAND [SC]						
2	X	1-2-3	5									
3	X	2-2-4	6									
4	X	2-3-5	8									
5						Stiff gray, orange and green fat sandy CLAY [CH]						
6	■	5-3-5	8				83	42	97	58		
7	X	6-7-6	13									
8	X	7-7-8	15									
9												
10												
11												
12						Stiff green and orange fat CLAY [CH]						
13												
14	X	3-4-6	10									
15												
16						Loose light brown and tan clayey SAND [SC]						
17												
18												
19	X	1-2-2	4									
20						Boring Terminated at 20'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-6** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 98.43 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				∇		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	WOH	WOH									
3	X	1-1-2	3									
4						Very loose brown silty clayey SAND [SM-SC]	24	15				
5	X	1-1-1	2									
6	X	1-1-1	2									
8	X	2-1-2	3									
9	X	2-3-4	7			Loose brown and orange clayey SAND [SC]						
14	X	4-7-6	13									
15						Stiff green and orange fat CLAY [CH]						
19	X	2-3-4	7			Loose tan and gray clayey SAND [SC]						
20						Boring Terminated at 20'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-7** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 97.55 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0–1				∇		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-1	2									
3–4	X	WOH	WOH									
5	X	WOH-1	1									
6–7	X	1-1-1	2									
8	X	1-1-1	2									
9–10	X	2-1-2	3									
12						Loose brown, gray and orange clayey SAND [SC]						
14–15	X	2-3-4	7									
17						Medium dense gray and orange clayey SAND, with lenses of clay [SC]						
19–20	X	5-5-7	12									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-8** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 96.84 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown clayey SAND [SC]						
2	X	1-1-1	2									
4	X	WOH	WOH				23	8				
5	X	WOH-1	1									
7	X	1-1-1	2									
8	X	1-1-1	2									
10	X	2-2-1	3									
12						Loose brown and gray poorly graded SAND, with clay [SP-SC]						
15	X	3-4-5	9									
17						Medium dense green, gray and orange poorly graded SAND, with clay [SP-SC]						
20	X	3-4-6	10									
						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-9** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 96.22 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-2	3									
3												
4	X	2-2-2	4									
5	X	1-1-1	2									
6												
7	X	1-1-1	2									
8	X	2-1-1	2									
9												
10	X	1-2-2	4									
11												
12												
13						Loose light brown and orange poorly graded SAND, with clay [SP-SC]						
14												
15	X	2-2-3	5									
16												
17						Medium dense gran and orange poorly graded SAND, with clay [SP-SC]						
18												
19												
20	X	3-5-6	11			Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-10** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 95.50 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-2	3									
3–4	X	1-1-1	2									
5	X	1-0-1	1									
6–7	X	1-1-1	2									
8	X	1-1-2	3									
9–10	X	2-1-2	3									
11												
12						Very loose light brown to tan poorly graded SAND, with silt [SP-SM]						
13												
14–15	X	1-2-2	4									
16												
17						Loose light brown poorly graded SAND, with clay [SP-SC]						
18												
19–20	X	3-4-5	9									
20						Boring Terminated at 20'						

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BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA
CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-11**   SHEET: 1 of 1
SECTION: 15/16   TOWNSHIP: 8S   RANGE: 18E
GS ELEVATION(ft): 95.13   DATE STARTED: 5/2/08
WATER TABLE (ft): NE   DATE FINISHED: 5/2/08
DATE OF READING: NA   DRILLED BY: R. WOODARD
EST. WSWT (ft): 1   TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-1	2									
3	X	1-1-1	2									
4	X											
5	X	1-1-2	3									
6	X											
7	X	1-1-2	3									
8	X	2-1-2	3			Very loose to medium dense brown clayey SAND [SC]						
9	X	5-6-7	13									
10												
11						Medium dense gray and orange clayey SAND [SC]						
12												
13												
14	X	3-5-6	11									
15												
16						Stiff green and orange fat CLAY [CH]						
17												
18												
19	X	3-4-5	9									
20						Boring Terminated at 20'						

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BORING LOG

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-12** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 94.00 DATE STARTED: 5/5/08
WATER TABLE (ft): NE DATE FINISHED: 5/5/08
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-0	1									
3	X	1-1-1	2									
5	X	1-1-1	2									
6	X	2-1-2	3									
8	X	2-3-3	6			Loose brown clayey SAND [SC]						
9	X	3-5-7	12			Medium dense gray and orange clayey SAND [SC]	33	21	33	16		
12						Stiff green, orange and gray fat CLAY, with sand [CH]						
14	X	2-3-7	10									
19	X	2-4-6	10			Medium dense brown, gray and tan clayey SAND [SC]						
20						Boring Terminated at 20'						

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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-13** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 94.03 DATE STARTED: 5/5/08
WATER TABLE (ft): NE DATE FINISHED: 5/5/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-1	2			Very loose to loose orange clayey SAND [SC]						
3	X	1-2-1	3									
4												
5	X	1-1-1	2									
6	X	1-3-4	7									
7						Loose gray and orange clayey SAND [SC]						
8	X	2-3-4	7									
9	X	2-3-6	9									
10												
11												
12						Stiff gray and orange sandy lean CLAY [CL]						
13												
14	X	4-5-6	11									
15												
16												
17						Firm gray and orange clayey SAND [SC]						
18												
19	X	2-3-4	7									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-14** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 92.19 DATE STARTED: 5/5/08
WATER TABLE (ft): NE DATE FINISHED: 5/5/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				∇		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-1	2			Very loose to loose orange clayey SAND [SC]						
3–4	X	2-2-2	4									
5	X	2-2-3	5			Loose gray and orange clayey SAND [SC]						
6–7	X	2-4-4	8									
8	X	1-3-4	7			Firm gray and orange sandy lean CLAY [CL]						
9–10	X	2-3-4	7									
11–13												
14–15	X	2-2-3	5									
16–18												
19–20	X	1-2-3	5			Loose gray and orange clayey SAND [SC]						
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 775047
PAGE: B-286

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-15** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 91.75 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				▽		Very loose to loose light brown silty SAND [SM]						
2	X	1-1-1	2				21	6				
3–4	X	1-3-5	8			Loose brown clayey SAND [SC]						
5	X	2-3-5	8				39	25				
6–7	X	2-3-4	7									
8	X	2-3-5	8									
9–10	X	2-3-4	7									
13						Medium dense green, gray and orange silty SAND [SM]						
14–15	X	2-4-6	10									
18						Stiff green, gray and orange sandy lean CLAY [CL]						
19–20	X	3-3-5	8									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-16** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 91.63 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				∇		Very loose to loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-2	3									
3	X	1-1-3	4									
4						Loose brown clayey SAND [SC]	33	17				
5	X	1-2-3	5									
6	X	3-3-4	7									
8	X	3-3-4	7									
9						Loose light brown clayey SAND [SC]						
10	X	3-4-4	8									
11												
12												
13												
14												
15	X	3-4-5	9									
16												
17						Medium dense light brown and greenish-gray clayey SAND [SC]						
18												
19												
20	X	2-4-7	11			Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-17** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 90.69 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				▽		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-2	3			Loose brown slightly clayey SAND [SC]						
3	X	1-2-2	4									
4	X	1-2-2	4									
6	X	1-3-5	8			Loose brown clayey SAND [SC]						
8	X	3-3-4	7									
9	X	3-3-4	7									
12						Medium dense orange and gray clayey SAND [SC]						
14	X	3-4-6	10									
19	X	6-12-14	26									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-18** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): 90.87 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1	X			∇		Very loose to loose brown poorly graded SAND, with clay [SP-SC]						
2	X	1-1-2	3									
3	X	1-2-3	5									
4	X	1-2-2	4									
5	X	1-2-3	5									
6	X	2-3-3	6									
7	X	2-3-4	7									
8												
9												
10												
11												
12												
13												
14	X	2-2-4	6			Loose brown clayey SAND [SC]	31	18				
15												
16												
17						Loose greenish-gray and orange clayey SAND [SC]						
18												
19	X	2-3-5	8									
20						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1400110.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING NO: **W-19** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 91.29 DATE STARTED: 5/2/08

WATER TABLE (ft): NE DATE FINISHED: 5/2/08

DATE OF READING: NA DRILLED BY: J. STILLSON

EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
1				∇		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1-1-1	2									
3	X	1-0-1	1									
4–5	X	1-0-1	1									
6	X	1-1-2	3									
7–8	X	1-2-3	5			Firm greenish-gray sandy lean CLAY [CL]						
9–10	X	1-2-3	5									
11–13						Firm green and orange lean sandy CLAY [CL]						
14–15	X	2-3-4	7				74	35	50	27		
16–18						Firm green and orange fat CLAY, with sand [CH]						
19–20	X	2-3-4	7									
						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 775047
PAGE: B-291

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA
CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS: Shelby tube sample taken from 10' to 12'

BORING NO: **W-20** SHEET: 1 of 1
SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E
GS ELEVATION(ft): 90.75 DATE STARTED: 5/2/08
WATER TABLE (ft): NE DATE FINISHED: 5/2/08
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0												
1				∇		Very loose brown poorly graded SAND, with silt [SP-SM]						
2	X	1/12"	1/12"			Very loose orange clayey SAND [SC]						
3	X	1/12"	1/12"									
5	X	1-1-1	2									
6–7	X	2-3-6	9			Loose orange clayey SAND [SC]						
8	X	2-4-6	10			Stiff green and orange fat CLAY, with sand [CH]						
9–10	X	2-4-6	10				79	40	60	32		
10–12	Shelby					Stiff green and orange fat CLAY [CH]	94	57	162	131		
14–15	X	2-3-5	8									
17–18						Loose gray and orange clayey SAND [SC]						
19–20	X	3-4-4	8									
20						Boring Termintated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1000100.0000
REPORT NO.: 863725
PAGE: A-292

PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-21** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 83.45 DATE STARTED: 9/29/10
WATER TABLE (ft): NE DATE FINISHED: 9/29/10
DATE OF READING: NA DRILLED BY: M. BOATRIGHT
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose orange to brown silty clayey SAND [SM-SC]						
1				∇								
2	X	3-3-2	5									
4	X	2-3-2	5				36	16	25	6		
5	X	2-2-3	5			Loose brown very clayey SAND [SC]						
7	X	2-2-2	4									
8	X	2-2-2	4									
9						Loose...						
10	X	2-2-3	5				40	24				
14						Loose...						
15	X	2-3-4	7									
19						Medium dense...						
20	X	2-5-5	10			Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1000100.0000
REPORT NO.:	863725
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING NO: **W-22** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS: SHELBY TUBE SAMPLE TAKEN FROM 20' TO 22'

GS ELEVATION(ft): 83.78 DATE STARTED: 9/29/10
WATER TABLE (ft): NE DATE FINISHED: 9/29/10
DATE OF READING: NA DRILLED BY: M. BOATRIGHT
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Loose orange clayey SAND [SC]						
1				▽								
2		2-2-3	5									
3												
4		1-2-1	3									
5		1-2-1	3			Very loose...	28	16				
6												
7		1-2-2	4									
8		2-2-2	4									
9						Loose...						
10		2-2-2	4									
11												
12												
13												
14						Loose gray...						
15		2-3-4	7				32	19	34	18		
16												
17												
18												
19						Firm green and orange CLAY [CH]						
20		2-2-2	4				91	59	96	64		
21												
22						Boring Terminated at 22'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1000100.0000
REPORT NO.:	863725
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-23** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 83.90 DATE STARTED: 9/29/10
WATER TABLE (ft): NE DATE FINISHED: 9/29/10
DATE OF READING: NA DRILLED BY: M. BOATRIGHT
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose to very loose brown clayey SAND [SC]						
1				▽								
2	X	3-3-2	5				33	14				
4	X	1-1-2	3									
5	X	1-2-3	5			Loose...						
7	X	2-2-2	4									
8	X	1-1-2	3									
10	X	1-2-1	3			Very loose...	34	46	34	12		
15	X	1-2-3	5			Loose...						
20	X	2-3-6	9			Loose...	37	26	30	8		
						Boring Terminated at 20'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	0795.1000100.0000
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PROJECT: WALMART STORE NO. 3873-00
S.E. CORNER OF I-75 AND U.S. HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **W-24** SHEET: 1 of 1

SECTION: 15/16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): 83.61 DATE STARTED: 9/28/10
WATER TABLE (ft): NE DATE FINISHED: 9/28/10
DATE OF READING: NA DRILLED BY: M. BOATRIGHT
EST. WSWT (ft): 1 TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose orange silty clayey SAND [SM-SC]						
1				∇								
2	X	3-2-1	3									
4	X	1-1-1	2									
5	X	1-1-2	3			Loose...						
7	X	2-2-3	5									
8	X	2-2-3	5									
9						Loose...						
10	X	2-2-3	5									
13						Medium dense gray and orange clayey SAND [SC]						
15	X	2-4-6	10				31	17	32	17		
19						Stiff gray and orange CLAY [CH]						
20	X	2-3-6	9				76	39				
						Boring Terminated at 20'						

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS

Symbol	Description
22	Number of Blows of a 140-lb Weight Falling 30 in. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change in Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

RELATIVE DENSITY (sand-silt)

Very loose – Less Than 4 Blows/Ft.
Loose – 4 to 10 Blows/Ft.
Medium Dense – 10 to 30 Blows/Ft.
Dense – 30 to 50 Blows/Ft.
Very Dense – More Than 50 Blows/Ft.

CONSISTANCY (clay)

Very Soft – Less Than 2 Blows/Ft.
Soft – 2 to 4 Blows/Ft.
Firm – 4 to 8 Blows/Ft.
Stiff – 8 to 15 Blows/Ft.
Very Stiff – 15 to 30 Blows/Ft.
Hard – More Than 30 Blows/Ft.

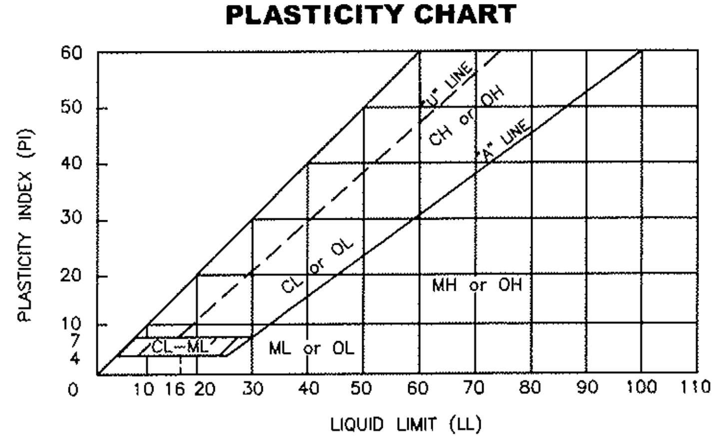
Based on Safety Hammer N-Values

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 200 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomacaceous fine sands or silts, elastic silts
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75mm) sieve.

PLASTICITY CHART



BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
630	12100.1544	20181.3339	135.35	A-01
631	12158.6805	20182.5499	135.00	A-02
632	12260.8994	20227.5938	136.27	A-03
633	12330.6764	20245.7638	134.69	A-04
635	12361.7299	20229.3823	133.88	A-05
636	12431.5209	20247.3298	132.94	A-06
638	12462.6574	20231.1604	130.99	A-07
639	12531.4505	20249.2130	128.43	A-08
641	12560.6721	20232.8030	126.22	A-09
642	12649.7878	20252.4286	124.28	A-10
677	12720.1815	20233.3349	120.65	A-11
678	12818.7650	20234.8796	115.77	A-12
698	12932.4328	20237.0348	108.87	A-13
629	12199.4034	20267.8853	138.93	A-14
627	12199.0230	20375.4987	140.14	A-15
628	12265.2603	20336.2789	139.41	A-16
634	12353.7945	20327.0875	136.73	A-17
637	12453.9058	20328.9194	133.29	A-18
640	12554.1325	20318.8655	128.56	A-19
659	12659.7461	20283.5348	124.85	A-20
676	12759.8233	20284.3701	119.64	A-21
679	12859.2365	20286.3763	114.08	A-22
697	12903.7783	20259.6158	110.54	A-23
696	12960.6541	20287.9547	107.25	A-24
699	13045.3868	20289.5482	102.00	A-25
626	12197.0223	20474.4639	137.23	A-26
660	12658.0531	20383.5167	124.45	A-27
675	12758.0884	20385.3127	119.28	A-28
680	12857.4178	20386.9635	113.45	A-29
695	12959.0477	20388.7137	106.43	A-30
700	13057.0321	20390.2650	101.07	A-31
625	12195.5927	20573.2485	129.48	A-32
661	12656.3110	20482.2168	120.90	A-33
674	12757.3084	20483.8632	116.20	A-34
681	12857.2986	20485.5928	110.42	A-35
694	12955.3156	20487.2828	104.15	A-36
701	13055.4260	20488.8852	98.16	A-37
624	12193.8874	20673.1586	132.31	A-38
662	12654.5953	20583.8102	116.11	A-39
673	12755.3839	20585.3508	111.63	A-40
682	12855.5067	20587.1768	106.50	A-41
693	12953.7007	20588.8112	101.50	A-42
702	13053.6857	20590.6295	96.29	A-43
622	12192.0486	20774.6390	133.73	A-44
663	12652.9435	20683.0922	110.61	A-45

BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
672	12753.7978	20684.8123	106.41	A-46
683	12853.9817	20686.4536	103.28	A-47
692	12951.8573	20688.2165	99.54	A-48
703	13051.8301	20690.7451	95.15	A-49
621	12255.5459	20826.2821	125.55	A-50
664	12651.1201	20784.6546	106.69	A-51
671	12752.0098	20786.2806	102.70	A-52
684	12851.9199	20788.0170	99.12	A-53
691	12949.9484	20789.5956	95.81	A-54
704	13049.4042	20791.4534	92.98	A-55
620	12190.3882	20875.4257	135.24	A-56
665	12650.3927	20884.0374	107.40	A-57
670	12748.8086	20885.5173	102.38	A-58
685	12850.2738	20887.3363	97.93	A-59
690	12948.5460	20889.0071	94.54	A-60
705	13047.8516	20891.0607	92.13	A-61
619	12188.5884	20973.4330	138.89	A-62
617	12248.1780	20935.7781	133.82	A-63
616	12343.1436	20957.1649	127.48	A-64
615	12412.1839	20916.4116	121.44	A-65
614	12448.0129	20956.7782	120.27	A-66
613	12547.9833	20960.6868	113.86	A-67
666	12648.9427	20983.9245	108.33	A-68
669	12747.2181	20985.6201	102.23	A-69
686	12848.5793	20987.4873	97.76	A-70
689	12946.6977	20988.3466	93.24	A-71
706	13045.3844	20990.1928	90.43	A-72
618	12246.3229	21034.7167	136.00	A-73
612	12345.5885	21055.9477	128.26	A-74
611	12398.9291	21038.5308	124.48	A-75
610	12446.0707	21058.3344	121.77	A-76
609	12498.4506	21040.1953	117.83	A-77
608	12546.3700	21059.9058	114.58	A-78
667	12647.5667	21083.5540	108.06	A-79
668	12745.2807	21084.9750	103.20	A-80
687	12846.9447	21086.9089	98.04	A-81
688	12945.5881	21088.5069	94.30	A-82
707	13043.5987	21090.3592	91.14	A-83
644	12341.7530	20425.7059	137.04	B-04
654	12538.9344	20429.1142	128.05	B-05
645	12340.0349	20526.6280	131.09	B-06
653	12438.5621	20527.9003	128.67	B-07
655	12537.3995	20530.0492	124.85	B-08
643	12238.1893	20573.2078	128.35	B-09
1079	13581.6660	22000.1430	79.14	B-1

BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
646	12338.1916	20626.7581	123.55	B-10
11144	12402.8641	20515.2520	130.33	B-100
11145	12512.1965	20523.3375	126.05	B-101
11143	12281.3429	20565.4226	128.06	B-102
11146	12372.2875	20687.2035	116.67	B-103
11150	12475.0732	20793.1169	114.97	B-104
11151	12330.3807	20836.6841	124.03	B-105
11152	12505.1030	20879.5522	115.02	B-106
13001	12340.525	20304.079	136.6677	B-107
13002	12419.262	20309.7556	134.7035	B-108
13003	12495.6861	20316.3591	131.5021	B-109
656	12535.5077	20630.0061	119.13	B-11
13004	12588.6745	20322.823	127.4105	B-110
13005	12384.0745	20356.9795	135.7717	B-111
13006	12591.5411	20396.2725	125.9268	B-112
13007	12282.7426	20418.1601	138.6716	B-113
13008	12383.5781	20412.6109	135.6469	B-114
13009	12371.84	20477.9371	133.5377	B-115
13010	12487.8562	20420.4759	130.9842	B-116
13011	12580.9761	20427.4601	126.1141	B-117
13012	12467.5138	20527.4689	127.9172	B-118
13013	12552.5896	20625.6951	118.7435	B-119
647	12336.5838	20723.9099	117.32	B-12
13014	12483.7947	20625.9874	120.8288	B-120
13015	12457.8213	20659.5288	119.4584	B-121
13016	12296.9774	20616.1539	124.7067	B-122
13017	12311.4004	20721.5799	117.4608	B-123
13027	12283.6356	20494.0106	135.0109	B-124
652	12435.0786	20725.3758	112.94	B-13
657	12533.9268	20727.4034	110.88	B-14
648	12334.8284	20825.3072	122.98	B-15
658	12532.2103	20828.5155	111.36	B-16
649	12232.8456	20876.8040	132.69	B-17
650	12278.3552	20875.4968	129.35	B-18
651	12388.2936	20882.9646	122.09	B-19
1077	13744.8740	22030.0070	74.02	B-2
748	13146.4748	21750.8970	86.41	B-20
745	13107.3950	21832.6297	84.87	B-21
747	13179.2865	21834.6660	83.94	B-22
746	13143.9083	21911.6928	81.92	B-23
623	12257.2553	20734.5751	127.28	B-24
N/A	13115.7647	21765.5724	86.27	B-25
1078	13721.9080	22159.4580	73.13	B-3
1080	13558.0270	22127.5160	78.35	B-4
11113	12875.6043	21081.4774	96.71	C-01

BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
11114	12775.7772	21074.1771	101.10	C-02
11115	12676.1903	21066.8310	106.23	C-03
11116	12293.0386	21038.7714	132.61	C-04
11153	12194.5264	21016.4713	139.40	C-05
11154	12157.2284	20931.6035	139.41	C-06
11155	12164.6850	20831.9008	135.90	C-07
11156	12171.8668	20732.1092	134.06	C-08
11142	12174.6589	20531.7479	132.66	C-10
11141	12181.4307	20439.0319	139.21	C-11
11140	12163.1323	20387.5567	140.38	C-12
11139	12166.7448	20337.6994	140.67	C-13
11138	12170.4638	20287.8387	139.99	C-14
11137	12227.0250	20250.1538	138.06	C-15
11136	12297.0445	20186.0683	133.94	C-16
11135	12327.9470	20146.8319	131.30	C-17
11134	12377.8589	20150.5170	129.96	C-18
11133	12427.5697	20154.0691	128.97	C-19
11132	12477.7016	20157.9427	127.74	C-20
11119	13170.9628	20218.6424	96.80	C-21
13018	12234.7146	20128.6259	131.846	C-21
11120	13270.6921	20226.1113	93.73	C-22
13019	12207.073	20174.7001	134.5304	C-22
13020	12152.1216	20205.7115	136.4845	C-23
13021	12134.6216	20358.9746	141.7495	C-24
13022	12125.3777	20467.0298	137.4123	C-25
13023	12118.2376	20562.4538	130.2141	C-26
13024	12111.2051	20667.8555	135.7563	C-27
13025	12104.1197	20759.3948	139.1134	C-28
13026	12095.4315	20873.7376	141.2341	C-29
11147	12179.4309	20632.2531	129.92	C-9
717	13129.5783	20192.0052	98.32	P-05
718	13230.3767	20193.7613	95.18	P-06
737	13329.1413	20195.3577	93.13	P-07
716	13128.1314	20290.0158	98.07	P-08
719	13228.8195	20291.7999	93.88	P-09
736	13327.5729	20293.4609	90.80	P-10
715	13126.2758	20391.5679	97.36	P-11
720	13227.2094	20393.2922	92.73	P-12
735	13325.6413	20395.0404	89.04	P-13
714	13124.6614	20490.1456	94.66	P-14
721	13225.6318	20491.9526	90.57	P-15
734	13323.9402	20493.7493	88.25	P-16
713	13122.8020	20591.6362	93.46	P-17
722	13223.8750	20593.3882	89.22	P-18
733	13322.4814	20594.8881	87.62	P-19

BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
712	13121.1654	20691.7534	91.91	P-20
723	13221.8223	20693.3914	87.83	P-21
732	13320.5807	20695.3719	86.92	P-22
738	13421.9961	20696.8147	81.02	P-23
743	13522.1183	20698.6966	77.52	P-24
711	13118.7494	20792.4739	91.15	P-25
724	13219.4587	20794.3808	87.43	P-26
731	13318.3884	20795.9213	85.77	P-27
739	13419.7219	20797.9571	80.41	P-28
744	13519.7781	20799.2090	77.45	P-29
710	13117.0695	20891.9275	89.53	P-30
725	13217.8682	20893.5829	86.70	P-31
730	13316.4472	20895.2367	84.87	P-32
740	13418.0464	20897.0065	79.50	P-33
709	13114.7012	20991.2403	88.70	P-34
726	13215.3949	20993.2315	86.17	P-35
729	13313.9459	20994.8469	83.66	P-36
741	13415.7836	20996.2647	78.86	P-37
708	13112.9667	21091.5138	88.75	P-38
727	13213.8836	21093.0094	84.62	P-39
728	13312.1567	21094.6308	81.94	P-40
742	13413.5648	21096.4285	78.51	P-41
1086	13124.9360	22060.0220	79.25	PB-01
1085	13142.9590	22107.6190	78.36	PB-02
1083	13292.8410	22128.9780	79.26	PB-04
1082	13318.4850	22096.1240	79.50	PB-05
1084	13217.0290	22119.1390	77.95	PB-06
1080012	12608.0820	21040.5280	110.92	RA-01
1080011	12601.2180	21141.1700	110.99	RA-02
1080010	12593.8010	21241.2890	112.03	RA-03
1080009	12586.5610	21339.8200	109.72	RA-04
1080008	12579.1080	21438.7840	106.79	RA-05
1080007	12571.6590	21538.6520	103.28	RA-06
1080006	12564.1420	21638.8110	100.23	RA-07
1080005	12535.5860	21737.4270	97.21	RA-08
1080004	12471.2450	21831.7340	93.79	RA-09
1080003	12519.9890	21936.0290	87.81	RA-10
1080002	12603.2590	21840.8030	91.77	RA-11
1080001	12700.9120	21878.1160	89.32	RA-12
1099	12815.3800	21938.8590	86.24	RA-13
1098	12990.4190	21067.0740	92.55	RA-14
1097	12983.0590	21168.4830	93.34	RA-15
1096	12975.7560	21268.4860	93.17	RA-16
1095	12967.7190	21367.9490	92.92	RA-17
1094	12960.1300	21467.1730	91.33	RA-18

BORING NORTHING, EASTING, AND ELEVATION

CPH POINT NUMBER	NORTHING	EASTING	ELEVATION	UES Boring
1093	12953.0820	21566.9010	90.53	RA-19
1092	12945.8770	21666.5070	90.56	RA-20
1091	12938.6370	21767.3410	88.90	RA-21
1090	12916.0660	21934.4200	84.80	RA-22
1089	13013.1070	21977.1480	81.74	RA-23
1088	13113.6310	21960.1790	80.78	RA-24
1087	13210.5320	22015.2730	81.14	RA-25
1081	13487.2950	22053.2990	79.80	RA-27
N/A	13115.7647	21765.5724	92.85	RA-28
N/A	12479.2035	21841.1781	93.13	RA-29
N/A	12403.9474	21864.7651	99.69	RA-30
N/A	12291.5823	21794.2086	104.06	RA-31
N/A	12192.0030	21751.7569	109.30	RA-32
N/A	12200.8260	21641.5399	115.47	RA-33
N/A	12207.2611	21542.3598	122.00	RA-34
N/A	12215.3098	21438.3585	127.62	RA-35
N/A	12223.3592	21333.6249	132.57	RA-36
N/A	12230.6766	21223.0309	135.62	RA-37
11121	13091.9063	20196.1503	99.80	W-01
11122	13088.3198	20244.1988	99.86	W-02
11123	13084.9333	20292.1087	100.24	W-03
11124	13081.3893	20339.8648	100.29	W-04
11125	13077.7861	20387.7764	99.96	W-05
11126	13074.4288	20435.7013	98.43	W-06
11127	13070.9174	20483.5460	97.55	W-07
11128	13067.3332	20531.3406	96.84	W-08
11129	13063.9472	20579.2698	96.22	W-09
11102	13060.3452	20627.1005	95.50	W-10
11103	13056.8834	20674.8736	95.13	W-11
11104	13053.2983	20722.8562	94.00	W-12
11112	13059.7121	21093.4275	90.75	W-12
11105	13049.8901	20770.7261	94.03	W-13
11107	13046.1091	20818.5524	92.19	W-14
11106	13042.8059	20866.4522	91.75	W-15
11108	13039.2390	20914.3236	91.63	W-16
11109	13035.6804	20962.2025	90.69	W-17
11110	13032.1893	21010.0746	90.87	W-18
11111	13029.1917	21057.9451	91.29	W-19
			90.75	W-20
			83.45	W-21
			83.78	W-22
			83.90	W-23
			83.61	W-24

APPENDIX C

LABORATORY TEST DATA
DESCRIPTION OF LABORATORY TESTING PROCEDURES
DESCRIPTION OF FIELD TESTING PROCEDURES

SUMMARY OF LABORATORY RESULTS

UNIVERSAL
ENGINEERING SCIENCES

PROJECT: Walmart Supercenter Store No. 3873	REPORT: 1211903
CLIENT: CPH Engineers, Inc.	April 21, 2015

BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-4	15	Green, Orange Clay	SS		88	54							76	A-7-6	CH
B-4	22	Light Gray, Tan Clayey Sand	SS										29		SC
B-5	10	Orange, Gray Sandy Silt	SS		102	57							89	A-7-6	MH
B-5	15	Orange, Gray Sandy Silt	SS		85	46							83	A-7-6	MH
B-6	25	Tan, Light Gray Silty Clayey Sand	SS										16		SC-SM
B-7	20	Light Green Silty Clayey Sand	SS										31		SC-SM
B-8	5	Green, Orange Silt	SS		71	31							86	A-7-6	MH
B-8	10	Clay	SS		62	34							83	A-7-6	CH
B-9	30	Green, Orange Clay	SS										79		CH
B-10	25	Green, Orange Clay	SS										68		CH
B-11	5	Brown Clayey Sand	SS										35		SC
B-11	10	Brown Clayey Sand	SS										25		SC
B-11	20	Green, Orange Sandy Clay	SS		88	51							73	A-7-6	CH
B-12	30	Green, Orange Clayey Sand	SS		36	13							45	A-6	SC
B-12	31	Light Gray Clayey Sand													SC
B-13	10	Green, Orange Clay	SS		60	33							84	A-7-5	CH
B-13	25	Light Brown Clayey Sand	SS										24		SC
B-14	15	Brown Clayey Sand	SS		41	20							37	A-7-5	SC

UNIVERSAL
ENGINEERING SCIENCES

SUMMARY OF LABORATORY RESULTS

PROJECT: Walmart Supercenter Store No. 3873 **REPORT: 1211903**

CLIENT: CPH Engineers, Inc. **April 21, 2015**

BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-14	20	Green, Orange Clay	SS		73	46							85	A-7-5	CH
B-15	35	Light Gray Clayey Sand	SS										19		SC
B-16	20	Gray, Orange Clayey Sand	SS		41	23							38		SC
B-18	35	Gray, Orange Clay	SS		60	34							55	A-7-5	CH
B-18	41	Gray Silty Sand with Limestone	SS										16		SM
B-19	10	Green, Orange Clay	SS										82		CH
B-19	30	Light Gray, Tan Clayey Sand	SS										18		SC
B-24	25	Green, Orange Sandy Clay	SS		52	29							51	A-7-5	CH
B-100	5	Green, Orange, and Gray Silt	SS	47	74	34							90	A-7-5	MH
B-101	3	Green, Orange Clay	SS	44	95	58							84	A-7-6	CH
B-101	5	Green Clay	SS	38	62	34							82	A-7-5	CH
B-101	7	Green Clay	SS	39	127	100							89	A-7-5	CH
B-101	8	Green Clay	SS	30	75	45							90	A-7-5	CH
B-101	10	Green, Orange Clay	ST					100	95	88	85	82	71		CH
B-101	15	Tan Clayey Sand	SS	26									23		SC
B-102	1	Orange, Gray Sandy Clay with trace of sandstone	SS	34									60		CH
B-102	5	Gray, Orange Clayey Sand	SS	30	39	16							46	A-6	SC
B-102	15	Green, Orange Clay	SS	48	109	82							87	A-7-5	CH

SUMMARY OF LABORATORY RESULTS

UNIVERSAL
ENGINEERING SCIENCES

PROJECT: Walmart Supercenter Store No. 3873	**REPORT: 1211903**
CLIENT: CPH Engineers, Inc.	**April 21, 2015**

BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PERMEABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-103	5	Gray, Orange Sandy Clay	SS	30									56		CL
B-103	6	Orange, Gray Silty Clayey Sand	SS	30	45	19							63	A-7-5	ML-CL
B-107	27	Light Gray Silty Sand	SS	13									19		SM
B-108	14	Light Green, Orange Clay	SS	43	74	47							89	A-7-5	CH
B-108	18	Tan Silty Sand	SS	21									32		SM
B-108	21	Tan Silty Sand	SS	25									30		SM
B-108	23	Green, Orange Clayey Sand	SS	30	51	30							39	A-7-5	SC
B-109	1	Brown Clayey Sand	SS	21											SC
B-109	3	Brown, Orange Clayey Sand	SS	27	43	20							35	A-2-7	SC
B-109	5	Light Brown, Orange Sandy Clay	SS	30	42	19							51	A-7-5	CL
B-109	6	Light Brown Silt	SS	59	71	35							80	A-7-6	MH
B-109	8	Green, Orange Clay	SS	46	96	71							76	A-7-5	CH
B-109	10	Green, Orange Clay	SS	54	92	56							90	A-7-6	CH
B-109	15	Green, Orange Clay	SS	46	47	17							88	A-7-5	CL
B-109	20	Tan Silty Clayey Sand	SS	16											SM-SC
B-110	12	Light Brown Clayey Sand	SS	20	41	24							40	A-7-5	SC
B-110	14	Tan, Orange Clayey Sand	SS	23	44	25							40	A-7-5	SC
B-110	18	Orange, Brown Clayey Sand	SS	27	45	23							49	A-7-5	SC

UNIVERSAL
ENGINEERING SCIENCES

SUMMARY OF LABORATORY RESULTS

PROJECT: Walmart Supercenter Store No. 3873 **REPORT: 1211903**

CLIENT: CPH Engineers, Inc. **April 21, 2015**

BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-110	20	Orange, Green Clayey Sand	SS	79	49	21							49	A-7-5	SC
B-111	18	Green, Orange Clay	ST	53	92	59		100	100	99	98	93	86		CH
B-111	20	Green, Orange Clay	SS	61	95	57							96	A-7-6	CH
B-111	23	Light Green Clayey Sand	SS	23									31		SC
B-111	25	Light Green Clayey Sand	SS	24									28		SC
B-112	11	Brown Silty Sand	SS	11									19		SM
B-112	15	Light Gray, Orange Silty Clayey Sand	SS	25											SC
B-113	17	Green Clay	SS	50	91	59							89	A-7-6	CH
B-113	25	Tan Clayey Sand	SS	19									28		SC
B-113	29	White Clayey Sand	SS	25											SC
B-114	19	Tan Clayey Sand	SS	23											SC
B-114	21	Tan Clayey Sand	SS	26									26		SC
B-114	21	Green Clay	SS	57	82	61							90	A-7-5	CH
B-114	25	Tan Clayey Sand	SS	18									17		SC
B-114	26	Tan Clayey Sand	SS	17									15		SC
B-114	28	Tan Clayey Sand	SS	20											SC
B-114	30	Tan Clayey Sand	SS	22											SC
B-115	17	Green, Gray Clay	SS	33	82	55							87	A-7-5	CH

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SUMMARY OF LABORATORY RESULTS

PROJECT: Walmart Supercenter Store No. 3873	REPORT: 1211903
CLIENT: CPH Engineers, Inc.	April 21, 2015

BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-115	23	Green, Orange Clay	SS	55	113	89							92	A-7-5	CH
B-116	17	Green, Orange Clay	SS	46	68	44							69	A-7-5	CH
B-116	18	Light Brown, Tan Clayey Sand	SS	28									31		SC
B-117	8	Green, Orange Sandy Clay	SS	24									57		CL
B-117	10	Green, Orange Sandy Clay	SS	28	44	23							68	A-7-5	CL
B-117	15	Green, Orange Clay	SS	51	75	48							97	A-7-5	CH
B-117	20	Green Clayey Sand	SS	23									31		SC
B-118	8	Green, Orange Clay	SS	44	92	57							91	A-7-6	CH
B-118	15	Tan Clayey Sand	SS	25									43		SC
B-118	20	Tan Clayey Sand	SS	33	44	22							35	A-2-7	SC
B-120	6	Brown, Gray, Orange Clayey Sand	SS	19									26		SC
B-120	8	Green, Orange Clay	SS	44	100	63							88	A-7-6	CH
B-120	9	Green, Orange Sandy Clay	SS	29	41	24							57	A-7-5	CL
B-120	10	Green, Orange Clay	SS	30	79	51							70	A-7-5	CH
B-120	11	Tan Clayey Sand	SS	20											SC
B-121	2	Gray, Orange Clayey Sand	SS	19									45		SC
B-121	3	Green, Orange Sandy Clay	SS	28									61		CH
B-121	5	Green, Orange Clay	SS	35	72	42							78	A-7-5	CH

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PROJECT: Walmart Supercenter Store No. 3873	REPORT: 1211903
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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-121	6	Green, Orange Sandy Clay	SS	29	59	36							58	A-7-5	CH
B-121	8	Green, Orange Sandy Clay	SS	16	62	40							60	A-7-5	CH
B-121	10	Tan Clayey Sand	SS	17									42		SC
B-121	11	Tan Clayey Sand	SS	17									35		SC
B-122	2	Brown, Orange Clayey Sand	SS	20											SC
B-122	3	Brown, Orange Clayey Sand	SS	23											SC
B-122	5	Gray, Orange Clayey Sand	SS	26									43		SC
B-122	6	Gray, Orange Clayey Sand	SS	18	27	9							26	A-2-4	SC
B-122	8	Gray, Orange Clayey Sand	SS	29											SC
B-122	10	Gray, Orange Clayey Sand	SS	22											SC
B-122	15	Tan, White Clayey Sand	SS	15									24		SC
B-123	2	Brown Sand	SS	8											SP
B-123	3	Gray Sand	SS	6											SP
B-123	5	Gray, Orange Clayey Sand	SS	21											SC
B-123	6	Gray, Orange Clayey Sand	SS	25									38		SC
B-123	8	Gray, Orange Clayey Sand	SS	28	31	13							40	A-6	SC
B-123	10	Gray, Orange Clayey Sand	SS	22									42		SC
B-124	10	Green, Orange Sandy Clay	SS	29	61	36							59	A-7-5	CH

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
B-124	20	Green, Orange Clay	SS	47	103	75							92	A-7-5	CH
B-124	22	Green, Orange Clay	SS	54	104	75							93	A-7-5	CH
B-124	23	Light Tan, White Clayey Sand	SS	18	34	9							31	A-2-4	ML
B-124	25	Light Tan, White Clayey Sand	SS	20									27		ML
A-6	25	Green and Orange Clay	SS										87		CH
A-20	15	Light Gray, Orange Clayey Sand	A												SC
A-20	20	Light Gray, Orange Silty Clayey Sand	SS										27		SC-SM
A-24	8	Light Brown, Tan Clayey Sand	A										26		SC
A-29	6	Green and Orange Clay	SS										78		CH
A-31	1	Brown Clayey Sand	SS										38		SC
A-33	5	Brown, Orange Clayey Sand	SS										34		SC
A-52	6	Green, Orange Clay	SS										87		CH
B-104	20	Green, Gray Clay	SS	61	100	67							92	A-7-6	CH
B-105	1	Brown Silty Sand	SS	9									14		SM
B-105	9	Orange, Green Sandy Clay	SS	36									65		CL
B-106	8	Tan, Orange Sandy Clay	SS	30	49	22							55	A-7-5	CL
C-1	1	Brown, Orange Clayey Silty Sand	SS	10				98.6	98.6	92	76	47	26		SM-SC

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
C-2	1	Brown, Orange Clayey Sand	SS	19									37		SC
C-2	6	Gray, Orange Sandy Silt	SS	33	52	21							63	A-7-5	MH
C-2	12	Green, Orange Sandy Clay	SS	51	29	44							51	A-7-5	CH
C-4	5	Orange, Gray, Tan Clayey Sand with Rock	SS	38									47		SC
C-6	1	Brown Sand with Silt	SS	7				100	100	93	71	35	12		SP-SM
C-6	3	Brown, Orange Silty Sand	SS	15				92	92	86	68	38	17		SM
C-7	9	Brown Sand with Silt	SS	24				100	100	93	70	33	11		SP-SM
C-9	5	Orange, Brown Clayey Sand	SS	19									47		SC
C-10	16	Green, Orange Clay	SS	53	155	124							92	A-7-5	CH
C-13	3	Brown, Orange Silty Clayey Sand	SS	14									24		SM-SC
C-15	5	Brown, Tan Sandy Clay with Rock	SS	28									54		CH
C-16	1	Brown, Gray Sandy Clay	SS	20	51	26							56	A-7-5	CH
C-16	5	Brown, Orange Sandy Clay with Rock	SS	25									51		CH
C-17	1	Brown Sandy Silty Clay with Rock	SS	23	45	18							56	A-7-5	ML-CH
C-18	1	Brown, Orange Sandy Clay with Sandstone	SS	27	45	21							51	A-7-5	CH
C-19	7	Green and Orange Silt	SS	48	92	49							86	A-7-6	MH

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
C-19	11	Green and Orange Clay	SS	44	122	99						84	A-7-5	CH
C-20	1	Brown, Orange Sandy Clay	SS	25								50		CH
C-20	6	Green, Orange Silt	SS	48	92	49						86	A-7-6	MH
C-21a	4	Brown Clayey Sand	SS	11								23		SC
C-21b	5	Orange, Tan Sandy Clay	SS	51								63		CH
C-21b	15	Green Clay	SS	53	91	61						93	A-7-5	CH
C-22b	8	Green, Gray Clayey Sand	SS	24	41	15						33	A-7-5	SM-SC
C-22b	20	Green, Orange Clay	SS	45	98	68						91	A-7-5	CH
C-23	2	Brown Clayey Sand	SS	21								41		SC
C-23	5	Gray, Orange Clayey Sand	SS	33								46		SC
C-23	8	Gray, Orange Sandy Clay	SS	45	49	25						53	A-7-5	CH
C-23	10	Green, Orange Clay	SS	38	78	46						71	A-7-5	CH
C-23	15	Green, Orange Clay	SS	57	113	71						93	A-7-6	CH
C-23	20	Tan, White Clayey Sand	SS	29								37		SC
C-23	25	White Clayey Sand	SS	16								15		SC
C-23	30	White Clayey Sand	SS	21										SC
C-24	5	Orange, Green, Tan Clayey Sand	SS	18	41	22						42		SC

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
C-24	10	Tan, Gray, Orange Clayey Sand	SS	23								48		SC
C-24	15	Green, Orange Clay	SS	54	91	63						92	A-7-5	CH
C-25	5	Gray, Orange, Tan Clayey Sand	SS	24	36	12						38	A-6	SM-SC
C-25	25	Light Tan, White Clayey Sand	SS	22								31		SC
C-26	6	Brown Clayey Sand	SS	15								27		SC
C-26	20	Brown Silty Clayey Sand	SS	22								21		SM-SC
C-27	8	Orange, Gray, Green Clayey Sand	SS	19								37		SC
C-27	20	Light Green Clayey Sand	SS	24	46	28						40	A-7-5	SC
C-28	10	Orange, Tan Clayey Sand	SS	17	36	20						43	A-6	SC
C-28	25	Green Clay	SS	101	136	99						95	A-7-6	CH
C-29	10	Light Gray Clayey Sand	SS	18								35		SC
C-29	15	Green, Gray Clayey Sand	SS	21	49	31						47	A-7-5	SC
C-29	20	Green Clayey Sand	SS	43	49	30						42	A-7-5	SC
P-10	20	Gray, Orange Clayey Sand	SS									27		SC
P-11	35	Tan Clayey Sand	SS									15		SC
P-12	25	Gray, Orange Clayey Sand	SS									23		SC
P-16	20	Light Brown, Tan Clayey Sand	SS									22		SC

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
P-17	25	Gray, Orange Clayey Sand	SS				4						34		SC
P-18	20	Gray, Orange Clayey Sand	SS				2						35		SC
P-22	15	Dark Brown, Orange Clayey Sand	SS				3						23		SC
P-25	25	Gray, Tan Clayey Sand	SS				9						16		SC
P-31	20	Dark Brown, Orange Clayey Sand	SS				3						21		SC
P-32	15	Dark Brown Clayey Sand	SS				2						28		SC
P-33	15	Dark Brown Clayey Sand	SS				1						45		SC
PB-2	4	Tan Clayey Sand	SS				13						14		SC
PB-4	5	Tan Sand with Clay	SS				22						9		SP-SC
PB-4	7	Tan Clayey Sand	SS				4						16		SC
PB-6	5	Tan Clayey Sand	SS				1						18		SC
RA-30	1	Brown Silty-Clayey Sand, trace rock	SS	13									25	A-2-4	SM-SC
RA-32	1	Brown, Orange Silty Sand	SS	10									23	A-2-4	SM
RA-34	1	Brown Silty Sand, with clay	SS	8									16	A-2-4	SM
RA-36	1.5	Brown, Orange Clayey Sand to Sandy Clay	SS	26	47	29							44	A-7-5	SC/CH
W-1	1	Brown Silty Sand						95	94	86	65	38	20		SM
W-3	18	Brown, Green, Orange Sandy Clay	SS	26	74	57							52	A-7-5	CH

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
W-4	8	Orange, Green Sandy Clay	SS	27	79	46							66	A-7-6	CH
W-5	6	Orange, Green Clay	SS	42	97	58							83	A-7-6	CH
W-6	5	Brown Silty Clayey Sand	SS	15									24		SM-SC
W-8	3	Brown, Orange Silty Clayey Sand	SS	8									23		SM-SC
W-12	9	Gray, Orange Clayey Sand	SS	21	33	16							33	A-2-6	SC
W-15	2	Light Brown Silty Sand	SS	6									21		SM
W-15	5	Brown Clayey Sand	SS	25									39		SC
W-16	1	Brown, Tan Silty Sand	SS	6				100	99.5	94	76	46	21		SM
W-16	5	Brown Clayey Sand	SS	17									33		SC
W-18	5	Brown Clayey Sand	SS	18									31		SC
W-19	15	Green, Orange Sandy Clay	SS	35	50	27							74		CH
W-20	10	Green, Orange Clay	SS	40	60	32							79	A-7-6	CH
W-20	12	Green, Orange Clay	SS	57	162	131							94	A-7-6	CH

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BORING NO.	SAMPLE DEPTH (FT)	SOIL DESCRIPTION	SAMPLE TYPE*	NATURAL MOISTURE (%)	ATTERBERG LIMITS		PEMREABILITY (ft/day)	SIEVE ANALYSIS (% PASSING)						AASHTO SOIL CLASSIFICATION	UNIFIED SOIL CLASSIFICATION
					LIQUID LIMIT (%)	PLASTICITY INDEX (%)		No. 4	No. 10	No. 40	No. 60	No. 100	No. 200		
W-21	3	Brown, Orange Silty Clayey Sand	SS	16	25	6							36	A-4	SM-SC
W-21	11	Brown, Orange Clayey Sand	SS	24									40		SC
W-22	6	Brown, Orange Clayey Sand	SS	16									28		SC
W-22	15	Gray, Orange Clayey Sand	SS	19	34	18							32	A-2-7	SC
W-22	20	Green, Orange Clay	SS	59	96	64							91	A-7-6	CH
W-23	2	Brown, Orange Clayey Sand	SS	14				100	100	95	81	56	33		SC
W-23	10	Gray, Orange Clayey Sand	SS	46	34	12							34	A-2-6	SC
W-23	20	Brown, Orange Clayey Sand	SS	26	30	8							37	A-4	SC
W-24	15	Gray Orange Clayey Sand	SS	17	32	17							31	A-2-6	SC
W-24	20	Gray, Orange Clay	SS	39									76		CH

*SS=Sample Spoon
A=Auger

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CORROSION SERIES TEST RESULTS

LOCATION	SAMPLE DEPTH (Feet)	SOIL GROUP	SOILS DESCRIPTION	pH	RESISTIVITY (Ohm-cm)	CHLORIDES (ppm)	SULFATES (ppm)	ENVIRONMENTAL CLASSIFICATION
B-3	20	SM-SC	Tan Clayey Sand	6.08				Moderately Aggressive
B-12	31	SC	Light Green, Orange Clayey Sand	6.59				Moderately Aggressive
B-25	3	SP-SC	Tan Sand, trace clay	6.71	36,000			Moderately Aggressive
B-103	1	SP-SC	Dark Brown Sand, with Clay	4.22	10,000	240	150	Extremely Aggressive
B-103	20	CH	Green Clay	4.67	1,200	360	79	Extremely Aggressive
B-107	27	SM	Tan Silty Sand	6.32	3,200			Moderately Aggressive
B-110	18	SC	Light Green, Gray, Orange Clayey Sand	5.35	17,000			Moderately Aggressive
B-112	15	SC	Brown Clayey Sand	6.35	6,500			Moderately Aggressive
A-20	15	SC-SM	Light Gray, Orange Silty Clayey Sand	4.19				Extremely Aggressive
A-24	8	SC	Light Brown, Tan Clayey Sand	5.54				Moderately Aggressive
W-22	2	SC	Orange Clayey Sand	6.01	20,000	40	279	Moderately Aggressive

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LIMEROCK BEARING RATIO TEST RESULTS

LOCATION	SAMPLE DEPTH (Feet)	SOILS DESCRIPTION	MAXIMUM DENSITY (pcf)	OPTIMUM MOISTURE (%)	LBR (%)
RA-2	1	Brown Silty-Clayey Sand	125	9	92
RA-27	1	Brown Clayey Sand	123	11	62

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UNCONFINED COMPRESSION TEST RESULTS

LOCATION	SAMPLE DEPTH (Feet)	SOILS DESCRIPTION	MOISTURE CONTENT (%)	NATURAL DENSITY (pcf)	MAXIMUM STRESS (tsf)
B-124	18.0 – 18.5	Gray, orange silty Clay	35.9	112.8	1.46
B-123	6.5 – 7.0	Gray silty Clay	19.1	126.6	1.08
B-121	5.5 – 6.0	Gray, orange silty Clay	33.9	113.3	1.91
B-118	9.5 – 10.0	Gray, orange silty Clay	42.1	110.0	0.94
B-117	16.5 – 17.0	Gray silty Clay	45.5	106.9	1.42
B-113	22.5 – 23.0	Gray silty Clay	43.7	101.0	1.28
B-111	21.5 – 22.0	Gray silty Clay	50.4	106.4	1.50
B-108	16.5 – 17.0	Gray, orange silty Clay	51.8	103.7	1.13
B-29	26.0 – 26.5	Gray, orange silty Clay	64.0	98.0	1.28
B-24	16.5 – 17.0	Gray, orange silty Clay	50.5	106.0	0.96
B-111	4.0 – 6.0	Gray, orange Clay	38.8	111.2	1.25

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TRIAXIAL SHEAR TEST –TEST RESULTS

LOCATION	SAMPLE DEPTH (Feet)	SOILS DESCRIPTION	MOISTURE CONTENT (%)	NATURAL DENSITY (pcf)	SHEAR STRENGHT COHESION (psf)	FRICTION ANGLE (deg)
B-22	16.5 – 17.0	Gray, orange silty Clay	43.7	109.0	1101.6	5
B-124	18.5 – 19.0	Gray silty Clay	40.0	107.0	1082.9	6
B-121	5.5 – 6.0	Gray, orange silty Clay	33.9	113.5	953.3	17
B-117	16.5 – 17.0	Gray silty Clay	44.6	107.0	1324.8	3
B-108	15.5 – 16.0	Gray, orange silty Clay	45.2	103.4	449.3	9
B-29	26.5 – 27.0	Gray silty Clay	62.2	93.8	1192.3	12
B-28	15.5 – 16.0	Gray silty Clay	23.7	123.5	1006	9
B-24	15.5 – 16.0	Gray, orange silty Clay	51.8	105.4	953.3	1
C-2	10.0 -12.0	Gray sandy Clay	29.1	119.0	1483.2	12
C-10	15.0 – 17.0	Gray Clay	53.0	104.2	921.6	6
C-19	10.0 -12.0	Gray, orange Clay	43.9	109.1	1051.2	13
W-3	17.0 – 19.0	Orange sandy Clay	26.0	120.6	1497.6	15.5
W-5	5.0 – 7.0	Gray, orange Clay	45.5	108.3	1209.6	6.5
W-20	10.0 -12.0	Gray, orange Clay	56.7	102.2	964.8	4.5

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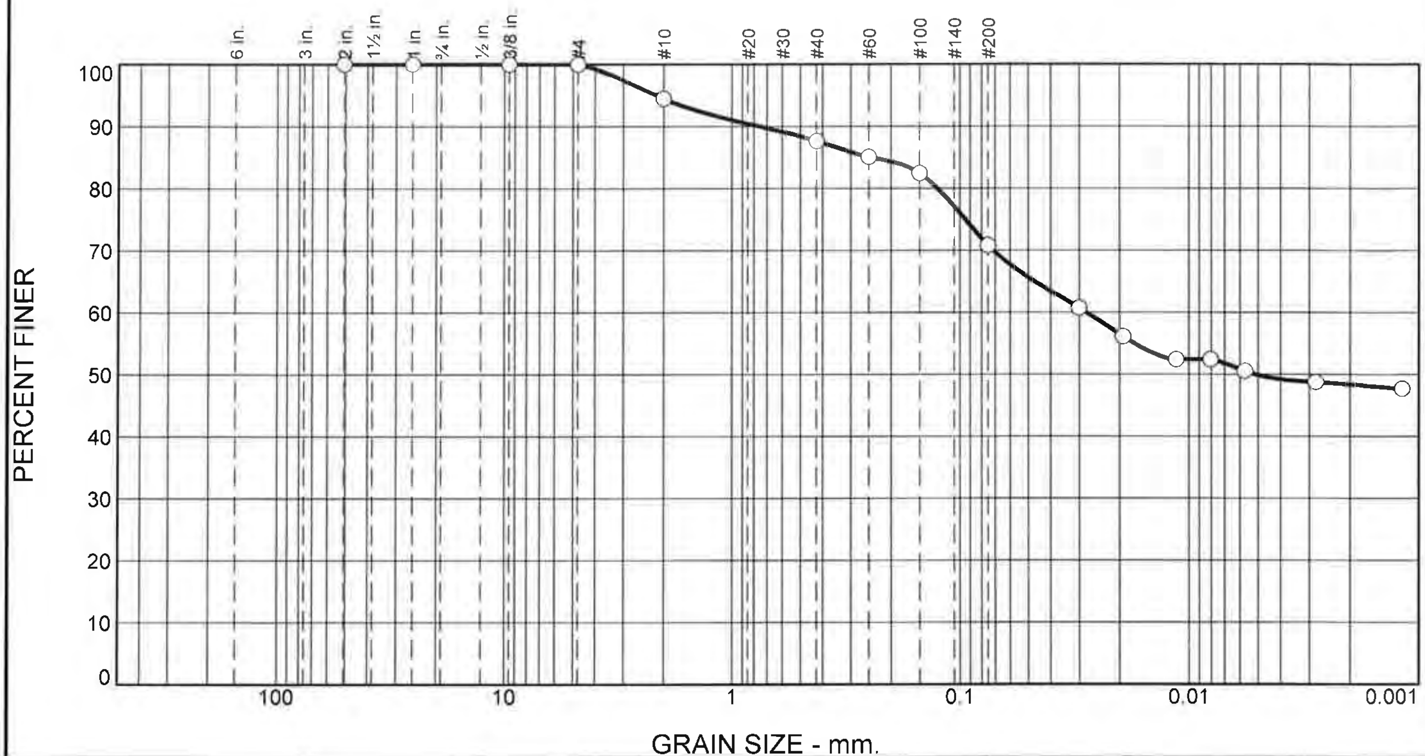
TOP SOIL ANALYSIS TESTS RESULTS

Sample ID		**WA-1**		**TS-1**	
Soil pH		6.3		6.9/(6.08)***	
		(ppm)	(%)	(ppm)	(%)
Macro Nutrients	P	52	-	181	-
	K	58	-	34	2.5
	Mg	117	-	74	17.6
	Ca	626	-	544	77.7
	Na	-	-	18	2.2
		(mg/kg)		(ppm)	
Micro Nutrients	S	-	-	8	-
	B	-	-	0.2	-
	Fe	-	-	4	-
	Cu	0.14	-	0.1	-
	Mn	4.48	-	3	-
	Zn	1.82	-	0.2	-
% Silt		22.3		16.4	
% Clay		1.6		4.4	
Organic Content		3.7		2.3	

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	5.5	6.8	16.9	20.9	49.9

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	100.0		
3/8"	100.0		
#4	100.0		
#10	94.5		
#40	87.7		
#60	85.1		
#100	82.4		
#200	70.8		
0.0301 mm.	60.7		
0.0194 mm.	56.1		
0.0114 mm.	52.4		
0.0080 mm.	52.4		
0.0057 mm.	50.6		
0.0028 mm.	48.8		
0.0012 mm.	47.7		

* (no specification provided)

Material Description

Green Orange Clay

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.7488 D_{85}= 0.2447 D_{60}= 0.0280
D_{50}= 0.0051 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: **Date Tested:** 4/1/15

Tested By: PH

Checked By: ES

Title:

Location: B101

Date Sampled:

Universal Engineering Sciences

Client: CPH, INC.-Wal.Mart (Big Box)

Project: Walmart Store #3873-00, Alachua, Fl GEO

Project No: 0795.1400110.0000 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2015

Client: CPH, INC.-Wal.Mart (Big Box)
Project: Walmart Store #3873-00, Alachua, Fl GEO
Project Number: 0795.1400110.0000
Location: B101
Material Description: Green Orange Clay
Tested By: PH **Test Date:** 4/1/15
Checked By: ES

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
74.41	0.00	0.00	2"	0.00	100.0
			1"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	4.10	94.5
51.29	0.00	0.00	#40	3.70	87.7
			#60	5.11	85.1
			#100	6.54	82.4
			#200	12.84	70.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 94.5
Weight of hydrometer sample =51.29
Hygroscopic moisture correction:
  Moist weight and tare = 24.99
  Dry weight and tare = 24.96
  Tare weight = 15.70
  Hygroscopic moisture = 0.3%
Automatic temperature correction
  Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
  Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	37.5	32.9	0.0133	37.5	10.1	0.0301	60.7
5.00	21.8	35.0	30.4	0.0133	35.0	10.6	0.0194	56.1
15.00	21.8	33.0	28.4	0.0133	33.0	10.9	0.0114	52.4
30.00	21.8	33.0	28.4	0.0133	33.0	10.9	0.0080	52.4
60.00	21.8	32.0	27.4	0.0133	32.0	11.0	0.0057	50.6
250.00	21.9	31.0	26.4	0.0133	31.0	11.2	0.0028	48.8
1440.00	21.5	30.5	25.8	0.0134	30.5	11.3	0.0012	47.7

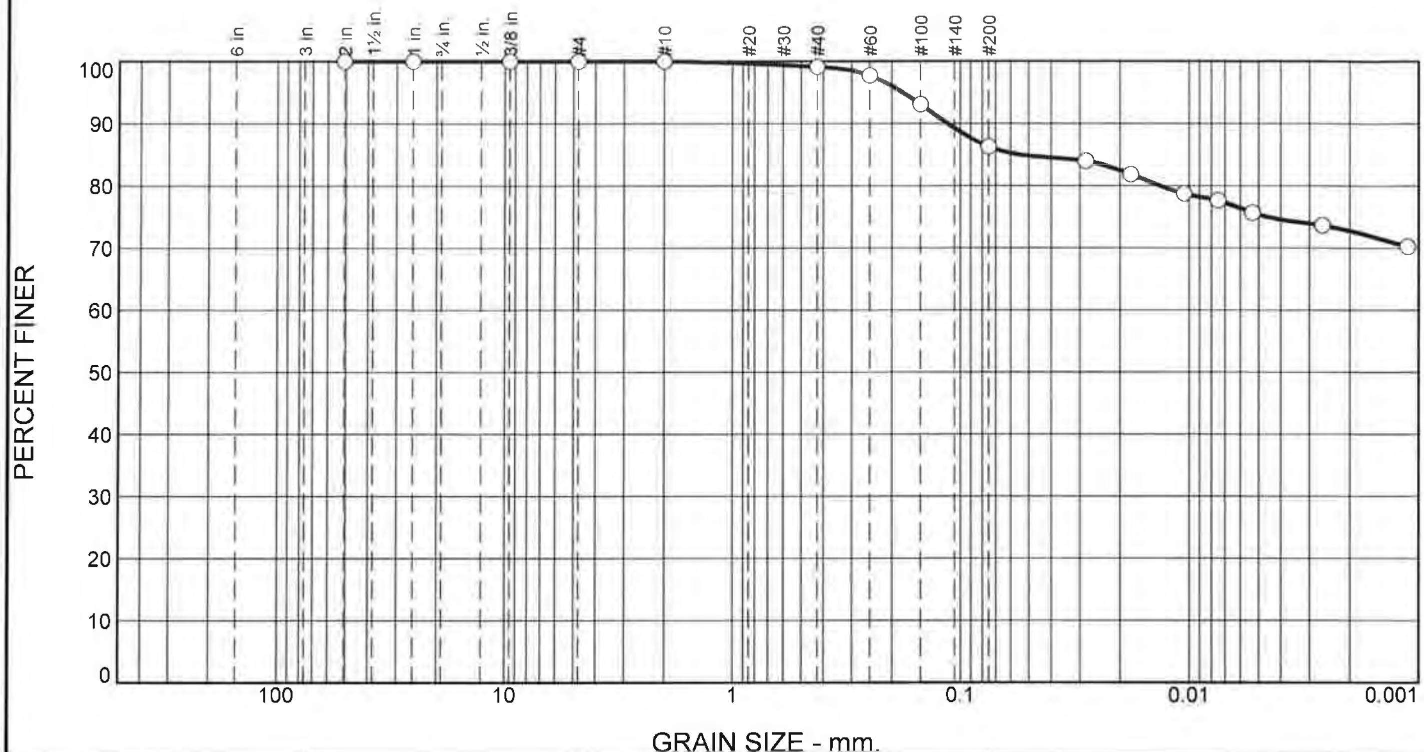
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	5.5	6.8	16.9	29.2	20.9	49.9	70.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0051	0.0280	0.1252	0.2447	0.7488	2.1546

Fineness Modulus
0.55

Particle Size Distribution Report



% +3"	% Gravel Coarse	% Gravel Fine	% Sand Coarse	% Sand Medium	% Sand Fine	% Fines Silt	% Fines Clay
0.0	0.0	0.0	0.0	0.8	12.9	10.9	75.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#40	99.2		
#60	97.7		
#100	93.1		
#200	86.3		
0.0282 mm.	84.0		
0.0180 mm.	81.9		
0.0105 mm.	78.8		
0.0075 mm.	77.7		
0.0053 mm.	75.7		
0.0026 mm.	73.7		
0.0011 mm.	70.2		

* (no specification provided)

Material Description

Green Orange Clay

Atterberg Limits (ASTM D 4318)

PL= 33 LL= 92 PI= 59

Classification

USCS (D 2487)= CH AASHTO (M 145)=

Coefficients

D_{90}= 0.1136 D_{85}= 0.0541 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: **Date Tested:** 4/1/15
Tested By: PH
Checked By: ES
Title:

Location: B111

Date Sampled:

Universal Engineering Sciences

Client: CPH, INC.-Wal.Mart (Big Box)
Project: Walmart Store #3873-00, Alachua, Fl GEO
Project No: 0795.1400110.0000 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

4/22/2015

Client: CPH, INC.-Wal.Mart (Big Box)
Project: Walmart Store #3873-00, Alachua, Fl GEO
Project Number: 0795.1400110.0000
Location: B111
Material Description: Green Orange Clay
PL: 33 **LL:** 92 **PI:** 59
USCS Classification: CH
Tested By: PH **Test Date:** 4/1/15
Checked By: ES

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
56.11	0.00	0.00	2"	0.00	100.0
			1"	0.00	100.0
			3/8"	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
48.28	0.00	0.00	#40	0.41	99.2
			#60	1.09	97.7
			#100	3.34	93.1
			#200	6.61	86.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.28
Hygroscopic moisture correction:
Moist weight and tare = 23.51
Dry weight and tare = 23.47
Tare weight = 15.50
Hygroscopic moisture = 0.5%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	45.0	40.3	0.0134	45.0	8.9	0.0282	84.0
5.00	21.7	44.0	39.3	0.0134	44.0	9.1	0.0180	81.9
15.00	21.7	42.5	37.8	0.0134	42.5	9.3	0.0105	78.8
30.00	21.6	42.0	37.3	0.0134	42.0	9.4	0.0075	77.7
60.00	21.8	41.0	36.4	0.0133	41.0	9.6	0.0053	75.7
250.00	21.9	40.0	35.4	0.0133	40.0	9.7	0.0026	73.7
1440.00	21.3	38.5	33.7	0.0134	38.5	10.0	0.0011	70.2

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.8	12.9	13.7	10.9	75.4	86.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0134	0.0541	0.1136	0.1795

Fineness Modulus
0.09

LIMEROCK BEARING RATIO TEST RESULTS
(FM 5-515)

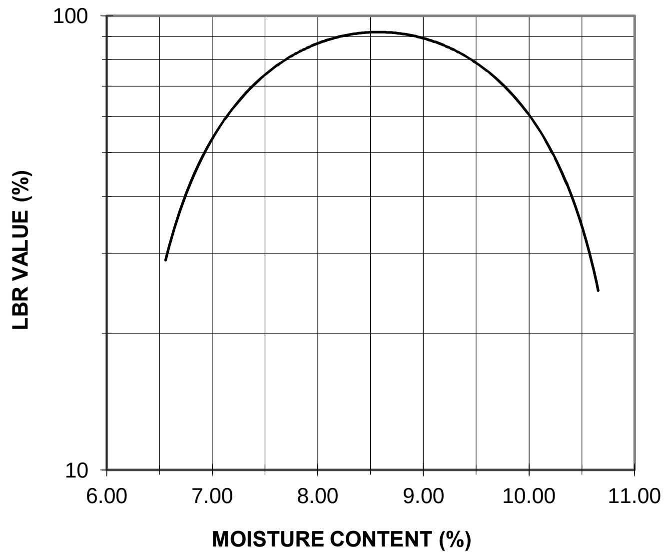
TESTED FOR: CPH Engineers, Inc.
500 West Fulton Street
Stanford, Florida 32771

PROJECT: Walmart Superstore #3873
Alachua, FL
Alachua County

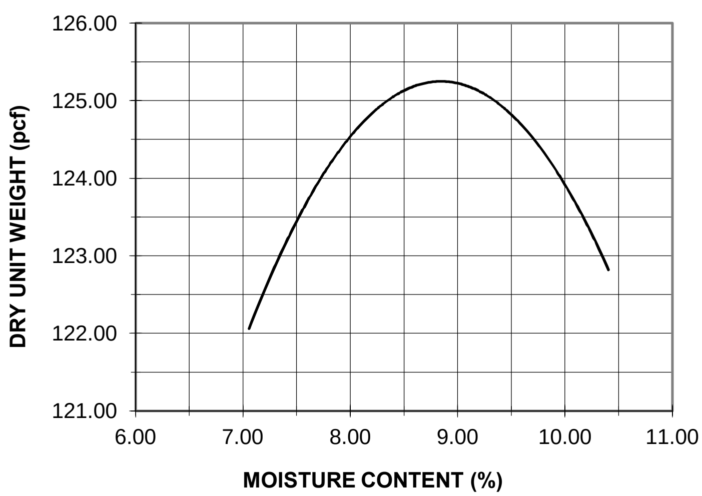
DATE TESTED: May 2, 2006

REPORT NO: 1211903

SAMPLE LOCATION: RA-2
SOIL DESCRIPTION: Brown Silty Clayey Sand



PROJECT LBR REQUIREMENT: **NA** LBR VALUE: **92**



OPT MOISTURE: **9.0** MAX DENSITY: **125.0**

UNIVERSAL ENGINEERING SCIENCES
4475 S.W. 35TH TERRACE, GAINESVILLE, FL. 32608
(352)372-3392 (352)336-7914 (FAX)

LIMEROCK BEARING RATIO TEST RESULTS
(FM 5-515)

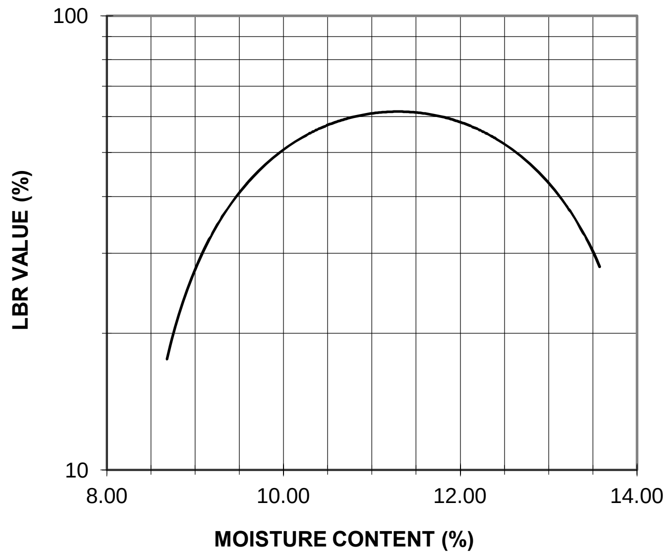
TESTED FOR: CPH Engineers, Inc.
500 West Fulton Street
Stanford, Florida 32771

PROJECT: Walmart Superstore #3873
Alachua, FL
Alachua County

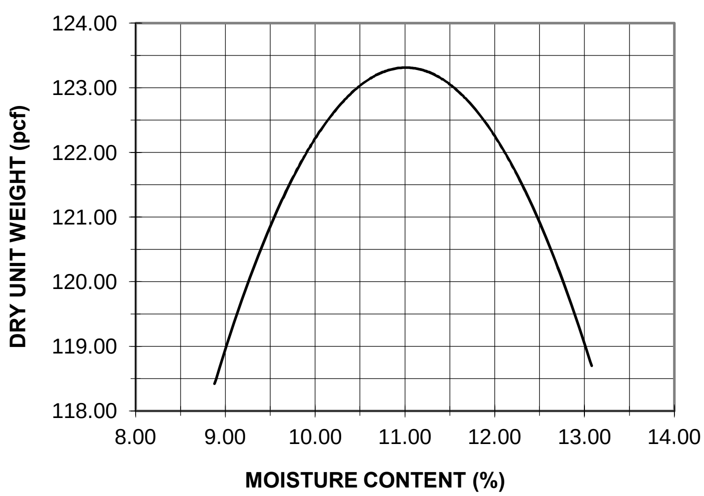
DATE TESTED: May 2, 2010

REPORT NO: 1211903

SAMPLE LOCATION: RA-27
SOIL DESCRIPTION: Brown Clayey Sand

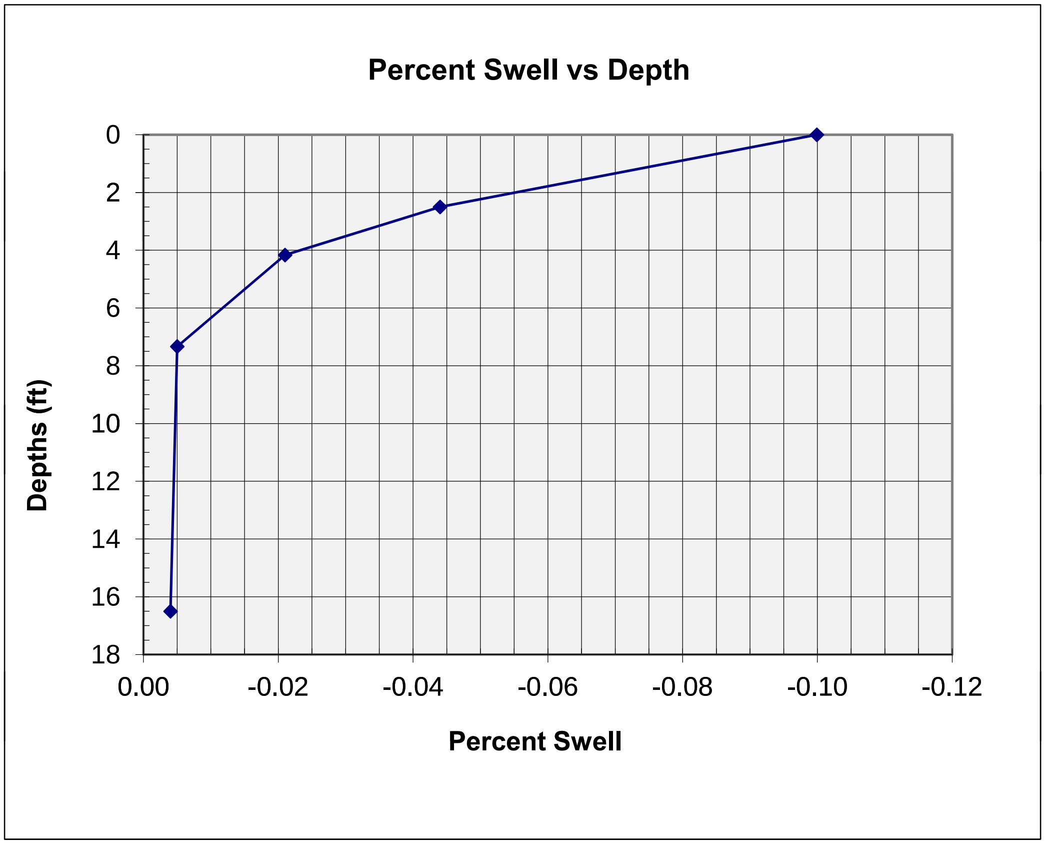


PROJECT LBR REQUIREMENT: **NA** LBR VALUE: **62**

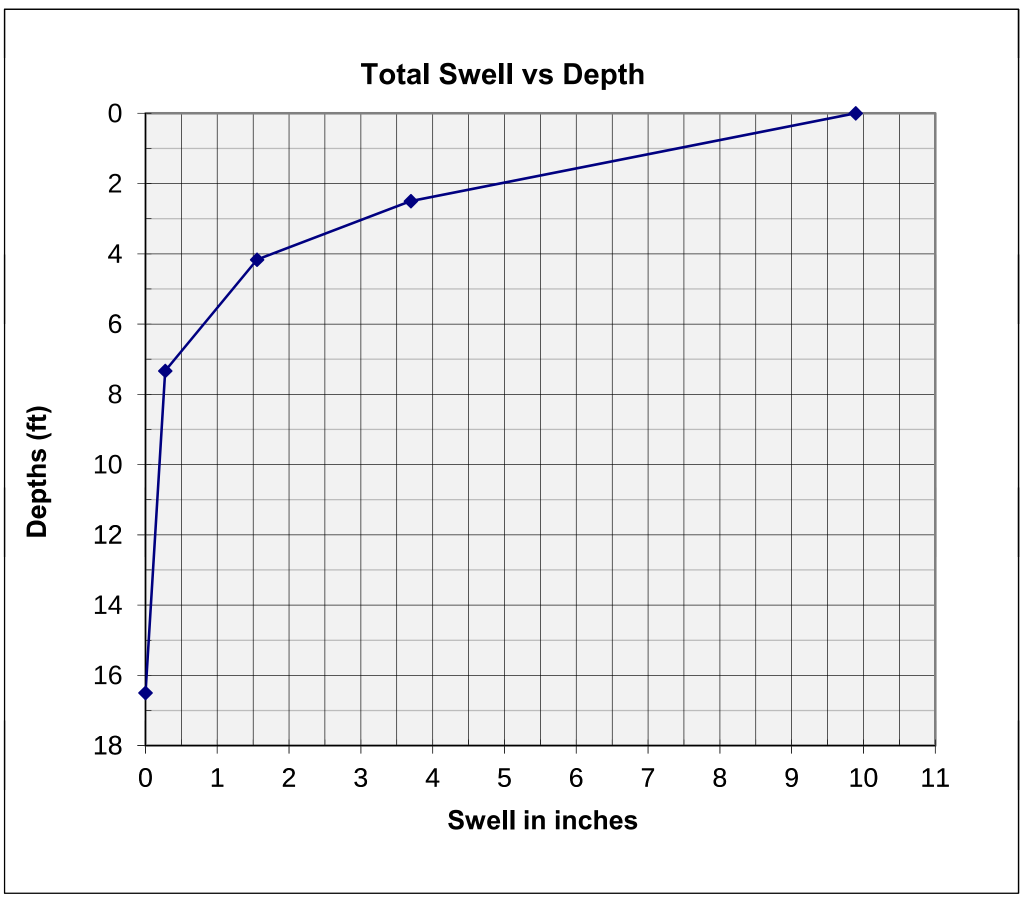


OPT MOISTURE: **11.0** MAX DENSITY: **123.0**

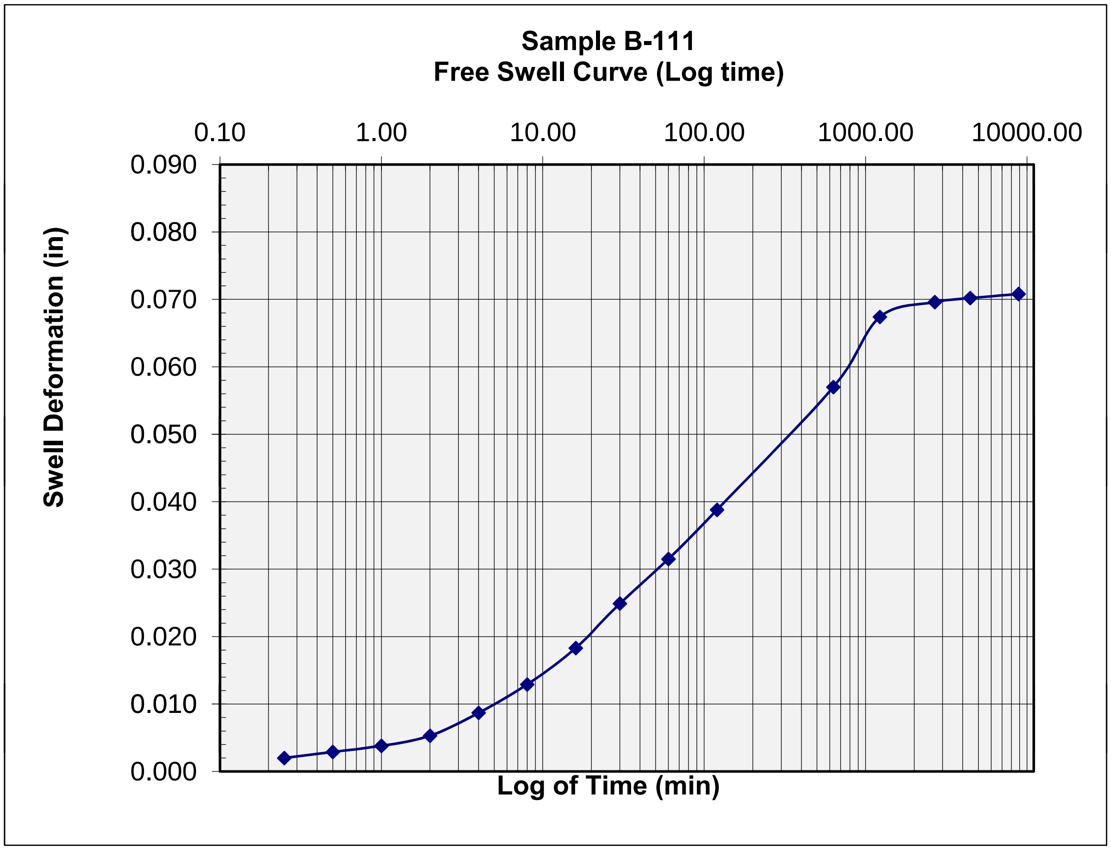
UNIVERSAL ENGINEERING SCIENCES
4475 S.W. 35TH TERRACE, GAINESVILLE, FL. 32608
(352)372-3392 (352)336-7914 (FAX)



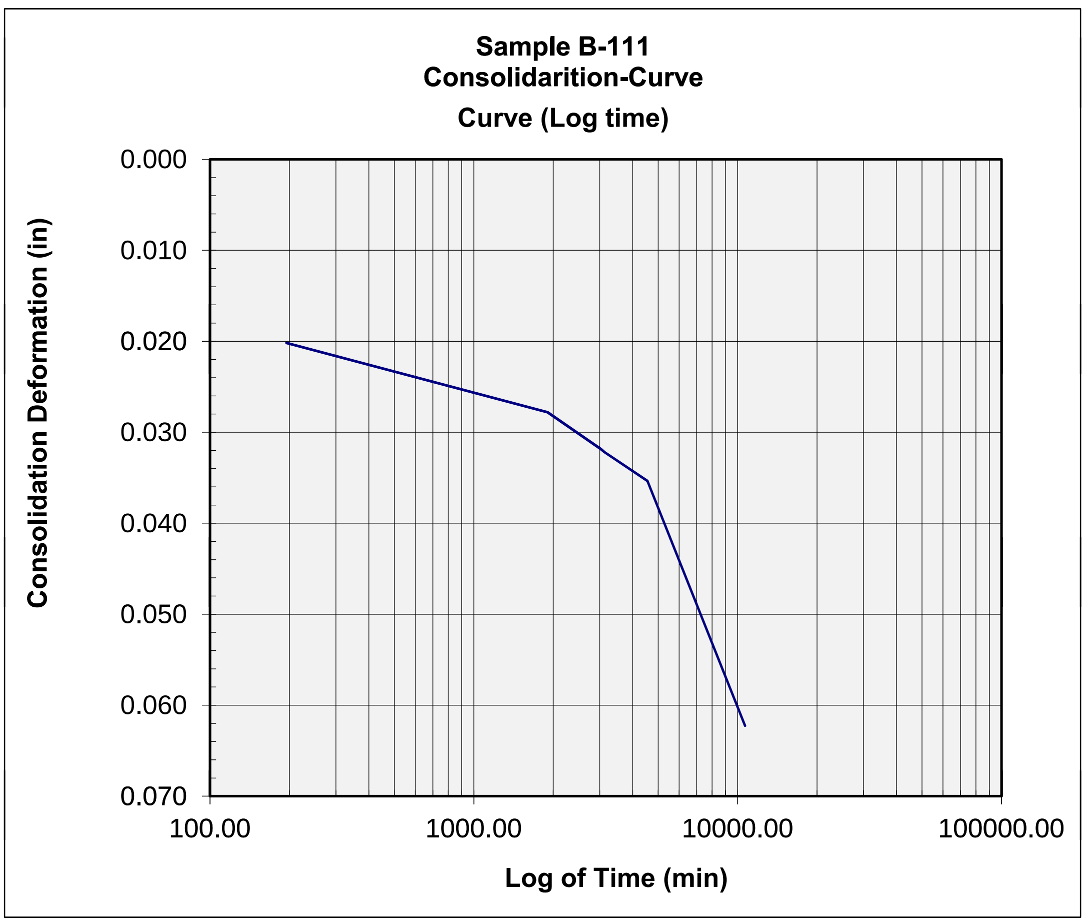
Percent Swell vs Depth
Depths (ft)
0
2
4
6
8
10
12
14
16
18
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
Percent Swell



Total Swell vs Depth
Depths (ft)
0
2
4
6
8
10
12
14
16
18
0
1
2
3
4
5
6
7
8
9
10
11
Swell in inches



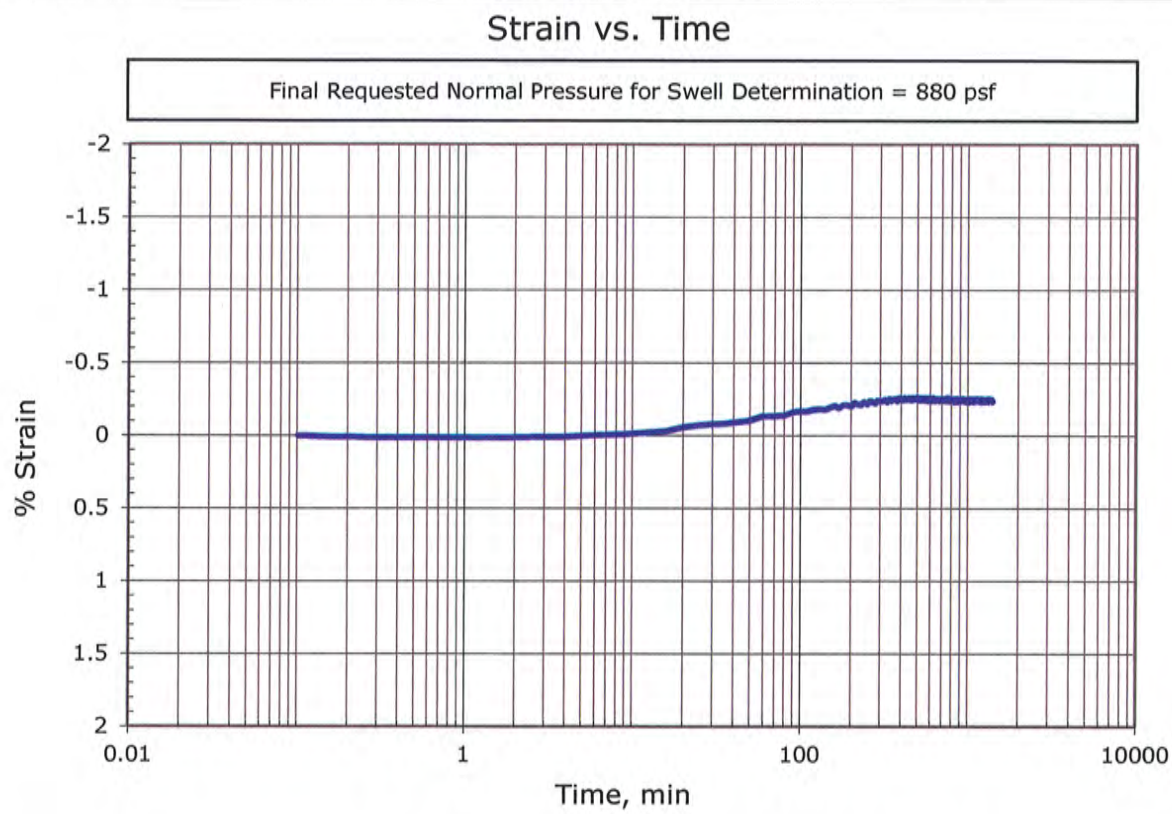
Sample B-111
Free Swell Curve (Log time)
0.10
1.00
10.00
100.00
1000.00
10000.00
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Swell Deformation (in)
Log of Time (min)



Sample B-111
Consolidarition-Curve
Curve (Log time)
0.000
0.010
0.020
0.030
0.040
0.050
0.060
0.070
Consolidation Deformation (in)
100.00
1000.00
10000.00
100000.00
Log of Time (min)

Client:	Universal Engineering Sciences		
Project Name:	Retail Store		
Project Location:	---		
GTX #:	302953	Tested By:	jm
Test Date:	03/17/15	Checked By:	mcm
Boring ID:	B-101		
Sample ID:	---		
Depth, ft	8-10		
Description:	Moist, Gray, green orange Clay		
Preparation:	Extruded from tube cut, trimmed and tested at the as-received moisture and density.		

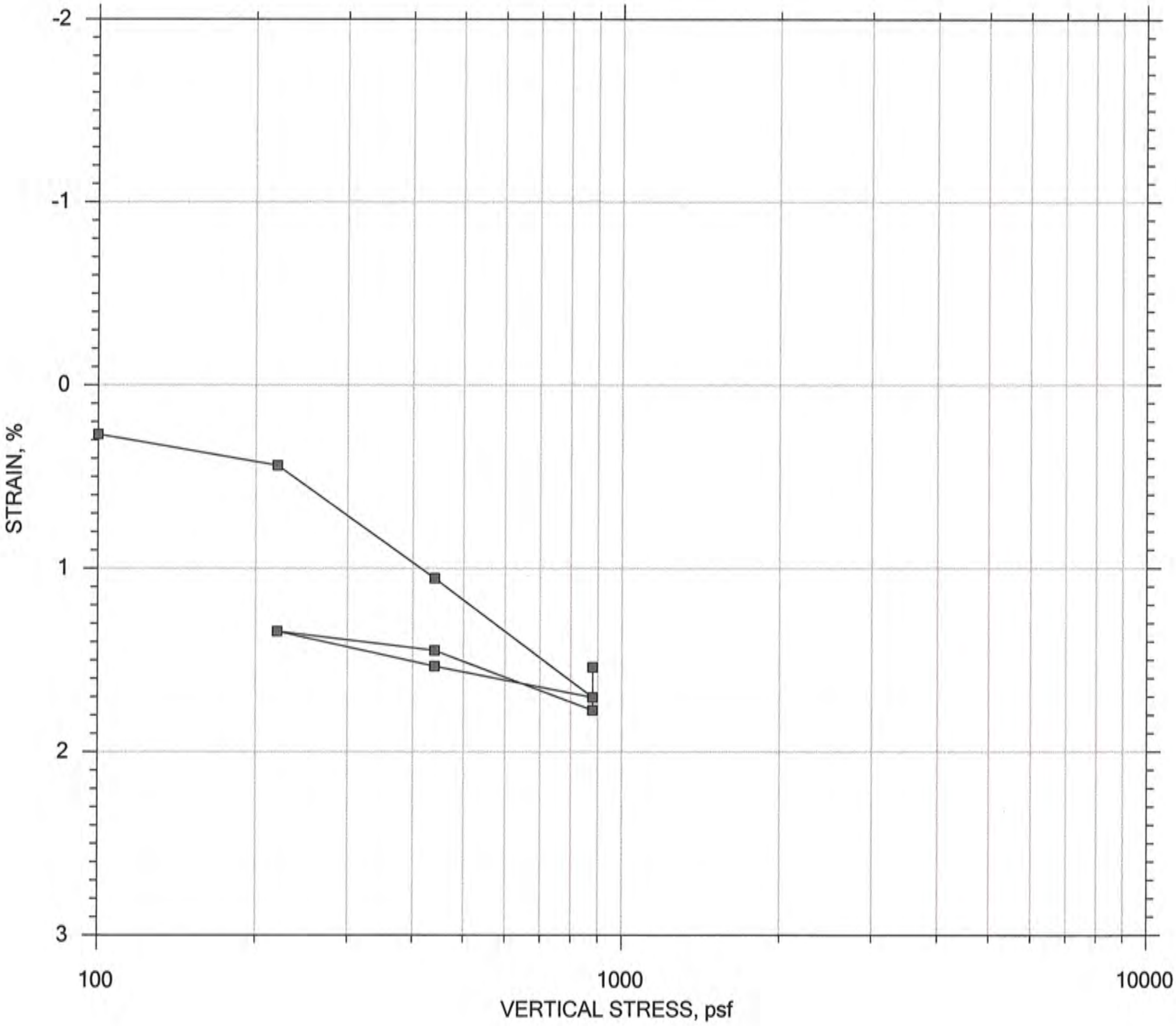
Swell Test ASTM D4546 - Method B



Maximum Percent Swell, %:	-0.20	% Passing No. 200:	---
Initial Moisture Content, %:	35.8	Liquid Limit:	---
Initial Dry Density, pcf:	82.4	Plastic Limit:	---
Initial Void Ratio:	0.41	Plasticity Index:	---
Final Moisture Content, %:	1.0	USCS Classification:	---
Final Dry Density, pcf:	83.7		
Final Void Ratio:	1.00		

One-Dimensional Swell or Collapse by ASTM D4546 - Method B

SUMMARY REPORT



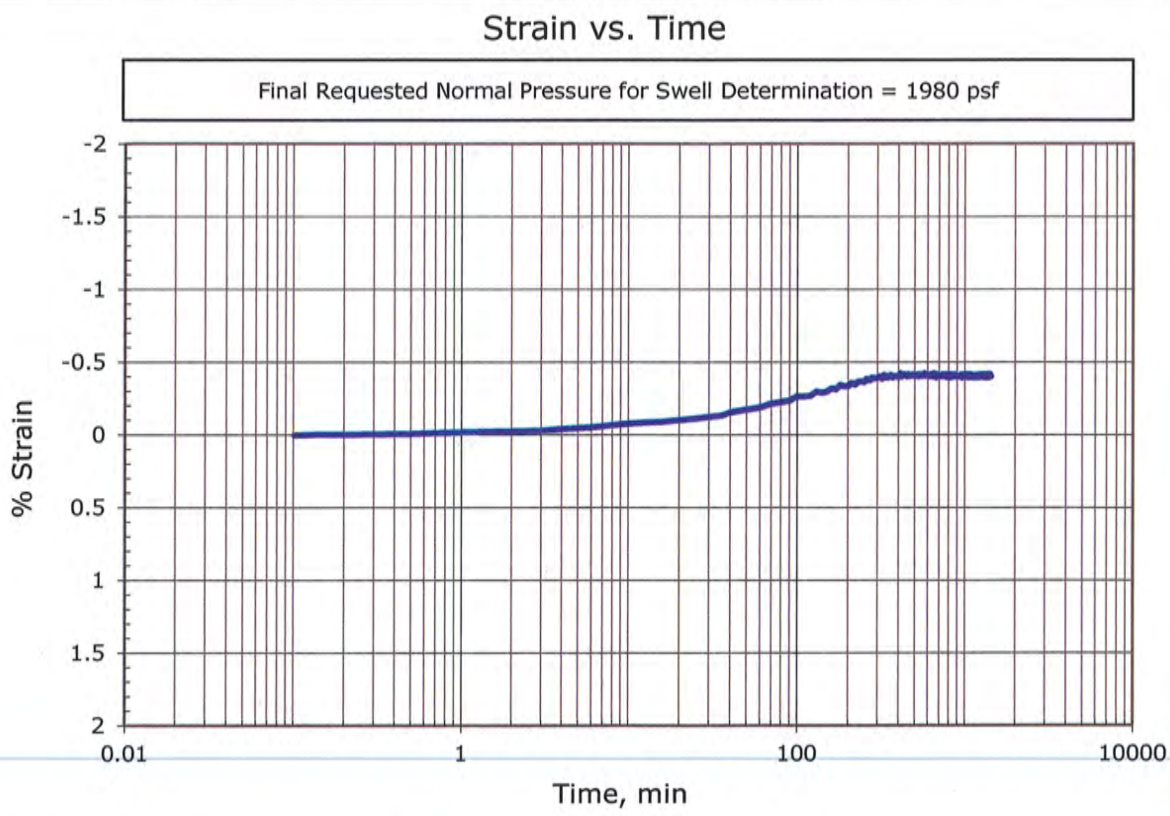
					Before Test	After Test
Current Vertical Effective Stress: ---				Water Content, %	35.82	37.22
Preconsolidation Stress: ---				Dry Unit Weight, pcf	82.418	83.706
Compression Ratio: ---				Saturation, %	93.33	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	1.03	1.00
LL: ---	PL: ---	PI: ---	GS: 2.68			

GeoTesting EXPRESS	Project: Retail Store	Location: ---	Project No.: GTX-302953
	Boring No.: B-101	Tested By: jm	Checked By: mcm
	Sample No.: ---	Test Date: 3/17/15	Test No.: Swell-1
	Depth: 8-10 ft	Sample Type: intact	Elevation: ---
	Description: Moist, "Gray, green orange Clay"		
	Remarks: System 1057, Water added at beginning of step #9 (880 psf)		
	Displacement at End of Increment		

GeoTesting EXPRESS

Client:	Universal Engineering Sciences		
Project Name:	Retail Store		
Project Location:	---		
GTX #:	302953	Tested By:	jm
Test Date:	03/17/15	Checked By:	mcm
Boring ID:	B-111		
Sample ID:	---		
Depth, ft	18-20		
Description:	Moist, Gray green orange Clay		
Preparation:	Extruded from tube cut, trimmed and tested at the as-received moisture and density.		

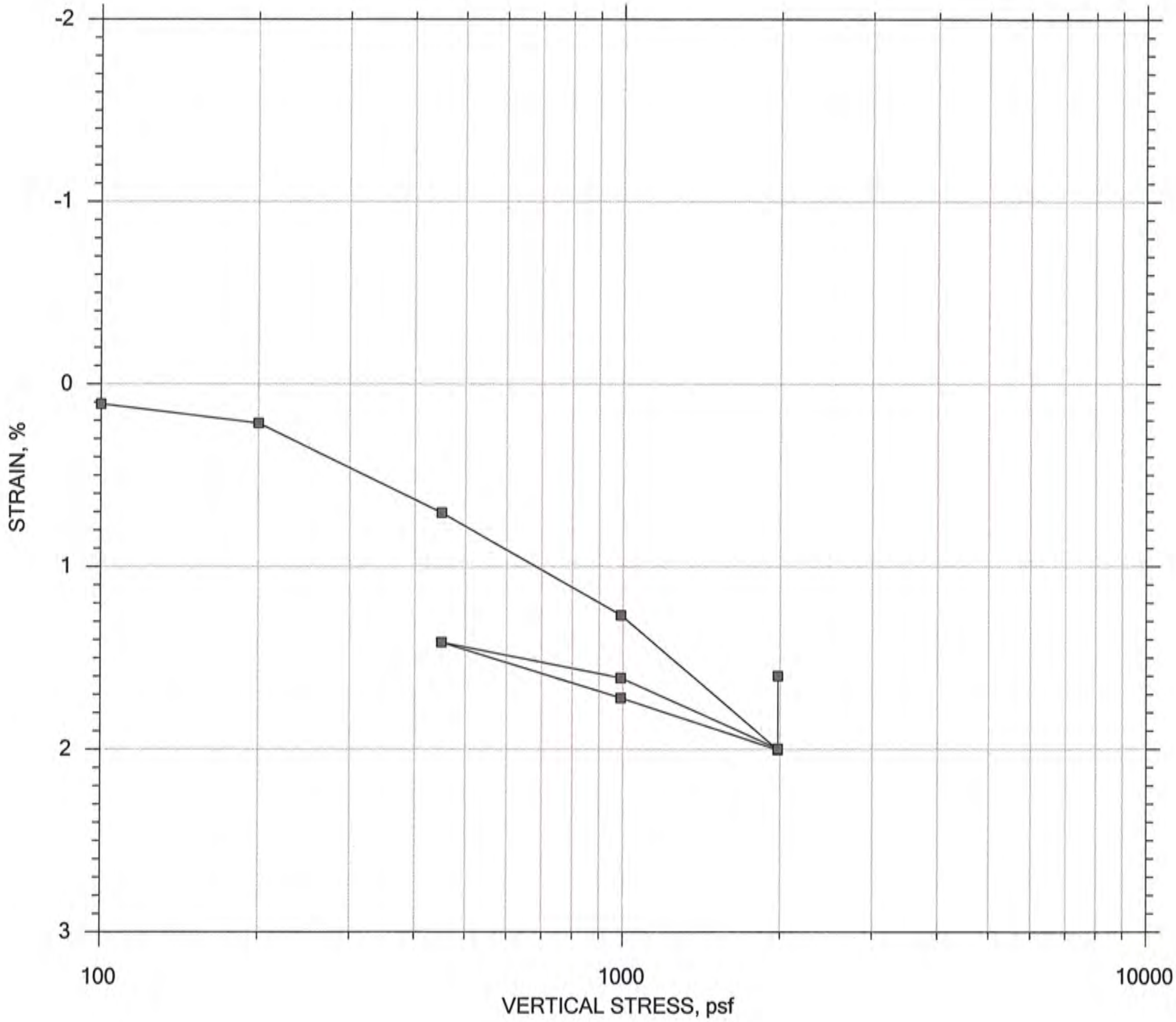
Swell Test ASTM D4546 - Method B



Maximum Percent Swell, %:	-0.40	% Passing No. 200:	---
Initial Moisture Content, %:	58.6	Liquid Limit:	---
Initial Dry Density, pcf:	63.2	Plastic Limit:	---
Initial Void Ratio:	1.74	Plasticity Index:	---
Final Moisture Content, %:	61.1	USCS Classification:	---
Final Dry Density, pcf:	64.2		
Final Void Ratio:	1.69		

One-Dimensional Swell or Collapse by ASTM D4546 - Method B

SUMMARY REPORT

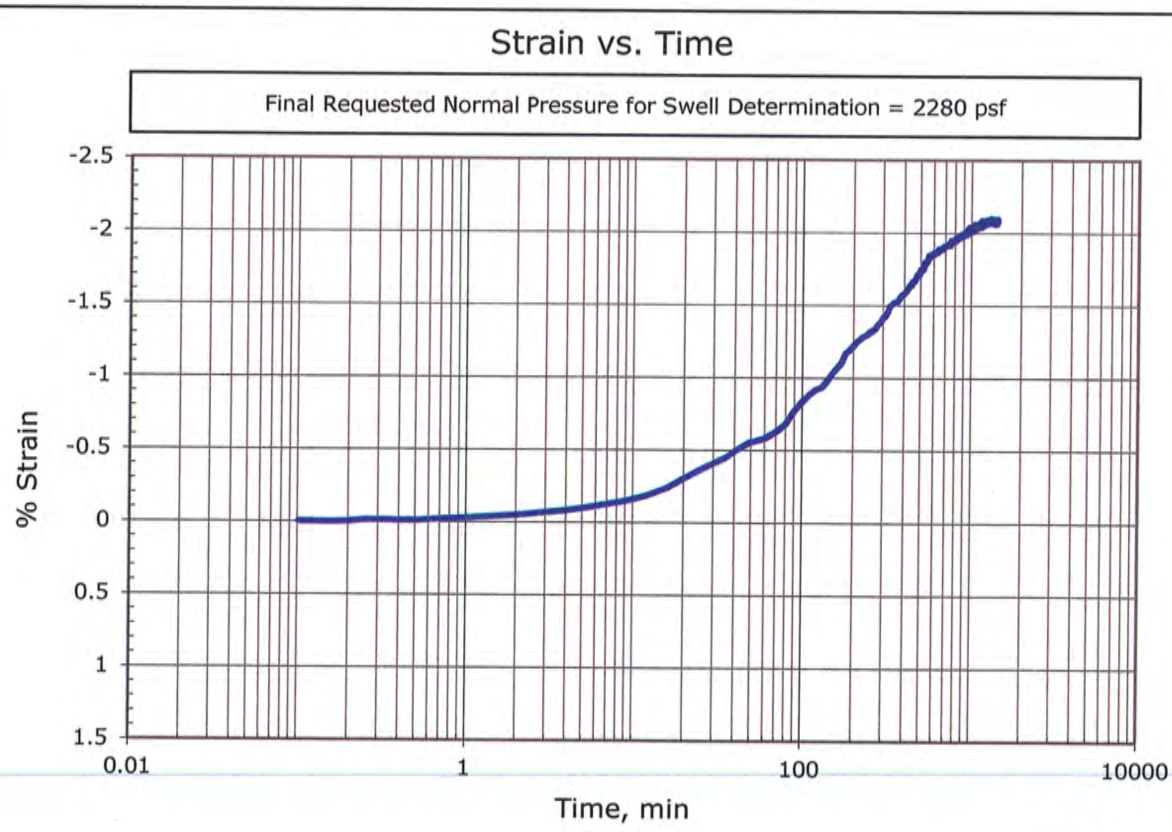


					Before Test	After Test
Current Vertical Effective Stress: ---				Water Content, %	58.57	61.07
Preconsolidation Stress: ---				Dry Unit Weight, pcf	63.21	64.236
Compression Ratio: ---				Saturation, %	93.48	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	1.74	1.69
LL: ---	PL: ---	PI: ---	GS: 2.77			

GeoTesting EXPRESS	Project: Retail Store	Location: ---	Project No.: GTX-302953
	Boring No.: B-111	Tested By: jm	Checked By: mcm
	Sample No.: ---	Test Date: 3/17/15	Test No.: Swell-2
	Depth: 18-20 ft	Sample Type: intact	Elevation: ---
	Description: Moist, "Gray, green orange Clay"		
	Remarks: System 1057, Water added at beginning of step #10 (1980 psf)		
	Displacement at End of Increment		

Client:	Universal Engineering Sciences		
Project Name:	Retail Store		
Project Location:	---		
GTX #:	301788	Tested By:	md
Test Date:	05/14/14	Checked By:	jdt
Boring ID:	B-124		
Sample ID:	---		
Depth, ft	17-19		
Description:	Moist, Gray, green orange, Clay		
Preparation:	Extruded from tube cut, trimmed and tested at the as-received moisture and density.		

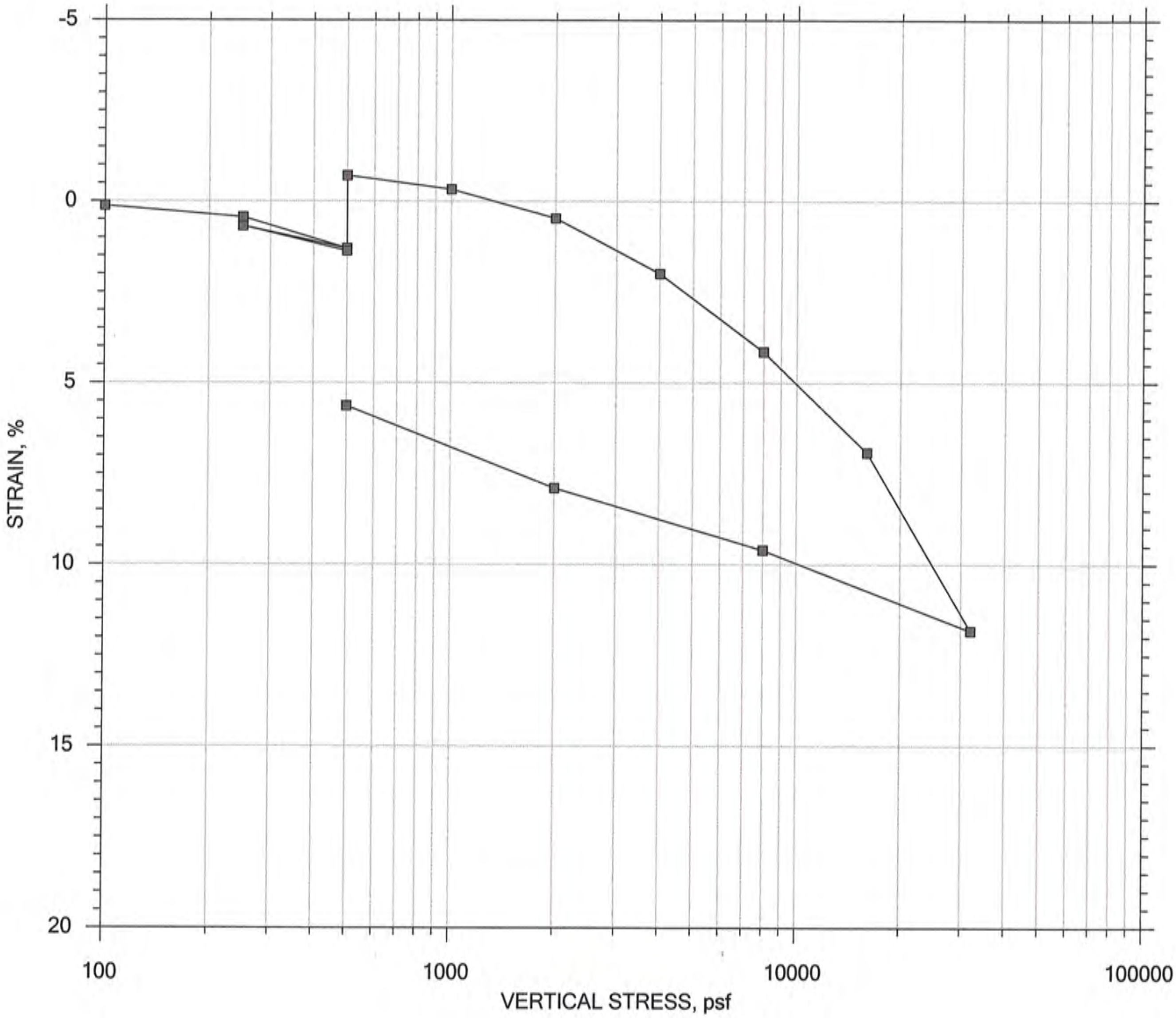
Swell Test ASTM D4546 - Method C



Maximum Percent Swell, %:	-2.10	% Passing No. 200:	---
Initial Moisture Content, %:	43.5	Liquid Limit:	---
Initial Dry Density, pcf:	74.4	Plastic Limit:	---
Initial Void Ratio:	1.30	Plasticity Index:	---
Final Moisture Content, %:	42.8	USCS Classification:	---
Final Dry Density, pcf:	78.9		
Final Void Ratio:	1.18		

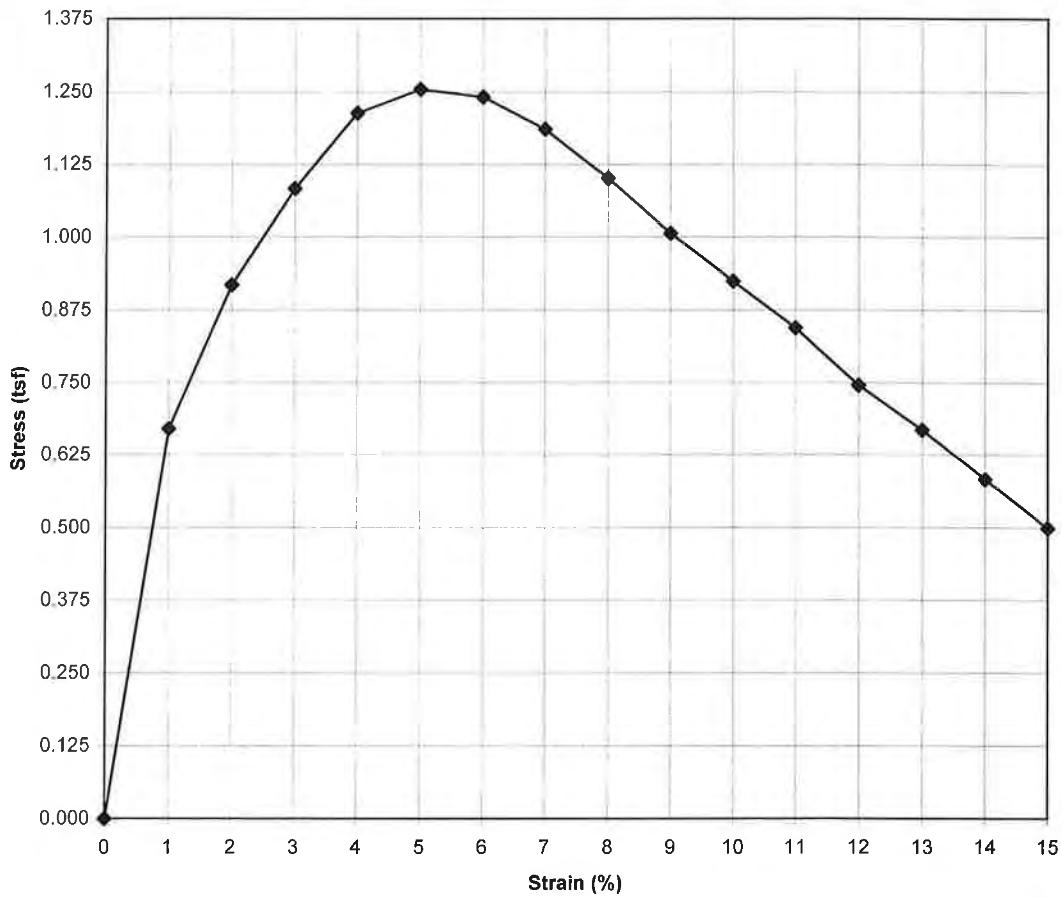
One-Dimensional Swell or Collapse by ASTM D4546 - Method C

SUMMARY REPORT



					Before Test	After Test
Current Vertical Effective Stress: ---				Water Content, %	43.50	42.75
Preconsolidation Stress: ---				Dry Unit Weight, pcf	74.449	78.891
Compression Ratio: ---				Saturation, %	91.64	100.00
Diameter: 2.5 in		Height: 1 in		Void Ratio	1.30	1.18
LL: ---	PL: ---	PI: ---	GS: 2.75			

GeoTesting EXPRESS			
	Project: Retail Store	Location: ---	Project No.: GTX-302953
	Boring No.: B-124	Tested By: jm	Checked By: mcm
	Sample No.: ---	Test Date: 3/18/15	Test No.: Swell-3
	Depth: 17-19 ft	Sample Type: intact	Elevation: ---
	Description: Moist, "Gray, green orange, Clay"		
	Remarks: System A, Water added at beginning of step #6 (500 psf)		
	Displacement at End of Increment		



Classification		Gray and Yellow Brown Clay			
Boring No.	101	Sample No.		Depth (ft.)	4-6

Specimen Properties

Diameter (in.)	2.85	Percent Passing No. 200	88.8
Height (in.)	5.60	Liquid Limit	127
Moisture Content (%)	38.8	Plastic Limit	27
Natural Density (pcf)	111.2	Specific Gravity	2.68
Dry Density (pcf)	80.1	Strain Rate %	1.5
Maximum Stress (tsf)	1.25		

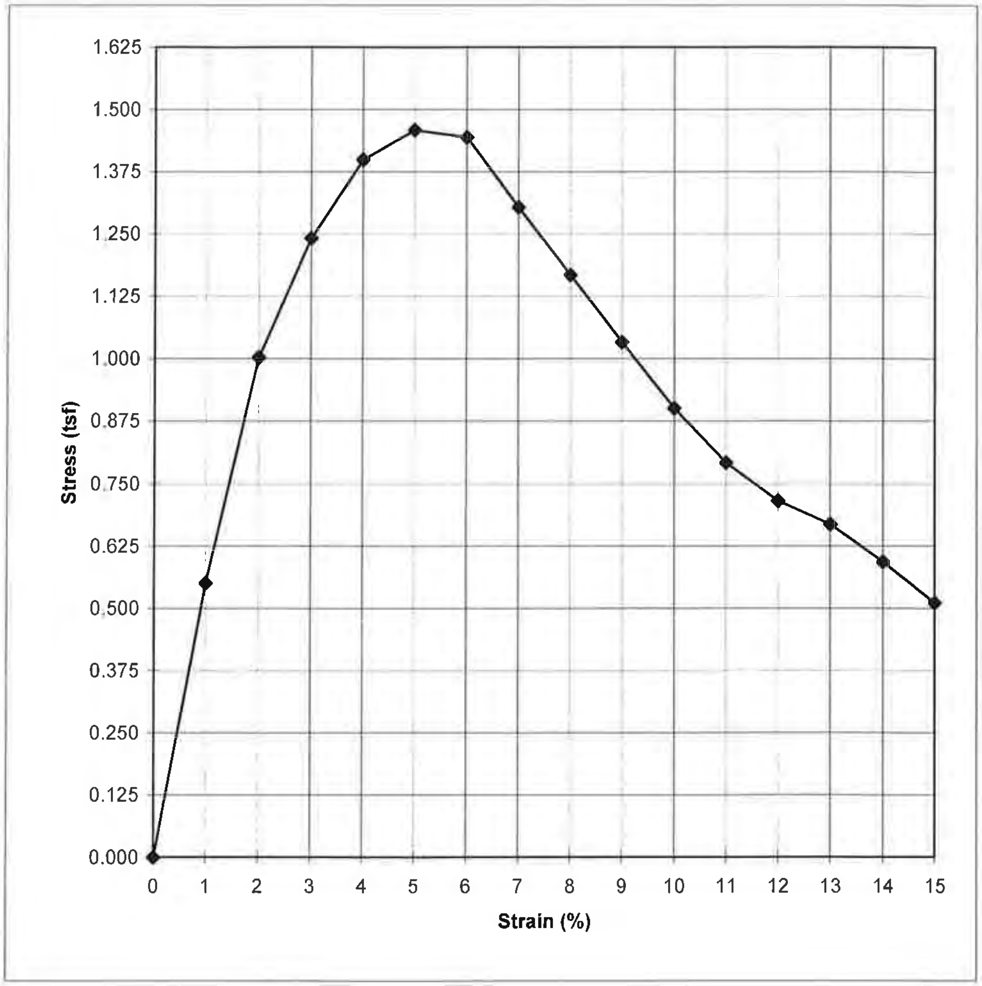
PROJECT: Alachua Project

CLIENT: Universal Engineering Sciences
Gainesville, Florida

PROJ. NO.: 1M-0805046

UNCONFINED COMPRESSION TEST ASTM D2166
CONTROLLED STRAIN

Giles Engineering Associates, Inc.
GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS
N8 W22350 JOHNSON ROAD, SUITE A1/WAUKESHA, WI 53186/(414) 544-0118/FAX (414) 549-5868



Classification Light Gray, Orange Brown mottled Silty Clay

Boring No. 124 Sample No. Depth (ft.) 18-18.5

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.66
Moisture Content (%)	35.9
Natural Density (pcf)	112.8
Dry Density (pcf)	83.0
Maximum Stress (tsf)	1.46
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

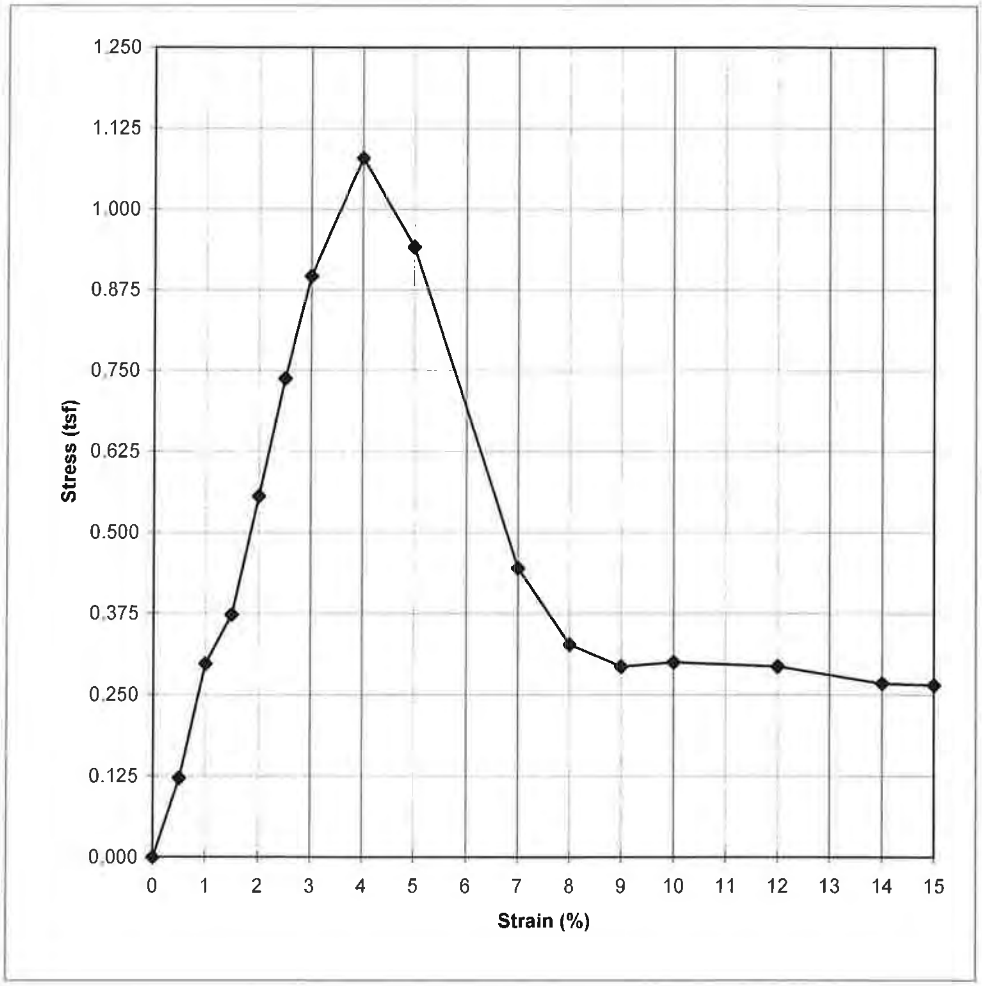
UNCONFINED COMPRESSION TEST ASTM D2166

CONTROLLED STRAIN

Giles Engineering Associates, Inc.

GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

N8 W22350 JOHNSON ROAD, SUITE A1/WAUKESHA, WI 53186/(414) 544-0118/FAX: (414) 549-5868



Classification Gray Silty Clay with very fine Sand

Boring No. 123 Sample No. Depth (ft.) 6.5-7.0

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.66
Moisture Content (%)	19.1
Natural Density (pcf)	126.6
Dry Density (pcf)	106.3
Maximum Stress (tsf)	1.08
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

CONTROLLED STRAIN

Giles Engineering Associates, Inc.

GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

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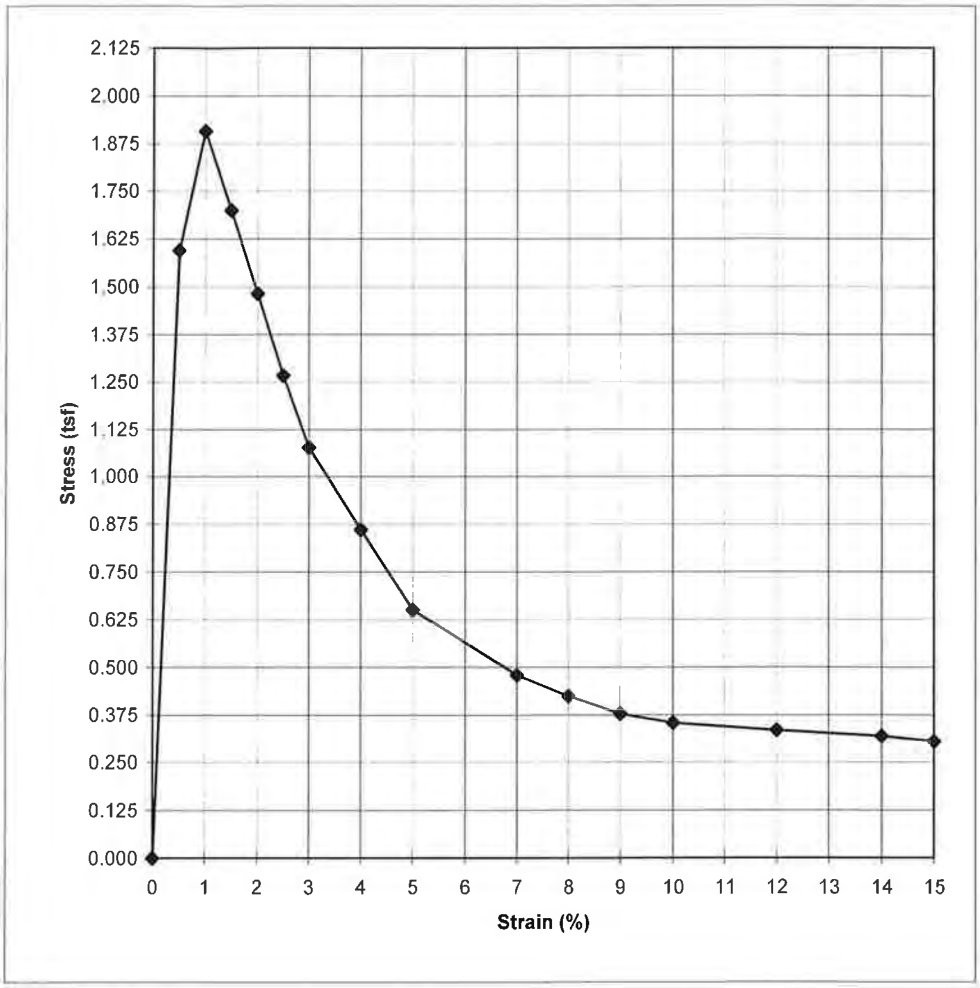

Classification Light Gray, Orange Brown mottled Silty Clay

Boring No. 121 Sample No. Depth (ft.) 5.5-6.0

Initial Specimen Properties:

Diameter (in.)	2.86
Height (in.)	5.65
Moisture Content (%)	33.9
Natural Density (pcf)	113.3
Dry Density (pcf)	84.6
Maximum Stress (tsf)	1.91
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

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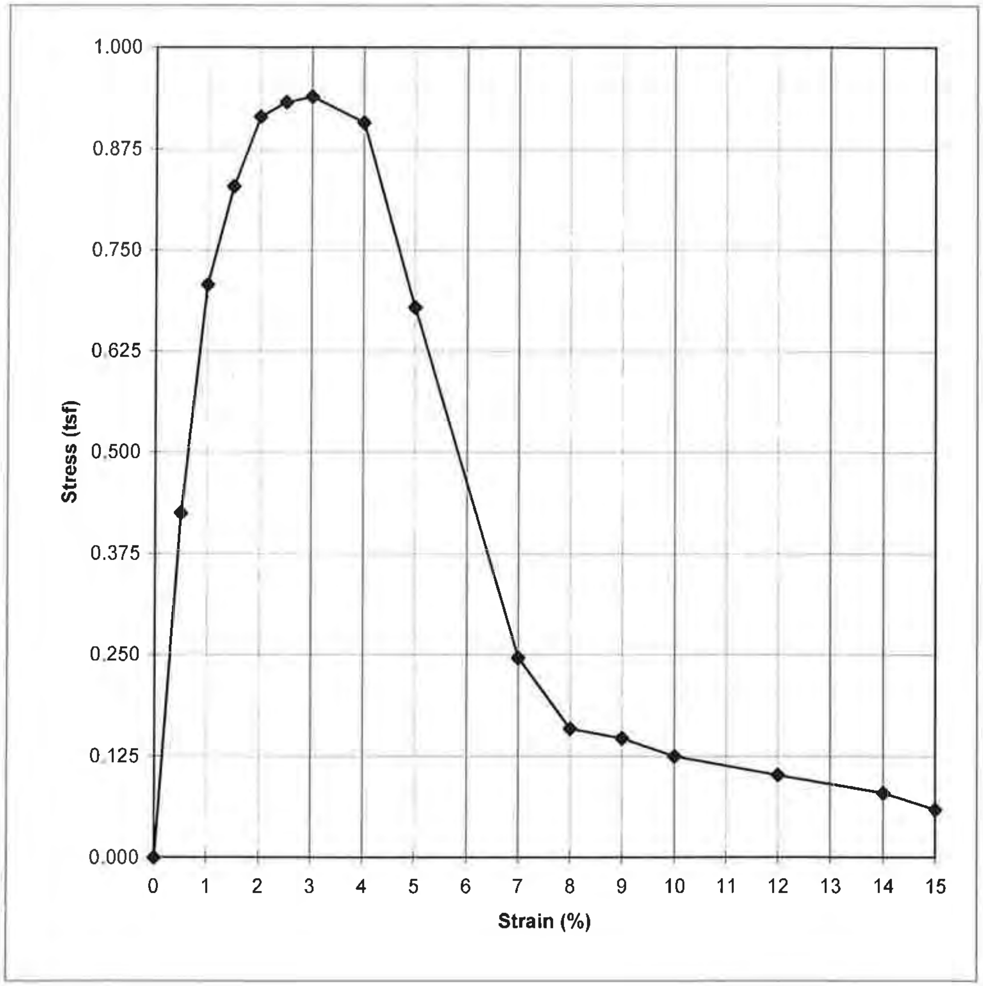

Classification Light Gray, Orange Brown mottled Silty Clay

Boring No. 118 Sample No. Depth (ft.) 9.5-10.0

Initial Specimen Properties:

Diameter (in.)	2.82
Height (in.)	5.65
Moisture Content (%)	42.1
Natural Density (pcf)	110.0
Dry Density (pcf)	77.4
Maximum Stress (tsf)	0.94
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

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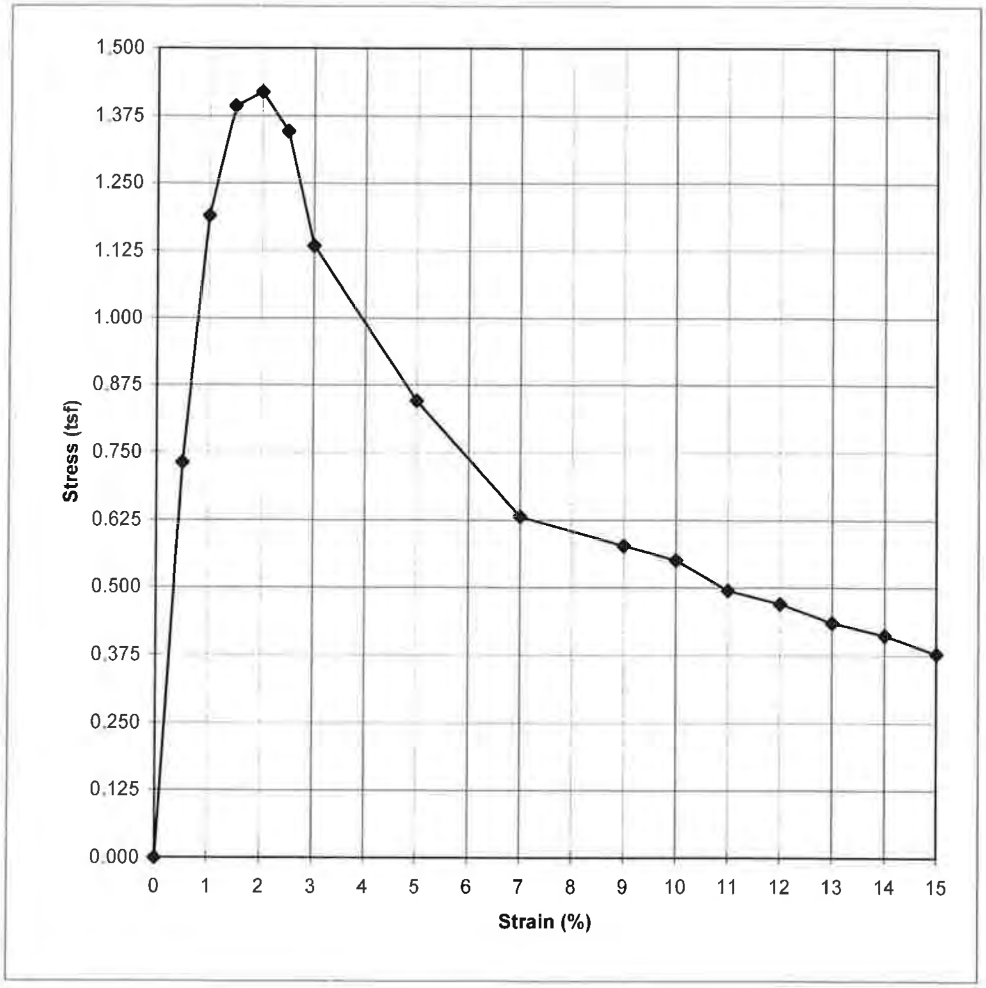

Classification Light Gray, Orange Brown mottled Silty Clay

Boring No. 117 Sample No. Depth (ft.) 16.5-17.0

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.65
Moisture Content (%)	45.5
Natural Density (pcf)	106.9
Dry Density (pcf)	73.5
Maximum Stress (tsf)	1.42
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

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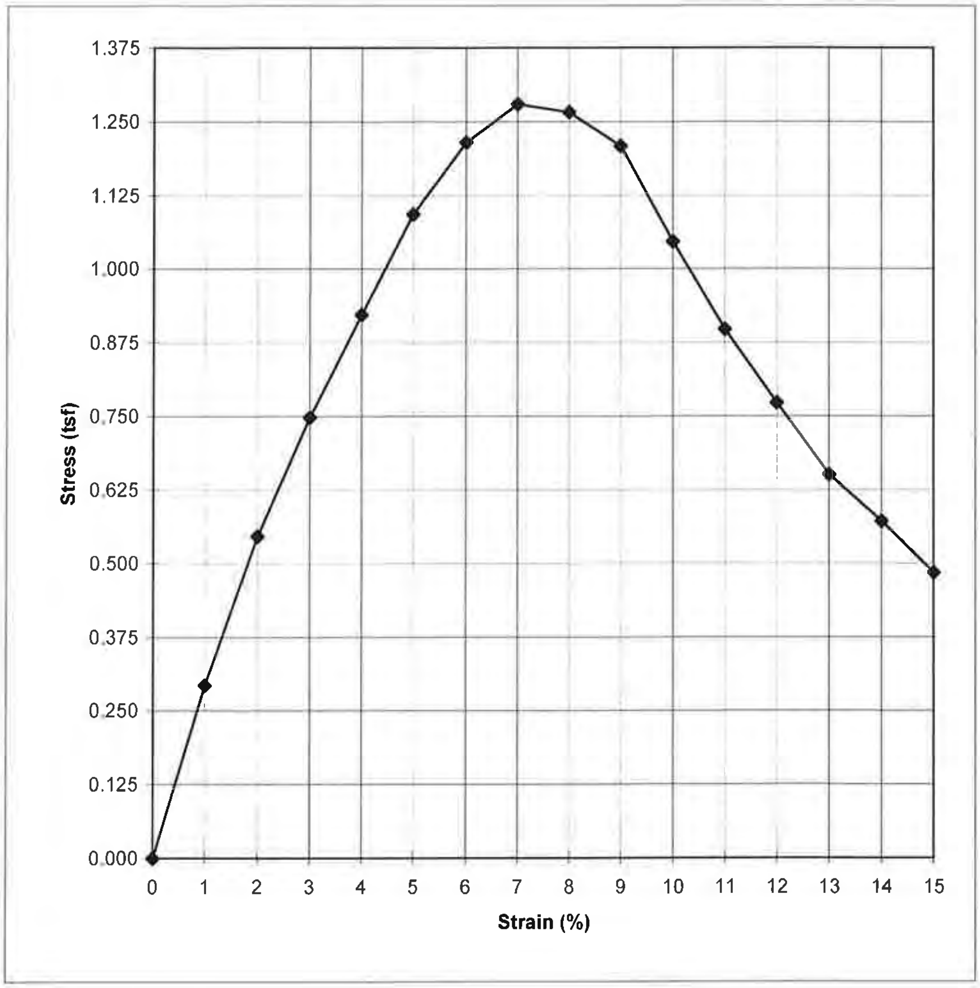

Classification Light Gray Silty Clay

Boring No. 113 Sample No. Depth (ft.) 22.5-23.0

Initial Specimen Properties:

Diameter (in.)	2.78
Height (in.)	5.22
Moisture Content (%)	43.7
Natural Density (pcf)	101.0
Dry Density (pcf)	70.3
Maximum Stress (tsf)	1.28
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

CONTROLLED STRAIN

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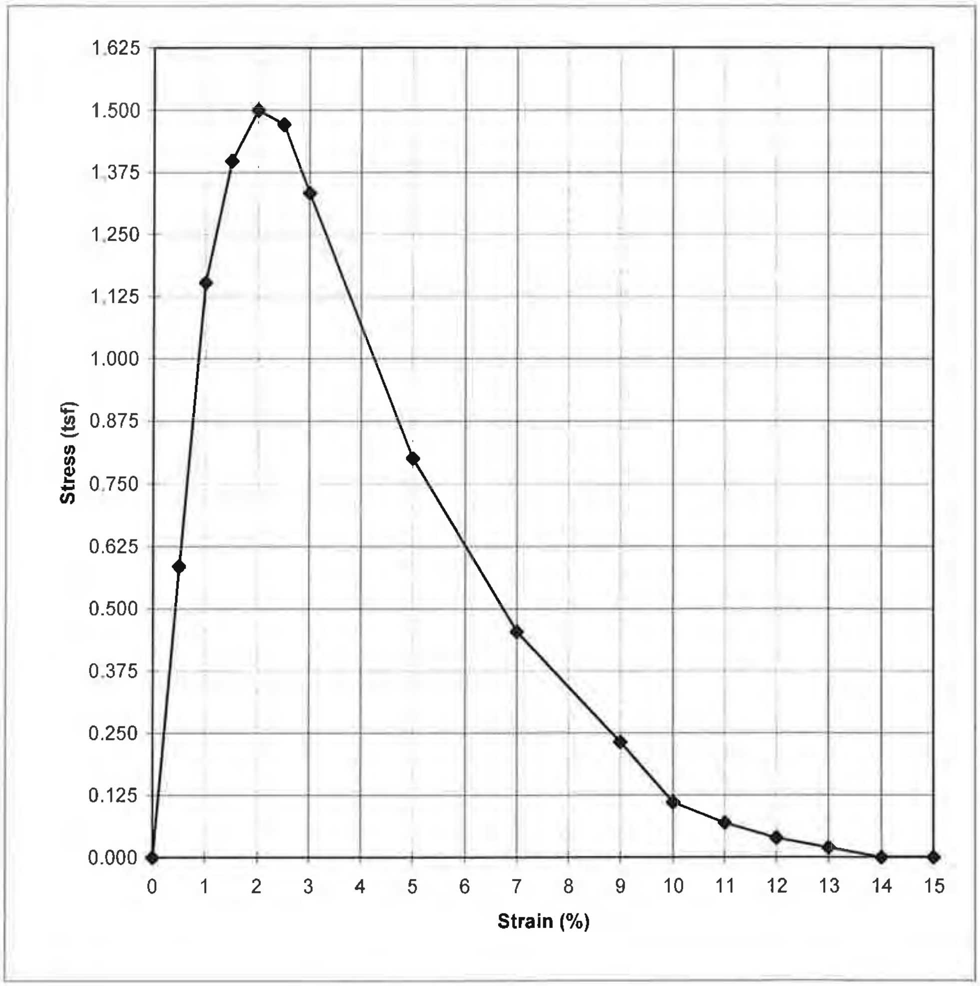

Classification	Light Gray Silty Clay				
Boring No.	111	Sample No.		Depth (ft.)	21.5-22.0

Initial Specimen Properties:

Diameter (in.)	2.88
Height (in.)	5.66
Moisture Content (%)	50.4
Natural Density (pcf)	106.4
Dry Density (pcf)	70.7
Maximum Stress (tsf)	1.50
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166
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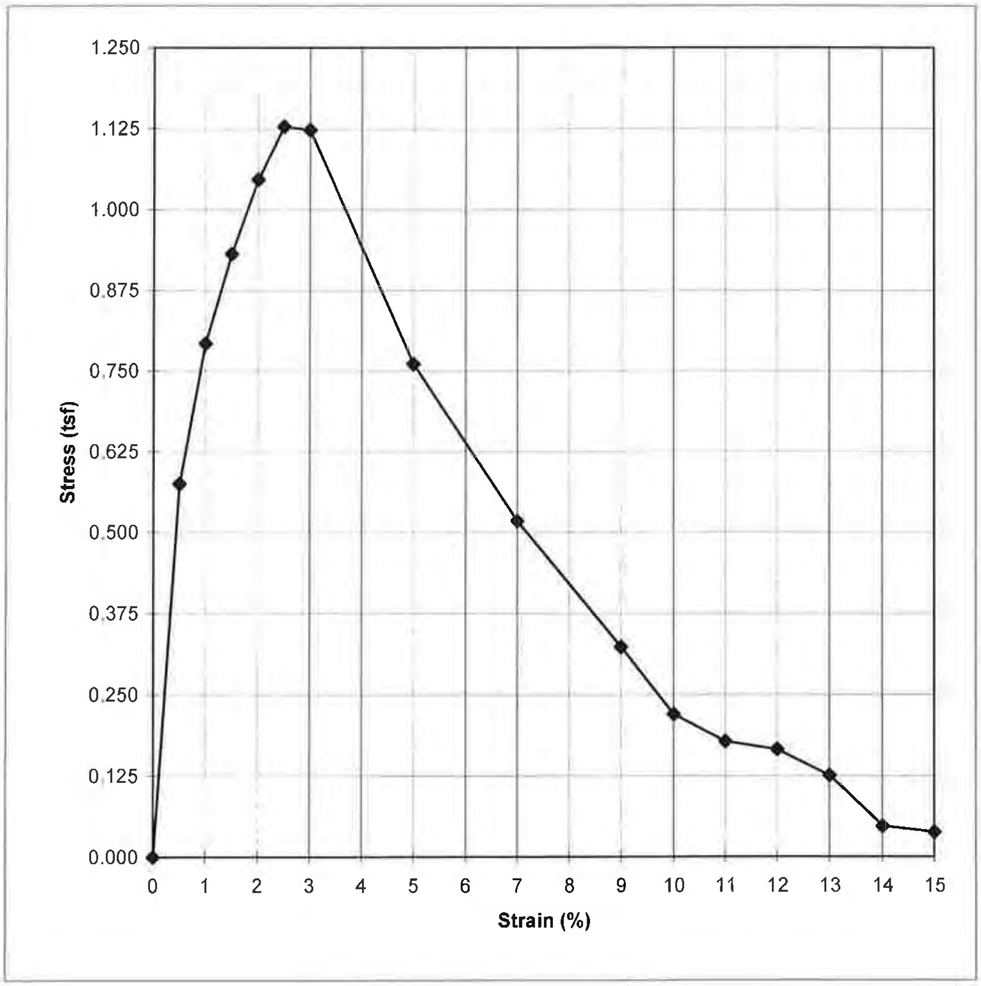

Classification Light Gray, Orange Brown mottled Silty Clay

Boring No. 108 Sample No. Depth (ft.) 16.5-17.0

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.60
Moisture Content (%)	51.8
Natural Density (pcf)	103.7
Dry Density (pcf)	68.3
Maximum Stress (tsf)	1.13
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166

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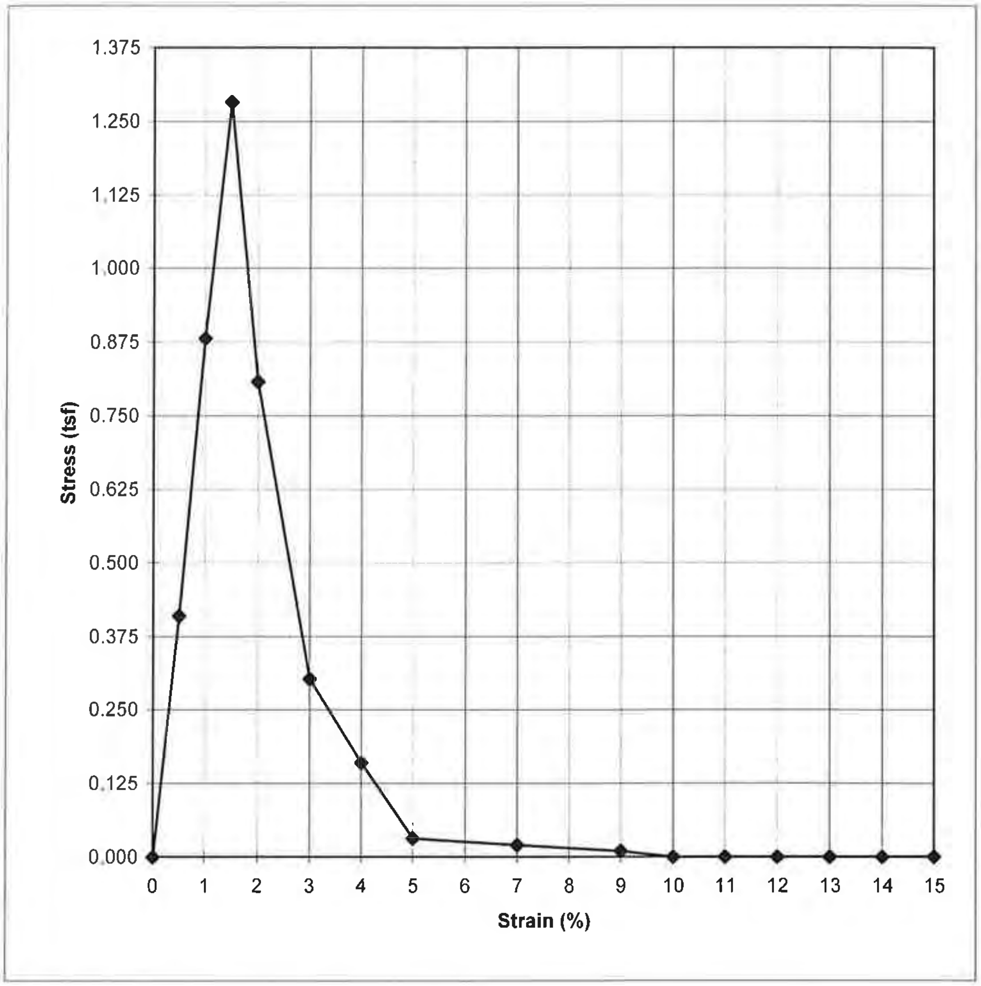

Classification	Light Gray, Orange Brown mottled Silty Clay				
Boring No.	29	Sample No.		Depth (ft.)	26.0-26.5

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.70
Moisture Content (%)	64.0
Natural Density (pcf)	98.0
Dry Density (pcf)	59.7
Maximum Stress (tsf)	1.28
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

UNCONFINED COMPRESSION TEST ASTM D2166
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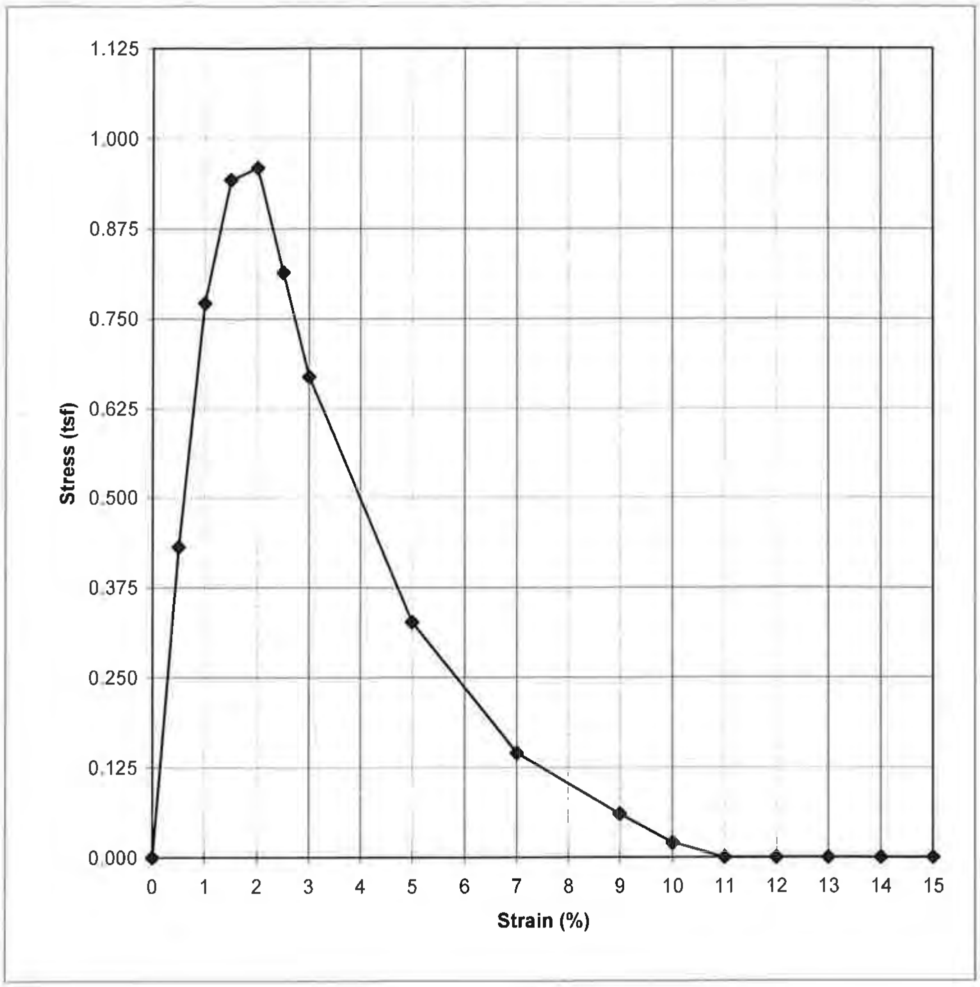

Classification	Light Gray, Orange Brown mottled Silty Clay				
Boring No.	24	Sample No.		Depth (ft.)	16.5-17.0

Initial Specimen Properties:

Diameter (in.)	2.87
Height (in.)	5.62
Moisture Content (%)	50.5
Natural Density (pcf)	106.0
Dry Density (pcf)	70.4
Maximum Stress (tsf)	0.96
Strain Rate %	1.3

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJECT NO.: 1M-0907010

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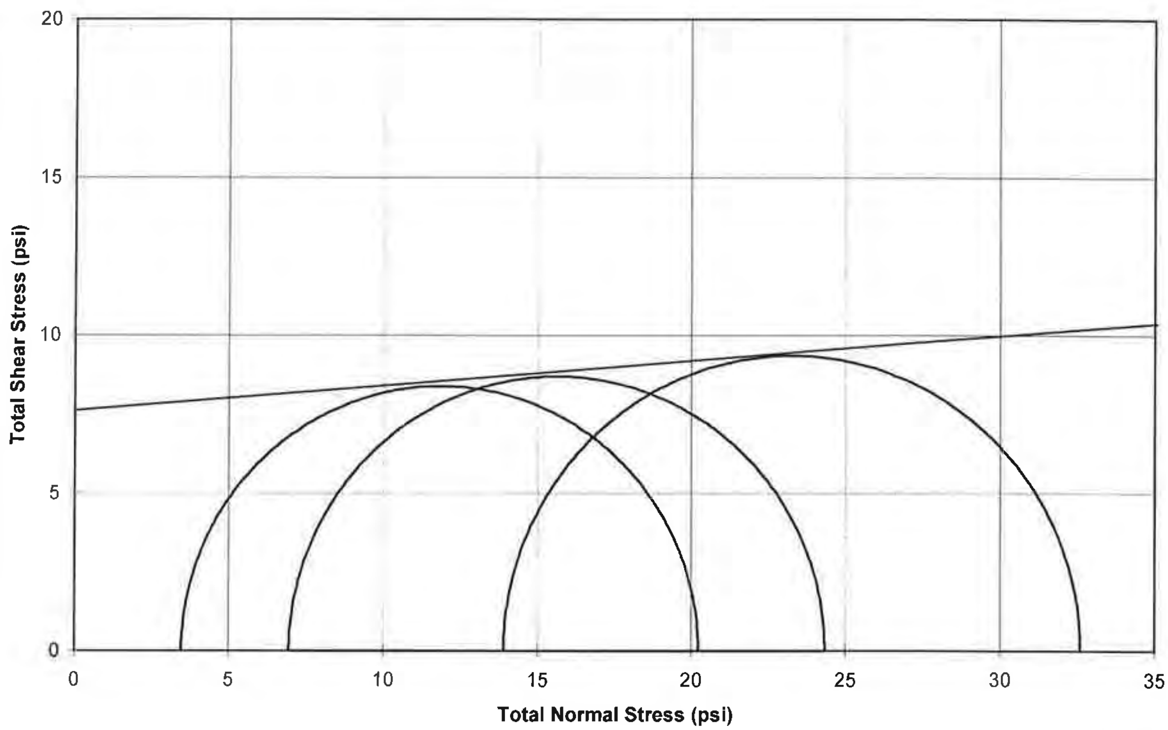
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	22	Sample No.	
		Depth (ft.)	16.5-17.0
		Initial Specimen Properties:	
		Height (in.)	5.59
		Diameter (in.)	2.87
PROJECT:	Lab Testing	Moisture Content (%)	43.7
		Natural Density (pcf)	109.9
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	76.5
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	7.65 / 1101.6
		PHI (degrees)	5

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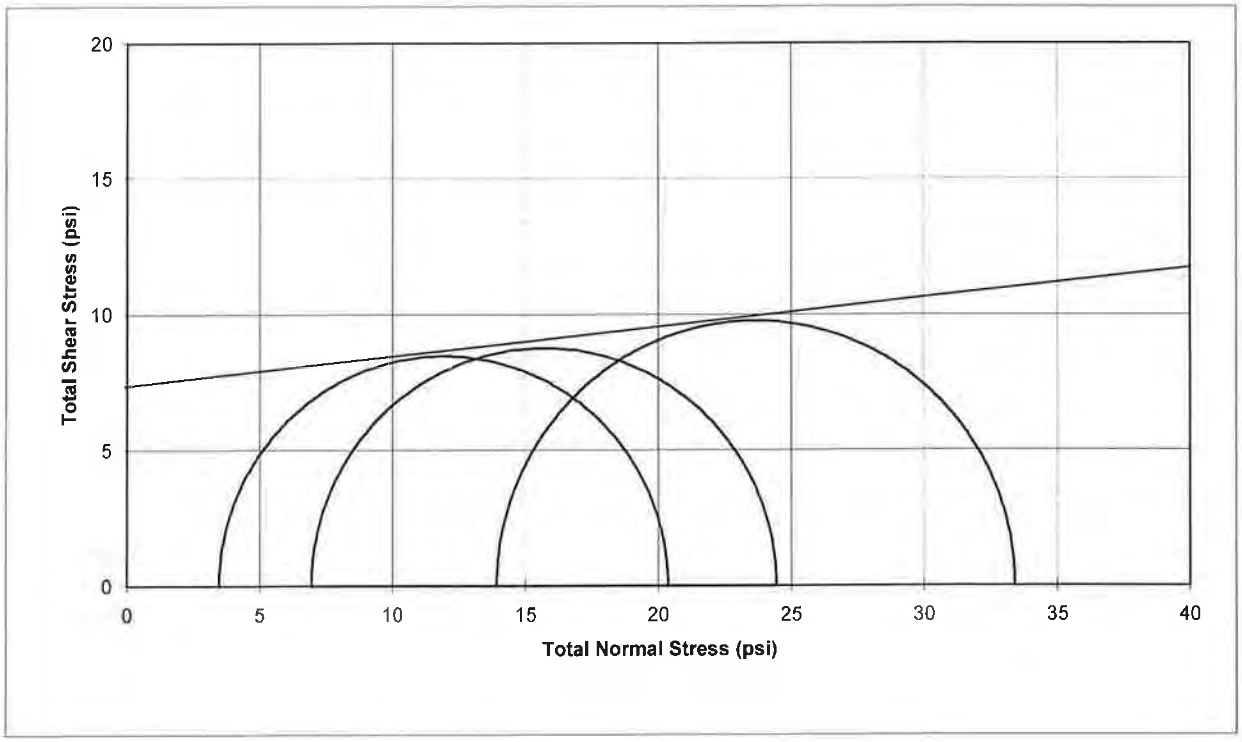
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	124	Sample No.	
		Depth (ft.)	18.5-19
		Initial Specimen Properties:	
		Height (in.)	5.67
		Diameter (in.)	2.87
PROJECT:	Lab Testing	Moisture Content (%)	40.0
		Natural Density (pcf)	107.0
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	76.5
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	7.52 / 1082.9
		PHI (degrees)	6

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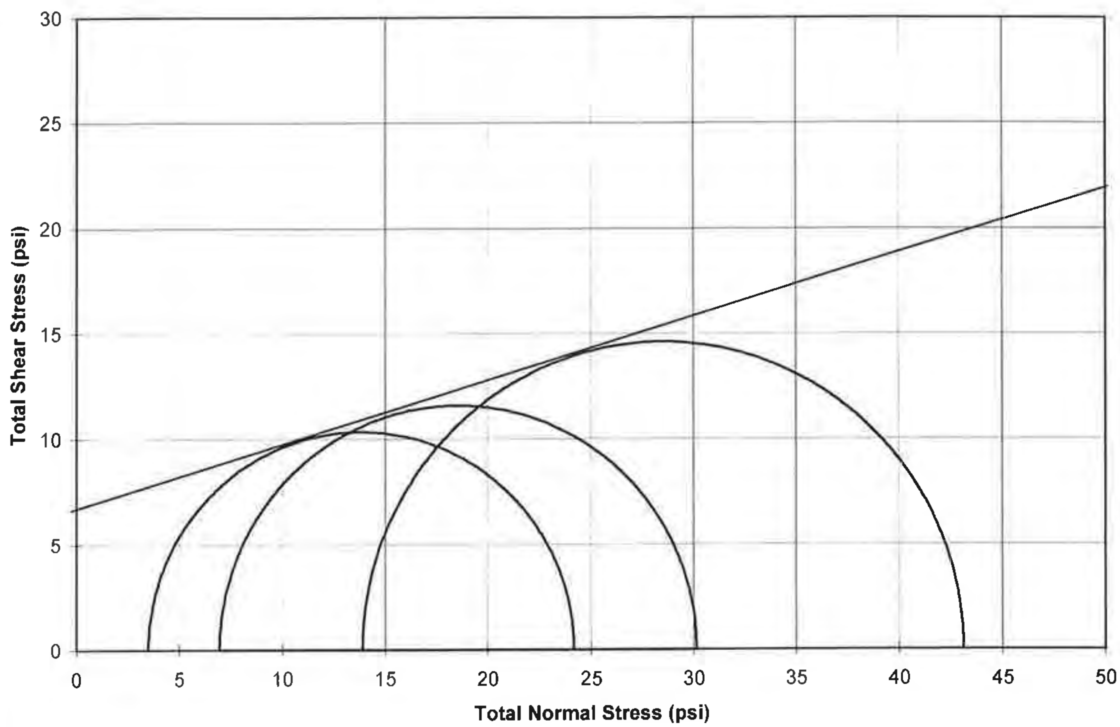
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	121	Sample No.	
		Depth (ft.)	5-5.5
		Initial Specimen Properties:	
		Height (in.)	5.59
		Diameter (in.)	2.85
PROJECT:	Lab Testing	Moisture Content (%)	33.8
		Natural Density (pcf)	113.5
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	84.8
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	6.62 / 953.3
		PHI (degrees)	17

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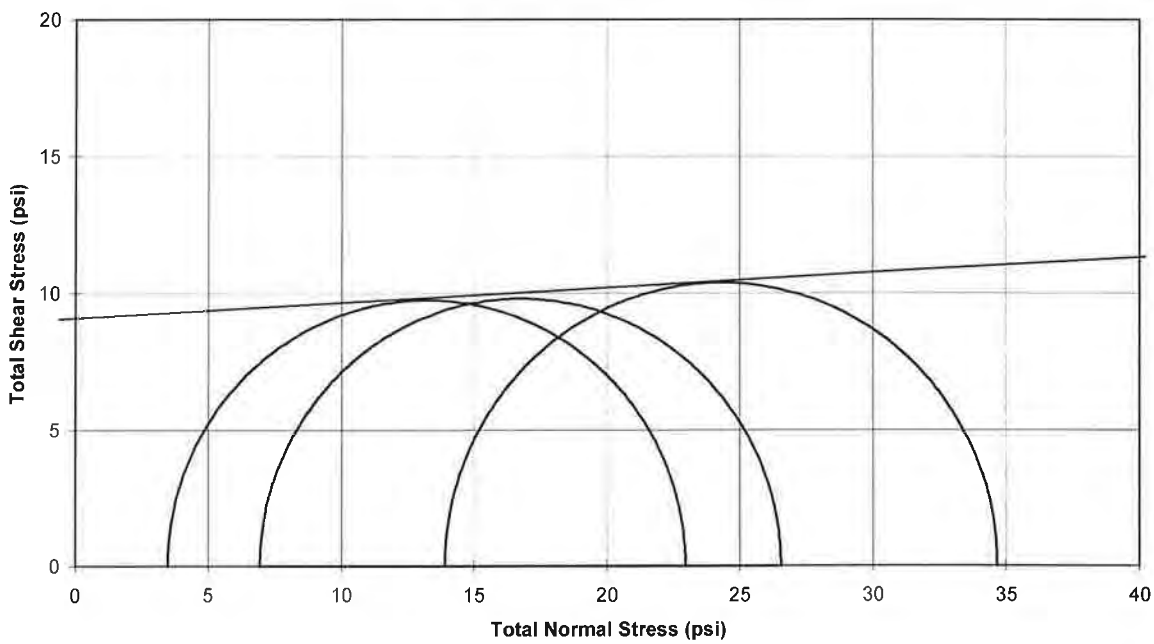
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	117	Sample No.	
		Depth (ft.)	16-16.5
		Initial Specimen Properties:	
		Height (in.)	5.46
		Diameter (in.)	2.88
PROJECT:	Lab Testing	Moisture Content (%)	44.6
		Natural Density (pcf)	107.0
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	74.0
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	9.2 / 1324.8
		PHI (degrees)	3

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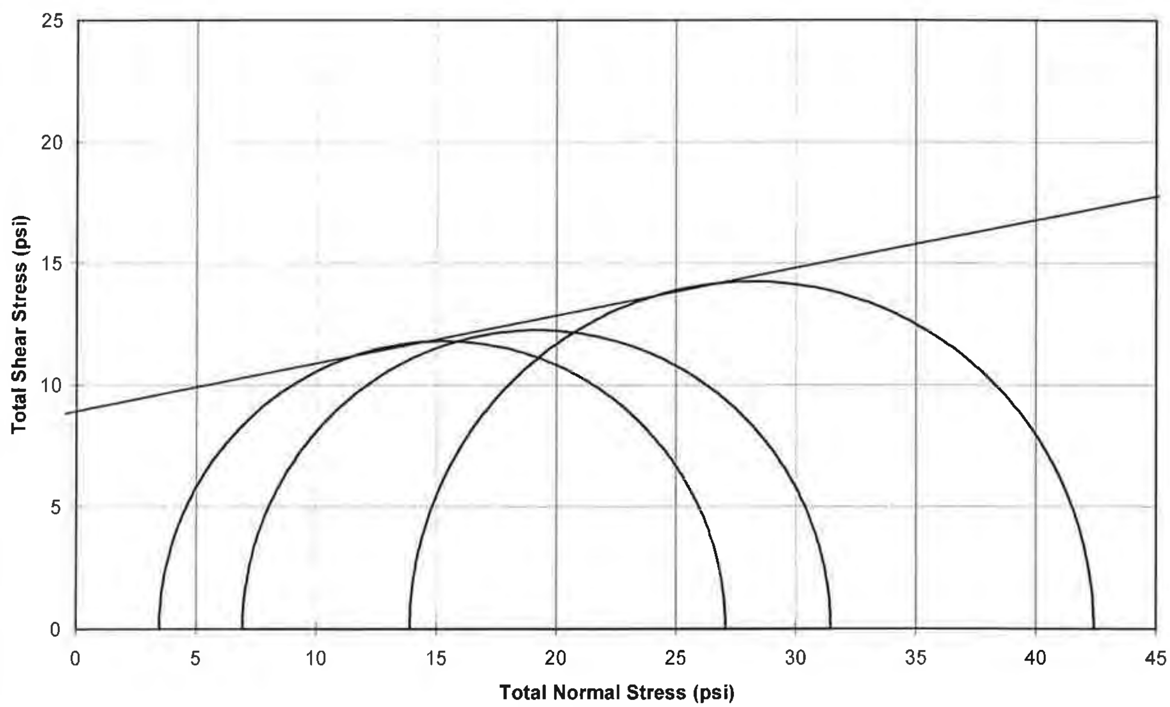
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	29	Sample No.	
		Depth (ft.)	26.5-27
		Initial Specimen Properties:	
		Height (in.)	5.88
		Diameter (in.)	2.88
PROJECT:	Lab Testing	Moisture Content (%)	62.2
		Natural Density (pcf)	93.8
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	57.8
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	8.28 / 1192.3
		PHI (degrees)	12

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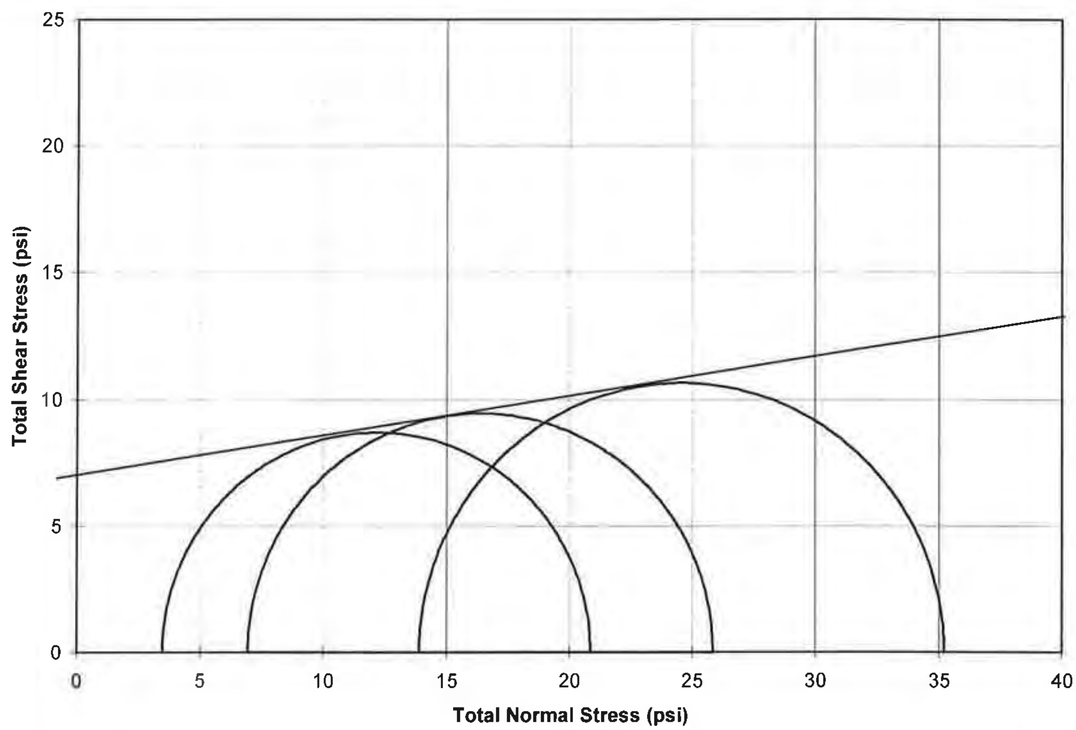
SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray Silty Clay, some Sand and Gravel		
Boring No.	28	Sample No.	Depth (ft.) 15.5-16
		Initial Specimen Properties:	
		Height (in.)	5.60
		Diameter (in.)	2.88
PROJECT:	Lab Testing	Moisture Content (%)	23.7
		Natural Density (pcf)	123.5
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	99.9
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	7.0 / 1006.0
		PHI (degrees)	9

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SHEAR TEST

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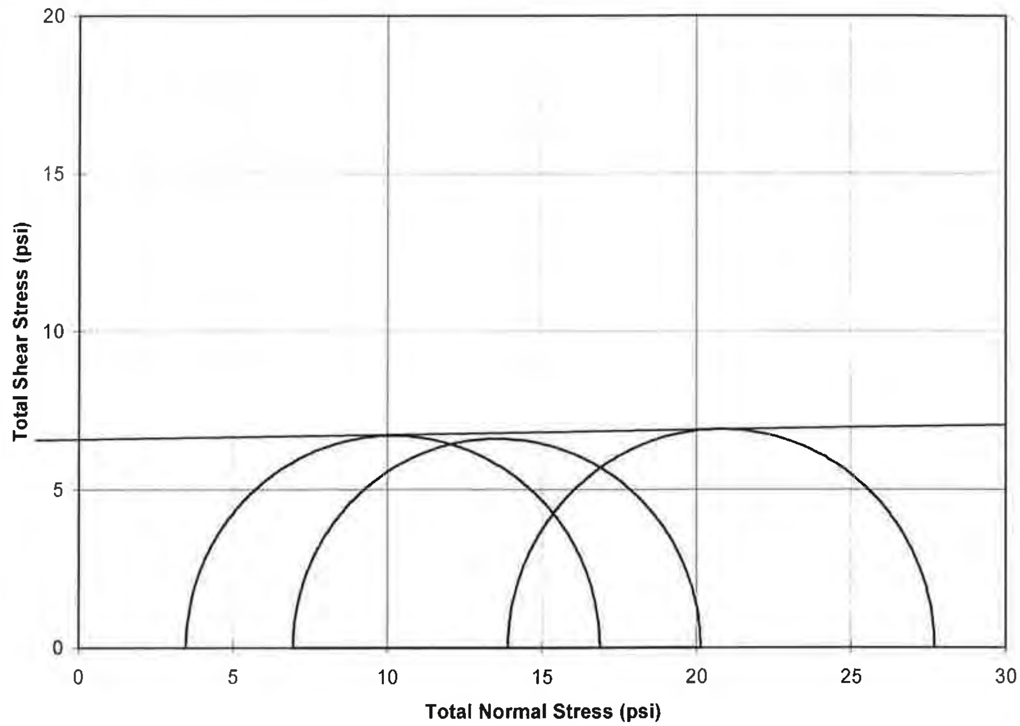

Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	24	Sample No.	
		Depth (ft.)	15.5-16
		Initial Specimen Properties:	
		Height (in.)	5.66
		Diameter (in.)	2.87
PROJECT:	Lab Testing	Moisture Content (%)	51.8
		Natural Density (pcf)	105.4
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	69.5
		LL	---
PROJECT NO.:	1M-0907010	PL	---
		C (psi/psf)	6.62 / 953.3
		PHI (degrees)	1

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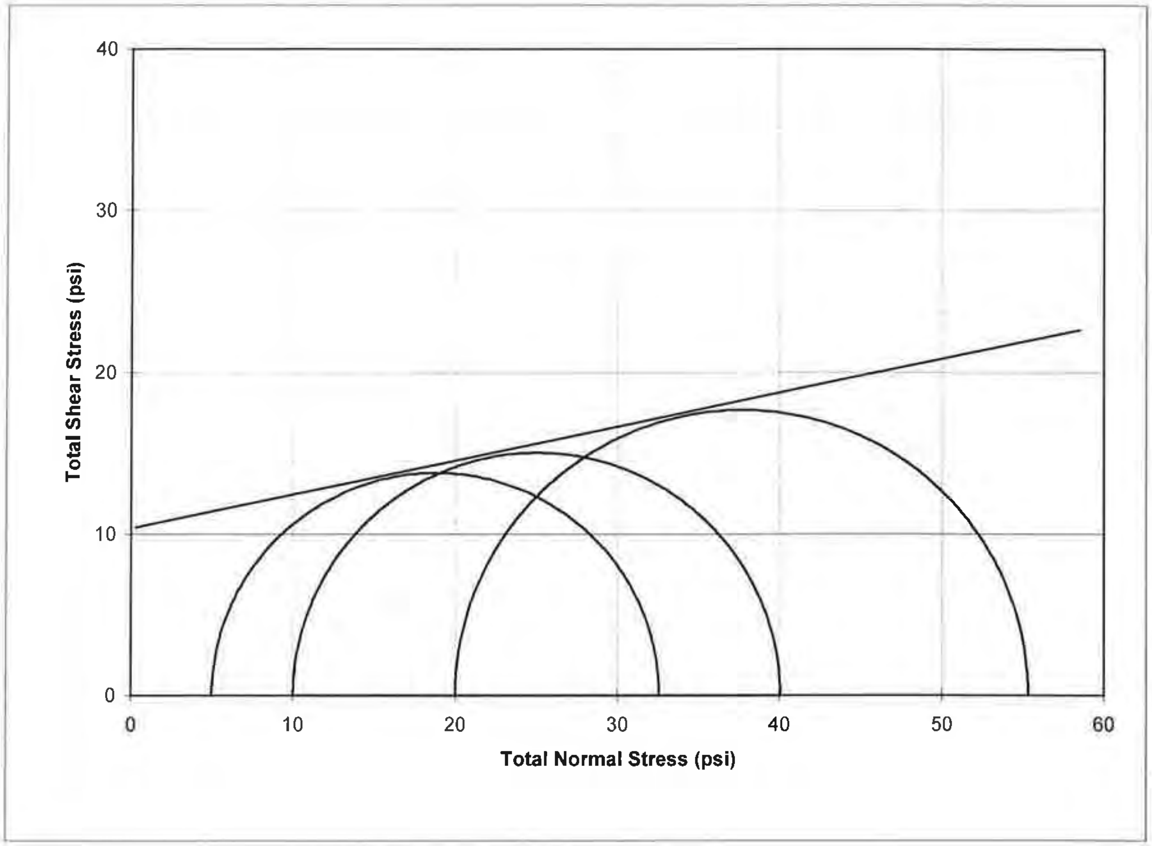
Unconsolidated Undrained (ASTM D2850)



Classification	Gray Sandy Clay		
Boring No.	C-2	Sample No.	Depth (ft.) 10-12
		Initial Specimen Properties:	
		Height (in.)	5.61
		Diameter (in.)	2.87
PROJECT:	Alachua Project	Moisture Content (%)	29.1
		Natural Density (pcf)	119.0
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	92.2
		LL	63
PROJECT NO.:	1M-0805046	PL	19
		Percent Passing No. 200	50.6
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	10.3 / 1483.2
		PHI (degrees)	12

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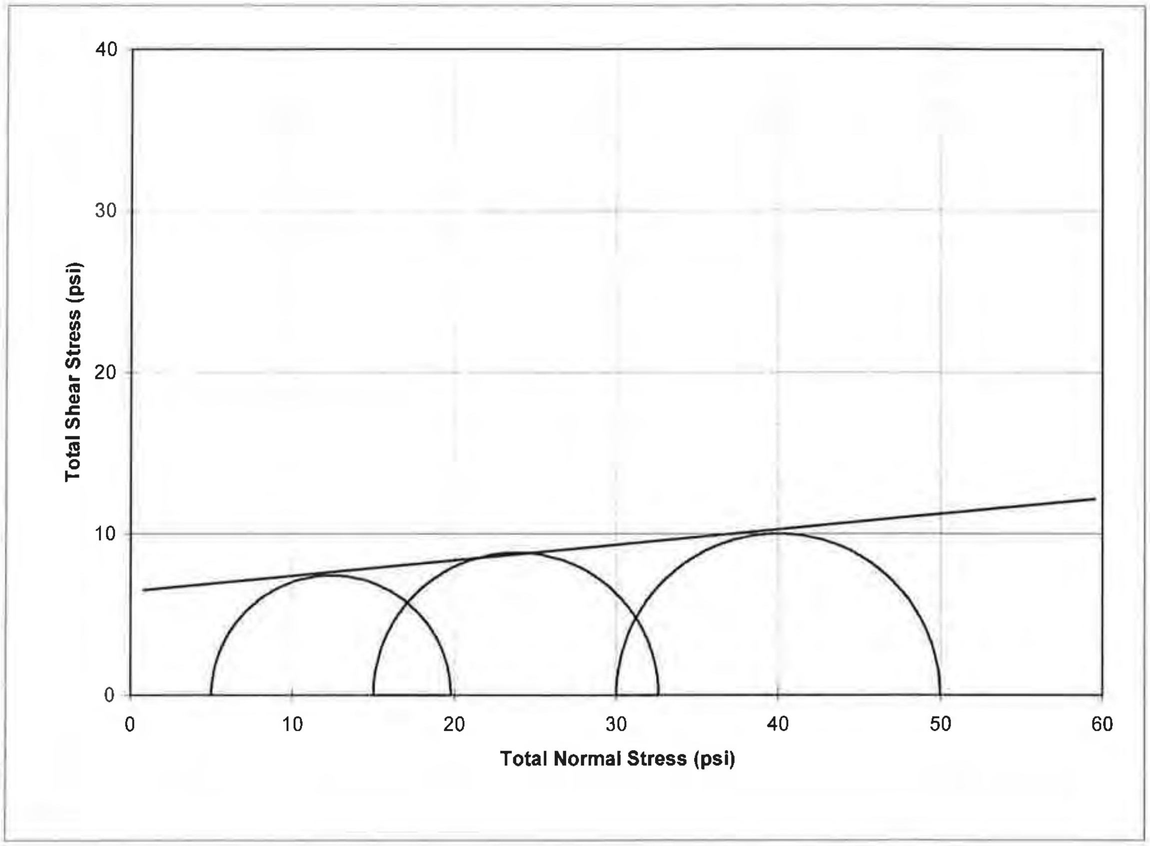

Classification	Gray Clay		
Boring No.	C-10	Sample No.	
		Depth (ft.)	15-17
		Initial Specimen Properties:	
		Height (in.)	5.62
		Diameter (in.)	2.88
PROJECT:	Alachua Project	Moisture Content (%)	53.0
		Natural Density (pcf)	104.2
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	68.1
		LL	155
PROJECT NO.:	1M-0805046	PL	31
		Percent Passing No. 200	92.3
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	6.4 / 921.6
		PHI (degrees)	6

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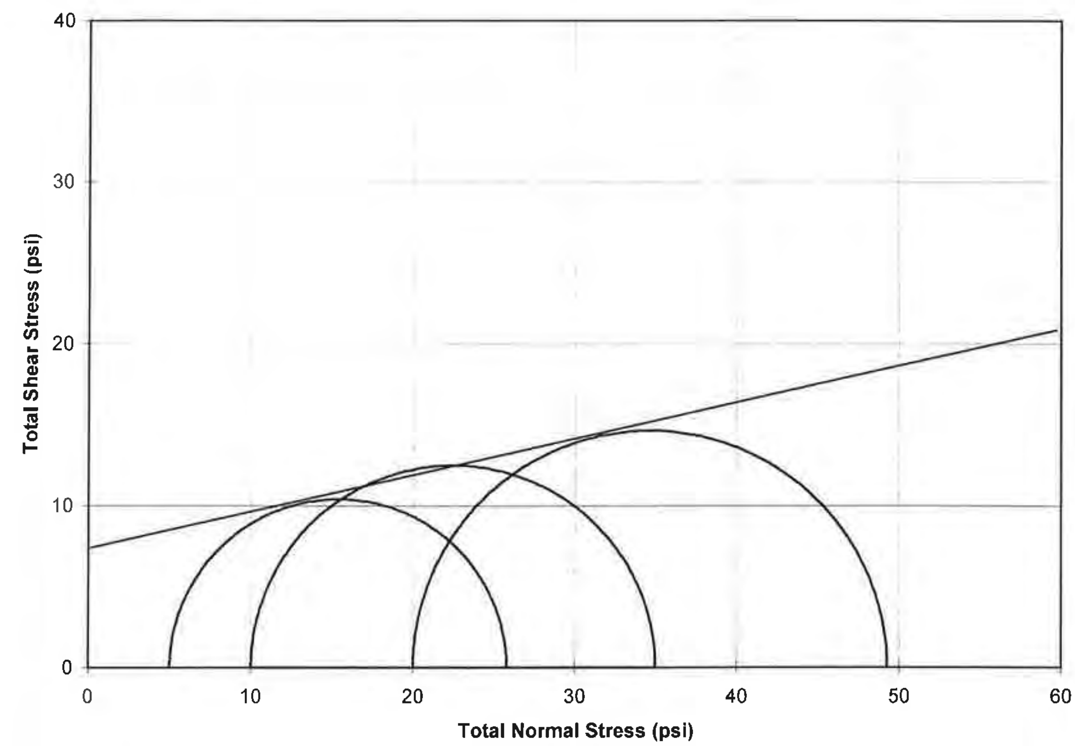

Classification	Gray and Yellow Brown Clay, trace Sand		
Boring No.	C-19 Sample No.	Depth (ft.)	10-12
		Initial Specimen Properties:	
		Height (in.)	5.60
		Diameter (in.)	2.85
PROJECT:	Alachua Project	Moisture Content (%)	43.9
		Natural Density (pcf)	109.1
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	75.8
		LL	122
PROJECT NO.:	1M-0805046	PL	23
		Percent Passing No. 200	83.9
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	7.3 / 1051.2
		PHI (degrees)	13

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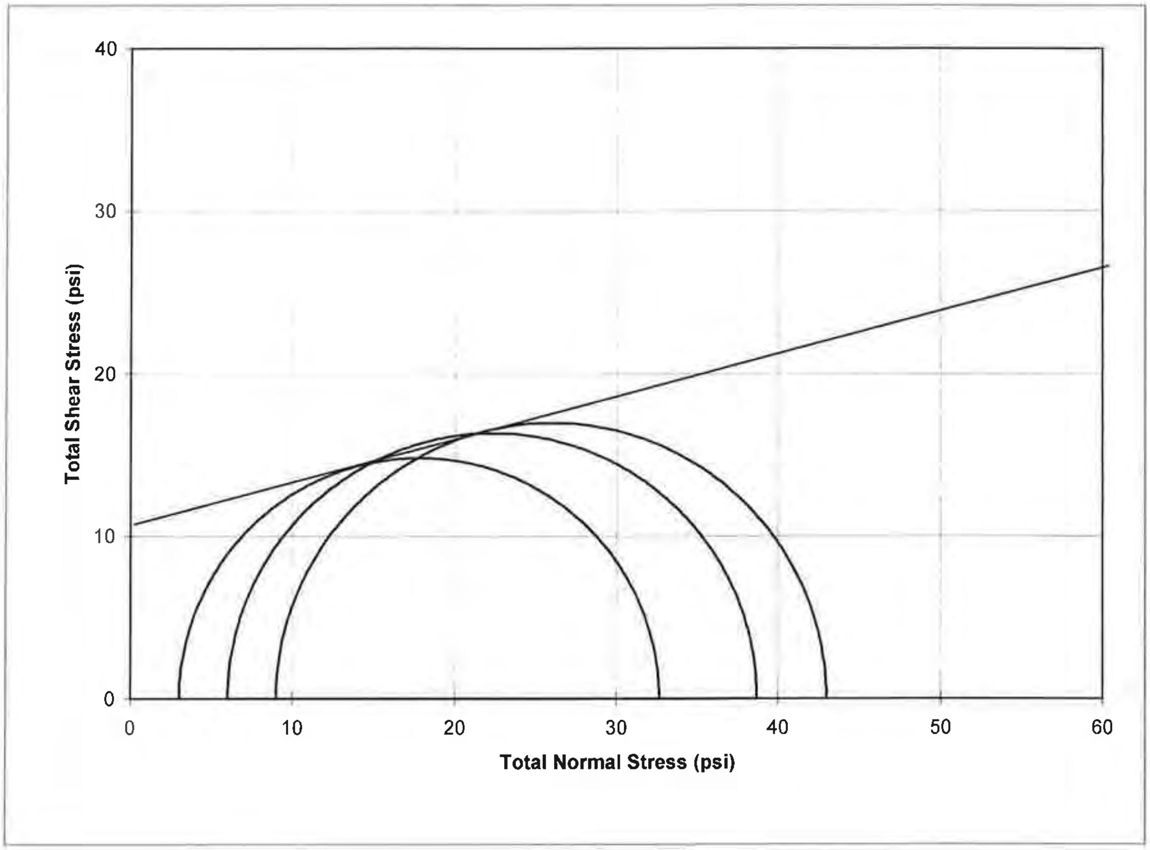

Classification	Yellow Brown Sandy Clay		
Boring No.	W-3 Sample No.	Depth (ft.)	17-19
		Initial Specimen Properties:	
		Height (in.)	5.55
		Diameter (in.)	2.85
PROJECT:	Alachua Project	Moisture Content (%)	26.0
		Natural Density (pcf)	120.6
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	95.7
		LL	74
PROJECT NO.:	1M-0805046	PL	17
		Percent Passing No. 200	51.6
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	10.4 / 1497.6
		PHI (degrees)	15.5

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SHEAR TEST

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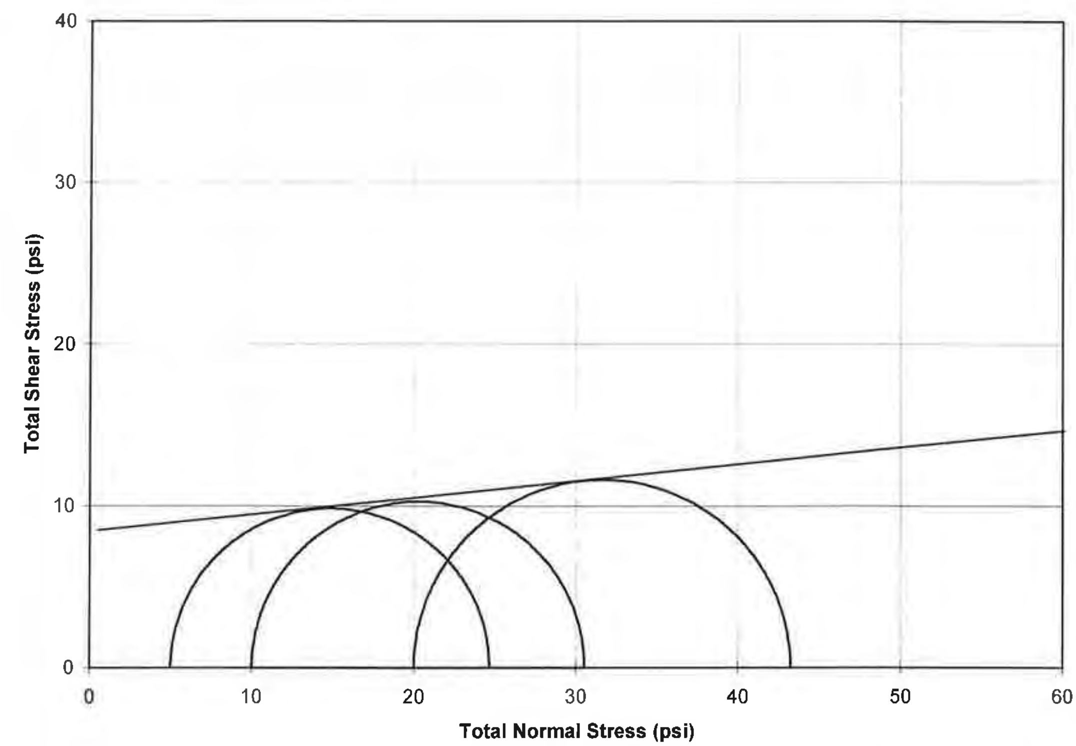

Classification	Yellow Brown and Gray Clay, little Sand		
Boring No.	W-5 Sample No.	Depth (ft.)	5-7
		Initial Specimen Properties:	
		Height (in.)	5.61
		Diameter (in.)	2.76
PROJECT:	Alachua Project	Moisture Content (%)	45.5
		Natural Density (pcf)	108.3
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	74.5
		LL	126
PROJECT NO.:	1M-0805046	PL	31
		Percent Passing No. 200	82.7
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	8.4 / 1209.6
		PHI (degrees)	6.5

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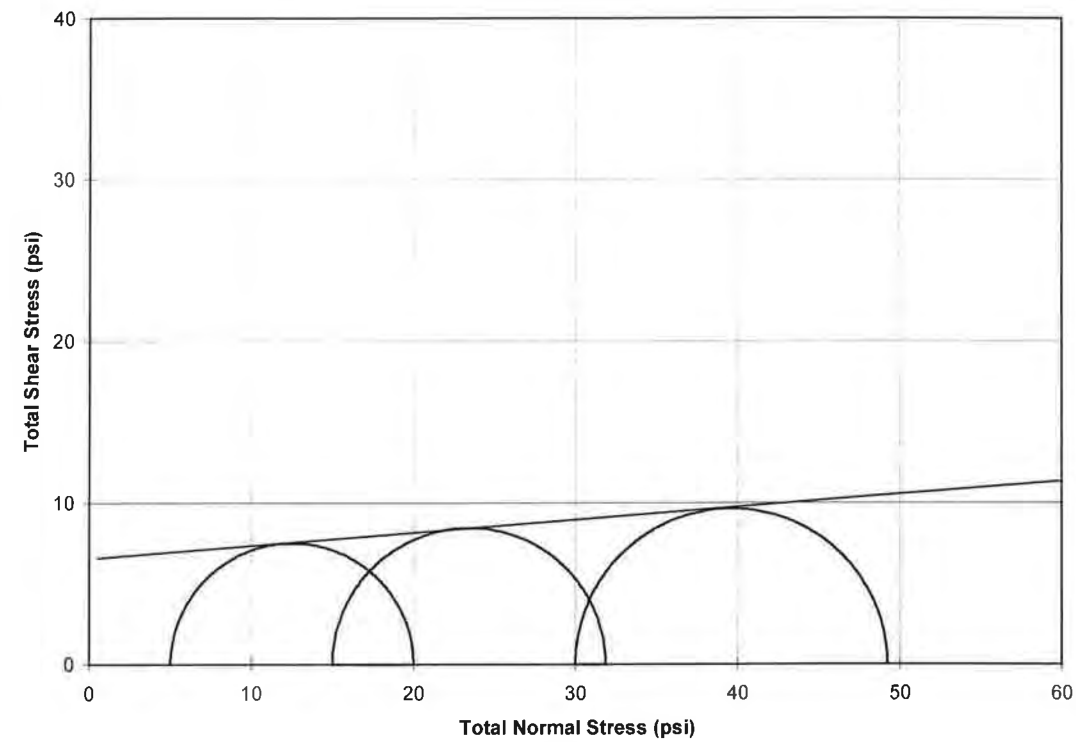
GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

N8 W22350 JOHNSON ROAD, SUITE A1/WAUKESHA, WI 53186/(262) 544-0118/FAX: (262) 549-5868

ATLANTA, GA / DALLAS, TX / ANAHEIM, CA / COLUMBIA, MD / SANFORD, FL

SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Gray and Yellow Brown Clay, trace Sand		
Boring No.	W-20	Sample No.	Depth (ft.)
			10-12
		Initial Specimen Properties:	
		Height (in.)	5.60
		Diameter (in.)	2.87
PROJECT:	Alachua Project	Moisture Content (%)	56.7
		Natural Density (pcf)	102.2
CLIENT:	Universal Engineering Sciences	Dry Density (pcf)	65.2
		LL	162
PROJECT NO.:	1M-0805046	PL	31
		Percent Passing No. 200	94.1
		Rate of Axial Strain (in/min)	0.4
		C (psi/psf)	6.7 964.8
		PHI (degrees)	4.5

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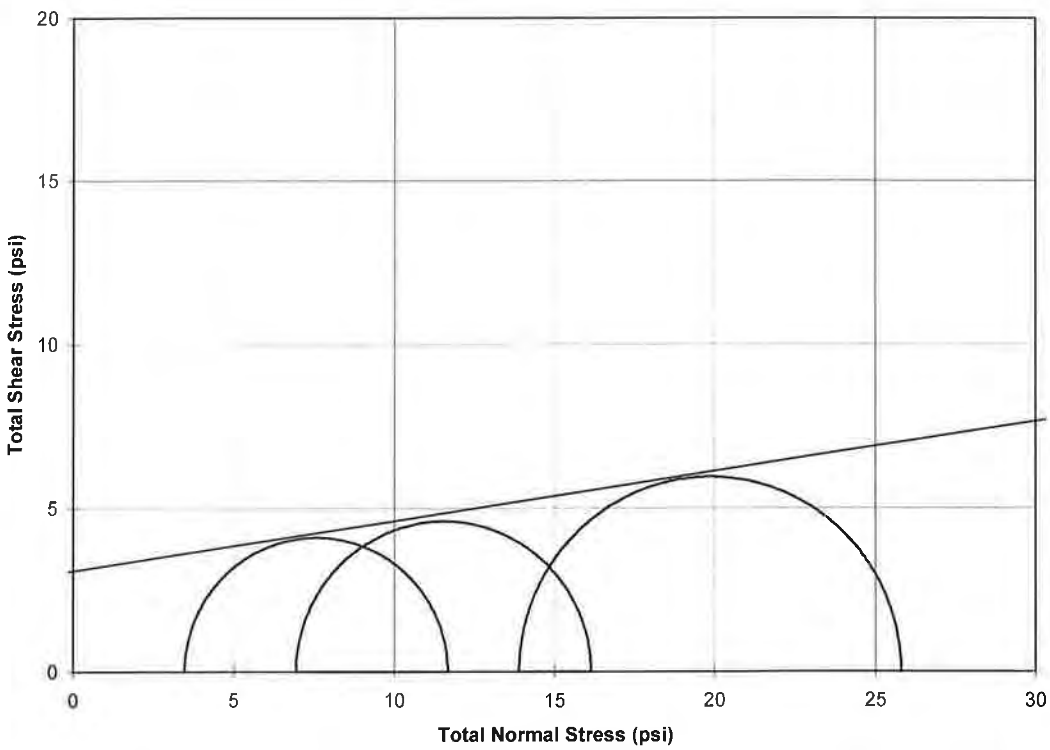
ATLANTA, GA / DALLAS, TX / ANAHEIM, CA / COLUMBIA, MD / SANFORD, FL

SHEAR TEST

Unconsolidated Undrained (ASTM D2850)



Classification	Light Gray, Orange Brown mottled Silty Clay			
Boring No.	108	Sample No.		Depth (ft.) 15.5-16
			Initial Specimen Properties:	
			Height (in.)	5.63
			Diameter (in.)	2.87
PROJECT:	Lab Testing		Moisture Content (%)	45.2
			Natural Density (pcf)	103.4
CLIENT:	Universal Engineering Sciences		Dry Density (pcf)	71.2
			LL	---
PROJECT NO.:	1M-0907010		PL	---
			C (psi/psf)	3.12 / 449.3
			PHI (degrees)	9

CONSOLIDATION TEST RESULTS

PROJECT NO: 0795.1000100
REPORT NO: 863725
PAGE NO:

Project : Proposed MSE Wall -Park and Ride Lot

Client: CPH Engineers | Date: October, 2010

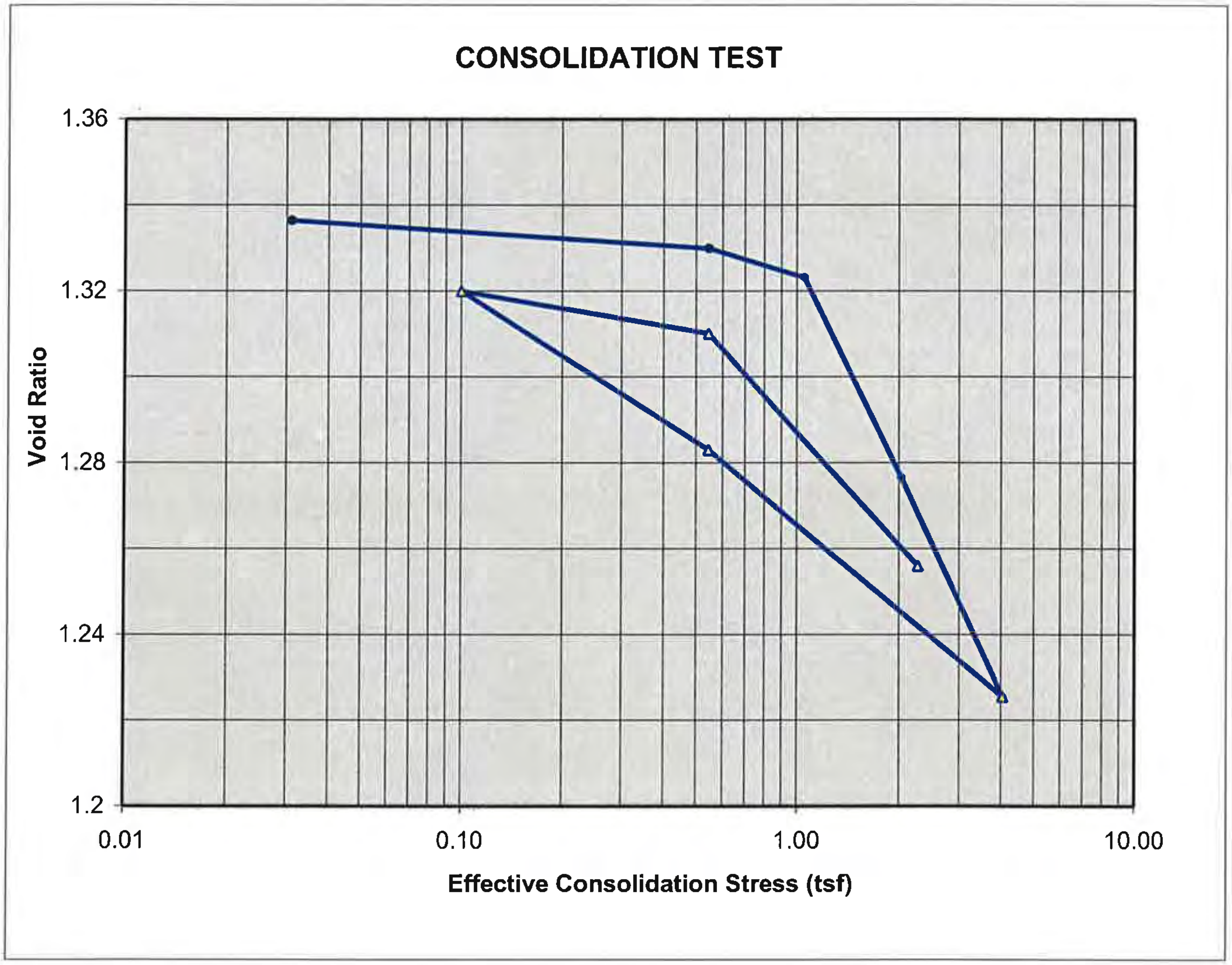
Boring Number: W-22 | Sample Number: ST-1 | Depth: 20"

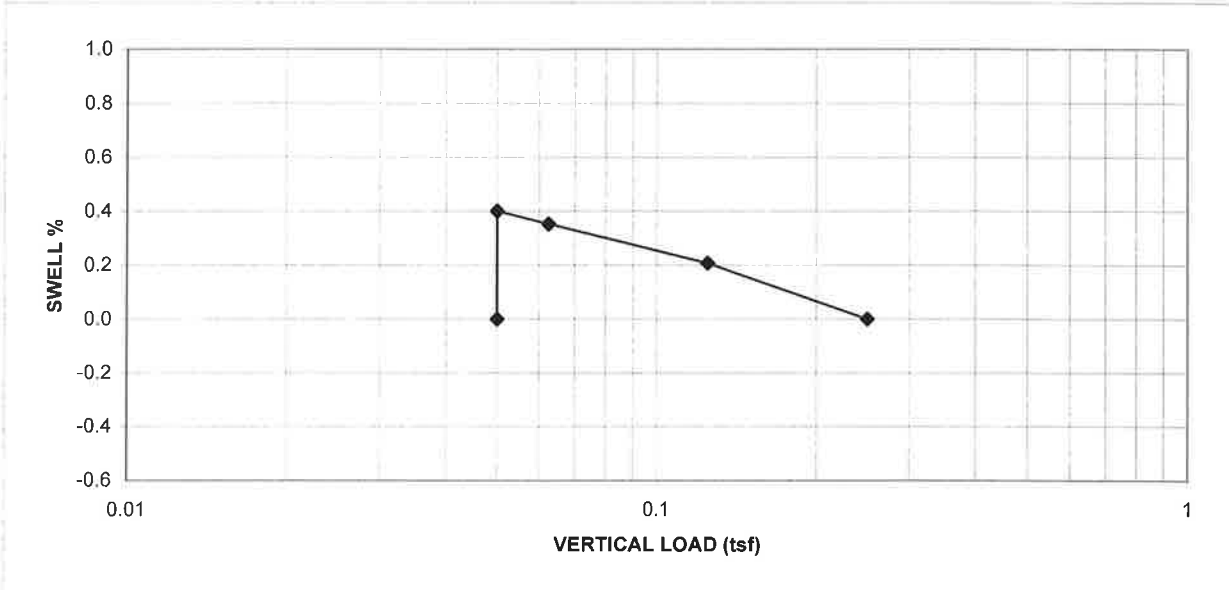
Sample Description: Green and Orange Clay

Liquid Limit (%): 96% | Specific Gravity: 2.65 | Dry Unit Weight (pcf): 66.1

Plasticity Index (%): 64 % | Compression Index (Cc): 0.17 | Recompression Index (Cr): 0.04

Nat.Water Content (%): 59% | Overburden Pressure (tsf): 1.05 | Preconsol. Pressure (tsf): 1.10





Classification	Gray and Yellow Brown Clay		
Boring No.	101		
Sample No.		Initial Moisture Content (%)	42.9
Depth (ft.)	4-6	Final Moisture Content (%)	44.9
Elevation	±	Natural Density (pcf)	110.1
Liquid Limit	127	Dry Density (pcf)	76.9
Plastic Limit	27	Confining Pressure (psf)	100
Specimen Diameter (in.)	2.5	Reconsolidation Pressure (tsf)	0.25±
Initial Specimen Thickness (in.)	0.625	Free Swell (%)	0.4±

PROJECT: Alachua Project

CLIENT: Universal Engineering Sciences

PROJ. NO.: 1M-0805046

RECONSOLIDATION PRESSURE TEST

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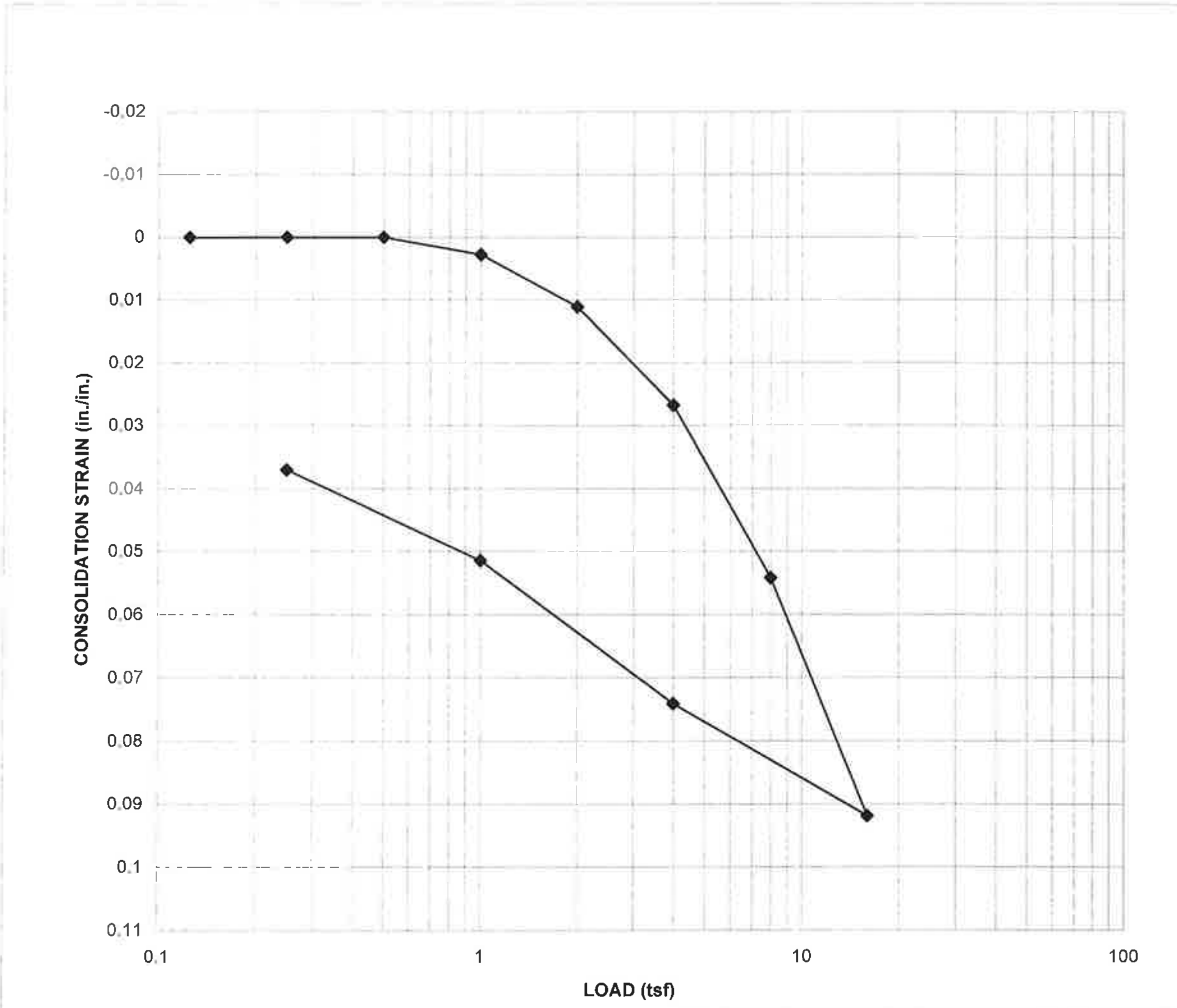
CONSTANT VOLUME SWELL TEST ASTM D4546



Classification	Light Gray Silty Clay		
Boring No.	108	Initial Void Ratio	1.30
Sample No.		Initial/Natural Moisture Content (%)	47.6
Depth (ft.)	16' 10"±	Final Moisture Content (%)	46.6
Elevation	±	Natural Density (pcf)	108.2
Liquid Limit	---	Initial Dry Density (pcf)	73.3
Plastic Limit	---	Final Dry Density (pcf)	85.6
Specific Gravity (assumed)	2.7	Existing Overburden Stress(tsf), Po	
Specimen Diameter (in.)	2.5	Swell Index, Cs	
Initial Specimen Thickness (in.)	1.00	Corrected Swell Pressure (tsf), P'sc	

Project: Lab Testing

Client: Universal Engineering Sciences

Project No.: 1M-0907010

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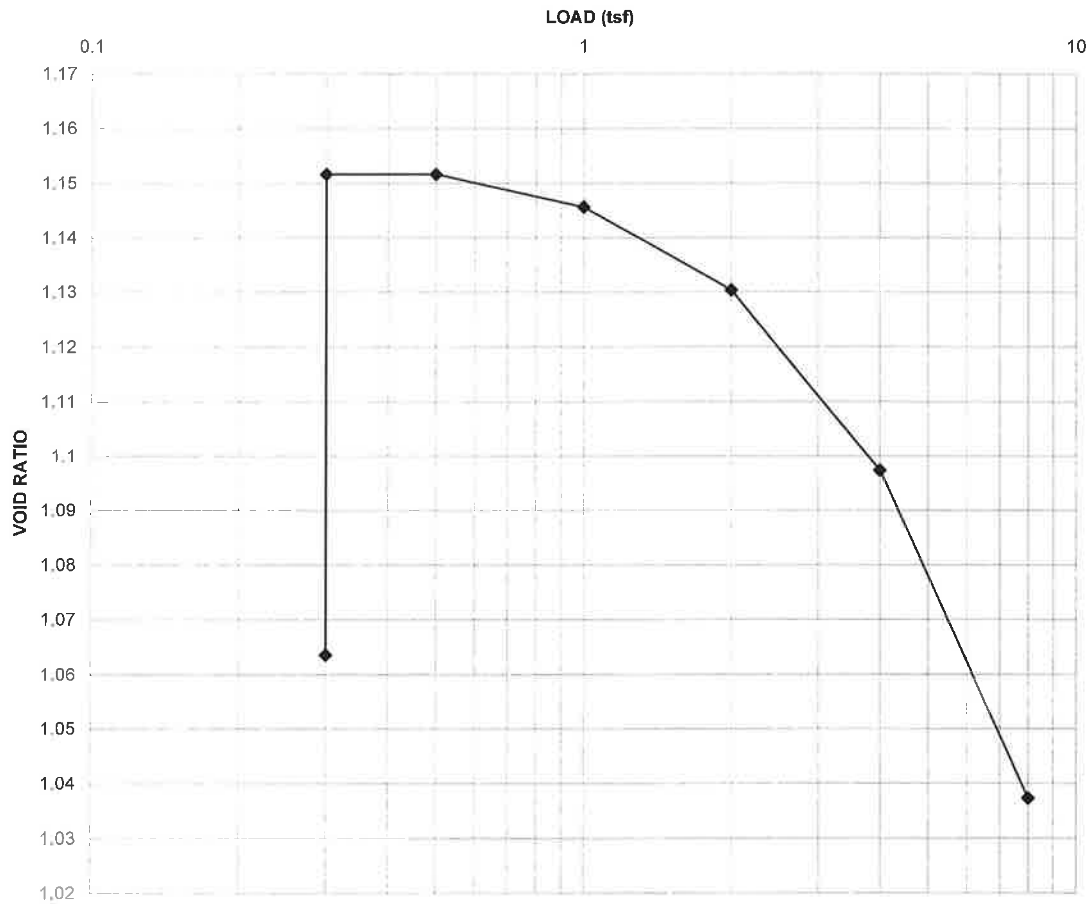
SWELL TEST ASTM D4546



Classification	Light Gray, Orange Brown Silty Clay		
Boring No.	121	Initial Void Ratio	1.063
Sample No.		Initial/Natural Moisture Content (%)	37.8
Depth (ft.)	5.75±	Final Moisture Content (%)	40.7
Elevation	±	Natural Density (pcf)	112.5
Liquid Limit	---	Initial Dry Density (pcf)	81.6
Plastic Limit	---	Final Dry Density (pcf)	93.5
Specific Gravity (assumed)	2.7	Confining Pressure (psf)	600
Specimen Diameter (in.)	2.50		
Initial Specimen Thickness (in.)	1.00		

Project: Lab Testing

Client: Universal Engineering Sciences

Project No.: 1M-0907010

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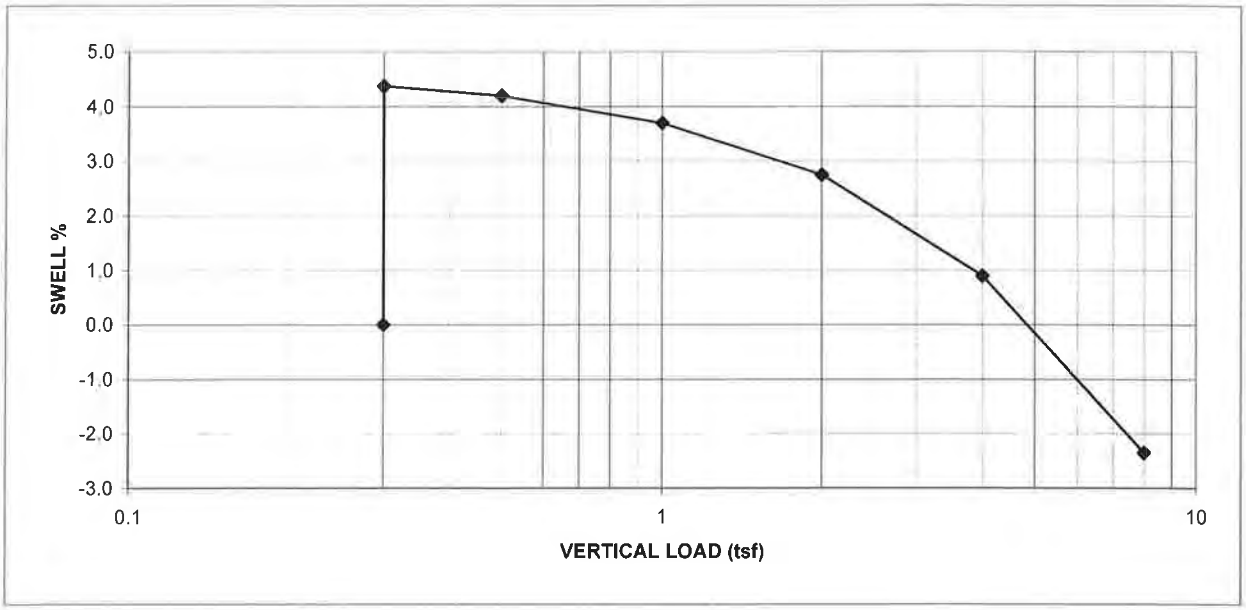

Classification	Light Gray, Orange Brown mottled Silty Clay		
Boring No.	121		
Sample No.		Initial Moisture Content (%)	37.8
Depth (ft.)	5.75	Final Moisture Content (%)	40.7
Elevation	±	Natural Density (pcf)	112.5
Liquid Limit	---	Dry Density (pcf)	81.6
Plastic Limit	---	Confining Pressure (psf)	600
Specimen Diameter (in.)	2.5	Reconsolidation Pressure (tsf)	4.8±
Initial Specimen Thickness (in.)	1.00	Free Swell (%)	4.4±

PROJECT: Lab Testing

CLIENT: Universal Engineering Sciences

PROJ. NO.: 1M-0907010

RECONSOLIDATION PRESSURE TEST

Giles Engineering Associates, Inc.

GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

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UF/IFAS Analytical Services Laboratories
Extension Soil Testing Laboratory

Wallace Building 631 PO Box 110740 Gainesville, FL 32611-0740

Email: soilslab@mail.ifas.ufl.edu Web: soilslab.ifas.ufl.edu Phone #:352-392-1950

Producer Soil Test

For further information contact:

Wilber, Wendy L.
Alachua County Coop Extn Service
2800 NE 39th Ave
Gainesville, FL 32609-2658
Tel: 352-955-2402
Email: wilbewl@ufl.edu

TO: Gowland, Jason
4475 SW 35 Ter
Gainesville, FL 32608
Tel: 352-372-3392

Client Identification: WA-1 Set Number: 5828 Lab Number: 60719

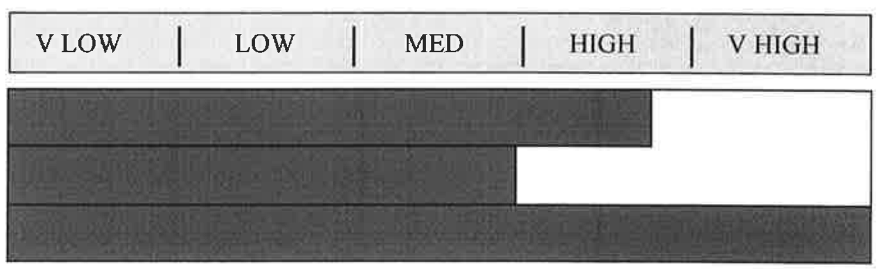
Crop: No Crop Code Specified Report Date: 16-Jun-08

These interpretations and recommendations are based upon soil test results and research/experience with the specified crop under Florida's growing conditions. We do not test soil for N as there is no meaningful soil test for predicting N availability. Thus, the N recommendation was developed from research that measured response of the indicated crop to applied N fertilizer. If you expect significant nutrient release from organic sources such as crop residues or organic amendments, estimate the amount mineralized and subtract that amount from the fertilizer recommendations given below to arrive at crop needs.

SOIL TEST RESULTS AND THEIR INTERPRETATIONS

Target pH:
pH (1:2 Sample:Water) 6.3
A-E Buffer Value: N/A

MEHLICH-1 EXTRACTABLE		
PHOSPHORUS	(ppm P)	52
POTASSIUM	(ppm K)	58
MAGNESIUM	(ppm Mg)	117
CALCIUM	(ppm Ca)	626



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Wallace Building 631 PO Box 110740 Gainesville, FL 32611-0740
Email: soilslab@mail.ifas.ufl.edu Web: soilslab.ifas.ufl.edu Phone #:352-392-1950

Producer Soil Test

For further information contact:
Wilber, Wendy L.
Alachua County Coop Extn Service
2800 NE 39th Ave
Gainesville, FL 32609-2658
Tel: 352-955-2402
Email: wilbewl@ufl.edu

TO: Gowland, Jason
4475 SW 35 Ter
Gainesville, FL 32608
Tel: 352-372-3392

LIME AND FERTILIZER RECOMMENDATIONS

Crop:	No Crop Code Specified	
Lime:		
Nitrogen:		
Phosphorus: (P_2O_5)		
Potassium: (K_2O)		
Magnesium: (Mg)	0	lbs per acre

Footnotes are printed wherever applicable. These footnotes are an integral part of fertilization recommendations. Please read them carefully.

See Footnote(s): 908

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Email: soilslab@mail.ifas.ufl.edu Web: soilslab.ifas.ufl.edu Phone #:352-392-1950

Foot Notes

6/16/2008

Note #	Description
908	** Since no crop code was specified or you have entered a crop for which no interpretations/recommendations are available, fertilizer and lime recommendations have been omitted. Contact your Extension agent for specific recommendations.

This data report has been issued on the authority of Dr. Rao Mylavarapu, Laboratory Director, and Mr. Pete Straub, QA Officer, in support of Florida Cooperative Extension Services.

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Micro-Nutrients Requested by the Client

Name:	Gowland, Jason	PrintDate:	6/16/2008
Address:	4475 SW 35 Ter	SetNum:	5828
City:	Gainesville FL 32608		

LabNum	SampleID	Cu mg/kg	Mn mg/kg	Zn mg/kg	OM %	EC millmhos/cm
60719	WA-1	0.14	4.48	1.82		

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INTERPRETATION OF MICRONUTRIENT SOIL TESTS

The IFAS Extension Soil Testing Laboratory currently offers a soil test for three micronutrients, copper (Cu), manganese (Mn), and zinc (Zn). The extractant used is Mehlich-I, which has been called the "double acid" extractant in the past. Interpretations in terms of plant needs of the particular nutrients are still quite tentative. They are presented here with the understanding that other criteria such as crop production records and observation of deficiency symptoms should be used along with the test results in reaching the management decision concerning micronutrient fertilization.

Interpretation of Mehlich-I extractable Cu, Mn, and Zn depends on the soil pH. The critical soil levels for these nutrients increase with pH for crops grown on acid sandy soils of Florida. The Mehlich-I extractant is not recommended for alkaline soils; micronutrient availability in the alkaline pH range is better evaluated with a plant tissue test or with soil test extractants developed especially for alkaline soils.

Indiscriminate use of micronutrient soil tests should be avoided. However, if plant performance has been less than optimum in the past and the soil test levels are below those shown in the tables fertilization with the respective micronutrients may be indicated.

COPPER

In Florida, Cu deficiencies have been generally confined to soils high in organic matter and so-called "new ground" just coming into cultivation in the flatwood areas. Known Cu phytotoxicity occurs in citrus groves and vegetable crop areas where Cu applied in fungicides and fertilizers has accumulated in the soil over the years. Liming to pH 7.0 is the simplest means of overcoming phytotoxicity.

Table 1 provides guidelines for interpreting the IFAS Micronutrient Soil Test values for extractable Cu in mineral soils. Dilute acids, such as Mehlich I solution, are poor extractants of Cu on organic soils and do not give reliable estimates of crop responses. The IFAS Soil Testing Lab does not presently provide a Cu soil test for organic soils.

Application of 3 to 5 pounds elemental Cu per acre (as copper sulfate or finely ground copper oxide) will correct Cu deficiencies in most crops growing on mineral soils. Mixing these Cu sources with macronutrient fertilizers presents no agronomic problems, provided segregation of the materials is avoided. A single Cu application may be sufficient for several years. Do not repeat this application until soil or tissue tests indicate a need for Cu. Copper added to soil is there "forever" and Florida already has too many cases of soils with phytotoxic levels of Cu. Fertilizer Cu should not be applied to mineral soils where Cu will be used as a pesticide.

Table 1. Tentative interpretation of Mehlich-I extractable Cu in mineral soils

	Soil pH (mineral soils only)		
	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0
		Ppm	
Level below which there may be a crop response to applied Cu	0.1 - 0.3	0.3 - 0.5	0.5 *
Level above which Cu phytotoxicity may occur	2.0 - 3.0	3.0 - 5.0	5.0 **

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Wallace Building 631 PO Box 110740 Gainesville, FL 32611-0740
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*If in doubt about copper nutrition of crop, get a tissue test.
** Cu toxicity is unlikely when soil pH is above 7.0

MANGANESE

There has been some success in predicting crop response to fertilizer Mn with the Mehlich I extractant. Lack of success in some cases has resulted from the complex nature of soil Mn and the many factors that affect its uptake by plants. Levels in table 2 are suggested as a guide for interpreting extractable Mn in mineral and organic soils.

Application of 8 to 10 pounds elemental Mn (as manganese sulfate or manganese oxide) per acre in banded fertilizer is recommended when the soil test levels are below those shown in Table 2. Broadcast applications are less effective and the rate should be increased to 20 or 30 pounds Mn if the fertilizer is broadcast. Uptake of Mn is generally best when Mn is banded with acid forming fertilizers. Field crops most likely to give a yield response to applied Mn in Florida are soybeans, small grains, and irrigated corn. Sugarcane grown on organic soils having pHs above 6.5 will also respond to banded Mn fertilizer.

ZINC

Table 2 presents a guide to interpretation of Mehlich-1 extractable Zn in both mineral and organic soils. Where Zn fertilization is needed, application rates may vary considerably with crop and Zn source but generally are around 5 to 10 pounds Zn per acre. For tree crops, use tissue tests to determine if Zn fertilization is needed, and it is known that no Zn is applied in the spray program.

Table 2. Interpretive guide to Mehlich-I extractable Mn and Zn

	Soil pH (mineral soils only)		
	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0
	ppm		
Level below which there may be a crop response to applied Mn	3 - 5	5 - 7	7 - 9
Level below which there may be a crop response to applied Zn	0.5	0.5 - 1.0	1 - 3

The critical values shown in Table 2 are higher than those used in other states of the Southeastern U.S. and reflect a significant "margin of safety" in interpretation of the test results. These critical levels may be modified as results from field trials justify such changes.

REPORT NUMBER
F352-012B

A & L Southern Agricultural Laboratories, LLC.

1199 W. Newport Center Drive • Deerfield Beach, FL 33442
(954)972-3255 • FAX (954)972-7885 • email: Lgriff6250@aol.com

"Get The Soil Right"

GROWER: SAME
WALMART-ALACHUA

SEND TO: UNIVERSAL ENGINEERING SCIENCES/GAINESVILLE
4475 SW 35TH TER.
GAINESVILLE, FL 32608

Copy TO:

SAMPLES SUBMITTED BY: JASON GOWLAND
PO No:
DATE RECEIVED: 12/16/2009
DATE REPORTED 12/18/2009

SOIL ANALYSIS REPORT

LAB NUMBER SAMPLE ID	ORGANIC MATTER %	ENR lbs./A	P1 WEAK BRAY ****ppm	P2 STRONG BRAY****ppm	POTASSIUM ***** ppm	MAGNESIUM *** ppm	CALCIUM *** ppm	SODIUM *** ppm	SOIL pH
0417	1.3	70 L	81 VH	100 VH	34 M	74 VH	544 VH	18 L	6.9 H
TS-1	**ALUMINUM ppm**	**HCO3-P ppm**	**HYDROGEN meq/100g**	**C.E.C. meq/100g**	**PERCENT BASE SATURATION (COMPUTED)**				
					% K	**% Mg**	**% Ca**	**% Na**	**% H**
			0.0	3.5	2.5	17.6	77.7	2.2	0.0
	NO3-N ppm	**SULFUR ppm**	**ZINC ppm**	**MANGANESE ppm**	**IRON ppm**	**COPPER ppm**	**BORON ppm**	**BUFFER pH**	**SOLUBLE SALTS mmhos/cm**
		8 L	0.2 VL	3 VL	4 L	0.1 L	0.2 VL		0.1 VL
	CHLORIDE ppm	**MOLYBDENUM ppm**	**WATER SOL Pw ppm**	**TOTAL N ppm**	**NH4 ppm**	**TEXTURE ANALYSIS**			
						% SAND	**% SILT**	**% CLAY**	**CLASSIFICATION**

CODE TO RATING – Very Low (VL) – Low (L) – Medium (M) – Very High (VH)
*ENR – Estimated Nitrogen Release
***MULTIPLY THE RESULTS IN ppm BY 2 TO CONVERT TO LBS. PER ACRE OF THE ELEMENTAL FORM.
****MULTIPLY THE RESULTS IN ppm BY 4.6 TO CONVERT TO LBS. PER ACRE P_2O_5
*****MULTIPLY THE RESULTS IN ppm BY 2.4 TO CONVERT TO LBS. PER ACRE K_2O
MOST SOILS WEIGH TWO (2) MILLION POUNDS (DRY WEIGHT) FOR AN ACRE OF SOIL 6-2/3 INCHES DEEP

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

A & L SOUTHERN AGRICULTURAL LABORATORIES LLC.

By Lynn P. Griffith, Jr. - Lab Manager

REPORT NUMBER
F362-10S

A & L Southern Agricultural Laboratories, LLC

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(954)972-3255 • FAX (954)571-2104 • email: Lgriffith@al-southern.com

SEND TO: UNIVERSAL ENGINEERING SCIENCES
4475 SW 35th Terrace
Gainesville, FL 32608

GROWER: Walmart – Alachua

SAMPLES SUBMITTED BY: Jason Gowland

TOXICITY BIO ASSAY (GROWTH TEST)

LAB NUMBER: H1125
SAMPLE ID: TS-1

DATE RECEIVED: 12-15-09
DATE REPORTED: 12-28-09
PAGE: 1

TYPE OF GROWTH	DICOTYLEDONES (RADISH SEED)				MONOCOTYLEDONES (RYEGRASS)			
	WITHOUT CHARCOAL		WITH CHARCOAL		WITHOUT CHARCOAL		WITH CHARCOAL	
	NUMBER OF SEEDS	%	NUMBER OF SEEDS	%	NUMBER OF SEEDS	%	NUMBER OF SEEDS	%
MEDIUM	47	94	48	96	47	94	47	94
SMALL	0	0	0	0	0	0	0	0
NO GROWTH	1	2	0	0	0	0	0	0
NO GERMINATION	2	4	2	4	3	6	3	6
TOTAL	**50**	**100**	**50**	**100**	**50**	**100**	**50**	**100**

Plant growth and development was quite good for both radish and ryegrass seed. There was no significant response to activated charcoal. I see no evidence of growth inhibiting substances in the soil, and no signs of herbicides.

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

A & L SOUTHERN AGRICULTURAL LABORATORIES

By Lynn P. Griffith, Jr. – Lab Manager

REPORT NUMBER

F364-025B

A & L Southern Agricultural Laboratories, LLC.

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(954)972-3255 • FAX (954)972-7885 • email: Lgriff6250@aol.com

"Get The Soil Right"

GROWER: SAME

SAMPLES SUBMITTED BY: JASON GOWLAND

PO No:

SEND TO: UNIVERSAL ENGINEERING SCIENCES/GAINESVILLE

4475 SW 35TH TER.

GAINESVILLE, FL 32608

Copy TO:

DATE RECEIVED: 12/29/2009

DATE REPORTED

SOIL ANALYSIS REPORT

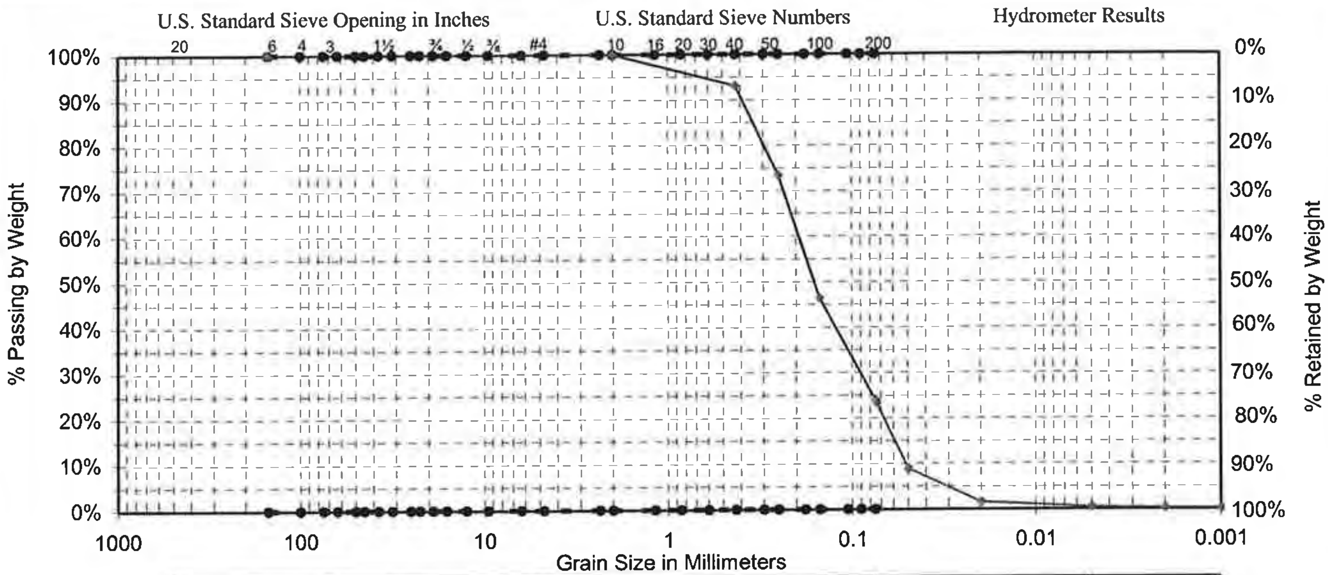
LAB NUMBER SAMPLE ID	ORGANIC MATTER %	ENR lbs./A	P1 WEAK BRAY ****ppm	P2 STRONG BRAY****ppm	POTASSIUM ***** ppm	MAGNESIUM *** ppm	CALCIUM *** ppm	SODIUM *** ppm	SOIL pH
0612	0.8	60 L	103 VH	109 VH	90 VH	107 VH	797 VH	5 L	5.9 L
TS-1	ALUMINUM ppm	HCO3-P ppm	HYDROGEN meq/100g	C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED)				
					% K	% Mg	% Ca	% Na	% H
			1.0	6.1	3.8	14.5	65.0	0.4	16.3
	NO3-N ppm	SULFUR ppm	ZINC ppm	MANGANESE ppm	IRON ppm	COPPER ppm	BORON ppm	BUFFER pH	SOLUBLE SALTS mmhos/cm
		8 L	0.1 VL	4 L	7 M	0.1 L	0.4 L		0.04 VL
	CHLORIDE ppm	MOLYBDENUM ppm	WATER SOL Pw ppm	TOTAL N ppm	NH4 ppm	TEXTURE ANALYSIS			
						% SAND	% SILT	% CLAY	CLASSIFICATION

CODE TO RATING – Very Low (VL) – Low (L) – Medium (M) – Very High (VH)
*ENR – Estimated Nitrogen Release
***MULTIPLY THE RESULTS IN ppm BY 2 TO CONVERT TO LBS. PER ACRE OF THE ELEMENTAL FORM.
****MULTIPLY THE RESULTS IN ppm BY 4.6 TO CONVERT TO LBS. PER ACRE P_2O_5
*****MULTIPLY THE RESULTS IN ppm BY 2.4 TO CONVERT TO LBS. PER ACRE K_2O
MOST SOILS WEIGH TWO (2) MILLION POUNDS (DRY WEIGHT) FOR AN ACRE OF SOIL 6-2/3 INCHES DEEP

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

A & L SOUTHERN AGRICULTURAL LABORATORIES LLC.

By Lynn P. Griffith, Jr. - Lab Manager

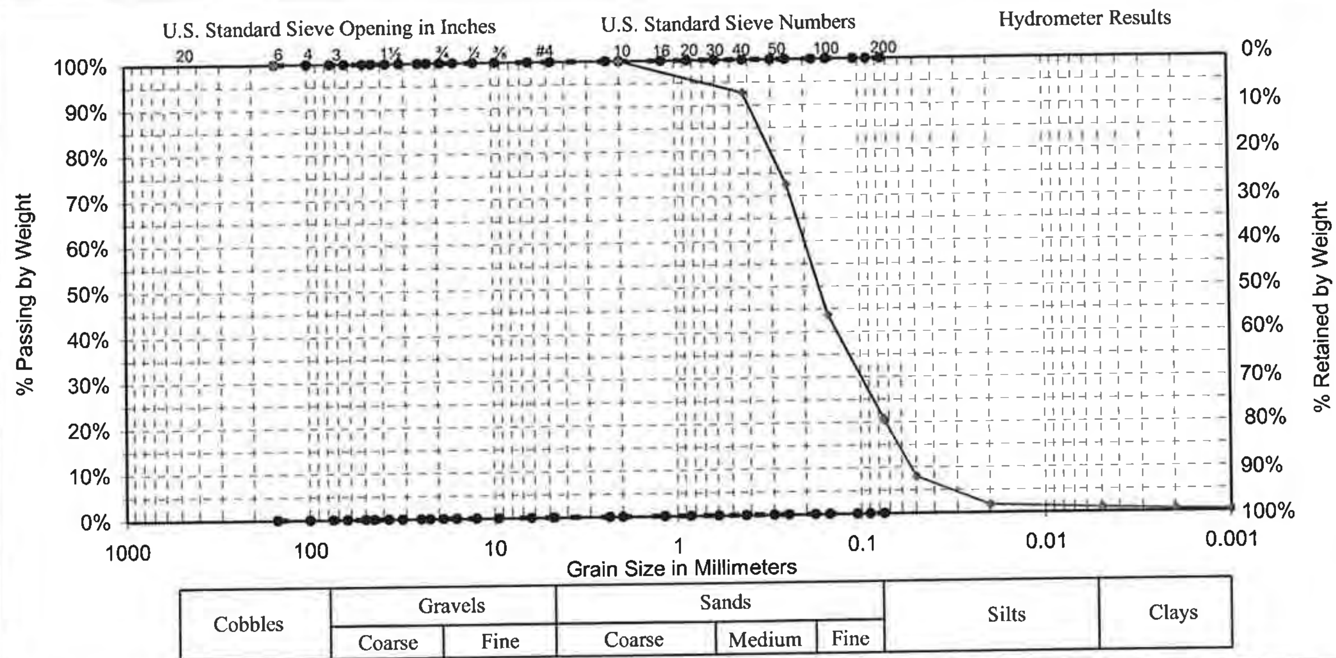


Cobbles	Gravels		Sands			Silts	Clays
	Coarse	Fine	Coarse	Medium	Fine		

Date :	10/17/08	D_{10} = 0.03	**USCS Classification**	% Gravel	% Sand	***Hydrometer Results***	
Sample #:	WA-1	D_{30} = 0.10	SM, Silty Sand	0.0%	76.1%	***Size, mm***	***% Passing***
Sample ID:	Light brown	D_{60} = 0.20	**Specifications**			0.074	23.3%
Source:		C_C = 1.45	No Specs			0.050	8.9%
Project:	Walmart	C_U = 6.39	Sample Meets Specs	% Silt & Clay		0.020	1.5%
Location:	NA	Liquid Limit= n/a	n/a	23.9%		0.005	0.4%
Boring #:		Plastic Limit= n/a	Fineness Modulus	% Silt	% Clay	0.002	0.2%
Depth:	NA	Plasticity Index= n/a	0.84	23.5%	0.4%	0.001	0.2%

Coarse Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00		100.0%		
7/8"	22.40		100.0%		
3/4"	19.00		100.0%		
5/8"	16.00		100.0%		
1/2"	12.50		100.0%		
3/8"	9.50		100.0%		
1/4"	6.30		100.0%		
#4	4.75		100.0%		

Fines Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
#4	4.750		100.0%		
#8	2.360		100.0%		
#10	2.000	100.0%	100.0%		
#16	1.180		96.4%		
#20	0.850		95.0%		
#30	0.600		93.9%		
#40	0.425	93.1%	93.1%		
#50	0.300		79.1%		
#60	0.250	73.5%	73.5%		
#80	0.180		54.5%		
#100	0.150	46.4%	46.4%		
#140	0.106		33.2%		
#170	0.090		28.4%		
#200	0.075	23.9%	23.9%		
#270	0.053				



Date :	10/17/08	D_{10} =	0.04
Sample #:	TS-1	D_{30} =	0.11
Sample ID:	Brown,orange	D_{60} =	0.21
Source:		C_C =	1.48
Project:	Walmart	C_U =	5.72
Location:	NA	Liquid Limit=	n/a
Boring #:		Plastic Limit=	n/a
Depth:	NA	Plasticity Index=	n/a

USCS Classification	% Gravel	% Sand
SM, Silty Sand	0.0%	79.2%
Specifications		
No Specs		
Sample Meets Specs	% Silt & Clay	
n/a	20.8%	
Fineness Modulus	% Silt	% Clay
0.88	19.8%	0.9%

Hydrometer Results

Size, mm	*% Passing*
0.074	20.3%
0.050	8.0%
0.020	1.7%
0.005	0.9%
0.002	0.6%
0.001	0.3%

Coarse Section

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00		100.0%		
7/8"	22.40		100.0%		
3/4"	19.00		100.0%		
5/8"	16.00		100.0%		
1/2"	12.50		100.0%		
3/8"	9.50		100.0%		
1/4"	6.30		100.0%		
#4	4.75		100.0%		

Fines Section

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
#4	4.750		100.0%		
#8	2.360		100.0%		
#10	2.000	100.0%	100.0%		
#16	1.180		96.2%		
#20	0.850		94.7%		
#30	0.600		93.6%		
#40	0.425	92.8%	92.8%		
#50	0.300		78.3%		
#60	0.250	72.5%	72.5%		
#80	0.180		52.3%		
#100	0.150	43.7%	43.7%		
#140	0.106		30.2%		
#170	0.090		25.4%		
#200	0.075	20.8%	20.8%		
#270	0.053				

UNIVERSAL ENGINEERING SCIENCES

APPENDIX C

DESCRIPTION OF LABORATORY TESTING PROCEDURES

UNIFIED SOIL CLASSIFICATION - ASTM D-2487

This practice describes a system for classifying mineral and organo-mineral soils for engineering purposes based on laboratory determination of particle size characteristics, liquid limit, and plasticity index.

WASH 200 TEST - ASTM D-1140

The Wash 200 test is performed by passing a representative soil sample over a No. 200 sieve and rinsing with water. The percentage of the soil grains passing this sieve is then calculated.

FULL SIEVE GRADATION TEST – ASTM D-422

On occasion it is helpful to evaluate the overall compositional characteristics of a soil and the #200 sieve analysis is supplemented with a full grain size distribution. A set of sieves with varying mesh sizes is used to determine the gradation of the soil particle sizes.

MOISTURE CONTENT DETERMINATION - ASTM D-2216

Moisture content is the ratio of the weight of water to the dry weight of soil. Moisture content is measured by drying a sample at 105 degrees Celsius. The moisture content is expressed as a percent of the oven dried soil mass.

ATTERBERG LIMITS – ASTM D-4318

The Atterberg limits are the upper and lower limits of the range of water content over which a soil exhibits plastic behavior, and are defined as the liquid limit and plastic limit, respectively.

The liquid limit is estimated as follows: The soil is mixed with distilled water to form a thick paste, which is then placed in a brass cup mounted on an edge pivot and rests initially on a rubber base. The base is then leveled off horizontally and divided by cutting a groove with a standard tool. The two halves of the soil gradually flow together as the cup is repeatedly dropped onto its base at a specified rate. The liquid limit is defined as the water content at which 25 blows are required to close the groove over a distance of 1/2 inch.

The plastic limit is estimated as follows: The soil is mixed with distilled water until it can be molded. A ball of soil is then rolled into a thread 1/8 inch in diameter between the hand and a glass plate. The soil is molded together again and the process repeated until the thread cracks when its diameter is 1/8 inch. The water content of the soil at this state is determined and defined as the plastic limit.

ORGANIC CONTENT - ASTM D-2974

Ash content of a peat or organic soil sample is determined by igniting the oven dried sample from the moisture content determination in a muffle furnace at 440 degrees Celsius. The substance remaining after the ignition is the ash. The ash content is expressed as a percentage of the oven dried sample. Organic mater is determined by subtracting the percent ash from 100.

PERMEABILITY OF GRANULAR SOILS (CONSTANT HEAD) - ASTM D-2434

In summary, this test method covers the determination of the coefficient of permeability by a constant-head method for the laminar flow of water through granular soils. The procedure is to establish representative values of the coefficient of permeability of granular soils that may occur in natural deposits. The constant head laboratory permeability test is performed by placing the soil sample in a tube (permeameter) and seating the sample on both ends with a porous disk. The tube and soil sample are then sealed and the soil sample is saturated. Once the soil sample has been saturated, a constant head water supply is run through the sample. A pair of manometer tubes is used to measure the pressure head change through the soil. Once the manometer tubes indicate steady state flow, test measurements of pressure head difference, quantity o flow, and time of flow are made. The data recovered from this test are then used to calculate Darcy's Coefficient of Permeability (k) of the soil.

UNCONFINED COMPRESSION (UC) TEST – ASTM D-2166

A method to determine a cohesive soils compressive stress or maximum load per unit area at which an unconfined cylindrical specimen of will fail in simple compression. Or the load per unit area at 15% axial strain, whichever is secured first. A selected cylindrical soil sample is placed on a compression device or hydraulic loading device and loaded to produce an axial strain at a rate of ½ to 2% per minute. Load, deformation, and time are recorded at sufficient intervals to determine the shape of the stress strain curve.

UNDRAINED UNCONSOLIDATED (UU) TEST – ASTM D-2850

This test method determines the strength and stress strain relationship of a cylindrical specimen of either undisturbed or re-molded cohesive soil using a tri-axial chamber and no drainage of the specimen is permitted. This test procedure is similar to the UC Test however, the sample is sealed within a rubber membrane and O-rings, and a chamber pressure is applied to the chamber fluid exerting a pressure on the specimen.

SHRINK/SWELL TEST – ASTM D-4546

This test method determines an undisturbed or compacted cohesive soils potential magnitude for swell or settlement. A relatively undisturbed sample is placed in a consolidomter and inundated with water and allowed to swell vertically at a seating pressure until primary swell is complete. The specimen is then loaded after primary swell has occurred until its initial void ratio/height is obtained.

SPECIFIC GRAVITY OF SOIL ASTM D-854

This test method determines the ratio of the mass of a unit volume of soil solids to the mass of the same volume of gas free distilled water at 20 degrees Celsius. Soil is placed into a calibrated pycnometer, water is added, and then the soil and water are de-aired. The specific gravity of the soil specimen is determined through the mass of the pycnometer and water, the calibrated mass of the dry pycnometer, the calibrated volume of the pycnometer, the density of the water at the test temperature, the mass of the oven dried soils, and the mass of the pycnometer water and soil solids at the test temperature.

APPENDIX C

DESCRIPTION OF FIELD TESTING PROCEDURES

DOUBLE RING INFILTROMETER - ASTM D-3385

The Double-Ring Infiltrometer test is performed in general accordance with the procedures outlined in the latest revision of ASTM D3385, "Infiltration Rate of Soils using Double Ring Infiltrometers". The out ring, approximately 24 inches in diameter, was driven to a depth of 6 inches below the test depth. The inner ring, approximately, 12 inches in diameter, was inserted inside the outer ring, centered, and driven to a depth of approximately 2 to 4 inches below the test depth. The 2 rings were filled simultaneously with 4 inches of water.

The water level was maintained throughout the test period, with the required amount of water added to maintain this level in both rings recorded at time intervals of 15 minutes. After reaching a stabilized inflow volume of water, the test was continued for approximately 120 minutes.

STANDARD PENETRATION TESTING – ASTM D-1586

Penetration tests were performed in accordance with ASTM Procedure D-1586, Penetration Test and Split-Barrel Sampling of Soils. This test procedure generally involves driving a 1.4-inch I.D. split-tube sampler into the soil profile in six inch increments for a minimum distance of 18 inches using a 140-pound hammer free-falling 30 inches. The total number of blows required to drive the sampler the second and third 6-inch increments is designated as the N-value, and provides an indication of in-place soil strength, density and consistency.

APPENDIX D

FOUNDATION DESIGN CRITERIA
GEOTECHNICAL EXPLORATION FACT SHEET
FOUNDATION SUBSURFACE PREPARATION
PAVEMENT DESIGN CALCULATIONS
PAVEMENT SECTION DESIGN

INITIAL FOUNDATION SUBSURFACE PREPARATION
WAL-MART STORE NO. 3873-00
ALACHUA, ALACHUA COUNTY, FLORIDA

UNLESS SPECIFICALLY INDICATED OTHERWISE IN THE DRAWINGS AND/OR SPECIFICATIONS, THE LIMITS OF THIS SUBSURFACE PREPARATION ARE CONSIDERED TO BE THAT PORTION OF THE SITE DIRECTLY BENEATH AND 5 FEET BEYOND THE BUILDING AND APPURTENANCES. APPURTENANCES ARE THOSE ITEMS ATTACHED TO THE BUILDINGS PROPER (REFER TO DRAWING SHEET SP1), TYPICALLY INCLUDING, BUT NOT LIMITED TO, THE BUILDING SIDEWALKS, GARDEN CENTER, PORCHES, RAMPS, STOOPS, TRUCK WELLS/DOCKS, CONCRETE APRONS AT THE AUTOMOTIVE CENTER, COMPACTOR PAD, ETC. THE BASE AND VAPOR BARRIER, WHERE REQUIRED, DO NOT EXTEND BEYOND THE LIMITS OF THE ACTUAL BUILDING AND APPURTENANCES.

ESTABLISH THE FINAL SUBGRADE ELEVATION TO ALLOW FOR THE CONCRETE SLAB AND BASE. REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR REQUIRED SLAB THICKNESS. THE BASE MATERIAL SHALL BE SPECIFIED BY WAL-MART'S CONCRETE CONSULTANT FOR THIS PROJECT AND INCLUDED IN THE FINAL REPORT. ONCE SPECIFIED, ANY PROPOSED EQUIVALENT ALTERNATIVE BASE MATERIAL MUST BE SUBMITTED FOR APPROVAL WITHIN 30 DAYS AFTER AWARD OF CONTRACT. ANY EQUIVALENT ALTERNATIVE SHALL ONLY BE USED IF APPROVED BY THE CEC AND AOR. INSTALL A MINIMUM 15-MIL VAPOR RETARDER, MEETING ASTM E 1745, "CLASS A" REQUIREMENTS, PLACED ABOVE THE BASE AND DIRECTLY BELOW THE SLAB. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ACCURATE MEASUREMENTS FOR ALL CUT AND FILL DEPTHS REQUIRED.

EXISTING FOUNDATIONS, SLABS, PAVEMENTS, AND BELOW-GRADE STRUCTURES SHALL BE REMOVED FROM THE BUILDING AREA. REMOVE SURFACE VEGETATION, TOPSOIL, ROOT SYSTEMS, ORGANIC MATERIAL, EXISTING FILL, AND SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE BUILDING AREA. OVER-EXCAVATE THE BUILDING PAD INCLUDING APPLICABLE MARGINS BEYOND TO ELEVATION **+111.5** FOR EXPANSIVE CLAY REMOVAL. PROOF ROLL EXPOSED SUBGRADE. REMOVE AND REPLACE UNSUITABLE AREAS WITH SUITABLE MATERIAL. THE OVER-EXCAVATED AREAS SHALL BE BACKFILLED WITH A COMPACTED, LOW PERMEABILITY, NON PLASTIC ENGINEERED FILL MATERIAL, AND SHALL CONSIST OF SILTY SAND OR CLAYEY SAND WITH BETWEEN10% TO 25% MATERIAL PASSING THE NO. 200 SIEVE, A LIQUID LIMIT (LL) VALUE LESS THAN 30 AND A PASTICITY INDEX (PI) LESS THAN 15.

SUBGRADE MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 12 INCHES IN THICKNESS AND COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) AT A MOISTURE CONTENT WITHIN 2 PERCENT BELOW TO 2 PERCENT ABOVE THE OPTIMUM.

PERCHED SURFACE AND GROUNDWATER MAY OCCUR IN SOME AREAS OF THE SITE AND SURFACE AND SHALLOW GROUNDWATER CONTROL SHOULD BE ANTICIPATED, PARTICULARLY IN LOW AREAS, OR AREAS THAT ARE DEEPLY STRIPPED OR UNDERCUT. SHALLOW GROUNDWATER MAINTENANCE TYPICALLY CONSISTS OF PUMPING FROM SUMPS IN PERIMETER DITCHES OR PITS AND DRAINAGE SWALES/UNDERDRAIN SYSTEM PLANNED TO INTERCEPT AND EVACUATE STORMWATER RUNOFF BEFORE IT TRAVELS TO EXCAVATED AREAS. GROUNDWATER CONTROL IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

THE BEARING LEVEL SOILS SHUOLD BE DENSIFIED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) TO A DEPTH OF AT LEAST FIVE FEET BELOW THE BEARING LEVELS.

THE FOUNDATION SYSTEM SHALL BE ISOLATED SPREAD FOOTINGS AT COLUMNS AND CONTINUOUS STRIP FOOTINGS AT WALLS.

THIS FOUNDATION SUBSURFACE PREPARATION DOES NOT CONSTITUTE A COMPLETE SITE WORK SPECIFICATION. IN CASE OF CONFLICT, INFORMATION COVERED IN THIS PREPARATION SHALL TAKE PRECEDENCE OVER THE WALMART SPECIFICATIONS. REFER TO THE SPECIFICATIONS FOR SPECIFIC INFORMATION NOT COVERED IN THIS PREPARATION. THIS INFORMATION WAS TAKEN FROM A GEOTECHNICAL REPORT PREPARED BY UNIVERSAL ENGINEERING SCIENCES, INC., UES PROJECT NO. 0795.1000100.0000, REPORT NO: 1211903. THE GEOTECHNICAL REPORT IS FOR INFORMATION ONLY AND IS NOT A CONSTRUCTION SPECIFICATION.

AN E-MAIL ADDRESS FOR THE GEOTECHNICAL ENGINEER, EDUARDO SUAREZ, P.E.:
esuarez@universalengineering.com

INITIAL GEOTECHNICAL EXPLORATION FACT SHEET

Project Location: Wal-Mart Store No. 3873-00
Alachua, Alachua County, Florida

Engineer: Eduardo Suarez, P.E. **PHONE No:** (352) 372-3392

Geotechnical Engineering Company: Universal Engineering Sciences, Inc.

Report Date: May 20, 2016

Ground Water Elevation: Perched at +149 to +79 ft. NAVD

Date Groundwater Measured: January 19 to January 25, 2005, May 1 to May 5, 2008, June 11 to 24, 2009, March 9 to 10, 2015

Topsoil/Stripping Depth: 6 to 12 inches

Undercut: Excavate building pad to at least Elevation 111.5 feet and 5 feet beyond the building pad limits. Excavate area to be paved at least 2 feet where clays are present.

pH: 4.2 to 6.6

Resistivity: 2000-6700 ohm-cm

Corrective Action for pH: Type II cement w/ fly ash, control of minimum concrete cover over rebar, protective coatings for steel which are within 2 feet of or below SHGWL

Cement Type: Type II with fly ash for below grade construction.

Recommended local DOT base material (See Foundation Subsurface Preparation): FDOT limerock base.

Modified Proctor Results: MDD 123 to 125, 9 to 11% OMC (See Appendix D)

Recommended Compaction Control Tests:

1 Test for Each 2,500 Sq. Ft. each Lift (bldg. area)

1 Test for Each 10,000 Sq. Ft. each Lift (parking area)

Structural Fill Maximum Lift Thickness 12 in. (Measured loose)

Subgrade Design CBR Value: LBR=40

Fill Soils Characteristics

Maximum Liquid Limit: 20% Fill other than Building (30% Building undercut)(15% Retaining Wall Fill)

Maximum Plasticity Index: 10% Fill other than Building (15% Building undercut)(6% Retaining Wall Fill)

Specified Compaction: 95% Modified Proctor

Moisture Content Range: +/-2% of Optimum

COMPONENT	ASPHALT		CONCRETE	
	Standard	Heavy	Standard	Heavy
Stabilized Subgrade	6"	6"	*4"	4"
Base Material (Limerock, or Soil Cement)	6"	6"	*4"	*4"
Asphaltic Base Course		N/A		
Leveling Binder Course	1.5"	2.5"		
Surface Course	1.5"	1.5"	5" (concrete) 6"	

* The stabilized subgrade, base and retaining wall fill should be "free-draining"

NOTE: This information should not be used separately from the geotechnical report.

INITIAL FOUNDATION DESIGN CRITERIA

PROJECT LOCATION: Wal-Mart Store No. 3873-00
Alachua, Alachua County, Florida

ENGINEER: Eduardo Suarez, P.E.

GEOTECHNICAL ENGINEERING COMPANY: Universal Engineering Sciences, Inc.

REPORT DATE: May 20, 2016 **PHONE NO:** (352) 372-3392

Foundation Type: Spread Footings

Allowable bearing pressure: 3,000 psf (after undercut)

Factor of Safety: +2

Minimum footing dimensions: Individual: 30" Continuous: 24"

Minimum footing Embedment: Exterior: 18" Interior: 18"

Frost depth: None

Maximum foundation settlements:

Total: less than 3/4"

Differential: less than 1/2" masonry walls and 3/4" between columns

Slab:

Potential Heave: More than 3 inches in native state, less than 1" with recommended expansive clay undercut

Vapor barrier or capillary break (describe): Plastic Sheet (15 MIL Polyethylene)

Subgrade reaction modulus: 150 psi/in Method obtained: NAVFAC Dm 7.1, pg 219, Fig 6

Perimeter Drains (describe):

Building: Recommended

Retaining Walls: Specified by Wall Designer

Pavements: Per Final Grading and Pavement Plan

Retaining Walls:

Active Equivalent Fluid Pressure: 40 pcf
Passive Equivalent Fluid Pressure: 350 pcf
At Rest Pressure: 55 pcf
Coefficient of Friction: 0.4

NOTE: This information shall not be used separately from the geotechnical report.

PAVEMENT DESIGN CALCULATIONS

Minimum Pavement Design Recommendations per Walmart Specifications

Standard Duty
- Design life of 20 years
- Equivalent 18 kip Single Axle Load (ESAL) = 109,500
- Daily ESAL = 15
- Reliability = 85%
- Initial Serviceability = 4.2
- Terminal Serviceability = 2.0
- Standard Deviation = 0.45 for flexible 0.35 for rigid
- Minimum thickness = 3" of Asphalt and 5" of Concrete

Heavy Duty
- Design life of 20 years
- Equivalent 18 kip Single Axle Load (ESAL) = 335,800
- Daily ESAL = 46
- Reliability = 85%
- Initial Serviceability = 4.2
- Terminal Serviceability = 2.0
- Standard Deviation = 0.45 for flexible 0.35 for rigid
- Minimum thickness = 4" of Asphalt and 6" of Concrete

All concrete pavements must be underlain by 4 inches of “free-draining” compacted granular base course or sand with LBR minimum value of 100.

Flexible Pavement Design

Florida Department of Transportation - Flexible Pavement Design Manual (March 2008)

Structural Numbers are calculated by the AASHTO Methods

AASHTO Design Equation for Flexible Pavement:

$$\log_{10} W_{18} = Z_R * S_0 + 9.36 * \log_{10}(SN+1) - 0.20 + \frac{\log_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.40 + \frac{1094}{(SN+1)^{5.19}}} + 2.32 * \log_{10}(M_R) - 8.07$$

SN_R	= Structural Number required
W_{18}	= Equivalent 18 kip Single Axle Load (given by Walmart)
Z_R	= Standard Normal Deviate (taken from Page A.3.0 relative to Reliability)
M_R	= Resilient Modulus psi (Table 5.1 from estimated LBR results of 20)
S_0	= Standard Deviation (given by Walmart)
ΔPSI	= Change in serviceability (Terminal Serviceability normally assumed 2.5)

FDOT Calculations continued

Required Structural Number - SN_R = **2.27** (Standard Duty)
Required Structural Number - SN_R = **2.71** (Heavy Duty)

Layer Thickness Calculations for Proposed Pavement Sections (SN_C)

$$SN_C = (a_1 * D_1) + (a_2 * D_2) + (a_3 * D_3) + \ldots + (a_N * D_N)$$

SN_C = Structural Number calculated
a_N = Layer coefficient of layer (FDOT Table 5.4 Structural Coefficients)
D_N = Layer thickness

Standard Duty
Proposed Pavement Section

Type	D*	a		
Asphalt	3 inches	0.44		1.32
Limerock/crushed Base (LBR 100)	6 inches	0.18		1.08
Type B Stabilized (LBR 40)	6 inches	0.08		0.48
			Total	2.88

Provided SN_C = **2.88** is greater than Required SN_R = **2.27** Good

Heavy Duty
Proposed Pavement Section

Type	D*	a		
Asphalt	4 inches	0.44		1.76
Limerock/crushed Base (LBR 100)	6 inches	0.18		1.08
Type B Stabilized (LBR 40)	6 inches	0.08		0.48
			Total	3.32

Provided SN_C = **3.32** is greater than Required SN_R = **2.71** Good

Rigid Pavement Design

Florida Department of Transportation - Flexible Pavement Design Manual (January 2009)

AASHTO - Design of Pavement Systems (1993)

Depths of Concrete required are calculated by the AASHTO Methods

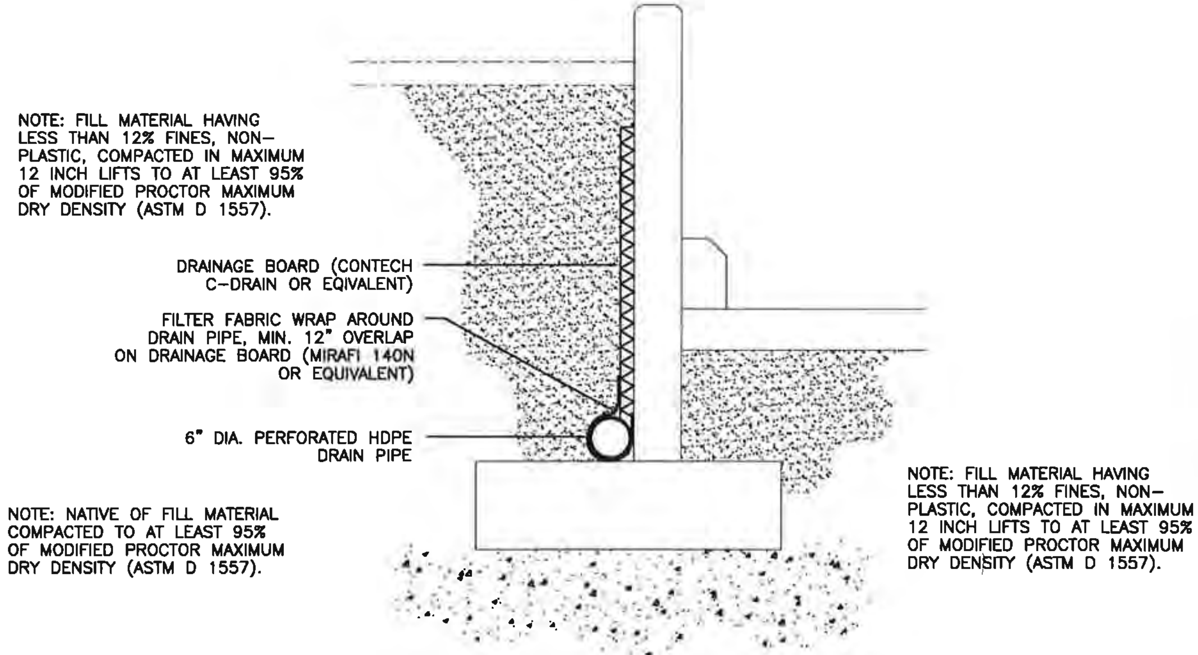
AASHTO Design Equation for Rigid Pavement

$$\log_{10} W_{18} = z_R * s_O + 7.35 * \log_{10}(D+1) - 0.06 + \frac{\log_{10}\left[\frac{\Delta PSI}{4.5-1.5}\right]}{1+\frac{1.624*10^7}{(D+1)^{8.46}}} + \left(4.22 - 0.32 p_t\right) * \log_{10}\left[\frac{s_c' * c_d\left[D^{0.75} - 1.132\right]}{215.63 * J\left[D^{0.75} - \frac{18.42}{\left(E_c / k\right)^{0.25}}\right]}\right]$$

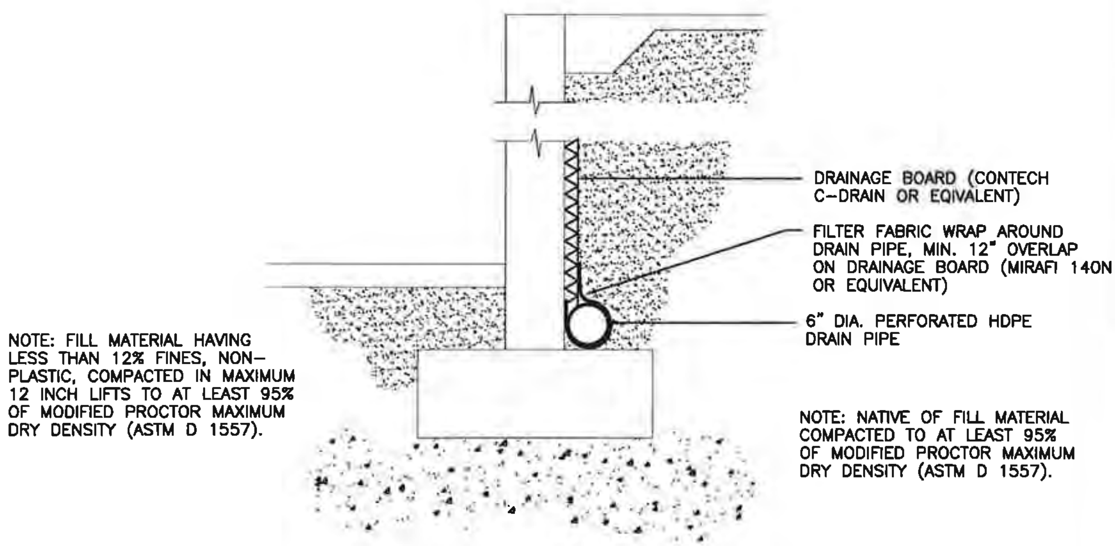
D	= Depth of concrete required
W_{18}	= Equivalent 18 kip Single Axle Load (given by Wal-Mart)
k	= Effective Modulus of Subgrade Reaction (selected as 200 pci)
s'_c	= Mean Concrete Modulus of Rupture (typically 600 psi)
J	= Load Transfer Coefficient (typically 3.8 for aggregate interlock)
c_d	= Drainage Coefficient (typically 1.0)
ΔPSI	= Design Serviceability loss (given by Wal-Mart)
S_O	= Standard Deviation (given by Wal-Mart)

The design thickness of concrete calculated for standard duty is: **4.74** inches
Walmart minimum required thickness = **5** inches [Therefore Good]

The design thickness of concrete calculated for heavy duty is: **5.99** inches
Walmart minimum required thickness = **6** inches [Therefore Good]



DOCK RETAINING WALL



DOCK WALL FOOTING

0795.1400110-C

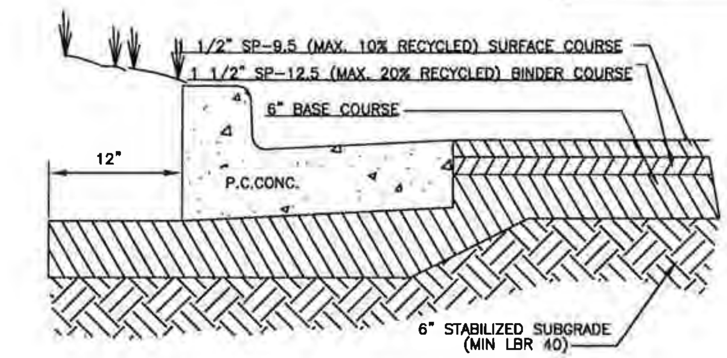
UNIVERSAL
ENGINEERING SCIENCES

WALMART STORE NO. 3873-00
SEC OF US HIGHWAY 441 AND INTERSTATE 75
ALACHUA, ALACHUA COUNTY, FLORIDA

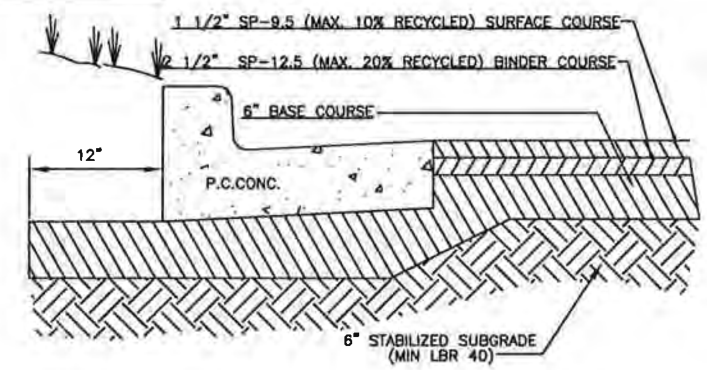
RETAINING WALL DETAILS

DRAWN BY:	KD	DATE:	5/1/15	CHECKED BY:	ES	DATE:	5/1/15
SCALE:	NTS	PROJECT NO:	0795.1400110.0000	REPORT NO:	1211903	PAGE NO:	D - 1

STANDARD ASPHALT PAVING

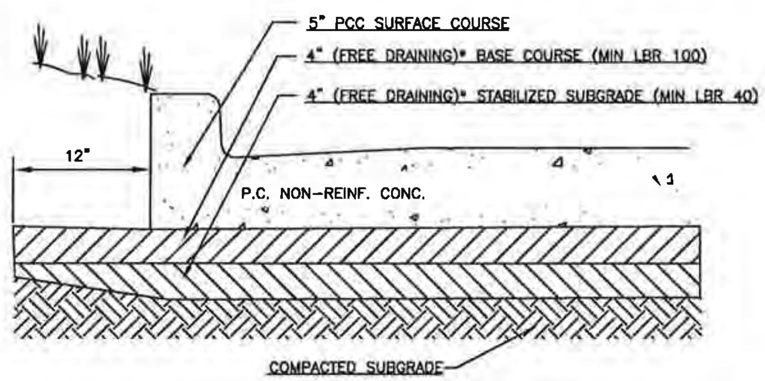


REGULAR DUTY
ASPHALT PAVING

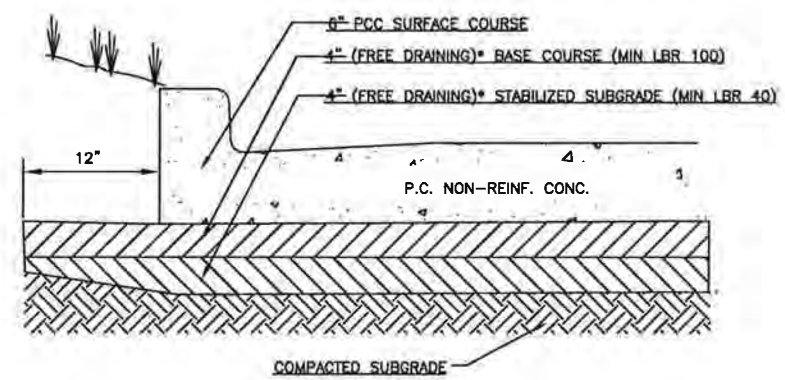


HEAVY DUTY
ASPHALT PAVING

PC CONCRETE



REGULAR DUTY
CONCRETE PAVING



HEAVY DUTY
CONCRETE PAVING

NOTES:

1. FOR PREPARATION OF SUBGRADE, FILL PLACED WITHIN 12 INCHES OF BOTTOM OF STABILIZED SUBGRADE SHOULD BE COMPACTED TO AT LEAST 98% OF THE MATERIAL'S MODIFIED PROCTOR (AASHTO T 180 / ASTM D 1557) MAXIMUM DRY DENSITY. FILL PLACED BELOW THIS LEVEL SHOULD BE COMPACTED TO AT LEAST 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY.
2. STABILIZED SUBGRADE SHOULD BE COMPACETED TO A MINIMUM OF 98% OF THE MATERIAL'S MODIFIED PROCTOR (AASHTO T 180 / ASTM D 1557) MAXIMUM DRY DENSITY.
3. LIMEROCK BASE COURSE SHOULD CONFORM TO THE REQUIREMENTS OF SECTION 200 OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND BE COMPACTED TO AT LEAST 98% OF THE MATERIAL'S MODIFIED PROCTOR (AASHTO T 180 / ASTM D 1557) MAXIMUM DRY DENSITY.
4. ASPHALTIC SURFACE COURSE MIXTURES SHOULD BE IN ACCORDANCE WITH TYPE REFERENCED IN SECTION 330 OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
5. THE PORTLAND CEMENT CONCRETE PAVEMENT MIXTURE SHOULD BE IN ACCORDANCE WITH THE AIR-ENTRAINED CONCRETE FOR PAVEMENT SECTION 350 OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE MIXTURE SHOULD BE DESIGNED TO DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH A 4 INCH MINIMUM SLUMP AND 5% TO 7% ENTRAINED AIR.
6. (*) BASE AND STABILIZED SUBGRADE COURSES BENEATH CONCRETE PAVEMENT SHALL HAVE A MINIMUM PERMEABILITY – (K) GREATER THAN OR EQUAL TO 0.001cm/sec. BASE AND SUBGRADE MATERIALS SHOULD BE COMPACTED TO AT LEAST 98% OF THE MATERIALS MODIFIED PROCTOR (AASHTO T 180 / ASTM D 1557) MAXIMUM DRY DENSITY.
7. IF RECOMMENDED "FREE DRAINING MATERIAL" IS NOT AVAILABLE AND VERY POOR DRAINAGE BASE MATERIAL SUCH AS CRUSHED CONCRETE AGGREGATE BASE MATERIAL, COMPACTED SUBGRADE IS USED, THE CONCRETE THICKNESS SHOULD BE INCREASED. MINIMUM PAVEMENT THICKNESS SHOULD BE 6 INCHES FOR REGULAR DUTY AND 7 INCHES FOR HEAVY DUTY.
8. FOR LIMEROCK, COQUINA, BANKRUN SHELL OR CRUSHED CONCRETE, MIN. LBR=100. FOR SAND/CLAY BASE, MIN. LBR=75. FOR SOIL CEMENT BASE, MIN. (7) DAY COMPRESSIVE STRENGTH=300 PSI.

CLIENT: CPH ENGINEERS, INC.

DRAWN BY: KD	DATE: 5/1/15
CHECKED BY: ES	DATE: 5/1/15
SCALE: NTS	ACADFILE:0795.1400110-C
PROJECT NO: 0795.1400110.0000	REPORT NO:1211903

WALMART STORE NO. 3875-00
SEC OF US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

PAVEMENT SECTION DETAILS

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PAGE NO:
D - 2

APPENDIX E

GEOPHYSICAL SURVEYS – SINKHOLE STUDIES
REPORT NO. 385573.1 DATED FEBRUARY 16, 2006

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REPORT OF GEOTECHNICAL CONSULTING SERVICES

Geophysical Surveys - Sinkhole Studies at Proposed Building and SMA Sites
Proposed Wal★Mart SuperCenter Store No. 3873-00
SEC Interstate Highway 75 and U.S. Highway 441
City of Alachua, Alachua County, Florida

UES Project No. 70080-077-06
UES Report No. 385573.1

Prepared for:

CPH Engineers, Inc.
500 West Fulton Street
Sanford, FL 32771
(407) 322-6841

Prepared by:

Universal Engineering Sciences, Inc.
4475 SW 35th Terrace
Gainesville, Florida 32608
(352) 372-3392

February 16, 2006

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February 16, 2006

CPH Engineers, Inc.
500 West Fulton Street
Sanford, FL 32771

Attention: Larry Wray, P.E., Project Manager

Reference: **Report of Geotechnical Consulting Services**
Geophysical Surveys - Sinkhole Studies at Proposed Building and SMA Sites
Proposed Wal★Mart SuperCenter Store No. 3873-00
SEC Interstate Highway 75 and U.S. Highway 441
City of Alachua, Alachua County, Florida
UES Project No. 70080-077-06 UES Report No. 385573.1

Dear Mr. Wray:

The Report of Geotechnical Consulting Services for this project was prepared on April 30, 2005. That report summarizes the results of the subsurface exploration program performed in anticipation of the proposed on-site construction.

Per contract scope of services, our previous geotechnical exploration was confined to the zone of soil likely to be stressed by the proposed low-rise construction. That report did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. At your request, our office proceeded with the performance of geophysical surveys or sinkhole studies at the project site. The results of those surveys are presented herein.

We appreciate the opportunity to have assisted the design team on this project. Please do not hesitate to contact our office if you should have any questions, or if we may provide further assistance with the remaining design and construction phases of the project.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES, INC.
Certificate of Authorization 549

David Barreiro, P.E., CFEA
Manager - Geotechnical Engineering
Florida P.E. No. 31901
Date: 2-17-2006

Jeff Pruett, P.E.
Regional Manager
Florida P.E. 50775

DB/JP:db (6)

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1.0 BACKGROUND

The proposed project parcel is located within a region in the State of Florida that is characterized by karst topography, where the surface of the land has been shaped by faulting, fracturing and dissolution within the underlying limestone bedrock.

The Mill Creel Sink Property consists of 8.8 acres of land lying on the north side of U.S. 441. Mill Creek Sink (previously known as the Alachua Sink) is located behinds Sonny's BBQ on U.S. 441 east of I-75 and directly to the north of the proposed parcel. The Mill Creek Sink Property does not include any land on the high ground west of the sinkhole. The property is managed for diving, research, and educational purposes.

The surface stream, Mill Creek and Townsend Branch, drains over 70 square miles north of Mill Creek Sink and is dissected by over ten sinkholes. Mill Creek goes completely underground north of the proposed project parcel. Mill Creek Sink is the only known window (or sinkhole) that allows access to the mapped underwater cave system. This general area has been documented with small short caves, solution pipes, and water-filled limestone sinkholes.

A review of the United States Department of the Interior Geological Survey, High Springs Quadrangle sheet reveals the existence of a series of water filled sinkholes directly to the south and southwest of the proposed project parcel.

Based on current technology, there is no consistent method to predict sinkhole activity or to positively identify incipient sinkholes. Since the prediction is uncertain, the exploration programs attempt to locate and identify subsurface discontinuities, abnormalities, and other features in the bedrock and overlying sediments, as well as terrain, topographic, geologic, and hydrological research. Knowledge of the general geology of the area, coupled with geophysical techniques, physical site and structural features, and direct subsurface exploration, generally in the form of soil test borings, can provide a basis for assessment of "sinkhole activity".

2.0 PREVIOUS GEOTECHNICAL STUDY FINDINGS

2.1 Building Footprint

Twenty soil test borings were initially performed within the proposed building footprint to maximum depths of 60 feet below ground surface. The soil test borings encountered slightly clayey to very clayey sands (SM to SC) and sandy clays to clays (CL to CH) in the upper 27 to 57 feet of the subsurface profile.

On average, the upper 2 feet of the subsurface soil profile was identified to consist of clean sands, underlain by clayey to very clayey sands with an average thickness of about 6 feet. Directly below these upper sandy soils all the soil test borings encountered a sandy clay and clay zone with an average thickness of about 17 feet.

2.2 Stormwater Retention Pond

Forty-one soil test borings were initially performed within the proposed stormwater retention pond area to maximum depths of 40 feet below ground surface. The soil test borings generally encountered a sand profile which varies from relatively clean sand (SP), to slightly clayey to clayey (SM to SC).

On average, the upper 6 feet of the subsurface soil profile was identified to consist of clean sands, underlain by clayey to slightly clayey sands with an average thickness of about 24 feet. These lower sands are characterized with laterally discontinuous clay lenses or seams found at various depths in the subsurface profile.

3.0 REGIONAL GEOLOGY

The general geology of Alachua County is characterized by 30 to 50 feet of undifferentiated fine to medium grained sands and clayey sands of Holocene age (the last 10,000 years) overlying the Miocene age (circa 10 million years old) Hawthorn Formation.

The Hawthorn is approximately 100 feet thick and is comprised of interbedded layers of clay, clayey sand, sandy clay and phosphate carbonates. The underlying Tertiary age (circa 50 million years old) carbonates gently dip east under an increasing thickness of younger sediments.

The general area of the proposed project parcel is characterized with unconsolidated and undifferentiated quartz sands near the surface, and karst (sinkhole) features such as collapse depressions, sinkholes, disappearing streams, springs, and mapped underground caves.

4.0 TOPOGRAPHY

The natural topography of the proposed project parcel is best described as hilly. Current ground surface elevations in the southern one-third portion of the subject parcel range from about +140 feet MSL (southwest end) to about +110 feet MSL (northeast end), with a fairly uniform downward slope to the north and northeast.

Current ground surface elevations in the central one-third portion of the subject parcel range from about +122 feet MSL (southwest end) to about +92 feet MSL (northeast end), with a fairly uniform downward slope to the north-northeast.

Current ground surface elevations in the northern one-third portion of the subject parcel range from about +97 feet MSL (southwest end) to about +79 feet MSL (north end), with a fairly uniform downward slope to the north.

4.1 Building Site

The proposed building finished floor elevation has been set at +118 feet MSL. Current ground surface elevations in this general area of the project parcel range from about +140 feet MSL (southwest end) to about +110 feet MSL (northeast end), with a fairly uniform downward slope to the north and northeast.

The above information suggests both cut and fill earthwork operations will be required for geotechnical site preparation and building pad construction. Based on the finished floor elevation and grading plan information provided to our office, it is anticipated that on the order of 2 to 20 feet of cut will be needed for building pad construction, as reflected by 13 out of 17 soil test borings, which suggests approximately 75% of the building footprint will require some degree of cut operations. The remaining building footprint will require on the order of 4 to 6 feet of fill placement.

4.2 Stormwater Retention Pond Site

The proposed stormwater retention pond will have a bottom elevation of +77 feet MSL, with top of north bank elevation set at +88 feet MSL and a top of south bank elevation of +83 feet MSL. An earth retaining wall is proposed along the south side of the retention pond adjacent to the parking lot. Current ground surface elevations in this general area of the project parcel range from about +97 feet MSL (southwest end) to about +79 feet MSL (north end), with a fairly uniform downward slope to the north.

The above information suggests both cut and fill earthwork operations will be required for pond construction. Based on the finished pond elevation and grading plan information provided to our office, it is anticipated that on the order of 2 to 18 feet of cut will be needed for the retention pond construction, as reflected by 35 out of 37 soil test borings, which suggests approximately 95% of the retention pond will require some degree of cut operations during construction. The remaining portions of the retention pond will require on the order of 5 to 6 feet of fill placement.

5.0 GROUND PENETRATING RADAR (GPR) SURVEY

GPR is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna, which houses the transmitter and receiver, and a profiling recorder that processes the received signal and produces a graphic display of the data. The radar survey is conducted in general accordance with ASTM Procedure D6432.

Depth of penetration of the GPR signal is highly site-specific and is limited by signal attenuation (absorption) in the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities, such as clays and brackish groundwater, and lowest in relatively low-conductivity materials, such as dry sand or rock.

To summarize, the depth of signal penetration in the subject study areas would have been limited by the presence of the clayey soils encountered from as shallow as 2 feet below ground surface. It was concluded that the effectiveness of the GPR method on the subject study areas would be low, and so it was decided not to include this protocol in the geophysical survey for this project parcel.

6.0 ELECTRICAL RESISTIVITY (ER) SURVEY

ER is a useful tool in geotechnical explorations in karst areas. ER is used to locate subsurface depressions in the limestone/soil interface which can indicate the existence of enlarged channels in the bedrock. Enlarged fractures and conduits provide pathways for the preferential movement of groundwater and contaminants. If the channels draining a depression in the limestone surface are capable of transmitting water and soil particles into the underlying karst aquifer, there is also a potential for the development of a sinkhole collapse.

ER has also been used to locate subsurface voids (caves), which can play a significant role in the development of sinkhole collapses. The ER survey is conducted in general accordance with ASTM Procedures G57-95A and D6431-99.

Subsurface geologic conditions can be interpreted by measuring their electrical resistivities. Such surveys are most applicable at sites with large resistivity contrasts among the various geologic materials. Because the resistivity values of limestone and the clay soil commonly associated with it are generally very different, the ER method is often successfully used for subsurface explorations in karst areas. Application of ER to karst explorations is more likely successful when the overburden (mantle materials) is clay-rich.

Measurement of the earth's electrical resistivity is a relatively simple process. Basically, an electric current is introduced into the ground through electrodes. An apparent resistivity value is calculated using a measurement of the potential difference (voltage) between other electrodes. The value of the apparent resistivity is dependent on the composition and structure of the rock and soil beneath the measuring electrodes. As the current electrodes are spread farther apart, more of the current penetrates deeper into the earth. Therefore, as the measuring electrodes are also spread farther apart, the apparent resistivity values represent geologic conditions deeper beneath the ground surface.

The measured value is termed apparent resistivity because it is a product of all the geologic materials through which the electric current flows. Thus, it is not characteristic of any one layer within the ground. However, multiple apparent resistivity values can be mathematically processed to yield the thicknesses of individual layers and their resistivity values, which can be related to the type of soil or rock within each layer. Electrode configurations which are commonly used in hydrogeologic explorations include the Wenner, Schlumberger, pole-dipole, and dipole-dipole arrays.

ER applications include:

- Define irregular bedrock surface and depth to bedrock
- Detect water-filled or clay-filled conduits or solution-enlarged fractures
- Delineate areas with high sinkhole risk
- Detect cavities at shallow depth
- Delineate groundwater pollution plumes
- Map salt water intrusion

Geohazards, Inc. was commissioned to perform the ER survey for the subject site. The following documents were prepared by Geohazards, Inc. at the request of UES:

1. Report of Geophysical Investigation of the Geologic Subsurface at the Proposed Wal-Mart Construction Site, Alachua, Florida, Report No. 2004516, dated November 2004.

2. Report of Geophysical Investigation of the Geologic Subsurface at the Proposed Wal-Mart Supercenter Site, Alachua, Florida, Report No. 2004516A, dated December 2005.

3. Report of Geophysical Investigation of the Geological Subsurface at the Proposed Wal-Mart Supercenter Retention Pond Site, Alachua, Florida, Report No. 2004516B, dated January 2006.

The Geohazards, Inc. reports are attached to this Geotechnical Report, and the conclusions and findings are summarized as follows.

The November 2004 ER survey included twelve ER traverse lines configured on a relatively wide spacing within the proposed building footprint. The maximum depth of penetration for the traverses was 100 feet.

No electrical data were interpreted as indicative of well-developed cavities, but electrical evidence of a possible raveled zone was detected beneath one traverse line at the clay-limestone boundary at a depth of approximately 30 feet below ground surface. A ground proofing soil test boring was recommended.

The December 2005 ER survey included an additional fourteen ER traverse lines configured so as to provide representative coverage of the proposed building footprint, and complement the traverses conducted in 2004. The maximum depth of penetration for the traverses was 100 feet. No electrical data were interpreted as indicative of well-developed cavities. Porous limestone conditions were interpreted beneath two traverse lines at depths of approximately 70 and 100 feet below ground surface. Ground proofing soil test borings were recommended.

The January 2006 ER survey included twenty-one ER traverse lines configured so as to provide representative coverage over the proposed stormwater retention pond area. The maximum depth of penetration for the traverses was 100 feet. Electrical evidence of a possible air-filled cavity was detected beneath one of the traverses at a depth of approximately 30 feet below ground surface. Porous limestone conditions were interpreted beneath one traverse line at a depth of approximately 50 feet below ground surface. Ground proofing soil test borings were recommended.

7.0 GROUND PROOFING SOIL TEST BORING EXPLORATION

Ground proofing field geotechnical testing activities were started on January 3, 2006 and completed on January 20, 2006. Field tests for the geotechnical study included twenty-two standard penetration soil test borings (GB-1 to GB-22) performed within the limits of the proposed building footprint and proposed stormwater management facility.

Ground proofing soil test borings were performed following review of the geophysical survey findings and recommendations from Geohazards, Inc. Soil test borings GB-1 to GB-12 were performed within the limits of the proposed building footprint. Soil test borings GB-13 to GB-22 were performed within the limits of the proposed stormwater management facility.

The soil test boring locations are shown in the attached Boring Location Plan drawing. The test quantities and locations were selected by Geohazards and UES engineering personnel. The actual test locations shown are approximate and were staked in the field by UES engineering personnel using existing landmarks and site features. All boreholes were backfilled upon field work completion, and boreholes were grouted whenever the limestone formation was penetrated during the exploration.

The standard penetration test borings were advanced to maximum depths of 100 feet below existing site grades. Penetration tests were performed in accordance with ASTM Procedure D-1586, Penetration Test and Split-Barrel Sampling of Soils. This test procedure generally involves driving a 1.4-inch I.D. split-tube sampler into the soil profile in six inch increments for a minimum distance of 18 inches using a 140-pound hammer free-falling 30 inches. The total number of blows required to drive the sampler the second and third 6-inch increments is designated as the N-value, and provides an indication of in-place soil strength, density and consistency.

Representative portions of the subsurface soil samples recovered were transported to our Gainesville soils laboratory. The soil samples were visually classified by an experienced Geotechnical Engineer. The results of the classification and stratification are shown on the attached Boring Logs and summarized below.

7.1 Subsurface Findings at Building Footprint

The subsurface findings at the twelve ground proofing soil test boring locations are summarized as follows. Loose to medium slightly clayey sand [SM], very loose to medium clayey to very clayey sand [SC], and soft to very stiff clay [CH] to sandy clay [CL] overburden soils were encountered from ground surface to the top of the limestone formation at all the test sites. The clay and sandy clay zones were measured with an average thickness of 20 feet at the twelve soil test boring sites. The clay zone was encountered in all the soil test borings.

The top of the limestone was encountered at depths ranging from 25 to 48 feet below ground surface, with an average depth of 35 feet. The limestone matrix encountered at the soil test boring sites can be generally described as moderately to well-cemented based on the standard penetration test N-values and the geotechnical engineer's examination of the recovered samples. Once encountered the limestone zone was continuous to the soil test boring termination depths.

Loss of drilling fluid circulation was noted in some of the soil test borings at various depths within the limestone matrix. This soil drilling condition is generally indicative of porous to very porous zones in the cemented limestone structure, and may also indicate the presence of solution channels or cavities or fissures within the limestone matrix. The vertical and horizontal extent of such channels, cavities or fissures can not be determined from the fluid loss condition.

The groundwater level was only apparent at four soil test boring sites, and was measured at depths of 49, 70, 73 and 80 feet below the existing site grades.

The ground proofing soil test borings identified conditions that were interpreted as possible soil-filled solution cavities in 5 out of 22 soil test boring sites; two of these were in the building area at GB-8 and GB-12. The vertical extent of these conditions was typically in the range of 1 to 3 feet. These conditions were interpreted from the reduction in drilling effort while advancing between standard penetration test sampling intervals. Soil filling material is a mixture of sand and clay.

7.2 Subsurface Findings at Stormwater Retention Pond Area

The subsurface findings at the ten ground proofing soil test boring locations are summarized as follows. Very loose to loose slightly clayey sand [SM], very loose to medium clayey sand [SC], and very soft to stiff clay [CH] to sandy clay [CL] overburden soils were encountered from ground surface to the top of the limestone formation at all the test sites. The clay and sandy clay zones were measured with an average thickness of 7 feet at the soil test boring sites. The clay zone was encountered in seven out of ten soil test borings.

The top of the limestone was encountered at depths ranging from 15 to 52 feet below ground surface, with an average depth of 30 feet. The top of the limestone formation was not encountered in one of the soil test borings (GB-17) in the upper 50 feet of the subsurface profile. The limestone matrix encountered at the soil test boring sites can be generally described as moderately to well-cemented based on the standard penetration test N-values and the geotechnical engineer's examination of the recovered samples. Once encountered the limestone zone was continuous to the soil test boring termination depths.

Loss of drilling fluid circulation was noted in some of the soil test borings at various depths within the limestone matrix. This soil drilling condition is generally indicative of porous to very porous zones in the cemented limestone structure, and may also indicate the presence of solution channels or cavities or fissures within the limestone matrix. The vertical and horizontal extent of such channels, cavities or fissures can not be determined from the fluid loss condition.

The groundwater level was only apparent at one soil test boring site, and was measured at a depth of 48 feet below the existing site grade.

The ground proofing soil test borings identified conditions that were interpreted as possible soil-filled solution cavities in 5 out of 22 soil test boring sites; three of these were in the stormwater retention pond area at GB-13, GB-16 and GB-21. The vertical extent of these conditions was typically in the range of 1.5 to 3.5 feet. These conditions were interpreted from the reduction in drilling effort while advancing between standard penetration test sampling intervals. Soil filling material is a mixture of sand and clay. The sandy clay zone encountered from 42 to 50 feet in GB-16 is also interpreted as a possible soil-filled solution cavity; this interpretation relies on the available data base that suggests the limestone formation extends to deeper depths in the profile.

8.0 SINKHOLE POTENTIAL

The proposed project parcel is located within a region in the State of Florida that is characterized by karst geology, where the surface of the land has been shaped by faulting, fracturing and dissolution within the underlying limestone bedrock.

Based on current technology, there is no consistent method to predict sinkhole activity or to positively identify incipient sinkholes. Since the prediction is uncertain, the exploration programs attempt to locate and identify subsurface discontinuities, abnormalities, and other features in the bedrock and overlying sediments, as well as terrain, topographic, geologic, and hydrological research. Knowledge of the general geology of the area, coupled with geophysical techniques, physical site and structural features, and direct subsurface exploration, generally in the form of soil test borings, can provide a basis for assessment of "sinkhole activity".

8.1 General Sinkhole Mechanisms and Indicators

A sinkhole is defined as "a depression caused by the soil and other materials subsiding into an open hole or void below the ground surface." This phenomenon is common in karst geology, where soils are underlain by limestone material, which is partially dissolved by the groundwater. The resulting voids in the limestone formation provide paths through which water can travel, taking erodible soils from above with it.

Natural sinkholes in a karst region may occur in two primary varieties. The first is an irregular or circular opening in the ground surface due to the collapse of a limestone roof above a cavern in the limestone created by dissolution. Although a popular conception, this mechanism probably accounts for less than 10 percent of all *active* sinkholes in the State of Florida.

The second, more common event is overburden collapse from raveling. In geologic terms, a ravel-type sinkhole in a karst region can be defined as "a conical- or bowl-shaped depression in the land surface formed by water-related erosion of soils through subsurface passages developed by solution within the underlying limestone." Regionally in the State of Florida, the term "sinkhole" has grown to include both the physical description (above) and the processes directly related to the formation of the karst feature.

Raveled sinkholes occur where primarily sandy soil conditions, above weak, fissured, discontinuous or absent clay "confining" strata, and a surficial groundwater table are present. The percolation of the surficial groundwater table recharging the Floridan Aquifer can cause the slow erosion (raveling) of soil into cavities within the limestone, resulting in ground subsidence. The Winter Park sinkhole that developed in the early 1980's is likely the most well known raveled sinkhole in the State of Florida. Raveled sinkholes can be as small as 10 to 20 feet in diameter at ground surface, or as large as several hundred feet in diameter. The sidewalls are typically funnel-shaped when the sinkhole matures.

The most common form of cover collapse/cover subsidence sinkhole is referred to as chimney sinkholes. Larger, less frequent types are the Millhopper Sink, for example. Chimney sinkholes typically develop on sites where a surficial groundwater table is not present.

The sinkholes develop from the collapse of soil into cavities in the limestone formation. This collapse results in a void in the soil above the limestone. As the roof of the void continues to collapse, the void progresses upward toward the ground surface. At some depth, the ground can no longer span over the void, and a sudden collapse or subsidence occurs. The percolation of stormwater through sand layers in the clayey soils can accelerate the collapse of chimney sinkholes. Chimney sinkholes are typically less than 10 to 20 feet in diameter. The sidewalls are typically near vertical at the time of collapse and remain so over time.

Sinkhole-activity is not uncommon to karst landscape, where overburden soils (generally less than 50 to 100 feet) are underlain by carbonate material (e.g., limestone or dolostone) which has been partially dissolved by contact with slightly acidic ground water. Often however, sinkhole activity initially lacks any surface expression and the process remains hidden until the subsurface is explored, the possible effects are seen when the process affects man-made improvements located over the solution activity, or a visually significant ground subsidence has occurred.

When viewed three-dimensionally, an idealized sinkhole feature is somewhat funnel-shaped with the upper cone connected to a vertical erosional passage. Where the overburden thickness is shallow (usually less than 20 feet) the usual surface expression is a bowl-shaped depression. Where overburden thickness is greater, the raveling process may continue until the underlying void becomes completely filled (creating a dormant condition), or the soil shear strength of the overlying soils can no longer support the arch, or bridge of overburden; causing a more vertically-sided collapse.

Perhaps the most important factor in sinkhole formation is the influence of ground water on the subsidence and sinkhole formation regime. Under normal circumstances, infiltrating waters are essentially limited to unconfined, surficial aquifers. Such waters generally slowly percolate through low permeability confining units into underlying highly permeable carbonate rocks.

However, where joints, fractures, and solution features provide direct flow into the underlying limestone, dissolution and removal of the rock is more effective and, by geologic standards, rapid. Then, more extensive void development within the existing joints and faults occurs by dissolution and ground water velocity increases, further accelerating the creation of subsurface cavern systems.

8.2 Typical Indicators of Sinkhole Activity

The following is a summary of geologic, hydrologic, physiographic, and environmental observations, features, or indicators that are associated or found in areas with high potential of sinkhole activity. No one feature is mandatory, but generally, the greater the number present, the greater the risk of sinkhole activity susceptibility. This summary, by no means, is intended to be exhaustive.

- A zone of loose or raveled sandy soils.
- The presence or an opening in the confining layer.
- The presence of voids or fissures within the confining layer.

- Depression or collapse at the top of the limestone bedrock.
- The presence of any soft, deep buried deposit of organic soils consisting of fibrous or non fibrous peat.
- Observation of karst activity/sinkholes within the local geologic setting and/or subject site.
- Soluble limestone at or near the ground surface that may be jointed or faulted.
- High fluctuation in water levels, either seasonally or caused by drought cycles, in both the upper, unconfined and lower, confined aquifer.
- High fluctuation in water levels due to man-made occurrences, such as well pumping, construction dewatering activities, and diversion of precipitation into retention areas.
- Clay inter-bedding within the overburden soils is significant, or clayey layers are absent all together from the overburden soils.
- Well-developed cavern zones within the underlying limestones are common.
- The overburden soil is less than 100 feet in thickness.
- The potentiometric surface of the underlying confined limestone aquifer lies well below the water table, creating a large downward gradient.
- Depth to top of limestone highly variable, depressed, pinnacled or dipping over relatively short distances.
- Soil consistency in terms of "N" values may vary considerably, particularly in the overburden/clay layer that overlies or soils that directly overlie the limestone.
- Extensive loss of drilling fluid during exploratory boring operations.

8.3 Site Specific Sinkhole Activity Conclusions

Our interpretation of the available soil test boring data, and of the results of the geophysical studies performed for this project, as summarized above, does not suggest subsurface conditions beneath the proposed building footprint and beneath the proposed stormwater retention pond area that may be associated with imminent sinkhole activity. Therefore, we do not recommend subsurface remedial measures for these areas nor modifications to normal conventional foundation construction for this project.

No air-filled cavities of significant size were encountered in the ground proofing soil test borings that followed the ER survey work. The ground proofing soil test borings identified conditions that were interpreted as possible soil-filled solution cavities in 5 out of 22 soil test boring sites; two in the building area and three in the retention pond area. The vertical extent of these conditions was typically in the range of 1 to 3 feet. Porous to very porous limestone zones were identified in both the ground proofing soil test borings and ER survey work. The limestone formation at this project site, in the upper 100 feet of the subsurface profile, is generally characterized as moderately to well-cemented.

Locally, a relationship has been noted between sinkhole occurrence and significant rainfall events. This fact leads to the conclusion that new construction on the project site should mitigate future sinkhole occurrence beneath proposed building and pavement areas, by directing stormwater runoff away from those same areas to the stormwater retention pond. In Alachua County sinkhole occurrence has been documented both inside and outside the limits of stormwater retention ponds.

Relying on the available project data and information summarized above, we conclude that the post-development scenario on the subject site will be associated with a low to moderate potential, on a relative scale of low-moderate-high, of future sinkhole activity.

It should be noted that project sites characterized with moderate to high potential for sinkhole activity, specially such activity as it might occur within the useful life of the project (imminent sinkhole potential), and might have a significant impact to the business use of the developed parcel, are often considered for pre-development preventive measures, such as subsurface soil grouting.

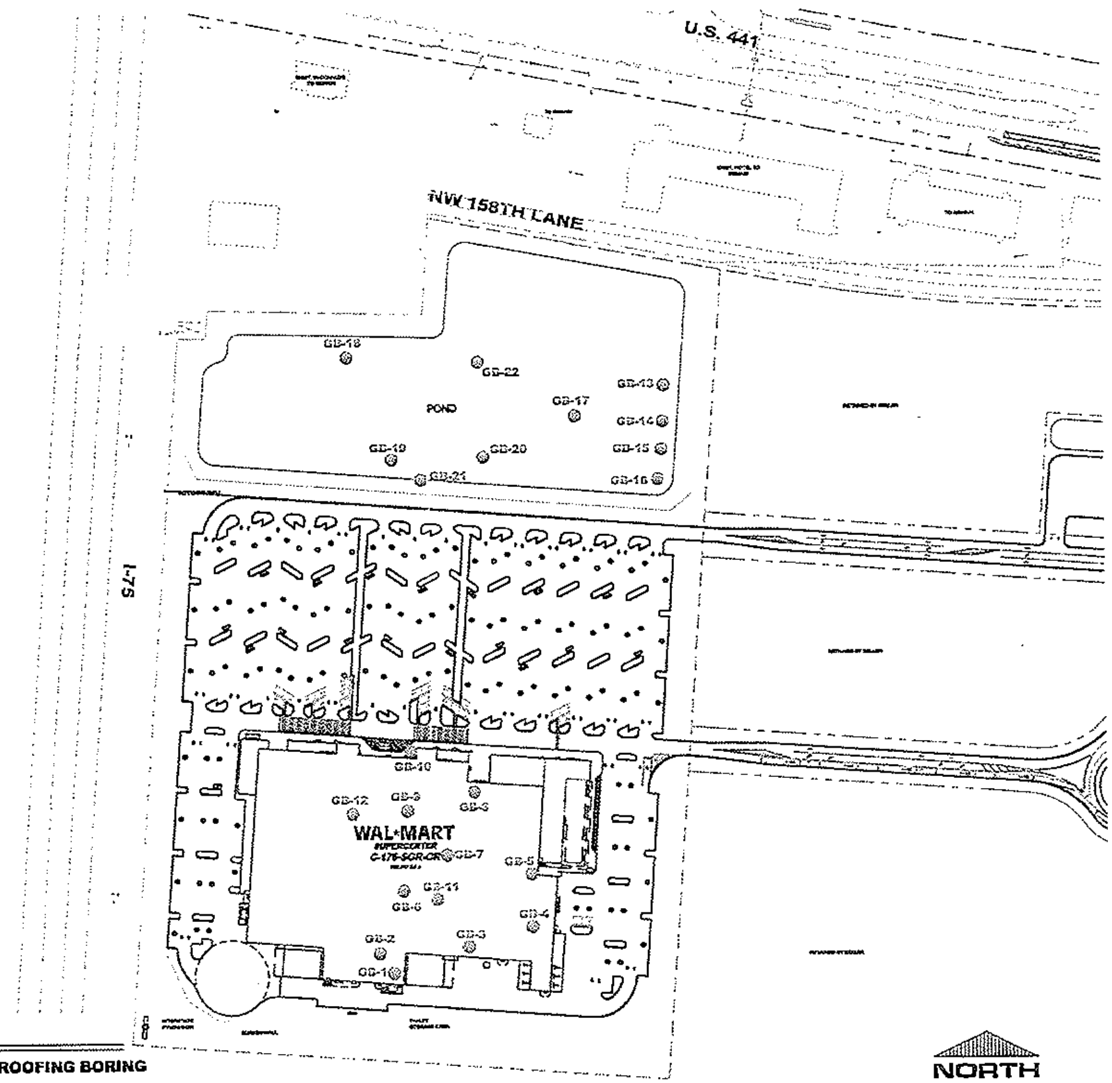
The general objective of subsurface grouting programs is to partially cement and compact the overburden soil mass, so as to effectively reduce the potential for groundwater percolation and soil raveling in those site areas, thus reducing the potential for sinkhole occurrence in those same areas. Grouting programs are often designed to provide a grouted "mass or blanket" above the limestone surface. The thickness of the grouted zone varies along with variations in the top of the limestone, and final foundation and grade slab finished elevations of the individual project elements. Post-grouting soil test boring (ASTM D-1586) verification programs are typically implemented along with the subsurface soil improvement program.

The anticipated geotechnical site preparation (earthwork) activities on this project parcel for the construction of the proposed Wal★Mart SuperCenter Store may reveal subsurface conditions that were not apparent or identified in the geotechnical and geophysical studies as summarized herein and in previous report submittals for this project. We recommend the continuous involvement of the Geotechnical Engineer through these early phases of project site construction.

9.0 REPORT LIMITATIONS

This Report was prepared for the exclusive use of Wal-Mart Stores, Inc., CPH Engineers, Inc., and other members of the design/construction team for the specific project discussed in this Report. This Report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied.

APPENDIX A



LEGEND

◉ STANDARD PENETRATION TEST GROUND PROOFING BORING

NOTE: ALL SOIL TEST BORING LOCATIONS SHOWN ARE ONLY APPROXIMATE.

PROPSOED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING LOCATION PLAN

CLIENT: CPH ENGINEERS, INC.			
DRAWN BY:	K.D.	DATE:	02/03/08
CHECKED BY:	D.B.	DATE:	02/03/-8
SCALE:	1"=200'	ACADFILE:	70080-C
PROJECT NO:	70080-077	REPORT NO:	385573

UNIVERSAL
ENGINEERING SCIENCES

PAGE NO: A - 1

	UNIVERSAL ENGINEERING SCIENCES BORING LOG	PROJECT NO.: 70080-077-06 REPORT NO.: 385573 PAGE: A-2

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-1 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +130(EST) DATE STARTED: 1/17/06
WATER TABLE (ft): NE DATE FINISHED: 1/17/06
DATE OF READING: NA DRILLED BY: D.B/T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose brown clayey SAND [SC]						
	X	0-1-2	3			Soft green-gray and red-brown CLAY, with trace of sand and limestone fragments in upper 18 inches [CH]						
	X	2-3-4	7									
5	X	4-4-6	10			Stiff...						
	X	2-4-3	7			Medium...						
	X	2-2-3	5			Medium...						
10	X	2-1-2	3			Soft, with trace of limestone fragments...						
15	X	1-2-2	4			Soft...						
20	X	2-3-4	7			Medium...						
25	X	2-3-5	8			Medium greenish-gray sandy to very sandy CLAY [CL]						
30	X	3-4-4	8			Medium...						
35	X	3-3-5	8			Medium...						
40	X	3-2-2	4			Soft...						
45	X	0-0-0	0			Very soft...						
50	X	12-32-15	47			Tan LIMESTONE (100% Loss of drilling fluid circulation at 50' depth) (Moderately to well-cemented limestone matrix encountered from 48' to 100' depth)						
55	X	30-45-50/3"	50/3"									
60	X	13-23-19	42									

BL21

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-3

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	19-17-18	35									
70	X	14-15-16	31									
75	X	9-10-12	22									
80	X	20-27-26	53									
85	X	27-34-43	77									
90	X	18-16-11	27									
95	X	11-11-8	19									
100	X	5-10-6	16			Boring terminated at 100'						

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-4

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-2 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +132(EST) DATE STARTED: 1/16/06
WATER TABLE (ft): NE DATE FINISHED: 1/16/06
DATE OF READING: NA DRILLED BY: D.B./T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0				Very loose brown SAND [SP], with trace of limestone fragments						
	2-1-2	3		Soft brown and red-brown CLAY, with trace of limestone fragments and sand [CH]						
	2-3-5	8								
5	2-2-3	5		Medium...						
	2-2-3	5		Medium...						
	2-2-3	5		Medium...						
10	2-2-2	4		Soft...						
15	1-2-2	4		Soft...						
20	2-2-3	5		Medium light green-gray, with trace of limestone fragments...						
				Medium light green-gray sandy CLAY [CL]						
25	2-3-4	7								
				Loose light green-gray clayey SAND [SC]						
30	2-3-4	7								
35	3-3-2	5		Loose...						
40	0-0-0	0		Very loose...						
45	1/12"	1/12"		Very loose...						
				Tan LIMESTONE						
50	50/6"	50/6"		(100% Loss of drilling fluid circulation at 50' depth) (Moderately to well-cemented limestone matrix encountered from 46' to 100' depth)						
55	50/5"	50/5"								
60	10-14-16	30								

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	70080-077-06
REPORT NO.:	385573
PAGE:	A-5

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-2 SHEET: 2 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	1-13-26	39									
70	X	15-15-14	29									
75	X	13-14-14	28									
80	X	18-18-24	42									
85	X	20-28-40	68									
90	X	22-13-13	26									
95	X	16-16-12	28									
100	X	13-19-17	36			Boring terminated at 100'						

BL2t

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-6

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-3 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +121(EST) DATE STARTED: 1/10/06
WATER TABLE (ft): NE DATE FINISHED: 1/11/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose gray silty SAND [SM]						
	X	0-0-1	1			Loose brown and orange very clayey SAND [SC]						
	X	1-3-4	7			Medium gray and orange sandy CLAY [CL]						
5	X	3-4-4	8									
	X	7-6-8	14			Stiff...						
	X	9-9-8	17			Very stiff green, orange and gray CLAY [CH]						
10	X	8-8-8	16			Very stiff...						
						Medium tan clayey SAND [SC]						
15	X	2-4-7	11									
20	X	4-5-7	12			Medium...						
25	X	3-4-5	9			Loose...						
30	X	7-5-4	9			Loose...						
35	X	8-50/½"	50/½"			Tan LIMESTONE (100% Loss of drilling fluid circulation at 35', 41.5' and 50' depths)						
40	X	5-3-9	12			(Porous to very porous limestone matrix from 34' to 53' depth)						
45	X	11-43-8	51									
50	X	16-29-3	32									
						Boring terminated at 53' due to very hard limestone, 2 hours to drill 2 feet						

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-7

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-4 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +120(EST) DATE STARTED: 1/3/06
WATER TABLE (ft): 49 DATE FINISHED: 1/4/06
DATE OF READING: 1/4/06 DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose brown and orange clayey SAND [SC]						
	X	1-2-2	4									
	X	2-3-4	7			Loose...						
5	X	3-4-5	9			Loose gray, orange and tan...						
	X	5-5-5	10			Loose...						
	X	6-7-7	14			Stiff light green and orange CLAY, with trace of sand [CH]						
10	X	8-9-9	18			Very stiff...						
15	X	1-2-3	5			Medium...						
20	X	1-2-3	5			Medium...						
						Loose light tan to white clayey SAND [SC]						
25	X	4-5-6	11			Medium...						
30	X	3-4-5	9			Loose...						
35	X	1-2-2	4			Soft light brown sandy CLAY [CL]						
						Very loose tan and orange very clayey SAND [SC], with trace of limestone fragments						
40	X	0-0-0	0									
						(100 Loss of drilling fluid circulation at 36.5' depth)						
45	X	0-0-8	8			Tan LIMESTONE						
50	X	12-28-36	64	▼								
55	X	22-38-14	42			(100 Loss of drilling fluid circulation at 45' and 63' depths)						
60	X	12-19-12	31									

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-00
REPORT NO.: 385573
PAGE: A-8

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-4
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	14-16-19	35									
						(Moderately to well-cemented limestone matrix encountered from 44' to 100' depth)						
70	X	12-18-28	46									
75	X	21-22-29	51									
80	X	31-45-30	95									
85	X	20-15-19	34									
90	X	22-21-31	52									
95	X	14-17-17	34									
100	X	12-14-16	30									

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-9

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-5 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +118(EST) DATE STARTED: 1/4/06
WATER TABLE (ft): NE DATE FINISHED: 1/5/06
DATE OF READING: NA DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0				Loose brown clayey SAND [SC]						
	1-2-3	5								
	3-4-5	9		Loose...						
5	3-3-5	6		Loose brown and gray...						
	5-4-4	8								
	6-6-5	11		Medium gray and orange slightly clayey SAND [SM]						
10	5-7-8	15		Medium orange and gray clayey SAND [SC]						
				Medium green and orange CLAY [CH]						
15	2-2-3	5								
20	1-3-5	8		Loose light tan to white slightly clayey SAND [SM]						
				Medium green and orange CLAY, with lenses of sand [CH]						
25	2-2-4	6								
				Loose light tan to white and brown slightly clayey SAND [SM]						
30	2-3-4	7		Loose...						
35	4-5-6	11		Medium...						
				Tan LIMESTONE (100 Loss of drilling fluid circulation at 36.5' depth)						
40	50/4"	50/4"								
				(Moderately to well-cemented limestone matrix encountered from 36' to 100' depth)						
45	18-17-23	40								
50	9-10-23	33								
55	4-8-6	14								
60	11-16-10	26								

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-10

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-5
SHEET: 2 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	10-14-14	28									
70	X	21-23-10	33									
75	X	15-14-16	30									
80	X	11-22-19	41									
85	X	5-5-11	16									
90	X	6-9-18	27									
95	X	14-15-11	26									
100	X	18-19-21	40									

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-11

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-6 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +127(EST) DATE STARTED: 1/18/06
WATER TABLE (ft): NE DATE FINISHED: 1/18/06
DATE OF READING: NA DRILLED BY: D.B./T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose brown clayey SAND [SC]						
	X	4-4-3	7			Medium green-gray and red-brown CLAY [CH], with limestone fragments in upper 12 inches						
	X	3-4-3	7									
5	X	2-2-2	4									
	X	2-2-2	4			Soft...						
	X	2-2-2	4			Soft...						
10	X	2-2-2	4			Soft gray and orange sandy to very sandy CLAY [CL]						
15	X	2-2-3	5			Medium...						
						Medium light green-gray CLAY [CH]						
20	X	2-2-2	4			Soft...						
25	X	18-50/6"	50/6"			Tan LIMESTONE						
30	X	15-43-15	58									
35	X	9-13-21	34									
40	X	50/6"	50/6"			(Moderately to well-cemented limestone matrix encountered from 25' to 100' depth)						
45	X	50/6"	50/6"									
50	X	26-13-16	29									
55	X	50/5½"	50/5½"									
60	X	16-12-20	32									

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-12

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-6
SECTION: 15,16 TOWNSHIP: 8S

SHEET: 2 of 2
RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	20-21-29	50									
70	X	9-27-27	54									
75	X	23-45-33	78									
80	X	30-40-25	65									
85	X	22-20-32	52									
90	X	12-7-6	13									
95	X	5-10-18	28									
100	X	8-10-9	19			Boring terminated at 100'						

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	70080-077-08
REPORT NO.:	385573
PAGE:	A-13

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-7 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +120(EST) DATE STARTED: 1/12/06
WATER TABLE (ft): 73 DATE FINISHED: 1/13/06
DATE OF READING: 1/13/06 DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose brown clayey SAND [SC]						
	X	1-2-3	5									
	X	5-6-7	13			Medium brown and orange...						
5	X	5-6-4	10			Loose...						
	X	5-3-5	8			Stiff green and orange CLAY [CH]						
	X	5-6-6	12			Stiff...						
10	X	5-6-6	12			Stiff...						
15	X	2-4-4	8			Loose tan clayey SAND [SC]						
20	X	2-4-5	9			Loose...						
25	X	3-5-6	11			Medium...						
						Tan LIMESTONE						
30	X	17-40-50/5½"	50/5½"									
						(100% Loss of drilling fluid circulation at 32', 46.5', 50' and 55' depths)						
35	X	50½"	50½"									
40	X	21-27-31	58									
45	X	18-19-27	46									
						(Moderately to well-cemented limestone matrix encountered from 27' to 100' depth)						
50	X	3-2-3	5									
55	X	9-10-15	25									
60	X	16-20-15	35									

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-14

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-7
SECTION: 15,16
TOWNSHIP: 8S
SHEET: 2 of 2
RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	17-18-16	34									
70	X	20-32-21	53									
75	X	12-11-9	20	▼								
80	X	8-10-10	20									
85	X	11-9-10	19									
90	X	13-14-12	26									
95	X	16-21-10	31									
100	X	15-24-14	38			Boring terminated at 100'						

BL2I

PROJECT NO.:	70080-077-06
REPORT NO.:	385573
PAGE:	A-15

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-8 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +113(EST) DATE STARTED: 1/11/06
WATER TABLE (ft): 70 DATE FINISHED: 1/12/06
DATE OF READING: 1/12/06 DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose brown, gray and orange clayey SAND [SC]						
	X	2-2-3	5			Medium green, gray and orange CLAY [CH]						
	X	2-3-3	6									
5	X	3-4-5	9			Stiff...						
	X	6-5-6	11			Stiff...						
	X	7-7-5	12			Medium tan clayey SAND [SC]						
10	X	5-5-6	11									
15	X	2-3-4	7			Loose...						
20	X	3-4-6	10			Loose...						
25	X	4-6-7	13			Medium, with trace of limestone fragments...						
						Tan LIMESTONE						
30	X	21-29-44	73									
35	X	10-25-27	52			(100% Loss of drilling fluid circulation at 27' depth)						
40	X	11-8-27	35			(Possible soil-filled solution cavity from 27' to 28.5' and 49' to 50' depths)						
45	X	18-21-20	41									
50	X											
55	X	20-29-34	63									
						(Moderately to well-cemented limestone matrix encountered from 26' to 100' depth)						
60	X	33-23-27	50									

BL2

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	70080-077-06
REPORT NO.:	385573
PAGE:	A-16

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-8
SECTION: 15,16 TOWNSHIP: 8S
SHEET: 2 of 2
RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	18-21-20	41									
70	X	8-9-2	11	▼								
75	X	6-7-7	14									
80	X	10-9-8	17									
85	X	14-12-15	27									
90	X	12-20-12	32									
95	X	15-17-20	37									
100	X	17-25-21	46			Boring terminated at 100'						

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	70080-077-06
REPORT NO.:	385573
PAGE:	A-17

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-9 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +122(EST) DATE STARTED: 1/13/06
WATER TABLE (ft): NE DATE FINISHED: 1/13/06
DATE OF READING: NA DRILLED BY: D.B./T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0	X	1-1-2	3			Soft light brown and red-brown CLAY [CH]						
	X	3-4-5	9			Stiff...						
	X	4-4-5	9			Stiff gray...						
5	X	3-3-2	5			Medium green-gray and red-brown...						
	X	2-2-2	4			Soft...						
	X	1-2-2	4			Soft...						
10	X	2-2-2	4			Soft...						
15	X	2-2-2	4			Soft...						
20	X	2-2-2	4			Soft...						
25	X	4-4-3	7			Loose green-gray clayey SAND [SC]						
30	X	2-5-4	9			Loose green-gray slightly clayey SAND [SM]						
35	X	32-50/½"	50/½"			Tan LIMESTONE (100% Loss of drilling fluid circulation at 36' depth)						
40	X	14-15-18	33									
45	X	23-18-21	39			(Moderately to well-cemented limestone matrix encountered from 34' to 100' depth)						
50	X	14-15-7	22									
55	X	5-11-13	24									
60	X	15-21-23	44									

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-18

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-9
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E
SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	20-23-22	45									
70	X	30-29-34	63									
75	X	17-26-22	48									
80	X	12-14-21	35									
85	X	7-5-4	9									
90	X	5-13-13	26									
95	X	7-12-7	19									
100	X	10-16-13	29			Boring terminated at 100'						

BL2I

UNIVERSAL ENGINEERING SCIENCES BORING LOG	PROJECT NO.:	70080-077-06
	REPORT NO.:	385573
	PAGE:	A-19

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-10 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +118(EST) DATE STARTED: 1/13/06
WATER TABLE (ft): NE DATE FINISHED: 1/17/06
DATE OF READING: NA DRILLED BY: R. WOODARO
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0				Very loose brown and orange clayey SAND [SC]						
	1-1-3	4								
	3-3-4	7		Loose...						
5	6-6-6	12		Medium...						
	7-6-7	13		Stiff orange and gray sandy CLAY [CL]						
	8-9-7	16		Very stiff green and orange CLAY [CH]						
10	8-8-9	17								
15	2-2-3	5		Medium...						
				Very loose tan and brown clayey SAND [SC]						
20	1-1-1	2								
				Loose tan clayey SAND [SC]						
25	3-3-4	7								
30	3-4-5	9								
35	4-7-8	15		Stiff gray and orange CLAY (CH), with limestone fragments						
				Tan LIMESTONE						
40	2-1-1	2		(Porous to very porous limestone matrix from 37' to 49' depth)						
45	4-7-3	10								
50	0-11-14	25		(100% Loss of drilling fluid circulation at 36.5' and 51.5' depths)						
55	11-13-14	27								
60	12-27-18	45								

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	70080-077-06
REPORT NO.:	385573
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PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-10 SHEET: 2 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	9-12-21	33			(Moderately to well-cemented limestone matrix encountered from 50' to 100' depth)						
70	X	12-18-24	42									
75	X	9-11-15	26									
80	X	9-7-18	25									
85	X	10-15-17	32									
90	X	12-8-11	19									
95	X	7-8-11	19									
100	X	8-9-9	17									

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UNIVERSAL ENGINEERING SCIENCES BORING LOG	
	PROJECT NO.: 70080-077-06
	REPORT NO.: 385573
	PAGE: A-21

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-11 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +123(EST) DATE STARTED: 1/6/06
WATER TABLE (ft): 80 DATE FINISHED: 1/10/06
DATE OF READING: 1/6/06 DRILLED BY: R. WOODARD
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose light brown SAND [SP]						
	X	1-1-1	2									
	X	1-3-5	8			Loose gray and brown clayey SAND [SC]						
5	X	5-8-10	18			Medium...						
	X	10-10-12	22			Medium...						
	X	12-12-11	23			Very stiff green and orange CLAY [CH]						
10	X	9-10-12	22			Medium tan and gray clayey SAND [SC]						
15	X	3-8-9	17			Medium brown and tan...						
20	X	4-5-6	11			Medium tan...						
25	X	4-5-6	11			Medium...						
30	X	2-2-2	4			Tan LIMESTONE						
35	X	12-14-50	64									
						(100% Loss of drilling fluid circulation at 29' and 36.5' depths)						
40	X	50/1½"	50/1½"									
45	X	33-49-50/5"	50/5"			(Moderately to well-cemented limestone matrix encountered from 35' to 100' depth)						
50	X	34-50-38	88									
55	X	20-28-36	64									
60	X	22-25-43	68									

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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 365573
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PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-11
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E
SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	24-40-48	88									
70	X	33-50-55	105									
75	X	30-38-42	80									
80	X	19-33-19	52	▼								
85	X	12-20-18	38									
90	X	19-11-9	20									
95	X	10-12-10	22									
100	X	12-6-13	19			Boring terminated at 100'						

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-23

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-12 SHEET: 1 of 2
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +127(EST) DATE STARTED: 1/12/06
WATER TABLE (ft): NE DATE FINISHED: 1/12/06
DATE OF READING: NA DRILLED BY: D.B./T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0	X	1-2-1	3			Very loose brown SAND [SP]						
	X	2-2-2	4			Soft brown to red-brown slightly sandy CLAY [CL]						
	X	3-3-5	8									
5	X	4-5-5	10			Stiff brown to red-brown and light green-gray CLAY [CH]						
	X	2-2-3	5			Medium...						
	X	2-2-3	5			Medium...						
10	X	2-3-3	6			Medium...						
15	X	1-2-2	4			Soft...						
20	X	3-4-4	8			Medium...						
						Loose green-gray clayey SAND [SC]						
25	X	4-4-5	9									
						Medium light gray CLAY [CH]						
30	X	3-4-3	7			Medium...						
35	X	2-2-2	4			Soft...						
						Tan LIMESTONE						
40	X	50/3"	50/3"									
45	X	22-31-9	40									
						(Moderately to well-cemented limestone matrix encountered from 38' to 100' depth)						
50	X	10-14-22	36									
55	X	13-15-10	25									
60	X	12-13-20	33									

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PROJECT NO.:	70080-077-06
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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-12
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
60												
65	X	9-14-12	26									
70	X	13-18-11	29									
75	X	2-1-0	1			(Possible soil-filled solution cavity from 72' to 75' depth)						
80	X	4-15-16	31									
85	X	13-16-16	32									
90	X	8-11-10	21									
95	X	11-15-10	25									
100	X	9-7-9	16									

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PROJECT NO.:	70080-077-06
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UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-13 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +83(EST) DATE STARTED: 1/15/06
WATER TABLE (ft): NE DATE FINISHED: 1/15/06
DATE OF READING: NA DRILLED BY: G. DAVIS
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose brown slightly clayey SAND [SP-SM]						
	X	2-3-3	6									
	X	4-3-2	5			Loose...						
5	X	2-1-1	2			Very loose...						
	X	1-1-1	2			Very loose tan clayey SAND [SC], with limestone fragments						
	X	1-1-2	3									
10	X	2-3-3	6			Loose...						
						Medium gray and orange CLAY [CH], with limestone fragments						
15	X	2-19-24	43			Tan LIMESTONE						
20	X	14-28-30	58									
25	X	15-17-18	35			(Moderately to well-cemented limestone matrix encountered from 15' to 50' depth)						
30	X	15-15-16	31									
35	X	13-15-17	32									
40	X	11-17-18	35									
						(Possible soil-filled solution cavity from 41.5' to 44' depth, 100% loss of drilling fluid circulation)						
45	X	0-3-14	17									
50	X	7-14-15	19			Boring terminated at 50'						

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UNIVERSAL ENGINEERING SCIENCES BORING LOG	
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REPORT NO.:	385573
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PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-14 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +86(EST) DATE STARTED: 1/12/06
WATER TABLE (ft): NE DATE FINISHED: 1/12/06
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose brown SAND [SP]						
	X	2-3-3	6			Loose brown clayey SAND [SC], with roots						
	X	2-3-4	7									
5	X	3-4-4	8			Loose...						
	X	3-4-5	9			Loose...						
	X	3-4-4	8			Loose tan and orange...						
10	X	3-4-4	8			Loose...						
						Loose orange and gray slightly clayey SAND [SM], with trace of limestone fragments						
15	X	4-4-4	8									
20	X	3-4-5	9			Loose...						
25	X	5-6-7	13			Tan LIMESTONE						
						(Rotary washed from 25' to 30')						
30						Boring terminated at 30'						

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-27

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-15 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +87(EST) DATE STARTED: 1/12/06
WATER TABLE (ft): 48 DATE FINISHED: 1/12/06
DATE OF READING: 1/12/06 DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose dark brown SAND [SP]						
	X	1-2-2	4			Very loose orange clayey SAND [SC]						
	X	2-2-2	4			Very loose...						
5	X	2-2-2	4			Very loose...						
	X	2-2-2	4			Very loose...						
	X	2-3-6	9			Loose orange and gray...						
10	X	4-6-9	15			Stiff orange and gray sandy CLAY [CL]						
						Loose gray and orange slightly clayey SAND [SM]						
15	X	4-5-5	10									
20	X	3-4-5	9			Loose...						
						Tan LIMESTONE						
25	X	5-7-9	16									
30	X	7-8-8	16									
35	X	30-20-23	43			(Moderately to well-cemented limestone matrix encountered from 32' to 50' depth)						
40	X	21-27-33	60									
45	X	32-36-46	82									
				▼								
50	X	41-47-50/5"	50/5"			Boring terminated at 50'						

BL2I

UNIVERSAL ENGINEERING SCIENCES BORING LOG	PROJECT NO.:	70060-077-06
	REPORT NO.:	385573
	PAGE:	A-28

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-16 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +89(EST) DATE STARTED: 1/19/06
WATER TABLE (ft): NE DATE FINISHED: 1/19/06
DATE OF READING: NA DRILLED BY: G. DAVIS
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose brown clayey SAND [SC]						
	X	1-1-1	2									
	X	1-0-1	1			Very loose...						
5	X	0-1-0	1			Very loose...						
	X	1-1-3	4			Very loose gray and orange...						
						Stiff green and orange CLAY [CH]						
	X	4-5-5	10									
10	X	7-7-8	15			Stiff...						
						Medium green, gray and orange sandy CLAY [CL]						
15	X	3-3-4	7									
						Loose green and orange clayey SAND [SC]						
20	X	2-2-3	5									
25	X	2-3-4	7			Loose brown and orange...						
30	X	3-4-6	10			Loose gray and orange...						
						Tan LIMESTONE						
35	X	2-1-0	1			(100% Loss of drilling fluid circulation at 33') (Possible solution cavity from 34.5' to 36' depth)						
40	X	1-4-6	10									
						Soft gray and orange sandy CLAY [CL], with limestone fragments						
45	X	1-2-2	4									
						(Possible soil-filled solution channel or cavity within limestone matrix from 42' to 50' depth)						
50	X	1-2-2	4			Soft... Boring terminated at 50'						

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-29

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-17 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +88(EST) DATE STARTED: 1/12/06
WATER TABLE (ft): NE DATE FINISHED: 1/12/06
DATE OF READING: NA DRILLED BY: J. STILLSON
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose brown SAND [SP]						
	X	1-1-1	2			Loose brown clayey SAND [SC]						
	X	2-3-4	7									
5	X	3-4-5	9			Loose...						
	X	3-4-5	9			Loose brown slightly clayey SAND [SM]						
	X	3-4-4	8			Loose...						
10	X	3-4-5	9			Loose...						
						Medium brown clayey SAND [SC]						
15	X	3-5-6	11									
20	X	3-4-5	9			Loose...						
25	X	5-6-6	12			Medium...						
						Stiff gray and orange sandy CLAY [CL]						
30	X	5-6-6	12									
35	X	3-4-5	9			Stiff green and orange...						
						Loose orange and gray clayey SAND [SC]						
40	X	3-4-5	9									
						Medium gray and orange slightly clayey SAND [SM]						
45	X	5-6-7	13									
50	X	6-7-8	15			Medium gray...						
						Boring terminated at 50'						

BL2I

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 305573
PAGE: A-30

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING DESIGNATION: GB-18 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +86(EST) DATE STARTED: 1/17/06
WATER TABLE (ft): NE DATE FINISHED: 1/17/06
DATE OF READING: NA DRILLED BY: G. DAVIS
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose brown SAND [SP]						
	X	1-1-1	2			Very loose brown slightly clayey SAND [SM]						
	X	1-0-1	1									
5	X	1-0-1	1			Very loose brown clayey SAND [SC]						
	X	0-1-1	2									
	X	1-2-2	4			Very loose...						
10	X	3-5-7	12			Medium...						
15	X	2-3-5	8			Loose gray and orange...						
20	X	2-3-3	6			Loose...						
25	X	2-2-2	4									
						Tan LIMESTONE						
30	X	0-0-1	1			(Very weathered limestone matrix, mostly clay and sand from 25' to 33' depth)						
						(100% Loss of drilling fluid circulation at 25' depth)						
35	X	11-18-24	42									
40	X	18-21-25	46									
45	X	9-13-17	30									
50	X	3-4-4	8			Boring terminated at 50'						

BL21

UNIVERSAL ENGINEERING SCIENCES BORING LOG	PROJECT NO.: 70080-077-06
	REPORT NO.: 385573
	PAGE: A-31

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-19 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +93(EST) DATE STARTED: 1/18/06
WATER TABLE (ft): NE DATE FINISHED: 1/18/06
DATE OF READING: NA DRILLED BY: D.B./T.S.
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose brown clayey SAND [SC]						
	X	1-1-1	2									
	X	2-1-1	2			Very loose...						
5	X	2-1-1	2			Very loose...						
	X	1-1-1	2			Very loose...						
	X	1-2-2	4			Very loose...						
10	X	1-2-2	4			Very loose...						
15	X	2-2-2	4			Very loose...						
						Stiff gray-brown and red-brown slightly sandy CLAY [CL], with trace of limestone fragments						
20	X	3-5-5	10									
						Medium green-gray and reddish-brown CLAY, with trace of sand and limestone fragments [CH]						
25	X	3-3-4	7									
30	X	2-2-3	5			Medium...						
						Medium light green-gray sandy CLAY [CL]						
35	X	3-2-4	6									
40	X	3-3-3	6			Medium...						
45	X	1-1-1	2			Very soft...						
50	X	0-0-1	1			Very soft...						
						Tan LIMESTONE						
55	X	2-7-7	14									
						Boring terminated at 55'						

BL21

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-32

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

BORING DESIGNATION: GB-20 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft): +91(EST) DATE STARTED: 1/20/06
WATER TABLE (ft): NE DATE FINISHED: 1/20/06
DATE OF READING: NA DRILLED BY: G. DAVIS
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose brown-orange clayey SAND [SC]						
	X	1-1-0	1			Very loose...						
	X	1-0-0	0			Very loose...						
5	X	1-1-1	2			Very loose...						
	X	1-1-2	3			Very loose...						
	X	2-3-3	6			Loose...						
10	X	5-7-8	15			Medium...						
						Medium green, gray and orange CLAY, with sand lenses[CH]						
15	X	3-3-4	7									
						Medium gray and orange sandy CLAY [CL], with trace of limestone fragments						
20	X	1-2-3	5			Medium...						
						Loose light gray and orange clayey SAND [SC]						
25	X	3-3-5	8									
30	X	4-5-7	12			Medium...						
35	X	4-6-7	13			Medium... (100% Loss of drilling fluid circulation at 35' depth)						
						Tan LIMESTONE						
40	X	4-6-5	11									
45	X	5-8-11	19			(Rotary washed from 45' to 50' depth)						
50						Boring terminated at 50'						

BL21

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 70080-077-06
REPORT NO.: 385573
PAGE: A-33

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING DESIGNATION: GB-21 SHEET: 1 of 1
SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +96(EST) DATE STARTED: 1/20/06
WATER TABLE (ft): NE DATE FINISHED: 1/20/06
DATE OF READING: NA DRILLED BY: G. DAVIS
EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose brown-orange clayey SAND [SC]						
	X	1-1-2	3									
	X	1-1-1	2			Very loose...						
5	X	1-1-1	2			Very loose...						
	X	2-2-7	9			Loose...						
	X	7-9-6	15			Medium...						
10	X	6-9-9	18			Medium gray and orange...						
						Medium gray and orange CLAY [CH]						
15	X	3-4-4	8			Medium...						
						Loose gray and orange clayey SAND [SC]						
20	X	2-3-3	6									
25	X	3-4-4	8			Loose green and orange...						
30	X	3-3-3	6			Loose...						
35	X	2-2-3	5			Loose... (100% Loss of drilling fluid circulation at 35' depth)						
						Tan LIMESTONE						
40	X	4-7-13	20			(Possible solution cavity from 41.5' to 43' depth)						
45	X	13-15-15	30									
50	X	15-23-26	49			Boring terminated at 50'						

BL21

UNIVERSAL ENGINEERING SCIENCES **BORING LOG**	PROJECT NO.: 70080-077-06	REPORT NO.: 385573	PAGE: A-34

PROJECT: PROPOSED WAL★MART SUPERCENTER STORE NO. 3873-00
US HIGHWAY 441 AND I-75
ALACHUA, ALACHUA COUNTY, FLORIDA

CLIENT: CPH ENGINEERS, INC.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: GB-22 SHEET: 1 of 1

SECTION: 15,16 TOWNSHIP: 8S RANGE: 18E

GS ELEVATION(ft): +87(EST) DATE STARTED: 1/21/06

WATER TABLE (ft): NE DATE FINISHED: 1/21/06

DATE OF READING: NA DRILLED BY: G. DAVIS

EST. WSWT (ft): NA TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very loose brown clayey SAND [SC]						
	X	2-1-1	2									
	X	0-0-0	0			Very loose...						
5	X	0-0-0	0			Very loose...						
	X	1-0-1	1			Very loose...						
	X	1-1-1	2			Very loose...						
	X	1-2-1	3			Very loose gray and orange...						
10												
15	X	1-2-3	5			Loose...						
20	X	2-3-5	8			Loose...						
25	X	3-3-5	8			Loose tan...						
30	X	3-9-11	20			Medium gray and tan...						
						Tan LIMESTONE						
35	X	4-5-5	10			(100% Loss of drilling fluid circulation at 35')						
40	X	19-20-20	40									
45	X	22-27-22	49									
50	X	18-19-31	50			Boring terminated at 50'						

BL2I

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS

Symbol	Description
22	Number of Blows of a 140-lb Weight Falling 30 In. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change In Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

RELATIVE DENSITY (sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 - 10 Blows/Ft.
Medium - 10 to 30 Blows/Ft.
Dense - 30 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY (clay)

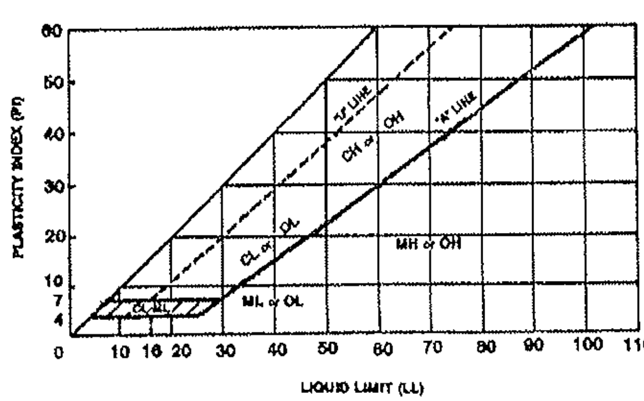
Very Soft - Less Than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 4 to 8 Blows/Ft.
Stiff - 8 to 15 Blows/Ft.
Very Stiff - 15 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75-mm) sieve.

PLASTICITY CHART



APPENDIX B

GEOHAZARDS, INC.

SINKHOLES • EXPANSIVE CLAYS • LAND SUBSIDENCE
P.O. Box 14956
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Professional Geological, Geophysical and Geotechnical Engineering Services

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November 22, 2004

Geohazards, Inc., Investigation No. 2004516

REPORT OF THE GEOPHYSICAL INVESTIGATION OF THE GEOLOGICAL SUBSURFACE AT THE PROPOSED WAL-MART SUPERCENTER SITE, ALACHUA, FLORIDA

INTRODUCTION

Purpose

Geohazards, Inc. was tasked by Universal Engineering Sciences, Inc., to conduct a geophysical investigation at the above referenced locality.

This investigation was conducted to provide a geophysical characterization of the geological subsurface. In particular, efforts were designed to determine the presence of subsurface cavities and subsurface zones of disruption that might contribute to subsidence. Any of these conditions could be responsible for existing or potential subsidence at the site.

Telephone: (352) 371-7243 (800) 770-9990 Fax: (352) 371-4410
Web page: www.sinkholes.com Email: geohazards@bellsouth.net

Scope

The investigation conducted and reported herein included the following:

- A review of available geologic maps and other published data to establish the general probable lithology for the site of investigation.
- A reconnaissance of the site of investigation to recognize and identify surface conditions pertinent to the purpose of the investigation.
- An Electrical Resistivity (ER) investigation of the site to assist in the recognition of site-specific geological conditions at the subject property and to determine evidence for the presence of anomalous subsurface features or conditions.
- A final report summarizing results and conveying professional opinions.

Site Information

The initial reconnaissance and geophysical field investigation was conducted on November 15, 2004. The site is located in the southeast portion of the intersection of US Highway 441 and Interstate 75 in Alachua, Florida. Universal Engineering Sciences, Inc. has performed three 50-foot Standard Penetration Test Borings in the proposed building area.

The site of investigation is an open grassy field with a creek and tree cover located in the south and east portions of the proposed building area. The creek flows to the north. In general, the land surface also slopes downward towards the north and northeast. There is an approximate 30-foot elevation difference over the survey area. While a few noticeable surface depressions were observed in the area, none were located in the survey area.

REGIONAL GEOLOGY

Based on map consultations and personal inspection, the surficial geologic material at the study site is the Hawthorn Group of geological formations overlain by a cover of very young unconsolidated sands and sandy clays. These consist of fine to medium grained, unconsolidated quartz sand, silt, and clay in varying proportions and thickness. Shrink/swell clays of significant size, continuity and nearness to the surface are a particularly troublesome characteristic of the Hawthorn where they occur in significant thickness and lateral continuity. Concrete slabs and foundations can be severely damaged where such a geologic condition occurs.

The Ocala Limestone underlies the Hawthorn. This limestone has experienced significant dissolution and the creation of an intricate cavernous system. Problems in the development of sinkholes are related to the size and nearness to the surface of the Ocala limestone and these underground cavities. The upper surface of this limestone is highly irregular.

FIELD TEST METHODS

Electrical Resistivity

Electrical resistivity (ER) is a geophysical procedure to investigate the presence of geological conditions or features characterized by contrasts in electrical resistivity. The measurements were conducted using the Wenner electrode configuration, and were performed in general accordance with the appropriate portions of ASTM standards G57-95a entitled "Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method," and standard D6431-99 entitled "Standard Guide for Using Direct Current Resistivity Method for Subsurface Investigation."

Electrical resistivity measurements involve the passing of an electric current underground and measuring its resistance to flow. Different earth materials (e.g. clay, sand, limestone) and subsurface cavities will resist the flow of electrical current differently. Substantially greater contrasts in the degree of resistance (anomalies) are used to identify and locate boundaries among different materials as well as the presence of cavities.

The types of ER measurements used in this investigation were Soundings and Lee-directional. Sounding measurements reveal two-dimensional detail below the surface at progressively greater depths. Lee-directional measurements determine the direction of higher or lower resistivity along a traverse line. In the field, electrodes are placed in the ground at equal distances from one another.

After a measurement, this distance is increased in an orderly fashion to sequentially allow a greater depth of penetration.

Measurements of ER were made with an L & R Instruments, Inc. MiniRes Earth Resistivity Meter. Four current/potential electrodes and one Lee electrode are employed. Depending on the surface space available for deployment of electrodes, a maximum depth capability of 100 feet can be achieved.

ER traverse lines were oriented to provide representative coverage of the site of investigation (see ER location map). Twelve traverses were conducted, configured as shown on the location map. The maximum depth of penetration for all twelve traverses was 100 feet.

RESULTS

Electrical Resistivity

1. In general, near-surface resistivity values and sounding patterns displayed similar trends for the depths and areas surveyed. Sounding profiles are included in the appendix.

2. The general configuration of the sounding values and patterns is interpreted as indicative of near-surface clayey sand and sandy clay, approximately 20 feet thick, overlying sand. Electrical evidence for the underlying limestone surface was detected at approximately 20 feet depth beneath traverses #s 4-5 and 9-12. Limestone was detected at approximately 30 feet depth beneath traverses #s 1-3 and 6-8. Clay was detected above the limestone from approximately 20 to 30 feet depth beneath ER traverse #s 3 and 8.

3. The configuration of the sounding values and patterns for traverse #5 is interpreted as indicative of surface sand, approximately 10 feet thick overlying clayey sand and sandy clay.

4. Electrical resistivity values consistent with a possible raveled zone were detected at approximately 30 feet depth beneath traverse #8, at the clay-limestone boundary. Raveling is the lateral and downward migration of sediments within groundwater into more distance places within limestone. It is

a mechanism for sinkhole activity. No electrical evidence of well-developed cavities or porous limestone was detected in the areas and depths surveyed.

5. Lee-directional measurements (not plotted) yielded anomalies on four of the twelve ER traverses. The locations of the Lee-directional anomalies are shown in yellow on the ER location map. The Lee-directional anomalies were within the upper 20 feet and were not corroborated with sounding anomalies. The Lee-directional anomalies are attributed to lateral variations in soil moisture or composition.

CONCLUSIONS

Electrical resistivity was conducted in the proposed building area of a Wal-Mart Supercenter in Alachua, Florida. No surface depressions were observed in the survey area.

Electrical resistivity sounding profiles indicate that clayey sand and sandy clay, approximately 20 feet thick overlies sand and limestone. Electrical evidence interpreted as indicative of the upper limestone surface was detected at approximately 20 to 30 feet depth throughout the site of investigation. No electrical data were interpreted as indicative of well-developed cavities, but electrical evidence of a possible raveled zone was detected beneath traverse #8 at the clay-limestone boundary at approximately 30 feet depth. Four near-surface (upper 20 feet depth) ER Lee-directional anomalies were detected and were not corroborated with sounding anomalies. These Lee-directional anomalies are attributed to lateral variations in soil moisture or composition.

Based on the results of this investigation, Geohazards, Inc. recommends that at least one deep (approximately 70 feet or more) standard penetration test boring be conducted near the midpoint of ER traverse #8 to further investigate the possible raveling conditions detected.

LIMITATIONS

While due care has been exercised in the performance of these measurements and their interpretation, Geohazards, Inc. can make no representations, warranties, or guarantees with respect to latent or concealed conditions which may exist that may be beyond the limits of detection with the methodologies used.

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Geophysicist 11/22/04

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ANTHONY F. RANDAZZO LICENSE No. 3 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

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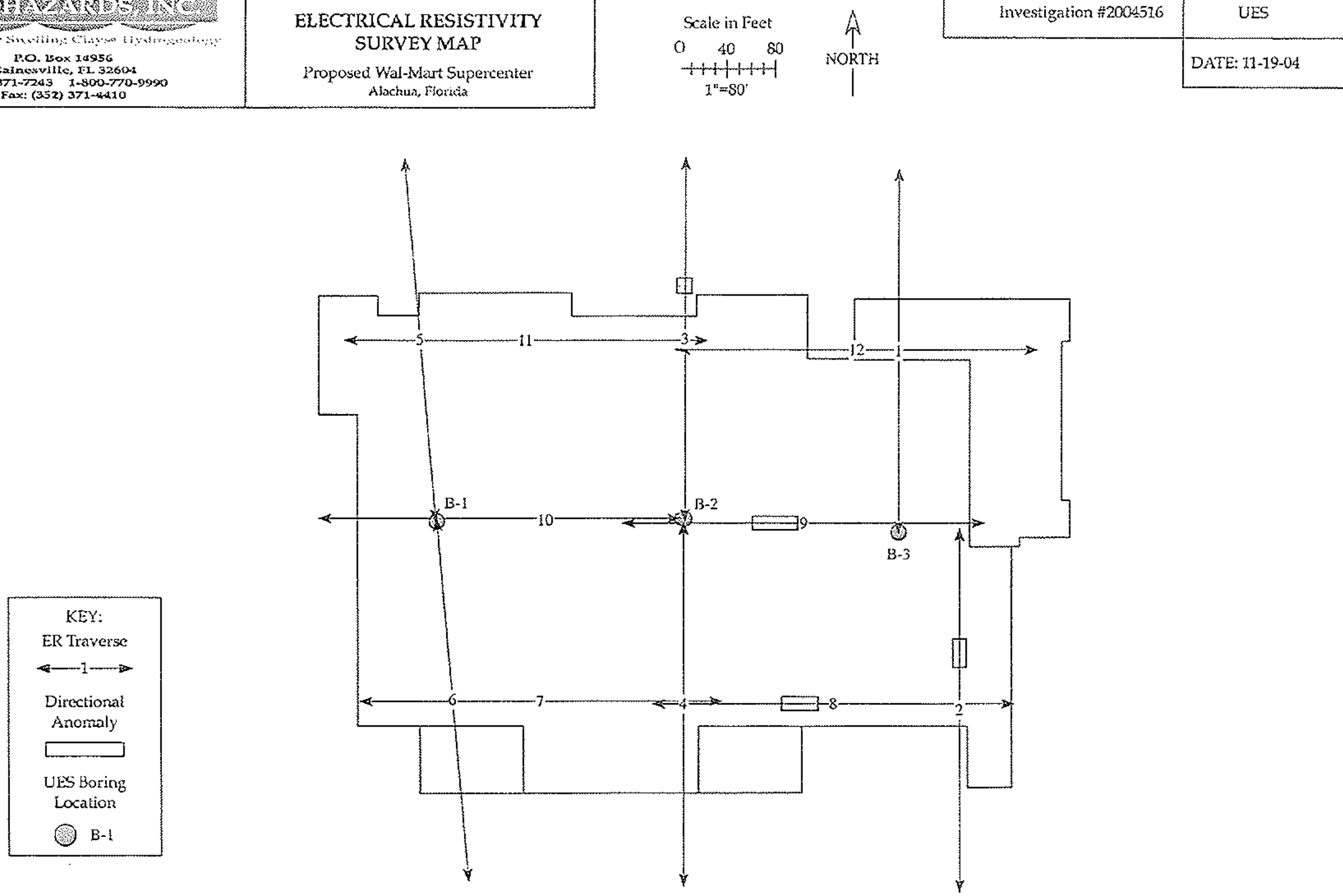
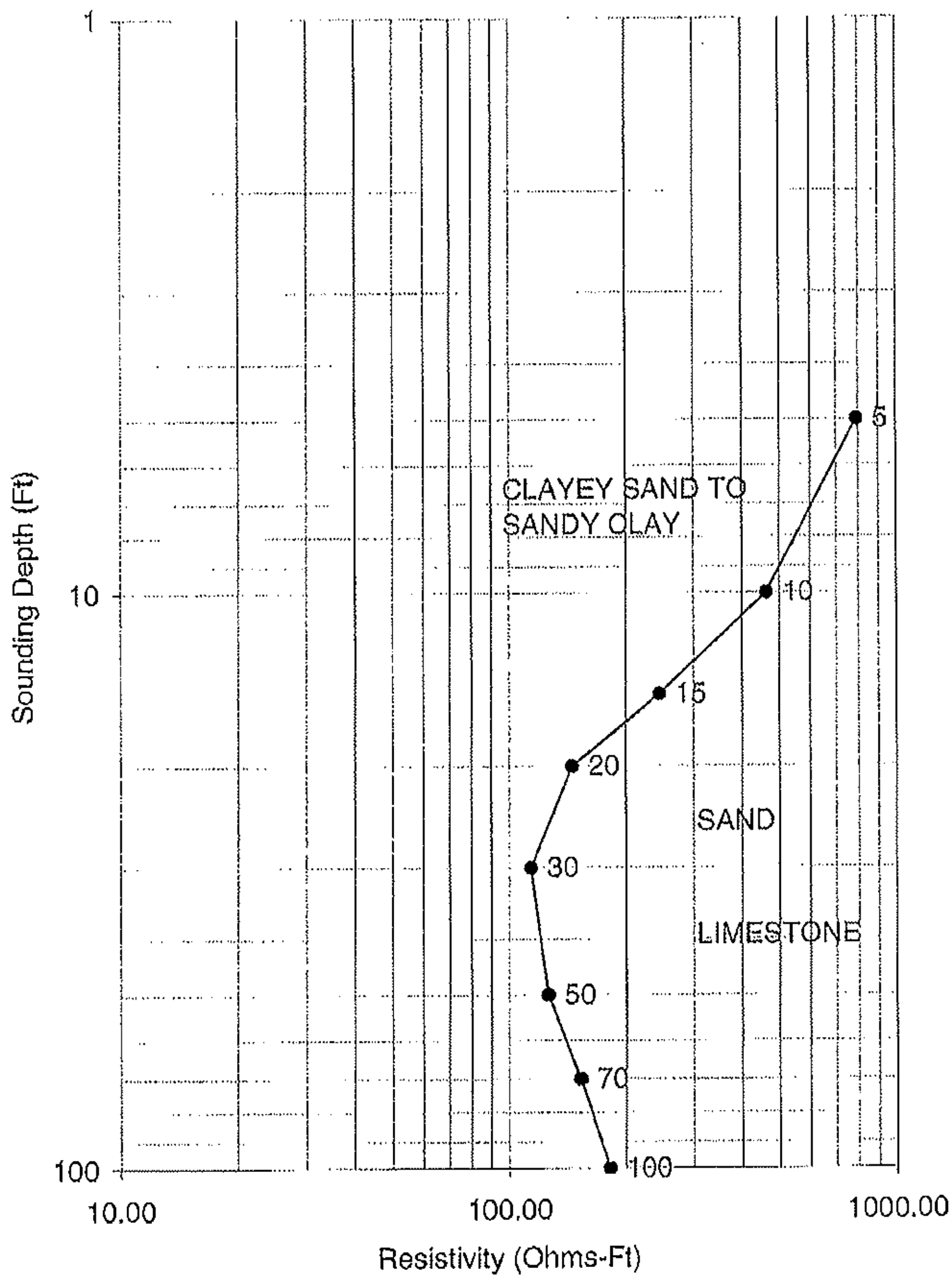
GERALD OLIVER BLACK LICENSE No. 2302 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

GEOHAZARDS, INC. Sinkholes • Swelling Clays • Hydrogeology P.O. Box 14956 Gainesville, FL 32604 (352) 371-7243 1-800-770-9990 Fax: (352) 371-4410	SITE PLAN OF GEOPHYSICAL INVESTIGATION **ELECTRICAL RESISTIVITY SURVEY MAP** Proposed Wal-Mart Supercenter Alachua, Florida	BY: G.O. Black, P.G. Investigation #2004516	FOR: David Barreiro UES DATE: 11-19-04



GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: N-S
Station Number: 1



GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
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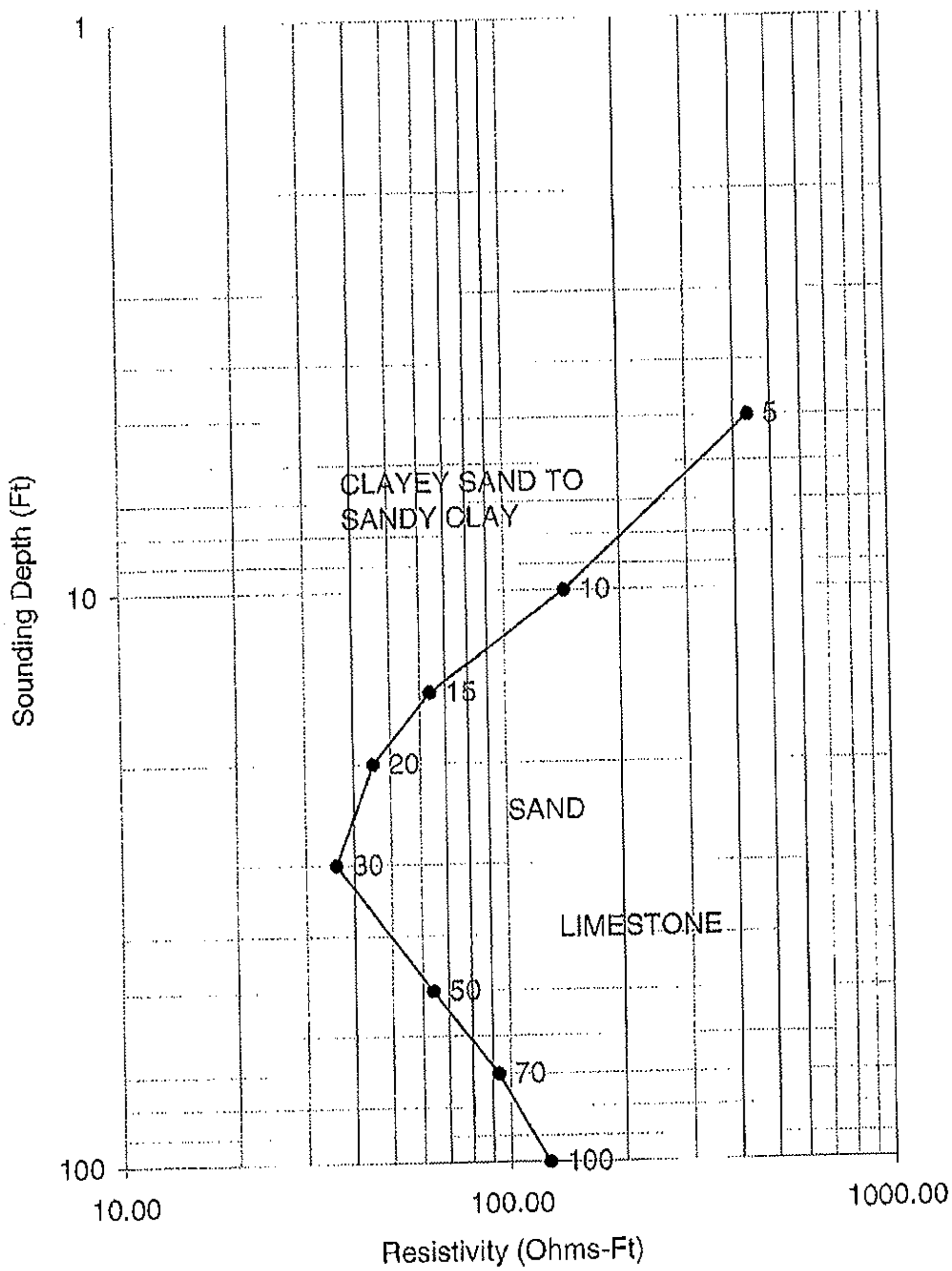
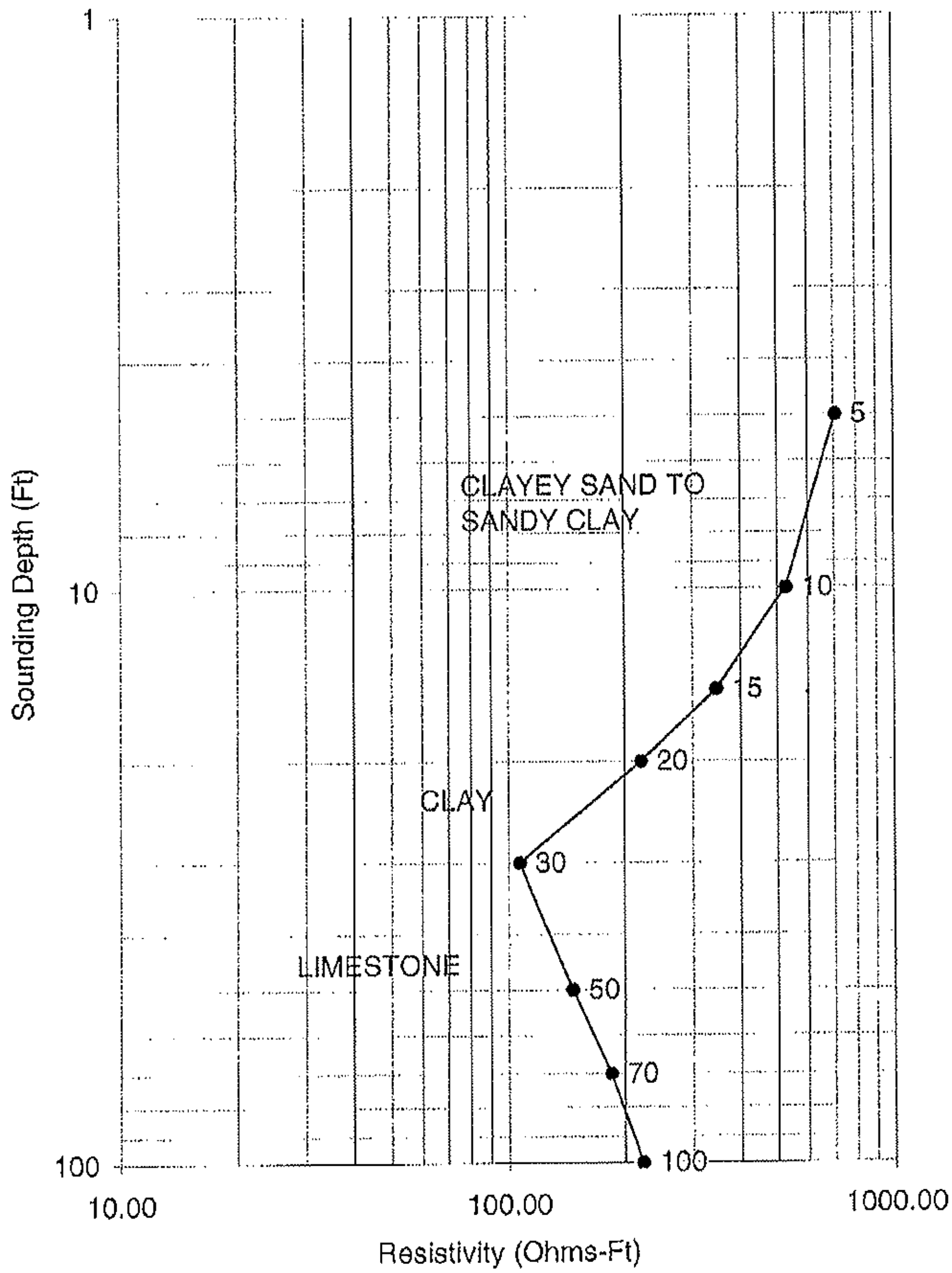
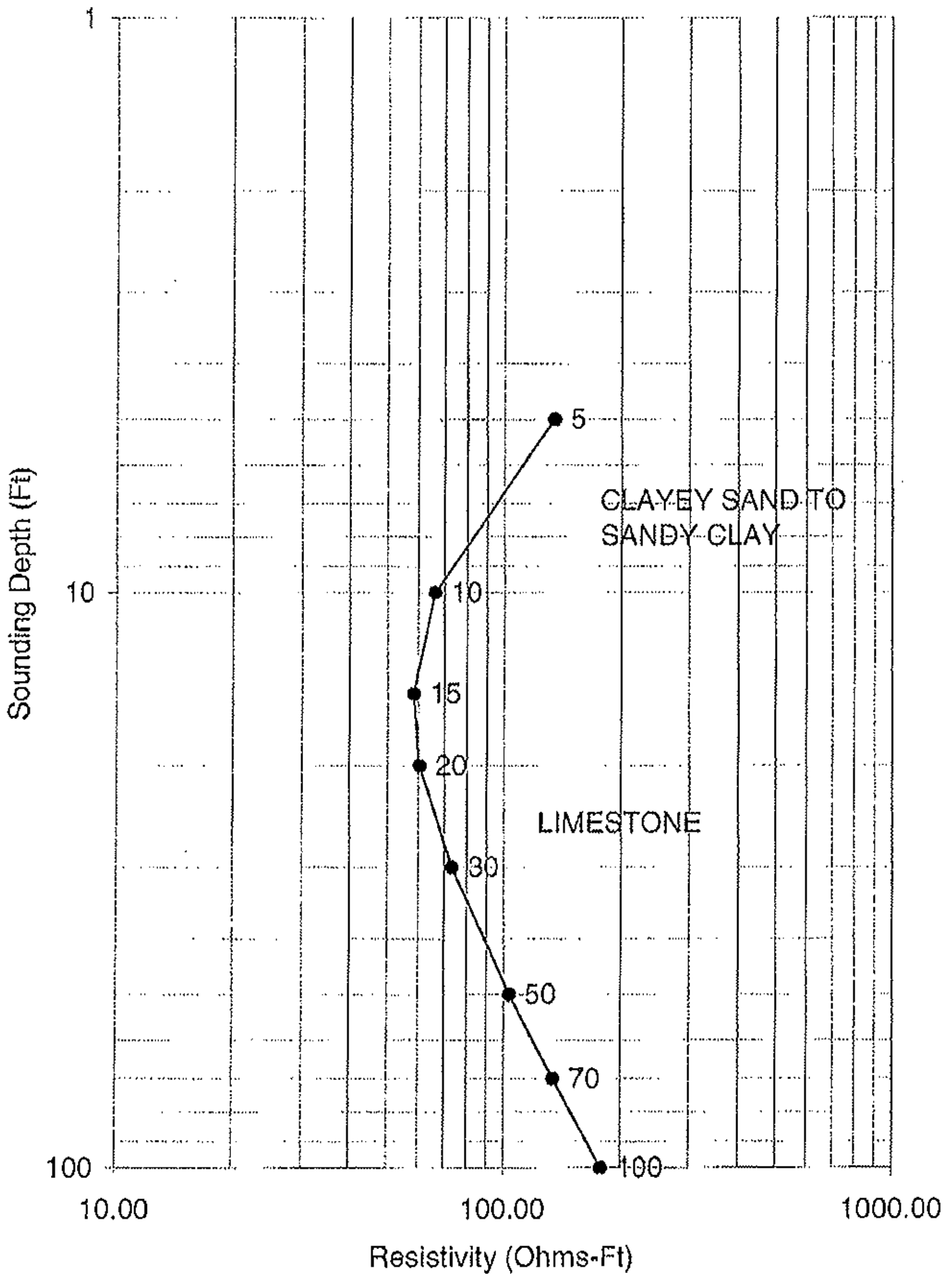


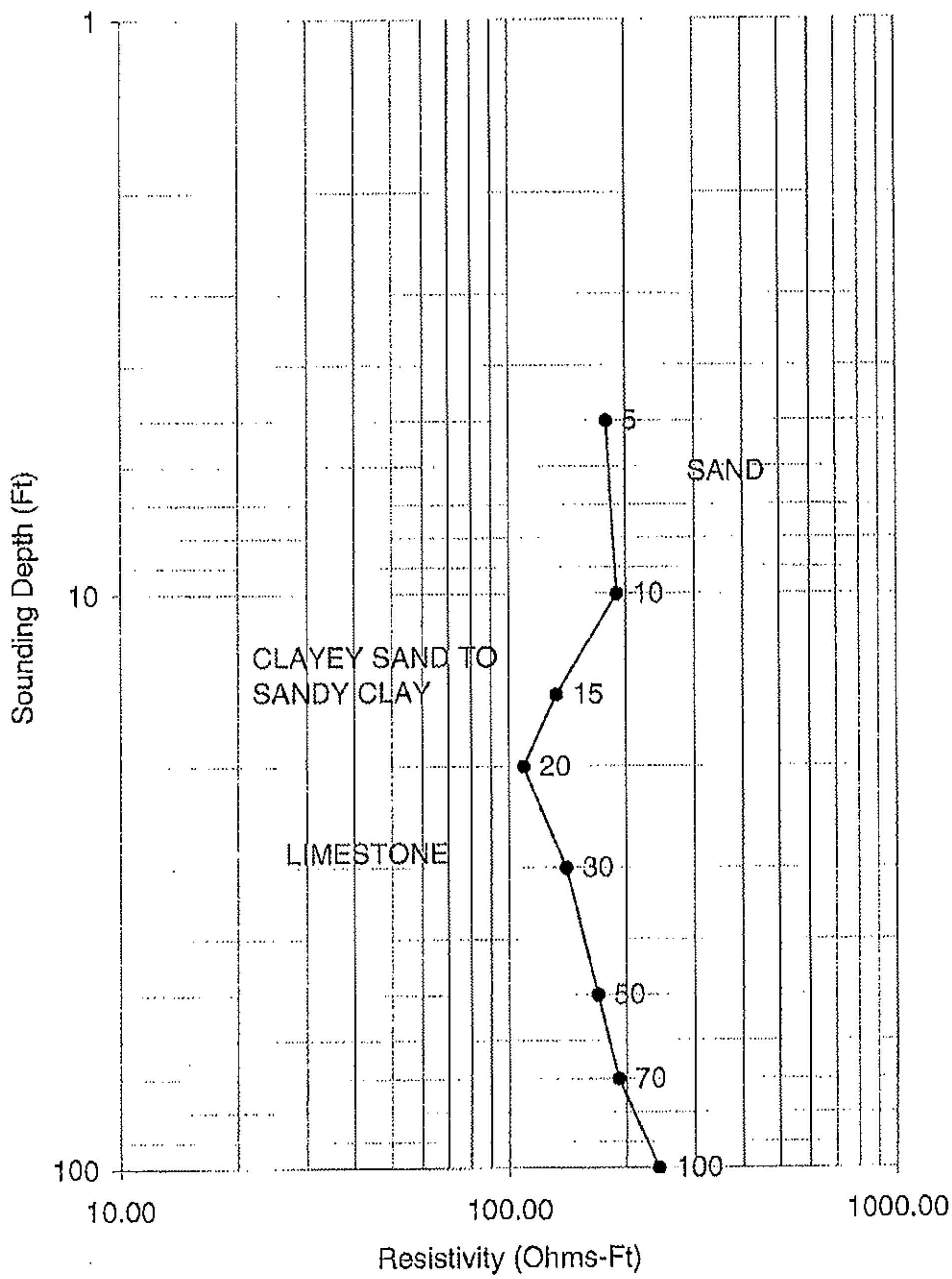
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: N-S
Station Number: 3



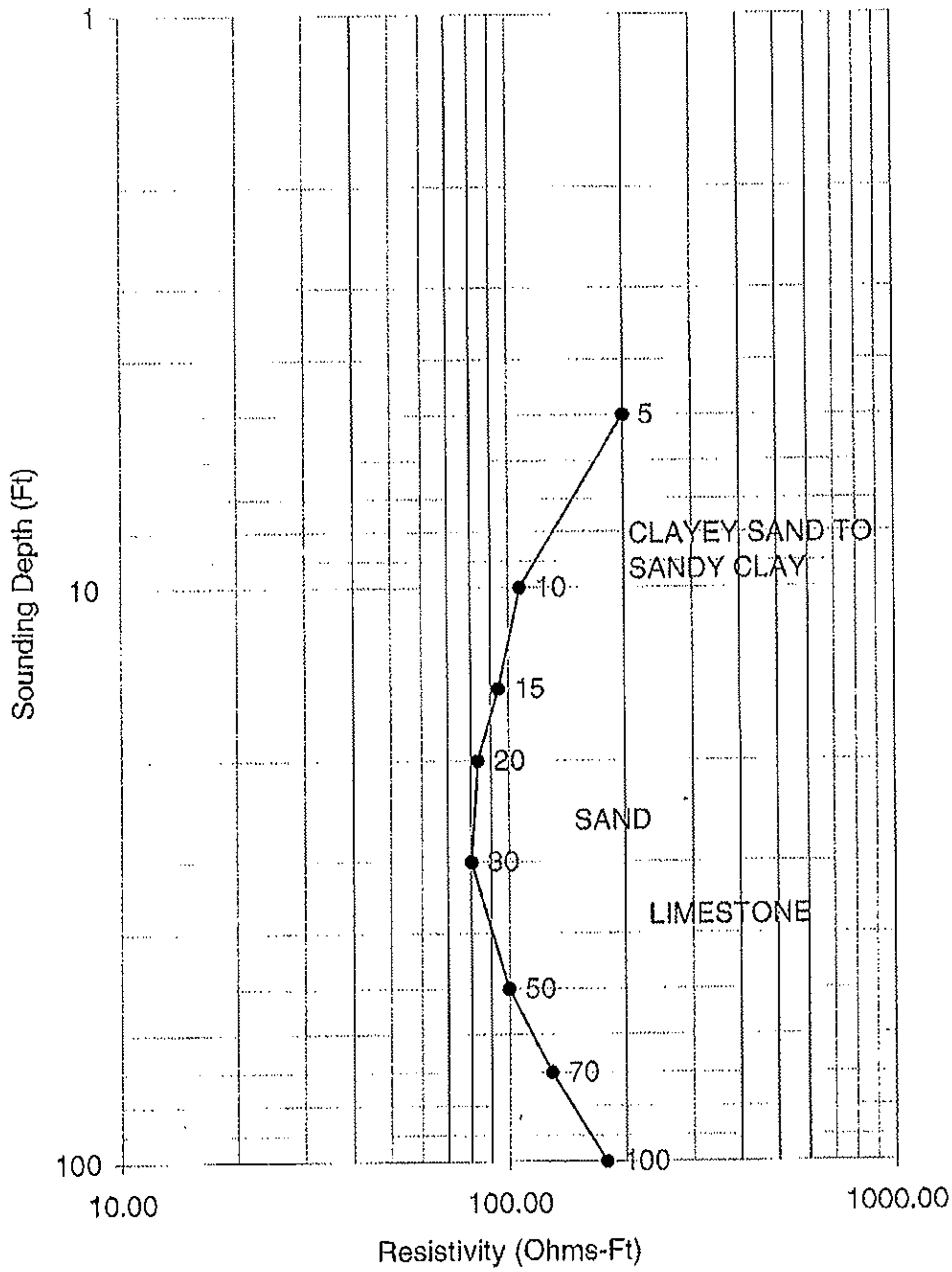
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: N-S
Station Number: 4



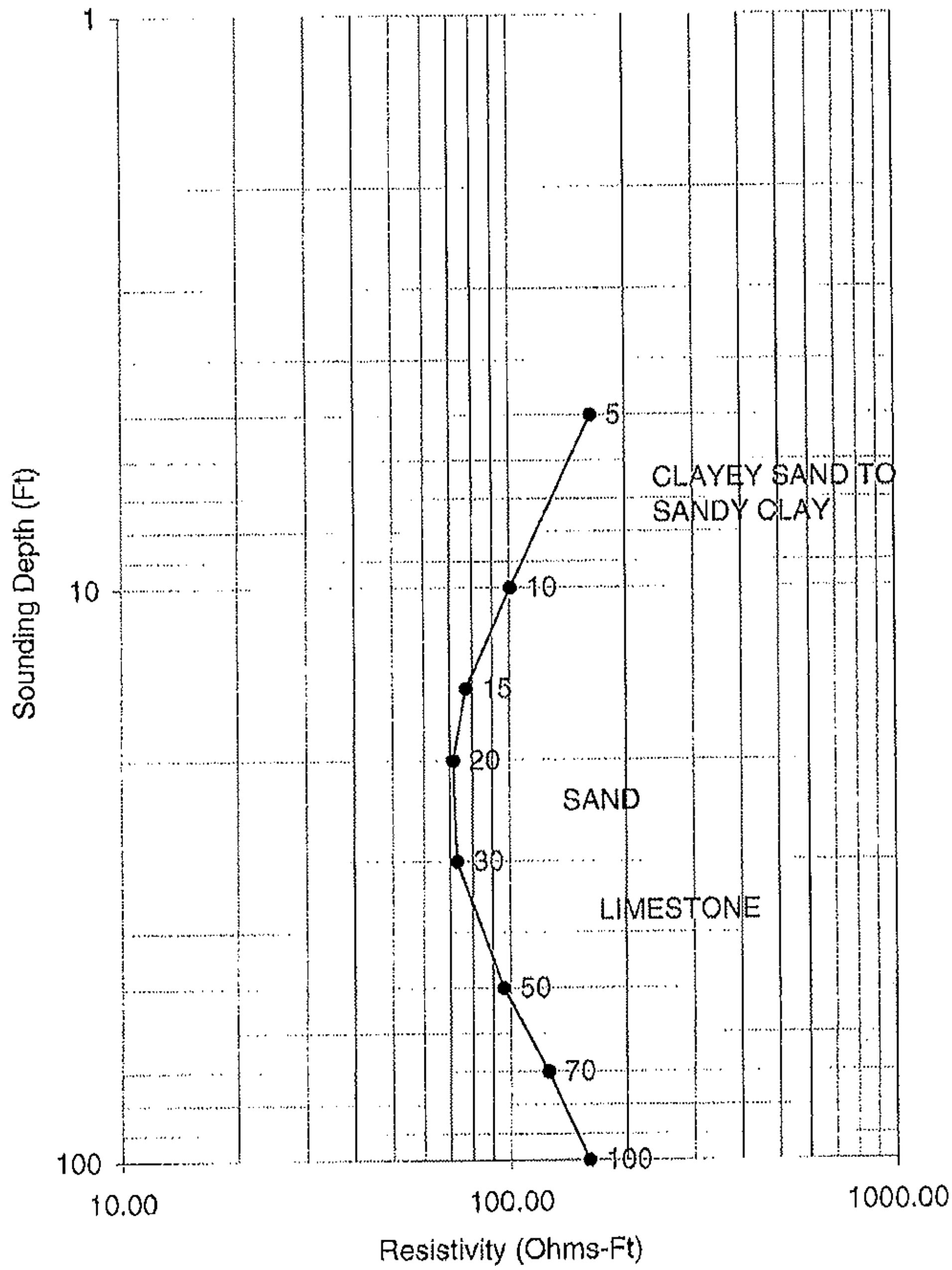
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: N5W
Station Number: 5



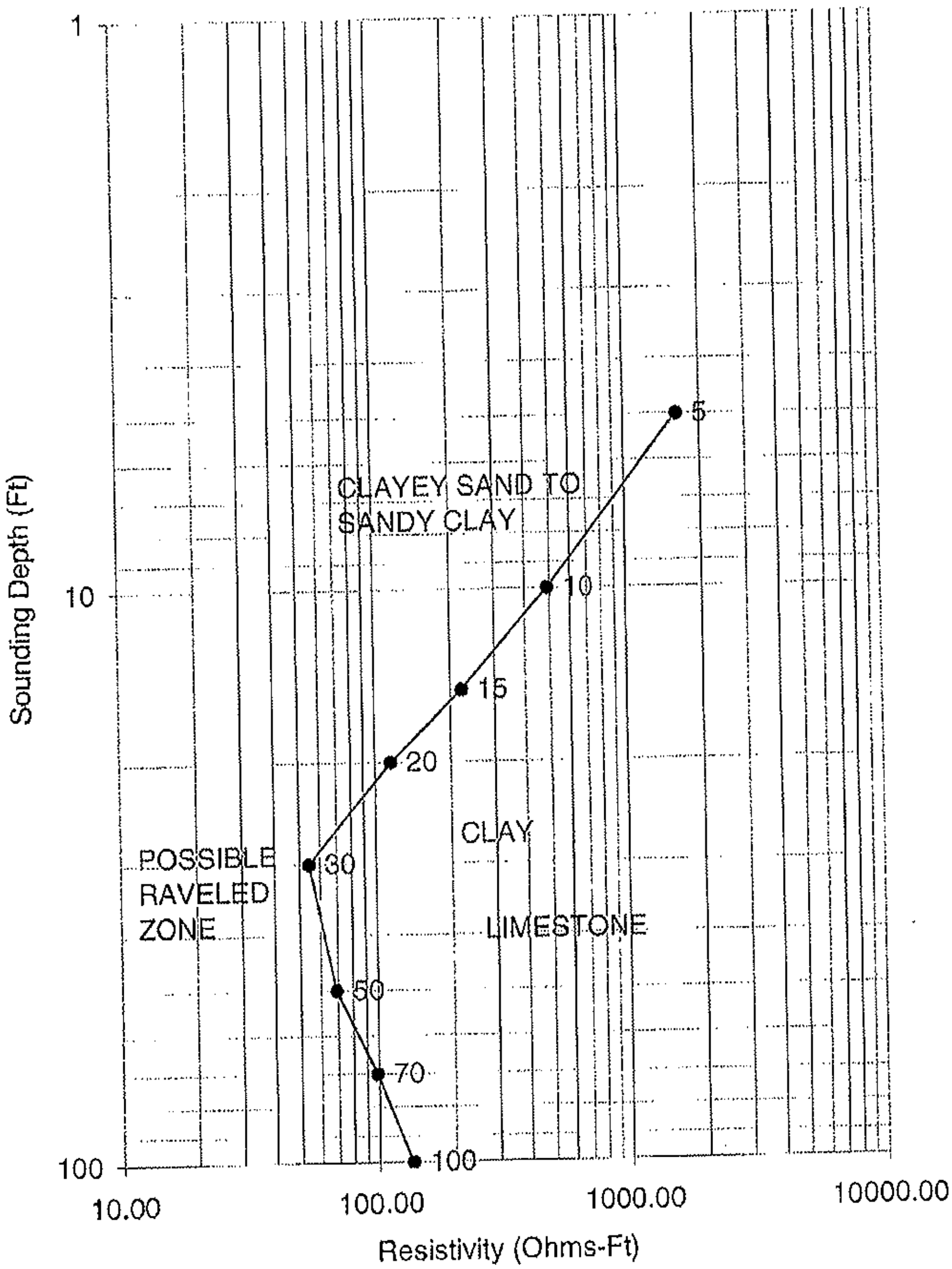
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: N5W
Station Number: 6



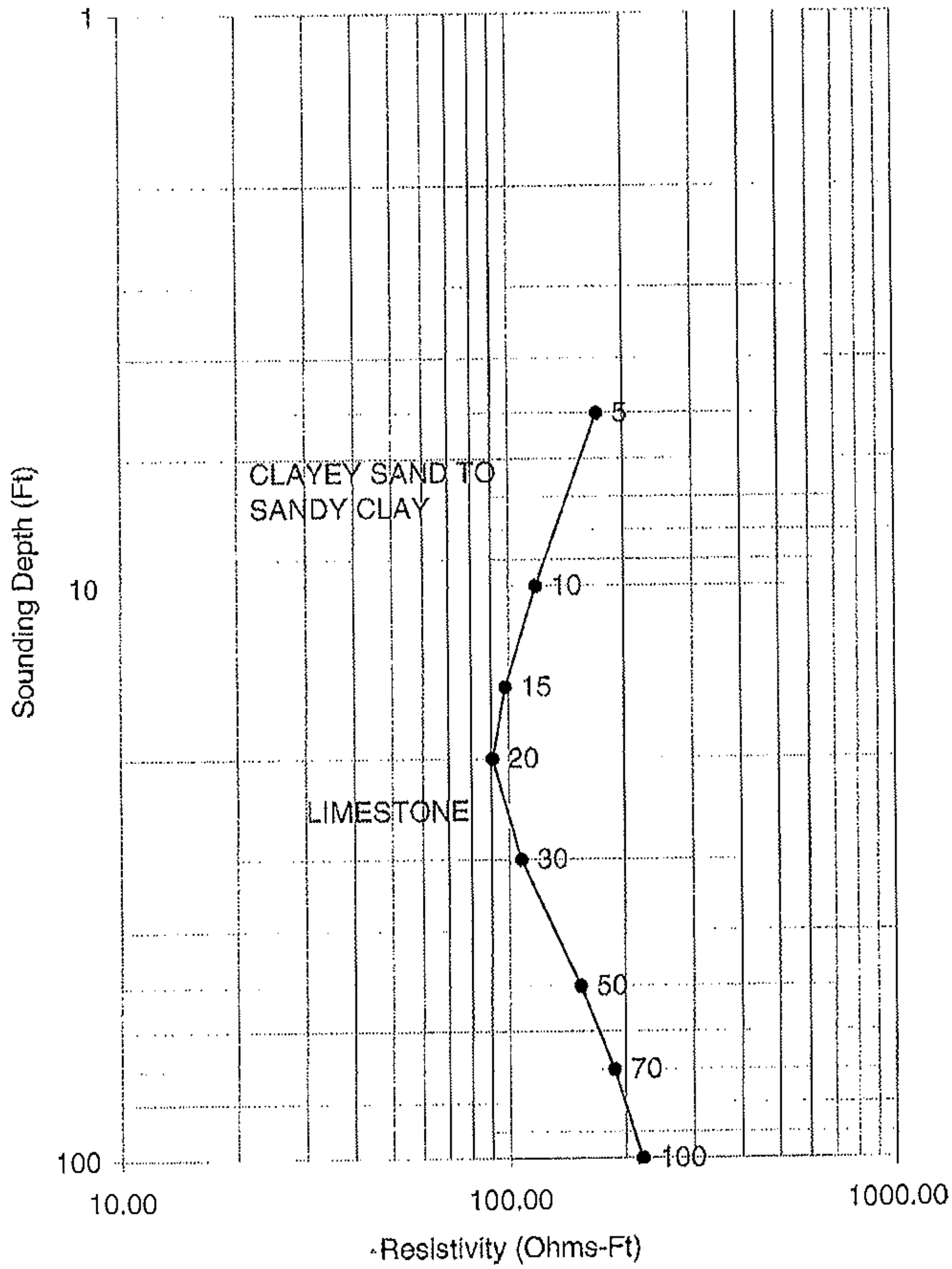
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 7



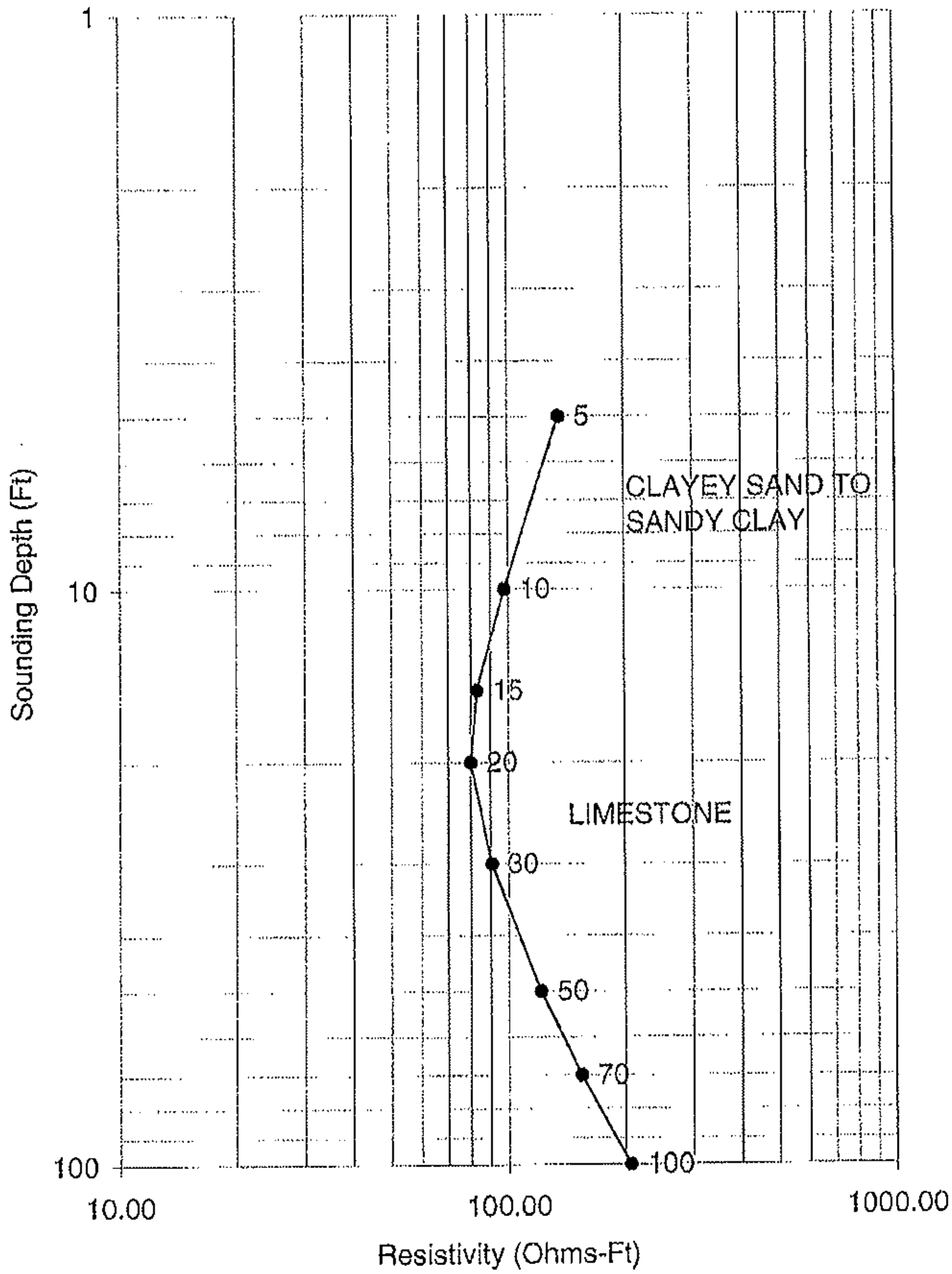
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 8



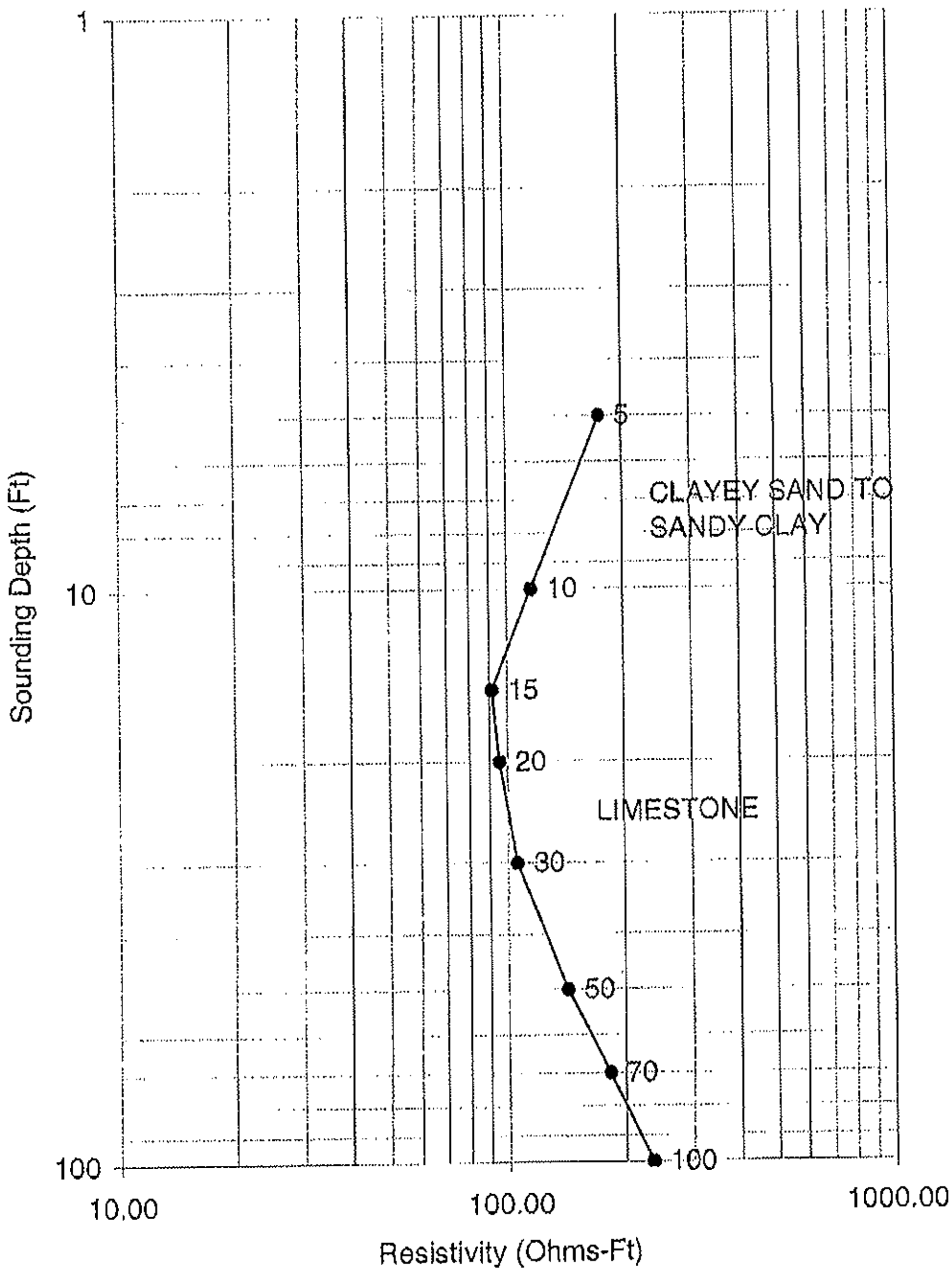
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 9



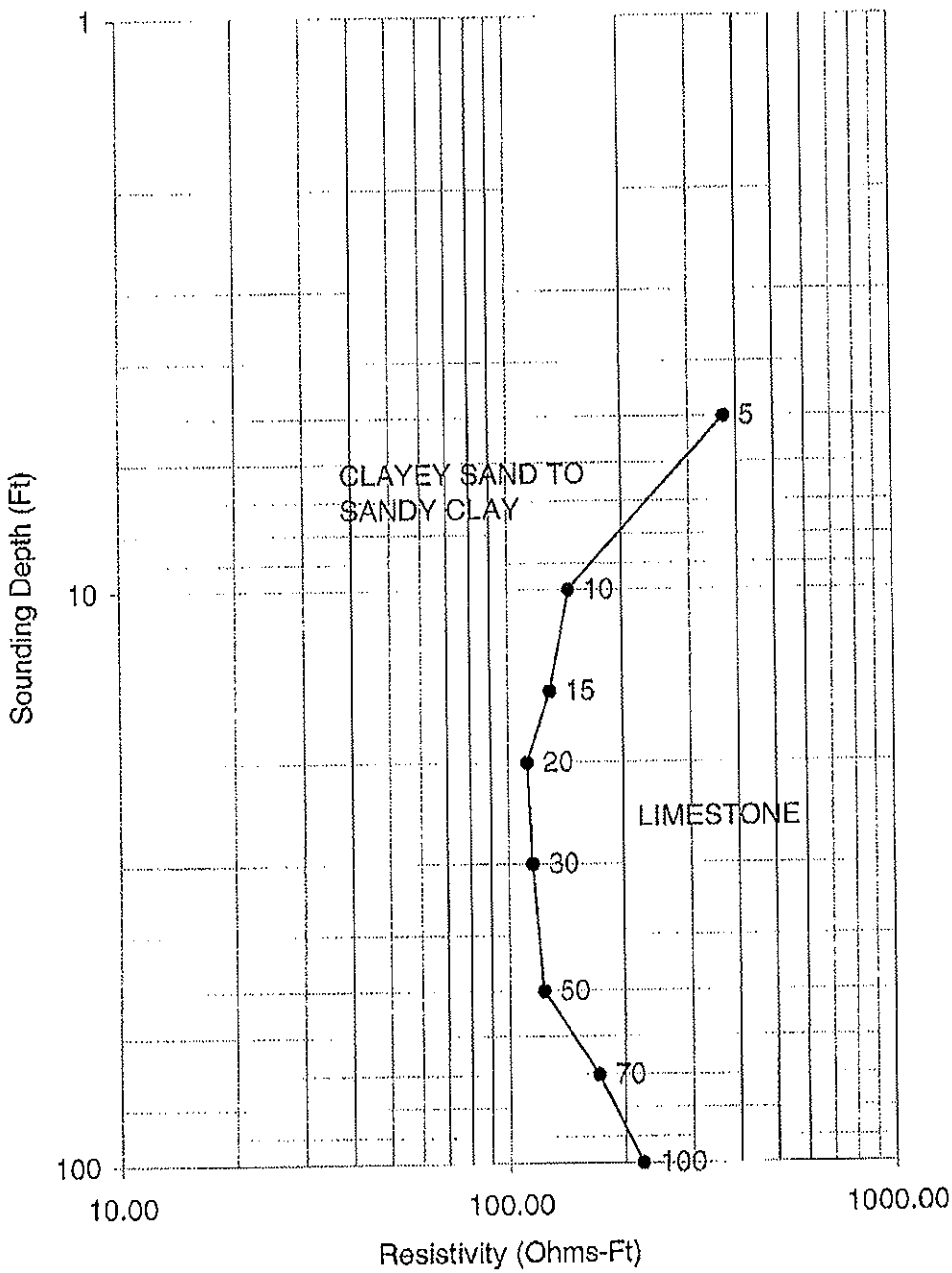
GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 10



GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 11



GEOHAZARDS INC.
Electrical Resistivity Survey
Investigation#:2004516
Array Orientation: E-W
Station Number: 12



APPENDIX C

GEOHAZARDS, INC.
Professional Geological, Geophysical and Geotechnical Engineering Services

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December 7, 2005

Geohazards, Inc., Investigation No. 2004516A

REPORT OF THE GEOPHYSICAL INVESTIGATION OF THE GEOLOGICAL SUBSURFACE AT THE PROPOSED WAL-MART SUPERCENTER SITE, ALACHUA, FLORIDA

INTRODUCTION

Purpose

Geohazards, Inc. was tasked by Universal Engineering Sciences, Inc., to conduct a geophysical investigation at the above referenced locality.

This investigation was conducted to provide a geophysical characterization of the geological subsurface. In particular, efforts were designed to determine the presence of subsurface cavities and subsurface zones of disruption that might contribute to subsidence. Any of these conditions could be responsible for existing or potential subsidence at the site.

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Scope

The investigation conducted and reported herein included the following:

- A review of available geologic maps and other published data to establish the general probable lithology for the site of investigation.
- A reconnaissance of the site of investigation to recognize and identify surface conditions pertinent to the purpose of the investigation.
- An Electrical Resistivity (ER) investigation of the site to assist in the recognition of site-specific geological conditions at the subject property and to determine evidence for the presence of anomalous subsurface features or conditions.
- A final report summarizing results and conveying professional opinions.

Site Information

The geophysical field investigation was conducted on November 21 and 23, 2005. The site is located in the southeast portion of the intersection of US Highway 441 and Interstate 75 in Alachua, Florida. The site of investigation is an open grassy field with a creek and tree cover located in the south and east portions of the proposed building area. The creek flows to the north. At the time of the field investigation, the creek bed was dry. In general, the land surface also slopes downward towards the north and northeast. The elevation difference over the survey area is approximately 30 feet. While a few noticeable surface depressions were observed in the area, none were located in the survey area. Universal Engineering Sciences, Inc. has performed nineteen 50-foot Standard Penetration Test Borings in the proposed building pad.

The data collected was combined with a previous geophysical field investigation conduced by Geohazards, Inc. on November 15, 2004. The investigation included ER traverse #s 1 through 12. Electrical resistivity sounding profiles indicated that clayey sand and sandy clay, approximately 20 feet thick overlies sand and limestone. Electrical evidence of a possible raveled zone was detected beneath traverse #8 at the clay-limestone boundary at approximately 30 feet depth. Geohazards, Inc. recommended that at least one deep (approximately

70 feet or more) standard penetration test boring be conducted near the midpoint of ER traverse #8 to further investigate the possible raveling conditions detected.

REGIONAL GEOLOGY

Based on map consultations and personal inspection, the surficial geologic material at the study site is the Hawthorn Group of geological formations overlain by a cover of very young unconsolidated sands and sandy clays. These consist of fine to medium grained, unconsolidated quartz sand, silt, and clay in varying proportions and thickness. Shrink/swell clays of significant size, continuity and nearness to the surface are a particularly troublesome characteristic of the Hawthorn where they occur in significant thickness and lateral continuity. Concrete slabs and foundations can be severely damaged where such a geologic condition occurs.

The Ocala Limestone underlies the Hawthorn. This limestone has experienced significant dissolution and the creation of an intricate cavernous system. Problems in the development of sinkholes are related to the size and nearness to the surface of the Ocala limestone and these underground cavities. The upper surface of this limestone is highly irregular.

FIELD TEST METHODS

Electrical Resistivity

Electrical resistivity (ER) is a geophysical procedure to investigate the presence of geological conditions or features characterized by contrasts in electrical resistivity. The measurements were conducted using the Wenner electrode configuration, and were performed in general accordance with the appropriate portions of ASTM standards G57-95a entitled "Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method," and standard D6431-99 entitled "Standard Guide for Using Direct Current Resistivity Method for Subsurface Investigation."

Electrical resistivity measurements involve the passing of an electric current underground and measuring its resistance to flow. Different earth materials (e.g. clay, sand, limestone) and subsurface cavities will resist the flow of electrical current differently. Substantially greater contrasts in the degree of resistance (anomalies) are used to identify and locate boundaries among different materials as well as the presence of cavities.

The types of ER measurements used in this investigation were Soundings and Lee-directional. Sounding measurements reveal two-dimensional detail below the surface at progressively greater depths. Lee-directional measurements determine the direction of higher or lower resistivity along a traverse line. In the field, electrodes are placed in the ground at equal distances from one another. After a measurement, this distance is increased in an orderly fashion to sequentially allow a greater depth of penetration.

Measurements of ER were made with an L & R Instruments, Inc. MiniRes Earth Resistivity Meter. Four current/potential electrodes and one Lee electrode are employed. Depending on the surface space available for deployment of electrodes, a maximum depth capability of 100 feet can be achieved.

ER traverse lines were oriented to provide representative coverage of the site of investigation (see ER location map) and to add to data previously collected in November of 2004. Fourteen traverses (traverse #s 13-26) were conducted and added to the traverses conducted in 2004 (traverse #s 1-12), configured as shown on the location map. The maximum depth of penetration for all traverses was 100 feet.

RESULTS

Electrical Resistivity

1. In general, electrical resistivity values and sounding trends were relatively variable among the various traverses. Sounding profiles are included in the appendix. Four stratigraphic profiles were constructed using interpretations of the sounding profiles and the boring log data provided by Universal Engineering Sciences, Inc. (See included stratigraphic profiles and sounding profiles). An "Elevation of Top of Limestone" contour map and an "Elevation of Top of Limestone" 3-D tomographic projection were also constructed from this investigation and also incorporate the data from nineteen borings performed in the survey area.

2. The general configuration of the sounding values and patterns is interpreted as indicative of near-surface clayey sand and sandy clay, approximately 20 feet thick, overlying sand. Electrical evidence for the underlying limestone surface was detected at approximately 20 feet depth beneath traverse #s 11, 16, and 26. Limestone was detected at approximately 25 feet depth beneath traverse #s 4, 9-10, and 21, at approximately 27 feet depth beneath traverse # 5, at approximately 30 feet depth beneath traverse #s 2-3, 17, 23, and 25, at approximately 35 feet depth beneath traverse #s 13, 15, and 24, at approximately 40 feet depth beneath traverse #s 6-8, 12, 19-20, and 22, at approximately 45 feet depth beneath traverse # 1, and at approximately 50 feet depth beneath traverse #s 14 and 18. Clay was interpreted above the limestone at approximately 15-20 feet depth beneath ER traverse #s 2-3, 8, 18, 20 and 26. Sandy clay and clay was interpreted above the limestone from approximately 20-50 depth on traverse # 14.

3. The configuration of the sounding values and patterns for traverse #s 5, 20, and 24 is interpreted as indicative of surface sand, approximately 10-15 feet thick overlying clayey sand and sandy clay and/or clay.

4. The configuration of the sounding values and patterns for traverse #s 13 and 17 is interpreted as indicative of near-surface clayey sand and sandy clay grading into clay and overlying sand at approximately 20 feet depth.

5. Electrical resistivity values consistent with a possible raveled zone were detected at approximately 30 feet depth beneath traverse #8, at the clay-limestone boundary. Raveling is the lateral and downward migration of sediments within groundwater into more distance places within limestone. It is a mechanism for sinkhole activity.

6. Electrical resistivity values consistent with porous limestone were detected below 70 feet depth on traverse #s 22 and 26 and at approximately 100 feet depth on traverse # 21. No electrical evidence of well-developed cavities was detected in the areas and depths surveyed.

7. Lee-directional measurements (not plotted) yielded disparities on eleven of the twenty-six ER traverses. The locations of the Lee-directional disparities are shown in yellow on the ER location map. Ten of the Lee-directional anomalies were within the upper 30 feet and one was at approximately 70 feet depth on traverse # 14. The disparities were not corroborated with sounding

anomalies and are attributed to lateral variations in soil moisture or composition.

8. The stratigraphic profile A-A' shows that the surface elevation decreases from the western end to the eastern end of the profile, with a total elevation change of approximately 16 feet. The overburden (sand and clay mixtures) thickness at the west end of the profile measures approximately 27 feet and increases to a thickness of approximately 45 feet at the east end of the profile.

9. The stratigraphic profile B-B' shows a decrease in the surface elevation, approximately 15 feet, from the west to the east. The upper limestone surface generally follows the slope of the land surface. Low areas in the upper limestone surface are located at B-1, B-7, and near the center of ER traverse # 18.

10. The stratigraphic profile C-C' shows a decrease in the surface elevation from the western end to the eastern end of the profile, with a total elevation change of approximately 19 feet. The upper limestone surface was shallowest, approximately 25 feet below land surface, at the center of ER traverse # 4 and deepest, approximately 40 feet below land surface, at the center of ER traverse # 8.

11. The stratigraphic profile D-D' shows a decrease in the surface elevation from the southern end to the northern end of the profile, with a total elevation change of approximately 11 feet. Boring B-10 and ER traverse # 14 indicate that the upper limestone surface dips to 50-57 feet below land surface on the south side of the profile.

12. A two dimensional contour map and a three dimensional tomographic projection of the elevation of the top of the limestone were prepared. A pattern of a variable depths to the upper limestone surface was recognized.

CONCLUSIONS

Electrical resistivity was conducted in the proposed building area of a Wal-Mart Supercenter in Alachua, Florida, and the data was added to a previous electrical resistivity survey preformed by Geohazards, Inc. in 2004. No surface depressions were observed in the survey area.

The interpretations of the electrical resistivity data indicate that clay and sand mixtures overlie the upper limestone surface at depths of approximately 20 to 50 feet depth. The nineteen borings conducted within the survey area by Universal Engineering Sciences encountered the upper limestone surface at depths of 27 to 57 feet. No electrical data were interpreted as indicative of well-developed cavities, but electrical evidence of a possible raveled zone was detected beneath traverse #8 at the clay-limestone boundary at approximately 30 feet depth. Porous limestone was interpreted at approximately 70 feet depth on traverse #s 22, and 26, and at approximately 100 feet depth on traverse # 21. Ten near-surface (upper 30 feet depth) ER Lee-directional disparities were detected and one deep (approximately 70 feet depth) ER Lee-directional disparity was detected. The disparities were not corroborated with sounding anomalies and are attributed to lateral variations in soil moisture or composition.

Based on the results of this investigation, Geohazards, Inc. recommends that deep (at least 70 feet) standard penetration test borings be conducted between the midpoints of ER traverses # 22 and 26 and near the midpoint of ER traverse #s 8, 18, and 24 to investigate the possible porous limestone detected at 70 to 100 feet depth. We recommend a deep boring to the northeast of the center of ER traverse # 20 to further investigate the possible raveling conditions detected. We also recommend a boring in the area of the depressed limestone surface located in the southern portion of the building area, approximately 50 feet north of boring B-10.

LIMITATIONS

While due care has been exercised in the performance of these measurements and their interpretation, Geohazards, Inc. can make no representations, warranties, or guarantees with respect to latent or concealed conditions which may exist that may be beyond the limits of detection with the methodologies used.

Douglas L. Smith, R.G.
Geophysicist

Anthony F. Randazzo, Ph.D., P.G.
Geologist

Gerald O. Black, R.G.
Geologist

GEOHAZARDS, INC.

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SITE PLAN OF GEOPHYSICAL INVESTIGATION

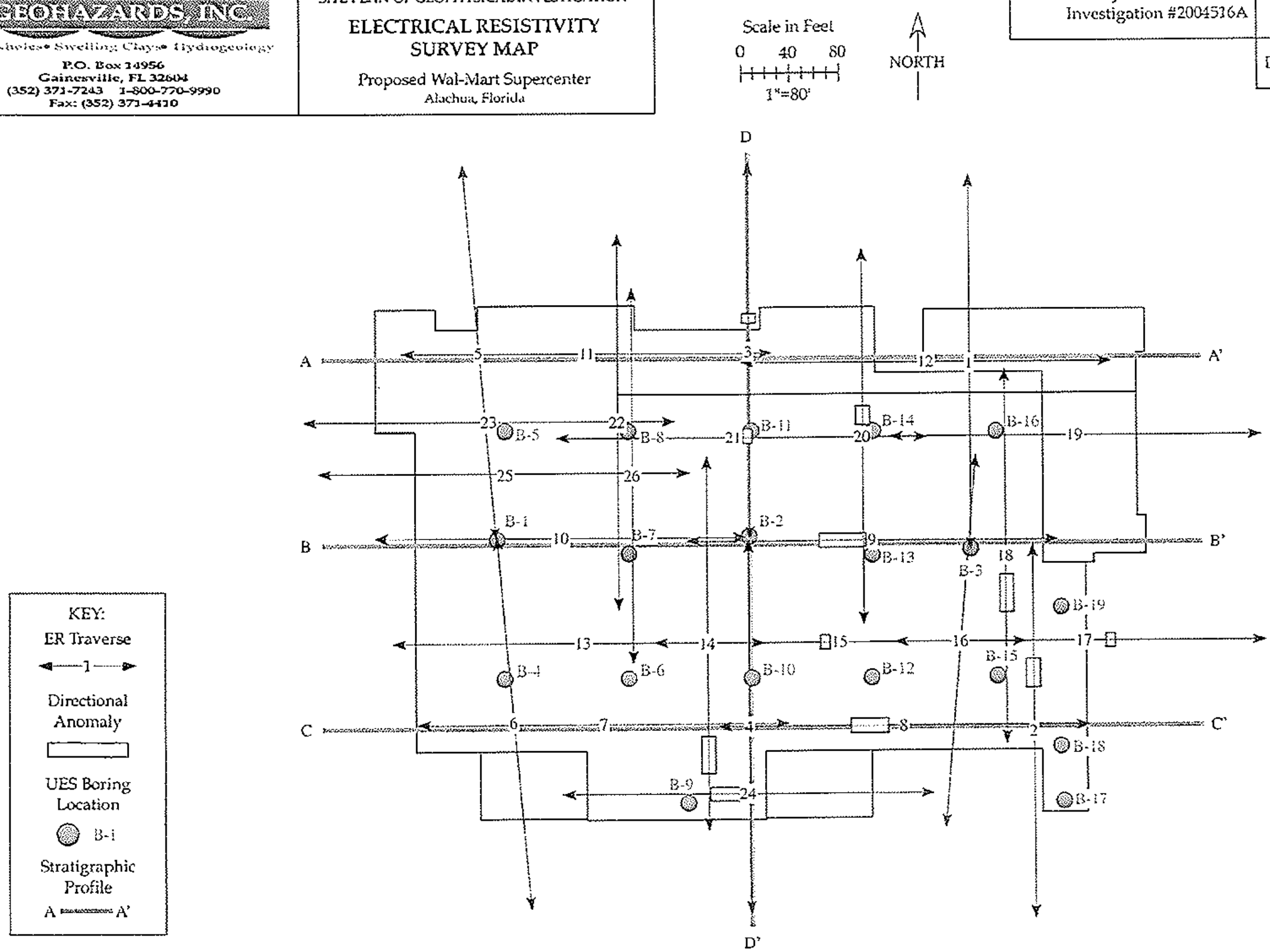
ELECTRICAL RESISTIVITY SURVEY MAP

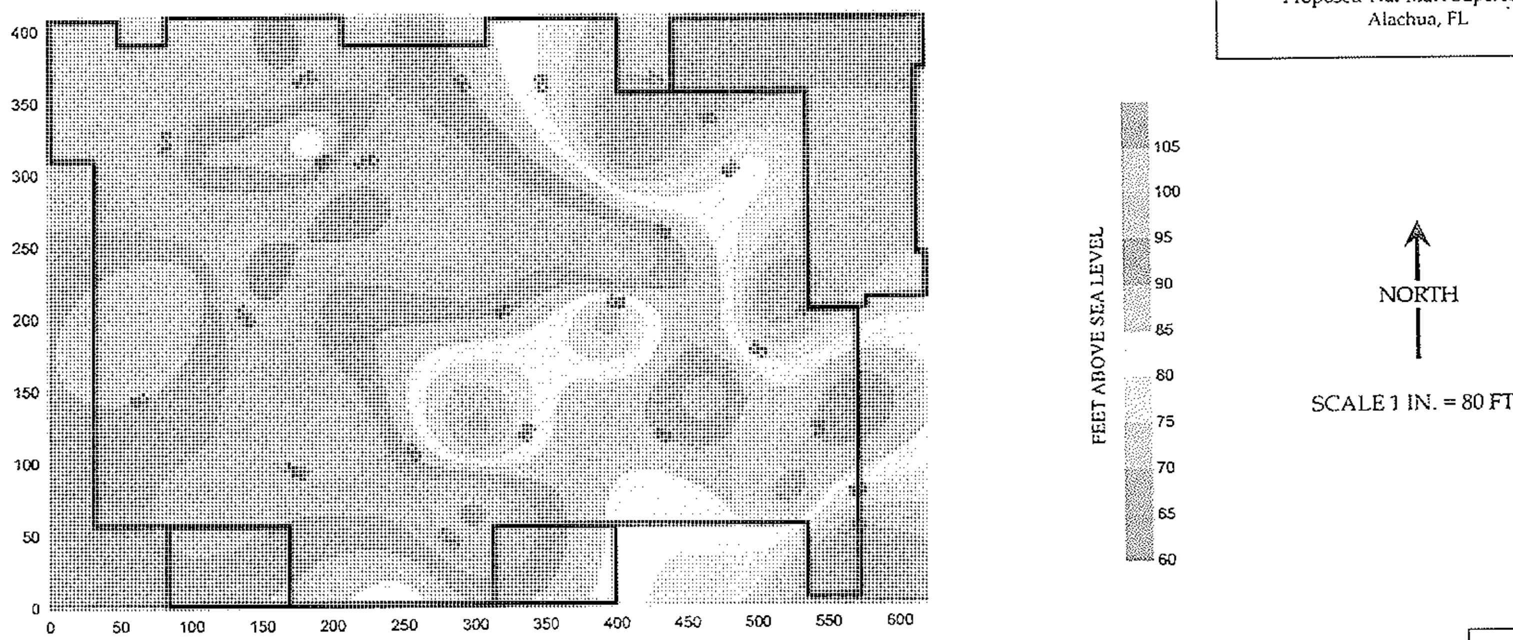
Proposed Wal-Mart Supercenter
Alachua, Florida

BY: M. Hays
Investigation #2004516A

FOR: David Barreiro
UES

DATE: 11-28-05





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CONTOUR MAP

ELEVATION OF TOP OF LIMESTONE

Proposed Wal-Mart Supercenter
Alachua, FL

SCALE 1 IN. = 80 FT.

DATE: 12-1-05

BY: M. Hays
Investigation #2004516A

FOR: David Barreiro
UES

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3-D TOMOGRAPHIC PROJECTION

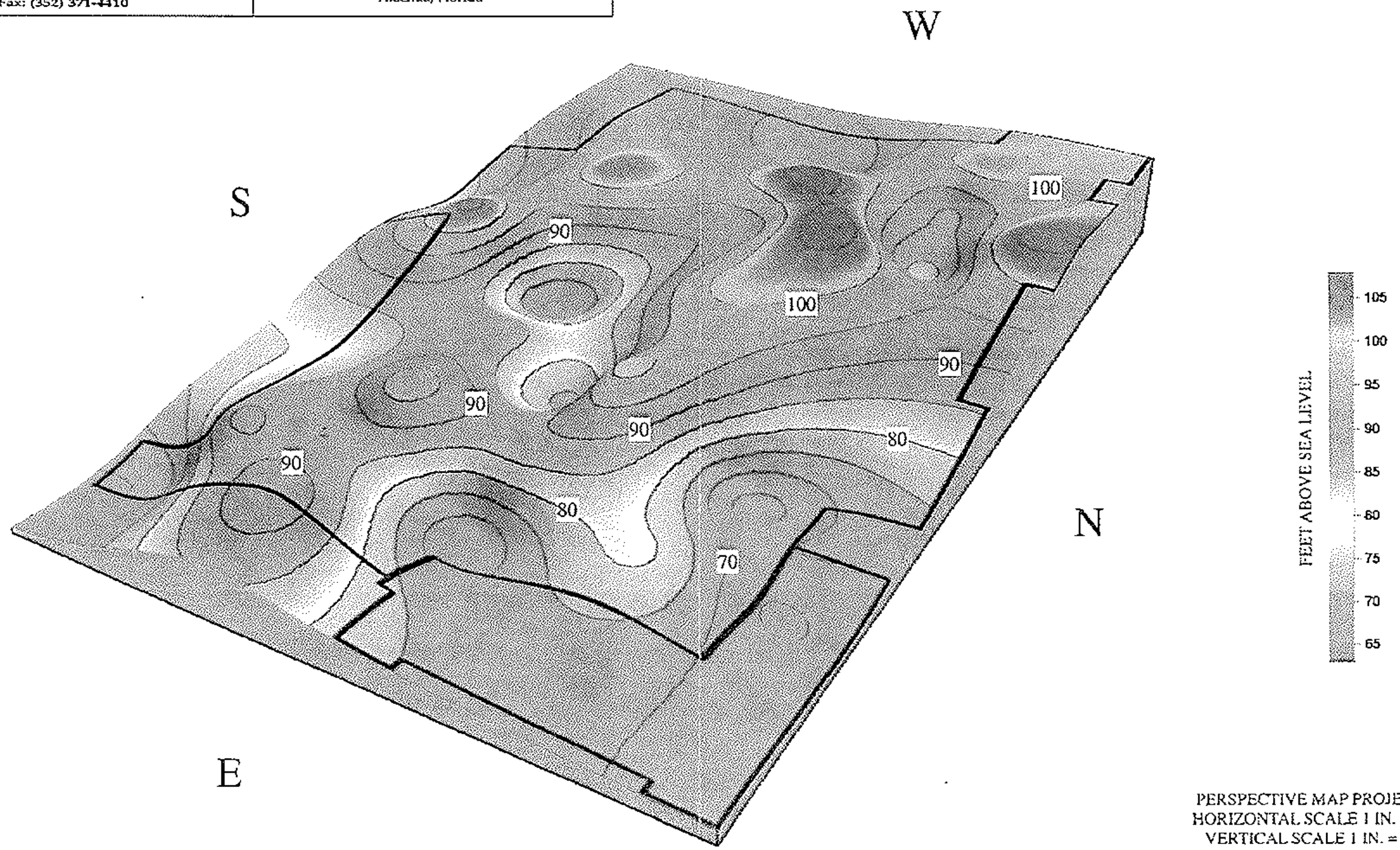
ELEVATION OF TOP OF LIMESTONE

Proposed Wal-Mart Supercenter
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516A

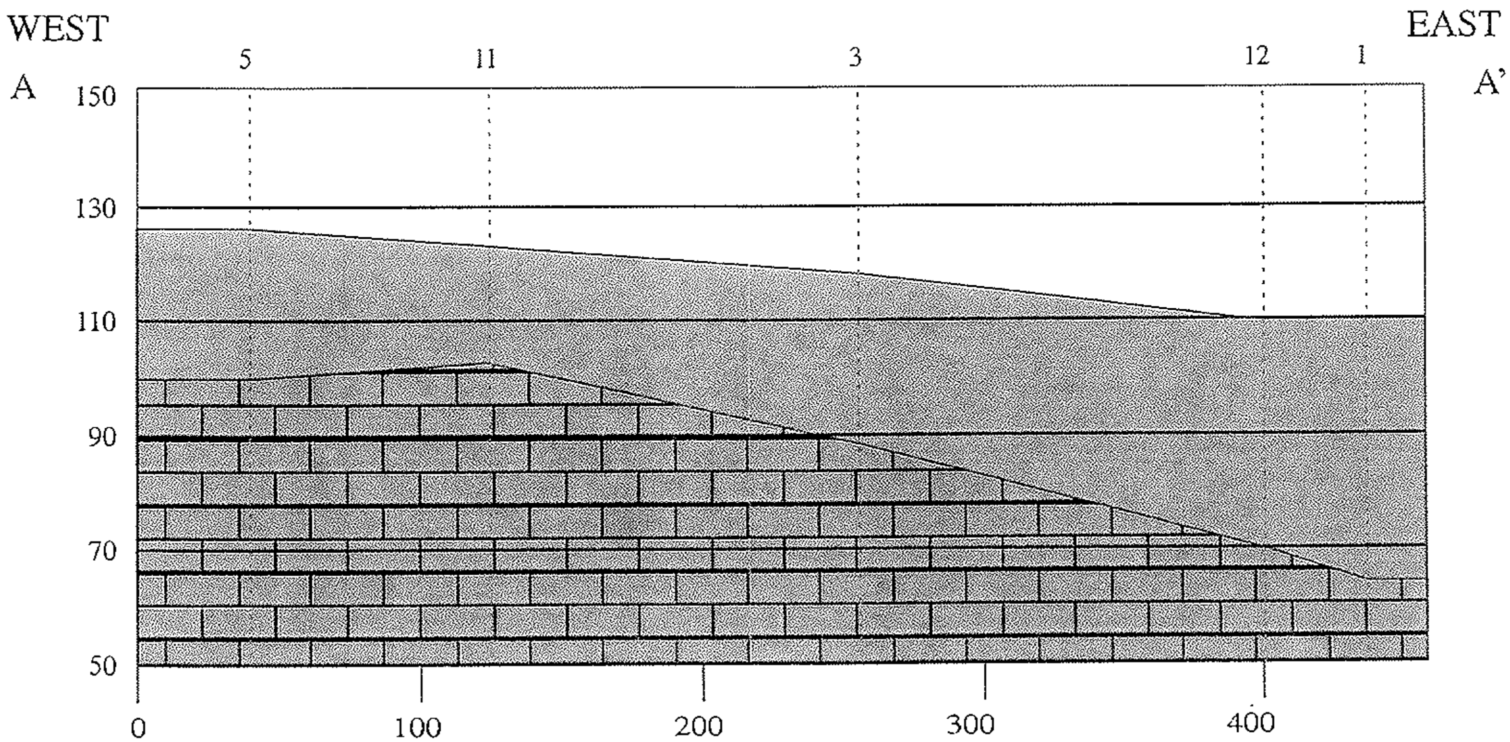
FOR: David Barreiro,
UES

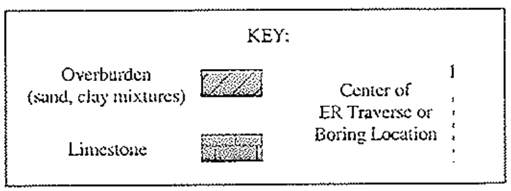
DATE: 12-1-05



PERSPECTIVE MAP PROJECTION
HORIZONTAL SCALE 1 IN. = 60 FT.
VERTICAL SCALE 1 IN. = 40 FT.

GEOHAZARDS, INC. Sinkholes• Swelling Clays• Hydrogeology P.O. Box 14956 Gainesville, FL 32604 (352) 371-7243 1-800-770-9990 Fax: (352) 371-4410	STRATIGRAPHIC PROFILE A - A' Proposed Wal-Mart Supercenter Alachua, Florida	BY: M. Hays, Geologist Investigation #2004516A	FOR: David Barreiro, UES DATE: 12-1-05





HORIZONTAL SCALE APPROXIMATELY 1 IN. = 40 FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 20 FT.
2X VERTICAL EXAGGERATION

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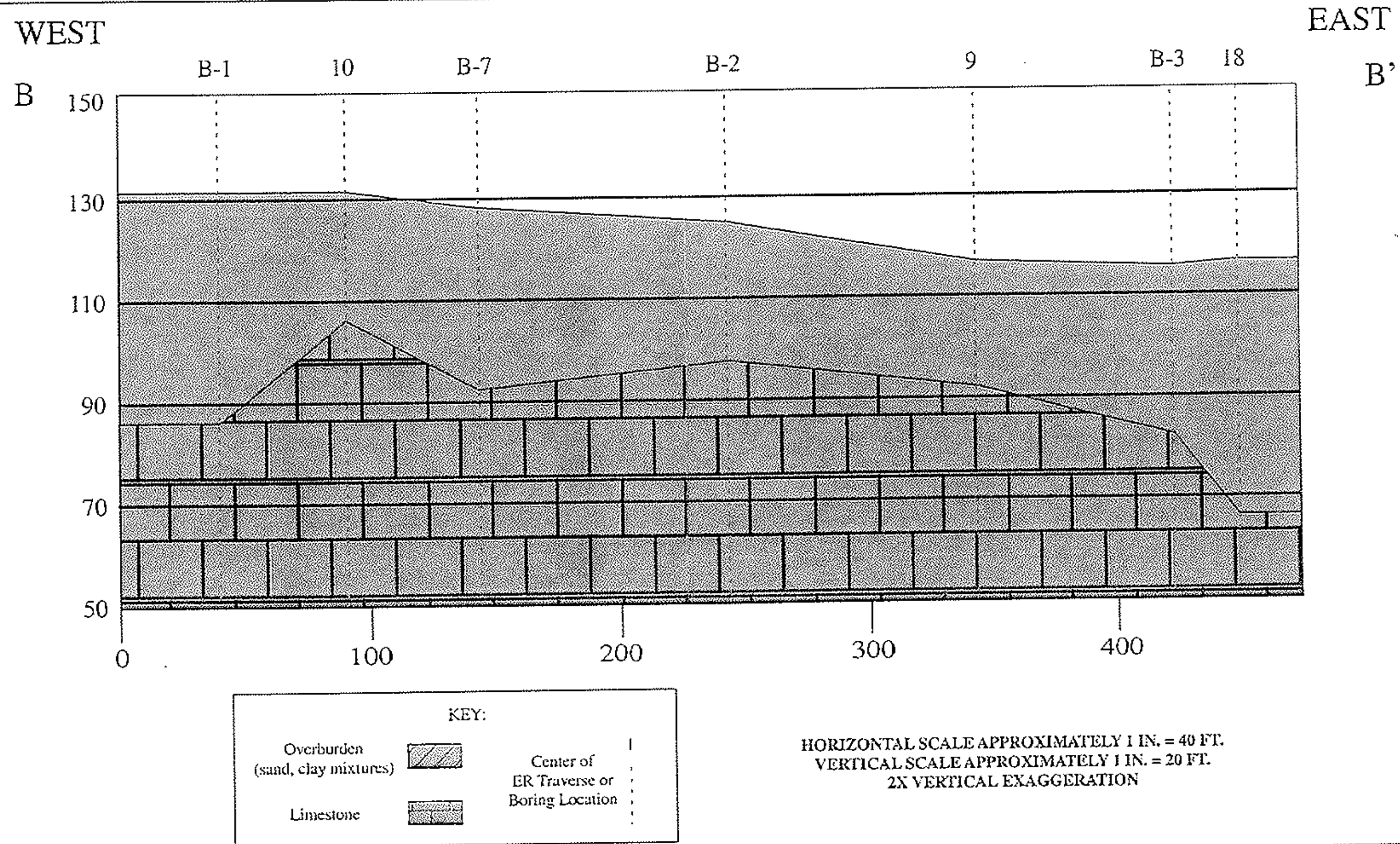
STRATIGRAPHIC PROFILE
B - B′

Proposed Wal-Mart Supercenter
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516A

FOR: David Barreiro,
UES

DATE: 12-1-05



HORIZONTAL SCALE APPROXIMATELY 1 IN. = 40 FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 20 FT.
2X VERTICAL EXAGGERATION

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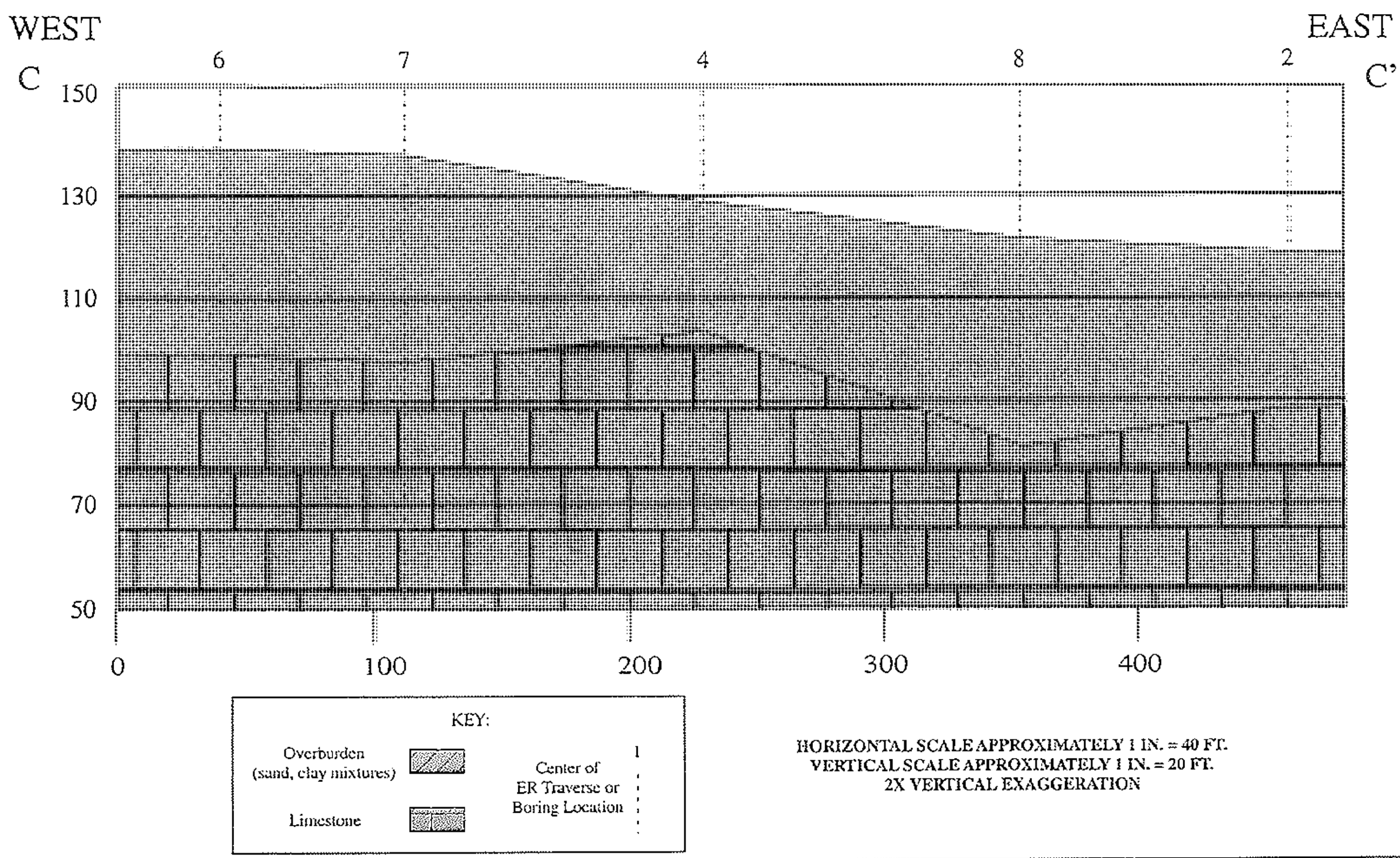
STRATIGRAPHIC PROFILE
C - C'

Proposed Wal-Mart Supercenter
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516A

FOR: David Barreiro,
UES

DATE: 12-1-05



HORIZONTAL SCALE APPROXIMATELY 1 IN. = 40 FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 20 FT.
2X VERTICAL EXAGGERATION

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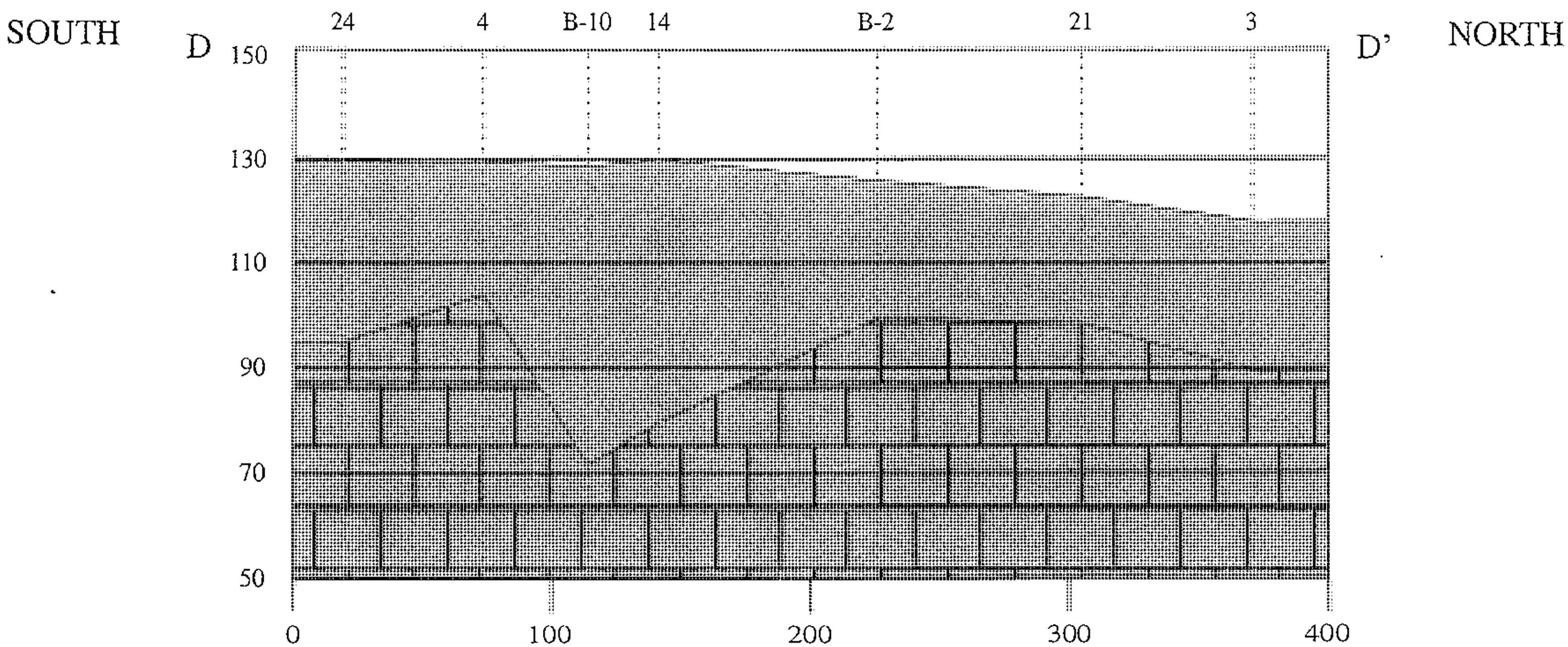
STRATIGRAPHIC PROFILE
D - D′

Proposed Wal-Mart Supercenter
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516A

FOR: David Barreiro, UES

DATE: 12-1-05



KEY:

Overburden (sand, clay mixtures)

Limestone

Center of ER Traverse or Boring Location

HORIZONTAL SCALE APPROXIMATELY 1 IN. = 40 FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 20 FT.
2X VERTICAL EXAGGERATION

APPENDIX D

GEOHAZARDS, INC.
Professional Geological, Geophysical and Geotechnical Engineering Services

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Gainesville, Florida 32604

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David Bloomquist, Ph. D. Geotechnical Engineer, Florida PE# 37235
Attila A. Bodo, P.E. Structural Engineer, Florida PE# 15834
Douglas L. Smith, Ph.D. Geophysicist, Florida PG# 0018, Georgia PG# 1140

January 24, 2006

Geohazards, Inc., Investigation No. 2004516B

REPORT OF THE GEOPHYSICAL INVESTIGATION OF THE GEOLOGICAL SUBSURFACE AT THE PROPOSED WAL-MART SUPERCENTER RETENTION POND SITE, ALACHUA, FLORIDA

INTRODUCTION

Purpose

Geohazards, Inc. was tasked by Universal Engineering Sciences, Inc., to conduct a geophysical investigation at the above referenced locality.

This investigation was conducted to provide a geophysical characterization of the geological subsurface. In particular, efforts were designed to determine the presence of subsurface cavities and subsurface zones of disruption that might contribute to subsidence. Any of these conditions could be responsible for existing or potential subsidence at the site.

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www.sinkholes.com   geohazards@bellsouth.net

Scope

The investigation conducted and reported herein included the following:

- A review of available geologic maps and other published data to establish the general probable lithology for the site of investigation.
- A reconnaissance of the site of investigation to recognize and identify surface conditions pertinent to the purpose of the investigation.
- An Electrical Resistivity (ER) investigation of the site to assist in the recognition of site-specific geological conditions at the subject property and to determine evidence for the presence of anomalous subsurface features or conditions.
- A final report summarizing results and conveying professional opinions.

Site Information

The geophysical field investigation was conducted on January 7, 2006. The site is located in the southeast portion of the intersection of US Highway 441 and Interstate 75 in Alachua, Florida, and consists of a proposed retention pond located in an open grassy field. The northeast corner of the site is tree covered and a fence prevented access to that area. In general, the land surface slopes slightly downward towards the north and northeast. The elevation difference over the survey area is approximately 15 feet. The building pad of the proposed Wal-Mart Supercenter site is located uphill and south of the proposed pond. Previous Geohazards reports numbered 2004516 and 2004516A detail resistivity investigations within the area of the proposed building pad. A surface depression approximately 50 feet in diameter and approximately 4 feet deep was observed on the east side of the proposed pond. Two small depressions approximately 4 feet in diameter and 6 inches to 1 foot deep were observed on the west side of the proposed pond. Universal Engineering Sciences, Inc. has performed thirty-seven 40-foot Standard Penetration Test Borings in the proposed retention pond.

REGIONAL GEOLOGY

Based on map consultations and personal inspection, the surficial geologic material at the study site is the Hawthorn Group of geological formations overlain by a cover of very young unconsolidated sands and sandy clays. These consist of fine to medium grained, unconsolidated quartz sand, silt, and clay in varying proportions and thickness. Shrink/swell clays of significant size, continuity and nearness to the surface are a particularly troublesome characteristic of the Hawthorn where they occur in significant thickness and lateral continuity. Concrete slabs and foundations can be severely damaged where such a geologic condition occurs.

The Ocala Limestone underlies the Hawthorn. This limestone has experienced significant dissolution and the creation of an intricate cavernous system. Problems in the development of sinkholes are related to the size and nearness to the surface of the Ocala limestone and these underground cavities. The upper surface of this limestone is highly irregular.

FIELD TEST METHODS

Electrical Resistivity

Electrical resistivity (ER) is a geophysical procedure to investigate the presence of geological conditions or features characterized by contrasts in electrical resistivity. The measurements were conducted using the Wenner electrode configuration, and were performed in general accordance with the appropriate portions of ASTM standards G57-95a entitled "Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method," and standard D6431-99 entitled "Standard Guide for Using Direct Current Resistivity Method for Subsurface Investigation."

Electrical resistivity measurements involve the passing of an electric current underground and measuring its resistance to flow. Different earth materials (e.g. clay, sand, limestone) and subsurface cavities will resist the flow of electrical current differently. Substantially greater contrasts in the degree of resistance (anomalies) are used to identify and locate boundaries among different materials as well as the presence of cavities.

The types of ER measurements used in this investigation were Soundings and Lee-directional. Sounding measurements reveal two-dimensional detail below the surface at progressively greater depths. Lee-directional measurements determine the direction of higher or lower resistivity along a traverse line. In the field, electrodes are placed in the ground at equal distances from one another. After a measurement, this distance is increased in an orderly fashion to sequentially allow a greater depth of penetration.

Measurements of ER were made with an L & R Instruments, Inc. MiniRes Earth Resistivity Meter. Four current/potential electrodes and one Lee electrode are employed. Depending on the surface space available for deployment of electrodes, a maximum depth capability of 100 feet can be achieved.

ER traverse lines were oriented to provide representative coverage of the site of investigation (see ER location map). Twenty-one traverses (traverse #s 1-21) were conducted and configured as shown on the location map. The maximum depth of penetration for all traverses was 100 feet.

RESULTS

Electrical Resistivity

1. In general, electrical resistivity values and sounding trends were variable among the twenty-one traverses. Sounding profiles are included in the appendix. Two stratigraphic profiles were constructed using interpretations of the sounding profiles and the boring log data provided by Universal Engineering Sciences, Inc. (See included stratigraphic profiles and sounding profiles). An "Elevation of Top of Limestone" contour map and an "Elevation of Top of Limestone" 3-D tomographic projection were also constructed from this investigation and also incorporate the data from thirty-seven borings performed in the survey area.

2. The general configuration of the sounding values and patterns is interpreted as indicative of clayey sand and/or sandy clay extending to 15 to 60 feet depth. Electrical evidence for the underlying limestone surface was detected at approximately 15 feet depth beneath traverse #s 4 and 17. Limestone was

detected at approximately 20 feet depth beneath traverse # 1, at approximately 25 feet depth beneath traverses # 6 and 10, at approximately 30 feet depth beneath traverse #s 2-3, and 18, at approximately 40 feet depth beneath traverse #s 8, 11, and 15, at approximately 50 feet depth beneath traverse #s 5, 7, 9, 14, 16 and 20-21, at approximately 60 feet depth beneath traverse #s 12-13, and 19.

3. Electrical evidence of the limestone surface was detected at the following approximate depths:

TRAVERSE NUMBER	DEPTH (feet)
4, 17	15
1	20
6, 10	25
2, 3, 18	30
8, 11, 15	40
5, 7, 9, 14, 16, 20, 21	50
12, 13, 19	60

4. The configuration of the sounding values and patterns for traverses #s 3, 8, and 12, 13, 14, 15, 16, 18, 19 is interpreted as indicative of surface sand, approximately 10-30 feet thick overlying clayey sand and sandy clay.

5. The configuration of the sounding values and patterns for traverse # 7 is interpreted as indicative of near-surface clayey sand grading into sandy clay and clay approximately 20 feet depth.

6. The configuration of the sounding values and patterns for traverse # 20 is interpreted as indicative of near-surface clayey sand overlying sand at approximately 20 feet depth.

7. Electrical resistivity values consistent with an air-filled cavity were detected at approximately 30 feet depth on traverse # 5.

8. Electrical resistivity values consistent with porous limestone were detected below approximately 50 feet depth on traverse # 4.

9. Lee-directional measurements (not plotted) yielded disparities on three of the twenty-one ER traverses. The locations of the Lee-directional disparities are

shown in yellow on the ER location map. The Lee-directional disparity on traverse # 5 may be associated with the possible air-filled cavity detected at approximately 30 feet depth. The other disparities were not corroborated with sounding anomalies and are attributed to lateral variations in soil moisture or composition.

10. The stratigraphic profile A-A' shows that the surface elevation slopes gently from the western end to the eastern end of the profile, with a total elevation change of approximately 10 feet. The overburden (sand and clay mixtures) thickness at the west end of the profile measures approximately 24 feet and increases to a thickness of approximately 30 feet at the east end of the profile. The upper limestone surface is highly irregular across the profile. The limestone surface dips steeply near the center of ER traverse #s 12 and 9.

11. The stratigraphic profile B-B' shows a decrease in the surface elevation, approximately 10-15 feet, from the south to the north. The upper limestone surface is highly irregular over the profile. Low areas in the upper limestone surface are located at near the centers of ER traverse #s 2 and 9 and near P-31.

12. A two dimensional contour map and a three dimensional tomographic projection of the elevation of the top of the limestone was prepared. A pattern of variable depths to the upper limestone surface was recognized. Depressions in the upper limestone surface were detected near the southeast corner, the center, and the southwest corner of the proposed retention pond.

CONCLUSIONS

An electrical resistivity investigation was conducted in the proposed site of a Wal-Mart Supercenter retention pond in Alachua, Florida. A surface depression approximately 50 feet in diameter and approximately 4 feet deep was observed on the east side of the proposed pond and two small depressions approximately 4 feet in diameter and 6 inches to 1 foot deep were observed on the west side of the proposed pond.

The interpretations of the electrical resistivity data indicate that clay and sand mixtures overlie the upper limestone surface at depths of approximately 15 to 60 feet depth. The thirty-seven borings conducted within the survey area by

Universal Engineering Sciences encountered the upper limestone surface at depths of 18 to 39 feet. Electrical evidence of a possible air-filled cavity was detected near the center of traverse # 5. Porous limestone was interpreted at below 50 feet depth on traverse # 4. Three near-surface (upper 30 feet depth) ER Lee-directional disparities were detected. The disparity on the east side of traverse # 5 may be associated with the air-filled cavity detected at 30 feet depth. The other disparities were not corroborated with sounding anomalies and are attributed to lateral variations in soil moisture or composition.

The two dimensional contour map and a three dimensional tomographic projection of the elevation of the top of the limestone indicate depressions in the upper limestone surface near the southeast corner, the center, and the southwest corner of the proposed retention pond.

Based on the results of this investigation, Geohazards, Inc. recommends that deep (at least 70 feet) standard penetration test borings be conducted near the disparities detected on traverses #s 5 and 6, near the small surface depression observed near the midpoint of traverse # 17, near the midpoint of traverse # 15, and in the depressions observed in the upper limestone surface located on the northwest side of traverse 21, northwest of the midpoint of traverse # 9, and on the west side of traverse # 13 (see two dimensional contour map and three dimensional tomographic projection).

LIMITATIONS

While due care has been exercised in the performance of these measurements and their interpretation, Geohazards, Inc. can make no representations, warranties, or guarantees with respect to latent or concealed conditions which may exist that may be beyond the limits of detection with the methodologies used.

Gerald O. Black, P.G.
Geologist

GERALD OLIVER BLACK LICENSE 2302 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

Scott E. Purcifull, P.G.
Geologist

SCOTT ERNEST PURCIFULL LICENSE No. 2328 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

GEOHAZARDS, INC.

Sinkholes• Swelling Clays• Hydrogeology

P.O. Box 14956
Gainesville, FL 32604
(352) 371-7243   1-800-770-9990
Fax: (352) 371-4410

SITE PLAN OF GEOPHYSICAL INVESTIGATION

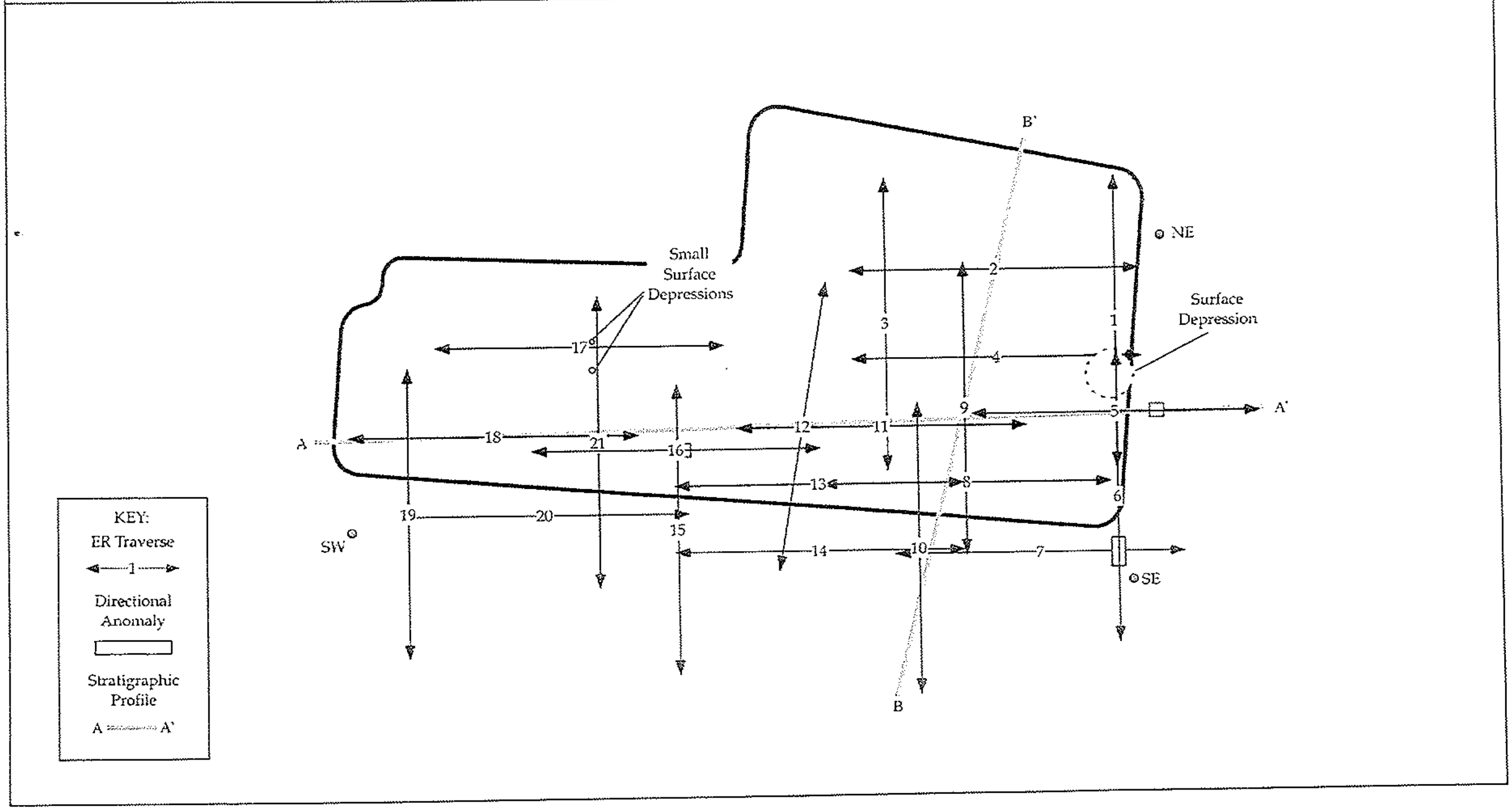
ELECTRICAL RESISTIVITY SURVEY MAP

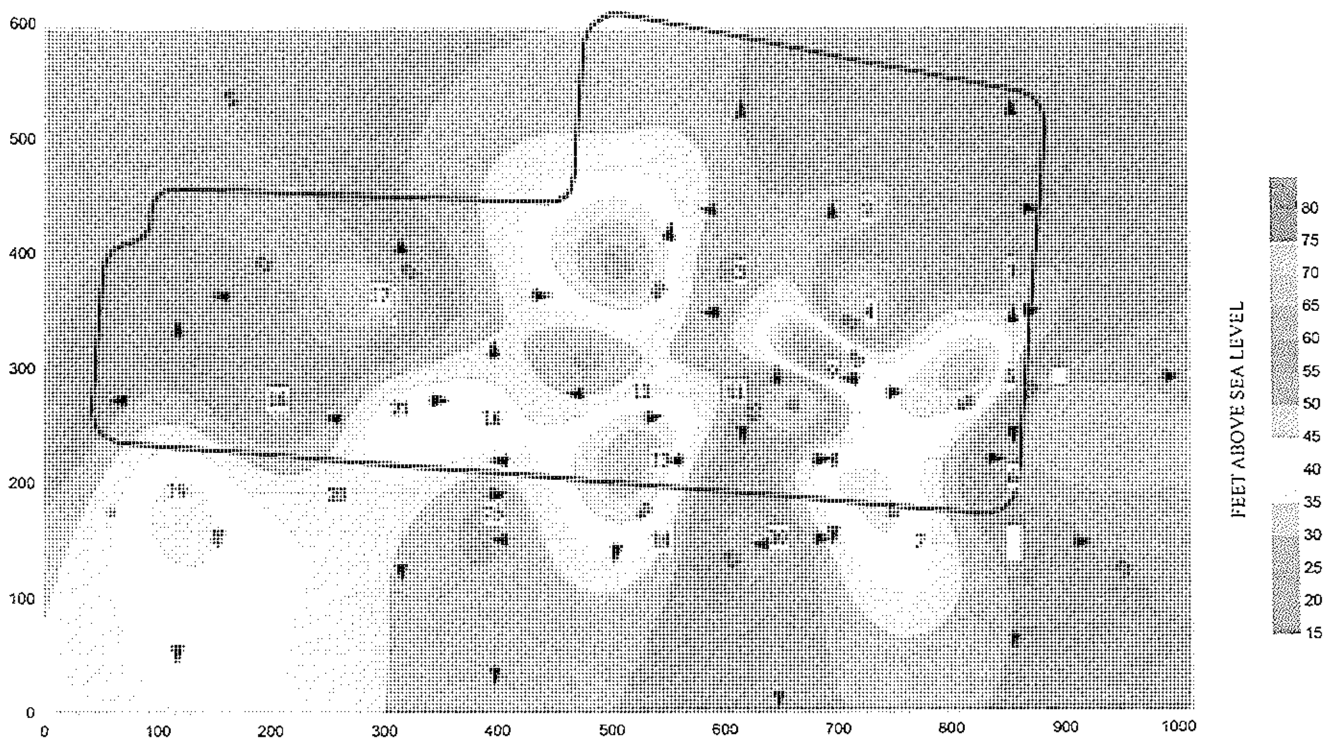
Proposed Wal-Mart Supercenter
Retention Pond
Alachua, Florida

BY: M. Hays
Investigation #2004516B

FOR: UES

DATE: 1-17-06





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CONTOUR MAP

ELEVATION OF
TOP OF LIMESTONE

Proposed Wal-Mart Supercenter
Retention Pond
Alachua, FL

DATE: 1-17-06

BY: M. Hays
Investigation #2004516B

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3-D TOMOGRAPHIC PROJECTION

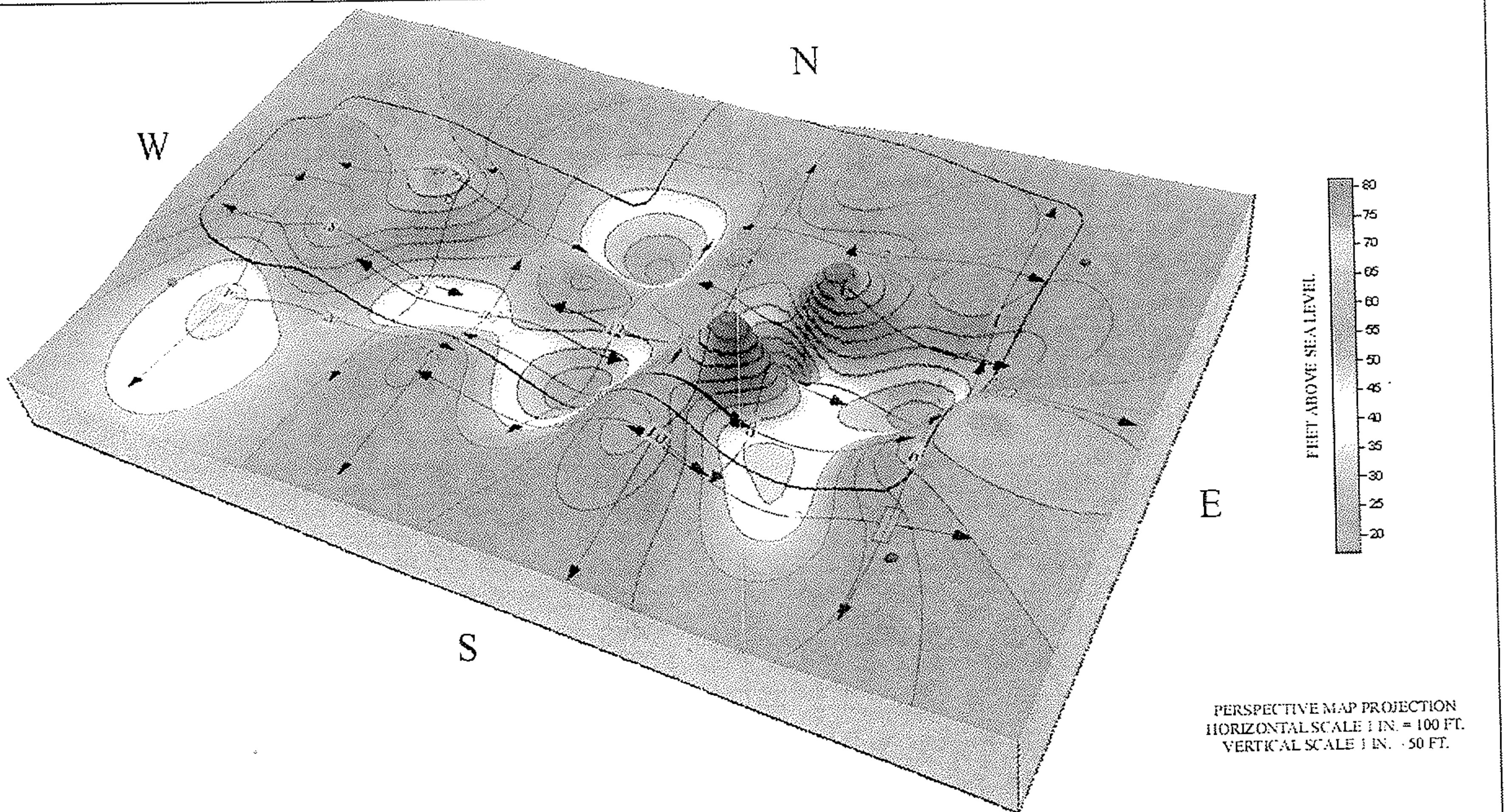
ELEVATION OF TOP OF LIMESTONE

Proposed Wal-Mart Supercenter
Retention Pond
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516B

FOR: UES

DATE: 1-17-06



PERSPECTIVE MAP PROJECTION
HORIZONTAL SCALE 1 IN. = 100 FT.
VERTICAL SCALE 1 IN. = 50 FT.

GEOHAZARDS, INC.
Sinkholes• Swelling Clays• Hydrogeology
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Gainesville, FL 32604
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Fax: (352) 371-4410

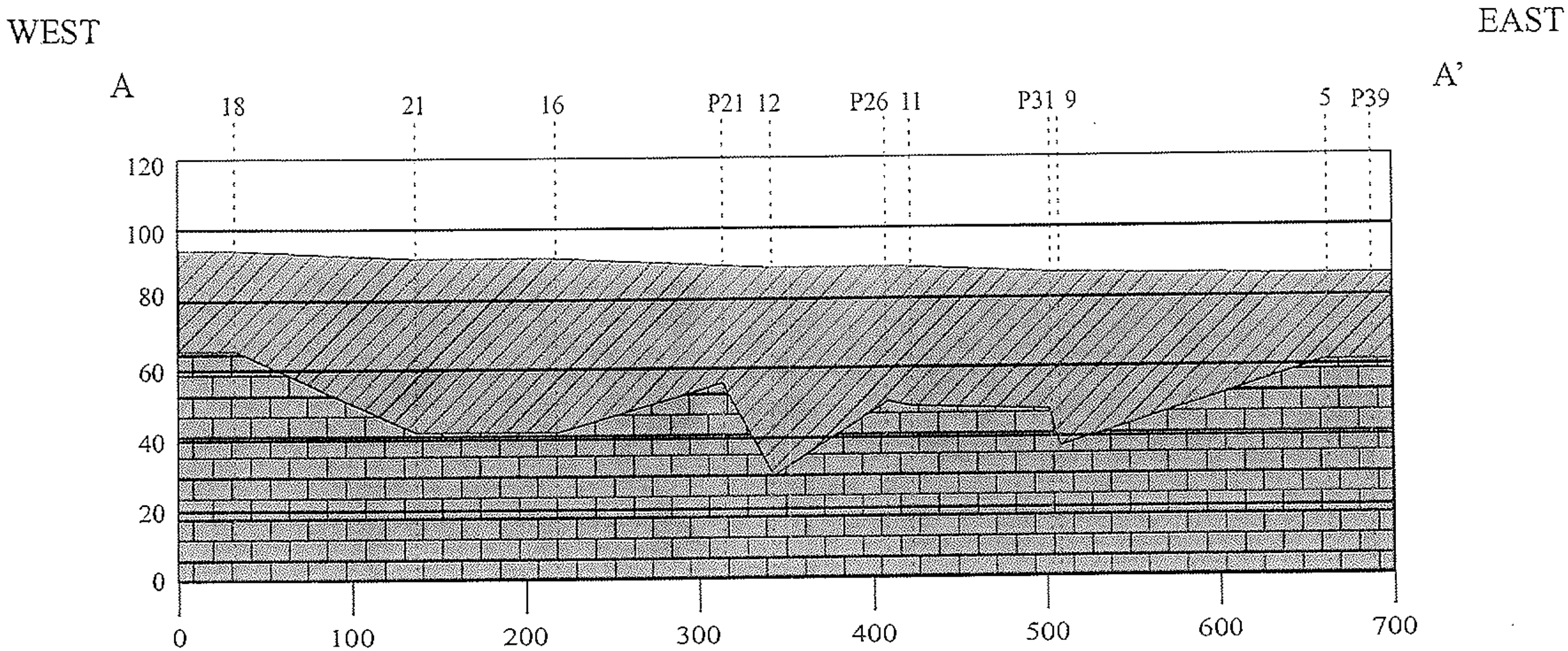
STRATIGRAPHIC PROFILE
A - A'

Proposed Wal-Mart Supercenter
Retention Pond
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516B

FOR: UES

DATE: 1-19-06



KEY:

Overburden (sand, clay mixtures)

Limestone

Center of ER Traverse or Boring Location

HORIZONTAL SCALE APPROXIMATELY 1 IN. = 60FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 30 FT.
2X VERTICAL EXAGGERATION

GEOHAZARDS, INC.
Sinkholes• Swelling Clays• Hydrogeology
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(352) 371-7243 1-800-770-9990
Fax: (352) 371-4410

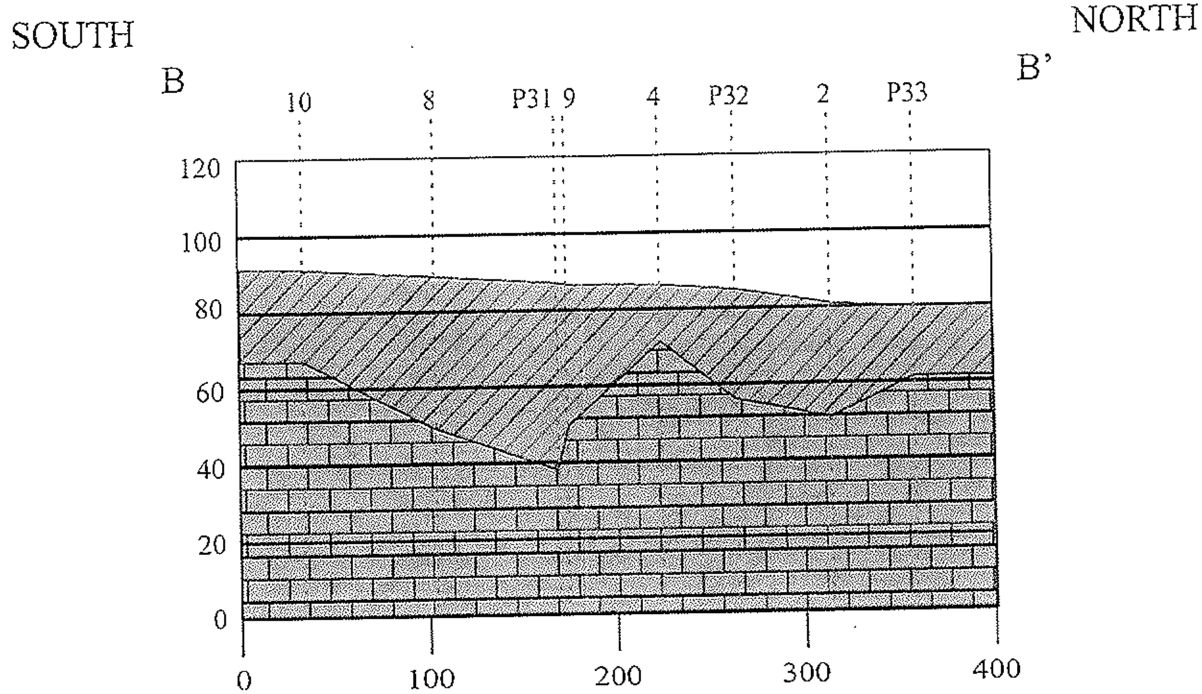
STRATIGRAPHIC PROFILE
B - B'

Proposed Wal-Mart Supercenter
Retention Pond
Alachua, Florida

BY: M. Hays, Geologist
Investigation #2004516B

FOR: UES

DATE: 1-19-06



KEY:

Overburden (sand, clay mixtures)

Limestone

Center of ER Traverse or Boring Location

HORIZONTAL SCALE APPROXIMATELY 1 IN. = 60 FT.
VERTICAL SCALE APPROXIMATELY 1 IN. = 30 FT.
2X VERTICAL EXAGGERATION

APPENDIX E

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
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e-mail: info@asfe.org www.asfe.org

IIGER06045.0M

CONSTRAINTS AND RESTRICTIONS

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variation which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusion modified or approved by Universal Engineering Sciences.

APPENDIX F

SLOPE STABILITY ANALYSIS

SLOPE STABILITY ANALYSIS

Stability Modl Parameters

We performed a slope stability evaluation for the proposed cut/fill slope areas using the software program "STABLE". We developed the parameters used in our slope stability evaluation from the information obtained during our field exploration and laboratory testing, from the proposed grading and site topographic information provided by CPH Engineers, Inc. and the design recommendations of this report.
The proposed cuts have slopes of 3.5:1 and 4:1 ratio (Horizontal: Vertical).
Most of the index and shear strenght parameters were chosen based on the field and laboratory tests performed.
Certain parameters were selected based on the work of others, as noted.

Reinforced soil mass

Ỹr= 110 pcf

Analysis	Type	Unit	Value
Drained	Cohesion Intercept	psf	0
*FHWA-Manual	Friction Angle	degree	32

Retained Fill [SP-SM]

Ỹr= 105 pcf

Analysis	Type	Unit	Value
Drained	Cohesion Intercept	psf	0
*FHWA-Manual	Friction Angle	degree	30

Compacted Clayey Sands/Sand-Clay mix [SC]

Ỹr= 110 pcf

Analysis	Type	Unit	Value
Drained	Cohesion Intercept	psf	230
*FHWA-Effective Stress	Friction Angle	degree	31

Sand-Clay mix [SC]

Ỹr= 103 pcf

Analysis	Type	Unit	Value
Undrained	Cohesion Intercept	psf	922 to 965
Lab tests-Triaxial-Total Stress	Friction Angle	degree	5 to 6

Inorganic Clays of high plasticity [CH]

Ỹr= 120 pcf

Analysis	Type	Unit	Value
Undrained	Cohesion Intercept	psf	1497 to 1483
Lab tests-Triaxial-Total Stress	Friction Angle	degree	12 to 16

Inorganic Clays of high plasticity [CH]

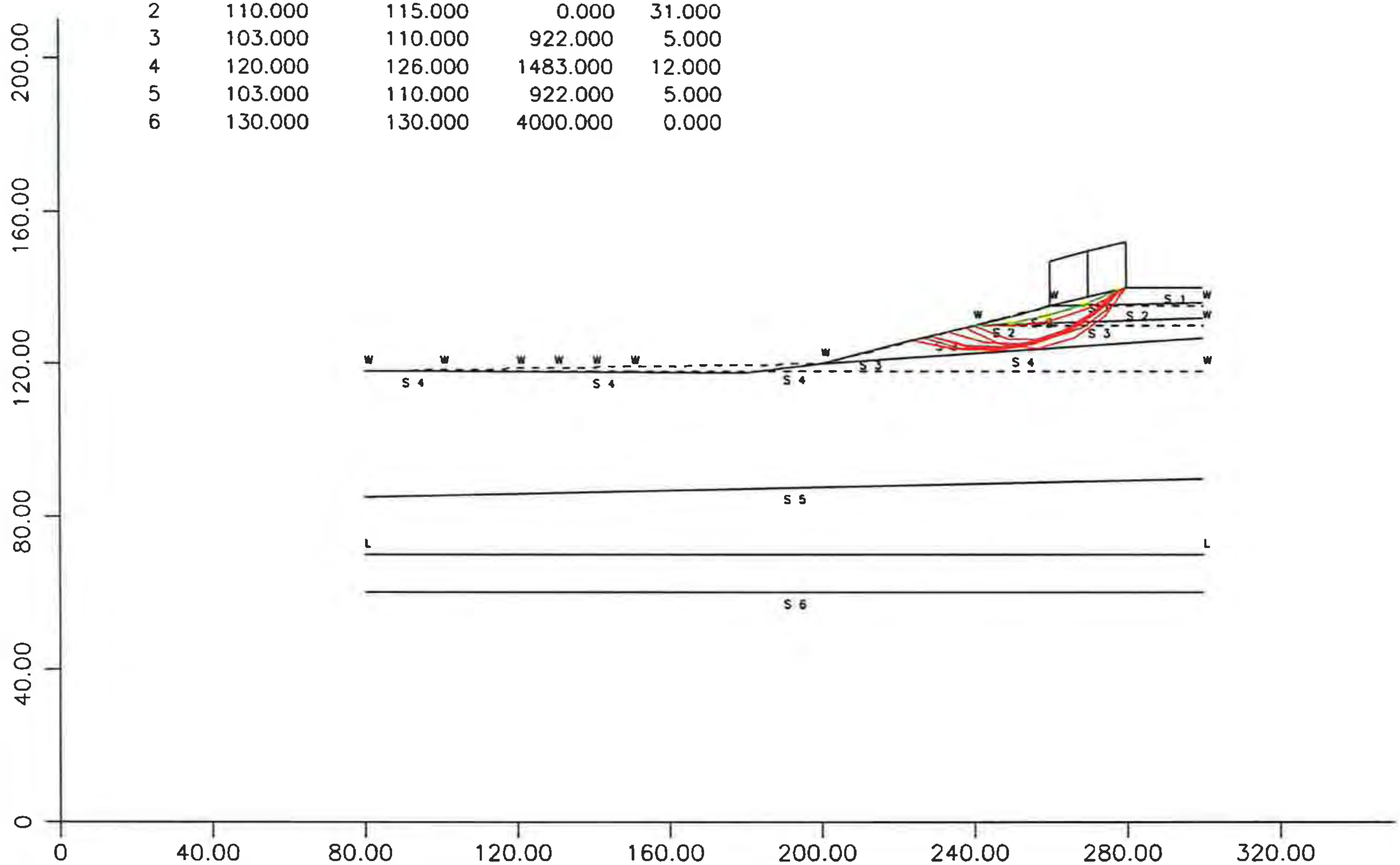
Ỹr= 120 pcf

Analysis	Type	Unit	Value
Drained	Cohesion Intercept	psf	230
*FHWA-Effective Stress	Friction Angle	degree	25

WALMART SUPERCENTER 3873-C10

Soil	Moist Unit Weight	Saturated Unit Weight	Cohesion	Friction Angle
1	105.000	110.000	0.000	30.000
2	110.000	115.000	0.000	31.000
3	103.000	110.000	922.000	5.000
4	120.000	126.000	1483.000	12.000
5	103.000	110.000	922.000	5.000
6	130.000	130.000	4000.000	0.000

Minimum Factor of Safety 1.537



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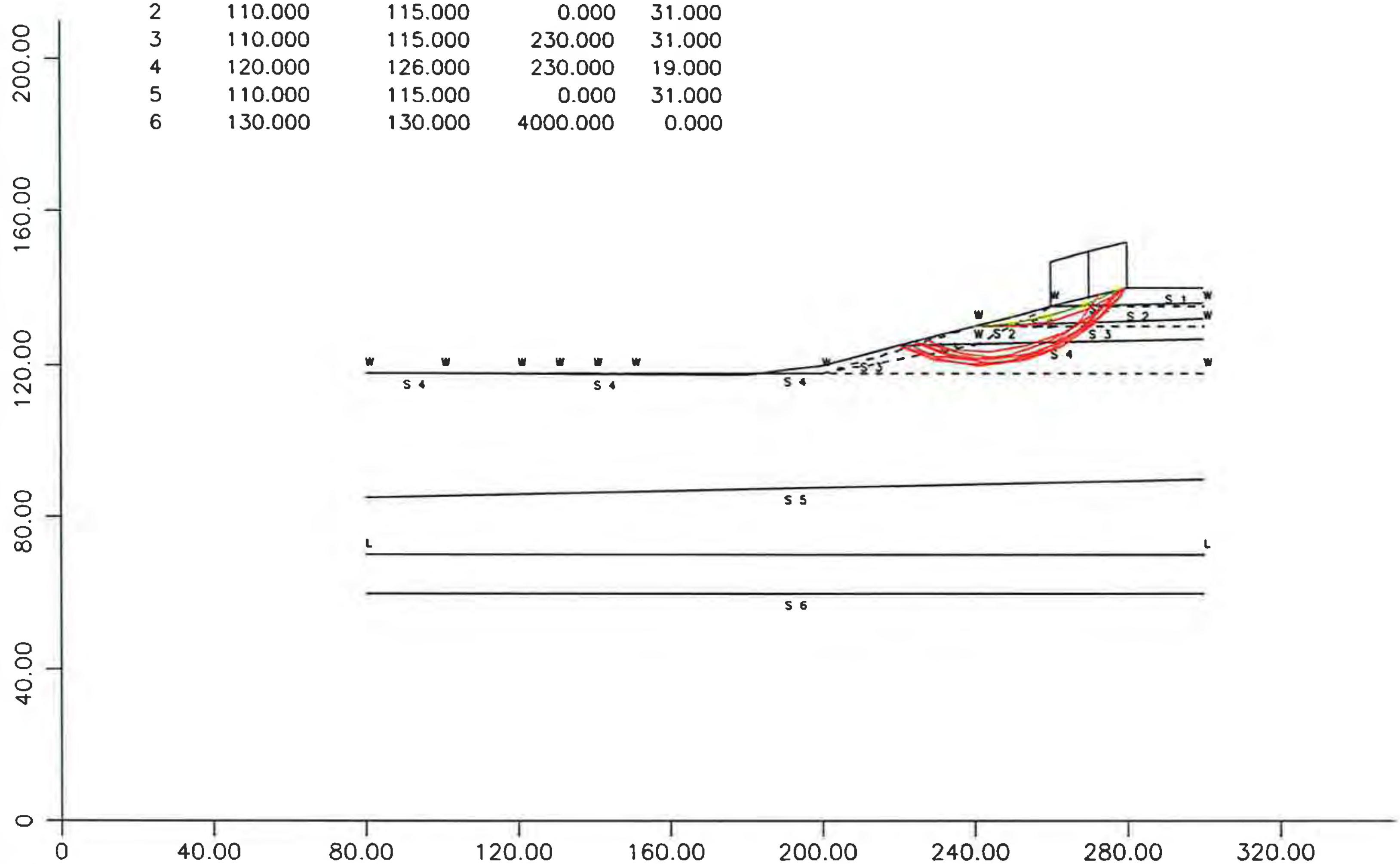
WALMART SUPERCENTER 3873-C10

Minimum Factor of Safety 1.909

Soil	Moist Unit Weight	Saturated Unit Weight	Cohesion	Friction Angle
1	105.000	110.000	0.000	30.000
2	110.000	115.000	0.000	31.000
3	110.000	115.000	230.000	31.000
4	120.000	126.000	230.000	19.000
5	110.000	115.000	0.000	31.000
6	130.000	130.000	4000.000	0.000



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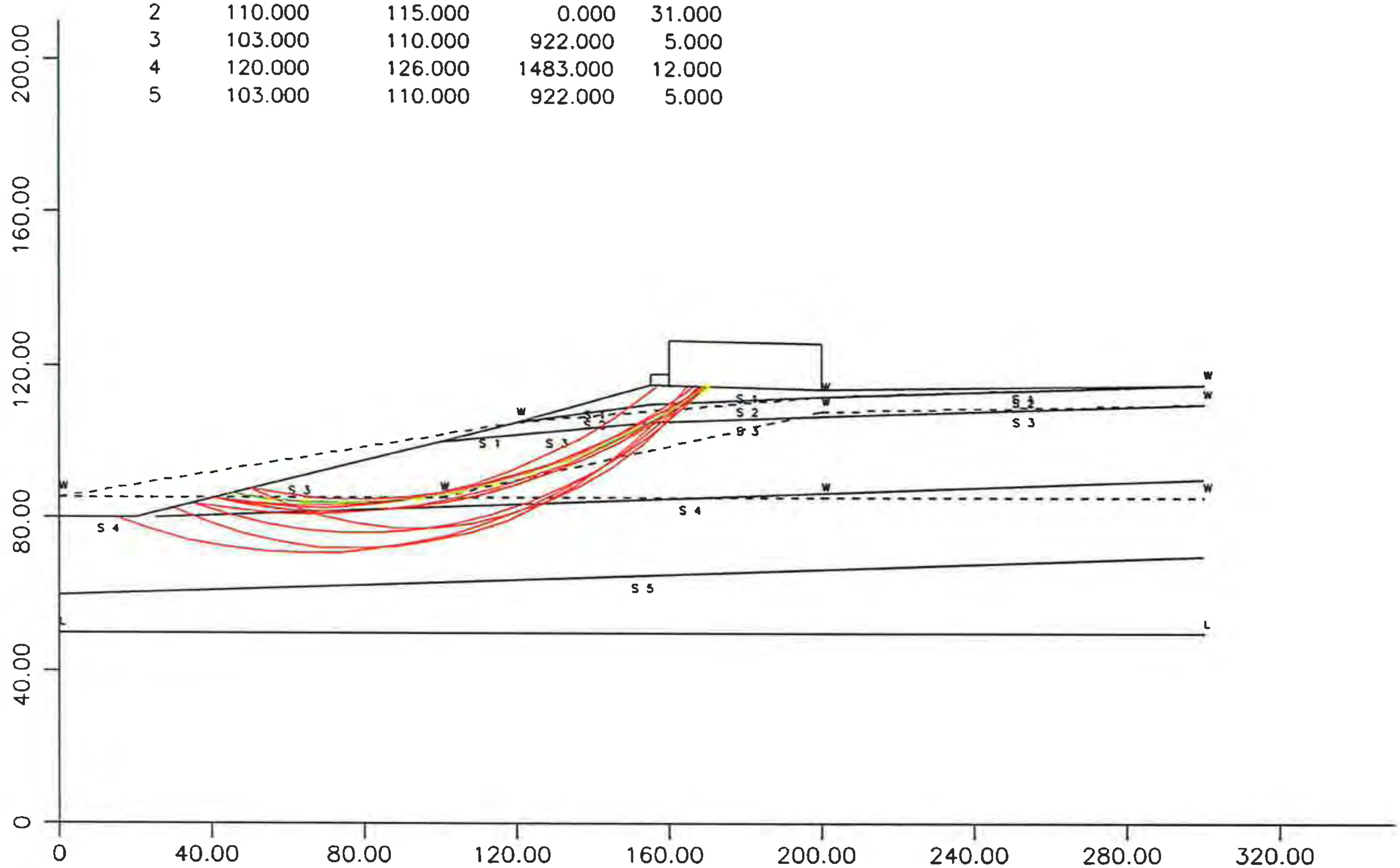
WALMART SUPERCENTER 3873-W3

Soil	Moist Unit Weight	Saturated Unit Weight	Cohesion	Friction Angle
1	105.000	110.000	0.000	30.000
2	110.000	115.000	0.000	31.000
3	103.000	110.000	922.000	5.000
4	120.000	126.000	1483.000	12.000
5	103.000	110.000	922.000	5.000

Minimum Factor of Safety 3.956



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APPENDIX G

ASFE DOCUMENT
CONSTRAINTS AND RESTRICTIONS

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ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

CONSTRAINTS AND RESTRICTIONS

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices and makes no other warranty either expressed or implied as to the professional advice provided in the report.

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CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusion modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last readings. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirements for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

UNIVERSAL
ENGINEERING SCIENCES

REPORT OF GEOTECHNICAL CONSULTING SERVICES

Limited Sinkhole Potential Evaluation
Entrance Road Depression Features - Station 43+00
Walmart Store #3873
SEC of I-75 and US 441
Alachua, Alachua County, Florida

UES Project No. 0795.1400110
UES Report No. 1367557v3

Prepared for:

CPH, Inc.
500 West Fulton Street
Sanford, Florida 32771
(407) 322-6841

Prepared by:

Universal Engineering Sciences, Inc.
4475 SW 35th Terrace
Gainesville, Florida 32608
(352) 372-3392

November 14, 2016

UNIVERSAL ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Environmental Engineering
Construction Materials Testing • Threshold Inspection • Private Provider Inspection

LOCATIONS:
Atlanta
Daytona Beach
Fort Myers
Fort Pierce
Gainesville
Jacksonville
Kissimmee
Leesburg
Miami
Ocala
Orlando (Headquarters)
Palm Coast
Panama City
Pensacola
Rockledge
Sarasota
Tampa
West Palm Beach

November 14, 2016

CPH, Inc.
500 West Fulton Street
Sanford, Florida 32771

Attention: Mr. Brian Cassidy, P.E.

Reference: **Report of Geotechnical Consulting Services**
Limited Sinkhole Potential Evaluation – Entrance Road Depression Features
Proposed Walmart Store # 3873
SEC of I-75 and US 441
Alachua, Alachua County, Florida
UES Project No: 0795.1400110.0000 UES Report No: 1367557v3

Dear Mr. Cassidy:

Universal Engineering Sciences, Inc. (UES), has completed the limited subsurface exploration and engineering evaluation within the surrounding area of two (2) previous surface depressions within the access road of the proposed Walmart # 3873 project area in the City of Alachua, Alachua County, Florida. The scope of our exploration was conducted in accordance with our conversations, our site visit, and the authorized scope of services as summarized in UES Proposal No. 1359677, dated August 4, 2016. The purpose of our current exploration was to assess the subsurface conditions relating to the two (2) previous surface depressions.

We appreciate the opportunity to have assisted you on this project and look forward to a continued association. Please contact our office if you have any questions, or to assist you with the remaining phase of the project.

Respectfully submitted,
UNIVERSAL ENGINEERING SCIENCES, INC.
Certificate of Authorization 549

EDUARDO SUAREZ, P.E.
LICENSE
No. 60272
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Eduardo Suarez, P.E.
Senior Geotechnical Engineer
Florida P.E. No. 60272
Date: 11.14.16

[Reviewed By]

For

Jeffrey S. Pruett, P.E.
Vice President
Florida P.E. No. 50775

TABLE OF CONTENTS

EXECUTIVE SUMMARY

We have prepared this executive summary solely to provide a general overview. Do not rely on this executive summary for any purpose except that for which it was prepared. Rely on the full report for information about findings, recommendations, and other concerns.

Project Location and Description

As requested, UES engineering personnel performed a site visit on August 17, 2016, at the proposed project site at the southeast corner of I-75 and US 441 in the City of Alachua, Alachua County, Florida. Two relic depression features had been previously observed and surveyed at the vicinity of Station 43+00 near the entrance to the proposed development. The depression areas have been previously backfilled. The centers of the relic depression areas were staked by CPH prior to our mobilization.

Soil and Groundwater Conditions

Soil test boring B-1 encountered silty sand [SM] to a depth of 4 feet, followed by clayey sand to sandy clay [SC/CH] to a depth of 41 feet. Below the clayey stratum, soil boring B-1 encountered limestone to the boring termination depth of 45 feet. Drilling fluid losses were observed in boring B-1 at a depth of approximately 38.5 feet.

Soil test borings B-2 and B-3 generally encountered sand with silt to silty sand [SP-SM/SM] to a depth of 3 feet, followed by interbedded layers of clayey sand and sandy clay with lenses of silt to depths of 17 to 19 feet. Below the sand-clay layers, the soil borings encountered silty sand to depths of 28 to 31 feet, followed by clayey sand to sandy clay to the depth of 62 feet. Below the clayey soils, both soil borings encountered weathered limestone to maximum boring termination depths of 70 feet below the ground surface. Drilling fluid losses were observed in boring B-2 at a depth of 43.5 feet, and in boring B-3 at a depth of 53.5 feet. Weight-of-Hammer (WOH) conditions were noted in soil boring B-3 from 58.5 to 60 feet. In this geologic setting, the WOH events indicate zones of weakness within the overlying strata near the limestone interface in soil boring B-3.

Groundwater levels were measured at depths of approximately 29 to 40.5 feet below ground surface upon work completion. It should be noted that the groundwater level may not have been fully stabilized in the boreholes when the readings were taken upon boring completion. The stabilized groundwater levels may have been impacted by the soil boring drilling process. A potentiometric surface map of the upper Floridan Aquifer suggests groundwater elevations, outside perched zones, on the order of +30 to +40 feet, NGVD in the general site area.

Limited Sinkhole Evaluation

Several conditions which relate to classical sinkhole activity were studied: groundwater level and possible flow gradient; the presence of loose or raveled soils; and the occurrence and condition of the confining layer of soil. In karst topography, sinkholes and depressions generally follow weak points along the jointing and/or fractures within the underlying limestone. The subsurface boring data did not find consistently weak, ravelled soils above the limestone. There was a fairly thick sequence of Hawthorne clays mantling the underlying limestone which acts to resist raveling from differential aquifer heads. Weathered limestone was encountered within the limestone matrix. The limestone was found at depths of 45 to 70 feet. The drilling fluid losses occurred near the soil/limestone interface indicating fissuring of the overlying clayey overburden soils, and a very porous limestone.

In our opinion, the sinkhole potential beneath the access roadway area within the relic sinkhole area for the proposed construction during a 25- to 30-year useful life under normal historic groundwater conditions is considered average due to the relatively thick layer of clayey soils above limestone coupled with the limited loss of drilling fluid circulation near the soil/limestone interface.

Recommendations

Based on the limited data gathered to date, it is our professional opinion that sinkhole activity is not presently occurring within the former relic surface depressions. We recommend the following preventive treatment and recommendations for the proposed roadway improvements areas. We recommend placement of fine grained material into the surface depressions. Relatively impervious soils, with more than 25% fines, may be placed in layers suitably graded and combined as needed, with geotextile so as not to allow migration of soil into lower layers. We recommend that a continuous layer of biaxial geogrid (*i.e.,* Tensar BX 1100 or equivalent) be placed over the entire influenced areas to be paved at a depth of about one foot below bottom of base elevation. Care should be exercised not to tear large sections of the geogrid during stabilization operations. Backfill soils should be placed with loose lift thicknesses of not more than 12 inches. Compact backfill material as necessary. We recommend establishing and maintaining positive drainage around all improvements on the subject site during construction and throughout the life of the project.

Our study was limited to the area of the known surface depressions and did not include the adjacent site(s). Should any structure be located within the depressions' limits, we strongly recommend performing additional geotechnical exploration once the building/structures layouts are determined.

1.0 INTRODUCTION

1.1 GENERAL

In this report, we present the results of the subsurface exploration within the surrounding area of two previous surface depressions within the access road of the proposed Walmart # 3873 project area in the City of Alachua, Alachua County, Florida. We have divided this report into the following sections:

- SCOPE OF SERVICES - Defines what we did
- FINDINGS - Describes what we found
- ANALYSIS AND OPINION - Describes our analysis and opinions
- RECOMMENDATIONS - Describes what we encourage you to do
- REPORT LIMITATIONS - Describes the restrictions inherent in this report
- APPENDICES - Presents support materials referenced in this report

2.0 SCOPE OF SERVICES

2.1 PROJECT DESCRIPTION

As requested, UES engineering personnel performed a site visit on August 17, 2016, at the proposed project site at the southeast corner of I-75 and US 441 in the City of Alachua, Alachua County, Florida. Two relic depression features had been previously observed and surveyed at the vicinity of Station 43+00 near the entrance to the proposed development. The depression areas have been previously backfilled. The centers of the relic depression areas were staked by CPH prior to our mobilization.

2.2 PURPOSE AND SCOPE OF STUDY

The objectives of our geotechnical consulting services on this project are summarized as follows:

- Review aerial photographs and published data such as U.S.G.S Quadrangle Maps, USDA Soil Survey Maps, and Geological Information;

- Perform geophysical Survey within the vicinity of the relic depression areas;

- Perform Standard Penetration Test Borings within the distressed areas, and within areas identified as geophysical anomalies, and measure groundwater levels;

- Interpret and review subsurface conditions as they relate to the relic depressions areas observed; and

- Analyze published information and field and laboratory data to provide general remedial options.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.

2.3 FIELD EXPLORATION

The subsurface conditions within the vicinity of the relic depression areas were initially surveyed with geophysical methods in order to identify possible anomalies associated with karst geology and sinkhole conditions. The geophysical exploration was performed by a subconsultant, Geoview, Inc. Ground proofing field geotechnical testing activities were started on August 24, 2016, and completed on August 25, 2016. Field tests for this geotechnical study included three (3) soil test borings performed at the locations shown in the attached Boring Location Plan. The actual test locations shown were approximate, and were staked in the field by CPH. The boreholes were grouted upon field work completion.

2.3.1 Geophysical Survey

The subsurface conditions within the depression areas were surveyed with geophysical methods in order to identify possible anomalies associated with sinkhole conditions. The geophysical survey was performed by Geoview, Inc. Ground Penetrating Radar (GPR) methods were employed in an attempt to detect and identify subsurface anomalous features.

2.3.2 Standard Penetration Test (SPT) Borings

Penetration tests were performed in general accordance with ASTM Procedure D-1586, *Penetration Test and Split-Barrel Sampling of Soils*. This test procedure generally involves driving a 1.4-inch I.D. split-tube sampler into the soil profile in six-inch increments for a minimum distance of 18 inches using a 140-pound hammer free-falling 30 inches. The total number of blows required to drive the sampler the second and third 6-inch increments is designated as the N-value, and provides an indication of in-place soil strength, density, and consistency.

Representative portions of the subsurface soil samples recovered were transported to our Gainesville soils laboratory. The soil samples were visually classified by an experienced geotechnical engineer. The soil test boring data reflect information from the specific test locations only.

3.0 FINDINGS

3.1 LITERATURE REVIEW

We reviewed commonly available references for general information about the property. A Study Area Location Map and a USGS Map are included as pages numbered A-1 and A-2 in **Appendix A**. Site topography in the area of the project site is sloped to the southwest with elevations at approximately +90 to +110 feet, NGVD.

3.2 REGIONAL GEOLOGY

The general geology of central Alachua County is characterized by a surface veneer of Pleistocene and Pliocene sands and sandy clays overlying the Miocene-age Hawthorn Group. The Hawthorn Group includes a highly variable mixture of interbedded quartz sands, clays, carbonates, pebbles, and grains occurring with thicknesses of up to 150 feet. In the general area of the subject project, it is anticipated that the Hawthorn Group is laterally discontinuous and perforated.

The general hydrogeology of Alachua County consists of three aquifer systems; a surficial aquifer, an intermediate aquifer, and the Floridan aquifer system. The surficial aquifer exists as an unconfined water table situated over the impermeable Hawthorn Group and is usually a subdued reflection of surface topography. The intermediate aquifer system includes all rocks that collectively retard the exchange of water between the overlying surficial aquifer system and the underlying Floridan aquifer system. Water in this system is contained under confined conditions. The Floridan aquifer system is a thick, carbonate sequence that functions regionally as a water-yielding hydraulic unit. Water exists under confined conditions. Information obtained from the Suwannee River Water Management District (SRWMD) Potentiometric Surface Map dated May 2009 suggests the potentiometric level of the Floridan Aquifer in the general area of the project site to be on the order of +30 to +40 feet, NGVD in the general site area.

3.3 KARST TOPOGRAPHY

About 10% of the earth's land (and 15% of the United States) crust is composed of, or underlain by, soluble limestone. When limestone interacts with underground water, over time, the water dissolves the limestone to form karst topography, a mix of caves, underground channels, and rough and undulating ground surfaces. The underground water of karst topography carves channels and caves that become susceptible to collapse from the surface. When enough limestone is eroded from underground, a sinkhole may develop. Sinkholes can range in size and depth from a few feet to over 300 feet. The topography of North Central Florida is characteristic of karst terrain, with sinkholes caused by natural climatic variability, as well as, man-made activities, such as the drop in groundwater levels from well pumping.

3.4 SOIL SURVEY

The United States Department of Agriculture (USDA) *Soil Survey of Alachua County, Florida* describes the near-surface soil profile in the general project area as Arredondo and Kendrick soils.

Arredondo sand is characterized as nearly level to gently sloping, well drained with a seasonal high water table at a depth of more than 72 inches. Relevant engineering index properties for Arredondo sands have been summarized below in Table 1.

Table 1 – Relevant Engineering Index Properties of Arredondo Soils

Depth, Inches	Texture	Classification	% Passing #200 Sieve	Plasticity Index	Shrink-swell Potential	Permeability
0 – 49	Fine sand	SP-SM, SM	5 to 15	Non-plastic	Low	6.0 to 20.0 in/hr
49 – 54	Loam sand, loamy fine sand, sandy loam	SM, SM-SC	13 to 25	Non-plastic to 7	Low	2.0 to 6.0 in/hr
54 – 86	Sandy loam, fine sandy loam, sandy clay loam	SM-SC, SC	20 to 40	Non-plastic to 20	Low	0.2 to 2.0 in/hr

Kendrick sand is sloping, well drained and has a water table at a depth of more than 72 inches below the surface. Relevant engineering index properties for Kendrick sands have been summarized in Table 2.

Table 2 – Relevant Engineering Index Properties of Kendrick Soils						
Depth, Inches	**Texture**	**Classification**	**% Passing #200 Sieve**	**Plasticity Index**	**Shrink-swell Potential**	**Permeability**
0 – 24	Sand	SP-SM	5 to 12	Non-plastic	Low	6.0 to 20.0 in/hr
24 – 29	Sandy clay loam, fine sandy loam, sandy loam	SM-SC, SC	25 to 35	4 to 18	Low	0.6 to 6.0 in/hr
29 – 76	Sandy clay loam, sandy clay	SC	25 to 45	11 to 20	Low	0.06 to 2.0 in/hr

3.5 SITE RECONNAISSANCE

At the time of our exploration, the site was undeveloped with overgrown surface vegetation surrounding the previous surface depression areas. The depression features had been previously observed and surveyed at the vicinity of Station 43+00 near the entrance to the proposed development. The depression areas have been previously backfilled. The centers of the relic depression areas were staked by CPH prior to our mobilization.

3.6 GEOPHYSICAL SURVEY

The subsurface conditions around the relic depression area were surveyed with geophysical methods in order to identify possible anomalies associated with sinkhole conditions. The geophysical survey was performed by Geoview, Inc. Ground Penetration Radar (GPR) method was employed in an attempt to detect and identify subsurface anomalous features.

Results of the GPR survey indicated the presence of a well-defined, relatively continuous set of GPR reflectors at an approximate depth range of 2 to 3 feet below land surface. The reflector set is most likely associated with some change in lithological conditions at that depth range. The GPR reflector set was continuous across the surveyed areas of the project site. No areas of significant downwarping or other indicators of possible sinkhole activity were observed. Accordingly, based on the results of the GPR survey, the following is concluded:

1. No indication of potential sinkhole activity was observed within the depth limits of the GPR signal collected across the project site or around the staked in-filled surface depressions.

2. Soils from the top of the previously discussed GPR reflector set to the maximum depth of penetration of the GPR signal (7 to 10 feet below land surface) appear to be relatively homogeneous (similar).

A more detailed description of the geophysical methods and findings is included in the Geophysical survey report. A copy of the GPR report is included in **Appendix B** for your review.

3.7 SUBSURFACE CONDITIONS

The soil test borings performed were reviewed to evaluate the subsurface soil conditions and composition. Soil classifications and descriptions for this geotechnical study are based both on the results of the laboratory soil testing programs and classification of soil specimens by the Geotechnical Engineer. The subsurface soil conditions found in the soil test borings are presented in **Appendix C** and described below.

Three (3) soil test borings were performed within accessible areas, within the depression areas, and were advanced to depths of 45 to 70 feet below existing site grades.

Soil test boring B-1 encountered silty sand [SM] to a depth of 4 feet, followed by clayey sand to sandy clay [SC/CH] to a depth of 41 feet. Below the clayey stratum, soil boring B-1 encountered limestone to the boring termination depth of 45 feet. Drilling fluid losses were observed in boring B-1 at a depth of approximately 38.5 feet.

Soil test borings B-2 and B-3 generally encountered sand with silt to silty sand [SP-SM/SM] to a depth of 3 feet, followed by interbedded layers of clayey sand and sandy clay with lenses of silt to depths of 17 to 19 feet. Below the sand-clay layers, the soil borings encountered silty sand to depths of 28 to 31 feet, followed by clayey sand to sandy clay to the depth of 62 feet. Below the clayey soils, both soil borings encountered weathered limestone to maximum boring termination depths of 70 feet below the ground surface. Drilling fluid losses were observed in boring B-2 at a depth of 43.5 feet, and in boring B-3 at a depth of 53.5 feet. Weight-of-Hammer (WOH) conditions were noted in soil boring B-3 from 58.5 to 60 feet. In this geologic setting, the WOH events indicate zones of weakness within the overlying strata near the limestone interface in soil boring B-3.

3.8 MEASURED GROUNDWATER LEVELS

Groundwater levels were measured at depths of approximately 29 to 40.5 feet below ground surface upon work completion. It should be noted that the groundwater level may not have been fully stabilized in the boreholes when the readings were taken upon boring completion. The stabilized groundwater levels may have been impacted by the soil boring drilling process. A potentiometric surface map of the upper Floridan Aquifer suggests groundwater elevations, outside perched zones, on the order of +30 to +40 feet, NGVD in the general site area. The groundwater symbol, where groundwater table was encountered, has been noted on the soil boring logs presented in Appendix C.

4.0 ANALYSIS AND OPINION

4.1 TECHNICAL DISCUSSION-GENERAL SINKHOLE MECHANISM

A sinkhole can be defined as "a depression caused by soil and other materials subsiding into an open hole or void below the ground surface." This phenomenon is not uncommon in karst geology, where soils are underlain by limestone material which has been partially dissolved by the groundwater. The resulting void in the rock provides paths through which water can travel, taking erodible soil with it.

In much of Central and Northern Florida, the soil which occurs in close proximity to the limestone consists of a light green to gray clay to silty or clayey sand resulting from marine deposits, commonly termed the "Hawthorn Formation." This confining layer tends to form a barrier to the vertical movement of groundwater. The groundwater level in the limestone in this area is termed the Floridan Aquifer and is under pressure. The groundwater level or piezometric surface in the soils above the confining layer frequently differs from that which exists in the underlying porous limestone because the confining layer prevents an interconnected hydrostatic condition. Provided the confining layer remains intact, the two groundwater regimes can remain independent.

The shallow water table is located within the upper sands and rests on top of the confining layer. The upper water table is not confined or under pressure. The water pressure above the top of the confining layer is simply defined by the height or depth of groundwater which lies above the confining layer. If a well or standpipe were to penetrate the confining layer into the underlying rock, then the water pressure in the deep water table could be evaluated as the level of water within the standpipe. If the pressure causes the water to rise higher than the level of the shallow water table, then the groundwater regime can be described as having a "net upward gradient." If, however, the water in the upper water table is higher than the water in the standpipe, then the condition exhibits a "net downward gradient."

If an opening develops in the confining layer, connecting the voids or caverns in the limestone bedrock below to the relatively sandy soils above, then the soil and groundwater conditions might become unbalanced. In some instances, the clay in the confining layer soils may crack, either from shrinkage, such as may result from dry periods when the shallow water table is absent, or from shifting of the limestone bedrock. In other cases, these soils have little clay content, and are inherently more susceptible to erosion. The result can be a breach in the confining layer. If the groundwater has a net downward gradient, then the erodible soils lying both above and below the confining layer can "ravel" through the opening in the confining layer and/or into cavities and fractures in the bedrock, similar to the behavior of sand falling through the orifice of an hourglass. Over a period ranging from hours to possibly many years, the loss of material causes the soil below to loosen until it is incapable of supporting the material above, and it subsides under the weight. The resulting sinkhole can damage or destroy man-made structures on the near-surface soils. Although breaches of the confining layer are fairly common, it generally takes a long time for the loose zone to extend to the surface and cause a sinkhole. Therefore, even in areas of "high sinkhole potential," the incidence of surface expressions (sinkholes) can be infrequent. Although some notable Florida sinkholes have been large, most of the sinkholes observed within the North Central Florida area have been smaller than 25 feet in diameter.

Sinkhole activity may be indicated by the presence of some of the following conditions or occurrences:

- Soluble limestone at or near the ground surface that may be jointed or faulted, as expressed as lineaments on the ground surface;
- High fluctuation in water levels, either seasonally or drought/non-drought conditions, in both the upper, unconfined and lower, confined aquifer;
- Clay interbedding is significant or clayey layers are absent all together;
- The overburden is less than 100 feet in thickness;
- The potentiometric surface of the underlying confined limestone aquifer lies well below the water table;
- Depth to top of limestone variable, depressed, or dipping;
- Soil consistency in terms of "N" values may vary considerably, particularly in the clay layer (Hawthorn) that overlies the limestone;
- Soil materials from upper overburden raveled to lower levels within the soil profile;
- Extensive loss of drilling fluid during drilling operations;
- The Hawthorn may vary in texture from pure clay to sandy clays containing varying amounts of sandy seams and appreciable amounts of cemented rock fragments; and

- The presence of an opening in the confining layer, as indicated by boring through the layer and finding either little or no thickness of clay.

4.2 SINKHOLE EVALUATION/PREDICTION

Several conditions which relate to classical sinkhole activity were studied: groundwater level and possible flow gradient; the presence of loose or raveled soils; and the occurrence and condition of the confining layer of soil. As discussed above, in karst topography, sinkholes and depressions generally follow weak points along the jointing and/or fractures within the underlying limestone. The subsurface boring data did not find consistently weak, ravelled soils above the limestone. There was a fairly thick sequence of Hawthorne clays mantling the underlying limestone which acts to resist raveling from differential aquifer heads. Weathered limestone was encountered within the limestone matrix. The limestone was found at depths of 45 to 70 feet. The drilling fluid losses occurred near the soil/limestone interface indicating fissuring of the overlying clayey overburden soils, and a very porous limestone.

In our opinion, the sinkhole potential beneath the access roadway area for the proposed construction during a 25- to 30-year useful life under normal historic groundwater conditions is considered average due to the relatively thick layer of clayey soils above limestone coupled with the limited loss of drilling fluid circulation near the soil/limestone interface.

5.0 RECOMMENDATIONS

Based on the limited data gathered to date, it is our professional opinion that sinkhole activity is not presently occurring within the former relic surface depressions. We recommend the following preventive treatment and recommendations for the proposed roadway improvements areas.

We recommend placement of fine grained material into the surface depressions. Relatively impervious soils, with more than 25% fines, may be placed in layers suitably graded and combined as needed, with geotextile so as not to allow migration of soil into lower layers. We recommend that a continuous layer of biaxial geogrid (*i.e.*, Tensar BX 1100 or equivalent) be placed over the entire influenced areas to be paved at a depth of about one foot below bottom of base elevation. Care should be exercised not to tear large sections of the geogrid during stabilization operations. Backfill soils should be placed with loose lift thicknesses of not more than 12 inches. Compact backfill material as necessary.

We recommend establishing and maintaining positive drainage around all improvements on the subject site during construction and throughout the life of the project.

Our study was limited to the area of the known surface depressions and did not include the adjacent site(s). Should any structure be located within the depressions' limits, we strongly recommend performing additional geotechnical exploration once the building/structures layouts are determined.

6.0 REPORT LIMITATIONS

This Report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied. This report does not reflect any variations which may occur adjacent to or between the borings. The discovery of any site or subsurface condition during construction which deviates from the data obtained during this geotechnical exploration should be reported to us for our evaluation. Also, in the event of any change to the supplied fill/cut conditions or the roadway alignment, please contact us so that we can review our recommendations.

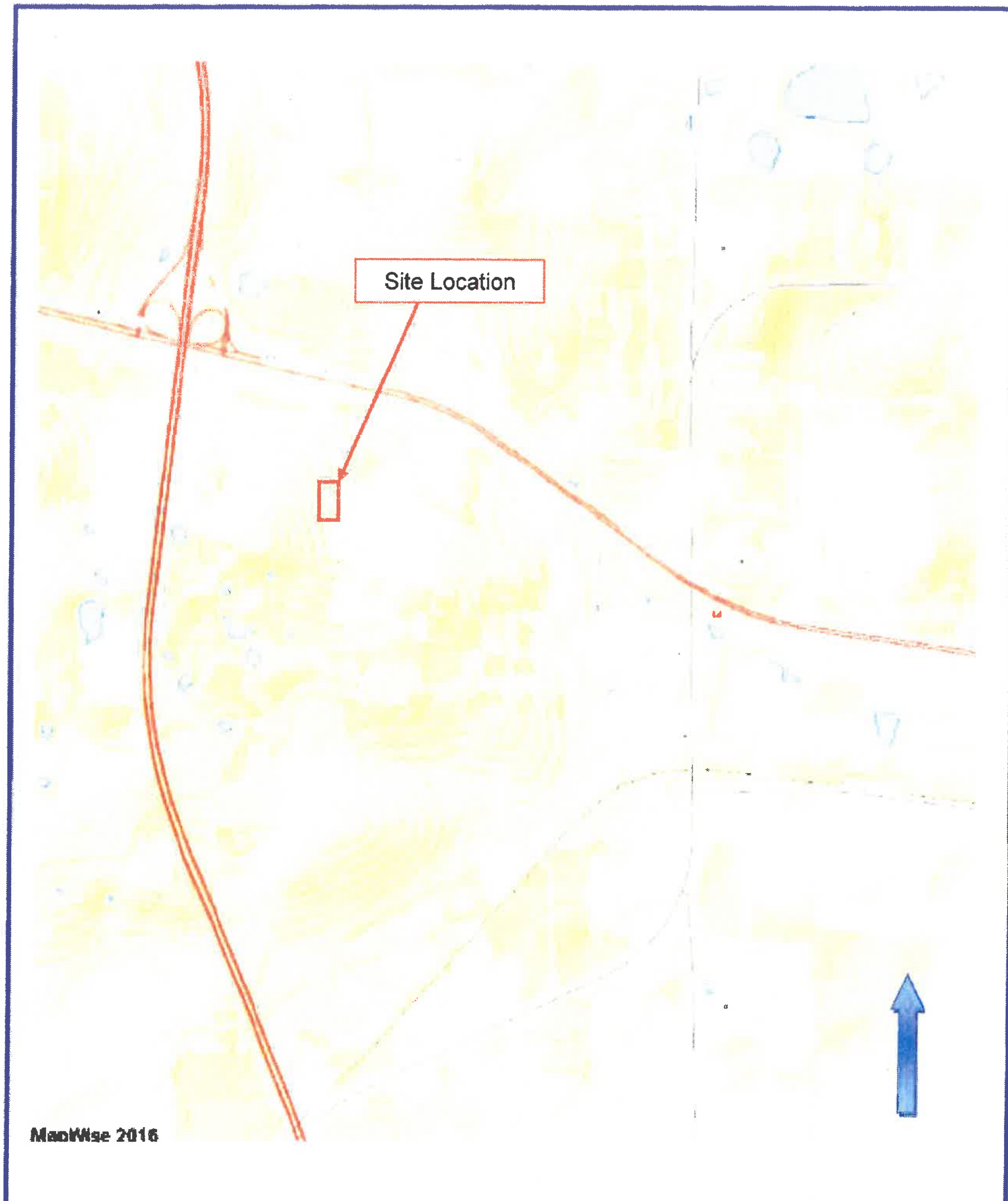
Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. A GBC publication, "Important Information About Your Geotechnical Engineering Report" appears in **Appendix D**, and will help explain the nature of geotechnical issues. Additional limitations are presented in General Conditions also included in **Appendix D.** Further, we present documents in **Appendix D**: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

APPENDIX A

Site Location Map

USGS Map

UNIVERSAL ENGINEERING SCIENCES	**Wal-Mart Store #3873 – Depression** **SEC of I-75 & US 441** **Gainesville, Alachua County, Florida**		
	Site Location Map		
	DATE: 08-18-16	UES PROJECT NO.: 0795.1400110	APPENDIX NO.: A
	SCALE: N.T.S.	REPORT NO.: 1367557	FIGURE NO.:A 1



	Wal-Mart Store #3873 – Depression SEC of I-75 & US 441 Gainesville, Alachua County, Florida		
UNIVERSAL ENGINEERING SCIENCES	U.S.G.S. Map		
	DATE: 08-18-16	UES PROJECT NO.: 0795.1400110	APPENDIX NO.: A
	SCALE: N.T.S.	REPORT NO.: 1367557	FIGURE NO.:A 2

APPENDIX B

Geophysical Investigation

Final Report
Geophysical Investigation
Wal-Mart Alachua Site
Alachua, FL

Prepared for Universal Engineering Sciences
Gainesville, FL

Prepared by GeoView, Inc.
St. Petersburg, FL

GeoView

August 25, 2016

Mr. Eduardo Suarez, MCE, P.E.
Universal Engineering Sciences
4475 SW 35th Terrace
Gainesville, FL 32608

Subject: Transmittal of Final Report for Geophysical Investigation
Wal-Mart Alachua Site - Alachua, FL
GeoView Project Number 24219

Dear Mr. Suarez,

GeoView, Inc. (GeoView) is pleased to submit the final report that summarizes and presents the results of the geophysical investigation conducted at the Wal-Mart Alachua site. Ground penetrating radar was used to evaluate near-surface geological conditions. GeoView appreciates the opportunity to have assisted you on this project. If you have any questions or comments about the report, please contact us.

GEOVIEW, INC.

Michael J. Wightman, P.G.
Principal Geophysicist, President
Florida Professional Geologist
Number 1423

Stephen Scruggs, P.G.
Senior Geophysicist
Florida Professional Geologist
Number 2470

1.0 Introduction

A geophysical investigation was conducted at the Wal-Mart Alachua site located at NW 151st Boulevard in Alachua, Florida. Based on topographical maps, two depressions were in-filled in a grass field at the site. The centers of these in-filled depressions were marked with survey stakes. The investigation was conducted on August 19, 2016.

The purpose of the geophysical investigation was to help characterize near-surface geological conditions in the area of the staked in-filled depressions and to identify subsurface features that may be associated with sinkhole activity. The location of the geophysical survey area is provided on Figure 1. A discussion of the field methods used to generate the report figures is provided in Appendix A2.1.

2.0 Description of Geophysical Investigation

A ground penetrating radar (GPR) survey was conducted along a series of perpendicular transects spaced 10 feet (ft) apart (Figure 1). The GPR data was collected with a Mala radar system. The GPR settings used for the survey are presented in Table 1.

Table 1
GPR Equipment Settings Used for Survey

Antenna Frequency	Time Range (nano-seconds)	Estimated Depth of GPR Signal Penetration
250 MHz 1/	161	7 to 10 ft bls

1/ MHz means mega-Hertz and is the mid-range operating frequency of the GPR antenna.

A description of the GPR technique and the methods employed for geological characterization studies is provided in Appendix A2.2.

3.0 Identification of Possible Sinkhole Features Using GPR

The features observed on GPR data that are most commonly associated with sinkhole activity are:

- A downwarping of GPR reflector sets, that are associated with suspected lithological contacts, toward a common center. Such features typically have a bowl or funnel shaped configuration and can be associated with a deflection of overlying sediment horizons caused by the migration of sediments into voids in the underlying limestone. If the GPR reflector sets are sharply downwarping and intersect, they can create "bow-tie" shaped GPR reflection feature, which often designates the apparent center of the GPR anomaly.

- A localized significant increase in the depth of the penetration and/or amplitude of the GPR signal response. The increase in GPR signal penetration depth or amplitude is often associated with either a localized increase in sand content at depth or decrease in soil density.
- An apparent discontinuity in GPR reflector sets, that are associated with suspected lithological contacts. The apparent discontinuities and/or disruption of the GPR reflector sets may be associated with the downward migration sediments.

The greater the severity of these features or a combination of these features the greater the likelihood that the identified feature is a sinkhole. It is not possible based on the GPR data alone to determine if an identified feature is a sinkhole or, more important, whether that feature is an active sinkhole.

4.0 Survey Results

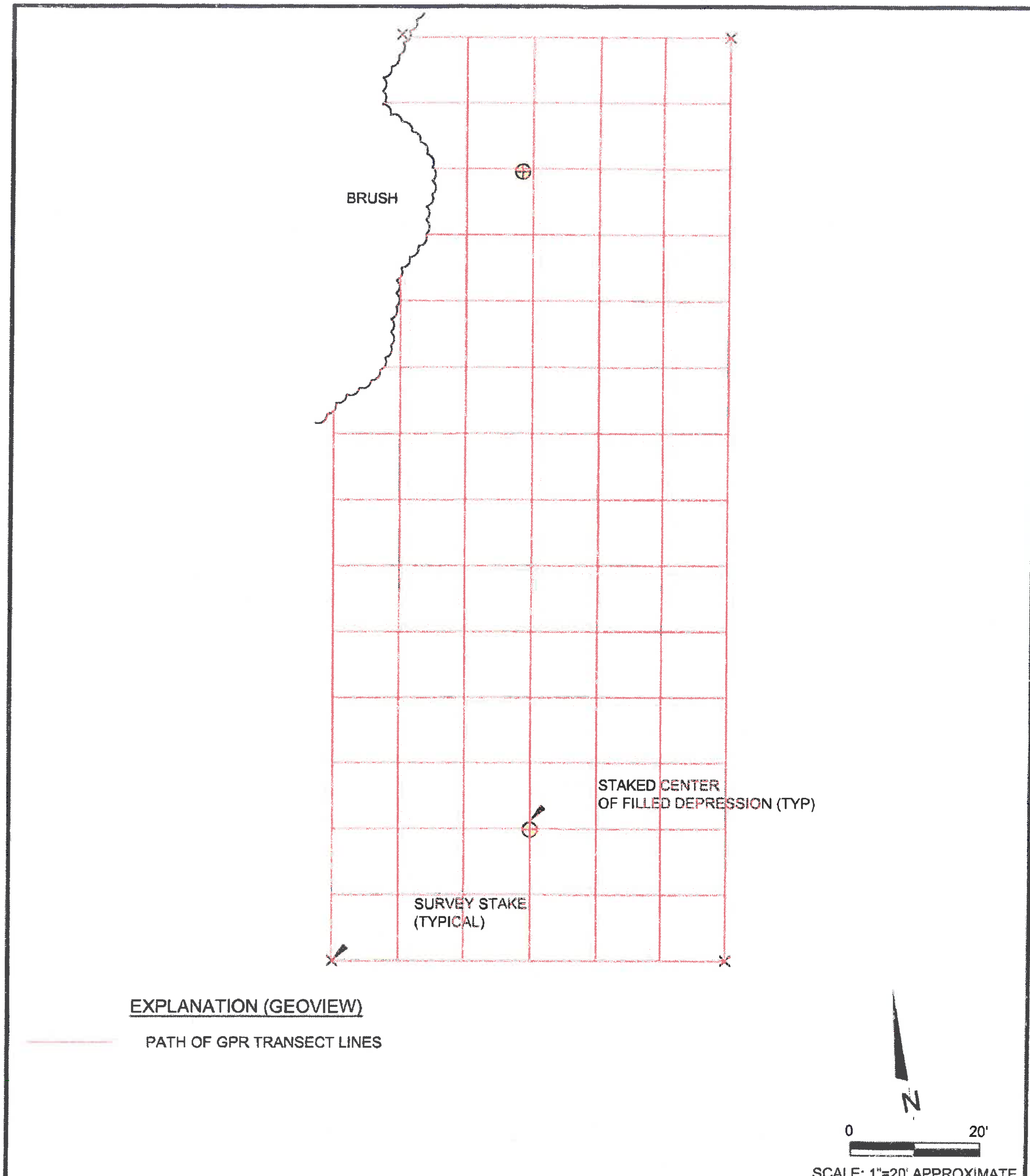
Results of the GPR survey indicated the presence of a well-defined, relatively continuous set of GPR reflectors at an approximate depth range of 2 to 3 ft bls. The reflector set is most likely associated with some change in lithological conditions at that depth range.

The GPR reflector set was continuous across the surveyed areas of the project site. No observed areas of significant downwarping or other indicators of possible sinkhole activity were observed. Accordingly, based on the results of the GPR survey the following is concluded:

1) No indication of potential sinkhole activity was observed within the depth limits of the GPR signal collected across the project site or around the staked in-filled surface depressions.
2) Soils from the top of the previously discussed GPR reflector set to the maximum depth of penetration of the GPR signal (7 to 10 ft bls) appear to be relatively homogeneous (similar).

A discussion of the limitations of the GPR technique in geological characterization studies is provided in Appendix 2.

APPENDIX 1
FIGURE



GeoView

FIGURE 1

SITE MAP SHOWING RESULTS OF GEOPHYSICAL INVESTIGATION

WAL-MART ALACHUA SITE
NW 151st BOULEVARD
ALACHUA, FLORIDA

UNIVERSAL ENGINEERING SCIENCES, INC.
GAINESVILLE, FLORIDA

PROJECT: 24219
DATE: 08/23/16

APPENDIX 2
DESCRIPTION OF GEOPHYSICAL METHODS, SURVEY METHODOLOGIES AND LIMITATIONS

A2.1 On Site Measurements

The measurements that were collected and used to create the site map were made using a fiberglass measuring tape. The degree of accuracy of such an approach is typically +/- 2.5% for lengths and +/- 2.5 degrees for angles.

A2.2 Ground Penetrating Radar

Ground Penetrating Radar (GPR) consists of a set of integrated electronic components that transmits high frequency (200 to 1500 megahertz [MHz]) electromagnetic waves into the ground and records the energy reflected back to the ground surface. The GPR system consists of an antenna, which serves as both a transmitter and receiver, and a profiling recorder that both processes the incoming signal and provides a graphic display of the data. The GPR data can be reviewed as both printed hard copy output or recorded on the profiling recorder's hard drive for later review. GeoView uses a Mala GPR system.

A GPR survey provides a graphic cross-sectional view of subsurface conditions. This cross-sectional view is created from the reflections of repetitive short-duration electromagnetic (EM) waves that are generated as the antenna is pulled across the ground surface. The reflections occur at the subsurface contacts between materials with differing electrical properties. The electrical property contrast that causes the reflections is the dielectric permittivity that is directly related to conductivity of a material. The GPR method is commonly used to identify such targets as underground utilities, underground storage tanks or drums, buried debris, voids or geological features.

The greater the electrical contrast between the surrounding earth materials and target of interest, the greater the amplitude of the reflected return signal. Unless the buried object is metal, only part of the signal energy will be reflected back to the antenna with the remaining portion of the signal continuing to propagate downward to be reflected by deeper features. If there is little or no electrical contrast between the target interest and surrounding earth materials it will be very difficult if not impossible to identify the object using GPR.

The depth of penetration of the GPR signal is very site specific and is controlled by two primary factors: subsurface soil conditions and selected antenna frequency. The GPR signal is attenuated (absorbed) as is passes through earth materials. As the energy of the GPR signal is diminished due to attenuation, the energy of the reflected waves is reduced, eventually to the level that the reflections can no longer be detected. As the conductivity of the earth materials increases, the attenuation of the GPR signal increases thereby reducing the signal penetration depth. In Florida, the typical soil conditions that severely limit GPR signal penetration are near-surface clays and/or organic materials.

The depth of penetration of the GPR signal is also reduced as the antenna frequency is increased. However, as antenna frequency is increased the resolution of the GPR data is improved. Therefore, when designing a GPR survey a tradeoff is made between the required depth of penetration and desired resolution of the data. As a rule, the highest frequency antenna that will still provide the desired maximum depth of penetration should be used. For exterior areas, a low-frequency (250 MHz) antenna is used. This allows for maximum signal penetration and thereby maximum depth from which information will be obtained.

A GPR survey is conducted along survey lines (transects) that are measured paths along which the GPR antenna is moved. An integrated survey wheel electronically records the distance of the GPR system along the transect lines.

For geological characterization surveys, the GPR survey is conducted along a set of perpendicularly orientated transects. The survey is conducted in two directions because subsurface features such as sinkholes are often asymmetric. Spacing between the transects typically ranges from 10 to 50 ft. Closely spaced grids are used when the objective of the GPR survey is to identify all sinkhole features within a project site. Coarser grids are used when the objective is to provide a general overview of site conditions. After completion of a survey using a given grid spacing, additional more-closely spaced GPR transects are often performed to better characterize sinkhole features identified by the initial survey. This information can be used to provide recommended locations for geotechnical borings.

Depth estimates to the top of lithological contacts or sinkhole features are determined by dividing the time of travel of the GPR signal from the ground surface to the top of the feature by the velocity of the GPR signal. The velocity of the GPR signal is usually obtained from published tables of velocities for the type and condition (saturated vs. unsaturated) of soils underlying the site. The accuracy of GPR-derived depths typically ranges from 20 to 40 percent of the total depth.

Interpretation and Limitations of GPR data

The analysis and collection of GPR data is both a technical and interpretative skill. The technical aspects of the work are learned from both training and experience. Having the opportunity to compare GPR data collected in numerous settings to the results from geotechnical studies performed at the same locations develops interpretative skills for geological characterization studies.

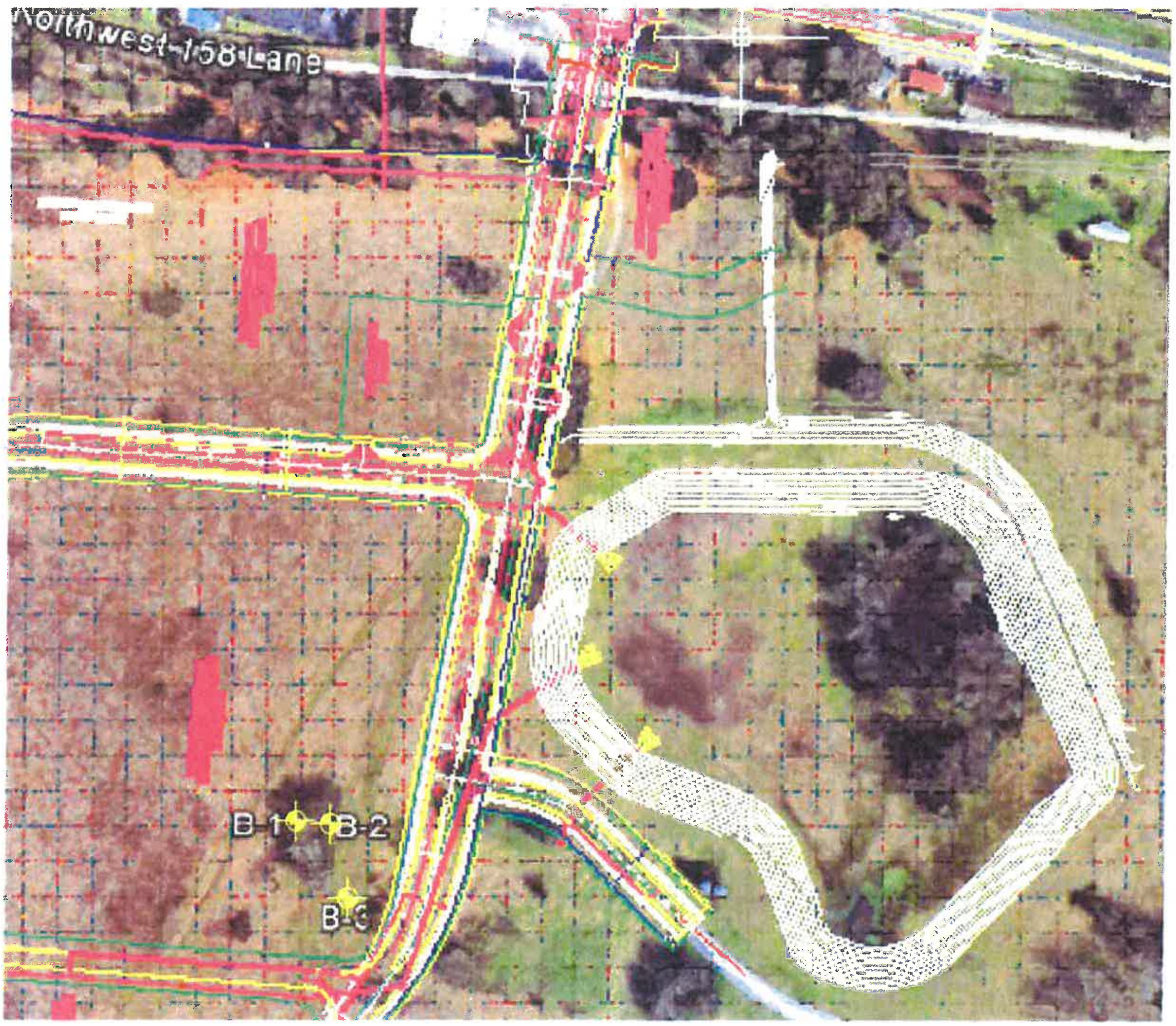
The ability of GPR to collect interpretable information at a project site is limited by the attenuation (absorption) of the GPR signal by underlying soils. Once the GPR signal has been attenuated at a particular depth, information regarding deeper geological conditions will not be obtained. In addition, GPR data can only resolve subsurface features that have a sufficient electrical contrast between the feature in question and surrounding earth materials. If an insufficient contrast is present, the subsurface feature will not be identified. GeoView can make no warranties or representations of geological conditions that may be present beyond the depth of investigation or resolving capability of the GPR equipment or in areas that were not accessible to the geophysical investigation.

APPENDIX C

Boring Location Plan

Boring Logs

Key to Boring Logs



LEGEND

BORING LOCATION

NOTES: 1. ALL SOIL TEST BORING LOCATIONS SHOWN ARE APPROXIMATE.
2. BORING LOCATIONS STAKED BY CPH.

N

UNIVERSAL ENGINEERING SCIENCES

WALMART STORE 3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

BORING LOCATION PLAN

DRAWN BY:	KD	DATE:	8/26/16	CHECKED BY:	ES	DATE:	8/26/16
SCALE:	NTS	PROJECT NO:	0795 1400110 0000	REPORT NO:	1367557	PAGE NO:	C - 1

0795.1400110-C

PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1367557
PAGE:	C-2

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT: WALMART STORE #3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

CLIENT: CHP, INC.-WALMART
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING NO: **B-1** SHEET: 1 of 1

SECTION: TOWNSHIP: RANGE:

GS ELEVATION(ft):
WATER TABLE (ft): 40.5
DATE OF READING: 8/24/16
EST. WSWT (ft):

DATE STARTED: 8/24/16
DATE FINISHED: 8/24/16
DRILLED BY: M. BOATRIGHT
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT/ DAY)	ORG CONT (%)
0												
1						Loose brown and orange silty SAND, with trace of clay [SM]						
2	X	4-3-3	6									
3	X											
4	X	4-4-5	9									
5	X	6-8-9	17			Medium dense light brown, tan and orange clayey SAND [SC]						
6	X											
7	X	10-11-9	20									
8	X	6-11-14	25									
9	X											
10	X	14-14-15	29									
11												
12						Firm to stiff green and orange CLAY, with trace of sand [CH]						
13												
14	X											
15	X	2-2-3	5									
16												
17												
18												
19	X											
20	X	2-4-5	9									
21												
22												
23												
24	X											
25	X	3-4-5	9			Loose tan and orange clayey SAND [SC]						
26												
27												
28												
29	X											
30	X	3-3-4	7									
31												
32												
33												
34	X											
35	X	3-2-3	5			Firm brown, tan and orange CLAY, with trace of sand [CH]						
36												
37						Sandy CLAY and LIMESTONE						
38												
39	X					100% Loss of drilling fluid circulation at 38.5'						
40	X	WOH-1-3	4	▼								
41												
42						LIMESTONE						
43												
44	X											
45	X	6-13-15	28									
						Boring Terminated at 45'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1367557
PAGE: C-3

PROJECT: WALMART STORE #3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

BORING NO: **B-2** SHEET: 1

SECTION: TOWNSHIP: RANGE:

CLIENT: CHP, INC.-WALMART
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft):
WATER TABLE (ft): 29.10
DATE OF READING: 8/24/16
EST. WSWT (ft):
DATE STARTED: 8/24/16
DATE FINISHED: 8/25/16
DRILLED BY: M. BOATRIGHT
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT/ DAY)	ORG CONT. (%)
0–3	X	2-3-2	5			Loose brown SAND, with trace of silt [SP-SM]						
3–6	X	2-1-1	2			Very soft to stiff brown and orange sandy CLAY [CH]						
	X	2-3-5	8									
6–10.5	X	5-7-9	16			Medium dense brown clayey SAND, with traces of sand [SC]						
	X	8-7-5	12									
	X	6-8-7	15									
10.5–19	X	3-3-4	7			Loose brown clayey SAND [SC]						
19–31	X	2-2-6	8			Loose brown silty SAND, with trace of clay [SM]						
	X	2-2-3	5									
	X	3-4-3	7	▼								
31–47	X	3-3-5	8			Loose brown and orange clayey SAND [SC]						
	X	3-3-3	6									
	X	2-2-3	5			100% Loss of drilling fluid circulation at 43.5'						
47–50	X	2-2-4	6			Firm green and orange CLAY [CH]						

UNIVERSAL ENGINEERING SCIENCES BORING LOG	
PROJECT NO.:	0795.1400110.0000
REPORT NO.:	1367557
PAGE:	C-4

PROJECT: WALMART STORE #3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

BORING NO: **B-2**

SHEET: 2 of 2

SECTION:

TOWNSHIP:

RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT/ DAY)	ORG CONT. (%)
50												
51												
52												
53						Loose brown very clayey SAND to sandy CLAY, with traces of limestone [SC/CH]						
54	X	WOH-3-4	7									
55												
56												
57												
58												
59	X	WOH-1-2	3									
60												
61												
62						Weathered LIMESTONE						
63												
64	X	1-2-3	5									
65												
66												
67												
68												
69	X	2-1-2	3									
70						Boring Terminated at 70'						

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1367557
PAGE: C-5

PROJECT: WALMART STORE #3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

BORING NO: **B-3** SHEET: 1

SECTION: TOWNSHIP: RANGE:

CLIENT: CHP, INC.-WALMART
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

GS ELEVATION(ft):
WATER TABLE (ft): 31
DATE OF READING: 8/25/16
EST. WSWT (ft):

DATE STARTED: 8/25/16
DATE FINISHED: 8/25/16
DRILLED BY: M. BOATRIGHT
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT/ DAY)	ORG CONT (%)
0												
1						Medium dense brown silty SAND, with lenses of clay [SM]						
2	X	3-5-7	12									
3–4	X	4-3-5	8			Loose to medium dense brown, green and orange very clayey SAND to sandy CLAY [SC/CH]						
5	X	6-7-7	14									
6	X	9-10-10	20									
7–8	X	8-9-9	18			Very stiff to firm brown silty sandy CLAY [CH]						
9	X	WOH-2-3	5									
11						Very loose brown sandy SILT [ML]						
14	X	WOH-1-2	3									
17						Very loose to loose brown silty clayey SAND [SM-SC]						
19	X	1-1-1	2									
24	X	2-2-3	5									
28						Firm orange and gray sandy CLAY [CH]						
29	X	3-3-3	6									
31				▼								
32						Loose brown, tan and orange clayey SAND [SC]						
34	X	1-3-5	8									
39	X	3-3-4	7			Firm gray, brown and orange sandy CLAY [CH]						
42						Loose tan, gray and orange clayey SAND [SC]						
44	X	2-4-4	8									
49	X	1-3-3	6									
50												

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 0795.1400110.0000
REPORT NO.: 1367557
PAGE: C-6

PROJECT: WALMART STORE #3873-00
SEC OF I-75 AND US HIGHWAY 441
ALACHUA, FLORIDA

BORING NO: **B-3**   SHEET: 2 of 2

SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N VALUE	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT/DAY)	ORG CONT. (%)
50												
51												
52						Soft green and orange CLAY, with trace of sand [CH] 100% Loss of drilling fluid circulation at 53.5'						
53												
54	X	WOH-2	2									
55												
56												
57												
58												
59	X	WOH	WOH									
60												
61												
62						LIMESTONE						
63												
64	X	6-12-10	22									
65						Boring Terminated at 65'						

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS

22	Number of Blows of a 140-lb Weight Falling 30 in. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change in Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 200 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
			OL	Organic silts and organic silty c of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomacaceous fine sands or silts, elastic silts
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75mm) sieve.

RELATIVE DENSITY
(sand-silt)

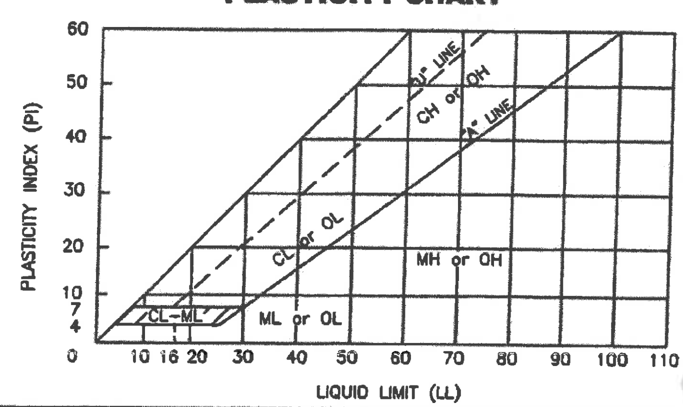
Very loose – Less Than 4 Blows/Ft.
Loose – 4 to 10 Blows/Ft.
Medium Dense – 10 to 30 Blows/Ft.
Dense – 30 to 50 Blows/Ft.
Very Dense – More Than 50 Blows/Ft.

CONSISTANCY
(clay)

Very Soft – Less Than 2 Blows/Ft.
Soft – 2 to 4 Blows/Ft.
Firm – 4 to 8 Blows/Ft.
Stiff – 8 to 15 Blows/Ft.
Very Stiff – 15 to 30 Blows/Ft.
Hard – More Than 30 Blows/Ft.

Based on Safety Hammer N-Values

PLASTICITY CHART



APPENDIX D

Important Information About Your Geotechnical Engineering Report
Constraint and Restrictions

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

CONSTRAINTS & RESTRICTIONS

The intent of this document is to bring to your attention the potential concerns and the basic limitations of a typical geotechnical r[illegible].

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

UNIVERSAL
ENGINEERING SCIENCES

Universal Engineering Sciences, Inc.
GENERAL CONDITIONS

SECTION 1: RESPONSIBILITIES

1.1 *Universal Engineering Sciences, Inc.*, ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of *Universal Engineering Sciences, Inc's* agents, employees, professional staff, and subcontractors.

1.2 The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.

1.3 The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties.

1.4 Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to a failure to schedule our services on the project or any resulting damages.

1.5 **PURSUANT TO FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.**

SECTION 2: STANDARD OF CARE

2.1 Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made.

2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

2.3 Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.

2.4 Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project.

SECTION 3: SITE ACCESS AND SITE CONDITIONS

3.1 Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Proposal.

3.2 The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

SECTION 4: SAMPLE OWNERSHIP AND DISPOSAL

4.1 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client.

4.2 UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. Further storage or transfer of samples can be made at Client's expense upon Client's prior written request.

4.3 Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with all appropriate federal, state, or local regulations.

SECTION 5: BILLING AND PAYMENT

5.1 UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications.

5.2 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts.

5.3 If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

SECTION 6: OWNERSHIP AND USE OF DOCUMENTS

6.1 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES.

6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.

6.3 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times.

6.4 All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express written consent of UES.

SECTION 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS

7.1 Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site.

7.2 Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous substances (40 CFR 300.6), petroleum products, polychlorinated biphenyls, and asbestos.

7.3 Hazardous materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous waste.

7.4 UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold UES harmless for any and all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

7.5 Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

SECTION 8: RISK ALLOCATION

8.1 Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed $50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of $1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or $400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.

SECTION 9: INSURANCE

9.1 UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.

SECTION 10: DISPUTE RESOLUTION

10.1 All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided by law, including the commencement of litigation.

10.2 If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:

(a) the claim will be brought and tried in judicial jurisdiction of the court of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and

(b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses.

SECTION 11: TERMINATION

11.1 This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses.

11.2 In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.

SECTION 12: ASSIGNS

12.1 Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.

SECTION 13. GOVERNING LAW AND SURVIVAL

13.1 The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance.

13.2 If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.

SECTION 14. INTEGRATION CLAUSE

14.1 This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein.

14.2 This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

STORMWATER DESIGN CALCULATIONS

PROPOSED WALMART
STORE NO. 3873-00

US 441/I-75
Alachua, Florida

Prepared for:
SRWMD & CITY OF ALACHUA, FLORIDA

March 2016
Revised June 2016
Revised November 2016
Revised January 2017
Revised March 2017

Engineers
Planners
Landscape Architects
Surveyors
Construction Management
Design/Build

Certificate of Authorization No. 00003215

500 West Fulton Street
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CPH Project No. W13392

BRIAN PAUL CASSIDY
LICENSE
No. 67373
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Brian Cassidy
67373
P.E. Number
3/16/17
Date

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APPENDICES

INTRODUCTION

The proposed development is located in the City of Alachua in Alachua County, Florida. The site is bounded to the west by Interstate 75, to the north by NW 158th Lane, U.S. Highway 441, and commercial development, to the south by undeveloped land, and to the east by currently-undeveloped land, a stormwater pond identified as "TK Basin," and residential areas. The site lies in Section 15/16, Township 8 South and Range 18 East. At this time, the site is undeveloped and used as pasture land.

The project is a joint development between Walmart and First Street Group and involves the construction of a Walmart Supercenter building, site access roads, and associated stormwater facilities and infrastructure. The 37.94 Ac ± site area depicted on the Site Plan sheet C-6 includes: Walmart Site (30.19Ac), cross access roads (6.38Ac +0.3Ac = 6.68Ac) and the Passive Recreation Area (1.07Ac). These lands comprise the areas for which a Site Plan Application approval is sought from the City of Alachua. Walmart intends to construct a Walmart Supercenter with associated utility and stormwater infrastructure on 30.19 Ac owned by Walmart. Walmart will also construct the cross access roads and associated roadway infrastructure on 6.68Ac of lands owned by First Street Group. The access roads are proposed to be dedicated to the City of Alachua after construction. The 1.07Ac Passive Recreation Area is owned by Walmart and is proposed to be dedicated to the City of Alachua. Excluding the Walmart Areas, TK Basin Areas, and the Passive Recreation Area, all other lands adjacent to the proposed access roads are owned by First Street Group (*i.e.,* Areas A, B, C, D, E, F, G, and H as depicted on the Pre & Post Developed Drainage Basin Maps and Key Maps). No development is proposed on Areas A, B, C, D, E, F, G, and H at this time other than providing provisions for future utility and drainage connections and grading operations.

For these calculations, "on-site area" will refer to land associated with the construction of the Walmart development (*i.e.,* the entire Walmart-owned property, access roads, and proposed stormwater facilities); "off-site area" will refer to the surrounding land that contributes stormwater runoff to the on-site area due to natural topography. Presently, stormwater runoff from on-site and off-site areas discharges to the U.S Highway 441 stormwater management system and the I-75 stormwater management system. A by-pass system is proposed to collect runoff from off-site areas and pipe it to the existing "TK Basin" or the U.S. Highway 441 stormwater management system. Limited portions of the proposed site will continue to sheet flow to the I-75 stormwater management system. Proposed site stormwater runoff will be collected through on-site inlets and piped into two (2) dry retention ponds. One (1) dry retention pond, Pond 1, will be located on the northern portion of the Walmart property; a second dry retention pond, Pond 2, will be located east of Pond 1 on property owned by First Street Group. The proposed ponds will discharge to the U.S 441 stormwater system—all runoff discharged from the site will be less than pre-development rates and volumes per Suwanee River Water Management District SRWMD requirements.

A portion of the proposed access road is within an area covered by an existing (SRWMD) Environmental Resource Permit (ERP), ERP-001-209884-2. This area was permitted to discharge to TK Basin. A modification to this existing permit is proposed to address this portion of the access road. The proposed modifications to existing ERP-001-209884-2 are shown on the Pre & Post Developed Drainage Basin Maps and Key Maps (*i.e.,* PRE, POST, KEY).

EXISTING STORMWATER DRAINAGE FACILITIES

The site is undeveloped and covered predominantly by grass. Existing grades range from a high of 154 feet (at the southernmost off-site basin) to a low of 78 feet (along the northern edge of the site).

Four (4) drainage basins are modeled in the pre-development condition. Basin 1 drains north to the U.S. Highway 441 stormwater system, "Boundary North" (BNDY NORTH). Basin 2 drains west to the I-75 stormwater system, "Boundary West" (BNDY WEST). Basin 3 drains to an existing depression area, "Depression 1" (DEPR-1), located near the northeast corner of the site adjacent to U.S. Highway 441. Stormwater discharging from Depression 1 enters the U.S.

Highway 441 stormwater system. Basin 4 drains directly to the US 441 stormwater system. Both boundary conditions ultimately reach Mill Creek Sink located on the north side of US 441.

Please refer to Appendix D for node diagram information and Appendix E for drainage basin information.

Based on information taken from the SCS *Soil Survey for Alachua County, Florida,* and the geotechnical report dated November 2009 provided by Universal Engineering Sciences Inc., the on-site Walmart property is composed of approximately five (5) types of soils: Lochloosa fine sand, 2 to 5 percent slopes, Norfolk loamy fine sand, 2 to 5 percent slopes, Arredondo fine sand, 0 to 5 percent slopes, Millhopper sand, 5 to 8 percent slopes and Blichton sand, 2 to 5 percent slopes. The sands are classified as soil Groups C, B, A, and D, respectively, in the AASHTO classification system. Please refer to the enclosed geotechnical soil report for additional soil details and boring/soil profile information.

STORMWATER MANAGEMENT SYSTEM DESIGN METHODOLOGY AND CRITERIA

Hydraulic soil characteristics have been used to develop runoff curve numbers by the methodology outlined in the SCS TR-55 publication. The times of concentration for the drainage basins were estimated by delineating flow characteristics as overland sheet flow, shallow concentrated flow, or open channel flow in accordance with the accepted methods presented in the SCS TR-55 publication.

Per SRWMD requirements, the 100-year storm event with durations of 1, 2, 4, 8, 24, 72, 168, and 240 hours were applied using rainfall totals from the Suwannee River Water Management District Critical Duration Analysis for Alachua County.

Runoff hydrographs were generated for each storm using the SCS Unit Hydrograph method; due to the steep topography of the site, a peak factor of 484 was used. All storm events were flood routed applying the continuity equation through the assistance of the Interconnected Channel and Pond Routing computer program (ICPR), version 3.10. Water quality requirements will be per SRWMD Applicants Handbook Vol. II.

PROPOSED STORMWATER MANAGEMENT SYSTEM – FULL DEVELOPMENT

Nine (9) drainage basins will be considered in the post-development condition as well as two (2) dry retention ponds. The peak post-development discharge rate must be less than or equal to the pre-development rate for each storm frequency. No increase in runoff volume over the pre-development runoff volume is permitted for each storm event.

Please refer to Appendix H for node diagram information and Appendix I for drainage basin information.

Basin 1 includes the majority of the Walmart development, a major portion of the proposed access roadway, and the Walmart-owned Out Areas which will be dedicated to the City as a park. Runoff from Basin 1 will be conveyed via storm pipe to Pond 1 for treatment and attenuation. As depicted on the Post Development Drainage Basin Key Map (*i.e.,* KEY), the retention area labeled Pond 1 serves 32.72 Ac which comprises the Walmart Areas and portions of the proposed access road.

Excess stormwater runoff is discharged via Drop Structure 1 to the US 441 stormwater system BOUNDARY NORTH (BNDY NORTH).

Basins 2 and 3 include on-site area at the western Walmart property line. Due to natural and proposed grading, runoff from these pervious basins discharges directly into the existing I-75 stormwater system BOUNDARY WEST (BNDY WEST).

Basin 4 includes on-site area at the northern Walmart property line. Due to natural and proposed grading, runoff from this 100% pervious basin discharges to the existing US 441 stormwater system (BNDY NORTH).

Basin 5 includes on-site area at the northeast corner of the Walmart property as well as the limits of Pond 2, located east of the Walmart property. Runoff from these areas will be treated and attenuated by Pond 2. The drainage area served by retention area Pond 2 is depicted on the Post Development Drainage Basin Key Map (*i.e. KEY*) and comprises a portion of the access road (i.e Basin 6), and Basin 7 (*i.e. First Street Group Areas A and H*). Excess runoff will be discharged via Drop Structure 2 to the US 441 stormwater system (BNDY NORTH).

Basin 6 includes the northern portion of the proposed access roadway. This area cannot be conveyed to Pond 1 due to grade restrictions; as a result, this area is conveyed to Pond 2 for treatment and attenuation. Excess runoff will be discharged via Drop Structure 2 to the US 441 stormwater system (BNDY NORTH).

Basin 7 includes off-site area that naturally flows towards the US 441 ROW. Runoff from this pervious basin will be collected and conveyed to Pond 2 before being discharged to the US 441 stormwater system (BNDY NORTH).

Basin 8 (*i.e. First Street Group Area G*) includes offsite area that Pre-Developed Basin 3 previously drained to in the existing condition which included the existing depression area on the east side of the proposed access road. The existing depression area is proposed to be filled and the area on the west side of the proposed access road that previously drained to the existing depression area will be re-directed to Pond 2.

Basin 9 includes offsite area that discharges directly to the US 441 ROW and is proposed to continue draining as it does in the existing condition.

TK Basin Permit Modification – Per ERP-001-209884-2, the area south of the northern access road comprises 22.8 Acres (16.8 Ac + 6.0 Ac = 22.8 Ac) and not included within that area was a proposed 1.6 Acre access road. The current design proposes that the access road be located within the 22.8 Acre basin as it is in the permitted plans, however, the new proposed access road drainage basin area that is not included within the TK Basin drainage area is now 2.03 Acres. This results in a net reduction to the area proposed to drain towards TK Basin of 0.43 Acres. The portion of the service road that is proposed to connect from the existing NW 151st Blvd to the proposed access road is designed to drain to TK Basin. This is an addition of 0.43 Acres of impervious area to the 22.8 Acre area covered by the TK Basin ERP Permit. The proposed modifications to the Existing TK Basin ERP are shown on the Pre & Post Development drainage maps and Key maps included with the stormwater report.

Areas A, B, C, D, E, F, G, and H are First Street Group properties. These Areas labels are depicted on the Post Development Drainage Basin and Drainage Basin Key Maps. Only grading operations and provisions for future utility and stormwater connections to prepare the Areas for future development are proposed at this time.

Pond 1 is proposed at the north end of the Walmart property. Pond 1 will have a bottom elevation of 80.0 feet and a top berm elevation of 86.0 feet. Pond 2 is proposed east of the Walmart property and will have a bottom elevation of 73.5 feet and a top berm elevation of 79.0 feet. The TK Basin stormwater pond has been constructed by others east of the development and will eventually serve development adjacent to the Walmart property.

The proposed ponds top and bottom elevations are as follows:

Pond	Top Elevation (ft)	Bottom Elevation (ft)
Pond 1	86.0	80.0
Pond 2	79.0	73.5

The proposed Drop Structures summary is as follows:

Proposed Drop Structure 1 – Connecting Pond 1 to Bndy North
Type H inlet; Control Elevation: 84.0
One (1) 24 in. weir; Elevation: 83.0

Proposed Drop Structure 2 – Connecting Pond 2 to Bndy North
Type E inlet; Control Elevation: 78.0
One (1) 24 in. weir; Elevation: 77.5

PRE-DEVELOPMENT DRAINAGE BASIN CHARACTERISTICS

The project includes four (4) pre-development drainage basins.

The basins are summarized below:

Table 1: Pre-Development Drainage Basin Area Summary

Basin	Area (ac)	Impervious Area (ac)	DCIA (%)	T_c (min)	CN
1	33.20	0.00	0.0	30.43	51
2	3.60	0.00	0.0	38.33	70.18
3	5.76	0.64	11.1	29.75	42.46
4	0.35	0.10	29.0	10.00	61
Total	42.91	0.74	--	--	

Please refer to Appendix F "Pre-Development adICPR Modeling Input" and Appendix G "Pre-Development adICPR Modeling Output" for computer modeling information.

PRE-DEVELOPMENT TIME OF CONCENTRATION DETERMINATION

Sheet, shallow, and open channel flow equations were used to determine the time of concentration. Runoff from Basin 1 after leaving the site enters a swale before sheet flowing over a paved parking area to the U.S. 441 stormwater system--a minimum ten (10) minute time of concentration is included to account for this situation.

Sheet Flow:

$$T_c = \frac{0.007(nxL)^{0.8}}{(P_2)^{0.5}s^{0.4}}$$

Where T_c = Time of concentration in hours

L = The distance traveled in feet

s = The slope of the hydraulic grade line (land slope)

P_2 = The 2 year 24 hour rainfall volume in inches

n = The roughness coefficient as provided in Table 3.1 of SCS TR-55

Shallow Concentrated Flow:

$$T_c = \frac{L}{(16.1345)s^{0.5}}$$

Where T_c = Time of concentration in seconds

L = The distance traveled in feet

s = The slope of the hydraulic grade line (land slope)

Open Channel Flow:

$$T_c = \frac{L}{60 * V}$$

Where: T_c = Time of concentration in minutes

L = The distance traveled in feet

V = average velocity in ft/sec.

The average velocity is determined by using Manning's equation,

$$V = \frac{1.49r^{2/3}s^{1/2}}{n}$$

Where: r = hydraulic radius (ft) and is equal to a/p_w

a = cross sectional flow area (ft^2)

p_w = wetted perimeter (ft)

s= slope of the hydraulic grade line (channel slope, ft/ft)

n= Manning's roughness coefficient for open channel flow

The following tables summarize the time of concentration calculations for all three (3) Basins.

Table 2A: Pre-Development Basin 1					
Section	**Length (ft)**	**N**	**Slope**	**P_2 (in.)**	**T_c (min.)**
Sheet Flow					
1	300	0.15	0.085	4.7	10.99
Shallow Concentrated Flow					
2	140	0.15	0.021	4.7	0.99
3	200	0.15	0.055	4.7	0.88
4	350	0.15	0.071	4.7	1.35
5	250	0.15	0.056	4.7	1.09
6	540	0.15	0.035	4.7	2.97
7	120	0.15	0.033	4.7	0.68
8	40	0.15	0.075	4.7	0.15
Open Channel Flow					
Section	**Length (ft)**	**N**	**Slope**	**Velocity (ft/s)**	**T_c (min.)**
9	180	0.02	0.004	2.25	1.33
Minimum Sheet Flow (Parking Lot)					
10	---	---	---	---	10
Total					**30.43**

Table 2B: Pre-Development Basin 2					
Section	**Length (ft)**	**N**	**Slope**	**P_2 (in.)**	**T_c (min.)**
Sheet Flow					
1	150	0.15	0.013	4.7	13.29
2	150	0.15	0.007	4.7	17.02
Shallow Concentrated Flow					
3	350	0.15	0.013	4.7	3.93
4	70	0.15	0.018	4.7	0.42
5	130	0.15	0.032	4.7	1.07
6	185	0.15	0.005	4.7	2.60
Total					**38.33**

Table 2C: Pre-Development Basin 3					
Section	**Length (ft)**	**N**	**Slope**	**P_2 (in.)**	**T_c (min.)**
Sheet Flow					
1	300	0.15	0.018	4.7	20.32
Shallow Concentrated Flow					
2	490	0.15	0.016	4.7	1.56
3	300	0.15	0.057	4.7	1.30
4	1200	0.15	0.048	4.7	5.64
5	170	0.15	0.035	4.7	0.93
Total					**29.75**

Pre-Development Basin 4 is assumed to have a 10 minute T_c

PRE-DEVELOPMENT CURVE NUMBER DETERMINATION

Based on information taken from the SCS *Soil Survey for Alachua County, Florida* and the geotechnical report dated November 2009 provided by Universal Engineering Services, Inc., the on-site Walmart property is composed of approximately five (5) types of soils: Lochloosa fine sand, 2 to 5 percent slopes, Norfolk loamy fine sand, 2 to 5 percent slopes, Arredondo fine sand, 0 to 5 percent slopes, Millhopper sand, 5 to 8 percent slopes, and Blichton sand, 2 to 5 percent slopes.

The remaining site area, based on information taken from the SCS *Soil Survey for Alachua County, Florida*, is composed of approximately seven (7) types of soils: Arredondo fine sand, 0 to 5 percent slopes, Arredondo-Urban land complex, 0 to 5 percent slopes, Millhopper sand, 5 to 8 percent slopes, Lochloosa fine sand, 5 to 8 percent slopes, Kendrick sand, 5 to 8 percent slopes, Norfolk loamy fine sand, 5 to 8 percent slopes and Gainesville 0 to 5 percent slopes.

Composite curve numbers were determined for each basin based on the HSG classification as follows:

Table 3A: Pre-Development Basin 1 CN Determination

Name	HSG Class.	CN	Area (ac.)	Product (ac.)
Arredondo fine sand, 0 to 5 % slopes	A	39	2.97	115.83
Arredondo-Urban land complex, 0 to 5 % slopes	A	39	3.42	113.38
Millhopper sand, 0 to 5 % slopes	A	39	0.12	4.68
Millhopper sand, 5 to 8 % slopes	A	39	7.5	292.5
Lochloosa fine sand, 5 to 8 % slopes	C	74	4.28	316.72
Kendrick sand, 5 to 8 % slopes	A	39	0.05	1.95
Norfolk loamy fine sand, 2 to 5 % slopes	B	61	7.29	444.69
Norfolk loamy fine sand, 5 to 8 % slopes	B	61	4.12	251.35
Gainesville, 0 to 5% slopes	A	39	3.42	133.38

Composite CN = $\frac{\text{Total Product}}{\text{Total Area}} = \frac{1694.45}{33.20}$ = 51.0; Use CN = **51**

Table 3B: Pre-Development Basin 2 CN Determination

Name	HSG Class.	CN	Area (ac.)	Product (ac.)
Lochloosa fine sand, 2 to 5 % slopes	C	74	1.58	116.92
Lochloosa fine sand, 5 to 8 % slopes	C	74	1.01	74.74
Norfolk loamy fine sand, 5 to 8 % slopes	B	61	1.00	61.00

Composite CN = $\frac{\text{Total Product}}{\text{Total Area}} = \frac{252.66}{3.60}$ = 70.18; Use CN = **70.18**

Table 3C: Pre-Development Basin 3 CN Determination				
Name	HSG Class.	CN	Area (ac.)	Product (ac.)
Arredondo fine sand, 0 to 5 % slopes	A	39	2.55	42.18
Arredondo-Urban land complex, 0 to 5 % slopes	A	39	1.50	58.50
Lochloosa fine sand, 2 to 5 % slopes	C	74	0.57	99.45
Millhopper sand, 0 to 5 % slopes	A	39	1.14	44.26

Composite CN = $\frac{\text{Total Product}}{\text{Total Area}} = \frac{244.59}{5.76} = 42.46$; Use CN = **42.46**

Table 3D: Pre-Development Basin 4 CN Determination				
Name	HSG Class.	CN	Area (ac.)	Product (ac.)
Arredondo-Urban land complex, 0 to 5 % slopes	A	39	0.13	5.07
Lochloosa fine sand, 2 to 5 % slopes	C	74	0.22	16.28

Composite CN = $\frac{\text{Total Product}}{\text{Total Area}} = \frac{21.35}{0.35} = 61$; Use CN = **61**

PRE-DEVELOPMENT SUMMARY

Table 4A: Pre-Development Maximum Runoff Rates (cfs)		
Boundary	Storm	Rate (cfs)
NORTH	100-year 1-hour	27.27
NORTH	100-year 2-hour	39.20
NORTH	100-year 4-hour	58.39
NORTH	100-year 8-hour	70.77
NORTH	100-year 24-hour	93.01
NORTH	100-year 72-hour	64.60
NORTH	100-year 168-hour	38.71
NORTH	100-year 240-hour	32.65
WEST	100-year 1-hour	8.34
WEST	100-year 2-hour	10.45
WEST	100-year 4-hour	13.16
WEST	100-year 8-hour	13.31
WEST	100-year 24-hour	14.95
WEST	100-year 72-hour	9.56
WEST	100-year 168-hour	5.45
WEST	100-year 240-hour	4.41
EAST	100-year 1-hour	0.0
EAST	100-year 2-hour	4.70
EAST	100-year 4-hour	8.02
EAST	100-year 8-hour	9.48
EAST	100-year 24-hour	13.18
EAST	100-year 72-hour	9.40
EAST	100-year 168-hour	5.78
EAST	100-year 240-hour	4.96

Table 4B: Pre-Development Maximum Volumes (ac-ft)		
Boundary	Storm	Volume (ac-ft)
NORTH	100-year 1-hour	0.7
NORTH	100-year 2-hour	2.1
NORTH	100-year 4-hour	4.2
NORTH	100-year 8-hour	6.4
NORTH	100-year 24-hour	12.4
NORTH	100-year 72-hour	19.1
NORTH	100-year 168-hour	23.9
NORTH	100-year 240-hour	28.4
WEST	100-year 1-hour	0.2
WEST	100-year 2-hour	0.6
WEST	100-year 4-hour	0.9
WEST	100-year 8-hour	1.3
WEST	100-year 24-hour	2.1
WEST	100-year 72-hour	3.0
WEST	100-year 168-hour	3.6
WEST	100-year 240-hour	4.1
EAST	100-year 1-hour	0.0
EAST	100-year 2-hour	0.1
EAST	100-year 4-hour	0.4
EAST	100-year 8-hour	0.7
EAST	100-year 24-hour	1.7
EAST	100-year 72-hour	2.7

EAST	100-year 168-hour	3.5
EAST	100-year 240-hour	4.2

POST-DEVELOPMENT DRAINAGE BASIN CHARACTERISTICS

The project includes nine (9) post-development drainage basins.

The basins are summarized below:

Table 5: Post-Development Drainage Basin Area Summary					
Basin	Area (ac)	Impervious Area (ac)	DCIA (%)	T_c (min)	CN
1	32.72	21.35	65.28*	10.00	39
2	0.11	0.00	0.0	10.00	39
3	0.50	0.00	0.0	10.00	39
4	0.97	0.00	0.0	10.00	39
5	2.43	1.33	55.00*	10.00	39
6	1.67	1.42	85.00	10.00	39
7	5.92	0.00	0.0	10.00	39
8	0.43	0.00	0.0	10.00	39
9	0.19	0.00	0.0	10.00	74
Total	44.94	24.10			

* = INCLUDES POND Top of Bank (T.O.B.) AREA AT 100% IMPERVIOUS

Please refer to Appendix J "Post-Development adICPR Modeling Input" and Appendix K "Post-Development adICPR Modeling Output" for computer modeling information.

POST-DEVELOPMENT TIME OF CONCENTRATION

The post-development areas have been modeled as fully developed. The minimum allowed time of concentration of ten (10) minutes has been used for Basin 1, Basin 2, Basin 3, Basin 4, Basin 5, Basin 6, Basin 7, Basin 8, and Basin 9.

POST-DEVELOPMENT CURVE NUMBER DETERMINATION

Based on information taken from the SCS *Soil Survey for Alachua County, Florida,* and the geotechnical report dated May 2015 provided by Universal Engineering Services, Inc., the on-site Walmart property is composed of approximately five (5) types of soils: Lochloosa fine sand, 2 to 5 percent slopes, Norfolk loamy fine sand, 2 to 5 percent slopes, Arredondo fine sand, 0 to 5 percent slopes, Millhopper sand, 5 to 8 percent slopes, and Blichton sand, 2 to 5 percent slopes.

The remaining site area, based on information taken from the SCS *Soil Survey for Alachua County, Florida*, is composed of approximately seven (7) types of soils: Arredondo fine sand, 0 to 5 percent slopes, Arredondo-Urban land complex, 0 to 5 percent slopes, Millhopper sand, 5 to 8 percent slopes, Lochloosa fine sand, 5 to 8 percent slopes, Kendrick sand, 5 to 8 percent slopes, Norfolk loamy fine sand, 5 to 8 percent slopes, and Gainesville, 0 to 5 percent slopes.

In the post-developed condition, the on-site area will be considered open space in good condition (grass cover > 75%). The impervious area of each Basin (1 through 9) was calculated and input into the ICPR model as DCIA (Directly Connected Impervious Area). A curve number of 39 was entered for each of the basins to account for non-DCIA areas.

POST-DEVELOPMENT STORMWATER MANAGEMENT SYSTEM DESIGN PARAMETERS

Based on the results of Field Permeability tests, boring logs, and Summary of Lab test results completed by Universal Engineering Sciences, Inc., the following parameters were used in the AdICPR stormwater model:

- Based elevation of the mobilized Aquifer – Not Encountered
- Average Unsaturated Vertical Infiltration rate – 0.1 ft/day
- Average Horizantal Hydraulic Conductivity - 0.2 ft/day
- Estimated Fillable Porosity – 0.15
- Elevation of Normal Seasonal High Water Table – 45 feet.

The measured infiltration rates were divided by 2 as a factor of safety. The results of the Retention area soil tests are included as a separate attachment in the report entitled Stormwater Management System Soil Design Parameters.

POST-DEVELOPMENT SUMMARY

Table 6A: Post-Development Maximum Runoff Rates (cfs)		
Boundary	Storm	Rate (cfs)
NORTH	100-year 1-hour	2.03
NORTH	100-year 2-hour	2.61
NORTH	100-year 4-hour	3.49
NORTH	100-year 8-hour	2.63
NORTH	100-year 24-hour	4.23
NORTH	100-year 72-hour	4.36
NORTH	100-year 168-hour	3.62
NORTH	100-year 240-hour	4.61
WEST	100-year 1-hour	0.12
WEST	100-year 2-hour	0.25
WEST	100-year 4-hour	0.59
WEST	100-year 8-hour	0.60
WEST	100-year 24-hour	1.27
WEST	100-year 72-hour	0.87
WEST	100-year 168-hour	0.51
WEST	100-year 240-hour	0.45
EAST	100-year 1-hour	0.09
EAST	100-year 2-hour	0.18
EAST	100-year 4-hour	0.42
EAST	100-year 8-hour	0.42
EAST	100-year 24-hour	0.89
EAST	100-year 72-hour	0.61
EAST	100-year 168-hour	0.36
EAST	100-year 240-hour	0.31

Table 6B: Post-Development Maximum Volumes (ac-ft)		
Boundary	Storm	Volume (ac-ft)
NORTH	100-year 1-hour	0.1
NORTH	100-year 2-hour	0.2
NORTH	100-year 4-hour	0.4
NORTH	100-year 8-hour	0.7
NORTH	100-year 24-hour	3.1
NORTH	100-year 72-hour	11.9
NORTH	100-year 168-hour	18.9
NORTH	100-year 240-hour	25.7
WEST	100-year 1-hour	0.0
WEST	100-year 2-hour	0.0
WEST	100-year 4-hour	0.0
WEST	100-year 8-hour	0.0
WEST	100-year 24-hour	0.1

WEST	100-year 72-hour	0.2
WEST	100-year 168-hour	0.3
WEST	100-year 240-hour	0.4
EAST	100-year 1-hour	0.0
EAST	100-year 2-hour	0.0
EAST	100-year 4-hour	0.0
EAST	100-year 8-hour	0.1
EAST	100-year 24-hour	0.1
EAST	100-year 72-hour	0.2
EAST	100-year 168-hour	0.2
EAST	100-year 240-hour	0.3

Table 6C: Post-Development Maximum Pond Stages (ft)			
Pond 1 (T.O.B.=86.0)	Storm	Max Stage (ft)	Freeboard (ft)
1	100-year 1-hour	81.37	4.63
1	100-year 2-hour	81.73	4.27
1	100-year 4-hour	82.20	3.80
1	100-year 8-hour	82.65	3.35
1	100-year 24-hour	83.41	2.59
1	100-year 72-hour	83.56	2.44
1	100-year 168-hour	83.46	2.54
1	100-year 240-hour	83.56	2.44
Pond 2 (T.O.B. =79.0)			
2	100-year 1-hour	74.53	4.47
2	100-year 2-hour	74.88	4.12
2	100-year 4-hour	75.37	3.63
2	100-year 8-hour	75.84	3.16
2	100-year 24-hour	76.93	2.07
2	100-year 72-hour	77.5	1.50
2	100-year 168-hour	77.44	1.56
2	100-year 240-hour	77.62	1.38

Pond 1 provides 2.44 feet of freeboard at the maximum design stage.
Pond 2 provides 1.38 feet of freeboard at the maximum design stage.

STORM WATER QUANTITY TREATMENT / FLOOD ROUTING

Table 7A: Maximum Runoff Rate Comparison (cfs)			
Boundary	Storm	Pre-Development Rate (cfs)	Post-Development Rate (cfs)
NORTH	100-year 1-hour	27.27	2.03
NORTH	100-year 2-hour	39.20	2.61
NORTH	100-year 4-hour	58.39	3.49
NORTH	100-year 8-hour	70.77	2.63
NORTH	100-year 24-hour	93.01	4.23
NORTH	100-year 72-hour	64.60	4.36
NORTH	100-year 168-hour	38.71	3.62
NORTH	100-year 240-hour	32.65	4.61
WEST	100-year 1-hour	8.34	0.12
WEST	100-year 2-hour	10.45	0.25
WEST	100-year 4-hour	13.16	0.59
WEST	100-year 8-hour	13.31	0.60
WEST	100-year 24-hour	14.95	1.27
WEST	100-year 72-hour	9.56	0.87
WEST	100-year 168-hour	5.45	0.51
WEST	100-year 240-hour	4.41	0.45
EAST	100-year 1-hour	0.0	0.09
EAST	100-year 2-hour	4.70	0.18
EAST	100-year 4-hour	8.02	0.42
EAST	100-year 8-hour	9.48	0.42
EAST	100-year 24-hour	13.18	0.89
EAST	100-year 72-hour	9.40	0.61
EAST	100-year 168-hour	5.78	0.36
EAST	100-year 240-hour	4.96	0.31

Table 7B: Maximum Volume Comparison (ac-ft)			
Boundary	Storm	Pre-Development Volume (ac-ft)	Post-Development Volume (ac-ft)
NORTH	100-year 1-hour	0.7	0.1
NORTH	100-year 2-hour	2.1	0.2
NORTH	100-year 4-hour	4.2	0.4
NORTH	100-year 8-hour	6.4	0.7
NORTH	100-year 24-hour	12.4	3.1
NORTH	100-year 72-hour	19.1	11.9
NORTH	100-year 168-hour	23.9	18.9
NORTH	100-year 240-hour	28.4	25.7
WEST	100-year 1-hour	0.2	0.0
WEST	100-year 2-hour	0.6	0.0
WEST	100-year 4-hour	0.9	0.0
WEST	100-year 8-hour	1.3	0.0
WEST	100-year 24-hour	2.1	0.1
WEST	100-year 72-hour	3.0	0.2
WEST	100-year 168-hour	3.6	0.3
WEST	100-year 240-hour	4.1	0.4
EAST	100-year 1-hour	0.0	0.0
EAST	100-year 2-hour	0.1	0.0
EAST	100-year 4-hour	0.4	0.0
EAST	100-year 8-hour	0.7	0.1

EAST	100-year 24-hour	1.7	0.1
EAST	100-year 72-hour	2.7	0.2
EAST	100-year 168-hour	3.5	0.2
EAST	100-year 240-hour	4.2	0.3

WATER QUALITY VOLUME

The proposed storm water system will have two (2) retention ponds for runoff treatment. For surface water management systems, SRWMD defines the design treatment volume for projects in a stream-to-sink watershed, as the first two (2) inches of runoff from the design storm. Basin 1 contributes runoff to Pond 1. Basins 5, 6, and 7 contribute runoff to Pond 2. Both Pond 1 and Pond 2 discharge to the U.S 441 stormwater system. Water quality volume calculations and results are summarized as follows:

Pond 1:

Table 8A: Pond 1 - Required Water Quality Volume

	Area (ac.)	Requirement (in.)	Volume (cf.)
Basin 1	32.72	2	237,547
Total	32.72	--	**237,547**

Pond 1 provides the following volume at weir elevation 83.0 feet:

Table 8B: Pond 1 - Provided Water Quality Volume

Stage (ft)	Area (sf)	Volume (cf)	Cum. Vol. (cf)	Cum. Vol. (ac-ft)
80.0	222,156	0	0	0.00
81.0	228,690	225,423	225,423	5.18
82.0	235,660	232,175	457,598	10.51
83.0	242,194	238,927	696,524	15.99
84.0	249,163	245,678	942,203	21.63
85.0	256,133	252,648	1,194,851	27.43
86.0	263,102	259,618	1,454,468	33.39

The total water quality volume provided at the weir elevation is **669,524 cf (15.99 ac-ft)**. This is an additional 431,977 cf of water quality volume that will be provided by Pond 1.

Pond 2:

Table 9A: Pond 2 - Required Water Quality Volume

	Area (ac.)	Requirement (in.)	Volume (cf.)
Basin 5	2.43	2	17,642
Basin 6	1.67	2	12,124
Basin 7	5.92	2	42,979
Total	10.02	--	**72,745**

Pond 2 provides the following volume at weir elevation 77.5 feet:

Table 9B: Pond 2 - Provided Water Quality Volume

Stage (ft)	Area (sf)	Volume (cf)	Cum. Vol. (cf)	Cum. Vol. (ac-ft)
73.5	37,897	0	0	0.00
74.0	39,640	19,384	19,384	0.45
75.0	43,124	41,382	60,766	1.40
76.0	46,609	44,867	105,633	2.42
77.0	50,094	48,352	153,984	3.53
77.5	52,054	25,537	179,521	4.12
78.0	54,014	26,517	206,038	4.73
79.0	57,935	55,975	262,013	6.01

The total water quality volume provided at the weir elevation is **179,521 cf (4.12 ac-ft)**. This is an additional 106,776 cf of water quality volume that will be provided by Pond 2.

POND RECOVERY ANALYSIS

For retention systems, SRWMD requires that retention systems provide treatment volumes within 72 hours following the end of the design storm event (100-year critical duration). Also, storage volumes designed into retention systems to meet SRWMD requirements must be available as follows:

1) One-half of the total volume within seven (7) days following the end of the design storm event; and
2) The total volume within thirty (30) days following the end of the design storm event.

Due to low permeability rates of soils encountered during the geotechnical exploration and based on the information in the geotechnical report provided by Universal Engineering Sciences, Inc., recovery is proposed via filter drains in combination with recovery through the soil profile. Ponds 1 and 2 are proposed to have filter drains with the following characteristics:

- Permeability of the Filter Sand = 40 ft/day. A factor of safety of 2 was applied for this analysis (*i.e.*, 20 ft/day used for AdICPR calculations)
- 12" Perforated HDPE Pipe in gravel envelope wrapped with filter fabric.

Utilizing the AdICPR Software, the filter drain and percolation through the soil profile were input and modeled during the storm event. The results of the Recovery analysis are as follows:

Table 10A: Pond 1 - Treatment Volume Recovery (72 hours) After Storm Event

Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	73	81.99	80.25
100-year 2-hour	75	81.99	80.55
100-year 4-hour	76	81.99	80.96
100-year 8-hour	80	81.99	81.36
100-year 24-hour	96	81.99	81.95
100-year 72-hour	144	81.99	81.94
100-year 168-hour	240	81.99	81.74
100-year 240-hour	312	81.99	81.56

Table 10B: Pond 1 - ½ Total Volume Recovery (7 Days) (168 hours) After Storm Event

Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	169	81.52	80.00
100-year 2-hour	170	81.52	80.00
100-year 4-hour	172	81.52	80.00
100-year 8-hour	176	81.52	80.13
100-year 24-hour	192	81.52	80.61
100-year 72-hour	240	81.52	80.61
100-year 168-hour	336	81.52	80.47
100-year 240-hour	408	81.52	80.34

Table 10C: Pond 1 - Total Volume Recovery (30 days) (720 hours) After Storm Event

Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	721	80.00	80.00
100-year 2-hour	722	80.00	80.00
100-year 4-hour	724	80.00	80.00
100-year 8-hour	728	80.00	80.00
100-year 24-hour	744	80.00	80.00
100-year 72-hour	792	80.00	80.00

100-year 168-hour	888	80.00	80.00
100-year 240-hour	960	80.00	80.00

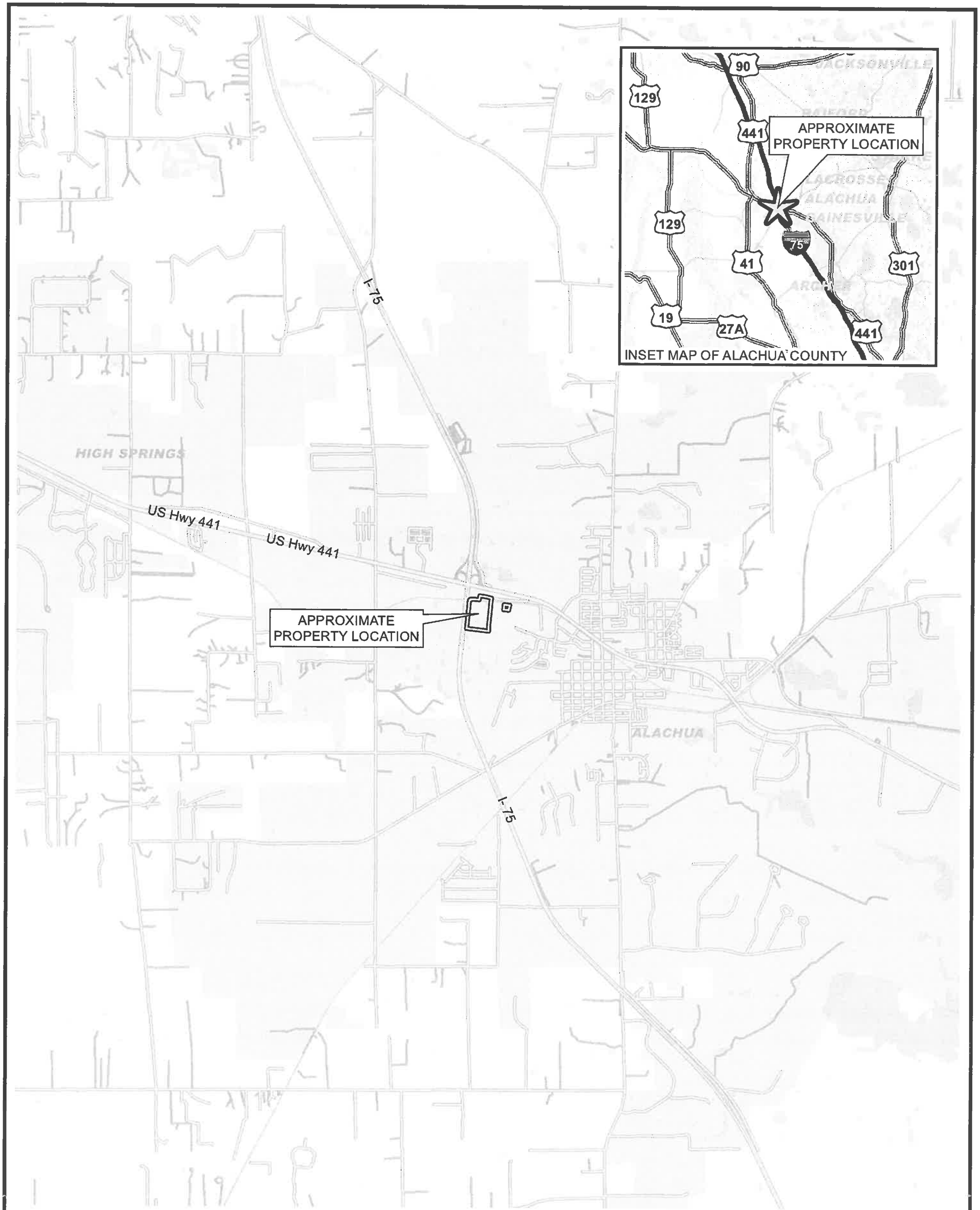
Table 10D: Pond 2 - Treatment Volume Recovery (72 hours) After Storm Event			
Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	73	75.90	73.53
100-year 2-hour	75	75.90	73.71
100-year 4-hour	76	75.90	73.99
100-year 8-hour	80	75.90	74.26
100-year 24-hour	96	75.90	74.93
100-year 72-hour	144	75.90	75.25
100-year 168-hour	240	75.90	74.77
100-year 240-hour	312	75.90	74.50

Table 10E: Pond 2 - ½ Total Volume Recovery (7 days) (168 hours) After Storm Event			
Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	169	75.60	73.50
100-year 2-hour	170	75.60	73.50
100-year 4-hour	172	75.60	73.50
100-year 8-hour	176	75.60	73.50
100-year 24-hour	192	75.60	73.57
100-year 72-hour	240	75.60	73.72
100-year 168-hour	336	75.60	73.53
100-year 240-hour	408	75.60	73.50

Table 10F: Pond 2 - Total Volume Recovery (30 days) (720 hours) After Storm Event			
Storm	Time After Storm (hrs)	Max Allowed Stage After Storm	Provided Stage After Storm
100-year 1-hour	721	73.50	73.50
100-year 2-hour	722	73.50	73.50
100-year 4-hour	724	73.50	73.50
100-year 8-hour	728	73.50	73.50
100-year 24-hour	744	73.50	73.50
100-year 72-hour	792	73.50	73.50
100-year 168-hour	888	73.50	73.50
100-year 240-hour	960	73.50	73.50

The results of the AdICPR recovery analysis is included in Appendix M of this report. The Retention area soil test results are included as a separate attachment entitled Stormwater Management System Soil Design Parameters.

APPENDIX A
SITE LOCATION MAP



Path: P:\WW13392\LOCATION.mxd

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Scale: 1 " = 1 miles
Date: 3/26/2015
Photo Date: NA
Project No. W13392
Biologist: AED GIS: RCO

N

SITE LOCATION MAP

ALACHUA WALMART

SECTIONS 9, 10, 15, 16, & 37, TOWNSHIP 8 SOUTH, RANGE 18 EAST
ALACHUA COUNTY, FLORIDA

EXHIBIT A

APPENDIX B
SCS SOILS MAP