APPENDIX H
RESUMES OF ENVIRONMENAL PROFESSIONALS

J. DAVID ROSS, P.E.

- **TITLE:**
  Senior Vice President
  Manager, Environmental Department

- **EXPERIENCE:**
  As Head of the Environmental Department, Mr. Ross is responsible for the project management and technical design of waste management projects. He has over 30 years experience in waste management design, including water, wastewater, solid waste and industrial waste studies and designs, preparation of Contract Documents, and construction phase engineering services.

- **RELATED PROJECTS:**

  - ***Environmental Site Assessments:*** Project Manager and QA/QC Manager for performance of approximately 30 individual Phase I and Phase II ESAs for real estate transactions in the vicinity of Savannah, Georgia. All investigations were performed in accordance with ASTM E1527, and additional requirements of financial and governmental agencies.

  - ***Soil Surveys***: Project Manager and QA/QC manager for performance of approximately 25 Level 2 Soil Surveys for determination of soil suitability for design of subsurface wastewater disposal systems in the vicinity of Savannah, Georgia.

  - ***Soil Remediation***: Project Manager for subsurface investigation, risk assessment, and remediation design for site development projects with contaminated soils and groundwater using State of Georgia Environmental Protection Division protocols and regulations.

  - ***Erosion and Sediment Control:*** On-call contract with City of Baltimore to provide remedial designs for erosion control and stream restoration projects.

  - ***Landfill Remediation:*** On-call contract to provide investigations and remedial designs for improvements to existing 200 acre municipal landfill

  - ***Landfill Design:*** Senior Project Manger for the study, permitting and design of expansion of existing municipal sanitary landfill, including geotechnical investigations, liner design, grading, leachate management, stormwater management, erosion control, gas management and groundwater monitoring.

  - ***Environmental Document Preparation:*** On-call contract with Maryland DOT to prepare Categorical Exclusions, Environmental Assessments, Environmental Impact Statements to satisfy requirements of NEPA 404, Section 4(f) evaluations, public participation coordination, for transportation projects.

  - ***Sludge Dewatering Facility:*** Project manager for studies and design to improve sludge dewatering system for 190 mgd wastewater treatment plant, including extensive evaluations of structures and equipment systems, and design and preparation of Contract Documents for improvements.

  - ***Landfill Closure Cap:*** Design and construction phase services for 50 acre landfill closure cap with impermeable membrane liner, cap drainage, gas collection and venting system, groundwater monitoring wells, drainage and erosion control improvements.

  - ***Landfill Expansion:*** Design of 45-acre expansion to existing municipal landfill, including impermeable membrane liner, leachate collection, erosion control and stormwater management, wetlands mitigation and groundwater monitoring. Design of closure cap with impermeable liner and gas collection.

- ***Sludge Stabilization Facility:*** Study, design and construction phase services for septic sludge receiving, handling and stabilization facility to prepare wastewater sludges for land application.

- ***Grit Removal Facility:*** Study, design and construction phase services for 70 mgd grit removal and dewatering facility including flow diversion, solids removal and handling systems.

- ***Groundwater Remediation:*** Study for remediation of contaminated groundwater at Superfund site to provide appropriate design criteria, including treatment process and cost evaluations.

- ***Landfill Closure Cap:*** Design and Contract Document preparation for a RCRA landfill closure cap at an existing Superfund site..

- ***Reclamation and Resource Recovery:*** Design of 1000 ton/day solid waste resource recovery facility to reclaim useable and saleable products from municipal solid waste and wastewater sludges, including refuse-derived fuel, ferrous metals, sand, glass, non-ferrous metals and dried and pelleted humus products.

- ***Solid Waste Transfer Station Design*:**
  - Project Engineer for design and construction phase services for a 100-ton-per-day solid waste transfer station
  - Project Manager for design of a 300-ton-per day solid waste transfer station in a resort community that experiences large seasonal fluctuations in quantities of municipal solid waste

- ***Solid Waste Transfer Station:*** Senior Project Manager for design of additions to existing solid waste transfer station to facilitate receiving street wastes delivered in sweeper trucks.

- ***Landfill Wetlands Remediation:*** Project Manager for design and construction phase services for 1.5 acres of new wetlands to replace wetland areas lost due to landfill expansion.

- ***Solid Waste Facility Expansion/Closure:*** Design Manger for two landfill expansions and a landfill closure gap

- ***Sludge Composting Facilities Design:*** Design manager for a 63-ton-per-day sewage sludge composting facility

➢ ACADEMICS:

M.B.A. Finance, Loyola College of Baltimore, 1981
B.S. Civil Engineering, Pennsylvania State University, 1970
B.A. Arts and Sciences, Pennsylvania State University, 1970

➢ PROFESSIONAL REGISTRATION(S):

MD, P.E. #10553
VA, P.E. #19681
DC, P.E. #10677
DE, P.E. #7860
PA, P.E. #038794-R
GA, P.E. #026417

➢ PROFESSIONAL AFFILIATION(S):

American Society of Civil Engineers
Water Environment Federation
Diplomate - American Academy of Environmental Engineers

ALVIN JOHN PATRICK, P.G.

- **TITLE:**
  Hydrogeologist

- **EXPERIENCE:**
  Professional geologist and qualified groundwater scientist for EMC Engineering services, Inc. since April 1992; OSHA certified; Project Geologist responsible for preparing studies and plans for Solid Waste Disposal Facilities, Underground Fuel Storage Facilities, Hazardous Site Inventory Facilities, and Surface Mining Sites.

  Mr. Patrick has ten years of geologic and hydrogeologic work experience for prime contractors for the Department of Energy's proposed nuclear waste repository, environmental consultants, and mineral exploration companies. Mr. Patrick also has two years of experience in construction inspection including concrete and soil testing, pile driving, grade control, and overall QA/QC.

- **RELATED PROJECTS:**
  - ***Industrial Waste Water Sludge:*** Prepare sampling plan to characterize 4-acre wastewater sludge settling and drying basins at paint pigment plant; Evaluate sludge, soil, and groundwater samples to access the sludge basins' potential to contaminate groundwater; Prepare sludge sampling plan in accordance with EPA SW-846; Evaluate options for sludge disposal

  - ***Solid Waste Disposal Facilities:*** Prepare Site Acceptability Studies, Water Quality and Methane Monitoring Plans for 4 solid waste disposal facilities; Assist in preparing major and minor permit modifications to expand landfill capacity, modify groundwater monitoring plans, implement methane remediation, and delineate plumes and assess corrective measures for groundwater contamination; Implement routine groundwater, surface water, and methane monitoring sampling and prepare reports including statistical evaluations

  - ***Hazardous Site Response:*** Prepare Release Notification Reports and Perspective Purchaser Corrective Action Plans. Prepare soil and groundwater sampling plans for voluntary site clean-ups. Prepare river sediment sampling plans. Assist in preparing site specific Health and Safety Plans

  - ***Environmental Site Assessments:*** Prepare numerous environmental site assessments for private and municipal clients

  - ***Surface Mining:*** Prepare surface mining permits for sand and gravel mines

  - ***Underground Fuel Storage Tanks:*** Prepare Corrective Action Plans for UST releases

  - ***Groundwater Resources:*** Develop non-potable water supply wells to irrigate athletic fields

- **ACADEMICS:**
  B.S. Geology, Western Washington University, 1978
  Graduate work toward M.S. in Hydrology, University of Idaho, 1990

- **PROFESSIONAL REGISTRATION:**
  GA, P.G. #0969

APPENDIX I
HUGGINS PROPERTY
GROUNDWATER MONITORING WELL AS-BUILTS

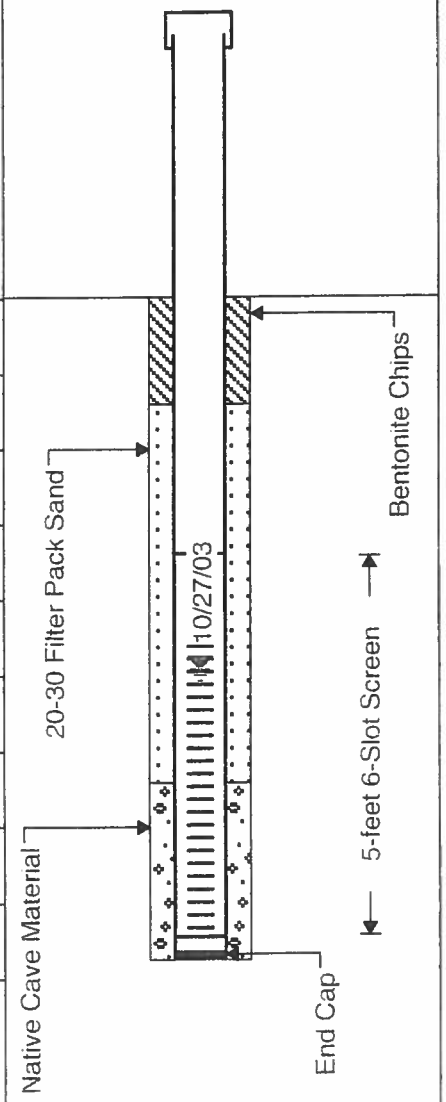
EMC Engineering Services, Inc.
23 East Charlton Street
P.O. Box 8101
Savannah, Georgia 31412
Phone: (912) 232-6533
Fax: (912) 232-2920
E-mail: civil@emc-eng.com

Log of Borehole: B3B/W1

Project No.: 03-0527.30
Project: Huggins/Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12206 Apache Ave.
Drill Date: 10/21/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: Dave Kosciuk
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	11.67			
		Silty Sand Brown	0.00	NA	Grab	
				NA	Grab	
			8.92	NA	Grab	
		Peaty material Black	2.75	NA	Grab	
			7.67			
		Clayey Sand Very dark brown	4.00	NA	Grab	
				NA	Grab	
				NA	Grab	
				NA	Grab	
			2.90	NA	Grab	
			8.77			



Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: 12.3 feet
Top of Casing Elevation: 15.20 feet MSL*
Well Diameter/Material: 2-inch/Schd 40 PVC/ASTM Threads
Well Development: Surge & pump 25 gallons
Comments: * = Datum is assumed 15 feet MSL in center of site

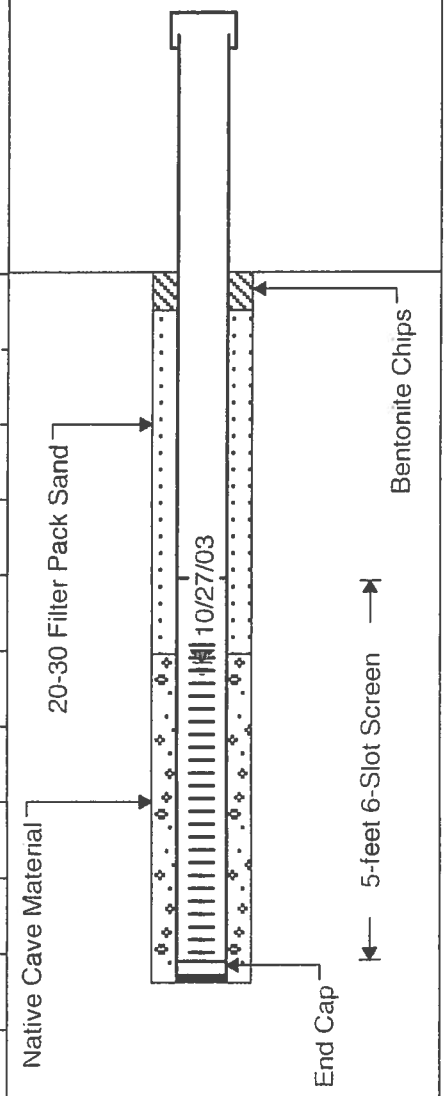
EMC Engineering Services, Inc.
23 East Charlton Street
P.O. Box 8101
Savannah, Georgia 31412
Phone: (912) 232-6533
Fax: (912) 232-2920
E-mail: civil@emc-eng.com

Log of Borehole: B18/W2

Project No.: 03-0527.30
Project: Huggins/Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12206 Apache Ave.
Drill Date: 10/21/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: Dave Kosciuk
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.25			
0		*Silty Sand* Light brown	0.00	NA	Grab	
				NA	Grab	
				NA	Grab	
				NA	Grab	
			10.25			
		Silty Sand Gray with yellow mottling	4.00	NA	Grab	
				NA	Grab	
				NA	Grab	
				NA	Grab	
				NA	Grab	
			4.85			
			9.40	NA	Grab	



Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: 12.6
Top of Casing Elevation: 17.42 feet MSL*
Well Diameter/Material: 2-inch/Schd 40 PVC/ASTM Threads
Well Development: Surge & pump 25 gallons
Comments: * = Datum is assumed 15 feet MSL in center of site

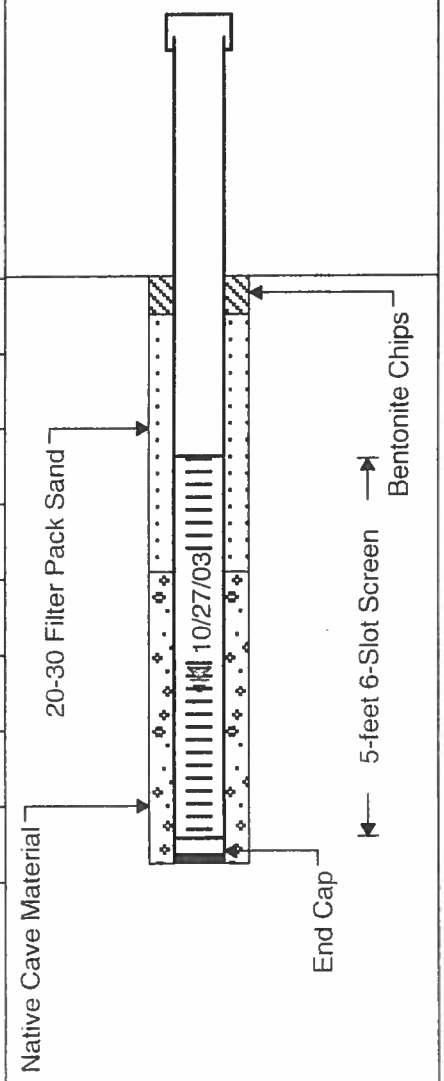
EMC Engineering Services, Inc.
23 East Charlton Street
P.O. Box 8101
Savannah, Georgia 31412
Phone: (912) 232-6533
Fax: (912) 232-2920
E-mail: civil@emc-eng.com

Log of Borehole: B20/W3

Project No.: 03-0527.30
Project: Huggins/Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12206 Apache Ave.
Drill Date: 10/21/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: Dave Kosciuk
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.35			
0			0.00	NA	Grab	
		Silty Sand Gray		NA	Grab	
				NA	Grab	
				NA	Grab	
			10.35			
			4.00	NA	Grab	
		Sand and Clay Mixture Very dark gray		NA	Grab	
				NA	Grab	
			7.35			
		Sand Light brown	7.00	NA	Grab	
			6.59			
			7.76			



Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: 11.2 feet
Comments: * = Datum is assumed 15 feet MSL in center of site

Top of Casing Elevation: 17.79 feet MSL*
Well Diameter/Material: 2-inch/Schd 40 PVC/ASTM Threads
Well Development: Surge & pump 35 gallons

APPENDIX J
LABORATORY REPORTS

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Report

For: Mr. William Lyons
EMC Engineering Services, Inc.
P.O. Box 8101
Savannah, GA 31412
CC:

Order Number: S388614
SDG Number:
Client Project ID:
Project: Apache
Report Date: 10/31/2003
Sampled By: Client
Sample Received Date: 10/27/2003
Requisition Number:
Purchase Order:

Steven J. White, Project Manager
swhite@stl-inc.com

Serial Number 21155

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

(X) STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

( ) Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: Apache	PROJECT NO.: 03-527	PROJECT LOCATION (STATE): GA	PAGE 1 OF 1
STL (LAB) PROJECT MANAGER: Steve White	P.O. NUMBER:	CONTRACT NO.:	STANDARD REPORT DELIVERY (X)
CLIENT (SITE) PM: John Patrick	CLIENT PHONE: 2326533	CLIENT FAX: 2322920	DATE DUE:
CLIENT NAME: EMC	CLIENT E-MAIL:		EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
CLIENT ADDRESS: 23 E. Charlton St. Savannah			DATE DUE:
COMPANY CONTRACTING THIS WORK (if applicable):			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	REQUIRED ANALYSIS: Mercury in Water	NUMBER OF CONTAINERS SUBMITTED	REMARKS
10-27-03	12:00	W3		X					1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
			[signature]	10-27-03	3:35			

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	10/27/03	1:35	YES ( ) NO ( )		~~5388~~ 5388614	

Sample Summary

Order: S388614
Date Received: 10/27/2003

Client: EMC Engineering Services, Inc.
Project: Apache

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
W3	S388614*1	Liquid	10/27/2003 12:00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88614-1	W3	Liquid	10/27/03	10/27/03 12:00	

Parameter	Units	Lab Sample IDs 88614-1
Appendix 1 Metals		
Antimony	mg/l	<0.0060
Arsenic	mg/l	<0.010
Lead	mg/l	<0.0050
Selenium	mg/l	<0.010
Barium	mg/l	0.051
Beryllium	mg/l	<0.0030
Cadmium	mg/l	<0.0050
Chromium	mg/l	<0.010
Cobalt	mg/l	<0.010
Copper	mg/l	<0.020
Nickel	mg/l	<0.040
Silver	mg/l	<0.010
Vanadium	mg/l	<0.010
Zinc	mg/l	<0.020
Dilution Factor		1
Prep Date		10/28/03
Analysis Date		10/30/03
Batch ID		1028G
Mercury (7470)		
Mercury	mg/l	<0.00020
Dilution Factor		1
Prep Date		10/28/03
Analysis Date		10/29/03
Batch ID		1028S
Thallium (7841)		
Thallium	mg/l	<0.0020
Dilution Factor		1
Prep Date		10/29/03
Analysis Date		10/31/03
Batch ID		1029G

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88614-2	Method Blank	Liquid	10/27/03		
88614-3	Lab Control Standard % Recovery	Liquid	10/27/03		
88614-4	LCS Accuracy Control Limit (%R)	Liquid	10/27/03		

Parameter	Units	Lab Sample IDs 88614-2	88614-3	88614-4
Appendix 1 Metals				
Antimony	mg/l	<0.0060	106 %	75-125 %
Arsenic	mg/l	<0.010	103 %	75-125 %
Lead	mg/l	<0.0050	104 %	75-125 %
Selenium	mg/l	<0.010	103 %	75-125 %
Barium	mg/l	<0.010	108 %	75-125 %
Beryllium	mg/l	<0.0030	106 %	75-125 %
Cadmium	mg/l	<0.0050	106 %	75-125 %
Chromium	mg/l	<0.010	107 %	75-125 %
Cobalt	mg/l	<0.010	107 %	75-125 %
Copper	mg/l	<0.020	107 %	75-125 %
Nickel	mg/l	<0.040	107 %	75-125 %
Silver	mg/l	<0.010	104 %	75-125 %
Vanadium	mg/l	<0.010	105 %	75-125 %
Zinc	mg/l	<0.020	113 %	75-125 %
Dilution Factor		1	1	
Prep Date		10/28/03	10/28/03	
Analysis Date		10/29/03	10/29/03	
Batch ID		1028G	1028G	
Mercury (7470)				
Mercury	mg/l	<0.00020	111 %	80-120 %
Dilution Factor		1	1	
Prep Date		10/28/03	10/28/03	
Analysis Date		10/29/03	10/29/03	
Batch ID		1028S	1028S	
Thallium (7841)				
Thallium	mg/l	<0.0020	98 %	80-120 %
Dilution Factor		1	1	
Prep Date		10/29/03	10/29/03	
Analysis Date		10/31/03	10/31/03	
Batch ID		1029G	1029G	

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

SEVERN TRENT STL

STL Savannah 5102 LaRoche Avenue - Savannah GA 31404 Telephone:(912) 354-7858 Fax:(912) 351-3673

Analytical Report

For: Mr. John Patrick
EMC Engineering Services, Inc.
P.O. Box 8101
Savannah, GA 31412
CC:

Order Number: S388582
SDG Number:
Client Project ID:
Project: Apache
Report Date: 11/06/2003
Sampled By: Client
Sample Received Date: 10/24/2003
Requisition Number:
Purchase Order:

Steven J. White

Steven J. White, Project Manager
swhite@stl-inc.com
11/07/2003

Serial Number 21153

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

STL Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: Apache	PROJECT NO.: 03-527.30	PROJECT LOCATION (STATE): GA
STL (LAB) PROJECT MANAGER: Steve White	P.O. NUMBER:	CONTRACT NO.:
CLIENT (SITE) PM: John Patrick	CLIENT PHONE: 232 6533	CLIENT FAX: 2322920
CLIENT NAME: Enn C	CLIENT E-MAIL:	
CLIENT ADDRESS: 23 E. Charlton St. Savannah		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ○
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	TCL VOC 8260	TCL SVOC 8081	Appd I met + Hg							REMARKS
								NO	NO	NO	HNO_3						
10-23-03	14:45	W 1		X				3	3	2	1						
↓	15:00	W 3		↓				↓	↓	↓	↓						no metals
↓	17:00	W 2		↓													Sample Submitted for W3

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	10-24-03	15:55						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS
Lisa Wu	10/24/03	16:00	YES ○ NO ○		S383582	

STL8240-680 (12/02)

Sample Summary

Order: S388582
Date Received: 10/24/2003

Client: EMC Engineering Services, Inc.
Project: Apache

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
W1	S388582*1	Liquid	10/23/2003 14:45
W2	S388582*2	Liquid	10/23/2003 17:00
W3	S388582*3	Liquid	10/23/2003 15:00
Trip Blank	S388582*4	Liquid	10/23/2003

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-1	W1	Liquid	10/24/03	10/23/03 14:45	
88582-2	W2	Liquid	10/24/03	10/23/03 17:00	

Parameter	Units	Lab Sample IDs 88582-1	88582-2
Volatiles by GC/MS (8260)			
Chloromethane	ug/l	<1.0	<1.0
Bromomethane (Methyl bromide)	ug/l	<1.0	<1.0
Vinyl chloride	ug/l	<1.0	<1.0
Chloroethane	ug/l	<1.0	<1.0
Methylene chloride (Dichloromethane)	ug/l	<5.0	<5.0
Acetone	ug/l	<10	<10
Carbon disulfide	ug/l	<1.0	<1.0
1,1-Dichloroethene	ug/l	<1.0	<1.0
1,1-Dichloroethane	ug/l	<1.0	<1.0
cis-1,2-Dichloroethene	ug/l	<1.0	<1.0
trans-1,2-Dichloroethene	ug/l	<1.0	<1.0
Chloroform	ug/l	<1.0	<1.0
1,2-Dichloroethane	ug/l	<1.0	<1.0
2-Butanone (MEK)	ug/l	<10	<10
1,1,1-Trichloroethane	ug/l	<1.0	<1.0
Carbon tetrachloride	ug/l	<1.0	<1.0
Vinyl acetate	ug/l	<1.0	<1.0
Bromodichloromethane	ug/l	<1.0	<1.0
1,1,2,2-Tetrachloroethane	ug/l	<1.0	<1.0
1,2-Dichloropropane	ug/l	<1.0	<1.0
trans-1,3-Dichloropropene	ug/l	<1.0	<1.0
Trichloroethene	ug/l	<1.0	<1.0
Dibromochloromethane	ug/l	<1.0	<1.0
1,1,2-Trichloroethane	ug/l	<1.0	<1.0
Benzene	ug/l	<1.0	<1.0
cis-1,3-Dichloropropene	ug/l	<1.0	<1.0
2-Chloroethylvinyl ether	ug/l	<1.0	<1.0
Bromoform	ug/l	<1.0	<1.0
2-Hexanone	ug/l	<10	<10
4-Methyl-2-pentanone (MIBK)	ug/l	<10	<10
Tetrachloroethene	ug/l	<1.0	<1.0
Toluene	ug/l	<1.0	<1.0
Chlorobenzene	ug/l	<1.0	<1.0
Ethylbenzene	ug/l	<1.0	<1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-1	W1	Liquid	10/24/03	10/23/03 14:45	
88582-2	W2	Liquid	10/24/03	10/23/03 17:00	

Parameter	Units	Lab Sample IDs 88582-1	88582-2
Volatiles by GC/MS (8260)			
Styrene	ug/l	<1.0	<1.0
Xylenes, Total	ug/l	<1.0	<1.0
Dilution Factor		1	1
Analysis Date		10/27/03	10/27/03
Batch ID		1027G(A)	1027G(A)
Microextractable Organics (8011)			
1,2-Dibromoethane (EDB)	ug/l	<0.020	<0.020
1,2-Dibromo-3-chloropropane	ug/l	<0.020	<0.020
Dilution Factor		1	1
Prep Date		10/29/03	10/29/03
Analysis Date		10/29/03	10/29/03
Batch ID		1029C	1029C
TCL Semivolatiles (8270)			
Phenol	ug/l	<5.0	<5.0
bis(2-Chloroethyl)ether	ug/l	<5.0	<5.0
2-Chlorophenol	ug/l	<5.0	<5.0
1,3-Dichlorobenzene	ug/l	<5.0	<5.0
1,4-Dichlorobenzene	ug/l	<5.0	<5.0
1,2-Dichlorobenzene	ug/l	<5.0	<5.0
2-Methylphenol (o-Cresol)	ug/l	<5.0	<5.0
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	<5.0	<5.0
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	<5.0	<5.0
N-Nitroso-di-n-propylamine	ug/l	<5.0	<5.0
Hexachloroethane	ug/l	<5.0	<5.0
Nitrobenzene	ug/l	<5.0	<5.0
Isophorone	ug/l	<5.0	<5.0
2-Nitrophenol	ug/l	<5.0	<5.0
2,4-Dimethylphenol	ug/l	<5.0	<5.0
bis(2-Chloroethoxy)methane	ug/l	<5.0	<5.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-1	W1	Liquid	10/24/03	10/23/03 14:45	
88582-2	W2	Liquid	10/24/03	10/23/03 17:00	

Parameter	Units	Lab Sample IDs 88582-1	88582-2
TCL Semivolatiles (8270)			
2,4-Dichlorophenol	ug/l	<5.0	<5.0
1,2,4-Trichlorobenzene	ug/l	<5.0	<5.0
Naphthalene	ug/l	<5.0	<5.0
4-Chloroaniline	ug/l	<10	<10
Hexachlorobutadiene	ug/l	<5.0	<5.0
4-Chloro-3-methylphenol	ug/l	<5.0	<5.0
2-Methylnaphthalene	ug/l	<5.0	<5.0
Hexachlorocyclopentadiene	ug/l	<5.0	<5.0
2,4,6-Trichlorophenol	ug/l	<5.0	<5.0
2,4,5-Trichlorophenol	ug/l	<5.0	<5.0
2-Chloronaphthalene	ug/l	<5.0	<5.0
2-Nitroaniline	ug/l	<25	<25
Dimethylphthalate	ug/l	<5.0	<5.0
Acenaphthylene	ug/l	<5.0	<5.0
3-Nitroaniline	ug/l	<25	<25
Acenaphthene	ug/l	<5.0	<5.0
2,4-Dinitrophenol	ug/l	<25	<25
4-Nitrophenol	ug/l	<25	<25
Dibenzofuran	ug/l	<5.0	<5.0
2,4-Dinitrotoluene	ug/l	<5.0	<5.0
2,6-Dinitrotoluene	ug/l	<5.0	<5.0
Diethylphthalate	ug/l	<5.0	<5.0
4-Chlorophenylphenyl ether	ug/l	<5.0	<5.0
Fluorene	ug/l	<5.0	<5.0
4-Nitroaniline	ug/l	<25	<25
4,6-Dinitro-2-methylphenol	ug/l	<25	<25
N-Nitrosodiphenylamine	ug/l	<5.0	<5.0
4-Bromophenylphenyl ether	ug/l	<5.0	<5.0
Hexachlorobenzene	ug/l	<0.30	<0.30
Pentachlorophenol	ug/l	<1.0	<1.0
Phenanthrene	ug/l	<5.0	<5.0
Anthracene	ug/l	<5.0	<5.0
Di-n-butylphthalate	ug/l	<5.0	<5.0
Fluoranthene	ug/l	<5.0	<5.0
Pyrene	ug/l	<5.0	<5.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-1	W1	Liquid	10/24/03	10/23/03 14:45	
88582-2	W2	Liquid	10/24/03	10/23/03 17:00	

Parameter	Units	Lab Sample IDs 88582-1	88582-2
TCL Semivolatiles (8270)			
Butylbenzylphthalate	ug/l	<5.0	<5.0
3,3'-Dichlorobenzidine	ug/l	<10	<10
Benzo(a)anthracene	ug/l	<5.0	<5.0
bis(2-Ethylhexyl)phthalate	ug/l	<5.0	<5.0
Chrysene	ug/l	<5.0	<5.0
Di-n-octylphthalate	ug/l	<5.0	<5.0
Benzo(b)fluoranthene	ug/l	<5.0	<5.0
Benzo(k)fluoranthene	ug/l	<5.0	<5.0
Benzo(a)pyrene	ug/l	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	ug/l	<5.0	<5.0
Dibenzo(a,h)anthracene	ug/l	<5.0	<5.0
Benzo(g,h,i)perylene	ug/l	<5.0	<5.0
Carbazole	ug/l	<5.0	<5.0
Surrogate - Phenol-d5 *	%	74 %	87 %
Surrogate - 2-Fluorophenol *	%	74 %	91 %
Surrogate - 2,4,6-Tribromophenol *	%	100 %	107 %
Surrogate - Nitrobenzene - d5 *	%	80 %	91 %
Surrogate - 2-Fluorobiphenyl *	%	72 %	87 %
Surrogate - Terphenyl-d14 *	%	34 %	74 %
Dilution Factor		1	1
Prep Date		10/27/03	10/27/03
Analysis Date		11/05/03	11/05/03
Batch ID		1027B	1027B
Appendix 1 Metals			
Antimony	mg/l	<0.0060	<0.0060
Arsenic	mg/l	<0.010	<0.010
Lead	mg/l	<0.0050	0.0063
Selenium	mg/l	<0.010	<0.010
Barium	mg/l	0.17	0.13
Beryllium	mg/l	<0.0030	<0.0030
Cadmium	mg/l	<0.0050	<0.0050

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-1	W1	Liquid	10/24/03	10/23/03 14:45	
88582-2	W2	Liquid	10/24/03	10/23/03 17:00	

Parameter	Units	Lab Sample IDs 88582-1	88582-2
Appendix 1 Metals			
Chromium	mg/l	<0.010	<0.010
Cobalt	mg/l	<0.010	<0.010
Copper	mg/l	<0.020	0.56
Nickel	mg/l	<0.040	<0.040
Silver	mg/l	<0.010	<0.010
Vanadium	mg/l	<0.010	<0.010
Zinc	mg/l	<0.020	<0.020
Dilution Factor		1	1
Prep Date		10/27/03	10/27/03
Analysis Date		10/30/03	10/30/03
Batch ID		1027I	1027I
Mercury (7470)			
Mercury	mg/l	<0.00020	<0.00020
Dilution Factor		1	1
Prep Date		10/28/03	10/28/03
Analysis Date		10/29/03	10/29/03
Batch ID		1028S	1028S
Thallium (7841)			
Thallium	mg/l	<0.0020	<0.0020
Dilution Factor		1	1
Prep Date		10/30/03	10/30/03
Analysis Date		10/31/03	10/31/03
Batch ID		1030G	1030G

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-3	W3	Liquid	10/24/03	10/23/03 15:00	

Parameter	Units	Lab Sample IDs 88582-3
Volatiles by GC/MS (8260)		
Chloromethane	ug/l	<1.0
Bromomethane (Methyl bromide)	ug/l	<1.0
Vinyl chloride	ug/l	<1.0
Chloroethane	ug/l	<1.0
Methylene chloride (Dichloromethane)	ug/l	<5.0
Acetone	ug/l	<10
Carbon disulfide	ug/l	<1.0
1,1-Dichloroethene	ug/l	<1.0
1,1-Dichloroethane	ug/l	<1.0
cis-1,2-Dichloroethene	ug/l	<1.0
trans-1,2-Dichloroethene	ug/l	<1.0
Chloroform	ug/l	<1.0
1,2-Dichloroethane	ug/l	<1.0
2-Butanone (MEK)	ug/l	<10
1,1,1-Trichloroethane	ug/l	<1.0
Carbon tetrachloride	ug/l	<1.0
Vinyl acetate	ug/l	<1.0
Bromodichloromethane	ug/l	<1.0
1,1,2,2-Tetrachloroethane	ug/l	<1.0
1,2-Dichloropropane	ug/l	<1.0
trans-1,3-Dichloropropene	ug/l	<1.0
Trichloroethene	ug/l	<1.0
Dibromochloromethane	ug/l	<1.0
1,1,2-Trichloroethane	ug/l	<1.0
Benzene	ug/l	<1.0
cis-1,3-Dichloropropene	ug/l	<1.0
2-Chloroethylvinyl ether	ug/l	<1.0
Bromoform	ug/l	<1.0
2-Hexanone	ug/l	<10
4-Methyl-2-pentanone (MIBK)	ug/l	<10
Tetrachloroethene	ug/l	<1.0
Toluene	ug/l	<1.0
Chlorobenzene	ug/l	<1.0
Ethylbenzene	ug/l	<1.0
Styrene	ug/l	<1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-3	W3	Liquid	10/24/03	10/23/03 15:00	

Lab Sample IDs

Parameter	Units	88582-3
Volatiles by GC/MS (8260)		
Xylenes, Total	ug/l	<1.0
Dilution Factor		1
Analysis Date		10/27/03
Batch ID		1027G(A)
Microextractable Organics (8011)		
1,2-Dibromoethane (EDB)	ug/l	<0.020
1,2-Dibromo-3-chloropropane	ug/l	<0.020
Dilution Factor		1
Prep Date		10/29/03
Analysis Date		10/29/03
Batch ID		1029C
TCL Semivolatiles (8270)		
Phenol	ug/l	<5.0
bis(2-Chloroethyl)ether	ug/l	<5.0
2-Chlorophenol	ug/l	<5.0
1,3-Dichlorobenzene	ug/l	<5.0
1,4-Dichlorobenzene	ug/l	<5.0
1,2-Dichlorobenzene	ug/l	<5.0
2-Methylphenol (o-Cresol)	ug/l	<5.0
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	<5.0
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	<5.0
N-Nitroso-di-n-propylamine	ug/l	<5.0
Hexachloroethane	ug/l	<5.0
Nitrobenzene	ug/l	<5.0
Isophorone	ug/l	<5.0
2-Nitrophenol	ug/l	<5.0
2,4-Dimethylphenol	ug/l	<5.0
bis(2-Chloroethoxy)methane	ug/l	<5.0
2,4-Dichlorophenol	ug/l	<5.0
1,2,4-Trichlorobenzene	ug/l	<5.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-3	W3	Liquid	10/24/03	10/23/03 15:00	

Parameter	Units	Lab Sample IDs 88582-3
TCL Semivolatiles (8270)		
Naphthalene	ug/l	<5.0
4-Chloroaniline	ug/l	<10
Hexachlorobutadiene	ug/l	<5.0
4-Chloro-3-methylphenol	ug/l	<5.0
2-Methylnaphthalene	ug/l	<5.0
Hexachlorocyclopentadiene	ug/l	<5.0
2,4,6-Trichlorophenol	ug/l	<5.0
2,4,5-Trichlorophenol	ug/l	<5.0
2-Chloronaphthalene	ug/l	<5.0
2-Nitroaniline	ug/l	<25
Dimethylphthalate	ug/l	<5.0
Acenaphthylene	ug/l	<5.0
3-Nitroaniline	ug/l	<25
Acenaphthene	ug/l	<5.0
2,4-Dinitrophenol	ug/l	<25
4-Nitrophenol	ug/l	<25
Dibenzofuran	ug/l	<5.0
2,4-Dinitrotoluene	ug/l	<5.0
2,6-Dinitrotoluene	ug/l	<5.0
Diethylphthalate	ug/l	<5.0
4-Chlorophenylphenyl ether	ug/l	<5.0
Fluorene	ug/l	<5.0
4-Nitroaniline	ug/l	<25
4,6-Dinitro-2-methylphenol	ug/l	<25
N-Nitrosodiphenylamine	ug/l	<5.0
4-Bromophenylphenyl ether	ug/l	<5.0
Hexachlorobenzene	ug/l	<0.30
Pentachlorophenol	ug/l	<1.0
Phenanthrene	ug/l	<5.0
Anthracene	ug/l	<5.0
Di-n-butylphthalate	ug/l	<5.0
Fluoranthene	ug/l	<5.0
Pyrene	ug/l	<5.0
Butylbenzylphthalate	ug/l	<5.0
3,3'-Dichlorobenzidine	ug/l	<10
Benzo(a)anthracene	ug/l	<5.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-3	W3	Liquid	10/24/03	10/23/03 15:00	

Parameter	Units	Lab Sample IDs 88582-3
TCL Semivolatiles (8270)		
bis(2-Ethylhexyl)phthalate	ug/l	<5.0
Chrysene	ug/l	<5.0
Di-n-octylphthalate	ug/l	<5.0
Benzo(b)fluoranthene	ug/l	<5.0
Benzo(k)fluoranthene	ug/l	<5.0
Benzo(a)pyrene	ug/l	<0.20
Indeno(1,2,3-cd)pyrene	ug/l	<5.0
Dibenzo(a,h)anthracene	ug/l	<5.0
Benzo(g,h,i)perylene	ug/l	<5.0
Carbazole	ug/l	<5.0
Surrogate - Phenol-d5 *	%	84 %
Surrogate - 2-Fluorophenol *	%	89 %
Surrogate - 2,4,6-Tribromophenol *	%	109 %
Surrogate - Nitrobenzene - d5 *	%	87 %
Surrogate - 2-Fluorobiphenyl *	%	78 %
Surrogate - Terphenyl-d14 *	%	43 %
Dilution Factor		1
Prep Date		10/27/03
Analysis Date		11/05/03
Batch ID		1027B

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-4	Trip Blank	Liquid	10/24/03	10/23/03	

Parameter	Units	Lab Sample IDs 88582-4
Volatiles by GC/MS (8260)		
Chloromethane	ug/l	<1.0
Bromomethane (Methyl bromide)	ug/l	<1.0
Vinyl chloride	ug/l	<1.0
Chloroethane	ug/l	<1.0
Methylene chloride (Dichloromethane)	ug/l	<5.0
Acetone	ug/l	<10
Carbon disulfide	ug/l	<1.0
1,1-Dichloroethene	ug/l	<1.0
1,1-Dichloroethane	ug/l	<1.0
cis-1,2-Dichloroethene	ug/l	<1.0
trans-1,2-Dichloroethene	ug/l	<1.0
Chloroform	ug/l	<1.0
1,2-Dichloroethane	ug/l	<1.0
2-Butanone (MEK)	ug/l	<10
1,1,1-Trichloroethane	ug/l	<1.0
Carbon tetrachloride	ug/l	<1.0
Vinyl acetate	ug/l	<1.0
Bromodichloromethane	ug/l	<1.0
1,1,2,2-Tetrachloroethane	ug/l	<1.0
1,2-Dichloropropane	ug/l	<1.0
trans-1,3-Dichloropropene	ug/l	<1.0
Trichloroethene	ug/l	<1.0
Dibromochloromethane	ug/l	<1.0
1,1,2-Trichloroethane	ug/l	<1.0
Benzene	ug/l	<1.0
cis-1,3-Dichloropropene	ug/l	<1.0
2-Chloroethylvinyl ether	ug/l	<1.0
Bromoform	ug/l	<1.0
2-Hexanone	ug/l	<10
4-Methyl-2-pentanone (MIBK)	ug/l	<10
Tetrachloroethene	ug/l	<1.0
Toluene	ug/l	<1.0
Chlorobenzene	ug/l	<1.0
Ethylbenzene	ug/l	<1.0
Styrene	ug/l	<1.0

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-4	Trip Blank	Liquid	10/24/03	10/23/03	

Parameter	Units	Lab Sample IDs 88582-4
Volatiles by GC/MS (8260)		
Xylenes, Total	ug/l	<1.0
Dilution Factor		1
Analysis Date		10/27/03
Batch ID		1027G(A)

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-5	Method Blank	Liquid	10/24/03		
88582-6	Lab Control Standard % Recovery	Liquid	10/24/03		
88582-7	LCS Accuracy Control Limit (%R)	Liquid	10/24/03		

Parameter	Units	Lab Sample IDs 88582-5	88582-6	88582-7
Volatiles by GC/MS (8260)				
Chloromethane	ug/l	<1.0		
Bromomethane (Methyl bromide)	ug/l	<1.0		
Vinyl chloride	ug/l	<1.0		
Chloroethane	ug/l	<1.0		
Methylene chloride (Dichloromethane)	ug/l	<5.0		
Acetone	ug/l	<10		
Carbon disulfide	ug/l	<1.0		
1,1-Dichloroethene	ug/l	<1.0	126 %	46-147 %
1,1-Dichloroethane	ug/l	<1.0		
cis-1,2-Dichloroethene	ug/l	<1.0		
trans-1,2-Dichloroethene	ug/l	<1.0		
Chloroform	ug/l	<1.0		
1,2-Dichloroethane	ug/l	<1.0		
2-Butanone (MEK)	ug/l	<10		
1,1,1-Trichloroethane	ug/l	<1.0		
Carbon tetrachloride	ug/l	<1.0		
Vinyl acetate	ug/l	<1.0		
Bromodichloromethane	ug/l	<1.0		
1,1,2,2-Tetrachloroethane	ug/l	<1.0		
1,2-Dichloropropane	ug/l	<1.0		
trans-1,3-Dichloropropene	ug/l	<1.0		
Trichloroethene	ug/l	<1.0	118 %	56-143 %
Dibromochloromethane	ug/l	<1.0		
1,1,2-Trichloroethane	ug/l	<1.0		
Benzene	ug/l	<1.0	124 %	62-135 %
cis-1,3-Dichloropropene	ug/l	<1.0		
2-Chloroethylvinyl ether	ug/l	<1.0		
Bromoform	ug/l	<1.0		
2-Hexanone	ug/l	<10		
4-Methyl-2-pentanone (MIBK)	ug/l	<10		
Tetrachloroethene	ug/l	<1.0		
Toluene	ug/l	<1.0	100 %	68-131 %
Chlorobenzene	ug/l	<1.0	96 %	72-127 %

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-5	Method Blank	Liquid	10/24/03		
88582-6	Lab Control Standard % Recovery	Liquid	10/24/03		
88582-7	LCS Accuracy Control Limit (%R)	Liquid	10/24/03		

Parameter	Units	Lab Sample IDs 88582-5	88582-6	88582-7
Volatiles by GC/MS (8260)				
Ethylbenzene	ug/l	<1.0		
Styrene	ug/l	<1.0		
Xylenes, Total	ug/l	<1.0		
Dilution Factor		1	1	
Analysis Date		10/27/03	10/27/03	
Batch ID		1027G(A)	1027G(A)	
Microextractable Organics (8011)				
1,2-Dibromoethane (EDB)	ug/l	<0.020	100 %	70-130 %
1,2-Dibromo-3-chloropropane	ug/l	<0.020	105 %	70-130 %
Dilution Factor		1	1	
Prep Date		10/29/03	10/29/03	
Analysis Date		10/29/03	10/29/03	
Batch ID		1029C	1029C	
TCL Semivolatiles (8270)				
Phenol	ug/l	<5.0	66 %	40-109 %
bis(2-Chloroethyl)ether	ug/l	<5.0		
2-Chlorophenol	ug/l	<5.0	74 %	43-110 %
1,3-Dichlorobenzene	ug/l	<5.0		
1,4-Dichlorobenzene	ug/l	<5.0	64 %	36-91 %
1,2-Dichlorobenzene	ug/l	<5.0		
2-Methylphenol (o-Cresol)	ug/l	<5.0		
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether	ug/l	<5.0		
3-Methylphenol/4-Methylphenol (m&p-Cresol)	ug/l	<5.0		
N-Nitroso-di-n-propylamine	ug/l	<5.0	68 %	42-117 %
Hexachloroethane	ug/l	<5.0		
Nitrobenzene	ug/l	<5.0		
Isophorone	ug/l	<5.0		
2-Nitrophenol	ug/l	<5.0		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-5	Method Blank	Liquid	10/24/03		
88582-6	Lab Control Standard % Recovery	Liquid	10/24/03		
88582-7	LCS Accuracy Control Limit (%R)	Liquid	10/24/03		

Parameter	Units	Lab Sample IDs 88582-5	88582-6	88582-7
TCL Semivolatiles (8270)				
2,4-Dimethylphenol	ug/l	<5.0		
bis(2-Chloroethoxy)methane	ug/l	<5.0		
2,4-Dichlorophenol	ug/l	<5.0		
1,2,4-Trichlorobenzene	ug/l	<5.0	70 %	41-97 %
Naphthalene	ug/l	<5.0		
4-Chloroaniline	ug/l	<10		
Hexachlorobutadiene	ug/l	<5.0		
4-Chloro-3-methylphenol	ug/l	<5.0	77 %	53-117 %
2-Methylnaphthalene	ug/l	<5.0		
Hexachlorocyclopentadiene	ug/l	<5.0		
2,4,6-Trichlorophenol	ug/l	<5.0		
2,4,5-Trichlorophenol	ug/l	<5.0		
2-Chloronaphthalene	ug/l	<5.0		
2-Nitroaniline	ug/l	<25		
Dimethylphthalate	ug/l	<5.0		
Acenaphthylene	ug/l	<5.0		
3-Nitroaniline	ug/l	<25		
Acenaphthene	ug/l	<5.0	80 %	53-116 %
2,4-Dinitrophenol	ug/l	<25		
4-Nitrophenol	ug/l	<25	73 %	38-131 %
Dibenzofuran	ug/l	<5.0		
2,4-Dinitrotoluene	ug/l	<5.0	83 %	44-129 %
2,6-Dinitrotoluene	ug/l	<5.0		
Diethylphthalate	ug/l	<5.0		
4-Chlorophenylphenyl ether	ug/l	<5.0		
Fluorene	ug/l	<5.0		
4-Nitroaniline	ug/l	<25		
4,6-Dinitro-2-methylphenol	ug/l	<25		
N-Nitrosodiphenylamine	ug/l	<5.0		
4-Bromophenylphenyl ether	ug/l	<5.0		
Hexachlorobenzene	ug/l	<0.30		
Pentachlorophenol	ug/l	<1.0	79 %	49-126 %
Phenanthrene	ug/l	<5.0		
Anthracene	ug/l	<5.0		

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-5	Method Blank	Liquid	10/24/03		
88582-6	Lab Control Standard % Recovery	Liquid	10/24/03		
88582-7	LCS Accuracy Control Limit (%R)	Liquid	10/24/03		

Parameter	Units	Lab Sample IDs 88582-5	88582-6	88582-7
TCL Semivolatiles (8270)				
Di-n-butylphthalate	ug/l	<5.0		
Fluoranthene	ug/l	<5.0		
Pyrene	ug/l	<5.0	75 %	52-141 %
Butylbenzylphthalate	ug/l	<5.0		
3,3'-Dichlorobenzidine	ug/l	<10		
Benzo(a)anthracene	ug/l	<5.0		
bis(2-Ethylhexyl)phthalate	ug/l	<5.0		
Chrysene	ug/l	<5.0		
Di-n-octylphthalate	ug/l	<5.0		
Benzo(b)fluoranthene	ug/l	<5.0		
Benzo(k)fluoranthene	ug/l	<5.0		
Benzo(a)pyrene	ug/l	<0.20		
Indeno(1,2,3-cd)pyrene	ug/l	<5.0		
Dibenzo(a,h)anthracene	ug/l	<5.0		
Benzo(g,h,i)perylene	ug/l	<5.0		
Carbazole	ug/l	<5.0		
Surrogate - Phenol-d5 *	%	40 %	75 %	46-112 %
Surrogate - 2-Fluorophenol *	%	40 %	75 %	43-114 %
Surrogate - 2,4,6-Tribromophenol *	%	44 %	93 %	47-133 %
Surrogate - Nitrobenzene - d5 *	%	42 %	86 %	51-115 %
Surrogate - 2-Fluorobiphenyl *	%	46 %	94 %	55-116 %
Surrogate - Terphenyl-d14 *	%	44 %	86 %	11-120 %
Dilution Factor		1	1	
Prep Date		10/27/03	10/10/03	
Analysis Date		10/31/03	10/31/03	
Batch ID		1027B	1027B	

Analytical Data Report

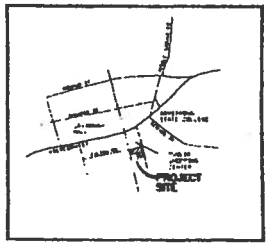
Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
88582-5	Method Blank	Liquid	10/24/03		
88582-6	Lab Control Standard % Recovery	Liquid	10/24/03		
88582-7	LCS Accuracy Control Limit (%R)	Liquid	10/24/03		

Parameter	Units	Lab Sample IDs 88582-5	88582-6	88582-7
Appendix 1 Metals				
Antimony	mg/l	<0.0060	108 %	75-125 %
Arsenic	mg/l	<0.010	105 %	75-125 %
Lead	mg/l	<0.0050	107 %	75-125 %
Selenium	mg/l	<0.010	107 %	75-125 %
Barium	mg/l	<0.010	108 %	75-125 %
Beryllium	mg/l	<0.0030	107 %	75-125 %
Cadmium	mg/l	<0.0050	107 %	75-125 %
Chromium	mg/l	<0.010	108 %	75-125 %
Cobalt	mg/l	<0.010	108 %	75-125 %
Copper	mg/l	<0.020	108 %	75-125 %
Nickel	mg/l	<0.040	108 %	75-125 %
Silver	mg/l	<0.010	105 %	75-125 %
Vanadium	mg/l	<0.010	107 %	75-125 %
Zinc	mg/l	<0.020	109 %	75-125 %
Dilution Factor		1	1	
Prep Date		10/27/03	10/27/03	
Analysis Date		10/30/03	10/30/03	
Batch ID		1027I	1027I	
Mercury (7470)				
Mercury	mg/l	<0.00020	111 %	80-120 %
Dilution Factor		1	1	
Prep Date		10/28/03	10/28/03	
Analysis Date		10/29/03	10/29/03	
Batch ID		1028S	1028S	
Thallium (7841)				
Thallium	mg/l	<0.0020	97 %	80-120 %
Dilution Factor		1	1	
Prep Date		10/30/03	10/30/03	
Analysis Date		10/31/03	10/31/03	
Batch ID		1030G	1030G	

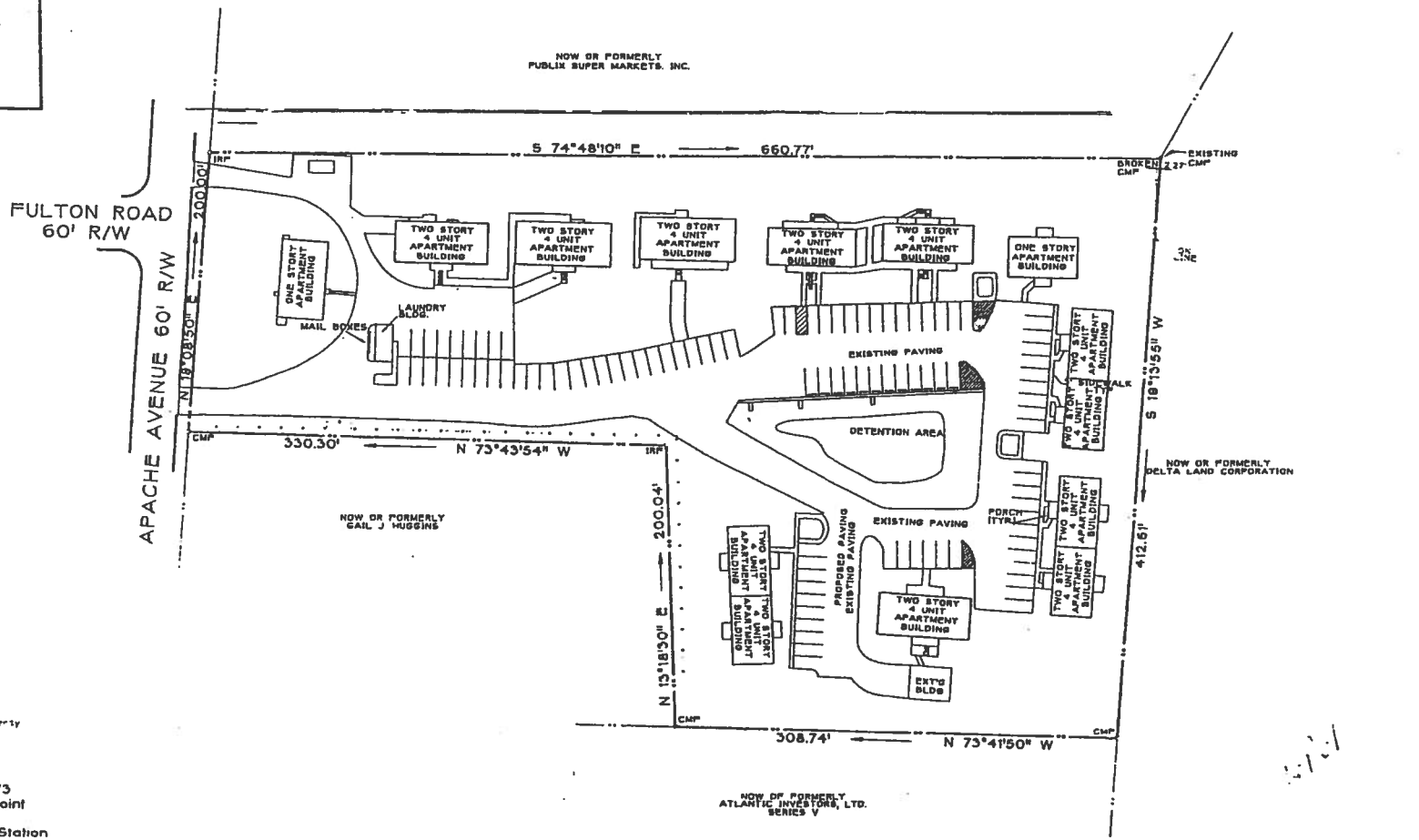
These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

APPENDIX K
PLATS

99 JUL 20 PM 2:53



VICINITY MAP
NOT TO SCALE



Error Of Closure: 1/41673
Angular Error: 2" Per Point
Total Area: 4.58 Acres
Equipment Used: Total Station

IN MY OPINION ACCORDING TO THE PROVISIONS RELATIEV TO GEORGIA CODE SECTION 15-6-67(c) DO NOT REQUIRE APPROVAL OF THIS PLAT BY ANY GOVERNING AUTHORITY PRIOR TO THE RECORDING WITH THE CLERK OF SUPERIOR COURT

GEORGIA REGISTERED LAND SURVEYOR MICHAEL A. HUSSEY

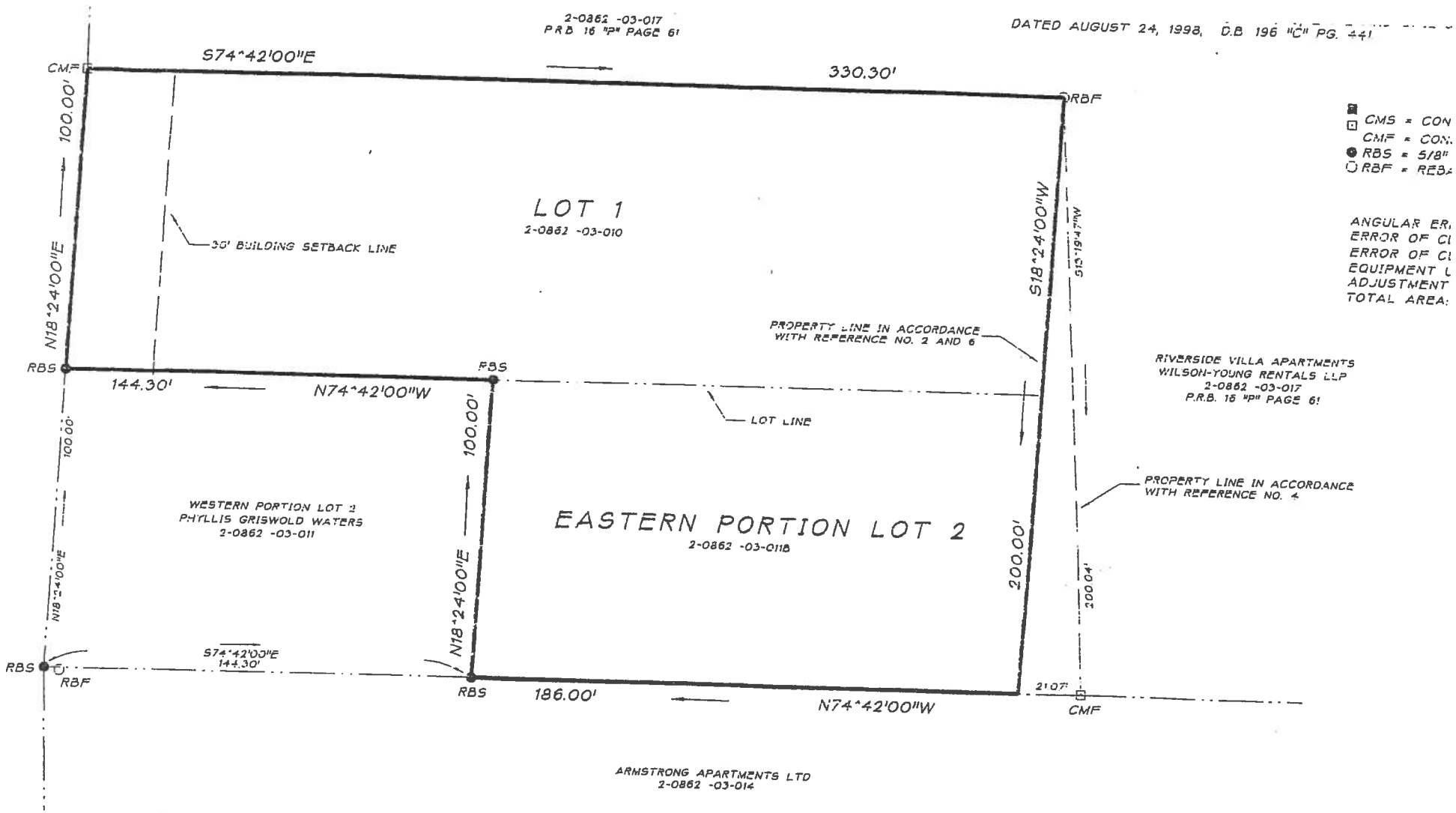
Mchael A. Hussey

FREEMAN & VAUGHN, ENGINEERING, INC.
308 COMMERCIAL DRIVE
SAVANNAH, GEORGIA 31406
912-355-9603

RIVERSIDE VILLA APARTMENTS

PLAY OF RIVERSIDE VILLA APARTMENTS
6TH G.M. DISTRICT
SAVANNAH, CHATHAM COUNTY, GEORGIA

50 25 0 50 100
SCALE 1" = 50'



PLAT OF LOT 1 AND THE EASTE
OF LOT 2 OF A SUBDIVISION
JAMES H. WATERS TRACT, SI
SAVANNAH, CHATAM COUNTY

APPENDIX L
PREVIOUS ENVIRONMENTAL REPORTS

Test Borings And Sub-Surface Investigation

Whitaker Laboratory, Inc.

PROJECT Huggins Day Care Center
Savannah, GA

CLIENT EMC Engineering Services, Inc.
Savannah, GA

REPORT NO. 7/23/98-35 DATE 7/23/98

WHITAKER LABORATORY INC.
P.O. BOX 7081
SAVANNAH, GEORGIA 31418
2500 TREMONT RD. FAX 912/233-5061 912/234-0696

July 23, 1998

EMC ENGINEERING SERVICES, INC.
P.O. Box 8101
23 East Charlton Street
Savannah, GA 31412

RE: Geotechnical Investigation
Huggins Day Care Center
Savannah, GA
Report No. 7/23/98-35

Gentlemen:

At your request, Whitaker Laboratory, Inc. has conducted a sub-surface investigation for this proposed project. Our findings and recommendations for design and construction are attached.

It is a pleasure to continue service to you and we look forward to further opportunities to assist you on this and other projects.

Respectfully submitted,

WHITAKER LABORATORY, INC.

Carroll L. Crowther, PE
GA Registered Engineer
15017

Joseph M. Whitaker
President

REPORT OF GEOTECHNICAL INVESTIGATION
Huggins Day Care Center
Savannah, GA

INTRODUCTION

WHITAKER LABORATORY INC. has completed this field investigation of the surface and subsurface conditions at this site. The conditions found, and how those conditions could affect the design and construction of foundations for the structures planned, form the basis for this report. Authorization to perform this investigation was in the form of a verbal request from the client.

We have been provided preliminary only layout information and understand that the project will consist of one story day care center, with associated outside play areas, drive ways and parking.

The scope of this investigation included the drilling of one standard penetration test boring to a depth of 25 feet, and the drilling of 4 auger borings to a depth of 5 feet each. Logs of each test boring are attached and their locations are shown on the attached BORING LOCATION PLAN.

AREA and SITE GEOLOGY

This overall area lies near the eastern edge of the South Atlantic Coastal Plain. In South Carolina and Georgia, this broad, gently sloping region extends southeastward from the Fall Line (Chesterfield - Columbia - Augusta - Macon - Columbus) to the Atlantic Ocean. The soils encountered are predominantly sedimentary in origin, and consist of layered marine deposits of sands, silts, and clays. These deposits have since been subjected to successive erosion and re-deposition, by fluctuations of sea levels, storm tides, and winds. Many of the surface sands are the result of depositional forces along ancient beaches which formed during the changing shoreline and river conditions. Intermittent deposits of shells occur within the strata at irregular intervals.

The surface soils generally encountered in this development, were deposited during the Pleistocene Epoch. The salt water marsh deposits near the coast are more recent deposits, likely originating in the Holocene era.

EXISTING SITE CONDITIONS

This tract is located on Apache Avenue. It was suspected that an old land fill existed on the rear of the site. Our auger borings numbers A-2, A-3 and A-4 did encounter buried debris and organic material indicating the presence of the land fill. This investigation has not determined the limits of the land fill.

TEST BORINGS AND SUBSURFACE CONDITIONS

The field exploration to determine the characteristics of the subsurface materials included a reconnaissance of the project site, and the drilling of exploratory borings. Standard penetration test borings were performed using rotary head drilling equipment and advancing hollow stem augers. Sampling and Standard Penetration Testing, (SPT), was performed in accordance with ASTM D-1586. SPT samples were taken at 2.5 foot intervals of depth for the first 10 feet, and at 5.0 foot intervals thereafter. The results of the Standard Penetration Testing (N values) are an indication of the relative consistency, density and strengths of the tested soils. Soil samples from SPT samples and from the auger cuttings were used for identification and classification.

The soil profile in areas outside of the landfill area consists of loose to firm brown fine sands down to a depth of approximately 12 feet where a gray sand is found. These gray firm sands continue to a depth of 25 feet where our test borings were terminated.

GROUND WATER TABLE

The apparent ground water table was measured for each boring location at the time of boring. Ground water levels were measured to be approximately 4 to 4.5 feet below the ground surface. The ground water elevation can be expected to fluctuate with the season of the year, surrounding ground surface conditions, and with recent rainfall amounts. Thus, ground water elevations shown on the boring logs should be considered valid only for the date of observation.

EARTHWORK AND FOUNDATION DESIGN CONSIDERATIONS

The portions of the site outside of the land fill area can be suitable for spread footing foundations when design and construction is in accordance with the recommendations of this report. Adequate bearing strata are found near the surface in undisturbed soils, however all footings should bear at least 18 inches below finish exterior grade. If a few feet of structural fill will be placed on the site to raise floor elevations, any such fill should be placed in accordance with the subsequent SITE WORK requirements, and should be placed prior to footing excavation and construction. Within the landfilled portion of the site, it is our opinion this area will be unsuitable to support structures such as buildings and pavement. If this area is to be used as a playground, we recommend that minor filling be performed to separate the surface from the buried debris.

After the building footprint has been prepared in accordance with the subsequent SITE WORK section of this report, spread footings may be designed for safe bearing pressures of 2000 pounds per square foot. Individual footings should maintain minimum plan dimensions of at least 24 inches.

SITE WORK RECOMMENDATIONS

1. Prior to construction, all building areas, plus at least 10 feet on each side and all areas to be paved, should be stripped of all vegetation, top soil and root systems. This would include the removal of any abandoned utilities or existing building foundations.

   Site drainage during construction should be considered prior to this clearing and stripping. Preventing the ponding of storm water is of particular importance.

2. Topsoil, organics, root-mat and other surface materials will likely vary across the site. Individual test borings may not accurately reflect the presence of, or the thickness of such materials due to site variability and/or surfacing clearing to facilitate access for drilling equipment. Site clearing and grubbing, when unsupervised, and particularly in areas of wet soils and times of wet weather, may push organic debris into otherwise stable soils. Undercutting and clearing with a track hoe in lieu of bulldozers can minimize this.

3. Any stump holes or other depressions should be cleared of loose material and debris, and should then be backfilled with approved fill. The backfill should be placed in six inch thick lifts and compacted to 95% density in accordance with ASTM D-1557.

4. <u>Any utilities or old foundations</u> that underlie the site should be relocated and trenches backfilled with approved soil. The backfill should be placed in six inch lifts and compacted to 95% density according to ASTM D-1557.

5. The stripped and exposed subgrade should be proof rolled with a heavily loaded dump truck to locate unstable or soft areas, prior to fill placement, or other construction. These areas should then be investigated to determine the cause of the instability. If due to unsuitable soils, such as highly organic soils or soft clays, the areas should be undercut to firm soil and replaced with approved fill compacted in six inch lifts to minimum density of 95% in accordance with ASTM D-1557. If the instability is due to excess moisture in otherwise stable soil, the area should be drained and compacted to 95% density.

6. The stripped subgrade should be compacted by repeated passes of heavily loaded dump trucks or similar equipment. (Vibratory equipment is not recommended, since the vibration may cause distress in existing structures.) Areas that are unstable under the compaction equipment should be undercut to firm soil and replaced with clean sand fill compacted, in six inch thick lifts, to minimum density of 95% ASTM D-1557. The compaction effort should be sufficient to densify the entire subgrade to a minimum density of 95% ASTM D-1557, for a depth of 12 inches.

7. Any fill required to level or raise the site should then be placed in 8 to 10 inch thick, loose lifts and compacted to 95% density in accordance with ASTM D-1557.

8. All of the fill for this project should consist of a clean, free draining granular soils. The fill should be free of objectionable roots, clay lumps, organics and other debris. Soils classified as SW, SP, SM, SC, or SM-SP with a maximum of 15% passing a #200 sieve may be acceptable. Soils with the minus #200 fraction classified as MH, or CH may be rejected.

9. The bottoms of all footing excavations shall be compacted to a minimum density of 95% in accordance with ASTM D-1557, prior to placement on concrete. The footings should be maintained in a dry and compacted condition until the concrete is placed. Areas that are softened by water or that are disturbed by construction activity should be re-worked, re-compacted, or appropriately repaired to the required bearing and density. If necessary, stone backfill or other corrective measures may be implemented to stabilize footings.

PAVEMENT DESIGN RECOMMENDATIONS

Any areas for parking lots that will be used only for cars and light trucks should have a minimum of 24 inches of clean sand subgrade compacted to a density of 95% of its maximum dry density as determined by ASTM D-1557. Provisions must be made for this subgrade to drain and not become saturated by surface water or ground water table. Raising the grade of paved areas above that of the surrounding terrain is one way to accomplish this drainage. A base course consisting of a minimum of 6 inches of compacted limerock or crushed stone base material. Asphalt surface paving course should be Ga. D.O.T. type E or F and be a minimum of 1.5 inches thick. All areas to be paved should be proof rolled and compacted in accordance with the recommendations above.

QUALITY CONTROL AND TESTING

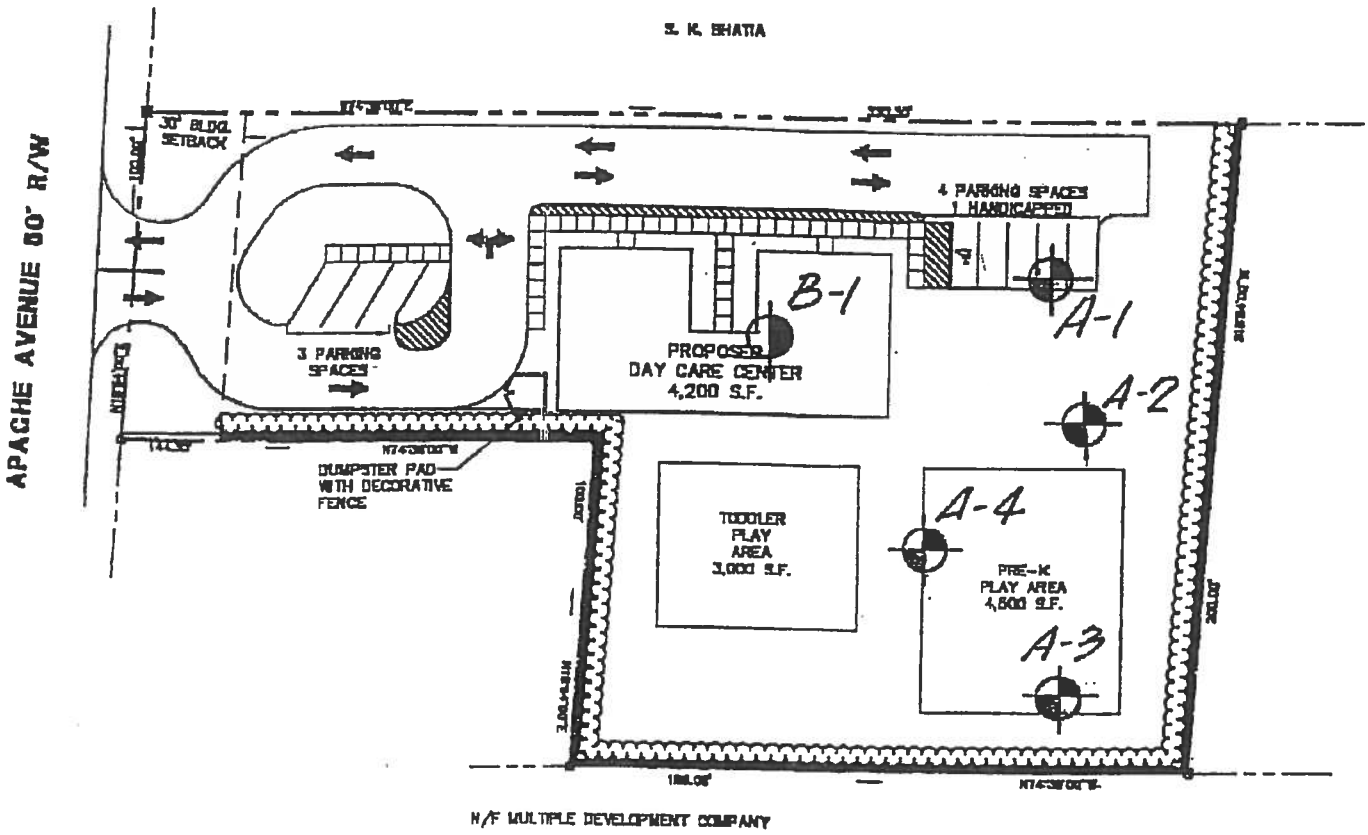
All proof rolling observations, compaction testing and footing inspections should be performed by qualified persons. Our firm offers to perform these and any other construction testing services that will be required for this project. We will be pleased of assist in developing a scope of work and budget for same, if you chose to allow us to perform the above services.

QUALIFICATIONS OF REPORT

The recommendations offered in this report are based on our interpretation of the data obtained from this investigation. It should be noted that underlying soil conditions can, and do, vary considerably within short lateral distances. Regardless of the thoroughness of any subsurface investigation, it is possible that conditions may be revealed between boring locations that are different from those found by our borings and used for our analysis. For this reason, we recommend that the site preparation and foundation construction for this project be monitored closely. If deviations of the soil conditions from those presented in this report appear, we will be glad to furnish any additional analyses and recommendations that may be required.

This report was made to determine the geotechnical properties of the site and is not intended to serve as a wetlands survey or environmental site assessment. No effort has been made to define, delineate, or designate any area as wetlands or an area of environmental concern or contamination. Any references to low areas, poorly drained areas, etc. are related to geotechnical applications. Any recommendations regarding drainage and earthwork are made on the basis that such work can be permitted and performed in accordance with the current laws pertaining to wetlands, storm water runoff, and environmental contamination.

Carroll L. Crowther, PE
GA Registered Engineer
15017



BORING LOCATION PLAN

HUGGINS DAY CARE SITE
APACHE AVENUE
SAVANNAH, CHATHAM COUNTY, GEORGIA

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-silty mixtures
	GC	Clayey gravels, gravel sand clay mixtures
SANDS More than 50% of coarse fraction passes No. 4 sieve		
CLEAN SANDS	SW	Well graded sand and gravelly sands, little or no fines
	SP	Poor 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 of 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.

AUGER BORING RECORD

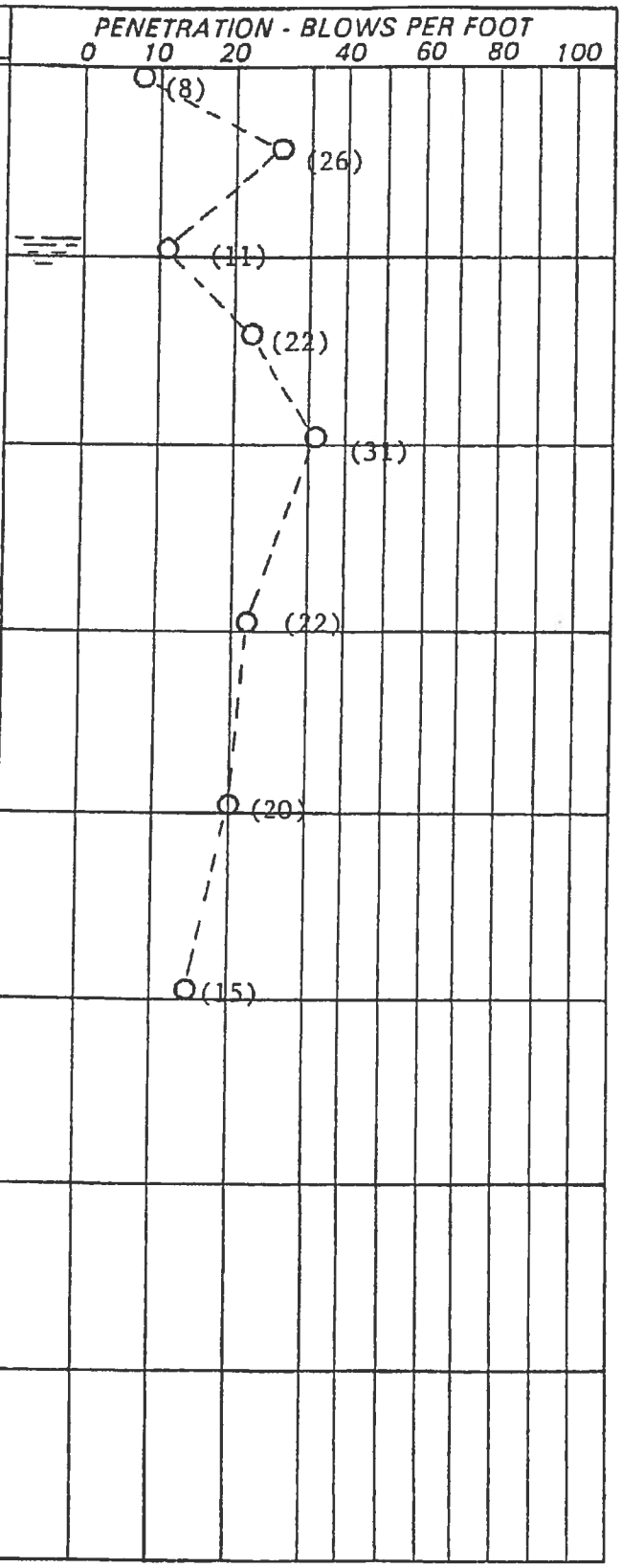
PROJECT: Huggins Day Care DATE: 7/21/98

HOLE NO.	DEPTH FT.	SOIL DESCRIPTION	WATER TABLE	CLASS.
A1	0-5	Brown to gray fine sand	4.5'	SP-SM
A2	0-5	Brown sand with debris & organics	4.5'	SM-PT
A3	0-5	Brown sand with debris & organics	4.5'	SM-PT
A4	0-5	Brown sand with debris & organics	4.5'	SM-PT

TEST BORING RECORD

FIELD CLASSIFIED

ELEV.	DEPTH	DESCRIPTION
		SP-SM Loose to very firm, brown fine sand
	5'	
	8'	
		SP-SM Dense, tan
	10'	
	12'	
		SP-SM Very firm to firm, gray
	15'	
	20'	
	25'	
		Boring Terminated



Penetration is number of blows of 140 lb. hammer falling 30 in. required to drive 2.0 in. O.D. sampler one foot.

BORING NO. B-1

WHITAKER LABORATORY, INC.

JOB Huggins Day Care

GENERAL NOTES

The "standard" penetration resistance is an indication of the density of cohesionless soils and of the strength of cohesive soils. The "standard" penetration test is measured with a 1.4 inch I.D., 2 inch O.D., sampler driven one (1) foot with a 140 pound hammer falling 30 inches.

RELATIVE DENSITY OF SOIL THAT IS PRIMARILY SAND

Number of Blows	Relative Density
0 - 4	Very loose
5 - 10	Loose
11 - 20	Firm
21 - 30	Very firm
31 - 50	Dense
Over 51	Very dense

CONSISTENCY OF SOIL THAT IS PRIMARILY SILT OR CLAY

Number of Blows	Consistency
0 - 2	Very soft
3 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very stiff
Over 31	Hard

While individual test boring records are considered to be representative of subsurface conditions at the respective boring locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.

The subsoil stratification shown on these profiles is not warranted but is estimated based on accepted soil engineering principles and practices and reasonable engineering judgment.

Unless notified, samples will be disposed of after 60 days.

98 - 306 C

WHITAKER LABORATORY INC.
P.O. BOX 7081
SAVANNAH, GEORGIA 31418
2500 TREMONT RD. FAX 912/233-5061 912/234-0696

Report No. 10/9/98-8
Client: EMC Engineering
Job: Huggy Bear Daycare

SITE INSPECTION

DATE: 10/8/98

AREA INSPECTED: See the attached sketch

SCOPE:

This inspection was performed for the following reasons:

1. To better define the limits of the filled-in borrow pit

2. To characterize the materials buried within the old borrow pit

INSPECTION RESULTS

As part of this inspection, a high-hoe was used to dig test holes across the suspect area. As a result of this operation, the following observations were made.

1. The limits of the old borrow pit area seemed to be confined to the southern portion of the site. This area measures approximately 100' X 180'.

2. The borrow pit was found to be approximately 12 ft. deep towards the center. Near the edges, the depth of debris shallows to 0-3 ft.

3. Materials observed within the pit consist of the following items:

- brick
- block
- concrete
- transite pipe (asbestos)
- cast iron pipe
- creosote timbers
- stumps
- tree trunks
- electrical wire
- terra-cotta pipe
- plywood
- tar paper
- floor tiling
- tires
- polyethylene
- cans
- bottles
- plastic buckets

(See the attached photographs for additional information)

WHITAKER LABORATORY INC.
P.O. BOX 7081
SAVANNAH, GEORGIA 31418
2500 TREMONT RD. FAX 912/233-5061 912/234-0696

4. There may be a potential for the borrow pit to extend off-site towards the east. Test holes were not dug across the property line.

5. There were indications that methane gas could be present. In one area, where the hole quickly filled with water, a continuous bubbling action was observed.

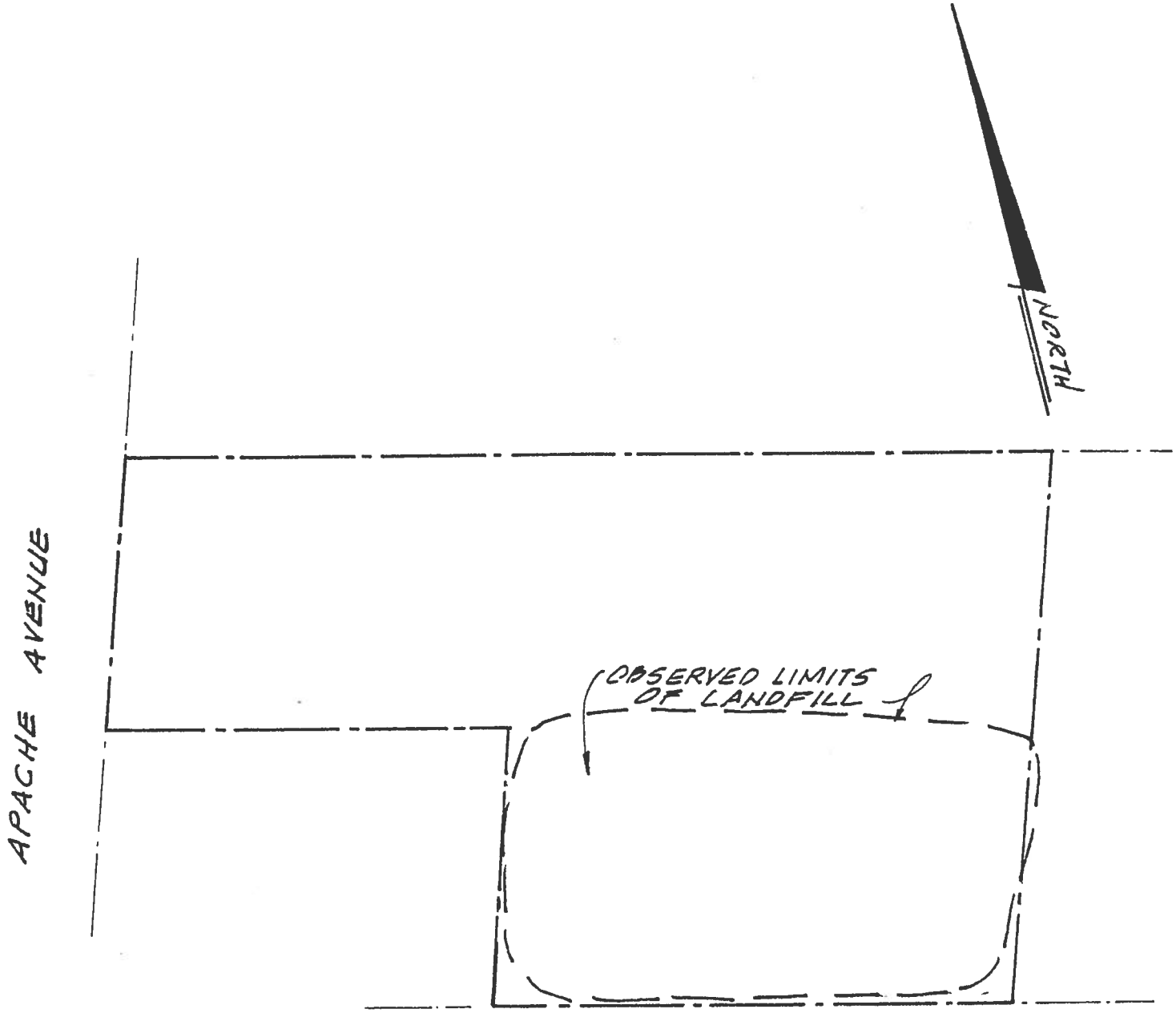
If you have any questions, please call.

Respectfully submitted,

WHITAKER LABORATORY, INC.

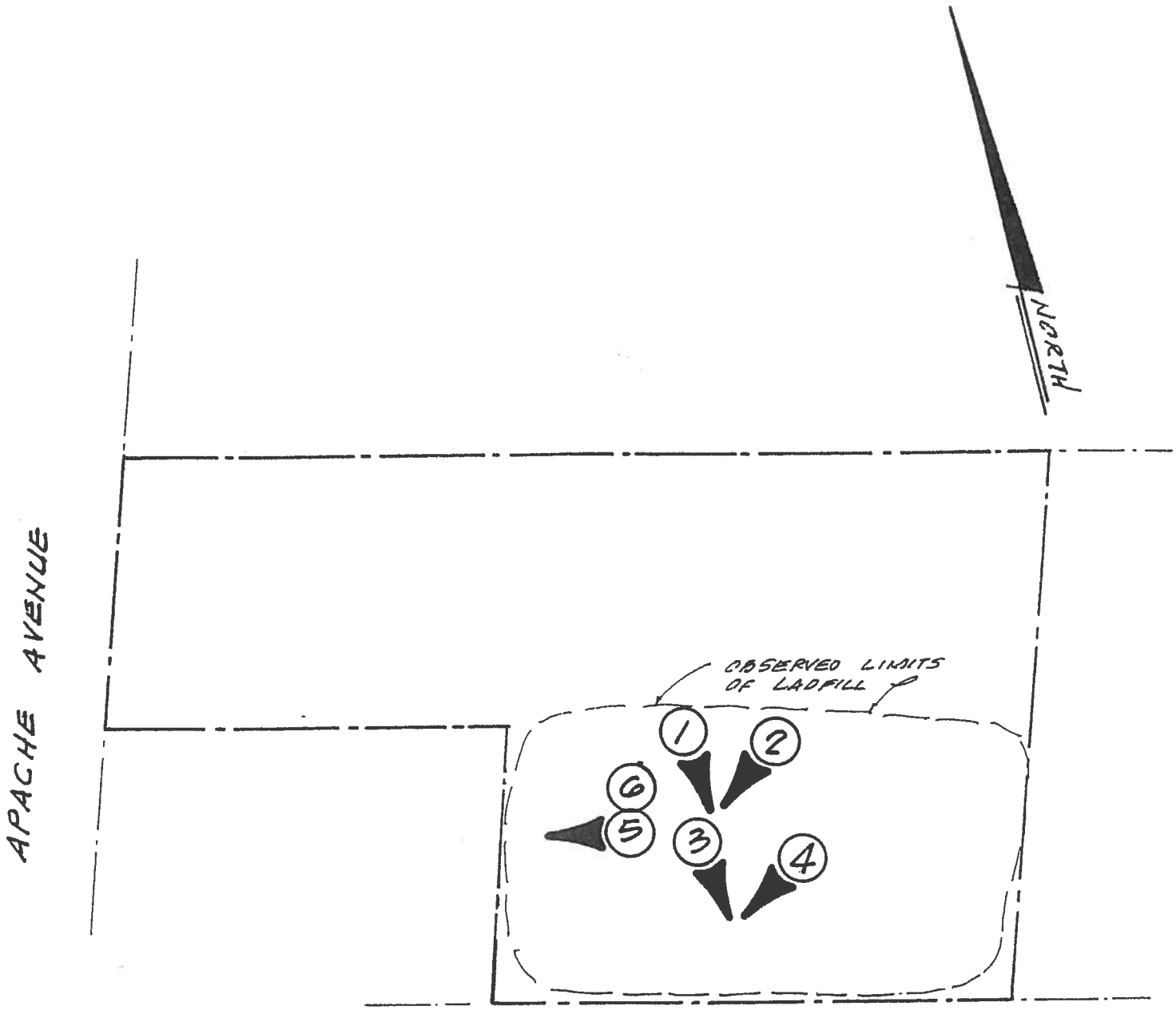
Joseph F. Whitaker

1 cc: EMC Engineering
Attn: Chuck Perry
1 cc: File



SITE PLAN

HUGGY BEAR DAYCARE
SAVANNAH, GEORGIA



PHOTOGRAPH LOCATION PLAN

HUGGY BEAR DAYCARE
SAVANNAH, GEORGIA

PHOTOGRAPH PLATE NUMBER
DIRECTION OF VIEW

PLATE 1 CONCRETE RUBBLE

PLATE 2 TIRES, CAST IRON PIPE, CANS, AND BOTTLES

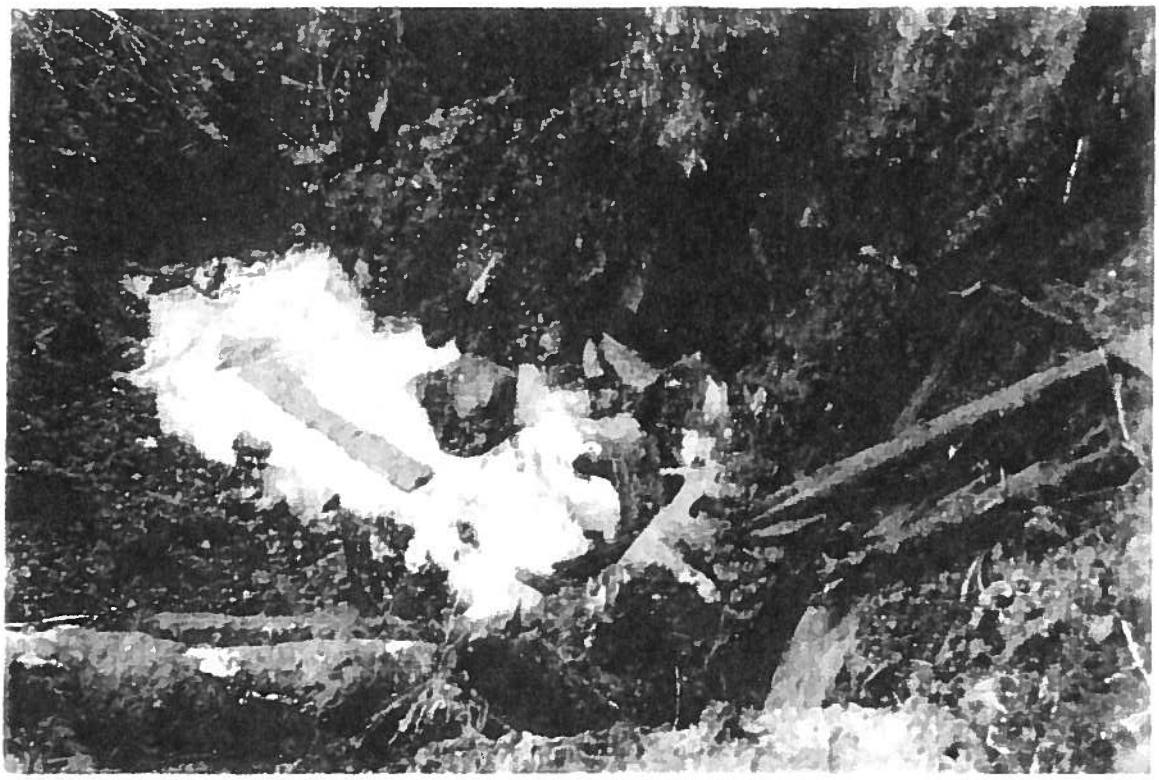


PLATE 3 BRICK, BLOCK, CREOSOTE TIMBER, AND STUMPS. NOTE BUBBLING ACTION IN WATER

PLATE 4 TRANSITE PIPE AND CONCRETE RUBBLE

PLATE 5 CONCRETE, CREOSOTE TIMBER, WIRE, BRICK AND BLOCK RUBBLE

PLATE 6 BRICK, BLOCK, WOOD, STUMPS, TAR PAPER

EMC ENGINEERING SERVICES, INC.
23 East Charlton Street (31401)
P.O. Box 8101
Savannah, Georgia 31412
Phone (912) 232-8633
Fax (912) 232-2920
E-mail - david_ross@emc-eng.com
• Environmental • Marine • Civil

FAX TRANSMITTAL SHEET

THIS TRANSMISSION CONTAINS 10 PAGES INCLUDING THIS COVER SHEET

TO: **Drew Ernst**
Hunter MacLean Exley & Dunn, PC
FAX: **236-4936**

FROM: **J. David Ross**

DATE: **December 10, 2003**

EMC PROJECT NO: **03-0527.33**

RE: **Hoover Creek Villas Soil Borings**

IMPORTANT NOTICE

The information contained in this facsimile message is intended only for the use of the addressee listed above. If you are neither the intended recipient nor the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any disclosure, copying or distribution of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone to arrange return of the document to us.

NOTE:

☐ URGENT – Deliver Immediately
☐ Please Call Upon Receipt
☑ Attached is the Information We Discussed
☐ Please Review and Comment
☐ Original to Follow Via Mail
☐ Other

Drew,

Attached is our soil boring report and Reliance Letter, in a format provided by Wachovia Bank. Original will be sent to you today.
We will be sending Wachovia the requested quals. package tomorrow.

EMC ENGINEERING SERVICES, INC.
23 East Charlton Street (31401)
P.O. Box 8101
Savannah, Georgia 31412

Phone (912) 232-6533
Fax (912) 232-2920
E-Mail - civil@emc-eng.com

• Environmental • Marine • Civil

December 5, 2003

Mr. Drew Ernst
c/o Hunter, Maclean, Exley, & Dunn, P.C.
200 East Saint Julian Street
Savannah, Georgia 31401

Wachovia Bank, National Association
c/o Hunter, Maclean, Exley, & Dunn, P.C.
200 East Saint Julian Street
Savannah, Georgia 1401

RE: RELIANCE LETTER FOR PHASE I ENVIRONMENTAL SITE ASSESSMENT AND LIMITED SUBSURFACE INVESTIGATION HOOVER CREEK VILLAS, 12202 APACHE AVE. & HUGGINS PROPERTY, 12206 APACHE AVE., SAVANNAH, GEORGIA AND LIMITED SUBSURFACE INVESTIGATION AT HOOVER CREEK VILLAS EMC PROJECT NO. 03-527.31

Wachovia Bank, National Association may rely on the Phase I Environmental Site Assessment and Limited Subsurface Investigation for Hoover Creek Villas, 12202 Apache Avenue and Huggins Property, 12206 Apache Avenue, Savannah, Georgia prepared for Hunter, Maclean, Exley, & Dunn, P.C. dated November 2003.

On December 5, 2003 at the request of Mr. Drew Ernst, seven additional soil borings were drilled on Hoover Creek Villas property outside the fence on the northeast corner of Huggins Property. The purpose of the subsurface investigation was to determine if buried waste discovered on the Huggins Property extended onto the Hoover Creek Villas property. All borings were drilled to refusal which was approximately six feet below ground surface except in two borings where one-inch black plastic pipe was found approximately 1 ½ feet below ground surface. The purpose of the 1-inch black plastic pipe was not determined but it was not buried waste. No buried waste was encountered in any of the borings. Our opinion is that buried waste found on the Huggins Property does not extend onto the Hoover Creek Villas property.

Sincerely,
EMC ENGINEERING SERVICES, INC.

J. David Ross

J. David Ross, P.E.
Senior Vice President

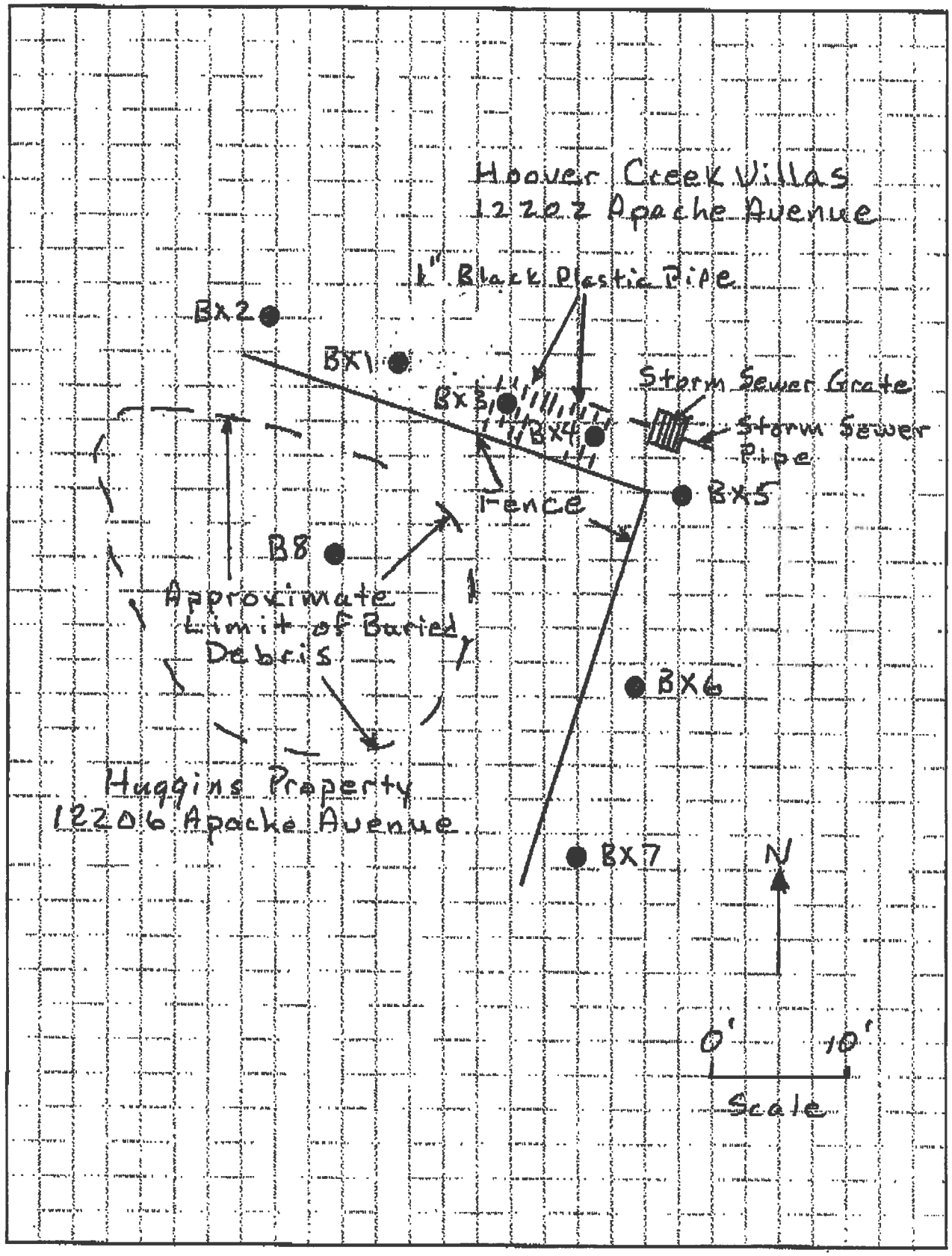
Attachments: Plan view and boring logs

E:\03-527\WachoviaBankRL.doc

emc Design Sheet

JOB NAME	JOB NUMBER	PAGE NO.
Huggins / Hoover Creek Villas ESA	03-527	1

JOB DESCRIPTION	BY	DATE
Soil Borings on Hoover Creek Villas	AJP	12-5-03



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Log of Borehole: BX1

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	12/5/03
				NA	Grab	
			11.00	NA	Grab	
		Silty Sand Dark Gray with native woody material	3.00	NA	Grab	
			10.00			
		Sand Dark gray, compact. Unable to drill deeper because the hole caves in.	4.00	NA	Grab	
				NA	Grab	
			7.30	NA	Grab	
			6.70			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX2

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	12/5/03
				NA	Grab	
				NA	Grab	
			11.00			
		Silty Sand Dark Gray with native woody material	3.00	NA	Grab	
			10.00			
		Sand Dark gray, compact. Unable to drill deeper because the hole caves in.	4.00	NA	Grab	
				NA	Grab	
			7.30	NA	Grab	
			6.70			

Drill Method: Hand Auger
Hole Size: 4-Inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX3

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	
			12.50	NA	Grab	
		Plastic Pipe 1" Black plastic pipe spaced closely together and running perpendicular to fence. Unable to drill past it.	1.50			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX4

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	
			12.50	NA	Grab	
		Plastic Pipe 1" Black plastic pipe spaced closely together and running perpendicular to fence. Unable to drill past it.	1.50			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX5

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	12/5/03
				NA	Grab	
			11.00	NA	Grab	
		Silty Sand Dark Gray with native woody material	3.00 / 10.00	NA	Grab	
		Sand Gray, compact. Unable to drill any deeper because the hole caves in.	4.00	NA	Grab	
			8.00	NA	Grab	
			6.00			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX6

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	12/5/03
				NA	Grab	
				NA	Grab	
			11.00			
		Silty Sand Dark Gray	3.00	NA	Grab	
			9.50	NA	Grab	
		Sand Gray, compact. Unable to drill any deeper because the hole caves in.	4.50	NA	Grab	
			8.00			
			6.00			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX7

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	
				NA	Grab	
			12.00			
		Silty Sand Dark Gray to Gray	2.00	NA	Grab	
				NA	Grab	12/5/03
				NA	Grab	
			9.00			
		Silty Sand Olive Gray. Unable to drill any deeper because the hole caves in.	5.00	NA	Grab	
			8.00			
			6.00			

Drill Method: Hand Auger
Hole Size: 4-inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA

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Log of Borehole: BX7

Project No.: 03-0527.31
Project: Hoover Creek Villas
Client: Hunter Maclean Exley & Dunn
Location: 12202 Apache Ave.
Drill Date: 12/5/03

Geologist: A. J. Patrick
Drilled By: EMC Engineering
Driller: A. J. Patrick
Page Number: 1 of 1

SUBSURFACE PROFILE				SAMPLE		Well Completion Details
Depth (ft / m)	Symbol	Description	Elevation	Run Number	Type	
		Ground Surface	14.00			
		Silty Sand Dark brown	0.00	NA	Grab	
				NA	Grab	
			12.00			
		Silty Sand Dark Gray to Gray	2.00	NA	Grab	
				NA	Grab	
				NA	Grab	
			9.00			
		Silty Sand Olive Gray. Unable to drill any deeper because the hole caves in.	5.00	NA	Grab	
			8.00			
			6.00			

12/5/03

Drill Method: Hand Auger
Hole Size: 4-Inches
Well Depth Below Top Of Casing: NA
Comments: * = Datum is assumed 14 feet MSL

Top of Casing Elevation: NA
Well Diameter/Material: NA
Well Development: NA