

Seller's Acknowledgement/Disclaimer

The enclosed documents were prepared by various companies to have an assessment of the property for the seller. These documents were prepared from the year 2000 - 2006. To the best of seller's knowledge, the property has not been altered since that time other than the timber being harvested. The seller has provided these documents to help assist bidders in the due diligence process. However, it is the responsibility of the bidder and/or bidder's representative to verify all information and conduct their own due diligence prior to bidding on the property. The seller makes no warranty as to the accuracy or completeness of these documents.

**REPORT OF LANDFILL ASSESSMENT
PLANNED TURNCLIFF DEVELOPMENT
EDWARDS LAKE ROAD
BIRMINGHAM, ALABAMA**



GROUND ENGINEERING AND TESTING SERVICE, INC.

4764 FIRST AVENUE NORTH • BIRMINGHAM, ALABAMA 35222 • (205) 591-4340 • FAX (205) 591-6028



GROUND ENGINEERING AND TESTING SERVICE, INC.

May 31, 1990

City of Birmingham
Department of Engineering
and Construction
220 City Hall
Birmingham, Alabama 35203

ATTENTION: Mr. Hobson Riley
City Engineer

Subject: REPORT OF LANDFILL ASSESSMENT
PLANNED TURNCLIFF DEVELOPMENT
EDWARDS LAKE ROAD
BIRMINGHAM, ALABAMA
Our Job No. B5667-B

Gentlemen:

Ground Engineering and Testing Service, Inc. has completed its study of the property located on Edwards Lake Road where the planned Turncliff development is to be constructed. This report addresses our findings, and our recommendations for site development as it relates to the existing landfill and mine spoils. Our Boring Records, a Boring and Well Location Plan, and our laboratory test results can be found in the Appendix.

PROJECT INFORMATION

The subject property is located off Edwards Lake Road, just north of Interstate Highway I-59. Approximately 250 acres of land will be developed for commercial and residential use. The planned entrance will be from Edwards Lake Road.

Some time around 1950, the western portion of the property was strip mined for iron ore. Then, in the early 1970's, the strip mine area was used to dispose of debris from storm damage in the Center Point area. The site was also used for domestic waste disposal for a period of time. A study performed for the C



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found that the landfill area covered about 14 to 15 acres. The base of the landfill materials was found to be as much as 15 to 18 feet below the ground surface.

EXPLORATORY METHODS

In March, 1990, Ground Engineering was authorized to perform additional studies on the site. The primary purpose of this study was to further evaluate the limits and depth of the landfill, and to better define the constituents of the landfill materials. To accomplish this, a series of borings were drilled in the approximate landfill areas. We drilled a total of 30 borings at the site. Additionally, 7 monitoring wells were installed to monitor and sample water and methane gas.

Representative samples of the materials obtained from our borings were submitted for analytical testing. We also submitted liquid/sediment samples from seepage at the ground surface along the drainage features at the lower elevations. Monitoring for methane has been conducted in the borings and the monitoring wells.

FINDINGS

Boring and Well Construction

The borings were drilled to better define the landfill limits established during the 1986 study. The approximate location of the landfill materials are shown on Drawing No. B5667-B1. Table 1 summarizes the depth of the landfill materials and mine spoils at the boring locations.

The larger 8 acre landfill area located to the north consists primarily of debris, and contains little domestic waste. Our borings indicate that the debris is approximately 6 to 8 feet thick on average. However, some thicker zones are likely present. Since the debris is underlain by mine spoil in many locations, the thickness will be dependent upon the grading performed at the completion of the mining.

Most of the organic, domestic waste is located in the smaller landfill zones located to the southern end of the site. The thickness of this material varies from 5 to 30 feet where present. The material consists of household garbage and construction debris. Mine spoils underlie much of the waste.

Well Monitoring

Monitoring wells were installed for the purpose of monitoring the methane, and for obtaining water samples for analytical testing to determine water quality. However, only one well contained a trace of water after installation and development. The water in this well contained a considerable amount of sediment, and was deemed unsuited for sampling and testing for hazardous constituents. All other wells were dry.



After the borings were completed, methane gas displaced by air introduced during the drilling operation was monitored. This was accomplished by covering the boreholes with plastic, then monitoring for the presence of combustible gas vapors using a combustible gas indicator. The probe of the indicator was inserted through the plastic and the space tested for explosive gas levels. Gas vapors were similarly monitored in the wells by removing the well caps and inserting the probe into the well casing.

Combustible gas levels were noted in several of the borings and all of the monitoring wells. The gas was present at explosive levels. Most of the methane was detected in the two smaller areas of household waste materials. However, we also detected methane in borings and wells installed in the larger waste area containing primarily construction debris.

Laboratory Testing

We submitted soil samples of representative samples obtained from the borings. We also obtained samples of water and sediment at seepage points from the toe of the slopes along the eastern edges of the landfill areas. The samples were tested for toxic metals, in accordance with the extraction procedure toxicity method of EPA document SW-846, Test Methods For Evaluating Solid Waste.

Most of the constituents tested for were below test method detection levels. There were traces of lead, mercury, and arsenic detected in a few samples. However, they are well within the acceptable levels established by EPA.

SITE DEVELOPMENT CONSIDERATIONS

General Considerations

It is our opinion that development of the property can proceed as planned. We have not detected the presence of any hazardous constituents in the landfill materials. The materials encountered are typical of what would be expected to be found in a landfill consisting of storm debris and domestic waste.

We have discussed the plans with the Alabama Department of Environmental Management (ADEM). Personnel at ADEM has stated that, while they have no regulatory control over the landfill, they would like to be present during site grading to observe the materials encountered. Any waste materials removed during grading will need to be properly disposed of in a permitted sanitary landfill. However, no other special treatment of the landfill materials is expected.



There has been methane generated as a part of the decomposition of the landfill constituents. It is our opinion that this methane generation is the primary environmental concern at the site. A methane venting system is recommended for portions of the site. The need for and installation of this system is discussed more fully in the following section.

Methane Considerations

The generation and subsequent migration of methane can pose a significant hazard to persons and structures if not properly addressed. The gas can affect the health of persons if proper venting is not available. Also, if the gas becomes confined in the presence of oxygen (such as in a basement), an explosion can result.

Therefore, a gas-tight membrane should be constructed beneath the ground floor slab in any building constructed over the landfill areas. We recommend that a very low density polyethylene (VLDPE), "sandwiched" between 2 layers of a protective geotextile be used. A membrane with a minimum thickness of 40 mil should be used. The membrane and geotextile should be placed on a porous fill. Both sand and crushed gravel can be used, with gravel being preferred, as it is the most porous. We also recommend that perforated pipe such as PVC or polyethylene tubing be placed in the porous fill and vented to the outside to allow for dissipation of any collected gases. The pipe should be spaced every 100 feet and can be interconnected to form a continuous system. A suggested detail for this construction is in the Appendix.

For buildings located outside the landfill limits the need for a gas-tight methane should be evaluated on an individual basis. During the geotechnical explorations for these buildings, the borings need to be monitored for methane gas generation.

If other improvements, such as parking lots, are planned over the landfill areas, we recommend that a passive gas venting system be installed within the landfill limits. This system should consist of a series of lateral pipes contained in gravel filled trenches. The trenches should extend down to just below the top of the landfill. The laterals are then connected to a series of header pipes which allow for venting of the gases into the atmosphere. The laterals should be spaced every 250 feet. Header pipes should be constructed every 500 feet along the lateral. A detail showing the suggested construction is in the Appendix.

For undeveloped areas within the landfill limits, a venting system may not be needed, unless they will be used for recreation purposes, or other similar purposes which will have heavy pedestrian use. However, it should be noted that gas accumulation in the soil can poison landscape vegetation. Oftentimes stunted vegetation is a sign of gas release through the soil. Therefore a cover of 2 feet of compacted fill should be considered for all landfill areas. Otherwise, random gas release at the ground surface could occur.



Other Environmental Considerations

ADEM has indicated that any landfill materials excavated from the site will have to be transported and disposed of in a regulated landfill. The samples we submitted for testing indicated that these materials are suitable for disposal in a municipal landfill.

One of the common problems with excavation in landfill areas is the odor associated with the decomposition. Once the fill materials are exposed to the atmosphere, the decomposition process is reactivated and the odors are spread rapidly. Therefore, some odor problems should be expected.

Also, hydrogen sulfide is another gas which can be generated. Both the hydrogen sulfide and methane can pose a health hazard to workers. Confined spaces should be properly ventilated, and construction personnel should be properly alerted to the presence and dangers of the gases.

One of the initial concerns going into the project was the handling of leachate on the site. As mentioned previously, our wells were basically dry. Also, we see little sign of leachate generation at the edges of the landfill. Therefore, we do not feel that leachate is a major concern at this site.

Preliminary Geotechnical Considerations

The primary purpose of this study was to evaluate the landfill areas from an environmental standpoint. A detailed evaluation of all geotechnical aspects of the project was beyond the scope of this work. However, we have provided some comments concerning foundation and sitework.

There has been concern about constructing roadways over the landfill portions of the site. We believe that the roadways can be constructed over most of the site. The primary concern is the possibility of a void developing under the roadway. There are several areas on the site now where voids are present at the ground surface. Therefore, we recommend that the roadway subgrade over landfill areas be reinforced with a geosynthetic material such as a geotextile or a geogrid. Again, a detail with suggested construction procedures is attached in the Appendix. These materials will reduce the potential of a catastrophic failure of a roadway. The geosynthetics will help bridge over smaller, localized dropouts. However, there can be some long-term settlement of roadways. Flexible pavements (asphalt) are probably more suited to these conditions than would be rigid, concrete pavements. A greater than normal maintenance schedule should be anticipated for the roadways.

If building construction is to proceed over the landfill areas, special foundation construction will be needed. Foundations cannot be supported in the landfill materials without risk of severe and damaging settlements. Foundations bearing beneath the landfill, and preferably beneath the mine spoils, will be needed. We

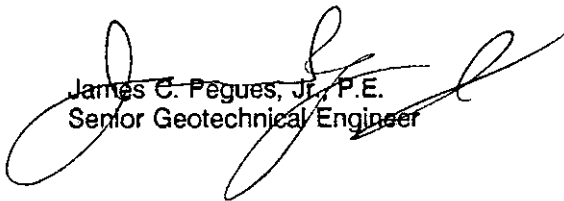



We recommend that a separate geotechnical study be conducted for each individual building to determine the most appropriate foundation system. The mine spoil underlying the site will impact construction as well as the landfill. The mine spoil may provide adequate support under lightly loaded structures. However, deep foundations may also be needed for these areas especially under heavier loads.

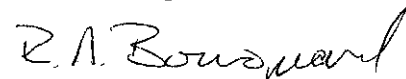
* * * * *

We appreciate your selection of our firm to assist you in this project. We are confident that our report has addressed your concerns. However, we would welcome any questions you may have. Please contact us if you need additional information.

Very truly yours,
GROUND ENGINEERING AND TESTING SERVICE, INC.


James C. Pegues, Jr., P.E.
Senior Geotechnical Engineer


Greg B. Corson
Environmental Geologist


Richard A. Bourquard, P.E.
Senior Geotechnical Engineer

JCP/GBC/RAB:cp

cc: Mr. Clyde Turner



TABLE I
SUMMARY OF LANDFILL/MINE SPOIL MATERIALS
TURNCLIFF DEVELOPMENT
 Our Job No. B5667-B

<u>Boring No.</u>	<u>Depth of Landfill Materials (Ft.)</u>	<u>Depth of Mine Spoils (Ft.)</u>
B-1	NE	0-23
B-2	NE	0-9
B-3	0-12	NE
B-4	NE	0-29
B-5	NE	NE
B-6	NE	NE
B-7	0-5	5-10.5
B-8	0-10.5	NE
B-9	0-15	NE
B-10	NE	0-7
B-11	NE	NE
B-12	NE	NE
B-13	0-8	8-10.5
B-14	NE	NE
B-15	0-14	14-20
B-16	0-5	NE
B-17	NE	0-5
B-18	0-8	NE
B-19	0-8	NE
B-20	0-15	NE
B-21	0-13	NE
B-22	0-8	NE
B-23	NE	0-3
B-24	0-25	NE
B-25	0-12	12-27
B-26	0-30	NE
B-27	0-30	NE
B-28	NE	0-7
B-29	NE	0-7
B-30	NE	NE

NE = Not Encountered

**APPENDIX A
BORING RECORDS**

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF BORING NO. B-1
 DATE: 4-19-90 LOCATION: PAGE 1 OF 1
 SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, sandy, with silt, firm, reddish brown, moist, low plasticity, FILL (CL)	1.75	8				
5		becomes soft, brown with tan, some sub rounded angular sandstone gravel @ 4 ft.	0.75	3	*			
			1.75	4	*			
10			0.75	4	*			
			becomes firm @ 14 ft.	1.75	10	*		
20			very moist to wet, red-brown, less gravel with rounded sand @ 19 ft.	0.25	6	*		
24		SAND, silty, tan, slightly moist, well graded with highly weathered sandstone, RESIDUUM (SM) Auger refusal and Split-spoon refusal @ 24 ft. No ground water encountered @ time of boring.		100+				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-2

DATE: 4-19-90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, clayey, firm, brown, very moist, low plasticity, with some rounded coarse sand, FILL (ML)	1.25	6				
5		increased clay content with yellow silty sand partings containing subrounded angular sub rounded angular sandstone gravel @ 4 ft.	0.25	15				
9					100+			
		Auger refusal @ 9 ft. No ground water encountered @ time of boring.						
		@ 8 ft. auger beside possible boulder, offset approx. 3 ft. south.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-3

DATE: 4-19-90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		CLAY, very silty, very soft, brown, very moist, low plasticity, with rounded angular sandstone gravel, FILL (CL/ML)	0.25	2	*				
5		with organics (wood fragments) @ 4 ft.	0.25	5	*				
			WOOD		19		*		
10		Rubber tire encountered @ 9 ft. offset 5 ft and continued with 10 ft. split-spoon		5	*				
12		CLAY, silty, brown, firm, with some weathered sandstone and coarse sand, FILL (CL) Auger refusal @ 12 ft. No ground water encountered @ time of boring.							
		@ 8 ft. auger beside possible boulder, offset approx. 3 ft. south.							
		"N" value exaggerated due to wood and rock fragments							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-4

DATE: 04/20/90 LOCATION:

PAGE 1 OF 2

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, with sand, firm, purple brown, moist, low plasticity, with some sandstone, gravel, FILL (CL)	2.00	8				
5		Very silty, brown at 4 ft (ML/CL)	1.25	6				
		Very soft at 7.5 ft	0.50	2				
10		Soft and very moist, with rounded gravel and sand at 10 ft	1.00	3				
15				1.00	3			
20				0.75	3			
25		Wet, with red clay, with greenish silt at 25 ft	0.25	7				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B **PROJECT:** TURNCLIFF


BORING NO. B-4

DATE: 04/20/90 **LOCATION:**

PAGE 2 **OF** 2

SURFACE ELEVATION: **FT.** **CASING LENGTH:**

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
29		Boring terminated at 29 ft No ground water encountered at time of boring	0.50	9	*				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


BORING NO. B-5

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
3		CLAY, silty, red/brown, with some sand and gravel; moist, low plasticity (CL)	--	100+					*
		Auger refusal at 3 ft Offset at 3 ft south Refused at 3.5 ft No ground water encountered time of boring							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B **PROJECT:** TURNCLIFF

BORING NO. B-6

DATE: 04/20/90 **LOCATION:**

PAGE 1 OF 1

SURFACE ELEVATION: **FT.** **CASING LENGTH:**

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		SILT, clayey, hard, purple, slightly moist, low plasticity with trace ferric gravel, RESIDUUM (ML)	3.50	100+					*
4		Auger refusal at 4 ft No ground water encountered at time of boring							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-7

DATE: 04/20/90 LOCATION: *

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		CLAY, very silty, firm, brown, very moist, low plasticity, with gravel, organics, FILL (CL/ML)	0.50	10	*				
5		SILT, clayey, very stiff, tan, low plasticity, slightly moist with some weathered sandstone and ferric gravel and coarse sand MINE SPOIL (ML)	0.75	10	*				
			3.50	19		*			
10.5		Firm, increased clay content at 9 ft (ML/CL)	2.00	9	*				
		Boring terminated at 10.5 ft No ground water encountered at time of boring							
		*First Location: Found refusal at 1 ft, possible boulders							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B **PROJECT:** TURNCLIFF


BORING NO. B-8

DATE: 04/20/90 **LOCATION:**

PAGE 1 OF 1

SURFACE ELEVATION: **FT.** **CASING LENGTH:**

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Q _{upp} / Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		CLAY, silty, brown, soft, becoming firm, moist, low plasticity, with organics FILL (CL)	0.75	3	*				
5		CLAY, silty, firm, brown, moist, low plasticity (CL)	--	9+	*				
				1.75	8	*			
10.5			Boring terminated at 10.5 ft No ground water encountered at time of boring	1.00	7	*			

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-9

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, brown and tan, stiff with assorted coarse sand and gravel, abundant organics, low plasticity, moist, FILL (CL)	4.50	15				
5		Large, black wood fragments at 4 ft	--	11				
		Very moist, firm, with hard pink/orange sandy rock fragments (brick) at 8 ft	--	6				
10		Strips of plastic encountered at 10 ft	0.25	6				
15		Very moist to wet, soft pockets at 14.5 ft	0.50	10				
		CLAY, very silty, firm, dark brown, with some rounded coarse sand, very moist to wet, low plasticity, RESIDUUM (CL/ML)						
19.5		SANDSTONE, highly weathered, tan	1.50	100+				
		Boring terminated at split spoon refusal at 19.5 ft No ground water encountered at time of boring						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-10

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, very silty, firm, tan and orange, low plasticity, moist, with sandstone, sand and gravel, MINE SPOIL (CL)	3.00	9				
5			3.50	7				
		SILT, clayey, firm, red/brown, wet, low plasticity, with rounded coarse sand and gravel ANCIENT COLLUVIUM/ALLUVIUM (ML/CL)	0.75	9				
10.5		Boring terminated at 10.5 ft No ground water encountered at time of boring	4.50	17				
		First attempt - auger refusal at 1 ft, approximately 15 ft due west Attempt 2 - auger refusal at 1 ft approximately 11 ft due west Above location is attempt #3						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


BORING NO. B-11

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
1.5		<p>SILT, clayey, dark red, ferric slightly moist, low plasticity RESIDUUM (ML)</p> <p>Auger refusal at 1.0 ft</p> <p>No ground water encountered at time of boring</p> <p>Offset 5.5 ft, auger refusal at 1.5 ft</p> <p>Rock outcrops across street visible</p>							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


BORING NO. B-12

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
2		SILT, clayey, tan and orange, slightly moist, low plasticity RESIDUUM Auger refusal at 2 ft No ground water encountered at time of boring Outcrops in street.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


BORING NO. B-13

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Gupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
5		CLAY, silty, stiff, brown, with assorted gravel and sand, trace wood fragments, low plasticity, slightly moist, FILL (CL)	1.25	14				
		Rag with petroleum odor brought up by augers at 4 ft With soft pockets, plastic, and a fibrous material at 4.5 ft	2.00	11				
		SILT, clayey, firm to stiff, brown, with ferric and sand- stone gravel, very moist, low plasticity, MINE SPOIL (ML/CL)	1.00	10				
			1.00	10				
10.5		Boring terminated at 10.5 ft No ground water encountered at time of boring						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

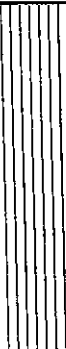
BORING NO. B-14

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
5		SILT, clayey, very stiff, yellow, slightly moist, low plasticity, with angular chert gravel and sand, RESIDUUM (ML)	--	24				*
		Hard with gray mottle at 4 ft	4.50+	100+				*
		Boring terminated at 5.5 ft No ground water encountered at time of boring						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-15

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, clayey, purple, hard, slightly moist, with sand, ferric, low plasticity, with angular gravel, FILL (CL/ML)	1.75	100+				
5		Becomes wet with organic and inorganic trash at 4 ft	--	29				
		Wire coiled around auger at 8 ft	0.75	30				
10		Becomes slightly moist, firm, with wood fragments at 10 ft	1.50	7				
15		SILT-CLAY, purple, firm, with sand and tan gravel, low plasticity, moist, MINE SPOIL (ML/CL)	1.00	9				
20		Becomes very silty with tan mottle, hard at 19 ft	0.25	100+				
		Boring terminated at 20.5 ft No ground water encountered at time of boring						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


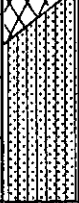

BORING NO. B-16

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, very silty, stiff, brown and yellow mottle, with angular gravel and wood fragments, low plasticity, slightly moist, FILL (CL)	2.25	12	*			
5		SILT, sandy, yellow brown, moist, low plasticity, hard, RESIDUUM (ML/SM)	2.50	10	*			
8		Auger refusal at 8 ft No ground water encountered at time of boring	0.50	68+	*			

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD


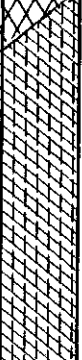
JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-17

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Gupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, clayey, with sand, stiff, purple, low plasticity, moist, with ferric gravel, FILL (ML)	1.25	11	*			
5		CLAY, very silty, dark tan, stiff, low plasticity, slightly moist, with some sandstone gravel, RESIDUUM (CL/ML)	1.75	12	*			
10		Boring terminated at 10 ft No ground water encountered at time of boring						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF


BORING NO. B-18

DATE: 04/20/90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
5		SILT, clayey, stiff, red brown, low plasticity, slightly moist, plastic, glass and organics FILL (ML/CL)	3.25	12				
		With black staining, very moist to wet at 4.5 ft	--	9	*			
		Old twine/carpet tangled in augers at 6.5 ft	--	10	*			
		With green sandy silt and wood at 8 ft						
		Boring terminated at 8 ft* No ground water encountered at time of boring						
		*Driller afraid of losing augers						
		Hypodermics and flashlight batteries located north of B-18 about 20 ft.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF



BORING NO. B-19

DATE: 4-21-90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, clayey, firm, light brown, with rounded coarse sand, low plasticity, slightly moist, FILL (ML/CL)	2.50	6				
5		moist to very moist, with trace organics	2.50	10				
8		SILT, clayey, stiff, yellow/tan, slightly moist, low plasticity, RESIDUUM (ML)	3.25	14				
		Boring terminated @ 8 ft. No ground water encountered @ time of boring.						
15								
20								
24								

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-20

DATE: 4-23-90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, tan, very stiff, low plasticity, slightly moist, with coarse sand, FILL (CL)	3.25	20				
5		becomes very moist, brown, firm, with paper type trash @ 4 ft.	0.75	10		*		
10			0.25	5	*			
		ground water @ 13 ft. - perched						
15		very silty with old concrete fragments @ 13 ft. (ML/CL)	3.25	20				*
		SILT, clayey, very stiff, tan and yellow, low plasticity, moist, RESIDUUM (ML)						
		Boring terminated @ 15.5 ft. No ground water encountered @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B **PROJECT:** TURNCLIFF

BORING NO. B-21

DATE: 4-23-90 **LOCATION:**

PAGE 1 OF 1

SURFACE ELEVATION: **FT.** **CASING LENGTH:**

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, very stiff, brown and tan, with angular gravel and sand, some ferric sandy silt mottle, moist, low plasticity, FILL (CL)	3.25	19		*		
5		very moist, very silty, with organics at 4 ft (CL/ML)	2.25	19		*		
		trace debris (paper and plastic) @ 8 ft. wire around augers @ 9 ft. grayish silt with well graded angular sand and gravel, slightly moist, stiff, with trace debris (styro foam, pressed board) @ 9.5 ft. (ML)	3.00	20		*		
10			2.50	12	*			
15		SILT, clayey, hard, yellow, tan, low plasticity, slightly moist, RESIDUUM (ML)	1.25	57+				*
		Boring terminated @ 15.5 ft. No ground water encountered @ time of boring.						
		several attempts refused on boulders @ 1 ft. or less in depth.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF



BORING NO. B-22

DATE: 4-23-90 LOCATION:

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
5		CLAY, very silty, very stiff, brown, with well graded angular gravel and sand, trace wet black organics, low plasticity, slightly moist, FILL (CL/ML)		26				
8		SILT, clayey, firm, yellow/tan, moist, low plasticity, with trace angular gravel, RESIDUUM (ML)	1.00	10				
		Boring terminated @ 8 ft. No ground water encountered @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B **PROJECT:** TURNCLIFF



BORING NO. B-23

DATE: 4-23-90 **LOCATION:**

PAGE 1 OF 1

SURFACE ELEVATION: **FT.** **CASING LENGTH:**

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, very silty, very stiff, brown with well graded rounded sand, low plasticity, slightly moist, FILL (CL/ML)						
4		SILT, clayey, hard, tan and yellow, low plasticity, slightly moist, RESIDUUM (ML)	2.00	100+				*
		Auger refusal @ 4 ft. No ground water encountered @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF BORING NO. B-24
 DATE: 4-23-90 LOCATION: PAGE 1 OF 1
 SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		Rock consistency layer ~5" thick @ 1 ft.							
		SILT, clayey, very stiff, brown, with well graded rounded sand and gravel, slightly moist, low plasticity FILL (ML)	3.25	16					
5		Becomes firm, yellow and tan @ 3 ft. brown with plastic debris @ 5 ft.	2.25	9					
		hard with glass debris, abundant gravel and sand @ 8 ft. firm, dark gray, very moist, with organics @ 9.5 ft.	4.50+	48					
10			0.75	7					
15			0.75	6					
		becomes stiff, slightly moist, with trace organics, brown @ 18 ft.							
20				11					
		Boring terminated @ 25.5 ft. No ground water encountered @ time of boring.							
25				100+					

Auger ref. @ 1', offset 10' N
 " " offset 8' W
 " " offset 5' W
 15' 10 deg. N of W of B-24

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-25

DATE: 5-2-90 LOCATION: 35 DEG. N OF W 200' OF 22

PAGE 1 OF 2

SURFACE ELEVATION:

FT.

CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, very silty, brown, firm, moist, low plasticity, with organic and inorganic (glass) debris, FILL (CL/ML)	2.25	8				
5		becomes very moist to wet, with ferric sand @ 4 ft.	1.50	5				
		with some sand and angular and rounded gravel, wet, stiff, with wood debris @ 7 ft.	2.20	14				
10				1.25	15			
15			SILT, sandy, with clay, very stiff, brown, very moist to wet, low plasticity, with assorted rounded gravel, MINE SPOIL (ML/SM)	2.75	16			
20		hard, wet @ 19 ft.	2.00	100+				
25		with yellow silt and brown clay mottle, some round coarse sand, moist @ 23 ft.	1.50	59				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-25

DATE: 5-2-90

LOCATION: 35 DEG. N OF W 200' OF 22


PAGE 2 OF 2

SURFACE ELEVATION:

FT.

CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
30		SILT, sandy, hard, yellow, low plasticity, slightly moist, with angular gravel, RESIDUUM (ML)	1.75	100+				
		Boring terminated @ 30 ft. Ground water encountered @ 6' @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-26

DATE: 5-2-90

LOCATION: 86 FT. 44 DEG. N OF W OF 22

PAGE 1 OF 2

SURFACE ELEVATION:

FT.

CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Q _{upp} / Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, firm to stiff, brown, low plasticity, moist, with angular rounded sand and gravel, FILL, (CL/ML) Rubber tire @ 1.5 ft., offset to take sample @ 5 ft.						
5		with yellow silt, slightly moist, with ferric gravel @ 4 ft.	1.50	11				
			4.50+	9				
10		brown, very moist, with coarse gravel @ 9 ft.	0.75	10				
			with black staining, wet, with abundant wood fragments @ 14 ft.		12			
20				0.75	6			
25		with greenish tan clay, black, wood, odorous, firm @ 24 ft.	4.50 1.50	13				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.


BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-26

DATE: 5-2-90 LOCATION: 86 FT. 44 DEG. N OF W OF 22 PAGE 2 OF 2

SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
30		Boring terminated @ 30 ft. Ground water encountered @ 6 ft. @ time of boring.		17		*		

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-27

DATE: 5-2-90

LOCATION: 60 FT. 28 DEG. W OF N OF 26 PAGE 1 OF 2

SURFACE ELEVATION:

FT.

CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		CLAY, silty, brown, and tan, stiff, moist, low plasticity, with assorted gravels and sands FILL (CL/ML)	2.25	13				
5		mostly brown with poorly graded sand @ 4 ft.		32				
				100+				*
10		with angular gravel, wood, and debris, very moist, "N" value exaggerated due to wood @ 7 ft. less organic content, with yellow silt @ 10 ft.	3.25	16				
15		very stiff, brown, clay with ferric sandy silt, yellow silt mottle, with rounded ferric gravel @ 15 ft.	2.00	16				
20		wet, stiff, with trace organics @ 19 ft.	0.75	12				
25		mostly black with wood frag-	0.75	20				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.


BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-27

DATE: 5-2-90 LOCATION: 60 FT. 28 DEG. W OF N OF 26 PAGE 2 OF 2

SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		ments, slight petroleum odor @ 25 ft.						
30		scrap metal around auger @ 29 ft. greenish silt and ferric sandy silt with ferric gravel @ 29 ft.	1.25	100+				
		Boring terminated @ 30 ft. Ground water encountered @ 18' @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.



BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-28

DATE: 5-2-90 LOCATION: 67 FT. 27 DEG. E OF N OF 22 PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, clayey, hard, yellow, with some sand, slightly moist, low plasticity, (ML) FILL	4.50+	39				
5		becomes brown clay, with coarse angular sand, moist, very stiff, @ 4 ft.	1.75	25				
		SILT, sandy, very stiff to hard, purple/brown, slightly moist, low plasticity, ferric with vertical tan clay seam, RESIDUUM (ML)	1.75	27				
10		Boring terminated @ 10 ft. No ground water encountered @ time of boring.	2.00	44				

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF



BORING NO. B-29

DATE: 5-2-90 LOCATION: 128' 12 DEG. N OF W OF 14

PAGE 1 OF 1

SURFACE ELEVATION: FT. CASING LENGTH:

METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +				
					10	20	30	50	
		SILT, clayey, firm, yellow, low plasticity, slightly moist, with brown clay and coarse sand, with wet slag, FILL (ML/CL)	0.75	8		*			
5		with angular gravel, increased clay content, with gray and orange, very stiff @ 4 ft.	4.25	16		*			
		SILT, sandy, hard, yellow with well graded angular sand and gravel, RESIDUUM (ML)	1.25	100+					*
10.5		wet @ 10 ft.	1.00	100+					*
		Boring terminated @ 10.5 ft. No ground water encountered @ time of boring.							

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

BORING RECORD

JOB NO: B5667-B PROJECT: TURNCLIFF

BORING NO. B-30

DATE: 5-2-90 LOCATION: 40 DEG. E OF S 83 FT. OF 29 PAGE 1 OF 1
25 DEG. S OF W 70 FT. OF 14

SURFACE ELEVATION: FT. CASING LENGTH: METHOD:

DEPTH FT.	Sym	SOIL-ROCK DESCRIPTION Surface:	Qupp/ Core	"N" Value	"N" Blows/Ft. * & Water Content +			
					10	20	30	50
		SILT, sandy, with clay, hard, tan/yellow, low plasticity, slightly moist, angular gravel RESIDUUM (ML/SM)	1.00	100+				
5		moist, with wet gravel partings @ 4 ft.	4.50+	62				
7		Auger refusal @ 7 ft. No ground water encountered @ time of boring.						

See Legend for Symbols

GROUND ENGINEERING AND TESTING SERVICE, INC.

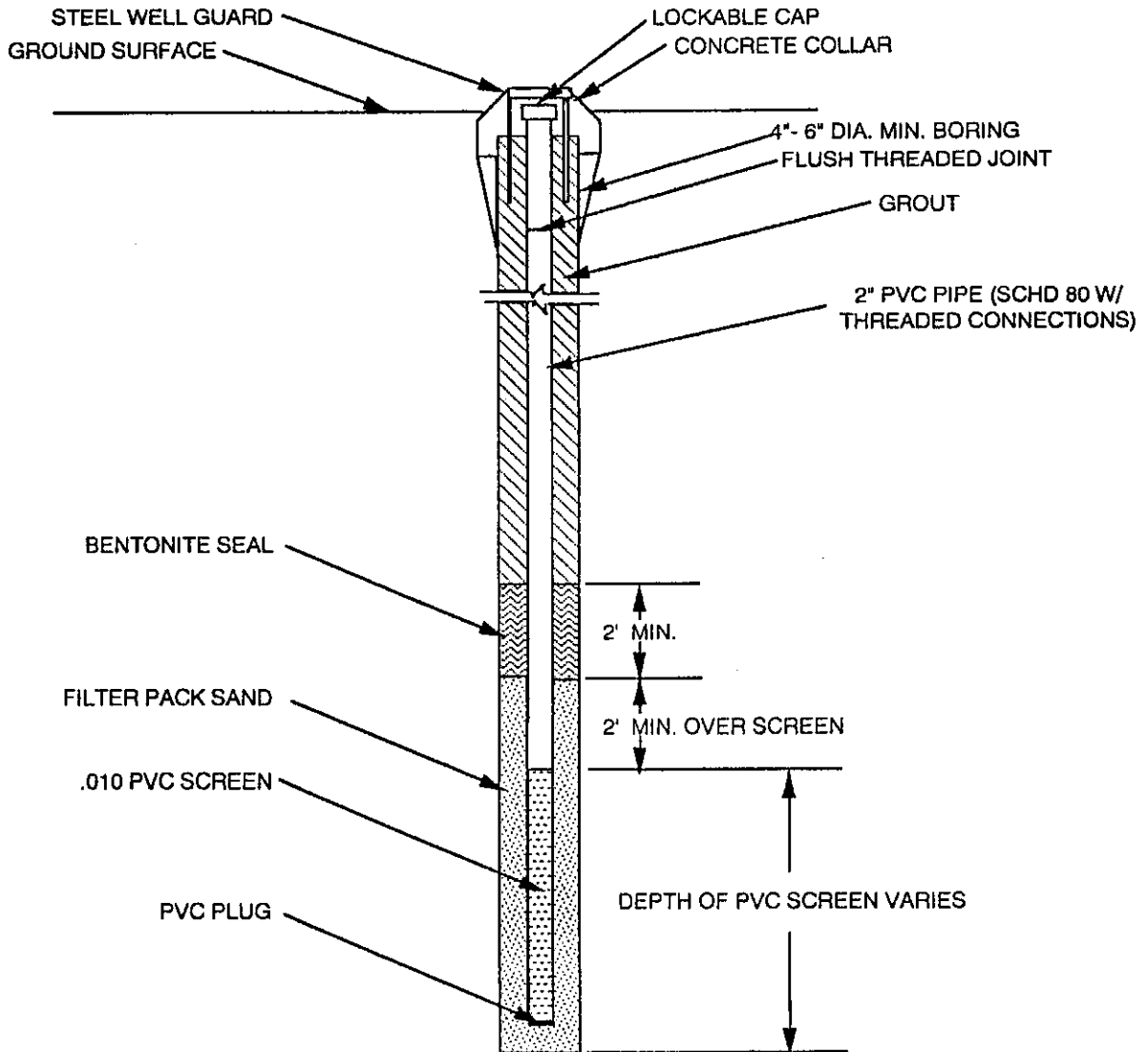
WELL #	BORING @ WELL LOCATION	TOTAL DEPTH	DEPTH OF SCREEN
MW-1	B-20	25'	20'
MW-2	B-28	23'	20'
MW-3	B-25	18'	10'
MW-4	B-13	22'	20'
MW-5	B-18	20'	10'
MW-6	B-7	20'	10'
MW-7	B-4	24'	20'

GROUND ENGINEERING & TESTING SERVICE, INC.
BIRMINGHAM, ALABAMA

DATE: 5-30-90 SCALE: NONE DRAWN BY: RCO

WELL CONSTRUCTION
TURNCLIFF
BIRMINGHAM, ALABAMA
JOB NO. B 5667-B

TYPICAL MONITOR WELL

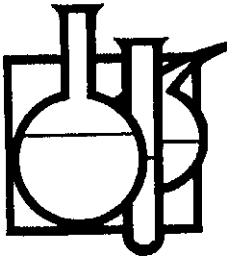


GROUND ENGINEERING & TESTING SERVICE, INC.
BIRMINGHAM, ALABAMA

DATE: 5-30-90 | SCALE: NONE | DRAWN BY: RCO

TYPICAL MONITORING WELL
TURNCLIFF
BIRMINGHAM, ALABAMA
JOB NO. B 5667-B

APPENDIX B
LABORATORY TEST RESULTS



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98626
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/20/90

Time: 0920

Attention: Ms. Sandy Wood

Sampler: GBC

Sample Mark: Soil, Turncliff B5667

Sample Number: SW-1, EP Toxicity

LABORATORY REPORT

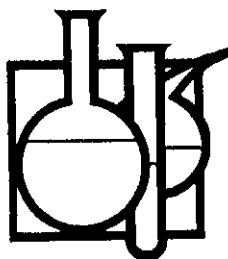
PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/24	1800	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/24	1630	7197(3)
Mercury (Hg)	mg/L	0.009	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Approved by:

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98627
4764 1st Avenue North
Birmingham, Al 35222

Sample Date: 04/20/90
Time: 1030
Sampler: GBC

Attention: Ms. Sandy Wood

Sample Mark: Soil, Turncliff B5667

Sample Number: SW-2, EP Toxicity

LABORATORY REPORT

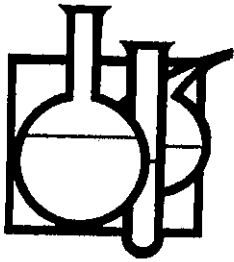
PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/24	1800	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/24	1630	7197(3)
Mercury (Hg)	mg/L	0.003	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Approved by:

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98628
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/20/90
Time: 1040
Sampler: GBC

Attention: Ms. Sandy Wood

Sample Mark: Soil, Turncliff B5667

Sample Number: SW-3, EP Toxicity

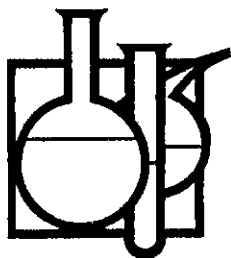
LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL DATE	TIME	METHOD	
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/24	1800	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/24	1630	7197(3)
Mercury (Hg)	mg/L	<0.001	CNJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

METHOD REFERENCES

- 3) Test Methods for Evaluating Solid Wastes Physical/Chemical Methods, 3rd Edition, EPA 1986
- Chemical Method SW-846,

Charles M. D.



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

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Ground Eng. & Testing Services, INC Control No: 98804
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/20/90

Time: 0000

Attention: Ms. Sandy Wood

Sampler: CDS

Sample Mark: Soil, Turncliff 5667

Sample Number: B-15, EP Toxicity

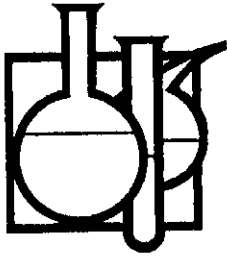
LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	0.014	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/30	2100	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/25	2100	7197(3)
Mercury (Hg)	mg/L	<0.001	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

- 3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98805
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/20/90
Time: 0000

Attention: Ms. Sandy Wood

Sampler: CDS

Sample Mark: Soil, Turncliff 5667

Sample Number: B-18, EP Toxicity

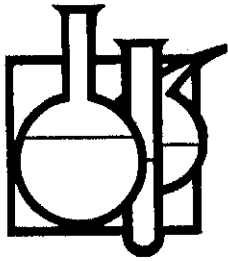
LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/30	2100	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/25	2100	7197(3)
Mercury (Hg)	mg/L	<0.001	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98806
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/23/90
Time: 0000

Attention: Ms. Sandy Wood

Sampler: CDS

Sample Mark: Soil, Turncliff 5667

Sample Number: B-20, EP Toxicity

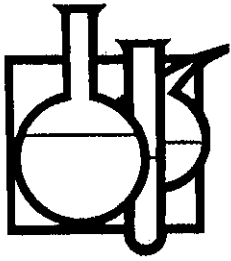
LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/30	2100	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/25	2100	7197(3)
Mercury (Hg)	mg/L	<0.001	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Charles M. Robinson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98807
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/23/90

Time: 0000

Attention: Ms. Sandy Wood

Sampler: CIS

Sample Mark: Soil, Turncliff 5667

Sample Number: B-21, EP Toxicity

LABORATORY REPORT

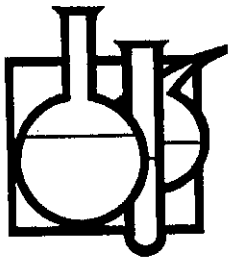
PARAMETER	UNITS	RESULTS	ANAL DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30 1830	7760(3)
Arsenic (As)	mg/L	0.004	HBO	05/01 1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02 1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/30 2100	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25 2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/25 2100	7197(3)
Mercury (Hg)	mg/L	0.004	CMJ	04/27 1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26 1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30 1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Approved by:

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 3, 1990

Ground Eng. & Testing Services, INC Control No: 98808
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 04/23/90
Time: 0000

Attention: Ms. Sandy Wood

Sampler: CDS

Sample Mark: Soil, Turncliff 5667

Sample Number: B-24, EP Toxicity

LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	04/30	1830	7760(3)
Arsenic (As)	mg/L	<0.005	HBO	05/01	1800	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/02	1700	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	04/30	2100	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	04/25	2200	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	HBO	04/25	2100	7197(3)
Mercury (Hg)	mg/L	0.005	CMJ	04/27	1530	7470(3)
Lead (Pb)	mg/L	<0.02	HBO	04/26	1700	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	04/30	1600	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

Approved by:

Charles M. Johnson

GROUND ENGINEERING & TESTING SERVICE, INC.
 4764 First Avenue North
 Birmingham, Alabama 35222
 (205) 591-4340

PB # 07030

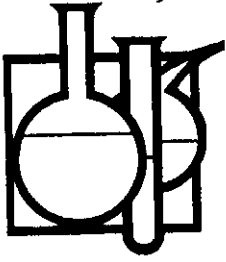
Turncliff 56127

CHAIN OF CUSTODY RECORD / ANALYSIS REQUEST

Sample #	Date	Time	Sampler	Sample Type	Sample Description	Analysis Requested	Preservatives
B-15	4/20/90		CDS	SOIL/SS	7.5ft wet silt w/organics + non-organic debris	EP Tox	ICE
B-18	4/20/90		CDS	SOIL/SS	5.0ft "	EP Tox	ICE
B-20	4/23/90		CDS	SOIL/SS	15.0ft yellow clayey silt	EP Tox	ICE
B-21	4/23/90		CDS	SOIL/SS	10.0ft wet gray silt w/ debris	EP Tox	ICE
B-24	4/23/90		CDS	SOIL/SS	15.0ft brown + gray organic silt	EP Tox	ICE

Relinquished By	Date	Time	Received By	Date	Time	Laboratory	Analyzed By
CDS	4/24/90	11:35	<i>[Signature]</i>	4-24-90	11:35	GETS	

Relinquished By	Date	Time	Received By	Date	Time	Laboratory	Analyzed By
<i>[Signature]</i>	4/24/90	2:00	S. Dealy	4/27/90	2:00		



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Leeds, Alabama 35094
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May 17, 1990

Ground Eng. & Testing Services, INC Control No: 10132
4764 1st Avenue North
Birmingham, Al 35222

Sample Date: 05/04/90

Time: 0000

Attention: Environmental

Sampler: CDS

Sample Mark: S-1, Soil

Sample Number: EP Toxicity, B-26 15

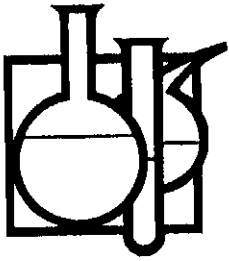
LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	05/11	1630	7760(3)
Arsenic (As)	mg/L	<0.005	AJP	05/16	1100	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/14	1600	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	05/09	1900	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	05/16	1900	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	LWH	05/08	2200	7197(3)
Mercury (Hg)	mg/L	<0.001	DRH	05/11	1400	7470(3)
Lead (Pb)	mg/L	0.34	HBO	05/08	2230	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	05/14	2000	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

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GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 17, 1990

Ground Eng. & Testing Services, INC Control No: 10133
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 05/04/90
Time: 0000
Sampler: CDS

Attention: Environmental

Sample Mark: S-2, Soil

Sample Number: EP Toxicity, B-27 7.5

LABORATORY REPORT

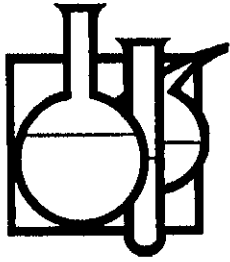
PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	05/11	1630	7760(3)
Arsenic (As)	mg/L	0.036	AJP	05/16	1100	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/14	1600	7080(3)
Cadmium (Cd)	mg/L	<0.02	HBO	05/09	1900	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	05/16	1900	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	LWH	05/08	2200	7197(3)
Mercury (Hg)	mg/L	<0.001	DRH	05/11	1400	7470(3)
Lead (Pb)	mg/L	0.04	HBO	05/08	2230	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	05/14	2000	7740(3)

- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846,
3rd Edition, EPA 1986

Approved by:

Charles M. Johnson



GUARDIAN SYSTEMS, INC.

305 Ashville Road
P.O. Box 300
Leeds, Alabama 35094
205/699-6647

May 17, 1990

Ground Eng. & Testing Services, INC Control No: 10134
4764 1st Avenue North
Birmingham, AL 35222

Sample Date: 05/04/90

Time: 0000

Attention: Environmental

Sampler: CDS

Sample Mark: S-3, Soil

Sample Number: EP Toxicity, B-27 25

LABORATORY REPORT

PARAMETER	UNITS	RESULTS	ANAL	DATE	TIME	METHOD
Silver (Ag)	mg/L	<0.02	HBO	05/11	1630	7760(3)
Arsenic (As)	mg/L	<0.005	AJP	05/16	1100	7060(3)
Barium (Ba)	mg/L	<1.0	HBO	05/14	1600	7080(3)
Cadmium (Cd)	mg/L	6.72	HBO	05/09	1900	7130(3)
Chromium (Cr)	mg/L	<0.02	HBO	05/16	1900	7190(3)
Chromium, Hexavalent (Cr6)	mg/L	<0.02	LWH	05/08	2200	7197(3)
Mercury (Hg)	mg/L	<0.001	DRH	05/11	1400	7470(3)
Lead (Pb)	mg/L	1.70	HBO	05/08	2230	7421(3)
Selenium (Se)	mg/L	<0.005	HBO	05/14	2000	7740(3)

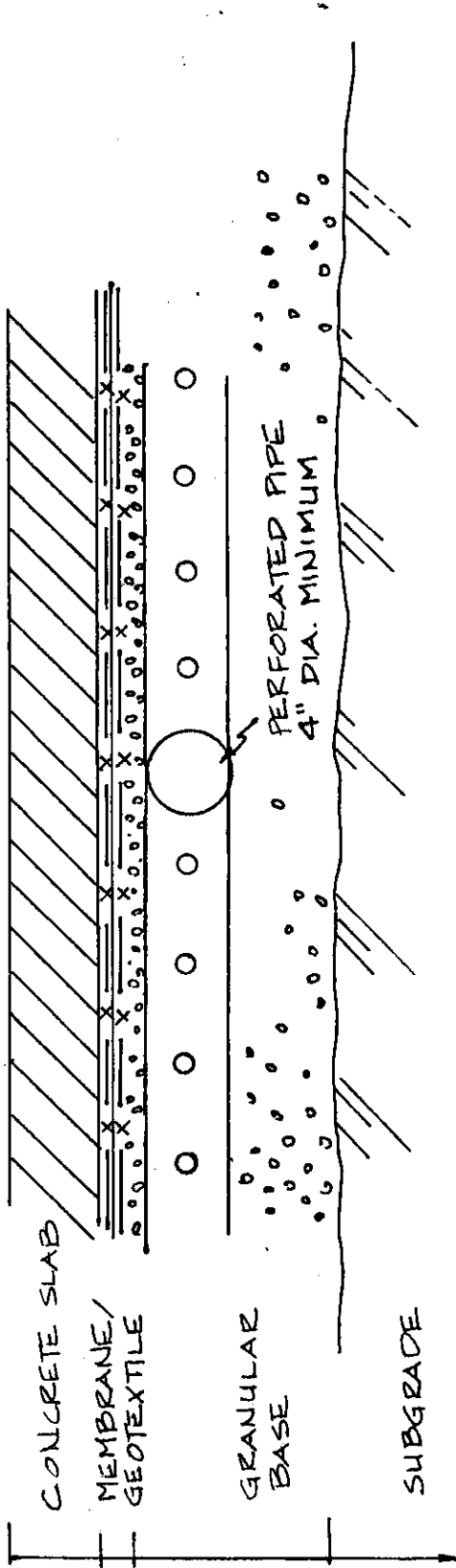
- METHOD REFERENCES -

(3) Test Methods for Evaluating Solid Wastes Physical/Chemical Method SW-846, 3rd Edition, EPA 1986

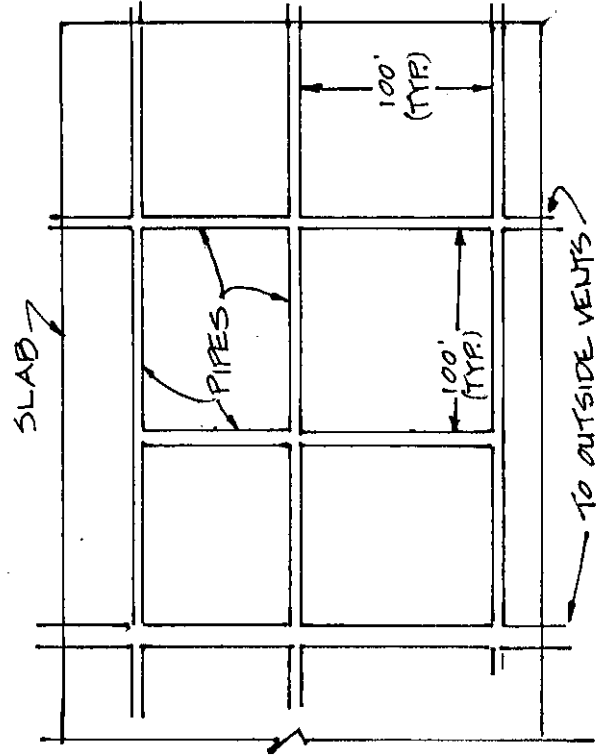
Charles M. Johnson

APPENDIX C
DRAWINGS

TYPICAL DETAIL



PARTIAL
PLAN
VIEW



GROUND ENGINEERING & TESTING SERVICE, INC.
BIRMINGHAM, ALABAMA

TYPICAL DETAIL
BUILDING SLAB VENTING SYSTEM
TURNCLIFFE DEVELOPMENT
BIRMINGHAM, ALABAMA

SCALE: NONE

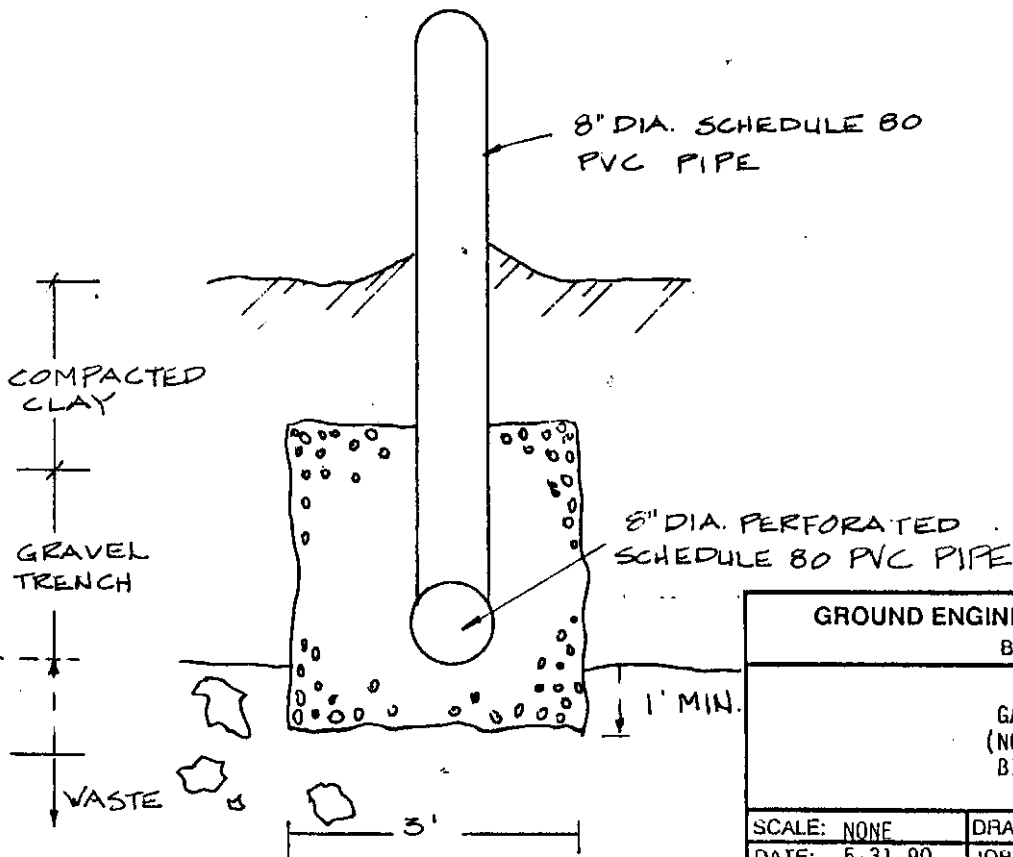
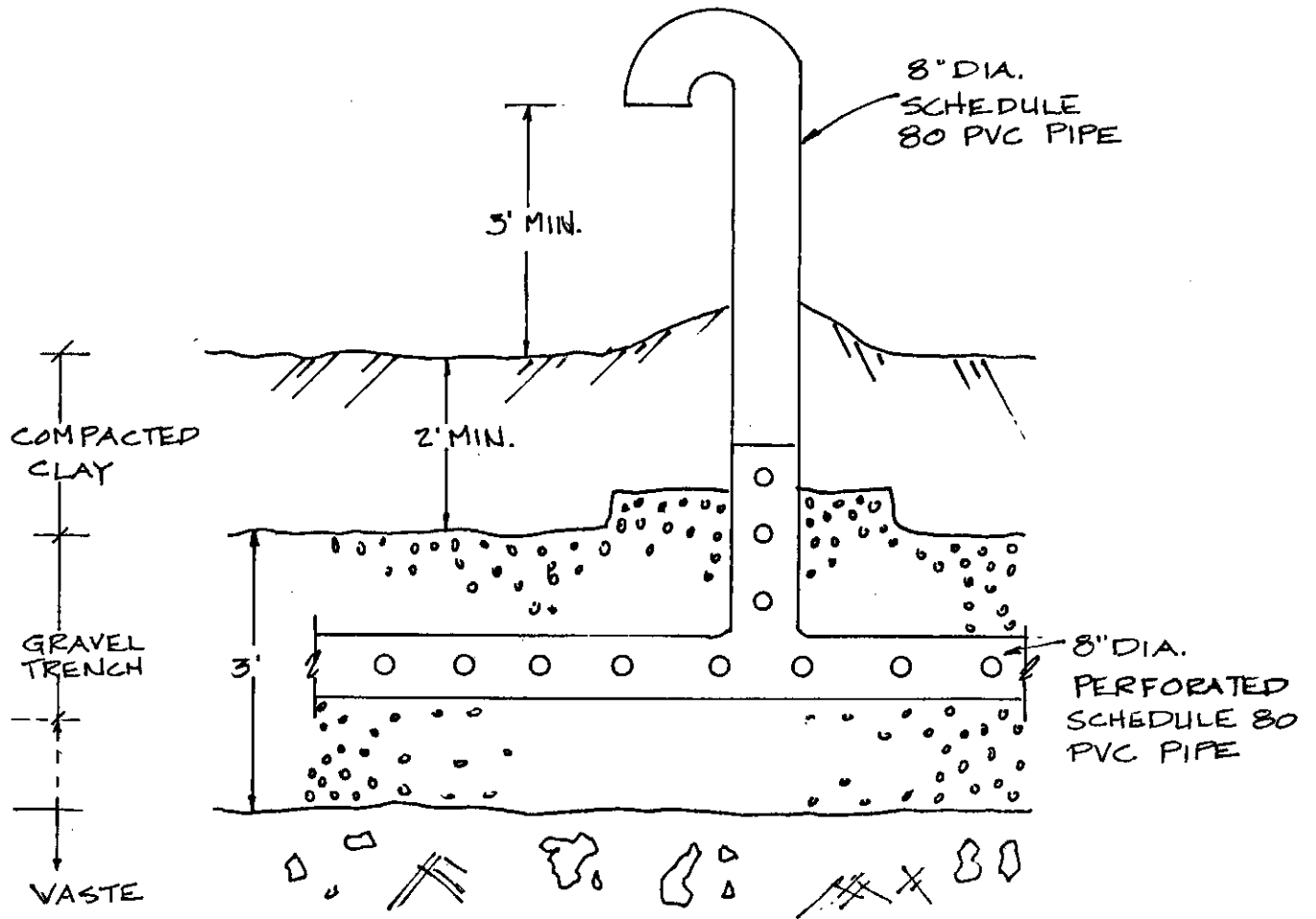
DRAWING NO.: B5667-B2

OWN: DGH/JCP

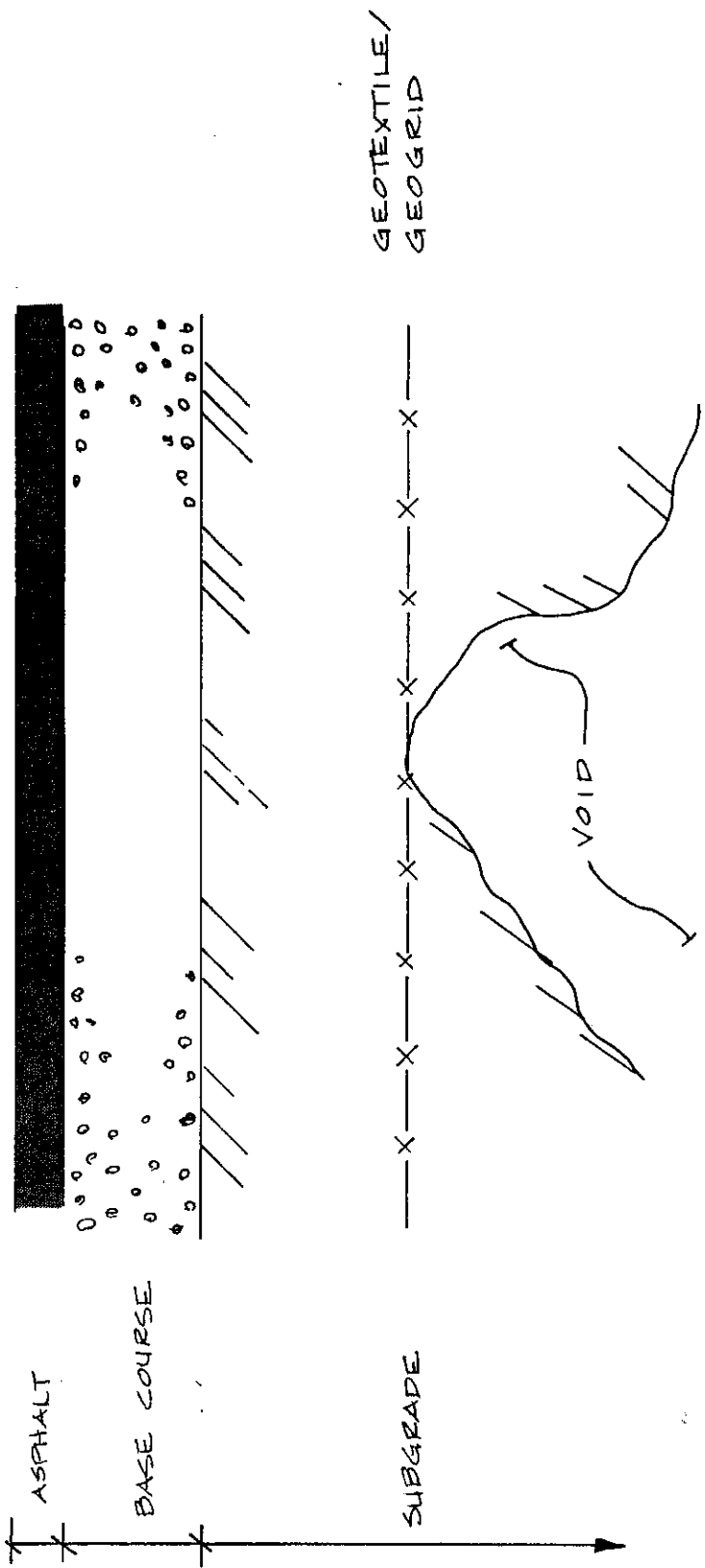
DATE: 5-31-90

JOB NO.: B5667-B

CKD: JCP



GROUND ENGINEERING & TESTING SERVICE, INC.		
BIRMINGHAM, ALABAMA		
TYPICAL DETAIL GAS VENTING SYSTEM (NON-BUILDING AREAS) BIRMINGHAM, ALABAMA		
SCALE: NONE	DRAWING NO.: B5667-B3	DWN: DGH/JCP
DATE: 5-31-90	JOB NO.: B5667-B	CHK: JCP



TYPICAL DETAIL

GROUND ENGINEERING & TESTING SERVICE, INC. BIRMINGHAM, ALABAMA			
TYPICAL DETAIL SUBGRADE REINFORCEMENT UNDER PAVEMENT TURNCLIFF DEVELOPMENT BIRMINGHAM, ALABAMA			
SCALE: NONE	DRAWING NO.: B5667-B4	DWN: DGH/JCP	
DATE: 5-31-90	JOB NO.: B5667-B	CKD: JCP	