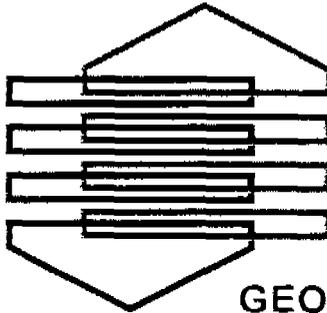


Thermal Test



Ewbank
and associates

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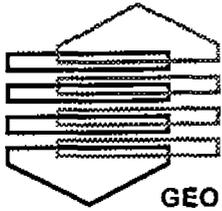
Thermal Conductivity Test Report

Battlefield Middle School

Ft. Oglethorpe, Georgia

Earth Energy

Ewbank and Associates
P.O. Box 148
Fairview, Oklahoma 73737
580-227-3352



Ewbank and associates

GEO SYSTEMS PROFESSIONALS

P.O. Box 148, Fairview, Oklahoma 73737 Phone/Fax 580-227-3352 E-mail ewbank@fairview-ok.net

Thermal Conductivity Test Results Battlefield Middle School Ft. Oglethorpe, Georgia

Earth Energy Engineering performed a thermal conductivity test at the Battlefield Middle School in Ft. Oglethorpe, Georgia on May 15, 2000. Testing was done by Fred Allison with a Ewbank portable test unit.

The test borehole was 300 feet in depth and 6" in diameter. A 1" inch loop was installed and the borehole was backfilled with #9 stone. Static water level was reported at 40 feet. The formations encountered were primarily limestone, which was medium hard.

The thermal conductivity (**k**) value for this borehole is **1.3 btu/degree F-hr-foot**. This is an average conductivity per foot for the borehole. This value represents the rate at which the borehole and rock will transfer heat.

To accurately measure the thermal conductivity of the formation a borehole should be drilled and grouted with a bentonite grout to prevent any flow of water through the borehole.

All test equipment, methods, procedures, calculations, and interpretation is done in accordance with the recommendations and guidelines of the International Ground Source Heat Pump Association.

**Miller Drilling Company Inc.
Well Log**

Well Name: Earth Energy Well No. test well #1 Date: May 3, 2000
 Address: _____ County: _____
 Road: Battlefield Parkway Miles: _____ From: _____
 Well Location: FL Oglethorpe, GA
 Start Drilling: 5/3/2000 Driller: Kevin Mitchell Salesman: Ed Short
 Complete Drilling: 5/3/2000 Rig: 300 Static Water Level: _____
 Total Depth: 300' Depth to Rock: 8' Reamed To: 6"
 Casing Set: _____ Type and Size: _____ Perf. From: _____ to: _____
 Total Yield: 0 Water Zones: _____ Quality Water: _____
 Roller Bit Type: _____ Serial No: _____ Rock Bit Type: _____ Serial No: _____
 Invoice No: _____ Amount Billed: _____ State Log: _____ Our Log: _____

TIME	DEPTH	FORMATION
	0' to 8'	overburden
	8' to 50'	bedrock - hard to medium hard
	50' to 150'	bedrock - medium hard
	150' to 300'	bedrock - medium hard - no crevice - no H2O

Notes:

- Hole No. 1 located in open field behind Lakeview Fort Oglethorpe High School football stadium.
- Hole No. 2 located adjacent to small paved roadway behind football stadium.
- Bedrock - Limestone with hardness as noted on drill logs.
- Both test holes completed in approximately eleven hours.
- Loops - 1 inch x 610 ft. Driscopipe Unicoils.
- Backfill - No. 89 gravel with bentonite hole plug for water seal. Gravel from Hanson Aggregates - Ringold Plant.

Miller Drilling Company Inc.
Well Log

Well Name: Earth Energy Well No. test well #2 Date: May 3, 2000
 Address: _____ County: _____
 Road: Battlefield Parkway Miles: _____ From: _____
 Well Location: Ft. Oglethorpe, GA
 Start Drilling: 5/3/2000 Driller: Kevin Mitchell Salesman: Ed Short
 Complete Drilling: 5/3/2000 Rig: 300 Static Water Level: _____
 Total Depth: 300' Depth to Rock: 10' Reamed To: 6"
 Casing Set: _____ Type and Size: _____ Perf. From: _____ to: _____
 Total Yield: 0 Water Zones: _____ Quality Water: _____
 Roller Bit Type: _____ Serial No: _____ Rock Bit Type: _____ Serial No: _____
 Invoice No: _____ Amount Billed: _____ State Log: _____ Our Log: _____

TIME	DEPTH	FORMATION
	0' to 10'	overburden
	10' to 50'	bedrock - hard to medium hard
	50' to 150'	bedrock - medium hard
	150' to 300'	bedrock - medium hard - no crevice - no H2O

Notes:

- Hole No. 1 located in open field behind Lakeview Fort Oglethorpe High School football stadium.
- Hole No. 2 located adjacent to small paved roadway behind football stadium.
- Bedrock - Limestone with hardness as noted on drill logs
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- Loops - 1 inch x 610 ft. Driscopipe Unicoils.
- Backfill - No. 89 gravel with bentonite hole plug for water seal. Gravel from Hanson Aggregates - Ringold Plant.
