

August 11, 2015

Re: Proposal for a Geothermal Test Bore
For: New Spencer County Elementary School
Taylorsville, Kentucky (Spencer County)

Gentlemen:

Please send to us by **August 19, 2015**, a proposal to provide geothermal test bore services for the above referenced project in Taylorsville, Kentucky on Highway 44 east of Taylorsville. The services required by this proposal request are as follows:

1. Provide one 350-foot test bore with associated report delineating geological materials and conditions encountered.
2. Provide one-inch polyethylene piping in the test bore. The test bore shall be backfilled with no. 9 stone. A certified water well driller should provide this installation to ensure that no encountered aquifers are compromised.
3. Provide complete removal of excess material and cleanup of site. All drilling and cleanup of site to be completed by **September 30, 2015**.
4. Provide a thermal conductivity test report for the completed test well. The thermal conductivity test shall be performed in accordance with recommendations from The American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE). Some of these recommended procedures are as follows:
 - a. Required Test Duration – The minimum test duration is to be 48 hours.
 - b. Power Quality – The standard deviation of the power should be less than or equal to 1.5% of the average power, with maximum power variation of less than or equal to 10% of the average power. The heat flux rate should be 51 Btu/hr (15W) to 85 Btu/hr (25 W) per foot of borehole depth to best simulate the expected peak loads on the u-bend.
 - c. Undisturbed Formation Temperature Measurement – The undisturbed formation temperature should be determined by recording the minimum loop temperature as the water returns from the u-bend at test startup.
 - d. Installation Procedures for Test Loops – The bore diameter is to be no larger than 6 inches, with 4.5 inches being the target diameter. Indicate bore diameter and quantity of rock used for back filling on the report and cross-reference with IGSPA's measurement guidelines to ensure quantity of rock used matches up with the quantity required to ensure no geothermal bridging and voids in the test well.
 - e. Time Between Loop Installation and Testing – A minimum delay of five days between loop installation and test startup is required.
5. Provide pricing breakdown as follows:
 - a. Lump sum price to perform services listed in items 1-4.

If your proposal is accepted, there will be more detailed information available and an engineer will assist in locating the test bore location at the site.

If you have any questions or need additional information, please do not hesitate to call.

Thank you in advance for your proposal.

Sincerely,



Glen Knauer, LEED AP
Mechanical Project Manager
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