Sampling and Shipment of Soil/Backfill Samples for Thermal Analysis

Undisturbed Tube Samples and Bulk Samples

- If cohesive soils (clayey or silty) are encountered, samples should be taken in nominal 3” diameter Shelby tubes or large diameter California sampler with brass liners (no rings), otherwise, standard split spoon samples or auger cuttings should be taken (see bulk soil section below).

- Please do not extrude sample from Shelby tube. Cut the bottom 6” section (+/- ½”) of the tube, seal both ends with plastic caps and tape it to prevent any moisture loss.

- Identify the samples with Project Name, Location, Bore Hole, Depth, Date samples taken, etc

- The samples should be representative of the soil at the cable (or ductbank) burial depth. If the soil above this elevation is different, it should be sampled as well.

- Please include a copy of the borehole logs.

- Email the details of the shipment - courier name, tracking number, etc. to info@geothermusa.com and lab@geothermusa.com

- If bedrock is encountered, take core samples (minimum 2” diameter by 5” long) or block samples of about 5” cube of irregular shape.

**Bulk Soil or Backfill Samples**

- Send ~10 pounds of each sample, contained in double heavy-duty plastic (Ziploc) bags, identified with Project Name, Sample Location, Bore Hole, Depth, Date samples taken, etc...

- Email the details of the shipment - courier name, tracking number, etc. to info@geothermusa.com and lab@geothermusa.com

- For all foreign shipments
  - declare a value of $10 for the entire package and send it via FedEx or UPS overnight service (or 2nd day air service).
  - Mark the package “Aggregate samples for laboratory testing only”.
  - Request import permit instructions to info@geothermusa.com

- Provide the Proctor (Standard or Modified) density, starting moisture content and percent compaction effort.
Purpose for testing (in-situ vs. construction phase), the following apply:

For thermal resistivity measurements to determine in-situ values

- For soils that are cohesive
  - Undisturbed tube samples
    - bottom 6-inches of Shelby tube or
    - brass/stainless steel liner (minimum diameter of 2-inches)
      - must be continuous and NOT ring samplers
  - Disturbed samples
    - Provide us a Proctor Density Curve (Standard or Modified)
    - Provide percent (%) compaction (i.e. 95%, 90% or 85%)
    - Provide starting moisture content (i.e. in-situ, optimum or %)

For thermal resistivity measurements to determine construction phase (materials to be used around cables)

- Disturbed samples
  - Provide us a Proctor Density Curve (Standard or Modified)
  - Provide percent (%) compaction (i.e. 95%, 90% or 85%)
  - Provide starting moisture content (i.e. in-situ, optimum or %)

1. Provide soil descriptions or borehole logs, a business card or contact information with the samples in a separate Ziploc bag.

2. Please issue a PO or a charge to number with the samples

3. Email the tracking number to info@geothermusa.com and lab@geothermusa.com

4. Turnaround time is about 10 days after we receive all the necessary information

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Ship all samples to:

GEOTHERM USA
ATTN: Lab Manager
21239 FM529 Road, Bldg F
Cypress, Texas 77433
Tel: 281-985-9344
Chain of Custody Form

*Please include this form in a Ziploc bag for each sample submitted:*

Company Name: ____________________________________________________________

Contact Name: ___________________  Contact Number _________________________

Project Name: ___________________________________________________________

Project Location: __________________________________________________________

Company to Invoice: _________________________  PO Number: ________________

Report Submittal email: ____________________________________________________

Sample Location/ID: _________________________________________________________

Sample Collection Date: __________  Sample Depth: __________________________

Soil Description: __________________________________________________________

Is this a bulk sample that requires Recompaction?

___ Yes (continue below)  OR  ___ No (tube sample test “as is”)

If the sample requires Recompaction please complete items below:

a. What is the Proctor Maximum Dry Density (lb/ft³)? __________

b. Is this a Standard or Modified Proctor: ________________

c. Specify compaction effort(s)? (i.e. 85%, 90 or 95%): ______________

2. What is the starting test moisture content?

___ As Received/In-situ?  OR  ___ Optimum?