

**TENDER FOR DRILLING OF MONITORING BOREHOLES AT SITES NEAR  
Pewsey in the South of ENGLAND**

**SPECIFICATION**

**1.Introduction**

The Natural Environment Research Council (NERC), through its centre/survey the British Geological Survey (BGS – known hereafter as “The Authority”), invites tenders for the provision of drilling services to support project monitoring and research activities. The purpose of the project is establish whether the phosphorus release from the Upper Greensand is derived from primary (natural) apatite minerals or from the dissolution of phosphorus minerals formed in situ in the presence of anthropogenic phosphorus arriving in the Upper Greensand from overlying fertiliser soils and septic tank sewage .

It is planned that the work shall be carried at six sites in total with a pair of drilled boreholes at each site in the Vale of Pewsey, Wiltshire. NGR: SU 015 588, SU 150 625, SU 130 600 (all indicative only at this time but will be confirmed at a later date, in total, 3 pair of core should be taken in a pristine forest area, and three pair on agricultural ground).

If the preferred sites are not accessible to The Authority, any alternative site shall be in the area of a radius of approximately 10 miles of the above.

At the 6 sites, a pair of boreholes shall be required to provide:

- a. Cored sample returns from the boreholes to be sub-sampled and processed,

It is planned to drill the pairs of boreholes from Ground Level (GL) to a Total Depth (TD) of approximately 25 m and 5 m adjacent to each other (within 5 m). All of the boreholes will be backfilled and surface conditions reinstated to site condition.

**2.Summary of Contract works**

The purpose of the Contract, and the works included in the Contract, shall be to:

- a. conduct site surveys to locate, and thereby avoid, any underground services at the proposed borehole locations,
- b. drill pairs of boreholes of 100 mm diameter from which it shall be required to recover cored specimens from beneath the ground surface, with a minimum amount of (or preferably zero) contamination by the drilling process,
- c. reinstate the borehole by backfilling with bentonite,
- d. reinstate the borehole site and access to the site to the satisfaction of The Authority and the landowner.

There may be restrictions upon the times of drilling which the Authority shall communicate to the Contractor when known. For example, drilling may not be permitted outside the hours of 0800 to 1800 or on alternate weekends. It is hoped to commence and finish the

work in August/September 2017. Tenderers are invited to state at what times they are able to commence this work around these dates. The ability to perform this work around this timescale may influence the awarding of the contract.

### **3. Drilling method**

The borehole shall be drilled by cored rotary from GL to TD. Cores are required from all of the boreholes.).

It is anticipated that there will be few obstructions to continuous drilling e.g. gravels, pebbles, in the soil, subsoil and Drift layers however, the potential for such obstructions cannot be ruled out.

The Contractor shall state the type and specification of rig to be used for the contract works and shall also state the diameter of the hole size to be produced.

### **4. Description of boreholes**

Six pairs of vertical borehole shall be drilled in this Contract.

#### Depth

The main purpose of the borehole is to produce a core of the Upper Greensand. The target depth for the termination of the boreholes are c.25 m below GL for the deeper borehole of the pair and 5 m for shallower borehole. The deeper borehole is to be drilled first in order to provide information about the depth at which the shallower borehole will be completed.

It is stressed that these borehole depths are currently planned by The Authority. However, the Authority reserves the right to alter this depth (typically by +/- 5m) with prior notice given to the Contractor.

#### Diameter – open hole drilling

The internal diameter of the completed boreholes must be nominally 100mm.

#### Backfill

The borehole should be reinstated by backfilling with bentonite.

### **5. Sampling and handling**

The Contractor shall provide all necessary sampling equipment (including containers and/or cuttings boxes) and shall take all necessary steps to obtain good core recovery from GL to TD, having regard to the nature of the formation.

Each core box shall be clearly and indelibly marked by the Contractor with regard to borehole name and/or number (to be notified by the Authority), run number, depth of top and bottom of run before presentation to the Authority.

The Authority shall remove coress from the drill site at intervals, for inspection at its laboratories.

All core shall be the property of the Authority and the Contractor shall be responsible for their safekeeping whilst on the drill site.

### **10.Weather conditions**

Whilst unlikely, work may have to be suspended during periods of highly inclement weather. In such instances, if the suspension is at the decision of the Authority, Waiting Time shall be paid by the Authority at the hourly rate given in the Bill of Quantities. During periods when drilling is not in progress, the boreholes and surroundings shall be suitably covered to the satisfaction of the Authority to prevent ingress of materials.

### **11.Record of work**

The Contractor shall keep a dated log for the Authority, to be submitted to the site representative of the Authority at the end of each working day. This log shall record daily:

- the name and/or number and depth of the borehole and nature of strata penetrated,
- the totals of depths drilled (daily and cumulatively), including type and size of drilling.
- the totals of casings inserted and/or removed,
- the levels of all water strikes and or seepages,
- the depth to water within the borehole being drilled at the start and finish of each shift (if applicable),
- the nature and amount of “dayworks” (set-ups/moving – if required for any reason, completions etc.) and/or “standing time” (if applicable).

### **12.Handling and disposal of spoil, slurry, water and waste materials**

The Contractor shall be responsible for the handling and disposal of all spoil, slurry, water and other waste material produced during the drilling, reaming and cleaning of the borehole. As far as is known, the sites are not considered to have any form of pollution associated with them so no special conditions should be attached to handling and disposal. However, the Environment Agency (EA) are interested parties in this project and as such will be fully aware of these drilling activities in detail, therefore any conditions they impose must be strictly adhered to. These may include (temporary) containment, filtering/settling and (permanent) disposal of the materials in a defined manner.

It may be necessary to remove spoil and slurry from the site and this shall be disposed of by agreement with the Authority, according to any EA constraints (see also Section 7).

The contractor shall be responsible for the construction and subsequent maintenance of any waste handling system in use when drilling, cleaning and testing. Disposal of any arisings collected within this system will be the responsibility of the contractor. It is still a

condition that any local natural watercourses must not be used for the disposal of water (contaminated by colour or otherwise), even via drainage ditches. Contamination of any such watercourses by drilling products is an offence.

### **13.Fencing and reinstatement**

The Contractors shall at all times keep all plant and personnel within the area of land available to the Authority at the site. The site is such that the area designated as the "drill site" shall have suitable temporary fencing erected to clearly delineate that area, within which no persons except the drill crew, staff of the Authority and other permitted persons as designated by the Authority, shall be allowed. It is likely that the drill site may be located adjacent to a farm track. Fencing shall be suitable to exclude any such people and farm animals from the drilling site and as such should be secure.

On completion of the works, the Contractor shall restore the site to the satisfaction of the Authority. The Contractor shall make good, at his own expense, any damage to any road surface, grass verge, bank or crops and otherwise; outside the area leased by the Authority should such be required by the landowner, such damages being caused by default of the Contractor.

### **14.Site accommodation**

The Contractor shall provide suitable site storage, toilet facilities and welfare facilities for staff.