

TERMS OF REFERENCE FOR GEOTECHNICAL INVESTIGATION OF THE FIRST TWO BLOCK OF..... PROJECT

I. Background

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These Terms of Reference are intended to serve as a model for contracts unit prices (unit prices or unit rates in a bill of quantities) and lump sum contracts which are commonly used for contracts of works.

2. TECHNICAL REQUIREMENTS

2.1. General Note

The contractor is required to work in strict compliance with the rules of art. It is also subject to all terms and conditions of the general conditions currently in force in the Republic of Rwanda. All work with defects will be denied and all the consequences of such refusal shall be borne by the contractor.

2.2. Ground investigation

2.2.1. Boreholes (conventional rig)

Rotary cored borehole (20m and 30m) to be drilled with conventional rig requiring vehicle access. SPTs at 1.5m intervals. Disturbed and undisturbed sampling for laboratory testing. Piezometers to be installed.

2.2.2. Boreholes (cut down rig)

Rotary cored boreholes (each 25m) using cut down rig, carried in to agreed locations. SPTs at 1.5m intervals. Disturbed sampling for laboratory testing. Piezometers to be installed. The Contractor shall procure equipment and provide supervision during the works.

2.2.3. Trial pits

Hand dug trial pits to maximum 3m depth, with bulk sampling for laboratory testing. Trial pits to be closely monitored for stability and safety, and shall be supported if necessary or terminated early if stability cannot be ensured. A ladder or other means of safe access shall be used

2.2.4. Soak away testing

Soakaway tests in accordance with BRE365. Pits shall be 1.5m deep and square sided.

2.2.5. DCP testing

DCP tests, terminating at refusal.

2.2.6. Logging

All boreholes, trial pits and pits for soakaway testing shall be logged by an experienced engineering geologist. The standard for logging shall be stated. Draft logs shall be provided for review.

For trial pits, logs shall include a note of the tools used at each depth and an assessment of digging effort (e.g. easy digging with hoe; hard digging with pick, etc).

2.2.7. Laboratory testing

Geotechnical laboratory testing shall be proposed by the Contractor and agreed by the Client.

2.2.8. Photographs

All cores and trial pit arisings shall be photographed. Photographs to include a board showing the location and depth, and a scale.

2.2.9. Groundwater monitoring

Groundwater levels in boreholes shall be monitored daily during the works. Once site works are complete monitoring shall continue at least weekly for 6 months. Monitoring results shall be submitted to the Client on an ongoing basis.

All test locations shall be agreed between the Contractor and Client. The Contractor shall be responsible for any works required to provide access to the agreed locations, and shall advise the Client of any associated costs before proceeding. The Client shall be responsible for all access permissions. The Client's representative shall be present on site when moving to new locations.

3. Reporting

3.2. Geotechnical Interpretative Report

To include final logs, laboratory results, photographs, and groundwater levels. The report shall include an engineering assessment of all strata encountered, giving estimated allowable bearing capacity for shallow foundation design as well as characteristic geotechnical parameters for foundation and retaining wall design and slope stability assessment.