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## TERMS OF REFERENCE (TOR)

# CONSULTANCY SERVICES FOR THE CONDUCT OF SOIL TESTING EXPLORATION FOR MULTI – STOREY ADMINISTRATIVE BUILDING OF THE NATIONAL SEED TECHNOLOGY PARK (NSTP)

## **TERMS OF REFERENCE**

### **CONSULTANCY SERVICES FOR THE CONDUCT OF SOIL TESTING EXPLORATION FOR MULTI-STOREY ADMINISTRATIVE BUILDING OF THE NATIONAL SEED TECHNOLOGY PARK**

#### **I. BACKGROUND**

The National Seed Technology Park (NSTP) is a collaboration project of the Department of Agriculture (DA) and Bases Conversion and Development Authority (BCDA) to drive the seed industry and to improve and develop all types of seed varieties that will contribute in the overall national food security of the country. Furthermore, this project will ensure adequate food supply and distribution systems in the country, especially in this time of State of Public Emergency due to the threat of COVID-19. The NSTP will be part of the country's first Agro-industrial Business Corridor (ABC) that the DA and BCDA will establish in a 50-hectare site at the New Clark City.

This infrastructure is seen to provide high-yielding seed varieties readily accessible in the local market to help farmers improve the level and quality of their harvests. It will serve as one-stop hub for the seed value chain, including administrative building, research and development facilities, a model seed farm and processing facility, infrastructures for skills and training, experimental or commercial plots, demonstration plots, and an exhibition and farmers convention center.

The Bureau of Agricultural and Fisheries Engineering (BAFE) is tasked to prepare the Detailed Engineering Design (DED) of the administrative building. In line with this, a geotechnical investigation is required to provide important data necessary in the design of the foundation of the building. The geotechnical investigation which includes field and laboratory testing is used to determine the surface and subsurface condition. This process is essential to gather samples necessary for the detailing of the structure.

#### **II. OBJECTIVES**

To determine the soil bearing capacity of the proposed site for the establishment of multi-storey administrative building.

#### **III. PROJECT SCOPE**

The scope of works of the Consulting Firm is to conduct subsurface soil exploration work and prepare Geotechnical Report.

##### **A. SCOPE OF SERVICE**

###### **A.1. GENERAL**

A.1.1. The Consulting Firm shall be responsible for carrying out the necessary subsurface soil exploration works in respect to the project stated.

A.1.2. After the receipt of Notice to Proceed (NTP), the Consulting Firm shall coordinate with BAFE Engineering Plans, Designs, and Specifications Division (EPDSD), particularly on the location of the project.

A.1.3. Upon completion of the subsurface exploration work activities, the Consulting Firm shall submit their final report containing geotechnical/geological findings to BAFE-EPDSD.

## A.2. THE SERVICES

### A.2.1. Subsurface Soil Exploration Works

#### A.2.1.1. LOCATION

Before the conduct of subsurface soil exploration works, the Consulting Firm shall coordinate with BAFE-EPDSD on the details of the project site located in the 50-hectare property inside the New Clark City

#### A.2.1.2. SCOPE OF PROJECT

The Consulting Firm shall provide all the labor, instrument/equipment materials and supplies, vehicles, bunkhouse, etc., necessary to perform satisfactorily the subsurface exploration herein required, viz:

##### A.2.1.2.1. Drilling and Sampling

##### A.2.1.2.2. Standard Penetration Test (SPT)

##### A.2.1.2.3. Water Level Measurement

##### A.2.1.2.4. Laboratory Testing and Analysis

##### A.2.1.2.5. Preparation and Submission of Reports

The Consulting Firm shall be held responsible for the result of this boring/drilling exploration and other activities under Terms of Reference.

## B. DETAILED EXPLORATION REQUIREMENTS/SPECIFICATIONS

### B.1. Drilling and Sampling

#### B.1.1. Location and Number

Seven (7) boreholes, at a location shown on the plan with coordinates.

#### B.1.2. Depth of Borings

Shall be equal to 15 - 20 meters or extend if necessary, depending on the soil classification.

## B.2. Procedure

In sand, clay and silt materials, the boreholes shall be advanced by the wash boring method in between sampling sections using side discharged chopping bits. Whenever necessary, N-size casings shall be utilized. The washed sections shall be cleaned thoroughly before each sampling run and ensure that the underlying soil is not disturbed.

Split spoon sampler. In a soft cohesive layer, disturbed sample using thin walled tube samplers shall be obtained hydraulically.

Core drilling shall be carried out by a diamond rotary drill method in gravelly on rock formation. Core samples shall be undertaken wherever solid information is encountered.

## B.3. Equipment

### B.3.1. Drilling Machine

The Consulting Firm shall utilize at least two (2) drilling machine and set them up at the project site. The drilling machine shall be in good working condition and shall be of such capacity as to maintain satisfactory progress of work.

### B.3.2. Bits

The Consulting Firm shall have supply of different types of bits to adapt to varying conditions. Bottom discharge and stepped bits shall also be available.

### B.3.3. Core Barrels

Double tube swivel type core barrels in good condition and obtaining maximum core recovery shall be used.

### B.3.4. Casing

The Consulting Firm shall, at his own expense and responsibility, provide casings as required to ensure the stability of the borehole walls. The casings shall be at least of N-size and shall be in good condition. After a hole has been finished the casings shall be retrieved.

## B.4. Handling and Core of Samples

The Consulting Firm shall provide all the materials, equipment, and labor necessary for preserving samples.

## B.5. Standard Penetration Test (SPT)

The test shall be carried out through ordinary soil encountered to the depths specified above. Standard penetration test shall be performed using 5.0 cm

(2.0 in) outside diameter split spoon sampler, driven by a 63.6 kg (140 lbs.) Hammer falling 76.0 cm (30 in) at 1.50-meter interval or closer if necessary.

**B.6. Water Level Measurement**

The water level shall be measured daily (before and after) whenever encountered in a borehole.

**B.7. Laboratory Testing Analysis**

The preparation of samples for testing shall be made in accordance with AASHTO.

The following test shall be made on samples obtained from boring, drilling.

**B.8. Split-Spoon Analysis**

B.8.1. Visual Soil Description

B.8.2. Mechanical Analysis, AASHTO Designation T88

B.8.3. Liquid Limit, Plastic Limit and Plasticity Index, AASHTO Designation T89 and T90

B.8.4. Group Index and Soil Classification, use Unified Soil Classification

**C. REPORTS/OUTPUTS/DELIVERABLES**

The Consulting Firm shall perform and deliver the following activities and outputs for the study within the specified timeline:

<b>No.</b>	<b>Deliverables</b>	<b>Timeline</b>
1	Mobilization	5 days from receipt of NTP
2	Drilling/Sampling	10 days from receipt of NTP
3	Laboratory Testing Analysis	15 days from receipt of NTP
4	Submission of Final Report	25 days from receipt of NTP

**C.1. Final Report**

The Consulting Firm shall prepare the FINAL REPORT containing geological/geotechnical findings and analysis in four (4) bounded hard copies to be submitted to BAFE twenty-Five (25) calendar days from the commencement of work and/or at the termination of the contract. An electronic copy of the same shall be submitted to BAFE. The final report shall contain but not limited to the following:

**C.1.1. Field Investigation and Methodology**

- C.1.2. Borehole Drilling and Sampling
- C.1.3. Laboratory Testing
- C.1.4. Final Boring Logs (BL)
- C.1.5. Final Laboratory Test Results (FLTR)
- C.1.6. Borehole Location Plan
- C.1.7. Soil Profile along structures shoeing boring/ drilling logs
- C.1.8. Soil Liquefaction Investigation Report
- C.1.9. Soil Bearing Capacity
- C.1.10. Detailed Discussion of the result of geological/geotechnical investigation and laboratory testing
- C.1.11. Recommendation (Foundation Type and required geotechnical parameter for design)

## C.2. Boring Logs

Along with the Final Report, the following are also to be submitted by the Consulting Firm:

- C.2.1. Job, boring, hole number, date, time, boring/drilling, foreman, supervisor
- C.2.2. Weather condition
- C.2.3. Depth of Boring at start of the day
- C.2.4. Water level in casing at start of the day
- C.2.5. Method of Penetration and flushing system
- C.2.6. Description of soil strata encountered
- C.2.7. Depth of soil boundaries
- C.2.8. Size, type and depth of samples and sample number
- C.2.9. Type and depth of in-situ test
- C.2.10. Standard Penetration Test Resistance, "N" Value
- C.2.11. Recovery ratios of sample
- C.2.12. Detailed notes on boring / drilling procedure, casing sizes and resistance to driving, description of wash water or spoil from boring / drilling tools
- C.2.13. Depth of boring at end of the day
- C.2.14. Other relevant information such Rock Quality Designation (RQD), percent core recovery, angle of friction etc.

## C.3. Photographs

Photographs showing the borehole drilling and sampling at each proposed site shall be taken by the Consulting Firm and incorporated in the report, photographs shall be taken at each borehole location depicting the following:

- C.3.1. Equipment used
- C.3.2. Core drilling operation
- C.3.3. Water level measurement

- C.3.4. Performance of SPT and Shelby tube sampling
- C.3.5. All cores in the core boxes, SPT and Shelby tube samples
- C.3.6. Date photographs was taken

**D. IMPLEMENTATION**

**D.1. REQUIRED MINIMUM QUALIFICATIONS OF THE CONSULTING FIRM AND ITS PERSONNEL**

The BAFE will hire Consulting Firm with at least ten (10) years of experience in consulting industry, with minimum five (5) years actual engagement/services rendered in similar/relevant studies within the last 25 years.

The following experts/professionals and their member shall be required to carry out the Consultancy Services for the project and should have appropriate educational degree, relevant training, and adequate years of experience in the conduct of sub-surface soil exploration.

<b>Personnel</b>	<b>Level of Qualification</b>	<b>Professional experience (minimum)</b>
Geotechnical Engineer	5-year graduate	• At least 10 years
Drilling Rig Supervisor	4-year graduate	• At least 5-8 years
Drilling Rig Operator	4-year graduate	• At least 5-8 years
Drilling Rig Crews	4-year graduate	• At least 5-8 years

The Consulting Firm shall provide technical and administrative support staff as may be required.

**D.2. CONTRACT PERIOD**

The Consulting Firm’s contract period for undertaking the soil exploration shall be **Twenty-Five (25) calendar days** and shall commence work after receipt of Notice to proceed (see ANNEX A).

**D.3. ASSISTANCE TO BE PROVIDED BY THE CLIENT**

The BAFE shall ensure that the Consulting Firm has access to all relevant information necessary to the performance of the above services. The Consulting Firm is expected to provide office space and equipment and all other resources for completing the service.

**E. APPROVED BUDGET OF THE CONTRACT (ABC)**

The BAFE shall allocate the amount of **Seven Hundred Thirteen Thousand Seven Hundred Thirty-Six Pesos (Php713,736.00)** for the Consultancy Services inclusive of all applicable Government taxes and charges, professional fees, and other incidental and administrative cost

**F. PAYMENT SCHEMES/SCHEDULES**

Billing shall be in accordance with the following delivery schedule and subject to the usual Government Accounting and auditing requirements:

<b>NO.</b>	<b>DESCRIPTION</b>	<b>PAYMENT</b>
1	Upon Mobilization	10%
2	Upon acceptance of Drilling/Sampling Laboratory Test Report	50%
3	Upon acceptance of Final Geotechnical Report	40%

Since all these payments shall be subject to the usual government accounting and auditing requirements, the Consulting Firm is expected to be familiar with the Government Accounting and Auditing Manual (GAAM).

**G. RETENTION PAYMENT**

A retention payment of ten (10) percent shall be made by the Consulting Firm every progress billing. And total “retention money” shall be due for release upon approval of the Final Geotechnical Report.

**H. LIQUIDATED DAMAGES**

Where the Consulting Firm refuses or fails to satisfactorily complete the work within the specified contract time, plus any time extension duly granted and is thereby in default under the contract, the Consultant shall pay DA for liquidated damages, and not by way of penalty, an amount, as provided in the conditions of contract, equal to at least one tenth (1/10) of one (1) percent of the cost of the unperformed portion of the works for every day of delay. Should the amount of liquidated damages reach ten percent (10%) of the contract amount, DA shall, at its own discretion, terminate the contract without prejudice to any further action it may take to recover whatever losses incurred due to nonperformance of the Consulting Firm.

**I. MODE OF PROCUREMENT AND CRITERIA FOR SHORTLISTING**

I.1.The mode of procurement shall be through “small value procurement”



I.2. Prospective Consulting Firms will be evaluated based on their previous contracts/engagements related to this TOR and will be rated based on the criteria shown in ANNEX B ("Criteria for Shortlisting"). Prospective bidders are required to submit the following:

I.2.1. Applicable Experience of the Firm (within the last 25 years).

I.2.2. Qualification of Officials, Key Organic Personnel who may be assigned to the field work; and

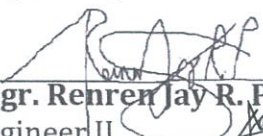
I.2.3. Current workload relative to capacity

*Note:*


Related experience includes previous contracts/services similar and relevant to this TOR. The key experts are requested to indicate: (1) their role in a specific project; (2) the exact duration that they have worked on the project as well as on their individual tasks (in months and years); and (3) a brief description of the tasks that they carried out.

I.3. The Consulting Firm shall be selected using the Quality-Cost Based Selection/Evaluation (QCBS/QCBE) procedure under RA 9184, or the Government Procurement Reform Act (GPRA), and its Revised Implementing Rules and Regulations (IRR) and shall be based on the following criteria: Eighty (80) percent Technical and Twenty (20) percent Financial.

Prepared by:

  
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Approved by:

  
**Engr. Juana T. Tapel**  
Director III

## ANNEX A

### PROJECT DURATION

The consulting services will have an expected duration of Twenty-Five (25) Calendar Days as shown below:

EXPECTED OUTPUTS	DURATION (25 CALENDAR DAYS)				
	5	10	15	20	25
Mobilization					
Drilling/Sampling					
Laboratory Test					
Geotechnical Report					

## ANNEX B

### Criteria for Short Listing of Interested Consulting Firm

	CRITERIA/PARTICULARS	SCORE/POINTS
<b>I</b>	<b>Experienced and Capability of Firm</b>	<b>50 points</b>
	▪ Years of Operations	5 points
	▪ Related Experience/ Previous Engagements	45 points
	- Similar Projects	Max 45 points
	- Relevant Projects	Max 22 points
<b>II</b>	<b>Qualification of Personnel</b>	<b>30 points</b>
	▪ Educational Attainment	6 points
	▪ Project Experience	15 points
	▪ Professional Experience	9 points
<b>III</b>	<b>Job Capacity</b>	<b>20 points</b>
	<b>TOTAL</b>	<b>100 points</b>

Note: The Consulting Firm should get a total of **at least 70 points** from the above-mentioned criteria to be shortlisted.

#### SIMILAR/RELEVANT CONTRACT/SERVICES

Similar contracts/services are those for the subsurface soil exploration such as boring test.

Relevant contracts/services are those for topographical and other engineering and land surveys, soil investigation such as georesistivity and seismic analysis.

\*Formula for Determining Financial /Job Capacity

$$FC = \frac{\text{Current Assets} - \text{Current Liabilities} - 2 \text{ months of all on-going contracts}}{2 \text{ months of the ABC}}$$

## ANNEX C

### Detailed Criteria in Evaluating Technical Proposals of Shortlisted Consulting Firm for the Procurement of Consulting Services for the Conduct of Soil Testing Exploration for Multi - Storey Administrative Building of the National Seed Technology Park (NSTP)

	CRITERIA/PARTICULARS	SCORE/POINTS
I	<b>Experience and Capability of the Firm</b>	<b>10 points</b>
	▪ Similar Projects	Max 10 points
	▪ Relevant Projects	Max 5 points
II	<b>Qualification of Personnel</b>	<b>50 points</b>
	▪ Educational Attainment	Max 7 points
	▪ Related Trainings Acquired	Max 3 points
	▪ Related Experience	Max 40 points
III	<b>Plan of Approach and Methodology</b>	<b>40 points</b>
	▪ Substance of the Proposal	Max 20 points
	▪ Completeness of the Proposal	Max 10 points
	▪ Clarity of Methods and Approaches	Max 10 points
	<b>TOTAL</b>	<b>100 points</b>

\*Note: The Consulting Firm should get a total of **at least 70 points** from the above-mentioned criteria. Criteria Nos. II and III shall have no score less than 50% each. Any bid where the score for Criteria Nos. II or III is lower than 50% of the maximum points shall be disqualified.