

Ref: 4054/024/JuA/01/4868

July 26, 2019

**GEOTECHNICAL INVESTIGATIONS FOR CONSTRUCTION OF  
WASTEWATER TREATMENT PLANT AT MEHMOOD BOOTI, LAHORE****Invitation of Bids for Geotechnical Investigations (Field and Laboratory Works)**

Dear Sir,

Sealed bid (Technical and Financial in separate sealed envelopes) is invited in accordance with the attached BOQ and qualification criteria from drilling Contractors for carrying out the geotechnical investigations for the subject project.

The companies capable of carrying out subject work are requested to provide their Company's Profile and the following documents along with their sealed bids:

1. PEC Registration Certificate
2. FBR & PRA Registration Certificates
3. List of Similar Projects completed during last three years
4. Financial Capability
5. Equipment Capability
6. Personnel Capability
7. Litigation History
8. HSE Policies

The work comprises; execution of boreholes up to 15 m depth below existing ground level (EGL) by straight rotary / percussion drilling method, excavation of testpits, performance of SPTs in boreholes, performance of field density tests in testpits, collection of disturbed/undisturbed soil samples, collection of borrow area samples, collection of water samples and laboratory testing of selected soil/water samples. The field and laboratory work shall have to be completed according to the following time schedule:

| Sr No. | Minimum No. of Straight Rotary Drilling Rigs Required | Total Time for Completion of Field Investigations | Total Time for Completion of Field & Laboratory Investigations |
|--------|---|---|--|
| 1      | 2   | 2 weeks   | 4 weeks  |

Your bid shall be valid for a time period of ninety (90) days after the bid opening. The work shall be executed under the instructions and full-time supervision of NESPAK engineers/geologists and the successful bidder shall mobilize to the site on two day's notice after issuance of Letter of Award/Acceptance.

The coordinates and ground elevations of all the boreholes and testpits by total station shall have to be provided to NESPAK before completion of investigation at site by the Contractor. The approved laboratory, where testing is to be carried out, shall be pursued by the successful bidder for timely completion of the assigned laboratory testing.

The successful bidder shall be responsible for providing the field borehole & testpit logs, summary of samples recovered, summary of laboratory test results and detailed laboratory test results to NESPAK, within the contract period. A premium of up to 25 % will be admissible on the official rates of the soil laboratory, selected for testing of samples. This premium has been allowed as compensation to the Contractor for making advance payment to the laboratory and later following-up for obtaining test results in time. The name of the laboratory should be provided on page 2 of 2 (Annexure-1).

**The bidders shall submit a bid security amounting to 5% of bid price at the time of submission of bids in the form of pay order or bank draft in favor of M/s NESPAK.**

Your **most competitive** sealed bids (**inclusive of all taxes**) in accordance with the BOQ and qualification criteria, should reach the office of the undersigned by 1100 hours on or before August 09, 2019. Technical bids would be opened on the same day at 1130 hours after their receipt in the presence of those bidders who wish to be present.

Financial bids would be opened after evaluation of Technical bids, at a time, date and venue announced and communicated to the technically responsive bidders in advance. However, the final decision to accept/reject any or all the bids as per PPRA rules solely lies with the undersigned. The entire work shall be carried out in accordance with the requirements of the General Bidding Documents for Geotechnical Investigations available at NESPAK website ([www.nespak.com.pk](http://www.nespak.com.pk)). **Payment of the entire work shall be made by NESPAK after receipt of its fee from Client.**

for National Engineering Services Pakistan (Pvt.) Limited



(JUNAID AHMED)  
General Manager/Head, F& P Section  
Geotechnical & Geoenvironmental Engineering Division

**GEOTECHNICAL INVESTIGATIONS FOR CONSTRUCTION OF WASTEWATER TREATMENT PLANT AT  
MEHMOOD BOOTI, LAHORE**

**GEOTECHNICAL INVESTIGATIONS  
BILL OF QUANTITIES**

| Sr. No. | Description  | Unit       | Qty. | Rate (Rs.) | Amount (Rs.) |
|---------|--|------------|------|------------|--------------|
| A.      | <b>FIELD INVESTIGATIONS</b>  |            |      |            |              |
| A1      | Mobilization and demobilization of at least two (2) straight rotary/ percussion drilling equipment along with allied accessories at site including access to site/investigation point, setting up and shifting from one investigation point to another. The equipment should be sufficient enough to complete the work within scheduled time.  | L.S.       | Job  |            |              |
| A2      | Execution of:<br><i>i) Six (06)</i> boreholes up to a maximum depth of 10 m and Four ( <i>04</i> ) boreholes up to a maximum depth of 15 m at Wastewater Treatment Plant location and flood protection bund<br><i>ii) Ten (10)</i> boreholes up to a maximum depth of 8 m along Sewer Pipe/Collector Channel<br>in overburden soils by straight rotary method including backfilling of boreholes to their original position. | L.M.       | 200  |            |              |
| A3      | Performance of Standard Penetration Tests (SPTs) in boreholes along with collection of SPT samples at 1 m interval in general, or as necessary, including their labelling, packing, storage & transportation to an approved testing laboratory.  | No.        | 170  |            |              |
| A4      | Collection of undisturbed soil samples from boreholes through Shelby/ Denison/Pitcher samplers, including their waxing, labelling, packing, storage & transportation to an approved testing laboratory.  | No.        | 10   |            |              |
| A5      | Excavation of eight (08) testpits up to a maximum depth of 1.5 m below top of ground including backfilling of pits to original condition.  | L.M.       | 12   |            |              |
| A6      | Performance of field density tests by sand replacement method in testpits generally @ 1 test/pit at selected horizons including determination of insitu bulk & dry density and collection of small disturbed samples in moisture tins, determination of moisture content as well as labelling, storage and transportation of samples to the approved laboratory.   | No.        | 8    |            |              |
| A7      | Collection of composite bulk soil samples (minimum 60 kg) from testpits including their labelling, packing, storage & transportation to an approved laboratory.  | No.        | 5    |            |              |
| A8      | Collection of composite soil samples for embankment construction (50 kg at least) from nearby borrow areas including their labelling, packing, storage & transportation to an approved testing laboratory.   | No.        | 5    |            |              |
| A9      | Performance of field permeability tests in boreholes at various depths using constant head or falling head methods for soil column/flush bottom conditions, as appropriate.  | No.        | 5    |            |              |
| A10     | Collection of water samples (if encountered) from boreholes including their labelling, packing, storage & transportation to an approved testing laboratory.  | No.        | 4    |            |              |
|         | <b>Sub-Total A</b>   | <b>Rs.</b> |      |            |              |

Establishment of coordinates and ground elevations of all the boreholes and testpits using Total Station are included in the scope of work. The coordinates should be provided with reference to a permanent local bench mark.

Preferred method of drilling is straight rotary drilling method. Percussion method will only be allowed in case of gravelly strata.

All soil samples must be labelled, stored and transported as per ASTM requirements. The area ratio and clearance ratio of the thin walled tubes should be in strict compliance with relevant ASTM standard.

**GEOTECHNICAL INVESTIGATIONS FOR CONSTRUCTION OF WASTEWATER TREATMENT PLANT AT  
MEHMOOD BOOTI, LAHORE**

**GEOTECHNICAL INVESTIGATIONS  
BILL OF QUANTITIES**

| Sr. No.             | Description   | Unit | Qty. | Rate       | Amount |
|---------------------|---|------|------|------------|--------|
| <b>B.</b>           | <b>LABORATORY TESTING</b>   |      |      | (Rs.)      | (Rs.)  |
| B1                  | Sieve analysis  | No.  | 50   |            |        |
| B2                  | Hydrometer analysis   | No.  | 10   |            |        |
| B3                  | Liquid and plastic limits   | No.  | 20   |            |        |
| B4                  | Bulk density & dry density  | No.  | 15   |            |        |
| B5                  | Consolidation with Swell Pressure Measurement                     | No.  | 5    |            |        |
| B6                  | Unconfined compression  | No.  | 10   |            |        |
| B7                  | Direct Shear  | No.  | 10   |            |        |
| B8                  | Modified AASHTO Compaction  | No.  | 10   |            |        |
| B9                  | 3-Point Soaked CBR  | No.  | 10   |            |        |
| B10                 | Permeability Tests  | No.  | 5    |            |        |
| B11                 | Sulphate content of soil  | No.  | 4    |            |        |
| B12                 | Chloride content of soil  | No.  | 4    |            |        |
| B13                 | Organic matter content of soil                                    | No.  | 4    |            |        |
| B14                 | Complete chemical analysis of water samples i/c TDS, Cl, SO4 & pH | No.  | 4    |            |        |
| <b>Sub- Total B</b> |   |      |      | <b>Rs.</b> |        |
| <b>Total (A+B)=</b> |   |      |      | <b>Rs.</b> |        |
| <b>Say</b>          |   |      |      | <b>Rs.</b> |        |

## **GEOTECHNICAL INVESTIGATIONS FOR CONSTRUCTION OF WASTEWATER TREATMENT PLANT AT MEHMOOD BOOTI, LAHORE**

### **1. Qualification Criteria**

Qualification will be based on the criteria given in the following paras regarding the Applicant's experience, personnel and equipment capabilities, financial position and litigation history, as demonstrated by the Applicant's responses in the Forms attached as Annex-A to this Document. The Employer reserves the right to waive minor deviations, if these do not materially affect the capability of an Applicant to perform the contract by the Applicant.

Experience and resources of the Company intended to be employed as sub-contractor shall not be taken into account in determining the Applicant's compliance with the qualifying criteria. However, for joint venture, collective experience, resources and financial soundness of all partners shall be considered.

#### **1.1 General Information**

The Applicant shall provide general information of his firm as per the format specified in the Application Form A-1 attached in Annex-A.

#### **1.2 Experience of the Firm**

The Applicant shall meet the following minimum criteria:

- 1) Successful experience as contractor in the execution of at least five (5) projects involving bulk of geotechnical investigations within the last three (03) years. This experience should specifically be of geotechnical investigations of similar nature. The Applicant will supply information as per the format specified in the Application Form A-2 attached in Annex-A.

#### **1.3 Personnel Capabilities**

The Applicant must have in his employment, suitably qualified and experience personnel to fulfill the positions tabulated below. The Applicant will supply information as per the format specified in the Application Form A-3 attached in Annex-A.

| <b>Sr. No.</b> | <b>Position</b>                             | <b>Qualification*</b>  | <b>No.</b>     | <b>Minimum Experience (Years)</b> |
|----------------|---|--|----------------|-----------------------------------|
| 1              | Technical Manager                           | B.Sc. Civil Engg.  | 1              | 5                                 |
| 2              | Site Geologist/<br>Supervisor /<br>Engineer | M. Sc. Geology/ B.Sc.<br>Civil Engg. / B.Sc.<br>Geological Engg. | 2              | 2                                 |
| 3              | HSE Supervisor                              | HSE Certification<br>course                                      | 1              | 1                                 |
| 4              | Driller                                     | Literate   | 2              | 3                                 |
| 5              | Skilled Labor                               | -  | As<br>Required | -                                 |

#### **1.4 Equipment Capabilities**

The Applicant should own, or have assured access to the following key items of equipment in full working order, and must demonstrate that, based on known commitments, these will be available for deployment on the proposed works.

| <b>Sr. No.</b> | <b>Equipment Type &amp; Characteristics</b>   | <b>Minimum Number Required</b> |
|----------------|---|--------------------------------|
| 1              | Straight Rotary Drilling rig complete in all respects including drilling rods, bits, mud pumps etc. along with at least one stand-by rig. | 2                              |
| 2              | Casing set having various diameters for all types of boring at least 15 m in length with casing bits.                                     | 2                              |
| 3              | Standard penetration test equipment complete in all respects including all rods, split spoon sampler, hammer and containers etc.          | 2                              |
| 4              | Denison/Pitcher/Shelby samplers   | 2 each                         |
| 5              | UDS tubes & Split Spoon Samplers  | As Required                    |
| 6              | Hydraulic jacks with all accessories for the extraction of casings  | 2                              |
| 7              | Electrically operated sounder for groundwater level measurement   | 2                              |
| 8              | Testpit excavation equipment complete in all respect  | As Required                    |
| 9              | Field density test apparatus (with 6 and 12 inches dia. cone) complete in all respect   | 2 each                         |
| 10             | Wooden box for the preservation of undisturbed soil samples   | As required                    |
| 11             | Transport for mobilization of equipment   | As required                    |

The Applicant will supply information as per the format specified in the Application Form A-4 attached in Annex-A.

#### **1.5 Financial Capabilities**

The Applicant shall meet the following minimum criteria:

- 1) Average annual turnover which is also termed as income from contracting for procurement of geotechnical investigations and is defined as billing for works completed during the last three (3) years of at least Rs. 2 million or the said figure has been achieved in any year during the last three (3) years.

The Applicant shall also provide evidence of financial health such as bank account statements, available line of credits, etc., to show the soundness of the Applicant's financial position for procurement of geotechnical investigations works. The Applicant will provide annual turnover of the geotechnical investigation works carried out by him during the last three years. The Applicant will supply annual turnover information as per the format specified in the Application Form A-5 attached in Annex-A.

### ***1.6 Litigation History***

The Applicant should provide accurate information on any litigation or arbitration resulting from Contracts completed or under execution over the last three (03) years. The Applicant will supply information as per the format specified in the Application Form A-6 attached in Annex-A. A consistent/ overwhelming history of award against the Applicant may result in rejection of the application. In case an Applicant claims Nil litigation, he shall submit the same statement on the letter head of his company.

### ***1.7 Application of Health, Safety and Environmental Standards***

The Applicant should provide the HSE Policies and supporting documentary evidence for the following:

- i) First Aid Box
- ii) Personnel Protective Equipments (PPEs)
- iii) Standard Operating Procedures (SOPs)
- iv) Health, Safety and Environmental (HSE) Policies
- v) HSE staff

The Applicant will supply information as per the format specified in the Application Form A-7 attached in Annex-A.

## Application Form A-1

Page \_\_\_ of \_\_\_ Pages

**General Information**

All individual Applicants applying for qualification are requested to complete the information in this form. Nationality information (if applicable) is also to be provided for foreign owners as required under the PEC Bye-Laws as a Partnership.

|    |  |  |
|----|--|--|
| 1. | Name of Firm   |  |
| 2. | Head Office Address  |  |
| 3. | Telephone  | Contact Person:<br>Name:<br>Title:<br>Cell No. |
| 4. | Fax  | E-mail   |
| 5. | Place of Incorporation/Registration<br>Certificates of the firm* | Year of incorporation/registration             |

**\* Registration certificates must include:**

- Valid registration with Pakistan Engineering Council (PEC)
- Valid registration with Federal Board of Revenue (FBR)
- Valid registration with concerned Provincial Revenue Authority (PRA)
- Proof of active taxpayer of FBR & PRA



**Experience of the Firm**

Name of Applicant: \_\_\_\_\_

| Sr. No. | Name of Project | Value of Geotech Contract* (Pak Rs.) | Contract Duration |
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***\*Attach copy of Letter of Awards / Project Completion Certificates for any five (5) latest projects involving bulk of geotechnical investigations within the last three (03) years.***

**Personnel Capabilities**

*Name of Applicant:* \_\_\_\_\_

| <b>Sr. No.</b> | <b>Name of Person</b> | <b>Qualification</b> | <b>Designation/<br/>Position*</b> | <b>Total Experience</b> |
|----------------|-----------------------|----------------------|-----------------------------------|-------------------------|
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*\*Attach CVs of the Key Staff Members.*

**Equipment Capabilities**

Name of Applicant: \_\_\_\_\_

| Sr. No. | Equipment Description | Capacity | Number of Equipment | Working Condition<br>a) Very good<br>b) Good<br>c) Satisfactory | Current Location |
|---------|-----------------------|----------|---------------------|---|------------------|
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**Financial Capabilities**

*Name of Applicant:* \_\_\_\_\_

| <b>Year</b> | <b>Annual Turnover<br/>(in PKR)</b> |
|-------------|-------------------------------------|
| 2017 - 2018 |                                     |
| 2016 - 2017 |                                     |
| 2015 - 2016 |                                     |

*Note: Financial soundness certificate from the bank(s) as specified in section 1.5 must be provided by the Applicant*

**Litigation History**

Name of Applicant: \_\_\_\_\_

| <b>Year</b> | <b>Award for or against Applicant</b> | <b>Name of Client, cause of litigation, and matter in dispute</b> | <b>Disputed amount (current value Pak Rs. or equivalent)</b> |
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**Health, Safety and Environmental (HSE) Policies Personal Protective Equipment (PPE) and Standard Operating Procedures (SOP) of the Contractor**

Name of Applicant: \_\_\_\_\_

*The Applicant should provide the following policies/supporting documentary evidence as required in Para 1.7.*

**A. HSE Policies**

Please attach HSE Policies

**B. Details of PPE Available with the Contractor**

| Sr. No. | Type of PPE | Total Number |
|---------|-------------|--------------|
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**C. Details of SOPs of the Contractor**

Please attach the copies of SOPs