Sukkur IBA University

Establishment of Sukkur IBA University Campus Mirpur Khas

Geotechnical Investigation
for
Establishment For Sukkur IBA Campus @ Mirpur Khas

CONSULTANTS (JV):

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CONTRACT

FOR

GEOTECHNICAL INVESTIGATION

FOR

ESTABLISHMENT OF SUKKUR IBA CAMPUS AT MIRPUR KHAS

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APRIL 2022

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SECTION-I
GENERAL CONDITIONS

1.1 Definitions

The following words and expressions shall have the meaning assigned to them except where the context otherwise requires:

(a) The "Engineer" shall mean Project Consultant, appointed by the IBA Sukkur for "Establishment of IBA University Campus at Mirpur Khas.

(d) The "Consultant" means Project Consultant, JV of M/s ESS-I-AAR and M/s ABM Engineers.

(e) The "Contractor" shall mean any person, firm or company whose tender has been accepted by the Engineer.

(f) The "Party" shall mean the Engineer or the Contractor depending on the context.

(g) The "Contract" shall mean the agreement between the Engineer and the Contractor, which includes General Conditions, Technical Specifications, and Bill of Quantities with respect to the Contract contents.

(h) The "Works" shall mean the works to be performed by the Contractor under this Contract.

(i) The "Bill of Quantities" shall mean the priced schedule annexed under the Contract.

(j) The "Unit Price" shall mean the unit price stated in the Bill of Quantities attached to the Contract.

(k) The "Technical Specifications" shall mean the specifications annexed under the Contract.

(l) The "Drawings" shall mean the drawings required in the Technical Specifications and any modification of such drawings requested by the Engineer.

(m) The "Site" shall mean the places where the Contractor shall perform the Works task as indicated in the Contract.

(n) The "Currency of Payment" for this Contract is the Pak Rs.

(o) The "Payment for the Works" shall mean actual Payment, which is calculated with Actual Quantities and Unit Prices.

1.2 Effective Date of Contract

The Contract shall start on the date when the Contract has been approved by the Client "Project Director – Sukkur IBA University" and ends on the date of the final approval of the whole results of the Works issued by the Engineer.

1.3 Language

This Contract has been executed in English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of the Contract. All the correspondences, figures, drawings and other documents shall be made in English language.

1.4 Manner of Execution

All the Works under this Contract shall be executed in accordance with the Technical Specifications, the Bill of Quantities, or where not specified therein in accordance with such instructions and orders as the Engineer may give. The Contractor shall be responsible for observing all regulation and safety precautions required by authorities and/or through legislation. The Contractor shall be responsible on works organizing and to keep a good relation with the project related persons and settle any conflict with them at his own responsibility and expenses.

All contract documents have to be taken as mutually explanatory of one another, but in case of ambiguities or discrepancies the document shall be adjusted as much as possible by amicable arrangement between the concerned parties.

1.5 Permissions and Licenses

All the permissions and licenses from appropriate authorities or private agencies concerning the Works execution at the Site shall be arranged by the Contractor at his own expenses and under his responsibility.

1.6 Contractor's Representatives and Staff Members

The Contractor shall make his own arrangement for all engineers, technicians and labors necessary for the execution of the Works. Through the contract period, the Contractor shall determine the number of personnel so as to ensure completion of Works within the agreed time table by both parties for every work. The Contractor shall also give due consideration to any suggestions, which the Engineer may have in respect to these matters. The Engineer holds the right to request a replacement of any Employee whenever the Engineer judge him to be inappropriate for the Work. The Contractor shall submit to the Engineer for approval a complete list of principal staff, including his representatives at the Sites, showing names, functions, personal bio-data and the periods of their assignments prior to the commencement of the Works. The Contractor shall be responsible for observation of all regulations and safety precautions imposed by labor legislation and authorities in Pakistan.

1.7 Security and Safety Control

The Contractor shall maintain the public morality of his staff and labors on and off the site and pay special attention to the security and safety issues during the execution of the Works. The Contractor shall establish a concrete communication system and safety control. Also, a guard system (Every survey group should has adequate number of security guards) shall be provided at his own expenses. The Contractor shall submit a written program regarding the security and safety control to the Engineer for his approval before commencement of the Works. The Engineer shall have the right to order the Contractor to upgrade the security and safety control program whenever evaluated to be necessary by the Engineer.

1.8 Materials, equipment and facilities to be provided by the Contractor

The Contractor shall provide the equipments, materials, laborers and other items of every kind required for the execution and completion of the Works at his own expense. The Engineer holds the right to request a replacement of any equipment, materials which evaluated to be inappropriate for use.

1.9 Program to be furnished

The Contractor shall submit to the Engineer for approval of his proposed time schedule and the details of field operation program for every work item before the Contract Signature. The time schedule must comply with the stipulation in the clause 2.15 hereinafter.

After approval of the time schedule and the field operation program, the completion time of the Works, shall be considered as "Guaranteed Time for Completion of the Works". The Contractor shall adhere to the decided procedure, method and time schedule unless he obtains a written permission from the Engineer to vary such procedure, method or time schedule.

1.10 Insurance

The Contractor shall carry out an accident and injury insurance for his appointed personnel to execute the agreed works task on his own expenses. Also, the Contractor shall carry out these insurances in the way, which protect the "Engineer" from any compensation claims due to such accidents or injuries.

The Contractor shall insure the provided equipment, materials and facilities at his own expenses, for its full value against loss, damage and fire.

1.11 Terms of Payment

The payment for the Works shall be made by the Engineer to the Contractor in the following manner:

Advanced payment equivalent to thirty (20) percent of the Contract Price (on submission of Bank Guarantee) shall be paid to the Contractor after completing the personnel and equipments mobilization and getting the Engineer confirmation at the Site.

The interim payment at thirty (30) percent of the contract amount shall be paid to the Contractor within fifteen (15) days after fifty (50) percent of the field works in progress is completed. Balance payment of forty (50) percent shall be paid to the Contractor within ten (10) days after the approval given by the Engineer on the Works completion. No extra payments shall be made in respect to overtime, holiday works, additional equipment, materials and facilities, and etc.

1.12 Taxes and Related Charges

All the income and other taxes, levies, imposition, deductions, charges, fees and etc. imposed by the Federal and Provincial Government of Pakistan, or any sub-divisions thereof or any taxing authority therein, on the Contractor and his staff shall be paid by the Contractor.

1.13 Variation and Omissions

The Contractor shall not alter any of the Works except as instructed in writing by the Engineer. The Engineer shall have full power, during the execution of the Contract, to instruct the Contractor to alter, amend, omit, add or otherwise vary any of the Works, by notice in writing, and the Contractor shall carry out such new instructions. In any case where such new instructions involves an increase or decrease in the Contract Price, the difference in cost to the Contract, if any, occasioned by such variations, shall be adjusted from the Contract Price as the case may require, unless otherwise is specified.

1.14 Rejection

If at any time before the Works are accepted by the Engineer, the Engineer decides that any work done by the Contractor is defective or not in accordance with the Contract or that the Works or any portion thereof are defective or not fulfilling the requirements of the Contract, the Contractor shall, in minimum time and at his own expense, rectify such defects. In case the Contractor shall fail to comply, the Engineer may, take at the cost of the Contractor, any steps necessary to rectify such defects.

1.15 Time for Commencement and Completion

The Contractor shall commence the works immediately after the signing of this Contract.
The whole Works shall be completed within thirty (30) calendar days after the date of the Contract signing. The Contractor shall submit the data and/or information of progress of the Works to the Engineer promptly even if the work still continued.

1.16 Delays in Completion

If the Contractor fails to complete the Works according to the Contract date of completion without acceptable reasons to the Engineer, there shall be a deduction from the Contract Price equal to one percent (1%) of the Contract Price for each day between the stipulated completion date and actual completion date. Such deduction shall be in full satisfaction of the Contractor's liability for the delayed period.

1.17 Certificate of Completion of the Works

When the Engineer decides that, the whole Works has been satisfactorily completed, the Engineer shall issue a Certificate of the Works completion to the Contractor upon which the Contractor shall claim the balance of payment.

1.18 Assignment and Sub-letting of the Contract

The Contractor shall not, without prior permission in writing by the Engineer, assign or transfer the Works or the benefits or obligations thereof to any other party. The Contractor shall not, without prior permission in writing by the Engineer, sublet the Contract or any part thereof or make any sub-contract with any party.

1.19 Documents Prepared by the Contractor shall be the Engineer's Property

All plans, drawings, reports and other documents prepared by the Contractor in performing the Services shall become and remain the Engineer's property and shall not passed or transferred to any other party without a prior written permission by the Engineer.

1.20 Inspection of the Work

The Engineer has the right to access to the Works wherever it is in preparation or progress and the Contractor shall provide necessary facilities for such access for inspection. Moreover, when the technical specifications require any work to be specially tested or approved before or during application, the Contractor shall give the Engineer timely notice of his readiness for inspection.

1.21 Force Majeures

For the purpose of this Contract, "Force Majeures" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations impossible or impractical in the circumstances, which include, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial actions. The failure of a Party to fulfill any of its obligations in such a case shall not be considered to be a breach of or default under this Contract as such inability arises from an event of Force Majeures, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

Not later than five (5) days after the Contractor, as the result of an event of Force Majeure, has become unable to perform the Works task, the Parties shall consult together with a view to agree on appropriate measures to be taken in such circumstances.

1.22 Arbitration and Governing law

Parties shall make every attempt to resolve in an amicable way any disputes concerning the interpretation of this Contract or performance of the Contract. Any disputes which cannot be resolved by Parties and any controversy or claim otherwise arising out of or in connection with this Contract or breach thereof, shall be finally settled by the arbitration under the Rules of Arbitration of Pakistan. Judgment on the award rendered may be entered in any court of competent jurisdiction agreed by all Parties and shall be binding and conclusive upon Parties.

1.23 Measurements and Payment

Payment will be made based on the actual quantities and the unit rates given in the "Bill of Quantities". The rates and prices in the Bill of Quantities shall be the full inclusive rates and prices for the completed Works described under the respective items and shall cover, but not limited to, all labors, equipments, tools, materials, transportation, accommodations, temporary works, site preparation such as bush clearing, other incidentals necessary for Works completion, recording and presenting the results. Overhead charges and profits as well as general liabilities, obligations and risks arising out of the Conditions of Contract also shall be included.

Payment for mobilization and demobilization of materials, equipments and personnel shall be made on a lump sum basis which shall constitute full compensation for shipping, mobilization, transportation, assembling & dismantling, preparation and withdrawal of all manpower, equipments, tools, materials and accommodations necessary for the execution of the Work prior to, during and after the field operation. Also the payment shall include the pay to get the right of way and the necessary expenses to meet all applicable requirements of local and governmental regulations and codes.

Re-survey and confirmation works shall be deemed to be included in the relevant bill item and extra payment shall not be made.

SECTION-II

TECHNICAL SPECIFICATIONS

2.0 SOIL INVESTIGATIONS AT ESTABLISHMENT OF SUKKUR IBA CAMPUS @ MIRPUR KHAS

2.1 Scope of Work

The purpose of the Work specified herein is to determine the type, nature, arrangement, thickness and texture of the various subsurface strata, the conditions and the Engineering characteristics of the subsurface materials as they exist to the depth and at the locations specified. This is to be accomplished by means of drilling, in-situ testing, collection of disturbed and undisturbed soil and water samples and laboratory testing.

The Contractor shall carry out the specified works under the supervision of the Engineer's Representative.

2.1.1 Plant and Equipment

The Contractor shall keep at-least on rotary drill machine and one percussion winch along with accessories on the site to meet the requirements of the Work. The plant and equipment shall be in good operating condition and capable of performing efficiently the work as set forth.

2.1.2 Drillers and Supervisory Staff

The Contractor shall provide qualified, experienced, orderly and thoroughly competent persons at all times including geotechnical engineers or engineering geologists who shall conduct and supervise drilling, sampling, logging and in-situ testing at the site. The Contractor shall remove any of his employees from the site that in the opinion of the Engineer does not meet these requirements.

The Contractor shall make his own arrangements for housing of his personnel, security and storage of the equipment and supplies at the site.

2.1.3 Setting up at each Hole

The Contractor shall make all the necessary arrangements for setting-up plant and equipment at each location, carrying out the work specified, preparation and reinstatement of the work areas, improvement to access routes and all other temporary works.

2.1.4 Measurement of Quantities

The quantities shown in the Bill of Quantities are only approximate. The payment shall be made on the basis of actual work performed in accordance with the Specifications.

2.1.5 Measurement of Quantities

The Contractor shall supply complete field and laboratory investigation data to the Engineer's Representative within the time set-forth for completion of works. This data shall include copies of all the approved logs and test records provided during the course of the Contract including any alterations or amendments required by the Engineer's Representative.

22 Work Methodology

2.2.1 Investigated Areas

The location of the boreholes will be selected as directed by The Engineer. The Engineer will specify from time to time during the Contract period, the exact location and reference number of all holes. To locate the holes accurately in the field shall however be the Contractor's responsibility.

2.2.2 Casing

A hole shall be cased in any stratum which is friable or not sufficiently strong to stand unsupported, or as and when directed by the Engineer's Representative.

The Contractor shall ensure that casings are of a suitable size and inserted in such a manner as to render them recoverable. The Contract Rates for drilling shall be deemed to include the supply, insertion and recovery of casing including any damage, loss or delay caused by difficulty or failure in recovering casing.

2.2.3 Removal of Casing

Casing shall neither be removed from any hole nor any filling introduced into it until permission is given by the Engineer. The permission will normally by given as soon as work in the hole is completed and the groundwater level has been measured.

As far as possible the Contractor shall avoid leaving a hole overnight after he has begun to withdraw the casing and before he has finished.

2.2.4 Supplementary Holes

Abandoned holes and / or the holes from which unsatisfactory samples have been obtained and/or in which unsatisfactory field tests have been performed due to the negligence of the Contractor shall be supplemented by other holes adjacent to the original location. The exact location of such supplementary holes shall be specified by the Engineer in the field.

The depth where the unacceptable holes were abandoned or to the depths where unsatisfactory samples were obtained or unsatisfactory field testing was performed may be made by any method selected by the Contractor that in the opinion of the Engineer will permit satisfactory field testing

and sampling below those depths at which original hole was abandoned shall be carried out using only the specified method of advancing the hole.

No payment will be made for that portion of the supplementary hole above the depth paid for in the unacceptable hole.

2.2.5 Groundwater Level

The groundwater level in holes shall be determined after completion of the hole or when required by the Engineer, as follows:

Clear water shall be added or the hole shall be bailed-out as necessary to bring the water level to the expected groundwater level as directed by the Engineer and the water level shall be measured and recorded at intervals of 6 hours for a period of twenty four (24) hours thereafter.

2.2.6 Backfilling Holes

Boreholes shall be backfilled with grout as directed by the Engineer.

Grouting for backfilling holes shall consist of a mud formed by mixing one (1) part by weight of bentonite with ten (10) parts of water, to which two parts by weight of cement shall be added after the bentonite and water have been thoroughly mixed. Alternatively, holes may be backfilled with purpose-made pellets of bentonite or bentonite/cement, provided they are of a size which, in the opinion of the Engineer, is compatible with the size of hole. If there is no standing water in the hole, grout may be poured in from the top. If there is standing water in the hole, the grout shall be fed into the bottom of the hole by a tremie pipe, the end of which shall always be below the groundwater junction while grouting is being carried out.

Grout backfill shall be taken up to 30 cm below the original ground level. Any apparent loss of grout due to leakage or consolidation within one week shall be made-up with fresh grout and then the remaining depth of the hole shall be filled with concrete.

2.2.7 Logs

Logs of boreholes shall be provided on an approved specimen. These shall include descriptions of all strata including details of the soil macrofabric (such as frequency, orientation and nature of fissures) and details of samples taken, and an account of all observations and field tests. Logs of boreholes shall include notes on the nature, quantity and colour of the drilling fluid returns. All logs shall be subject to the approval of the Engineer and two draft copes shall be submitted to the Engineer, not more than two days after the hole is backfilled. Soil descriptions shall conform to ASTM designation D 2488 and classified according to ASTM designation D 2487. All depths and thicknesses of topsoil and strata shall be recorded in meters and all reduced levels shall be recorded in meters with reference to Survey of Pakistan datum. Accurate determination of ground

levels at all the hole points is the Contractor's responsibility for which no extra payment shall be made.

2.2.8 Contractor's Responsibility for Records

The presence of the Engineer or any of his staff and their keeping separate drilling records shall not relieve the Contract of any of his responsibilities for keeping records.

2.2.9 Order of Work

The order in which the work is to be accomplished shall be determined and approved in the field by the Engineer.

23 Drilling

2.3.1 Depth of Drilling

Drilling would generally be required up to a minimum of 45 meters depth or at least 5 m below the pile tip level, whichever is more or as directed by the Engineer.

2.3.2 Accuracy of Alignment of Holes

Boreholes will be within 2 degrees of the vertical unless the Engineer's Representative has ordered the drilling of an angled hole in which case the hole angle shall be within 5 degrees of the angle specified.

2.3.3 Drilling Plant

The drilling plant and ancillary equipment to be mobilized at the site should be adequate to advance the boreholes in an efficient manner, to the required depths.

Rotary drilling rigs shall be of the hydraulic feed type equipped with side discharge type fish tail and tricone bits for drilling. Bits and casing shall conform to B.S. 4019; Part I; 1974 or an approved equivalent.

Drilling bits shall be of side discharge type designed to prevent unnecessary disturbance of soil at bottom of the hole by flow of drilling fluid, unless the Engineer directs otherwise.

2.3.4 Drilling Procedure

The method of drilling shall be of any approved standard and accepted method by means of which a hole of specified diameter is extended to the desired depth. The normal method of drilling shall be rotary unless gravelly strata are encountered where percussion may be used.

During drilling the Contractor shall regulate the drilling operation which ensures minimum disturbance in the underlying material in which the in-situ testing and sampling is to be carried out.

In rock, core drilling shall be carried out in such a manner and using such sizes of bits, that the maximum core is recovered. This requires close surveillance of the flushing media, drilling pressures, lengths of runs, use of appropriate core barrels and other factors relevant to the nature of the material drilled. The drill bit shall be withdrawn and core removed as often as may be necessary to secure the maximum possible amount of core. In soft or friable formation dry drilling techniques may be required using single tube core barrel with tungsten carbide bits as directed by the Engineer. The cores would be placed in core boxes in a proper manner.

2.3.4 Stabilizing of Holes

Drilling mud of suitable consistency shall be used during rotary cum wash boring to stabilize the walls of boreholes by preventing caving-in and to avoid disturbance of the sampling horizons. The drilling mud shall be a mixture of bentonite and water with approved chemical additives being used, if required, to assist in modifying its density and viscosity. The density and viscosity shall be selected considering such factors as hole stability, cutting operation and undisturbed samples recovery.

Where drilling mud is not effective, casing of appropriate size and strength may be used subject to the approval of the Engineer. It will be responsibility of the Contractor to use appropriate means to stabilize the walls of the boreholes.

It shall be ensured that there is no jetting action of the drilling fluid. The minimum amount of drilling fluid necessary to carry away the cuttings shall be used. During drilling the Contractor shall regulate the pressure of the drilling fluid to ensure minimum disturbance to the underlying material in which the in-situ testing and sampling is to be carried out.

24 Sampling

2.4.1 General

The Contractor shall take disturbed or undisturbed samples from any borehole when ordered to do so by the Engineer. This shall include the provision of all necessary sampling equipment, tubes and containers, crates and boxes, as well as handling and transportation to the approved laboratory or store at site.

2.4.2 Approval of Equipment

No equipment or containers shall be used unless and until approved by the Engineer.

2.4.3 Care of Samples

The Contractor shall be responsible for the safe keeping of samples of all kinds until these have been handed over to the designated laboratory or disposed-of on the Engineer's instruction as the

case may be. Any sample lost, damaged or showing signs of deterioration while in the Contractor's care shall be replaced by the Contractor at no expense.

2.4.4 Labeling Samples

All disturbed and undisturbed soil samples and water samples taken from holes shall be clearly labelled. Each label shall include the following information.

i). Name of Contract
ii). Reference number of the holes
iii). Reference number of sample
iv). Date of sampling
v). Brief description of the sample (e.g. stiff brown silty clay)
vi). Depth of the top and bottom of the sample below ground level
vii). Number of the samplertube

Tubes and crates for undisturbed samples shall be labelled "Do not jar or vibrate" and "Haul and transport in a horizontal position".

2.4.5 Disturbed Samples

In all the boreholes, small disturbed samples shall be taken at the top of each stratum, and at intervals as directed by the Engineer. Material from the cutting shoes of open drive undisturbed samples, and from the split spoon sampler used for Standard Penetration Tests, shall also be taken as disturbed samples.

2.4.6 Undisturbed Samples

Undisturbed sampling from boreholes shall be done by Shelby tube or Pitcher/Denison samples or as directed by the Engineer. The undisturbed samples should be properly sealed and preserved as directed by the Engineer.

2.4.7 Cores

The cores obtained from boreholes shall be carefully removed from the core barrel and placed in the boxes in the correct sequence, with increasing depth from left to right and top to bottom in the box. Coloured photographs of cores shall be taken at site.

Where the core is contained in an expandable triple tube liner, the ends of the tube shall be sealed and waxed as directed by the Engineer.

Each core run shall be segregated by labelled wooden blocks 25 mm thick and the depth of the bottom of each run shall be marked on the partitions in the core box with paint.
No box shall contain more than 3 meters of core.

2.4.8 Cores Samples

Selected cores, preferably not less than 30 cm in length, shall be preserved as core samples. The preservation would consist of clearance of any loose sludge, waxing of cores, packing in wooden boxes using sawdust and labelling before transportation to the testing laboratory.

2.4.9 Water Samples

The Contractor shall take water samples from holes when directed by the Engineer before the addition of water to the hole unless it is unavoidable. If necessary, the hole shall be bailed-out before taking the sample to ensure that any potential contaminant is removed. No fuel or other potential contaminant shall be allowed to enter the hole. The method of sampling shall be as approved by the Engineer. Samples shall only be stored in approved, air tight and scrupulously clean, containers and shall not be less than 1 litre in volume.

2.4.10 Transportation of Samples

All samples shall be shifted to the store at the site, the day they are collected. Samples in tubes shall be kept and transported with the tube in a horizontal position.

The samples shall be continuously transported to the testing laboratory on conclusion of every borehole and on the instructions of the Engineer. The laboratory for testing shall be approved by the Engineer.

25 In-Situ Tests

2.5.1 Standard Penetration Tests (SPTs)

When directed by the Engineer the Contractor shall carry out Standard Penetration Tests (SPTs) in boreholes. The penetration resistance 'N' shall be expressed as the number of blows of a 63.5 kg hammer freely dropping 76.2cm required to force the standard split tubes ampler 30.5cm into the soil.

Standard Penetration Test (SPTs) shall be conducted in the boreholes in accordance with ASTM 1586 generally at 1 meter depth interval or as directed by the Engineer at the site.

26 Laboratory Testing

2.6.1 General

The samples shall be tested in a laboratory approved by the Engineer. The Engineer shall have access to the laboratories to supervise and check the laboratory testing of the samples. The testing shall be carried out in accordance with ASTM, BSS or AASHTO Standards or as directed by the Engineer. The Contractor shall arrange to carry out the following laboratory tests on the specified samples of the subsoil materials. The samples to be tested and the tests to be carried out for each sample shall be specified by the Engineer.

2.6.2 Type of Tests

Sr. No.	Name of Test	Standard
i.	Grain size analysis	ASTM D 422
ii.	Liquid limit, plastic limit	ASTM D 4318
iii.	Specific gravity	ASTM D 854
iv.	Unit weight of soil	
v.	Unconfined compression (soil)	ASTM D 2166
vi.	Unconfined compression (rock)	ASTM D 2938
vii.	Natural moisture content	ASTM D 2216
viii.	Consolidation	ASTM D 2435
ix.	Direct shear	ASTM D 3080
x.	Triaxial compression test	ASTM D 4767
xi.	Sulphate content of Soil	BS 1377
xii.	Organic matter content of soil	BS 1377
xiii.	Total dissolved salts of soil	BS 1377
xiv.	Chloride content of soil	BS 1377
xv.	Chemical analysis of water a) Sulphate content of water b) Total dissolved salts of water c) Chloride content of water d) pH of water	BS 1377

27 Record and Reports

2.7.1 Records

a) The Contractor shall keep accurate logs and records of all work accomplished under this item. All such records shall be preserved in good condition and order by the Contractor until these are delivered and accepted by the Engineer. The Engineer shall have the right to examine such records at any time prior to their delivery to him.

Separate logs shall be made for each borehole. The following information shall be included on the logs or in the records for boreholes:

i. Borehole number or designation and elevation of top of borehole.
ii. Method of drilling holes.
iii. Dates and time by depths when hole was performed.
iv. Type of drilling fluid used.
v. Depths at which samples were recovered or attempts made to collect samples along with designation, thickness and type.
vi. Record of SPT on borehole log.
vii. The classification or description by depth of the materials samples including a description of condition of compactness or stiffness of soil materials encountered and moisture conditions.
viii. Depth of groundwater level if encountered.
ix. Depth of bottom of borehole.

b) The Contractor shall furnish the Engineer with the record as specified above in duplicate, not later than 48 hours after completion of each borehole.

c)

d) The presence of Engineer or the keeping of separate records by the Engineer shall not relieve the Contractor of the responsibility for the work specified in this Section. Payment shall not be made for any work for which the records have not been furnished by the Contractor.

2.7.2 Reports

a) The results of each borehole and the field tests carried out shall be communicated to the Engineer as follows:

i). Oral reports as the work proceeds.
ii). Three sets of complete data of the work within two (2) days of the date of completion of borehole.

b) The data shall comprise:

i). A site plan showing the position of the boreholes and giving their map reference.
ii). The borehole logs.
iii). Complete results of field test
iv). Comments on any point which the Engineer has put-up to the Contractor for inquiry and investigation during the Works.

c) Complete results of laboratory tests shall be communicated to the Engineer within seven (07) days of the date of completion of borehole.

28 Measurement and Payment

The measurement and payment for the Work specified in the Contract for drilling of boreholes, collection of disturbed, undisturbed and rock core samples, performing the standard penetration tests, laboratory testing and compilation and submission of results shall be done and paid for as per the pay item given in the BOQ, which payment shall be full compensation for furnishing all labour, material, tools, equipment and incidentals and for performing all the work involved in this item as mentioned above in this specification.

ANNEXURE

S

ANNEX-A

BILL OF QUANTITIES FOR GEOTECHNICAL INVESTIGATION

Pay Item No.	Item Description	Unit	Assumed Quantity	Amount (Pak Rs)
BILL NO. 4D : STRUCTURES (SOIL INVESTIGATION FOR BRIDGES)				
1	Mobilization & Demobilization of Personnel and Materials and Equipment for Project Site	LS	1.00	
2	6" minimum dia drilling straight rotary / Percussion including back filling of holes from NSL upto 20m depth or till the rock level whichever is met earlier.	LM	160.00	
3	Perform SPT at 1 m interval i/c collection, preservation & Transportation of disturbed samples to an approved Laboratory.	No.	98.00	
4	Continuous core drilling in bedrock up to a maximum of 5 m depth below rock strike level, including determination of core recovery/RQD, preservation of core samples in core boxes, labeling, waxing of selected core samples, photography of rock cores and transportation of core samples to the laboratory. In case core recovery is less than 80% reduce run length to 0.5m. (if encountered)	LM	25.00	
5	Collection of undisturbed soil samples from boreholes using Shelby pitcher/denison sampler i/c preservation and transportation of samples to an approved Laboratory.	No.	30.00	
6	Laboratory Testing			
i.	Grain size analysis.	No.	98.00	
ii.	Hydrometer analysis.	No.	98.00	
iii.	Atterberg limits	No.	98.00	
iv.	Specific gravity	No.	98.00	
vi.	Bulk density & Dry density (Soil/rock cores)	No.	12.00	
vii.	Direct shear test	No.	16.00	
viii.	Consolidation test	No.	16.00	
ix.	Unconfined compression test (Soil/rock cores)	No.	16.00	
x.	Chemical analysis of soil	No.	16.00	
xi.	Chemical analysis of water	No.	8.00	
xii.	Submission of Investigation Report (triplicate)	L/s		
	TOTAL QUOTED AMOUNT :			

Selection Criteria

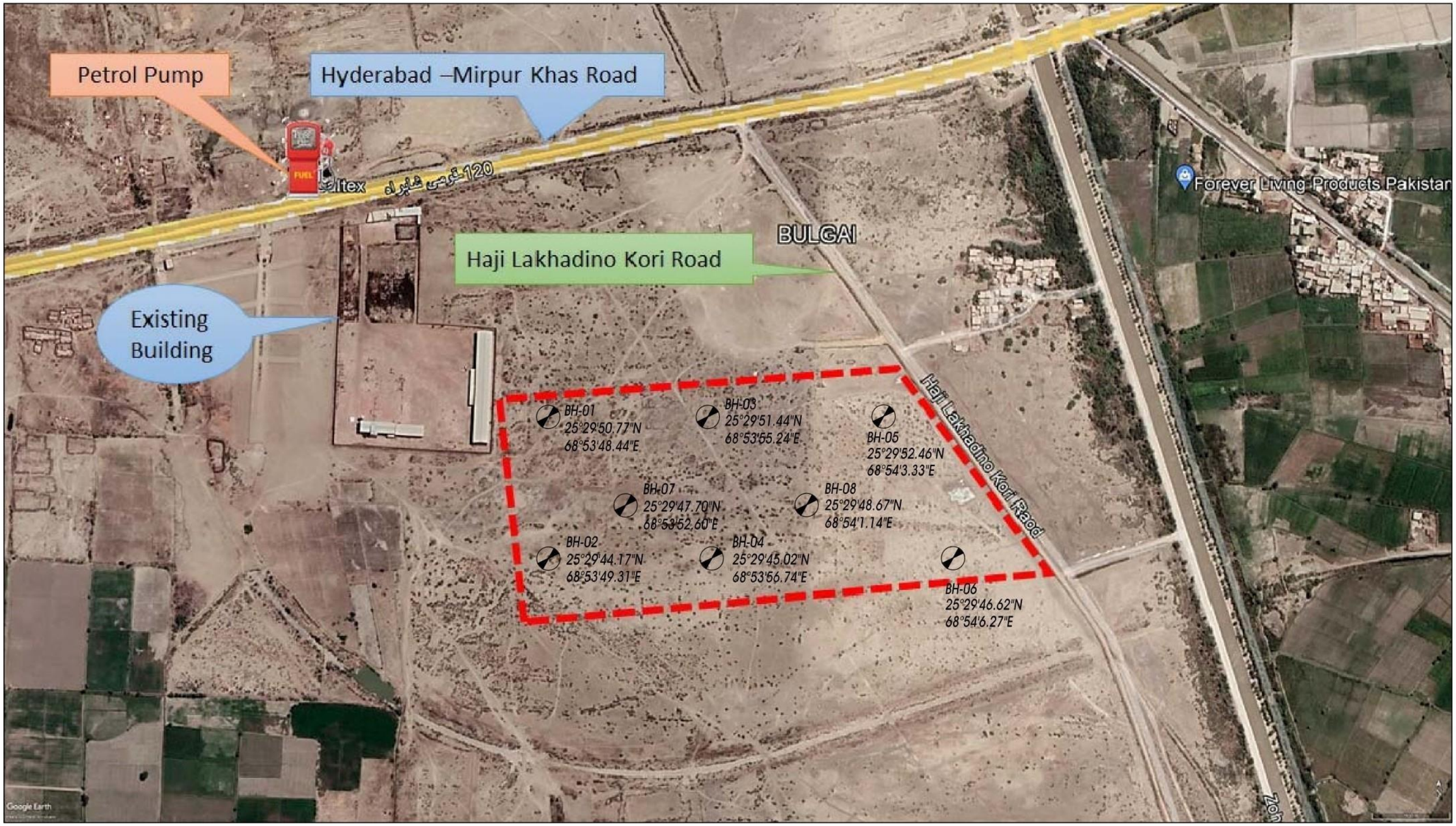
S.No	Description	Marks
1	Firm must have been involved in geotechnical investigation projects	20
2	Must have more than 05 years working experience	10
3	Have completed more than 02 geotechnical investigation projects with Universities/Academic Buildings	30
4	Firm must have qualified geologist with more than 05 years working experience	20
5	Firm must have different type of equipment's/machinery required to perform soil investigation activities smoothly and so on.	20
	Total Marks	100

Note: Minimum Qualifying Marks are 70.

ANNEX-B

LOCATION MAP- GEOTECHNICAL INVESTIGATION

SATILLJ7I JMAGIRY - SHOWING PROJIC7 BORI HOLE LOCATIONS FOR GIO7ICHNJCAL JNVISTJGA7JON



CLIENT.	SCHEME:-	CONULTANT:-	TITLE:-	ED.NO.	DATE	DESCRIPTION	DESIGNED.	SCALE.
SUKKUR IBA UNIVERSITY	ESTABLISHMENT OF SUKKUR IBA UNIVERSITY CAMPUS MIRPUR KHAS	OSS-I-AAR FANNING, ENGINEERING & SEtrVICES CONSULTANTS P.O. Box 7608 Ph. 4852589 Fax (92-21)4941059 ABM ENGINEERS *Multidimensional Engineering Consultants Firm* Ph 021 35383846 & 49 Fax 021 35383834	BORE HOLE LOCATIONS FOR GEOTECHNICAL INVESTIGATION				AZIZ BARI	AS SHOWN
							DRAWN. FAISAL	DRAWING NO BH - 01
							CHECKED. ZAFAR IQBAL	EDITION. 0

(INTEGRITY PACT)

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC: PAYABLE BY CONTRACTROS
(FOR CONTRACTS WORTH RS.10.00 MILLION OR MORE)

Contract No._____Dated_____

Contract Value: _____

Contract Title: _____

……. [name of Contractor] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Sindh (GOS) or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GOS) through any corrupt business practice.

Without limiting the generality of the foregoing [name of Contractor] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary any commission, gratification, bribe, finder's fee or kickback whether described as consultation fees or otherwise with the object of obtaining or including the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from. From Procuring Agency (PA) except that which has been expressly declared pursuant hereto.

[name of Contract] accepts full responsibility and strict liability that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with PA and has not any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Contractor] accept full responsibility and strict liability for making any false declaration not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right interest, privilege or other obligation or benefit obtained or procured as aforesaid shall without prejudice to any other rights and remedies available to PA under any law, contract or other instrument to be voidable at the option of PA.

Notwithstanding any rights and remedies exercised by PA in this regard [name of Supplier/ Contractor/ Consultant] agrees to indemnify PA for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to PA in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fees or kickback given by [name of Contract] as aforesaid for the purpose of obtaining or including the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from PA

…….

[Procuring Agency] [Contractor]

AGREEMENT

Hiring of Firm for detailed geotechnical/Soil investigation for the project titled "Establishment of Sukkur IBA University Campus At Mirpurkhas"
(Technical Specs' Detail mentioned in page #09~page#19)

This agreement made on **Date, Month, day of Agreement** in the year e.g. (**Two Thousand Twenty-Two)** between SUKKUR **IBA UNIVERSITY** (hereinafter called **"THE CLIENT"**) as the first party which expression shall include their successors, administrators and assignees acting through, Sukkur IBA, and **M/s** _____ Whose officially address **_____-, Pakistan.** (Hereinafter referred to as the **"Geo Technical Investigation Firm"**) as the second party which expression shall include their successors, administrators and legal representatives acting through **1. Mr./Dr. _____ (_)**, whereas the CLIENT intends to engage the services of Geotechnical Investigation Firm for detailed soil investigation/ geotechnical investigation for the project titled **"CONSTRUCTION of SUKKUR IBA UNIVERSITY CAMPUS** at **MIRPUR KHAS".**
AND WHEREAS the Geotechnical Investigate Firm agrees to provide the services and perform the functions and duties as per **"TECHNICAL SPECs"** as recommended by Sukkur IBA University **Consultant m/s ESS-I-AAR – m/s ABM Engineers (JV)** hereinafter for the said **"Work &/or Mentioned in tender document issued by (Client) that is Sukkur IBA University, Sukkur".**
NOW, THEREFORE, it is hereby agreed and declared by and between the parties to perform their respective parts of the contract on the terms and conditions hereinafter set forth.

1. **Appointment of Geotechnical Investigation Firm**

The Client do here by appoints the "Consultants" and the Consultants do hereby accept the appointment: on the terms and conditions hereinafter set forth.

2. **Duties of Geotechnical Investigation Firm**

The geotechnical investigation firm will follow and implement all the activities mentioned in technical specifications. (Page#9~19)

2.1. Cost of Work:

a. The cost of work for the purpose of the payment of fees to the soil investigation firm will the as per BOQ.

The measurement and payment for the Work specified in the Contract for drilling of boreholes, collection of disturbed, undisturbed and rock core samples, performing the standard penetration tests, laboratory testing and compilation and submission of results shall be done and paid for as per the pay item given in the BOQ, which payment shall be full compensation for furnishing all labour, material, tools, equipment and incidentals and for performing all the work involved in this. Item(s) as mentioned above in the BOQ and/or specification(s).

3. Documents to be Supplied by the geotechnical investigation firm

Soil investigation firm is abide and followed by as detail mentioned on page #17 clause 2.7.2

4. Care and Diligence

a. The geotechnical investigation firm affirms and guarantee that they are skilled and fully qualified, equipped as per this agreement, and that they shall make use of all such skills, equipment's and qualification in the best professional standards followed by quality.

b. The geotechnical investigation firm shall be fully responsible for the correctness and suitability of their design and the safety of the architecture, structure and services built according to their design and specifications. The approval of the reports/tests by the consultant (i-e: m/s ESS-I-AAR & m/s ABM Engineers (JV) shall not absolve they or their associates of their responsibilities under this article.

c. If the Client suffers any losses due to proven faults, errors, delay or omissions in design on the part of Consultants or any of their associates up to the satisfaction of the project, Consultants shall be liable to make goo all such losses.

5. **Force Majeure**

The parties will not be considered to be in default in the execution of their contractual obligation, or any of them to the extent that the execution of such obligation or any of them is delayed or omitted by cause of force majeure. Each party will advise the other party by written notice within 30 days of occurrence of any such case of force majeure. The force majeure employed here in shall mean acts of the public enemy, wars, whether declared or not), hostilities, revolutions, civil disturbances, epidemics. fires, floods, earthquakes and other cause similar to those here in mentioned not under the control of either party, which makes the performance of this scope of services unfeasible, and which by the exercise of due diligence the party seeking excuse from performance is unable to overcome.

6. **Postponement or abandonment of work**

In the event of whole or part of works being postponed by the Clients for the continuous period exceeding 90 days or abandonment at any stage, the consultants will be paid for the services performed on account of it prior to receipt of written notice from the Clients of such postponement or abandonment. For all incomplete work which cannot be calculated as per the scope of the, reasonable remuneration will be paid to the Consultants as decided by the Clients.

7. **Alteration or Modification to Tests/Reports**

When require by the Clients, the Consultants shall make such alterations in the plans and design as the Clients may consider necessary, provided that whenever the Consultants are required to redo those services performed by the Consultants, which are already approved by the consultants as provided under Clause -3 of the agreement.

8. **Termination of contract**

The Contract may be terminated by one month's written notice on either side. Upon

termination, the consultants shall be paid the fees due to them for the services provide by them up to the date of termination of the contract. In case of any disagreement regarding amount due to the Consultants, at reasonable shall be paid to them as decide by the Clients.

9. Arbitration

If any dispute shall arise between the Clients and Consultants as to the preparation of this Agreement, or any matter or thing arising there from, or in connection herewith for the settlement whereof, no other expense provision has been made in this agreement , thereupon either party giving notice of the dispute to the other the same shall be referred to arbitration consisting of two arbitrators, one to he appointed by the Clients and other by the Consultants, who before entering upon the reference will jointly appoint umpire. If the parties are unable to agree on the umpire. Then the Chairman of the Pakistan Engineering Council shall act or appoint umpire. The arbitration proceeding shall be held at Sukkur and governed by the arbitration Act 1940. Notwithstanding the existence or any difference or dispute, or proceedings, this Agreement shall not be suspended or discontinued by the Consultants nor shall an), payments withheld by the Clients, unless such payment is itself the subject matter of such proceedings. This agreement shall not be suspended or discontinued by either of the parties nor any payment withheld by the client as long as the work remains in the progress and work is neither postponed, nor abandoned.

10. Miscellaneous Provisions

a. The Consultants shall not have the right to assign, transfer or sublet to any person or organization, the benefits and obligation occurring under this agreement of any art thereof, without the written approval of the Clients.

11. All the drawings and documents submitted or issued at any stage of the work will be signed by an authorized and competent representative of the Consultants and, when approved, shall be signed by the Client/ Technical Committee members.

12. Ownership of Documents or Copy Right

a. All documents prepared by the Consultants in connection with works shall be deemed to be the exclusive property of Sukkur, IBA University

b. The Client Sukkur IBA University shall exercise power and discretion vested in him under the agreement for all works.

c. The Client Sukkur IBA University, or his authorized representative will act as an authorized officer to deal with the consultants in all matters concerning with this agreement.

13. Continuation of Services

Upon Mutual Agreement, parties may extend this contract on same Terms and Conditions for any upcoming project of PSDP/ADP schemes.

In witness whereof, the parties hereto have executed this contract duly signed & and sealed as of the day year hereinabove set forth.

14. Provide two email IDs & two phone numbers for official corresponding.

	Contact Person (s)	Email (s)	Cell # (s)

Please Sign & Stamp Each Page, Return to The Sukkur IBA University Campus at Mirpurkhas.