



**Request For Proposal
For
Establishment of Regional Materials Testing Laboratory in Uganda
under India-Africa Forum Summit-II
(National Competitive Bidding)**

Dec, 2018

**Indian Academy of Highway Engineers (IAHE)
(Ministry of Road Transport and Highways, Govt. of India)
A-5, Sector-62, Noida-201309, UP, India
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**Notice Inviting Tender (NIT)
National Competitive Bidding**

F.No.IAHE/Lab/IAFS/Uganda/2018-19

Date: 24.12.2018

Request For Proposal for Establishment of Regional Materials Testing Laboratory at Kampala, Uganda, Africa.

On behalf of Government of India, Ministry of External Affairs has assigned a task of Establishing Regional Materials Testing Laboratory at Kampala, Uganda, under India-Africa Forum Summit to IAHE for capacity building of highway engineers in Africa.

The Indian Academy of Highway Engineers (IAHE), A-5, Sector-62, Noida-201309, UP, represented by its Director now invites bids from eligible Original Equipment Manufacturers (OEM) for supply of Equipment and Related Services for 'Establishment of Regional Materials Testing Laboratory at Kampala, Uganda.

2. The complete Request for Proposal can be viewed/ downloaded from Central Public Procurement Portal of Government of India i.e. <https://eprocure.gov.in> from 24.12.2018 to 23.01.2019 (upto 17 hrs IST). The document can also be viewed/ downloaded from MoRTH website www.morth.nic.in or IAHE website www.iahe.org.in . Bid must be submitted online only at <https://eprocure.gov.in> on or before 24.01.2019 (at 11:00 hrs IST).

3. A Pre-bid Conference will be held at IAHE, Noida on 04.01.2019 at 03:00 PM. All prospective bidders are requested to kindly submit their queries if any by email to director.iahe@gmail.com, so as to reach this Office latest by 10:00 AM on 04.01.2019.

4. The following time schedule shall be followed for submission of bid:

	DATE	TIME
Pre Bid Conference	04 Jan, 2019	03:00 PM
Deadline for Online Bid Document Download	23 Jan, 2019	05:00 PM
Deadline for Online Bid Submission	24 Jan, 2019	11:00 AM
Deadline for submission of hard copies	25 Jan, 2019	11:00 AM
Technical Opening of Bid	25 Jan, 2019	12:30 PM

5. Bid submitted through any other mode shall not be entertained. However, Bid Security document fee and power of attorney shall be submitted by the Bidder on or before 25.01.2019 (at 11:00 hrs IST). The Director, IAHE reserves the right to accept any or all tenders either without assigning any reasons.

Joint Director,
IAHE A-5, Sector – 62 Noida -201301
Ph.- 0120-2400085-86
E-mail: jd.iahe@gmail.com

Instructions to Bidders (ITB)

1. Introduction

1.1 On behalf of Government of India, Ministry of External Affairs has assigned a task of Establishing Regional Materials Testing Laboratory at Kampala, Uganda, under India-Africa Forum Summit to Indian Academy of Highway Engineers (IAHE) for capacity building of highway engineers in Africa and as part of this endeavor IAHE has decided to set up the laboratory and carry out open bidding process for selection of a bidder to whom the work may be awarded.

1.2 Instructions to Bidder are broad guidelines to be followed while formulating the bid and its submission to the Authority. It also describes the methodology for opening and evaluation of bids and consequent award of contract. The details of equipment to be supplied and Related Services to be provided by the selected bidder is available at Scope of Work for Establishment of Materials Testing Laboratory at Kampala, Uganda, Africa.

1.3 The estimated cost of the work is Rs. 55.77 Lakhs approx.

1.4 Brief description of Bidding process

1.4.1 The Authority has adopted a single stage two parts system (refer to as the "Bidding Process") for selection of the Bidder for the award of the work. Under the process the Bid shall be invited under two parts. Eligibility and qualification of the Bidder will be first examine based on the details submitted under the first part (Technical Bid) with respect to eligibility and qualification criteria prescribed in this Request for Proposal. The Financial Bid under the second part shall be opened of only those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this Request for Proposal.

1.4.2 Interested Bidders have been called upon to submit their Bid in accordance with the terms specified in this Bidding Document. The Bid shall be valid for a period of 120 days from the last date of submission of Bid.

1.4.3 The complete Bidding documents is enclosed for the Bidders. Any addenda issued subsequent to this Request for Proposal will be deemed to form part of the Bidding documents.

1.4.4 Bidder is required to submit along with its Bid a Bid Security of Rs. 2 Lakhs issued from a Schedule Bank (The Bid Security refundable not later than 150 days from the last date of submission of Bid except in case of the selected Bidder whose Bid Security shall be retained till it has provided a Performance Security under the Agreement. The Bidders will have an option to provide Bid Security in the form of a Bank guarantee in the format specified in Annexure-II.

The Bid Security shall be valid for a period not less than 180 days from the last date of submission of Bid and may be extended as may be mutually agreed between the Authority and the Bidder from time to time. The Bid shall be summarily rejected if it is not accompanied by the Bid Security.

1.4.5 Generally the lowest Bidder shall be the selected Bidder. In case, such lowest Bidder withdraws or is not selected for whatsoever reason. The Authority shall annul the Bidding process and invite fresh Bids.

1.4.6 Any queries shall be submitted by e-mail to the officer mentioned in NIT.

1.4.7 No Bidder shall submit more than one Bid.

1.4.8 The Bidder shall submit a Power of Attorney duly Notarized authorizing the signatory of the Bid to commit the Bidder.

1.4.9 Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection

1.4.10 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Authority, shall be written in English language only especially when the details are technical.

1.4.11 Any entity which has been barred by Government of India or any implementing agencies working for Government of India and the bar subsist as on the date of application would not be eligible to the submit to the Bid.

1.4.12 Prices shall be quoted in Indian Rupees only.

1.5 Republic of Uganda have agreed to provide following support in establishing the laboratory at CML, Kampala

a) To provide statutory clearances as applicable including payment of all the taxes, custom duties, import duties, VAT and other levies (customs & excise) on the cost of equipment, machinery and accessories, etc., whatsoever in Uganda and bear the cost on this account relating to the deployment of services, as the Laboratory is non-commercial and funded by the Government of India as grant-in-aid to build capacity and develop skills among highway engineers of African countries.

b) To facilitate fast track clearances, permits, licenses, approvals and gratis for the purposes in Kenya (for purpose of transportation only) and Uganda.

c) To make/facilitate necessary arrangements for transportation of equipment/machinery/goods container cargo from nearest sea port i.e. Mombasa, Kenya to the laboratory site at CML and provide necessary

clearances/permits including necessary transit insurance thereof and safe transportation and storage.

- d) To ensure availability of building and provide necessary infrastructural facilities for upgrading/re-equipping the laboratory at CML, Kampala.
- e) Provide built-up space of approx. 400 sq.m. area in CML, Kampala with necessary facilities as per the layout/drawing at Annexure – VII.
- f) To carry out the civil work at Laboratory site including necessary alterations as required by the OEM. Provide meson, plumber, electrician, carpenter, skilled, semi-skilled and unskilled workers, laboratory technicians for installation and commissioning the laboratory equipment. Erecting foundation of machinery as per requirements of each equipment. Erect concrete slabs wherever necessary in the laboratory.
- g) Provide power supply of three phase/single phase at 440/220 volts, 50 cycle/sec power, and electricity point connections with isolating switches up to each equipment as per layout drawings provided with equipment.
- h) Provide water supply connections, taps, sinks, wash basins, etc. as per layout drawing.
- i) To arrange work permits/gratis visas for the staff of Implementing Agency and for the personnel deputed by the OEM.

2. Content of Bidding Documents

2.1 The Request for Proposal, have been divided into following sections:

- Section 1: Notice Inviting Tender
- Section 2: Instructions to Bidders
- Section 3: Contract Agreement
- Section 4: General Conditions of Contract (GCC)
- Section 5: Special Conditions of Contract (SCC)
- Section 6: Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

2.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Request for Proposal. Failure to furnish all information required by the Request for Proposal or submission of a bid not substantially responsive to the Request for Proposal in every respect will be at the Bidder's risk and may result in rejection of its bid.

3. Eligibility and Qualifications requirements of Bidder:

- 3.1 Bidder shall be ISO 9001:2000 certified Original Equipment Manufacturer (OEM), who can ensure the manufacturing of the machine as per the required testing standards BIS/BS/ASTM standards and within the specified tolerance limits.
- 3.2 Bidder shall have NABL accredited testing and calibration facility from minimum period of last five years.
- 3.3 Bidder shall have in-house Research and Development (R&D) center duly recognized by Department of Scientific & Industrial Research, Ministry of Science and technology.
- 3.4 Bidder shall have the tractability (source of calibration) of the calibration unit to NCCBM, NPL etc.
- 3.5 The average annual turnover of Bidder specific to manufacturing of the equipment, for last three year shall be equal to or more than Rs. 10 crores.
- 3.6 Bidder shall have service centre/authorized dealer in Uganda or any other African country
- 3.7 Bidder should have trained and qualified customer support service engineers with ample experience in the required field.
- 3.8 Bidder shall have at least one overseas experience of successfully establishing materials testing laboratories in any country.
- 3.9 No joint venture is allowed.

4. Cost of Bidding

4.1 The Bidder shall ascertain for itself the site conditions at CML, Kampala, Uganda, Local laws and means of transportation of equipment from place of manufacturing to CML, Kampala and bear all costs associated with the preparation and submission of its bid, and "the Authority", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

5. The Authority reserves the right to reject any Bid / terminate contract and appropriate the Bid Security/ Performance Security if at any time it is on covered that the Bidder is made a material mis-representation.

6. Bid Security

6.1 The Bidder shall furnish, as part of its bid, a Bid Security for an amount of Rs. 2 Lakhs in the format specified in Annexure – II issued by a Scheduled Bank in India

6.2 The Bid Security is required to protect the Authority against the risk of Bidder's conduct, which would warrant the security's forfeiture.

6.3 The Bid Security shall be for 45 days beyond the validity of the bid.

6.4 The bid security of the Bidders will be discharged/returned as promptly as possible positively within a period of 15 days after the expiration of the period of bid validity or submission of performance security by the successful Bidder whichever is earlier.

6.5 A Bid not accompanied by the Bid Security of specified amount and specified format as per this RFP shall be summarily rejected by the Authority as non-responsive.

6.6 The bid security may be forfeited:

(a) If a Bidder withdraws or amends or impairs or derogates its bid during the period of bid validity specified by the Bidder on the Bid Form; or

(b) In case of a successful Bidder, if the Bidder fails to furnish acceptance within 7 days of the order or fails to furnish Performance Security within 15 days from the date of issue of work order.

(c) If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice as specified in this RFP.

7. Documents Comprising Bid:

7.1 Technical Bid:

(a) Bidder Information Form (Annexure – I).

(b) Bid Security in the Format at Annexure – II.

(c) Performance Statement Form at Annexure – III.

(d) Proof of ISO 9001: 2000 Certified Original Equipment Manufacturer for the equipment specified in Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

(e) Proof of NABL accredited testing and calibration facility for last 5 years.

(f) Proof of in-house Research and Development (R & D) Centre duly recognized by Department of Scientific and Industrial Research, Ministry of Science and Technology

(g) Proof of tractability (source of calibration) of the calibration unit to NCCBM, NPL etc.

- (h) Proof of turnover of the Bidder for last three financial years (2015-16, 2016-17 & 2017-18) duly certified by a Chartered Accountant.
- (i) Copies of original Memorandum and Articles of Association, defining the constitution or legal status, place of registration and place of business of the company.
- (j) Proof of Bidder having service centre/authorized dealer in Uganda / any other African country.
- (k) Details of trained and qualified customers support engineers
- (l) Proof of overseas experience of successfully materials testing laboratory in any country.
- (m) To establish the conformity of the equipment and services to the specifications and schedule of requirements of the bidding document, the documentary evidence of conformity of the equipment and services to the bidding documents may be in the form of literature, drawings and data, and shall consist of:
 - (n) A detailed description of the essential technical and performance characteristics of the equipment;
 - (o) A list giving full particulars, including available sources and current prices, of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods during the warranty period following commencement of the use of the goods by the Authority in the Priced-bid; and
- (p) Document fee Rs. 5,000/- in the shape of Demand Draft drawn in favour of IAHE, payable at Noida
- (q) Power of Attorney in favour of signatory of the Bid

7.2 Financial Bid

- (a) Bid Form (Annexure – IV)
- (b) Bill of Quantities (Annexure - V)

7.3 The Bidder shall submit the following documents in hard copy:

- (a) Document fee Rs. 5,000/- in the shape of Demand Draft drawn in favour of IAHE, payable at Noida
- (b) Original Bid security
- (c) Power of Attorney in favour of signatory of the Bid

8. Authority will hold a pre Bid conference on the date and time indicated in NIT. Bidders requiring any qualification on the RFP may notify in writing by e-mail upto 11:00 hrs IST on the date of pre Bid conference. The Authority shall endeavor to respond the queries within 7 days from the date of pre-Bid conference. At any time prior to the last date of submission of Bid the Authority may for any reason whether at its own initiative or in response to clarifications requested by a Bidder modify the RFP by issuance of addenda through <https://eprocure.gov.in>. In order to afford the Bidders a reasonable time for taking an addenda in account or for any other reason the Authority may in its sole discretion extend the last date of submission of Bids.

9. Preparation and Submission of Bid

9.1 Bid shall be submitted online only at CPPP website <https://eprocure.gov.in>. latest by 24.01.2019 upto 11:00 hrs IST Bid submitted through any other means will be summarily rejected.

9.2 The Bidder can download the Request for Proposal from the website <https://eprocure.gov.in> latest by 23.01.2019 upto 17:00 hrs IST.

9.3 Bidders should be in possession of valid Digital Signature Certificate (DSC) of class III in the name of the signatory to the Bid (who has Power of Attorney from the Bidder for signing of the Bid) for online submission of bids. Prior to bidding DSC need to be registered on the website mentioned above.

9.4 Bidders are advised to go through the instructions given on “CPP” portal for guidelines, procedures & system requirements. In case of any technical difficulty, Bidders may contact the help desk numbers & email ids mentioned at the CPP portal.

9.5 Bidders are advised to visit CPPP website <https://eprocure.gov.in> regularly to keep themselves updated, for any corrigendum/addendum in the Request for Proposal.

9.6 Intending bidders are advised to visit CPPP website <https://eprocure.gov.in> latest by closing date of submission of bid, for any corrigendum/addendum.

9.7 Bid shall be submitted as per dates mentioned in NIT. In the event of the specified date for the submission of hard copies as mentioned in 1.16.7 above being declared a holiday for the Authority, the hard copies will be received up to the appointed time on the next working day.

9.8 The Authority may, at its discretion, extend the deadline for submission of e-tender by amending the Request for Proposal in accordance with Clause relating to Amendment of Bidding Documents in which case all rights and obligations of the Authority and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

10. Withdrawal, substitution and Modification of Bids

10.1 The bidder may withdraw, correct or modify his digitally signed bid after submission prior to the deadline for submission of bids, through provisions of CPP portal.

10.2 The bidder is not allowed to modify or withdraw bid after deadline for submission of bids.

11. Online opening of Bids

11.1 Opening of Bids will be done through online process.

11.2 The Authority shall online open Technical Bids on 25.01.2019 at 12:30 hrs IST in the presence of the Authorized representatives of the Bidders who choose to attend. Technical Bids of only those Bidders shall be opened whose documents as listed in 7.3 above have been physically received. The Authority shall prepare minutes of the Bid opening including information disclosed to those present at the time of Bid opening.

12. Confidentiality

12.1 Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the BID, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

13. Correspondence with the Bidder:

13.1 Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any BID. However, the Authority would display the result of technical evaluation on the web portal for 7 days including reasons for non- responsiveness, if any, and the financial bid will be opened thereafter.

14. Evaluation of Technical Bids:

14.1 To facilitate evaluation of Technical BIDs, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing. If a Bidder does not provide clarifications within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, the Authority may proceed

to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.

14.2 As a first step towards evaluation of Technical BIDs, the Authority shall determine whether each Technical BID is responsive to the requirements of this RFP. A Technical BID shall be considered responsive only if:

- (a) Technical BID is received online as per the format at Annexure – I, II and III
- (b) Documents listed at clause 7.3 are received physically
- (c) The BID Security conforms to requirement as specified in Clause 6 and duly gets and duly verified from the issuing Authority
- (d) Technical Bid contains all the information (complete in all respects)
- (e) Technical Bid does not contain any condition or qualification

14.3 After evaluation of Technical Bids, the Authority will publish a list of Technically responsive Bidders whose financial bids shall be opened. The Authority shall notify other bidders that they have not been technically responsive giving detail reasons for their Bid being non-responsive. The Technical non-responsive Bidders have option of submitting clarifications / justifications in support of their Bid within 7 days time period. After 7 days time period Authority will re-examine the submission of such Bidders and publish final list of Technically responsive Bidders. The Authority will not entertain any query or clarification from Applicants who fail to qualify.

14.4 The Authority shall inform the venue and time of online opening of the Financial Bids to the technically responsive Bidders through e-procurement portal and e-mail. The Authority shall open the online Financial Bids on schedule date and time in the presence of the authorised representatives of the Bidders who may choose to attend. The Authority shall publicly announce the rate of individual items and Bid Prices quoted by the technically responsive Bidder. Thereafter the Authority shall prepare a record of opening of Financial Bids and get it duly signed by the representative of the Bidders.

14.5 The Authority shall compare the Bid prices of the Financial Bids which have been opened to determine the lowest Bid Prices.

15. Award of Contract

15.1 The Authority shall award the contract to the Bidder who has quoted the lowest Bid price and is substantially responsive to the RFP.

15.2 In the event that the Lowest Bidder is not selected for any reason, the Authority shall annul the Bidding Process and invite fresh BIDs. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

15.3 After selection, a Letter of Award (the —LOA) shall be issued, in duplicate, by the Authority to the Selected Bidder and the Selected Bidder shall, within 7(seven) days of

the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the BID Security of such Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOA.

16. Contacting the Authority

16.1 Subject to provisions otherwise made in this RFP, no Bidder shall contact the Authority on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.

16.2 Any effort by a Bidder to influence the Authority in its decisions on bid evaluation, bid comparison or contract award may result in rejection of the Bidder's bid.

17. Performance Security:

17.1 Within 15 days of receipt of the notification of award, the Original Equipment Manufacturer (OEM) shall furnish performance security in the amount specified in SCC and format specified in GCC, valid till 60 days after the warranty period.

18. Signing of Agreement:

18.1 After acknowledgement of the LOA as aforesaid by the Selected Bidder and submission of Performance Security, Authority shall cause the Bidder to execute the Agreement within 10 days time period. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

19. Fraud and corruption:

19.1 The Authority requires that the Bidders/OEMs observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the following are defined:

“corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

“fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

“collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Authority, designed to establish bid prices at artificial, noncompetitive levels; and

“coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

19.2 The Authority will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question;

Bidder Information Form

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for e-tender]

1. Bidder's Legal Name [insert Bidder's legal name]
2. Bidder's Year of Registration: [insert Bidder's year of registration]
3. Bidder's Legal Address in Country of Registration: [insert Bidder's legal address in country of registration]
(l) 4. Bidder's Authorized Representative Information Name: [insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephone/Fax numbers: [insert Authorized Representative's telephone/fax numbers] Email Address: [insert Authorized Representative's email address]
5. Attached are copies of original documents of: [check the box(es) of the attached original documents] Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.

Signature of Bidder _____

Name _____

Business Address

Annexure-II

BANK GUARANTEE FORMAT FOR BID SECURITY

(To be stamped in accordance with Stamp Act if any, of the country of issuing bank)

Ref.: Tender No. _____, dated _____

Bank Guarantee: _____ Date: _____

WHEREAS, _____ (Name of Bidder) __ (hereinafter called "the bidder") has submitted his bid dated _____ (date) for the supply of _____ against Tender enquiry No. _____, dated _____ (hereinafter called "the Bid").

KNOW ALL MEN by these presents that We, _____ [Name of Bank] of _____ having our registered office at _____ (hereinafter called "the Bank") are bound unto _____ [Name of Employer] (hereinafter called "the Employer") in the sum of Rs. _____ (Rupees _____ Lakhs Only) for which payment will and truly to be made to the said Employer the Bank binds himself, his successors and assigns by these presents. SEALED with the Common Seal of the said Bank this _____ day of _____ 201....

THE CONDITIONS OF THIS OBLIGATION ARE:

1. If the Bidder withdraws his Bid during the period of bid validity specified in the Bid document; or
2. If the Bidder does not accept the correction of arithmetical errors of his Bid Price in accordance with the Instructions to Bidder; or
3. If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of bid validity,
 - a. fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - b. fails or refuses to furnish the Performance Security, in accordance with the letter of invitation, we undertake to pay the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including 45 days after the deadline for submission of bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

Notwithstanding anything contained herein before, our liability under this guarantee is restricted to Rs. _____ (Rs. _____) and the guarantee shall remain valid till _____. Unless a claim or a demand in writing is made upon us on or before _____ all our liability under this guarantee shall cease.

DATE _____

SIGNATURE OF THE BANK _____

SEAL OF THE BANK _____

SIGNATURE OF THE WITNESS _____

Name and Address of the Witness _____

The bank guarantee shall be issued by a bank (Nationalized/Scheduled) located in India

Annexure-III

**PERFORMANCE STATEMENT FORM
(For a period of last 3 financial years i.e., 2015-16, 2016-17, 2017-18)**

Name of the Firm.....

Order Placed by (full address of Authority)	Order No. and date	Description and quantity of ordered equipment	Value of order	Date of completion of delivery as per contract	Date of actual completion of delivery.	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactorily? (Attach a certificate from the Authority/Consignee)	Contact person alongwith Telephone No., FAX No. and e- mail address

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :

Bid Form

To,
Director,
Indian Academy of Highway Engineers,
A-5, Sector – 62, Noida – 201301

Sir,

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Request for Proposal, including Addenda No.: [insert the number and issuing date of each Addenda];

(b) We offer to supply on turnkey basis laboratory equipment, machinery and accessories as per Priced Bill of Quantities, transport, install, commission, operate and run the laboratory in conformity with Annexure – V to the Request for Proposal;

(c) The total price of our Bid based on Priced Bill of Quantities is Rs..... (Rupees _____).

(d) Our bid shall be valid for the period of time specified in ITB, from the date fixed for the bid submission deadline in accordance with ITB, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(e) If our bid is accepted, we commit to obtain a performance security in accordance with ITB and GCC for the due performance of the Contract in the format specified in Annexure - VI;

(f) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.

(g) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed: [insert signature of person whose name and capacity are shown]

In the capacity of [insert legal capacity of person signing the Bid Submission Form]

Name: [insert complete name of person signing the Bid Submission Form]

Duly authorized to sign the bid for and on behalf of: [insert complete name of Bidder]

Annexure-V

**Bill of Quantities for supply, installation, commissioning, demonstration hands-on training
at CML, Kampala, Uganda**

S. No.	Product Description	Qty	Rate INR	Amount INR
	General Lab Equipment			
1	Balances			
A	Electronic Balance, Capacity 5kg x 0.5g with NABL Calibration Certificate	01		
B	Electronic Balance, Capacity 20kg x 2g with NABL Calibration Certificate	01		
C	Electronic Balance, Capacity 600g x 0.01g with NABL Calibration Certificate	01		
D	Electronic Balance, Capacity 30kg x 5g with NABL Calibration Certificate	01		
2	Laboratory Electric Oven, Thermostatically Controlled, range 50° to 250°C ± 3°C with Air Circulating Fan, S.S. Inside Size 450 x 450 x 450mm	01		
3	Sieves G.I. Frame 300mm dia, As per Ref. Standards IS:2720 (Part 4), ASTM D 422, AASHTO T 88, BS:1377			
	Sieve G.I. Frame 30cm dia x 90mm	01		
	Sieve G.I. Frame 30cm dia x 80mm	01		
	Sieve G.I. Frame 30cm dia x 63mm	01		
	Sieve G.I. Frame 30cm dia x 53mm	01		
	Sieve G.I. Frame 30cm dia x 50mm	01		
	Sieve G.I. Frame 30cm dia x 45mm	01		
	Sieve G.I. Frame 30cm dia x 40mm	01		
	Sieve G.I. Frame 30cm dia x 37.5mm	01		
	Sieve G.I. Frame 30cm dia x 26.5mm	01		
	Sieve G.I. Frame 30cm dia x 19mm	01		
	Sieve G.I. Frame 30cm dia x 13.2mm	01		
	Sieve G.I. Frame 30cm dia x 11.2mm	01		
	Sieve G.I. Frame 30cm dia x 9.5mm	01		
	Sieve G.I. Frame 30cm dia x 4.75mm	01		
	Sieve G.I. Frame 30cm dia x 4.00mm	01		
	Sieve G.I. Frame 30cm dia x 3.35mm	01		
	Sieve G.I. Frame 30cm dia x 2.36mm	01		
	Pan and Cover for 30cm dia sieves	01		
	Sieves Brass Frame 200mm Diameter			

	Sieve Brass Frame 20cm dia x 4.75mm	01		
	Sieve Brass Frame 20cm dia x 3.35mm	01		
	Sieve Brass Frame 20cm dia x 2.36mm	01		
	Sieve Brass Frame 20cm dia x 1.18mm	01		
	Sieve Brass Frame 20cm dia x 600 microns	01		
	Sieve Brass Frame 20cm dia x 425 microns	01		
	Sieve Brass Frame 20cm dia x 300 microns	01		
	Sieve Brass Frame 20cm dia x 180 microns	01		
	Sieve Brass Frame 20cm dia x 90 microns	01		
	Sieve Brass Frame 20cm dia x 75 microns	01		
	Sieve Brass Frame 20cm dia x 38 microns	01		
	Pan and Cover for 20cm dia sieves	01		
4	Sieve Shaker, Motorised, with Built-in Digital Timer Supplied with Adapter for 20cm and 30cm dia sieves	01		
	Soil Testing Equipment			
5	Liquid Limit Device, motorised, with Casagrande grooving tools and gauge block (suitable for operation on 50 Hz, single phase AC Supply) Ref. Standards: IS:2720 (Part 5), IS:9259, BS 1377 The Liquid Limit Device consists of a hard rubber base carrying a sliding carriage assembly to which a brass cup is hinged. The cup is raised and allowed to fall through a height of 1 cm on to the hard rubber base, with the help of a lead screw provided at the back of the sliding carriage. Supplied complete with Casagrande Grooving Tool and Gauge Block (Type A of IS : 9259). Suitable for operation on 220 V, 50 Hz, single phase, AC supply	01		
	Shrinkage Limit Set Ref. Standards IS : 2720 (Part 6), 10077, ASTM : D 427, BS : 1377, AASHTO T-92 Supplied with following: <ul style="list-style-type: none"> • Porcelain Evaporating Dish • Shrinkage Dish • Glass Cup • Perspex Plate, with three Metal Prongs • Perspex Plain Plate • Spatula 100mm • Glass Cylinder, graduated, 25 ml x 0.5 ml • Mercury, 750 g • Straight Edge 300mm 	01		
6	Dessicator Non-Vacuum Type, 200mm dia, glass	01		
7	Compaction Test Apparatus for light compaction Supplied with the following:	01		

	<ul style="list-style-type: none"> • Compaction mould 100 mm ID, 127.3 mm height 1,000 ml volume with Collar and Base Plate, made of Gunmetal • Rammer 2.6 kg x 310 mm fall as per IS: 9198 			
8	<p>Compaction Test Apparatus for heavy compaction</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Compaction mould 150 mm ID, 127.3 mm height 2250ml volume with Collar and Base Plate, made of Gunmetal • Rammer 4.9 kg x 450 mm fall as per IS: 9198 	01		
9	<p>Core Cutter with dolly & rammer</p> <p>Supplied with following:</p> <ul style="list-style-type: none"> • Cylindrical Core Cutter made of steel, 100 mm dia x 130 mm long • Steel Dolly 25 mm high and 100 mm dia, fitted with a lip, to enable it to be located on top of the Core-Cutter • Rammer with Steel Rod 	01		
10	<p>Laboratory California Bearing Ratio Test Apparatus, Motorised, Electronics with Table Top Electronic Load Frame four speed and Data Acquisition System & GeoStar Software, Computer & Black and White Laser Printer Ref: Standards: IS : 2720 (Part XVI), BS 1377; 1924; EN 13286-47/ ASTM D 1883; AASTHO T 193</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Mould - Gun Metal 150m ID x 175 mm H. – 12 Nos. • Perforated Base Plate Gun Metal, Mould. 12 Nos. • Extension Collar-Gun Metal 150mm ID x 50mm high. 12 Nos. • Circular Metal Spacer Disc, with detachable handle, 148mm dia x 47.7mm high – 4 Nos. • Annular Metal Weight 2.5kg., 147mm dia with 53mm dia Central Hole. – 4 Nos. • Perforated Plate, 148mm dia with adjustable stem and lock nut. - 4 Nos. • Universal Automatic Compactor with Mild Steel compaction mould as per IS, supplied with • Mould, 100mm dia x 127.3mm height 1,000 ml volume, Mild Steel – 1 No. • 150 mm ID, 127.3 mm height 2,250 ml volume, Mild Steel – 1 No. 	01		
11	<p>Sand Pouring Cylinder Apparatus, 100mm Dia. Ref. Standard IS:2720 (Part 28)</p> <p>Supplied with the following:</p>	01		

	<ul style="list-style-type: none"> • Sand Pouring Cylinder fitted with Conical Funnel and Shutter, capacity 3 litre 1 No. • Cylindrical Calibration Container 100 mm ID x 150 mm height 1 No. • Metal Tray size 30 x 30 x 4 cm, with 10 cm central hole 1 No. 			
12	<p>Sand Pouring Cylinder Apparatus, Large, Ref. Standard IS:2720 (Part 28)</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Large sand Pouring cylinder, 16.5 ltr. capacity fitted with conical funnel and shutter • Cylindrical calibrating container, internal diameter 200 mm and internal depth 250mm • Metal tray size, 45x45x5 cm deep with hole 	01		
13	Standard Sand Grade-I, Pack of 25Kgs.	01		
14	Standard Sand Grade-II, Pack of 25Kgs.	01		
15	Standard Sand Grade-III, Pack of 25Kgs.	01		
16	Chisel, 200mm long	01		
17	Hammer, 500gm.	01		
18	<p>Speedy Moisture Meter, Range 0-50% (Gauge Div.:1%) with digital weighing balance</p> <p>Ref. Standards: IS:2720 (Part 2), IS:12175</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Calcium Carbide Reagent 1 No. • Moisture gauge, 0-50 % × 1% 1 No. • Digital Balance, 50g 1 No. • Steel Balls 1 Set • Scoop 1 No. • Cleaning Brush 1 No. • Aluminum Dish 1 No. 	02		
19	Moisture Content Tin, Size 65mm dia x 20mm deep	36		
20	<p>Direct Shear Outfit, Electronic, 2kN, with Microprocessor based load frame with Data Acquisition System, Ref. Standards IS:2720 (Part13), BS1377, ASTM D3080</p> <p>Should have following salient features:</p> <ul style="list-style-type: none"> • Microprocessor control • Large on-board 40×2 line LCD screen display • Direct data entry via membrane key pad. • Rapid approach and return to start datum • Fully variable speed, 0.00001 to 9.99999mm/minute • Accepts specimen 60mm square <p><u>Technical Specifications:</u></p> <p>Integrated Measurement Electronics:</p>	01		

	<p>Mode of Display: Micro controller multi line alpha numeric VFD display for all simultaneous channel (No need for channel selection)</p> <p>Transducers Load: Universal type load cell, 2kN capacity 1 No. Displacements: LVDT with measurement range +/- 20mm travel, 2 Nos. Speed Range Standard Speeds : 0.00001 to 9.99999 mm / minute Fast forward/reverse: 10mm / minute</p> <p>Suitable for operation on 220V, 50Hz, Single phase, AC Supply</p>			
21	<p>Triaxial Test Apparatus, Digital with microprocessor-based loading unit with Data Acquisition System & Geo Star, Computer & Printer</p> <p>Ref: Standard IS : 2720 (Part XII)</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Load Frame, Motorised, 50 kN (5,000 kgf) capacity, Microprocessor Based • Triaxial Cell for testing specimens of size 38mm dia x 76mm long • Constant Pressure System, oil water type with two cells. • Automatic Volume Change Device • Triaxial Electronic Conversion Kit (4 Channel) • Data Acquisition System for upto 4 channels • GeoStar Analysis and reporting Software Module for Consolidated Undrained Triaxial Test for single license • GeoStar Analysis and reporting Software Module for Unconsolidated Undrained Triaxial Test for single license • GeoStar Analysis and reporting Software Module for Consolidated Drained Triaxial Test for single license • Sampleject-5000, Hydraulic sample extruder, Electric-cum-hand operated • Lateral Pressure Assembly capacity 10kg/cm² (Pressure Chamber with foot pump). 	01		
22	<p>Consolidation Apparatus, Single Gang, New Bench type Model, Electronic</p> <p>Ref. Standards: IS:2720 (Part-XV), IS:12287, BS:1377, ASTM D2435</p> <p>Supplied with the following:</p> <p>Consolidation Cell Assembly consists of the following:</p> <ul style="list-style-type: none"> • Fixed ring with Guide ring – 3 Nos. • Top Porous stone – 3 Nos. • Bottom Porous stone – 3 Nos. 	01		

	<ul style="list-style-type: none"> • Pressure Pad – 3 Nos. • Channelled base with water inlet – 3 Nos. • Gasket – 3 Nos. • Water Jacket – 3 Nos. • Set of weights : 7 x 0.05 kg/cm 2 25 x 0.1 kg/cm, 6 x 0.2 kg/cm , 2 26 x 0.5 kg/cm , 5 x 1.0 kg/cm – 3 sets • Water Reservoir with plastic tube, T - connection and a pinch cock – 3 Nos. • Displacement sensor, 0-10mm complete with 3 m long cable (side entry) mounting bracket • Consolidation Indicator, Three channel 			
23	<p>Pavement Dynamic Cone Penetrometer</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Top and Bottom Rod – 1 Nos. • Handle – 1 No. • Hammer 1 m Scale – 1 No. • 60° Cone - 5 Nos. • Anvil – 1 No. 	01		
	Aggregates Testing Equipment			
24	<p>Thickness Gauge with ISI Certification Mark IS:2386 (Part I)</p> <p>Constructed from heavy gauge sheet steel.</p>	02		
25	<p>Length Gauge with ISI Certification Mark IS:2386 (Part I)</p> <p>Constructed from steel, mounted on a hardwood base.</p>	02		
26	<p>Aggregate Impact Tester- Ref. Standard - IS:9377</p> <p>It should be sturdy construction consists of a base and support columns to form a rigid frame work around the quick release trigger mechanism to ensure an effective free fall of the hammer during test. The free fall can be adjusted through 380 ± 5 mm. The hammer is provided with a locking arrangement.</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Cylindrical Cup • Metal Measure • Tamping Rod ISI Marked • Automatic Blow Counter 	01		
27	<p>Los Angeles Abrasion testing machine with Counter</p> <p>Ref. Standards - IS:2386 (Part 4), BS:812, ASTM C-131, C535, D2, AASHTO T96</p> <p>The machine consists of a hollow cylinder, mounted on a sturdy frame on ball bearings. A detachable shelf which extends throughout the inside length of the drum catches the abrasive charge and does not allow it to fall on the cover. The drum is rotated at a speed of 30-33 rpm by an</p>	01		

	<p>electric motor through a heavy duty reduction gear. Supplied complete with a tray for collection of the material. Supplied with the following:</p> <ul style="list-style-type: none"> • Abrasive charge, consisting of a set of 12 hardened steel balls of 48 mm dia • Digital controller box <p>Suitable for operation on 415V, 3 phase, 50Hz, AC Supply.</p>			
28	<p>Centrifuge Extractor, Capacity 1500g Electrically Operated Ref. Standards ASTM D 2172, AASHTO T-58, T-164, EN 12697-1</p> <p>It is used for determining bitumen percentage in Bituminous paving mixtures. It has a removable, precision machined, aluminum rotor bowl, mounted on a vertical shaft. A filter paper disc is pressed in-between the rotor bowl and cover plate by tightening a knurled nut. The bowl assembly is enclosed in a housing mounted on a cast body. In the electrical operating model, the rotor bowl is coupled to a motor. The solvent may be introduced during test through a cup on the housing cover.</p> <p>The design of centrifuge extractor should be compact with inbuilt dimmerstat for speed variation from 0 rpm to 3600 rpm. Each unit is supplied complete with a set of 25 Filter Paper Discs.</p> <p>Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.</p>	01		
29	<p>Ring and Ball Apparatus Ref. Standards - IS:1205, ASTM D 36, E 28, IP 198, IP 58, STPTC PT 3, AASHTO T53, BS:2000, EN 1427</p> <p>It has magnetic stirrer with heating facility and digital display of temperature, the heating can be adjusted through knob. Suitable for operation on 220 V, 50 Hz, single phase, AC supply.</p> <p>Each unit is supplied with a bath of heat resistant glass and the following :</p> <ul style="list-style-type: none"> • Tapered Rings 2 Nos. • Ball Centering Guide 2 Nos. • Steel Balls of 9.5 mm dia 2 Nos. • Ring holder 1 No. • Electric Heater (Hot Plate) 1 No. • Thermometer IP 60C • Thermometer IP 61C 	01		
30	<p>Ductility Testing Machine with Digital Temp Indicator Ref. Standards IS:1208, ASTM D113, AASHTO T 51</p>	01		

	<p>Should be designed to test three specimens simultaneously. The machine consists of a carriage moving over a lead screw. An electric motor driven reduction gear unit ensures smooth constant speed and continuous operation. The entire assembly is mounted with water bath completely encased in metal bound hardwood. It is equipped with an electric pump circulator and heater. The temperature is controlled by digital temperature controller. Two rates of travel i.e. 5 cm/min and 1cm/min are provided. Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply. Supplied with Ductility Mould, with Base Plate – 3 Nos.</p>			
31	<p>DIGI Modified Marshall Apparatus, 100kN Single Speed, New Model for 4" and 6" dia sample Ref. Standards - ASTM D1559 BS:598-197, EN-12697-34</p> <p>Features:</p> <ul style="list-style-type: none"> • Single Speed, Bench Top load frame • Max. loading capacity, 50 KN • Geared Screw jack and Motor Drive, • Precise speed <p><u>Consists of the followings:</u></p> <ol style="list-style-type: none"> 1. Load Frame - 1 No. 2. Load Cell 100kN - 1 No. 3. LVDT 50mm travel - 1 No. 4. Digital Indicator - 1 No. 5. Breaking Head Assembly 4" and 6" - 1 No. each 6. Sample Ejector 4" and 6" - 1 No. each 7. Compaction Pedestal for 4" and 6" - 1 No. each 8. Compaction hammer 4.5 kg - 2 Nos. 9. Compaction hammer 10.21 kg - 2 Nos. 10. Mould 4" with collar and base plate - 3 Nos. 11. Mould 6" with collar and base plate - 3 Nos. 12. Load Transfer Bar - 1 No. 13. Water Bath for Marshall Mould, Double Walled with Digital Walled with Digital Controller Cum Indicator with Stirring Arrangement, Inside Stainless Steel, Temp. Range amb. ± 5 Deg. C to 95 Deg. C ± 2 Deg C. Size 600x400x200mm. – 1 No. 14. Compaction Mould Steel 100mm Dia, Cylindrical, Base Plate & Extension Collar – 18 Nos. 15. Marshall Mould, Steel, with base plate and collar for 152.4mm dia sample. – 18 Nos. 16. Base Plate & Extension Collar – 18 Nos. 17. Automatic Compactor for Bituminous Mixes for 4" & 6" moulds – 1 No. 	01		

32	<p>Pavement Core Drilling Machine, Ref Std. EN 12504-1</p> <p>The complete assembly is supplied on a rigid metal works with minimum vibrations. The double precision bit advances with screwed spindle which provides a constant, accurate drill pressure, minimum core chipping & long bit life.</p> <p>The complete assembly is supplied on a rigid metal base with levelling facility and is supplied for vertically down coring applications only.</p> <p>Bit Diameter: 150mm</p> <p>Maximum depth of core: 400mm</p> <p>Drill speed : Variable speed from 900 to 1200rpm</p> <p>Drive: 6 HP Petrol Engine</p> <p>Guide Shafts: 40mm Dia</p> <p>Screwed Spindle: 20mm dia</p> <p>Water Tap: 12mm</p> <p>Drill Wrenches: Included</p> <p>Supplied with the following:</p> <ol style="list-style-type: none"> 1. Diamond Core Bit, 100mm dia x 200 LONG FOR ASPHALT – 1 No. 2. Diamond Core Bit, 100mm dia x 200 LONG FOR CONCRETE – 1 No. 	01		
Concrete and Cement Testing Equipment				
33	<p>Automatic Compression Testing Machine Windows Based, Capacity 2000kN</p> <p>Automatic Compression Testing Machine Windows Based, Capacity 2000kN with Digital Indicator, Horizon Software and 10 Points with In House NABL Calibration Certificate.</p> <p>Complete with Computer, Printer & UPS. Conforms to IS 516 and IS:14858</p> <p>Technical Specifications:</p> <p>I. General Specifications</p> <ol style="list-style-type: none"> 1. The machine shall be capable of testing specimen made of materials such as concrete, masonry and rock. It shall be used in the laboratory for basic compression testing conforming. 2. The machine shall come with Micro controller with capabilities for testing in load rate control/pace rate control. 3. The electronic control panel shall have LCD display of test results and a keyboard for data entry. 4. Machine should be powder coated by Pretreatment and having 2-piece Teflon Seal. <p>II. Performance Specifications</p> <ol style="list-style-type: none"> 1. The measuring capacity shall be a minimum of 2000 KN 	01		

<p>2. The least count shall be 0.1kN in load</p> <p>3. The maximum clearance between platens shall be at least 370 mm</p> <p>4. The maximum distance between side platens shall be at least 340 mm</p> <p>5. The piston stroke (mm) shall be a minimum of 50 mm.</p> <p>6. The loading rate shall be a minimum of 1 kN/sec</p> <p>7. The load accuracy shall be $\pm 2\%$ of indicated load value</p> <p>8. The unit shall have an emergency stop button to release hydraulic pressure in case of any Emergency</p> <p>9. Variable load rates shall be selected through computer or Digital Indicator</p> <p>10. Online graph in a user defined printable reports shall be available</p> <p>11. LCD display shall include various parameters such as load, displacement, load rate, oil pressure etc. It shall also include</p> <ul style="list-style-type: none"> (i) Easy preload zeroing (ii) Digital display with the facility of data logging, storage & printing for analysis (iii) Real time display of load and stress in Horizon Software (iv) Real time display of applied load rate by symbols for easy adjustment and (v) Digital calibration <p>12. Console panel shall accommodate live control and feedback for all channels. Provision to change the control mode depending on the application and shall offer bump less switching of control mode.</p> <p>13. Data acquisition panel should be easy to set up, monitor and save test data in different file formats, for example .xls, .txt etc.</p> <p>14. Calibration panel shall accommodate provisions to calibrate all sensors and transducers, active ranges on all channels to prevent overloading of transducers. It shall have a display of set and feedback signal, command and error signal. The unit shall also enable adjustments of PID gains for all channels.</p> <p>15. The Data acquisition system shall be connectable to any computer over a standard USB /Ethernet / parallel ports</p> <p>16. The machine also contain following features:</p> <ul style="list-style-type: none"> • Ruggedness • Hassle free performance • Power efficient 			
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	<ul style="list-style-type: none"> • Long-functional life <p>II. Hardware Specifications</p> <p>1. Load frame shall be free standing and self-reacting type. (No Special Foundation or Grouting shall be required)</p> <p>2. Load frame shall be aligned to high precision with a adequate factor of safety and high stiffness (both lateral and vertical). It shall be free from self-induced shocks and vibrations. All steel frames shall be coated and are weather resistant. The machine's platens shall be hardened, ground, and polished. The upper platen shall be with a self-aligning action and suitably sized spacers to accommodate a variety of different sizes of specimen.</p> <p>3. The machine shall not have any cluttered cables and wiring.</p> <p>4. The unit shall accompany compression platens. These compression platens shall be made from hardened alloy steel with coating with a minimum load capacity 2000 kN. The platens shall also feature a spherical seat on the upper grip for improved alignment and shall be smooth faced with etched concentric rings. These platens shall be with one end fixed and the other spherical.</p> <p>5. Facility to enter the required pace rate, at the beginning of the run.</p> <p>Horizon software should have following features:</p> <ul style="list-style-type: none"> • Compression Vs Time Plot • Axial Strain Vs Time Plot • Stress Vs Axial Strain Plot • Calculation of Young's Modulus of the Sample • Lateral Strain Vs Time Plot • Calculation of Poisson's Ratio <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Latest Desktop Computer, CVT & Printer • Suitable hardened platens & spacers to test 150, 100mm Cube and 100mm and 150mm Dia Cylinder <p>Works on Single Phase 220V AC, 50Hz Supply.</p>			
34	Cube Mould, Cast Iron, for 150mm Cube with ISI Certification Mark	12		
35	Vibrating Table, 75 x 75cm for 6 moulds of 150mm cube Ref. : EN 12350-6, 7, 12390-2, 13286-50 The specially designed vibro motor and AC drive arrangement permits the frequency to be varied sleeplessly between 60 Cycles/ sec and 43 Cycles/sec. Vibrating Table should be is ideally suited for this purpose.	01		

	<p>The table top is suitable to hold cube moulds and has stops along its edges to prevent moulds from sliding off the table during operation. The specially designed vibro motor for operating the vibrator.</p> <p>Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.</p>			
36	<p>Concrete Mixer, Pan Type, Capacity 40L</p> <p>The Concrete Mixer has been designed for mixing small quantities of concrete used in preparation of concrete cubes, for testing in laboratories. The purpose of the mixer is to smear mechanically the aggregate surface with cement paste uniformly & produce a mix of uniform consistency. This in turn gives consistent quality of cube specimens when casted in the moulds.</p> <p>The Concrete Mixer developed is transportable on wheels. The design of mixing paddles ensure uniform & efficient mixing of cement & aggregate both in dry & wet conditions. This machine is suitable for aggregate size upto 20mm. The equipment can also be put to use for mixing of any other material in dry / wet conditions. The arrangement helps the operators to access the pan contents conveniently & emptying the mixture after completion of the operation. The drum is driven off the ribbed base. The lid with mixing paddles clears off the top of the drum to provide maximum access to the operator.</p> <p>Specifications:</p> <p>Mixing Capacity: 40 ltrs.</p> <p>Overall Dimension: 910mm x 875 mm x 1250mm</p> <p>Motor: 2 HP, 960 RPM</p> <p>Special Features:</p> <ul style="list-style-type: none"> • Portable & Compact. • Adjustable Blades. • Simple to clean & maintain. • Easy to operate. <p>Suitable for operation on 440V, 50Hz, Three Phase, AC supply.</p>	01		
37	<p>Slump Test Apparatus with testing rod and base plate</p> <p>Ref. Standards IS:7320 with CM/L number, BS:1881, ASTM C 143, AASHTO T119</p> <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Slump Cone • Base plate with swivel handle 	02		

	<ul style="list-style-type: none"> Tamping rod steel, 10 mm dia x 600 mm length with ISI certification mark IS : 10086 			
38	<p>Concrete test Hammer with NCCBM Calibrated Ref. Std. : IS: 133111-1992 (Part-2) BIS 1311 - 1992 (Part 2) and ASTM C805, D5873. Measuring Range :10 to 70 N/mm Impact energy = 2.207Nm.</p>	01		
39	<p>Vicat Apparatus with ISI Certification Mark, IS:5513, fitted in Aluminum Box <u>Supplied with the following:</u></p> <ul style="list-style-type: none"> Permeability Cell. 'U' Tube Manometer, mounted on stand. Perforated Metal Disc. Plunger. Rubber Stopper. Rubber Tube, 20 cm long. Filter Paper Discs (Twelve Nos.). Dibutylphthalate Liquid, 100 ml bottle. Punch. Non Perforated Disc. Suction Bulb 	01		
40	Steel Tape 30m Long	01		
41	Steel Tape 10m long	01		

BANK GUARANTEE FOR PERFORMANCE SECURITY

Format for Bank Guarantee for Performance Security (For individual work)

To,

The Director
Indian Academy of Highway Engineers,
Sector 62,
Noida, U.P.

In consideration of “Indian Academy of Highway Engineers, ” (hereinafter referred as the “Client”, which expression shall, unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....having its office at (Hereinafter referred to as the “Supplier” which expression shall repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a contract by issue of client’s Contract Agreement no. / Letter of Acceptance No. dated and the same having been unequivocally accepted by the Supplier, resulting in a Contract value at Rs...../- (Rupees.....) excluding Goods and Service tax for “Supply, Installation and Commissioning of equipment” (Hereinafter called the “Contract”), and the Supplier having agreed to furnish a Bank Guarantee to the Client as “Performance Security as stipulated by the Client in the said contract for performance of the above Contract amounting to Rs...../- (Rupees.....).

We,having registered office at, a body registered/constituted under the(hereinafter referred to as the Bank), which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the client immediately on demand any or, all money payable by the Supplier to the extent of Rs.(Rupees.....) as aforesaid at any time up towithout any reservation, contest, recourse or protest and/or without any reference to the supplier. Any such demand made by the client on the bank shall be conclusive and binding notwithstanding any difference between the Client and the supplier or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. We agree that the Guarantee herein contained shall be irrevocable and shall continue to be enforceable till the Client discharges this guarantee.

The Bank also agrees that the Client at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Supplier and notwithstanding any security or other guarantee that the Client may have in relation to the Supplier’s liabilities. The Client shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to vary or to extend the time for performance of the contract by the supplier. The Client shall have the

fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the supplier and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Client and the supplier any other course or remedy or security available to the Client. The bank shall not be relieved of its obligations under these presents by any exercise by the Client of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Client or any other indulgence shown by the Client or by any other matter or thing whatsoever which under law would but for this provision have the effect of relieving the Bank.

Notwithstanding anything contained herein,

a) Our liability under this Bank Guarantee is limited to Rs.
(Rupees.....) and it shall remain in force up to and includingand shall be extended from time to time for such period as may be desired by M/s....., on whose behalf this guarantee has been given.

b) This Bank Guarantee shall be valid up to

c) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before(date of expiry of Guarantee).

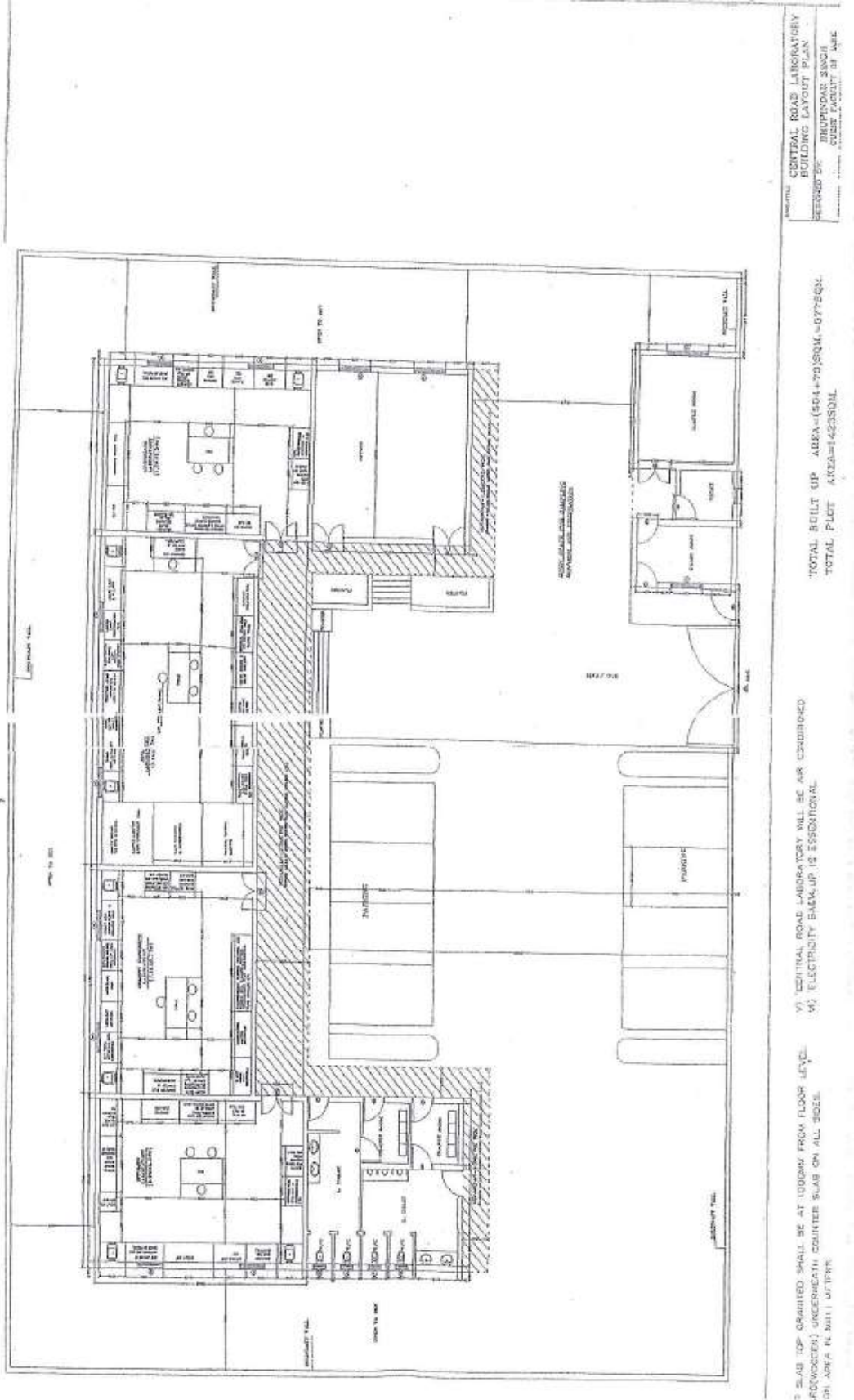
(Signature of the Authorised Official)

(Name & Designation with Bank Stamp)

NOTE: (i) The bank guarantee(s) contains the name, designation and code number of the officer(s) signing the guarantee(s). (ii) The address, telephone no. and other details of the Head Office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing Branch. (iii) The bank guarantee for Rs. 10,000 and above is signed by at least two officials ((or as per the norms prescribed by the RBI in this regard).

Layout/Drawing of Proposed Laboratory at CML, Kampala, Uganda

Typical Layout for the Proposed Regional Material Testing Laboratory for Highways in African Countries under IAFS-II



Contract Agreement

Contract No. _____

Date: _____

THIS CONTRACT AGREEMENT is made the [insert: number] day of [insert: month], [insert: year].

BETWEEN

(1) The Indian Academy of Highway Engineers (IAHE), a registered under the Societies Registration Act 1860 of the Government of India having its registered office at A-5, Sector-62, Noida-201309, Noida, UP, India represented by **Director, IAHE** [insert complete name and address of Authority (hereinafter called “the Authority”), and

(2) [insert name of Bidder], a corporation incorporated under the laws of [insert: country of Original Equipment Manufacturer (OEM)] and having its Principal place of business at [insert: address of Original Equipment Manufacturer (OEM)] (hereinafter called “the Original Equipment Manufacturer (OEM)”).

WHEREAS the Authority invited e-tender for certain Equipment and Related Services, for Establishment of the Regional Materials Testing Laboratory and has accepted a Bid by the Original Equipment Manufacturer (OEM) for transportation, supply, installation, operationalization, commissioning, demonstration and hands-on training on the Equipment to be supplied and Related Services in the sum of [insert Contract Price in words and figures, expressed in the Contract Currency (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract referred to.

2. The following documents shall constitute the Contract between the Authority and the Original Equipment Manufacturer (OEM), and each shall be read and construed as an integral part of the Contract:

(a) This Contract Agreement

(b) Special Conditions of Contract

(c) General Conditions of Contract

(d) Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

(e) The Original Equipment Manufacturer (OEM)’s Bid and original Proposed Bill of Quantities.

(f) The Authority’s Notification of Award

(g) Instructions to Bidders

(h) [Add here any other document(s)]

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. In consideration of the payments to be made by the Authority to the Original Equipment Manufacturer (OEM) as hereinafter mentioned, the Original Equipment Manufacturer (OEM) hereby covenants with the Authority to provide the Equipment and Related Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

5. The Authority hereby covenants to pay the Original Equipment Manufacturer (OEM) in consideration of the provision of the Equipment and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Union of India on the day, month and year indicated above.

For and on behalf of the Authority

Signed: [insert signature] in the capacity of [insert title or other appropriate designation]

in the presence of [insert identification of official witness]

Signed: [insert signature] in the capacity of [insert title or other appropriate designation]

in the presence of [insert identification of official witness]

For and on behalf of the Original Equipment Manufacturer (OEM)

Signed: [insert signature of authorized representative(s) of the Original Equipment Manufacturer (OEM)]

in the capacity of [insert title or other appropriate designation]

in the presence of [insert identification of official witness]

GENERAL CONDITIONS OF CONTRACT (GCC)

2.1. Definitions

2.1.1 The following words and expressions shall have the meanings hereby assigned to them:

- (a) "Authority" shall have the meaning attributed thereto in the array of Parties as set forth in the Contract Form.
- (b) "Contract" means the Contract Agreement entered into between the Authority and the Original Equipment Manufacturer (OEM), together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- (c) "Contract Documents" means the documents listed in the Contract Agreement, including any amendments thereto.
- (d) "Contract Price" means the price payable to the Original Equipment Manufacturer (OEM), as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.
- (e) "Day" means calendar day.
- (f) "Completion" means the fulfillment of the Related Services by the Original Equipment Manufacturer (OEM) in accordance with the terms and conditions set forth in the Contract.
- (g) "GCC" means the General Conditions of Contract.
- (h) "Equipment" means all of the machinery and equipment, accessories, consumables and /or other materials that the Original Equipment Manufacturer (OEM) is required to supply to the Authority under the Contract.
- (i) "Related Services" means the services incidental to the supply of the equipment, such as transportation & insurance, installation, operation, commissioning, demonstration, hands-on training, maintenance during warranty period, services during annual maintenance period and other such obligations of the Original Equipment Manufacturer (OEM) under the Contract.
- (j) "SCC" means the Special Conditions of Contract.
- (k) "Original Equipment Manufacturer (OEM)" means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Authority and is named as such in the Contract Agreement.
- (l) "The final destination," where applicable, means the place named in the SCC.

2.2. Contract Documents

2.2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

2.3 Fraud and Corruption

2.3.1 The Authority requires that bidders/OEM, if any, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy,

(a) the terms set forth below are defined as follows:

(i) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

(ii) "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

(iii) "Collusive practice" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Borrower, designed to establish bid prices at artificial, noncompetitive levels; and

(iv) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

(b) the Authority will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question;

2.4. Scope of Supply

2.4.1 The Equipment and Related Services to be supplied shall be as specified in the Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Ministry of Works and Transport, Government of Uganda, P.O. BOX 7188, Kireka - Kampala, Uganda, Tel: +256 414 285750, Fax: +256 772 434352.

2.5. Original Equipment Manufacturer (OEM)' Responsibilities

2.5.1 The Original Equipment Manufacturer (OEM) shall supply all the Equipment and Related Services included in the Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda,

Africa, and the Delivery and Completion Schedule, as per GCC Clause relating to delivery and document.

2.6 Contract price

2.6.1 Prices charged by the Original Equipment Manufacturer (OEM) for the Equipment supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Original Equipment Manufacturer (OEM) in its bid.

2.7 Copyright

2.7.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Authority by the Original Equipment Manufacturer (OEM) herein shall remain vested in the Original Equipment Manufacturer (OEM).

2.8. Application

2.8.1 These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

2.9. Standards

2.9.1 The Equipment supplied and services rendered under this Contract shall conform to the standards mentioned in the Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

2.10. Use of Contract Documents and Information

2.10.1 The Original Equipment Manufacturer (OEM) shall not, without the Authority's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Authority in connection therewith, to any person other than a person employed by the Original Equipment Manufacturer (OEM) in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance.

2.10.2 The Original Equipment Manufacturer (OEM) shall not, without the Authority's prior written consent, make use of any document or information enumerated above except for purposes of performing the Contract.

2.10.3 Any document, other than the Contract itself, enumerated above shall remain the property of the Authority and shall be returned (in all copies) to the Authority on completion of the Original Equipment Manufacturer (OEM)'s performance under the Contract if so required by the Authority.

2.11. Patent Indemnity

2.11.1 The Original Equipment Manufacturer (OEM) shall, subject to the Authority's compliance with GCC Sub-Clause 2.11.2, indemnify and hold harmless the Authority and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Authority may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of 'the installation of the Equipment by the Original Equipment Manufacturer (OEM) or the use of the Equipment in Uganda'; and

2.11.2 If any proceedings are brought or any claim is made against the Authority, the Authority shall promptly give the Original Equipment Manufacturer (OEM) a notice thereof, and the Original Equipment Manufacturer (OEM) may at its own expense and in the Authority's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

2.12 Performance Security

2.12.1 Within 15 days of receipt of the notification of award, the Original Equipment Manufacturer (OEM) shall furnish Performance Security (PS) in the amount specified in SCC, valid till 60 days after the warranty period.

2.12.2 The Performance Security shall be a Bank guarantee issued by a Scheduled Bank located in India in the format specified in Annexure – VI.

2.12.3 The Performance Security will be discharged by the Authority and returned to the Original Equipment Manufacturer (OEM) not later than 60 days following the date of completion of the Original Equipment Manufacturer (OEM)'s performance obligations, including any warranty obligations, unless specified otherwise in SCC, without levy of any interest.

2.13. Inspections and Tests

2.13.1 The Authority or its representative shall have the right to inspect and/or to test the Equipment to confirm their conformity to the Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa, at no extra cost to the Authority. The SCC shall specify what inspections and tests the Authority requires and where they are to be conducted. The Authority shall notify the Original Equipment Manufacturer (OEM) in writing in a timely manner of the identity of any representatives retained for these purposes.

2.13.2 The inspections and tests shall be conducted on the premises of the Original Equipment Manufacturer (OEM) at the point of delivery and at the Equipment final destination.

2.13.3 Whenever the Original Equipment Manufacturer (OEM) is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Authority.

2.13.4 Should any inspected or tested Equipment fail to conform to the specifications, the Authority may reject the Equipment and the Original Equipment Manufacturer (OEM) shall either replace the rejected Equipment or make alterations necessary to meet specification requirements free of cost to the Authority.

2.13.5 The Original Equipment Manufacturer (OEM) shall provide the Authority with a report of the results of any such test and/or inspection.

2.14. Packing

2.14.1 The Original Equipment Manufacturer (OEM) shall provide such packing of the Equipment as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Equipment' final destination and the absence of heavy handling facilities at all points in transit.

2.14.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Authority.

2.15. Delivery and Documents

2.15.1 Delivery of the Equipment and completion and Related Services shall be made by the Original Equipment Manufacturer (OEM) in accordance with the terms specified by the Authority in the contract. The details of shipping and/or other documents to be furnished by the Original Equipment Manufacturer (OEM) are specified in SCC.

2.15.2 The mode of transportation shall be as specified in SCC.

2.16. Insurance

Insurance of the equipment shall be covered by the Original Equipment Manufacturer (OEM) for 110% of the value upto CML, Kampala, Uganda i.e. Final Destination (as per Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa).

2.17. Transportation

2.17.1 The Original Equipment Manufacturer (OEM) is required under the Contract to transport the Equipment and deliver the Equipment at CML, Kampala, Uganda i.e. Final Destination.

2.18. Incidental Services

2.18.1 The Original Equipment Manufacturer (OEM) shall be required to provide any or all of the services as described in the scope of work to supply, install, operate, commission, demonstration and provide hands-on training.

2.19. Warranty

2.19.1 The Original Equipment Manufacturer (OEM) warrants that all the Equipment are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

2.19.2 The Original Equipment Manufacturer (OEM) further warrants that the Equipment shall be free from defects arising from any act or omission of the Original Equipment Manufacturer (OEM) or arising from design, materials, and workmanship, under normal use in the conditions prevailing in India.

2.19.3 Unless otherwise specified in the SCC, the warranty shall remain valid for twelve (12) months after the Equipment have been delivered at the final destination i.e., CML, Kampala, commissioned and accepted by the Authority.

2.19.4 The Authority shall give notice to the Original Equipment Manufacturer (OEM) stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Authority shall afford all reasonable opportunity for the Original Equipment Manufacturer (OEM) to inspect such defects.

2.19.5 Upon receipt of such notice, the Original Equipment Manufacturer (OEM) shall, within a reasonable period of time not exceeding 15 days, expeditiously repair or replace the defective Equipment or parts thereof, at no cost to the Authority.

2.19.6 If having been notified, the Original Equipment Manufacturer (OEM) fails to remedy the defect within a period of 15 days, the Authority may proceed to take within a reasonable period such remedial action as may be necessary, at the Original Equipment Manufacturer (OEM)'s risk and expense and without prejudice to any other rights which the Authority may have against the Original Equipment Manufacturer (OEM) under the Contract.

2.19.7 Equipment requiring warranty replacements must be replaced on free of cost basis to the Authority.

2.19.8 Warranty defects / free replacement: Warranty shall involve free maintenance of the whole equipment supplied including free replacement of parts. The defects, if any, during warranty period are to be rectified free of charge by arranging for free replacement wherever necessary. This included cost, insurance, freight, customs duty, octroi, levies / taxes if any, should be borne by the Original Equipment Manufacturer (OEM).

2.20. Terms of Payment

2.20.1 The method and conditions of payment to be made to the Original Equipment Manufacturer (OEM) under this Contract shall be as specified in the SCC.

2.20.2 The Original Equipment Manufacturer (OEM)'s request(s) for payment shall be made to the Authority in writing, accompanied by an invoice describing, as appropriate, the Equipment delivered and the Related Services performed, and supporting documents submitted pursuant to GCC and upon fulfillment of other obligations stipulated in Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

2.20.3 Payments shall be made promptly by the Authority but in no case later than thirty (30) days after submission of the invoice or claim by the Original Equipment Manufacturer (OEM).

2.20.4 Payment shall be made in currency as indicated in the contract.

2.21. Change Orders and Contract Amendments.

2.21.1 The Authority may at any time, by written order given to the Original Equipment Manufacturer (OEM) pursuant to Clause on Notices of the GCC make changes within the general scope of the Contract in any one or more of the following:

(a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Authority;

(b) The method of shipping or packing;

(c) The place of delivery; and/or

(d) The Services to be provided by the Original Equipment Manufacturer (OEM).

(e) The delivery schedule.

2.21.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Original Equipment Manufacturer (OEM)'s performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Original Equipment Manufacturer (OEM) for adjustment under this

clause must be asserted within fifteen (15) days from the date of the Original Equipment Manufacturer (OEM)'s receipt of the Authority's change order.

2.21.3 No variation or modification in the terms of the contract shall be made except by written amendment agreed upon by both Authority and Original Equipment Manufacturer (OEM).

2.22. Assignment

2.22.1 The Original Equipment Manufacturer (OEM) shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Authority's prior written consent.

2.23. Subcontracts

2.23.1 No subcontracting shall be allowed for Manufacturing of Equipment.

2.24. Extension of time

2.24.1 Delivery of the Equipment and performance of the Related Services shall be made by the Original Equipment Manufacturer (OEM) in accordance with the time schedule specified in SCC.

2.24.2 If at any time during performance of the Contract, the Original Equipment Manufacturer (OEM) should encounter conditions impeding timely delivery of the Goods and performance of Related Services, the Original Equipment Manufacturer (OEM) shall promptly notify the Authority in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Original Equipment Manufacturer (OEM)'s notice, the Authority shall evaluate the situation and may, at its discretion, extend the Original Equipment Manufacturer (OEM)'s time for performance with or without penalty, in which case the extension shall be ratified by the parties by amendment of the Contract.

2.24.3 Except as provided under the Force Majeure clause of the GCC, a delay by the Original Equipment Manufacturer (OEM) in the performance of its delivery obligations shall render the Original Equipment Manufacturer (OEM) liable to the imposition of penalty pursuant to Penalty Clause of the GCC unless an extension of time is agreed upon pursuant to above clause without the application of penalty clause.

2.25. Penalty clause

2.25.1 Penalty Clause: Penalty shall be levied @0.5% of Contract Price per week maximum upto 10% of Contract Price for delay in acceptance of Equipment.

2.25.2 Subject to GCC Clause on Force Majeure, if the Original Equipment Manufacturer (OEM) fails to deliver any or all of the Equipment or to perform the services within the period(s) specified in the Contract, the Authority shall, without

prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Equipment for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Authority may consider termination of the Contract pursuant to GCC Clause on Termination for Default. The SCC shall also indicate the basis for ascertaining the value on which the penalty shall be applicable.

2.26. Termination for Default

2.26.1 The Authority may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Original Equipment Manufacturer (OEM), terminate the Contract in whole or part

(a) If the Original Equipment Manufacturer (OEM) fails to deliver any or all of the Equipment within the period(s) specified in the contract, or within any extension thereof granted by the Authority pursuant to GCC Clause on Extension of Time; or

(b) If the Original Equipment Manufacturer (OEM) fails to perform Related Services or any other obligation(s) under the Contract.

(c) If the Original Equipment Manufacturer (OEM), in the judgment of the Authority has engaged in corrupt or fraudulent or collusive or coercive practices as defined in GCC Clause on Fraud or Corruption in competing for or in executing the Contract.

2.26.2 In the event the Authority terminates the contract in whole or in part, he may take recourse to any one or more of the following action:

a) The Performance Security is to be forfeited;

b) The Authority may procure, upon such terms and in such manner as it deems appropriate, stores similar to those undelivered, and the Original Equipment Manufacturer (OEM) shall be liable for all available actions against it in terms of the contract

c) However, the Original Equipment Manufacturer (OEM) shall continue to perform the contract to the extent not terminated.

2.27. Force Majeure

2.27.1 Notwithstanding the provisions of GCC Clauses relating to Extension of Time, penalty and Termination for Default the Original Equipment Manufacturer (OEM) shall not be liable for forfeiture of its Performance Security, Termination for Default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

2.27.2 For purposes of this Clause, “Force Majeure” means an event or situation beyond the control of the Original Equipment Manufacturer (OEM) that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Original Equipment Manufacturer (OEM). Such events may include, but not be limited to, acts of the Authority in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

2.27.3 If a Force Majeure situation arises, the Original Equipment Manufacturer (OEM) shall promptly notify the Authority in writing of such conditions and the cause thereof within 21 days of its occurrence. Unless otherwise directed by the Authority in writing, the Original Equipment Manufacturer (OEM) shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

2.27.4 If the performance in whole or in part or any obligations under the contract is prevented or delayed by any reason of Force Majeure for a period exceeding 60 days, either party may at its option terminate the contract without any financial repercussions on either side.

2.28. Termination for Insolvency

2.28.1 The Authority may at any time terminate the Contract by giving written notice to the Original Equipment Manufacturer (OEM), if the Original Equipment Manufacturer (OEM) becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Original Equipment Manufacturer (OEM), provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Authority.

2.29. Termination for Convenience

2.29.1 The Authority, by written notice sent to the Original Equipment Manufacturer (OEM), may terminate the Contract, in whole or in part, at any time. The notice of termination shall specify that termination is for the Authority's convenience, the extent to which performance of the Original Equipment Manufacturer (OEM) under the Contract is terminated, and the date upon which such termination becomes effective.

2.29.2 The Equipment that are complete and ready for shipment within 30 days after the Original Equipment Manufacturer (OEM)'s receipt of notice of termination shall be accepted by the Authority at the Contract terms and prices. For the remaining Equipment, the Authority may elect:

(a) To have any portion completed and delivered at the Contract terms and prices; and/or

(b) To cancel the remainder and pay to the Original Equipment Manufacturer (OEM) an agreed amount for partially completed Equipment and parts previously procured by the Original Equipment Manufacturer (OEM).

2.30. Settlement of Disputes

2.30.1 The Authority and the Original Equipment Manufacturer (OEM) shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

2.30.2 If, after twenty-one (21) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Authority or the Original Equipment Manufacturer (OEM) may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

2.30.3 The dispute settlement mechanism/arbitration proceedings shall be concluded as under:

(a) The dispute shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The award of the Arbitrator so appointed shall be final, conclusive and binding on all parties to this order.

2.30.4 The venue of the arbitration shall be in Delhi

2.30.5 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

(b) the Authority shall pay the Original Equipment Manufacturer (OEM) any monies due the Original Equipment Manufacturer (OEM).

2.31. Governing Language

2.33.1 The contract shall be written in English language which shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in the English language only.

2.32. Applicable Law

2.32.1 The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction as specified in SCC.

2.33. Notices

2.33.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by Fax, e-mail or and confirmed in writing to the other party's address specified in the SCC.

2.33.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

2.34. Taxes and Duties

2.34.1 The Original Equipment Manufacturer (OEM) shall be entirely responsible for all taxes, duties, license fees, etc., incurred till its final shipment from India.

2.34.2 Republic of Uganda have agreed for payment of all the taxes, custom duties, import duties, VAT and other levies (customs & excise) on the cost of equipment, machinery and accessories, etc., whatsoever in Uganda and bear the cost on this account relating to the deployment of services.

2.35. Protection against Damage

2.35.1 The Equipment shall not be prone to damage during power failures and trip outs. The normal voltage and frequency conditions available at CML, Kampala as under:

- a) Voltage 440/220 volts
- b) Frequency 50 Hz.

2.36. Site preparation and installation

2.36.1 Republic of Uganda have agreed to carry out the civil work at Laboratory site including necessary alterations as required by the OEM. Provide meson, plumber, electrician, carpenter, skilled, semi-skilled and unskilled workers, laboratory technicians for installation and commissioning the laboratory equipment. Erecting foundation of machinery as per requirements of each equipment. Erect concrete slabs wherever necessary in the laboratory. However, if any requirement with respect to the site and installation is not carried out by the Republic of Uganda the same shall be done by the OEM at its own cost.

SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

GCC 2.1 (I) The Final Destination is: Central Materials Laboratory (CML), Kireka, Kampala, Uganda, Africa.

GCC 2.12.1 The amount of the Performance Security shall be: 10 % of the Contract Price

GCC 2.13.1 The Inspection and Tests prior to shipment of Equipment and at final acceptance are as follows:

After the Equipment are manufactured / assembled, inspection and testing of the Equipment shall be carried out at the Original Equipment Manufacturer (OEM)'s plant by the Authority, prior to shipment to check whether the goods are in conformity with the Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

The acceptance test will be conducted by the Authority, their consultant or other such person nominated by the Authority at its option after the equipment is installed at CML, Kampala in the presence of Original Equipment Manufacturer (OEM)'s representatives. The acceptance will involve trouble free operation. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the equipment is expected to occur. The Original Equipment Manufacturer (OEM) shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Authority, the successful completion of the test specified.

In the event of the ordered item failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which, the Authority reserve the right to get the equipment replaced by the Original Equipment Manufacturer (OEM) at no extra cost to the Authority.

Successful conduct and conclusion of the acceptance test for the installed Equipment and equipment shall also be the responsibility and at the cost of the Original Equipment Manufacturer (OEM).

Before the equipment are taken over by the Authority, the Original Equipment Manufacturer (OEM) shall supply Operation and Maintenance Manuals together with Drawings of the equipment built. These shall be in such details as will enable the Purchase to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

The Manuals and Drawings shall be in the ruling language (English) and in such form and numbers as stated in the Contract.

Unless and otherwise agreed, the equipment shall not be considered to be completed for the purposes of taking over until such Manuals and Drawing have been supplied to the Authority.

On successful completion of acceptability test, receipt of deliverables, etc. and after the Authority is satisfied with the working of the equipment, the acceptance certificate signed by the Original Equipment Manufacturer (OEM) and the representative of the Authority will be issued. The date on which such certificate is signed shall be deemed to be the date of successful installation and commissioning of the equipment.

GCC 2.14.2 The marking and documentation within and outside the packages shall be:

a) Each package should have a packing list within it detailing the part No.(s), description, quantity etc.

b) Outside each package, the contract No., the name and address of the Authority and the final destination should be indicated on all sides and top.

c) Each package should be marked as 1/x, 2/x, 3/x.....x/x, where "x" is the total No. of packages contained in the consignment.

d) All the sides and top of each package should carry an appropriate indication/label/stickers indicating the precautions to be taken while handling/storage.

GCC 2.15.1 Details of Shipping and other Documents to be furnished by the Original Equipment Manufacturer (OEM)

Within 24 hours of dispatch, the Original Equipment Manufacturer (OEM) shall notify the Authority the complete details of dispatch and also supply following documents by registered post / speed post and copies thereof by FAX.

(a) Two copies of Original Equipment Manufacturer (OEM)'s Invoice indicating, inter -alia description and specification of the goods, quantity, unit price, total value;

(b) Packing list;

(c) Certificate of country of origin;

(d) Insurance certificate, if required under the contract;

(e) Rail/Road/Ship/Air receipt/Consignment note;

(f) Manufacturer's guarantee certificate and in-house inspection certificate;

(g) Inspection certificate issued by Authority's inspector, if any and

(h) Any other document(s) as and when required in terms of the contract.

Note: 1. The nomenclature used for the item description in the invoices(s), packing list(s) and the delivery note(s) etc. should be identical to that used in the contract. The dispatch particulars including the name of the transporter should also be mentioned in the Invoice(s)
2. The above documents should be received by the Authority before arrival of the Equipment at CML, Kampala.

GCC 2.15.2 The mode of transportation shall be air/sea/rail/road.

GCC 2.20 Terms of Payment:

Payment for Equipment and Related Services shall be made in Indian Rupees, as follows:

- i. Shipment of all the Equipment to final destination i.e. CML, Kampala, Uganda from India after factory inspection and submission of supporting documents alongwith insurance papers – 60% of Contract Price.
- ii. Delivery of all the Equipment at CML, Kampala, Uganda – 25% of Contract Price.
- iii. Installation, Commissioning and acceptance of all Equipment at CML, Kampala, Uganda – 10% of Contract Price
- iv. Demonstration and hands-on Training to officers of CML Kampala – 5% of Contract Price.

GCC 2.24.1 The Time Schedule for delivery of Equipment and performance of all Related Services upto acceptance is six (6) months from date of agreement. Time Schedule for demonstration and hands-on training to officers of CML Kampala is two (2) months from the date of acceptance of Equipment.

GCC 2.32.1 The place of jurisdiction is Delhi.

GCC 2.33.1 The Authority's address is: Director, IAHE, Noida, UP (INDIA), Tel: +91-120-2400085-86, 2405006-9, email address: director.iahe@gmail.com.

The Original Equipment Manufacturer (OEM) address is

Scope of Work for Establishment of Regional Materials Testing Laboratory at Central Materials Laboratory (CML), Kampala, Uganda, Africa.

1. The List of equipment including quantities to be supplied by the OEM is given below:

S. No.	Product Description	Qty
	General Lab Equipment	
1	Balances	
A	Electronic Balance, Capacity 5kg x 0.5g with NABL Calibration Certificate	01
B	Electronic Balance, Capacity 20kg x 2g with NABL Calibration Certificate	01
C	Electronic Balance, Capacity 600g x 0.01g with NABL Calibration Certificate	01
D	Electronic Balance, Capacity 30kg x 5g with NABL Calibration Certificate	01
2	Laboratory Electric Oven, Thermostatically Controlled, range 50° to 250°C ± 3°C with Air Circulating Fan, S.S. Inside Size 450 x 450 x 450mm	01
3	Sieves G.I. Frame 300mm dia, As per Ref. Standards IS:2720 (Part 4), ASTM D 422, AASHTO T 88, BS:1377	
	Sieve G.I. Frame 30cm dia x 90mm	01
	Sieve G.I. Frame 30cm dia x 80mm	01
	Sieve G.I. Frame 30cm dia x 63mm	01
	Sieve G.I. Frame 30cm dia x 53mm	01
	Sieve G.I. Frame 30cm dia x 50mm	01
	Sieve G.I. Frame 30cm dia x 45mm	01
	Sieve G.I. Frame 30cm dia x 40mm	01
	Sieve G.I. Frame 30cm dia x 37.5mm	01
	Sieve G.I. Frame 30cm dia x 26.5mm	01
	Sieve G.I. Frame 30cm dia x 19mm	01
	Sieve G.I. Frame 30cm dia x 13.2mm	01
	Sieve G.I. Frame 30cm dia x 11.2mm	01
	Sieve G.I. Frame 30cm dia x 9.5mm	01
	Sieve G.I. Frame 30cm dia x 4.75mm	01
	Sieve G.I. Frame 30cm dia x 4.00mm	01
	Sieve G.I. Frame 30cm dia x 3.35mm	01
	Sieve G.I. Frame 30cm dia x 2.36mm	01
	Pan and Cover for 30cm dia sieves	01
	Sieves Brass Frame 200mm Diameter	
	Sieve Brass Frame 20cm dia x 4.75mm	01
	Sieve Brass Frame 20cm dia x 3.35mm	01
	Sieve Brass Frame 20cm dia x 2.36mm	01
	Sieve Brass Frame 20cm dia x 1.18mm	01
	Sieve Brass Frame 20cm dia x 600 microns	01
	Sieve Brass Frame 20cm dia x 425 microns	01

	Sieve Brass Frame 20cm dia x 300 microns	01
	Sieve Brass Frame 20cm dia x 180 microns	01
	Sieve Brass Frame 20cm dia x 90 microns	01
	Sieve Brass Frame 20cm dia x 75 microns	01
	Sieve Brass Frame 20cm dia x 38 microns	01
	Pan and Cover for 20cm dia sieves	01
4	Sieve Shaker, Motorised, with Built-in Digital Timer Supplied with Adapter for 20cm and 30cm dia sieves	01
	Soil Testing Equipment	
5	Liquid Limit Device, motorised, with Casagrande grooving tools and gauge block (suitable for operation on 50 Hz, single phase AC Supply) Ref. Standards: IS:2720 (Part 5), IS:9259, BS 1377 The Liquid Limit Device consists of a hard rubber base carrying a sliding carriage assembly to which a brass cup is hinged. The cup is raised and allowed to fall through a height of 1 cm on to the hard rubber base, with the help of a lead screw provided at the back of the sliding carriage. Supplied complete with Casagrande Grooving Tool and Gauge Block (Type A of IS : 9259). Suitable for operation on 220 V, 50 Hz, single phase, AC supply	01
	Shrinkage Limit Set Ref. Standards IS : 2720 (Part 6), 10077, ASTM : D 427, BS : 1377, AASHTO T-92 Supplied with following: <ul style="list-style-type: none"> • Porcelain Evaporating Dish • Shrinkage Dish • Glass Cup • Perspex Plate, with three Metal Prongs • Perspex Plain Plate • Spatula 100mm • Glass Cylinder, graduated, 25 ml x 0.5 ml • Mercury, 750 g • Straight Edge 300mm 	01
6	Dessicator Non-Vacuum Type, 200mm dia, glass	01
7	Compaction Test Apparatus for light compaction Supplied with the following: <ul style="list-style-type: none"> • Compaction mould 100 mm ID, 127.3 mm height 1,000 ml volume with Collar and Base Plate, made of Gunmetal • Rammer 2.6 kg x 310 mm fall as per IS: 9198 	01
8	Compaction Test Apparatus for heavy compaction Supplied with the following: <ul style="list-style-type: none"> • Compaction mould 150 mm ID, 127.3 mm height 2250ml volume with Collar and Base Plate, made of Gunmetal • Rammer 4.9 kg x 450 mm fall as per IS: 9198 	01
9	Core Cutter with dolly & rammer Supplied with following:	01

	<ul style="list-style-type: none"> • Cylindrical Core Cutter made of steel, 100 mm dia x 130 mm long • Steel Dolly 25 mm high and 100 mm dia, fitted with a lip, to enable it to be located on top of the Core-Cutter • Rammer with Steel Rod 	
10	<p>Laboratory California Bearing Ratio Test Apparatus, Motorised, Electronics with Table Top Electronic Load Frame four speed and Data Acquisition System & GeoStar Software, Computer & Black and White Laser Printer Ref: Standards: IS : 2720 (Part XVI), BS 1377; 1924; EN 13286-47/ ASTM D 1883; AASTHO T 193</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Mould - Gun Metal 150m ID x 175 mm H. – 12 Nos. • Perforated Base Plate Gun Metal, Mould. 12 Nos. • Extension Collar-Gun Metal 150mm ID x 50mm high. 12 Nos. • Circular Metal Spacer Disc, with detachable handle, 148mm dia x 47.7mm high – 4 Nos. • Annular Metal Weight 2.5kg., 147mm dia with 53mm dia Central Hole. – 4 Nos. • Perforated Plate, 148mm dia with adjustable stem and lock nut. - 4 Nos. • Universal Automatic Compactor with Mild Steel compaction mould as per IS, supplied with • Mould, 100mm dia x 127.3mm height 1,000 ml volume, Mild Steel – 1 No. • 150 mm ID, 127.3 mm height 2,250 ml volume, Mild Steel – 1 No. 	01
11	<p>Sand Pouring Cylinder Apparatus, 100mm Dia. Ref. Standard IS:2720 (Part 28)</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Sand Pouring Cylinder fitted with Conical Funnel and Shutter, capacity 3 litre 1 No. • Cylindrical Calibration Container 100 mm ID x 150 mm height 1 No. • Metal Tray size 30 x 30 x 4 cm, with 10 cm central hole 1 No. 	01
12	<p>Sand Pouring Cylinder Apparatus, Large, Ref. Standard IS:2720 (Part 28)</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Large sand Pouring cylinder, 16.5 ltr. capacity fitted with conical funnel and shutter • Cylindrical calibrating container, internal diameter 200 mm and internal depth 250mm • Metal tray size, 45x45x5 cm deep with hole 	01
13	Standard Sand Grade-I, Pack of 25Kgs.	01
14	Standard Sand Grade-II, Pack of 25Kgs.	01
15	Standard Sand Grade-III, Pack of 25Kgs.	01
16	Chisel, 200mm long	01
17	Hammer, 500gm.	01
18	Speedy Moisture Meter, Range 0-50% (Gauge Div.:1%) with digital weighing balance	02

	<p>Ref. Standards: IS:2720 (Part 2), IS:12175</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Calcium Carbide Reagent 1 No. • Moisture gauge, 0-50 % × 1% 1 No. • Digital Balance, 50g 1 No. • Steel Balls 1 Set • Scoop 1 No. • Cleaning Brush 1 No. • Aluminum Dish 1 No. 	
19	Moisture Content Tin, Size 65mm dia x 20mm deep	36
20	<p>Direct Shear Outfit, Electronic, 2kN, with Microprocessor based load frame with Data Acquisition System, Ref. Standards IS:2720 (Part13), BS1377, ASTM D3080</p> <p>Should have following salient features:</p> <ul style="list-style-type: none"> • Microprocessor control • Large on-board 40×2 line LCD screen display • Direct data entry via membrane key pad. • Rapid approach and return to start datum • Fully variable speed, 0.00001 to 9.99999mm/minute • Accepts specimen 60mm square <p><u>Technical Specifications:</u></p> <p>Integrated Measurement Electronics: Mode of Display: Micro controller multi line alpha numeric VFD display for all simultaneous channel (No need for channel selection)</p> <p>Transducers Load: Universal type load cell, 2kN capacity 1 No. Displacements: LVDT with measurement range +/-20mm travel, 2 Nos. Speed Range Standard Speeds : 0.00001 to 9.99999 mm / minute Fast forward/reverse: 10mm / minute Suitable for operation on 220V, 50Hz, Single phase, AC Supply</p>	01
21	<p>Triaxial Test Apparatus, Digital with microprocessor-based loading unit with Data Acquisition System & Geo Star, Computer & Printer</p> <p>Ref: Standard IS : 2720 (Part XII)</p> <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Load Frame, Motorised, 50 kN (5,000 kgf) capacity, Microprocessor Based • Triaxial Cell for testing specimens of size 38mm dia x 76mm long • Constant Pressure System, oil water type with two cells. • Automatic Volume Change Device • Triaxial Electronic Conversion Kit (4 Channel) • Data Acquisition System for upto 4 channels • GeoStar Analysis and reporting Software Module for Consolidated Undrained Triaxial Test for single license 	01

	<ul style="list-style-type: none"> • GeoStar Analysis and reporting Software Module for Unconsolidated Undrained Triaxial Test for single license • GeoStar Analysis and reporting Software Module for Consolidated Drained Triaxial Test for single license • Sampleject-5000, Hydraulic sample extruder, Electric-cum-hand operated • Lateral Pressure Assembly capacity 10kg/cm² (Pressure Chamber with foot pump). 	
22	<p>Consolidation Apparatus, Single Gang, New Bench type Model, Electronic Ref. Standards: IS:2720 (Part-XV), IS:12287, BS:1377, ASTM D2435</p> <p>Supplied with the following: Consolidation Cell Assembly consists of the following:</p> <ul style="list-style-type: none"> • Fixed ring with Guide ring – 3 Nos. • Top Porous stone – 3 Nos. • Bottom Porous stone – 3 Nos. • Pressure Pad – 3 Nos. • Channelled base with water inlet – 3 Nos. • Gasket – 3 Nos. • Water Jacket – 3 Nos. • Set of weights : 7 x 0.05 kg/cm² 25 x 0.1 kg/cm² , 6 x 0.2 kg/cm² , 2 26 x 0.5 kg/cm² , 5 x 1.0 kg/cm² – 3 sets • Water Reservoir with plastic tube, T - connection and a pinch cock – 3 Nos. • Displacement sensor, 0-10mm complete with 3 m long cable (side entry) mounting bracket • Consolidation Indicator, Three channel 	01
23	<p>Pavement Dynamic Cone Penetrometer</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Top and Bottom Rod – 1 Nos. • Handle – 1 No. • Hammer 1 m Scale – 1 No. • 60° Cone - 5 Nos. • Anvil – 1 No. 	01
	Aggregates Testing Equipment	
24	<p>Thickness Gauge with ISI Certification Mark IS:2386 (Part I) Constructed from heavy gauge sheet steel.</p>	02
25	<p>Length Gauge with ISI Certification Mark IS:2386 (Part I) Constructed from steel, mounted on a hardwood base.</p>	02
26	<p>Aggregate Impact Tester- Ref. Standard - IS:9377 It should be sturdy construction consists of a base and support columns to form a rigid frame work around the quick release trigger mechanism to ensure an effective free fall of the hammer during test. The free fall can be adjusted through 380 ± 5 mm. The hammer is provided with a locking arrangement.</p> <p>Supplied with the following:</p>	01

	<ul style="list-style-type: none"> • Cylindrical Cup • Metal Measure • Tamping Rod ISI Marked • Automatic Blow Counter 	
27	<p>Los Angeles Abrasion testing machine with Counter Ref. Standards - IS:2386 (Part 4), BS:812, ASTM C-131, C535, D2, AASHTO T96</p> <p>The machine consists of a hollow cylinder, mounted on a sturdy frame on ball bearings. A detachable shelf which extends throughout the inside length of the drum catches the abrasive charge and does not allow it to fall on the cover. The drum is rotated at a speed of 30-33 rpm by an electric motor through a heavy duty reduction gear. Supplied complete with a tray for collection of the material.</p> <p>Supplied with the following:</p> <ul style="list-style-type: none"> • Abrasive charge, consisting of a set of 12 hardened steel balls of 48 mm dia • Digital controller box <p>Suitable for operation on 415V, 3 phase, 50Hz, AC Supply.</p>	01
28	<p>Centrifuge Extractor, Capacity 1500g Electrically Operated Ref. Standards ASTM D 2172, AASHTO T-58, T-164, EN 12697-1</p> <p>It is used for determining bitumen percentage in Bituminous paving mixtures. It has a removable, precision machined, aluminum rotor bowl, mounted on a vertical shaft. A filter paper disc is pressed in-between the rotor bowl and cover plate by tightening a knurled nut. The bowl assembly is enclosed in a housing mounted on a cast body. In the electrical operating model, the rotor bowl is coupled to a motor. The solvent may be introduced during test through a cup on the housing cover.</p> <p>The design of centrifuge extractor should be compact with inbuilt dimmerstat for speed variation from 0 rpm to 3600 rpm. Each unit is supplied complete with a set of 25 Filter Paper Discs.</p> <p>Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.</p>	01
29	<p>Ring and Ball Apparatus Ref. Standards - IS:1205, ASTM D 36, E 28, IP 198, IP 58, STPTC PT 3, AASHTO T53, BS:2000, EN 1427</p> <p>It has magnetic stirrer with heating facility and digital display of temperature, the heating can be adjusted through knob. Suitable for operation on 220 V, 50 Hz, single phase, AC supply.</p> <p>Each unit is supplied with a bath of heat resistant glass and the following :</p> <ul style="list-style-type: none"> • Tapered Rings 2 Nos. • Ball Centering Guide 2 Nos. • Steel Balls of 9.5 mm dia 2 Nos. • Ring holder 1 No. • Electric Heater (Hot Plate) 1 No. 	01

	<ul style="list-style-type: none"> • Thermometer IP 60C • Thermometer IP 61C 	
30	<p>Ductility Testing Machine with Digital Temp Indicator Ref. Standards IS:1208, ASTM D113, AASHTO T 51 Should be designed to test three specimens simultaneously. The machine consists of a carriage moving over a lead screw. An electric motor driven reduction gear unit ensures smooth constant speed and continuous operation. The entire assembly is mounted with water bath completely encased in metal bound hardwood. It is equipped with an electric pump circulator and heater. The temperature is controlled by digital temperature controller. Two rates of travel i.e. 5 cm/min and 1cm/min are provided. Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply. Supplied with Ductility Mould, with Base Plate – 3 Nos.</p>	01
31	<p>DIGI Modified Marshall Apparatus, 100kN Single Speed, New Model for 4" and 6" dia sample Ref. Standards - ASTM D1559 BS:598-197, EN-12697-34 Features:</p> <ul style="list-style-type: none"> • Single Speed, Bench Top load frame • Max. loading capacity, 50 KN • Geared Screw jack and Motor Drive, • Precise speed <p><u>Consists of the followings:</u></p> <ol style="list-style-type: none"> 18. Load Frame - 1 No. 19. Load Cell 100kN - 1 No. 20. LVDT 50mm travel - 1 No. 21. Digital Indicator - 1 No. 22. Breaking Head Assembly 4" and 6" - 1 No. each 23. Sample Ejector 4" and 6" - 1 No. each 24. Compaction Pedestal for 4" and 6" - 1 No. each 25. Compaction hammer 4.5 kg - 2 Nos. 26. Compaction hammer 10.21 kg - 2 Nos. 27. Mould 4" with collar and base plate - 3 Nos. 28. Mould 6" with collar and base plate - 3 Nos. 29. Load Transfer Bar - 1 No. 30. Water Bath for Marshall Mould, Double Walled with Digital Walled with Digital Controller Cum Indicator with Stirring Arrangement, Inside Stainless Steel, Temp. Range amb. ± 5 Deg. C to 95 Deg. C ± 2 Deg C. Size 600x400x200mm. – 1 No. 31. Compaction Mould Steel 100mm Dia, Cylindrical, Base Plate & Extension Collar – 18 Nos. 32. Marshall Mould, Steel, with base plate and collar for 152.4mm dia sample. – 18 Nos. 33. Base Plate & Extension Collar – 18 Nos. 34. Automatic Compactor for Bituminous Mixes for 4" & 6" moulds – 1 No. 	01

32	<p>Pavement Core Drilling Machine, Ref Std. EN 12504-1</p> <p>The complete assembly is supplied on a rigid metal works with minimum vibrations. The double precision bit advances with screwed spindle which provides a constant, accurate drill pressure, minimum core chipping & long bit life.</p> <p>The complete assembly is supplied on a rigid metal base with levelling facility and is supplied for vertically down coring applications only.</p> <p>Bit Diameter: 150mm</p> <p>Maximum depth of core: 400mm</p> <p>Drill speed : Variable speed from 900 to 1200rpm</p> <p>Drive: 6 HP Petrol Engine</p> <p>Guide Shafts: 40mm Dia</p> <p>Screwed Spindle: 20mm dia</p> <p>Water Tap: 12mm</p> <p>Drill Wrenches: Included</p> <p>Supplied with the following:</p> <ol style="list-style-type: none"> 3. Diamond Core Bit, 100mm dia x 200 LONG FOR ASPHALT – 1 No. 4. Diamond Core Bit, 100mm dia x 200 LONG FOR CONCRETE – 1 No. 	01
Concrete and Cement Testing Equipment		
33	<p>Automatic Compression Testing Machine Windows Based, Capacity 2000kN</p> <p>Automatic Compression Testing Machine Windows Based, Capacity 2000kN with Digital Indicator, Horizon Software and 10 Points with In House NABL Calibration Certificate. Complete with Computer, Printer & UPS. Conforms to IS 516 and IS:14858</p> <p>Technical Specifications:</p> <p>III. General Specifications</p> <ol style="list-style-type: none"> 1. The machine shall be capable of testing specimen made of materials such as concrete, masonry and rock. It shall be used in the laboratory for basic compression testing conforming. 2. The machine shall come with Micro controller with capabilities for testing in load rate control/pace rate control. 3. The electronic control panel shall have LCD display of test results and a keyboard for data entry. 4. Machine should be powder coated by Pretreatment and having 2-piece Teflon Seal. <p>II. Performance Specifications</p> <ol style="list-style-type: none"> 1. The measuring capacity shall be a minimum of 2000 KN 2. The least count shall be 0.1kN in load 3. The maximum clearance between platens shall be at least 370 mm 4. The maximum distance between side platens shall be at least 340 mm 5. The piston stroke (mm) shall be a minimum of 50 mm. 6. The loading rate shall be a minimum of 1 kN/sec 7. The load accuracy shall be $\pm 2\%$ of indicated load value 	01

<p>8. The unit shall have an emergency stop button to release hydraulic pressure in case of any Emergency</p> <p>9. Variable load rates shall be selected through computer or Digital Indicator</p> <p>10. Online graph in a user defined printable reports shall be available</p> <p>11. LCD display shall include various parameters such as load, displacement, load rate, oil pressure etc. It shall also include</p> <ul style="list-style-type: none">(i) Easy preload zeroing(ii) Digital display with the facility of data logging, storage & printing for analysis(iii) Real time display of load and stress in Horizon Software(iv) Real time display of applied load rate by symbols for easy adjustment and(v) Digital calibration <p>12. Console panel shall accommodate live control and feedback for all channels. Provision to change the control mode depending on the application and shall offer bump less switching of control mode.</p> <p>13. Data acquisition panel should be easy to set up, monitor and save test data in different file formats, for example .xls, .txt etc.</p> <p>14. Calibration panel shall accommodate provisions to calibrate all sensors and transducers, active ranges on all channels to prevent overloading of transducers. It shall have a display of set and feedback signal, command and error signal. The unit shall also enable adjustments of PID gains for all channels.</p> <p>15. The Data acquisition system shall be connectable to any computer over a standard USB /Ethernet / parallel ports</p> <p>16. The machine also contain following features:</p> <ul style="list-style-type: none">• Ruggedness• Hassle free performance• Power efficient• Long-functional life <p>IV. Hardware Specifications</p> <p>1. Load frame shall be free standing and self-reacting type. (No Special Foundation or Grouting shall be required)</p> <p>2. Load frame shall be aligned to high precision with a adequate factor of safety and high stiffness (both lateral and vertical). It shall be free from self-induced shocks and vibrations. All steel frames shall be coated and are weather resistant. The machine's platens shall be hardened, ground, and polished. The upper platen shall be with a self-aligning action and suitably sized spacers to accommodate a variety of different sizes of specimen.</p> <p>3. The machine shall not have any cluttered cables and wiring.</p> <p>4. The unit shall accompany compression platens. These compression platens shall be made from hardened alloy steel with coating with a minimum load capacity 2000 kN. The platens shall also feature a spherical</p>	
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	<p>seat on the upper grip for improved alignment and shall be smooth faced with etched concentric rings. These platens shall be with one end fixed and the other spherical.</p> <p>5. Facility to enter the required pace rate, at the beginning of the run.</p> <p>Horizon software should have following features:</p> <ul style="list-style-type: none"> • Compression Vs Time Plot • Axial Strain Vs Time Plot • Stress Vs Axial Strain Plot • Calculation of Young's Modulus of the Sample • Lateral Strain Vs Time Plot • Calculation of Poisson's Ratio <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Latest Desktop Computer, CVT & Printer • Suitable hardened platens & spacers to test 150, 100mm Cube and 100mm and 150mm Dia Cylinder <p>Works on Single Phase 220V AC, 50Hz Supply.</p>	
34	Cube Mould, Cast Iron, for 150mm Cube with ISI Certification Mark	12
35	<p>Vibrating Table, 75 x 75cm for 6 moulds of 150mm cube</p> <p>Ref. : EN 12350-6, 7, 12390-2, 13286-50</p> <p>The specially designed vibro motor and AC drive arrangement permits the frequency to be varied sleeplessly between 60 Cycles/ sec and 43 Cycles/sec. Vibrating Table should be is ideally suited for this purpose.</p> <p>The table top is suitable to hold cube moulds and has stops along its edges to prevent moulds from sliding off the table during operation. The specially designed vibro motor for operating the vibrator.</p> <p>Suitable for operation on 220 V, 50 Hz, Single Phase, AC supply.</p>	01
36	<p>Concrete Mixer, Pan Type, Capacity 40L</p> <p>The Concrete Mixer has been designed for mixing small quantities of concrete used in preparation of concrete cubes, for testing in laboratories. The purpose of the mixer is to smear mechanically the aggregate surface with cement paste uniformly & produce a mix of uniform consistency. This in turn gives consistent quality of cube specimens when casted in the moulds.</p> <p>The Concrete Mixer developed is transportable on wheels. The design of mixing paddles ensure uniform & efficient mixing of cement & aggregate both in dry & wet conditions. This machine is suitable for aggregate size upto 20mm. The equipment can also be put to use for mixing of any other material in dry / wet conditions. The arrangement helps the operators to access the pan contents conveniently & emptying the mixture after completion of the operation. The drum is driven off the ribbed base. The lid with mixing paddles clears off the top of the drum to provide maximum access to the operator.</p> <p>Specifications:</p> <p>Mixing Capacity: 40 ltrs.</p> <p>Overall Dimension: 910mm x 875 mm x 1250mm</p> <p>Motor: 2 HP, 960 RPM</p>	01

	<p>Special Features:</p> <ul style="list-style-type: none"> • Portable & Compact. • Adjustable Blades. • Simple to clean & maintain. • Easy to operate. <p>Suitable for operation on 440V, 50Hz, Three Phase, AC supply.</p>	
37	<p>Slump Test Apparatus with testing rod and base plate Ref. Standards IS:7320 with CM/L number, BS:1881, ASTM C 143, AASHTO T119</p> <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Slump Cone • Base plate with swivel handle • Tamping rod steel, 10 mm dia x 600 mm length with ISI certification mark IS : 10086 	02
38	<p>Concrete test Hammer with NCCBM Calibrated Ref. Std. : IS: 133111-1992 (Part-2) BIS 1311 - 1992 (Part 2) and ASTM C805, D5873. Measuring Range :10 to 70 N/mm Impact energy = 2.207Nm.</p>	01
39	<p>Vicat Apparatus with ISI Certification Mark, IS:5513, fitted in Aluminum Box</p> <p><u>Supplied with the following:</u></p> <ul style="list-style-type: none"> • Permeability Cell. • 'U' Tube Manometer, mounted on stand. • Perforated Metal Disc. • Plunger. • Rubber Stopper. • Rubber Tube, 20 cm long. • Filter Paper Discs (Twelve Nos.). • Dibutylphthalate Liquid, 100 ml bottle. • Punch. • Non Perforated Disc. • Suction Bulb 	01
40	Steel Tape 30m Long	01
41	Steel Tape 10m long	01

2. All the equipment shall be transported, supplied, installed, operated, commissioned, demonstration and hands-on training at Central Materials Laboratory, Kampala, Uganda.
3. Each of the equipment shall conform to the specification requirement of the relevant BIS / ASTM / BS / any other code of practice as mentioned against each of the equipment.

4. Republic of Uganda shall provide civil infrastructure for setting up of laboratory at Central Materials Laboratory, Kireka, Kampala, Uganda.
5. The OEM will make its own arrangement of transport of equipment and no additional expenses any on such account to be paid by the Authority.
6. The OEM shall install the equipment and provide demonstration / operational hands-on training to the engineers/ officers of Republic of Uganda at their own costs. All equipment and accessories should have power supply sockets and plugs as per Uganda Electricity Regulations.
7. The support to be provided by the Republic of Uganda is listed below:
8. The OEM and its deputed personnel while discharging is responsibilities under the contract shall follow the laws of Republic of Uganda.
9. A senior representative of OEM shall accompany officer(s) of the Authority during their visit to Kampala, Uganda at least twice during implementation of the project.
10. The OEM shall provide suitable assistance as required by the Authority to provide training both at IAHE Campus Noida and Central Materials Laboratory, Kampala, Uganda in connection with handling of the equipment and testing of materials. IAHE shall bear the expenses relating to airfare lodging, boarding as per actual expenditure incurred.