

TENDER DOCUMENT



Purchase of Lab Equipment for Civil Engg Department
(Single Stage Two Envelope Basis)

COMSATS University Islamabad Wah Campus
G.T. Road, Wah Cantt
Land Lines - 051-4534200-2
Fax 051-4546850

Tender Notice

COMSATS University Islamabad, Wah Campus Tender Ref # CUIW/PS/TEN/25-26/30

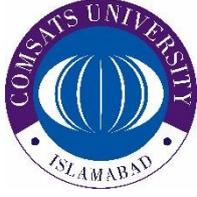
Purchase of Lab Equipment for Civil Engg. Department

COMSATS University Islamabad-Wah Campus, a Public Sector University invites Bids through e-Pak Acquisition & Disposal System (EPADS) <https://eprocure.gov.pk> on “**Single-Stage Two-Envelope**” basis from Income Tax & GST registered Firms/Companies who are on the Active Taxpayer List (ATL) for General Sales Tax and Income Tax of FBR for the **Purchase of Lab Equipment for Civil Engg Department**

1. The Bid Security for the Bid is Rs. **200,000** in the form of Call Deposit/Bank Draft (refundable) drawn in favor of “COMSATS University Islamabad, Wah Campus” (FTN: **9010814-5**); scanned copy of which is required to be uploaded through EPADS and hard copy must be submitted physically along with hard-copy of sealed bidding document on the closing date of the tender to COMSATS University Islamabad, Wah Campus on the address given below.
2. **The complete Tendering process shall be carried out through EPADS.**
3. Interested bidders are requested to register themselves on the EPADS <https://eprocure.gov.pk/#/supplier/registration> and submit their tender documents.
4. For registration and guidance/training on EPADS, you may contact EPADS UAN: 051 - 111-137-237.
5. Closing date of submission is **March 31, 2026, by 11:00 hours**. The bids shall be opened half hour after the closing time in the presence of the bidders who wish to be present, in Purchase office Admin Block, COMSATS University Islamabad, Wah Campus.
6. As per PPRA Rule 33, CUI may reject all bids or proposals at any time prior to the acceptance of a bid or proposal.



Contact Person and Submission
Incharge Purchase Section
COMSATS University Islamabad, Wah Campus
G.T. Road, Wah Cantt
Tel: 051-4534200-2, Fax: 051-4546850



COMSATS University Islamabad
Wah Campus, G. T. Road, Wah Cantt

Single Stage Two Envelope Procedure

Title: Purchase of Lab Equipment for Civil Engg Department

TERMS AND CONDITIONS

S.N	Detail	Specification
1.	Validity of Bid	90 Days from the date of closing of Bids
2.	Award of Contract / P. O	Item Wise
3.	Delivery Time	4 to 6 Weeks from the Issuance of PO
4.	Method	Single Stage - Two Envelope
5.	Closing Date & Time	31 March , 2026 by 1100 HRS
6.	Opening Date & Time	Half Hour after the Closing Time on the same day
7.	Bid Security Amount (Under Rule 25 of PPRA Rules 2004)	Rs.200,000/-

General Terms & Conditions of the Tender

No tender/bid shall be considered if: -

- Not uploaded through EPADS;
- Received without required documentation or deficiency in required documentation;
- Received without bid security;
- In contradiction with the specification given by the CUI Wah Campus;
- Received with any condition;
- The bidder is in litigation with CUI Wah or is blacklisted by any organization or is notified as blacklisted on PPRA website. **(Non -Blacklisting Certificate must be attached)**

- Documents along with Pay Order / Demand Draft as Earnest Money shall be prepared in favor of COMSATS University Islamabad, Wah Campus and submitted through EPADS and Hard copy at the address given at Sr. No. 25 below **with technical bid.**
- The exact completion/delivery date of the consignment from the date of issue of the Purchase / Work Order, will be as shown in Purchase Order / Work Order.
- All prices should be quoted in Pak Rupees and on F.O.R basis and the bid proposal should be inclusive of freight charges and all other applicable Govt taxes and the items will be delivered at COMSATS University Islamabad, Wah Campus. Deduction of Income Tax and any other applicable taxes will be deducted according to Government prevailing rules.

4. The Bid Form (BoQ) must be filled, stamped and signed by the authorized representative of the bidder. Bid/Quotations on firm's pad may not be accepted.
5. Payment will be made on submission of Invoice, Sale Tax Invoice and Delivery Challan in the name of COMSATS University Islamabad, Wah Campus and after the complete order has been supplied, inspected / accepted which includes installation /Training, where applicable.
6. **Quoted prices should be valid for 90 days.** Withdrawal or any modification of the original offer within the validity period shall not be allowed and if so will entitle **CUI-Wah Campus** to forfeit the Earnest Money and / or impose appropriate punitive action on such vendor (s).
7. The contractor will be legally bound and obligated towards Terms & Conditions specified in Tender Document/ Purchase, Work Order / Contract Agreement in lieu of performance and execution of contract and/or liquidate damages subject to exception of circumstances invoked and enforced by the situation of "**Force Majure**".
8. Payment will not be made in advance or parts, rather 100% payment will be made on completion of the consignment including commissioning, **installation and training by the firms**, where necessary.
9. The Earnest Money will be returned to the firm (s) on completion of Consignment.
10. The potential bidders needing any clarification regarding BoQ, bidding procedure / Terms & Conditions of the tender, may raise their query through EPADs and seek guidance prior to tenders closing date.
11. The **CUI-Wah Campus** reserves the right to modify the quantities of goods / services at any time before the award of purchase / work order.
12. If the vendor fails to deliver the goods / services to **CUI-Wah Campus** in time then the penalty will be charged as under: -
 - a. In case the successful bidder fails to supply the required item(s)/material within the due date; 0.5% per day, of the total cost, will be deducted for upto a total of 10% (20 Days). If delay is beyond 20 days, CUI will decide whether to extend the time, in which case the penalty will be 1% of the total cost per day (Day 21 onward) OR CUI may consider Cancellation of Work Order, in which case CUI may impose ban on the bidder for business with CUI for a period of at least 6 months AN/OR Black-list the bidder AND/OR the Earnest Money will be forfeited.
13. If the delivered goods / services are not according to the required quality, standards / specifications, the same shall be liable to be rejected after inspection. The vendor would be required to replace the same as per specifications mentioned in BoQ, otherwise the purchase / work order will be cancelled after due / extended date with confiscation of earnest money.
14. Purchase order (s) will be awarded to the lowest / technically accepted bidder (s) in the light of specification shown in BoQ or as recommended by the user / Purchase Committee, on Item Wise basis.
15. The bidding procedure is subject to compliance with PPRA rules/CUI policy and decisions of the competent authorities of CUI, Wah Campus and be implemented. It will be the sole responsibility of the supplier / manufacturer to comply with the applicable

national/international laws. In case of any dispute, decision of the Director, **CUI-Wah Campus** will be final and binding upon the parties.

16. Warranty / Guarantee where required will be provided by the vendor (s)
17. Any defective/sub-standard item(s) will be replaced by the bidder at its own cost within one-week time. In case of failure to supply the specific item, CUI will request other supplier to provide the item and the cost of that item will be deducted from the bidder's earnest money i.e., the firm will be responsible to compensate for CUI losses AND Purchase order would stand cancelled AND/OR earnest money will be forfeited AND/OR CUI may impose penalty and/or ban on the firm.
18. All firms/companies are strongly advised that before submitting their bid, please make the market surveys, analyze their capability and capacity to make all the required deliverable within the timeline. Any excuses or explanation, whatsoever, will not be considered once the work Order is made. Any excuses for delay of supplies or non-availability of supplies will not be considered and the earnest money will be forfeited, a ban of ONE YEAR will be imposed for further business.
19. In cases lowest bidder refuses or fails to supply the item(s) within the deadline(s), the Work Order may be offered to the next lowest bidder provided that the difference between the 1st lowest bidder and 2nd lowest bidder (2nd-1st) 1st bidder will pay the difference of amount to the 2nd bidder. Same on for 3rd, 4th lowest bidders and so on **Incase of Tie in Rates; the bidder securing highest technical score**, where applicable, will be awarded the job. In case of tie in technical Score, CUI will award the job to the bidder as it deem fit and suitable for the job.
20. All firms/companies are strongly advised that before submitting their bid, please make the market surveys, analyze their capability and capacity to make all the required deliverable within the timeline. Any excuses or explanation, whatsoever, will not be considered once the work Order is made. Any excuses for delay of supplies or non-availability of supplies will not be considered and the earnest money will be forfeited, a ban of ONE YEAR will be imposed for further business.

21. **Preparation of Technical Bid:**

Following points may be kept in mind while preparing Technical Bid:

a.	Make & Type of quoted items (Technical compliance with BoQ)	Provide detail of items, brands, country of origin with complete specification being offered without mentioning prices on company letter head (duly signed and stamped beneath by the bidder.
b.	Brief Profile of the Firm	Mention Company Introduction, Type of Business, Offices & Services in Pakistan, NTN & GST Registration Number with Copy of NTN & GST Certificates, Professional Staff (Administrative & Technical) , Verifiable Office addresses, Telephone & Cell No., E-mail address for Contacts.
c.	Details of Experience	Provide list of contracts in-hand/ performed by the bidder so far clearly mentioning for each contract, the name of organization, complete address, year of contract, contract value, date of contract award and date of contract completion.
d.	Reliability of quoted Brand & Country of Origin.	Provide supported brochures.
e.	Bidder's corporate Status	Whether the bidder firm is: Manufacturer, Business Partner of Manufacturer, Sole Distributor of Manufacturer, Authorized Distributor/Agent/Reseller/Supplier or any other affiliation Note: Provide certificate/letter issued from manufacturer.
f.	Technical Resources & Services Support	Details of firm's ability / facility available for provision, installation, upgrading, training and after sales services.
g.	Warranty/Guarantee	The bidder shall offer warranty/guarantee (for each serial number) where applicable and free of cost after sale service.

h.	Consignment completion period	Firms should specify the completion period from the date of issue of Purchase / Work Order
i.	Bid Security	Attach Bid Security with Technical Offer

22. **Bids Evaluation Criteria for Technical Bid.** Bids will be evaluated in fair, transparent and non-discriminatory manner. For the purpose, following mandatory scales of evaluation shall be taken into consideration.

Sr #	Parameter	Scale of Evaluation
a.	Make & Type of quoted items (Technical compliance with BoQ)	40 Marks
b.	Brief Profile of the Firm	10 Marks
c.	Details of Experience (Firm must be attached at least min 05 satisfactory reports)	05 Marks
d.	Reliability of quoted Brand & Country of Origin	05 Marks
e.	Bidder's Corporate Status (NTN, GST, SECP)	15 Marks
f.	Technical Resources & Services Support	05 Marks
g.	Warranty/ Guarantee	10 Marks
h.	Consignment completion period	05 Marks
i.	Authorization letter\Certificate	05 Marks
Total Marks:		100
Minimum Qualifying Marks:		60

***Technical Committee may ask Product demonstration at the time of technical evaluation**

23. **Preparation of Financial Bid:**

Financial Bid will be prepare in following manner.

a.	Bid Prices	<ul style="list-style-type: none"> ➤ Each offered item to be entered separately with unit & total price with taxes. ➤ The bid must be made on BoQ attached with Tender Document and signed by manufacturer or the authorized Firm/dealer / representative. ➤ Alternate item (s) / Price (s) will not be quoted
b.	Bid Validity	90 Days from the date of opening of Financial Bid.

24. **Criteria for awarding Purchase / Works Order:**

- a. On receipt of Technical Evaluation Report from Technical Evaluation Committee (TEC), all participating firms will be informed for their Qualification / Disqualification through EPADS
- b. Date of opening of Financial Bids will be communicated to the firms declared **Qualified** by the TEC through EPADS

- c. Disqualified firm(s) will be asked to collect their Earnest money along with their sealed Financial Bids.
- d. On opening of Financial Bids, Comparative Statement (CST) will be prepared and Purchase Order(s) will be issued to technically qualified / lowest quoting firm (s), on **Item Wise**.
- e. Partial delivery NOT allowed

25. *The envelope shall bear the word “CONFIDENTIAL” and also bear the tender Name and Number (i.e.) CUIW/PS/TEN/25-26/30 “**Purchase of Lab Equipment for Civil Engg Department** and should be dispatched on following address*

Purchase Section
COMSATS University Islamabad, Wah Campus
G.T. Road, Wah Cantt.
Ph# 051-4534200-2, Ext: 219
Fax# 051-4546850

Undertaking

We have carefully read the Terms and Conditions mentioned in Tender Document. We accept all these Terms & Conditions unconditionally.

Name of Bidder Firm/Company: _____

Name & Designation of Authorized Official: _____

Signature: _____

Date: _____

Company Stamp: _____

Tel/ Cell Nos. _____

E-mail Address: _____

BoQ

Sr #	Item	Description	Model Quoted	Unit Price with all taxes
1	Maximum-Minimum Thermometer	<p><u>1. General Description</u> The Maximum-Minimum Thermometer is designed to record the highest and lowest temperatures over a given period. It is widely used in meteorological observations, laboratories, greenhouses, and environmental studies. The thermometer consists of two temperature-sensing bulbs filled with liquid and a U-shaped capillary tube with a mercury/alcohol indicator. A magnetic or mechanical reset function is included to restore readings after recording.</p> <p><u>2. Technical Specifications</u></p> <p><u>A. Temperature Measurement</u></p> <ul style="list-style-type: none"> • Temperature Range: -40°C to +50°C (or equivalent Fahrenheit scale) • Resolution: 0.5°C (or better) • Accuracy: ±1°C <p><u>B. Construction & Material</u></p> <ul style="list-style-type: none"> • Body Material: Durable glass or plastic casing for long-term use • Liquid Medium: Mercury (traditional) or Alcohol-based (environmentally safe) • Tube Design: U-shaped capillary with an easy-to-read scale <p><u>C. Reset Mechanism</u></p> <ul style="list-style-type: none"> • Type: Magnetic reset or Mechanical push-button reset • Function: Allows resetting after recording max-min temperatures <p><u>D. Mounting & Installation</u></p> <ul style="list-style-type: none"> • <u>Mounting Type: Wall-mounted</u> or Stand-alone • Bracket/Support: Provided for stable positioning <p><u>E. Additional Features</u></p> <ul style="list-style-type: none"> • Indicator Markers: Small index markers indicate the maximum and minimum readings • Protective Cover: Plastic cover for outdoor installations <p>Qty: 01</p>		
2	Anemometer and Wind Vane	<p><u>Technical Specifications for Anemometer and Wind Vane</u></p> <p><u>1. General Description</u> An Anemometer and Wind Vane is used to measure wind speed and direction, essential for meteorological studies, environmental monitoring, and research applications. The system typically includes a cup or propeller</p>		

		<p>anemometer for wind speed measurement and a wind vane for direction measurement.</p> <p><u>2. Technical Specifications</u></p> <p><u>A. Anemometer (Wind Speed Sensor)</u></p> <ul style="list-style-type: none"> • Measurement Range: 0 to 50 m/s (0 to 180 km/h) • Resolution: 0.1 m/s • Accuracy: $\pm 2\%$ of full scale • Sensor Type: <ul style="list-style-type: none"> o Cup Anemometer (three-cup design for high accuracy) or • Output Signal: Pulse (Reed switch) or Analog (0-5V, 4-20mA) • Material: high-strength plastic for outdoor use <p><u>B. Wind Vane (Wind Direction Sensor)</u></p> <ul style="list-style-type: none"> • Measurement Range: 0° to 360° • Resolution: $\pm 5^\circ$ • Accuracy: $\pm 3\%$ of full scale • Sensor Type: Precision balanced vane with low friction bearings • Output Signal: Potentiometer (resistance output) or Digital (0-5V, 4-20mA) • Material: high-strength plastic <p><u>C. Mounting & Installation</u></p> <ul style="list-style-type: none"> • Mounting Type: Pole or Mast-mounted • Mounting Accessories: Brackets & U-bolts provided • Installation Height: Recommended at 10 meters (33 ft) for standard meteorological observations <p><u>D. Additional Features</u></p> <ul style="list-style-type: none"> • Durability: Designed to withstand harsh weather conditions (rain, snow, high winds) • Temperature Range: Operates from -40°C to $+60^\circ\text{C}$ <p>Qty: 01</p>		
3	Psychrometer apparatus	<p><u>Technical Specifications for Psychrometer Apparatus</u></p> <p><u>General Description</u></p> <p>The psychrometer is used to measure relative humidity by comparing the readings of a wet-bulb and a dry-bulb thermometer. It consists of two thermometers mounted side by side, one with a wetted wick covering its bulb. Evaporation from the wet-bulb causes a cooling effect, leading to a lower temperature reading compared to the dry-bulb. The difference between these readings is used to determine relative humidity using a psychrometric chart.</p> <p><u>Technical Data</u></p> <ul style="list-style-type: none"> • Thermometers: Mercury or alcohol-filled glass thermometers • Temperature Range: -10°C to 50°C (0°F to 120°F) • Graduation: 1°C or 0.5°C increments • Accuracy: $\pm 0.5^\circ\text{C}$ 		

		<ul style="list-style-type: none"> • Wet Bulb Wick: Cotton or muslin wick, replaceable • Frame Material: Plastic, wood, or metal casing • Mounting: wall-mounted • Size: Approx. 20-30 cm in length • Weight: 200-500 g • Accessories: <ul style="list-style-type: none"> o Water reservoir for wet-bulb wick o Psychrometric chart for humidity calculations <p>Qty: 01</p>		
4	Non-automatic Rain Gauge.	<p><u>Technical Specifications for Non-automatic Rain Gauge.</u></p> <p><u>1. General Description</u></p> <p>The National Weather Service (NWS) Type Rain and Snow Gauge is a high-precision, all-aluminum precipitation gauge designed for accurate rainfall and snowfall measurement. It features a sharp-edged funnel that directs rainwater into a receiver with a 10:1 measurement ratio for increased precision. Excess water overflows into an outer chamber, allowing for total precipitation measurement.</p> <p>For snowfall measurement, the receiver and funnel are removed, allowing snow to be collected in the overflow can and melted for measurement. The included black plexiglass measuring stick provides both English and metric readings.</p> <p>A tripod support is required for enhanced stability.</p> <p><u>2. Technical Specifications</u></p> <p><u>A. Measurement Characteristics</u></p> <ul style="list-style-type: none"> • Orifice Diameter: 8" (200 mm) • Total Capacity: 20" (500 mm) of rainfall • Receiver Capacity: 2" (50 mm) of rainfall • Measurement Resolution: 0.01" (0.25 mm) <p><u>B. Material & Construction</u></p> <ul style="list-style-type: none"> • Material: All-aluminum construction • Finish: White powder-coated body with anodized aluminum funnel • Size: 8" diameter × 27" height (210 mm × 686 mm) • Weight (Gauge Only): 7 lbs (3.2 kg) • Shipping Weight (Gauge Only): 8 lbs (3.6 kg) <p><u>C. Accessories & Optional Components</u></p> <ul style="list-style-type: none"> • Measuring Stick: Black plexiglass, 24" length, English and metric units • Tripod Support: Optional for secure mounting • Snow Gauge Functionality: <ul style="list-style-type: none"> o Funnel & receiver removed for snow collection 		

		o Snow melted and measured using receiver and dipstick		
		Qty: 01		
5	Automatic Rain Gauge.	<p><u>Technical Specifications for Automatic Rain Gauge.</u></p> <p><u>1. General Description</u> The Tipping Bucket Rain Gauge is a high-precision instrument for measuring precipitation. It works by collecting rainfall in an 12" funnel collector, directing it to a tipping bucket assembly that tilts when a predefined amount of precipitation accumulates. Each tilt activates a magnetic reed switch, sending an electrical signal that can be recorded by a data acquisition system. Additionally, the Electric Rain/Snow Gauge includes a 400-watt heater to melt snowfall for accurate precipitation measurement in cold regions.</p> <p><u>2. Technical Specifications</u></p> <p>A. General Features</p> <ul style="list-style-type: none"> • Orifice Diameter: <ul style="list-style-type: none"> o 12 inches (30 cm) • Material: Anodized aluminum with powder-coated aluminum body • Measurement Resolution Options: <ul style="list-style-type: none"> o 0.01" (0.25 mm), 0.5 mm, 1 mm • Accuracy: $\pm 1\%$ at 2 inches/hour rainfall • Output: 0.1-second switch closure • Contact Rating: 3 watts, 0.25A, 24 Vdc • Mounting: Includes leveling base & mounting brackets • Cable Length: 25 feet <p><u>B. Electric Heated Model (For Snow Measurement)</u></p> <ul style="list-style-type: none"> • Heater Power: 400 watts • Temperature Control: Freeze-point thermostat for snow melting • Insulated Outer Tube: Maintains efficiency in cold environments • Power Supply: 220–240 V AC, 50 Hz (or compatible with local power supply) • Included Accessories: 25' power cable, 25' signal cable <p><u>3. Accessories</u></p> <ul style="list-style-type: none"> • Rain Gauge Calibrator • Digital Event Counter • Rain Gauge Mounting Plate • Rain Gauge Wind Screen <p>Qty: 01</p>		

6	Evaporation Pan	<p><u>Technical Specifications for Evaporation Pan</u></p> <p><u>1. General Description</u> The Evaporation Pan is a National Weather Service (NWS) Class A type evaporation measurement instrument used for monitoring open water evaporation. It is installed on a wooden platform in a grassy area, filled with water, and manually or digitally monitored to measure evaporation rates. The pan is constructed from low-carbon stainless steel. It includes a drain plug for easy water removal and comes with essential accessories for accurate evaporation measurement.</p> <p><u>2. Technical Specifications</u></p> <p>A. Material & Construction</p> <ul style="list-style-type: none"> • Material: Low-carbon stainless steel • Construction: Heliarc welded for high durability and resistance to corrosion • Drain Plug: 1/2-inch for easy drainage <p><u>B. Dimensions & Capacity</u></p> <ul style="list-style-type: none"> • Height: 10 inches (254 mm) • Diameter: 47.5 inches (1206 mm) • Water Level: Normally filled to 2.5 inches below the top <p><u>C. Measurement & Monitoring</u></p> <ul style="list-style-type: none"> • Evaporation Rate Measurement: <ul style="list-style-type: none"> o Manual readings using a hook gauge • Accessories Included: <ul style="list-style-type: none"> o Still-well – For minimizing water disturbance o Float/sub thermometer (digital) – For temperature monitoring o Hook gauge – For precise water level measurement o Totalizing anemometer – For wind speed measurement <p>3. Installation & Operational Requirements</p> <ul style="list-style-type: none"> • Installation: Should be placed on a wooden platform <p>Qty: 01</p>		
7	Basic Hydrology Apparatus	<p><u>Technical Specifications for Basic Hydrology Apparatus</u></p> <p><u>1. General Description</u> The Basic Hydrology Apparatus is a self-contained unit designed for studying fundamental hydrological processes such as rainfall-runoff relationships, groundwater flow, and hydrograph generation. It consists of a stainless-steel rectangular tank with an adjustable tilting mechanism, a rainfall simulation system, and integrated flow measurement components. The system allows for controlled hydrological experiments with varying rainfall intensities and groundwater interactions, enabling students and researchers to analyze catchment response under different conditions.</p> <p><u>2. Technical Specifications</u></p>		

		<p><u>A. Main Tank</u></p> <ul style="list-style-type: none"> • Material: Stainless Steel • Dimensions: 100 cm (W) × 200 cm (L) × 19 cm (H) • Inclination Range: 0-3% (adjustable tilt mechanism) • Upper Walls: Transparent acrylic for observation • Granular Medium: Includes 330 kg of washed sand <p><u>B. Rainfall Simulation System</u></p> <ul style="list-style-type: none"> • Spray Nozzles: <ul style="list-style-type: none"> o Quantity: 8 nozzles o Placement: Two separate sets of four nozzles each o Control: Individual shut-off valves for each nozzle • Rainfall Flow Measurement: <ul style="list-style-type: none"> o Type: Variable area flow meter o Range: Up to 35 LPM <p><u>C. Groundwater and Flow System</u></p> <ul style="list-style-type: none"> • End Compartments: <ul style="list-style-type: none"> o Quantity: 2 o Partition: Stainless steel mesh for controlled flow interaction • Wells: <ul style="list-style-type: none"> o Quantity: 2 o Material: Stainless steel mesh sleeve o Valve Control: Allows independent water level adjustments • Manometer Bank: <ul style="list-style-type: none"> o Number of Tubes: 20 o Tube Dimensions: 200 mm height, 1 mm graduation <p><u>D. Flow Circulation and Measurement</u></p> <ul style="list-style-type: none"> • Pump: <ul style="list-style-type: none"> o Power: 0.37 kW o Purpose: Recirculates water from storage tank to rainfall system or groundwater compartments • Runoff Measurement: <ul style="list-style-type: none"> o Method: Calibrated rectangular weir o Flow Return: Runoff returns directly to storage tank <p><u>E. Accessories</u></p> <ul style="list-style-type: none"> • Rectangular Ring • Circular Ring • Confined Aquifer Model • Cylindrical Pier <p>F. Power Requirements</p> <ul style="list-style-type: none"> • Voltage: 220V, Single Phase, 50 Hz (Other power configurations available upon request) <p>Qty: 01</p>		
8	Groundwater Flow Apparatus	<p><u>Technical Specifications for Groundwater Flow Apparatus</u></p> <p><u>1. General Description</u></p> <p>The Groundwater Flow Apparatus is designed for studying the hydrological principles of groundwater flow and its applications in engineering. It helps demonstrate seepage flow, permeability, flow net construction, and well hydraulics.</p> <p>The unit consists of a stainless steel sand tank, supported by a durable epoxy-painted steel frame. It includes</p>		

	<p>horizontal water inlet pipe diffusers at both ends and two vertical outlet wells to control flow conditions. Valves regulate both inlet and outlet flows, allowing for various groundwater simulations. A 19-tube manometer measures groundwater levels in an orthogonal axis arrangement, providing precise visualization of hydraulic gradients.</p> <p><u>2. Technical Specifications</u></p> <p><u>A. Tank & Structural Components</u></p> <ul style="list-style-type: none"> • Tank Material: Stainless steel • Frame: Epoxy-painted steel for durability • Tank Dimensions: <ul style="list-style-type: none"> o Length: 100 cm o Width: 50 cm o Depth: 30 cm <p><u>B. Flow System</u></p> <ul style="list-style-type: none"> • Inlet Pipes & Outlet Wells: <ul style="list-style-type: none"> o Quantity: 2 each o Material: Stainless steel fittings with stainless steel wire mesh o Flow Control: Valves for controlling flow rates <p><u>C. Measurement System</u></p> <ul style="list-style-type: none"> • Manometer Panel: <ul style="list-style-type: none"> o Number of Tubes: 19 tubes o Tube Length: 300 mm o Graduation: 1 mm precision o Special Filters: Installed at the base of the tank for accurate readings <p><u>D. Additional Accessories</u></p> <ul style="list-style-type: none"> • Wash Sand: 100 kg included for experimental setup <p>Qty: 01</p>		
<u>GRAND TOTAL:</u>			

Note: Specifications for Purchase of Lab Equipment

1. General Requirements:

All equipment must be brand new and comply with international quality standards.

The supplier must provide installation, training, and after-sales support.

Equipment should be compatible with existing lab setups where applicable.

Warranty: Minimum 1-year warranty, with an option for extended warranty.

Supplier must provide calibration certificates for applicable instruments.

All equipment and their components shall be provided engraved plastic tags.

For the effective installation of equipment, cost of the civil works required to install the equipment, if any, at the designated place, shall be borne by the supplier.

Bidders may like to visit the CUI Wah Campus to ascertain the extent of the installation requirements before submitting the bid.