



Republic of the Philippines  
Department of Agriculture  
**BUREAU OF SOILS AND WATER MANAGEMENT**  
SRDC Bldg., Elliptical Road corner Visayas Avenue,  
Diliman, Quezon City

## **BSWM- BIDS AND AWARDS COMMITTEE**

### **SUPPLEMENTAL BID BULLETIN**

#### **ADDENDUM NO. 2021-08-031-01**

**CONTRACT: SUPPLY AND DELIVERY OF VARIOUS TECHNICAL AND SCIENTIFIC EQUIPMENT FOR CY 2021- IB NO. BSWM 2021-08-031**

This **Addendum** is being issued in accordance with **Section 22.5.2 of the IRR of RA 9184**, to clarify and modify some provision of the Bidding Documents. **THIS SHALL FORM AN INTEGRAL PART OF THE BID DOCUMENT.** Likewise, the succeeding agreements and reminders were discussed during the **Pre-Bid Conference** held last **September 2, 2021, 9:30AM at the BSWM Function Hall and via Videoconferencing-Zoom.**

#### **I. DISCUSSION OF THE BIDDING DOCUMENT:**

- **Total** Approved Budget for the Contract (ABC): One Hundred Forty-One Million Seven Hundred Fifty Thousand Pesos (Php 141,750,000.00).
- For SLCC, contract shall be contract for supply and delivery of **various technical and scientific equipment** and/or its equivalent **completed within five (5) consecutive years** prior to the deadline for the submission and receipt of bids.

Pursuant to Section 23.4.1.3, SLCC must be at least fifty percent (50%) of the ABC (Per Lot).

If, at the outset and after conducting market research, the **Procuring Entity** can already **determine that imposing the same** will likely result to: (a) **failure of bidding**, or (b) **monopoly** that will defeat the purpose of competitive bidding, the Procuring Entity, **in lieu of the above**, may require the following:

- a) The prospective bidder should have completed **at least two (2) similar contracts** and the aggregate contract amounts should be **equivalent to at least the percentage of the ABC (50% of the ABC per Lot)** as required above; and
  - b) The **largest of these similar contracts** must be equivalent to **at least half of the percentage of the ABC as required above.**
- **Awarding is per lot basis** - One Project having several items grouped into several lots, which shall be awarded as separate contracts per lot.

II. AMMENDMENTS IN THE BIDDING DOCUMENT:

SECTION I. INVITATION TO BID:

ORIGINAL	AMENDED
<p>The Bureau of Soils and Water Management, through the <i>General Appropriations Act for CY 2020 through SARO Number BMB-E-21-0002351</i> intends to apply the sum of:</p> <p>Lot 1- Supply and Delivery of various Sample Preparation Equipment in the amount of Twenty-One Million Five Hundred Thirty Thousand Pesos (Php 21,530,000.00);</p> <p>Lot 2- Supply and Delivery of various Soil Grinding Equipment in the amount of Thirty-Seven Million Nine Hundred Fifty Thousand Pesos (Php 37,950,000.00)</p> <p>Lot 3- Supply and Delivery of Compressor for Centralized Gas Piping System in the amount of One Million Six Hundred Thousand Pesos (Php 1,600,000.00);</p> <p>Lot 4- Supply and Delivery of Water Deionizer (Type I and Type Ii Water), Large Capacity with Dispenser in the amount of Twelve Million Six Hundred Thousand Pesos (Php 12,600,000.00);</p> <p>Lot 5- Supply and Delivery of Ultrafiltration System in the amount of Five Hundred Thousand Pesos (Php 500,000.00);</p> <p>Lot 6- Supply and Delivery of various Soil Drying and Glassware Cleaning Equipment in the amount of Three Million Four Hundred Seventy-Five Thousand Pesos (Php 3,475,000.00);</p> <p>Lot 7- Supply and Delivery of various Acid Digestion Equipment in the amount of Six Million Three Hundred Thousand Pesos (Php 6,300,000.00);</p> <p>Lot 8- Supply and Delivery of various Metrology Instruments in the amount of Eleven Million Two Hundred Ninety-Five Thousand Pesos (Php 11,295,000.00);</p> <p>Lot 9- Supply and Delivery of various Calibration Weighing Instruments in the amount of Four Million Three Hundred Fifty Thousand Pesos (Php 4,350,000.00);</p> <p>Lot 10- Supply and Delivery of Temperature and Humidity Monitoring System in the amount of Three Million Pesos (Php 3,000,000.00);</p> <p>Lot 11- Supply and Delivery of various Measuring Instruments in the amount of Four Million Six Hundred Thirty Thousand Pesos (Php 4,630,000.00);</p> <p>Lot 12- Supply and Delivery of various Soil Microbiology Instruments in the amount of Twelve Million Four Hundred Thirty Thousand Pesos (Php 12,430,000.00);</p>	<p>The Bureau of Soils and Water Management, through the <i>General Appropriations Act for CY 2020 through SARO Number BMB-E-21-0002351</i> intends to apply the sum of:</p> <p>Lot 1- Supply and Delivery of various Sample Preparation Equipment in the amount of <b>Sixteen Million Pesos (Php 16,000,000.00);</b></p> <p>Lot 2- Supply and Delivery of various Soil Grinding Equipment in the amount of Thirty-Seven Million Nine Hundred Fifty Thousand Pesos (Php 37,950,000.00);</p> <p>Lot 3- Supply and Delivery of Compressor for Centralized Gas Piping System in the amount of One Million Six Hundred Thousand Pesos (Php 1,600,000.00);</p> <p>Lot 4- Supply and Delivery of Water Deionizer (Type I and Type Ii Water), Large Capacity with Dispenser in the amount of Twelve Million Six Hundred Thousand Pesos (Php 12,600,000.00);</p> <p>Lot 5- Supply and Delivery of Ultrafiltration System in the amount of Five Hundred Thousand Pesos (Php 500,000.00);</p> <p>Lot 6- Supply and Delivery of various Soil Drying and Glassware Cleaning Equipment in the amount of Three Million Four Hundred Seventy-Five Thousand Pesos (Php 3,475,000.00);</p> <p>Lot 7- Supply and Delivery of various Acid Digestion Equipment in the amount of Six Million Three Hundred Thousand Pesos (Php 6,300,000.00);</p> <p>Lot 8- Supply and Delivery of various Metrology Instruments in the amount of Eleven Million Two Hundred Ninety-Five Thousand Pesos (Php 11,295,000.00);</p> <p>Lot 9- Supply and Delivery of various Calibration Weighing Instruments in the amount of Four Million Three Hundred Fifty Thousand Pesos (Php 4,350,000.00);</p> <p>Lot 10- Supply and Delivery of Temperature and Humidity Monitoring System in the amount of Three Million Pesos (Php 3,000,000.00);</p> <p>Lot 11- Supply and Delivery of various Measuring Instruments in the amount of Four Million Six Hundred Thirty Thousand Pesos (Php 4,630,000.00);</p> <p>Lot 12- Supply and Delivery of various Soil Microbiology Instruments in the amount of <b>Twelve Million Seven Hundred Thirty Thousand Pesos (Php 12,730,000.00);</b></p> <p>Lot 13- Supply and Delivery of various Soil Physics Instruments in the amount of <b>Four Million One Hundred Twenty Thousand Pesos (Php 4,120,000.00);</b></p>

<p>Lot 13- Supply and Delivery of various Soil Physics Instruments in the amount of Four Million Eight Hundred Seventy Thousand Pesos (Php 4,870,000.00);</p> <p>Lot 14- Supply and Delivery of MIR/FTIR Spectroscopy in the amount of Three Million Pesos (Php 3,000,000.00);</p> <p>Lot 15- Supply and Delivery of various UV-VIS Spectrometry Equipment in the amount of Four Million Five Hundred Thousand Pesos (Php 4,500,000.00);</p> <p>Lot 16- Supply and Delivery of BOD Sensor System in the amount of Five Hundred Thousand Pesos (Php 500,000.00);</p> <p>Lot 17- Supply and Delivery of various Weighing Instruments in the amount of One Million Six Hundred Fifty Thousand Pesos (Php 1,650,000.00);</p> <p>Lot 18- Supply and Delivery of Air Conditioning Units and Lab Utility Equipment in the amount of Four Million Seventy Thousand Pesos (Php 4,070,000.00);</p> <p>Lot 19- Supply and Delivery of Power Supply Equipment (Solar Power System) in the amount of Three Million Five Hundred Thousand Pesos (Php 3,500,000.00)</p> <p><i>Total Approved Budget for the Contract (ABC): One Hundred Forty-One Million Seven Hundred Fifty Thousand Pesos (Php 141,750,000.00).</i></p> <p>being the ABC to payments under the contract Supply and Delivery of Various Technical and Scientific Equipment for CY 2021- IB No. BSWM 2021-08-031 for each Lots. Bids received in excess of the ABC shall be automatically rejected at bid opening.</p>	<p>Lot 14- Supply and Delivery of MIR/FTIR Spectroscopy in the amount of Three Million Pesos (Php 3,000,000.00);</p> <p>Lot 15- Supply and Delivery of various UV-VIS Spectrometry Equipment in the amount of Four Million Five Hundred Thousand Pesos (Php 4,500,000.00);</p> <p>Lot 16- Supply and Delivery of BOD Sensor System in the amount of Five Hundred Thousand Pesos (Php 500,000.00);</p> <p>Lot 17- Supply and Delivery of various Weighing Instruments in the amount of One Million Six Hundred Fifty Thousand Pesos (Php 1,650,000.00);</p> <p>Lot 18- Supply and Delivery of Air Conditioning Units and Lab Utility Equipment in the amount of Four Million Seventy Thousand Pesos (Php 4,070,000.00);</p> <p>Lot 19- Supply and Delivery of Power Supply Equipment (Solar Power System) in the amount of Three Million Five Hundred Thousand Pesos (Php 3,500,000.00);</p> <p><b>Lot 20- Supply and Delivery of Core Sampler Set with Extension Rod and Stainless Sampling Tube in the amount of Seven Hundred Fifty Thousand Pesos (Php 750,000.00);</b></p> <p><b>Lot 21- Supply and Delivery of Soil Respiration Instruments in the amount of Two Million Six Hundred Thirty Thousand Pesos (Php 2,630,000.00);</b></p> <p><b>Lot 22- Supply and Delivery of Automated Reductive Inoculation in the amount of Two Million Pesos (Php 2,000,000.00);</b></p> <p><i>Total Approved Budget for the Contract (ABC): One Hundred Forty-One Million Seven Hundred Fifty Thousand Pesos (Php 141,750,000.00).</i></p> <p>being the ABC to payments under the contract Supply and Delivery of Various Technical and Scientific Equipment for CY 2021- IB No. BSWM 2021-08-031 for each Lots. Bids received in excess of the ABC shall be automatically rejected at bid opening.</p>
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SECTION III. BID DATA SHEET:

ORIGINAL			AMENDED		
Clause 19.3			Clause 19.3		
<u>LOT #</u>	<u>NO. OF ITEMS</u>	<u>TOTAL AMOUNT</u>	<u>LOT #</u>	<u>NO. OF ITEMS</u>	<u>TOTAL AMOUNT</u>
LOT 1	20	21,530,000.00	LOT 1	16	16,600,000.00
LOT 2	4	37,950,000.00	LOT 2	4	37,950,000.00
LOT 3	1	1,600,000.00	LOT 3	1	1,600,000.00
LOT 4	1	12,600,000.00	LOT 4	1	12,600,000.00

LOT 5	1	500,000.00		LOT 5	1	500,000.00	
LOT 6	2	3,475,000.00		LOT 6	2	3,475,000.00	
LOT 7	2	6,300,000.00		LOT 7	2	6,300,000.00	
LOT 8	21	11,295,000.00		LOT 8	21	11,295,000.00	
LOT 9	5	4,350,000.00		LOT 9	5	4,350,000.00	
LOT 10	1	3,000,000.00		LOT 10	1	3,000,000.00	
LOT 11	8	4,630,000.00		LOT 11	8	4,630,000.00	
LOT 12	10	12,430,000.00		LOT 12	<b>9</b>	<b>12,730,000.00</b>	
LOT 13	3	4,870,000.00		LOT 13	<b>2</b>	<b>4,120,000.00</b>	
LOT 14	1	3,000,000.00		LOT 14	1	3,000,000.00	
LOT 15	2	4,500,000.00		LOT 15	2	4,500,000.00	
LOT 16	1	500,000.00		LOT 16	1	500,000.00	
LOT 17	3	1,650,000.00		LOT 17	3	1,650,000.00	
LOT 18	2	4,070,000.00		LOT 18	2	4,070,000.00	
LOT 19	1	3,500,000.00		LOT 19	1	3,500,000.00	
		<b><u>141,750,000.00</u></b>		LOT 20	<b>1</b>	<b>750,000.00</b>	
				LOT 21	<b>4</b>	<b>2,630,000.00</b>	
				LOT 22	<b>1</b>	<b>2,000,000.00</b>	
						<b><u>141,750,000.00</u></b>	

SECTION VI. SCHEDULE OF REQUIREMENTS:

ORIGINAL	AMENDED
	<p>Supplier shall coordinate with the End-user for final schedule of delivery within 7 calendar days from receipt of Notice to Proceed and with the Procurement Management Section prior to initial delivery.</p> <p>Within 60 Calendar Days upon receipt of Notice to Proceed</p> <p>Please refer to the attached <b>Revised Section VI. Schedule of Requirements (ANNEX A.)</b>.</p>

SECTION VII. TECHNICAL SPECIFICATIONS:

ORIGINAL	AMENDED
<b><u>Lot 1- Supply and Delivery of various Sample Preparation Equipment</u></b>	
Item No. 1- Acid Cabinet:	<p>Item No. 1- Acid Cabinet:</p> <p><b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b></p>
Item No. 4- Block Micro Digester (40 placer) with scrubber	<b>Item No. 3.- Block Micro Digester (40 placer) with scrubber</b>

	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b>
Item No. 5- Drying Oven	<b>Item No. 6- Drying Oven</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol).</b>
Item No. 9- Fumehood (Perchloric)	<b>Item No. 7- Fumehood (Perchloric)</b>  <b>Locally fabricated or imported</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b>
Item No. 10- Fumehood (Regular)	<b>Item No. 8- Fumehood (Regular)</b>  <b>Locally fabricated or imported.</b>
Item No. 11- Horizontal Reciprocating Shaker	<b>Item No. 9- Horizontal Reciprocating Shaker</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol).</b>
Item No. 14- Magnetic Stirrer	<b>Item No. 10- Magnetic Stirrer</b>  <b>Plain stirrer, ceramic</b>
Item No. 16- Refrigerated Centrifuge	<b>Item No. 12- Refrigerated Centrifuge</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol).</b>
Item No. 20- Water Distilling Unit  Storage Tank: 24 L  Water consumption: at least 198L / hr.  Voltage: 400V* 50/60 Hz, 3-phase current  3 storage containers	<b>Item No. 16- Water Distilling Unit</b>  <b>Storage Tank: minimum 24 L</b>  <b>Water consumption: at least 198L / hr feedwater</b>  <b>Voltage: max 400V* 50/60 Hz, 1 or 3-phase current</b>  <b>3 storage containers, at least 5 gal</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b>
<b><u>LOT 2 - Soil Grinding Equipment</u></b>	
Item No. 1- Cross Beater Mill	Item No. 1- Cross Beater Mill  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan and Bohol).</b>
Item No. 2- Jaw Crusher  Training for two (2) end-users at manufacturer's site, inclusive of all expenses.	Item No. 2- Jaw Crusher  Training for two (2) end-users at manufacturer's site, inclusive of all expenses. <b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b>  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan).</b>
Item No. 4- Sieve Shaker	Item No. 4- Sieve Shaker  <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan and Bukidnon).</b>
<b><u>LOT 3 - Compressor For Centralized Gas Piping System</u></b>	
	<b>Inclusion:</b>

	Complete wiring works, piping works from existing gas line to compressor room, supplies, and materials
<b><u>LOT 4 -Water Deionizer (Integrated Type I and Type II Water). Large Capacity with Dispenser</u></b>	
<p>Water Deionizer (Type I and Type II water), large capacity with dispenser</p> <p>Feedwater Source: Softened or hardness stabilized</p> <p>Standard accessories:</p> <p>1 set - Mix Multi Mini Water Softener, includes Softener Salt 25kg, Hardness detection kit, 5 micron filter with carbon cartridge and 10" 1 um prefilter.</p> <p>Installation materials include: stainless steel tube pipings, fittings, valves, electrical wirings, etc.</p>	<p>Water Deionizer (Type I and Type II water), large capacity with dispenser – <b>1-unit system</b></p> <p><b>Tank capacity: 85-100L</b></p> <p><b>Feedwater Source: Softened or hardness stabilized Tapwater</b></p> <p>Standard accessories:</p> <p><b>1 set - Water Softener System</b>, includes Softener Salt 25kg, Hardness detection kit, 5 micron filter with carbon cartridge and 10" 1 um prefilter.</p> <p>Installation materials include: stainless steel tube pipings , fittings, valves, Electrical wirings, etc. <b>System to cover 2 rooms in one floor.</b></p> <p><b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan, Bukidnon, Bohol).</b></p>
<b><u>LOT 6 - Soil Drying and Glassware Cleaning Equipment</u></b>	
Item No. 1- Soil Drying Cabinet	<p>Item No. 1- Soil Drying Cabinet</p> <p><b>Customized</b></p> <p><b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan, Bukidnon)</b></p>
<p>Item No. 2- Ultrasonic Washer</p> <p>Equipped with PLC Control system (Process parameters settings only could be changed by qualified persons).</p> <p>Heating Power (W): up to 7000</p> <p>Temp. (°C): 30-110°C</p> <p>Compatible AVR and UPS</p>	<p>Item No. 2- Ultrasonic Washer</p> <p><del>Equipped with PLC Control system (Process parameters settings only could be changed by qualified persons).</del></p> <p><b>Heating Power (W): up to 7500</b></p> <p><b>Temp. (Celcius): max 90°C</b></p> <p><b>Compatible AVR</b></p>
<b><u>LOT 8- Metrology Instruments</u></b>	
Item No. 11- Multi-Channel Digital Thermometer	<p>Item No. 11- Multi-Channel Digital Thermometer</p> <p><b>Output file: xls file</b></p> <p><b>Length of wire: at least 1.5 m</b></p>
<b><u>LOT 9 - Calibration Weighing Instruments</u></b>	
Item No. 3- Pipette Accuracy Tester with data logger set and accessories	<p>Item No. 3- Pipette Accuracy Tester with data logger set and accessories</p> <p><b>Moisture Analyzer</b></p>
<p>Item No. 5- Class F1 Test Weights</p> <p>Product Weight: 6.6 lbs / 3 Kg</p> <p>1x Aluminum Alloy Case</p>	<p>Item No. 5- Class F1 Test Weights</p> <p><b>Product Weight: minimum of 2 Kg</b></p> <p><b>1x Wood or Aluminum Alloy Case</b></p>
<b><u>Lot 10- Temperature and Humidity Monitoring System</u></b>	
1 unit - Top Loading Balance, 620 g capacity	<b>1 unit - Top Loading Balance, at least 820 g capacity</b>
<b><u>Lot 11- Measuring Instruments</u></b>	
Item No. 5- Nitrogen Distillation Unit	Item No. 5- Nitrogen Distillation Unit



	Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.
<b><u>LOT 12 - Soil Microbiology Instruments</u></b>	
From Lot 1	<b>Item no. 6- Autoclave</b>  <b>Training for Three (3) end users at Manufacturer's Training Site, inclusive of all expenses. Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>
From Lot 1	<b>Item No. 7- Drying Oven (Microbiology)</b>  <b>Capacity: minimum of 179 L</b>  <b>Temperature range: min 40 to max 250°C</b>  <b>Control: large fluorescent or colour touch screen display temperature controller with independent manual (or automatic) overheat safety control.</b>  <b>Data logger thru Controller transferrable via USB, LAN, or wireless</b>
From Lot 1	<b>Item No. 8- Incubator</b>  <b>Chamber capacity: max 105 L</b>  <b>Display: large fluorescent or colour touch screen display</b>  <b>Easy data transfer via LAN, wireless, USB ports- multi-segment time and temperature programs</b>  <b>Data logger thru Controller transferrable via USB, wireless or LAN</b>
From Lot 1	<b>Item No. 9- Laboratory Refrigerator</b>
<b><u>LOT 13 - Soil Physics Instruments</u></b>	
Item No. 1- Automated Laboratory Saturated Hydraulic Conductivity System(Five (5) Station Kit)  Inclusion:  2 pcs Soil Core Sampler for Bulk Density Analysis  20 pcs Brass Cylinder for Core Sampler  40 pcs Soil Core Cylinder Cap 1-unit Laptop Computer  1-unit Tablet  1x Sieve no. 60  1x Sieve no. 140  1x Brass Cover 1x Brass pan	Item No. 1- Automated Laboratory Saturated Hydraulic Conductivity System(Five (5) Station Kit)  Inclusion:  2 pcs Soil Core Sampler for Bulk Density Analysis; <b>Diameter: 2.25 in (5.7cm); Weight: 11.45 lb; Dimensions: 23 x 11 x 5 in; with case</b>  20 pcs Brass Cylinder for Core Sampler; <b>Height: (6cm); Outside Diameter: 2.25 in; Weight: 0.32 lbs</b>  40 pcs Soil Core Cylinder Cap; <b>Weight: 0.01 lbs</b>  1-unit Laptop Computer; Processor: <b>Intel Core i7; Memory: 8GB DDR4; Storage: 1 TB HDD with 128 SSD; Graphics Card: 4GB MX130; OS: Windows 10; Display 15.6 in</b>  1-unit Tablet; <b>Manufacturer's recommendation compatible with the software</b>  1x Sieve no. 60; <b>Height: 2 in; Diameter: 8 in; Material: Brass; Mesh Opening dimensions: 250 microns (0.250 mm); ASTM-E11 Compliant; ANSI, ISO and NBS specification compliant; With individual serial number and certificate of analysis</b>  1x Sieve no. 140; <b>Height: 2 in; Diameter: 8 in; Material: Brass; Mesh Opening dimensions: 106 microns (0.106 mm); ASTM-E11 Compliant; ANSI, ISO and NBS specification compliant; With individual serial number and certificate of analysis</b>  1x Brass Cover; <b>Height: 2 in; Diameter: 8 in; Material: Brass</b> 1x Brass pan; <b>Height: 2 in; Diameter: 8 in; Material: Brass</b>

<p>1x Desiccator Cabinet</p> <p>3x Mini-dehumidifier</p> <p>1x Indicating desiccant;</p> <p>1x Data Acquisition Software;</p> <p>Training for three (3) end-users at manufacturer's training site, inclusive of air fare, transportation cost, and accommodation;</p>	<p>1x Desiccator Cabinet; <b>Cabinet Type Chamber Volume: 181 L; Interior Dimensions: 19.125 x 21.5 x 18.9 in; Exterior Dimensions: 21.75 x 24 x 21 in; Adjustable shelves: 2 pcs; Number of Shelves: 28; Weight: 60 lbs; Material: Glass, Stainless steel; Inside Glass over: transparent, static dissipative polyester film</b></p> <p>3x Mini-dehumidifier; <b>Height: 6 in; Width: 6 in ; Diameter: 1.5 in; Desiccant Capacity: 150g of 4 Mesh Drierite; Water Capacity: 10g; Material: 22-gauge metal; Hole size: 1/8 in; Volume Covert: 6ft3</b></p> <p>1x Indicating desiccant; <b>Type: Indicating Desiccant; 12 pcs /box</b></p> <p>1x Data Acquisition Software; <b>Allows user to set measurement method, duration and physical component parameters; Automated measurement of all method; Automated calculation of results; Shows measurement graph and reading table</b></p> <p>Training for three (3) end-users at manufacturer's training site, inclusive of air fare, transportation cost, and accommodation; <b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b></p>
<p>Item No. 2- Motorized ASTM Liquid Limit Machine</p> <p>Includes H-4229 ASTM grooving tool and gauge block</p>	<p><b>Item No. 2- Liquid Limit Machine</b></p> <p><b>Type: Motorized Machine</b></p> <p><b>Includes grooving tool and gauge block</b></p>
<b><u>Lot 14- MIR/FTIR Spectroscopy</u></b>	
<p>Diamond ATR, Diffuse Reflectance, Transmission</p> <p>Software: PC software, Automated IQ/OQ,</p> <p>Standard Accessories and Inclusions:</p> <p>1 unit - Desktop Computer, 64-bit,</p> <p>1 unit – Laptop</p> <p>Two (2) years warranty</p> <p>Training for three (3) end-users at Manufacturer's Training Site inclusive of transportation cost and accommodations</p>	<p>Diamond ATR, Diffuse Reflectance, Transmission <b>Sample Interface</b></p> <p>Software: PC software, Automated</p> <p>Standard Accessories and Inclusions:</p> <p>1 unit - Desktop Computer, 64-bit, <b>at least i5</b></p> <p>1 unit – Laptop- <b>at least i5</b></p> <p>Two (2) years warranty <b>on parts and service</b></p> <p>Training for three (3) end-users at Manufacturer's Training Site inclusive of transportation cost and accommodations <b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b></p>
<b><u>Lot 15- UV-VIS Spectrometry Equipment</u></b>	
<p>Item No. 2- UV-Vis Spectrometer</p>	<p>Item No. 2- UV-Vis Spectrometer</p> <p><b>Training for end-users</b></p>
<b><u>Lot 16- BOD Sensor System</u></b>	
	<p><b>Inclusion: 1 unit – Laptop PC for remote data management</b></p> <p><b>Specs: Processor: Intel Core i7; Memory: 8GB DDR4; Storage: 1 TB HDD with 128 SSD; Graphics Card: 4GB MX130; OS: Windows 10; Display 15.6 in</b></p>
<b><u>Lot 17- Weighing Instruments</u></b>	
<p>Item No. 1- Analytical Balance</p> <p>Pan Size (mm) at least.: Φ91</p>	<p>Item No. 1- Analytical Balance</p> <p>Pan Size (mm) <b>at least.: Φ90</b></p> <p><b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol).</b></p>



Item No. 2- Top Loading Balance Capacity: 620g	Item No. 2- Top Loading Balance Capacity: <b>at least 620g</b> <b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol).</b>
Item No. 3- Weighing Scale, Big Capacity Resolution: 10 g (below 60 kg), 20 g (above 60 kg up to 150 kg)	Item No. 3- Weighing Scale, Big Capacity <b>Resolution: min 10 g, max 20g</b>
<b><u>Lot 18- Air Conditioning Units and Lab Utility Equipment</u></b>	
Item No. 1- Air Conditioning Units for LSD, 1 lot	Item No. 1- Air Conditioning Units for LSD, 1 lot <b>Supply and installation of feeder line to main circuit breaker (from 4th floor rooftop to respective selected rooms with no available power source).</b>
<b><u>Lot 19- Power Supply Equipment (Solar Power System)</u></b>	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>
<b>ADDITIONAL LOTS:</b>	
	<b>Lot 20- Core Sampler Set, with Extension Rod and Stainless Sampling Tube</b>  <b>Lot 21- Soil Respiration Instruments</b>  <b>Lot 22- Automated Reductive Inoculation</b>
Please refer to the attached <b>Revised Section VII. Technical Specification (Annex B).</b>	

**III. REMINDERS DURING THE PRE-BID CONFERENCE:**

- The Bureau is now adopting the GPPB Resolution No. 16-2020 dated September 16, 2020 (Simplified PBDs shall be used for Competitive Bidding of Procurement Projects that will be posted upon its effectivity on 06 October 2020).
- The documents required for eligibility, technical proposal and financial proposal are found at **Section VIII – Checklist of Technical and Financial Documents** of the bidding document.
  - Please refer to the bidding document for the **sample form of Single Largest Completed Contract (SLCC)** and form for **Statement of all ongoing Government & Private Contracts** including Contracts Awarded but not yet started for your reference.

**Note:** if no ongoing projects/ contracts, please state “none” or “no ongoing projects/contracts” in the form for the Statement of all on going Government and Private Contracts.

- Bidding will be conducted through open competitive bidding procedures using a non-discretionary “pass/fail” criterion as specified in the Implementing Rules and Regulations (IRR) of Republic Act (RA) 9184, otherwise known as the “Government Procurement Reform Act”

**“Any lacking documents can cause the automatic disqualification of bids.”**

- Below are the **acceptable forms of bid security** that bidders may opt to use, **which shall include the Bid Securing Declaration**. The amount of which shall not be less than the required percentage of the ABC in accordance with the following schedule:


Form of Bid Security	Amount of Bid Security (Not less than the required Percentage of the ABC)
Cash or cashier's/manager's check issued by a Universal or Commercial Bank.	Two percent (2%)
Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security.	Five percent (5%)

- Bidders have the option to choose from any of the four (4) forms of Bid Security provided in the bid documents including the Bid Securing Declaration.
- Please be guided that the surety bond issued by GSIS as well as a cash deposit certificate is no longer accepted.
- The bidders are reminded that their Bids and Bid Securities **should be valid and firm** for a period that shall **not exceed one hundred twenty (120) calendar days** after the date of the opening of bids
- The computation of a prospective bidder's NFCC **shall be at least equivalent of the ABC of the Total Contract** to be bid,calculated as follows:
  - NFCC= [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contract yet to be started, coinciding with the contract to be bid.
  - Note: K= 15 is a constant factor per RA 9184 Revised IRR**
- For **sealing and marking of bid proposal**, the bidders are requested to submit two (2) separate envelopes, placed in one sealed envelope. An illustration is provided on the bidding documents showing the required envelopes and markings of the documents for the eligibility screening, technical and financial proposal.
  - The bidders are requested to submit **one (1) copy of original documents** (certified true copies) and **one (1) duplicate copy**.
  - All pages/documents** must be **duly signed** by the authorized representative (original and duplicate proposal).

**For contract with several lots:    Bidders who wish to join on 2 or more lots shall submit a separate bid proposal per lot.**

○ **Reminders to the bidder/s:**

- Submission of the requirements within five (5) calendar days after the receipt of the Notice from the BAC that your bid has been identified as the Lowest Calculated Bid (LCB) and is subject for Post-Qualification of BAC TWG as stated in ITB Clause no. 20.2 of the Bid Documents.
  - Submission of **Performance Bond** and **Signed Contract Agreement within ten (10) calendar days after the receipt of Notice of Award (NOA)** as Lowest Calculated and Responsive Bid (LCRB) as stated in RA 9184 Section 37.2.1 and Section 37.2.2.
  - **Required Warranty Certificate**, in order to assure that manufacturing defects will be corrected by the Supplier, as provided under Section 62.1 of the 2016 revised IRR of RA 9184 and as stated in the bidding documents Section VII- General Condition of Contract (GCC) Clause no. 5 (*Warranty certificate shall require before processing payment*).
  - **All bidders** who wish to join the bidding **shall download the attached document from PhilGEPS website** to be included in the DRL (Document Request List). This is for awarding purposes in compliance to Section 37.1.6 of RA9184.
  - For easy reference, **all bidders are requested to provide dog-ear codes in the presentation of their documents.**
- Bidders may download the updated Bidding Forms as of October 6, 2020 at GPPB Website (<https://www.gppb.gov.ph/downloadables.php>).
- In case of withdrawal of submitted proposal, a letter stating their intention to withdraw from the project should be submitted by the bidder before the scheduled Opening of Bids.
- A complete set of **Bidding Document** may be acquired by interested Bidders until **September 21, 2021 9:00AM** from the address and website below and **upon payment** of the applicable fee, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Php 4,000.00**.
- For bank-to-bank payment (Land bank of the Philippines) for the purchase of bidding documents, please coordinate with the BAC Secretariat thru [bswm.bacsec@gmail.com](mailto:bswm.bacsec@gmail.com).
- **Schedule of Submission and Opening of Bids is subject to change** due to Community Quarantine enforced by the government in line with the COVID-19 pandemic. Please refer to the BSWM PhilGEPS posting for updates (<https://www.philgeps.gov.ph/>) and BSWM Procurement Service FB page <https://www.facebook.com/bswmpms>.
- Bidders who wish to **attend the Opening of sealed Bids** will be **allowed thru videoconferencing (via Zoom)** as per GPPB Resolution No. 24-2018. Please coordinate with the BAC Secretariat a day before the Opening of bids thru [bswm.bacsec@gmail.com](mailto:bswm.bacsec@gmail.com). Said activity will also be available “live” through BSWM Procurement Service FB Page (<https://www.facebook.com/bswmpms>).
  - An authorization letter and/or Secretary’s Certificate (whichever is applicable) and photocopy of company ID for the representative of the bidders who will:

- 
1. Submit their bid proposal on behalf of their company is required to be presented;
  2. Join the opening of bids (both for physical and online attendees).

**DEADLINE/SCHEDULE OF SUBMISSION AND OPENING OF BIDS:**

***Deadline of submission of bid proposal is on September 21, 2021, 9:00AM.***

***Opening of Bids is on September 21, 2021, 9:30AM* at BSWM Function Hall.**

**For precautionary measure against the COVID 19, bidder attendance will be through videoconferencing only.**

For guidance and information of all concerned.

**(Sgd) DR. GINA P. NILO**

OIC, Assistant Director,  
BAC Chairperson

# ANNEX A

## REVISED SECTION VI. Schedule of Requirements

Lot	Item Description	Quantity	Delivery days/weeks/months
1	SAMPLE PREPARATION EQUIPMENT	16	<p>Supplier shall coordinate with the End-user for final schedule of delivery within 7 calendar days from receipt of Notice to Proceed and with the Procurement Management Section prior to initial delivery.</p> <p>Within 60 Calendar Days from Receipt of Notice to Proceed</p>
2	SOIL GRINDING EQUIPMENT	4	
3	COMPRESSOR FOR CENTRALIZED GAS PIPING SYSTEM	1	
4	WATER DEIONIZER (TYPE I AND TYPE II WATER), LARGE CAPACITY WITH DISPENSER	1	
5	ULTRAFILTRATION SYSTEM	1	
6	SOIL DRYING AND GLASSWARE CLEANING EQUIPMENT	2	
7	ACID DIGESTION EQUIPMENT	2	
8	METROLOGY INSTRUMENTS	21	
9	CALIBRATION WEIGHING INSTRUMENTS	5	
10	TEMPERATURE AND HUMIDITY MONITORING SYSTEM	1	
11	MEASURING INSTRUMENTS	8	
12	SOIL MICROBIOLOGY INSTRUMENTS	9	
13	SOIL PHYSICS INSTRUMENTS	2	
14	MIR/FTIR SPECTROSCOPY	1	
15	UV-VIS SPECTROMETRY	2	
16	BOD SENSOR SYSTEM	1	
17	WEIGHING INSTRUMENTS	3	
18	AIR CONDITIONING UNITS AND LAB UTILITY EQUIPMENT	2	
19	POWER SUPPLY EQUIPMENT (SOLAR POWER SYSTEM)	1	
20	CORE SAMPLER SET, WITH EXTENSION ROD AND STAINLESS SAMPLING TUBE	1	
21	SOIL RESPIRATION INSTRUMENTS	4	
22	AUTOMATED REDUCTIVE INOCULATION	1	

# ANNEX B

## REVISED SECTION VII. Technical Specifications

Item	Specification	Statement of Compliance
		<p><i>[Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>



## Section VII. Technical Specifications

### LOT 1 - SAMPLE PREPARATION EQUIPMENT

Item #	Item Description	Statement of Compliance
	<b>LOT 1 - SAMPLE PREPARATION EQUIPMENT</b>	
1	<b>Acid Cabinet</b>	
	Specifications:	
	Galvanized steel shelves	
	lead-free epoxy/polyester powder-coat finish	
	Three-point stainless steel bullet latching system	
	Adjustable legs and Grounding wires	
	Capacity Gal/Ltr: 90/340	
	Shelves: 2 pcs	
	Shelves capacity: 100 kg	
	Door type: double-door, swing doors, with key lock	
	Dimensions (HxWxD mm): at least 1650x1090x860	
	Inclusions:	
	complete ductworks	
	ISO Calibration	
	Training for end user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	Delivery Sites:	
	-Bohol (2)	
	-Bulacan (3)	
	-Bukidnon (3)	
2	<b>Air-Type Vacuum Pump</b>	
	Specifications:	
	Oil-free vacuum pump	
	piston-powered, oil-free pump	
	quiet and low vibration	
	compact and light weight	
	clean and maintenance free	
	Thermal protection device	
	Air inlet filter cartridge	
	Max. Vacuum : 105 mbar	
	Max. flow : 37 L/min	
	Motor rotation : 1750 RPM	
	Horse power : 1/6 HP	
	Noise level : 52 dB	
	Training for end user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
3	<b>Block Micro Digester (40 placer) with scrubber</b>	
	Specifications:	
	Sample positions: 40	
	Temperature range max. (in °C): 430	
	Digestion vessel size (in ml): 100	
	Programs: 10	

	Power consumption (in W): 2200	
	Current consumption (in A): 10	
	Non-corrosive casing	
	Removable viewing door	
	Standard Accessories and Inclusions:	
	Round bottom digestion vessel, 100 ml for micro-Kjeldahl, 120 pcs	
	dispenser for metering sulfuric acid, 2.5-25 ml adjustable without bottle	
	Kjeldahl Neutralizer (extraction system/scrubber)	
	Digital burette, 2 pcs	
	Digital Titrator, 2 pcs	
	Pipettor, 5 pcs, 100-1000 µl	
	Training for End user	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1) -Bulacan (1) -Bukidnon (1) -Bohol (1)	
<b>4</b>	<b>Centrifuge, 8 placer</b>	
	Specifications:	
	Max. Capacity: 8 x 50ml	
	Max. RPM: 6,000 min-1	
	Max. RCF:4,226	
	Running Time: 1 sec-99min:59sec, continuous run,short cycle mode(impulse key	
	Dimension: at least 257x366x430mm	
	Weight: at least 2.3 kg without rotor	
	Standard Accessories and Inclusions:	
	Swing Out Rotor	
	Max. Capacity: 8x50ML	
	Max. RPM: 4,000	
	Max RCF: 2,469	
	Angle: 45 degrees	
	Fixed Angle Rotor	
	Max. Capacity: 8x50ML	
	Max. RPM: 6,000	
	Max RCF: 4,226	
	Angle: 35 degrees	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-RSL IVA (1)	
<b>5</b>	<b>Drying Oven</b>	
	Specifications:	
	Controller Type: Microprocessor control with vacuum fluorescent display	
	Temperature Stability: ±0.4°C	
	Timer: ON / OFF	
	Temperature: 50°C to 250°C	
	Capacity: 176 L	
	Type: Gravity Convection	
	No. of Shelves: 2 min - 19 max.	

	Electricals: 208/240 V 60 Hz; 3360W; 14A	
	Wattage: 3360 w	
	Dimensions: at least (L x W x H) 29.1 x 25.2 x 36.2 in. (73.8 x 64 x 92 cm)	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol)</b>	
	Delivery Sites:	
	-BSWM (1)	
	-RSL (4)	
	-Bohol (1)	
<b>6</b>	<b>Fertilizer Ball Mill</b>	
	Specifications:	
	complies with ASTM C409	
	features a 1/3hp single-phase, geared motor	
	mounted to a rigid, cast-aluminum base with rubber feet for stability	
	grinding mill head construction is made of sturdy, durable cast iron	
	mill head can be easily removed and disassembled for cleaning	
	without the use of any special tools	
	grinding plates are made of a hard iron alloy	
	Plate-to-plate clearance is easily adjusted by hand	
	Output capacity is up to 40lbs (18kg) per hour	
	material hopper provides 50in3(820ml) approximately 2lb (0.9kg)	
	with the dry grinding feeder and disk set	
	Inclusions:	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
<b>7</b>	<b>Fumehood (Perchloric)</b>	
	Specifications:	
	<b>Locally fabricated or imported</b>	
	Material: Steel covered with chemically resistant epoxy powder coating	
	Solid ceramics: 38mm thick, with integrated ceramic marine edge.	
	Recommended airflow (m3/h): 650...850	
	Maximum power consumption (kW): 3.5	
	Power supply: 220V 60hz	
	Exit air sub pipe diameter (mm): Ø200	
	Water supply: G 1/2"	
	Sewage connection diameter (mm): Ø50	
	Standard Accessories and Inclusions:	
	Standard airflow sensor, conformity with standards (PN-EN 4 75-2)	
	Standard equipment: 2 electrical socket 230V (IP44), 2 x cold water	
	tap, sink	
	Electrical insulation class: Class	
	Permissible work board load (kPa): 4	

	dismantling of old unit , ducting, installation, commissioning, testing	
	validation certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	Delivery Sites:	
	-Bohol (1)	
<b>8</b>	<b>Fumehood (Regular)</b>	
	Specifications:	
	<b>Locally fabricated or imported</b>	
	Material: Steel covered with chemically resistant epoxy powder coating	
	Solid ceramics: 38mm thick, with integrated ceramic marine edge.	
	Recommended airflow (m3/h): 650...850	
	Maximum power consumption (kW): 3.5	
	Power supply: 220V 60hz	
	Exit air sub pipe diameter (mm): Ø200	
	Water supply: G 1/2"	
	Sewage connection diameter (mm): Ø50	
	Standard Accessories and Inclusions:	
	Standard airflow sensor, conformity with standards (PN-EN 4 75-2)	
	Standard equipment: 2 electrical socket 230V (IP44), 2 x cold water	
	tap, sink	
	Electrical insulation class: Class	
	Permissible work board load (kPa): 4	
	dismantling of old unit , ducting, installation, commissioning, testing	
	validation certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-Bohol (1)	
<b>9</b>	<b>Horizontal Reciprocating Shaker</b>	
	Specifications:	
	Operating Speed: Variable speed 60 – 260 osc/min	
	with tachometer display	
	Stroke: 1.5" Horizontal	
	Type of mounting: Benchtop, Suction cup feet to prevent creeping	
	Load Capacity: up to 50lbs	
	Power: 230V, 60Hz	
	Size and weight: at least L-24.5", W-13.5", H-10", 76lbs	
	Standard Accessories and Inclusions:	
	Includes: Utility box carrier with anti-slide surface and one (1) rubber coated crossbar is available to hold various combinations of beakers, flasks, etc	
	with Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	

	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol)</b>	
	Delivery Sites:	
	-BSWM (1) -RSL (6) -Bohol (1)	
<b>10</b>	<b>Magnetic Stirrer</b>	
	Specifications:	
	<b>Plain stirrer, ceramic</b>	
	Stirring quantity max. per stirring position (H2O): 20 L	
	Motor rating output: 9 W	
	Direction of rotation: right / left	
	Speed display set-value: LCD	
	Speed display actual-value: LCD	
	Speed control: Turning knob	
	Speed range: 50 - 1500 rpm	
	Setting accuracy speed: 10 rpm	
	Stirring bar length: 30 - 80 mm	
	Heat output: 1000 W	
	Temperature display set-value: LCD	
	Temperature display actual-value: LCD	
	Temperature unit: °C	
	Heating temperature range: room temp. - 500	
	Heat control: Turning knob	
	Temperature setting range: 0 - 500 °C	
	Automatic reverse rotation: yes	
	Intermittend mode: yes	
	Viscosity trend measurement: yes	
	Timer: yes	
	Sensor in medium detection (Error 5): yes	
	Temperature measure range PT1000: -10 - 400 °C	
	Speed deviation (no load,nominal voltage, at 1500rpm + 25 °C): 2 ±%	
	Heating rate (1l H2O in H1500): 5 K/min	
	Heat control accuracy of heating plate (at 100°C): 5 ±K	
	Permissible ambient temperature: 5 - 40 °C	
	Permissible relative humidity: 0.8	
	Protection class according to DIN EN 60529: IP 21	
	RS 232 interface: yes	
	USB interface: yes	
	Voltage: 220-230 / 115 / 100 V	
	Frequency: 50/60 Hz	
	Power input: 1020 W	
	Power input standby: 2 W	
	Accessories:	
	with extension, head clamp, holding rod	
	with temperature sensor	
	with magnetic stirring bar	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
<b>11</b>	<b>Plant Tissue Grinder</b>	
	Specifications:	

	Application: Tissue homogenization, grinding, cell breakage, homogenizing, material dispersion, preparation, sample mixing, oscillation	
	LCD: Micro computer controlled, 7 inch screen, working status	
	Speed: 10-70 HZ/M	
	Adapter Material: PTFE or alloy steel	
	Grinding method: Dry, wet, cryogenic grinding	
	Final size: ~5um	
	Power: 220V/50HZ 2 phases	
	Grinding Ball Material: Alloy steel, Chromium, Zirconium oxide, tungsten carbide, silica	
	Dimension: at least 280*400*530mm	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-Bulacan (1)	
	-Bukidnon (1)	
<b>12</b>	<b>Refrigerated Centrifuge</b>	
	Specifications:	
	Rotor Capacity: 4 x 180 ml	
	Max. Speed: 5,500 rpm	
	Max. RCF: 5,580 x g	
	Control system: Microprocessor	
	Display: Digital	
	Centrifugation Chamber: Corrosion-resistant, high thermal conductivity, 304 grade Stainless Steel	
	Memory: 6 programs, direct access	
	Maximum Timer Range: 9 hr, 59 min, plus continuous	
	Electrical: 230V, 50/60 Hz	
	Dimensions: at least 24.5 x 23.8 x 14.2 in WDH	
	Temperature Range: -10 to +40°C	
	Sound Level (dBA): <61	
	Drive System: Direct, brushless induction low profile motor	
	Rotor Locking System : Push-button Auto Lock III	
	Standard Accessories and Inclusions:	
	1 pc - Swinging Bucket Rotor	
	1 set - Round Buckets (set of 4)	
	1 set - Biocontainment Lids (set of 4)	
	1 set - Adapter for 15 ml conical tubes (set of 4)	
	1 set - Adapter for 50 ml conical/skirted tubes (set of 4)	
	1 set - Microliter 30 x 2 ml Aluminum Fixed Angle Rotor with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol)</b>	
	Delivery Sites:	
	-BSWM (1)	
	-Bohol (1)	
<b>13</b>	<b>Reciprocating Shaker</b>	
	Specifications:	
	Shaking Method: Reciprocal	
	Shaking Speed: 20 - 200rpm	
	Amplitude: 10 - 40mm (variable sequentially)	



	Platform size: at least 400 x 300mm	
	Loading Limit: Approx. 8kg (include shaking rack and holder)	
	Shaking speed display: Digital	
	Integrating indicator of shaking time: 0.1 - 999.9h (with auto-reset function)	
	Safety device / function: Motor protection circuit for overload	
	Dimensions: at least 450 x 405 x 160Hmm	
	Weight: at least 17kg	
	Power Supply: AC100V 0.5A	
	Standard Accessories and Inclusions:	
	necessary tubes and rotors, and other accessories	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-RSL IVA (1)	
<b>14</b>	<b>Sonicator</b>	
	Specifications:	
	Frequency : 53KHz	
	Timer : 1~99 min	
	Tank capacity : 6L	
	Housing : SS304 stainless steel	
	Stainless steel cover : Yes	
	Ultrasonic power : at least 180W	
	Degas power : at least 180W	
	Net weight : at least 5.0 kg	
	Gross weight : at least 6.0 kg	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
<b>15</b>	<b>Test Tube Mixer</b>	
	Specifications:	
	Construction material: zinc alloy and technopolymer	
	Support system: 4 anti-sliding feet	
	Orbital diameter: 4.5 mm	
	Speed setting: analog	
	Speed control: electronic	
	Speed: up to 3000 rpm	
	Operating modes: touch, continuous	
	Electronic protection degree CEI EN 60529: IP 42	
	Power: 15 W	
	Weight: at least 2.7 Kg (5.9 lb)	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (5)	
<b>16</b>	<b>Water Distilling Unit</b>	
	Specifications:	
	Output: 12 L / hr.	
	<b>Storage Tank: minimum 24 L</b>	
	<b>Water consumption: at least 198L / hr feedwater</b>	
	Dimensions (W x D x H): at least 780 x 410 x 670mm	
	Power: 9000 W	
	<b>Voltage: max 400V* 50/60 Hz, 1 or 3-phase current</b>	
	heating element made of stainless steel	

	Standard Accessories and Inclusions:	
	3-stage pretreatment filters, good for 1 year	
	<b>3 storage containers, at least 5 gal</b>	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	Delivery Sites:	
	-Bohol (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

\_\_\_\_\_  
**Name and Signature of Authorized Representative**

\_\_\_\_\_  
**Company Name**

\_\_\_\_\_  
**Date Signed**

## Section VII. Technical Specifications

### LOT 2 - SOIL GRINDING EQUIPMENT

Item #	Item Description	Statement of Compliance
	<b>LOT 2 - SOIL GRINDING EQUIPMENT</b>	
1	<b>Cross Beater Mill</b>	
	Specifications:	
	Working principle: impact	
	Grinding tools: cross beater	
	Materials of the grinding tools: hardened steel	
	Max. feed size (depending on the material): 25 mm	
	Min. sample quantity: 40 - 50 ml	
	Max. throughput: at least 80 l/h	
	Final fineness (sieve inserts): 0.12 - 10 mm	
	Feeding: batchwise/continuous	
	Rotor speed: 2,000 - 4,000 rpm	
	Electrical Details: 200-240 V/1~, 50/60 Hz, 1500 Watt	
	Standard Accessories and Inclusions:	
	Bottom sieves made of stainless steel 316L:	
	3 sets - 0.5 mm trapezoidal perforation	
	5 sets - 2 mm trapezoidal perforation	
	1 set - universal support stand	
	5 units - pipettor, 100-1000 µl	
	1 set - Small volume cyclone separator made of plastic, incl. sample glass 500 ml	
	1 set - cyclone system adaptor	
	1 unit - vacuum instrument	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan and Bohol)</b>	
	Delivery Sites:	
	-BSWM (1)	
	-RSLs (14)	
	-Bulacan (1)	
	-Bohol (1)	
2	<b>Jaw Crusher</b>	
	Specifications:	
	Working principle: pressure	
	Grinding tools: fixed and movable crushing jaws	
	Materials of the grinding tools: zirconium oxide	
	Max. feed size (depending on material): 95 mm	
	Min. sample quantity: 20 ml	
	Max. continuous throughput (depends on material and gap width): 250 kg/h	
	Final fineness: 0.3 - 15 mm	
	Feeding: batchwise/continuous	
	Eccentric oscillations: up to 308 movements/min	
	Voltage: 200 V/3~, 50/60 Hz, 3490 W	
	Standard Accessories and Inclusions:	
	1 set - fixed crushing jaw, zirconium oxide	
	1 set - movable crushing jaw, zirconium oxide	

	1 set - pair made of zirconium oxide	
	1 set - silent type vacuum cleaner with complete tubings for easy clean up of the unit	
	1 set - Exhaust system, dust category "M" according to DIN EN 60335-2-69 for 230 V/1~, 50/60 Hz, 1000 Watt	
	10 pcs - fleece filter bag for exhaust system (pack = 5 pieces)	
	5 pcs - plastic bag for exhaust system (pack = 5 pieces)	
	1 set - Compatible AVR and UPS	
	Training for two (2) end-users at manufacturer's site, inclusive of all expenses	
	<b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan)</b>	
	Delivery Sites:	
	-BSWM (1)	
	-Bulacan (1)	
3	<b>Rotary Cone Sample Divider</b>	
	Specifications:	
	Division ratio: 1:8, 1:10, 1:30	
	Number of possible sub-samples: 8, 10 or 3	
	Division: wet/dry	
	Materials: POM Plastic, aluminium or PTFE-coated aluminium	
	Capacity of sample bottles: 30, 250, 500 ml	
	Max. feed particle size: 10 mm, 2.5 mm	
	Max. sample quantity: 4,000, 2,500, 300 ml	
	Maintenance-free drive motor with slipping clutch: rotational speed 100 rpm	
	Electrical details: 230 V/1~, 50-60 Hz, 90 Watt	
	Standard Accessories and Inclusions:	
	Division ratio 1:8 1 set - POM plastic, incl. 8 sample bottles 500 ml with screw lid and funnel 10 mm dia.	
	Division ratio 1:10 1 set - POM plastic, incl. 10 sample bottles 250 ml with screw lid and funnel 10 mm dia.	
	Division ratio 1:30 1 set - POM plastic, incl. 30 sample bottles 15 ml with screw lid and funnel 10 mm dia. as well as 1 funnel each of 5 mm dia. for dry- resp. wet division	
	32 pcs - sample bottle 250 ml (division ratio 1:8 and 1:10)	
	1 each - funnel (5 mm, 10 mm, 22 mm) dia	
	1 set - protective device, polyacryl	
	accessories for automatic feeding instrument incl. V-shaped channel, funnel and control unit for 200-240 V/1~, 50-60 Hz, 25 Watt	
	1 pc - stand for feeder	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	

	-BSWM (1)	
4	<b>Sieve Shaker</b>	
	Specifications:	
	Method of analysis: sieving	
	Sieving action: two-dimensional	
	Dry sieving	
	Measuring range: 20 µm - 63 mm	
	Max. sample quantity approx.: for sieves < 63 mm: up to 2 kg	
	Sieving time approx.: 3 - 20 min	
	Wet sieving	
	Measuring range: 20 µm - 10 mm	
	Max. sample quantity approx.: 20 - 100 g	
	Sieving time approx.: 30 - 60 min	
	Micro precision sieving	
	Measuring range: 5 µm - 100 µm	
	Max. sample quantity at least: 0.05 - 0.5 g	
	Sieving time approx. at least.: 30 - 60 min	
	Further details	
	Sieve diameters: 100 mm, 200 mm or 8"	
	Max. number of sieves per sieve stack: 10 (50 mm height), 16 (25 mm height)	
	Max. weight of sieve stack: at least 3 kg	
	Max. height of sieve stack: at least 550 mm	
	Amplitude: 0.1 - 3 mm	
	Amplitude control: automatic	
	Interface: yes	
	Intermittent mode: yes	
	Memory for 10 parameter combinations: yes	
	Electrical details: 100-240 V/1~ 50-60 Hz, 50-60 Hz, 50 Watt	
	Standard Accessories and Inclusions:	
	1 set - clamping lid plexiglas for test sieves 200 mm/8" dia.	
	1 set - sieve pan made of stainless steel at least 200 mm dia., 50 mm height	
	1 unit - riffle splitter per delivery site, 2 L capacity - Bulacan, Bukidnon 16 L capacity - BSWM	
	Frame and mesh wire made of stainless steel with compliance certificate (at least): 1 pc 100 mm/200 mm/8" dia. 1 pc 200 mm dia., 50 mm height ISO 3310-1 - mesh width mm/µm: 3 pcs 10 = 2 mm 3 pcs 35 = 500 µm	
	<b>Compatible AVR and UPS</b>	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan and Bukidnon)</b>	
	Delivery Sites:	
	-BSWM (1) -Bulacan (1) -Bukidnon (1)	

	<b>Compliance to Section VI. Schedule of Requirements</b>	
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# Section VII. Technical Specifications

## **LOT 3 - COMPRESSOR FOR CENTRALIZED GAS PIPING SYSTEM**

Item #	Item Description	Statement of Compliance
1	<b>LOT 3 - COMPRESSOR FOR CENTRALIZED GAS PIPING SYSTEM</b>	
	<b>Specifications:</b>	
	10HP Industrial Scroll Air Compressor (2 Units)	
	10HP, 8BAR	
	Air-discharge Capacity(m3/min) : 1.1	
	Air-discharge Pressure(Mpa) : 0.8	
	Air-supply Temp. (Deg. C) : environmental temperature +50	
	Noise dB(A) : (57~62)positive/negative 3	
	Oil content in Air(ppm) : maximum 3, slight oil	
	rotate Speed (r/min) : 3000	
	Power(KW/HP) :7.5/10	
	Start Mode : Direct Connection, Direct Startup	
	Voltage/Hz : 220V/60Hz	
	Vertical Air Receiver Tank (1 unit)	
	Capacity - 0.5 m3	
	Size - at least 600mm x 2066mm shell length	
	Material - at least 5mm High Tensile Steel ASTM standard	
	Max. Allowable Working Pressure - 10 bar	
	Hydrotest Pressure - 13 bar	
	Provisions: - Pressure Vessel Test Certificate - Identification Plate - H.D. - B.I. Steel couplings for instrumentation and drain, Flange for inlet and outlet - Accessories include pressure gauge, safety valve, and manual drain valve	
	Surface preparation / painting: - Multi layer spray coated with high quality paint after thorough cleaning, grinding, chemical dip process surface preparation & rust removal (both internal & external)	
	Hyperfilter (2 Units)	
	1 micron, 1.8 m3/min volume flow.	
	Refrigerated Air Dryer 220v/1pH/60hZ	
	Air Flow : 1.5 m3/min	
	Refrigerant : R134a	
	Material : 316L Stainless steel heat exchanger	
	Air Connection : Rc 1/2"	
	Electrical Supply : 220V/1Ph/60Hz	
	Electrical Control Panel (1 unit)	
	<b>Inclusion:</b> <b>Complete wiring works, piping works from existing gas line to compressor room, supplies, and materials</b>	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Free PMS on warranty period	

	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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# Section VII. Technical Specifications

## LOT 4 -WATER DEIONIZER (INTEGRATED TYPE I AND TYPE II WATER), LARGE CAPACITY WITH DISPENSER

Item #	Item Description	Statement of Compliance
1	<b>LOT 4 -WATER DEIONIZER (INTEGRATED TYPE I AND TYPE II WATER), LARGE CAPACITY WITH DISPENSER</b>	
	Water Deionizer (Type I and Type II water), large capacity with dispenser – <b>1 unit system</b>	
	Specifications:	
	<b>Tank capacity: 85-100L</b>	
	Resistivity: Type 1: 18.2MΩ·cm at 25°C Type 2: 10 to 15MΩ·cm at 25°C	
	Conductivity: Type 1: 0.055μS/cm Type 2: 0.1 to 1.0μS/cm	
	<b>Feedwater Source: Softened or hardness stabilized Tapwater</b>	
	Flow Rate: 1.5L/min	
	Total Organic Carbon: 1 to 5ppb	
	Bacterial Content: <0.1 CFU/mL	
	Particles >0.2μM/mL: <1	
	Feed Water Monitoring: Yes	
	Feedwater Connector: 3/4 in. NPT	
	Feedwater Pressure: 1-6 Bar	
	Size: at least 1500mm x 450mm x 580mm	
	Operating Pressure: 2 to 6 bar	
	Permeate performance: 30L/hr. at 15°C	
	Power Consumption: 0.25kW	
	Electrical Requirements: 90 to 240V 50/60Hz	
	Standard Accessories:	
	<b>1 set - Water Softener System</b> Includes Softener Salt 25kg, Hardness detection kit, 5 micron filter with carbon cartridge and 10" 1 um prefilter	
	1 unit - Hand Dispenser	
	1 pc - Sterile Overflow for reservoir	
	1 pc - Co2 Adsorber+sterile filter,0.2um	
	1 pc - Softener salt 25 kg	
	12 pcs - 5 Micron Filter	
	6 pcs - 10 " 1 um Prefilter	
	2 pcs - carbon cartridge	
	1 pc - Cleaning solution	
	1 pc - Hardness Detection Kit	
	Inclusions:	
	Installation materials include: stainless steel tube pipings , fittings, valves, Electrical wirings, etc. System to cover 2 rooms in one floor.	
	Trainings on the operation of unit to be done by service engineer.	
	at least 1 yr warranty on parts and service	

	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan, Bukidnon, Bohol)</b>	
	Delivery Sites:	
	-BSWM (1) -RSL (11) -Bukidnon (1) -Bulacan (1) -Bohol (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 5 -ULTRAFILTRATION SYSTEM

Item #	Item Description	Statement of Compliance
1	<b>ULTRAFILTRATION SYSTEM</b>	
	Specifications:	
	Orientation: Horizontal	
	Maximum Operating Pressure: 100 psig (690 kPa)	
	Maximum Operating Temperature: 104°F (40°C)	
	Nominal Pore Size: .015 microns	
	pH Range: 6.5 to 8.5	
	Max Flow Rate: 15 gallons (57 liters) per minute	
	(1) carbon cartridge and (1) template-assisted crystallization (TAC) cartridge	
	.015 micron ultra filtration	
	Lime scale reduction	
	Self-cleaning particle reduction	
	104°F maximum operating temperature	
	Separate mechanical filtration for taste and odor reduction	
	Stainless steel ultrafilter housing	
	3/4" FNPT (drain) and 3/4" MNPT plumbing connection (inlet/outlet)	
	Size: at least 50" W x 9" D x 39" H	
	Weight: at least 38 kg	
	100-240v/50/60/1-ph	
	Amperage: .08 amps	
	Wattage: 10 watts	
	NSF for 13 gpm/ 49.2 lpm	
	Inclusions:	
	Cord	
	Plug adapter	
	consumables good for 2 years	
	Training for end user	
	includes installation, service with 1-year warranty on parts	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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# Section VII. Technical Specifications

## LOT 6 - SOIL DRYING AND GLASSWARE CLEANING EQUIPMENT

Item #	Item Description	Quantity	Unit
	<b>LOT 6 - SOIL DRYING AND GLASSWARE CLEANING EQUIPMENT</b>		
1	<b>Soil Drying Cabinet</b>	3	LOT
	Specifications:		
	<b>Customized</b>		
	marine plywood 3/4 inch with hardiflex 1/4 inch substrate body		
	stainless steel type 304 tubular 12mm shelves		
	coil type heater 3000 watts		
	blade type fan blower		
	thermostat controller (30A)		
	Dimensions: (main unit): approx 660 cm x 60 cm x 193 cm (split unit): 279 cm x 60 cm x 193 cm		
	with Calibration Certificate		
	with (3) Thermohygrometer with probe		
	Training for End user		
	at least 1 yr warranty on parts and service		
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bulacan, Bukidnon)</b>		
	Delivery Sites:		
	-BSWM (1) -Bulacan (1) -Bukidnon (1)		
2	<b>Ultrasonic Washer</b>	4	UNIT
	Specifications:		
	<b>Digital Timer and heater control</b>		
	Dual frequency of 28 and 40 kHz for different cleaning items.		
	<b>Temperature: max 90°C</b>		
	Adjustable power from 0 to 100%.		
	Built-in generator for saving space and looking better.		
	Tank is designed with basket holder and overflow protection.		
	Fabricated from heavy gauge stainless steel, acid,alkali and corrosion resistant.		
	Digital display showing real time data is intuitive and controllable.		
	Adopting water level pipe and auto heating control system for prolong service life and ensure safety.		
	Caster with brake, safer and more convenient.		
	Capacity: at least 288 L		
	Ultrasonic Frequency (kHz): 28 and 40		
	Ultrasonic Power (W): 0 to 3000		
	<b>Heating Power (W): up to 7500</b>		
	<b>Temp. (Celcius): max 90°C</b>		
	<b>Compatible AVR</b>		
	Training for End user		



	at least 1 yr warranty on parts and service		
	Delivery Sites:		
	-BSWM (4)		
	<b>Compliance to Section VI. Schedule of Requirements</b>		

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## Section VII. Technical Specifications

### LOT 7 - ACID DIGESTION EQUIPMENT

Item #	Item Description	Statement of Compliance
	<b>2021-07-1308: LOT 7 - ACID DIGESTION EQUIPMENT</b>	
1	<b>Fume Hood (Regular), with monitoring system</b>	
	Specifications:	
	Type: Acid digestion	
	By-pass airflow design	
	Built-in belt-driven, corrosion-resistant exhaust blower with adjustable sheave, molded thermoplastic housing and non-sparking, coated aluminium impeller	
	aerodynamic airflow openings	
	powder-coated steel exterior	
	One-piece molded fiberglass liner and pre-set baffle	
	Tempered safety glass vertical-rising sash with powder-coated aluminium sash handle	
	high sightline from the work surface and header panel	
	Removable front and side panels, and front service access panels for access to plumbing and electrical wiring	
	Molded fiberglass exhaust connections	
	Conforms with the following standards and regulations: <ul style="list-style-type: none"> <li>• CFR 29, Part 1910</li> <li>• SEFA 1-2010</li> <li>• NFPA 45-2011</li> <li>• ASTM E84-09C</li> <li>• ASHRAE 110-1995</li> <li>• ANSI Z9.5-2011</li> <li>• UL 61010-1</li> <li>• CAN/CSA C22.2 No. 61010.1</li> <li>• UL 1805</li> <li>• CE Conformity Marking (230 volt models)</li> <li>• SEFA 8-2010 , Cabinet Surface Finish Tests</li> </ul>	
	Pre-wired fluorescent lighting with vapor-proof design, and ADA-compliant light and blower switches	
	Two pre-plumbed service fixtures with forged brass valves	
	Includes:	
	Spill Stopper Work Surface	
	Gooseneck Water Fixture Kit	
	P-Trap	
	Cupsink	
	Electrical Receptacle	
	2 x Acid Storage Cabinet	
	2 x Vent Kit	
	Digital Airflow Monitor	
	Ducting materials and ductworks	
	dismantling of old unit, mobilization, installation and restoration works	
	free PMS within warranty period (2 years)	
	with Validation Report	

	Training for end user	
	Delivery Sites:	
	-BSWM (1)	
2	<b>Perchloric Fume hood, with monitoring system</b>	
	Specifications:	
	Type: perchloric	
	by-pass airflow design and by-pass block	
	powder-coated steel exterior	
	aerodynamic airflow opening	
	Heat-welded Type 1 unplasticized PVC liner with integral work surface, drainage trough and pre-set baffle	
	Powder-coated aluminum sash handle	
	Removable front and side panels, and front access panels for access to plumbing and electrical wiring	
	vapor-proof design and ADA-compliant light and blower switches	
	Built-in washdown system with internal piping and spray nozzles	
	enamel-coated hardboard supporting surface	
	PVC exhaust connections	
	Conformance with the following standards and regulations: <ul style="list-style-type: none"> <li>• CFR 29, Part 1910</li> <li>• SEFA 1</li> <li>• NFPA 45</li> <li>• ASTM E84-09C</li> <li>• ASHRAE 110</li> <li>• ANSI Z9.5</li> <li>• UL 61010-1</li> <li>• CAN/CSA C22.2 No. 61010.1</li> <li>• UL 1805</li> <li>• CE Conformity Marking</li> <li>• SEFA 8</li> </ul>	
	thick tempered safety glass vertical-rising sash with cable and pulley	
	pre-wired GFCI electrical duplex receptacle	
	pre-plumbed service fixtures with forged brass valves	
	Includes:	
	PVC Blower	
	2 x Acid Base Cabinet	
	ducting works and materials (thermoplastic duct, duct coupling, Elbows, thermoplastic duct reducer, zero pressure weathercap, etc)	
	digital airflow monitor	
	dismantling of old unit, mobilization, installation and restoration works	
	free PMS within warranty period (2 years)	
	with Validation Report	
	Also includes:	
	2 units - Ductless filtering chemical storage cabinet	
	Specifications:	
	Storage capacity: 100 - 120 bottles of 1L	
	Air Flow: 70 m3/h	

	Safety Standards: Filtration performances tested according to the AFNOR NF X 15-211:2009 standard : France EN 1822 : 1998 (HEPA H14 & ULPA U17 Filters) - CE Marking	
	Power consumption: 45W	
	Voltage/Frequency: 80 - 220 V / 50-60 Hz	
	Structure: Corrosion resistant electro-galvanized steel coated with anti-acid polymere	
	Doors: Clear, chemical resistant acrylic for easy viewing	
	Filtration Module: Polypropylene	
	Configurable storage options: 2 storage compartments : spill-proof shelves, large volume drawers pull-out vertical shelves	
	Smart Technology: Simple communication by LED pulsation system: fan settings, usage timer, fan failure, face velocity, automatic filter saturation detection	
	Flex Technology: 1 column that can be configured for liquids, powders, or both storages	
	Carbon filtration for gases and vapors: AS : For organic vapors - BE+ : For organic and acid vapors F : For formaldehyde vapors - K : For ammonia vapors	
	Particulate filtration for powders: HEPA H14 : 99,995 % filtration efficiency according MPPS method, EN1822 standard ULPA U17 : 99,999995 % filtration efficiency according MPPS method, EN1822 standard	
	Connectivity: RJ45 cable connection	
	Sensors: Detection sensors for solvents or acids or formaldehyde	
	Doors sensors: Alarm if doors are left open	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 8 - METROLOGY INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 8 - METROLOGY INSTRUMENTS</b>	
1	<b>6-in-1 Metrology Well with fixed-point cell and accessories</b>	
	1 unit - 6-in-1 Metrology Well (+45°C to +250°C)	
	Specifications:	
	6 Calibration Functions in 1	
	Accuracy: $\pm 0.15^{\circ}\text{C}$ (display to block)	
	Liquid bath, infrared, dry block, & ITS-90 fixed points all in one	
	35mm calibration volume	
	Fast heating and cooling times	
	Temp Range: +45°C to +250°C	
	Stability	
	Dry Block Bath: $\pm 0.03^{\circ}\text{C}$	
	Stirred Liquid Bath: $\pm 0.025^{\circ}\text{C}$	
	Ice/Water Bath: $\pm 0.001^{\circ}\text{C}$	
	Blackbody Source: $\pm 0.3^{\circ}\text{C}$	
	Surface Sensor Calibrator: $\pm 0.5^{\circ}\text{C}$	
	ITS-90 Fixed Point Apparatus: $\pm 0.0005^{\circ}\text{C}$	
	Standard Metal Insert: 1/8"; 3/16"; 1/4"; 3/8"; and 1/2" diameter holes, all 6.8" deep	
	Computer Interface: Included with Windows Software	
	with complete standard accessories, with ISO Calibration	
	1 unit - 6-in-1 Metrology Well (-45°C to +140°C)	
	Specifications:	
	6 Calibration Functions in 1	
	Accuracy: $\pm 0.15^{\circ}\text{C}$ (display to block)	
	Liquid bath, infrared, dry block, & ITS-90 fixed points all in one	
	35mm calibration volume	
	Fast heating and cooling times	
	Temp Range: -45°C to +140°C	
	Stability	
	Dry Block Bath: $\pm 0.03^{\circ}\text{C}$	
	Stirred Liquid Bath: $\pm 0.025^{\circ}\text{C}$	
	Ice/Water Bath: $\pm 0.001^{\circ}\text{C}$	
	Blackbody Source: $\pm 0.3^{\circ}\text{C}$	
	Surface Sensor Calibrator: $\pm 0.5^{\circ}\text{C}$	
	ITS-90 Fixed Point Apparatus: $\pm 0.0005^{\circ}\text{C}$	
	Standard Metal Insert: 1/8"; 3/16"; 1/4"; 3/8"; and 1/2" diameter holes, all 6.8" deep	
	Computer Interface: Included with Windows Software	
	with complete standard accessories, with ISO Calibration	
	1 unit - Water Triple Point Cell, Container and 3 Caps	
	Uncertainty: 0.000070°C	
	Reproducibility: $\pm 0.00002^{\circ}\text{C}$	
	Stability: $\pm 0.00001^{\circ}\text{C}$	
	with complete standard accessories, with ISO Calibration	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
2	<b>Air Quality Meter (1 lot)</b>	

	Specifications:	
	a.) Video Particle Counter with built-in Camera (2 pcs)	
	Particle Size Channels: 0.3, 0.5, 1.0, 2.5, 5.0, 10µm	
	Flow Rate: 0.1ft <sup>3</sup> (2.83L/min) controlled by internal pump	
	Count Modes: Cumulative, Differential, Concentration	
	Counting Efficiency: 50% @ 0.3µm; 100% for particles>0.45	
	Coincidence Loss: 5% @ 2,000,000 particles per ft <sup>3</sup>	
	Air Temperature: -14 to 140°F (-25 to 60°C); Accuracy:±2°F/1°C	
	Relative Humidity: 0 to 100%RH; Accuracy:±3%RH (40% to 60%RH)	
	Dew Point/ Wet Bulb: 32 to 122°F (0 to 50°C)	
	b.) CO/CO <sub>2</sub> Meter (2 pcs)	
	Range:	
	Carbon Monoxide (CO): 0 to 1,000ppm	
	Carbon Dioxide (CO <sub>2</sub> ): 0 to 9,999ppm	
	Resolution: 1 ppm, 0.1°	
	Temperature: -5 to 140°F (-20 to 60°C)	
	Humidity: 0.1 to 99.9%RH	
	Wet Bulb: 23 to 140°F (-5 to 59.9°C)	
	Dew Point: -4 to 140°F (-20 to 59.9°C)	
	c.) VOC/Formaldehyde Meter (2 pcs)	
	Range:	
	TVOC: 0.00 to 9.99ppm (mg/m <sup>3</sup> )	
	Formaldehyde: (CH <sub>2</sub> O or HCHO): 0.00 to 5.00ppm (mg/m <sup>3</sup> )	
	Resolution: 0.01ppm (mg/m <sup>3</sup> )	
	Response Time: <2s	
	Power Supply: Rechargeable battery and AC adaptor	
	Charge Time: approx. 3 hours	
	2 units - Laptop capable of Remote Data Management	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
3	<b>Anemometer, with probe</b>	
	Specifications:	
	Real time data logger, save the data into the SD memory card and can be downloaded to the Excel	
	Air velocity : 0.2 to 25.0 m/s, high precision for low air velocity measurement.	
	Air flow : CMM, CFM.	
	m/s, ft/min, km/h, knots, mile/h, oC/oF.	
	Humidity : 5 to 95 %RH.	
	Dew point, Wet bulb.	
	Type K Thermometer : -100 to 1300 oC, oC/oF.	
	Type J Thermometer : -100 to 1200 oC, oC/oF.	
	Data hold, Record ( Max., Min. ).	
	Complete set with two probes : Hot wire anemometer probe and Humidity/Temp. probe.	
	RS232/USB computer interface.	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
4	<b>Benchtop EC Meter, Calibration Lab Grade</b>	
	Specifications:	
	Measuring range	

	Conductivity: 0.001 $\mu\text{S}/\text{cm}$ - 1000 $\text{mS}/\text{cm}$	
	Temperature: -30.0 - 130.0 $^{\circ}\text{C}$	
	Resolution	
	Conductivity: 0.001 - 1	
	Temperature: 0.1 $^{\circ}\text{C}$	
	Accuracy	
	Conductivity: $\pm 0.5\%$	
	Temperature: $\pm 0.1^{\circ}\text{C}$	
	Calibration: 13 pre-defined or 1 user-defined standard	
	Cell constant: Determined via calibration or entered manually	
	Temperature: Linear, non-linear, off, pure- water – compensation: reference temperature 20 $^{\circ}\text{C}$ or 25 $^{\circ}\text{C}$	
	System: Date / time, PIN-protection, 10 languages	
	Data storage: 1000 measurements	
	Data export: USB-stick, LabX direct PC software	
	Measurement limits: User-definable with warning message	
	ID entry: User ID, Sample ID, Sensor ID, Sensor Serial Number	
	with NIST Traceable EC buffers	
	with ISO Calibration	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
5	<b>Benchtop pH Meter, Calibration Lab Grade</b>	
	Specifications:	
	Measuring range:	
	pH: -2.000-20.000	
	mV* -2000.0-2000.0	
	Ion concentration** 1.00E-9-9.99E+9	
	Temperature***: -30.0-130.0 $^{\circ}\text{C}$	
	Resolution	
	pH: 0.001 / 0.01 / 0.1	
	mV: 0.1 / 1	
	Ion concentration: $\pm$ last significant digit	
	Temperature: 0.1 $^{\circ}\text{C}$	
	Accuracy	
	pH: $\pm 0.002$	
	mV: $\pm 0.2$	
	Ion concentration: $\pm 0.5\%$	
	Temperature: $\pm 0.1^{\circ}\text{C}$	
	Calibration: Max. 5 points, 8 pre-defined and 1 user-defined buffer group	
	System: Date / time, PIN-protection, 10 languages	
	Data storage: 1000 measurements	
	Data export: USB stick, PC software	
	with NIST Traceable pH buffers	
	with ISO Calibration	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
6	<b>Contact and Non-contact Tachometer</b>	
	Specifications:	
	Laser Photo & contact tachometer in one meter	
	Fast sampling time for low contact RPM measurement, automatic reverse display.	
	Photo Tach. : 10 to 99,999 RPM	

	Contact Tach. : 0.5 to 19,999 RPM.	
	Surface speed : m/min, ft/min.	
	with complete standard accessories	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
7	<b>Distance Meter</b>	
	Specifications:	
	Measurement Range: 2" to 330ft (0.05 to 100m)	
	Accuracy: $\pm 0.08"$ ( $\pm 2\text{mm}$ )	
	Resolution: 0.0", 0.00ft, 0.000m	
	Area calculation: 99,999ft <sup>2</sup> , 99,999m <sup>2</sup>	
	Volume calculation: 99,999 ft <sup>3</sup> , 99,999 m <sup>3</sup>	
	with calibration certificate	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
8	<b>Documenting Process Calibrator</b>	
	Specifications:	
	Full-featured documenting process calibrator with HART communication for calibrating and troubleshooting HART instrumentation.	
	Measures: Voltage, current, resistance, frequency, temperature, pressure	
	Sources/simulates volts, mA, thermocouples, RTDs, frequency, ohms, and pressure to calibrate transmitters	
	Reading Rate: 1, 2, 5, 10, 20, 30, or 60 readings/minute	
	Operating Temperature: -10°C to +50°C	
	Storage Temperature: -20°C to +60°C	
	Batteries: Internal Battery Pack Li-ion: 7.2V, 4400mAh, 30 Wh	
	Battery Life: >8 hours typical	
	Dust/Water Resistance: Meets IP52, IEC 529	
	Port Connections: Pressure module connector, USB Connector to interface to your PC, HART	
	Includes:	
	battery charger	
	Li-on battery pack	
	Software	
	Instruction manual	
	NIST-traceable calibration report and data	
	Three sets of TP220 test probes with three sets of "extended tooth" alligator clips	
	Two sets hook clips	
	Soft Field Case	
	USB communication cable, HART communications cable	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
9	<b>Instruments for Dimensional Metrology</b>	
	1 unit - Digimatic Micrometer	
	Specifications:	
	Range: 0-1in 0-25.4mm	
	Accuracy: $\pm 0.0001\text{in}$ $2\mu\text{m}$	
	Resolution: 0.001mm or .00005"/0.001mm	
	Flatness: 0.3 $\mu\text{m}$ / .000012"	



	Parallelism: 2µm / .00008"	
	Measuring faces: Carbide tipped	
	Display: LCD	
	Battery: SR44 (1 pc.)	
	with ISO Calibration Certificate	
	1 unit - Coolant Proof Caliper	
	Specifications:	
	Range: 0-6in 0-150mm	
	LCD Res: .0005in 0.01mm	
	Accuracy: ±.001in	
	Resolution: 0.01mm or .0005"/0.01mm	
	Repeatability: 0.01mm / .0005"	
	Display: LCD	
	Length standard: ABSOLUTE electromagnetic induction	
	linear encoder	
	Max. response speed: Unlimited	
	Battery: SR44 (1 pc./2 pcs*)	
	with ISO Calibration Certificate	
	1 unit - Vernier Caliper	
	Specifications:	
	Measures OD (outside diameter), ID (inside diameter), depth, and steps.	
	Dual reading scales on vernier. (metric/inch	
	Lock screw for holding the sliding jaw position.	
	Supplied with vinyl holster in fitted carton	
	Graduation: 0.05mm, 0.05mm (1/128") or .001" (1/128")	
	High accuracy type: 0.02mm or 0.02mm (.001")	
	with ISO Calibration Certificate	
	1 unit - Metric Rectangular Gage Block Set	
	Specifications:	
	Block Set	
	Number of blocks: 47	
	1 Block =1.005 9 Blocks =1.01-1.09 Step=0.01	
	9 Blocks =1.1-1.9 Step=0.1	
	24 Blocks =1-24 Step=1	
	4 Blocks =25-100 Step=25	
	Grade: AS-2	
	Material: Steel	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
10	<b>IR and Contact Thermometer</b>	
	Specifications:	
	Dual laser targeting + type K thermometer	
	1,000 °C infrared Temp. measurement.	
	1400 °C type K thermometer.	
	Dual laser for better targeting.	
	Large LCD display with back light.	
	D/S ratio value : 50/1.	
	Min., Max., Differential, Average, Lock mode.	
	Last measurement memory.	
	Hi/Lo Temperature Audio Alarm.	
	Adjustable emissivity value from 0.1 to 1.00.	
	Power supply : DC 1.5V battery (UM 4/AAA) x 2 PCs .	
	with complete standard accessories	

	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
11	<b>Multi-Channel Digital Thermometer</b>	
	Specifications:	
	3 units - Multi-Channel Digital Thermometer	
	Channels no. : 12 channels (CH1 to CH12) temperature measurement	
	Sensor type : Type J/K/T/E/R/S thermocouple.	
	Auto recorder or manual recorder.	
	Recorder sampling time range : 1 to 3600 seconds.	
	Type K thermometer : -100 to 1300 C	
	Show CH1 to CH8 or CH9 to CH12 in the same LCD.	
	Display resolution : 1 degree/0.1 degree.	
	Time information : Year, Month, Date, Hour, Minute and Second.	
	Memory card size : 1 GB to 16 GB.	
	<b>Output file: xls file</b>	
	<b>Length of wire: at least 1.5 m</b>	
	Supper large LCD with backlight, easy reading.	
	Data hold, Record (Max., Min.).	
	RS232/USB computer interface.	
	Optional type K temperature probe : TP-01,TP-02A,TP-03,TP-04.	
	DC 1.5V (UM-3, AA) x 8 PCs or DC 9V adapter in.	
	with 12 temperature probes each unit	
	with ISO calibration certificate	
	Training for Three (3) End users on the following:	
	Module 1: dimensional and industrial calibration	
	Module 2: Electrical calibration	
	Module 3: uncertainty of measurements	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
12	<b>Multi-Tool Set</b>	
	Specifications:	
	7 Drawer Tool Cabinet	
	Storage Type: Trolley	
	240 piece tool kit fitted in EVA modules for excellent protection and tool storage organisation	
	made from premium quality steel and features a scratch proof electrostatic powder coated finish	
	Each Drawer can accommodate up to 3 EVA Tool Modules and can be fully extended to offer greater access	
	Each drawers feature the Smart-Lock system	
	heavy-duty wheels are made from oil resistant rubber, with two fixed and two swivel	
	Recessed worktop with a high-quality mat to ensure a convenient working area	
	Holders for spray cans and paper rolls	
	Low friction telescopic ball bearing slides ensuring smooth operation	
	Fitted with an emergency brake	
	Contents:	
	2pc Pliers Set (in EVA)	
	15pc T-Handle & Ballpoint L Hex Key Set	
	10pc Precision Plier and Screwdriver Set	

	16 Piece Combination Wrench Set	
	12pc Ratcheting Combination Wrench Set	
	4pc Circlip Pliers Set	
	3pc VDE Insulated Pliers Set	
	52pc 1/4" Drive Socket and Hex Key Set	
	7pc Insulated Slotted/PH Screwdriver Set	
	6pc Measuring and Cutting Tool Set	
	39pc Slotted/PZ Screwdriver and Bit Set	
	23pc 1/2" Drive Socket Set with Ratchet	
	11pc Standard and Needle File Set	
	29pc 1/2" TORX/Hex/XZN Socket Bits Set	
	5 Division EVA Module	
	2pc Crimper and Stripper Set	
	5 Piece Hand Riverter Set	
	3pc Softgrip Pliers Set	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
13	<b>OIML Class E1 Test Weights 1 mg to 200 g (set)</b>	
	Specifications:	
	Weight Set Range: 200 g-1 mg	
	Set Contents: 200 g, 100 g, 50 g, (2) 20 g, 10 g, 5 g, (2) 2 g, 1 g, 500 mg, (2) 200 mg, 100 mg, 50 mg, (2) 20 mg, 10 mg, 5 mg, (2) 2 mg, 1 mg	
	Number of Pieces: 22	
	Case: Provided with a high quality polycarbonate case with a compartment for each weight as well as compartments for a brush, forceps and USB flash drive.	
	with Calibration Certificate from ISO 17025 Accredited Calibration Laboratory	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
14	<b>OIML Class E2 Test Weights 1mg to 1kg (set)</b>	
	Specifications:	
	Weight Set Range: 1 kg-1 mg	
	Set Contents: 1 kg, 500 g, (2) 200 g, 100 g, 50 g, (2) 20 g, 10 g, 5 g, (2) 2 g, 1 g, 500 mg, (2) 200 mg, 100 mg, 50 mg, (2) 20 mg, 10 mg, 5 mg, (2) 2 mg, 1 mg	
	Number of Pieces: 25	
	Case: Provided with heavy-duty, lightweight and shatter resistant resin case. Polycarbonate case for weights 500 g and below.	
	Provided with forceps.	
	with Calibration Certificate from ISO 17025 Accredited Calibration Laboratory	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
15	<b>Precision Thermohygrometer (Reference Standard)</b>	
	Specifications:	
	Operating Range: 32 to 122°F (0 to 50°C); 0% to 100% RH	
	Temperature Accuracy: ±0.125°C from 16 to 24°C	
	RH Accuracy: ±1.5% RH from 20 to 70% RH	
	Resolution: User selectable up to 0.01% on front-panel display (0.1% recorded)	
	with ISO calibration	
	Training for End user	

	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
16	<b>Precision Thermometer, benchtop and handheld</b>	
	1 unit - Precision Thermometer, benchtop	
	Specifications:	
	Accuracy: $\pm 0.001^{\circ}\text{C}$ (1mK)	
	Inputs: 2 channel Pt100 (BS EN 60751 / IEC 751) or 25.5/ 100 $\Omega$ SPRT to ITS-90	
	Measuring Current: 041mA	
	Self Heating Test Current: 0.29mA (0.41mA / $\sqrt{2}$ )	
	Measuring Time: 1.44 seconds for both channels	
	Measuring Range: -250 to 960 $^{\circ}\text{C}$ (0 to 440 Ohm)	
	Temperature Resolution: 0.0001 $^{\circ}\text{C}$ , 0.1mK	
	Resistance Resolution: 0.00004 $\Omega$ , 40 $\mu\Omega$	
	Temperature Uncertainty: 0.001 $^{\circ}\text{C}$ , 1mK 100 Ohm PRT	
	Resistance Uncertainty: 0.4m $\Omega$ @ 20 $^{\circ}\text{C}$	
	Interface: Rs232, Ethernet, built-in web server provides simple temperature display	
	with ISO Calibration Certificate	
	1 unit - Precision Thermometer, handheld	
	Specifications:	
	Temperature Range: -200 $^{\circ}\text{C}$ to 962 $^{\circ}\text{C}$	
	Accuracy $\pm 0.02^{\circ}\text{C}$	
	Resolution 0.001 $^{\circ}\text{C}$	
	Stability <0.005 $^{\circ}\text{C}$	
	Probe Types Pt100 and Pt25 resistance thermometers plus NTC thermistors.	
	Thermometer Input Connections: (2) 5 pin industrial DIN socket with screw lock to connecting plug, accepting both normal and SMART probes	
	Data Storage Capability 16,000 reading (combined total for both inputs)	
	Data Entry Format: ITS90, CVD and EN60751	
	Display Units: $^{\circ}\text{C}$ , $^{\circ}\text{F}$ , K or $\Omega$	
	Statistical Functions: Average, Min/Max, and Standard Deviation	
	Power: Ni-MH rechargeable battery	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
17	<b>Pressure Calibrator, bench type and handheld</b>	
	1 unit - Pressure Calibrator, bench type	
	Specifications:	
	Media: Air.	
	Generated Pressure Range: 95% vacuum to 2,000 psi (140 bar) positive pressure	
	Material: Ram/adapters:SS	
	Body: SS/aluminum	
	Seals: Buna-N	
	Connection: Hand-tight connectors for both test gauge and reference gauge.	
	Test Gauge Connection: 1/4NPT female, 1/2NPT female, 1/4BSP female, or M20X1.5 female	
	Reference Gauge Connection: 1/4NPT female, 1/2NPT female , 1/4BSP female, or M20X1.5 female	

	with ISO Calibration Certificate	
	1 unit - Pressure Calibrator, handheld	
	consists of digital pressure gauge and hand pump	
	Gauge or absolute ranges available	
	0.1% FS accuracy (0.05% FS optional)	
	Integrated data logger for up to 50 values per second	
	Adjustable over-pressure protection	
	Fine-adjustment valve	
	Ergonomic handling	
	temperature-compensated in the range of 14 to 122°F (-10 to 50°C)	
	with calibration software	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
18	<b>Standard Platinum Resistance Thermometer/SPRT (Reference Standard)</b>	
	Specifications:	
	Ro: 100Ω ± 0.05 Ω	
	Range: -200°C to 450°C	
	Alpha: 0.003850 ± 0.000005	
	Standard: IEC 60751	
	Stability: less than 0.010 Ω/year	
	Recommended Current: 1 mA	
	Self Heating at 1mA: 0.004°C	
	Calibration: ISO-17025 Accredited Calibration	
	Connection: Four Wire	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
19	<b>Temperature and Humidity Chamber</b>	
	Specifications:	
	Adaptive multifunctional digital PID-microprocessor controller with 2 high-definition TFT-colour displays	
	2 Pt100 sensors Class A in 4-wire-circuit, mutually monitoring and taking over the performance at the same temperature value	
	Humidity supply with distilled water from external tank by self-priming pump	
	Active humidifying and de-humidifying adjustable from 10 - 90 % rh with digital display of relative humidity - resolution of display 0.1 %, setting accuracy 0.5 %	
	Digital backwards counter with target time setting, adjustable from 1 minute to 99 days	
	Fully insulated stainless steel door with 2-point locking (compression door lock)	
	Inner glass door	
	Rear zinc-plated steel housing	
	Temperature range: 0°C to +70°C without light; +15°C to +40°C with light	
	German/English/Spanish/French language settings	
	Three freely selectable temperature values, 2-point calibration for humidity: 20 and 90 % rh	

	Alarm in case of over- or undertemperature, heating function is switched off in case of overtemperature, cooling function in case of undertemperature	
	Integral fault diagnostics for temperature and humidity control	
	with ISO Calibration Certificate	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
20	<b>Thermohygrometer (with barometer)</b>	
	Specifications:	
	Measures ambient temperature, relative humidity and atmospheric or barometric pressure	
	Displays measurement values in real time on the large LCD screen	
	Saves recorded data to the included SD card as an Excel-compatible .XLS file	
	Offers selection of pressure units: hPa, mmHg or inHg	
	Features a low battery indicator	
	Allows measurement quota to be freely adjusted	
	Easy to use with large keys and a user-friendly interface	
	Comes with a solid, protective carrying case	
	Manufacturer calibrated	
	with ISO calibration certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (3)	
21	<b>Water Quality Tester</b>	
	Specifications:	
	measures combinations of DO, conductivity, specific conductance, salinity, resistivity, TDS, pH, ORP, ammonium, nitrate, chloride and temperature	
	Auto Stable: User-defined auto-stable function holds stable readings on display when criteria is met	
	Barometer: Built-in barometer	
	Buffer Recognition: Auto buffer recognition for US and NIST buffers	
	Certifications: RoHS, CE, WEEE, C-Tick, VCCI, FCC, IP-67, 1-meter drop test, Assembled in USA	
	Connectivity: USB 2.0; ProComm II communications saddle and USB cable included; user-upgradeable software via USB and website	
	Connector: MS (military spec) waterproof with bayonet lock	
	Data Management: Data Manager desktop software included; 100 user-defined folders and site names	
	Data Memory: 5,000 data sets (data, date, time, user-defined info); 100 GLP files	
	Dimensions: at least 8.3cm width x 21.6cm length x 5.6cm depth (3.25" x 8.5" x 2.21")	
	Display: Graphic display with detailed Help; backlit display AND keypad	
	DO Membrane Response Times (T95; 100%-0) and Flow Dependence: 1.25 mil PE = 8 seconds in 6 in/sec flow; 2.0 mil PE = 17 seconds in 3 in/sec flow; 1 mil Teflon = 18 seconds in 12 in/sec flow	

	DO Sensors: Polarographic or galvanic field sensors; self-stirring polarographic BOD sensor for the lab	
	Field Cables: Standard lengths of 1, 4, 10, 20, or 30 meters - up to 100 meters on DO only cables; all 4-meter and longer cables include a cable management kit	
	Flow Cell: Single, dual and multiparameter Quatro cable all flow cell compatible	
	GLP Compliance: Yes; detailed GLP information is stored and is available to view, download or print	
	Lab Cables: BOD sensor includes 2-meter cable; 1 or 4 meters on lab pH, ORP and pH/ORP cables	
	Languages: English, Spanish, German, French, Italian, Norwegian, Portuguese, Japanese, Chinese (Simplified & Traditional)	
	Logging Modes: Single or Continuous	
	Operating Temperature: -10 to 60 C	
	Power: 2 alkaline C-cells provide 80 continuous hours at ambient temperature without backlight; ProComm II saddle provides USB power or optional wall power, cigarette lighter, and universal cell phone charger options	
	Storage Temperature: -20 to 70 C	
	with ISO Calibration	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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**Name and Signature of Authorized Representative**

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**Company Name**

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**Date Signed**

# Section VII. Technical Specifications

## LOT 9 - CALIBRATION WEIGHING

### INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 9 - CALIBRATION WEIGHING INSTRUMENTS</b>	
1	<b>Analytical Balance with Density Determination Kit, data logger set and accessories</b>	
	Specifications:	
	Capacity: 220 g	
	Readability: 0.1 mg	
	Repeatability: 0.1mg	
	Minimum unit mass: 0.1mg	
	Linearity: $\pm 0.2$ mg	
	Standard Accessories:	
	Anti vibration Table	
	Weighing data logger set	
	Density determination kit	
	1 unit - Tablet for Remote Data Management	
	Tweezers for Calibration Weights	
	with ISO Calibration Certificate	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
2	<b>Micro-Analytical Balance, readability 1 <math>\mu</math>g with data logger set and accessories (1 lot)</b>	
	Specifications:	
	Capacity: 5.1 g / 22 g	
	Readability: 0.001 mg / 0.01 mg	
	Repeatability: 0.004 mg (for 1 g) / 0.01 mg	
	Minimum weight: 5.0 mg	
	Linearity: $\pm 0.010$ mg / $\pm 0.02$ mg	
	Standard Accessories:	
	Anti vibration Table	
	Weighing data logger set	
	Table-top breeze break	
	Static eliminator	
	Remote controller	
	Special pans ( $\varnothing 50$ mm and $\varnothing 95$ mm) for weighing PM filters	
	Three sizes of aluminum analytical pans, microtube holder	
	Tweezers for calibration weight	
	3 dust cover for storage	
	1 unit - Laptop for Remote Data Management	
	with ISO Calibration Certificate	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
3	<b>Pipette Accuracy Tester with data logger set and accessories</b>	
	Specifications:	
	Pipette Accuracy Tester Capacity: 110g / 31g / 5.1g	



	Minimum weighing value: 0.1mg / 0.01mg / 0.001mg	
	Pipette Accuracy Tester Capacity: 320 g	
	Minimum weighing value: 1mg	
	Standard Accessories:	
	Balance including the weighing pan unit, breeze break	
	Calibration weight with a pair of tweezers	
	Evaporation trap	
	Sample cup with a holder (30 mL x 2 / 5 mL x 2	
	Liquid thermometer	
	USB communications kit (USB converter, RS-232C cable	
	Software (CD-ROM)	
	Carrying case with a shoulder belt and a key	
	Leak Tester	
	Anti vibration Table	
	Weighing Environmental Logger set	
	Weighing environmental analyzer	
	<b>Moisture Analyzer</b>	
	Weighing data logger	
	Pipette accuracy testing kit	
	1 unit - Laptop for Remote Data Management	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
4	<b>Top Loading Balance with data logger set and accessories</b>	
	Specifications:	
	Capacity: 1100 g	
	Readability: 0.001g	
	Repeatability: 0.001g	
	Minimum weight: 0.001g	
	Linearity: $\pm 0.003g$	
	Standard Accessories:	
	Anti vibration Table	
	Weighing data logger set	
	Density determination kit	
	Tweezers for Calibration Weight	
	Weighing Environmental Logger	
	Glass breeze break	
	1 unit - Tablet for Remote Data Management	
	with ISO Calibration Certificate	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
5	<b>Class F1 Test Weights</b>	
	Specifications:	
	Material: 304 Stainless Steel	
	Level: Class F1	
	<b>Product Weight: minimum of 2 Kg</b>	
	Weight range: 1mg-1kg	
	Package Contents:	
	25pcs Weights	
	1x 1000g	
	1x 500g	
	2x 200g	

	1x 100g	
	1x 50g	
	2x 20g	
	1x 10g	
	1x 5g	
	2x 2g	
	1x 1g	
	1x 500mg	
	2x 200mg	
	1x 100mg	
	1x 50mg	
	2x 20mg	
	1x 10mg	
	1x 5mg	
	2x 2mg	
	1x 1mg	
	1x Plastic Tweezer	
	<b>1x Wood or Aluminum Alloy Case</b>	
	1x Cleaning Cloth	
	with ISO Calibration Certificate	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1) -RSLs (14) -Bulacan (1) -Bukidnon (1) -Bohol (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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Name and Signature of Authorized Representative

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Company Name

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Date Signed

# Section VII. Technical Specifications

## LOT 10- TEMPERATURE AND HUMIDITY

### MONITORING SYSTEM

Item #	Item Description	Statement of Compliance
1	<b>LOT 10- TEMPERATURE AND HUMIDITY MONITORING SYSTEM</b>	
	<b>Specifications:</b>	
	> Base Station	
	Collects and stores the data of all connected data loggers	
	Stores up to 576 measurements per logger	
	Direct connection of any number of interfaces to a PC or the network	
	>Evaluation Software for Server	
	Web based client/server solution: the measurement data can be evaluated on all PCs and smartphones via the internet or connected to the local network	
	> Wireless data logger with PTFE filter and wall mount (32 units)	
	Measurement range: temperature: -30 °C ... +60 °C	
	Measurement range: humidity: 0% rH ... 100% rH	
	Accuracy: temperature: $\pm 0.5$ °C (-20 °C ... +40 °C) $\pm 0.8$ °C for the remaining measurement range	
	Accuracy: humidity: $\pm 3$ %	
	Resolution: temperature: 0.1 °C	
	Resolution: humidity: 0.1% rH	
	Memory capacity: 576 measurements (288 measurements per channel )	
	Sensor : NTC	
	Protection class : IP 20	
	General technical data	
	Measurement interval 1 min. to 24 hours, adjustable	
	Radio frequency 868 MHz	
	Battery 3.6 V lithium (user replaceable) Battery lifetime Up to 2 years, depending on transmission rate	
	Storage temperature -40 °C ... +70 °C	
	<b>Inclusions:</b>	
	1 unit - Analytical Balance, 220 g capacity	
	1 unit - Analytical Balance, 120 g capacity	
	<b>1 unit - Top Loading Balance, at least 820 g capacity</b>	
	1 unit - Top Loading Balance, 1200 g capacity	
	1 unit - Moisture Analyzer	
	1 unit - Complete PC System for the Temp and Humidity Monitoring System	
	1 unit - Laptop for data management system	
	1 unit - Tablet for remote data management system	
	1 unit - Cellphone for online monitoring	
	ISO Calibration - Temperature for all sensors	
	ISO Calibration - Humidity for all sensors	
	1 unit - Router	
	includes delivery, installation and commissioning onsite by Service Engineer and onsite Comprehensive Training	
	Includes annual preventive maintenance and calibration for the first two(2) years.	
	Delivery Sites:	

	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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**Name and Signature of Authorized Representative**

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**Company Name**

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**Date Signed**

## Section VII. Technical Specifications

### LOT 11- MEASURING INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 11- MEASURING INSTRUMENTS</b>	
1	<b>Bottletop Dispenser</b>	
	Specifications:	
	Digital (7 pcs)	
	Capacity: 5-50 mL	
	Subdivision: 0.2 mL	
	Accuracy: $\leq \pm 0.5\%$	
	Precision: $\leq 0.1\%$	
	with recirculation and discharge valve	
	with container bottle and adapters	
	with ISO Calibration Certificate	
	Analog (4 pcs)	
	Capacity: 10-100 mL	
	Subdivision: 1.0 mL	
	Accuracy: $\leq \pm 0.5\%$	
	Precision: $\leq 0.1\%$	
	with container bottle and adapters	
	with recirculation and discharge valve	
	with ISO Calibration Certificate	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (11)	
2	<b>Digital Burette</b>	
	Specifications:	
	Nominal Volume: 50 mL	
	Accuracy in % ( $\pm$ ): 0.06%	
	Accuracy in $\mu\text{L}$ ( $\pm$ ): 30 $\mu\text{L}$	
	Coefficient of variation (%): 0.02 %	
	Coefficient of variation in $\mu\text{L}$ : 10 $\mu\text{L}$	
	PC interface: RS232	
	Accessories:	
	telescoping filling tube	
	recirculation tube	
	batteries	
	3 PP bottle adapters (GL 45/32, GL 45/S 40, GL 32/NS 29/32)	
	2 amber colored light shield inspection windows	
	RS232 connector, CD software	
	Operation Manual, performance certificate	
	with ISO Calibration Certificate	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (4)	
	-RSL (2)	
	-Bohol (2)	
3	<b>Automatic Digital Burette</b>	
	Specifications:	
	Cumulative Volume: up to 99.99mL in 0.01mL increments	
	Reproducibility: $\pm 0.01\%$ of volume	
	Fitting: fits 30-mm bottle; also fits 33-38 and 45 mm bottle necks using adapters	
	Wetted materials: PTFE and borosilicate glass	

	Power: lifetime lithium battery with auto-shut off	
	Accuracy: +/-0.02%	
	Capacity: 50 mL	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-RSL IVA (1)	
4	<b>EC Meter</b>	
	Specifications:	
	Conductivity	
	Range: 0.050 $\mu$ S to 500.0 mS	
	Resolution: 0.01 / 0.1 $\mu$ S ; 0.001 / 0.01 / 0.1 mS	
	Accuracy: $\pm$ 1 % full scale	
	Cal. Points: Up to 5	
	Cell Constant: 0.010 to 10.000	
	Temperature	
	Range (Meter): 0.0 to 100.0 $^{\circ}$ C / 32.0 to 212.0 $^{\circ}$ F	
	Resolution: 0.1 $^{\circ}$ C / 0.1 $^{\circ}$ F	
	Accuracy: $\pm$ 0.3 $^{\circ}$ C / $\pm$ 0.5 $^{\circ}$ F	
	Coefficient (Per $^{\circ}$ C): Linear & pure ; 0.000 to 10.000 %	
	Normalization: 15.0 to 30.0 $^{\circ}$ C / 59.0 to 86.0 $^{\circ}$ F	
	Compensation: ATC / MTC	
	Power Requirements: 9 V DC adapter, 1.3 A (100/240 VAC, SMPS)	
	Conductivity Buffers	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-Bohol (2)	
5	<b>Nitrogen Distillation Unit</b>	
	Specifications:	
	Measuring range: 0.1-200mg nitrogen	
	Recovery is greater than 99.5% at N levels between 1 and 200mg	
	Distillation time: at least 3.5 min at 30mg N (6.5 min at 200mg N)	
	Distillation capacity: at least 40mL/min	
	Self-adjusting cooling water control	
	Automatic dilution, alkali addition, distillation and tube emptying	
	Alkali resistant plastic splash head and tube emptying vessel	
	Burette volume: at least 35mL	
	Burette resolution: 2.4 $\mu$ L/step	
	Burette speed: >0.5ml/second	
	With 1 set of tanks with level sensors for waste, alkali and water	
	With receiver flask and 20 pcs 250mL distillation tube	
	With handling device for digestion tube	
	Inclusive of reagent bottle and digital bottle-top burette	
	reagent bottle at least 2.5L;	
	burette with continuous titration,	
	with large, easy-grip hand wheels for titration rate control,	
	adjustment/calibration using keypad,	
	easily readable, large numbers,	
	microbatteries (with spare),	
	angled display shows 4-position titration volume,	
	freely rotatable 360 $^{\circ}$ around the bottle,	
	adjustable for various bottle sizes using the corresponding adapter	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	

	Delivery Sites:	
	-Bohol (1)	
6	<b>pH Meter</b>	
	Specifications:	
	pH	
	Range: -2.00 to 16.00 pH	
	Resolution: 0.01 pH	
	Accuracy: $\pm 0.01$ pH	
	Cal. Points: Up to 5	
	Buffer Sets: NIST (1.68, 4.01, 6.86, 9.18, 12.45)	
	ORP	
	Range: $\pm 2000$ mV	
	Rel. mV Range: $\pm 2000$ mV	
	Resolution: 0.1 mV ( $\pm 199.9$ mV) / 1 mV (beyond)	
	Accuracy: $\pm 0.2$ mV ( $\pm 199.9$ mV) / $\pm 2$ mV (beyond)	
	Temperature	
	Range (Meter): 0.0 to 100.0 °C / 32.0 to 212.0 °F	
	Resolution: 0.1 °C / 0.1 °F	
	Accuracy: $\pm 0.3$ °C / $\pm 0.5$ °F (0 to 70 °C)	
	Compensation: ATC / MTC (0 to 100 °C) (pH only)	
	Calibration: Offset in 0.1 ° increments; offset range: $\pm 5.0$ °C / $\pm 9.0$ °F	
	Power Requirements: 9 V DC adapter, 1.3 A (100/240 VAC, SMPS)	
	with pH buffers	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-RSL (3)	
	-Bohol (2)	
	-BSWM (3)	
7	<b>pH/ISE Meter</b>	
	Specifications:	
	pH	
	Range: -2.00 to 16.00 pH	
	Resolution: 0.01 pH	
	Accuracy: $\pm 0.01$ pH	
	Cal. Points: Up to 5	
	Buffer Sets: NIST (1.68, 4.01, 6.86, 9.18, 12.45)	
	Ion	
	Concentration: 0.01 to 2000 ppm ( $\pm 2000$ mV)	
	Resolution (ppm): 0.01 / 0.1 / 1 ppm	
	Accuracy: $\pm 0.5$ % full scale (monovalent), $\pm 1$ % full scale (divalent)	
	Cal. Points: 2 to 5	
	Accessories:	
	Integral Electrode Holder & 100/240 VAC Adapter	
	Combination Ion-Selective Electrodes: Flouride, Nitrate, Ammonium, Chloride, Ammonia, Sodium, Calcium, Sulphate, Phosphate, Anions	
	with pH buffers	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
8	<b><u>Variable Volume Pipettor</u></b>	
	Volume Range:	

	10 units: 1000-10,000 µl	
	10 units: 1000-5000 µl	
	20 units: 100-1000 µl	
	6 units: 20-200 µl	
	6 units: 10-100 µl	
	6 units: 2-20 µl	
	6 units: 0.5-10 µl	
	6 units: 0.1-2 µl	
	Specifications:	
	High-end	
	Chemical resistant	
	Streamlined handle	
	Adjustable, interchangeable, easy-grip ejector	
	Volume can be adjusted from the thumbwheel or the plunger button	
	Fully Autoclavable	
	Made from stainless steel, interior	
	with carousel, 1000 pipette tips per unit	
	with ISO calibration	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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**Name and Signature of Authorized Representative**

\_\_\_\_\_  
**Company Name**

\_\_\_\_\_  
**Date Signed**



## Section VII. Technical Specifications

### LOT 12- SOIL MICROBIOLOGY INSTRUMENTS

Item #	Item Description	Quantity
	<b>LOT 12 - SOIL MICROBIOLOGY INSTRUMENTS</b>	
1	<b>Autoclavable Pipette</b>	1
	Specifications:	
	1 unit: 0.2-2 µL	
	1 unit: 0.5-10 µL	
	1 unit: 2-20 µL	
	1 unit: 5-50 µL	
	1 unit: 10-100 µL	
	1 unit: 20-200 µL:	
	1 unit: 100-1000 µL	
	1 unit: 1-5 mL	
	1 unit: 1-10 mL	
	• Made up of steel alloy body	
	• Fully-autoclavable body	
	• Metal tip cones with double "0" rings	
	for optimal sealing and precision	
	• Compatible with all major pipette tip brands	
	• Finger hook	
	• Volume Lock	
	• Tip ejector	
	• Manifold 360 enabling pipetting in any direction and angle	
	• Exchangeable volume control knob- choose between variable or fixed for left and right-handed persons	
	• Volume controllers	
	• Printed serial number on each	
	pipette	
	• Secure volume lock	
	Inclusions:	
	• ISO Calibration certificate	
	• 1 pack each of compatible pipette tips and pipette rack for each Pipettors. A total of 30 packs.	
	• 6 Carousel Stands	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
2	<b>Dissecting Microscope</b>	4
	Specifications:	
	Microscope body with atleast 0.67-4.5X zoom optics,	
	and 45 degrees inclination trinocular tube (C-mount)	
	Transmitted and reflected light LED illuminator stand	
	Eyepiece 10X with ESD capability, F.N 22	
	Zoom Ratio: atleast 6.7:1	
	Working Distance: at least 110 mm	
	Interpupillary Distance: Adjustment range: 52 to 76 mm	
	Zoom Adjustment knob: Left/right single-shaft horizontal knob	
	Interpupillary distance high/low magnification stopper incorporated.	
	Mounting Diameter: Mounting diameter: at least 76 mm	
	Focusing stroke: at least 120 mm	
	LED life span: at least 6,000 hours	
	Input rating: 100-120 V/200-240 V	

	g0.15/0.1 A, 50/60 Hz	
	5 MP Scientific Camera	
	Camera Specs:	
	Sensor size (mm): 1/1.8"(6.22x4.67)	
	Pixel (um): 2.4x2.4	
	G Sensitivity: 425 mv with 1/30s	
	Dark Signal 0.15 mv with 1/30s	
	FPS/Resolution: 30@1920x1080 (HDMI)	
	25@1920x1080 (WIFI)	
	Binning: 1x1	
	Exposure: 0.03ms~918m	
	Interface & Button Functions:	
	USB: USB Camera/USB WIFI Adapter	
	HDMI: HDMI Output	
	DC12V: 12V Power in	
	SD: SD Card Slot	
	On/Off: Power On/Off Switch	
	LED: Power On Indicator	
	Standard Accessories and Inclusions:	
	1 unit - Laptop, with genuine OS and Office	
	Eyepiece Micrometer	
	Training for End-Users	
	Warranty: Three (3) years on parts and one (1) year on service	
	One (1) year on Camera	
	Data logger	
	Compatible AVR and Uninterruptible Power Supply (UPS)	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (4)	
3	<b>Microbial Colony Counter Automated</b>	1
	Specifications:	
	Cell Counting Time: Less than 10 s (manual focusing)	
	Less than 15 s (auto focusing)	
	Cell Concentration Range: $5 \times 10^4$ - $1 \times 10^7$ cells/mL	
	Cell Diameter Range: 3 - 60 $\mu$ m (optimal: 8 - 30 $\mu$ m)	
	Output information:	
	Total / Live / Dead cell concentration	
	Total / Live / Dead cell number	
	Viability:	
	Average cell size	
	Image Resolution: 5 Megapixels , Color	
	Focusing mode: Automatic / Manual focusing with liquid lens	
	Adjustable parameters: Size, Roundness, Dilution factor, Noise reduction, Declustering	
	Image Type: TIFF, annotated TIFF	
	Report Format: PDF	
	Count Data storage: 1,000 counts	
	Protocol storage: 300 protocols	
	Display LCD touchscreen: at least 800 x 480 , 7inch	
	USB port 3 ports	
	with Thermal printer Built-in	
	Dimensions: at least (W x D x H) 195 mm x 237 mm x 272 mm	
	Weight: at least 2.1 kg (without the external power adaptor)	
	Input Power: AC 100-240V 50/60Hz 1.2A	
	Software Designed for Accurate Cell Counting Innovative Autofocusing	

	Accurate Counting Even with Clustered Cells	
	Individual Protocol Setting	
	Automatic Dilution Calculator	
	The Cell Counter automatically stores up to 1,000 counts, and data can be exported as a CSV file.	
	Inclusions:	
	Built-in Thermal Printer	
	5 boxes of polystyrene counting slides (50 slides per box)	
	Exclusive Software Designed for Accurate Cell Counting	
	16 GB external USB	
	1 set - complete Desktop PC, with genuine OS/Office, printer, UPS	
	1 set - Remote Data Management System (laptop and tablet)	
	Compatible AVR and UPS	
	Training for three (3) end users at Manufacturer's Training Site, inclusive of all expenses	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
<b>4</b>	<b>RT-PCR</b>	<b>1</b>
	Specifications:	
	Sample capacity: 96 wells (dual 48/48 reaction module)	
	Sample size: 15-50µL	
	Parallel running mode: dual reaction blocks/running 2 tests independently	
	Temperature range: 4-99 °C	
	Max ramp rate: 4.0 °C/sec	
	Temperature accuracy: ±0.1 °C	
	Temperature uniformity: ±0.1 °C	
	Thermal cycling system: Peltier-based system	
	Temperature control mode: tube control/block control	
	Light source: LED (maintenance free)	
	Detector: high sensitivity photoelectric sensor	
	Sensitivity: 1 copy	
	Reproducibility: CV <1.0%	
	Correlation coefficient: -0.999~ -1.000	
	Resolution: can discriminate between 1000 copies and 2000 copies	
	Excitation: CH1 470nm CH2 530nm CH3 580nm CH4 665nm CH5/CH6 custom made	
	Emission: CH1 510nm CH2 565nm CH3 620nm CH4 665nm CH5/CH6 custom made	
	Power supply: 230VAC, 50Hz	
	Power consumption: 850VA	
	Communication: RS232, USB	
	Standard Accessories and Inclusions:	
	Consumable: 0.2mL PCR tubes, 8-tube strips, 48-well plates	
	Kits and Reagents	
	Other necessary consumables and parts	
	Application Software	
	1 set - complete Desktop PC, with genuine OS/Office, printer, UPS	
	1 set - Remote Data Management System (laptop and tablet)	
	Compatible AVR and UPS	
	Training for three (3) end users at Manufacturer's Training Site, inclusive of all expenses	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	

5	<b>Portable EC Meter</b>	2
	Specifications:	
	Range: 0.050 $\mu$ S to 500.0 mS	
	Resolution: 0.01 / 0.1 $\mu$ S ; 0.001 / 0.01 / 0.1 mS	
	Accuracy: $\pm 1$ % full scale	
	Cal. Points: Up to 5	
	Cell Constant: 0.010 to 10.000	
	Temperature	
	Range (Meter): 0.0 to 100.0 $^{\circ}$ C / 32.0 to 212.0 $^{\circ}$ F	
	Resolution: 0.1 $^{\circ}$ C / 0.1 $^{\circ}$ F	
	Accuracy: $\pm 0.3$ $^{\circ}$ C / $\pm 0.5$ $^{\circ}$ F	
	Coefficient (Per $^{\circ}$ C): Linear & pure ; 0.000 to 10.000 %	
	Normalization: 15.0 to 30.0 $^{\circ}$ C / 59.0 to 86.0 $^{\circ}$ F	
	Compensation: ATC / MTC	
	Standard Accessories and Inclusions:	
	1 set - Conductivity Buffers	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
6	<b>Autoclave</b>	1
	Specifications:	
	Effective capacity: 75 liters (2.6 cu.ft.)	
	Chamber material: SUS304 (Austenitic stainless steel)	
	Maximum pressure: 0.248MPa [34.8psi]	
	Sterilization temperature: 115 $^{\circ}$ C to 135 $^{\circ}$ C	
	Culture medium melting temperature: 60 $^{\circ}$ C to 114 $^{\circ}$ C	
	Keep warm temperature: 45 $^{\circ}$ C to 60 $^{\circ}$ C	
	Sterilization timer: 1 minute to 300 minutes	
	Melting timer: 1 minute to 300 minutes	
	Keep warm timer: 72 hrs. fixed	
	Program timer: 1 week (Designation: Year, month, day, hour and minute)	
	Exhaust tank: 2-liter polyethylene tank	
	Exhaust control: Exhaust valve open temperature setting	
	Safety devices: Pressure safety valve, over-temperature limiter, anti-scorch limiter, door interlock, over-pressure limiter, current fuse	
	Pressure vessel type: Small-scale pressure vessel	
	Power supply: 220V single phase, (50Hz–60Hz) 18.2A or above	
	Power consumption: 4kW	
	External dimensions: at least (W x D x H): 478 x 632 x 965 (mm) / 18.8 x 24.9 x 38.0 (inch)	
	Weight: at least 71kg (157 lbs.)	
	Chamber dimensions (diameter x depth): at least $\varnothing 370$ x 630 (mm) / $\varnothing 14.6''$ x 24.8 (inch)	
	Effective chamber height including recess in lid: at least 688mm (27.1inch)	
	Accessories included: Stainless steel baskets – Large: 2, small: 1	
	Drain hose: 1, Exhaust tank: 1, tank mounting bracket: 1 and tip-resistant metals: 2	
	Power Supply: 220V, 60Hz	
	Inclusions: 5 packs Disposable autoclavable bags 5 bottles of autoclave cleaner 25 packs Chemical Integrator Test Strip (Sterility indicator) Compatible AVR Unit and Uninterruptible Power Supply (UPS)	

	Data logger (1) Heat resistant Gloves (2 pairs) Laptop i5 Laptop Processor: Intel core i5 Memory: 8GB DDR4 Hard Drive: 1TB Graphics: HD Graphics 620 Display: 14" FHD Operating System: Win 10 Connectivity: WiFi, USB 3. With Bag 1 unit Antivirus for 1 user One (1) Year Subscription 1 unit Microsoft Office"	
	Training for Three (3) end users at Manufacturer's Training Site, inclusive of all expenses  <b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
7	<b>Drying Oven (Microbiology)</b>	2
	Specifications:	
	Convection: Forced-Air	
	<b>Capacity: minimum of 179 L</b>	
	<b>Temperature range: min 40 to max 250°C</b>	
	Fluctuation: $\pm 1^{\circ}\text{C}$	
	Chamber Material: Aluminium coated mild steel	
	Exterior Material: Easy clean powder coated body in RAL 7035	
	Int. dimensions (cms): at least 54 high x 93 wide x 42 deep	
	Ext. dimensions (cms): at least 94 high x 106 wide x 57 deep	
	Control panel position: Base mount	
	<b>Control: large fluorescent or colour touch screen display temperature controller with independent manual (or automatic) overheat safety control.</b>	
	Indicators: Display shows chamber temperature, desired set point, time and chamber trend history (max 48 hours)	
	Air circulation: Fan assisted, mounted in base	
	Sensor: Pt100 Class B probes offering high accuracies ( $<0.8^{\circ}\text{C}$ )	
	Shelving: Supplied with 3 off chrome wire shelves and 4 positions	
	Power supply: 220-240VAC, 50hz	
	Inclusions:	
	Compatible AVR and UPS	
	<b>Data logger thru Controller transferrable via USB, LAN, or wireless</b>	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
8	<b>Incubator</b>	2
	Specifications:	
	Air convection: natural	
	<b>Chamber capacity: max 105 L</b>	
	Controller: Microprocessor with external LCD graphic display	
	<b>Display: large fluorescent or colour touch screen display</b>	
	<b>Easy data transfer via LAN, wireless, USB ports- multi-segment time and temperature programs</b>	
	Alarm Safety- visual and sound alarm	
	Internal memory for programs and data storage	

	Event registry	
	Quick change of program parameters	
	Alarm Bar	
	Can be operated even with gloves on	
	Temperature range [°C]: +5°C above ambient temperature ... +100°C	
	Temperature resolution [°C]: 0.1	
	Over temperature protection: class 2.0 to DIN 12880	
	Door type: Double door	
	Interior: acid-proof stainless steel to DIN 1.4301	
	Housing: Powder coated sheet	
	Overall dimensions at least [mm]:	
	Width: 650	
	Height: 850	
	Depth: 710	
	Internal:	
	width: 460	
	height: 540	
	depth: 450	
	Shelves: atleast 2	
	Max shelf workload: 25 kg	
	Inclusion:	
	<b>Data logger thru Controller transferrable via USB, wireless or LAN</b>	
	External USB drive (16 GB)	
	Compatible AVR and UPS	
	Training with End- Users	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
<b>9</b>	<b>Laboratory Refrigerator</b>	<b>5</b>
	Specifications:	
	Features: -Alarm and safety devices -Ridged wire shelves with zinc plated finish -Microprocessor temperature control -Fan-forced air circulation -Cycle Defrost System -Digital Temperature Display -Door Open Alarm -Adjustable high and low temperature alarm ( +/- 2 ~ +/- 14°C) -Adjustable door alarm delay time (0 ~ 15 minutes) -Adjustable auto recovery function of alarm buzzer refrigerants and CFC-free insulation.	
	External Dimensions (W x D x H): at least 800 x 465 x 1090 mm Internal Dimensions (W x D x H): at least 720 x 300 x 725 mm Capacity Volume: : 158 litres Temperature Setting Range: +2 to +14 °C Temperature Control Range: +2 to +14 °C Display: LED Noise Level: maximum of 35 dB [A] Controller: Microprocessor Cooling Method: Forced air circulation Defrost Method: Cyclical defrost (plus forced defrost) Exterior Material: Painted steel Interior Material: Stainless steel Outer Doors: 2 sliding doors Interior Light: LED	

	Inclusions:	
	Data Logger	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (5)	
-	<b>Compliance to Section VI. Schedule of Requirements</b>	-

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**Name and Signature of Authorized Representative**

\_\_\_\_\_  
**Company Name**

\_\_\_\_\_  
**Date Signed**

## Section VII. Technical Specifications

### LOT 13 - SOIL PHYSICS INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 13 - SOIL PHYSICS INSTRUMENTS</b>	
1	<b>Automated Laboratory Saturated Hydraulic Conductivity System (Five (5) Station Kit)</b>	
	Specifications:	
	Applicable Methods: Constant and Falling Head	
	Minimum Head-height: 1 cm	
	System Resolution: 1 mm of change in water height (2.01 ml of water consumption)	
	Standard Reservoir Inside Diameter: at least 5.13 cm (2.02 in)	
	Standard Reservoir Height: at least 48.26 cm (19.00 in)	
	Standard Reservoir Cross-Sectional Area: at least 20.67 cm <sup>2</sup> (3.20 in <sup>2</sup> )	
	Standard Reservoir Volume: at least 1 L (0.26 gallon)	
	Soil Core Inside Diameter: at least 5.38 cm (2.12 in)	
	Soil Core Height: at least 6.0 cm (2.36 in)	
	Soil Core Cross-Sectional Area: at least 22.73 cm <sup>2</sup> (3.52 in <sup>2</sup> )	
	Soil Core Volume: at least 136.40 cm <sup>3</sup> (21.14 in <sup>3</sup> )	
	Pressure Transducer: Monitor Precision Transducer (-15 to +15 psi)	
	Tempe Cell: Standard (at least 5.7 cm diameter, 6cm height)	
	System options: Single unit or five independent units	
	Software: Can control up to 20 independent units simultaneously	
	External PC connectivity: Required	
	Saturated hydraulic conductivity (Ksat) Measurement range: 10 <sup>-4</sup> to 10 <sup>-8</sup> meter per second	
	Sensor Range: -1,000 to +1,000 cm H <sub>2</sub> O	
	System weight: at least 18.14 kg (40 lbs)	
	Dimensions (LxWxH): at least 33 x 18 x 18 in	
	Inclusions:	
	<b>2 pcs Soil Core Sampler for Bulk Density Analysis Diameter: 2.25 in (5.7cm) Weight: 11.45 lb Dimensions: 23 x 11 x 5 in with case</b>	
	<b>20 pcs Brass Cylinder for Core Sampler Height: (6cm) Outside Diameter: 2.25 in Weight: 0.32 lbs</b>	
	<b>40 pcs Soil Core Cylinder Cap Weight: 0.01 lbs</b>	
	<b>1 unit Laptop Computer Processor: Intel Core i7 Memory: 8GB DDR4 Storage: 1 TB HDD with 128 SSD Graphics Card: 4GB MX130 OS: Windows 10 Display 15.6 in</b>	
	<b>1 unit Tablet Manufacturer's recommendation compatible with the software</b>	



	<b>1x Sieve no. 60</b> <b>Height: 2 in</b> <b>Diameter:: 8 in</b> <b>Material: Brass</b> <b>Mesh Opening dimensions: 250 microns (0.250 mm)</b> <b>ASTM-E11 Compliant</b> <b>ANSI, ISO and NBS specification compliant</b> <b>With individual serial number and certificate of analysis</b>	
	<b>1x Sieve no. 140</b> <b>Height: 2 in</b> <b>Diameter: 8 in</b> <b>Material: Brass</b> <b>Mesh Opening dimensions: 106 microns (0.106 mm)</b> <b>ASTM-E11 Compliant</b> <b>ANSI, ISO and NBS specification compliant</b> <b>With individual serial number and certificate of analysis</b>	
	<b>1x Brass Cover</b> <b>Height: 2 in</b> <b>Diameter: 8 in</b> <b>Material: Brass</b>	
	<b>1x Brass pan</b> <b>Height: 2 in</b> <b>Diameter: 8 in</b> <b>Material: Brass</b>	
	<b>1x Desiccator Cabinet</b> <b>Cabinet Type</b> <b>Chamber Volume: 181 L</b> <b>Interior Dimensions: 19.125 x 21.5 x 18.9 in</b> <b>Exterior Dimensions: 21.75 x 24 x 21 in</b> <b>Adjustable shelves: 2 pcs</b> <b>Number of Shelves: 28</b> <b>Weight: 60 lbs</b> <b>Material: Glass, Stainless steel</b> <b>Inside Glass over: transparent, static dissipative polyester film</b>	
	<b>3x Mini-dehumidifier</b> <b>Height: 6 in</b> <b>Width: 6 in</b> <b>Diameter: 1.5 in</b> <b>Desiccant Capacity: 150g of 4 Mesh Drierite</b> <b>Water Capacity: 10g</b> <b>Material: 22-gauge metal</b> <b>Hole size: 1/8 in</b> <b>Volume Covert: 6ft3</b>	
	<b>1x Indicating desiccant</b> <b>Type: Indicating Desiccant</b> <b>12 pcs /box</b>	
	<b>1x Data Acquisition Software</b> <b>Allows user to set measurement method, duration and physical component parameters</b> <b>Automated measurement of all method</b> <b>Automated calculation of results</b> <b>Shows measurement graph and reading table</b>	
	Training for three (3) end-users at manufacturer's training site, inclusive of air fare, transportation cost, and accomodation  <b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	at least 1 yr warranty on parts and service	

	bidders are required to submit a Manufacturer's Certification that they are an Exclusive Distributor.	
	Delivery Sites:	
	-BSWM (1)	
2	<b>Liquid Limit Machine</b>	
	Specifications:	
	<b>Type: Motorized Machine</b>	
	uniform testing with greater degree of accuracy	
	with geared motor to give proper operating speed and automatic counter	
	attached to metal plate with rubber feet	
	<b>Includes grooving tool and gauge block</b>	
	Complies with ASTM D4318; AASHTO	
	Included Accessories:	
	Liquid Limit ASTM Plastic Grooving Tools (10 pk)	
	Liquid Limit Metal Grooving Tool, AASHTO	
	Porcelain Evaporating Dish	
	Spatulas, Straight Edge	
	Glass Graduated Cylinder	
	Liquid Limit Resiliency Tester	
	Durometers	
	Hydrometer (2 pcs)	
	with Validation Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 14- MIR/FTIR SPECTROSCOPY

Item #	Item Description	Statement of Compliance
1	<b>2021-07-1316: LOT 14- MIR/FTIR SPECTROSCOPY</b>	
	Specifications:	
	Interferometer: 25 mm, permanently aligned, Michelson	
	45°, mechanical flexure	
	Enclosure: Sealed and desiccated	
	Spectrometer interface: USB-2	
	Size: at least 16 x 31 x 13 cm (6 x 12 x 5 inches) (W x D x H)	
	Sample interface: DialPath (30 to 250 µm), Tumbler	
	<b>Diamond ATR, Diffuse Reflectance, Transmission Sample Interface</b>	
	<b>Software: PC software, Automated</b>	
	21 CFR Part 11 compliant	
	advanced data analysis	
	Power: 110 – 240 V AC, 60/50 Hz	
	Spectral range: KBr 7000–350 cm <sup>-1</sup> ; ZnSe 5100–600 cm <sup>-1</sup>	
	Spectral resolution: <2 cm <sup>-1</sup>	
	Wavenumber accuracy: 0.05 cm <sup>-1</sup> Measured with a NIST 1921	
	traceable standard	
	Wavenumber reproducibility: 0.005 cm <sup>-1</sup>	
	Measured with a NIST 1921 traceable standard	
	Standard Accessories and Inclusions:	
	1 pc - Diffuse Reflectance Sample Accessory	
	1 pc - Diamond ATR Accessory	
	1 pc - Dial path Accessory	
	1 pc - Transmission Sample Interface	
	2 pcs - Diffuse Samples Slide, Spare	
	1 pc - Polystyrene Film for ATR/Transmission	
	PC Software	
	<b>1 unit - Desktop Computer, 64-bit, at least i5</b>	
	<b>1 unit - Laptop- at least i5</b>	
	1 pc - Microsoft Windows 10 Pro + Microsoft Office 2016	
	1 unit - Inkjet Printer	
	1 unit - AVR 2KVA	
	<b>Two (2) years warranty on parts and service</b>	
	Free Preventive Maintenance Service within Warranty Period	
	Training for three (3) end-users at Manufacturer's Training Site inclusive of transportation cost and accommodations	
	<b>Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period</b>	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 15 - UV-VIS SPECTROMETRY

Item #	Item Description	Statement of Compliance
	<b>2021-07-1317: LOT 15 - UV-VIS SPECTROMETRY</b>	
1	<b>UV-Vis with fiberoptics</b>	
	Specifications:	
	Source: Unique full spectrum Xenon Flash Lamp (80Hz) with typical lifetime of 10 years (guaranteed 3 years)	
	Monochromator: Czenry-Turner	
	Fiber optic probe	
	Grating: Holographic, 27.5x35mm, 1200 lines/mm, blaze angle 8.6o at 240nm	
	Beam splitting system: Beam Splitter	
	Detectors: 2 Silicon diode detectors for simultaneous sample beam and reference beam measurements.	
	Optical Design: Double beam Czenry-Turner monochromator	
	UV-VIS Limiting Resolution: $\leq 1.5\text{nm}$	
	Toluene/hexane limiting resolution: (EP/BP and TGA test): $\geq 1.92$	
	Stray light:	
	At 198 nm (12 g/L KCl, TGA & BP/EP method) $\leq 0.187\%T$	
	At 220 nm (10 g/L NaI ASTM method) $\leq 0.018\%T$	
	At 370 nm (50 mg/L NaNO <sub>2</sub> ) $\leq 0.008\%T$	
	Wavelength Range: 190 – 1100nm	
	Wavelength Accuracy: $\pm 0.06$ at 541.94nm	
	Wavelength Reproducibility: $\pm 0.01\text{nm}$	
	Photometric Accuracy: Using NIST 960E filters at 1 Abs = $\pm 0.0007\text{Abs}$	
	Photometric Range: $\pm 4.0$ Abs	
	Photometric Display: $\pm 9.9999\text{Abs}$ , $\pm 200.00\%T$	
	Photometric Reproducibility (Abs): Using NIST 930E filters, at 465 nm, 2 s SAT	
	Maximum deviation at 1 Abs: $< 0.004$ Abs	
	Standard deviation for 10 measurements: $< 0.00050$ Abs	
	Using NIST 930E filters, at 546.1 nm, 2 s SAT	
	Maximum deviation at 0.5 Abs: $< 0.003$ Abs	
	Standard deviation for 10 measurements: $< 0.0030$ Abs	
	Standard Accessories:	
	3.5mL, 10mm Pathlength Quartz Cuvette (Pair)	
	Desktop Computer, 64-bit with Windows 10 OS and Office	
	Inkjet Printer	
	AVR 2KVA	
	18-Cell Holder, Thermostatted with 8 pairs cuvette	
	Dip Probe Coupler with doors	
	Quartz fixed (10 mm) pathlength probe	
	Inclusions:	
	Capable of Remote Data Management System	
	Three (3) years warranty Xenon lamp	
	2 Free Preventive Maintenance within Warranty Period	
	<b>Training for end-users</b>	
	Delivery Sites:	
	-BSWM (1)	
2	<b>UV-Vis Spectrometer</b>	
	Specifications:	

	Photometric System – Double beam with rear beam access Monochromator – Double out-of-plane Littrow monochromator Source – 250 Hz Wavelength Range – 190-1100 nm	
	Detectors – Silicon photodiode detectors for simultaneous measurement of all channels Beam dimensions at sample interface - <1.5mm Limiting Resolution – 0.1nm	
	Stray Light (%T) (12 g/L KCl, BP/EP method) < 1.0 % At 220 nm (10 g/L NaI, ASTM method) < 0.003 At 300 nm (Acetone) < 0.005 At 370 nm (50 mg/L NaNO <sub>2</sub> ) < 0.003	
	Wavelength accuracy (nm) ± 0.2 Wavelength reproducibility (nm) < 0.025	
	Photometric accuracy (Abs) NIST 930E filter at 1 Abs - ± 0.005 Photometric range (Abs) 4.0 Photometric reproducibility (Abs) 0.005 Photometric stability (Abs/hour) 0.0003	
	Photometric noise (Abs/RMS) At 500 nm, 0 < 0.0001 Abs AbsAt 500 nm, 0 < 0.0001 Abs Abs(using ultra-micro cuvette: 50 µL, 2 x 2.5 mm, 10 mm pathlength) At 500 nm, 1Abs < 0.0002 Abs	
	z-height 15 mm Spectral bandwidth 0.1 to 5 nm at 0.01 nm Maximum scan rate 150,000 nm/min Data collection rate 250 data points per second Data interval 0.01 to 10 nm	
	with UV workstation software	
	with sipper	
	with PC, printer and complete genuine office and OS	
	with 2KVA AVR	
	<b>Training for end-users</b>	
	Three (3) years warranty Xenon lamp	
	2 Free Preventive Maintenance within Warranty Period	
	Delivery Sites:	
	-RSL (2) -Bohol (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 16- BOD SENSOR SYSTEM

Item #	Item Description	Statement of Compliance
1	<b>LOT 16- BOD SENSOR SYSTEM</b>	
	Specifications:	
	Construction material: technopolymer	
	Power: 2 W	
	Power supply: 115 V or 230 V / 50-60 Hz	
	Dimensions (WxHxD): at least 270x300x185 mm (10.6x11.8x7.3 in)	
	Weight: at least 2.3 Kg (5.1 lb)	
	Reading value mg/l (ppm) directly on PC (or on the display)	
	Measurement by electronic pressure probe	
	Bottle total capacity: at least 500 ml	
	Data storage for BOD5: every 30 min / 1 / 2 / 4 / 6 / 8 / 12 / 24 hours	
	Data storage for longer test: every 2 / 4 / 6 / 8 / 12 / 24 hours	
	BOD values: automatic data calculation and management from last determination	
	Scales: 90, 250, 600, 999 ppm. Higher values after dilution	
	Display: digits 3 LED	
	Safety class: 3 IEC 1010	
	Electronic protection degree CEI EN 60529: IP 54	
	Accessories:	
	BOD EVO Sensor (with KOH traps)	
	Stirring station, 6 positions 230V/50Hz (with bottles & stirring bars)	
	Control Test tablets	
	Sensor check	
	<b>Inclusions:</b>	
	<b>1 unit – Laptop PC for remote data management</b> <b>Specs:</b> <b>Processor: Intel Core i7</b> <b>Memory: 8GB DDR4</b> <b>Storage: 1 TB HDD with 128 SSD</b> <b>Graphics Card: 4GB MX130</b> <b>OS: Windows 10</b> <b>Display 15.6 in</b>	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 17 - WEIGHING INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 17 - WEIGHING INSTRUMENTS</b>	
1	<b>Analytical Balance</b>	
	Specifications:	
	Capacity: 220 g	
	Minimum Display: 0.1 mg	
	Repeatability (Standard Deviation): ≤0.1 mg	
	Linearity: ±0.2 mg	
	<b>Response Time: at least 3.0 seconds</b>	
	Operating Ambient Temperature: 5-40°C 20-85%	
	Temperature Coefficient Sensitivity (ppm/°C): ±2ppm/°C(no condensation)	
	<b>Pan Size (mm) at least.: Φ90</b>	
	Main Body Dimensions (mm) at least.: 213(W) x 356(D) x 338(H)	
	Power requirement: 12V, 1A	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol)</b>	
	Delivery Sites:	
	-BSWM (1)	
	-Bohol (2)	
2	<b>Top Loading Balance</b>	
	Specifications:	
	<b>Capacity: at least 620g</b>	
	Readability: 0.01g	
	Repeatability: 0.01g	
	Linearity: 0.02g	
	Operating Ambient Temperature: 10 - 30	
	Temperature Coefficient Sensitivity (ppm/°C): ±5	
	Pan Size (mm) at least.: ø110	
	Power requirement: AC adaptor ( DC12V, 1A )	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period (Bohol)</b>	
	Delivery Sites:	
	-RSL (3)	
	-Bohol (2)	
	-BSWM (5)	
3	<b>Weighing Scale, Big Capacity</b>	
	Specifications:	
	Measuring Range: max 150 kg	
	<b>Resolution: min 10 g, max 20g</b>	
	Accuracy: ± 3 d (3 x the resolution)	
	Tare function: multiple tare function of full weighing range	
	Interface: RS-232 bi-directional /D-SUB 9 female	
	Display: LCD	



	Units of measurement: kg / lb	
	Power supply: 6 V / 4.5 Ah rechargeable battery or 9 V / 1.2 A, mains adaptor included	
	with ISO Calibration Certificate	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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# Section VII. Technical Specifications

## LOT 18- AIR CONDITIONING UNITS AND LAB UTILITY EQUIPMENT

Item #	Item Description	Statement of Compliance
1	<b>Air Conditioning Units for LSD, 1 lot</b>	
	<b>Specifications:</b>	
	Installation of twenty-eight (28) air-conditioning units (230V/1Phase/60 Hz):	
	3 units -Staff Room 1-3, 1HP	
	1 unit -Instrument Room, 6HP	
	1 unit -Soil Sampling Room, 6HP	
	1 unit -Staff Room 4, 2.5HP	
	2 unit -NDR Room, 3HP	
	2 units -Chemical Stock Room, 4HP	
	1 unit -Clinic Room, 2.5HP	
	2 units -Soil Microbiology Lab 1 Room, 4HP	
	1 unit -Soil Microbiology Lab 2 Room, 5HP	
	2 units -Soil Physics Room, 6HP	
	1 unit -Soil Microbiology Lab 2 Room, 2HP	
	1 unit -Microscope Room, 1.5HP	
	1 unit -Plant Tissue Drying Room, 2HP	
	1 unit -Soil Receiving Room, 2HP	
	1 unit -Soil Preparation Room, 1HP	
	1 unit -Soil Sample Drying Room, 1HP	
	1 unit -Isolation Room, 1.5HP	
	1 unit -Sterilization Room, 1.5HP	
	1 unit -Soil Microbiology Staff Room, 5HP	
	1 unit -RST Room, 5HP	
	1 unit -Pantry Room, 5HP	
	1 unit -Weighing Room, 2HP	
	28 units - condensate drain pump	
	<b>Scope of work and inclusions:</b>	
	Mobilization & Demobilization.	
	Installation of twenty eight (28) air-conditioning units.	
	Supply and installation of copper tube soft drawn, complete with rubber insulations, aerotapes and white tapes.	
	Supply and installation of PVC pipes with rubber insulation and to be tap on the nearest stab out.	
	Supply and installation of communication wires and flexible conduit from fcu to accu.	
	Supply and installation of condenser base and refrigerant pipe hanger supports.	
	Supply and installation of condensate water pump.	
	Supply and installation of feeder line to main circuit breaker <b>(from 4th floor rooftop to respective selected rooms with no available power source).</b>	
	Supply and installation of circuit breaker, nema 3r ecb and panel board.	
	Supply and installation of emt pipes complete with accessories and brackets.	

	Leak testing with nitrogen gas.	
	System vacuuming and charging of refrigerant.	
	Testing & Power Up.	
	One (1) year warranty on workmanship from the date of completion.	
	One (1) year warranty on parts, Five (5) years on compressor.	
	<b>Delivery Sites:</b>	
	-BSWM (1)	
<b>2</b>	<b>Washing Machine</b>	
	Specifications:	
	10.5 kg. Front Load Washing Machine	
	Turbo Washer	
	Tempered Glass Door	
	Full Stainless Lifter	
	Inverter Direct Drive Motor	
	14 Washing Programs	
	Rated Input: 230v-60Hz	
	Washing Wattage: 2100 W	
	Inclusions:	
	1 Year Warranty on Parts & Service	
	10 Years Warranty on Compressor	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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# Section VII. Technical Specifications

## LOT 19- POWER SUPPLY EQUIPMENT

### (SOLAR POWER SYSTEM)

Item #	Item Description	Statement of Compliance
1	<b>POWER SUPPLY EQUIPMENT (SOLAR POWER SYSTEM)</b>	
	Specifications:	
	1 unit - Solar Panel ( PV panel)	
	SPECIFICATION :	
	Electrical data	
	Peak Powe (r Pmax) : 450.00 W	
	Maximum Power Voltage (Vmp) : 41.40 V	
	Maximum Power Curren (t Imp) : 10.87 A	
	Open Circuit Voltage (Voc) : 50.22 V	
	Short Circuit Curren (t Isc) : 11.48 A	
	Cells Efficiency (%) : 22.8%	
	Module Efficiency (%) : 20.26%	
	Temperature and Maximum rating	
	Maximum System Voltage (V) : 1500	
	Maximum Series Fuse Rating (A) : 20	
	Power Tolerance : 0~+3 %	
	Pmax Temperature Coefficient (s W/°C)	
	Voc Temperature Coefficient (s V/°C) : - 0.286%	
	Isc Temperature Coefficient (s A/°C) : 0.057%	
	NOCT Nominal Operating Cell Remperature (°C ) : 45±2	
	Operating and Storage Temperature (°C) : - 40~+85	
	Mechanical characteristic	
	Cell Type : 166x83 Mono	
	No. of Cells : 144 (12x12)	
	Dimensions : 2115x1050x40mm	
	Weight : 23.50kg	
	Front Glass : 3.2mm high transmission, low iron, tempered glass	
	Frame : Anodized Aluminium Alloy	
	Junction box : IP68 3 diodes	
	Output cables : 4mm <sup>2</sup> cable 90cm+mc4	
	MaxWind Load/Snow Load : 2400Pa/5400Pa	
	Inclusions:	
	1 unit - HYBRID INVERTER	
	SPECIFICATION:	
	AC and backup output conduit size: 25. 4mm	
	PV input conduit size; 25. 4mm	
	Battery input conduit size: 34.5mm	

	Operation Temperature range: -25 - +60°C	
	environment humidity: 0-95%	
	Altitude: 0-4000M r Derating when over 2000m)	
	IP Grade: IP65	
	Weight: 30kg	
	Dimension (W x H x D): 530x 660 x 200mm	
	Cooling: Natural cooling	
	Noise emission(dB): <25dB, <29dB	
	Display: LCD	
	Communication: Modbus. RS485. WIFI,4G	
	Self-consumption at night: < 2.5 W (with battery enabling < 5 \\\)	
	No transformer: YES	
	Safety: UL1 741SA all options. UL1699B, CSA 22.2	
	EMC : FCC Part 15 ClassB	
	1 unit - Battery cabinet	
	SPECIFICATION :	
	Voltage Range (V) : 208 ~288 V	
	LifeP04 Single Cell : 3.2 V206Ah,Prismatic, Aluminum shell	
	Series and Parallels : 1P - 80s	
	Rated Voltage : 256	
	Rated capacity( Ah) : 206	
	Rated Energy (KWh): 52.74	
	Maximum output power (kW) : 60	
	Maximum Discharge Current (A): 250	
	Maximum Charge Current (A): 100	
	Discharge cut-off voltage (V) : 200V	
	Maximum charge Voltage (V): 288V	
	Recommended Charge type : 280V, CC-CV until current < 4A	
	Cycle life (@25'C,0.2C/0.7C,100%DOD): > 2000	
	Dimension (W*D*H) : 600*800*1800mm	
	Total weight (Kg) : Approx 520	
	Battery Rack Thermal Management : Natural Air cooling	
	Operating temperature : -5~55'C	
	Operating humidity : 5% ~95% R.H.	
	Communication : CAN RS485	
	Dry contact : Optional	
	Maximum system parallels : 15	
	LCD Screen Monitor : Integrated with the CBMS Panel Touchscreen , check battery data and set up parameters	
	<b>Installation: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.</b>	
	Delivery Sites:	
	-Tanay (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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Section VII. Technical Specifications  
**LOT 20- CORE SAMPLER SET, WITH EXTENSION  
 ROD AND STAINLESS SAMPLING TUBE**

Item #	Item Description	Statement of Compliance
1	<b>LOT 20- CORE SAMPLER SET, WITH EXTENSION ROD AND STAINLESS SAMPLING TUBE</b>	
	<b>Core Sampler Set, with extension rod and stainless sampling tube</b>	
	Specifications:	
	1 set Soil Sampler	
	Soil Sample Shoe diam. at least 55 x 140mm	
	Handle with beating head, at least 10cm	
	Hammer with nylon heads: at least 2kg	
	Brush and knife set	
	Case	
	1 set Extension rod, at least 100cm	
	17 set Stainless Sampling Tube: at least 100ml	
	6pcs with 12 lids and cloth case/set	
	Soil Core Diameter: at least 5.0 cm, Height: 5.1 cm	
	Soil Core Diameter: at least 5.0 cm, Height: 5.1 cm	
	1 pc Convection Oven	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

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## Section VII. Technical Specifications

### LOT 21- SOIL RESPIRATION INSTRUMENTS

Item #	Item Description	Statement of Compliance
	<b>LOT 21- SOIL RESPIRATION INSTRUMENTS</b>	
1	<b>Digital Pipette</b>	
	Specifications:	
	Volume Range : 1 unit: 1-channel 100-1000 uL 1 unit: 8-channel 2-20 uL 1 unit: 8-channel 10-200 uL	
	Highest ergonomics	
	User-independent results	
	Multiple pipetting modes	
	Speed adjustment	
	Programmable protocols	
	Standard Accessories and Inclusions:	
	High-Capacity Lithium Battery	
	Standard AC-DC Adaptor and Charger	
	Stand for 3 Units	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (4)	
2	<b>FlexiPump Media</b>	
	Specifications:	
	•Stainless steel	
	•low pulsation double pump head with 6 rollers	
	•Dose volume: 50 µL to 99 L	
	•Dispensing modes: Continuous -Dose -Multi-dose	
	•Dispensing control with the handy gun	
	•Multi-dose pause: Adjustable from 0.1 to 99.9 s	
	•Typical precision with inner Ø 3.2 mmtubing: 9mL: 0.9% -18 mL: 0.5% -225 mL: 0.4%	
	•Tubing inner diameter: 1.6 mm, 3.2 mm, 4.8 mm, 6.4 mm, 8 mm	
	•Tubing wall thickness: 1.6 mm only	
	•Flow rate: 3 mL/mn to 2.5 L/mn	
	•Pump headrotating speed: 10 to 550 rpm	
	•Traceability: USB, RS 232	
	•Connections: USB, RS 232, Jack 3.5 mm	
	•Data export: Excel, Office, LIMS	
	•In compliance with ISO 7218 and FDA BAM (Bacteriological Analytical Manual)	
	Standard Accessories and Inclusions:	
	2 peristaltic pump heads	
	1 set of 3.2 mm dispensing assembly (nozzle + GL 45 bottle connector + filter + tubing + tube weight)	
	1 set of 6.4mm dispensing assembly (nozzle + GL 45 bottle connector + filter + tubing + tube weight)	
	1 power cord	
	1 user's manual	
	1 USBcable	
	1 free pack of blender bags	



	Handy gun:Dispensing control with handy gun including electronic start button	
	Adjustable dispensing arm:For use with other containers	
	Independent stand for broth bags:Independent stand for 2 broth bags	
	1 set - Desktop PC, with genuine OS & Office, printer	
	1 unit - laptop	
	Compatible AVR and Uninterruptible Power Supply (UPS)	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
3	<b>Soil Microbial Respiration Meter/Reader</b>	
	Specifications:	
	capable of 24-hr CO <sub>2</sub> -Burst or observe basal respiration over several days	
	wide-range of CO <sub>2</sub> linearity suitable to the highly variable soil & compost environment	
	Equipped with on board software IRT <sup>®</sup> can be operated as a standalone assay unit collecting respiration data for any determined time cycle or attached to a PC for screen-based monitoring	
	software enables re-displaying previous runs and printing standard reports, or downloading to a spreadsheet for further analysis.	
	testing of soils, composts and organic debris in any range from 10 to 300 g and is capable of reporting CO <sub>2</sub> - concentration up to 200,000 ppm or quantitative C-loss rates of up to 2500 ug/g soil without the need for re-calibration or sacrificing soil quantity	
	Tracks and records temperature during the test period and applies NTP for Ideal Gas Law for conversion of results.	
	Weight: at least 5.4 lbs	
	Dimensions: at least 17 × 5.5 × 12.5 in	
	Standard Accessories and Inclusions:	
	Detector	
	475 mL jar	
	1265 mL jar (for larger scale biology studies)	
	2 O-Rings	
	USB cable	
	Software Solvita Reader	
	Instruction Manual	
	Data logger	
	Compatible AVR and Uninterruptible Power Supply (UPS)	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (2)	
4	<b>Solvita (Soil respiration quick test kit)</b>	
	Specifications:	
	Field Digital Color Reader (Green DCR)	
	25 Soil CO <sub>2</sub> Probes (introductory package)	
	Miniature Digital Scale for range of 0 -1000g soil	
	Soil Knife (Stainless Steel) and Soil Thermometer	
	Standard Coarse Soil Sieve (1/4 inch)	
	Soil Wire Brush for cleaning sieve without water	

	3 Incubation Jars (polystyrene 475 ml with lids affixed with gas-tight gaskets)	
	USB Cable and Jump Drive with Solvita Reader Software and drivers	
	Instruction Manual with interpretation guide	
	Inclusions:	
	Soil Roller	
	CO2 proof gaskets	
	Field CO2 Test Refill	
	Data logger thru Controller transferrable via USB or LAN	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

\_\_\_\_\_  
**Name and Signature of Authorized Representative**

\_\_\_\_\_  
**Company Name**

\_\_\_\_\_  
**Date Signed**

## Section VII. Technical Specifications

### LOT 22- AUTOMATED REDUCTIVE INOCULATION

Item #	Item Description	Statement of Compliance
1	<b>LOT 22- AUTOMATED REDUCTIVE INOCULATION</b>	
	<b>Automated reductive inoculation</b>	
	Specifications:	
	Reproducibility: > 99%	
	Time for a full cycle: 30 s	
	Spreading modes stored: 25 spread modes (37 counting those for 150mm Petri plates)	
	Petri plate diameters: at least 90 and 150 mm	
	Minimum step volume: < 10 nl	
	Maximum pipeted volume: 100 l	
	Control Display: 7 inches Touch screen	
	Motion control: 3 Microcontroller-regulated stepper motors	
	Compatible AVR and UPS	
	Training for End user	
	at least 1 yr warranty on parts and service	
	Delivery Sites:	
	-BSWM (1)	
	<b>Compliance to Section VI. Schedule of Requirements</b>	

\_\_\_\_\_  
**Name and Signature of Authorized Representative**

\_\_\_\_\_  
**Company Name**

\_\_\_\_\_  
**Date Signed**