



Republic of the Philippines
BULACAN AGRICULTURAL STATE COLLEGE
Office of Bids and Awards Committee
Pinaod, San Ildefonso, Bulacan, Philippines 3010

October 26, 2022

Bid Bulletin No. 1

Name of Project:	2022-04G: Upgrading of Five (5) Units of Greenhouses at BASC College of Agriculture Campus and One(1) Unit at DRT Campus to Automated Greenhouses (Lot 2:Equipment)
ABC:	Php12,000,000.00

This Bid Bulletin No. 1 is issued to modify or amend items in the Bidding Documents for the above cited project. This shall form an integral part of the said Bidding Documents. The changes in the technical description shall also apply to the Schedule of Requirements and Price Schedules found in the Bidding Documents.

Section VII. Technical Specifications

Item	From	To
1	Tables and Frames for Ornamentals 1.7m x 2.8m(12 units) with Fogger system and irrigation system that will cover the 200 sq.m of the Greenhouse for the details of Table (see attached drawings) (Equivalent or higher) use 2"x 2" Tubular Pipe (for vertical) use 1"x 2" Rectangular Tube (for horizontal) Hydroponic Downspout Channel 4ft x 4 to 2 "holes Piping Works inc.labor for downspouts Fogger System (Equivalent or Higher) Droplet size 55 microns @ 4.0 bar	Tables and Frames for Ornamentals 1.7m x 2.8m (12 units) with Fogger system and irrigation system that will cover the 200 sq.m of the Greenhouse for the details of Table (see attached drawings) (Equivalent or higher) use 2"x 2" Tubular Pipe (for vertical) use 1"x 2" Rectangular Tube (for horizontal) Hydroponic Downspout Channel 4ft x 4 to 2 "holes Piping Works inc.labor for downspouts Fogger System (Equivalent or Higher) Droplet size 55 microns @ 4.0 bar

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	<p>Range of Flow rates for different presipitation rates Flow rate (l/h) 5.3, 7.0, 14.0, 21.0, 28.0 High water distribution uniformity and coverage Chemical resistant raw materials P.E. and Pvc Connections Filtration Requirements , 130 microns (120 mesh) LPD (Leak Prevention Device) High Pressure LPD and Medium LPD</p>	<p>Range of Flow rates for different presipitation rates Flow rate (l/h) 5.3, 7.0, 14.0, 21.0, 28.0 High water distribution uniformity and coverage Chemical resistant raw materials P.E. and Pvc Connections Filtration Requirements , 130 microns (120 mesh) LPD (Leak Prevention Device) High Pressure LPD and Medium LPD with at least 1 year warranty on parts and services</p>
2	<p>GROWING SYSTEM NFT System with Movable Benches for Leafy Vegetable NFT System for 200m² NET Area Greenhouse Capacity : 3024 Plants at one setting Automatic Fertigation Controller EC-3 Injectors Ph 1 injector NFT Stand For the details of Table (see attached drawing) (Equivalent or Higher) use 2"x 2" Tubular Pipe (for vertical) use 1"x 2" Rectangular Tube (for horizontal) Hydroponic Downspout Channel 4ft x 4 to 2 "holes</p>	<p>GROWING SYSTEM NFT System with Movable Benches for Leafy Vegetable NFT System for 200m² NET Area Greenhouse Capacity : 3024 Plants at one setting Automatic Fertigation Controller EC-3 Injectors Ph 1 injector NFT Stand For the details of Table (see attached drawing) (Equivalent or Higher) use 2"x 2" Tubular Pipe (for vertical) use 1"x 2" Rectangular Tube (for horizontal) Hydroponic Downspout Channel 4ft x 4 to 2 "holes with at least 1 year warranty on parts and services</p>



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3	<p>For the supply and Programming of PLC and HMI controls for 5 Greenhouses with the following Engineering Scope of Works :</p> <ol style="list-style-type: none"> 1. Supply and programming of PLC and HMI 2. Electrical wiring of machine input and output to PLC and HMI 3. Wiring of PLC and HMI at junction box 4. Testing and Commissioning plus training of representatives 5. Provide Measurement Data Logger <p>Supply of Materials PLC - CPU 1214 DC/DC/DC (25 units) HMI - KTP400 Basic 4" (5 units) Analog Input module (25 units) Digital Output Module (16) (25 units) Digital Input Module (16) (25 units) Power supply (25 units) Industrial Switch (8 port) (5 units) Circuit Breaker (75 units) Relays (300 units) Terminal Block (10 pcs each set) (75 units) Cables-control signal(18 AWG) (75 units) Blue / Black / Red Cables-output signal(10 AWG) (75 units) Black / Red The Programmable Lodic Controller (PLC) shall be an</p>	<p>For the supply and Programming of PLC and HMI controls for 5 Greenhouses with the following Engineering Scope of Works :</p> <ol style="list-style-type: none"> 1. Supply and programming of PLC and HMI 2. Electrical wiring of machine input and output to PLC and HMI 3. Wiring of PLC and HMI at junction box 4. Testing and Commissioning plus training of representatives 5. Provide Measurement Data Logger <p>Supply of Materials PLC - CPU 1214 DC/DC/DC (25 units) HMI - KTP400 Basic 4" (5 units) Analog Input module (25 units) Digital Output Module (16) (25 units) Digital Input Module (16) (25 units) Power supply (25 units) Industrial Switch (8 port) (5 units) Circuit Breaker (75 units) Relays (300 units) Terminal Block (10 pcs each set) (75 units) Cables-control signal(18 AWG) (75 units) Blue / Black / Red Cables-output signal(10 AWG) (75 units) Black / Red The Programmable Lodic Controller (PLC) shall be an</p>
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<p>imbedded I/O design, with I/O expansio capabality Programmable Logic Controller System A single chassis shall house CPU, memory, embedded I/O circuitry, communications,I/O expansion slot and power supply Operate in an industrial environment with an ambient temperature of -20 deg Cent. To 65 deg Cent. (-4 F to 149 F) and with relative humidity range of 5% to 95%. non-condensing Designed to operate in a free airflow environment (Convection cooling only, no fans or other moving devices shall be required) Designed and Tested to Operate in high electrical noise environments The system shall support up to front 5 expansions modules (input/output, discrete or analog,</p> <p>4 side expansion I/O modules (input/output, dicrete or analog) for a total of 32 discrete I/O The plug-in and expansion module shall be front accessible. Visual indicator to display ON/OFF Status All user wiring to I/O modules shall be through a heavy duty terminal strip, Pressure type screw Pressure -type screw terminals shall be used to provide fast secured wire.</p>	<p>imbedded I/O design, with I/O expansio capabality Programmable Logic Controller System A single chassis shall house CPU, memory, embedded I/O circuitry, communications,I/O expansion slot and power supply Operate in an industrial environment with an ambient temperature of -20 deg Cent. To 65 deg Cent. (-4 F to 149 F) and with relative humidity range of 5% to 95%. non-condensing Designed to operate in a free airflow environment (Convection cooling only, no fans or other moving devices shall be required) Designed and Tested to Operate in high electrical noise environments The system shall support up to front 5 expansions modules (input/output, discrete or analog,</p> <p>4 side expansion I/O modules (input/output, dicrete or analog) for a total of 32 discrete I/O The plug-in and expansion module shall be front accessible. Visual indicator to display ON/OFF Status All user wiring to I/O modules shall be through a heavy duty terminal strip, Pressure type screw Pressure -type screw terminals shall be used to provide fast secured wire.</p>
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	<p>PLC CPU Providing system timing and scheduling I/O updates Controlling all I/O scanning and communications service. Performing internal diagnostic checks and providing visual indication by illuminating a "green" indicator when no fault is detected and a "red" indicator when a fault is detected. 4.3-Inch HMI Terminal with 65K Colors, Touch Screen TFT with 4 function keypads. Serial, Ethernet & USB ports. 128 MB of Internal Storage and RAM (or higher) Programing Software Laptop (i5 12th gen)</p>	<p>PLC CPU Providing system timing and scheduling I/O updates Controlling all I/O scanning and communications service. Performing internal diagnostic checks and providing visual indication by illuminating a "green" indicator when no fault is detected and a "red" indicator when a fault is detected. 4.3-Inch HMI Terminal with 65K Colors, Touch Screen TFT with 4 function keypads. Serial, Ethernet & USB ports. 128 MB of Internal Storage and RAM (or higher) Programing Software Laptop (i5 12th gen) with at least 1 year warranty on parts and services with training on the use of programs and system</p>
4	<p>For the supply and Programming of PLC and HMI controls for 1 Greenhouse with the following Engineering Scope of Works :</p> <ol style="list-style-type: none"> 1. Supply and programming of PLC and HMI 2. Electrical wiring of machine input and output to PLC and HMI 3. Wiring of PLC and HMI at junction box 4. Testing and Commissioning plus training of representatives 5. Provide Measurement Data Logger 	<p>For the supply and Programming of PLC and HMI controls for 1 Greenhouse with the following Engineering Scope of Works :</p> <ol style="list-style-type: none"> 1. Supply and programming of PLC and HMI 2. Electrical wiring of machine input and output to PLC and HMI 3. Wiring of PLC and HMI at junction box 4. Testing and Commissioning plus training of representatives 5. Provide Measurement Data Logger



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<p>Supply of Materials</p> <p>PLC - CPU 1214 DC/DC/DC (5 units)</p> <p>HMI - KTP400 Basic 4" (1 units)</p> <p>Analog Input module (55 units)</p> <p>Digital Output Module (16) (55 units)</p> <p>Digital Input Module (56) (25 units)</p> <p>Power supply (5 units)</p> <p>Industrial Switch (8 port) (1 units)</p> <p>Circuit Breaker (15 units)</p> <p>Relays (60 units)</p> <p>Terminal Block (10 pcs each set) (15 units)</p> <p>Cables-control signal(18 AWG) (15 units)</p> <p>Blue / Black / Red</p> <p>Cables-output signal(10 AWG) (15 units)</p> <p>Black / Red</p> <p>The Programmable Logic Controller (PLC) shall be an imbedded I/O design, with I/O expansion capability</p> <p>Programmable Logic Controller System</p> <p>A single chassis shall house CPU, memory, embedded I/O circuitry, communications, I/O expansion slot and power supply</p> <p>Operate in an industrial environment with an ambient temperature of -20 deg Cent. To 65 deg Cent. (-4 F to 149 F) and with relative humidity range of 5% to 95% non-condensing</p> <p>Designed to operate in a free airflow environment</p>	<p>Supply of Materials</p> <p>PLC - CPU 1214 DC/DC/DC (5 units)</p> <p>HMI - KTP400 Basic 4" (1 units)</p> <p>Analog Input module (55 units)</p> <p>Digital Output Module (16) (55 units)</p> <p>Digital Input Module (56) (25 units)</p> <p>Power supply (5 units)</p> <p>Industrial Switch (8 port) (1 units)</p> <p>Circuit Breaker (15 units)</p> <p>Relays (60 units)</p> <p>Terminal Block (10 pcs each set) (15 units)</p> <p>Cables-control signal(18 AWG) (15 units)</p> <p>Blue / Black / Red</p> <p>Cables-output signal(10 AWG) (15 units)</p> <p>Black / Red</p> <p>The Programmable Logic Controller (PLC) shall be an imbedded I/O design, with I/O expansion capability</p> <p>Programmable Logic Controller System</p> <p>A single chassis shall house CPU, memory, embedded I/O circuitry, communications, I/O expansion slot and power supply</p> <p>Operate in an industrial environment with an ambient temperature of -20 deg Cent. To 65 deg Cent. (-4 F to 149 F) and with relative humidity range of 5% to 95% non-condensing</p> <p>Designed to operate in a free airflow environment</p>
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<p>(Convection cooling only, no fans or other moving devices shall be required) Designed and Tested to Operate in high electrical noise environments The system shall support up to front 5 expansions modules (input/output, discrete or analog, 4 side expansion I/O modules (input/output, discrete or analog) for a total of 32 discrete I/O The plug-in and expansion module shall be front accessible. Visual indicator to display ON/OFF Status All user wiring to I/O modules shall be through a heavy duty terminal strip, Pressure type screw Pressure -type screw terminals shall be used to provide fast secured wire. PLC CPU Providing system timing and scheduling I/O updates Controlling all I/O scanning and communications service. Performing internal diagnostic checks and providing visual indication by illuminating a "green" indicator when no fault is detected and a "red" indicator when a fault is detected. 4.3-Inch HMI Terminal with 65K Colors, Touch Screen TFT with 4 function keypads. Serial, Ethernet & USB ports. 128 MB of Internal Storage and RAM (or higher)</p>	<p>(Convection cooling only, no fans or other moving devices shall be required) Designed and Tested to Operate in high electrical noise environments The system shall support up to front 5 expansions modules (input/output, discrete or analog, 4 side expansion I/O modules (input/output, discrete or analog) for a total of 32 discrete I/O The plug-in and expansion module shall be front accessible. Visual indicator to display ON/OFF Status All user wiring to I/O modules shall be through a heavy duty terminal strip, Pressure type screw Pressure -type screw terminals shall be used to provide fast secured wire. PLC CPU Providing system timing and scheduling I/O updates Controlling all I/O scanning and communications service. Performing internal diagnostic checks and providing visual indication by illuminating a "green" indicator when no fault is detected and a "red" indicator when a fault is detected. 4.3-Inch HMI Terminal with 65K Colors, Touch Screen TFT with 4 function keypads. Serial, Ethernet & USB ports. 128 MB of Internal Storage and RAM (or higher)</p>
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	<p>Programing Software Laptop (i5 12th gen)</p>	<p>Programing Software Laptop (i5 12th gen) with at least 1 year warranty on parts and services with training on the use of programs and system</p>
5	<p>Temperature and Relative Humidity Probe Supply of Materials Temperature and Humidity Sensor (120 units) Float Switch (24 units) Solenoid valve (1/2 in) (180 units) RH Measuring range: 0 to 100% RH (non-condensing) RH Typical Accuracy at -40 degree to 0 degree celsius Air Temperature Sensing Element: 1000 ohm Platinum Air Temperature Measuring range: -40 degrees to +60 degree celsius</p>	<p>Temperature and Relative Humidity Probe Supply of Materials Temperature and Humidity Sensor (120 units) Float Switch (24 units) Solenoid valve (1/2 in) (180 units) RH Measuring range: 0 to 100% RH (non-condensing) RH Typical Accuracy at -40 degree to 0 degree celsius Air Temperature Sensing Element: 1000 ohm Platinum Air Temperature Measuring range: -40 degrees to +60 degree celsius with at least 1 year warranty</p>
6	<p>SUPPLEMENTARY HORTICULTURE LIGHTS 4 ft LED Bar lighrs, 50W, with installation</p>	<p>No Changes</p>
7	<p>CONTROL BOX MS PLATE 600mm x 400mm x 350mm Power Cables Motor Protection devices and spares The supplier shall provide all required cables and connections to interface with other control system</p>	<p>CONTROL BOX MS PLATE 600mm x 400mm x 350mm Power Cables Motor Protection devices and spares The supplier shall provide all required cables and connections to interface with other control system</p>

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	equipment. The supplier shall ensure that communication media, analog signals, and discrete I/O wiring are properly protected in accordance with manufacturer recommendations.	equipment. The supplier shall ensure that communication media, analog signals, and discrete I/O wiring are properly protected in accordance with manufacturer recommendations. with at least 1 year warranty on parts and services
8	Circulating fans w/ stainless frame 220V 1hp, 180W, 400mm DIA w/ installation	Circulating fans w/ stainless frame 220V 1hp, 180W, 400mm DIA w/ installation with at least 1 year warranty
9	24" tornado grille exhaust fan w/ installation	24" tornado grille exhaust fan w/ installation with at least 1 year warranty
10	Cooling pads 2m x 4m x 15cm w/ installation	Cooling pads 2m x 4m x 15cm w/ installation with at least 1 year warranty
11	Fogger motor pump 1/2 HP w/ installation	Fogger motor pump 1/2 HP w/ installation with at least 1 year warranty
12	Control panel w/ back plane w/ installation	Control panel w/ back plane w/ installation with at least 1 year warranty
13	400W air circulator motor w/ installation	400W air circulator motor w/ installation with at least 1 year warranty

For the guidance and information of all concerned.


RONALD REAGAN T. ALONZO, Ph.D.
BAC Chairperson

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