

# PURCHASE REQUEST

Entity Name: CALUMPIT WATER DISTRICT

Fund Cluster:

Office/Section : Engineering & Operations Dept.		PR No.: 2017-05-004 Responsibility Center Code :	Date: 2-May-17		
Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
	lot	<b>Supply of Equipment, Install, Testing , Commissioning of Real Time Monitoring CCTV Cameras in 4 Pumping Stations with wireless communication module equipment (2.4GHz/5.7GHz) suitable/adaptable for PLC/SCADA monitoring &amp; controlling of flow, pressure, controlling the operation of pump, valves,etc.</b>	1	L.S.	600,000.00
		<b>Phase I: Installation of CCTV Cameras in Pumping Stations of Balungao, Buguion,Caniogan and Northville monitored in CWD Main Office Building</b>			
		<b>Materials List:</b>			
	units	<b>Outdoor Type Camera</b>	4		
		Image Sensor: 1/2.8" Progressive Scan CMOS			
		Min. Illumination: 0.01Lux @ (F1.2, AGC ON), 0.028 Lux @(F2.0, AGC ON), 0 Lux with IR			
		Shutter Speed: 1/3 s ~ 1/10,000 s			
		Slow Shutter: Support			
		Lens: (-I3:4,6mm; 4,6,12mm; -I8: 6,12,16mm) @F2.0			
		Lens Mount: M12			
		Day & Night: IR cut filter with auto switch			
		WDR: 120dB			
		Compression Standard			
		Video Compression: H.264/MJPEG/H.264+			
		H.264 Type: Main Profile			
		Video Bit Rate: 256 Kbps - 16 Mbps			
		Image			
		Max Resolution: 1920 x 1080			
		Frame Rate: 50Hz:25fps(1920 x 1080 x 960, 1280 x 720) 60Hz:30fps(1920 x 1080 x 960, 1280 x 720)			
		Image Enhancement: BLC/3D DNR/ROI			
		Image Setting: Rotate Mode, Saturation, Brightness, Contrast, Sharpness adjustable by client software or web browser			
		Day/Night Switch: Auto/Schedule/Triggered by Alarm In			
		Network			
		Network Storage: NAS (Support NFS, SMB/CIFS)			
		Alarm Trigger: Intrusion Detection, Line Crossing detection, Motion detection, Dynamic analysis, Tampering alarm, Network disconnect, IP Address conflict, Storage Exception)			
		Protocols: TCP/IP, UDP, ICMP, HTTP, FTP, DHCP, DNS, DDNS, RTP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv6, Bonjour			
		Security: Flash-prevention, dual stream, heartbeat, mirror, password protection, privacy mask, watermark, IP address filtering, Anonymous Access			
		Standard: ONVIF (PROFILE S, PROFILE G), PSIA, CGI, ISAPI			

Purpose: CCTV Camera at Caniogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration

Requested by: \_\_\_\_\_ Approved by: \_\_\_\_\_

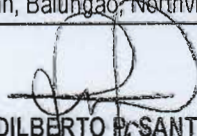
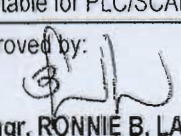
Signature :  Approved by:   
 Printed Name: EDILBERTO P. SANTOS Engr. RONNIE B. LARGADO  
 Designation: Department Manager, EOP General Manager



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Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
		General			
		Communication Interface: 1 RJ45 10M/100M Ethernet Interface			
		Operating Conditions: -30 °C (-22 °F - 140 °F), Humidity 95% less (non-condensing)			
		Power supply: 12V DC ± 10%, PoE (802.3af)			
		Power Consumption: -13:Max. 6w; -15:Max. 7.5W; -18:Max. 10.5W			
		Ingress Protection level: IP66			
		IR Range: -13:30 meters; -15: 50 meters; -18:80 meters			
		Dimensions: 299.71 x 86.48 x 85.11(11.8" x 3.4" x 3.35")			
		Weight: 1200g (2.65 lbs.)			
		<b>Dome Type CCTV</b>	4		
		Basic Specification:			
		1/3" Progressive CMOS, ICR, 0lux with IR, 2560×1920: 20fps, 4mm/F2.0 lens (2.8/6mm optional), H.264/MJPEG, dual-stream, IP66, DC12V & PoE, DWDR, 3D DNR, BLC, support on-board storage up to 128GB(SD card not included), 3-axis adjustment, IR range: up to 30m, Vandal-proof housing, Support mobile monitoring via HIK-cloud P2P, H.264+ Optimized Codec-S: Audio/Alarm IO			
		Image Sensor: 1/3" Progressive Scan CMOS			
		Min. Illumination: 0.01Lux @ (F1.2, AGC ON), 0Lux with IR			
		Shutter Speed: 1/3s to 1/10,000s			
		Lens: 2.8mm (4mm, 6mm option) @ F2.0			
		Lens Mount: M12			
		Day & Night: IR Cut filter with auto switch			
		Digital Noise Reduction: 3D DNR			
		Wide Dynamic Range: Digital WDR			
		Angle Adjustment: Pan: 0° - 355°, Tilt: 0°-75°, Rotation: 0-355'			
		Compression Standard:			
		Video Compression: H.264/MJPEG			
		H.264 Type: Main Profile			
		Video Bit Rate: 256 Kbps - 16 Mbps			
		Dual Stream: Yes			
		Image			
		Max. Resolution: 2560 x 1920			
		Frame Rate: 50Hz:20fps (2560 x 1920, 25fps (2048 x 1536), 25 fps (1920 x 1080), 25 fps (1280 x 720) 60Hz: 20fps (2560 x 1920, 30fps (2048 x 1536), 30 fps (1920 x 1080), 30 fps (1280 x 720)			
		Image Settings: Rotate Mode, Saturation, brightness, contrast adjustable by client software or web browser			
		Backlight Compensation: Yes, zone optional			
Purpose: CCTV Camera at Cariogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration					
Requested by:			Approved by:		
Signature :					
Printed Name		EDILBERTO R. SANTOS		Engr. RONNIE B. LARGADO	
Designation :		Department Manager, EOD		General Manager	



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		Responsibility Center Code :			
Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
		ROI: Support			
		Network			
		Network Storage: NAS (Support NFS,SMB/CIFS)			
		Alarm Trigger: Intrusion Detection, Line Crossing detection, Motion Detection, Dynamic Analysis, Tampering Alarm, Network disconnect, IP Address conflict, Storage Exception			
		Protocols: TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1 X, QoS, IPv6, Bonjour			
		Security: One-key reset, Flash-prevention, dual stream, heartbeat, mirror, password protection, privacy mask, watermark, IP address filtering, Anonymous access			
		Standard: ONVIF, PSIA, CGI, ISAPI			
		Interface			
		Communication Interface: 1 RJ45 10M/100M Ethernet Interface			
		Alarm Interface: -S:1 alarm I/O			
		Audio Interface: -S:1 audio I/O			
		On-board storage: Built-in SD/SDHC slot, up to 128 GB			
		Reset Button: Yes			
		Wifi Specification (-W)			
		Wireless Standards: IEEE802.11b, 802.11g, 802.11n			
		Frequency Range: 2.4 GHz ~ 2.4835 GHz			
		Channel Bandwidth: 20/40MHz Support			
		Protocols: 802.11B:CCK, QPSK, BPSK 802.11g/n:OFDM			
		Security: 64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK, WPS			
		Transmit Output Power: 11b:17±1.5dBm@11Mbps 11g:14±1.5dBm@54Mbps 11n:12.5±1.5dBm			
		Receive Sensitivity: 11b:-90dBm@11Mbps (Typical) 11g: -75dBm@54Mbps (Typical) 11n:-74dBm (Typical)			
		Transfer Rates: 11b:11Mbps, 11g:54Mbps, 11n:up to 150Mbps			
		Wireless Range: 50m (depend on environment)			
		Wireless Standards: IEEE802.11b, 802.11g, 802.11n			
		General			
		Operating Conditions: -30°C -60 °C (-22 °F - 140 °F) Humidity 95% or less (non-condensing)			
		Power Supply: 12V DC ± 10% PoE (802.3af)			
		Power Consumption: Max. 5W (Max. 7W with iR cut filter on)			
		Ingress Protection Level: IP66			
		IR Range: 10~30 meters			
		Impact Protection: IEC60068-2-75Eh, 50J; EN50102, up to IK10			
		Dimensions: Ø111 x 82 (4.4" x 3.2")			
		Weight: 500g (1.1 lbs.)			
		<b>NVR Dome Recorder</b>	1		
		Video/Audio Input			
		IP Video Input: 8-ch			

Purpose: CCTV Camera at Caniogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration

Requested by:

Approved by:

Signature :

Printed Name

Designation:

  
**EDILBERTO P. SANTOS**

Department Manager, EOD

  
**Engr. RONNIE B. LARGADO**


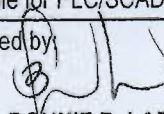
General Manager



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		Responsibility Center Code :				
Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost	
		Two-way Audio Input: 1-ch, RCA (2.0 Vp-p, 1kΩ)				
		Network				
		Incoming bandwidth: 50Mbps				
		Outgoing bandwidth: 80Mbps				
		Remote Connection: 128				
		Video/Audio Input				
		Recording Resolution: 5MP/3MP/1080P/UXGA/720P/VGA/ 4CIF/ DCIF/2CIF/CIF/QCIF				
		Frame Rate: Main Stream: 50 fps (P) / 60 fps (N) Sub-Stream: 50 fps (P) / 60 fps (N)				
		HDMI/VGA Output: 1-ch, resolution: 1920 x 1080 /60Hz, 1600 x 1200 /60Hz, 1280 x 1024 /60Hz, 1280 x 720 / 60Hz, 1024 x 768 /60Hz				
		Audio Output: 1-ch, RCA (Liner, 1kΩ)				
		Decoding				
		Live view/Playback Resolution: 5MP/3MP/1080p/UXGA/720p/ VGA/4CIF/DCIF/2CIF/CIF/QCIF				
		Capability: 8-ch @720P, 6-ch @1080P				
		Hard disk				
		SATA: 1 SATA interface for 1 HDD				
		Capacity: Up to 4TB for each disk				
		External Interface				
		Network Interface: 1RJ-45 10/100/1000 Mbps self-adaptive				
		Ethernet Interface				
		USB Interface: 1 x USB 2.0 and 1 x USB 3.0				
		Alarm in/out: 4/1				
		PoE				
		Interface: 4 independent 100 Mbps PoE network interfaces				
		Max. Power: 50W				
		Supported Standard: AF and AT				
		Others				
		Power Supply: 48V DC				
		Consumption (without hard disk): ≤ 10W				
		Working Temperature: -10 °C ~ +55 °C (+ 14°F ~+ 131 °F)				
		Working humidity: 10% ~ 90%				
		Chassis: IU Chassis				
		Dimensions (W x D x H): 315 x 230 x 45mm (12.4 x 9.1 x 1.8inch)				
		Weight (without hard disk) : ≤ 1 Kg (2.2 lb)				
		<b>Wireless Module</b>	<b>10</b>			
		This method will help eliminates hidden node collisions and maximizes airtime efficiency, so the device will provide improvements in latency noise				
Purpose: CCTV Camera at Caniogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration						
Requested by:		 <b>EDILBERTO P. SANTOS</b> Department Manager, EOD			Approved by:  <b>Engr. RONNIE B. LARGADO</b> General Manager	
Signature :						
Printed Name						
Designation :						



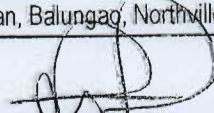
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Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost	
		Wireless Communication				
		The non-license radio device to be used should have the basic properties to properly maintain communication between stations. These should incorporate the necessary features and advantages necessary to maintain the radio link and secure monitoring application and other use.				
		General Features				
		(A) Wireless Radio Design and Features				
		The radio communication shall have a tighter beam width, and its integrated isolator design to improve RF isolation to spatially filter out interference. With its combination of focused beam directivity and RF isolation, the wireless device should blocks noise to improve noise immunity. This is especially important in an area crowded with other RF signals of the same or similar frequency.				
		The device shall have featured technology that will integrates the radio into the feedhorn of an antenna, so there is no need for a cable. This improves performance because it eliminates cable losses.				
		<ul style="list-style-type: none"> <li>• Long-Range Point-to-Point (PtP) Link Mode</li> <li>• Selectable Channel Width</li> <li>• PtP: 10/20/30/40/50/60/80 MHz</li> <li>• PtMP: 10/20/30/40 MHz</li> <li>• Automatic Channel Selection</li> <li>• Transmit Power Control: Automatic/Manual</li> <li>• Automatic Distance Selection (ACK Timing)</li> <li>• Strongest WPA2 Security</li> </ul>				
		Dynamic Configuration Changes <ul style="list-style-type: none"> <li>• Instant Input Validation</li> <li>• HTML5 Technology</li> <li>• Optimization for Mobile Devices</li> <li>• Detailed Device Statistics</li> <li>• Comprehensive Array of Diagnostic Tools, including Ethernet Cabling Test, RF Diagnostics, and Spectrum Analyzer</li> </ul>				
		The device feature shall have a multi-radio architecture to power a RF analytics engine and a Real-Time Reporting.				
		Radio onboard software shall have: <ul style="list-style-type: none"> <li>• Constantly monitors environmental noise</li> <li>• Collects energy data points in real-time spectral views</li> <li>• Helps optimize channel selection, network design, and wireless performance runs in the background without disabling the wireless link, so there is no disruption to the network.</li> </ul>				
		Radio device shall have protocol to allow each client to send and receive data. This method will help eliminates hidden node collisions and maximizes airtime efficiency, so the device will provides performance improvements in latency, noise immunity, scalability, and throughput compared to other outdoor systems in its class.				

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Signature :  
Printed Name **EDILBERTO P. SANTOS**

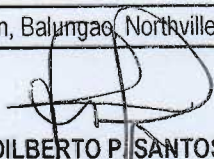

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**Engr. RONNIE B. LARGADO**



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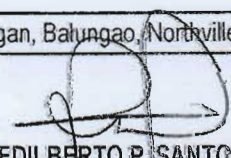
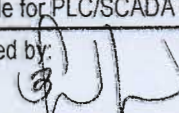
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		The device wireless engine shall secure improves latency and network scalability. The hardware material shall provides hardware acceleration capabilities to the device scheduler, to support the high data rates and dense modulation used in the device.				
		Throughput supports up to 450+ Mbps				
		The radio design shall have interference filter to deliver improved noise immunity				
		Radio construction shall have weather proof corrosion resistance				
		(B) Specification				
		Power Supply :24V ( or 20-26VDC) , 0.5A				
		Power Method : Passive PoE (Pairs 4, 5+; 7, 8 Return)				
		Power Consumption : 8.5W				
		Gain :25 dBi				
		Networking Interface : (1) 10/100/1000 Ethernet Port				
		Processor Specs :Atheros MIPS 74Kc, 560 MHz				
		Memory : 64 MB DDR2, 16 MB Flash				
		LEDs :(1) Power, (1) LAN, (4) WLAN				
		Signal Strength LEDs :Software-Adjustable to Correspond to				
		Channel Sizes :PiP Mode PiMP Mode				
		10/20/30/40/50/60/80 MHz 10/20/30/40 MHz				
		Polarization :Dual Linear				
		Enclosure :Outdoor UV Stabilized Plastic				
		Mounting :Pole-Mount Kit Included				
		Wind Survivability :200 km/h (125 mph)				
		ESD/EMP Protection : Air: ± 24 kV, Contact: ± 24 kV				
		Operating Temperature :-40 to 70° C (-40 to 158° F)				
		Operating Humidity :5 to 95% Noncondensing				
		Wireless Approvals :FCC, IC, CE				
		RoHS Compliance :Yes				
		Salt Fog Test :IEC 68-2-11 (ASTM B117), Equivalent: MIL-STD-810 G Method 509.5				
		Vibration Test :IEC 68-2-6				
		Temperature Shock Test :IEC 68-2-14				
		UV Test :IEC 68-2-5 at 40° C (104° F), Equivalent: ETS 300 019-1-4				
		Wind-Driven Rain Test :ETS 300 019-1-4, Equivalent: MIL-STD-810 G Method				
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Requested by:		 <b>EDILBERTO P. SANTOS</b> Department Manager, EOD			Approved by:  <b>Engr. RONNIE B. LARGADO</b> General Manager	
Signature :						
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Designation :						



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		<b>Phase II: Installation of PLC in Pumping Stations of Balungao, Buguion, Caniogan and Northville via SCADA Software monitored and controlled in CWD Main Office Building</b>			
		1.1 The CPU shall be a self-contained unit that provides or supports program execution, remote or local programming, I/O scanning and inter-processor and peripheral communication. System and signal power to the CPU and support modules shall be distributed on a single backplane in single chassis systems. The design of multi-chassis systems shall be reviewed and require to get approval.			
		1.2 The system shall perform internal diagnostic checking and provide visual indication of health by illumination.			
		1.3 Multiple CPU (up to max. of 4) shall be able to install in one PLC system to execute ladder logic concurrently to improve control and scan time performance.			
		<b>Power Supply</b>			
		Supplier shall provide power supplies to the PLCs as standard equipment. PLC main power supplies shall each have the capability of supplying all required power to the CPU and local input/output modules. An auxiliary power shall provide power to remotely located racks. The PLC power supply shall include diagnostic indicators that are easily viewed by an operator and shall provide the operator with status of DC power applied. Means of disabling power to CPU shall be possible from power disconnect switch and easily accessible by authorized personnel.			
		At time of power up, power supply shall inhibit operation of processor and I/O modules until DC voltages are within specifications. All power supplies shall have fuse or MCCB protection.			
		<b>PLC System Control Capabilities</b>			
		Main sequence control shall be by main Sequence CPU which able to add on additional Sequence CPU up to a maximum of 4			
		Multiple Ladder blocks (min. 32 ladder blocks) should be able to store in a single CPU Module and run sequentially			
Purpose: CCTV Camera at Caniogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration					
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Printed Name		EDILBERTO P. SANTOS	Engr. RONNIE B. LARGADO		
Designation :		Department Manager, EOD	General Manager		



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Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
		Individual ladder blocks in CPU able to turn off (stop,inactive) or on (run,active) by ladder program			
		PID Control function shall be performed by dedicated PID Control Module, not by main CPU. PID Control shall have minimum input sampling speed of 200ms, input accuracy of $\pm 0.1\%$ of F.S., input resolution of 0.1 °C (5-digit display)			
		<b>PLC System Communication Capabilities</b>			
		PLC System should have following communication options (modules) for future expansion to communicate with Slave devices			
		1. Open Protocol (RS232C)			
		2. Open Protocol (RS422/485)			
		PLC System should have following communication option(modules) for future expansion to communicate with upper level computer like Touch Screen, HMI/SCADA Package and DCS (Distributed Control System)			
		1. RS232C			
		2. RS422/485			
		3. Ethernet			
		<b>PLC Software</b>			
		Personnel familiar with the complete PLC system shall be available full time to assist with both FAT and initial startup of the system onsite			
		Program Design			
		If more than one logic system is programmed in one PLC system, each logic system program, documentation, and I/O terminals and modules shall be separate and distinct from other logic systems. Lines of ladder logic shall not be intermixed between logic system programs, and programs shall not share common logic functions			
		PLC programming should be divided into major ladder blocks (i.e. all logic for a given unit or piece of equipment). Major ladder blocks should further be divided into smaller ladder blocks (i.e. alarms, valve controls, motor controls, etc) PLC languages should be restricted to ladder diagram. Program flow for each logic block shall be in the following order			
		Field inputs			
		Internal control logic			
		Control output			
		Alarm output			
		<b>Programming Techniques and Function</b>			
		Programming format shall be ladder diagram			

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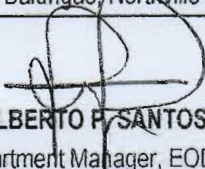
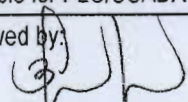
Engr. RONNIE B. LARGADO



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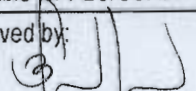
Office/Section : Engineering & Operations Dept.		PR No.: 2017-DS-004			Date: 2-May-17	
		Responsibility Center Code :				
Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost	
		In addition, the ability to "Hide/Unhide" portion of ladder shall be provided to allow user to quickly diagnose or edit application program				
		Multiple project file should be able to open simultaneously in the same PC				
		Within a project file, multiple ladder blocks shall be able to open for editing purposes				
		Ladder Diagrams and Tables shall be easily cut and paste into Microsoft Word documents and Excel documents for easy documentation				
		<b>Programming Software Functionality</b>				
		Contact change from normally open to normally closed, add instructions, change addresses, and other functions within rung without need to delete and reprogram entire rung				
		Insert relay ladder diagrams anywhere in program, even between existing rungs, if sufficient memory is available				
		Move entire logic rung into edit buffer where individual parameters may be easily altered				
		If multiple channels are terminated on one module, transfer current status of all channels to CPU upon execution of one program instruction. This instruction shall be bidirectional to include data transfer from CPU to module or from module to CPU. Multiple channels				
		System shall provide the capability to enter comments for individual rung				
		Clock and calendar feature shall be included in CPU. Access to time and date shall be from programming terminal, user program, or message generation				
		PLC shall use signed integer format ranging from -32 768 to 32 767 for data storage of counter preset and accumulated values				
		PLC shall have capability for manually set (force), hardwired input and output points either "on" or "off" from programmer. Removal of these forced I/O points shall be either individually or totally through elected keystrokes. Programming terminal shall be able to display forced I/O points				
		<b>PLC Software Capability</b>				
		Support control logic functions providing ASCII port control such as read, write, handshake line control, and buffer examination				
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Signature :					 <b>Engr. RONNIE B. LARGADO</b> General Manager	
Printed Name						
Designation :						



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		Responsibility Center Code :			
Stock/ Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
		CPU shall able to store System Log Message to store System related activities like Power ON/OFF and Error situation. Logging of System Log Message shall be automatically done by CPU			
		CPU shall able to store User Log Message pre-configure by user with Date and Time stamp. Logging of User Log Message is trigger by Ladder Logic			
		PLC should support trigonometric, logarithmic, exponential, and square root functions. PLC shall support floating point arithmetic			
		For applications requiring repeatable logic rungs, it shall be possible to place such rungs in sub-routine section. Instructions that call sub-routine and return to main program shall be included in system			
		Software shall have capability to program several sub-routines and define each sub-routine by unique label			
		The processor shall support nesting of sub-routines up to eight levels			
		<b>Display</b>			
		Program format shall display instructions on programming terminal with appropriate mnemonics to define data entered by programmer. System shall be capable of providing "help" instruction that displays on Screen list of instructions, data, and keystrokes required to enter instruction into system memory			
		At programmer request, data contained in system memory shall be displayed on the programming terminal. Monitoring feature shall be provided for input/output status, timer/counter data, files, and system status			
		Ladder logic rungs shall be displayed on the Screen with rung numbers in sequential order			
		<b>PLC Standard of Conformity and Compliance</b>			
		EN 61326-1 Class A, EN 61326-2-3, EN 55011 Class A, EN 61000-6-2, EN 61000-3-2, EN 61000-3-3 Compliance, EN 61010-1, EN 61010-2-201, EN 61010-2-030, EN 50581, EN 61326-1 Class A, EN 55011 Class A,			
Purpose: CCTV Camera at Caniogan, Balungao, Northville and Buguion Pumping Station adaptable for PLC/SCADA integration					
Requested by:		Approved by:			
Signature :					
Printed Name		EDILBERTO F. SANTOS		Engr. RONNIE B. LARGADO	
Designation :		Department Manager, EOD		General Manager	





REPUBLIC OF THE PHILIPPINES  
CALUMPIT WATER DISTRICT  
Bids and Awards Committee

M. Serrano St., Corazon, Calumpit, Bulacan  
Tel Nos. 044 913 0079  
Telefax 044 202 5125

**BAC RESOLUTION NO. 2017- 101**

**Re: Supply of Equipment, Installation, Testing, Commissioning of Real Time Monitoring CCTV Cameras in 4 Pumping Stations with Wireless Communication Module Equipment (2.4GHZ/5.7GHZ) Suitable/ Adaptable for PLC/SCADA Monitoring & Controlling of Flow, Pressure, Controlling the Operation of Pump, Valves, etc.**

WHEREAS, the Bids and Awards Committee is hereby instructed to act upon the CWD with purchase request no. 2017- 05- 004, re: supply of equipment, installation, testing, commissioning of real time monitoring CCTV cameras in 4 pumping stations with wireless communication module equipment (2.4GHz/5.7GHZ) suitable/ adaptable for PLC/ SCADA monitoring & controlling of flow pressure, controlling the operation of pump, valves, etc;

WHEREAS, the members of the BAC agreed to adopt Section 52, Article XVI of RA 9184, which states the use of **Shopping** a method of procurement of goods whereby the procuring entity simply requests for the submission of price quotation for readily available off- the- shelf goods or ordinary/ regular equipment to be procured directly from suppliers of known qualifications;

NOW THEREFORE, We, the members of Bids and Awards Committee, hereby RESOLVE as it is hereby RESOLVED;

1. To recommend the use of Shopping for the purchase request no. 2017-05-004;
2. To recommend for approval by the General Manager of the Calumpit Water District the foregoing findings;

RESOLVED, at the CWD Office, M. Serrano St., Corazon, Calumpit, Bulacan, this 11<sup>th</sup> of May 2017.



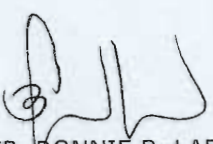
EDILBERTO P. SANTOS  
BAC Vice Chairman

*Elvira M. Rañopa 05/24/2017*  
ELVIRA M. RAÑOPA  
BAC Chairman

*Emely E. Echevarria 5/15*  
EMELY E. ECHEVARRIA  
Member

*Ronaldo D.C. Tantoco 5/24*  
RONALDO DC TANTOCO  
BAC Member

*Esperanza L. Cortez 5/24*  
ESPERANZA L. CORTEZ  
BAC Member

  
ENGR. RONNIE B. LARGADO  
Head of the Procuring Entity  
Approved on: 05/24/17