TERMS OF REFERENCE

FOR THE SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF MONITORING AND INCIDENT RECORDING SYSTEM

I. BACKGROUND

The Maritime Industry Authority (MARINA) was created on 01 June 1974 as an attached Agency to the Office of the President (OP) with the issuance of Presidential Decree No. 474, otherwise known as the Maritime Industry Decree of 1974, to integrate the development, promotion and regulation of the maritime industry in the country. With the creation of the Ministry (now Department) of Transportation (DOTr) by virtue of Executive Order No. 546, the MARINA was attached to the DOTr for policy and program coordination on 23 July 1979. By virtue of Republic Act No. 10635, the Maritime Industry Authority (MARINA) is established as the "Single Maritime Administration" responsible for the implementation and enforcement of the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended, and International Agreements or Covenants related thereto.

The Maritime Industry Authority intends to upgrade its existing video surveillance system that includes a command and control style operator console, a Linux based video management software system, and high-resolution IP based camera and a fiber optic backbone.

II. OBJECTIVES

1. To provide MARINA Regional Office and MARINA Regional Offices a video surveillance system that shall have a platform solution optimized for applications to view, store and manage real time and recorded video in a networked environment.
2. To provide a video surveillance system that has highly scalable and reliable platform to enable customized network-based surveillance applications.
3. To provide a fiber optic backbone for the video surveillance network infrastructure that would provide IP connectivity for cameras and Monitoring Stations.

III. APPROVED BUDGET FOR THE CONTRACT

- The Approved Budget for the Contract (ABC) is Six Million Eight Thousand Pesos (₱ 6,008,000.00) Capital Outlay and MOOE, inclusive of all government taxes and charges.

IV. BIDDER's QUALIFICATIONS

1. Bidders must have at least (5) years' experience in the CCTV or IP surveillance and Security industry;
2. Bidders must also have completed any projects with at least 20 multiple sites for one single project over past 2 years.

3. The bidders must submit, in addition to the bidding documents and in a separate envelope, A CERTIFICATION, UNDER OATH, CERTIFYING THAT THEY HAVE NO PENDING CASE(S) AGAINST THE GOVERNMENT.
4. Bidders shall offer CCTV brand or manufacture that has done large scale projects of at least 500 cameras in one centralized management platform. Site visit at buyer's cost if it is necessary.
5. Bidders shall offer a CCTV provider that produces own hardware and develops its own software applications. (Integrated and Single Provider)
6. Bidder shall present their system showing the actual bandwidth consumption of each camera at specified resolution in order to identify the most efficient video compression.
7. Bidders must present notarized certificates- one original each and two certified true copies, from the Original Equipment Manufacturer (OEM) stating the following:
    - The Bidder is a duly recognized and authorized country reseller by the Original Equipment Manufacturer.
    - The Bidder is authorized by the OEM systems manufacturer to extend the manufacturer's warranty support for the project.
    - That the OEM systems manufacturer will guarantee the availability of spare parts for the system not less than three (3) years from the date of commissioning of the system by the implementing agency.
    - OEM will submit certification that after sales support for at least three (3) years from the commissioning of the system through its authorized bidder.
8. The Bidder must also present in another notarized certification-one original each with two certified true copies- certifying the following:
    - That the bidder is an OEM authorized representative in Metro Manila, Republic of the Philippines to support the project of the MARINA'S with at least two qualified trained technicians with experience in repair and maintenance of OEM supplied equipment.

    - In cases where bidder cannot provide at least two qualified trained technicians, bidders are to include brand new complete working configuration spare units of each of the following equipment as detailed on the Bill of Quantities

V. GENERAL SCOPE OF WORK AND DELIVERABLES

A. GENERAL SCOPE OF WORK

1. The, work includes the furnishings of materials, consumable materials, facilities, civil works, labor, tools, equipment, test instruments, apparatus, specialties and other services necessary to complete the installation and commissioning of the Intelligent Video Solution system at Maritime Industry Central Office and Regional Offices which includes all peripherals equipment system necessary for the completion of the project.
2. The contractor shall be responsible for the best suited locations for the surveillance cameras and shall follow the following conditions:
    ▪ Shall not hamper any of the operations of the MARINA.

- Position of cameras shall ensure 100% horizontal and vertical visual coverage of the areas identified in this project.
3. Contractor shall be responsible for any additional electrical power requirements with the coordination and approval of MARINA**.**
4. The Contractor will have access to the site seven (7) days a week starting the date of receipt of the notice to proceed, however, all works should be coordinated with MARINA on a weekly basis and can be revoked or suspended at any time in case of urgent operational need.
5. The contractor shall submit a weekly progress report .
6. The contractor shall submit the following documentation to MARINA upon completion of the project.
    - System brochures/documentation for systems operational & Maintenance/User Manuals-one [1] original and three [3] copies.
    - Detailed equipment list stating the location, make model, serial numbers, firm ware among others.
    - Result of system test as per manufacturer standards
    - System and Workmanship Warranty/Guarantee
    - One [1] year maintenance proposals
    - Certification of Parts availability and support for One [1] year
    - Training Certification of attendees for Operations and Maintenance of the system.

B. DELIVERABLES

1.	Network PTZ Camera with IR	4
2.	Bullet IP camera with optical zoom	10
3.	Fixed Indoor IP Dome Camera - 2.0MP	80
4.	Network Video Recorder (NVR) 48 Channels	1
5.	Network Video Recorder (NVR) 32 Channels	1
6.	Central Video Management System (Include Software)	1
7.	Video Matrix	1
8.	49" Monitor with wall mount bracket	12
9.	Workstation	5
10.	5 kVA Uninterruptible Power Supply	2
11.	1 kVA Uninterruptible Power Supply	6
12	650 VA Uninterruptible Power Supply	5
13.	Data Cabinet 42 U Size	1
14.	Data Cabinet 19"	8
15.	Power over Ethernet Switch 16 Port	18
16.	Multi-Function Ink-Tank System Printer	25

VI. TECHNICAL SPECIFICATION

1. Network PTZ Camera with IR -4.0MP	
Camera	Must be 1/2.8" 4.0MP progressive scan CMOS
	Must have illumination of Color: 0.02lux and B/W: 0.002 lux and 0 lux with IR
	Must have F1.5, AGC ON aperture
	Must have at least 55dB S/N Ratio
	Shall have automatic and manual White Balance
	Shall have automatic and manual Gain Control
	Shall have focal length of ranging 4.7 ~ 94mm, with 20x optical zoom
	Shall have a 3s of zooming speed
	Must have 300(Wide)- 1500mm(Tele) for minimum object distance
	Shall have shutter speed range of 1/10 up to 1/30,000s
	Must have Auto, Manual, and Semi-Automatic for focus control
	Shall have 360° Endless pan and -15° - 90° with Auto Flip functionality
	Shall have automatic adjustment in accordance to zoom ratio
	Must be capable of Off, BLC, and WDR and HLC for backlight compensation
	Must have SMART IR distance of 120m to 180m
	Shall have 255 presets
	Shall have atleast 8 patrol scheming and up to 32 presets per patrol
	Shall have pattern scan and panorama scan as auto guarding
	Shall have PTZ control with mouse click and drag
Video	Must be H.265 / H.264 / MPEG4
	Shall have 2592x1520 Main stream resolution and D1 for secondary streaming both at 30 fps
	Must have 3D noise reduction
	Must have up to 4 zones of privacy masking and motion detection
	Must have Date &Time, Alarm as caption
	Must be capable of caption customizing
	Must be capable of video freeze
Audio	Shall have Bi-directional audio, AEC, mixed audio recording, dumb and mute
	Must have the following audio compressions G.711a / G.711u / ADPCM / G.722 / AAC-LC / G.722.1c / G.726
Alarm	Shall have 1x alarm input and 1x alarm output
	Shall have motion detection, tampering, guard line, enter or exit guard area
	Must have alarm events such as Alarm report, Recording, Text overlay, Snapshot, External output, Email notice and Acoustic alarm
	Must have Motion detection and Alarm input as alarm triggers
Network	Must be ONVIF (Profile S), GB/T 28181-2011 and API, CGI
	Shall have network protocols TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, VSIP, UPnP, 802.1x
	Must have Automatic Network Replenishment (ANR)
Protection	Must have at least IP66 ingress protection
	Must have alarm input and alarm outputs
	Must have 10/100M, RJ45 interface
	Shall have memory card slot up to 128GB
Operating Conditions	Must have built-in 6000V lightning protection, surge protection and voltage transient protection
Regulatory	Must be CE, FCC and Rohs listed

2. Bullet IP Camera- 4.0MP	
Camera	Must be 1/3" 4.0MP progressive scan CMOS
	Must have illumination of Color: 0.05lux and B/W: 0lux with IR
	Must have F1.6, AGC ON aperture
	Must have at least 50dB S/N Ratio
	Shall have automatic and manual White Balance
	Shall have automatic and manual Gain Control
	Shall have of up 8mm focal length
	Must have manual/automatic for focus control with one click auto-focus
	Shall have up to 30m Smart IR distance
	Must be M12 of mount type
	Shall have shutter speed range of 1/10 up to 1/30,000s
	Shall have Auto ICR, Color, B/W for day and night functionality
	Must be capable of Off, BLC, WDR and HLC for backlight compensation
	Must have SMART IR distance atleast 30m
	Shall have only 1pc IR LED
Video	Must be H.265 / H.264 / MPEG4
	Shall have 2592x1520 Main stream resolution and D1 for secondary streaming both at 30 fps
	Shall have multi-streams
	Shall have atleast 4 zones of privacy masking and motion detection
	Must have 3D noise reduction
Alarm	Must have 1 alarm input and 1 alarm output
	Shall have alarm input, network disconnect, disk full and disk error as alarm triggers
	Must have motion detection, tampering, guard line, defocus, scene change, enter or exit guard area, object removal, gathering, and audio surge
Audio	Must have the following audio compressions G.711a ,G.711u, ADPCM, G.722, and AAC-LC
	Shall have acoustic alarm
	Shall have Bi-directional audio, AEC, mixed audio recording, dumb and mute
	Shall have network protocols TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, VSIP, IPv4, IPv6 (optional)
	Must be ONVIF and also has API and CGI
	Must have Automatic Network Replineshment (ANR)
Protection	Must have at least IP66 ingress protection
Interface	Must be able to use Power over Ethernet (IEEE 802.3af compliant)
	Must have 10/100M, RJ45 interface
	Must be capable of alarm input/output connectors
	Must have RS485
	Shall have memory card slot up to 128GB
	Shall have 1 x BNC, 1.0V [p-p] / 75Ω for video output
Regulatory	Must be CE, FCC and Rohs listed

3. Fixed indoor IP Dome Camera- 4.0MP	
Camera	Must be 1/3'' 4.0MP progressive scan CMOS
	Must have illumination of Color: 0.05lux and B/W: 0lux with IR
	Must have F1.6, AGC ON aperture
	Must have at least 50dB S/N Ratio
	Shall have focal length of at least 8mm at F1.6
	Shall have automatic and manual White Balance
	Shall have automatic and manual Gain Control
	Shall have shutter speed range of 1/10 up to 1/10,000s
	Shall have Auto ICR, Color, B/W for day and night functionality
	Must be capable of Off, BLC, WDR and HLC for backlight compensation
	Must have SMART IR distance atleast 30m
	Must be M12 of mount type
Video	Must be H.265 / H.264 / MPEG4
	Shall have 2592x1520 Main stream resolution and D1 for secondary streaming both at 30 fps
	Must have 3D noise reduction
	Must have up to 4 zones of privacy masking and motion detection
	Must have Date & Time, Alarm as caption
	Must have support up to 64 characters in customizing groups for caption
	Must be capable of video freeze
	Shall have motion detection, tampering, guard line, enter or exit guard area, audio surge and object abandonment
Alarm	Must have 1 alarm input and 1 alarm output
Audio	Must have the following audio compressions G.711a ,G.711u, ADPCM, G.722, and AAC-LC
Network	Must be Onvif and must have API
	Shall have network protocols TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, VSIP, UPnP, 802.1x
	Must have Automatic Network Replineshment (ANR)
Protection	Must have at least IP66 ingress protection
Interface	Must be able to use Power over Ethernet (IEEE 802.3af compliant)
	Must have 10/100M, RJ45 interface
	Shall have memory card slot up to 128GB
Operating Conditions	Must be able to operate up to 70°C in 10%-95% of relative humidity
Regulatory	Must be CE, FCC and Rohs listed

4. Network Video Recorder 48 channels	
Video/Audio Input	Must be capable of up to 48 channel
	Must have the following resolutions 8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF
	Shall have H.264 compression format
	Must have up to 240Mbps incoming bandwidth

Viewing	Shall have 1x HDMI and 1x VGA
	Must comply the following Multi screen display for client: 1, 3, 4, 9, 12, 16, 20, 25, 30, 36, 42, 49, 56, 63, 64 1+5, 1+7, 1+8, 1+9, 1+11, 1+15, 1+16, 1+33, 1+47, 1+48
	Must comply up to 4 simultaneous screen
	Must have E-mapping
Recording	Must have Manual mode, Continuous mode, Schedule mode and Event (Pre / Post) mode
	Must be capable of Tagging
Search & Playback	Must have Date & Time (Calendar) and Event search modes
	Must have 16 x 4K@30fps or 16 x 3MP@30fps resolution for Playback (client)
	Must have the capabilities to Slow forward, Fast forward, Loop, Single frame, E-PTZ and Slice playback
Storage	Shall be 8 x 3.5'' HDD Max. 48TB (up to 6TB/each)
	Must be RAID 0/1/5/6/10
	Must be capable of external storage with Max. 100T and Max. write speed 128Mbps
Audio	Must have audio compressions G.711a, G.711u, ADPCM, G.722, G.722.1c and AAC-LC
Alarm	Shall have Alarm input, Video lost, Motion detection, Tampering, Guard line, Defocus, Sence change, Enter guard area, Exit guard area, Object left, Object removal, Gathering and Audio surge as service alarm triggers
	Shall have system alarm triggers specially MAC address conflict
System	Must be Embedded Linux
	Shall have User login, User operation, Alarm, Backup and Update as Log management
Network	Must have network protocols TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP, SMTP, IPv4, IPv6 (optional)
	Must have functionalities of NAT, Socks5, Multiple access of network, Packet loss recovery and Auto organizing of network
	Shall support Network Testing
Interface	Shall have 2 x Gigabite network port, RJ45 interface
	Shall have RCA Line for audio in and audio out
	Shall have 2x alarm inputs and alarm outputs
	Must have 2x RS485
	Must have 4x USB 2.0
	Shall have 1x e-sata
Operating Conditions	Shall operate up to 55°C and 10%-85% relative humidity
Regulatory	Must be CE, FCC and Rohs listed
Software Base	Shall come with free software for PC
Smartphone Access	Shall be capable of smartphone viewing for IOS/Android
Hard disk	8 x 4TB Surveillance HDD

5. Network Video Recorder 32 channels

Video/Audio Input	Must be capable of up to 32 channel
	Must have the following resolutions 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF
	Shall have H.264 compression format
	Must have up to 240Mbps incoming bandwidth
Viewing	Shall have 1x HDMI and 1x VGA
	Must comply the following Multi screen display for client: 1, 3, 4, 9, 12, 16, 20, 25, 30, 36, 42, 49, 56, 63, 64 1+5, 1+7, 1+8, 1+9, 1+11, 1+15, 1+16, 1+33, 1+47, 1+48
	Must comply up to 4 simultaneous screen
	Must have E-mapping and can do live-viewing
Recording	Must have Manual mode, Continuous mode, Schedule mode and Event (Pre / Post) mode
	Must be capable of Tagging
Search & Playback	Must have Date & Time (Calendar) and Event search modes
	Must have 16 x 4K@30fps or 16 x 3MP@30fps resolution for Playback (client)
	Must have the capabilities to Slow forward, Fast forward, Loop, Single frame, E-PTZ and Slice playback
Storage	Shall be 4 x 3.5'' HDD Max. 24TB (up to 6TB/each)
	Must have disk dormancy
	Must be capable of external storage with Max. 100T and Max. write speed 128Mbps
Audio	Must have audio compressions G.711a, G.711u, ADPCM, G.722, G.722.1c and AAC-LC
Alarm	Shall have Alarm input, Video lost, Motion detection, Tampering, Guard line, Defocus, Sence change, Enter guard area, Exit guard area, Object left, Object removal, Gathering and Audio surge as service alarm triggers
	Shall have system alarm triggers specially MAC address conflict
System	Must be Embedded Linux
	Shall have User login, User operation, Alarm, Backup and Update as Log management
Network	Must have network protocols TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP, SMTP, IPv4, IPv6 (optional)
	Must have functionalities of NAT, Socks5, Multiple access of network, Packet loss recovery and Auto organizing of network
	Shall support Network Testing
Interface	Shall have 1 x Gigabite network port, RJ45 interface
	Shall have RCA Line for audio in and audio out
	Shall have 1 VGA and 1 HDMI
	Must have 2x USB 2.0
Operating Conditions	Shall operate up to 55°C and 10%-90% relative humidity
Regulatory	Must be CE, FCC and Rohs listed
Software Base	Shall come with free software for PC
Smartphone Access	Shall be capable of smartphone viewing for IOS/Android
Hard disk	3 x 4TB Surveillance HDD

6. Central Video Management System (Include Software)

General Requirements	Must support up to 128 NVR
	Shall have different user level access
	Shall comply with Windows2000 or later (IE6), Windows XP recommended
	Shall have live update functionality
	Must have the ability to create group listing
	Must have up to 64 muti-window
	Shall have software type PTZ controller on the GUI
	Shall have in E-mapping
	Shall have multi-monitoring view
	Must have synopsis
System	Must have Super admin / Admin / User
	Shall comply with Windows2000 or later (IE6), Windows XP recommended
	Shall have Import and Export path
	Shall have the functionality to take snapshots
	Must have search criteria such as People, Vehicle, Object, Direction and Color
	Must have search criteria via NVR, Camera, Date and Time
	Must have Screen layout scheme

7. Video Matrix

General	Shal be 19-inch, 14U
	Must come with 24 input card and 9 output card
	Shall have 64 × 1080p + 16 × 4K or 96 × 1080p maximum input channel
	Shall have 18 x 4K or 36 × 1080p maximum output channel
Control	Shall have 1 × RJ-45 port, Ethernet 10/100Base-T
	Shall have 2x RS232 for debugging
Power Supply	Shall have redundant power supply
	Shall be hot-swappable
	Must have 2x power supply module
	Must have 600W maximum consumption
Operation	Must have 30,000 hrs. MTBF
	Must have 10s MTTR
	Must have shockproof level ISTA 1A Carton
	Must have Air cooling component

8. Monitor with wall mount bracket

Type	Super Narrow Bezel
Size	49"
Resolution	1,920 x 1,080 (FHD)
Brightness	450 cd/m2
Connectivity	Shall have HDMI, DVI-D, RGB, RS232 (In/Out), IR Receiver, and USB
Audio	Must have attachable external media player
Regulatory	Must have UL, cUL, CB, TUV, KC
Bezel width (mm)	Must be 3.5mm
Power	Must have a typical power consumption of 90W
	Must have 45W of smart energy saving
Bracket	Must have separate wall mount bracket for 49"

9. Workstations

Performance	Shall have 4 cores
	Must have 14nm Litography
	Shall have 2x memory channels
	Must be 3.60 GHz of processor
	Must be 7th generation i7
	Shall have maximum of 64GB memory size
Graphics	Shall have graphics video maximum memory of 64GB
	Must be 4k supported at 60Hz
	Must be up to 3 displays supported
General Requirements	Shall have thermal solution
	Shall have 8 MB of SmartCache

10. 5 kVA Uninterruptible Power Supply

General Requirements	Must be True On-line Double Conversion
	Shall have 220VAC, +/-25%, Single phase
	Shall have auto detect 50/60Hz
	Must have 3:1 of true harmonic distortion at linear load
	Must have zero transfer time
	Must have greater than 90% (inverter) and greater than 84% (whole) efficiency
	Must have 20 pcs. Batteries

11. 1 kVA Uninterruptible Power Supply

General Requirements	Must have 1 to 2 surge-only outlets
	Must have 3 to 6 battery-backed outlets
	Must have RJ-45 Data line protection
	Must be Mini Tower Design
	Must Support Multilink shutdown software
	Shall have LCD as control panel
	Must have power rating of 1000VA

12. 650 VA Uninterruptible Power Supply

General Requirements	Must be manufactured by an industry recognized IT support systems manufacturer
	Must be on-line double conversion UPS
	Must have integrated network management for automated shutdown
	Must be UL1778, FFC Class A, IEC62040-2, and ISTA 1A listed
	Must have an operating temperature of 0deg-40deg C
	Shall have LCD as control panel
	Must have power rating of 650VA / 360W

13. Data Cabinet 42 U Size

General Requirements	42 U Height
	Must have removable tail-bars at both top and bottom of the rear of the rack
	Can Accommodate four full height PDU's at rear of rack
	Tool less PDU Mounting kit
	Must Include the PDU to support all the Devices

14. Data Cabinet 19"

General Requirements	Must have vertical cable manager ring manager at the back right side
	Must be 19" rack mounting opening
	Must have Swing out Flexiglass front door w/ push lock
	Must have detachable vented side panels w/ cam lock

15. Power over Ethernet Switch 16 Port

General Requirements	Must have 16 100M POE ports + 2 Gigabit combo ports
	Must have 16-port 802.3af/at
	Must have 7.2G switching capacity
	Must have 4K MAC capacity
	Must have support Heat-dissipation

Cabling and Conduits		
General Requirements		The proposed cabling solution for copper and fiber and connecting hardware shall be sourced from one manufacturer only
		All cabling System products shall be UL listed and verified as well RoHS compliant. Must submit proof/certification of UL and RoHS compliance
		All cabling not concealed in walls or above finished ceiling should be in conduit, metal wire trough or wire mold. This includes cabling to panels and field devices as well as any cabling between panels.
		Cable trays shall be installed in IDF/MDF areas to route and manage both copper and fiber optics cables.
		All cabling and termination points shall be 100% tested, verified and certified to allow for manufacturer's warranty of the cabling system
		Bidder must ensure that there are NO SPLICES for any cable involved in transmitting data
		Submit Original Letter of Warranty Support from the Cabling System Manufacturer stating that the cabling Installation of the bidder shall be supported by at least 20-year Manufacturer's Warranty
		All fiber and copper horizontal and copper horizontal/vertical cabling shall be terminated to an unloaded patch panel
		All patch panels used are to be unloaded and able to use both ethernet keystone jacks for compatibility and consolidation purposes.
		All pipes and fittings shall be EMT Type and shall be secured by metal clips
		All conduits shall be UL listed for EMT Pipes
		The ends of all conduits shall be tightly plugged to exclude plaster, dust and moisture while the construction of building is in progress. All conduits shall be reamed to remove all burns.
		All outlets, boxes and fittings for all system shall be consulted with the GSIS before installing his outlet
Horizontal Cabling		The CAT-6 UTP cable jacket shall be non-plenum CMR cable
		The CAT-6 UTP cable, Information Outlet, Patch Cords must conform to the category 6 component specification
		The CAT-6 UTP cable, Information Outlet, Patch Cords performance guaranteed to meet or exceed Category 6 /Class E Channel Specification to 250 Mhz to support high-bandwidth data applications
		The Category 6 Information Outlets shall allow universal A/B type wiring and labelling
Backbone Cabling Central Office		Multi-mode 50µm Riser Building Cable
		The cable shall support Gigabit Ethernet (1000BASE-SX) to 550 meters or depending on the transceiver module

Cable Testing	All cables and termination hardware shall be 100% tested for defects in installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA/EIA-568-B
	Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all cables installed

16. Multi-Function Ink-Tank System Printer	
Functions	Copy, Print, Scan
Printing Output	Color
Type	Multi-function
Printing Method	Inkjet
Scan	
Optical scanning resolution	600 dpi
Scan Method	Contact Image Sensor (CIS)
Handling	
Input tray capacity	100 sheets
Media types supported	Paper, Envelopes
Media size supported	A4, A5, A6, B5, DL, C6
Connectivity	
USB support	USB 2.0
Print	
Max Print Resolution (Colour)	5760 x 1440 dpi

CCTV EQUIPMENT DISTRIBUTION

Marina Central Office	
Network PTZ Camera with IR	4 units
Bullet IP camera with optical zoom	10 units
Fixed Indoor IP Dome Camera - 2.0MP	20 units
Network Video Recorder (NVR) 48 Channels	1 unit
Central Video Management System (Include Software)	1 lot
Video Matrix	1 Unit
49" Monitor with wall mount bracket	9 units
Workstation	2 units
5 kVA Uninterruptible Power Supply	2 units
650 VA Uninterruptible Power Supply	2 units
Data Cabinet 42 U Size	1 Unit
Data Cabinet 19"	5 Units
Other Requirements	
Power over Ethernet Switch	12 units

Davao	
Fixed Indoor IP Dome Camera - 2.0MP	20 units
Network Video Recorder (NVR)	1 unit
1 kVA Uninterruptible Power Supply	1 unit
Workstation	1 unit
650 VA Uninterruptible Power Supply	1 unit
49" Monitor with wall mount bracket	1 unit
Data Cabinet 19"	1 Unit
Other Requirements	
Power over Ethernet Switch	2 units

Cebu	
Fixed Indoor IP Dome Camera - 2.0MP	20 units
Network Video Recorder (NVR)	1 unit
1 kVA Uninterruptible Power Supply	1 unit
Workstation	1 unit
650 VA Uninterruptible Power Supply	1 unit
49" Monitor with wall mount bracket	1 unit
Data Cabinet 19"	1 Unit
Other Requirements	
Power over Ethernet Switch	2 units

Iloilo	
Fixed Indoor IP Dome Camera - 2.0MP	20 units
Network Video Recorder (NVR)	1 unit
1 kVA Uninterruptible Power Supply	1 unit
Workstation	1 unit
650 VA Uninterruptible Power Supply	1 unit
49" Monitor with wall mount bracket	1 unit
Data Cabinet 19"	1 Unit
Other Requirements	
Power over Ethernet Switch	2 units

VII. INSTALLATION

- The Contractor shall perform the installation, testing and commissioning of all equipment. All necessary tests, services and inspections to assure the system functions and shall be checked and approved before the acceptance test. Consideration shall be given to the fact that installation or tests of other systems within the same building may be carried out during the same period.

- The proposal shall include a detailed time schedule not to cause interruptions in the operation of MARINA.
- The Contractor shall prepare and furnish fully dimensioned scaled drawings of builder's work arising from the installation of the equipment and system as well as for the equipment layout plans at various locations.
- The work drawings shall show:
    - The general arrangement of cabinets and other facilities in the equipment areas as well as the   operational area
    - The general arrangement of cabling within the system.
- As soon as the commissioning of the equipment and system have been completed, the Contractor shall amend or correct all his Approved Drawings, if so required, furnish three (3) sets of prints of all "As-built" drawings showing the works as finally installed and commissioned. These drawings shall be furnished in hard binding cover/covers.
- The "As-built" drawings shall show the general arrangement of all equipment's and auxiliaries, positions of all electrical outlets, fittings, switches, switch-boards and control panels, cables, pipes, ducts runs, markers and underground ducts, inter-wiriness, schedules, plant manufacturers name plates, models and type numbers and other information necessary to facilitate routine inspection and maintenance of installation.
- Two (2) sets of the "As-built drawings" shall be delivered on CD ROM media, The Contractor shall also provide licensed and updated software used in the preparation of the drawings.
- Outdoor cables shall be, in principle, installed underground through galvanized steel pipe or of EMT conduit. The cable conduits shall be sealed properly at both ends for protection of cables against rodents and inner edge at both ends shall be chamfered to avoid damage to cables during installation.
- No cables shall be installed until the inside of the conduit pipes have been cleaned.
- Roughing-ins including supports, boxes, fittings, cover plates, mounting brackets should be provided by the contractor.

VIII. PROVISION OF DOCUMENTATION

General Requirements

- It is essential that documentation is of high standard, and that text is presented in a clear and correct language. Where possible, diagrams, pictures etc. shall be used as supplement to the text.
- Three (3) sets of documents on each piece of equipment delivered shall be submitted for review and approval by MARINA one (1) month before each equipment is ready for site testing.
- All documents and manuals shall be delivered both in printed form and in computer readable files. The requirement for computer readable files is mandatory for software documentation. If the Contractor has used word processor for production of other equipment is ready for site testing.

Manuals

- Manuals shall give a full overview of the integration of the various sub-systems. The manuals shall follow the outline structure given below, to the extent considered relevant by the Contractor and approved by MARINA.
- Documents and manuals shall give an outline of the complete system as delivered. It shall be adapted to the engineering and maintenance staff and described how the system is composed and functions.
- System Operator's Manual
- This manual shall give a detailed description of all system operation functions, including input actions and error response.

User's Manual

- This manual shall give a detailed description of all functions, seen from the user's point of view.

Equipment Manual

- The Equipment Manual shall give full details of sub-systems or units on the following subjects as a minimum; general description; complete block diagrams; complete logical and schematic diagrams; mechanical and electrical data; interface data; configurations and parameter/ switch settings; test points and corresponding waveforms.

IX. TRAINING AND TECHNOLOGY TRANSFER

- The technical staff shall give the trainees detailed knowledge of the technical functions. On completion of the courses, the trainees shall be able to perform tests of the system, to maintain the system.
- For the training purpose, preliminary handbooks may be used if the content is identical to the handbooks belonging to the system. If the training documents do not fully correspond with the system handbooks it shall be so stated in the proposal and the students shall be informed at each occasion,
- The training material consisting of the documentation to be delivered with the final supply shall be of the format specified in the Documentation.
- The Contractor shall supply each trainee with one complete set of relevant training documentation (both hard copies and electronic copies in CD ROM) before the start of each course.
- All test equipment used under training shall be of the same kind as contracts. Maintenance of the training and the test equipment is the Contractor's responsibility.
- Operators training shall not be less than two (2) training days and with certificates to be issued after the completion of training.
- Maintenance Training shall not be less than two (2) training days with certificates to be issued after training.

X. INSPECTION AND TESTING

- Before the final acceptance of the work, the Contractor shall test the system to demonstrate compliance with contract requirements.
- The whole system shall be subjected to complete functional and operational tests.
- When these tests have been completed and corrections made as necessary, the Contractor shall submit a signed and dated certificate with a request for formal inspection and test.

XI. PROJECT TIMEFRAME

The contractor shall deliver the installation of the Video Surveillance system within **Sixty (60)** calendar days from receipt of Notice to Proceed.

XII. WARRANTY

- Upon completion and before final acceptance of the work, the contractor/supplier shall furnish MARINA a written guarantee, stating that all works executed under this project are free from material defects and workmanship; and
- The guarantee for supplied equipment shall have a period of at least two (2) years inclusive labor, transportation and expenses that are needed for the repair/replacement of defective equipment.

XIII. TERMS OF PAYMENT

Payment shall be made within fifteen (15) working days upon issuance of Final Acceptance.