REPUBLIC OF THE PHILIPPINES

**QUEZON CITY INFORMATION TECHNOLOGY DEVELOPMENT DEPARTMENT**

# TERMS OF REFERENCE

## SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION, TESTING AND COMMISSIONING OF THE QUEZON CITY HALL STRUCTURED CABLING FOR PUBLIC WORKS BUILDING, BUILDING REGULATORY OFFICE, AND MAIN HIGH-RISE BUILDING

## I. RATIONALE AND BACKGROUND

After having efficiently employed IT-based technologies since the previous decade and deployed recently the fiber back-bone in the QC-Hall compound, the Quezon City Government workforce has quantitatively increased its dependence on such technologies. However, connectivity for end-users has been the key component for the operational capability of using such technologies since and will be in the near future. Since the number of IT equipment users have exponentially grown since 2003, the requirement for a well-designed structured cabling system minimizes network downtime by providing reliable connectivity. This is crucial for ensuring smooth business operations and avoiding costly disruptions.

## II. PROJECT DESCRIPTION

The Quezon City Hall compound fiber-optic backbone has connected every other building structure to the main building primarily for its data connectivity requirements using equipment and conduits that are fully compatible with existing installed equipment. Investing in a structured cabling system ensures that your network infrastructure is ready to support emerging technologies and high-speed applications. This helps future-proof your network and protects your investment in the long run.

Overall, a structured cabling system provides a solid foundation for building a reliable, high-performance network that can support the current and future needs of your organization.

A bill of materials and quantities or any equivalent document which may or may not be attached with these terms of reference shall simply serve as a guide to accomplish whatever is required for the full completion of this project. Any deficiency that may arise from the said attachment shall bear no effect to the required accomplishment of this Terms of Reference unless such discrepancy shall amount to more than 20% of the total project cost.

## III. PROJECT SCOPE OF WORK

A. Quezon City Hall Public Works building, Building Regulatory Offices and Main High-Rise building site inspection

B. Submission of proposed premise installation plans (part of PIP-Project Implementation Plan) and corresponding processes

B.1. A mapped layout where the cables and equipment are to be located and cables are to run inside structures relative to the respective buildings to be connected;

B.2. A detailed diagram of the QC-LGU network as it is expected upon project completion as integrated to existing network infrastructure (to be submitted upon bid);

B.3.The accompanying Electrical and Electronic and Data Network Plans requirements must be signed and sealed by a licensed Professional Electronics and Communications Engineer (PECE) (to be submitted upon bid);

B.4. Power outlets for active devices must be properly grounded, installed with the approval of CGSD, unless CGSD authorizes and assigns an existing power source at a given location; should the electrical system not have any available effective grounding, the contractor shall then provide such grounding to protect active devices;

B.5 All cables (including power cables) are to be labeled on end-to-end, while labeling shall follow alphanumeric standard codes which shall be approved by ITDD, logged and supported with a separate diagram per building installation;

B.6. Pipes, pull-boxes, manholes, and other cable paths are similarly to be labeled properly for easy inspection and maintenance;

B.7. A detailed schematic single line diagram showing the respective floors / levels of termination and detailed specific location on each floor / level, shall be submitted in two (2) copies of print and digital format to ITDD for approval; and

B.8. A detailed implementation document of the UPS in the Intermediate Distribution Frame (IDF) areas.

C. Approval of installation plans per building site from the corresponding CGSD and ITDD officers;

D. Installation, configuration, testing and commissioning of equipment, devices, and signed-off by a licensed network engineer and attested by an assigned ITDD and

CGSD officer;

E. Submission of equipment specifications with user and maintenance manuals;

F. Technical training on equipment administration, configuration, and maintenance; and

G. Final testing and commissioning as attested by the contractor's Network Engineer, and/or Professional Electronics and Communications Engineer, ITDD and CGSD officers.

## IV. AREA OF COVERAGE

The Quezon City Hall Public Works building, Building Regulatory Offices and Main High-Rise building shall benefit on this structured cabling system project. All according to approved IDF Location and End-user location by CGSD and ITDD;

## V. PROJECT STANDARD AND REQUIREMENTS

A. Eligibility Requirements

1. The contractor should be an authorized distributor or dealer or partner of an equipment manufacturer of network devices that utilizes fiber-optic cables;

2. The contractor must have at least one (1) Certified Network Administrator or Engineer, duly certified by the manufacturer of the equipment being offered.

3. The contractor must have at least one (1) Licensed Electronics and Communications Engineer (ECE) who has been employed by the company for at least five (5) years;

4. The contractor must have at least one (1) ITIL (Information Technology Infrastructure Library) certified personnel for aftersales assurance, who has been employed by the company for at least (5) five years; Must attached valid certification.

5. The contractor must have an available stationed engineer onsite capable of responding to a service call during office hours, at least for the duration of the warranty; else after office hours network outage are subject to identified severity levels 1,2,3. The contractor shall submit Aftersales support escalation matrix (to be submitted upon bid);

6. A contractor shall be one that has completed at least data network installations for government or private companies in the last five (5) years

B.1. Components and Equipment Specifications:

1. Enterprise Router for the uplink and distribution of internet connection for each building (3 QTY)

   1.1 At least 100 GbE router with L3 hardware offloading.
   1.2 At least 12 x SFP28 port.
   1.3 At least 16gb RAM
   1.4 At least 12 x 25G SFP28 ports
   1.5 At least 12 x 25G SFP28 ports
   1.6 Max power consumption of 128W
   1.7 With perpetual license, unlimited updates.
   1.8 Loaded with 10G single mode SFP 10km
   1.9 North American or European brand

2. 48 port network access switches (35 QTY)

   2.1. At least 48 x 1G RJ45 ports.
   2.2. At least 4 x 10G SFP+ ports.
   2.3. At least 2 x 40G QSFP+ ports.
   2.4. Loaded with SFP+ 10G Multimode, 300m
   2.5. Must have at least non-blocking throughput of 168 Gbps.
   2.6. Must have at least switching capacity of 336 Gbps.
   2.7. Forwarding rate must reach 235 Mbps.
   2.8. With perpetual license, unlimited updates
   2.9. North American or European brand

3. 24 port POE network access switches (11 QTY)

   3.1. At least have 24 Gigabit Ethernet ports.
   3.2. At least have 4 SFP+ ports
   3.3. Must have passive POE, low voltage, 802.3af/at (Type 1 "POE" / Type 2 "POE+" with auto sensing.
   3.4. The four SFP+ ports provide up to 10 Gbps connectivity options.
   3.5. Loaded with SFP+ 10G Multimode, 300m
   3.6. Must come in a 1U rackmount case with 100-240V AC 500W power supply built-in
   3.7. Must have supported each port to provide up to 30W of power.
   3.8. The device shall have a dual boot.
   3.9. Maximum power consumption of 494W
   3.10. With perpetual license, unlimited updates.
   3.11. North American or European brand

4. Access Points (59 QTY)

   4.1. Fast and reliable 802.11ax wireless
   4.2. GHz 802.11b/g/n/ax dual-chain, 5 GHz 802.11a/n/ac/ax dual-chain
   4.3. 2 x Gigabit Ethernet ports.
   4.4. POE-in and POE-out to power other devices.

4.5. At least capable of wireless 2.4 GHz Max data rate 574 Mbps
4.6. At least capable of wireless 5 GHz Max data rate 1200 Mbps
4.7. Wireless 2.4 GHz standards 802.11b/g/n/a
4.8. Wireless 5 GHz standards 802.11a/n/ac/ax
4.9. Multiple powering options.
4.10. With perpetual license, unlimited updates.
4.11. North American or European brand.

5. Structured Cabling Components – 1 lot (minimum of 1,500 nodes for three buildings).
   5.1. Cat6a U/UTP suited for Gigabit Ethernet. Bandwidth up to 250 Mhz. ISO/IEC 11801:2002 UL verified. ANSI/TIA/EIA 568C.2 CENELEC EN 50173:2002 ETL verified to ANSI/TIA-568.2-D Cat.6
   5.2. Keystone jack module meet ANSI/TIA-568-C.2 Cat 6 15M short link.
   5.3. Faceplate One (1) to Two (2) ports faceplate options Vertical US style design
   5.4. Faceplate One (1) to Two (2) ports faceplate options Vertical US style design
   5.5. 24 Port Cat6a UTP Patch Panel High density port design 110 type and Krone type IDC termination with slotted cable manager 1U.
   5.6. 22U Data Cabinet
   5.7. 12-way ACPDU
   5.8. 24 LC ports Fiber Panel (loaded)
   5.9. LC/UPC SM 0.9mm Yellow 1m Pigtail
   5.10. 4 core FOC - OM4 Multimode Indoor
   5.11. Cat6a U/UTP Patch Cord 2 meters 24AWG stranded wire provides maximum flexibility. Meets & exceeds all current Cat6 standards. Universal TIA/EIA 568A or TIA/EIA 568B wire map ISO/IEC11801
   5.12. 15A breaker with enclosure
   5.13. AWG #10 THHN CABLE (BLACK)
   5.14. 10 WAY 19 INCH GROUNDING BUSBAR
   5.15. AWG #10 DC CABLE (GREEN)
   5.16. 60mm x 300mm x 3000mm Cable Tray with cover & coupling Powder Coated)
   5.17. 60mm x 60mm x 3000mm Cable Tray with cover & coupling (Powder Coated)
   5.18. 20mm PVC Pipes
   5.19. Hangers & Supports
   5.20. Ga. 16 2'x4" Utility Boxes
   5.21. Octagonal Boxes w/ Cover, 4" x 4"
   5.22. Pull box (Size as Required)

6. 900watts Uninterruptible Power Supply Systems (29 QTY)
   6.1. Single-phase conventional UPS System – rack mountable
   6.2. Power factor 0.9 for 1000-3000
   6.3. on-line double conversion
   6.4. User-friendly display
   6.5. View of the status, system parameters, charging status of the battery and

faults
6.6. 1kVA @ 5-7 minutes back-up time
6.7. Rai kits

7. Automatic Voltage Switches (29 QTY)

7.1. Protects and prolongs the usefulness of electrical appliances
7.2. Eliminates the need to switch off appliances every time electric power fails
7.3. Built-in microprocessor which adds the advance feature Time Save
7.4. Surge and spike protection are incorporated to ensure protection against harmful electrical noise
7.5. Protection against power-backup surges commonly experienced after resumption of power in a power-cut situation
7.6. Features a startup delay to prevent frequent switching on and off during power fluctuations
7.7. Protects against over voltage and under voltage
7.8. Preferably made in Europe or North America

Inclusion per set
AVS Protection against low voltage, high voltage, power back surges, power fluctuations and surges/spikes

- Max power: 25 Amps
- Wait time: 4 minutes intelligent time delay
- Over voltage disconnect: 264V
- Under voltage disconnect: 185V
- Over voltage reconnect: 262V
- Under voltage reconnect: 190V
- Reconnect wait: 4 mins
- Main disconnect response time: 0.5 sec
- High voltage hysteresis: 2V
- Low voltage hysteresis: 5V
- Main surge/spike response time: <10ns
- Main mas spike/surge discharge: 6.5kA
- Frequency: 50/60Hz
- Spike Protection: 160J

8. Services Components (1 lot)

8.1. Labor for Supply, Delivery and Install of Active Equipment
8.2. Labor for Supply, Delivery and Install of Structured Cabling
8.3. Labor for Supply, Delivery and Install of Cable Tray and related civil works
8.4. Labor for Configuration of Network Distribution Switches, Access Switches,
8.5. WLAN Controller and Wireless Access Points
8.6. Testing & Commissioning (must attached fluke test or wire expert technical report).

8.7. General Requirements Engineering Design Preparation and Approval Mobilization and Demobilization Temporary Facilities, Safety and Health Program Project Management
8.8. Bonds and Insurances
8.9. Managed Services for 3 years
  8.9.1. Premium Support 12x6x3 Service Level Agreement
  8.9.2. Quarterly Preventive Maintenance with Technical Report
  8.9.3. Shifting Stationed Engineer onsite (2 Engineers) and (2 Helpdesk for ticketing tool)
  8.9.4. Incident Management as per ITIL best practices.

## VI. TRAINING, TESTING AND COMMISSIONING.

A. Training of Key QC LGU Personnel
1. The training personnel who shall manage the installed facility shall have to be conducted on or before the initial equipment and facilities testing BEFORE the FINAL Testing and Commissioning
2. Operational & Maintenance Manual must be prepared and evaluated by ITDD for substantial completeness on print and digital media for each participant,
3. Participants are to be attended by not less than four (4) technical personnel from NTMD-ITDD (Network & Technical Maintenance Division) and at least one (1) technical personnel from BMD-CGSD (Building Maintenance Division) respectively but non- exclusive [personnel from other divisions/departments may join but shall be limited and with prior approval from the respective department heads and concurred by the head of ITDD]
4. Training is expected to be NOT LESS than four (4) days but shall be allowed to be conducted in two (2) days for separate weeks. Training schedule is based upon agreement between the contractor and NTMD-ITDD.
5. The training venue shall have to be agreed by the attending parties as concurred by the contractor. On-site hands-on training shall be an integral component of the conducted training

B. Network Devices
1. The certified Network Engineer will conduct the commissioning of delivered devices that may include but not limited to:
  1.1 Power-up
  1.2 Configuration
  1.3 Network connectivity
  1.4 Performance Testing
  1.5 User Acceptance Test.

## VII. PROJECT DURATION

The whole project must be completed within a period of one hundred eighty (180) calendar days inclusive of all items indicated in the above stated Scope of Work from the issuance of the Notice to Proceed.

After Sale, Support :

The Service provider will submit an affidavit of undertaking stating the ff:

I. 3 Years Extended Warranty on Workmanship and Equipment

II. Technical Support

1. Workdays from 8:00 am to 5:00 pm expect a response within the day or by next day.
2. Weekends and holidays, expect a response by next workday

## VIII. APPROVED BUDGET FOR THE CONTRACT

The budget allocation for the said project is in the amount of Eighty-One Million Nine Hundred Ninety-Nine Thousand Nine Hundred Forty-Nine Pesos and Thirty-Three Centavos Only (Php 81,999,949.33)

## IX. SCHEDULE OF PROJECT PAYMENT

1. 15% for Mobilization upon submission and approval of PIP(Project Implementation Plan.
2. 35% payment upon delivery of all deliverables.
3. 25% payment upon completion of 50% installation to be determine by the NTMD-ITDD.
4. 20% payment upon completion of 100% installation to be determine by the NTMD-ITDD.
5. 4% payment upon acceptance, turn over and commissioning.
6. 1% retention

## X. PENALTIES FOR BREACH OF CONTRACT

Failure to deliver the services according to the standards and requirements set by the City shall constitute an offense and shall subject the Contractor to penalties and/or liquidated damages pursuant to RA 9184 and its revised Implementing Rules and Regulations. Specific penalty/ies to be imposed to the contractor.

## XI. CANCELLATION OR TERMINATION OF CONTRACT

Should there be any dispute, controversy or difference between the parties arising out of this TOR, the parties herein shall exert efforts to amicably settle such dispute or difference. However, if any dispute, controversy or difference cannot be resolved by them amicably to the mutual satisfaction of the parties, then the matter may be submitted for arbitration in accordance with existing laws, without prejudice for the aggrieved party to seek redress before a court of competent jurisdiction.

The guidelines contained in RA 9184 and its revised IRR shall be followed in the termination of any service contract. In the event the City terminated the Contract due to default insolvency, or for cause, it may enter into negotiated procurement pursuant to section 53(d) of RA 9184 and its IRR.

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