NEW YORK STATE | Office of General Services

DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 3 TO PROJECT NO. 47268

CONSTRUCTION AND ELECTRICAL WORK
PROVIDE CONGREGATE RECREATION PENS,
S-BLOCK, BUILDING 45
GREENE CORRECTIONAL FACILITY
165 PLANK ROAD
COXSACKIE, NY

December 13, 2024

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

ELECTRICAL WORK SPECIFICATIONS

1. SECTION 271524 OPTICAL FIBER CABLES CCTV: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 271524 – 1 thru 271524– 8).

2. SECTION 275111 INTERCOM SYSTEM: Discard all previously issued versions of this Section and substitute the accompanying Section (pages 275111 – 1 thru 275111– 7).

3. SECTION 282306 CCTV/AUDIO MONITORING EQUIPMENT: Discard all previously issued versions of this Section and substitute the accompanying Section (pages 282306 – 1 thru 282306– 21).

4. SECTION 282320 DIGITAL VIDEO/AUDIO RECORDING SYSTEM: Discard all previously issued versions of this Section and substitute the accompanying Section (pages 282320 – 1 thru 282320– 15).

ELECTRICAL WORK DRAWINGS

5. Revised Drawings:
   a. Drawing Nos. E-601, E-703, E704 and E-707, noted "ADDENDUM 3 12/13/2024" accompany this Addendum and supersede the same numbered previously issued drawings.

END OF ADDENDUM

Erik T. Deyoe, P.E.
Director, Division of Design
Design & Construction

SECTION 271524

OPTICAL FIBER CABLES

PART 1 GENERAL

1.01 DEFINITIONS

Note: For this Section, the definition below supersedes the definition in Section 014200 for Company Field Advisor.

A. Company Field Advisor - An individual meeting the requirements of 1 or 2 below:
   1. An employee of the company producing the optical fiber cables, who is certified in writing by the company to be technically qualified in design, installation, servicing and testing of the required products. Personnel involved solely in sales do not qualify.
   2. An individual employed by an organization, other than the company producing the optical fiber cables, certified in writing by the company producing the optical fiber cables, that the individual is technically qualified in design, installation, servicing and testing of the required products and is capable to act as company field advisor in their behalf. Personnel involved solely in sales do not qualify.

1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittals Package: Submit the product data, samples, and quality control submittals specified below at the same time as a package.

C. Product Data:
   1. Catalog sheets, specifications and installation instructions for all products.
   2. Complete manufacturer's construction details and specifications for the cables. Include for each type of cable:
      a. Physical and optical characteristics of the optical fibers.
         1) Cable manufacturer's certified test data (attenuation, bandwidth).
      b. Physical characteristics of strength members, and jackets.
      c. Maximum pulling strain allowed.
      d. Crush resistance.
      e. Overall dimension of cable.
   3. Splicing and termination data, including the following:
      a. List of materials.
      b. Method of connecting cables.
      c. Details of cable preparation.
      d. Method of applying materials, including quantities.
      e. Precautionary measures.

f. Drawings showing method of splicing complete with dimensions.
g. Written statement from cable manufacturer that splices, and terminations submitted are acceptable for use with their cable.
h. Written statement from splicing/termination manufacturer that the connectors submitted are suitable for the proposed application.
i. Written statement from cable manufacturer that the cable breakout and splitter kits submitted are acceptable for use with their cable.

4. Statement from the Company producing the optical fiber transmitter and receiver system for which the optical fiber cables are proposed to be used, indicating that the optical characteristics meet the requirements of the Company.
5. Written statement from cable manufacturer indicating recommended pulling compounds.

D. Samples:
1. Two foot sample of each type of cable proposed for use.
2. One sample of each connector proposed for use.
3. One sample of each breakout and splitter kit proposed for use.

E. Quality Control Submittals:
1. Cable Installer's Qualifications Data:
a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
b. Name and addresses of the required number of similar projects worked on which meet the experience criteria.
2. Company Field Advisor Qualifications Data:
a. Name, business address and telephone number of Company Field Advisor secured for the required services.
b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
c. Services and each product for which authorization is given by the Company, listed specifically for this project.
3. Cable Splicer's Qualifications Data:
a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
b. All information required showing that the experience criteria have been met.

F. Contract Closeout Submittals:
1. Post installation test report.

1.03 QUALITY ASSURANCE

A. Equipment Qualifications For Products Other Than Those Specified:
1. At the time of submission provide written notice to the Director of the intent to propose an "or equal" for products other than those specified. Make the "or equal" submission in a timely manner to allow the Director

sufficient time to review the proposed product, perform inspections and witness test demonstrations.

2. If products other than those specified are proposed for use furnish the name, address, and telephone numbers of at least 5 comparable installations that can prove the proposed products have performed satisfactorily for 3 years. Certify in writing that the owners of the 5 comparable installations will allow inspection of their installation by the Director's Representative and the Company Field Advisor.
   a. Make arrangements with the owners of 2 installations (selected by the Director) for inspection of the installations by the Director's Representative. Also obtain the services of the Company Field Advisor for the proposed products to be present. Notify the Director a minimum of 3 weeks prior to the availability of the installations for the inspection and provide at least one alternative date for each inspection.
   b. Only references from the actual owner or owner's representative (Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others, who are not the actual owners of the proposed products, are not acceptable.
      1) Verify the accuracy of all references submitted prior to submission and certify in writing that the accuracy of the information has been confirmed.
3. The product manufacturer shall have test facilities available that can demonstrate that the proposed products meet the contract requirements.
   a. Make arrangements with the test facility for the Director's Representative to witness test demonstrations. Also obtain the services of the Company Field Advisor for the proposed product to be present at the test facility. Notify the Director a minimum of 3 weeks prior to the availability of the test facility and provide at least one alternative date for the testing.
4. Provide written certification from the manufacturer that the proposed products are compatible for use with all other equipment proposed for use for this system and meet all contract requirements.

B. Cable Installer's Qualifications: The persons installing the Work of this Section and their Supervisor shall be personally experienced in optical fiber cable systems and shall have been engaged in the installation of optical fiber cable systems for a minimum of 3 years.
   1. Furnish to the Director the names and addresses of 5 similar projects that the foregoing people have worked on during the past 3 years.

C. Company Field Advisor: Secure the services of the cable manufacturer's Company Field Advisor for a minimum of 16 working hours for the following:
   1. Render advice regarding method of installing cable.
   2. Inspection of equipment for installing cable.
   3. Witness a representative amount of cable pulling.
      a. Company Field Advisor must witness a minimum of 25 percent of the cable pulling.
   4. Witness installation of at least one splice and one termination by each cable splicer who will be doing the actual cable splicing.

a. If the splices or terminations are other than the cable manufacturer's, secure the services of the splice and termination manufacturer's Company Field Advisor to concurrently witness installation of the splices and terminations and also certify with an affidavit that the splices and terminations were installed in accordance with the splice and termination manufacturer's recommendations.

5. Witness post installation test.
6. Certify with an affidavit that the aforementioned particulars are satisfactory, and the cable is installed in accordance with cable manufacturer's recommendations.

D. Cable Splicers' Qualifications: The persons installing the optical fiber splices and/or terminations, and their Supervisor, shall be personally experienced in splicing and terminating optical fiber cable systems and shall have been engaged in the installation of optical fiber cable systems for a minimum of 3 years.

1. Experience should be in the same types of splices and terminations proposed for this project and each project listed should be of similar size, as this project requires.
2. Furnish to the Director the following information on 5 similar projects that the foregoing people have worked on during the past 3 years.
   a. Qualifications Data should include:
      1) Names and addresses of the similar projects.
      2) Types of splices and terminations performed on the similar projects.
      3) Number of each type of splices and terminations for each of the listed projects.

1.04 DELIVERY, STORAGE AND HANDLING

A. Cable Delivery:

1. No cable over one year old when delivered to the site will be accepted.
2. Keep ends of cables sealed at all times, except when making splices or terminations. Use methods approved by cable manufacturer.
3. Include the following data durably marked on each reel:
   a. Reel number.
   b. Facility name and address.
   c. Contractor's name.
   d. Project title and number.
   e. Date of manufacture.
   f. Manufacturer's name.
   g. Linear feet.
   h. Location where cable is to be installed (i.e., Between manholes No. _____ and _____).
4. Include the following factory test data for each cable, showing the following:
   a. The reel number that the cable is on.
   b. The cable manufacturer's specified optical parameters for the type of fiber installed in the cable.

c. Test readings for all fibers in the cable, showing that all fibers have been tested and that each fiber meets or exceeds the cable manufacturer's specified optical parameters for that fiber type.

B. Cable Storage: Store cable at temperature recommended by cable manufacturer for optimum workability.

1.05 MAINTENANCE

A. Spare Parts:
1. Ten of each type of connector.
2. Ten type JFO connectorized optical fiber jumper cables.
3. Two breakout kits.
4. Two splitter kits.

PART 2 PRODUCTS

2.01 NONCONDUCTIVE OPTICAL FIBER CABLES - 62.5 MICRON/125 MICRON (CORE/CLAD)

A. Type 6 Multimode (MF0): Heavy duty dual jacketed indoor/outdoor fiber optic cable, Corning's FREEDM LST series, having:
1. 6 optical fibers.
   a. Fiber diameter (core): 8.3 micron/125 micron.
   b. Fiber type: Single Mode fiber.
   c. Maximum Fiber Attenuation:
      1) 3.5 dB/km (@850nm).
      2) 1.5 dB/km(@1300nm).
2. Dielectric strength member: Epoxy/fiber glass rod or equal.
3. Inner Jacket: Flame and moisture resistant Polyvinyl chloride (PVC) or equal.
4. Outer strength member: Aramid yarn.
5. Outer Jacket: Orange, Flame-Retardant.
6. Tensile Strength:
   a. Short-Term: 2700N (600 lbf).
   b. Long-Term: 810N (180 lbf).
7. Buffer Tube Color Coding: Blue & Orange.
8. Rip Cords: 1
9. Compliance the following standards:
   a. UL 1666.
   b. National Electrical Code for type OFNR cable

2.02 CONNECTORS

A. General: Furnish Corning's LC type connectors and components, and use specific tools and methods as recommended by connector manufacturer to form complete connector system:

1. Connectors: LC duplex, multimode with ceramic alignment with composite housing.
2. Boot color: orange.

2.03 OPTICAL FIBER TERMINATION RACK (OFTR)

A. Corning's CCH series, rack mount optical fiber patch panel having:
1. Suitability for mounting in the Electronic Equipment Rack (EER) and Central Monitoring Console (CMC)
2. Adapter plate with factory mounted duplex LC type multimode feed-thru adapters; number of adapters as required.
3. Lock with 2 keys.
4. Provide number and sizes of OFTR as required for all terminated and connectorized fiber optic cables.

2.04 WALL MOUNTED OPTICAL FIBER TERMINATION RACK

A. Corning's WCH series, wall mount optical fiber patch and splice panel, having:
1. Adapter plate with factory mounted LC type multimode feed-thru adapters; number of adapters as required.
2. Lock with 2 keys.

2.05 CONNECTORIZED OPTICAL FIBER JUMPER CABLES

A. Type JFO: Jumper cable by Corning, having:
1. One 62.5 micron/125 micron (core/clad) multimode optical fiber.
2. Kevlar or Aramid yarn strength member.
3. PVC outer jacket.
4. Cable length of 1 meter.
5. Connectors: Factory installed, stainless steel bodies and ferrules.
   a. One LC Type connector, for connection to optical fiber termination rack (OFTR).
   b. The other connector's type shall be as required, for connection to the optical fiber receiver or transmitter equipment, including ST style to connect to existing OFTR.

2.06 ACCESSORIES

A. Pulling Compounds: As recommended by cable manufacturer.

B. Tags: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inches high.
1. Phenolic: Two color laminated engraver's stock, 1/16 inch minimum thickness, machine engraved to expose white inner core color.
2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled, or background enameled with natural aluminum engraved characters.

C. Markers:
1. Premarked self-adhesive: W.H. Brady Co.'s B940, Thomas and Betts Co.'s E-Z code WSL self-laminating, Ideal Industries' Mylar/Cloth wire markers, or Markwick Corp.'s permanent wire markers.

2. Flexible sleeve markers: Plastic Extruded Parts Inc.'s FS series.
3. Snap-on markers: Plastic Extruded Parts Inc.'s RS series.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to installing cable, test the cable on the reels to verify that the cable's fibers are intact.
   1. At the contract site, perform a continuity test on each fiber in each cable to confirm light passes through each fiber.
   2. Remove defective cable from the Site.

3.02 INSTALLATION

A. Installing Cables:
   1. Install cables in conduit after conduit system is completed.
   2. Keep ends of cables sealed watertight at all times, except when making splices or terminations.
   3. No grease, oil, lubricant other than approved pulling compound may be used to facilitate the pulling-in of cables.
   4. Use pulling attachment connected to the cable strength member for pulling in cables. Seal the pulling attachment watertight.
   5. Incorporate into the pull line at the pulling attachment a tension-control swivel containing a shear pin designed to fail if the pre-determined maximum cable strain is applied.
   6. Pull cables with a dynamometer or strain gage incorporated into the pulling equipment. Do not pull cables unless the Director's Representative is present to observe readings on the dynamometer or strain gage during the time of actual pulling. Do not exceed cable manufacturer's recommended pulling strain.
   7. Provide 2 meters of slack in each cable, at the first and last manhole that the cable is running through.
   8. Provide 1 to 2 meters of slack in each cable, in the enclosures that the cable terminates or is spliced.

B. Cable breakouts and splitter kits:
   1. Provide breakout kits on type DFO cables.
   2. Provide splitter kits on type SFO, MFO and TFO cables.

C. Splices and Terminations:
   1. Splice, where allowed, and terminate cable in accordance with manufacturer's approved installation instructions.
   2. No splicing of optical fiber cables will be allowed except:
      a. Connectorized splices will be allowed in the OFSB to connect type DFO cables to types SFO, MFO or TFO cables.
      b. Connectorized splice will be allowed in the OFTR to connect type JFO cables to types SFO, MFO or TFO cables.

D. Identification of Optical Fiber Cables: Identify cables in manholes, pullboxes and in equipment to which they connect:
   1. Install tags on each cable indicating cable number, month and year installed, type of cable, and manufacturer. Attach tags to cables with non-ferrous metal wire or brass chain.
   2. Use markers to identify each optical fiber in equipment to which they connect.

3.03 FIELD QUALITY CONTROL

A. Post Installation Test:
   1. Perform test on each active and spare optical fiber after cable has been installed complete with connectors, and prior to placing cable into service.
      a. Demonstrate that the amount of attenuation and connector losses through the fiber is no greater than 75 percent of the parameters allowed by the optical fiber transmitter/receiver manufacturer for wavelengths of 850nm and 1300nm.
         1) Example: If the optical fiber transmitter/receiver manufacturer allows a 12db loss between the transmitter and receiver. The amount of loss that would be allowed across the fiber should not be more than 8db.
         2) If the amount of attenuation measured across a fiber is above 75 percent, then that fiber is to be tested to determine the cause of the high measurement, faulty connector, damaged fiber, etc., and corrective actions are to be made to correct the problem
   2. Perform test in the presence of the Director's Representative.
   3. Supply equipment necessary for performing test.
   4. Submit written report of test results signed by Company Field Advisor and Director's Representative. Mount a copy of the final report in a plexiglass enclosed frame assembly adjacent to the security console.

END OF SECTION

SECTION 275111

INTERCOM SYSTEM

PART 1 GENERAL

1.01 SYSTEM DESCRIPTION

A. IP Network Compatible Video Intercom System: A network-based communication and security system featuring video entry security, internal communication, emergency stations, and paging. All units and apps in the systems shall be able to unlock doors remotely on a network, assist onsite visitors from an offsite location, broadcast emergency announcements, and communicate using a PoE network.

1. Power Source: Power over Ethernet (802.3af).
2. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
3. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, MJPEG, RTSP, RTP, RTCP, IGMP, MLD, SMTP, DHCP, NTP, DNS.
4. Bandwidth Usage:
   a. G.711: 64Kbps x 2 per video call.
   b. 64Kbps per monitor.
   c. H.264: 24Kbps ~ 2,048Kbps.
5. Communication: Hands-free (VOX), push-to-talk (simplex), or handset (full-duplex).
6. All Video or Door control capability of the master control station listed below will be disabled for this project.
7. Video Display: 7-inch color LCD.
8. Camera: Type: IX-DV, IX-DVF, IX-DVF-(2) RA, IX-DVF-L, IX-DVF-P, IX-DVF-HWCB
   a. 1/3-inch color CMOS. 1.23 Megapixels.
   b. View Area at 0-degree camera angle mounted at 4 feet 11 inches (1500 mm) AFF: 2 feet 3 inches (700 mm) vertical x 3 feet 9 inch (1150 mm) horizontal at 19 inches (500 mm).
9. Camera: IX-DVM Type:
   a. 1/3-inch 8-type color CMOS. 720p HD, wide dynamic range
   b. View Area mounted at 4 feet 11 inches (1500 mm) AFF: 4 feet 3 inches (1300 mm) vertical and a range of 170 degrees in a 19 inch (500 mm) horizontal radius.
10. Video Stream: ONVIF Profile S.
11. Door Release: Programmable Form C dry contact, 24V AC/ DC, 1A (use RY-1824L for larger contact rating, which requires a 24V DC power supply) or use IXW-MA with 10 multipurpose relays.
12. Wire Type: CAT-5e or CAT-6.
13. Distance: Any station to Network Node: 330 feet (100 meters).

B. A person at a master station may page each substation separately by pressing a selector switch, then pressing a talk button allowing the person to deliver a verbal message to the selected station. Master station is equipped with a handset to allow private conversation with the selected station.

C. A person at the activated station replies to the call without having to perform any functions (hands free reply). Exception: Stations with privacy switch require the switch to be released for reply. Privacy switch prevents sounds or conversations from being transmitted to other stations (eavesdropping prevention).

D. A person at a sub-station may initiate a call and communicate with a person at the master station by pressing a call button located on the substation. An indication is given if the line is busy. The call is announced on master station by tone and lamp annunciation. A person at the master station presses a talk button to reply and releases it to listen to the person at the sub-station.

1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittal Package: Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package.

C. Shop Drawings:
1. Composite wiring and/or schematic diagrams of the complete system as proposed to be installed (standard diagrams will not be accepted).

D. Product Data:
1. Catalog sheets, specifications, and installation instructions.
2. Bill of materials.
3. Detailed description of system operation (format similar to SYSTEM DESCRIPTION).
4. Name, address, and telephone number of nearest fully equipped service organization.

E. Quality Control Submittals:
1. Company Field Advisor Data: Include:
   a. Name, business address and telephone number of Company Field Advisor secured for the required services.
   b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
   c. Services and each product for which authorization is given by the Company, listed specifically for this project.

F. Contract Closeout Submittals:
1. Test Report: System acceptance test report.
2. Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.
3. Operation and Maintenance Data:
   a. Deliver two copies, covering the installed products, to the Director's Representative. Include name, address and telephone number of the nearest fully equipped service organization.

1.03 QUALITY ASSURANCE

A. Equipment Qualifications for Products Other Than Those Specified:
   1. At the time of submission provide written notice to the Director of the intent to propose an "or equal" for products other than those specified. Make the "or equal" submission in a timely manner to allow the Director sufficient time to review the proposed product, perform inspections and witness test demonstrations.
   2. If products other than those specified are proposed for use furnish the name, address, and telephone numbers of at least 5 comparable installations that can prove the proposed products have performed satisfactorily for 3 years. Certify in writing that the owners of the 5 comparable installations will allow inspection of their installation by the Director's Representative and the Company Field Advisor.
      a. Make arrangements with the owners of 2 installations (selected by the Director) for inspection of the installations by the Director's Representative. Also obtain the services of the Company Field Advisor for the proposed products to be present. Notify the Director a minimum of 3 weeks prior to the availability of the installations for the inspection and provide at least one alternative date for each inspection.
      b. Only references from the actual owner or owner's representative (Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others who are not the actual owners of the proposed products, are not acceptable.
         1) Verify the accuracy of all references submitted prior to submission and certify in writing that the accuracy of the information has been confirmed.
   3. The product manufacturer shall have test facilities available that can demonstrate that the proposed products meet the contract requirements.
      a. Make arrangements with the test facility for the Director's Representative to witness test demonstrations. Also obtain the services of the Company Field Advisor for the proposed product to be present at the test facility. Notify the Director a minimum of 3 weeks prior to the availability of the test facility and provide at least one alternative date for the testing.
   4. Provide written certification from the manufacturer that the proposed products are compatible for use with all other equipment proposed for use for this system and meet all contract requirements.

B. Test Facility: The Company producing the system shall have test facilities available which can demonstrate that the proposed system meets contract requirements.

C. Company Field Advisor: Secure the services of a Company Field Advisor for a minimum of 4 working hours for the following:
   1. Render advice regarding installation and final adjustment of the system.
   2. Witness final system test and then certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.
   3. Train facility personnel on the operation and maintenance of the system (minimum of two 1/2 hour sessions).
   4. Explain available service programs to facility supervisory personnel for their consideration.

1.04 MAINTENANCE

A. Service Availability: A fully equipped service organization shall be available to service the completed Work.

PART 2 PRODUCTS

2.01 INTERCOM SYSTEM

A. D-Link 52-Port Layer 3 Stackable Managed Gigabit PoE Switch: Intellicene Item # VMS-DL-DGS-3630-52PC, having:
   1. 44 x 10/100/1000BASE-T PoE ports
   2. 4 x Combo 10/100/1000BASE-T PoE/SFP ports
   3. 4 x 10G SFP+ ports
   4. Supports IEEE 802.3af/at Power over Ethernet
   5. 6 kV surge protection on all RJ-45 access ports
   6. Switch Resource Management (SRM) for flexible management of system resources
   7. Redundant Power Supply (RPS) support
   8. Power Input – AC Input: 100 – 240 VAC, 50-60 Hz
   9. Switch Capacity – 176 Gbps
   10. Maximum Packet Forwarding Rate – 130.95 Mbps
   11. CPU Speed – 1GHz
   12. DRAM Size – 1GB(Byte)-DDR3
   13. Flash Memory Size – 1GB (Byte)
   14. Packet Buffer Size – 4MB
   15. Maximum Power Consumption – PoE off: 54.1 W – PoE on: 485 W
   16. Maximum Heat Dissipation – 1653.85 BTU/h
   17. Manufactured type:
      a. Intellicene Item # VMS-DL-DGS-3630-52PC
      b. D-Link Item # DGS-3630-52PC

B. D-Link Switch Accessory – Power Supply: Intellicene Item# VMS-DL-DPS-700, having:
   1. Up to 589 W of output power and supports 1 + 1 power capability
   2. Mountable in a standard 19-inch equipment rack
   3. Provide backup power for a switch's built-in power supply
   4. Hot-swappable
   5. Solid metal housing
   6. LED status indicators
   7. Input Voltage Range – 90 to 264 V AC
   8. Input Frequency - 47 to 63 Hz
   9. Max Input Current – 7.5 A @ 115 V AC 3.7 A @ 230 V AC
   10. Max Inrush Current - 30 A @ 115 V AC 30 A @ 230 V AC

C. Master Station: Aiphone Model IX-MV7-HB (Black chassis - Handset), having:
   1. All Video or Door control capability of the master control station will be disabled.
   2. SIP 2.0 compliant
   3. 500 station address book
   4. ONVIF Profile S compliant
   5. Multi-angled desk stand (30°, 45°, 60°)

6. Slot for microSD™ card
7. 2 contact outputs
8. 4 trigger inputs
9. 802.3af PoE compliant
10. 8Ω 0.5W speaker output
11. 600Ω audio input
12. Power Source: PoE (IEEE 802.3af class 0)
13. Power Draw: 4.32W
14. Camera: ⅓" CMOS 720p
15. Min. illumination: 5 Lux
16. Audio Codec:
    a. G.711 (μ-law, A law)
    b. G.722
17. Video Codec:
    a. H.264/AVC
    b. Motion JPEG
18. Protocols:
    a. IPv4
    b. IPv6
    c. TCP
    d. UDP
    e. SIP
    f. HTTP
    g. HTTPS
    h. RTSP
    i. RTP
    j. RTCP
    k. IGMP
    l. MLD
    m. SMTP
    n. FTP
    o. DHCP
    p. NTP
    q. DNS
19. Port Security: IEEE 802.1X
20. UL Listed:
    a. UL 62368-1
    b. UL 62368-1
21. Operating Temp: 32° ~ 104°F (0° ~ 40°C)
22. Dimensions: 8-1⁄16" H x 11" W x 2-3⁄16" D

D. Substations: Aiphone Model IX-SS-2G (2-gang, stainless steel, flush mount IP addressable door station), having:
1. SIP 2.0 compliant
2. Illuminated call button indicator
3. 1 contact output
4. 1 trigger input
5. 802.3af PoE compliant
6. 1 PoE LAN port
7. Power Source: PoE (IEEE 802.3af class 0)
8. Power Draw: 3.36 Watts

9. Audio Codec:
    a. G.711 (μ-law, A law)
    b. G.722
10. Protocols:
    a. IPv4
    b. IPv6
    c. TCP
    d. UDP
    e. SIP
    f. HTTP
    g. HTTPS
    h. RTSP
    i. RTP
    j. RTCP
    k. IGMP
    l. MLD
    m. SMTP
    n. FTP
    o. DHCP
    p. NTP
    q. DNS
11. Port Security: IEEE 802.1X
12. Operating Temp: -40° ~ 140°F (-40° ~ 60°C)
13. Ingress Protection: IP65
14. Impact Protection: IK07
15. Dimensions: 4-¾" H x 4-¾" W

2.02 WIRING

A. Conductors: Number of conductors, size and type as recommended by the Company producing the system.
    1. Wiring installed in underground raceways shall be UL listed suitable for underground.

PART 3 EXECUTION

3.01 PREPARATION

A. Verify the following compliance before starting installation.
    1. The unit turns inoperative during power failure.
    2. Keep the intercom wires at least 1 foot (30 cm) away from strong electrical wiring (AC 100-240 V) including, in particular, wiring for inverter electrical appliances. Noise and malfunction could result.
    3. If a strong light shines on the main unit screen, the picture may turn white or only silhouettes will be visible.
    4. Other manufacturer's devices (such as sensor, detectors, door releases) used with this system, comply with the manufacturer's installation requirements.
    5. The LCD panel is manufactured with very high precision techniques, inevitably will have a very small portion of its picture elements always lit or not lit at all. This is not considered a unit malfunction. Please be aware of this in advance.

3.02 INSTALLATION

A. Install integrated security and communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Mount equipment plumb, level, square, and secure. For video entrance stations and video door stations, comply with manufacturer's design requirements to provide optimum picture quality of station monitoring.

3.03 SET-UP AND ADJUSTING

A. Adjust integrated security and communication system for proper operation in accordance with manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

A. Preliminary System Test:
   1. Preparation: Have the Company Field Advisor adjust the completed system and then operate it long enough to assure that it is performing properly.
   2. Run a preliminary test for the purpose of:
      a. Determining whether the system is in a suitable condition to conduct an acceptance test.
      b. Checking and adjusting equipment.
      c. Training facility personnel.

B. System Acceptance Test:
   1. Preparation: Notify the Director’s Representative at least three working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
   2. Make the following tests:
      a. Individually test master station and each sub-station.
      b. Test each system function step by step as summarized under SYSTEM DESCRIPTION.
   3. Supply all equipment necessary for system adjustment and testing.
   4. Submit a written report of test results signed by Company Field Advisor and the Director’s Representative.

END OF SECTION

SECTION 282306

CCTV/AUDIO MONITORING EQUIPMENT

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Electrical Materials and Methods: Division 26 Electrical.

1.02 DEFINITIONS

Note: The definition below supersedes the definition in section 014216 for Company Field Advisor.

A. Company Field Advisor (An individual meeting the requirements of 1 or 2 below):
   1. An employee of the company producing the cameras (or company which lists and markets the primary components of the cameras) who is certified in writing by the company to be technically qualified in design, installation, and servicing of the required products, and has experience in the installation of the required products. Personnel involved solely in sales do not qualify.
   2. An individual employed by an organization (other than the company producing the cameras), certified in writing by the company producing the cameras, that the individual is technically qualified in design, installation and servicing of the required products and is capable to act as company field advisor in their behalf, and has experience in the installation of the required products. The individual should have received all available training from the manufacturer on the cameras used on the project. Personnel involved solely in sales do not qualify.

B. Audio Field Engineer (An individual meeting the requirements of 1 or 2 below):
   1. An employee of the company producing the system (or company which lists and markets the primary components of the system under their name) who is certified in writing by the company to be technically qualified in design, installation, and servicing of the required products, and has experience in the installation of the required products. Personnel involved solely in sales do not qualify.
   2. An individual who is technically qualified in design, installation, and servicing of audio surveillance and audio recording systems. Personnel involved solely in sales do not qualify. The designated individual shall be trained and certified by the company producing the audio processing equipment in the use and programming of the audio processing equipment.

1.03 DESCRIPTION OF COMPLETED SYSTEM

A. Provide the camera stations and microphones shown on the drawings in the facility, the exterior Chutes and congregate recreation pens. Provide cabling to each station per the wiring diagram.

B. Provide the CCTV/Audio Monitoring Equipment as shown on the drawings in the Basement and Correction Officers (CO) Office.

C. The CCTV/Audio Monitoring Equipment shall be interconnected with the Network Video Recording Server (being provided under this contract) to provide constant recording of all camera and microphone stations provided under this contract.
   1. The Video Surveillance Control Board will allow attendants at Master Control Workstation (MCW), to view video from camera stations connected to the system along with its associated audio (from the associated microphone stations).
   2. See section 282320 for work associated with the Digital Video/Audio Recording and Virtual Matrix System.

D. Scenes are viewed by camera stations:
   1. Fixed camera stations contain equipment required for viewing a fixed scene (not remotely adjustable).

E. Camera stations are associated with microphone stations, which allow the personnel at monitoring stations in the CO Office to monitor the audio in the scene viewed by the camera station.

F. The video signal from each camera station is transmitted to its associated Power Over Ethernet Switch (POE).
   1. The video signal is transmitted to the POE from the camera station via Category 6A cable.

G. The audio signal from each microphone station is connected to the Camera Station to be digitized and transmitted to its associated Power Over Ethernet Switch (POE).
   1. The audio signal is transmitted to the POE from the camera station via Category 6A cable.

H. Provide an electronics equipment rack to house all control and recording equipment being provided under this project. The electronics equipment rack shall be located as indicated in the drawings.

I. Provide two 21.5-inch monitors on wall mounts located on the wall opposite the CO desk. These monitors will allow the CO to view the camera stations in the facility, in the exterior Chutes and congregate recreation pens.

J. Provide the Video Surveillance Control Board with joystick and keypad controls on the CO desk. These controls will provide the CO with the ability to select and view the appropriate cameras stations.

1.04 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittal Requirements:
   1. Submittals required by this section are to be submitted in packages as follows:
      a. Submittals Package 1: Submit Quality Control Submittals, Product Data, and Shop drawings specified below at the same time as a package.
         1) Submit Submittals Package 1 within 30 days of contract award.

b. Submittals Package 2: Submit Point to Point wiring diagrams specified below as a package.
    1) Submit Submittals Package 2 within 30 days of receipt of approval of Submittal Package 1.
c. Submittals Package 3: Submit Training Submittals specified below as a package.
    1) Submit Submittals Package 3 within 30 days of receipt of approval of Submittal Package 2.
d. Submittals Package 4: Submit Contract Closeout Submittals specified below as a package.
    1) Submit Submittals Package 4 within 7 days after completion and acceptance of the System Acceptance Test by the Director's Representative or when directed by the Director's Representative.

2. It is the Contractor's responsibility to review and verify that all information required for each submittal package is included in the submittal package. Errors or omissions found by the Contractor are to be corrected prior to the Submittals Package submission for approval. Incomplete Submittal Packages submitted for review and approval will be returned.
    a. It is the Contractor's responsibility to verify that portions of the submittal packages provided by a Sub-Contractor are complete as well as portions of the submittal packages being provided directly by the Contractor.
    b. The Company Field Advisor and Audio Field Engineer shall be responsible for reviewing the sections of the complete submittal package that are within their specialty, prior to its submission for review and approval.
        1) These reviews shall include review of portions of the Submittal Package assembled and inserted into the Submittals Package by the Contractor (or Sub- Contractors).
        2) Letter(s) from the Company Field Advisor and Audio Field Engineer shall be included in the Submittal Packages, stating that the Company Field Advisor and Audio Field Engineer has reviewed the entire Submittal Package for accuracy and completeness and approves all materials and installation methods included in the Submittal Package. Letter(s) shall state all pages of the submittals that have been reviewed as well as all drawing numbers that have been reviewed.
        3) Errors or omissions found by the Company Field Advisor or Audio Field Engineer are to be corrected prior to the Submittals Package's submission for approval.

C. Quality Control Submittals (Submittals Package 1):
1. Installers' Qualifications Data: Include a completed INSTALLER'S QUALIFICATION DATA FORM for each person who will be performing the Work.
    a. Forms must be completely filled out. Incomplete forms will be returned for correction with no action taken.
    b. Forms must include all information required by this section of the Project Manual, showing that the experience criteria have been met.
    c. Each form must be signed by the installer. Forms without signatures shall be disapproved.
    d. Listing of training that the Company Field Advisor has received on the equipment being proposed for this project.

2. Company Field Advisor Data, Include:
    a. Name, business address, and telephone number of Company Field Advisors secured for the required services.
    b. Certified statement (letter) from the Companies producing the equipment listing the qualifications of the Company Field Advisor. The certification statements from the Companies shall include the following:
        1) Information stating that the Company Field Advisor is experienced in the engineering, design and installation of the Equipment being proposed for use.
        2) Each product for which the Company gives authorization for the Company Field Advisor to oversee installation of and each service the Company Field Advisor can perform on their behalf, listed specifically for this project.
        3) The certification shall include statements from the person signing the certification, stating:
            a) That they have read requirements for a Company Field Advisor as written in this section of the Project Manual and certify that the proposed individual is capable of performing the duties of the Company Field Advisor on the Company's behalf.
            b) That the person signing this statement is authorized by their company to provide this certification on the Company's behalf.
            c) Telephone number and Email address of the person signing this statement.
    c. Listing of at least 3 projects that the Company Field Advisor has worked on in the past 3 years, showing proof that the Company Field Advisor is experienced in the installation of the equipment (similar to or the same as the equipment) being provided for this project.
    d. Listing of training that the Company Field Advisor has received on the equipment being proposed for this project.
3. Audio Field Engineer Data, Include:
    a. Name, business address, and telephone number of Audio Field Engineer secured for the required services.
    b. Listing of at least 3 projects that the Company Field Advisor has worked on in the past 3 years, showing proof that the Company Field Advisor is experienced in the installation of the equipment (similar to or the same as the equipment) being provided for this project.
4. Load Calculations: Provide load calculations proving that the proposed UPSs shall provide full power to its associated equipment (plus 50 percent spare capacity) for the required duration.
5. Letter from the Company Field Advisor and Audio Field Engineer, stating that the Company Field Advisor and Audio Field Engineer have reviewed the Submittals Package for accuracy and completeness and approves all materials and installation methods included in the Submittals Package.
6. Equipment Qualifications: Submit Equipment Qualification information required by 1.7, A, if proposing equipment other than that specified.
7. Project Work Plan:
    a. Include a detailed work guideline listing the DOCCS requirements as they apply to this specific site.
    b. Include a detailed project work scheduling plan.

c. Include a set of detailed project installation drawings compiled specifically for this project.
d. Include training schedules for this specific project.
e. Include personnel contacts for this specific project.

D. Shop Drawings (Submittals Package 1):
1. Composite wiring and/or schematic diagrams of the complete system as proposed to be installed (standard diagrams will not be acceptable), including video signal integrity equipment, audio signal integrity equipment, surge suppressors, etc. required for a complete system.
2. Scale drawings showing location and mounting of all system components to be mounted in Central Monitoring Console in CCTV Equipment Room, Administration Building and Electronics Equipment Racks in EER Equipment Rooms located in each building containing camera stations.
3. Scale drawings showing location and details for method of mounting monitors.
4. Scale drawings showing details for method of mounting each type of camera station.
5. Scale drawings showing details for method of mounting of microphone stations.

E. Product Data (Submittals Package 1):
1. Catalog sheets, specifications, and installation instructions.
a. Catalog sheets shall be marked up by the contractor to clearly identify exactly what item is being submitted for approval and marked up clearly indicating what options the item will have to meet the contract requirements.
2. Bill Of Materials: Provide a Bill of Materials identifying each system device or component proposed to be used for this system as listed in PART 2 PRODUCTS of this section.
a. The Bill of Materials shall provide the following information:
1) Identify each item by name and model number.
2) Indicate the page number(s) in the Submittal Package where information required for that item can be found.
3) Identify the appropriate specification section, Article number, paragraph, and subparagraph where that item is listed in the project manual.
3. Detailed description of system operation (format similar to DESCRIPTION OF EQUIPMENT TO BE PROVIDED).
4. State number of POE ports used specifically for this project and number of POE ports available for future use if system is expanded to maximum capacity.
5. Name, address, and telephone number of nearest fully equipped service organization.

F. Point to Point Wiring Diagrams (Submittals Package 2):
1. Submit complete point to point wiring diagrams of the entire set of equipment as it is to be installed.
a. Point to Point wiring diagrams shall show the following:
1) All components.
2) All cables and conductors between each component.
3) Identify all cables and conductors and show all terminations and splices (identification shall correspond to markers to be installed on each conductor).

G. Training Submittals (Submittals Package 3):
1. Training: Submit an outline for each training session (i.e., System Operation Training, Maintenance Training, etc.):
a. Each outline should include the topics to be covered and the approximate length of time needed to cover each topic.
1) Topics listed in the outlines, whose approximate time is more than 15 minutes in duration, shall be broken down into sub-topics of not more than 10 minutes each.

H. Training Submittals shall have an accompanying letter from the Company Field Advisor(s) stating that the Company Field Advisor(s) has reviewed the training outlines for accuracy and completeness and approves the training outlines.

I. Contract Closeout Submittals (Submittals Package 4):
1. System acceptance test report.
2. Certificate: A notarized affidavit, signed by the Company Field Advisor and Audio Field Engineer, certifying that the system meets the contract requirements and is operating properly.
3. Operation and Maintenance Data:
a. Deliver 2 copies, covering the installed products, to the Director's Representative. Include the following:
1) Operation and maintenance data for each product.
2) Complete point to point wiring diagrams (As-Built Drawings) of entire system as installed. Identify all conductors and show all terminations and splices. (Identification shall correspond to numbered tags installed on each conductor.)
3) Name, address, and telephone number of nearest fully equipped service organization.
4. Photographs and electronic images:
a. Take color electronic images of the completed Work of this Section, as follows:
1) 2 of the Electronics Equipment Rack from different positions.
2) 1 front view of each EER and CCTV Equipment Room rack section.
3) Use electronic flash or lighting capable of supplying sufficient light to evenly illuminate the overall subject.
b. Electronic Images:
1) Format: Jpeg
2) Resolution: 3 Megapixel (minimum).
3) Deliver images on compact disc. Include date images were taken, name of Contractor, project number and title.
5. USB flash drive with all settings.
6. USB flash drive with all programming software as required.

J. Seismic Qualification Certificates: for security equipment racks from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions. Base certification on the maximum number of components capable of being mounted in each equipment rack along with rack type. Identify components on which certified is based.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

1.05 QUALITY ASSURANCE

A. Equipment Qualifications:
   1. The New York State Department of Corrections and Community Supervision and the New York State Office of General Services has tested and/or reviewed the manufacturers' and/or their products listed in this section for the Audio processing Unit, Phantom Power Supply, Cameras, Microphones, and approves them for use at their facilities.
      a. Products listed by manufacturer's name and model number have been approved for use by the New York State Department of Corrections and Community Supervision.
      b. A product listed by manufacturer's name only indicates that the manufacturer listed has a product (or products) that have been approved for use by the New York State Department of Corrections and Community Supervision. Contact the manufacturer for the model number(s) of the products that are accepted for use by the New York State Department of Corrections and Community Supervision that meet all of the listed parameters required for that product.
      c. Products previously approved for use by the New York State Department of Corrections and Community Supervision does NOT provide automatic approval of said product. All products must be submitted for review to determine if they are acceptable for their proposed application.
   2. Products other than those specified (or previously approved for use by the New York State Department of Corrections and Community Supervision):
      a. If products other than those specified for the Audio processing Unit, Phantom Power Supply, Cameras, or Microphones are proposed for use, furnish the name, address, and telephone number of at least 5 comparable installations that can prove the proposed products have operated satisfactorily for 1 year.
      b. The Company producing the product shall have test facilities available, which can demonstrate that the proposed product meets contract requirements.

B. Installer's Qualifications: The persons installing the Work of this Section and their supervisor shall be personally experienced in closed circuit television systems and audio systems having been engaged in the installation of these systems for a minimum of 3 years.
   1. Qualifying experience must be in the installation of CCTV and audio systems similar in operation and construction of the system being specified by this section.
   2. Furnish completed INSTALLER'S QUALIFICATION DATA FORM for each person who will be performing the Work. Each form shall include:
      a. Installer's name.
      b. Employer's Name and Address.
      c. Qualifying Experience: Project information of 5 similar projects, which the installer, had worked on during the past 3 years. Information shall include for each project:
         1) Name and Address of project.
         2) Dates installer worked on project.
         3) Name and telephone Number of installer's supervisor for the project.
         4) Types of security installation work installer performed on project.

C. Company Field Advisor (Cameras): Secure the services of a Company Field Advisor from the Company producing the cameras for the following:

1. Assist in the formation of the submittals packages and review the submittal packages for accuracy and completeness.
2. Engineering associated with interconnections between the DVARS and the cameras and lenses.
3. Render advice on the suitability of each camera and lens for its particular application.
4. Render advice regarding installation and adjustment of the cameras.
5. Coordination of installation of the cameras, lenses, and related work with other systems.
6. Conduct a pre-installation meeting at the contract site with the installers (and their supervisor) who will be performing the work, the Director's Representatives, and facility supervisory and maintenance personnel. The meeting shall be a minimum of 4 hours in duration (held in two 2-hour increments). The topics covered shall include, but shall not be limited to the following:
    a. Company field advisor shall present an overview of the equipment as it is to be installed.
    b. Company field advisor shall lead a discussion of installation concerns and coordination issues on this system and related systems and related work being installed under this project.
    c. Company field advisor shall provide training on procedures for installing system components and precautionary measures installers should be aware of while performing the work.
        1) Company field advisor shall review point-to-point wiring diagrams with the installers and provide training on termination, bonding and grounding procedures required for proper installation of the system wiring and components.
7. Provide supervision of the installation at the contract site for a minimum of 24 hours and for the following:
    a. Supervise the installation of the camera stations, cameras, and lenses.
    b. Engineering associated with interconnections between the DVARS and the cameras.
    c. Render advice on the suitability of each camera and lens for its particular application.
    d. Render advice regarding installation of the cameras (including location, mounting height, and aiming of cameras.)
    e. Assist in initial and final adjustments to the cameras.
    f. Coordinate installation of the cameras, lenses, and related work with the other systems.
    g. Perform preliminary tests of the system.
    h. Assist in performing system acceptance test and certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.
8. Train, at the contract site, facility maintenance personnel in adjustments and routine maintenance of the cameras (minimum of two, 1-hour sessions).
9. Explain available service programs to facility supervisory personnel for their consideration.

D. Audio Field Engineer: Secure the services of an Audio Field Engineer for the following:

1. Assist in the formation of the submittals packages and review the submittal package for accuracy and completeness.
    a. Review shall include review of submittal packages of related (work) systems as they related to interconnection with the audio processing equipment, microphone stations and operation of this system.
2. Engineering associated with interconnections between the microphone stations, Audio Processing equipment and the DVARS.
3. Render advice regarding location of the microphone stations.
4. Render advice regarding installation and adjustment of the microphone
5. stations and audio processing equipment.
6. Render advice regarding integration with other systems.
7. Coordinate installation of the microphone stations and related work with the other systems.
8. Participate in the pre-installation meeting at the contract site being conducted by the Integrator′s Field Advisor with the installers (and their supervisors) who will be performing the work, the Director′s Representatives, and facility supervisory and maintenance personnel. The topics covered shall include, but shall not be limited to the following:
    a. Audio Field Engineer shall present an overview of the equipment as it is to be installed.
    b. Audio Field Engineer shall lead a discussion of installation concerns and coordination issues on this system and related systems and related work being installed under this project.
    c. Audio Field Engineer shall provide training on procedures for installing components and precautionary measures installers should be aware of while performing the work.
        1) Audio Field Engineer shall review wiring requirements for each component of the system with the installers and provide training on termination, bonding and grounding procedures required for proper installation of the system wiring and components.
9. Provide supervision of the installation at the contract site for a minimum of 16 hours and for the following:
    a. Render advice regarding location of the microphone stations.
    b. Render advice regarding installation and adjustment of the microphone stations and audio processing equipment.
    c. Engineering associated with interconnections between the microphone stations, audio processing equipment and DVARS.
    d. Assist in adjustment of the audio equipment.
    e. Assist in performing the Preliminary System Test of the completed system and certify with an affidavit that the system is installed in accordance with the contract documents and is ready for the System Acceptance Test.
    f. Assist in performing the System Acceptance Test of the completed system and certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.
10. Train at the contract site, facility personnel in Systems Operation Training of the system (minimum of two, 1-hour sessions).
11. Train at the contract site, facility personnel in System Maintenance Training of the system (minimum of two, 1-hour sessions).
12. Explain available service programs to facility supervisory personnel for their consideration.

1.06 MAINTENANCE

A. Service Availability: A fully equipped service organization capable of guaranteeing response time within 8 hours to service calls shall be available 24 hours a day, 7 days a week to service the completed system.

B. Spare Parts:
   1. Two complete Fixed cameras (camera, lens, and housing).
   2. Two of each type of surge protector.
   3. Two microphones.
   4. Two Comnet's SFP-46 Transceivers.
   5. One Keyboard Control Unit (Axis TU9002 joystick and TU9001 keypad).

PART 2 PRODUCTS

2.01 CONSOLE EQUIPMENT

A. Copper Patch Panel (CPP)
   1. UTP Coupler Patch Panel:
      a. Exceeds channel requirements of ANSI/TIA-568-C.2 Category 6 and ISO 11801 Class E standards at swept frequencies 1 to 250 MHz.
      b. Meets ANSI/TIA-1096-A; contacts plated with 50 microinches of gold for superior performance.
      c. Industry Standard interface provides a quick and easy plug and play connection to RJ45 patch cords; backwards compatible.
      d. Factory installed 24-port patch panel mounts.
      e. As manufactured by Panduit, model CP24688BL.

B. Cable management system (CMS)
   1. Cable Management System (CMS):
      a. 1RU
      b. Hinged cover
      c. 48 port
      d. As manufactured by Panduit.

2.02 RECREATION PEN NETWORK ENCLOSURE (WALL MOUNTED)

A. Wall Mounted Cabinets: hinged wall mounted enclosure**;** CPI Chatsworth 119967-36 having:
   1. Front, Back, and Side Panels:
      a. Steel sheet cabinet body.
      b. Back panels hinged with internal release.
      c. Center Section louvered to provide adequate ventilation of components.
      d. Eight wall-mounting slots.
      e. Four knockouts on top and bottom of the rear section provided for cable and conduit entry.
      f. Cable tie and ground points.
      g. Knockouts in top and base for the addition of Muffin style fans
      h. Front lock with internal cabinet release to secure equipment.
      i. Solid front door with lock and two keys.
      j. Black powder coat finish.

2. Dimensions
   a. Unit Dimensions – H-36in. x W-24in. x D-30in.
   b. Unit Height – 19U
3. Chassis support angles and equipment shelves:
   a. Tapped with 10-32 holes in a standard EIA configuration.
   b. Provide fixed shelves for support of equipment that is not rack mountable.
4. Accessories as required for mounting and support of equipment.
5. Power distribution unit (PDU), rack mounted, L5-30P input, 100-120V 24A, 15 ft cord, single-phase, Outlets: (20) 5-20R. Model: Eaton PDU ePBZ78. Provide one (1)1 PDU per rack.
6. Top of rack mounted dual exhaust fans. Model: 40975-002 with accessories required for mounting.
   a. Exhaust fans shall be cord and plug connected.
7. 2200VA UPS UNIT
   a. Output power capacity 1,800 Watts / 2,000 VA.
   b. Double conversion on-line power, pure sine wave output.
   c. Maintenance-free sealed Lead-Acid battery.
   d. 15-minute run time full load, provide additional batteries (Extended Battery. Modules) and rack mounted cabinets as required.
   e. Input: 120volt, 1phase, L5-20P.
   f. Output: 120volt, 1 phase. Minimum of (8) L5-20R.
   g. Monitoring and shut-down Interface Ports: RJ-45 10/100 Base-T & USB.
   h. Includes rack mount rails.
   i. 2U high, or as required.
   j. Design Make: Eaton 9PX Series.
   k. Acceptable Manufacturers: APC or Tripp-lite.
8. UPS Battery Box: Eaton, Item #9PXEBM72RT-L
   a. 2 RU.
   b. Acceptable Manufacturers: Eaton, APC or Tripp-lite.
9. Power Distribution Unit (PDU): Eaton, Item #ePBZ78
   a. 1 RU.
   b. Acceptable Manufacturers: Eaton, APC or Tripp-lite.
10. 16-Port Fiber Patch Panel: Eaton, Item #N490-016-LCLC
   a. 1 RU.
   b. Acceptable Manufacturers: Eaton, APC or Tripp-lite.

2.03 CAMERA STATIONS

A. Type: O-FCHA (Outdoor/Indoor Fixed Camera/Housing Assembly) low light color/BW dome, Bosch Flexidome 8100i series or the Axis' Q3536 series, having:
   1. Camera, having:
      a. Vandal resistant indoor/outdoor dome.
      b. Day/Night, WDR.
      c. Low-light capabilities for day/night models with sensitivity down to 0.07 lux in color and 0.01 lux in monochrome (3-9mm) or 0.11 lux in color and 0.04 lux in monochrome (9-22mm).
      d. 1080P resolution w/H.264 format.
      e. Dual stream capabilities (two independent IP video streams).
      f. Network Port: RJ-45 or 100Base-Tx.
      g. Input Power: POE (IEEE802.3af) or 12 VDC.
      h. Output Power: +12 VDC, max load 50mA (power for microphone).

i. Image sensor: 1/1.8-inch scan RGB CMOS.
j. Video and Audio streaming comparable with the DVARS (Specification Section 282320) for video and audio recording.

2. Lens, having:
   a. Autofocus or digital focus varifocal (4.3-8.6mm) or (11.3-29.4mm) lens.
   b. Adjustable horizontal and vertical fields of view. Field of view ranges of varifocal length lens shall include the field of viewing requirements as listed on the drawings.
   c. Up to 60 images per second (IPS).
   d. Automatic or P-iris.
   e. Aperture F-stop rating: Better than or equal to f/1.3 (3-8mm), better than or equal to f/1.6 (10-20mm).
3. Camera Housing, having:
   a. Dome housing sized to house camera and lens.
   b. Aluminum construction, impact-resistant casing with polycarbonate dome.
   c. IP52 (interior) or IP66 (interior/exterior) rated and meets IK10.
   d. Clear bubble shall be utilized for interior cameras and a smoked/tinted bubbles coating shall be utilized for exterior cameras.
   e. Minimum 14º F to 122º F temperature operating range (interior), minus 58º F to 131º F temperature operating range (exterior).
4. Camera Housing Mount, to match installation location and camera manufacturer type as required:
   a. Wall Pendant Mount – AXIS T91D61
   b. Pendant Kit - AXIS T94M01D
   c. Corner Mount.
   d. Surface Mount Box.
   e. Pole Mount.
   f. Parapet, wall/rooftop mount.
   g. ½" or ¾" fitting for surface conduit entry.
5. All mounting type with grey or white powder coat finish.
6. Warranty
   a. 3 years, parts, and labor.
7. Manufactured type:
   a. Interior Cameras
      1) Bosch Flexidome IP starlight 8100i Series (3.9-10 mm or 12-38mm).
      2) Axis Q3536-LVE 9mm series (4.3-8.6mm) or Axis Q3536-LVE 29mm series (11.3-29.4mm)
   b. Exterior Cameras
      1) Bosch Flexidome IP starlight 8100i Series (3.9-10 mm or 12-38mm).
      2) Axis Q3536-LVE 9mm series (4.3-8.6mm) or Axis Q3536-LVE 29mm series (11.3-29.4mm)

2.04 CAMERA SURVEILLANCE CABINET

A. Type: Bosch NDA-U-PAO Surveillance Cabinet having:
   1. 24 VAC Input/Output
   2. Built-in surge protection to enhance system reliability.
   3. Seamlessly integrates within the camera mount eliminating the need for a separate junction box.
   4. Impact: IK10
   5. Ingress Protection: IP66

6. Vibration/Shock: NEMA TS2

2.05 PENDANT WALL MOUNT

A. Type: Bosch NDA-U-WMT Pendant Wall Mount having:
   1. Integrated swivel function ensures the camera is always mounted perfectly level.
   2. Weather resistant finish
   3. Impact: IK10
   4. Vibration: NEMA TS2
   5. Shock: IEC60068-2-27

2.06 PENDANT INTERFACE PLATE

A. Type: Bosch NDA-8000-PIPW Pendant Interface Plate having:
   1. Weather resistant finish
   2. Impact: IK10
   3. Anti UV: IEC60068-2-5

2.07 MICROPHONE STATIONS

A. Microphone: Edward Simon & Co.'s, Model M2C-WR (outdoor/weather resistant) microphone, having:
   1. Dual Channel Output.
   2. Weather resistant enclosure.
   3. High-output omnidirectional capsule.
   4. Immunity from RF.
   5. Transformer-balanced.
   6. 100 dB dynamic range.
   7. Powered by 12-48V DC or 12-36V AC RMS.
   8. 600 ohms output impedance.
   9. Aluminum case with stainless steel faceplate with integral windscreen.
   10. Duraloy iron cast box for exposed conduit system, size 2-7/8" wide by 4-5/8" length, deep as required.
   11. Utilize tamper-resistant hardware.

2.08 PoE+ OVER COAX COMPACT KIT

A. Type: PoE+ over coax compact kit, Axis' T8645 having;
   1. Data rate: 100 + 100 Mbps symmetrical to full range
   2. Connector: Coaxial: BNC 75 Ohm
   3. Network Cable: Coaxial: Any 75 Ohm coaxial (other impedances supported), to 500 m /1600 ft at full rate.
   4. Output: Axis T8643: Power over Ethernet Plus (PoE+) IEEE 802.3at Type 2 Class 4 enabled to detected devices up to 25.5 W
   5. Input: Axis T8643: PoE over Coax. Device power: 1.5 W
   6. Compliance: IEEE 802.3af, IEEE 802.3at, RoHS, WEEE, CE
   7. Operating conditions: 14 °F to 122 °F, Humidity max. 85% RH (non-condensing)

2.09 WIRING

A. Cables:
   1. Category 6, 4-pair, UTP ethernet cable, having:

a. Indoor Cable
   1) 23 AWG solid copper conductors
   2) PO+FEP (Polyolefin + Fluorinated Ethylene Propylene) insulation.
   3) PVC (Polyvinyl Chloride) *Flamarrest* outer jacket.
   4) Plenum - CMP rated.
   5) Belden 2413 enhanced premise cable or equal as recommended by Camera Manufacturer.
b. Outdoor Cable
   1) 23 AWG solid copper conductors
   2) PO (Polyolefin) insulation.
   3) UV resistant PVC (Polyvinyl Chloride) outer jacket.
   4) CMR/CMX rated.
   5) Belden 2146A indoor / outdoor cable or equal as recommended by Camera Manufacturer.
c. Extended Distance Cable:
   1) 22 AWG solid copper conductors
   2) FEP insulation.
   3) overall LSFR-PVC jacket.
   4) Plenum rated - CMP.
   5) Paige Data Solutions 258300310 GameChanger Cable or equal as recommended by Camera Manufacturer.

2. Mic Audio Cable: Belden 8762, having:
   a. One pair 20 AWG conductors.
   b. Shield (100%).
   c. PVC Outer jacket.
   d. Recommended by the audio equipment manufacturers for use with their equipment.
3. Mic Power Cable: Belden 9154, having:
   a. Two conductors, 20 AWG conductors.
   b. Shield (100%).
   c. PVC Outer jacket.
   d. Recommended by the audio equipment manufacturers for use with their equipment.

2.10 CONNECTORIZED OPTICAL FIBER JUMPER CABLES

A. Type JFO: Jumper cable by Radiant Communications Corp. or FIS (Fiber Instrument Sales), having:
   1. LC to ST optical connector jumper cable.
   2. LC to LC optical connector jumper cable.
      a. The other connector's type shall be as required, for connection to the optical fiber receiver or transmitter equipment.
   2. 62.5 micron/125 micron (core/clad) multimode optical fiber.
   3. Kevlar or Aramid yarn strength member.
   4. PVC outer jacket.
   5. Cable length as required.
   6. Connectors: Factory installed.

2.11 CONNECTORS

A. RJ-45 (8P8C) connectors (male), manufacturer as recommended by camera manufacturer.
   1. Shall be capable of supporting 10 Gigabit Ethernet communications.
   2. Shall have a strain relief boot.

2.12 SMALL FORM-FACTOR PLUGGABLE OPTIC MODULES

A. MANUFACTURER
   1. Acceptable Manufacturer: Communication Networks, Inc.; 3 Corporate Drive, Danbury, CT 06810 USA
   2. Substitutions: Not Permitted
   3. Provide all fiber optic modules shall be supplied from a single manufacturer.

B. REFERENCES
   1. Underwriters Laboratory (UL)
   2. Underwriters Laboratory Canada (ULC)
   3. European Union Compliance (CE)

C. SYSTEM DESCRIPTION
   1. Model Number Description: SFP-46
   2. Performance Requirements: Provide a MSA Compliant Small Form-Factor Pluggable (SFP) Optical Device.
      a. The devices shall utilize 850/1310/1550 nm optics capable of simultaneous bi-directional signal transmission on one or two LC multimode optical fibers.
   3. MTBF: >100,000 Hours
   4. Operating Temp: –40˚ C to +75˚ C
   5. Storage Temp: -40˚ C to +85˚ C
   6. Relative Humidity: 0% to 95% (non-condensing). If product is installed under condensation conditions, unit shall have conformal coating applied to the printed circuit board.
   7. UL 94 flame rated and meet all IPC standards
   8. Housing shall be of all metal construction.
   9. LED indicators and both electrical and mechanical connections shall be identified with silk-screened labels.
   10. Module shall have a lifetime warranty

2.13 MOUNTING ACCESSORIES

A. Finishing Collar or Combination Finishing Collar/Outlet Box (Surface Mounted Equipment Used with Exposed Raceway):
   1. Finishing Collar: Same finish, gage/thickness, and peripheral dimensions as the equipment base, including provisions for mounting, slots to fit over raceway and of depth to cover outlet box and extend back to ceiling or wall.
   2. Combination Finishing Collar/Outlet Box: Same finish and peripheral dimensions as the equipment base, gage/thickness of metal as required by National Electrical Code or same as equipment base (whichever is greater), including provisions for mounting, and knockouts or threaded bosses for entrance ofraceway.

B. Provide required wall mounts, ceiling mounts, pendant mounts, pole, and corner mounts for camera stations as required per manufacturers recommendations.
   1. Pole mount requires the use of stainless steel U-bolts and hardware. Stainless steel adjustable straps are not acceptable.

2.14 SURGE PROTECTION

A. Equip system with surge suppressors to protect equipment from voltage transients and lightning surges. Provide surge suppressors to protect each cable (and conductor) entering and leaving fence accessory stations, and the security equipment rack for exterior devices.
   1. Internal surge protection built-in to system devices is not acceptable protection, provide external surge suppressor units as manufactured by Ditek, Northern Technologies and Transtector.
   2. The type of surge suppressor units to be provided shall be suitable for the circuit it is connected, as recommended by the surge suppressor manufacturer and approved for use by the Company Field Advisor(s) for the CCTV Audio Monitoring Equipment.

B. DITEK Surge Suppressor:
   1. Provide surge protection on each exterior camera CAT 6A cables entering and leaving the security equipment rack for exterior devices. Provide Ditek Model number DTK-RM24NETS (24-channel rack mount) or DTK-MRJPOES (single camera) or approved equal.

2.15 VIDEO SIGNAL INTEGRITY EQUIPMENT

A. Video amplifiers, differential amplifiers, ground loop eliminators, etc., as required for proper signal transmission to produce sharp, clear, distortion free video signal.

2.16 AUDIO SIGNAL INTEGRITY EQUIPMENT

A. Pre-amps, amplifiers, impedance matching transformers, attenuators, etc., as required for proper signal transmission to produce sharp, clear, distortion free audio signal.

2.17 MARKERS AND NAMEPLATES

A. Markers:
   1. Premarked self-adhesive; W.H. Brady Co.'s B940, Thomas and Betts Co.'s E-Z code WSL self-laminating, Ideal Industries' Mylar/Cloth wire markers, or Markwick Corp.'s permanent wire markers.
   2. Flexible sleeve markers: Plastic Extruded Parts Inc.'s FS series.
   3. Snap-on markers: Plastic Extruded Parts Inc.'s RS series.
   4. P-touch.

B. Nameplates: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
   1. Phenolic: Two color laminated engraver's stock, 1/16-inch minimum thickness, machine engraved to expose inner core color (white).

2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled, or background enameled with natural aluminum engraved characters.
3. Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

2.18 STATION LOCATORS

A. Flip type bound file, indexed with building numbers and floor tabs, and equipped with 8-1/2 x 11-inch (minimum) floor plans showing location of each camera station, microphone station and console. Enclose each floor plan in clear plastic envelope.

2.19 ACCESSORIES

A. Include accessories required to perform the functions summarized in DESCRIPTION OF EQUIPMENT TO BE PROVIDED and indicated on the drawings.

PART 3 EXECUTION

3.01 PRE-INSTALLATION MEETING

A. Pre-installation Meetings.
1. After approval of Submittals Package 1, conduct the Pre-Installation Meetings.
a. Provide a minimum of 1 week notice to the Director’s Representative, so that a Pre- Installation Meeting schedule can be set up with facility personnel and arrangements can be made for a location to hold the meetings.
b. Provide all materials necessary for training (training aides, handouts, overhead projector, etc.).

B. CCTV camera company field advisor shall survey, identity and mark each and every camera location with the director's representative, prior to any installation of camera system conductors and conduit. make recommendations and adjustments as required to avoid any obstructions, and to provide the optimum view of the camera station.

3.02 INSTALLATION

A. Install the CCTV/Audio Monitoring Equipment in accordance with the Company's printed instructions and interconnect with the Digital Video/Audio Recording System (Section 282320).
1. Terminations and connections to devices are not to be made until Point-to-Point Wiring Diagrams (required to be submitted in Submittals Package 1) have been submitted and approved.

B. Connections:
1. Make connections and splices at camera stations, microphone stations, monitoring stations, and consoles (EERs and CCTV Equipment Room) only. Connections or splices will not be allowed at any other location in the system.
2. Use markers to identify conductors at terminal strips, consoles and pull boxes (designations shall correspond with point-to-point wiring diagrams).
a. Markers for individual conductors of a multi-conductor cable are not required, if the following requirements are met:

1) Each individual conductor in the cable is color coded differently from other conductors in the cable.
2) The multi-conductor cable has a marker identifying it.
3) The color coding of each conductor is identified on the point-to-point wiring diagrams.

3. Connectors:
   a. Use RJ45 cable connectors for terminating Cat 6/6A cables. Do not splice Cat 6/6A cables.
   b. Use terminal strips for splicing and terminating other types of cable.

C. Camera Station Camera Power Injectors:
1. Provide number of camera power injectors as required to power PTZ cameras stations. Provide required 120V circuit from UPS in EER utilizing an SJ cord in conduit to power camera power supplies.
2. Power supplies shall not be loaded past 75 percent of their capacity.

D. Finishing Collar or Combination Finishing Collar/Outlet Box (Surface Mounted Equipment Used with Exposed Raceway):
1. Use finishing collar where surface mounted equipment is installed on an exposed raceway outlet box and the equipment base is larger than the outlet box.
2. Use combination finishing collar/outlet box where surface mounted equipment is not indicated to be installed on an exposed raceway outlet box, but raceway cannot be run directly into equipment body due to equipment design.

E. Location and Aiming of Cameras:
1. Install and aim all camera stations so that cameras will not directly view sources of light (i.e., Sun, Normal Lighting fixtures).
2. Cameras should be aimed to obtain intended field of view as indicated on the drawings.
3. The top of the far end of a cameras′ field of view should be 7 feet above the floor or grade unless otherwise noted on the drawings.
4. The actual location of the camera station′s lens is to be where the field of view is required.
5. Wall mounted cameras shall be located 9 feet above the floor, grade, or if 9 feet above floor is not possible, then mount as high as possible unless otherwise noted.

F. Location and Aiming of Microphones:
1. Wall mounted Microphone Stations shall be located 7 feet 6 inches above the floor, grade, or if 7 feet 6 inches above the floor is not possible; then mount as high as possible.

G. Nameplates:
1. Install a P-touch marker at each camera station, indicating camera station number, on the camera station housing.
2. Install a nameplate at each microphone station, indicating microphone station number, on the microphone station housing.
3. Install nameplate with monitor designation over each monitor.
4. Install nameplate with equipment designation over each piece of equipment in the CCTV Equipment Room and the Electronics Equipment Racks.

H. Station Locators: Install adjacent to the EER and MCW.

I. Surge Suppressers:
   1. Provide surge protection on CAT 6/6A cable entering and leaving security equipment racks for exterior cameras.

3.03 TRAINING

A. After completion of the preliminary system test and if the system is substantially complete and operational, provide on-site training of facility security, security supervisory, and maintenance personnel. Provide minimum of 8 hours of training for the facility staff.
   1. Provide a minimum of 1 weeks' notice to the Director's Representative, so that a training schedule can be set up with facility personnel and arrangements can be made for a location to hold the training.
   2. Provide all materials necessary for training (training aides, handouts, overhead projector, programming computer, etc.).

B. System Operation Training (minimum of two, 2-hour sessions): Training shall be set-up so that at the end of training, facility (security, security supervisory, and maintenance) personnel shall have a complete understanding of:
   1. How the Equipment operates.
      a. Training shall include precautionary concerns that personnel should be aware of that could affect proper operation of the system.
   2. Knowledge of all components and their function.
   3. Daily testing procedures for the system required to be performed by the Department of Corrections and Community Supervision.

C. System Maintenance Training (minimum of two, 2-hour sessions): Training shall be set-up so that at the end of training, facility maintenance personnel shall have a complete understanding of:
   1. Routine (monthly, quarterly, or annual) maintenance required on the equipment and how to perform that maintenance.
      a. Training shall include precautionary concerns that personnel should be aware of that could affect proper operation of the equipment.
   2. Knowledge of all components and adjustments to the components that they would be required to perform to maintain operation of the equipment.
   3. Programming of the equipment.
      a. Training shall include, but is not limited to the following:
         1) How to set up a spare camera and microphone.
         2) Training shall include precautionary concerns that personnel should be aware of that could affect proper operation of the equipment.
   4. How to replace all items listed as spare parts for the system.
      a. Training shall include precautionary concerns that personnel should be aware of that could affect proper operation of the equipment.
   5. Annual testing procedures for the equipment required to be performed by the Department of Corrections and Community Supervision.
      a. Department of Corrections and Community Supervision requires that the equipment be tested annually as follows:
         1) Check the condition of all of the system monitors to ensure that each displays a clear and sharp picture.

3.04 FIELD QUALITY CONTROL

A. Preliminary System Test: After installation of the equipment and prior to the test recordings and the equipment acceptance test, perform a preliminary equipment test of the completed installation.
   1. Preparation: Have the Company Field Advisor(s) adjust the completed equipment installation and then operate it long enough to assure that it is performing properly:
      a. Adjust each camera's imaging device position ("Back Focus Adjustment") in relationship with its lens to maximize the camera performance. Make adjustments at night (or during the day using a filter). Iris shall be fully open while adjusting the position of the imaging device in the camera. Exact method for adjustments shall be in accordance with the camera and lens manufacturers' printed instructions.
      b. Aim each camera and its lens in accordance with the aiming as indicated on the contract drawings and as directed by Director's Representative.
      c. Have the Audio Field Engineer adjust each audio circuit in relationship with microphone station's ambient sound level and test and adjust the complete audio circuit as follows to maximize performance.
         1) Utilizing a sound generator induce a zero dB, white noise signal through each audio circuit and check for unity gain throughout the entire circuit. Provide additional testing in accordance with the audio processing units manufacturers' printed instructions.
         2) Make adjustments for clear, distortion free audio signals to the satisfaction of the Director's Representative.
   2. Run a preliminary test for the purpose of:
      a. Determining whether the equipment is in suitable condition to conduct the acceptance test.
      b. Checking and adjusting equipment.
      c. Training facility personnel.
   3. Supply all equipment necessary for equipment adjustment and testing.
   4. Provide personnel necessary to assist the Company Field Advisor and Audio Field Engineer in making system adjustments and tests.

B. Test Recordings (Audio and Video): After completion of the preliminary equipment test and prior to the equipment acceptance test, provide test recordings for all of the camera and microphone stations provided by this contract.
   1. Preparation: Notify the Director's Representative at least 3 working days prior to the test recordings so arrangements can be made to have Department of Corrections and Community Supervision Representatives, Facility Representatives and OGS Design Representatives witness the test.
   2. During daylight make the following recordings:
      a. Record what is viewed by each camera station.
      b. Simultaneously record what is heard by the camera station's associated microphone station while a person talks in normal tone of voice while walking from end to end of the area covered by the camera station.
      c. The video and audio recordings shall be suitable for playback on a standard media file player.
   3. During nighttime record what is viewed by each camera station with normal nighttime lighting conditions.
      a. The video recordings shall be suitable for playback on a standard media file player.
   4. Each recorded scene shall be a minimum of one minute.

5. Include a written description, which is to accompany each media file, that identifies each recorded scene.
6. Supply all equipment and personnel necessary to make the audio and video recordings.
7. Provide personnel necessary to assist the Company Field Advisor and Audio Field Engineer in making the audio and video recordings.

C. Equipment Acceptance Test: After completion of the preliminary equipment test and the test recordings, perform a system acceptance test of the completed equipment.
1. Preparation: Notify the Director's Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
2. Make the following tests:
   a. Test each system function step by step as summarized under DESCRIPTION OF EQUIPMENT TO BE PROVIDED.
   b. Demonstrate that:
      1) Each camera station provides sharp, clear, distortion free scenes on one of the monitors being provided, for the lighting conditions.
      2) Each indoor camera station operates through full range of lighting conditions including: daylight (all fixtures off), general lighting on (at night), and night lights only (at night).
      3) Each outdoor camera station operates through a full range of lighting conditions including low lighting levels. A portion of this test must be performed at night.
      4) Each microphone station provides clear, distortion free audio.
3. Supply all equipment necessary for Equipment Acceptance Testing.
4. Provide personnel necessary to assist the Company Field Advisor and Audio Field Engineer in performing the Equipment Acceptance Tests.
5. Submit written report of test results signed by Company Field Advisor, Audio Field Engineer, and Director's Representative. Mount a copy of the final report the facility in a Plexiglas enclosed frame assembly in the CCTV Equipment Room.

D. Post installation Category 6/6A Cable Test:
1. All cables to be tested with Cat. 6 certified Microtest PentaScannerTM 350+ or equivalent.
2. Submit written report of test results signed by Director's Representative. A printout of all test results will be required.

END OF SECTION

SECTION 282320

DIGITAL VIDEO/AUDIO RECORDING SYSTEM

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. CCTV/Audio Monitoring Equipment: Section 282306.

1.02 DEFINITIONS

A. Manufacturers' Technical Advisor:
   1. An employee of the company producing the system (or company which lists and markets the primary components of the system under their name), meeting the following requirements:
      a. The Individual is certified in writing by the company producing the system as follows:
         1) Certified to be technically qualified in design, installation, and servicing of the required products,
         2) Certified as having received and successfully completed training of the required products from the company producing the system.
         3) Certified as having experience in the installation of the required products.
         4) Certified as being capable to act as Manufacturers' Technical Advisor on behalf of the company producing the system in the installation of the required products.
      b. Personnel involved solely in sales do not qualify.

B. Integrator's Field Advisor:
   1. An individual employed by an organization (other than the company producing the system), meeting the following requirements:
      a. The Individual is certified in writing by the company producing the system as follows:
         1) Certified to be technically qualified in design, installation, and servicing of the required products,
         2) Certified as having received and successfully completed training of the required products from the company producing the system.
         3) Certified as being capable to perform the duties of Integrator's Field Advisor in the installation of the required products.
      b. Having experience in the installation of the required products or having experience in the installation of other similar systems or equipment.
      c. Personnel involved solely in sales do not qualify.

1.03 DESCRIPTION OF COMPLETED SYSTEM

A. The Digital Video/Audio Recording System (DVARS) provides continuous recording of all video and audio signals of the CCTV/Audio Monitoring Equipment.
   1. The Digital Video/Audio Recording System stores all recorded video and audio signals for a minimum archival period of 30 days at 15 images per second at 1080p.

a. Archival of all video and audio signals transmitted to the system shall occur continuously without requiring action from an attendant.

B. Main components of the Digital Video/Audio Recording System consist of the following:
1. Network Video Recorder (NCR).
2. Master Control Workstation (MCW).
3. Local Area Network (LAN).
4. Power Over Ethernet Switch (POE).

C. Each Network Video Recorder (NVR) provides the following:
1. Prepares up to 166 video signals and 166 monaural audio signals simultaneously for archived on the NVR.
   a. NTSC video is prepared at 15 Images Per Second (IPS) at a resolution of 1920 x 1080 using the H.264 compression scheme.
   b. Audio is prepared at a bit depth of 16 and sampled at 8KHz.
2. Supervises the video and audio streams assigned to it. Loss of a video or audio stream is configured to annunciate at the Master Control Workstation by an audible alarm and visual indication through the review Software and/or Control Center software on the Monitor of the Master Control Workstation.

D. The Master Control Workstation (MCW) provides the following:
1. Allows an attendant at the MCW (via the LAN) to view video and hear audio signals being encoded by the camera stations connected to the system.
   a. The system will allow reviewing of multiple video streams along with one of the associated audio streams at the same time within the live view environment.
2. Allows an attendant at the MCW (via the LAN) to retrieve any stored (video/audio) files from the NVR.
   a. Retrieved (video/audio) files can be reviewed (played) at the MCW.
   b. Retrieved (video/audio) files can be exported by MCW, to a portable drive.
      1) Video/audio export can either be quad format with a choice of the video from any four cameras along with one of the associated audio streams or it can be video from a single camera along with its associated audio.
   c. Retrieved (video/audio) files can be recorded on to blank CDs by using the integral CD-RW drive or can be recorded to a Universal Serial Bus (USB) Flash drive.
3. Allows an attendant at the MCW (via the LAN) to manually upload or download the programming of all system software directory and Registry entries and store the programming to a writeable CD or USB Flash Drive.
   a. Stored programming on the CD or USB Flash Drive can be downloaded back to their associated equipment in the event programming is lost or corrupted.
4. Allows an attendant at the MCW to enlarge and enhance individual frames of video using enhancement software integral to the Review Software.
5. Allows an attendant at the MCW with administrator privileges to perform setup and configuration function on the DVARVMS.

E. The Local Area Network (LAN) provides the following:
1. Provides a Transport Control Protocol/Internet Protocol (TCP/IP) communication link between all of the Digital Video/Audio Recording and Virtual Matrix System devices. Also available is the User Datagram Protocol (UDP)/IP.

2. The Power Over Ethernet Switch (POE) portion of the LAN is the communication link between all of the devices. The MCW and NVR all connect to the POE.
    a. All video/audio recordings generated by the cameras and microphones provided under this contract shall be stored on the NVR via POE.
    b. The POE also provides power to the camera stations.

F. All system programming can be manually stored to CD or USB Flash Drive.
1. An internal Read/Write CD drive in the Master Control Workstation, allows the attendant:
    a. To manually retrieve previously stored system programming from a CD.
    b. To manually copy the current system programming to CD.

G. Access to the system functions is controlled through multiple levels of access security to prevent program modifications or use by unauthorized personnel.
1. At the lowest level of access: programming functions are disabled. The attendant has minimum access to the system functions (i.e., viewing of files stored in the DASU and export of files to USB).
2. At the highest level of access: programs may be modified by the system manager (System Administrator).

1.04 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Packaging of Submittals: Submittals required by this section are to be submitted in packages as follows:
1. Submittals Package 1: Submit Product Data, Quality Control Submittals and Training Submittals specified below at the same time as a package.
    a. Submit Submittals Package 1 within 45 days of contract award.
2. Submittals Package 2: Submit Shop Drawings specified below at the same time as a package.
    a. Submit Submittals Package 2 within 30 days of receipt of approval of Submittal Package 1.
3. Submittals Package 3: Submit Contract Closeout Submittals specified below at the same time as a package.
    a. Submit Submittals Package 3 within 7 days after completion and acceptance of the System Acceptance Test by the Director’s Representative.

C. It is the Contractor's responsibility to review and verify that all information required for each submittal package is included in the submittal package. Errors or omissions found by the Contractor are to be corrected prior to the Submittals Package submission for approval. Incomplete Submittal Packages submitted for review and approval will be returned.
1. It is the Contractor's responsibility to verify that portions of the submittal packages provided by a Sub-Contractor are complete as well as portions of the submittal packages being provided directly by the Contractor.
2. The Integrator’s Field Advisor shall be responsible for reviewing each complete submittal package prior to its submission for review and approval.
    a. This review by the Integrator’s Field Advisor shall include review of portions of the Submittal Package assembled and inserted into the Submittals Package by the Contractor (or Sub-Contractors).

b. Letter(s) from the Integrator's Field Advisor shall be included in each Submittal Package, stating that the Integrator's Field Advisor has reviewed the entire Submittal Package for accuracy and completeness and approves all materials and installation methods included in the Submittal Package.
c. Errors or omissions found by the Integrator's Field Advisor are to be corrected prior to the Submittals Package's submission for approval.

D. Re-Evaluation Fee: As indicated in Article 4.7 of the General Conditions, There will be a fee levied against the contractor for each re-evaluation of any Submittal Package submission that was returned for failure to comply with the submittal requirements relative to completeness, content or format. The fee will be deducted from the contract amount by order on contract.

E. Shop Drawings (Submittals Package 1):
1. Composite wiring and/or schematic diagrams of the equipment listed in 1.01 as not being part of the specific allowance as proposed to be installed (standard diagrams will not be acceptable).
2. Scale drawings of the EER rack layouts showing location and mounting of all system components for each phase of the work. Contractor is to obtain the dimensions of the equipment being provided by allowance for inclusion in the scale drawings of the rack layouts.

F. Product Data (Submittals Package 1):
1. Catalog sheets, specifications, and installation instructions.
2. Bill of materials.
3. Detailed description of system operation (format similar to SYSTEM DESCRIPTION).
4. State number of video inputs and audio inputs used specifically for this project and number of video inputs and audio inputs available for future use.
5. Name, address, and telephone number of nearest fully equipped service organization.

G. Quality Control Submittals (Submittals Package 1):
1. Manufacturer's Technical Advisor Data: Include:
a. Name, business address and telephone number of Manufacturer's Technical Advisor secured for the required services.
b. Certified statement from the Company listing the qualifications of the Manufacturer's Technical Advisor. The certification statements from the Company shall include the following:
1) Services and each product for which authorization is given by the Company, listed specifically for this project.
2) Listing of training that the Manufacturer's Technical Advisor has received on the equipment being proposed for this project.
3) Listing of similar projects that the Manufacturer's Technical Advisor has worked on in the past 1 year.
4) The certification shall include statements from the person signing the certification, stating:
a) That they have read requirements for a Manufacturer's Technical Advisor as written in this section of the Project Manual and certify that the proposed individual is capable of performing the duties of the Manufacturer's Technical Advisor in the Company's behalf.

b) That the person signing this statement is authorized by their company to provide this certification in the Company's behalf.
c) Telephone number and Email address of the person signing this statement.

2. Integrator's Field Advisor Data, Include:
   a. Name, business address and telephone number of Integrator's Field Advisor(s) secured for the required services.
   b. Certified statement (letter) from the Company producing the system listing the qualifications of the Integrator's Field Advisor. The certification statements from the Company shall include the following:
      1) Information stating that the Integrator's Field Advisor is experienced in the engineering, design and installation of the equipment being used for this project.
      2) Each product for which the Company gives authorization for the Integrator's Field Advisor to oversee installation of and each service the Integrator's Field Advisor can perform, listed specifically for this project.
      3) The certification shall include statements from the person signing the certification, stating:
         a) That they have read requirements for an Integrator's Field Advisor as written in this section of the Project Manual and certify that the proposed individual is capable of performing the duties of the Integrator's Field Advisor.
         b) That the person signing this statement is authorized by their company to provide this certification in the Company's behalf.
         c) Telephone number and Email address of the person signing this statement.
   c. Listing of training that the Integrator's Field Advisor has received on the equipment being proposed for this project.
      1. Provide copies of Training Certificates issued for the training the Integrator's Field Advisor received.
   d. Listing of a minimum of three (3) similar projects that the Integrator's Field Advisor has worked on in the past 3 years in the installation of the equipment specified for this system.
   e. Confirmation of New York State Security/Fire Alarm Installers Licensure: Integrator's Field Advisor must be covered by a New York State Security/Fire Alarm Installers license.
3. System Qualifications: List of equipment/materials (manufacturer and model number) contractor proposes to provide to meet the requirements of this specification.
   a. Products other than those specified: Provide notice that it is the contactor's intent to propose equipment other than that specified. If proposing equipment other than that specified, provide the following information as part of Submittal Package 1:
      1) Submit System Qualifications information required by Paragraph 1.05, A, if proposing a system other than that specified.
      2) Submit Submittal Package 2 in its entirety as part of Submittal Package

H. Training Submittals (Submittals Package 1):
1. Training programs: Submit an outline for each training program (i.e., Operator training, Maintenance Personnel training, etc.):
a. Each outline should include the topics to be covered and the approximate length of time needed to cover each topic.
2. Company Field Trainer Data: Include:
a. Name, business address, and telephone number of Company Field Trainer secured for the required services.
b. Certified statement from the Company listing the qualifications of the Company Field Trainer.

I. Shop Drawings (Submittals Package 2):
Note: The Shop Drawings Submittals are not part of the Allowance listed on 1.01 and shall be provided by the Contractor.
1. Composite wiring and/or schematic diagrams of the equipment listed in 1.01 as not being part of the specific allowance as proposed to be installed (standard diagrams will not be acceptable).
2. Scale drawings of the Central Monitoring Console and EER rack layouts showing location and mounting of all system components for each phase of the work. Contractor is to obtain the dimensions of the equipment being provided by allowance for inclusion in the scale drawings of the rack layouts.

J. Contract Closeout Submittals (Submittals Package 3):
1. System acceptance test report.
2. Certificate: Affidavit, signed by the Company Field Advisor(s) and notarized, certifying that the system meets the contract requirements and is operating properly.
3. Operation and Maintenance Data:
a. Deliver 2 copies, covering the installed products, to the Director's Representative. Include:
1) Operation and maintenance data for each product.
2) Complete point to point wiring diagrams of entire system as installed. Number all conductors and show all terminations and splices. (Numbers shall correspond to numbered tags installed on each conductor.)
3) Name, address, and telephone number of nearest fully equipped service organization.

1.05 QUALITY ASSURANCE

A. System (Equipment) Qualifications: Equipment proposed for use (other than those specified) shall meet the qualifications listed in either paragraph 1 or 2 below:
1. Proposed system was successfully tested by the New York State Department of Corrections and Community Supervision for at least one (1) year at their test site.
a. Submit documentation that the New York State Department of Corrections and Community Supervision has successfully tested the proposed system.
b. Systems previously approved for use by the New York State Department of Corrections and Community Supervision does NOT provide automatic approval of said system. All systems must be submitted for review to determine if they are acceptable for their proposed application.

2. Products other than those specified:
   a. As part of Submittals Package 1, provide written notice to the Director of the contractor's intent to propose an "or equal" for products other than those specified. In accordance with Article 5 of the General Conditions, the contractor (at the contractor's own expense) shall bear the burden of proving that the proposed equipment is equal to the specified products. The submission of an "or equal" shall be done in a timely manner so to allow the Director sufficient time to review the proposed product, perform inspections and witness test demonstrations.
   b. If products other than those specified, are proposed for use, provide Submittal Package 2 in its entirety as part of Submittal Package 1.
   c. If products other than those specified, are proposed for use, furnish the name, address, and telephone number of the End-Users of at least 5 comparable installations that can prove the proposed products have operated satisfactorily for 3 years. Contractor shall confirm in writing that the End-Users, for the 5 comparable installations, will allow inspection of their installation by the Director's Representative(s) and the proposed system's Manufacturers' Technical Advisor.
      1) The Contractor shall make arrangements with two facilities (selected by the Director) for inspection of the installations by the Director's Representative(s). The contractor shall also obtain the services of the Manufacturers' Technical Advisor, for the proposed equipment or system, to be present at the facility. The Contractor shall notify the Director a minimum of three weeks prior to the availability of the facilities for the inspection, and shall provide at least one alternative date for the inspection.
      2) Only references from the actual End-Users (owner, Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others, who are not the actual End-Users of the proposed system, are not acceptable.
         a) Contractor shall verify the accuracy of all End-Users references submitted prior to submission for review. Contractor shall certify in writing that the accuracy of the End-User information has been confirmed.
   d. The Company producing the product shall have test facilities available, which can demonstrate that the proposed product meets contract requirements.
      1) The Contractor shall make arrangements with the test facility for the Director's Representative(s) to witness test demonstrations. The contractor shall also obtain the services of the Manufacturer's Technical Advisor, for the proposed equipment or system, to be present at the test facility. The Contractor shall notify the Director a minimum of three weeks prior to the availability of the test facility, and provide at least one alternative date for the testing.
   e. Provide written certification from the manufacturer(s) of the proposed products that all proposed products are compatible for use with all other equipment proposed for use for this system and meets all contract requirements.

B. Manufacturers' Technical Advisor: The Manufacturers' Technical Advisor will be responsible to perform the following:

1. Conduct a pre-installation training meeting at the contract site with the installers (and their supervisor) who will be performing the work, the Director's Representatives and facility supervisory and maintenance personnel. The meeting shall be a minimum of 8 hours in duration (held in four 2 hour increments). The topics covered shall include, but shall not be limited to the following:
    a. Manufacturers' Technical Advisor shall present an overview of the system as it is to be installed.
    b. Manufacturers' Technical Advisor shall lead a discussion of installation concerns and coordination issues on this system and related systems and related work being installed under this project.
    c. Manufacturers' Technical Advisor shall provide training on procedures for installing system components and precautionary measures installers should be aware of while performing the work.
        1) Manufacturers' Technical Advisor shall review wiring requirements for each component of the system with the installers and Integrator's Field Advisor.
        2) Manufacturers' Technical Advisor shall provide training on termination, bonding and grounding procedures required for proper installation of the system wiring with the installers.
2. Assist the Integrator's Field Advisor in the formation of the Submittals Packages.
3. Render advice and technical support regarding installation and integration with other systems.
    a. Render advice and technical support regarding interconnections between this system, the Perimeter Security Multiplex System and other related systems.
4. Perform programming of the system.
5. Provide supervision of the installation at the contract site for a minimum of 32 hours and for the following:
    a. Inspect the installation of the system equipment, perform Preliminary System Tests of the system and certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly and that the system is ready for the System Acceptance Test.
    b. Assist the Integrator's Field Advisor with the System Acceptance Test.

C. Integrator's Field Advisor: The Integrator's Field Advisor will be responsible to perform the following:
1. Assist in the formation of the Submittals Packages, and review the Submittal Packages for accuracy and completeness.
    a. Review shall include review Submittal Packages of related (work) systems as they related to interconnection with this system and operation of this system.
2. Assist the Manufacturers' Technical Advisor in conducting the pre-installation training meeting at the contract site.
    a. Provide all materials necessary for training (samples of all equipment being installed, training aides, handouts, overhead projector, etc.).
3. Render advice and technical support regarding installation and integration with other systems.
    a. Render advice and technical support regarding interconnections between this system and the Perimeter Security Multiplex System.
4. Assist the Contractor in coordination of the installation of this system as it relates to the installation other systems being provided under this contract and related contracts.

5. Provide technical advice and inspection of the installation at the contract site at all times during the installation of the system equipment and for the following:
    a. Provide daily inspection of the installation of the system.
    b. Render advice and guidance regarding installation of the system.
    c. Render advice and guidance on final adjustments of the system.
    d. Render advice regarding installation of the system as it relates with the work with the other systems.
    e. Perform programming of the system.
    f. Train facility security personnel, security supervisory personnel and maintenance personnel in operation and routine (weekly) testing of the system (minimum of four 3-hour sessions).
    g. Train facility maintenance personnel in programming, routine maintenance and annual testing of the system (minimum of 16 hours of training – held in eight 2 hour increments).
    h. Explain available service programs to facility supervisory personnel.
    i. Assist the Manufacturers' Technical Advisor in the performance of the Preliminary System Tests of the system and certify with an affidavit that the system is installed in accordance with the contract documents and is ready for the System Acceptance Test.
    j. Perform System Acceptance Test and certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.

D. Installers' Qualifications: The persons installing the Work of this Section and their supervisor shall be personally experienced in security systems and shall have been engaged in the installation of CCTV systems for a minimum of 3 years.
1. Qualifying experience must be in the installation of CCTV systems similar in operation and construction of the system being specified by this section.
2. Furnish to the Director completed INSTALLER'S QUALIFICATION DATA FORM for each person who will be performing the Work. Each form shall include:
    a. Installer's name.
    b. Employer's Name and Address.
    c. New York State Security/Fire Alarm Installers License number that the installer will be working under.
    d. Qualifying Experience: Project information of 5 similar projects, which the installer, had worked on during the past 3 years. Information shall include for each project:
        1) Name and Address of project.
        2) Dates installer worked on project.
        3) Name and telephone Number of installer's supervisor for the project.
        4) Types of security installation work installer performed on past projects similar to that of the work required of this project.

E. Service Availability: A fully equipped service organization capable of guaranteeing response time within 8 hours to service calls shall be available 24 hours a day, 7 days a week to service the completed system.

1.06 MAINTENANCE

A. Service Availability: A fully equipped service organization capable of guaranteeing response time within 8 hours to service calls shall be available 24 hours a day, 7 days a week, to service the completed system.

B. Spare Parts:
1. One Network Video Recorder (NVR).
2. One Power Over Ethernet Switch (POE).
3. One optical transceiver and one active cable.

PART 2 PRODUCTS

2.01 DIGITAL VIDEO/AUDIO RECORDING SYSTEM (DVARS)

A. Bosch 64TB Storage Array: Bosch Item # DIP-74C8-8HD, having:
1. 64TB total internal storage with 8 x 8 TB storage capacity
2. Microsoft® Windows Server IoT 2022 for Storage Standard
3. Bosch Video Management system software
4. Rack Mountable (2U) chassis
5. Dimensions: (H x W x D) 3.4 x 17.6 x 25.5 in
6. Weight – 34.20 lbs.
7. Power consumption: (W) Maximum 314 W
8. System AC input VA requirement: 320 VA
9. Processor – Intel® Core™ i7-12700E
10. Memory – 16 GB DDR5-4800 1Rx16 ECC UDIMM
11. Number of video outputs: 2 x HDMI 2.0, 4K (3840 x 2160) / 60 Hz
12. Multi-display support: Maximum of 2 displays of up to 4K@60Hz resolution per display (HDMI)
13. Maximum IP camera channels 256
14. Operating Conditions – 32 degrees F to 104 degrees F
15. Provide all software updates and camera licenses required for this project
16. Manufactured type:
    a. Bosch 64TB Storage Array: Bosch Item # DIP-74C8-8HD
    b. AXIS Communications Camera Station 96TB Network Video Recording Server: AXIS Item #S1296

B. D-Link 52-Port Layer 3 Stackable Managed Gigabit PoE Switch: Intellicene Item # VMS-DL-DGS-3630-52PC, having:
1. 44 x 10/100/1000BASE-T PoE ports
2. 4 x Combo 10/100/1000BASE-T PoE/SFP ports
3. 4 x 10G SFP+ ports
4. Supports IEEE 802.3af/at Power over Ethernet
5. 6 kV surge protection on all RJ-45 access ports
6. Switch Resource Management (SRM) for flexible management of system resources
7. Redundant Power Supply (RPS) support
8. Power Input – AC Input: 100 – 240 VAC, 50-60 Hz
9. Switch Capacity – 176 Gbps
10. Maximum Packet Forwarding Rate – 130.95 Mbps
11. CPU Speed – 1GHz
12. DRAM Size – 1GB(Byte)-DDR3
13. Flash Memory Size – 1GB (Byte)
14. Packet Buffer Size – 4MB
15. Maximum Power Consumption – PoE off: 54.1 W – PoE on: 485 W
16. Maximum Heat Dissipation – 1653.85 BTU/h

17. Manufactured type:
    a. Intellicene Item # VMS-DL-DGS-3630-52PC
    b. D-Link Item # DGS-3630-52PC

C. D-Link 54-Port 10GBE SFP+ Managed Switch: Intellicene Item # VMS-DL-DXS-3610-54S, having:
1. 6 x 40/100GbE QSFP+/QSFP28 ports
2. 48 x 1/10GbE SFP/SFP+ ports
3. Standard Image with 2 full load front-to-back AC PSUs
4. 5 front-to-back fan modules
5. 19-inch, 1U rackmount
6. RJ-45 console port for out-of-band management
7. Switching Capacity - 2.16 Tbps
8. Packet Buffer Memory - 32 MB
9. Maximum Power Consumption - 320.8 W
10. Maximum Heat Dissipation – 1083 BTU/hr
11. Manufactured type:
    a. Intellicene Item # VMS-DL-DXS-3610-54S
    b. D-Link Item # DXS-3610-54S

D. D-Link Switch Accessory – Power Supply: Intellicene Item# VMS-DL-DPS-700, having:
1. Up to 589 W of output power and supports 1 + 1 power capability
2. Mountable in a standard 19-inch equipment rack
3. Provide backup power for a switch's built-in power supply
4. Hot-swappable
5. Solid metal housing
6. LED status indicators
7. Input Voltage Range – 90 to 264 V AC
8. Input Frequency - 47 to 63 Hz
9. Max Input Current – 7.5 A @ 115 V AC 3.7 A @ 230 V AC
10. Max Inrush Current - 30 A @ 115 V AC 30 A @ 230 V AC

E. Master Control Workstation (MCW): Bosch Workstation Z4G5 with T1000 graphics Bosch Item # MHW-WZ4G5-HEN3, having:
1. Microsoft Windows 11 Professional 64-bit for Workstations OS
2. Bosch Camera Station Video Management Software
3. Intel Xeon W-2423 (2.1GHz, 15MB cache, 6C CPU)
4. 16 GB (1 x 16 GB) DDR5 4400 MHz DIMM ECC RAM
5. 512GB PCIe-4x4 2280 TLC M.2 SSD
6. NVIDIA T1000 8GB
7. Compatible with quality grade joysticks designed for surveillance systems
8. Rack units: 4 RU
9. Dimensions: (H x W x D) (in) 15.20 in x 6.65 in x 17.52 in
10. Provide all software updates and camera licenses required for this project
11. Operating Conditions – 40 degrees F to 95 degrees F
12. Support live view functionality according to the following scenarios:
    a. 4K live view on 1 monitor at 30 fps
    b. 1080p live view on 1 monitor with 4 split view options at 30 fps
    c. 720p live view on 1 monitor with 9 split view options at 30 fps
    d. 360p live view on 1 monitor with 16 split view options at 15 fps
    e. 360p live view on 1 monitor with 25 split view options at 15 fps
    f. 360p live view on 1 monitor with 36 split view options at 15 fps

g. Any combination of the above for a maximum of 2x4K monitors where one monitor can show streams at 30 fps.

13. Support playback functionality according to the following scenarios:
    a. 4K live view on 1 monitor at 30 fps
    b. 1080p live view on 1 monitor with 4 split view options at 30 fps
    c. 720p live view on 1 monitor with 9 split view options at 30 fps
    d. 360p live view on 1 monitor with 16 split view options at 15 fps
    e. 360p live view on 1 monitor with 25 split view options at 15 fps
    f. 360p live view on 1 monitor with 36 split view options at 15 fps
    g. Any combination of the above for a maximum of 2x4K monitors where one monitor can show streams at 30 fps.
14. Manufactured type:
    a. Bosch Workstation Z4G5 with T1000 graphics Bosch Item # MHW-WZ4G5-HEN3
    b. AXIS Communications Master Control Workstation Item #S9302

F. Accessories: Include all accessories required for the system to perform the functions summarized in DESCRIPTION OF EXISTING SYSTEM and as indicated on the drawings.

2.02 NETWORK CABLES AND CONNECTORS

A. Network Cables:
1. Factory connectorized Category 6A (CAT-6A) network cable:
    a. Shall be capable of supporting 10 Gigabit Ethernet communications.
    b. Connectors shall have a strain relief boot.
    c. Lengths as required for connections within the EER and CMC.
2. Field assembled Category 6A (CAT-6A) network cable:
    a. Belden 10GX12 cable or equal as recommended by Intellicene
        1) Shall be capable of supporting 10 Gigabit Ethernet communications.
    b. RJ-45 (8P8C) connectors (male), manufacturer as recommended by Intellicene
        1) Shall be capable of supporting 10 Gigabit Ethernet communications.
        2) Shall have a strain relief boot.

2.03 MONITORS FOR MCW AND SMS

A. Monitors:
1. 22” (21.5”) Flat Panel Color Monitor: Tote Vision’s LED-2155HD, having:
    a. 21.5-inch (maximum) diagonal screen size.
    b. LED Backlight.
    c. Front access controls.
    d. Rack mounting accessories for mounting in EER as required for the installation.

2.04 VIDEO SURVEILLANCE CONTROL BOARD

A. Joystick/Keypad
1. Bosch KBD-Universal XF keyboard Bosch Item #KBD-UXF, having:
    a. Joystick HID 4-axis emulation
    b. Connector: 1 x USB 2.0
    c. Dimensions:
        1) Height: 3.5 in.

2) Width: 15 in.
3) Length: 8.8 in.

d. Weight: 3 lb.

2. AXIS TU9002 Joystick AXIS Item #02475-001, having:
   a. Hall-effect joystick with three axis: X/Y: for pan and tilt, Z: knob for zoom
   b. Connectors: 1 x USB Type, 1 x USB C
   c. Dimensions:
      1) Height: 4.8 in.
      2) Width: 6.1 in.
      3) Length: 7.3 in.
   d. Weight: 1.5 lb.
3. AXIS TU9003 Keypad AXIS Item #02476-001, having:
   a. 26 keys with customizable function
   b. 2x20 character display
   c. Connectors: 1 x USB Type C
   d. Dimensions:
      1) Height: 1.5 in.
      2) Width: 6.1 in.
      3) Length: 7.3 in.

2.05 NAMEPLATES

A. Nameplates: Precision engraved letters and numbers with uniform margins, character size minimum 3/16 inches high.
   1. Phenolic: Two color laminated engraver's stock, 1/16-inch minimum thickness, machine engraved to expose inner core color (white).
   2. Install a nameplate (indicating equipment number) at each:
      a. Network Video Recorder.
      b. Power over Ethernet Switch.
      c. Master Control Workstation.

2.06 MARKERS

A. Markers: Premarked self-adhesive; W.H. Brady Co.'s B940, Thomas and Betts Co.'s E-Z code WSL self-laminating, Ideal Industries' Mylar/Cloth wire markers, Markwick Corp.'s permanent wire markers, or Plastic Extruded Parts Inc.’s Flexible Sleeve or ID Band Markers.

PART 3 EXECUTION

3.01 INTERRUPTIONS TO EXISTING SYSTEMS

A. Maintain the existing systems in their present condition to the extent possible while installing new Work.

B. Prior to making changes or removals relative to the existing systems, notify the Director’s Representative and have procedures approved.
   1. See the drawings for specific transition and scheduling requirements.

3.02 INSTALLATION

A. General:
1. Install the Digital Video/Audio Recording System (as shown in drawings) in accordance with the Company's (AXIS's) printed instructions and as required so that the system performs all functions described in the DESCRIPTION OF COMPLETED SYSTEM.
2. Install all DVARS equipment in the CMC Room and Electronics Equipment Racks (EER).
3. The Electrical Contractor shall be available to provide for a period of two weeks, one electrician experienced in computer system cabling and installation.
   a. The electrician shall be available to perform the following possible duties:
      1) Assist the Company Field Advisor in installing DVARS equipment in the CCTV Equipment Room and EER racks.
      2) Run DVARS cabling as directed by the Company Field Advisor.
      3) Run and connect CCTV/Audio Monitoring Equipment (Video and Audio) cables to the to the DVARS equipment.
      4) Assist the Company Field Advisor in cabling and connections to the DVARS equipment.
      5) Perform all tasks as requested by the Company Field Advisor to assist in complete the installations of the DVARS system.
      6) Mark all cables.
      7) Upon specific direction from the Integrator's Field Advisor; pre-rack DVARS equipment into the racks prior to the Integrator's Field Advisor 's arrival onsite.
4. Network cables for use within the CMC racks or EER racks shall be of the factory connectorized type.
5. Install all NVR, POE and MCW equipment with redundant power supplies on two separate circuits.

B. Nameplates:
1. Install a nameplate (indicating equipment number) at each item designated in section 2.04.A.1.a-i.

C. Connections:
1. Use CAT 6A cable connectors for terminating Cat 6A cables.
2. Use connectors as recommended by the DVARS manufacturer for splicing and terminating other types of cable.

D. Markers:
1. Use markers (at each end of cables) to identify cables (designations shall correspond with point-to-point wiring diagrams).

3.03 FIELD QUALITY CONTROL

A. Preliminary System Test: After installation of the system and prior to the system acceptance test, perform a preliminary system test of the completed system.
1. Prerequisite:
   a. The preliminary system test for the CCTV/Audio Monitoring Equipment has been completed.
2. Preparation:
   a. Have the Integrator Field Advisor adjust the completed system and then operate it long enough to assure that it is performing properly.

3. Run a preliminary test for the purpose of:
    a. Determining whether the system is in suitable condition to conduct the acceptance test.
    b. Checking and adjusting equipment.
    c. Training facility personnel.

B. System Acceptance Test: After completion of the preliminary system test, perform a system acceptance test of the completed system.
1. Preparation: Notify the Director's Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
2. Test each system function step by step as summarized under SYSTEM DESCRIPTION.
3. Supply all equipment necessary for system adjustment and testing.
4. Submit written report of test results signed by Integrator Field Advisor(s) and Director's Representative. Mount a copy of the final report the facility in a Plexiglas enclosed frame assembly adjacent to the CCTV Equipment Room racks.

END OF ECTION

KEYED NOTES

1. PROVIDE 4" x 4" x 2 1/2" PULL BOX FOR R/O CABLE TRANSITION. PROVIDE 3/4" CONDUITS FROM EXISTING F/O ENCLOSURE TO PULL BOX. PROVIDE 3/4" CONDUITS FROM PULL BOX, THROUGH WALL, INTO PULL BOX ON OPPOSITE SIDE OF THE WALL. INSTALL BOX SO CENTER IS 80" ABOVE HOUSEKEEPING PAD, TO ALLOW FOR CLEARANCE ABOVE EXISTING EQUIPMENT ON OPPOSITE SIDE OF WALL.
2. PROVIDE 4" x 4" x 2 1/2" PULL BOX ON OUTSIDE OF ELECTRICAL ROOM WALL. MATCH HEIGHT TO CENTER OF BOX WITH PULL BOX WITHIN ELECTRICAL ROOM. PROVIDE 3/4" CONDUITS FROM BOX TOWARDS RECREATION PEN NETWORK ENCLOSURE LOCATED IN MECHANICAL ROOM. ROUTE CONDUITS ALONG CEILING. TERMINATE CONDUITS IN RECREATION PEN NETWORK ENCLOSURE.
3. PROVIDE 4" x 4" x 2 1/8" PULL BOX FOR TELEPHONE CABLE TRANSITION. PROVIDE 3/4" CONDUIT FROM TELEPHONE TERMINALS TO PULL BOX. PROVIDE 3/4" CONDUITS FROM PULL BOX, THROUGH WALL, INTO PULL BOX ON OPPOSITE SIDE OF THE WALL. INSTALL BOX SO CENTER IS 80" ABOVE HOUSEKEEPING PAD, TO ALLOW FOR CLEARANCE ABOVE EXISTING EQUIPMENT ON OPPOSITE SIDE OF WALL.
4. PROVIDE 4" x 4" x 2 1/2" PULL BOX ON OUTSIDE OF ELECTRICAL ROOM WALL. MATCH HEIGHT TO CENTER OF BOX WITH PULL BOX WITHIN ELECTRICAL ROOM. PROVIDE 3/4" CONDUIT FROM BOX FOR TELEPHONE FIELD WIRING. ROUTE CONDUITS ALONG CEILING.
5. PROVIDE 3" CONDUIT FROM RECREATION PEN NETWORK ENCLOSURE FOR CAMERAS WIRING. PROVIDE 12" x 12" x 6" CAMERA PULL BOX ON WALL NEAR CEILING TO INTERCEPT 3" CONDUITS FROM RECREATION PEN NETWORK ENCLOSURE IN ATTIC FLOOR. PROVIDE 3" CONDUIT OUT BACK OF PULL BOX AND THROUGH FOUNDATION WALL. REFER TO DRAWING E-602 FOR CONTINUATION OF CONDUIT TO RESPECTED PULL BOX ON EXTERIOR WALL.
6. PROVIDE 12" x 12" x 6" TELEPHONE/INTERCOM PULL BOX ON WALL NEAR CEILING TO INTERCEPT 3/4" CONDUIT FROM PULL BOX OUTSIDE ELECTRICAL ROOM. PROVIDE 1 1/2" CONDUIT OUT BACK OF PULL BOX AND THROUGH FOUNDATION WALL. REFER TO DRAWING E-602 FOR CONTINUATION OF CONDUIT TO RESPECTED PULL BOX ON EXTERIOR WALL IN WING.
7. PROVIDE 30A-4 POLE RECREATION PENS REMOTE CONTROL SWITCH (LIGHTING CONTACTOR) ON WALL WHERE SHOWN. FOR CHUTE/RECREATION PEN LIGHTING. PROVIDE CONTROL SWITCH WITH 120V COIL CONTROLLED FROM SAME TWO-WIRE CONTROL SIGNAL AS EXISTING LIGHTING CONTACTOR ON THE SAME WALL. CONTROL SIGNAL ORIGINATES FROM MAIN BUILDING PHOTOCELL AND ROUTES THROUGH EXISTING CONTROL SWITCH ALONG WALL. SPLICE CONTROL SIGNAL WITHIN EXISTING CONTROL SWITCH. ROUTE CONDUCTORS USING 3/4" CONDUIT. TYPE AND MODEL OF REMOTE-CONTROL SWITCH (LIGHTING CONTACTOR) TO MATCH EXISTING OR APPROVED EQUAL.
8. PROVIDE TWO RUNS OF BRANCH CIRCUIT (2)#6 AWG + (1)#6 AWG GND IN 1" CONDUIT FROM PANEL LP-1D TO RECREATION PENS REMOTE CONTROL SWITCH ENCLOSURE FOR CHUTE/RECREATION PEN LIGHTING. TERMINATE CONDUCTORS TO CONTACTOR. UTILIZE A FOUR-POLE LIGHTING CONTACTOR TO CONTROL TWO DIFFERENT LIGHTING CIRCUITS FOR EXTERIOR LIGHTING. PROVIDE (2) 20A/1P CIRCUIT BREAKERS WITHIN EXISTING ELECTRICAL PANEL LP-1D. USE 30A-4 POLE CONTACTOR TO CONTROL LIGHTING.
9. PROVIDE 4" x 4" x 2 1/2" LIGHT CIRCUIT PULL BOX. PROVIDE LIGHTING CIRCUIT IN 1" CONDUIT FROM RECREATION PENS REMOTE CONTROL SWITCH ENCLOSURE TO THE PULL BOX. INSTALL BOX SO CENTER IS 80" AFF TO MAINTAIN CLEARANCE WITH EXISTING CONDUITS/PIPES.

KEYED NOTES CONTINUED

10. RESERVED.
11. PROVIDE 4" x 4" x 2 1/8" LIGHT CIRCUIT PULL BOX ON WALL NEAR CEILING TO INTERCEPT 1" CONDUIT FROM PULL BOX OUTSIDE ELECTRICAL ROOM. PROVIDE 1" CONDUIT OUT BACK OF PULL BOX AND THROUGH FOUNDATION WALL. REFER TO DRAWING E-602 FOR CONTINUATION OF CONDUIT TO RESPECTED PULL BOX ON EXTERIOR WALL.
12. PROVIDE TWO CIRCUITS TO PANEL LP-1D FOR RECREATION PEN LIGHTS. PROVIDE TWO 20A/1P CIRCUIT BREAKERS IN POSITIONS 24 & 26. UPDATE SCHEDULE TO PANEL LP-1D.
13. PROVIDE 4" x 4" x 2 1/8" PULL BOX FOR RECREATION PEN NETWORK ENCLOSURE POWER SUPPLY CABLE TRANSITION. PROVIDE 1" CONDUIT FROM PANEL LP-1D TO PULL BOX. INSTALL BOX SO CENTER IS 80" AFF TO MAINTAIN CLEARANCE WITH EXISTING CONDUITS/PIPES.
14. RESERVED.
15. PROVIDE F/O PATCH CORD INSTALLED IN 3/4" CONDUIT FROM EXISTING F/O ENCLOSURE TO RECREATION PEN NETWORK ENCLOSURE LOCATED IN THIRD FLOOR ATTIC SPACE.
16. COORDINATE ROUTING OF CONDUITS WITH EXISTING CONDUITS THAT ARE ROUTED APPROXIMATELY 87" ABOVE HOUSEKEEPING PAD AND CONTINUES THROUGH WALL.
17. EXACT LOCATION OF CONDUITS, PULL BOXES, LIGHTING CONTACTOR ENCLOSURE TO BE COORDINATED ON SITE WITH DIRECTOR'S REPRESENTATIVE.
18. INSTALL POWER SUPPLIES BRANCH CIRCUITS (2)# 6 AWG + (1)#6 AWG GND IN 1" CONDUIT FROM PANEL LP-1D TO RECREATION PEN NETWORK ENCLOSURES LOCATED IN THIRD FLOOR ATTIC SPACE.
19. PROVIDE CIRCUITS TO PANEL LP-1D FOR RECREATION PEN NETWORK ENCLOSURE POWER SUPPLY. PROVIDE (2) 20A-1P CIRCUIT BREAKER IN POSITIONS 28 & 30. UPDATE SCHEDULE TO PANEL LP-1D.
20. PROVIDE 1 1/2" CONDUIT FROM RECREATION PEN NETWORK ENCLOSURE FOR INTERCOM TO THE TELEPHONE/INTERCOM PULL BOX AS SHOWN ON THIS DRAWING.
21. COORDINATE REMOVAL OF THE EXISTING TEMPORARY TRUCK TRAP POWER AND TELEPHONE CONDUIT/WIRING ONCE THE PERMANENT TRUCK TRAP POWER AND TELEPHONE CONDUIT/WIRING HAS BEEN INSTALLED AND IN-OPERATIONAL.
22. EXISTING RACK TO REMAIN AND EXISTING EQUIPMENT IN RACK WILL BE ADJUSTED WITHIN THE RACK TO ALLOW FOR THE UPS. CCTV AND INTERCOM EQUIPMENT TO BE INSTALLED INTO THE RACK.

CONDUIT SCHEDULE

	DESCRIPTION
1	CCTV SYSTEM: 3/4" CONDUIT FROM EXISTING F/O ENCLOSURE TO RECREATION PEN NETWORK ENCLOSURE. FIBER OPTIC CABLE - TWO RUNS OF SIX STRAND MULTIMODE TYPE.
2	CCTV SYSTEM: 3/4" CONDUIT FROM ELECTRICAL ROOM PULL BOX TO BASEMENT GALLERY AREA PULL BOX FOR RECREATION PEN NETWORK ENCLOSURE. FIBER OPTIC CABLE - TWO RUNS OF SIX STRAND MULTIMODE TYPE.
3	CCTV SYSTEM: 3/4" CONDUIT FROM BASEMENT GALLERY AREA PULL BOX TO RECREATION PEN NETWORK ENCLOSURE LOCATED IN THIRD FLOOR. FIBER OPTIC CABLE - TWO RUNS OF SIX STRAND MULTIMODE TYPE.
4	TELEPHONE: CAT 6 CABLE IN 3/4" CONDUIT FROM EXISTING TELEPHONE SYSTEM PATCH PANEL TO PULL BOX. COORDINATE TERMINATION OF TELEPHONE LINE IN EXISTING PATCH PANEL WITH FACILITIES AND DIRECTOR'S REPRESENTATIVE.
5	TELEPHONE: CAT 6 TELEPHONE CABLE IN 3/4" CONDUIT FROM ELECTRICAL ROOM PULL BOX TO BASEMENT GALLERY AREA PULL BOX.
6	TELEPHONE: CAT 6 TELEPHONE CABLE IN 3/4" CONDUIT FROM BASEMENT GALLERY AREA PULL BOX TO TELEPHONE ENCLOSURE FURNISHED BY DOCCS AND INSTALLED BY E-CONTRACT.
7	LIGHTING: TWO RUNS OF BRANCH CIRCUIT (2)#6 AWG + (1)#6 AWG GND IN 1" CONDUIT FROM RECREATION PENS LIGHTING CONTACTOR TO CHUTE/RECREATION PEN LIGHTS.
8	LIGHTING: TWO RUNS OF BRANCH CIRCUIT (2)#6 AWG, (1)#6 AWG GND IN 1" CONDUIT FROM LP-1D PANEL TO RECREATION PENS LIGHTING CONTACTOR ENCLOSURE.
9	POWER SUPPLY TO RECREATION PEN NETWORK ENCLOSURES: TWO RUNS OF BRANCH CIRCUIT (2)#6 AWG + (1)#6 AWG GND IN 1" CONDUIT FROM PANEL LP-1D TO RECREATION PEN NETWORK ENCLOSURE.
10	CCTV- CAT 6A DATA CABLE CABLES IN 2" CONDUIT FROM RECREATION PEN NETWORK ENCLOSURE TO CAMERAS.
11	TWO RUNS OF BRANCH CIRCUIT (2)#4/0 AWG + (1)#6 AWG GND IN 3" CONDUIT FROM PANEL 'PP-1' TO TRUCK TRAP.
12	CCTV SYSTEM: EXISTING F/O CABLE.
13	INTERCOM SYSTEM: CAT 6A CABLES IN 1 1/2" CONDUIT FROM RECREATION PEN NETWORK ENCLOSURE TO INTERCOM DEVICES VIA PULL BOX.
14	OUTDOOR LIGHTING CONTROL SYSTEM: 3/4" CONDUIT FROM EXISTING LIGHTING CONTROL SWITCH. CONTROL SIGNAL BRANCH CIRCUIT (2)#12 AWG + (1)#14 AWG GND.

DRAWING NOTES

A. PROVIDE SEPARATE CONDUIT SYSTEMS FOR CAMERA STATIONS.

B. ALL CONDUIT TO BE PROVIDED AS RIGID STEEL CONDUIT.

C. EXISTING CONDUIT SUPPORT DEVICES/SYSTEMS ARE NOT PERMITTED TO BE USED FOR SUPPORT OF PROVIDED CONDUITS. PROVIDE ALL FASTENERS, ATTACHMENTS AND SUPPORTING DEVICES FOR CONDUIT RUNS SHOWN.

D. PROVIDE BEAM CLAMPS WITH THREADED RODS AND CHANNEL SUPPORT RACK TO MOUNT CONDUITS. MOUNT CONDUITS AS CLOSE TO DECK AS POSSIBLE. LIMIT DRILLING INTO THE CONCRETE/METAL DECK. IF DRILLING IS NECESSARY THAN UTILIZE GROUND PENETRATING RADAR SYSTEM (GPRS) TO LOCATE POST TENSION CABLES BEFORE DRILLING.

E. INSTALL FIREPROOFING, REMOVE, PATCH, AND REPAIR EXISTING FIREPROOFING THAT IS DISTRIBUTED DURING INSTALLATION.

F. EXISTING CONCRETE WALL WIDTHS RANGE FROM 6" TO 14" THICK WHICH WILL REQUIRE LARGER DRILL BITS.

G. MINIMUM SIZE OF CONDUITS TO USE WILL BE 3/4".

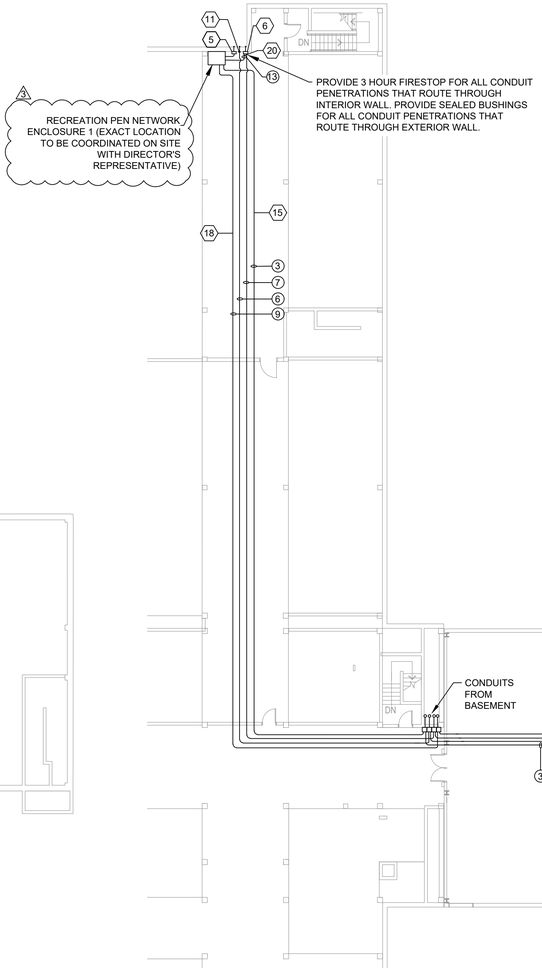
H. CONDUIT SCHEDULE IS ASSOCIATED WITH THIS DRAWING ONLY

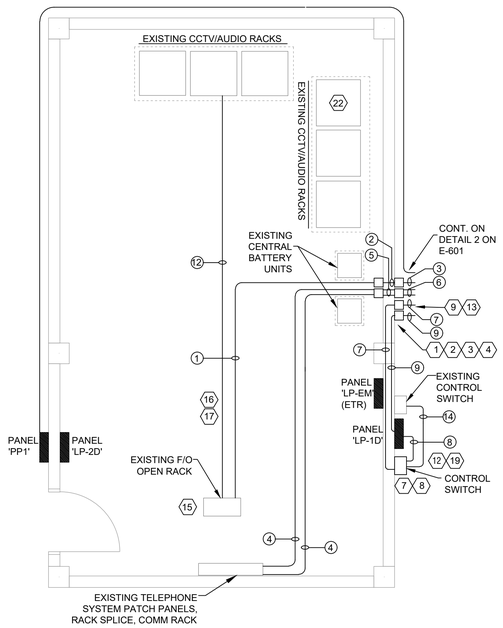
I. DATA CONDUITS HAVE BEEN SIZED BASED ON A CONDUIT FILL OF 40% UTILIZING THE CABLES SPECIFIED IN 282306. IF CABLES WITH A LARGER DIAMETER ARE USED, ENSURE CONDUIT FILL IS NOT EXCEEDED OR PROVIDE LARGER CONDUITS THAT ARE ADEQUATELY SIZED.

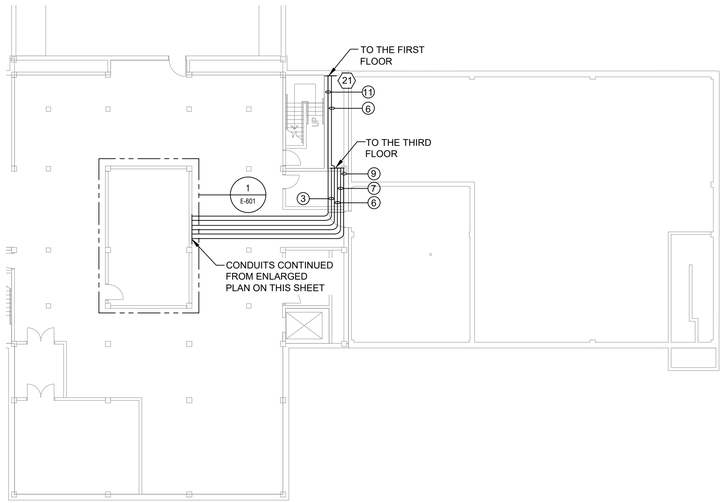
J. PROVIDE EVERY PULL BOX/JUNCTION BOX WITH TAMPER RESISTANCE SCREWS.

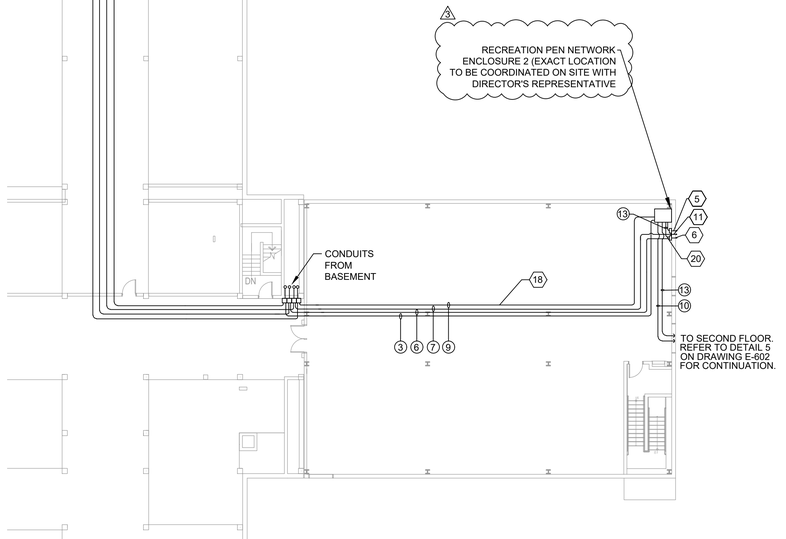
K. CONDUIT MIN. 8' ABOVE FINISH FLOOR INCLUDING HANGERS.

L. C-CONTRACT IS RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF EXISTING SECURITY (TAMPER-PROOF) CEILING TILES LOCATED IN THE BASEMENT. C-CONTRACT TO COORDINATE WITH THE E-CONTRACT FOR REMOVAL AND REINSTALLATION OF THE SECURITY CEILING TILES TO ALLOW THE E-CONTRACT TO INSTALL CONDUIT/WIRING. THE REMOVAL AND REINSTALLATION OF THE SECURITY CEILING TILES MUST OCCUR WHEN THE CLASSROOM PROGRAMS ARE NOT IN SESSION. C-CONTRACT TO REPLACE ANY DAMAGED SECURITY CEILING TILES. COORDINATE CONSTRUCTION ACTIVITIES WITH THE DIRECTOR'S REPRESENTATIVE PRIOR TO THE START OF ANY WORK ABOVE THE CEILING IN THE BASEMENT.









1 BASEMENT ELECTRICAL ROOM ENLARGED PLAN
SCALE: 1/4" = 1'-0"

PLAN NORTH

0 2'-0" 4'-0" 6'-0" 8'-0"
SCALE 1/4"=1'-0" AT ORIGINAL SIZE

2 BASEMENT ELECTRICAL PLAN
SCALE: 1/16" = 1'-0"

PLAN NORTH

0 8'-0" 16'-0" 24'-0" 32'-0"
SCALE 1/16"=1'-0" AT ORIGINAL SIZE

3 ATTIC ELECTRICAL PLAN
SCALE: 1/16" = 1'-0"

PLAN NORTH

0 8'-0" 16'-0" 24'-0" 32'-0"
SCALE 1/16"=1'-0" AT ORIGINAL SIZE

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT

CERTIFICATE OF AUTHORIZATION #: 018416

GHD Consulting Services Inc.

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STATE OF NEW YORK · STEVEN BOCHNOWICZ · 108583 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 09/30/2026

CONTRACT:
ELECTRICAL

TITLE:
PROVIDE CONGREGATE RECREATION PENS, S-BLOCK, BUILDING 45

LOCATION:
GREENE CORRECTIONAL FACILITY
165 PLANK ROAD
COXSACKIE, NY

CLIENT:
DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

MARK	DATE	DESCRIPTION
3	12/13/2024	ADDENDUM 3
2	11/20/2024	ADDENDUM 1
1	09/20/2023	BID DOCUMENTS

PROJECT NUMBER:	47268 E
DESIGNED BY:	JW, VK, RW
DRAWN BY:	MK
FIELD CHECK:	RGW
APPROVED:	RTK

SHEET TITLE:
BASEMENT AND ATTIC ELECTRICAL PLANS

DRAWING NUMBER:
E-601

SHEET 44 OF 55

Dec 13,2024 - 9:47am
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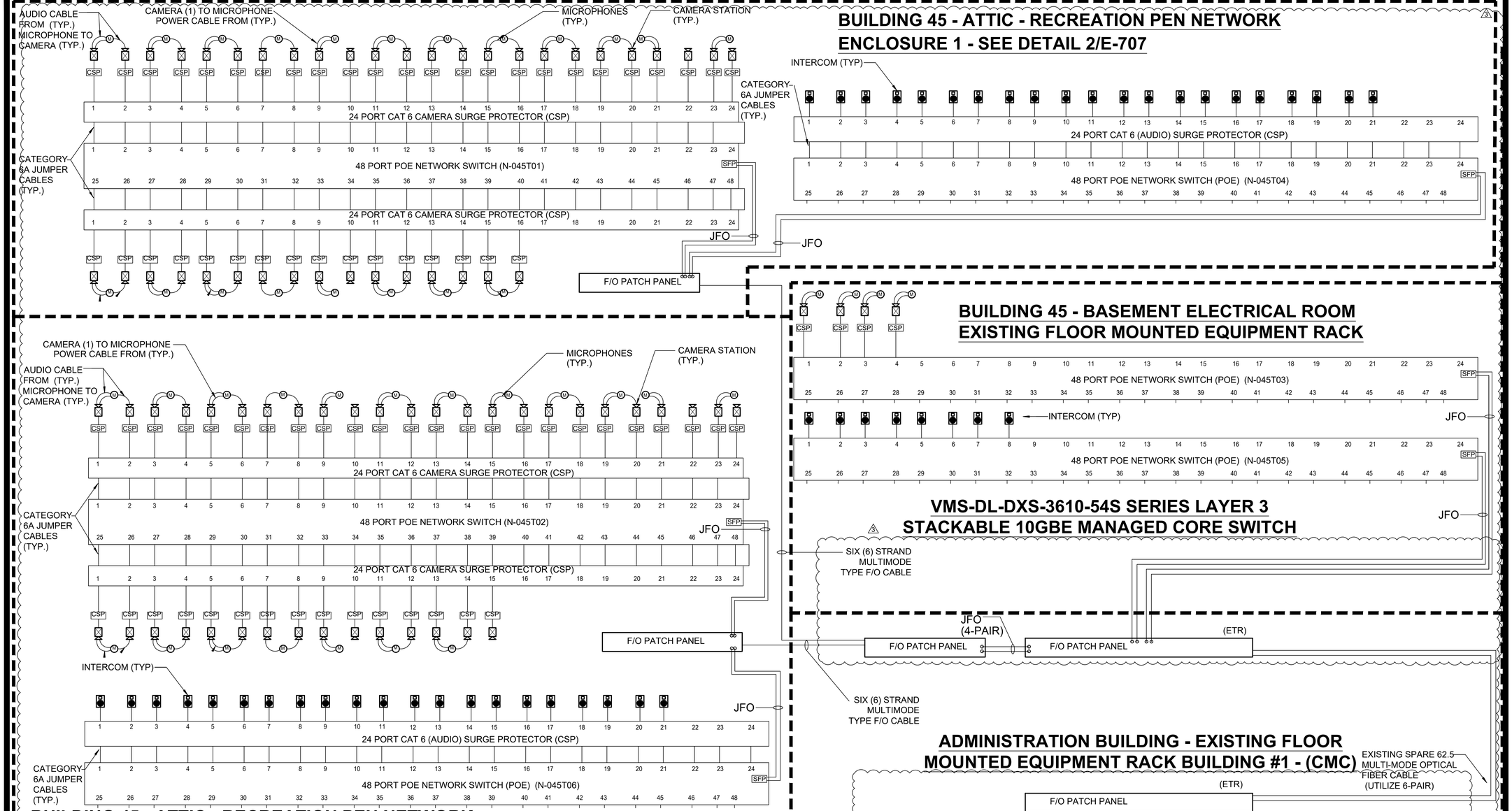
36x24 PLOT SHEET



CABLE TYPES

JFO = JUMPER, OPTICAL FIBER CABLE

LAN = LOCAL AREA NETWORK CABLE - CAT-6A RATED

DRAWING NOTES:

1. OPTICAL FIBER CABLE CONNECTORS FOR ALL OPTICAL FIBER CABLE WILL BE LC TYPE CONNECTORS.
2. PROVIDE BACK-UP UPS AT ALL POE SWITCH LOCATIONS BEING INSTALLED FOR THIS PROJECT. THIS WILL INCLUDE THE RECREATION PEN NETWORK ENCLOSURE.
3. THE QUANTITIES OF DEVICES SHOWN ON THIS DRAWING IS DIAGRAMMATIC ONLY. FOR EXACT QUANTITIES AND TAGS OF THE EQUIPMENT REFER TO CCTV /AUDIO MONITORING SCHEDULE DRAWING E-704.
4. QUANTITIES OF POE SWITCHES REQUIRED IN THE EER WILL BE BASED ON THE TOTAL NUMBER OF CAMERAS. FILL CAPACITY OF EACH SWITCH SHOULD NOT EXCEED 84%.
5. PROVIDE COMNET SFP-46 SFP(LONG RANGE) MULTIMODE FIBER OPTIC CABLE MODULES FOR ALL NETWORK SWITCH LOCATIONS.
6. VIDEO SURGE SUPPRESSION AT THE RECREATION PEN NETWORK ENCLOSURES IS ONLY REQUIRED FOR EXTERIOR CAMERAS.
7. AUDIO SURGE SUPPRESSION AT THE RECREATION PEN NETWORK ENCLOSURES IS ONLY REQUIRED FOR EXTERIOR INTERCOMS.
8. VIDEO SURGE SUPPRESSION MAY BE PROVIDED BY INSTALLING EITHER 24 PORT PROTECTORS OR INDIVIDUAL PROTECTORS. BOTH ARE SHOWN ON DRAWING.

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT

CERTIFICATE OF AUTHORIZATION #: 018416

GHD

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STATE OF NEW YORK · STEVEN BOCHNOVICZ · 108583 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 09/30/2026

CONTRACT: ELECTRICAL

TITLE: PROVIDE CONGREGATE RECREATION PENS, S-BLOCK, BUILDING 45

LOCATION: GREENE CORRECTIONAL FACILITY 165 PLANK ROAD COXSACKIE, NY

CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

MARK	DATE	DESCRIPTION
3	12/13/2024	ADDENDUM 3
2	11/22/2024	ADDENDUM 1
1	09/20/2023	BID DOCUMENTS

PROJECT NUMBER:	47268 - E
DESIGNED BY:	JW, VK, RW
DRAWN BY:	CM
FIELD CHECK:	RGW
APPROVED:	RTK

SHEET TITLE: CCTV/AUDIO MONITORING SYSTEM ONE-LINE DIAGRAM

DRAWING NUMBER: E-703

SHEET 51 OF 55

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CAMERA STATION REFERENCE NUMBER	NETWORK SWITCH NUMBER	CAMERA INSTALLATION LOCATION TYPE	ASSOCIATED MICROPHONE	MICROPHONE INSTALLATION LOCATION TYPE	NETWORK SWITCH NUMBER	ASSOCIATED INTERCOM	INTERCOM INSTALLATION LOCATION TYPE
C-045901	N-045T01	OUTDOOR	M-045902	OUTDOOR	N/A	N/A	N/A
C-045902	N-045T01	OUTDOOR	M-045902	OUTDOOR	N/A	N/A	N/A
C-045903	N-045T01	OUTDOOR	M-045904	OUTDOOR	N/A	N/A	N/A
C-045904	N-045T01	OUTDOOR	M-045904	OUTDOOR	N/A	N/A	N/A
C-045905	N-045T01	OUTDOOR	M-045906	OUTDOOR	N/A	N/A	N/A
C-045906	N-045T01	OUTDOOR	M-045906	OUTDOOR	N/A	N/A	N/A
C-045907	N-045T01	OUTDOOR	M-045908	OUTDOOR	N/A	N/A	N/A
C-045908	N-045T01	OUTDOOR	M-045908	OUTDOOR	N/A	N/A	N/A
C-045909	N-045T01	OUTDOOR	M-045910	OUTDOOR	N/A	N/A	N/A
C-045910	N-045T01	OUTDOOR	M-045910	OUTDOOR	N/A	N/A	N/A
C-045911	N-045T01	OUTDOOR	M-045911	OUTDOOR	3 N/A	N/A	N/A
C-045912	N-045T01	OUTDOOR	M-045912	OUTDOOR	N-045T04	I-045913	OUTDOOR
C-045913	N-045T01	OUTDOOR	M-045913	OUTDOOR	N/A	N/A	N/A
C-045914	N-045T01	OUTDOOR	M-045914	OUTDOOR	N/A	N/A	N/A
C-045915	N-045T01	OUTDOOR	M-045915	OUTDOOR	N-045T04	I-045914	OUTDOOR
C-045916	N-045T01	OUTDOOR	M-045916	OUTDOOR	N/A	N/A	N/A
C-045917	3 N-045T01	OUTDOOR	M-045917	OUTDOOR	N/A	N/A	N/A
C-045918	N-045T02	OUTDOOR	M-045919	OUTDOOR	N/A	N/A	N/A
C-045919	N-045T02	OUTDOOR	M-045919	OUTDOOR	N/A	N/A	N/A
C-045920	N-045T02	OUTDOOR	M-045921	OUTDOOR	N/A	N/A	N/A
C-045921	N-045T02	OUTDOOR	M-045921	OUTDOOR	N/A	N/A	N/A
C-045922	N-045T02	OUTDOOR	M-045923	OUTDOOR	N/A	N/A	N/A
C-045923	N-045T02	OUTDOOR	M-045923	OUTDOOR	N/A	N/A	N/A
C-045924	N-045T02	OUTDOOR	M-045925	OUTDOOR	N/A	N/A	N/A
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C-045926	N-045T02	OUTDOOR	M-045927	OUTDOOR	N/A	N/A	N/A
C-045927	N-045T02	OUTDOOR	M-045927	OUTDOOR	N/A	N/A	N/A
C-045928	N-045T01	OUTDOOR	M-045928	OUTDOOR	N/A	N/A	N/A
C-045929	N-045T01	OUTDOOR	M-045929	OUTDOOR	N-045T04	I-045928	OUTDOOR
C-045930	N-045T01	OUTDOOR	M-045930	OUTDOOR	N/A	N/A	N/A
C-045931	N-045T01	OUTDOOR	M-045930	OUTDOOR	N/A	N/A	N/A
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C-045934	N-045T02	OUTDOOR	M-045934	OUTDOOR	N/A	N/A	N/A
C-045935	N-045T02	OUTDOOR	M-045934	OUTDOOR	N/A	N/A	N/A
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C-045937	N-045T02	OUTDOOR	M-045936	OUTDOOR	N/A	N/A	N/A
C-045938	N-045T02	OUTDOOR	M-045938	OUTDOOR	N/A	N/A	N/A
C-045939	N-045T02	OUTDOOR	M-045938	OUTDOOR	N/A	N/A	N/A
C-045940	N-045T02	OUTDOOR	M-045940	OUTDOOR	N/A	N/A	N/A
C-045941	N-045T02	OUTDOOR	M-045940	OUTDOOR	N/A	N/A	N/A
C-045942	N-045T02	OUTDOOR	M-045942	OUTDOOR	N/A	N/A	N/A
C-045943	N-045T02	OUTDOOR	M-045942	OUTDOOR	N/A	N/A	N/A
C-045944	N-045T02	OUTDOOR	M-045945	OUTDOOR	N/A	N/A	N/A
C-045945	N-045T02	OUTDOOR	M-045945	OUTDOOR	N/A	N/A	N/A
C-045946	N-045T02	OUTDOOR	M-045947	OUTDOOR	N/A	N/A	N/A
C-045947	N-045T02	OUTDOOR	M-045947	OUTDOOR	N/A	N/A	N/A
C-045948	N-045T02	OUTDOOR	M-045948	OUTDOOR	N-045T06	I-045948	OUTDOOR
C-045949	N-045T02	OUTDOOR	M-045949	OUTDOOR	N-045T06	I-045950	OUTDOOR
C-045950	N-045T02	OUTDOOR	M-045950	OUTDOOR	N/A	N/A	N/A
C-045951	N-045T02	OUTDOOR	M-045951	OUTDOOR	N/A	N/A	N/A
C-045952	N-045T02	OUTDOOR	M-045952	OUTDOOR	N-045T06	I-045951	OUTDOOR
C-045953	N-045T02	OUTDOOR	M-045954	OUTDOOR	N/A	N/A	N/A
C-045954	N-045T02	OUTDOOR	M-045954	OUTDOOR	N/A	N/A	N/A
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C-045956	N-045T02	OUTDOOR	M-045956	OUTDOOR	N-045T06	I-045955	OUTDOOR
C-045957	N-045T01	OUTDOOR	M-045957	OUTDOOR	N-045T04	I-045957	OUTDOOR
C-045958	N-045T01	OUTDOOR	M-045958	OUTDOOR	N/A	N/A	N/A
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C-045963	N-045T01	OUTDOOR	M-045963	OUTDOOR	N-045T04	I-045964	OUTDOOR
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C-045765	N-045T01	INDOOR	M-045765	INDOOR	N-045T04	I-045765	INDOOR
C-045766	N-045T01	INDOOR	M-045765	INDOOR	N/A	N/A	N/A
C-045767	N-045T01	INDOOR	M-045767	INDOOR	N/A	N/A	N/A
C-045768	N-045T01	INDOOR	M-045768	INDOOR	N-045T04	I-045768	INDOOR
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C-045775	N-045T01	INDOOR	M-045775	INDOOR	N/A	N/A	N/A
C-045776	N-045T01	INDOOR	M-045776	INDOOR	N-045T04	I-045776	INDOOR
C-045777	N-045T01	INDOOR	M-045777	INDOOR	N-045T04	I-045777	INDOOR
C-045778	N-045T01	INDOOR	M-045778	INDOOR	N/A	N/A	N/A
C-045779	N-045T01	INDOOR	M-045779	INDOOR	N-045T04	I-045779	INDOOR
C-045880	N-045T03	INDOOR	M-045880	INDOOR	N-045T05	I-045880	INDOOR
C-045881	N-045T03	INDOOR	M-045881	INDOOR	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045882	INDOOR
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045883	INDOOR
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045884	INDOOR
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045885	INDOOR
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045886	INDOOR
C-045887	N-045T03	INDOOR	M-045887	INDOOR	N/A	N/A	N/A
C-045888	N-045T03	INDOOR	M-045888	INDOOR	N-045T05	I-045888	INDOOR
N/A	N/A	N/A	N/A	N/A	N-045T05	I-045889	INDOOR

1 E-704 **CCTV/AUDIO SYSTEM SCHEDULE**

SCALE: NOT TO SCALE

DEVICE TAG DESIGNATION

C-########

- C=CAMERA, M=MICROPHONE, I=INTERCOM, N=NETWORK
- DENOTES BUILDING NUMBER
- 7 DENOTES STAIR (BS1) B STAIR 1
- 8 INDOOR CAMERA
- 9 OUTDOOR CAMERA
- CAMERA, MICROPHONE OR INTERCOM NUMBER

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT

CERTIFICATE OF AUTHORIZATION #: 018416

GHD

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STATE OF NEW YORK · STEVEN BOCHNOVICZ · 108583 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 09/30/2026

CONTRACT:

ELECTRICAL

TITLE:

PROVIDE CONGREGATE RECREATION PENS, S-BLOCK, BUILDING 45

LOCATION:

GREENE CORRECTIONAL FACILITY
165 PLANK ROAD
COXSACKIE, NY

CLIENT:

DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

MARK	DATE	DESCRIPTION
3	12/13/2024	ADDENDUM 3
2	11/22/2024	ADDENDUM 1
1	09/20/2023	BID DOCUMENTS

PROJECT NUMBER:	47268 _ E
DESIGNED BY:	JW, VK, RW
DRAWN BY:	MK
FIELD CHECK:	RGW
APPROVED:	RTK

SHEET TITLE:

CCTV/AUDIO MONITORING SCHEDULE

DRAWING NUMBER:

E-704

SHEET 52 OF 55

Dec 13,2024 - 9:59am
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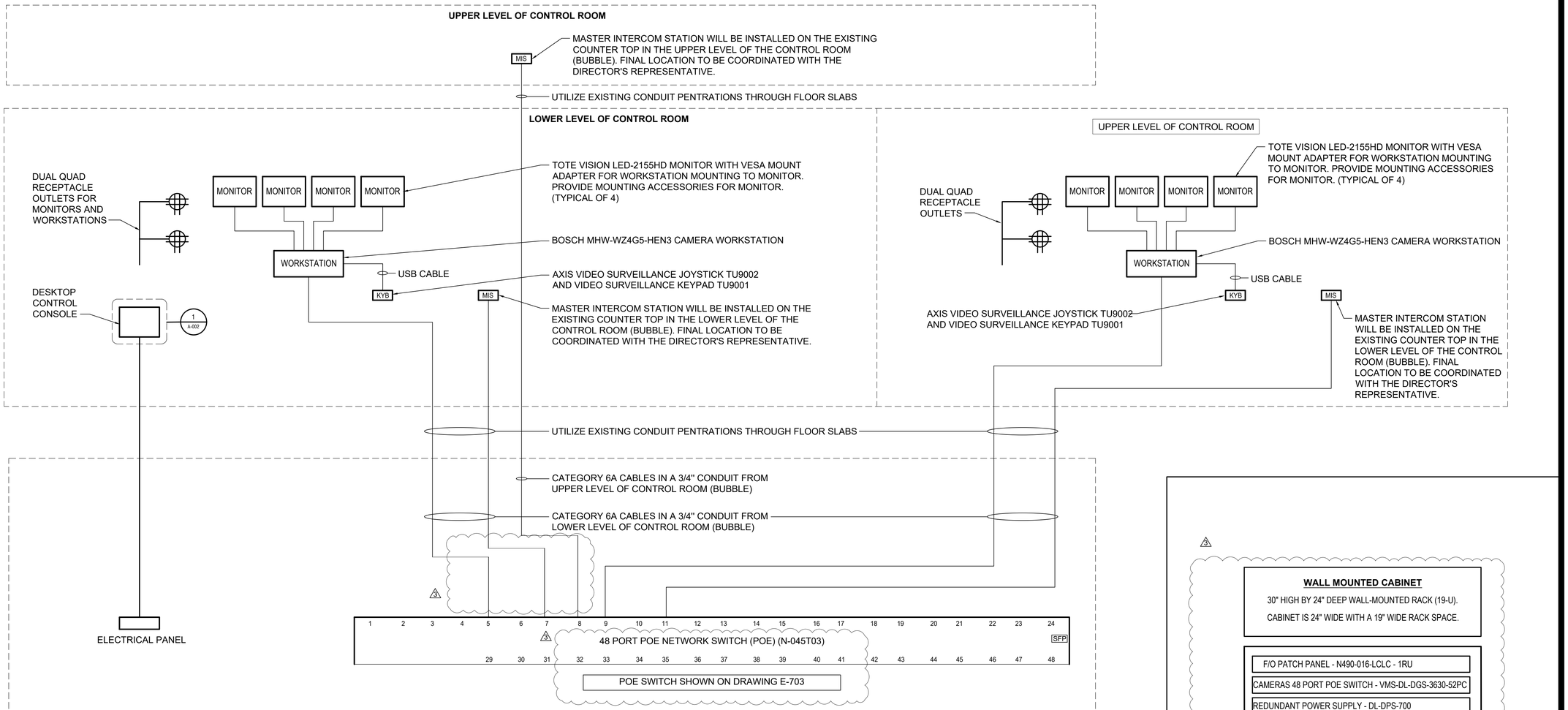
36x24 PLOT SHEET



1 E-707 VIDEO/AUDIO EQUIPMENT FOR CONTROL ROOM

SCALE: NOT TO SCALE

GENERAL NOTES:

1. PROVIDE LOCATION OF ALL EQUIPMENT AS DIRECTED BY THE DIRECTOR'S REPRESENTATIVE.
2. PROVIDE TWO QUAD RECEPTACLES FOR CCTV WORKSTATIONS/MONITORS. INSTALL RECEPTACLES IN THE VICINITY TO WORKSTATIONS ABOVE CEILING TILES. PROVIDE POWER SUPPLY TO RECEPTACLES USING 20A CIRCUITS FROM THE UPS PANEL.
3. PROVIDE POWER SUPPLY FROM PANEL LOCATED IN THE ELECTRICAL ROOM TO RECREATION PEN DOOR/GATE CONTROL PANEL LOCATED IN LOWER LEVEL OF THE CONTROL ROOM (BUBBLE) ON THE FLOOR ABOVE ELECTRICAL ROOM.
   a. UTILIZE EXISTING PANEL SPARE BREAKER OR FREE SPACE. SUPPLY AND INSTALL 15A - 1P BREAKER.
   b. USE 12 AWG CONDUCTORS IN ¾" CONDUIT FOR POWER SUPPLY. SUPPLY AND INSTALL PULL BOXES/JUNCTION BOXES.
   c. ALL CONDUITS PROVIDED ARE TO BE RIGID METAL CONDUIT.
   d. UTILIZE EXISTING CONDUIT OR FILL AND SEAL CONDUIT PENETRATIONS THROUGH THE FLOOR/CEILING WITH FIRE STOP MATERIAL. PROVIDE FIRE STOP BUSHING.
   e. COORDINATE INSTALLATION WITH DIRECTOR'S REPRESENTATIVE. OBTAIN WRITTEN PERMISSION FOR CONDUITS INSTALLATION/DRILLING THROUGH WALLS/CEILING.
4. MASTER INTERCOM STATION AND AXIS VIDEO SURVEILLANCE JOYSTICK/KEYPAD IS LOCATED NEXT TO THE DESKTOP CONTROL CONSOLE.

3

WALL MOUNTED CABINET

30" HIGH BY 24" DEEP WALL-MOUNTED RACK (19-U).

CABINET IS 24" WIDE WITH A 19" WIDE RACK SPACE.

- F/O PATCH PANEL - N490-016-LCLC - 1RU
- CAMERAS 48 PORT POE SWITCH - VMS-DL-DGS-3630-52PC
- REDUNDANT POWER SUPPLY - DL-DPS-700
- VIDEO SURGE SUPPRESSOR 24 PORT-DTK-RM24NETS-1RU
- VIDEO SURGE SUPPRESSOR 24 PORT-DTK-RM24NETS-1RU
- BLANK PANEL - 1RU
- INTERCOM 48 PORT POE SWITCH-VMS-DL-DGS-3630-52PC
- REDUNDANT POWER SUPPLY - DL-DPS-700
- AUDIO SURGE SUPPRESSOR 24 PORT-DTK-RM24NETS-1RU
- BLANK PANEL - 1RU
- BLANK PANEL - 1RU
- BLANK PANEL - 1RU
- EATON PDU ePBZ78 - 20 5-20R OUTPUTS -1 RU
- 2200VA UPS UNIT - EATON 9PX2000RTN-L-2 RU
- UPS BATTERY BOX - 9PXEBM72RT - 2RU
- UPS BATTERY BOX - 9PXEBM72RT - 2RU

2 E-707 RECREATION PEN NETWORK ENCLOSURES 1 & 2 - TYPICAL

SCALE: NOT TO SCALE

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT

CERTIFICATE OF AUTHORIZATION #: 018416

GHD

GHD Consulting Services Inc.

WARNING:
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

STATE OF NEW YORK · STEVEN BOCHNOVICZ · 108583 · LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 09/30/2026

CONTRACT: ELECTRICAL

TITLE: PROVIDE CONGREGATE RECREATION PENS, S–BLOCK, BUILDING 45

LOCATION: GREENE CORRECTIONAL FACILITY 165 PLANK ROAD COXSACKIE, NY

CLIENT: DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

MARK	DATE	DESCRIPTION
3	12/13/2024	ADDENDUM 3
2	11/22/2024	ADDENDUM 1
1	09/20/2023	BID DOCUMENTS

PROJECT NUMBER:	47268 – E
DESIGNED BY:	JW, VK, RW
DRAWN BY:	CM
FIELD CHECK:	RGW
APPROVED:	RTK

SHEET TITLE: VIDEO/AUDIO EQUIPMENT FOR CONTROL ROOMS AND EQUIPMENT RACK DETAILS

DRAWING NUMBER: E–707

SHEET 55 OF 55

Dec 13,2024 – 10:20am
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