



Collin County Purchasing

2021-014

Construction, Collin County Juvenile Detention, Video Retrofit

Issue Date: 11/17/2020

Questions Deadline: 12/11/2020 12:00 PM (CT)

Response Deadline: 12/17/2020 02:00 PM (CT)

Collin County Purchasing

Contact Information

Contact: JD Griffin, CPPB Buyer II

Address: Purchasing

Admin. Building

Ste.3160

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Collin County Juvenile Detention Center Video System Retrofit

November 3, 2020



MD ENGINEERING

MD Engineering, LLP Texas

Registered Engineering Firm F-7489

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SECTION 001116 - ADVERTISEMENT FOR BIDS

BY ORDER OF the Collin County Commissioners Court, Collin County, Texas, bids will be received electronically through Collin County eBid located at <https://collincountytx.ionwave.net>. Bidders are encouraged to submit bids electronically by utilizing Collin County eBid. However, you may submit a sealed hard copy paper bid to the Office of the Collin County Purchasing Agent. All bids, both electronic or hard copy paper form must be submitted as stated below:

**SUBMIT HARD COPY PAPER BIDS
TO:**

**Office of the Purchasing Agent
Collin County Administration Building
2300 Bloomdale Road, Suite 3160
McKinney, Texas 75071**

****NOTE:**

All Correspondence must include suite number to assist in proper delivery.**

SUBMIT NO LATER THAN:

2:00 P.M., Thursday, December 17, 2020

MARK ENVELOPE:

IFB 2021-014

**Project: Construction, Collin County Juvenile
Detention, Video Retrofit**

***ALL BIDS MUST BE RECEIVED IN THE OFFICE OF THE PURCHASING AGENT
BEFORE OPENING DATE AND TIME***

SCOPE OF WORK INCLUDES all materials, labor, equipment and services to produce or be incorporated in such construction. Contract will be a general contract to include replacement of all existing cameras, video viewing stations and video surveillance head-end equipment at Collin County Juvenile Detention. New cameras shall be IP based, high definition. Payment for the contract work shall be made pursuant to the terms of the Contract Documents.

The opinion of probable construction cost for this contract is \$500,000.

Collin County uses Collin County eBid for the notification and dissemination of all solicitations for commodities and services. The receipt of solicitations through any other company may result in your receipt of incomplete specifications and/or addendums which could ultimately render your bid non-compliant. Collin County accepts no responsibility for the receipt and/or notification of solicitations through any other company.

COLLIN COUNTY APPRECIATES your time and effort in preparing a bid. Hard copy paper bid must be in a separate sealed envelope, manually signed in ink by a person having the authority to bind the firm in a contract and marked clearly on the outside as outlined above. Please note that all bids must be received at the designated location by the deadline shown. Bids received after deadline shall be considered void and unacceptable. Collin County is not responsible for lateness of mail, carrier, etc. and time/date stamp clock in the Collin County Purchasing Department shall be the official time of receipt. All bid forms provided in this Invitation for Bid must be completed prior

to submission. Failure to complete the forms shall render your bid null and void. We would appreciate you indicating on your "NO BID" response any requirements of this bid request which may have influenced your decision to "NO BID".

No oral, telegraphic, telephonic or facsimile bids will be considered. IFB's, RFP's, RFQ's and RFI's may be submitted in electronic format via Collin County eBid at <https://collincountytx.ionwave.net>

BIDS WILL BE opened in the Office of the Purchasing Agent, 2300 Bloomdale Rd, Suite 3160, McKinney, TX 75071, at the date and time indicated above.

In a continued effort to operate safely and avoid person-to-person interaction to prevent the spread of COVID-19, Collin County Purchasing will temporarily only accept IFB, RFP, RFQ and Quote submittals electronically in Ionwave (eBid) or via parcel carrier until further notice. Please do not deliver your solicitation response in person. All bid openings will be completed on schedule and witnessed by Collin County Purchasing staff to ensure all procurement statutes, policies and state laws are followed.

A MANDATORY PRE-BID CONFERENCE will be held by Collin County at the Collin County Juvenile Detention Lobby, 4700 Community Ave., McKinney, TX 75071 on **Tuesday, December 1, 2020** in order for bidders to ask questions regarding the proposed work. All bidders desiring to bid the work should have a representative at the pre-bid conference; bidders that do not attend the pre-bid conference shall not be considered in the evaluation for award of a contract per Texas Local Government Code 262.0256. Attendance shall be mandatory at the pre-bid conference. It is the bidder's responsibility to review the site and documents to gain a full understanding of the requirements of the bid.

Due to the current COVID-19 social distancing recommendations, a limit of six (6) attendees will be allowed during each session in addition to three (3) County representatives. Each contractor attending shall be limited to two (2) participants. All participants will be required to provide and wear a face mask that covers the mouth and nose, have temperature checked and complete a Covid-19 screening questionnaire upon arrival. The first conference session will begin at 9:00 AM followed by sessions at 10:00 AM, 11:00 AM and 1:00 PM (as needed). Bidders interested in attending the pre-bid conference shall RSVP to purchasing@co.collin.tx.us with "**2021-014, Collin County Juvenile Detention, Video Retrofit**" in the subject line, no later than **Monday, November 30, 2020 at 12:00 PM**. RSVP response shall include company name, name of individuals that will be attending (maximum of 2) and the preferred session time. Attendees for each session will be scheduled in the order they are received.

BID SECURITY: All Bidders must submit, prior to the bid opening time, a Certified Check, Cashier's Check or acceptable Bid Bond payable without recourse to Collin County in the amount of not less than five percent (5%) of the total bid plus alternates as submitted.

1. Bid Bond, certified check or Cashier's Check may be mailed or delivered to the Office of the Collin County Purchasing Agent, Collin County Administration Building, 2300 Bloomdale Road, Ste 3160, McKinney, TX

- 75071 and shall be delivered in an envelope, marked plainly on the outside with the Bid Name and Number.
2. Bidders submitting a bid via Collin County eBid shall upload a Bid Bond at <https://collincountytx.ionwave.net>

Regardless of delivery method, all Bid Bonds shall be received prior to the bid opening time to be considered. **Failure to submit a copy of bid security prior to bid opening shall be cause for rejection of bid.**

The original Bid Bond shall be received in the Collin County Purchasing Department **no later than** close of business on the third working day after the bid opening. **Late receipt of original Bid Bond shall be cause for rejection of bid.**

BONDS: Contractor must furnish a performance bond, payment bond one (1) year maintenance bond within ten (10) consecutive calendar days following award of contract. The bonds shall be issued by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects.

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SECTION 002113 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL REQUIREMENTS

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. All definitions set forth in the General Conditions of the Contract for Construction or in other Contract Documents are applicable to these Bidding Documents.
- B. Bidding Documents include the Advertisement or Invitation for Bids, Instructions to Bidders, the bid form, other sample bidding and contract forms and the proposed Contract Documents including any Addenda issued prior to receipt of bids.
- C. Addenda are written or graphic instruments issued prior to the opening of the Bidding Documents, which modify or interpret the Bidding Documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.
- D. MD Engineering, L.P., L.L.P. will be hereafter referred to in the Project Manual as “Engineer” and all correspondence shall be addressed to: Michael Smith, P.E., MD Engineering, 1255 W. 15th St., Ste. 300, Plano, TX 75075.
- E. “Bill Burke” will be hereinafter referred to in this Project Manual as “Project Manager”.
- F. “Collin County” will be hereafter referred to in this Project Manual as “Owner”.
- G. A Bid is a complete and properly signed submittal to do the Work for designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- H. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.
- I. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid in the corresponding change in the Work, as described in the Bidding Documents or in the proposed Contract Documents.
- J. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or service as described in the Bidding Documents or in the proposed Contract Documents.
- K. A Bidder is a person or entity who submits a Bid.
- L. A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials or labor for a portion of the work.
- M. A Contractor is a person or entity who is determined to be the lowest responsible and responsive bidder to whom Owner (on the basis of Owner’s evaluation as hereinafter provided) makes an award.

- N. The Bid Requirements and Other General Conditions, as provided under the Division of the North Central Texas Council of Governments Standard Specifications for Public Works Construction will be applicable to this project, unless noted otherwise in the Contract Documents

1.3 EXAMINATION OF DOCUMENTS AND SITE

- A. Each bidder, by making his/her Bid, represents that he/she has read and understands the Bidding Documents.
- B. Each Bidder, by making his/her Bid, represents that he/she has visited the site, performed investigations and verifications as he/she deems necessary, and familiarized himself/herself with the local conditions under which the Work is to be performed and will be responsible for any and all errors in his/her bid resulting from his/her failure to do so.
- C. The location and elevations of the various utilities and pipe work included within the scope of the work are offered as a general guide only, without guarantee as to accuracy. The Contractor shall verify and investigate to his/her own satisfaction the location and elevation of all utilities, pipe work, and the like and shall adequately inform himself/herself of their relation to the work before submitting a bid.
- D. Before submitting a bid each bidder will, at bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information (surface, subsurface, and underground facilities) at or contiguous to the site, or otherwise which may affect cost, progress, performance or furnishing of the work and which bidder deems necessary to determine its bid for performing and furnishing the work in accordance with the time, price and other terms and conditions of the Contract Documents. Bidder will rely solely on its own site investigation and assumes the risk of any site conditions not discovered that may result in additional costs and all errors in the bid.
- E. On request in advance, Owner will provide each bidder access to the site to conduct explorations and tests as each bidder deems necessary for submission of a bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
- F. The lands upon which the work is to be performed, right-of way and easement for access thereto and other lands designated for use by Contractor in performing the work are identified in the Contract Documents.
- G. Each bidder by making his/her bid represents that his/her bid is based upon the materials, systems, and equipment required by the Bidding Documents without exception.

1.4 BIDDING DOCUMENTS

- A. Complete sets of Bidding Documents shall be used in preparing bids; neither County, nor Engineer assume any responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.
- B. County or the Engineer, in making copies of the Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

1.5 BIDDING PROCEDURES

- A. All bids shall be prepared on the forms provided by the Engineer and submitted in accordance with the Instruction to Bidders. The owner will furnish bidders with bid forms

which will provide for the following bid items. Bidders shall provide all requested information. Prices bid/proposed shall *only* be considered if they are provided in the appropriate space(s) on the Collin County bid form(s). For consideration, any additions or deductions to the bid/proposal prices offered must be shown under the exceptions section of the bid/proposal in the case of electronic submittal, ONLY in the case of a hard copy submittal will an additional attachment be allowed. Extraneous numbers, prices, comments, etc. or bidder/offeror generated documents appearing elsewhere on the bid or as an additional attachment shall be deemed to have no effect on the prices offered in the designated locations.

1. A single contract price for each bid item as detailed and described in these specifications.
 2. Acknowledgment of Addenda.
 3. Number of consecutive calendar days to complete project.
 4. Alternate bids.
 5. Unit prices.
- B. A bid (electronic or hard copy) is invalid if it has not been deposited at the designed location prior to the time and date for receipt of bids indicated in the Advertisement or Invitation For Bid, or prior to any extension thereof issued to the bidders. Bids received in County Purchasing Department after submission deadline shall be returned unopened and will be considered void and unacceptable. Owner is not responsible for lateness of mail, carrier, etc. and time/date stamp clock in County Purchasing Department shall be the official time of receipt.
- C. Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his/her bid or any part thereof for ninety (90) consecutive calendar days after the time designated for the receipt of bids in the Advertisement or Invitation For Bid.
- D. Bids shall not contain any recapitulation of the Work to be done.
- E. The Bidder shall make no additional stipulations on the Bid Form nor limit or qualify his/her bid in any other manner. Bids so qualified will be subject to disqualification.
- F. Collin County is by statute exempt from the State Sales Tax and Federal Excise Tax; therefore, the prices submitted shall not include taxes.

1.6 DISCREPANCIES AND AMBIGUITIES

Any interpretations, corrections and/or changes to an Invitation For Bid and related Specifications or extensions to the opening/receipt date will be made by addenda to the respective document by the Collin County Purchasing Department. Questions and/or clarification requests must be submitted no later than seven (7) days prior to the opening/receipt date. Those received at a later date may not be addressed prior to the public opening. Sole authority to authorize addenda shall be vested in Collin County Purchasing Agent as entrusted by the Collin County Commissioners' Court. Addenda may be transmitted electronically via Collin County eBid, by facsimile, E-mail transmission or mailed via the US Postal Service.

- 1.6.1 Addenda will be transmitted to all that are known to have received a copy of the IFB and related Specifications. However, it shall be the sole responsibility of the Bidder to verify issuance/non-issuance of addenda and to check all avenues of document availability (i.e. Collin County eBid at <https://collincountytx.ionwave.net>; telephoning Purchasing Department directly, etc.) prior to opening/receipt date and time to insure Bidder's receipt of any addenda issued. Bidder shall acknowledge receipt of all addenda.

1.7 SUBSTITUTIONS

- A. Each bidder represents that his/her bid is based upon the materials and equipment described in the Bidding Documents.
- B. No substitution will be considered unless written request has been submitted to the Engineer for approval at least seven (7) consecutive calendar days prior to the date for receipt of bids. Submit substitution request forms to jgriffin@co.collin.tx.us.
- C. If the Engineer and Owner approves a proposed substitution, such approval will be set forth in an Addendum.

1.8 QUALIFICATION OF BIDDERS

- A. Within seven (7) consecutive calendar days following bid opening, the apparent low bidder shall submit with a properly executed Contractor's Qualification Statement as evidence to establish bidder's financial responsibility, experience and possession of such equipment as may be needed to prosecute the work in an expeditious, safe and satisfactory manner. This Statement shall include:
 - 1. List of current projects.
 - 2. List of projects completed within the past five years.
 - 3. Experience of key individuals of the organization.
 - 4. Trade and Bank references.
 - 5. A recent financial statement to confirm that the bidder has suitable financial status to meet obligations incidental to performing the work. Audited financial statements are not mandatory. Unaudited financial statements will be accepted. If bidder's firm does, however, have audited statements, please include a copy with your bid.
 - 6. A statement of cost for each major item of Work included in the Bid.
 - 7. A designation of the Work to be performed by the Bidder with his/her own forces.
 - 8. A list of names of the Subcontractors or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for each portion of the Work. The Bidder will be required to establish to the satisfaction of the Engineer and Owner the reliability and responsibility of the proposed Subcontractors. Prior to the award of the Contract, the Engineer will notify the Bidder in writing if either the County or the Engineer, after due investigation, has reasonable and substantial objection to any person or organization on such lists. If Owner or Engineer has a reasonable and substantial objection to any person or organization on such list, and refuses in writing to accept such person or organization, the Bidder may, at his/her option, withdraw his/her Bid without forfeiture of Bid Security or provide an acceptable substitute. Subcontractors and other persons and organizations proposed by the Bidder and accepted by Owner and Engineer must be used on the Work for which they were proposed and accepted, and shall not be changed except with the written approval of Owner and the Engineer.
- B. Bidders may be disqualified and their bids not considered for any of the following specific reasons:
 - 1. Reason for believing collusion exists among bidders.
 - 2. The bidder being interested in any litigation against Owner.
 - 3. The bidder being in arrears on any existing contract or having defaulted on a previous contract.
 - 4. Lack of competency as revealed by the financial statement, experience and equipment, questionnaires, or qualification statement.

5. Uncompleted work which in the judgment of Owner will prevent or hinder the prompt completion of additional work if awarded.
- C. Minimum Standards For Responsible Prospective Bidders: A prospective Bidder must meet the following minimum requirements:
1. have adequate financial resources, or the ability to obtain such resources as required;
 2. be able to comply with the required or proposed delivery/ completion schedule;
 3. have a satisfactory record of performance;
 4. have a satisfactory record of integrity and ethics; and
 5. be otherwise qualified and eligible to receive an award.

Collin County may request representation and other information sufficient to determine Bidder's ability to meet these minimum standards listed above.

- D. In determining to whom to award the contract, the Owner may consider;
1. the purchase price;
 2. the reputation of the bidder/contractor/vendor and of the bidder/contractor/vendor's goods or services;
 3. the quality of the bidder/contractor/vendor's goods or services;
 4. the extent to which the goods or services meet the Owner's needs;
 5. the bidder/contractor/vendor's past relationship with the Owner;
 6. the total long-term cost to the Owner to acquire the bidder/contractor/vendor's goods or services; and
 7. any other relevant factors specifically listed in the Instruction to Bidders..

1.9 PREPARATION OF BID

- A. Bidder shall submit his/her bid on the forms furnished by the Engineer. All blank spaces in forms shall be correctly filled in and the bidder shall state the prices, written in words and in figures. Where there is discrepancy between the price written in words and the price written in figures, the price written in words shall govern. If bid is submitted by an individual, his/her name must be signed by him/her or his/her duly authorized agency. If the bid is submitted by a firm, association or partnership, the name and address of each member must be given, and the bid must be signed by an official or duly authorized agent. Powers of attorney authorizing agents or others to sign bids must be properly certified and must be in writing and submitted with the bid.
- B. Bidder shall bear any/all costs associated with it's preparation of any bid, proposal or submittal.
- C. Public Information Act: Collin County is governed by the Texas Public Information Act, Chapter 552 of the Texas Government Code. All information submitted by prospective bidders during the bidding process is subject to release under the Act.

- D. The Bidder shall comply with Commissioners' Court Order No. 2004-167-03-11, County Logo Policy.

1.10 BID SECURITY

- A. Each bid must be accompanied by Bid Security (in accordance with instructions set forth in section 001116-Advertisement For Bids) made payable to Owner in an amount of five percent (5%) of the bidder's maximum bid price and in the form of a Cashier's Check or a Bid Bond, duly executed by bidder as principal and having as surety thereon, a corporate surety authorized and admitted to do business in the State of Texas and licensed to issue such bond, as a guarantee that the bidder will enter into a Contract and execute required Performance, Payment, and one (1) year Maintenance Bonds within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract.
- B. The Bid Security of the contractor will be retained until such bidder has executed the Contract Agreement and furnished the required Contract Security, whereupon, the Bid Security will be returned. If the contractor fails to execute and deliver the Agreement and furnish the required Contract Security within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, Owner may annul the award of contract and the Bid Security of that bidder will be forfeited. The Bid Security of the other bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh (7th) consecutive calendar day after the effective date of the Agreement or the ninety-fifth (95th) consecutive calendar day after the bid opening, whereupon, the Bid Security furnished by such bidders will be returned. Bid Security with bids which are not competitive will be returned within seven (7) consecutive calendar days after the contract award.
- C. Should the bidder to whom the Contract is awarded refuse or neglect to execute and file the contract and bonds within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, Owner may annul award of Contract and the Bid Security filed with the bid shall become the property of Owner, not as a penalty, but as liquidated damages. Owner reserves the right to award canceled Contract to next responsible, lowest and best bidder as it deems to be in the best interest of the County.
- D. Owner will have the right to retain the bid security of all bidders until either:
 - 1. the Contract has been executed and the bonds have been furnished, or
 - 2. the specified time has elapsed so that bids may be withdrawn, or
 - 3. all bids have been rejected.

1.11 PERFORMANCE BOND, LABOR & MATERIAL PAYMENT BOND, MAINTENANCE BOND

- A. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a Performance Bond in the amount of one hundred percent (100%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.
- B. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a Payment Bond in the amount of one hundred percent (100%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other

applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.

- C. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a one (1) year Maintenance Bond in the amount of ten percent (10%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.
- D. The Contractor must demonstrate to Owner that it can secure the required performance and payment bonds, issued by a corporate surety company authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. Contractor must also demonstrate that the bond is not in excess of ten percent (10%) of the corporate surety company's capital and surplus. To the extent the amount of the bond exceeds ten percent (10%) of the corporate surety company's capital and surplus, such bond will not be accepted unless bidder provides written certification that the corporate surety company has reinsured the portion of the risk that exceeds ten percent (10%) of the corporate surety company's capital and surplus with one or more insurers who are duly authorized, accredited or trusted to do business in the State of Texas. The amount reinsured by any reinsurer must not exceed ten percent (10%) of the reinsurer's capital and surplus.
- E. The Contractor must file with the performance bond and payment bond, all documents and information necessary to establish that the agent signing the bond is authorized to write the bond in the amount requested, and if applicable, that reinsurance requirements, have been met, including limits and ratings or other evidence of company solvency.
- F. If the corporate surety company on any bond furnished by Contractor to Owner is declared bankrupt or becomes insolvent or such corporate surety company's right to do business in the State of Texas is revoked, the Contractor shall within five (5) consecutive calendar days thereafter substitute another bond and corporate surety company, both of which shall be acceptable to Owner.

1.12 FILING BID

- A. All Bids, proposals, or submittals submitted in hard copy paper form shall be submitted in a sealed envelope, plainly marked on the outside with the Invitation for Bid (IFB) number and name. A hard copy paper form bid, proposal, or submittal shall be manually signed in ink by a person having the authority to bind the firm in a contract. Submittals, bids or proposals shall be mailed or hand delivered to the Collin County Purchasing Department.
- B. No oral, telegraphic or telephonic submittals will be accepted. Bids, proposals, or submittals may be submitted in electronic format via Collin County eBid at <https://collincountytx.ionwave.net>.
- C. All Bids, submittals or proposals submitted electronically via Collin County eBid at <https://collincountytx.ionwave.net> shall remain locked until official date and time of opening as stated in the Special Terms and Conditions of the IFB.
- D. For hard copy paper form bids, proposals, or submittals, any alterations made prior to opening date and time must be initialed by the signer of the bid, proposal, or submittal, guaranteeing authenticity. Bids, proposals, or submittals cannot be altered or amended after submission deadline.

- E. No bid, proposal, or submittal will be considered unless it is filed with the Owner Purchasing Department within the time limit for receiving bids as stated in the Advertisement for Bids or IFB. Each hard copy paper bid shall be in a sealed envelope plainly marked with the word "BID", and the name and bid number of the project as designated in the Advertisement for Bids or IFB.

1.13 MODIFICATION AND WITHDRAWAL OF BID

- A. No bid, proposal, or submittal may be withdrawn or modified after the bid opening except where the award of the contract has been delayed beyond ninety (90) consecutive calendar days after date of bid opening or as per Texas Local Government Code, Title 8, Chapter 262, Subchapter C., Section 262.0305. Modifications after Award.

1.14 IRREGULAR BID

- A. It is understood that Collin County, Texas reserves the right to accept or reject any and/or all Bids, proposals, or submittals for any or all products and/or services covered in an Invitation For Bid (IFB) and to waive informalities or defects in submittals or to accept such submittals as it shall deem to be in the best interest of Collin County.

1.15 REJECTION OF BID

- A. The bidder acknowledges the right of Owner to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the bidder recognizes the right of Owner to reject a bid if the bidder failed to furnish any required Bid Security, or to submit the data required by the Bidding Documents, or if the bid is in any way incomplete or irregular.

1.16 METHOD OF AWARD

- A. In evaluating bids, Owner will consider whether or not the bids comply with the prescribed requirements, base prices, any alternates, unit pricing, completion time, bidder's qualifications, bidder's proposed subcontractors, suppliers, etc., and other data as may be requested in the Bid Documents.
- B. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of bidder, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Bidding Documents to Owner's satisfaction within the prescribed time.
- C. If the contract is to be awarded, it will be awarded to the lowest and best responsible bidder whose evaluation, by Owner, indicates to be in the best interests of the project. If no alternates are selected by Owner, the Owner may award the contract to a responsible bidder who submits the lowest and best bid.
- D. Evaluation of Alternates - Any and/or all or none of the alternates may be considered in evaluation. Owner may award Contract on base bid plus any and/or all or none of the alternates.
- E. Owner anticipates award within ninety (90) consecutive calendar days after bid opening.
- F. The bid, when properly accepted by the County, shall constitute a Contract equally binding between the contractor and Owner. No different or additional terms will become part of this Contract with the exception of a written Change Order, signed by both parties.

- G. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by Collin County Purchasing Agent.

1.17 EXECUTION OF CONTRACT

- A. The person or persons, partnership, company, firm, association or corporation to whom a contract is awarded shall within ten (10) consecutive calendar days after such award, sign the necessary contract agreements and submit the required bonds entering into the required Contract with Owner. No contract shall be binding on Owner until it has been executed by Owner or his/her duly authorized representative, and delivered to the Contractor.

1.18 FAILURE TO EXECUTE CONTRACT

- A. The failure of the Bidder to execute the required bonds or to sign the required Contract within ten (10) consecutive calendar days after the Contract is awarded, shall be considered by Owner as abandonment of his/her Bid, and Owner may annul the award, at the Owner's sole discretion.

1.19 PURCHASE ORDER

- A. A purchase order(s) shall be generated by Owner to the contractor. The purchase order number **must** appear on all itemized invoices. Collin County will not be responsible for any orders placed or delivered without a valid purchase order number.

1.20 NOTICE TO PROCEED

- A. Upon the execution and delivery of Bonds, Executed Contract by Contractor, progress schedule, proof of insurance, and all other documents required prior to commencing work herein, Owner will issue a written Notice to Proceed to the Contractor requesting that he/she proceed with construction, and the Contractor shall commence work within ten (10) consecutive calendar days after the date of Notice to Proceed.

1.21 PAYMENT PROCEDURES

- A. Contractor shall submit Applications for Payment in accordance with the Contract, and payments shall be made in accordance with the Contract Documents.
- C. Final Payment: Upon final completion and acceptance of the work, Owner shall pay the remainder of the contract price as recommended by Engineer, in accordance with Texas Government Code, Title 10, Subtitle F., Chapter 2251. Contractor(s) is required to pay subcontractors within ten (10) days after the contractor has received payment from the County.
- D. The Contractor understands, acknowledges and agrees that if the Contractor subcontracts with a third party for services and/or material, the primary Contractor (awardee) accepts responsibility for full and prompt payment to the third party. Any dispute between the primary Contractor and the third party, including any payment dispute, will be promptly remedied by the Contractor. Failure to promptly render a remedy or to make prompt payment to the third party (subcontractor) may result in the withholding of funds from the primary Contractor by Collin County for any payments owed to the third party.

1.22 AFFIDAVIT OF BILLS PAID

- A. Prior to final acceptance of this project by Owner, the Contractor shall execute an affidavit that all bills for labor, materials, and incidentals incurred in the project construction have been paid in full, and that there are no claims pending.

1.23 EXEMPTION FROM STATE OF TEXAS AND LOCAL SALES TAX ON MATERIALS

- A. Owner qualifies for exemption from State and Local Sales Tax pursuant to the provisions of Chapter 151, Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act. The Contractor performing this Contract may purchase all materials, supplies, equipment consumed in the performance of this Contract by issuing to his/her suppliers an exemption certificate in lieu of the tax. .

1.24 CONFLICT OF INTEREST

- A. No public official shall have interest, direct or indirect, in this contract, in accordance with Texas Local Government Code Title 5, Subtitle C, Chapter 171.

1.25 ETHICS

- A. The bidder/contractor shall comply with Commissioners Court Order No. 96-680-10-28, Establishment of Guidelines & Restrictions Regarding The Acceptance of Gifts by County Officials & County employees.

1.26 BID COMPLIANCE

- A. Bid must comply with all federal, state, county and local laws concerning this type of project and the fulfillment of all ADA (Americans With Disabilities Act) requirements.
- B. Design, strength, quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practice.
- C. All products must be new and unused, unless otherwise specified, in first-class condition and of current manufacture.

1.27 DRUG FREE

- A. All bidders shall provide any and all notices as may be required under the Drug-Free Work Place Act of 1988, 41 U.S.C. 701, and Collin County Commissioners' Court Order No. 90-455-06-11, to its employees and all sub-contractors to insure that Owner maintains a drug-free work place. The use, possession or being under the influence of drugs and/or alcohol while working on this bid project or while on County property is prohibited and may result in removal of an individual from the project and/or immediate termination of contract. The County reserves the right to review drug testing records of any personnel involved in this bid project. The County may require, at contractor's expense, drug testing of contractor's personnel if no drug testing records exists or if such test results are older than six (6) months.
- B. Substances and cut-off levels are as follows:

<u>SUBSTANCE</u>	<u>MAXIMUM LEVEL</u>
Amphetamines	1000 NG/ML
Barbiturates	300 NG/ML
Benzodiazepines	300 NG/ML
Cocaine Metabolite	300 NG/ML
Opiates	300 NG/ML
Phencyclidine (PCP)	25 NG/ML

THC (Marijuana) Metabolite	100 NG/ML
Methadone, Urinary	300 NG/ML
Methaquaone, Urine	300 NG/ML
Propoxyphene	300 NG/ML

1.28 INDEMNIFICATION

- A. To the fullest extent permitted by law, the CONTRACTOR and his sureties shall indemnify, defend and hold harmless the OWNER and all of its, past, present and future, officers, agents and employees from all suits, cause of action, claims, liabilities, losses, fines, penalties, liens, demands, obligations, actions, proceedings, of any kind, character, name and description brought or arising, on account of any injuries or damages received or sustained by any person, destruction or damage to any property on account of, in whole or part, the operations of the CONTRACTOR, his agents, employees or subcontractors; or on account of any negligent act or fault of the CONTRACTOR, his agents, employees or subcontractors in the execution of said Contract; failing to comply with any law, ordinance, regulation, rule or order of any governmental or regulatory body including those dealing with health, safety, welfare or the environment; on account of the failure of the CONTRACTOR to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the OWNER growing out of such injury or damage. In no event shall OWNER be liable to CONTRACTOR for indirect or consequential damages or loss of income or profit irrespective of the cause, fault or reason for same. CONTRACTOR'S duty to indemnify herein shall not be limited by any limitation on the type or amount of damages payable by or for CONTRACTOR or any Subcontractor under workman's compensation acts, disability benefit acts or any other employee benefit acts.

In addition, the CONTRACTOR likewise covenants and agrees to, and does hereby, indemnify and hold harmless the OWNER from and against any and all injuries, loss or damages to property of the OWNER during the performance of any of the terms and conditions of this Contract, arising out of or in connection with or resulting from, in whole or in part, any and all alleged acts or omissions of officers, agents, servants, employees, contractors, subcontractors, licenses or invitees of the CONTRACTOR.

The rights and responsibilities provided in this indemnification provision shall survive the termination or completion of this Contract.

1.29 CONSTRUCTION SCHEDULE

- A. The time for completion is set forth herein and will be included in the Contract. All work shall be completed within the consecutive calendar day count shown in the Contractor's bid. The calendar day count shall commence ten (10) consecutive calendar days after the date of the Notice to Proceed.
- B. Prior to the issuance of the Notice to Proceed by Owner, the Contractor shall submit a detailed progress and schedule chart to Owner for review. This chart will be used to assure completion of the job within the number of consecutive calendar days stated in bid documents.

1.30 DELAYS AND EXTENSIONS OF TIME

- A. If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Engineer, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending mediation and arbitration,

or by other causes which the Engineer determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Engineer may determine.

- B. If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that the weather conditions had an adverse effect on the scheduled construction.
- C. Contractor's sole remedy for any delays in the project, which are not the fault of the Contractor, shall be an equitable extension of time to perform the work, required by the Contract. In no event shall the Contractor be entitled to make a claim for delay, impact or acceleration damages against the Owner.

1.31 DAMAGES

A. Should the contractor fail to complete the project within the specified completion schedule the sum of \$175.00 per calendar day will be deducted from the moneys due the contractor for the work. This sum shall not be considered as a penalty, but rather as reasonable liquidated damages, since it would be impracticable or extremely difficult to fix the actual damages. An extension of time may be allowed for delays beyond the control of the contractor at the discretion of Owner.

1.32 TERMINATION

This contract shall remain in effect until any of the following occurs:

- A. completion of project;
- B. acceptance of work ordered; or
- C. termination by either party pursuant to the terms of the Contract with a thirty (30) days written notice prior to cancellation that must state therein the reasons for such cancellation.
- D. Breach of the contract by the Contractor for failure
 - 1. to meet completion schedules, or
 - 2. otherwise perform in accordance with these specifications.

Breach of contract or default authorizes the County to purchase elsewhere and charge the full increase in cost and handling to the defaulting Contractor.

1.33 PATENTS - COPYRIGHTS

A. The contractor agrees to protect Owner from any claims involving infringements of patents and/or copyrights. In no event shall Owner be liable to a contractor for any/all suits arising on the grounds of patent(s) or copyright(s) infringement.

1.34 VENUE; GOVERNING LAW

A. This contract will be governed by the laws of the State of Texas. Should any portion of this contract be in conflict with the laws of the State of Texas, the State laws shall invalidate only that portion. The remaining portion of the contract shall remain in effect. This contract is performable in Collin County, Texas.

1.35 ASSIGNMENT

A. The contractor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written approval from Collin County Commissioners' Court.

1.36 SILENCE OF SPECIFICATION

- A. The apparent silence of any part of the specification as to any detail or to the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of the specification shall be made on the basis of this statement.

1.37 PROVISION CONCERNING ESCALATOR CLAUSES

- A. Bid(s) containing any condition which provides for changes in the stated bid prices due to increase or decrease in the costs of materials, labor, or other items required for this project, will be rejected and returned to the bidder without being considered.

1.38 ESTIMATES OF QUANTITIES

- A. The quantities listed in the Bid Form will be considered as approximate and will be used for the comparison of bids. Payments will be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the contract. The quantity of work to be done and the materials may be increased or decreased as provided for in the Contract Documents.

1.39 TREE PROTECTION OUTSIDE LIMITS OF WORK

- A. The Contractor will be required to obtain written authorization from Owner for the removal of any tree three inches (3") in diameter or greater for any area outside the limits of the street right-of-way or slope easement. It is the intent of Owner to preserve as much as possible the natural condition of the floodplains.

1.40 EXCAVATION/TRENCH SAFETY

A. TRENCH SAFETY

The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to trench safety, including those which may be enacted during the performance under this contract. The CONTRACTOR shall be responsible for selecting an appropriate method of providing trench safety after due consideration of the job conditions, location of utilities, pavement conditions and other relevant factors. Slope-back methods which may result in unnecessary displacement of utilities and/or destruction of pavement may not be used without permission from the OWNER. The CONTRACTOR shall be responsible for providing to the OWNER an acceptable trench safety plan signed and sealed by a Professional Engineer qualified to do such work and registered in Texas. Devices used to provide trench safety such as trench shields and shoring systems will be likewise certified by professional Engineers registered in the State of Texas or by a professional Engineer registered in the state of manufacture of the shield.

B. PAYMENT FOR TRENCH SAFETY

Payment for trench safety shall be by the lineal feet of trench exceeding a depth of five (5) ft. Excavation for slope-back methods shall be subsidiary to the trench safety pay item including replacement and recompaction. Excess excavation for other trench safety methods is also subsidiary to the trench safety pay item. Costs relating to the preparation of the trench safety plan including geotechnical investigation, testing and report preparation fees are all

subsidiary to the pay item for trench safety. Should trench safety measures be required during contract performance where no pay item has been provided, then the CONTRACTOR shall immediately notify the OWNER and, if directed to do so, provide trench safety under the provisions of the contract. Should the OWNER fail to authorize the work, then the CONTRACTOR shall proceed under the provisions of the Contract. Trench safety requirements are mandatory and may not be waived.

C. PAYMENT FOR SPECIAL SHORING

Payment for special shoring, if any, shall be based on the square feet of shoring used.

- D. The Contractor must be made aware that on construction projects in which trench excavation will exceed a depth of five feet (5'), the uniform set of general conditions must require that the bid documents and the contract include detailed plans and specifications for adequate safety systems that meet Occupational Safety and Health Administration standards that will be in effect during the period of construction of the project. The Contractor shall provide a separate pay item for trench excavation safety in accordance with the Texas Health & Safety Code Chapter 756. The Contractor shall verify that these plans and specifications include a pay item for these same trench excavation safety systems, in accordance with Texas Government Code, Title 10, Section 2166.303, Uniform Trench Safety Conditions. The contractor shall insure that drainage from adjacent properties is not blocked by his/her excavations. Measurement and payment for excavation/trench safety systems will not be made directly, but considered subsidiary to the work.
- E. The Contractor shall be responsible for obtaining and paying for all surveys and testing, including geotechnical surveys and testing, necessary to insure it can comply with all laws regarding adequate trench excavation safety.

1.41 CONSTRUCTION STAKING

- A. Engineer will provide the Contractor with primary horizontal and vertical control to consist of one construction baseline and two benchmarks.
- B. The Contractor shall take all necessary precautions to preserve any and/or all markings and staking. Payment for costs of restaking shall be the responsibility of the Contractor.

1.42 PERMITS

- A. Contractor shall be responsible for obtaining all necessary permits.

1.43 MATERIALS TESTING

- A. Owner will be responsible for all materials testing.

1.44 WAGE SCALE

- A. In accordance with Texas Government Code, Title 10, Section 2258, Prevailing Wage Rates, the general prevailing wage rate has been determined for this locality for the craft or type of workman needed to execute work of a similar character of the project listed herein. The Contractor shall pay the prevailing wage rate in this locality to all his/her employees and subcontractors performing work on this project, and in no event shall the Contractor pay less than the rate shown in the following schedule.

"General Decision Number: TX20200239 08/28/2020

Superseded General Decision Number: TX20190239

State: Texas

Construction Type: Building

County: Collin County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	02/14/2020
2	08/28/2020

ASBE0021-011 06/01/2016

Rates	Fringes
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ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)....\$	24.32	7.52
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BOIL0074-003 01/01/2017

Rates	Fringes
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BOILERMAKER.....\$	28.00	22.35
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CARP1421-002 04/01/2016

	Rates	Fringes
MILLWRIGHT.....	\$ 26.60	8.65

 ELEV0021-006 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 42.59	34.765

FOOTNOTES:

A. 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.

B. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Veterans Day.

 * ENGI0178-005 06/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane.....	\$ 32.85	13.10
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above.....	\$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under.....	\$ 32.35	13.10

 IRON0263-005 06/01/2017

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND STRUCTURAL).....	\$ 23.25	7.32

 PLUM0100-005 11/01/2017

	Rates	Fringes
HVAC MECHANIC (HVAC Unit Installation Only).....	\$ 30.84	11.51
PIPEFITTER (Excludes HVAC Pipe Installation).....	\$ 30.84	11.51

 SUTX2014-015 07/21/2014

	Rates	Fringes
BRICKLAYER.....	\$ 21.06	0.00
CARPENTER, Excludes Drywall Hanging, Form Work, and Metal Stud Installation.....	\$ 15.78	0.00
CAULKER.....	\$ 15.16	0.00
CEMENT MASON/CONCRETE FINISHER...	\$ 13.04	0.00
DRYWALL HANGER AND METAL STUD INSTALLER.....	\$ 13.00	0.00
ELECTRICIAN (Alarm Installation Only).....	\$ 20.93	3.86
ELECTRICIAN (Communication Technician Only).....	\$ 15.35	1.39
ELECTRICIAN (Low Voltage Wiring Only).....	\$ 17.04	1.39
ELECTRICIAN, Excludes Low Voltage Wiring and Installation of Alarms/Sound and Communication Systems.....	\$ 20.01	2.69
FORM WORKER.....	\$ 11.89	0.00
GLAZIER.....	\$ 16.46	3.94
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine).....	\$ 10.04	2.31
INSTALLER - SIDING (METAL/ALUMINUM/VINYL).....	\$ 14.74	0.00
INSTALLER - SIGN.....	\$ 15.50	0.00
INSULATOR - BATT.....	\$ 13.00	0.00
IRONWORKER, REINFORCING.....	\$ 12.29	0.00
LABORER: Common or General.....	\$ 10.52	0.00
LABORER: Mason Tender - Brick...	\$ 10.54	0.00
LABORER: Mason Tender -		

Cement/Concrete.....	\$ 10.93	0.00
LABORER: Pipelayer.....	\$ 13.00	0.35
LABORER: Plaster Tender.....	\$ 12.22	0.00
LABORER: Roof Tearoff.....	\$ 11.28	0.00
LABORER: Landscape and Irrigation.....	\$ 10.55	0.00
LATHER.....	\$ 16.00	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 12.83	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 13.93	0.00
OPERATOR: Bulldozer.....	\$ 18.29	1.31
OPERATOR: Drill.....	\$ 15.69	0.50
OPERATOR: Forklift.....	\$ 13.21	0.81
OPERATOR: Grader/Blade.....	\$ 13.03	0.00
OPERATOR: Loader.....	\$ 13.46	0.85
OPERATOR: Mechanic.....	\$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 18.44	0.00
OPERATOR: Roller.....	\$ 15.04	0.00
PAINTER (Brush, Roller and Spray), Excludes Drywall Finishing/Taping.....	\$ 13.35	5.10
PAINTER: Drywall Finishing/Taping Only.....	\$ 14.24	3.83
PIPEFITTER (HVAC Pipe Installation Only).....	\$ 20.45	4.00
PLASTERER.....	\$ 16.58	0.00
PLUMBER, Excludes HVAC Pipe Installation.....	\$ 22.46	4.06

ROOFER.....	\$ 17.19	0.00
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 21.13	4.79
SHEET METAL WORKER, Excludes HVAC Duct Installation.....	\$ 24.88	5.97
SPRINKLER FITTER (Fire Sprinklers).....	\$ 37.50	0.00
TILE FINISHER.....	\$ 11.22	0.00
TILE SETTER.....	\$ 14.25	0.00
TRUCK DRIVER: 1/Single Axle Truck.....	\$ 16.00	0.81
TRUCK DRIVER: Dump Truck.....	\$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck.....	\$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck.....	\$ 12.50	0.00
TRUCK DRIVER: Water Truck.....	\$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a

union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

- B. Except for work on legal holidays, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) the number of hours worked per day, except for overtime hours, times (b) the above respective rate per hour.

- C. For legal holidays, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on the legal holiday.
- D. For overtime work, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on overtime.
- E. Under the provisions of Texas Government Code, Title 10, Section 2258, Prevailing Wage Rates, the contractor or subcontractor of the contractor shall forfeit as a penalty to the entity on whose behalf the contract is made or awarded, sixty dollars (\$60.00) for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the contract.
- F. If the construction project involves the expenditure of Federal funds in excess of \$2,000, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on the project of a character similar to the contract work.

1.45 Collin County Purchasing Department shall serve as Contract Administrator or shall supervise agents designated by Collin County.

1.46 All warranties shall be stated as required in the Uniform Commercial Code.

1.47 The Contractor and Collin County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

1.48 Contractor shall not fraudulently advertise, publish or otherwise make reference to the existence of a contract between Collin County and Contractor for purposes of solicitation. As exception, Contractor may refer to Collin County as an evaluating reference for purposes of establishing a contract with other entities.

1.49 Contractor shall provide Collin County with diagnostic access tools at no additional cost to Collin County, for all Electrical and Mechanical systems, components, etc., procured through this contract.

1.50 **CRIMINAL HISTORY BACKGROUND CHECK:** If required, ALL individuals may be subject to a criminal history background check performed by the Collin County's Sheriff's Office prior to access being granted to Collin County property or facilities. Upon request, Contractor shall provide list of individuals to Collin County within five (5) working days.

1.51 Vendors/Contractors/Providers must be in compliance with the Immigration and Reform Act of 1986 and all employees specific to this solicitation must be legally eligible to work in the United States of America.

1.52 **CERTIFICATION OF ELIGIBILITY:** This provision applies if the anticipated Contract exceeds \$100,000.00 and as it relates to the expenditure of federal grant funds. By submitting a bid or proposal in response to this solicitation, the Bidder/Quoter/Offeror certifies that at the time of submission, he/she is not on the Federal Government's list of suspended, ineligible, or debarred contractors. In the event of placement on the list between the time of bid/proposal submission and time of award, the Bidder/Quoter/Offeror will notify the Collin County Purchasing Agent. Failure to do so may result in terminating this contract for default.

1.53 NOTICE TO CONTRACTORS: The Collin County Detention Facility houses persons who have been charged with and/or convicted of serious criminal offenses. When entering the Detention Facility, you could: (1) hear obscene or graphic language; (2) view partially clothed male inmates; (3) be subjected to verbal abuse or taunting; (4) risk physical altercations or physical contact, which could be minimal or possibly serious; (5) be exposed to communicable or infectious diseases; (6) be temporarily detained or prevented from immediately leaving the Detention Facility in the case of an emergency or “lockdown; and (7) subjected to a search of your person or property. While the Collin County Sheriff’s Office takes every reasonable precaution to protect the safety of visitors to the Detention Facility, because of the inherently dangerous nature of a Detention Facility and the type of the persons incarcerated therein, please be advised that the possibility of such situations exist and you should carefully consider such risks when entering the Detention Facility. By entering the Collin County Detention Facility, you acknowledge that you are aware of such potential risks and willingly and knowingly choose to enter the Collin County Detention Facility.

1.54 Contractors doing business with OWNER agree to comply with Federal Executive Order 13465 E-Verify. It is OWNER’s intention and duty to comply and support the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification and non-discrimination. According to the INA, contractors/employers may hire only persons who may legally work in the United States. Subsequently, contractors and subcontractors doing business with OWNER must confirm their enrollment in the E-Verify system which verifies employment eligibility through completion and checking of I-9 forms. OWNER reserves the right to audit contractors process to verify enrollment compliance.

1.55 INSURANCE REQUIREMENTS

A. CONTRACTOR’S INSURANCE

1. Before commencing work, the CONTRACTOR shall be required, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) required by Texas Law, and the coverages required herein, indicating the coverage is to remain in force throughout the term of this Contract. CONTRACTOR shall also be required to furnish the Collin County Purchasing Agent with certified copies of subcontractor’s insurance certificates required by the Texas Department of Insurance, Division of Workers’ Compensation, section 406.096(b), and coverages required herein in section 4.2. Without limiting any of the other obligations or liabilities of the CONTRACTOR, during the term of the Contract the CONTRACTOR and each subcontractor, at their own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the OWNER. Certificates of each policy for the CONTRACTOR and each subcontractor shall be delivered to the OWNER before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, nonrenewed or materially changed without 30 days advance written notice being given to the OWNER.

2. In addition to any coverage required by Texas Law, the CONTRACTOR shall provide the following coverages at not less than the specified amounts:

B. Workers Compensation insurance required by Texas Law at statutory limits, including employer’s liability coverage at \$1,000,000. In addition to these, the CONTRACTOR and each subcontractor must comply with all the requirements of the Texas Department of Insurance, Division of Workers’ Compensation, section

406.096(b); (Note: If you have questions concerning these requirements, you are instructed to contact the DWC.)

1. By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and its subcontractors who will provide services on the Project will be covered by workers compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

2. The CONTRACTOR'S failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the OWNER to declare the Contract void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the OWNER.

- C. Broad form commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability, written on an occurrence form, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S and its subcontractors liability for injury to or death of OWNER'S employees and third parties, extended to include personal injury liability coverage with damage to property, with minimum limits as set forth below:
- General Aggregate \$2,000,000
 - Products — Components/Operations Aggregate \$2,000,000
 - Personal and Advertising Injury \$ 1,000,000
 - Each Occurrence \$ 2,000,000

1. The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER.

- D. Comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence; or separate limits of \$1,000,000 for bodily injury (per person), \$1,000,000 for bodily injury (per accident) and \$1,000,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.
- E. OWNER'S PROTECTIVE LIABILITY INSURANCE
CONTRACTOR shall obtain, pay for and maintain at all times during the prosecution of the work under this contract an OWNER'S protective liability insurance policy naming the OWNER as insured for property damage and bodily injury, which may arise in the prosecution of the Work or CONTRACTOR'S operations under this Contract. Coverage shall be on an "occurrence" basis, and the policy shall be issued by the same insurance company that carries the

CONTRACTOR'S liability insurance with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence and \$1,000,000 aggregate.

F. "UMBRELLA" LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring CONTRACTOR for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows from and applies in excess of the primary liability coverages required hereinabove. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted. OWNER shall be named as an additional insured.

G. RAILROAD PROTECTIVE INSURANCE

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved. The minimum limit of coverage shall meet the specifications provided by the railroad company. The OWNER shall specify the amount of RPI necessary.

H. POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

1. Each insurance policy to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

- (a) each policy shall name the OWNER as an additional insured as to all applicable coverage;
- (b) each policy shall require that 30 days prior to the cancellation, nonrenewal or any material change in coverage, a notice thereof shall be given to OWNER by certified mail;
- (c) the term "OWNER" shall include all past, present or future, authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and individual members, elected official, officers, employees and agents thereof in their official capacities and/or while acting on behalf of the OWNER;
- (d) the policy phrase "other insurance" shall not apply to the OWNER where the OWNER is an additional insured on the policy;
- (e) all provisions of the contract concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies;
- (f) each policy shall contain a waiver of subrogation in favor of OWNER, and its, past, present and future, officials, employees, and volunteers; and, (g) each certificate of insurance shall reference the Project and Contract number, contain all the endorsement required herein, and require a notice to the OWNER of cancellation.

2. Insurance furnished by the CONTRACTOR shall be in accordance with the following requirements:

- (a) any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements

to be fulfilled by the CONTRACTOR. The OWNER'S decision thereon shall be final;

(b) all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas with a financial ratings of A+ VII or better as assigned by BEST Rating Company or equivalent; and

(c) All liability policies required herein shall be written with an "occurrence" basis coverage trigger.

3. CONTRACTOR agrees to the following:

(a) CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies;

(b) Companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

(c) Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the Contract Documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability; and

(d) No special payments shall be made for any insurance that the CONTRACTOR and subcontractors are required to carry; all are included in the Contract Price and the Contract unit prices. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

1.56 Vendors/Contractors/Providers must be in compliance with the provisions of Section 2252.152 and Section 2252.153 of the Texas Government Code which states, in part, contracts with companies engaged in business with Iran, Sudan, or Foreign Terrorist Organizations are prohibited. A governmental entity may not enter into a contract with a company that is listed on the Comptroller of the State of Texas website identified under Section 806.051, Section 807.051 or Section 2253.253 which do business with Iran, Sudan or any Foreign Terrorist Organization. This Act is effective September 1, 2017.

1.57 Force Majeure: No party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation: acts of God; flood, fire or explosion; war, invasion, riot or other civil unrest; actions, embargoes or blockades in effect on or after the date of this Agreement; or national or regional emergency (each of the foregoing, a "Force Majeure Event"). A party whose performance is affected by a Force Majeure Event shall give notice to the other party, stating the period of time the occurrence is expected to continue and shall use diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event.

Section 004100-Bid Form



Collin County Purchasing

2021-014

Construction, Collin County Juvenile Detention, Video Retrofit

Issue Date: 11/17/2020

Questions Deadline: 12/11/2020 12:00 PM (CT)

Response Deadline: 12/17/2020 02:00 PM (CT)

Collin County Purchasing

Contact Information

Contact: JD Griffin, CPPB Buyer II

Address: Purchasing

Admin. Building

Ste.3160

2300 Bloomdale Rd.

Ste. 3160

McKinney, TX 75071

Phone: (972) 548-4116

Fax: (972) 548-4694

Email: jgriffin@co.collin.tx.us

Event Information

Number: 2021-014
Title: Construction, Collin County Juvenile Detention, Video Retrofit
Type: Invitation for Bid - Construction
Issue Date: 11/17/2020
Question Deadline: 12/11/2020 12:00 PM (CT)
Response Deadline: 12/17/2020 02:00 PM (CT)
Notes: Please log in to view bid documents.
SCOPE OF WORK INCLUDES all materials, labor, equipment and services to produce or be incorporated in such construction. Contract will be a general contract to include replacement of all existing cameras, video viewing stations and video surveillance head-end equipment at Collin County Juvenile Detention. New cameras shall be IP based, high definition.

Ship To Information

Address: Juvenile Detention
4700 Community Ave.
McKinney, TX 75071

Billing Information

Address: Auditor
Admin. Building
Ste. 3100
2300 Bloomdale Rd.
Ste. 3100
McKinney, TX 75071

Bid Activities

Mandatory Pre-Bid Conference (RSVP Required)

12/1/2020

A MANDATORY PRE-BID CONFERENCE will be held by Collin County at the Collin County Juvenile Detention Lobby, 4700 Community Ave., McKinney, TX 75071 on Tuesday, December 1, 2020 in order for bidders to ask questions regarding the proposed work. All bidders desiring to bid the work should have a representative at the pre-bid conference; bidders that do not attend the pre-bid conference shall not be considered in the evaluation for award of a contract per Texas Local Government Code 262.0256. Attendance shall be mandatory at the pre-bid conference. It is the bidder's responsibility to review the site and documents to gain a full understanding of the requirements of the bid.

Due to the current COVID-19 social distancing recommendations, a limit of six (6) attendees will be allowed during each session in addition to three (3) County representatives. Each contractor attending shall be limited to two (2) participants. All participants will be required to provide and wear a face mask that covers the mouth and nose, have temperature checked and complete a Covid-19 screening questionnaire upon arrival. The first conference session will begin at 9:00 AM followed by sessions at 10:00 AM, 11:00 AM and 1:00 PM (as needed). Bidders interested in attending the pre-bid conference shall RSVP to purchasing@co.collin.tx.us with "2021-014, Collin County Juvenile Detention, Video Retrofit" in the subject line, no later than Monday, November 30, 2020 at 12:00 PM. RSVP response shall include company name, name of individuals that will be attending (maximum of 2) and the preferred session time. Attendees for each session will be scheduled in the order they are received.

Bid Attachments

LEGAL NOTICE-2021-014.doc

[Download](#)

Legal Notice

Specifications

Drawings

Requested Attachments

Conflict of Interest Questionnaire

W-9

(Attachment required)

Bid Bond

(Attachment required)

BID SECURITY: All Bidders must submit, prior to the bid opening time, a Certified Check, Cashier’s Check or acceptable Bid Bond payable without recourse to Collin County in the amount of not less than five percent (5%) of the total bid plus alternates as submitted.

1. Bid Bond, certified check or Cashier’s Check may be mailed or delivered to the Office of the Collin County Purchasing Agent, Collin County Administration Building, 2300 Bloomdale Road, Ste 3160, McKinney, TX 75071 and shall be delivered in an envelope, marked plainly on the outside with the Bid Name and Number.
2. Bidders submitting a bid via Collin County eBid shall upload a Bid Bond at <https://collincountytx.ionwave.net>

Regardless of delivery method, all Bid Bonds shall be received prior to the bid opening time to be considered. Failure to submit a copy of bid security prior to bid opening shall be cause for rejection of bid.

The original Bid Bond shall be received in the Collin County Purchasing Department no later than close of business on the third working day after the bid opening. Late receipt of original Bid Bond shall be cause for rejection of bid.

Bid Attributes

1	<p>Solicitation Submittals</p> <p>In an effort to avoid person-to-person interaction to comply with the latest Order issued to prevent the spread of COVID-19, Collin County Purchasing will temporarily only accept IFB, RFP, RFQ and Quote submittals electronically in Ionwave (eBid) or via parcel carrier until further notice. Please do not deliver your solicitation response in person. All bid openings will be completed on schedule and witnessed by Collin County Purchasing staff to ensure all procurement statutes, policies and state laws are followed. Please initial.</p> <hr/> <hr/> <hr/> <p><i>(Required: Maximum 1000 characters allowed)</i></p>
2	<p>eBid Notice</p> <p>Collin County exclusively uses IonWave Technologies, Inc. (Collin County eBid) for the notification and dissemination of all solicitations. The receipt of solicitations through any other means may result in your receipt of incomplete specifications and/or addendums which could ultimately render your bid/proposal non-compliant. Collin County accepts no responsibility for the receipt and/or notification of solicitations through any other means. Please initial.</p> <hr/> <hr/> <hr/> <p><i>(Required: Maximum 1000 characters allowed)</i></p>

3 Contact Information

List the contact name, email address and phone number of the main person(s) Collin County should contact in reference to this solicitation. Contact(s) shall be duly authorized by the company, corporation, firm, partnership or individual to respond to any questions, clarification, and or offers in response to this solicitation.

(Required: Maximum 4000 characters allowed)

4 Base Bid Calendar Days Bid

Please state the consecutive calendar days bid from notice to proceed through completion of project.

(Required: Numbers only)

5 Exceptions

Do you take exceptions to the specifications. If so, by separate attachment, please state your exceptions.

Yes No

(Required: Check only one)

6 Bonding Requirement Acknowledgement

I understand that the bonding requirements of this solicitation are required and are included in the submitted pricing. A bond certificate (payment, performance, and/or maintenance) as stated in the specification document shall be submitted to the Purchasing department if I am awarded all or a portion of the resulting contract. Please initial.

(Required: Maximum 1000 characters allowed)

7 Insurance Acknowledgement – Construction/Public Works

I understand that the insurance requirements of this solicitation are required and are included in the submitted pricing. The Contractor shall furnish certificates of insurance for both the Contractor and any subcontractor to the Purchasing department if awarded all or a portion of the resulting contract. Please initial.

(Required: Maximum 1000 characters allowed)

8 Bidder's Experience

State the number of years' experience installing electronic security systems (refer to Section 28 05 10, 1.6, D.)

(Required: Maximum 1000 characters allowed)

9 Completed Projects

List at least five projects with similar system complexity which have been in successful operation for at least one year (refer to Section 28 05 10, 1.6, D.)

(Required: Maximum 4000 characters allowed)

10 Subcontractors

State the business name of all subcontractors and the type of work they will be performing under this contract. If you are fully qualified to self-perform the entire contract, please respond with "Not Applicable-Self Perform".

(Required: Maximum 4000 characters allowed)

11 Reference No. 1

List a company or governmental agency, other than Collin County, where these same/like products/services, as stated herein, have been provided. Texas references preferred. Include the following: Company/Entity, Contact, Address, City/State/Zip, Phone, and E-Mail.

(Required: Maximum 4000 characters allowed)

12 Reference No. 2

List a company or governmental agency, other than Collin County, where these same/like products/services, as stated herein, have been provided. Texas references preferred. Include the following: Company/Entity, Contact, Address, City/State/Zip, Phone, and E-Mail.

(Required: Maximum 4000 characters allowed)

**1
3** Reference No. 3

List a company or governmental agency, other than Collin County, where these same/like products/services, as stated herein, have been provided. Texas references preferred. Include the following: Company/Entity, Contact, Address, City/State/Zip, Phone, and E-Mail.

(Required: Maximum 4000 characters allowed)

**1
4** Preferential Treatment

The County of Collin, as a governmental agency of the State of Texas, may not award a contract to a nonresident bidder unless the nonresident's bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located (Government Code, Title 10, V.T.C.A., Chapter 2252, Subchapter A).

1. Is your principal place of business in the State of Texas?
2. If your principal place of business is not in Texas, in which State is your principal place of business?
3. If your principal place of business is not in Texas, does your state favor resident bidders (bidders in your state) by some dollar increment or percentage?
4. If your state favors resident bidders, state by what dollar amount or percentage.

(Required: Maximum 4000 characters allowed)

**1
5** Debarment Certification

I certify that neither my company nor an owner or principal of my company has been debarred, suspended or otherwise made ineligible for participation in Federal Assistance programs under Executive Order 12549, "Debarment and Suspension," as described in the Federal Register and Rules and Regulations. Please initial.

(Required: Maximum 1000 characters allowed)

**1
6** Immigration and Reform Act

I declare and affirm that my company is in compliance with the Immigration and Reform Act of 1986 and all employees are legally eligible to work in the United States of America. I further understand and acknowledge that any non-compliance with the Immigration and Reform Act of 1986 at any time during the term of this contract will render the contract voidable by Collin County. Please initial.

(Required: Maximum 1000 characters allowed)

17 Disclosure of Certain Relationships

Chapter 176 of the Texas Local Government Code requires that any vendor considering doing business with a local government entity disclose the vendor's affiliation or business relationship that might cause a conflict of interest with a local government entity. Subchapter 6 of the code requires a vendor to file a conflict of interest questionnaire (CIQ) if a conflict exists. By law this questionnaire must be filed with the records administrator of Collin County no later than the 7th business day after the date the vendor becomes aware of an event that requires the statement to be filed. A vendor commits an offense if the vendor knowingly violates the code. An offense under this section is a misdemeanor. By submitting a response to this request, the vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code. Please send completed forms to the Collin County County Clerk's Office located at 2300 Bloomdale Rd., Suite 2104, McKinney, TX 75071. Please initial.

(Required: Maximum 1000 characters allowed)

18 Anti-Collusion Statement

Bidder certifies that its Bid/Proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a Bid/Proposal for the same materials, services, supplies, or equipment and is in all respects fair and without collusion or fraud. No premiums, rebates or gratuities permitted; either with, prior to, or after any delivery of material or provision of services. Any such violation may result in Agreement cancellation, return of materials or discontinuation of services and the possible removal from bidders list. Please initial.

(Required: Maximum 1000 characters allowed)

19 Disclosure of Interested Parties

Section 2252.908 of the Texas Government Code requires a business entity entering into certain contracts with a governmental entity to file with the governmental entity a disclosure of interested parties at the time the business entity submits the signed contract to the governmental entity. Section 2252.908 requires the disclosure form (Form 1295) to be signed by the authorized agent of the contracting business entity, acknowledging that the disclosure is made under oath and under penalty of perjury. Section 2252.908 applies only to a contract that requires an action or vote by the governing body of the governmental entity before the contract may be signed or has a value of at least \$1 million. Section 2252.908 provides definitions of certain terms occurring in the section. Section 2252.908 applies only to a contract entered into on or after January 1, 2016. Please initial.

(Required: Maximum 1000 characters allowed)

20 Notification Survey

In order to better serve our offerors, the Collin County Purchasing Department is conducting the following survey. We appreciate your time and effort expended to submit your bid. Should you have any questions or require more information please call (972) 548-4165. How did you receive notice of this request?

- Plano Star Courier Plan Room Collin County eBid Notification Collin County Website
 Other

(Required: Check only one)

2 1	Cooperative Contract Name State the cooperative contract name this quote is offered under. (i.e. TX DIR, TXMAS, OMNIA Partners, Buyboard, TIPS/TAPS, HGAC, HCDE, etc.) If none, answer N/A. <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <i>(Required: Maximum 4000 characters allowed)</i>
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2 2	Cooperative Contract Number State the cooperative contract number this quote is offered under. If none, answer N/A. <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <i>(Required: Maximum 4000 characters allowed)</i>
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2 3	Cooperative Contract Website Please provide the website URL for the cooperative contract this quote is offered under. If none, answer N/A. <hr/> <hr/> <hr/> <hr/> <i>(Required: Maximum 1000 characters allowed)</i>
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2 4	Bid Bond Acknowledgement I understand that accompanying this bid, is a certified check, cashier's check or Bid Bond in the amount of five percent (5%) of the total amount bid. Bidders submitting a bid via Collin County eBid shall upload a Bid Bond at https://collincountytx.ionwave.net . Regardless of delivery method, all Bid Bonds shall be received prior to the bid opening time to be considered. I understand that the original Bid Bond shall be received in the Collin County Purchasing Department no later than close of business on the third working day after the bid opening. Late receipt of original Bid Bond shall be cause for rejection of bid. Please initial. <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <i>(Required: Maximum 4000 characters allowed)</i>
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2
5

Construction Acknowledgement

Bidder, declares that the only person or parties interested in this bid are those principals named herein, that his/her bid is made without collusion with any other person, firm or corporation, that he/she has carefully examined the Contract Documents including the Advertisement for Bids, Instruction to Bidders, Construction Agreement, Specifications and the Drawings, therein referred to and has carefully examined the locations, conditions and classes of materials for the proposed work, and agrees that he/she will provide all the necessary labor, machinery, tools, equipment, apparatus and other items incidental to construction and will do all the work and furnish all the materials called for in the Contract Documents in the manner prescribed therein. Bidder hereby declares that he/she has visited the site of the Work and has carefully examined the Contract Documents pertaining to the Work covered by the above Bid, and he/she further agrees to commence work within ten (10) consecutive calendar days after date of written Notice to Proceed and to substantially complete the work on which he/she has bid within the number of days specified subject to such extensions of time allowed by Specifications. Bidder certifies that the bid prices contained in this bid have been carefully checked and are submitted as correct and final. The prices have been shown in words and figures for each item listed in this bid and it is understood that in the event of a discrepancy, the words shall govern. Please initial.

(Required: Maximum 1000 characters allowed)

Bid Lines

1

Package Header

Base Bid Grand Total

Quantity: 1 UOM: lump sum Total: \$

Item Notes: Total Material Cost (Line 1.1) and Total Labor Cost (Line 1.2) must add up to the Base Bid Grand Total.

Supplier Notes:

- No bid
- Alternate specification
(Attach separate sheet)
- Additional notes
(Attach separate sheet)

Package Attributes

1. Base Bid Grand Total- Written in Words

The contract award will be based on the total bid price.

(Required: Maximum 4000 characters allowed)

Package Items

1.1 Total Base Bid Materials Cost Incorporated in Project

(Response required)

Quantity: 1 UOM: lump sum Price: \$ Total: \$

Supplier Notes: _____

- No bid
- Additional notes
(Attach separate sheet)

1.2 Total Base Bid Labor Cost Incorporated in Project

(Response required)

Quantity: 1 UOM: lump sum Price: \$ Total: \$

Supplier Notes: _____

- No bid
- Additional notes
(Attach separate sheet)

2 Add Alternate Bid Item #1: Provide parking camera CS031, CS032 and CS033 and all associated equipment as part of this alternate bid. Base bid shall not include cameras CS031, CS032 and CS033 (Refer to drawing ES1.00, Key Note#4).

(Response required)

Quantity: 1 UOM: lump sum Price: \$ Total: \$

Item Notes: Refer to Section 28 05 10, 1.3.

Alternate Bid Amount shall include all materials and labor. Alternate Bid Amount Shall Not Include the Base Bid Amount.

Supplier Notes: _____

- No bid
- Alternate specification
(Attach separate sheet)
- Additional notes
(Attach separate sheet)

Item Attributes

1. Alternate Bid Item #1-Calendar Days Bid

If Alternate Bid Item #1 is awarded, state the number of consecutive calendar days (if any) to be added to Base Bid Calendar Days Bid.

(Required: Numbers only)

3 Add Alternate Bid Item #2: Provide external microphone for cameras C101, C102, C103, C108, C112, C125, C128, C135, C137 and C218 (Refer to drawing ES101, Key Note#1).

(Response required)

Quantity: 1 UOM: lump sum Price: \$ Total: \$

Item Notes: Refer to Section 28 05 10, 1.3.

Alternate Bid Amount shall include all materials and labor. Alternate Bid Amount Shall Not Include the Base Bid Amount.

Supplier Notes: _____

- No bid
- Alternate specification
(Attach separate sheet)
- Additional notes
(Attach separate sheet)

Item Attributes

1. Alternate Bid Item #2-Calendar Days Bid

If Alternate Bid Item #2 is awarded, state the number of consecutive calendar days (if any) to be added to Base Bid Calendar Days Bid.

(Required: Numbers only)

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004313 BID BOND

STATE OF TEXAS §
COUNTY OF COLLIN §

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____ County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

SIGNED, SEALED and DATED this _____ day of _____ 20_____.

WHEREAS, the Principal is herewith submitting its proposal for IFB 2021-014, Construction, Collin County Juvenile Detention, Video Retrofit

The condition of the above obligations are such that if the aforesaid Principal shall be awarded the Contract, the said Principal will, within the time required, enter into a Contract and give Bonds, if required, for the faithful performance of the Contract and the prompt payment for labor and materials in the prosecution thereof, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the OWNER the full penal sum hereof, as liquidated damages, it being difficult and impractical to determine accurately the actual amount of damages occurring to OWNER by reason of Principal's failure to execute said Contract and Bonds.

PROVIDED FURTHER, that if any legal action be filed on this Bond, venue shall lie in _____ County, Texas.

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone Number: _____

WITNESS

PRINCIPAL

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

SURETY

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

NOTE: CERTIFIED COPY OF POWER-OF-ATTORNEY SHOULD BE ATTACHED HERETO.

Revised 11/2008

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SECTION 00 43 25 - PRODUCT SUBSTITUTION REQUEST FORM

(Must be submitted a minimum of 7 days before the bid date)

Bidder: _____

Project No: **IFB 2021-014**

Project: **Construction, Collin County Juvenile Detention, Video Retrofit**

Section: _____ Article/ Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____

Telephone: _____ Proposed Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its installation.

The undersigned warrants and represents:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by substitution.

Submitted By: _____ Signed: _____

Firm: _____ Address: _____

Phone: _____

REVIEW & ACTION (Initial)

_____ Substitution approved - Make submittals in accordance with Project Manual requirements.

_____ Substitution approved as noted - Make submittals in accordance with Project Manual requirements.

_____ Substitution rejected - Use specified materials.

_____ Substitution Request received too late - Use specified materials.

Signature: _____ Date: _____

Supporting Data Attached: ___ Drawings ___ Product Data ___ Samples ___ Tests ___ Reports ___ Other

END OF REQUEST FORM

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SECTION 004547-CONFLICT OF INTEREST
INFORMATION REGARDING
CONFLICT OF INTEREST QUESTIONNAIRE

During the 79th Legislative Session, House Bill 914 was signed into law effective September 1, 2015, which added Chapter 176 to the Texas Local Government Code. Recent changes have been made to Chapter 176 pursuant to HB23, which passed the 84th Legislative Session. Chapter 176 mandates the public disclosure of certain information concerning persons doing business or seeking to do business with Collin County, including family, business, and financial relationships such persons may have with Collin County officers or employees involved in the planning, recommending, selecting and contracting of a vendor for this procurement.

For a copy of Form CIQ and CIS:

http://www.ethics.state.tx.us/filinginfo/conflict_forms.htm

The vendor acknowledges by doing business or seeking to do business with Collin County that he/she has been notified of the requirements under Chapter 176 of the Texas Local Government Code and that he/she is solely responsible for complying with the terms and conditions therein. Furthermore, any individual or business entity seeking to do business with Collin County who does not comply with this practice may risk award consideration of any County contract.

For a listing of current Collin County Officers:

<http://www.collincountytexas.gov/government/Pages/officials.aspx>

At the time of this solicitation being released, the following County employees are known to be involved in the planning, recommending, selecting, and contracting for the attached procurement:

Department/Evaluation Team:

Bill Burke - Director of Building Projects

Brad Harris - Building Projects Coordinator

Purchasing:

Michelle Charnoski, CPPB – Purchasing Agent

J. D. Griffin, CPPB – Senior Buyer

Commissioners' Court:

Chris Hill – County Judge

Susan Fletcher – Commissioner Precinct No. 1

Cheryl Williams – Commissioner Precinct No. 2

Darrell Hale – Commissioner Precinct No. 3

Duncan Webb – Commissioner Precinct No. 4

Advisors:

MD Engineering, L.P., L.L.P.

1255 W. 15th St., Ste. 300

Plano, TX 75075

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CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

005213 CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT is made and entered into by and between _____, a _____ corporation (hereinafter referred to as "Contractor"), and COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas (hereinafter referred to as "County" or "OWNER"), to be effective from and after the date hereinafter provided.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

CONTRACT SUM

The County shall pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change orders as provided in the Contract Documents. The contract sum shall be the amount of _____ (\$_____).

EFFECTIVE DATE

This Construction Agreement, having been previously approved by the Commissioners' Court of Collin County, Texas, shall be effective upon the date of delivery and execution by Contractor, provided the County executes the same within five (5) consecutive calendar days after said delivery and execution by Contractor.

I. CONTRACT GENERAL PROVISIONS

1.1 DEFINITIONS

Words which have well-known technical or construction industry meanings shall have their commonly understood meanings in the Contract Documents, unless a different meaning is stated in the Contract Documents. The following words and expressions, or pronouns used in their place, shall wherever they appear in this contract be construed as follows, unless a different meaning is clear from the context:

Addendum, Bulletin or Letter of Clarification: Any additional contract provisions, or change, revisions or clarification of the Contract Documents issued in writing by the OWNER, to prospective bidders prior to the receipt of bids.

Contract or Contract Documents: The written agreement covering the performance of the work. The Contract and Contract Documents include this written Construction Agreement between OWNER and CONTRACTOR, Advertisement for Bids, Instructions to Bidders, Requests for Proposal, all Addenda, the Specifications, including the general and supplemental special and technical conditions, Drawings, provisions, plans or working drawings — and any supplemental changes or agreements pertaining to the Work or materials therefor; and bonds and any additional documents incorporated by reference in the above.

CONTRACTOR: The person, persons, partnership, firm, corporation, association or organization, or any combination thereof, entering into the contract for the execution of the work, acting directly or through a duly authorized representative.

Other CONTRACTORS: Any contractor, other than the CONTRACTOR or his subcontractors, who has a direct contact with the OWNER for work on or adjacent to the site of the work.

Contract Work or Work: Everything expressly or impliedly required to be furnished and done by the CONTRACTOR by the Contract Documents.

Engineer: The term “Engineer” means the Engineer or his duly authorized representative. The Engineer shall be understood to be the Engineer of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the Engineer and the CONTRACTOR.

Extra Work: Work other than that which is expressly or impliedly required by the Contract Documents at the time of the execution of the contract.

Change Order: A written order to the CONTRACTOR authorizing and directing an addition, deletion or revision in the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or the Contract time.

Contract Price: The total amount of money payable to the CONTRACTOR under the terms and conditions of the Contract Documents. When used in such context, it may also mean the unit price of an item of work under the Contract terms.

OWNER’S Representative: The Engineer or other duly authorized assistant, agent, Engineer, inspector or superintendent acting within the scope of their particular duties.

Drawings or Contract Drawings: Those drawings that are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, including but not limited to, the plans, elevations, sections, details, schedules, diagrams, any bulletin, or any detailed drawing furnished by the OWNER, pertaining or supplemental thereto.

Specifications: Those portions of the Contract Documents that specify the requirements for materials, equipment, systems, standards and workmanship for performance of the Work, and related services.

Inspector: Any representative of the OWNER designated to inspect the work.

Materialman or Supplier: Any subcontractor contracting with the CONTRACTOR, or any of his subcontractors, to fabricate or deliver or who actually fabricates or delivers materials, supplies or equipment to be consumed or incorporated into the Work.

Notice: Written notice effective the date of the postmark thereon, or if hand delivered, effective the date of hand delivery.

OWNER: COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas. The term OWNER means the OWNER or its authorized representative.

Payment Bond: A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of payment bond beneficiaries supplying labor and materials in the prosecution of the Contract Work.

Performance Bond: A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of the Owner, conditioned on the faithful performance of the Contract Work in accordance with the plans, specification, and Contract Documents.

Maintenance Bond: A bond executed by a corporate surety for 10% of the Contract Price that complies with all Texas Laws, including but not limited to, Chapter 3503 of the Texas Insurance Code, guaranteeing the prompt, full and faithful performance of the general guaranty and warranty contained in the Contract Documents, and Texas Law.

Project: The total construction of the work described in the Contract Documents performed by the Contractor, Other Contractor or the Owner in whole or part.

Proposal: The written statement or statements duly submitted to the OWNER by the person, persons, partnership, company, firm, association or corporation proposing to do the Work contemplated, including the approved form on which the formal bids for the Work are to be proposed.

Plan, or Plans: The plans are the drawings or reproductions therefrom made by the Owner or Owner's Representative and approved by the Owner showing the dimensions, location, design and position of the various elements of the Project and Work, including plans, elevations, sections, details, schedules, diagrams, working drawings, preliminary drawings, and such supplemental drawings as the Owner may issue to clarify other drawings or for the purpose of showing changes in the Contract Work authorized by the Owner, or for showing details not shown therein.

Special Provisions or Conditions: The special clauses of the Contract, or Contract Documents, setting forth conditions or requirements peculiar to the specific Project involved, supplementing the standard or general specifications and taking

precedence over any conditions or requirements of the standard or general specifications with which they are in conflict.

Specifications or Contract Specifications: All of the general, special and technical conditions or provisions, and all addendum or supplements thereto consisting of written requirements for materials, equipment, systems, standards and performance of the work.

Site: The area upon or in which the CONTRACTOR'S operations are carried on, and such other areas adjacent thereto as may be designated as such by the OWNER.

Subcontractors: Any persons, firm or corporation, other than employees of the CONTRACTOR, who or which contracts with the CONTRACTOR to furnish, or who actually furnishes, labor and/or materials and equipment at or about the site.

Sureties: The corporate bodies which are bound by such bonds as are required with and for the CONTRACTOR. The sureties engaged to be responsible for the entire and satisfactory fulfillment of the Contract and for any and all requirements as set out in the specifications, Contract or plans.

The Work: All work including the furnishing of all labor, materials, tools, equipment, required submittals and incidentals to be performed by the CONTRACTOR under the terms of the Contract.

Directed, Required, Approved and Words of Like Import: Whenever they apply to the Work or its performance, the words "directed," "required," "permitted," "ordered," "designated," "established," "prescribed" and words of like import used in the Contract, specifications or upon the drawings shall imply the direction, requirement, permission, order, designation or prescription of the OWNER; and "approved," "acceptable," "satisfactory" and words of like import shall mean approved by, acceptable to or satisfactory to the OWNER.

Equal: Materials, articles or methods which are of equal or higher quality than those specified or shown on the drawings and as further defined in the "or equal" clause. Substitution of Materials shall be determined by the Engineer at his or her discretion, and approved by the Owner.

Working Time, Completion Time or Contract Time: The time set forth in the Contract for the performance and completion of the Work contracted for. The time may be expressed as calendar days, working days or a specific date.

Calendar Day or Days: Any successive days of the week or month, no days being excepted.

Working Day: A working day is defined as a calendar day not including Saturdays, Sundays or those legal holidays as specified in the list prepared by the OWNER for contract purposes. Nothing in this definition shall be construed as prohibiting the CONTRACTOR from working on Saturdays if he so desires, however permission of

the OWNER shall be necessary if the CONTRACTOR chooses to work on Saturday. Work on Sundays shall not be permitted without the written permission of the OWNER. If Saturday or Sunday work is permitted, working time shall be charged on the same basis as week days. Where the working time is expressed as calendar days or a specific date, the concept of working days shall no longer be relevant to the contract.

CONTRACT DOCUMENTS

- 1.2 The parties agree that the Contract Documents shall consist of the following documents in addition to any other documents referenced or incorporated herein:
- A. This written Construction Agreement, including any changes or modifications;
 - B. All addenda including the following listed and numbered addenda:
Addendum No. 1 dated _____ Received _____
Addendum No. 2 dated _____ Received _____
 - C. Advertisement for Bids, Instructions to Bidder, the Invitation to Bid and Bid Form;
 - D. The Special/Supplemental Conditions;
 - E. The Specifications and the Project Drawings (if any);
 - F. The Construction Details shown on plans;
 - G. The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 edition and all subsequent addendums;
 - H. The Performance Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price;
 - I. The Payment Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price; and,
 - J. The One-Year Maintenance Bond in the sum of TEN PERCENT (10%) of the total Contract Price.

1.2.1 PRIORITY OF THE CONTRACT DOCUMENTS

These Contract Documents (A through J above) form the Construction Agreement and are a part of this Construction Agreement as if fully set forth herein. In the event of an inconsistency in any of the provisions of the Contract Documents, the inconsistency shall be resolved by giving precedence to the Contract Documents in the order in which they are listed above.

1.2.2 THE CONTRACT

The Contract Documents form the Contract. The Contract represents the entire integrated agreement between the OWNER and the CONTRACTOR and supercedes all prior negotiations, and representations by either party.

1.3 CORRELATION AND INTENT OF DOCUMENTS

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intent of the documents, unless otherwise specifically provided, is to produce complete and finished work, which the CONTRACTOR undertakes to do in full compliance with the Contract Documents. It is not intended to mention every item of work in the specifications which can be adequately shown on the drawings nor to show on the drawings all items of work described or required by the specifications. All materials or labor for work shown on the drawings or reasonably inferable therefrom as being necessary to produce a finished job shall be provided by the CONTRACTOR whether or not same is expressly covered in the specifications. No verbal conversation, understanding or agreement with any officer or employee or agent of the OWNER, either before or after the execution of the Contract, shall affect or modify any of the terms, conditions or obligations contained in the Contract Documents.

1.3.1 CONTRACT DRAWINGS AND SPECIFICATIONS

The OWNER shall furnish the CONTRACTOR one copy of the Contract Drawings and any supplemental drawings and specifications reasonably necessary for the proper execution of the work. At least one copy of all drawings and specifications shall be accessible at all times to the OWNER at the job site.

1.3.2 SUPPLEMENTAL DRAWINGS AND SPECIFICATIONS

In order to carry out the intent of the Contract Documents and to assist the CONTRACTOR in performing its work, the OWNER, after the execution of the Contract, may, by supplemental drawings, specifications or otherwise, furnish additional information or instructions as may be necessary for construction purposes.

All such supplemental drawings, specifications or instructions are intended to be consistent with the Contract Documents and reasonably inferable therefrom. Therefore, no extra costs shall be allowed by the OWNER on a claim that particular supplemental drawings, specifications or instructions differ from the requirements of the Contract Documents, incurring extra costs, unless the CONTRACTOR has first brought the matter, in writing, to the OWNER'S attention for adjustment before proceeding with the work covered by such.

If the OWNER decides that there is no departure from the requirements of the Contract Documents, the CONTRACTOR shall then proceed with the work as shown, specified or directed. If the OWNER shall decide that Extra Work is involved, he shall so modify the supplemental drawings, specifications or instructions to eliminate the Extra Work, or cause a

written Change Order to be issued in accordance with the Contract Documents.

1.3.3 ERRORS AND CORRECTIONS IN DRAWINGS AND SPECIFICATIONS

The CONTRACTOR shall not take advantage of any apparent errors, omissions or discrepancies in the drawings or specifications; and the Engineer shall be permitted to make such corrections or interpretations as may be necessary for the fulfillment of the intent of the Contract Documents. In case of any errors, omissions or discrepancies in the drawings or specifications, the CONTRACTOR shall promptly submit the matter to the OWNER or OWNER'S Representative in writing who, in turn, shall promptly make a determination and issue the necessary instructions in writing. Any adjustment by the CONTRACTOR without this determination and instructions shall be at the CONTRACTOR'S own risk and expense. The Work is to be made complete as intended by the Contract Documents.

1.3.4 EXISTING STRUCTURES

The plans show the general locations of some known surface and subsurface structures. The locations of many gas mains, water mains, conduits, sewers, other utilities, etc., however, are unknown, and the OWNER assumes no responsibility for failure to show any or all of these structures on the plans or to show them in their exact locations. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for Extra Work or for increasing the pay quantities in any manner whatsoever. The CONTRACTOR shall be solely responsible for locating all gas mains, water mains, conduits, sewers, other utilities etc., so as to perform the Work without damaging the same.

II. THE WORK

2.1 SCOPE OF WORK

Contractor shall provide all labor, supervision, materials, and equipment necessary to perform all work required by the Contract Documents in connection with **IFB 2021-014 Construction, Collin County Juvenile Detention, Video Retrofit**

2.2 CHANGE OR MODIFICATION OF CONTRACT

2.2.1 ALTERATION OF PLANS AND SPECIFICATIONS

The OWNER reserves the right to make such changes in the plans and specifications and in the character of the work as may be necessary or desirable to insure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications

or change the general nature of the Work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the Contract or bonds. Such changes shall be issued by the Engineer.

2.2.2 INCREASED OR DECREASED QUANTITIES OF WORK

The OWNER reserves the right and may from time to time, by written order, and without notice to any surety, make changes in the quantity or time of performance of the Work, as may be considered necessary or desirable and such changes shall not be considered as waiving or invalidating any conditions or provisions of the Contract or bonds. The CONTRACTOR shall perform all the Contract Work in strict compliance with the Contract Documents, and shall not make any changes to the Work without prior written authorization from the OWNER, in the form of a written Change Order. If such changes increase or decrease either the cost or the time necessary for the performance of the Work, then the parties will mutually agree upon an equitable adjustment to the price or time to perform the Work pursuant to the terms of the Contract.

2.2.3 EXTRA WORK/CHANGE ORDERS

When any work is necessary to the proper completion of the Project and for which no prices are provided for in the Bid or Proposal and Contract, the CONTRACTOR shall do such work, but only when and as ordered in writing by the OWNER. The OWNER may order changes in the Work without invalidating Contract. Payment for Extra Work shall be made as provided herein. Contractor agrees that overhead and profit for Extra Work shall not exceed 10% of the total cost of the Extra Work. The Contractor shall not be entitled to any additional funds for any work or Extra Work performed on the Project, unless a Change Order is issued and signed by the Owner. The CONTRACTOR shall perform the work as altered, whether increased or decreased, and no allowances shall be made for anticipated profits. Nothing in this section shall give rise to any claims for any delay or acceleration damages, and the CONTRACTORS sole remedy for any delays in the Project shall remain an equitable extension of time as provided for in the Contract Documents. CONTRACTOR acknowledges and agrees to waive all rights or claims for compensation for any additional or other work not specifically authorized by the OWNER.

2.3 DISPUTED WORK AND CLAIMS FOR ADDITIONAL COMPENSATION

If the CONTRACTOR is of the opinion that (a) the work necessary or required to accomplish the result intended by this Contract, or (b) any work ordered to be done as Contract Work by the OWNER is Extra Work and not Contract Work, or (c) any determination or order of the OWNER violates the terms and provisions of this Contract, the CONTRACTOR shall promptly, either before proceeding with such work or complying with such order or determination, notify the

OWNER in writing of his contentions with respect thereto and request a final determination thereof.

Such determination of the OWNER shall be given in writing to the CONTRACTOR. If the OWNER determines that the work in question is Extra Work and not Contract Work, or that the order complained of requires performance by the CONTRACTOR beyond that required by the Contract or violates the terms and provisions of the Contract, thereupon the OWNER shall cause either (a) the issuance of a written Change Order covering the Extra Work as provided herein, or (b) the determination or order complained of to be rescinded or so modified so as to not require performance beyond that required by the terms and provisions of the Contract.

If the OWNER determines that the work in question is Contract Work and not Extra Work, or that the determination or order complained of does not require performance by the CONTRACTOR beyond that required by the Contract or violate the terms and provisions of the Contract, he shall direct the CONTRACTOR to proceed, and the CONTRACTOR must promptly comply. In order to reserve his right to claim compensation for such work resulting from such compliance, however, the CONTRACTOR must, within 20 calendar days after receiving the OWNER'S determination and direction, notify the OWNER in writing that the work is being performed, or that the determination and direction is being complied with, under protest.

If the CONTRACTOR fails to so appeal to the OWNER for a determination or, having so appealed, should the CONTRACTOR thus fail to notify the OWNER in writing of his protest, the CONTRACTOR shall be deemed to have waived any claim for extra compensation or damages therefore. No oral appeals or oral protests, no matter to whom made, shall be deemed even substantial compliance with the provisions of this item.

In addition to the foregoing requirements, the CONTRACTOR shall, upon notice from the OWNER, produce for examination for a minimum period of three (3) years following final payment or termination of contract and audit at the CONTRACTOR'S office, by the representatives of the OWNER, all his books and records showing all of his acts and transactions in connection with contractual performance as well as relating to or arising by reason of the matter in dispute. At such examination a duly authorized representative of the CONTRACTOR may be present.

Unless the aforesaid requirements and conditions are complied with by the CONTRACTOR, the OWNER shall be released from all claims arising under, relating to or by reason of disputed work or Extra Work. It is further stipulated and agreed that no conduct on the part of the OWNER or any agent or employee of the OWNER shall ever be construed as a waiver of the requirements of this section, when such requirements constitute an absolute condition precedent to any approval of any claim for extra compensation, notwithstanding any other

provisions of the Contract Documents; and in any action against the OWNER to recover any sum in excess of the contract amount, the CONTRACTOR must allege and prove strict compliance with the provisions of this section. The CONTRACTOR ASSUMES THE RISK OF NONPAYMENT, for failing to comply with any of the requirements of this section.

III. CONTRACTORS RESPONSIBILITIES

3.1 CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND ASSURANCES.

In consideration of, and to induce the award of this contract to him, the CONTRACTOR represents and warrants: (a) That he is financially solvent, and sufficiently experienced and competent to perform the work; (b) That the facts stated in the proposal and the information given by him pursuant to the bidding documents are true and correct in all respects; (c) That he has read, understood and complied with all the requirements set forth in the bidding documents; (d) That he is familiar with and understands all laws and regulations applicable to the work; and (e) unless otherwise specifically provided for in the Contract Documents, the CONTRACTOR shall do all the Work and shall furnish all the tools, equipment, machinery, materials, labor and appliances, except as herein otherwise specified, necessary or proper for performing and completing the work required by this Contract, in the manner and within the time herein prescribed.

By executing the contract, the CONTRACTOR represents that he has visited the site of Work, has fully familiarized himself with the local and on-site conditions under which the work is to be performed and has correlated his observation with the requirements of the Contract Documents. In addition, the CONTRACTOR represents that he has satisfied himself as to subsurface conditions at the site of the Work. Information, data and representations contained in the Contract Documents pertaining to the conditions at the site, including subsurface conditions, are for information only and are not warranted or represented in any manner to accurately show the conditions at the site of the Work. The CONTRACTOR agrees that he shall make no claims for damages, additional compensation or extension of time against the OWNER because of encountering actual conditions in the course of the Work which vary or differ from conditions or information contained in the Contract Documents. All risks of differing subsurface conditions shall be borne solely by the CONTRACTOR.

The CONTRACTOR shall carefully study and compare the Contract Documents and shall at once report to the OWNER any error, inconsistency or omission he may discover. The CONTRACTOR shall perform no portion of the Work at any time without Contract Documents or, where required, approved shop drawings, product data or samples for such portion of the work.

3.1.1 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are drawings, diagrams, schedules and other data specially prepared for the work by the CONTRACTOR or any subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the CONTRACTOR to illustrate a material, product or system for some portion of the work.

C. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work shall be judged.

D. the CONTRACTOR shall provide, review, approve and submit to the Engineer with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the OWNER or any separate contractor, all shop drawings, product data and samples required by the Contract Documents. The Work will be performed in accordance with submittals approved by the Engineer. The CONTRACTOR shall not be relieved responsibility for deviations from the requirements of the Contract Documents by errors or omissions by the OWNER or Engineer in approving Shop Drawings, Product Data, samples or any other submittals.

E. By approving and submitting shop drawings, product data and samples, the CONTRACTOR represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or shall do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

F. As the Engineer's review is only for general conformance with the requirements of the Contract Documents, the CONTRACTOR shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Engineer's approval of shop drawings, product data or samples unless the CONTRACTOR has specifically informed the Engineer in writing of such deviation at the time of submission and the Engineer have given written approval to the specific deviation. The CONTRACTOR shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Engineer's approval thereof. The CONTRACTOR shall direct specific attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by the Engineer on previous submittals.

G. the CONTRACTOR shall be responsible for delays caused by rejection of the submittal of inadequate or incorrect shop drawings, product data or

samples. The CONTRACTOR shall be responsible for seeing that any “approved” copies of shop drawings bearing the approval of the Engineer are allowed on the job site. The CONTRACTOR shall be responsible for providing all copies of approved shop drawings necessary for the construction operations.

H. the CONTRACTOR shall keep adequate records of submittal and approvals so that an accurate up-to-date record file is maintained at the job site at all times.

I. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been approved by the Engineer. All such portions of the work shall be in accordance with approved submittals.

3.1.2 SURETY BONDS

With the execution and delivery of the contract, the CONTRACTOR shall furnish and file with the OWNER in the amounts herein required, the surety bonds specified hereunder. Without exception, the OWNER’S bond forms, attached hereto as Section 00610 and 00611 must be used, and exclusive venue for any lawsuit in connection with such bonds shall be specified as the county in which the OWNER’S principal office is located. Such surety bonds shall be in accordance with Texas Law, including but not limited to, the provisions of Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code. These bonds shall automatically be increased by the amount of any change order or supplemental agreement which increases the contract price with or without notice to the surety, but in no event shall a change which reduces the contract amount reduce the penal amount of such bonds.

A. Performance Bond. A good and sufficient bond in an amount not less than 100 percent (100%) of the total amount of the Contract Price guaranteeing the full and faithful execution of the Work and performance of the Contract in accordance with the plans, specifications and Contract Documents, including any extensions thereof, for the protection of the OWNER. This bond shall provide for the repair and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one year from the date of completion and acceptance of the improvement by the OWNER or such lesser or greater period as may be designated in the Contract Documents.

B. Payment Bond. A good and sufficient bond in an amount not less than 100 percent (100%) of the total amount of the Contract Price guaranteeing the full and proper protection of all payment bond beneficiaries and claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant.

C. Maintenance Bond. A good and sufficient bond in an amount not less than ten percent (10%) of the total amount of the Contract Price guaranteeing the project against defects.

D. Sureties. No sureties shall be accepted by the OWNER who are now in default or delinquent on any bonds or who are interested in any litigation against the OWNER. All bonds shall be made on forms furnished by the OWNER and shall be executed by not less than one corporate surety authorized to do business in the State of Texas and acceptable to the OWNER. The sureties shall be listed in the most current Federal Register Treasury List. Each bond shall be executed by the CONTRACTOR and surety. Each surety shall designate an agent resident in the OWNER'S jurisdictional area acceptable to the OWNER to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of such suretyship. The OWNER reserves the right to reject any and all sureties.

E. Additional or Substitute Bonds. If at any time the OWNER is or becomes dissatisfied with any surety, then upon the performance or payment bond, the CONTRACTOR shall, within five days after notice from the OWNER to do so, substitute an acceptable bond (or bonds), or provide an additional bond, in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such bonds shall be paid by the CONTRACTOR without recourse to the OWNER. No further payments under the contract shall be deemed due or payable until the substitute or additional bonds shall have been furnished and accepted by the OWNER.

3.1.3 PERMITS AND FEES

The CONTRACTOR shall secure and pay for all building permits and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are normally and legally required for the construction of similar projects in the State of Texas. The CONTRACTOR will give all notices required by laws, ordinances, rules, regulations and lawful orders of authorized public authorities required for the proper and legal performance of the Work.

3.14 CONTRACT DOCUMENTS AT SITE

The CONTRACTOR shall keep and maintain at the Project site one record copy of the Contract Documents, including but not limited to, the Drawings, Specifications, addenda, Change Orders, submittals, Product Data, Samples and other modifications, in good order and marked to show the current construction of the Project. These documents shall be available to the OWNER or Engineer to review at any time and shall be submitted

to the OWNER upon completion of the Project, along with a complete set of as built drawings.

3.2 CONTRACTOR'S RESPONSIBILITIES

3.2.1 PERFORMANCE OF THE WORK

In addition to those matters elsewhere expressly made the responsibility of the CONTRACTOR, the CONTRACTOR shall have the full and direct responsibility for the performance and completion of the Work under this Contract and for any act or neglect of the CONTRACTOR, his agents, employees or subcontractors. He shall bear all losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the work must be done are different from what were estimated or anticipated by him, or because of weather, floods, elements or other causes.

3.2.2 MEANS AND METHODS OF CONSTRUCTION

Unless otherwise expressly provided in the contract drawings, specifications or bulletins, the means and methods of construction shall be such as the CONTRACTOR may choose; subject, however, to the OWNER'S right to prohibit means and methods proposed by the CONTRACTOR which in the OWNER'S judgment:

- A. shall constitute a hazard to the Work, or to persons or property, or shall violate express requirements of applicable laws or ordinances; or
- B. shall cause unnecessary or unreasonable inconvenience to the public; or
- C. shall not produce finished work in accordance with the requirements of the Contract Documents; or
- D. shall not assure the Work to be completed within the time allowed by the contract.

The OWNER'S approval of the CONTRACTOR'S means or methods of construction, or the OWNER'S failure to exercise his right to prohibit such means or methods, shall not relieve the CONTRACTOR of his responsibility for the Work or of his obligation to accomplish the result intended by the Contract Documents; nor shall the exercise or non-exercise of such rights to prohibit create a cause of action for damages or provide a basis for any claim by the CONTRACTOR against the OWNER. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, procedures, and for the safety precautions and programs in connection with the Work or the Project.

If the Contract Documents specify any means, methods, techniques, sequences or procedures, the CONTRACTOR shall evaluate said specifications and determine that they are safe for the proper prosecution of the Work. The CONTRACTOR shall be solely responsible for the job site safety of such means, methods, techniques, sequences or procedures. If the CONTRACTOR determines the the specified means, methods, techniques, sequences or procedures may not be safe, the CONTRACTOR shall immediately notify the OWNER and Engineer and shall not proceed without further instructions.

3.2.3 CONSTRUCTION SCHEDULE

The CONTRACTOR, immediately after being awarded the contract, shall prepare and submit for the OWNER, and Engineer's information an estimated progress schedule for the work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and reasonable execution of the work, not to exceed the time limits for completion provided in the Contract Documents. The progress schedule shall be updated as the Work proceeds or the schedule changes and immediately upon request by the OWNER. The CONTRACTOR shall also prepare a schedule of submittals that allows for a reasonable time for the OWNER or Engineer to review the submittals so as not to delay the Project.

3.2.4 TIME OF PERFORMANCE OF THE WORK

The CONTRACTOR shall begin the work to be performed under this Contract not later than 10 days from the date specified in the purchase or work order and shall conduct the work in such a manner and with sufficient equipment, material and labor as is necessary to insure its completion within the working time. It is the intent of this specification to provide a continuous construction operation without delay except as occasioned by unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, and it shall be the CONTRACTOR's responsibility to execute the work in the most expeditious manner.

Work shall be done only during the regular and commonly accepted and prescribed working hours. No work shall be done on nights, Sundays or regular holidays unless permission is given by the OWNER

Time is of the Essence for the performance of the Work by the CONTRACTOR. CONTRACTOR agrees that the time allotted for the performance of the Work is reasonable.

3.2.5 PERFORMANCE OF EXTRA OR DISPUTED WORK

While the CONTRACTOR or his subcontractor is performing Extra Work in accordance with the OWNER'S written order, the cost of which is to be determined on a time and material basis, or is performing disputed work or complying with a determination or order under protest, the CONTRACTOR shall, on the Monday following the performance of the work, furnish the OWNER'S representative at the site with three copies of verified statements showing:

A. the name, address and telephone number of each workman employed on such Extra Work or engaged in complying with such determination or order, the character of Extra Work each is doing and the wages paid to him, including the rate and amount of payroll taxes, contributions for insurance, and federal social security; and

B. the nature, cost and quantity of any materials, plant equipment or construction equipment furnished or used in connection with the performance of such Extra Work or in complying with such determination or order, and from whom purchased or rented, along with copies of invoices for such materials, plant equipment or construction equipment.

The CONTRACTOR and his subcontractors, when required by the OWNER, must also produce for inspection for a minimum period of three (3) years following final payment or termination of contract, produce for examination and audit by designated OWNER representatives, any and all of his books, vouchers, records, daily job diaries and reports, canceled checks, etc. showing the nature and quantity of labor, materials and equipment actually used in the performance of the Extra Work; the amounts expended therefore; and the costs incurred for insurance premiums and other items of expense directly chargeable to such Extra Work. The CONTRACTOR must permit the OWNER'S representatives to make extracts therefrom or copies thereof as may be desired.

Failure of the CONTRACTOR to comply strictly with the requirements of this section shall constitute a waiver of any claim for extra compensation on account of the performance of such Extra Work.

3.3 QUALITY OF WORK

3.3.1 INSPECTION AND TESTS

The CONTRACTOR shall furnish the OWNER with every reasonable accommodation and opportunity to ascertain whether or not the work performed is in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable

inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense. The CONTRACTOR shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the OWNER in his administration of the contract, or by inspections, tests or approvals required or performed by persons other than the CONTRACTOR.

Unless otherwise provided, the CONTRACTOR shall make arrangements for all tests, inspections and approvals with an independent testing laboratory or entity required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction over the Work or items to be tested, inspected or approved. If additional testing or inspection is required they shall be performed at the CONTRACTOR'S expense.

3.3.2 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

All work which has been rejected or condemned shall be repaired, or if it cannot be repaired satisfactorily, it shall be removed and replaced at the CONTRACTOR'S expense. Defective materials shall be immediately removed from the site of the work. Work done without line and grade having been given, work done beyond the lines or not in conformity with the grades shown on the plans or as given, save as herein provided, work done without written authority and prior agreement in writing as to process, shall be done at the CONTRACTOR'S risk and shall be considered unauthorized and at the option of the OWNER may be ordered removed at the CONTRACTOR'S expense.

Upon failure of the CONTRACTOR to repair satisfactorily or to remove and replace, if so directed, rejected, unauthorized or condemned work or materials immediately after receiving notice from the OWNER, the OWNER shall, after giving written notice to the CONTRACTOR, have the authority to cause defective work to be remedied or removed and replaced, or to cause unauthorized work to be removed and to deduct the cost thereof from any monies due or to become due the CONTRACTOR. Alternatively, the OWNER may, at its option, declare the CONTRACTOR in default.

3.3.3 WORKING AREA; COORDINATION WITH OTHER CONTRACTORS; FINAL CLEANUP

The CONTRACTOR shall confine his equipment, storage of materials and construction operations to the area shown on the contract drawings or stated in the specifications, prescribed by ordinance, laws, or permits or as may be directed by the OWNER, and shall not unreasonably encumber the site or public right-of-way with his construction equipment, plant or materials.

Such area shall not be deemed for the exclusive use of the CONTRACTOR. Other contractors of the OWNER may enter upon and use such portions of the area and for such items as determined by the OWNER are necessary for all purposes required by their contracts. The CONTRACTOR shall give to such other contractors all reasonable facilities and assistance to the end that the work on this and other contracts shall not be unduly or unreasonably delayed. Any additional areas desired by the CONTRACTOR for his use shall be provided by him at his own cost and expense.

The CONTRACTOR is responsible for cutting, fitting or patching any parts of the Work where such work is necessary to make the Work complete, for parts to fit together, or for any damage to the Work prior to Final Acceptance.

The CONTRACTOR shall keep the Project and the surrounding area clean and free from the accumulation of waste materials or trash. Upon completion of the work and before final acceptance and final payment shall be made, the CONTRACTOR shall completely clean and remove from the site of the work surplus and discarded materials, temporary structures and debris of every kind. He shall leave the site of the work in a neat and orderly condition equal to that which originally existed, or as called for in the Contract Documents. Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the OWNER, and at the CONTRACTOR'S sole cost.

3.4 LEGAL RESPONSIBILITIES

3.4.1. PATENTS AND COPYRIGHTS

The CONTRACTOR shall pay all royalties and license fees and shall provide, by suitable legal agreement with the patentee or owner, for the use of any design, device, material or process covered by letters, patent or any copyright. The CONTRACTOR shall indemnify, defend, hold and save the OWNER and its officers, employees and agents harmless from all liability and claims for infringement of any patent or copyright.

In the event that any claims, suit or action at law or in equity of any kind whatsoever is brought against the OWNER, or its officers, employees or agents involving any such patents, copyrights or license rights, then the OWNER shall have the right to and may retain from any money due or to become due to the CONTRACTOR such sum deemed necessary by the OWNER for its protection until such claim or suit shall have been settled and satisfactory evidence to that effect shall have been furnished the OWNER.

3.4.2 INDEMNIFICATION

To the fullest extent permitted by law, the CONTRACTOR and his sureties shall indemnify, defend and hold harmless the OWNER and all of its, past, present and future, officers, agents and employees from all suits, cause of action, claims, liabilities, losses, fines, penalties, liens, demands, obligations, actions, proceedings, of any kind, character, name and description brought or arising, on account of any injuries or damages received or sustained by any person, destruction or damage to any property on account of, in whole or part, the operations of the CONTRACTOR, his agents, employees or subcontractors; or on account of any negligent act or fault of the CONTRACTOR, his agents, employees or subcontractors in the execution of said Contract; failing to comply with any law, ordinance, regulation, rule or order of any governmental or regulatory body including those dealing with health, safety, welfare or the environment; on account of the failure of the CONTRACTOR to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the OWNER growing out of such injury or damage. In no event shall OWNER be liable to CONTRACTOR for indirect or consequential damages or loss of income or profit irrespective of the cause, fault or reason for same. CONTRACTOR'S duty to indemnify herein shall not be limited by any limitation on the type or amount of damages payable by or for CONTRACTOR or any Subcontractor under workman's compensation acts, disability benefit acts or any other employee benefit acts.

In addition, the CONTRACTOR likewise covenants and agrees to, and does hereby, indemnify and hold harmless the OWNER from and against any and all injuries, loss or damages to property of the OWNER during the performance of any of the terms and conditions of this Contract, arising out of or in connection with or resulting from, in whole or in part, any and all alleged acts or omissions of officers, agents, servants, employees, contractors, subcontractors, licenses or invitees of the CONTRACTOR.

The rights and responsibilities provided in this indemnification provision shall survive the termination or completion of this Contract.

3.5 SUPERVISION AND CONSTRUCTION PROCEDURES

3.5.1. SUPERVISION BY CONTRACTOR

The status of the CONTRACTOR is that of an independent CONTRACTOR under Texas law and the work under this Contract shall be under the direct charge and superintendence of the CONTRACTOR. Except where the CONTRACTOR is an individual and gives his personal superintendence to the work, the CONTRACTOR shall provide a

competent superintendent or general foreman on the work site at all times during progress with full authority to act for the CONTRACTOR. The CONTRACTOR shall also provide an adequate staff for the coordination and expediting of the Work.

The superintendent and staff shall be satisfactory to the OWNER. The superintendent or general foreman shall not be changed during this Contract except with the written consent of the OWNER or unless the superintendent or general foreman proves unsatisfactory to the CONTRACTOR and ceases to be in his employ.

If the superintendent should be or become unsatisfactory to the OWNER, he shall be replaced by the CONTRACTOR upon written direction of the OWNER, and in such event, the CONTRACTOR shall not be entitled to file a claim for any additional working time or money from the OWNER.

3.5.2 EMPLOYEES

The CONTRACTOR shall employ only competent, efficient workmen and shall not use on the work any unfit person or one not skilled in the work assigned to him and shall at all times maintain good order among its employees. Whenever the OWNER shall inform the CONTRACTOR in writing that, in his opinion, any employee is unfit, unskilled, disobedient, or is disrupting the orderly progress of the work, such employee shall be removed from the work and shall not again be employed on it. Under urgent circumstances, the OWNER may orally require immediate removal of an employee for cause, to be followed by written confirmation.

The CONTRACTOR shall supervise and direct all the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences, procedures and safety procedures and for coordinating all portions of the Work under the Contract. The CONTRACTOR shall be responsible to the OWNER for the acts and omissions of his employees, subcontractors and their agents, employees and subcontractors performing any of the work under a contract with the CONTRACTOR.

3.5.3 LABOR AND MATERIALS

Unless otherwise provided in the Contract Documents, the CONTRACTOR shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation and other facilities and services necessary for the proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated into the work.

The CONTRACTOR shall at all times enforce strict discipline and good order among his employees and shall not employ on the work site any unfit person or anyone not skilled in the task assigned to him.

The rate of progress shall be such that the whole work shall be performed and the premises cleaned up in accordance with the Contract within the working time established in the Contract, unless an extension of time is made in the manner hereinafter specified.

3.5.4 WAGE SCALE

In accordance with The Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the general prevailing wage rate has been determined for this locality for the craft or type of workman needed to execute work of a similar character of the project listed herein. The Contractor shall pay the prevailing wage rate in this locality to all his/her employees and subcontractors performing work on this project, and in no event shall the Contractor pay less than the rate shown in the following schedule.

"General Decision Number: TX20200239 08/28/2020

Superseded General Decision Number: TX20190239

State: Texas

Construction Type: Building

County: Collin County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for

all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate

will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor

requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number Publication Date

0	01/03/2020
1	02/14/2020
2	08/28/2020

ASBE0021-011 06/01/2016

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)....	\$ 24.32	7.52

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER.....	\$ 28.00	22.35

CARP1421-002 04/01/2016

	Rates	Fringes
MILLWRIGHT.....	\$ 26.60	8.65

ELEV0021-006 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 42.59	34.765

FOOTNOTES:

A. 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.

B. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Veterans Day.

* ENGI0178-005 06/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		

(1) Tower Crane.....	\$ 32.85	13.10
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above.....	\$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under.....	\$ 32.35	13.10

IRON0263-005 06/01/2017

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND STRUCTURAL).....	\$ 23.25	7.32

PLUM0100-005 11/01/2017

	Rates	Fringes
HVAC MECHANIC (HVAC Unit Installation Only).....	\$ 30.84	11.51
PIPEFITTER (Excludes HVAC Pipe Installation).....	\$ 30.84	11.51

SUTX2014-015 07/21/2014

	Rates	Fringes
BRICKLAYER.....	\$ 21.06	0.00
CARPENTER, Excludes Drywall Hanging, Form Work, and Metal Stud Installation.....	\$ 15.78	0.00
CAULKER.....	\$ 15.16	0.00
CEMENT MASON/CONCRETE FINISHER...\$	13.04	0.00
DRYWALL HANGER AND METAL STUD INSTALLER.....	\$ 13.00	0.00
ELECTRICIAN (Alarm Installation Only).....	\$ 20.93	3.86
ELECTRICIAN (Communication Technician Only).....	\$ 15.35	1.39
ELECTRICIAN (Low Voltage		

Wiring Only).....	\$ 17.04	1.39
ELECTRICIAN, Excludes Low Voltage Wiring and Installation of Alarms/Sound and Communication Systems.....	\$ 20.01	2.69
FORM WORKER.....	\$ 11.89	0.00
GLAZIER.....	\$ 16.46	3.94
HIGHWAY/PARKING LOT STRIPING: Operator (Striping Machine).....	\$ 10.04	2.31
INSTALLER - SIDING (METAL/ALUMINUM/VINYL).....	\$ 14.74	0.00
INSTALLER - SIGN.....	\$ 15.50	0.00
INSULATOR - BATT.....	\$ 13.00	0.00
IRONWORKER, REINFORCING.....	\$ 12.29	0.00
LABORER: Common or General.....	\$ 10.52	0.00
LABORER: Mason Tender - Brick...	\$ 10.54	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 10.93	0.00
LABORER: Pipelayer.....	\$ 13.00	0.35
LABORER: Plaster Tender.....	\$ 12.22	0.00
LABORER: Roof Tearoff.....	\$ 11.28	0.00
LABORER: Landscape and Irrigation.....	\$ 10.55	0.00
LATHER.....	\$ 16.00	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 12.83	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 13.93	0.00

OPERATOR: Bulldozer.....	\$ 18.29	1.31
OPERATOR: Drill.....	\$ 15.69	0.50
OPERATOR: Forklift.....	\$ 13.21	0.81
OPERATOR: Grader/Blade.....	\$ 13.03	0.00
OPERATOR: Loader.....	\$ 13.46	0.85
OPERATOR: Mechanic.....	\$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 18.44	0.00
OPERATOR: Roller.....	\$ 15.04	0.00
PAINTER (Brush, Roller and Spray), Excludes Drywall Finishing/Taping.....	\$ 13.35	5.10
PAINTER: Drywall Finishing/Taping Only.....	\$ 14.24	3.83
PIPEFITTER (HVAC Pipe Installation Only).....	\$ 20.45	4.00
PLASTERER.....	\$ 16.58	0.00
PLUMBER, Excludes HVAC Pipe Installation.....	\$ 22.46	4.06
ROOFER.....	\$ 17.19	0.00
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 21.13	4.79
SHEET METAL WORKER, Excludes HVAC Duct Installation.....	\$ 24.88	5.97
SPRINKLER FITTER (Fire Sprinklers).....	\$ 37.50	0.00
TILE FINISHER.....	\$ 11.22	0.00
TILE SETTER.....	\$ 14.25	0.00
TRUCK DRIVER: 1/Single Axle Truck.....	\$ 16.00	0.81

TRUCK DRIVER: Dump Truck.....\$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck.....\$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck.....\$ 12.50	0.00
TRUCK DRIVER: Water Truck.....\$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were

prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.
Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
 Wage and Hour Division
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
 U.S. Department of Labor
 200 Constitution Avenue, N.W.
 Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Except for work on legal holidays, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) the number of hours worked per day, except for overtime hours, times (b) the above respective rate per hour.

For legal holidays, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on the legal holiday.

For overtime work, the “General Prevailing Rate of Per Diem Wage” for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on overtime.

Under the provisions of Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the contractor or subcontractor of the contractor shall forfeit as a penalty to the entity on whose behalf the contract is made or awarded, sixty dollars (\$60.00) for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the contract.

If the construction project involves the expenditure of Federal funds in excess of \$2,000, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on the project of a character similar to the Contract Work.

3.5.5 Contractors doing business with OWNER agree to comply with Federal Executive Order 13465 E-Verify. It is OWNER’S intention and duty to comply and support the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification and non-discrimination. According to the INA, contractors/employers may hire only persons who may legally work in the United States. Subsequently, contractors and subcontractors doing business with OWNER must confirm their enrollment in the E-Verify system which verifies employment eligibility through completion and checking of I-9 forms. OWNER reserves the right to audit contractors process to verify enrollment compliance.

3.5.6 COMPLIANCE WITH LAWS

The CONTRACTOR shall fully comply with all local, state and federal laws, including all codes, ordinances and regulations applicable to this Contract and the Work to be done thereunder, which exist or which may be enacted later by governmental bodies having jurisdiction or authority for such enactment.

All work required under this Contract is intended to comply with all requirements of law, regulation, permit or license. If the CONTRACTOR finds that there is a variance, he shall immediately report this to the OWNER for resolution.

3.5.6.1 EQUAL EMPLOYMENT OPPORTUNITY

The CONTRACTOR shall comply with all local, state and federal employment and discrimination laws and shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin or any other class protected by law.

3.5.7 RAILWAY CROSSINGS

Where the Work encroaches upon any right-of-way of any railway, the OWNER shall secure the necessary easement for the work. Where railway tracks are to be crossed, the CONTRACTOR shall observe all the regulations and instructions of the railway company as to methods of doing the work or precautions for safety of property and the public. All negotiations with the railway company, except for right-of-way, shall be made by the CONTRACTOR. The railway company shall be notified by the CONTRACTOR not less than five days prior to commencing the work. The CONTRACTOR shall not be paid separate compensation for such railway crossing but shall receive only the compensation as set out in the proposal.

3.5.8 OTHER CONTRACTORS; OBLIGATION TO COOPERATE

The OWNER reserves the right to perform construction on the Project with its own forces or may award other contracts for additional work on this Project, and the CONTRACTOR shall fully cooperate with such other contractors and shall coordinate and fit his work to be done hereunder to such additional work as may be contracted by the OWNER. The CONTRACTOR shall not commit or permit any act which shall interfere with the performance of work by any other contractor.

Upon receiving written notice from the CONTRACTOR that the OWNER or another contractor is failing to coordinate his work with the Work under this Contract as directed by the OWNER, the OWNER shall promptly investigate the charge and take such necessary action as the situation may require. However, the OWNER shall not be liable to the CONTRACTOR for damages suffered by the CONTRACTOR due to the fault or negligence of another contractor or through failure of another contractor to carry out the directions of the OWNER. Should any interference occur between contractors, the Engineer may furnish the CONTRACTOR with written instructions designating priority of effort, whereupon the CONTRACTOR shall immediately comply with such direction. In such

event, the CONTRACTOR shall be entitled to an extension of working time only for unavoidable delays verified by the Engineer; however, no increase in the Contract Price shall be due the CONTRACTOR.

3.5.9 SUBCONTRACTS

The CONTRACTOR shall not make any subcontract for performing any portion of the Work included in the contract without written notice to the OWNER. This contract having been made pursuant to the bid submitted by the CONTRACTOR and in reliance with the CONTRACTOR'S personal qualifications and responsibility, the OWNER reserves the right to withhold approval of any subcontractor which the OWNER may deem would not be in the OWNER'S best interest.

The CONTRACTOR shall, as soon as practicable after signing the Contract, submit a separate written notice to the OWNER identifying each proposed subcontractor. Upon request of the OWNER, the CONTRACTOR shall promptly furnish additional information tending to establish that any proposed subcontractor has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract.

If the OWNER determines that any proposed subcontractor is unacceptable, he shall so notify the CONTRACTOR, who may thereupon submit another proposed subcontractor unless the CONTRACTOR decides to do the work himself. Disapproval by the OWNER of any proposed subcontractor shall not provide a basis for any claim by the CONTRACTOR.

If an approved subcontractor fails to properly perform the work undertaken, he shall be removed from the job upon request of the OWNER, following notification to the CONTRACTOR in writing of the request for removal and the reasons therefore.

Each subcontract entered into shall provide that the provisions of this Contract shall apply to such subcontractor and his officers and employees in all respects as if he and they were employees of the CONTRACTOR. The OWNER'S decision not to disapprove of any subcontract shall not relieve the CONTRACTOR of any of his responsibilities, duties and liabilities hereunder. The CONTRACTOR shall be solely responsible for the acts, omissions, negligence or defaults of his subcontractors and of such subcontractor's officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the CONTRACTOR to the extent of his subcontract.

The CONTRACTOR agrees to bind each subcontractor and each subcontractor agrees to be bound by the terms of the Contract Documents

insofar as applicable to his work. The CONTRACTOR and each subcontractor jointly and severally agree that nothing in the Contract Documents or otherwise shall create or be deemed to create any rights in favor of a subcontractor against the OWNER; nor shall be deemed or construed to impose upon the OWNER any obligation, liability or duty to a subcontractor; or to create any contractual relation whatsoever between a subcontractor and the OWNER.

The provisions contained herein shall likewise apply to any sub-subcontracts.

3.6 PROTECTION OF WORK AND OF PERSONS AND PROPERTY

3.6.1 PROTECTION OF WORK

During performance and up to date of final acceptance, the CONTRACTOR shall be under the absolute obligation to protect the finished work against any damage, loss or injury. In the event of such damage, loss or injury, the CONTRACTOR shall promptly replace or repair such work, whichever the OWNER shall determine to be preferable. The obligation to deliver finished work in strict accordance with the Contract prior to final acceptance shall be absolute and shall not be affected by the OWNER'S approval of or failure to prohibit means and methods of construction used by the CONTRACTOR. All risk of loss or damage to the work shall be borne solely by the CONTRACTOR until final completion and acceptance of all work by the OWNER, as evidenced by the OWNER'S issuance of a certificate of acceptance.

3.6.2 PROTECTION OF PERSONS AND PROPERTY

The CONTRACTOR shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise to protect persons and property while said persons or property are approaching, leaving or within the work site or any area adjacent to said work site. No separate compensation shall be paid to the CONTRACTOR for the installation or maintenance of any warning devices, barricades, lights, signs or any other precautionary measures required by law or otherwise for the protection of persons or property.

The CONTRACTOR shall assume all duties owed by the OWNER to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

Where the work is carried on in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the CONTRACTOR shall at his own cost and expense provide such flagmen and watchmen and furnish, erect

and maintain such warning devices, barricades, lights, signs and other precautionary measures for the protection of persons or property as may be prudent or necessary, or as are required by law. The CONTRACTOR'S responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs and lights and other precautionary measures shall not cease until the project shall have been completed and accepted by the OWNER, and shall cease when the certificate of acceptance is issued by the OWNER pursuant to the Contract Documents.

If the OWNER discovers that the CONTRACTOR has failed to comply with the applicable federal and state law (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs or other precautionary measures for the protection of persons or property), the OWNER may order the CONTRACTOR to take such additional precautionary measures as required by law to be taken to protect persons and property.

In addition, the CONTRACTOR shall be held responsible for all damages to the work and other public or private property due to the failure of warning devices, barricades, signs, lights or other precautionary measures in protecting said property; and whenever evidence is found of such damage, the OWNER may order the damaged portion immediately removed and replaced by and at the cost and expense of the CONTRACTOR.

3.6.3 SAFETY; TRENCH SAFETY; UNDERGROUND UTILITY SAFETY; PUBLIC CONVENIENCE AND SAFETY;

The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to safety, trench safety, and underground utility safety, including those which may be enacted during the performance under this Contract. The CONTRACTOR shall comply with the provisions of the The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 edition and all subsequent addendums and the Instructions to Bidders regarding trench safety, public convenience and safety, and sanitary provisions. The CONTRACTOR shall be sole responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work and the Project.

3.7 MATERIALS AND WORKMANSHIP; WARRANTIES AND GUARANTEES

Unless otherwise expressly provided in the contract drawings or specifications, the work shall be performed in accordance with the best modern practice with materials and workmanship of the highest quality and suitable for their purpose. The OWNER shall judge and determine the CONTRACTOR'S compliance with these requirements.

3.7.1 MATERIALS AND EQUIPMENT

The CONTRACTOR shall be free to secure the approved materials, equipment and articles from sources of his own selection. However, if the OWNER finds that the work shall be delayed or adversely affected in any way because a selected source of supply cannot furnish a uniform product in sufficient quantity and at the time required and a suitable source does exist, or the product is not suitable for the Work, the OWNER shall have the right to require the original source of supply changed by the CONTRACTOR. The CONTRACTOR shall have no claim for extra cost or damage because of this requirement.

The CONTRACTOR warrants to the OWNER that all materials and equipment furnished under this contract shall be new unless otherwise specified in the Contract Documents and that same shall be of good quality and workmanship, free from faults and defects and in conformance with the Contract Documents. All materials and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and shall be promptly repaired or replaced by the CONTRACTOR at the CONTRACTOR's sole cost upon demand of the OWNER. If required by the OWNER, the CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

3.7.1.1 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the plans, by using the name of a proprietary product or of a particular manufacturer or vendor, any material or article which the Engineer determines shall perform adequately the duties imposed by the general design or which the Engineer deems to be of similar appearance (in cases where appearance is of importance) shall be considered equal and satisfactory, provided the material or article so proposed is of equal substance and function. Authorization for any substitution of materials or articles must be obtained by the CONTRACTOR from the Engineer before proceeding with such substitution.

B. Should an authorized substitution require redesign of a portion of the work or alterations to the plans or specifications in order for the materials or articles which are to be substituted to properly fit or in other ways to be satisfactory, the Engineer shall accomplish such redesigns and alterations. The CONTRACTOR shall bear all reasonable costs associated with redesign and alteration efforts performed by the Engineer.

3.7.2 WORKMANSHIP

The CONTRACTOR shall promptly correct or replace all work rejected by the OWNER as defective or as failing to conform to the Contract Documents whether observed before or after substantial completion and whether or not fabricated, installed or completed. The CONTRACTOR shall bear all costs of correcting such rejected work, including costs incurred for additional services made necessary thereby.

3.8 WARRANTIES

3.8.1 SPECIAL WARRANTY

If within one year after final acceptance of the work by the OWNER, as evidenced by the final certificate of acceptance or within such longer or shorter period of time as may be prescribed by law or by the terms of any other applicable special warranty on designated equipment or portions of work as required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the CONTRACTOR shall correct it promptly after receipt of a written notice from the OWNER to do so. This obligation shall survive termination or completion of the Contract. The OWNER shall give such notice promptly after discovery of the condition.

The CONTRACTOR shall remove from the site all portions of the work which are defective or nonconforming and which have not been corrected unless removal is waived in writing by the OWNER.

3.8.2 SUBCONTRACTORS' AND MANUFACTURERS' WARRANTIES

All subcontractors', manufacturers' and suppliers' warranties and guarantees, express or implied, respecting any part of the work and any materials used therein, shall be obtained and enforced by the CONTRACTOR for the benefit of the OWNER without the necessity of separate transfer or assignment thereof.

3.8.3 CORRECTED WORK WARRANTY

Any work repaired or replaced, pursuant to this section, shall be subject to the provisions of this section to the same extent as work originally performed.

3.8.4 RIGHTS AND REMEDIES

The rights and remedies of the OWNER provided in this section are in addition to, and do not limit, any rights or remedies afforded to the OWNER by law or any other provision of the Contract Documents, or in any way limit the OWNER'S right to recovery of damage due to default

under the Contract. No action or inaction by the OWNER shall constitute a waiver of a right or duty afforded it under the Contract.

IV. INSURANCE

4.1 CONTRACTOR'S INSURANCE

Before commencing work, the CONTRACTOR shall be required, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) required by Texas Law, and the coverages required herein, indicating the coverage is to remain in force throughout the term of this Contract. CONTRACTOR shall also be required to furnish the Collin County Purchasing Agent with certified copies of subcontractor's insurance certificates required by the Texas Department of Insurance, Division of Workers' Compensation, section 406.096(b), and coverages required herein in section 4.2. Without limiting any of the other obligations or liabilities of the CONTRACTOR, during the term of the Contract the CONTRACTOR and each subcontractor, at their own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the OWNER. Certificates of each policy for the CONTRACTOR and each subcontractor shall be delivered to the OWNER before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, nonrenewed or materially changed without 30 days advance written notice being given to the OWNER.

In addition to any coverage required by Texas Law, the CONTRACTOR shall provide the following coverages at not less than the specified amounts:

- 4.2 Workers Compensation insurance required by Texas Law at statutory limits, including employer's liability coverage at \$1,000,000. In addition to these, the CONTRACTOR and each subcontractor must comply with all the requirements of the Texas Department of Insurance, Division of Workers' Compensation, section 406.096(b); (Note: If you have questions concerning these requirements, you are instructed to contact the DWC.)

By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and its subcontractors who will provide services on the Project will be covered by workers compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

The CONTRACTOR'S failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the OWNER to declare the Contract

void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the OWNER.

- 4.3 Broad form commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability, written on an occurrence form, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S liability for injury to or death of OWNER'S employees and third parties, extended to include personal injury liability coverage with damage to property, with minimum limits as set forth below:

General Aggregate \$2,000,000
Products — Components/Operations Aggregate \$2,000,000
Personal and Advertising Injury \$ 1,000,000
Each Occurrence \$ 2,000,000

4.3.1 The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER.

- 4.4 Comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence; or separate limits of \$1,000,000 for bodily injury (per person), \$1,000,000 for bodily injury (per accident) and \$1,000,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.

4.5 OWNER'S PROTECTIVE LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain at all times during the prosecution of the work under this contract an OWNER'S protective liability insurance policy naming the OWNER as insured for property damage and bodily injury, which may arise in the prosecution of the Work or CONTRACTOR'S operations under this Contract. Coverage shall be on an "occurrence" basis, and the policy shall be issued by the same insurance company that carries the CONTRACTOR'S liability insurance with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence and \$1,000,000 aggregate.

4.6 "UMBRELLA" LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring CONTRACTOR for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows from and applies in excess of the primary liability coverages required

hereinabove. The policy shall provide “drop down” coverage where underlying primary insurance coverage limits are insufficient or exhausted. OWNER shall be named as an additional insured.

4.7 RAILROAD PROTECTIVE INSURANCE

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved. The minimum limit of coverage shall meet the specifications provided by the railroad company. The OWNER shall specify the amount of RPI necessary.

4.8 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

All policies to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

- A. each policy shall name the OWNER as an additional insured as to all applicable coverage;
- B. each policy shall require that 30 days prior to the cancellation, nonrenewal or any material change in coverage, a notice thereof shall be given to OWNER by certified mail;
- C. the term “OWNER” shall include all past, present or future, authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and individual members, elected official, officers, employees and agents thereof in their official capacities and/or while acting on behalf of the OWNER;
- D. the policy phrase “other insurance” shall not apply to the OWNER where the OWNER is an additional insured on the policy;
- E. all provisions of the contract concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies;
- F. each policy shall contain a waiver of subrogation in favor of OWNER, and its, past, present and future, officials, employees, and volunteers; and,
- G. each certificate of insurance shall reference the Project and Contract number, contain all the endorsement required herein, and require a notice to the OWNER of cancellation.

Insurance furnished by the CONTRACTOR shall be in accordance with the following requirements:

- A. any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the CONTRACTOR. The OWNER’S decision thereon shall be final;

B. all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas with a financial ratings of A+VII or better as assigned by BEST Rating Company or equivalent; and

C. All liability policies required herein shall be written with an “occurrence” basis coverage trigger.

CONTRACTOR agrees to the following:

A. CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies;

B. Companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

C. Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the Contract Documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability; and

D. No special payments shall be made for any insurance that the CONTRACTOR and subcontractors are required to carry; all are included in the Contract Price and the Contract unit prices. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

V. OWNERS RIGHTS AND RESPONSIBILITIES

MONTHLY ESTIMATE, PARTIAL PAYMENTS AND FINAL PAYMENTS

5.1 Progress and final payments shall be paid to the Contractor based upon the progress of the Project as indicated by the approved Applications for Payment, certificates of acceptance, or Certificates for Payment, that include an approved Schedule of Values that will be submitted by the CONTRACTOR to the OWNER prior to the commencement of the Work and in accordance with the following:

5.2 MONTHLY ESTIMATES

The CONTRACTOR shall deliver to the OWNER an itemized Application for Payment that shall include the work completed, materials stored at the Project site but not incorporated into the work, materials ready to be installed and stored at another agreed location, and the percentage of Work completed, through the 20th day of each month, on an Application for Payment with a schedule of values previously submitted by the Contractor and approved by the Owner. Prior to

release of funds in connection with any Application for Payment, the Owner may request, and the Contractor must provide, properly executed statements of full or partial releases of claims acceptable to Owner in form and content, for all persons or entities supplying labor or materials to the Project.

5.2.1 The Application for Payment is a representation by the CONTRACTOR to the OWNER that the construction has progressed to the point indicated, the quality of the Work covered by the application is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount requested.

5.2.2 INSPECTION AND PARTIAL PAYMENTS

Whenever the CONTRACTOR shall submit an Application for Payment to the OWNER for work performed by the CONTRACTOR, the CONTRACTOR shall notify the Engineer that the improvement is ready for inspection. The Engineer shall then make such inspection, and will have the authority to reject work that does not conform to the Contract Documents. If the work is satisfactory and in accordance with the specifications and Contract Documents, the Engineer shall issue a Certificate for Payment.

5.2.3 Within thirty (30) days of the Owner's receipt of a properly submitted and correct Application for Payment, and the issuance of a Certificate for Payment, the Owner shall make payment to the Contractor, in the amount approved by the Owner less 5% retainage. Such payment shall be adjusted for work that is incomplete or not in accordance with the Contract Documents or that is the subject of a separate contract, or subcontract or supplier claim or lien against the Contractor or the payment bonds for the project.

5.2.4 No partial or final payment or the entire use or occupancy of the Project by the OWNER shall be considered acceptance of work that does not strictly comply with the Contract Documents or release the CONTRACTOR of any of his responsibilities under the Contract.

5.2.5 PAYMENT FOR LABOR AND MATERIAL; NO LIENS

The CONTRACTOR for himself or any of his subcontractors shall pay all indebtedness which may become due to any person, firm or corporation having furnished labor, material or both in the performance of this Contract. It shall be the responsibility of each person, firm or corporation claiming to have furnished labor, materials or both, in connection with this Contract, to protect his or its interest in the manner prescribed by applicable laws of the State of Texas, provided, however, that as this Contract provides for a public works project, no lien of any kind shall ever exist or be placed against the Work or any portion thereof, or any public

funds or retainage held by the OWNER; and any subcontractor shall look solely to the CONTRACTOR and the payment bond surety, and not the OWNER, for payment of any outstanding amounts due for labor, materials or any other indebtedness in connection with the Work. However, the OWNER may, at any time prior to making final payment, require the CONTRACTOR to furnish a Consent of Surety to any payment due the CONTRACTOR for completed work and may, at the discretion of the OWNER or the request of the Surety, make the check jointly payable to the CONTRACTOR and the Surety. The Owner shall have no obligation under this Agreement to pay or to be responsible in any way for payment to any Engineer, another design professional, contractor, subcontractor or supplier performing portions of the Work, pursuant to a contract with the Contractor.

5.2.6 PAYMENT WITHHELD

In addition to express provisions elsewhere contained in the contract, the OWNER may withhold from any payment otherwise due the CONTRACTOR such amount as determined necessary to protect the OWNER'S interest, or, if it so elects, may withhold or retain all or a portion of any progress payment or refund payment on account of:

- A. unsatisfactory progress of the Work not caused by conditions beyond the CONTRACTOR'S control,
 - B. defective work not corrected,
 - C. CONTRACTOR'S failure to carry out instructions or orders of the OWNER or his representative,
 - D. a reasonable doubt that the Contract can be completed for the balance then unpaid,
 - E. work or execution thereof not in accordance with the Contract Documents,
 - F. claim filed by or against the CONTRACTOR or reasonable evidence indicating probable filing of claims,
 - G. failure of the CONTRACTOR to make payments to subcontractor or for material or labor,
 - H. damage to another contractor,
 - I. unsafe working conditions allowed to persist by the CONTRACTOR,
 - J. failure of the CONTRACTOR to provide work schedules as required by the OWNER,
 - K. use of subcontractors without the OWNER'S approval or,
 - L. failure of the CONTRACTOR to keep current as-built record drawings at the job site or to turn same over in completed form to the OWNER.
- When the above grounds are removed, payment shall be made for amounts withheld because of them, and OWNER shall never be liable for interest on any delayed or late payment.

5.2.7 PAYMENT FOR EXTRA WORK

The Extra Work done by the CONTRACTOR as authorized and approved by the Engineer shall be paid for in the manner hereinafter described, and the compensation thus provided shall be accepted by the CONTRACTOR as payment in full for all labor, materials, tools, equipment and incidentals and all superintendents' and timekeepers' services, all insurance, bond and all other overhead expense incurred in the performance of the Extra Work.

Payment for Extra Work shall be made by one of the following methods:

A. Method "A" — by unit prices agreed on in writing by the OWNER and CONTRACTOR before said Extra Work is commenced, subject to all other conditions of the contract.

B. Method "B" — by lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said Extra Work is commenced, subject to all other conditions of the contract.

5.2.8 SUBSTANTIAL COMPLETION

The Project will be considered substantially complete when the OWNER can utilize the Project for its intended purpose and the Work is in conformance with the Contract Documents.

5.3 APPLICATION FOR FINAL PAYMENT.

Upon full performance of all the Contract Work and the full performance of all the provisions of the Contract, the CONTRACTOR shall submit a final application for payment to the OWNER, the CONTRACTOR shall notify the Engineer that the improvement is ready for inspection. All warranties and guaranties required of the CONTRACTOR by the Contract Documents shall be assembled and delivered by the CONTRACTOR to the OWNER as Part of the final Application for Payment. The Contractor will assign to the Owner all manufacturer's warranties relating to materials and labor used in the work and will perform the Work in such a manner as to preserve all such manufacturer's warranties. The CONTRACTOR will deliver a certificate evidencing that insurance and bonds required by the Contract Documents will remain in full force and effect pursuant to the requirements of the Contract. The final Certificate for Payment will not be issued until all such warranties and guaranties have been received and accepted by the Owner, and a Certificate of Acceptance is issued by the Engineer.

5.3.1 FINAL INSPECTION AND ACCEPTANCE

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, the

CONTRACTOR shall notify the OWNER, and Engineer that the improvement is ready for final inspection. The Engineer shall then make such final inspection, and if the work is satisfactory and in accordance with the specifications and Contract Documents, the CONTRACTOR shall be issued a certificate of acceptance.

5.3.2 FINAL PAYMENT

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, as evidenced in the certificate of acceptance, and all required submissions provided to the OWNER, a final estimate showing the value of the work shall be prepared by the Engineer as soon as the necessary measurements and computations can be made. All prior estimates upon which payments have been made are subject or necessary corrections or revisions in the final payment. The amount of this final estimate, less any sums that have been previously paid, or deducted under the provisions of the Contract, shall be paid the CONTRACTOR within 30 days after the final acceptance, provided that the CONTRACTOR has furnished to the OWNER a consent of surety and an affidavit or other satisfactory evidence that all indebtedness connected with the Work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for and used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may respectively be due have consented to such final payment.

The acceptance by the CONTRACTOR of the final payment as aforesaid shall operate as and shall be a release to the OWNER from all claims or liabilities under the Contract, including all subcontractor claims, for anything done or furnished or relating to the Work under the Contract or for any act or neglect of said OWNER relating to or connected with the Contract.

All warranties and guarantees shall commence from the date of the certificate of acceptance. No interest shall be due the CONTRACTOR on any partial or final payment or on the retainage.

5.3 MODIFICATIONS TO CONTRACT WORK OR TIME OF PERFORMANCE

5.3.1 OWNER'S RIGHT TO TEMPORARILY SUSPEND WORK

5.3.2 REASONS FOR SUSPENSION

The OWNER shall have the right by written order to temporarily suspend the work, in whole or in part, whenever, in the judgment of the OWNER, such temporary suspension is required:

A. in the interest of the OWNER generally,

- B. due to government or judicial controls or orders which make performance of this contract temporarily impossible or illegal,
- C. to coordinate the work of separate contractors at the job site,
- D. to expedite the completion of a separate contract even though the completion of this particular Contract may be thereby delayed,
- E. because of weather conditions unsuitable for performance of the Work, or
- F. because the CONTRACTOR is proceeding contrary to contract provisions or has failed to correct conditions considered unsafe for workmen.

The written order of the OWNER to the CONTRACTOR shall state the reasons for suspending the work and the anticipated periods for such suspension. Upon receipt of the OWNER'S written order, the CONTRACTOR shall suspend the work covered by the order and shall take such means and precautions as may be necessary to properly protect the finished and partially finished work, the unused materials and uninstalled equipment, including the providing of suitable drainage about the work and erection of temporary structures where necessary. The CONTRACTOR shall not suspend the Work without written direction from the OWNER and shall proceed with the work promptly when notified by the OWNER to resume operations.

5.3.3 NO ADDITIONAL COMPENSATION

No additional compensation shall be paid to the CONTRACTOR for a temporary suspension of the Work by the OWNER or otherwise where same is caused by the fault of the CONTRACTOR. Where such temporary suspension is not due to the fault of the CONTRACTOR, he shall be entitled to:

- A. an equitable extension of working time for the completion of the work, not to exceed the delay caused by such temporary suspension, as determined by the OWNER; and
- B. the actual and necessary costs of properly protecting the finished and partially finished work, unused materials and uninstalled equipment during the period of the ordered suspension as determined by the OWNER as being beyond the Contract requirements, such costs, if any, to be determined pursuant to the terms of the Contract; and
- C. where the CONTRACTOR elects to move equipment from the job site and then return it to the site when the work is ordered resumed, the actual and necessary costs of these moves, in an amount determined by the OWNER pursuant to the terms of the Contract.

5.3.4 USE OF COMPLETED PORTIONS OF WORK

The OWNER may, after written notice to the CONTRACTOR, and without incurring any liability for increased compensation to the CONTRACTOR, take over and use any completed portion of the Work prior to the final completion and acceptance of the entire work included in the Contract, and notwithstanding that the time allowed for final completion has not expired. The OWNER and CONTRACTOR agree that occupancy of portions of the Work by the OWNER shall not in any way evidence the substantial completion of the entire work or signify the OWNER's acceptance of the Work.

The CONTRACTOR shall not object to, nor interfere in any way with, such occupancy or use after receipt of the OWNER'S written notice. Immediately prior to such occupancy and use, the OWNER shall inspect such portion of the Work to be taken over and shall furnish the CONTRACTOR a written statement of the work, if any, still to be done on such part. The CONTRACTOR shall promptly thereafter complete such unfinished work to permit occupancy and use on the date specified in the OWNER'S written order, unless the OWNER shall permit specific items of work to be finished after the occupancy and use by the OWNER.

In the event the CONTRACTOR is unreasonably delayed by the OWNER exercising its rights under this section, the CONTRACTOR may submit a request for an extension of time; CONTRACTOR'S sole remedy for an unreasonable delay shall be an extension of time and shall not be entitled to any additional compensation.

5.4 COMMENCEMENT; TIME OF COMPLETION; DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES

5.4.1 COMMENCEMENT; TIME OF COMPLETION

Contractor shall commence work within ten (10) consecutive calendar days after receiving from County a notice to proceed. Contractor agrees and covenants that the number of consecutive calendar days allowed to complete all work following a notice to proceed shall be as follows:

5.4.2. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

Time is of the essence in the progress and completion of this Contract. For each calendar day that any Work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials

ordered after the Contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the CONTRACTOR:

One Hundred Seventy-Five and 00/100 Dollars (\$175.00)

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the Work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this Contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or his surety shall pay any additional amounts due.

5.4.3 EXTENTIONS OF TIME

The CONTRACTOR shall be entitled to an extension of working time under this Contract only when claim for such extension is submitted to the OWNER in writing by the CONTRACTOR within seven days from and after the time when any alleged cause of delay shall occur, and then only when such time is approved by the OWNER. In adjusting the Contract working time for the completion of the Project, unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including, acts of God or the public enemy, acts of the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or delays of subcontractors due to such causes beyond their control shall be taken into consideration.

If the satisfactory execution and completion of the Contract should require work and materials in greater amounts or quantities than those set forth in the Contract, requiring more time for completion than the anticipated time, then the contract working time shall be equitably increased, but not more than in the same proportion as the cost of the additional work bears to the cost of the original work contracted for. No allowances shall be made for delays or suspension of the performance of the Work due to the fault of the CONTRACTOR.

No adjustment to working time shall be made if, concurrently with the equitable cause for delay, there existed a cause for delay due to the fault or negligence of the CONTRACTOR, his agents, employees or

subcontractors; and no adjustment shall be made to the Contract Price and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay resulting in adjustment to the working time hereunder, including delays caused by the acts or negligence of the OWNER. Notwithstanding any other provision of the Contract Documents, all claims for extension of working time must be submitted in accordance with the provisions of this Contract, and no act of the OWNER shall be deemed a waiver or entitlement of such extension.

5.5 TERMINATION FOR CONVENIENCE OF THE OWNER

5.5.1 NOTICE OF TERMINATION

The performance of the Work under this Contract may be terminated by the OWNER in whole or from time to time in part, in accordance with this section, whenever the OWNER shall determine that such termination is in the best interest of the OWNER. Any such termination shall be effected by mailing a notice of termination to the CONTRACTOR specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. Receipt of the notice shall be deemed conclusively presumed and established when the letter is placed in the United States Mail by the OWNER. Further, it shall be deemed conclusively presumed and established that such termination is made with just cause as therein stated; and no proof in any claim, demand or suit shall be required of the OWNER regarding such discretionary action.

5.5.2 CONTRACTOR ACTION

After receipt of a notice of termination, and except as otherwise directed by the OWNER or Engineer, the CONTRACTOR shall:

- A. stop work under the Contract on the date and to the extent specified in the notice of termination;
- B. place no further orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion the Work under the Contract as is not terminated;
- C. terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;
- D. transfer title to the OWNER and deliver in the manner, at the times, and to the extent, if any, directed by the OWNER or Engineer:
 1. the fabricated or unfabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the notice of termination; and

2. the completed or partially completed plans, drawings, information and other property which, if the Contract had been completed, would have been required to be furnished to the OWNER.

E. complete performance of such part of the work as shall not have been terminated by the notice of termination; and

F. take such action as may be necessary, or as the Engineer may direct, for the protection and preservation of the property related to its Contract which is in the possession of the CONTRACTOR and in which the OWNER has or may acquire an interest.

At a time not later than 30 days after the termination date specified in the notice of termination, the CONTRACTOR may submit to the OWNER a list, certified as to the quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Engineer. Not later than 15 days thereafter, the OWNER shall accept title to such items and remove them or enter into a storage agreement covering the same, provided that the list submitted shall be subject to verification by the Engineer upon removal of the items, or, if the items are stored, within 45 days from the date of submission of the list, and provided that any necessary adjustments to correct the list as submitted shall be made prior to final settlement.

5.5.3 TERMINATION CLAIM

Within 60 days after notice of termination, the CONTRACTOR shall submit his termination claim to the Engineer and the OWNER in the form and with the certification prescribed herein. Unless one or more extensions in writing are granted by the OWNER upon request of the CONTRACTOR, made in writing within such 60-day period or authorized extension thereof, any and all such claims shall be conclusively deemed waived. The termination claim shall (1) list all Contract Work which the CONTRACTOR has completed but for which the CONTRACTOR asserts it has not been paid, including any retainage; (2) list of all fabricated or unfabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of the Contract and the itemized cost for each such fabricated or unfabricated part, work in process, completed work, supplies and other material; (3) list all costs and expenses saved as a result of the termination of the Contract. The termination claim must include a copy of all invoices for fabricated or unfabricated parts, supplies and other material produced as a part of, or acquired in connection with the performance of the Contract for which the CONTRACTOR seeks compensation; all invoices for any subcontractors providing services related to the Contract; and (3) evidence of payment of all material suppliers and subcontractors, together with CONTRACTOR's certification that all such-material suppliers and

subcontractors have been fully paid together with executed lien releases from each such material supplier and subcontractor. The termination claim may not include any request for payment of Extra Work for which a Change Order has not been issued or for which the CONTRACTOR has not fully and timely complied with the provisions of section 2.3 of this Contract.

5.5.4 AMOUNTS

The CONTRACTOR and OWNER may agree upon the whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of work pursuant hereto, provided that such agreed amount or amounts shall never exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract Price of work not terminated. The contract shall be amended accordingly, and the CONTRACTOR shall be paid the agreed amount. No amount shall be due for lost or anticipated profits. Nothing prescribing the amount to be paid to the CONTRACTOR in the event of failure of the CONTRACTOR and the OWNER to agree upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, shall be deemed to limit, restrict or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the CONTRACTOR pursuant to this paragraph.

5.5.5 FAILURE TO AGREE

In the event of the failure of the CONTRACTOR and the OWNER to agree, as provided herein, upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, the OWNER shall determine, on the basis of information available to it, the amount, if any, due to the CONTRACTOR by reason of the termination and shall pay to the CONTRACTOR the amounts determined. No amount shall be due for lost or anticipated profits.

5.5.6 DEDUCTIONS

In arriving at the amount due the CONTRACTOR under this section, there shall be deducted (a) all unliquidated advance or other payments on account theretofore made to the CONTRACTOR, applicable to the terminated portion of this contract; (b) any claim which the OWNER may have against the CONTRACTOR in connection with this Contract; and (c) the agreed price for or the proceeds of sale of any materials, supplies or other things kept by the CONTRACTOR or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the OWNER.

5.5.7 ADJUSTMENT

If the termination hereunder be partial prior to the settlement of the terminated portion of this Contract, the CONTRACTOR may file with the Owner a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the notice of termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices; nothing contained herein, however, shall limit the right of the OWNER and the CONTRACTOR to agree upon the amount or amounts to be paid to the CONTRACTOR for the completion of the continued portion of the Contract when said contract does not contain an established contract price for such continued portion.

5.5.8 NO LIMITATION OF RIGHTS

Nothing contained in this section shall limit or alter the rights which the OWNER may have for termination of this Contract under any other provision of this Contract or any other right which OWNER may have for default or breach of contract by CONTRACTOR.

5.6 CONTRACTOR DEFAULT: OWNER'S RIGHT TO SUSPEND WORK AND ANNUL CONTRACT

The Work or any portion of the Work under contract shall be suspended immediately on written order of the OWNER declaring the CONTRACTOR to be in default. A copy of such notice shall be served on the CONTRACTOR'S surety. The contract may be annulled by the OWNER for any good cause or causes, among others of which special reference is made to the following:

- A. failure of the CONTRACTOR to start the work within 10 days from date specified in the written work order issued by the OWNER to begin the work;
- B. evidence that the progress of the work being made by the CONTRACTOR is insufficient to complete the work within the specified working time;
- C. failure of the CONTRACTOR to provide sufficient and proper equipment, materials or construction forces for properly executing the Work;
- D. evidence that the CONTRACTOR has abandoned the Work or discontinuance of the performance of the Work or any part thereof and failure to resume performance within a reasonable time after notice to do so;
- E. evidence that the CONTRACTOR has become insolvent or bankrupt, or otherwise financially unable to carry on the Work;
- F. deliberate failure on the part of the CONTRACTOR to observe any requirements of the specifications or to comply with any orders given by the Engineer as provided for in the specifications;

G. failure of the CONTRACTOR to promptly make good any defects in materials or workmanship, or any defects of any nature, the correction of which has been directed in writing by the OWNER;

H. evidence of collusion for the purpose of illegally procuring a contract or perpetrating fraud on the OWNER in the construction of work under contract;

I. repeated violations of safe working procedures;

J. the filing by the CONTRACTOR of litigation against the OWNER prior to final completion of the Work. When the Work is suspended for any of the causes itemized above, or for any other cause or causes, the CONTRACTOR shall discontinue the Work or such part thereof as the OWNER shall designate, whereupon the surety may either at its option assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue and perform the same or, with the written consent of the OWNER, sublet the same, provided, however, that the surety shall exercise its option within two weeks after the written notice to discontinue the work has been served upon the CONTRACTOR and upon the surety or its authorized agents. The surety in such event shall assume the CONTRACTOR'S place in all respects and shall be paid by the OWNER for all work performed by it in accordance with the terms of the Contract, but in no event shall such payments exceed the contract amount, regardless of the cost to the surety to complete the Work.

In the event that the surety assumes the CONTRACTOR'S place, duties and responsibilities in the Contract, all monies remaining due the CONTRACTOR at the time of his default shall thereupon become due and payable to the surety as the work progresses, subject to all terms of the Contract. In case the surety does not, within the hereinabove specified time, exercise its obligation to assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue, then the OWNER shall have the power to complete by contract or otherwise, as it may determine, the Work herein described or such part thereof as it may deem necessary; and the CONTRACTOR hereto agrees that the OWNER shall have the right to take possession of or use any or all of the materials, plans, tools, equipment, supplies and property of every kind provided by the CONTRACTOR for the purpose of the Work and to procure other tools, equipment and materials for the completion of the same and to charge to the account of the CONTRACTOR the expense of said contract for labor, materials, tools, equipment and expenses incident thereto. The expense so charged shall be deducted by the OWNER out of such monies as may be due or may at any time thereafter become due the CONTRACTOR under and by virtue of the Contract or any part thereof.

The OWNER shall not be required to obtain the lowest bid for the work of completing the Contract, but the expenses to be deducted shall be the actual cost of such work. In case such expense is less than the sum which would have been payable under the contract if the same had been completed by the CONTRACTOR, then in such case the OWNER may pay the CONTRACTOR

the difference in the cost, provided that the CONTRACTOR shall not be entitled to any claim for damages or for loss of anticipated profits.

In case such expense shall exceed the amount which would have been payable under the Contract if the same had been completed by the CONTRACTOR, the CONTRACTOR and his surety shall pay the amount of the excess to the OWNER on notice from the OWNER for excess due including any costs incurred by the OWNER, such as inspection, legal fees and liquidated damages. When any particular part of the Work is being carried out by the OWNER by contract or otherwise under the provisions of this section, the CONTRACTOR shall continue the remainder of the Work in conformity with the terms of the contract and in such manner as not to hinder or interfere with the performance of workmen employed as above provided by the OWNER or surety.

5.7 SUSPENSION BY COURT ORDER AGAINST THE OWNER

The CONTRACTOR shall suspend such part or parts of the Work pursuant to a court order issued against the OWNER and shall not be entitled to additional compensation by virtue of such court order; neither shall the CONTRACTOR be liable to the OWNER in the event the Work is suspended by such court order, unless such suspension is due to the fault or negligence of the CONTRACTOR. A delay of the CONTRACTOR due to a court order against the OWNER, or due to the OWNER'S failure to secure right-of-way at the time required or because of a conflict of a utility with the Work, shall not be cause for additional compensation for damages sustained by the CONTRACTOR, but may be a cause for extension of contract working time only. The CONTRACTOR'S sole remedy for any suspensions of the Work is an equitable extension of time to perform the Work.

5.8 NO WAIVER OF RIGHTS OR ESTOPPEL

The OWNER, or any officer or agent thereof, shall not be precluded at any time, either before or after final completion and acceptance of the Work and final payment therefore from:

A. showing the true and correct amount, classifications, quality and character of the Work done and materials furnished by the CONTRACTOR or any other person under this Contract, or from showing at any time that any determination, return, decision, approval, order, letter, payment or certification is untrue and incorrect or improperly made in any particular, or that the Work or the materials or any parts thereof do not in fact conform to the contract requirements; and (b) demanding the recovery from the CONTRACTOR of any overpayments made to him, or such damages as the OWNER may sustain by reason of the CONTRACTOR'S failure to perform each and every part of this Contract in strict accordance with its terms; or both.

VI. AUTHORITY OF THE ENGINEER

6.1 All work shall be performed in a good and workmanlike manner and to the satisfaction of the Engineer. The Engineer shall decide all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, sequence of the construction, interpretation of the plans and specifications, acceptable fulfillment of the Contract, compensation, mutual rights between contractors under these specifications and suspension of the Work. He shall determine the amount and quality of work performed and materials furnished, and his decisions and estimates shall be final. His estimate in such event shall be a condition precedent to the right of the CONTRACTOR to receive money due him under the Contract.

6.2 OWNER'S REPRESENTATIVES

Where the Contract Documents indicate that determinations, directions or approvals shall be made by the OWNER or "Owner's representatives," this shall mean the OWNER acting directly, or through duly authorized persons acting within the limit of authority delegated to them. Any determination, direction or approval of such authorized representatives shall be subject to review by the OWNER. For purposes of administering the schedule or the payment provisions of this Contract the Engineer may act as the Owner's representative for purposes of approving payments, changes, scheduling, or acceptance of the Work, at the OWNER'S discretion.

6.3 INSPECTIONS OF WORK PROGRESS

The Engineer shall visit the site at during construction of the Project as necessary as the Owner's Representative to verify that the Work is being performed in compliance with the Contract Documents and shall be given total access to the Project by the CONTRACTOR. Site visits or inspections by the Engineer shall in no way relieve the CONTRACTOR of any of its responsibilities or duties pursuant to the Contract Documents. The Engineer will neither have control over, nor be responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project.

6.4 CONSTRUCTION STAKES

Engineer will provide the Contractor with primary horizontal and vertical control to consist of one construction baseline and two benchmarks.

The Contractor shall take all necessary precautions to preserve any and/or all markings and staking. Payment for costs of restaking shall be the responsibility of the Contractor.

6.5 APPROVAL OF SUBMITTALS

The Engineer shall review and approve or take other appropriate action the CONTRACTOR's submittals such as Shop Drawings, Product Data and Samples, for the purpose of checking for conformance with the Contract Documents. The Engineers review of the submittals shall not relieve the CONTRACTOR of any of its obligations to perform the Work in strict compliance with the Contract Documents. The Engineer's review shall not be considered approval of safety precautions, means and methods, techniques, sequences or procedures that are the responsibility of the CONTRACTOR.

VII. CLAIMS OR DISPUTES

7.1 CLAIMS AGAINST OWNER AND ACTION THEREON.

No claim against the OWNER under the Contract or for breach of the Contract or additional compensation for extra or disputed work shall be made or asserted against the OWNER under the Contract or in any court action, unless the CONTRACTOR shall have strictly complied with all requirements relating to the giving of notice and information with respect to such claim as required by the Contract.

7.2 CLAIM AGAINST OFFICERS, EMPLOYEES OR AGENT OF THE OWNER.

No claim whatsoever shall be made by the CONTRACTOR against any, past, present or future, officer, employee or agent of the OWNER for or on account of, anything done or omitted to be done in connection with this Contract.

VIII. MISCELLANEOUS PROVISIONS

8.1 FINANCIAL INTEREST IN ANY CONTRACT BY OWNER'S OFFICERS, EMPLOYEES OR AGENTS

No officer, employee or agent of the OWNER shall have a financial interest, direct or indirect, in any contract with the OWNER or be financially interested, directly or indirectly, in the sale to the OWNER of any land, materials, supplies or services, except on behalf of the OWNER as an officer or employee. Any willful violation of this article shall constitute malfeasance in office, and any officer or employee guilty thereof shall thereby forfeit his office or position. Any violation of this article with the knowledge, expressed or implied, of the persons, partnership, company, firm, association or corporation contracting with the OWNER shall render the contract involved voidable by the OWNER.

8.2 SERVICE OF NOTICES

The OWNER and the CONTRACTOR shall each designate addresses where all notices, directions or other communication may be delivered or to which they may be mailed.

Notices to the surety or sureties on contract bonds shall be directed or delivered to the home office, or to the agent or agents who executed the bonds on behalf of the surety or sureties, or to their designated agent for delivery of notices.

Actual delivery of any such notice, direction or communication to the aforesaid places or depositing it in a postpaid wrapper addressed thereto in any post office regularly maintained by the United States Postal Service shall be conclusively deemed to be sufficient service thereof upon the above persons as of the date of such delivery or deposit.

The designated addresses may be changed at any time by an instrument in writing executed by the party changing the addresses and delivered to the other party.

Nothing herein contained shall, however, be deemed to preclude or tender inoperative the service of any notice, direction or communication upon the above parties personally or, if the CONTRACTOR be a corporation, upon any officer or director thereof.

8.3 UNLAWFUL PROVISIONS DEEMED STRICKEN

In the event a term, condition, or provision of this Agreement is determined to be void, unenforceable, or unlawful by a court of competent jurisdiction, then that term, condition, or provision shall be deleted and the remainder of the Agreement shall remain in full force and effect.

8.4 ALL LEGAL PROVISIONS INCLUDED

It is the intent and agreement of the parties to this contract that all legal provisions of law required to be inserted herein shall be and are inserted herein. If through mistake or oversight, however, any such provision is not herein inserted, or is not inserted in proper form, then upon application of either party, the contract shall be amended so as to strictly comply with the law and without prejudice to the rights of either party hereunder.

8.5 ASSIGNMENTS

The CONTRACTOR shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in it or any part thereof without the previous written consent of the surety company and the written approval of the OWNER.

The CONTRACTOR shall not assign, either legally or equitably, by power of attorney or otherwise, any of the monies due or to become due under this Contract or its claim thereto without the prior written consent of the surety company and the written approval of the OWNER.

The approval of the OWNER of a particular assignment, transfer or conveyance shall not dispense with such approval to any further or other assignments.

The approval by the OWNER of any assignment, transfer or conveyance shall not operate to release the CONTRACTOR or surety hereunder from any of the Contract and bond obligations, and the CONTRACTOR shall be and remain fully responsible and liable for the defaults, negligent acts and omissions of his assignees, their agents and employees, as if they were his own.

8.6 STATE AND LOCAL SALES AND USE TAXES

The OWNER qualifies for exemption from the state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act. Therefore, the CONTRACTOR shall not pay such taxes which would otherwise be payable in connection with the performance of this Contract.

The CONTRACTOR shall issue an exemption certificate in lieu of the tax on the purchase, rental or lease of:

- A. all materials, supplies, equipment and other tangible personal property incorporated into the real property being improved; and
- B. all materials, supplies, equipment and other tangible personal property used or consumed by the CONTRACTOR in performing the Contract with the OWNER. Materials and supplies “used in the performance of a contract” include only those materials actually incorporated into the property being improved and those supplies directly used to incorporate such materials into the property being improved. Overhead supplies and supplies used indirectly or only incidental to the performance of the Contract with the OWNER are not included in the exemption.

Under “reasons said purchaser is claiming this exemption” in the exemption certificate, the CONTRACTOR must name the OWNER and the project for which the equipment, material and supplies are being purchased, leased or rented.

8.7 VENUE AND GOVERNING LAW

The parties agree that the laws of the State of Texas shall govern the interpretation, validity, performance and enforcement of this Construction Agreement, and that the exclusive venue for any legal proceeding involving this Construction Agreement shall be in Collin County, Texas.

8.8 NO WAIVER OF LEGAL RIGHTS

Inspection by the Engineer or OWNER; any order, measurement, quantity or certificate by the Engineer; any order by the OWNER for payment of money; any payment for or acceptance of any work; or any extension of time or any possession taken by the OWNER shall not operate as a waiver of any provisions of the contract or any power therein reserved to the OWNER of any rights or damages therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The OWNER reserves the right

to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the Contract Documents. The OWNER reserves the right to recover by process of law sums as may be sufficient to correct any error or make good any deficiency in the Work resulting from such error, dishonesty or collusion by the CONTRACTOR or his agents, discovered in the Work after the final payment has been made.

Neither final acceptance of the Work, nor final payment shall relieve the CONTRACTOR of responsibility for faulty materials or workmanship, and the CONTRACTOR shall promptly remedy any defects due thereto and pay for any damage to other work resulting therefrom. Likewise, neither final acceptance nor final payment, nor partial or entire use or occupancy of the work by the OWNER shall constitute acceptance of work not done in accordance with the Contract Documents or relieve CONTRACTOR of liability with respect to any expressed or implied warranties or responsibility for faulty materials or workmanship, whether same be patently or latently defective.

8.9 OBLIGATION TO PERFORM FUNCTIONS

Any failure or neglect on the part of OWNER or Engineer or inspectors to enforce provisions herein dealing with supervision, control, inspection, testing or acceptance and approval of the work shall never operate to relieve CONTRACTOR from full compliance with the Contract Documents nor render OWNER liable to CONTRACTOR for money damages, extensions of time or increased compensation of any kind.

8.10 SUCCESSORS AND ASSIGNS

Subject to the limitations upon assignment and transfer herein contained, this contract shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

8.11 HEADINGS

The title and headings contained in the Contract Documents and the subject organization are used only to facilitate reference, and in no way define or limit the scope of intent of any of the provisions of this Contract.

8.12 ENTIRE AGREEMENT; AMENDMENTS; BINDING EFFECT

This Construction Agreement, including the Contract Documents and all the documents incorporated therein represents the entire and integrated agreement between the OWNER, Collin County, and the CONTRACTOR, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Construction Agreement may be amended only by written instrument signed by both, the OWNER, Collin County, and the CONTRACTOR. CONTRACTOR acknowledges that no representations have been made to it, upon which it is relying in entering into this Contract, which are not expressly set forth in the Contract Documents.

8.13 INTERPRETATION

Although this Agreement is drafted by the OWNER, Collin County, should any part be in dispute, the parties agree that this Construction Agreement shall not be construed more favorable for either party. No rule of construction requiring that ambiguities in this Contract shall be construed more favorably for either party shall apply.

8.14 EXPENSES FOR ENFORCEMENT

In the event either Party hereto is required to employ an attorney to enforce the provisions of this Agreement or is required to commence legal proceedings to enforce the provisions hereof, the prevailing Party shall be entitled to recover from the other, reasonable attorney's fees and court costs incurred in connection with such enforcement, including collection.

8.15 FORCE MAJEURE

No party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation: acts of God; flood, fire or explosion; war, invasion, riot or other civil unrest; actions, embargoes or blockades in effect on or after the date of this Agreement; or national or regional emergency (each of the foregoing, a "Force Majeure Event"). A party whose performance is affected by a Force Majeure Event shall give notice to the other party, stating the period of time the occurrence is expected to continue and shall use diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event.

IN WITNESS WHEREOF, the parties have executed this Construction Agreement upon the year and date indicated beneath their signatures hereto.

CONTRACTOR:

By: _____

Date: _____

ATTEST:

Secretary

COLLIN COUNTY, TEXAS:

By: _____
Michelle Charnoski, CPPB, Purchasing Agent

Date: _____

Collin County Commissioners' Court Order No.

ATTEST:

Secretary

DRAFT

ACKNOWLEDGMENTS

STATE OF TEXAS §

COUNTY OF _____ §

BEFORE ME, _____ on this day personally appeared _____
_____, of _____, a _____ corporation,
known to me (or proved to me on the oath of) _____ or
through _____ (description of identity card or other document) to be the
person whose name is subscribed to the foregoing instrument and acknowledged to me

that he/she executed the same as the act and deed of the corporation, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the ___ day of _____, 2020

Notary Public, State of Texas

Printed Name

My Commission expires on the ____ day of _____, _____.

STATE OF TEXAS §

COUNTY OF COLLIN §

BEFORE ME, _____ on this day personally appeared _____, Purchasing Agent of COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas, known to me (or proved to me on the oath of) _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same as the act and deed of COLLIN COUNTY, TEXAS, for the purposes and consideration therein expressed and in the capacity therein stated.

GIVEN under my hand and seal of office this the _____ day of _____, 2020

Notary Public, State of Texas

Printed Name

My Commission expires on the ____ day of _____, _____.

SECTION 005425 - W-9 FORM

Form **W-9**
 (Rev. December 2014)
 Department of the Treasury
 Internal Revenue Service

**Request for Taxpayer
 Identification Number and Certification**

**Give Form to the
 requester. Do not
 send to the IRS.**

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:
 Individual/sole proprietor or single-member LLC
 Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____
Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.
 Other (see instructions) ▶ _____
 C Corporation
 S Corporation
 Partnership
 Trust/estate

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
 Exempt payee code (if any) _____
 Exemption from FATCA reporting code (if any) _____
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)
 City, state, and ZIP code

6 Re requester's name and address (optional)

7 List account number(s) here (optional)

Print or type
See Specific Instructions on page 2.

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number										
				-			-			
or										
Employer identification number										
				-						

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.
Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.
- If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.
- By signing the filled-out form, you:
- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued).
 - Certify that you are not subject to backup withholding, or
 - Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
 - Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

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006111 PERFORMANCE BOND

STATE OF TEXAS §
COUNTY OF COLLIN §

KNOW ALL MEN BY THESE PRESENTS:

That _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____ County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of _____ Dollars (\$ _____) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal plus 10-percent of the stated penal sum as an additional sum of money representing additional court expenses, attorneys' fees, and liquidated damages arising out of or connected with the below identified Contract) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 202____, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 2021-014, Construction, Collin County Juvenile Detention, Video Retrofit.

CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal fully and faithfully executes the work and performance of the Contract in accordance with the plans specifications, and Contract Documents, including any extensions thereof which may be granted with or without notice to Surety, during the original term thereof, and during the life of any guaranty required under the Contract, and according to the true intent and meaning of said Contract and the plans and specifications hereto annexed, if the Principal shall repair and/or replace all defects due to faulty materials or workmanship that appear within a period of one year from the date of final completion and final acceptance of the work by OWNER; and if the Principal shall fully indemnify and save harmless the OWNER from all costs and damages which OWNER may suffer by reason of failure to so perform herein and shall fully reimburse and repay OWNER all outlay and expense which the OWNER may incur in making good any default or deficiency, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agreed that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

"PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety, but in no event shall a Change Order or Supplemental Agreement which reduces the Contract price decrease the penal sum of the Bond. And further that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvement by the OWNER.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____ 202____.

WITNESS

PRINCIPAL

Printed/Typed Name _____
Title: _____
Company: _____

Address: _____

WITNESS

SURETY

Printed/Typed Name _____
Title: _____
Company: _____

Address: _____

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone Number: _____

Note: Date of Bond must NOT be prior to date of contract.

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006113 PAYMENT BOND

STATE OF TEXAS §
COUNTY OF COLLIN §

KNOW ALL MEN BY THESE PRESENTS:

That _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____ County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of _____ Dollars (\$ _____) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 202____, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 2021-014, Construction, Collin County Juvenile Detention, Video Retrofit.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that the bond guarantees the full and proper protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant, and that conversely should the Principal faithfully perform said Contract and in all respects duly and faithfully observe and perform all and singular the covenants, conditions, and agreements in and by said Contract, agreed to by the Principal, and according to the true intent and meaning of said Contract and the claims and specifications hereto annexed, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modification to Surety being hereby waived, then this obligation shall be void; otherwise, to remain in full force and effect. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

"PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____ 202____.

WITNESS

PRINCIPAL

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

WITNESS

SURETY

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone Number: _____

Note: Date of Bond must NOT be prior to date of contract.

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006119 MAINTENANCE BOND

STATE OF TEXAS §
COUNTY OF COLLIN §

KNOW ALL MEN BY THESE PRESENTS:

That _____, a corporation organized and existing under the laws of the State of _____, and fully authorized to transact business in the State of Texas, whose address is _____ of the City of _____ County of _____, and State of _____, (hereinafter referred to as "Principal"), and _____ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of _____ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto _____ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, , in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 202____, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 2021-014, Construction, Collin County Juvenile Detention, Video Retrofit.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that the bond guarantees the full and proper maintenance and repair of the work herein contracted to be done and performed for a period of _____ year(s) from the date of acceptance and Principal will do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and do and perform all necessary work and repair any defective condition growing out of or arising from the improper laying or construction of same, or on account of any breaking of same caused by said CONTRACTOR in construction of same, or on account of any defect arising in any of said work laid or constructed by said CONTRACTOR or on account of improper excavation or backfilling, it being understood that the purpose of this section is to cover all defective conditions arising by reason of defective materials, work or labor performed by said CONTRACTOR, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agree that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

"PROVIDED, HOWEVER, that said Surety, for value received, stipulates and agrees the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____ 202____.

WITNESS

PRINCIPAL

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

WITNESS

SURETY

Printed/Typed Name _____

Title: _____

Company: _____

Address: _____

The Resident Agent of the Surety for delivery of notice and service of process is:
Name: _____
Address: _____
Phone Number: _____

Note: Date of Bond must NOT be
prior to date of contract.

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SECTION 280510 - COMMON WORK RESULTS FOR ELECTRONIC SECURITY SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General:
1. Furnish all labor, materials, tools, equipment, and services for all electronic systems work as indicated, in accord with provisions of Contract Documents.
 2. Completely coordinate with work of all other trades.
 - a. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
- B. Drawings use and interpretation:
1. Drawings are diagrammatic and indicate general arrangement of systems and equipment, except when specifically dimensioned or detailed.
 2. Field measurements take precedence over dimensioned drawings.
 3. Intention is to show size, capacity, approximate location, direction and general relationship of one work phase to another, but not exact detail or arrangement.
 4. Field verify locations and arrangement of all existing systems and equipment.
 5. Where ambiguity may exist between specifications and drawings, the most stringent shall apply.
- C. Installation of all systems and equipment is subject to clarification as indicated in reviewed shop drawings and field coordination drawings.
- D. Dimensions indicated anywhere are limiting dimensions.
- E. Do not use equipment exceeding dimensions indicated or equipment or arrangements that reduce required clearances or exceed specified maximum dimensions.
- F. Description of systems: Furnish and install all materials to provide functioning systems in compliance with performance requirements specified and any modifications resulting from reviewed shop drawings and field coordinated drawings. Electronic security systems work as specified in this section includes:
1. Providing all equipment to provide a functional integrated system indicated in the contract documents.
 2. Providing special back boxes for field devices.
 3. Providing equipment cabinets and enclosures.
 4. Providing wiring for electronic systems.
 5. Providing raceway systems for electronic systems.
- G. Electronic Security Systems:
- | | |
|---|-----------------|
| 1. Common Work Results for Electronic Security System | Section 28 0510 |
| 2. Cabinets and Enclosures: | Section 28 0555 |
| 3. Video Management and Recording System | Section 28 2300 |
| 4. Uninterruptible Power System: | Section 28 5045 |
- H. Furnished and installed the Division 28:

1. All 120 volt AC wiring and connections for power panels and/or terminal strips in electronic panels, cabinets, enclosures or consoles as required to provide sufficient power to new equipment (reuse existing power circuits).
 2. All 120 volt AC wiring, devices and connections for devices and equipment as indicated on drawings, or as required to provide sufficient power to new equipment. (reuse existing power circuits).
 3. All new electrical work 110V and higher must be completed by a licensed electrician under this contract.
 4. Raceway system using J-Hooks spaced at a maximum of 5' (60") from the main head end equipment to the end device. Provide conduit from device into plenum space within 3' of J-hooks. Do not let cables rest on ceilings in plenum.
 5. Conduit sizing shall allow for a maximum conductor fill of 40 percent of conduit cross sectional area.
 6. The Contractor shall be responsible for any additional conduits required (not shown on drawings) or increase in size of conduit to affect the installation of the security system contained herein.
- I. Description of systems: Furnish and install all materials to provide functioning systems in compliance with performance requirements specified and any modifications resulting from reviewed shop drawings and field coordinated drawings.

1.2 BASIS OF DESIGN

- A. The purpose of video management and recording system is to provide visual confirmation of movement through security barriers and general surveillance of movement. The Video Management and recording System shall be an IP network-based, fully distributed digital video system. The security video system will utilize local area networks (LAN) as a transmission medium for video, configuration, as well as storage of all data. The IP video management system shall provide support for IP cameras from multiple manufacturers and shall support high megapixel HD IP cameras.
- B. The existing video surveillance system in the facility is analog system and consists of a centralized matrix switcher located in the Tele-Communications Room 160 with video monitors, multiplexers, quad splitters, power supplies and analog DVRs in the equipment room and control room lower cabinets. All existing video surveillance system components shall be removed and replaced with the new Milestone XProtect Expert enterprise level video management and recording system. All existing cameras shall be removed and replaced with new HD IP based megapixel cameras as noted.
- C. All existing coax cables will be removed and replaced with Cat6 cables. New cameras shall be added to improve video coverage in the facility and outside perimeter. New cables may be pulled in existing conduits and on new J-hooks in the plenum using plenum rated cable. All cameras will be connected to new PoE network switches. Video management server, video viewing stations and video storage will be connected via dedicated network. The IP video management and recording system network shall be arranged in a star topology with a L3 10G capable core switch connected to each remote access/edge switch via redundant 1Gig uplinks on the existing OM1 fiber optic backbone, loaded at no more than 60% capacity.
- D. The video management system (VMS) shall be an enterprise-class client/server based IP video security solution that provides seamless management of digital video, audio and data across an IP network. The video management system shall be designed to work with ONVIF compliant 3rd party products as part of a total video security management system to provide full virtual matrix switching and control capability. The video management system shall consist of the following software modules: management server, recording services, configuration client and

operator clients. New video management and recording system shall provide state-of-the-art intelligent video analysis that reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

- E. The Digital Video Storage Array will be designed for high speed; high capacity digital video storage and high performance play back applications. The storage array will be a full featured RAID 6 configuration. All new cameras shall be connected to video network to allow display of any camera on any video viewing station. All cameras shall be recorded and video storage shall be sized to retain recording for 60 days. All cameras shall be continuously recorded at the camera's maximum resolution at 15 images per second. Quiet time recording (no motion) shall be stored at 2 images per second for all cameras, with reduced bandwidth. Continuous recording based on assumed motion should be estimated at 60% daily with quality settings at high and scene activity at medium.
- F. The system shall provide full video control, with additional full selection capability at any point within the network from a workstation. The security video system shall provide expansion capability for the addition or modification of the system. All new video management and recording system devices and equipment shall communicate over 1G network consisting of and L3 network switches connected via existing fiber optic backbone. The IP networked video management and recording system shall be an integrated hardware and software platform. It shall provide distributed administration of multiple devices and administer rights and privileges for all attached devices.
- G. Video system components shall be powered from the emergency power systems with additional backup from uninterruptible power systems for all components. UPS runtime shall be provided for a minimum of 20 minutes at full connected load in equipment rooms. Existing UPS units for existing equipment shall remain. Provide new circuits for new UPS units where shown on bid drawings.
- H. All Contractor provided hardware (including but not limited to CPUs, IP cameras, monitors) and software shall be the latest available products on the market at the date of the project implementation. The Contractor shall notify the engineer of any models which have been put on end-of-life or end-of-service lists by the manufacturer prior to installation.
- I. The county shall provide the Milestone XProtect Corporate site license. The Contractor shall provide all additional Milestone licenses for cameras, servers and workstations required for this project with one-year care support and shall provide all site specific configuration. Coordination with county I.T. will be required for IP scheme.
- J. The existing PLC and Intercom control and other ESS systems shall remain functional throughout the contract.
- K. The new video management and recording system shall be interfaced with the existing touch screen control and management system to allow display of all new and existing cameras on the touch screen maps for camera call-up functionality. The current touch screen control system is maintained by the county's Security System Integrator. The video system integrator shall be required to coordinate with county's Security System Integrator to setup Milestone Xprotect rules and certain settings according to their integration needs prior to installation. The Contractor shall provide a CAT6 data drop from the video system core switch to the electronic security equipment room per coordination with county's Security System Integrator. Allow for 300' run.
- L. Existing enclosures and racks may be reused. All equipment to remain in existing enclosures must remain accessible. Do not block existing systems with new equipment. Where necessary provide new expansion wall or floor mounted enclosures, but all new enclosures must be coordinated with owner prior to installation and match existing models in the room. Proper

ventilation and airflow must be achieved in the design of the layout of new equipment in new and existing enclosures. All cabinets shall allow for rear access to mounted equipment. A new 44RU lockable cabinet shall be provided in the existing Telecom Room#160/Jan#104 if the existing cabinet is not sufficient to house new equipment. The Contractor shall coordinate with county I.T. for the location and replacement of the cabinet prior to doing any work.

1.3 COUNTY CABLING REQUIREMENTS:

- A. All work done is to be based on Collin County standards and Industry best practices. Where the two diverge the Collin County lead will be responsible for making the decision on which to use.
- B. Vendor is responsible for labeling all equipment and connections according to Collin County specifications.
- C. Cables will be bundled at head end locations using Velcro.
- D. Vendor will terminate all cables on Panduit data jacks at both ends, cables will be terminated on Panduit patch panels in the IDF, and there will be no home run connections allowed.
- E. Vendor will test each cable connection and provide Collin County with a soft copy and hard copy of test results.
- F. Vendor will provide Collin County with a patch matrix indicating where each network drop is patched to on the switch. Which should be one for one (port 1 on pp should be port 1 on switch, port 48 on patch panel should be port 48 on switch etc.)
- G. Each cable is to be labeled at each end using Panduit Label maker or other label maker, no hand-written labels.
- H. Vendor will provide all tools needed to complete the work as prescribed.
- I. Vendor will trouble shoot and resolve any problems that arise as part of this project.
- J. Any deviations from the design drawings must be approved by Collin County.
- K. All personnel working on site at all Collin County Facilities must agree to follow all Collin County rules and regulations.

1.4 ALTERNATE BIDS:

- A. When providing Alternate Bids, include all ancillary costs to increase, modify, or delete the work as described. Do not reduce the overall system capability unless specifically described to do so. As example, deletion of cameras does not include reduction of video/data ports of network switches unless specifically noted as such.
- B. Alternate Bids within the Electronic Security Systems include the following.
 - 1. Alternate Bid#1 – Provide parking camera CS031, CS032 and CS033 and all associated equipment as part of this alternate bid. Base bid shall not include cameras CS031, CS032 and CS033 (Refer to drawing ES1.00, Key Note#4).
 - 2. Alternate Bid#2 – Provide external microphone for cameras C101, C102, C103, C108, C112, C125, C128, C135, C137 and C218 (Refer to drawing ES101, Key Note#1).

1.5 WARRANTY

- A. The Contractor will provide a warranty on all workmanship and installation for a period of one (1) year from the date of Substantial Completion per facility.
- B. Manufacturer’s warranties shall be maintained and transferred to the Owner. All video manufacturer equipment warranties shall be for a period of no less than 3 years.
- C. The Contractor shall provide advanced replacement for any equipment that fails in the first 12 month warranty period
- D. The existing equipment that is to be re-used need not be warranted. However such exception to the warranty are limited to the equipment itself and excludes damage by the Contractor. All installation, operations, functionality, programming, etc. remains included in the required warranties.
- E. Respond within four (4) hours to an emergency maintenance request. Provide a twenty-four hour telephone contact number (24 hours per day, 365 days per year). Service response time is defined as the period between the placing of a service request and established communications with the designated client representative. Emergency repair personnel shall be on-site within 24 hours of notification and repair or replacement of defective equipment shall be completed within 72 hours of notification. Coordinate a remote connection with owner using an air-gapped Ethernet relay switch designed for the purpose if one is not present in the system.
- F. Maintain a sufficient parts inventory during the warranty period to meet the anticipated system repair times. Contractor shall monitor spare equipment inventory and replenish materials used in an expedient manner.
- G. Prior to expiration of warranty, Contractor shall provide up to date workstation and enrollment server images, software, software patches, best practices for workstation and server support to include workstation and monitor technical builds and specifications.
- H. All computing equipment shall be provided with, and software applications compatible with Windows 10 and Microsoft Server 2016 operating systems at a minimum. Provide later OS versions where compatibility is available.
- I. See individual sections for additional warranty requirements.

1.6 QUALITY ASSURANCE

- A. Perform all work in accord with following codes and standards:
 - 1. Codes Compliance: Comply with the following current adopted codes:
 - a. Federal, state and local codes, regulations and ordinances.
 - b. National Electrical Code (NEC), latest edition
 - c. National Fire Code (NFC)
 - d. Occupational Safety and Health Act (OSHA)
 - e. International Building Code (IBC)
 - f. Factory Mutual System (FM) requirements
 - g. All authorities having jurisdiction.
 - 2. Standards Compliance: Comply with the following standards as applicable:
 - a. Americans with Disabilities Act (ADA)
 - b. American National Standards Institute (ANSI)
 - c. American Society for Testing and Materials (ASTM)
 - d. Electronics Industry Association (EIA)

- e. Electrical Testing Laboratories (ETL)
 - f. Factory Mutual (FM)
 - g. Institute of Electrical and Electronics Engineers (IEEE)
 - h. Insulated Cable Engineers Association (ICEA)
 - i. National Electrical Contractors Association (NECA)
 - j. National Electrical Manufacturers Association (NEMA)
 - k. National Fire Protection Association (NFPA)
 - l. Underwriter's Laboratories (UL)
- B. Equipment Manufacturer:
- 1. Regularly engaged in the manufacture of products specified.
 - 2. Manufacturer of products specified for a period of no less than five years with satisfactory performance in similar applications.
- C. Contractor Personnel: (Project Manager, Project Engineer, On-site Supervising Technician)
- 1. Regularly engaged in installation of products specified.
 - 2. Installer of products specified for a period of no less than five years with satisfactory performance.
- D. Systems specified in this Division shall be engineered, assembled and installed under the direction of the Contractor. The Contractor shall meet the following minimum requirements.
- 1. Qualifications.
 - a. Successful completion of at least five projects with similar system complexity which have been in successful operation for at least one year.
 - 1) Successful completion shall be determined by information from references confirming project was not delayed by the completion of electronic security systems, electronic security systems were fully operational within 90 days of substantial completion and electronic security systems remained fully operational at conclusion of warranty period.
 - 2) Projects of similar size are represented by electronic security integration scope of work, quantity of nodes, and quantity of similar field devices.
 - b. Technical staff shall be experienced and factory trained in systems specified.
 - c. The Contractor shall be bondable for an amount equal to 100% of his bid.
 - 2. Contractors desiring approval shall submit information supporting compliance with the following minimum requirements.
 - a. Minimum five (5) continuous years in the business of installing electronic security systems in justice/detention and or correctional facilities incorporating systems and equipment including but not limited to intercom/paging, programmable logic controllers, touch screen control, access control, and video management systems.
 - b. References: The Collin County and/or its representative(s) may at their own discretion contact references for projects in addition to those submitted by the applicant.
 - c. Definitions:
 - 1) Similar Size: Detention Facility of...
 - a) Similar dollar value of installed electronic security systems
 - b) Similar duration (12 months)
 - c) Similar systems technology
 - 2) Similar Complexity: Detention Facility ...
 - a) Using integration of multiple systems including video, communications, and control.
- E. Termination, testing and start-up of electronic systems shall be done under the direct supervision of the Contractor. Prior to termination at system equipment, all field wiring shall be tested against faults, grounds and other conditions that may impede the proper operation of the system. Contractor shall verify and accept the field wiring prior to termination at system equipment. Beginning of termination constitutes acceptance of conditions as satisfactory.

1.7 SUBMITTALS

- A. Review of shop drawings or schedules by Engineer shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless there is a formal letter which called attention to such deviations at the time of submission and secured written approval; nor shall it relieve the Contractor from responsibility for errors in shop drawings, schedules or coordination of the work with other trades.
- B. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered. Partial submittals will not be returned except at the request and expense of the Contractor.
- C. The Contractor shall develop and submit complete submittals and do so in a timely manner. By failing to do so, the Contractor agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to do so.
- D. Where Engineer furnished electronic files of the Contract Documents are used as part of the shop drawings, the Contractor shall review such files and confirm completeness and accuracy. Submission of such documentation as a part of the shop drawings shall be indication that such review and confirmation has been performed and completed. Submission and subsequent approval shall not relieve the Contractor from the requirements of the Contract Documents.
- E. All shop drawings shall be created using AutoCAD v2016 or later. Schedules shall be created in spreadsheet format using Microsoft Excel. Incorporate all revisions upon completion of work. Submit all schedules and record drawings in both hard copy and electronic files.
- F. Electronic submittal reviews:
 - 1. PDF submissions of narratives, data sheets, cut sheets and all other documents shall be created in their original size at a high quality resolution.
 - 2. Each PDF submission file shall have a page designated for a review stamp and general comments by the Engineer.
 - 3. Drawings being submitted in PDF form shall have minimum font sizes, preferably .125" but in no case smaller than 0.1"
 - 4. Drawings shall be in a high resolution format so as to not degrade when an area is enlarged while viewing.
 - 5. The original drawings should be converted to PDF's at full scale.
 - 6. PDF files should each be created by each general specification number/system and then all files & drawings as a group submitted as one complete submittal.
 - 7. Do not create a single PDF file for the complete submittal.
- G. Resubmittal of items that have been previously accepted or approved will not be reviewed unless specific attention is called to changes in previously approved items. Resubmission that does not specifically call attention to previously accepted or approved submittals shall not be considered as subsequent approval of a change to the initially accepted or approved item.
- H. Submit drawings, data sheets, schedules, and others, in compliance with Article "Submittal Requirements" of this Section to permit adequate time for review by the Engineer, but in not less than (twenty one) 21 calendar days. This (twenty one) 21 day review period is exclusive of time associated with travel, mail, delivery, copy, and handling. Due to the integrated system, most submittals are interrelated and thus are expected in one group.
- I. Provide information required for complete review of each item in one submittal. When individual sections of specifications require more than one item for review, such as shop drawings, product

data, samples, and related items, submissions shall include all specified information delivered at one time.

1. Incomplete or partial submittals will not be reviewed by the Engineer.
 2. Extra copies of submittals will not be marked or returned, except at the expense of the Contractor.
 3. Duplicate copies of incomplete or partial submittals, or extra copies of submittals, will be discarded after 15 calendar days unless Contractor makes arrangement for return, at Contractor's expense.
 4. Submittals not requested specifically may be returned to Contractor without review.
- J. Review of submittals shall be limited to two submissions. The Engineer shall be compensated for additional reviews. In such an event, the Engineer will determine a cost for the additional review(s) based on previous review cost and provide to the Contractor. Upon receipt of payment, the Engineer will conduct the requested additional review(s).
- K. Project Data: Electronic Systems General Requirements: Section 280510.
1. Contractor personnel qualifications: (Project Manager, Project Engineer, On-site Supervising Technician).
 2. List of all manufacturers and equipment suppliers.
 3. Submittal schedule: Schedule shall be submitted within 14 calendar days of Notice of Intent to Award and shall include time and duration for product data by group, shop drawings by group, and testing procedures.
 4. Where modifications are required to existing control systems, the schedule shall include phasing with identification of the time and duration of modifications to each portion of the work. Time and durations shall be reviewed with the Owner/User in order to allow continuous operation of the facility
 5. Functional block diagram of complete integrated system with references to all related sub-system drawings.
 6. Floor plans indicating device locations and cable assignments/groupings. Submission of these plans indicates that the Contractor has coordinated the placement of all devices with architectural plans, and coordinated raceway requirements with all related trades.
 7. Drawings indicating complete conduit and raceway systems.
 8. Spare parts inventory with quantity, description and source listed.
 9. Testing: Provide complete testing procedure for electronic security systems. The procedure shall identify testing of each function of each device under each condition. Manufacturer recommended test procedures shall be incorporated into the testing procedure. All testing shall be project specific.
 10. Construction schedule: A schedule of electronic security system construction phase work shall be submitted within 14 calendar days from the contract signing and shall include time and duration of each of the items listed at a minimum. The schedule shall be updated periodically as needed throughout the duration of the project with resubmission required at each update or modification, but no less than quarterly.
 - a. Submittals
 - b. Conduit and Raceway installation
 - c. Procurement
 - d. Assembly (by equipment room location)
 - e. Programming
 - f. Factory Testing of completed system
 - g. Shipping (by equipment room location)
 - h. Terminations (by equipment room location)
 - i. Field device installation (by building area)
 - j. Contractor preliminary testing (by building area)
 - k. Validation Testing
 - l. Test Upon Completion of Work
 - m. Operation and Training Manuals

- n. Owner Training
- o. Final Testing
- p. Pre-Warranty Expiration Review
- 11. Schedule of Values: A schedule of values for the electronic security systems shall be submitted within 60 calendar days of Notice to Proceed and shall include material and labor costs for each part of the work. Values for the following shall be provided at a minimum.
 - a. General Conditions: Section 280510
 - b. Submittals: Section 280510
 - c. Testing: Section 280510
 - 1) Factory Testing
 - 2) System Validation Testing
 - 3) Demonstration Upon Completion of Work:
 - d. Programming: All Sections
 - e. Cable and Wire: All Sections
 - f. Conduit and Raceways: All Sections
 - g. Video Management and Recording System: Section 282300
 - h. Uninterruptible Power Systems: Section 285045
- L. Transient Surge Protection (TSP / SSD): Section 280510
 - 1. Project Data: Submit material specifications and installation data for products specified herein.
 - a. Include electrical characteristics, and ratings for each type of TSP equipment.
 - b. Indicate wiring diagrams indicating internal connections of TSP components within each enclosure.
 - c. Drawings shall be provided indicating unit dimensions, weights, mounting provisions, and connection details.
 - d. Submittals of each system shall indicate location of TSP devices.

1.8 WEATHERPROOF EQUIPMENT AND LOCATIONS

- A. Weatherproof equipment and locations are where weatherproof (WP) is indicated or where equipment is not located inside a building.
- B. Enclosures and boxes to be NEMA 4X stainless steel.
- C. Mounting and support hardware to be stainless steel.

1.9 PROTECTION

- A. Provide covering and shielding for all equipment provided to protect from damage.
- B. Protect nameplates on equipment, to prevent defacing.
- C. Repair, restore or replace damaged, corroded and rejected items.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Protect all materials and equipment from damage during storage at the site and throughout the construction period. Protect equipment and materials during shipment and storage against physical damage, dirt, dust, moisture, heat, cold, rain, and any foreign substances that may damage the equipment.

- B. Prevent damage from rain, dirt, sun and ground water by storing the equipment on elevated supports and covering them on all sides with securely fastened protective rigid or flexible waterproof coverings.
- C. Protect conduit by storing it on elevated supports and capping the ends with suitable closure material to prevent dirt accumulation.
- D. Protect all fabricated and/or installed materials and equipment against dust, dirt, moisture, physical damage, metal debris and any foreign substances that may damage the equipment.
- E. Protect painted surfaces with removable heavy Kraft paper, sheet vinyl or equal, installed at the factory and removed prior to final inspection.
- F. Replace damaged equipment as determined by the Engineer. Repaint and finish damaged paint on equipment and materials with the same quality of paint and workmanship used by manufacturer so that repaired areas are not obvious.

1.11 OPERATING AND MAINTENANCE DATA

- A. Provide the following specific instructional material for this project for each electronic system. Product data shall be original data sheets. Copies are not acceptable. Product data, instructions and manuals from original packaging is preferred.
 - 1. Operations manual for all components and system as a whole.
 - 2. Maintenance manuals for all components and system as a whole.
 - 3. Point-to-point diagrams, wiring diagrams and construction details.
 - 4. All device schedules, I/O schedules, IP Address Schedules, and all calculations.
 - 5. A list of all default and custom passwords for all software and IP devices must be handed over to the owner's administration and included in the manual.
 - 6. List of spare parts, materials and suppliers of components. Provide name, address and telephone number for each supplier.
 - 7. Emergency instructions for operational and maintenance requirements.
 - 8. Copies of all warranties or warranty letters from manufacturers.
 - 9. Delivery time frame for replacement of component parts from suppliers.
 - 10. Recommend inspection schedule and procedures for all components and system as a whole.
 - 11. Complete 'Approved' As-Built shop drawings and product data for all components and system as a whole.

1.12 JOB CONDITIONS

- A. Cause as little interference or interruption of existing utilities and services as possible.
 - 1. Schedule work which will cause interference or interruption in advance with Owner, Architect or Engineer, authorities having jurisdiction and all affected trades.
- B. Examine Contract Documents to determine how other work will affect the execution of electronic systems.
- C. Determine and verify locations of all existing utilities on or near site.
- D. Make arrangements for and pay for necessary permits, licenses, and inspections.

1.13 EQUIPMENT AND SYSTEM IDENTIFICATION

- A. All electronic security systems and equipment shall be labeled for identification.
 - 1. Install a nameplate on each individual equipment rack, enclosure, boxes, cabinet, and significant equipment item with text to coordinate with approved submittal documents.
 - 2. Use identifiers and abbreviations defined in the Drawings whenever possible. Use plan designation for labeling, unless indicated otherwise.
 - 3. Nameplates shall be laminated black phenolic resin with a white core and engraved lettering, a minimum of 1/4” high. Use fasteners to install nameplates. Do not fasten with adhesives.
 - 4. Engrave using upper case letters of uniform height; centered on device, cover plate, or enclosure; with all characters made clearly and distinctly. Allow room for fastener attachment.
 - 5. All equipment shall have the manufacturer’s name, address, model number and rating on a nameplate securely affixed in a conspicuous place. All equipment shall bear labels attesting to Underwriters Laboratories approval where subject to Underwriters Laboratories label service.
 - 6. Identify all field terminals and relays with device identification. Lettering shall be 3/16” high, minimum.

- B. New raceway systems shall be labeled at all pull points and on each side of wall penetration, but in no case less than 20 feet between labels. Identify raceways with name of security system
 - 1. Apply preprinted labels with pressure sensitive, self-adhesive backing. If additional adhesion is required to hold label in place, use appropriate taping material wrapped completely around raceway.
 - 2. Position identification so that it is readily visible from eye level.
 - 3. Color scheme for labels:
 - a. Communications: Orange
 - b. Security Control: Green
 - c. Video Surveillance: Blue
 - d. Network: Yellow

- C. All wire and cables shall have wire markers at each and every termination point. Each wire shall be identified by unique code.

- D. Labeling system suppliers:
 - 1. Thomas & Betts
 - 2. Brady
 - 3. Westline
 - 4. Seton

1.14 RECORD DRAWINGS

- A. The Contractor shall keep a complete set of all electronic systems contract drawings and the electronic systems shop drawings in the job site office.
 - 1. Use these sets of drawings for showing as constructed installation of electronic security systems and equipment.
 - 2. Where any material, equipment, wiring or system components are installed differently from that shown, show such differences clearly and neatly using ink or indelible pencil.
 - 3. At project completion, submit the record set of contract drawings to Engineer in electronic files in both PDF and AutoCAD format.
 - 4. At project completion, provide all As-Built drawings and final IP and device schedule in hard copy and digital format to the owner. Provide all files in original CAD and Excel formats to Engineer and owner, as well as PDF versions.

- B. Software Records:
1. Submit final software programs on electronic media compatible with the installed system.
 - a. Transfer all software licenses to the Owner/User representative at the completion of the project. Transfer shall include customer support rights.
 - b. Fully comply with all license agreements for the installed software. Install sufficient quantities of each software program so that the Owner fully meets the intent of the publisher's site license agreement. When in doubt, contact the publisher for an interpretation and comply with that interpretation.
 - c. Provide the Owner with all original installation media and manuals for every software program installed on the system.
 2. Standard and Custom Application Software:
 - a. Prepare and submit the licenses to all software installed for the system. Compile a list with each program name, its installed version number, the number of copies installed, the serial number of each copy, the publisher's name and address, and the publisher's customer support telephone number.
 - b. Prepare and submit complete documentation of the final installed version of the application program, including a diagram of its component modules, subroutines, databases, libraries, drivers, and other parts. Narrative descriptions shall accompany the diagram, giving basic descriptions of each component and describing the interaction between components. Provide a complete, annotated listing of all application settings.
 3. User Data and User Programmable Software:
 - a. Provide complete documentation of all user data and user programmable software, including but not limited to properties, preferences, settings, configurations, component modules, plug-in modules, user subroutines, databases, libraries, drivers, macros, templates, objects, slides, maps, images, sounds, icons, screen savers, and any other software files for each site.
 - b. Provide narrative descriptions and diagrams that give basic descriptions of each software component and the interaction between software components. Provide a complete, annotated software component listing.
 - c. Provide a DVD or equivalent media of the final operating version of the user data and user programmable software. Provide three (3) copies of the media, properly labels and dated in hard cases.
 - d. Provide record of all new IP addresses assigned to the electronic security system devices and equipment.
 4. Operators Guide
 - a. Operators Guide shall outline the operation of each system. A guide is to be kept at each workstation for reference on the operation of the equipment.
 - b. Include written description in outline form how to operate the basics of the system. This shall include but not be limited to: access and control of individual devices, group control functions, emergency control functions, system acknowledgement and reset of alarms.
 - c. Include 8.5 x 11 inch graphics as needed to identify device locations and facilitate understanding of the written description.
 - d. Provide one copy for each work station and one master copy that may be reproduced by the County.
 - e. Laminate each guide for each workstation, or other approved method.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Acceptable manufacturers:

1. See individual specification section.
- B. The product numbers contained herein are for reference only and may not be the most current available nor a complete listing of all features or options required. Where a manufacturer is listed without a product number, an equivalent item of the specified manufacturer is acceptable. Determination of equivalent is at the sole discretion of the Engineer. Where a conflict or ambiguity exists between the written description and the product number, the written description shall govern.
- C. Equipment installed in exterior applications shall be fitted with fasteners and exposed surfaces of stainless steel or other corrosion resistant material.
- D. Use only prime quality, new materials, apparatus and equipment.
- E. Use electrical materials approved by UL and bearing UL label where listing has been established for materials or devices in question.
 1. Manufactured items and fabricated assemblies of electrically operating equipment: UL approval or UL re-examination listing.
- F. Structural steel for supports: ASTM A36.
 1. Galvanize members installed in areas of high humidity or condensation and exterior locations.
 2. Furnish other members with shop coat of red lead primer.
 3. Shop fabricate for field assembly using bolts.
 4. Minimize field welding.
 5. Retouch primer after field welding.

2.2 COMPUTING EQUIPMENT

- A. All computing equipment shall be provided with, and software applications compatible with Windows 10 and Microsoft Server 2016 or later operating systems.

2.3 GROUNDING

- A. All equipment shall be grounded in accordance with the National Electric Code (NEC), these specifications and drawings, and the equipment supplier's recommendations.

2.4 TRANSIENT SURGE PROTECTION (TSP)

- A. Industry Reference Standards: The following specification and standards are incorporated into and become a part of this specification by reference.
 1. Underwriters Laboratories, Inc. (UL)
 - a. No. 1449 2nd Edition Standard for Safety
 - b. No. 497 A, B and C.
 2. Institute Of Electrical And Electronics Engineers (IEEE)
 - a. Std. 142 - Recommended Practice For Grounding
 - b. Std. 518 - Recommended Guide On Electrical Noise
 3. American National Standards Institute (ANSI)/IEEE
 - a. C62.41.1-2002 - IEEE Guide on the Surge Environment in Low Voltage (1000V and less) AC Power Circuits.
 - b. C.62.41.2-2002 - IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and Less) AC Power Circuits.

- c. C62.36-2000 – IEEE Standard Test Method for Surge Protectors Used in Low-Voltage Data, Communications, and Signaling Circuits.
 - 4. National Electrical Manufacturers Association (NEMA)
 - a. NEMA LS-1-1992 – Low Voltage Surge Protection Devices
 - 5. International Electrotechnical Commission (IEC).
 - a. IEC 529:1989 – Type of protection through housing.
 - b. IEC 1024-1:1990 – Protection of structures against lightning – Part 1: general principles.
 - c. IEC 61643-21 – Low Voltage Surge Protective Device: SPD Connected to Telecommunication and signaling networks – Performance requirements and testing methods.
 - 6. Deutsch Industrial Norm (DIN)
 - a. DIN EN 50022: 1977/DIN EN 50022: 1978-05 Mounting rails 35mm wide for snap-on mounting of equipment
 - 7. Federal Information Processing Standards
 - a. Publication 94 (FIPS PUB 94)
 - B. Acceptable manufactures: All device(s) shall be by the same manufacture.
 - 1. TSP Devices:
 - a. Base: Eaton, Schneider Electric, Phoenix Contact, Transtector Systems, Inc.
 - 2. Other manufacturers desiring approval must submit substitution requests prior to bid.
 - C. All TSP devices installed shall utilize Silicon Avalanche Diodes (SAD) as the primary means of protection. Secondary protection shall be SADs or Metal Oxide Varistors (MOVs). Each protection circuit shall be independent of each other and neither circuit shall short to ground on clamping transient surges.
 - D. Each 120 VAC circuit or feeder required for the VSS shall be provided with a TSP device, power strip or PDU with surge suppressor.
 - E. Each electronic security system circuit containing metallic conductor (s) shall be provided with a TSP device when leaving the confines of a building. Each electronic security system circuit containing metallic conductor(s) shall be provided with a TSP device when entering a building. Circuits serving building mounted devices or equipment that are located below the roof that originate or terminate in the building it is attached to, do not require TSP devices.
 - F. Locate TSP device at first termination point within the building. Locate all TSP devices in cabinets or enclosures.
 - G. All TSP devices shall be provided with a ground connection. The ground circuit shall be sized in conformance with the manufacturer's written requirements for proper grounding for the associated device. The ground conductor shall be routed and connected to the nearest electrical system ground point.
- 2.5 WIRING AND CABLE (AS IN MEANS AND METHODS OF SINGLE AND MULTIPLE CONDUCTOR CABLE INSTALLATION)
- A. Power wiring: Single conductor cable, soft drawn, copper wire with type THWN 600 volt insulation, UL listed.
 - B. All cable shall be per manufacturer's written recommendation for the application and environment anticipated for this project, but in no case less than what is required by these specifications. All cable shall be of standard type available from multiple manufacturers. Replace cable determined to be inadequate for specified performance.

- C. All Class 1 wiring shall be building wire rated for 600V. Provide overcurrent protection for conductors in accordance with NEC. Minimum sizes as follows:
 - a. Indication: 18 GA minimum.
 - b. Control: 14 GA minimum.All Class 2 wiring may be single conductor or multiple conductor cables. Conductors to be stranded type tinned copper, 22 GA minimum, PVC insulated. Maintain Class 1 / Class 2 separation per NEC.
- D. Pulling lubricant: Do not use cable pulling lubrication compound containing petroleum or other products which may deteriorate insulation.
- E. All cable installation shall be continuous from equipment/device terminal to equipment/ device terminal. No splicing of cables will be allowed.

2.6 RACEWAYS, WIREWAYS, BOXES AND FITTINGS

- A. Raceways, wire ways, boxes and fittings shall be provided under Division 28.
- B. Raceways, wire ways, boxes and fittings shall be provided where indicated on drawings.
- C. All raceways shall be sized for maximum 40 percent fill. All conductors shall be included in fill calculations. Minimum conduit size shall be 3/4".
- D. Provide metal conduits, tubing, fittings, and couplings of types, grades, sizes, and weights (wall thickness) for each service indicated. Where types and grades are not indicated, provide proper selection determined by installer to fulfill wiring requirements and comply with applicable portions of NEC for raceways.
- E. Rigid Metal Conduit and Fittings
 - 1. Rigid steel conduit: ANSI C80.1
 - 2. Fittings and conduit bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.
 - 3. Rigid galvanized conduit shall be used where exposed conduit is required. Exposed conduit that is below 15 feet above finished floor shall be anchored to walls or ceilings with two hole straps on no less than 24 inch centers
- F. Electrical Metallic Tubing (EMT) and Fittings
 - 1. EMT: ANSI C80.3 galvanized tubing
 - 2. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel compression type
 - 3. Electrical metallic tubing (EMT) with compression connectors shall be used where concealed above ceilings and in equipment rooms
- G. Flexible Metal Conduit and Fittings
 - 1. Conduit: FS WW-C-566; steel
 - 2. Fittings and Conduit Bodies: ANSI/NEMA FB 1
- H. Liquid tight Flexible Conduit and Fittings
 - 1. Conduit: Flexible metal conduit with PVC jacket
 - 2. Fittings and Conduit Bodies: ANSI/NEMA FB 1
- I. Plastic Conduit and Fittings
 - 1. Conduit: NEMA TC 2; Schedule 40 PVC
 - 2. Fittings and Conduit Bodies: NEMA TC 3
- J. CONDUIT SIZING, ARRANGEMENT AND SUPPORT

1. Arrange conduit to maintain headroom and present a neat appearance.
2. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.
3. Maintain minimum 6-inch clearance between conduit and piping. Maintain 12-inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.
4. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.
5. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps.
6. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

K. CONDUIT INSTALLATION

1. Cut conduit square using a saw or pipe cutter; de-burr cut ends.
2. Bring conduit to the shoulder of fittings and couplings and fasten securely.
3. Use conduit hubs for fastening conduit to cast boxes and for fastening conduit to sheet metal boxes in damp or wet locations.
4. Install no more than the equivalent of three 90-degree bends between boxes.
5. Use conduit bodies to make sharp changes in direction, as around beams.
6. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inches in size.
7. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.
8. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.
9. Provide a pull tape for spare empty conduits. The tape shall be fiberglass reinforced polyester tape with distance marking in feet continuous along its length. Furnish T&B or Greenlee products.
10. Install expansion joints where conduit crosses building expansion joints.
11. Where conduit penetrates fire-rated walls and floors, provide mechanical firestop fittings with UL listed fire rating equal to wall or floor rating. Seal opening around conduit with UL listed foamed silicone elastomer compound.
12. Route conduit through roof openings for piping and ductwork where possible; otherwise route through roof jack with pitch pocket.
13. Maximum size conduit in slabs above grade: 3/4 inch.
14. Use PVC-coated rigid steel factory elbows for bends in plastic conduit runs longer than 100 feet or in plastic conduit runs, which have more than two bends regardless of length.
15. Make joints in accordance with manufacturers' written instructions.
16. Provide plastic warning tape for underground conduit or duct bank installations. Install warning tape directly above conduit one foot below finished grade or as shown on drawings.
17. Sand for intermediate fill around underground conduits shall be washed sand, suitable for concrete or masonry.

L. CONDUIT INSTALLATION SCHEDULE

1. Underground installations more than two feet from foundation wall: Rigid steel conduit or Schedule 40 plastic conduit.
2. Installations in or under concrete slab, or underground within 2 feet of foundation wall: Rigid steel conduit.
3. In slab above grade: Rigid steel conduit or SCHED .40 PVC.
4. Exposed outdoor locations: Rigid steel conduit or SCHED .80 PVC.
5. Wet interior locations: Rigid Steel Conduit or SCHED .40 PVC.
6. Concealed dry interior locations: Electrical metallic tubing or SCHED .40 PVC.
7. Exposed dry interior locations: Electrical metallic tubing or SCHED .40 PVC.

2.7 SPARE PARTS

- A. Deliver spare parts in protective wrapping and packaging for proper storage.
- B. Provide spare parts as indicated in individual specification section.
- C. Spare parts shall be available to the Contractor to use as immediate replacements during the warranty period. The Contractor shall replace all spare parts used for the warranty requirements within 30 calendar days of use.
- D. Provide the following spare parts:
 - 1. Transient Surge Protection: two (2) of each type used.

PART 3 - EXECUTION

3.1 GENERAL

- A. Use only workers experienced in electronic security and IP video systems for installation of equipment and termination of wire/cable systems.
- B. When changes in location of any work are required, obtain approval of Engineer and owner before making change. Engineer may move any item prior to or at time of rough-in up to 5 FT - 0 IN without extra cost.
- C. Do not change indicated sizes without written approval.
- D. Equipment Installation:
 - 1. Install all equipment in accordance with the manufacturer's recommendations, and accepted shop drawings.
 - 2. Install all equipment in compliance with NEC requirements, NECA's "Standard of Installation", and recognized industry practices.
 - 3. Do not attach electrical materials to roof decking, removable or knockout panels, or temporary walls and partitions unless indicated otherwise. Use hangers and other supports to support the equipment and materials, intended for this purpose.
 - 4. Locate equipment as close as practical to the locations shown on the Drawings.
 - 5. Maintain minimum 3-foot working clearances on each side of equipment or equipment racks where access is required to inspect, service, or adjust.
 - 6. Check equipment against available mounting space indicated on the drawings. Coordinate location of equipment with existing devices to minimize interference. Bring all conflicts or clearance problems to the attention of the Engineer during the preparation of shop drawings.
 - 7. Where the Engineer determines that equipment installation is not conveniently accessible for operation and maintenance, remove and reinstall equipment in a conveniently accessible manner.
 - 8. Remove and protect existing equipment that is to be reinstalled. Make modifications and adjustments as required for re-mounting devices.
 - 9. Ensure all equipment is adequately ventilated and installed in such a way (rack spacing, additional cooling, etc.) so ALL equipment never exceeds manufactures published maximum operating temperature.

3.2 GENERAL

- A. Use only workmen experienced in electronic security systems for installation of equipment and termination of wire/cable systems.
- B. When changes in location of any work are required, obtain approval of Engineer before making change. Engineer may move any item prior to or at time of rough-in up to 5 FT - 0 IN without extra cost. Prior to installation of camera back boxes, the Contractor shall notify the engineer if an obstruction exists that would adversely affect the intended view. An RFI shall be sent with a recommended alternate mounting location.
- C. Do not change indicated sizes without written approval.
- D. Equipment Installation:
 - 1. Install all equipment in accordance with the manufacturer's recommendations, and accepted shop drawings.
 - 2. Install all equipment in compliance with NEC requirements, NECA's "Standard of Installation", and recognized industry practices.
 - 3. Do not attach electrical materials to roof decking, removable or knockout panels, or temporary walls and partitions unless indicated otherwise. Use hangers and other supports to support the equipment and materials, intended for this purpose.
 - 4. Locate equipment as close as practical to the locations shown on the Drawings.
 - 5. Maintain minimum 3-foot working clearances on each side of equipment or equipment racks where access is required to inspect, service, or adjust.
 - 6. Check equipment against available mounting space indicated on the drawings. Coordinate location of equipment with existing devices to minimize interference. Bring all conflicts or clearance problems to the attention of the Engineer during the preparation of shop drawings.
 - 7. Where the Engineer determines that equipment installation is not conveniently accessible for operation and maintenance, remove and reinstall equipment in a conveniently accessible manner.
 - 8. Remove and protect existing equipment that is to be reinstalled. Make modifications and adjustments as required for re-mounting devices.
 - 9. Insure all equipment is adequately ventilated and installed in such a way (rack spacing, additional cooling, etc.) so ALL equipment never exceeds manufactures published maximum operating temperature.

3.3 CUTTING AND PATCHING

- A. Perform or pay for all cutting, fitting, repairing, patching and finishing of work of other sections where it is necessary to disturb such work to permit installation of work. Repair or replace existing or new work disturbed. Patch all walls/ceilings with material that matches existing texture, color and security grade.

- B. Avoid cutting, where possible, by setting sleeves or frames, and by requesting openings in advance.
- C. Before cutting obtain approval of Architect or Engineer.
 - 1. Use only approved methods.
 - 2. Cut all holes neatly and as small as possible to admit work.
 - 3. Do not weaken walls or floors; locate holes in concrete to miss structural sections.
- D. Locate openings and sleeves to permit neat installation of equipment.
- E. Do not remove or damage fireproofing materials.
 - 1. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.
 - 2. Repair or replace fireproofing removed or damaged, at no extra cost.

3.4 RENOVATION

- A. Where existing circuits are to be extended for connection to other equipment or systems, break existing circuit at an accessible location, install terminal box with terminal strips or connectors and extend circuitry as required.
- B. Existing devices and equipment that is to remain for re-use shall be tested for proper operation, opens and shorts prior to termination. If found to be defective, notify Architect or Engineer of nature of problem and recommended remedy. Minor modifications shall be made at no additional cost.
- C. Where devices are removed from walls or ceilings that are to remain, provide stainless steel blank cover plate over existing rough-in box, secured with security screws.
- D. Where circuits that are to remain in order to maintain operation to remaining devices, verify continuity of circuits after removal of other equipment and/or devices. Where wire, cable and/or raceway modifications are required to maintain circuits, provide such modification as part of the work.
- E. Where existing equipment is indicated to be reused, Contractor may provide new equipment of equal or greater capability and as specified for such new equipment. Such intent shall be indicated in the submittal documents.
- F. All equipment and/or devices removed shall be turned over to the Owner for use as spare parts. Remove devices and equipment in such a manner to maintain their integrity where possible. That equipment and/or devices not desired by the Owner shall be removed from the site at the Contractor's expense.

3.5 PHASING OF THE WORK

- A. The work includes relocation, renovation and/or equipment replacement in control stations within the facility. The control systems of the facility shall remain sufficiently operational to

maintain a safe and secure facility at all times. The Contractor shall make all temporary accommodations as required to maintain operations.

- B. Each affected control stations shall be configured ready for use prior to transfer of circuits from the old control to the new. Circuits shall be transferred in logical groups such that at any time a given portion of the building can be controlled from a single point.
- C. All work shall be scheduled in advance with the Owner/User. Work during the night hours will be required for transfer of major systems equipment and circuits.
- D. The Owner/User will make reasonable accommodation for execution of the work. Such reasonable accommodation includes providing appropriate staffing for operations and security during transfer periods, ready access to areas of transfer, and support for preliminary testing of transferred circuits and equipment.

3.6 INSTALLATION OF EQUIPMENT

- A. Install all equipment in accord with manufacturer's recommendations.
- B. Provide all necessary anchoring devices and supports.
 - 1. Use structural supports suitable for equipment, or as indicated.
 - 2. Check weight and dimensions of equipment with shop drawings.
 - 3. Do not cut or weld to building structural members.
- C. Verify that equipment will fit support layouts indicated.
 - 1. Where substitute equipment is used, revise indicated supports to fit.
- D. Arrange for necessary openings to allow for admittance of equipment.
 - 1. Where equipment cannot be installed as structure is being erected, provide and arrange for building-in of boxes, sleeves or other devices to allow later installation.
- E. Prior to installation of electronic security equipment in control rooms and/or equipment rooms, complete all room finishes and provide a clean conditioned space for the electronic equipment installation. Maintain a secure, clean and conditioned space throughout the installation process. Where dust, dirt or moisture generating environment is anticipated or encountered after start of installation of equipment, cease work and wrap/seal all equipment in waterproof protective material. When environment is clean and conditioned, protective wrapping shall be removed, equipment cleaned, and work resumed.

3.7 FIELD QUALITY CONTROL

- A. Perform indicated tests to demonstrate workmanship, operation, and performance.
 - 1. Conduct tests in presence of inspectors of agencies having jurisdiction if required.
 - 2. Arrange date of tests in advance with, manufacturer and installer.
 - 3. Give all inspectors minimum of 24 hours notice.
 - 4. Furnish all labor and materials required for period of test.
- B. Repair or replace equipment and systems found inoperative or defective and re-test.
 - 1. If equipment or system fails re-test, replace it with products which conform to Contract Documents.
 - 2. Continue remedial measures and re-tests until satisfactory results are obtained.

- C. Test equipment and systems as indicated for each item, unless otherwise recommended by manufacturer.
- D. Coordinate work of this section with work of other sections to insure timely delivery and installation of work.
- E. Design all systems for continuous 24 hour operation.

3.8 TEST AND VERIFICATION

- A. General: The Contractor shall verify that all requirements of this specification are met. Verification shall be through a combination of inspections, demonstrations and tests, as described below.
- B. Verification by Inspection: Verification by inspection includes examination of an item and the comparison of pertinent characteristics against the qualitative or quantitative standard set forth in the cited paragraph. Inspection may require moving or partially disassembling the item to accomplish the verification. Inspection shall be made of all equipment installations, proper functioning of all video system components, mounting and wiring of electrical and signal distribution cabinets and components, and mounting and placement of cameras, etc. to ensure requirements of the specifications are complied with and that the overall installation is accomplished in a professional and workmanlike manner and in accordance with manufacturer's written recommendations. The Owner's quality control representative(s) shall have full opportunity to witness the required inspections or to conduct his own inspections of the installation.
- C. Verification by Test and Demonstration: The Contractor shall verify by formal demonstrations or tests that the requirements of this Specification have been met. All tests shall be documented and report of results submitted to the Engineer.
- D. Test Verification Requirements: Paragraphs 1-3 below list specific requirements which shall be verified by formal demonstration/test. **THE ENGINEER SHALL BE NOTIFIED IN WRITING THIRTY (30) CALENDAR DAYS IN ADVANCE OF ALL SYSTEM TESTS.**
 - 1. Factory Tests: Following factory engineering and assembly, the Contractor shall individually test each component and verify the proper functioning of each component within a particular subsystem. Any deficiency pertaining to these requirements shall be corrected by the Contractor prior to shipment of the equipment to the project site.
 - a. The full network and fiber optic backbones shall be mocked up with full loading of the worst-case security closet, mocking up all cameras, workstations, and any central head end servers, video storage units and controllers. Video workstations shall be loaded to highest capacity specified to test for network overloading.
 - b. The factory testing shall include all equipment and programming for the entire facility.
 - 2. Preliminary Tests: Following installation, the Contractor shall individually test each connected device and verify the proper functioning of each component as a system. Any deficiency pertaining to these requirements shall be corrected by the Contractor prior to final functional and operational tests of the system. The entire system shall be tested to assure that all elements are compatible and function properly as a complete system.
 - 3. Demonstration Upon Completion of Work: Upon successful completion of the System Validation Test, the Contractor shall schedule and request final completion demonstration and the Engineer notified. The request and notification shall include certification that the installation is complete and operable and has satisfactorily performed the final tests specified herein. The acceptance testing shall be accomplished in the company of the Engineer and the Owner's representative(s). The demonstration shall be structured so that all cameras are stimulated directly in their installed and finally adjusted positions and all

servers, workstations, monitors and storage devices are active. A log of all demonstration activities and results shall be maintained by the Contractor. Original copies of this log shall be submitted to the Engineer within seven calendar days of the demonstration.

- E. Upon successful completion of the Demonstration Upon Completion of Work, the electronic security systems will be considered as substantially complete.
- F. The Contractor shall carefully plan and coordinate the demonstrations so that all activities can be satisfactorily completed within eight (8) cumulative hours. The Contractor shall provide all necessary instruments, labor and materials required for demonstrations, the equipment manufacturer's technical representative, and qualified technicians in sufficient numbers to perform the demonstration within the time limits imposed by this Specification.
- G. In the event that the Engineer are required to witness a retest at a later date because the Contractor is not adequately prepared to conduct the acceptance tests or because the systems being tested have failed such tests, which shall be solely determined by the Engineer, the costs of witnessing additional tests (based on time and expenses at the established rates of the Engineer) shall be borne exclusively by the Contractor. In such an event, a change order to the General Construction Contract will be executed for compensation of the Engineer witnessing the tests.

3.9 ADJUST AND CLEAN

- A. Inspect all equipment and put in good working order.
- B. Clean all exposed and concealed items.
- C. Touch up paint where finish is damaged to original color and texture.
- D. Clear debris from and vacuum clean the interior of all turrets, consoles, equipment cabinets and enclosures.

3.10 WIRING

- A. New camera, VSS workstation and server locations will require new CAT 6 minimum cabling in new or existing conduits and wireways. All structured Category and fiber optic cables shall .
- B. All wiring within equipment: Point to point with appropriate terminal block connections for each wire and component termination.
 - 1. All connections mechanically secure.
 - 2. All terminations on terminal blocks.
 - 3. All terminal strips labeled to match submittal documents.
- C. All cable and wire: As recommended by manufacturer of system, minimum as indicated in individual sections.
 - 1. Standard type available from multiple manufacturers.
 - 2. Replace cable determined to be inadequate for specified performance.
 - 3. All cable and wire shall be professionally labeled and tagged at each point of termination to match submittal documents.
- D. Provide all wire and cable and perform all terminations. Check each cable system for opens, shorts, faults, or other discontinuities.

- E. All wiring shall be color coded throughout per county requirements.
- F. Install all cable in conduit in accordance with other sections of these specifications. Minimum conduit size shall be 3/4 inch trade size. Size all conduit such that cable, wire and/or tubes do not to exceed 40 percent fill. All conduit shall be installed according to NEC and TIA/EIA standards.
- G. All wire and cables shall be installed continuous from field device to terminal point in equipment cabinet, enclosure or console. No splices or intermediate terminations will be allowed
- H. All cables specified herein are based on indoor “dry” applications unless noted otherwise. Where actual construction conditions require cable other than indoor “dry” applications, provide suitable cable to meet performance requirements of the systems for which they the cable is to be provided.
- I. All Ethernet cabling shall be terminated on a patch panel in equipment room locations and RJ-45 wall/surface jacks in field locations. Factory patch cords shall be used to connect the Ethernet backbone to individual devices. No hand crimped RJ-45 connections allowed on the end of home-run Ethernet cables.
- J. Network Cabling Specifications:
 - 1. CABLE SPECIFICATIONS
 - a. Specification for Category 6 UTP Cabling
 - 1) Category 6 UTP Horizontal Cabling
 - a) Horizontal cabling for data circuits shall be 24 AWG, 4-pair UTP, NEC/NFPA rated.
 - 2. INSTALLATION
 - a. 2.1 General Information
 - 1) Installation Requirements: All installation methods must adhere to the most recent Electronics Industry Association/Telecommunications Industry Association (EIA/TIA) Standards for Commercial Building Telecommunications Wiring and follow Building Industry Consulting Services International (BICSI) standards.
 - 2) Miscellaneous Materials: The Contractor shall identify at the time of installation, any miscellaneous parts and material such as cable ties, screws, D-rings, etc. that are required for the installation. These parts will be required to provide a professional installation. These parts will be used as required by EIA/TIA standards and follow Building Industry Consulting Services International (BICSI) standards.
 - 3) Fire Stopping: The Contractor will be responsible for fire stopping all opening associated with the installation of the cable in accordance with local fire codes.
 - 4) Grounding and Bonding: Ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential to act as a current carrying conductor on a separate communications ground.
 - 5) Riser Cable: Non-spliced riser cable will be required from the ER to each TR. Two pair of riser cable for each workstation served by the TR will be required. All riser cable will be terminated and tagged at each end, with a labeling scheme provided by the State. Riser cable will be 24 AWG, with standard telecommunications color-coding. A data riser cable may also be required, depending on Agency requirements. Data riser will be fiber optic cable.
 - 6) Horizontal Cable Installation: Horizontal cabling is to be installed in a star topology, with each jack cabled directly to a horizontal cross-connect in the appropriate IDF. Splices or bridge taps are not allowed.
 - a) Horizontal Cable Lengths Copper: Horizontal cable runs will not exceed the following lengths:

- b) From the horizontal cross-connect to the outlet/jack, the cable will be no more than 90 meters (295 ft.)
- c) The cable used for patch cords and jumpers in the IDF (TR) will be no more than 6 meters (20 ft).
- d) The cable used to connect the jack to the active equipment at the workstation will be no more than 15 feet. In the case of where a MUTOA is used, the following maximum length guidelines:

Table 1.10 MAXIMUM LENGTH OF HORIZONTAL AND WORK AREA CABLES H m (ft) = Length of horizontal cable	W m (ft) = Maximum length of work area cable 24 AWG UTP/24 AWG ScTP patch cords	C m (ft) = Maximum combined length of work area cables, patch cords, and equipment cable 24 AWG UTP/24 AWG ScTP patch cords	W m (ft) = Maximum length of work area cable 26 AWG ScTP patch cords	C m (ft) = Maximum combined length of work area cables, patch cords, and equipment cable 26 AWG ScTP patch cords
90 (295)	5 (16)	10 (33)	4 (13)	8 (26)
85 (279)	9 (30)	14 (46)	7 (23)	11 (35)
80 (262)	13 (44)	18 (59)	11 (35)	15 (49)
75 (246)	17 (57)	22 (72)	14 (46)	18 (59)
70 (230)	22 (72)	27 (89)	17 (56)	21 (70)

In no case will the combined cable length be greater than 100 meters (330 ft).

3. TESTING

a. General

- 1) All cables will be tested in accordance with this document, the ANSI/TIA/EIA-568-C standards, the manufacturer’s certification program and best industry practice. If any of these are in conflict, the Contractor will bring any discrepancies to the attention of the project team for clarification and resolution.
- 2) Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks will be repaired or replaced in order to ensure 100% useable conductors in all cables installed.
- 3) The Contractor will provide sufficient skilled labor to complete testing within the agreed upon test period.
- 4) The Contractor’s technicians will be fully trained and certified test the provided products.
- 5) The Contractor is responsible for supplying all of the required test equipment used to conduct acceptance tests.
- 6) The Contractor is responsible for submitting acceptance documentation as defined in Section D below.
- 7) Owner reserves the right to be present during any or all of testing.

b. Testing Equipment – UTP

- 1) Test equipment used under this Contract will be from manufacturers that have a minimum of 5 years’ experience in producing field test equipment. Manufacturers must be ISO 9001 certified.
- 2) All test tools of a given type will be from the same manufacturer and have compatible electronic results output.
- 3) Test adapter cables must be approved by the manufacturer of the test equipment. Adapters from other sources are not acceptable.

- 4) Baseline accuracy of the test equipment must exceed TIA Level III, as indicated by independent laboratory testing.
 - 5) Test equipment must be capable of certifying Category 5E,6 and 6A links.
 - 6) Test equipment must have a dynamic range of at least 100 dB to minimize measurement uncertainty.
 - 7) Test equipment must be capable of storing full frequency sweep data for all tests and printing color graphical reports for all swept measurements.
 - 8) Test equipment must include S-Band time domain diagnostics for NEXT and return loss (TDNXT and TDRL) for accurate and efficient troubleshooting.
 - 9) Test equipment must be capable of running individual NEXT, return loss, etc. measurements in addition to autotests. Individual tests increase productivity when diagnosing faults.
 - 10) Test equipment must include a library of cable type.
 - 11) Test equipment must store Category 5e, 6 or 6A autotests in internal memory.
 - 12) Test equipment must be able to internally group autotests and cables in project folders for good records management.
 - 13) Test equipment must include DSP technology for support of advanced measurements.
 - 14) Test equipment must make swept frequency measurements in compliance with TIA standards.
 - 15) The measurement reference plane of the test equipment will start immediately at the output of the test equipment interface connector. There will not be a time domain dead zone of any distance that excludes any part of the link from the measurement.
- c. Testing Equipment – Fiber
- 1) Test equipment used under this Contract will be from manufacturers that have a minimum of 5 years' experience in producing field test equipment. Manufacturers must be ISO 9001 certified.
 - 2) All test tools of a given type will be from the same manufacturer and have compatible electronic results output.
 - 3) Multimode Test equipment will be capable of measuring relative or absolute optical power in accordance with TIA/EIA-526-14A, "Optical Power Loss Measurement of Installed Multimode Fiber Cable Plant.
 - 4) Multimode Test equipment will incorporate 850 nm, and 1300 nm LED sources in same unit with output power of ≥ -20 dBm at each wavelength. Detectors will have a dynamic range of at least +3 dB to -55 dB.
 - 5) Single-mode Test equipment will be capable of measuring relative or absolute optical power in accordance with TIA/EIA-526-7 Method A, "Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant, Insertion Loss Using An Optical Power Meter."
 - 6) Single-mode test equipment will incorporate 1310 sources. Detectors will have a dynamic range of at least +3 dB to -55 dB.
 - 7) Test equipment will be capable of nulling out the loss and length of the test jumpers used to interface with the cable plant.
 - 8) Sources and meters will automatically synchronize wavelengths to prevent calibration-related errors.
 - 9) Test equipment will store tests in internal memory.
 - 10) Test equipment will employ a serial port/USB port to facilitate uploading of saved information from tester to PC.
 - 11) Test equipment capable of measuring a Tx/Rx fiber pair simultaneously is recommended to enhance productivity.
 - 12) It is recommended that test equipment utilizing dual function main and remote units be used for bi- directional testing, eliminating the need to swap source and meter.

- d. Documentation – UTP: reports will include the following information for each cabling element tested:
 - 1) Wiremap results that indicate the cabling has no shorts, opens, miswires, split, reversed, or crossed pairs, and end to end connectivity is achieved.
 - 2) For Category 3 cabling: Attenuation and NEXT data that indicate the worst case result, the frequency at which it occurs, the limit at that point, and the margin. These tests will be performed in a swept frequency manner from 1 to 16 MHz. Information will be provided for all pairs or pair combinations and in both directions. Any individual test that fails the relevant performance specification will be marked as a FAIL.
 - 3) For Category 5E,6, 6A cabling: Attenuation, NEXT, PSNEXT, Return Loss, EL-FEXT, and PSELFEXT data that indicate the worst-case result, the frequency at which it occurs, the limit at that point, and the margin. These tests will be performed in a swept frequency manner from 1 MHz to highest relevant frequency, using a swept frequency interval that is consistent with TIA and ISO requirements. Information will be provided for all pairs or pair combinations and in both directions when required by the appropriate standards. Any individual test that fails the relevant performance specification will be marked as a FAIL.
 - 4) Length (in meters), propagation delay, and delay skew relative to the relevant limit. Any individual test that fails the relevant performance specification will be marked as FAIL.
 - 5) Cable manufacturer, cable model number/type, and NVP
 - 6) Tester manufacturer, model, serial number, hardware version, and software version
 - 7) Circuit ID number and project name
 - 8) Autotest specification used
 - 9) Overall pass/fail indication
 - 10) Date and time of test

- e. Documentation: Multi mode: reports will include the following information for each cabling element tested:
 - 1) Actual measured attenuation (loss) at 850 nm and 1300 nm, expected attenuation at 850 nm and 1300 nm per this document, and the margin. An individual test that fails the link attenuation criteria will be marked as FAIL.
 - 2) Reference method.
 - 3) Number of mated connectors and number of splices (if any).
 - 4) Actual length and expected length. Any individual test that fails the link length criteria will be marked as FAIL.
 - 5) Group refractive index (GRI) at 850 nm and 1300 nm, if length was optically measured.
 - 6) Tester manufacturer, model, serial number and software version.

3.11 OWNER PERSONNEL TRAINING

- A. Provide training of operations and maintenance staff.
 - 1. Training shall be structured and developed to ensure proper understanding of systems to allow effective operation and maintenance of all systems in this Division of work.
 - 2. All training shall be conducted by professionals that are certified by the system manufacturer for the applicable equipment and software.

- B. Training shall be divided into multiple groups. Participants may attend multiple sessions.
 - 1. Control station operations
 - 2. System administration
 - 3. Maintenance

- C. Conduct twenty-four (24) hours of training for operational staff, maintenance staff and administration staff. One additional session up to 8 hours shall be a “train the trainer” administrator level session. Facility administration will be able to request specific topics to the training session according to their needs. Coordinate training requirements with owner to accommodate different shifts.
- D. Training shall be provided in a classroom and location environment onsite at the owner’s facility and utilize installed equipment and systems to demonstrate operations and maintenance techniques.
- E. Provide digital video recording of all training on flash drive media (FD) which shall be playable using standard media players. Furnish two (2) copies of each FD to owner with training manuals of each type. Provide electronic copies of training manuals in .pdf format. Provide two (2) FD copies of training manuals. FD media shall not be copy protected.
 - 1. Selected training shall be pre-recorded on FD in a classroom environment at the office of the Contractor.
 - 2. Upon completion of the training at the project site, the Contractor shall update the training presentation based on feedback from the on-site training sessions and prepare final training FD for the facility.
- F. No later than 45 calendar days prior to anticipated initiation of training, the Contractor shall develop an outline of all training to be presented. The facility security administration will subsequently identify staff to participate in the training program. Based on this information the Contractor shall prepare sufficient copies of training material to accommodate each participant.
- G. See individual sections for specific training requirements.
- H. Submittal of Training Documents:
 - 1. List of Trainers including copy of certification by the system manufacturers. (minimum 90 days prior to scheduled training session)
 - 2. Training outline and attendee sign up lists (minimum 45 calendar days prior to scheduled training session).
 - 3. Training manual(s); one for each training group.(minimum 30 calendar days prior to scheduled training session).
 - 4. Prerecorded training demonstration FD: one for each training group.(minimum 30 calendar days prior to scheduled training session).

END OF SECTION 280510

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SECTION 280555 - CABINETS AND ENCLOSURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General:
 - 1. Furnish all labor, materials, tools, equipment, and services for all cabinets and enclosures as indicated in accordance with provisions of Contract Documents.
 - 2. Completely coordinate with work of all other trades.
 - 3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
 - 4. See Division 1 for General Requirements.

- B. Related work specified elsewhere:
 - 1. Common Work Results for Electronic Security: Section 280510
 - 2. Video Management and Recording System Section 282300
 - 3. Uninterruptible Power Systems Section 285045

1.2 BASIS OF DESIGN

- A. Cabinets and enclosures are provided for the protection and security of the equipment contained therein. Any additional enclosures added by the contractor must meet these requirements and must be clearly called out on submittal documents. Coordinate any new enclosure locations with owner. Existing enclosures may be reused.

- B. All new cabinets and enclosures shall be rated for the environment in which they are installed unless noted otherwise.
 - 1. Open Frame Racks – Indoor use only. May be provided where equipment rooms where existing network racks are open frame 2-post type.
 - 2. Type 1: Indoor use primarily to provide protection against contact with the enclosed equipment and against a limited amount of falling dirt.
 - 3. Type 3: Outdoor use to provide a degree of protection against windblown dust and windblown rain; undamaged by the formation of ice on the enclosure.
 - 4. Type 3R: Outdoor use to provide a degree of protection against windblown rain; undamaged by the formation of ice on the enclosure.
 - 5. Type 4: Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure.
 - 6. Type 4X: Either indoor or outdoor use to provide a degree of protection against falling rain, splashing water, and hose-directed water; undamaged by the formation of ice on the enclosure, resists corrosion.
 - 7. Type 12: Indoor use to provide a degree of protection against dust, dirt, fiber flyings, dripping water, and condensation of non-corrosive liquids.

1.3 QUALITY ASSURANCE (SEE SECTION 28 0510)

- A. Refer to NEC 312 for requirements associated with cabinets and enclosures.

1.4 SUBMITTALS (SEE SECTION 280510)

- A. Cabinets and Enclosures:
 - 1. Project data: Layouts of all electronic equipment rooms including floor plans and wall elevations. NEC required working clearances shall be identified.
 - 2. Shop drawings: Assembly drawings of each control console arrangement including plan view, elevations, and sections.
 - 3. Product data: Technical data sheets and specifications for each component.
 - 4. Test results: Cabinet and enclosure temperatures.

1.5 WARRANTY (SEE SECTION 280510)

1.6 OPERATING AND MAINTENANCE DATA (SEE SECTION 280510)

PART 2 - PRODUCTS

2.1 GENERAL

- A. Acceptable manufacturers:
 - 1. Enclosures and cabinets:
 - a. Chatsworth Products; www.chatsworth.com
 - b. Atlas Sound; www.atlassound.com
 - c. Eldon; www.eldon.com
 - d. Hoffman; www.hoffmanonline.com
 - e. IMS Amco; www.amcoengineering.com
 - f. Lowell; www.lowellmfg.com/
 - g. Middle Atlantic Products, Inc.; www.middleatlantic.com
 - h. Saginaw Control; www.saginawcontrol.com
 - i. Winsted; www.winsted.com
 - j. Or equal
 - 2. Other manufacturers desiring approval comply with Division 01.
- B. Systems:
 - 1. Provide complete coordinated consoles or groups of consoles as indicated on drawings.

2.2 EQUIPMENT CABINETS

- A. Cabinets:
 - 1. Cold rolled steel units, 12 GA angles, 14 GA posts, 16 GA molding and braces.
 - 2. Doors: 16 GA flush mount; plain or louvered, flush pulls.
 - 3. Panels: 16 GA flush mount; plain or louvered, quick removal.
 - 4. Tall floor mounted units:
 - a. Video Equipment Cabinets: Nominal 30 or 42 inches deep; 30 inches wide; 72 to 90 inches height; 24 inch EIA rack mounting frames. A manufacturer spacer section may be used on 24 inch wide units to obtain the additional wire/cable management space provided by this 30" inch wide requirement.
 - 5. Provide flush full front door with key lock on all cabinets.
 - 6. Provide flush full louvered rear door with key lock on cabinets with rear access. Provide flush full louvered panel on cabinets without access.
 - 7. Provide ventilation grille at base of unit.

8. Provide ventilation fan where indicated on drawings or required to maintain manufacturer recommended equipment temperatures.
 9. Provide square side panels for all base cabinets.
 10. Provide electrical plug strip mounted in rear of cabinet to power 120 volt equipment. Where plug in power supplies are to be installed, install tie wrap around power supply and plug strip to prevent power supply from being accidentally removed.
 11. Provide blank plates by manufacturer to provide closure on all unused sections of units.
 12. Finish: textured enamel from manufacturer's standard colors as selected by architect.
 13. Install temperature gauge in each cabinet or series of contiguous cabinets with common open interior. Position the temperature gauge away from ventilation fan to sense average ambient temperature.
 14. Where necessary for front and rear access when rack is against a wall, provide 19" roll out rotating system in steel host enclosure. Rotating design of rack allows enhanced access to rear equipment connections, simplifying wiring.
- B. Furnish door alarm contact switch on each door where cabinets are installed in spaces other than dedicated electronic security equipment rooms. Connect wiring to electronic control system for annunciation on designated control panel or touch screen display.

2.3 EQUIPMENT ENCLOSURES

- A. Provide wall mounted equipment enclosures where indicated on drawings.
- B. Equipment enclosures shall be provided with hinged door and key lock.
- C. Furnish door alarm contact switch where enclosures are installed in spaces other than dedicated electronic security equipment rooms. Connect wiring to electronic control system for annunciation on designated control panel or touch screen display.
- D. Provide ventilation fan where indicated on drawings or required to maintain manufacturer recommended equipment temperatures. Install temperature gauge in each enclosure. Position the temperature gauge away from ventilation fan to sense average ambient temperature. Provide high temperature alarm contact and connect to electronic control system for annunciation on touch screen display.
 1. Ventilation fan unit: APW PT4F1930M (or equivalent depending on manufacturer)
 2. Thermostat: Johnson Controls A421 Series control and sensor
- E. Computer enclosures shall be designed for undercounter use with 120VAC forced air fans to direct fresh air into and hot air out of the enclosure. Fan size and CFM rating shall be determined by calculated BTUs of equipment housed to keep temperatures below the threshold of the most sensitive housed components. Quiet, heavy duty ball bearing fans must be submitted, or included with enclosure submittal. Provide sufficient space for cables and all required equipment without blocking airflow.

2.4 OPEN FRAME RACKS

- A. Provide high density patching frame, 2-post racks with vertical cable managers where 2-post racks are indicated on drawings for easy access to rear of equipment and patch panels. Open frame racks may only be used where existing racks are open frame 2-post. Floor mounted racks shall be anchored to the floor and must support 700+ pounds.

- B. Provide wall mounted swing gate open frame racks where indicated on drawings for easy access to rear of equipment and patch panels. Open frame racks may not be used for other equipment applications or in equipment rooms shown as fully enclosed. Must be EIA-310-D compliant.
- C. Equipment racks shall be provided with hinged door panel if wall mounted. Must support minimum of 150 pounds, with heavy duty gate kit. Load shall not exceed weight limit.
- D. Must be compatible with cable management accessories.

2.5 CPU LOCKER/ENCLOSURE

- A. Provide CPU locker for control room locations as shown on drawings. Solid enclosures must include front air intake and power exhaust ball-bearing fan. Ventilated passive cooling enclosures are acceptable where installation allows for adequate airflow.
 - 1. Datum Large CPU Locker or equal

2.6 FABRICATION:

- A. Fabricate enclosures to easily accommodate interconnecting cables entering from above or below through the use of auxiliary gutters, cable trays, and conduits. Protect all metal cabinet edges where conductors cross and conduit ends with protective covering or bushing.
- B. Group wires and cables by types, boards and modules, and maintain National Electrical Code clearances throughout the installation, including Class 1, Class 2, communications, and branch circuit power separations. Maintain sufficient and proper separation between microphone-level audio, line-level audio, high-level audio and video cables.
- C. Uniformly organize equipment and cable routing throughout all enclosures, racks, and cabinets. Provide wiring ducts, wire ways, wire posts, D rings, wire saddles to route and secure factory and field wiring. Provide routing for all wiring from point of entry to point of termination to maintain required separation, access to all components, and general organization to the wiring. Neatly dress, route and secure wiring.
- D. Mechanically fasten cabinet raceways and cable clamps to enclosure rear panels, rack members, console members, or to other system components. The use of adhesive fasteners (without mechanical fastener) is not permitted. Furnish and install cable support posts where necessary to properly support cables.
- E. No splices are permitted in cabinet raceways. Exception: Splice to cable shield when within two inches of cable termination is permitted.
- F. Furnish and install metal grounding type outlet strips in each equipment cabinet, enclosure, and rack. Leave a minimum of two unused receptacles at each location for future expansion. Neatly shorten and dress power cords from individual equipment to the outlet strips.
- G. Provide protection from accidental contact of all terminals or exposed conductors over 25 volts within enclosures that contain Class 2 wiring. Use non-conductive barriers, heat shrink or other acceptable methods. Tape of any kind is not permitted.
- H. Provide mounting rails as required for all equipment. Where applications of equipment with extended depth occur (i.e. UPS), provide internal mounting rails sufficient to allow doors to close, without contact with equipment and/or cabling.

2.7 SPARE PARTS (SEE SECTION 280500)

- A. Deliver spare parts in protective wrapping and packaging for proper storage.
- B. Provide the following spare parts:
 - 1. Fan unit: one of each type
 - 2. Thermostat: one of each type

PART 3 - EXECUTION

3.1 INSTALLATION (SEE SECTION 280510)

- A. All equipment shall be mounted in cabinets and enclosures so as to provide ready accessibility for equipment and termination. All cabinets and enclosures shall be located to provide working clearance in front of accessible equipment as required by the National Electrical Code.
- B. Sufficient air flow for equipment ventilation and cooling shall be considered in the design.
- C. Contractor must submit BTU calculations for all new equipment in existing and new enclosures and racks. Existing intake temperatures must be taken into consideration for the calculations. Any rooms where calculations exceed equipment ratings shall be flagged and notice given to the owner prior to any work commencing.
- D. Provide wire/cable management throughout cabinets and enclosures. All wire/cable shall be physically supported within six (6) inches of termination.
- E. All Ethernet cables (copper and fiber) must be combed and bundled using hook and loop straps. Use supports on stress points to prevent damage to internal conductors.
- F. Bracing: Brace or anchor all free-standing cabinets using Unistrut or other approved method to building structure.
- G. Painting: Touch up all welds, scrapes and other mars in the enclosure finish with a rust inhibiting paint.

END OF SECTION 280555

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SECTION 282300 - VIDEO MANAGEMENT AND RECORDING SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all video surveillance systems as indicated, in accordance with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Section 280510 for Electronic Systems General Requirements.
5. See Division 1 for General Requirements.

B. Related work:

- | | |
|---|----------------|
| 1. Common Work Results for Electronic Security Systems: | Section 280510 |
| 2. Cabinets and Enclosures: | Section 280555 |
| 3. Uninterruptible Power System: | Section 285045 |

1.2 BASIS OF DESIGN

- A. The existing video surveillance system in the facility is analog system and consists of a centralized matrix switcher located in the Tele-Communications Room 160 with video monitors, multiplexers, quad splitters, power supplies and analog DVRs in the equipment room and control room lower cabinets. All existing video surveillance system components shall be removed and replaced with the new Milestone XProtect Expert enterprise level video management and recording system. All existing cameras shall be removed and replaced with new HD IP based megapixel cameras.
- B. The purpose of video management and recording system is to provide visual confirmation of movement through security barriers and general surveillance of movement. The Video Management and recording System shall be an IP network-based, fully distributed digital video system. The security video system will utilize local area networks (LAN) as a transmission medium for video, configuration, as well as storage of all data. The IP video management system shall provide support for IP cameras from multiple manufacturers and shall support standard resolution and megapixel HD IP cameras.
- C. The system shall provide full video control, with additional full selection capability at any point within the network from any workstation or a video console display. The security video system shall provide expansion capability for the addition or modification of the system.
- D. The system shall permit normal monitoring and analytics monitoring of all secured areas on monitors as shown in the specifications and drawings. Video monitoring consoles shall be installed as shown on the drawings and described in these specifications. In all cases, the equipment shall be state of the art, standardized commercial off-the-shelf, and modular. In all cases, the method of communication from remote locations within the network to the central components shall be transparent to the user. Equipment shall be selected and installed so repairs may be accomplished on site by module replacement, utilizing spare components whenever possible. The drawings will be proved during the pre-proposal conference and site visit.

- E. The Contractor shall furnish and install all security video cameras, mounts, housings, power supplies, network cables, connectors, equipment racks, monitors and consoles, computer controlled network switches, work stations, network storage, encoders, decoders, video console displays and all other hardware, software and additional licenses required to provide a fully operational system.
 - F. All cameras shall be recorded and video storage shall be sized to retain recording for 60 days. All cameras shall be continuously recorded at native resolution, 15 images per second. Quiet time recording (no motion) shall be 2 images per second for all cameras. The motion should be estimated at 65% (15.6 hrs/day) continuous activity and based on balanced scene complexity and high-quality settings.
 - G. The video management and recording system specified is an enterprise-class client/server based IP video security solution that provides seamless management of digital video, audio and data across an IP network. The system is designed to work with CCTV and ONVIF compliant 3rd party products as part of a total video security management system to provide full virtual matrix switching and control capability. Cameras, recorders, and viewing stations may be placed anywhere in the IP network.
 - H. The system shall provide multi-level diagnostics of each component in all critical areas. These diagnostics shall be reported to a diagnostic console for processing. In addition, the diagnostic data shall be capable of being scripted into actionable events within the system.
 - I. The system shall be able to handle future expansion of an unlimited total capacity from what is shown in the drawings, including but not limited to cameras, monitors, workstations and keyboards.
 - J. The system shall be installed by a manufacturer certified dealer/integrator. Certification for installation shall be conducted by the manufacturer and shall provide all necessary knowledge to fulfill the systemization and deployment across diverse networks and infrastructures, as well as provide commissioning abilities at the integrator level.
 - K. All the cameras shall be mounted within housings suitable for the environment in which they are placed.
 - L. Each typical camera mounting location shall be field verified to confirm best video coverage. Video coverage shall be approved either by the owner or the design engineer.
 - M. Provide user-programmable title and camera number for each camera. Coordinate titles with owner.
- 1.3 QUALITY ASSURANCE (SEE SECTION 280510)
- A. Work shall be performed in accordance with the applicable national and local codes or standards current at the commencement of installation. The following list summarizes applicable standards:
 - 1. National Electrical Safety Code, current edition.
 - 2. National Fire Protection Association National Fire Codes, current edition.
 - 3. EIA/TIA – 568: Commercial Building Telecommunications Wiring Standard.

4. EIA/TIA – 569: Commercial Building Standard for Telecommunications Pathways and Spaces.
5. EIA/TIA – 606: Administrative Standards for the Telecommunications Infrastructure of Commercial Buildings.
6. IEEE, RS 170 Variable Standard.
7. IEEE 802.3 digital data network standard.
8. Premises cabling standard EIT/TIA568A.
9. Member, MPEG-4 Industry Forum
10. Member, Universal Plug and Play (UPnP) Forum
11. Member, Universal Serial Bus (USB) Implementers Forum
12. Compliance, ISO/IEC 14496 standard (also known as MPEG-4)

B. Where more than one code or regulation is applicable, the more stringent regulation shall apply.

1.4 SUBMITTALS (SEE SECTION 28 0510)

A. Video Surveillance System 28 2300

1. Project data: Description of system operation indicating purpose and capabilities of each component of system with functional system diagram indicating all interfaces to other systems. Description shall include, and call attention to, all variances from the contract documents.
2. Shop drawings: Complete installation drawings including floor plans and cable routing, system diagrams and terminal point to terminal point wiring diagrams or schedules.
3. Product data: Technical data sheets and specifications for each and every component.
4. Storage Calculations: To ensure that adequate storage is available to meet the specification requirements. Use manufacturer calculation tools specific to each camera model or resolution/compression capability.
5. Bandwidth Calculations: To ensure that adequate bandwidth is available to support the full functionality of any camera, any recorder and any viewing station.

1.5 WARRANTY (SEE DIVISION 1)

1.6 OPERATING AND MAINTENANCE DATA (SEE SECTION 28 0510)

1.7 VIDEO MANAGEMENT SYSTEM CAPABILITIES

- A. The video management system (VMS) specified is an enterprise-class client/server based IP video security solution that provides seamless management of digital video, audio and data across an IP network. The video management system is designed to work with CCTV and ONVIF compliant 3rd party products as part of a total video security management system to provide full virtual matrix switching and control capability. Cameras, recorders, and viewing stations may be placed anywhere in the IP network.
- B. The VMS shall be capable to be deployed in Local Area Networks (LAN) as well as in Wide Area Networks (WAN). For establishing remote connections across WAN, it shall be possible to setup a port mapping table within the configuration manager in order to map the public port to a private IP and port of the devices.
- D. The VMS shall be built upon open, industry standards and facilitate integration with IT infrastructures and other digital and analog systems.
- E. The IP video management system shall have no restriction as to the resolution, frame rate, or number of standard resolution or mega pixel cameras that can be recorded, viewed, and managed on the system.

- F. All displays shall retain the camera’s aspect ratio and accommodate 4:3, 16:9, or 16:10 monitor displays.
- G. Multiple users shall be able to simultaneously view the same camera view or sequence. The system shall support multicast streaming video to allow multiple users to view the same video stream, though not necessarily synchronized with each other, without affecting the bandwidth of the network.
- H. The VMS shall allow for programming of alarms and associated incoming alarms with related parts of the system. Alarms and other triggers can be grouped into system events.
- I. The VMS shall log all alarms and events in the database.
- J. The VMS shall provide for virtual matrix functionality, leveraging the IP network to switch any camera to any monitor either through a PC Keyboard/Mouse or a joystick controller as well as transmit alarms and other system messages to any console on the network.
- K. The VMS shall be designed in such a way that configuration changes to any part of the system shall not interrupt operational tasks, until the operator decides to update re-fresh the workstation configuration.
- L. The VMS shall be able to handle future expansion of an unlimited total capacity from what is shown in the drawings, including but not limited to cameras, monitors, workstations and keyboards.

PART 2 - PRODUCTS

2.1 OPERATING AND MAINTENANCE DATA (SEE SECTION 280510)

2.2 GENERAL

- A. Manufacturers:
 - 1. Video management and recording software:
 - a. Milestone Xprotect Corporate.
 - 1) County to provide Corporate license
 - b. Contractor to provide all other Milestone camera and hardware licenses and 1 year care package.
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 - 2. Video surveillance camera equipment:
 - a. Axis, per camera schedule
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 - 3. Cabling Infrastructure:
 - a. Panduit cabling
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 - 4. Video Management Server:
 - a. Dell
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-

15

5. Video Recording Servers:
 - a. Dell
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 6. Video Management Workstations:
 - a. Dell
 - 1) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 7. Network Switches:
 - a. L2/L3 – Cisco 9300 UPOE series (L3)
 - 1) Include sufficient SFP ports for redundant 1Gig connections to each edge switch.
 - 2) No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 8. The product numbers contained herein are for reference only and may not be the most current available nor a complete listing of all features or options required. Where a manufacturer is listed without a product number, an equivalent item of the specified manufacturer is acceptable. Determination of equivalent is at the sole discretion of the Engineer. Where a conflict or ambiguity exists between the written description and the product number, the written description shall govern.
 9. Other manufacturers desiring approval must submit substitution requests pre-bid per bid document requirements.
- B. System Operation:
1. Provide complete system for viewing of remote scene including control of equipment accessories.
 2. Provide all programming of system as indicated herein.

2.3 1080P MINIDOME CAMERAS

- A. This network camera offers excellent image quality in HDTV 1080p. The outdoor-ready, IK10-rated camera features forensic WDR and IR illumination to deliver sharp video even in challenging light or complete darkness. It includes low-light technology for video with more life-like colors and sharp images of moving objects. The varifocal lens with remote zoom and focus capabilities eliminates the need for hands-on fine tuning. With two-way audio you can hear what's happening in the scene and benefit from audio analytics. Offers Reduced bandwidth and storage needs with support for H.264/H.265 and enhanced security features.
- B. Image Sensor: 1/2.8-inch CMOS HD image sensor.
- C. Lens:
 1. Varifocal, 3.4–8.9 mm, F1.8
 2. Horizontal field of view: 100°-36°
 3. Vertical field of view: 53°-20°
 4. Remote zoom and focus, P-Iris control, IR corrected
- D. Day and night:
 1. Automatically removable infrared-cut filter
 2. Minimum illumination:
 - a. With Forensic WDR 2.0:
 - b. Color: 0.1 lux at 50 IRE, F1.8
 - c. B/W: 0.02 lux at 50 IRE, F1.8; 0 lux with IR illumination on
- E. Camera angle adjustment

1. Pan $\pm 180^\circ$, tilt $\pm 75^\circ$, rotation $\pm 175^\circ$

- F. Video compression:
 1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
 2. H.265 (MPEG-H Part 2/HEVC) Main Profile
 3. Motion JPEG

- G. Resolution:
 1. 1920x1080 to 160x90

- H. Frame rate:
 1. With WDR: 25/30 fps with power line frequency 50/60 Hz
 2. Without WDR: 50/60 fps with power line frequency 50/60 Hz

- I. Video Streaming:
 1. Multiple, individually configurable streams in H.264, H.265, and Motion JPEG
 2. Reduced bandwidth and storage needs technology for H.264 and H.265
 3. Controllable frame rate and bandwidth
 4. VBR/ABR/MBR H.264/H.265

- J. Audio input/output
 1. External microphone input, line input, digital input with ring power, line output

- K. Application Programming Interface:
 1. ONVIF Profile S, G, T
 2. Support for Session Initiation Protocol (SIP) for integration with Voice over IP (VoIP) systems, peer to peer or integrated with SIP/PBX

- L. Video Analytics
 1. Configurations:
 - a. Included: Video motion detection, active tampering alarm
 - b. Support for installation of third-party applications.
 2. Alarm rules (combinable):
 - a. Perimeter defender, motion guard, fence guard, and loitering guard, occupancy estimator, queue monitor, people counter, tailgating detector

- M. Casing:
 1. IP66- and NEMA 4X-rated, IK10 impact-resistant casing with hard-coated dome and dehumidifying membrane
 2. Encapsulated electronics and captive screws

- N. Power:
 1. Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
 2. Typical 6.4 W, max 11.3 W

- O. Connectors:
 1. RJ45 10BASE-T/100BASE-TX PoE
 2. I/O: 4-pin 2.5 mm (0.098 in) terminal block for 1 supervised digital input and 1 digital output (12 V DC output, max. load 25 mA)

3. Audio: 4-pin 2.5 mm (0.098 in) terminal block for audio in and out

P. Storage:

1. Support for microSD/microSDHC/microSDXC card and encryption
2. Recording to network-attached storage (NAS)

Q. Operating conditions:

1. -40 °C to 50 °C (-40 °F to 122 °F)
2. Start-up temperature: -30 °C to 50 °C (-22 °F to 122 °F)
3. Humidity 10–100% RH (condensing)

R. Model:

1. Axis P3245-V (Indoor)
2. Axis P3245-VE (Outdoor)
3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.4 4 MEGAPIXEL WIDE ANGLE FIXED LENS MINIDOME CAMERAS

- A. The network camera offers a wide-angle view in 4 MP for indoor and outdoor surveillance. This robust, IK10-rated fixed dome includes a weathershield and mounting bracket for easy installation. Featuring WDR and built-in IR illumination it delivers clear and sharp video even in challenging light or complete darkness. Devices can be connected to the I/O ports to trigger alarms or actions, and the input can be supervised. Can connect the HDMI port to a monitor for public viewing. Zipstream enhanced with H.264 or H.265 significantly lowers bandwidth and storage requirements. Image Sensor: 1/2.5-inch RGB CMOS sensor.

B. Lens:

1. Fixed focus, fixed iris 2.9mm, F2.0
2. Horizontal field of view: 105°
3. Vertical field of view: 79°

C. Day and night:

1. Automatically removable infrared-cut filter

D. Minimum illumination:

1. Color: 0.22 lux at 50 IRE, F2.0

E. Video compression:

1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
2. H.265 (MPEG-H Part 2/HEVC) Main Profile
3. Motion JPEG

F. Resolution:

1. 2304x1728 to 320x240

G. Frame rate:

1. 25/30 fps with power line frequency 50/60 Hz

- H. Video Streaming:
 - 1. Multiple, individually configurable streams in H.264, H.265 and Motion JPEG
 - 2. Zipstream technology in H.264 and H.265
 - 3. Controllable frame rate and bandwidth
 - 4. VBR/MBR H.264 and H.265

- I. Audio input/output
 - 1. Two-way audio connectivity via accessory audio and I/O interfaces device with portcast technology

- J. Application Programming Interface:
 - 1. ONVIF Profile S, G, T

- K. Video Analytics
 - 1. Configurations:
 - a. Included: Video motion detection, active tampering alarm
 - b. Support for installation of third-party applications.

- L. Casing:
 - 1. IP66, NEMA 4X and IK10 impact-resistant casing with hard-coated dome and dehumidifying membrane.

- M. Power:
 - 1. Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
 - 2. Typical 4.2 W, max 12.5 W

- N. Connectors:
 - 1. RJ45 10BASE-T/100BASE-TX PoE
 - 2. Audio and I/O connectivity via accessory audio and I/O interfaces device with portcast technology

- O. Storage:
 - 1. Support for microSD/microSDHC/microSDXC card and encryption
 - 2. Recording to network-attached storage (NAS)

- P. Operating conditions:
 - 1. -40 °C to 50 °C (-40 °F to 122 °F)
 - 2. Start-up: -30 °C to 50 °C (-22 °F to 122 °F)
 - 3. Humidity 10 to 100% RH (condensing)

- Q. Model:
 - 1. Axis M3206-LVE
 - 2. or later Axis model
 - 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.5 4 MEGAPIXEL IMPACT-RESISTANT INTERIOR CORNER CAMERAS

- A. The network camera is a compact and robust ligature-resistant (anti-ligature) corner-mount camera that delivers 4 MP video quality. It covers 125 degrees horizontally and 95 degrees vertically, with no blind spots. Features invisible IR illumination, it's ideal for covert video surveillance in complete darkness. With an IK10+/IP66 rated casing, it also includes a removable built-in microphone and an indication LED. The camera has polygonal privacy masking, which allows for flexible coverage and helps ensure occupant privacy is respected. Signed firmware and a Trusted Platform Module (TPM, FIPS 140-2 level 2 certified) help prevent unauthorized access and safeguard your system Image Sensor: 1/3-inch RGB CMOS sensor.

- B. Lens:
 - 1. Fixed focus, fixed iris 2.4mm, F2.0
 - 2. Horizontal field of view: 125°
 - 3. Vertical field of view: 95°

- C. Day and night:
 - 1. Automatically removable infrared-cut filter

- D. Minimum illumination:
 - 1. Color: 0.23 lux at F2.0
 - 2. B/W: 0.05 lux at F2.1

- E. Video compression:
 - 1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
 - 2. H.265 (MPEG-H Part 2/HEVC) Main Profile
 - 3. Motion JPEG

- F. Resolution:
 - 1. 2304x1728 to 320x240

- G. Frame rate:
 - 1. 30/25 fps with power line frequency 50/60 Hz

- H. Video Streaming:
 - 1. Multiple, individually configurable streams in H.264, H.265 and Motion JPEG
 - 2. Zipstream technology in H.264 and H.265
 - 3. Controllable frame rate and bandwidth
 - 4. VBR/ABR/MBR H.264 and H.265
 - 5. HDMI

- I. Audio input/output
 - 1. Two-way audio, full duplex

- J. Application Programming Interface:
 - 1. ONVIF Profile S, G, T

- K. Video Analytics
 - 1. Configurations:

- a. Included: Video motion detection, active tampering alarm
- b. Support for installation of third-party applications.
- L. Casing:
 - 1. Anti-ligature and anti-grip stainless steel casing and polycarbonate hard-coated dome.
 - 2. IP66-, IP69-, IP6K9K- and NEMA 4X-rated IK10+ 50 joules impact-resistant
 - 3. Steel: Color: Stainless steel
- M. Power:
 - 1. Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
 - 2. Typical 4.7 W, max 10.8 W
- N. Connectors:
 - 1. RJ45 10BASE-T/100BASE-TX PoE
 - 2. I/O connectivity: 4-pin 2.5mm terminal block (1 supervised input and 1 digital output)
 - 3. 3.5mm mic/line in, 3.5mm line out
- O. Storage:
 - 1. Support for microSD/microSDHC/microSDXC card and encryption
 - 2. Recording to network-attached storage (NAS)
- P. Operating conditions:
 - 1. -20 °C to 50 °C (-4 °F to 122 °F)
 - 2. Start-up: -20 °C to 55 °C (-4 °F to 131 °F)
 - 3. Humidity 10 to 85% RH (non-condensing)
- Q. Model:
 - 1. Axis Q9216-SLV
 - 2. or later Axis model
 - 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.6 12MP 180/360 DEGREE PANORAMIC CAMERA

- A. This network camera offers 360° overview as well as dewarped views. The camera is vandal resistant (IK10) and discreetly designed. It comes factory-focused and is designed for easy installation.
- B. Image Sensor: 1/1.7-inch progressive scan RGB CMOS sensor.
- C. Lens:
 - 1. Fixed iris, fixed focus, 1.3 mm, F2.2
 - 2. Horizontal field of view: 181°
 - 3. Vertical field of view: 181°
- D. Day and night:
 - 1. Automatically removable infrared-cut filter
- E. Minimum illumination:

1. Color: 0.19 lux at 50 IRE F2.2
 2. B/W: 0.04 lux at 50 IRE F2.2
 3. 0 lux with IR illumination on
- F. Video compression:
1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
 2. Motion JPEG
- G. Resolution:
1. Overview: 2992x2992 to 160x160
 2. Panorama: 3584x1344 to 192x72
 3. Double panorama: 3584x2688 to 256x144
 4. Quad view: 3584x2688 to 256x144
 5. View area 1-4, 16:9: 2048x1152 to 256x144, 4:3: 2048x1536 to 320x240
 6. Panorama corner left/right: 3200x1600 to 192x72
 7. Double panorama corner: 2880x2880 to 320x240
 8. Corridor: 2560x1920 to 256x144
- H. Frame rate:
1. 360° overview only, up to 2992x2992 without WDR: 25/30 fps @ 50/60 Hz
 2. 360° overview and dewarped views up to 5 MP with WDR: up to 20 fps @ 50/60 Hz
 3. 360° overview and dewarped views up to max resolution with WDR: up to 12.5/15 fps @ 50/60 Hz
- I. Video Streaming:
1. Multiple, individually configurable streams in H.264, and Motion JPEG
 2. Controllable frame rate and bandwidth
 3. VBR/MBR H.264
- J. Audio input/output
1. Two-way audio connectivity via accessory audio and I/O interfaces device with portcast technology
- K. Application Programming Interface:
1. ONVIF Profile S, G, T
- L. Video Analytics
1. Configurations:
 - a. Included: Video motion detection, active tampering alarm
 - b. Support for installation of third-party applications.
- M. Casing:
1. IP66- and NEMA 4X-rated, IK10 impact-resistant casing in polycarbonate and aluminium, with hard-coated dome and dehumidifying membrane
 2. Encapsulated electronics and captive screws
- N. Power:
1. Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
 2. Typical 7.8 W, max 12.95 W

- O. Connectors:
 - 1. RJ45 10BASE-T/100BASE-TX PoE
 - 2. Terminal block for 1 supervised alarm input and 1 digital output (12 V DC output, max. load 25 mA)
 - 3. HDMI type D
 - 4. Audio and I/O connectivity via accessory audio and I/O interfaces device with portcast technology

- P. Storage:
 - 1. Support for microSD/microSDHC/microSDXC card and encryption
 - 2. Recording to network-attached storage (NAS)

- Q. Operating conditions:
 - 1. -40 °C to 50 °C (-40 °F to 122 °F)
 - 2. Maximum temperature (intermittent): 55 °C (131 °F)
 - 3. Start-up: -30 °C to 50 °C (-22 °F to 122 °F)
 - 4. Humidity 10–100% RH (condensing)

- R. Model:
 - 1. Axis M3058-PLVE
 - 2. or later Axis model
 - 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.7 8MP 360 DEGREE MULTI-DIRECTIONAL, MULTI-SENSOR CAMERA

This network camera is a compact 8-megapixel camera with four varifocal lenses enabling overview and detailed surveillance. 360° IR illumination and Forensic WDR technology provides excellent video quality in any light conditions. Each camera head can be individually positioned (pan, tilt, roll and twist) along a circular track. Remote zoom and focus. The camera comes with an integrated weathershield.

- A. Image Sensor: (4x) 1/1.8-inch progressive scan RGB CMOS sensors.

- B. Lens:
 - 1. Varifocal, 3–6 mm, F1.8–2.6
 - 2. 4x1080p capture mode:
 - 3. Horizontal field of view: 96°–49°
 - 4. Vertical field of view: 53°–27°
 - 5. Diagonal field of view: 113°–55°
 - 6. Motorized focus, motorized zoom

- C. Day and night:
 - 1. Automatically removable infrared-cut filter

- D. Minimum illumination:
 - 1. Color: 0.17 lux at 50 IRE F1.8
 - 2. B/W: 0.04 lux at 50 IRE F1.8, 0 lux with IR illumination on

- E. Video compression:
 - 1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
 - 2. Motion JPEG

- F. Resolution:
 - 1. 4 x 1920x1080 (4 x HDTV 1080p) to 160x90

- G. Frame rate:
 - 1. Up to 25/30 fps (50/60 Hz)

- H. Video Streaming:
 - 1. Multiple, individually configurable streams in H.264 and Motion JPEG
 - 2. Controllable frame rate and bandwidth
 - 3. VBR/MBR H.264

- I. Audio input/output
 - 1. Two-way audio connectivity via accessory audio and I/O interfaces device with portcast technology

- J. IP Address
 - 1. One IP address for all channels

- K. Application Programming Interface:
 - 1. ONVIF Profile S, G

- L. Video Analytics
 - 1. Configurations:
 - a. Included: Video motion detection, active tampering alarm
 - b. Support for installation of third-party applications.

- M. Casing:
 - 1. IP66-, IP67-, NEMA 4X-rated, IK09 impact-resistant, aluminium and plastic casing with polycarbonate hard-coated dome, sunshield (PC/ASA)

- N. Power:
 - 1. Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4
 - 2. IR illumination on: class 4, typical 11.1 W, max 17.0 W
 - 3. IR illumination off: class 3, typical 8.6 W, max 11.0 W

- O. Connectors:
 - 1. Shielded RJ45 10BASE-T/100BASE-TX PoE
 - 2. Audio and I/O connectivity via accessory audio and I/O interfaces device with portcast technology

- P. IR Illumination:
 - 1. Four individually controllable IR with power-efficient, long-life 850 nm IR LEDs
 - 2. Range of reach 15 m (50 ft) or more depending on the scene

Q. Storage:

1. Support for microSD/microSDHC/microSDXC card and encryption
2. Dual SD cards
3. Recording to network-attached storage (NAS)

R. Operating conditions:

1. -40 °C to 65 °C (-40 °F to 149 °F)

S. Model:

1. Axis P3717-PLE
2. or later Axis model
3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.8 15MP 360 DEGREE MULTI-DIRECTIONAL, MULTI-SENSOR CAMERA

This network camera is a compact 15-megapixel camera with four varifocal lenses enabling overview and detailed surveillance. 360° IR illumination and Forensic WDR technology provides excellent video quality in any light conditions. Each camera head can be individually positioned (pan, tilt, roll and twist) along a circular track. Remote zoom and focus. The camera comes with an integrated weathershield.

A. Image Sensor: (4x) 1/2.5-inch progressive scan RGB CMOS sensors.

B. Lens:

1. Varifocal, 3–6 mm, F1.8–2.6
2. 4x1440p capture mode:
3. Horizontal field of view: 101°–49°
4. Vertical field of view: 54°–29°
5. Diagonal field of view: 116°–58°
6. Motorized focus, motorized zoom

C. Day and night:

1. Automatically removable infrared-cut filter

D. Minimum illumination:

1. Color: 0.20 lux at 50 IRE F1.8
2. B/W: 0.04 lux at 50 IRE F1.8, 0 lux with IR illumination on

E. Video compression:

1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
2. H.265 (MPEG-H Part 2/HEVC) Main Profile
3. Motion JPEG

F. Resolution:

1. 4 x 2560x1440 (4 x QHD 1440p) to 80x60

G. Frame rate:

1. Up to 25/30 fps (50/60 Hz)
- H. Video Streaming:
1. Multiple, individually configurable streams in H.264, H.265 and Motion JPEG
 2. Controllable frame rate and bandwidth
 3. VBR/ABR/MBR H.264
- I. Audio input/output
1. Two-way audio connectivity via accessory audio and I/O interfaces device with portcast technology
- J. IP Address
1. One IP address for all channels
- K. Application Programming Interface:
1. ONVIF Profile S, G, T
- L. Video Analytics
1. Configurations:
 - a. Included: Video motion detection, active tampering alarm
 - b. Support for installation of third-party applications.
- M. Casing:
1. IP66-, IP67-, NEMA 4X-rated, IK09 impact-resistant, aluminium and plastic casing with polycarbonate hard-coated dome, sunshield (PC/ASA)
- N. Power:
1. Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4
 2. IR illumination on: class 4, typical 16.3 W, max 25.5 W
 3. IR illumination off: class 3, typical 10.7 W, max 25.5 W
- O. Connectors:
1. RJ45 10BASE-T/100BASE-TX PoE
 2. Audio and I/O connectivity via accessory audio and I/O interfaces device with portcast technology
- P. IR Illumination:
1. Four individually controllable IR with power-efficient, long-life 850 nm IR LEDs
 2. Range of reach 15 m (50 ft) or more depending on the scene
- Q. Storage:
1. Support for microSD/microSDHC/microSDXC card and encryption
 2. Dual SD cards
 3. Recording to network-attached storage (NAS)
- R. Operating conditions:
1. -40 °C to 65 °C (-40 °F to 149 °F)

- S. Model:
 - 1. Axis P3719-PLE
 - 2. or later Axis model
 - 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.9 30X PTZ DOME NETWORK CAMERA

This network PTZ camera features a built-in laser that provides instant focus even in challenging lighting conditions. It also delivers HDTV 1080p video, with 30x optical zoom. Axis Sharpdome and Lightfinder technologies provide full scene fidelity and image quality in all directions, even in low-light conditions, while Axis Zipstream technology significantly reduces bandwidth and storage requirements. The quick and precise pan makes it easy to change viewing position and follow fast moving objects. The speed dry function easily removes water drips from the dome glass, providing clear images in rainy weather. Image Sensor: 1/2.8" progressive scan RGB CMOS

- A. Lens:
 - 1. 4.3-129 mm, F1.6 - 4.7
 - 2. Horizontal field of view: 66.7°–2.36°
 - 3. Vertical field of view: 39.5°–1.37°
 - 4. Laser focus and auto-iris

- B. Day and night:
 - 1. Automatically removable infrared-cut filter

 - 2. Minimum illumination:
Color: 0.15 lux at 30 IRE F1.6
B/W: 0.01 lux at 30 IRE F1.6
Color: 0.2 lux at 50 IRE F1.6
B/W: 0.02 lux at 50 IRE F1.6

- C. Video compression:
H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
Motion JPEG

- D. Resolution:
1920x1080 HDTV 1080p to 320x180

- E. Frame rate:
Up to 30/25 fps (60/50 Hz) in 1080P
Up to 60/50 fps (60/50 Hz) in 720P

- F. Video Streaming:
 - 1. Multiple, individually configurable streams in H.264 and Motion JPEG
 - 2. Controllable frame rate and bandwidth
 - 3. VBR/MBR H.264

- G. Application Programming Interface:
 - 1. ONVIF Profile S, G

- H. Video Analytics

1. Configurations:
 - a. Included: Video motion detection, Axis Fence Guard, Axis Motion Guard
 - b. Support for installation of third-party applications.

- I. Casing:

IP66-, NEMA 4X- and IK08 housing IK10 mounting
Aluminum casing, polycarbonate (PC) dome

- J. Power:

High PoE midspan 1–port: 100–240 V AC, max 74 W
IEEE 802.3at, Type 2 Class 4
Camera consumption: typical 11 W, max 25 W

- K. Connectors:

RJ45 10BASE-T/100BASE-TX PoE
RJ45 push-pull connector (IP66) included

- L. Storage:
 1. Support for microSD/microSDHC/microSDXC card and encryption
 2. Recording to network-attached storage (NAS)

- M. Operating conditions:

With 60W midspan: -55 °C to 50 °C (-67 °F to 122 °F)
Humidity 10–100% RH (condensing)

- N. Model:
 1. Axis Q6155-E
 2. or later Axis model
 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.10 20MP 360 DEGREE MULTI-DIRECTIONAL, MULTI-SENSOR CAMERA PTZ ACCESSORY

- A. With four 5 MP sensors, this model provides a complete 360° overview with great image usability both day and night. Designed for operation with any AXIS Q60-E PTZ Network Camera, it enables one-click PTZ control and autopilot for automatic PTZ tracking within the viewing areas. And, each sensor has exchangeable lenses with autofocus and positioning calibration for maximum flexibility and accurate configuration. AXIS Q6010-E uses the same bracket, power supply and network cable as the connected AXIS Q60-E PTZ Network Camera for cost-efficient installation. Furthermore, Zipstream with support for H.264/H.265 significantly lowers bandwidth and storage requirements without compromising image quality. Image Sensor: (4x) 1/2.5-inch progressive scan RGB CMOS sensors.

- B. Lens:
 1. Autofocus lenses, fixed iris, 2.8 mm, F2.0
 2. 4 x 5MP progressive scan RGB CMOS 1/2.5 mm
 3. Horizontal field of view: 360°
 4. Vertical field of view: 84°

- C. Day and night:

1. Automatically removable infrared-cut filter
- D. Minimum illumination:
 1. Color: 0.4 lux at 50 IRE F1.8
 2. B/W: 0.03 lux at 50 IRE F2.0
- E. Video compression:
 1. H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
 2. H.265 (MPEG-H Part 2/HEVC) Main Profile
- F. Resolution:
 1. 4 x 2592x1944 to 320x240
 2. Panorama: 3904-x800 or 2560x2080
- G. Frame rate:
 1. Up to 20 fps (50/60 Hz) in all resolutions
- H. Video Streaming:
 1. Multiple, individually configurable streams in H.264, H.265 and Motion JPEG
 2. Controllable frame rate and bandwidth
 3. MBR H.264/H2.65
- I. IP Address
 1. Assignable on host PTZ
- J. Application Programming Interface:
 1. ONVIF Profile S, G, T
- K. Video Analytics
 1. Configurations:
 - a. Included: Directional audio detection, Autopilot, AXIS Video Motion Detection, AXIS Guard Suite including AXIS Motion Guard, AXIS Fence Guard, and AXIS Loitering Guard, active tampering alarm, edge storage events
 - b. Support for installation of third-party applications.
- L. Casing:
 1. IP66-, NEMA 4X-rated, IK10
 2. Aluminium casing with polycarbonate hard-coated dome
- M. Power:
 1. Consumption without PTZ: PoE typical 9 W, max 23 W
- N. Connectors:
 1. RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE
 2. RJ45 10BASE-T/100BASE-TX/1000BASE-T Q61-E port
 - 3.
- O. Storage:
 1. Support for microSD/microSDHC/microSDXC card and encryption

- 2. Recording to network-attached storage (NAS)

- P. Operating conditions:
 - 1. -50 °C to 50 °C (-58 °F to 122 °F) w/ heater kit
 - 2. -40 °C to 50 °C (-40 °F to 122 °F)

- Q. Model:
 - 1. Axis Q6100-E
 - 2. or later Axis model
 - 3. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.11 27-INCH HIGH PERFORMANCE HD LED MONITOR

- A. Video
 - 1. The HD monitor shall support Full HD 1080p resolution (1920 x 1080), feature a 3-D comb filter, have performance-enhancing features such as picture-in-picture, picture-and-picture, menu controls to adjust video features, and automatic detection of a NTSC signal, and display images using an aspect ratio of 16:9 and be capable of displaying 16.7 million colors.

- B. Electrical/Mechanical
 - 1. Main Supply Input Voltage: 100–230 VAC, 50/60 Hz
 - 2. Monitor Input Voltage/Power Requirements: 90–264 VAC, 50/60 Hz
 - 3. Power at Rated Voltage:
 - a. Operation: 260 W
 - b. Standby: 10 W
 - 4. The HD monitor shall conform to the 130 x 130 mm VESA Mounting standard.

- C. Video:
 - 1. Sync Format: NTSC
 - 2. LCD Panel: Active Matrix TFT LCD
 - 3. Viewable Picture Area: 27 in, measured diagonally
 - 4. Pixel Pitch (H x V): 0.4845 x 0.4845 mm
 - 5. Resolution: 1920 x 1080 pixels
 - 6. Aspect Ratio: 16:9
 - 7. Display Colors: 6.7 million colors
 - 8. Response Time: <12 milliseconds
 - 9. Backlight:
 - a. Rated Life: 30,000 hours

- D. Optical Characteristics
 - 1. Luminance: 350 cd/m², anti-glare, hard-coating (3H) treatment
 - 2. Contrast Ratio: 3000:1 (typical)
 - 3. Viewing Angle:
 - a. Horizontal: 178°
 - b. Vertical: 178°

- E. Connectors
 - 1. Video: Four (4) BNC types (2 in, 2 out)
 - 2. RGB: One (1) 15-pin D-sub
 - 3. Y/C (S-video): Two (2) (1 in, 1 out)
 - 4. Component: Y, Pb, Pr
 - 5. Audio:

- a. Four (4) RCA type (2 stereo inputs)
- b. One (1) PC stereo input
- c. One (1) looping output, 1/8 in. mini phono plug
- 6. Digital:
 - a. One (1) DisplayPort
 - b. One (1) DVI-D
 - c. One (1) HDMI
 - d. One (1) VGA
- 7. Power Cord: Two 3-wire with a grounded plug, 1.8 m (6 ft) long.

F. Mechanical:

- 1. Weight:
 - a. Monitor Weight: 6.8 kg (15 lbs)

G. Environmental:

- 1. Operating Temperature: 0° to 90°C
- 2. Humidity: Maximum 90%, non-condensing

H. Model:

- 1. Pelco PMCL Series 27"
- 2. Or equal specs

2.12 55-INCH HIGH PERFORMANCE 1080P HD LCD/LED MONITOR

A. Video

- 1. The HD monitor shall support Full 1080P resolution (1920 x 1080), an LED backlight panel, shall automatically focus on setting the correct color, temperature, and gamma curve settings, shall display images using an aspect ratio of 16:9 and be capable of displaying 1.07 billion colors.

B. Electrical/Mechanical

- 1. Main Supply Input Voltage: 100–240 VAC, 50/60 Hz
- 2. Power at Rated Voltage:
- 3. Max Operation: <187 W
- 4. Standby: <0.5 W
- 5. The monitor shall conform to the 400 x 400mm VESA Mounting standard.

C. Video:

- 1. Sync Format: PAL/NTSC
- 2. LCD Panel: LED
- 3. Viewable Picture Area: 55. in, measured diagonally
- 4. Active Display Area (H x V): 1209.6 x 680.4 mm (47.6 x 26.79 in.)
- 5. Resolution: 3840 x 2160 pixels
- 6. Aspect Ratio: 16:9
- 7. Display Colors: 1.07 billion
- 8. Response Time: 6 milliseconds (typical)
- 9. Backlight: 24/7 rated

D. Optical Characteristics

- 1. Luminance: 500 nit
- 2. Contrast Ratio: 5000:1
- 3. Viewing Angle:
 - a. Horizontal: 178°
 - b. Vertical: 178°

- E. Connectors
 - 1. Two DisplayPort 1.2
 - 2. One digital DVI-D input.
 - 3. Two digital HDMI 2.0 input.
 - 4. One 100-240 VAC power input.
 - 5. Audio:
 - a. Stereo mini jack

- F. Mechanical:
 - 1. Finish: Black
 - 2. Mount: Wall mounting compatible with standard bracket
 - 3. VESA Mounting Compliance: 400 x 400 mm
 - 4. Dimensions: 1253.8 x 722.6 x 74.1 mm (49.36 x 28.45 x 2.92 in.)
 - 5. Weight: 15.4 kg

- G. Environmental:
 - 1. Operating Temperature: 0° to +50°C (32° to 122°F)
 - 2. Storage Temperature: 0° to +50°C (32° to 122°F)
 - 3. Humidity: Maximum 0% to 90% relative

- H. Model:
 - 1. Samsung PM55H 24/7 Commercial Display
 - 2. Pelco PMCL 55"
 - 3. Or EQUAL

2.13 65-INCH HIGH PERFORMANCE 4K UHD LCD/LED MONITOR

- I. Video
 - 1. The 4K monitor shall support Full 4K resolution (3840 x 2160), an LED backlight panel, shall automatically focus on setting the correct color, temperature, and gamma curve settings, shall display images using an aspect ratio of 16:9 and be capable of displaying 1.07 billion colors.

- J. Electrical/Mechanical
 - 1. Main Supply Input Voltage: 100–240 VAC, 50/60 Hz
 - 2. Power at Rated Voltage:
 - 3. Operation: <185 W
 - 4. Standby: <0.5 W
 - 5. The 4K monitor shall conform to the 400 x 400mm VESA Mounting standard.

- K. Video:
 - 1. Sync Format: PAL/NTSC
 - 2. LCD Panel: LED
 - 3. Viewable Picture Area: 65. in, measured diagonally
 - 4. Resolution: 3840 x 2160 pixels
 - 5. Aspect Ratio: 16:9
 - 6. Display Colors: 1.07 billion
 - 7. Response Time: 8 milliseconds (typical)
 - 8. Backlight: 24/7 rated

- L. Optical Characteristics
 - 1. Luminance: 700 nit
 - 2. Contrast Ratio: 4000:1

3. Viewing Angle:
 - a. Horizontal: 178°
 - b. Vertical: 178°

M. Connectors

1. One DisplayPort 1.2
2. One digital DVI-D input.
3. Two digital HDMI 2.0 input.
4. One 100-240 VAC power input.
5. Audio:
 - a. Stereo mini jack

N. Mechanical:

1. Cabinet Material: SECC
2. Finish: Black
3. Mount: Wall mounting compatible with standard bracket
4. VESA Mounting Compliance: 400 x 400 mm
5. Dimensions: 1253.8 x 722.6 x 74.1 mm (49.36 x 28.45 x 2.92 in.)
6. Weight: 30.5 kg (67.2 lb)

O. Environmental:

1. Operating Temperature: 0° to +50°C (32° to 122°F)
2. Storage Temperature: 0° to +50°C (32° to 122°F)
3. Humidity: Maximum 0% to 90% relative

P. Model:

1. Samsung QH65R Commercial Display
2. Pelco
3. Or EQUAL

2.14 QUAD MONITOR WORKSTATION

- A. Provide HP Z4 G4 management workstation with Intel's Xeon E-2145 (3.7 GHz, 11 MB cache, 2666 MHz memory speed, 8C CPU), 16 GB (2 x 8 GB) DDR4-2666 ECC Registered Memory and (2) NVIDIA Quadro P2000 (4 GB) graphics cards in a convertible mini-tower chassis with 750w, 90% efficient PSU.
- B. Microsoft Windows 10 IOT, 64-bit OS
- C. Minimum 256 GB SSD
- D. Provide with 3-year Next Business Day on-site hardware warranty minimum
- E. Model:
 1. Dell
 - 2.

2.15 MANAGEMENT SERVER

- A. Dell PowerEdge Server with hot plug fans and power supplies, and RAID controller with RAID-1 operating system protection with 2x 256 GB M.2 SSD. One (1) state-of-the-art eight-core Intel Xeon E-2136 Processor (3.3 GHz, 6 core, 80 W, and 16 (1 X 16 GB PC3L-10600R

(DDR4-2666) Registered DIMMs. 1 x two Port Gigabit Server Adapter. Windows Server 2016 / SQL Express.

- B. Provide a 3–year standard warranty minimum.
- C. The server shall come in a 2U, 19-inch rack mount version with a quick deploy rail system, including sliding universal rails. The rack mount version allows access to all system components for easy in-rack serviceability.
- D. Model:
 - 1. Dell

2.16 STORAGE SERVERS

- A. General:
 - 1. The Storage Servers shall be a modular digital storage system, providing a 2RU chassis, power supplies, embedded video server and operating system, and provision for 18 enterprise class 7200 RPM hard disk drives, for maximum stated capacity.
 - 2. The IP Video Storage System shall be a pre-configured and pre-installed video management solution with up to 252TB of gross storage capacity with a Windows 10 IOT or Server 2016 OS per VMS recommendations. (2x) 256GB M.2 RAID 1 for OS drives.
 - 3. The IP Video Storage System shall include a 4 port Gigabit Ethernet network interface, 64 GB system memory and dual (2x) Intel Xeon Silver 4114 Processors, remote monitoring via a desktop application or a Web browser. Nvidia P2000 GPU.
- B. Processor
 - 1. The IP Video Storage Appliance shall contain two Intel Xeon Silver 4114 10-core 2.2 GHz, 13.75 M cache, 85 W processors.
 - 2. The IP Video Storage Appliance processor shall contain two (2) sockets.
 - 3. The IP Video Storage Appliance processor shall feature a 1 x 8 MB Level 2 cache memory.
 - 4. The IP Video Storage Appliance processor shall include ECC Unbuffered memory protection.
 - 5. The IP Video Storage Appliance processor shall contain a 1600 MHz maximum front side Bus minimum.
- C. Management
 - 1. The IP Video Storage Appliance shall provide a user interface for system configuration and unified appliance management.
 - 2. The IP Video Storage Appliance shall offer the Microsoft System Center Suite built-in.
 - 3. The IP Video Storage Appliance shall allow operators to use one central tool for configuration and operations management.
- D. Monitoring
 - 1. The IP Video Storage Appliance shall provide SNMP, Remote Desktop and HTTP monitoring support.
 - 2. The IP Video Storage Appliance shall offer high-availability hardware, embedded design, and system wide monitoring.
- E. Electrical:
 - 1. Input Voltage: 120 VAC
 - 2. Efficiency of Power Supply: 92%
 - 3. Total System Power Consumption: approx. 450 W

- F. Mechanical
 - 1. Form Factor: 2U or 3U Rack Mount
 - 2. Power Supply: 1200 W Platinum Level redundant
 - 3. USB Ports: 4 USB 2.0; 2 in rear, 2 in front, 2 USB 3.0 ports rear
 - 4. Network: Dual Intel® i210AT Gigabit LAN
 - 5. Dimensions (H x W x D): 648 x 437 x 89 mm (25.5 x 17.2 x 3.5 in (2RU) or 5.2 in(3RU).)
 - 6. Weight: 23.6 kg (52 lb) 2RU or 32.7 kg (72 lb) 3RU
- G. Model:
 - 1. Dell

2.17 VIDEO MANAGEMENT SYSTEM SOFTWARE

- A. The video management system (VMS) specified is an enterprise-class client/server based IP video security solution that provides seamless management of digital video, audio and data across an IP network. The video management system is designed to work with ONVIF compliant 3rd party products as part of a total video security management system to provide full virtual matrix switching and control capability. The video management system consists of the following software modules: management server, recording services, configuration client and operator clients. Video from other sites may be viewed from single or numerous workstations simultaneously at any time. Cameras, recorders, and viewing stations may be placed anywhere in the IP network.
- B. The management server and the Video Recording Manager shall run as services on Windows Server 2016 or latest compatible version.
- C. The configuration client software shall run as an application on Windows Server 2016 or latest compatible version.
- D. The operator client software shall run as an application on Windows 10.
- E. The VMS shall support ONVIF Profile G, S, T and Q compliant cameras. It shall be possible to access live streams and to control PTZ functionality.
- F. It shall be possible to record ONVIF compliant cameras. For recording only, 3rd party cameras that support MJPEG or RTSP shall be supported.
- G. The VMS shall provide a transcoding service for supporting HTML5 based web clients as mobile video clients.
- H. Mobile video clients shall be able to access live and recording data of all cameras in the video management system. It shall be possible to view up to 4 video streams at once on a web client or iPad and mix live and playback streams. The mobile video clients shall further more provide an option for the user to zoom in as well as to opt between high resolution and smooth motion (higher rate of frames per second). It shall be possible to access the video management system from mobile video clients with the user accounts in the video management system.
- I. The VMS shall be scalable to an Enterprise Management System that allows a user of an operator client to simultaneously access the devices of multiple subsystems.
- J. The VMS shall provide a documented Software Development Kit (SDK) to allow integration to and integration from third-party software.
- K. The VMS specified shall be a centrally managed, scalable client/server based architecture that allows full virtual matrix switching and control systems.

- L. The VMS shall be capable to be deployed in Local Area Networks (LAN) as well as in Wide Area Networks (WAN). For establishing remote connections across WAN, it shall be possible to setup a port mapping table within the configuration manager in order to map the public port to a private IP and port of the devices.
- M. The VMS shall allow an operator client to control and view live and playback streams of cameras allocated to the VRM, VSG and DVRs from a remote site (across WAN). This includes ONVIF cameras connected to the VSG.
- N. The VMS shall provide the possibility to the operator to view transcoded video streams (live and playback) in order view high quality images, when the remote operator client accesses the camera via a low bandwidth connection. On selection, there shall be an indication in the image pane of the operator client to indicate, that the stream is being transcoded.
- O. The VMS shall provide a built-in command script editor that allows customized command scripts to be written to control virtually all the system functions. Command scripts may be activated by system operators or automatically in response to alarms or system events.
- P. The VMS shall support all Security Systems MPEG-4 and H.264 and H.265 encoders, IP cameras, IP PTZ domes, panoramic and multisensor cameras.
- Q. The VMS shall provide a minimum of 10 different and independent programmable recording schedules. The schedules may be programmed to provide different record frames rates for day, night, and weekend periods as well as special days. Advanced task schedules may also be programmed that could specify allowed logon times for user groups, when events may trigger alarms, and when data backups should occur.
- R. The VMS shall allow the establishment of user groups and Enterprise user groups that have access rights to specific cameras, priority for pan/tilt/zoom control, rights for exporting video, and access rights to system event log files. Access to live, playback, audio, PTZ control, preset control, and auxiliary commands shall be programmable on an individual camera basis.
- S. The VMS shall interface with third party analytics.
- T. The VMS shall support Microsoft Active Directory.
- U. The VMS shall export video and audio data optionally in ACC format to a CD/DVD drive, a network drive, or a USB drive. The exported data in ACC format may be played back using standard software such as Windows Media Player. It shall also export video and audio data optionally in its native recording format to a CD/DVD drive, a network drive, or a direct attached drive. The exported data in native recording format shall include all associated metadata. Viewer software shall be included with the export. Once installed, the viewer software allows playback of the streams on any compatible Windows PC.
- V. The VMS shall auto-discover encoder and VRM devices. Device detection shall support devices in different subnets.
- W. The VMS shall support continuous operation during management server down-times as live viewing, playback of recording and export of video data. The operator client shall indicate its connection status to the management server.
- X. The VMS software shall be maintenance free and provide free software upgrades, patches and firmware. Software with annual maintenance agreements shall not be allowed

AA. Model:

1. Milestone Xprotect Expert 2020 R2 or later. The county is providing the Corporate license.
2. Provide all other equipment licenses required.
3. All latest patches shall be installed within 60 days of final acceptance.

2.18 EDGE ETHERNET SWITCH

- A. The switch shall support transmission utilizing Category 5 cable or better, multimode fiber, or single-mode fiber. The switch shall support IEEE 802.3 protocol using Auto-negotiating and Auto-MDI/MDI-X features. The switch shall be capable of supporting IEEE 802.3at 30 Watt PoE at each of the 24 (twenty- four) RJ-45 ports, considering the 400 W PoE budget for the switch as a whole. The switch shall have a fully internal power supply. The switch shall feature 22 (twenty-two) dedicated 10/100/1000T(X) RJ-45 ports capable of 802.3at PoE, 2 (two) dedicated 100/1000FX SFP ports, and 2 (two) combo ports, each combo port containing 1 (one) 10/100/1000T(X) RJ-45 port capable of 802.3at PoE and 1 (one) 100/1000FX SFP port
- B. To ease installation, the switch shall require no in-field electrical or optical adjustments or in-line attenuators. The switch shall provide power, link speed, and fiber port status indicating LED's for monitoring proper system operation. The switch shall provide a serial connection for local management of the device. The switch shall have a lifetime warranty to reduce system life cycle cost in an event of a failure.
- C. The following IEEE Networking Standards shall be supported:
 1. IEEE 802.3 10Base-T Ethernet
 2. IEEE 802.3u 100Base-TX Fast Ethernet
 3. IEEE 802.3ab 1000Base-TX Gigabit Ethernet
 4. IEEE 802.3at Power over Ethernet
 5. IEEE 802.3z Gigabit Ethernet Fiber
 6. IEEE 802.3x Flow Control and Back-pressure
 7. IEEE 802.1p class of service
 8. IEEE 802.1Q VLAN and GVRP
 9. IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
 10. IEEE 802.1s Multiple Spanning Tree Protocol
 11. IEEE802.3ad LACP
 12. IEEE802.1X Port-based Network Access Control
 13. IEEE 802.1AB LLDP
- D. Switching Performance
 1. Switch Technology: Store and Forward Technology with 52 Gbps Switch Fabric.
 2. Transfer Packet Size: 64 bytes to 9600 bytes (with VLAN Tag)
 3. MAC Address: 8K MAC
 4. Packet Buffer: 1Mbits
 5. Relay Alarm: Dry Relay output with 1A@24V ability
- E. Management
 1. Configuration: Web, HTTPS, SSH, TFTP/Web Update for firmware and configuration backup/restore, DHCP Client, Warm reboot, Reset to default, Admin password, Port Speed/Duplex control, status, statistic, MAC address table display, Static MAC, Aging time, SNMP v1, v2c, v3, Traps and RMON1.
 2. SNMP MIB: MIB-II, Bridge MIB, VLAN MIB, SNMP MIB, RMON and Private MIB
 3. Port Trunk: Up to 5 Static Trunk and 802.3ad LACP
 4. VLAN: IEEE802.1Q VLAN, GVRP. Up to 64 VLAN groups

5. Quality of Service: Four priority queues per port,
 6. IEEE802.1p COS and Layer 3 TOS/DiffServ
 7. IGMP Snooping: IGMP Snooping V2/V3 for multicast filtering and IGMP Query
 8. Rate Control: Ingress filtering for Broadcast, Multicast, Unknown DA or all packets, and Egress filtering for all packets
 9. NTP: Network Time Protocol to synchronize time from Internet
 10. PTP: Precision Time Protocol for clock synchronization.
 11. Port Mirroring: Online traffic monitoring on multiple selected ports
 12. Port Security: Assign authorized MAC to specific port
 13. IP Security: IP security to prevent unauthorized access
 14. 802.1x: Port-based Network Access Control
 15. DHCP Server: Can assign 255 IP address, support IP and MAC binding
 16. System Log: Supports both Local mode and Server mode
- F. Network Redundancy
1. Rapid Spanning Tree Protocol: IEEE802.1D-2004 Rapid Spanning Tree Protocol.
 2. Compatible with Legacy STP and IEEE802.1w.
 3. Multiple Spanning Tree Protocol: IEEE 802.1s
- G. Data Specifications
1. Data Interface: Ethernet IEEE 802.3
 2. Data Rate: up to 1000 Mbps
 3. Data Inputs/Outputs: up to 26
 4. Operation Mode: Half or Full Duplex
- H. Specification
1. Number of Optical ports: up to 4 SFP-based
 2. Number of Fibers Required: 1 or 2, SFP-dependent
 3. Optical Wavelength: 1310 or 1550 nm, SFP-dependent
 4. Optical Power Budget: SFP-dependent
 5. Maximum Distance: up to 120 km (70 mi) singlemode, SFP-dependent
- I. Status Indicators
1. Power: Proper Power = Green
 2. RJ-45 Link/Data: Green, No Link/No Data: Off
 3. SFP Link/Data: Green, No Link/No Data: Off
- J. Connectors
1. Optical: LC or SC, SFP-dependent
 2. Power: IEC60320 connector for standard AC line cord.
 3. Data: RJ-45
 4. Console: DB9 serial communication.
- K. Electrical Specifications
1. Power: Internal power supply, 100 to 240 VAC, 50-60 Hz input.
 2. PoE Support: 400 watts available for 24 ports with PoE+ (30W available at all 24 ports, not to exceed 400 W total PoE consumption), at a maximum ambient operating temperature of +60° C.
 3. Current Protection: Automatic re-settable solid-state current limiters
 4. Voltage Regulation: Solid-state, Independent on each board
 5. Circuit Board: UL 94 flame rated and meets all IPC standards.
- L. Mechanical Specifications
1. 16.97 in (W) x 13.46 in (D) x 1.73 in (H) 431 mm (W) x 342 mm (D) x 44 mm (H)
 2. Finish: Module shall be constructed of a metal enclosure with a powder coat.

3. Weight: <13lb/6kg
- M. Environmental Specifications
1. MTBF: >100,000 Hours
 2. Operating Temp: –10° C to +60° C.
 3. Storage Temp: -40° C to +85° C.
 4. Relative Humidity: 5% to 95% (non-condensing).
- N. REGULATORY AGENCIES/APPROVALS AND LISTINGS
1. Underwriters Laboratory (UL) Listing Number: I.T.E. 6D16
 2. Underwriters Laboratory Canada (ULC) Listing Number: I.T.E. 6D16
 3. UL 94-flame rated PCB board: 94VO
- O. Models:
1. Cisco Catalyst 9300-48U-E UPoE Network Essentials
 2. 1100W AC Platinum Power Supplies (redundant)
 3. Cisco StackWise cables (50cm) where required.
 4. Cisco DNA Essentials 48 port 3 year.
 5. 1Gig SFP modules compatible with existing OM1 backbone (2 minimum for redundant connections to core.)
 6. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.19 CORE ETHERNET SWITCH

- A. The core Ethernet switch shall be enterprise-class stackable Ethernet and Multigigabit Ethernet access and aggregation layer switches that provide full convergence between wired and wireless on a single platform. The core Ethernet switch shall support full IEEE 802.3at Power over Ethernet Plus (PoE+), modular and field-replaceable network modules, RJ45 and fiber-based downlink interfaces, and redundant fans and power supplies. With speeds that reach 10Gbps, the core Ethernet switch shall support current and next- generation wireless speeds and standards (including 802.11ac Wave 2) on existing cabling infrastructure. The switch shall support transmission utilizing Category 5 cable or better, multimode fiber, or single-mode fiber.
- B. The core Ethernet switch shall be provided with following capabilities:
1. Integrated wireless controller capability with:
 - a. Up to 40G of wireless capacity per switch (48-port models)
 - b. Support for up to 50 access points and 2000 wireless clients on each switching entity (switch or stack)
 2. 24 and 48 10/100/1000 data PoE+ models with energy-efficient Ethernet (EEE)
 3. 24 and 48 100Mbps/1/2.5/5/10 Gbps UPOE models with energy-efficient Ethernet (EEE)1
 4. 12- and 24-port SFP-based models
 5. Five optional uplink modules with 4 x Gigabit Ethernet, 2 x 10 Gigabit Ethernet, 4 x 10 Gigabit Ethernet, 8 x 10 Gigabit Ethernet2 or 2 x 40 Gigabit QSFP2 ports
 6. Dual redundant, modular power supplies and three modular fans providing redundancy
 7. Full IEEE 802.3at (PoE+) with 30W power on all copper ports in 1 rack unit (RU) form factor
 8. Software support for IPv4 and IPv6 routing, multicast routing, modular quality of service (QoS), Flexible NetFlow (FNF), and enhanced security features
 9. The core Ethernet switch shall be provided with advanced wired plus wireless QoS

capabilities. The switch shall manage wireless bandwidth using unprecedented hierarchical bandwidth management starting at the per-access-point level and drilling further down to per-radio, per-service set identification (SSID), and per-user levels. The switch shall be capable of automatically allocating equal bandwidth among the connected users within a given SSID. This makes sure that all users within a given SSID get a fair share of the available bandwidth while being connected to the network. The UADP ASIC enables the hierarchical bandwidth management and fair sharing of bandwidth, thereby providing hardware-based QoS for optimized performance at line-rate traffic.

10. The core Ethernet switch shall be provided with security features such as IEEE 802.1x, port security, Dynamic Host Configuration Protocol (DHCP) Snooping and Guard, Dynamic ARP Inspection, RA Guard, IP Source Guard, control plane protection (CoPP), wireless intrusion prevention systems (WIPs), and so on enable protection against unauthorized users and attackers. With a variety of wired plus wireless users connecting to the network, the switch shall supports session-aware networking, in which each device connected to the network is identified as one session, and unique access control lists (ACLs) and/or QoS policies can be defined and applied using the ISE for each of these sessions, providing better control on the devices connecting to the network.

C. The core Ethernet switches performance capabilities:

1. Switch capacity:
 - a. 176Gps on 48 port model
 - b. 92 Gbps on 24-port models
 - c. 68 Gbps on 12-port model
2. Stacking bandwidth: 480Gps
3. Total number of MAC addresses: 32,000
4. Total number of IPv4 routes: 24,000
5. FNF entries:
 - a. 48,000 flow on 48-port models
 - b. 24,000 flows on 12-port and 24-port models
6. DRAM: 4 Gb
7. Flash: 2 Gb
8. Vlan ID(s): 4,000
9. Jumbo Frame: 9198 bytes

D. The core Ethernet switches physical characteristics: 1. Dimensions: 1.75" X 17.5" X 17.7"

2. Weight: 15.5 lb
3. Environmental: -5C to 45C
4. Relative Humidity: 10% to 95%, noncondensing
5. Connectors and Cabling:
 - a. 1000BASE-T ports: RJ-45 connectors, 4-pair Cat5E UTP cabling
 - b. 1000BASE-T SFP based ports: RJ-45 connectors, 4-pair Cat5E UTP cabling
 - c. 100BASE-FX, 1000BASE-SX, -LX/LH, -ZX, -BX10, DWDM and CWDM SFP transceivers: LC fiber connectors (single mode and multimode fiber)
 - d. 10GBASE-SR, LR, LRM, ER, ZR, DWDM SFP+transceivers: LC fiber connectors (single mode and multimode fiber)
 - e. CX1 cable assemblies: SFP+Connectors

- f. Ethernet Management Port: RJ-45 connectors, 4-pair Cat5E UTP cabling
- g. Management Console Port: RJ-45 to DB9 cable for PC connection
- E. The core Ethernet switches Power characteristics:
 - a. Power Supply Rated Maximum: 1100W/715W/350W/440W
 - b. Total BTU Output: 3793 BTU/hr; 2465 BTU/hr; 1207 BTU/hr; 1517 BTU/hr
 - c. Input Voltage Range: 115-240VAC
 - d. Input Current Range: 12-6A
- F. Models:
 - 1. Cisco Catalyst 9300-48U-E UPoE Network Essentials - Provide SFP ports sufficient for redundant 1Gig connections to each edge switch.
 - 2. 1100W AC Platinum Power Supplies (redundant)
 - 3. 8 Port 10G network module for expansion
 - 4. Cisco StackWise cables (50cm) where required.
 - 5. Cisco DNA Essentials 48 port 3 year.
 - 6. 10G Fiber SFP modules (2 minimum plus additional as needed.)
 - 7. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.20 VIDEO WIRING SYSTEMS

- A. Provide multimode fiber optic cabling and patching for all backbone and non-backbone fiber optic media conversion.
 - 1. New fiber optic cabling paths for long camera runs requiring media converters shall use OM3/4 Indoor/Outdoor Fiber, 900 micron tight buffer:
 - a. Panduit (No substitutions per Collin County IT Standards, Court Order 2020-523-06-15)
 - b. New fiber optic patch cables from the switches to the existing fiber optic network backbone shall be OM1 62.5/125 micron.
 - a. Panduit (No substitutions per Collin County IT Standards, Court Order 2020-523-06-15)
- B. Data Cable: Unshielded 4-pair, shall exceed all requirements for ANSI/EIA/TIA-568-A-5 and support high speed communication network applications. See 28 05 10 for further requirements.
 - 1. Category 6 minimum:
 - a. Panduit
 - 1. Provide riser or plenum jacket rating as applicable per installation environment. Coordinate jacket color with county I.T.
 - 2. Patch cables shall use green keystone jacks and green patch cables for video.
 - 3. Panduit UTPSP4GRY (4 foot)
 - 4. Panduit UTPSP7GRY (7 foot)
 - b. Panduit (No substitutions per Collin County IT Standards, Court Order 2020-523-06-15)
- C. CAT6 patch panels and management (No substitutions per Collin County IT Standards, Court Order 2020-523-06-15):
 - 1. Flat 48 port patch panel and keystone jacks
 - a. Panduit CPPL48WBLY
 - b. Panduit CJ688TGGRY

- 2. 2RU horizontal cable manager
 - a. Panduit NCMHF2

- D. See 28 0510 Common Work Results for general cabling requirements.

2.21 MEDIA CONVERTERS

- A. Transmits and receives 1000 Mbps data over multimode, single mode, optical fiber, or 10/100/1000 Mbps data over CAT5e or Cat6 electrical cable. The media converter shall meet following requirements:
 - 1. Data Interface: Ethernet
 - 2. Data Rate: 10/100/1000 Mbps, IEEE 802.3 Compliant
 - 3. Operating Mode: Full Duplex or Half Duplex
 - 4. MTBF: > 100,000 hours
 - 5. Operating Temp: -40° C to +74° C
 - 6. Storage Temp: -40° C to +85° C
 - 7. Relative Humidity: 0% to 95%
 - 8. Model:
 - a. Axis
 - b. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15

2.22 PTZ CAMERA POWER SUPPLIES

- A. Provide minimum 60W PoE+ injector where recommended by the camera manufacturer. Provide adequate mounting hardware in rack to accommodate the number of PoE injectors required.
 - 1. Axis T8134 or later model
 - 2. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15)

2.23 CAMERA SCHEDULE (SEE ES DRAWINGS)

2.24 SPARE PARTS

- A. Provide spare parts as follows:
 - 1. Camera: One (1) of each type required.
 - 2. Network Switches: Each provided network switch shall have 2 minimum spare copper ports per 24 copper ports.
 - 3. Network Switch Power Supply: One (1) of each type used.
 - 4. LCD HD Monitors: One (1) of each type power supply required.
 - 5. PoE Midspan Injector: Two (2) of each type required.
 - 6. SFP Module: Two (2) of each type required.
 - 7. Storage Server RAID HDD: Two (2) of each size installed.

PART 3 - EXECUTION

3.1 INSTALLATION (SEE SECTION 280510)

- A. Install all equipment in accordance with manufacturer’s recommendations.
- B. Provide rack mount equipment as required for all equipment shown rack mounted on the

drawings.

- C. Install all video surveillance system cabling in conduit between camera and nearest ceiling. Use J-Hooks and plenum rated cable for the cable runs above the ceilings.
- D. Provide conduit with pull strings, boxes, and video system capacity for future cameras indicated on plans.
- E. Make all connections to video equipment with approved connectors for cable used.
- F. After Substantial Completion and initial programming as specified, provide a minimum of eight (8) hours of time with Owner Representative for review of specified program and modification to User's requirements.
- G. Coordinate all system downtime with owner.
- H. Coordinate camera views with owner rep. Submit sign off of each view to Engineer.
- I. Coordinate camera alarm call ups with owner for optimal view per alarm.

3.2 TESTING (SEE SECTION 280510)

- A. Testing Specifications for each fiber optic cable:
 - a. See 280510
- B. Camera testing:
 - 1. All cameras are configured per the specifications and at max camera resolution. Ensure there are no skips, blacked out video or video tearing. Ensure all video monitors are able to display required feeds without faults.
 - 2. Test all camera call ups.
 - 3. Ensure all audio is being recorded and clearly audible.
 - 4. Ensure each camera is recording.
 - 5. Create masks over toilet areas and where owner requests.
 - 6. Ensure estimating storage retention forecast meets specifications.

3.3 WIRING (SEE SECTION 280510)

3.4 OWNER PERSONNEL TRAINING (SEE SECTION 280510)

- A. Provide training of owner personnel in proper operation and maintenance of video surveillance system.
- B. Training Outline-Operational staff
 - 1. Functions performed
 - 2. Control Functions
 - 3. Recording/Playback
 - 4. Masking
 - 5. User management
 - 6. Audio/Mic features
- C. Training Outline-Maintenance Staff
 - 1. Systems Operation
 - 2. Component Review
 - 3. Routine Maintenance/Adjustments

4. Troubleshooting/Repair

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SECTION 285045 - UNINTERRUPTIBLE POWER SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. General:
 - 1. Furnish all labor, materials, tools, equipment, and service for all uninterruptible power supply (UPS) system as indicated in accordance with provisions of Contract Documents.
 - 2. Completely coordinate work with other trades,
 - 3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
 - 4. See Division 1 for General Requirements

- B. Related work specified elsewhere:
 - A. Electronic Security Systems:
 - 1. Common Work Results Section 28 0510
 - 2. Cabinets and Enclosures: Section 28 0555
 - 3. Video Management and Recording System Section 28 2300

1.2 QUALITY ASSURANCE (SEE SECTION 280510)

1.3 SUBMITTALS (SEE SECTION 280510)

- A. Uninterruptible Power Systems:
 - 1. Project data: Description of system operation indicating purpose and capabilities of each component of system with functional system diagram indicating all interfaces to other systems. Description shall include, and call attention to, all variances from the contract documents.
 - 2. Shop drawings: Complete installation drawings including system diagrams and terminal point to terminal point wiring diagrams or schedules.
 - 3. Project data: System and battery sizing calculations.

1.4 WARRANTY (SEE SECTION 280510)

- A. The complete system, (batteries and UPS system) shall be furnished and guaranteed by the same manufacturer.

- B. Provide one year manufacturer's warranty.

1.5 OPERATING AND MAINTENANCE DATA (SEE SECTION 280510)

PART 2 - PRODUCTS

2.1 GENERAL

- A. Acceptable Manufacturers:
 - 1. Uninterruptible Power Systems
 - a. Tel/Data Rm: APC
 - b. No substitutions per Collin County IT Standards, Court Order 2020-523-06-15
 - 2. Other manufactures desiring approval must submit substitution request pre-bid.
- B. Provide uninterruptible power for new equipment to be installed at control room and head end locations.
- C. Each UPS system shall independently receive its power supply directly from the main/emergency power supply of the facility.
- D. Each UPS system shall be provided with an alarm panel for indication of individual system alarms. On Battery and Summary alarms shall be remotely monitored by the access control and management system.
- E. Each head end / equipment room UPS system shall be sized for a minimum of twenty (20) minutes of stand-by power under full connected load.
- F. Each UPS shall have input and output voltages as indicated on drawings or specified herein.
- G. The secondary circuit of each UPS unit shall be provided with a Surge Protection Device specified herein, located downstream of the rackmount PDU bypass switch.
- H. Control room UPS units for PC workstations shall be sized per contract drawings. Provide line-interactive UPS models. Connect data cable to local workstation PC for monitoring via included software.

2.2 UNINTERRUPTIBLE POWER SYSTEM (UPS)

- A. Uninterruptible power systems shall provide active regulation of input voltage and standby battery power in the event of power loss or degeneration below acceptable limits.
- B. UPS and any required EBMs shall be rackmount/tower, double-conversion online design.
- C. Upon loss or degeneration of input power the system shall instantaneously transfer to the inverter and standby battery source. Retransfer to normal power shall occur upon return of input power within acceptable limits.
- D. In the event of an inverter malfunction the system shall instantaneously switch to the incoming AC line. The inverter shall shut down and drive an alarm when the input voltage drops below 95 volts DC.
- E. UPS units shall be provided with integral keypad and digital display for system diagnostics. Where integral keypad and display is not available, provide hand held remote keypad.

2.3 UPS SCHEDULE

- A. Provide the following UPS units and power circuits as a minimum for the base bid. Requirements may change during the course of the design based on actual loads.

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1. Tele #160: APC SRT Series Online Model 4KVA minimum – size for 20 minute runtime. Include Bypass PDU.
2. Elec #2202, #3202, #4202: APC SRT Series Online Rackmount model, 1500 VA Minimum - size UPS for 20 minute runtime of actual calculated network load plus 25% for future. Include bypass PDU.
3. Control Room: APC Smart-UPS
4. No substitutions for APC per Collin County IT Standards, Court Order 2020-523-06-15

PART 3 - EXECUTION

3.1 INSTALLATION (SEE SECTION 280510)

- A. Follow all written instructions provided with the equipment and.
- B. Coordinate location of UPS, Battery Unit, load distribution panels(s), and MBB switch within equipment rooms. Maintain NEC required working clearances.
- C. Provide grounding per NEC

3.2 TESTING (SEE SECTION 280510)

- A. UPS system shall be tested as a part of the Demonstration Upon Completion of Work to confirm the duration of time from activation until low battery alarm, and from low battery alarm to system drop out.
- B. All security system equipment shall be turned on during the test.
- C. Provide instrumentation including strip chart to illustrate the connected load reduction over time

3.3 WIRING (SEE SECTION 280510)







3.4 OWNER PERSONAL TRAINING (SEE SECTION 280510)

END OF SECTION 285045

SYMBOLS LEGEND - ELECTRONIC SECURITY SYSTEMS

NOT ALL SYMBOLS WILL BE USED ON THIS PROJECT

VIDEO SURVEILLANCE SYSTEMS

-  NEW CAMERA
-  NEW 180° IP CAMERA
-  NEW 360° IP CAMERA
- WALL BRACKET SYMBOL INDICATES SECURITY DEVICE SHALL BE WALL MOUNTED
-  NEW 180° MULTISENSOR CAMERA, HEIGHT AS INDICATED
-  NEW 360° MULTISENSOR CAMERA
-  NEW 360° MULTISENSOR WITH PTZ CAMERA, HEIGHT AS INDICATED

SUBSCRIPTS FOR ALL SYMBOLS:

- C CONDUIT
- S SURFACE MOUNTED
- SM SINGLE MODE FIBER
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- E EXISTING TO REMAIN/MAINTAINED
- EA EXISTING TO BE ABANDONED IN PLACE
- ER EXISTING TO BE REMOVED AND TURNED OVER TO OWNER
- ERR EXISTING TO BE REMOVED, RELOCATED AND RECONNECTED
- R RELOCATED EXISTING

ELECTRONIC/DOOR/ACCESS CONTROL SYSTEMS

-  INTERCOM STATION AND CAMERA IN WEATHERPROOFED PEDESTAL.















EQUIPMENT ABBREVIATIONS

- VMS VIDEO MANAGEMENT SERVER
- VW# VIDEO WORK STATION (NUMBER REPRESENTS INSTANCE)
- TS# TOUCHSCREEN WORK STATION (NUMBER REPRESENTS INSTANCE)
- VVS VIDEO VISITATION STATION
- ICS INTERCOM CONTROL SYSTEM
- ECS ELECTRONIC CONTROL SYSTEM
- ACS ACCESS CONTROL SYSTEM
- PDS PERIMETER DETECTION SYSTEM
- ACP ACCESS CONTROL PANEL
- UPS UNINTERRUPTIBLE POWER SUPPLY

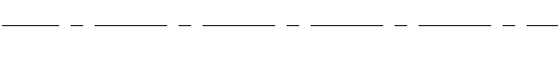

COMMUNICATION SYSTEMS

-  MICROPHONE, CEILING MOUNTED

MISCELLANEOUS

-  TRANSIENT SURGE PROTECTOR
-  120VAC DUPLEX RECEPTACLE BY DIVISION 26. NORMAL POWER CIRCUIT
-  120VAC DUPLEX RECEPTACLE BY DIVISION 26. EMERGENCY POWER CIRCUIT
-  120VAC DUPLEX RECEPTACLE BY DIVISION 26. UPS POWER CIRCUIT
-  120VAC DUPLEX RECEPTACLE FLOOR BOX WITH DATA PORT BY DIVISION 26. EMERGENCY POWER CIRCUIT
-  120VAC DUPLEX RECEPTACLE FLOOR BOX WITH DATA PORT BY DIVISION 26. UPS POWER CIRCUIT
-  120VAC DUPLEX RECEPTACLE FLOOR BOX WITH DATA PORT BY DIVISION 26. UPS POWER CIRCUIT
-  ELECTRICAL CONNECTION BY DIVISION 26. EMERGENCY POWER CIRCUIT. CHARACTERISTICS AS NOTED
-  ELECTRICAL CONNECTION BY DIVISION 26. UPS POWER CIRCUIT. CHARACTERISTICS AS NOTED
-  PULL BOX. (NO TERMINATION'S PERMITTED PULL POINT ONLY.)
-  EQUIPMENT CABINET
-  EQUIPMENT ENCLOSURE
-  GROUNDING ELECTRODE & CONDUCTOR
-  VEHICLE DETECTION FOR INTERCOM CALL INITIATION

WIRE TYPE LEGEND

- DATA CABLE/CAT 6 
- FIBER OPTIC CABLE 

NOTES:

1. PROVIDE ALL CONDUIT, WIREWAYS, BOXES, FITTINGS AND SUPPORTS AS REQUIRED FOR A COMPLETE RACEWAY FOR THE ELECTRONIC SECURITY SYSTEM. WHERE PULLBOXES ARE PROVIDED IN NON-ACCESSIBLE AREAS, PROVIDE ACCESS PANELS.
2. PROVIDE CONDUIT FROM CAMERA BACK BOX TO PLENUM SPACE. RUN PLENUM RATED CAT6 CABLING IN PLENUM USING J-HOOKS MOUNTED MAXIMUM 5 FEET APART.
3. ALL NEW ELECTRONIC SECURITY EQUIPMENT TO BE LOCATED ON WALLS SHALL BE RECESSED MOUNTED (EXCEPT IN EQUIPMENT ROOMS). BRANCH WIRING/HOMERUN CONDUITS TO SUCH EQUIPMENT SHALL BE CONCEALED IN CEILINGS, FLOOR SLABS AND WALLS. SURFACE MOUNTED CONDUITS NOT PERMITTED EXCEPT IN EXISTING LOCATIONS WHERE CONCEALED CONDUITS ARE NOT FEASIBLE. SURFACE CONDUIT IN INMATE AREAS WITHIN REACH OF INMATES OR BELOW 15'-0" AFF SHALL BE RIGID OR IMC.
4. ALL CONDUITS SHALL BE SIZED FOR MAXIMUM 40 PERCENT FILL. ALL CONDUCTORS SHALL BE INCLUDED IN FILL CALCULATIONS. MINIMUM CONDUIT SIZE SHALL BE 3/4". DO NOT EXCEED CABLE PULL TENSION RATINGS. USE PLENUM CABLE WHERE REQUIRED BY CODE. USE WATERBLOCKED OR DIRECT BURIAL CABLE WHERE CONDUIT RUNS UNDERGROUND OUTSIDE OF THE BUILDING. FOR UNDERGROUND ETHERNET, DATA AND I/O SIGNALS IN CONDUIT, USE FIBER OPTIC CABLE AND MEDIA CONVERTERS.
5. CONDUIT RUNS FOR STRUCTURED CABLING SHALL BE RUN IN ACCORDANCE WITH ANSI TIA/EIA-568 & 569 STANDARDS. DO NOT USE BACK BOXES TO CREATE 90 DEGREE BENDS. 90 DEGREE BENDS MUST BE MADE AFTER EXITING THE BACK BOX. CONDUIT BENDS SHALL BE MINIMUM 6X RADIUS FOR DATA CONDUIT.
6. PROVIDE ALL CABLE SUPPORT SYSTEMS NEEDED AND IDENTIFY RACEWAY SYSTEMS FOR ELECTRONIC SECURITY DEVICES PER SPECIFICATIONS.
7. TEST ALL EXISTING RELATED COMPONENTS TO REMAIN FOR EXISTING FUNCTIONALITY PRIOR TO COMMENCEMENT OF ANY DEMO WORK. DEVICES NOT REPORTED AS NON-FUNCTIONING AT LEAST 30 DAYS BEFORE DEMOLITION WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE WITH WORKING EQUIPMENT AND/OR CABLING.

CONDUIT FILL SCHEDULE (EMT)

SIZE	40% AREA	CAT 6 (WEST PENN 4246)
3/4"	0.213	5
1"	0.346	9
1 1/4"	0.598	15
1 1/2"	0.814	22
2"	1.342	35
2 1/2"	2.343	61
3"	3.538	93
3 1/2"	4.618	121
4"	5.901	155

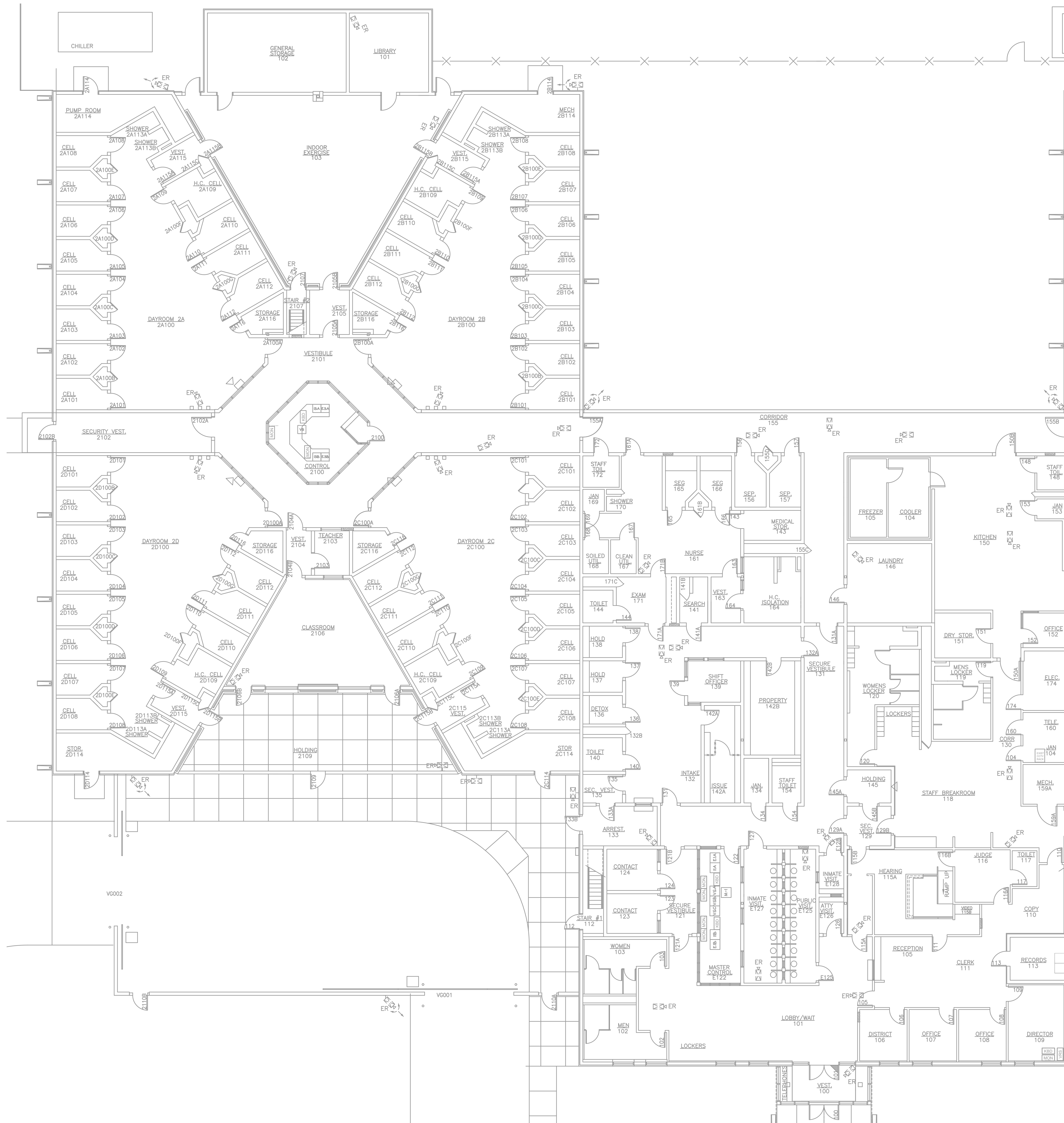
(WEST PENN PART NUMBERS USED FOR MINIMUM SPECS REFERENCE ONLY)
(USE PLENUM VERSIONS WHERE REQUIRED BY NEC)

SHEET LIST

SECURITY	
ES0.01	ELECTRONIC SECURITY SYMBOLS LEGEND
ESD1.01	EXISTING VIDEO SECURITY PLAN
ESD1.02	EXISTING VIDEO SECURITY PLAN
ES1.00	SITE PLAN
ES1.01	VIDEO SECURITY PLAN
ES1.02	VIDEO SECURITY PLAN
ES2.01	ENLARGED PLANS
ES2.02	ENLARGED PLANS
ES2.03	ENLARGED PLANS
ES2.04	ENLARGED PLANS
ES2.05	ENLARGED PLANS
ES2.06	ENLARGED PLANS
ES2.07	ENLARGED PLANS
ES2.08	ENLARGED PLANS
ES3.01	DETAILS
ES4.01	VIDEO MANAGEMENT SYSTEM DIAGRAM AND CAMERA SCHEDULE
ES5.01	CAMERA SCHEDULE



DATE: 10/13/2020
JOB NO: 20787
DRAWN BY: IC
CHECKED BY: IA/AM
REVISIONS:



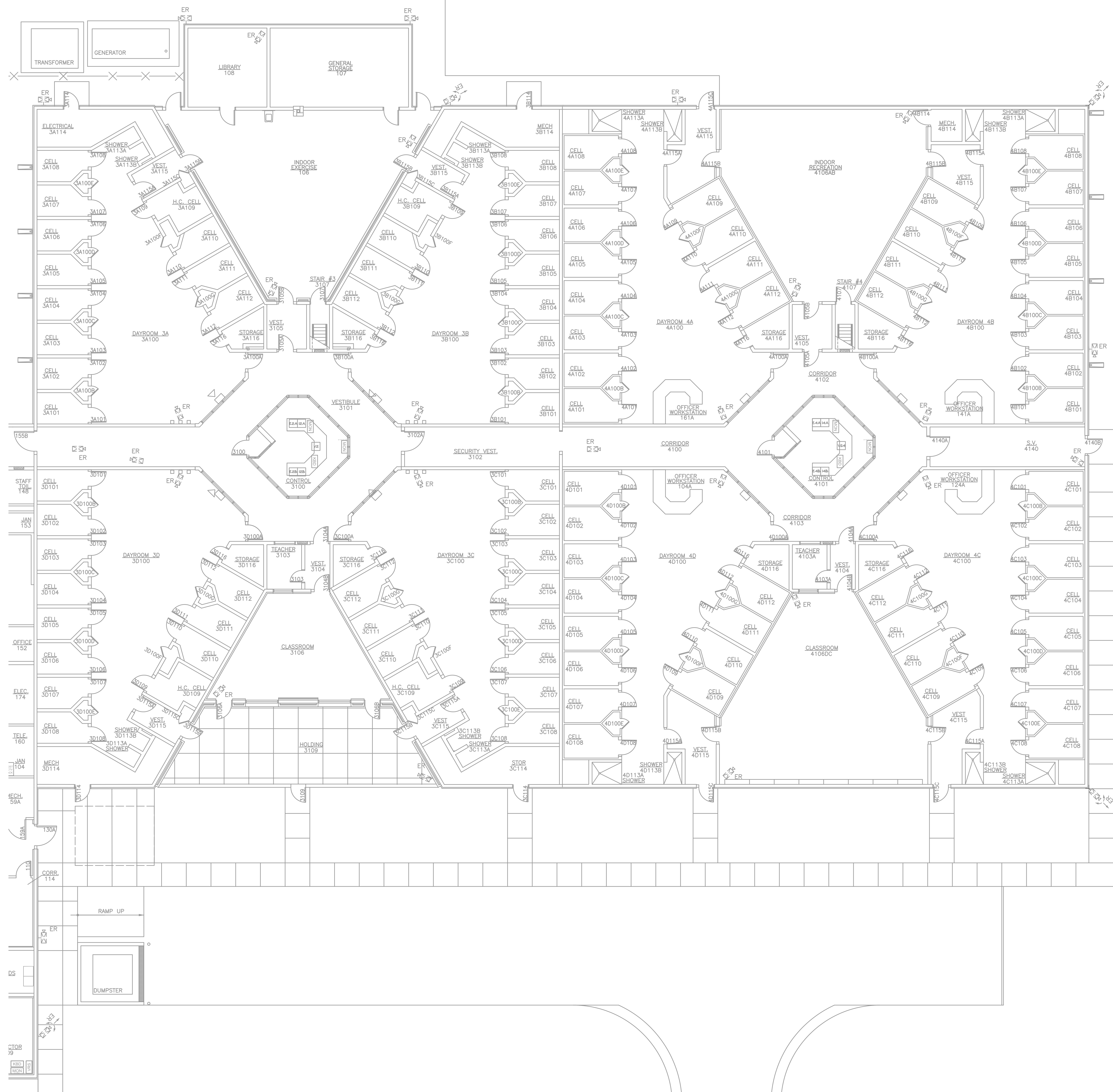
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1 EXISTING VIDEO SECURITY PLAN
 ESD1.01 SCALE: 1/8" = 1'-0"



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EXISTING VIDEO SECURITY PLAN



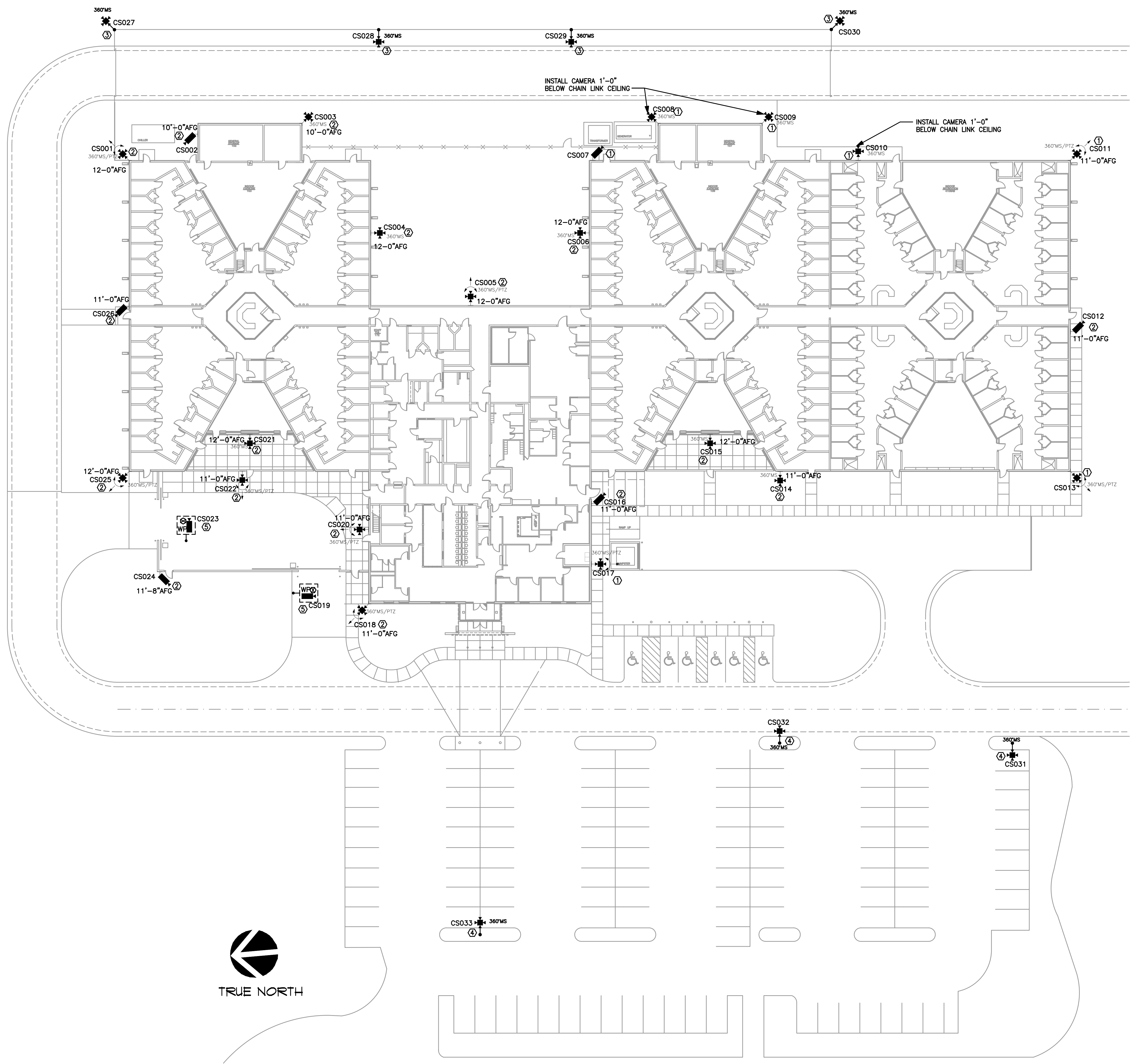
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EXISTING VIDEO SECURITY PLAN
1
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- NOTES:**
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 - NEW IP CAMERA LOCATION. PULL NEW CAT6 CABLE. PLENUM CABLE SHALL BE PULLED ON J-HOOKS WHERE CEILING IS ACCESSIBLE. PROVIDE CONDUIT FROM CAMERA TO NEAREST ACCESSIBLE CEILING SPACE.
 - PULL 4-STRAND OM4 FIBER OPTIC CABLE AND POWER FOR FENCE POST MOUNTED CAMERAS. PROVIDE A POLE MOUNTED GALVANIZED OR STAINLESS STEEL NEMA 4 ENCLOSURE MOUNTED 24" BELOW THE CAMERA LOCATION OR ON THE WALL FRAME BELOW THE FENCE FOR MEDIA CONVERTER AND CAT6 SURGE SUPPRESSOR. PROVIDE NEW CONDUIT ALONG FENCE AND OVER THE VEHICLE GATE(S) INTO BUILDING.
 - ALTERNATE 01: PROVIDE PARKING CAMERA CS031, CS032 AND CS033 AND ALL ASSOCIATED EQUIPMENT AS PART OF THIS ALTERNATE BID. BASE BID SHALL NOT INCLUDE CAMERAS CS031, CS032 AND CS033. PROVIDE POINT-TO-POINT OR POINT-TO-MULTIPOINT WIRELESS ETHERNET TRANSCEIVERS FOR CAMERAS MOUNTED TO EXISTING SQUARE LIGHT POLES. DERIVE POWER AT LIGHT POLE FROM THE LIGHTING CIRCUIT USING A TRANSFORMER 8' ABOVE THE BASE OF THE POLE IN A LOCKABLE NEMA 4 ENCLOSURE (PROVIDE CIRCULATING FAN WITHIN ENCLOSURE.)
 - PROVIDE A NEW, BLACK 14"x8" PEDESTAL HOUSING TO MATCH THE BOLT PATTERN OF THE EXISTING PEDESTAL. REMOUNT THE EXISTING INTERCOM AND INSTALL THE NEW PANORAMIC CAMERA FOR WIDE ANGLE VIEWING OF THE DRIVER. PROVIDE NEW 4-STRAND OM4 FIBER OPTIC CABLE IN THE EXISTING CONDUIT AND MOUNT A NEW LOCKABLE STAINLESS STEEL NEMA 4 ENCLOSURE AT THE BASE OF PEDESTAL 12" AFG FOR MEDIA CONVERTER AND CAT6 SURGE SUPPRESSOR.



1 SITE PLAN
ES1.00 SCALE: NOT TO SCALE



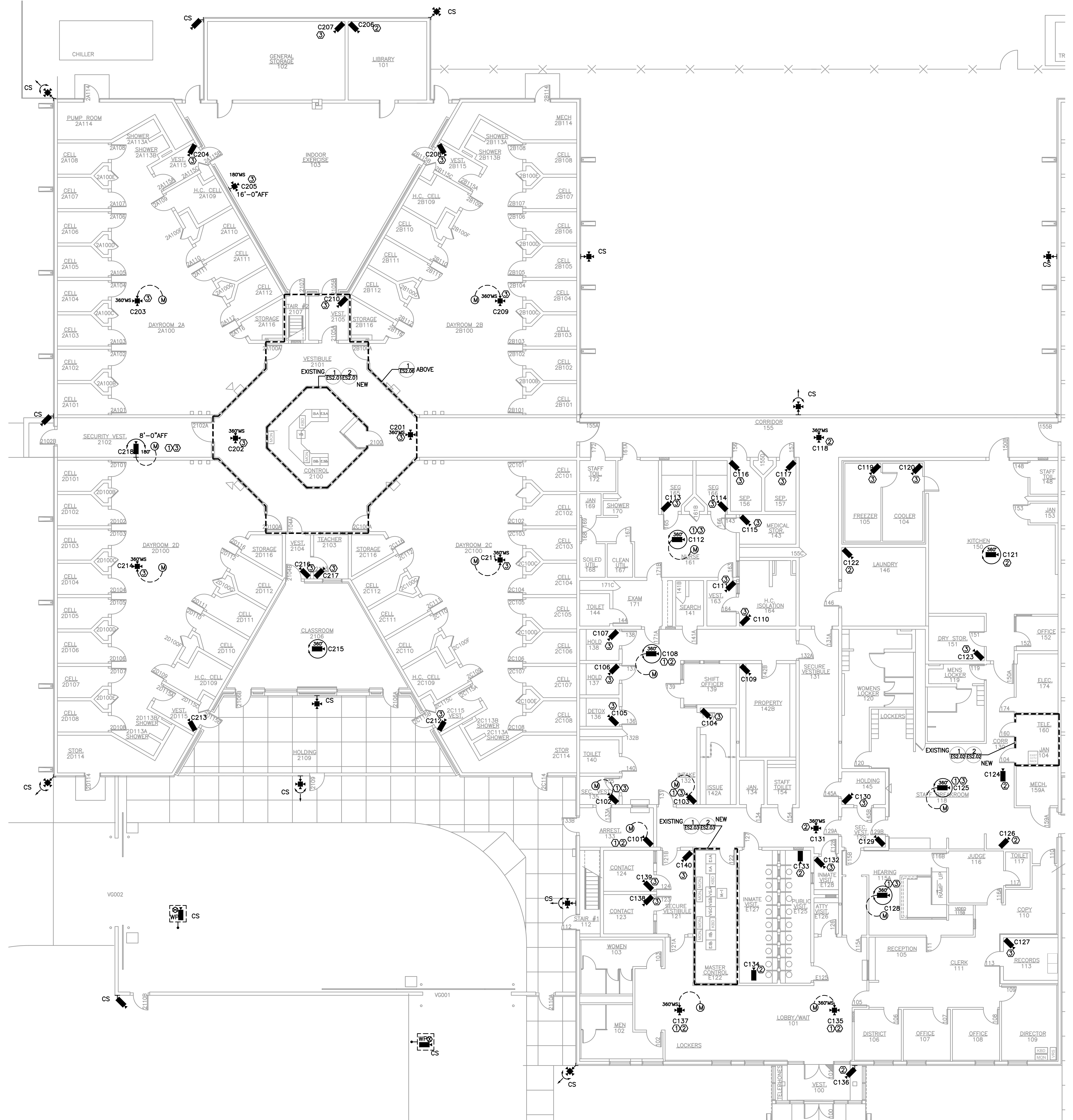
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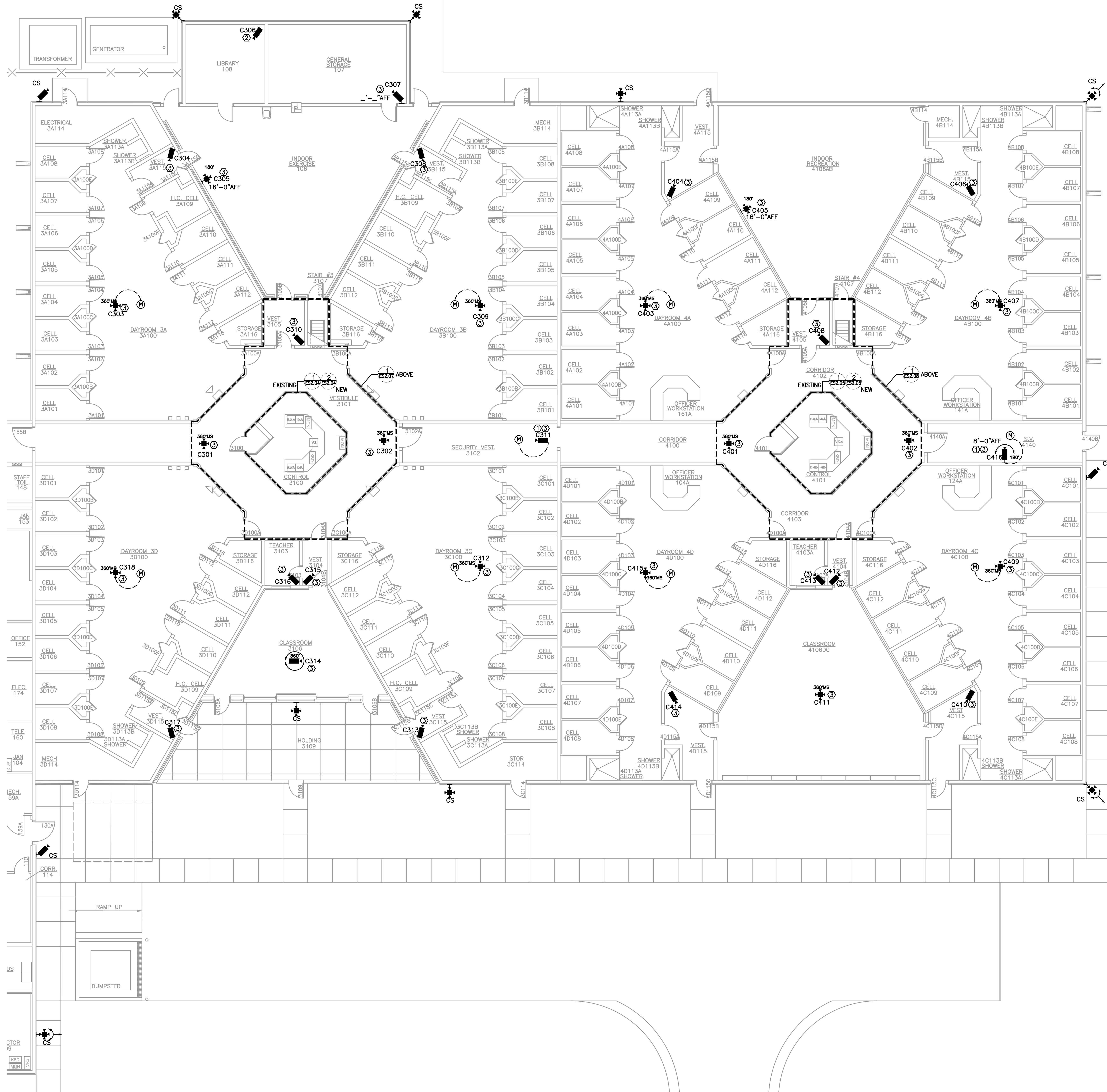
- ① ALTERNATE BID 02: FOR CAMERAS C101, C102, C103, C108, C112, C125, C128, C135, C137 AND C218, PROVIDE EXTERNAL CAMERA MICROPHONE ADAPTER AND VANDAL RESISTANT, 1-GANG, OMNI-DIRECTIONAL MICROPHONE FOR 24/7 AUDIO MONITORING AND RECORDING. PROGRAM AUDIO FOR ADMIN ACCESS ONLY. COORDINATE EXACT LOCATION WITH OWNER.
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1 VIDEO SECURITY PLAN
ES1.01 SCALE: 1/8" = 1'-0"



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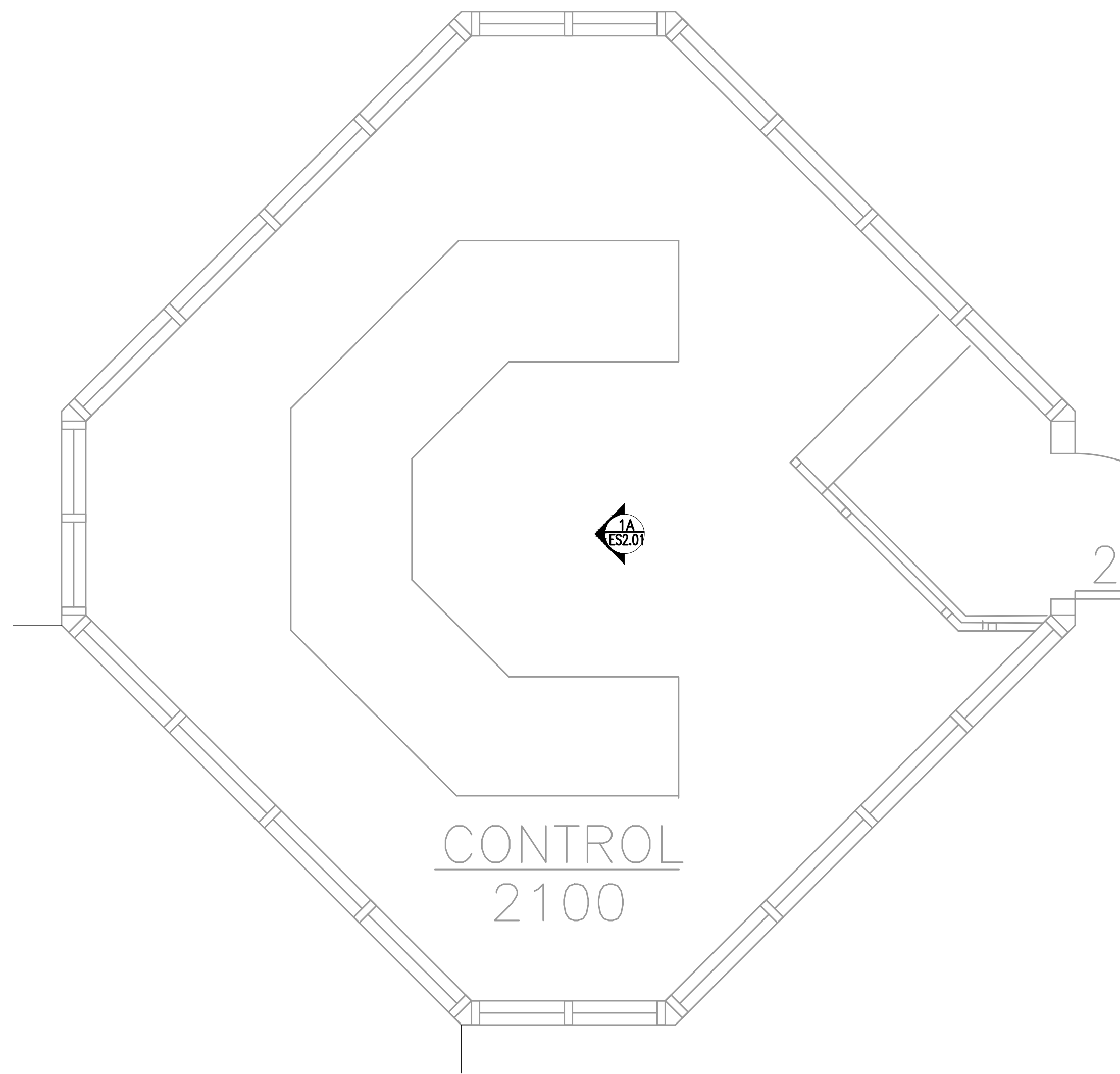


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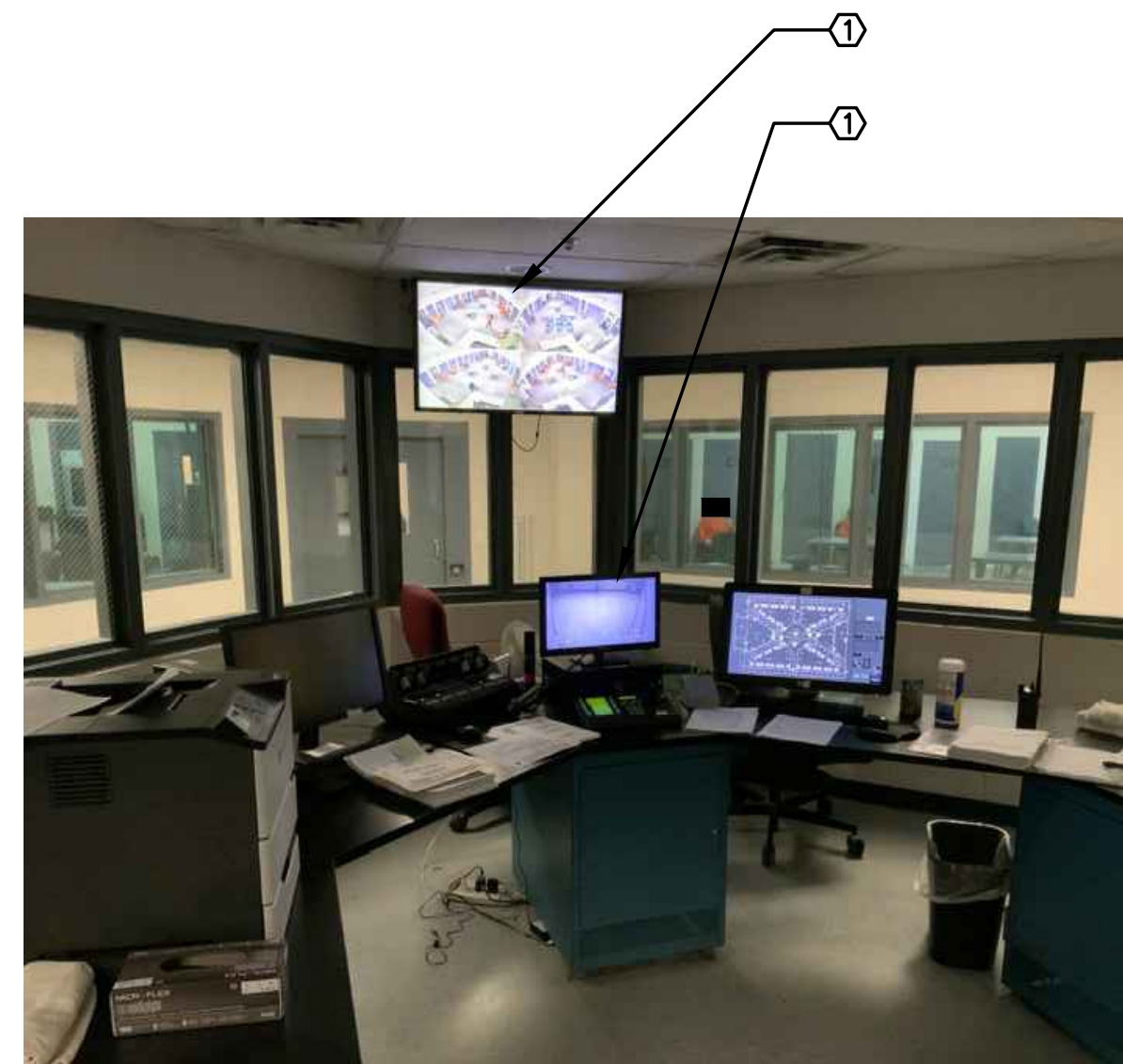


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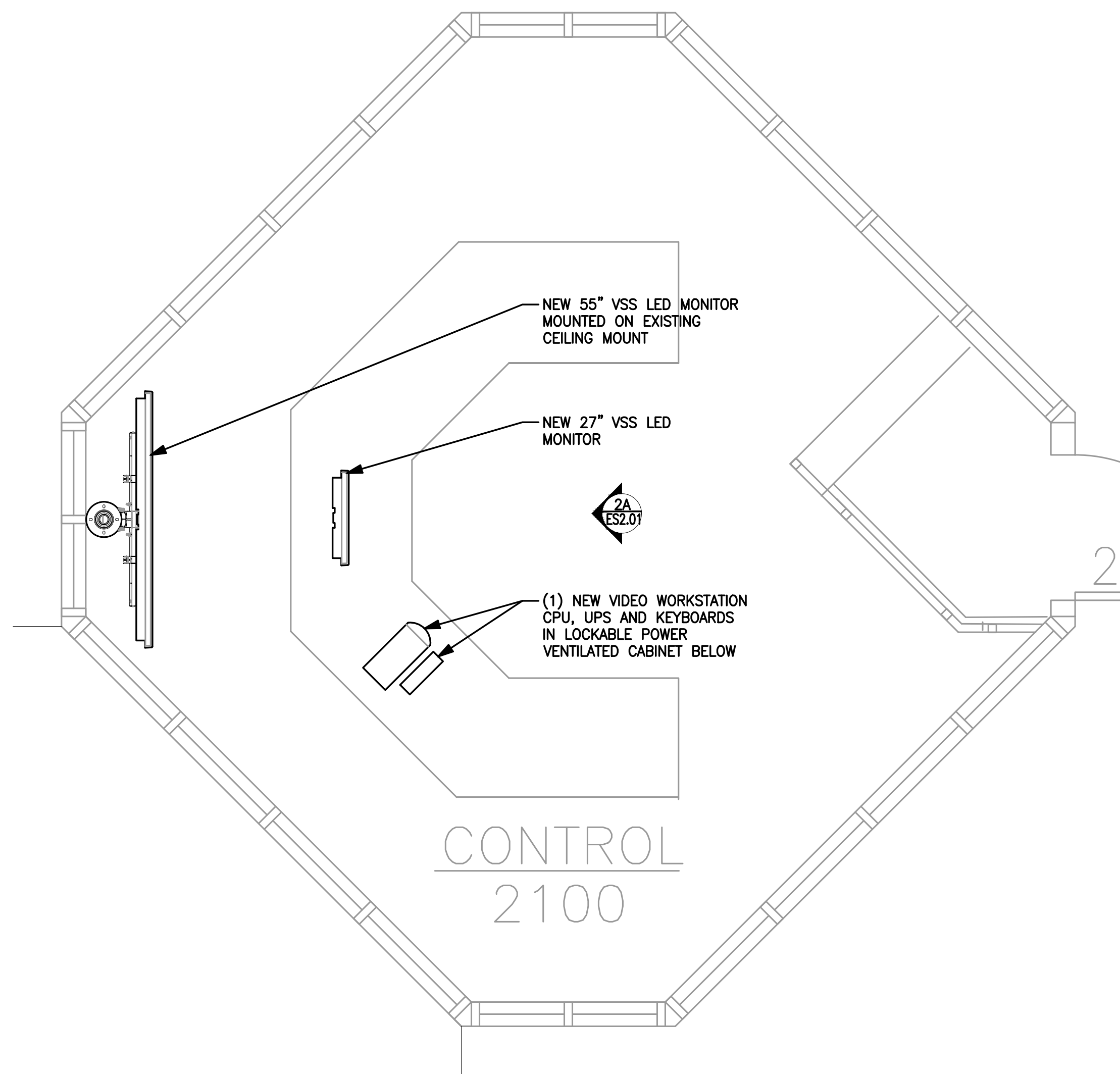
1 EXISTING CONTROL ROOM #2100 PLAN

ES2.01 SCALE: 1/2" = 1'-0" ES1.01



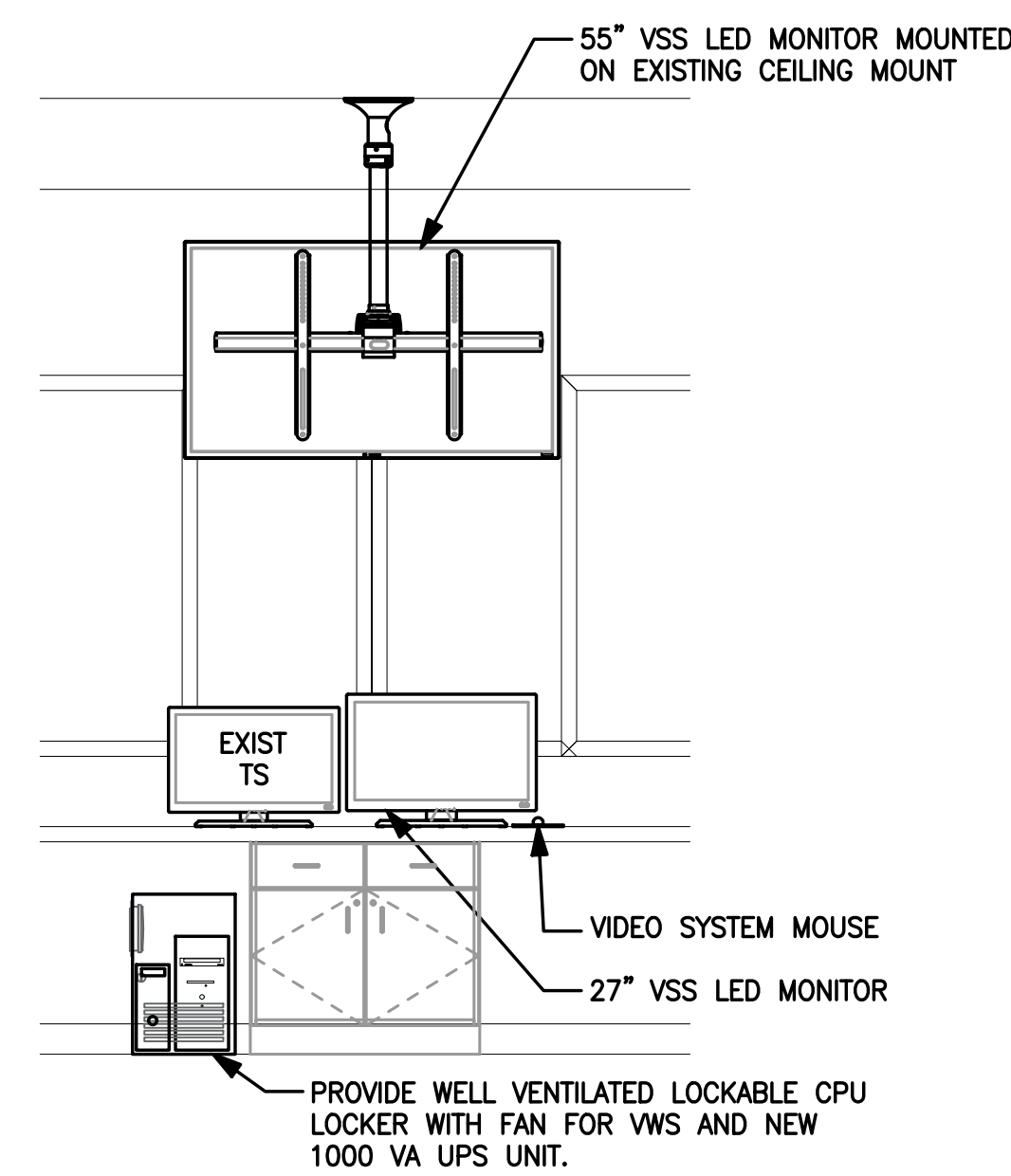
1A EQUIPMENT PHOTO

ES2.01 SCALE: NOT TO SCALE



2 NEW CONTROL ROOM #2100 PLAN

ES2.01 SCALE: 1/2" = 1'-0" ES1.01



2A EQUIPMENT ELEVATION

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9. CAT6 CABLES FOR NEW CAMERAS SHALL RUN IN CONDUITS BETWEEN CAMERA AND THE NEAREST ACCESSIBLE CEILING. USE J-HOOKS AND PLENUM RATED CABLE FOR THE CABLE RUNS ABOVE CEILINGS. REUSE EXISTING CONDUITS (FROM EXISTING CAMERAS IN INMATE AREAS) WHERE AVAILABLE.
10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

NOTES:

- ① REMOVE EXISTING CCTV VIEWING EQUIPMENT AND RETURN TO OWNER.



DATE:	10/13/2020
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ENLARGED PLANS

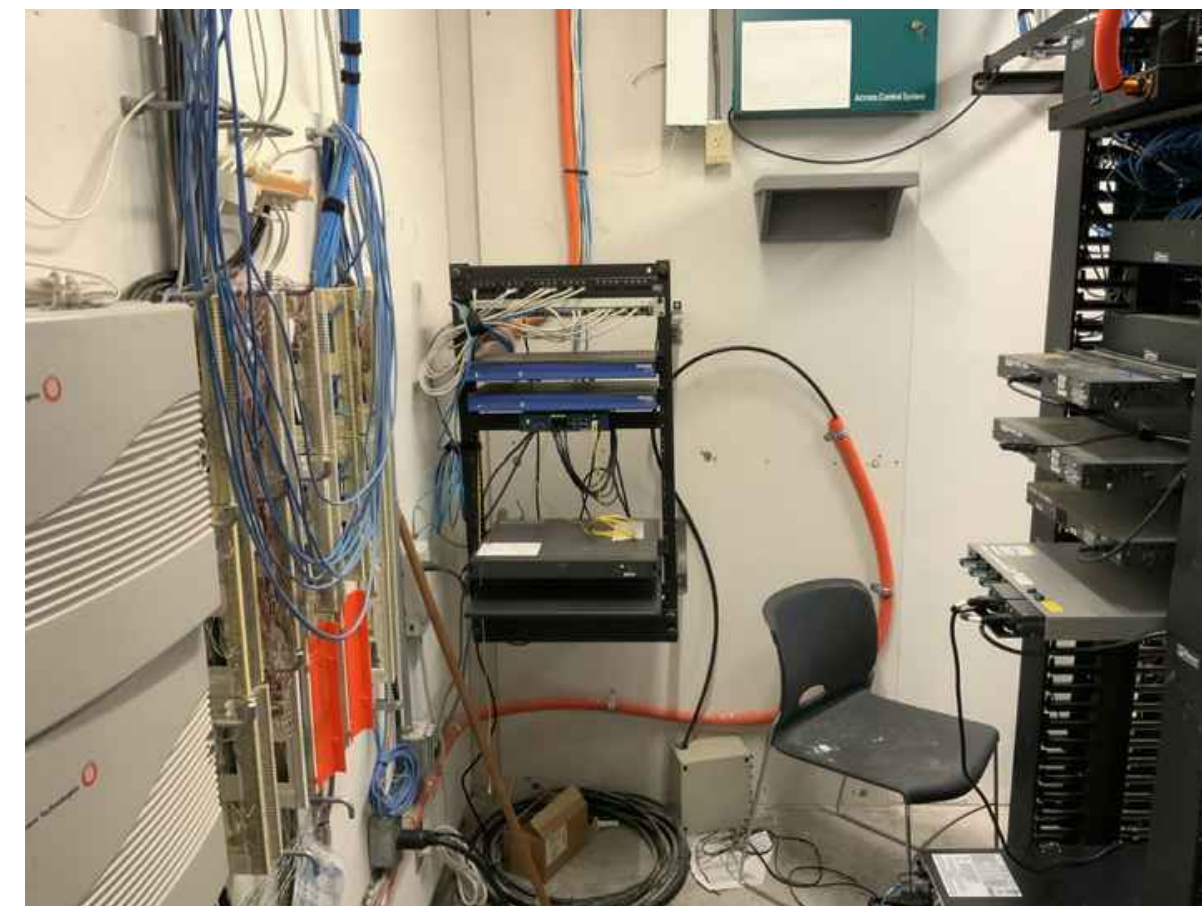
ES2.01

GENERAL NOTES:

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5. WORK SHALL BE PHASED TO INSTALL ALL NEW INFRASTRUCTURE AND SERVERS, ETC IN PLACE PRIOR TO REMOVING EXISTING SURVEILLANCE EQUIPMENT. COORDINATE WITH THE OWNER FOR THE PHASING OF WORK BY AREA - A PHASING PLAN SHALL BE SUBMITTED FOR OWNER APPROVAL PRIOR TO COMMENCEMENT OF WORK. DOWNTIME OF EXISTING SYSTEMS SHALL BE KEPT TO A MINIMUM DURING THE COURSE OF THE INSTALLATION.
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10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

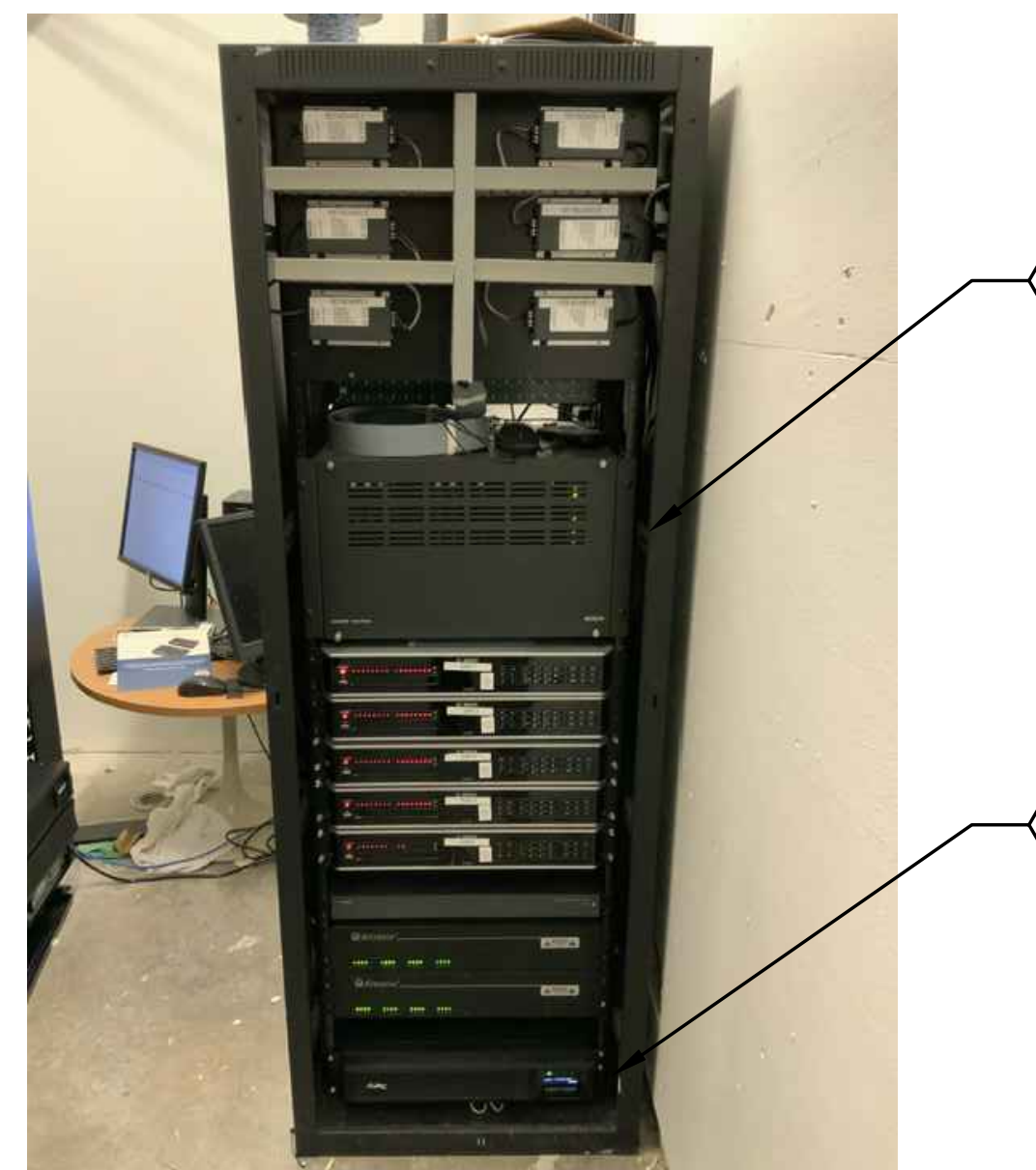
NOTES:

- 1) REMOVE EXISTING ANALOG CCTV HEAD END EQUIPMENT. INSTALL NEW SWITCHES, PATCH PANELS, CABLE MANAGEMENT, AND SERVERS FOR NEW IP VIDEO MANAGEMENT SYSTEM. PROVIDE A NEW 44RU RACK AS REQUIRED TO ACCOMMODATE NEW EQUIPMENT.
- 2) PROVIDE NEW RACKMOUNT UPS UNIT AND BYPASS PDU. PROVIDE NEW CIRCUIT(S) AS REQUIRED FOR SUFFICIENT SIZE AND RUNTIME. 4KVA UPS MINIMUM.
- 3) PROVIDE NEW OM4 FIBER OPTIC BACKBONE PATCH PANEL AND SWITCHES IN EXISTING ENCLOSURES. COORDINATE LOCATION WITH OWNER.



1A EQUIPMENT PHOTO

ES2.02 SCALE: NOT TO SCALE



1B EQUIPMENT PHOTO

ES2.02 SCALE: NOT TO SCALE



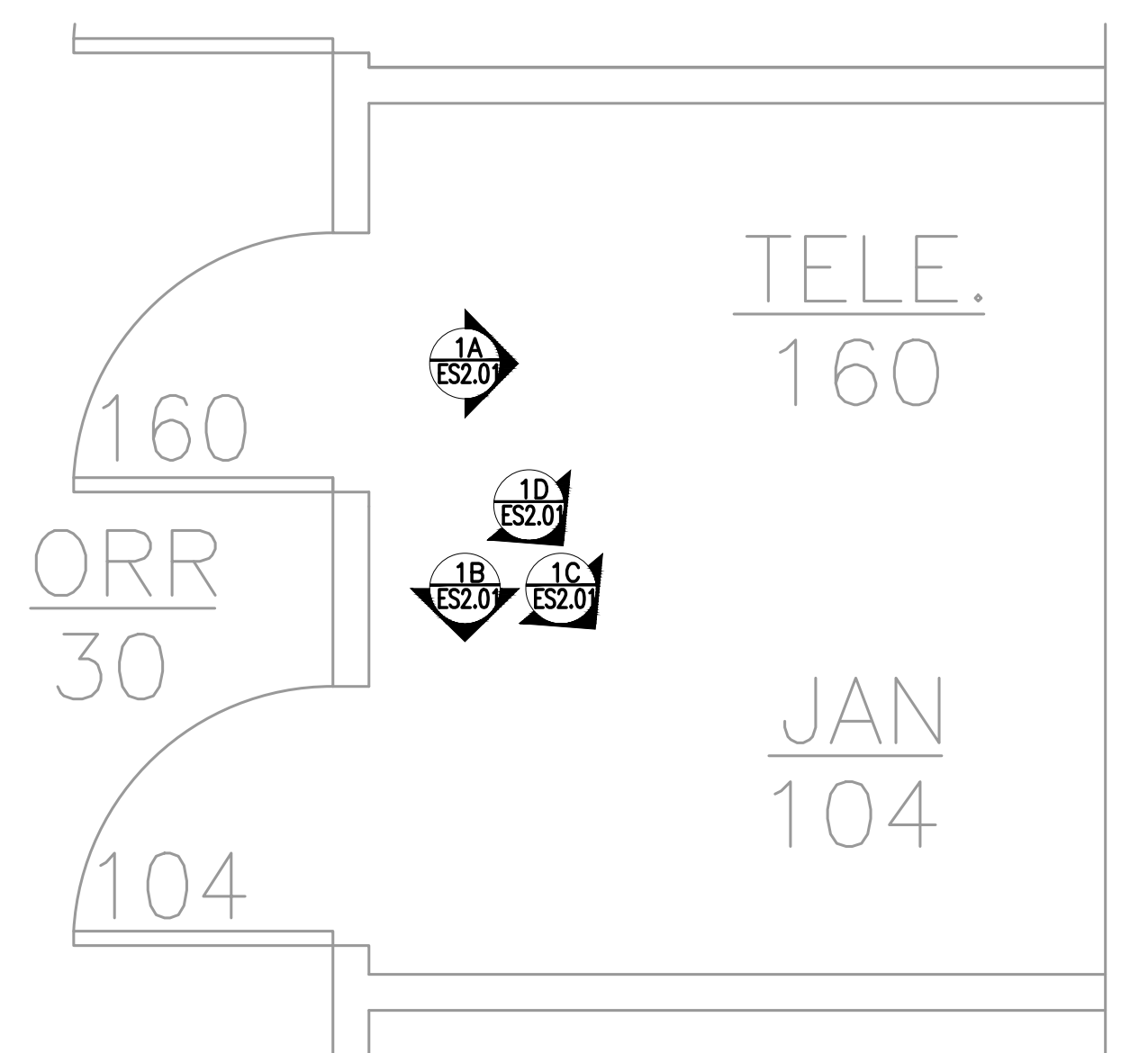
1C EQUIPMENT PHOTO

ES2.02 SCALE: NOT TO SCALE



1D EQUIPMENT PHOTO

ES2.02 SCALE: NOT TO SCALE



1 EXISTING TELE. #160/JAN #104 PLAN

ES2.02 SCALE: 1/2" = 1'-0"

ES1.01



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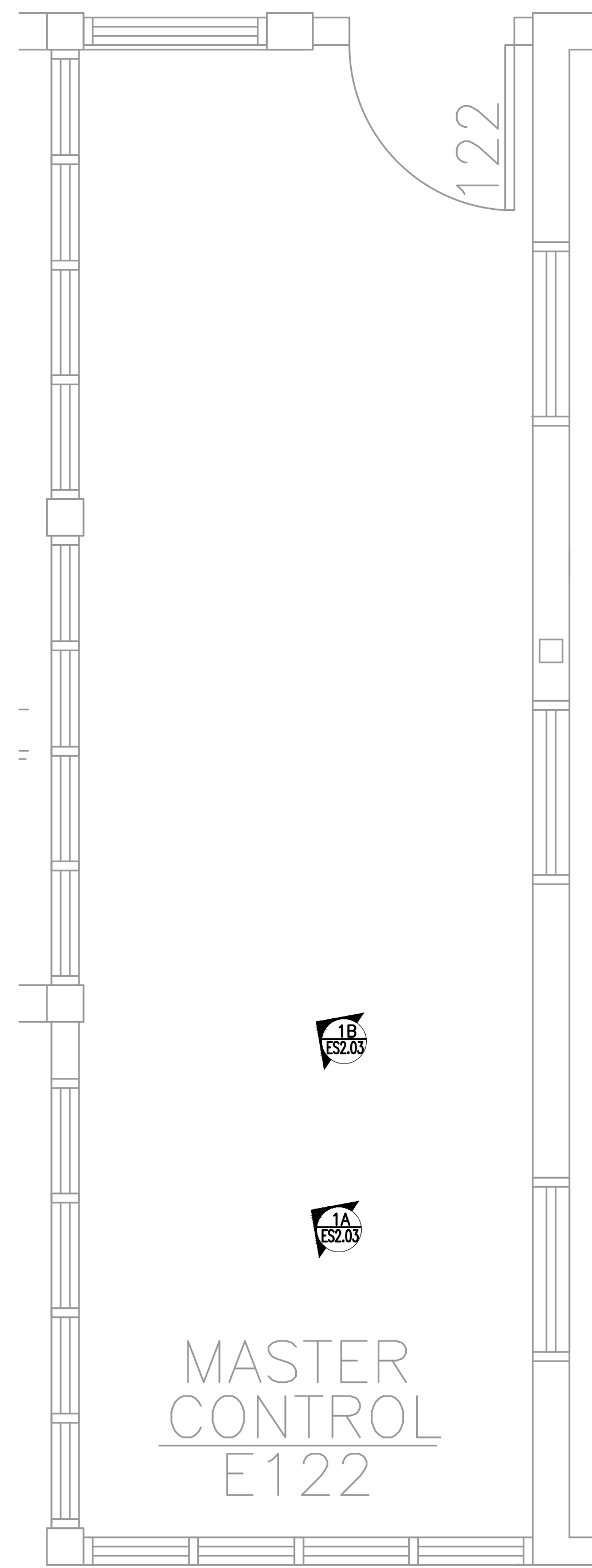
DRAWN BY: IC

CHECKED BY: IA/AM

REVISIONS:

ENLARGED PLANS

ES2.02



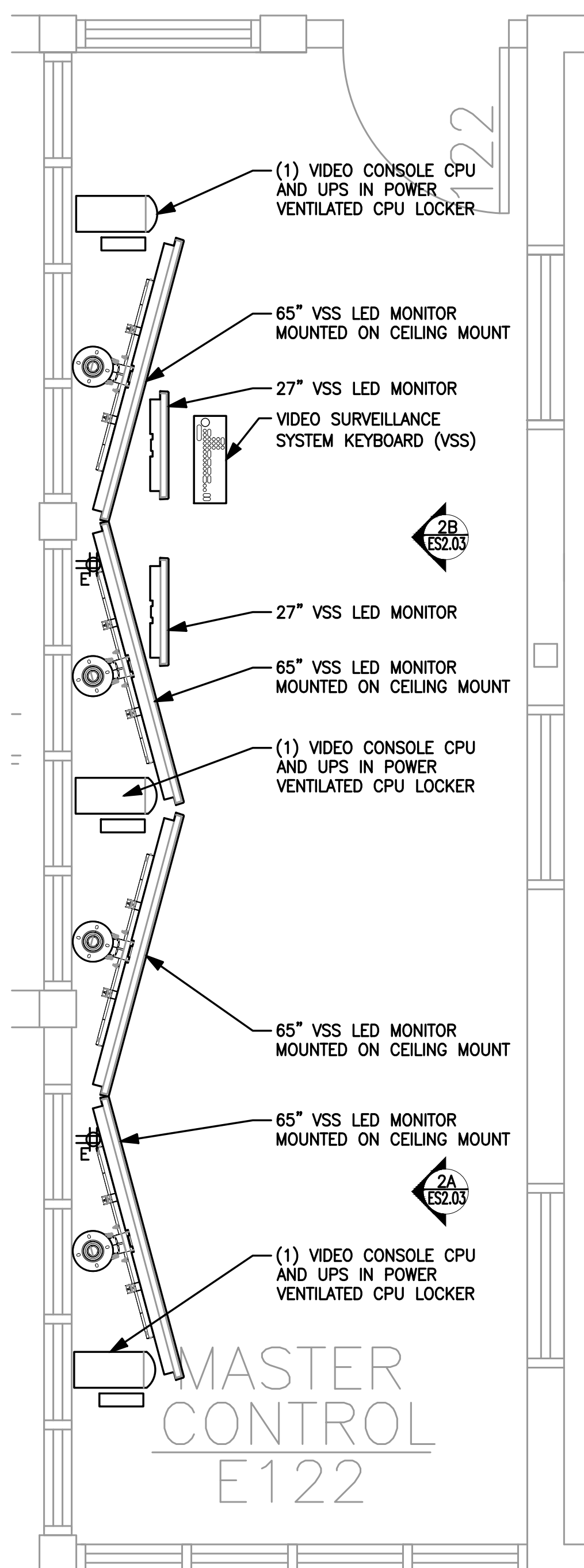
1 EXISTING MASTER CONTROL #E122 PLAN
 ES2.03 SCALE: 1/2" = 1'-0" ES1.01



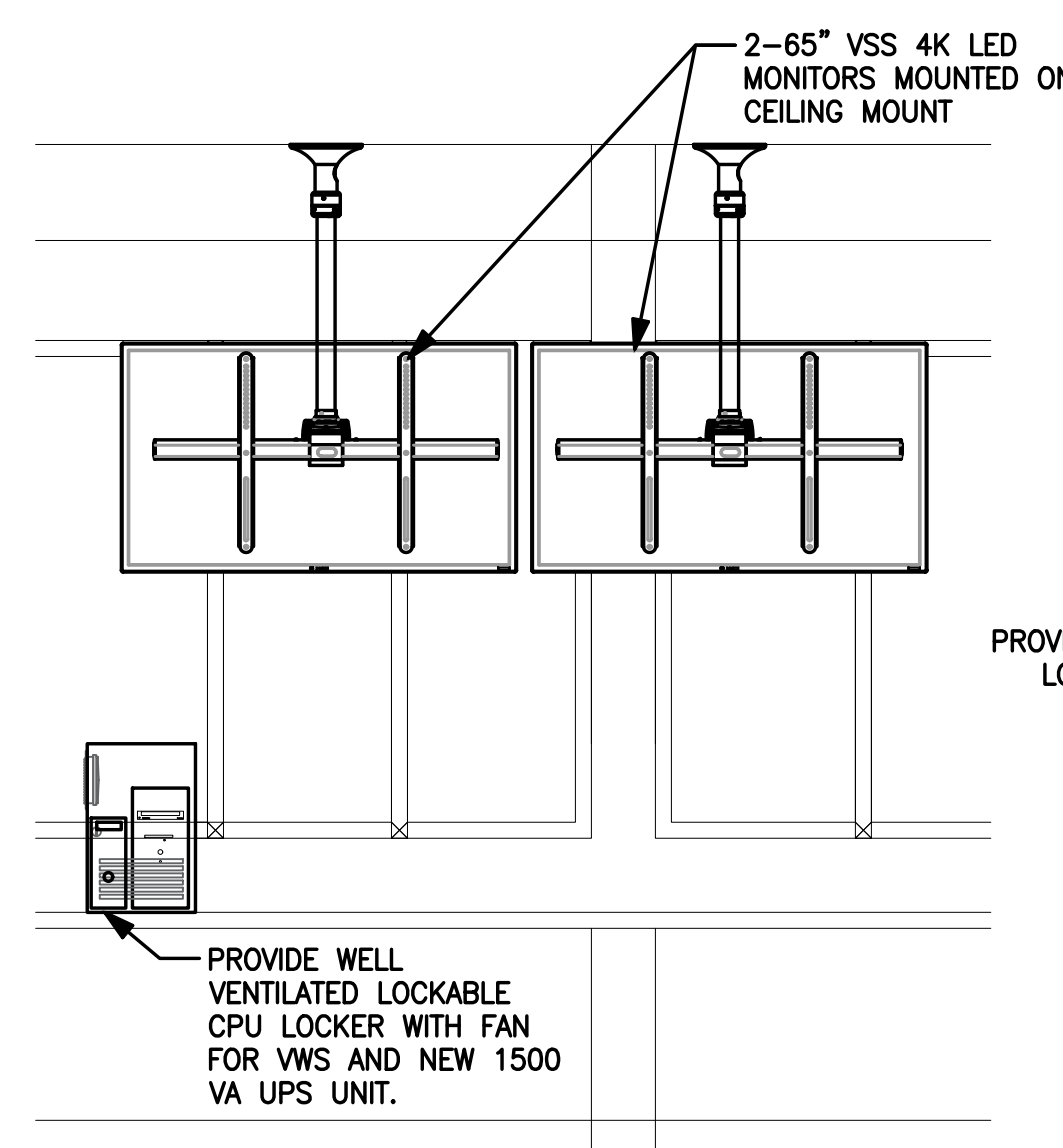
1A EQUIPMENT PHOTO
 ES2.03 SCALE: NOT TO SCALE



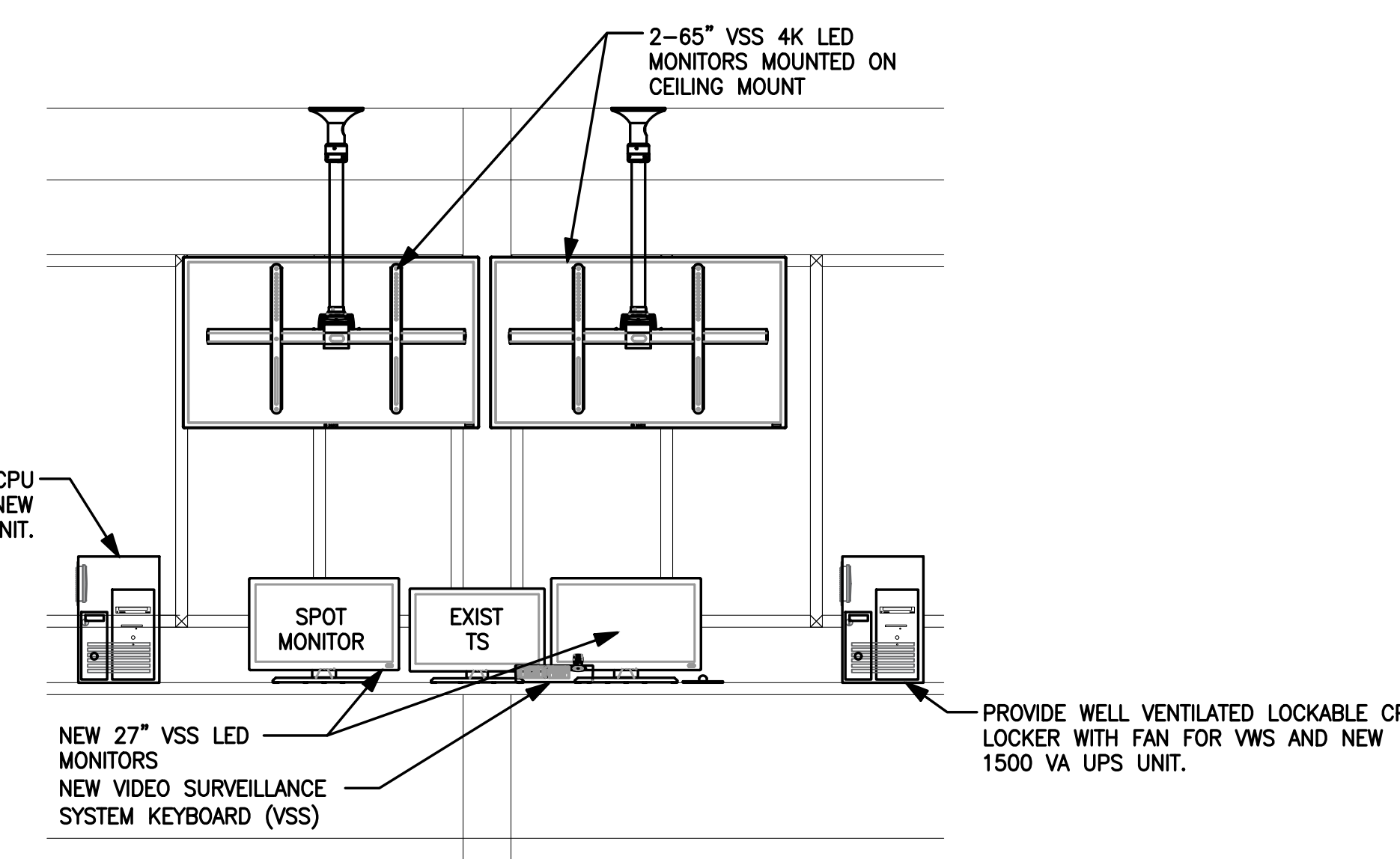
1B EQUIPMENT PHOTO
 ES2.03 SCALE: NOT TO SCALE



2 EXISTING MASTER CONTROL #E122 PLAN
 ES2.03 SCALE: 1/2" = 1'-0" ES1.01



2A EQUIPMENT ELEVATION
 ES2.03 SCALE: NOT TO SCALE



2B EQUIPMENT ELEVATION
 ES2.03 SCALE: NOT TO SCALE

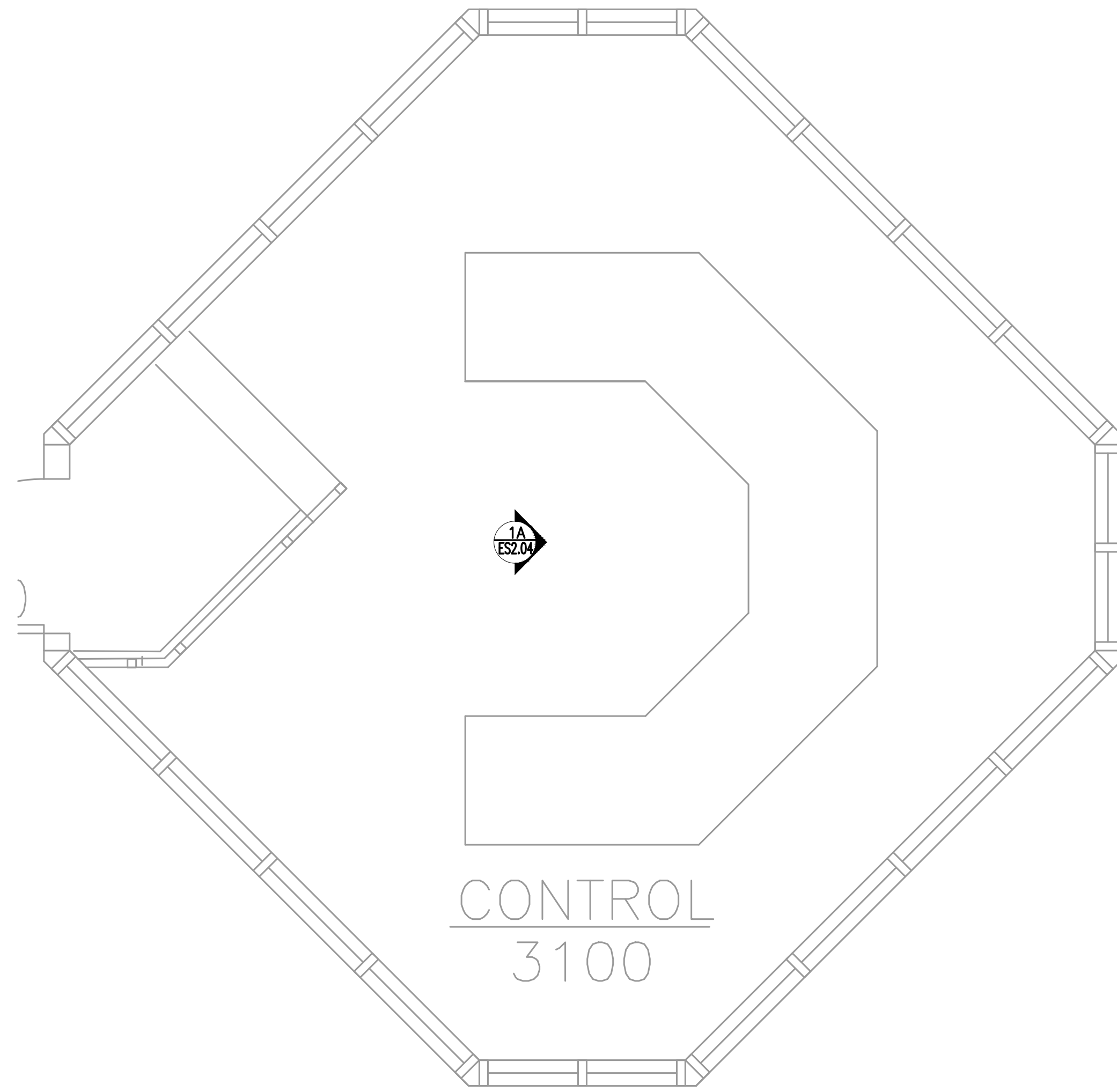
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NOTES:
 ① REMOVE EXISTING CCTV VIEWING EQUIPMENT AND RETURN TO OWNER.

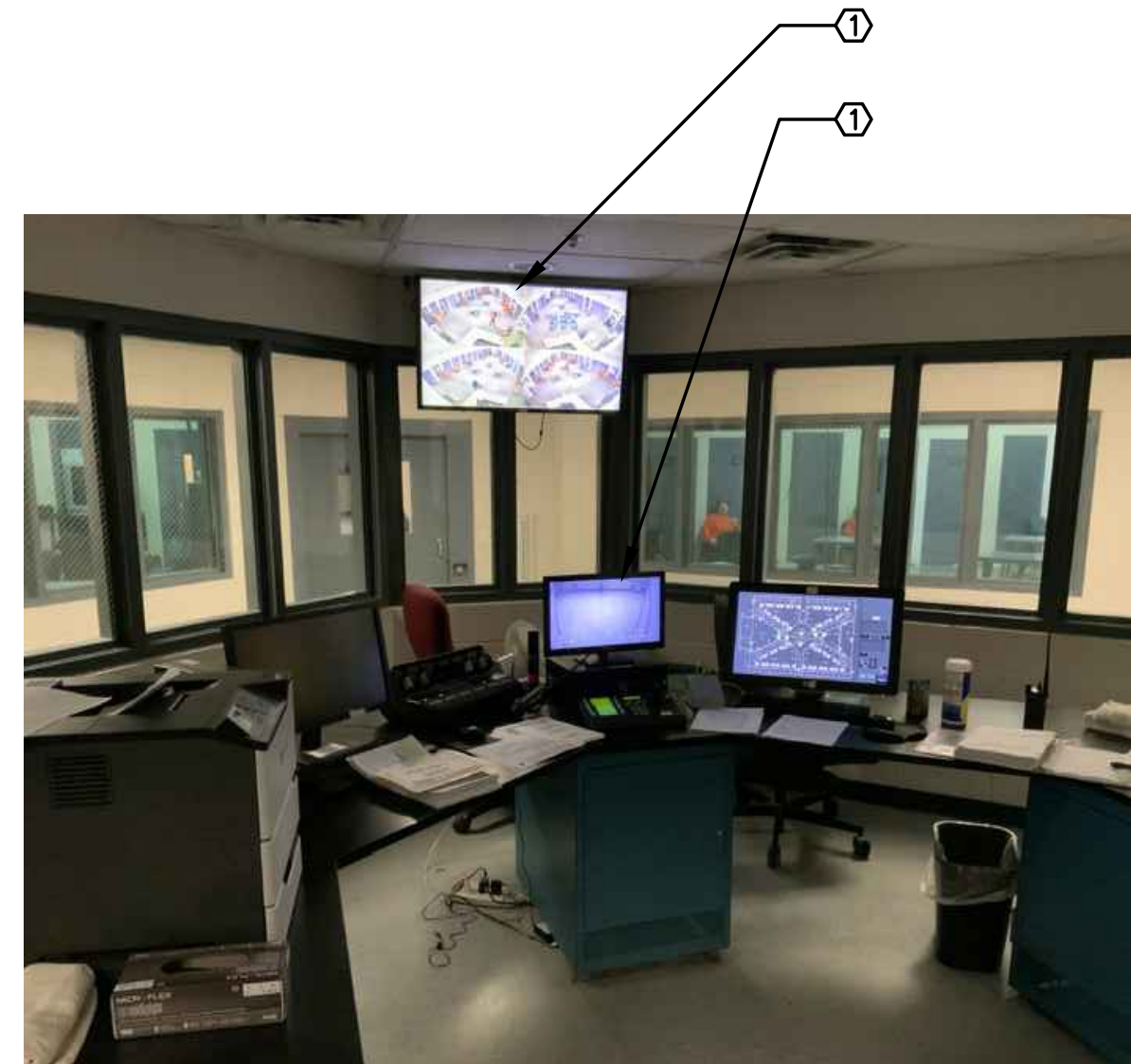


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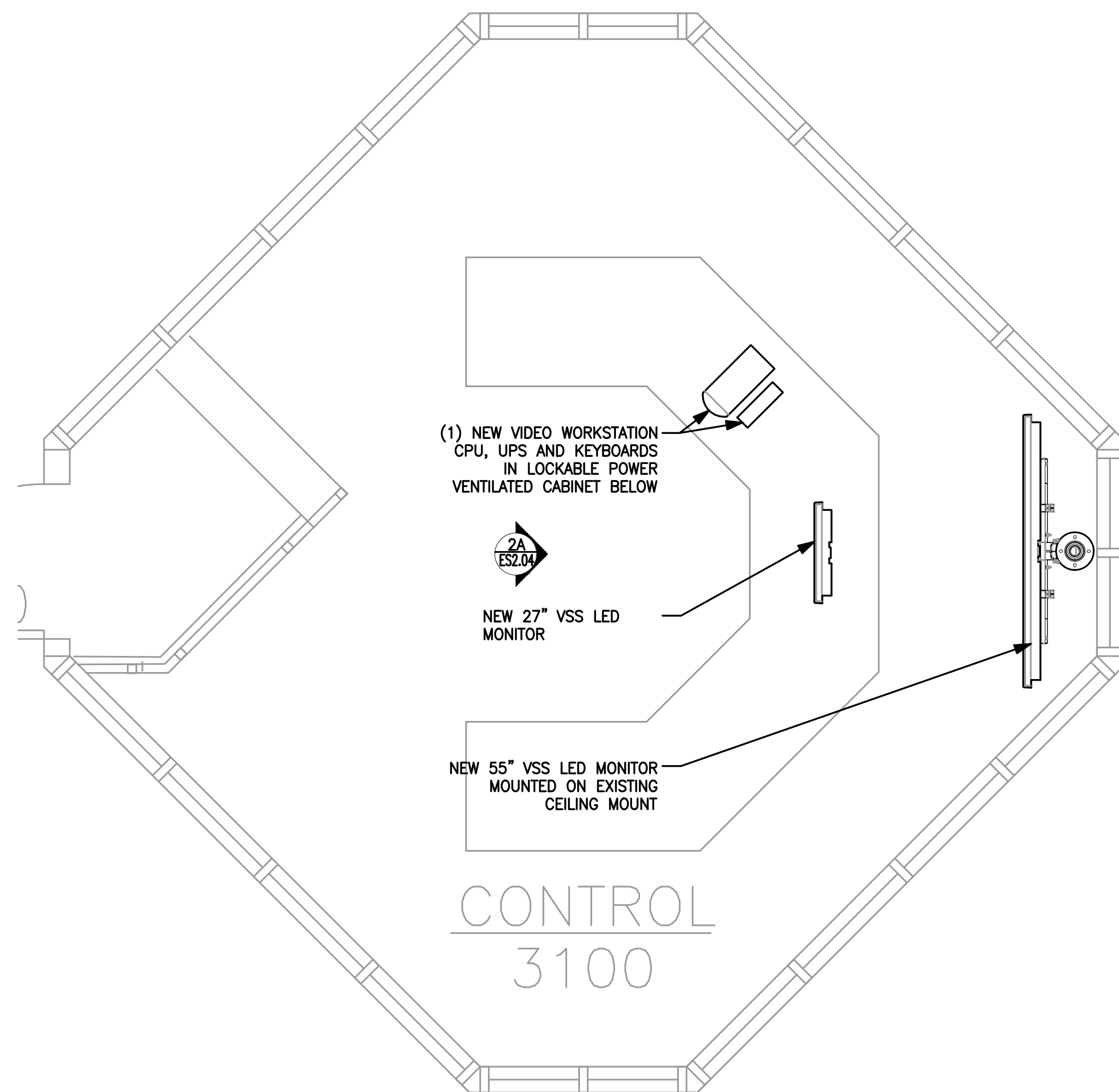
ENLARGED PLANS



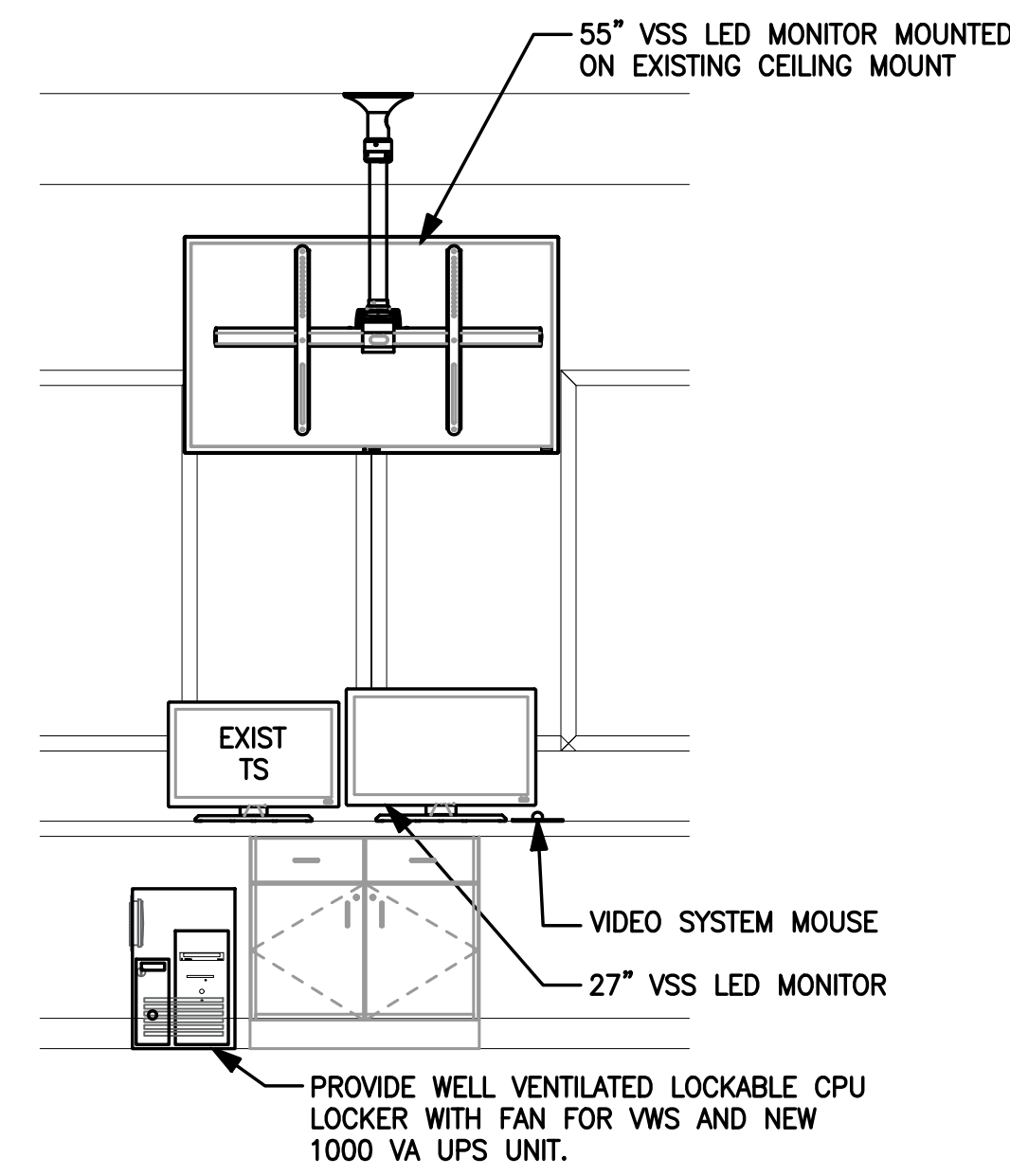
1 EXISTING CONTROL #3100 PLAN
 ES2.04 SCALE: 1/2" = 1'-0" ES1.02



1A EQUIPMENT PHOTO
 ES2.04 SCALE: NOT TO SCALE



2 NEW CONTROL #3100 PLAN
 ES2.04 SCALE: 1/2" = 1'-0" ES1.02



2A EQUIPMENT ELEVATION
 ES2.01 SCALE: NOT TO SCALE

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10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

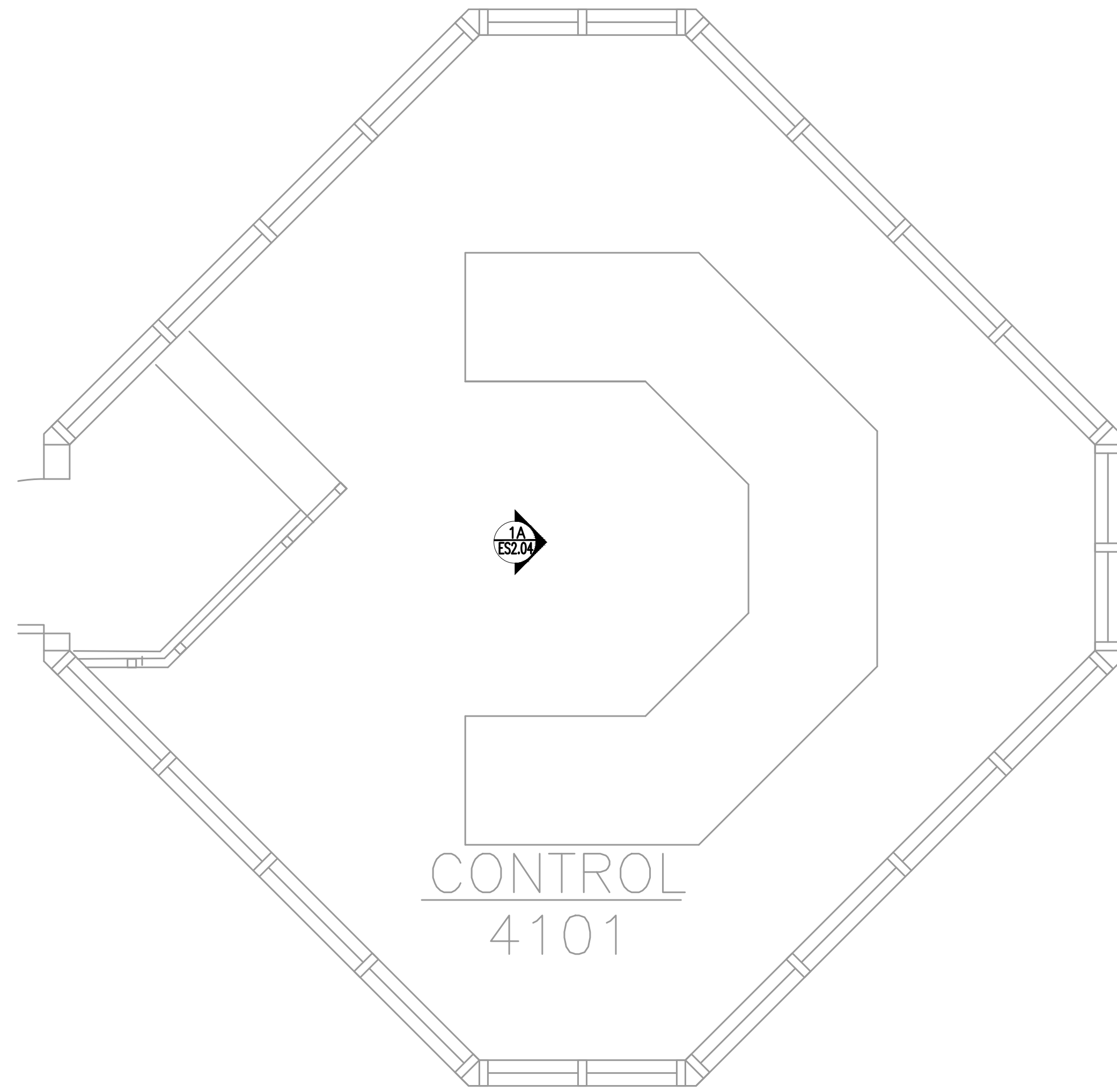
NOTES:

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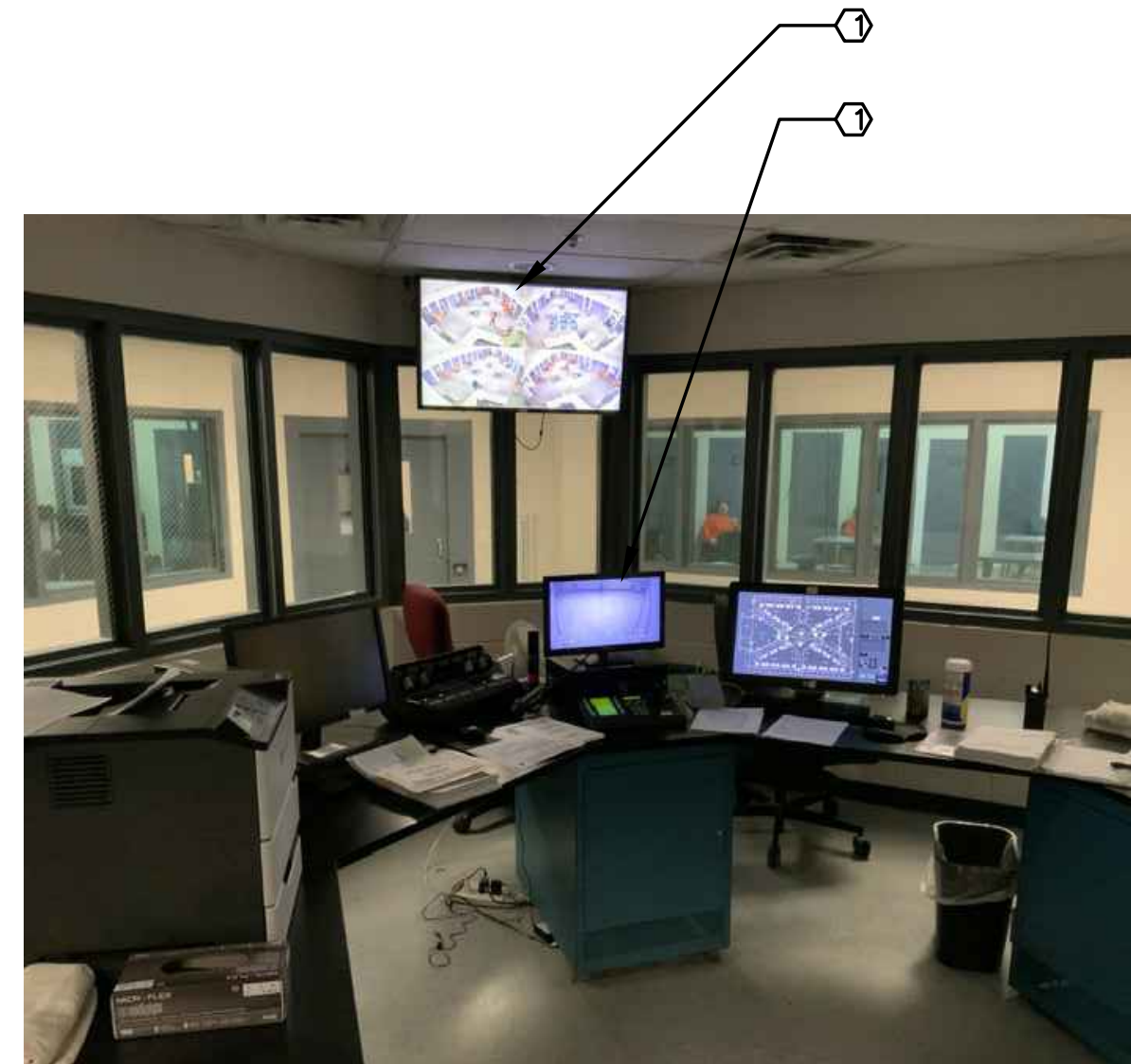


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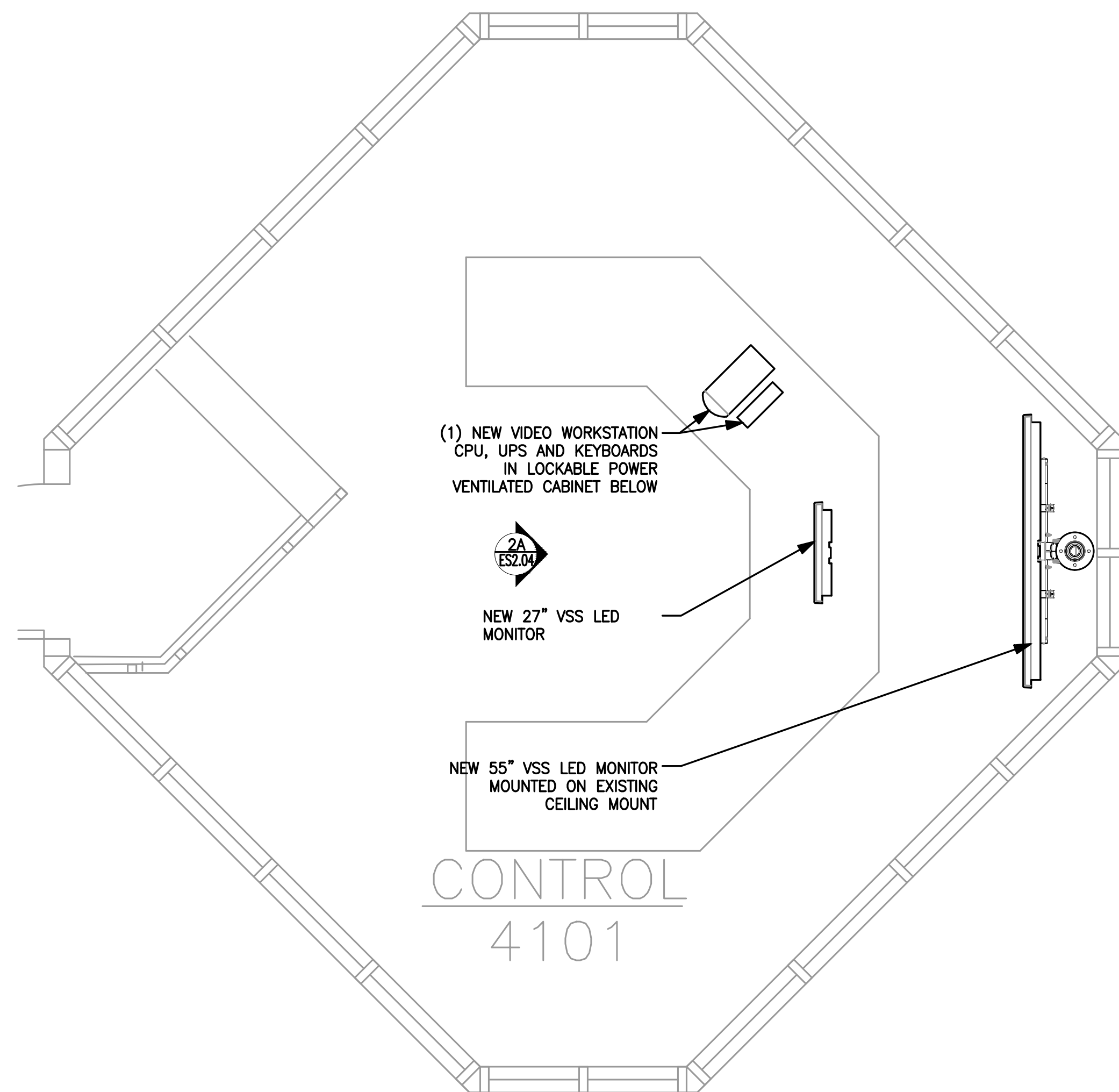
ENLARGED PLANS



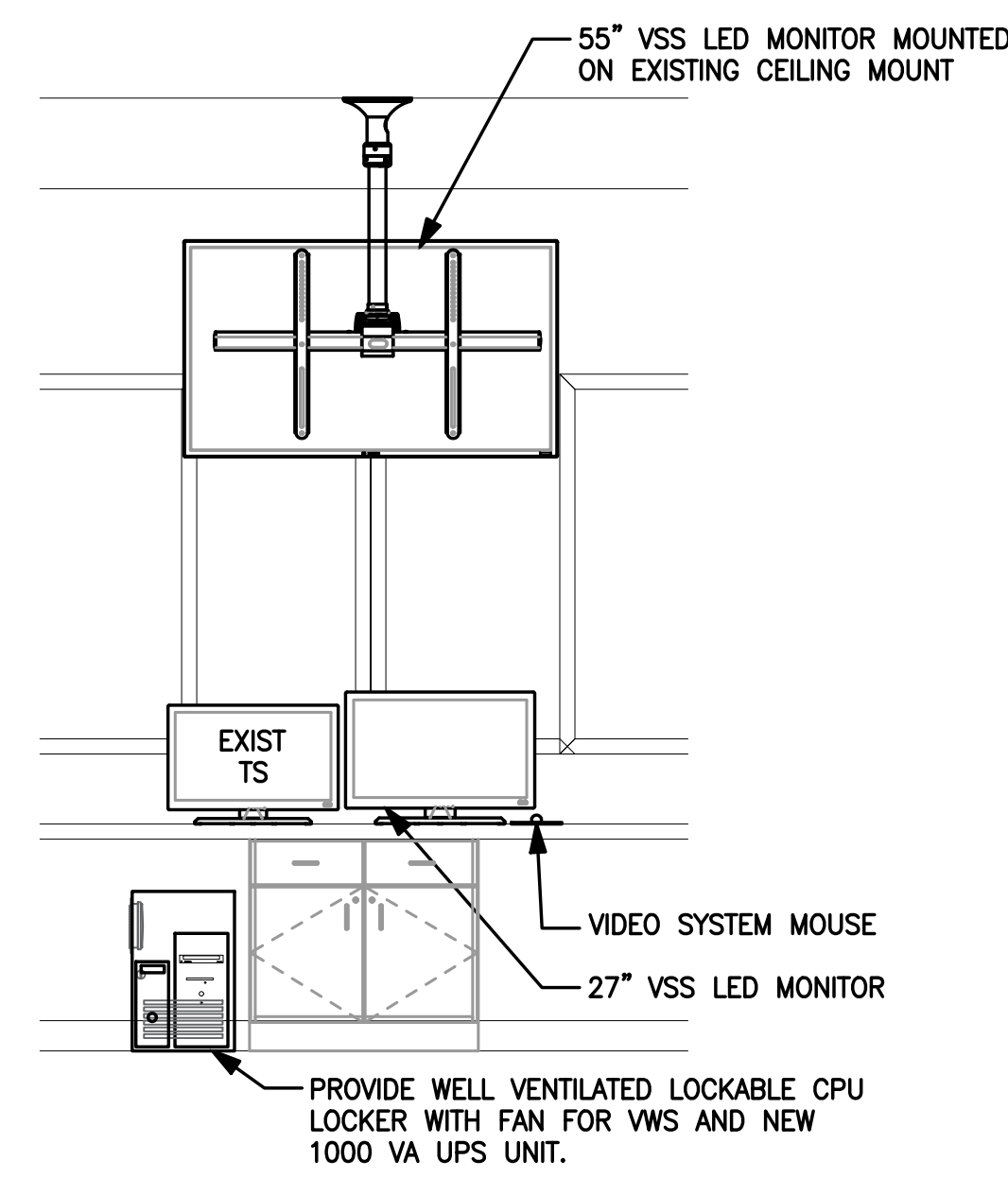
1 EXISTING CONTROL #4101 PLAN
 ES2.05 SCALE: 1/2" = 1'-0" ES1.02



1A EQUIPMENT PHOTO
 ES2.04 SCALE: NOT TO SCALE



2 NEW CONTROL #4101 PLAN
 ES2.05 SCALE: 1/2" = 1'-0" ES1.02



2A EQUIPMENT ELEVATION
 ES2.01 SCALE: NOT TO SCALE

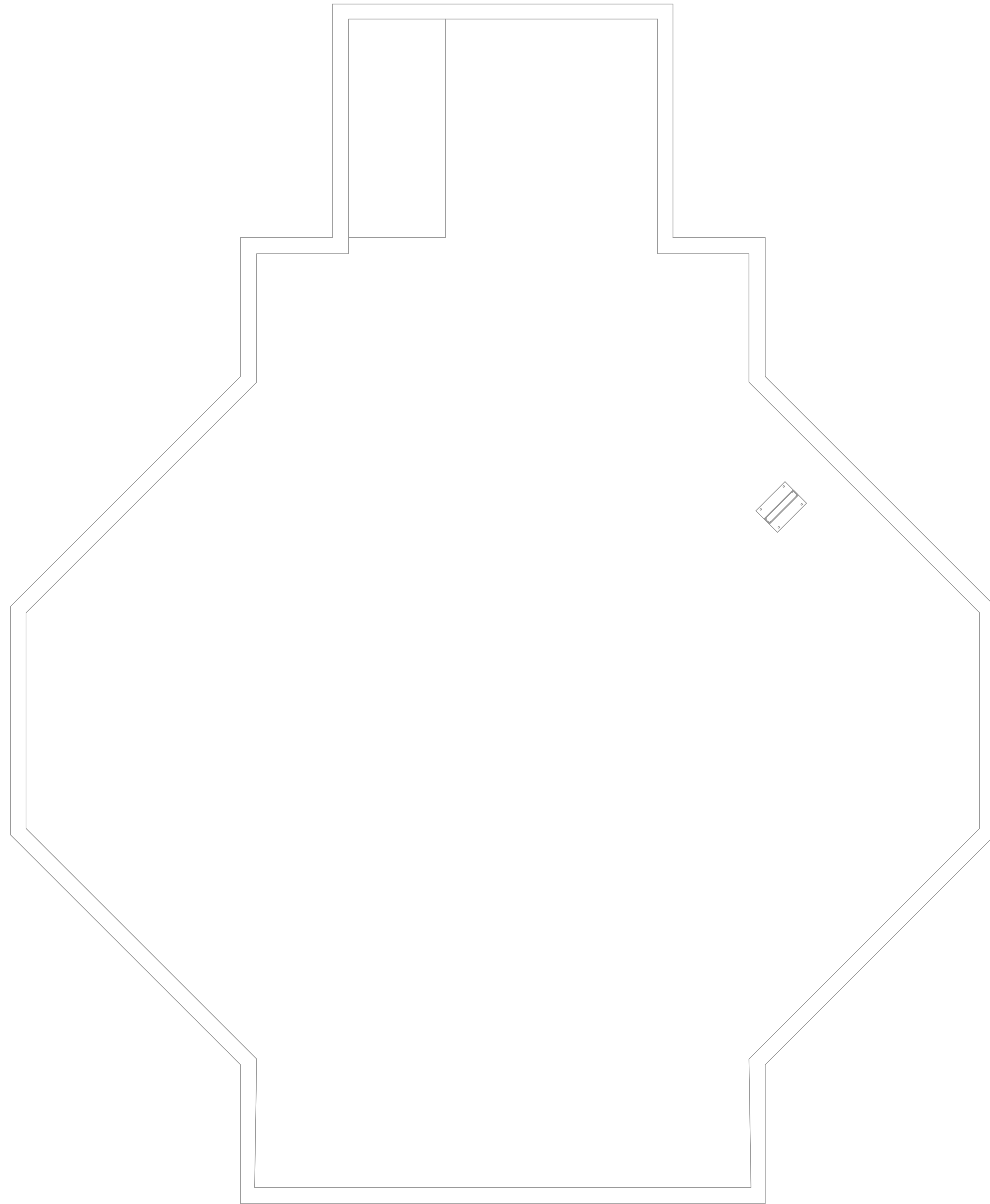
- GENERAL NOTES:**
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 - THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

NOTES:
 (1) REMOVE EXISTING CCTV VIEWING EQUIPMENT AND RETURN TO OWNER.



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ENLARGED PLANS



1 EXISTING ELECT. ROOM #2202 PLAN

ES2.06 SCALE: 1/2" = 1'-0"

ES1.01

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10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

NOTES:

- ①INSTALL NEW SWITCHES, PATCH PANELS AND CABLE MANAGEMENT FOR NEW IP VIDEO MANAGEMENT SYSTEM.
- ②PROVIDE NEW RACKMOUNT ONLINE 2000VA UPS UNIT AND BYPASS PDU FOR NEW EQUIPMENT. UTILIZE EXISTING CIRCUIT. EXISTING UPS TO REMAIN FOR EXISTING EQUIPMENT.
- ③BASE BID: UTILIZE EXISTING FIBER OPTIC ETHERNET BACKBONE.



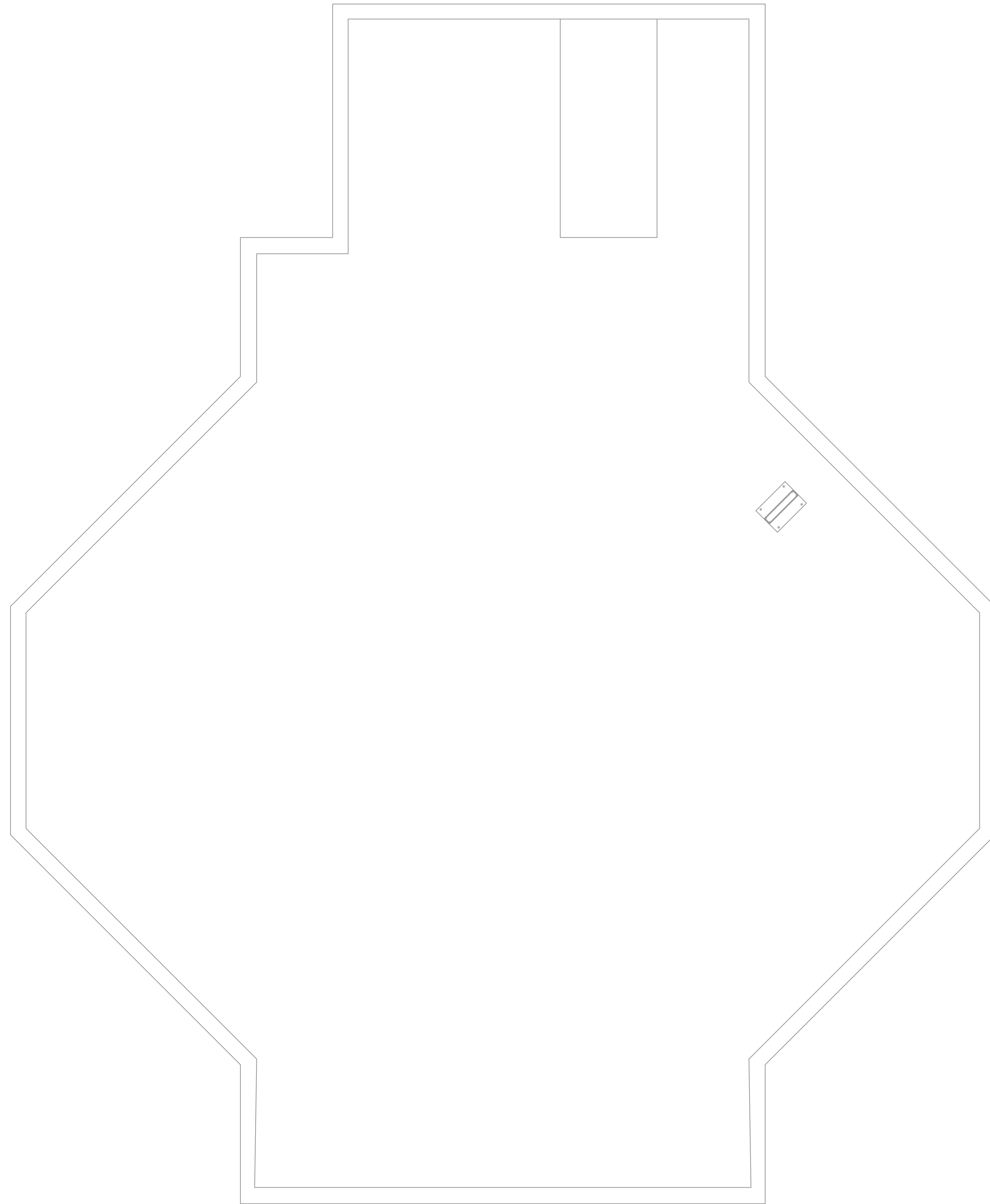
1A EQUIPMENT PHOTO

ES2.06 SCALE: NOT TO SCALE



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ENLARGED PLANS



1 EXISTING ELECT. ROOM #3202 PLAN

ES2.07 SCALE: 1/2" = 1'-0"

ES1.02

GENERAL NOTES:

1. LOCATION AND NUMBER OF ALL EXISTING ELECTRONIC SECURITY FIELD DEVICES SHOWN ON THIS DRAWING ARE BASED ON AS-BUILT DRAWINGS. FIELD VERIFY AND CONFIRM LOCATION, NUMBER AND FUNCTIONALITY OF ALL EXISTING FIELD DEVICES.
2. ALL EXISTING FIELD DEVICES (INCLUDING BUT NOT LIMITING TO DOOR CONTROL AND MONITORING, INTERCOM STATIONS, PAGING SPEAKERS, CALL BUTTONS, DURESS PUSHBUTTONS, ETC) AND THEIR ASSOCIATED CABLES/WIRES CONNECTING THEM TO THE EXISTING HEAD-END EQUIPMENT SHALL REMAIN FOR REUSE UNLESS NOTED OTHERWISE.
3. THE SCOPE OF THIS PROJECT INCLUDES REPLACEMENT OF ALL EXISTING CAMERAS, VIDEO VIEWING STATIONS AND VIDEO SURVEILLANCE HEAD-END EQUIPMENT (VIDEO MATRIX SWITCH, DVR(S), ETC.). NEW CAMERAS SHALL BE IP BASED, HIGH DEFINITION CAMERAS. ALL NEW CAMERAS SHALL BE MANUFACTURED BY AXIS (TO MATCH THE COUNTY'S STANDARDS). NEW VIDEO MANAGEMENT SOFTWARE SHALL BE MILESTONE XPROTECT (TO MATCH THE COUNTY'S STANDARDS).
4. THE NEW VIDEO MANAGEMENT SYSTEM SHALL BE INTERFACED UNDER SEPARATE CONTRACT WITH THE EXISTING TOUCH SCREEN CONTROL AND MANAGEMENT SYSTEM TO ALLOW DISPLAY OF ALL NEW CAMERA ICONS ON THE TOUCH SCREEN MAPS FOR CAMERA CALL UP. THE EXISTING TOUCH SCREEN SYSTEM IS CURRENTLY MAINTAINED BY THE COUNTY'S SECURITY INTEGRATOR. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE WITH THE COUNTY'S SECURITY INTEGRATOR TO SETUP MILESTONE XPROTECT RULES AND CERTAIN SETTINGS ACCORDING TO THEIR INTEGRATION NEEDS. THE CONTRACTOR SHALL PROVIDE A CAT6 DATA DROP FROM THE VIDEO SYSTEM CORE SWITCH TO THE SECURITY ELECTRONICS EQUIPMENT ROOM PER COORDINATION WITH THE COUNTY'S SECURITY INTEGRATOR. ALLOW FOR A 300' RUN.
5. WORK SHALL BE PHASED TO INSTALL ALL NEW INFRASTRUCTURE AND SERVERS, ETC IN PLACE PRIOR TO REMOVING EXISTING SURVEILLANCE EQUIPMENT. COORDINATE WITH THE OWNER FOR THE PHASING OF WORK BY AREA - A PHASING PLAN SHALL BE SUBMITTED FOR OWNER APPROVAL PRIOR TO COMMENCEMENT OF WORK. DOWNTIME OF EXISTING SYSTEMS SHALL BE KEPT TO A MINIMUM DURING THE COURSE OF THE INSTALLATION.
6. ALL EXISTING CAMERAS SHALL BE REMOVED AND REPLACED WITH NEW IP BASED POE CAMERAS AS SHOWN ON PLANS.
7. THE EXISTING COAX CABLE SHALL BE REMOVED AND LEGALLY DISPOSED OF BY THE SECURITY SYSTEM INTEGRATOR.
8. ALL NEW VIDEO SYSTEM COMPONENTS SHALL BE CONNECTED TO NETWORK SWITCHES VIA CAT6 CABLE USING PATCH PANELS. IF ANY CABLE LENGTH BETWEEN A COMPONENT (CAMERA, WORKSTATION, ETC) AND A NETWORK SWITCH, INCLUDING SLACK, EXCEEDS 300', USE FIBER OPTIC CABLE AND MEDIA CONVERTERS OR COORDINATE A LOCATION FOR AN EDGE POE SWITCH TO TRANSFER VIDEO DATA. PROVIDE CAT6 TO FIBER MEDIA CONVERTERS. PROVIDE POWER FOR MEDIA CONVERTERS.
9. CAT6 CABLES FOR NEW CAMERAS SHALL RUN IN CONDUITS BETWEEN CAMERA AND THE NEAREST ACCESSIBLE CEILING. USE J-HOOKS AND PLENUM RATED CABLE FOR THE CABLE RUNS ABOVE CEILINGS. REUSE EXISTING CONDUITS (FROM EXISTING CAMERAS IN INMATE AREAS) WHERE AVAILABLE.
10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

NOTES:

- ① INSTALL NEW SWITCHES, PATCH PANELS AND CABLE MANAGEMENT FOR NEW IP VIDEO MANAGEMENT SYSTEM.
- ② PROVIDE NEW RACKMOUNT ONLINE 2000VA UPS UNIT AND BYPASS PDU FOR NEW EQUIPMENT. UTILIZE EXISTING CIRCUIT. EXISTING UPS TO REMAIN FOR EXISTING EQUIPMENT.
- ③ BASE BID: UTILIZE EXISTING FIBER OPTIC ETHERNET BACKBONE.



1A EQUIPMENT PHOTO

ES2.07 SCALE: NOT TO SCALE



DATE: 10/13/2020

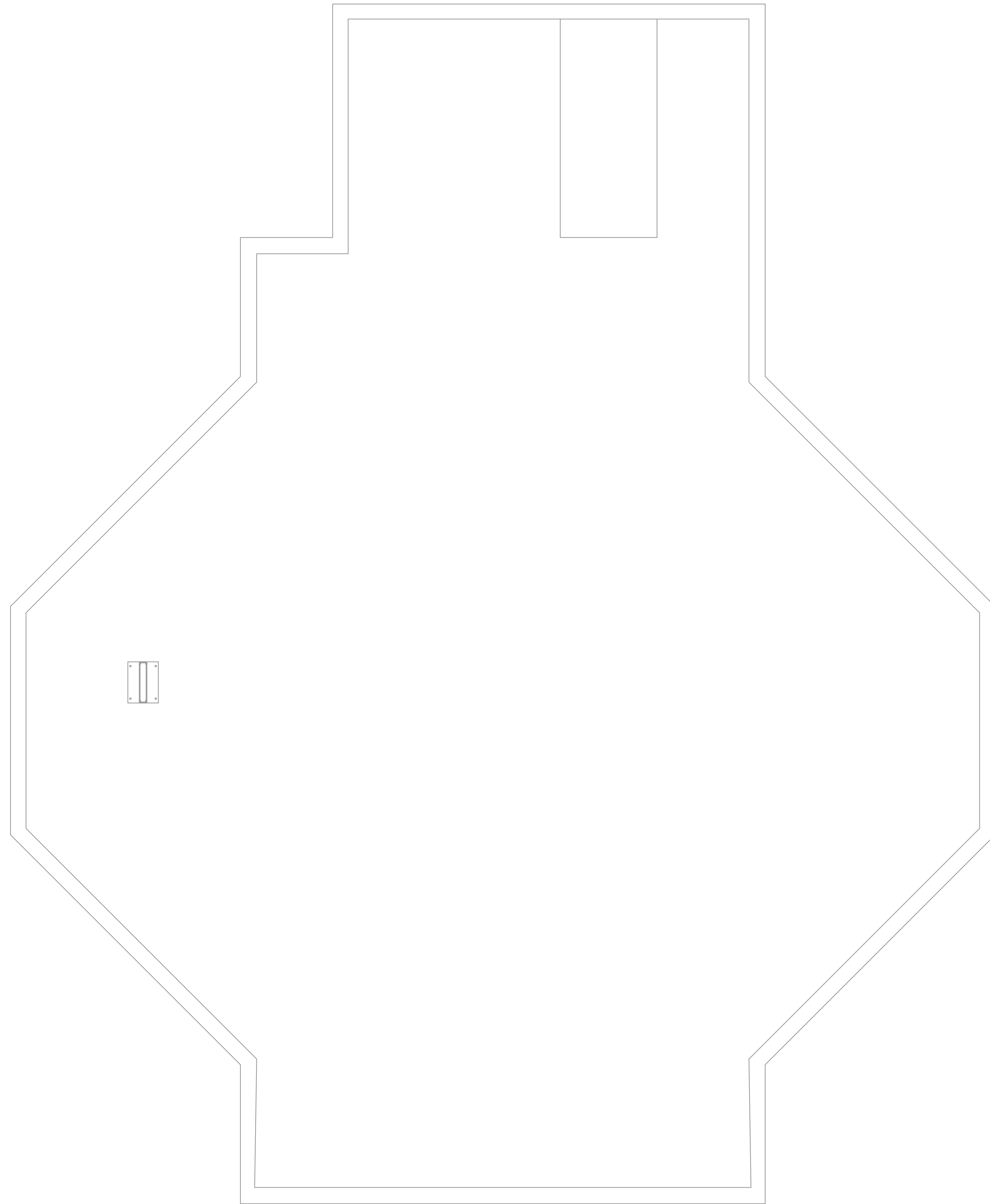
JOB NO: 20787

DRAWN BY: IC

CHECKED BY: IA/AM

REVISIONS:

ENLARGED PLANS



1 EXISTING ELECT. ROOM #4202 PLAN

ES2.08 SCALE: 1/2" = 1'-0"

ES1.02

GENERAL NOTES:

1. LOCATION AND NUMBER OF ALL EXISTING ELECTRONIC SECURITY FIELD DEVICES SHOWN ON THIS DRAWING ARE BASED ON AS-BUILT DRAWINGS. FIELD VERIFY AND CONFIRM LOCATION, NUMBER AND FUNCTIONALITY OF ALL EXISTING FIELD DEVICES.
2. ALL EXISTING FIELD DEVICES (INCLUDING BUT NOT LIMITING TO DOOR CONTROL AND MONITORING, INTERCOM STATIONS, PAGING SPEAKERS, CALL BUTTONS, DURESS PUSHBUTTONS, ETC) AND THEIR ASSOCIATED CABLES/WIRES CONNECTING THEM TO THE EXISTING HEAD-END EQUIPMENT SHALL REMAIN FOR REUSE UNLESS NOTED OTHERWISE.
3. THE SCOPE OF THIS PROJECT INCLUDES REPLACEMENT OF ALL EXISTING CAMERAS, VIDEO VIEWING STATIONS AND VIDEO SURVEILLANCE HEAD-END EQUIPMENT (VIDEO MATRIX SWITCH, DVR(S), ETC.). NEW CAMERAS SHALL BE IP BASED, HIGH DEFINITION CAMERAS. ALL NEW CAMERAS SHALL BE MANUFACTURED BY AXIS (TO MATCH THE COUNTY'S STANDARDS). NEW VIDEO MANAGEMENT SOFTWARE SHALL BE MILESTONE XPROTECT (TO MATCH THE COUNTY'S STANDARDS).
4. THE NEW VIDEO MANAGEMENT SYSTEM SHALL BE INTERFACED UNDER SEPARATE CONTRACT WITH THE EXISTING TOUCH SCREEN CONTROL AND MANAGEMENT SYSTEM TO ALLOW DISPLAY OF ALL NEW CAMERA VIEWS ON THE TOUCH SCREEN MAPS FOR CAMERA CALL UP. THE EXISTING TOUCH SCREEN SYSTEM IS CURRENTLY MAINTAINED BY THE COUNTY'S SECURITY INTEGRATOR. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE WITH THE COUNTY'S SECURITY INTEGRATOR TO SETUP MILESTONE XPROTECT RULES AND CERTAIN SETTINGS ACCORDING TO THEIR INTEGRATION NEEDS. THE CONTRACTOR SHALL PROVIDE A CAT6 DATA DROP FROM THE VIDEO SYSTEM CORE SWITCH TO THE SECURITY ELECTRONICS EQUIPMENT ROOM PER COORDINATION WITH THE COUNTY'S SECURITY INTEGRATOR. ALLOW FOR A 300' RUN.
5. WORK SHALL BE PHASED TO INSTALL ALL NEW INFRASTRUCTURE AND SERVERS, ETC IN PLACE PRIOR TO REMOVING EXISTING SURVEILLANCE EQUIPMENT. COORDINATE WITH THE OWNER FOR THE PHASING OF WORK BY AREA - A PHASING PLAN SHALL BE SUBMITTED FOR OWNER APPROVAL PRIOR TO COMMENCEMENT OF WORK. DOWNTIME OF EXISTING SYSTEMS SHALL BE KEPT TO A MINIMUM DURING THE COURSE OF THE INSTALLATION.
6. ALL EXISTING CAMERAS SHALL BE REMOVED AND REPLACED WITH NEW IP BASED POE CAMERAS AS SHOWN ON PLANS.
7. THE EXISTING COAX CABLE SHALL BE REMOVED AND LEGALLY DISPOSED OF BY THE SECURITY SYSTEM INTEGRATOR.
8. ALL NEW VIDEO SYSTEM COMPONENTS SHALL BE CONNECTED TO NETWORK SWITCHES VIA CAT6 CABLE USING PATCH PANELS. IF ANY CABLE LENGTH BETWEEN A COMPONENT (CAMERA, WORKSTATION, ETC) AND A NETWORK SWITCH, INCLUDING SLACK, EXCEEDS 300', USE FIBER OPTIC CABLE AND MEDIA CONVERTERS OR COORDINATE A LOCATION FOR AN EDGE POE SWITCH TO TRANSFER VIDEO DATA. PROVIDE CAT6 TO FIBER MEDIA CONVERTERS. PROVIDE POWER FOR MEDIA CONVERTERS.
9. CAT6 CABLES FOR NEW CAMERAS SHALL RUN IN CONDUITS BETWEEN CAMERA AND THE NEAREST ACCESSIBLE CEILING. USE J-HOOKS AND PLENUM RATED CABLE FOR THE CABLE RUNS ABOVE CEILINGS. REUSE EXISTING CONDUITS (FROM EXISTING CAMERAS IN INMATE AREAS) WHERE AVAILABLE.
10. THE EXISTING TOUCH SCREEN STATION HARDWARE SHALL REMAIN.

NOTES:

- ① INSTALL NEW SWITCHES, PATCH PANELS AND CABLE MANAGEMENT FOR NEW IP VIDEO MANAGEMENT SYSTEM.
- ② PROVIDE NEW RACKMOUNT ONLINE 2000VA UPS UNIT AND BYPASS PDU FOR NEW EQUIPMENT. UTILIZE EXISTING CIRCUIT. EXISTING UPS TO REMAIN FOR EXISTING EQUIPMENT.
- ③ BASE BID: UTILIZE EXISTING FIBER OPTIC ETHERNET BACKBONE.



1A EQUIPMENT PHOTO

ES2.08 SCALE: NOT TO SCALE



DATE: 10/13/2020

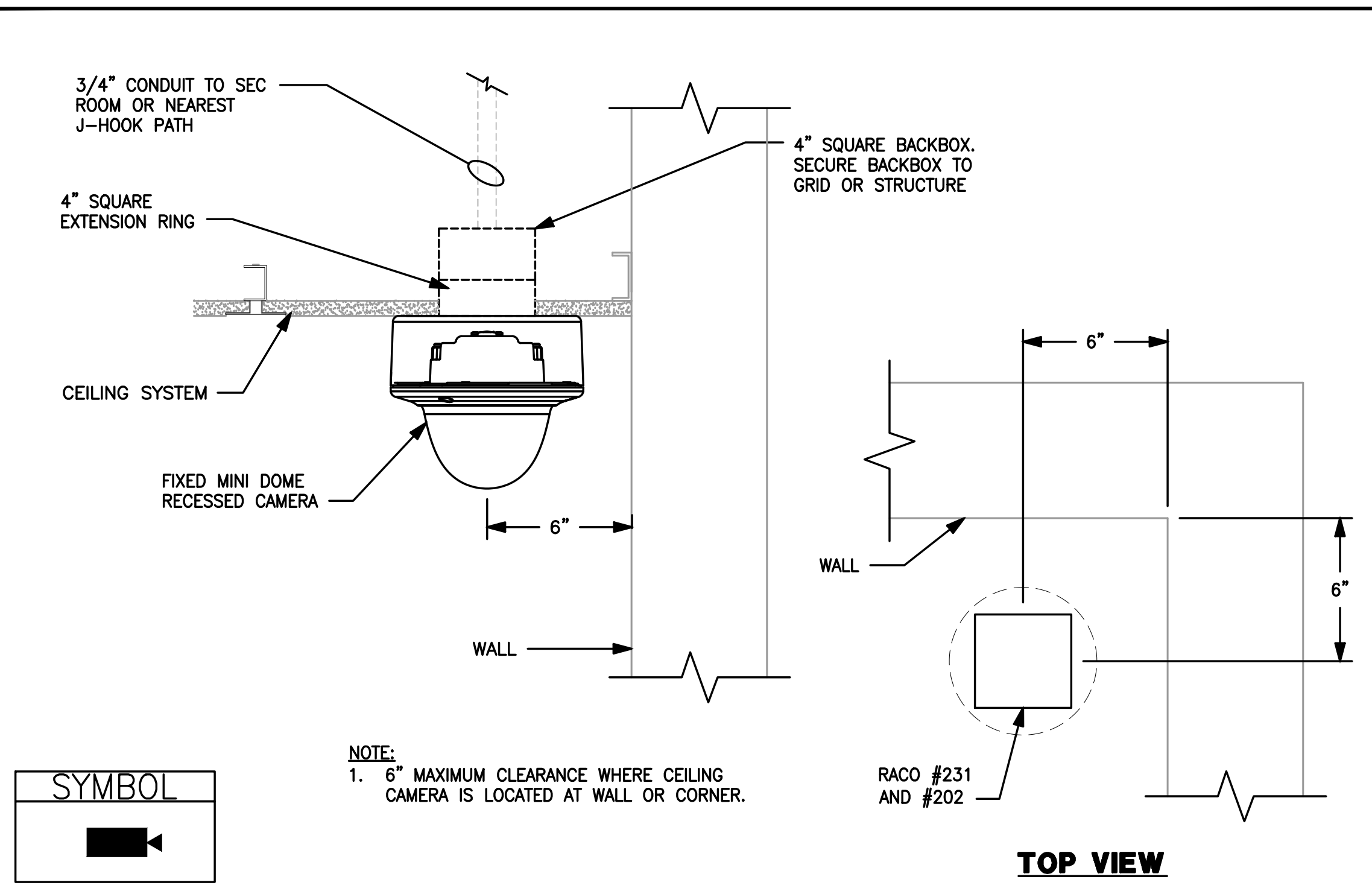
JOB NO: 20787

DRAWN BY: IC

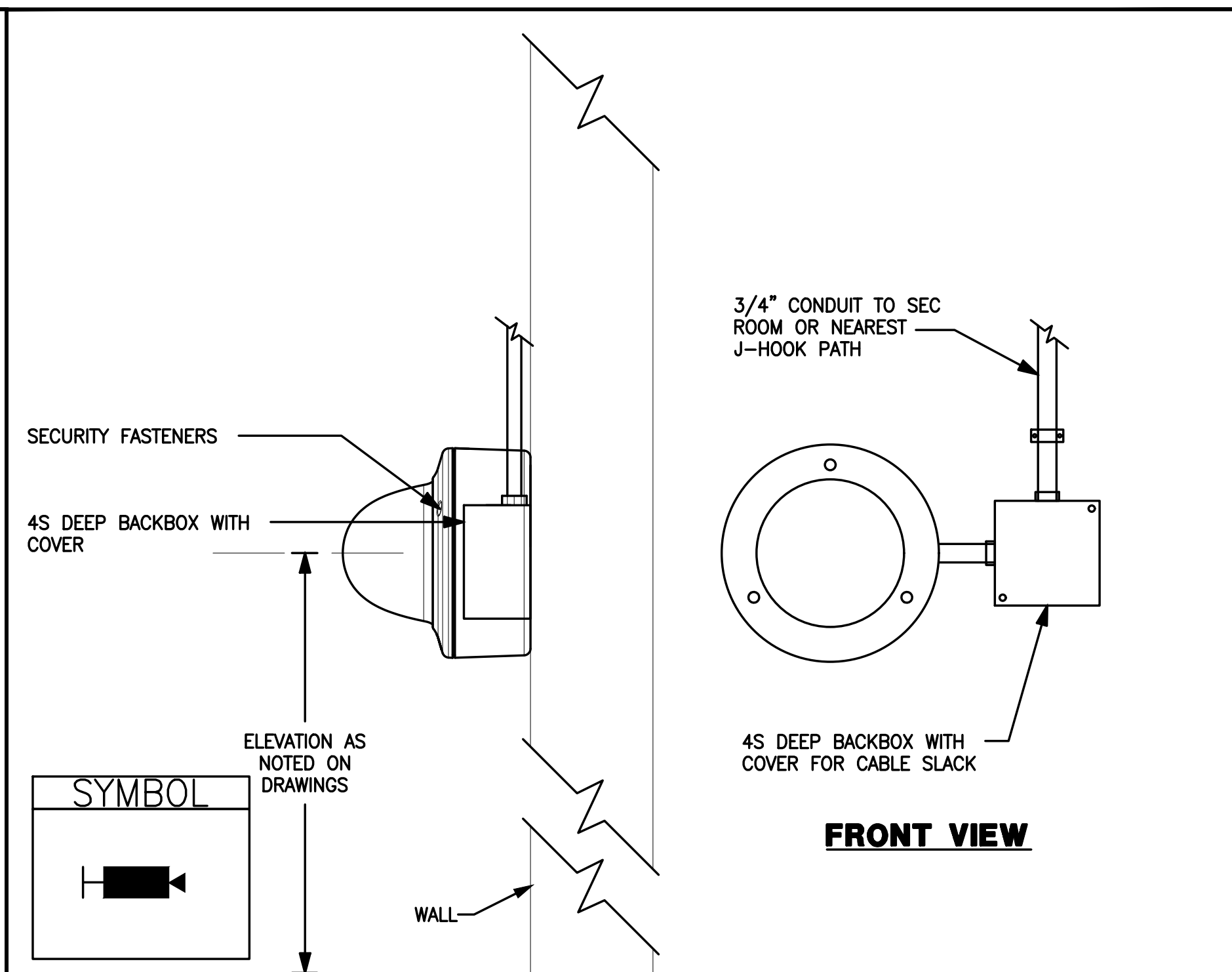
CHECKED BY: IA/AM

REVISIONS:

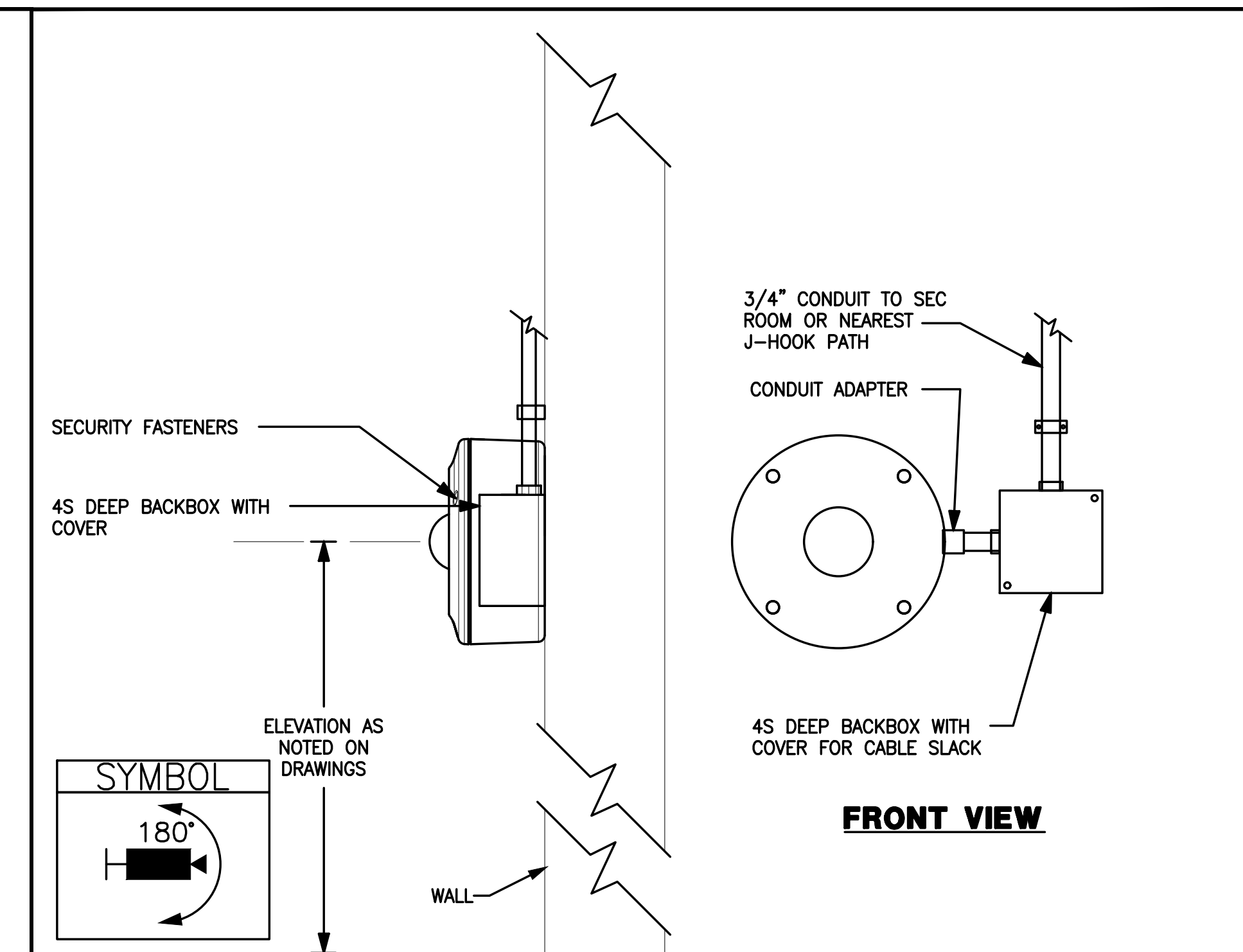
ENLARGED PLANS



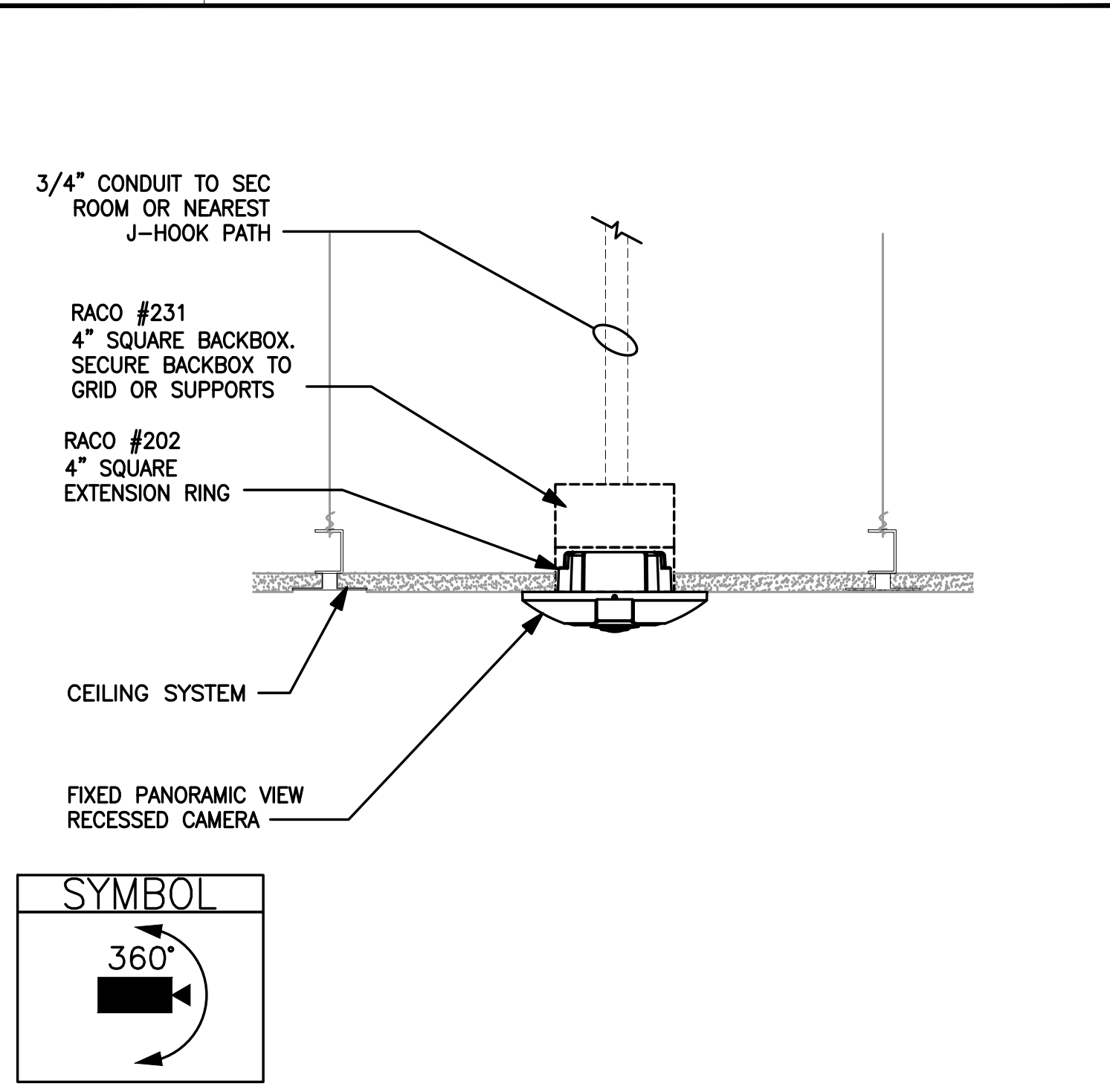
1 **FIXED DOME CAMERA, RECESSED CONDUIT**
SCALE: N.T.S. RE:



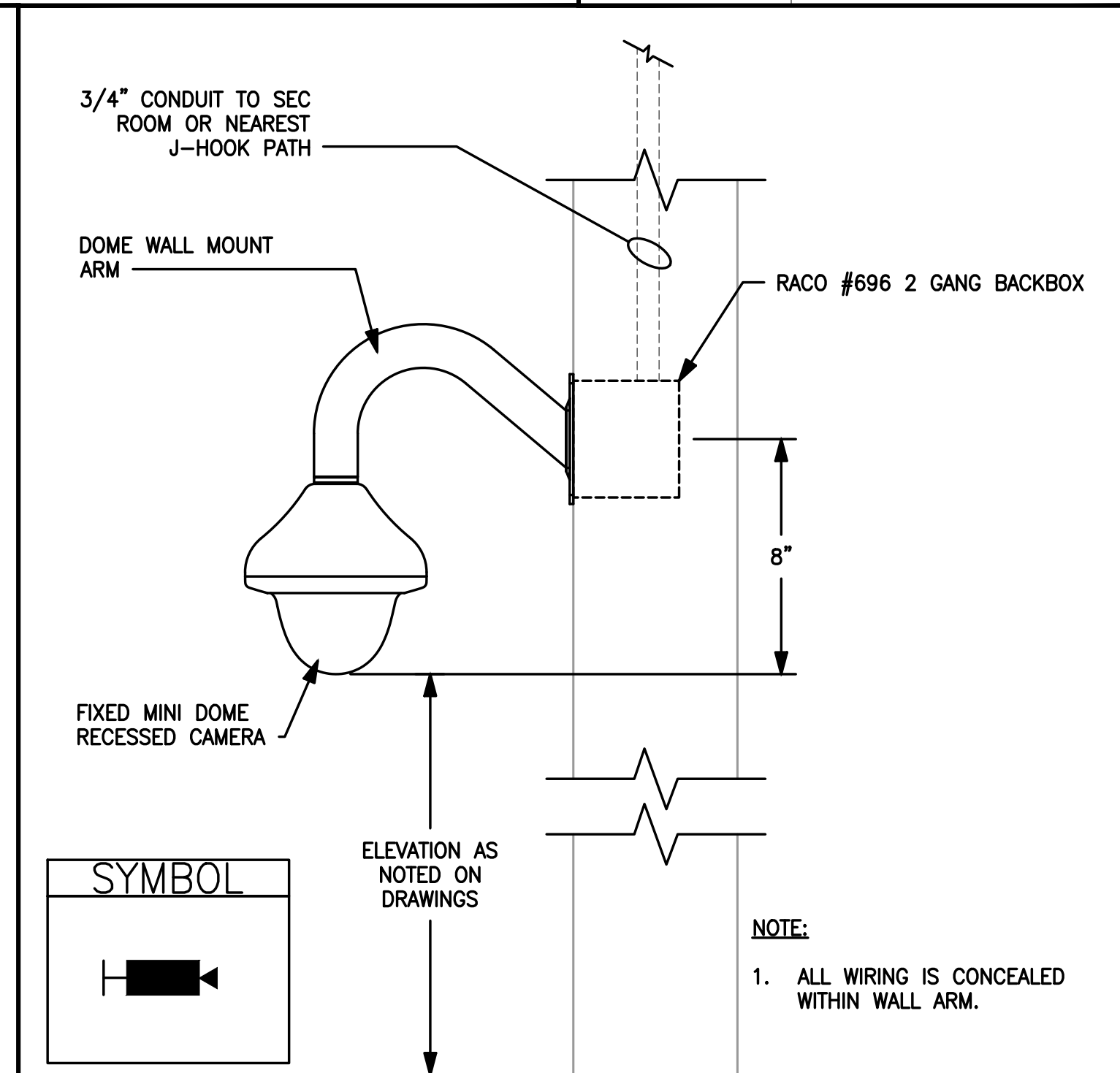
2 **WALL SURFACE MOUNTED DOME CAMERA**
SCALE: N.T.S. RE:



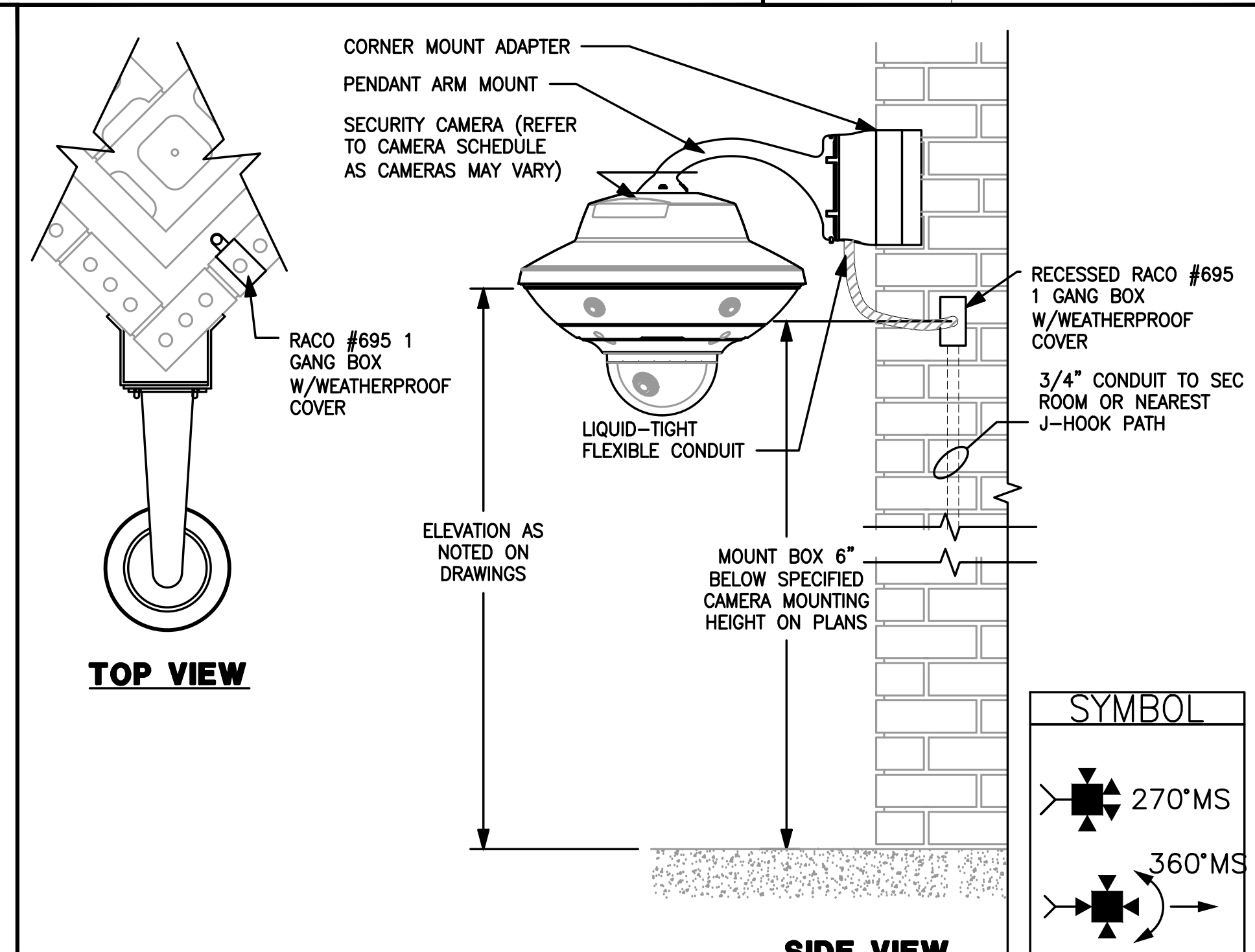
3 **WALL SURFACE MOUNTED PANORAMIC 180 CAMERA**
SCALE: N.T.S. RE:



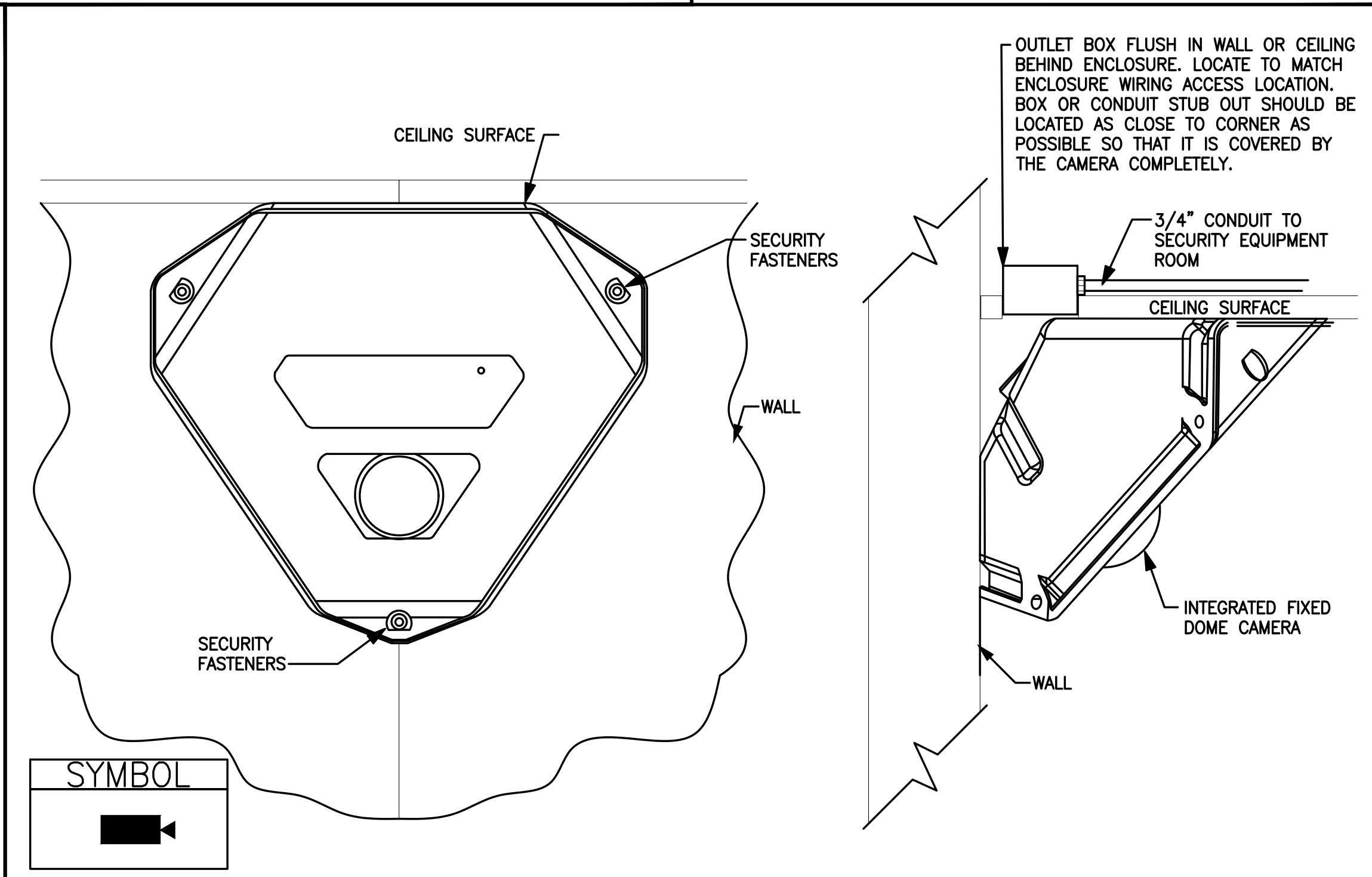
4 **360 DEGREE PANORAMIC CAMERA CEILING RECESSED MOUNT DETAIL**
SCALE: N.T.S. RE:



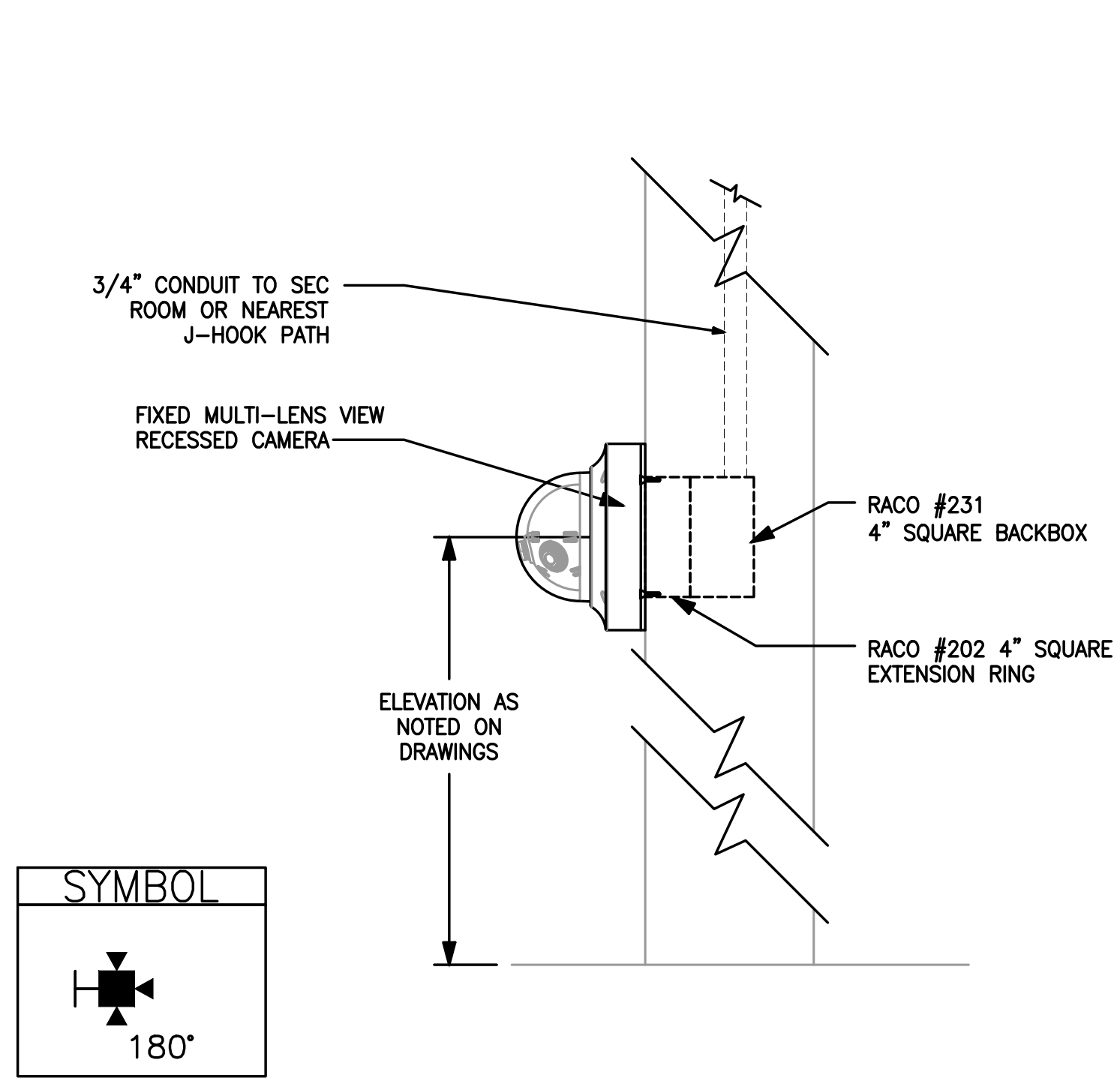
5 **FIXED MINI DOME CAMERA WALL MOUNT ARM MOUNT DETAIL**
SCALE: N.T.S. RE:



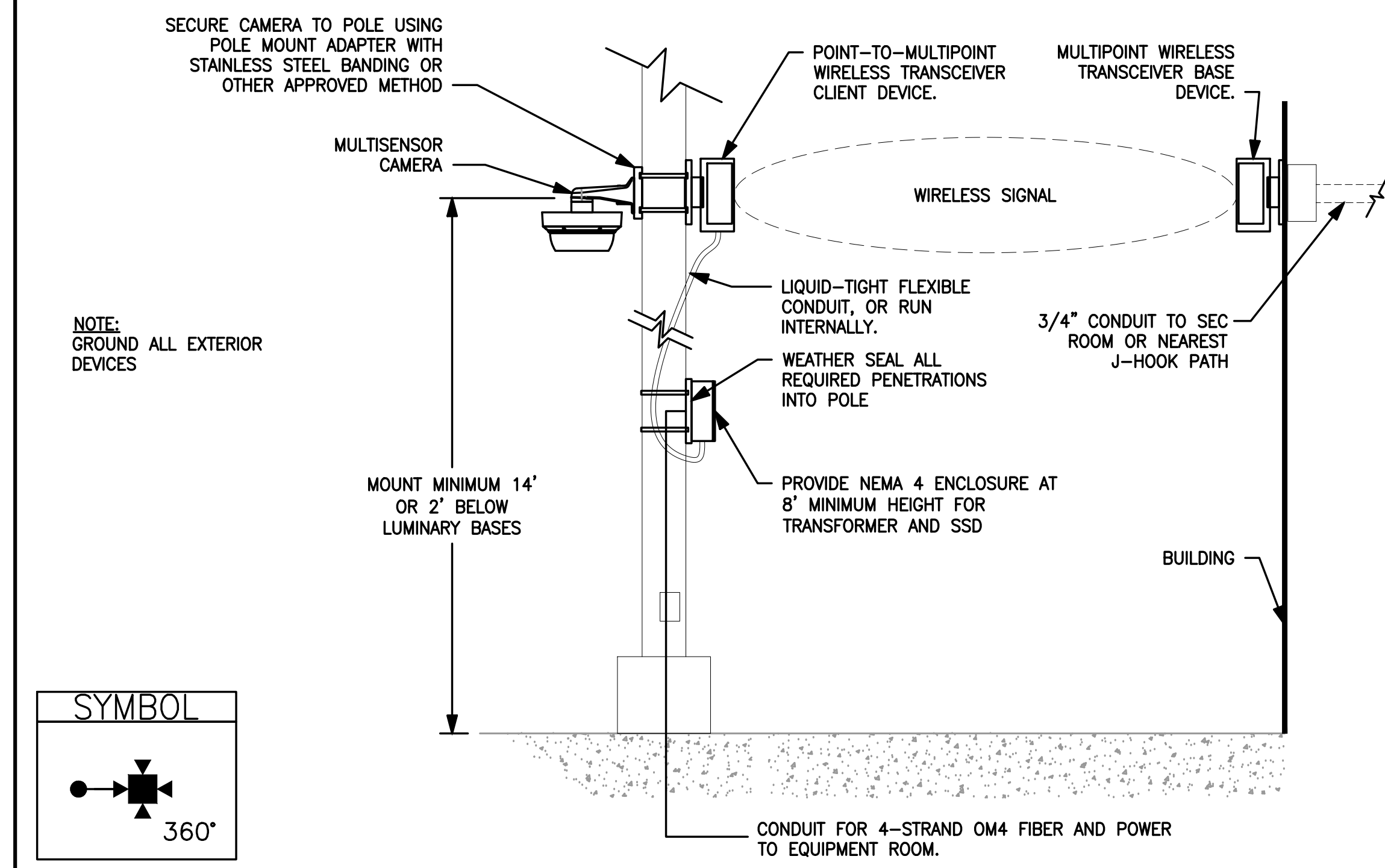
6 **270 DEGREE MULTI-SENSOR CAMERA WALL CORNER MOUNT DETAIL**
SCALE: N.T.S. RE:



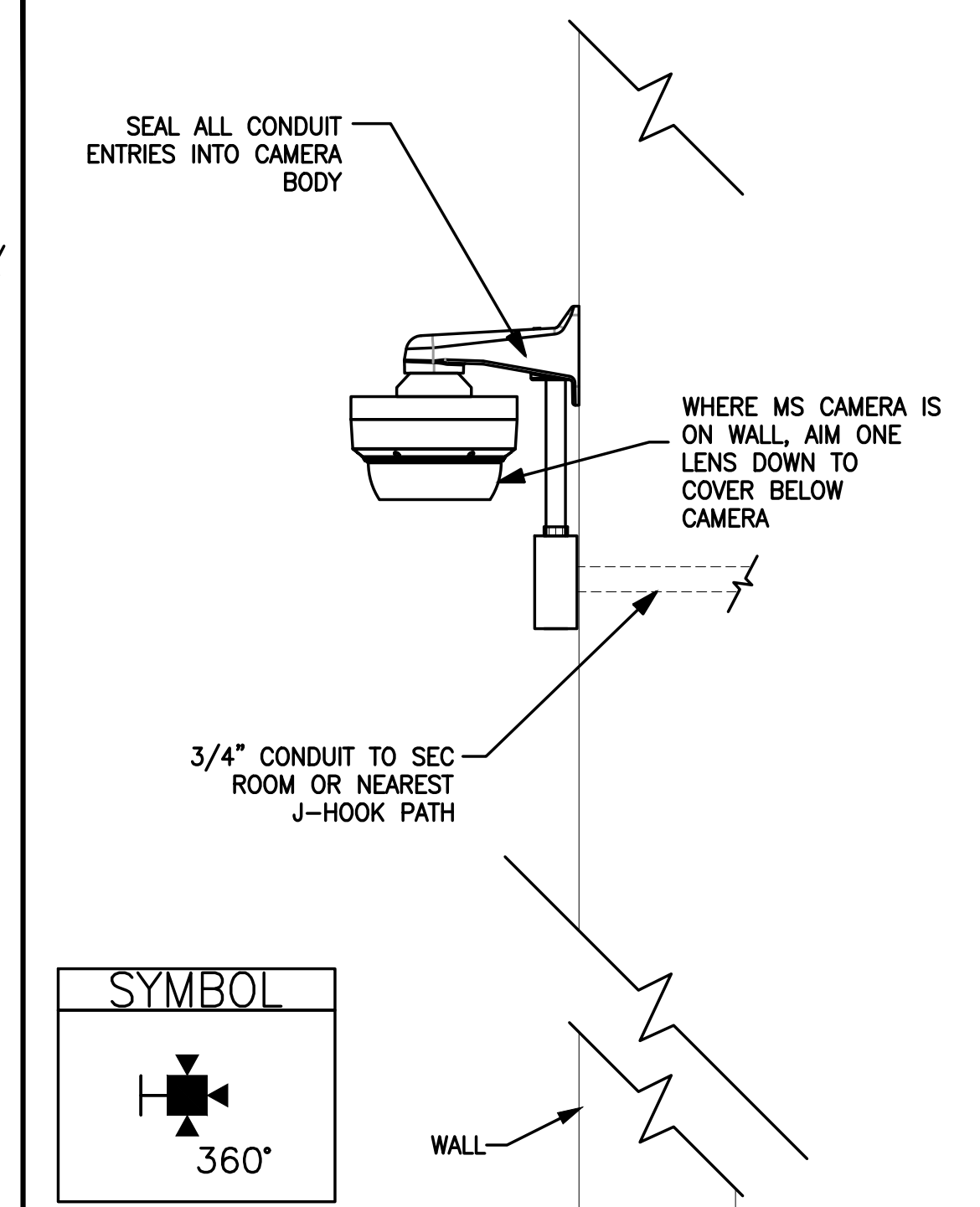
7 **CORNER MOUNT VANDAL PROOF CELL CAMERA**
SCALE: N.T.S. RE:



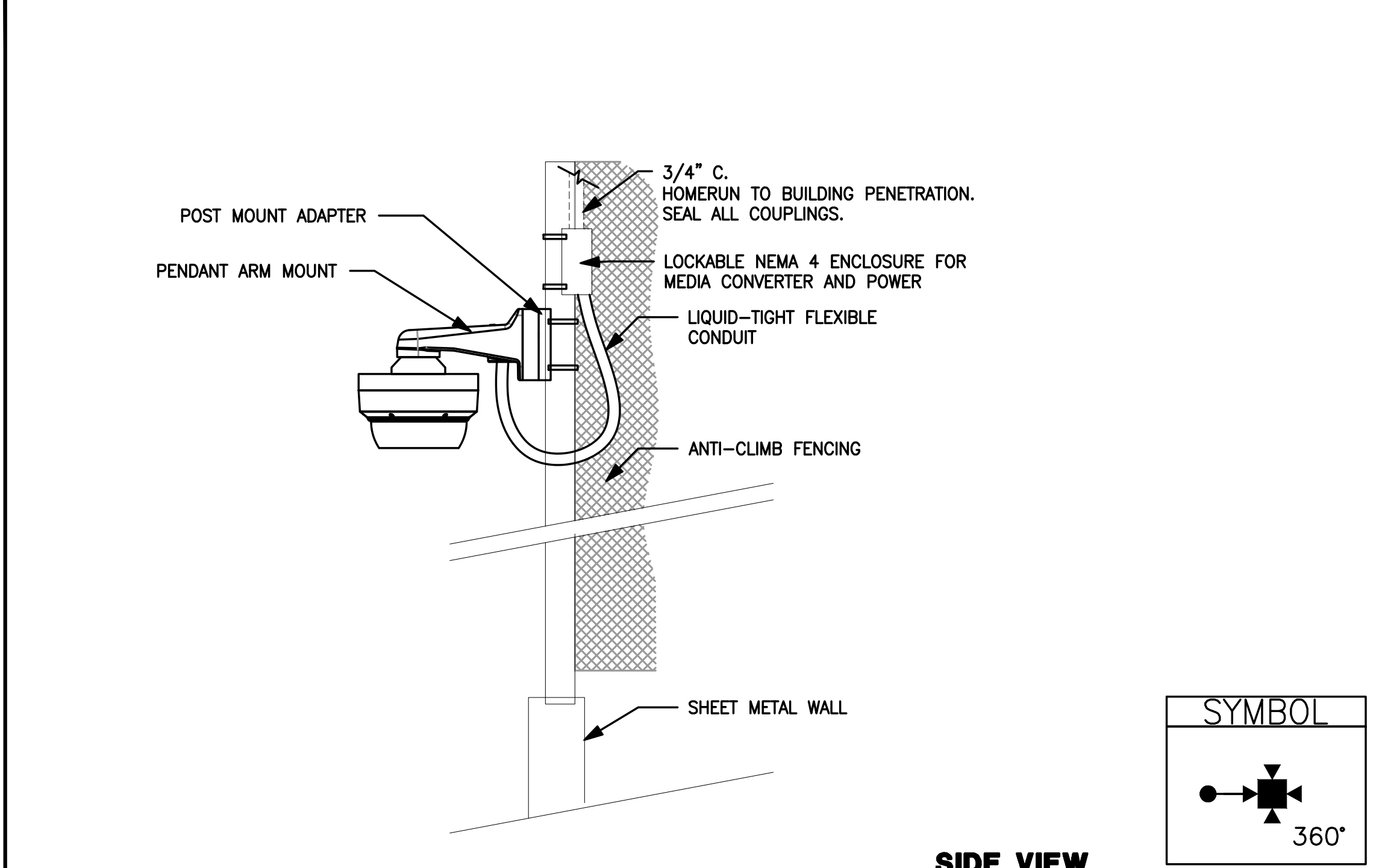
8 **180 MULTI-SENSOR LENS CAMERA WALL RECESSED MOUNT DETAIL**
SCALE: N.T.S. RE:



9 **360 DEGREE MULTI-SENSOR CAMERA ON SQUARE LIGHT POLE MOUNT**
SCALE: N.T.S. RE:



10 **360 DEGREE CAMERA SURFACE MOUNT DETAIL**
SCALE: N.T.S. RE:





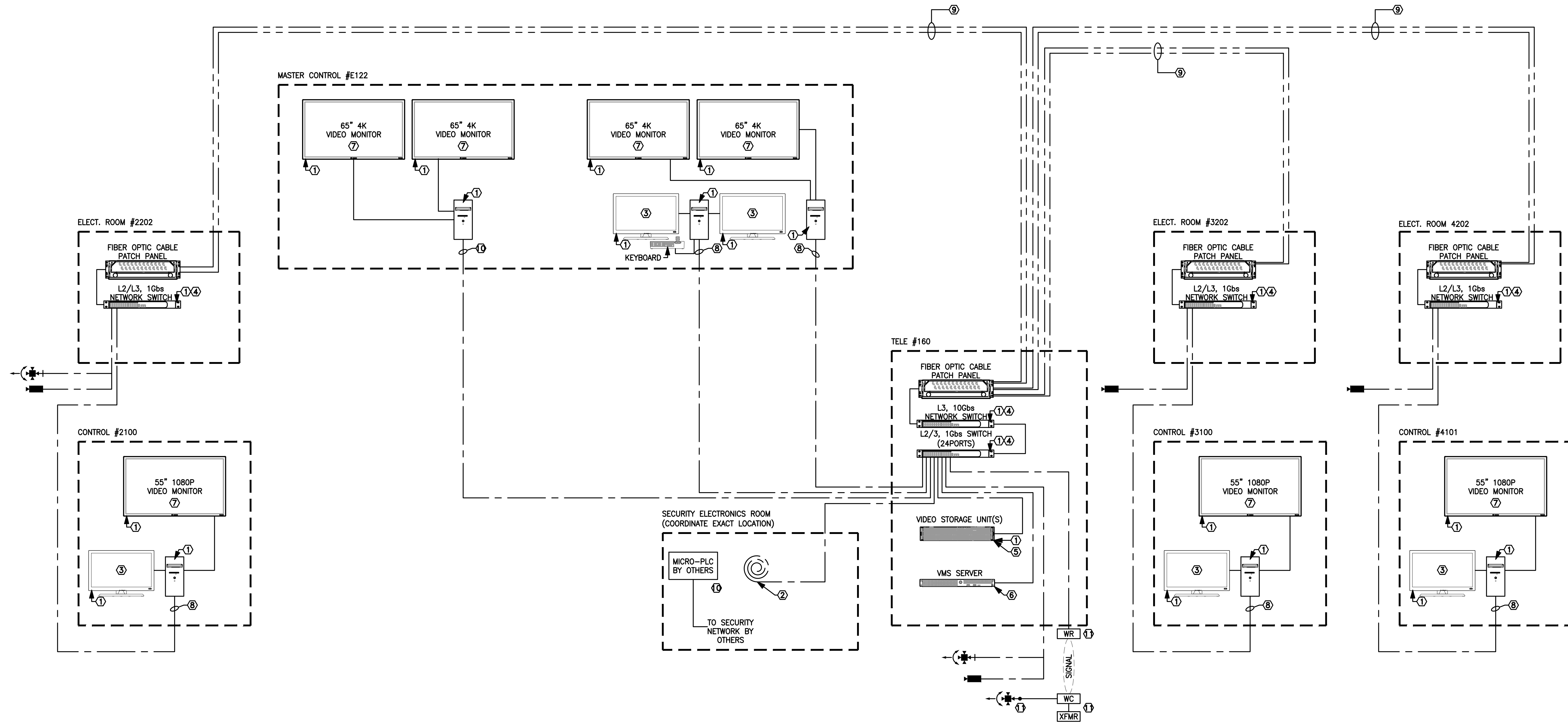
11 **360 DEGREE MULTI-SENSOR CAMERA ON FENCE POST MOUNT**
SCALE: N.T.S. RE:



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REVISIONS:

DETAILS

LEGEND:
 DATA CABLE/CAT 6 
 FIBER OPTIC CABLE 



- KEYED NOTES**
- ① 120 VAC, UPS POWER FROM NEW LOCAL UPS.
 - ② RUN A CAT6 DROP TO THE SECURITY ELECTRONICS ROOM. COORDINATE LOCATION REQUIRED WITH THE COUNTY'S SECURITY INTEGRATOR. PROVIDE AN ETHERNET PORT ON THE VMS VLAN FOR CONNECTION TO THE SECURITY NETWORK BY OTHERS.
 - ③ NEW VIDEO VIEWING/MONITORING STATION (27" LED MONITOR, CPU AND KEYBOARD). PROVIDE VIDEO CABLES FOR CONNECTION BETWEEN VIDEO MONITOR AND CPU.
 - ④ PROVIDE NEW LAYER L3, 1G/10G NETWORK SWITCHES TO CONNECT ALL FIELD DEVICES (CAMERAS, VIDEO VIEWING STATIONS, VMS, VRM AND STORAGE) TO ALLOW FAST AND RELIABLE COMMUNICATION AND DATA TRANSFER OF THE VIDEO MANAGEMENT AND RECORDING SYSTEM. PROVIDE QUANTITY AS REQUIRED TO ACCOMMODATE ALL FIELD DEVICES AND EQUIPMENT. PROVIDE IN A STAR TOPOLOGY WITH THE L3 SWITCH AS THE CORE WITH SUFFICIENT SFP PORTS FOR REDUNDANT 1 GIG LINKS TO EACH REMOTE EQUIPMENT ROOM. PROVIDE MULTIPLE 1 GIG REDUNDANT LINKS AS NECESSARY TO KEEP BANDWIDTH UNDER 60% UTILIZATION.
 - ⑤ NEW ARRAY OF HARD DRIVES IN RAID 6 MINIMUM CONFIGURATION FOR VIDEO RECORDING STORAGE. PROVIDE QUANTITY AND CAPACITY AS REQUIRED TO MEET CONSTRUCTION DOCUMENTS REQUIREMENTS.
 - ⑥ NEW VIDEO MANAGEMENT SYSTEM (VMS) SERVER. THE SERVER SHALL MANAGE ALL VIDEO SYSTEM DEVICES, STORAGE AND NETWORK TRAFFIC FOR THIS FACILITY. COORDINATE WITH THE COUNTY'S SECURITY INTEGRATOR FOR SETTING UP RULES THE MILESTONE SOFTWARE FOR FUTURE INTEGRATION TO THE ELECTRONIC SECURITY CONTROL SYSTEM. THE MILESTONE XPROTECT CORPORATE SITE LICENSE IS BY COUNTY.
 - ⑦ NEW VIDEO VIEWING/MONITORING STATION (55" 1080P LED MONITOR OR 65" 4K LED MONITOR AS NOTED). PROVIDE ALL VIDEO CABLES FOR CONNECTION BETWEEN VIDEO MONITORS AND WORKSTATION.
 - ⑧ CAT6 CABLE HOME RUN USING EXISTING PATHWAYS.
 - ⑨ EXISTING OM1 MULTIMODE FIBER OPTIC BACKBONE.
 - ⑩ THE INTERFACE BETWEEN THE MILESTONE VMS NETWORK AND THE ELECTRONIC SECURITY NETWORK WILL BE A MICRO-PLC PROVIDED BY THE COUNTY'S SECURITY INTEGRATOR UNDER SEPARATE CONTRACT. A DEDICATED ETHERNET PORT SHALL BE PROVIDED FOR THE CONNECTION TO THE VMS VLAN.
 - ⑪ ALTERNATE BID 01: PROVIDE CAMERAS, WIRELESS CLIENTS AND MULTI-POINT TRANSCEIVER FOR LIGHT POLE CAMERAS. PROVIDE ETHERNET SSD DEVICES ON EACH END AND POE INJECTORS WHERE REQUIRED IN A NEMA 4 ENCLOSURE MOUNTED ON THE POLE. ALL COMPONENTS MUST BE RATED FOR WORST CASE HEAT BUILDUP FOR THE LOCATION AND TYPE. PROVIDE A CIRCULATING FAN TO MINIMIZE HOT SPOTS. PROVIDE A TRANSFORMER AT THE POLE TO DERIVE POWER FROM THE EXISTING LIGHTING CIRCUIT.



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VIDEO MANAGEMENT SYSTEM DIAGRAM AND CAMERA SCHEDULE

