



**November 21, 2023**  
**GS# 321-269, Unit 17 Renovations**  
**Mississippi State Penitentiary**

## Addendum No. 2

This addendum forms part of the Contract Documents for the above referenced project. All other requirements of the original Contract Documents shall remain in effect except as specifically modified in this addendum. Bidder is to acknowledge receipt of this addendum with their bid. Failure to do so may subject the Bidder to disqualification.

1. A Pre-Bid Meeting was held on November 14, 2023. See the minutes and attachments for discussion points and other information discussed at this meeting. The Pre-Bid minutes and attachments are included as part of this addendum. The attachments include requirements for this project. The contractor will be responsible for adhering to these and all rules associated with this facility.
  - a. See the attached BOB Instructions to Bidders that were discussed and are part of the minutes/addendum.
  - b. See the attached Meeting Outline that was discussed and are part of the minutes/addendum.
  - c. Addendum #1 was also attached as part of the meeting minutes to make sure that potential bidders were aware of the change in the bid date and location. This is also attached because it was part of the minutes.
  - d. See the attached Discussion Points that were briefly discussed and are part of the minutes/addendum.
  - e. See the attached Magic Instructions to Bidders for electronic bidding requirements that are part of the minutes/addendum.
  - f. See the attached Sign-In Sheet for this meeting.
2. The Contract Time for this project to be substantially complete will now be **210** consecutive calendar days from the Notice to Proceed. This change in Contract Time will apply to the Proposal Form, The Standard Form of Agreement Between The Owner And The Contractor and all other locations in the documents where it may be referenced. A revised Proposal Form is included as part of this addendum that reflects this change. This revised Proposal Form is to be used to provide your bid.

### ELECTRICAL

#### ITEM NUMBER E1

REFERENCE: SPECIFICATION SECTION 260532 – RACEWAYS AND BOXES

ACTION: ADDED PART 1.2K.

- K. New receptacles installed in cells only are to be cut into the wall and fed from within the respective chase in order to be flush with interior of cell wall. The outlets shall be secured within the chase at the top and bottom of the junction box with (2) 12" lengths of Unistrut with Tapcon screws secured to wall and be grouted in as required by Architect.



#### **ITEM NUMBER E2**

- REFERENCE: SPECIFICATION SECTION 262900 – NON-LETHAL, LETHAL ELECTRIFIED FENCE
- ACTION: ADDED PART 1.1B.
- B. There are several components of this system that are already installed at Unit 32 that are acceptable to disconnect and reinstall at this facility. It is the contractor's responsibility to verify existing material quantities and condition for reuse.
- ACTION: REVISED PART 2.7C AS FOLLOWS.
- C. The DeFensor 100 Cable shall be installed along the interior of the interior perimeter fence of the facility by utilizing manufactures standard mounting brackets.

#### **ITEM NUMBER E3**

- REFERENCE: SPECIFICATION SECTION 275124 – DETENTION AUDIO INTERCOMMUNICATION SYSTEM
- ACTION: ADDED PART 1.1E.
- E. Locations of intercom buttons are indicated in conjunction with Door Access Controls. See Door Access Control Detail on Sheet E004.

#### **ITEM NUMBER E4**

- REFERENCE: SPECIFICATION SECTION 282300 – IP SURVEILLANCE SYSTEM
- ACTION: REPLACE SPECIFICATION SECTION IN FULL

#### **ITEM NUMBER E5**

- REFERENCE: SHEET E002 – ELECTRICAL SCHEDULES
- ACTION: REVISED SYSTEMS COORDINATION SCHEDULE.
- ACTION: REVISED IP CAMERA SCHEDULE.

#### **ITEM NUMBER E6**

- REFERENCE: SHEET E004 – ELECTRICAL DETAILS



ACTION: REVISED DOOR ACCESS CONTROL DETAIL.

**ITEM NUMBER E7**

REFERENCE: SHEET E005 – ELECTRICAL DETAILS

ACTION: REVISED LETHAL/NON-LETHAL FENCE SYSTEM ELEVATION.

**ITEM NUMBER E8**

REFERENCE: SHEET E006 – ELECTRICAL DETAILS

ACTION: REVISED FACE MOUNTED BREAKAWAY INSULATOR PIN DETAIL.

ACTION: REVISED BREAKAWAY INSULATOR PIN DETAIL.

**ITEM NUMBER E9**

REFERENCE: SHEET E007 – ELECTRICAL DETAILS

ACTION: REVISED STRAIN POST JUMPERING FRONT VIEW DETAIL.

ACTION: REVISED STRAIN POST JUMPERING LEFT VIEW DETAIL.

ACTION: REVISED STRAIN POST JUMPERING RIGHT VIEW DETAIL.

*Approval of a Manufacturer or product as an "equal" does not in any way alter the Contract Documents. Any approved manufacturer must accommodate construction details, required finishes, owner's specific requirements, adjacent materials, etc. Any additional materials or components required by the "approved equal" for proper installation for the given conditions are the responsibility of the Contractor. Approval of a Manufacturer also shall not cause an up-charge for the desired finish or limit the choices of finishes, colors, materials, etc. Field measurement of existing conditions for the installation of items is the responsibility of the Contractor.*

**Contents:** This addendum consists of **38** (8 ½" x 11") sheets and **5** (24"X36") sheets.

**End of Addendum No. 2 for: GS# 321-269, Unit 17 Renovations**



*Note: Parking is limited, bidders will be required to pass through security, the official time clock is behind the receptionist's desk in the Woolfolk Bldg on the 1<sup>st</sup> floor, Room 117, and no bids will be accepted after 2 pm.*

**GS# 321-269**

**Project Name: Unit 17 Renovations**

**Bid Date: Thursday, November 30, 2023**

## **PRE-BID AGENDA INSTRUCTIONS TO BIDDERS**

### **SECTION 00100**

#### **PART 1 - GENERAL**

- 1.01 QUESTIONS:** Questions should be directed to the Professional. Should a Bidder find discrepancies in or omissions from, the Drawings or Project Manual, or be in doubt as to their meaning, the Bidder should immediately notify the Professional. The Professional will send written instruction(s) or interpretation(s) to all known holders of the documents. Neither the Owner, nor the Professional, will be responsible for any oral instruction or interpretation.
- 1.03 NON-RESIDENT BIDDER:** When a non-resident Bidder (a Contractor whose principal place of business is outside the State of Mississippi) submits a bid for a Mississippi public works project, one of the following is required and shall be submitted with the Proposal Form:
- A. Copy of Law: If the non-resident Bidder's state has a resident Bidder preference law, a copy of that law shall be submitted with the Proposal Form.
  - B. Statement: If the state has no such law then a statement indicating *the State of (Name of State) has non-resident Contractor preference law* shall be submitted with the Proposal Form.
- 1.08 OBLIGATION OF BIDDER:** At tile bid opening, each Bidder will be presumed to have inspected the site, read and become thoroughly familiar with the Drawings and the Project Manual, including all addenda.

#### **PART 2- PROPOSAL FORM**

- 2.02 PROPOSAL FORMS:** The Bidder shall make all proposals on forms provided and shall fill all applicable blank spaces without interlineations or alteration and must not contain recapitulation of the work to be done. No oral or telegraphic proposals will be considered.
- *Make sure your name at Secretary of State and Contractor's Board match.*
- 2.06 ADDENDA:** Any addenda to the Drawings or Project Manual issued before or during the time of bidding shall be included in the proposal and become a part of the Contract. The Proposal Form will have ample space to indicate the receipt of addenda. When completing the Proposal Form, the Bidder shall list the Addendum number and the date received in spaces provided.
- *Note that all addenda's will be issued NO LATER THAN (48) forty-eight hrs before bid time. (Monday, 11/27, at 5 pm)*
  - *Ask Professional if any addenda's are planned.*

#### **PART 4 - BID OPENING AND AWARD OF CONTRACT**

- 4.03 PROTEST:** Any protest must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening.
- *Do not send any protest or errors to the project professional, both must be sent to Owner.*
- 4.04 ERRORS:** Any claim of error and request for release from bid must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening. The Bidder shall provide sufficient documentation with the written request clearly proving an error was made.



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## PART 5 - BIDDER'S CHECKLIST

The following checklist is for the Bidder's assistance only. It is not inclusive and is **not a part of the bid documents**; therefore, this checklist should not be included with the Proposal Form when submitting a bid proposal.

5.01 **PROPOSAL FORM:** (only one original proposal form to be submitted) (also see 3.01 and 600.42 of Manual)  
**Base Bid**

- ☐ Write in the amount of the base bid in words and numbers. The written word shall govern.

**Alternates**

- ☐ Write in each alternates amount in words and numbers. The written word shall govern.

**Addenda**

- ☐ Acknowledge the receipt of each addendum by writing in the number of the addendum and the date received.

**Acceptance**

- ☐ Proposal is signed by authorized person  
☐ Name of Business - complete spelling of bidder's name and address - exact as recorded at the Secretary of State  
[<http://www.sos.state.ms.us/busserv/corp/soskb/csearch.asp>] which should be the same as you applied for at the Mississippi  
State Board of Contractors [<http://www.msdoc.us/Search2.CFM>] (see 2.07, 3.01, 5.01, proposal form)  
☐ Legal address of the business listed above (at SOS and Contractor's Board)  
☐ Correct Certificate of Responsibility Number(s) as it appears in the current Mississippi State Board of Contractors  
Roster

**Certificate of Responsibility Number(s) on envelope (see below for on proposal form)**

- ☐ Base Bid is under \$50,000 and no number is required  
☐ Base Bid is under \$50,000 and the statement "bid does not exceed \$50,000" is on the outside of the sealed envelope  
☐ Base Bid is over \$50,000 and number is required  
☐ Joint Venture and *joint venture* number is required  
**OR** ☐ Joint Venture participants' numbers are required

5.02 **BID SECURITY:**

- ☐ Included Bid Bond  
**OR** ☐ Included Certified Check

5.03 **POWER OF ATTORNEY:**

- ☐ Included Power of Attorney

5.04 **NON-RESIDENT BIDDER:**

- ☐ Attached a Copy of Non-Resident Bidder's Preference Law  
**OR** ☐ Attached a Statement

5.05 **SUB-CONTRACTORS NAME** Refer to 1.04 for responsiveness

- ☐ List your Mechanical and Electrical Contractors regardless of cost  
\* List name even for under \$50,000  
\* Fire Protection Sprinkler Contractors do not have to be listed  
\* If there is a separate HVAC/Plumbing Contractor, so notate as mentioned herein  
\* If Mechanical, Plumbing, and/or Electrical Contractor is performed by the General, be sure the General  
has a COR for said discipline and list General's name on the line and COR number mentioned herein  
**OR** \* If there is no Mechanical, Plumbing, and/or Electrical Contractor, so notate "none" on the line

5.06 **SUB-CONTRACTORS' COR NUMBER** Refer to 1.04 for responsiveness

- ☐ \* List Certificate of Responsibility Number for over \$50,000.00 (also allowed, but not required, for under \$50,000)  
\* If under \$50,000 – so notate on the COR line "under \$50,000" (or can still show COR#)  
**OR** \* If there is no Mechanical, Plumbing, and/or Electrical in Divisions 15 or 16, so notate "none" on the name line and  
the COR# line as mentioned herein

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### Division 0



**GS# 321-269, UNIT 17 RENOVATIONS**  
**Mississippi State Penitentiary @ Parchman**  
Pre-Bid Meeting: November 14, 2023 @ 10:00 am

**Project Contacts:** Barney Poole, Deputy Administrator-Facilities - MDOC  
Heith Newman, Construction Administrator – Bureau of Buildings  
Marcus McClure – Superintendent MSP (Parchman)  
Scott Comish, Project Manager - Shafer Zahner Zahner

**Bid Date:** Thursday, November 30, 2023 at 2:00:00 p.m. @ the Bureau of Building, Grounds and Real Property Management Office in Jackson, MS (see ***Advertisement For Bids, Section 00000*** for official information). Official Time is by the Bureau of Buildings. Electronic bidding is allowed (see Advertisement For Bids for RFx#). See issued addenda for any changes.

**Current Bidders List:** (See attached sign-in sheet for attendance)

**Construction days:** 180 days for project (see *Proposal Form*)  
Notice to Proceed – by B.O.B. Must hold price per specifications.

**Contract Administration:** Architect's representative will be on site regularly.  
BOB construction administrators will visit regularly.  
MSP staff is on site.  
Construction Progress Meetings held monthly as required by Division 1.  
Commissioning- none on this project.

**Construction Access:** All workers, delivery persons, etc. must pass NCIC background check to enter the facility.

**Weekends, Sunday work, holidays, etc.:** There will be no restrictions on days of the week that work is allowed. Weekend work will be allowed with prior notice. In the event of a lockdown or execution, work will not be allowed for the affected period of time.

Restricted "no work" days due to events: only in the event of an execution

Staging Areas/Fencing/Access and Construction Sign: The fenced yard around the Unit can be used for dumpster area, staging and storage. The site must be kept orderly in the event of an execution, the site must be presentable. A lockable job box will be allowed in the areas that are being worked on. The job box must be locked at the end of each day with all tools locked into the box. The MSP staff must be given a key to the lock on the box. Materials can be stored in the area that is being worked on and locked in that pod at the end of the night.

**Scope of work:** A general discussion of the work. discuss and visit site.

**Bidding rules:** Pay attention to *Instructions To Bidders* and Special Conditions  
Bureau of Buildings is the owner- Contract is between BOB and Contractor.

**Common mistakes:** Certificate of Responsibility number on envelope. Acknowledge addenda. Fill out every item in the bid form...if it doesn't apply mark "N/A" or note otherwise.

The exterior door openings must be secured any time that the workers are not on site and at the end of each workday.



November 7, 2023  
GS# 321-269, Unit 17 Renovations  
Mississippi State Penitentiary

## Addendum No. 1

This addendum forms part of the Contract Documents for the above referenced project. All other requirements of the original Contract Documents shall remain in effect except as specifically modified in this addendum. Bidder is to acknowledge receipt of this addendum with their bid. Failure to do so may subject the Bidder to disqualification.

1. The current bid date closely follows the Thanksgiving Holidays. In an effort to better accommodate potential bidders in their efforts to price the work and assemble their sub-contractor pricing, the bid date will be changed as follows:

The following information related to the bid date and time is now changed. These changes apply to any/all locations where they are referenced in the construction documents or otherwise are advertised. This information is primarily designated in Specification Section 00 1100 (Advertisement for Bids). However, this information may be listed in other locations in the specifications or in other communications. All references to Bid Date/Time and location in any location are to be changed to the following:

**Sealed bids will be received electronically via MAGIC or physically delivered to the office of the Bureau of Building, Grounds and Real Property Management, 501 North West Street, First Floor, Room 117 (Woolfolk Building), Jackson, Mississippi, 39201, until 2:00:00 PM (14:00:00 Military Time) on Thursday, 11/30/2023.**

*Approval of a Manufacturer or product as an "equal" does not in any way alter the Contract Documents. Any approved manufacturer must accommodate construction details, required finishes, owner's specific requirements, adjacent materials, etc. Any additional materials or components required by the "approved equal" for proper installation for the given conditions are the responsibility of the Contractor. Approval of a Manufacturer also shall not cause an up-charge for the desired finish or limit the choices of finishes, colors, materials, etc. Field measurement of existing conditions for the installation of items is the responsibility of the Contractor.*

**Contents:** This addendum consists of 1 (8 1/2" x 11") sheets (including this page).

**End of Addendum No. 1 for: GS# 321-269, Unit 17 Renovations**



## **GS# 321-269, UNIT 17 RENOVATIONS**

### **Mississippi State Penitentiary @ Parchman**

**Pre-Bid Meeting:** November 14, 2023 @ 10:00 am

#### **DISCUSSION POINTS:**

#### **General Scope of Work by Area (not a comprehensive description of the work):**

Lethal Electric Fence  
Refurbish Cell Door Controls add new door controls  
Electrical upgrades/lighting throughout  
New lighting throughout  
Plumbing upgrades  
MS ITS work/coordination  
Paint throughout

#### **Site Work**

- Entry Drive/Perimeter drive
- Parking and driveways in the unit fence
- Regrade and drainage work
- Exercise yards

#### **New Gate House**

- With canopy at entry and sally port

#### **Renovate Guard Towers 1 and 3**

- New finishes, windows, etc..
- Plumbing, Mechanical, Electrical
- Refurbish catwalk

#### **Electric Fence Building**

- Lethal Fence Controls
- Lighting
- Paint exterior and exterior repairs
- Addition of Generator Building

#### **West Addition**

- All new finishes (floor, base, paint, lay-in ceiling)
- Refurbish millwork.
- New lighting
- New ADA restroom

#### **Cell Blocks (all four)**

- Floor finish
- Patch concrete at all new drains.
- Renovate all showers
- New janitor sink
- New catwalk support in the plumbing chase



- New lighting
- New plumbing

Kitchen Area

- Patch floor
- Renovate bathroom in Bunk Room
- New shower in bathroom

Visitation Areas (both sides)

- Refurbish walls.
- Repair floor
- paint
- rebuild the counters and visitation windows (west side)
- Refurbish visitation partitions on east side
- New lighting

Front Entry Area

- Finishes
- Paint
- ADA restroom
- Doors and hardware
- Paint exterior
- New exterior signage (letters)
- New lighting on front and at front door.

**THE LIST OF ITEMS THAT WERE SPECIFICALLY MENTIONED DURING THE MEETING WERE NOT ON THE ORIGAL LIST OF DISCUSSION POINTS. SEE BELOW:**

1. ALL WORKERS, DELIVERY PERSONS, ETC. (ANYONE ENTERNG PARCHMAN) MUST PASS AN N.C.I.C. BACKGROUND CHECK PRIOR TO ENTERING THE FRONT GATE. OTHERWISE, THEY WILL NOT BE ALLOWED IN TO THE FACILITY. THE CONTRACTOR SHALL TURN IN FORMS FOR APPROVAL IN A TIMELY MANNER TO GIVE PARCHMAN TIME TO PERFORM THE BACKGROUND CHECK.
2. THE SUCCESSFUL CONTRACTOR (AND HIS SUBCONTRACTORS) MUST UNDERSTAND THE DEFINITIONS FOR "CONTRABAND" THAT IS NOT ALLOWED IN PARCHMAN AND FOLLOW ALL SUCH RULES WHILE ON THE PROPERTY.
3. PHOTOS WILL NOT BE ALLOWED TO BE TAKEN OF THE EXECUTIONI AREAS OR ANY INMATES. PHOTOS ARE TO BE KEPT SECURE (ONLY FOR THE USE OF BIDDING) AND NOT BE DISTRIBUTED.
4. NOTE THAT THERE ARE TWO ALTERNATES TO THE BASE BID.
5. NOTE THAT ADDENDUM #1 CHANGED THE BID DATE AND CLARIFIED THE BID LOCATION. PLEASE BE AWARE THAT THE BID OPENING LOCATION FOR THIS PROJECT IS NOT THE TYPICAL LOCATION FOR THE BUREAU OF BUILDINGS BIDS.
6. IN GENERAL, PATCH ALL WALLS, CEILINGS, FLOORS, ETC. WITH EXISTING DAMAGE, WHERE ITEMS ARE REMOVED, ETC. PRIOR TO PAINTING AND OR REFINISHING.
7. ALL SURFACE MOUNTED CONDUIT, EQUIPMENT, PIPING, SERVICES, ETC ARE TO BE COORDINATED WITH OTHER SUCH ITEMS TO AVOID CONFLICTS AND ALSO T BE MOUNTED AS TIGHTLY TO THE SURFACE AS POSSIBLE.



**STATE OF MISSISSIPPI**  
GOVERNOR PHIL BRYANT

**DEPARTMENT OF FINANCE AND ADMINISTRATION**

Liz Welch  
EXECUTIVE DIRECTOR

**M E M O R A N D U M**

**TO:** Contractors, through the AGC, ABC, and MBOC

**FROM:** Bureau of Building, Grounds and Real Property Management

**DATE:** May 30, 2023 (links modified)

**SUBJECT:** Electronic Construction Bidding per Law effective 1/1/2018

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Beginning January of 2018, the Mississippi Department of Finance and Administration / Bureau of Building Grounds and Real Property Management started receiving construction bids electronically as required by House Bill 1106, Laws of 2017. Electronic bids are at the discretion of the Bidder/Supplier. Paper bids WILL STILL BE received as stipulated in the Advertisement / Request for Bids. The instrument being used to carry out this is a program called MAGIC which is available to all State of Mississippi departments, agencies, and Bidders/Suppliers. (MAGIC is the State's Accounting System.)

**TO BID USING MAGIC:** Potential Bidder/Supplier must first register (see below). When the Bidder/Supplier registers themselves, they will automatically receive their Magic sign-in information. (The Bureau of Building, et al, can assist with this, and, if so, will notify the Bidder/Supplier by email of doing so, so they can contact Magic to get their sign-in information for bidding electronically) Construction Bidders/Suppliers who have received awards in recent years through the Bureau of Building, et al, should already have their company information properly entered. Those companies should still verify that their system "Product Code" is set to "90922" [for construction] in order to receive "system generated Bid Notices" for construction projects. (Bid Opportunities will continue to be in the newspaper, on the Magic Portal, and on the Bureau of Building, et al, web.) When registering, a company should enter their company information EXACTLY as shown per the Mississippi Secretary of State's listing and per their W9. Contact Magic at: [mash@dfa.ms.gov](mailto:mash@dfa.ms.gov) or 601-359-1343. A tutorial is available at: <http://uperform.magic.ms.gov/gm/folder-1.11.7512?originalContext=1.11.8507> (when registering, the MS SoS, MBOC, and W9 should all agree.)

**HOW BIDDER/SUPPLIER REGISTERES THEMSELVES:**

[www.dfa.ms.gov](http://www.dfa.ms.gov)

vendor registration (middle of the page)

down the page to State of Mississippi Supplier Registration

Complete that form

And “send” (top left or bottom of form on left)

This is the current link for the info above: [https://sus.magic.ms.gov/sap/bc/webdynpro/sapsrm/wda\\_e\\_suco\\_sreg?sap-client=100#](https://sus.magic.ms.gov/sap/bc/webdynpro/sapsrm/wda_e_suco_sreg?sap-client=100#)

**TO ADD THE PRODUCT CODE 90922** once in your MAGIC Address Table click the steps below:

1. Click on Suppliers Self Service Tab.
2. Click Company Data.
3. Click the Process Button.
4. Click Add Categories in the Product Categories section
5. Add the product Categories from here (90922 for construction)

**TO VIEW ADVERTISED PROJECT INFORMATION** on line

1. DFA Web site
2. Supplier/Vendor
3. Mississippi Procurement Portal
4. (RFx) Procurement Opportunities and Public Notifications
5. Advanced Search Options
6. Major Procurement Category: Select Construction
7. Dept/Agency: Select MS DEPT FINANCE AND ADMINISTRATION 6. SEARCH

Another option from the DFA/BoB web site is to:

1. Select DFA Offices
2. Select Bureau of Building Grounds and Real Property Management.
3. Bid and RFP Notice
4. Construction Solicitations and Bid Tabs
5. Locate the GS# at left of the list and the RFx number at the right.

On both lists, the RFx number for each project is listed which is required in MAGIC when preparing bids.

For additional information regarding registration in MAGIC, contact MMRS at (601) 359-1343 or by email at [mash@dfa.ms.gov](mailto:mash@dfa.ms.gov).

/pgw



## SIGN IN SHEET

### Bureau of Building, Grounds and Real Property Management

<b>DATE: 11/14/2023</b>			
<b>MEETING FOR:</b>	<b>GS: 321-269</b>	<b>PROJECT NAME: Unit 17 Renovations</b>	
<b>REQUESTED BY:</b>	<input checked="" type="checkbox"/> <b>BoB</b>	<input type="checkbox"/> <b>Professional</b>	<input type="checkbox"/> <b>Using Agency</b>
<b>PURPOSE OF MEETING:</b>	<b>Pre-Bid</b>		

NAME (Please Print)	COMPANY OR ORGANIZATION	WORK NO.	CELL NO.	EMAIL ADDRESS
Heith Newman <i>HN</i>	BoB	601-359-3887	601-622-7245	heith.newman@dfa.ms.gov
Barney Poole	MDOC		601-507-2338	barney.poole@mdoc.state.ms.us
James Walsh	Detection Security	607 727-7177	607 727-0157	Jo.Walsh@detection.com
Chris Andrews	Robinson Electric	662-843-3978	601-540-2792	chris@robinsonelectric.biz
Ryan Childers	Willo Products	256 353 7161	256 580 0166	rchilders@willoproducts.com
Chris Thornton	ITS	601-432-8025	601-951-1385	Chris.Thornton@its.ms.gov
Guy Nelson	Paul Jackson & Son, Inc.	(601) 833-3453	(601) 757-9246	pjsincgc@pauljacksonandson.com
Ryan Powe	SZZ Architects		662 32 7733	rpowe@szzarch.com
Cornelius Ingram	MDOC	662-719-5367	662-719-5367	CIngram@mdoc.state.ms.us
Harold Mitchell	MDOC	662-310-8220	662-310-8220	hmitchell@mdoc.state.ms.us
Scott Conright	AZZ	323-11618	662 617 3866	AXONISA@AZZARCH.COM
David Carroll	DC Services, LLC	662 638-3458	662 202 8336	david@des-build.com



Terry Green	Upchurch Plumbing	662-418-6911		Terry@upchurchplumbing.com
John Benjamin	CLA	662.844.7114	662.871.9286	jbenjamin@corbettlegge.com
Keith Bryant	CLA	662.844.7114		KBRYANT@CORBETLEGGE.COM
Gregory Poole	MSP	(662)588-4685		gpoole@ndoc.state.ms.us
Les Seymour	Live Oak	228-207-0070		les@liveoakengineering.com
Chris Chambers	Tri Star Company	662-528-4440		chambers@tristarcompany.com



# PROPOSAL FORM

## SECTION 00 4200

To: Bureau of Building, Grounds and Real Property Management  
501 North West Street, Suite 1401B [Woolfolk Building]  
Jackson, Mississippi 39201

Re: Project # 321-269  
Project Title Unit 17 Renovations  
Location Mississippi State Penitentiary

I propose to complete all work in accordance with the Project Manual and Drawings within 210 consecutive calendar days for the sum of: (Professional must specify number of days)

**BASE BID:** (Write in the amount of the base bid in words and numbers. In case of conflict, the written word governs.)

Words: \_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**ALTERNATES:** (Write in the amount of all of the alternates in words and numbers. In case of conflict, the written word governs.)

**Alternate #1** ☒ Adds ☐ Deducts  
Words: \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)  
Description What is the additional cost to pave the entrance drive with asphalt as defined on the civil drawings and specifications?  
\_\_\_\_\_

**Alternate #2** ☒ Adds ☐ Deducts  
Words: \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)  
Description What is the additional cost to pave the perimeter road with asphalt as defined on the civil drawings and specifications?  
\_\_\_\_\_

**Alternate #3** ☐ Adds ☐ Deducts  
Words: \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)  
Description \_\_\_\_\_  
\_\_\_\_\_

**Alternate #4** ☐ Adds ☐ Deducts  
Words: \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)  
Description \_\_\_\_\_  
\_\_\_\_\_

**Alternate #5** ☐ Adds ☐ Deducts  
Words: \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)  
Description \_\_\_\_\_  
\_\_\_\_\_

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**ADDENDA ACKNOWLEDGMENT:** (modified dates August 2016)

No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_  
No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_

**ACCEPTANCE:**

I certify that I am authorized to enter into a binding contract, if this Proposal is accepted.

Signature \_\_\_\_\_ Date \_\_\_\_\_  
Name and Title \_\_\_\_\_  
Name of Business \_\_\_\_\_

Complete spelling of bidder's name and address - **exact as recorded at the Secretary of State**

[<http://www.sos.state.ms.us/busserv/corp/soskb/csearch.asp>] which should be the same as you applied for at the Mississippi State Board of

Contractors [<http://www.msdoc.us/Search2.CFM>] (see 2.07, 3.01, 5.01) **PLEASE LOOK IT UP at SoS. SoS rules when the 2 are different.**

Address \_\_\_\_\_ (mailing)

Address \_\_\_\_\_ (physical)

City/State/Zip Code \_\_\_\_\_ County \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

■ **BIDDER'S CERTIFICATE OF RESPONSIBILITY NUMBER(S):** \_\_\_\_\_

■ **MINORITY BUSINESS ENTERPRISE?** Yes \_\_\_\_\_ No \_\_\_\_\_ (to assist with Code 57-1-57)

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■ Attach copy of Non-Resident Bidder's Preference Law (5.04 of Bidder's Checklist)

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■ **Mechanical / Plumbing / Electrical Contractors:** (modified Dec 2013 SoS per 10/17/12 Addendum 1 & Feb 2014; 021219 sub over \$50,000.00; modified 04/06/2020)

Regarding said Divisions of the Specifications of the BoB Standard Form of Agreement Between The Owner and The Contractor: List any Mechanical/Plumbing and/or Electrical Sub-Contractors that will perform work of this contract; regardless of cost even for under \$50,000.00. COR must be included where sub-contract exceeds \$50,000.00. If no sub-contractor is listed, and such work is within scope of contract and over \$50,000.00, bidder's own COR classification(s) must be sufficient to self-perform any such work. If no sub-contractor is listed, then use of sub-contractor to perform such scope will not be permitted. This is in accordance with 5.05 and 5.06 of the Bidder's Checklist.

Mechanical Contractor: \_\_\_\_\_ Certificate of Responsibility No. \_\_\_\_\_  
Plumbing Contractor: \_\_\_\_\_ Certificate of Responsibility No. \_\_\_\_\_  
Electrical Contractor: \_\_\_\_\_ Certificate of Responsibility No. \_\_\_\_\_

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## SECTION 28 23 00 – IP SURVEILLANCE SYSTEM

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes stationary cameras, control equipment, and accessories. While cabling is to be furnished by MDOC, the system shall otherwise be installed, programmed, and commissioned as required to provide a fully operational system.
- B. Related Sections:
  - 1. Section 260526 – Grounding and Bonding.

#### 1.2 SYSTEM DESCRIPTION

- A. Description: Provide video surveillance system - cameras, licenses and related equipment as described herein and as required for a complete system. The intent of this specification is the cameras are compatible with the MDOC's existing Avigilon system and can provide all analytics as listed on the current Avigilon Unity Video Management System technical documentation.
- B. Components:
  - 1. Cameras
  - 2. Cisco Switches
  - 3. NVR(s)
  - 4. Software Licensure

#### 1.3 SUBMITTALS

- A. Submittal procedures. As specified in Architectural Division.
- B. Shop Drawings: Indicate electrical characteristics, connection requirements, and network connections with IP address per device, including system wiring diagram.
- C. Product Data: Submit catalog data showing electrical characteristics and connection requirements for each component.

#### 1.4 CLOSEOUT SUBMITALS

- A. Closeout procedures. As specified in Architectural Division.
- B. Project Record Documents: Record actual locations of cameras.
- C. Operation and Maintenance Data: Submit instructions for operating system and performing routine trouble shooting procedures.

- D. Software: Proof of license registration for software, hardware, firmware, operational, and administrative licenses.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum Five (5) years documented experience, and with service facilities within 100 miles of Project.
- B. Installer: Authorized installer of specified manufacturer with service facilities within 100 miles of Project.

#### 1.6 WARRANTY:

- A. Manufacturer Warranty: Provide manufacturer's warranty covering parts and labor costs to repair or replace part that fail to perform.
  - 1. Warranty Period: 24 months from date of Substantial Completion for parts and labor from date of purchase.
  - 2. Service During Warranty: At no additional cost, provide manufacturer's direct technical support to Owner via phone and email, including the following:
    - a. Access to training and education in the form of documents, videos and other materials via the internet.
    - b. Software maintenance patches and version updates.

#### 1.7 PRE-INSTALLATION MEETINGS

- A. Pre-installation meeting. The contractor shall have a pre-installation meeting to discuss the complete installation of this system with ALL trades. It is critical that all raceways in this project be coordinated very closely in order to minimize exposed raceway and maintain maximum security measures.
- B. Convene at least one week prior to commencing work of this section.

#### 1.8 ENVIRONMENTAL REQUIRMENTS

- A. Material and Equipment. As required for the area where the equipment is installed.
- B. Conform to manufacturer's standard service conditions during and after installation of components.

#### 1.9 PROJECT CONDITIONS

- A. Verify field measurements prior to fabrication.
- B. Racks within the electrical room and gate house are to be sized to accommodate the switching/equipment needs for the cameras. These racks will be provided by UTD.

Installation of equipment and cabling within these spaces MUST be coordinated with MDOC and MS ITS prior to installation.

- C. All cable management and punch downs will be provided by the MS ITS within data rooms.
- D. Route conduits on and in building as required in order to keep routing of CCTV cabling within 300'-0". CCTV cameras on site will utilize PoF (Power of Fiber) – Coordinate these requirements with MS ITS.

#### 1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance of video surveillance system for one year from Date of Substantial Completion. Any damaged equipment shall be replaced at the contractor's expense. This shall include all parts and labor.

### PART 2 - PRODUCTS

#### 2.1 CAMERAS

- A. Basis of Design Manufacturer: Avigilon.
  - 3. Address: 555 Robson St., Vancouver, BC, V6B 1A6, Canada.
  - 4. Phone: (888) 281-5182.
  - 5. Website: [www.avigilon.com](http://www.avigilon.com).
- B. Manufacturer:
  - 1. Avigilon – see IP Camera Schedule on Drawings for camera model numbers.
  - 2. Substitutions must be compatible with MDOC's existing Avigilon system. Verify exact requirements with MDOC.
- C. Product Description: Network surveillance camera.
- D. Performance Specifications: Meet or exceed specifications of specified camera.

#### 2.2 HEAD-END EQUIPMENT / RECORDING SERVERS

- A. Provide the following Server Hardware

Quantity	Model Name	Description
2	NVR5-PRM-192TB-S19-NA	Avigilon NVR5 Series Network Video Recorder, 192TB, Rack kit, NA power cord.

- B. Cisco Power over Ethernet Switches and Related Equipment to be provided by MS ITS.



## 2.3 Network Video Management Software (NVMS)

- B. Description: Provide workstations with a simplified screen layout, intuitive controls, and customizable features that improve multi-person interactions, and include the following features:
  - 1. Video analytics and artificial intelligence (AI) capabilities, including appearance search, analytic event rule triggers, and unusual motion detection technology.
  - 2. Forensic search capabilities with bookmark, event, alarm and thumbnail search options.
  - 3. Easy integration with leading camera and hardware manufacturers.
  - 4. Allows monitoring of live and recorded video over wireless IP networks from Apple or Android mobile devices.
- C. System: Provide a scalable NVMS solution with the following capabilities:
  - 1. 100 servers per site.
  - 2. 300 cameras per server.
  - 3. 10,000 cameras per site.
  - 4. Unlimited client licenses.
- D. Basis of Design Product: Subject to compliance with requirements, provide Avigilon Control Center Enterprise - Version 7.0 by Avigilon.

## 2.4 NETWORK VIDEO MANAGEMENT SOFTWARE (NVMS) FUNCTIONALITY

- E. General: Provide an NVMS software application that can be installed on any open platform hardware and does not require hardware multiplexer or time-division technology for video or audio.
  - 1. Recording Storage Capacity: Expandable without additional licenses.
  - 2. Video Decompression: Decompresses H.264 video through Owner supplied graphics processing unit (GPU).
  - 3. The NVMS server and client software applications can be installed and run on same computer or on separate computers.
  - 4. Languages: Provide software with versions for the following languages:
    - a. Arabic.
    - b. English.
    - c. French.
    - d. German.
    - e. Italian.
    - f. Japanese.
    - g. Korean.
    - h. Spanish.
    - i. Dutch.
  - 5. Secure Transmission: Securely sends video and audio data by transmitting commands and control data via TCP/IP using cryptographic keys based on SSL/TLS to prevent eavesdropping or tampering.
  - 6. Device Connections: Support the recording and management of video and audio sources through use of industry standard protocols, including the following:
    - a. ONVIF Profile S and/or Profile T.
    - b. Select 3rd party proprietary device APIs.

7. De-warping: Supports de-warping of live and recorded video from the following devices:
  - a. Avigilon H5 Fisheye Cameras.
  - b. Supported cameras fitted with an Immervision Panomorph lens.
  - c. From cameras with a fixed fisheye lens, including but not limited to the Oncam Grandeye Evolution line of cameras.
- F. Alarms and Events: Provide the ability to configure and manage alarms and events with the following capabilities:
  8. Defines event triggers that are configured to result in an alarm.
  9. Generates alarms based on the following event types:
    - a. Detect events that occur within a camera's field of view.
    - b. Detect presence of persons within a sensor's range.
    - c. Detect if video or audio signal is lost and alert system administrator.
    - d. Door activity detected by an access control application.
    - e. Notify users of system errors.
    - f. Receive alarms from third party systems (access control, etc.) and configured to be monitored.
    - g. Support receiving digital input triggers and triggering digital outputs from:
      - 1) An input/output board.
      - 2) Supported IP camera, encoder or sensor.
      - 3) Integrated systems, including POS.
  10. Receives events from devices through ONVIF driver.
  11. Configure rules to trigger specific video operations.
  12. Supports receiving Simple Network Management Protocol (SNMP) messages from servers and alert users.
  13. Customizes and forwards alarm and event notifications to the following:
    - a. Users logged into client application.
    - b. Users logged into mobile application.
    - c. Configured email addresses.
    - d. External entities and third-party software, such as central monitoring stations and call centers.
  14. Escalates alarms from one user or group to another if alarm is unacknowledged for a preset duration.
  15. Configures email notifications to the following:
    - a. Notify users and system administrators when an event or system health error occurs.
    - b. Schedule when email notifications are sent.
    - c. Include camera images in email notifications.
  16. Configures Central Station Notifications to the following:
    - a. Notify a central station monitoring service when an event or system health error occurs.
    - b. Include video clips and/or camera images with camera motion, analytic or digital input events.
    - c. Optionally use ANSI/SIA DC-09-2013 standard event notification format
  17. Provides ability to send central monitoring stations periodic heartbeat messages, or regular notification to confirm system connection and that there are no events of note.
  18. Arms or Disarms events and alarms based on a user configurable schedule or specific digital input state.

- G. Event Triggers: Assign actions in response to specific event triggers. Response actions include the following:
  - 19. User Notification Actions:
    - a. Display on-screen message.
    - b. Send an email.
    - c. Send notification to central monitoring station.
    - d. Play a sound.
  - 20. Monitoring Actions:
    - a. Start live streaming video.
    - b. Create bookmark.
    - c. Open a saved view.
    - d. Start live streaming on a virtual matrix monitor.
    - e. Open a map on a virtual matrix monitor.
    - f. Open a web page on a virtual matrix monitor.
  - 21. Device Actions:
    - a. Reboot camera.
    - b. Activate digital output.
    - c. Deactivate digital output.
  - 22. PTZ Actions:
    - a. Go to Preset.
    - b. Go to Home Preset.
    - c. Run a Pattern.
    - d. Set Auxiliary.
    - e. Clear Auxiliary.
  - 23. Alarm actions:
    - a. Trigger an alarm.
    - b. Acknowledge an alarm.
  - 24. Supports conditional event triggers based on selected digital input status.
  - 25. Manually triggers digital output through the following:
    - a. A pre-configured software control.
    - b. A physical trigger that is connected to a supported input/output device.
- H. Video Analytics: Provide configurable classified object detection for each device with self-learning video analytics capabilities.
  - 26. Allows users to connect individual video sources to analytics appliance channels.
  - 27. Allows users to configure events based on classified object motion detection.
  - 28. Allows configured video analytics events to be used as alarm and rule triggers.
  - 29. Allows users to mark classified objects as a true or false detection.
    - a. Transmits collected data to video source to improve accuracy of video analytics device.
  - 30. Support the following video analytic event types when captured by supported cameras:
    - a. Objects in area.
    - b. Object loitering.
    - c. Objects crossing defined line.
    - d. Object appears or enters area.
    - e. Object not present in area.
    - f. Objects enter area.
    - g. Objects leave area.

- h. Object stops in area.
  - i. Anticipated direction of travel is violated.
  - j. Tampering & Scene dramatically changes in an unexpected fashion.
- I. Focus of Attention: Provide functionality which automatically focuses the operator's attention during critical events.
  - 31. Event Handling:
    - a. Classified object motion detection.
    - b. Unusual motion.
    - c. Rule based video analytic events.
    - d. Alarm events.
  - 32. Filtering:
    - a. Event types: Provide a user interface which allows for inclusion or exclusion of unnecessary event types.
    - b. Frequent event handling: Support the identification and exclusion of frequently recurring events on a per-camera and per event basis.
- J. License Plate Recognition (LPR): Support operation of a license plate recognition system that include:
  - 33. Defines region of an image where license plate detection is performed.
  - 34. Stores detected license plates with video data.
  - 35. Support multiple watch lists that are used to create events or alarms when specific license plates are detected.
  - 36. Defines the longest retention period for license plate detections for privacy compliance.
- K. Signal Processing and Compression: Supports storage and processing of video and audio as follows:
  - 37. Natively records camera signals with no transcoding.
  - 38. Supports industry standard video compression formats, including, but not limited to, the following:
    - a. JPEG2000.
    - b. MJPEG.
    - c. MPEG-4.
    - d. H.264.
    - e. H.265.
  - 39. Synchronizes audio and video regardless of frame-rate, resolution or bitrate.
- L. Dynamic Video Stream Management: Performs dynamic video stream management as follows:
  - 40. Provide Avigilon High Definition Stream Management (HDSM)<sup>™</sup>.
  - 41. Reduces system bandwidth and storage usage by only transmitting video to client as determined by the Owner.
  - 42. The client communicates the maximum monitor resolution to the server and the server acts as a video proxy and stream the required video resolution.
  - 43. Tile multi-megapixel videos streams and only transmit requested portion of video stream to the client.
  - 44. Extend recorded video storage by dynamically reducing quality of recorded video over time so video is still viable but uses less storage.
    - a. Reduces JPEG and JPEG2000 video image rate to one half or one quarter of original image rate.

- b. Record both a high-quality stream and a low-quality stream, discarding high quality streams after a set amount of time determined by the Owner.
  - 45. Allow availability of dynamic video stream management to local users, remote users, and mobile devices.
- M. Event Logging: Maintain an event log and allows users to use log events as triggers for specific event actions. Logged events include the following:
  - 46. Server events:
    - a. Server application starting up.
    - b. Server application shutting down.
    - c. Server application terminated unexpectedly.
    - d. Server application low on resources.
    - e. Server application installation error.
    - f. License expires soon.
    - g. License expired.
    - h. Database error.
    - i. Data initialization error.
    - j. Data volume failed.
    - k. Data volume recovered.
    - l. Data volume size reduced.
    - m. Data write error.
    - n. Data upgrade started.
    - o. Data upgrade completed.
    - p. Data upgrade failed.
    - q. Data recovery started.
    - r. Data recovery completed.
    - s. Data recovery failed.
    - t. Bookmark save failed.
    - u. Network connection found.
    - v. Network connection lost.
    - w. Email send error.
    - x. Server hardware event.
    - y. Archiving started.
    - z. Archiving completed.
    - aa. Archiving interrupted.
    - bb. Server connection lost.
    - cc. Analytics server queue full.
    - dd. Analytics server connection lost.
    - ee. LPR service restarted.
    - ff. LPR service terminated unexpectedly.
  - 47. Device Events:
    - a. Connection created.
    - b. Connection removed.
    - c. Connection created to standby server.
    - d. Connection removed from standby server.
    - e. Connection failure.
    - f. Device failed.
    - g. Connection restored.
    - h. Network packet loss unacceptable.
    - i. Network packet loss acceptable.



- j. Motion detection started.
  - k. Motion detection ended.
  - l. Video analytics event started.
  - m. Video analytics event ended.
  - n. Tampering detected.
  - o. Recording started.
  - p. Recording ended.
  - q. Recording interrupted.
  - r. Recording resumed.
  - s. Digital input activated.
  - t. Digital input deactivated.
  - u. Firmware upgrade started.
  - v. Firmware upgrade completed.
  - w. Firmware upgrade failed.
  - x. Obsolete firmware detected.
  - y. User-defined event started.
  - z. User-defined event ended.
  - aa. Presence detected.
  - bb. Presence ended.
  - cc. Presence dwell time exceeded.
  - dd. Presence dwell time ended.
48. User Events:
- a. User login.
  - b. User logout.
  - c. Server setting changed.
  - d. Site setting changed.
  - e. Device setting changed.
  - f. Device connected.
  - g. Device disconnected.
  - h. Digital output triggered.
  - i. Bookmark added.
  - j. Bookmark updated.
  - k. Bookmark deleted.
  - l. PTZ moved.
  - m. PTZ idle.
  - n. Export performed.
  - o. Speaker activated.
  - p. Speaker deactivated.
  - q. Virtual matrix monitor opened.
  - r. Map added.
  - s. Map updated.
  - t. Map deleted.
  - u. View added.
  - v. View updated.
  - w. View deleted.
  - x. Web Page added.
  - y. Web Page updated.
  - z. Web page deleted.
  - aa. Site View updated.
  - bb. Custom keyboard command triggered.
49. Alarm Events:

- a. Alarm acknowledged.
  - b. Alarm auto acknowledged.
  - c. Alarm triggered.
  - d. Alarm assigned.
  - e. Alarm unassigned.
  - f. Alarm purged.
- 50. License Plate Recognition Events:
  - a. License plate detection started.
  - b. License plate detection ended.
  - c. License plate watchlist match.
- N. Storage Management: Allow management of recorded content with the following capabilities:
  - 51. Multiple levels of video storage management:
    - a. Tier 1: Video recorded directly on local server.
    - b. Tier 2: Recorded video continuously archived to long term storage.
    - c. Ad Hoc: Recorded video on local server can be archived on-demand to administrator-defined storage location.
  - 52. Support for the following video and audio recording options:
    - a. Manually triggered recording.
    - b. Pre-event and post-event recording options.
    - c. Reference frame recording option in absence of events.
    - d. Recording schedules that can be defined individually for each video source, including, but not limited to continuous recording.
    - e. Event based recording that is triggered by the following:
      - 1) Pixel or classified object motion.
      - 2) Digital inputs.
      - 3) Alarms.
      - 4) License plates recognition.
    - f. Customized daily and weekly schedule.
- O. Backup and Archiving:
  - 53. Schedules archive of recorded video with associated events to a local folder or mapped network drive.
  - 54. Backs-up settings and configuration for each server, including the following:
    - a. Site settings; such as users/groups, maps and web pages.
    - b. Server settings, including device connections.
    - c. Encrypts backup to maintain security of information.
  - 55. Restores backed-up settings and configurations to a new or replacement server in a site.

## 2.5 NETWORK VIDEO MANAGEMENT SOFTWARE (NVMS) CREDENTIALS AND SECURITY

- P. Authentication: System must require users to be authenticated prior to granting access to the NVMS.
- Q. Customization: Provide access rights that can be tailored to each user or group of users. Access rights include the following:
  - 1. View live images:
    - a. Use PTZ controls.

- b. Lock PTZ controls.
  - c. Trigger manual recording.
  - d. Trigger digital outputs.
  - e. Broadcast to speakers.
- 2. View recorded images:
  - a. Export images.
  - b. Archive images.
  - c. Create teach markers.
- 3. Manage saved views.
- 4. Manage maps.
- 5. Manage web pages.
- 6. Manage virtual matrix monitors.
- 7. Initiate collaboration sessions.
- 8. Manage user sessions.
- 9. Listen to microphones.
- 10. Setup cameras:
  - a. Setup general settings.
  - b. Setup network settings.
  - c. Setup image and display settings.
  - d. Setup compression and image rate settings.
  - e. Setup image dimension settings.
  - f. Setup motion detection settings.
  - g. Setup privacy zone settings.
  - h. Setup manual recording settings.
  - i. Setup digital input & output settings.
  - j. Setup microphone settings.
  - k. Setup speaker settings.
  - l. Setup analytics settings.
  - m. Setup teach by example.
- 11. Setup sites:
  - a. Setup name.
  - b. Manage site.
  - c. Setup site view.
  - d. Setup user and group settings.
  - e. Setup Active Directory Synchronization.
  - f. Setup Corporate Hierarchy.
  - g. Setup alarm management settings.
  - h. Setup POS transaction settings.
  - i. Setup LPR settings.
  - j. Setup email settings.
  - k. Setup rule engine settings.
  - l. View site logs.
  - m. Connect and disconnect devices.
  - n. View Site health.
- 12. Setup servers:
  - a. Manage server.
  - b. Setup schedule settings.
  - c. Setup recording and bandwidth settings.
  - d. Setup Storage Management.
  - e. Backup settings.
  - f. Setup server analytics.

- R. Access Ranking: Provide the ability to rank access rights based on a user's position within a configured hierarchy.
  - 13. Ranked users may only administer changes to users and groups that are subordinate in rank.
  - 14. Corporate hierarchy can be used to enforce authority of a parent site over user and group settings of one or more child sites.
- S. Hierarchical Site families: Allow for the creation and management of parent-child relationships among sites.
  - 15. Child sites may be connected to an appropriately licensed parent site.
  - 16. Parent site will have control over user permission and information of a child site.
  - 17. If a user has access to parent site, child sites are automatically discovered.
- T. Credentials: Allow multiple credentials for system access, including but not limited to:
  - 18. Validation of user credentials and password entered into NVMS user database where user passwords meet a configurable strength requirement.
  - 19. Two-factor authentication of users in the NVMS using time-based One-Time Password (TOTP) and a supported mobile authenticator application used to generate a code on Apple and Android mobile devices.
  - 20. Importing members of Active Directory groups as users in NVMS.
    - a. Automatically synchronizes changes made to members in Active Directory with NVMS.
    - b. Directly adds users imported from Active Directory to existing permission groups.
  - 21. Importing roles from Access Control Manager application.
    - a. Automatically synchronizes changes made to roles in the access control application with NVMS.
    - b. Directly adds users imported from the access control application to existing permission groups.
    - c. Imported users with appropriate privileges will be able to control doors within NVMS.
  - 22. Windows credentials.
- U. Security: Manage and personalize user access as follows:
  - 23. Allow administrators to override user access to an NVR if there are insufficient licenses.
  - 24. Allow administrators to restrict user access to any video recorded earlier than the current login session
  - 25. Allow administrators to restrict user access to high resolution recorded video for privacy compliance.
  - 26. Allow administrators to restrict specific user's access to search features that use what is considered personally identifiable information (PII) for privacy compliance, such as license plates and physical appearance.
  - 27. Allow administrators to define rules that disable video or audio streams from specific devices for privacy compliance.
  - 28. Set client software to automatically log in to multiple sites.
  - 29. Set client software to automatically log out of all sites when application is left idle.
  - 30. Set client software to automatically save and restore last window layout.

31. Set maximum bandwidth of streamed video data from server to client application.
32. Record and permit reporting on user activity including log-in, log-out events, video export requests, live video viewing by camera, access to recorded video by camera.

## 2.6 NETWORK VIDEO MANAGEMENT SOFTWARE (NVMS) COMPATIBILITY

- V. Server Application Compatibility: Provide software compatible with the following server applications:
  1. Avigilon Control Center Server.
  2. ACC Analytics Service.
  3. ACC Web Endpoint.
  4. ACC LPR plug-in (V2).
- W. Desktop Client Software Compatibility: Provide software compatible with the following client applications:
  5. ACC Client.
  6. ACC Virtual Matrix.
  7. Avigilon Player.
- X. Mobile Client Software Compatibility: Provide software compatible with the following mobile device applications:
  8. ACC Mobile 3.x.
    - a. Android version 5.x or later.
    - b. iPad, iPhone and iPod touch with iOS 10 or later.
- Y. Monitoring Sources: See IP Camera Schedule
- Z. Device Discovery and Identification: Detects and systems on network by the following methods:
  9. Automatic: Servers, video and audio sources that are connected to same network as client are automatically discovered.
  10. Search: Servers, video and audio sources running on a different network segment than client can be discovered by searching for device's IP address or hostname.
  11. Parent to Child: By logging into a parent site automatically discovers configured children sites.
  12. Manual Detection: Allows manually discovered server instances, video and audio sources, and access control appliances to be visible to users of a single client workstation.
  13. Network Settings: Identical for all users of a single client workstation.
- AA. Pan-Tilt-Zoom Configuration and Control: Enables and configures PTZ control on RS-485 interface of a video source.
  14. Supports the following PTZ protocols:
    - a. American Dynamics Sensormatic.
    - b. AXSYS.
    - c. AXSYS DCU.
    - d. Ernitec ERNA.
    - e. Honeywell Diamond.
    - f. JVC JCBP.



- g. Kalatel ASCII.
  - h. Pelco D.
  - i. Pelco P.
  - j. TEB Ligne.
  - k. Vicon extended.
  - l. Vicon normal.
  - m. Videotec Legacy.
  - n. Videotec MACRO.
15. Supports pan-tilt-zoom (PTZ) cameras and provides the following:
- a. Supports controlling mechanical PTZ, iris and focus as well as setting presets and patterns.
  - b. Provides ability to name PTZ presets.
  - c. Supports ability to create PTZ guard tours by combining a set number of presets that are run in order or random sequence.
  - d. Supports ability to center a PTZ camera's field of view by clicking anywhere on video image.
  - e. Supports ability to click and drag to define an area for PTZ camera to mechanically zoom and center on.
  - f. Supports controlling mechanical PTZ camera on-screen display and auxiliary controls.
  - g. Support selecting digital image defog levels where supported.
  - h. Support selecting camera day/night operation mode where supported.
  - i. Supports locking PTZ controls.
  - j. Permits a user with a higher rank to override a PTZ control lock.
  - k. Supports using a USB joystick to control PTZ functions.

## 2.7 NETWORK VIDEO MANAGEMENT SOFTWARE (NVMS) USER INTERFACE

- BB. General: Provide a graphic user interface with the following functionality:
- 1. A system tree of video sources in video monitoring tab.
    - a. The system tree display can be configured.
    - b. The system tree can be organized into virtual folders that are represented as branches within site.
    - c. Users can be granted access to individual items or entire folders within system tree.
    - d. Maps, saved views and web pages may be viewed.
  - 2. Client adjustable light and dark theming with settings specific to each application and workstation.
  - 3. Support for collaborative application window sharing within in a joint session among multiple users.
  - 4. Support for an unlimited number of monitors used for monitoring video and audio streams connected to a single workstation.
    - a. Displays all video sources connected to system.
    - b. Support ability to drag and drop items from system tree into video monitoring area.
    - c. Support monitoring live and recorded video and audio streams simultaneously on same monitor.
    - d. Support viewing same live or recorded video stream at different zoom levels and areas of interest.
    - e. Support ability to switch from live to recorded video on demand for an instant replay of recently recorded video.

- f. Support creation of unlimited views with unique layouts of video streams.
  - g. Support ability to toggle between tiled and full-screen view.
  - h. Support ability to save configured display setting.
  - i. Support ability to cycle through views (guard tour) based on a specified interval.
  - j. Supports live or recorded video monitoring of 1 to 64 video streams simultaneously on a single monitor.
  - k. Supports displaying videos streams in the following standard layouts:
    - 1) Full Screen.
    - 2) 2 x 2.
    - 3) 3 x 3.
    - 4) 4 x 4.
    - 5) 5 x 5.
    - 6) 6 x 6.
    - 7) 8 x 8.
    - 8) 1 + 5.
    - 9) 1 + 7.
    - 10) 1 + 12.
    - 11) 2 + 8.
  - l. Provides tools to build custom video monitoring layouts.
- CC. Video Parameter Controls: Support modifications to the following image quality and image rate parameters for each individual video source:
- 5. Video streaming format.
  - 6. System optimized recording profile or manual configuration.
  - 7. Keyframe interval.
  - 8. Secondary stream for live viewing.
  - 9. Configure video streaming at a lower image rate when scene is idle.
  - 10. Customize primary and secondary stream on supported cameras.
- DD. Camera Controls: Provide the ability to change the following supported video options at the client or video source:
- 11. Encrypt camera configuration data if supported by camera.
  - 12. Camera passwords from client application.
  - 13. Exposure, iris, IR filter, backlight compensation, gain, priority, sharpening, saturation, focus, and white balance settings for a video source.
  - 14. Image dimensions for a video source.
  - 15. Rotate image 90, 180 or 270 degrees within a video source.
  - 16. Addition of multiple privacy zones within a video source to block areas from being viewed or recorded in image field of view.
  - 17. Set a maximum duration for manually triggered recording within a video source.
- EE. Audio Controls:
- 18. Provides ability to change input, output, gain and volume for an audio source.
  - 19. Supports use of uni-directional and bi-directional audio.
  - 20. Provides ability to link any audio source to any video source.
    - a. Able to link multiple audio sources to a single video source.
    - b. Able to link an audio source to many video sources.

21. Provides ability to synchronize audio and video on playback.
22. Supports ability to bias displayed video to a lower frame rate or lower image resolution if there is insufficient network bandwidth or processing power.
  - a. Bias shall not affect video recording.
  - b. Bias shall not affect video exports.
23. Supports ability to independently control if audio source is enabled for the user to monitor and if audio source is recorded with the video source
24. Provides a Virtual Matrix application module supporting remote control of multiple monitor displays, including video walls. Displays simultaneous video streams on connected monitor displays from multiple sites.
25. Displays overlays on top of video images.
  - a. Auto-hiding functional overlays that changes depending on video streaming mode and device support. Functional overlays include, but are not limited to, the following:
    - 1) Button to manually trigger video recording / video recording indicator.
    - 2) Button to trigger digital output.
    - 3) Button to capture video snapshot.
    - 4) Button to close video stream.
    - 5) Button to reserve a portion of screen for alarm video.
    - 6) Button to enable audio.
    - 7) Button to display POS transactions.
    - 8) Button to maximize video display.
    - 9) Button to trigger single-camera search.
    - 10) Button to grant door access.
    - 11) Click classified object bounding box to initiate Appearance Search.
    - 12) PTZ controls.
  - b. Information overlays that include, but are not limited to, the following:
    - 1) Camera name.
    - 2) Camera location.
    - 3) Playback timestamp with option of displaying device time or local time.
    - 4) Live timestamp with option of displaying device time or local time.
    - 5) Recording indicator.
    - 6) Motion activity.
    - 7) Video analytics object detection activity with colored bounding boxes around moving objects classified as humans or vehicles.
    - 8) Video analytics unusual motion anomaly detection with colored bounding boxes indicating area of motion.
    - 9) Detected license plate.
26. Supports alarm management operations through video monitoring interface. Including but not limited to:
  - a. Designated tab for reviewing alarms.
  - b. Interface supports sequential viewing of alarms.
  - c. Interface supports sorting of alarms by:
    - 1) Priority.
    - 2) Activation time.
    - 3) Status.
  - d. Interface supports filtering alarms by status in the following priority:

- 1) Assigned to me.
    - 2) Active alarms (unassigned).
    - 3) Alarms assigned to others.
    - 4) Acknowledged alarms.
  - e. Supports ability to assign alarms to user.
  - f. Supports ability to acknowledge alarms.
  - g. Supports ability to bookmark alarms.
  - h. Designate one or more regions in video display area for displaying video directly linked to triggered alarms or rules.
    - 1) Supports ability to acknowledge alarms from designated video display area.
- FF. Site Mapping: Support mapping of the physical locations of cameras and other devices throughout surveillance system.
- 27. Provide maps with the ability to do the following:
    - a. Create a hierarchy of interlinked maps.
    - b. Drag and drop objects in system tree onto map.
    - c. Click and display objects from map.
    - d. Drag and drop a video source from map into video viewing area.
    - e. Display a preset area of selected video source.
    - f. Provide customizable map icons.
    - g. Highlight specific cameras when an alarm linked to camera is triggered.
  - 28. Image Size: 3000px by 3000px or 9 MP, maximum.
  - 29. File Formats: Maps may be created from the following file formats:
    - a. JPEG/JPG.
    - b. BMP.
    - c. PNG.
    - d. GIF.
- GG. Playback of Recorded Video and Audio: Support playback of recorded video and audio with the following features:
- 30. Forward and reverse playback of recorded content at variable speeds.
  - 31. Recorded content plays back synchronously when signal sources are linked.
  - 32. Playback of recorded video from archived long-term storage.
  - 33. The ability to require dual authorization to access features and require specific user groups to request a second user authentication before recorded video may be displayed.
  - 34. Provide the following methods for navigating recorded video:
    - a. Selectable calendar.
    - b. Horizontal, scrollable timeline:
      - 1) Timeline lists all displayed video sources.
      - 2) Timeline highlights motion and events in recorded video.
      - 3) Video archived to long term storage shall be identified on timeline.
      - 4) Supports a timeline that can display down to quarter second increments.
      - 5) Supports a timeline that can synchronize video displayed on multiple tabs to same point in time.
      - 6) Interface supports filtering unusual motion anomaly events on the timeline by rarity, duration and type.

- HH. Search of Recorded Video and Audio: Allow for searching of recorded content with the following functionality:
- 35. Support recorded video search with the following selectable parameters:
    - a. Time.
    - b. Date.
    - c. Event type.
    - d. Visual search based on a pre-defined image area, or image thumbnail:
      - 1) Thumbnails can be based on entire image region or a pre-selected area.
      - 2) Thumbnails can be stacked to support an automatic secondary search when looking at a large timespan of video.
    - e. Pixel motion in user defined areas.
    - f. Classified object motion detection in user defined areas on supported video analytics sources.
    - g. Bookmarks.
    - h. Video source.
    - i. Point of sale transactions.
    - j. Alarm.
    - k. License plate detection events.
  - 36. Support object appearance search across multiple cameras:
    - a. Ability to search for a person or vehicle of interest in recorded video from multiple cameras in the current or alternative site to return possible matches.
      - 1) Automatically enhance person search by utilizing face characteristics to match similar people from supported cameras.
      - 2) Supported cameras with self-learning video analytics capabilities that are connected to an NVR with a supported GPU accessory should be able to return possible matches for search.
    - b. Ability to initiate an appearance search of recorded video for similar persons or similar vehicles based on a specific user selected object in a video scene
    - c. Ability to initiate an appearance search of recorded video by description:
      - 1) Using one or more personal characteristics: gender, age category (child vs adult), hair color, upper body color, lower body color
    - d. Ability to initiate search from recorded video in Client application or dedicated player.
    - e. Supports reviewing search results and confirmation of correct matches.
    - f. Supports editing search parameters including:
      - 1) Cameras included in search.
      - 2) Time range for search.
    - g. Supports playback of search results, including:
      - 1) Recorded video associated with individual results.
      - 2) Sequential playback of recorded video associated with confirmed to be correct matches.
    - h. Supports exporting video associated with results, including:
      - 1) Recorded video associated with one of more selected results.
      - 2) Recorded video associated with confirmed to be correct matches.
      - 3) Redacting video for privacy to blur the resulting video except for the objects selected in the results

- i. Supports creation of bookmarks for results, including:
      - 1) One or more selected results.
      - 2) Confirmed to be correct matches.
- II. Bookmarking:
  - 37. Supports creating bookmarks for recorded video and audio. Bookmarks can be:
    - a. Viewed from multiple sources.
    - b. Displayed on timeline during playback.
    - c. Used as a search criteria for recorded video and audio. Search criteria can include but are not limited to:
      - 1) Name.
      - 2) Description.
      - 3) Bookmark creator.
    - d. Supports protecting a bookmark so associated video and audio data is never overwritten.
    - e. Supports private bookmarks that are only visible to user who designated bookmark as private, and system administrator.
- JJ. Media Exporting: Support the ability to export media and provide the following options:
  - 38. Exports recorded video in the following formats:
    - a. Native (AVE).
    - b. JPEG.
    - c. PNG.
    - d. TIFF.
    - e. AVI.
    - f. Print.
  - 39. Exports recorded audio in the following formats:
    - a. WAV.
    - b. Native (AVE).
    - c. AVI.
  - 40. Exports a still frame of video as displayed in video preview area:
    - a. Native (AVE).
    - b. JPEG.
    - c. PNG.
    - d. TIFF.
  - 41. Native (AVE) format exported as follows:
    - a. Digitally sign recorded video and audio using 256-bit encryption so video can be authenticated for evidentiary purposes.
    - b. Protect exported video with a password meeting configurable strength requirement.
    - c. Able to export video from one or multiple camera streams simultaneously.
    - d. Supports exporting multiple video segments from different spans of time.
    - e. Supports reviewing of exported or backed-up video and audio in a dedicated player.
    - f. Supports playback of exported clips in synchronized, sequential time.
    - g. Supports playback of multiple clips in continuous, sequential order.
    - h. Supports exporting of video in lower frame-rates than originally recorded.

- i. Supports exporting of a designated area from camera's recorded field of view.
  - j. Supports re-export into Native or other supported formats.
  - k. Provides a record of video source with the following metadata:
    - 1) Camera model.
    - 2) Firmware version.
    - 3) Location.
    - 4) MAC address.
    - 5) Serial number.
    - 6) Resolution.
- KK. Version Upgrade: Provide a process for upgrading versions:
- 42. Upgrading server software shall not require physical access to servers.
    - a. Launch upgrades from client interface.
    - b. All connected servers and clients shall receive a distribution of new version upgrade.
      - 1) The administrator can manually trigger upgrade of each server.
    - c. The user shall be able to monitor upgrade progress from client interface.
  - 43. Upgrading number of connected devices or upgrading to enterprise version only requires a change in license key.
  - 44. Upgrade from one version to another occurs without having to uninstall application and previous version.
  - 45. Automatically upgrade connected video or audio source device firmware if applicable.
  - 46. Automatically prompt user to upgrade client application if it is out of date with respect to server software.

## 2.8 HARDWARE

- LL. Supported Applications:
- 1. Summary: Preload NVMS applications in the following Avigilon hardware:
    - a. Avigilon NVR5 Network Video Recorder.
- MM. Peripherals:
- 2. The NVMS provides ability to control client application using the following types of peripherals:
    - a. A USB keyboard and/or mouse
    - b. A USB joystick.
    - c. A PTZ controller keyboard.

## 2.9 LICENSES

- A. Provide enterprise edition licenses for each camera provided on this project compatible with the existing Avigilon system. Verify all requirements with MDOC.

## 2.12 CABLING & RACEWAY

- A. CAT6 and PoF (Provided by MS ITS) shall be routed in conduit (1" minimum). Cabling may not be routed exposed except where they terminate at the racks.

- B. MS ITS to provide biscuit boxes or fiber to ethernet conductors.
- C. Provide CAT6 patch cable to connection point established by MS ITS.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Provide mounts for specified cameras per camera type. See CCTV Camera Schedule on Drawings of the Construction Drawings for specific installation instructions. Verify all mount types and mounting elevations with MDOC prior to installation.
- B. Ground and bond video surveillance equipment in accordance with Section 260526.
- C. Install system according to manufacturer's written instructions.
- D. Systems Integration:
  - 1. Develop, install, and test software and databases for complete and proper operation of systems involved.
  - 2. Setup and program entire system such that no additional programming is required including setup all available software features.
  - 3. Setup program and test analytics, rules and events on all perimeter cameras, Focus of Attention interface, covering all fence lines and perimeter layouts to the end user requirements.
  - 4. Perform a full system back-up at completion of initial programming and deliver configuration to Owner.
  - 5. Perform field software changes after the initial programming session to "fine tune" operating parameters and sequence of operations based on revisions to the Owner's operating requirements.
- E. Test equipment and configure system in accordance with instructions provided by manufacturer prior to installation.
- F. Provide products with latest and most up-to-date firmware by manufacturer or provide firmware of a version as specified by provider of Video Management Appliance (VMA) or Network Video Recorder (NVR).
- G. Review configurable features of device with Owner's Representative and establish a punch list for standard, device specific, location specific and VMA/NVR specific configuration of device(s).
  - 1. Program and configure devices in accordance with this punch list so no additional programming is required for operation by user.
- H. Configure equipment requiring users to log on using a password with user/site-specific password/passwords. No system/product default passwords allowed.



### 3.2 MANUFACTURER'S FIELD SERVICES

- A. Furnish manufacturer's field representative to supervise final wiring connections and system adjustments.









### 3.3 ADJUSTING

- A. Requirements for starting and adjusting shall be made as required for a complete and operable system. Camera angles and views to be approved by MDOC.
- B. Adjust and configure cameras per manufacturers specifications per device.
- C. Contractor shall return thirty days (30 days) after final project signoff to perform a final system calibration and fine tuning of camera views, angles, and other minor adjusts as requested by the end user.

### 3.4 CLOSEOUT ACTIVITIES

- A. Demonstration:
  - 1. Administration and operation of devices described by this section.
  - 2. How to authorize users and applications to operate and configure installed devices.
  - 3. How an authorized user can gain access to and make changes to configuration.
  - 4. How to operate functionality configured for this project as defined by configuration punch list.
- B. Fine Tuning:
  - 1. Perform field software changes after initial programming session to "fine tune" operating parameters and sequence of operations based on any revisions to Owner's operating requirements.
- C. License Assignment:
  - 1. Register software, hardware, firmware, operational or administrative licenses necessary for to operate or administer devices to Owner.
  - 2. Deliver to Owner's Representative proof of license registration from product manufacturer.
- D. Device Configuration Backup:
  - 1. Using manufacturer's backup software tool or VMA/NVR, perform a full system back-up at completion of initial programming.
- E. Deliver configuration backup files, restoration application and instructions detailing for restoration of back-up configuration.
- F. Furnish 4 hours of instruction each for MDOC personnel, to be conducted at project site with manufacturer's representative, manufacturer's training facility. All training must be video- by the contractor and included in the O&M manuals.

END OF SECTION 282300

IP CAMERA SCHEDULE		
SYMBOL	DESCRIPTION	MOUNTING
	CCTV CAMERA - 270 DEG. MULTI-SENSOR (AVIGILON MODEL # 24C-H5A-3MH OR EQUAL)	CORNER MOUNT ADAPTERS
	CCTV CAMERA - 360 DEG. FISHEYE (AVIGILON MODEL # 12.0W-H5A-FE-DO1-1R OR EQUAL)	SURFACE
	CCTV CAMERA - CORNER (AVIGILON MODEL # 3.0C-H5A-CR2-1R OR EQUAL)	CORNER / SURFACE
	CCTV CAMERA - DUAL HEAD (AVIGILON MODEL # 10.0C-H5DH-DO1-1R OR EQUAL)	SURFACE
	CCTV CAMERA - SINGLE IMAGER CAMERA (AVIGILON MODEL # 2.0C-H6A-DO-1R OR EQUAL)	PENDANT
	CCTV CAMERA - 360 DEG. MULTI-SENSOR (AVIGILON MODEL # 20C-H5A-4MH OR EQUAL)	SURFACE
	CCTV CAMERA - RUGGED PTZ (AVIGILON MODEL # 4.0C-H5A-RGDPTZ-DP36 OR EQUAL)	PENDANT
	CCTV CAMERA - EXTERIOR THERMAL (AVIGILON MODEL # 640S-H4A-THC-B012 OR EQUAL)	WALL

LIGHT FIXTURE SCHEDULE								
TYPE MARK	MANUFACTURER	CATALOG NUMBER	VOLTAGE	VA	LUMENS	CCT	MOUNTING	DESCRIPTION
1	SHATRSHIELD	042-VR-35-WL-Y-VL-SS-UR-00-TB-00-01	277	42	3600	3500K	SURFACE	VANDAL-RESISTANT LED CORRECTIONAL CELL LIGHT
2	SHATRSHIELD	04-LR-40-CM-N-VH-S2-UR-	277	40	4200	4000K	SURFACE	VANDAL-RESISTANT LINEAR LED
3	SHATRSHIELD	32-H20-40-CL-F-VH-SS-PC-TB-00-01	277	32	2650	4000K	SURFACE	VANDAL-RESISTANT LED SHOWER LIGHT
4	SHATRSHIELD	042-VR-35-CL-N-VL-SS-UR-00-00-01	277	42	3600	3500K	SURFACE	VANDAL-RESISTANT LED CORRECTIONAL CELL LIGHT
5	FAIL-SAFE	FVS8--M-4-LD4-2-L-O-35-120-P125-EDC1	277	46	5221	3500K	SURFACE	4' LED VANDAL RESISTANT WRAP
6	FAIL-SAFE	FVS4W-M-2-LD4-1-STD-35-120-P125-EDC	277	17	1756	3500K	WALL	2' LED WALL BRACKET
7	FAIL-SAFE	4SNLED-LD5-49SL-LC-UNV-L835-CD-1	277	38	5051	3500K	SURFACE	4' LED STRIP LIGHT
8	METALUX	22CZ2--44-S-UNV-L835-CD-1	277	33	4462	3500K	RECESSED	2' X 2' LED TROFFER
9	LUMARK	WPMLED15-C	277	49	6203	5000K	WALL MOUNTED	LED WALL PACK.
10	METALUX	4VT3-LD5-5-G-UNV-L835-CD1	277	44	5000	3500K	SURFACE	4' LED VAPOR-TITE
11	KIRLIN	LKS-08074-6500L-40K-MFL	277	73	5987	4100K	RECESSED	LED EXTERIOR RECESS
12	KIRLIN	LWC-07SDI-3000L-3000U-MFL-MFU-50K-UNV-XX	277	55	3386	5000K	WALL MOUNTED 8'-6" A.F.F. CL	LED WALL LANTERN
13	METALUX	W4WPLD0435C	277	39	4557	3500K	SURFACE	LED WRAPAROUND
14	PARAFLEX	PGC100-100W-50K	277	102	12,708	5000K	SURFACE	LED CANOPY FIXTURE
XI	FAIL-SAFE	EXL-6-1-RW-XX-VRSD	463	N/A	N/A	N/A	WALL	LED VANDAL-RESISTANT EXIT SIGN
NOTES:  1. FINISHES TO BE SELECTED BY ARCHITECT FOR ALL FIXTURES WITH EXPOSED FINISH. PROVIDE COLOR/FINISH CHARTS FOR ARCHITECT'S REVIEW.  2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH REFLECTED CEILING PLANS AND PROVIDING ALL THE NECESSARY FRAMES AND RELATED ITEMS AS REQUIRED FOR THE MOUNTING OF THE LIGHT FIXTURES PER THE PLANS. INCLUDE ALL COST ASSOCIATED WITH THIS IN THE COST OF THIS PROJECT. NO CHANGE ORDER WILL BE PROCESSED FOR FIXTURE MODIFICATIONS. THE CONTRACTOR SHALL PAY CLOSE ATTENTION TO THE USE OF "NARROW GRID" CEILINGS AND PROVIDE THE NECESSARY FRAMES FOR THE FIXTURES AS REQUIRED FOR PROPER INSTALLATION.  3. PROVIDE FIXTURE WHIPS WITH ALL NECESSARY CONDUCTORS FOR FIXTURE POWER AND 0-10V DIMMING IF REQUIRED.  4. AIMABLE FIXTURES TO BE AIMED IN THE PRESENCE OF ARCHITECT OR ENGINEER.  5. PROVIDE UL924 AUTOMATIC TRANSFER DEVICES WHERE REQUIRED ON LIFE SAFETY CIRCUITS TO ILLUMINATE ALL FIXTURES, UPON TRANSFER OF POWER FROM NORMAL TO GENERATOR, TO 100%.								

SYSTEMS COORDINATION SCHEDULE										
SYSTEM	DEVICE TYPE	SYSTEM FURNISHED BY	SYSTEM INSTALLED BY	ROUGH-IN PROVIDED BY	BOX SIZE	BOX DEPTH	WIRING BETWEEN DEVICES BY	FULL CONDUIT	CONDUIT STUB	REMARKS
DOOR ACCESS CONTROL	COMPLETE SYSTEM	DOOR HARDWARE VENDOR	DOOR HARDWARE VENDOR	ELECTRICAL CONT	NOTE #5	NOTE #5	NOTE #4	X		ELECT CONTRACTOR PROVIDES ROUGH-IN ONLY - SEE NOTE #6
CCTV	CAMERAS (ALL TYPES)	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #5	NOTE #5	MDOC ITS	X		ELECT CONTR PROVIDES CAMERAS, MOUNTS, & LICENSES
CCTV	HEAD-END EQUIPMENT	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	ELECT CONTR PROVIDES COMPLETE SYSTEM
CCTV	RACKS	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
CCTV	CABLE MGMT AND PUNCH DOWNS	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
FIRE ALARM	PULL STATION	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	A/V DEVICE (SPEAKER - LIGHT)	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	FLASHING LIGHT ONLY	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	HEAT DETECTOR	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	HEAT/CO DETECTOR	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	SMOKE DETECTOR - CEILING	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	SMOKE/CO DETECTOR - CEILING	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	SMOKE DETECTOR - DUCT	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	HEAD-END EQUIPMENT	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
FIRE ALARM	AUDIO/VISUAL INTERFACES	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #3	NOTE #3	ELECTRICAL CONT	X		COORD TERMINATION AT AV INTERFACE WITH AV CONTRACTOR
VOICE DATA	WORKSTATION OUTLETS	MDOC ITS	MDOC ITS	ELECTRICAL CONT	NOTE #1	NOTE #2	MDOC ITS	X		ELECT CONTRACTOR PROVIDES ROUGH-IN
VOICE DATA	FIBER DISTRIBUTION	MDOC ITS	MDOC ITS	ELECTRICAL CONT	N/A	N/A	MDOC ITS	X		ELECT CONTRACTOR PROVIDES ROUGH-IN ONLY
VOICE DATA	RACKS & WIRE MGMT	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
VOICE DATA	WIRELESS	MDOC ITS	MDOC ITS	ELECTRICAL CONT	NOTE #1	NOTE #2	MDOC ITS	X		ELECT CONTRACTOR PROVIDES ROUGH-IN ONLY
VOICE DATA	PATCH PANELS	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
VOICE DATA	PATCH CABLES	MDOC ITS	MDOC ITS	N/A	N/A	N/A	N/A	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
VOICE DATA	NETWORK SWITCHES	MDOC ITS	MDOC ITS	N/A	N/A	N/A	MDOC ITS	N/A	N/A	MDOC ITS PROVIDES COMPLETE SYSTEM
MATV	TELEVISION OUTLET	MDOC ITS	MDOC ITS	ELECTRICAL CONT	NOTE #1	NOTE #2	MDOC ITS	X		ELECT CONTRACTOR PROVIDES ROUGH-IN ONLY
INTERCOM	OPERATOR CONSOLE	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	N/A	N/A	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
INTERCOM	HEAD-END EQUIPMENT	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	N/A	N/A	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
INTERCOM	AMPLIFIER	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	N/A	N/A	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM
INTERCOM	PUSHBUTTON / SPEAKER (RTO)	ELECTRICAL CONT	ELECTRICAL CONT	ELECTRICAL CONT	NOTE #5	NOTE #5	ELECTRICAL CONT	X		ELECT CONTRACTOR PROVIDES COMPLETE SYSTEM

NOTES:

1. 5 SQUARE BACKBOX (RANDL IND. T-55017) WITH SINGLE GANG PLASTER RING

2. 2.875" DEEP

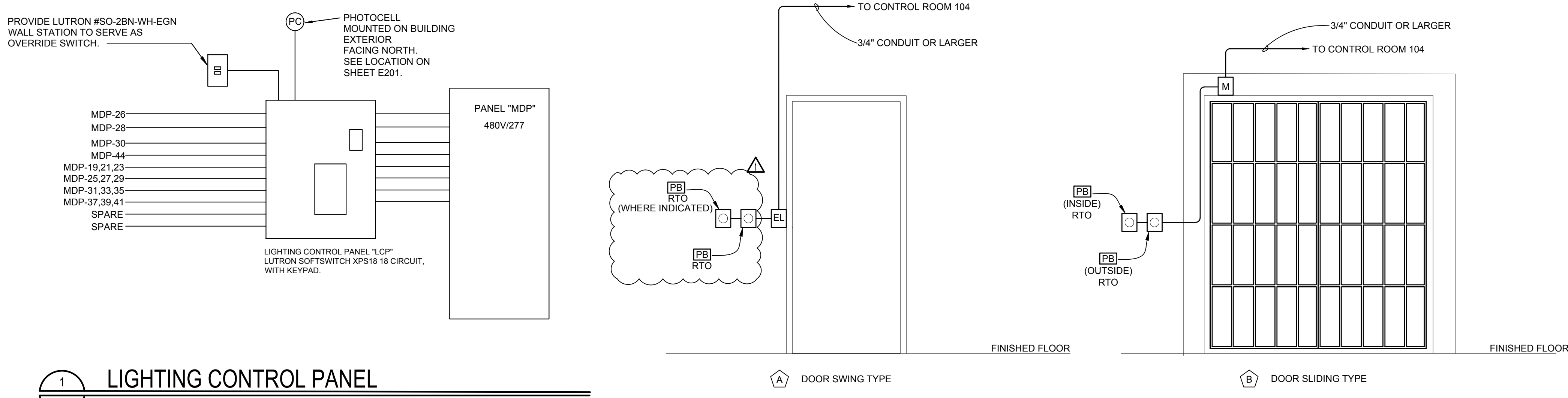
3. REFER TO SPEC SECTION 283111 FOR VENDOR REQUIREMENTS FOR EACH DEVICE TYPE.

4. CABLING FURNISHED AND INSTALLED BY DOOR HARDWARE VENDOR.

5. COORDINATE EXACT SIZE WITH VENDOR.

6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE DOOR HARDWARE VENDOR AND PROVIDE ROUGH-INS AS DIRECTED.





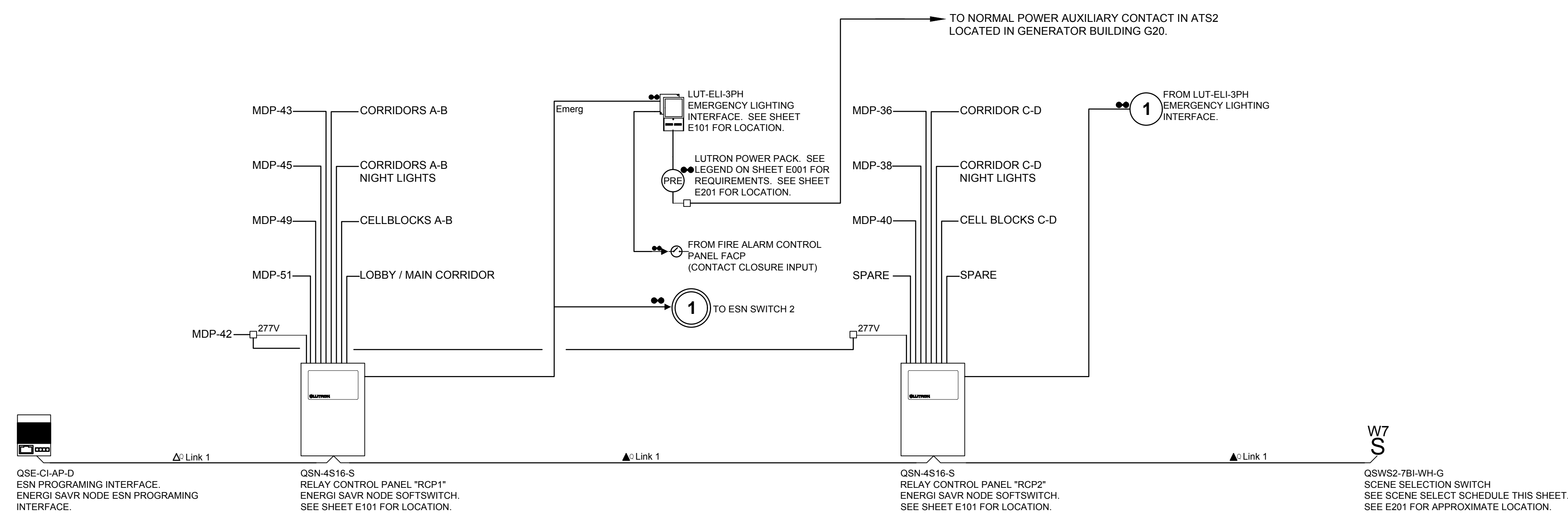
1 LIGHTING CONTROL PANEL  
E004 N.T.S.

DOOR ACCESS CONTROL / INTERCOM LEGEND				
SYMBOL	DESCRIPTION	MOUNTING	CONDUIT SIZE	BOX TYPE
[PB] RTO	PUSH BUTTON / INTERCOM SPEAKER STATION INSTALL OUT OF SWING PATH OF DOOR. COORDINATE EXACT LOCATION WITH ARCHITECT.	WALL AT 46" A.F.F. TO 6" U.O.N.	3/4" OR LARGER	4" SQUARE
[M]	SLIDING DOOR MOTOR	...	...	...
EL	ELECTRIFIED LOCK	MOUNT PER VENDOR RECOMMENDATIONS	3/4" OR LARGER	N/A
[A]	DOOR DETAIL DESIGNATION	...	...	...

DOOR ACCESS CONTROL NOTES:  
1. SEE SPECIFICATIONS SECTION 281500 FOR ACCESS CONTROL COMPONENT AND CABLING MODEL NUMBERS AND REQUIREMENTS.  
2. COORDINATE ALL ROUGH-INS WITH SECTION 087100 PRIOR TO WORK BEING PERFORMED.  
3. COORDINATE ALL BACKBOX LOCATIONS WITH ARCHITECT AND DOOR HARDWARE VENDOR PRIOR TO ROUGH IN.  
4. ELECTRICAL CONTRACTOR SHALL COORDINATE SECURITY REQUIREMENTS WITH THE GENERAL CONTRACTOR.  
5. REFER TO SYSTEMS COORDINATION SCHEDULE.  
6. ALL INTERCOM WIRING TO BE ROUTED WITH DOOR ACCESS CONTROL WIRING.

GENERAL NOTES:  
1. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL NEW CONSTRUCTION WITH THE GENERAL CONTRACTOR & OTHER TRADES.

2 DOOR ACCESS CONTROL DETAIL  
E004 N.T.S.



QSE-CI-AP-D ESN PROGRAMING INTERFACE.  
ENERGI SAVR NODE ESN PROGRAMING INTERFACE.

**NOTES ON WIRING**  
**QS CONTROL LINK**  
THE QS CONTROL LINK HAS A FREE WIRING TOPOLOGY (DAISY CHAIN, T-TAP, ETC). THE SYSTEM WIRING ILLUSTRATED BY THIS DRAWING HAS BEEN LAID OUT TO ENSURE APPROPRIATE POWER TO EACH DEVICE. IF FOR ANY REASON THE SYSTEM IS TO BE WIRED DIFFERENTLY THAN WHAT IS SHOWN, PLEASE CONFIRM ALL DEVICE POWER REQUIREMENTS ARE MET (PLEASE REFER TO "QS LINK POWER REQUIREMENTS" FOR INDIVIDUAL DEVICE POWER REQUIREMENTS).  
FOR QS CONTROL WIRE LENGTHS TOTALING LESS THAN 500 FT (153 M), USE LUTRON CABLE GRX-CBL-346S (4 CONDUCTOR NON-PLENUM), OR GRX-PCBL-346S (4 CONDUCTOR PLENUM). OTHERWISE USE 2 #18 AWG (1.0 SQ MM) + 2 #22 AWG (0.5 SQ MM) TWISTED AND SHIELDED OR EQUIVALENT (BELDEN #9461). FOR QS CONTROL WIRE LENGTHS TOTALING UP TO 2,000 FT, USE GRX-CBL-46L (5 CONDUCTOR NON-PLENUM) OR GRX-PCBL-46L (5 CONDUCTOR PLENUM). TOTAL QS CONTROL WIRE LENGTH MUST NOT EXCEED 2,000 FT (600 M).

WIRE LEGEND	
△ QS CONTROL LINK (CONNECT WIRES 1, 2, 3 AND 4)*	∞ 3#18 AWG (1.0 SQ MM)
▲ QS CONTROL LINK (CONNECT WIRES 1, 3 AND 4. DO NOT CONNECT WIRE 2)*	◇ ECOSYSTEM BUS/LOOP*
▽ PANEL CONTROL LINK (CONNECT WIRES 1, 2, 3, 4 AND 5)*	◆ DALI LOOP
▼ PANEL CONTROL LINK (CONNECT WIRES 1, 2, 3 AND 4. DO NOT CONNECT WIRE #5)*	◇ T-SERIES TUNABLE-WHITE LOOP
▷ PANEL CONTROL LINK (CONNECT WIRES 1, 3, 4 AND 5. DO NOT CONNECT WIRE #2)*	⌵ LUTRON SENSOR CABLE C-CBL-522S OR USE 4#22 AWG (1.0 SQ MM)
◁ QS SIVOIA SHADE CONTROL LINK*	⌵ LUTRON SENSOR CABLE C-CBL-522S OR USE 3#22 AWG (1.0 SQ MM)
▲ BELDEN CABLE 1387LA(OR EQUIVALENT)	DMX CABLE. USE LUTRON GRX-CBL-DMX-250/GRX-CBL-DMX-500 OR BELDEN #9729 (NON-PLENUM) OR BELDEN #89729 (PLENUM) OR DURA FLEX 22/4 WA CABLE.
□ NORMAL INPUT POWER 2 #12 AWG (4 SQ MM) + GROUND	ETHERNET CABLE. CAT5E OR BETTER CABLE FOR LUTRON NETWORK TERMINATED WITH RJ45 CONNECTORS (NOT PROVIDED BY LUTRON). 328 FT (100 M) MAXIMUM RUN.
■ NORMAL-EMERGENCY INPUT POWER 2 #12 AWG (4 SQ MM) + GROUND	FIBER OPTIC CABLE FOR LUTRON NETWORK TERMINATED WITH APPROPRIATE FIBER OPTIC CONNECTORS (NOT PROVIDED BY LUTRON). REQUIRES DEDICATED FIBER OPTIC LINK (SINGLE-MODE OR MULTH-MODE)
③ 3 PHASE 4 WIRE INPUT POWER, 4 #12 AWG (4 SQ MM) + GROUND	--- RF CONNECTION
● 2 #12 AWG (4 SQ MM) + GROUND	— WIRED CONNECTION
○ 3 #12 AWG (4 SQ MM) + GROUND	
◆ 0-10 V SIGNAL: 2#18AWG (1.0 SQ MM)	
● 2#18 AWG (1.0 SQ MM)	

QS LINK POWER REQUIREMENTS	
DEVICE	PDUS
QS DEVICES THAT SUPPLY PDU	
DIN RAIL POWER SUPPLY	+75
MYROOM DIN RAIL POWER SUPPLY	+30
QS PLUG-IN POWER SUPPLY, QS J-BOX POWER SUPPLY	+8
ENERGI SAVR NODE WITH ECOSYSTEM, ENERGI SAVR NODE WITH DALI, ENERGI SAVR NODE WITH T-SERIES TUNABLE-WHITE	+30
ENERGI SAVR NODE FOR 0-10 V, ENERGI SAVR NODE WITH SOFTSWITCH, ENERGI SAVR NODE FOR 0-10 V (DIN RAIL), ENERGI SAVR NODE WITH SOFTSWITCH (DIN RAIL)	+14
1 A MYROOM DIN RAIL POWER MODULE SWITCHING, 1 A MYROOM DIN RAIL POWER MODULE PHASE ADAPTIVE	+4
ENERGI SAVR NODE WITH DALI (DIN RAIL), ENERGI SAVR NODE WITH ECOSYSTEM (DIN RAIL)	+3
ENERGI SAVR NODE PHASE ADAPTIVE (DIN RAIL), QS MOTOR GROUP CONTROLLER (DIN RAIL), HOMEWORKS QS DIN RAIL POWER MODULES	0
GRAFIK EYE QS (ALL MODELS EXCEPT GRAFIK EYE QS DALI WITH KNX), QS TIMECLOCK	+3
QP2 QUANTUM LIGHTING HUB	LINK A : 0 LINKS B,C,D : +33 EACH
QP3 QUANTUM LIGHTING HUB	LINKS A,B : +33 EACH
TWO PROCESSOR LIGHTING HUB (QP5)	LINKS A,B,C,D : +33 EACH
SINGLE PROCESSOR LIGHTING HUB (QP5), 2-LINK PROCESSOR (QP-2L)	LINKS A,B : +33 EACH
1-LINK PROCESSOR LIGHTING HUB (QP6), 1-LINK PROCESSOR LIGHTING HUB (QP5), 1-LINK PROCESSOR (QP-1L)	LINKS A : +33 EACH
QS DEVICES THAT CONSUME PDU	
QS WALLSTATION (SEETOUCH, ARCHITRAVE, SIGNATURE SERIES, QS PICO, KEYSWITCH, SINGLE COLUMN PALLADIOM), QS SLIDER, GRAFIK T SLIDER, QS INFRARED (IR) EYE, WALLBOX INPUT CLOSURE INTERFACE	-1
QS NETWORK INTERFACE, QS DMX INTERFACE, ENERGI SAVR NODE PROGRAMMING INTERFACE, QS WALLSTATION (DOUBLE COLUMN PALLADIOM)	-2
QS SENSOR MODULE (QSM), NOT INCLUDING ATTACHED WIRED SENSORS (SEE SECTION BELOW FOR MORE INFORMATION), QS CONTACT CLOSURE INTERFACE, PALLADIOM ROOM THERMOSTAT	-3
GUESTROOM CONTROL UNIT	-8
SENSORS & DEVICES THAT CONSUME PDUS WHEN WIRED TO A QSM	
LUTRON DAYLIGHT SENSOR, LUTRON INFRARED (IR) RECEIVER, PICO WIRED CONTROLLER	-0.5
ECOSYSTEM WALLSTATION	-1
LOS C SERIES OCCUPANCY SENSOR, HIGH BAY OCCUPANCY SENSOR	-2

3 LIGHTING RELAY CONTROL PANELS RCP1 AND RCP2 DETAIL  
E004 N.T.S.

GS# 321-269  
UNIT 17 RENOVATIONS  
MISSISSIPPI STATE PENITENTIARY



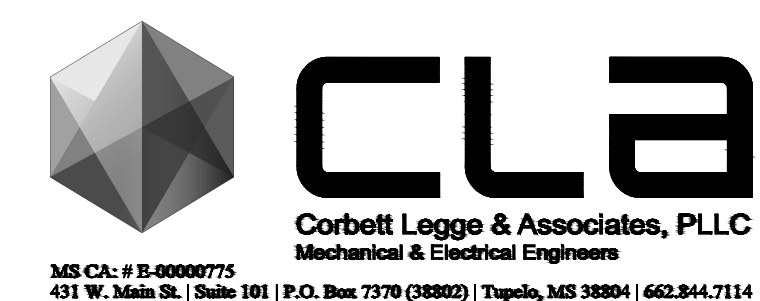
**SHAHER ZAHNER ZAHNER**  
OFFICE OF ARCHITECTURE  
510 UNIVERSITY DRIVE  
STARKVILLE, MISSISSIPPI 39759  
szzarch.com T(662) 323-1628

SHEET  
**E004**

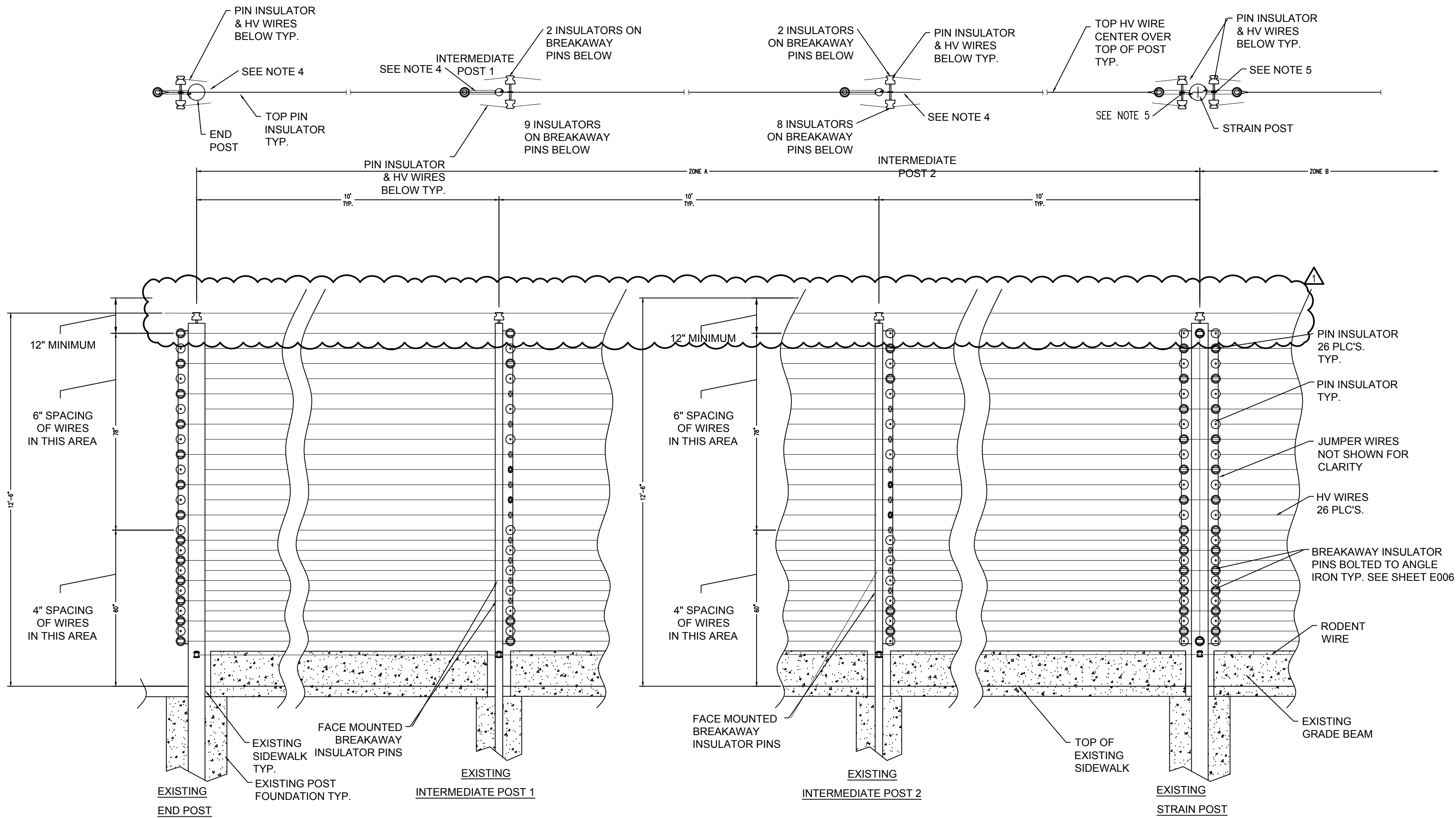
ELECTRICAL  
DETAILS

DATE: 9.22.2023  
SZZARCH# 2154  
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CHECKED BY: KAB

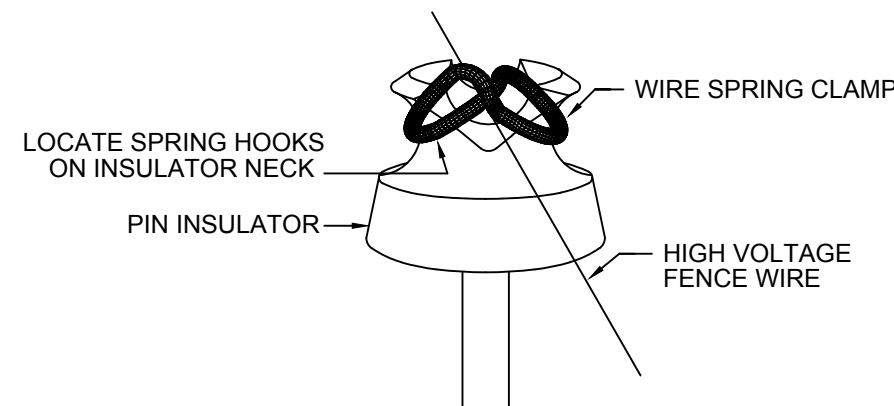
REVISIONS:  
ADDENDUM 2 - 11/21/2023



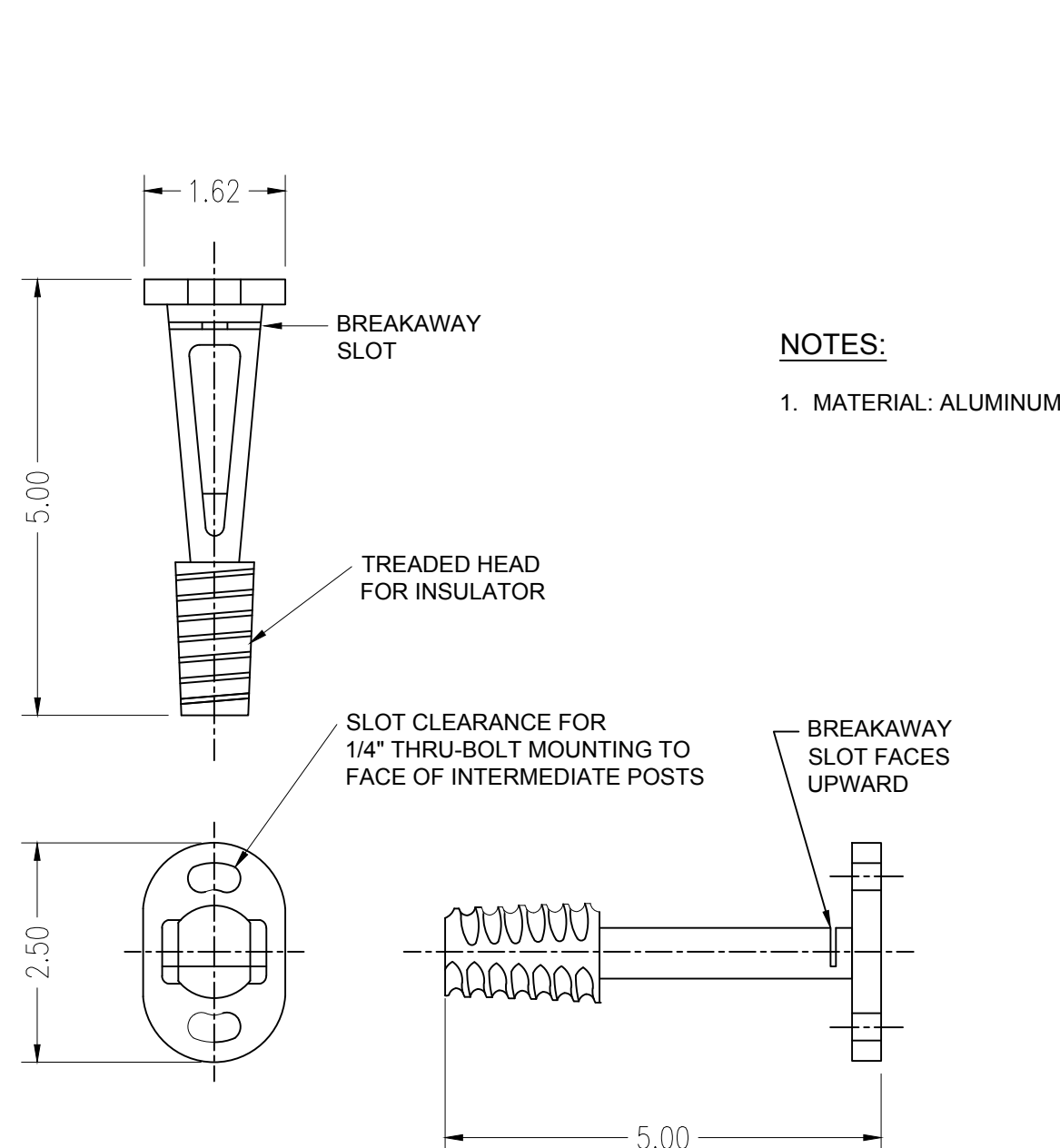
- NOTES:
- JUMPER WIRES NOT SHOWN FOR CLARITY.
  - TOP HV WIRE IS CAPTURED BY SPRING CLAMP. SEE DETAIL THIS SHEET.
  - MOUNT "L" BRACKET ON THE POST OPPOSITE THE TOP WIRE.
  - MOUNT "L" BRACKET ON THE POST BESIDE THE TOP WIRE ON THE SAME SIDE OF THE POST.
  - INSTALL JUMPER WIRES TO COVER GAPS AT TOP OF END POSTS AND STRAIN POSTS.



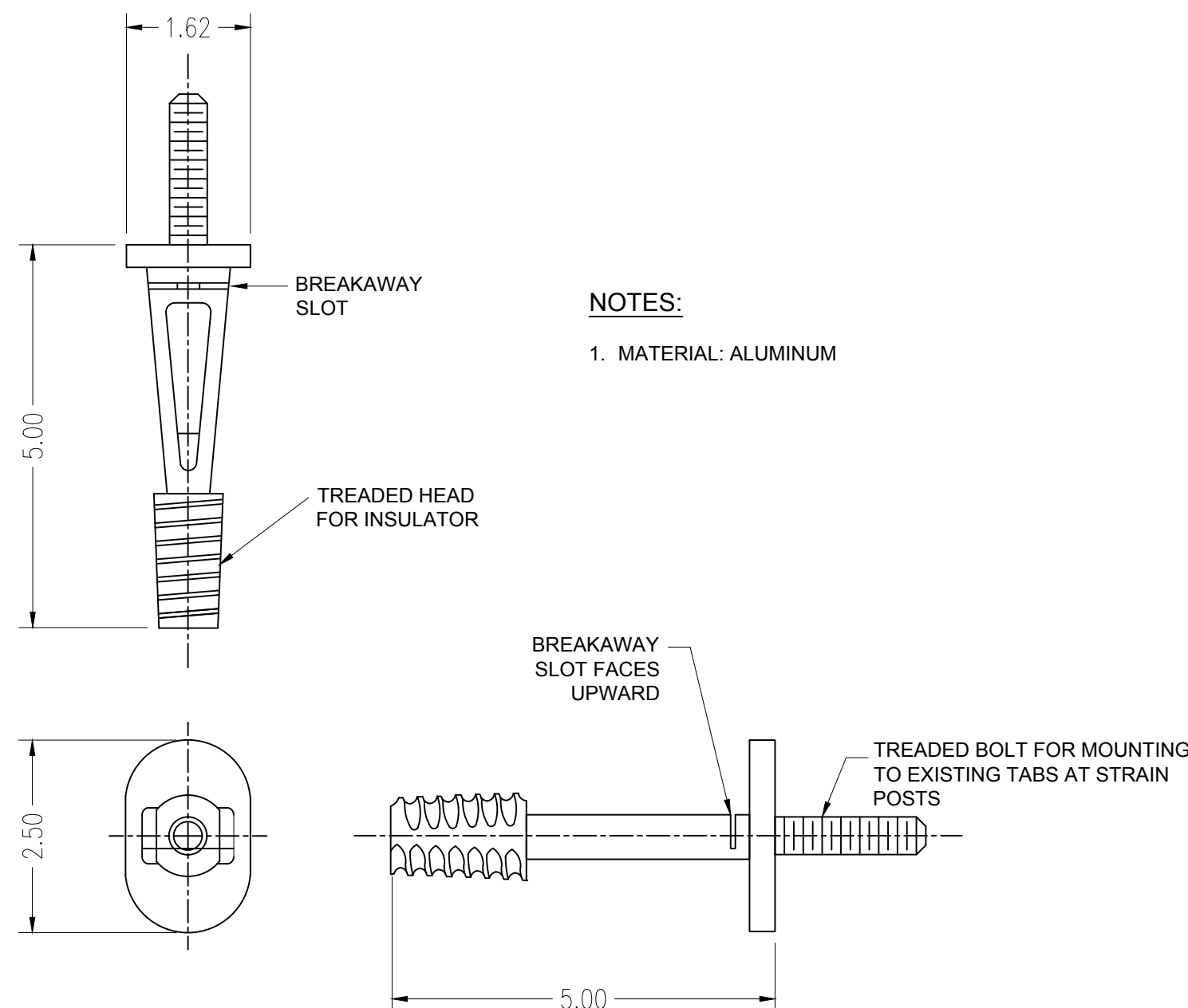
1 LETHAL/NON-LETHAL FENCE SYSTEM ELEVATION  
E005 1/4"=1'-0"



2 WIRE SPRING CLAMP DETAIL  
E005 N.T.S.

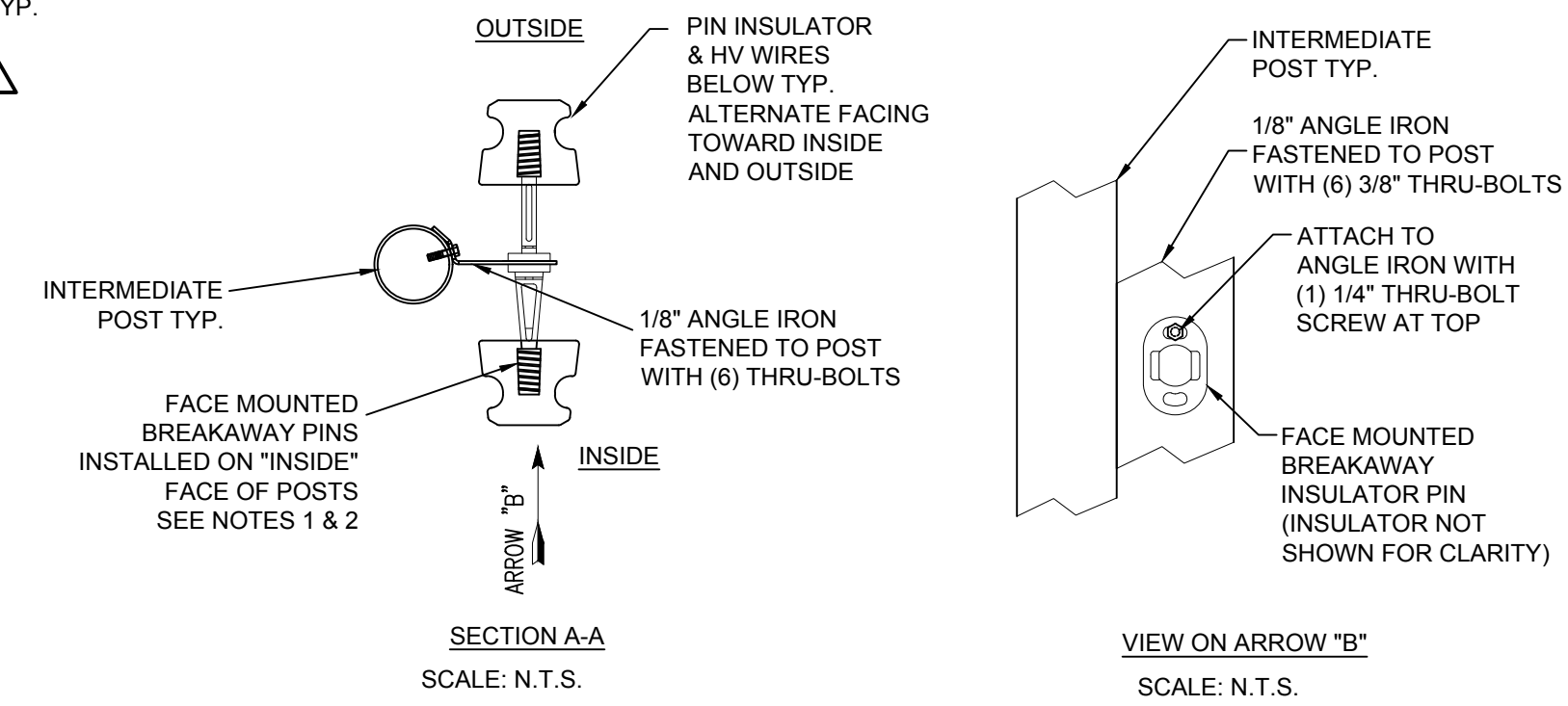
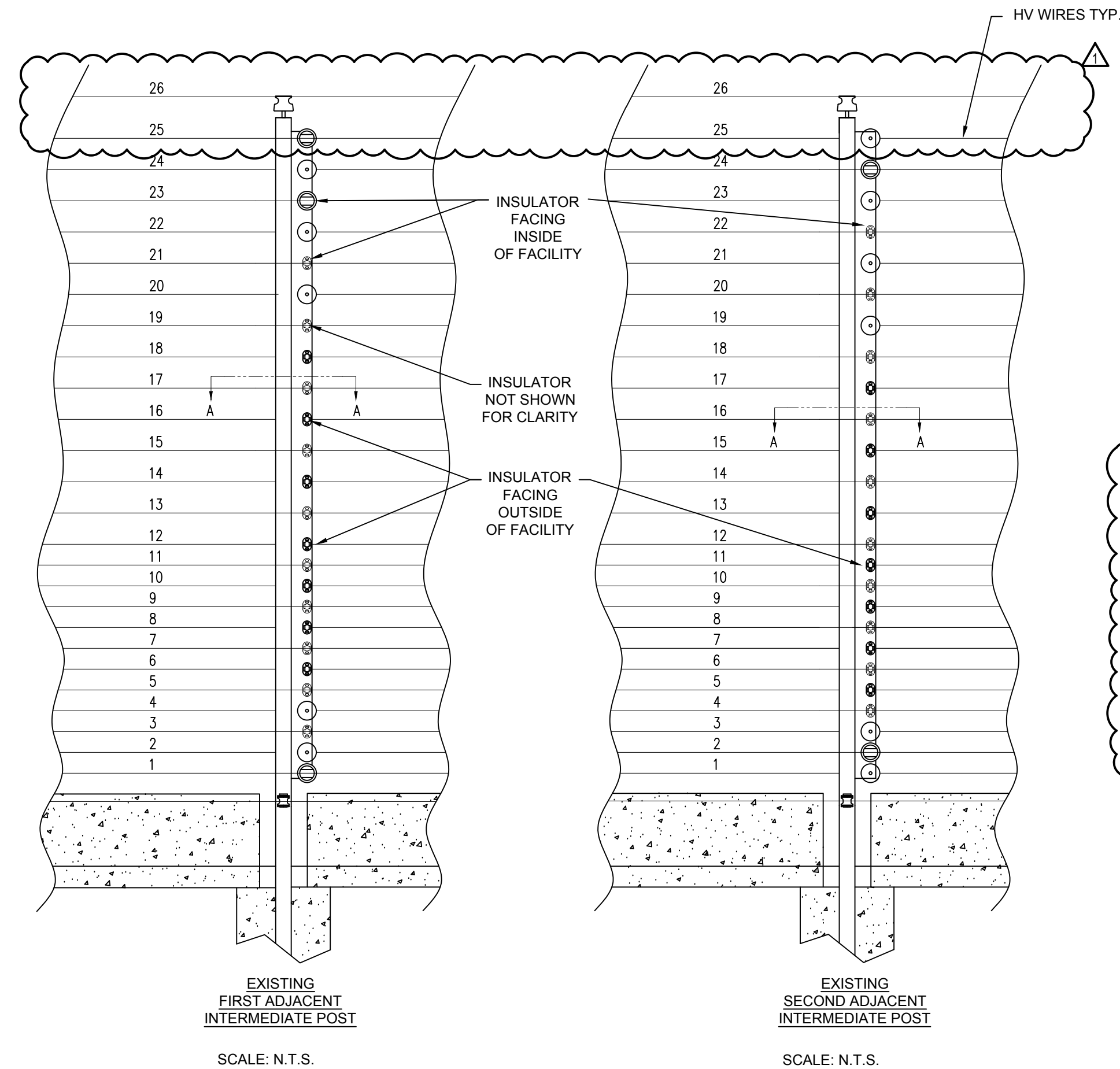


3 FACE MOUNTED BREAKAWAY INSULATOR PIN DETAIL  
E005 N.T.S. DETAILS AT INTERMEDIATE POSTS



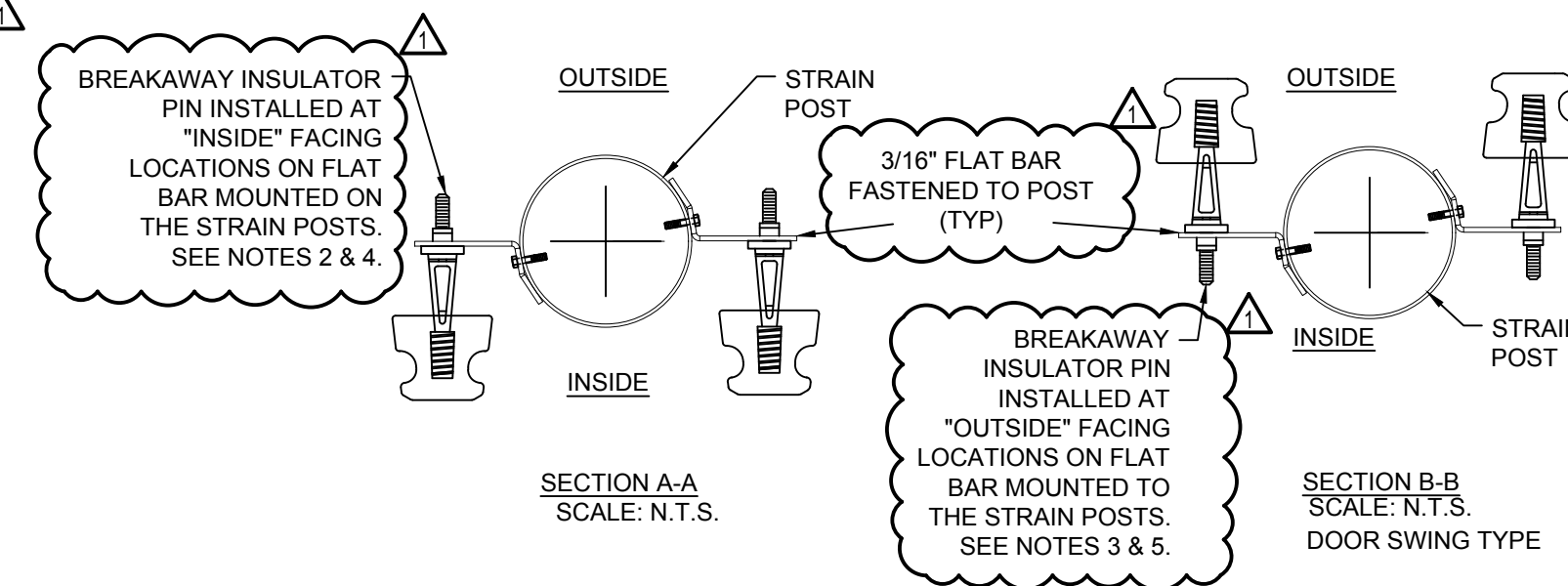
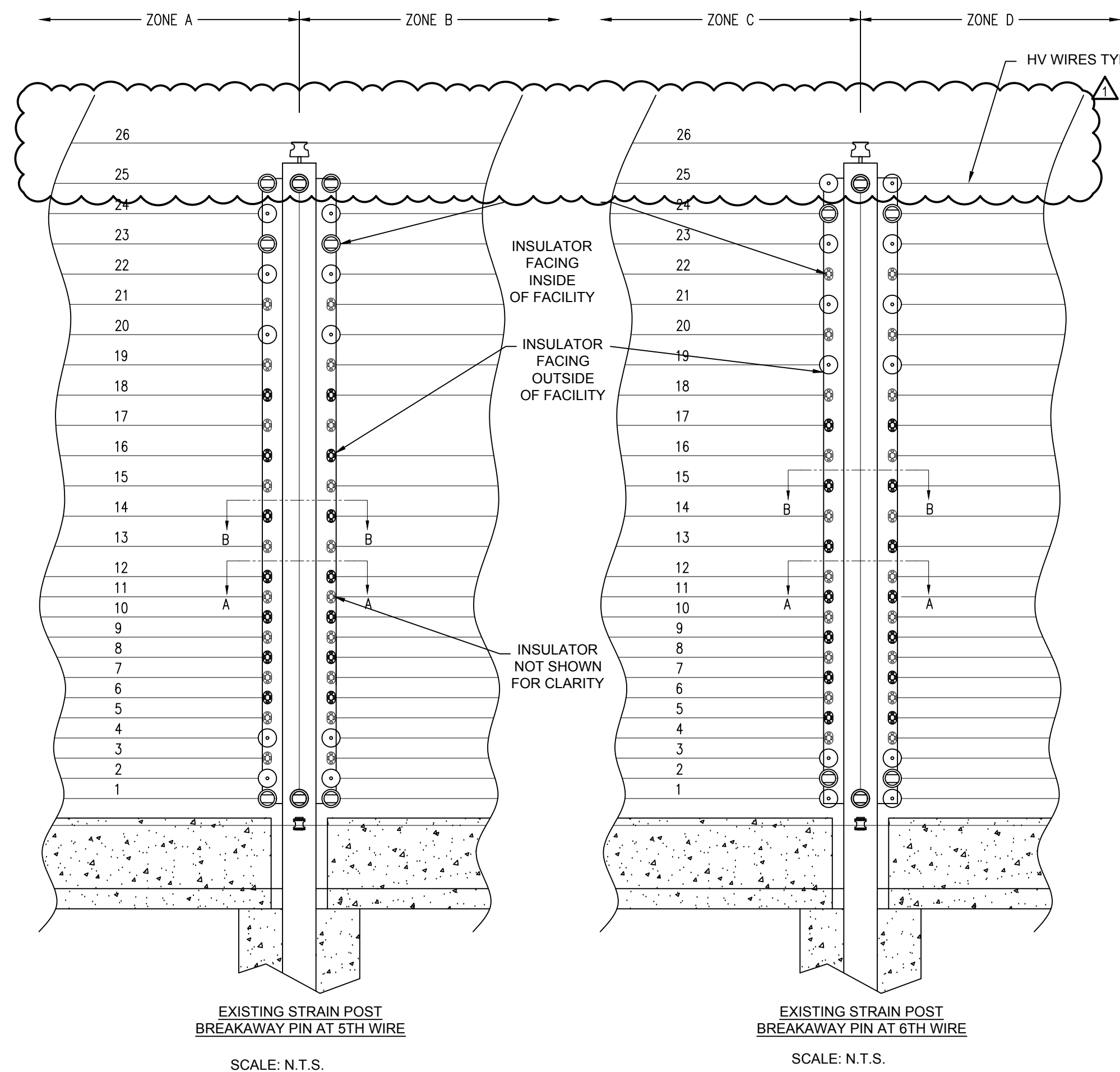
4 FACE MOUNTED BREAKAWAY INSULATOR PIN DETAIL  
E005 N.T.S. DETAILS AT STRAIN POSTS





- NOTES:**
1. FOR INTERMEDIATE POSTS WHERE WIRE NUMBER 3 FACES TOWARDS THE FACILITY, INSTALL BREAKAWAY INSULATOR PIN ON "INSIDE" FACE OF THE FLAT BAR MOUNTED TO THE INTERMEDIATE POST. DO SAME OPERATION FOR THE NEXT 9 TABS WITH "INSIDE" FACING INSULATORS GOING UP THE POST FOR A TOTAL OF (6) BREAKAWAY INSULATOR PINS. WIRES 3, 5, 7, 9, 11, & 13 TO HAVE BREAKAWAY INSULATOR PINS. THE SAME OPERATION IS REQ'D. FOR EVERY OTHER INTERMEDIATE POST ON THE FENCE LINE.
  2. FOR INTERMEDIATE POSTS WHERE WIRE NUMBER 4 FACES TOWARDS THE FACILITY, INSTALL BREAKAWAY INSULATOR PINS ON "INSIDE" FACE OF THE FLAT BAR MOUNTED TO THE INTERMEDIATE POST. DO SAME OPERATION FOR THE NEXT 9 TABS WITH "INSIDE" FACING INSULATORS GOING UP THE POST FOR A TOTAL OF (6) BREAKAWAY INSULATOR PINS. WIRES 4, 6, 8, 10, 12, & 14 TO HAVE BREAKAWAY INSULATOR PINS. THE SAME OPERATION IS REQ'D. FOR EVERY OTHER INTERMEDIATE POST ON THE FENCE LINE.

**1**  
**FACE MOUNTED BREAKAWAY INSULATOR PIN**  
E006 N.T.S. DETAILS AT INTERMEDIATE POSTS



- NOTES:**
1. THE FIRST INSULATOR PIN FACING TOWARDS THE FACILITY AT WIRE 3 OR WIRE 4 DEPENDING ON CONFIGURATION OF ADJACENT INTERMEDIATE POST IN PREVIOUS ZONE.
  2. FOR EXISTING STRAIN POST WITH FIRST INSULATOR PIN AT 3RD WIRE FACING TOWARDS THE FACILITY, INSTALL BREAKAWAY PINS FACING "INSIDE" FOR (6) "INSIDE" FACING PIN POSITIONS. WIRES 3, 5, 7, 9, 11, & 13 TO HAVE INWARD FACING BREAKAWAY PINS.
  3. FOR EXISTING STRAIN POST WITH INSULATOR PIN AT 3RD WIRE FACING TOWARDS THE FACILITY, INSTALL BREAKAWAY PINS FACING "OUTSIDE" (7) PLACES AT WIRES 6, 8, 10, 12, & 14.
  4. FOR EXISTING STRAIN POST WITH FIRST INSULATOR PIN AT 4TH WIRE FACING TOWARDS THE FACILITY, INSTALL BREAKAWAY PINS FACING "INSIDE" FOR (6) "INSIDE" FACING PIN POSITIONS. WIRES 4, 6, 8, 10, 12, & 14 TO HAVE INWARD FACING BREAKAWAY PINS.
  5. FOR EXISTING STRAIN POST WITH INSULATOR PIN AT 4TH WIRE FACING TOWARDS THE FACILITY, INSTALL BREAKAWAY PINS FACING "OUTSIDE" (5) PLACES AT WIRES 5, 7, 9, 11, & 13.

**2**  
**BREAKAWAY INSULATOR PIN**  
E006 N.T.S. DETAILS AT STRAIN POSTS



5. JUMPERING NOT SHOWN FOR CLARITY.
- 
- AT CORNERS.
5. JUMPERING NOT SHOWN FOR CLARITY.
- COMPRESSION TAP, TYP.
- BONDING WIRE  
#10AWG BC STRANDED  
TYP.
- TENSIONER TYP.
- 24.00
- 316 SST TIE WRAP  
OVER CRANK HANDLE  
TYP.
- STRAIN POST "B"

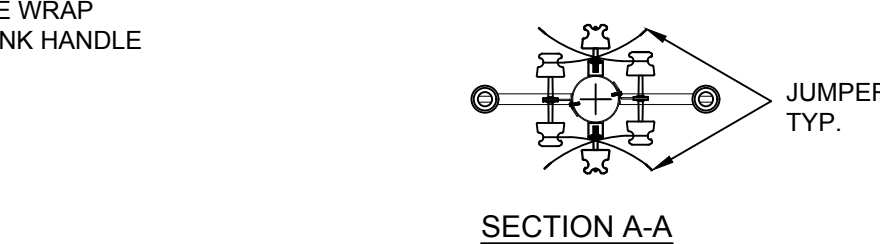
2 TENSIONER DETAIL  
E007 N.T.S.



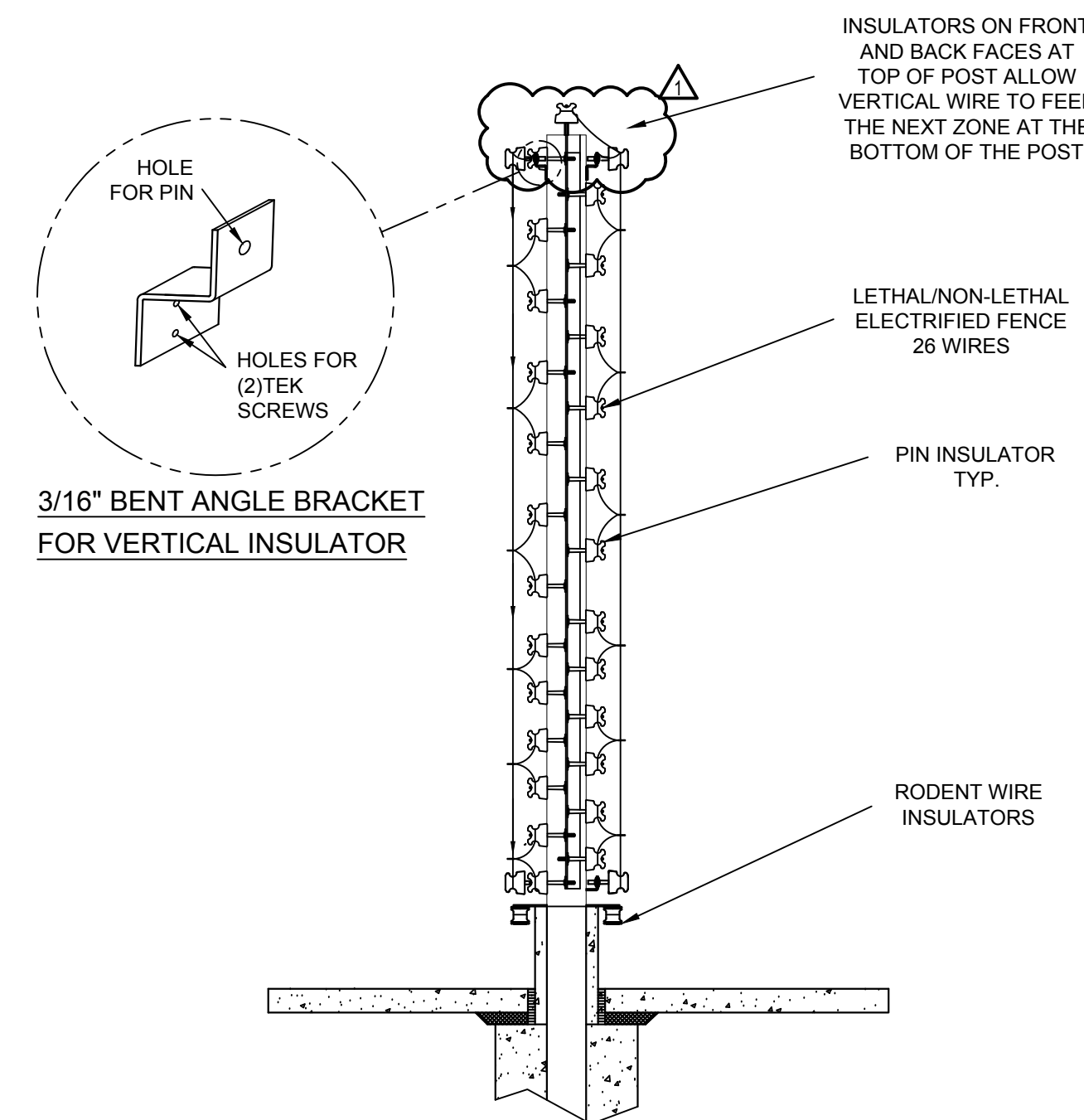
4 ACCESS GATE CONDUIT DETAIL  
E007 N.T.S.



3 USP ONE-LINE DIAGRAM  
E007 N.T.S.

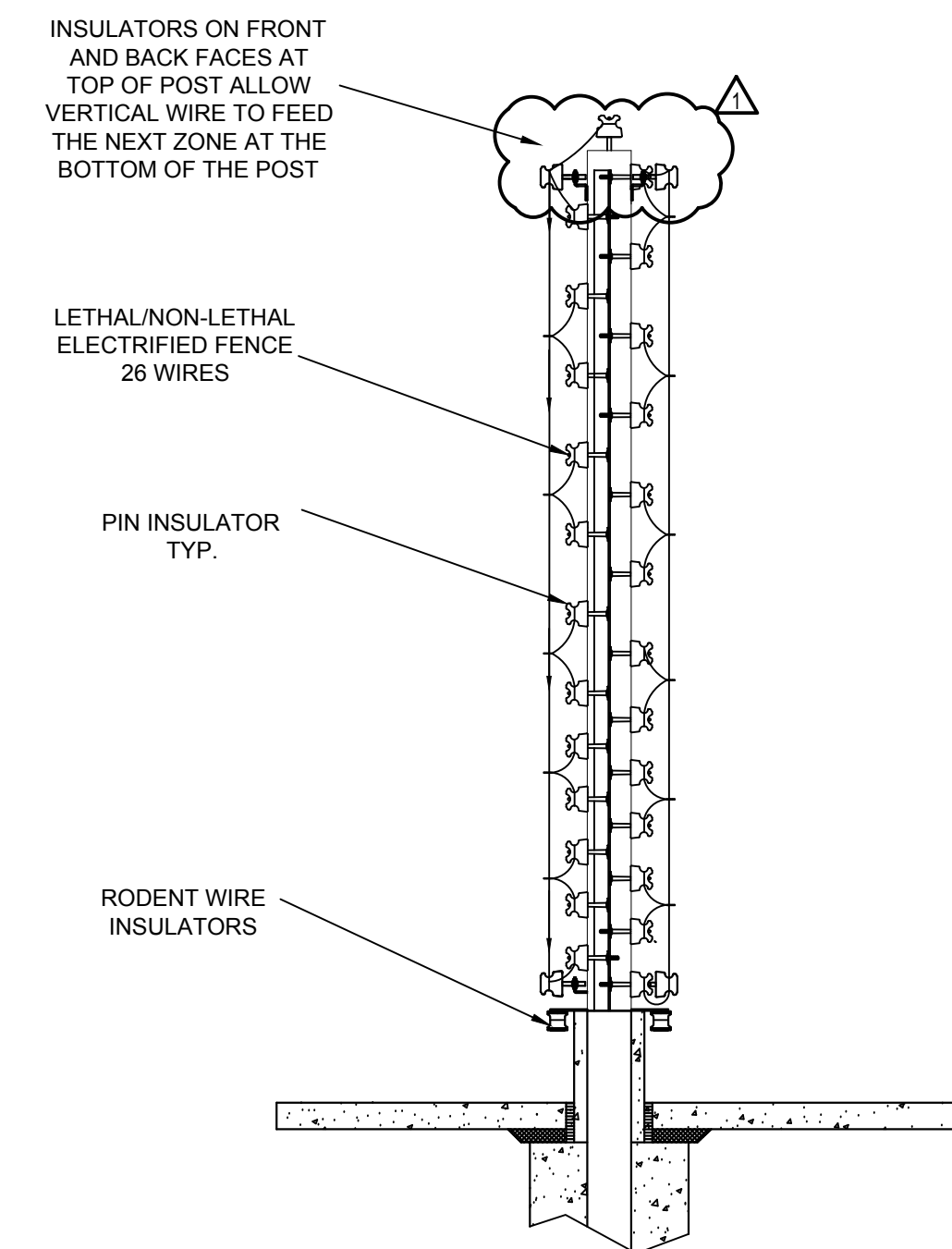


3/16" BENT ANGLE BRACKET  
FOR VERTICAL INSULATOR



6 STRAIN POST JUMPERING FRONT VIEW  
E007 N.T.S.

7 STRAIN POST JUMPERING LEFT VIEW  
E007 N.T.S.



8 STRAIN POST JUMPERING RIGHT VIEW  
E007 N.T.S.