Peralta Community College District – Emergency Phone Replacement Project

Oakland, CA

Security Systems
100% Construction Documents
For Pricing
Revision 0

November 9, 2015

HPS140415

Prepared by:
Security By Design

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STATEMENT OF SCOPE
SECURITY SYSTEM
EMERGENCY PHONE REPLACEMENT

Work included:

Section	Title	Date	Revision
	PCCD GENERAL TERMS AND CONDITIONS	TBD	REV. 0
	BID RESPONSE FORMS	11/9/2015	REV. 0
280001	SECURITY GENERAL REQUIREMENTS	11/9/2015	REV. 0
280501	SECURITY WIRING AND CONDUIT	11/9/2015	REV. 0
280502	FIBER-OPTIC COMMUNICATIONS SYSTEM	11/9/2015	REV. 0
280801	SECURITY TESTING	11/9/2015	REV. 0
285031	EMERGENCY CALL STATION	11/9/2015	REV. 0
Drawings	SE0.01 SECURITY INDEX, ABBREV., TERMINATIONS	11/9/2015	REV. 0
	SE0.02 SECURITY WIRE CONVENTIONS & SCHEDULE	11/9/2015	REV. 0
	SE1.A.01 ALAMEDA COLLEGE SECURITY SITE PLAN	11/9/2015	REV. 0
	SE1.L.01a LANEY COLLEGE SECURITY SITE PLAN, NW	11/9/2015	REV. 0
	SE1.L.01b LANEY COLLEGE SECURITY SITE PLAN, NE	11/9/2015	REV. 0
	SE1.L.01c LANEYCOLLEGE SECURITY SITE PLAN, SW	11/9/2015	REV. 0
	SE1.L.01d LANEYCOLLEGE SECURITY SITE PLAN, SE	11/9/2015	REV. 0
	SE1.M.01 MERRITT COLLEGE SECURITY SITE PLAN	11/9/2015	REV. 0
	SE3.01 SECURITY MPOE RM	11/9/2015	REV. 0
	SE3.02 SECURITY REMOTE IDF RM	11/9/2015	REV. 0
	SE5.SA SECURITY DETAIL, SA	11/9/2015	REV. 0
	SE5.SE SECURITY DETAIL SE	11/9/2015	REV. 0
	SE5.SF SECURITY DETAIL SF	11/9/2015	REV. 0
	SE5.SG SECURITY DETAIL SG	11/9/2015	REV. 0
	SE6.01 SECURITY BLOCK DIAGRAM	11/9/2015	REV. 0

Period of Installation:	(PCCD to update Dates Upon Final Approval)
Issue for Bid:	11/16/2015
Pre Bid Meeting:	11/19/2015
RFI Due Date:	12/04/2015
RFI Responses Due:	12/11/2015
Bid Due Date:	12/18/2015
Award of Contract:	01/04/2016
Start Construction:	01/11/2016
Initial System Start up:	03/25/2016
System Fully Functioning:	04/30/2016
Close out Documents Due:	05/20/2016
Location:	Oakland, CA

Special Instruction(s):

BID RESPONSE FORMS

AGREEMENT

To:
OWNER REPRESENTATIVE
OWNER
ADDRESS 1
ADDRESS 2
CITY, STATE & ZIP

From:
_____
_____
_____
_____
_____

Dear OWNER REPRESENTATIVE:

Having carefully examined your Scope Statement to bidders entitled STATEMENT OF SCOPE, SECURITY SYSTEM, EMERGENCY PHONE REPLACEMENT, and Specification Section Nos. and titles as follows:

Section	Title	Date	Revision
	STATEMENT OF SCOPE	11/9/2015	REV. 0
	PCCD GENERAL TERMS AND CONDITIONS	TBD	REV. 0
	BID RESPONSE FORMS	11/9/2015	REV. 0
280001	SECURITY GENERAL REQUIREMENTS	11/9/2015	REV. 0
280501	SECURITY WIRING AND CONDUIT	11/9/2015	REV. 0
280502	FIBER-OPTIC COMMUNICATIONS SYSTEM	11/9/2015	REV. 0
280801	SECURITY TESTING	11/9/2015	REV. 0
285031	SECURITY INTERCOM	11/9/2015	REV. 0
Drawings	SE0.01 SECURITY INDEX, ABBREV., TERMINATIONS	11/9/2015	REV. 0
	SE0.02 SECURITY WIRE CONVENTIONS & SCHEDULE	11/9/2015	REV. 0
	SE1.A.01 ALAMEDA COLLEGE SECURITY SITE PLAN	11/9/2015	REV. 0
	SE1.L.01a LANEY COLLEGE SECURITY SITE PLAN, NW	11/9/2015	REV. 0
	SE1.L.01b LANEY COLLEGE SECURITY SITE PLAN, NE	11/9/2015	REV. 0
	SE1.L.01c LANEYCOLLEGE SECURITY SITE PLAN, SW	11/9/2015	REV. 0
	SE1.L.01d LANEYCOLLEGE SECURITY SITE PLAN, SE	11/9/2015	REV. 0
	SE1.M.01 MERRITT COLLEGE SECURITY SITE PLAN	11/9/2015	REV. 0
	SE3.01 SECURITY MPOE RM	11/9/2015	REV. 0
	SE3.02 SECURITY REMOTE IDF RM	11/9/2015	REV. 0
	SE5.SA SECURITY DETAIL, SA	11/9/2015	REV. 0
	SE5.SE SECURITY DETAIL SE	11/9/2015	REV. 0
	SE5.SF SECURITY DETAIL SF	11/9/2015	REV. 0
	SE5.SG SECURITY DETAIL SG	11/9/2015	REV. 0
	SE6.01 SECURITY BLOCK DIAGRAM	11/9/2015	REV. 0

_____
BIDDER'S AUTHORIZED SIGNATURE

_____
DATE

Price including the drawings, details, and specifications therein, as well as the site of the proposed work and the conditions affecting it, the undersigned proposes to perform the work as defined, for a lump sum compensation (exclusive of taxes) of:

_____Dollars ($ _____)

plus taxes of:

_____Taxes ($ _____)

For a Total of: ($ _____)

If the undersigned is awarded a Contract for the above-defined work, the undersigned agrees to the following:

1. If Owner makes a Change, as defined in the General Terms and Conditions, for which an adjustment in Contractor's compensation is not agreed upon, the undersigned proposes that any adjustment shall be in accordance with the attached Exhibit 1 - Compensation Adjustment, as completed by the undersigned.
2. If Owner requires the undersigned to furnish a surety bond, the undersigned shall deliver, before starting work, a surety bond in the full amount of the Contract, executed in a form and by a Surety satisfactory to Owner, provided that the above compensation and the compensation determined in accordance with the Exhibit 1 - Compensation Adjustment be increased_____ (_____%).
3. The attached Exhibit 3 - Subcontracts, as completed by the undersigned, shall apply to all work.
4. The attached Exhibit 5 – Bid Response Spreadsheet Workbook Instructions, as completed by the undersigned, identifies the major cost components of the lump sum compensation stated above.
5. Immediately upon award of contract the undersigned will provide Owner a certificate of insurance that has been amplified to include all endorsements required by the contract. Said certificate shall contain the contract number to which it applies.
6. Commence the work within _____ (___) days after written notice of such acceptance, and complete the work within the General Contractor’s schedule.
7. That Contractor’s Representative and address shall be:

   Name:_____

   Address:_____
8. _____ Initial here to indicate that a printout of the Excel spreadsheet defined by Exhibit 5, Bid Response Forms, accompanies these forms, and that a working electronic copy of the spreadsheet is also being transmitted.
9. _____ Initial here, If NO exceptions.
10. _____ Initial here, If exceptions are taken. Attach a list of ALL exceptions.

_____

BIDDER'S AUTHORIZED SIGNATURE

_____

DATE

This offer to perform the work shall not be revoked prior to _____, and can be accepted by Owner prior to said date by notifying the undersigned in writing.

Name _____
Address _____
_____
Telephone _____
Date _____

Date _____

Very truly yours,

_____
Contractor
By:

_____
State whether Contractor is Individual, Partnership or Corporation:

_____
Contractor License Number

Attachments:

Exhibit 1 – Compensation Adjustment
Exhibit 2 – Construction Equipment
Exhibit 3 – Subcontracts
Exhibit 4 – Schedule of Craft Rates
Exhibit 5 – Bid Response Spreadsheet Workbook Instructions

_____
BIDDER'S AUTHORIZED SIGNATURE

_____
DATE

EXHIBIT 1 – COMPENSATION ADJUSTMENT

1. If Contractor's compensation is to be adjusted in accordance with this Exhibit, the adjustment, whether an increase or decrease, shall be the amount determined in accordance with the unit prices reflected in Paragraph 2 (and the referenced unit pricing spreadsheet) for those portions of the work to which such unit prices are applicable, plus the sum of the applicable items listed in Paragraphs 3 through 7 for the balance of the work, if any, to which unit prices are not applicable. However, if a certain adjustment in compensation is to be a decrease and the unit prices listed below are not applicable, it may be necessary to agree on estimated and not actual changes in costs referred to in Paragraphs 3 through 7.
2. Unit Prices
   2.1. As shown on the Bid Response Spreadsheet Workbook (See Exhibit 5).
3. Material
   3.1. The actual net change in costs, including any applicable discounts (supported by Vendor's invoices and receipted bills) to Contractor for materials provided by Contractor occasioned by the Change, including taxes, transportation, and cancellation penalties on alternate material already ordered, if applicable, but excluding consumable construction materials and supplies, which are covered in Paragraph 6 below, plus,
   3.2. Item 3 applies to existing equipment as well as new. For example, if an existing item is found defective, the Contractor may be required to replace it at his cost plus the mark-up % listed in Paragraph 3.3 (a) below.
   3.3. For material added, _____ percent (____%) of Paragraph 3.1 above, to cover all costs to Contractor associated with material procurement, including amounts to be paid to Contractor's personnel engaged in procurement, expediting or inspection activities, changes in scheduling and delays, and Contractor's overhead costs and profit relating thereto. Note: incorporate this figure on the Project Summary Spreadsheet; see Exhibit 5.
   3.4. For material deleted, an amount not to exceed the percentage set forth in Paragraph 3.3 above, based on an estimate mutually agreed upon to cover costs already incurred by Contractor as of the date of the deletion for the activities, changes in scheduling and delays, overhead costs and profit listed in Paragraph 3.3.
4. Contractor-Owned Construction Equipment
   4.1. The aggregate amount determined in accordance with the attached EXHIBIT 2 – CONSTRUCTION EQUIPMENT for the net change in use of each item of Contractor-owned construction equipment, including changes in scheduling and delays, occasioned by the Change. "Construction equipment" as referred to herein, in the EXHIBIT 2 – CONSTRUCTION EQUIPMENT and in the Agreement of which this Exhibit is a part.
   4.2. This does not include small tools, which are covered in Paragraph 5. . Unless otherwise defined in the Agreement, a "small tool" is defined as any tool whose purchase price when new did not exceed $750.
5. Costs to Contractor for field office overhead, changes in scheduling and delays, small tools and small equipment and consumable construction materials and supplies.

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BIDDER'S AUTHORIZED SIGNATURE

_____
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6. Any other items of Contractor's overhead (including costs to Contractor for home office personnel and all supervisory levels higher than craft general foreman, but excluding non-manual or distributable labor such as warehouse-men and tool-men) and Contractor's profit not specifically provided for elsewhere in this Exhibit.
7. Construction craft labor as referred to herein shall mean only the craft labor (including construction equipment operators) up to and including the level of General Foreman directly employed in the performance of work in the field.

THIS PAGE ENDS EXHIBIT 1 - COMPENSATION ADJUSTMENT

_____

BIDDER'S AUTHORIZED SIGNATURE

_____

DATE

EXHIBIT 2 - CONSTRUCTION EQUIPMENT

1. General Conditions

1.1. This Exhibit lists rates for Contractor-owned construction equipment and shall be used to price Changes pursuant to Paragraph 4 of EXHIBIT 1 - COMPENSATION ADJUSTMENT and to determine charges, with respect to such construction equipment, resulting from Owner delays and suspensions not due to default of Contractor.

1.2. The monthly rental rates include charges for depreciation, maintenance and repairs (both on and off the job site), taxes, fuel, lubricants, supplies, loss or damage to equipment, including premiums for any insurance covering such loss or damage, overhead, profit and all other charges of any nature whatsoever associated with providing operable construction equipment, excluding only direct operating labor.

1.3. The monthly stand-by rates exclude charges for fuel, lubricants, supplies, maintenance, repairs, overhead and profit.

1.4. The monthly rental and stand-by rates are based on 180 hours usage or delay in any one 30-consecutive-day period. The amount of compensation for actual hourly use or delay during such 30-day period shall be proportionate to such monthly rental or stand-by rate, as the case may be. However, delays or suspensions occurring during overtime, including overtime which is a part of Contractor's normal work schedule, shall not be considered in calculating the total stand-by charge.

2. Rates

2.1. The rates for construction equipment in accordance with the General Conditions in paragraph 1 above shall, except as provided in 2.2, be as listed below:

Equipment	Monthly Rental Rate	Standard Rental Rate

2.2. Rates for construction equipment in accordance with the General Conditions in Article 1 above for construction equipment not listed in Paragraph 2.1 shall be as follows:

2.2.1. Monthly Rental Rate:

_____ percent (____%) of the monthly rental rates shown in the latest edition of the

_____
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DATE

"Compilation of Nationally Averaged Rental Rates for Construction Equipment" compiled by Associated Equipment Distributors.

2.2.2. Monthly Stand-by Rate:

_____ percent (____%) of the monthly rental rates shown in the latest edition of the "Compilation of Nationally Averaged Rental Rates for Construction Equipment" compiled by Associated Equipment Distributors.

THIS PAGE ENDS EXHIBIT 2 - CONSTRUCTION EQUIPMENT

_____
BIDDER'S AUTHORIZED SIGNATURE

_____
DATE

EXHIBIT 3 - SUBCONTRACTS

1. It is Contractor's intent to perform all work covered by this Agreement, except for the items of work listed below which Contractor proposes to subcontract.
2. It is understood and agreed that Contractor shall retain complete responsibility for complying with all provisions of this Agreement, including all of the work that may be subcontracted.
3. Subcontractor # 1:

Subcontractor's Name	
Work Description	
Subcontractor's Fee	

4. Subcontractor # 2:

Subcontractor's Name	
Work Description	
Subcontractor's Fee	

5. Subcontractor # 3:

Subcontractor's Name	
Work Description	
Subcontractor's Fee	

6. Subcontractor # 4:

Subcontractor's Name	
Work Description	
Subcontractor's Fee	

THIS PAGE ENDS EXHIBIT 3 – SUBCONTRACTS

_____
BIDDER'S AUTHORIZED SIGNATURE

_____
DATE

EXHIBIT 4 - SCHEDULE OF CRAFT RATES
Billing Rates

Classification	Straight Time $ / hour	Premium Shift Differential $ / hour	Overtime $ / hour	Emergency Time $ / hour
System Engineer				
Project Manager				
Senior Technician				
Technician				
Drafter				
Other				

Notes:

1. This billing rate shall apply to Paragraph 2 of EXHIBIT 1 - COMPENSATION ADJUSTMENT.

THIS PAGE ENDS EXHIBIT 4 - SCHEDULE OF CRAFT RATES

_____
BIDDER'S AUTHORIZED SIGNATURE

_____
DATE

EXHIBIT 5 - BID RESPONSE SPREADSHEET WORKBOOK INSTRUCTIONS

1. Create a Bid Response Spreadsheet Workbook using Microsoft Excel to submit unit pricing information. The intent of this spreadsheet is to show a complete unit cost breakdown of the bid costs in a structured format that allows for a complete review of the unit costs, the Detail and panel counts, any head-end components, and all associated project work required to complete the work in accordance with the Plans and Specifications.
2. Incorporate these tabbed worksheets into the workbook:
   2.1. **Summary**: Provide a summary of the project scope. Subtotal the total price for each Campus and for the system headend. Show the total Equipment, Labor, Tax, and Shipping costs then grand total.
   2.2. **Detail Parts**: Show the pricing and quantity of each of the components required to make one unit of each Detail type (excluding labor). Show the extended pricing for the total cost of all the parts required for each Detail.
   2.3. **Detail Unit Price**: Use the pricing data from worksheet 2.2 to calculate the cost for all instances of each Detail with all labor.
   2.4. **E-Call Headend**: List all components of the system headend.
   2.5. **Other Equipment**: List all other required materials, pathways, junction boxes, etc. required to complete the project.
   2.6. **Cabling**: List all costs, including material and labor broken down by cable type. Provide a breakout cost per linear foot for conduit being installed in the following conditions:
      A. In building
      B. In planting
      C. Under asphalt
      D. Under concrete
      E. Under pavers
   2.7. **General Project**: List all other costs, such as overhead, profit, warranty, etc. with a total for each. Include individual values on this worksheet to cover costs of submittals, testing, training, preparation of sign-off documents including as-builts, test forms, and O&M documents, and any other defined costs for the project.
3. For each of the worksheets above (except 2.2), provide labor hours and materials for each element.
4. Show the total for each of the worksheets (except 2.2) on the respective worksheet.
5. For the Project Summary (2.1), show the total pricing summary figures for each and every element of the entire project by summarizing the totals from each of the worksheets above (except 2.2), and then the final Grand Total. Include appropriate Sales (or Use) Tax calculations for both materials and labor. Take the Grand Total from the Project Summary sheet and enter it in the appropriate space at the bottom of page 1 of the BID RESPONSE FORMS section (showing pre-and post-tax totals).
6. Use active links and formulas so that the entire spreadsheet is completely operational, and so that an entry change made to any value in the sheet will be reflected in all the appropriate totals. Provide an active Excel file, not an image or PDF of the file.
7. Name the submitted file as “YourCompanyName.xls”. Make sure there is only one period and that there are no spaces in the name. Provide the file in electronic format either via email or on a CD.

THIS PAGE ENDS EXHIBIT 5 – BID RESPONSE SPREADSHEET WORKBOOK INSTRUCTIONS

_____

BIDDER'S AUTHORIZED SIGNATURE

_____

DATE

SECTION 280001

SECURITY GENERAL REQUIREMENTS

TABLE OF CONTENTS

PART 1 - GENERAL

1.01 PROJECT INTENT

A. The intent of this project is replacing the analog Emergency Phone system for the Peralta Community College District (PCCD) Laney, Alameda, Merritt, and Berkeley campuses. The existing emergency phones at the Laney, Alameda, and Merritt campuses currently call the Alameda County Sheriff's 911 Satellite Dispatch center located at 333 East 8th Street, Oakland,

CA and roll over to the main Alameda County 911 dispatch center when not answered. All Berkeley emergency calls currently only call to the Berkeley Police Department. Only about 10% of the existing stations are operating correctly.

B. There are no floor plans or additional information on specific existing station locations for the Berkeley campus. For the sake of this bid, include three wall mounted interior stations to replace existing stations that are within one segment of the MPOE. Also include one exterior wall mounted and one exterior pole stations that are new locations between 400-700 feet from the MPOE. This is the only place in this RFP that references the Berkeley campus.

C. There are four known types of field stations, interior wall mounted, outdoor wall mounted, outdoor pole mounted, and outdoor pole mounted with solar power and cellular communication. Other than the solar station, all of the exterior stations have 120VAC power for the lights and transformer and a dedicated phone line homerun to the MPOE room for that campus.

D. All of the new Emergency Call Stations are to be an IP based station that has backup power to support a minimum of 24-hours.

E. All existing cables are to be removed and replaced.

1. Utilize OSP rated cable for any below grade runs.

2. Reuse the existing conduit where possible.

a. If the Contractor can demonstrate that the existing conduit is not able to be reused, submit a change order to replace the conduit based on the Bid Response Form linear foot deemed.

b. Where new station locations are defined, include the conduit pricing in your bid.

F. PCCD has an existing Lenel OnGuard access control system that is currently under master support agreement from Netronix Integration. Include the license to integrate the new Emergency Call system with OnGuard and add graphical maps on the OnGuard that indicate the locations of all Emergency Call Stations.

1. Include the following graphics:

a. Overall graphic that includes all campuses

b. Overall graphic for each campus

2. Each graphic should indicate the station approximate location, activity state, and alerts, such as off-line or tamper.

G. The primary components of this security approach include:

1. IP Server

2. VOIP Help Station that uses SIP

3. PoE+ Switch

4. Patch Panels

5. Ethernet Extenders

1.02 TERMINOLOGY

A. This project's District is referred to in this document as District, and the respondent is referred to as Contractor. The term District also includes direct employees, affiliates owning the respective sites where the work is to be performed, and other District-appointed agents such as architects or consultants. These agents may be requested by District to represent District in undertaking certain project tasks.
The System Designer for the project is:
Security By Design (SBD)
P.O. Box 1668
Lafayette, CA 94549
(925) 609-1000

1.03 PRECEDENCE

A. If any statement in this or any other Specification is in conflict with any provision of the General Terms and Conditions to the contract, the provision stated in the General Terms and Conditions shall take precedence. Immediately bring to District's attention any questions that result from such potential conflict which require additional interpretation and guidance.

B. Architectural drawings shall have precedence over other drawings in regard to dimensions and location.

1.04 BASIC DEFINITIONS

A. Business days, weekdays or working days:

1. In these specifications, mean 7:00 a.m. to 5:00 p.m., Monday through Friday (in local time zone) at District's site.

B. Specified Items – Substitutions

1. No Substitutes: Provide without exception the exact make and model number identified in this specification.

2. Or Equal: An item may be substituted for the specified item provided that in every technical sense, the substituted item provides the same or better capability.

3. Or Approved Equal: A substitute item for the specified item may be offered for approval by District. The proposed substitute item shall in every technical sense provide the same or better capability than the specified item. Submit such requests for approval in accordance with the provisions of BID RESPONSE - 1.07 - Prior Approvals, within the time frames outlined.

C. Beneficial Use

1. Each component of a system will be considered available for beneficial use when all components are installed and conditions are met to make the system fully operational.

2. Beneficial use by the District does not mean the warranty period has started. The warranty period only begins once the systems integrator has completed all of the contractual obligations for the contract. Reference section 1.22 for start of warranty information.

D. Award of Contract, or award of contract:

1. In these specifications, award of contract means both – District choosing Contractor as the successful bidder, and the parties executing a contract for the work. In all cases, it is a condition of an award of contract that Contractor agrees to use the form of contract supplied by District.

1.05 CODES AND STANDARDS

A. Perform the work in accordance with current editions of the following codes, rules and regulations:

1. Appropriate state and local governmental codes

2. National Electrical Code (NEC)

3. Uniform Building Code (UBC)

4. National Fire Protection Association (NFPA), National Fire Code

5. National Fire Protection Association (NFPA), Life Safety Code

6. National Electrical Contractor's Association (NECA), National Electrical Installation Standards

7. Federal Communications Commission (FCC), Communications Act of 1934

8. Code of Federal Regulations, title 47, Telecommunication

9. Underwriters Laboratories, Inc. (UL)

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications

1. Furnish only system components by manufacturers of established reputation and experience who have produced similar equipment and who are able to refer to similar installations rendering satisfactory service.

B. Contractor Qualifications
At the time of bid, provide evidence of:

1. Having manufactured, supplied or installed at least 3 other systems of similar size, complexity, and general operation as the systems described in these specifications. Furnish written proof of compliance with this paragraph at time of bid.

2. Holding all legally required licenses necessary to accomplish the installation and activation of the described system at the facilities indicated. Submit copies of licenses.

3. Holding all legally required registrations.

4. Having a local office within 100 miles of the project site, staffed with factory-trained technicians with experience on systems of similar complexity and function as described in these specifications.

   a. The factory-trained technicians shall be fully capable of system engineering support, installation supervision, system start-up, and providing District with training and service on both hardware and software for the systems specified.

   b. Submit copies of the factory-training certifications.

1.07 BID RESPONSE

A. Bidders' Responsibility

1. Review the specifications and drawings (mandatory).

2. Verify actual conditions by walking the site (mandatory).

3. Advise District in writing of any conditions that may adversely affect the work.

4. The drawings are accurate in terms of work scope and design for the function sought by District, but may have discrepancies in their depiction of the actual physical construction as of the date of production. Notify District if discrepancies are found.

5. Provide a bid response that meets the intent of the drawings and specifications to the satisfaction of District. Utilize “Bid Response Forms”.

B. Unit Price Bid Response Form

1. Provide installed unit prices for each major component of the security systems and each lettered detail shown on the drawings and details. The unit prices shall be the basis for the costing of changes to the security systems.

2. Include pricing for 100 feet of all conductors required for wiring between the lettered detail and its respective security closet for the unit pricing estimate.

C. Prior Approvals

1. Submit the following for any substitution proposed by Bidder for equipment items and material (identified by catalog numbers and specified brands or trade names) that are designated as "or approved equal".

   a. A list describing each proposed substitute item or material no later than 10 working days prior to bid opening.

   b. Provide sufficient data, drawings, samples, literature or other detailed information to demonstrate that the proposed substitute is equal in quality, appearance and functionality.

   c. Submit a statement listing every technical and operational variance from the specified item. If the bidder fails to list a particular variance that is subsequently

deemed to be unsatisfactory, such equipment shall be replaced or modified without cost to District.

d. District will respond in writing to substitution requests at least 5 working days prior to the bid opening date. An addendum will be issued listing products which are approved for substitution, and will be the sole source for such approval. After that date, no substitutions will be allowed.

e. Such approval shall not relieve Contractor from complying with the requirements of the drawings and specifications.

f. Contractor shall be responsible, at Contractor's sole expense, for any detrimental consequences resulting from District-approved Bidder-proposed substitutions, including, but not limited to, their impact upon Contractor's work or the work of others.

1.08 SUBMITTALS

A. Requirements - At Bid Submission

1. Submit the following in an electronic format:

a. List of Manufacturers, Model Numbers, and Quantities for all equipment proposed.

1) For any proposed substitutes, include technical information.

b. Letter from the manufacturer of each major system stating that Bidder is a factory-authorized distributor or installer of the proposed system. Include copies of the certificates that identify those individuals that are certified.

B. Requirements - After Award of Contract

1. No later than 10 working days after the effective date of the Agreement (for construction and/or services) submit for approval electronic copies of the following:

a. List of all subcontractors listing key team members with phone, cell, and emails.

b. Plan of Operations and Project Schedule:

1) Submit for approval a complete plan and schedule of proposed operations that meet the Districts scheduled deadline.

2) Account for the schedules of all subcontractors, transportation, storage, and all other matters affecting the work.

3) Revise this schedule on a weekly basis and present the updated version to District weekly.

c. Point-to-Point Detail Drawings and Equipment Schedules

1) Submit for approval point-to-point detail drawings with equipment schedules.

2) Submit for approval any proposed revisions or changes to bid document details or diagrams with clear, legible, and specific mark-ups of the affected detail drawings or schedules. Any proposed revisions (not previously addressed in the bid process) accepted by District must be undertaken at Contractor's sole expense.

3) Submit only those drawings that have proposed revisions.

4) These proposed revisions shall be without cost to District.

d. Markings:

1) Submit for approval samples of wire marking, panel label, zone label, terminal strip numbering, terminal strip identification styles, and typical per Section 280501 - SECURITY WIRING AND CONDUIT and Detail Drawings SE0.01-02, et al.

2. Submit for approval each of the following no later than 20 working days after the effective date of the Agreement (for construction and/or services):

a. Operations Manual

1) Submit for approval a complete electronic operations manual for all of the system products being supplied.

b. Test Procedures

1) Submit for approval an electronic copy of the test procedures to be followed in evaluating and proving the installed system(s), OR inform District that testing sheets provided in SECTION 280801 - SECURITY TESTING will be utilized.

2) Include the test forms to be used for each system and for each component of each system.

3) Include all tests required by this Specification and by the equipment manufacturers.

4) Comply with the requirements stated in 3.09 - SYSTEM ACCEPTANCE REQUIREMENTS in this section.

5) Include the test procedure as a part of the Contract Documents.

6) Specification SECTION 280801 – SECURITY TESTING provides a framework for testing all aspects of the installed systems. The forms are designed to be augmented by a software and hardware system test specific to the particular system(s) being installed.

3. No later than 20 working days after the effective date of the Agreement (for construction and/or services) submit for approval a training plan for operation and maintenance of the installed systems.

a. Design the training program to provide selected District personnel with a basic level of competence with the systems.

b. The trained District personnel will train other District personnel utilizing the training and the training documentation provided by Contractor.

c. Comply with the requirements stated in PART 1 - SYSTEM TRAINING in each respective system specification.

d. State all hours in terms of classroom hours.

e. Submit a curriculum for each subject of actual training. Account for all required hours.

f. In order to develop appropriate training plans and other training materials, expend 0.5 to 2.0 hours of preparation time for each actual classroom hour of training.

g. Submit a lesson plan for each class hour of training. Include a detailed outline of all subjects to be covered in each lesson plan. Also include a materials list of equipment, required handouts, cut sheets, etc.

h. Apportion the training hours to include "hands on" experience with appropriate system equipment. Identify the "hands on" time in each lesson plan.

i. Cover the overall system, each individual system, each subsystem, and each component. Also cover procedures for database management, normal operations, and failure modes with response procedures for each type of failure.

1.09 CHANGES

A. Prior to proceeding with changes or claims for extras for work that is out of scope,

1. Provide written notice to District.

2. Obtain written approval from District.

3. Substantiate the actual cost of each change or claim.

B. Base the cost of each change upon the item cost as shown in the Unit Price List (see 1.07 B).

1.10 SUPERVISION OF WORK

A. Supervise the work from beginning to completion and, within reason, keep the same workers and lead technician on site throughout the duration of the project.

B. Site Project Manager

1. Provide a site project manager to interface with all appropriate subcontractors during the installation of the system.

2. Maintain continuing coordination with District via the site project manager regarding progress and any problems that may develop.

C. Do not begin the work before receiving District approval of the complete plan and schedule of proposed operations submitted in accordance with 1.08.

1.11 PROJECT MEETINGS

A. Pre-Construction Meeting

1. Attend a pre-construction meeting to be scheduled prior to the start of construction.

2. District will identify a representative at this time and will discuss specific work rules with Contractor.

3. Discuss the various aspects of the work and procedures for smooth job progress.

B. Progress Meetings

1. Hold periodic job site meetings to review progress of the work and resolve installation problems. Invite representatives of District and System Designer. Provide current copies of Project Progress Spreadsheet (defined in 3.03 A.2) to all attendees.

2. At the initial meeting, review all required permits.

3. Also during the initial meeting, establish the frequency of future meetings to District's satisfaction. Meetings should not exceed one per week, except by mutual agreement.

1.12 EXAMINATION OF SITE AND VERIFICATION OF EXISTING CONDITIONS

A. Visit the site and become familiar with all existing conditions prior to submitting bid.

1. Perform and complete the work within the existing limitations.

B. Verify all required dimensions, including those shown on the drawings, by measurement at the job site.

1. Notify District of all exceptions before proceeding with the work.

C. Confirm the availability of a proper power source for each piece of specified equipment to be installed, on the basis of site visits and the drawings.

1. If proper power is not available, consult with District for affirmative guidance.

1.13 DATA ACCURACY

A. Absolute accuracy of information regarding existing conditions is not guaranteed. The drawings and specifications are for the assistance and guidance of Contractor.

B. Exact locations, distances, elevations, etc., will be governed by actual field conditions.

C. Obtain prior approval where variations from the bid documents are required. If no exceptions are brought to the attention of District prior to or at the time of bidding, Contractor is still required to perform the work as if exceptions had been noted or changes recommended, but at the cost of Contractor. Even without recompense from District, nothing shall excuse Contractor from satisfactorily completing the work in the manner customarily expected from a professional contractor.

1.14 PARKING

A. Use normal facility parking.

B. Make special arrangements with District if delivery to specific outside doorways or loading docks is required.

1.15 SECURITY

A. Comply with all District and facility security requirements.

1. Be responsible for theft or damage to District's equipment, tools and materials.

2. If any deviation from District security requirements is necessary, obtain approval for such deviation from District.

B. Do not disclose any confidential information of District.

1. Comply with the policies and provisions of District regarding outside contractors and consultants.

1.16 UTILITIES

A. District will supply facilities at the closest convenient box for Contractor use.

B. Provide all temporary connections and cables, lighting, light stands and hoses.

C. Use facilities in accordance with applicable state and local government regulations with regard to operations, safety and fire hazards.

1.17 PERMITS

A. Secure all permits required for the performance and completion of the work.

B. Review permits at the initial project progress meeting.

1.18 NORMAL WORKING HOURS

A. Do not begin work at the facility earlier than 7:00 a.m. and do not work later than 6:00 p.m., Monday through Friday, unless approved otherwise by District.

1.19 NOTIFICATION

A. Do not shut off any existing systems without first notifying District and receiving District's express authorization.

B. Give District at least 7 calendar day's notice of any requirement to shut off or interfere with existing alarm, regulating, computer or other service systems.

C. District will arrange and execute any shutdown.

D. Perform all work necessary to establish or re-establish any system, such as splicing or connecting, in close coordination with District.

1.20 INTERFERENCES WITH DISTRICT

A. Conduct transportation, storage of materials, work involving the facility, and all other matters affecting the use by District of its buildings, to cause the least possible interferences.

B. Coordinate with District to eliminate or minimize interferences.

1.21 PROJECT RECORD DRAWINGS

A. Project Record Drawings include all bid drawings and all submittals. Obtain District backgrounds at Contractor's sole expense.

B. District will furnish backgrounds electronically in current AutoCAD version.

C. Obtain, keep up-to-date, and make available to District, complete electronic plans (full size), details, and schedules of the project clearly annotated with "as-built" data as the work is performed. Include the following:

1. Routing of conduit, if required, and signal cables, including the cable designations assigned to each cable.

2. Accurate location of all equipment installed under the specifications.

3. A complete equipment list for each functional area.

4. Complete schedules for all equipment, indicating addresses.

5. Complete point-to-point wiring diagrams, including complete terminal strip layout and identification, and wire termination and tagging for all conductors.

D. Record drawings are required to be kept up-to-date on a daily basis and are required to be current prior to the authorization of each progress payment.

E. Upon completion of this project, transfer all information shown on these prints to the final set of as-built drawings.

F. The as-built drawing review will be performed in two stages.

1. Stage 1. Submit the following to District for review:

a. Complete set of as-built plans in DWG, DXF, or AutoCAD, Version 2010 or later.

b. Complete set of as-built plans in PDF.

c. Complete set of as-built point-to-point detail drawings in DWG, DXF, or AutoCAD, Version 2010 or later.

d. Complete set of as-built point-to-point detail drawings in PDF.

e. Equipment schedules in spreadsheet format and PDF with clear line breakouts for each individual equipment item.

2. Stage 2. After receiving District's comments on the documents submitted in Stage 1, incorporate District comments and resubmit the following:

   a. Complete set of as-built plans in DWG, DXF, or AutoCAD, Version 2010 or later at no additional cost to District.

   b. Complete set of as-built plans in PDF at no additional cost to District.

   c. Complete set of as-built point-to-point detail drawings in DWG, DXF, or AutoCAD, Version 2010 or later.

   d. Complete set of as-built point-to-point detail drawings in PDF.

   e. Equipment schedules in spreadsheet format and PDF with clear line breakouts for each individual equipment item.

G. Submit the final as-built drawings in accordance with 3.09 SYSTEM ACCEPTANCE REQUIREMENTS in this section.

1.22 WARRANTY

A. Warrant for **three full year** after Notice of Completion by Campus that the work is:

1. Free from defects in workmanship and material

2. Free from design defects

3. New, and of the kind and quality specified

4. Suitable for the use intended

5. Performing in the manner specified

B. The warranty shall start upon filing of Notice of Completion, shall remain in effect for one year, and shall include on-site service for parts and labor:

1. Normal Service

   a. Provide normal service at no additional cost to District during normal business hours (7:00 AM to 5:00 PM) Monday through Friday on a same-day basis for service calls requested by phone before 1:00 PM Monday through Friday, excluding holidays. If normal service is requested after 1:00 PM on a working day or over a weekend or holiday, respond on the next working day before 1:00 PM.

   b. Normal service is defined as repairs, adjustments, parts, replacement of parts, or any service that the system requires to be fully functional that is not an emergency service.

2. Emergency Service

a. Provide emergency service at an additional cost to District according to labor rate schedule contractually agreed upon. Emergency service shall respond within a 4-hour period on a 24-hour-per-day, 365-day-per-year basis.

b. Emergency service is defined as any repair that District deems an emergency and for which it requests emergency service.

c. Provide full factory technical support and same day shipping of replacement parts for all equipment.

d. Upon award of contract, provide District with a cost estimate for emergency service.

3. Prior to filing the Notice of Completion, system maintenance is the sole responsibility of Contractor.

PART 2 - PRODUCTS

2.01 WORK INCLUDED

A. Provide all the materials listed in PART 2 - PRODUCTS of the individual specification sections and on the detail drawings unless specifically excluded or modified in other portions of the contract document.

B. These material lists and equipment lists are not necessarily 100% complete and/or accurate. Verify all quantities and part numbers, whether listed or not.

2.02 MATERIALS

A. Use the following items to complete equipment, wire and cable installation called for by the other security specification sections and detail drawings. Provide the make and model shown below when the items are needed but not called out in the specifications or the detail package drawings.

1. Lenel OnGuard Integration

a. Stentofon (Zenitel)

1) Alarm notification upon Emergency Call Station call activation to show up on graphical display.

b. OnSSi Ocularis

1) Assume one camera license per exterior Emergency Call Station for video call-up on station call activation.

2. Terminal Blocks

a. Phoenix Model UK5 Universal Terminal Blocks, or approved equal.

b. Include Phoenix terminal marking material - ZB, SBS, or approved equal.

c. Use Phoenix bridging accessories, end covers, partition plates, and other parts as required, or approved equal.

3. Mounting Rails

   a. Phoenix Model NS 35/7.5 (perforated), or approved equal

4. Wire Duct

   a. Tyton or Panduit wire duct with slotted sidewall and cover, or approved equal.

   b. Size for specific backboard or backplane space and load requirements.

5. Cable and Wire Marking

   a. Brady B-321, or approved equal, machine-printed Polyolefin wire markers for each cable and each conductor at every cable termination point.

6. Wire Soldering

   a. UL Listed 3M Insulation Displacement Connector (IDC) moisture resistant seal or approved equal.

7. Tamper Resistant Screws

   a. Tamperproof Snake Eyes type fasteners, http://tamperproof.com/categories/snake-eyes-spanner.html or approved equal.

   b. Provide 6 tamper-resistant screwdrivers and transfer to District prior to final acceptance testing.

8. Engraved Labels

   a. Rowmark Ultra-Matte labels, or approved equal,

      1) Laminated impact acrylic flexible engraving material, 2-ply, matte finish, for interior and ADA exterior signage.

      2) Permanently bond with adhesive or with screws.

      3) Round and smooth edges.

      4) Black with white underlayment. Font = Arial bold, 1/4" high (40 pt.).

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. This contract may involve functioning systems.

   1. If it does, coordination with District is critical.

   2. Do not interrupt any functioning system without complying with 1.19 NOTIFICATION.

B. This project has a critical scheduling path which must be closely followed in order to meet the completion date.

1. Review the proposed schedule at the Award of Contract meeting.

2. Provide work force staffing according to the schedule constraints presented at that meeting.

C. Aesthetics are an important consideration in this installation.

1. Install all components to have aesthetically pleasing results to District.

2. Coordinate actual locations of all visible components in advance with District.

D. Install, make fully operational and test the system as indicated on the drawings and in the specifications.

1. Where any requested information is not available from District for bidding purposes, assume the worst case condition necessary to ensure complete, functional systems.

E. Be responsible for interfacing with other systems under this contract.

1. Show the details (both logical and physical) of such interfaces on the Submittal drawings and as-built (1.21) drawings.

F. Coordinate interfaces with District's telecommunications system with District.

G. Furnish and install all back-boxes, pull-boxes, connectors, supports, conduit, cable and wire necessary to provide a complete and reliable system.

1. Install all cables in conduit.

2. Submit the exact location of all boxes, conduit and wiring runs to District for approval prior to any installation.

H. Where required or when requested by District, provide and terminate 120-VAC, 60-Hz power from nearest electrical panel through a junction box, to security system devices.

I. Install conduit parallel and square with building lines.

1. Do not exceed 40% conduit fill.

2. Locations where new conduit is required, confirm location with the District prior to installation.

J. Program the Lenel OnGuard access control system to register an alarm event when one of the Stentofon Emergency Call Stations call button is pressed. Each station is to show up on a graphical display. The maps should be broken down as one overall graphic that includes all campuses, and overall graphic for each campus.

1. Verify what is reasonable to show all other access control system alarms if they are to be included on the graphical maps.

K. Include programming of the Lenel OnGuard to indicate when a call is rolled-over to County Dispatch.

L. Include programming of the Lenel OnGuard to provide video call up from associated cameras upon activation of the Emergency Call Station call button. Assume that there is one video camera associated with each exterior station.

M. Install all equipment parallel and square to building lines.

1. Provide sufficient clearances to meet all applicable codes and to facilitate observation and testing.

2. Securely hang and/or fasten with appropriate fittings to ensure positive grounding, free of ground loops, throughout the entire system.

N. Install all equipment to achieve quiet and vibration-free operation.

1. Adjust, repair, balance, or replace any equipment producing any noise or vibration that is objectionable to District.

2. Provide additional brackets and bracing as necessary.

3. Provide any such additions or changes at no additional cost to District.

O. Comply with 1.05 CODES AND STANDARDS.

1. Where more than one code or regulation is applicable or where specifications and codes disagree, the more stringent shall apply.

2. Install seismic bracing on equipment where required by local codes.

P. Where new equipment is replacing existing equipment, remove the existing equipment and perform repair work as necessary to meet District standards.

Q. At the completion of work and prior to final testing, install fire stopping at all penetrations in slabs and fire walls to meet codes.

R. Install Theft-Pruf™ type fasteners for all security equipment in accessible locations.

1. Provide 6 tamper-resistant screwdrivers and transfer to District prior to final acceptance testing.

3.02 WORKMANSHIP

A. Perform the installation in a professional and workmanlike manner.

B. Perform all preparation, handling, and installation work in accordance with the manufacturers' written instructions and technical data.

C. Perform all work in conformance with the National Electrical Contractor's Association "Standard of Installation" for general installation practice.

D. On a daily basis, clean up all debris from work performed and deposit in appropriate containers.

1. Stack and organize all parts, tools, and equipment when not being used.

E. At the conclusion of the installation at all work areas, including all panel boxes, vacuum and clean to remove all debris and grease.

3.03 COORDINATION WITH DISTRICT (PROJECT PROGRESS SPREADSHEET)

A. Coordinate closely with District to achieve a complete and aesthetically pleasing installation.

1. Keep District fully apprised of job progress.

2. PROJECT PROGRESS SPREADSHEET - At time of first construction meeting with District or System Designer, secure from System Designer a copy of the Detail Point List in an EXCEL spreadsheet format.

a. Agree upon a series of additional columns (with headings) to insert in the spreadsheet for the purpose of tracking completion milestones for all Points in the list. Contractor will enter a date in the pertinent cell to show when the task was completed, and this spreadsheet can then be used by all parties to accurately assess the status of all Points and the progress of the installation work.

b. Include in the spreadsheet not only those points such as “Station – SE 52” but also the rack- and wall-mounted security equipment and panels, so that important installation milestones can be recorded. Inevitably, some column headings such as, “Camera Focused” will not apply to all Points (like reader doors).

c. Name the column farthest to the right, “ISSUES” or “CHALLENGES”. Entries in this column can reflect impediments to completion such as, “Conduit not installed to door frame.” When this problem has been rectified, the entry can be deleted.

d. The notes field is not intended to store a cumulative record of the history of work at that Detail Point. Rather, the information briefly describing the most current challenge(s) can be entered and updated as problems are corrected.

e. Organize the spreadsheet in such a way that any party can “sort” data by whether there is an entry in the final, ISSUES column. This will enable efficient review of only those Points with outstanding challenges.

f. Name the two columns preceding the last column, “Contractor Tested”, and “System Designer Tested”.

g. One purpose of this document is to assist in the distribution of current and accurate data regarding the state of the project. While installation work is in “full-swing”, submit the latest electronic version of the spreadsheet to District and System Designer each week.

h. The spreadsheet will also assist District in making timely progress payments based on an accurate assessment of the degree of project completion.

3.04 CUTTING, PAINTING AND PATCHING

A. Do not drill, bore, or notch any structural member in any manner that impairs its structural value.

1. If cutting holes in structural members is required, only use core drills and only with the specific approval of District for each instance.

B. Returned to their original condition all walls cut or repaired during the installation process.

1. Match colors and finishes to the satisfaction of District, at no additional cost to District.

3.05 SITE MANAGEMENT RESPONSIBILITY

A. Provide an on-site Project Manager as defined in 1.10 - SUPERVISION OF WORK.

3.06 DATABASE PREPARATION, CHECKING, AND ACTIVATION

A. Provide District with the appropriate forms necessary to organize the security systems database inputs not less than 30 days prior to scheduled central system activation.

1. Clearly identify the delivery of the forms on the Project Schedule.

B. Train District-designated personnel to ensure their understanding of database formats requirements and constraints not less than 30 days prior to scheduled central system activation.

1. Clearly identify the training on the Project Schedule so that database preparations are accomplished in sufficient time to permit orderly and on time security systems activation.

C. District will be responsible for the accuracy of the database information by thoroughly checking all completed data entry forms.

D. Ensure that all database formatting is correct prior to security systems activation.

E. Provide the initial database entries into the security systems prior to activation.

1. The databases will consist of hardware related information, i.e., doors, alarm points, software parameters for system management, alarm and cardholder information, camera and monitor matrices relationships, PTZ camera pre-positioning, etc.

2. Provide District with a printout of the final databases for review and approval prior to security systems activation.

F. Provide security systems activation.

1. Once the security systems and databases have been demonstrated to be functioning properly according to manufacturers' guidelines and the systems designs, all further database entries and upgrades will be the responsibility of District.

G. If later versions of the operating security systems or application software are made available by the manufacturers, install the software and ensure that it is fully operational at no additional cost to District over the life of the software maintenance agreement(s).

1. Before installing upgrade software, ensure that existing database information is properly "backed-up".

3.07 START-UP RESPONSIBILITY

A. Properly ground each piece of electronic equipment prior to applying power.

B. Properly ground all shielded wire shields to the appropriate earth ground at the hub end only, not at the remote or device end.

C. Initiate security systems operation.

1. Provide competent start-up personnel on each consecutive working day until the security systems are functional and ready to start the acceptance test phase.

D. Where appropriate, bring the security systems on-line in their basic state (i.e., alarm reporting, facility code access control, etc.).

1. District will provide the specific database information that will allow fully integrated security systems operation.

2. Request the database information from District in sufficient time to not delay the project schedule.

E. Use a start-up sequence that incrementally brings each portion of the system on-line in a logical order that incorporates checking individual elements before proceeding to subsequent elements until the entire system is operational. The basic steps should include:

1. Establishing ground planes at the security closets and hub end of the system.

2. Setting up battery and power supplies at security closets and hub end of the system.

3. Disconnecting power.

4. Connecting the first security point or camera, reconnecting power, and verifying operational correctness.

5. Repeat steps 3 and 4 until the entire security systems are verified and operational.

F. If any technical problems occur, and if in District's judgment adequate progress is not being demonstrated resolving the problems, provide manufacturers' factory technical representatives and diagnostic equipment at no additional cost to District until the problems are resolved.

3.08 PREPARATION FOR ACCEPTANCE (PRIOR TO FINAL INSPECTION)

A. If, under the scope of Services of this project, Contractor is required to remove and dispose of any existing apparatus or materials, undertake such disposal in accordance with any and all legal requirements.

B. Label and identify all systems, equipment, and devices.

C. Have all systems, equipment, and devices in full and proper adjustment and operation.

D. Have all equipment and materials in neat, clean and unmarred condition with parts securely attached.

E. Replace or properly repair all broken work, including glass, raised flooring and supports, ceiling tiles and supports, walls, doors, etc. Clean up and appropriately discard all debris.

F. Deliver and store all extra materials at the premises as directed.

G. Complete the test reports of each system and each system component, the As-built project drawings, and the O&M manuals.

1. Deliver to District for review and acceptance.

3.09 SYSTEM ACCEPTANCE REQUIREMENTS

A. Before final acceptance of work, perform and/or deliver each of the following in the order stated.

1. System Operations and Maintenance Manuals

a. Deliver 3 composite "System Operations and Maintenance" manuals in three-ring binders, sized to hold the material below, plus 50% excess. One copy will also be provided in PDF format. Each separate PDF and printed version shall contain appropriately tabbed sections:

1) Warranty: Warranty statement including date of warranty termination, complete contact information to include: Name, email address and phone number of the person to be called in the event of equipment failure.

2) Operating Procedures: Set of operating procedures for the security systems that includes all required District activities and describes District operation of all attributes and facilities of the security systems.

3) Manufacturers' Information: Separate sections containing the manufacturer's information for each specific type of equipment. Include all manuals, instruction sheets, and any related literature from the original shipping containers for the equipment. Include all warranty cards.

2. Testing

a. Perform all tests required by the Security Testing Specification SECTION 280801 and those submitted per the "Test Procedure" section of 1.08 – SUBMITTALS in this section.

b. Activate all devices and verify proper operation of the security systems. Include supervisory and trouble circuit tests.

c. If activation of a device is impractical (e.g., a discharge test of a fire suppression system), initiate a simulated alarm or trouble by closing or opening the appropriate contact points.

d. Do not activate audible alarms except on a one-time, coordinated basis, to check the actual sounding devices. Coordinate closely with District.

e. Submit a test report for each piece of equipment to District. Include a complete listing of all security systems devices, the dates tested, by whom, the results, and dates retested (if failure occurred during any previous tests).

f. Successful testing of all security systems devices is required. Failure to completely test and document the tests will delay final testing and acceptance.

3. As-built Drawings

a. After completion of all the tests listed above, and prior to the final acceptance test, Contractor shall submit the complete as-built drawings as identified in SECTION 1.21 – PROJECT RECORD DRAWINGS.

b. The final as-built drawings shall consist of full-size format plans, point-to-point detail drawings, equipment schedules, and the complete detailed technical data that was shipped by the Manufacturer with all installed System components. Provide final drawings as described in SECTION 1.21 – PROJECT RECORD DRAWINGS.

B. Final Acceptance Test

1. Before final acceptance testing begins, submit the following to District for review and approval:

a. Operations and maintenance manuals

b. Test reports

c. As-built drawings

d. Tamper-resistant screw drivers

2. After the manuals, test reports, and as-built drawings are approved by District, test the completed security systems in the presence of District. Demonstrate performance and compliance with security systems specifications.

3.10 NOTICE OF COMPLETION

A. Letter of Completion. After the system acceptance requirements described above, including the final acceptance testing described above, have been satisfactorily completed, District will issue a letter of completion to Contractor indicating the date of such completion.

B. Notice of Completion. Record the Notice of Completion upon receipt of District's letter of completion. The date of recording shall be the start of the warranty period.

END OF SECTION 280001

SECTION 280501

SECURITY WIRING AND CONDUIT

TABLE OF CONTENTS

PART 1 - GENERAL

1.01 DESCRIPTION

Furnish and install wire and cable for the security system components shown on the security drawings, details, and schedules.

A. Work Included

1. Furnish, install, tag, and document wire and cable to provide all electrical and data circuits for the Access Control and Alarm Monitoring System, the Security Video System, all other systems, and any other associated work shown on the security drawings, details, and schedules.

2. All existing low voltage cables are to be replaced with new. Any 120VAC cabling that is found to be defective is to be identified to the District.

3. Furnish and install Security Junction Boxes (SJB's) and associated back panels.

4. Terminate low voltage conductors, and install all of the security components.

5. Coordinate with District for all aspects of work and schedule.

6. Conduit, back boxes and junction boxes to support wiring and mounting of security devices on walls and ceilings.

7. Trenching, underground conduit, and resurfacing to match existing.

8. 120VAC Emergency Power Circuits.

9. All non-fiber optic cables that are run in conduit buried in the ground are to be OSP rated.

10. This work will require close coordination between District, Subcontractors, and System Designer.

B. Work Included but Specified under other sections

1. Section 280001 - Security General Requirements

2. Section 280502 - Fiber-Optic Communications System

3. Section 285031 - Intercom

C. Related Work

1. Section 280801 - Security Testing

D. Work By Others

1. Generator Power

1.02 BASIC DEFINITIONS

A. Abbreviations:

1.	ICS:	Intercom System
2.	OSP:	Outside Plant
3.	PoE:	Power Over Ethernet
4.	VOIP:	Voice Over Internet Protocol

PART 2 - PRODUCTS

2.01 WORK INCLUDED

A. Provide all materials listed in PART 2 - PRODUCTS of this specification and the Detail Package unless specifically excluded or modified in other portions of the contract document.

B. Wire/cable pulls are scheduled in the detail package. Use the wire/cable brand and type shown unless a substitute has been specifically approved by District.

2.02 MATERIALS

A. Wire Hangers

1. Provide Head First products – “STIFFY” type. UL 2239 and UL 2043 for use in plenum environments. Use comfort cradle, clip-on, trapeze, or radius drop trapeze as determined by jobsite conditions. Mounting type for concrete, wood, or beam clamp with length as specified.

2. Provide and install hangers at 4-foot maximum intervals along every wire run.

B. Wire Duct

1. Tyton or Panduit wire duct with slotted sidewall and cover, or approved equal.

2. Size for specific backboard or backplane space and load requirements.

C. Cable Ties

1. Provide Hook and Loop plenum-rated cable ties, sized appropriately to the conditions. Velcro, Tefzel, or equal.

2. Install at 4-foot maximum intervals, roughly centered between hangers, and at other appropriate locations to keep the wire groups neat.

D. Cable and Wire Marking

1. Temporary Wire Tags

a. During installation, cables may be tagged with Panduit, Brady, or approved equal wrap around tags.

b. Provide tags at both ends of each cable.

c. Write on temporary tags with a black “Sharpie” brand pen (or approved equal).

d. Following installation, install the permanent tags and remove all temporary tags.

2. Permanent Wire Tags

a. Provide Brady, Panduit, or equal heat-shrink or permanent wrap-around, machine-printed, polyolefin wire markers for all cables.

b. Hand written tags are not acceptable.

E. Conduit, Back Boxes, Junction Boxes, and Fittings

1. Electrical Contractor will:

a. Provide and install conduit, back boxes, and j-boxes where shown and for all permanently concealed spaces, e.g. above hard ceilings where access will not be available after the sheetrock is installed, and within walls.

b. Newly constructed walls: Provide and install back boxes and conduit for wall mounted security devices, such as card readers, local noise devices, emergency door release devices. Include a pull string in each box from above the ceiling space or from underside of deck if no dropped ceiling.

c. Existing walls: Provide and install mounting rings and pull strings to the rings.

d. Provide and install conduit and wire required for 120VAC Emergency Power Circuit.

2. Security Contractor shall:

a. Provide and install Security Junction Boxes (SJB’s) with metal back panel above dropped ceiling or exposed wall in non ceiling areas where shown on drawings.

b. Coordinate with Electrical Contractor regarding all Security System Power and conduit requirements.

F. Trenching, compacting, and resurfacing

1. Provide saw cutting and trenching to NEC and Site standards of depth and width.

2. Provide 2” sand bed and 2”sand cover for all conduits.

3. Provide new surface to match existing.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. Furnish and install all necessary pull boxes, connectors, ceiling wires, supports, cable and wire to provide a complete and reliable system. Verify exact location of all boxes, cable and wiring runs with District in advance of any installation.

B. Obtain specific approval from District for the location and appearance of any cable or raceway that is not hidden. If approved, install as inconspicuously as possible.

C. Where required, install cable and wire parallel and square with building lines, including raised floor areas.

D. Comb wire groups. Route and support all wiring and cable to achieve the highest quality appearance in all areas, including the interior of all panels and racks.

E. Install, label, and terminate cable in accordance with manufacturer’s installation manuals and applicable codes. In the absence of manufacturer’s recommendations on single conductor application or being shown on the contract drawings select and install cables that meet all technical requirements of the equipment.

3.02 WIRE AND CABLE

A. Install all wires/cable on walls in exposed areas in thin wall EMT, or other District approved raceway, unless otherwise noted or exempted. For wire/cable runs above suspended ceilings, clamp cable to underside of deck or use wire hangers noted above in 2.02.A; do not allow cable to lie on top of the ceiling panels. In open ceiling areas, clamp cable to underside of deck in pan troughs or along beams to aid concealment. Do not attach raceway to suspended ceiling support wires.

B. Obtain specific approval from District for the location and appearance of any cable or raceway that is not hidden. If approved, install as inconspicuously as possible. Wherever possible, make square runs that follow existing building lines.

C. Wiring Inspection

1. Visually inspect wire and cable for faulty insulation prior to installation.

2. After installation, visually inspect all wiring for flaws such as cuts, punctures, and abrasions. If any flaws are found, replace the wire at no additional cost to District, and without negative impact to the schedule.

D. All wires installed between buildings or in underground conduit: Test with a megohmeter (megger). A reading of 20 megohms minimum is required. Test between each conductor and ground, and between each pair of conductors.

E. Prior to termination: Test each conductor for voltage. Replace and re-pull any conductor that has voltage. Splices are not an acceptable alternative.

F. Where it is cost effective, and with District's written permission, conduits and raceways from more than one detail point may be grouped together only if:

1. Physical space allows

2. Appropriately sized junction boxes are used

3. Conduits do not exceed the maximum 40% fill, conditioned by bends and length.

4. Security Contractor must coordinate with District.

G. Run wires continuously from termination to termination without splices. ASSUME NO SPLICES. Splices at certain junction box locations may be allowed at the discretion of District. Make recommendations for splices at such points to District and obtain written approval to proceed.

H. Where splices are allowed, join the wire with solder, not wire nuts, then cover with heat shrink insulation in an appropriate manner to ensure mechanical and electrical integrity. An acceptable alternative is to utilize UL-rated IDC moisture resistant seal connectors to connect the cables.

I. Make all connections at terminal boards with full tagging, labeling and documentation.

J. Install wire hangers at 4-foot intervals for every wire run. Run wires at least 1 foot above the ceiling where possible. Run wires above other crossing items where possible. In no case shall a wire run rest on the ceiling tiles unless specifically approved by District in writing

K. Support wire and cable in all equipment, all terminal cabinets and in all terminals and pull boxes in vertical risers and horizontal runs with wire duct and strap-type supports.

1. Furnish and install appropriate wire duct at all locations where wire duct is required for good wire management, whether shown on elevations or not.

2. Where terminal boards are used, furnish and install wire duct on both sides. At no time shall wires cross over terminal boards.

3. Arrange cables neatly to allow inspection, removal, and replacement.

4. Lace cables as required.

5. Spot tie wire bundles with plastic cable ties and secure to panels.

6. If screw type terminals are specified, terminal strip connections shall be locking, tongue style, pressure crimp, solderless spade lug.

L. Visually inspect wire and cable for faulty insulation prior to installation.

M. Protect cable ends at all times with acceptable end caps except during actual termination.

N. At no time subject any coaxial cable to a bend of less than 6-inch radius.

O. At no time subject any fiber optic cable to any bend of less than 8-inch radius.

P. Protect wire and cable from kinks.

Q. Install 1 pull rope for all 3" or larger sized conduits.

R. Provide grommets and strain relief material where necessary to avoid abrasion of wire and excess tension on wire and cable.

S. Adhere to the shielding design shown on the Detail Package, particularly the requirements of "Security Wire Shield Termination" on Plans. Proper shielding is crucial to maintaining data integrity.

T. Install sand bed and cover for all new underground conduit, compact fill to appropriate standards for soil conditions to assure compaction equal to surrounding soil. And resurface with matching material.

U. Bidders are responsible to confirm underground conditions prior to trenching or boring.

3.03 IDENTIFICATION AND TAGGING

A. Identify all cables, wires, wiring forms, terminal blocks and terminals using labels, tags or other permanent markings.

1. Clearly indicate the function, source, or destination of all cabling, wiring and terminals.

2. Use the wire-marking format and appropriate naming convention shown on Details 00.05.501 through 00.05.505 for all wiring.

3. Identify all cables and wires with heat-shrink, machine-printed, polyolefin wire markers.

4. Hand written tags are not acceptable.

B. If the wire-tagging format as shown on the drawings cannot be used, submit a substitute format that complies with the intent to provide documentation for end-to-end tracing of all wiring.

C. Appropriately label all terminal points.

D. Furnish and install permanently attached engraved labels on all panels.

1. Engrave the labels with identifying names and functions. Include names of the specific systems or subsystems.

2. Engraved labels are to be consistent in form, color, and typeface throughout the system.

3. Coordinate the design, color, font and layout with District.

END OF SECTION 280501

SECTION 280502

FIBER-OPTIC COMMUNICATIONS SYSTEM

TABLE OF CONTENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included

1. Furnish and install fiber and equipment for a fiber-optic communication.

2. The site fiber distribution system is designed to be installed so that the fiber and fiber connections will not be moved over the expected life of the system.

3. Conduit and junction boxes are to be provided and installed by others. Refer to the Electrical drawings for details. Provide any additional conduit, and junction boxes not provided by others, yet required to make the systems operational.

4. This work by others requires close coordination with the Owner, Owner’s General Contractor and Subcontractors, and System Designer.

B. Work included, but not specified under other sections

1. Section 280001 - Security General Requirements

2. Section 280501 - Security Wiring and Conduit

3. Section 280801 - Security Testing

C. Related Work

1. Section 285031 - Intercom

D. Work By Others

1. None.

1.02 BASIC DEFINITIONS

A. Site Fiber - Fiber cable that extends from a fiber-optic termination enclosure in a building's Security Closet to another building's fiber optic termination enclosure. Provide all site fiber as loose tube, gel-filled.

B. Building Fiber - Fiber cable that extends from a Security system device to the building's Security Closet or between Security system devices. This includes any fiber jumpers that are required to complete the communication that is shown on the block diagrams. Provide all building fiber as tight-buffered cable.

C. Fiber-Optic Circuit - The complete run of fiber cable from one fiber transceiver to the associated fiber transceiver. This includes Site Fiber and Building Fiber.

D. Fiber-Optic Distribution Termination Boxes - The boxes where the fibers are terminated or distributed at various locations around the site.

E. Abbreviations:

1. ICS: Intercom System

2. SOC: Security Operations Center and Security Closets

3. dB: decibel

4. km: kilometer

5. MHz: Megahertz

6. OTDR: Optical Time Domain Reflectometer

7. m: Micron

1.03 SUBMITTALS

A. Provide submittals as required in SECTION 280001 - SECURITY GENERAL REQUIREMENTS.

B. Within 30 Days of Award of Contract:

1. Provide the Owner with a cut sheet for each type of fiber that is to be installed prior to ordering.

2. Provide the Owner with a schedule of the cross connections of the initial fiber-optic circuit configuration.

3. Provide the Owner with circuit layout diagrams that show the arrangement of strands within each termination cabinet.

C. As-Builts:

1. Provide the Owner with complete test results stating the signal loss for each fiber in the cable.

2. Provide the Owner with complete test results stating the signal loss for each fiber in the cable.

3. Provide the Owner with a schedule of the cross connections of the final fiber-optic circuit configuration.

4. Provide the Owner with circuit layout diagrams that show the as-built arrangement of strands within each termination cabinet.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide and install the fiber-optic communication materials listed in this Specification and in the Bills of Material in the Security Detail Package.

1. Fiber-Optic Cable:

a. Corning Corporation

b. Nexans/Berk-Tek

c. Or Equal

B. Provide a pull string for each empty innerduct.

2.02 PERFORMANCE CRITERIA

A. Furnish and install all fiber-optic cable. Termination boxes and conduit to emergency call stations and field points will be by others. Coordination with the Contractors for the other trades is essential. Provide any additional conduit, and junction boxes not provided by others, yet required to make the system operational.

1. Corning 62.5/125m multimode

2. UL listed for outdoor, indoor/outdoor, or indoor use

3. UL 1666 riser rated with the marking "Type OFNR-(UL)" for horizontal and riser environments

4. UL 910 plenum rated with the marking "Type OFNP-(UL)" for plenum environments

5. 62.5m core size, 125m cladding size

6. Graded index

7. Maximum attenuation:

a. 3.5 dB/km at 850 nm

b. 1.0 dB/km at 1300 nm

c. 160/500 MHz-km bandwidth

B. OPTICAL FIBERS, MEET OR EXCEED:

C. FIBER COATING, MEET OR EXCEED:

1. Corning CPC6 mechanically strippable acrylate

D. TIGHT BUFFER CABLES, MEET OR EXCEED:

1. 900m coating diameter

2. All dielectric cable materials

E. LOOSE TUBE CABLES, MEET OR EXCEED:

1. 250m coating diameter

2. All dielectric cable materials

3. Each buffer tube filled with non-hygroscopic gel

4. Cable core interstices filled with water-blocking compound

5. Buffer tubes containing fibers shall be color coded

6. Each fiber distinguishable by color coding

F. EXTERIOR JACKET, MEET OR EXCEED:

1. Non-armored: Medium density Polyethylene

2. Armored: Medium density Polyethylene with armor made from corrugated steel tape, plastic-coated on both sides and applied with an overlapping seam with the corrugations in register.

G. CONNECTORS:

1. Wait 24 hours after pulling the cable before installing connectors.

2. Furnish and install LC compatible, ceramic, heat-cured connectors with 1.0 dB maximum coupling losses per connection pair.

H. SPLICES:

1. Utilize the fusion splicing method for all fiber splices, with equipment authorized by the fiber cable manufacturer.

2. Utilize standard fiber splice cases, organizer trays, splice trays, etc. for all fusion splices, as recommended by the fiber cable manufacturer.

I. FIBER-OPTIC ENCLOSURES:

1. Furnish and install in the Security Equipment areas fiber-optic connector and splice enclosures per Security Detail Package Bills of Material, Elevations, and this Specification.

    a. Corning

    b. Siecor FDC

    c. Champion

    d. or approved equal.

J. SECURITY DATA AND VIDEO DEVICES:

1. Furnish and install the security data and video devices called for on the Security Detail Package elevations and Bills of Material.

2.03 SPARE PARTS

A. Propose a spares kit for all equipment provided under this contract based on the Contractor's and the Manufacturer's experience with the equipment performance history. This will be considered separately after completion of the system installation and successful completion of the final acceptance test. Give priority consideration to the list of critical equipment developed jointly by the Contractor and Owner at the conclusion of the installation.

B. The Contractor shall maintain sufficient stock, in his facility, of spare parts required to support all systems installed or supplied under this contract.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and adjoining construction, and conditions under which Work is to be installed. Do not proceed with Work until unsatisfactory conditions are corrected.

3.02 GENERAL INSTALLATION

A. Furnish and install the fiber-optic termination enclosures in each Security Equipment Area in the conduit enclosures indicated on the Security Details and in the equipment racks in the SOC.

B. Where a cable leaves its conduit, create a loop that is in excess of a 24:1 ratio of coil-to-cable diameter. Remove the outer jacket where the cable enters the termination enclosure. Route the individual cores to their appropriate area and remove the core grouping material. In all cases, provide non-stress loop length in the routing and do not exceed the following bend radii:

Loose Tube:	10" Minimum bend radius
Tight Buffered (2-24):	6" Minimum bend radius
Tight Buffered (26-72):	12" Minimum bend radius

C. During all phases of construction, coil and hang the fiber well clear of the floor in order to protect the fiber from damage.

D. Utilize non-stress hanging methods to support the fiber optic cable. Tie-wrap, or other tensioning methods, is not acceptable.

E. In the Security Equipment areas, route the cable to the appropriate enclosure, and, using wire duct, route the fiber within the enclosure.

F. Tag each terminated fiber in accordance with SECTION 280001 - SECURITY GENERAL REQUIREMENTS.

G. A pull-string shall be installed in each empty innerduct.

H. Bring site fiber (0.9 mm jacket) directly into the fiber cabinet (LIU) with a cover protecting the site fiber from movement or being touched. Utilize 3.0 mm jacketed fiber for any fiber span, whether a jumper or not, that is outside of an LIU.

I. Bidders are responsible to confirm underground conditions prior to trenching or boring.

3.03 SYSTEM ACCEPTANCE REQUIREMENTS

A. Before final acceptance of work, test the performance of each module of the equipment as required in PART 2 - MATERIALS and comply with the appropriate portions of SECTION 280001 – SECURITY GENERAL REQUIREMENTS.

B. Functionally test the completed system to insure that all components of the system are operating properly in accordance with the manufacturer's criteria.

C. Shop test all systems before installation in the field.

D. Testing of fiber-optic cable between the MPOE and the Security Equipment Closets:

1. Test and verify the integrity of each terminated building fiber using an Optical Power Meter.

E. Testing the Fiber Optic Circuits between the MPOE and individual devices:

1. Test each fiber-optic circuit when all fiber is installed by performing both an Optical Time Domain Reflectometer (OTDR) test and an Optical Power Meter Test on both ends and in both directions of each fiber strand.

2. Replace all fiber-optic cable and/or connectors that cause the OTDR or Optical Power Meter Test to show unacceptable signal losses for any fiber within the cable. The Owner will determine acceptable power losses based on the terminations and the specifications for losses of the cable itself.

3.04 WARRANTY SERVICE

A. In accordance with the provisions stated in SECTION 280001, SECURITY GENERAL REQUIREMENTS, for a 1-year guarantee on all equipment installed under this contract, employ a factory-trained service organization within 100 miles of the job site. This organization shall have a minimum of 5 years experience in servicing the installed systems and equipment.

B. Make available fully qualified repair and maintenance personnel on a 24-hour a day basis, 365 days a year, with 4-hour maximum response time for service during normal business hours.

C. Provide normal service at no additional cost to Owner during normal business hours which are between 7:00 a.m. and 5:00 p.m., Monday through Friday.

1. Normal service is defined as minor repairs and/or adjustments or any service that the system requires in order to be fully functional that do not fall into the category of Emergency Service at the option of Owner.

2. Provide normal service within the parameters specified in SECTION 280001, SECURITY GENERAL REQUIREMENTS.

D. Provide emergency service at additional cost to Owner according to the labor rate schedule contractually agreed upon. Emergency service is defined as repairs, adjustments, parts, replacement of parts, or any service required to make the system fully functional and is beyond the category of Normal Service, at the option of the Owner. Provide emergency service within the parameters specified in SECTION 280001, SECURITY GENERAL REQUIREMENTS.

END OF SECTION 280502

SECTION 280801
SECURITY TESTING

TABLE OF CONTENTS

PART 1 - GENERAL

1.01 DESCRIPTION

Test all installed work using copies of the attached forms to document the results.

A. Work included

1. Test all work to verify the appropriate operation. Submit test results, documented on copies of the forms. Use the same forms for documenting the Final Acceptance Test.

B. Work included, but specified under other sections

1. Section 280001 - Security General Requirements

1.02 SUBMITTALS

A. Submit written test procedures for approval in accordance with specification SECTION 280001 - SECURITY GENERAL REQUIREMENTS - 1.08 SUBMITTALS.

1. Use forms copied from this specification as the base level of testing requirements.

2. Supplement with forms based on specific manufacturer-recommended test procedures that exercise all of the normally required attributes of the software.

3. In the absence of manufacturer-defined tests, use a copy of the system's operator manual to define tests that demonstrate the operation of each system function. Initial and date each function successfully demonstrated and include the pages in the testing binder.

B. After Contractor-testing and at least 5 working days prior to Final Acceptance Testing, submit the completed test forms for review. Organize the completed test forms as follows:

1. Provide three-ring binder(s) with transparent plastic pockets on the front face and spine. Insert machine-printed label sheets in each packet showing:

a. Project name

b. Project location

c. Date test data is submitted

2. Provide marked tabs for each section.

3. Provide individual test sheets

Major tabs	One tabbed section for each Campus
Sub tabs (under each major tab)	One tabbed sub-subsection for each plan drawing
Test sheets	One for each point number in numerical order, followed by test sheets for anything tested not having point numbers (e.g. console)

4. Provide a binder index showing the binder contents in terms of major tabs and sub tabs.

PART 2 - PRODUCTS

2.01 MATERIALS

Provide three- ring binders, label sheets, tabs, index sheets, and test data sheets as described above in 1.02 Submittals.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute the tests required to completely test all work. All work must be physically functional at its point of use and be operationally integrated into the appropriate system.

B. Provide written test results on copies of the forms, and use additional sheets where system tests dictate. Where appropriate, insert printouts from test equipment and/or the systems being tested.

C. Provide qualified personnel to test each type of work.

3.02 BASIC TEST PARAMETERS

A. Emergency Call Station System:

1. If, at the time of testing, Owner has not provided setup parameters, or if the setup parameters have not been entered into the system database, use the following default standard setup values for testing:

All stations	Set title to system point number, include what termination point it is tied to

3.03 SPECIFIC TEST DEFINITIONS

A. Overall

1. The tests included in this specification section are the base level of testing requirements.

2. In addition to the tests defined by 3.04 TEST FORMS, perform all manufacturer recommended test procedures that exercise all normal system attributes.

3. In the absence of manufacturer-defined tests, use a copy of the operator manual to define tests that demonstrate the operation of each system function. Initial and date each function successfully demonstrated and include the pages in the testing binder.

4. For all locations with lightning arresters, verify that they are properly grounded.

B. Fiber-Optic Tests

1. Optical Power Meter (OPM) Test

a. Test each fiber twice from end to end, including all splices and connections.

b. Once from the remote end to the hub end

c. Once from the hub end to the remote end

d. Document the results on the test forms.

2. Optical Time Domain Reflectometer (OTDR) Test.

a. Test each fiber once from end to end, including all splices and connections.

b. Store the test results and print as data values and a graphical trace of the data. Label and attach the print to the test form for each fiber.

c. Annotate each graphical trace to identify and explain the following discontinuities that deviate from the normal exponential decay slope of the trace:

1) Launch pulse

2) End-of-fiber reflection pulse

3) Splice reflections

4) Losses due to poor connections

5) Any other losses (or gains)

d. Document the results on the test forms.

C. Cat 6 Tests Unshielded Twisted Pair (UTP) Wiring

1. The Category 6 cable runs shall be tested for conformance to the specifications of EIA/TIA 569-C Category 6 and must be tested for:

a. NEXT

b. PS NEXT

c. Attenuation

d. Continuity

e. Insertion Loss

f. Distance

g. ACR

2. Any pairs not meeting the requirements of the standard shall be brought into compliance by the contractor, at no charge to the owner.

3. Complete, end to end, test results must be submitted to the owner no later than two weeks upon completion of the project.

4. Verify and test all Category 6 cables with a Level III tester. The testing device must be approved by the owner prior to use. Failure to gain approval is at contractors own risk.

5. All test results shall be submitted to the Designer and Owner one week prior to move in. Test results shall be submitted in both electronic and paper formats. Place paper results in 3 ring binders with section for station, fiber backbone tests.

D. Dynamic Battery Test

1. Test each battery

a. Measure the voltage across a 3-ohm high watt resistor for 20 seconds.

b. Verify that the voltage does not drop below 90% of the rated voltage.

2. Replace any battery for which the measured voltage drops below 90% of the rated voltage during the 20-second test.

E. N/A (Not Applicable): Indicates that the particular test or parameter does not apply to this project.

3.04 TEST FORMS

A. The following test forms are included as attachments to this specification section. Use only those which apply to the installation specified. An example would be where the Access Control System also monitors the alarms, where only the 02.01 and the 02.02 documents would be used from the Alarm System set. The panels and system would be covered by the Access Control System forms.

1. Where a specific line on a test form does not apply, check the "N/A" box.

2. Where a test form does not apply, do not use the form. Missing sequential numbers indicate non-applicable test forms.

3. Where a test form does not apply, but a similar form would be more applicable, submit a substitute form for approval prior to commencing any relevant testing.

ACCESS CONTROL AND ALARM MONITORING (ACAMS)	
01.01	Alarm System Screen Graphic
VOICE AND DATA COMMUNICATIONS	
03.01	Intercom Sub-station
03.02	Intercom Control Station
03.03	Intercom Audio Recording Station
WIRING, RACEWAY, AND COMMUNICATION PATHS	
04.01	Wiring and Raceway
04.02	Unshielded Twisted Pair (UTP) Wiring
04.03	Fiber Optic – Fiber Path
04.04	Fiber Optic – Fiber Termination Panel
ELECTRICAL POWER	
05.01	Power Supply and Batteries
05.02	Uninterruptible Power Supply (UPS)
05.03	Standby Power Generator and Transfer Switch
NETWORKING & COMPUTING	
07.01	Servers and Domain Controllers
07.02	Switches
07.03	Firewall
07.04	Workstations

ATTACHMENTS TO SECTION 280801 FOLLOW

END OF SECTION 280801

SECURITY TESTING
01.01 ALARM SYSTEM SCREEN GRAPHIC

Identity – Use One Test Form per Graphic Screen

Site	Building	Floor	Floor Section (If Partial)	File Name

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
General				
Is graphic screen look and feel consistent with others on the system?				
Is the graphic screen appropriately sized for the monitoring monitor to maximize the screen real estate?				
Is screen navigation stable across all screens? (Navigation always in the same location)				
Is screen navigation consistent across all sites, forming one navigation system?				
Is the floor plan properly referenced with north up?				
Is the screen usable in terms of scope and volume of icons per screen?				
Is screen display call up within two seconds? (State time as best you can measure it in 10ths of a second in the "YES" box.)				
Specific Point Detail				
Does each information icon appropriately indicate the state of the point? Test each point and only check "YES" if all icons work correctly. (Note color and animation for each state below.)				
Does each operable icon cause the appropriate function to happen? Test each point and only check "YES" if all icons work correctly. (Describe the action required to cause function below.)				
Are all icons appropriately placed so that their spatial relationship with the structure is obvious?				
Are there any points for the system that are not shown on the graphics? (If so, comment as to why in Remarks.)				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
03.01 INTERCOM SUB-STATION

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
Cable shielding complies with drawings				
Call button is operational				
Sound quality is satisfactory at intercom sub-station				
Sound quality is satisfactory at intercom control station				
"Descriptive" Parameters	enter appropriate value			

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
03.02 INTERCOM CONTROL STATION

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Power supply voltage	Volts		

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
Cable shielding complies with drawings				
Call buttons are operational				
Function select buttons are operational				
Display is operational				
Sound quality is satisfactory at all connected intercom stations				
Sound quality is satisfactory at intercom control station				
"Descriptive" Parameters	enter appropriate value			
Electrical power source (normal, emergency, UPS?)				
Electrical power panel location.				
Electrical power panel no.				
Electrical power panel breaker no.				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
03.03 INTERCOM AUDIO RECORDING STATION

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
Cable shielding complies with drawings				
Audio recording is time stamped				
Audio playback quality is clear				
Audio clip export with self playing file functions				
"Descriptive" Parameters	enter appropriate value			
Electrical power source (normal, emergency, UPS?)				
Electrical power panel location.				
Electrical power panel no.				
Electrical power panel breaker no.				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
04.01 WIRING AND RACEWAY

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Tamper-resistant screws installed				
Conduit fill for 1 wire demonstrated to not exceed 53%				
Conduit fill for 2 wires demonstrated to not exceed 31%				
Conduit fill for more than 2 wires demonstrated to not exceed 40%				
Wireway fill demonstrated to not exceed 30 conductors				
Wireway fill demonstrated to not exceed 20%				
Wires are terminated properly and tightly, unless spares				
Un-terminated wires are properly safe-ended				
Wire runs are continuous and not spliced				
Coaxial cable meets bend radius criteria				
Optical fiber cable meets bend radius criteria				
Wires and cables enter and leave junction boxes properly				
Wires and cables tied properly when not in raceway				
Wires and cables supported properly when not in raceway				
Conduit and other raceway supported properly				
Fire-stopping installed at fire-rated floors and walls				
Appropriate ground wires installed				
"Descriptive" Parameters	enter appropriate value			

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
04.02 Cat 6 UNSHIELDED TWISTED PAIR (UTP) WIRING

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters TIA/EIA 569-C	Units	Contractor Test	Owner FAT
Measured Length	Ft.		
Measured Frequency	Mhz		

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box YES	NO	N/A	Owner FAT Verify
Did cable Pass Cat 6 performance test				
Cable test report completed for this cable and submitted				
Is cable tester level III compliant				
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
Wires are terminated properly and tightly, unless spares				
Un-terminated wires are properly safe-ended				
Wire runs are continuous and not spliced				
Untwisting of wires at any location does not exceed 0.5 inches				
Length of cable run does not exceed 295 feet				
Conduit fill demonstrated to not exceed 40%				
Wires and cables enter and leave junction boxes properly				
Wires and cables not in raceway tied & supported at 5 ft. max.				
Each wire pair tested at both ends of cable run				
Wire map test shows no crossed pairs				
Wire map test shows no open circuits				
Wire map test shows no short circuits				
"Descriptive" Parameters	enter appropriate value			

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
04.03 FIBER OPTIC – FIBER PATH

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Optical power meter (OPM), remote end to hub end	dBm		
Optical power meter (OPM), hub end to remote end	dBm		
Optical time domain reflectometer (OTDR) end to end loss	dBm		
Optical time domain reflectometer (OTDR) end to end distance	feet		

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
"Descriptive" Parameters	enter appropriate value			
Electrical power source (normal, emergency, UPS?)				
Electrical power panel location.				
Electrical power panel no.				
Electrical power panel breaker no.				
Launch pulse				
End of fiber reflection pulse				
Splice reflection(s)				
Loss(s) due to poor connection(s)				
Other losses (or gains)				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
04.04 FIBER OPTIC – FIBER TERMINATION PANEL

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
"Descriptive" Parameters	enter appropriate value			
Electrical power source (normal, emergency, UPS?)				
Electrical power panel location.				
Electrical power panel no.				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
05.01 POWER SUPPLY AND BATTERIES

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Name and Location	IP Address (or state DHCP)	MAC Address	Subnet Mask	Switch Name	Switch Port
NIC					

Parameters

Descriptive Parameters	Information	Contractor Confirmation	Owner FAT
Electrical power source (normal, emergency, UPS)			
Electrical power panel location.			
Electrical power panel number			
Electrical power panel breaker number			
Batteries, quantity			
Batteries nameplate size, volts			
Batteries, nameplate capacity, ampere-hours			
Distribution board 1 model number			
Distribution board 2 model number			
Distribution board 3 model number			

Measurements

Quantitative Parameters	Contractor Test Value	Units	Owner FAT
Power supply output measured voltage		volts	
Battery # 1 dynamic test, duration		seconds	
Battery # 1 dynamic test, lowest measured voltage		volts	
Battery # 2 dynamic test, duration		seconds	
Battery # 2 dynamic test, lowest measured voltage		volts	
Battery # 3 dynamic test, duration		seconds	
Battery # 3 dynamic test, lowest measured voltage		volts	
Battery # 4 dynamic test, duration		seconds	
Battery # 4 dynamic test, lowest measured voltage		volts	

Observations

YES/NO Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Connections are secure when wires are tugged				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Battery install date within 90 days of test date				
Printed label with install date on each battery				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
05.02 UNINTERRUPTIBLE POWER SUPPLY (UPS)

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Parameters

Descriptive Parameters	Information	Contractor Confirmation	Owner FAT
Electrical power source (normal, emergency)			
Electrical power panel location			
Electrical power panel number			
Electrical power panel breaker number			
Dedicated ground connected to			
Batteries, quantity			
Batteries nameplate size, volts			
Batteries, nameplate capacity, ampere-hours			
Battery # 1 manufacturer date stamp			
Battery # 2 manufacturer date stamp			
Battery # 3 manufacturer date stamp			
Battery # 4 manufacturer date stamp			

Measurements

Quantitative Parameters	Contractor Test Value	Units	Owner FAT
Measured input voltage		volts	
Measured output voltage, design load		volts	
Measured output voltage, load removed		volts	
Measured output voltage, design load, input disconnected		volts	
Measured output frequency, design load, input disconnected		hertz	
Measured load		kva	
Measured starting surge		kva	
Battery # 1 dynamic test, duration		seconds	
Battery # 1 dynamic test, lowest measured voltage		volts	
Battery # 2 dynamic test, duration		seconds	
Battery # 2 dynamic test, lowest measured voltage		volts	
Battery # 3 dynamic test, duration		seconds	
Battery # 3 dynamic test, lowest measured voltage		volts	
Battery # 4 dynamic test, duration		seconds	
Battery # 4 dynamic test, lowest measured voltage		volts	

- continued -

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
05.02 UNINTERRUPTIBLE POWER SUPPLY (UPS), continued

Observations

YES/NO Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Connections are secure when wires are tugged				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Dedicated input disconnect switch				
Dedicated input disconnect switch location labeled				
Dedicated external bypass switch				
Dedicated ground connection installed				
Alarm created for low output voltage				
Alarm created for high output voltage				
Alarm created for low battery voltage				
Alarm created for loss of input power source (disconnected)				
Battery # 1 install date within 90 days of test date				
Battery # 2 install date within 90 days of test date				
Battery # 3 install date within 90 days of test date				
Battery # 4 install date within 90 days of test date				
Printed label with install date on each battery				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
05.03 STANDBY POWER GENERATOR AND TRANSFER SWITCH

Identity

Detail	Point No.	System Address	Campus	Building	Floor

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Measured output voltage, design load	volts		
Measured output voltage, load removed	volts		
Measured output current, design load	amps		
Measured output frequency, design load	hertz		
Battery # 1 dynamic test, duration	seconds		
Battery # 1 dynamic test, lowest measured voltage	volts		
Time to transfer load to standby power	seconds		

Observations

"YES/NO" Parameters	Contractor Test check (□) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging complies with drawings				
Devices are appropriate per drawings				
Tamper-resistant screws installed				
Battery stamped charge date within 90 days of test date				
Dedicated automatic transfer switch				
Dedicated input disconnect switch				
Dedicated input disconnect switch location labeled				
Dedicated external bypass switch				
Dedicated ground connection installed				
Alarm created for low output voltage				
Alarm created for high output voltage				
Alarm created for low battery voltage				
Alarm created for loss of input power source (disconnected)				
"Descriptive" Parameters	enter appropriate value			
Electrical power source				
Electrical power panel location.				
Electrical power panel no.				
Electrical power panel breaker no.				
Battery nameplate size, volts				
Battery, nameplate capacity, ampere-hours				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
07.01 SERVERS AND DOMAIN CONTROLLERS

Identity

Device	No.	System Address	Campus		Building	Floor
Name and Location		IP Address (or state DHCP)	MAC Address	Subnet Mask	Switch Name	Switch Port

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Application installed limits			

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging (& matching field labeling) complies with drawings				
Devices are appropriate per drawings				
System has appropriate power				
System is mounted as designed and is appropriate				
Active directory installed with organizational units				
Connectivity and operability to and for all defined devices				
All default passwords removed and replaced appropriately				
Basic security structure of OS and Application implemented				
Verify that unnecessary IIS components are disabled				
Verify no device manager conflicts				
Verify all event viewer entries are resolved				
"Comment" Parameters	enter appropriate value			
OS version and patch level				
OS client licenses installed				
RDBMS version and patch level				
RDBMS client licenses installed				
Application version and patch level				
Application licensing parameters installed				
List Other Programs -				
List Other Programs -				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
07.02 SWITCHES

Identity

Device	No.	System Address	Campus		Building	Floor
Name and Location		IP Address (or state DHCP)	MAC Address	Subnet Mask	Switch Name	Switch Port
Model				Software		

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Port Quantities – UTP			
Port Type			
Port Power (PoE, PoE+, High PoE)			
Port Quantities – Fiber			
Port Type			
SFP Fiber interface cards installed – Count & Type			
SFP Fiber interface cards installed – Count & Type			

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging (& matching field labeling) complies with drawings				
Devices are appropriate per drawings				
System has appropriate power				
System is mounted as designed and is appropriate				
No error lights or codes present				
"Comment" Parameters	enter appropriate value			

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
07.03 FIREWALL

Identity

Device	No.	System Address	Campus		Building	Floor
Name and Location		IP Address (or state DHCP)	MAC Address	Subnet Mask	Switch Name	Switch Port

Measurements

Quantitative Parameters	Units	Contractor Test	Owner FAT
Application installed limits			

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging (& matching field labeling) complies with drawings				
Devices are appropriate per drawings				
System has appropriate power				
System is mounted as designed and is appropriate				
Rules installed controlling services and ports				
Connectivity and operability to and for all defined devices				
All default passwords removed and replaced appropriately				
Basic security structure of OS and Application implemented				
Test against rules, showing that only expected traffic is allowed				
Verify logs show no discrepancies or vulnerabilities				
Live port scans show no unexpected open ports				
Perimeter scan done and clean from exterior source				
"Comment" Parameters	enter appropriate value			
OS version and patch level				
OS client licenses installed				
Application version and patch level				
Application licensing parameters installed				
List Other Programs -				
List Other Programs -				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECURITY TESTING
07.04 WORKSTATIONS

Identity

Device	No.	System Address	Campus		Building	Floor
Name and Location		IP Address (or state DHCP)	MAC Address	Subnet Mask	Switch Name	Switch Port

Measurements

Quantitative Parameters	Units and Definition Values	Contractor Test	Owner FAT
Workstation Processor & Memory			
Hard Disk Definition			
Monitor 1			
Monitor 2			

Observations

"YES/NO" Parameters	Contractor Test check (✓) appropriate box			Owner FAT Verify
	YES	NO	N/A	
Workmanship is neat & clean				
Wire tagging (& matching field labeling) complies with drawings				
Devices are appropriate per drawings				
System has appropriate power				
System is mounted as designed and is appropriate				
Connectivity and operability to and for all defined devices				
All default passwords removed and replaced appropriately				
Basic security structure of OS and Application implemented				
Verify logs show no discrepancies or vulnerabilities				
Live port scans show no unexpected open ports				
Perimeter scan done and clean from exterior source				
"Comment" Parameters	enter appropriate value			
OS version and patch level				
OS client licenses installed				
Application version and patch level				
Application licensing parameters installed				
Application version and patch level				
Application licensing parameters installed				

Remarks

Contractors Test		Owner's Final Acceptance Test	
Contractor Printed Name		Owner Printed Name	
Contractor Signature	Date	Owner Representative Signature	Date

SECTION 285031

EMERGENCY CALL STATION

TABLE OF CONTENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included

1. The scope includes the District's Laney, Alameda, Merritt, and Berkeley campuses. Each of the campuses has existing emergency phones located around the campuses which call the Alameda County Sheriff's Dispatch located at 333 East 8th Street, Oakland, CA.

2. There are five known types of stations; interior desk mounted master station, interior wall mounted, outdoor wall mounted, outdoor pole mounted, and outdoor pole mounted with solar power and cellular communication. Other than the solar station, all of the exterior stations have 120VAC power for the lights and transformer and a dedicated phone line homerun to the MPOE room for that campus. All existing emergency phones are to be replaced with new IP stations.

3. Furnish, install, test, and make fully operational at locations shown, the specified equipment to provide a new fully functional IP based emergency call intercom system.

4. Furnish and install mounts for new intercom stations at locations shown on the Drawings.

5. Replace the existing Emergency Phones with new IP based Emergency Call Stations that will alarm when not functional or tampered with.

6. Provide an interface with the existing Blackboard Connect Emergency Notification System so audio announcements can be made over the Emergency Call Stations.

7. Provide integration between the new Stentofon Emergency Call System and the existing Lenel OnGuard Access Control System to allow for call audit trail, and station location on graphical maps.

8. Provide integration between the existing Lenel OnGuard Access Control System and the existing OnSSi Ocularis Video System to allow for automatic video pop-up on alarm.

9. Provide a resilient architecture to remain operational in power outages.

    a. In order to keep all of the IP/PoE Emergency stations on-line during a power outage, the system architecture has been designed so that each campus will have a primary point of termination, referred to as the Campus MPOE. This does not have to be at the MPOE, but is just a conceptual location.

    b. Station cabling

        1) Stations that are located within a segment, 328’ (100 meters), will reuse the existing conduit, if possible, with a new OSP CAT6 cable to the Campus MPOE.

        2) Stations that are more than a segment, but less than 1,500’ (457 meters) away from the Campus MPOE, shall terminate at specified Campus IDF.

    c. The Campus MPOE will have a 48VDC, PoE+ Switch, with battery back-up, which is connected to the PCCD WAN via fiber. Each campus is estimated to have two or three Campus IDF locations. These will also have a 48VDC, PoE+ Switch that has a fiber connection to, and is powered from power supplies located in, the Campus MPOE. The 48-VDC power supplies will have a minimum of 24-hours battery backup. This architecture allows us to power all of the campus Emergency Call Stations from a single location, so if/when generator E-power becomes available, it can be implemented at a single point. This eliminates the need to have battery back-ups located at each of the field stations, at each MDF/IDF switch, and will lower the TCO and maintenance costs substantially.

    d. The Campus MPOE and IDF locations will also have Fiber LIUs, Patch Panels, and Ethernet Extenders to reach those stations over one segment from the PoE switch. These extenders are powered from the PoE and can run up to 1,500’.

10. When power is lost, the stations will continue to function until the batteries die, however the blue strobes will not work without their local power. This is how they function in the current design.

11. All of the exterior stations and stations that are routed through outdoor conduit are to have new OSP (outside plant rated) CAT6 cable pulled to them. All existing cable is to be removed.

12. Two master stations are intended to be located at the Sherriff 911 Dispatch center across from Laney Campus.

    a. Each station will indicate the calling station number, description location, and station status. Any station that goes off line or is tampered with will show up on the display.

b. In the event that the local Sherriff 911 Dispatch is either down or unable to answer calls from the Emergency Call Stations, the calls from the Alameda, Laney, and Merritt campuses will automatically roll-over to a dedicated POTS line that will call the County Sherriff 911 Dispatch center. The Berkeley campus will always call the Berkeley Police Department Dispatch center.

c. When calls are rolled over, a prerecorded station location identifier will be announced when the call is answered.

13. The Emergency Call System headend is to be located at the District Data Center in a District provided rack on existing emergency generator power.

14. The Emergency Call Stations recording server is to be located at the District Data Center in a District provided rack on existing emergency generator power.

a. All recorded calls will be accessible from the Sherriff 911 Dispatch center on their local computer for investigations.

b. Provide a minimum of 30-days of audio retention.

B. Work included, but not specified under other sections

1. Section 280001 - Security General Requirements

2. Section 280501 - Security Wiring and Conduit

C. Related Work

1. Section 280801 - Security Testing

D. Work By Others

1. None.

1.02 BASIC DEFINITIONS

A. Abbreviations:

1. ICS: Intercom System

2. OSP: Outside Plant

3. PoE: Power Over Ethernet

4. VOIP: Voice Over Internet Protocol

1.03 SUBMITTALS

A. Provide the submittals called for in SECTION 280001, SECURITY GENERAL REQUIREMENTS.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The emergency call system design is based on the Stentofon Alphacom XE1 IP based system with the Turbine TCIS-2 vandal resistant, IP/PoE VOIP call stations.

1. Provide card with 4 POTS connections for roll over to County 911 Dispatch

2. Provide a redundant Alphacom server with associated license

B. All existing Code Blue steel enclosures are to be replaced with new Talk-A-Phone enclosures.

1. Emergency Towers are based on the ETP-MT/R style tower

2. Interior Wall enclosures are based on the ETP-SMH style enclosure

3. Exterior Wall enclosures are based on the ETP-WM enclosure

C. Acceptable manufacturers:

1. Stentofon

2. Talk-A-Phone

3. Altronix

D. Refer to plan set for specific part numbers.

E. All emergency call stations are to have built-in amplifier adequate to be used for emergency broadcast and announcements. The stations are to automatically have one listen volume, that is configurable, and another volume for broadcast volume.

2.02 SPARE PARTS

A. Include five spare emergency call stations.

B. Include one of all major components that may go bad during the first 3-years in which they are not readily available within the same day. This may include one set of the Ethernet extenders, surge protectors, etc.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

A. This is a complete installation. All electrical work, conduit, trenching, concrete, network, cabling, mounting, terminations are included in this scope of work.

B. It is expected that the existing conduit may be reused and should be priced accordingly.

1. Provide a broken out cost per 1’ for trenching with new 2” conduit installed for any locations in which the existing conduit may not be used. See Bid Response Forms.

2. For new device locations, include the conduit as part of the base bid.

3. No existing cable is to be used or left behind.

C. For existing pole locations that are to be changed to new wall mounted locations, do the following:

1. Saw cut the concrete between the existing pole and the new building location

2. Install new Christy boxes for Data and Power at existing pole location

3. Extend the Data and Power conduits to the new wall mounted locations

    a. Match site standards

    b. Paint any exposed conduit to match building surface

3.02 SYSTEM TESTING

A. Functionally test the completed Intercom system to insure that all components of the system are operating properly in accordance with the manufacturer's criteria.

B. Demonstrate functionality between the Intercom system, Access Control System, Video System, and Emergency Notification System.

3.03 WARRANTY SERVICE

A. In accordance with the provisions stated in SECTION 280001, SECURITY GENERAL REQUIREMENTS, provide a 3-year guarantee on all equipment installed under this contract.

B. Make available fully qualified repair and maintenance personnel on a 24-hour a day basis, 365 days a year, with 4-hour maximum response time for service during normal business hours.

C. Provide normal service at no additional cost Owner during normal business hours as defined in 280001, SECURITY GENERAL REQUIREMENTS.

1. Normal service is defined as minor repairs and/or adjustments or any service that the system requires in order to be fully functional that does not fall into the category of Emergency Service, at the option of Owner.

2. Normal service is additionally defined as being provided on a same-day basis. Same-day service is required for service calls requested by phone before 1:00 p.m. on a weekday and on the next working day if requested after 1:00 p.m. on a weekday.

END OF SECTION 285031